

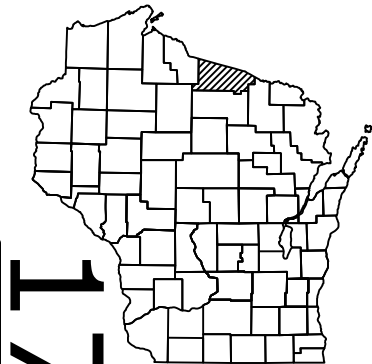
RHI
PROJECT ID: 1170-22-70
WITH: N/A
COUNTY: VILAS

SEPTEMBER 2026

ORDER OF SHEETS

Section No.	1	Title
Section No.	2	Typical Sections and Details (Includes Erosion Control Plan)
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 = 142



DESIGN DESIGNATION

A.A.D.T.	2027	=	2,410
A.A.D.T.	2047	=	2,410
D.H.V.	2047	=	216
D.D.		=	60/40
T.		=	13.80%
DESIGN SPEED		=	60 MPH
ESALS		=	820,000

CONVENTIONAL SYMBOLS

PLAN

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

PROFILE

GRADE LINE	
ORIGINAL GROUND	
MARSH OR ROCK PROFILE (To be noted as such)	
SPECIAL DITCH	
GRADE ELEVATION	
CULVERT (Profile View)	
UTILITIES	
ELECTRIC	
FIBER OPTIC	
GAS	
SANITARY SEWER	
STORM SEWER	
TELEPHONE	
WATER	
UTILITY PEDESTAL	
POWER POLE	
TELEPHONE POLE	

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

MINOCQUA - MANITOWISH

MANITOWISH RIVER BRIDGE, B-63-027

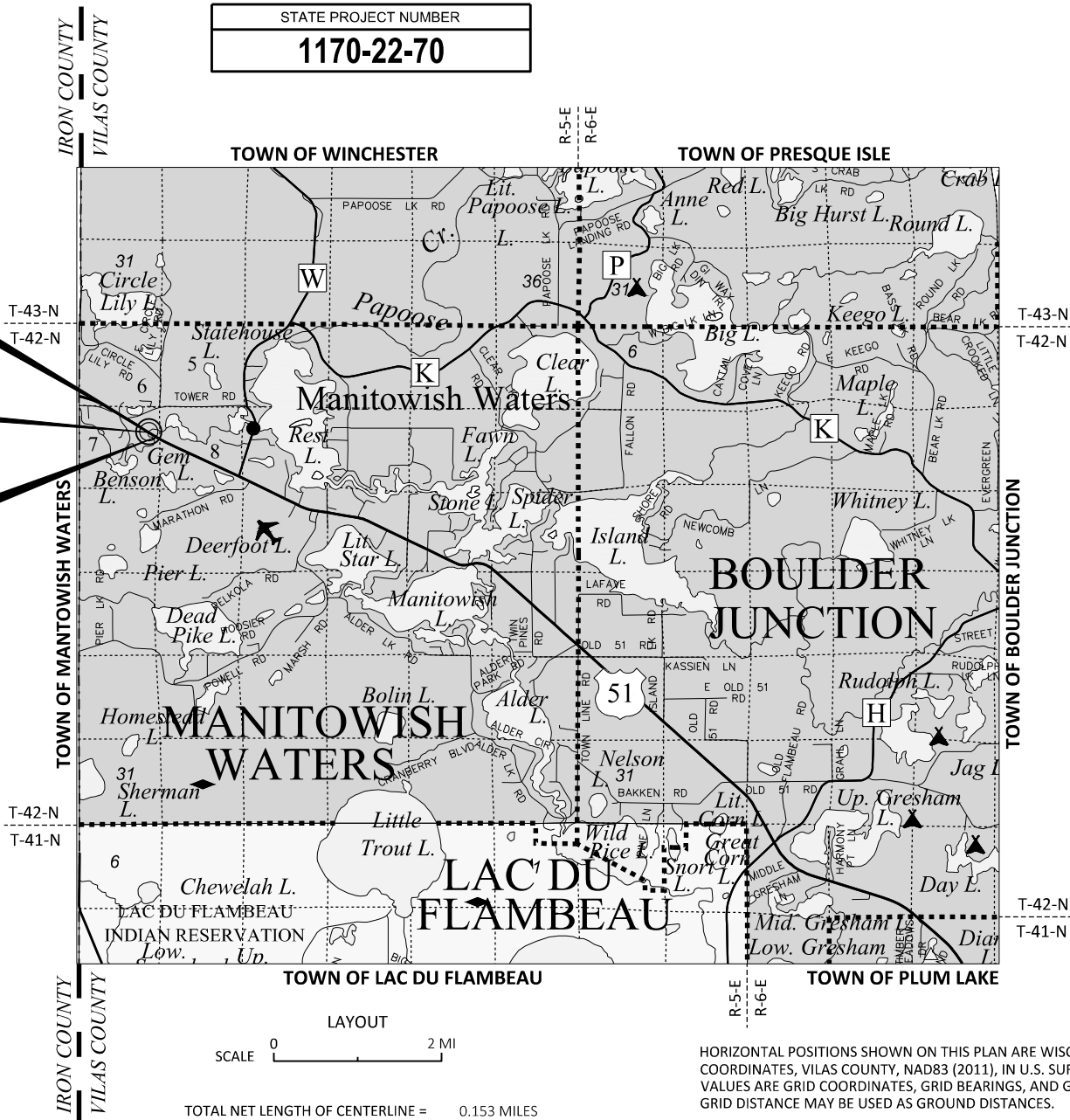
USH 51
VILAS COUNTY

STATE PROJECT NUMBER
1170-22-70

END PROJECT
STA. 100+10

STRUCTURE B-63-027

BEGIN PROJECT
STA. 92+00
Y = 186,831.91
X = 334,130.40



LAYOUT
SCALE 0 2 MI
TOTAL NET LENGTH OF CENTERLINE = 0.153 MILES

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

ELEVATIONS SHOWN ON THIS PLAN ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988, NAVD88 (2012).

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
1170-22-70		

ORIGINAL PLANS PREPARED BY

JEWELL
associates engineers, inc
Engineers - Architects - Surveyors



STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY	
Surveyor	JEWELL ASSOCIATES ENGINEERS, INC.
Designer	JEWELL ASSOCIATES ENGINEERS, INC.
Project Manager	MARJUEAN HOPPE, P.E.
Regional Examiner	FRED SCHUNKE, P.E.
Regional Supervisor	DANIEL ERVA, P.E.

APPROVED FOR THE DEPARTMENT
DATE: April 20, 2026 *Marjuean Hoppe*
(Signature)

E

GENERAL NOTES

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

ASPHALTIC SURFACE QUANTITIES WERE CALCULATED USING 112 LB/SY/IN.

CURB & GUTTER ELEVATIONS ARE GIVEN TO THE FLANGE LINE UNLESS OTHERWISE NOTED.

CURVE DATA IS BASED ON THE ARC DEFINITION.

INSTALL SAFETY EDGES ON ALL MAINLINE PAVEMENTS.

CONTACTS

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WISDOT PROJECT MANAGER
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RHINELANDER, WI 54501
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PH: (715) 604-2021
EMAIL: w5dale@hotmail.com

DESIGN CONSULTANT:
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SPRING GREEN, WI 53588
ATTN: ELLERY SCHAFFER
PH: (608) 459-6027
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COMMUNICATION LINE
BRIGHTSPEED OF NORTHERN WISCONSIN, LLC
ATTN: BEN BAKER
425 ELLINGSON AVE
HAWKINS, WI 54530
PH: (980) 376-1560
EMAIL: ben.baker@brightspeed.com
relocations@brightspeed.com

DIGGERS

HOTLINE

Dial

811

or (800)242-8511

www.DiggersHotline.com

LIST OF STANDARD ABBREVIATIONS

ABUT	Abutment	INV	Invert	RDWY	Roadway
AC	Acre	IP	Iron Pipe or Pin	SALV	Salvaged
AGG	Aggregate	IRS	Iron Rod Set	SAN S	Sanitary Sewer
AH	Ahead	JT	Joint	SEC	Section
<	Angle	JCT	Junction	SHLDR	Shoulder
ASPH	Asphaltic	LHF	Left-Hand Forward	SHR	Shrinkage
AVG	Average	L	Length of Curve	SW	Sidewalk
ADT	Average Daily Traffic	LIN FT	Linear Foot	S	South
BAD	Base Aggregate Dense	or LF		SQ	Square
BK	Back	LC	Long Chord of Curve	SF or SQ FT	Square Feet
BF	Back Face	MH	Manhole	SV or SQ YD	Square Yard
BM	Bench Mark	MB	Mailbox	STD	Standard
BR	Bridge	ML or M/L	Match Line	SDD	Standard Detail Drawings
C or C/L	Center Line	N	North	STH	State Trunk Highways
CC	Center to Center	Y	North Grid Coordinate	STA	Station
C.E.	Commercial Entrance	OD	Outside Diameter	SS	Storm Sewer
CTH	County Trunk Highway	PLE	Permanent Limited Easement	SG	Subgrade
CR	Creek	PT	Point	SE	Superelevation
CR	Crushed	PC	Point of Curvature	SL or S/L	Survey Line
CY or CU YD	Cubic Yard	PI	Point of Intersection	SV	Septic Vent
CP	Culvert Pipe	PRC	Point of Reverse Curvature	T	Tangent
C & G	Curb and Gutter			TEL	Telephone
D	Degree of Curve	PT	Point of Tangency	TEMP	Temporary
DHV	Design Hour Volume	POC	Point On Curve	TI	Temporary Interest
DIA	Diameter	POT	Point on Tangent	TLE	Temporary Limited Easement
E	East	PVC	Polyvinyl Chloride		
X	East Grid Coordinate	PCC	Portland Cement Concrete	t	Ton
ELEC	Electric (al)			T or TN	Town
EL or ELEV	Elevation	LB	Pound	TRANS	Transition
ESALS	Equivalent Single Axle Loads	PSI	Pounds Per Square Inch	TL or T/L	Transit Line
		P.E.	Private Entrance	T	Trucks (percent of)
EBS	Excavation Below Subgrade	R	Radius	TYP	Typical
		RR	Railroad	UNCL	Unclassified
FF	Face to Face	R	Range	UG	Underground Cable
F.E.	Field Entrance	RL or R/L	Reference Line	USH	United States Highway
F	Fill	RP	Reference Point	VAR	Variable
FG	Finished Grade	RCCP	Reinforced Concrete Culvert Pipe	V	Velocity or Design Speed
FL or F/L	Flow Line			VERT	Vertical
FT	Foot	REQD	Required	VC	Vertical Curve
FTG	Footing	RES	Residence or Residential	VOL	Volume
GN	Grid North	RW	Retaining Wall	WM	Water Main
HT	Height	RT	Right	WV	Water Valve
CWT	Hundredweight	RHF	Right-Hand Forward	W	West
HYD	Hydrant	R/W	Right-of-Way	WB	Westbound
INL	Inlet	RD	Road	YD	Yard
ID	Inside Diameter	R	River		

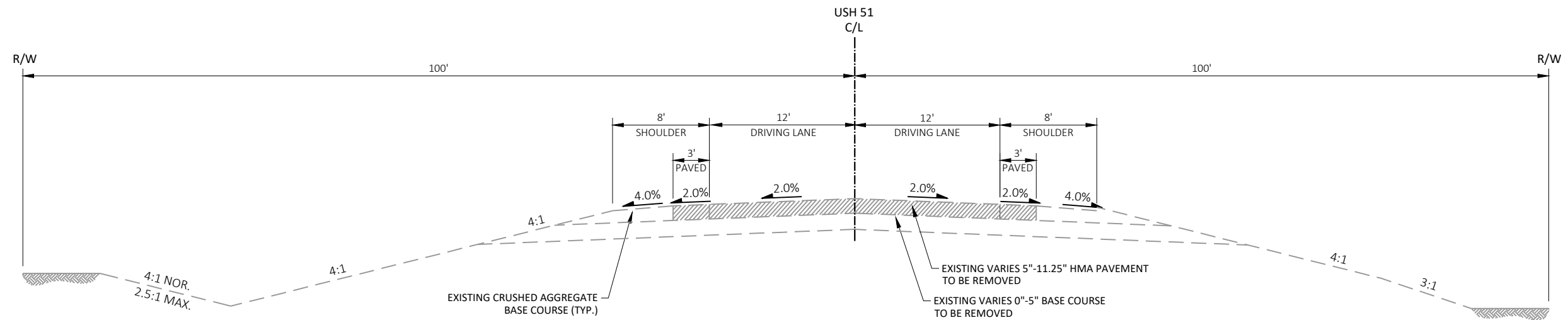
ORDER OF SECTION 2 SHEETS:

- GENERAL NOTES
- PROJECT OVERVIEW
- TYPICAL SECTIONS
- CONSTRUCTION DETAILS
- CONTOUR/GRADING PLAN (BOAT LANDING)
- EROSION CONTROL
- TRAFFIC CONTROL
- ALIGNMENT (INCLUDES PERMANENT SIGNING)

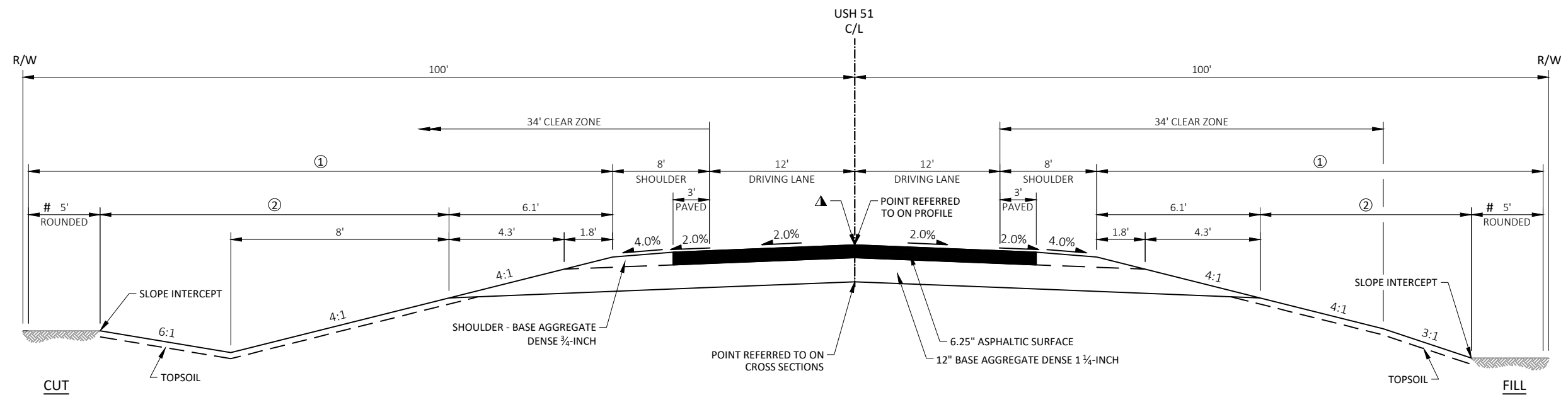
	HYDROLOGIC SOIL GROUP											
	A			B			C			D		
	SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)		
LAND USE	0-2	2-6	6 & OVER	0-2	2-6	6 & OVER	0-2	2-6	6 & OVER	0-2	2-6	6 & OVER
ROW CROPS	.08 .22	.16 .30	.22 .38	.12 .26	.20 .34	.27 .44	.15 .30	.24 .37	.33 .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= 5.49 ACRES
TOTAL AREA EXPECTED TO BE DISTURBED BY CONSTRUCTION ACTIVITIES = 3.34 ACRES



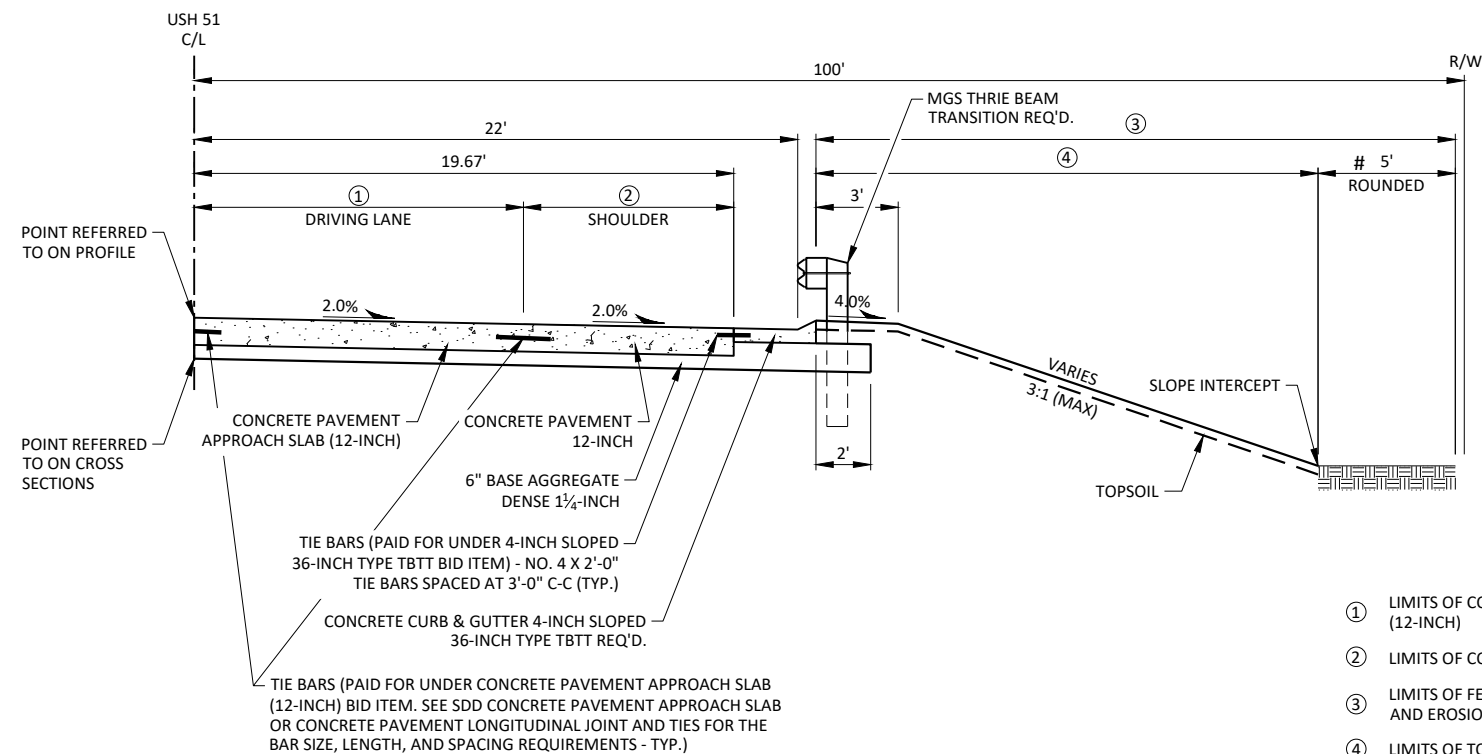
**TYPICAL EXISTING SECTION**

STA. 92+00 - STA. 100+10

**TYPICAL FINISHED SECTION**

STA. 92+00 - STA. 100+10

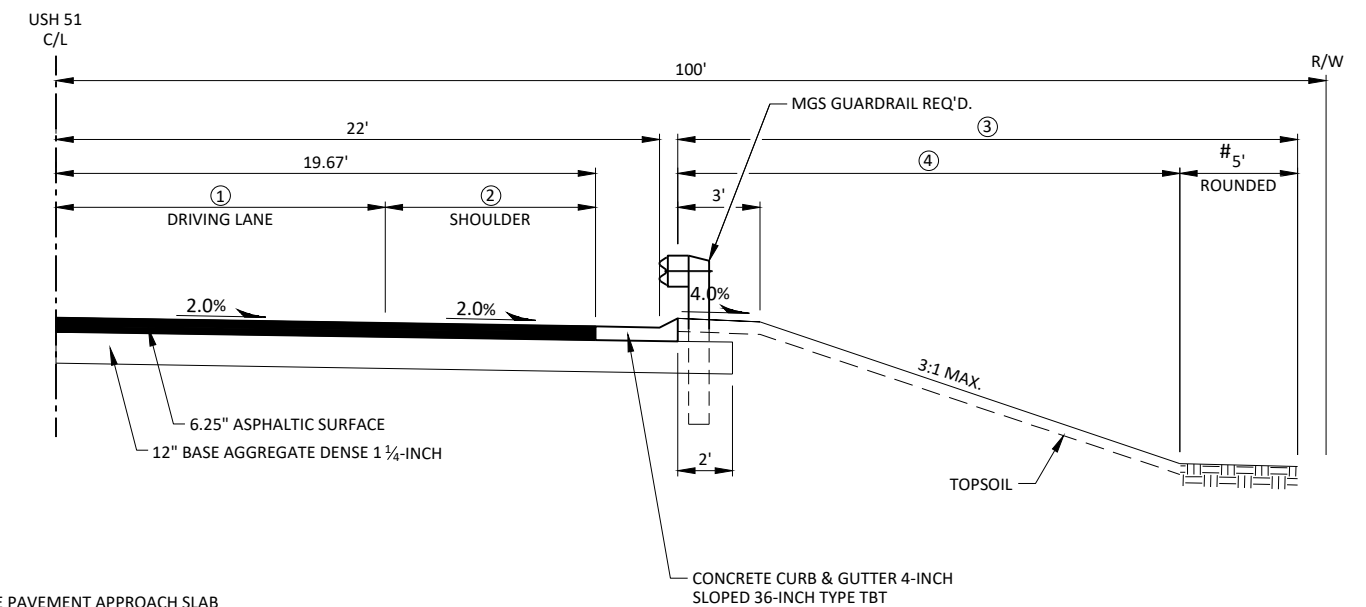
- ① LIMITS OF FERTILIZER TYPE B, SEEDING MIXTURE NO. 30, AND EROSION MAT (AS DIRECTED BY ENGINEER)
- ② LIMITS OF TOPSOIL (AS DIRECTED BY ENGINEER)
- # USE SEEDING MIXTURE NO. 95B IN LIEU OF NO. 30 IN WETLAND AREAS. (SEE MISCELLANEOUS QUANTITIES FOR FURTHER INFORMATION)
- ▲ ASPHALTIC RUMBLE STRIPS, CENTERLINE REQ'D.



TYPICAL FINISHED HALF SECTION

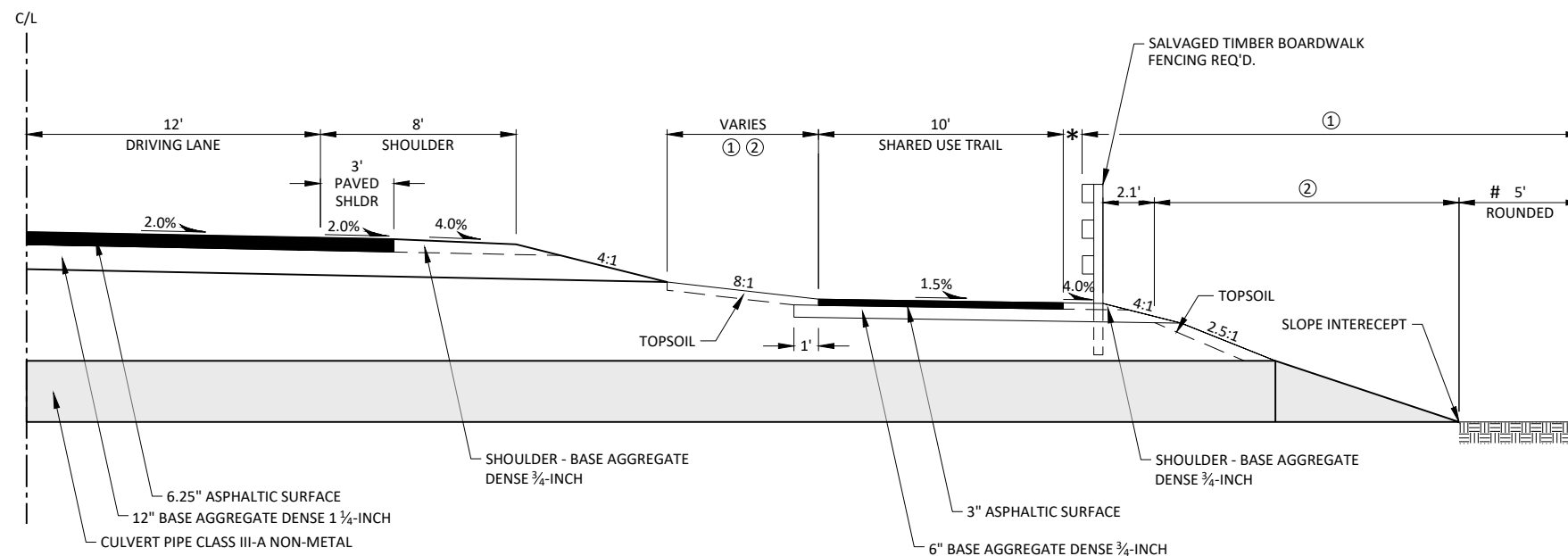
STA. 94+58 - STA. 94+77
STA. 97+33 - STA. 97+52

- ① LIMITS OF CONCRETE PAVEMENT APPROACH SLAB (12-INCH)
 - ② LIMITS OF CONCRETE PAVEMENT 12-INCH
 - ③ LIMITS OF FERTILIZER TYPE B, SEEDING MIXTURE NO. 30, AND EROSION MAT (AS DIRECTED BY ENGINEER)
 - ④ LIMITS OF TOPSOIL (AS DIRECTED BY ENGINEER)
 - # WETLAND AREAS (SEE MISCELLANEOUS QUANTITIES FOR FURTHER INFORMATION)
- USE SEEDING MIXTURE NO. 95B IN LIEU OF NO. 30 IN WETLAND AREAS (SEE MISCELLANEOUS QUANTITIES FOR FURTHER INFORMATION)



TYPICAL FINISHED HALF SECTION

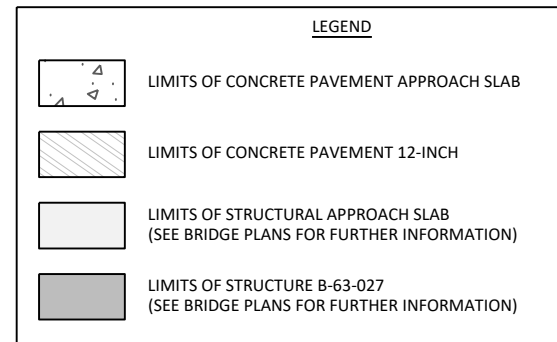
STA. 94+20 - STA. 94+58, LT.
STA. 94+28 - STA. 94+58, RT.
STA. 97+52 - STA. 97+82, LT.
STA. 97+52 - STA. 97+90, RT.



SHARED USE TRAIL AT CULVERT REPLACEMENT TYPICAL SECTION

(STA. 99+29, LT.)

- * MATCH EXISTING - VARIES 1'-2'.
- ① LIMITS OF FERTILIZER TYPE B, SEEDING MIXTURE NO. 30, AND EROSION MAT (AS DIRECTED BY ENGINEER)
- ② LIMITS OF TOPSOIL (AS DIRECTED BY ENGINEER)
- # USE SEEDING MIXTURE NO. 95B IN LIEU OF NO. 30 IN WETLAND AREAS. (SEE EROSION CONTROL PLAN AND MISCELLANEOUS QUANTITIES FOR FURTHER INFORMATION)



TIE BARS (PAID FOR UNDER 4-INCH SLOPED 36-INCH TYPE TBTT
BID ITEM - NO. 4 X 2'-0" TIE BARS SPACED AT 3'-0" C-C (TYP.)

CONCRETE CURB & GUTTER 4-INCH
SLOPED 36-INCH TYPE TBT REQ'D. (TYP.)

CONCRETE CURB & GUTTER 4-INCH
SLOPED 36-INCH TYPE TBTT REQ'D. (TYP.)

END OF SLAB
STA. 94+58.31

END OF SLAB
STA. 94+76.78

END OF DECK
STA. 94+96.78

END OF DECK
STA. 97+13.32

END OF SLAB
STA. 97+33.32

END OF SLAB
STA. 97+51.79

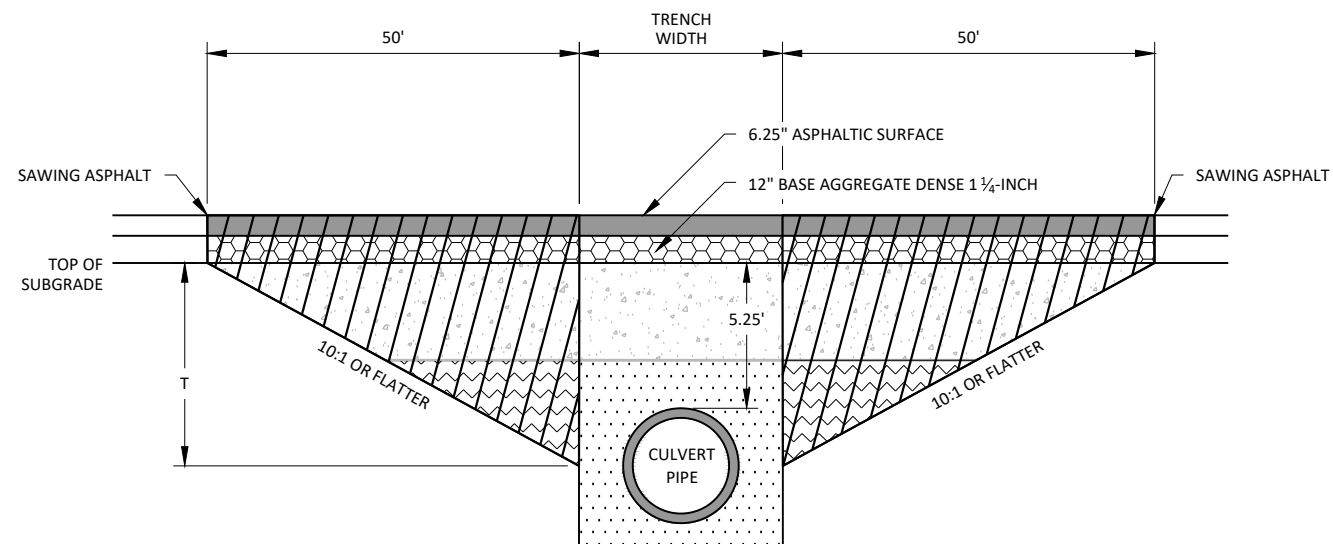
TIE BARS (PAID FOR UNDER CONCRETE PAVEMENT APPROACH SLAB
(12-INCH) BID ITEM. SEE SDD CONCRETE PAVEMENT APPROACH SLAB
OR CONCRETE PAVEMENT LONGITUDINAL JOINT AND TIES
FOR TIE BAR SIZE, LENGTH, AND SPACING REQUIREMENTS (TYP.))

EDGE OF TRAVELED WAY

CONCRETE PAVEMENT APPROACH SLAB.
SEE STANDARD DETAIL DRAWING,
"CONCRETE PAVEMENT APPROACH SLAB" (TYP.)

STRUCTURE B-63-027 REQ'D.

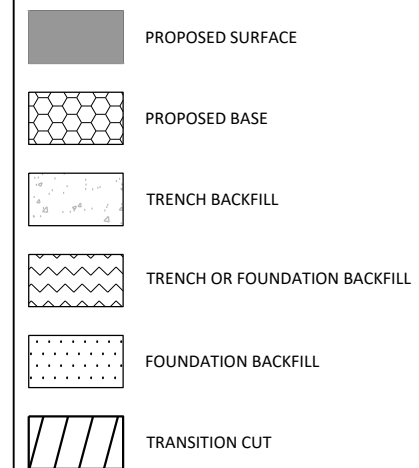
STRUCTURE APPROACH DETAILS



CULVERT PIPE REPLACEMENT DETAIL

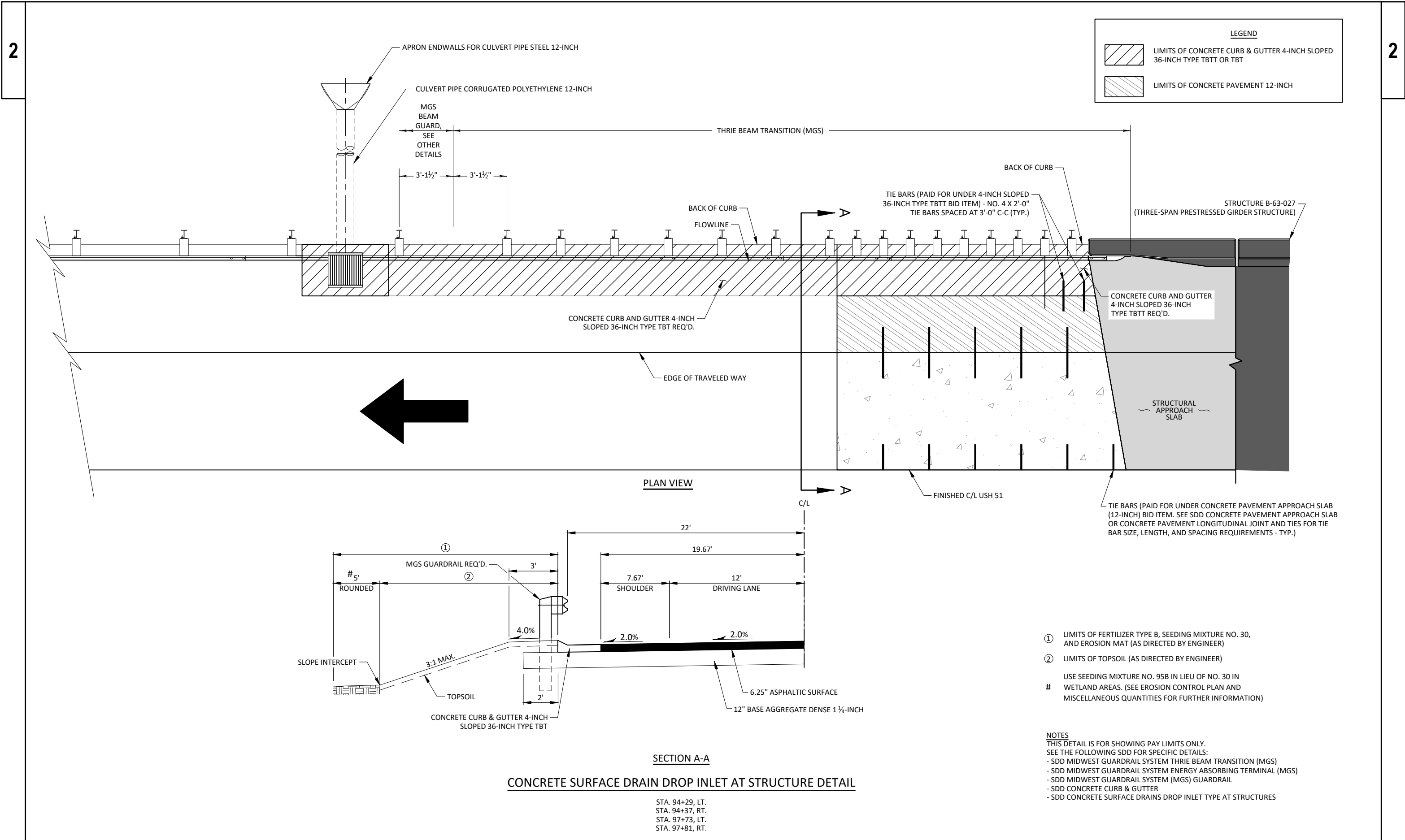
TRANSITION CUT DEPTH (T) = THE LESSER OF DEPTH TO CENTER OF PIPE, OR 5 FT.
DO NOT EXTEND TRANSITION CUT BELOW HORIZONTAL CENTER OF PIPE.

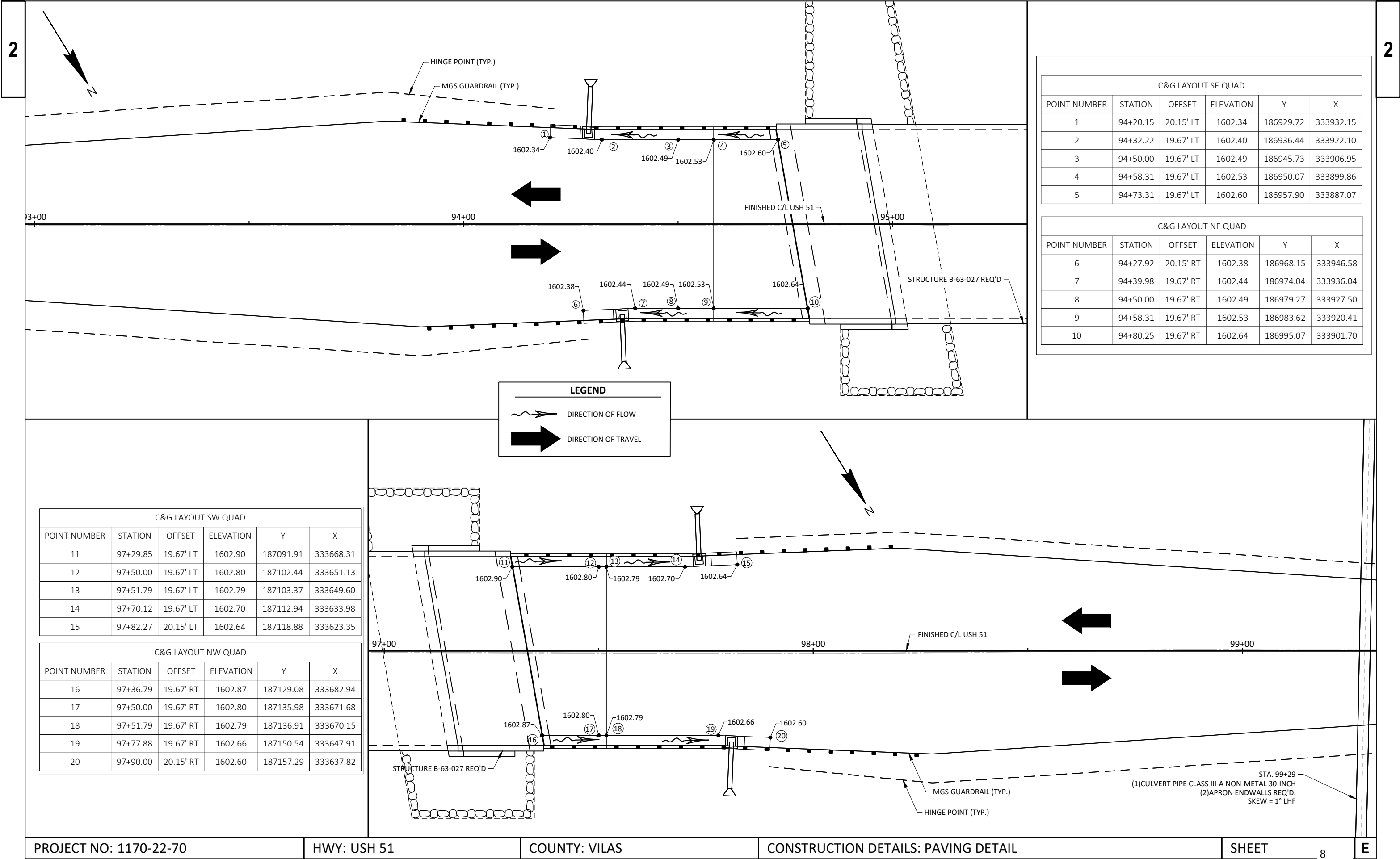
KEY



NOTES

TRANSITION CUT IS PAID AS EXCAVATION COMMON.
TRANSITION CUT WIDTH IS FROM SUBGRADE SHOULDER POINT TO SUBGRADE SHOULDER POINT.
BACKFILL THE TRANSITION CUT AREAS WITH FOUNDATION AND TRENCH BACKFILL AS SPECIFIED IN STANDARD SPEC 520.
PERFORM CULVERT PIPE INSTALLATION BEFORE PAVEMENT APPROACH RECONSTRUCTION.





C&G LAYOUT SE QUAD					
POINT NUMBER	STATION	OFFSET	ELEVATION	Y	X
1	94+20.15	20.15' LT	1602.34	186929.72	333932.15
2	94+32.22	19.67' LT	1602.40	186936.44	333922.10
3	94+50.00	19.67' LT	1602.49	186945.73	333906.95
4	94+58.31	19.67' LT	1602.53	186950.07	333899.86
5	94+73.31	19.67' LT	1602.60	186957.90	333887.07

C&G LAYOUT NE QUAD					
POINT NUMBER	STATION	OFFSET	ELEVATION	Y	X
6	94+27.92	20.15' RT	1602.38	186968.15	333946.58
7	94+39.98	19.67' RT	1602.44	186974.04	333936.04
8	94+50.00	19.67' RT	1602.49	186979.27	333927.50
9	94+58.31	19.67' RT	1602.53	186983.62	333920.41
10	94+80.25	19.67' RT	1602.64	186995.07	333901.70

C&G LAYOUT SW QUAD					
POINT NUMBER	STATION	OFFSET	ELEVATION	Y	X
11	97+29.85	19.67' LT	1602.90	187091.91	333668.31
12	97+50.00	19.67' LT	1602.80	187102.44	333651.13
13	97+51.79	19.67' LT	1602.79	187103.37	333649.60
14	97+70.12	19.67' LT	1602.70	187112.94	333633.98
15	97+82.27	20.15' LT	1602.64	187118.88	333623.35

C&G LAYOUT NW QUAD					
POINT NUMBER	STATION	OFFSET	ELEVATION	Y	X
16	97+36.79	19.67' RT	1602.87	187129.08	333682.94
17	97+50.00	19.67' RT	1602.80	187135.98	333671.68
18	97+51.79	19.67' RT	1602.79	187136.91	333670.15
19	97+77.88	19.67' RT	1602.66	187150.54	333647.91
20	97+90.00	20.15' RT	1602.60	187157.29	333637.82

PROJECT NO: 1170-22-70

HWY: USH 51

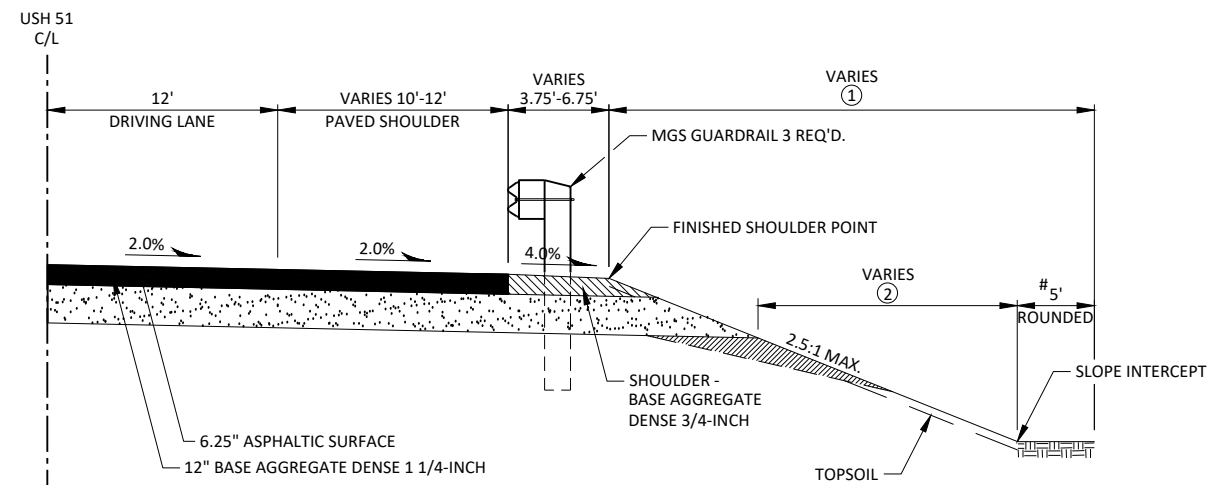
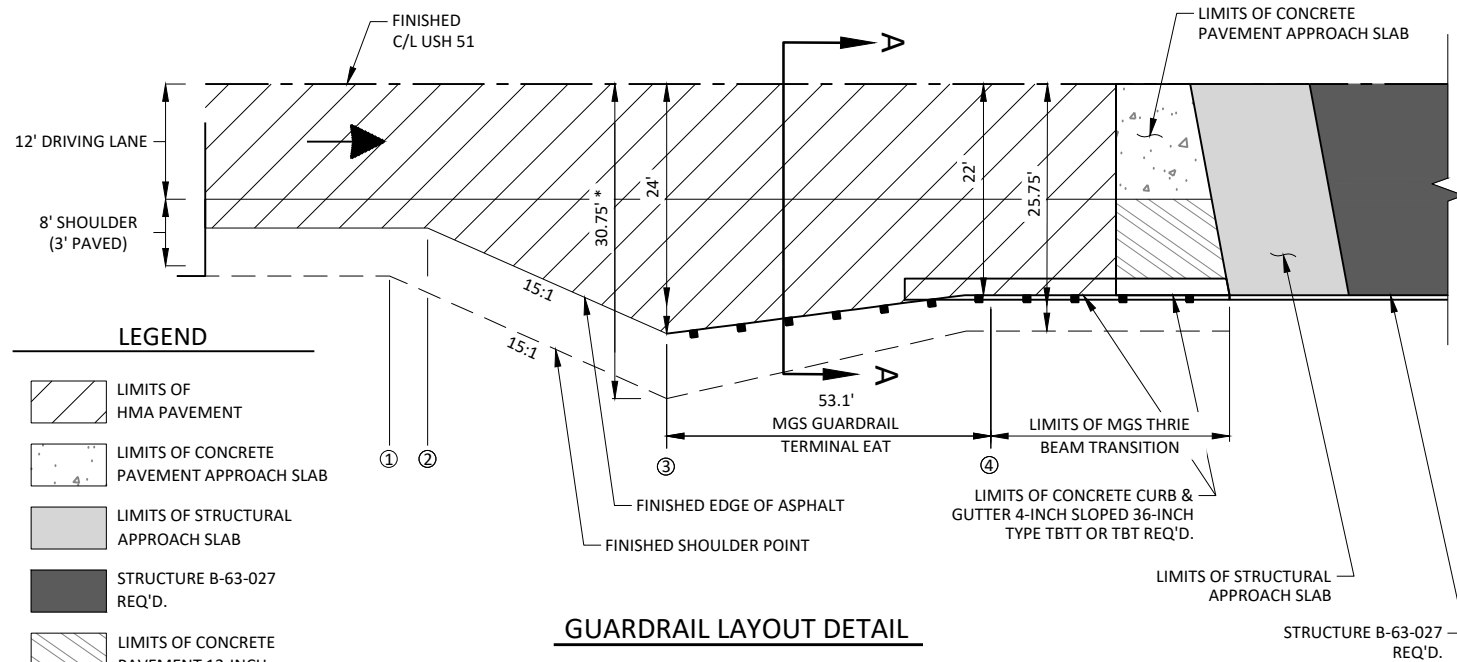
COUNTY: VILAS

CONSTRUCTION DETAILS: PAVING DETAIL

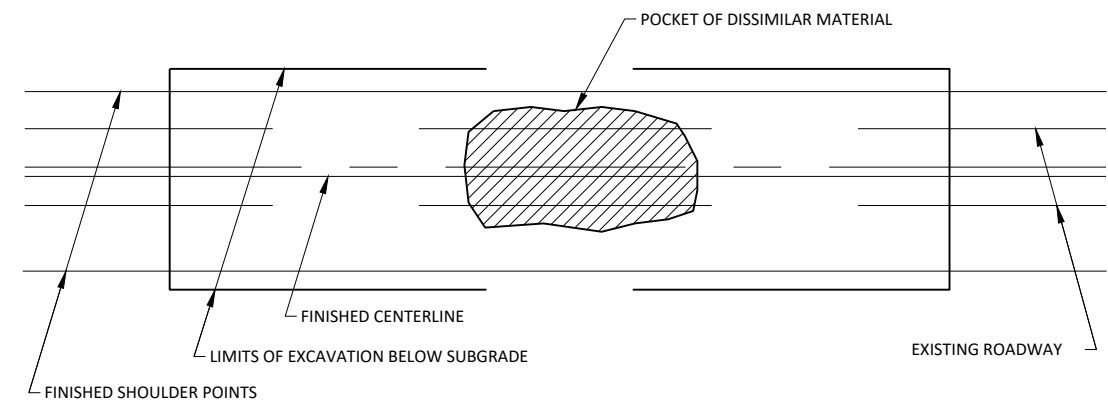
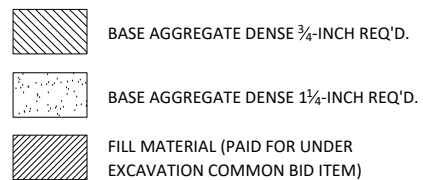
SHEET

8

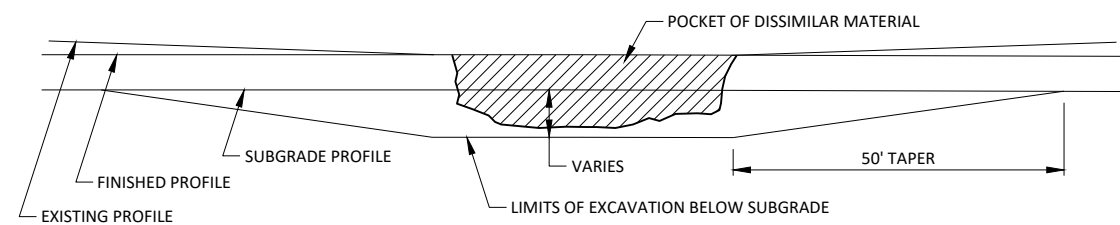
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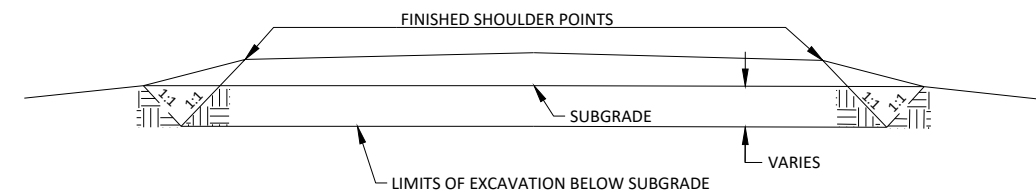
SECTION A-A



PLAN VIEW



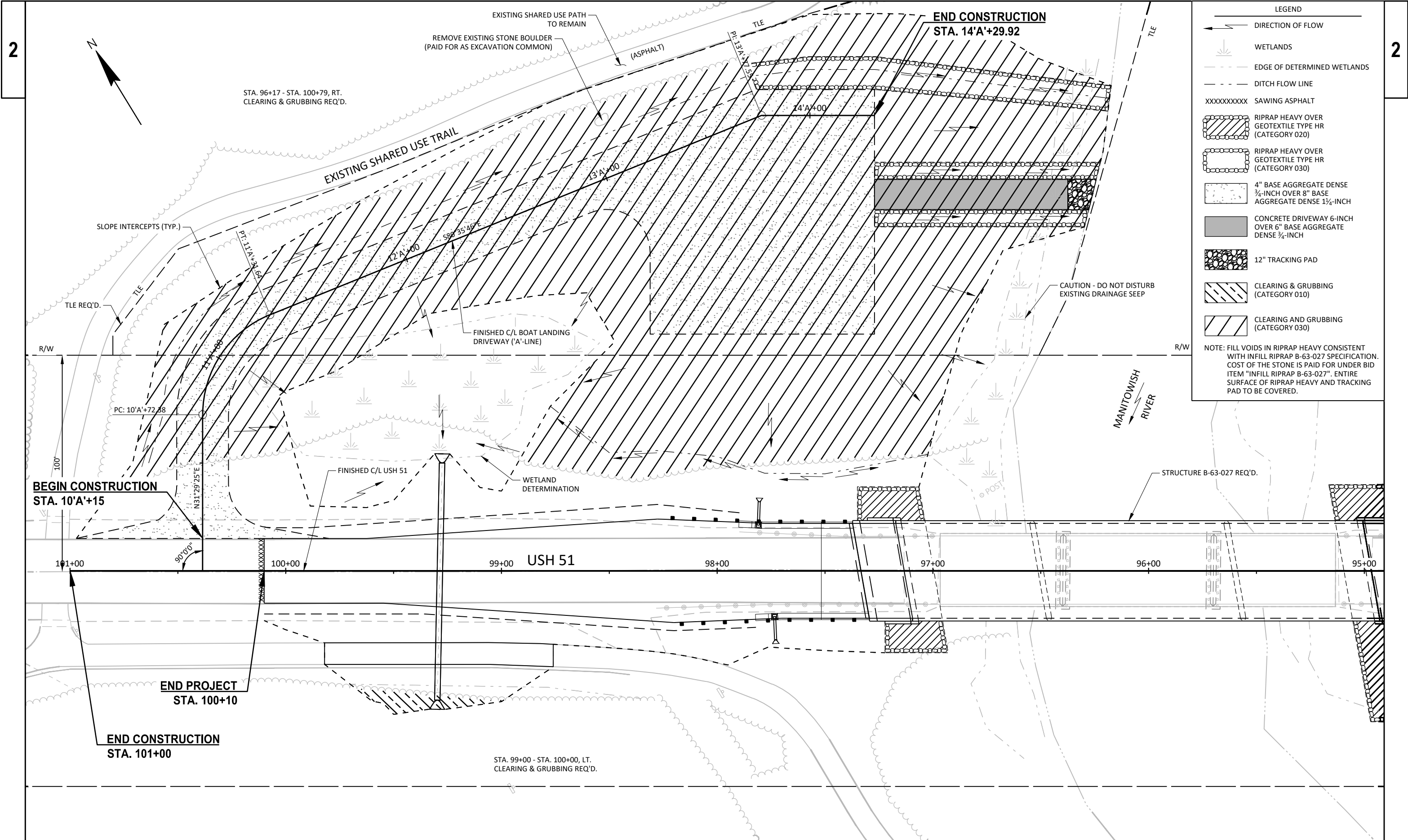
PROFILE VIEW



CROSS SECTION VIEW

1. EXACT LOCATION OF E.B.S. (EXCAVATION BELOW SUBGRADE) SHALL BE DETERMINED BY THE ENGINEER IN THE FIELD.
2. E.B.S. AREA TO BE BACKFILLED WITH MATERIAL ACCEPTABLE TO THE ENGINEER. BACKFILL MUST BE HOMOGENEOUS WITH ADJOINING FILL MATERIAL.
3. THE FILL SECTION WITHIN 100' OF THE MOUTH OF THE CUT MUST BE KEPT 2' BELOW SUBGRADE UNTIL E.B.S. IS COMPLETED. LATERAL LIMITS OF EXCAVATION SHALL BE THE SUBGRADE SHOULDER POINTS.

EXCAVATION BELOW SUBGRADE (E.B.S.) DETAIL



LEGEND

DIRECTION OF FLOW

WETLANDS

EDGE OF DETERMINED WETLANDS

DITCH FLOW LINE

SAWING ASPHALT

RIPRAP HEAVY OVER GEOTEXTILE TYPE HR (CATEGORY 020)

RIPRAP HEAVY OVER GEOTEXTILE TYPE HR (CATEGORY 030)

4" BASE AGGREGATE DENSE 3/4-INCH OVER 8" BASE AGGREGATE DENSE 1 1/4-INCH

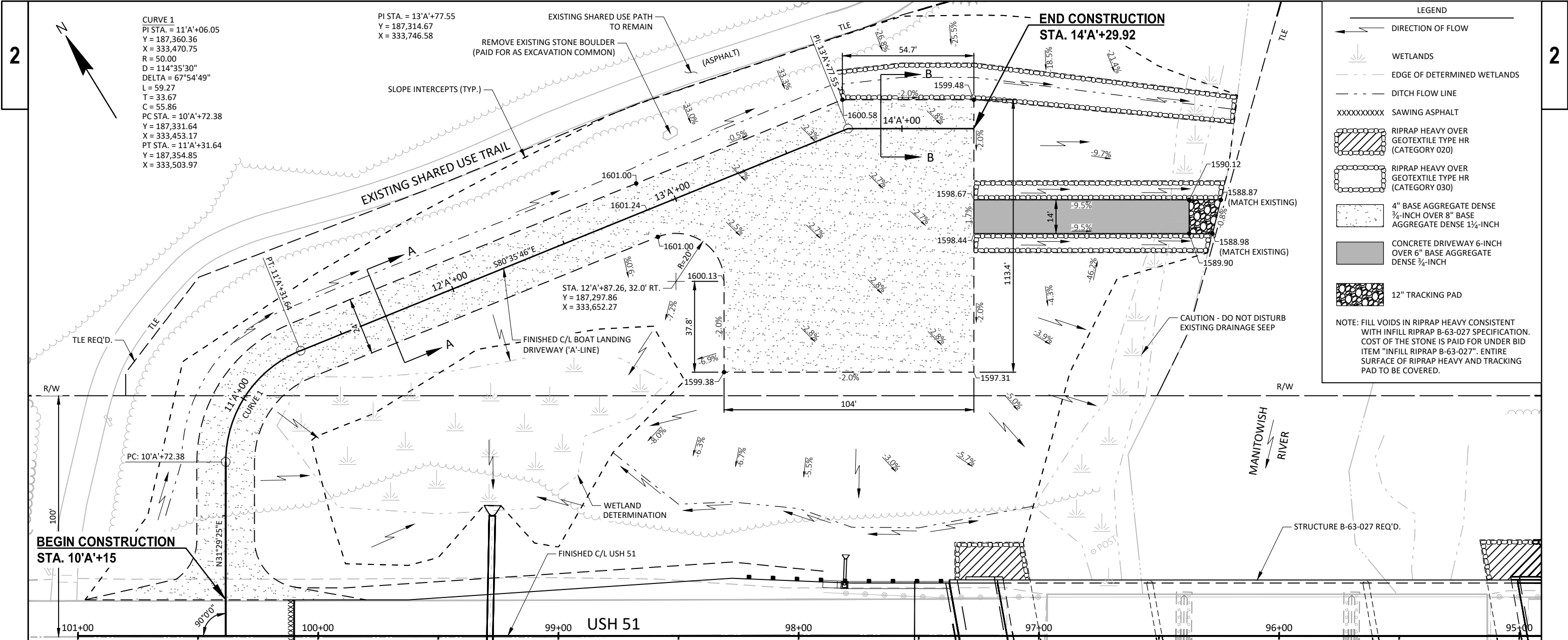
CONCRETE DRIVEWAY 6-INCH OVER 6" BASE AGGREGATE DENSE 3/4-INCH

12" TRACKING PAD

CLEARING & GRUBBING (CATEGORY 010)

CLEARING AND GRUBBING (CATEGORY 030)

NOTE: FILL VOIDS IN RIPRAP HEAVY CONSISTENT WITH INFILL RIPRAP B-63-027 SPECIFICATION. COST OF THE STONE IS PAID FOR UNDER BID ITEM "INFILL RIPRAP B-63-027". ENTIRE SURFACE OF RIPRAP HEAVY AND TRACKING PAD TO BE COVERED.



LEGEND

→ DIRECTION OF FLOW

WETLANDS

EDGE OF DETERMINED WETLANDS

DITCH FLOW LINE

XXXXXXXXXX SAWING ASPHALT

RIPRAP HEAVY OVER GEOTEXTILE TYPE HR (CATEGORY 020)

RIPRAP HEAVY OVER GEOTEXTILE TYPE HR (CATEGORY 030)

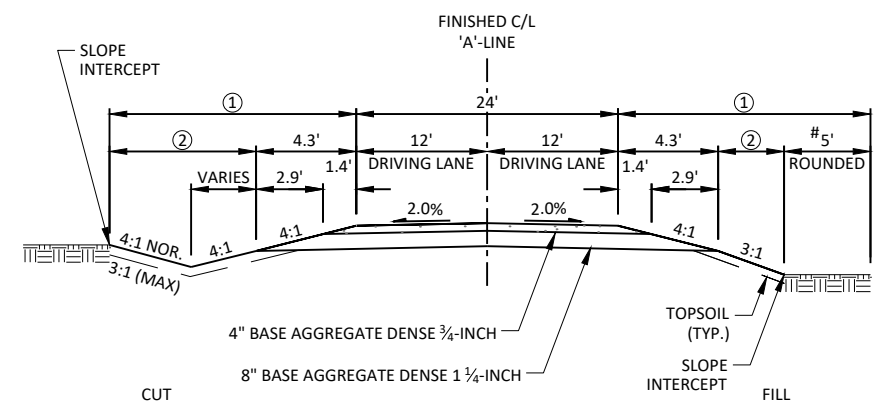
4" BASE AGGREGATE DENSE ¾-INCH OVER 8" BASE AGGREGATE DENSE 1¼-INCH

CONCRETE DRIVEWAY 6-INCH OVER 6" BASE AGGREGATE DENSE ¾-INCH

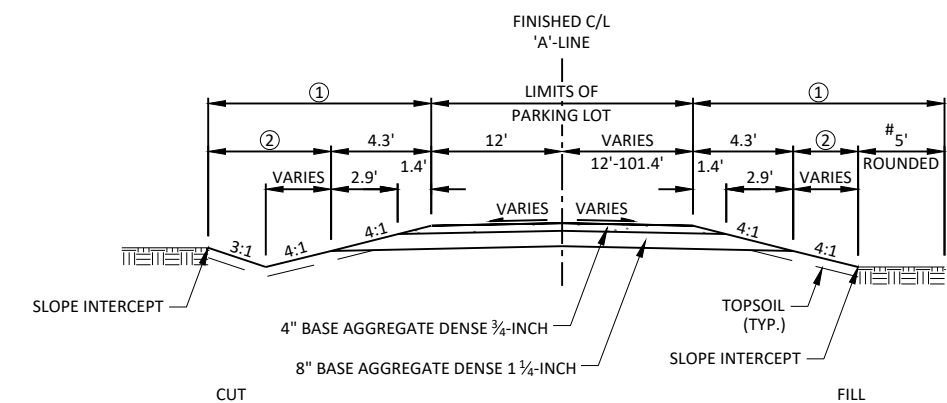
12" TRACKING PAD

NOTE: FILL VOIDS IN RIPRAP HEAVY CONSISTENT WITH INFILL RIPRAP B-63-027 SPECIFICATION. COST OF THE STONE IS PAID FOR UNDER BID ITEM "INFILL RIPRAP B-63-027". ENTIRE SURFACE OF RIPRAP HEAVY AND TRACKING PAD TO BE COVERED.

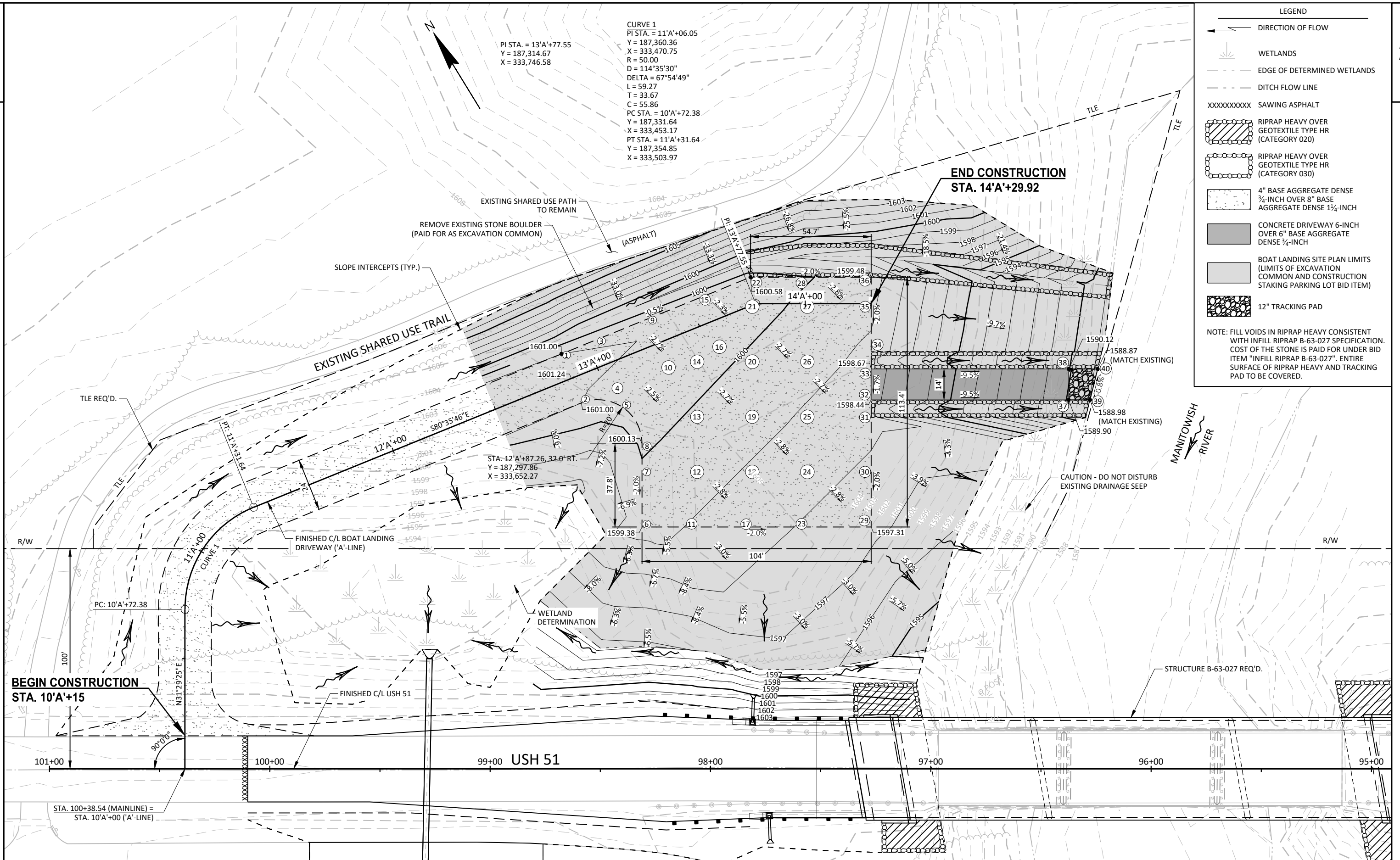
① LIMITS OF FERTILIZER TYPE B & SEEDING MIXTURE NO. 30 (AS DIRECTED BY ENGINEER) ② LIMITS OF EROSION MAT & TOPSOIL (SEE EROSION CONTROL PLANS FOR FURTHER INFORMATION ON EROSION MAT LOCATION) (AS DIRECTED BY ENGINEER) # USE SEEDING MIXTURE NO. 95B IN LIEU OF NO. 30 IN WETLAND AREAS (SEE MISCELLANEOUS QUANTITIES SHEET FOR FURTHER INFORMATION)



SECTION A-A
FINISHED TYPICAL SECTION
(ACCESS DRIVE TO PARKING LOT)

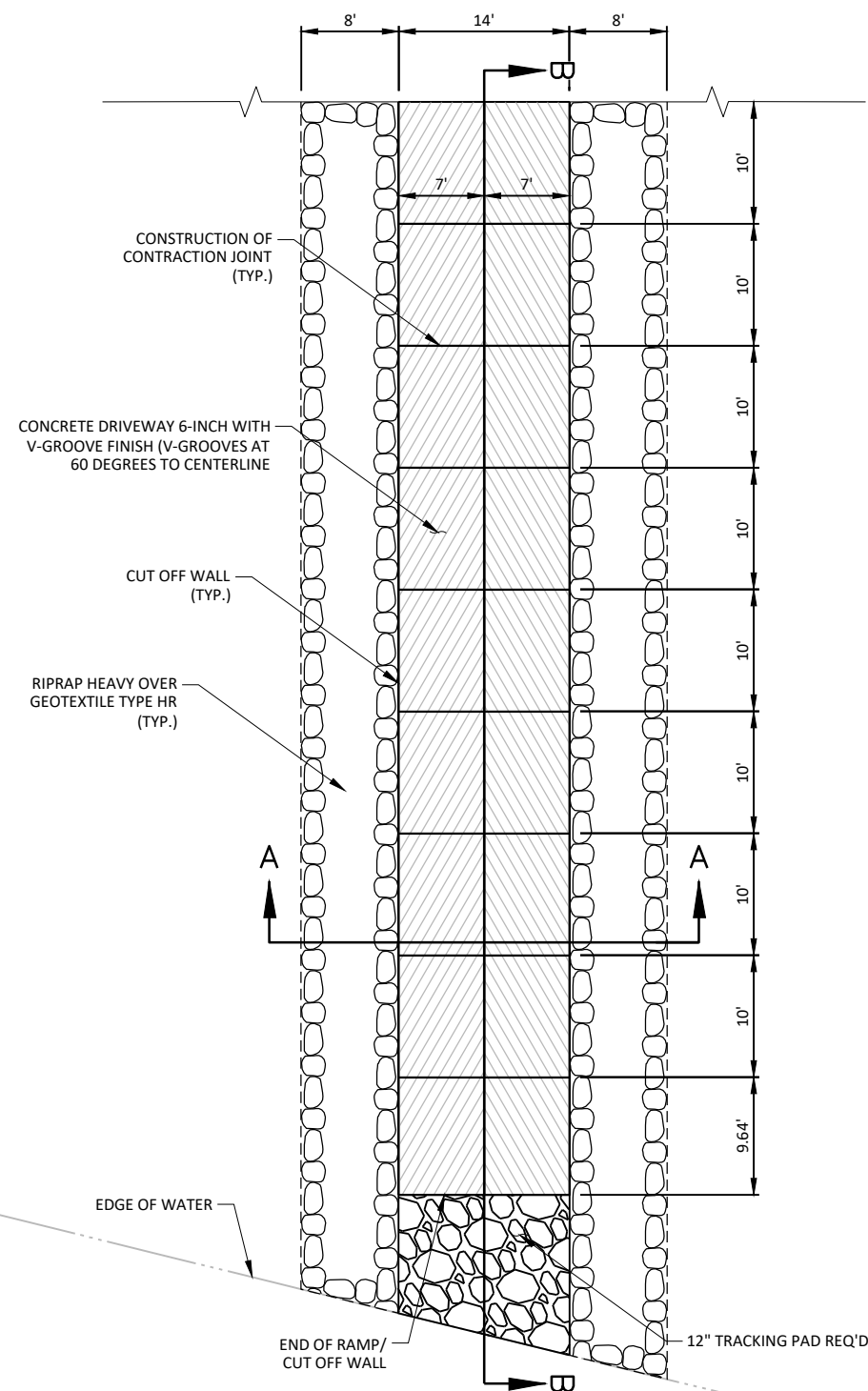


SECTION B-B
PARKING LOT LAYOUT DETAIL



BOAT LANDING - PARKING LOT LAYOUT					
POINT NUMBER	STATION	OFFSET	ELEVATION	NORTHING	EASTING
1	98+67.65	188.34' RT	1601.00	187341.27	333659.46
2	98+58.62	166.10' RT	1601.00	187317.59	333655.54
3	98+51.31	194.97' RT	1600.92	187338.38	333676.85
4	98+42.29	172.73' RT	1600.76	187314.71	333672.93
5	98+39.93	164.16' RT	1600.57	187306.17	333670.46
6	98+31.10	109.77' RT	1599.38	187255.18	333649.58
7	98+31.10	134.77' RT	1599.88	187276.49	333662.64
8	98+31.10	147.57' RT	1600.13	187287.41	333669.33
9	98+28.15	204.37' RT	1600.81	187334.30	333701.52
10	98+19.12	182.13' RT	1600.52	187310.62	333697.60
11	98+06.10	109.77' RT	1598.88	187242.12	333670.90
12	98+06.10	134.77' RT	1599.38	187263.44	333683.96
13	98+06.10	159.77' RT	1599.87	187284.75	333697.02
14	98+06.10	184.77' RT	1600.34	187306.07	333710.08
15	98+04.98	213.77' RT	1600.69	187330.22	333726.18
16	97+95.96	191.53' RT	1600.27	187306.54	333722.26
17	97+81.10	109.77' RT	1598.38	187229.06	333692.22
18	97+81.10	134.77' RT	1598.88	187250.38	333705.28
19	97+81.10	159.77' RT	1599.37	187271.69	333718.34
20	97+81.10	184.77' RT	1599.84	187293.01	333731.40

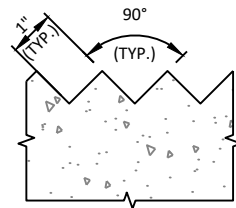
BOAT LANDING - PARKING LOT LAYOUT					
POINT NUMBER	STATION	OFFSET	ELEVATION	NORTHING	EASTING
21	97+81.10	209.77' RT	1600.31	187314.33	333744.45
22	97+81.82	223.17' RT	1600.58	187326.13	333750.85
23	97+56.10	109.77' RT	1597.88	187216.00	333713.54
24	97+56.10	134.77' RT	1598.38	187237.32	333726.60
25	97+56.10	159.77' RT	1598.87	187258.64	333739.66
26	97+56.10	184.77' RT	1599.34	187279.95	333752.71
27	97+56.10	209.77' RT	1599.80	187301.27	333765.77
28	97+56.10	223.17' RT	1600.07	187312.70	333772.77
29	97+27.10	109.77' RT	1597.31	187200.85	333738.27
30	97+27.10	134.77' RT	1597.81	187222.17	333751.33
31	97+27.10	159.47' RT	1598.30	187243.23	333764.23
32	97+27.10	167.47' RT	1598.44	187250.05	333768.41
33	97+27.10	181.47' RT	1598.67	187261.99	333775.72
34	97+27.10	189.47' RT	1598.81	187268.81	333779.90
35	97+27.10	209.77' RT	1599.22	187286.12	333790.50
36	97+27.10	223.17' RT	1599.48	187297.55	333797.50
37	96+37.47	167.47' RT	1589.90	187203.23	333844.84
38	96+37.47	181.47' RT	1590.12	187215.17	333852.16
39	96+27.76	167.47' RT	1588.98	187198.16	333853.12
40	96+24.31	181.47' RT	1588.87	187208.30	333863.37



CAST-IN-PLACE BOAT LAUNCH DETAIL

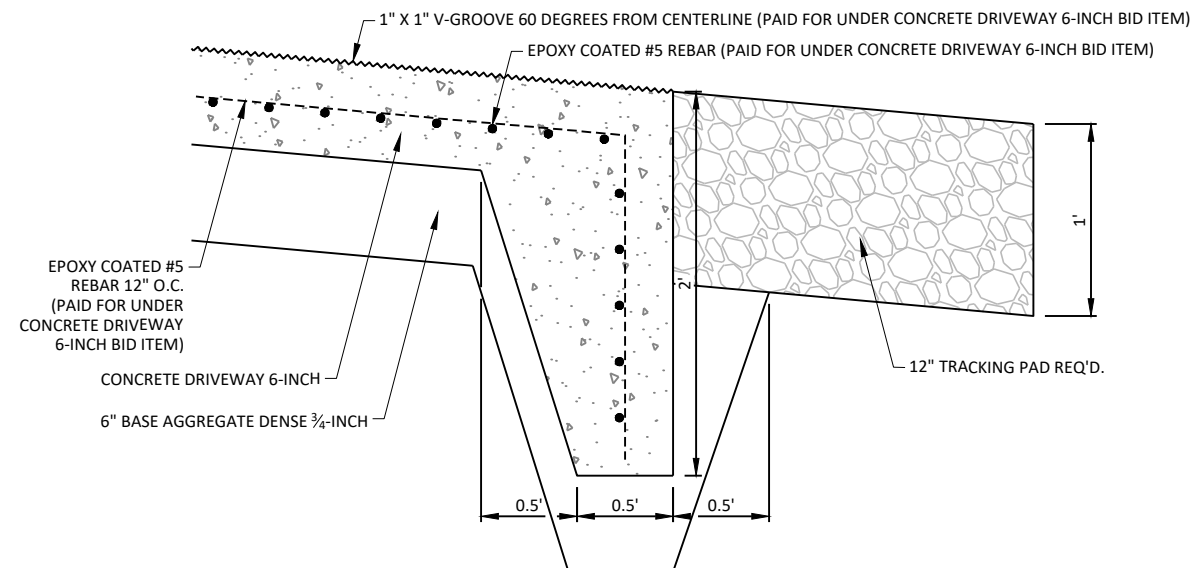
NOTE:

1. ALL CONSTRUCTION JOINTS TO HAVE 30" LONG #4 EPOXY COATED TIE BARS AT 12" ON CENTER AT A DEPTH OF 3" +/- 1" (PAID FOR UNDER CONCRETE DRIVEWAY 6-INCH BID ITEM).
2. ANY OVER EXCAVATION TO BE FILLED WITH SPECIFIED BASE AGGREGATE DENSE 3/4-INCH MATERIAL.
3. FILL VOIDS IN THIS RIPRAP HEAVY CONSISTENT WITH THE INFILL RIPRAP B-63-027 SPECIFICATION. COST OF THE STONE IS PAID FOR UNDER BID ITEM "INFILL RIPRAP B-63-027". ENTIRE SURFACE OF RIPRAP HEAVY AND TRACKING PAD TO BE COVERED.

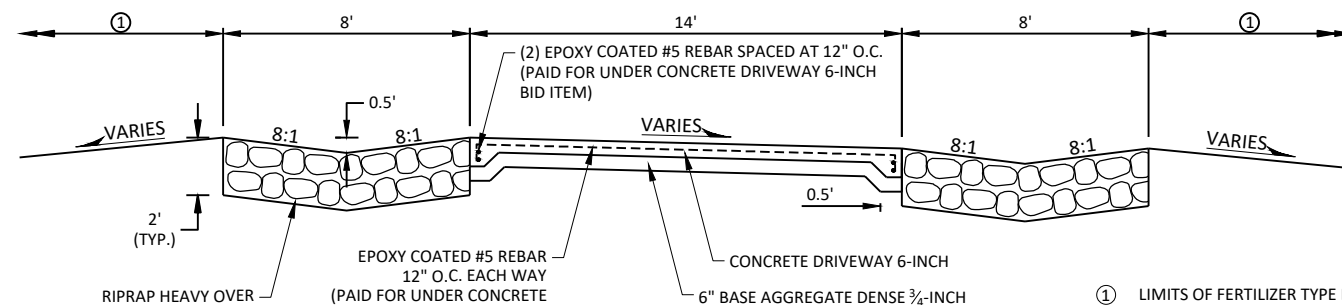


TYPICAL V-GROOVE FINISH DETAIL

NOTE: ALL RAMP PANELS AND KEYWAY SLAB TO HAVE V-GROOVE SURFACE. GROOVES TO BE IN THE DIRECTION AS SHOWN ON THE PLAN VIEW. GROOVES TO BE AT A 60° ANGLE TO DIRECTION OF RAMP. CONFIRM V-GROOVE PATTERN WITH WDNR. WDNR TO PROVIDE V-GROOVE TOOL FOR CONTRACTORS USE. CONTRACTOR TO RETURN TOOL TO WDNR UPON COMPLETION OF BOAT RAMP WORK. SEE GENERAL NOTES FOR WDNR CONTACT INFORMATION. (PAID FOR UNDER CONCRETE DRIVEWAY 6-INCH BID ITEM).



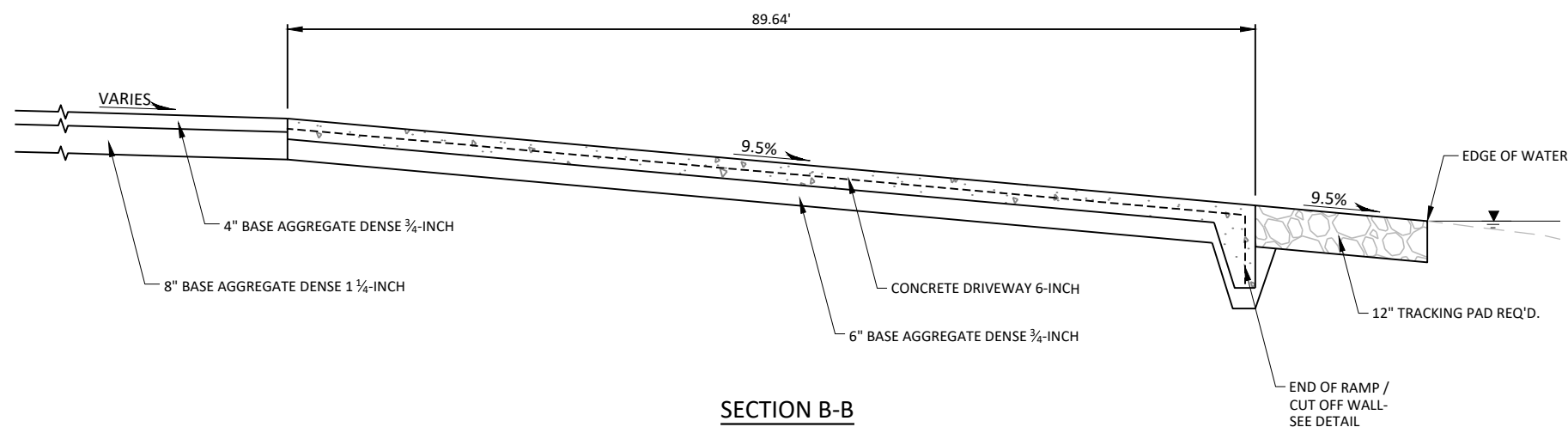
END OF RAMP / CUT OFF WALL DETAIL



SECTION A-A

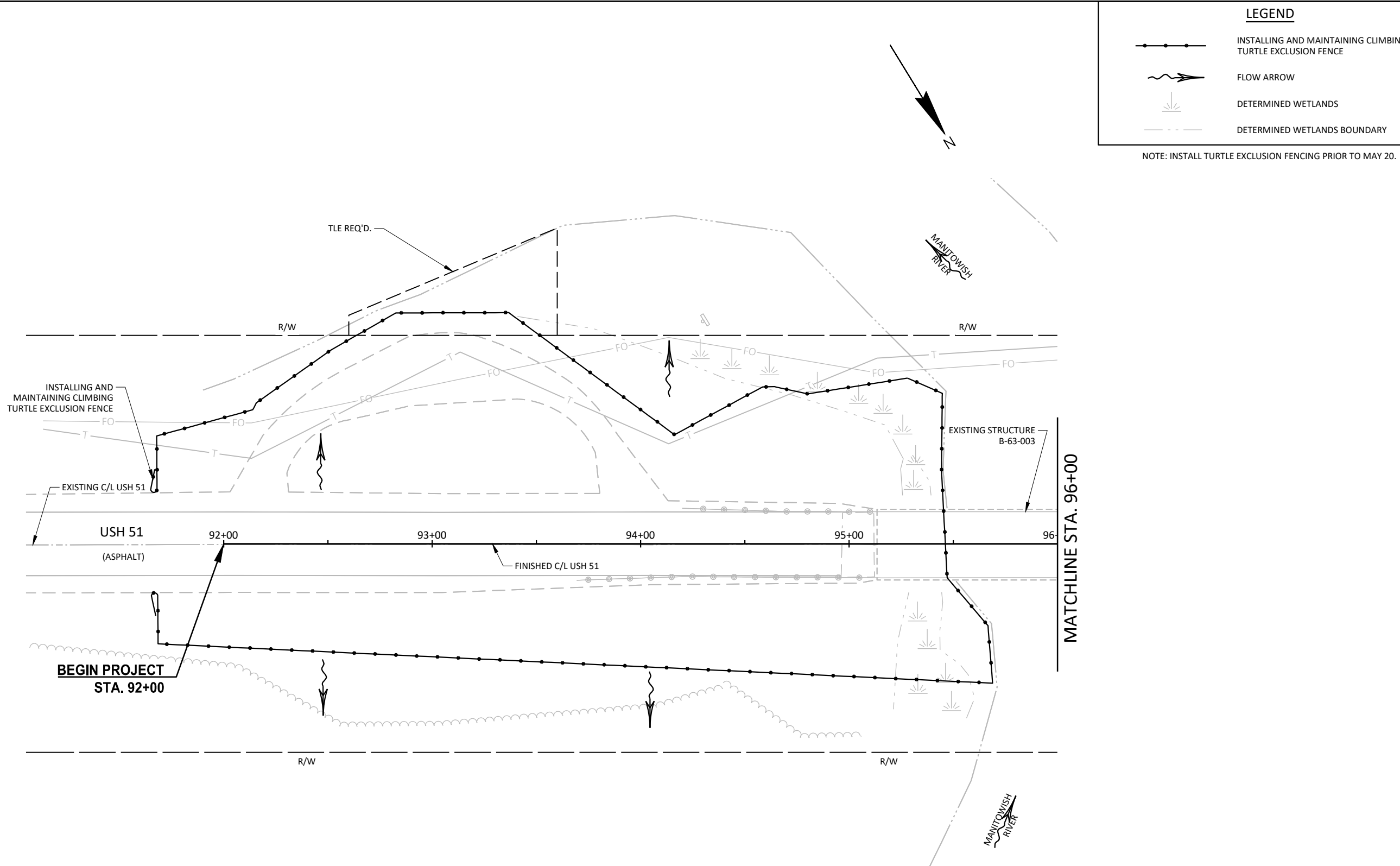
① LIMITS OF FERTILIZER TYPE B, SEEDING MIXTURE NO. 30, EROSION MAT, AND TOPSOIL (SEE EROSION CONTROL PLANS FOR FURTHER INFORMATION ON EROSION MAT LOCATION) (AS DIRECTED BY ENGINEER)

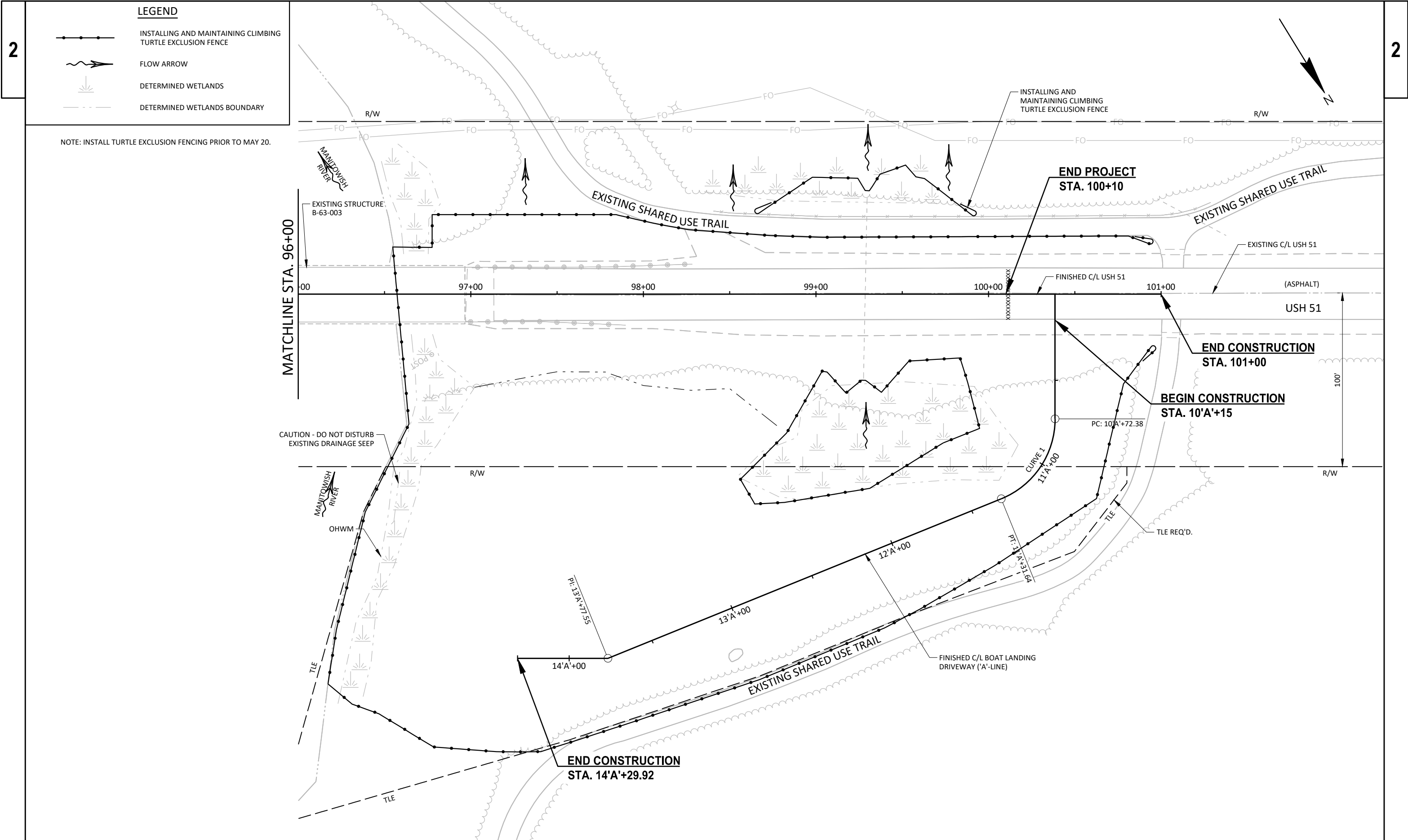
USE SEEDING MIXTURE NO. 95B IN LIEU OF NO. 30 IN WETLAND AREAS (SEE MISCELLANEOUS QUANTITIES SHEET FOR FURTHER INFORMATION)

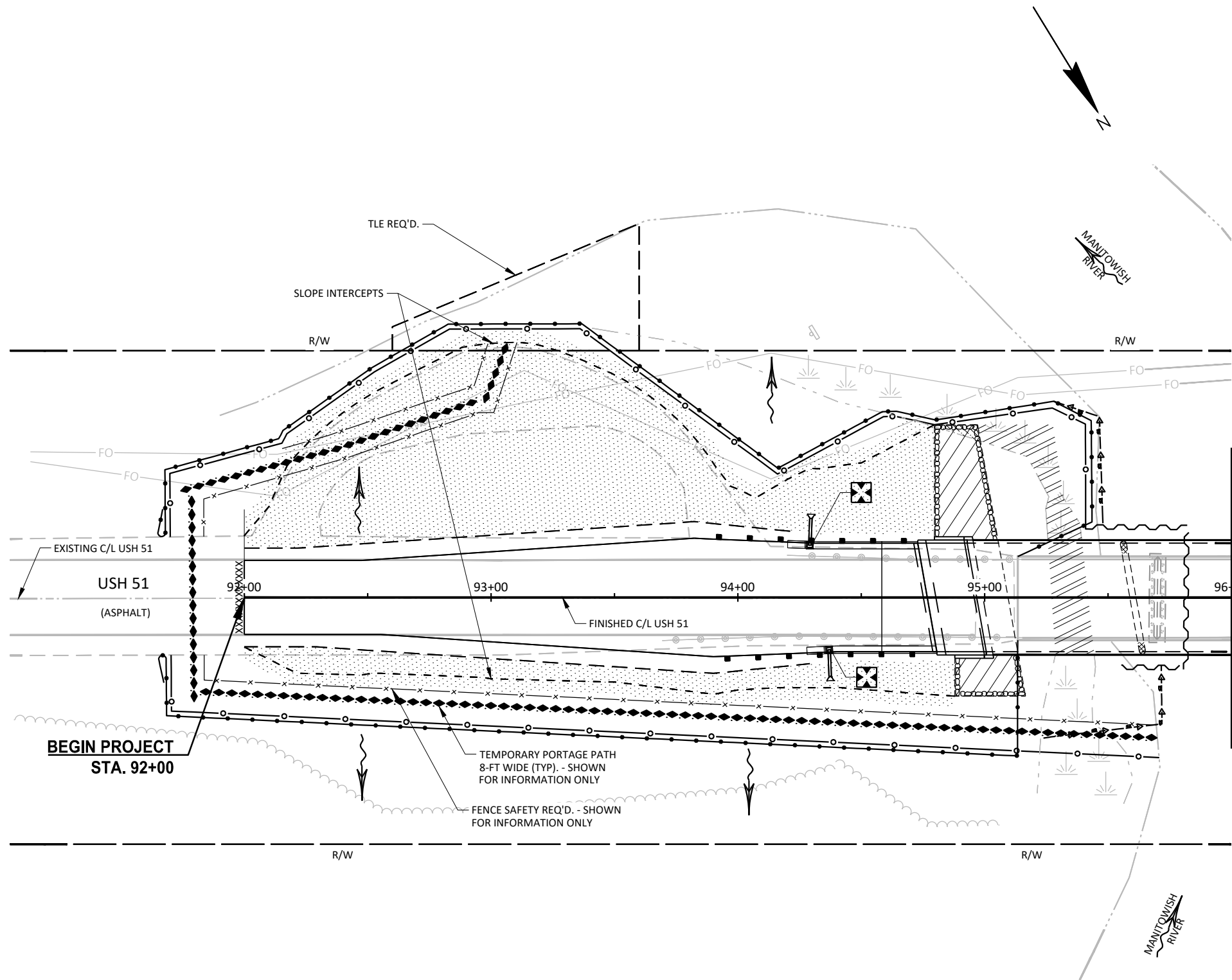


SECTION B-B

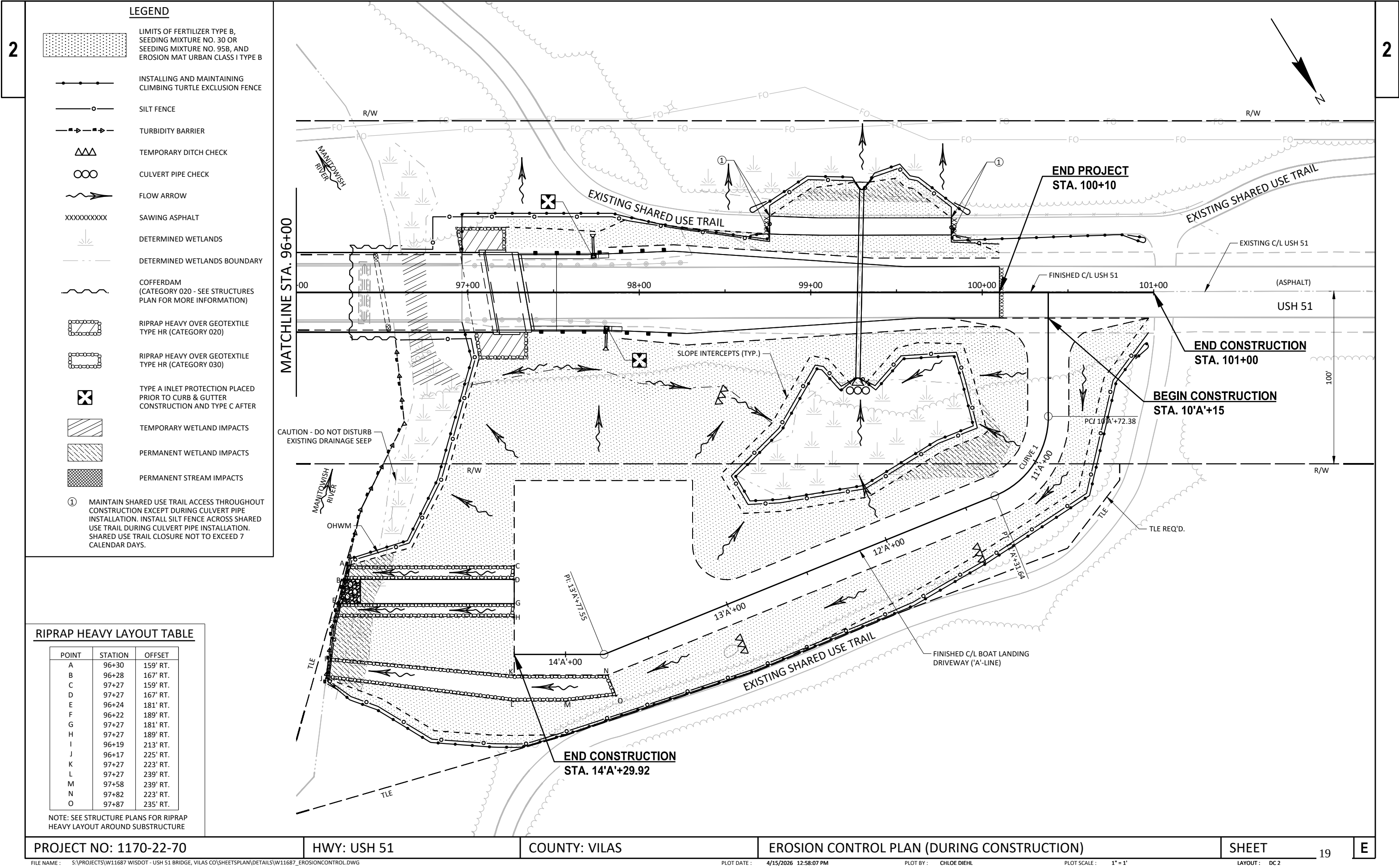


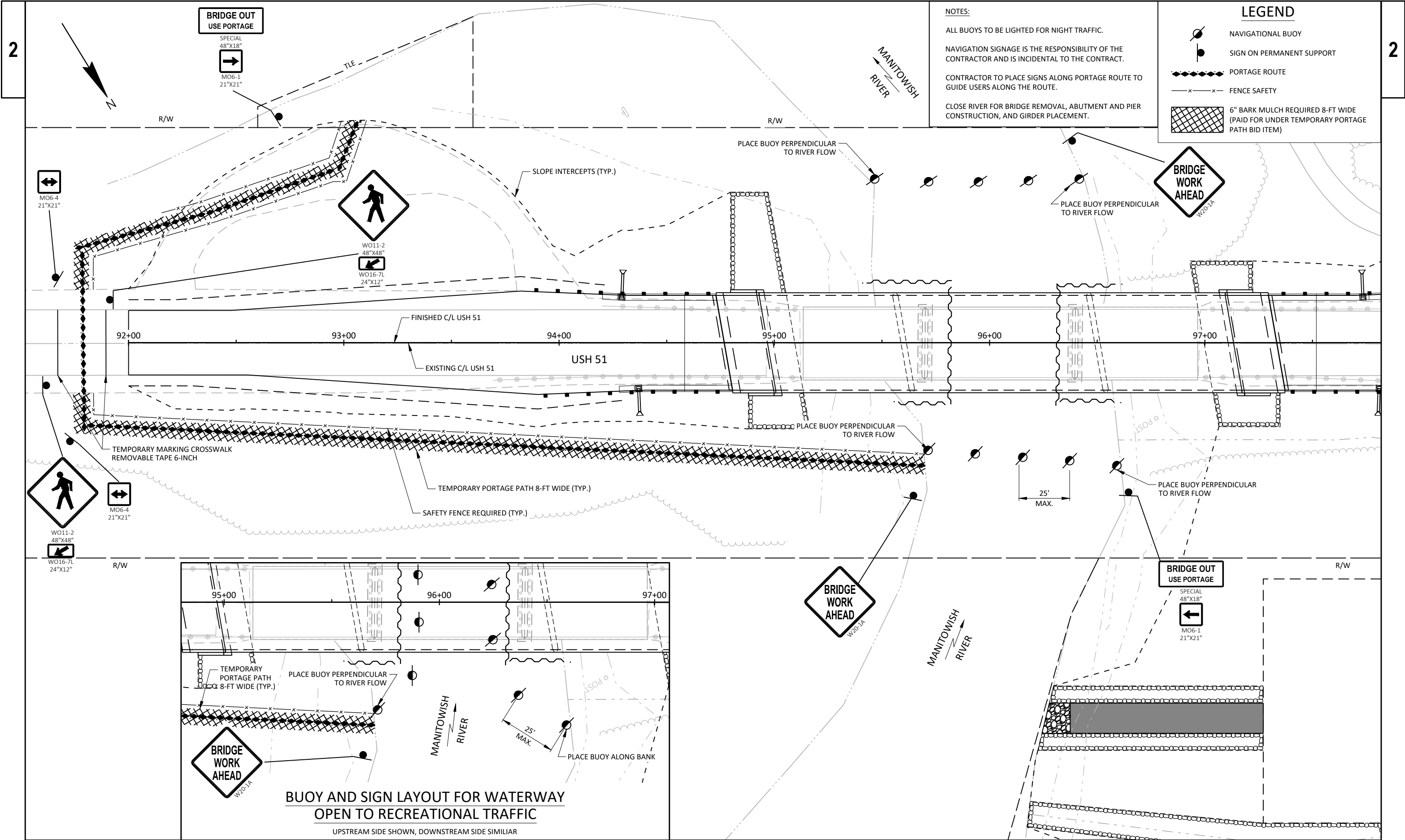






LEGEND	
	LIMITS OF FERTILIZER TYPE B, SEEDING MIXTURE NO. 30 OR SEEDING MIXTURE NO. 95B, AND EROSION MAT URBAN CLASS I TYPE B
	INSTALLING AND MAINTAINING CLIMBING TURTLE EXCLUSION FENCE
	SILT FENCE
	FENCE SAFETY
	TURBIDITY BARRIER
	FLOW ARROW
	SAWING ASPHALT
	DETERMINED WETLANDS
	DETERMINED WETLANDS BOUNDARY
	COFFERDAM (CATEGORY 020 - SEE STRUCTURES PLAN FOR MORE INFORMATION)
	RIPRAP HEAVY OVER GEOTEXTILE TYPE HR (CATEGORY 020)
	TYPE A INLET PROTECTION PLACED PRIOR TO CURB & GUTTER CONSTRUCTION AND TYPE C AFTER
	TEMPORARY WETLAND IMPACTS
	PERMANENT WETLAND IMPACTS
	PERMANENT STREAM IMPACTS
	PORTAGE ROUTE





NOTES:

ALL BUOYS TO BE LIGHTED FOR NIGHT TRAFFIC.

NAVIGATION SIGNAGE IS THE RESPONSIBILITY OF THE CONTRACTOR AND IS INCIDENTAL TO THE CONTRACT.

CONTRACTOR TO PLACE SIGNS ALONG PORTAGE ROUTE TO GUIDE USERS ALONG THE ROUTE.

CLOSE RIVER FOR BRIDGE REMOVAL, ABUTMENT AND PIER CONSTRUCTION, AND GIRDER PLACEMENT.

LEGEND

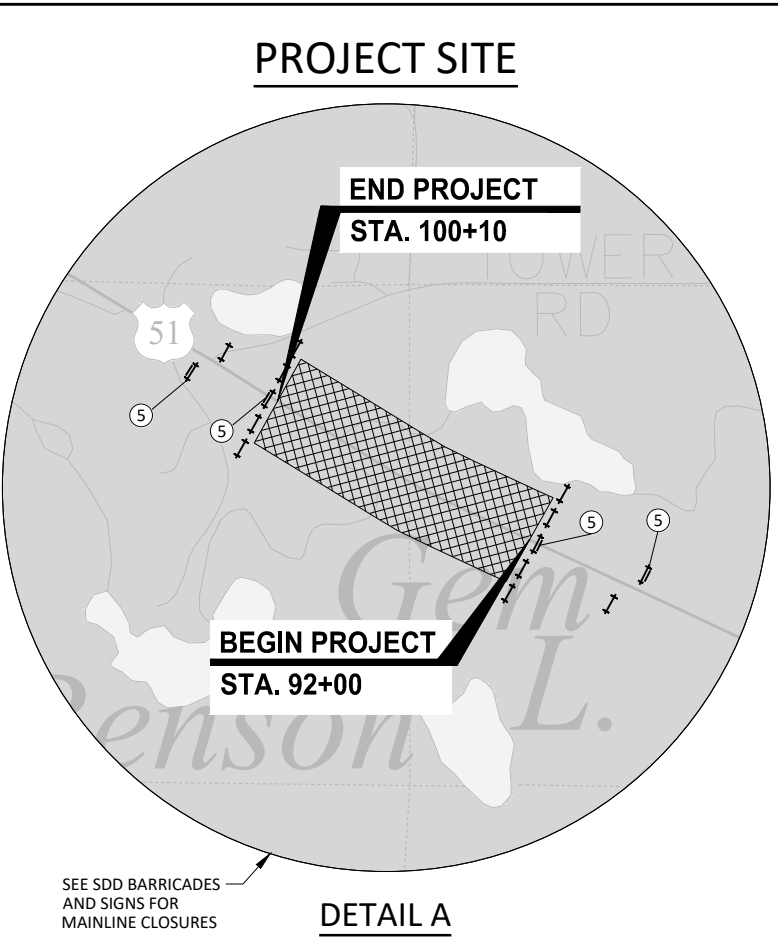
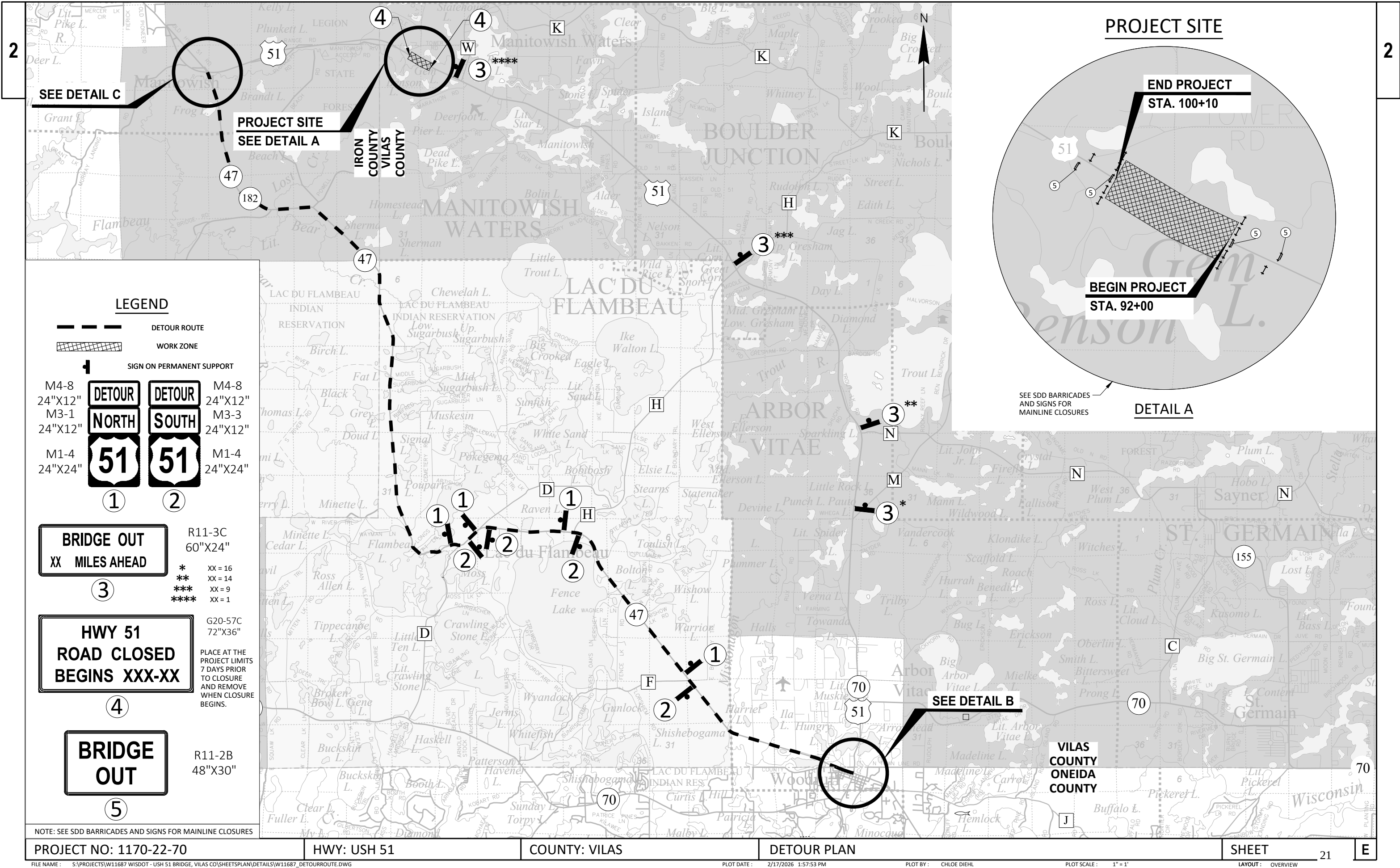
NAVIGATIONAL BUOY

SIGN ON PERMANENT SUPPORT

PORTAGE ROUTE

FENCE SAFETY

6" BARK MULCH REQUIRED 8-FT WIDE (PAID FOR UNDER TEMPORARY PORTAGE PATH BID ITEM)



COVER SIGN
DETOUR ROUTE

- (A) M1-4 24"x24"
- (B) MO6-1 21"x21"
- (C) MO6-1 21"x21"
- (D) MO6-1 21"x21"
- (E) MO5-1R 21"x21"
- (F) MO5-1L 21"x21"
- (G) M4-8 24"x12"
- (H) W20-2A
- (I) M3-1 24"x12"
- (J) M3-3 24"x12"
- (K) M4-9R 30"x24"
- (L) R11-3C 60"x24"
- (M) G20-51 60"x24"
- (N) A4-12 14"x14"
- (O) A4-12 14"x14"

LEGEND

- SIGN ON PERMANENT SUPPORT
- EXISTING SIGN ON SINGLE POST
- EXISTING SIGN ON DOUBLE POST
- EXISTING SIGN ON TRIPLE POST
- TRAFFIC CONTROL BARRICADE TYPE III W/ ATTACHED SIGN AND W/ TRAFFIC CONTROL WARNING LIGHTS TYPE A
- TRAFFIC CONTROL BARRICADES TYPE III
- * SIGN READS "BRIDGE OUT 23 MILES AHEAD"
- ** SIGN READS "BRIDGE OUT 5 MILES AHEAD"
- # SIGN READS "NEXT 28 MILES"

GENERAL NOTES:

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

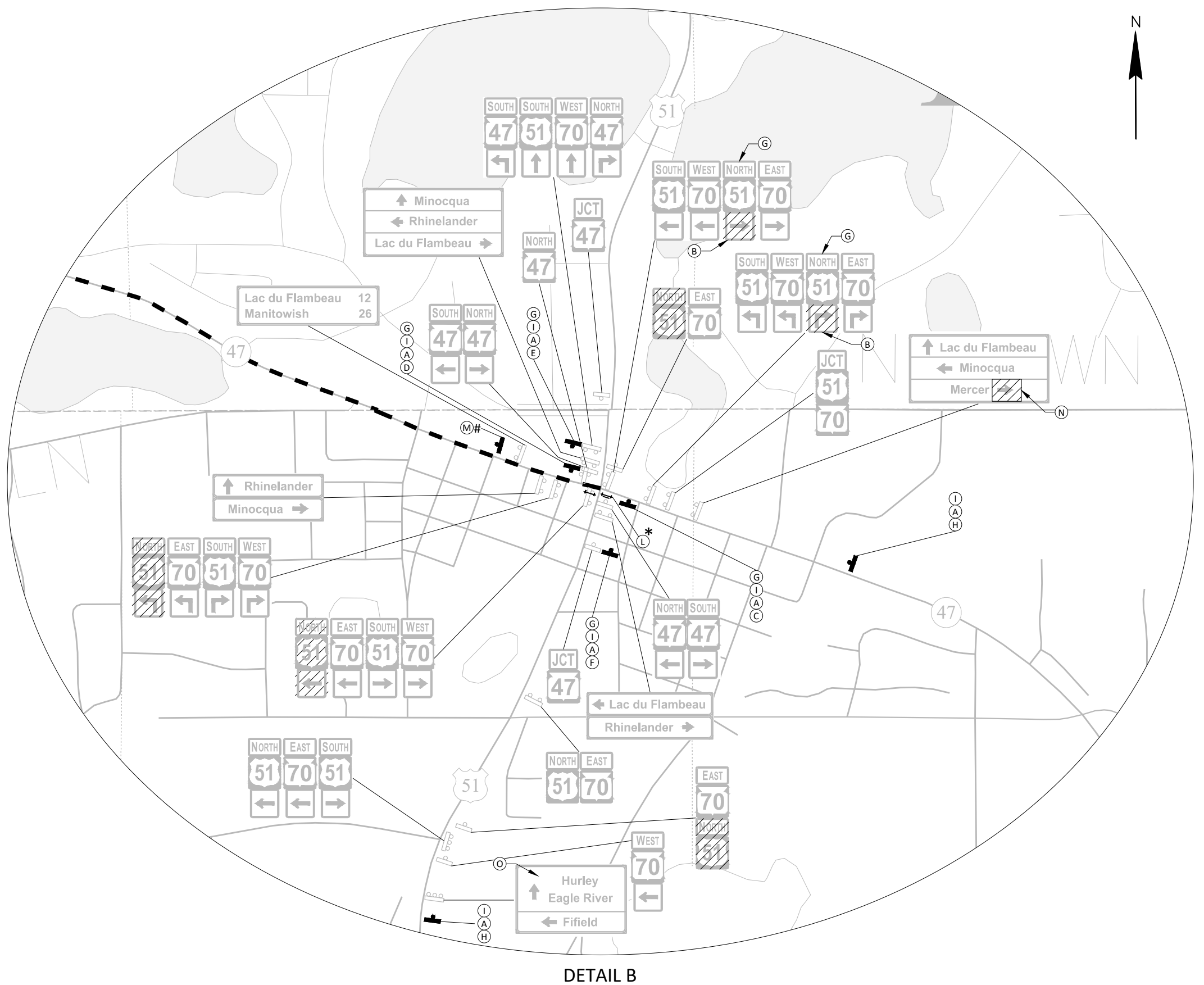
ALL SIGNS INAPPROPRIATE TO THE STATUS OF THE CONTROL ZONE, INCLUDING PRE-EXISTING SIGNING IN THE VICINITY, SHALL BE COVERED OR REMOVED AS SPECIFIED IN THE PLANS AND/OR THE SPECIAL PROVISIONS OR AS DIRECTED BY THE ENGINEER.

