

PROJECT ID: 62213-1900
 WITH: N/A

COUNTY: DANE

PLAN OF PROPOSED IMPROVEMENT

STH 138 - CTH K
 (HANNERVILLE CREEK BRIDGE B-13-876)

CTH N
DANE COUNTY

ORDER OF SHEETS

Section No.	1	Title
Section No.	2	Typical Sections and Details
Section No.	3	Estimate of Quantities
Section No.	3	Miscellaneous Quantities
Section No.	4	Right of Way Plat
Section No.	5	Plan and Profile (Includes Erosion Control Plan)
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

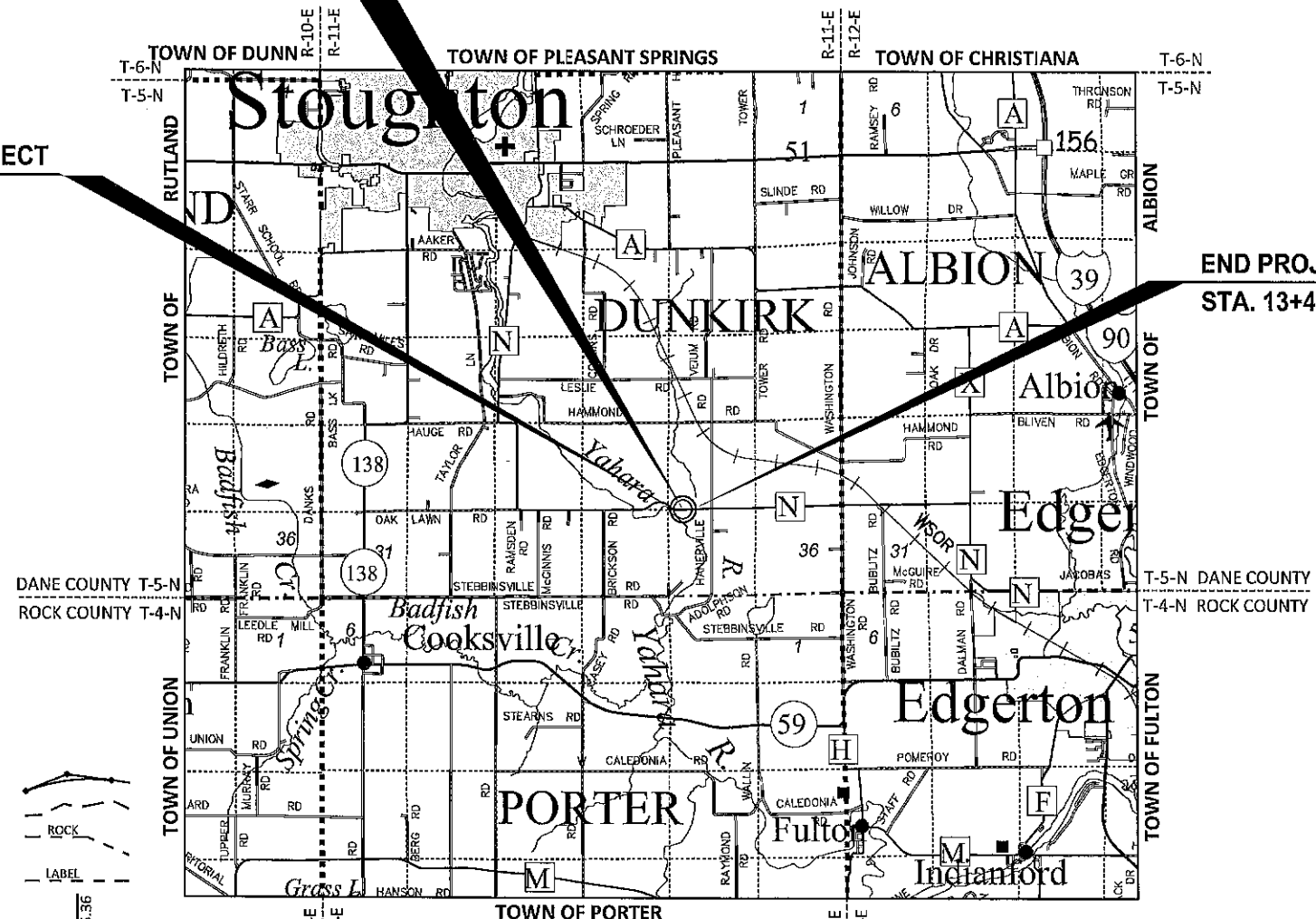
TOTAL SHEETS =



BEGIN PROJECT
STA. 9+48
 Y=404,975.34
 X=878,889.24

END PROJECT
STA. 13+40

STRUCTURE B-13-876

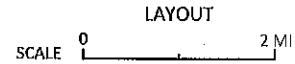


DESIGN DESIGNATION

A.A.D.T.	2021	=	740
A.A.D.T.	2041	=	1100
D.H.V.	2041	=	99
D.D.		=	60/40
T.		=	10% (ASSUMED)
DESIGN SPEED		=	50 MPH
ESALS		=	335,800

CONVENTIONAL SYMBOLS

PLAN	PROFILE
CORPORATE LIMITS	GRADE LINE
PROPERTY LINE	ORIGINAL GROUND
LOT LINE	MARSH OR ROCK PROFILE (To be noted as such)
LIMITED HIGHWAY EASEMENT	SPECIAL DITCH
EXISTING RIGHT OF WAY	GRADE ELEVATION
PROPOSED OR NEW R/W LINE	CULVERT (Profile View)
SLOPE INTERCEPT	UTILITIES
REFERENCE LINE	ELECTRIC
EXISTING CULVERT	FIBER OPTIC
PROPOSED CULVERT (Box or Pipe)	GAS
COMBUSTIBLE FLUIDS	SANITARY SEWER
MARSH AREA	STORM SEWER
WOODED OR SHRUB AREA	TELEPHONE
	WATER
	UTILITY PEDESTAL
	POWER POLE
	TELEPHONE POLE



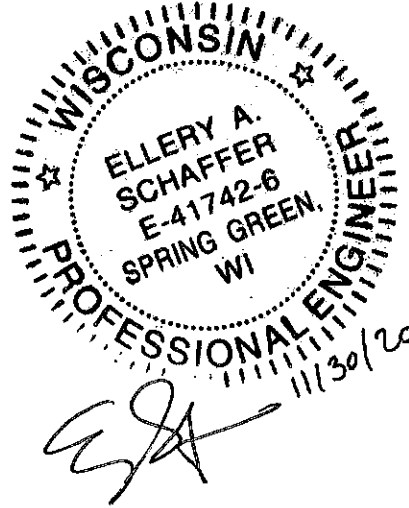
TOTAL NET LENGTH OF CENTERLINE = 0.074 MILES

HORIZONTAL POSITIONS SHOWN ON THIS PLAN ARE WISCONSIN COUNTY COORDINATES, DANE 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.

ELEVATION SHOWN ON THIS PLAN ARE REFERENCE TO THE NORTH AMERICAN VERTICAL DATUM OF 1988, NAVD (2012).

ACCEPTED FOR
 COUNTY of DANE
 (Date) (Highway Commissioner)

ORIGINAL PLANS PREPARED BY
JEWELL
 associates engineers, inc
 Engineers - Architects - Surveyors



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 or LF	Linear Foot	S	South
BAD	Base Aggregate Dense	LC	Long Chord of Curve	SQ	Square
BK	Back	MH	Manhole	SF or SQ FT	Square Feet
BF	Back Face	MB	Mailbox	SY or SQ YD	Square Yard
BM	Bench Mark	ML or M/L	Match Line	STD	Standard
BR	Bridge	N	North	SDD	Standard Detail Drawings
C or C/L	Center Line	Y	North Grid Coordinate	STH	State Trunk Highways
CC	Center to Center	O.A.L.	Overall Length	STA	Station
CTH	County Trunk Highway	OD	Outside Diameter	SS	Storm Sewer
CR	Creek	PLE	Permanent Limited Easement	SG	Subgrade
CR	Crushed	PT	Point	SE	Superelevation
CY or CU YD	Cubic Yard	PC	Point of Curvature	SL or S/L	Survey Line
CP	Culvert Pipe	PI	Point of Intersection	SV	Septic Vent
C & G	Curb and Gutter	PRC	Point of Reverse Curvature	T	Tangent
D	Degree of Curve	PT	Point of Tangency	TEL	Telephone
DHV	Design Hour Volume	POC	Point On Curve	TEMP	Temporary
DIA	Diameter	POT	Point on Tangent	TI	Temporary Interest
E	East	PVC	Polyvinyl Chloride	TLE	Temporary Limited Easement
X	East Grid Coordinate	PCC	Portland Cement Concrete	t	Ton
ELEC	Electric (al)	LB	Pound	T or TN	Town
EL or ELEV	Elevation	PSI	Pounds Per Square Inch	TRANS	Transition
ESALS	Equivalent Single Axle Loads	PE	Private Entrance	TL or T/L	Transit Line
EBS	Excavation Below Subgrade	R	Radius	T	Trucks (percent of)
ESTR	Existing Sign to Remain	RR	Railroad	TYP	Typical
FF	Face to Face	R	Range	UNCL	Unclassified
FE	Field Entrance	RL or R/L	Reference Line	UG	Underground Cable
F	Fill	RP	Reference Point	USH	United States Highway
FG	Finished Grade	RCCP	Reinforced Concrete Culvert	VAR	Variable
FL or F/L	Flow Line		Pipe	V	Velocity or Design Speed
FT	Foot	REQ'D	Required	VERT	Vertical
FTG	Footing	RES	Residence or Residential	VC	Vertical Curve
GN	Grid North	RW	Retaining Wall	VOL	Volume
HT	Height	RT	Right	WM	Water Main
CWT	Hundredweight	RHF	Right-Hand Forward	WV	Water Valve
HYD	Hydrant	R/W	Right-of-Way	W	West
INL	Inlet	R	River	WB	Westbound
ID	Inside Diameter	RD	Road	YD	Yard

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.

NO TREES OR SHRUBS ARE TO BE REMOVED UNLESS SUCH TREES OR SHRUBS HAVE FIRST BEEN INDICATED FOR REMOVAL BY THE ENGINEER IN THE FIELD.

EXCAVATION BELOW SUBGRADE (EBS) IS NOT USED TO BALANCE YARDAGE, AND IS NOT SHOWN ON THE CROSS SECTIONS BUT IS MEASURED AND PAID FOR AS COMMON EXCAVATION. EXACT LOCATIONS OF EBS WILL BE DETERMINED BY THE ENGINEER.

DISTURBED AREAS SHOWN WITHIN THE RIGHT-OF-WAY, EXCEPT THE AREAS WITHIN THE FINISHED SHOULDER POINTS ARE TO BE FERTILIZED (TYPE B), SEEDED (USE SEED MIX NO. 20), SEEDING TEMPORARY, AND EROSION MATTED AS DIRECTED BY THE ENGINEER. ALL POST CONSTRUCTION WET AREAS SHALL BE SEEDED WITH SEEDING MIXTURE NO. 60. AVOID PLACING FERTILIZER TYPE B NEAR WET AREAS.

WHEN THE QUANTITY OF THE ITEM OF BASE AGGREGATE DENSE, OR ASPHALTIC SURFACE IS MEASURED FOR PAYMENT BY THE TON. THE DEPTH OR THICKNESS OF THE COURSE SHOWN ON THE PLANS IS APPROXIMATE, AND THE ACTUAL THICKNESS WILL DEPEND ON THE DISTRIBUTION OF MATERIAL AS DIRECTED BY THE ENGINEER IN THE FIELD.

SILT FENCE AND TEMPORARY DITCH CHECKS SHALL BE PLACED AS SHOWN ON THE PLAN OR AS DIRECTED BY THE ENGINEER IN THE FIELD. SILT FENCE SHALL BE PLACED PRIOR TO CONSTRUCTION AND IN PLACE PRIOR TO STRUCTURE REMOVAL.

EROSION MAT ALL MAINLINE SLOPES AS DIRECTED BY THE ENGINEER IN THE FIELD.

FILL EXPANSION IS VARIABLE AND IS ESTIMATED AT 25%.

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

THE LOCATION OF ALL PERMANENT SIGNING SHALL BE VERIFIED BY THE ENGINEER IN THE FIELD PRIOR TO PLACEMENT.

WETLANDS ARE PRESENT IN THE PROJECT LIMITS. THE CONTRACTOR SHALL NOT OPERATE EQUIPMENT OR STOCKPILE MATERIALS BEYOND THE EXISTING TOE OF SLOPE OR FINISHED SLOPE INTERCEPT.

ADJUST DITCH GRADING AS NECESSARY TO FIT FIELD CONDITIONS AND AS DIRECTED BY THE ENGINEER.

ASPHALTIC SURFACE QUANTITIES WERE CALCULATED USING 112 LB/SY/IN. 4-INCHES OF ASPHALTIC SURFACE SHALL BE CONSTRUCTED WITH A 2 1/4-INCH LOWER LAYER AND A 1 3/4-INCH UPPER LAYER.

WETLANDS ARE PRESENT WITHIN THE PROJECT LIMITS. DO NOT OPERATE OR STOCKPILE EQUIPMENT BEYOND THE TOE OF SLOPE AT STA. 9+48 - STA. 10+00, RT; STA. 10+00 - STA. 11+48, LT; STA. 11+59 - STA. 12+87 LT; STA. 12+29 - STA. 12+68, RT.

CONTACTS

DESIGN CONSULTANT

JEWELL ASSOCIATES ENGINEERS, INC.
560 SUNRISE DRIVE
SPRING GREEN, WI 53588
ATTN: ELLERY SCHAFFER, P.E.
PH: (608) 459-6027
CELL: (608) 341-8159
EMAIL: ellery.schaffer@jewellassoc.com

**DANE COUNTY
HIGHWAY DEPARTMENT**

2302 FISH HATCHERY RD
MADISON, WI 53713
ATTN: PAM DUNPHY, P.E.
PH: (608) 266-4036
EMAIL: dunphy@countyofdane.com

DNR LIAISON

STATE OF WISCONSIN
DNR SOUTHWEST REGIONAL HQ
3911 FISH HATCHERY RD
FITCHBURG, WI 53711
ATTN: ERIC HEGGELUND
PHONE: (608) 228-7927
EMAIL: eric.heggelund@wisconsin.gov

UTILITIES

ELECTRIC

STOUGHTON UTILITIES
600 S. FOURTH STREET
STOUGHTON, WI 53589
ATTN: JILL WEISS
PH: (608) 877-7423
EMAIL: jweiss@stoughtonutilities.com

TELEPHONE

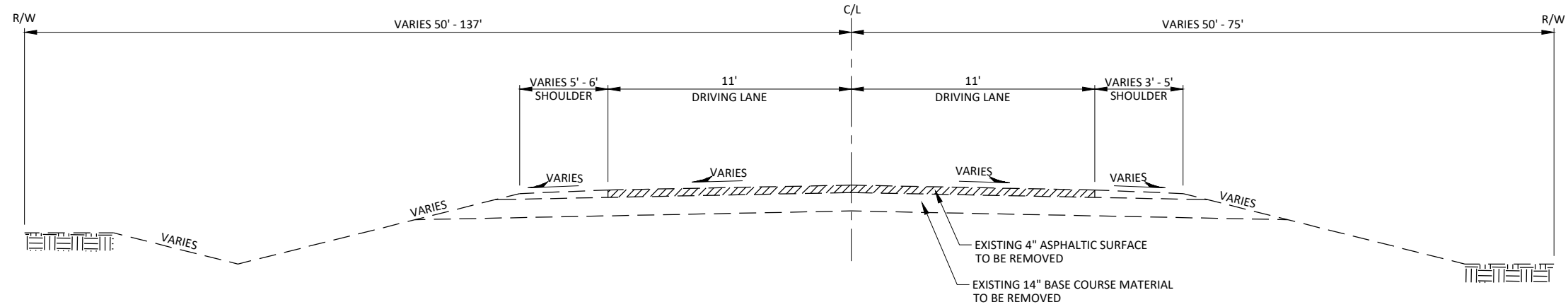
AT&T DISTRIBUTION
316 W. WASHINGTON AVE.
MADISON, WI 53701
ATTN: CAROL ANASON
OFFICE: (608) 252-2385
CELL: (608) 622-2079
EMAIL: ca2624@att.com

	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	.16	.22	.12	.20	.27	.15	.24	.33	.19	.28	.38
MEDIAN STRIP TURF	.22	.30	.38	.26	.34	.44	.30	.37	.50	.34	.41	.56
SIDE SLOPE TURF	.19	.20	.24	.19	.22	.26	.20	.23	.30	.20	.25	.30
	.24	.26	.30	.25	.28	.33	.26	.30	.37	.27	.32	.40
SIDE SLOPE TURF			.25			.27			.28			.30
			.32			.34			.36			.38
PAVEMENT												
ASPHALT	.70 - .95											
CONCRETE	.80 - .95											
BRICK	.70 - .80											
DRIVES, WALKS	.75 - .85											
ROOFS	.75 - .95											
GRAVEL ROADS, SHOULDERS	.40 - .60											

TOTAL PROJECT AREA= 1.04 ACRES
TOTAL AREA EXPECTED TO BE DISTURBED BY CONSTRUCTION ACTIVITIES = 0.66 ACRES

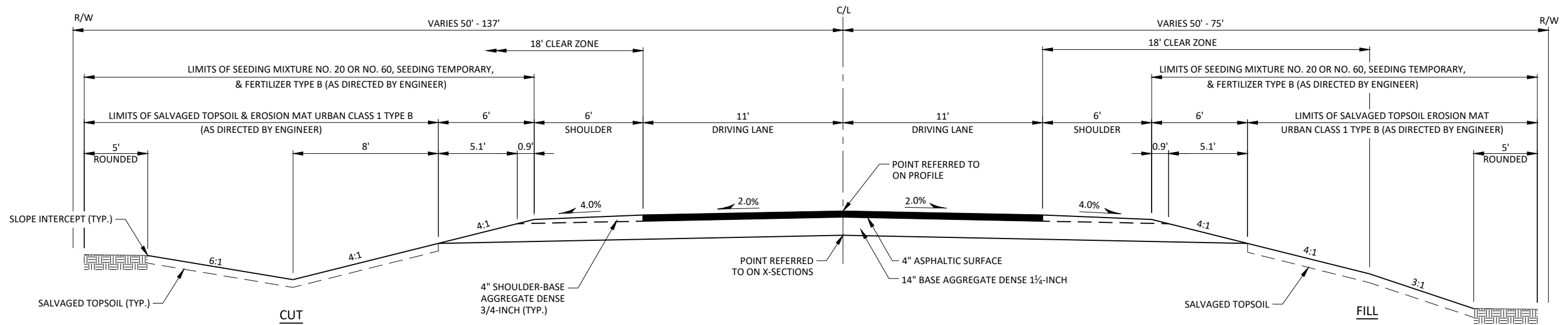


* DENOTES UTILITY IS NOT A MEMBER OF DIGGERS HOTLINE



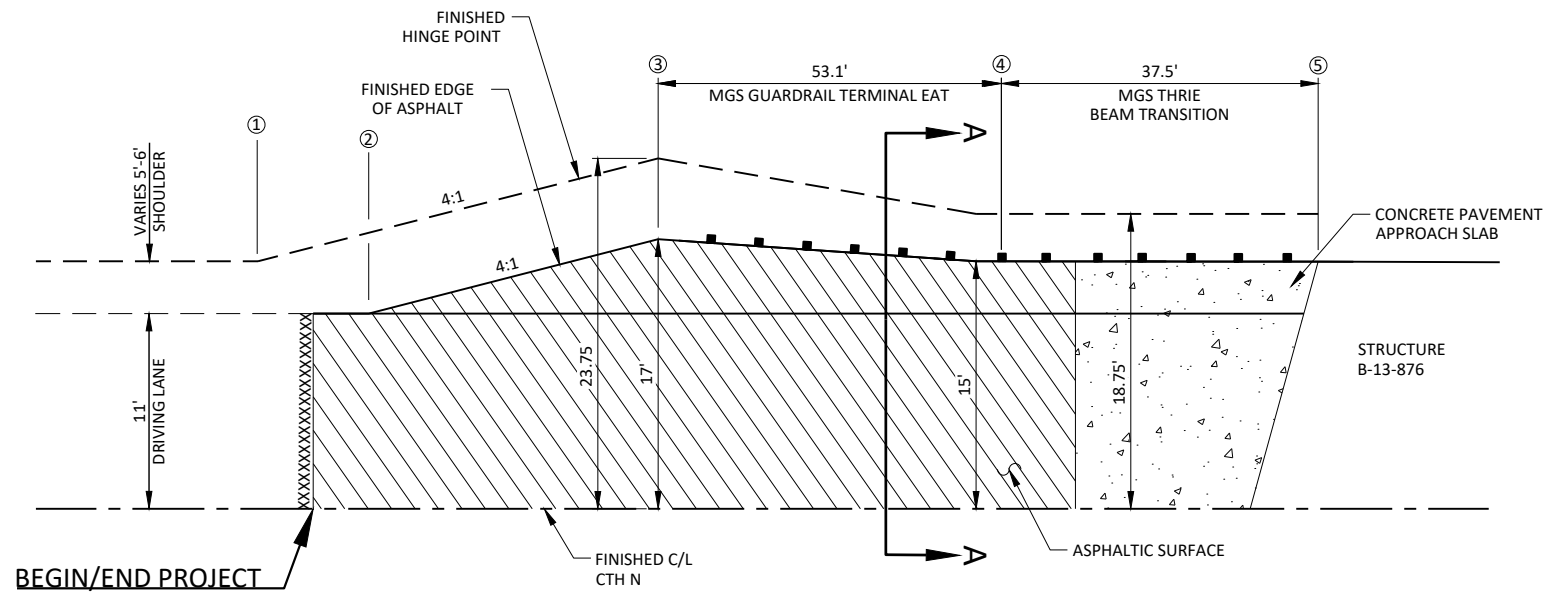
TYPICAL EXISTING SECTION

CTH N



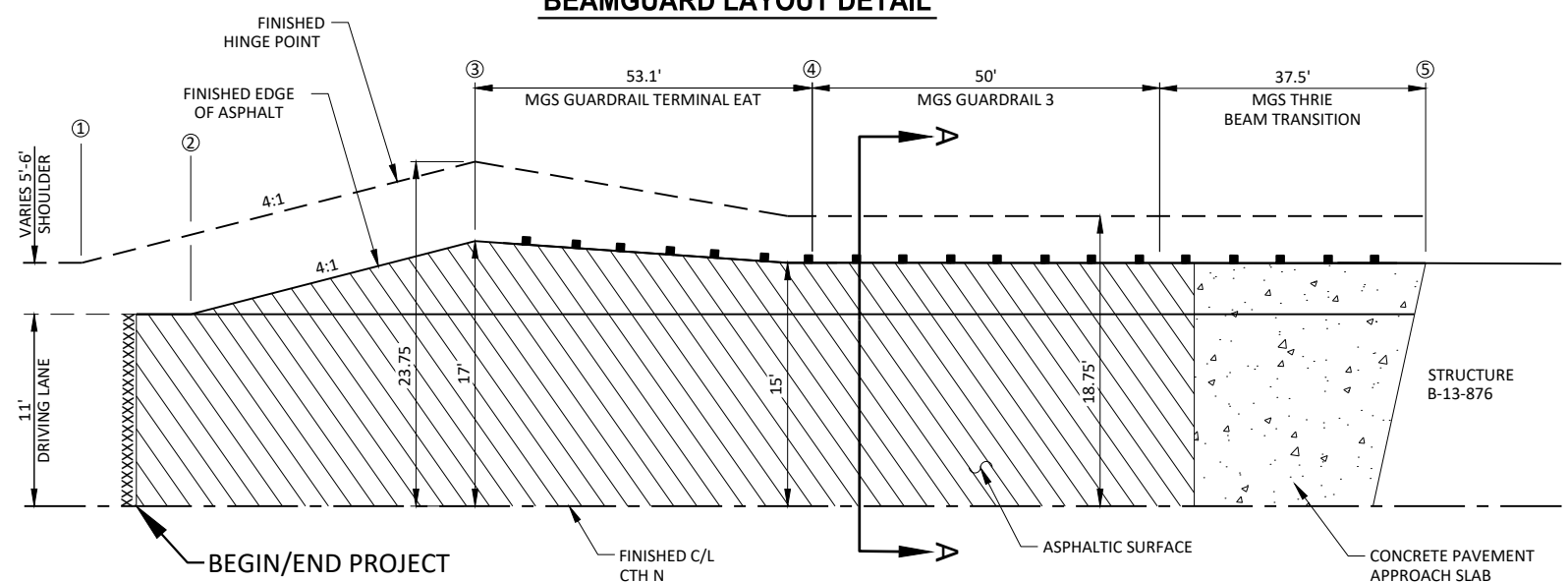
TYPICAL FINISHED SECTION

CTH N



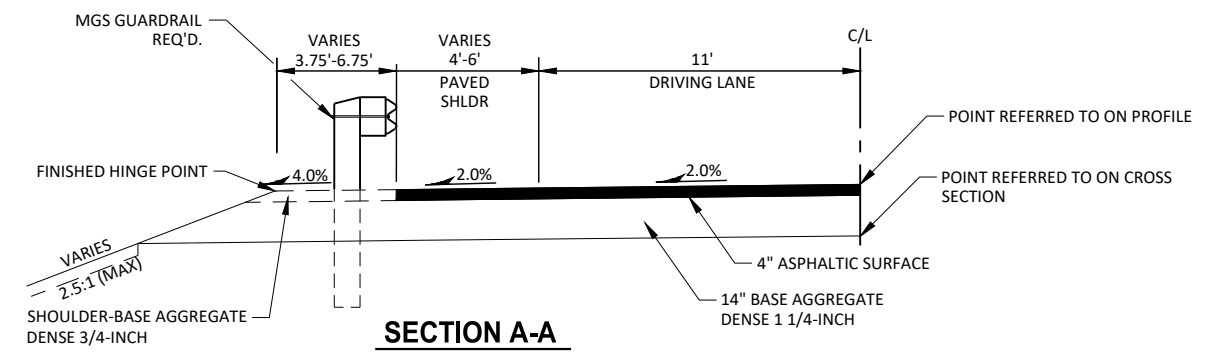
QUADRANT	LOCATION	①	②	③	④	⑤
NORTHWEST	MAINLINE, LT.	10+04	10+07	10+31	10+84	11+21
SOUTHEAST	MAINLINE, RT.	12+85	12+82	12+58	12+05	11+67

BEAMGUARD LAYOUT DETAIL

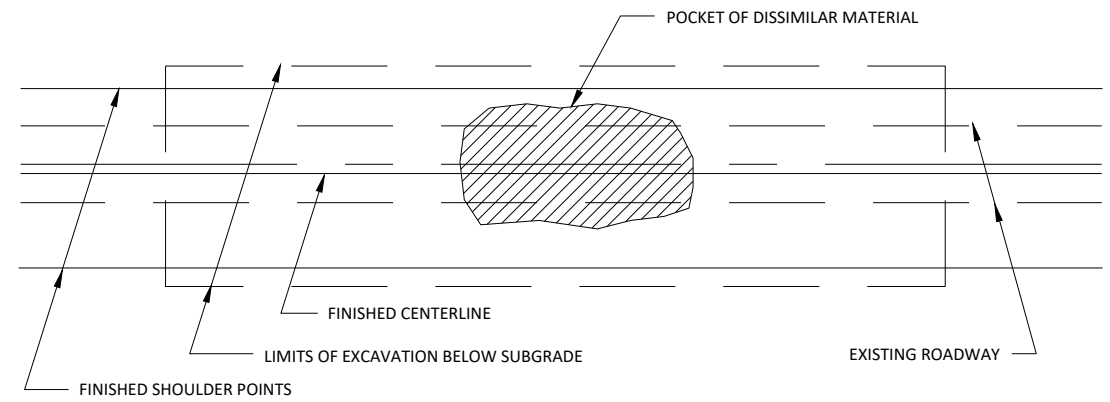


QUADRANT	LOCATION	①	②	③	④	⑤
SOUTHWEST	MAINLINE, RT.	9+45	9+48	9+73	10+26	11+13
NORTHEAST	MAINLINE, LT.	13+43	13+40	13+16	12+63	11+75

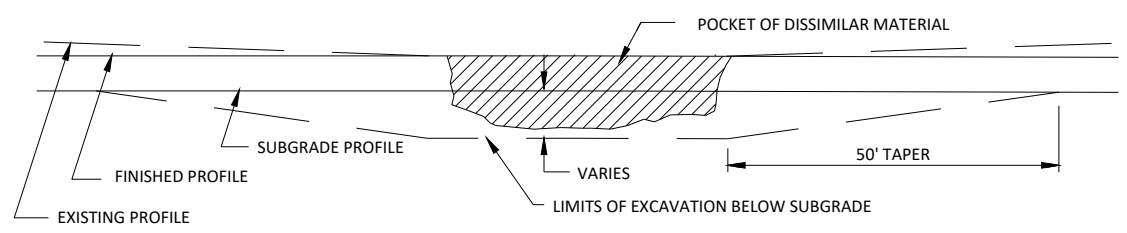
BEAMGUARD LAYOUT DETAIL



SECTION A-A

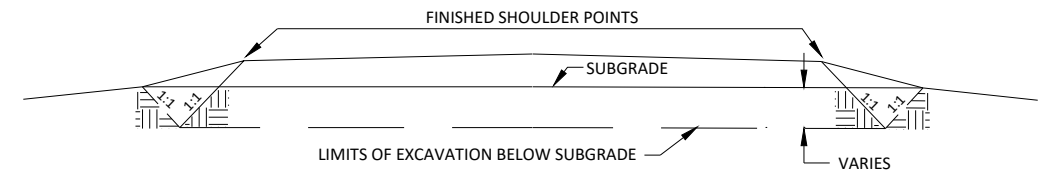


PLAN VIEW



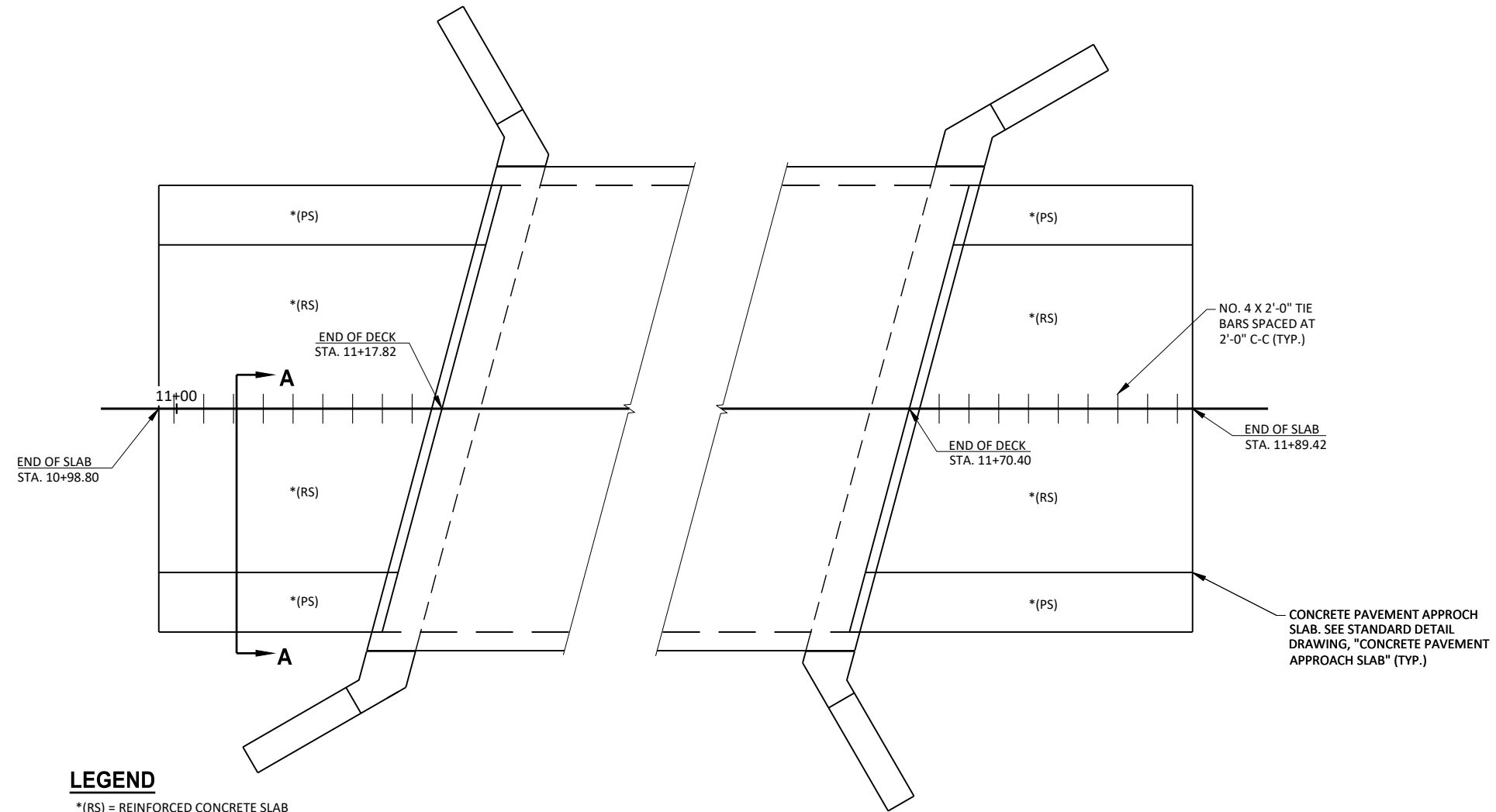
PROFILE VIEW

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



CROSS SECTION VIEW

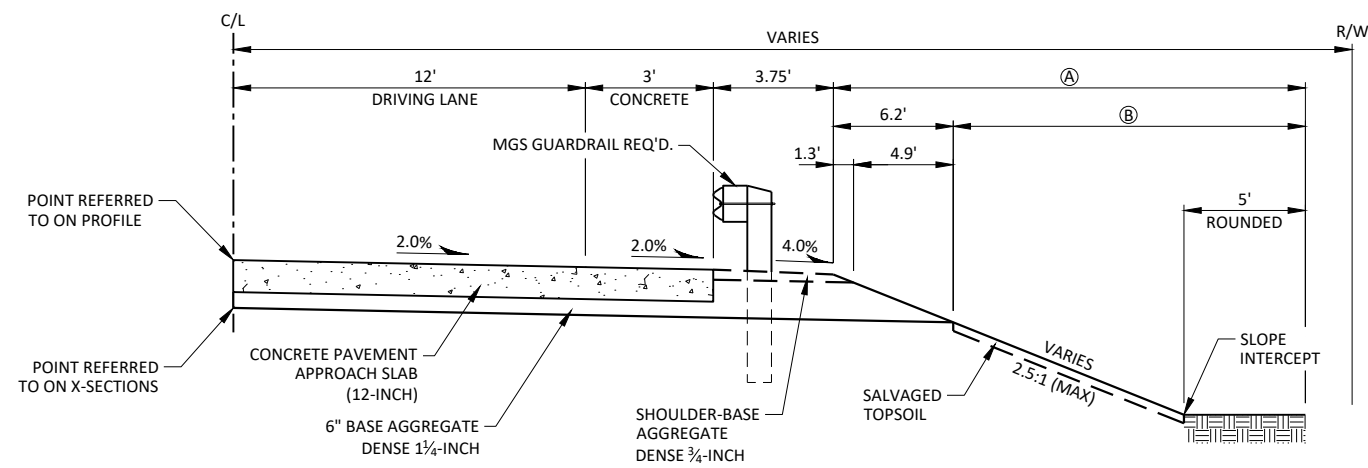
1. EXACT LOCATION OF E.B.S. (EXCAVATION BELOW SUBGRADE) SHALL BE DETERMINED BY THE ENGINEER IN THE FIELD.
2. E.B.S. AREA TO BE BACKFILLED WITH MATERIAL ACCEPTABLE TO THE ENGINEER. BACKFILL MUST BE HOMOGENEOUS WITH ADJOINING FILL MATERIAL.
3. THE FILL SECTION WITHIN 100' OF THE MOUTH OF THE CUT MUST BE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



LEGEND

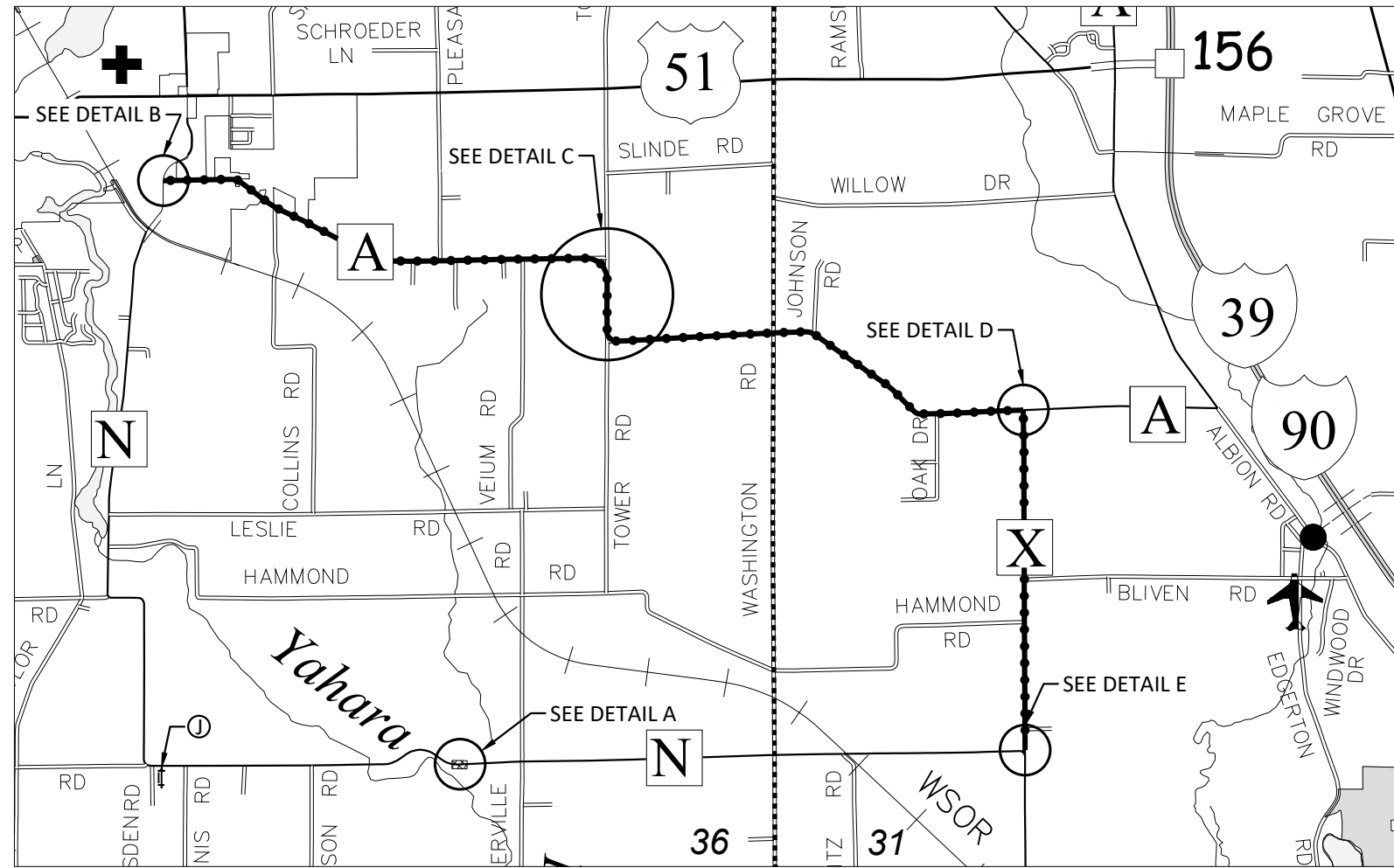
- *(RS) = REINFORCED CONCRETE SLAB
- *(PS) = PAVED CONCRETE SHOULDER

STRUCTURE APPROACH DETAILS



SECTION A-A

- (A) LIMITS OF SEEDING MIXTURE NO. 20 OR NO. 60, SEEDING TEMPORARY, AND FERTILIZER TYPE B (AS DIRECTED BY ENGINEER)
- (B) LIMITS OF SALVAGED TOPSOIL & EROSION MAT CLASS 1 TYPE B (AS DIRECTED BY ENGINEER)



LEGEND

- DETOUR ROUTE
- WORK ZONE
- COVER SIGN
- SIGN ON PERMANENT SUPPORT
- EXISTING SIGN ON SINGLE POST
- EXISTING SIGN ON DOUBLE POST
- BARRICADES TYPE III WITH ATTACHED SIGN AND WITH TRAFFIC CONTROL LIGHTS TYPE A
- BARRICADES TYPE III

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 IN APPROPRIATE 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.

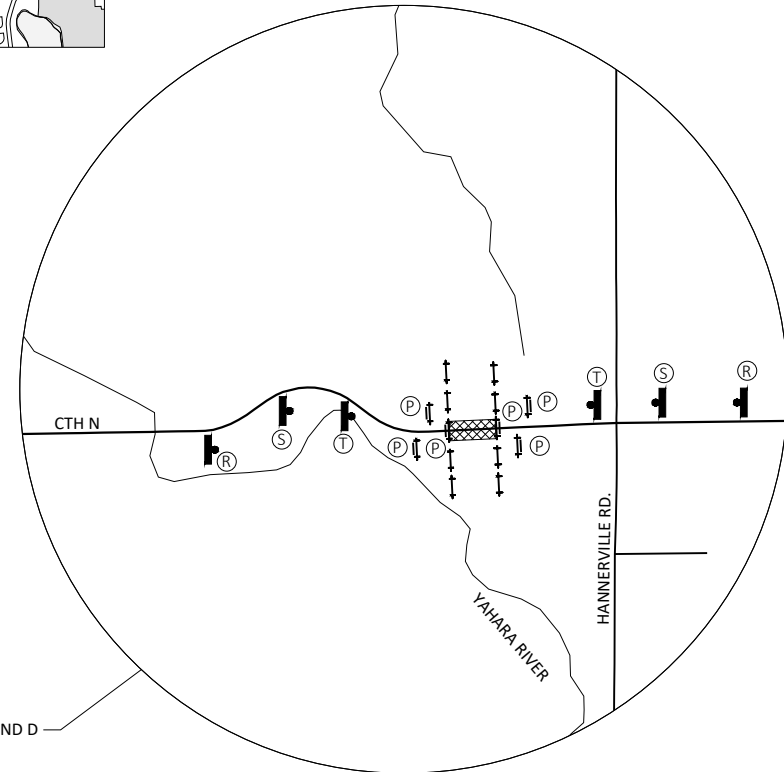
"WO" SIGNS ARE THE SAME AS "W" SIGNS EXCEPT THE BACKGROUND IS ORANGE.

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

ALL "WO" AND "W" SIGNS SHALL BE 48"X48" UNLESS OTHERWISE NOTE.

IMMEDIATELY RE-ESTABLISH "STOP" SIGNS THAT ARE REMOVED FOR A CONSTRUCTION OPERATION.

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--



SEE S.D.D. "BARRICADES AND SIGNS FOR MAINLINE CLOSURES" DETAIL C AND D

DETAIL A

LEGEND

- DETOUR ROUTE
- WORK ZONE
- COVER SIGN
- SIGN ON PERMANENT SUPPORT
- EXISTING SIGN ON SINGLE POST
- EXISTING SIGN ON DOUBLE POST
- BARRICADES TYPE III WITH ATTACHED SIGN AND WITH TRAFFIC CONTROL LIGHTS TYPE A
- BARRICADES TYPE III

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.