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

ANY STOP SIGNS WHICH ARE REMOVED FOR A CONSTRUCTION OPERATION SHALL BE IMMEDIATELY RE-ESTABLISHED.

ALL SIGNS ARE 48"x48" UNLESS OTHERWISE NOTED.

USH 51/STH 47 INTERSECTIONS



USH 51/STH 47 INTERSECTION



**SIGN ON PERMANENT
SUPPORT**

EXISTING SIGN ON

EXISTING SIGN ON

EXISTING SIGN ON

EXISTING SIGN ON

EXISTING SIGN ON

TRAFFIC CONTROL BARRICADE
TYPE III W/ ATTACHED SIGN
AND W/ TRAFFIC CONTROL
WARNING LIGHTS TYPE A

TRAFFIC CONTROL †

* SIGN READS "BRIDGE OUT
23 MILES AHEAD"

* SIGN READS "BRIDGE OUT
5 MILES AHEAD"

SIGN READS "NEXT 28 MILES"

GENERAL NOTES:

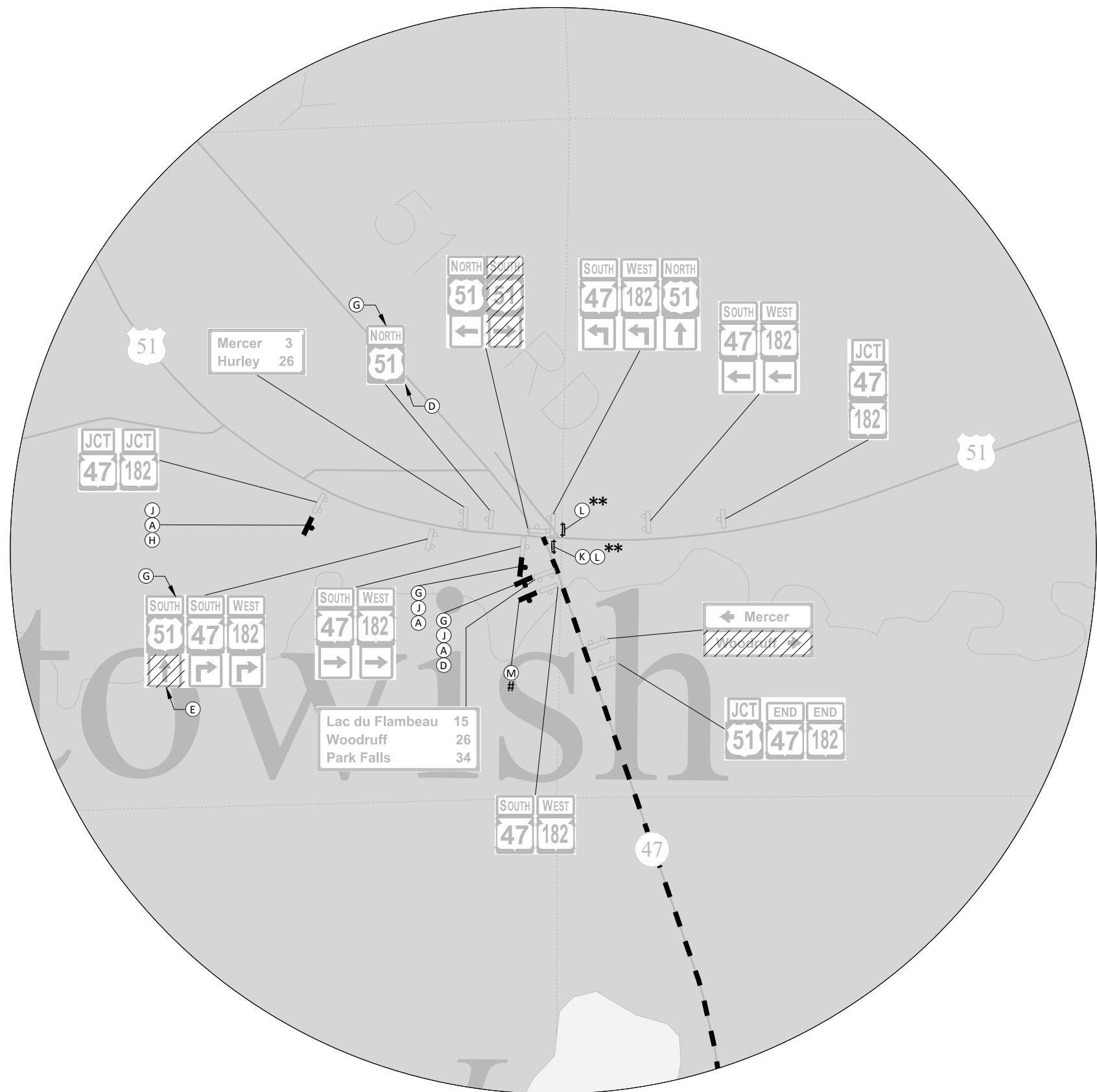
THE EXACT LOCATION AND SPACING OF ALL SIGNS AND DEVICES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS APPROVED BY THE ENGINEER.

ALL SIGNS INAPPROPRIATE TO THE STATUS OF THE CONTROL ZONE, INCLUDING PRE-EXISTING SIGNING IN THE VICINITY, SHALL BE COVERED OR REMOVED AS SPECIFIED IN THE PLANS AND/OR THE SPECIAL PROVISIONS OR AS DIRECTED BY THE ENGINEER.

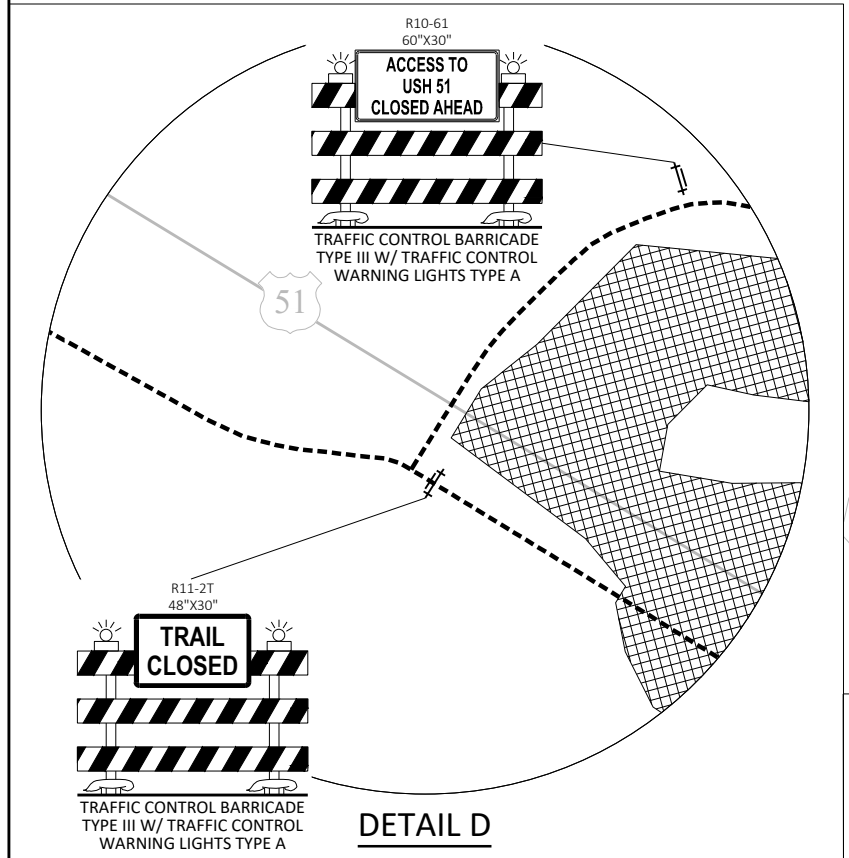
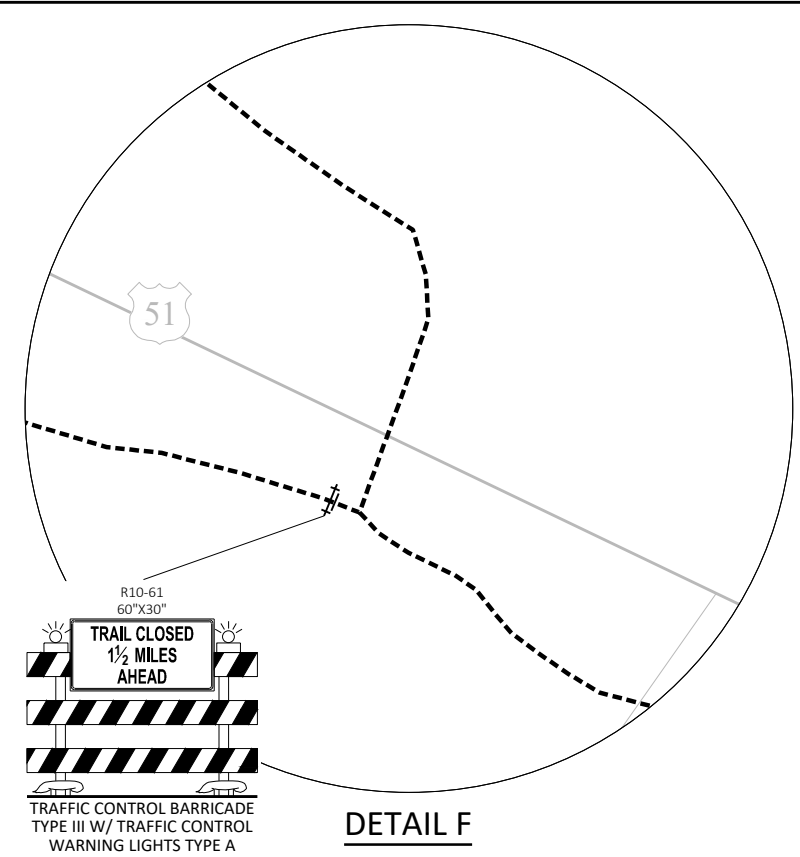
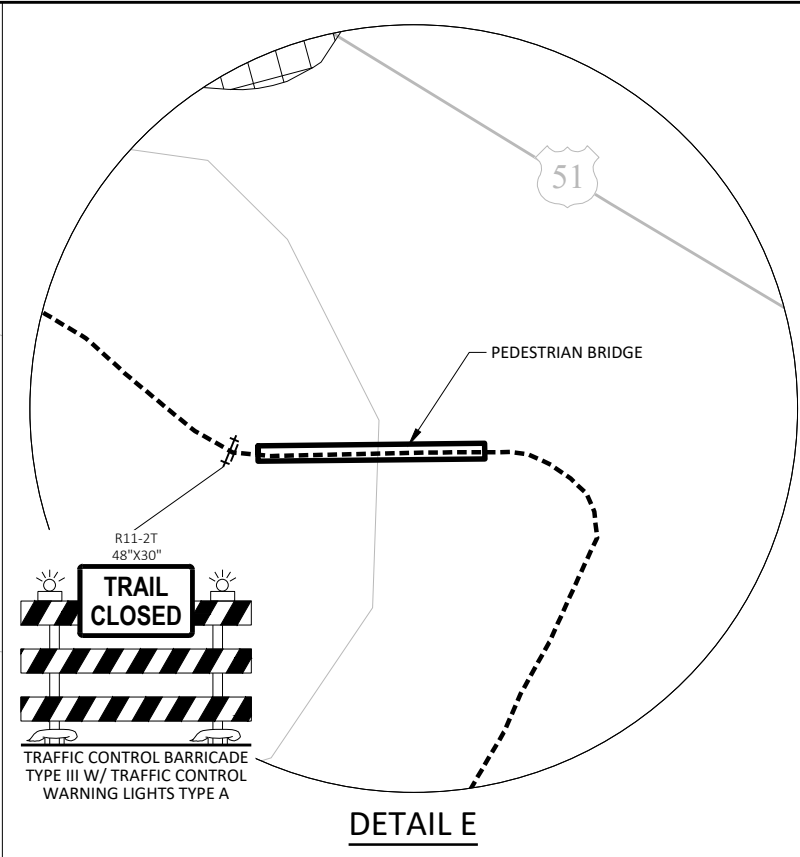
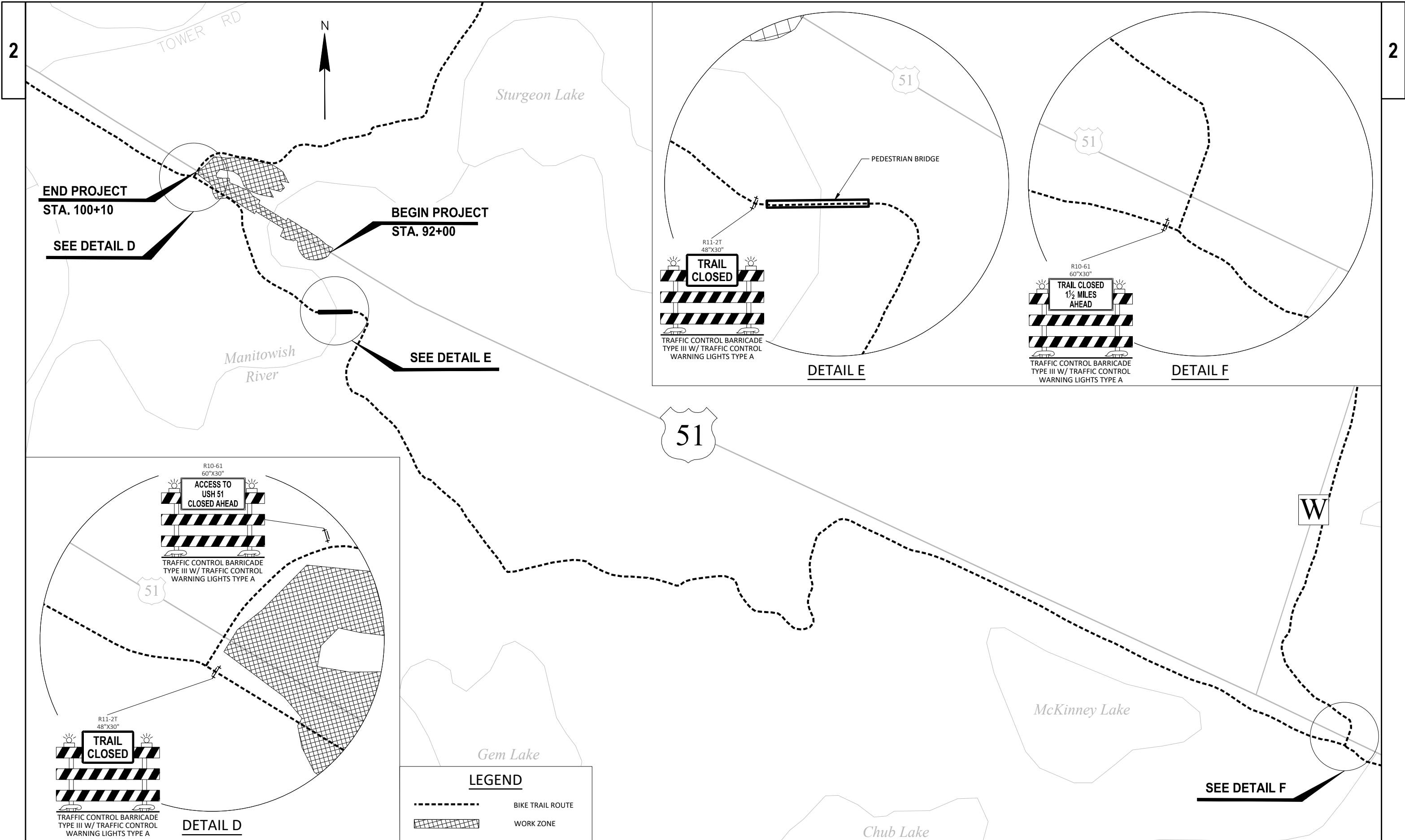
"WO" AND "MO" SERIES SIGNS ARE THE SAME AS "W" AND "M" SIGNS EXCEPT THE BACKGROUND IS ORANGE.

ANY STOP SIGNS WHICH ARE REMOVED FOR
A CONSTRUCTION OPERATION SHALL BE
IMMEDIATELY RE-ESTABLISHED.

ALL SIGNS ARE 48"x48" UNLESS OTHERWISE NOTED.



DETAIL C



CULVERT LAYOUT TABLE

STATION	LOCATION	UPSTREAM				INVERT ELEVATION	DOWNSTREAM				INVERT ELEVATION
		STATION	OFFSET	Y	X		STATION	OFFSET	Y	X	
99+29	MAINLINE	99+27.56	-50.00 RT.	187,254.58	333,536.11	1594.03	99+29.76	60.00 LT.	187,161.95	333,476.78	1593.10

△CONTROL POINTS

NO.	STA.	DESCRIPTION	Y	X
1	101+62	CAPPED IRON REBAR FOUND 44.6' LT.	187,296.05	333,286.16
2	94+17	3/4" IRON REBAR SET 25.6' LT.	186,923.67	333,931.66
3	94+59	3/4" IRON REBAR SET 29.3' RT.	186,992.35	333,924.66

STATE OF
WISCONSINEND CONSTRUCTION
STA. 101+00
Y=187,302.03
X=333,362.95TO MERCER 10 MILES
TO TOWN 10 MILES

EXISTING SHARED USE TRAIL

USH 51

EXISTING C/L USH 51

END PROJECT
STA. 100+10
Y=187,255.02
X=333,439.69BEGIN CONSTRUCTION
STA. 10'A'+15
Y=187,282.72
X=333,423.20END CONSTRUCTION
STA. 14'A'+29.92
Y=187,287.32
X=333,791.23CURVE 1
PI STA. = 11'A'+06.05
Y = 187,360.36
X = 333,470.75
R = 50.00
D = 114°35'30"
DELTA = 67°54'49"
L = 59.27
T = 33.67
C = 55.86
PC STA. = 10'A'+72.38
Y = 187,331.64
X = 333,453.17
PT STA. = 11'A'+31.64
Y = 187,354.85
X = 333,503.97

LEGEND	
	REMOVING SIGNS TYPE II/REMOVING SMALL SIGN SUPPORTS
	SIGNS TYPE II REFLECTIVE H AND F ON POSTS
	EXISTING SIGN TO REMAIN
	DESIGNATES SIGN NUMBER
	EXISTING SIGN TO BE REMOVED BY OTHERS (WISCONSIN DEPARTMENT OF NATURAL RESOURCES)

NOTE: THE FINAL LOCATION FOR ALL PERMANENT SIGNING
SHALL BE VERIFIED BY THE ENGINEER IN THE FIELD.

SHEET 25

E

MAINLINE STATION LAYOUT			
STATION	Y	X	COMMENTS
92+00	186,831.91	334,130.40	BEGIN PROJECT
92+50	186,858.03	334,087.77	-
93+00	186,884.15	334,045.13	-
93+50	186,910.27	334,002.50	-
94+00	186,936.38	333,959.86	-
94+50	186,962.50	333,917.22	-
94+96.78	186,986.94	333,877.33	END OF DECK
95+00	186,988.62	333,874.59	-
95+50	187,014.74	333,831.95	-
96+00	187,040.85	333,789.31	-
96+50	187,066.97	333,746.68	-
97+00	187,093.09	333,704.04	-
97+13.32	187,100.05	333,692.68	END OF DECK
97+50	187,119.21	333,661.40	-
98+00	187,145.32	333,618.77	-
98+50	187,171.44	333,576.13	-
99+00	187,197.56	333,533.49	-
99+50	187,223.68	333,490.86	-
100+00	187,249.80	333,448.22	-
100+10	187,255.02	333,439.69	END OF PROJECT
101+00	187,302.03	333,362.95	END CONSTRUCTION

'A'-LINE STATION LAYOUT			
STATION	Y	X	COMMENTS
10'A'+15	187,282.72	333,423.20	BEGIN CONSTRUCTION
10'A'+50	187,312.56	333,441.48	-
11'A'+00	187,350.13	333,473.21	-
11'A'+50	187,351.85	333,522.08	-
12'A'+00	187,343.68	333,571.41	-
12'A'+50	187,335.52	333,620.74	-
13'A'+00	187,327.35	333,670.07	-
13'A'+50	187,319.18	333,719.39	-
14'A'+00	187,302.95	333,765.72	-
14'A'+29.92	187,287.32	333,791.23	END CONSTRUCTION

PROJECT NO: 1170-22-70

HWY: USH 51

COUNTY: VILAS

ALIGNMENT & PERMANENT SIGNING

SHEET 25

E

Estimate Of Quantities

1170-22-70

Line	Item	Item Description	Unit	Total	Qty
0002	201.0105	Clearing	STA	1.000	1.000
0004	201.0115	Clearing	ACRE	1.450	1.450
0006	201.0205	Grubbing	STA	1.000	1.000
0008	201.0215	Grubbing	ACRE	1.450	1.450
0010	203.0100	Removing Small Pipe Culverts	EACH	1.000	1.000
0012	203.0270	Removing Structure Over Waterway Debris Capture (structure) 01. B-63-003	EACH	1.000	1.000
0014	204.0100	Removing Concrete Pavement	SY	110.000	110.000
0016	204.0165	Removing Guardrail	LF	470.000	470.000
0018	204.0180	Removing Delineators and Markers	EACH	2.000	2.000
0020	205.0100	Excavation Common	CY	9,100.000	9,100.000
0022	205.0400	Excavation Marsh	CY	90.000	90.000
0024	206.1001	Excavation for Structures Bridges (structure) 01. B-63-027	EACH	1.000	1.000
0026	206.5001	Cofferdams (structure) 01. B-63-027	EACH	1.000	1.000
0028	210.1500	Backfill Structure Type A	TON	260.000	260.000
0030	213.0100	Finishing Roadway (project) 01. 1170-22-70	EACH	1.000	1.000
0032	214.0100	Obliterating Old Road	STA	2.000	2.000
0034	305.0110	Base Aggregate Dense 3/4-Inch	TON	930.000	930.000
0036	305.0120	Base Aggregate Dense 1 1/4-Inch	TON	3,670.000	3,670.000
0038	312.0115	Select Crushed Material	CY	120.000	120.000
0040	415.0120	Concrete Pavement 12-Inch	SY	65.000	65.000
0042	415.0410	Concrete Pavement Approach Slab	SY	100.000	100.000
0044	455.0605	Tack Coat	GAL	120.000	120.000
0046	465.0105	Asphaltic Surface	TON	820.000	820.000
0048	465.0560	Asphaltic Rumble Strips, Centerline	LF	520.000	520.000
0050	502.0100	Concrete Masonry Bridges	CY	768.000	768.000
0052	502.3200	Protective Surface Treatment	SY	1,305.000	1,305.000
0054	502.3210	Pigmented Surface Sealer	SY	250.000	250.000
0056	502.9000.S	Underwater Substructure Inspection (structure) 01. B-63-027	EACH	2.000	2.000
0058	503.0137	Prestressed Girder Type I 36W-Inch	LF	1,287.000	1,287.000
0060	505.0400	Bar Steel Reinforcement HS Structures	LB	14,920.000	14,920.000
0062	505.0600	Bar Steel Reinforcement HS Coated Structures	LB	114,850.000	114,850.000
0064	505.0800.S	Bar Steel Reinforcement HS Stainless Structures	LB	1,600.000	1,600.000
0066	506.2605	Bearing Pads Elastomeric Non-Laminated	EACH	36.000	36.000
0068	506.4000	Steel Diaphragms (structure) 01. B-63-027	EACH	20.000	20.000
0070	516.0500	Rubberized Membrane Waterproofing	SY	20.000	20.000
0072	520.1030	Apron Endwalls for Culvert Pipe 30-Inch	EACH	2.000	2.000
0074	520.3430	Culvert Pipe Class III-A Non-metal 30-Inch	LF	110.000	110.000
0076	521.1012	Apron Endwalls for Culvert Pipe Steel 12-Inch	EACH	4.000	4.000
0078	530.0112	Culvert Pipe Corrugated Polyethylene 12-Inch	LF	44.000	44.000
0080	550.2126	Piling CIP Concrete 12 3/4 x 0.375-Inch	LF	2,135.000	2,135.000
0082	601.0588	Concrete Curb & Gutter 4-Inch Sloped 36-Inch Type TBT	LF	140.000	140.000
0084	601.0590	Concrete Curb & Gutter 4-Inch Sloped 36-Inch Type TBTT	LF	75.000	75.000
0086	602.0810	Concrete Driveway 6-Inch	SY	140.000	140.000
0088	606.0300	Riprap Heavy	CY	635.000	635.000
0090	611.0654	Inlet Covers Type V	EACH	4.000	4.000
0092	611.3220	Inlets 2x2-FT	EACH	4.000	4.000
0094	612.0406	Pipe Underdrain Wrapped 6-Inch	LF	220.000	220.000
0096	614.0150	Anchor Assemblies for Steel Plate Beam Guard	EACH	4.000	4.000
0098	614.2500	MGS Thrie Beam Transition	LF	160.000	160.000

Estimate Of Quantities

1170-22-70

Line	Item	Item Description	Unit	Total	Qty
0100	614.2610	MGS Guardrail Terminal EAT	EACH	4.000	4.000
0102	616.0700.S	Fence Safety	LF	1,350.000	1,350.000
0104	618.0100	Maintenance and Repair of Haul Roads (project) 01. 1170-22-70	EACH	1.000	1.000
0106	619.1000	Mobilization	EACH	1.000	1.000
0108	624.0100	Water	MGAL	70.000	70.000
0110	625.0100	Topsoil	SY	7,300.000	7,300.000
0112	628.1504	Silt Fence	LF	3,270.000	3,270.000
0114	628.1520	Silt Fence Maintenance	LF	19,620.000	19,620.000
0116	628.1905	Mobilizations Erosion Control	EACH	6.000	6.000
0118	628.1910	Mobilizations Emergency Erosion Control	EACH	6.000	6.000
0120	628.2008	Erosion Mat Urban Class I Type B	SY	9,900.000	9,900.000
0122	628.6005	Turbidity Barriers	SY	570.000	570.000
0124	628.7005	Inlet Protection Type A	EACH	4.000	4.000
0126	628.7015	Inlet Protection Type C	EACH	4.000	4.000
0128	628.7504	Temporary Ditch Checks	LF	50.000	50.000
0130	628.7555	Culvert Pipe Checks	EACH	5.000	5.000
0132	628.7560	Tracking Pads	EACH	1.000	1.000
0134	628.7570	Rock Bags	EACH	56.000	56.000
0136	629.0210	Fertilizer Type B	CWT	5.000	5.000
0138	630.0130	Seeding Mixture No. 30	LB	440.000	440.000
0140	630.0200	Seeding Temporary	LB	90.000	90.000
0142	630.0500	Seed Water	MGAL	230.000	230.000
0144	633.5200	Markers Culvert End	EACH	2.000	2.000
0146	634.0616	Posts Wood 4x6-Inch x 16-FT	EACH	4.000	4.000
0148	637.2210	Signs Type II Reflective H	SF	22.000	22.000
0150	638.2602	Removing Signs Type II	EACH	6.000	6.000
0152	638.3000	Removing Small Sign Supports	EACH	8.000	8.000
0154	642.5001	Field Office Type B	EACH	1.000	1.000
0156	643.0420	Traffic Control Barricades Type III	DAY	3,696.000	3,696.000
0158	643.0705	Traffic Control Warning Lights Type A	DAY	5,376.000	5,376.000
0160	643.0900	Traffic Control Signs	DAY	15,960.000	15,960.000
0162	643.0920	Traffic Control Covering Signs Type II	EACH	10.000	10.000
0164	643.1000	Traffic Control Signs Fixed Message	SF	56.000	56.000
0166	643.3350	Temporary Marking Crosswalk Removable Tape 6-Inch	LF	60.000	60.000
0168	643.5000	Traffic Control	EACH	1.000	1.000
0170	645.0111	Geotextile Type DF Schedule A	SY	90.000	90.000
0172	645.0120	Geotextile Type HR	SY	1,160.000	1,160.000
0174	645.0135	Geotextile Type SR	SY	170.000	170.000
0176	646.2020	Marking Line Epoxy 6-Inch	LF	250.000	250.000
0178	646.2040	Marking Line Grooved Wet Ref Epoxy 6-Inch	LF	1,620.000	1,620.000
0180	650.4000	Construction Staking Storm Sewer	EACH	8.000	8.000
0182	650.4500	Construction Staking Subgrade	LF	835.000	835.000
0184	650.5000	Construction Staking Base	LF	755.000	755.000
0186	650.5500	Construction Staking Curb Gutter and Curb & Gutter	LF	140.000	140.000
0188	650.6000	Construction Staking Pipe Culverts	EACH	1.000	1.000
0190	650.6501	Construction Staking Structure Layout (structure) 01. B-63-027	EACH	1.000	1.000
0192	650.7000	Construction Staking Concrete Pavement	LF	80.000	80.000
0194	650.9911	Construction Staking Supplemental Control (project) 01. 1170-22-70	EACH	1.000	1.000
0196	650.9920	Construction Staking Slope Stakes	LF	835.000	835.000

Estimate Of Quantities

1170-22-70

Line	Item	Item Description	Unit	Total	Qty
0198	690.0150	Sawing Asphalt	LF	80.000	80.000
0200	715.0502	Incentive Strength Concrete Structures	DOL	4,608.000	4,608.000
0202	999.2000.S	Installing and Maintaining Bird Deterrent System (station) 01. STA. 96+05	EACH	1.000	1.000
0204	999.2100.S	Installing and Maintaining Climbing Turtle Exclusion Fence	LF	3,300.000	3,300.000
0206	SPV.0060	Special 01. Construction Staking Parking Lot	EACH	1.000	1.000
0208	SPV.0085	Special 01. Seeding Mixture 95B	LB	1.000	1.000
0210	SPV.0090	Special 01. Salvage Timber Boardwalk Fencing	LF	106.000	106.000
0212	SPV.0090	Special 02. Temporary Portage Path	LF	620.000	620.000
0214	SPV.0195	Special 01. Infill Riprap B-63-027	TON	290.000	290.000

3

										ALL ITEMS ARE CATEGORY 0010 UNLESS NOTED OTHERWISE																			
CLEARING AND GRUBBING										REMOVING SMALL PIPE CULVERTS										REMOVING GUARDRAIL									
CLEARING (CATEGORY 0010) (CATEGORY 0030) 201.0105 (STA) 201.0115 (ACRE)										GRUBBING (CATEGORY 0010) (CATEGORY 0030) 201.0205 (STA) 201.0215 (STA)										204.0165 (LF)									
STATION - STATION		LOCATION		DESCRIPTION						STATION		LOCATION		DESCRIPTION						STATION - STATION		LOCATION							
99+00 - 100+00		MAINLINE, LT.		-		1		-		1		-		-		93+69 - 95+13		MAINLINE, RT.		146									
96+17 - 100+79		MAINLINE, RT.		BOAT LANDING		-		1.45		-		1.45		-		94+20 - 95+13		MAINLINE, LT.		95									
																96+97 - 98+28		MAINLINE, LT.		134									
																96+97 - 97+90		MAINLINE, RT.		95									
		TOTALS=				1		1.45		1		1.45						TOTAL=		470									

3

																				ALL ITEMS ARE CATEGORY 0010 UNLESS NOTED OTHERWISE									
CULVERT PIPE							STORM DRAIN PIPE							CONCRETE CURB & GUTTER															
		520.1030 APRON ENDWALLS FOR CULVERT PIPE 30-INCH (EACH)	520.3430 CULVERT PIPE CLASS III-A NON-METAL 30-INCH (LF)	633.5200 MARKERS CULVERT END (EACH)	628.7555 CULVERT PIPE CHECKS (EACH)	650.6000 CONSTRUCTION STAKING PIPE CULVERTS (EACH)					521.1012 APRON ENDWALLS FOR CULVERT PIPE STEEL 12-INCH (EACH)	530.0112 CULVERT PIPE CORRUGATED POLYETHYLENE 12-INCH (LF)			601.0588 CONCRETE CURB & GUTTER 4-INCH SLOPED 36-INCH TYPE TBT (LF)	601.0590 CONCRETE CUBR & GUTTER 4-INCH SLOPED 36-INCH TYPE TBT (LF)	650.5500 CONSTRUCTION STAKING CURB & GUTTER (LF)												
STATION	LOCATION						PIPE NUMBER	FROM STRUCTURE	TO STRUCTURE	UPSTREAM ELEVATION	DISCHARGE ELEVATION	% SLOPE																	
99+29	MAINLINE	2	110	2	5	1	P-1	I-1	EW-1	1600.24	1600.13	1.00	1	11		94+20 - 94+58	MAINLINE, LT.	39	-	39									
							P-2	I-2	EW-2	1600.27	1600.16	1.00	1	11		94+28 - 94+58	MAINLINE, RT.	30	-	30									
							P-3	I-3	EW-3	1600.50	1600.39	1.00	1	11		94+58 - 94+73	MAINLINE, LT.	-	15	-									
							P-4	I-4	EW-4	1600.47	1600.36	1.00	1	11		94+58 - 94+81	MAINLINE, RT.	-	22	-									
																97+30 - 97+52	MAINLINE, LT.	-	23	-									
	TOTALS=	2	110	2	5	1							TOTALS=	4	44		97+37 - 97+52	MAINLINE, RT.	-	15	-								
							NOTES:																						
							PIPE LENGTHS ARE MEASURED FROM CENTER OF INLET TO APRON ENDWALL																						

FINISHING ITEMS

STATION - STATION	LOCATION	625.0100		629.0210		630.0130		630.0200		630.0500		SPV.0085.01	
		TOPSOIL		FERTILIZER TYPE B		SEEDING MIXTURE NO. 30		SEEDING TEMPORARY		SEED WATER		SEEDING MIXTURE NO. 95B	
		(CATEGORY 0010)	(CATEGORY 0030)	(CATEGORY 0010)	(CATEGORY 0030)	(CATEGORY 0010)	(CATEGORY 0030)	(CATEGORY 0010)	(CATEGORY 0030)	(CATEGORY 0010)	(CATEGORY 0030)	(CATEGORY 0010)	(CATEGORY 0030)
		(SY)	(SY)	(CWT)	(CWT)	(LB)	(LB)	(LB)	(LB)	(MGAL)	(MGAL)	(LB)	(LB)
92+00 - 94+80	MAINLINE, LT.	1335	-	0.9	-	75	-	-	-	41	-	-	-
92+00 - 94+88	MAINLINE, RT.	145	-	0.3	-	20	-	-	-	11	-	-	-
96+98 - 100+10	MAINLINE, RT.	560	-	0.4	-	35	-	-	-	19	-	-	-
97+22 - 100+10	MAINLINE, LT.	230	-	0.3	-	19	-	-	-	11	-	-	-
98+76 - 99+82	MAINLINE, LT.	220	-	-	-	13	-	-	-	3	-	0.3	-
10'A'+15 - 12'A'+50	A'-LINE	-	820	-	0.5	-	50	-	-	-	25	-	0.2
-	*BOAT LANDING SITE	-	2540	-	1.5	-	145	-	-	-	75	-	0.1
-	UNDISTRIBUTED	610	840	0.5	0.6	38	45	40	50	20	25	0.2	0.2
SUBTOTALS =		3100	4200	2.4	2.6	200	240	40	50	105	125	0.5	0.5
PROJECT TOTAL =		7300		5.0		440		90		230		1.0	

*SEE EROSION CONTROL PLAN FOR ADDITIONAL INFORMATION OF FINISHING ITEM LIMITS.

EROSION MAT URBAN CLASS I TYPE B

STATION - STATION	LOCATION	628.2008	
		(CATEGORY 0010)	(CATEGORY 0030)
		(SY)	(SY)
92+00 - 94+80	MAINLINE, LT.	1670	-
92+00 - 94+88	MAINLINE, RT.	450	-
96+98 - 100+10	MAINLINE, RT.	780	-
97+22 - 100+10	MAINLINE, LT.	430	-
98+76 - 99+82	MAINLINE, LT.	280	-
10'A'+15 - 12'A'+50	A'-LINE	-	1100
-	*BOAT LANDING SITE	-	3240
-	UNDISTRIBUTED	890	1060
SUBTOTALS =		4500	5400
PROJECT TOTAL =		9900	

*SEE EROSION CONTROL PLAN FOR ADDITIONAL INFORMATION OF FINISHING ITEM LIMITS.

TURBIDITY BARRIERS

STATION - STATION	LOCATION	628.6005	
		(CATEGORY 0010)	(CATEGORY 0030)
		(SY)	(SY)
95+20 - 95+70	MAINLINE	170	-
96+56 - 96+63	MAINLINE	70	-
96+17 - 96+63	MAINLINE, RT.	-	215
-	UNDISTRIBUTED	60	55
SUBTOTALS =		300	270
TOTAL =		570	

TEMPORARY DITCH CHECKS

STATION	LOCATION	628.7504	
		(CATEGORY 0010)	(CATEGORY 0030)
		(LF)	(LF)
98+50	MAINLINE, RT.	10	-
11'A'+50	'A'-LINE, LT.	-	10
13'A'+00	'A'-LINE, LT.	-	10
-	UNDISTRIBUTED	10	10
SUBTOTALS =		20	30
TOTAL =		50	

ROCK BAGS

STATION	LOCATION	628.7570	
		(CATEGORY 0010)	(CATEGORY 0030)
		(EACH)	(EACH)
-	UNDISTRIBUTED SILT FENCE RELIEF	35	21
TOTAL =		56	

PERMANENT SIGNING

SIGN NUMBER	APPROX. STATION	LOCATION	POSITION	SIGN CODE	SIGN DESCRIPTION	ORDER LINES	SIZE (INCH X INCH)	634.0616	637.2210	638.2602	638.3000
								POSTS WOOD	SIGNS TYPE II	REMOVING	REMOVING
								4X6-INCH 16-FT (EACH)	REFLECTIVE TYPE H (SF)	SIGNS TYPE II (EACH)	SMALL SIGN SUPPORTS (EACH)
3-01R	93+30	MAINLINE	RIGHT	I3-1	LAKE OR RIVER NAME	MANITOWISH RIVER	66x24	-	-	1	2
3-02	93+30	MAINLINE	RIGHT	I3-1	LAKE OR RIVER NAME	MANITOWISH RIVER	66x24	2	11.00	-	-
3-03R	95+01	MAINLINE	LEFT	W5-52L	BRIDGE HASH MARKS	-	-	-	-	1	1
3-04R	95+01	MAINLINE	RIGHT	W5-52R	BRIDGE HASH MARKS	-	-	-	-	1	1
3-05R	97+05	MAINLINE, LT.	LEFT	W5-52L	BRIDGE HASH MARKS	-	-	-	-	1	1
3-06R	97+06	MAINLINE, RT	RIGHT	W5-52R	BRIDGE HASH MARKS	-	-	-	-	1	1
3-07R	98+05	MAINLINE	LEFT	I3-1	LAKE OR RIVER NAME	MANITOWISH RIVER	66x24	-	-	1	2
3-08	98+05	MAINLINE	LEFT	I3-1	LAKE OR RIVER NAME	MANITOWISH RIVER	66x24	2	11.00	-	-
TOTALS=								4	22.00	6	8

PAVEMENT MARKING

STATION - STATION	LOCATION	646.2020	646.2040
		MARKING LINE EPOXY 6-INCH (LF)	MARKING LINE GROOVED WET REF EPOXY 6-INCH (LF)
92+00 - 100+10	MAINLINE	250	1620
TOTALS=		250	1620

3

TRAFFIC CONTROL											
LOCATION	CALENDAR*	643.0420		643.0705		643.0900		643.0920	643.1000	643.3350	COMMENTS
	DAY	TRAFFIC CONTROL		TRAFFIC CONTROL		TRAFFIC CONTROL		TRAFFIC CONTROL	TRAFFIC	TEMPORARY MARKING	
	DURATION	BARRICADES TYPE III		WARNING LIGHTS		CONTROL SIGNS		COVERING SIGNS	CONTROL SIGNS	CROSSWALK REMOVABLE	
		COUNT*	(DAY)	COUNT*	(DAY)	COUNT*	(DAY)	TYPE II	FIXED MESSAGE	TAPE 6-INCH	
MAINLINE	168	14	2,352	16	2,688	4	672	-	36	-	DETAIL A
DETOUR	168	4	672	8	1,344	76	12,768	10 (1 CYCLE)	-	-	OVERVIEW, & DETAILS B & C
BIKE TRAIL	168	4	672	8	1,344	4	672	-	-	-	DETAIL D, E, & F
TEMPORARY PORTAGE PLAN	168	-	-	-	-	11	1,848	-	20	60	PORTAGE PLAN
TOTALS =		3,696		5,376		15,960		10	56	60	
*FOR INFORMATION ONLY											

ALL ITEMS ARE CATEGORY 0010 UNLESS NOTED OTHERWISE

SAWING ASPHALT		
STATION - STATION	LOCATION	690.0150 (LF)
92+00	MAINLINE	30
98+76	MAINLINE, LT.	10
99+82	MAINLINE, LT.	10
100+10	MAINLINE	30
TOTALS=		80

3

CONSTRUCTION STAKING							
STATION - STATION	LOCATION	650.4500		650.5000		650.9920	
		SUBGRADE		BASE		SLOPE STAKES	
		(CATEGORY 0010)	(CATEGORY 0030)	(CATEGORY 0010)	(CATEGORY 0030)	(CATEGORY 0010)	(CATEGORY 0030)
		(LF)	(LF)	(LF)	(LF)	(LF)	(LF)
92+00 - 94+58	MAINLINE	260	-	260	-	260	-
94+58 - 94+97	MAINLINE	40	-	-	-	40	-
97+13 - 97+52	MAINLINE	40	-	-	-	40	-
97+52 - 100+10	MAINLINE	260	-	260	-	260	-
10'A'+15 - 12'A'+50	A'-LINE	-	235	-	235	-	235
-	BOAT LANDING	-	-	-	-	-	1
PROJECT	-	-	-	-	-	-	-
SUBTOTALS=		600	235	520	235	600	235
TOTALS=		835		755		835	

INSTALLING AND MAINTAINING CLIMBING TURTLE EXCLUSION FENCE			
STATION - STATION	LOCATION	999.2100.S	
		(CATEGORY 0010) (LF)	(CATEGORY 0030) (LF)
91+65 - 95+69	MAINLINE, RT.	520	-
91+65 - 95+46	MAINLINE, LT.	540	-
96+55 - 101+00	MAINLINE, LT.	530	-
96+57 - 96+64	MAINLINE, RT.	80	-
98+83 - 99+84	MAINLINE, LT.	180	-
10'A'+37 - 12'A'+67	A'-LINE, RT.	-	250
-	BOAT LANDING	-	900
-	UNDISTRIBUTED	200	100
SUBTOTALS =		2050	1250
TOTAL =		3300	

SALVAGED TIMBER BOARDWALK FENCING		
STATION - STATION	LOCATION	SPV.0090.01 (LF)
98+76 - 99+82	MAINLINE, LT.	106
TOTAL=		106

TEMPORARY PORTAGE PATH		
STATION - STATION	LOCATION	SPV.0090.02 (LF)
91+78 - 95+71	MAINLINE, LT. & RT.	620
TOTAL=		620

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

THE PURPOSE OF THE TLE IS FOR GRADING AND BOAT LAUNCH CONSTRUCTION AND REMOVAL OF OLD BOAT LAUNCH.
ALL COORDINATES SHOWN ARE VILAS COUNTY COORDINATES.

EXHIBIT NUMBER: 1

TLE ACQUISITION EXHIBIT
MINOQUA - MANITOWISH
MANITOWISH RIVER BRIDGE, B-63-0003

USH 51

VILAS COUNTY

PART OF THE NE $\frac{1}{4}$ -NE $\frac{1}{4}$, AND PART OF THE SE $\frac{1}{4}$ -NE $\frac{1}{4}$, SECTION 7, T42N, R5E, TOWN OF MANITOWISH WATERS, VILAS COUNTY, WISCONSIN.

FOUND
BRASS CAP
MONUMENT
Y = 188706.749
X = 331775.051



S39 11'21"W, 1655.34'-
FROM NE CORNER OF
SECTION 7 TO TLE PT. 1

N89 00'29"W, 2703.42'
FROM NE CORNER OF
SECTION 7 TO N1/4 CORNER
SECTION 7

FOUND
BRASS CAP
MONUMENT
Y = 188659.945
X = 334478.065



TLE LINE TABLE		
LINE	BEARING	DISTANCE
L1	N31 32'50"E	9.55'
L2	N68 56'06"E	50.06'
L3	S79 29'08"E	103.02'
L4	S80 45'11"E	93.14'
L5	S77 03'25"E	116.19'
L6	S74 42'43"E	177.28'
L7	S47 09'53"W	188.80'
L8	S57 44'18"W	29.07'
L9	N58 30'35"W	429.38'
L10	S31 29'24"W	9.70'
L11	N81 12'26"W	108.39'
L12	N31 29'18"E	51.53'
L13	S58 30'35"E	100.00'

SCHEDULE OF LANDS & INTERESTS REQUIRED

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

PARCEL NUMBER	OWNER(S)	INTEREST REQUIRED	TLE ACRES
1	WIDNR	TLE	1.37

UTILITY INTERESTS REQUIRED

UTILITY NUMBER	UTILITY OWNER(S)	INTEREST REQUIRED
NA	NA	NA

THIS EXHIBIT IS APPROVED FOR THE DEPARTMENT OF TRANSPORTATION
NORTH CENTRAL REGION OFFICE

SIGNATURE: Brent L Stella DATE: 5/29/25

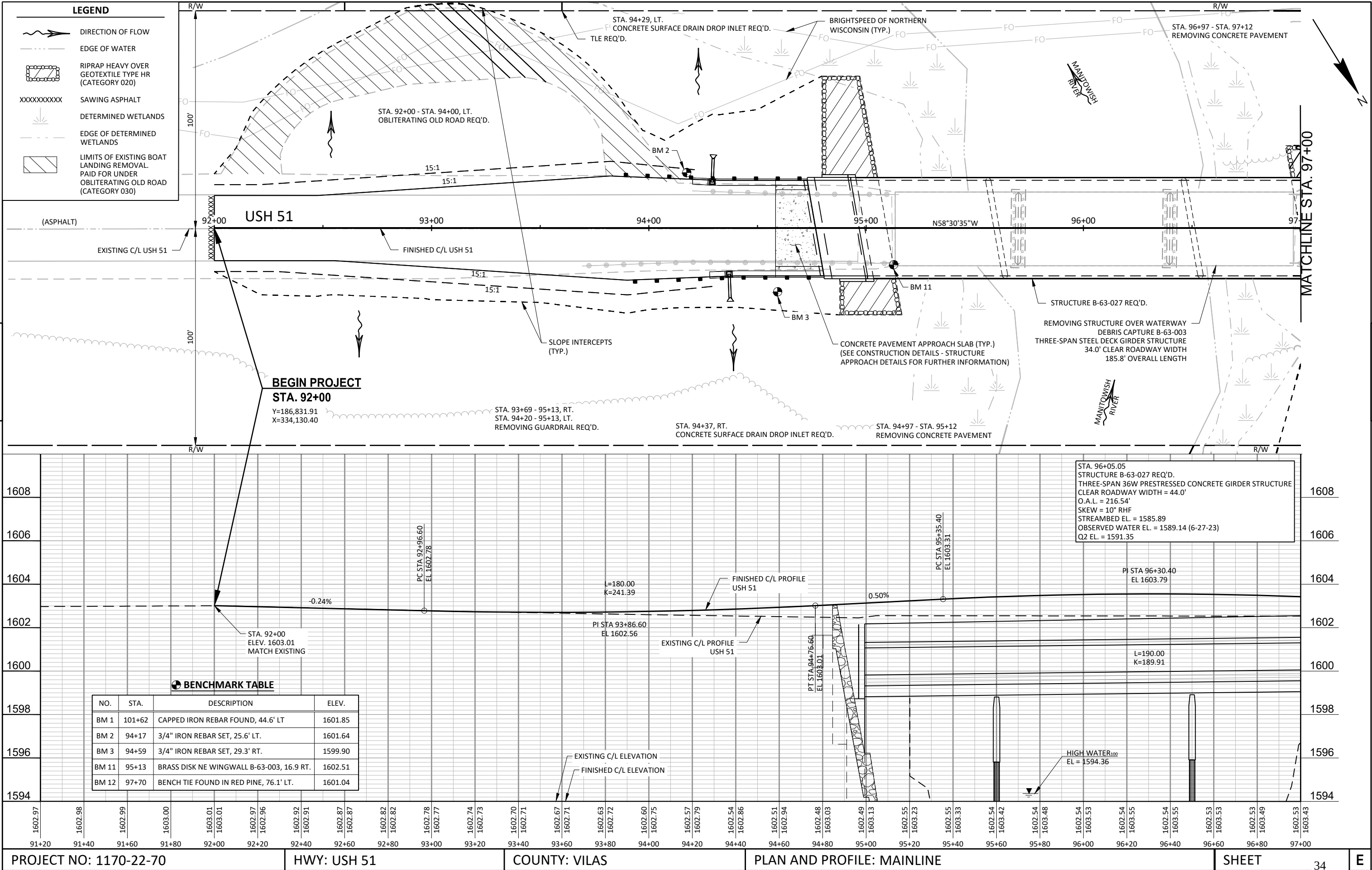
PRINT NAME: BRENT STELLA

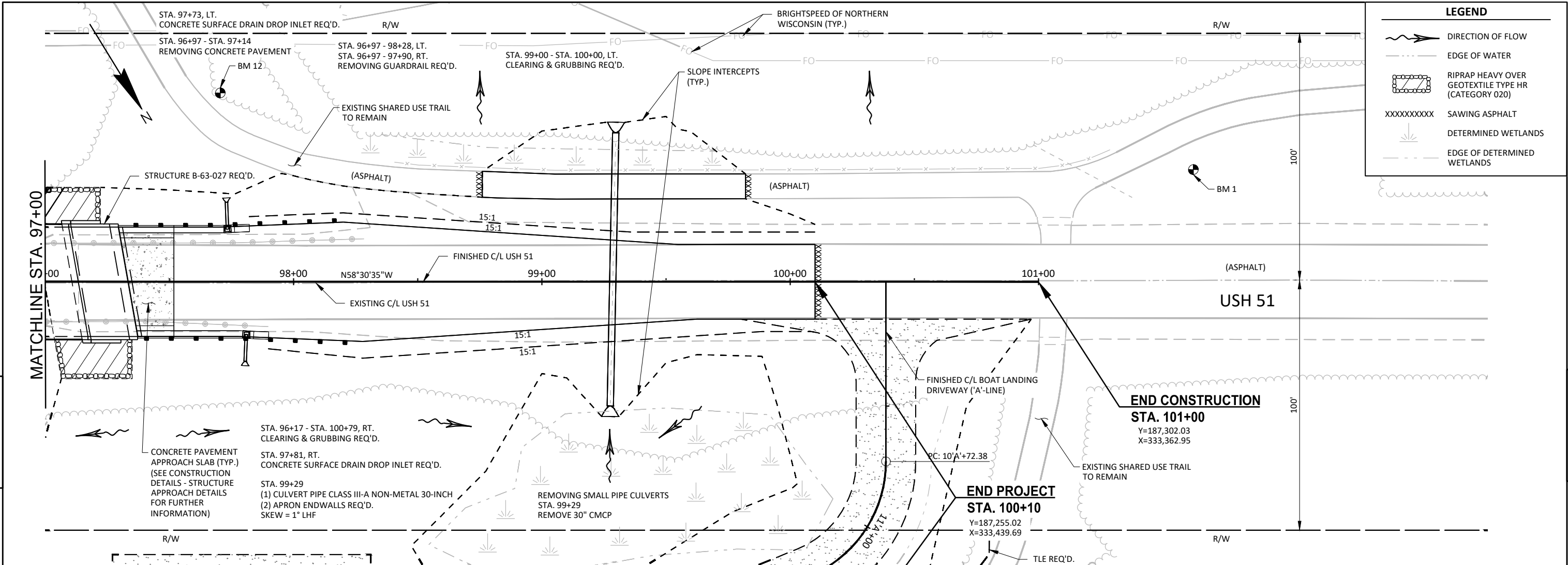
33

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PLOT DATE : 4/23/2025 8:02 AM

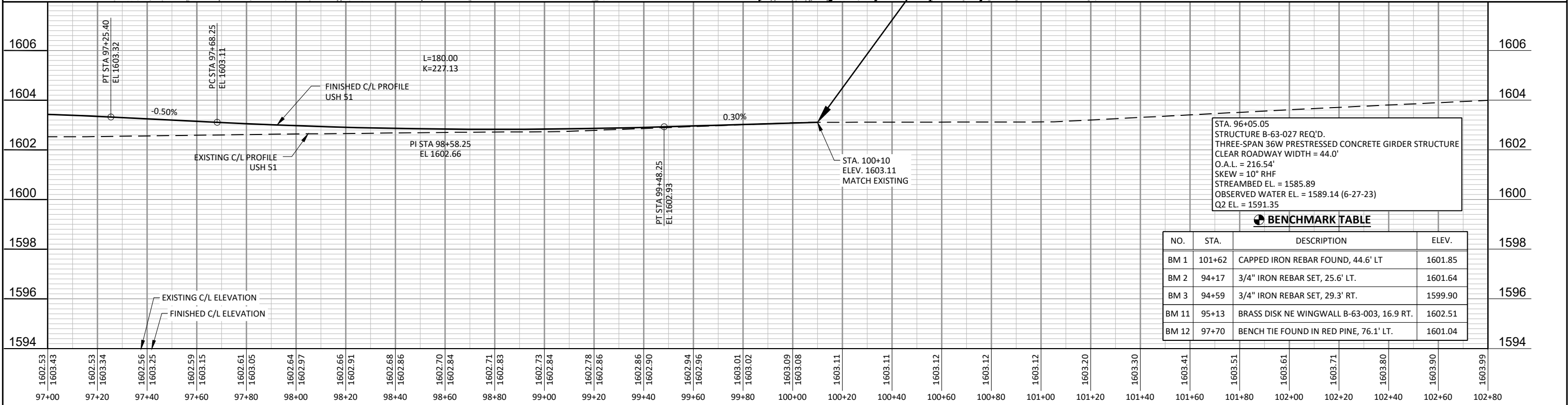
R/W PROJECT: 1170-22-20





LEGEND

- DIRECTION OF FLOW
- EDGE OF WATER
- RIPRAP HEAVY OVER GEOTEXTILE TYPE HR (CATEGORY 020)
- SAWING ASPHALT
- DETERMINED WETLANDS
- EDGE OF DETERMINED WETLANDS



BENCHMARK TABLE

NO.	STA.	DESCRIPTION	ELEV.
BM 1	101+62	CAPPED IRON REBAR FOUND, 44.6' LT	1601.85
BM 2	94+17	3/4" IRON REBAR SET, 25.6' LT.	1601.64
BM 3	94+59	3/4" IRON REBAR SET, 29.3' RT.	1599.90
BM 11	95+13	BRASS DISK NE WINGWALL B-63-003, 16.9 RT.	1602.51
BM 12	97+70	BENCH TIE FOUND IN RED PINE, 76.1' LT.	1601.04

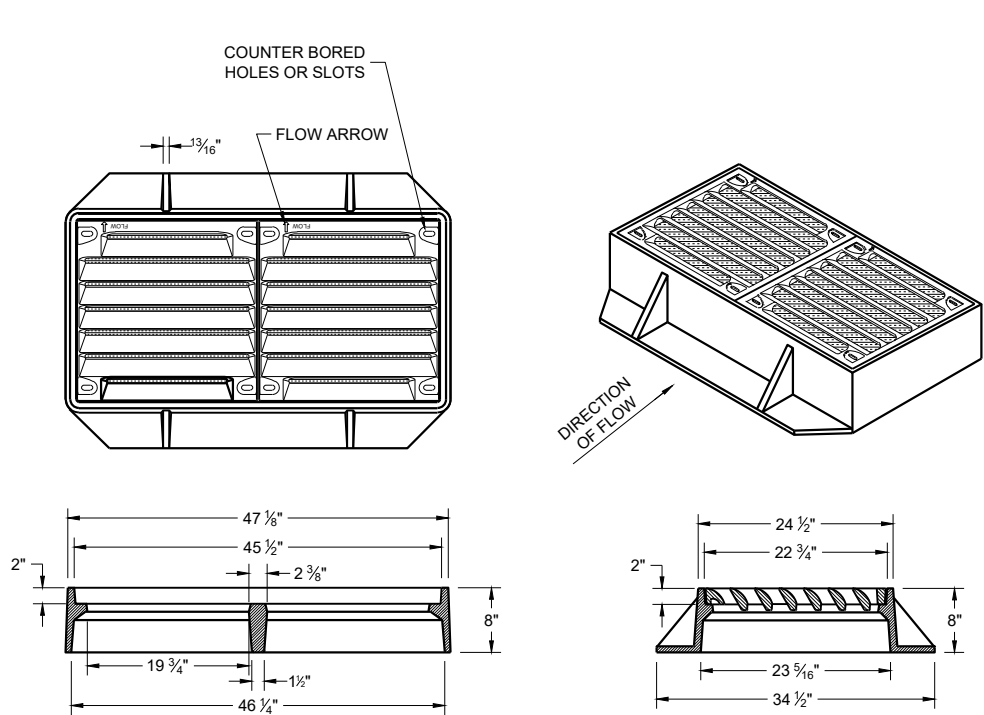
Standard Detail Drawing List

08A05-22D	INLET COVERS TYPE V, V-B, & VV-B
08C07-03	INLETS 2X2-FT, 2X2.5-FT, 2X3-FT, 2.5X3-FT & 2X3.5-FT
08D01-24A	CONCRETE CURB & GUTTER
08D01-24B	CONCRETE CURB, TIES AND CURB AND GUTTER APPLICATIONS
08D03-09A	CONCRETE SURFACE DRAINS DROP INLET TYPE AT STRUCTURES
08D03-09B	CONCRETE SURFACE DRAINS DROP INLET TYPE AT STRUCTURES
08E08-03	TYPICAL INSTALLATIONS OF EROSION BALES / TEMPORARY DITCH CHECKS
08E09-06	SILT FENCE
08E10-02	INLET PROTECTION TYPE A, B, C AND D
08E11-02	TURBIDITY BARRIER
08E14-01	TRACKING PAD
08E15-01	CULVERT PIPE CHECK
08F01-11	APRON ENDWALLS FOR CULVERT PIPE
08F04-08	JOINT TIES FOR CONCRETE PIPE AND CONCRETE COLLAR DETAIL
09A14-01	DRIVEWAYS WITHOUT CURB AND GUTTER
12A03-10	NAME PLATE (STRUCTURES)
13A03-07	CONCRETE PAVEMENT SHOULDERS
13A11-04A	CENTERLINE RUMBLE STRIPS - ASPHALT
13A11-04D	CENTERLINE RUMBLE STRIPS - INTERSECTIONS, DRIVEWAYS, BRIDGES, RAILROADS
13B02-09A	CONCRETE PAVEMENT APPROACH SLAB
13B02-09B	STRUCTURAL APPROACH SLAB AND CONCRETE PAVEMENT APPROACH SLAB
13C19-03	HMA LONGITUDINAL JOINTS
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)
14B45-05J	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14D01-01	TURTLE EXCLUSION FENCE CLIMBING TURTLE
15A03-02A	FLEXIBLE MARKER POST FOR CULVERT END
15A03-02B	FLEXIBLE MARKER POST FOR CULVERT END
15C02-10A	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-10B	BARRICADES AND SIGNS FOR VARIOUS CLOSURES
15C02-10C	DETOUR SIGNING FOR MAINLINE CLOSURES
15C02-10H	MODIFIED ROUTE ASSEMBLY FOR DETOUR SIGNING
15C08-24A	PERMANENT LONGITUDINAL PAVEMENT MARKINGS
15C11-11B	CHANNELIZING DEVICES DRUMS, CONES, BARRICADES AND VERTICAL PANELS
15D51-02	TRAFFIC CONTROL, MOBILE OPERATIONS ON AN UNDIVIDED ROADWAY

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.

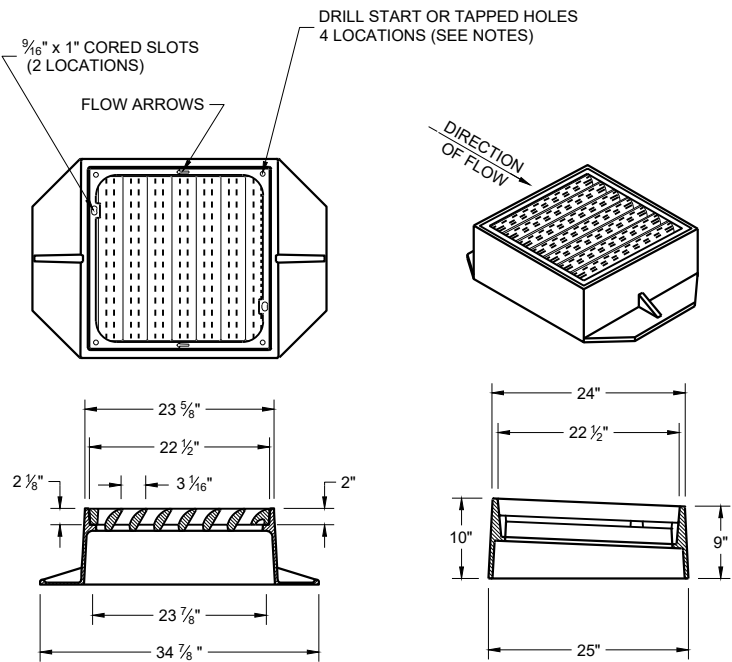
DETAIL DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR INLET COVERS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PROVIDING THAT SUCH ALTERNATE DESIGNS MAKE PROVISION FOR EQUIVALENT CAPACITY AND STRENGTH.



TYPE "VV-B"

NOTES: ALL HARDWARE TO BE SUPPLIED BY CASTING MANUFACTURER
ALL DRILLING AND TAPPING GRATES AND FRAMES BY CASTING MANUFACTURER

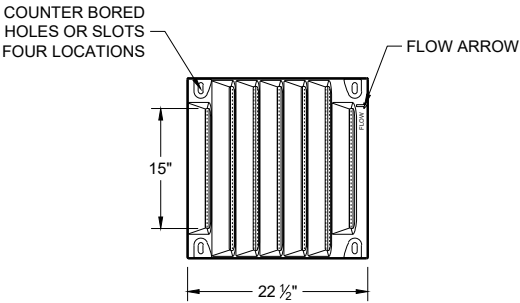
TYPE V
FRAME - CAST GRAY IRON ASTM A48 CLASS 35B
3/8" DIA. X 1/16" DRILL START IN 8 LOCATIONS
GRATE - CAST GRAY IRON ASTM A-48, CLASS 35B



TYPE "V"

NOTES: ALL HARDWARE TO BE SUPPLIED BY CASTING MANUFACTURER ALL DRILLING AND TAPPING GRATES AND FRAMES BY CASTING MANUFACTURER

TYPE V
FRAME - CAST GRAY IRON ASTM A48 CLASS 40A
3/8" DIA. X 1/16" DRILL START IN 4 LOCATIONS
GRATE - CAST GRAY IRON ASTM A-48, CLASS 35B



BOLT DOWN GRATE FOR
TYPE "V" AND "VV-B" COVER

NOTES: ALL HARDWARE TO BE SUPPLIED BY CASTING MANUFACTURER
NOTED AS TYPE "V-B" OR "VV-B" (FOR DOUBLE GRATE) ON DRAINAGE TABLE

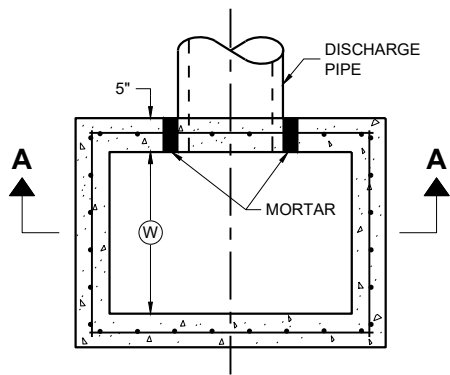
TAP 1/2" -13 HOLES IN FOUR LOCATIONS PER GRATE IN FRAME TO BOLT GRATE(S).
FRAME - CAST GRAY IRON ASTM A48 CLASS 40A

GRATE - CAST DUCTILE IRON ASTM A536, 55+KSI YIELD
BOLTS - 1/2" -13 STAINLESS STEEL BOLTS WITH WASHERS
TORQUE BOLTS TO MANUFACTURER SPECIFICATION DO NOT OVERTIGHTEN.

INLET COVERS
TYPES V, V-B, AND VV-B

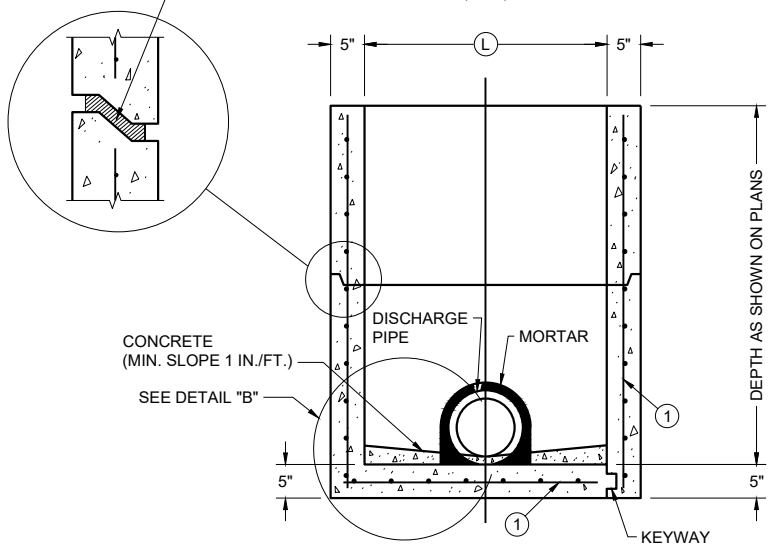
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
February 2025 /S/ Rodney Taylor
DATE ROADWAY STANDARDS DEVELOPMENT
FHWA UNIT SUPERVISOR



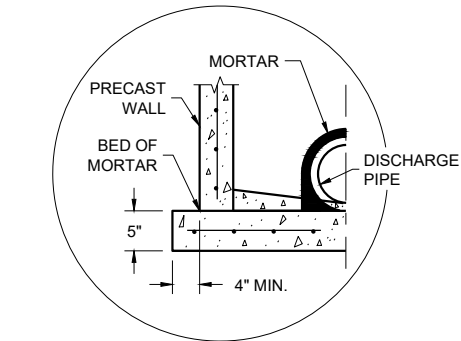
PLAN VIEW

RISER JOINT TO BE SEALED WITH
A BUTYL RUBBER SEAL PER SEALANT
MANUFACTURERS RECOMMENDATIONS
CONFORMING TO ASTM C 990 (TYP.)



PRECAST REINFORCED
CONCRETE WITH
MONOLITHIC BASE

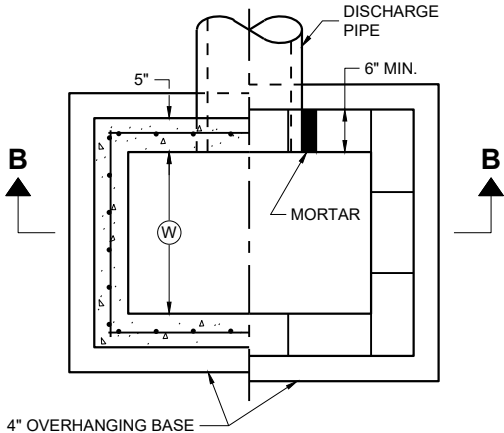
SECTION A - A



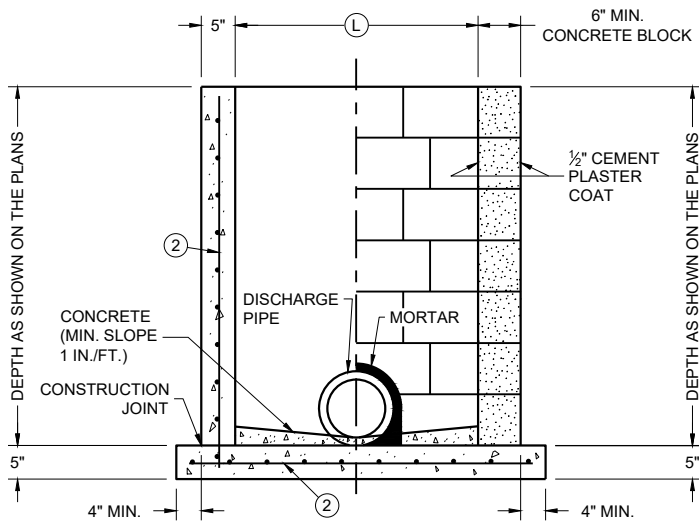
SEPARATE PRECAST REINFORCED
CONCRETE BASE OPTION

DETAIL "B"

INLETS 2 X 2-FT, 2 X 2.5-FT, 2 X 3-FT, 2.5 X 3-FT AND 2X3.5-FT



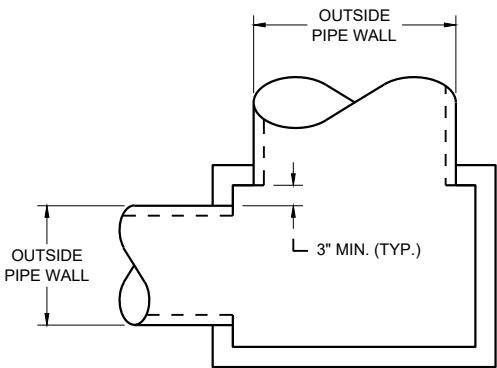
PLAN VIEW



CAST IN PLACE
REINFORCED
CONCRETE

SECTION B - B

CONCRETE BLOCK WITH
CAST IN PLACE OR
PRECAST REINFORCED
CONCRETE BASE ①



DETAIL "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.

UNLESS OTHERWISE AUTHORIZED IN WRITING BY THE ENGINEER, THE CONTRACTOR SHALL NOT ORDER AND DELIVER PRECAST INLET UNITS REQUIRED FOR THE PROJECT UNTIL A LIST OF SIZES IS FURNISHED BY THE ENGINEER.

DETAILED DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR UNDERGROUND DRAINAGE STRUCTURES SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PROVIDING THAT SUCH ALTERNATE DESIGNS MAKE PROVISION FOR EQUIVALENT CAPACITY AND STRENGTH.

ALL PRECAST INLET UNITS SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF ASTM C 913.

ALL DRAINAGE STRUCTURES ARE DESIGNATED ON THE PLANS AS "MANHOLES 3X3-L", "CATCH BASINS 4-B", "INLETS 2X3-H", ETC. THE FIRST NUMBERS DESIGNATES THE SIZE OF THE STRUCTURE, AND THE FOLLOWING LETTER DESIGNATES THE TYPE OF COVER TO BE USED TO COMPRISE THE COMPLETE UNIT.

BASES SHALL BE PLACED ON A BED OF MATERIAL AT LEAST 6 INCHES IN DEPTH, WHICH MEETS THE REQUIREMENTS OF FOUNDATION BACKFILL. THIS BEDDING SHALL BE COMPACTED AND PROVIDE UNIFORM SUPPORT FOR THE ENTIRE AREA OF THE BASE.

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

PRECAST REINFORCED RISERS SHALL HAVE A TONGUE AND GROOVE JOINT WITH TONGUE UP OR DOWN.

4" OVERHANGING BASES ARE REQUIRED FOR CAST-IN-PLACE REINFORCED CONCRETE AND CONCRETE BLOCK INSTALLATIONS. 4" OVERHANG IS REQUIRED WHEN SEPARATE PRECAST BASE IS PROVIDED. OVERHANG IS NOT REQUIRED ON PRECAST STRUCTURES WITH AN INTEGRAL OR MONOLITHIC BASE.

MAXIMUM INSIDE PIPE DIAMETER DETERMINED BY 3" CLEARANCE ON EACH SIDE OF THE OUTSIDE WALL OF THE PIPE. SEE DETAIL "A". ASSUMES PIPE ENTERS PERPENDICULAR TO THE STRUCTURE.

- ① FOR PRECAST INLETS AND REINFORCED CONCRETE BASES PROVIDE REINFORCING STEEL IN ACCORDANCE TO ASTM C 913
- ② CONTRACTOR TO PROVIDE DRAWING(S) STAMPED BY A PROFESSIONAL ENGINEER FOR STEEL REINFORCING DESIGN FOR CAST-IN-PLACE STRUCTURES.

CATCH BASIN COVER MATRIX

INLET SIZE	WIDTH (W) (FT.)	LENGTH (L) (FT.)	INLET COVER TYPE									
			ALL A'S	ALL B'S	BW	F	ALL H'S	S	T	V	WM	V V-B
2 X 2-FT	2	2	X	X				X				
2 X 2.5-FT	2	2.5			X			X	X	X	X	
2 X 3-FT	2	3					X					
2.5 X 3-FT	2.5	3				X						
2 X 3.5-FT	2	3.5										X

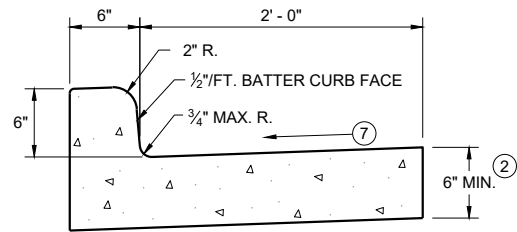
PIPE MATRIX

CATCH BASIN SIZE	MAXIMUM INSIDE PIPE DIAMETER FOR TWO PIPES	
	WIDTH (IN)	LENGTH (IN)
2 X 2-FT	12	12
2 X 2.5-FT	12	18
2 X 3-FT	12	24
2.5 X 3-FT	18	24
2 X 3.5-FT	12	30

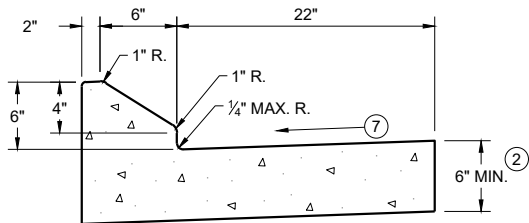
INLETS 2 X 2-FT, 2 X 2.5-FT,
2 X 3-FT, 2.5 X 3-FT
AND 2 X 3.5-FT

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

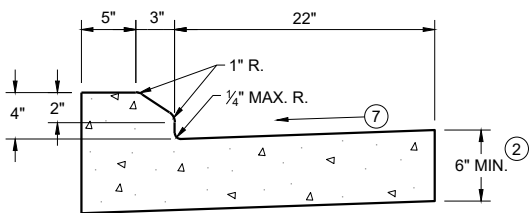
APPROVED
December 2023 /S/ Rodney Taylor
DATE ROADWAY STANDARDS DEVELOPMENT
FHWA UNIT SUPERVISOR



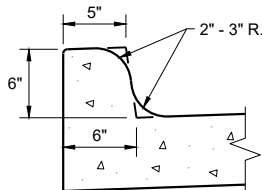
TYPES A^① & D



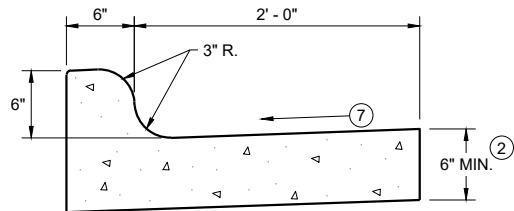
6" SLOPED CURB TYPES G^① & J



4" SLOPED CURB TYPES G^① & J

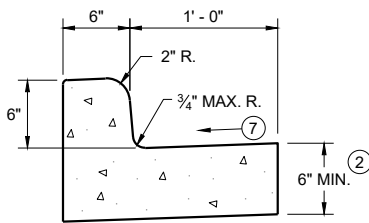


TYPES K^① & L
(OPTIONAL CURB SHAPE)



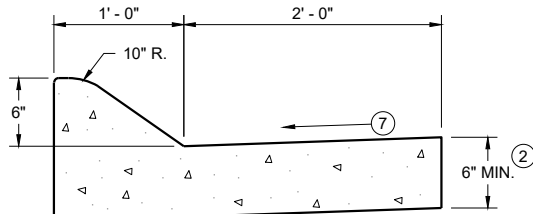
TYPES K^① & L

CONCRETE CURB AND GUTTER 30"

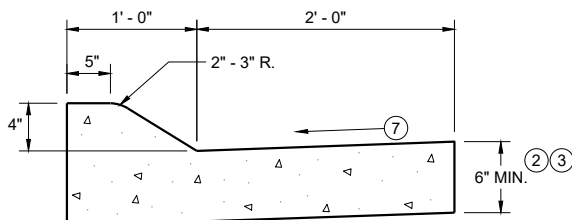


TYPES A^① & D

CONCRETE CURB AND GUTTER 18"

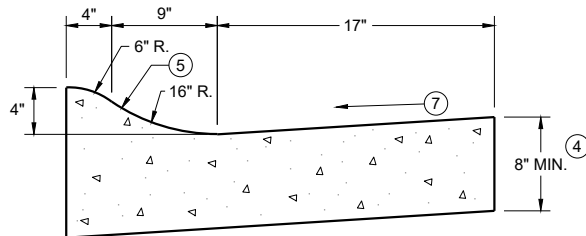


6" SLOPED CURB TYPES A^① & D



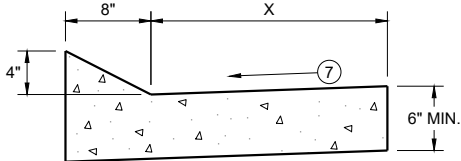
4" SLOPED CURB TYPES A^① & D

CONCRETE CURB AND GUTTER 36"



4" SLOPED CURB TYPES R^① & T
CONCRETE CURB AND GUTTER 30"

TBT & TBTT	X
30"	22"
36"	28"

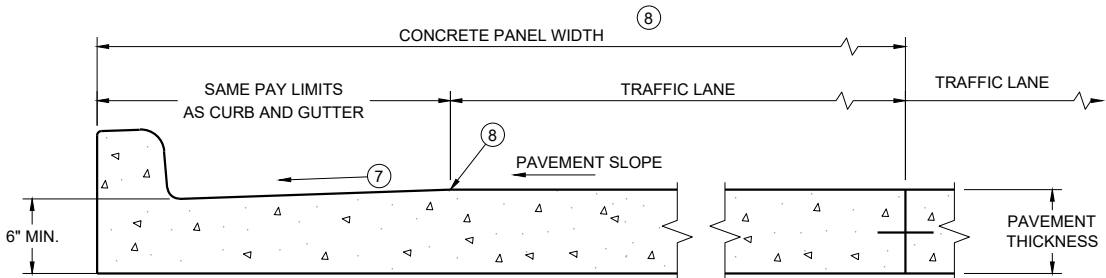


TYPES TBT & TBTT^①

CONCRETE CURB AND GUTTER

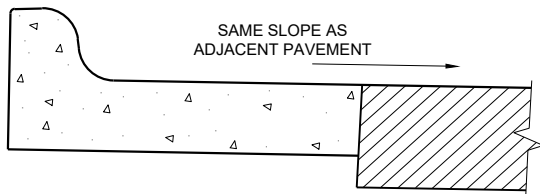
PAVEMENT THICKNESS
AND MAXIMUM CONCRETE
PANEL WIDTH TABLE

PAVEMENT THICKNESS	MAXIMUM PANEL WIDTH
LESS THAN 10"	12'
10" & ABOVE	15'

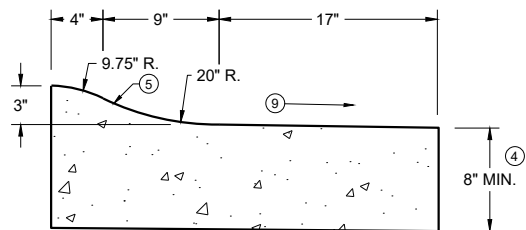


PARTIAL SECTION OF PAVEMENT
WITH INTEGRAL CURB AND GUTTER

* BIKE LANE IS NOT SHOWN



REVERSE SLOPE GUTTER^⑥
(TYPICAL FOR ALL CURB & GUTTER TYPES)



3" SLOPED CURB TYPES R^① & T

CONCRETE CURB AND GUTTER

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

GENERAL NOTES

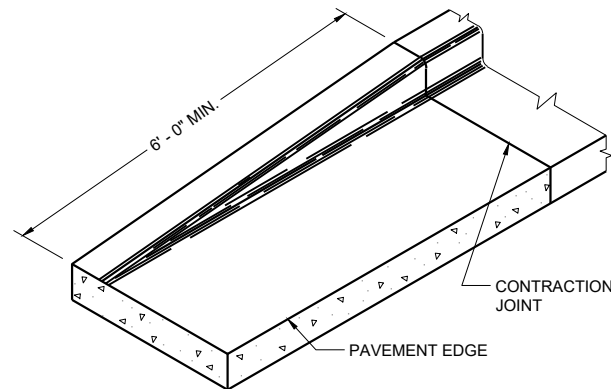
DETAILS OF CONSTRUCTION AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.

PAVEMENT TIES AND TIE BARS SHALL BE EPOXY COATED IN CONFORMANCE WITH SUBSECTION 505.2.6.2 OF THE STANDARD SPECIFICATIONS.

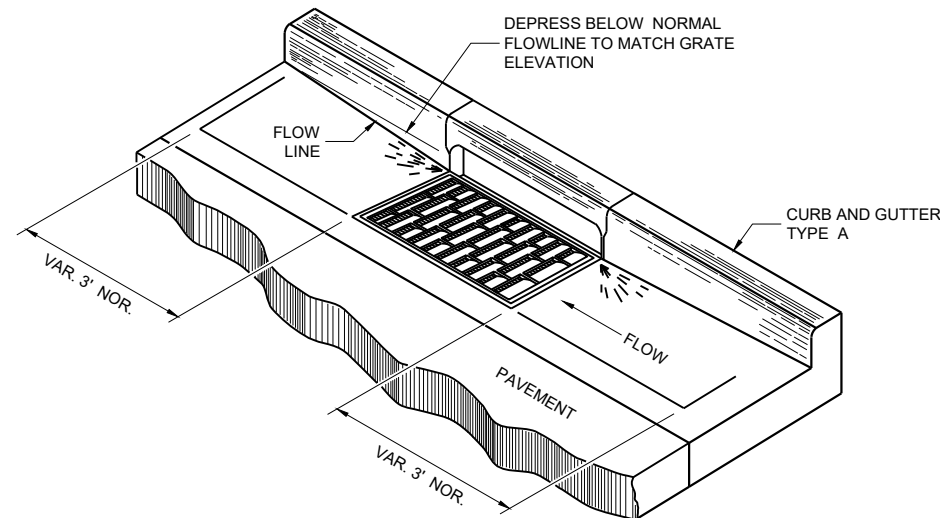
INTEGRAL CURB AND GUTTER SHALL CONFORM TO THE DETAILS SHOWN FOR CONCRETE CURB AND GUTTER INCLUDING THE TRANSVERSE GUTTER SLOPE.

UNLESS OTHERWISE SHOWN ON THE TYPICAL CROSS SECTIONS, THE BASE AGGREGATE AND COMMON EXCAVATION LIMITS ARE 2' - 0" BEHIND THE BACK OF CURBS.

- ① TIE BARS ARE REQUIRED FOR CURB AND GUTTERS TYPES A, G, K, R, AND TBTT.
- ② THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 6" MINIMUM GUTTER THICKNESS IS MAINTAINED.
- ③ USE 8" MINIMUM GUTTER THICKNESS WHEN USED WITH AN ADJACENT CONCRETE TRUCK APRON PLACED BEHIND BACK OF CURB.
- ④ THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 8" MINIMUM GUTTER THICKNESS IS MAINTAINED.
- ⑤ UNLESS OTHERWISE NOTED, FOR STAKING PURPOSES THE FACE OF CURB IS 6" FROM THE BACK OF CURB.
- ⑥ WHEN REVERSE SLOPE GUTTER IS REQUIRED, THE LOCATION(S) WILL BE SHOWN ELSEWHERE IN THE PLAN.
- ⑦ USE 4% GUTTER CROSS SLOPE UNLESS OTHERWISE NOTED IN THE PLANS.
- ⑧ INCLUDE LONGITUDINAL JOINT AND TIE BARS ALONG LANE EDGE WHEN CONCRETE PANEL WIDTH EXCEEDS THE MAXIMUM WIDTH PER TABLE BELOW. LONGITUDINAL JOINT(S) ARE NOT ALLOWED WITHIN TRAFFIC LANES AND BIKE LANES. LONGITUDINAL JOINT MAY BE SAWED.
- ⑨ SLOPE TO BE REVERSE SLOPE MATCHING THE SLOPE OF THE PAVEMENT AND THE CIRCULATORY ROADWAY

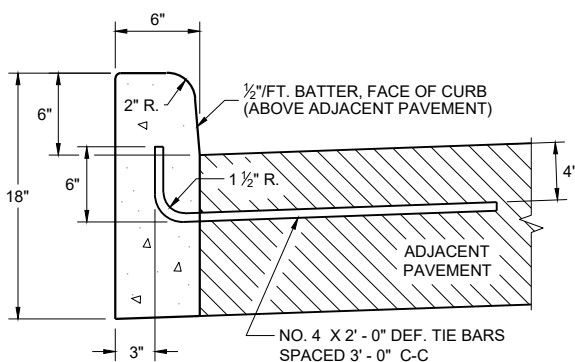


END SECTION CURB AND GUTTER

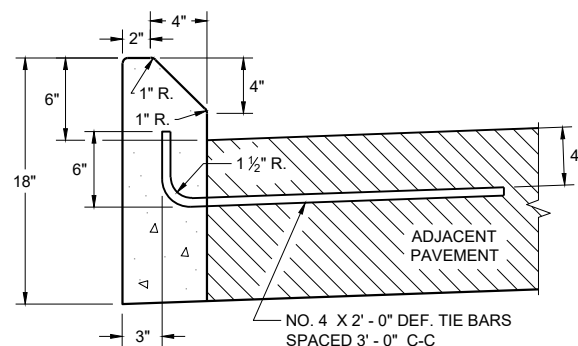


DETAIL OF CURB AND GUTTER AT INLETS

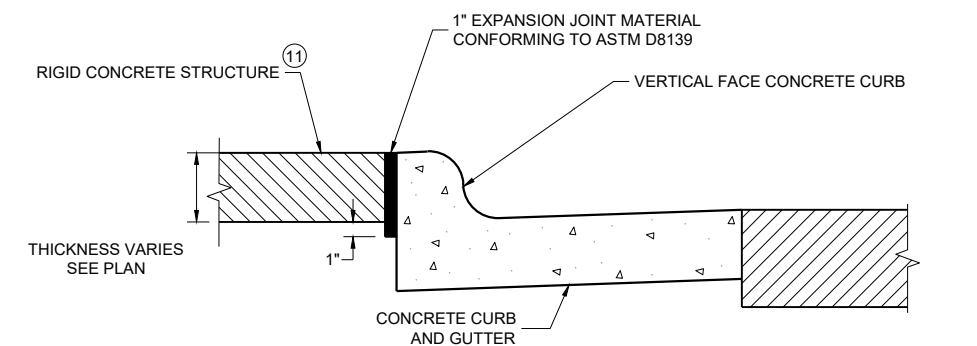
(TYPICAL H INLET COVER SHOWN)



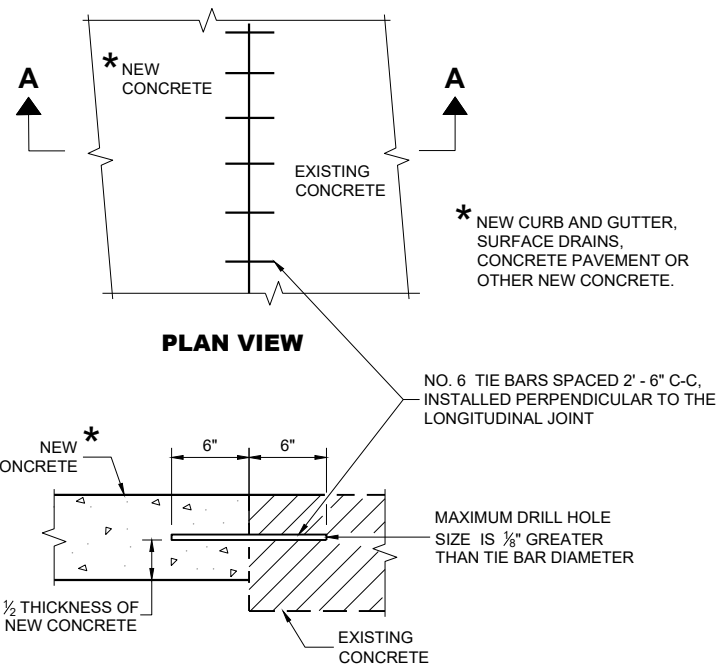
TYPES A^① & D



TYPES G^① & J
CONCRETE CURB



EXPANSION JOINT DETAIL FOR VERTICAL CURB ABUTTING A RIGID STRUCTURE^⑪



SECTION A - A
TIE BARS DRILLED INTO EXISTING PAVEMENT

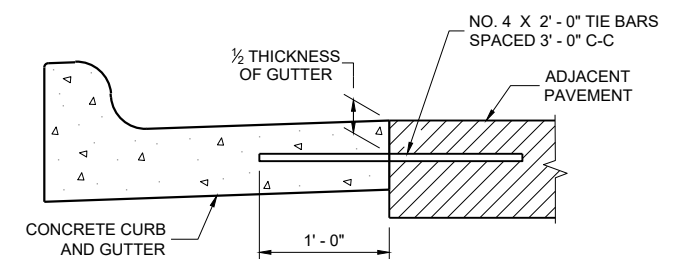
GENERAL NOTES

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

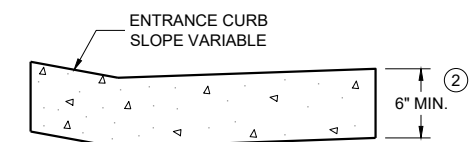
PAVEMENT TIES AND TIE BARS SHALL BE EPOXY COATED IN CONFORMANCE WITH SUBSECTION 505.2.6.2 OF THE STANDARD SPECIFICATIONS.

UNLESS OTHERWISE SHOWN ON THE TYPICAL CROSS SECTIONS, THE BASE AGGREGATE AND COMMON EXCAVATION LIMITS ARE 2' - 0" BEHIND THE BACK OF CURBS.

- ① TIE BARS ARE REQUIRED FOR CURB AND GUTTERS TYPES A, G, K, R, AND TBTT.
- ② THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 6" MINIMUM GUTTER THICKNESS IS MAINTAINED.
- ⑩ REFER TO SDD 08D18 AND 08D19 FOR ADDITIONAL DRIVEWAY ENTRANCE CURB DETAILS.
- ⑪ PLACE 1" THICK EXPANSION JOINT MATERIAL BETWEEN VERTICAL FACE CURB TYPES EXTENDING FROM THE TOP OF CURB TO 1 INCH BELOW THE ADJOINING CONCRETE SURFACE. RIGID CONCRETE STRUCTURES INCLUDE RAISED CONCRETE MEDIANS, CONCRETE SAFETY ISLANDS, SPLITTER ISLANDS, OR LOCATIONS IDENTIFIED ON THE PLANS.



TYPICAL TIE BAR LOCATION^①



DRIVEWAY ENTRANCE CURB^⑩
(WHEN DIRECTED BY THE ENGINEER)

CONCRETE CURB, TIES AND CURB AND GUTTER APPLICATIONS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
February 2025 DATE /S/ Rodney Taylor
ROADWAY STANDARDS DEVELOPMENT
UNIT SUPERVISOR

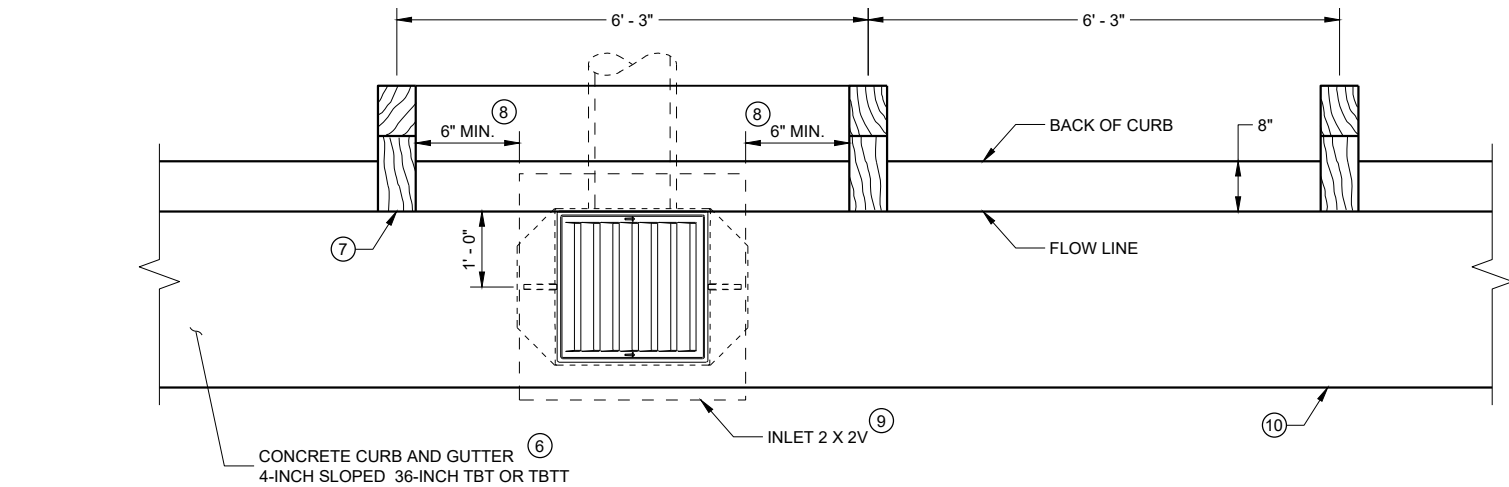
FHWA

GENERAL NOTES

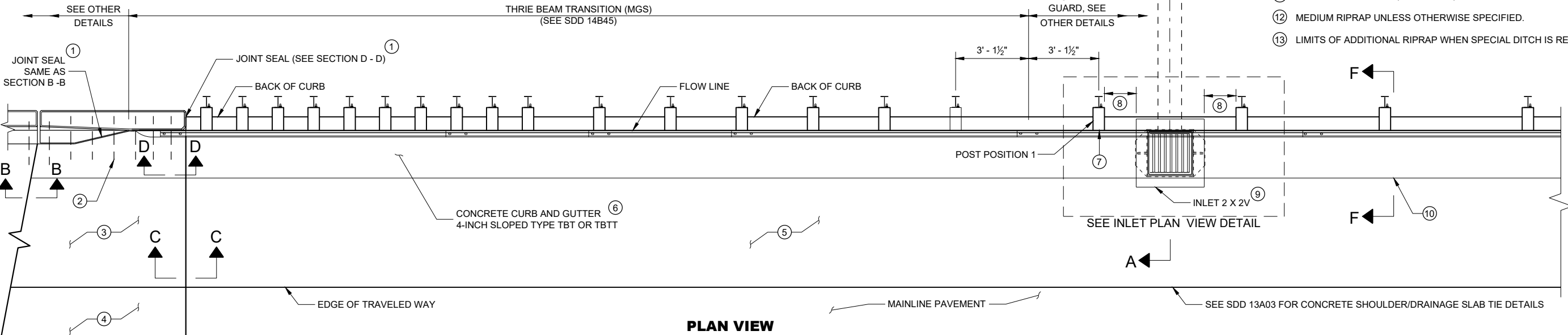
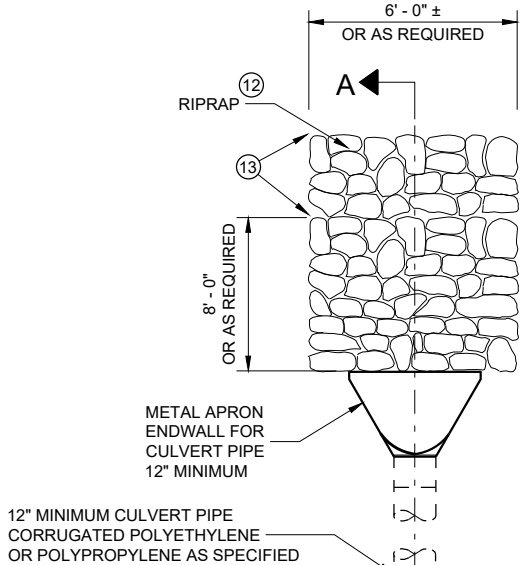
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

ALL STEEL REINFORCEMENT SHALL BE EMBEDDED 2 INCHES CLEAR UNLESS OTHERWISE SHOWN OR NOTED.

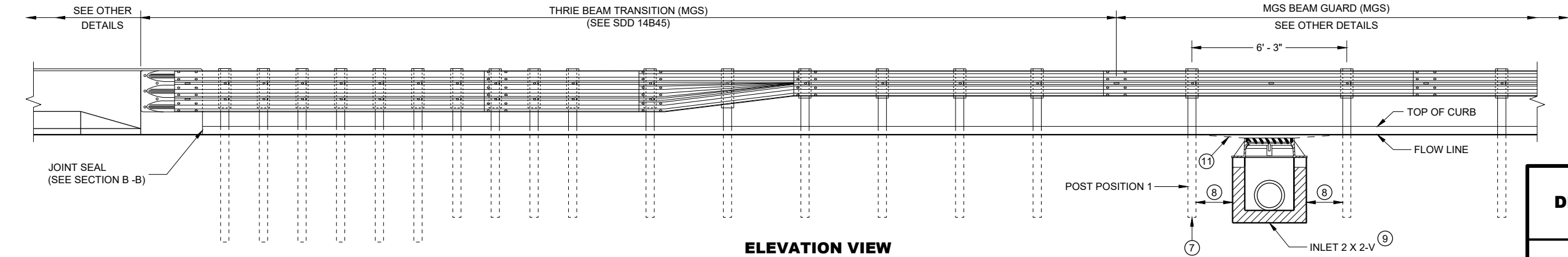
- 1 USE A JOINT SEALANT CONFORMING TO STANDARD SPECIFICATION 415.2.6.
- 2 NO. 4 X 2' - 0" TIE BARS SPACED AT 12" C-C TO BE PLACED BY BRIDGE CONTRACTOR OR DRILLED TIE BARS PLACED AS DIRECTED BY THE ENGINEER.
- 3 PAVED CONCRETE SHOULDER (SDD 13A03) OR CONCRETE DRAINAGE SLAB.
- 4 CONCRETE PAVEMENT APPROACH SLAB (SHOWN) OR STRUCTURE APPROACH SLAB AND CONCRETE PAVEMENT APPROACH SLAB. SEE SDD 13B02.
- 5 PAVED CONCRETE SHOULDER (SDD 13A03) OR ASPHALT SHOULDER.
- 6 CONCRETE CURB AND GUTTER 4-INCH SLOPED 36-INCH TYPE TBT OR TBT. USE TYPE TBT CURB WITH NO. 4 X 2' - 0" TIE BARS SPACED AT 3' - 0" C-C ONLY WHEN ADJACENT TO CONCRETE PAVEMENTS.
- 7 PLACE DRAINAGE STRUCTURE BEFORE MSG THRIE BEAM TRANSITION POST 1 (SEE SDD 14B45)
- 8 CENTER DRAINAGE STRUCTURE BETWEEN POSTS. 6-INCH MINIMUM SEPARATION FROM OUTSIDE WALL OF DRAINAGE STRUCTURE TO POSTS.
- 9 SEE SDD 08A05 AND 08C07 FOR DETAILS. SEE ROADWAY PLANS FOR LOCATION.
- 10 START CURB AND GUTTER TRANSITION OR END SECTION.
- 11 DEPRESS FLOW LINE (SEE DETAIL)
- 12 MEDIUM RIPRAP UNLESS OTHERWISE SPECIFIED.
- 13 LIMITS OF ADDITIONAL RIPRAP WHEN SPECIAL DITCH IS REQUIRED.



INLET PLAN VIEW
(NOTE: RAIL NOT SHOWN FOR CLARITY)



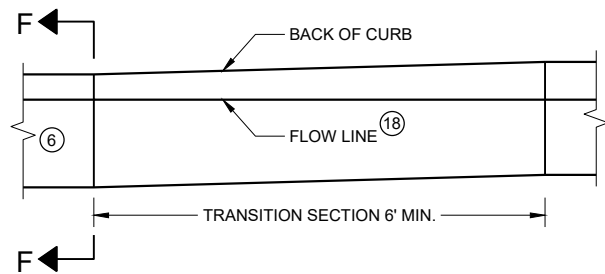
PLAN VIEW



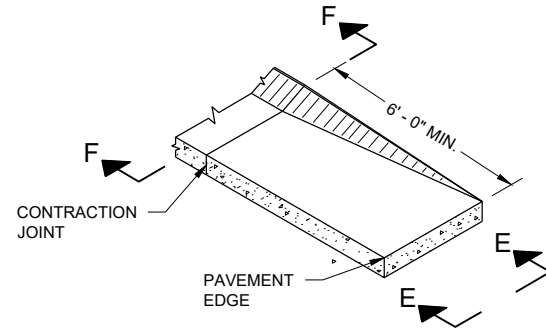
ELEVATION VIEW

CONCRETE SURFACE
DRAINS DROP INLET TYPE
AT STRUCTURES

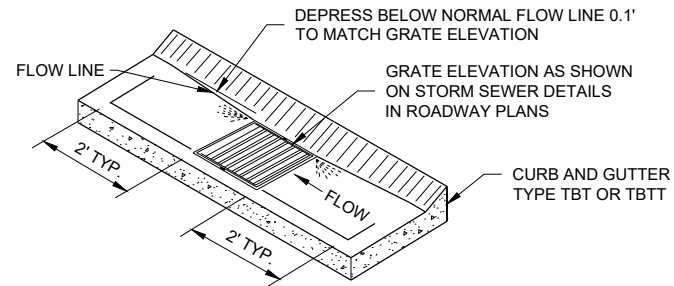
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



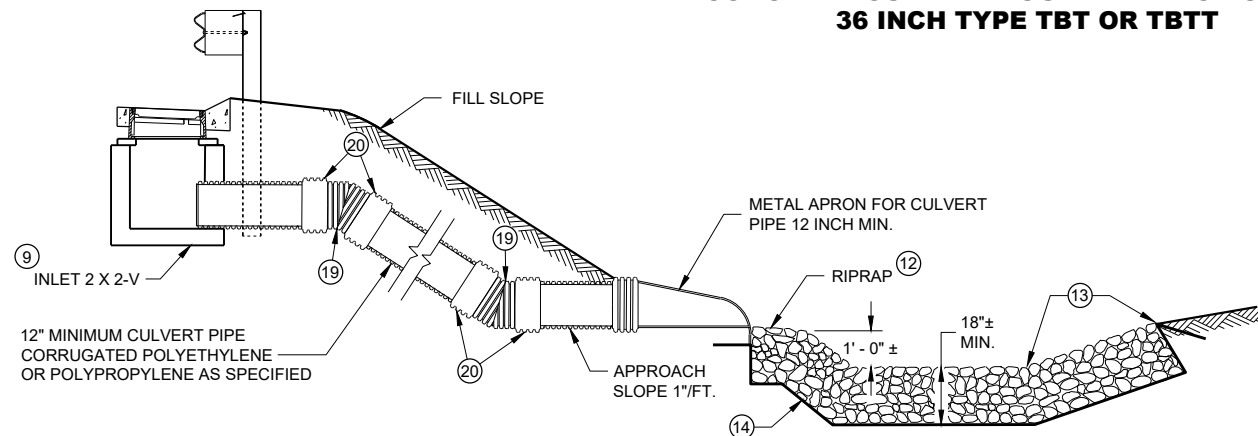
**CURB AND GUTTER TRANSITION SECTION
CONCRETE CURB AND GUTTER 4-INCH SLOPED
36 INCH TYPE TBT OR TBTT**



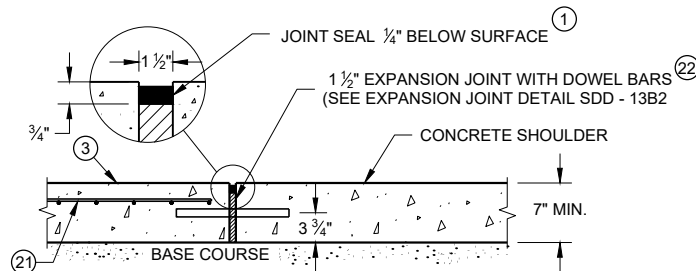
**CURB AND GUTTER END SECTION
CONCRETE CURB AND GUTTER 4-INCH SLOPED
36 INCH TYPE TBT OR TBTT**



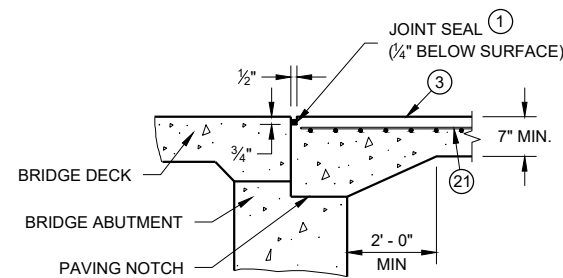
**CURB AND GUTTER FLOW LINE DEPRESSION
AT INLETS CONCRETE CURB AND GUTTER
4-INCH SLOPED 36 INCH TYPE TBT OR TBTT**



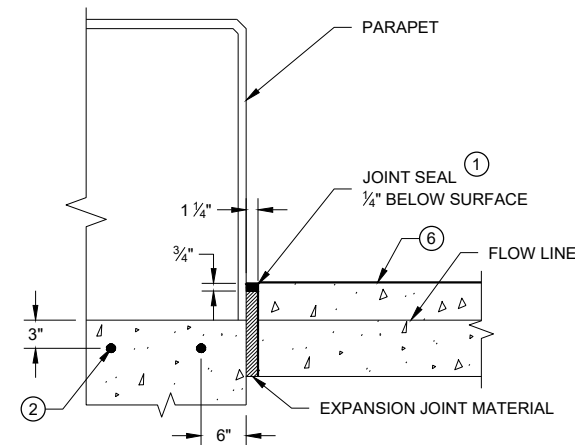
SECTION A - A



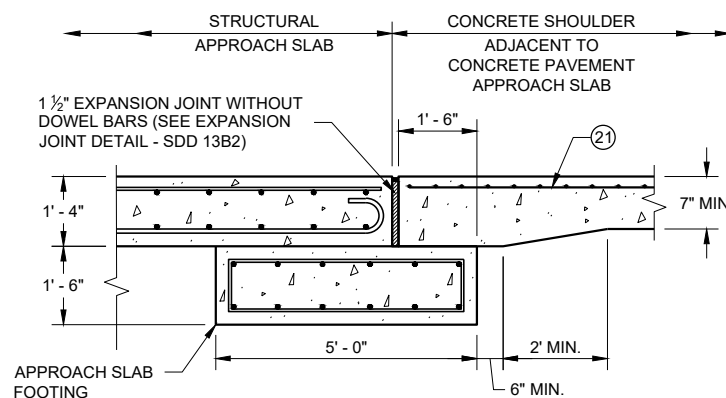
**SECTION C - C
JOINT DETAIL FOR BRIDGE APPROACH
WITH CONCRETE SHOULDERS**



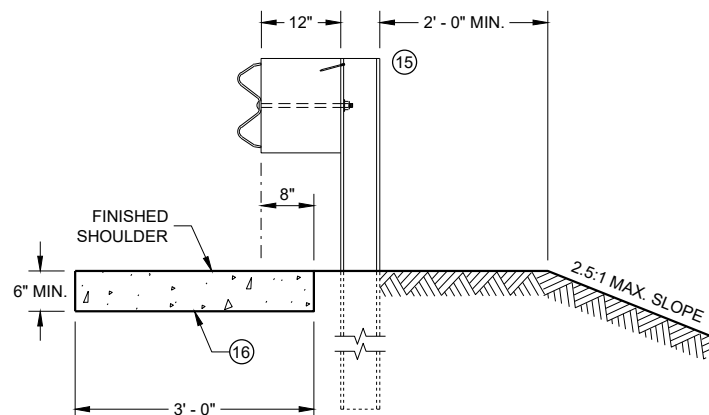
SECTION B-B



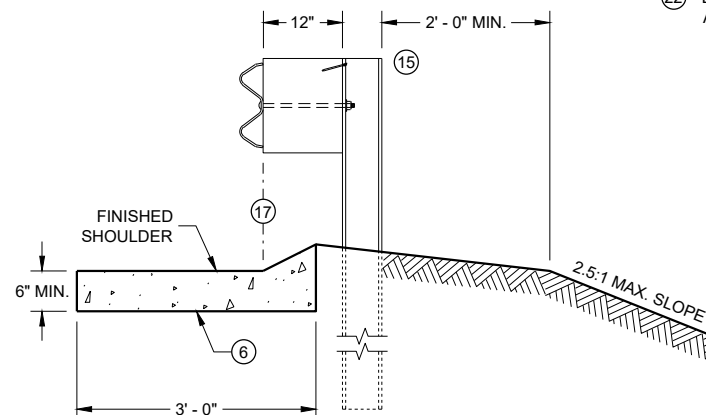
SECTION D - D



**SECTION C - C
JOINT DETAIL FOR BRIDGE WITH STRUCTURAL
APPROACH SLAB AND CONCRETE APPROACH SLAB**



SECTION E - E



SECTION F - F

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.

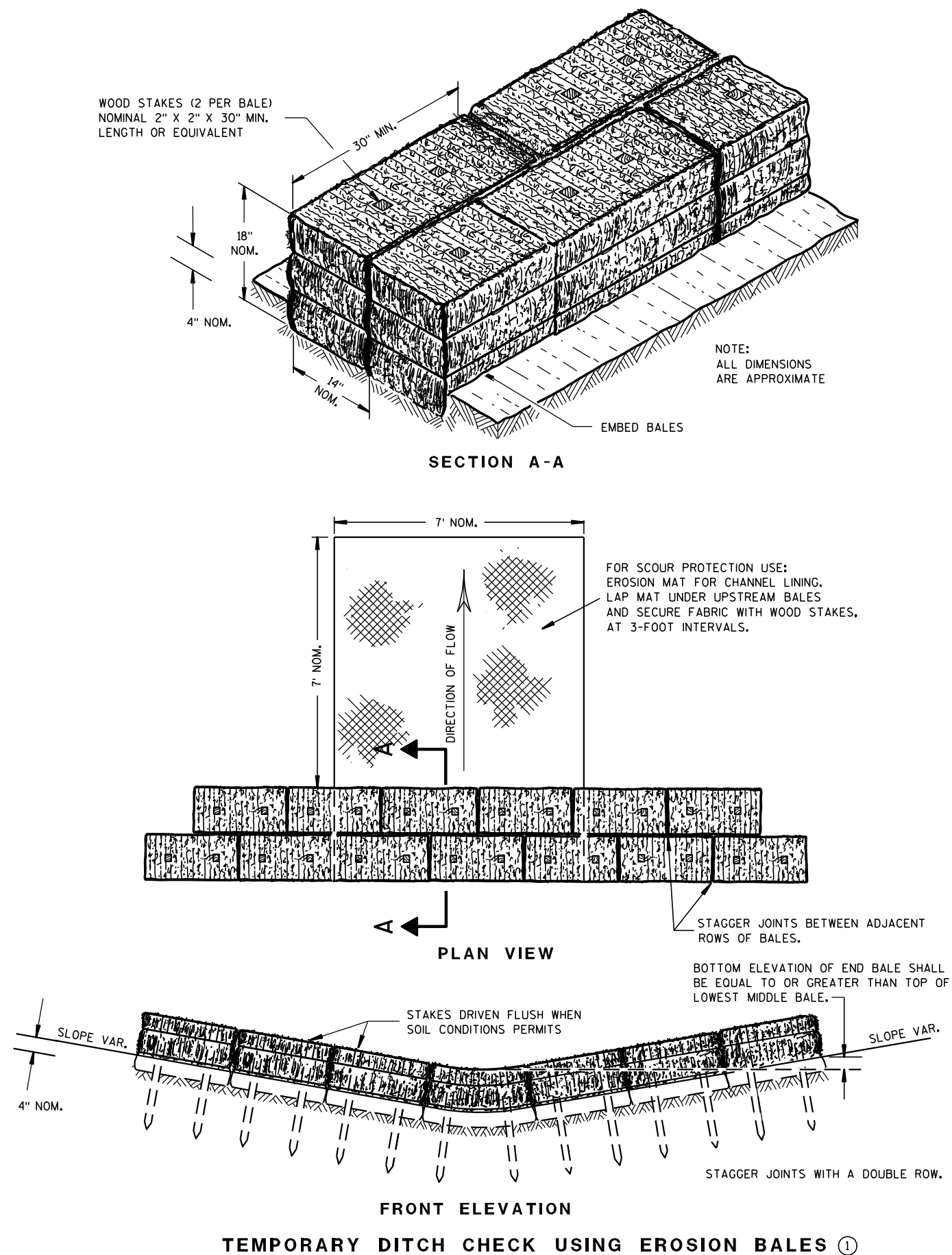
ALL STEEL REINFORCEMENT SHALL BE EMBEDDED 2 INCHES CLEAR UNLESS OTHERWISE SHOWN OR NOTED.

- ① USE A JOINT SEALANT CONFORMING TO STANDARD SPECIFICATION 415.2.6.
- ② NO. 4 X 2' - 0" TIE BARS SPACED AT 12" C-C TO BE PLACED BY BRIDGE CONTRACTOR OR DRILLED TIE BARS PLACED AS DIRECTED BY THE ENGINEER.
- ③ PAVED CONCRETE SHOULDER (SDD 13A03) OR CONCRETE DRAINAGE SLAB.
- ④ CONCRETE PAVEMENT APPROACH SLAB (SHOWN) OR STRUCTURE APPROACH SLAB AND CONCRETE PAVEMENT APPROACH SLAB. SEE SDD 13B02 AND STRUCTURE PLANS.
- ⑤ PAVED CONCRETE SHOULDER (SDD 13A03) OR ASPHALT SHOULDER.
- ⑥ CONCRETE CURB AND GUTTER 4-INCH SLOPED 36-INCH TYPE TBT OR TBTT. USE TYPE TBTT CURB WITH NO. 4 X 2' - 0" TIE BARS SPACED AT 3' - 0" C-C ONLY WHEN ADJACENT TO CONCRETE PAVEMENTS.
- ⑦ PLACE DRAINAGE STRUCTURE BEFORE MSG THRIE BEAM TRANSITION POST 1 (SEE SDD 14B45)
- ⑧ CENTER DRAINAGE STRUCTURE BETWEEN POSTS. 6-INCH MINIMUM SEPARATION FROM OUTSIDE WALL OF DRAINAGE STRUCTURE TO POSTS.
- ⑨ SEE SDD 08A05 AND 08C07 FOR DETAILS. SEE ROADWAY PLANS FOR LOCATION.
- ⑩ START CURB AND GUTTER TRANSITION OR END SECTION.
- ⑪ DEPRESS FLOW LINE (SEE DETAIL)
- ⑫ MEDIUM RIPRAP UNLESS OTHERWISE SPECIFIED.
- ⑬ LIMITS OF ADDITIONAL RIPRAP WHEN SPECIAL DITCH IS REQUIRED.
- ⑭ GEOTEXTILE TYPE HR.
- ⑮ MSG THRIE BEAM TRANSITION POST 1. SEE SDD 14B45 FOR ADDITIONAL CONSTRUCTION DETAILS AND ACCEPTABLE MATERIALS.
- ⑯ MAINTAIN WIDTH, THICKNESS AND CROSS SLOPE OF ADJACENT TYPE TBT OR TBTT CURB. SEE NOTE 6 FOR TIE BAR SPACING.
- ⑰ ALIGN FACE OF POST BLOCK WITH FLOW LINE.
- ⑱ MAINTAIN FLOW LINE AT EDGE OF PAVEMENT/FACE OF BEAM GUARD AS APPLICABLE.
- ⑲ MANUFACTURER SUPPLIED BEND.
- ⑳ MANUFACTURER SUPPLIED EXTERNAL MECHANICAL COUPLING OR A MANUFACTURER RECOMMENDED COUPLING WITH A MASTIC IMPREGNATED GEOTEXTILE WRAP AND MECHANICAL FASTENING BANDS.
- ㉑ MINIMUM REINFORCEMENT SHALL BE 6" X 6" - W4.0 X W4.0 OR NO. 3 BARS LONGITUDINAL AND TRANSVERSE SPACING 12" C - C.
- ㉒ DO NOT CONSTRUCT AN EXPANSION JOINT OR INSTALL DOWEL BARS WHEN ABUTTING HMA PAVEMENTS.

CONCRETE SURFACE DRAINS DROP INLET TYPE AT STRUCTURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

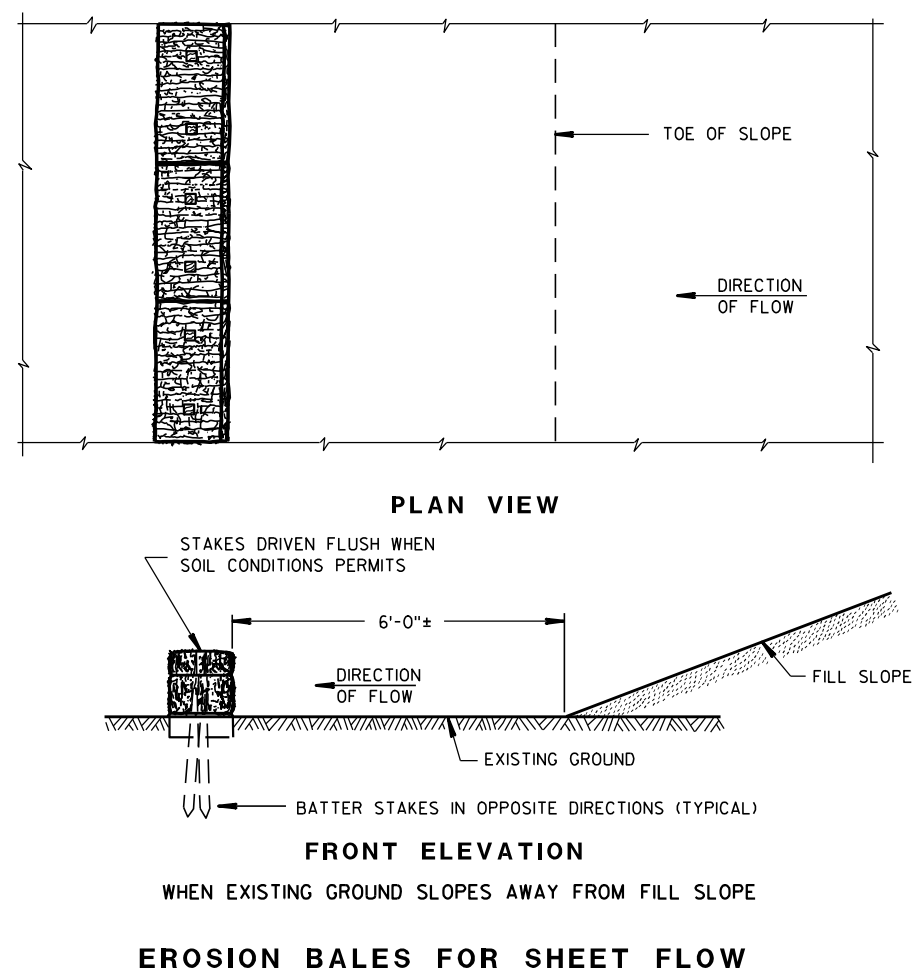
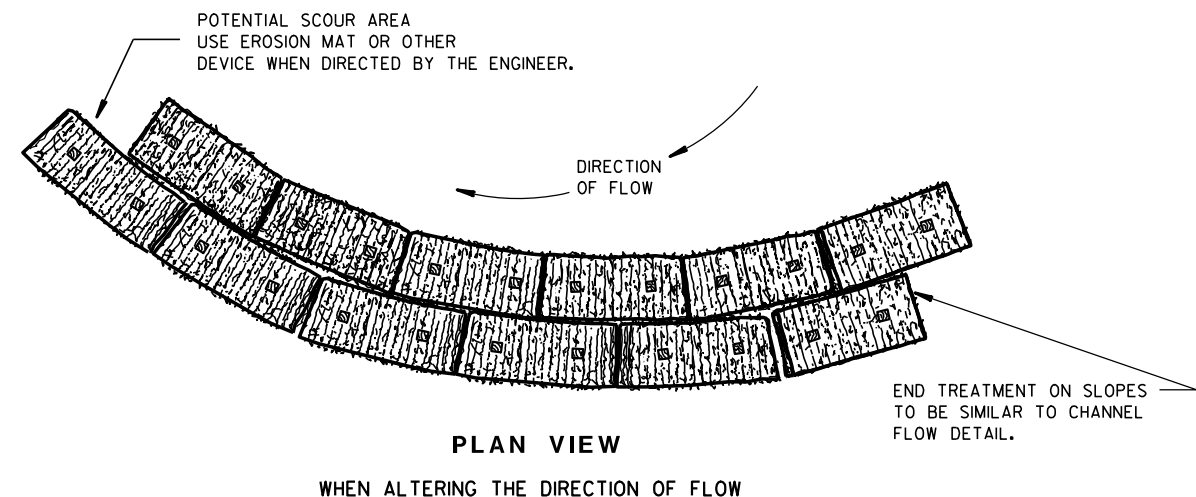
APPROVED
May 2023 /S/ Rodney Taylor
DATE ROADWAY STANDARDS DEVELOPMENT ENGINEER 43
FHWA



GENERAL NOTES

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

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

TYPICAL INSTALLATIONS OF
EROSION BALES / TEMPORARY
DITCH CHECKS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

6/04/02
DATE/S/ Beth Conn
CHIEF ROADWAY DEVELOPER

ENGINEER

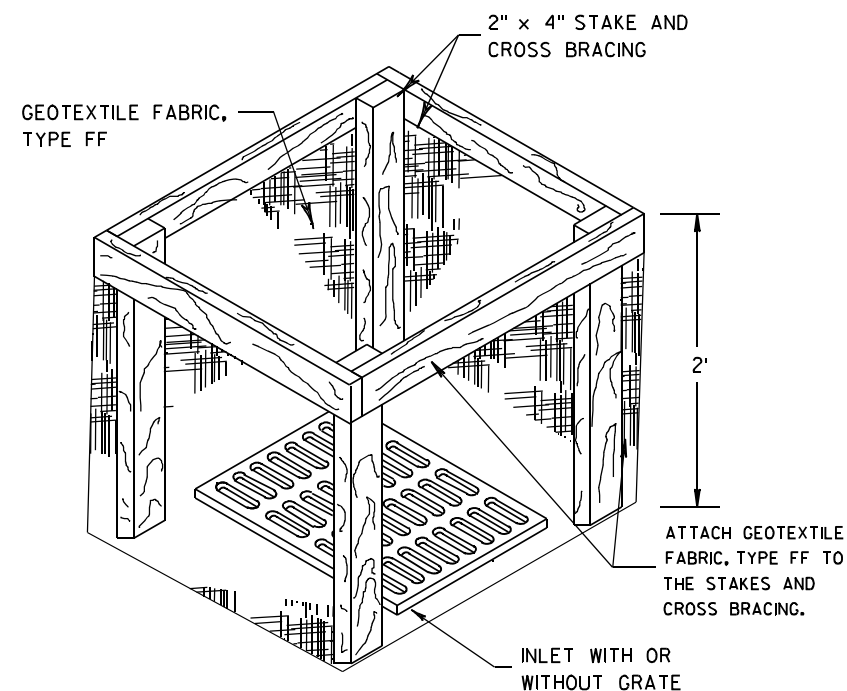
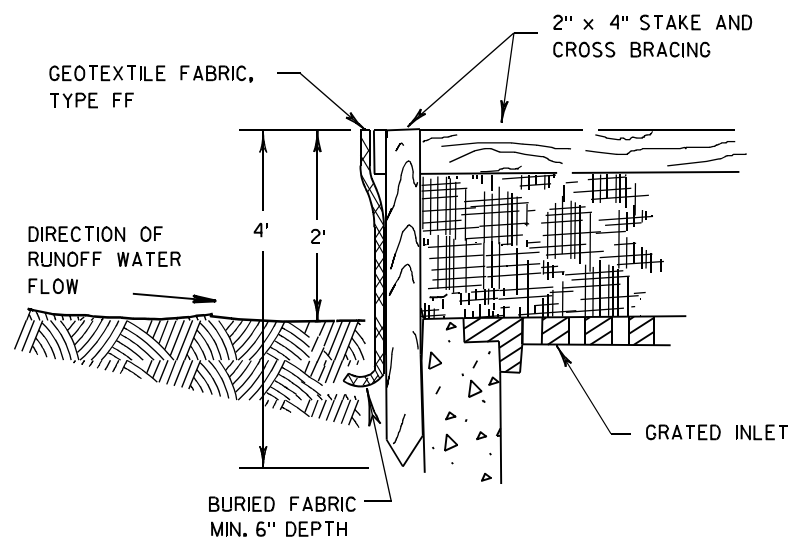
FHWA



- 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 1½" X 1½" 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.



SILT FENCE
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION
APPROVED <u>4-29-05</u> DATE <u>/S/ Beth Conn*****</u> CHIEF ROADWAY DEVELOP 45 INEER FHWA



INLET PROTECTION, TYPE A

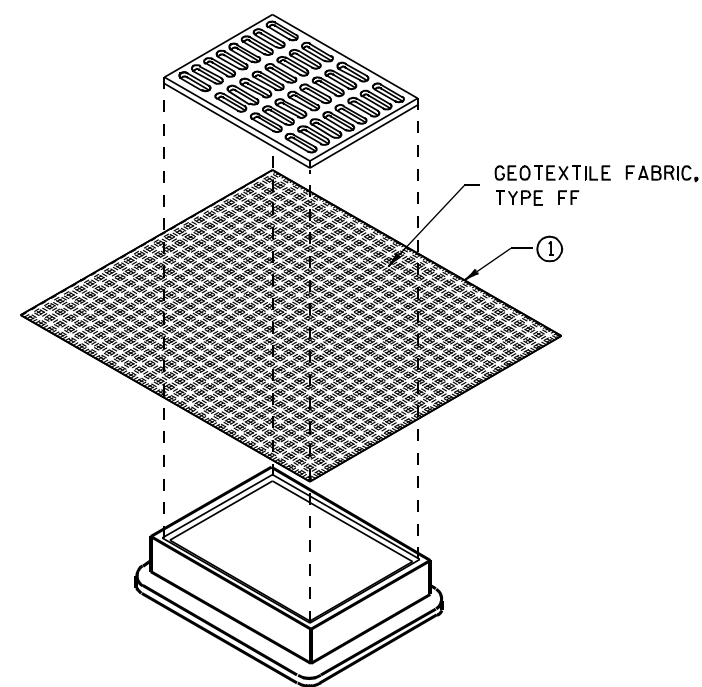
GENERAL NOTES

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

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

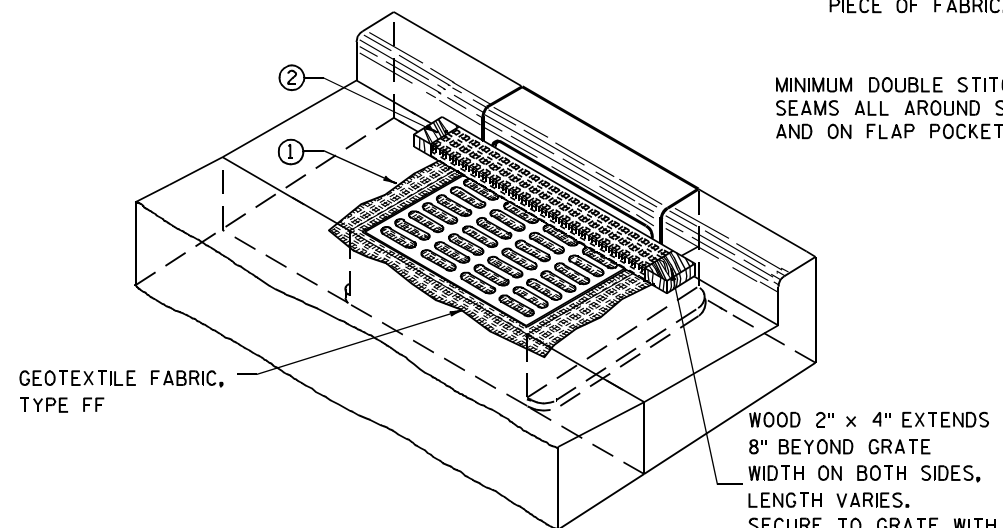
WHEN REMOVING OR MAINTAINING INLET PROTECTION, CARE SHALL BE TAKEN SO THAT THE SEDIMENT TRAPPED ON THE GEOTEXTILE FABRIC DOES NOT FALL INTO THE INLET. ANY MATERIAL FALLING INTO THE INLET SHALL BE REMOVED IMMEDIATELY.

- ① FINISHED SIZE, INCLUDING FLAP POCKETS WHERE REQUIRED, SHALL EXTEND A MINIMUM OF 10" AROUND THE PERIMETER TO FACILITATE MAINTENANCE OR REMOVAL.
- ② FOR INLET PROTECTION, TYPE C (WITH CURB BOX), AN ADDITIONAL 18" OF FABRIC IS WRAPPED AROUND THE WOOD AND SECURED WITH STAPLES. THE WOOD SHALL NOT BLOCK THE ENTIRE HEIGHT OF THE CURB BOX OPENING.
- ③ FLAP POCKETS SHALL BE LARGE ENOUGH TO ACCEPT WOOD 2X4.



**INLET PROTECTION, TYPE B
(WITHOUT CURB BOX)**

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



INLET PROTECTION, TYPE C (WITH CURB BOX)

INSTALLATION NOTES

TYPE B & C

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

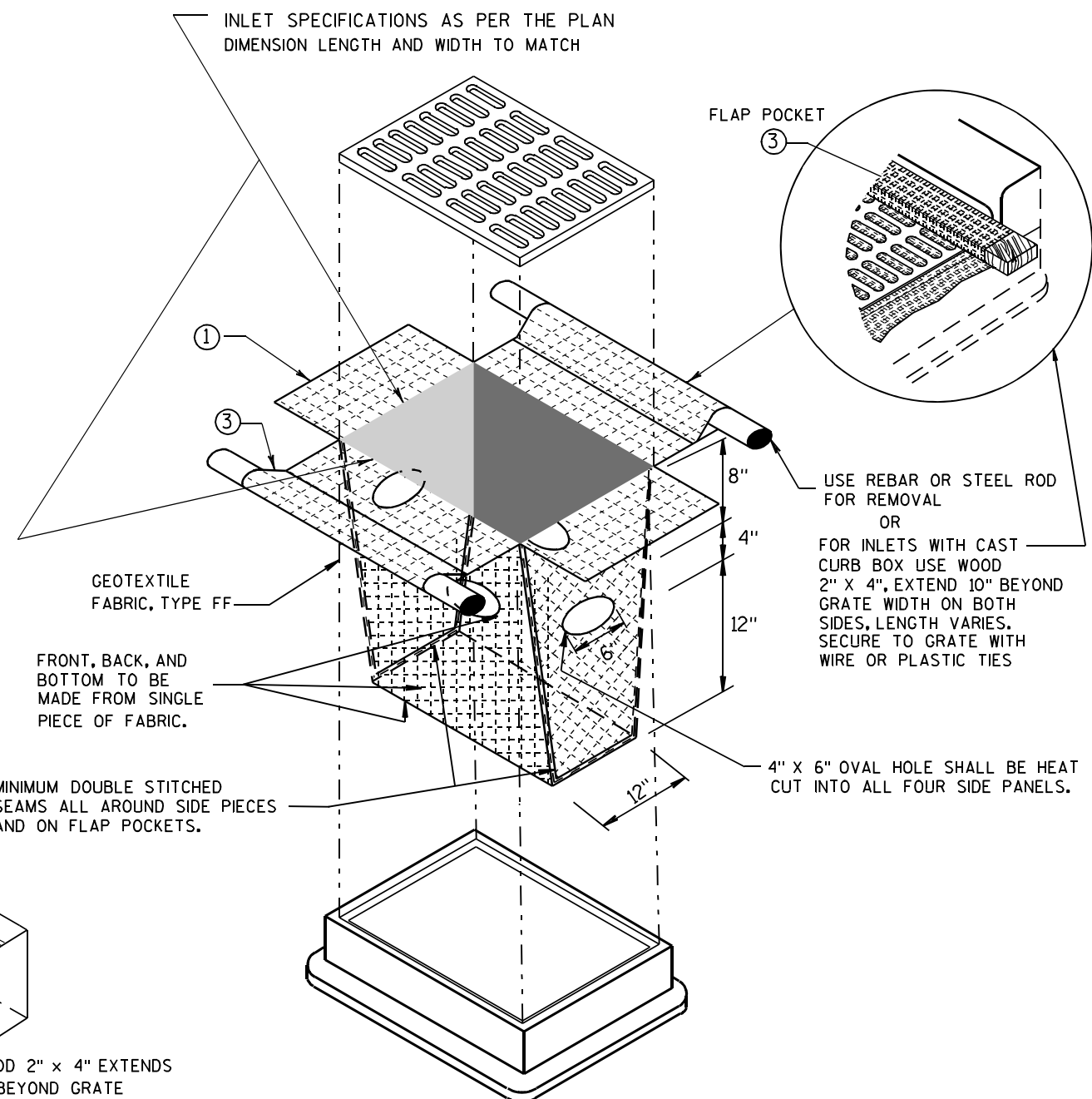
THE CONTRACTOR SHALL DEMONSTRATE A METHOD OF MAINTENANCE, USING A SEWN FLAP, HAND HOLDS OR OTHER METHOD TO PREVENT ACCUMULATED SEDIMENT FROM ENTERING THE INLET.

TYPE D

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

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

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



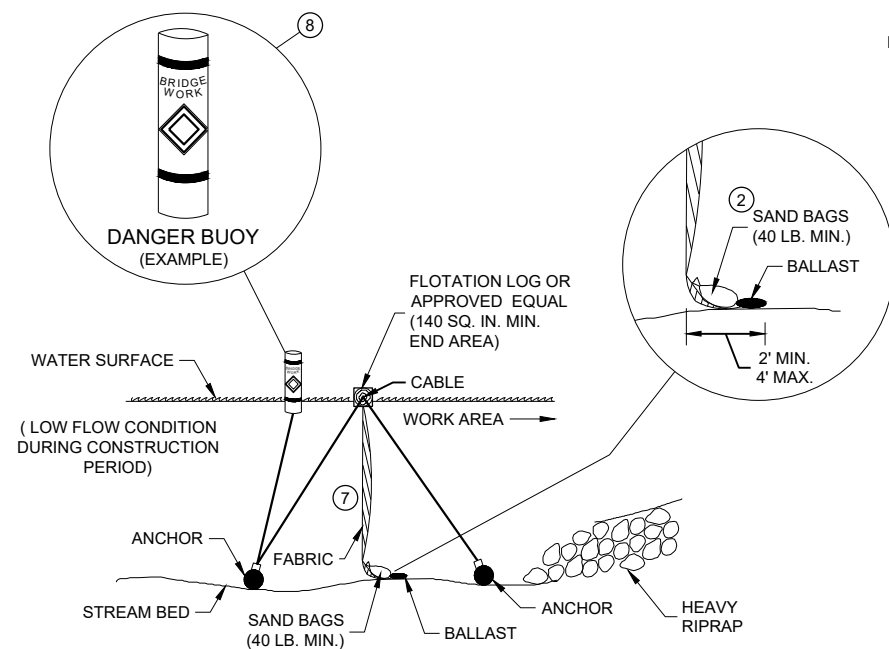
INLET PROTECTION, TYPE D

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

**INLET PROTECTION
TYPE A, B, C, AND D**

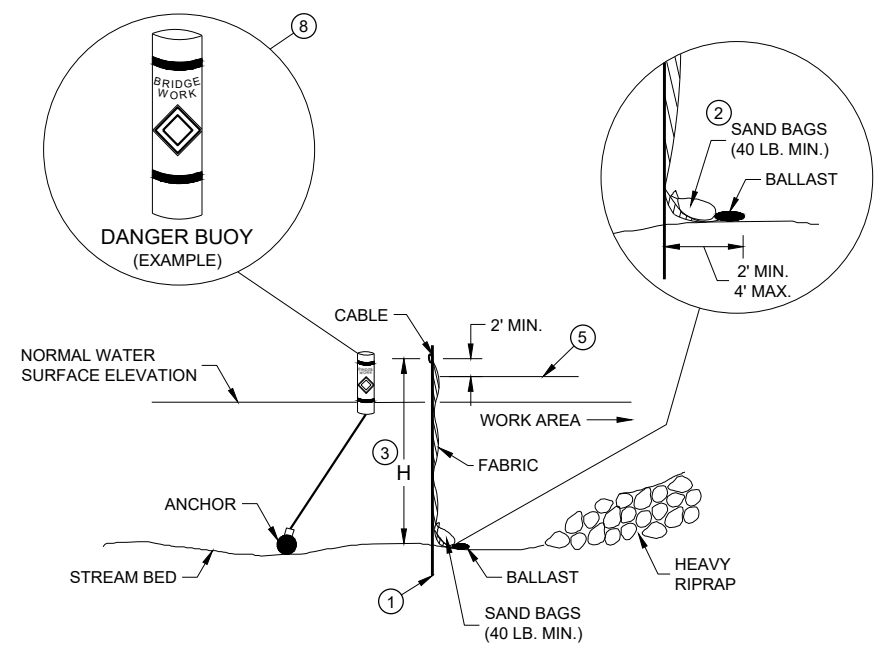
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
10/16/02 /S/ Beth Connolly
DATE 46
FHWA CHIEF ROADWAY DEVELOPMENT ENGINEER



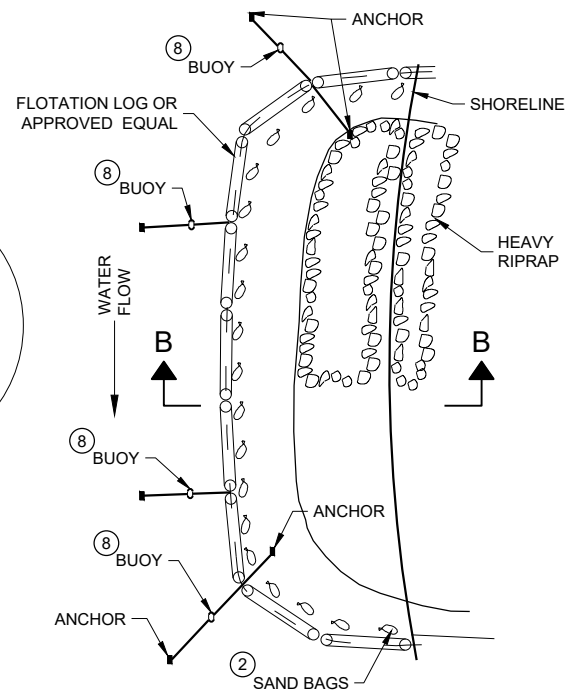
SECTION B - B

TURBIDITY BARRIER - FLOAT ALTERNATIVE CAUTION - SEE NOTE 6

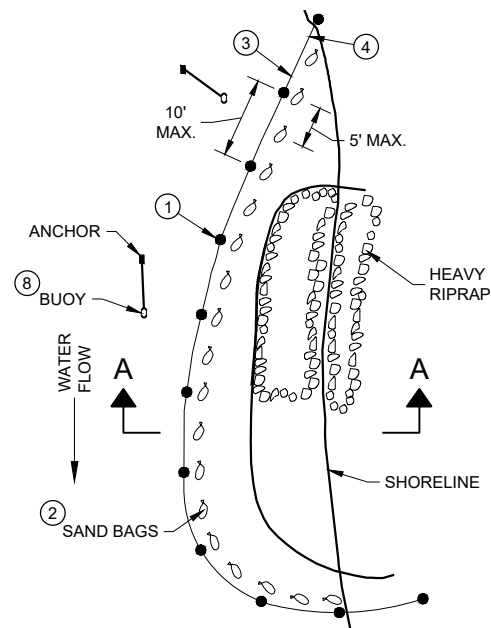


SECTION A - A

TURBIDITY BARRIER - STANDARD POST INSTALLATION



PLAN VIEW



PLAN VIEW

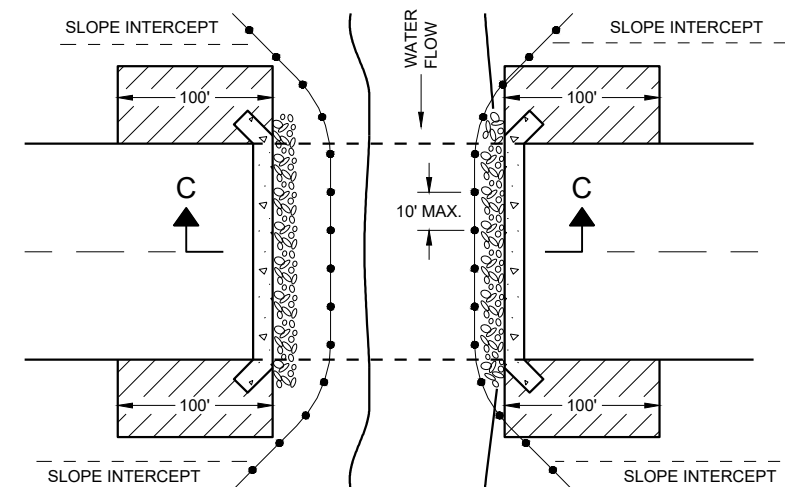
TURBIDITY BARRIER PLACEMENT DETAILS

GENERAL NOTES

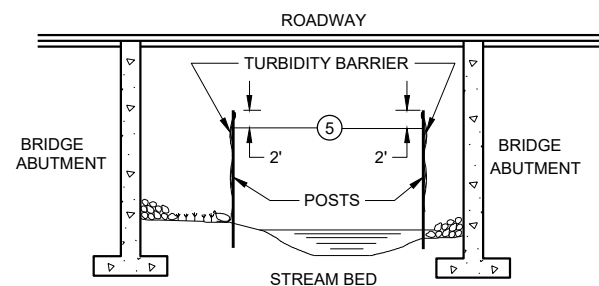
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

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

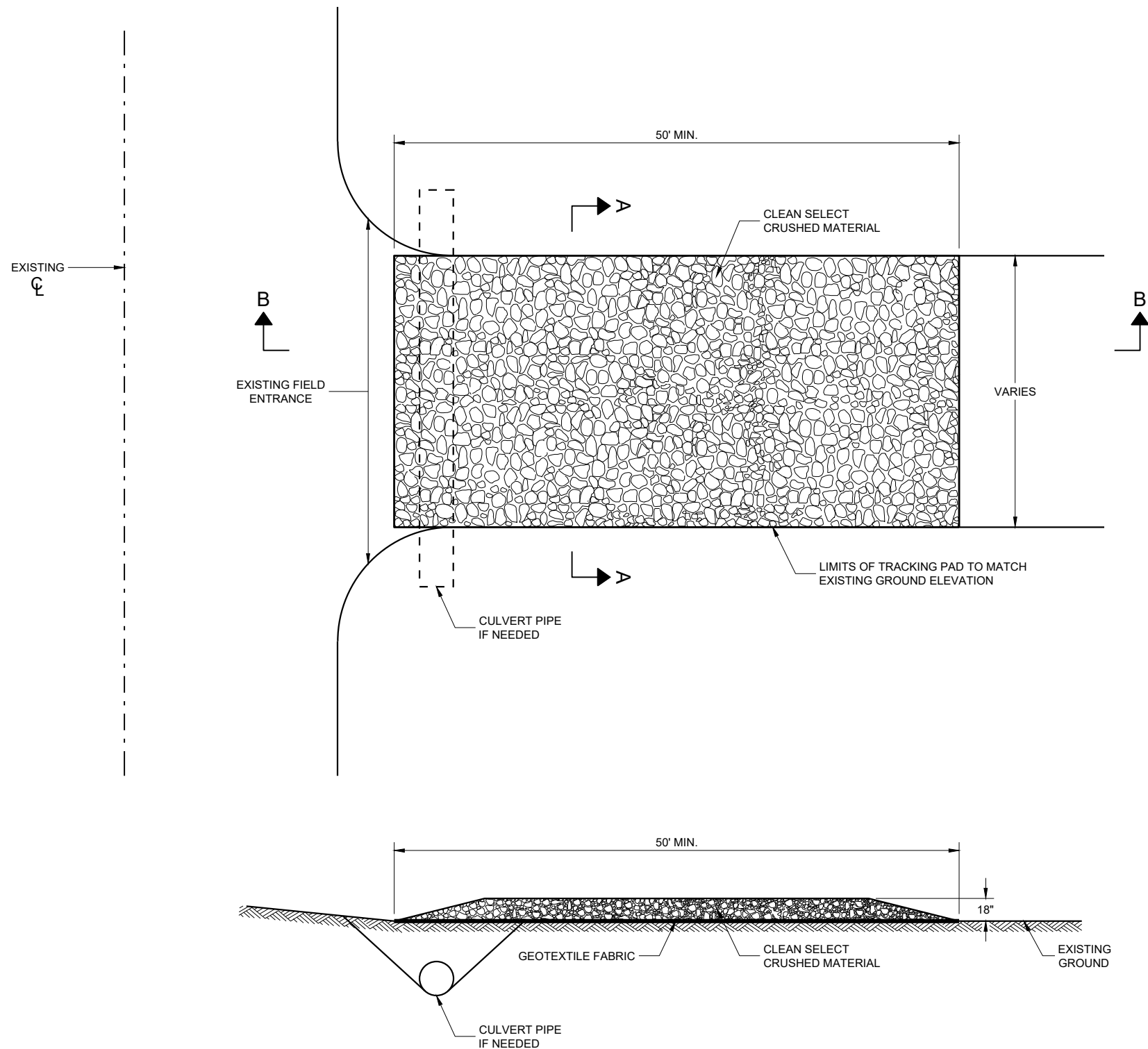
TURBIDITY BARRIER DETAIL SHOWING TYPICAL PLACEMENT AT STRUCTURES

TURBIDITY BARRIER

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
6/4/02 DATE
/S/ Beth Cannestra
CHIEF ROADWAY DEVELOPER
ENGINEER 47

FHWA



SECTION B - B

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.

TRACKING PAD SHALL BE INSPECTED DAILY. DEFICIENT AREAS SHALL BE REPAIRED OR REPLACED IMMEDIATELY.

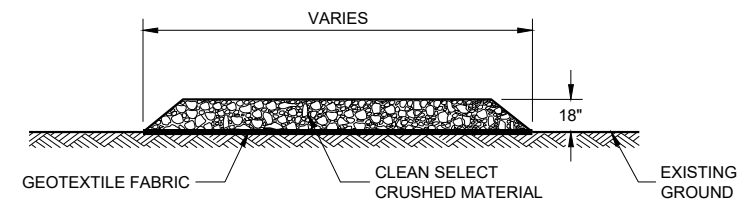
TRACKING PAD TO BE REMOVED AFTER CONSTRUCTION IS COMPLETED.

TRACKING PAD SHALL BE THE FULL WIDTH OF THE EGRESS POINT.

SURFACE WATER MUST BE PREVENTED FROM PASSING THROUGH THE TRACKING PAD. FLOWS SHALL BE DIVERTED AWAY, AROUND OR CONVEYED UNDER THE TRACKING PAD.

CULVERT PIPE OR OTHER BMP USED TO DIVERT WATER AWAY, AROUND OR UNDER THE TRACKING PAD SHALL BE DESIGNED TO CONVEY THE 2 YEAR - 24 HOUR EVENT.

THE COST OF ADDITIONAL BMP TO DIVERT WATER ARE INCIDENTAL TO THE TRACKING PAD BID ITEM.



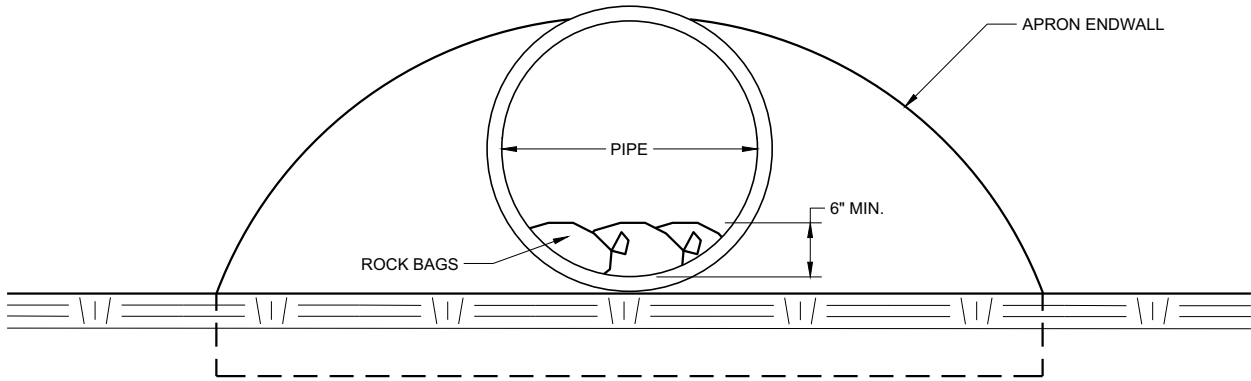
SECTION A - A

TRACKING PAD

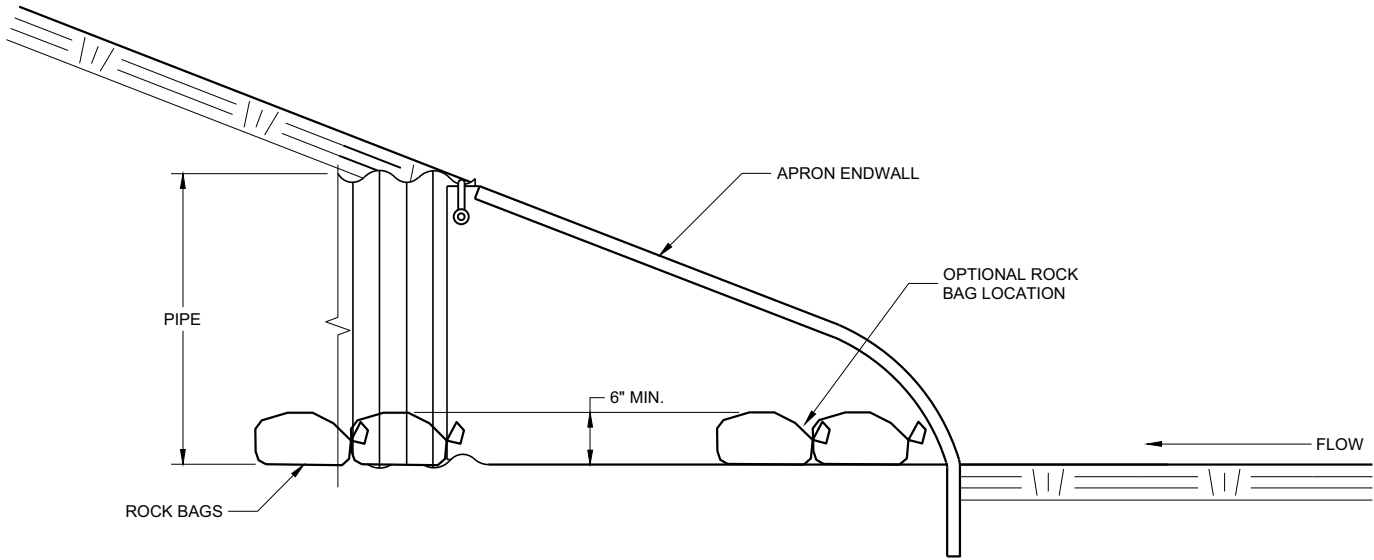
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
3/24/2011
DATE
/S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT ENGINEER
48

FHWA



END VIEW



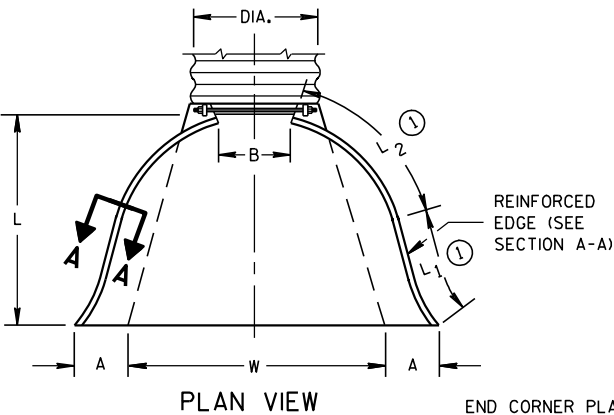
SIDE VIEW

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 49
FHWA	

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

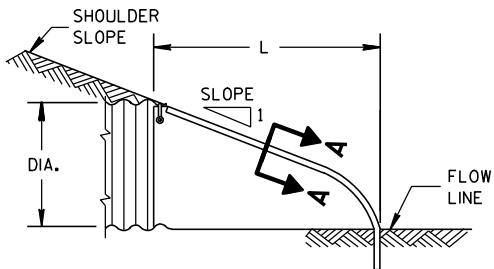
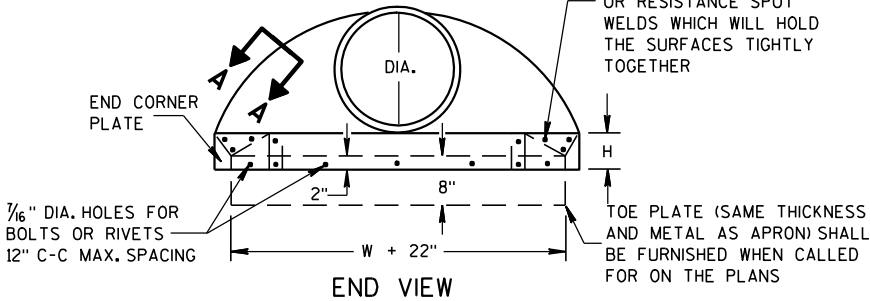
* EXCEPT CENTER PANEL
SEE GENERAL NOTES



REINFORCED
EDGE (SEE
SECTION A-A)

END CORNER PLATES MAY
BE FASTENED TO APRON
PROPER BY BOLTS, RIVETS,
OR RESISTANCE SPOT
WELDS WHICH WILL HOLD
THE SURFACES TIGHTLY
TOGETHER

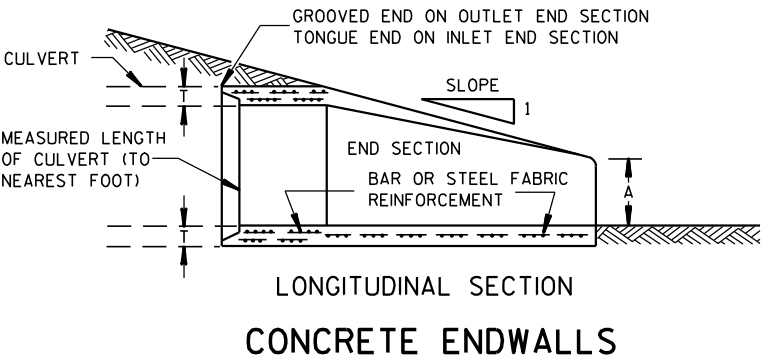
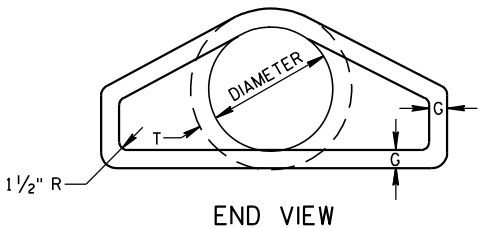
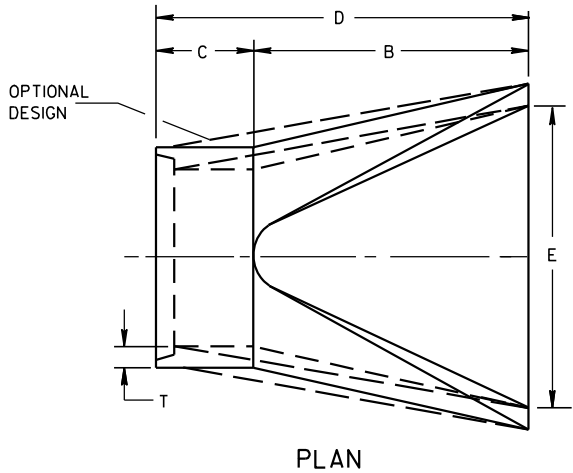
TOE PLATE (SAME THICKNESS
AND METAL AS APRON) SHALL
BE FURNISHED WHEN CALLED
FOR ON THE PLANS



SIDE ELEVATION
METAL ENDWALLS

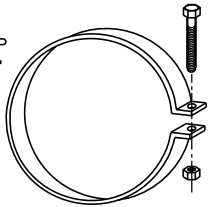
REINFORCED CONCRETE APRON ENDWALLS												
PIPE DIA. (IN.)	DIMENSIONS (Inches)							APPROX. SLOPE				
	T	A	B	C	D	E	G					
12	2	4	24	48 7/8	72 7/8	24	2	3 to 1				
15	2 1/4	6	27	46	73	30	2 1/4	3 to 1				
18	2 1/2	9	27	46	73	36	2 1/2	3 to 1				
21	2 3/4	9	36	37 1/2	73 1/2	42	2 3/4	3 to 1				
24	3	9 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 1/2 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

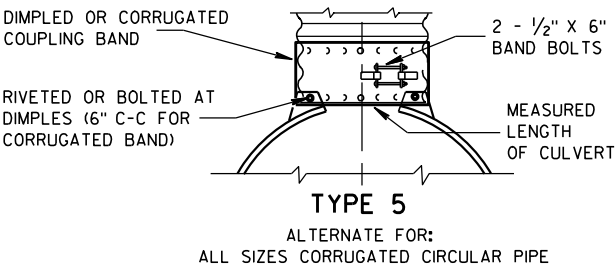
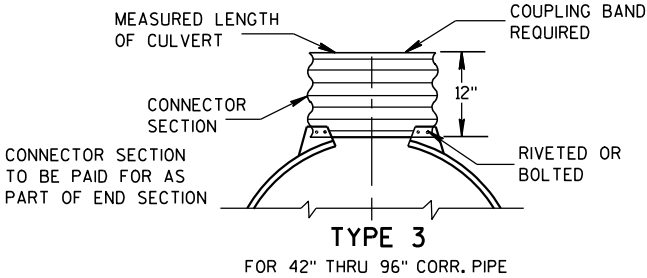
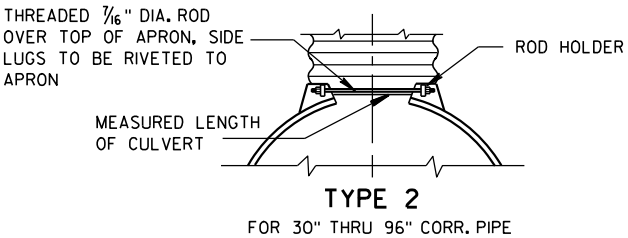
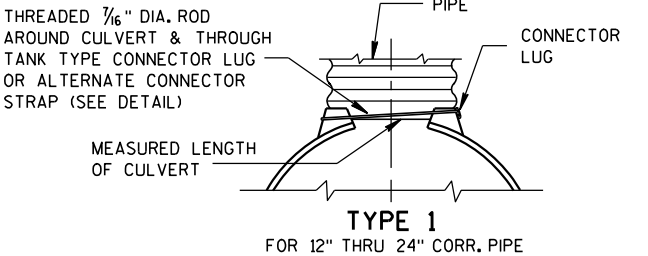


LONGITUDINAL SECTION
CONCRETE ENDWALLS

1" WIDE, 12 GA. (0.109"
THICK) GALVANIZED STRAP
WITH STANDARD 6" X 1/2"
BAND BOLT AND NUT



ALTERNATE FOR TYPE 1 CONNECTION
END SECTION CONNECTOR STRAP



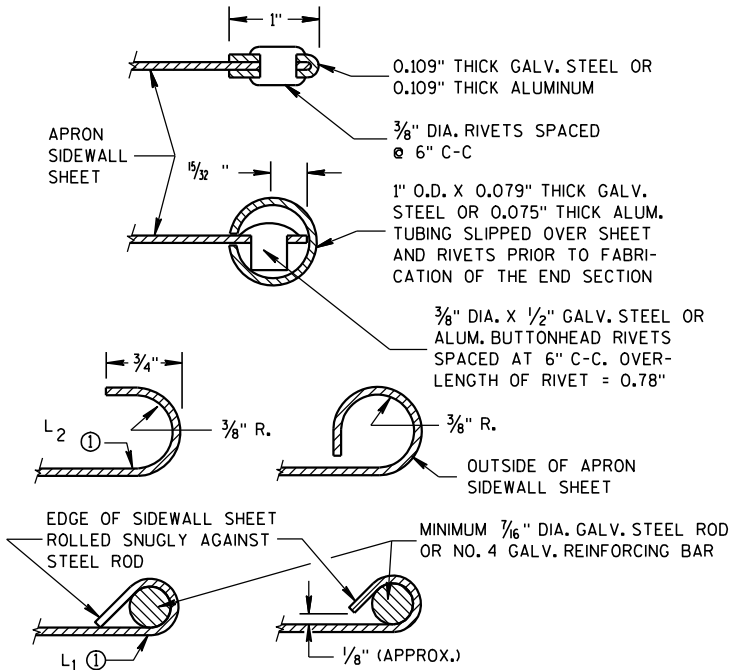
NOTE: DIMPLED BAND FITS OVER OUTSIDE OF ENDWALL,
AND CORRUGATED BAND FITS INSIDE ENDWALL.
DIMPLED BAND MAY BE USED WITH HELICALLY
CORRUGATED PIPE.

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.

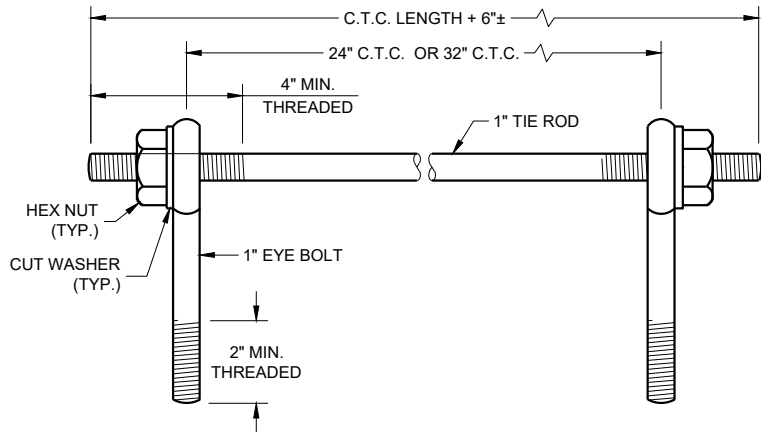
ALL THREE PIECE STEEL APRON ENDWALLS FOR 60" DIAMETER PIPE AND
LARGER SHALL HAVE 0.109" SIDES AND 0.138" CENTER PANELS. ALL
THREE PIECE ALUMINUM APRON ENDWALLS FOR 60" DIAMETER PIPE AND
LARGER SHALL HAVE 0.105" SIDES AND 0.134" CENTER PANELS. THE WIDTH
OF CENTER PANELS SHALL BE GREATER THAN 20 PERCENT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

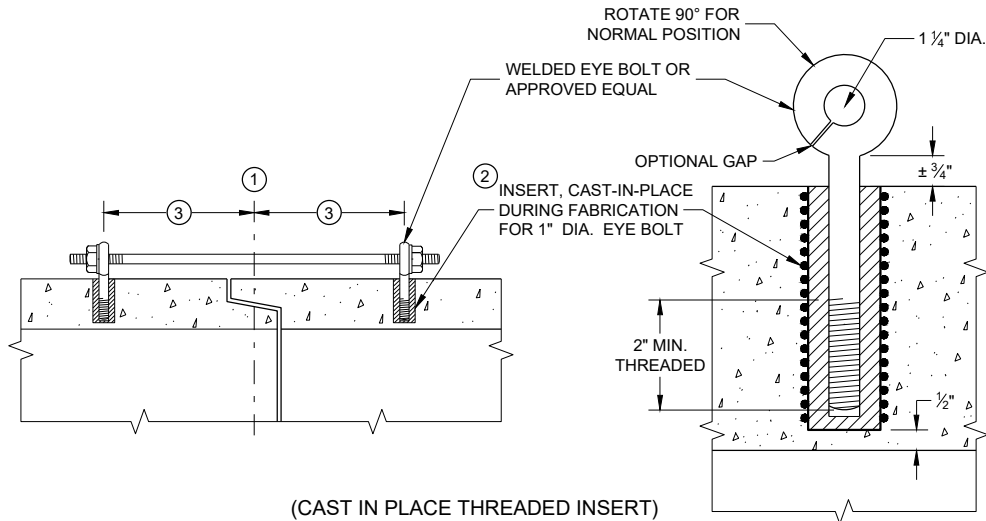
① FOR PIPE SIZES UP TO 60" DIAMETER, A 180° ROLLED EDGE MAY BE USED
INSTEAD OF STEEL ROD REINFORCEMENT. SEE SECTION A-A.

APRON ENDWALLS FOR CULVERT PIPE			
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
APPROVED	11/30/94	/S/ Rory L. Rhinehart	NEER
DATE		CHIEF ROADWAY DEVELOP 50	
FHWA			



EYE BOLTS AND TIE ROD

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



(CAST IN PLACE THREADED INSERT)

LONGITUDINAL SECTIONS

GENERAL NOTES

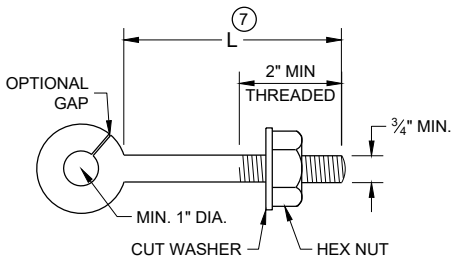
DETAILS OF CONSTRUCTION, MATERIALS, AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

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

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

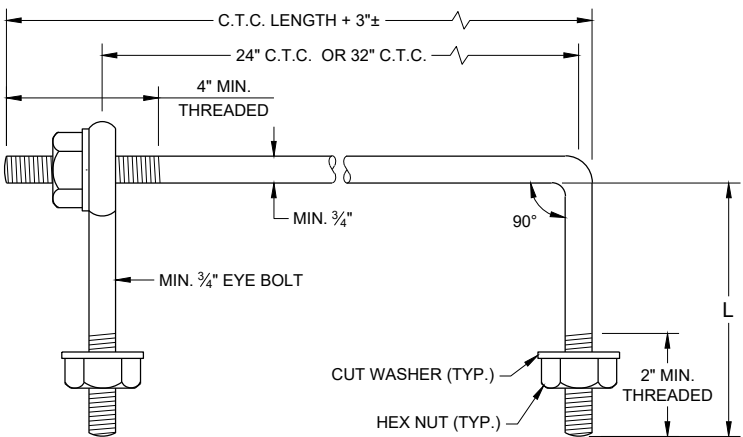
JOINT TIES TO BE HOT-DIP GALVANIZED PER ASTM A 153.

- 1 CENTER LINE OF TONGUE AND GROOVE OR BELL AND SPIGOT JOINTS.
- 2 THE INSIDE OF THE THREADED INSERTS SHALL BE CLEAN TO ALLOW THE INSERTION OF THREADED EYE BOLTS.
- 3 HOLES SHALL BE CAST-IN-PLACE OR DRILLED PER THE APPLICABLE DETAIL, AND EQUAL DISTANCE FROM THE CENTERLINE OF THE JOINT.
- 4 BOLT PROJECTION INSIDE OF PIPE SHALL NOT EXCEED 2 INCHES.
- 5 OPENING TO BE ROD DIAMETER PLUS 1 INCH.
- 6 LENGTH ADEQUATE TO EXTEND TO WITHIN 1/2 INCH OF THE INNER SURFACE OF THE PIPE.
- 7 EYE BOLT LENGTH DETERMINED BY WALL THICKNESS, BELL THICKNESS AND BOLT PROJECTION INSIDE PIPE.

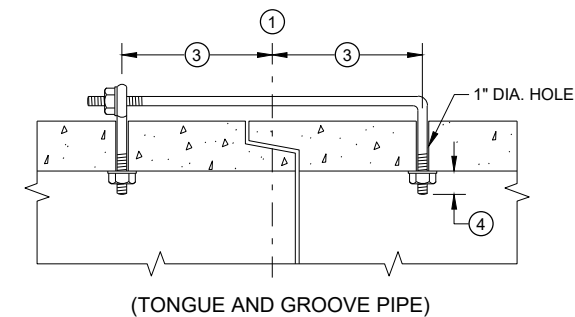


EYE BOLT 7

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



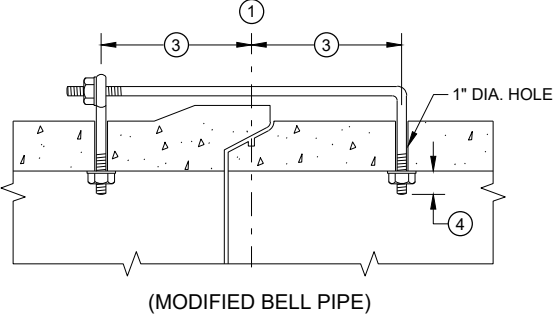
EYE BOLT AND TIE ROD



(TONGUE AND GROOVE PIPE)

LONGITUDINAL SECTION

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

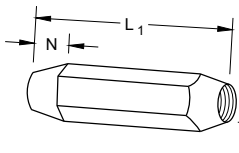


(MODIFIED BELL PIPE)

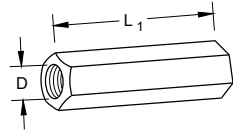
ADJUSTABLE TIE ROD TABLE

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 - 144	1	1	7	1 1/16

DIMENSIONS SHOWN ARE IN INCHES

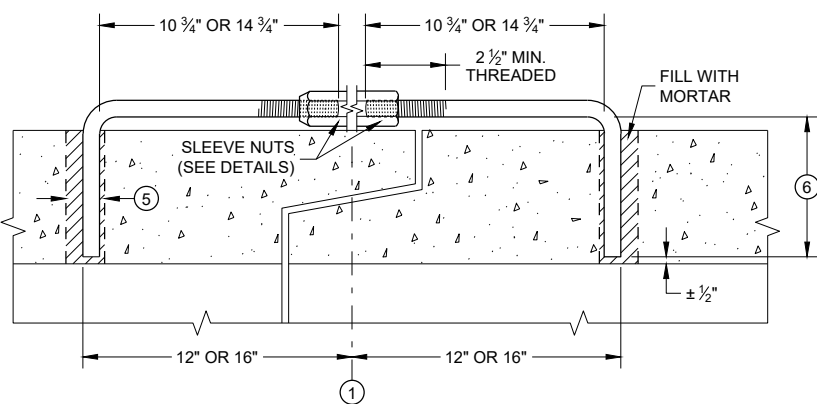


TAPERED



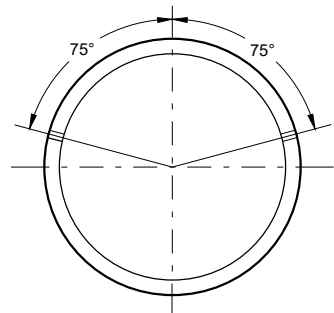
PLAIN

RIGHT AND LEFT THREADS
SLEEVE NUTS



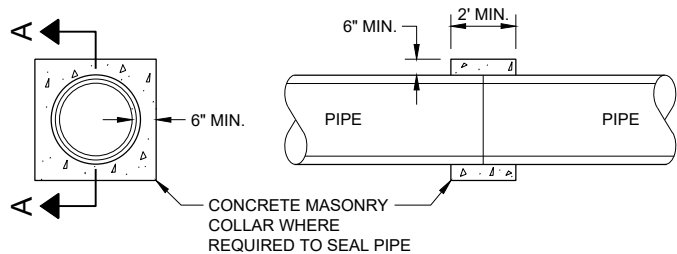
LONGITUDINAL SECTION

ADJUSTABLE TIE ROD (ALTERNATE NO. 3)



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

TRANSVERSE SECTION



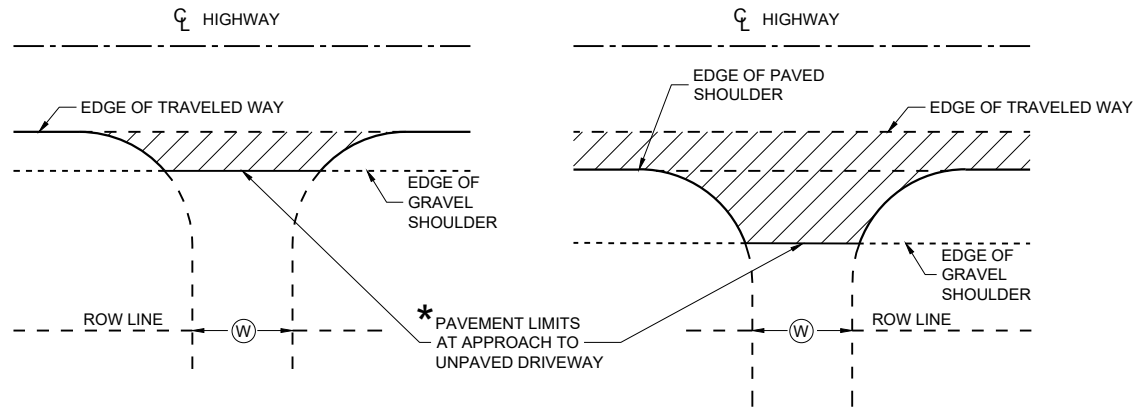
SECTION A - A

CONCRETE COLLAR DETAIL

JOINT TIES FOR CONCRETE PIPE AND CONCRETE COLLAR DETAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
November 2021 /S/ Rodney Taylor
DATE ROADWAY STANDARDS DEVELOPMENT ENGINEER 51
FHWA

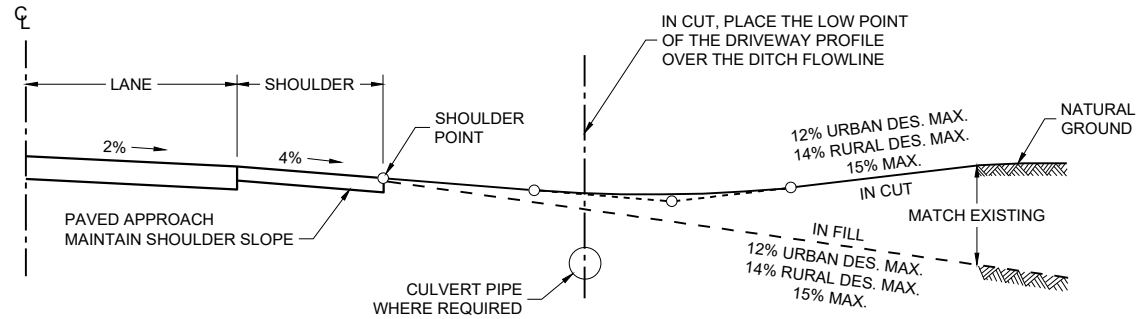


* WHERE DRIVEWAY IS PAVED, APPROACH PAVEMENT SHOULD BE EXTENDED TO MATCH DRIVEWAY PAVEMENT.

PLAN VIEW
(UNPAVED SHOULDER ON HIGHWAY)

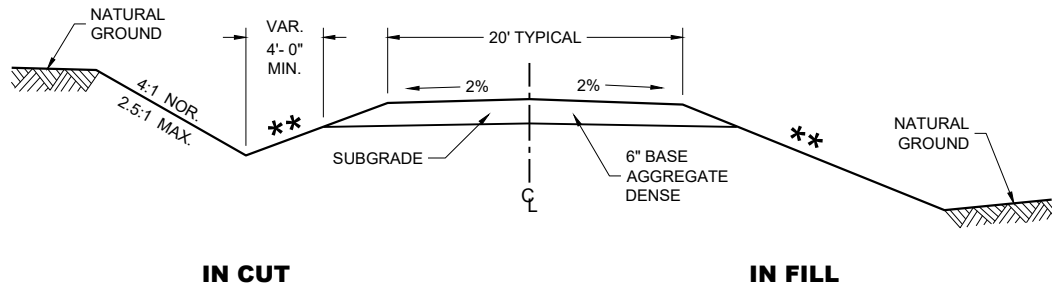
PLAN VIEW
(PAVED SHOULDER ON HIGHWAY)

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



TYPICAL DRIVEWAY PROFILES

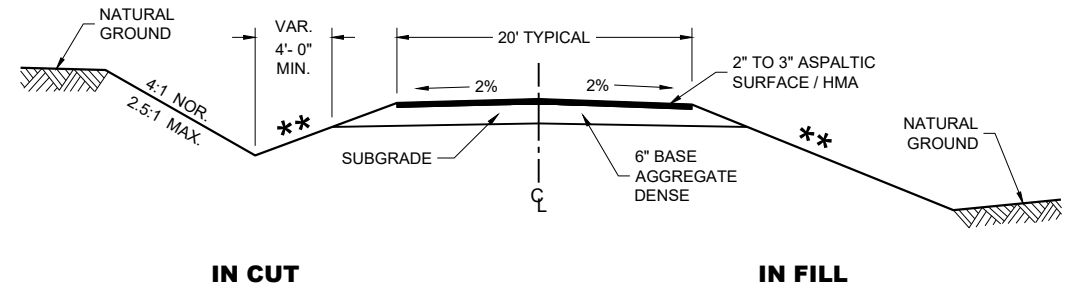
Ⓢ : DRIVEWAY WIDTHS (MEASURED AT ROW LINE)
 ~ COMMERCIAL & INDUSTRIAL 16' MIN. - 35' MAX.
 ~ RESIDENTIAL & AGRICULTURAL 16' MIN. - 24' MAX.
 (NONCOMMERCIAL)



**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

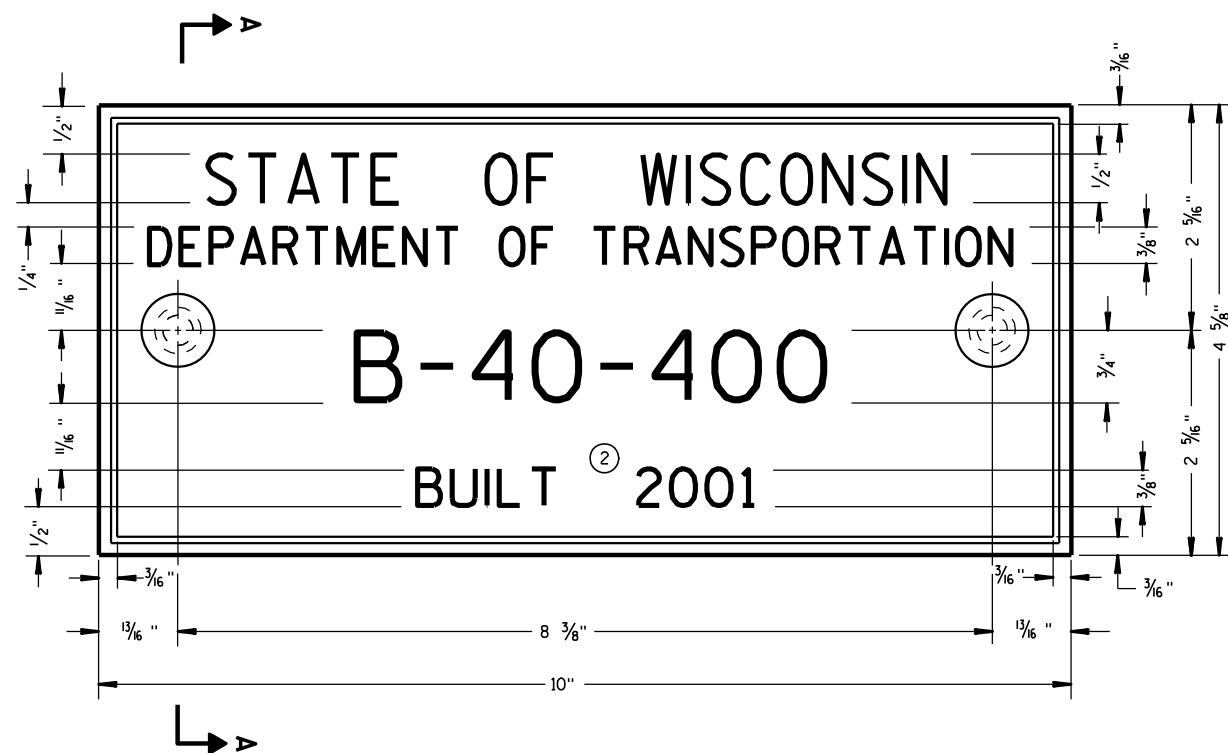


**TYPICAL CROSS SECTION FOR
PRIVATE DRIVE OR FIELD ENTRANCE
ASPALTIC SURFACE**

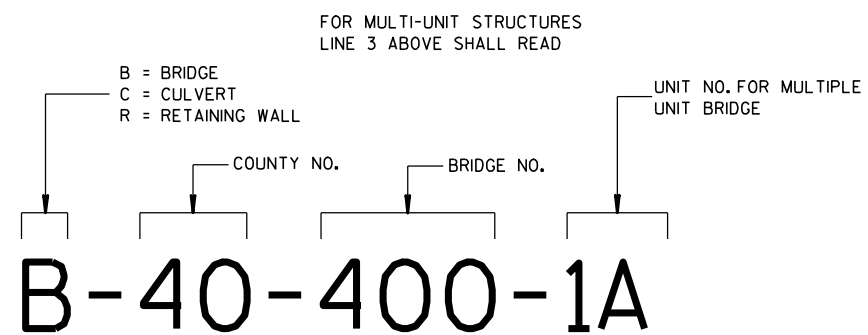
**DRIVEWAYS WITHOUT
CURB AND GUTTER**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
 November 2025 /S/ Rodney Taylor
 DATE ROADWAY STANDARDS DEVELOPMENT UNIT SUPERVISOR
 FHWA



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



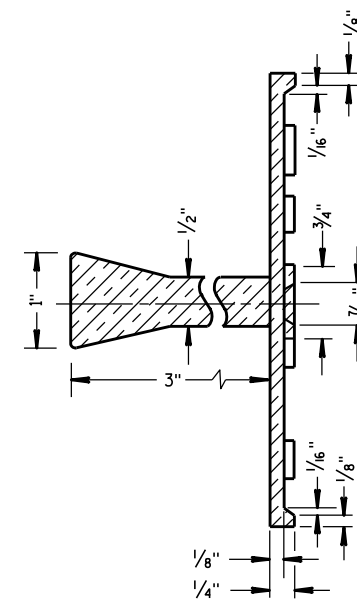
**NUMBERING DESIGNATION
MULTI-UNIT STRUCTURES**

GENERAL NOTES

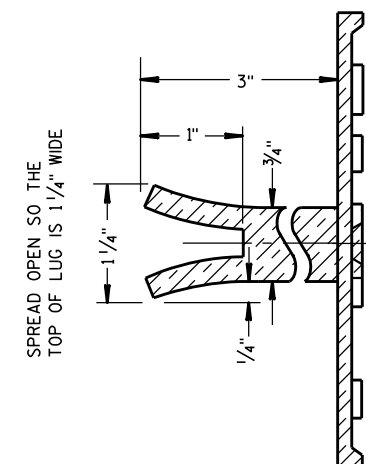
NAME PLATES TO BE INSTALLED ON BRIDGES, CULVERTS, AND RETAINING WALLS SHALL CONFORM TO THE REQUIREMENTS OF SECTION 502.3.11 OF THE STANDARD SPECIFICATIONS.

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.

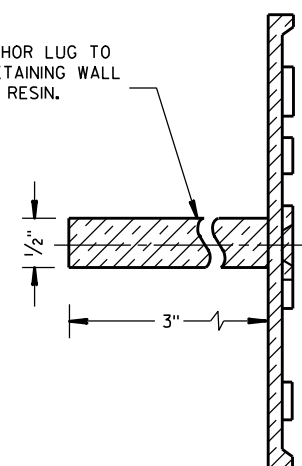


SECTION A-A



ALTERNATE LUG

- ① ADHERE ANCHOR LUG TO PRECAST RETAINING WALL WITH EPOXY RESIN.



ALTERNATE LUG
(FOR ATTACHMENT TO PRECAST STRUCTURES)

**NAME PLATE
(STRUCTURES)**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

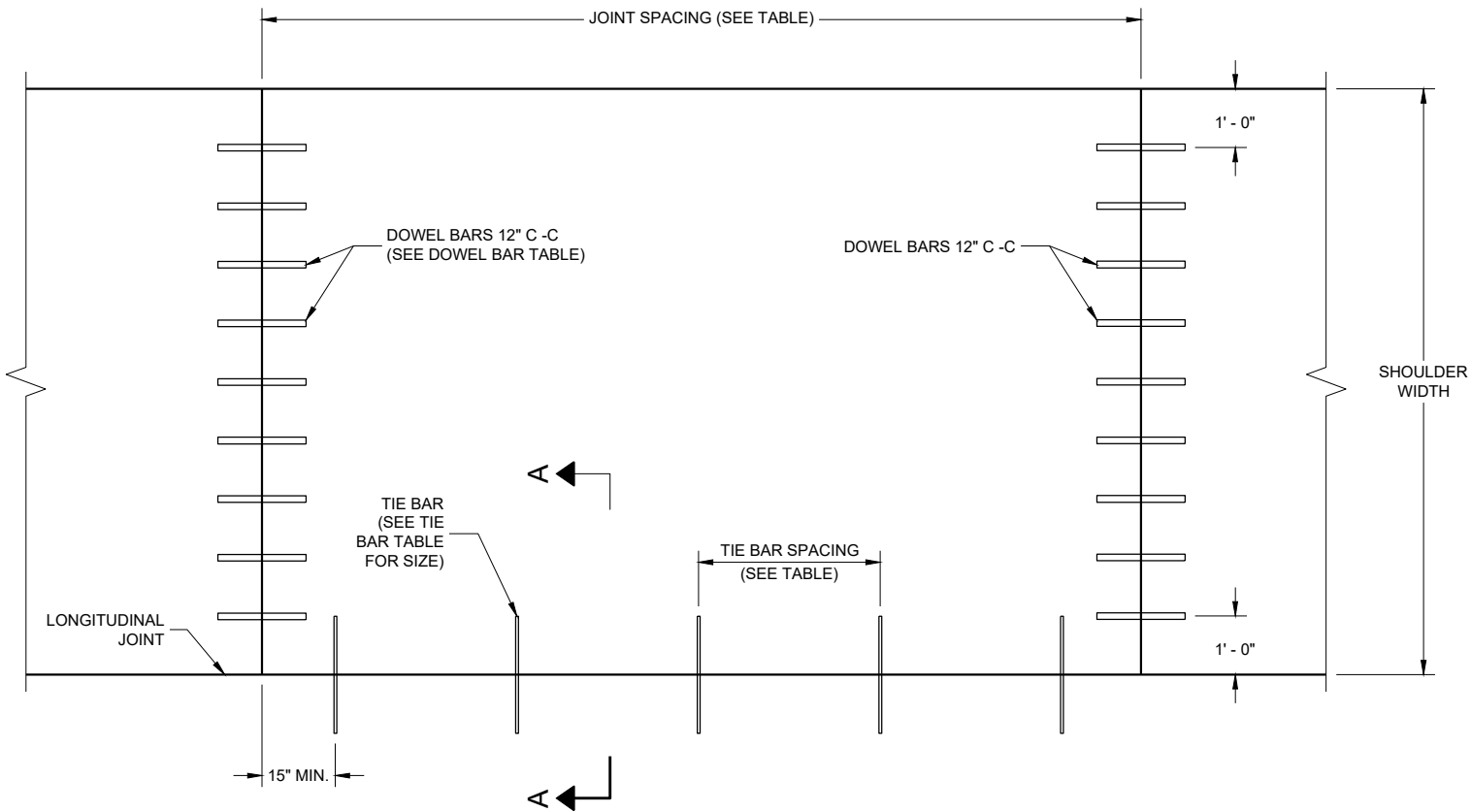
APPROVED

3/26/10
DATE

FHWA

/S/ Scot Beck
CHIEF STRUCTURAL DEVELOPER

JEER



PLAN VIEW
CONCRETE PAVEMENT SHOULDER

TIE BAR TABLE

PAVEMENT DEPTH (D)	TIE BAR SIZE	TIE BAR LENGTH (L)	MAX. TIE BAR SPACING
<10 1/2"	NO. 4	30"	36"
>10 1/2"	NO. 5	36"	36"
	NO. 4 *	30"	24" **

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

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

PAVEMENT DEPTH, DOWEL BAR SIZE
AND JOINT SPACING TABLE

PAVEMENT DEPTH (D)	DOWEL BAR DIAMETER ***	CONTRACTION JOINT SPACING
6", 6 1/2"	NONE	12"
7", 7 1/2"	1"	14"
8" & ABOVE	1 1/4"	15"

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

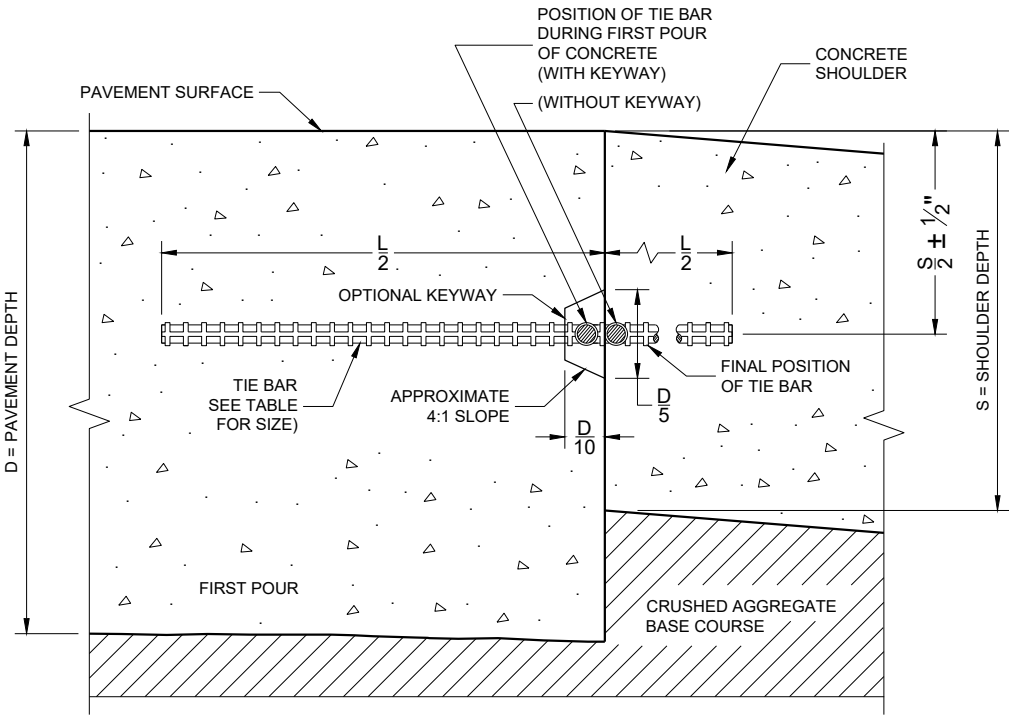
GENERAL NOTES

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

TRANSVERSE JOINT DETAILS ARE SHOWN ELSEWHERE IN THE PLAN.

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

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

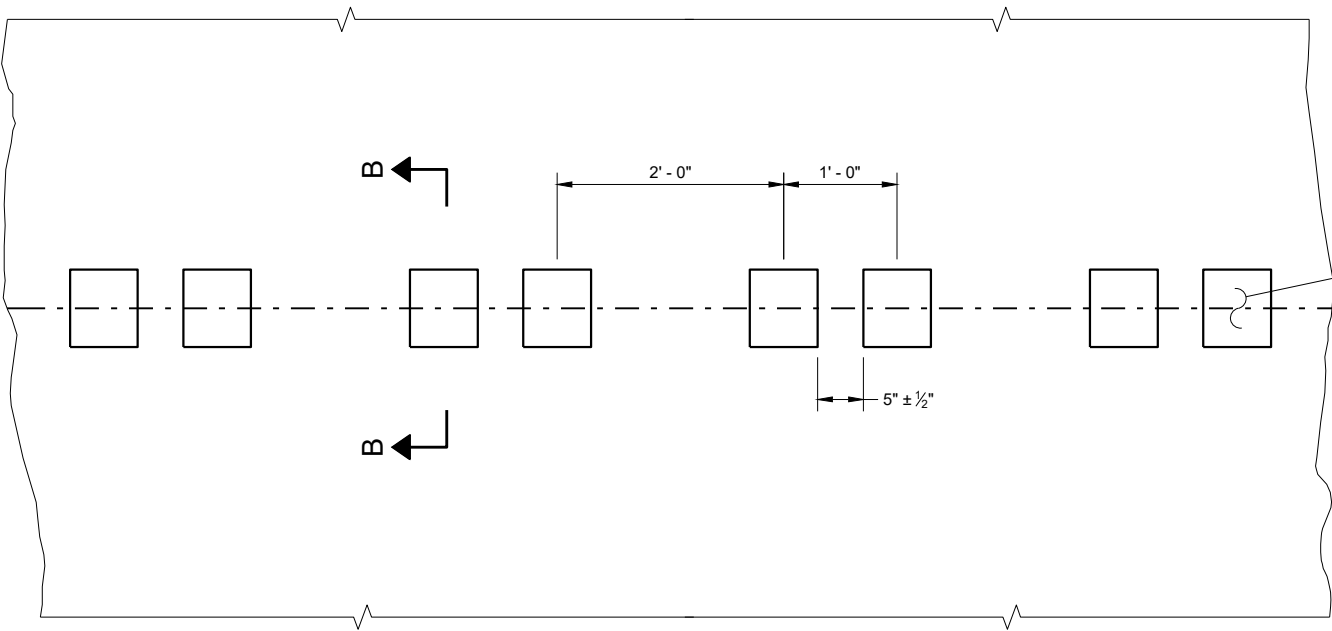


SECTION A - A
LONGITUDINAL CONSTRUCTION JOINT

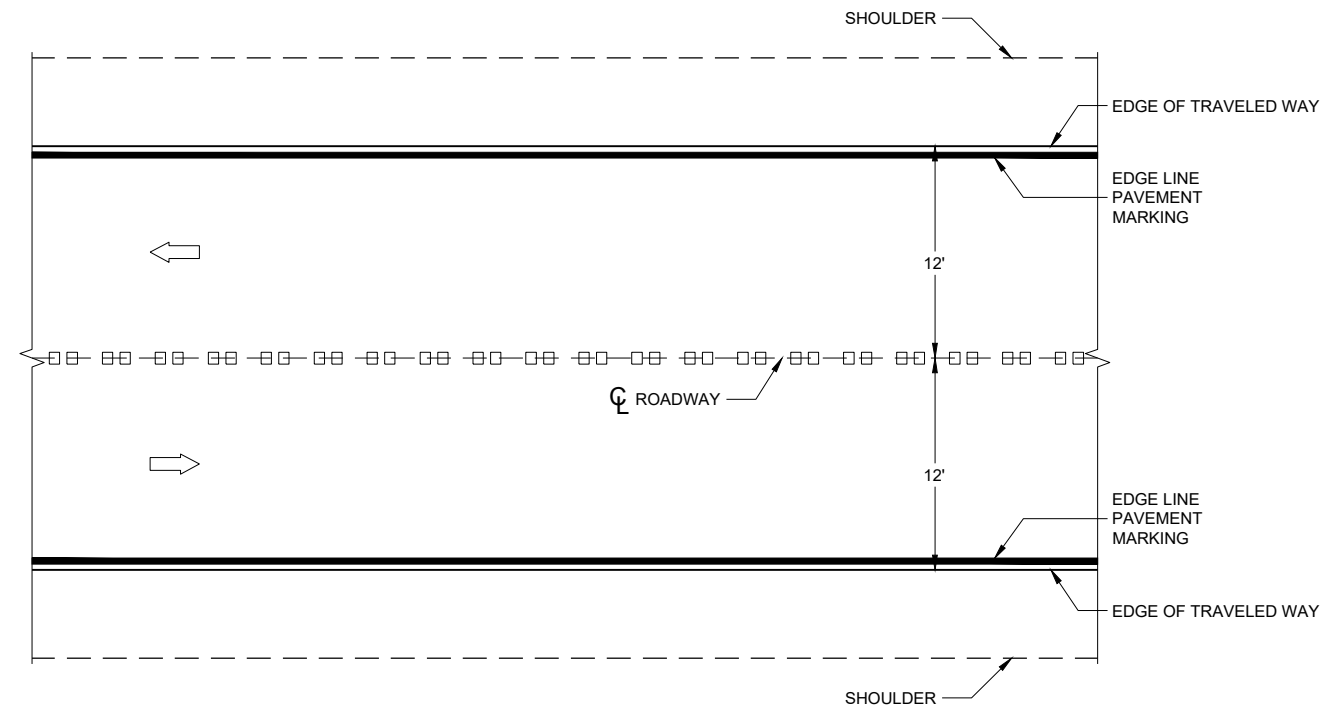
CONCRETE PAVEMENT
SHOULDERS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
November 2022 /S/ Peter Kemp
DATE PAVEMENT SUPERVISOR 54
FHWA

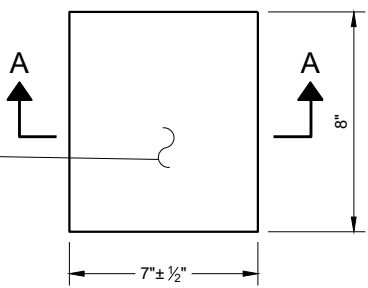


PLAN DETAIL VIEW

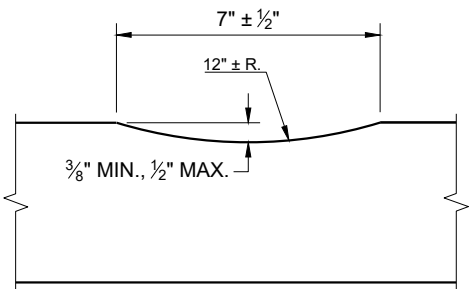


PLAN VIEW

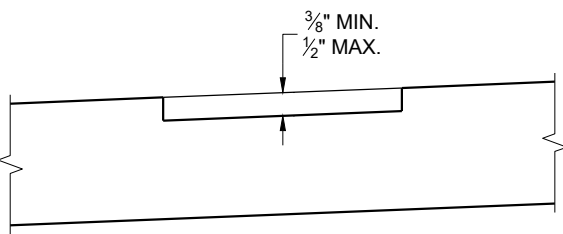
CENTERLINE RUMBLE STRIPS - ASPHALT



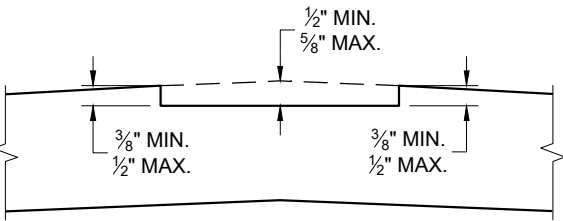
PLAN VIEW
(SINGLE GROOVE)



SECTION A - A



SECTION B - B
SUPERELEVATED ROADWAY

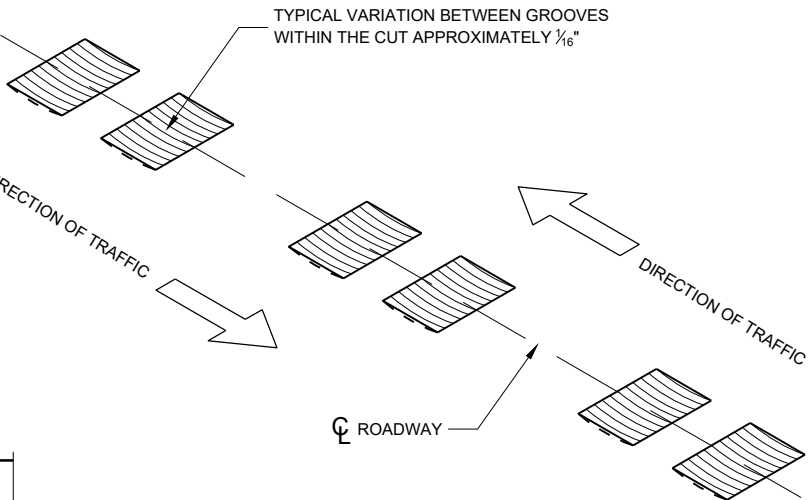


SECTION B - B
CROWNED ROADWAY

GENERAL NOTES

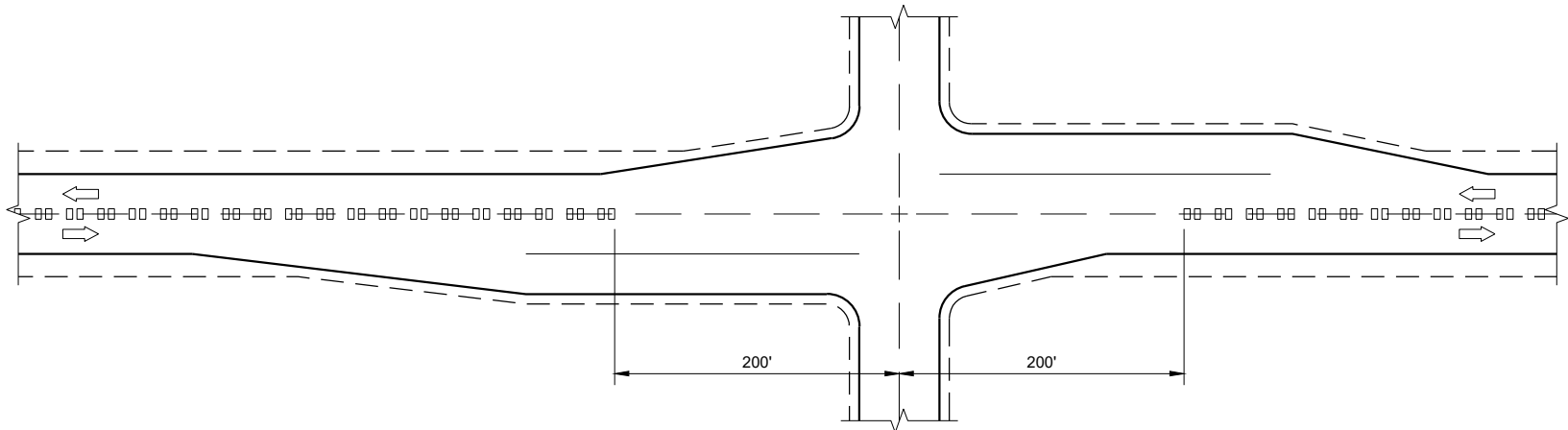
DO NOT MILL SHOULDER GROOVES THROUGH INTERSECTIONS, MARKED CROSSWALKS, NON-MOTORIZED PATH CROSSINGS, ETC. REFER TO SDD 13A11 SHEETS "d" AND "e".

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

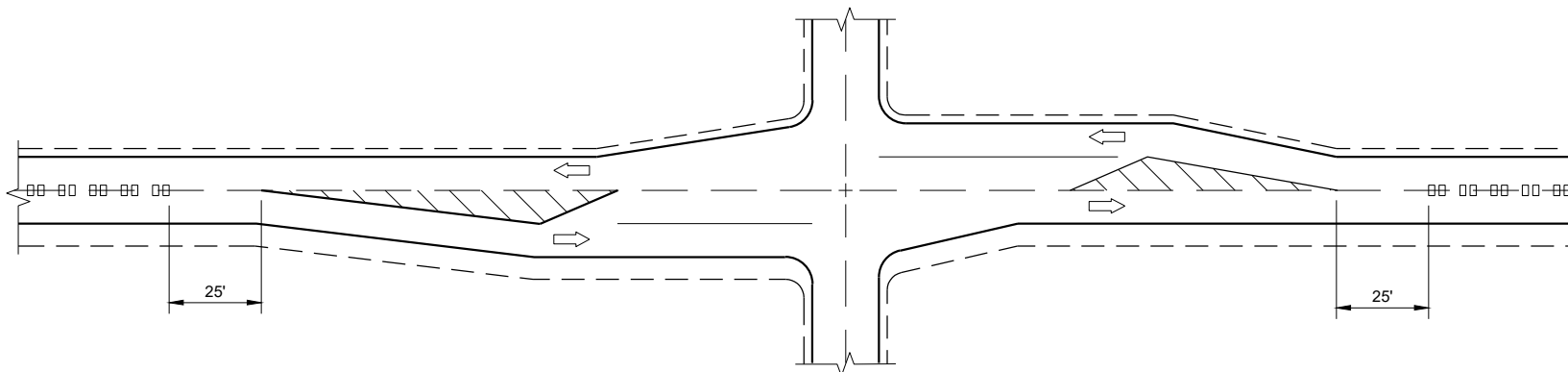


CENTERLINE RUMBLE STRIPS - ASPHALT

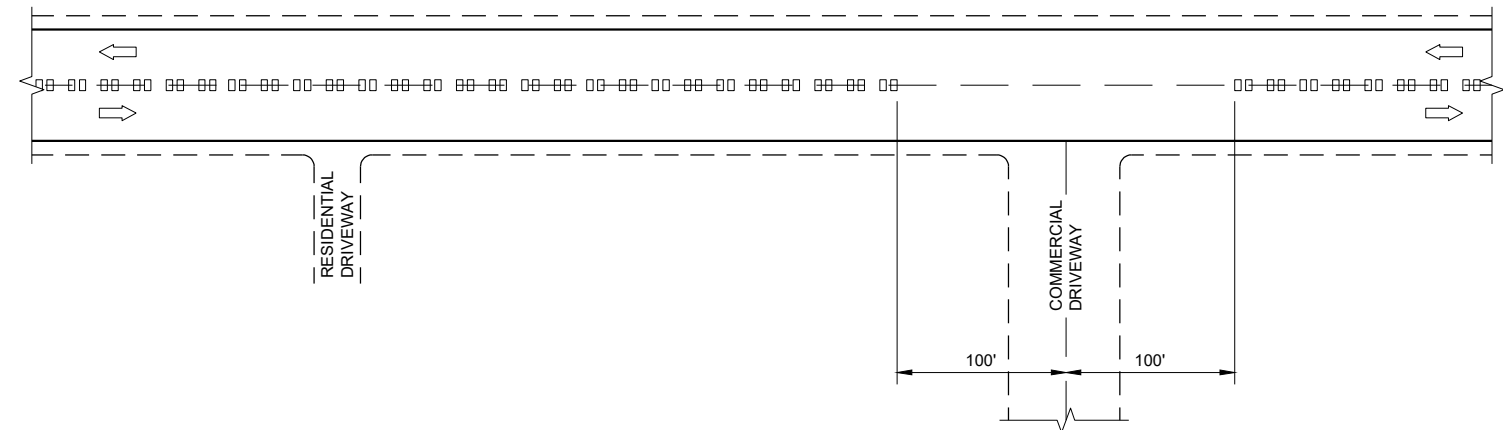
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



CENTERLINE GROOVES AT INTERSECTIONS



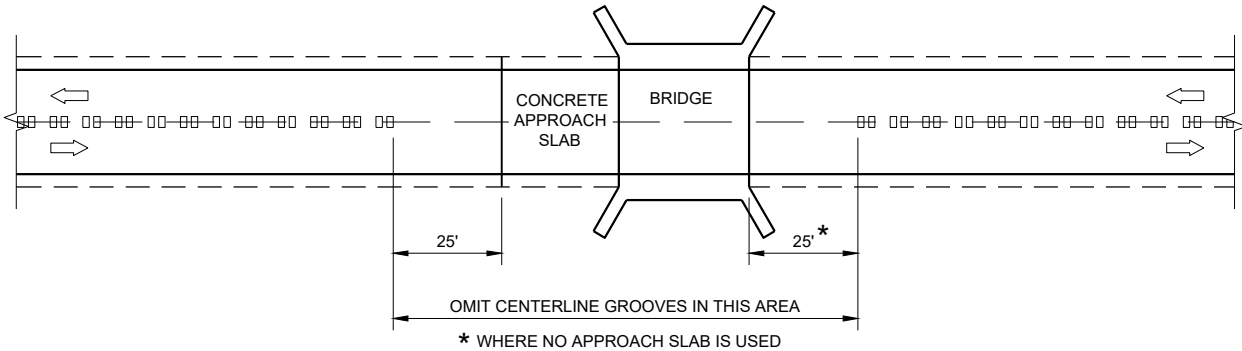
CENTERLINE GROOVES AT INTERSECTIONS
(WITH LEFT TURN LANES)



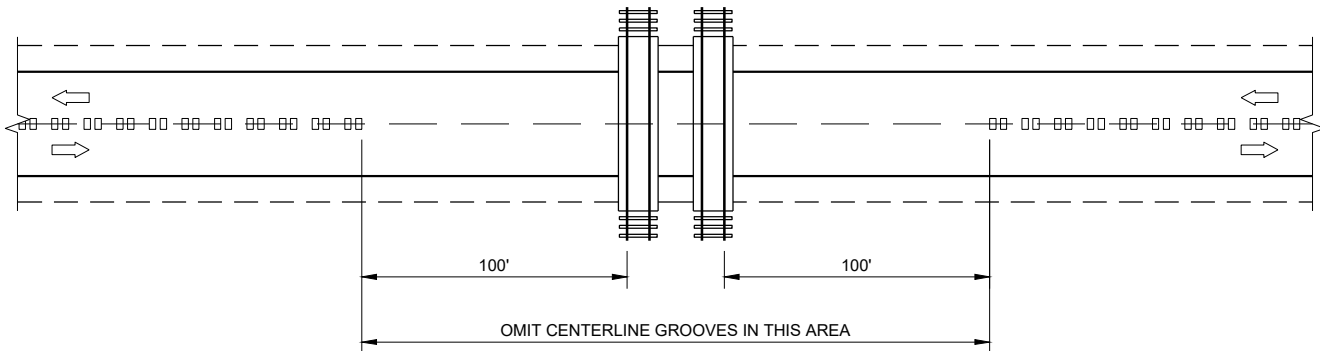
CENTERLINE GROOVES AT DRIVEWAYS^①

GENERAL NOTES

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



CENTERLINE GROOVES AT BRIDGES

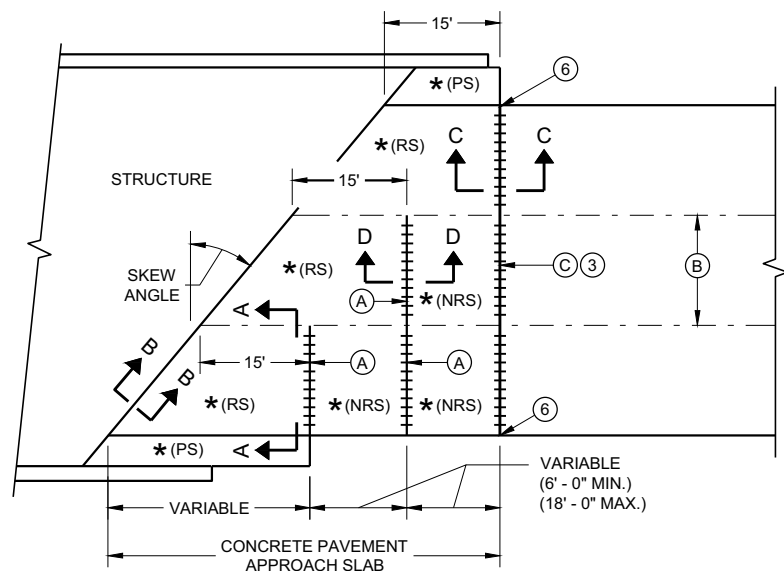


CENTERLINE GROOVES AT RAILROADS

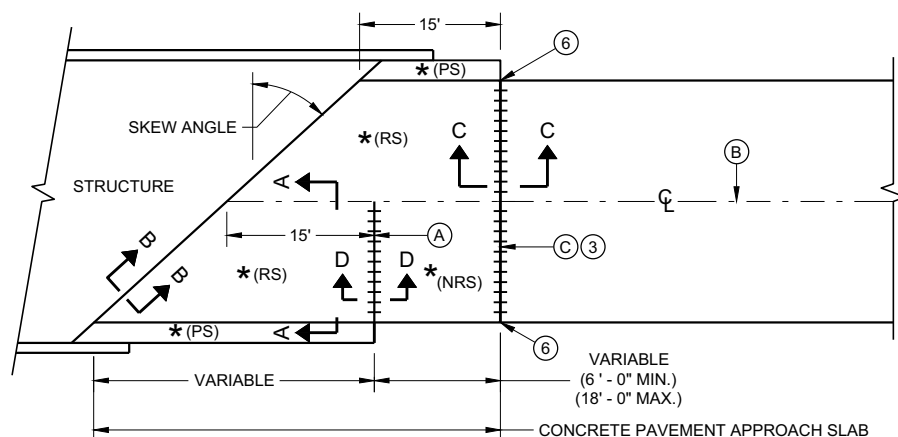
CENTER LINE
RUMBLE STRIPS -
INTERSECTIONS, DRIVEWAYS,
BRIDGES, RAIL ROADS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

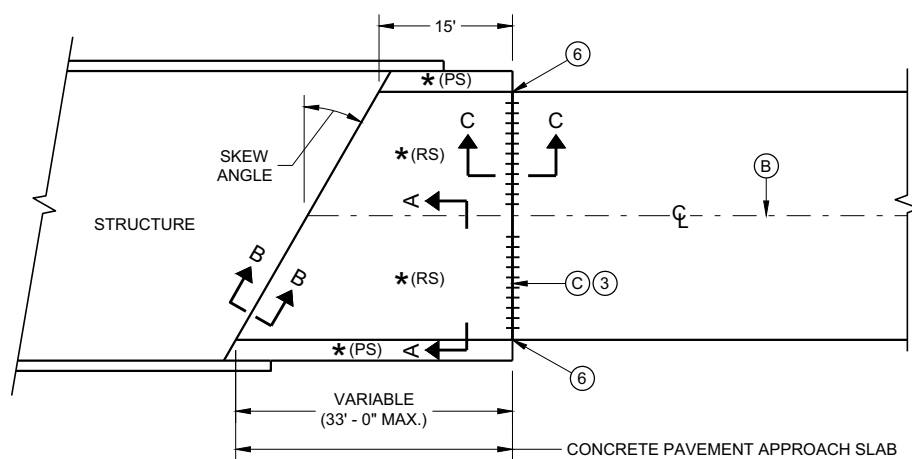
APPROVED
May 2023 /S/ John Jenkins
DATE ROADWAY STANDARDS DEVELOPMENT ENGINEER 56
FHWA



**SKewed APPROACH
(PAVEMENT MORE THAN TWO LANES)**



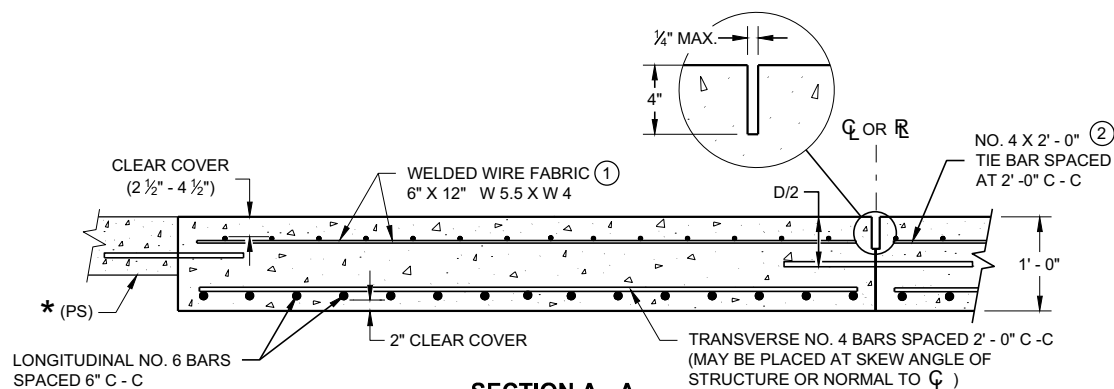
**SKews > 20°
(PAVEMENT WIDTH ≤ 30')**



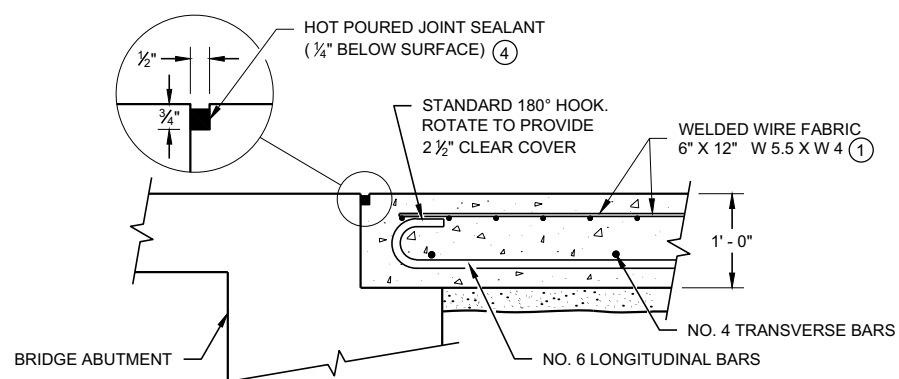
**SKews ≤ 20°
(PAVEMENT WIDTH ≤ 30')**

APPROACH SLAB AND ADJACENT PAVEMENT

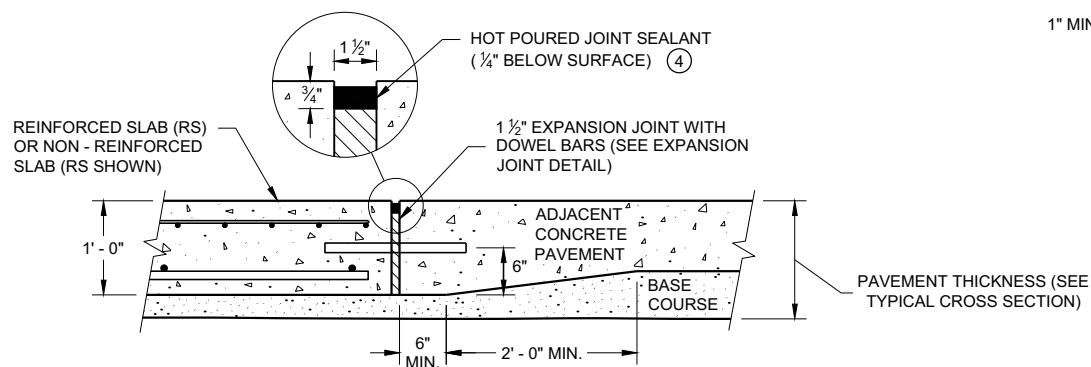
- * (RS) = REINFORCED CONCRETE SLAB
- * (PS) = PAVED CONCRETE SHOULDER OR CONCRETE DRAINAGE SLAB
- * (NRS) = NON - REINFORCED CONCRETE SLAB
- *** STANDARD DOWEL BAR DIAMETER (SEE SDD 13C11 AND SDD 13C13)



**SECTION A - A
REINFORCEMENT POSITIONING DETAIL**



**SECTION B - B
BEND DETAIL
BOTTOM REINFORCEMENT**



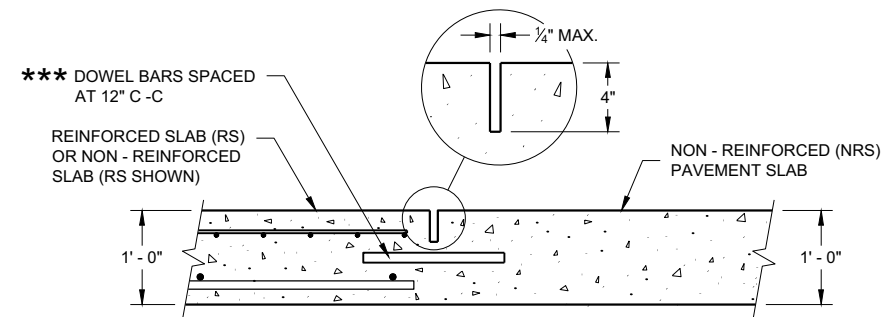
**SECTION C - C
TRANSITION DETAIL
APPROACH SLAB TO ADJACENT PAVEMENT**

GENERAL NOTES

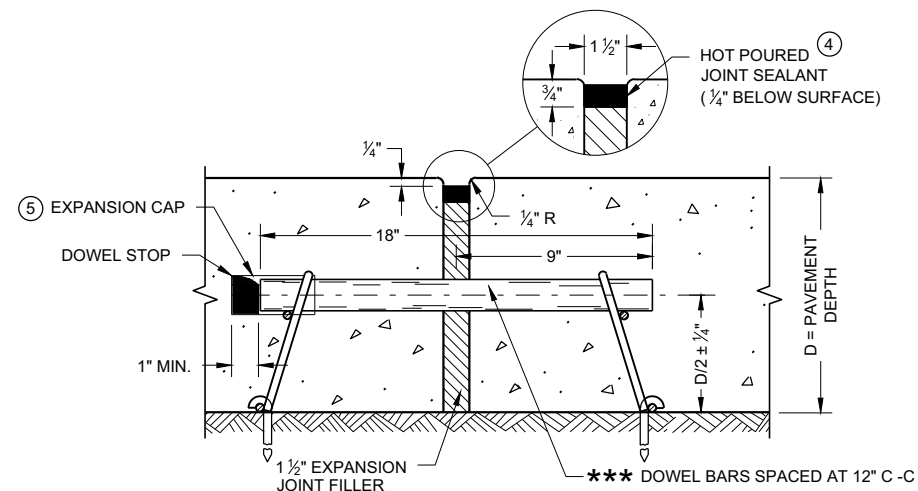
THE CONTRACTOR MAY SPLICE NO. 6 BARS IN THE APPROACH SLAB FOR SKEWED STRUCTURES ONLY. STAGGER SPLICES WITH A MAXIMUM OF ONE SPLICE PER BAR. THE LENGTH OF LAP IS 20 INCHES.