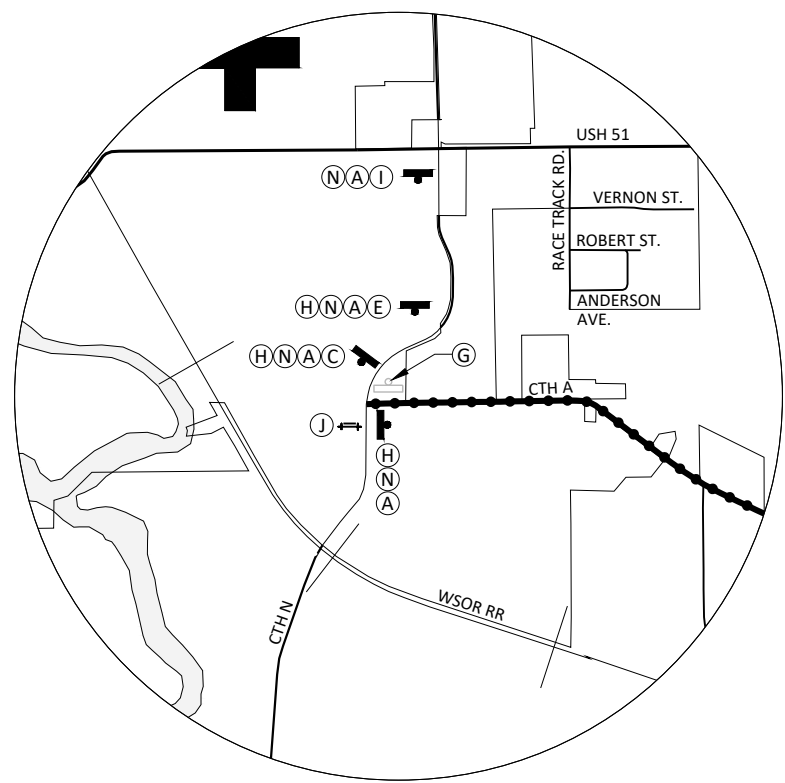
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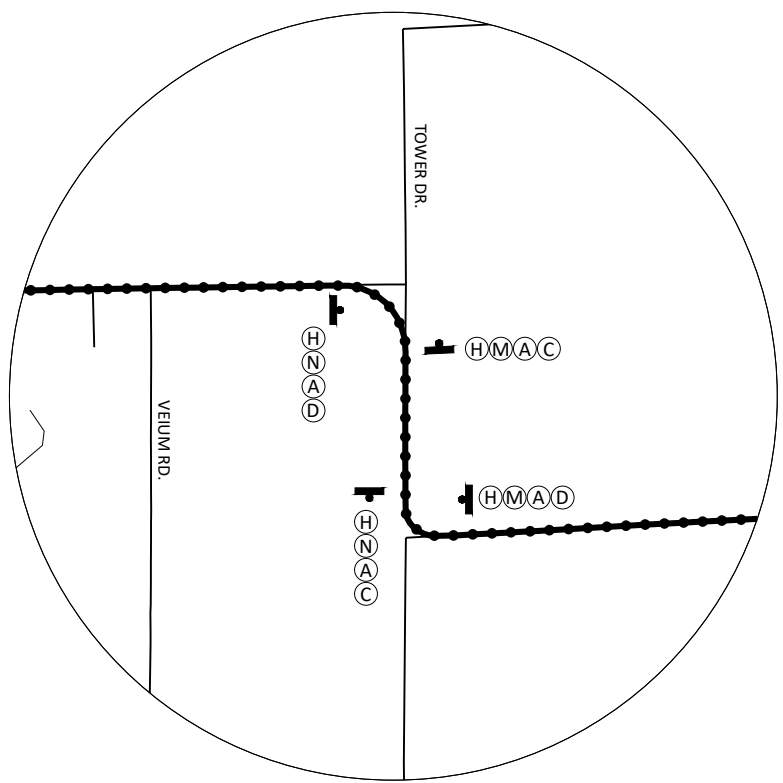
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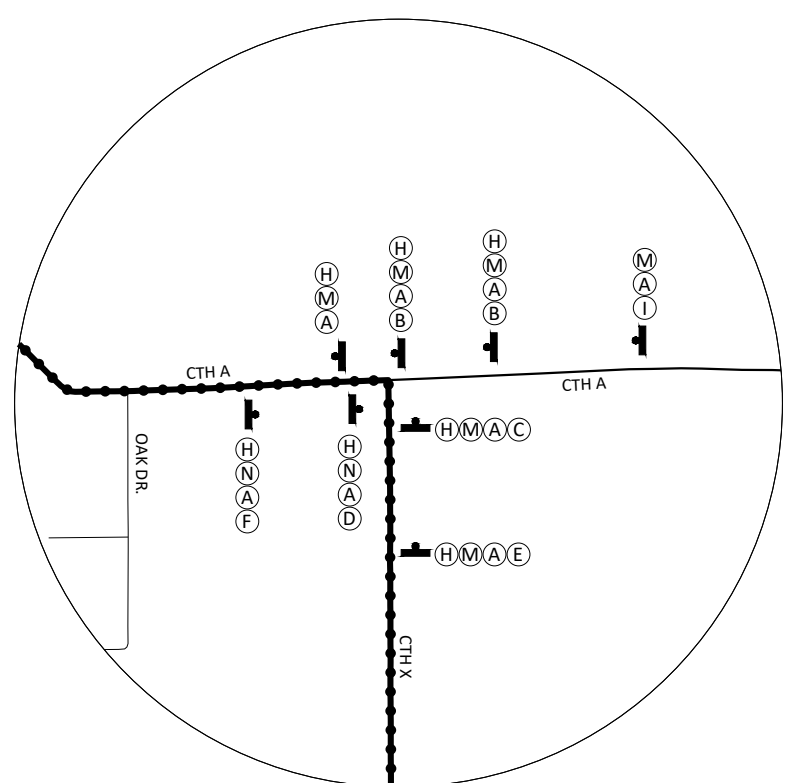
COUNTY N (A) M1-5A 24"x24"
UP (B) M06-1 21"x21"
LEFT (C) M06-1 21"x21"
RIGHT (D) M06-1 21"x21"
LEFT TURN (E) M05-1L 21"x21"
RIGHT TURN (F) M05-1R 21"x21"
END DETOUR (G) M4-8A 24"x18"
DETOUR (H) M4-8 24"x12"
DETOUR AHEAD (I) W20-2A
BRIDGE OUT XX MILES AHEAD LOCAL TRAFFIC ONLY (J) R11-3B 60"x30"
DETOUR (K) M4-9L 30"x24"
DETOUR (L) M4-9R 30"x24"
NORTH (M) M83-1 24"x12"
SOUTH (N) M3-3 24"x12"
BRIDGE OUT (P) R11-2B 48"x30"
ROAD CLOSED 1000 FT (S) W20-3C
ROAD CLOSED AHEAD (R) W20-3A
ROAD CLOSED 500 FT (T) W20-3D



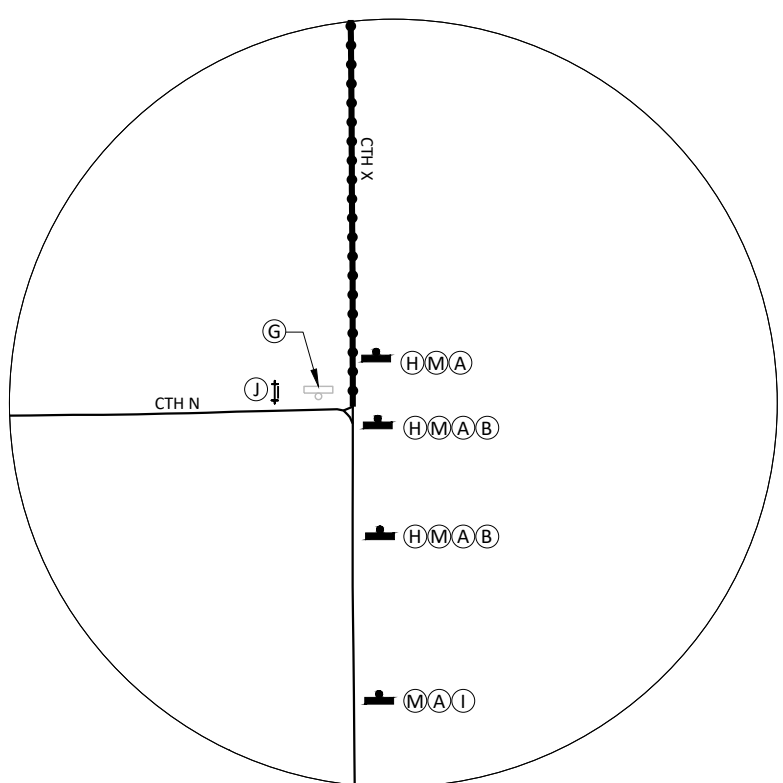
DETAIL B



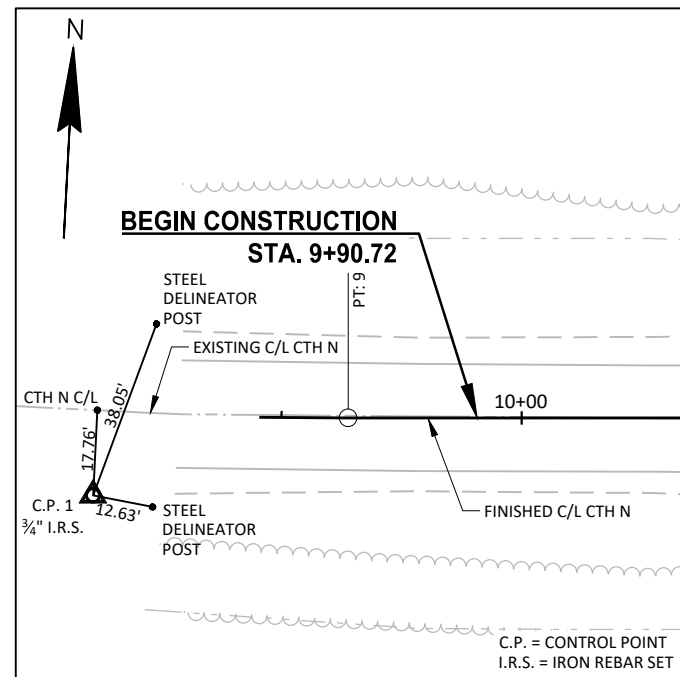
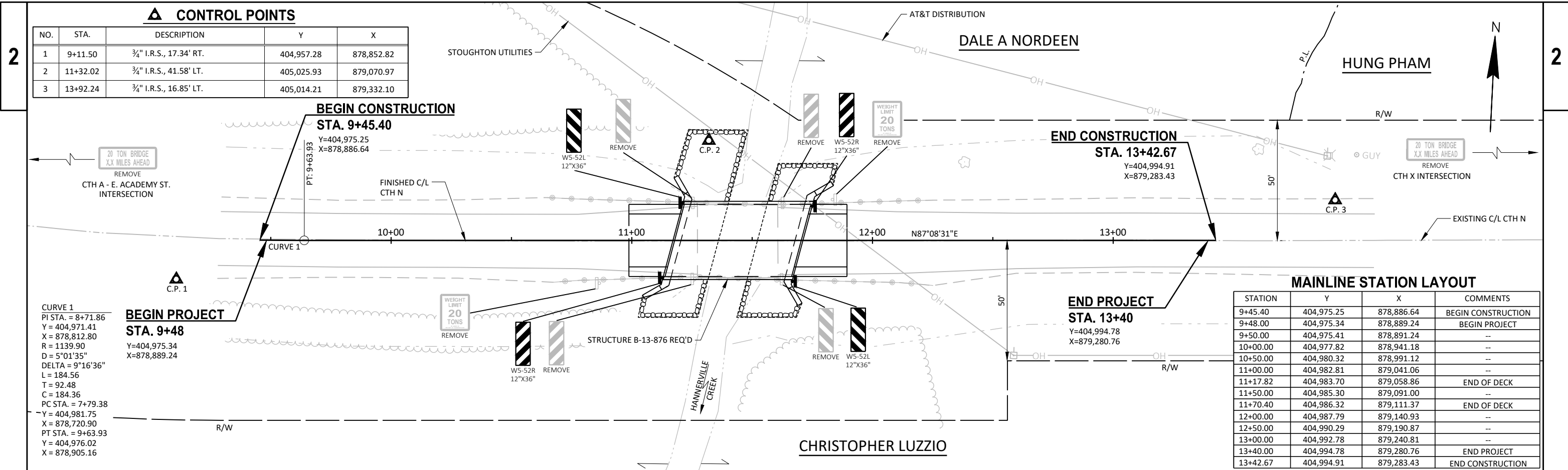
DETAIL C



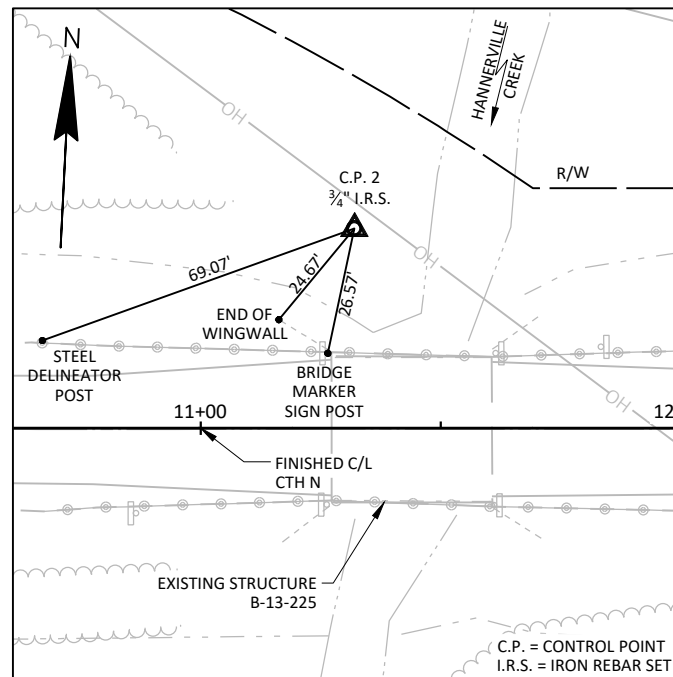
DETAIL D



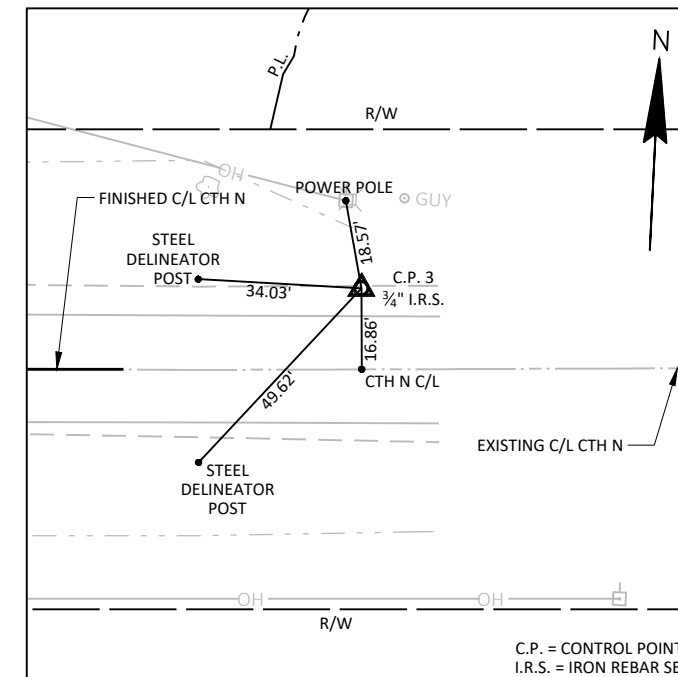
DETAIL E



TIES TO C.P. #1
 STA. 9+11.50; 17.34' RT.
 Y = 404,957.28
 X = 878,852.82



TIES TO C.P. #2
 STA. 11+32.02; 41.58' LT.
 Y = 405,025.93
 X = 879,070.97



TIES TO C.P. #3
 STA. 13+92.24; 16.85' LT.
 Y = 405,014.21
 X = 879,332.10

CLEARING & GRUBBING

STATION - STATION	LOCATION	201.0105 CLEARING (STA)	201.0205 GRUBBING (STA)
9+50 - 12+50	MAINLINE	3	3
TOTALS =		3	3

FINISHING ROADWAY

STATION - STATION	LOCATION	213.0100 (EACH)
-	CTH N	1
TOTAL =		1

BASE AGGREGATE DENSE

STATION - STATION	LOCATION	305.0110 BASE AGGREGATE DENSE 3/4-INCH (TON)	305.0120 BASE AGGREGATE DENSE 1 1/4-INCH (TON)
9+45 - 13+43	MAINLINE	110	1420
TOTALS =		110	1420

CONCRETE PAVEMENT APPROACH SLAB

STATION - STATION	LOCATION	415.0410 CONCRETE PAVEMENT APPROACH SLAB (SY)
10+99 - 11+21	MAINLINE	61.2
11+67 - 11+89	MAINLINE	61.2
TOTAL =		122.4

ASPHALTIC SURFACE

STATION - STATION	LOCATION	455.0605 TACK COAT (GAL)	465.0105 ASPHALTIC SURFACE (TON)
9+45 - 13+43	MAINLINE	75	240
TOTALS =		75	240

SILT FENCE

STATION - STATION	LOCATION	628.1504 SILT FENCE (LF)	628.1520 SILT FENCE MAINTENANCE (LF)
9+44 - 11+33	MAINLINE, RT.	224	448
11+41 - 11+47	MAINLINE, LT.	38	76
11+43 - 13+42	MAINLINE, RT.	240	480
11+55 - 13+41	MAINLINE, LT.	218	436
-	UNDISTRIBUTED	180	360
TOTALS =		900	1,800

EARTHWORK SUMMARY

FROM/TO STA	LOCATION	205.0100 EXCAVATION COMMON	AVAILABLE MATERIAL (CY) (1)	UNEXPANDED FILL (CY)	EXPANDED FILL (CY) FACTOR 1.25 (2)	MASS ORDINATE +/- (CY) (3)	WASTE (CY)	208.0100 BORROW (CY)
		CUT (CY)						
9+45-13+43	MAINLINE	760.0	760.0	768.0	960.0	-200.0	-200.0	200
TOTALS =		760.0	760.0	768.0	960.0	-200.0	-200.0	200

NOTES:

- 1.) AVAILABLE MATERIAL = CUT
- 2.) EXPANDED FILL FACTOR 1.25: EXPANDED FILL = (UNEXPANDED FILL)*1.25
- 3.) THE MASS ORDINATE+ OR - QTY CALCULATED FOR THE DIVISION. PLUS QUANTITY INDICATES AN EXCESS OF MATERIAL WITHIN THE CATEGORY. MINUS INDICATES A SHORTAGE OF MATERIAL WITHIN THE CATEGORY.

FINISHING ITEMS

STATION - STATION	LOCATION	625.0500 SALVAGED TOPSOIL (SY)	628.2008 EROSION MAT URBAN CLASS I TYPE B (SY)	629.0210 FERTILIZER TYPE B (CWT)	630.0120 SEEDING MIXTURE NO. 20 (LB)	*630.0160 SEEDING MIXTURE NO. 60 (LB)	630.0200 SEEDING TEMPORARY (LB)	630.0300 SEEDING BORROW PIT (LB)	630.0500 SEED WATER (MGAL)
9+45 - 13+43	MAINLINE UNDISTRIBUTED	1,410 360	1,410 360	0.8 0.2	38 10	3 1	38 10	1.7 0.4	32 8
TOTALS =		1,770	1,770	1.0	48	4	48	2.1	40

*ALL AREAS ADJACENT TO EXISTING WETLANDS (STA. 9+48 - STA. 10+00, RT; STA. 10+00 - STA. 11+48, LT; STA. 11+59 - STA. 12+87 LT; STA. 12+29 - STA 12+68, RT)

REMOVING GUARDRAIL

STATION - STATION	LOCATION	204.0165 (LF)
10+64 - 11+23	MAINLINE, LT.	60
10+70 - 11+17	MAINLINE, RT.	50
11+68 - 12+25	MAINLINE, RT.	60
11+74 - 12+27	MAINLINE, LT.	55
TOTALS =		225

MOBILIZATION

PROJECT	619.1000 (EACH)
CTH N	0.5
TOTAL =	0.5

WATER

STATION-STATION	LOCATION	624.0100 (MGAL)
9+45 - 13+43	MAINLINE	23
TOTAL =		23

MOBILIZATION EROSION CONTROL

PROJECT	628.1905 MOBILIZATIONS EROSION CONTROL (EACH)	628.1910 MOBILIZATIONS EMERGENCY EROSION CONTROL (EACH)
CTH N	6	3
TOTALS =	6	3

TEMPORARY DITCH CHECKS

STATION	LOCATION	628.7504 (LF)
10+60	MAINLINE, LT.	12
11+44	MAINLINE, RT.	12
11+47	MAINLINE, LT.	12
12+00	MAINLINE, RT.	12
-	UNDISTRIBUTED	12
TOTAL =		60

FIELD OFFICE TYPE B

PROJECT	642.5001 (EACH)
CTH N	0.5
TOTAL =	0.5

TRAFFIC CONTROL

LOCATION	643.0420 BARRICADES TYPE III (DAY)	643.0705 WARNING LIGHTS TYPE A (DAY)	643.0900 SIGNS (DAY)	643.5000 TRAFFIC CONTROL (EACH)
PROJECT	1190	1820	6300	0.5
TOTALS =	1190	1820	6300	0.5

MARKING LINE EPOXY 4-INCH

STATION - STATION	LOCATION	TYPE	646.1020 (LF)
9+48 - 13+40	MAINLINE, RT	WHITE EDGE LINE	392
9+48 - 13+40	MAINLINE, LT	WHITE EDGE LINE	392
9+48 - 13+40	MAINLINE	DOUBLE YELLOW	784
TOTALS =			1,568

MGS GUARDRAIL

STATION - STATION	LOCATION	614.2300 MGS GUARDRAIL 3 (LF)	614.2500 MGS THRIE BEAM TRANSITION (LF)	614.2610 MGS GUARDRAIL TERMINAL EAT (EACH)
9+72	MAINLINE, RT.	-	-	1
10+22 - 11+13	MAINLINE, RT.	50	40	-
10+30	MAINLINE, LT.	-	-	1
10+80 - 11+21	MAINLINE, LT.	-	40	-
11+67 - 12+08	MAINLINE, RT.	-	40	-
11+75 - 12+66	MAINLINE, LT.	50	40	-
12+58	MAINLINE, RT.	-	-	1
13+16	MAINLINE, LT.	-	-	1
TOTALS =		100	160	4

PERMANENT SIGNING

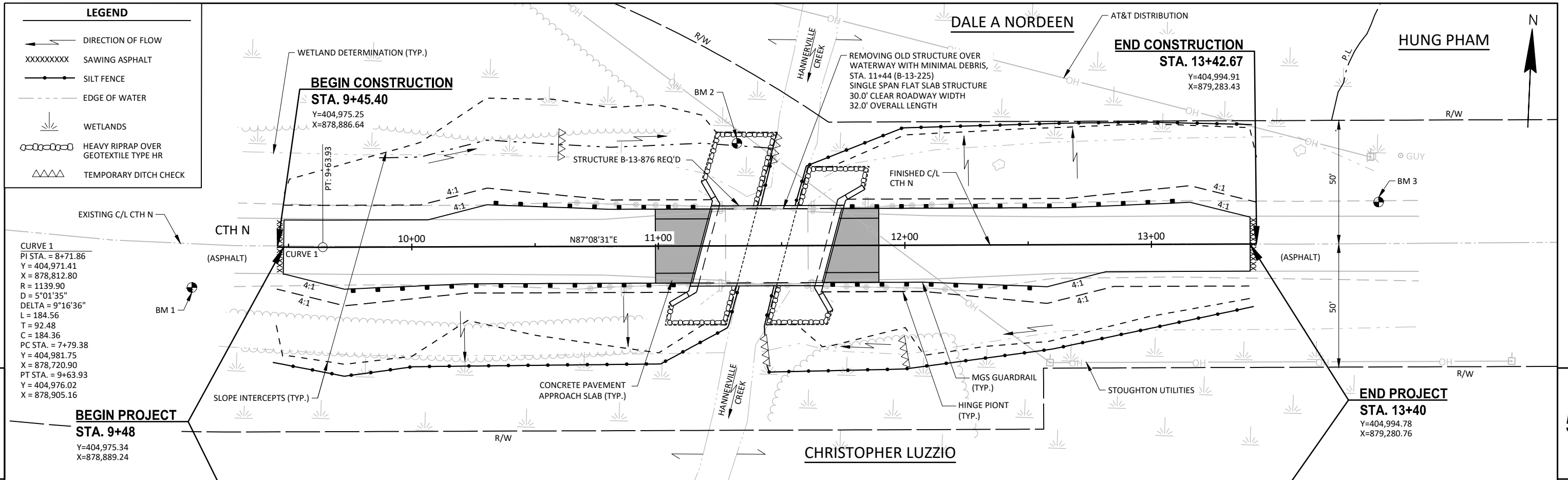
APPROX. STATION	LOCATION	SIGN CODE	SIGN DESCRIPTION	ORDER LINES	SIGN SIZE	634.0612 POSTS WOOD 4X6- INCH X 12-FT (EACH)	637.2230 SIGNS TYPE II REFLECTIVE F (SF)	638.2602 REMOVING SIGNS TYPE II (EACH)	638.3000 REMOVING SMALL SIGN SUPPORTS (EACH)
-	CTH A - E. ACADEMY ST. INTERSECTION	R12-55	__TON BRIDGE__ MILES AHEAD	20; XX	-	-	-	1	1
10+86	MAINLINE, RT.	R12-1	WEIGHT LIMIT __TON	20	-	-	-	1	1
11+13	MAINLINE, RT.	W5-	BRIDGE HASH MARKS	-	12X36	1	3.00	-	-
11+21	MAINLINE, LT.	W5-52L	BRIDGE HASH MARKS	-	12X36	1	3.00	-	-
11+26	MAINLINE, RT.	W5-	BRIDGE HASH MARKS	-	-	-	-	1	1
11+26	MAINLINE, LT.	W5-52L	BRIDGE HASH MARKS	-	-	-	-	1	1
11+61	MAINLINE, RT.	W5-52L	BRIDGE HASH MARKS	-	-	-	-	1	1
11+61	MAINLINE, LT.	W5-	BRIDGE HASH MARKS	-	-	-	-	1	1
11+67	MAINLINE, RT.	W5-52L	BRIDGE HASH MARKS	-	12X36	1	3.00	-	-
11+75	MAINLINE, LT.	W5-	BRIDGE HASH MARKS	-	12X36	1	3.00	-	-
11+83	MAINLINE, LT.	R12-1	WEIGHT LIMIT __TON	20	-	-	-	1	1
-	CTH X INTERSECTION	R12-55	__TON BRIDGE__ MILES AHEAD	20; XX	-	-	-	1	1
TOTALS =						4	12.00	8	8

SAWING ASPHALT

STATION	LOCATION	690.0150 (LF)
9+48	MAINLINE	22
13+40	MAINLINE	22
TOTAL =		44

CONSTRUCTION STAKING

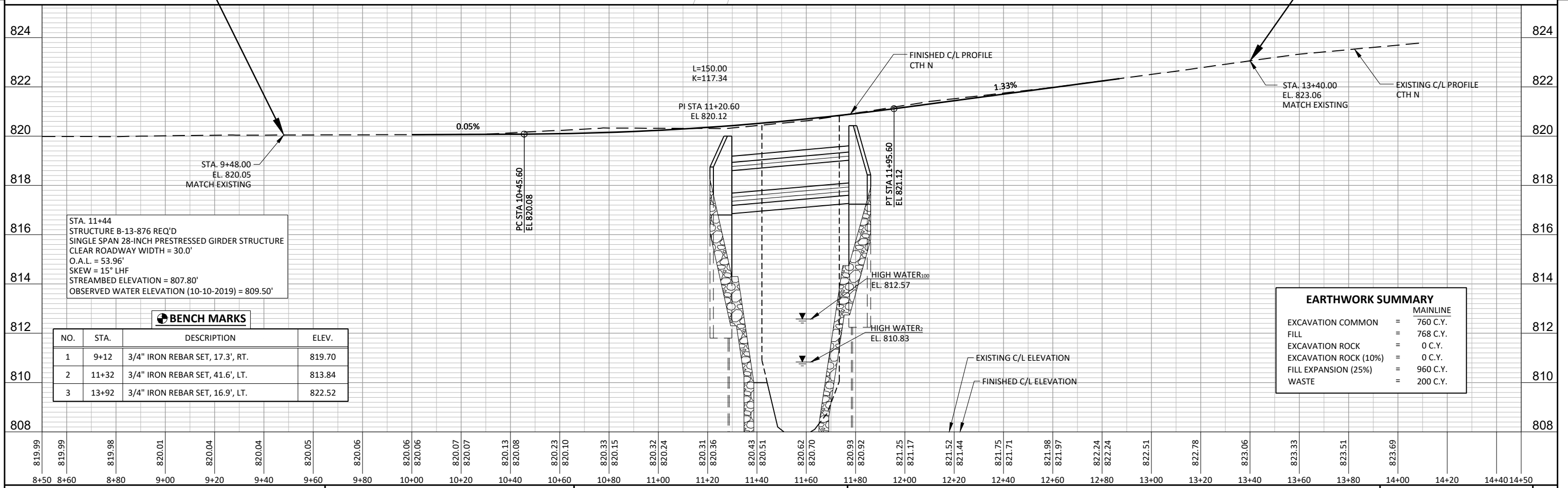
STATION-STATION	LOCATION	CONSTRUCTION STAKING				
		650.4500 SUBGRADE (LF)	650.5000 BASE (LF)	650.6500 STRUCTURE LAYOUT (B-13-876) (LS)	650.9910 SUPPLEMENTAL CONTROL (LS)	650.9920 SLOPES STAKES (LF)
9+48 - 13+40	MAINLINE PROJECT	392	392	1	1	392
TOTAL =		392	392	1	1	392



CURVE 1
 PI STA. = 8+71.86
 Y = 404,971.41
 X = 878,812.80
 R = 1139.90
 D = 5°01'35"
 DELTA = 9°16'36"
 L = 184.56
 T = 92.48
 C = 184.36
 PC STA. = 7+79.38
 Y = 404,981.75
 X = 878,720.90
 PT STA. = 9+63.93
 Y = 404,976.02
 X = 878,905.16

BEGIN PROJECT
STA. 9+48
 Y=404,975.34
 X=878,889.24

END PROJECT
STA. 13+40
 Y=404,994.78
 X=879,280.76



STA. 11+44
 STRUCTURE B-13-876 REQ'D
 SINGLE SPAN 28-INCH PRESTRESSED GIRDER STRUCTURE
 CLEAR ROADWAY WIDTH = 30.0'
 O.A.L. = 53.96'
 SKEW = 15° LHF
 STREAMBED ELEVATION = 807.80'
 OBSERVED WATER ELEVATION (10-10-2019) = 809.50'

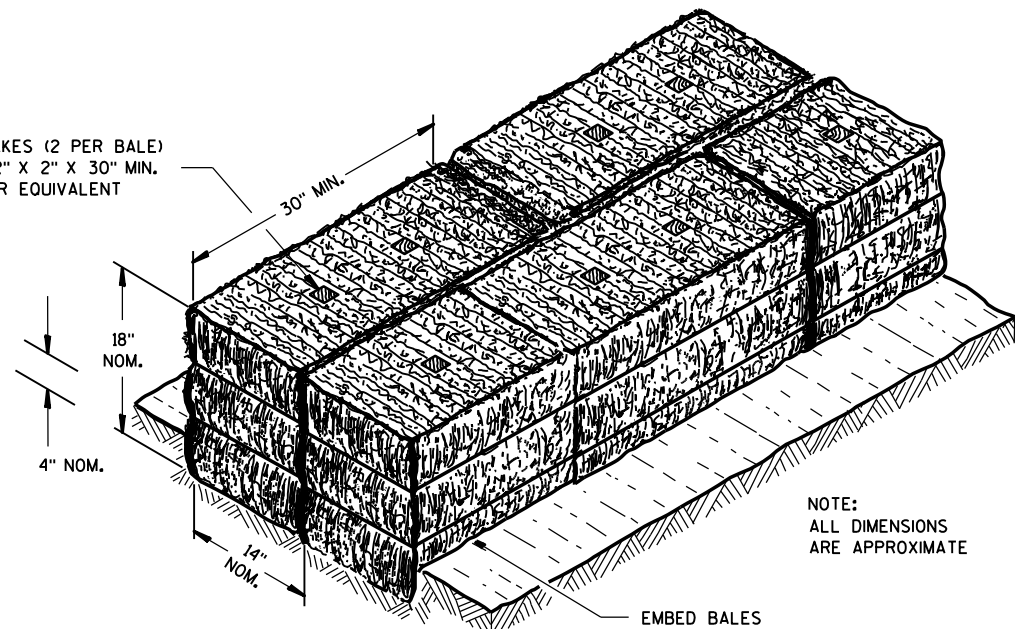
BENCH MARKS

NO.	STA.	DESCRIPTION	ELEV.
1	9+12	3/4" IRON REBAR SET, 17.3', RT.	819.70
2	11+32	3/4" IRON REBAR SET, 41.6', LT.	813.84
3	13+92	3/4" IRON REBAR SET, 16.9', LT.	822.52

EARTHWORK SUMMARY

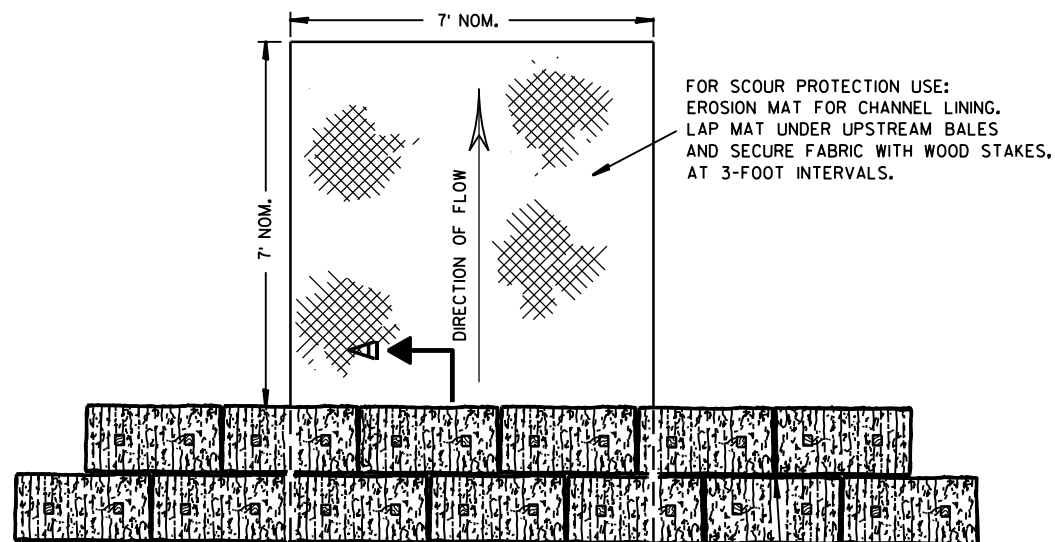
	MAINLINE
EXCAVATION COMMON	= 760 C.Y.
FILL	= 768 C.Y.
EXCAVATION ROCK	= 0 C.Y.
EXCAVATION ROCK (10%)	= 0 C.Y.
FILL EXPANSION (25%)	= 960 C.Y.
WASTE	= 200 C.Y.

WOOD STAKES (2 PER BALE)
NOMINAL 2" X 2" X 30" MIN.
LENGTH OR EQUIVALENT



NOTE:
ALL DIMENSIONS
ARE APPROXIMATE

SECTION A-A

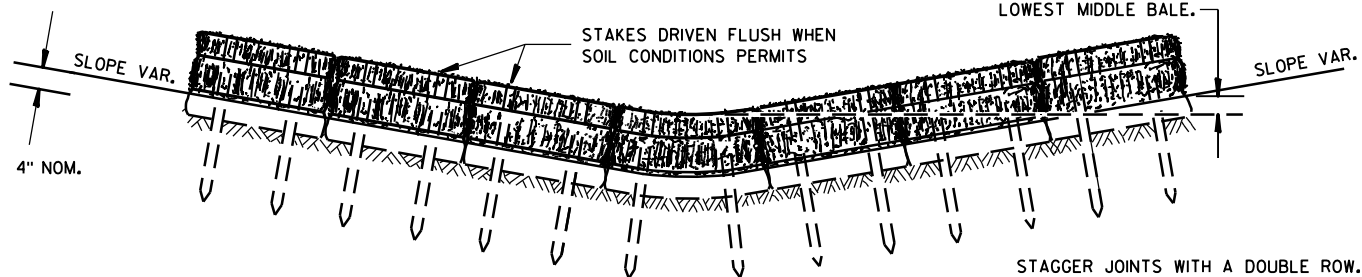


FOR SCOUR PROTECTION USE:
EROSION MAT FOR CHANNEL LINING.
LAP MAT UNDER UPSTREAM BALES
AND SECURE FABRIC WITH WOOD STAKES,
AT 3-FOOT INTERVALS.

PLAN VIEW

STAGGER JOINTS BETWEEN ADJACENT
ROWS OF BALES.

BOTTOM ELEVATION OF END BALE SHALL
BE EQUAL TO OR GREATER THAN TOP OF
LOWEST MIDDLE BALE.



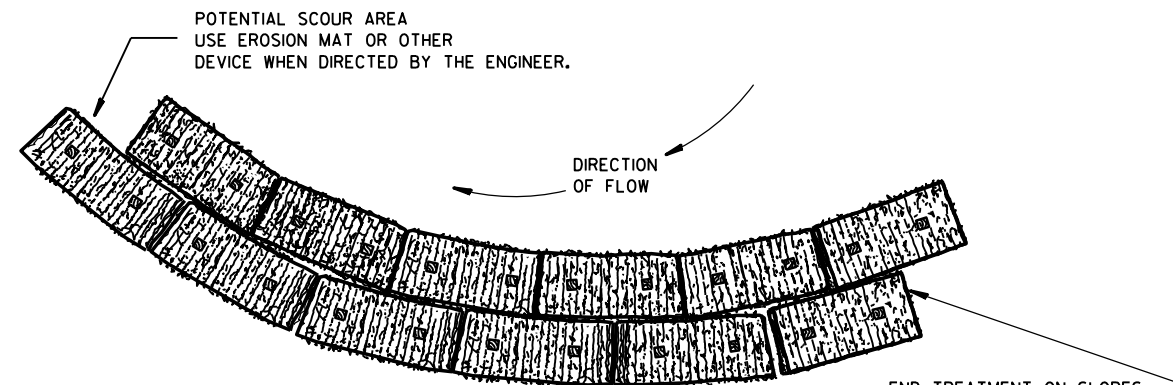
FRONT ELEVATION

TEMPORARY DITCH CHECK USING EROSION BALES ①

GENERAL NOTES

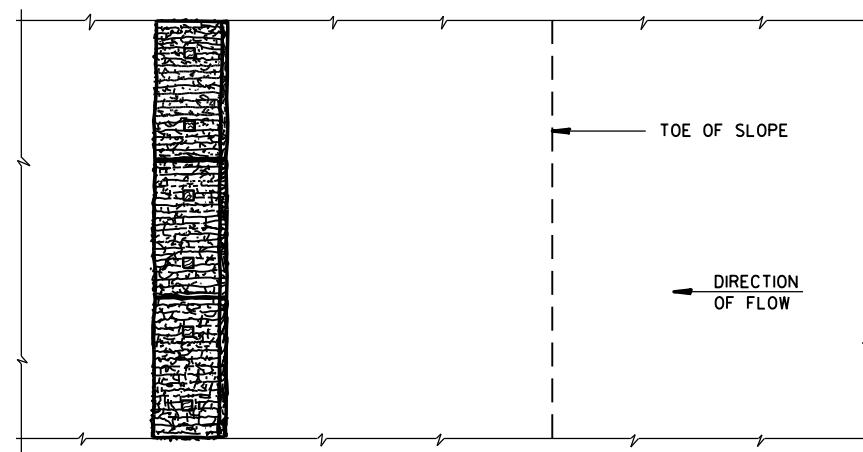
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

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

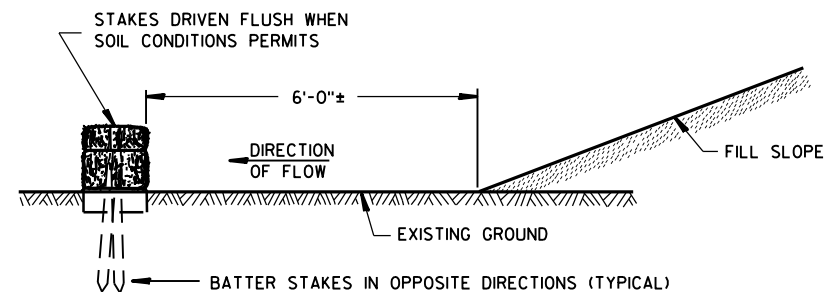


PLAN VIEW

WHEN ALTERING THE DIRECTION OF FLOW



PLAN VIEW



FRONT ELEVATION

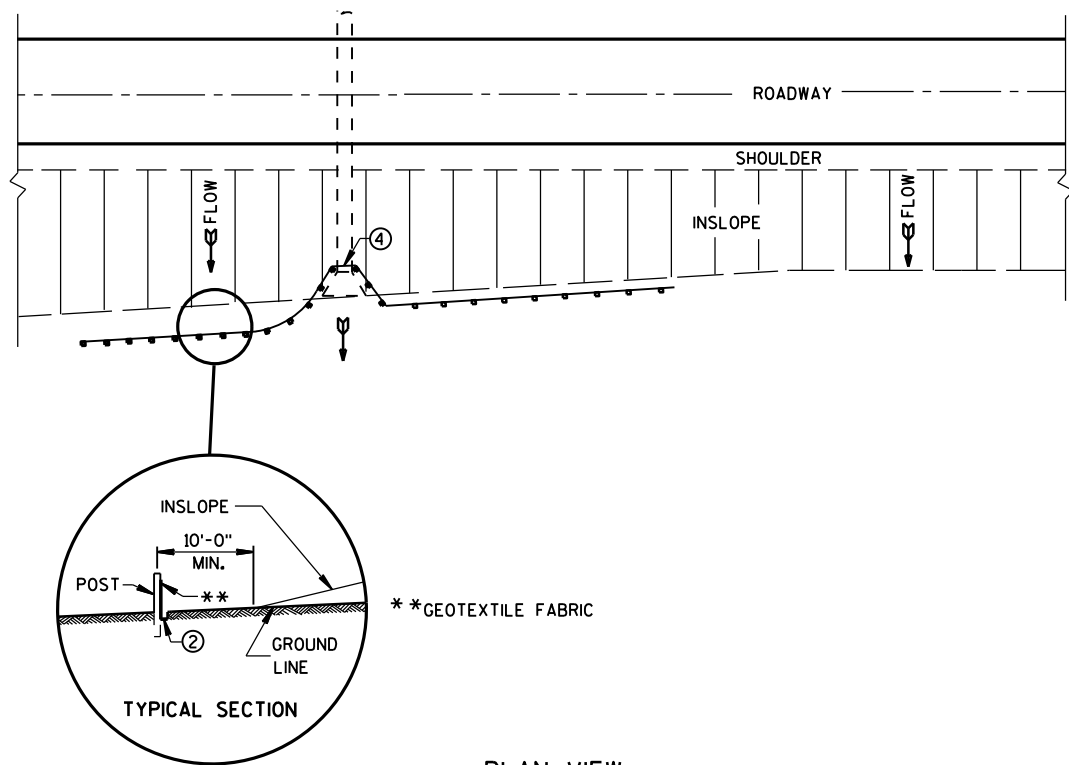
WHEN EXISTING GROUND SLOPES AWAY FROM FILL SLOPE

EROSION BALES FOR SHEET FLOW

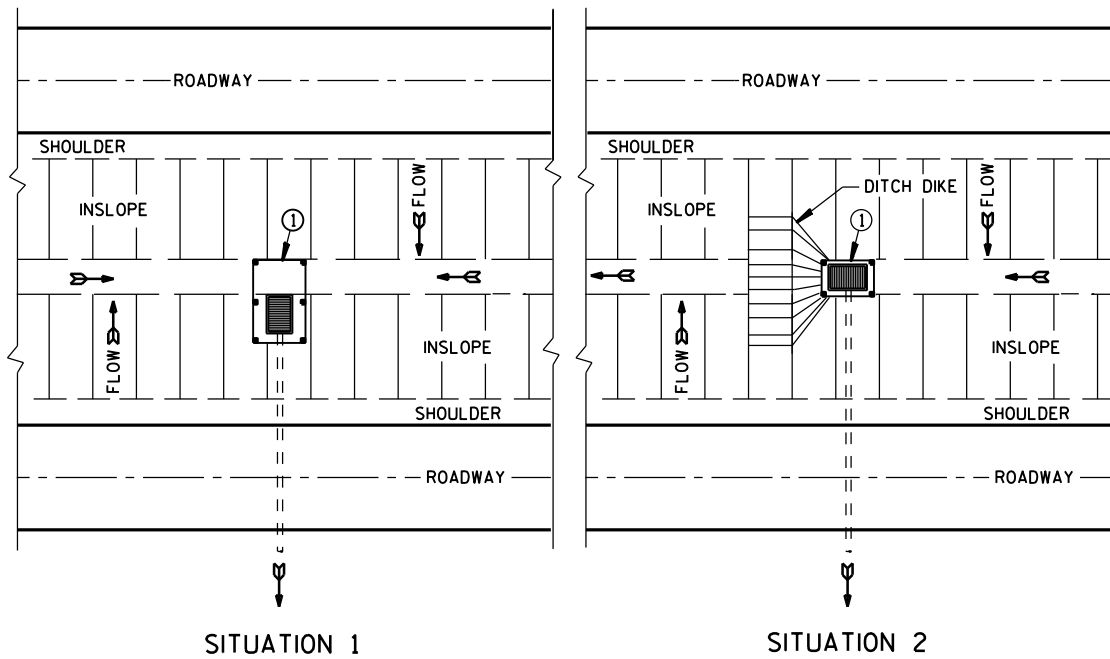
TYPICAL INSTALLATIONS OF
EROSION BALES / TEMPORARY
DITCH CHECKS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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



**PLAN VIEW
TYPICAL APPLICATION OF SILT FENCE**

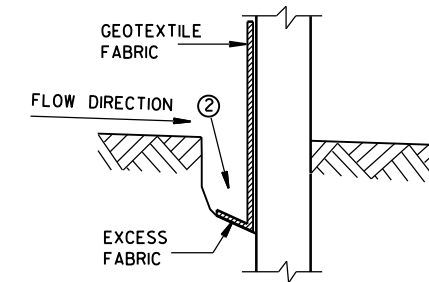


**SITUATION 1 SITUATION 2
PLAN VIEW
SILT FENCE AT MEDIAN SURFACE DRAINS**

GENERAL NOTES

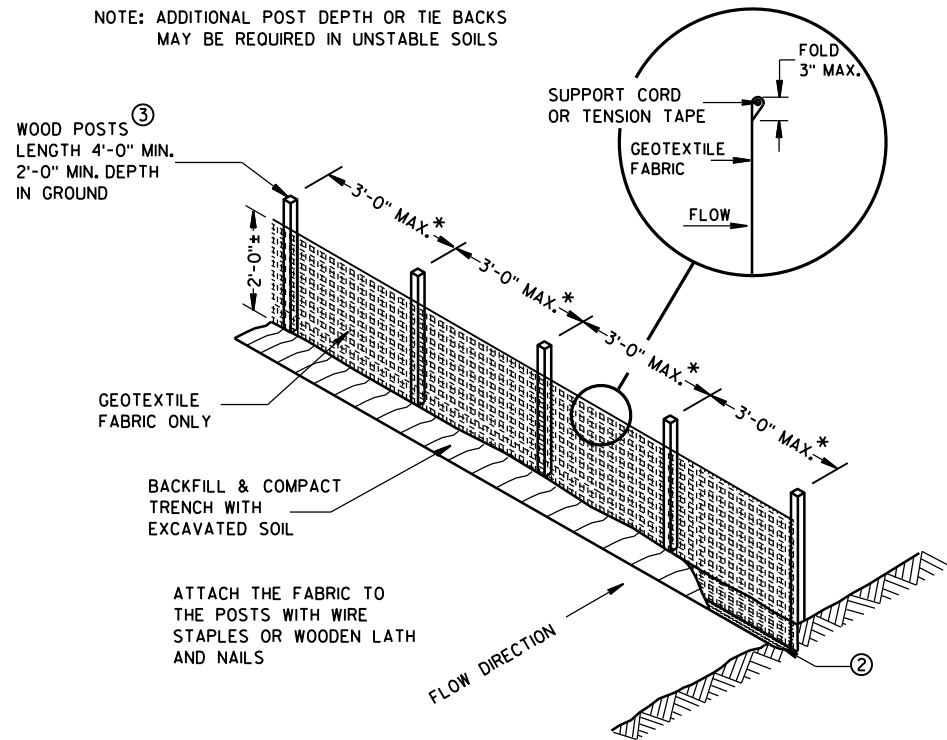
DETAILS OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

- ① HORIZONTAL BRACE REQUIRED WITH 2" X 4" WOODEN FRAME OR EQUIVALENT AT TOP OF POSTS.
- ② FOR MANUAL INSTALLATIONS THE TRENCH SHALL BE A MINIMUM OF 4" WIDE & 6" DEEP TO BURY AND ANCHOR THE GEOTEXTILE FABRIC. FOLD MATERIAL TO FIT TRENCH AND BACKFILL & COMPACT TRENCH WITH EXCAVATED SOIL.
- ③ WOOD POSTS SHALL BE A MINIMUM SIZE OF 1 1/8" X 1 1/8" OF OAK OR HICKORY.
- ④ SILT FENCE TO EXTEND ACROSS THE TOP OF THE PIPE.
- ⑤ CONSTRUCT SILT FENCE FROM A CONTINUOUS ROLL IF POSSIBLE BY CUTTING LENGTHS TO AVOID JOINTS. IF A JOINT IS NECESSARY USE ONE OF THE FOLLOWING TWO METHODS; A) OVERLAP THE END POSTS AND TWIST, OR ROTATE, AT LEAST 180 DEGREES, B) HOOK THE END OF EACH SILT FENCE LENGTH.