TACK WELD DOWEL BARS TO THE BASKETS ON ALTERNATE ENDS.

- ① THE CONTRACTOR MAY USE NO. 4 BARS SPACED AT 2' - 0" C - C IN BOTH THE LONGITUDINAL AND TRANSVERSE DIRECTIONS FOR TOP REINFORCEMENT AS AN ALTERNATIVE TO THE WELDED WIRE FABRIC.
- ② THE CONTRACTOR MAY OMIT THE BARS BETWEEN REINFORCED SLABS WHERE SLAB REINFORCEMENT BARS EXTEND ACROSS THE CENTERLINE OR REFERENCE LINE.
- ③ DO NOT CONSTRUCT AN EXPANSION JOINT OR INSTALL DOWEL BARS WHEN ABUTTING AN HMA PAVEMENT.
- ④ USE A JOINT SEALANT CONFORMING TO STANDARD SPECIFICATION 415.2.6.
- ⑤ PLACE EXPANSION CAP ON THE END OF THE DOWEL THAT IS NOT TACK WELDED TO THE BASKET. DO NOT FORCE DOWEL BAR PAST THE DOWEL STOP.
- ⑥ EXTEND EXPANSION JOINT THROUGH ANY ADJACENT TIED CONCRETE.
- (A) STANDARD CONTRACTION JOINT NORMAL TO $\mathcal{C}$ OR $\mathcal{R}$.
- (B) STANDARD LONGITUDINAL JOINT WITH TIE BARS.
- (C) 1 1/2" EXPANSION JOINT WITH DOWEL BARS NORMAL TO $\mathcal{C}$ OR $\mathcal{R}$.



**SECTION D - D
CONTRACTION JOINT**



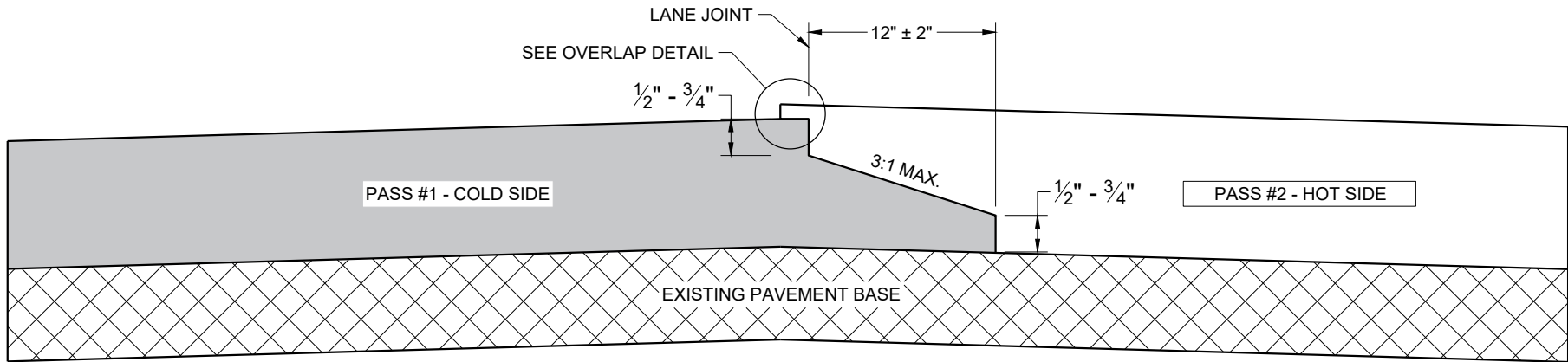
EXPANSION JOINT DETAIL

CONCRETE PAVEMENT APPROACH SLAB

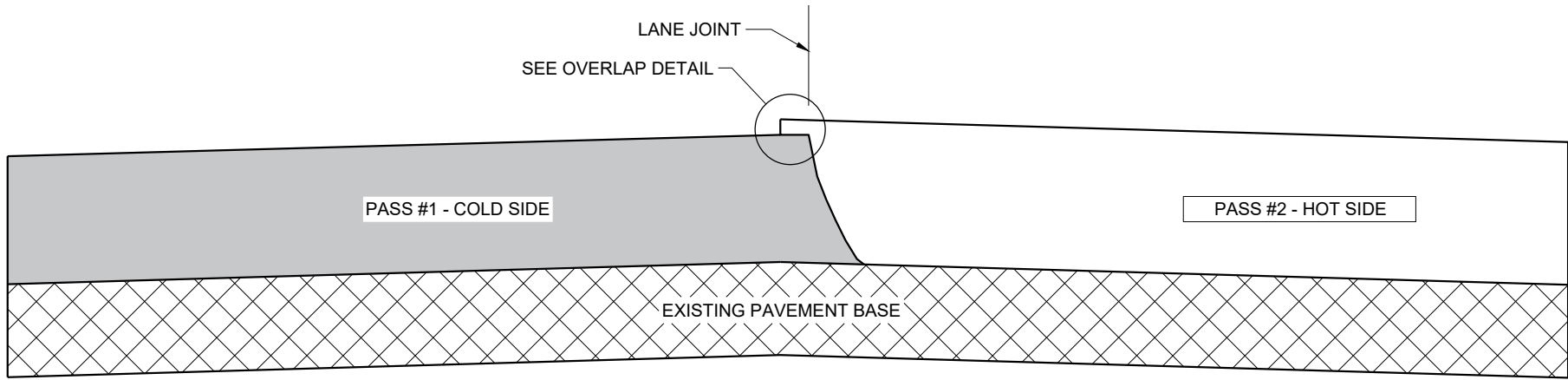
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
November 2018 /S/ Peter Kemp, P.E.
DATE PAVEMENT SUPERVISOR 57

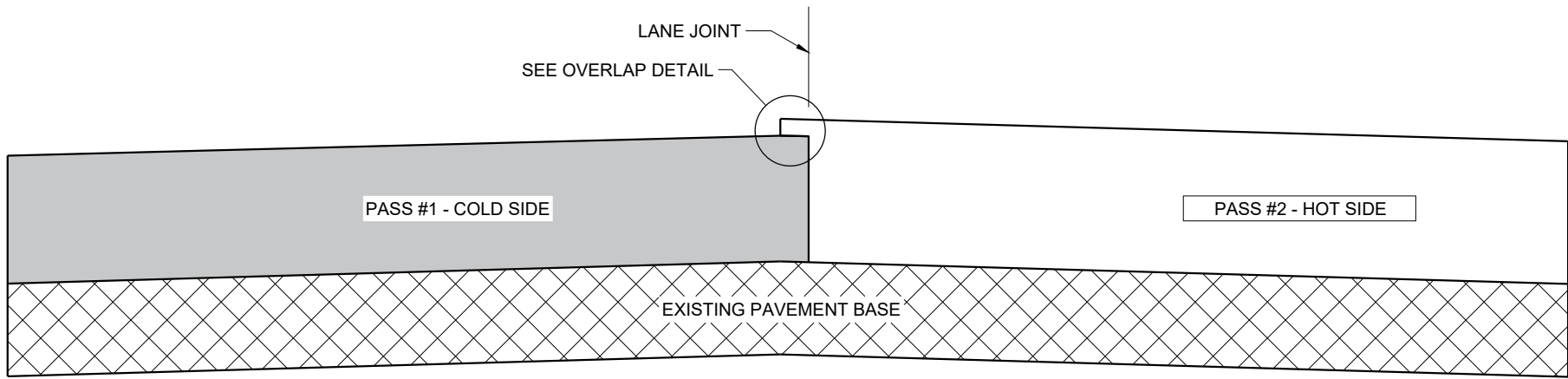
FHWA



TYPICAL PAVEMENT CROSS SECTION
NOTCHED WEDGE JOINT



TYPICAL PAVEMENT CROSS SECTION
VERTICAL JOINT



TYPICAL PAVEMENT CROSS SECTION
VERTICAL JOINT (MILLED)

GENERAL NOTES

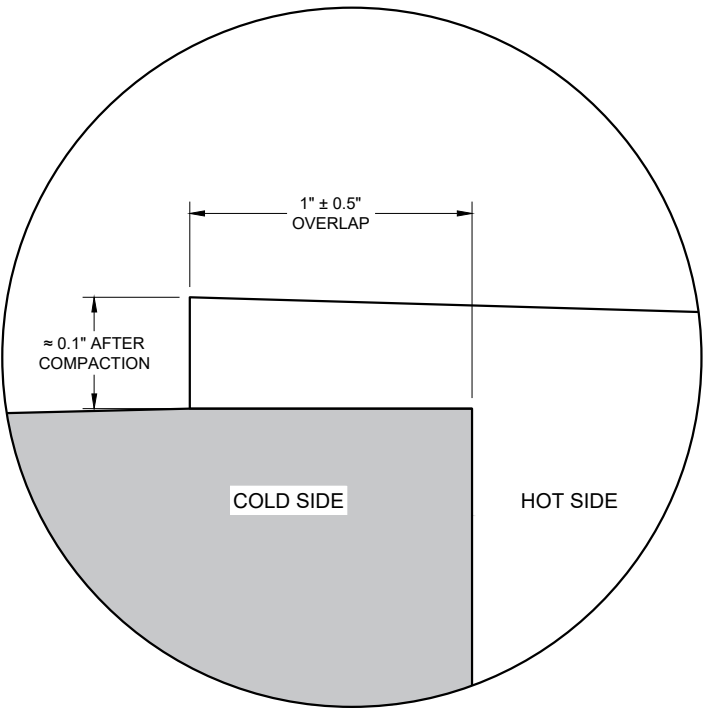
IN ADDITION TO THE DETAILS PROVIDED IN THIS DRAWING, CONFORM TO STANDARD SPECIFICATION 450.3.2.8 FOR WHEN A NOTCHED WEDGE JOINT IS REQUIRED AND FOR GENERAL JOINT CONSTRUCTION REQUIREMENTS.

FOR ALL LONGITUDINAL JOINTS, ENSURE THE PAVER SCREED OVERLAPS THE PREVIOUSLY PLACED PAVEMENT BY $1" \pm 0.5"$ 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)

HMA LONGITUDINAL JOINTS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
November 2020 /S/ Steven Hefel
DATE HMA PAVEMENT ENGIN 59
FHWA

- 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.

THE CENTER OF THE UPPER 3 1/2" 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.

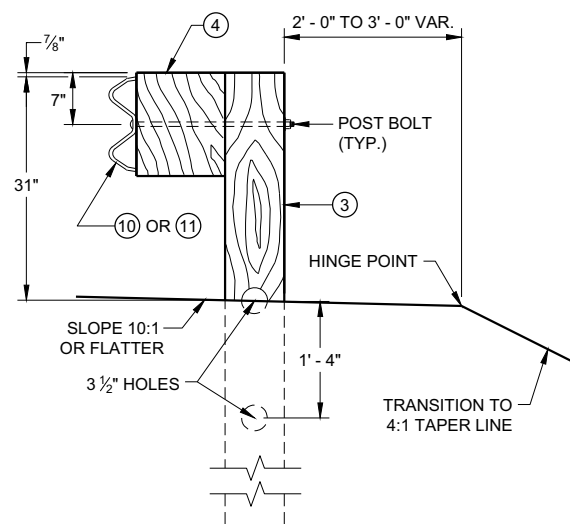
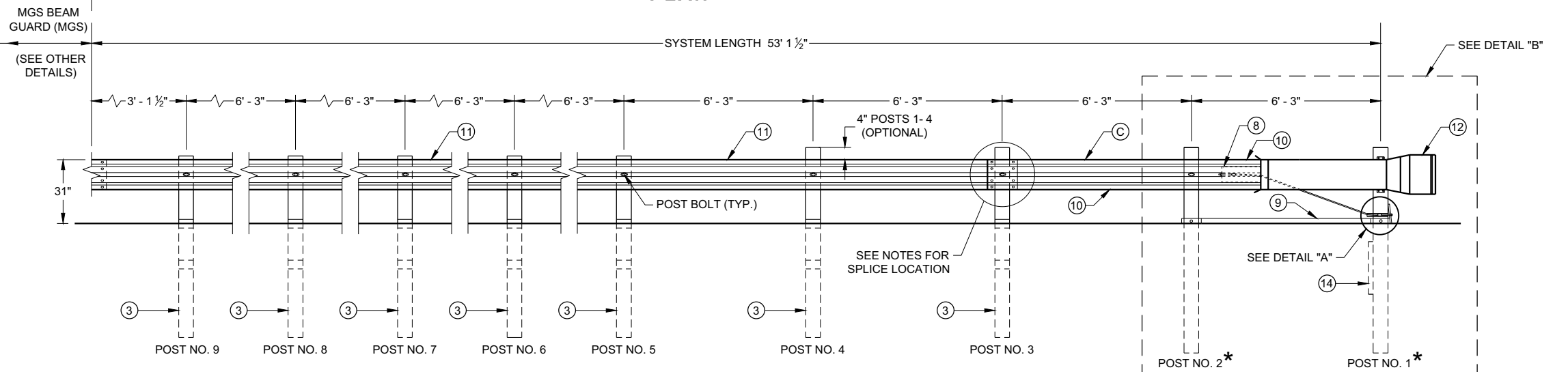


Diagram illustrating the plan view of a bridge structure, showing various slopes, clear zone limits, and dimensions. Key features include:

- Clear Zone Limits:** Indicated by dashed lines, either as shown elsewhere in the plans or, if not shown elsewhere, 15 feet beyond the hinge point line.
- Slopes:**
 - 4:1 TAPER:** Slope on the left side.
 - GRADELINE:** The line separating the bridge deck from the approach.
 - 5'-4" AT POST NO. 5:** Dimension indicating the height of the structure at Post No. 5.
 - 5'-0" MIN. TO HINGE POINT:** Dimension indicating the minimum height of the structure at the hinge point.
 - 15:1 TAPER:** Slope on the right side.
 - SLOPE 10:1 MAX.:** Slope on the right side.
 - SLOPE 10:1 OR FLATTER TO HINGE POINT:** Slope on the right side.
- Dimensions:**
 - 2'-0" (AT POST NO. 9):** Dimension indicating the height of the structure at Post No. 9.
 - 2'-0" OFFSET TO FACE OF RAIL:** Dimension indicating the offset from the face of the rail to the structure.
 - 25:1 FLARE:** Slope on the right side.
- Other Labels:**
 - PARALLEL WITH TRAVELED WAY:** Dimension indicating the parallel distance from the traveled way to the structure.
 - EDGE OF SHOULDER:** The line separating the bridge deck from the shoulder.
 - HINGE POINT LINE:** The line separating the bridge deck from the approach.
 - DIRECTION OF TRAVEL:** Indicated by arrows pointing right.

PLAN



ELEVATION

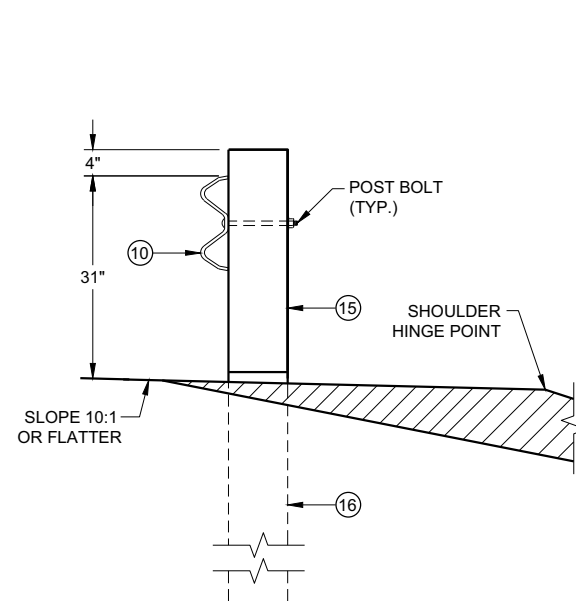


Diagram illustrating the placement of a W5-59 sign and its mounting post on a shoulder. The sign is a rectangular panel with diagonal black and white stripes, labeled W5-59, (D), (12), and (1). It is mounted on a post labeled (13). The post is 4'-0" high. The sign is positioned 1'-0" from the edge of the shoulder and 2'-0" offset to the face of the rail. The post is 5'-0" MIN. TO HINGE POINT. The sign is 1'-6" MIN. BELOW GRADE. The shoulder is sloped at 10:1 OR FLATTER, and the hinge point is at the top of the post. The normal slope is indicated at the bottom right.

DETAIL "B"

POST NO. 2*

POST NO. 1*

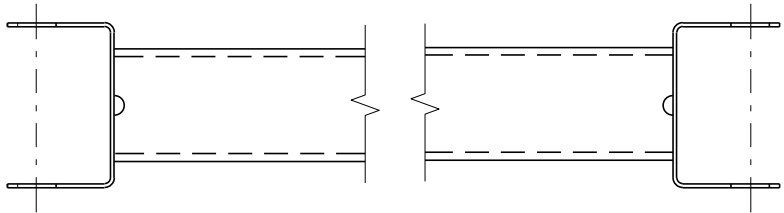
FINISHED GROUND ELEVATION

BOTTOM OF STRUT IS PLACED FLUSH WITH AND PARALLEL TO THE FINISHED SURFACE

Labels: C, E, 1, 2, 7, 8, 9, 10, 11, 12, 14, 15, 16.

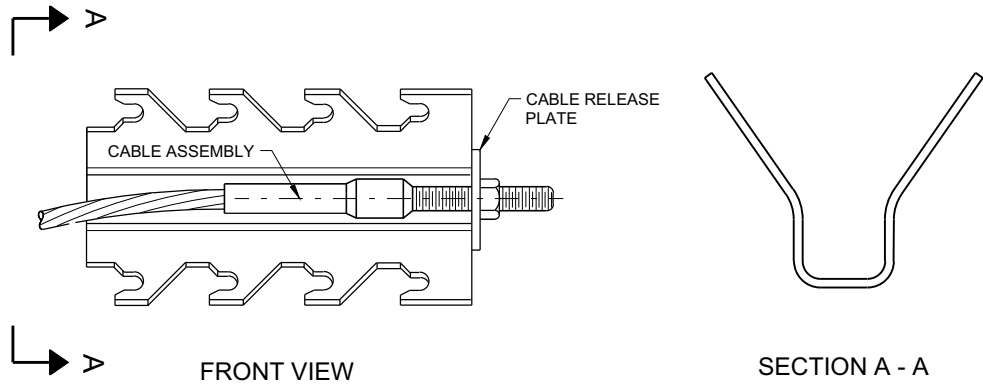
DETAIL "B"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION 60

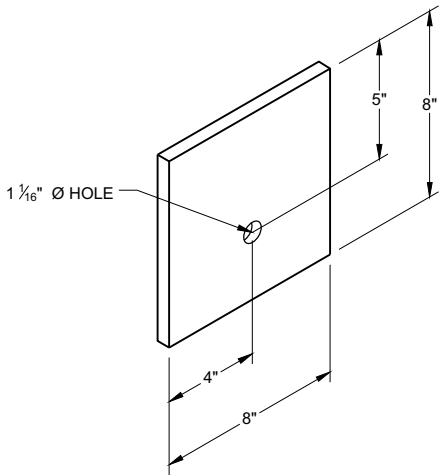


GENERIC GROUND STRUT⁹ ^E

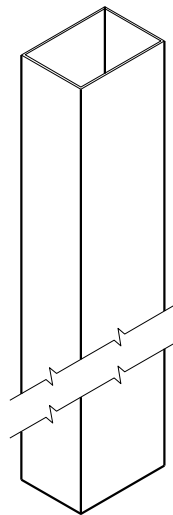
BILL OF MATERIALS	
PART NO.	DESCRIPTION MATERIALS PROVIDED BY MGS EAT MANUFACTURER. SEE MANUFACTURER'S DETAILS FOR MORE INFORMATION.
①	UPPER POST NO. 1 6" X 6" TUBE
②	LOWER POST NO. 1
③	WOOD CRT
④	WOOD BLOCKOUT
⑤	PIPE SLEEVE
⑥	BEARING PLATE
⑦	BCT CABLE ASSEMBLY
⑧	ANCHOR CABLE BOX
⑨	GROUND STRUT
⑩	PERFORATED 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



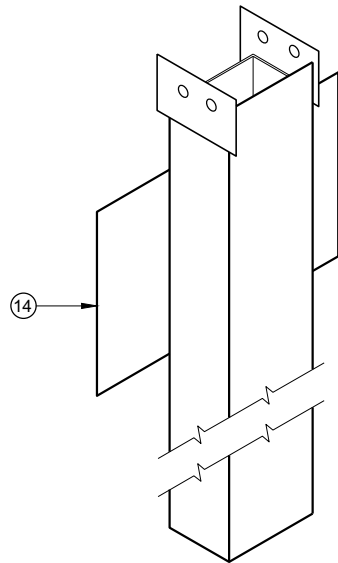
GENERIC ANCHOR CABLE BOX⁹ ^E



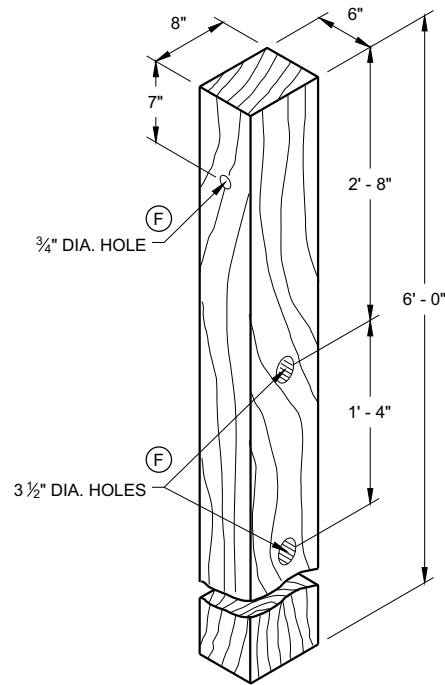
BEARING PLATE⁶ ^E



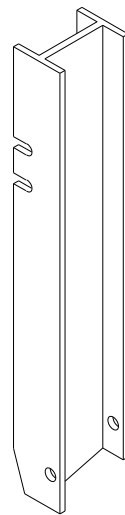
UPPER POST NO. 1 ⁽¹⁾ (E)



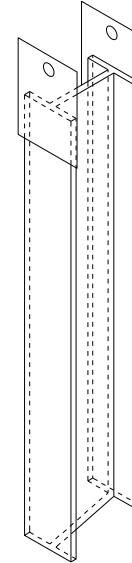
LOWER POST NO. 1 ⁽²⁾ (E)



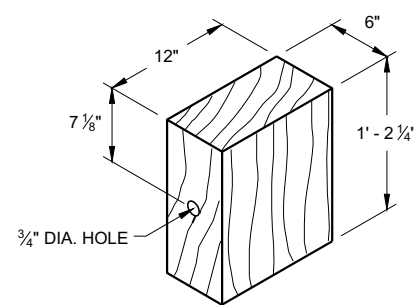
WOOD CRT POST ⁽³⁾ (E)
POSTS NUMBER 3-9



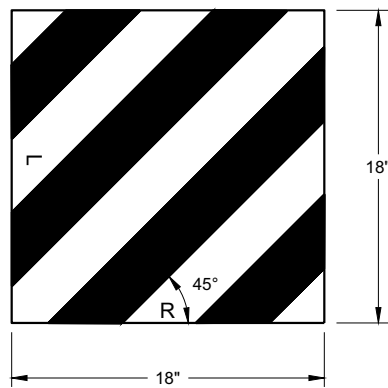
UPPER POST NO. 2 ⁽¹⁵⁾ (E)



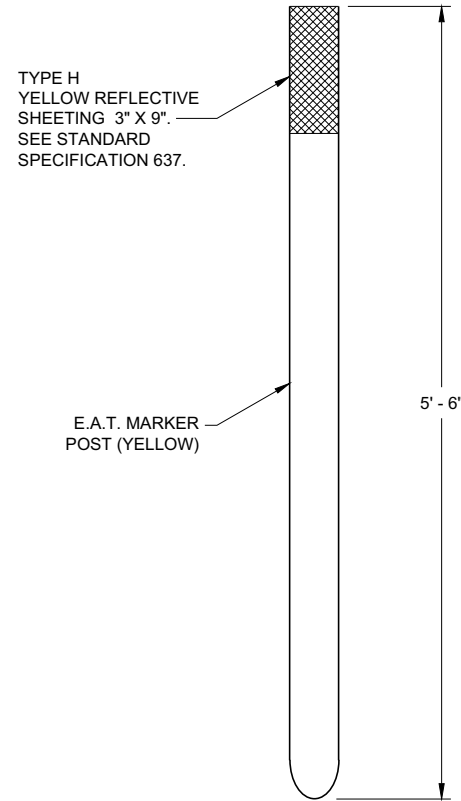
LOWER POST NO. 2 ⁽¹⁶⁾ (E)



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

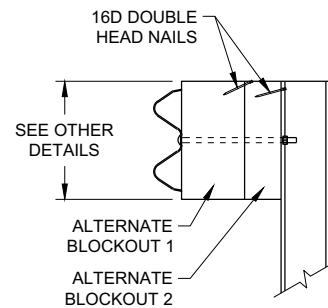


REFLECTIVE SHEETING DETAIL ^(E)



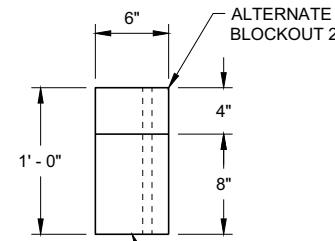
FRONT VIEW SIDE VIEW

E.A.T. MARKER POST ⁽¹³⁾



SIDE VIEW

ALTERNATE WOOD
BLOCKOUT DETAIL

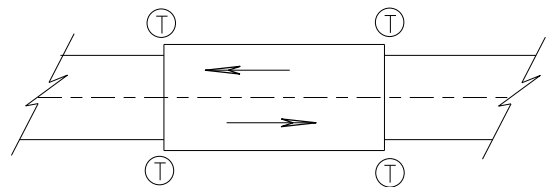


TOP VIEW

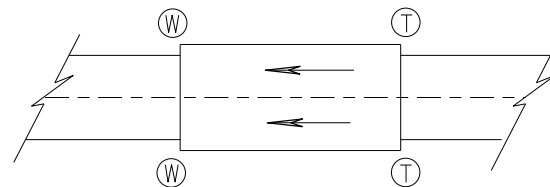
**MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL
(MGS)**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
7/2018 DATE /S/ Rodney Taylor
ROADWAY STANDARDS DEVELOPMENT UNIT SUPERVISOR
FHWA 62



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

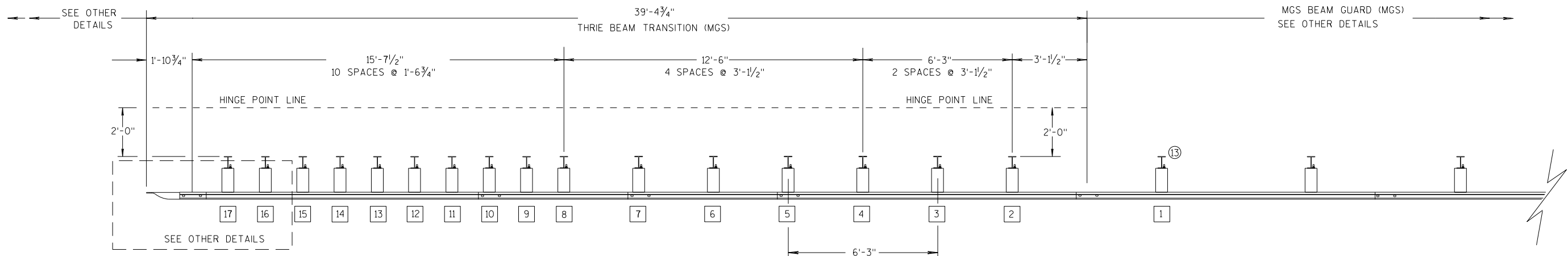
IF ROCK IS ENCOUNTERED, REMOVE ROCK TO FULL DEPTH OF POST PLUS 2 1/2", AND 12" DIAMETER AROUND POST. SEE 14B42 FOR MORE DETAILS.

TRANSITION USES STEEL POSTS ONLY.

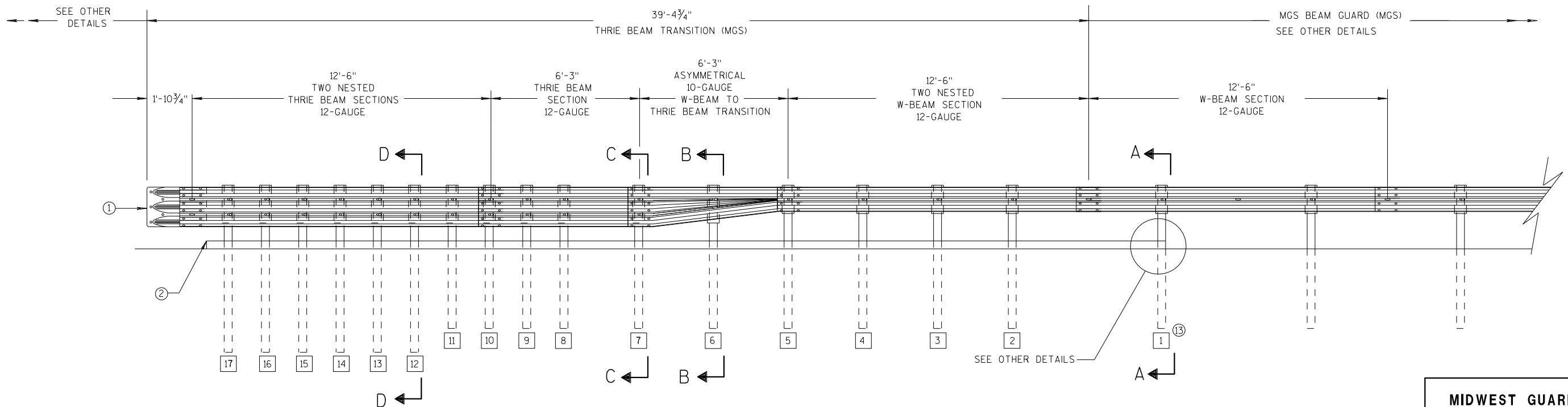
SEE STANDARD DETAIL DRAWING 14 B 42 FOR MORE INFORMATION.

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

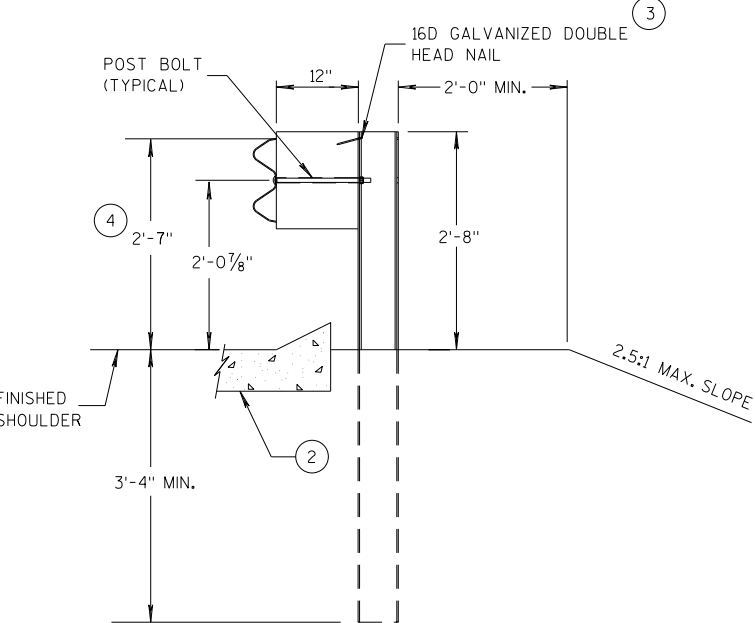
MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION

**MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)**

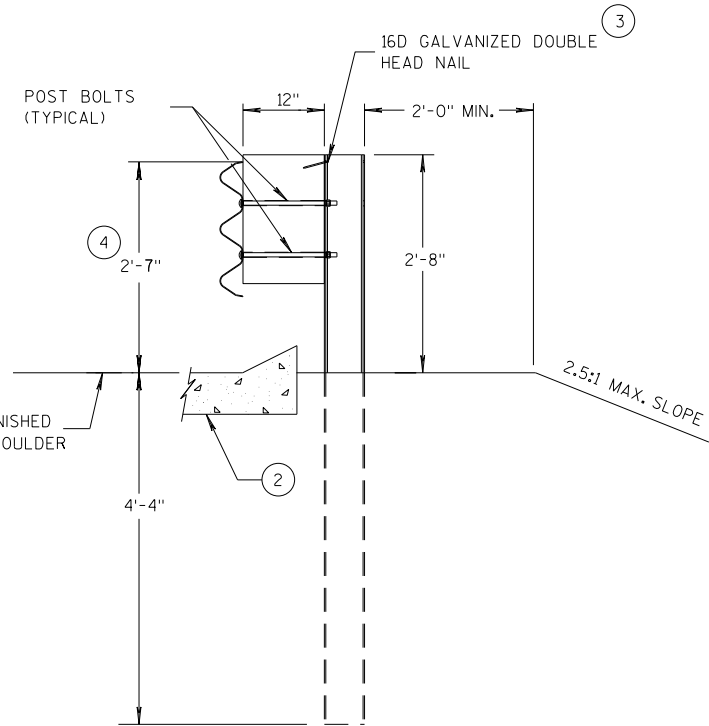
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

GENERAL NOTES

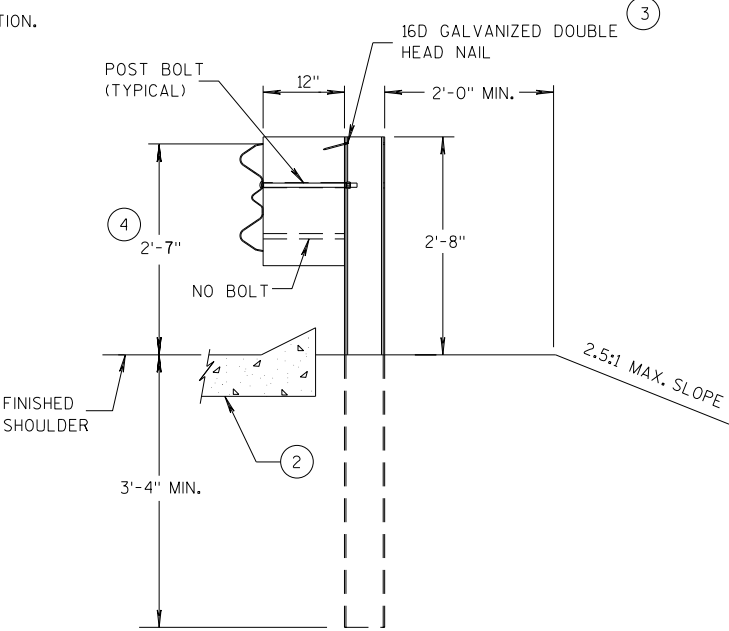
- 2 OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.
- 3 WHEN USING STEEL POSTS AND WOOD BLOCKOUTS INSTALL FOUR 10D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.
- 4 TOLERANCE FOR TOP OF W-BEAM RAIL IS $\pm 1"$.
- 13 STEEL OR WOOD POST IS ACCEPTABLE AT POST 1. SEE SDD 14B42



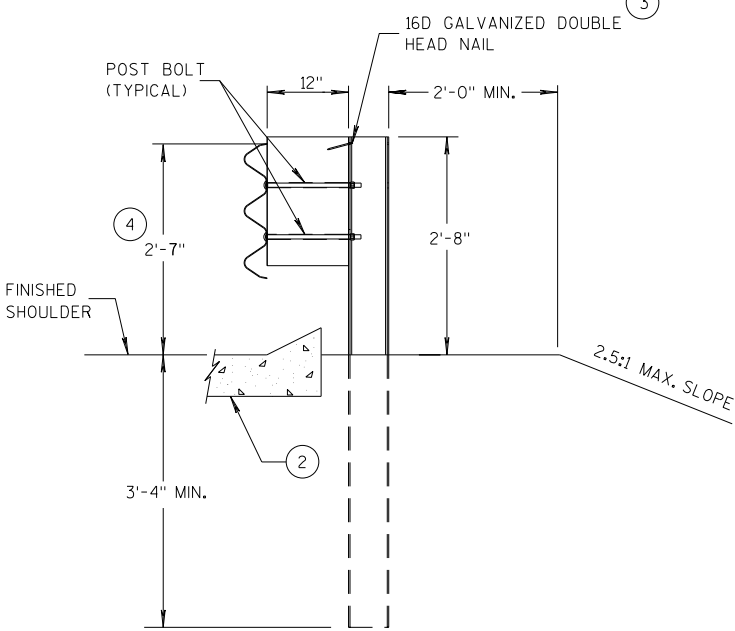
SECTION A-A
POSTS 1-5



SECTION D-D
POSTS 12-17



SECTION B-B
POST 6



SECTION C-C
POSTS 7-11

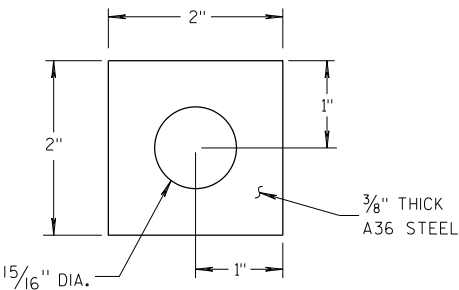
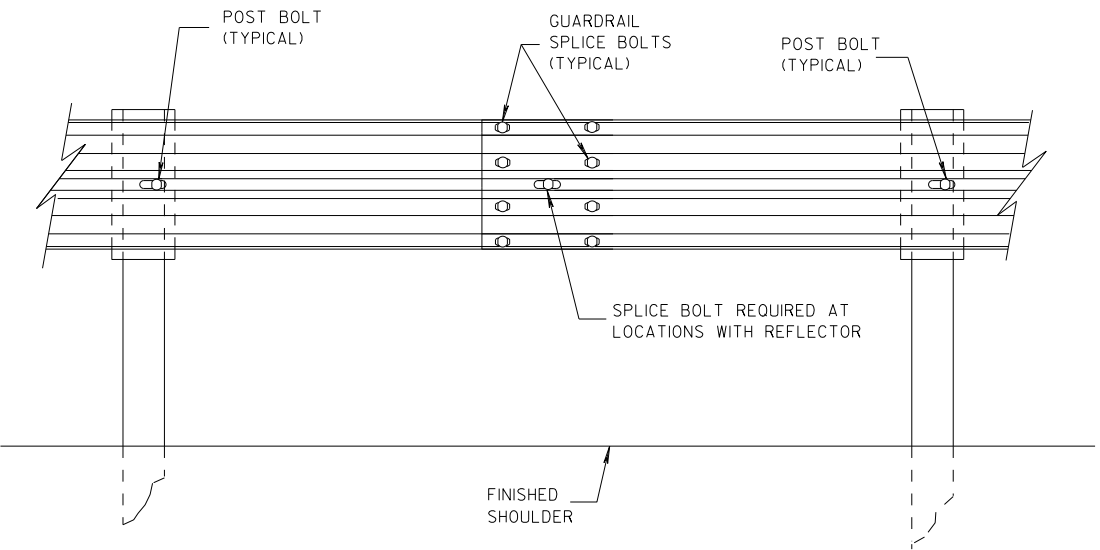
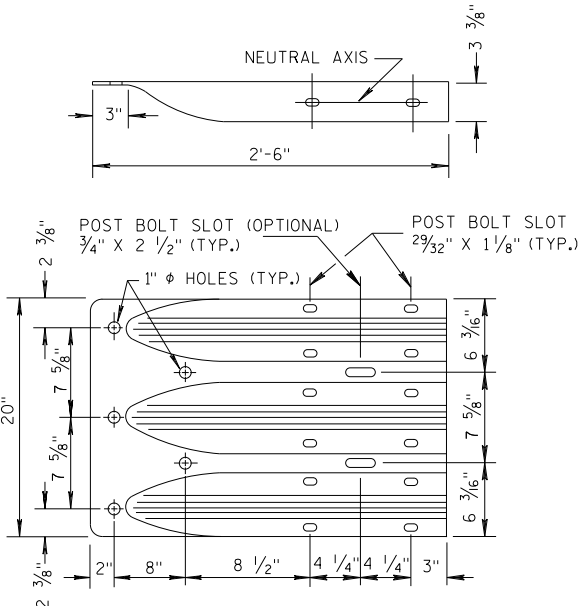


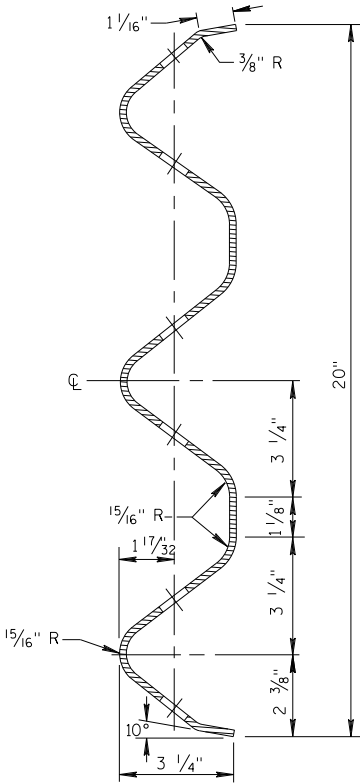
PLATE WASHER DETAIL



SPlice DETAIL



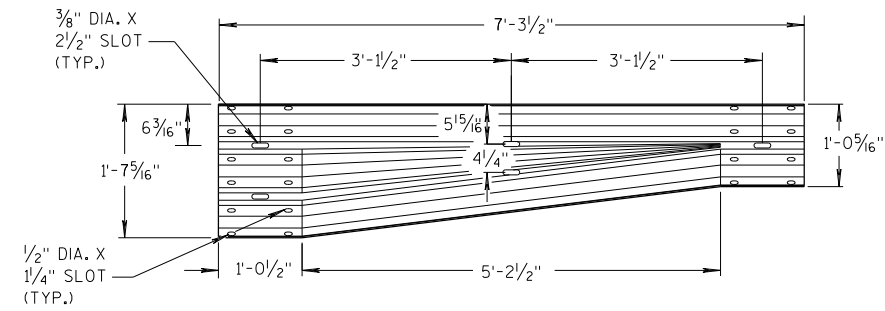
THRIE BEAM
TERMINAL CONNECTOR



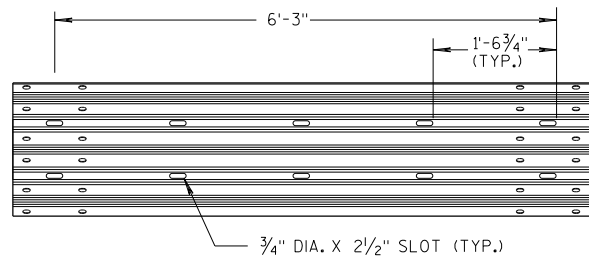
SECTION THRU THRIE
BEAM RAIL ELEMENT

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

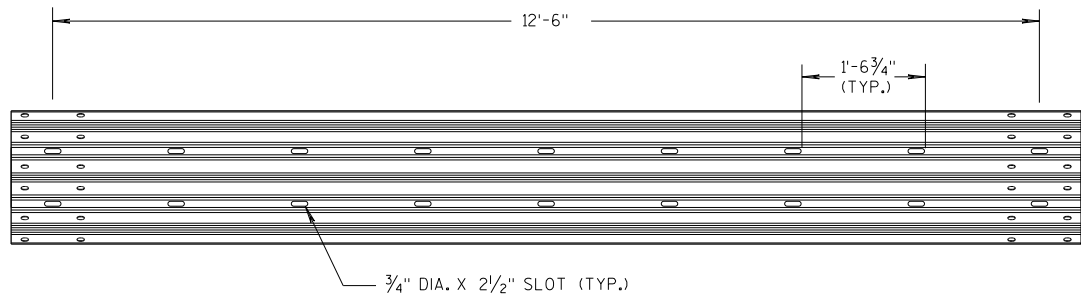
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



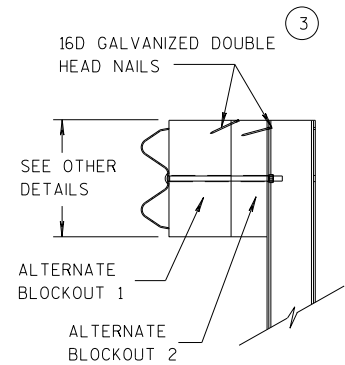
W-BEAM TO THRIE BEAM TRANSITION SECTION



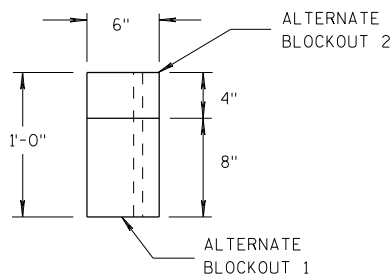
6'-3" THRIE BEAM SECTION



12'-6" THRIE BEAM SECTION

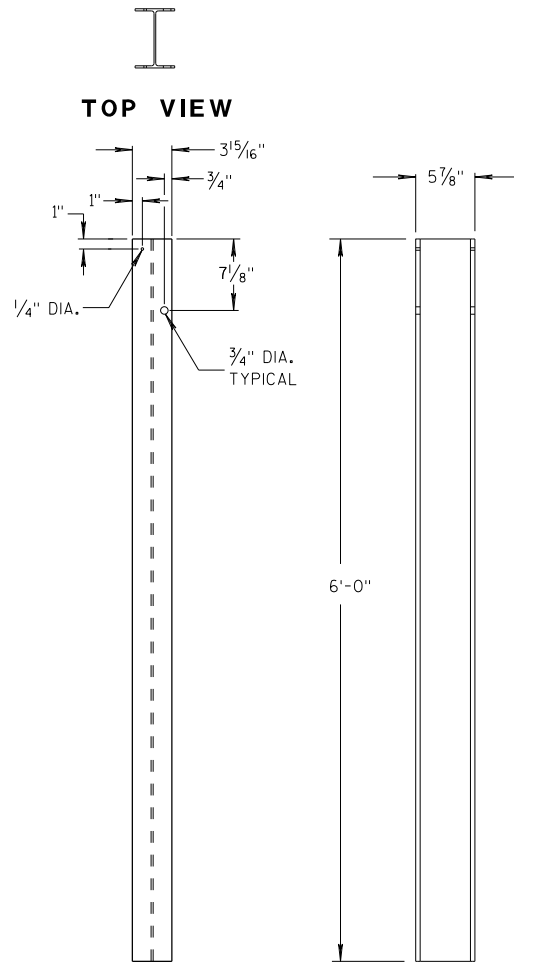


SIDE VIEW



TOP VIEW

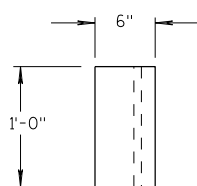
ALTERNATE WOOD BLOCKOUT DETAIL



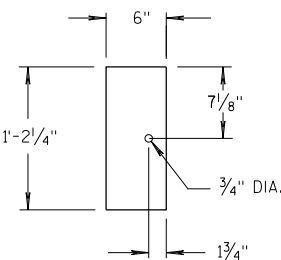
FRONT VIEW

SIDE VIEW

STEEL POSTS 1-5

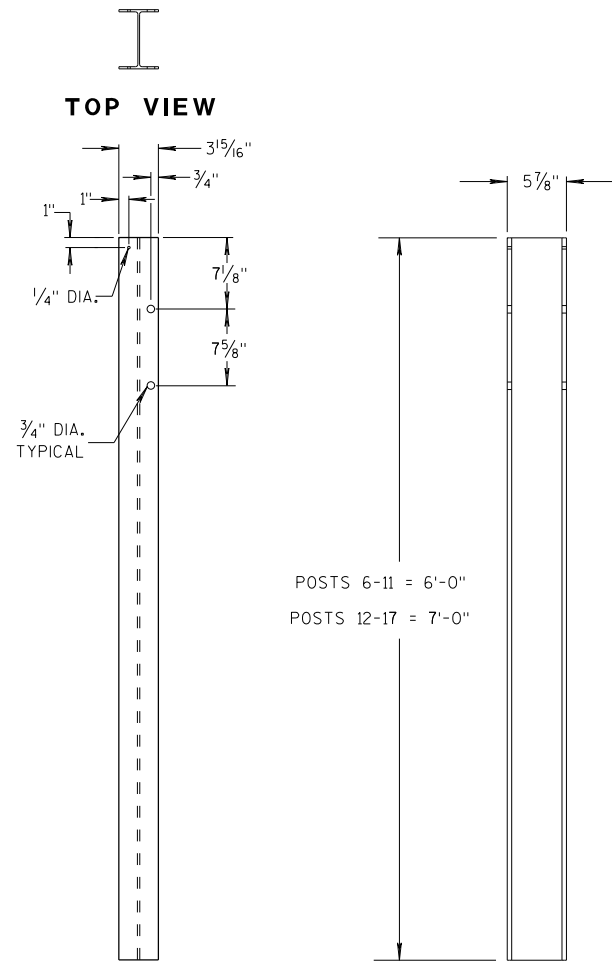


TOP VIEW



FRONT VIEW

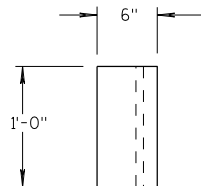
BLOCKOUT POSTS 1-5



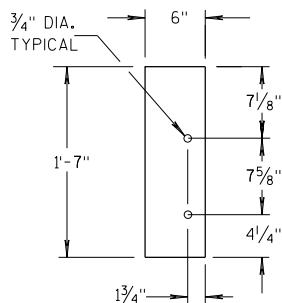
FRONT VIEW

SIDE VIEW

STEEL POSTS 6-17



TOP VIEW



FRONT VIEW

BLOCKOUT POSTS 6-17

GENERAL NOTES

STEEL POSTS ARE W6X9 OR W6X8.5.

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

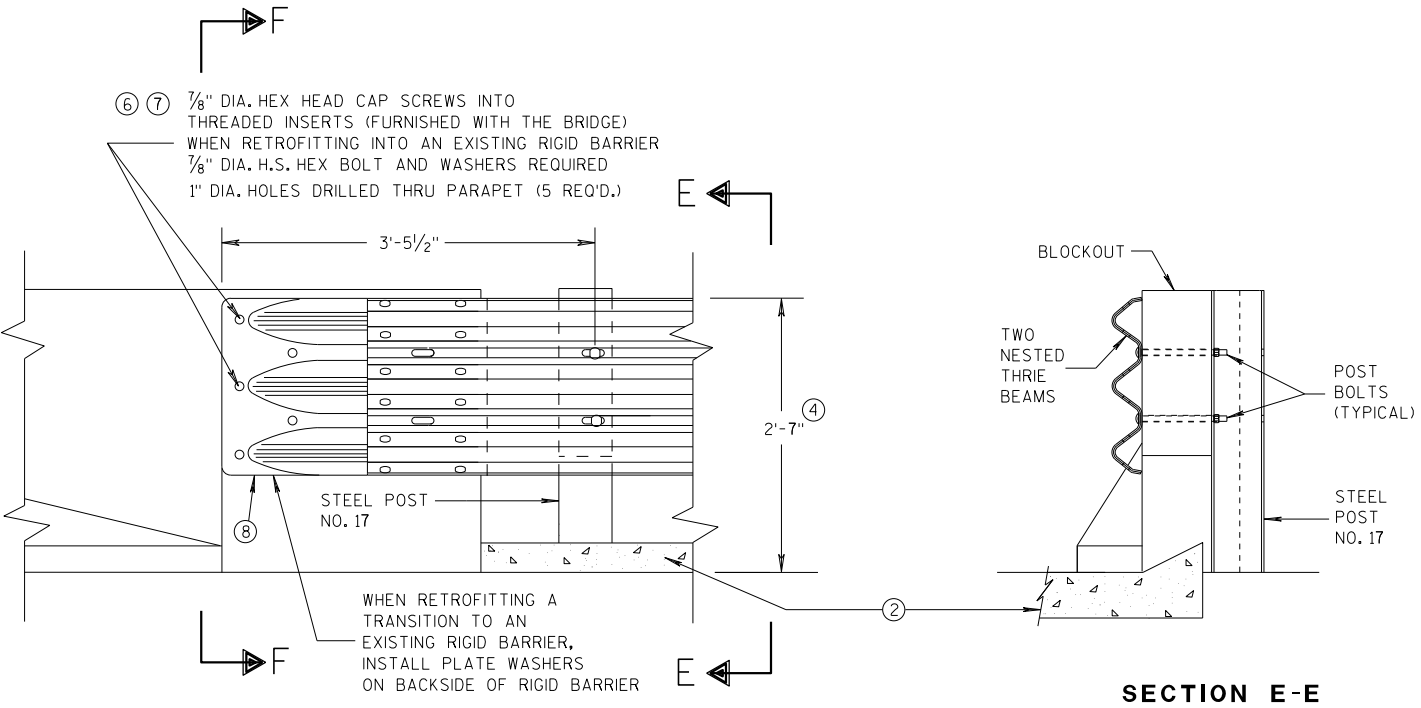
③ WHEN USING STEEL POSTS AND WOOD BLOCKOUTS INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.

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

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

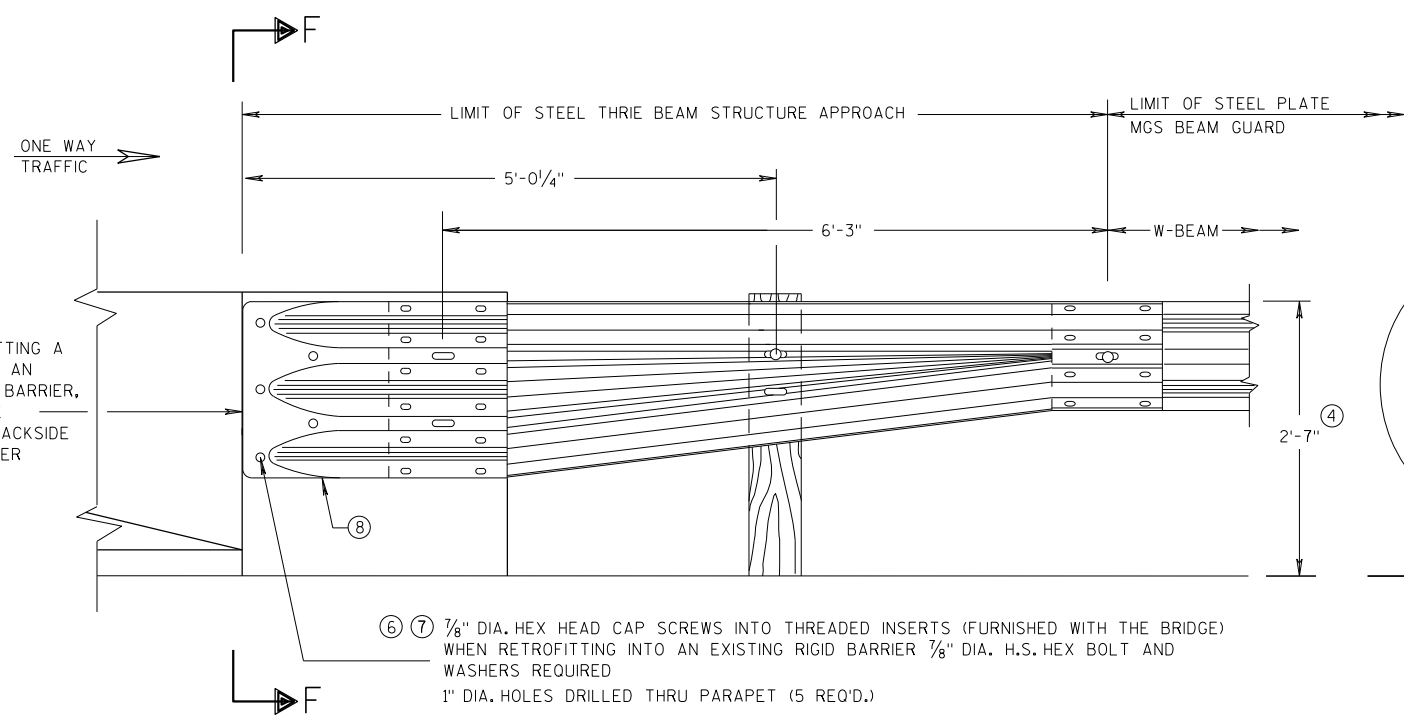
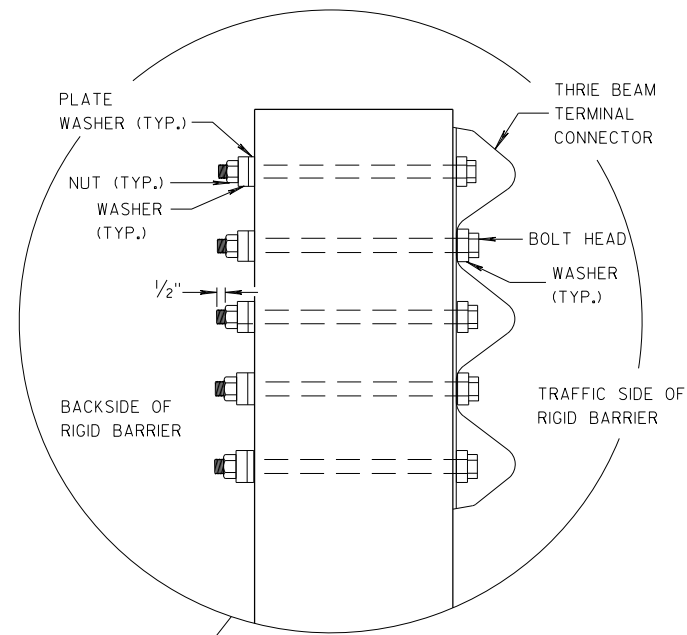
MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

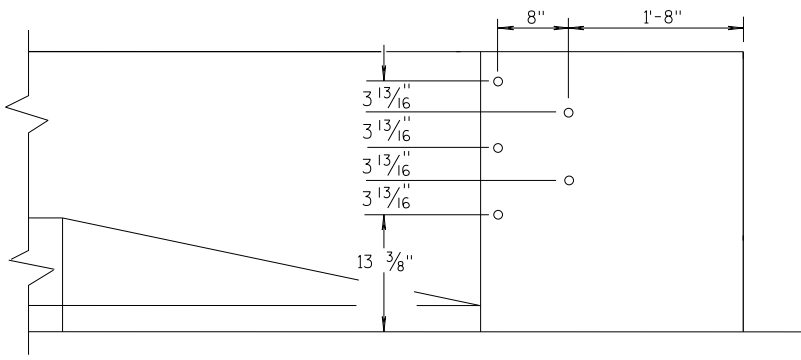


GENERAL NOTES

- 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 $\pm 1"$.
- 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".

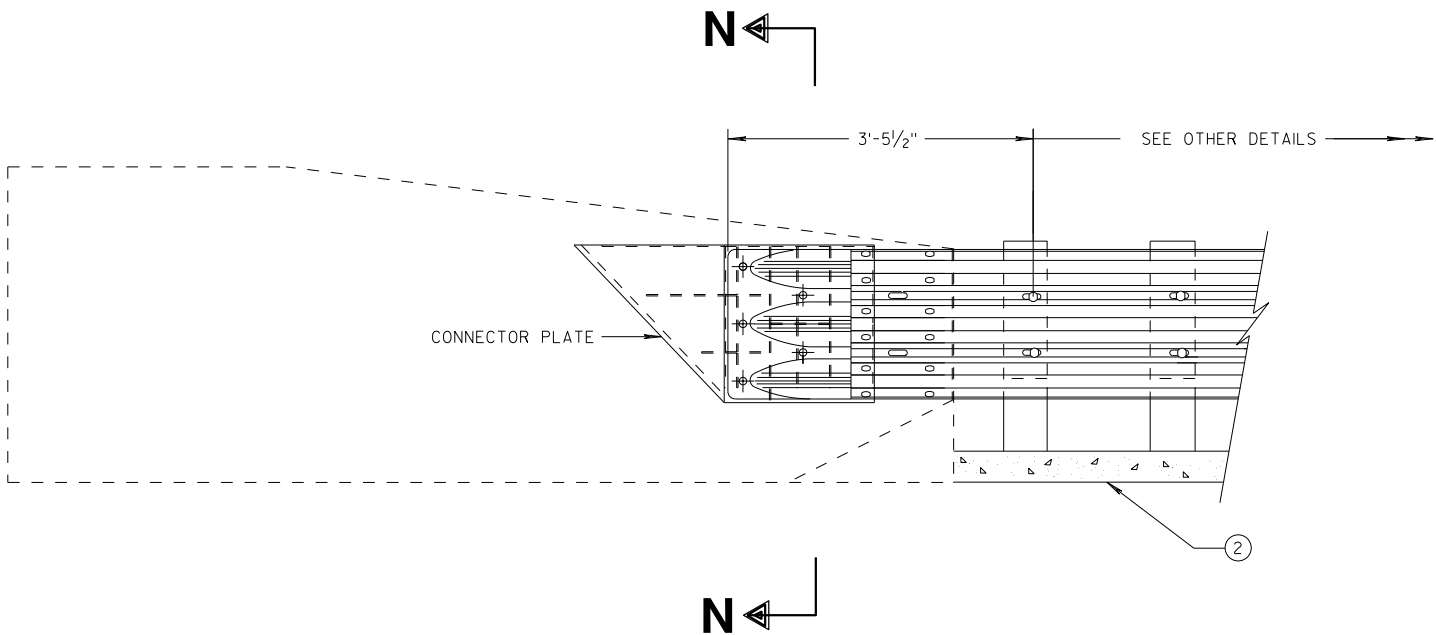


SECTION F-F

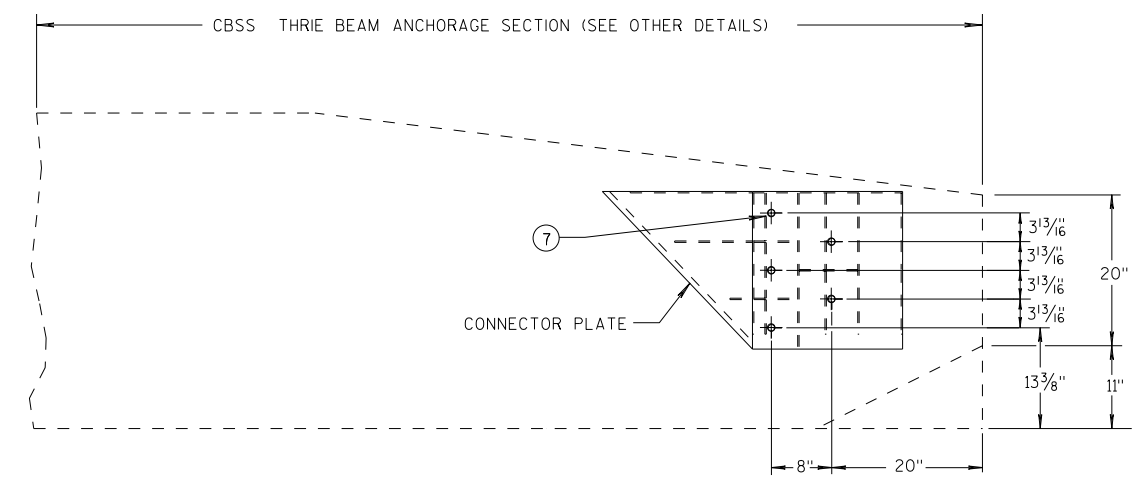


DRILL HOLE LOCATION

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	66	NT	



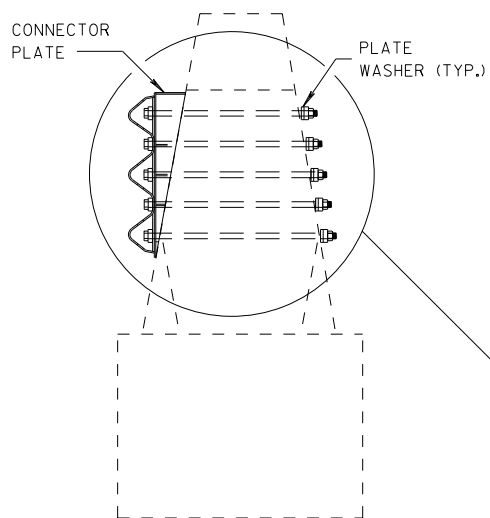
THRIE BEAM CONNECTION TO SINGLE SLOPE BARRIER



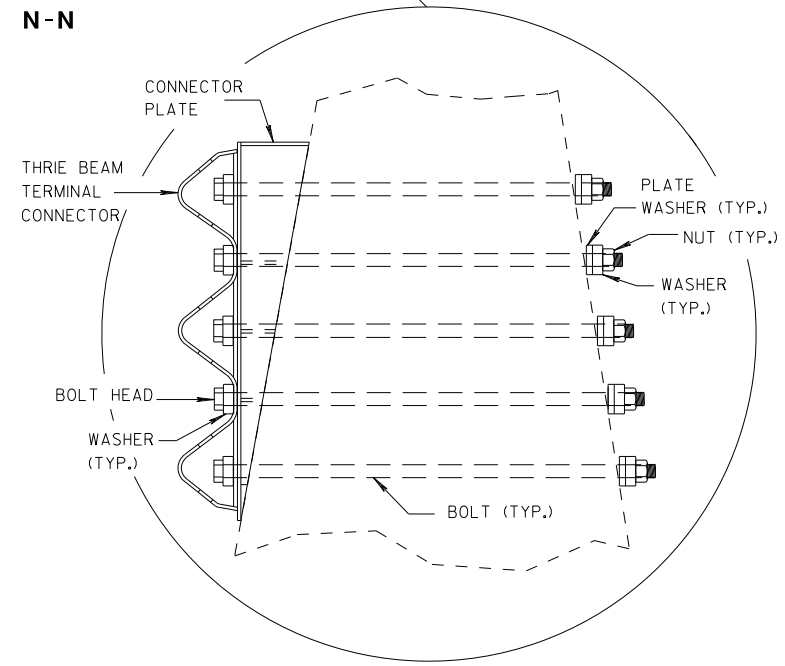
SINGLE SLOPE CONNECTION PLATE PLACEMENT

GENERAL NOTES

- CONNECTOR PLATE, DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.
- (2) OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.
- (7) BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTION 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.



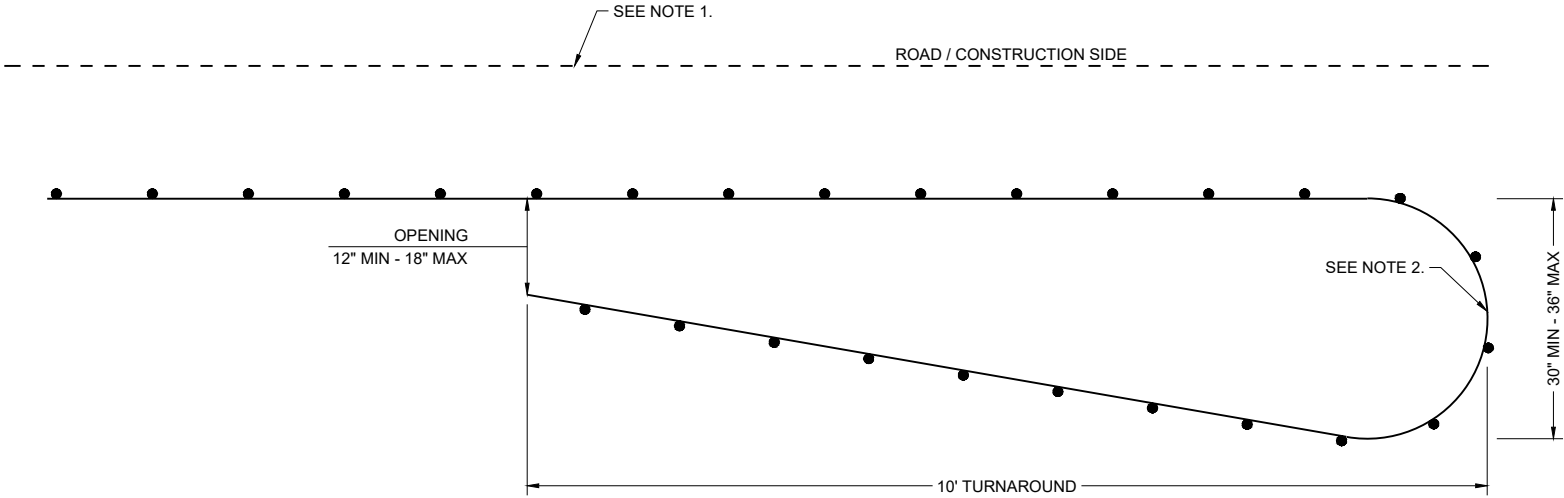
SECTION N-N



MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)			
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
APPROVED 7/2018	/S/ Rodney Taylor		
DATE	ROADWAY STANDARDS DIVISION	UNIT SUPERVISOR	67
FHWA			

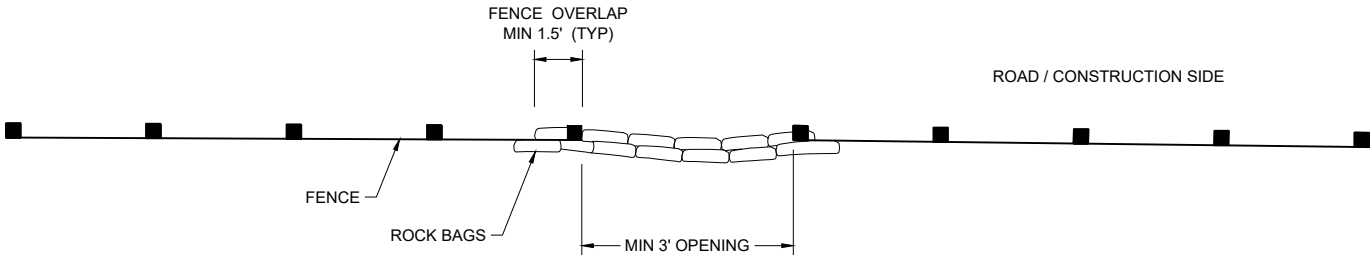
GENERAL NOTES:

- 1. WHERE SILT FENCE IS REQUIRED, IT SHALL BE PLACED ON THE CONSTRUCTION SIDE OF THE EXCLUSION FENCING, OR COMBINED WITH THE EXCLUSION FENCING AS ALLOWED IN THE SPECIFICATIONS. STAKES ON THIS DETAIL ARE OPPOSITE OF STANDARD SILT FENCE FOR SEDIMENT CONTROL.
 - 2. PLACE TURNAROUNDS AT ALL TERMINI ENDS OF THE EXCLUSION FENCING.
 - 3. IF TEMPORARY ACCESS POINTS ARE NEEDED DURING CONSTRUCTION THAT REQUIRE OPENINGS IN THE EXCLUSION FENCING, ACCESS OPENINGS SHOULD BE TIGHTLY SECURED WITH BALES OF HAY OR STRAW WHENEVER CONSTRUCTION RELATED ACTIVITIES ARE NOT OCCURRING. REINSTALL EXCLUSION FENCING WHEN THE WORK REQUIRING THE TEMPORARY ACCESS OPENING IS COMPLETED.
 - 4. THE FENCE CAP MAY BE A 6" UNDER DRAIN PIPE, SLIT DOWN THE CENTER AND PLACED OVER THE FENCE. COMMERCIALY AVAILABLE SAFETY CAPS WITH A LIP MAY BE USED. OTHER DNR APPROVED METHODS TO PREVENT TURTLES FROM PASSING OVER THE TOP OF THE FENCE MAY BE USED.
- SECURELY FASTEN THE CAP TO PREVENT IT FROM BEING DISLODGED.

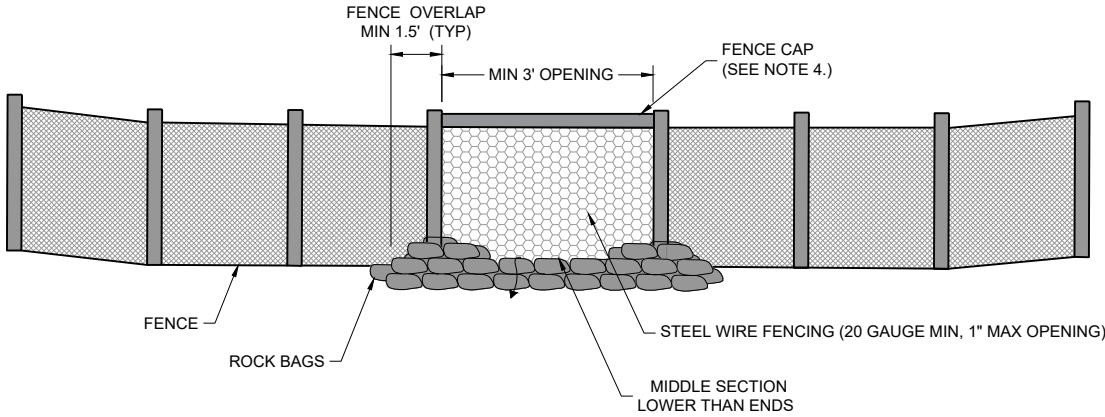


PLAN VIEW

CLIMBING TURTLE EXCLUSION FENCE DETAIL



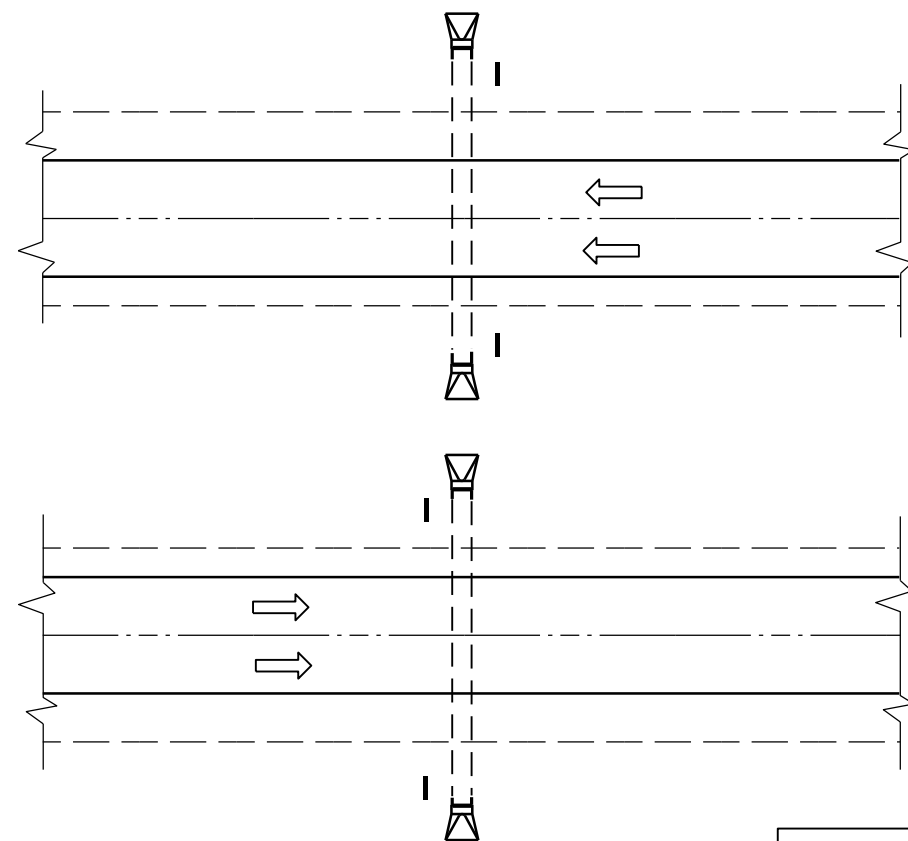
PLAN VIEW



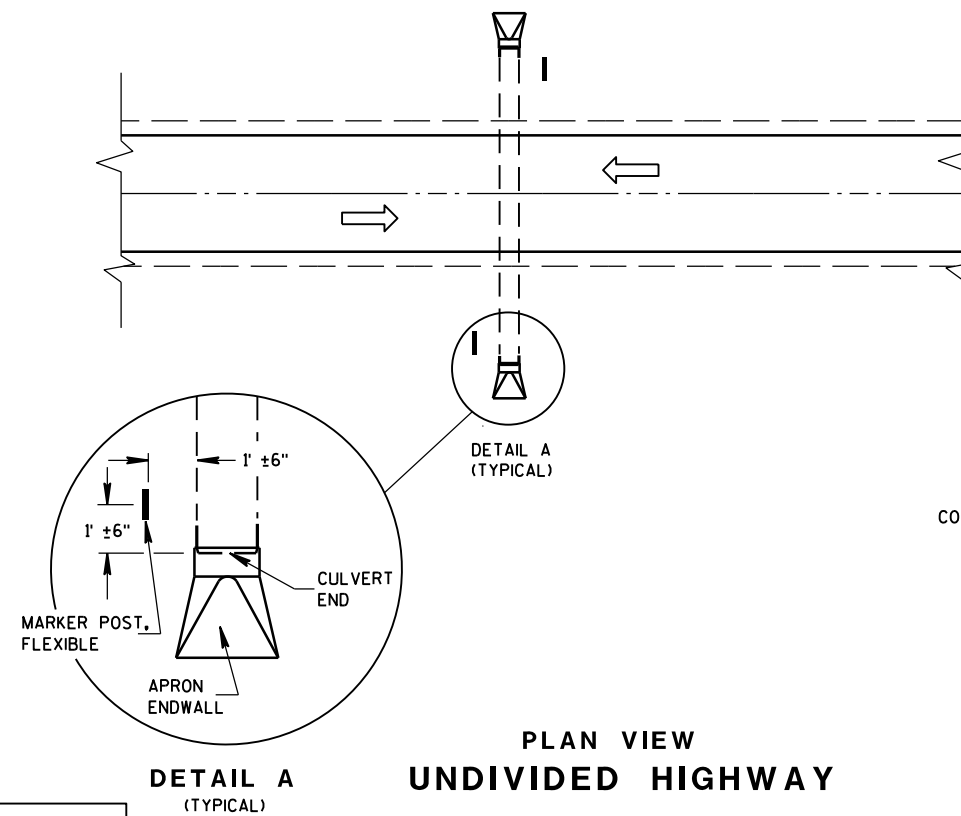
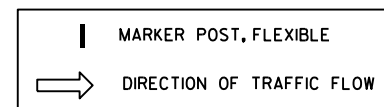
FRONT VIEW

CLIMBING TURTLE FENCE RELIEF DETAIL

TURTLE EXCLUSION FENCE CLIMBING TURTLE	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED AUGUST 2025 DATE	/S/ ALYSSA BARRETTE CHIEF STATEWIDE ENVIRONMENTAL SERVICES BUREAU OF TECHNICAL SER
FHWA 68	



PLAN VIEW
DIVIDED HIGHWAY

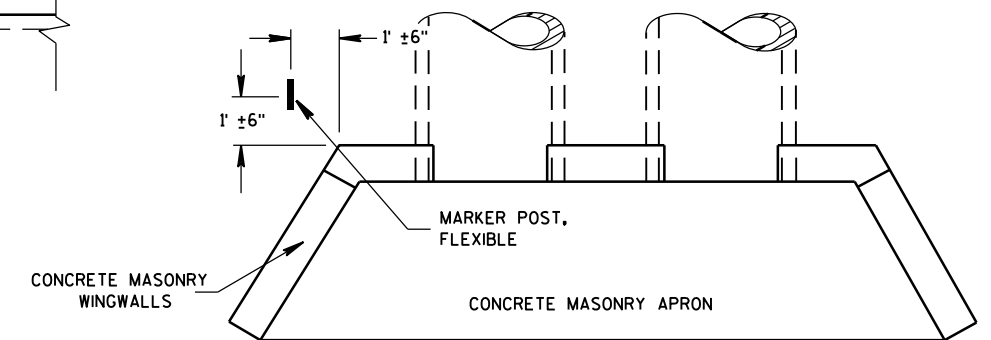


PLAN VIEW
UNDIVIDED HIGHWAY

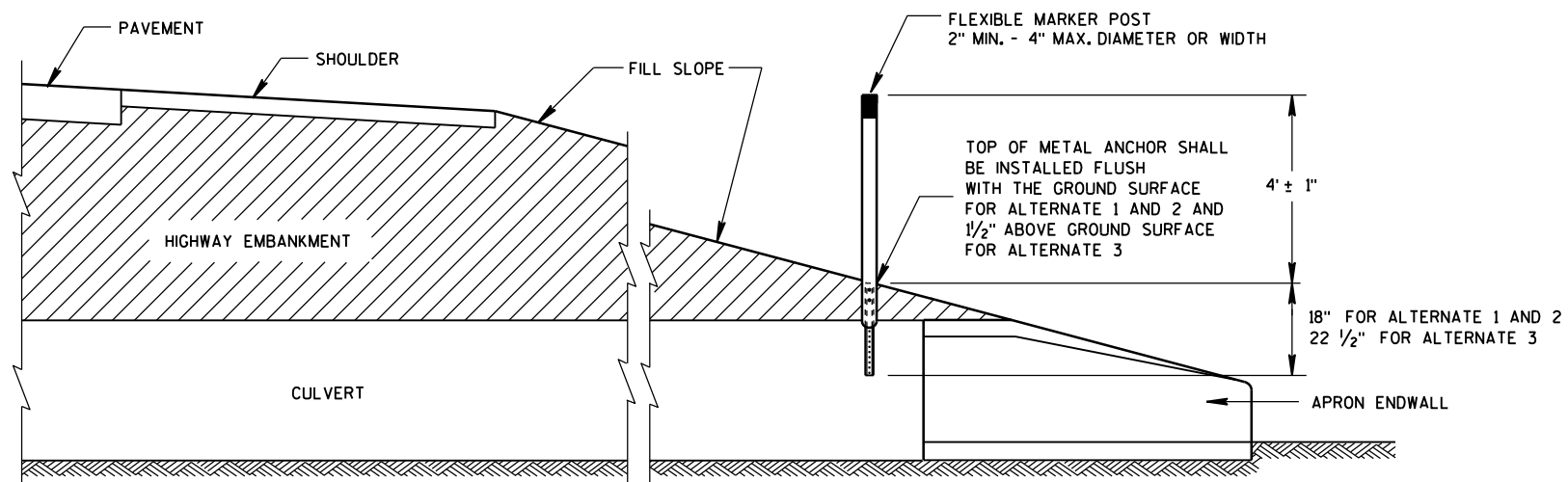
FLEXIBLE MARKER POST LOCATION

GENERAL NOTES

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



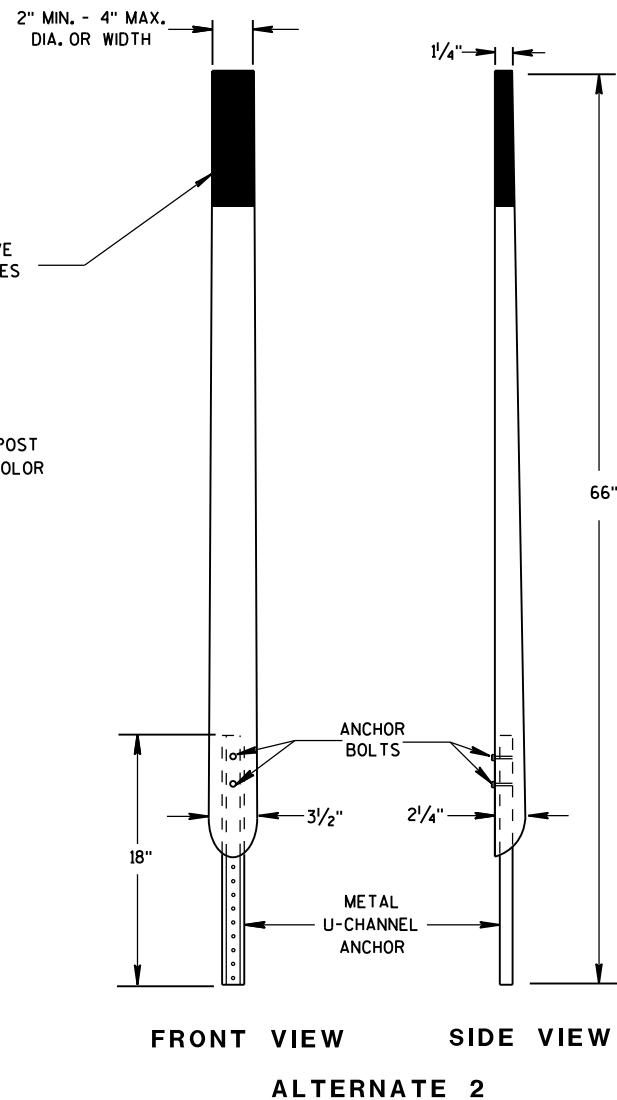
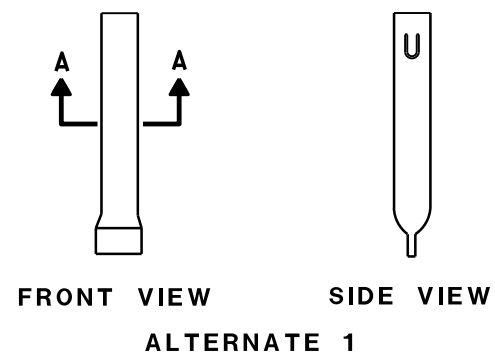
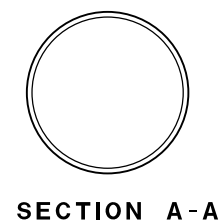
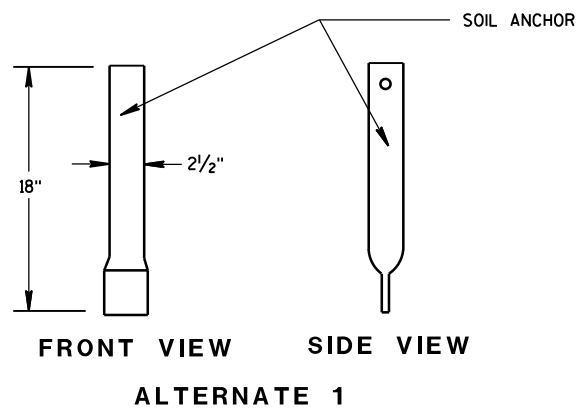
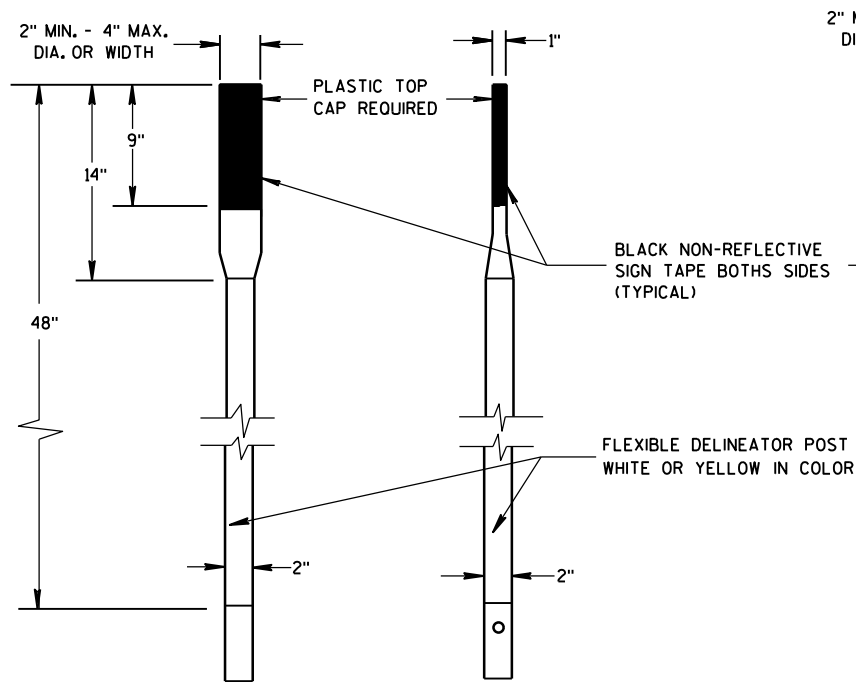
PLAN VIEW
CONCRETE MASONRY ENDWALLS FOR
CULVERT PIPE AND PIPE ARCH



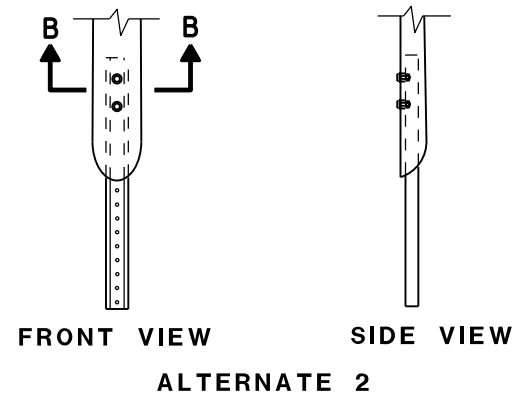
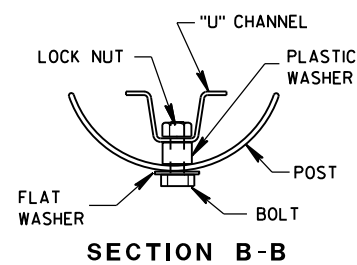
CROSS SECTION
FLEXIBLE MARKER POST

FLEXIBLE MARKER POST
FOR CULVERT END

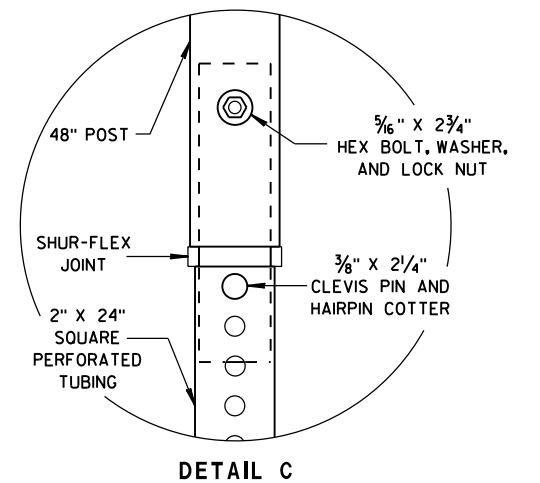
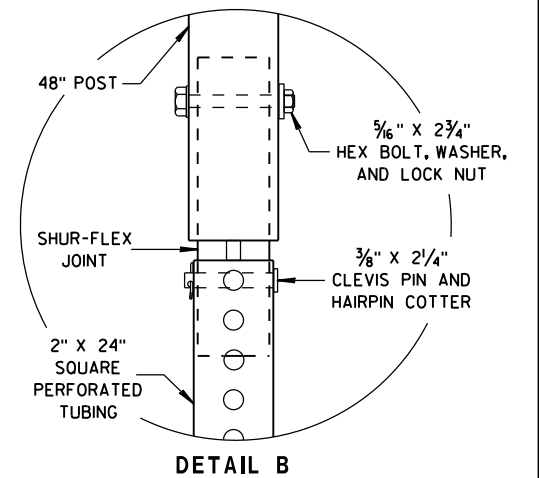
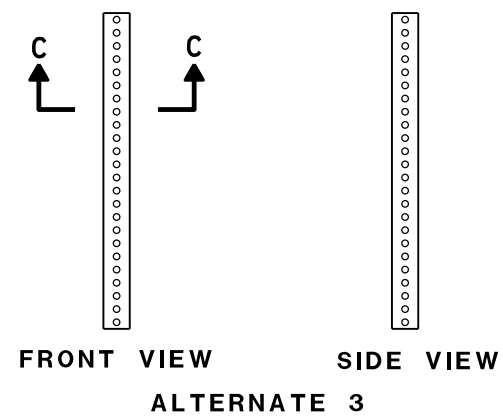
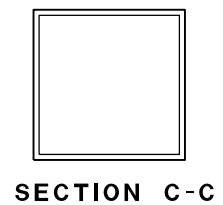
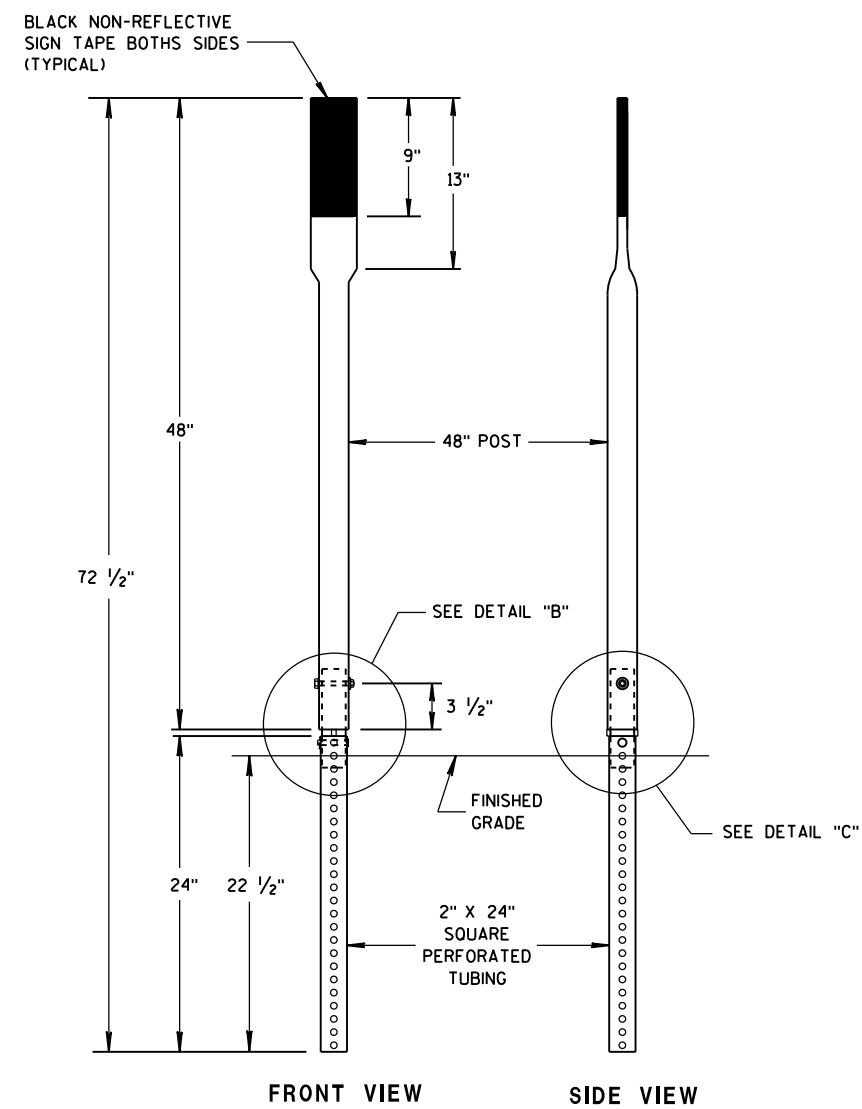
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



FLEXIBLE MARKER POSTS



FLEXIBLE MARKER POST ANCHORS



FLEXIBLE MARKER POST FOR CULVERT END

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

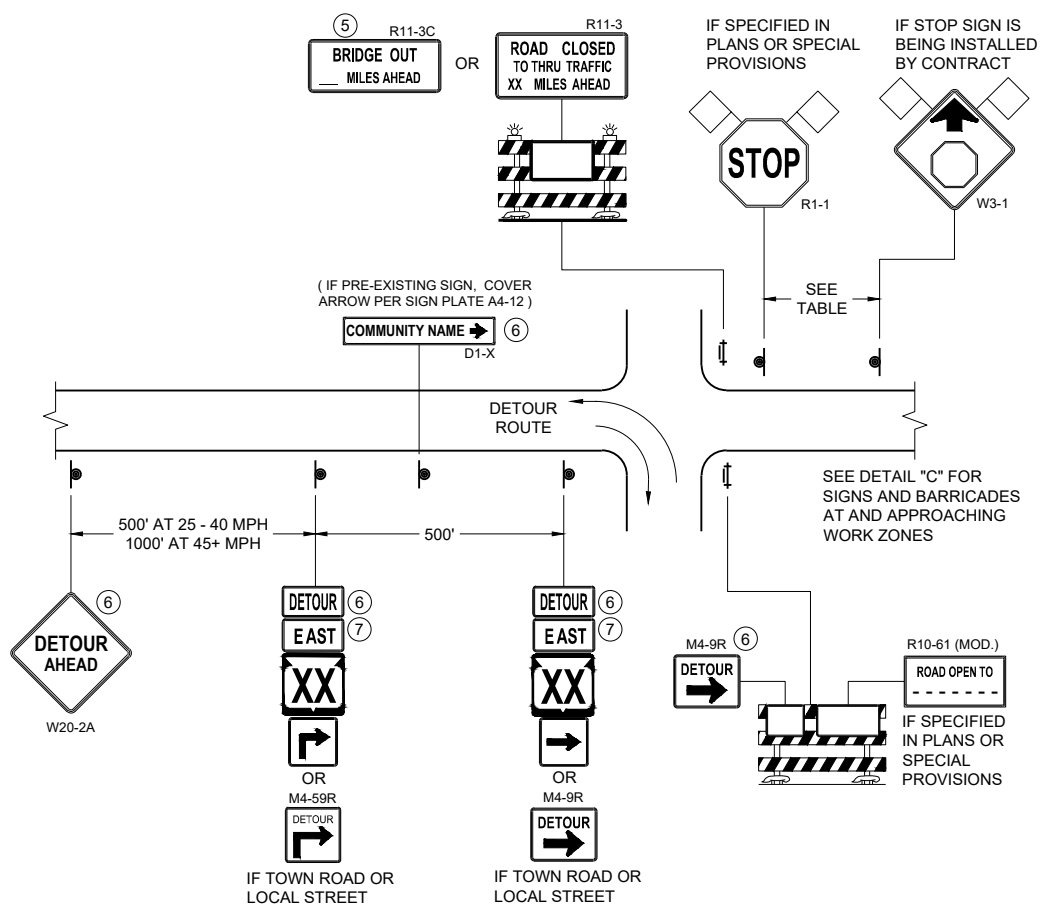
10/1/2012

DATE

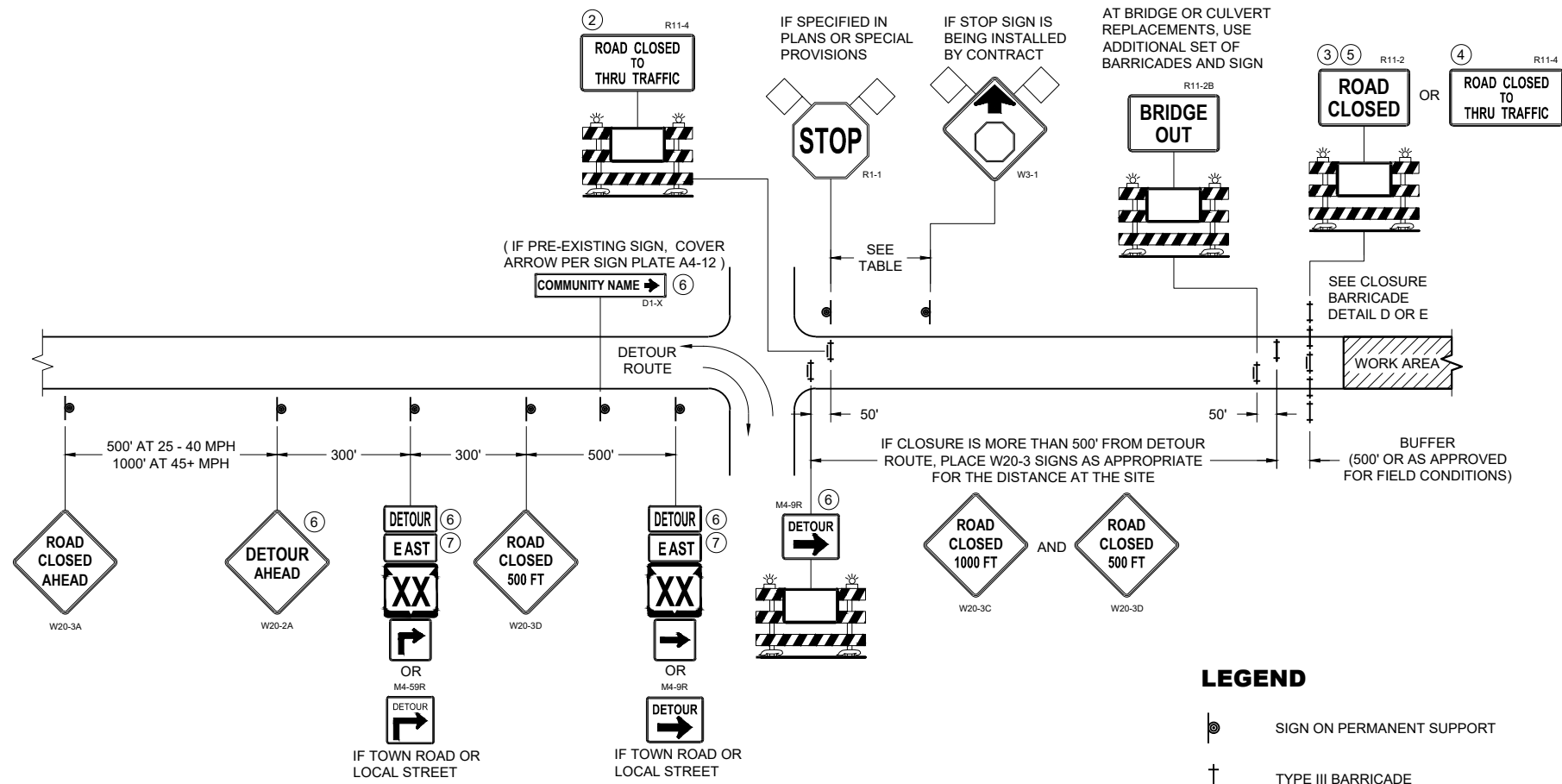
FHWA

/S/ Travis Feltes
STATE TRAFFIC ENGINEER 70

IGN



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)

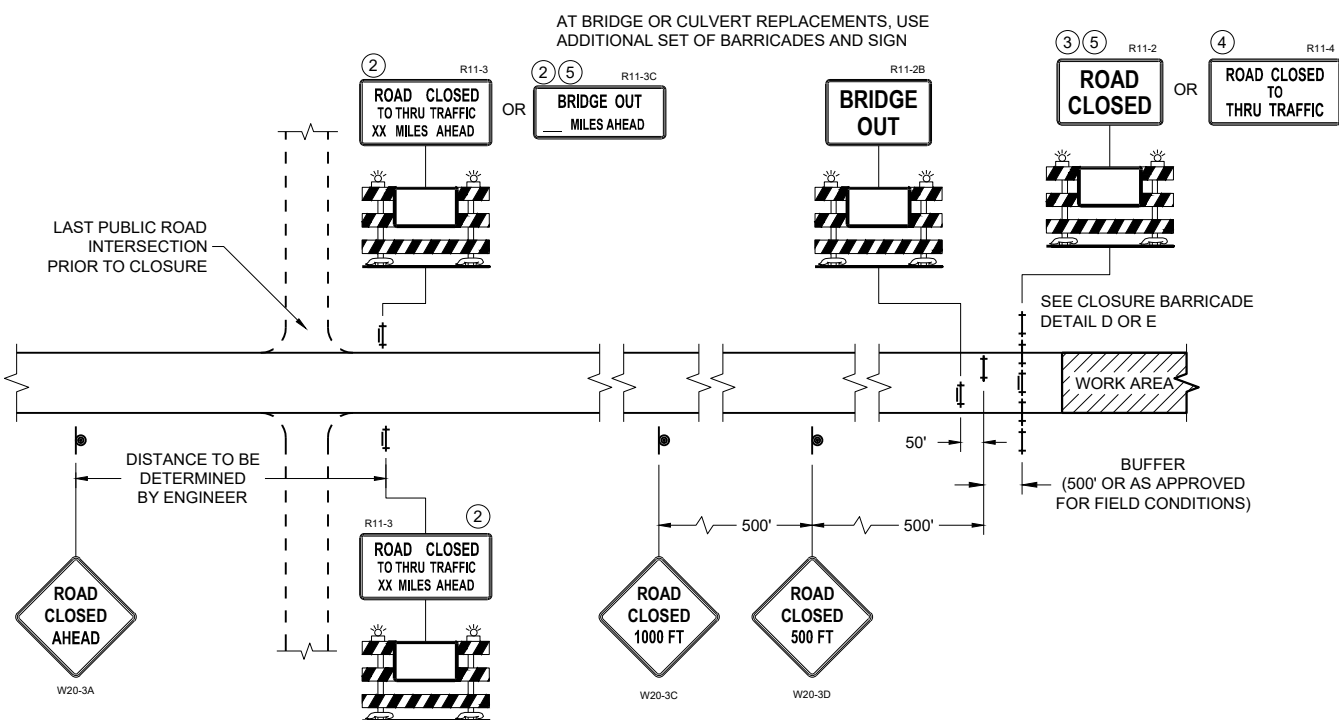
LEGEND

- 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 OR **XX** OR **COUNTY X**
M1 - 4 M1 - 6 M1 - 5A
DETOUR OR **DETOUR**
M05 - 1 M06 - 1

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



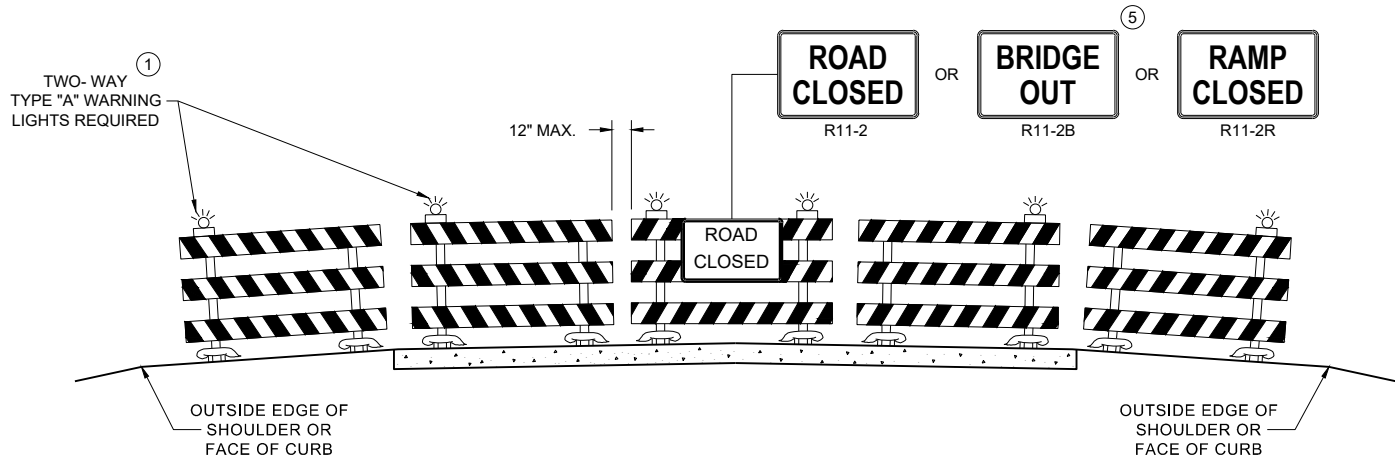
DETAIL C
MAINLINE CLOSURE, NO POSTED DETOUR

**BARRICADES AND SIGNS
FOR MAINLINE CLOSURES**

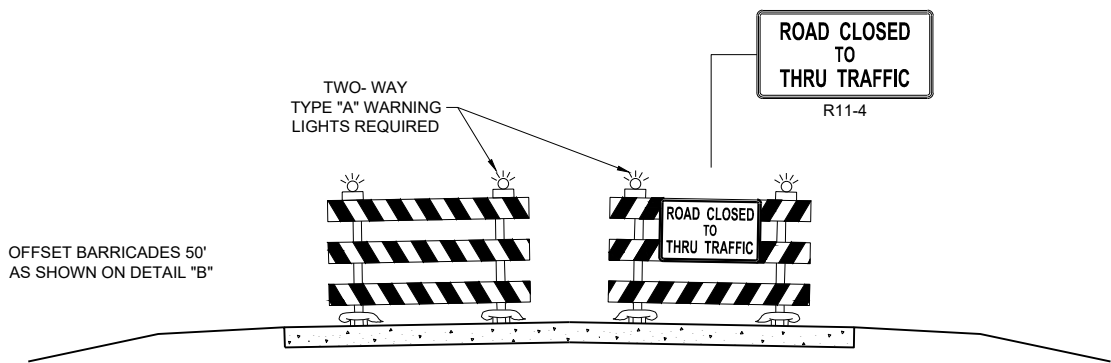
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

FHWA 71



DETAIL D
ROAD CLOSURE BARRICADE DETAIL
APPROACH VIEW



DETAIL E
LANE CLOSURE BARRICADE DETAIL
APPROACH VIEW

SEE SDD 15C2 - SHEET "a" FOR LEGEND

GENERAL NOTES

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

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

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

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

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

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

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

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

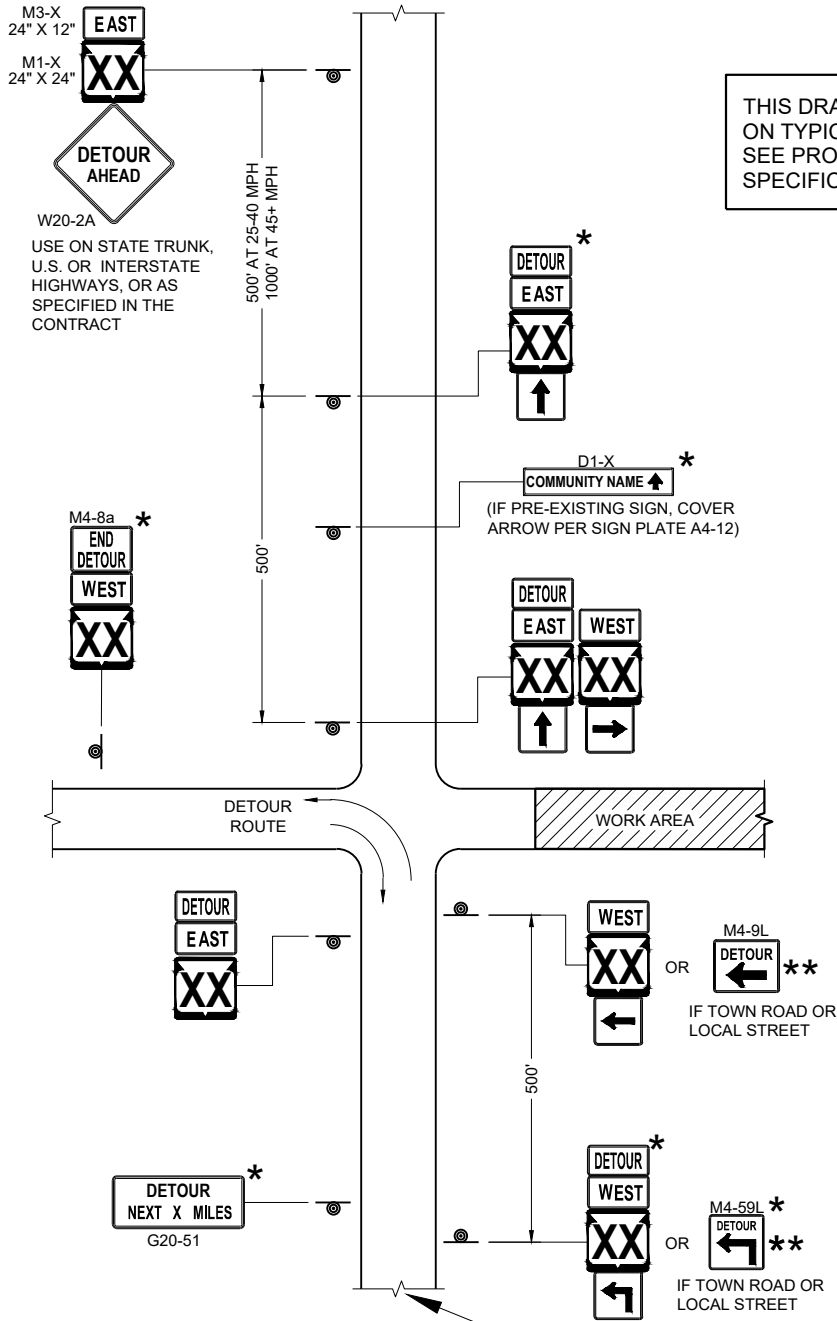
"WO" AND "MO" SIGNS ARE THE SAME AS "W" AND "M" SIGNS EXCEPT THE BACKGROUND IS ORANGE.