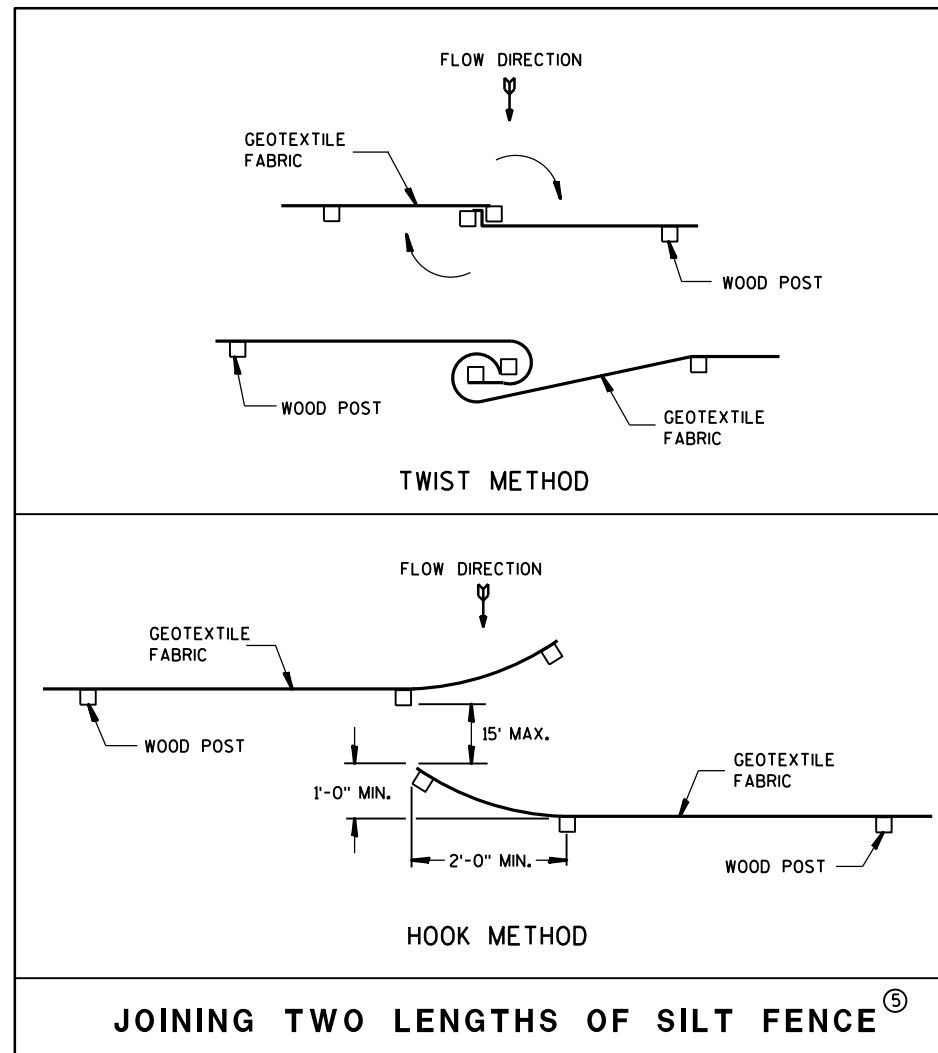
TRENCH DETAIL

NOTE: ADDITIONAL POST DEPTH OR TIE BACKS MAY BE REQUIRED IN UNSTABLE SOILS

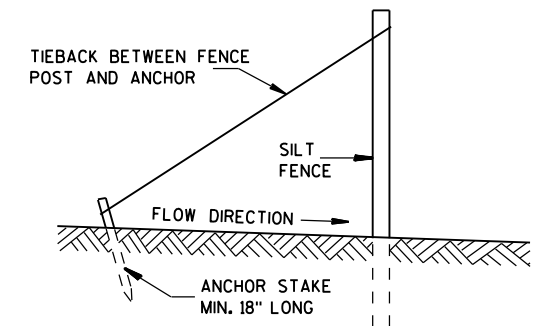


SILT FENCE

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



JOINING TWO LENGTHS OF SILT FENCE

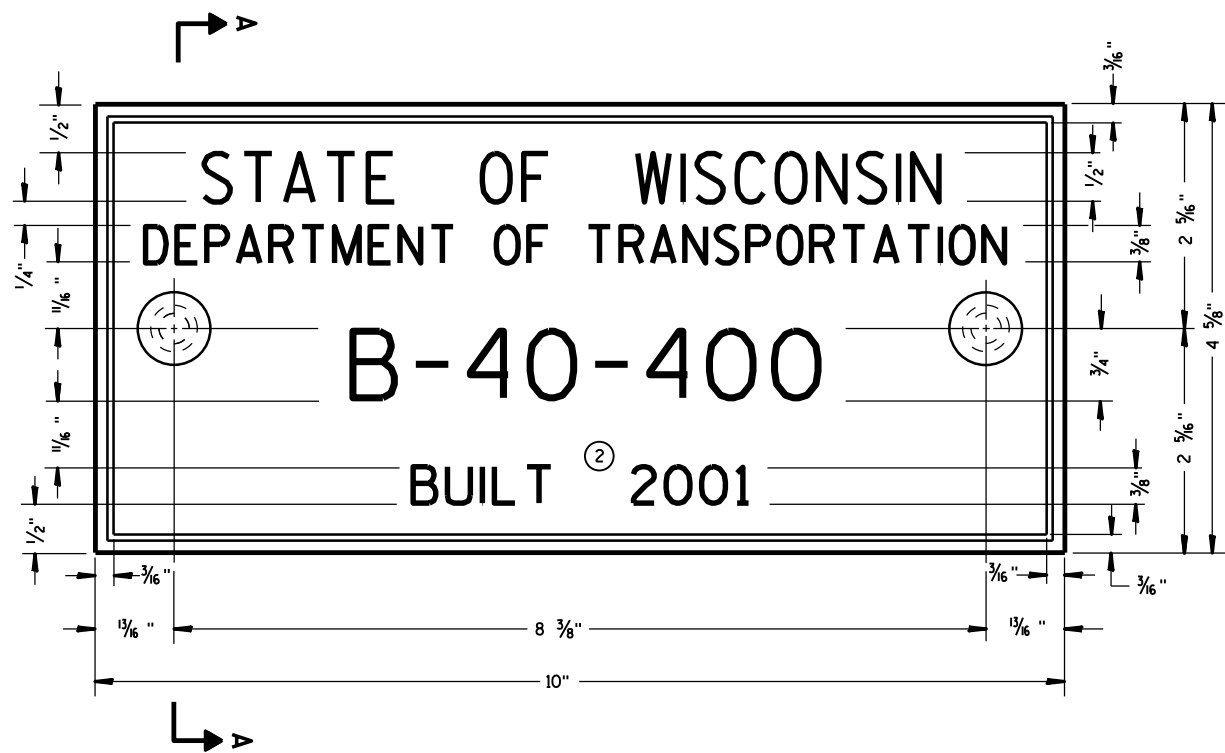


**SILT FENCE TIE BACK
(WHEN REQUIRED BY THE ENGINEER)**

SILT FENCE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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



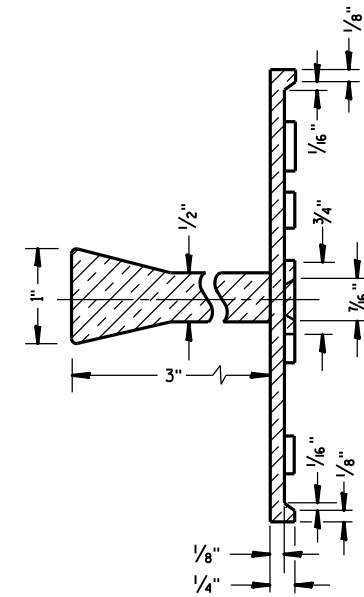
TYPICAL NAME PLATE
(BRIDGES, CULVERTS, AND RETAINING WALLS)

GENERAL NOTES

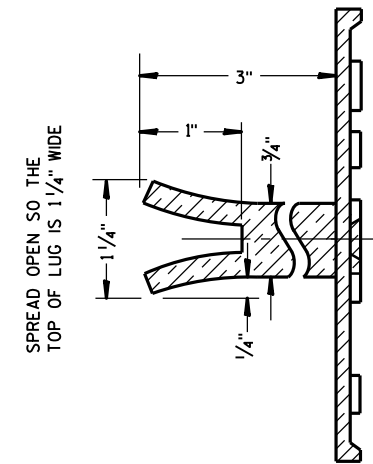
NAME PLATES TO BE INSTALLED ON BRIDGES, CULVERTS, AND RETAINING WALLS SHALL CONFORM TO THE REQUIREMENTS OF SECTION 502.3.11 OF THE STANDARD SPECIFICATIONS.

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

- ① EPOXY RESIN SHALL BE FROM AN APPROVED MANUFACTURER AND USED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
- ② REHABILITATION OF AN EXISTING STRUCTURE SHOULD USE THE DATE OF ORIGINAL STRUCTURE CONSTRUCTION.



SECTION A-A



SPREAD OPEN SO THE TOP OF LUG IS 1/4" WIDE

ALTERNATE LUG

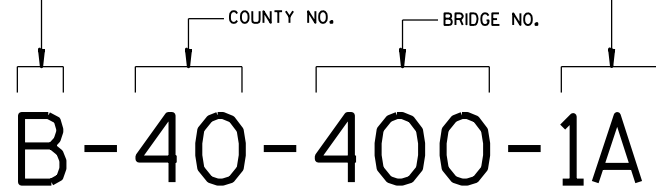
6

6

FOR MULTI-UNIT STRUCTURES
LINE 3 ABOVE SHALL READ

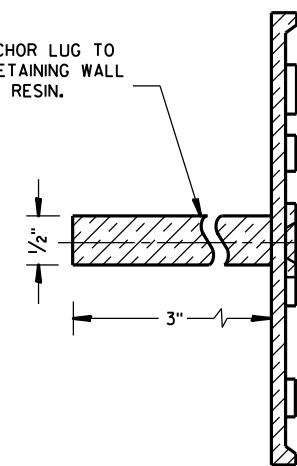
B = BRIDGE
C = CULVERT
R = RETAINING WALL

UNIT NO. FOR MULTIPLE
UNIT BRIDGE



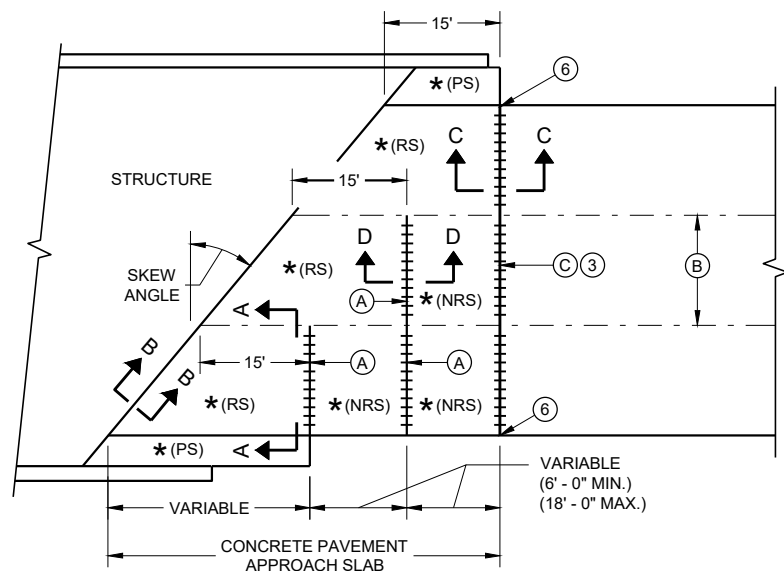
**NUMBERING DESIGNATION
MULTI-UNIT STRUCTURES**

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

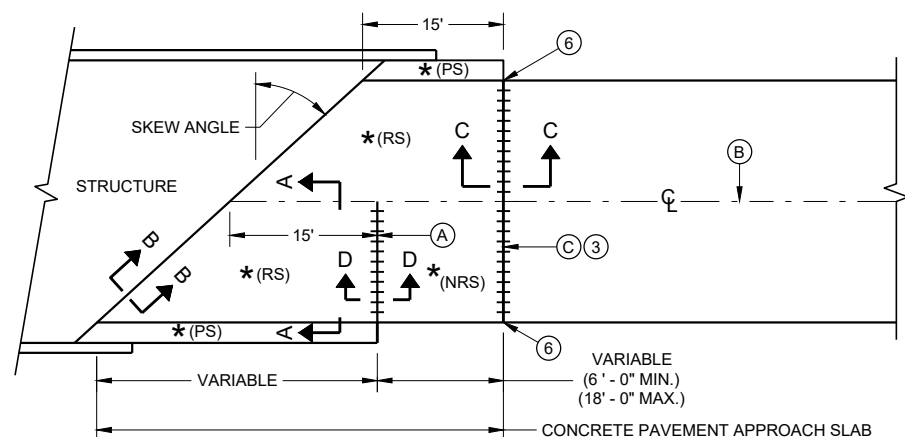


ALTERNATE LUG
(FOR ATTACHMENT TO PRECAST STRUCTURES)

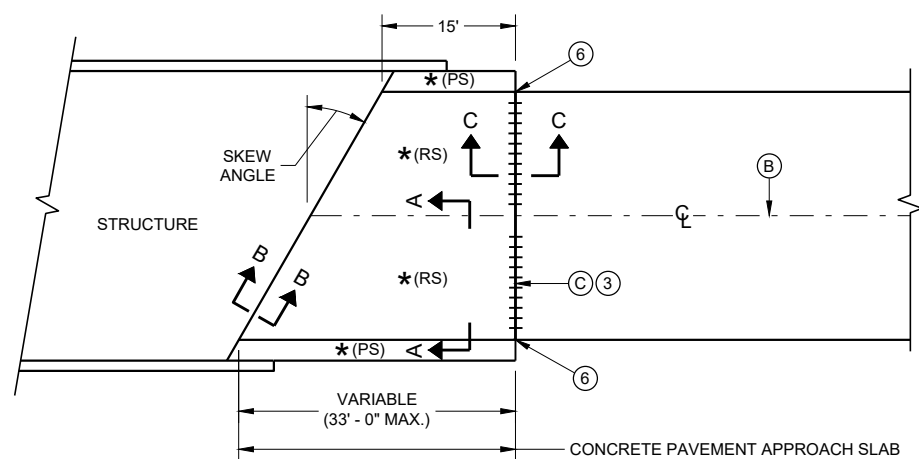
NAME PLATE (STRUCTURES)	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED DATE 3/26/10	/S/ Scot Becker CHIEF STRUCTURAL DEVELOPMENT ENGINEER
FHWA	



**SKewed Approach
(Pavement more than two lanes)**



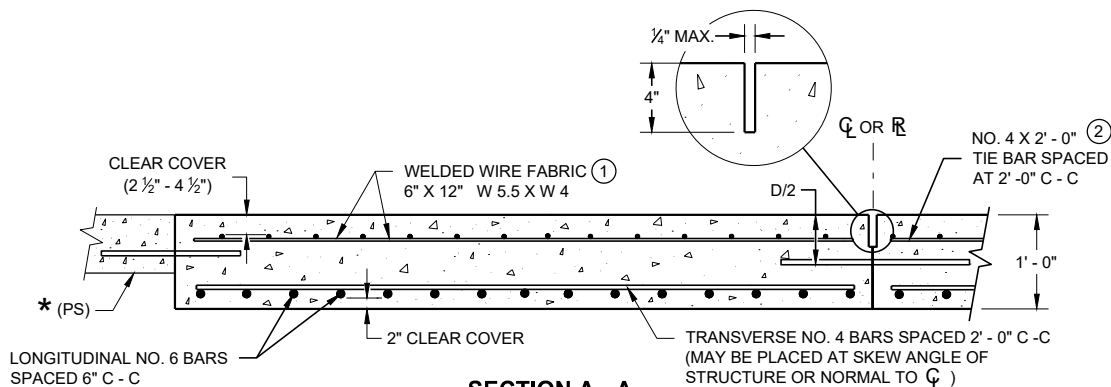
**SKews > 20°
(Pavement width ≤ 30')**



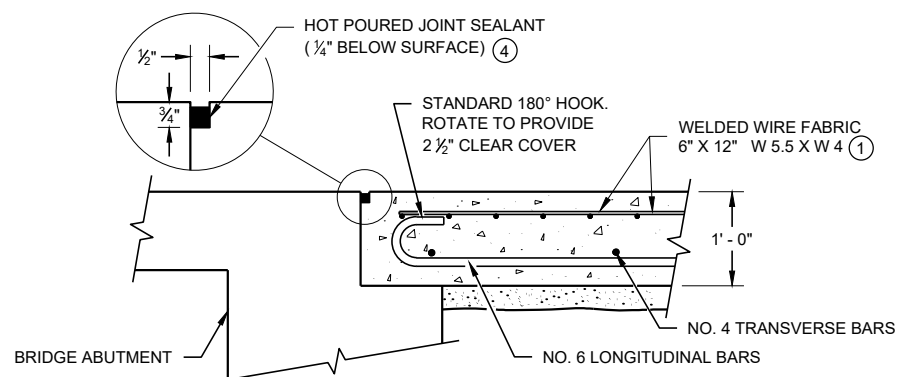
**SKews ≤ 20°
(Pavement width ≤ 30')**

Approach Slab and Adjacent Pavement

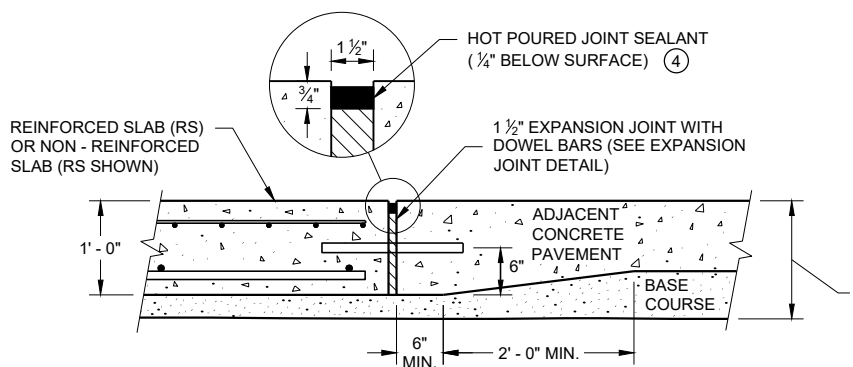
- * (RS) = REINFORCED CONCRETE SLAB
- * (PS) = PAVED CONCRETE SHOULDER OR CONCRETE DRAINAGE SLAB
- * (NRS) = NON - REINFORCED CONCRETE SLAB
- *** STANDARD DOWEL BAR DIAMETER (SEE SDD 13C11 AND SDD 13C13)



**SECTION A - A
REINFORCEMENT POSITIONING DETAIL**



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



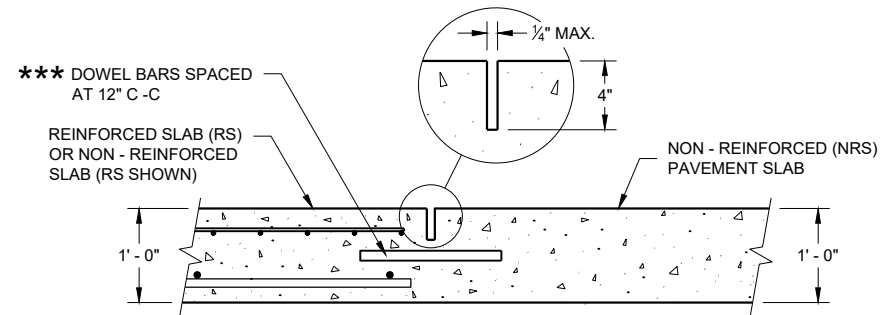
**SECTION C - C
TRANSITION DETAIL
Approach Slab to Adjacent Pavement**

GENERAL NOTES

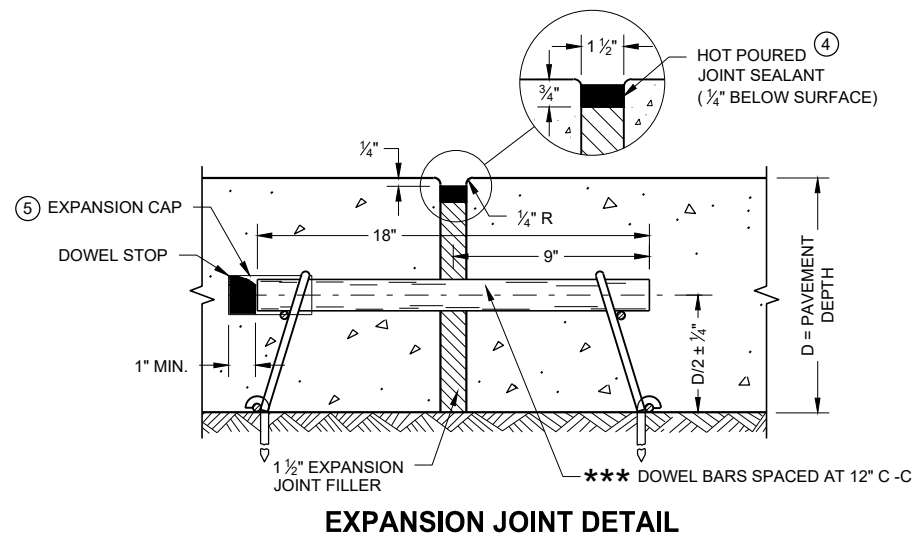
THE CONTRACTOR MAY SPLICE NO. 6 BARS IN THE APPROACH SLAB FOR SKEWED STRUCTURES ONLY. STAGGER SPLICES WITH A MAXIMUM OF ONE SPLICE PER BAR. THE LENGTH OF LAP IS 20 INCHES.

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**

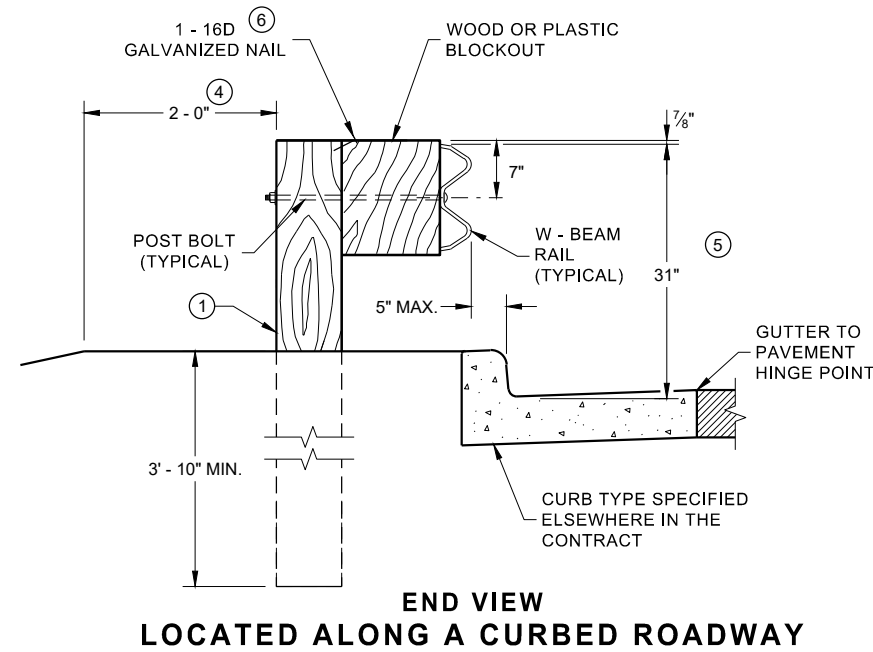
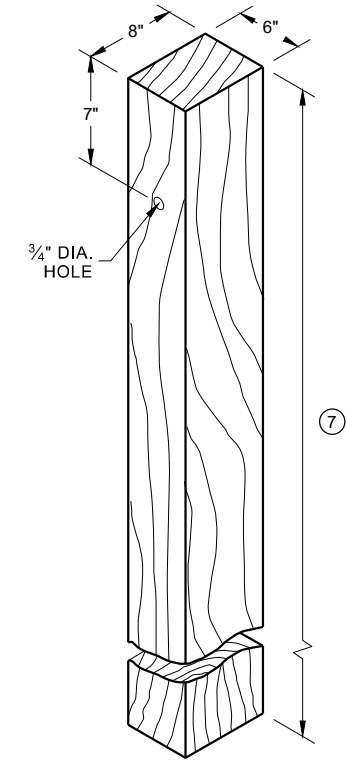
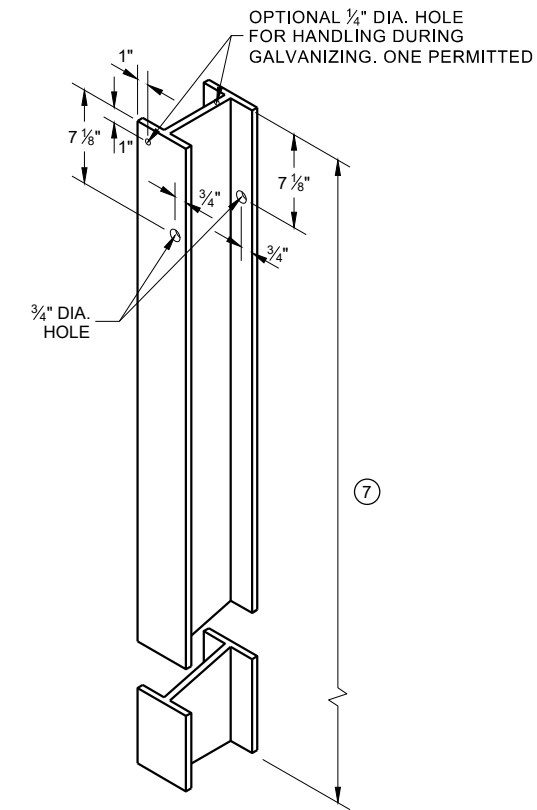
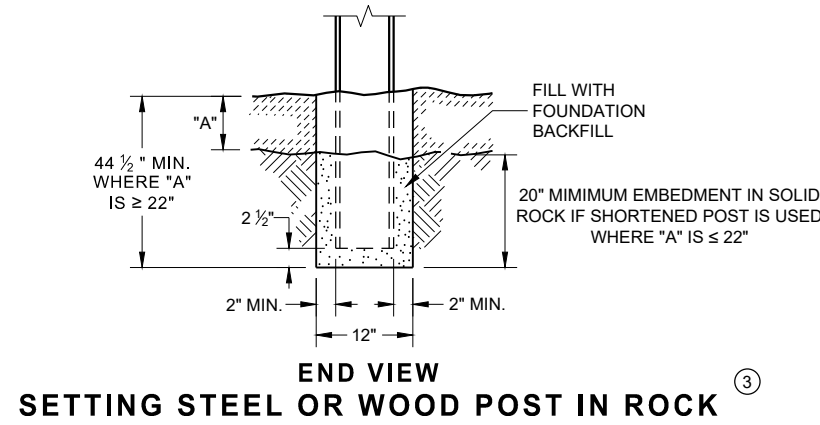
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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



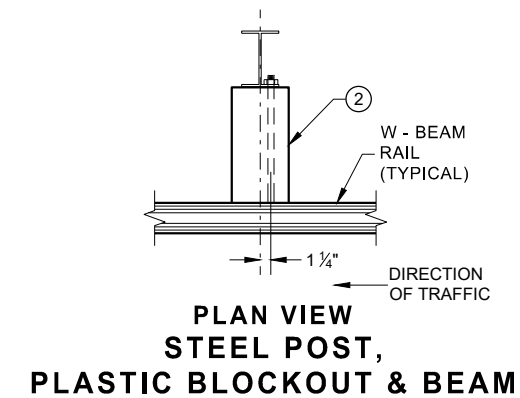
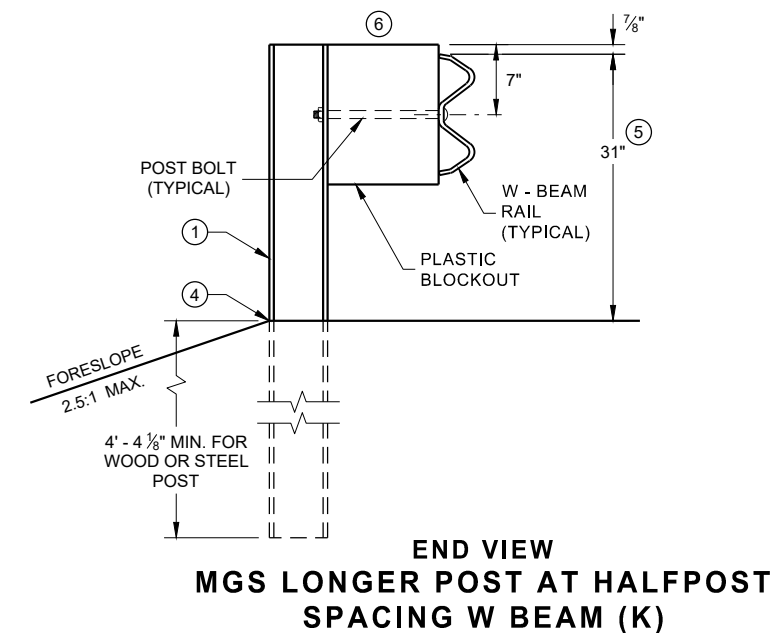
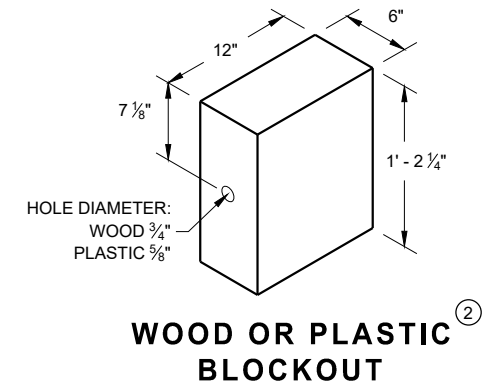
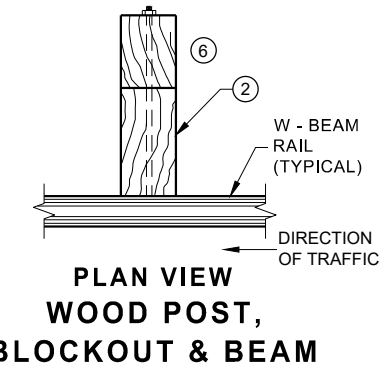
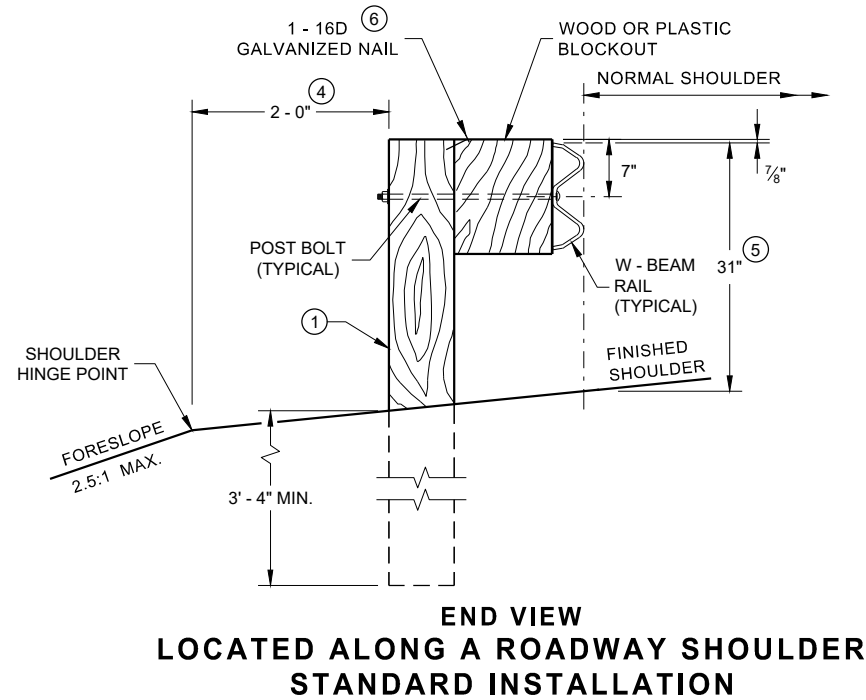
SDD 14B42-a Midwest Guardrail System (MGS) Guardrail

- ① WOOD OR STEEL POSTS (w6X9 OR w6X8.5) MAY BE USED. DO NOT INTERMIX WOOD AND STEEL POSTS. INSTALL STEEL POSTS WITH HOLES ON APPROACHING TRAFFIC SIDE.
- ② USE WOOD OR APPROVED PLASTIC BLOCKOUTS. WOOD BLOCKOUTS MAY BE CONSTRUCTED OUT OF TWO OR MORE WOOD BLOCKOUTS. SEE ALTERNATE WOOD BLOCKOUT DETAIL. DIMENSIONS OF APPROVED PLASTIC BLOCKOUTS MAY VARY.
- ③ IF ROCK IS ENCOUNTERED DURING EXCAVATION, PROVIDE A HOLE 12 INCHES IN DIAMETER EXTENDING 20 INCHES DEEP INTO THE ROCK. PLACE APPROXIMATELY 2 1/2" INCHES OF GRANULAR MATERIAL IN THE BOTTOM OF THE HOLE. CUT THE POSTS THE TO LENGTH AND INSTALL. BACKFILL WITH EXCAVATED MATERIAL AND COMPACT. BACKFILL IS TO BE FREE OF LARGE ROCKS.
- ④ WHEN THE DISTANCE FROM BACK OF POST TO SHOULDER HINGE POINT IS LESS THAN 2 FEET INSTALL LONGER POST AT HALF POST SPACING (K).
- ⑤ FOR NEW MGS INSTALLATION TOP OF W-BEAM RAIL TOLERANCE IS ±1". FOR EXISTING MGS INSTALLATION TOP OF W-BEAM IS BETWEEN 27 3/4" TO 32".
- ⑥ WHEN USING STEEL POST AND WOOD BLOCKOUTS INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.
- ⑦ TOTAL POST LENGTH FOR TYPE K IS 7' - 0". TOTAL POST LENGTH FOR OTHER MGS TYPES IS 6' - 0".



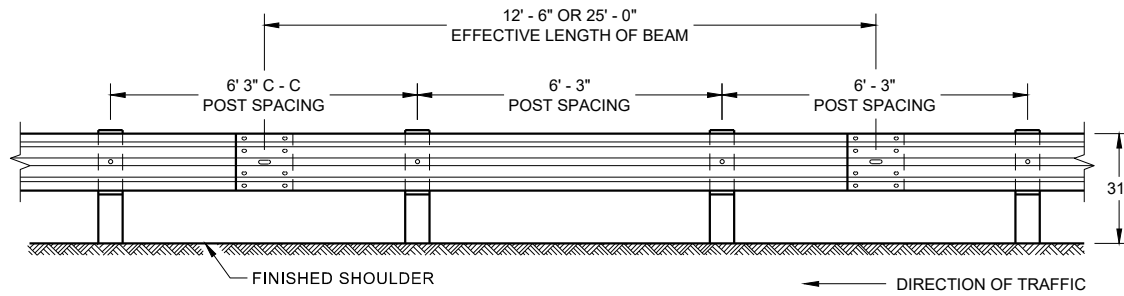
STEEL POST & HOLE PUNCHING DETAIL (W 6 X 9) ①

WOOD POST (6" X 8") NOMINAL ①

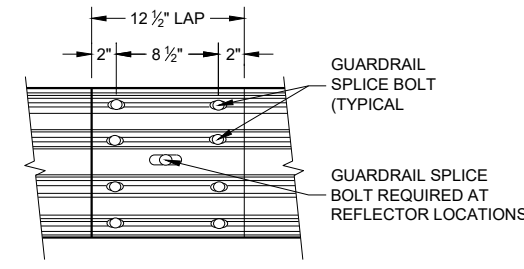


**MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



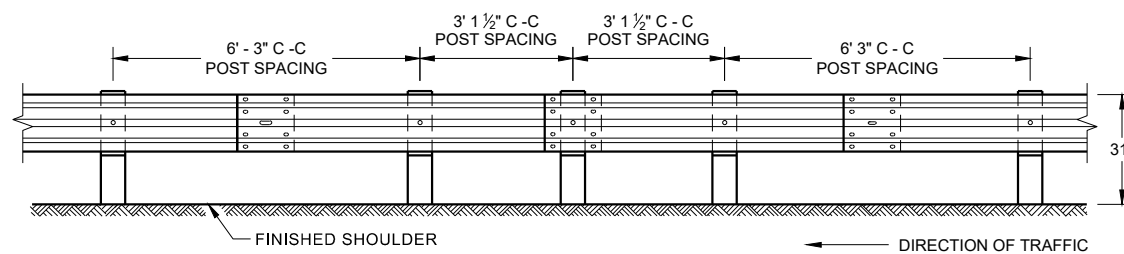
**FRONT VIEW
POST SPACING STANDARD INSTALLATION**



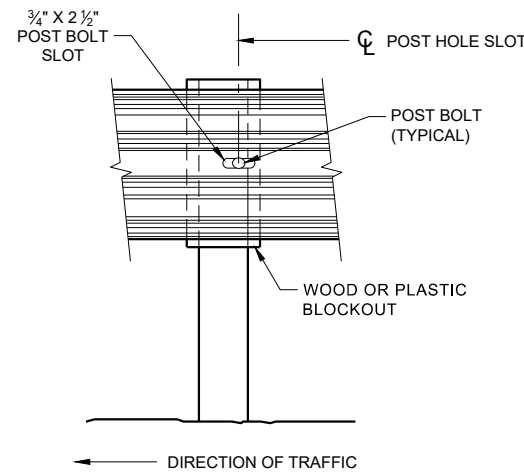
**FRONT VIEW
MID-SPAN BEAM SPLICE**

GENERAL NOTES

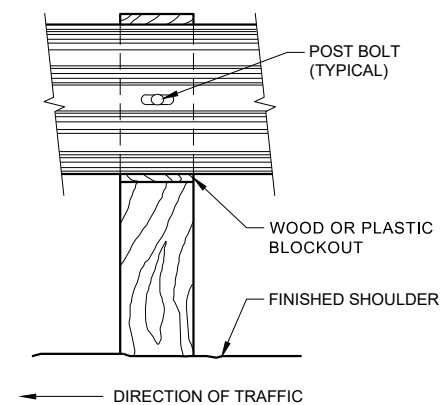
- ⑧ DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL.
 - ⑨ 25 FEET OF HALF POST SPACING IS REQUIRED ON APPROACH AND DEPARTURE ENDS OF QUARTER POST SPACING.
- POST BOLTS ARE A 3/8" DIAMETER ASTM A307 GUARDRAIL BOLT. A POST BOLT REQUIRES 3/4" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT AND 3/8" DIAMETER F844 FLAT WASHER. POST BOLTS MAY BE LONGER IF MULTIPLE BLOCKOUTS ARE BEING USED.
- GUARD RAIL SPLICE BOLTS ARE A 3/8" DIAMETER ASTM A307 GUARDRAIL HEAD BOLT. A GUARDRAIL SPLICE BOLT REQUIRES 3/8" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT.



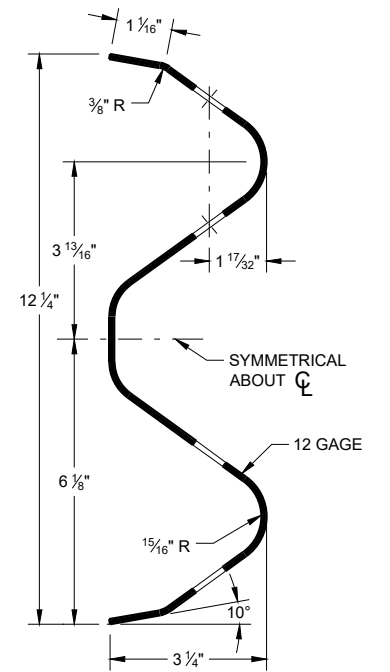
**FRONT VIEW
HALF POST SPACING (HS) AND
HALF POST SPACING WITH LONGER POSTS (K)**



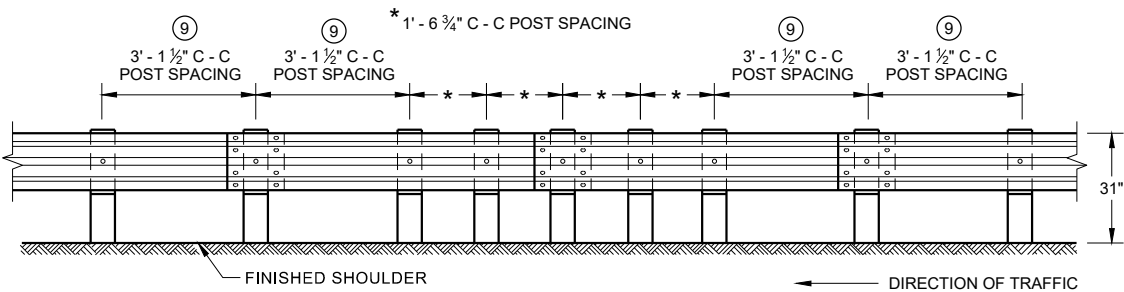
FRONT VIEW AT STEEL POST



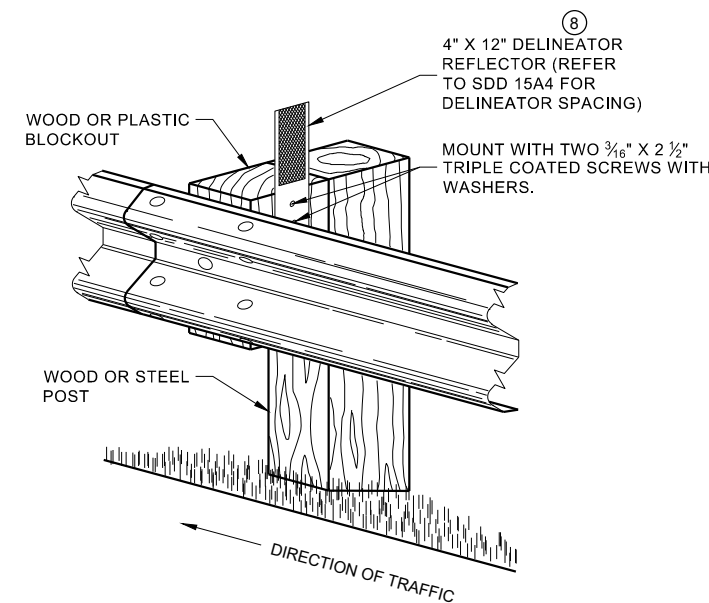
FRONT VIEW AT WOOD POST



SECTION THRU W-BEAM RAIL



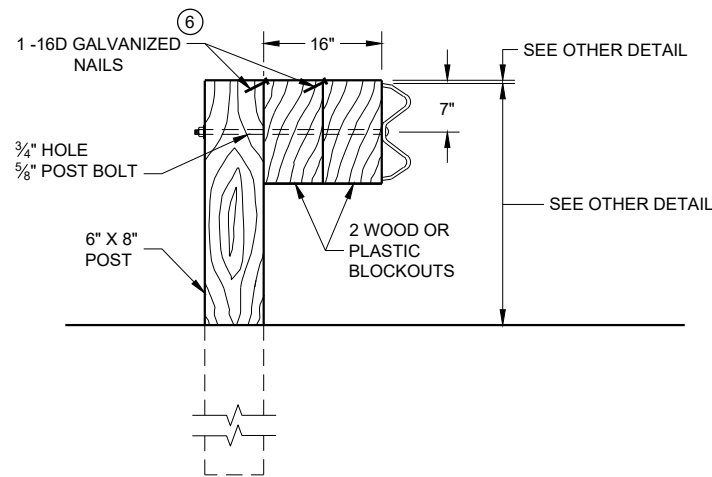
**FRONT VIEW
QUARTER POST SPACING (QS)**



**ONE SIDED REFLECTOR DETAIL
AND TYPICAL INSTALLATION**

**MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

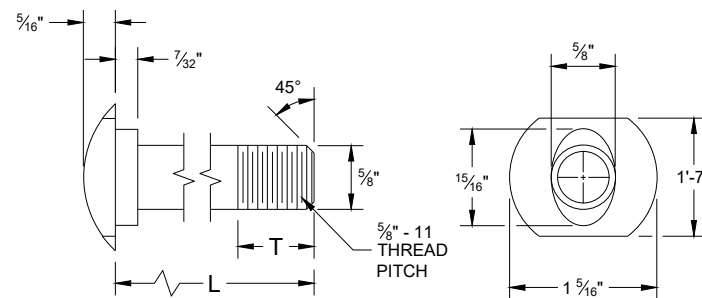


DETAIL FOR 16" BLOCKOUT DEPTH

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

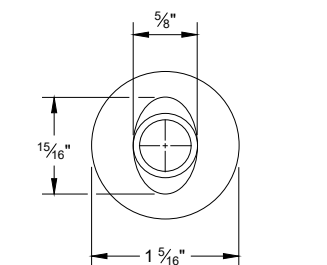
NOTE:

- ALL FILLETS SHALL HAVE A MINIMUM RADIUS OF $\frac{3}{16}$ ".
- IF THE BOLT EXTENDS MORE THAN $\frac{1}{4}$ " FROM THE NUT THE BOLT SHOULD BE TRIMMED BACK.