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

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

- ① TWO WARNING LIGHTS SHALL BE PROVIDED ON THE CENTER BARRICADE AND A MINIMUM OF ONE WARNING LIGHT SHALL BE PROVIDED ON EACH OF THE OTHER BARRICADES WITHIN THE ROADWAY LIMITS. SPACING OF THE WARNING LIGHTS SHALL BE UNIFORM TO THE EDGE OF ROADWAY AS SHOWN (APPROX. 8 FOOT LIGHT SPACING).
- ② THESE SIGNS AND BARRICADES ARE NOT REQUIRED IF ROAD CLOSURE BEGINS AT AN INTERSECTION.
- ③ FOR ROAD CLOSURE WITHOUT LOCAL ACCESS TO PROJECT, SEE ROAD CLOSURE BARRICADE DETAIL "D".
- ④ FOR ROAD CLOSURE WITH LOCAL ACCESS TO PROJECT, SEE ROAD CLOSURE BARRICADE DETAIL "E".
- ⑤ FOR BRIDGE OR CULVERT REPLACEMENTS, SUBSTITUTE "BRIDGE OUT" INSTEAD OF "ROAD CLOSED" ON R11 - 2 AND R11 - 3 SIGNS.
- ⑥ INSTALL DETOUR AND COMMUNITY GUIDE SIGNS AND ARROWS ONLY IF SPECIFIED IN THE CONTRACT. IF THERE ARE EXISTING ROUTE MARKER ASSEMBLIES THAT WILL REMAIN IN PLACE, ADJUST THE LOCATION OF THE DETOUR ROUTE SIGNS TO CORRESPOND WITH THE EXISTING ASSEMBLIES. MODIFY EXISTING SIGNS WHERE POSSIBLE. SEE SPECIFIC PROJECT DETOUR SIGNING DETAIL SHEETS. IF DETOUR SIGNS ARE BEING INSTALLED BY OTHERS, PLACE THE CONTRACTED TRAFFIC CONTROL SIGNS TO ALLOW FOR PLACEMENT OF ALL WARNING, DETOUR AND GUIDE SIGNS AS SHOWN.
- ⑦ "EAST" CARDINAL DIRECTION MARKERS AND RIGHT TURN ARROWS ARE SHOWN. USE OTHER CARDINAL DIRECTIONS AND ARROWS AS APPROPRIATE.

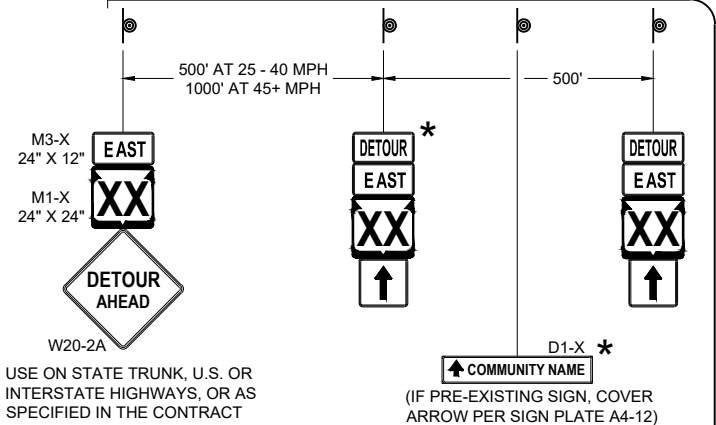
BARRICADES AND SIGNS FOR VARIOUS CLOSURES	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED November 2025 DATE	/S/ Andrew Heidtke WORK ZONE ENGINEER
FHWA	



SEE SPECIFIC PROJECT DETOUR
SIGNING DETAIL SHEETS AND
DETAIL A OR B ON SDD SHEET 15C02 - SHEET "a"

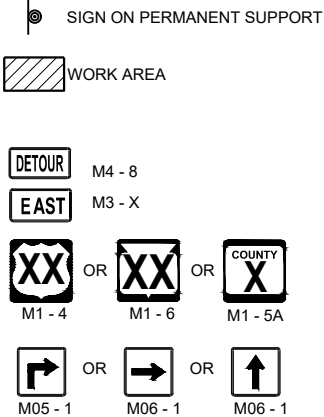
THIS DRAWING PROVIDES GENERAL GUIDANCE
ON TYPICAL DETOUR SIGN LAYOUT AND SPACING.
SEE PROJECT DETOUR SIGNING SHEETS FOR
SPECIFIC DETAILS FOR EACH PROJECT.

MATCH POINT



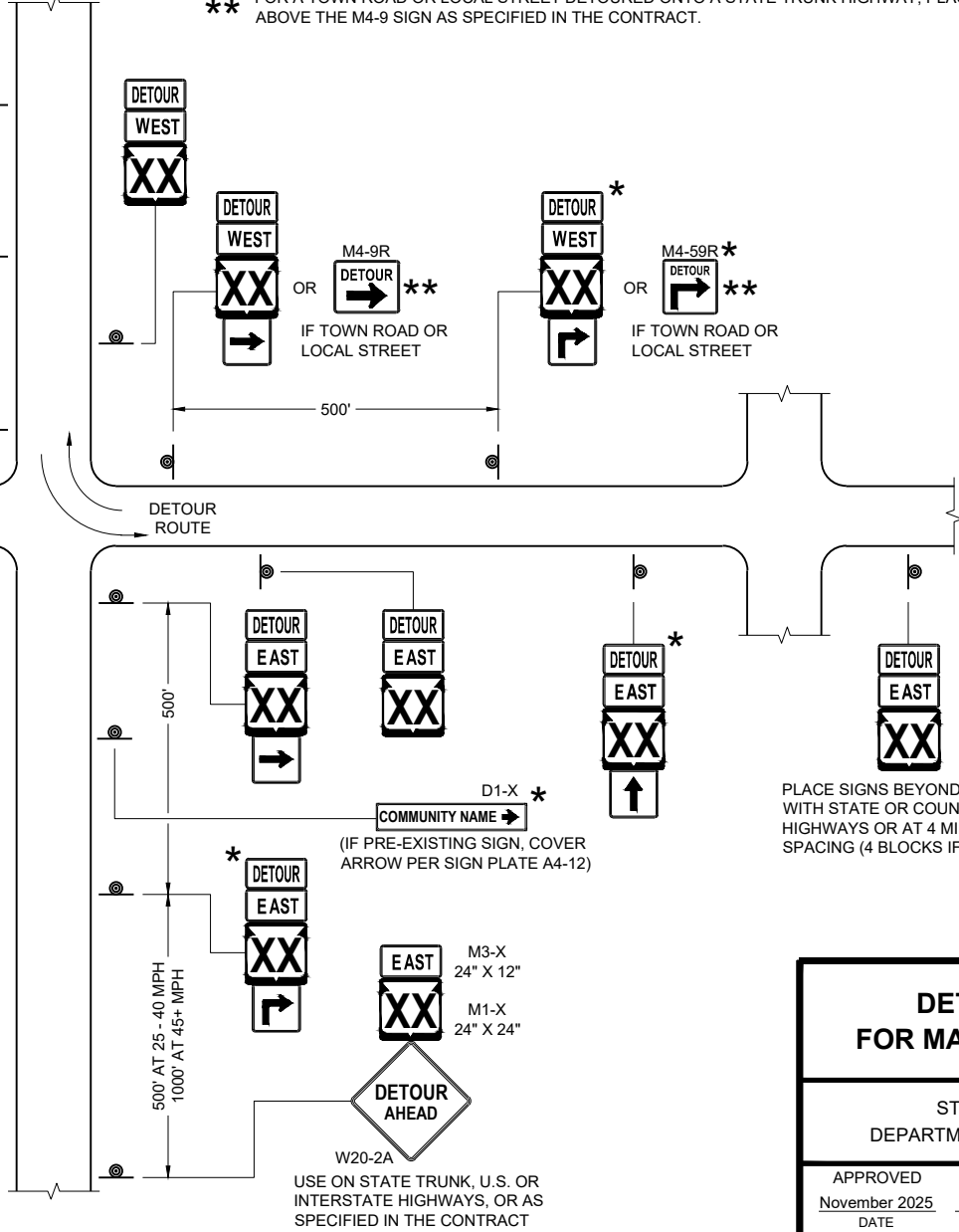
DETAIL F
DETOUR SIGNING

LEGEND



GENERAL NOTES

- THE EXACT NUMBER, LOCATION AND SPACING OF ALL SIGNS SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS APPROVED BY THE ENGINEER.
- 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. SEE SPECIFIC PROJECT DETOUR SIGNING DETAIL SHEETS. MODIFY EXISTING SIGNS WHERE POSSIBLE.
- THE SPACING BETWEEN TRAFFIC CONTROL AND DETOUR SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND TO PROVIDE A DESIRABLE MINIMUM OF 200 FEET CLEARANCE TO EXISTING SIGNS THAT WILL REMAIN IN PLACE.
- 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.
- SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS MAY BE MOUNTED ON PORTABLE SUPPORTS.
- "MO" SIGNS ARE THE SAME AS "M" SIGNS EXCEPT THE BACKGROUND IS ORANGE.
- SIGN SIZES SHALL BE AS FOLLOWS:
- 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)
 - M05-1 AND M06-1 SHALL BE 21" X 21" (30" X 30" IF NEEDED TO MATCH EXISTING SIGNS)
 - M4-9 AND M4-59 SHALL BE 30" X 24"
 - M4-8a SHALL BE 24" X 18"
 - G20-51 SHALL BE 60" X 24"
 - W20-2A SHALL BE 48" X 48"
 - D1-X SHALL BE AS SHOWN ON SPECIFIC PROJECT SIGNING DETAIL SHEETS.
- * OPTIONAL SIGNS. SEE SPECIFIC PROJECT DETOUR SIGNING DETAIL SHEETS.
- ** FOR A TOWN ROAD OR LOCAL STREET DETOURED ONTO A STATE TRUNK HIGHWAY, PLACE A ROAD NAME PLAQUE ABOVE THE M4-9 SIGN AS SPECIFIED IN THE CONTRACT.



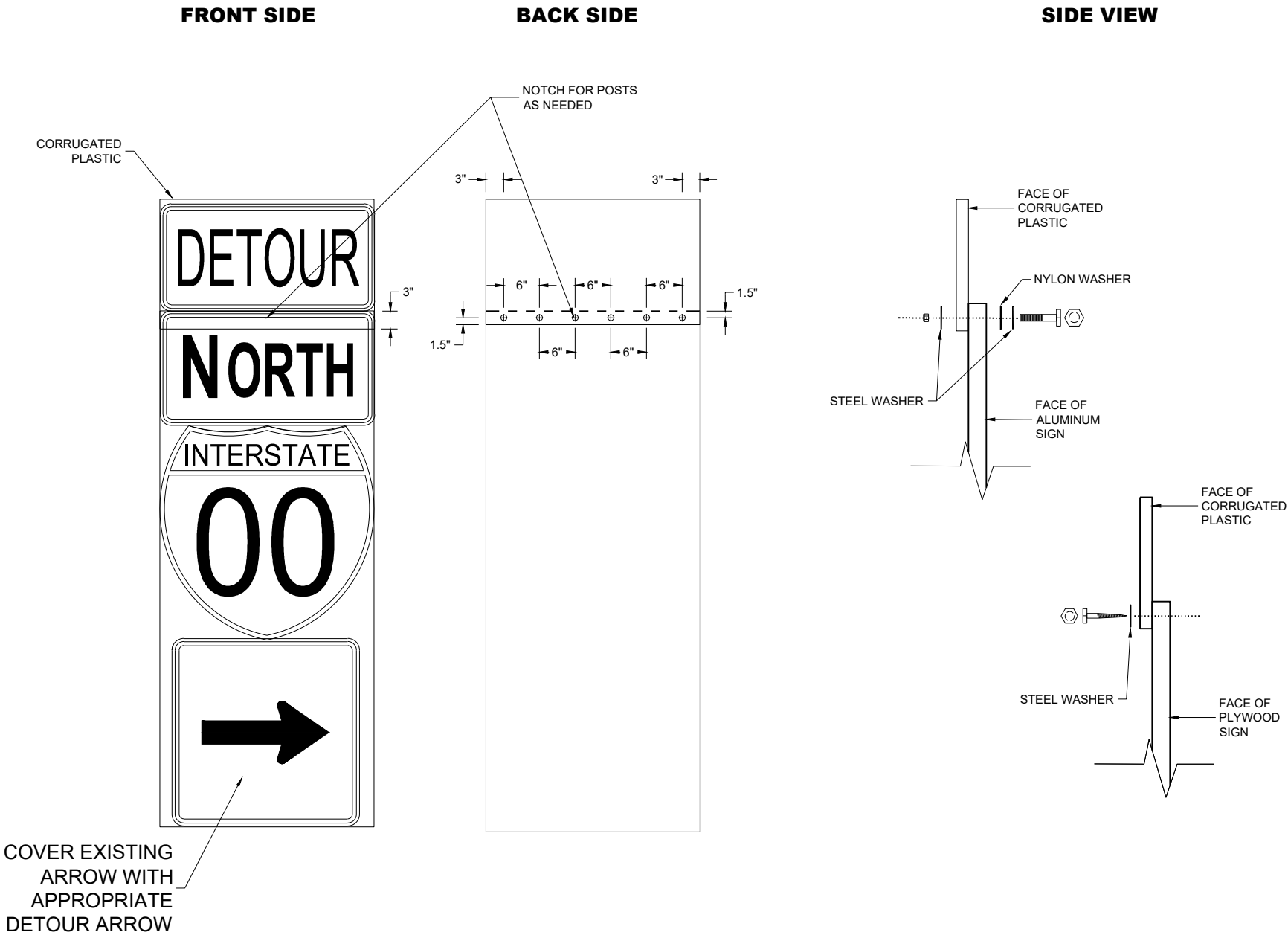
DETOUR SIGNING
FOR MAINLINE CLOSURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
November 2025
DATE

/S/ Andrew Heidtke
WORK ZONE ENGINEER

FHWA

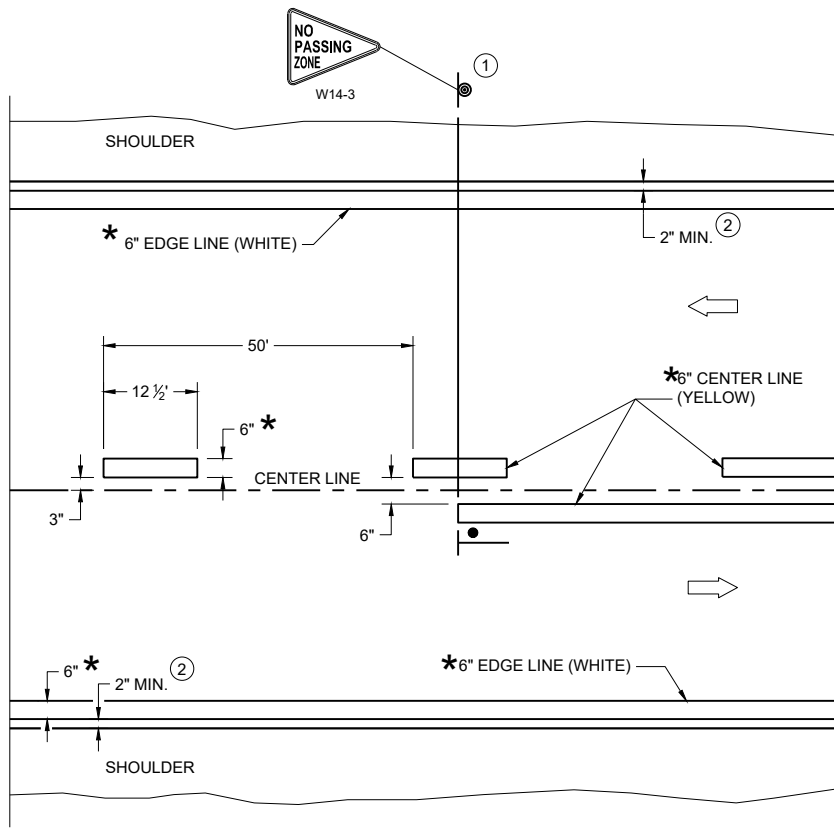


MODIFIED ROUTE ASSEMBLY FOR DETOUR SIGNING

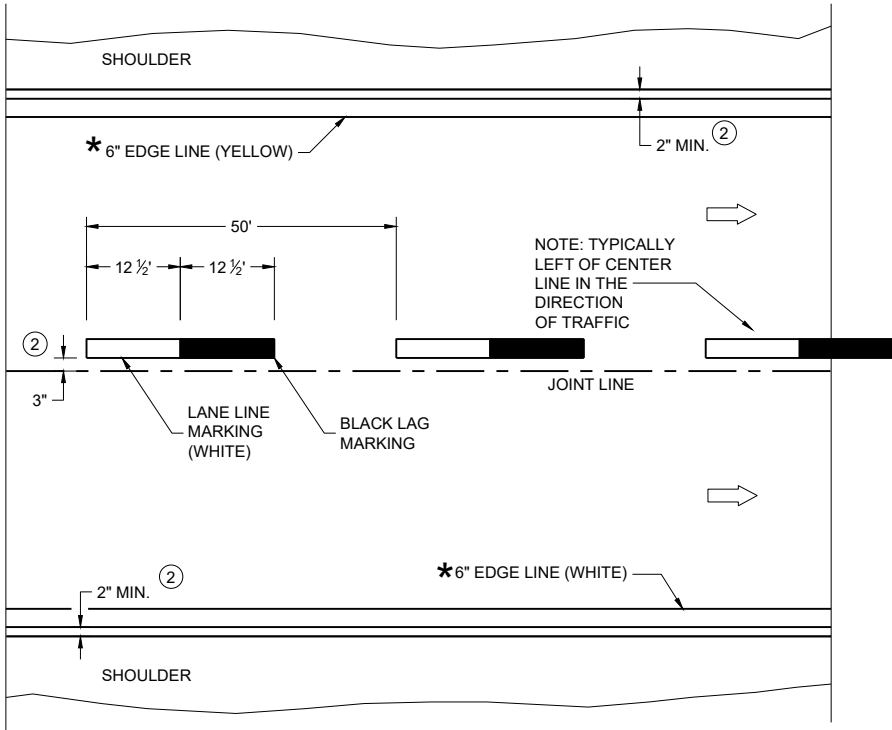
GENERAL NOTES

- CELLS OF CORRUGATED PLASTIC SHALL BE VERTICALLY ORIENTED.
- PROVIDE A 0.4-INCH THICK BASE CORRUGATED PLASTIC WITH A 0.035-INCH WALL THICKNESS AND 0.4-INCH CELL SIZE.
- FOR 36" WIDE SIGNS: USE 6 FASTENERS AS SHOWN.
- FOR 24" WIDE SIGNS: USE 4 FASTENERS WITH EDGE SPACING AS SHOWN AND 6" SPACING BETWEEN FASTENERS.
- METAL WASHERS, NUTS, BOLTS AND LAGS 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, SC3
- 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.
- PLYWOOD SIGNS:
LAG SCREWS - 5/16" x 1"
- ALUMINUM SIGNS:
MACHINE BOLTS - 5/16" x 1-1/4" LENGTH W/NUTS
- WASHERS:
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

MODIFIED ROUTE ASSEMBLY FOR DETOUR SIGNING	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED November 2025 DATE	/S/ Andrew Heidtke WORK ZONE ENGINEER



TWO WAY TRAFFIC



ONE WAY TRAFFIC

PERMANENT PAVEMENT MARKING

*CONFIRM MARKING LINE WIDTH WITH THE MISCELLANEOUS QUANTITIES

GENERAL NOTES

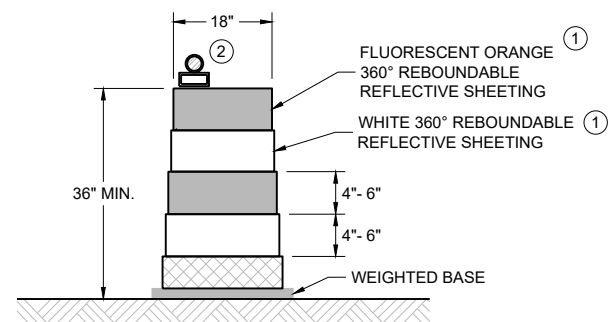
DETAILS OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO STANDARD SPECIFICATIONS AND SPECIAL PROVISIONS.

- 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.

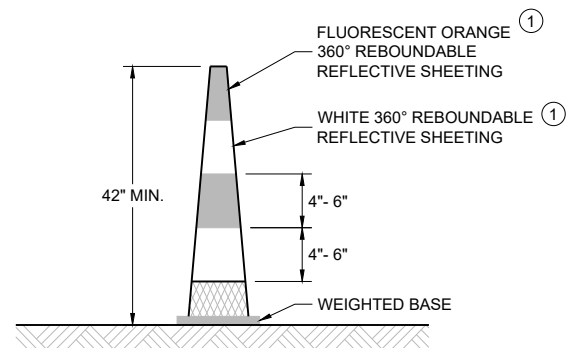
LEGEND

- "T" MARKING
- SIGN ON PERMANENT SUPPORT
- DIRECTION OF TRAFFIC

PERMANENT LONGITUDINAL PAVEMENT MARKINGS	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED December 2024 DATE	/S/ Jeannie Silver Statewide Pavement Marking Engineer
FHWA	75

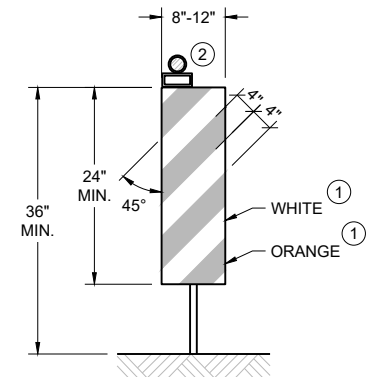
**DRUM**

BALLAST WIDTHS
RANGE FROM 24"-36"

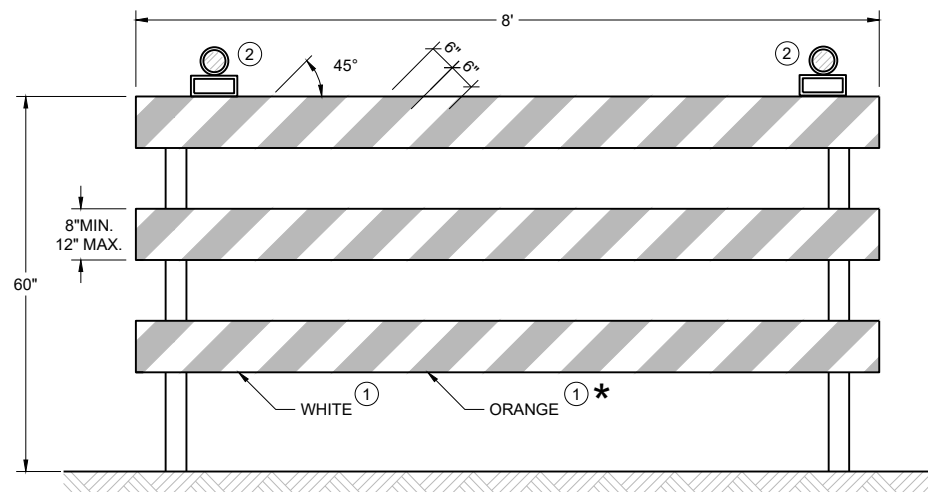
**42" CONE**

DO NOT USE IN TAPERS
 $\frac{1}{2}$ SPACING OF DRUMS

BALLAST WIDTHS
RANGE FROM 14"-20"

**VERTICAL PANEL**

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

**TYPE III BARRICADE**

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

* IF USED FOR A PERMANENT APPLICATION USE RED SHEETING.

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.

**CHANNELIZING DEVICES
DRUMS, CONES, BARRICADES
AND VERTICAL PANELS**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

LEGEND

- V1

WORK VEHICLE
- V2

SHADOW VEHICLE
- 

TRUCK MOUNTED ATTENUATOR (TMA)
- 

FLASHING ARROW PANEL (CAUTION)
- 

WORK AREA
- 

DIRECTION OF TRAFFIC

POSTED SPEED PRIOR TO WORK STARTING (MPH)	DECISION SIGHT DISTANCE (D)
0 - 25	550'
30	550'
35	700'
40	700'
45	900'
50	900'
55	1200'

GENERAL NOTES

ALL SIGNS ARE 48"X48" UNLESS OTHERWISE NOTED.

MOBILE IS WORK THAT MOVES CONTINUOUSLY OR MOVES AT LEAST THE DECISION SIGHT DISTANCE EVERY 15 MINUTES.

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

ALL ARROW PANELS SHALL BE REAR FACING, TYPE "B" OR "C", AND DISPLAYING THE FLASHING CAUTION MODE. SIGNS PLACED ON VEHICLES MUST NOT OBSCURE THE ARROW PANEL.

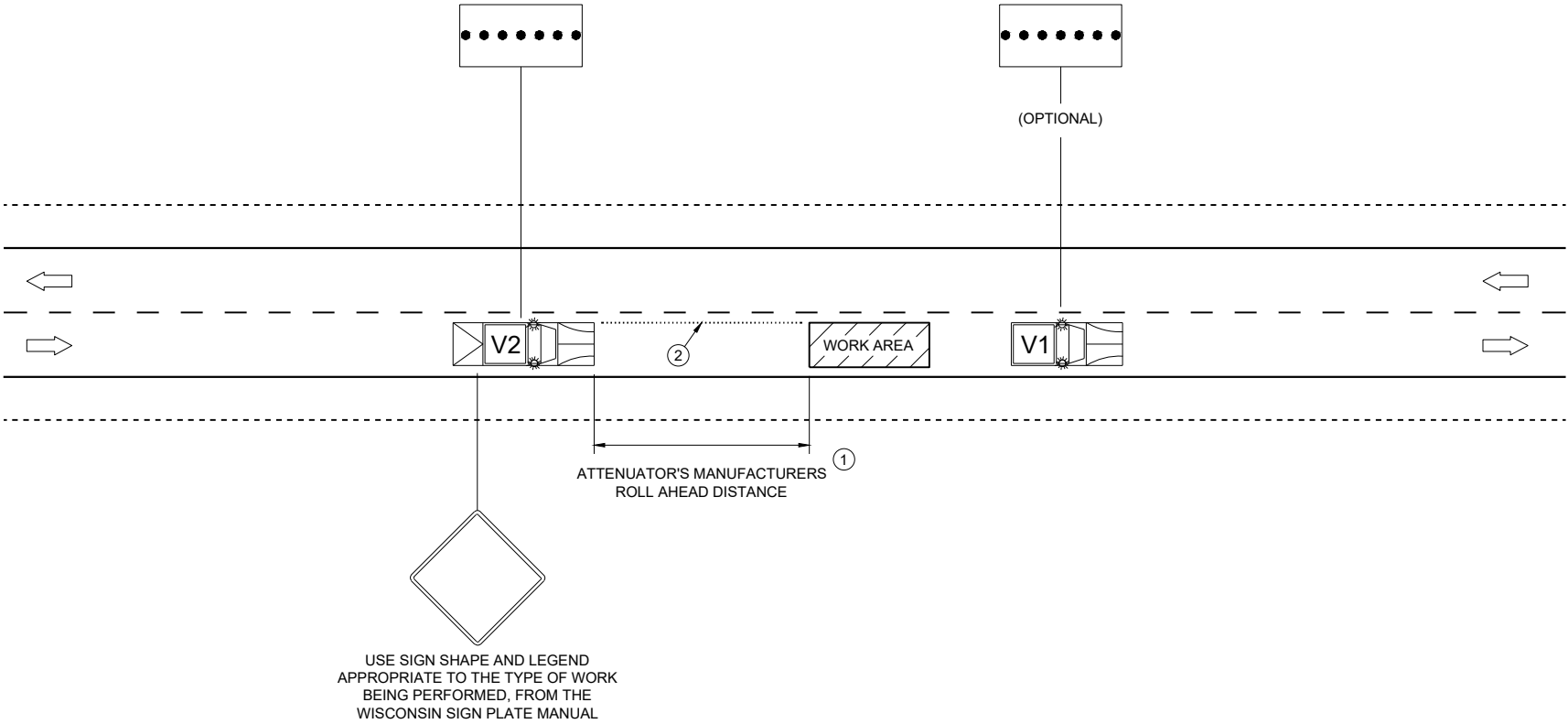
USE AN ATTENUATOR ON THE REARMOST VEHICLE THAT BLOCKS ALL OR PART OF THE TRAFFIC LANE.

WORKERS SHALL NOT PERFORM WORK FROM ANY SHADOW OR PROTECTION VEHICLES.

- ①

DISTANCE BETWEEN VEHICLES MAY INCREASE FROM THE ATTENUATOR'S ROLL AHEAD BASED ON TERRAIN, SIGHT DISTANCE, AND OTHER FACTORS. WHENEVER ADEQUATE STOPPING SIGHT DISTANCE EXISTS TO THE REAR, SHADOW VEHICLES SHOULD MAINTAIN THE MINIMUM DISTANCE FROM THE WORK VEHICLE AND PROCEED AT THE SAME SPEED AS THE WORK VEHICLE. SHADOW VEHICLES SHOULD SLOW DOWN IN ADVANCE OF VERTICAL OR HORIZONTAL CURVES THAT RESTRICT SIGHT DISTANCE.
- ②

ALIGN LEFT SIDE OF SHADOW VEHICLE WITH EDGE OF WORK AREA.



TRAFFIC CONTROL,
MOBILE OPERATIONS ON
AN UNDIVIDED ROADWAY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

November 2025

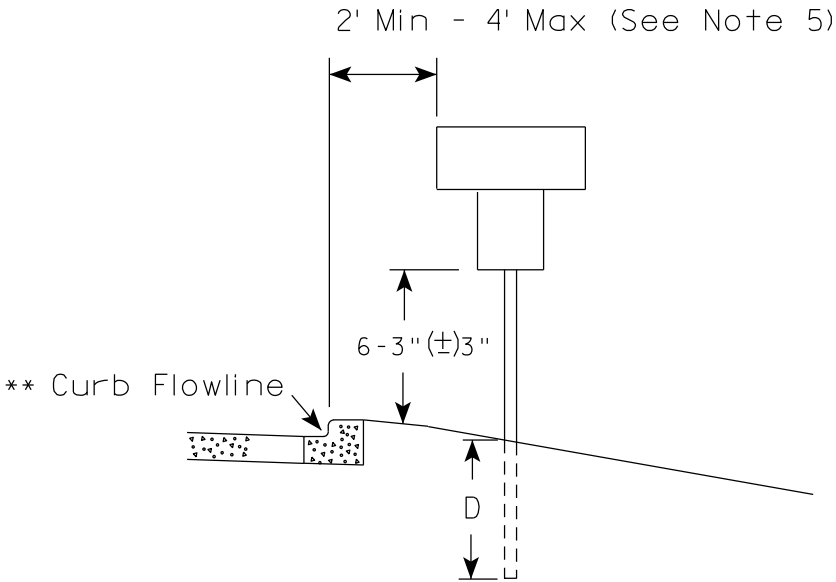
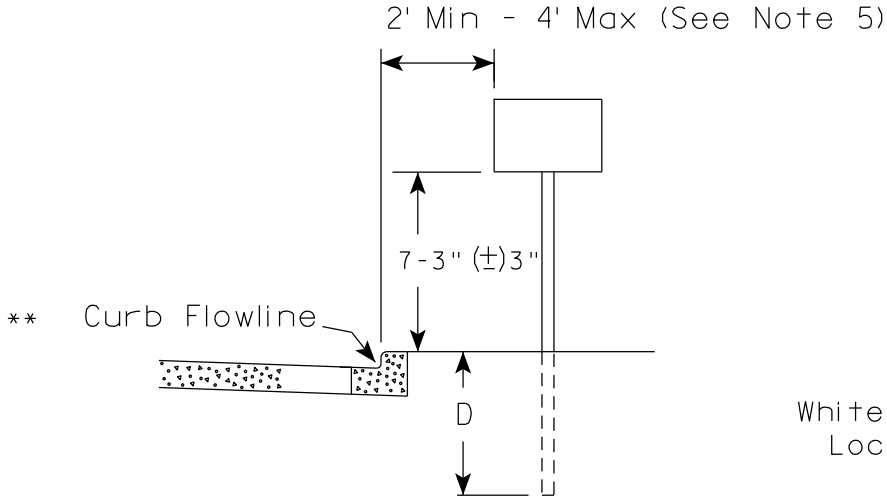
DATE

/S/ Andrew Heidtke

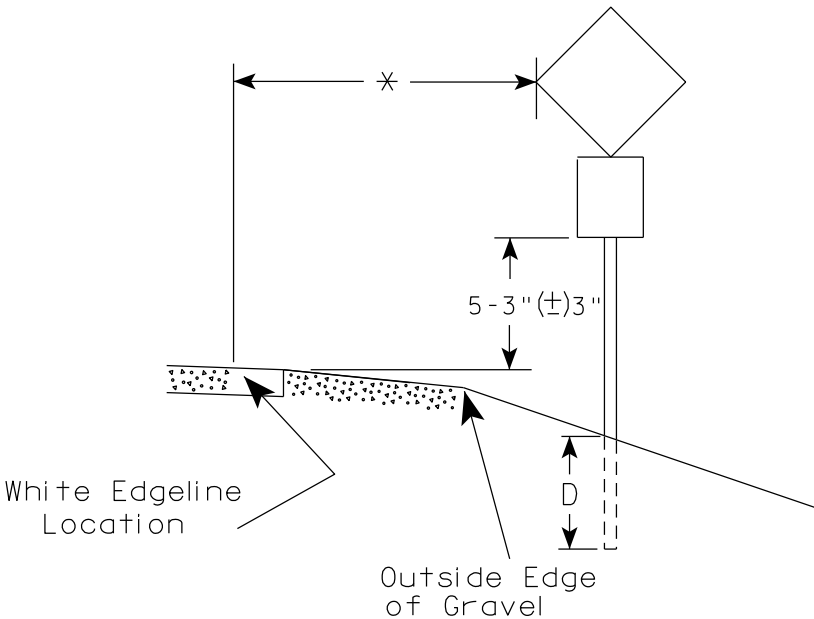
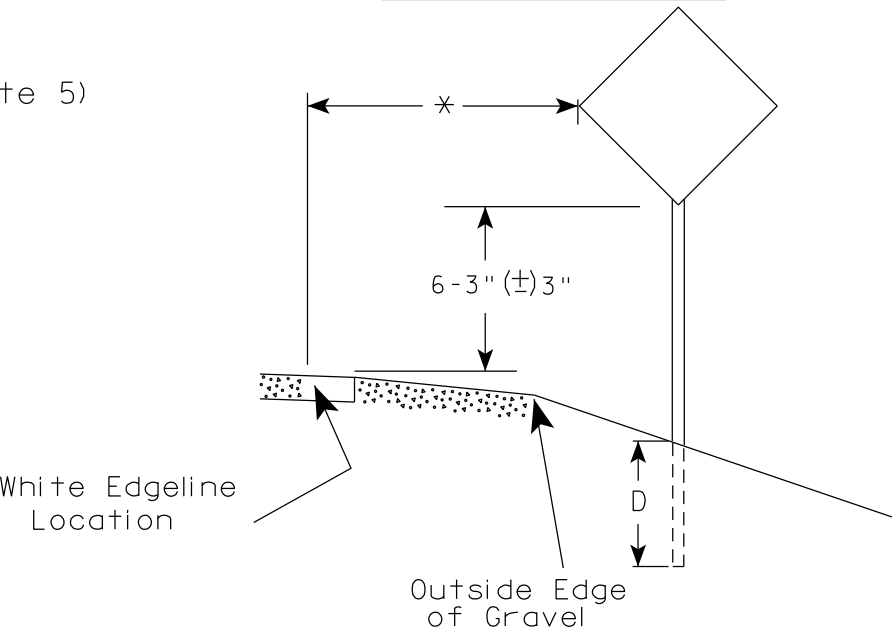
STATEWIDE WORK ZONE TRAFFIC SAFETY ENGINEER

FHWA

URBAN AREA



RURAL AREA (See Note 2)



GENERAL NOTES

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

POST EMBEDMENT DEPTH

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

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

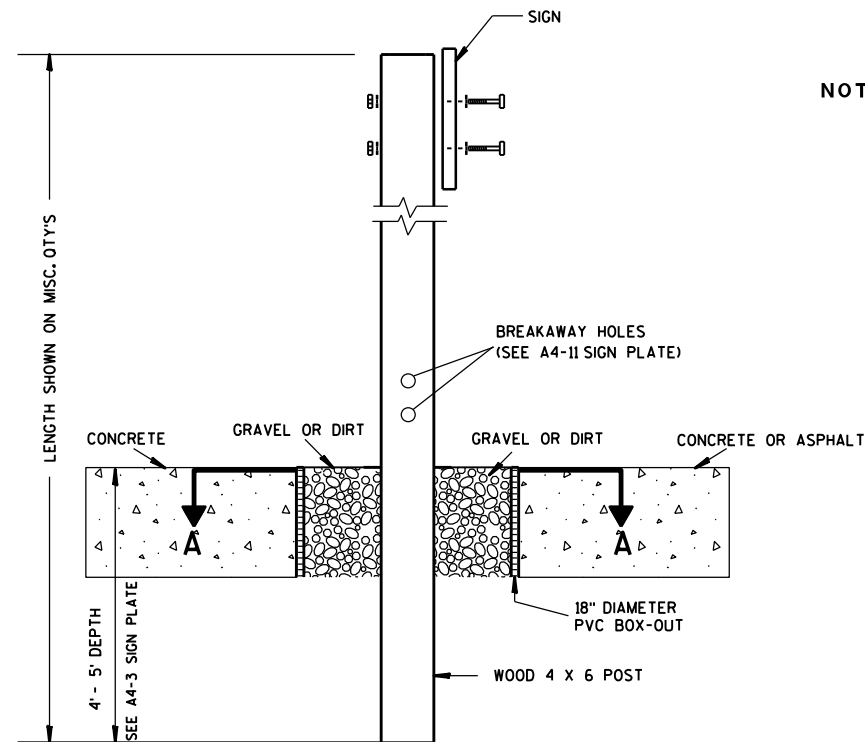
* 6 feet from edge of a paved shoulder or 12 feet from the edge of pavement (edge line location) or 2 feet from outside edge of gravel, whichever is greater unless directed by project engineer.

TYPICAL INSTALLATION
OF PERMANENT TYPE II
SIGNS ON SINGLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

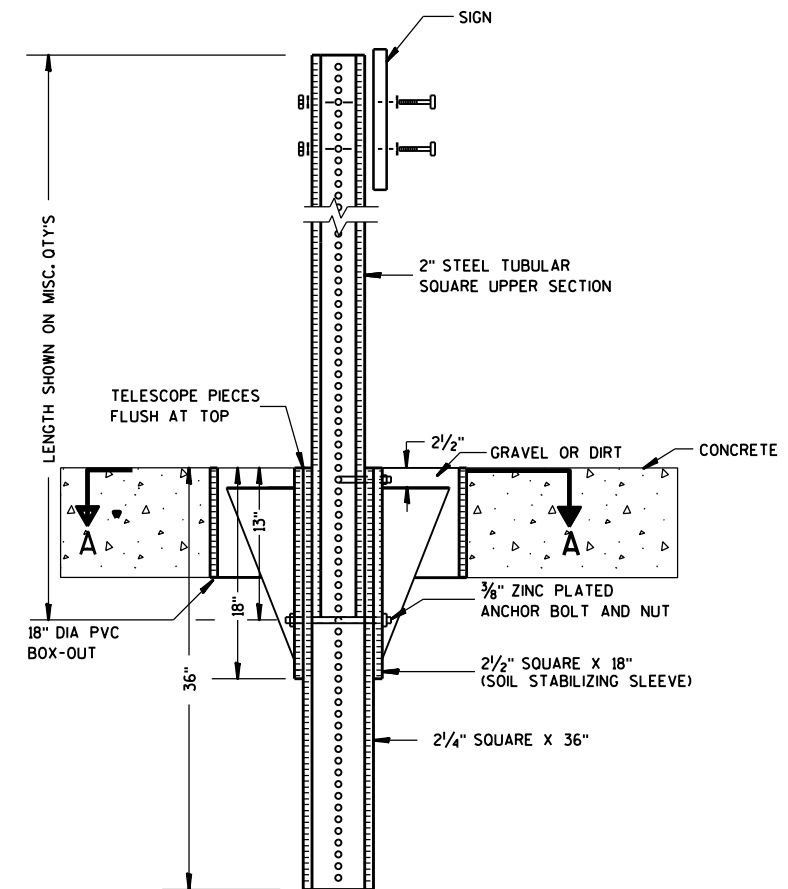
DATE 12/6/23 PLATE NO. A4-3.23



ELEVATION VIEW

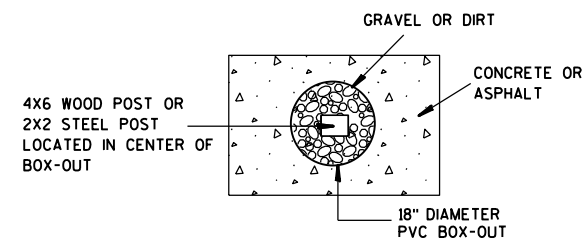
DETAIL OF WOOD 4 X 6 SIGN POST IN BOX-OUT

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



ELEVATION VIEW

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



PLAN VIEW

FOR NEW CONCRETE/ASPHALT INSTALLATIONS

SIGN POST
BOX-OUTS
A4-3B

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 1/27/14 PLAT 79 A4-3B.1

PROJECT NO:

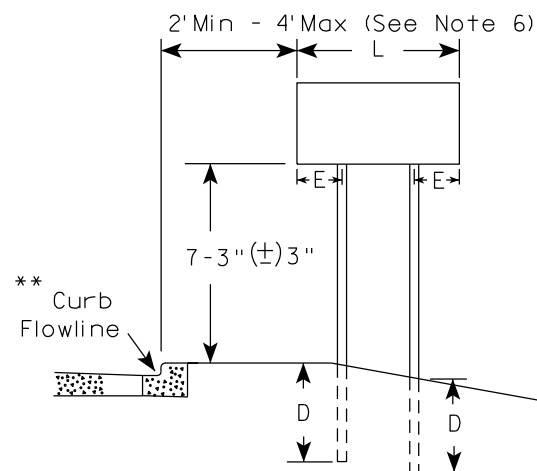
HWY:

COUNTY:

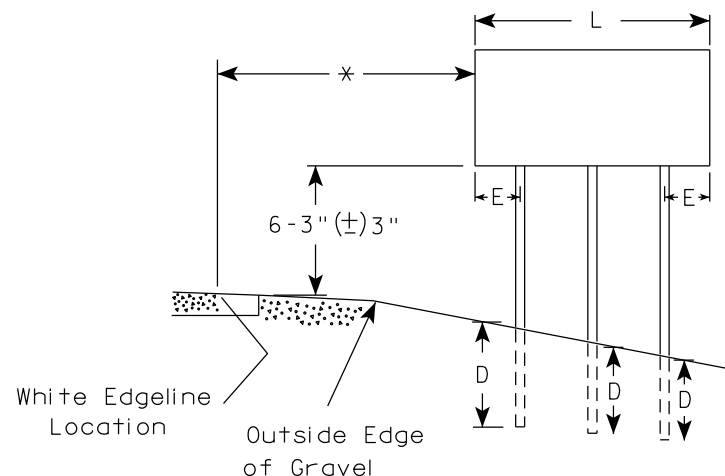
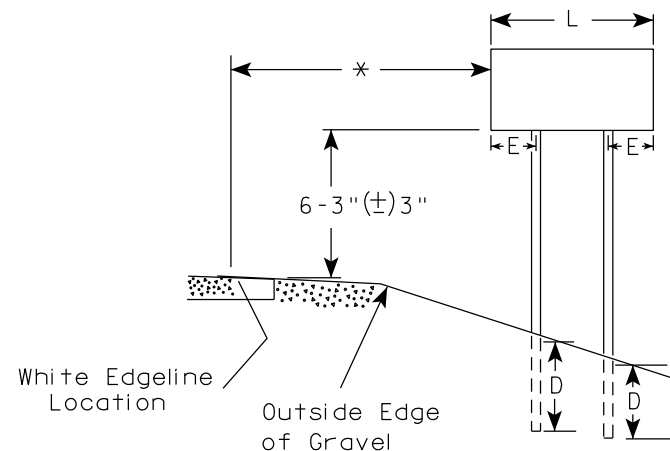
SHEET NO:

E

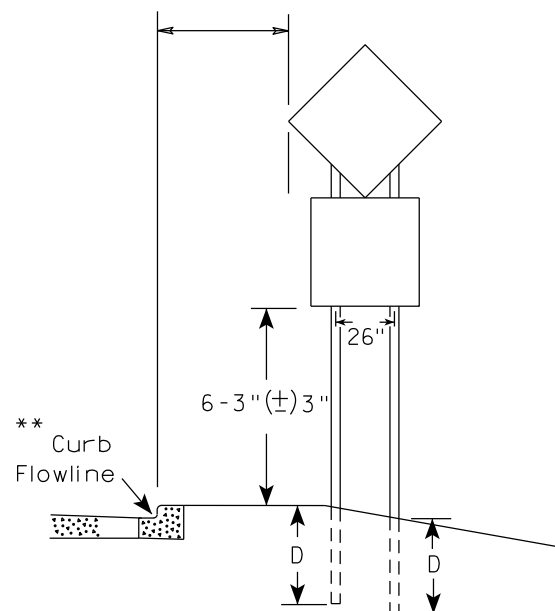
URBAN AREA



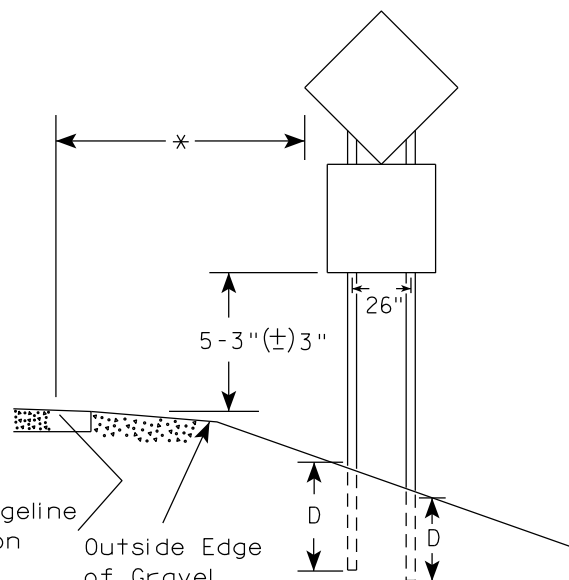
RURAL AREA (See Note 3)



2' Min - 4' Max (See Note 6)



48" DIAMOND WARNING SIGN



48" DIAMOND WARNING SIGN

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

SIGN SHAPE OTHER THAN DIAMOND (THREE POSTS REQUIRED)	
L	E
Greater than 108" to 144"	12"

POST EMBEDMENT DEPTH

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

TYPICAL INSTALLATION
OF TYPE II SIGNS
ON MULTIPLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

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

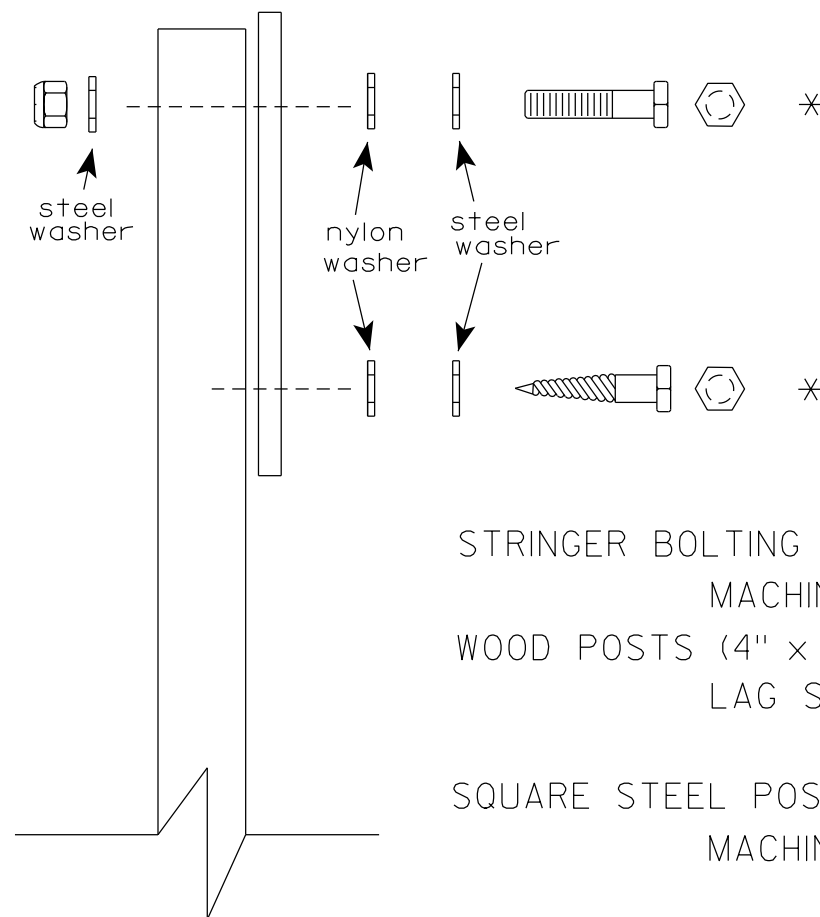
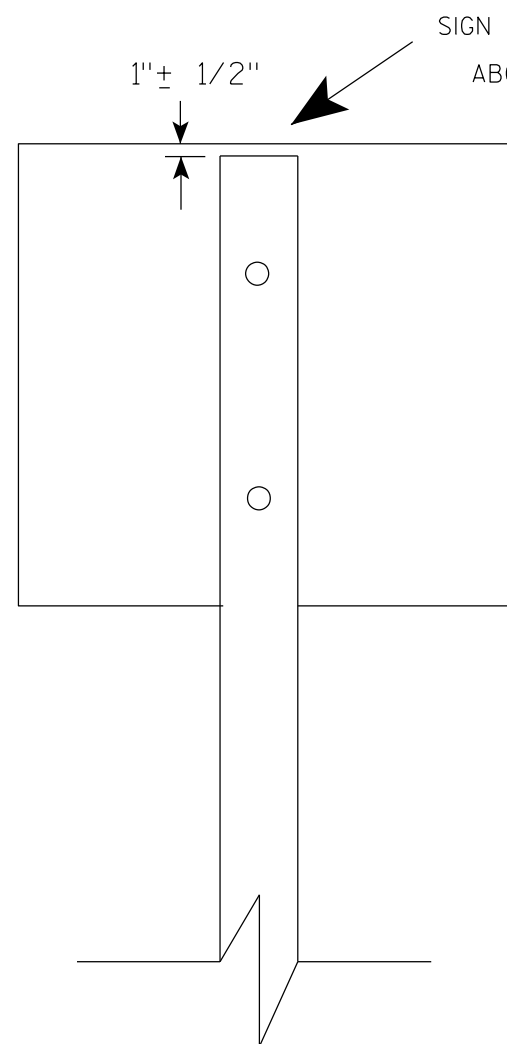
GENERAL NOTES

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

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

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

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



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.

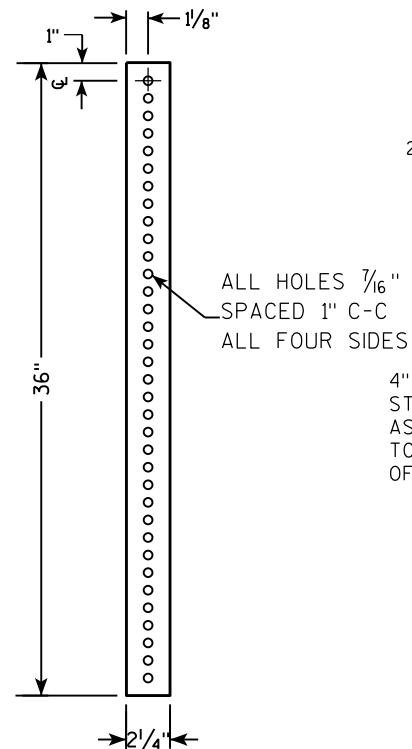
Threads on bolts and nuts shall be manufactured with sufficient allowance for the cadmium plate or galvanized coating to permit the nuts to run freely on the bolts.

- STRINGER BOLTING TO ALUMINUM SIGNS (SEE SIGN PLATE A4-18)
- MACHINE BOLTS - $\frac{5}{16}$ " X 1-3/4" Length w/ lock nuts
- WOOD POSTS (4" x 6")
- LAG SCREWS - $\frac{3}{8}$ " X 3" (NO STRINGERS ON BACK OF SIGN)
 $\frac{3}{8}$ " X 4" (STRINGERS ON BACK OF SIGN)
- SQUARE STEEL POSTS (2" x 2")
- MACHINE BOLTS - $\frac{3}{8}$ " X 3-1/4" Length w/ nuts (NO STRINGER ON BACK OF SIGN)
 $\frac{3}{8}$ " X 5" Length w/ nuts (STRINGERS ON BACK OF SIGN)
- RIVETS - $\frac{9}{32}$ " (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 $\frac{3}{8}$ " I.D. X $\frac{1}{16}$ " STEEL
- 1-1/4" O.D. X $\frac{3}{8}$ " I.D. X .080 NYLON

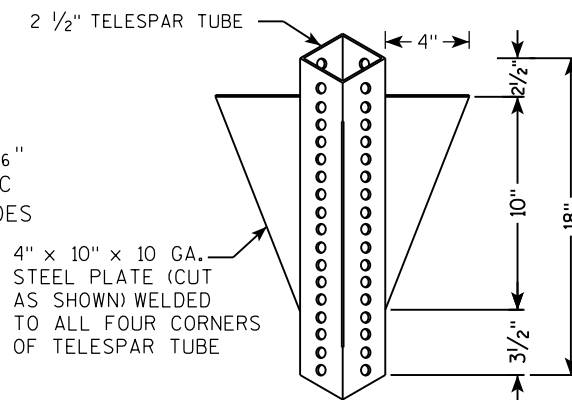
* Two different fastening systems are shown for illustration purposes. On any individual sign, either one or the other system shall be used. Actual number of fasteners per sign varies with the sign area, but normally there are two. For a single post installation, all signs greater than 9 sq. ft. require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

ATTACHMENT OF SIGNS TO POSTS	
WISCONSIN DEPT OF TRANSPORTATION	
APPROVED	<i>Matthew R. Rauch</i> For State Traffic Engineer
DATE 4/1/2020	PLATE NO. A4-8.9

**2 1/4 " SQUARE
12 GAUGE
PERFORATED
GALVANIZED FINISH**



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



LENGTH SHOWN ON MISC. QTY'S
 18" DIA SCHEDULE 40 PVC BOX-OUT
 TELESCOPE PIECES FLUSH AT TOP
 36"
 18"
 13"
 2 1/2"
 2 1/4" SQUARE X 36"
 2 1/2" SQUARE X 18" (SOIL STABILIZING SLEEVE)
 3/8" ZINC PLATED ANCHOR BOLT AND NUT
 2 1/2" GRAVEL OR DIRT
 3/8" ZINC PLATED CORNER ANCHOR BOLT AND NUT
 ALL HOLES 7/16" SPACED 1" C-C ALL FOUR SIDES
 2" STEEL TUBULAR SQUARE UPPER SECTION
 SEE SIGN PLATE A4-8 FOR BOLT WASHER, & NUT MATERIAL
 SIGN

LENGTH SHOWN ON MISC. QTY'S

SIGN

SEE SIGN PLATE A4-8 FOR BOLT WASHER, & NUT MATERIAL

2" STEEL TUBULAR SQUARE UPPER SECTION

ALL HOLES $\frac{7}{16}$ " SPACED 1" C-C ALL FOUR SIDES

TELESCOPE PIECES FLUSH AT TOP

$\frac{3}{8}$ " ZINC PLATED CORNER ANCHOR BOLT AND NUT

1"

$\frac{3}{8}$ " ZINC PLATED ANCHOR BOLT AND NUT

2 1/2" SQUARE X 18" (SOIL STABILIZING SLEEVE)

2 1/4" SQUARE X 36"

36"

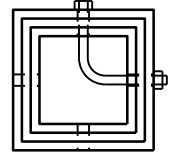
18"

12"

A

A

3/8" ZINC PLATED CORNER
ANCHOR BOLT AND NUT



DIRECTION
OF TRAFFIC

SECTION A-A

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

TUBULAR STEEL
SIGN POST
A4-9

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthieu R. Rauch

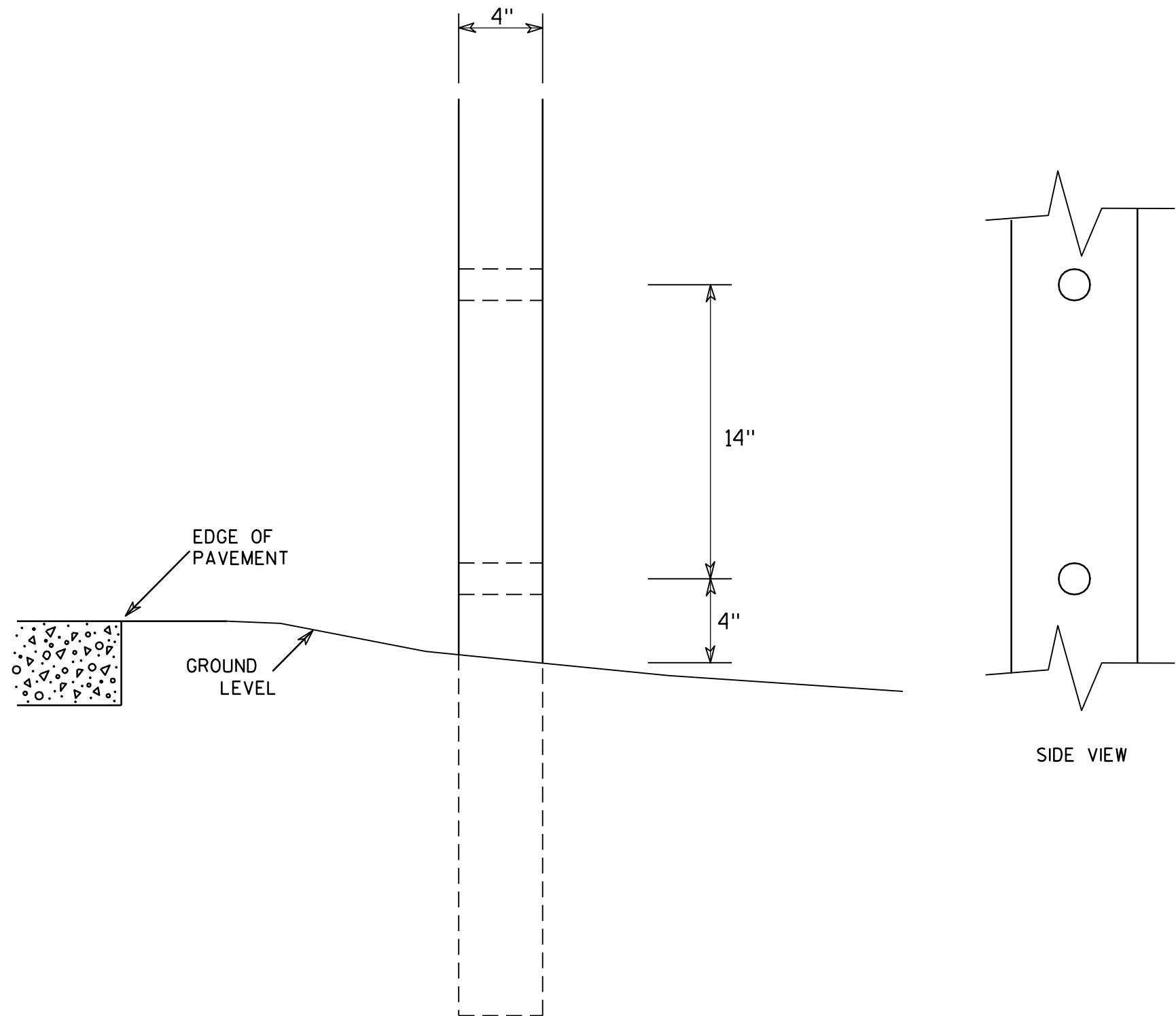
for State Traffic Engineer

DATE 2/05/15 PLAT 182 14-9.9

DATE 2/05/15 PLAT 182 14-9.9

PROJECT NO:	HWY:	COUNTY:	SHEET NO:	E
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7



GENERAL NOTES

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

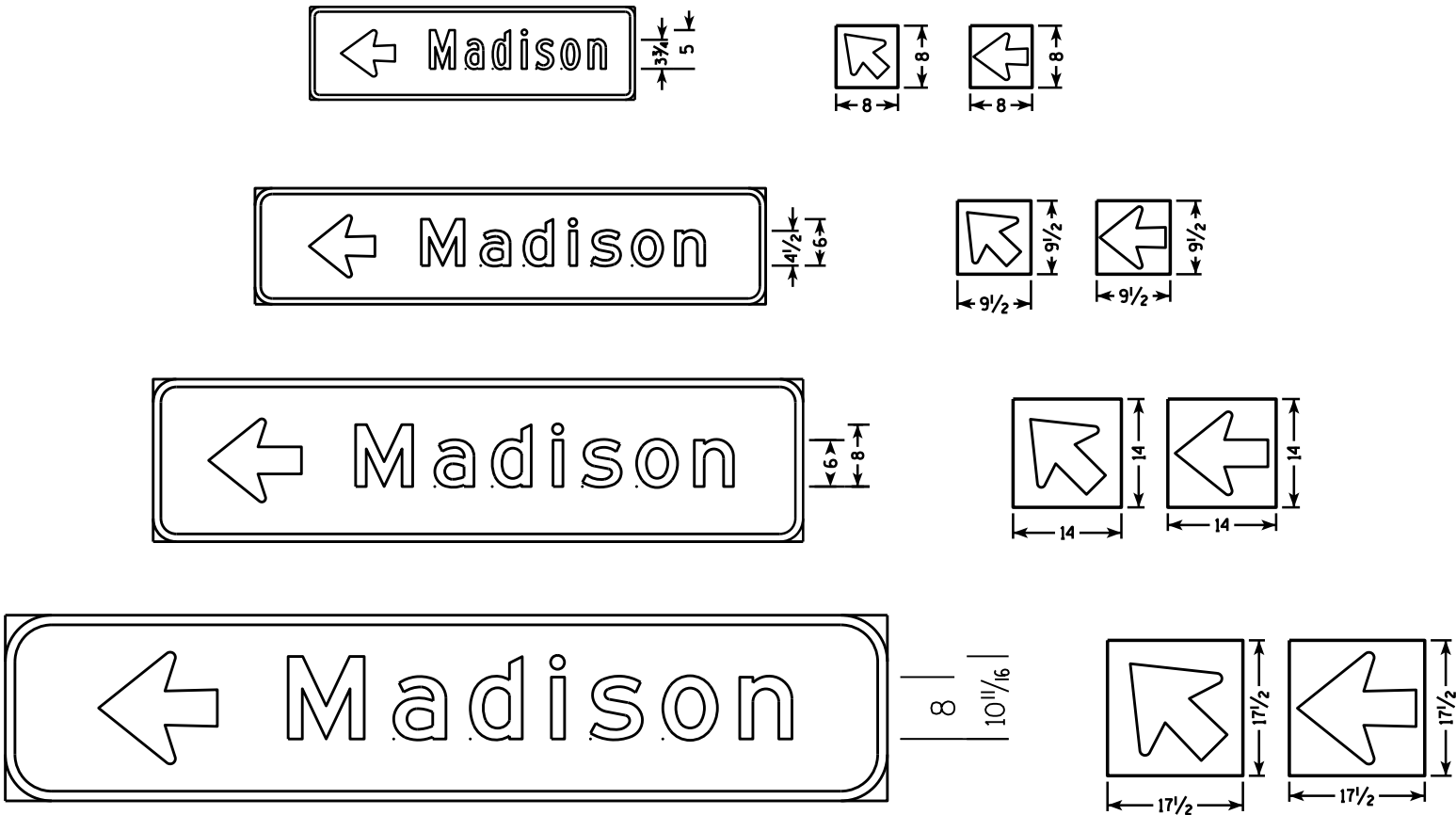
7

4 X 6 WOOD POST MODIFICATIONS	
WISCONSIN DEPT OF TRANSPORTATION	
APPROVED	<i>Chester J. Spang</i> for State Traffic Engineer
DATE 3/27/97	PLATE NO. A4-11.2

SIGN LAYOUT WITH VARIOUS SIZED MESSAGES

GENERAL NOTES

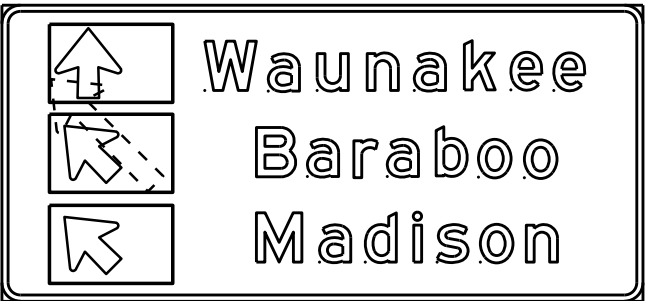
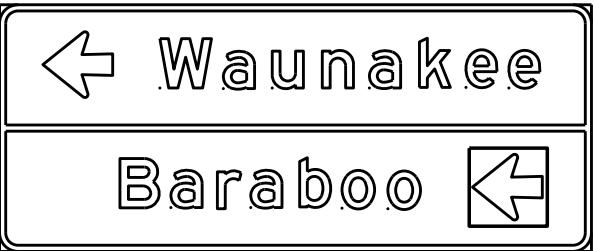
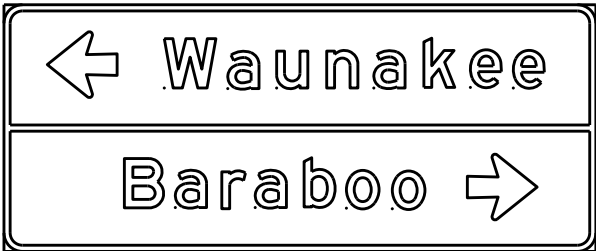
- 1. Materials shall conform to Standard Specification Section 637.
Base - Sheet Aluminum 0.040" Thickness
Sheeting - Orange Type F Reflective
Arrow - Black Non-Reflective
- 2. Arrow signs shall be fastened to permanent sign by either aluminum rivets or aluminum self-tapping sheet metal screws.
There shall be a minmum of 2 fasteners used per arrow sign.
- 3. There shall be a spacer consisting of a 0.08" nylon washer between the back of the arrow sign and the face of the permanent sign.
- 4. Arrows are per standard plate A1-2
- 5. Use separate arrow sign for each destination
- 6. Tilt arrow is always at 45 degrees
- 7. Arrow is centered on arrow sign



Lower Case Copy Size	Standard Width (Single Arrow)	2 Line Tilt Arrow Cover Width	3 Line Tilt Arrow Cover Width	Height
3 3/4" Series C	8	9 1/2	14 1/2	8
4 1/2" Series D & E	9 1/2	10	15	9 1/2
6" Series D & E	14	16	20 1/2	14
8" Series E	17 1/2	20 1/2	25	17 1/2

BEFORE

AFTER



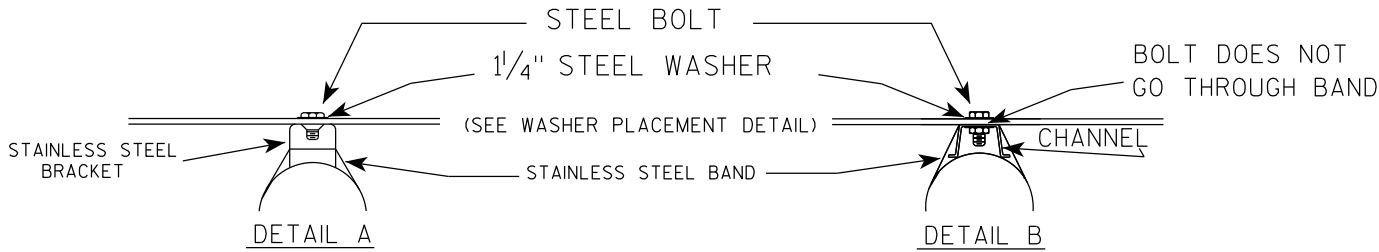
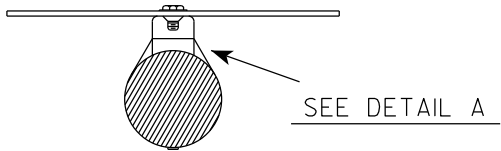
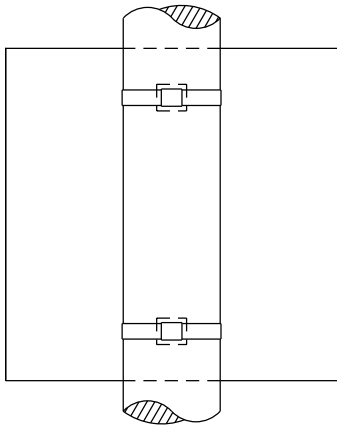
DESTINATION DIRECTIONAL ARROW FOR DETOUR SIGNS

WISCONSIN DEPT OF TRANSPORTATION

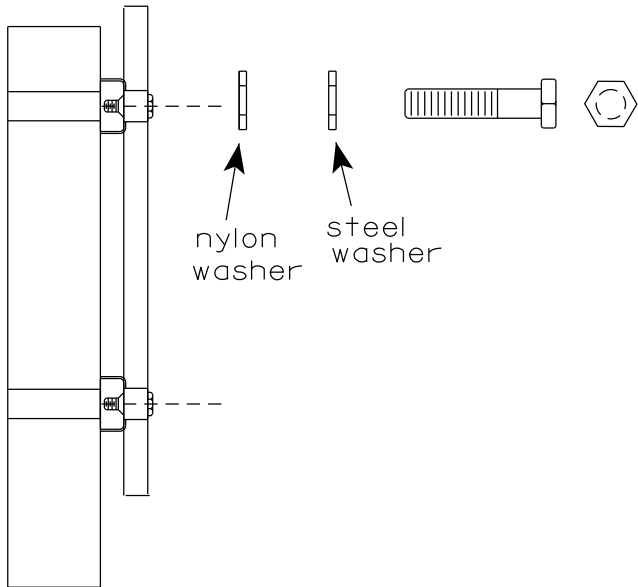
APPROVED *Matthew R. Rauch*
For State Traffic Engineer
DATE 10/08/14

BANDING

SINGLE SIGN



WASHER PLACEMENT

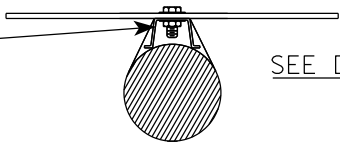
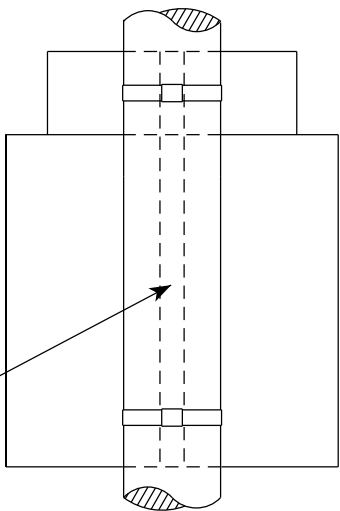


WASHERS (ALL POSTS) -
1-1/4" O.D. X 3/8" I.D. X 1/16" STEEL
1-1/4" O.D. X 3/8" I.D. X .080 NYLON
FOR ALL TYPE H SIGNS

GENERAL NOTES

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

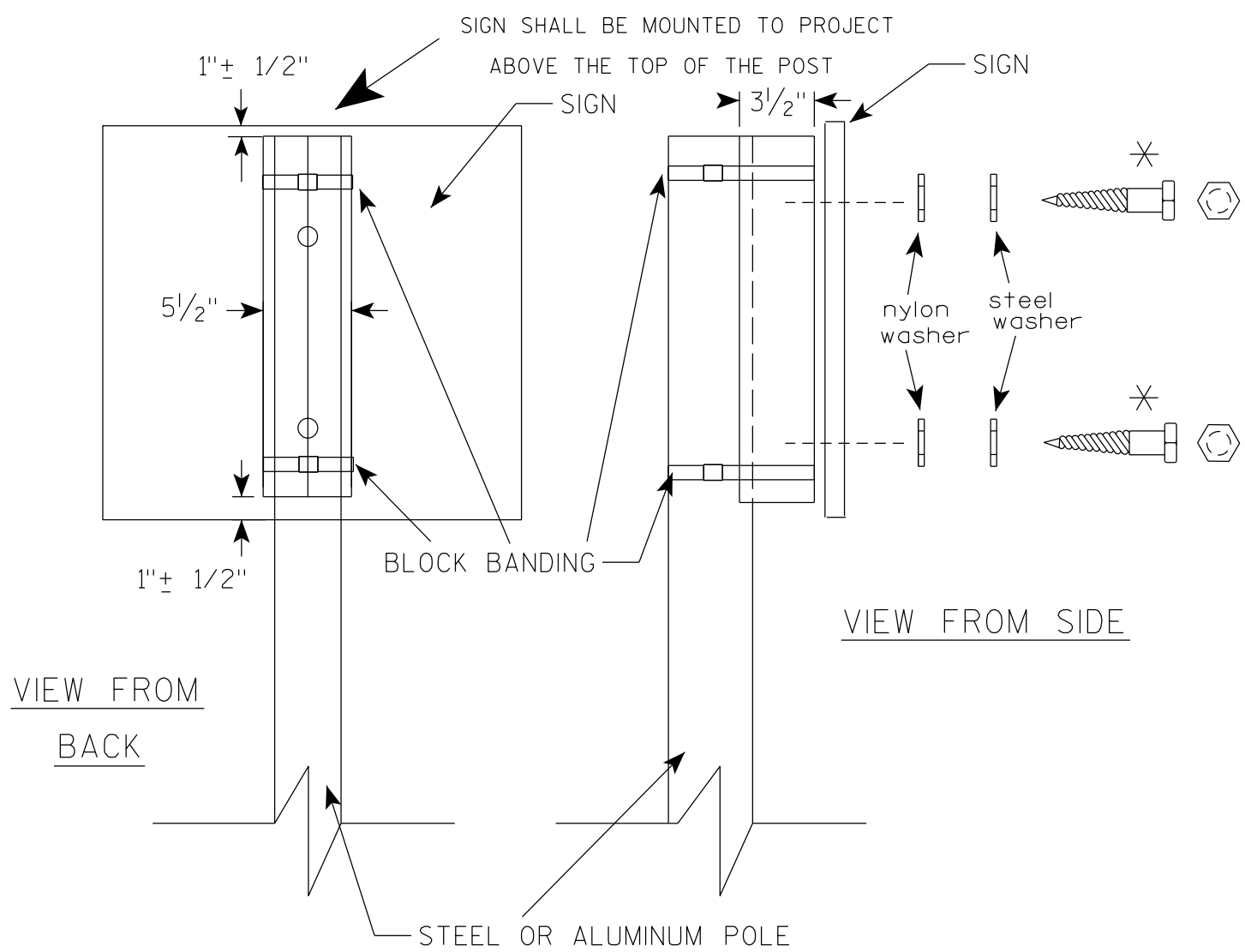
"J" ASSEMBLY



STANDARD SIGN
SIGN BANDING DETAILS

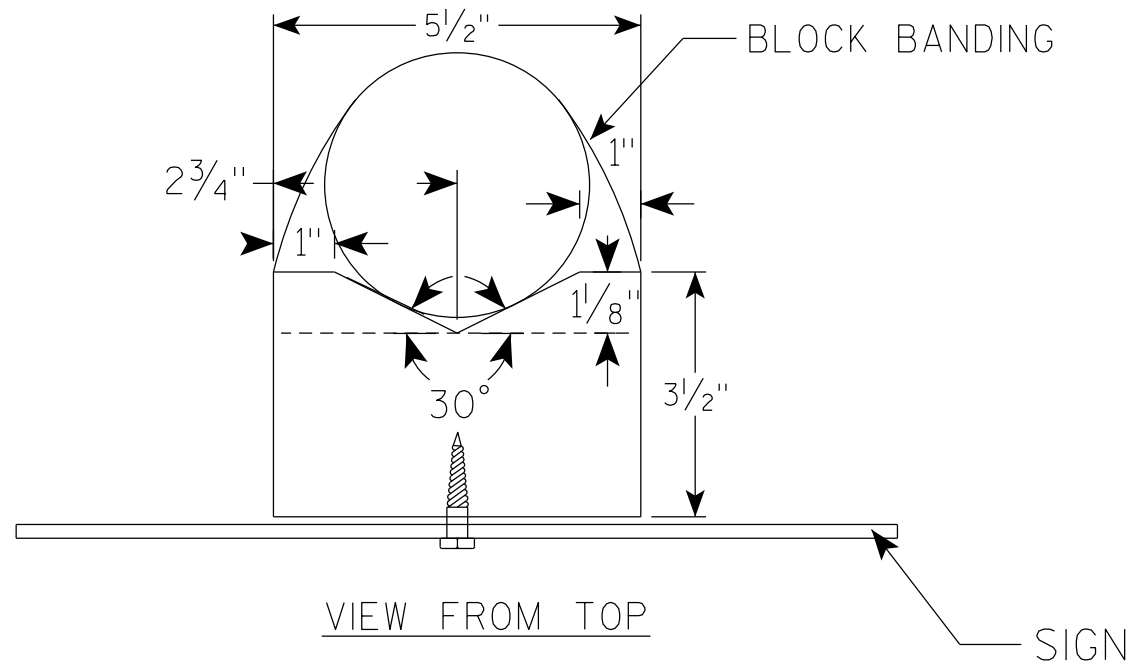
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer
DATE 6/10/19 PLATE NO. A5-9.4



VIEW FROM
BACK

VIEW FROM SIDE



VIEW FROM TOP

GENERAL NOTES

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

✱ LAG BOLTS SHALL BE $\frac{3}{8}$ " X $2\frac{1}{2}$ "

BLOCK BANDING DETAIL
(V-BLOCK OPTION)

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

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

PROJECT NO:

SHEET NO: 86

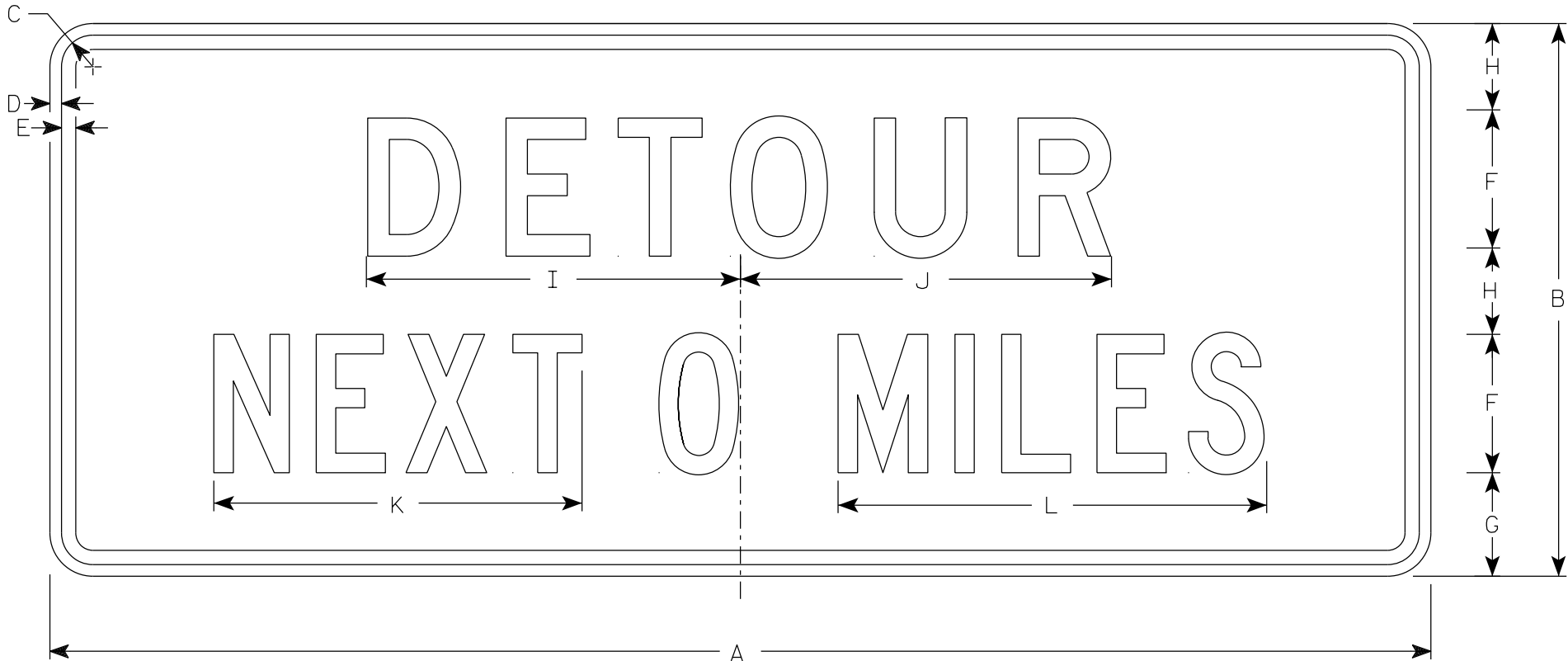
E

7

7

NOTES

- 1. Sign is Type II - Type F Reflective
- 2. Color:
Background - Orange
Message - Black
- 3. Message Series - Line 1 is D and Line 2 is 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. Round distance to nearest whole Mile and substitute appropriate numerals and optically adjust spacing to achieve proper balance



G20-51

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2	60	24	1 7⁄8	1⁄2	5⁄8	6	4 1⁄2	3 3⁄4	16 1⁄4	16 1⁄8	16	18 5⁄8															10.0
2M	60	24	1 7⁄8	1⁄2	5⁄8	6	4 1⁄2	3 3⁄4	16 1⁄4	16 1⁄8	16	18 5⁄8															10.0
3	60	24	1 7⁄8	1⁄2	5⁄8	6	4 1⁄2	3 3⁄4	16 1⁄4	16 1⁄8	16	18 5⁄8															10.0
4	60	24	1 7⁄8	1⁄2	5⁄8	6	4 1⁄2	3 3⁄4	16 1⁄4	16 1⁄8	16	18 5⁄8															10.0
5	60	24	1 7⁄8	1⁄2	5⁄8	6	4 1⁄2	3 3⁄4	16 1⁄4	16 1⁄8	16	18 5⁄8															10.0

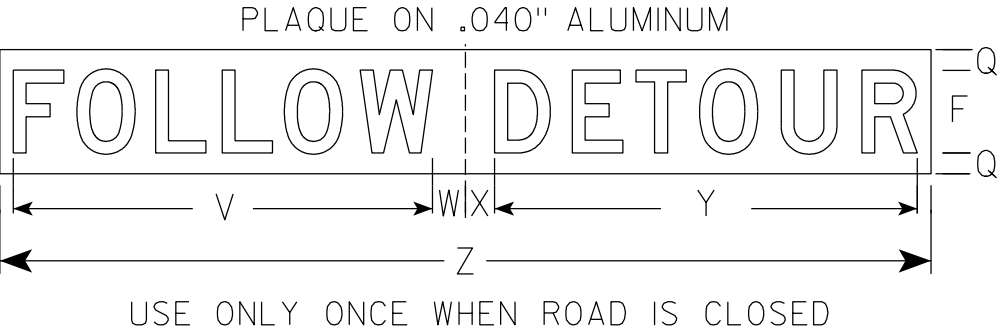
STANDARD SIGN
G20-51

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
State Traffic Engineer

DATE 1/26/2023 PLATE NO. G20-51.3

7



USE ONLY ONCE WHEN ROAD IS CLOSED

NOTES

1. Sign is Type II - Type F Reflective
2. Color:
Background - Orange
Message - Black
3. Message Series - D
4. Substitute appropriate numeral and adjust spacing to achieve proper balance.

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2																											
3	72	36	1 1/8	1/2	5/8	6	5	4	15 5/8	1 5/8	5	9 1/4	21 1/8	5	2 7/8	29	2	30	1 3/4	3 1/4	28 3/8	40 1/2	2	2	29 3/4	66	18.0
4	96	48	2 1/4	3/4	1	8	6 1/2	5 1/2	20 5/8	2 1/4	6	12 1/4	28 1/4	6	4 1/8	38 3/8	2	39 7/8	2	4	37 7/8	29 3/4	3 1/8	2 7/8	40 7/8	90	32.0
5																											

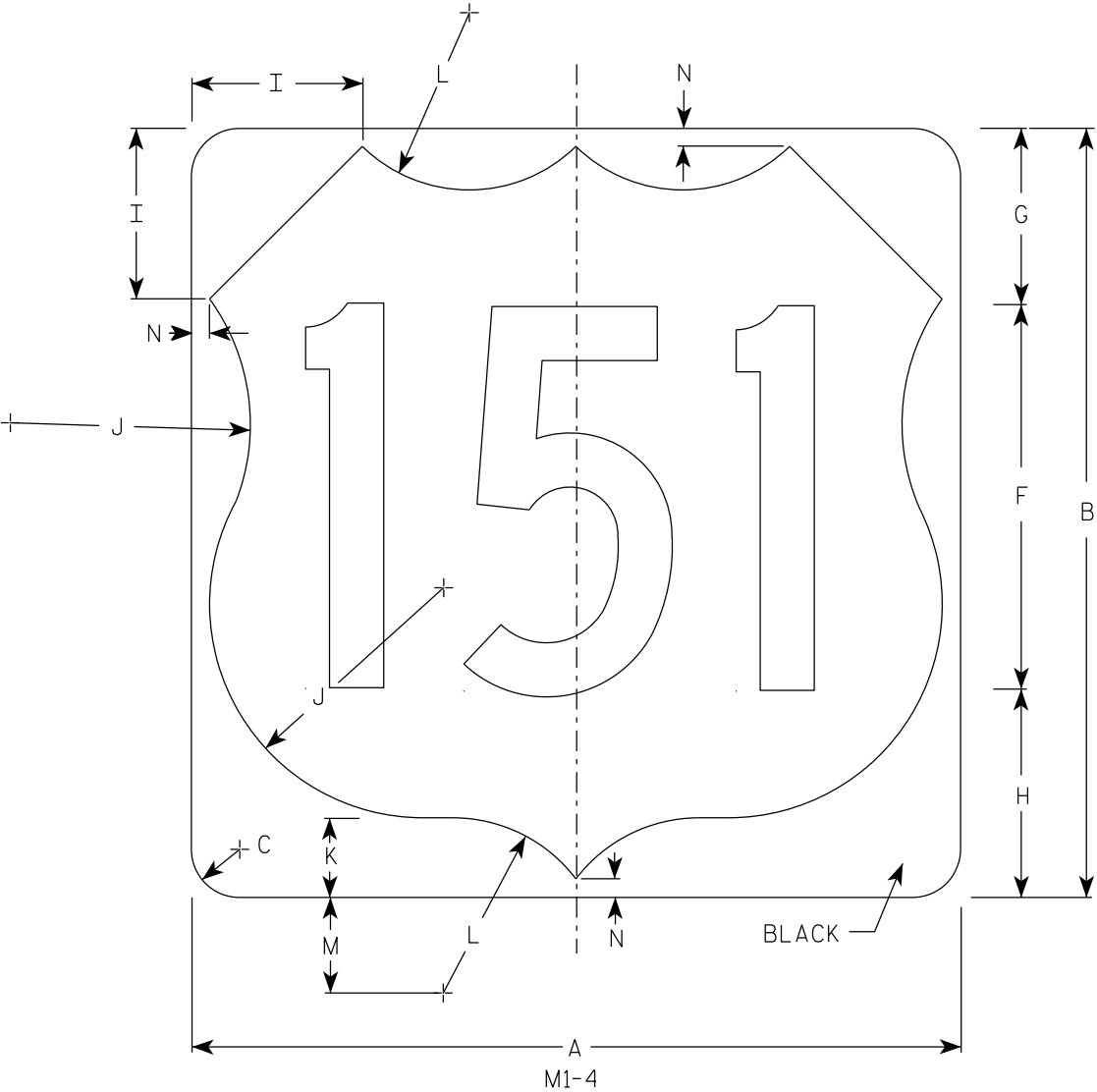
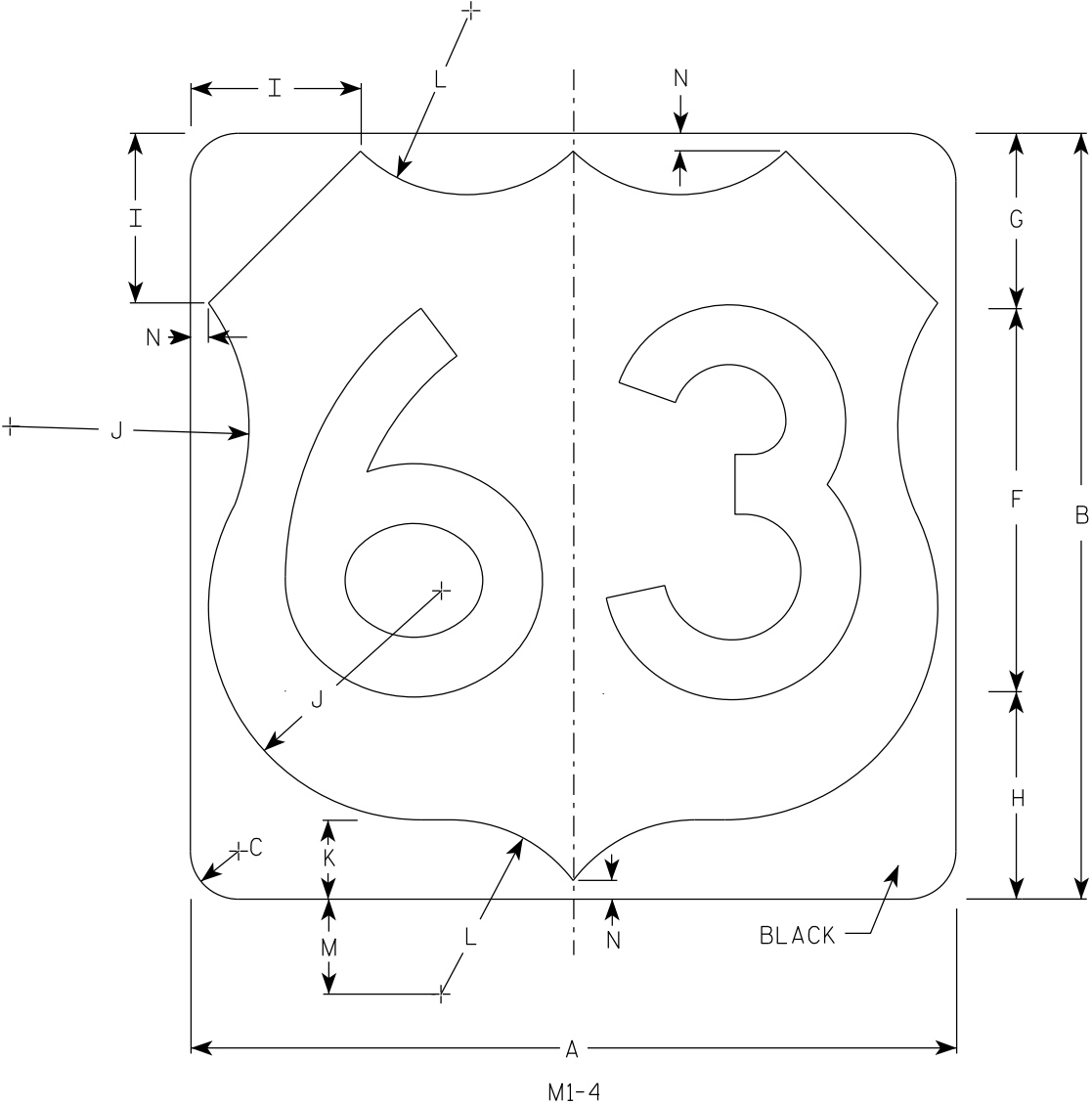
STANDARD SIGN
G20-57C

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 9/25/19 PLATE NO. G20-57C.1

7



NOTES

- 1. Sign is Type II - Type H Reflective
- 2. Color:
Background - White
Message - Black
- 3. Message Series - D except 3 number signs Series C

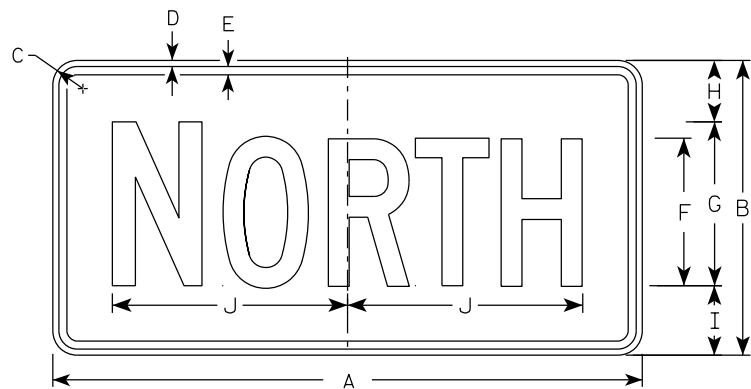
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2	24	24	1 1/2			12	5 1/2	6 1/2	5	7 1/2	2 1/2	5 1/2	3	1/2													4.0
2M	24	24	1 1/2			12	5 1/2	6 1/2	5	7 1/2	2 1/2	5 1/2	3	1/2													4.0
3	36	36	2 1/4			18	8 1/4	9 1/4	7 1/4	11 1/4	3 3/4	8 1/4	4 1/2	3/4													9.0
4	36	36	2 1/4			18	8 1/4	9 1/4	7 1/4	11 1/4	3 3/4	8 1/4	4 1/2	3/4													9.0
5	36	36	2 1/4			18	8 1/4	9 1/4	7 1/4	11 1/4	3 3/4	8 1/4	4 1/2	3/4													9.0

USH MARKER
M1-4 FOR ASSEMBLIES

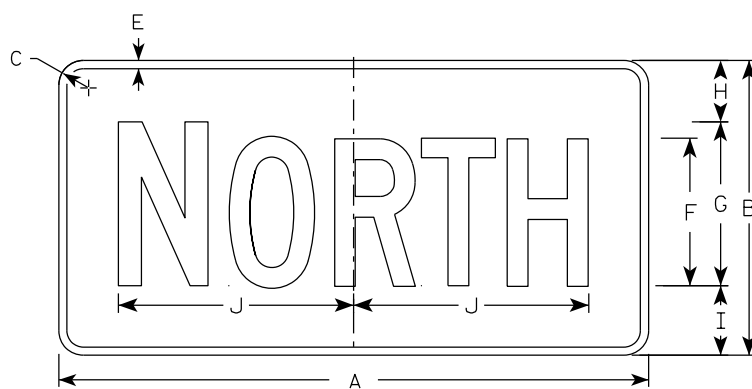
WISCONSIN DEPT OF TRANSPORTATION

APPROVED
Matthew R. Rauch
for State Traffic Engineer

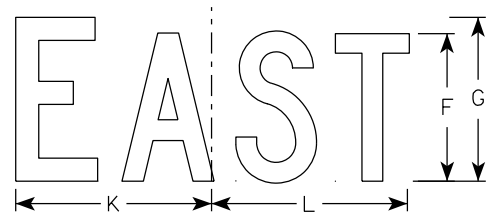
DATE 12/20/22 PLATE NO. M1-4.11



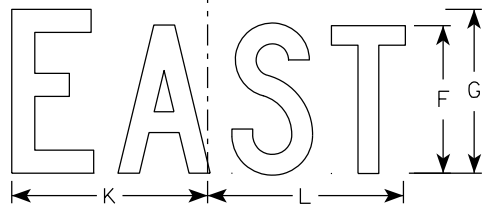
M3-1
MM3-1
MP3-1



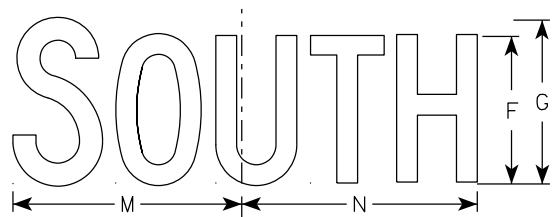
MB3-1
MK3-1
MN3-1



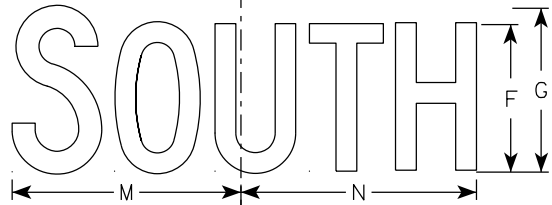
M3-2
MM3-2
MP3-2



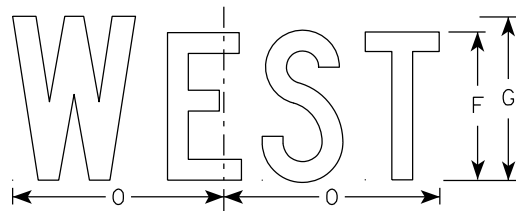
MB3-2
MK3-2
MN3-2



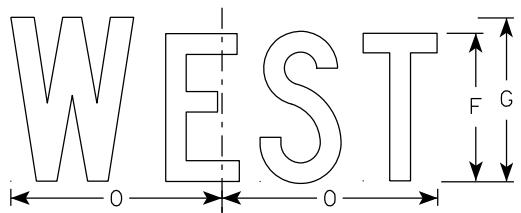
M3-3
MM3-3
MP3-3



MB3-3
MK3-3
MN3-3



M3-4
MM3-4
MP3-4



MB3-4
MK3-4
MN3-4

NOTES

- All Signs Type II - Type H Reflective
- Color:
 - Background - See note 5
 - Message - See note 5
- Message Series - C
- 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.
- M3-1 thru M3-4 Background - White
Message - Black
MB3-1 thru MB3-4 Background - Blue
Message - White
MK3-1 thru MK3-4 Background - Green
Message - White
MM3-1 thru MM3-4 Background - White
Message - Green
MN3-1 thru MN3-4 Background - Brown
Message - White
MP3-1 thru MP3-4 Background - White
Message - Blue
- Note the first letter of each direction is larger than the remainder of the message.