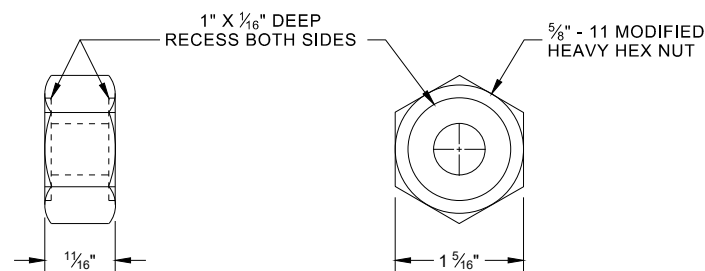


POST BOLT TABLE

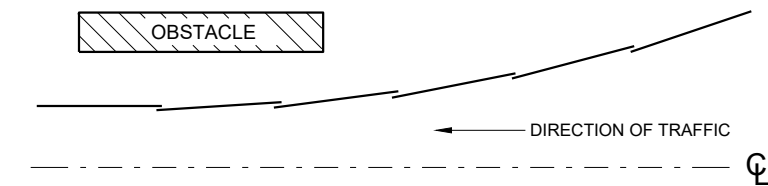
L	T (MIN.)
1 1/4"	1 1/8"
2"	1 3/4"
10"	4"
14"	4 1/16"
18"	4"
21"	4 1/16"
25"	4"



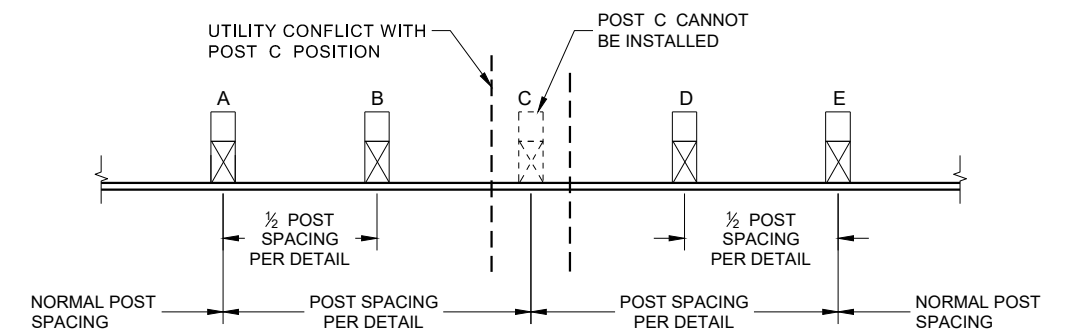
ALTERNATE BOLT HEAD



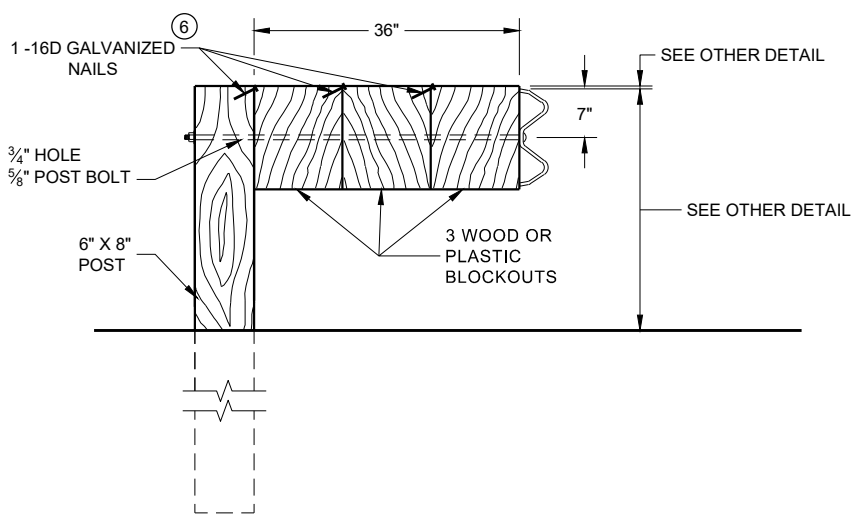
POST BOLT, SPLICE BOLT AND RECESS NUT



PLAN VIEW BEAM LAPPING DETAIL

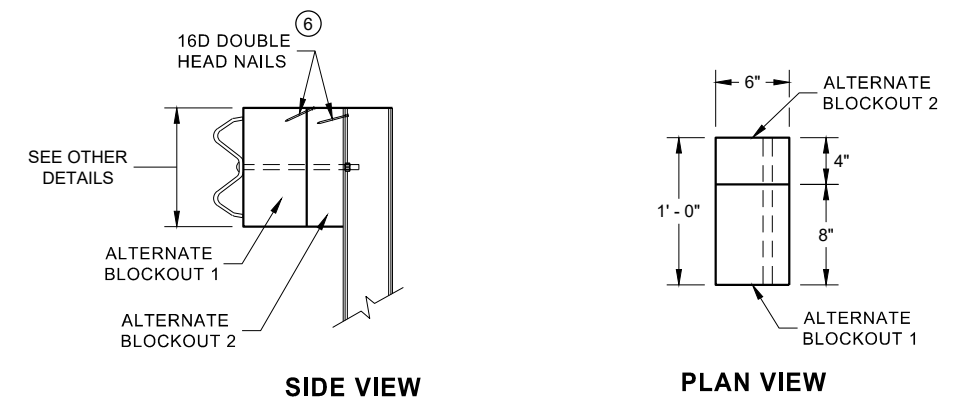


POST DRIVING FOR CONTINUOUS UNDERGROUND OBSTRUCTION



DETAIL FOR 36" BLOCKOUT DEPTH

NOTES: UNDER SPECIAL CIRCUMSTANCES, SUCH AS AVOIDING OBSTACLES THAT ARE NOT RELOCATED, IT IS ACCEPTABLE TO INSTALL ADDITIONAL BLOCKOUTS TO OBTAIN UP TO 36" DEPTH FOR ONE OR TWO POSTS IN A SECTION OF GUARDRAIL.
DO NOT USE 16" OR 36" BLOCKOUTS IF IT CAUSES THE POST TO BE DRIVEN BEYOND SHOULDER HINGE POINT OR CAUSES A FIXED OBJECT TO BE WITHIN THE DEFLECTION DISTANCE OF THE BARRIER.



ALTERNATE WOOD BLOCKOUT DETAIL

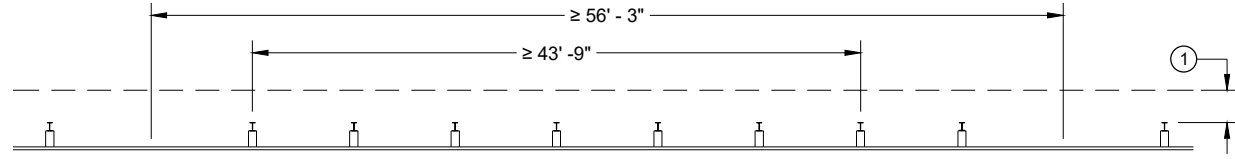
⑥ WHEN USING STEEL POST AND WOOD BLOCKOUTS, INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.

MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL

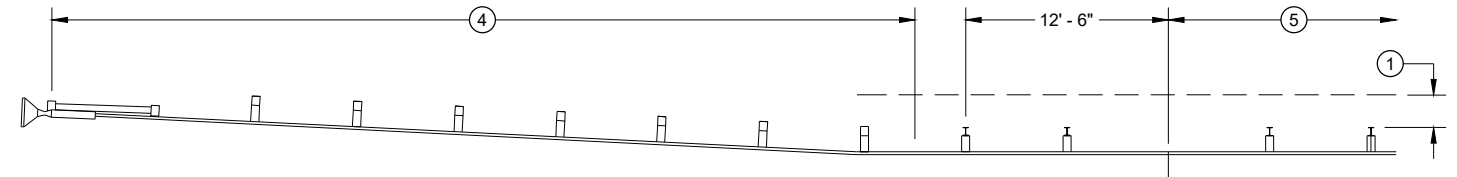
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



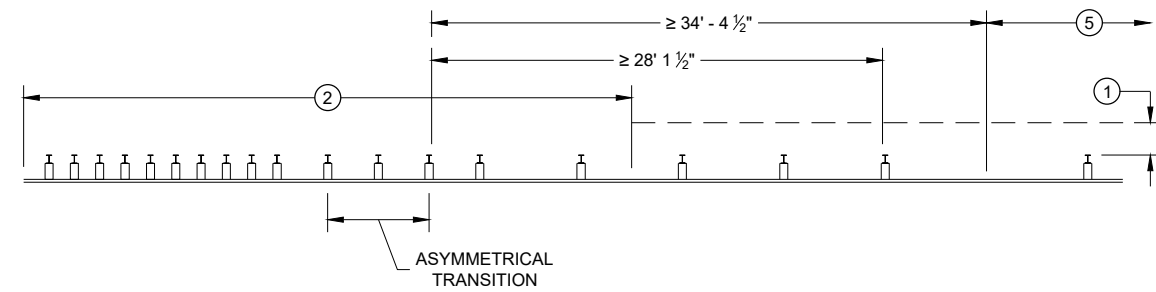
SDD 14B42-d Midwest Guardrail System (MGS) Guardrail



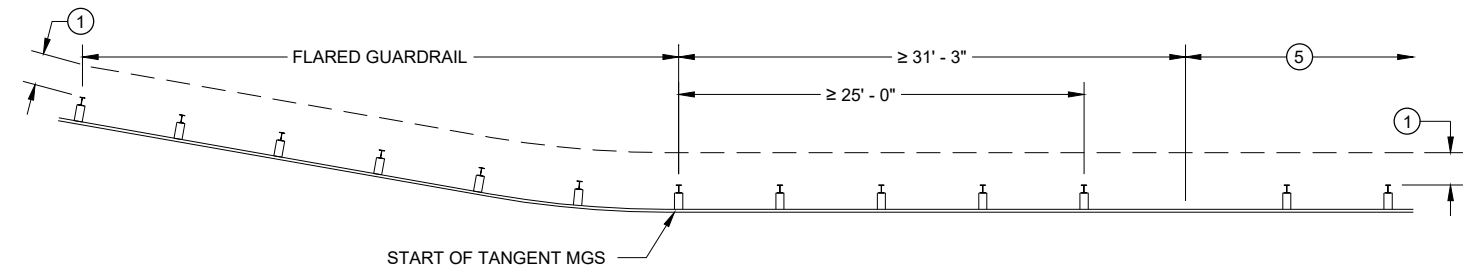
MISSING POST IN NORMAL BEAM GUARD RUN



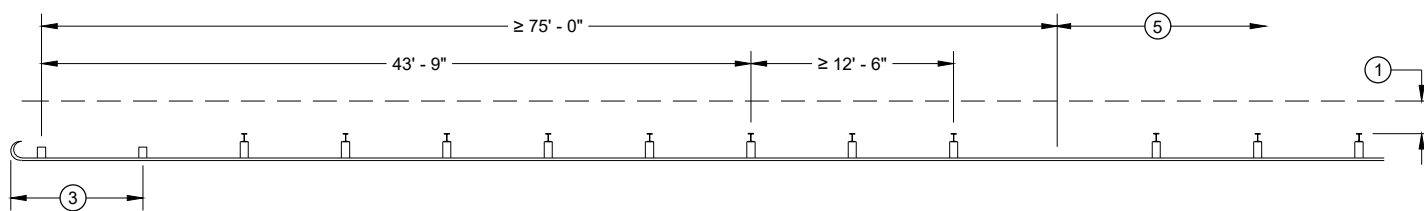
MISSING POST IN NORMAL BEAM GUARD RUN NEAR EAT



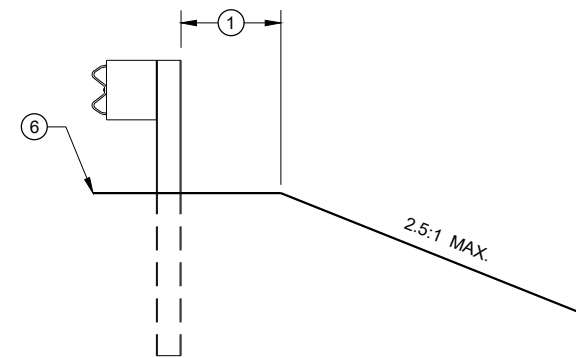
MISSING POST NEAR APPROACH THRIE BEAM TRANSITION



MISSING POST IN NORMAL BEAM GUARD RUN NEAR FLARED BEAM GUARD



MISSING POST IN NORMAL BEAM GUARD RUN NEAR TYPE 2 TERMINAL



CROSS SECTION VIEW

- ① MINIMUM OF 2 FEET OF GRADING BEHIND POST.
- ② SEE SDD 14B45 FOR MORE DETAILS.
- ③ SEE SDD 14B47 FOR MORE DETAILS.
- ④ SEE SDD 14B44 FOR MORE DETAILS.
- ⑤ SEE MISSING POST IN NORMAL BEAM GUARD RUN FOR DISTANCE TO NEXT MISSING POST AND AREA FOR WELL DRAINED, COMPACTED SOILS.
- ⑥ SEE PLAN FOR SHOULDER DESIGN.

6

6

SDD 14B42 - 06d

SDD 14B42 - 06d

MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

FHWA



SDD 14B44-a Midwest Guardrail System (MGS) Energy Absorbing Terminal

GENERAL NOTES

- (A) THE SLOPE IN THE AREA BOUNDED BY THE GRADELINE, THE HINGE POINT LINE 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.
- (F) DIMENSIONS MAY VARY, MANUFACTURER'S INFORMATION.

SEE SDD 14B42 FOR MORE INFORMATION.

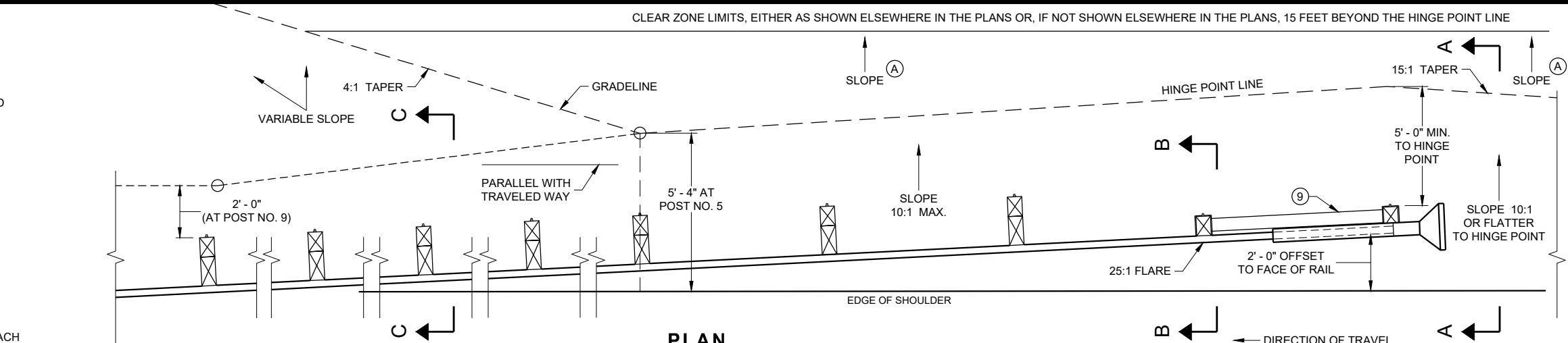
* DO NOT ATTACH BLOCKOUTS TO POST 1 AND 2.

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

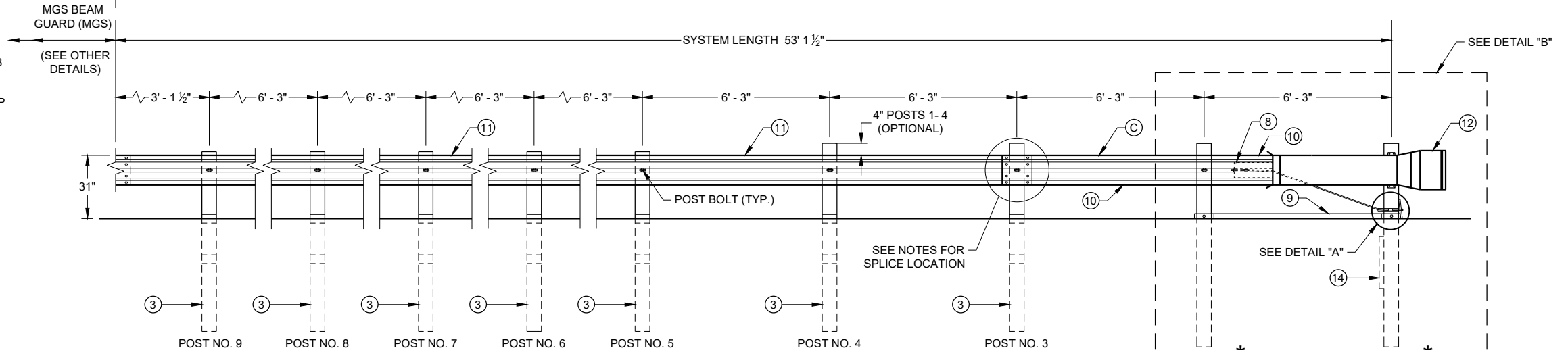
SEE MANUFACTURER'S DRAWING FOR SPLICE LOCATION, HARDWARE DIMENSIONS AND INSTALLATION INSTRUCTIONS.

THE CENTER OF THE UPPER 3 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.

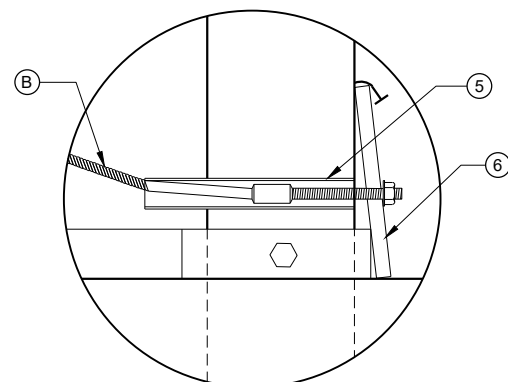
CLEAR ZONE LIMITS, EITHER AS SHOWN ELSEWHERE IN THE PLANS OR, IF NOT SHOWN ELSEWHERE IN THE PLANS, 15 FEET BEYOND THE HINGE POINT LINE



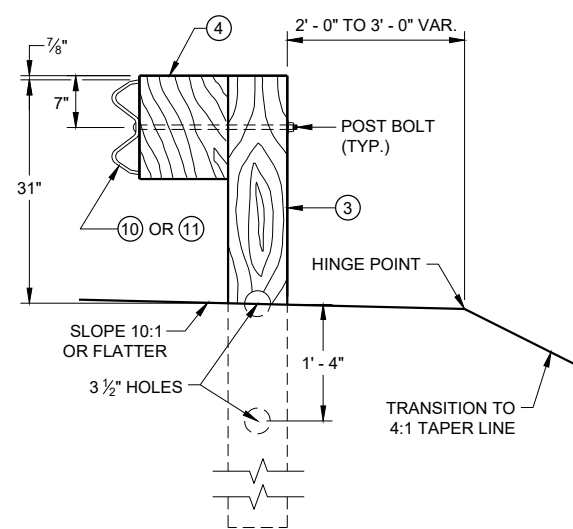
PLAN



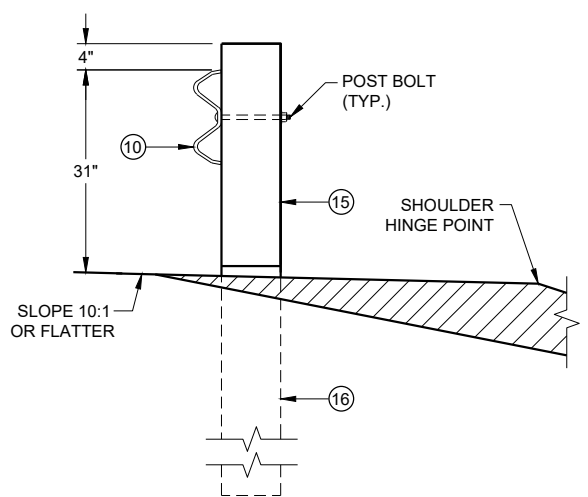
ELEVATION



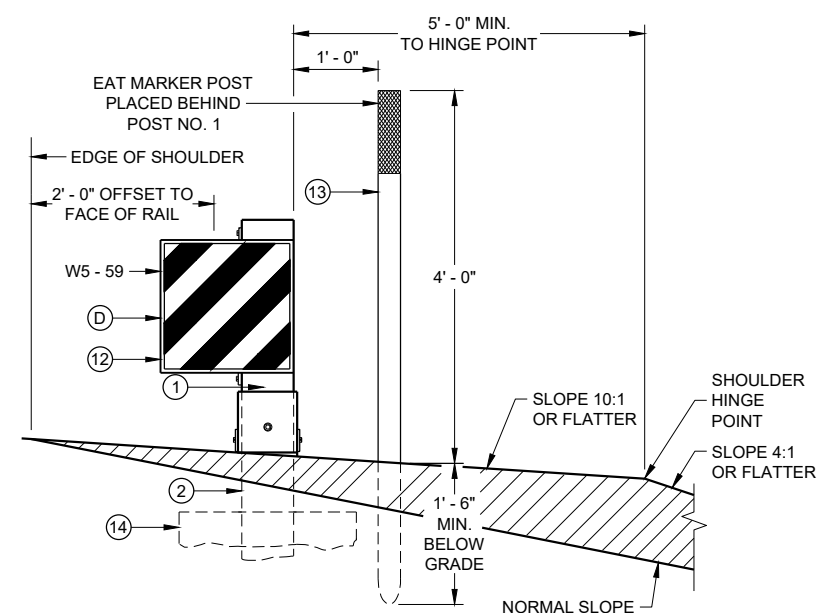
DETAIL "A"