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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	24	12	1 1/2	3/8	3/8	6	7	2 1/4	2 3/4	10 1/4	7 7/8	8 3/8	10 1/4	9 3/4	8 3/4												2.00
2M	24	12	1 1/2	3/8	3/8	6	7	2 1/4	2 3/4	10 1/4	7 7/8	8 3/8	10 1/4	9 3/4	8 3/4												2.00
3	36	18	1 1/2	3/8	1/2	9	10	3 3/4	4 1/4	14 3/8	12	12 1/8	14	14 1/8	13												4.5
4	36	18	1 1/2	3/8	1/2	9	10	3 3/4	4 1/4	14 3/8	12	12 1/8	14	14 1/8	13												4.5
5	36	18	1 1/2	3/8	1/2	9	10	3 3/4	4 1/4	14 3/8	12	12 1/8	14	14 1/8	13												4.5

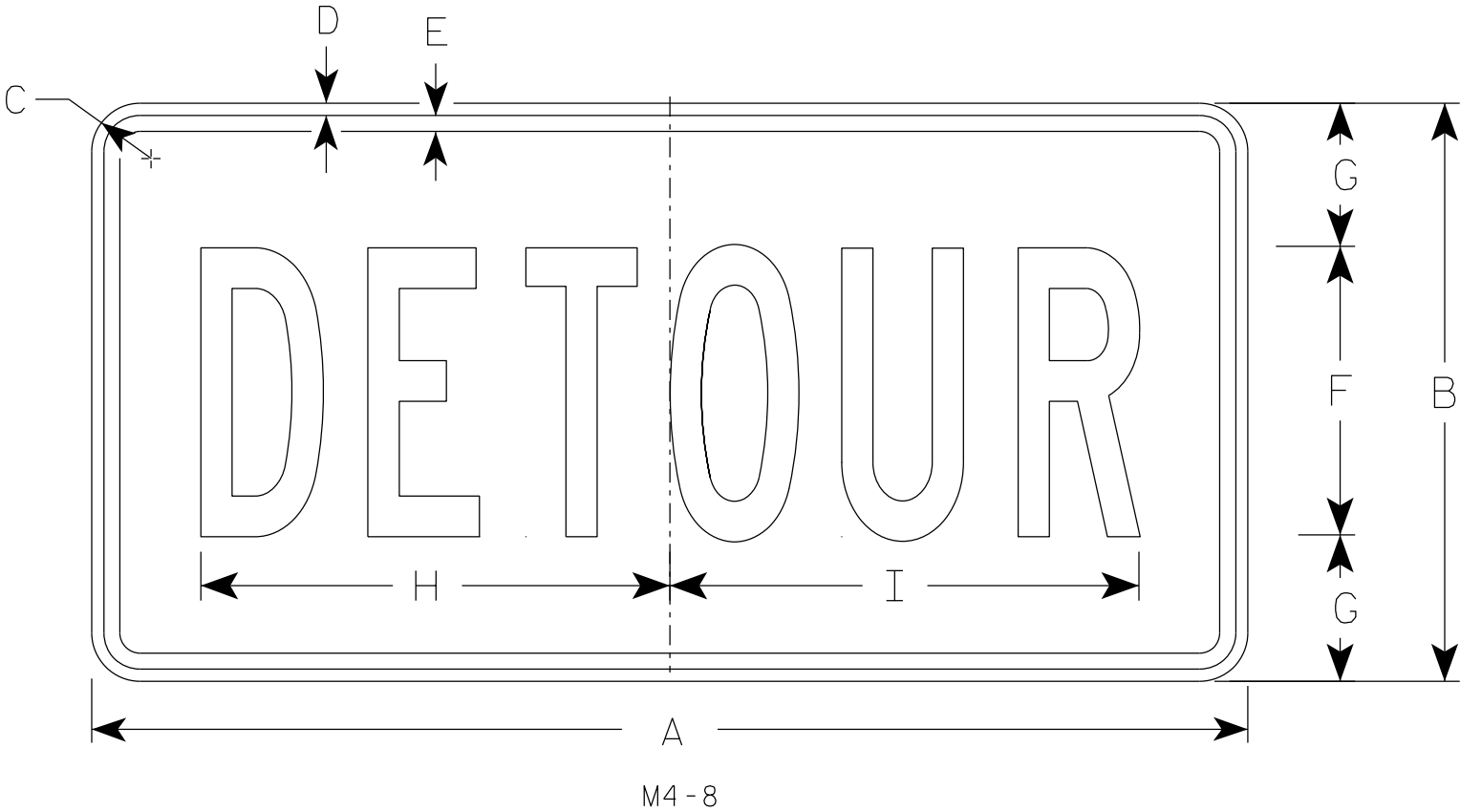
PROJECT NO:	HWY:	COUNTY:	SHEET NO: 90	E
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NOTES

- 1. Sign is Type II - Type F Reflective
- 2. Color:
Background - Orange
Message - Black
- 3. Message Series - B
- 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																											
2	24	12	1 1/2	3/8	3/8	6	3	10	10 1/4																		2.0
2M	24	12	1 1/2	3/8	3/8	6	3	10	10 1/4																		2.0
3	36	18	1 1/2	3/8	1/2	9	4 1/2	14 5/8	14 1/2																		4.5
4	36	18	1 1/2	3/8	1/2	9	4 1/2	14 5/8	14 1/2																		4.5
5	36	18	1 1/2	3/8	1/2	9	4 1/2	14 5/8	14 1/2																		4.5

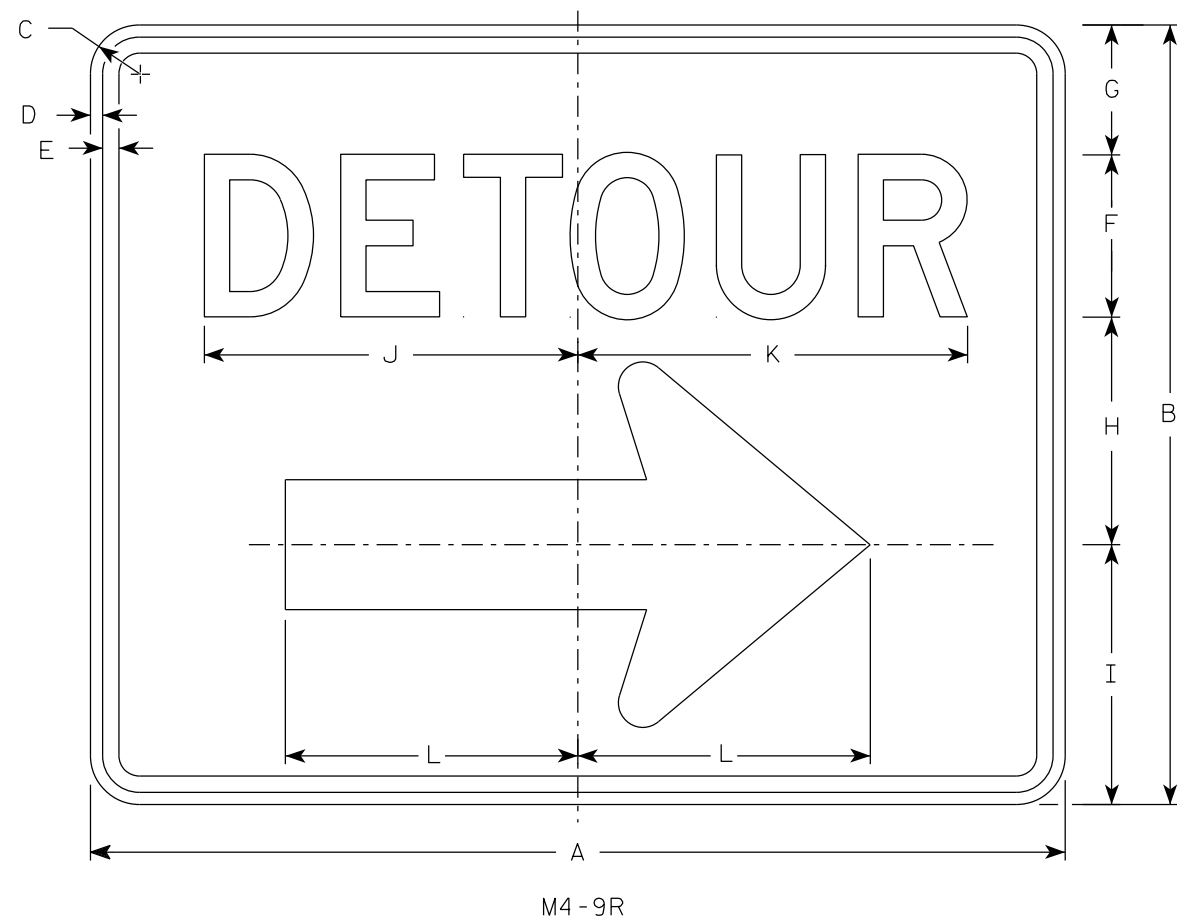
STANDARD SIGN

M4-8

WISCONSIN DEPT OF TRANSPORTATION

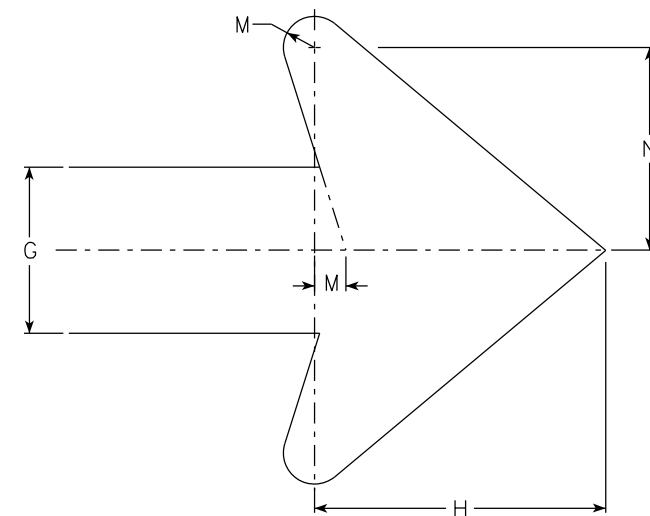
APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 2/9/2023 PLATE NO. M4-8.4



NOTES

1. Sign is Type II - Type F Reflective
2. Color:
Background - Orange
Message - Black
3. Message Series - D
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
4. M4-9L is the same as M4-9R except the arrow is reversed.



Arrow Detail

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2	30	24	1 1/2	3/8	1/2	5	4	7	8	11 1/2	12	9	3/4	4 7/8													5.00
2M	30	24	1 1/2	3/8	1/2	5	4	7	8	11 1/2	12	9	3/4	4 7/8													5.00
3	30	24	1 1/2	3/8	1/2	5	4	7	8	11 1/2	12	9	3/4	4 7/8													5.00
4	48	36	1 7/8	1/2	5/8	8	6	10 1/2	11 5/8	20 5/8	20 1/2	13 1/4	1 1/8	6 7/8													12.0
5	48	36	1 7/8	1/2	5/8	8	6	10 1/2	11 5/8	20 5/8	20 1/2	13 1/4	1 1/8	6 7/8													12.0

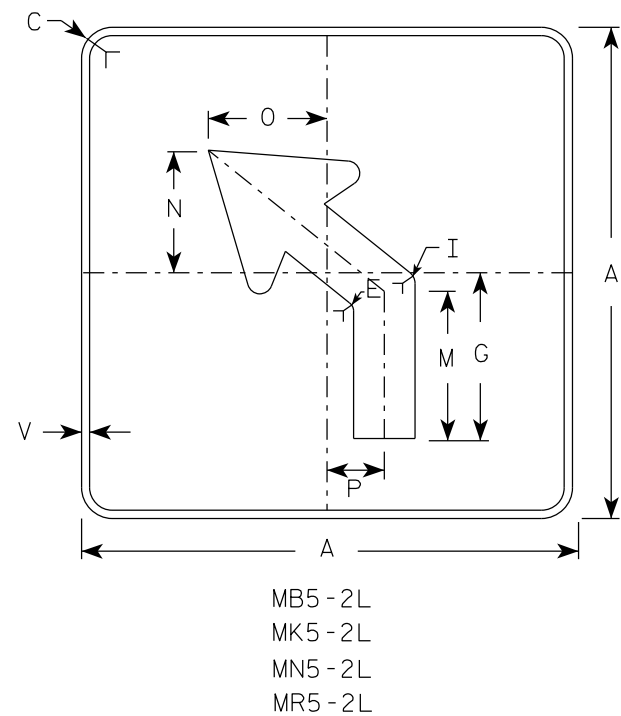
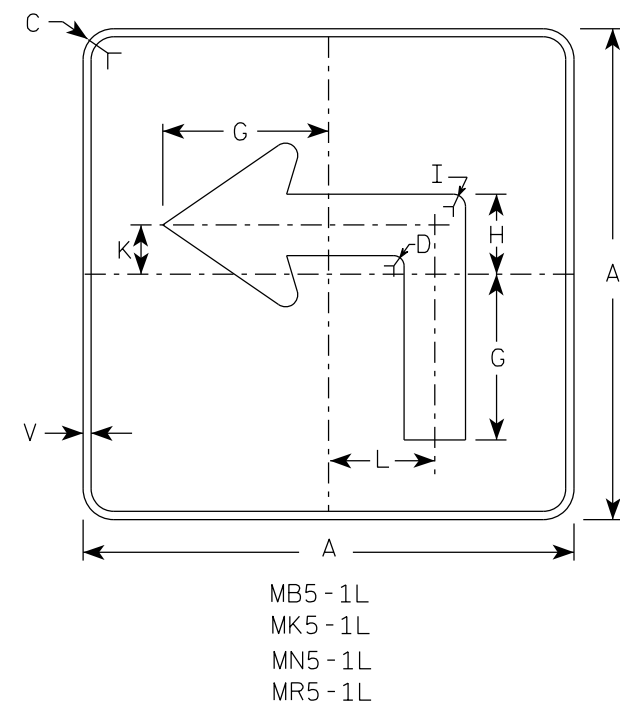
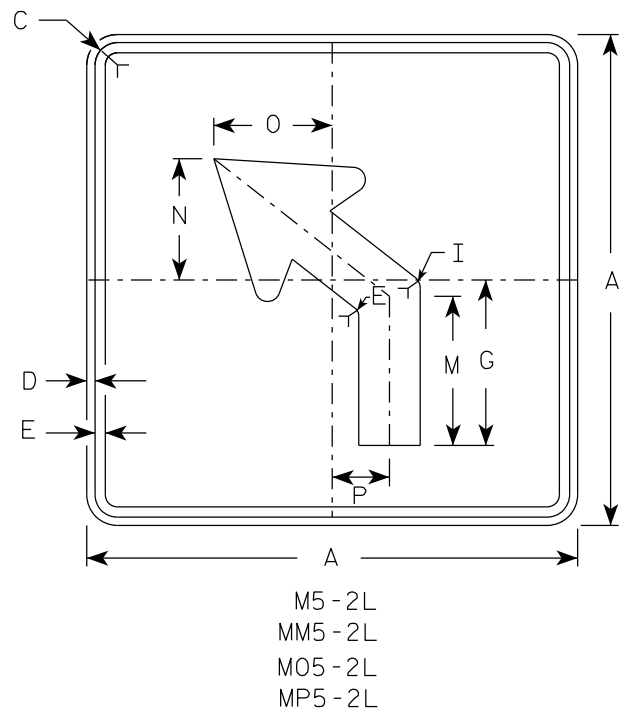
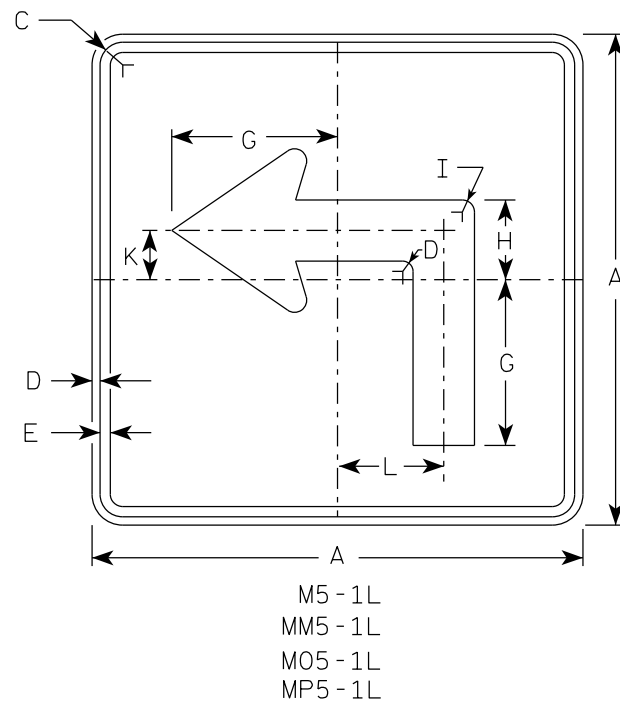
STANDARD SIGN
M4-9 R & L

WISCONSIN DEPT OF TRANSPORTATION

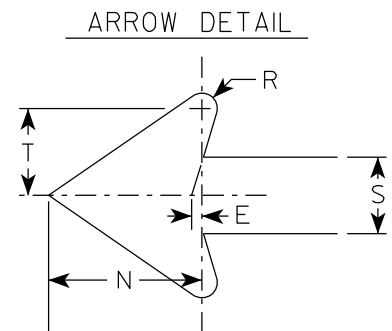
APPROVED *Matthew R. Rauch*
For State Traffic Engineer

DATE 2/9/2023 PLATE NO. M4-9R.6

PROJECT NO: HWY: COUNTY: SHEET NO: 92 E

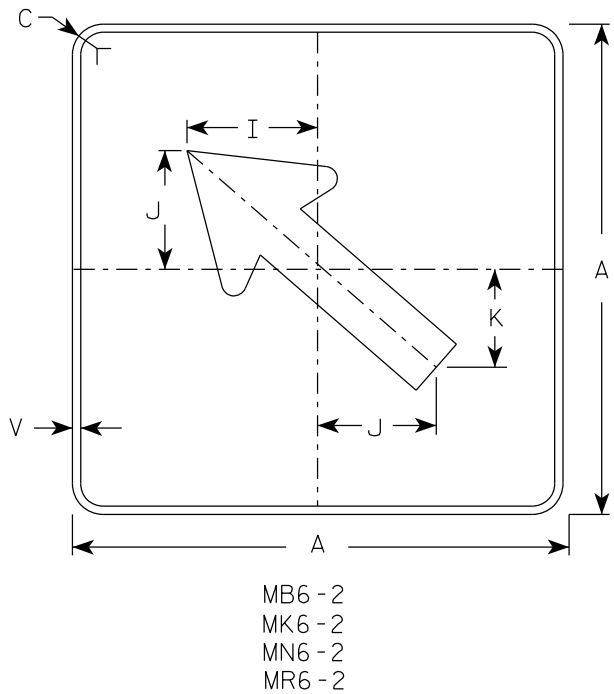
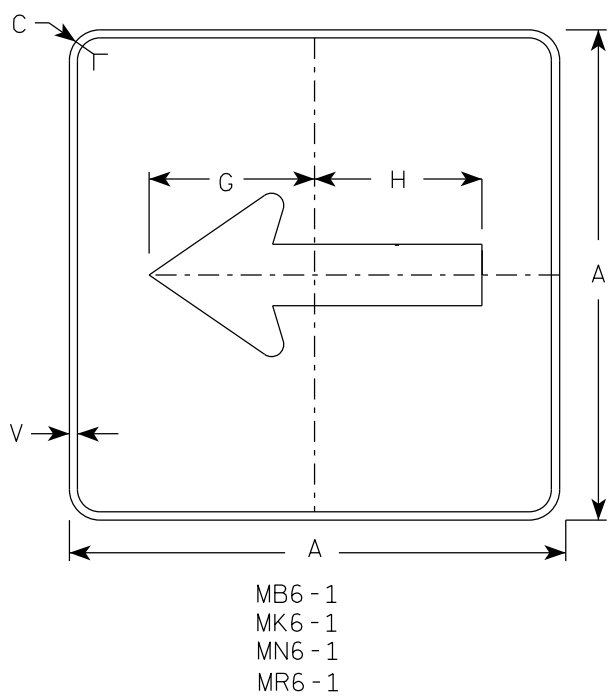
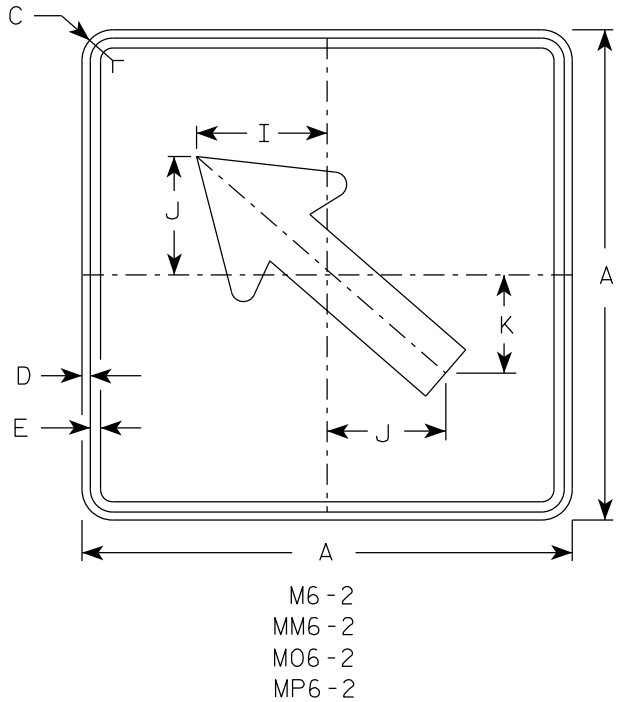
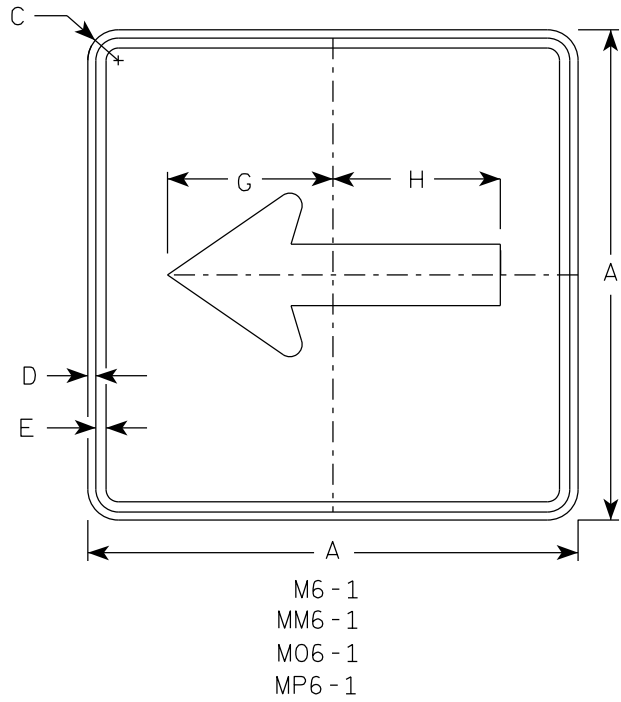


- NOTES
- Signs are Type II - Type H reflective except as shown
 - Color:
Background - See note 4
Message - See note 4
 - Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
 - | | | |
|-----------|-------|---|
| M5-1 and | M5-2 | Background - White |
| | | Message - Black |
| MB5-1 and | MB5-2 | Background - Blue |
| | | Message - White |
| MK5-1 and | MK5-2 | Background - Green |
| | | Message - White |
| MM5-1 and | MM5-2 | Background - White |
| | | Message - Green |
| MN5-1 and | MN5-2 | Background - Brown |
| | | Message - White |
| M05-1 and | M05-2 | Background - Orange - Type F Reflective |
| | | Message - Black |
| MP5-1 and | MP5-2 | Background - White |
| | | Message - Blue |
| MR5-1 and | MR5-2 | Background - Brown |
| | | Message - Yellow |
 - M5-1R same as M5-1L except arrow points right.
 - M5-2R same as M5-2L except arrow tilts right.

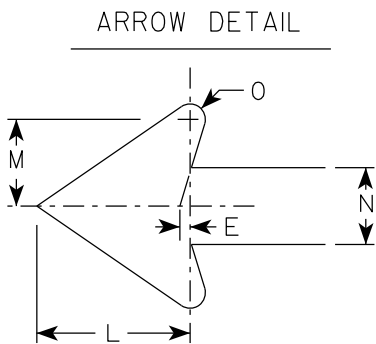


SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	21		1 1/2	3/8	3/8		7	3 3/8	5/8		2 1/8	4 1/2	6 3/8	5 1/4	5	2 1/2		1/2	2 5/8	3		1/2					3.06
2M	21		1 1/2	3/8	3/8		7	3 3/8	5/8		2 1/8	4 1/2	6 3/8	5 1/4	5	2 1/2		1/2	2 5/8	3		1/2					3.06
3	30		1 7/8	1/2	5/8		10 1/8	4 7/8	7/8		3	6 1/2	9 1/8	7 1/2	7 1/4	3 1/2		3/4	3 3/4	4 1/4		1/2					6.25
4	30		1 7/8	1/2	5/8		10 1/8	4 7/8	7/8		3	6 1/2	9 1/8	7 1/2	7 1/4	3 1/2		3/4	3 3/4	4 1/4		1/2					6.25
5	30		1 7/8	1/2	5/8		10 1/8	4 7/8	7/8		3	6 1/2	9 1/8	7 1/2	7 1/4	3 1/2		3/4	3 3/4	4 1/4		1/2					6.25

PROJECT NO:		HWY:		COUNTY:		SHEET NO: 93		E
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- NOTES**
- Signs are Type II - Type H Reflective except as Shown
 - Color:
Background - See note 4
Message - See note 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.
 - M6-1 and M6-2 Background - White
Message - Black
MB6-1 and MB6-2 Background - Blue
Message - White
MK6-1 and MK6-2 Background - Green
Message - White
MM6-1 and MM6-2 Background - White
Message - Green
MN6-1 and MN6-2 Background - Brown
Message - White
M06-1 and M06-2 Background - Orange - Type F Reflective
Message - Black
MP6-1 and MP6-2 Background - White
Message - Blue
MR6-1 and MR6-2 Background - Brown
Message - Yellow



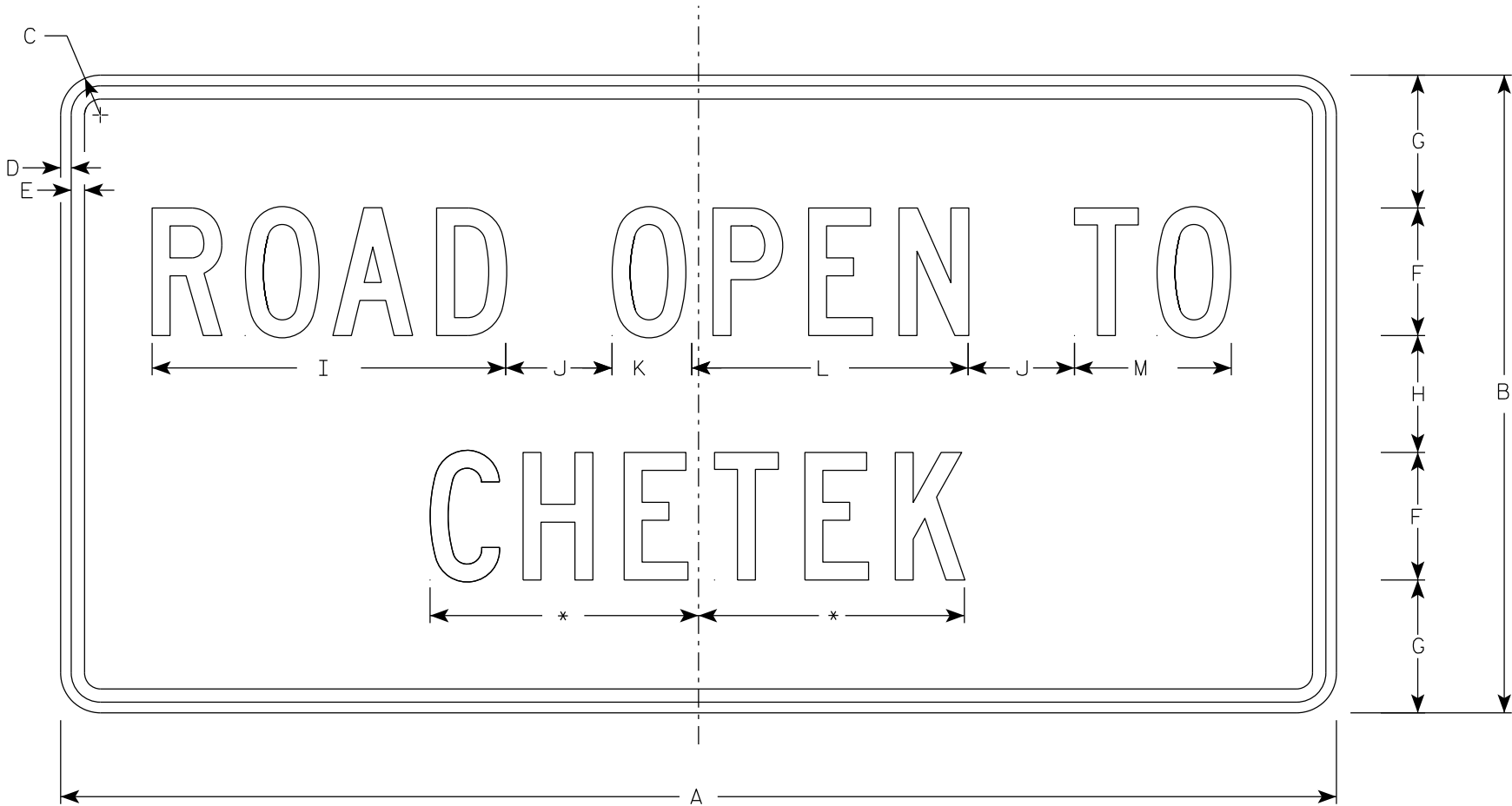
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	21		1 1/2	3/8	3/8		7 1/2	7 1/8	5 5/8	5	4 1/4	5 1/4	3	2 5/8	1/2							1/2					3.06
2M	21		1 1/2	3/8	3/8		7 1/2	7 1/8	5 5/8	5	4 1/4	5 1/4	3	2 5/8	1/2							1/2					3.06
3	30		1 7/8	1/2	5/8		10 3/4	10 1/4	8	7 1/4	6	7 1/2	4 1/4	3 3/4	3/4							1/2					6.25
4	30		1 7/8	1/2	5/8		10 3/4	10 1/4	8	7 1/4	6	7 1/2	4 1/4	3 3/4	3/4							1/2					6.25
5	30		1 7/8	1/2	5/8		10 3/4	10 1/4	8	7 1/4	6	7 1/2	4 1/4	3 3/4	3/4							1/2					6.25

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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 message and optically balance.



R10-61

*See note 5

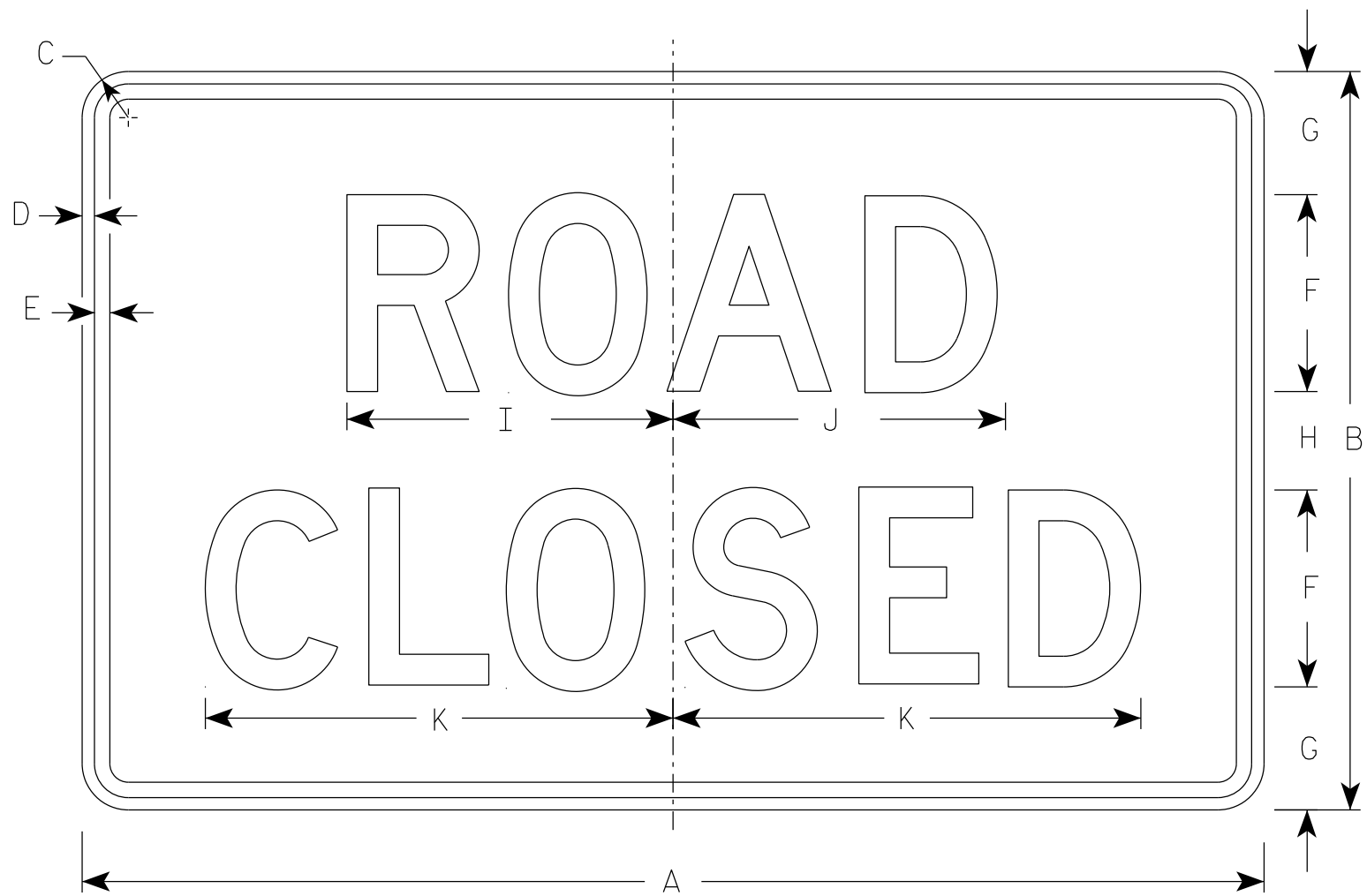
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36	24	1 1/2	1/2	5/8	4	5 1/2	5	10 3/4	2	2 1/8	8 3/8	4 5/8														6.0
2S	60	30	1 7/8	1/2	5/8	6	6 1/4	5 1/2	16 5/8	5	3 3/4	13	7 3/8														12.5
2M	60	30	1 7/8	1/2	5/8	6	6 1/4	5 1/2	16 5/8	5	3 3/4	13	7 3/8														12.5
3																											
4																											
5																											

STANDARD SIGN
R10-61

WISCONSIN DEPT OF TRANSPORTATION

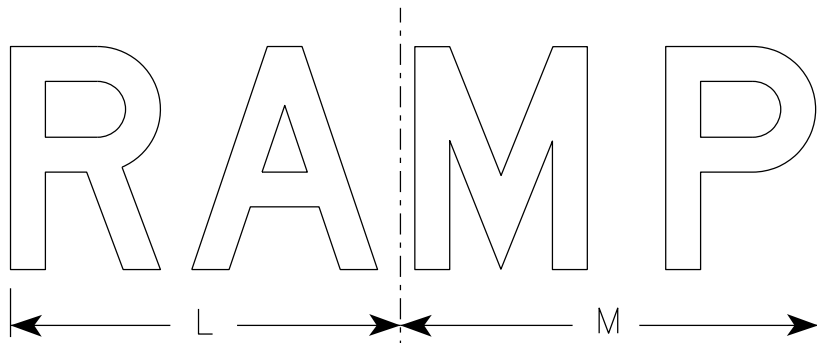
APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 2/5/24 PLATE NO. R10-61.6

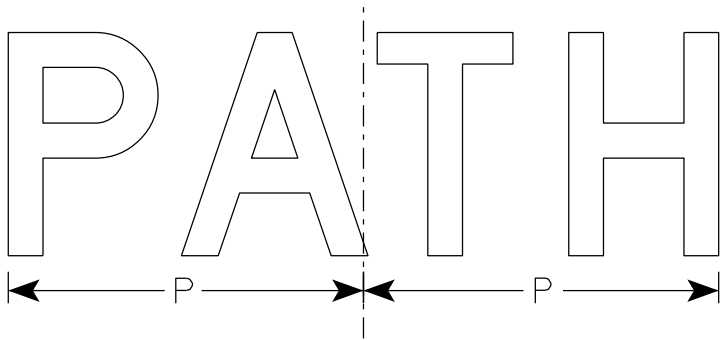


R11-2

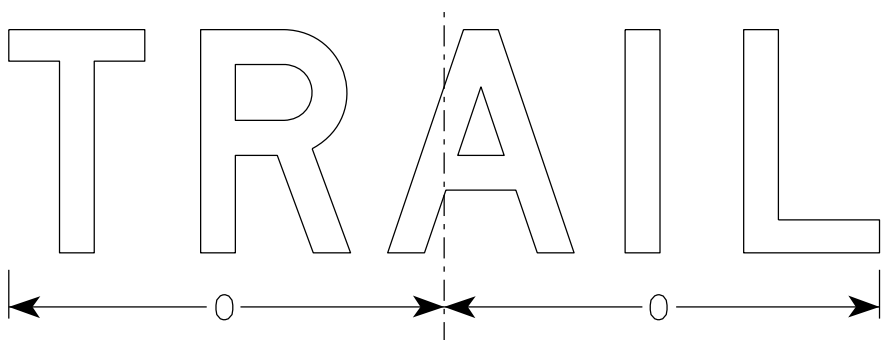
- NOTES
1. Sign is Type II - Type H Reflective
 2. Color:
Background - White
Message - Black
 3. Message Series - D
 4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
 5. Modify the message as required.



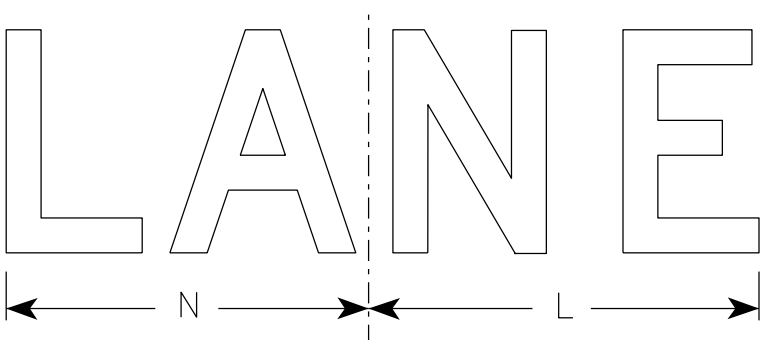
R11-2R



R11-2C



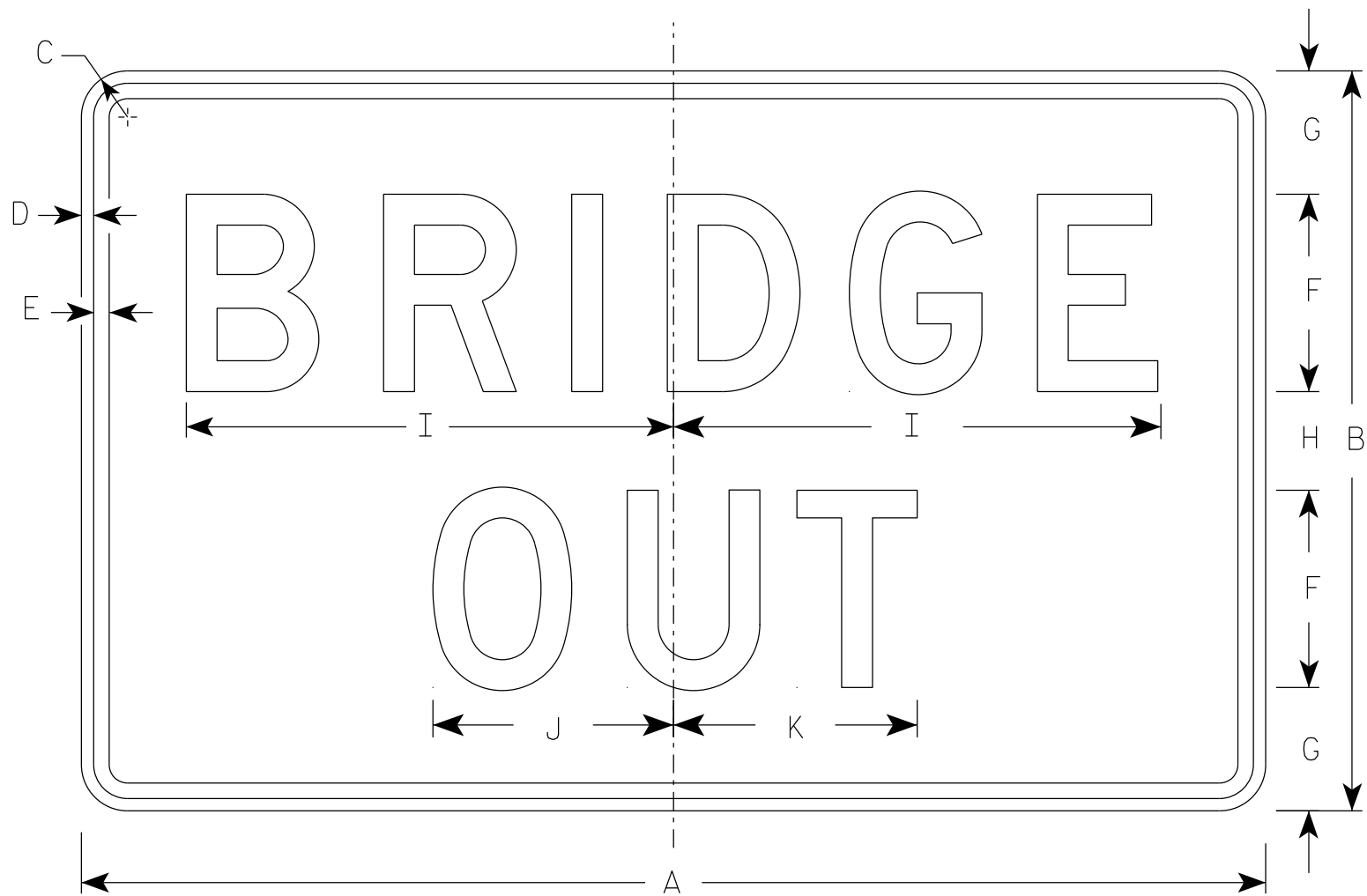
R11-2T



R11-2L

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 7⁄8	1⁄2	5⁄8	8	5	4	13 1⁄4	13 1⁄2	19	14	15	13	15 5⁄8	12 3⁄4											10.0
2M	48	30	1 7⁄8	1⁄2	5⁄8	8	5	4	13 1⁄4	13 1⁄2	19	14	15	13	15 5⁄8	12 3⁄4											10.0
3	48	30	1 7⁄8	1⁄2	5⁄8	8	5	4	13 1⁄4	13 1⁄2	19	14	15	13	15 5⁄8	12 3⁄4											10.0
4	48	30	1 7⁄8	1⁄2	5⁄8	8	5	4	13 1⁄4	13 1⁄2	19	14	15	13	15 5⁄8	12 3⁄4											10.0
5	48	30	1 7⁄8	1⁄2	5⁄8	8	5	4	13 1⁄4	13 1⁄2	19	14	15	13	15 5⁄8	12 3⁄4											10.0

STANDARD SIGN R11-2	
WISCONSIN DEPT OF TRANSPORTATION	
APPROVED	<i>Matthew R. Rauch</i> For State Traffic Engineer
DATE 2/3/26	PLATE NO. R11-2.13



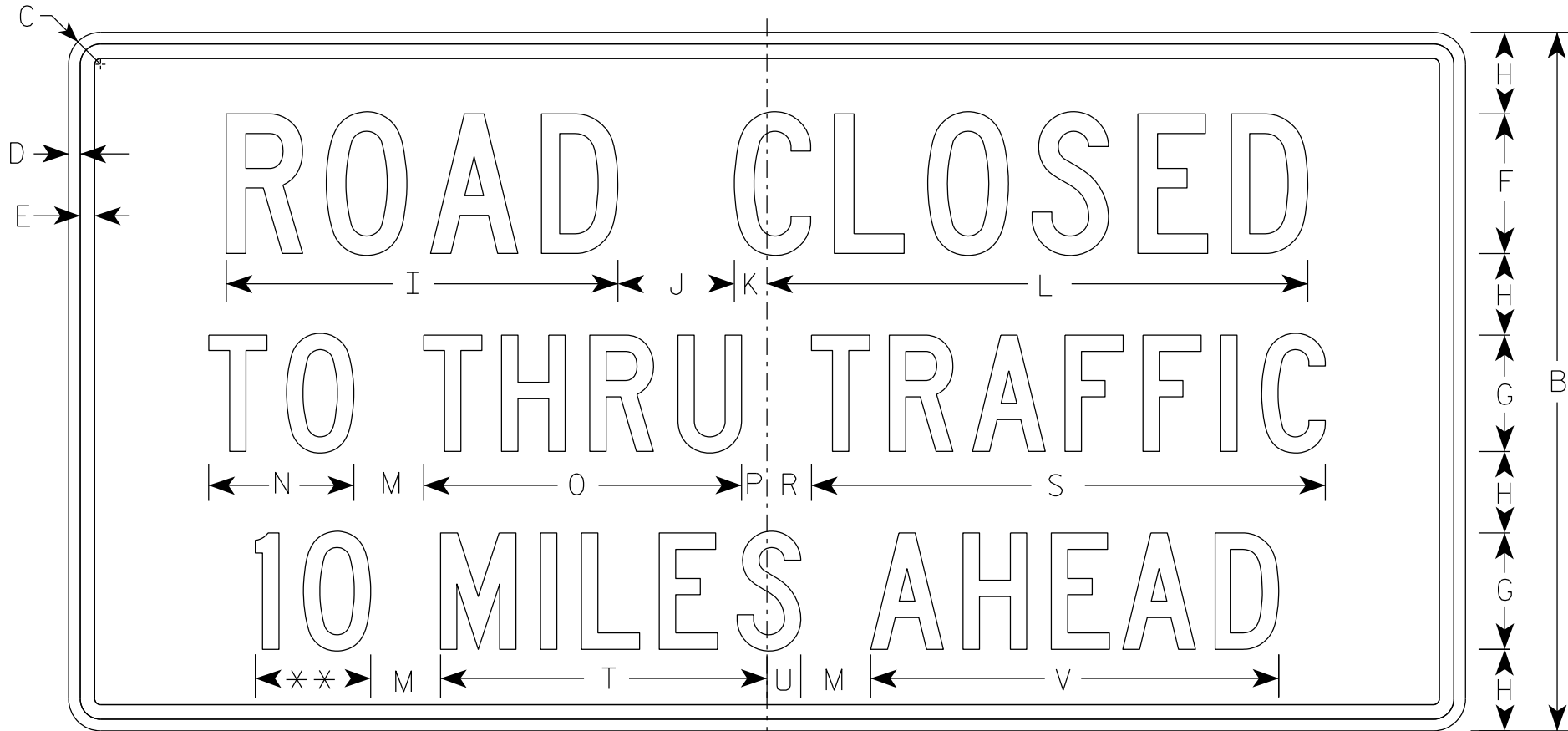
R11-2B

NOTES

- 1. Sign is Type II - Type H Reflective
- 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.

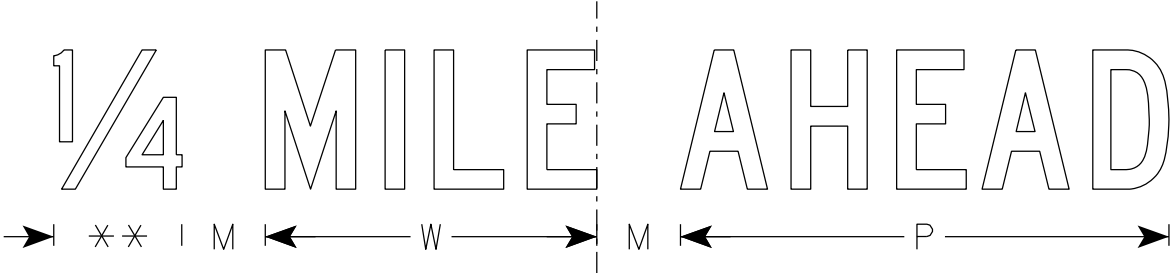
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	48	30	1 7/8	1/2	5/8	8	5	4	19 3/4	9 3/4	9 7/8																10.0
2M	48	30	1 7/8	1/2	5/8	8	5	4	19 3/4	9 3/4	9 7/8																10.0
3	48	30	1 7/8	1/2	5/8	8	5	4	19 3/4	9 3/4	9 7/8																10.0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

7



R11-3

** 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	18	1 1/2	3/8	3/8	4	3	2	11 1/4	3	1 1/8	15 3/8	2	3 3/4	8 1/4	5/8		1 3/8	13 1/4	8 3/8	7/8	10 1/2	7 1/8				4.5
2S	60	30	1 7/8	1/2	5/8	6	5	3 1/2	16 7/8	5	1 3/8	23 1/4	3	6 1/4	13 5/8	1 1/8		1 7/8	22 1/8	14	1 1/2	17 1/2	11 7/8				12.5
2M	60	30	1 7/8	1/2	5/8	6	5	3 1/2	16 7/8	5	1 3/8	23 1/4	3	6 1/4	13 5/8	1 1/8		1 7/8	22 1/8	14	1 1/2	17 1/2	11 7/8				12.5
3																											
4																											
5																											

PROJECT NO:

HWY:

COUNTY:

SHEET NO: 98

E

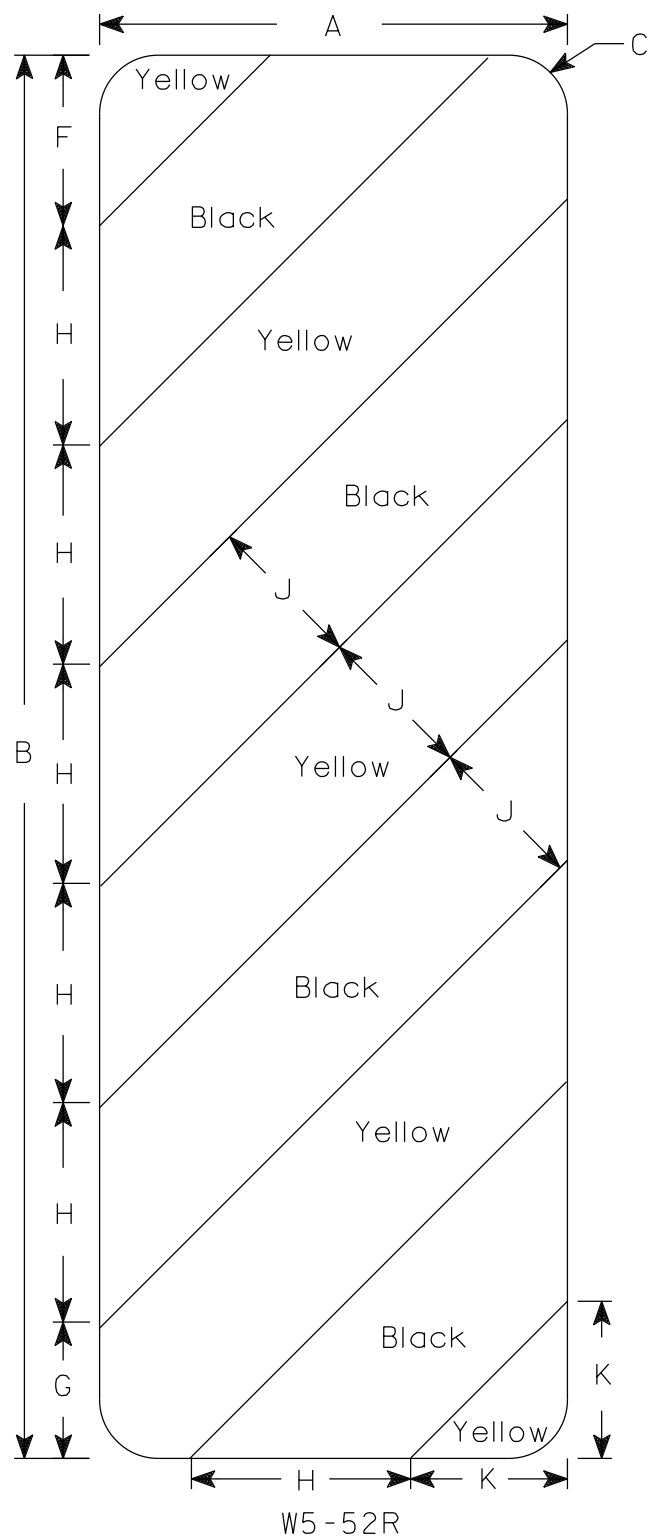
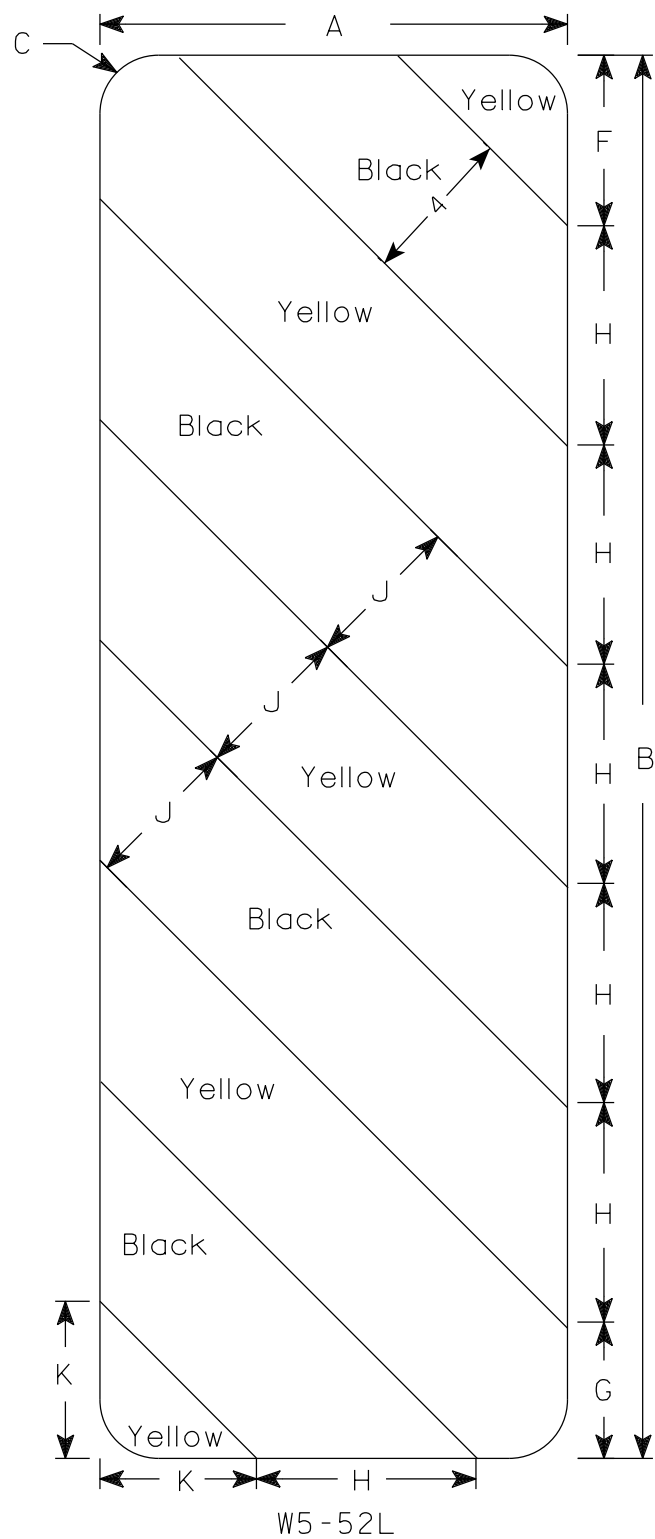
NOTES

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.

7



NOTES

- 1. Sign is Type II - Type F Reflective
- 2. Color:
 - Background - Yellow
 - Message - Black
- 3. Alternate colors of stripes as shown.

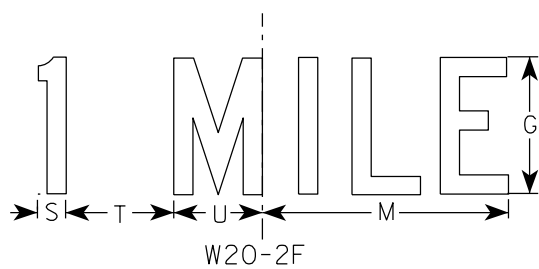
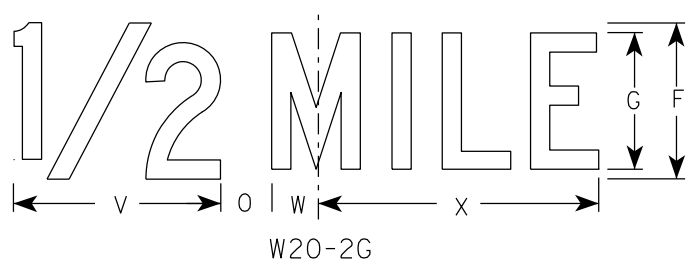
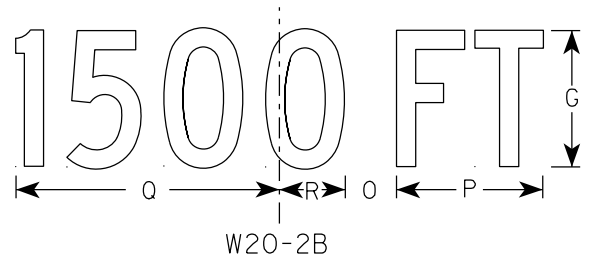
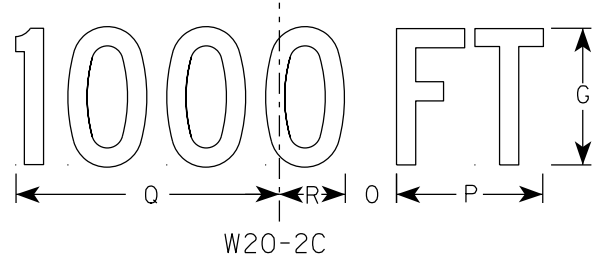
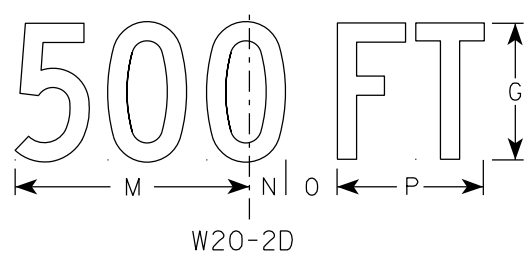
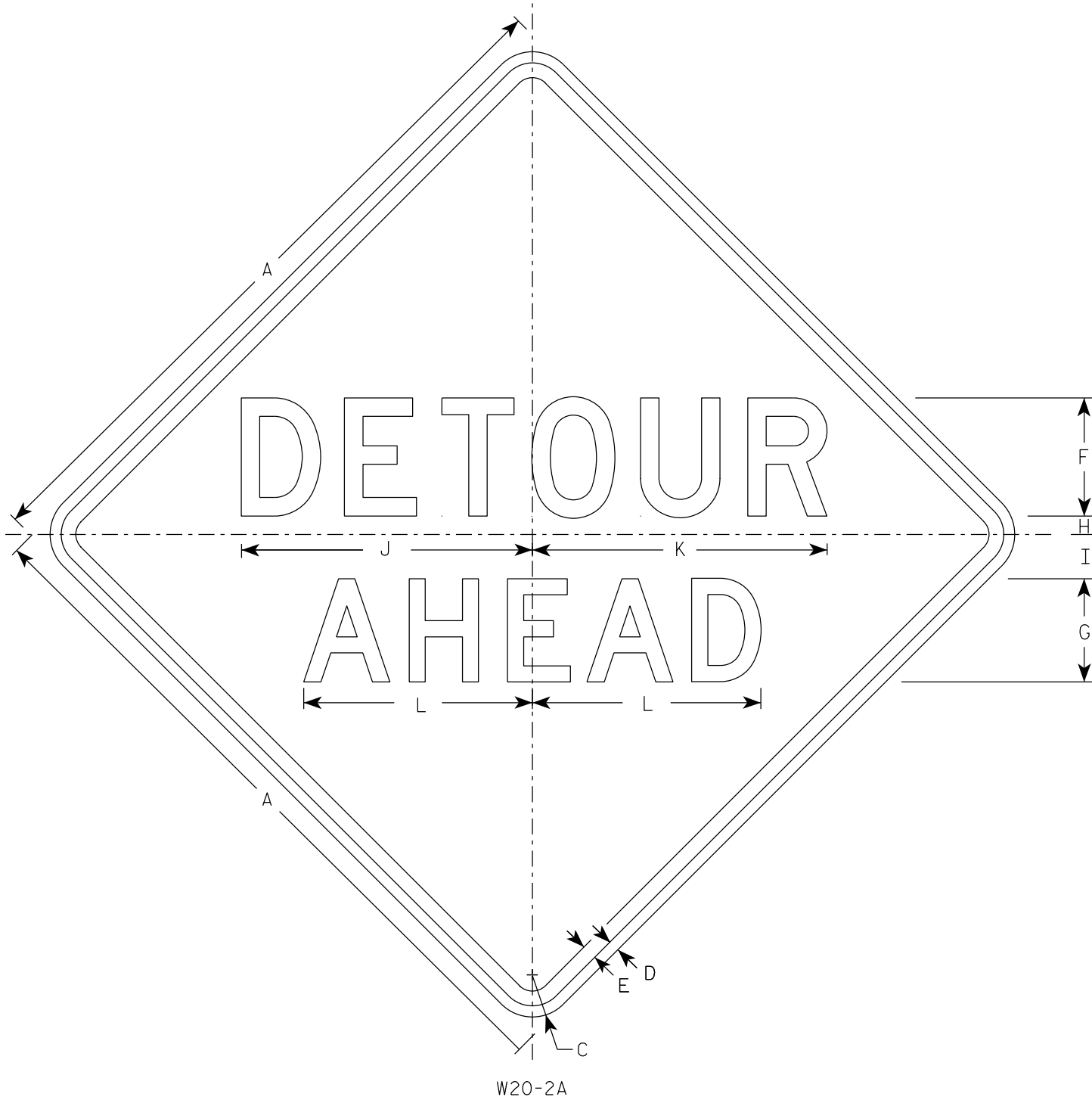
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	12	36	1 1/2			4 3/8	3 1/2	5 5/8	45°	4	4																3.0
2M	12	36	1 1/2			4 3/8	3 1/2	5 5/8	45°	4	4																3.0
3	18	54	1 1/2			6	5 1/2	8 1/2	45°	6	6 9/16																6.75
4													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

STANDARD SIGN
W5-52L & W5-52R

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
For State Traffic Engineer

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



NOTES

- Sign is Type II - Type F Reflective
- Color:
Background - Orange
Message - Black
- Message Series - See note 5
- 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.
- Line 1 is Series D.
Line 2 is Series D for AHEAD and Series C for all other distances.

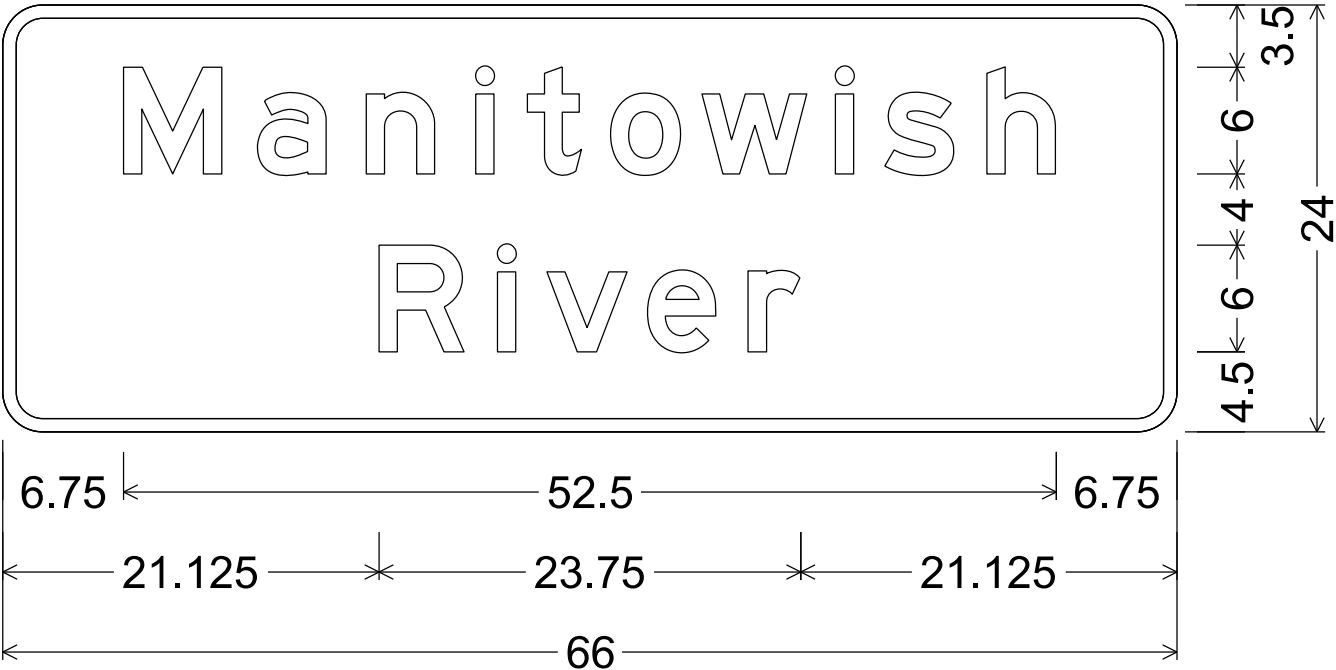
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36		2 1/4	5/8	3/4	6	5	1	2 1/4	14 3/4	15	11 5/8	9	1 3/8	1 7/8	5 5/8	10 1/8	2 1/2	1 1/8	4 1/2	3 1/2	8	1 3/4	10 3/4			9.0
2S	48		3	3/4	1	8	7	1 1/4	3	19 3/4	20	15 1/2	12	1 7/8	2 5/8	7 1/2	13 1/2	3 3/8	1 1/2	6	4 5/8	10 5/8	2 3/8	14 3/8			16.0
2M	48		3	3/4	1	8	7	1 1/4	3	19 3/4	20	15 1/2	12	1 7/8	2 5/8	7 1/2	13 1/2	3 3/8	1 1/2	6	4 5/8	10 5/8	2 3/8	14 3/8			16.0
3	48		3	3/4	1	8	7	1 1/4	3	19 3/4	20	15 1/2	12	1 7/8	2 5/8	7 1/2	13 1/2	3 3/8	1 1/2	6	4 5/8	10 5/8	2 3/8	14 3/8			16.0
4	48		3	3/4	1	8	7	1 1/4	3	19 3/4	20	15 1/2	12	1 7/8	2 5/8	7 1/2	13 1/2	3 3/8	1 1/2	6	4 5/8	10 5/8	2 3/8	14 3/8			16.0
5	48		3	3/4	1	8	7	1 1/4	3	19 3/4	20	15 1/2	12	1 7/8	2 5/8	7 1/2	13 1/2	3 3/8	1 1/2	6	4 5/8	10 5/8	2 3/8	14 3/8			16.0

STANDARD SIGN	
W20-2A,B,C,D,F & G	
WISCONSIN DEPT OF TRANSPORTATION	
APPROVED	<i>Matthew R. Rauch</i> For State Traffic Engineer
DATE 1/10/2024	PLATE NO. W20-2.7

7

NOTES

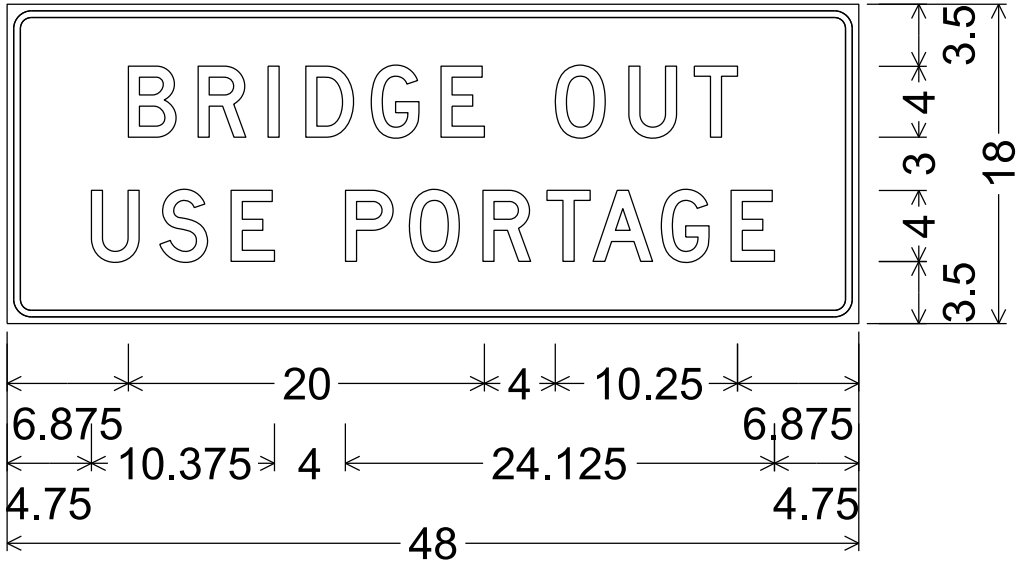
- 1. Sign is Type II - Type H Reflective
- 2. Color:
Background - Green
Message - White
- 3. Message Series - E



I3-1; 2.250" Radius, 0.750" Border

7

7

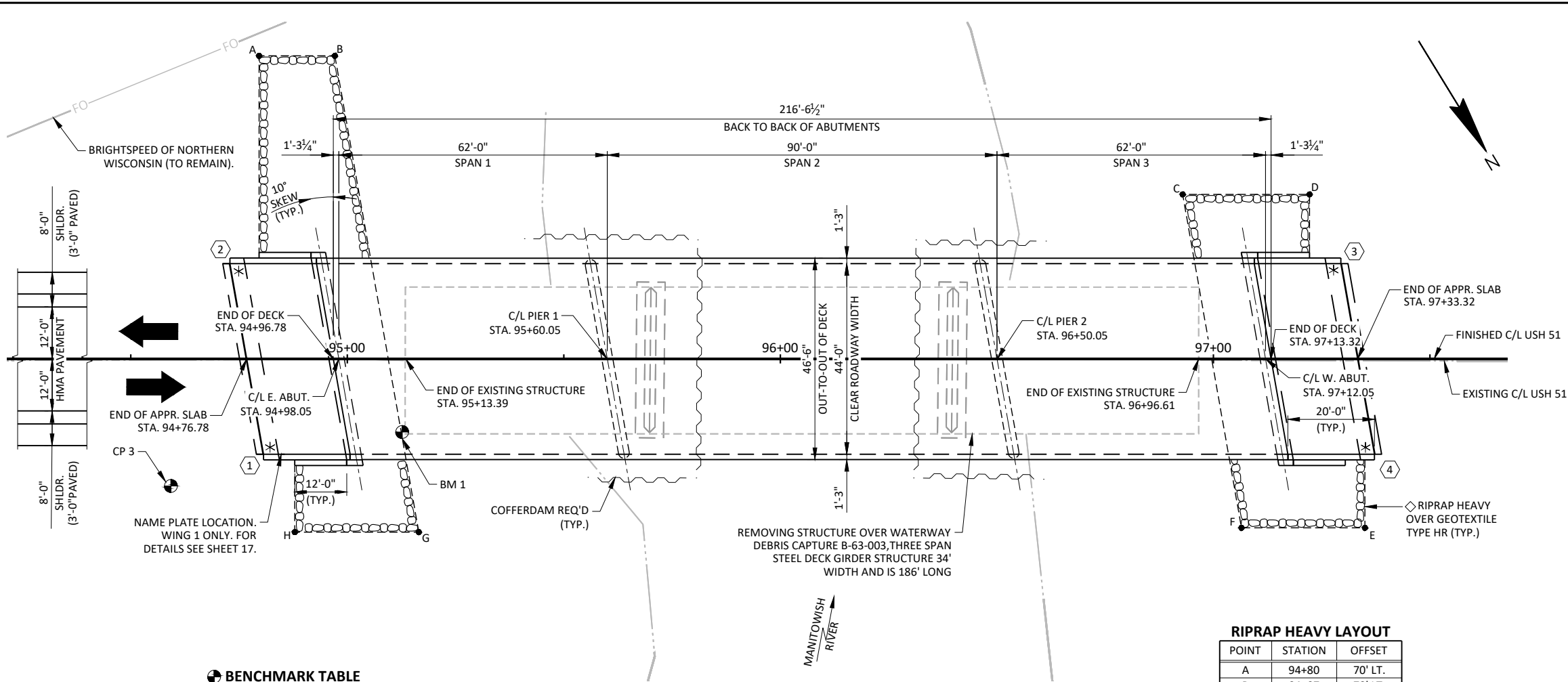


1.375" Radius, 0.375" Border, 0.375" Indent

NOTES

- 1. FMS sign Type II - Type F Reflective
- 2. Color:
 - Background - Orange
 - Message - Black
- 3. Message Series - D

7



BENCHMARK TABLE

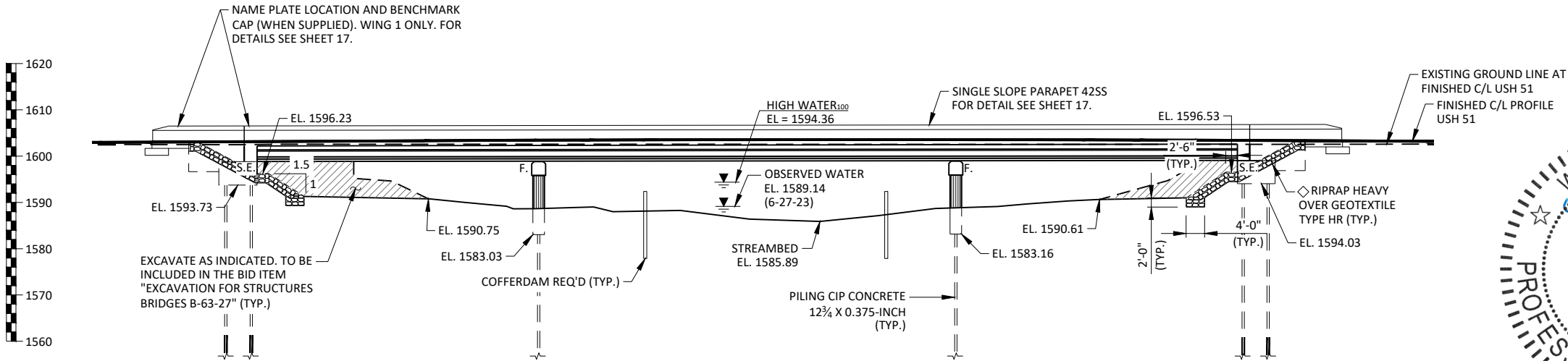
NO.	STA.	DESCRIPTION	ELEV.
BM 1	101+62	CAPPED IRON REBAR FOUND, 44.6' LT	1601.85
BM 2	94+17	3/4" IRON REBAR SET, 25.6' LT.	1601.64
BM 3	94+59	3/4" IRON REBAR SET, 29.3' RT.	1599.90
BM 11	95+13	BRASS DISK NE WINGWALL B-63-003, 16.9 RT.	1602.51
BM 12	97+70	BENCH TIE FOUND IN RED PINE, 76.1' LT.	1601.04

PLAN B-63-27
(THREE-SPAN 36W PRESTRESSED CONCRETE GIRDER STRUCTURE)

- INDICATES WING NUMBER
- * ANCHOR ASSEMBLY FOR STEEL PLATE BEAM GUARD
- ◇ VOIDS IN THE RIPRAP HEAVY SHALL BE FILLED CONSISTENT WITH THE INFILL RIPRAP B-63-27 SPECIFICATION. COST OF THE STONE IS PAID FOR UNDER BID ITEM "INFILL RIPRAP B-63-27". ENTIRE SURFACE OF RIPRAP HEAVY TO BE COVERED.

RIPRAP HEAVY LAYOUT

POINT	STATION	OFFSET
A	94+80	70' LT.
B	94+97	70' LT.
C	96+93	38' LT.
D	97+22	38' LT.
E	97+35	39' RT.
F	97+06	39' RT.
G	95+17	40' RT.
H	94+88	40' RT.



ELEVATION
(NORMAL TO MANITOWISH RIVER)

DESIGN DATA

LIVE LOAD:

DESIGN LOADING _____ HL-93
INVENTORY RATING FACTOR _____ RF=1.23
OPERATING RATING FACTOR _____ RF=1.84
WISCONSIN STANDARD PERMIT VEHICLE (WIS-SPV) _____ 250 KIPS

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

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 _____ fy = 60,000 P.S.I.
36W-INCH PRESTRESSED GIRDER
CONCRETE MASONRY _____ f'c = 8,000 P.S.I.
STRANDS 0.6 INCH DIA. WITH
ULTIMATE TENSILE STRENGTH _____ fy = 270,000 P.S.I.
ALLOWABLE SOIL BEARING PRESSURE _____ 2,000 P.S.F.

FOUNDATION DATA

ABUTMENTS TO BE SUPPORTED ON PILING CIP CONCRETE 12¾ X 0.375-INCH DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 190 TONS** PER PILE. ESTIMATE PILE LENGTHS OF 55' AT EAST ABUTMENT AND 45' OF WEST ABUTMENT.

PIERS TO BE SUPPORTED ON PILING CIP CONCRETE 12¾ X 0.375-INCH DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 210 TONS** PER PILE. ESTIMATE PILE LENGTHS OF 50' AT PIER 1 AND 45' AT PIER 2.

**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.D.T. (2027) _____ 2,410
A.D.T. (2047) _____ 2,410
DESIGN SPEED _____ 60 M.P.H.

HYDRAULIC DATA

100 YEAR FREQUENCY
DRAINAGE AREA _____ 235 SQ. MI.
Q₁₀₀ TOTAL _____ 1,880 C.F.S.
THROUGH STRUCTURE _____ 1,880 C.F.S.
OVERTOPPING ROADWAY _____ N/A
VELOCITY - THROUGH STRUCTURE _____ 1.9 F.P.S.
WATERWAY AREA - THROUGH STRUCTURE _____ 987 SQ. FT.
HIGH WATER₁₀₀ ELEVATION _____ 1594.36
SCOUR CRITICAL CODE _____ 8
EROSION CONTROL
Q₂ _____ 695 C.F.S.
VELOCITY₂ _____ 1.7 F.P.S.
HIGH WATER₂ ELEVATION _____ 1591.35

LIST OF DRAWINGS

GENERAL PLAN _____ 1.
CROSS SECTION AND QUANTITIES _____ 2.
SUBSURFACE EXPLORATION _____ 3.
EAST ABUTMENT _____ 4.
EAST ABUTMENT DETAILS _____ 5.
WEST ABUTMENT _____ 6.
WEST ABUTMENT DETAILS _____ 7.
ABUTMENT DETAILS _____ 8.
PIER 1 _____ 9.
PIER 2 _____ 10.
GIRDER LAYOUT _____ 11.
36W PRESTRESSED GIRDER DETAILS _____ 12.
STEEL DIAPHRAGM _____ 13.
SUPERSTRUCTURE _____ 14.
SUPERSTRUCTURE DETAILS _____ 15.
STRUCTURAL APPROACH SLAB _____ 16.
SINGLE SLOPE PARAPET 42SS _____ 17.



DESIGN CONSULTANT
COLTON PEPER, PE
(608) 588-7484

BRIDGE OFFICE CONTACT
AARON BONK, PE
(608) 261-0261

STATE PROJECT NUMBER
1170-22-70

NO. DATE REVISION BY

JEWELL
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
ACCEPTED *[Signature]* JLR 05/11/26
CHIEF STRUCTURES DESIGN ENGINEER DATE

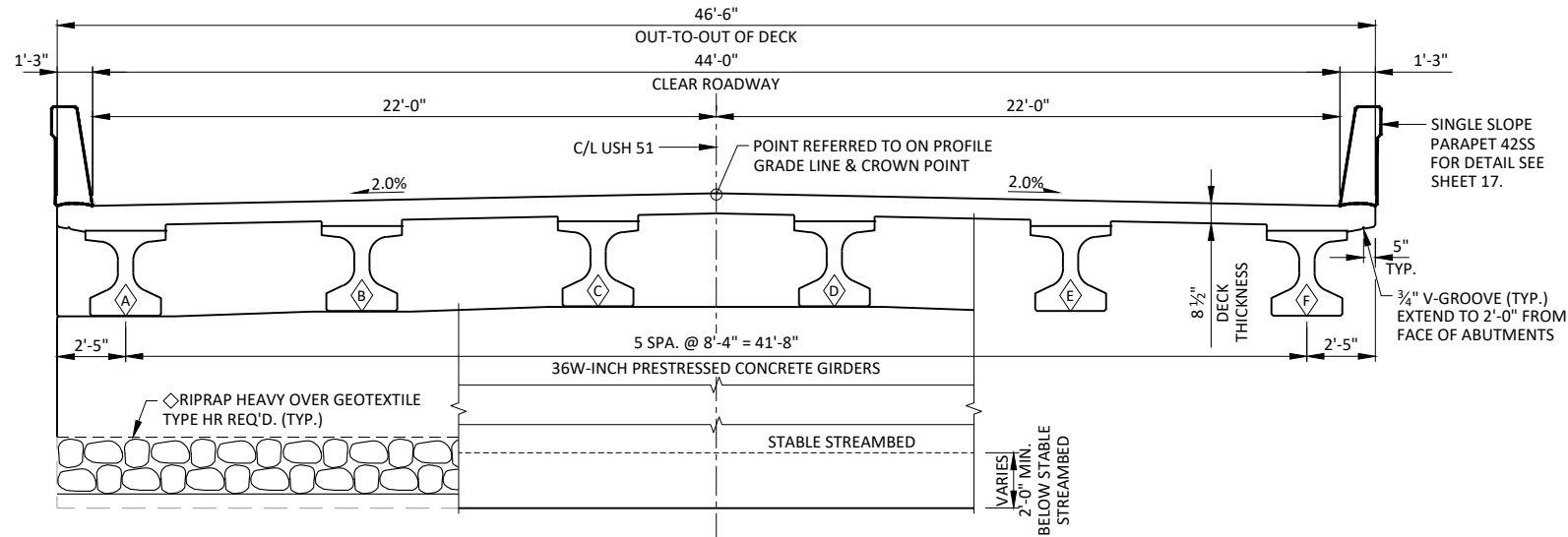
STRUCTURE B-63-27
USH 51 OVER MANITOWISH RIVER

COUNTY VILAS TOWN/CITY/VILLAGE MANITOWISH WATERS

DESIGN SPEC. AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS

DESIGNED BY CTMP DESIGN CK'D. PTB DRAWN BY CTMP PLANS CK'D. PTB

GENERAL PLAN
SHEET 1 OF 17
103

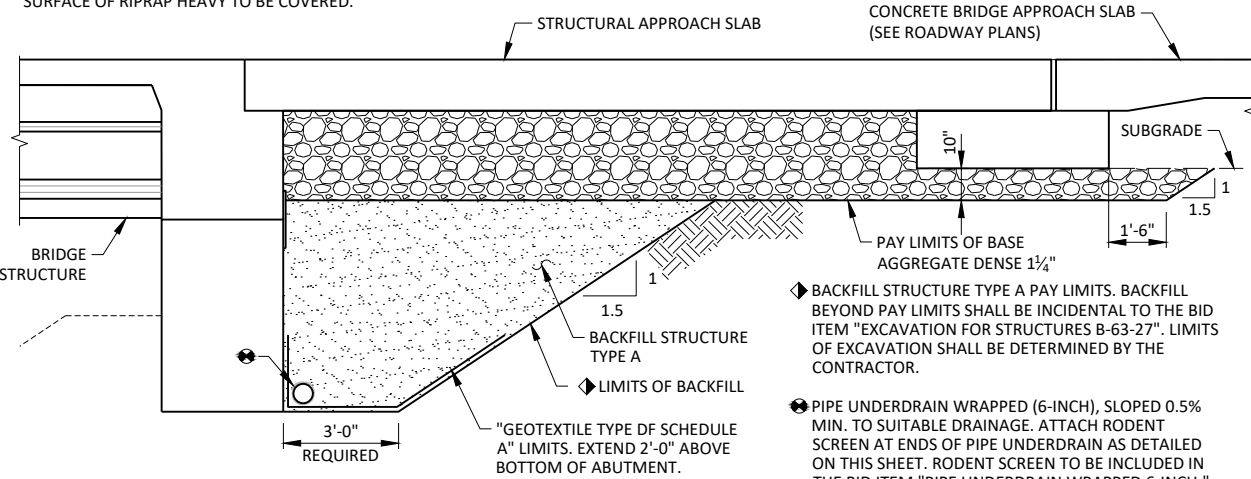


AT ABUTMENT **AT PIER** **IN SPAN**

◇ VOIDS IN THE RIPRAP HEAVY SHALL BE FILLED CONSISTENT WITH THE INFILL RIPRAP B-63-27 SPECIFICATION. COST OF THE STONE IS PAID FOR UNDER BID ITEM "INFILL RIPRAP B-63-27". ENTIRE SURFACE OF RIPRAP HEAVY TO BE COVERED.

PROPOSED CROSS-SECTION THROUGH ROADWAY

LOOKING WEST



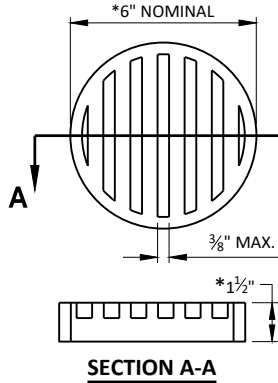
BACKFILL STRUCTURE DETAIL

(TYPICAL AT ABUTMENTS. ABUTMENT BODY SHOWN - WING WALLS SIMILAR)

TOTAL ESTIMATED QUANTITIES

ITEM NUMBER	ITEM DESCRIPTION	UNIT	E. STRUCTURAL APPR. SLAB	EAST ABUT.	PIER 1	PIER 2	WEST ABUT.	W. STRUCTURAL APPR. SLAB	* SUPER	TOTALS
203.0270	REMOVING STRUCTURE OVER WATERWAY DEBRIS CAPTURE (B-63-003)	EACH	--	--	--	--	--	--	--	1
206.1001	EXCAVATION FOR STRUCTURES BRIDGES B-63-27	EACH	--	--	--	--	--	--	--	1
206.5001	COFFERDAMS B-63-27	EACH	--	--	--	--	--	--	--	1
210.1500	BACKFILL STRUCTURE TYPE A	TON	--	130	--	--	130	--	--	260
305.0120	BASE AGGREGATE DENSE 1 1/4-INCH	TON	140	--	--	--	140	--	--	280
502.0100	CONCRETE MASONRY BRIDGES	CY	59.0	45.7	69.9	69.9	45.7	59.0	418.8	768
502.3200	PROTECTIVE SURFACE TREATMENT	SY	110	--	--	--	--	110	1,085	1,305
502.3210	PIGMENTED SURFACE SEALER	SY	--	--	--	--	--	--	250	250
502.9000.S	UNDERWATER SUBSTRUCTURE INSPECTION B-63-27	EACH	--	--	1	1	--	--	--	2
503.0137	PRESTRESSED GIRDER TYPE I 36W-INCH	LF	--	--	--	--	--	--	1,287	1,287
505.0400	BAR STEEL REINFORCEMENT HS STRUCTURES	LB	--	3,290	4,170	4,170	3,290	--	--	14,920
505.0600	BAR STEEL REINFORCEMENT HS COATED STRUCTURES	LB	9,700	1,160	50	50	1,160	9,700	93,030	114,850
505.0800.S	BAR STEEL REINFORCEMENT HS STAINLESS STRUCTURES	LB	800	--	--	--	--	800	--	1,600
506.2605	BEARING PADS ELASTOMERIC NON-LAMINATED	EACH	--	6	12	12	6	--	--	36
506.4000	STEEL DIAPHRAGMS B-63-27	EACH	--	--	--	--	--	--	20	20
516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	--	10	--	--	10	--	--	20
550.2126	PILING CIP CONCRETE 12 3/4 X 0.375-INCH	LF	--	495	650	585	405	--	--	2,135
606.0300	RIPRAP HEAVY	CY	--	190	--	--	140	--	--	330
612.0406	PIPE UNDERDRAIN WRAPPED 6-INCH	LF	--	125	--	--	95	--	--	220
614.0150	ANCHOR ASSEMBLIES FOR STEEL PLATE BEAM GUARD	EACH	--	--	--	--	--	--	4	4
645.0111	GEOTEXTILE TYPE DF SCHEDULE A	SY	--	45	--	--	45	--	--	90
645.0120	GEOTEXTILE TYPE HR	SY	--	300	--	--	220	--	--	520
SPV.0195	INFILL RIPRAP B-63-27	TON	--	85	--	--	65	--	--	150
NON-BID ITEMS										
FILLER		SIZE							1/2" & 3/4"	
NAME PLATE										

* THE SUPERSTRUCTURE QUANTITIES INCLUDE THE CONCRETE AND BAR STEEL REINFORCEMENT OF THE PARAPETS INCLUDING THOSE PORTIONS LOCATED ON THE STRUCTURAL APPROACH SLABS.



RODENT SCREEN

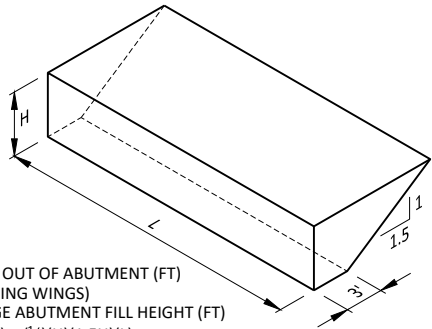
NOTES:

* RODENT SCREEN DIMENSIONS ARE APPROXIMATE. THE GRATE IS SIZED TO FIT INTO A PIPE COUPLING.

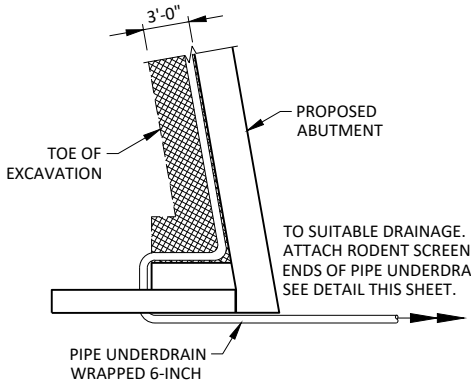
ORIENT SCREEN SO SLOTS ARE VERTICAL.

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

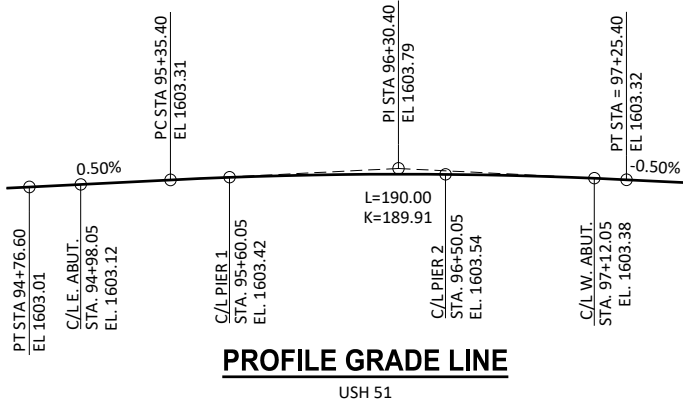
THE RODENT SCREEN SHALL BE A PVC GRATE SIMILAR TO THIS DETAIL. THE GRATE IS COMMERCIALY AVAILABLE AS A FLOOR STRAINER. A PIPE COUPLING IS REQUIRED FOR THE ATTACHMENT OF THIS SCREEN TO THE EXPOSED ENDS OF THE PIPE UNDERDRAIN. THE SCREEN SHALL BE FASTENED TO THE PIPE COUPLING WITH TWO OR MORE NO. 10 X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



ABUTMENT BACKFILL DIAGRAM



PIPE UNDERDRAIN DETAIL



GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

ELEVATIONS SHOWN ON THE PLAN ARE REFERENCED TO THE NORTH AMERICA VERTICAL DATUM OF 1988 (NAVD 2012).

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

JOINT FILLER SHALL CONFORM TO A.A.S.H.T.O. DESIGNATION MI53, TYPE I, II OR III OR A.A.S.H.T.O. DESIGNATION M213.

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.

THE SLOPE OF FILL IN FRONT OF THE ABUTMENTS SHALL BE COVERED WITH RIPRAP HEAVY, INFILL RIPRAP B-63-27, AND GEOTEXTILE TYPE HR TO THE EXTENT SHOWN ON SHEET 1 AND IN THE ABUTMENT DETAILS, OR AS DIRECTED BY THE ENGINEER IN THE FIELD.

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. SEE THIS SHEET FOR DETAIL.

ANY EXCAVATION BELOW THE ABUTMENT AND ASSOCIATED ABUTMENT BEDDING MATERIALS REQUIRE THE APPROVAL OF THE ENGINEER IN THE FIELD.

APPLY PROTECTIVE SURFACE TREATMENT TO THE TOP OF THE DECK, TOP OF STRUCTURAL APPROACH SLABS, AND THE VERTICAL AND HORIZONTAL FACES OF ALL PAVING NOTCHES .

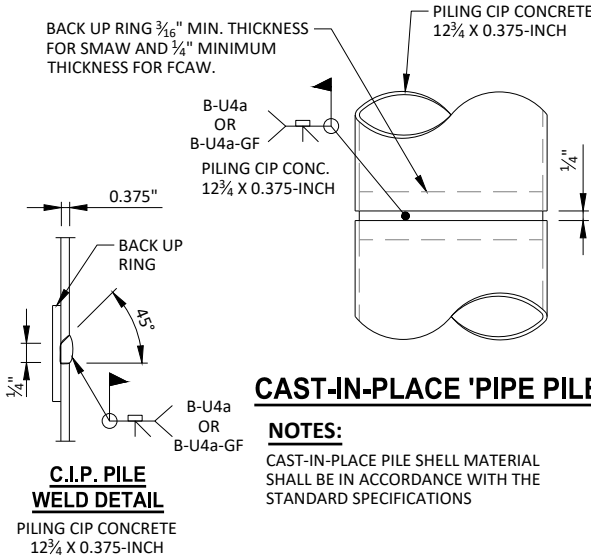
APPLY PIGMENTED SURFACE SEALER TO THE FRONT FACE, TOP, AND ENDS OF PARAPETS INCLUDING PARAPETS ON THE STRUCTURAL APPROACH SLABS.

ALL STATIONS AND ELEVATIONS SHOWN ARE IN FEET.

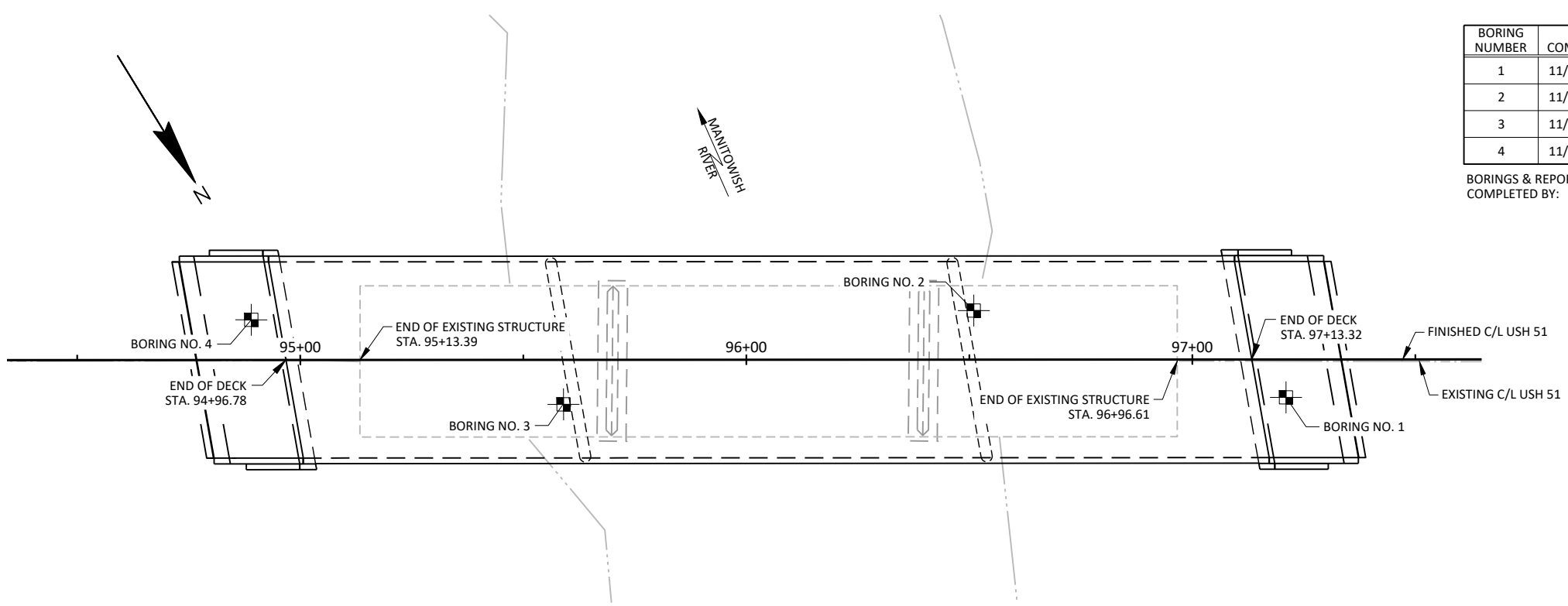
THE UPPER LIMITS OF "EXCAVATION FOR STRUCTURES BRIDGES B-63-27" SHALL BE THE EXISTING GROUNDLINE.

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

THE EXISTING STRUCTURE (B-63-003) IS A THREE SPAN STEEL DECK GIRDER STRUCTURE WITH CONCRETE PIERS AND ABUTMENTS. THE STRUCTURE HAS A 32' CLEAR BRIDGE WIDTH AND IS 186' LONG AND SHALL BE REMOVED.



NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-63-27			
DRAWN BY		CTMP	PLANS CK'D. PTB
CROSS SECTION AND QUANTITIES			SHEET 2 OF 17
			104



PLAN B-63-27

SOIL BORINGS			
BORING NUMBER	DATE COMPLETED	NORTHING (Y)	EASTING (X)
1	11/29/2023	187,111.31	333,690.57
2	11/29/2023	187,058.11	333,740.08
3	11/30/2023	187,027.96	333,829.50
4	11/28/2023	186,975.20	333,879.26

BORINGS & REPORT COMPLETED BY: AMERICAN ENGINEERING TESTING, INC.
4203 SCHOFIELD AVE, SUITE 1
SCHOFIELD, WI 54476

STATE PROJECT NUMBER

1170-22-70

MATERIAL SYMBOLS

Asphalt

Concrete

Sand

Boulders or Cobbles

Shale

Topsoil

Fill

Clay

Limestone

Sandstone

Peat

Gravel

Silt

Bedrock (unknown)

Igneous/ meta

LEGEND OF BORING

BORING/EL STA./OFFSET

ST

0.25

(1) 17 (2)

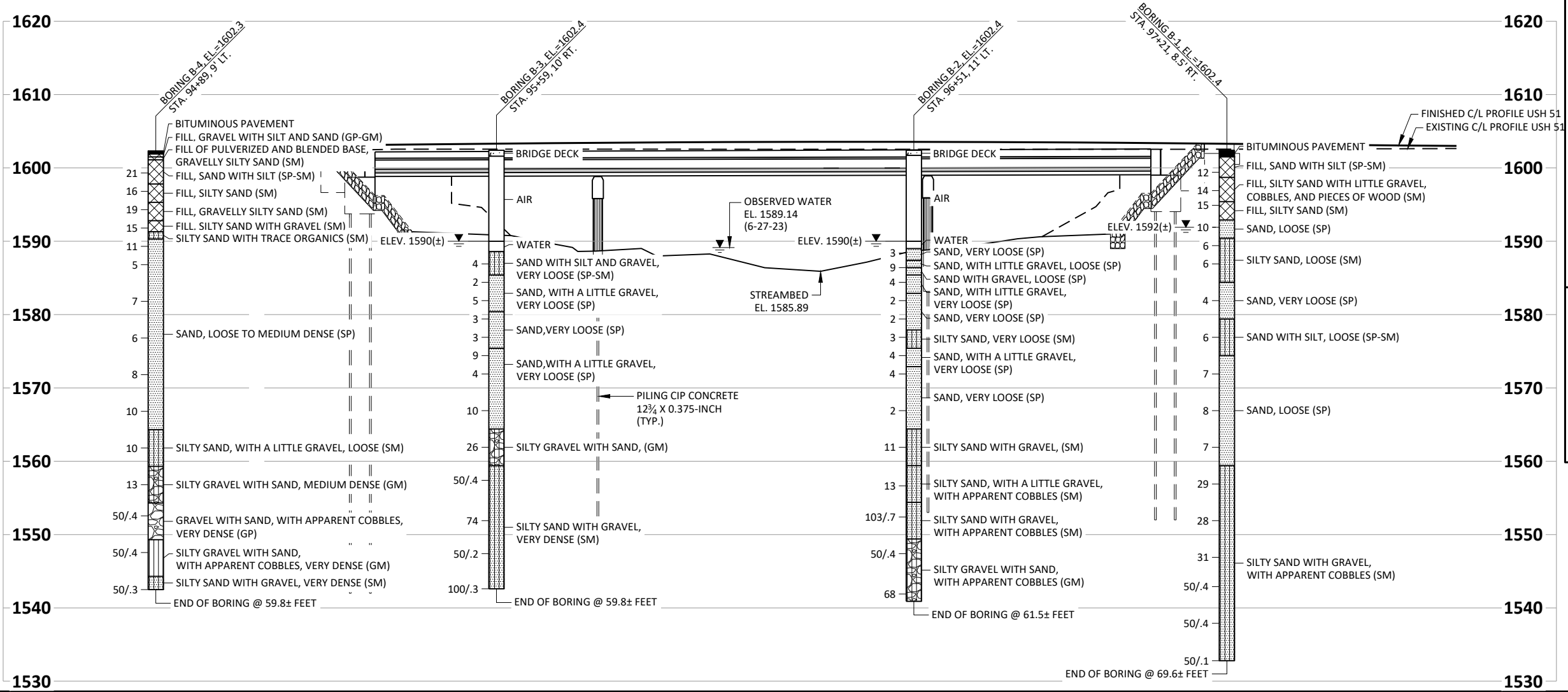
F-C COBBLE OR BOULDER

WEATHERED LIMESTONE

CORE RUN #1 - 24'-29' REC=80%, RQD=72%

(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 ELEVATIONS

AT TIME OF DRILLING

END OF DRILLING

AFTER DRILLING

ABBREVIATIONS

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

SUBSURFACE EXPLORATION FOR FOUNDATION DESIGN AND BIDDERS INFORMATION

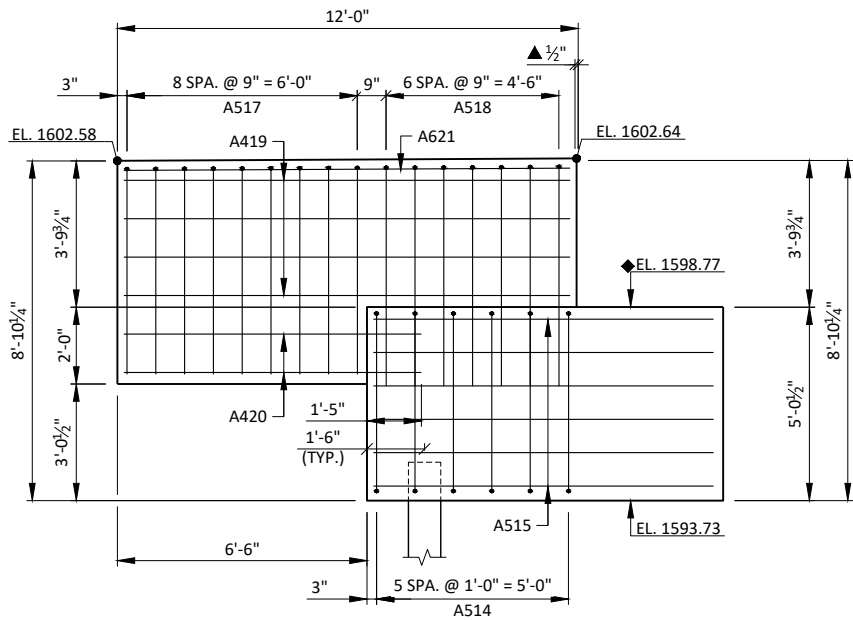
BORINGS WERE COMPLETED AT POINTS APPROXIMATELY AS INDICATED ON THIS DRAWING TO OBTAIN INFORMATION CONCERNING THE CHARACTER OF SUBSURFACE MATERIALS FOUND AT THE SITE. BECAUSE THE INVESTIGATED DEPTHS ARE LIMITED AND THE AREA OF THE BORINGS IS VERY SMALL IN RELATION TO THE ENTIRE SITE, THE WISCONSIN DEPARTMENT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

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-63-27			
DRAWN BY		CTMP	PLANS CK'D. PTB
SUBSURFACE EXPLORATION		SHEET 3 OF 17	
		105	

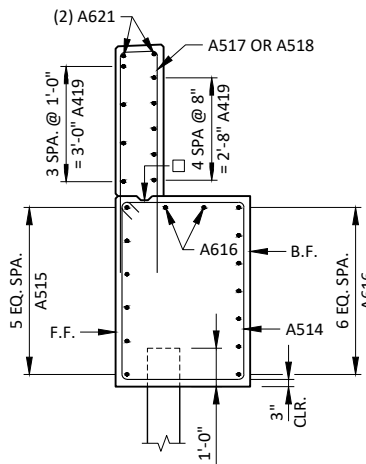


LAYOUT

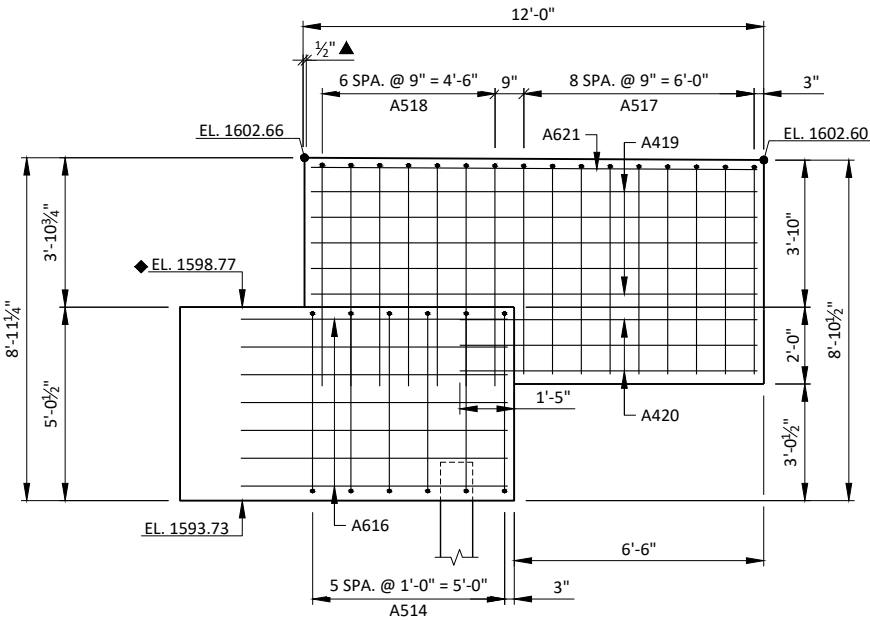
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-63-27			
DRAWN BY		CTMP	PLANS CK'D. PTB
EAST ABUTMENT		SHEET 4 OF 17 106	



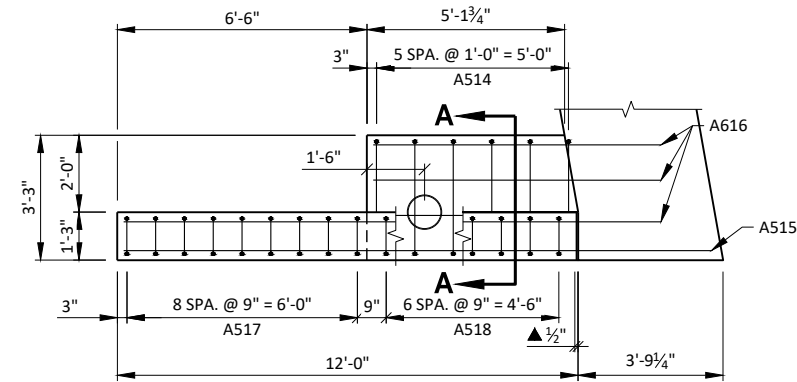
F.F. ELEVATION - WING 1



SECTION A-A



B.F. ELEVATION - WING 1



PLAN VIEW - WING 1

LEGEND

OPTIONAL KEYED CONSTRUCTION JOINT FORMED BY SURFACED & BEVELED 2x6. 3/4" "V" GROOVE AT FRONT FACE OF WING WALL AND HORIZONTAL 18" RUBBERIZED MEMBRANE WATERPROOFING AT BACK FACE IF CONSTRUCTION JOINT IS USED. COST IS INCIDENTAL TO THE BID ITEM "CONCRETE MASONRY BRIDGES".

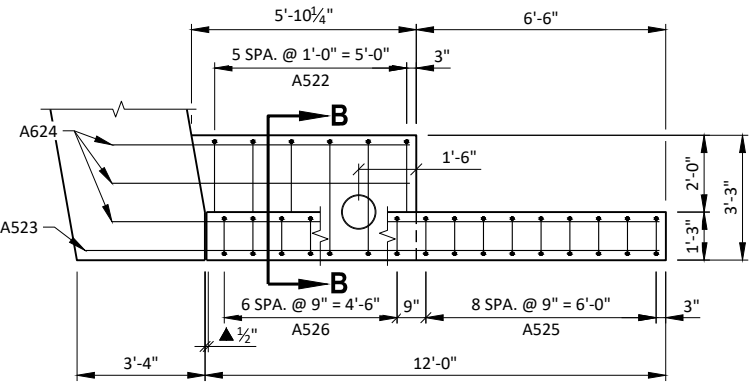
GIRDER SEAT. SEE SHEET 8 FOR ELEVATIONS.

1/2" FILLER EXTEND AS SHOWN. SEAL ALL EXPOSED HORIZ. & VERT. SURFACES OF FILLER WITH NON-STAINING GRAY, NON-BITUMINOUS JOINT SEALER (1" DEEP AND HOLD 1/8" BELOW SURFACE OF CONCRETE).

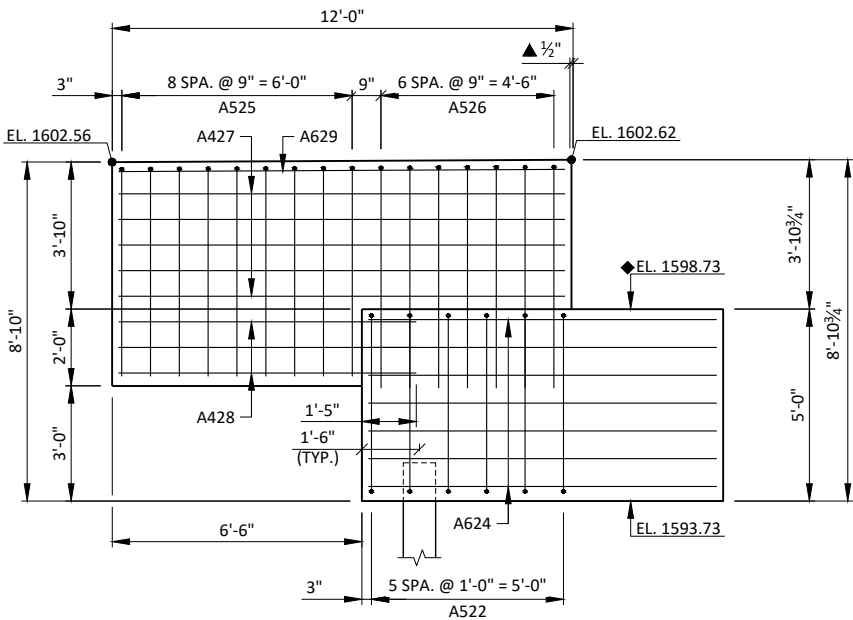
NOTES

SOME BARS HAVE BEEN OMITTED FOR CLARITY. SEE SHEET 8 FOR BILL OF BARS.

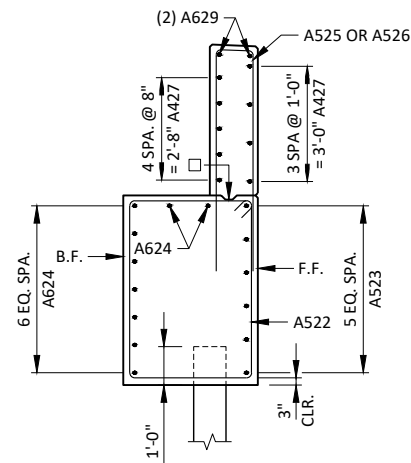
SPACE REINFORCEMENT TO MISS PILING



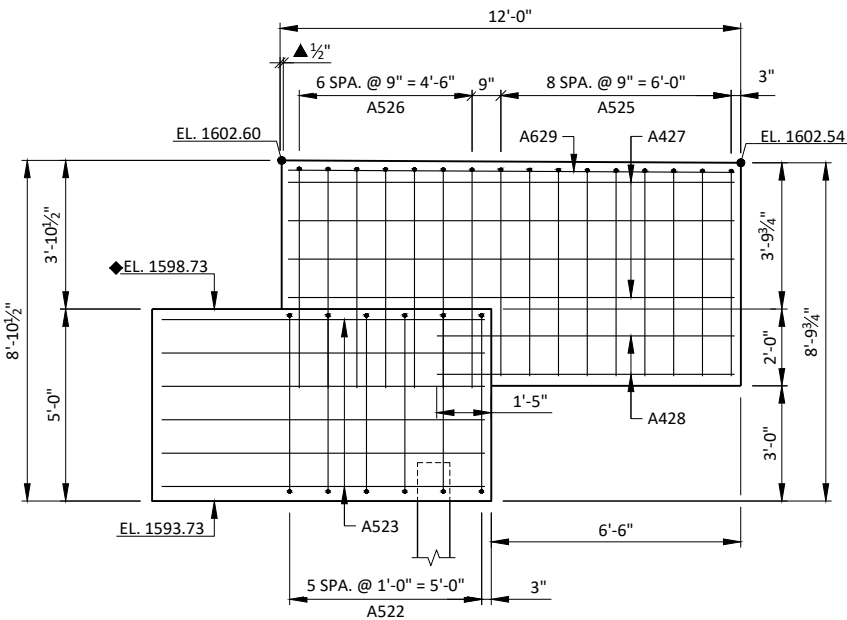
PLAN VIEW - WING 2



B.F. ELEVATION - WING 2



SECTION B-B



F.F. ELEVATION - WING 2

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-63-27			
DRAWN BY		CTMP	PLANS CK'D. PTB
EAST ABUTMENT DETAILS		SHEET 5 OF 17 107	

NOTES

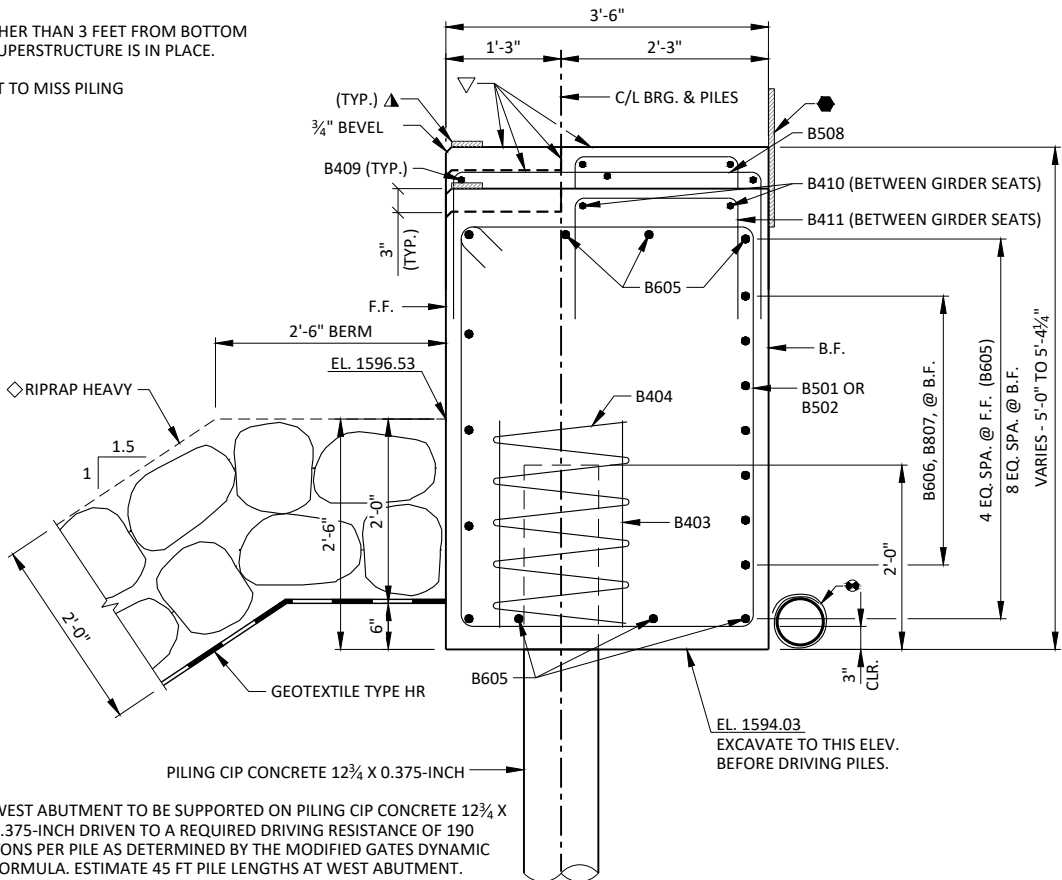
SOME BARS HAVE BEEN OMITTED FOR CLARITY. SEE SHEET 8 FOR BILL OF BARS.

DO NOT PLACE FILL HIGHER THAN 3 FEET FROM BOTTOM OF ABUTMENT UNTIL SUPERSTRUCTURE IS IN PLACE.

SPACE REINFORCEMENT TO MISS PILING

F.F. - FRONT FACE

B.F. - BACK FACE

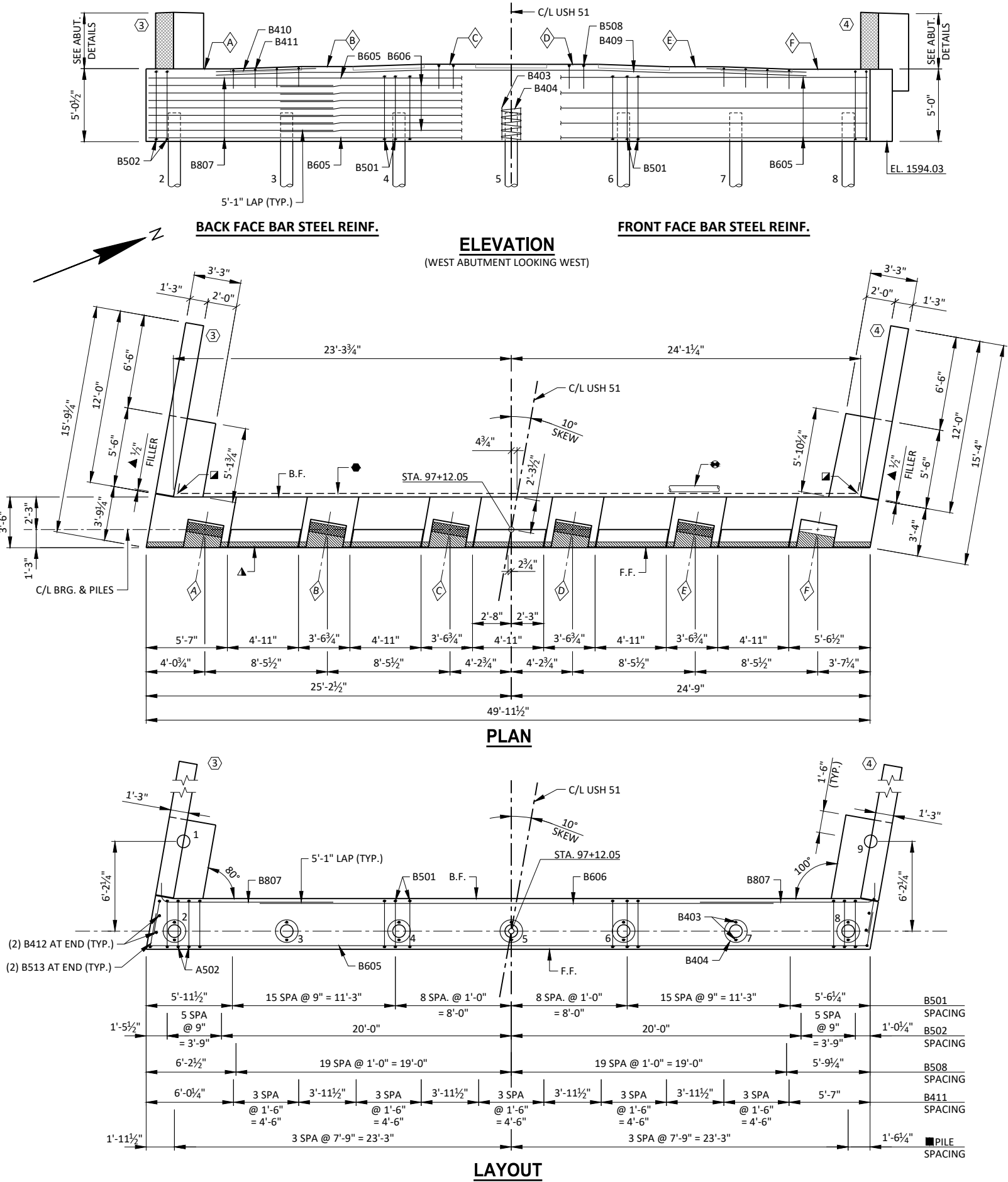


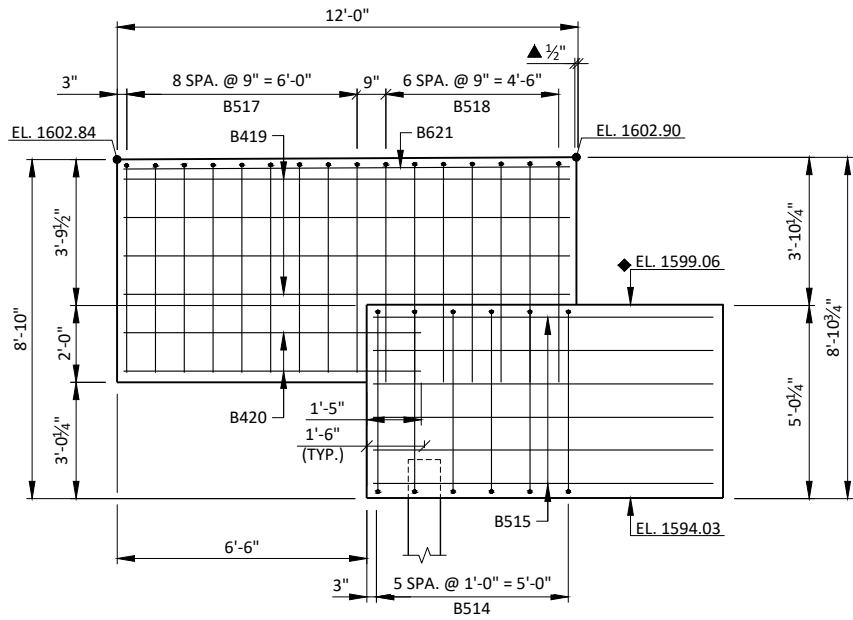
TYPICAL SECTION THROUGH ABUTMENT BODY

LEGEND

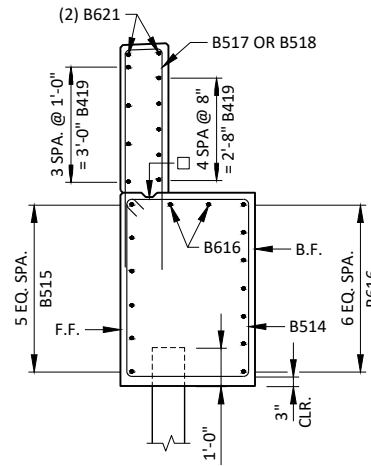
- VERTICAL 18" RUBBERIZED MEMBRANE WATERPROOFING EXTEND FROM 9" BELOW BRIDGE SEAT TO 1" BELOW TOP OF WINGS.
- 18" RUBBERIZED MEMBRANE WATERPROOFING. (HORIZONTAL)
- ½" FILLER EXTEND AS SHOWN. SEAL ALL EXPOSED HORIZ. & VERT. SURFACES OF FILLER WITH NON-STAINING GRAY, NON-BITUMINOUS JOINT SEALER. (1" DEEP & HOLD ⅙" BELOW SURFACE OF CONCRETE)
- ½" x 4" PREFORMED FILLER, EXTEND FULL LENGTH OF ABUTMENTS BETWEEN EDGES OF DIAPHRAGM. USE ½" PREFORMED FILLER UNDER GIRDERS.
- PILE SPACING MEASURED AT BASE OF ABUTMENT BODY.
- STEEL TROWEL TOP SURFACE OF ABUTMENT. PLACE MULTIPLE LAYERS OF POLYETHYLENE SHEETS OVER ENTIRE ABUTMENT TOP BEFORE PLACING BEARING PADS AND/OR SUPERSTRUCTURE. TOTAL THICKNESS OF SHEETS SHALL BE AT LEAST 0.03".
- PIPE UNDERDRAIN WRAPPED (6-INCH), SLOPED 0.5% MIN. TO SUITABLE DRAINAGE. ATTACH RODENT SCREEN AT ENDS OF PIPE UNDERDRAIN AS DETAILED ON SHEET 2. RODENT SCREEN TO BE INCLUDED IN THE BID ITEM "PIPE UNDERDRAIN WRAPPED 6-INCH."
- INDICATES WING NUMBER.
- INDICATES GIRDER LINE.
- VOIDS IN THE RIPRAP HEAVY SHALL BE FILLED CONSISTENT WITH THE INFILL RIPRAP B-63-27 SPECIFICATION. COST OF THE STONE IS PAID FOR UNDER BID ITEM "INFILL RIPRAP B-63-27". ENTIRE SURFACE OF RIPRAP HEAVY TO BE COVERED.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-63-27			
DRAWN BY		CTMP	PLANS CK'D. PTB
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		108	

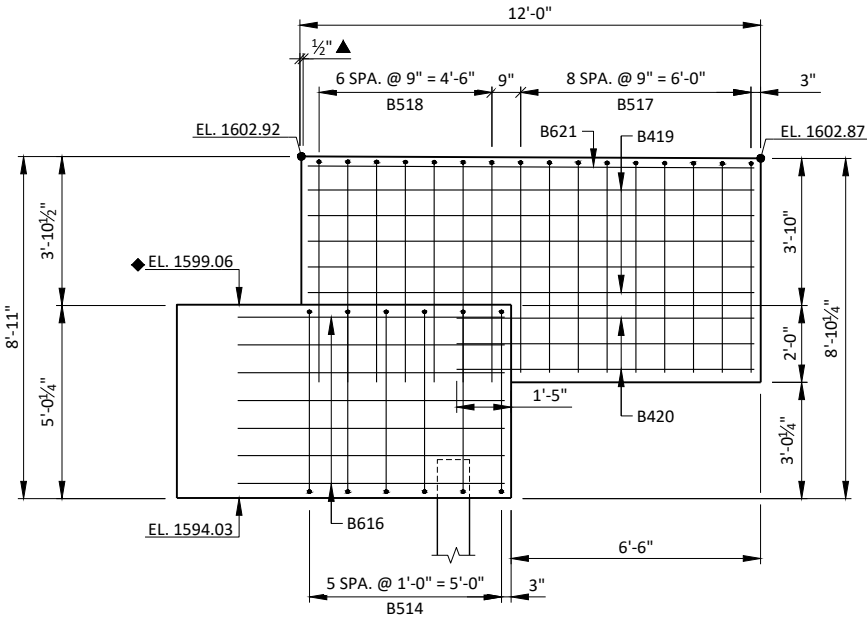




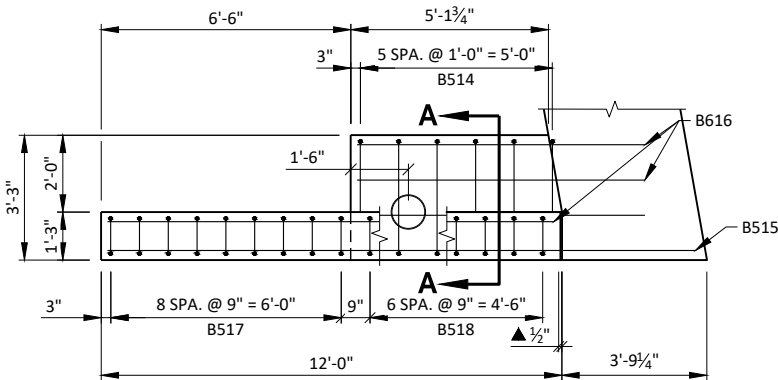
F.F. ELEVATION - WING 3



SECTION A-A



B.F. ELEVATION - WING 3



PLAN VIEW - WING 3

LEGEND

OPTIONAL KEYED CONSTRUCTION JOINT FORMED BY SURFACED & BEVELED 2x6. 3/4" "V" GROOVE AT FRONT FACE OF WING WALL AND HORIZONTAL 18" RUBBERIZED MEMBRANE WATERPROOFING AT BACK FACE IF CONSTRUCTION JOINT IS USED. COST IS INCIDENTAL TO THE BID ITEM "CONCRETE MASONRY BRIDGES".

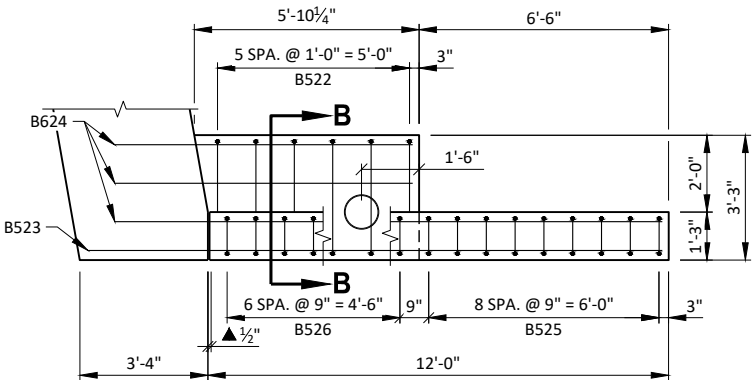
GIRDER SEAT. SEE SHEET 8 FOR ELEVATIONS.

1/2" FILLER EXTEND AS SHOWN. SEAL ALL EXPOSED HORIZ. & VERT. SURFACES OF FILLER WITH NON-STAINING GRAY, NON-BITUMINOUS JOINT SEALER (1" DEEP AND HOLD 1/8" BELOW SURFACE OF CONCRETE).

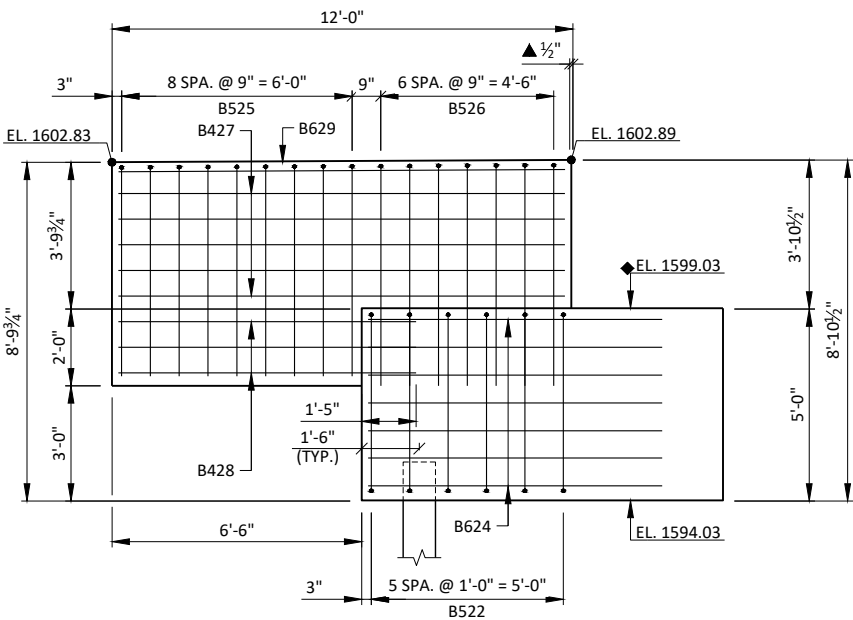
NOTES

SOME BARS HAVE BEEN OMITTED FOR CLARITY. SEE SHEET 8 FOR BILL OF BARS.

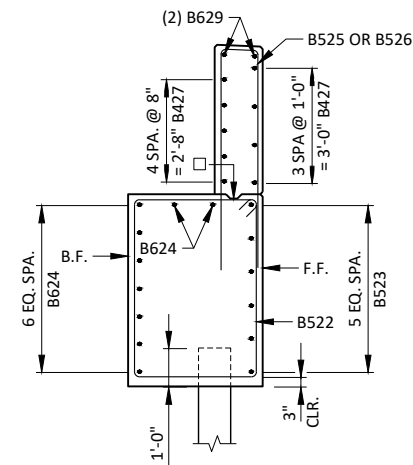
SPACE REINFORCEMENT TO MISS PILING



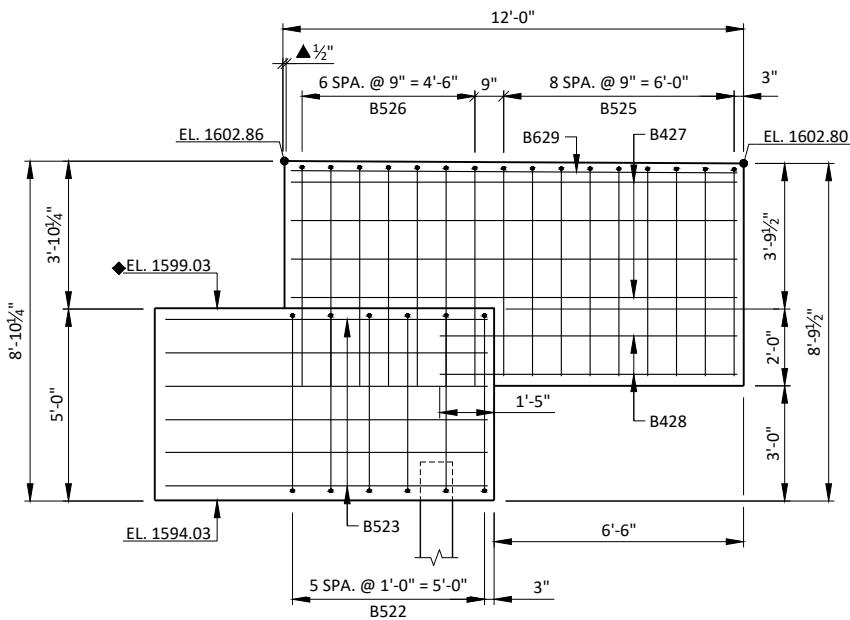
PLAN VIEW - WING 4



B.F. ELEVATION - WING 4



SECTION B-B



F.F. ELEVATION - WING 4

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-63-27			
DRAWN BY		CTMP	PLANS CK'D. PTB
WEST ABUTMENT DETAILS		SHEET 7 OF 17 109	

BILL OF BARS
EAST ABUTMENT

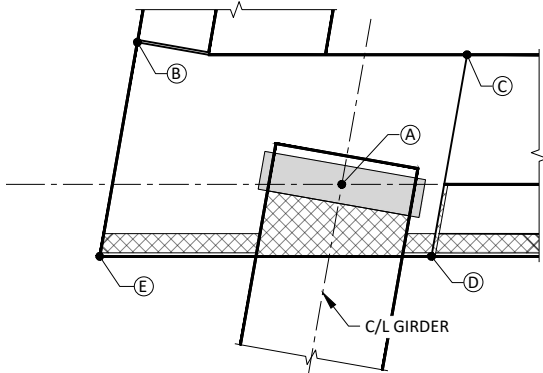
1,160 LB (COATED)
3,290 LB (UNCOATED)

BAR MARK	NO. REQ'D.	LENGTH	BENT	COAT	LOCATION
A501	47	15-8	X		BODY - VERT. - STIRRUP
A502	12	16-2	X		BODY - VERT. - STIRRUP - ENDS
A403	14	2-3			BODY - VERT. - 2 PER PILE
A404	7	28-0	X		BODY - VERT. - SPIRAL - 1 PER PILE
A605	11	49-7			BODY - HORIZ. F.F., TOP, AND BOTTOM
A606	7	35-10			BODY - HORIZ. B.F. - CENTER
A807	14	13-2	X		BODY - HORIZ. B.F. - ENDS
A508	39	5-11	X		BODY - VERT. - TOP
A409	3	39-0			BODY - HORIZ. - TOP
A410	10	7-0			BODY - HORIZ. - TOP BETWEEN SEATS
A411	20	4-9	X		BODY - VERT. - TOP BETWEEN SEATS
A412	4	4-7			BODY - VERT. - ENDS
A513	4	9-0	X		BODY - VERT. - END STIRRUPS
A514	6	15-8	X	X	WING 1 - VERT. - STIRRUP
A515	6	8-10		X	WING 1 - HORIZ. F.F.
A616	9	7-6		X	WING 1 - HORIZ. B.F. & TOP
A517	9	11-4	X	X	WING 1 - VERT. - TOP AT ENDS
A518	7	12-0	X	X	WING 1 - VERT. - TOP
A419	9	11-7		X	WING 1 - HORIZ. - F.F. & B.F.
A420	5	7-9		X	WING 1 - HORIZ. - BOTTOM
A621	2	11-7		X	WING 1 - HORIZ. - TOP
A522	6	15-8	X	X	WING 2 - VERT. - STIRRUP
A523	6	8-6		X	WING 2 - HORIZ. F.F.
A624	9	7-9		X	WING 2 - HORIZ. B.F. & TOP
A525	9	11-4	X	X	WING 2 - VERT. - TOP AT ENDS
A526	7	12-0	X	X	WING 2 - VERT. - TOP
A427	9	11-7		X	WING 2 - HORIZ. - F.F. & B.F.
A428	5	7-9		X	WING 2 - HORIZ. - BOTTOM
A629	2	11-7		X	WING 2 - HORIZ. - TOP

NOTES: THE FIRST DIGIT OF A BAR MARK SIGNIFIES THE BAR SIZE.
DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT OF BAR.

GIRDER SEAT ELEVATIONS
(EAST ABUTMENT)

GIRDER LINE	ELEV. (A)	ELEV. (B)	ELEV. (C)	ELEV. (D)	ELEV. (E)
A	1598.73	1598.73	1598.73	1598.73	1598.73
B	1598.91	1598.91	1598.91	1598.91	1598.91
C	1599.08	1599.08	1599.08	1599.08	1599.08
D	1599.09	1599.09	1599.09	1599.09	1599.09
E	1598.93	1598.93	1598.93	1598.93	1598.93
F	1598.77	1598.77	1598.77	1598.77	1598.77



GIRDER SEAT AT EXTERIOR WING
(WING 1 SHOWN, WING 3 SIMILAR)

BILL OF BARS
WEST ABUTMENT

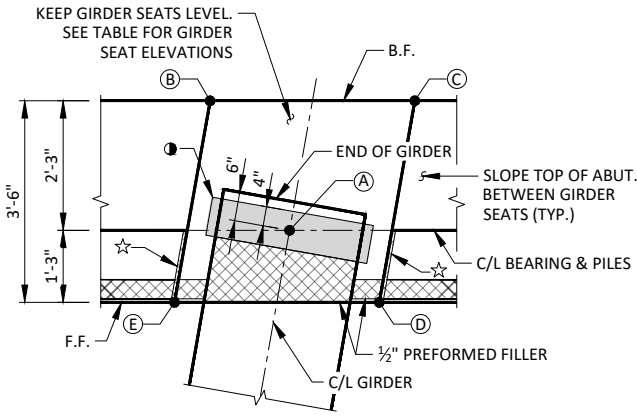
1,160 LB (COATED)
3,290 LB (UNCOATED)

BAR MARK	NO. REQ'D.	LENGTH	BENT	COAT	LOCATION
B501	47	15-8	X		BODY - VERT. - STIRRUP
B502	12	16-2	X		BODY - VERT. - STIRRUP - ENDS
B403	14	2-3			BODY - VERT. - 2 PER PILE
B404	7	28-0	X		BODY - VERT. - SPIRAL - 1 PER PILE
B605	11	49-7			BODY - HORIZ. F.F., TOP, AND BOTTOM
B606	7	35-10			BODY - HORIZ. B.F. - CENTER
B807	14	13-2	X		BODY - HORIZ. B.F. - ENDS
B508	39	5-11	X		BODY - VERT. - TOP
B409	3	39-0			BODY - HORIZ. - TOP
B410	10	7-0			BODY - HORIZ. - TOP BETWEEN SEATS
B411	20	4-9	X		BODY - VERT. - TOP BETWEEN SEATS
B412	4	4-7			BODY - VERT. - ENDS
B513	4	9-0	X		BODY - VERT. - END STIRRUPS
B514	6	15-8	X	X	WING 3 - VERT. - STIRRUP
B515	6	8-10		X	WING 3 - HORIZ. F.F.
B616	9	7-6		X	WING 3 - HORIZ. B.F. & TOP
B517	9	11-4	X	X	WING 3 - VERT. - TOP AT ENDS
B518	7	12-0	X	X	WING 3 - VERT. - TOP
B419	9	11-7		X	WING 3 - HORIZ. - F.F. & B.F.
B420	5	7-9		X	WING 3 - HORIZ. - BOTTOM
B621	2	11-7		X	WING 3 - HORIZ. - TOP
B522	6	15-8	X	X	WING 4 - VERT. - STIRRUP
B523	6	8-6		X	WING 4 - HORIZ. F.F.
B624	9	7-9		X	WING 4 - HORIZ. B.F. & TOP
B525	9	11-4	X	X	WING 4 - VERT. - TOP AT ENDS
B526	7	12-0	X	X	WING 4 - VERT. - TOP
B427	9	11-7		X	WING 4 - HORIZ. - F.F. & B.F.
B428	5	7-9		X	WING 4 - HORIZ. - BOTTOM
B629	2	11-7		X	WING 4 - HORIZ. - TOP

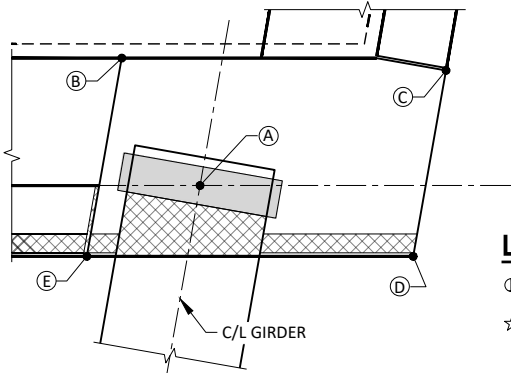
NOTES: THE FIRST DIGIT OF A BAR MARK SIGNIFIES THE BAR SIZE.
DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT OF BAR.

GIRDER SEAT ELEVATIONS
(WEST ABUTMENT)

GIRDER LINE	ELEV. (A)	ELEV. (B)	ELEV. (C)	ELEV. (D)	ELEV. (E)
A	1599.06	1599.06	1599.06	1599.06	1599.06
B	1599.22	1599.22	1599.22	1599.22	1599.22
C	1599.38	1599.38	1599.38	1599.38	1599.38
D	1599.37	1599.37	1599.37	1599.37	1599.37
E	1599.20	1599.20	1599.20	1599.20	1599.20
F	1599.03	1599.03	1599.03	1599.03	1599.03



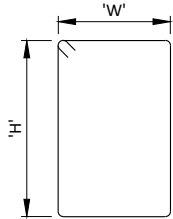
INTERIOR GIRDER SEAT DETAIL



GIRDER SEAT AT EXTERIOR WING
(WING 2 SHOWN, WING 4 SIMILAR)

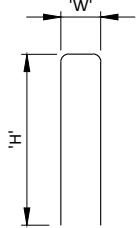
LEGEND

- ½"x8"x2'-10" NON-LAMINATED ELASTOMERIC BEARING PAD.
- ☆ ¾" CORK FILLER ON VERTICAL GIRDER SEAT FACES THAT RUN PARALLEL WITH GIRDER.



BAR MARK	'W'	'H'
A501	3-2	4-4
A502	3-2	4-7
A514	2-11	4-7
A522	2-11	4-7
B501	3-2	4-4
B502	3-2	4-7
B514	2-11	4-7
B522	2-11	4-7

A501, A502, A514, A522
B501, B502, B514, B522



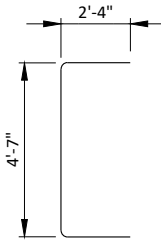
BAR MARK	'W'	'H'
A508	3-2	1-6
A411	1-11	1-6
A517	0-11	5-4
A518	0-11	5-8
A525	0-11	5-4
A526	0-11	5-8
B508	3-2	1-6
B411	1-11	1-6
B517	0-11	5-4
B518	0-11	5-8
B525	0-11	5-4
B526	0-11	5-8

A508, A411, A517, A518, A525, A526,
B508, B411, B517, B518, B525, B526

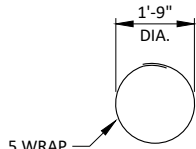


BAR MARK	'L'
A807	1-4
B807	1-4

A807 & B807



A513, B513



A404, B404

BILL OF BARS

PIER 1

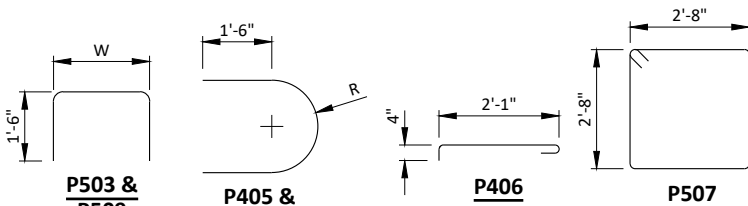
50 LB (COATED)

4,170 LB (UNCOATED)

BAR MARK	NO. REQ'D.	LENGTH	BENT	COAT	LOCATION
P501	96	15-4			BODY - VERT. - E.F. & BOTH ENDS
P502	25	2-0		X	VERT. - DOWELS
P503	23	4-10	X		BODY - VERT. - TOP
P404	26	44-0			BODY - HORIZ. - E.F.
P405	26	6-2	X		BODY - HORIZ. - ENDS
P406	182	2-9	X		TIE BARS
P507	30	11-4	X		CAP - VERT.
P508	12	44-0			CAP - HORIZ.
P509	36	5-5	X		CAP - VERT. - TOP
P510	4	38-9			CAP - HORIZ. - TOP
P411	8	7-2	X		CAP - HORIZ. - ENDS

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

DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT OF BAR.



BAR MARK	'W'
P503	2-1
P509	2-8

BAR MARK	'R'
P405	1-0
P411	1-4

NOTES

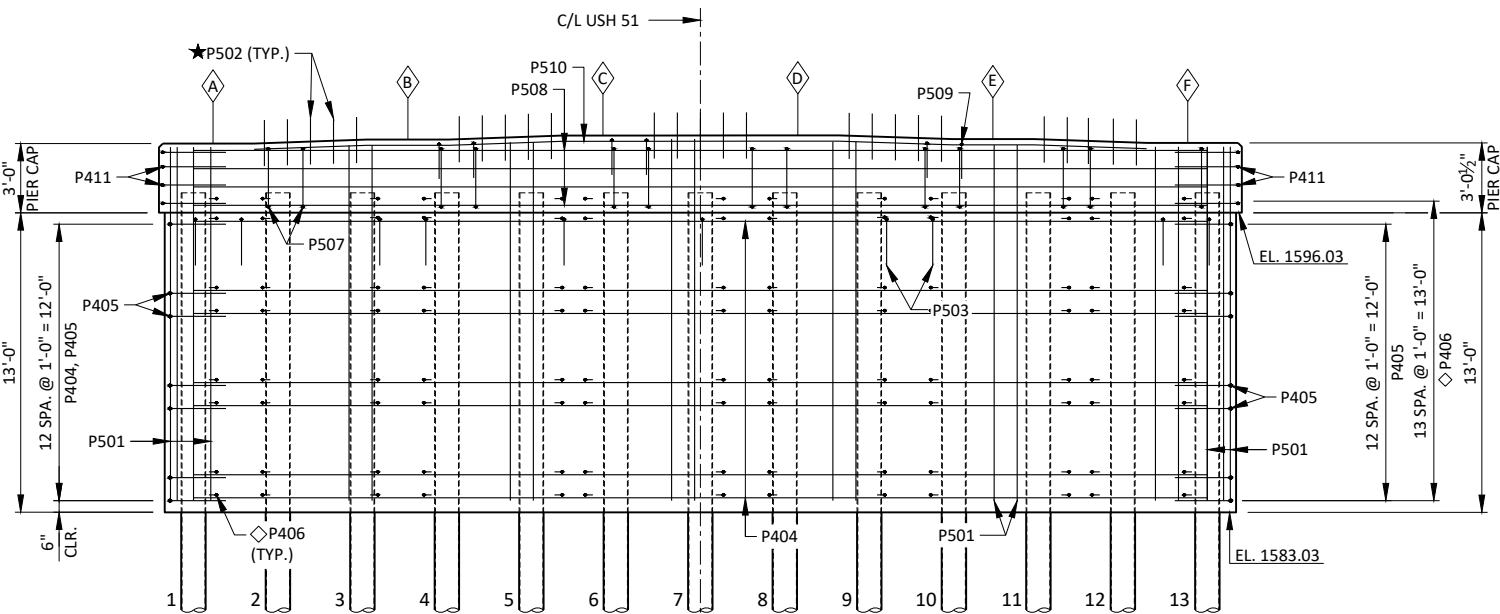
SOME BARS HAVE BEEN OMITTED FOR CLARITY. SEE THIS SHEET FOR BILL OF BARS.

E.F. - EACH FACE

AT PIER 1, COFFERDAM REQUIRED. CONCRETE POURED UNDERWATER WILL BE ALLOWED AND SHALL BE DONE IN ACCORDANCE WITH STANDARD SPEC. 502.3.5.3. CONCRETE POURED UNDERWATER SHALL NOT EXCEED 10.0 FEET IN DEPTH, UNLESS APPROVED OTHERWISE.

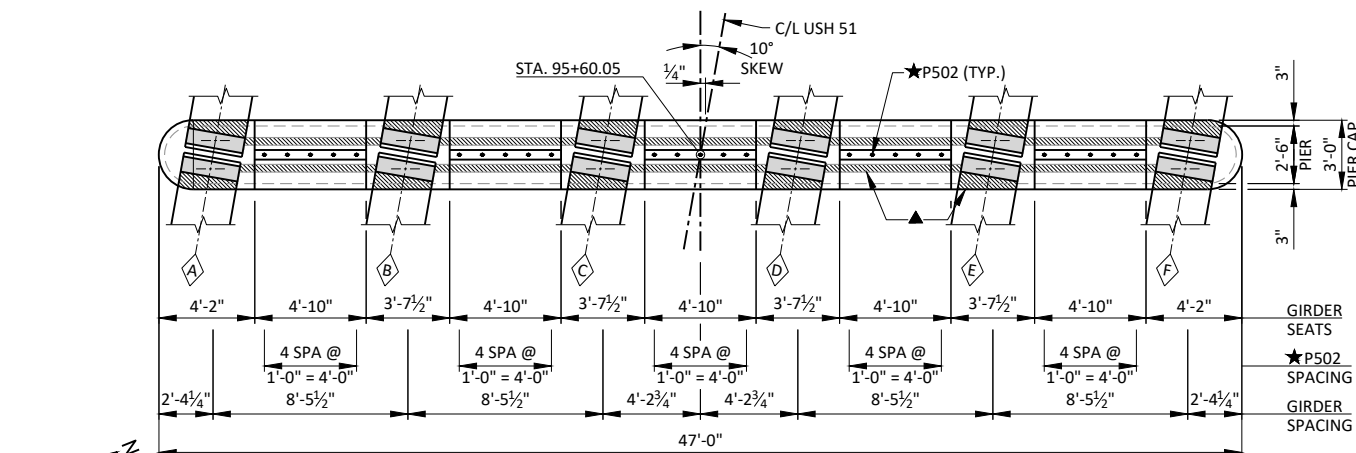
LEGEND

- KEYED CONSTRUCTION JOINT FORMED BY SURFACED & BEVELED 2x6.
- ½" PREFORMED JOINT FILLER EXTEND AS SHOWN BETWEEN GIRDERS AND BELOW GIRDERS ADJACENT TO BEARING PADS
- P502 BARS MAY BE PLACED AFTER CONCRETE IS POURED BUT BEFORE IT HAS TAKEN ITS INITIAL SET. EMBED BAR 1'-0".
- PILE SPACING MEASURED AT BASE OF SHAFT.
- PLACE P406 BARS ADJACENT TO EACH PILE ONLY. TIE TO NEAREST VERTICAL NO. 5 BAR. VERTICAL SPACING @ 1'-0" TO MATCH NO. 4 OUTSIDE BARS FROM BASE OF SHAFT TO TOP OF PILING. ALTERNATE THE POSITION OF THE 90° AND 180° HOOKS AT EACH VERTICAL LAYER OF TIES.
- ½" X 8" X 30" NON-LAMINATED ELASTOMERIC BEARING PAD

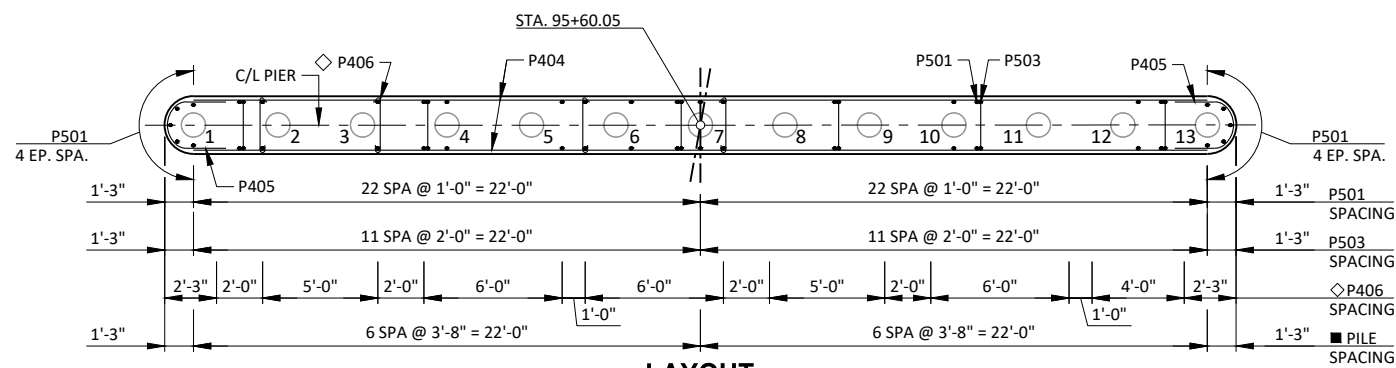


ELEVATION

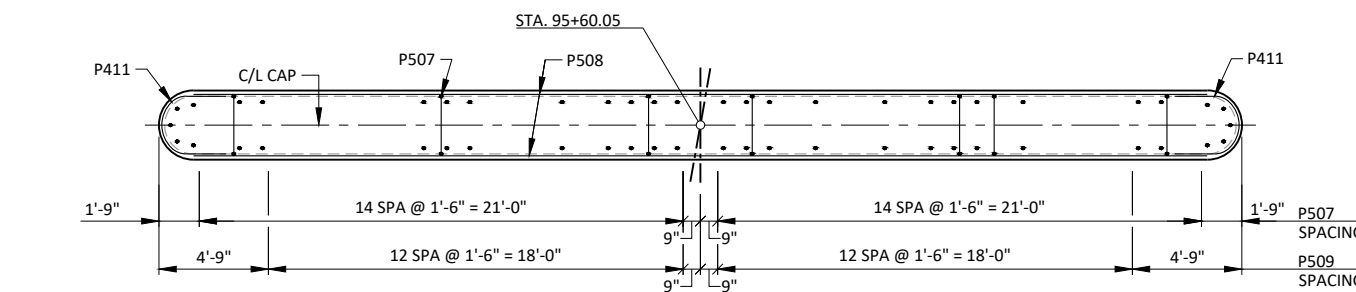
(PIER 1 LOOKING WEST)



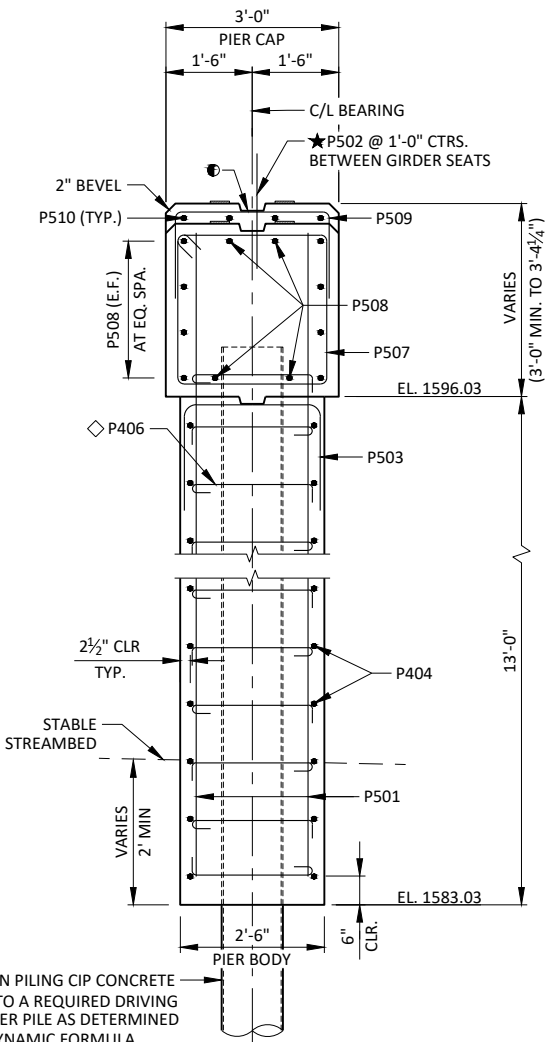
PLAN



LAYOUT

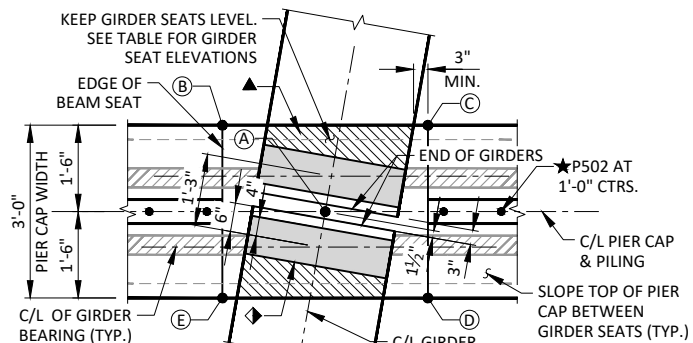


LAYOUT - PIER CAP



TYPICAL SECTION THROUGH PIER

PIER 1 TO BE SUPPORTED ON PILING CIP CONCRETE 12½ X 0.375-INCH DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 210 TONS PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA. ESTIMATE 50 FT. PILE LENGTHS AT PIER 1.



GIRDER SEAT DETAIL

INTERIOR GIRDER SHOWN - EXTERIOR GIRDER SIMILAR

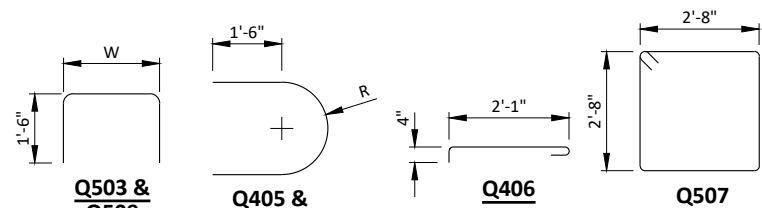
GIRDER SEAT ELEVATIONS

(PIER 1)

GIRDER LINE	ELEV. (A)	ELEV. (B)	ELEV. (C)	ELEV. (D)	ELEV. (E)
A	1599.03	1599.03	1599.03	1599.03	1599.03
B	1599.20	1599.20	1599.20	1599.20	1599.20
C	1599.37	1599.37	1599.37	1599.37	1599.37
D	1599.38	1599.38	1599.38	1599.38	1599.38
E	1599.22	1599.22	1599.22	1599.22	1599.22
F	1599.05	1599.05	1599.05	1599.05	1599.05

BILL OF BARS
PIER 250 LB (COATED)
4,170 LB (UNCOATED)

BAR MARK	NO. REQ'D.	LENGTH	BENT	COAT	LOCATION
Q501	96	15-4			BODY - VERT. - E.F. & BOTH ENDS
★Q502	25	2-0		X	VERT. - DOWELS
Q503	23	4-10	X		BODY - VERT. - TOP
Q404	26	44-0			BODY - HORIZ. - E.F.
Q405	26	6-2	X		BODY - HORIZ. - ENDS
◇Q406	182	2-9	X		TIE BARS
Q507	30	11-4	X		CAP - VERT.
Q508	12	44-0			CAP - HORIZ.
Q509	36	5-5	X		CAP - VERT. - TOP
Q510	4	38-9			CAP - HORIZ. - TOP
Q411	8	7-2	X		CAP - HORIZ. - ENDS

NOTES: THE FIRST DIGIT OF A BAR MARK SIGNIFIES THE BAR SIZE.
DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT OF BAR.

BAR MARK	'W'
Q503	2-1
Q509	2-8

BAR MARK	'R'
Q405	1-0
Q411	1-4

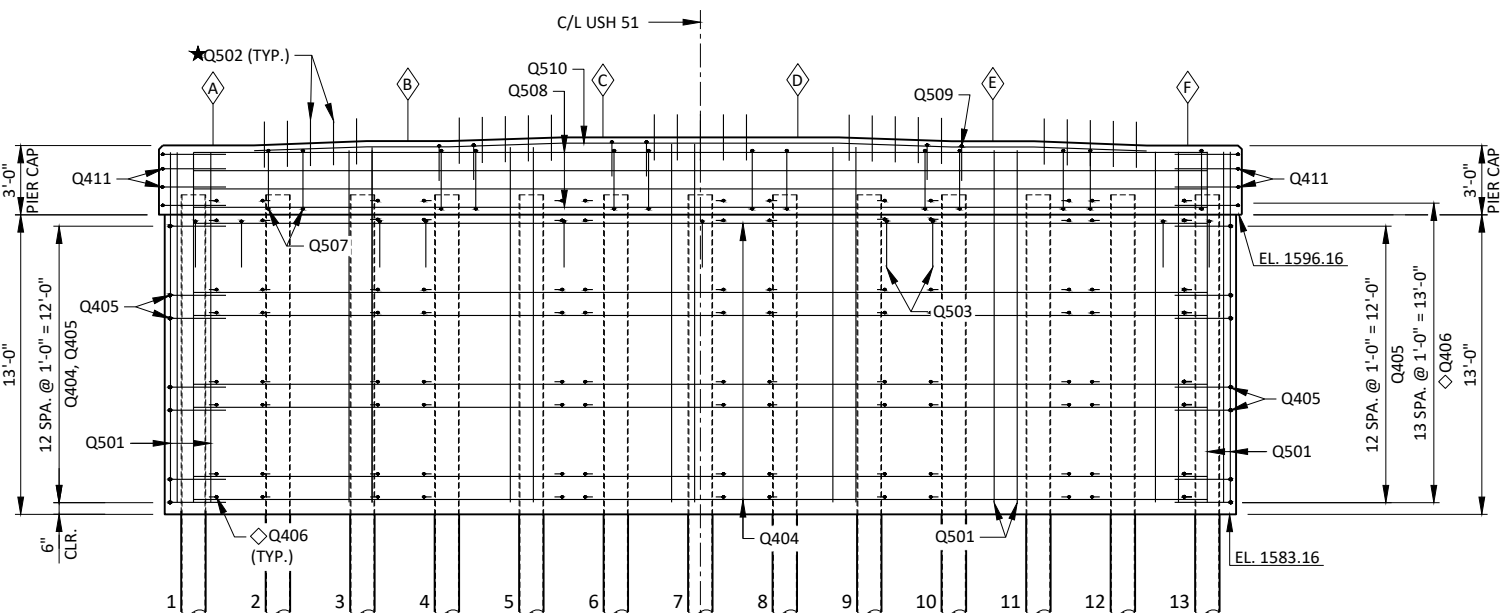
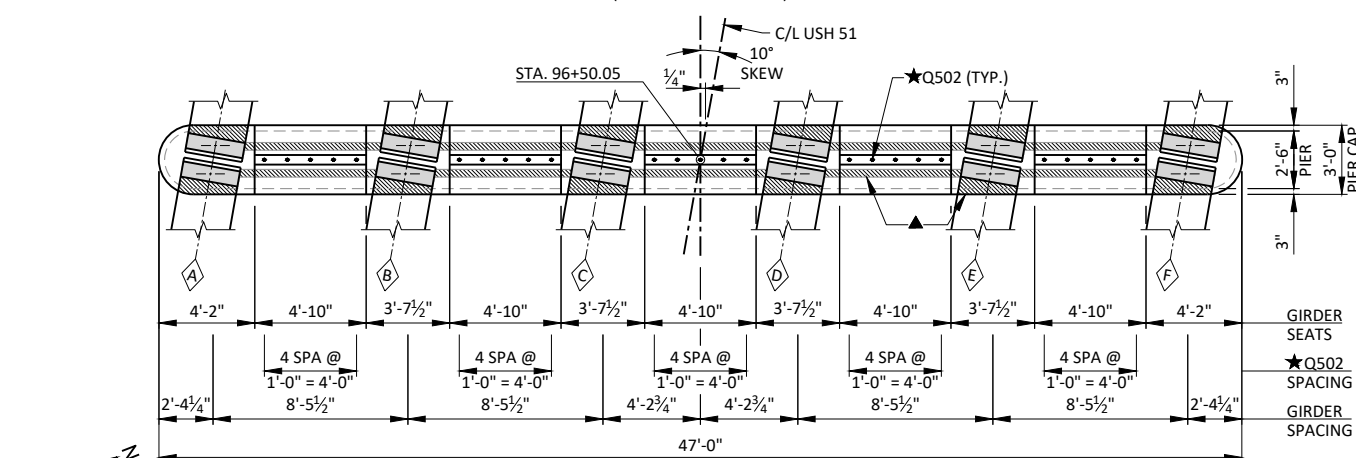
NOTES

SOME BARS HAVE BEEN OMITTED FOR CLARITY. SEE THIS SHEET FOR BILL OF BARS.
E.F. - EACH FACE

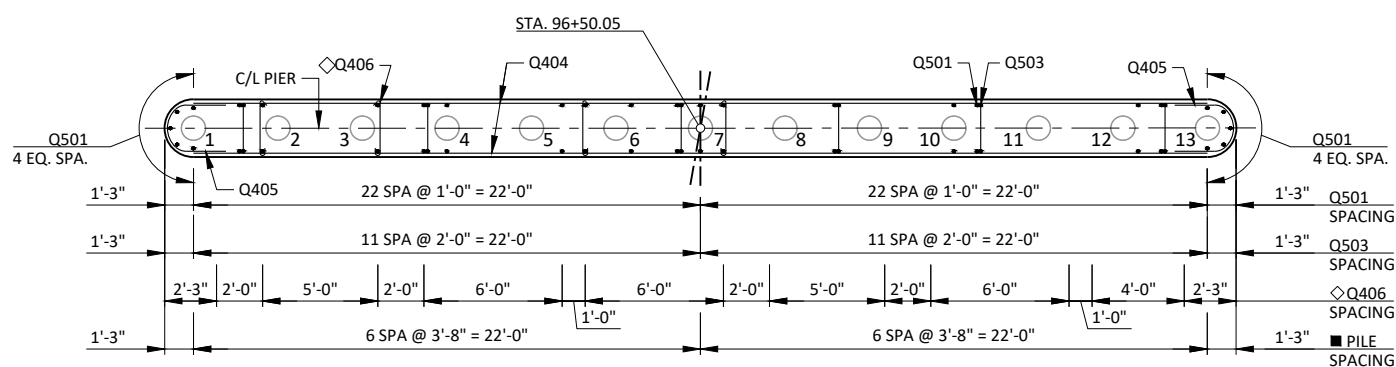
AT PIER 2, COFFERDAM REQUIRED. CONCRETE POURED UNDERWATER WILL BE ALLOWED AND SHALL BE DONE IN ACCORDANCE WITH STANDARD SPEC. 502.3.5.3. CONCRETE POURED UNDERWATER SHALL NOT EXCEED 10.0 FEET IN DEPTH, UNLESS APPROVED OTHERWISE.

LEGEND

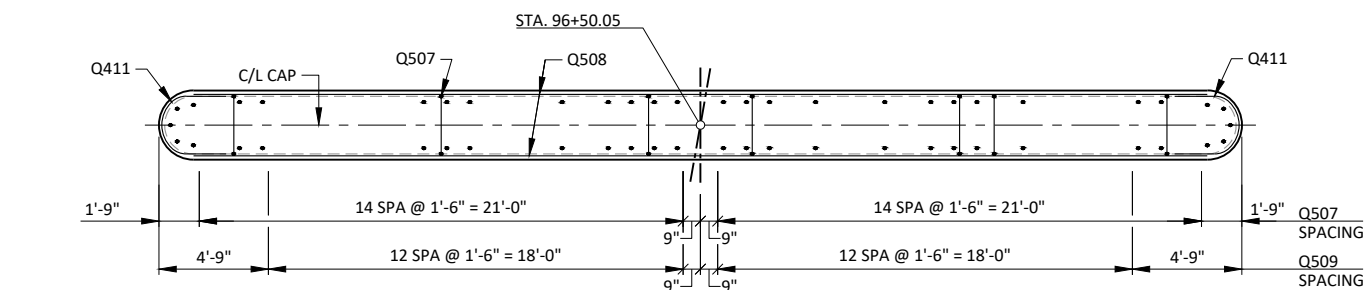
- KEYED CONSTRUCTION JOINT FORMED BY SURFACED & BEVELED 2x6.
- ½" PREFORMED JOINT FILLER EXTEND AS SHOWN BETWEEN GIRDERS AND BELOW GIRDERS ADJACENT TO BEARING PADS
- ★ Q502 BARS MAY BE PLACED AFTER CONCRETE IS POURED BUT BEFORE IT HAS TAKEN ITS INITIAL SET. EMBED BAR 1'-0".
- PILE SPACING MEASURED AT BASE OF SHAFT.
- ◇ PLACE Q406 BARS ADJACENT TO EACH PILE ONLY. TIE TO NEAREST VERTICAL NO. 5 BAR. VERTICAL SPACING @ 1'-0" TO MATCH NO. 4 OUTSIDE BARS FROM BASE OF SHAFT TO TOP OF PILING. ALTERNATE THE POSITION OF THE 90° AND 180° HOOKS AT EACH VERTICAL LAYER OF TIES.
- ½" X 8" X 30" NON-LAMINATED ELASTOMERIC BEARING PAD

ELEVATION
(PIER 2 LOOKING WEST)

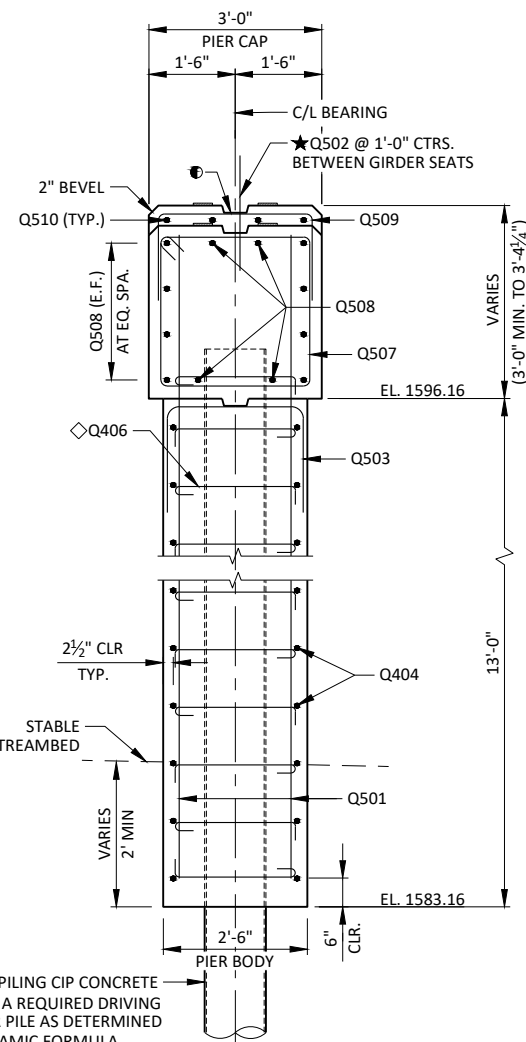
PLAN



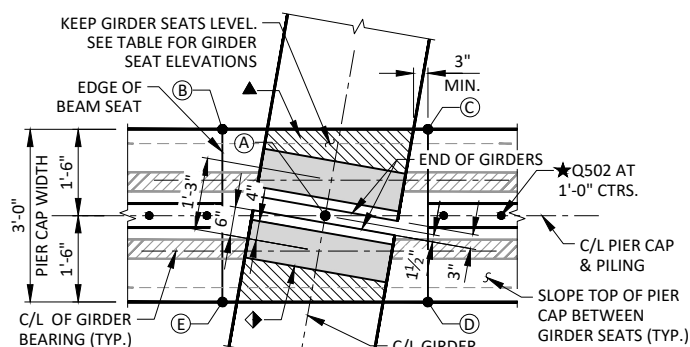
LAYOUT



LAYOUT - PIER CAP



TYPICAL SECTION THROUGH PIER



GIRDER SEAT DETAIL

INTERIOR GIRDER SHOWN - EXTERIOR GIRDER SIMILAR

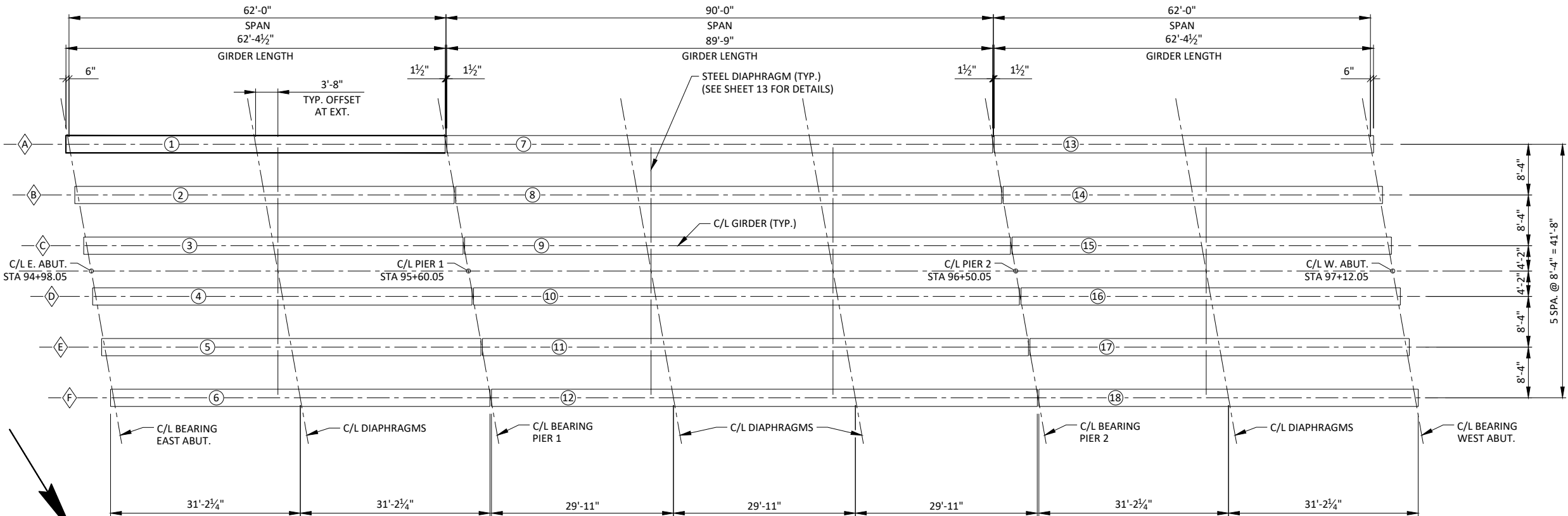
GIRDER SEAT ELEVATIONS

(PIER 2)

GIRDER LINE	ELEV. (A)	ELEV. (B)	ELEV. (C)	ELEV. (D)	ELEV. (E)
◇A	1599.17	1599.17	1599.17	1599.17	1599.17
◇B	1599.34	1599.34	1599.34	1599.34	1599.34
◇C	1599.50	1599.50	1599.50	1599.50	1599.50
◇D	1599.50	1599.50	1599.50	1599.50	1599.50
◇E	1599.33	1599.33	1599.33	1599.33	1599.33
◇F	1599.16	1599.16	1599.16	1599.16	1599.16

LEGEND

- ⬠ INDICATES GIRDER LINE
① INDICATES GIRDER NUMBER.



GIRDER LAYOUT

TOP OF DECK ELEVATIONS

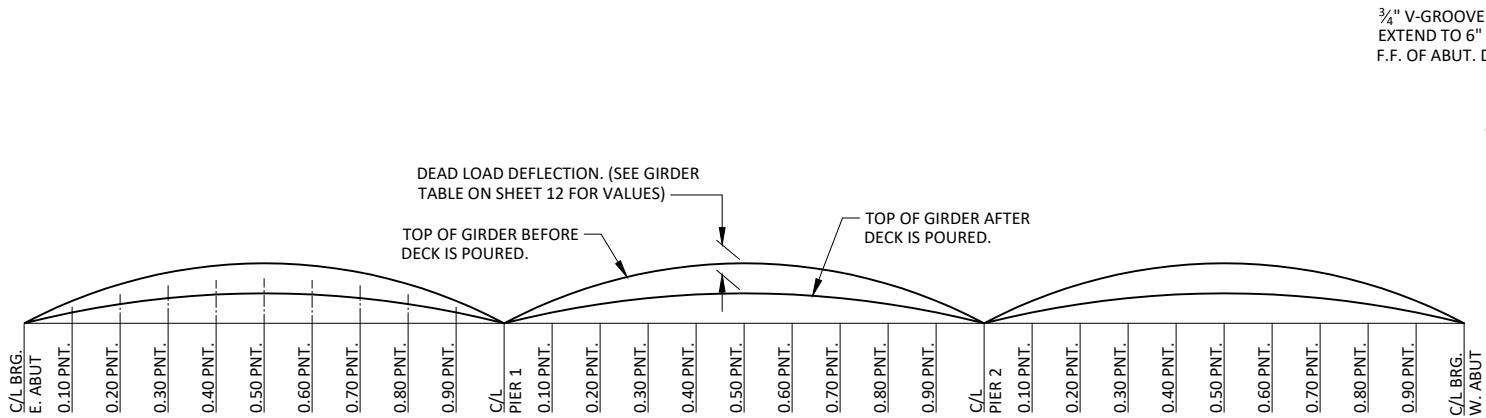
GIRDER LINE	C/L BRG. E. ABUT.	0.10 PNT.	0.20 PNT.	0.30 PNT.	0.40 PNT.	0.50 PNT.	0.60 PNT.	0.70 PNT.	0.80 PNT.	0.90 PNT.	C/L PIER 1	0.10 PNT.	0.20 PNT.	0.30 PNT.	0.40 PNT.	0.50 PNT.	0.60 PNT.	0.70 PNT.	0.80 PNT.	0.90 PNT.	C/L PIER 2	0.10 PNT.	0.20 PNT.	0.30 PNT.	0.40 PNT.	0.50 PNT.	0.60 PNT.	0.70 PNT.	0.80 PNT.	0.90 PNT.	C/L BRG. W. ABUT.
S. EDGE OF DECK	1602.66	1602.69	1602.73	1602.76	1602.79	1602.82	1602.85	1602.88	1602.91	1602.94	1602.96	1603.00	1603.03	1603.05	1603.07	1603.09	1603.10	1603.11	1603.11	1603.11	1603.11	1603.10	1603.09	1603.08	1603.07	1603.06	1603.04	1603.02	1603.00	1602.98	1602.96
S. FLOW LINE	1602.66	1602.69	1602.73	1602.76	1602.79	1602.82	1602.85	1602.88	1602.91	1602.94	1602.96	1603.00	1603.03	1603.05	1603.07	1603.09	1603.10	1603.11	1603.11	1603.11	1603.11	1603.10	1603.09	1603.08	1603.07	1603.06	1603.04	1603.02	1603.00	1602.98	1602.96
⬠	1602.69	1602.72	1602.75	1602.78	1602.81	1602.84	1602.88	1602.91	1602.94	1602.96	1602.99	1603.02	1603.05	1603.08	1603.10	1603.11	1603.12	1603.13	1603.14	1603.14	1603.13	1603.12	1603.12	1603.11	1603.09	1603.08	1603.06	1603.05	1603.03	1603.00	1602.98
⬠	1602.86	1602.89	1602.92	1602.96	1602.99	1603.02	1603.05	1603.08	1603.11	1603.14	1603.16	1603.19	1603.22	1603.25	1603.27	1603.28	1603.29	1603.30	1603.30	1603.30	1603.30	1603.29	1603.28	1603.27	1603.26	1603.24	1603.23	1603.21	1603.19	1603.16	1603.14
⬠	1603.04	1603.07	1603.10	1603.13	1603.16	1603.19	1603.22	1603.25	1603.28	1603.31	1603.33	1603.37	1603.39	1603.42	1603.44	1603.45	1603.46	1603.47	1603.47	1603.47	1603.46	1603.45	1603.45	1603.43	1603.42	1603.41	1603.39	1603.37	1603.35	1603.33	1603.30
C/L	1603.12	1603.15	1603.19	1603.22	1603.25	1603.28	1603.31	1603.34	1603.37	1603.40	1603.42	1603.45	1603.48	1603.50	1603.52	1603.53	1603.55	1603.55	1603.55	1603.55	1603.54	1603.54	1603.53	1603.52	1603.50	1603.49	1603.47	1603.45	1603.43	1603.41	1603.38
⬠	1603.04	1603.07	1603.11	1603.14	1603.17	1603.20	1603.23	1603.26	1603.29	1603.31	1603.34	1603.37	1603.40	1603.42	1603.44	1603.45	1603.46	1603.47	1603.47	1603.47	1603.46	1603.45	1603.44	1603.43	1603.42	1603.40	1603.38	1603.37	1603.34	1603.32	1603.29
⬠	1602.88	1602.92	1602.95	1602.98	1603.01	1603.04	1603.07	1603.10	1603.13	1603.15	1603.18	1603.21	1603.23	1603.26	1603.27	1603.29	1603.30	1603.30	1603.30	1603.30	1603.29	1603.28	1603.27	1603.26	1603.25	1603.23	1603.21	1603.19	1603.17	1603.15	1603.12
⬠	1602.72	1602.76	1602.79	1602.82	1602.85	1602.88	1602.91	1602.94	1602.97	1602.99	1603.02	1603.05	1603.07	1603.09	1603.11	1603.12	1603.13	1603.14	1603.14	1603.13	1603.12	1603.11	1603.10	1603.09	1603.08	1603.06	1603.04	1603.02	1603.00	1602.97	1602.95
N. FLOW LINE	1602.70	1602.73	1602.76	1602.80	1602.83	1602.86	1602.89	1602.92	1602.95	1602.97	1602.99	1603.02	1603.05	1603.07	1603.09	1603.10	1603.11	1603.11	1603.11	1603.11	1603.10	1603.09	1603.08	1603.07	1603.05	1603.04	1603.02	1603.00	1602.98	1602.95	1602.92
N. EDGE OF DECK	1602.70	1602.73	1602.76	1602.80	1602.83	1602.86	1602.89	1602.92	1602.95	1602.97	1602.99	1603.02	1603.05	1603.07	1603.09	1603.10	1603.11	1603.11	1603.11	1603.11	1603.10	1603.09	1603.08	1603.07	1603.05	1603.04	1603.02	1603.00	1602.98	1602.95	1602.92

IF 1¼" MINIMUM HAUNCH HEIGHT "T" 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 BUREAU OF STRUCTURES 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.

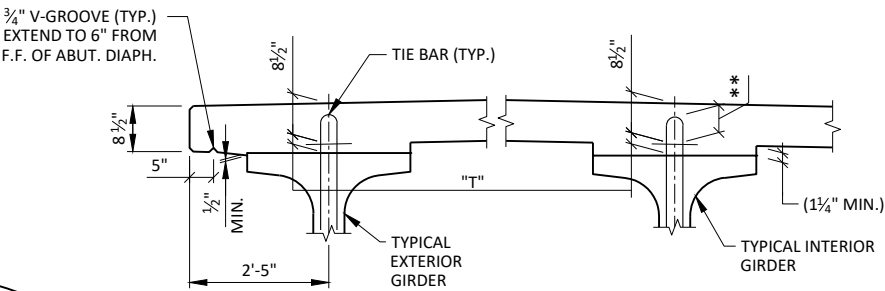
TO DETERMINE "T" (AFTER GIRDERS ARE IN PLACE): OBTAIN THE ELEVATIONS OF THE TOP OF GIRDER AT THE C/L OF SUBSTRUCTURE UNITS AND AT EACH ⅓ POINT FOR EVERY GIRDER AND ALL SPANS, THEN PROCEED WITH THE PROCESS SHOWN BELOW.

TOP OF DECK ELEVATION AT THE FINAL GRADE
-TOP OF GIRDER ELEVATION
+DEAD LOAD DEFLECTION
-DECK THICKNESS
=HAUNCH HEIGHT "T"

NOTE: AN AVERAGE HAUNCH "T" OF 2.5" WAS USED IN THE QUANTITY "CONCRETE MASONRY BRIDGES".



DEAD LOAD DEFLECTION DIAGRAM



DECK HAUNCH DETAIL

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-63-27			
DRAWN BY		CTMP	PLANS CK'D. PTB
GIRDER LAYOUT		SHEET 11 OF 17	
		113	

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.

THE GIRDERS SHALL BE PROVIDED WITH A SUITABLE LIFTING DEVICE FOR HANDLING AND ERECTING THE GIRDERS. SEE SECTION 503.3.4 OF STANDARD SPECIFICATION FOR GUIDANCE.

FOR DIAPHRAGM INSERT & CONNECTION DETAILS SEE "STEEL DIAPHRAGM"
SHEET. SEE SHEET 11 FOR LOCATIONS ALONG THE GIRDERS.

Diagram 1: L-shaped bar with vertical leg 2'-7 1/2" and horizontal leg 1'-0". #6 BAR 2 @ EACH END

Diagram 2: U-shaped bar with vertical leg 2'-8" and horizontal base 9". #6 BAR 8 @ EACH END

Diagram 3: U-shaped bar with vertical leg 1'-6" and horizontal base 7 1/2". #5 BAR 1 @ EACH END

#3 BAR
3 @ EACH END
(EPOXY COATED)

#3 BAR
23 PAIRS EACH END
(EPOXY COATED)

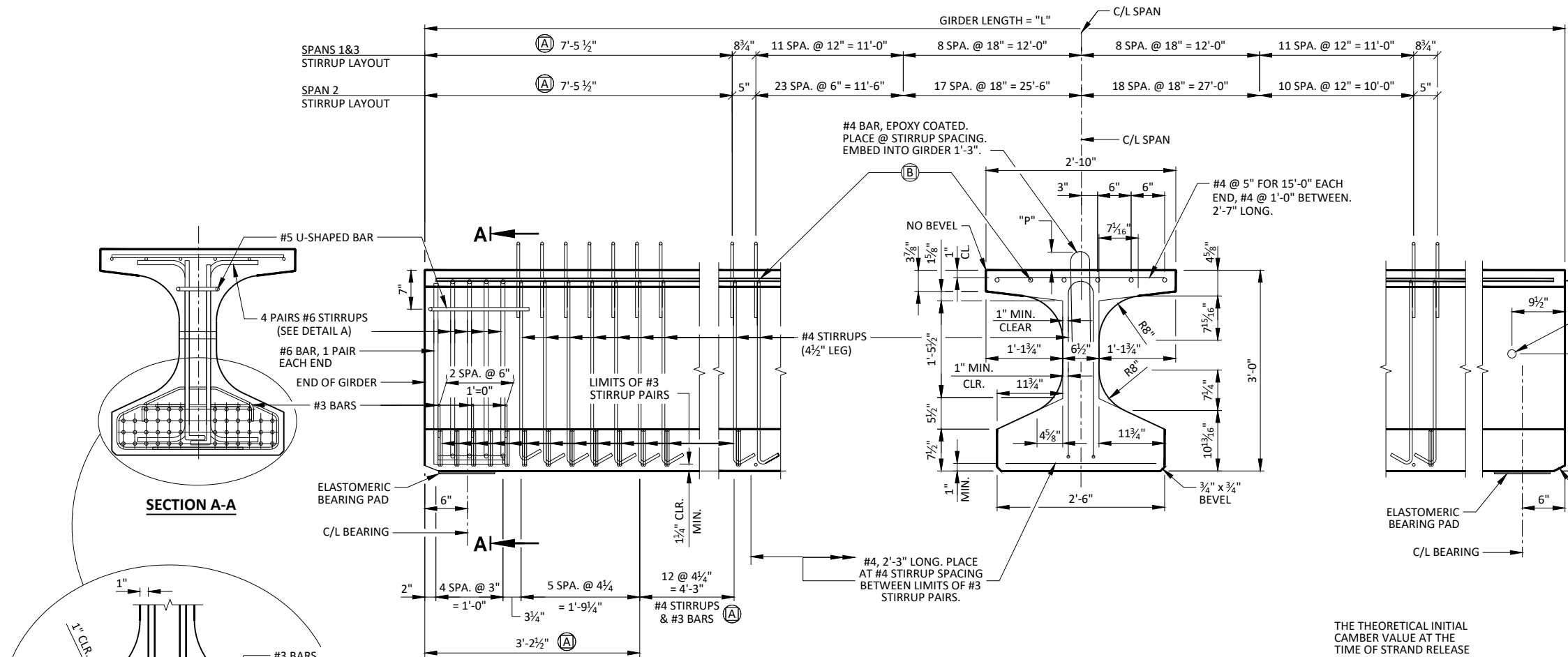
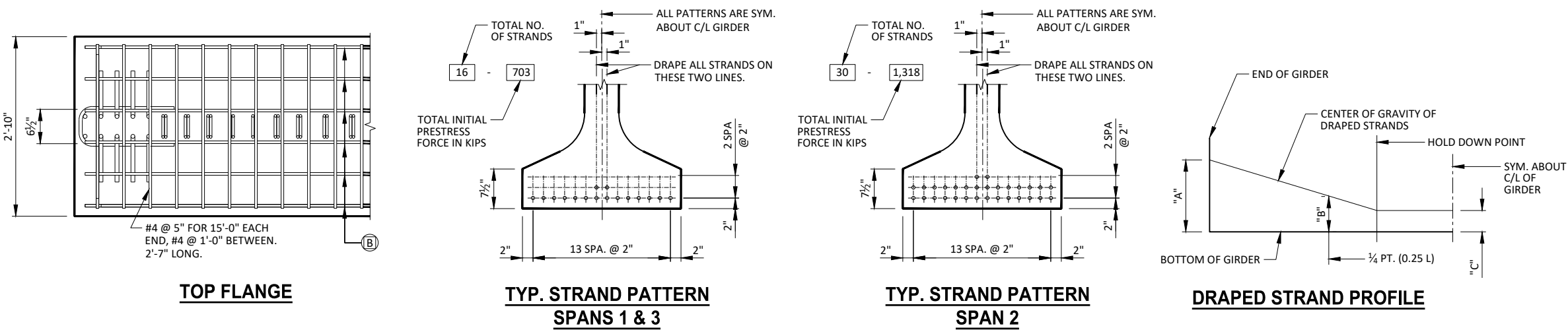
SPAN	CAMBER (IN.)
1	0.8"
2	2.5"
3	0.8"

(A) DETAIL TYP. AT EACH END

(B) 6 #4 BARS, FULL LENGTH, MAY BE SPLICED, USE 36" MIN. LAP

GIRDER DATA																									
SPAN	GIRDER LENGTH "L"	QUANT.	DEAD LOAD DEFL. (IN.)										CONC. STRGTH. f'c (KSI)	STIRRUP PROJECTION "P"			DIA. OF STRAND (IN.)	DRAPED PATTERN					UNDRAPED PATTERN		GIRDER NO.
														TOTAL NO. OF STRANDS	f'ci (KSI) *	(INCHES)				TOTAL NO. OF STRANDS	f'ci (KSI) *				
			1/10	2/10	3/10	4/10	5/10	6/10	7/10	8/10	9/10	10/10				"A"		"B" MIN.	"B" MAX.			"C"			
1,3	62'-4½"	12	0.2	0.3	0.5	0.5	0.6	0.5	0.5	0.3	0.2	8.0	8"	7"	8"	0.6	16	6.8	33	10.5	13.5	3	--	--	1-6, 13-18
2	89'-9"	6	0.8	1.5	2.0	2.4	2.5	2.4	2.0	1.5	0.8	8.0	8"	7"	8"	0.6	30	6.8	32	11	14.5	4	--	--	7-12

NOTE: SEE SHEET 11 FOR DEAD LOAD DEFLECTION DIAGRAM.



(A) DETAIL TYP. AT EACH END

(B) 6 #4 BARS, FULL LENGTH, MAY BE SPLICED, USE 36" MIN. LAP

SPAN	CAMBER (IN.)
1	0.8"
2	2.5"
3	0.8"

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

GIRDER DATA																									
SPAN	GIRDER LENGTH "L"	QUANT.	DEAD LOAD DEFL. (IN.)										CONC. STRGTH. f'c (KSI)	STIRRUP PROJECTION "P"			DIA. OF STRAND (IN.)	DRAPED PATTERN					UNDRAPED PATTERN		GIRDER NO.
			1/10	2/10	3/10	4/10	5/10	6/10	7/10	8/10	9/10	10/10		TOTAL NO. OF STRANDS	f'ci (KSI) *	(INCHES)				TOTAL NO. OF STRANDS	f'ci (KSI) *				
												1ST 1/2	MID 1/2	END 1/2			"A"	"B" MIN.	"B" MAX.	"C"					
1,3	62'-4 1/2"	12	0.2	0.3	0.5	0.5	0.6	0.5	0.5	0.3	0.2	8.0	8"	7"	8"	0.6	16	6.8	33	10.5	13.5	3	--	--	1-6, 13-18
2	89'-9"	6	0.8	1.5	2.0	2.4	2.5	2.4	2.0	1.5	0.8	8.0	8"	7"	8"	0.6	30	6.8	32	11	14.4	4	--	--	7-12

NOTE: SEE SHEET 11 FOR DEAD LOAD DEFLECTION DIAGRAM.

STRUCTURE B-63-27

SHEET 12 OF 17

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NOTES

ALL DIAPHRAGM MATERIAL NOT EMBEDDED IN THE CONCRETE GIRDER SHALL BE PAID FOR AT THE UNIT PRICE BID FOR "STEEL DIAPHRAGMS B-63-27", EACH.

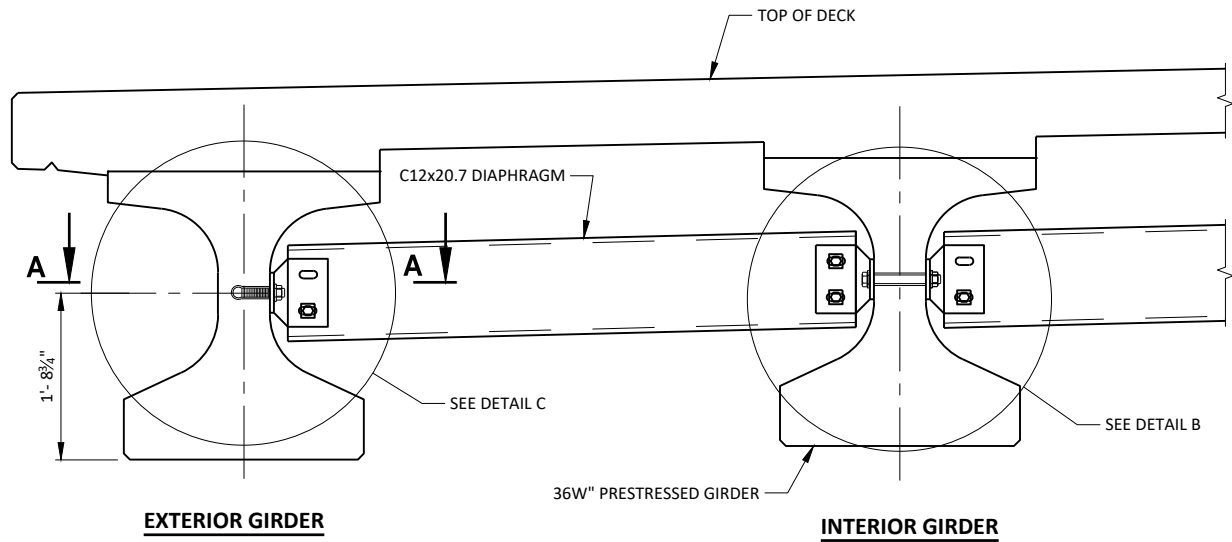
EACH DIAPHRAGM BETWEEN GIRDERS SHALL CONSTITUTE ONE UNIT.

ALL DIAPHRAGM STRUCTURAL STEEL SHALL BE ASTM A709 GRADE 36.

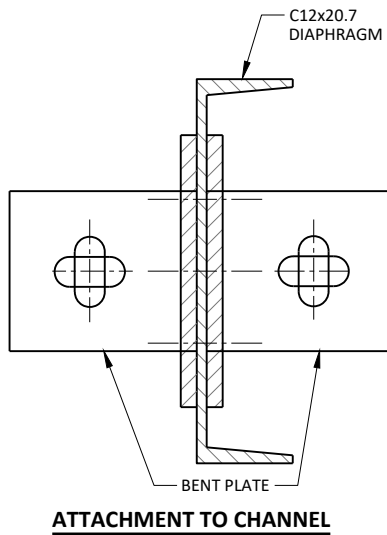
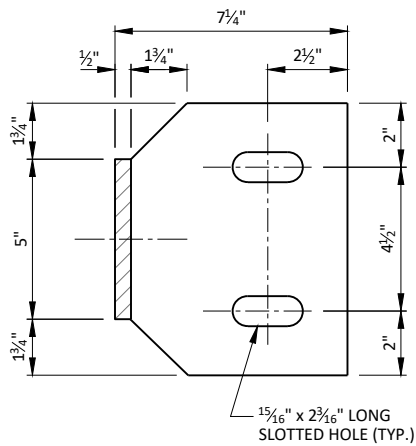
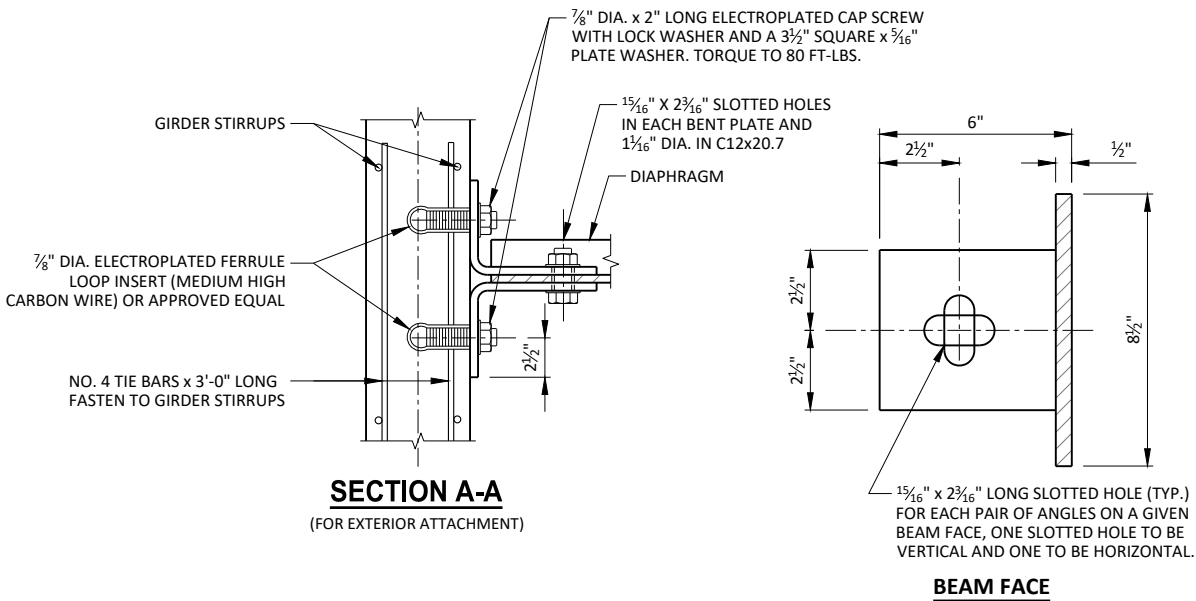
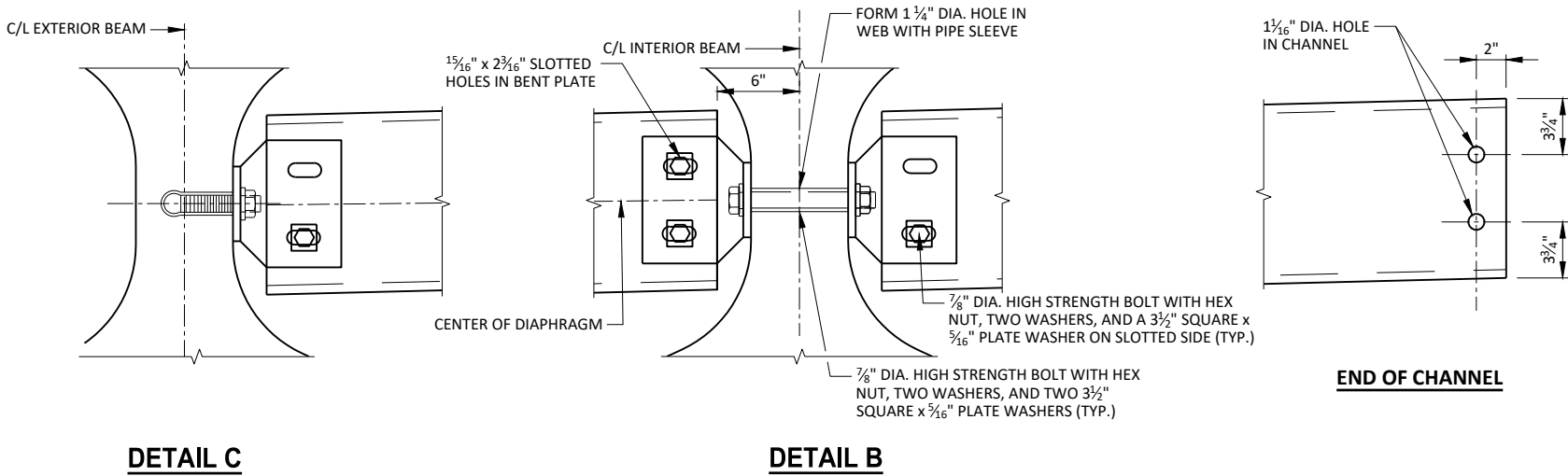
ALL DIAPHRAGM MATERIAL INCLUDING BOLTS, NUTS, AND WASHERS SHALL BE GALVANIZED AFTER FABRICATION.

STEEL DIAPHRAGM TO CONCRETE WEB CONNECTION SHALL BE SNUG-TIGHT PLUS $\frac{1}{4}$ TURN UNLESS NOTED OTHERWISE. HIGH STRENGTH BOLTS FOR WEB CONNECTION SHALL MEET THE REQUIREMENTS FOR ASTM A325 OR ASTM A449.

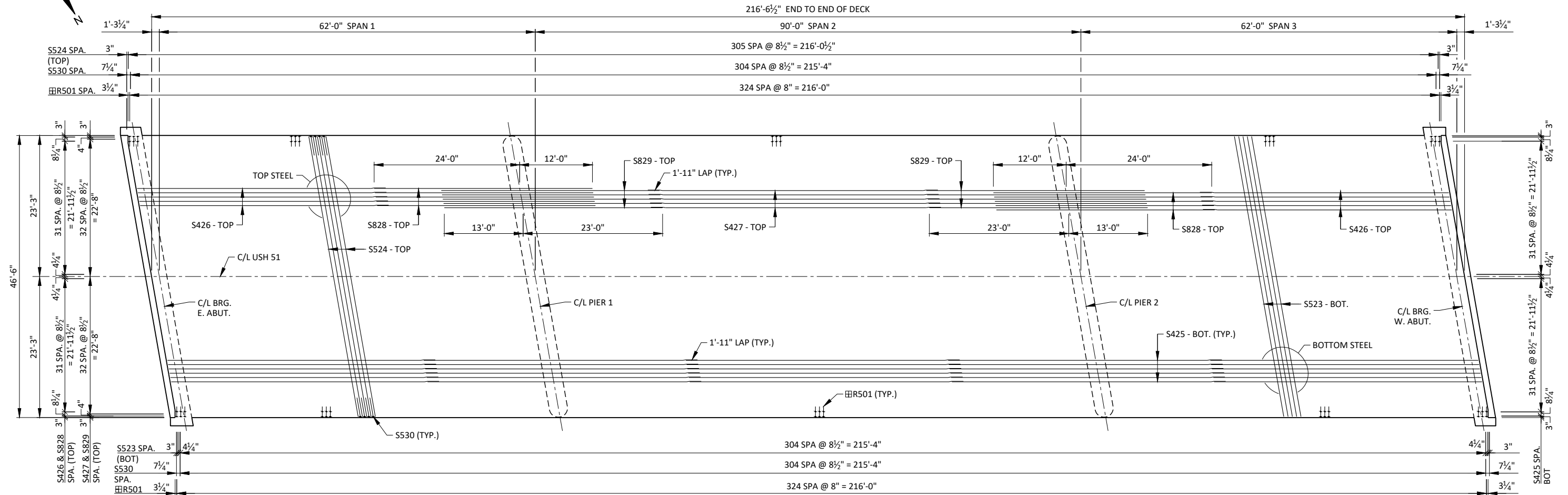
PLACE ONE DIAPHRAGM NEAR MID-LENGTH OF GIRDERS 1-6 AND 13-18 AND NEAR THIRD-POINTS OF GIRDERS 7-12 AS INDICATED ON SHEET 11.



PART TRANSVERSE SECTION AT DIAPHRAGM



NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-63-27			
DRAWN BY		CTMP	PLANS CK'D. PTB
STEEL DIAPHRAGM		SHEET 13 OF 17 115	



LEGEND

BILL OF BARS

79,400 LB (COATED)

A diagram of a rectangular cross-section. The width is labeled W and the height is labeled H .

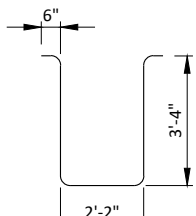
BAR MARK	'H'	'W'
S501	2-4	3-2
S502	1-4	3-2
S520	1-4	2-2

Diagram showing a 90-degree angle with an 80-degree sector shaded. The radius is 9 inches. The arc length is 2'-2".

A diagram of a polygon with interior angles of 190° and 80° . The side lengths are $1'-0''$, $3'-3''$, and $2'-2''$.

A diagram showing a 100° angle. The vertical side is labeled 9". The horizontal side is labeled 2'-2".

S616



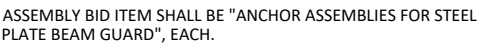
S530

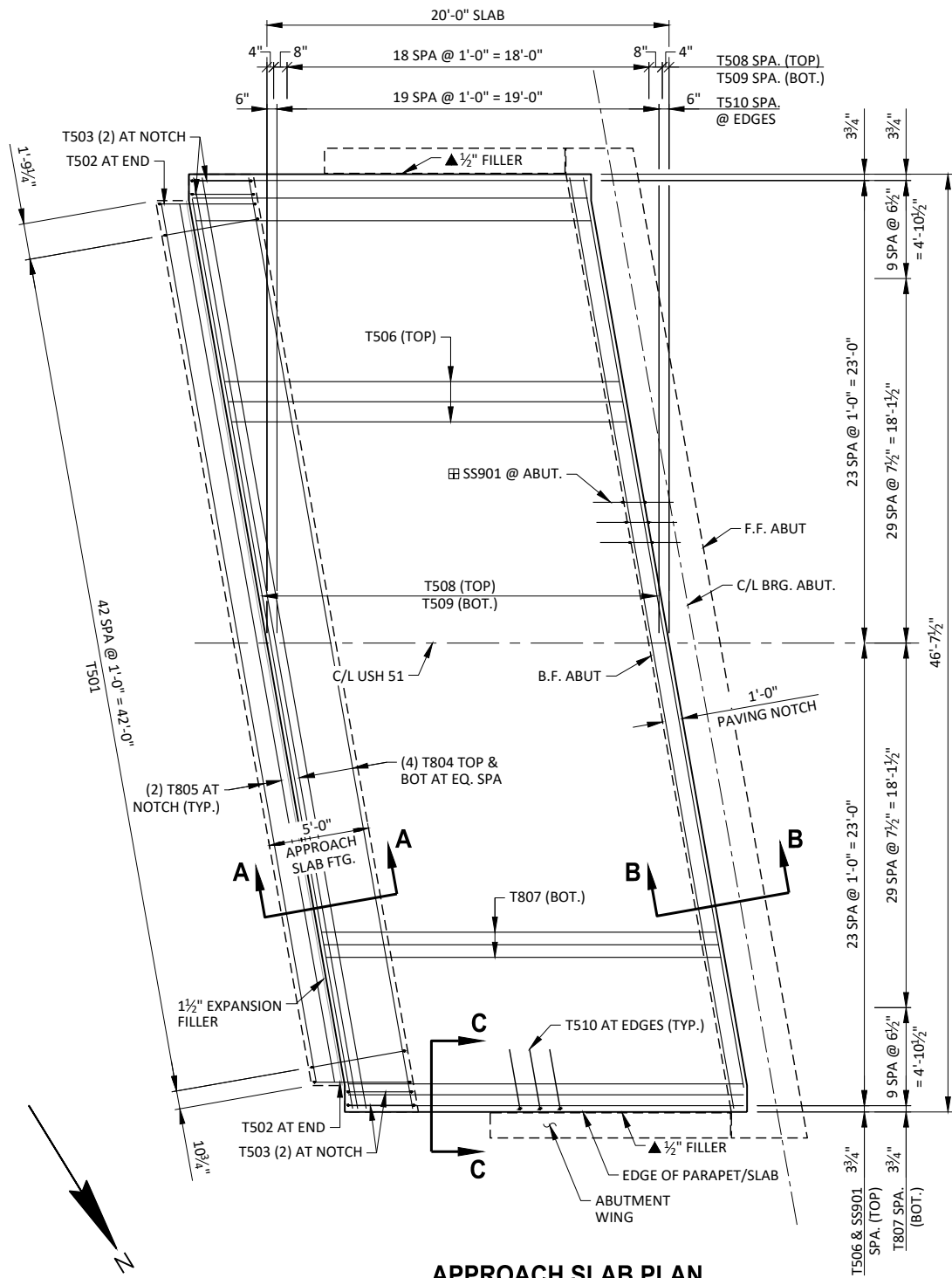
DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT OF BAR.

- 18" RUBBERIZED MEMBRANE WATERPROOFING (HORIZONTAL)
- ① KEYED CONSTRUCTION JOINT FORMED BY SURFACED & BEVELED 2X6.
- ☆ ½" NON-LAMINATED ELASTOMERIC BEARING PAD AND ½" PREFORMED FILLER.
- ▲ 4"x ½" PREFORMED FILLER, EXTEND FULL LENGTH OF ABUTMENTS BETWEEN EDGES OF DIAPHRAGM.
- ◇ (1) 1½" DIAMETER HOLE IN WEB FOR (2) S518 HORIZONTAL BARS. BARS TO BE PLACED SYMMETRICAL ABOUT C/L OF INTERIOR GIRDERS.
- DIMENSION IS PARALLEL TO C/L OF GIRDER
- ◆ DIMENSION IS NORMAL TO THE C/L OF SUBSTRUCTURE UNITS
- ▽ 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. IF OPTIONAL JOINT IS USED, PLACE RUBBERIZED MEMBRANE WATERPROOFING BEHIND JOINT AT ABUTMENT ONLY. COST IS ADDITIONAL TO BID ITEM "CONCRETE MASONRY BRIDGES"
- * SEE SHEET 7 FOR PLACEMENT OF S5901 BARS
- 田 R501 BARS TO BE TIED TO DECK STEEL BEFORE DECK IS POURED. SEE SHEET 17 FOR PLACEMENT AND SHEET 14 FOR SPACING.
- ★ P502 AND Q502 BARS MAY BE PLACED BETWEEN GIRDERS AFTER CONCRETE IS POURED BUT BEFORE IT HAS TAKEN ITS INITIAL SET. EMBED BAR 1'-0".
- ✕ BARS PLACED PARALLEL TO GIRDERS, SPACING IS PERPENDICULAR TO C/L OF GIRDERS.



PARTIAL LONGITUDINAL SECTION



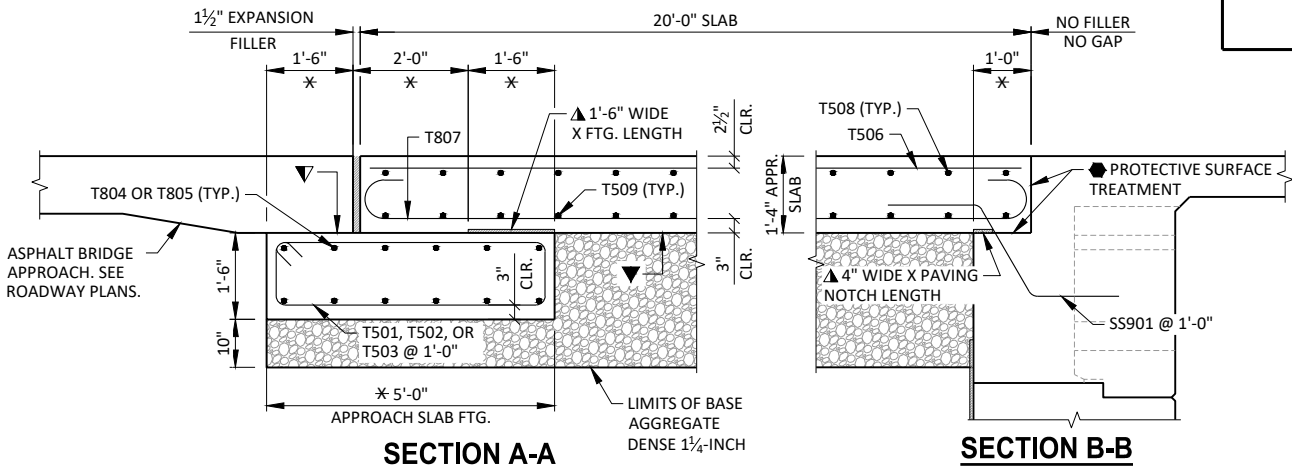


APPROACH SLAB PLAN

EAST APPROACH SHOWN, WEST APPROACH SIMILAR

END OF SLAB ELEVATIONS

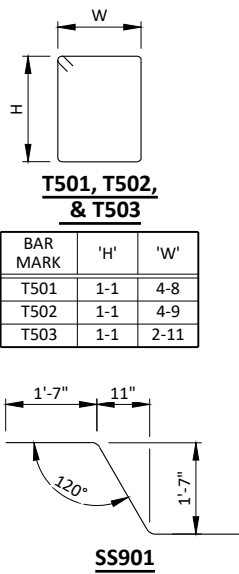
LOCATION	EAST APPROACH SLAB		WEST APPROACH SLAB	
	STATION	ELEV.	STATION	ELEV.
FACE S. PARAPET	94+72.90	1602.56	97+29.44	1602.86
C/L USH 51	94+76.78	1603.02	97+33.32	1603.28
FACE N. PARAPET	94+80.66	1602.60	97+37.20	1602.82



SECTION A-A

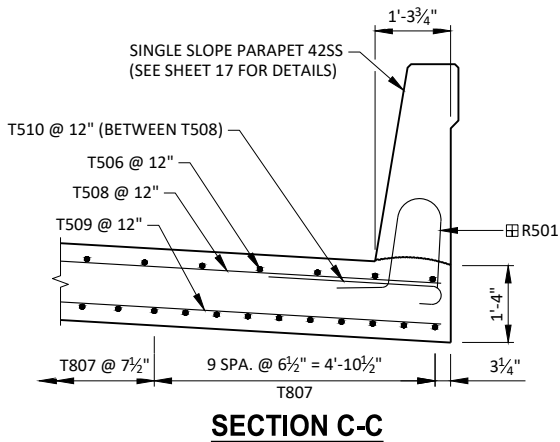
SECTION B-B

CROSS SECTION THROUGH APPROACH SLAB



LEGEND

- APPLY PROTECTIVE SURFACE TREATMENT TO HORIZONTAL AND VERTICAL SURFACES OF PAVING NOTCH PRIOR TO POURING STRUCTURAL APPROACH SLAB.
- DIMENSION IS NORMAL TO THE C/L OF THE SUBSTRUCTURE UNITS.
- 3/4" PREFORMED JOINT FILLER, EXTEND AS SHOWN.
- FILLER EXTEND AS SHOWN. SEAL ALL EXPOSED HORIZ. & VERT. SURFACES OF FILLER WITH NON-STAINING GRAY, NON-BITUMINOUS JOINT SEALER. (1" DEEP & HOLD 3/8" BELOW SURFACE OF CONCRETE).
- STEEL TROWEL TOP SURFACE OF FOOTING AND PLACE MULTIPLE LAYERS OF POLYETHYLENE SHEETS OVER ENTIRE TOP OF FOOTING. TOTAL THICKNESS OF SHEETS SHALL BE AT LEAST 0.03".
- PLACE MULTIPLE LAYERS OF POLYETHYLENE SHEETS OVER THE ENTIRE TOP OF SUBGRADE BENEATH SLAB. TOTAL THICKNESS OF SHEETS SHALL BE AT LEAST 0.03".
- R501 BARS TO BE TIED TO APPROACH SLAB STEEL BEFORE APPROACH SLAB IS POURED. SEE SHEET 17 FOR PLACEMENT AND SHEET 14 FOR SPACING.

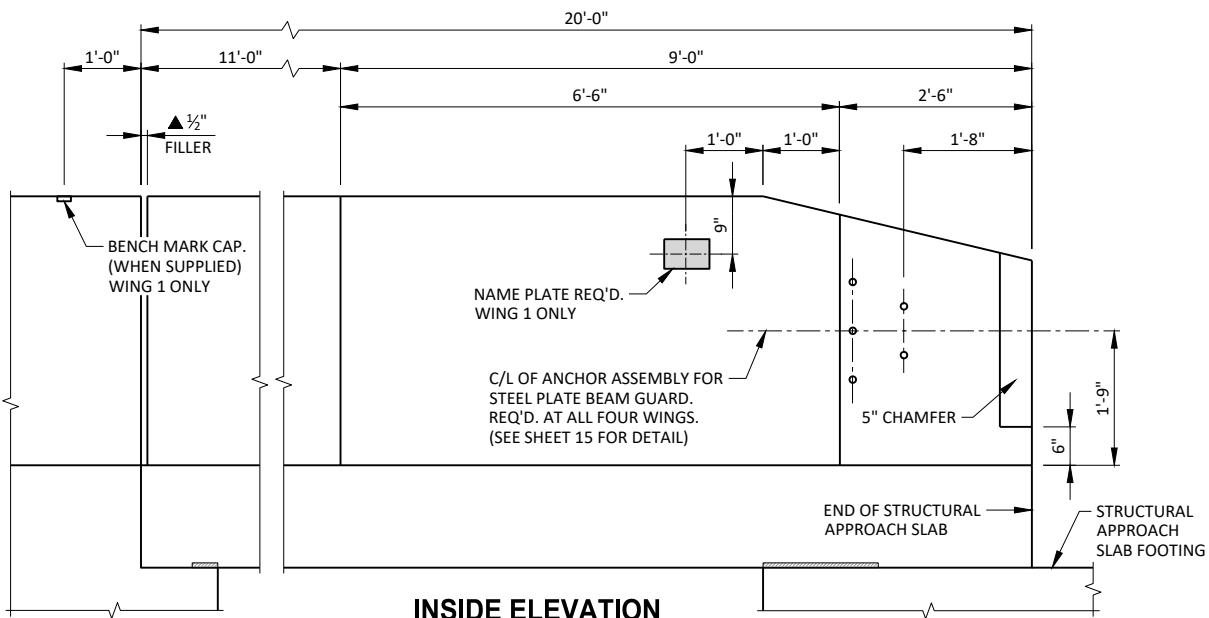


SECTION C-C

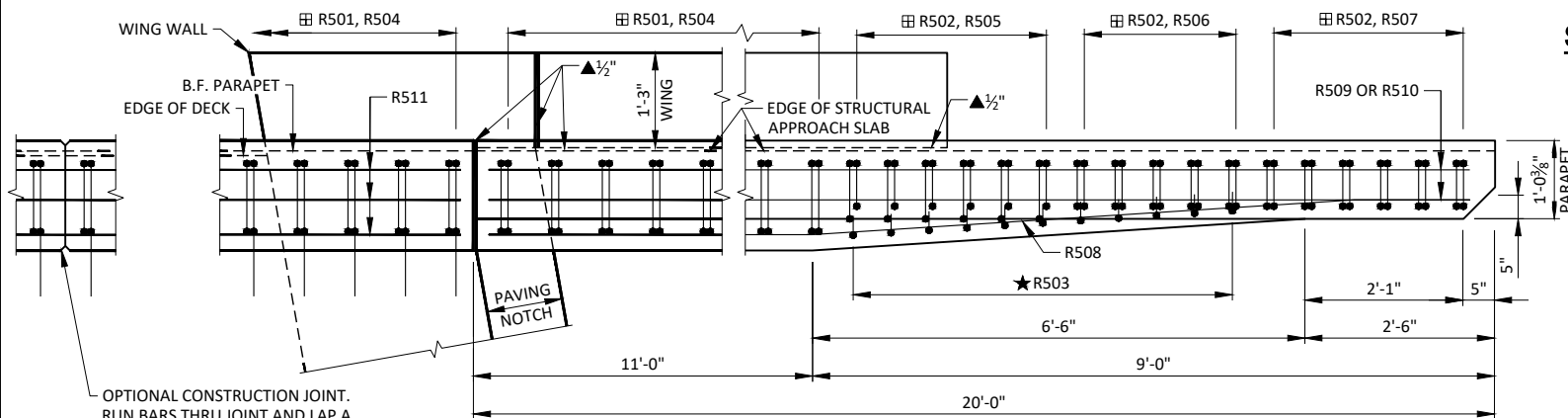
BILL OF BARS
TWO STRUCTURAL
APPROACH SLABS

BAR MARK	NO. REQ'D.	LENGTH	BENT	COAT	LOCATION
					LOCATION
T501	86	12-2	X	X	APPROACH SLAB FTG. - STIRRUP
T502	4	12-4	X	X	APPROACH SLAB FTG. - ENDS
T503	8	8-8	X	X	APPROACH SLAB FTG. - ENDS @ NOTCH
T804	16	47-0		X	APPROACH SLAB FTG. - TRANS
T805	8	44-4		X	APPROACH SLAB FTG. - TRANS @ NOTCH
T506	94	19-8		X	APPROACH SLAB - LONG. - TOP
T807	154	21-6	X	X	APPROACH SLAB - LONG. - BOT.
T508	42	47-0		X	APPROACH SLAB - TRANS. - TOP
T509	42	47-0		X	APPROACH SLAB - TRANS. - BOT.
T510	80	4-1	X	X	APPROACH SLAB - EDGE
STAINLESS STEEL					
SS901	94	5-0	X		CONC. ABUT. DIAPH. TO APPROACH SLAB

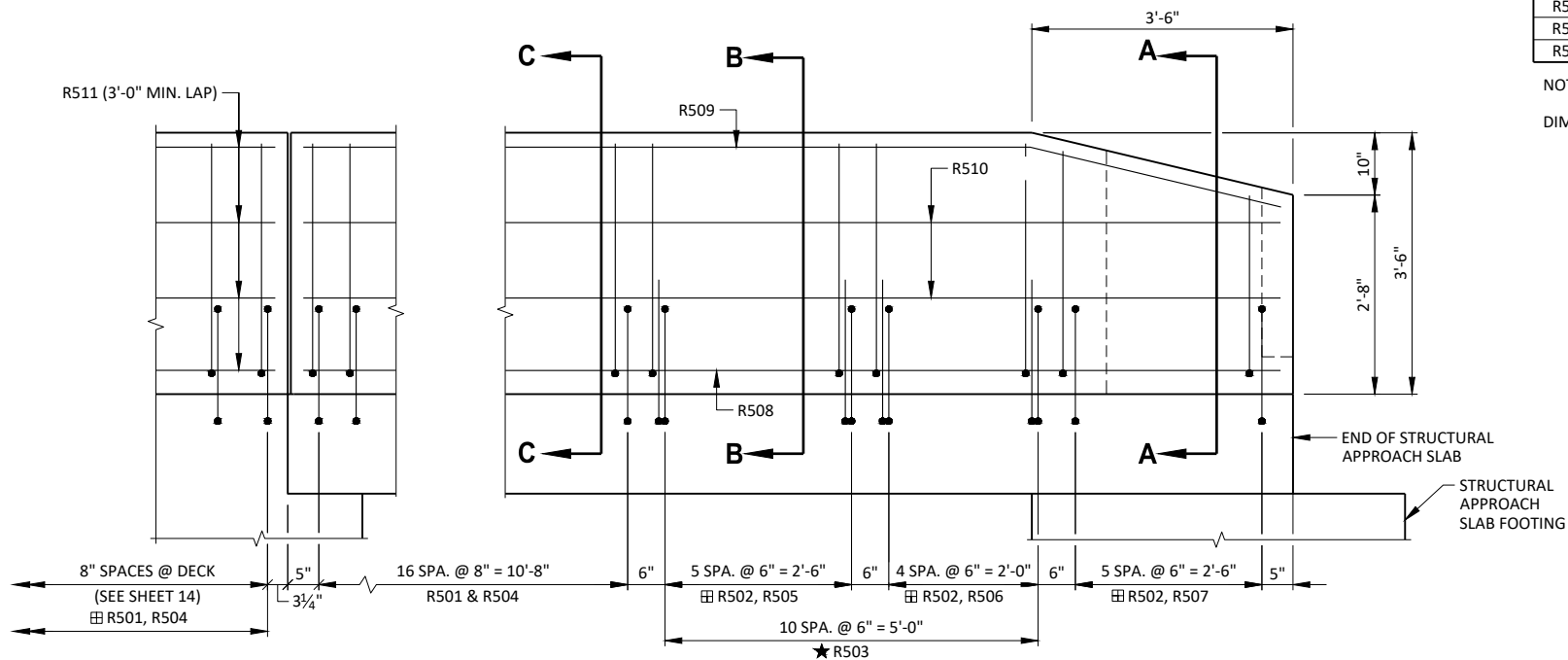
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-63-27			
DRAWN BY		CTMP	PLANS CK'D. PTB
STRUCTURAL APPROACH SLAB		SHEET 16 OF 17 118	



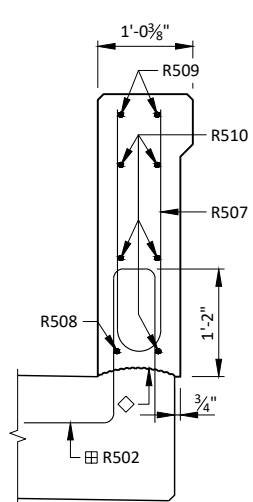
INSIDE ELEVATION
WING 1 SHOWN, OTHER WINGS SIMILAR



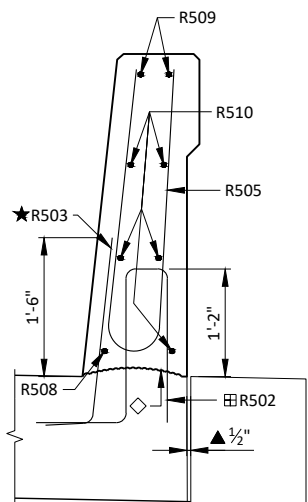
PLAN



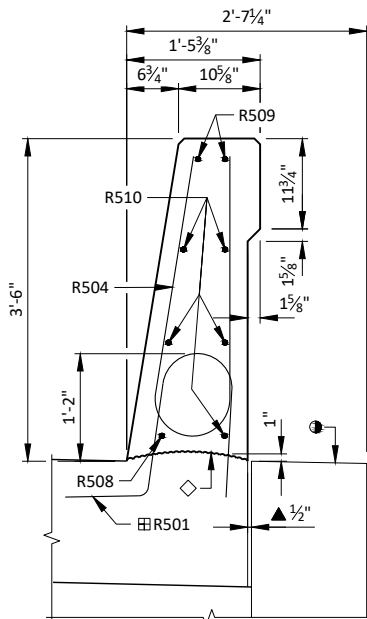
STEEL LAYOUT



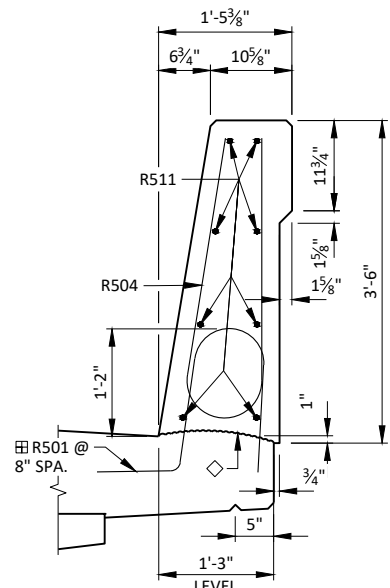
SECTION A



SECTION B



SECTION C



SECTION THROUGH
PARAPET ON BRIDGE

BILL OF BARS
PARAPETS

13,630 LB (COATED)

BAR MARK	NO. REQ'D.	LENGTH	BENT	COAT	BAR SERIES	LOCATION
R501	718	4-5	X	X		PARAPET - VERT.
R502	68	4-4	X	X		PARAPET - VERT.
R503	44	2-9	X	X		PARAPET - VERT.
R504	718	6-8	X	X		PARAPET - VERT.
R505	24	6-6	X	X		PARAPET - VERT.
R506	20	6-5	X	X		PARAPET - VERT.
R507	24	5-5	X	X	*	PARAPET - VERT.
R508	4	19-4	X	X		PARAPET - HORIZ. - WINGS
R509	8	19-6	X	X		PARAPET - HORIZ. - WINGS
R510	20	19-2		X		PARAPET - HORIZ. - WINGS
R511	80	45-9		X		PARAPET - HORIZ.

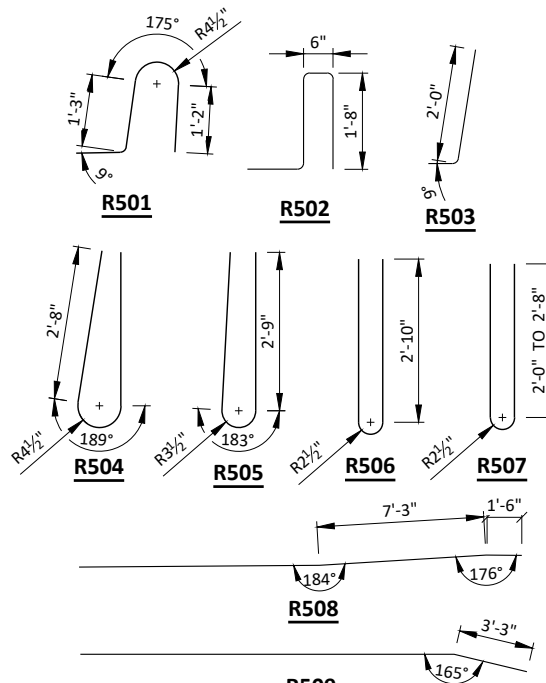
NOTES: THE FIRST DIGIT OF A BAR MARK SIGNIFIES THE BAR SIZE.
DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT OF BAR.

NOTES

SOME BARS HAVE BEEN OMITTED FOR CLARITY. SEE THIS SHEET FOR BILL OF BARS.

LEGEND

- ◇ CONSTRUCTION JOINT. STRIKE OFF AS SHOWN.
- ▲ 1/2" FILLER EXTEND AS SHOWN. SEAL ALL EXPOSED HORIZ. & VERT. SURFACES OF FILLER WITH NON-STAINING GRAY, NON-BITUMINOUS JOINT SEALER. (1" DEEP & HOLD 1/8" BELOW SURFACE OF CONCRETE)
- ★ R503 BARS MAY BE PLACED AFTER CONCRETE IS POURED BUT BEFORE INITIAL SET HAS TAKEN PLACE. USE CARE TO PLACE R503 BARS CORRECTLY ALONG TRANSITION OF PARAPET.
- ⊞ R501 AND R502 BARS TO BE TIED TO DECK AND APPROACH SLAB STEEL BEFORE EACH IS POURED.
- SLOPE FOR DRAINAGE.



BAR SERIES TABLE

BAR MARK	NO. REQ'D.	LENGTH
R507	4 SERIES OF 6	4-9 TO 6-1

BUNDLE AND TAG EACH SERIES SEPARATELY

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-63-27			
DRAWN BY		CTMP	PLANS CK'D. PTB
SINGLE SLOPE PARAPET 42SS		SHEET 17 OF 17 119	

EARTHWORK - MAINLINE

STATION	AREA (SF)		INCREMENTAL VOLUME (CY)			CUMULATIVE VOLUME (CY)			
			(5)						
	CUT	FILL	(1) CUT	(2) UNEXPANDED FILL	EXPANDED FILL (1.25)	CUT	FILL	FILL (1.25)	(6) MASS ORDINATE
92+00	74	0	0	0	0	0	0	0	0
92+50	87	0	148	0	0	148	0	0	148
93+00	93	6	170	5	7	318	5	7	311
93+50	85	18	168	22	27	486	27	34	452
94+00	76	1	153	17	21	639	44	55	584
94+50	57	38	126	35	44	765	79	99	666
94+97	57	38	103	65	82	868	144	181	687
94+97	0	0	0	0	0	868	144	181	687
97+13	0	0	0	0	0	868	144	181	687
97+13	43	34	0	0	0	868	144	181	687
97+50	43	34	60	47	59	928	191	240	688
98+00	85	7	121	38	46	1049	229	286	763
98+50	73	7	149	12	15	1198	241	301	897
99+00	73	7	139	12	16	1337	253	317	1020
99+50	76	27	141	31	38	1478	284	355	1123
100+00	69	6	136	30	38	1614	314	393	1221
100+10	73	24	26	6	7	1640	320	400	1240
MAINLINE SUBTOTALS =			1640	320	400	1640	320	400	1240

EARTHWORK - 'A'-LINE

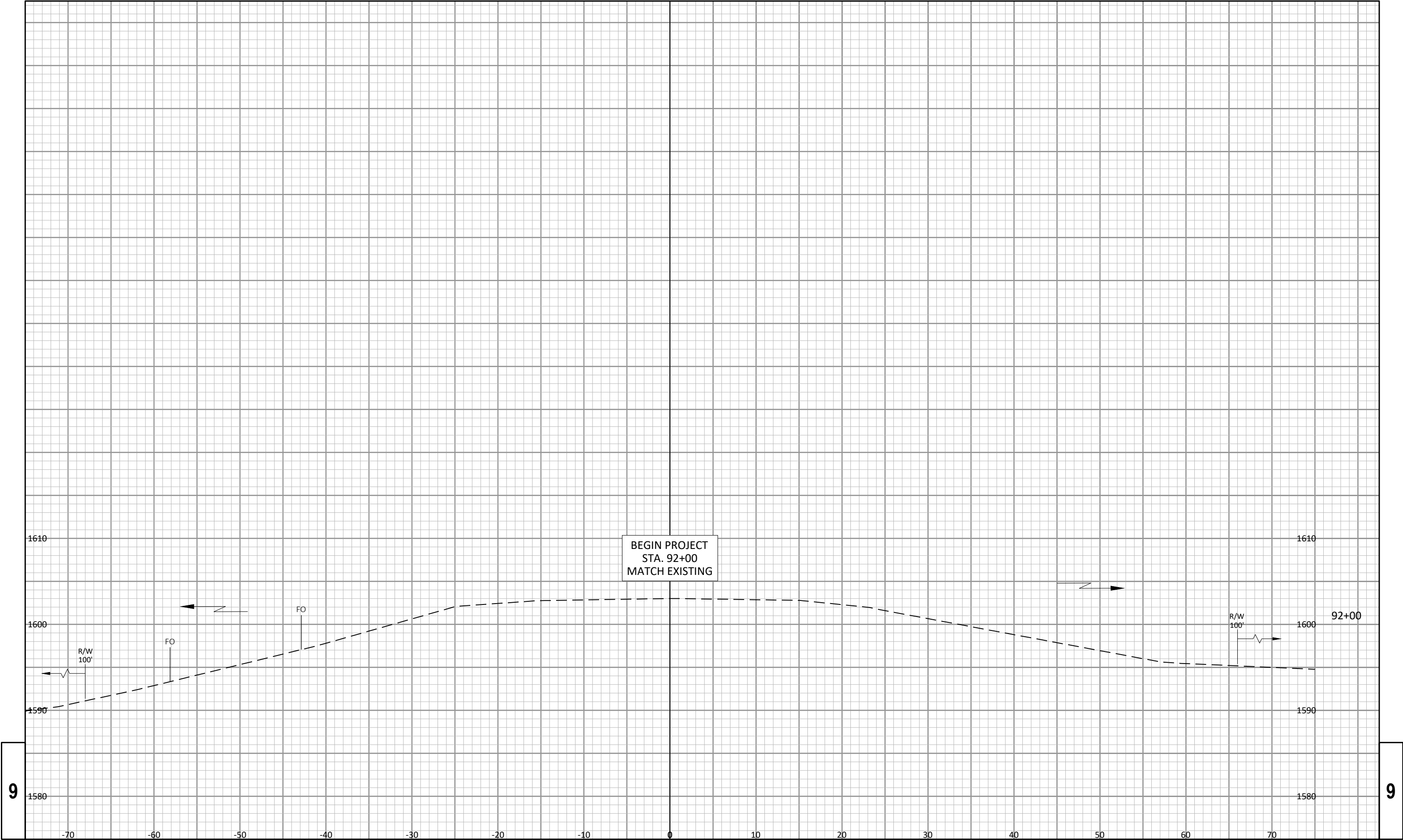
STATION	AREA (SF)			INCREMENTAL VOLUME (CY)					CUMULATIVE VOLUME (CY)					
				(4) (5)										
	MARSH			(1)	(2)	(3)	REDUCED	EXPANDED			REDUCED	EXPANDED	(6)	
	CUT	CUT	FILL	CUT	UNEXPANDED	EXCAVATION	MARSH	FILL	UNEXPANDED	EXCAVATION	MARSH	FILL	MASS	
	CUT	CUT	FILL	CUT	FILL	MARSH	INFILL (0.6)	1.25	CUT	FILL	MARSH	INFILL (0.6)	1.25	ORDINATE
10'A'+15	0	0	196	0	0	0	0	0	0	0	0	0	0	0
10'A'+50	0	0	195	0	253	0	0	316	0	253	0	0	316	-316
11'A'+00	0	21	215	0	380	25	15	456	0	633	25	15	772	-772
11'A'+50	4	16	146	4	334	45	27	384	4	967	70	42	1156	-1152
12'A'+00	68	0	17	67	151	20	12	174	71	1118	90	54	1330	-1259
12'A'+40	118	0	0	138	12	0	0	15	209	1130	90	54	1345	-1136
12'A'+50	157	0	0	51	0	0	0	0	260	1130	90	54	1345	-1085
'A' - LINE COLUMN SUBTOTALS =				260	1130	90	54	1345	260	1130	90	54	1345	-1085

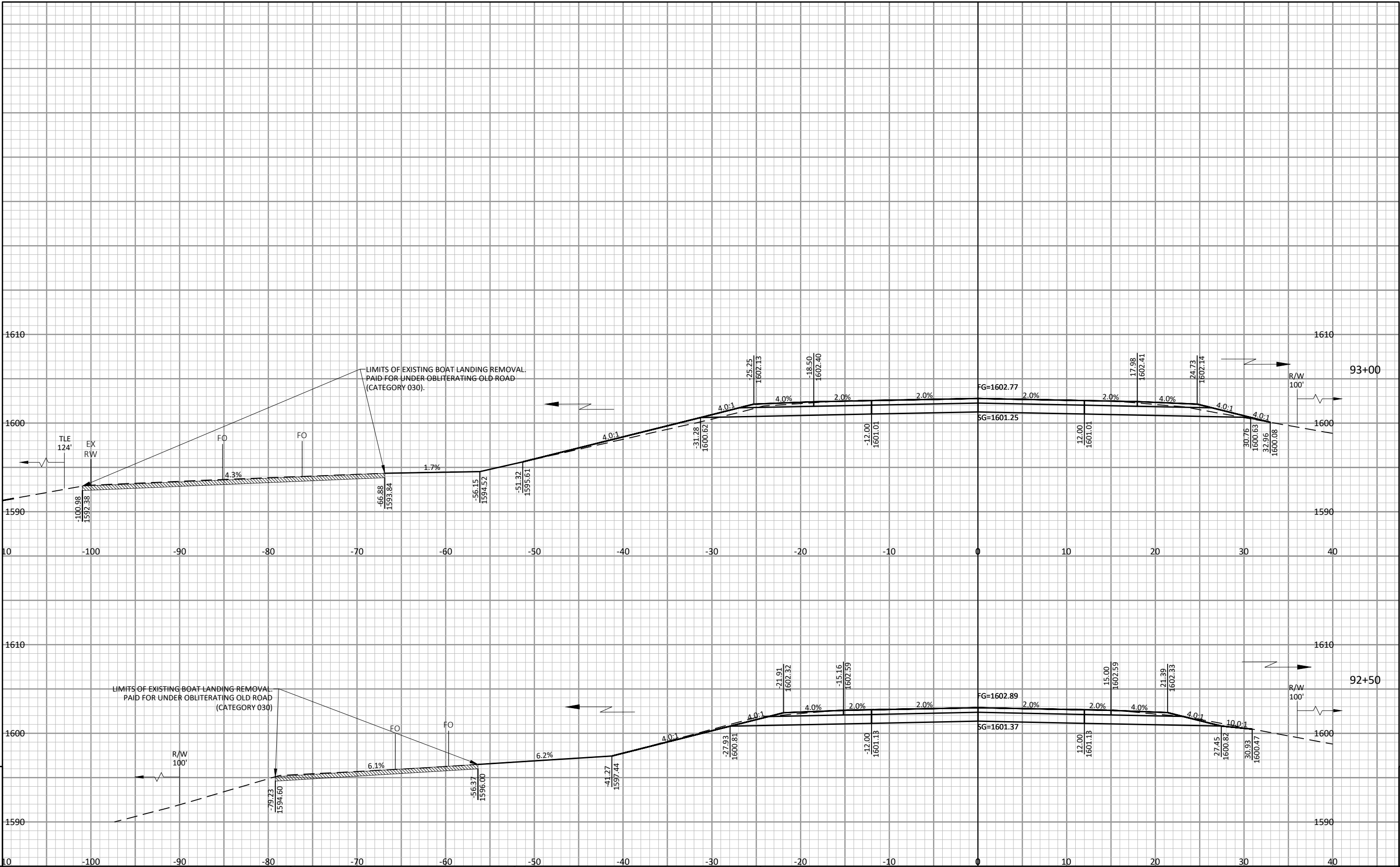
NOTES:
(1) COMMON EXCAVATION IS THE SUM OF THE CUT. ITEM NUMBER 205.0100
(2) UNEXPANDED FILL DOES NOT INCLUDE UNUSABLE PAVEMENT EXCAVATION VOLUMES.
(3) EXCAVATION MARSH - TO BE BACKFILLED WITH SELECT CRUSHED MATERIAL. ITEM NUMBER 312.0115.
(4) REDUCED MARSH IN FILL - EXCAVATED MARSH MATERIAL IS USABLE IN FILLS OUTSIDE THE 2:1 SLOPE. MARSH IN FILL REDUCTION FACTOR = 0.6.
(5) EXPANDED FILL = (UNEXPANDED FILL - REDUCED MARSH (0.6)) * 1.25
(6) MASS ORDINATE = CUT - EXPANDED FILL. + 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.

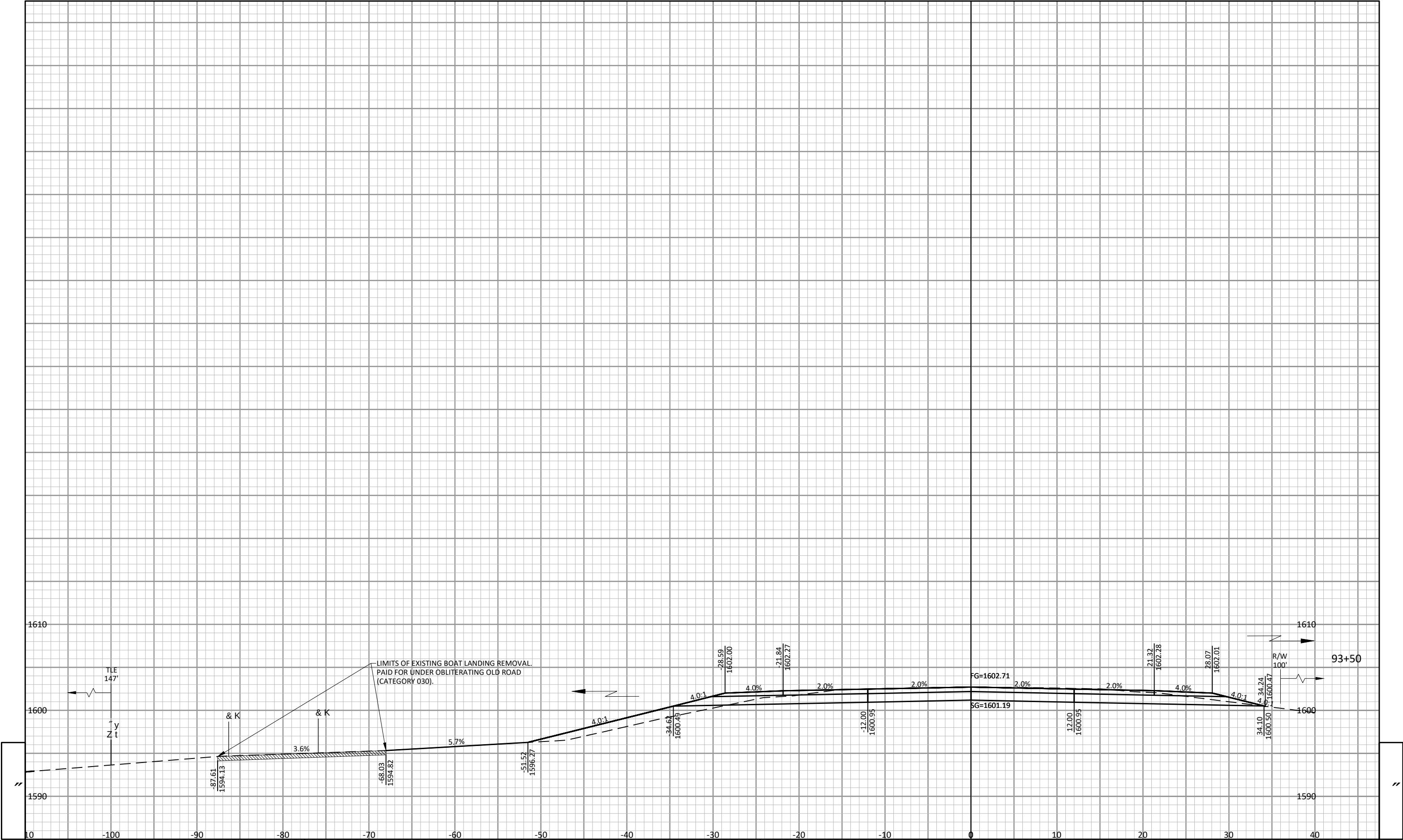
EARTHWORK SUMMARY

CATEGORY	STATION - STATION	LOCATION	205.0100 COMMON EXCAVATION (1)	(2) UNEXPANDED FILL (CY)	(3) 205.0400 MARSH EXCAVATION (CY)	(4) REDUCED MARSH IN FILL (CY)	(5) EXPANDED FILL	(6) MASS ORDINATE
			CUT (CY)			FACTOR 0.60	FACTOR 1.25	+/- (CY)
010	92+00 - 100+10	MAINLINE	1,640	320	0	0	400	1,240
CATEGORY 010 SUBTOTAL			1,640	320	0	0	400	1,240
030	10'A'+15 - 12'A'+50	A'-LINE	260	1,130	90	54	1,345	-1,085
030	* BOAT LANDING SITE	-	7,200	20	0	0	25	7,175
CATEGORY 30 SUBTOTAL			7,460	1,150	90	54	1,370	6,090
PROJECT TOTAL			9,100	1,470	90	54	1,770	7,330

NOTES:
(1) COMMON EXCAVATION IS THE SUM OF THE CUT. ITEM NUMBER 205.0100
(2) UNEXPANDED FILL DOES NOT INCLUDE UNUSABLE PAVEMENT EXCAVATION VOLUMES.
(3) EXCAVATION MARSH - TO BE BACKFILLED WITH SELECT CRUSHED MATERIAL. ITEM NUMBER 312.0115.
(4) REDUCED MARSH IN FILL - EXCAVATED MARSH MATERIAL IS USABLE IN FILLS OUTSIDE THE 2:1 SLOPE. MARSH IN FILL REDUCTION FACTOR = 0.6.
(5) EXPANDED FILL = (UNEXPANDED FILL - REDUCED MARSH (0.6)) * 1.25
(6) MASS ORDINATE = CUT - EXPANDED FILL. + 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.
*SEE CONSTRUCTION DETAILS - BOAT LANDING GRADING DETAIL FOR ADDITIONAL INFORMATION OF EARTHWORK LIMITS.







PROJECT NO: 1170-22-70

HWY: USH 51

COUNTY: VILAS

CROSS SECTIONS: MAINLINE

SHEET

124

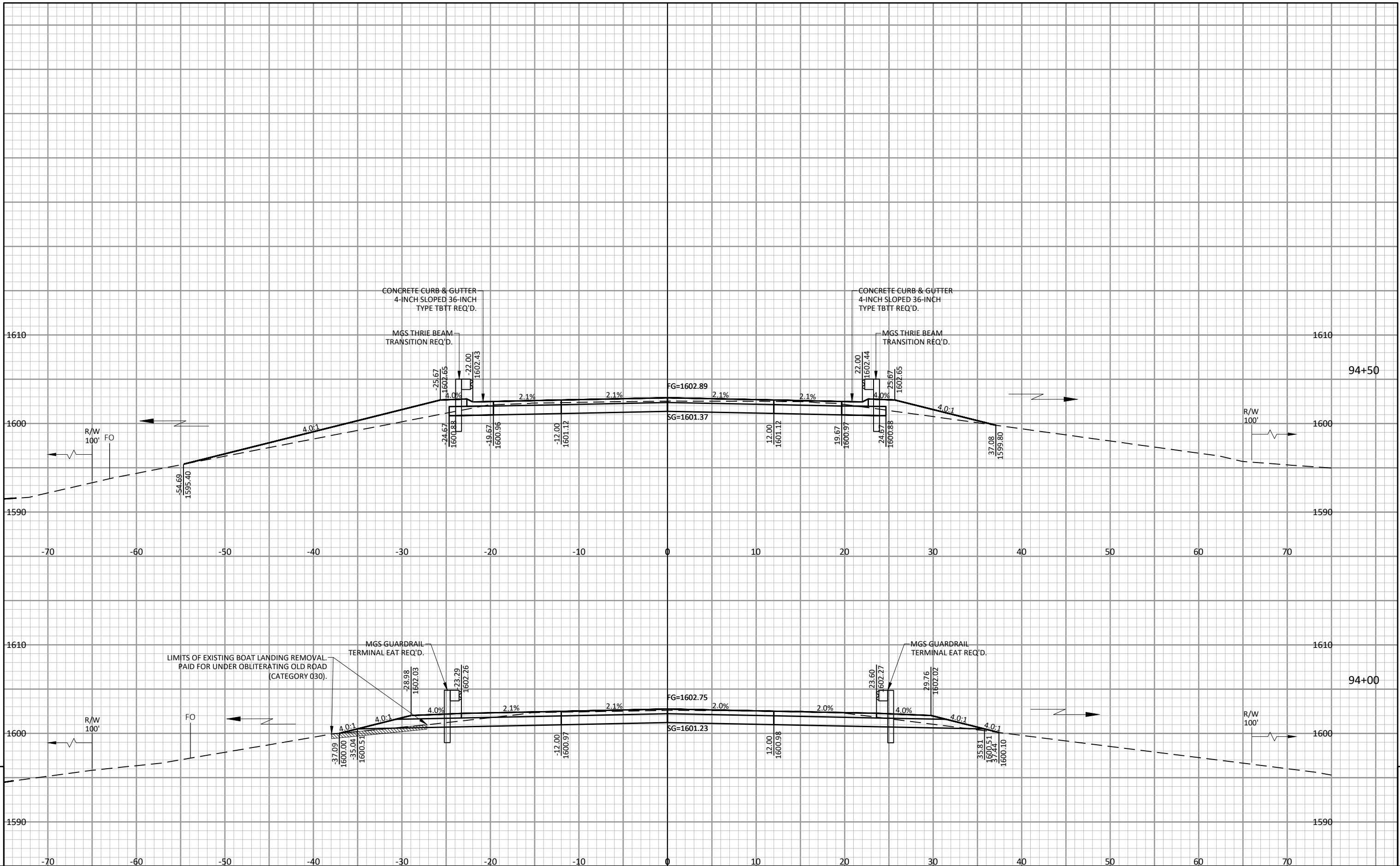
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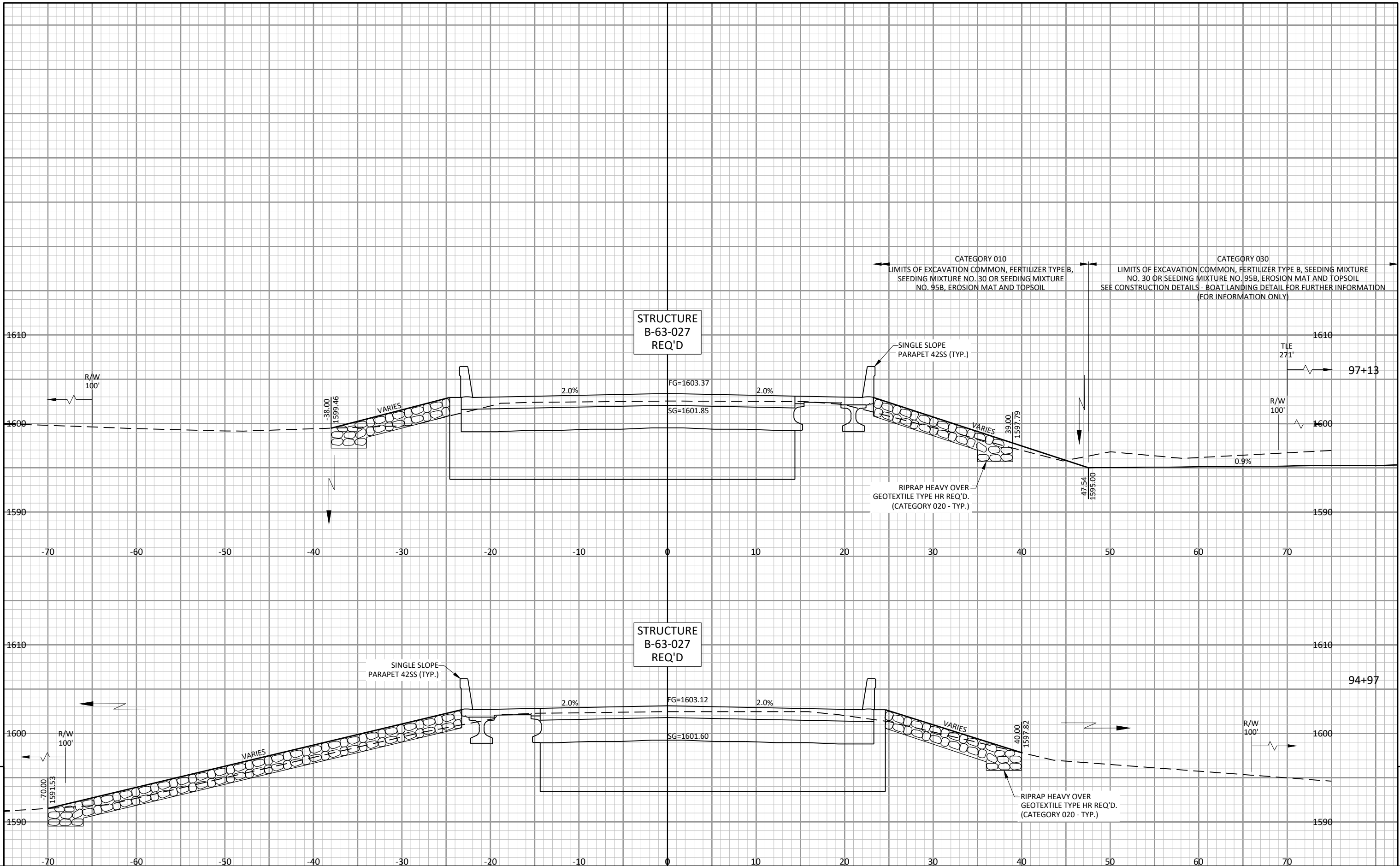
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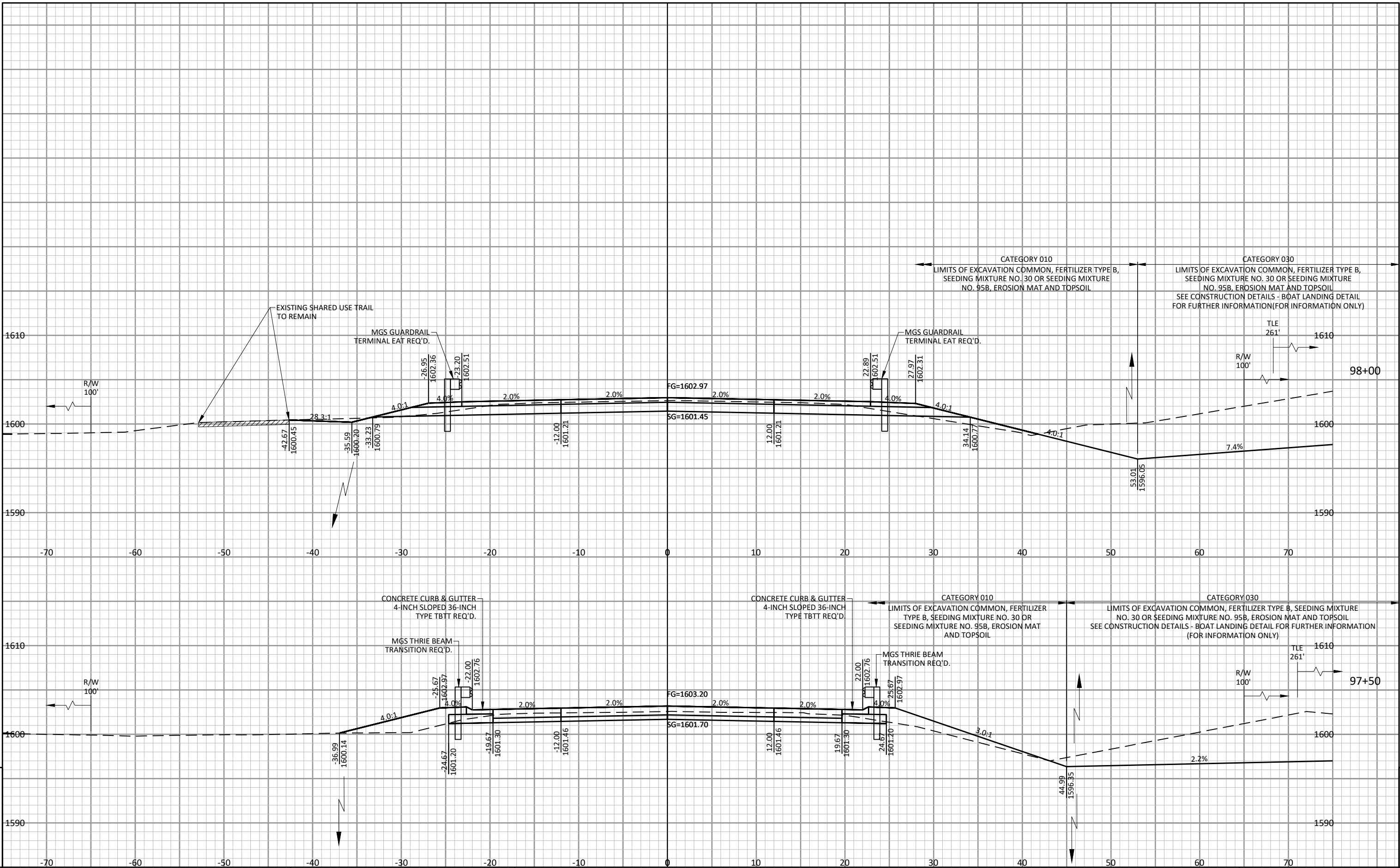
PLOT BY: CHLOE DIEHL

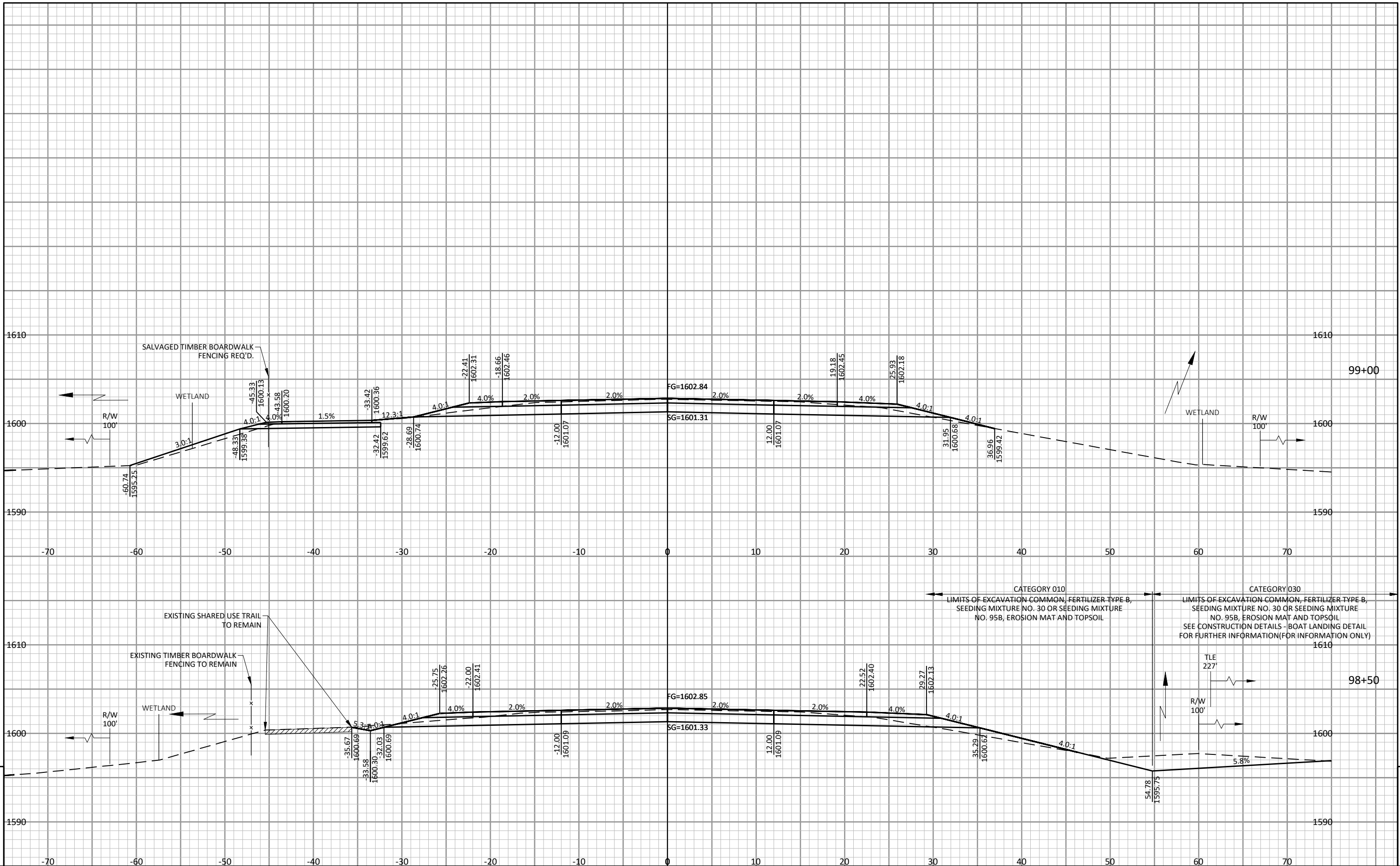
PLOT SCALE: 1" = 1'

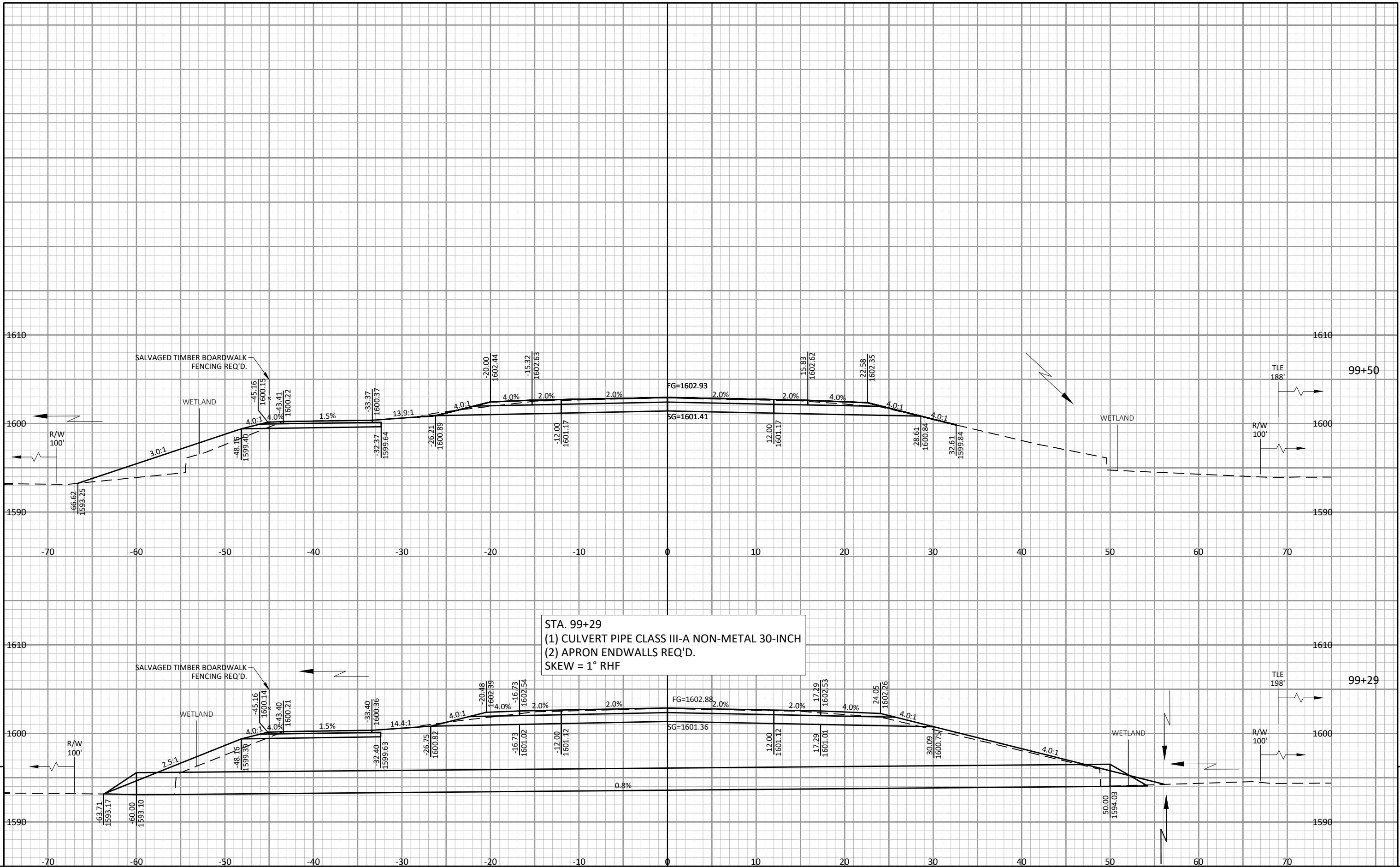
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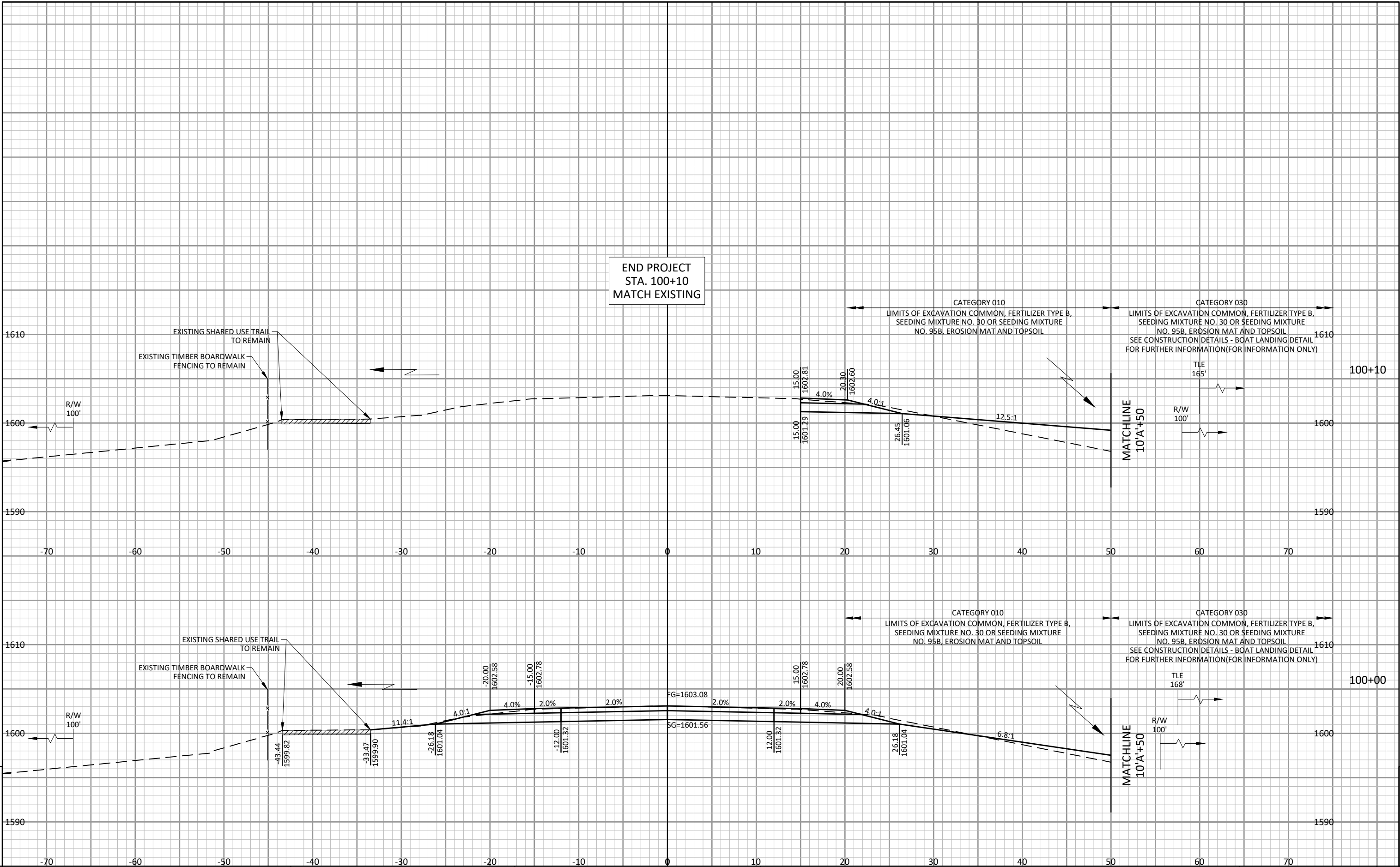












END PROJECT
STA. 100+10
MATCH EXISTING

CATEGORY 010
LIMITS OF EXCAVATION COMMON, FERTILIZER TYPE B,
SEEDING MIXTURE NO. 30 OR SEEDING MIXTURE
NO. 95B, EROSION/MAT AND TOPSOIL

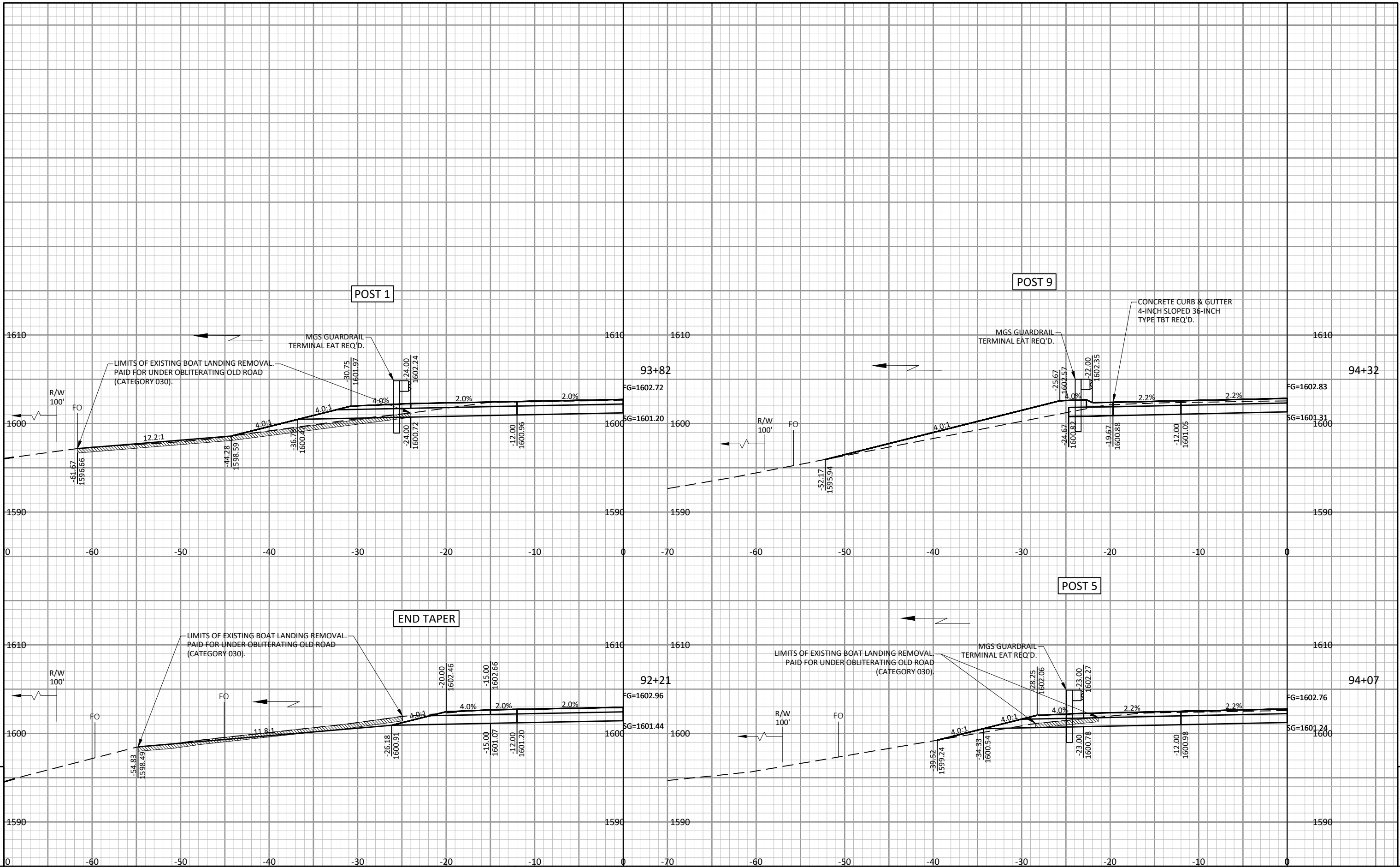
CATEGORY 030
LIMITS OF EXCAVATION COMMON, FERTILIZER TYPE B,
SEEDING MIXTURE NO. 30 OR SEEDING MIXTURE
NO. 95B, EROSION/MAT AND TOPSOIL
SEE CONSTRUCTION DETAILS - BOAT LANDING/DETAIL
FOR FURTHER INFORMATION(FOR INFORMATION ONLY)

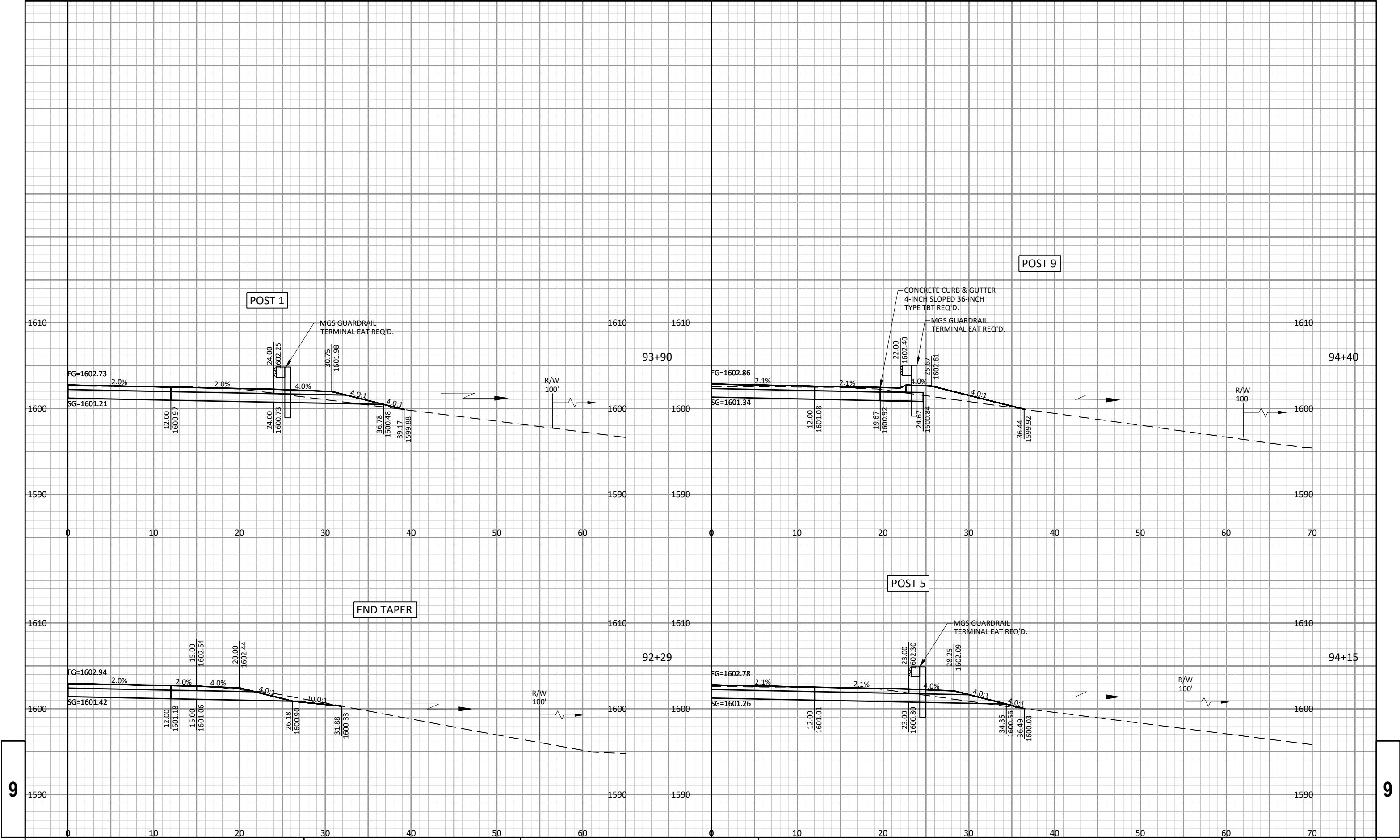
MATCHLINE
10'A+50

CATEGORY 010
LIMITS OF EXCAVATION COMMON, FERTILIZER TYPE B,
SEEDING MIXTURE NO. 30 OR SEEDING MIXTURE
NO. 95B, EROSION/MAT AND TOPSOIL

CATEGORY 030
LIMITS OF EXCAVATION COMMON, FERTILIZER TYPE B,
SEEDING MIXTURE NO. 30 OR SEEDING MIXTURE
NO. 95B, EROSION/MAT AND TOPSOIL
SEE CONSTRUCTION DETAILS - BOAT LANDING/DETAIL
FOR FURTHER INFORMATION(FOR INFORMATION ONLY)

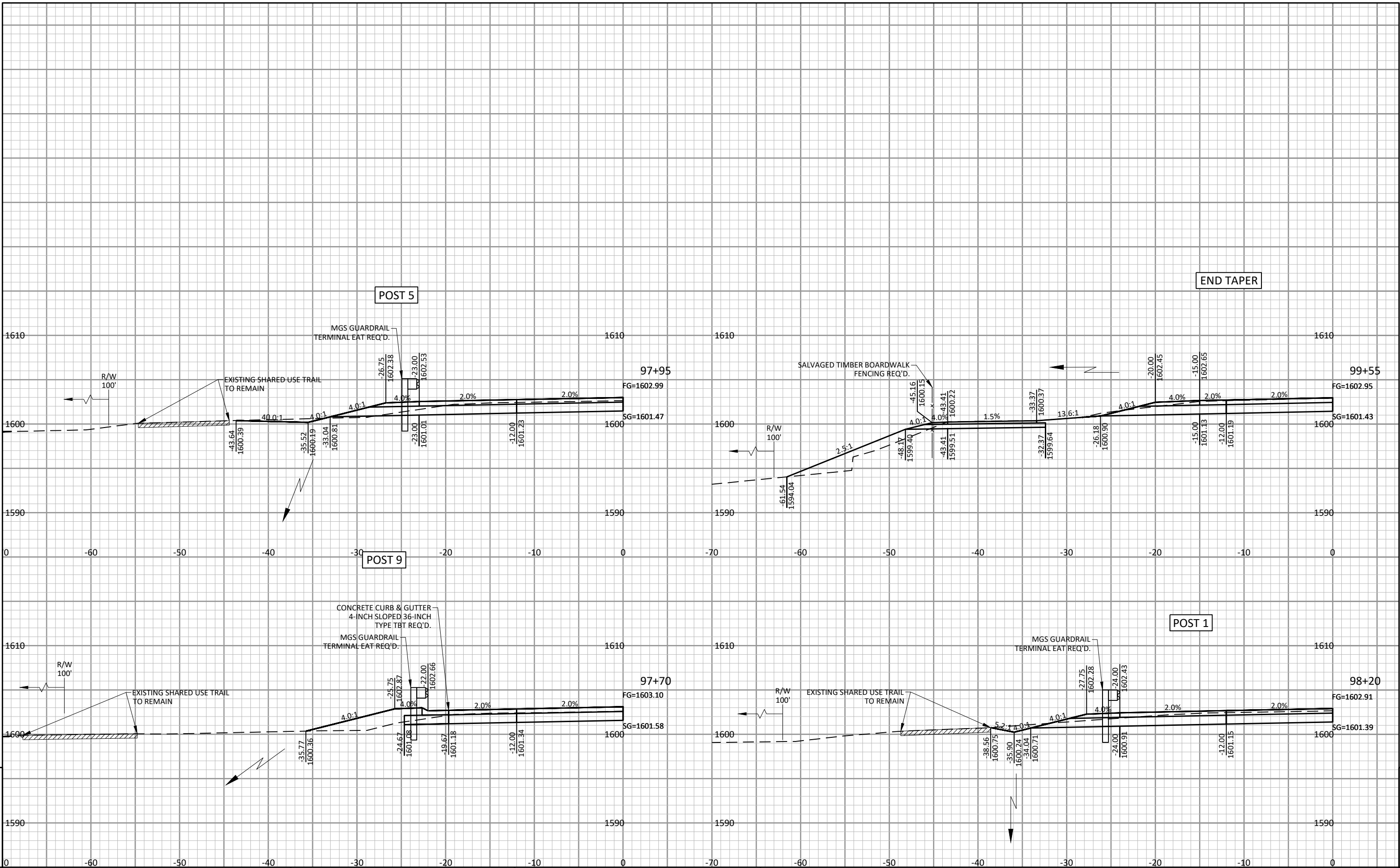
MATCHLINE
10'A+50

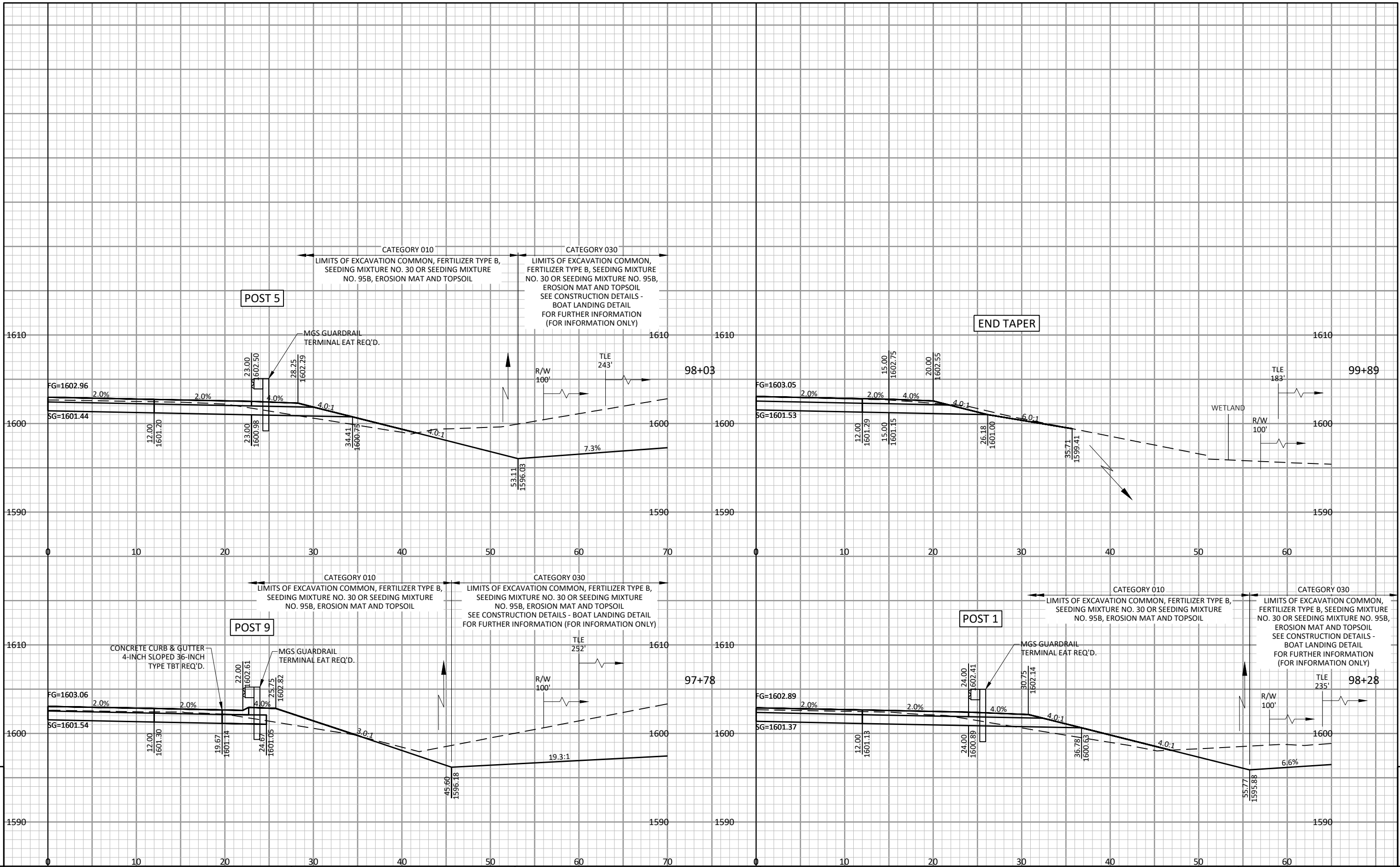


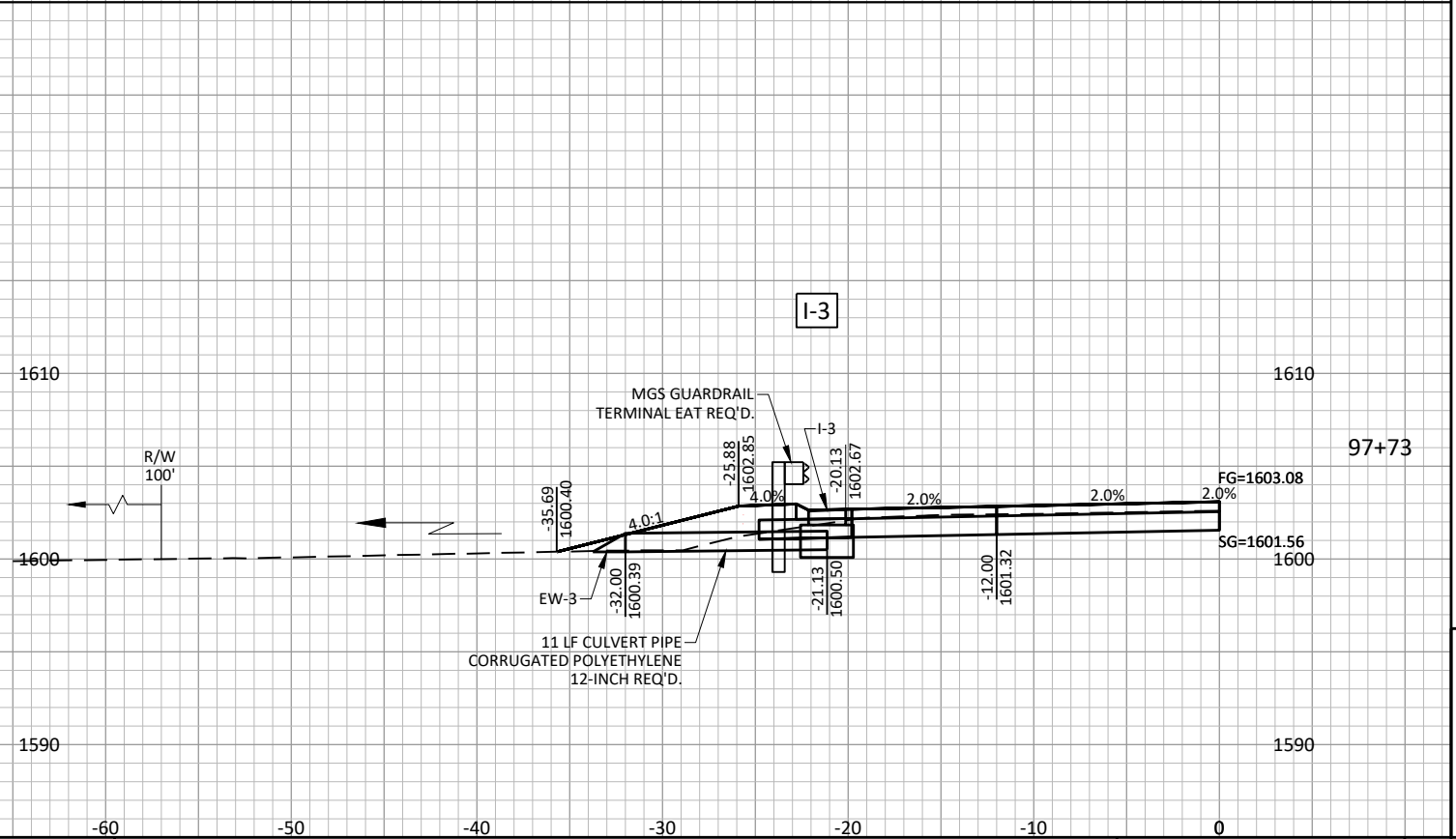
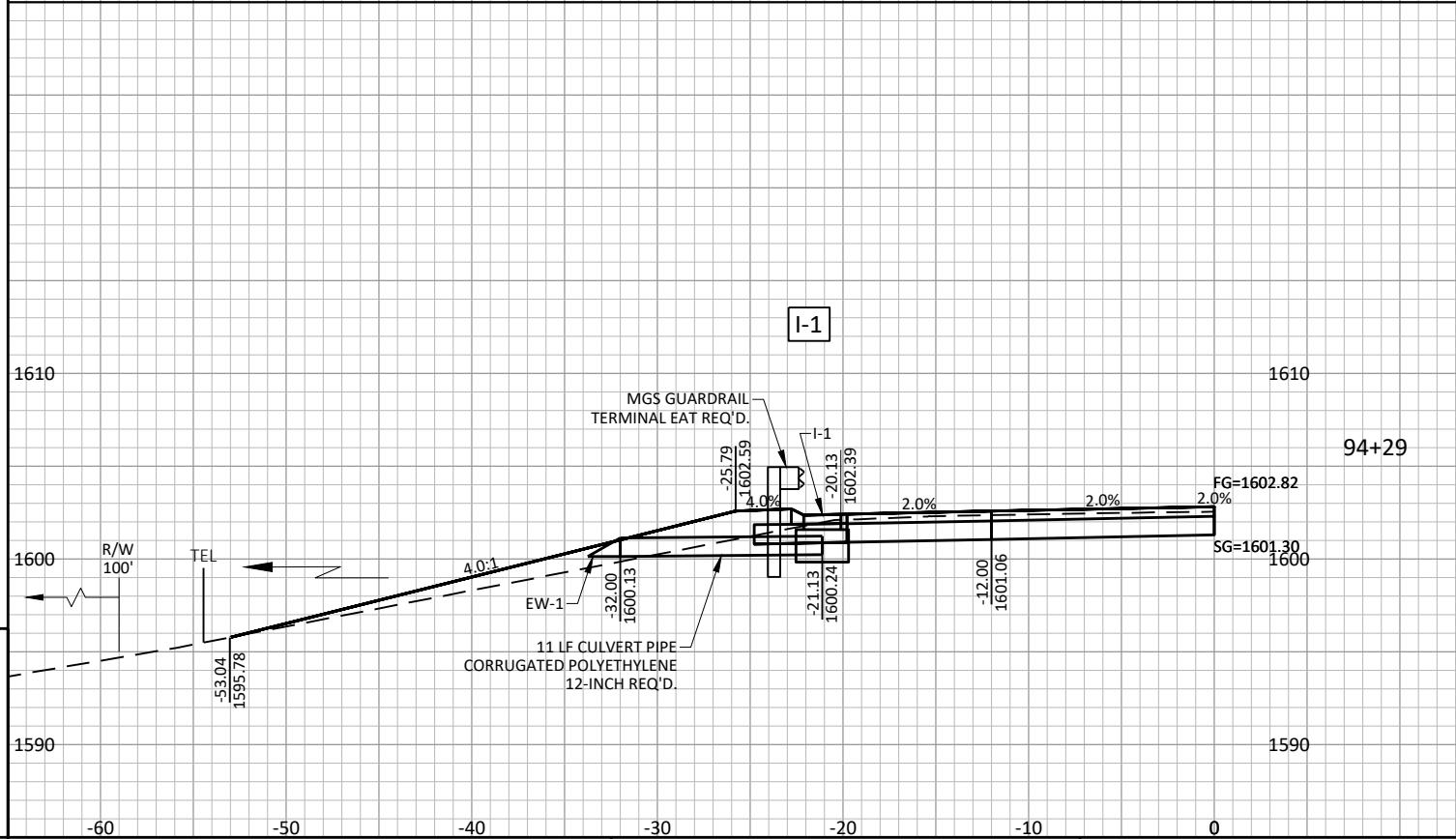
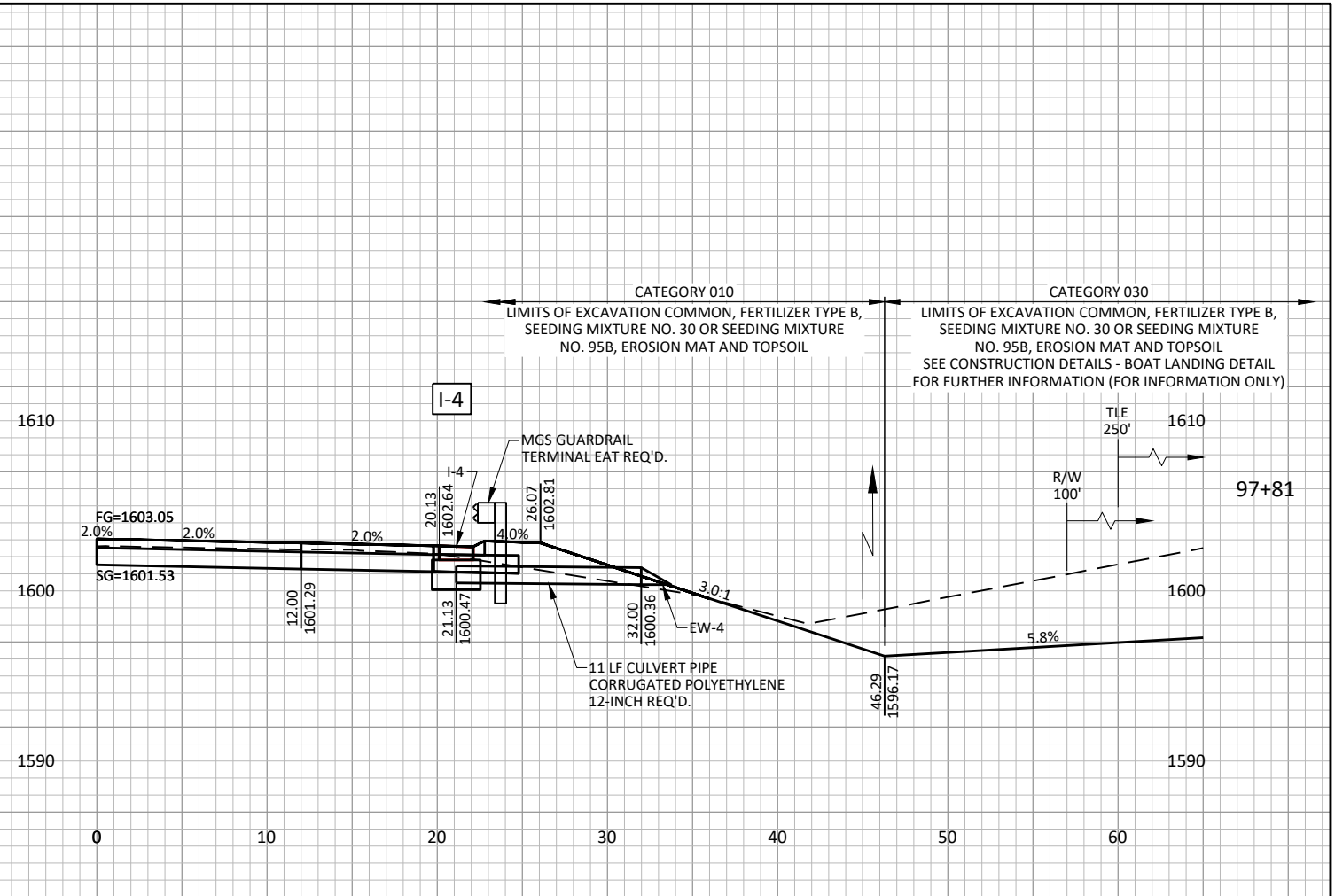
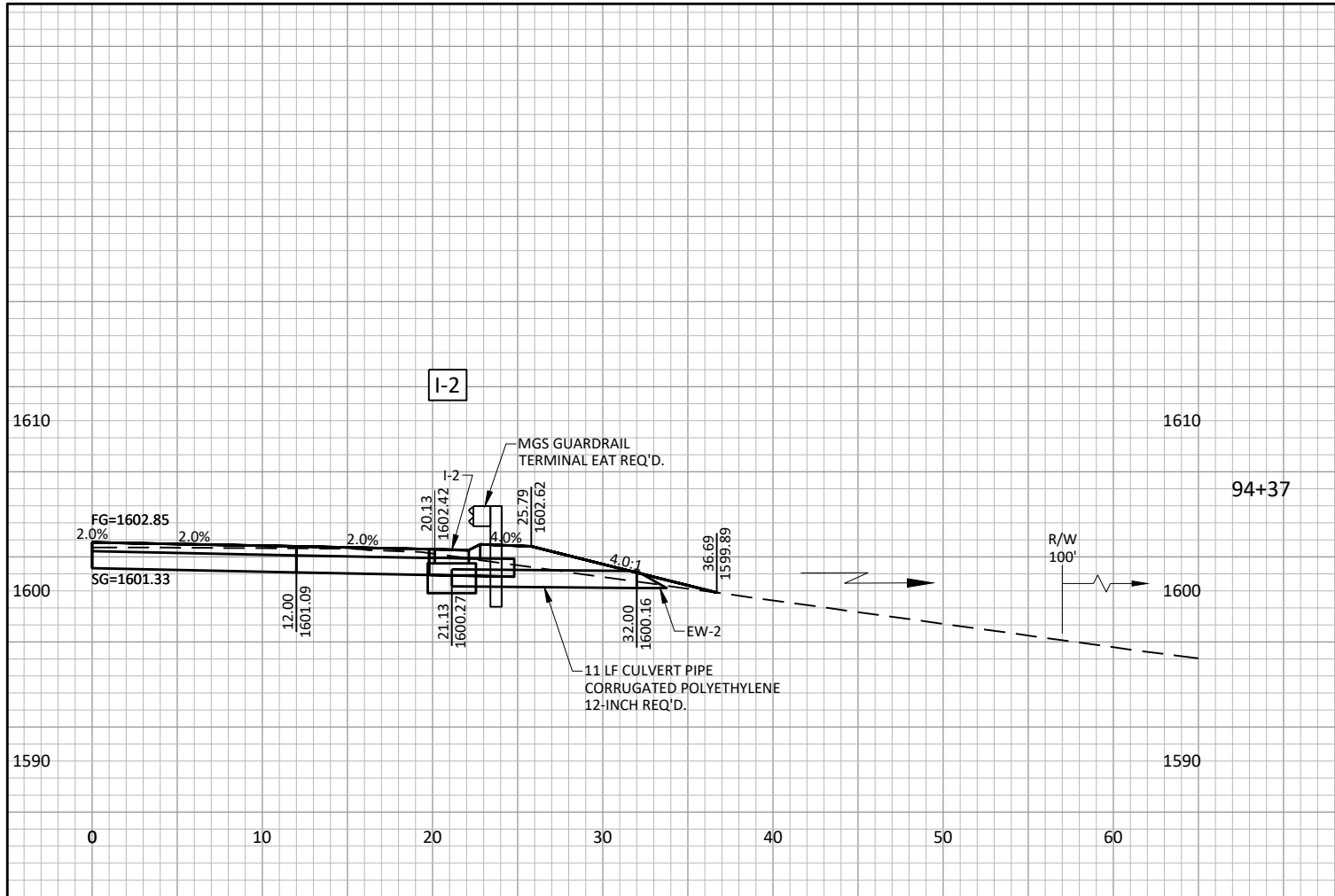


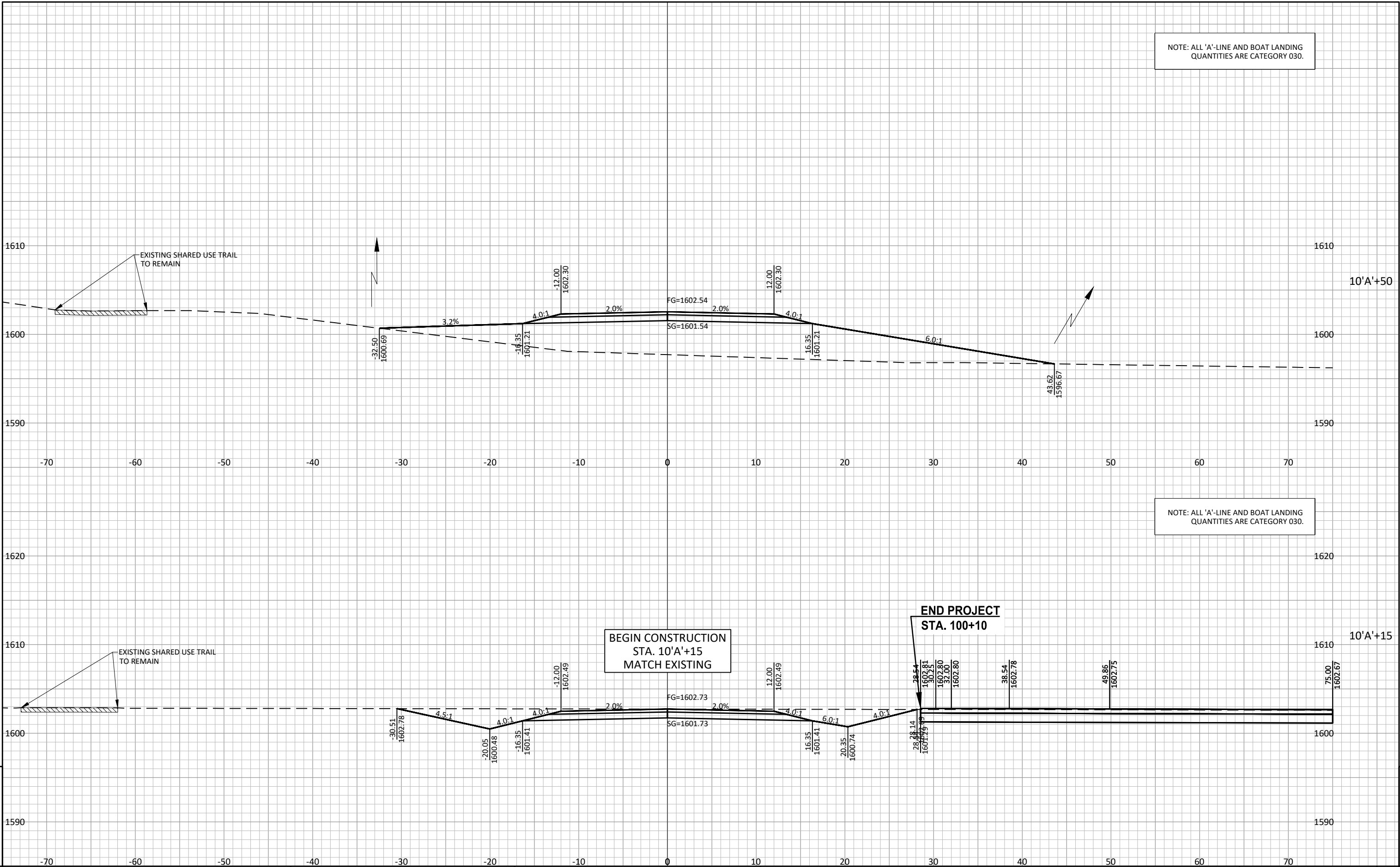
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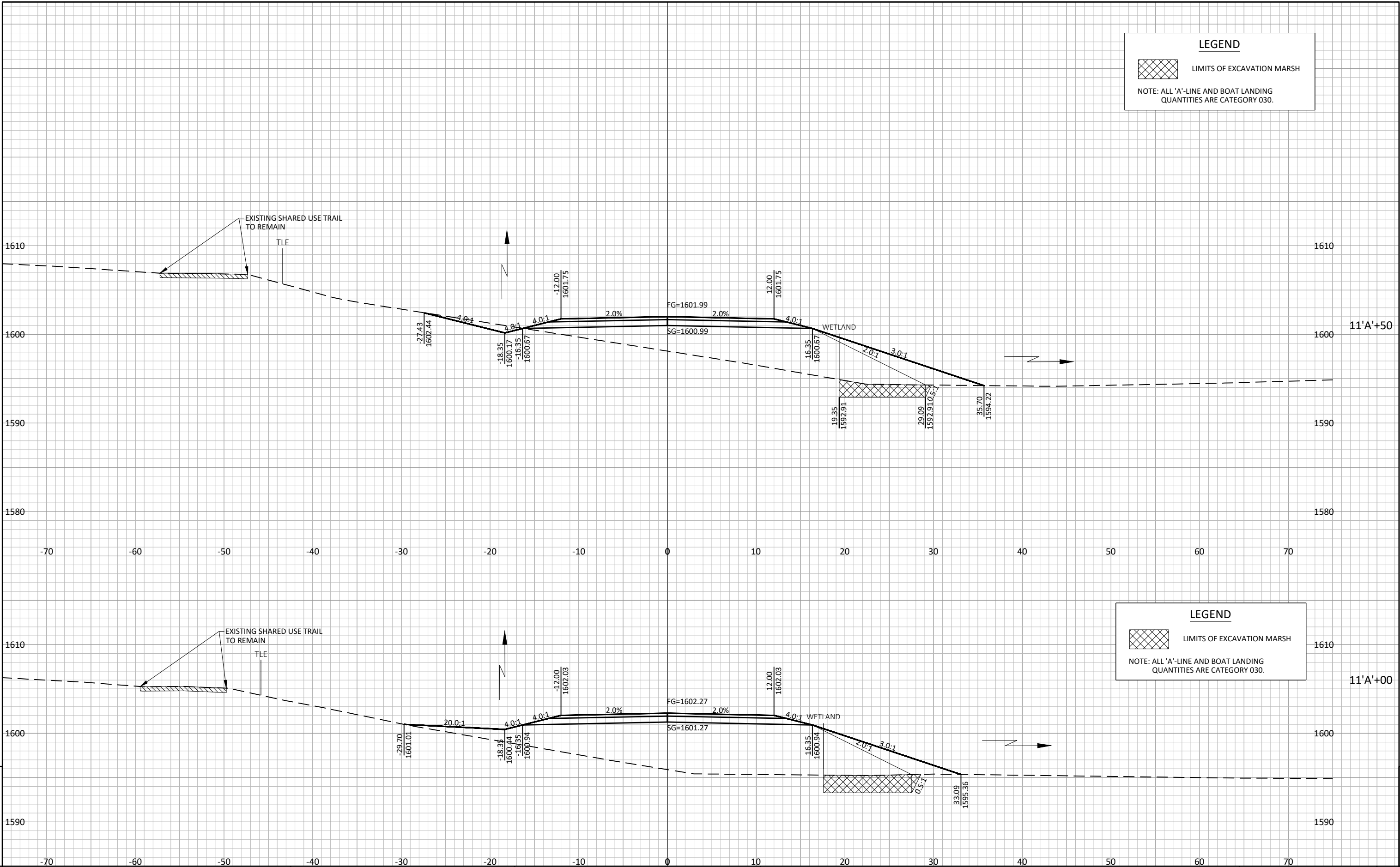
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LEGEND

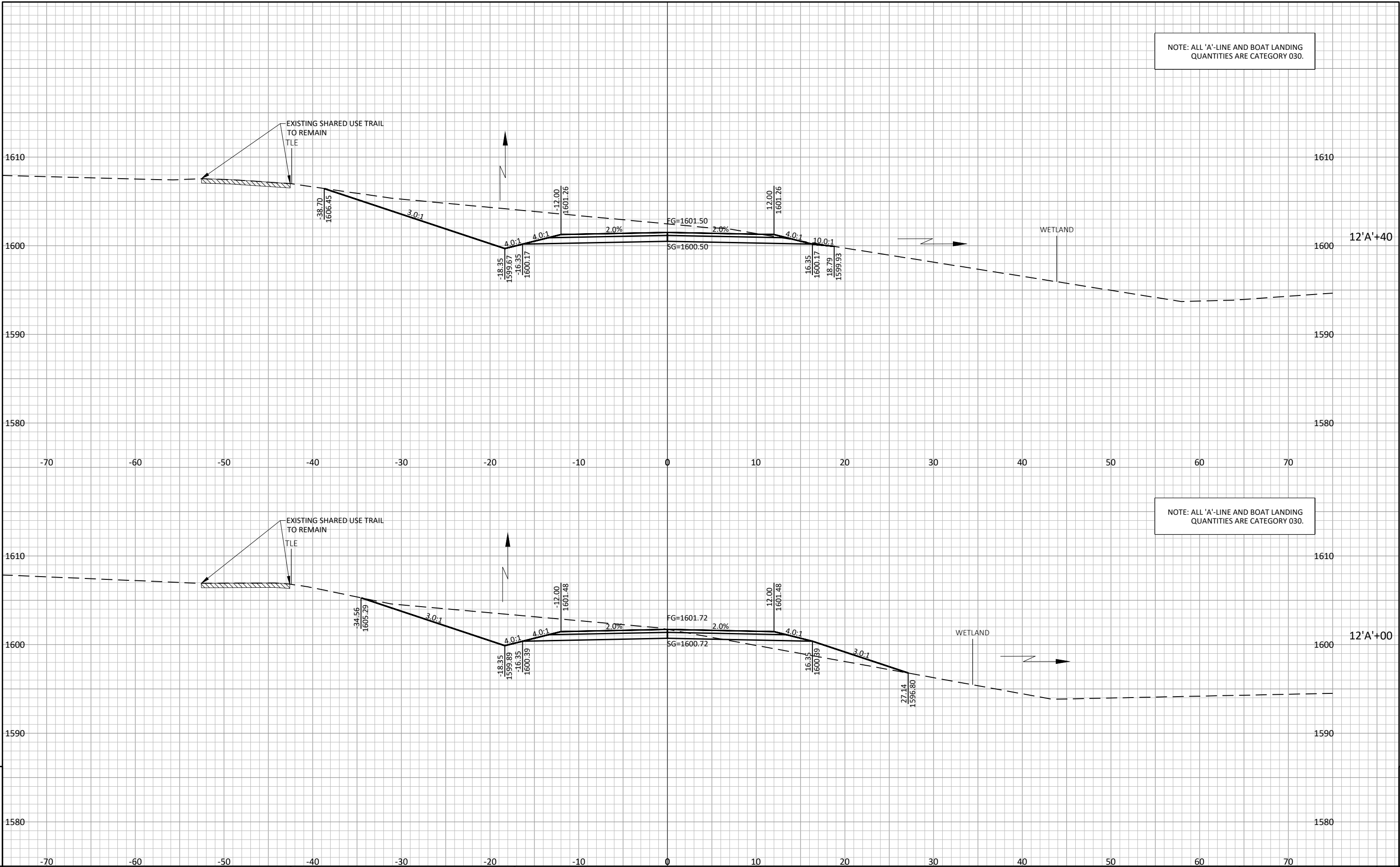
 LIMITS OF EXCAVATION MARSH

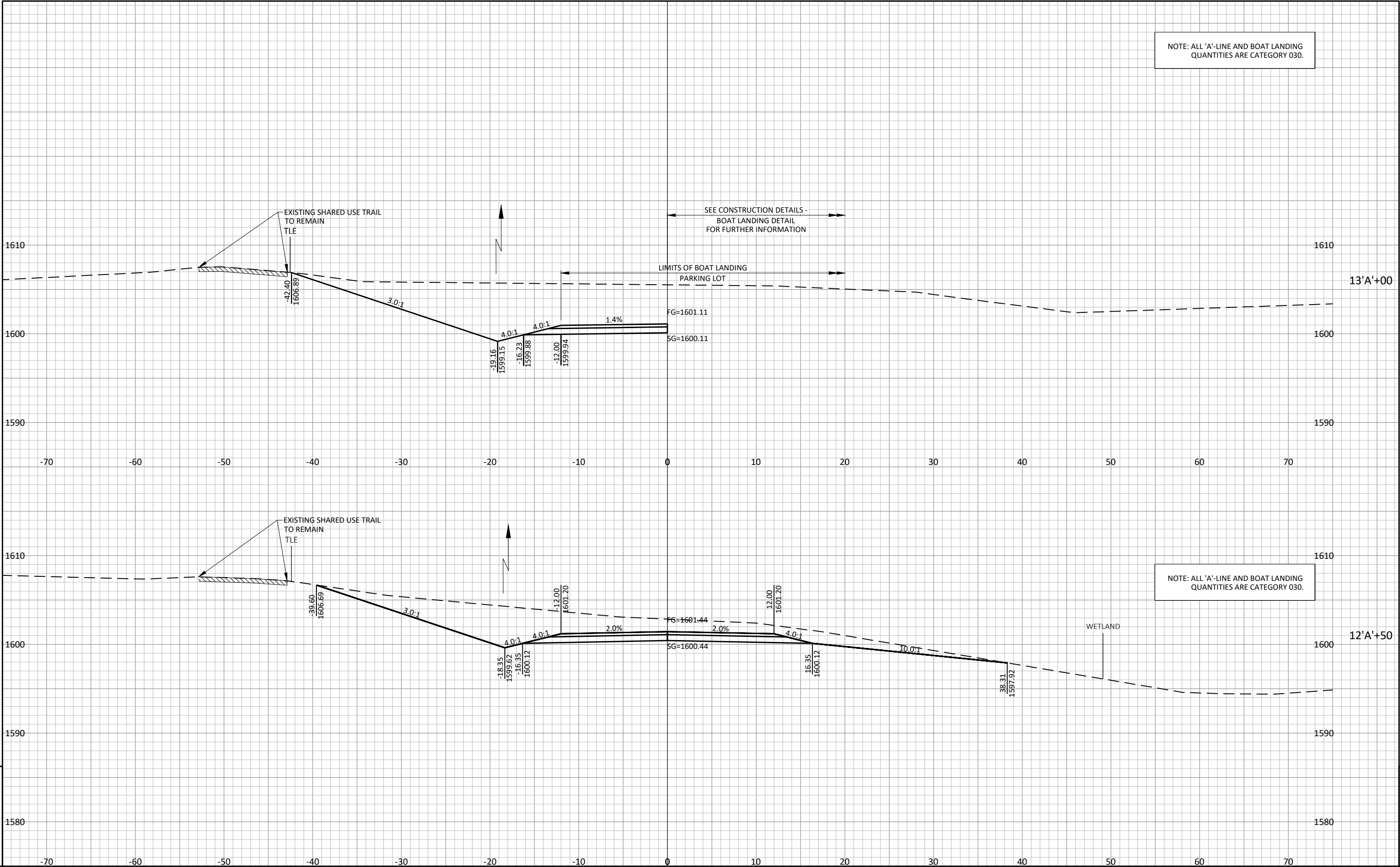
NOTE: ALL 'A'-LINE AND BOAT LANDING QUANTITIES ARE CATEGORY 030.

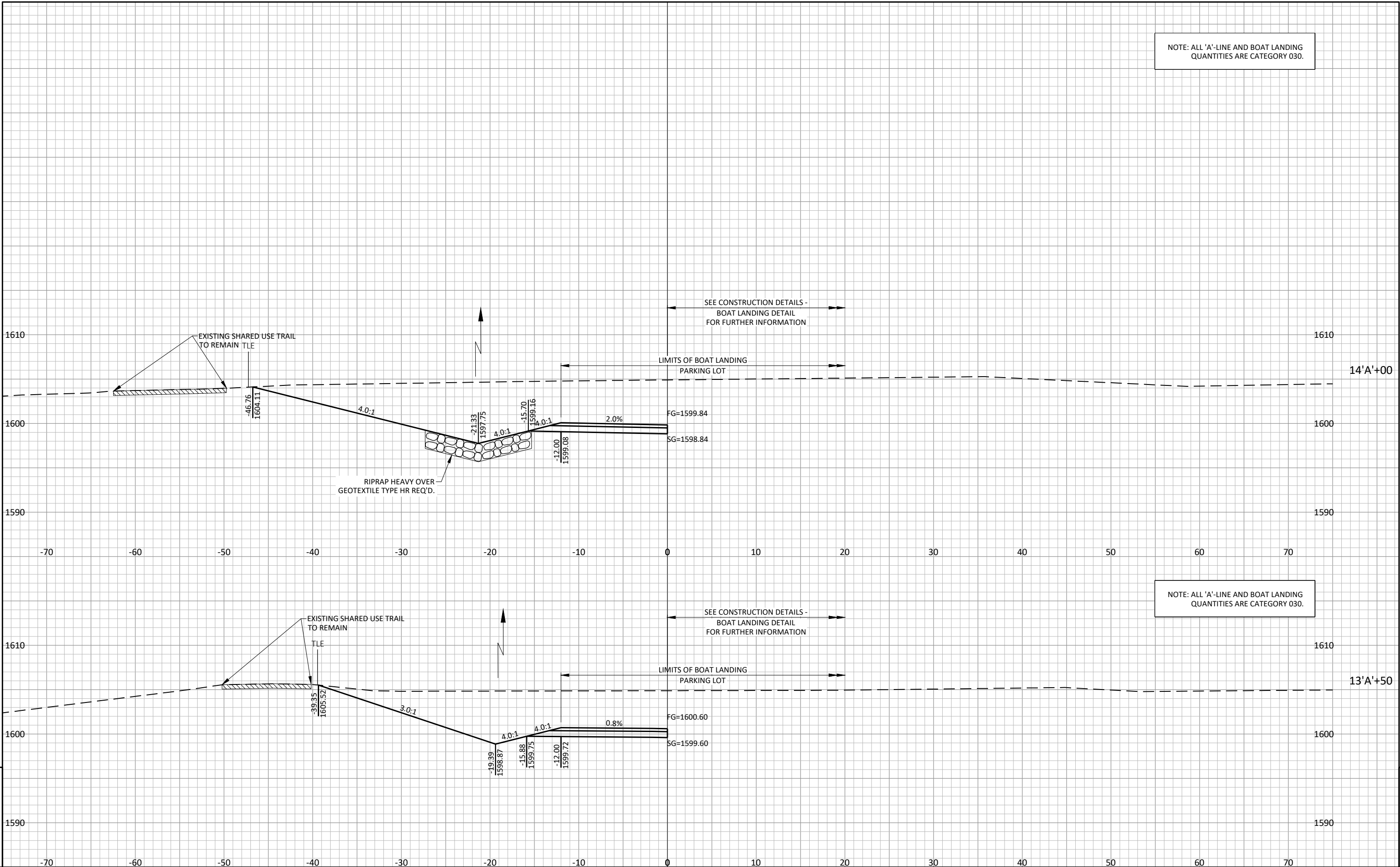
LEGEND

 LIMITS OF EXCAVATION MARSH

NOTE: ALL 'A'-LINE AND BOAT LANDING QUANTITIES ARE CATEGORY 030.







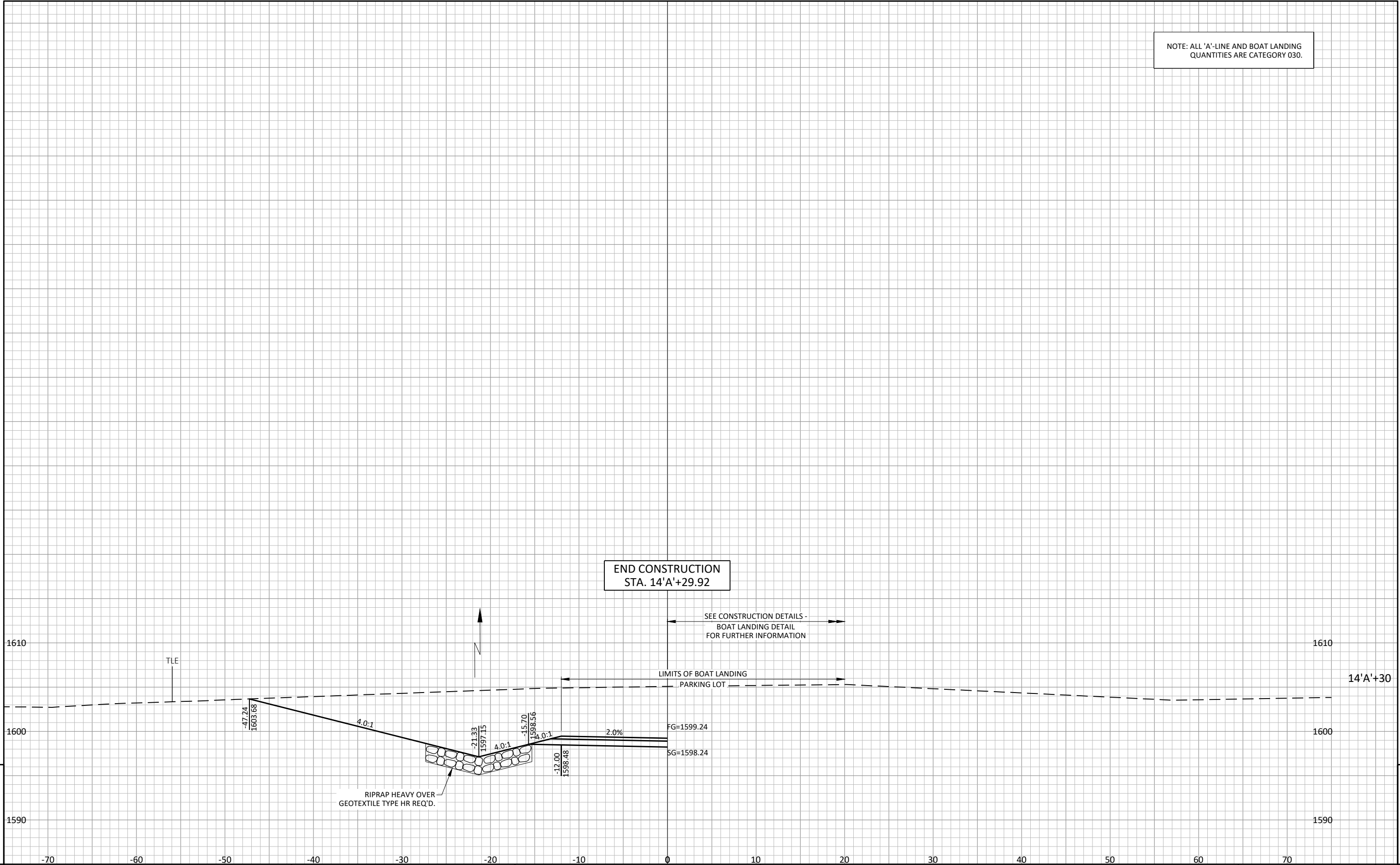
NOTE: ALL 'A'-LINE AND BOAT LANDING
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9

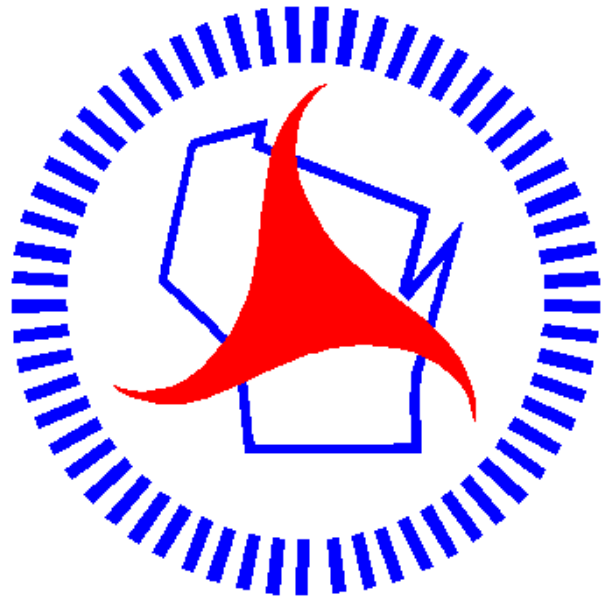
9

NOTE: ALL 'A'-LINE AND BOAT LANDING
QUANTITIES ARE CATEGORY 030.



9

9



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