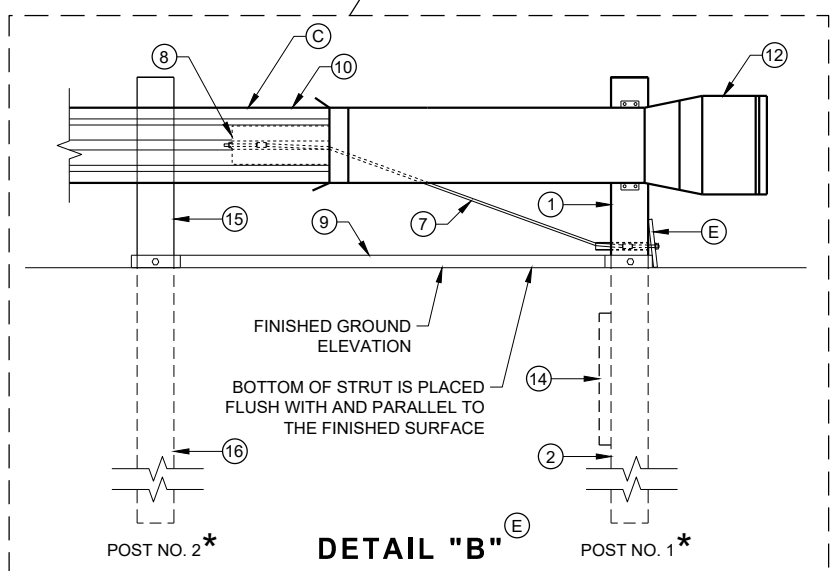
SECTION C - C TYPICAL AT POST NOS. 3 - 9



SECTION B - B TYPICAL AT POST NO. 2*



SECTION A - A TYPICAL AT POST NO. 1*



DETAIL "B"

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

6

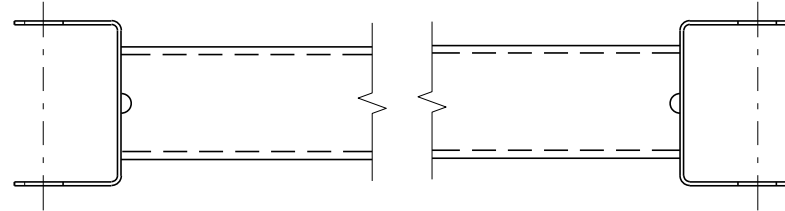
SDD 14B44 - 04a

SDD 14B44 - 04a

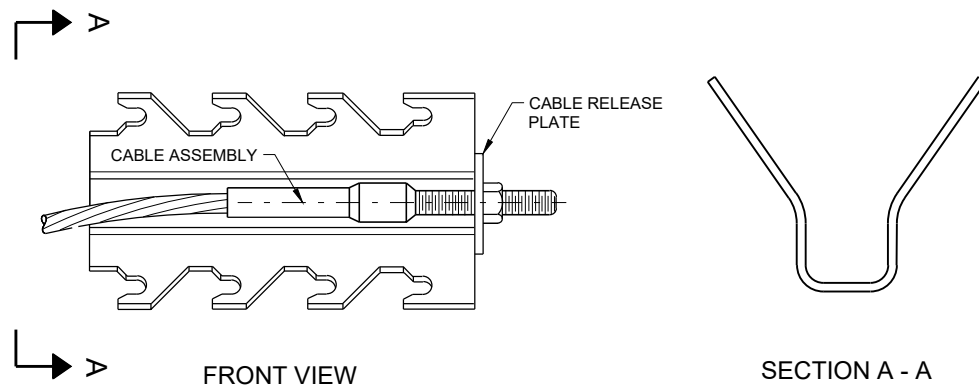


BILL OF MATERIALS

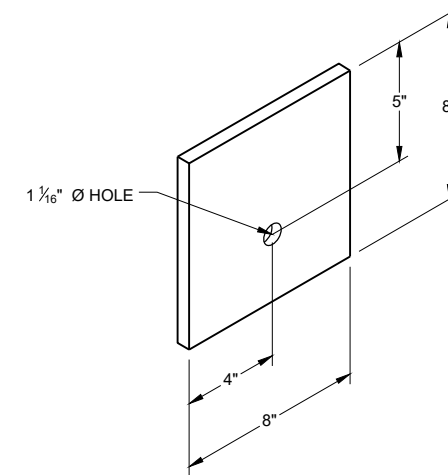
PART NO.	DESCRIPTION MATERIALS PROVIDED BY MGS EAT MANUFACTURER. SEE MANUFACTURER'S DETAILS FOR MORE INFORMATION.
①	UPPER POST NO. 1 6" X 6" TUBE
②	LOWER POST NO. 1
③	WOOD CRT
④	WOOD BLOCKOUT
⑤	PIPE SLEEVE
⑥	BEARING PLATE
⑦	BCT CABLE ASSEMBLY
⑧	ANCHOR CABLE BOX
⑨	GROUND STRUT
⑩	PERFORATED W-BEAM RAIL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



GENERIC ANCHOR CABLE BOX ⑧ ⑤



BEARING PLATE ⑥ ⑤

6

6

SDD 14B44 - 04b

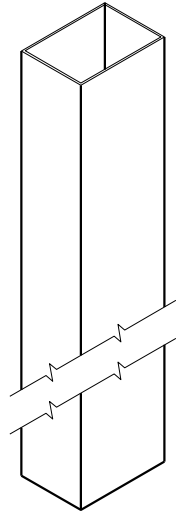
SDD 14B44 - 04b

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

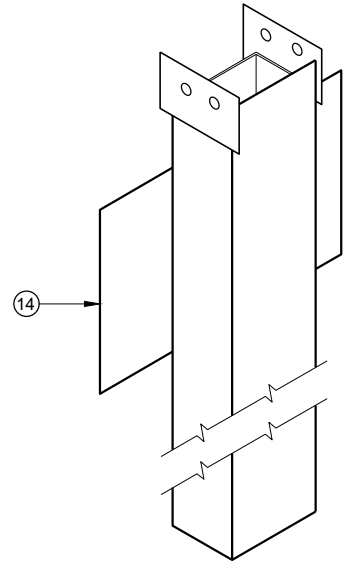
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



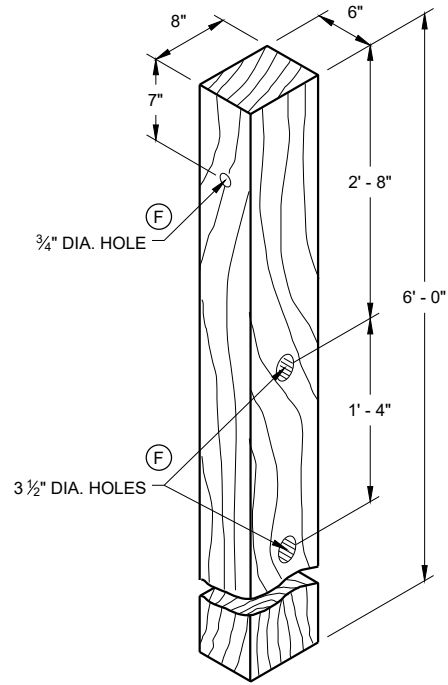
SDD 14B44-c Midwest Guardrail System (MGS) Energy Absorbing Terminal



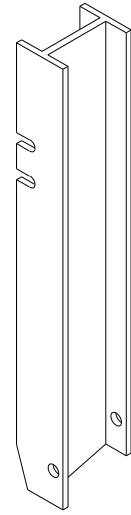
UPPER POST NO. 1 ⁽¹⁾ (E)



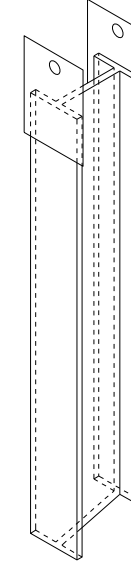
LOWER POST NO. 1 ⁽²⁾ (E)



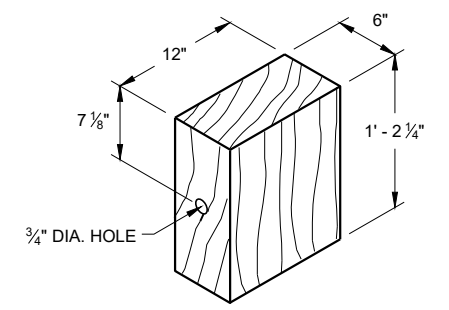
WOOD CRT POST ⁽³⁾ (E)
POSTS NUMBER 3-9



UPPER POST NO. 2 ⁽¹⁵⁾ (E)

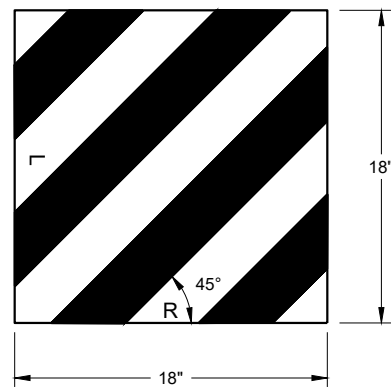


LOWER POST NO. 2 ⁽¹⁶⁾ (E)

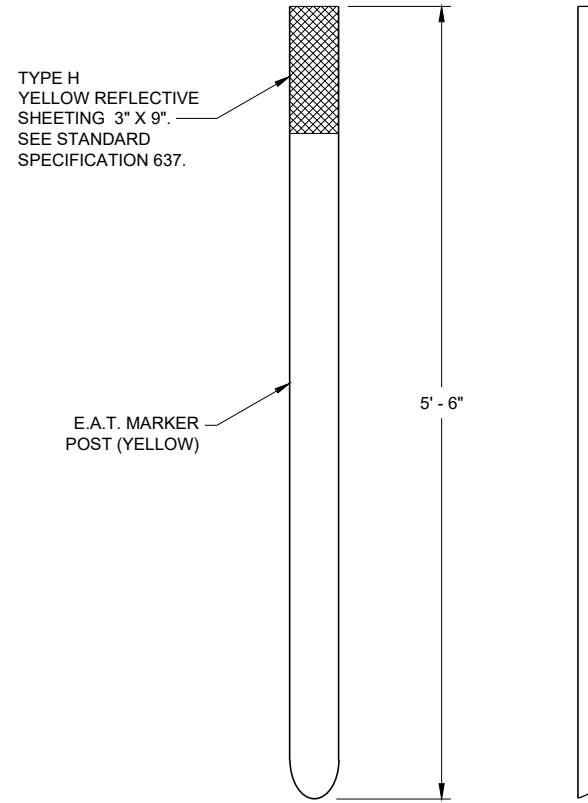


WOOD BLOCKOUT ⁽⁴⁾
REQ'D. AT ALL POSTS EXCEPT POST NO'S 1 & 2

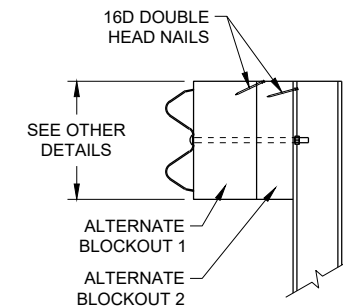
6



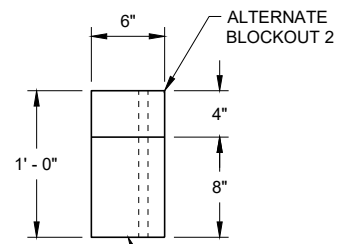
W5 - 59
REFLECTIVE SHEETING DETAIL ^(E)



FRONT VIEW SIDE VIEW
E.A.T. MARKER POST ⁽¹³⁾



SIDE VIEW



TOP VIEW

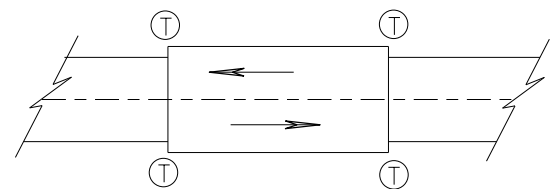
ALTERNATE WOOD BLOCKOUT DETAIL

6

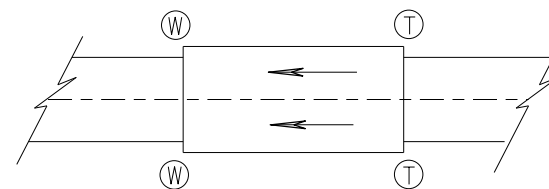
SDD 14B44 - 04c

SDD 14B44 - 04c

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	



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

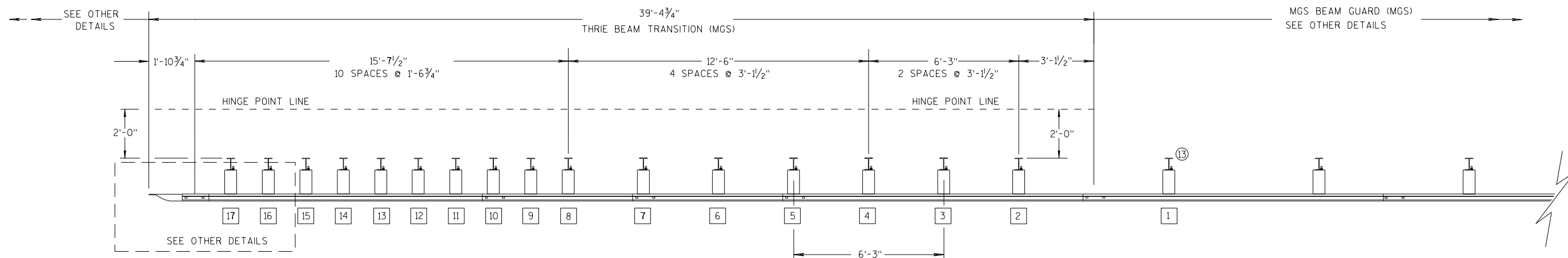
IF ROCK IS ENCOUNTERED, REMOVE ROCK TO FULL DEPTH OF POST PLUS 2 1/2", AND 12" DIAMETER AROUND POST. SEE 14B42 FOR MORE DETAILS.

TRANSITION USES STEEL POSTS ONLY.

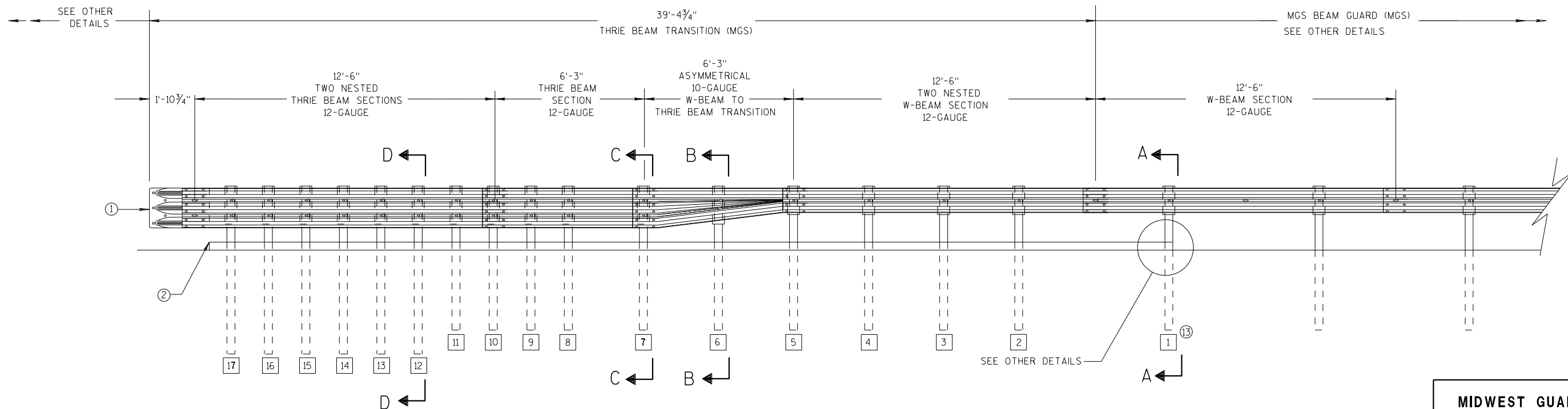
SEE STANDARD DETAIL DRAWING 14 B 42 FOR MORE INFORMATION.

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

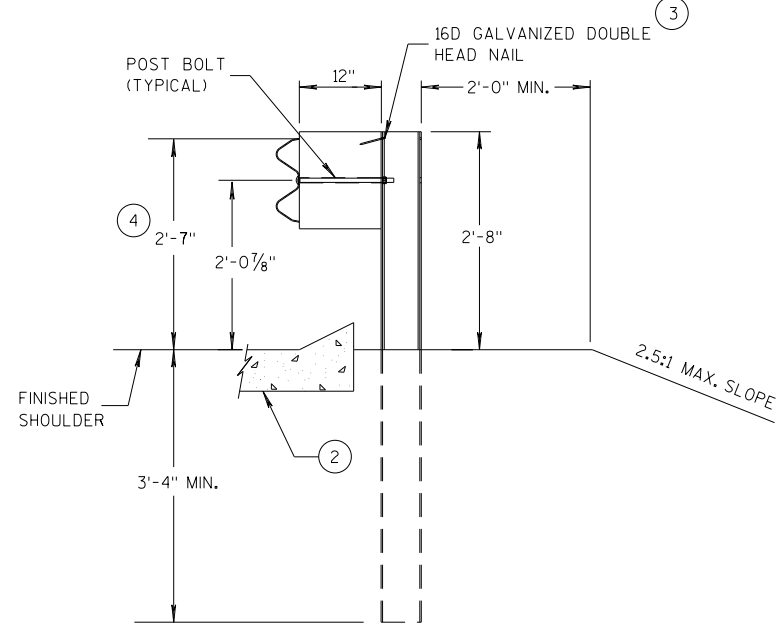
MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION

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

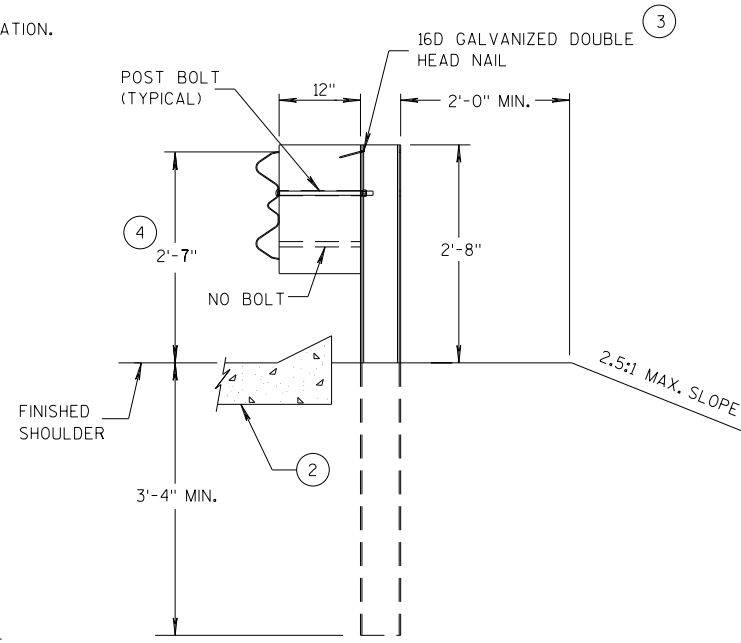
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

GENERAL NOTES

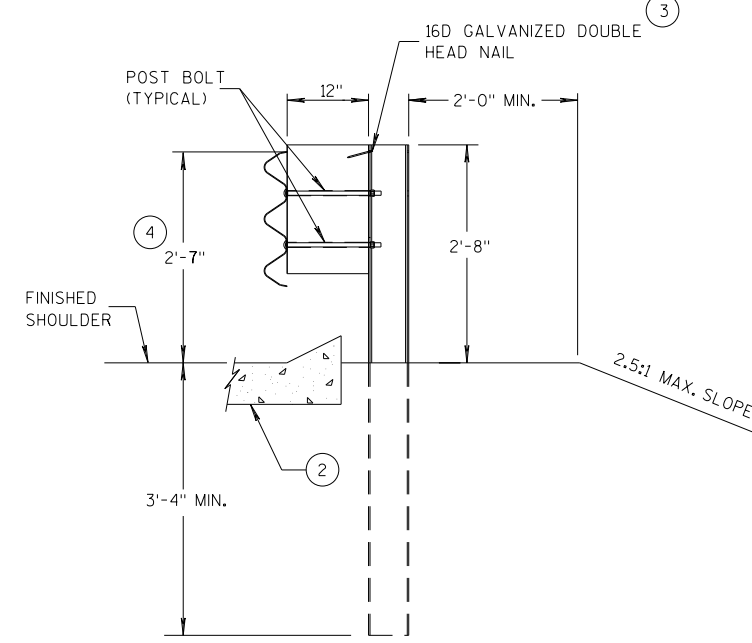
- ② OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.
- ③ WHEN USING STEEL POSTS AND WOOD BLOCKOUTS INSTALL FOUR 10D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.
- ④ TOLERANCE FOR TOP OF W-BEAM RAIL IS ± 1".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



**SECTION A-A
POSTS 1-5**



**SECTION B-B
POST 6**



**SECTION C-C
POSTS 7-11**

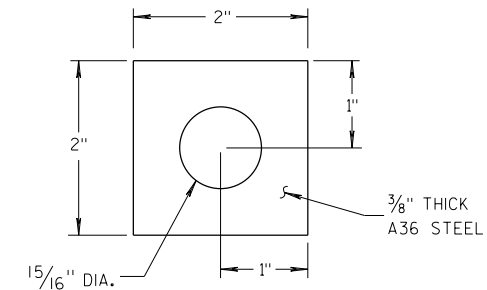
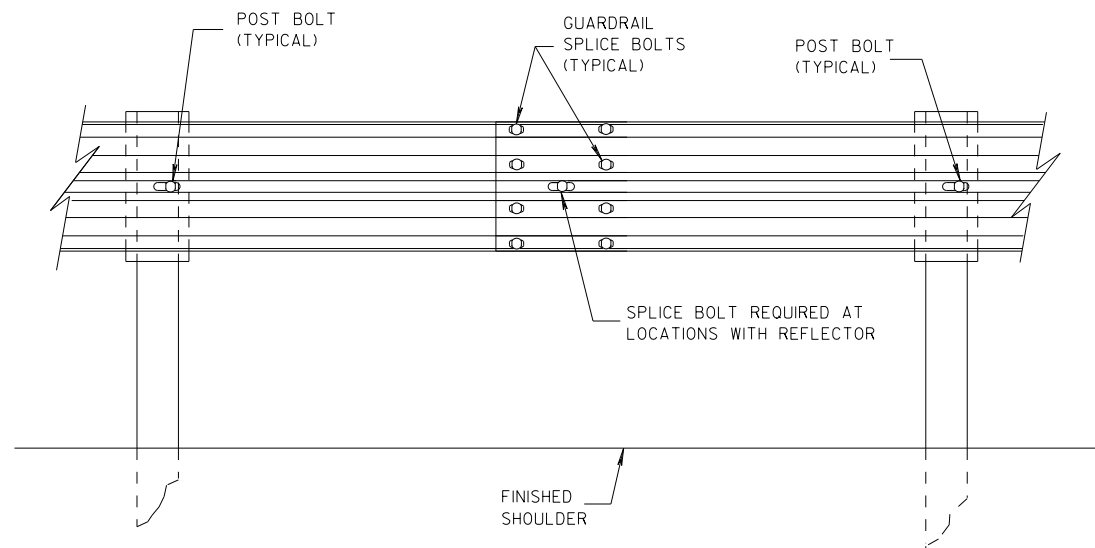
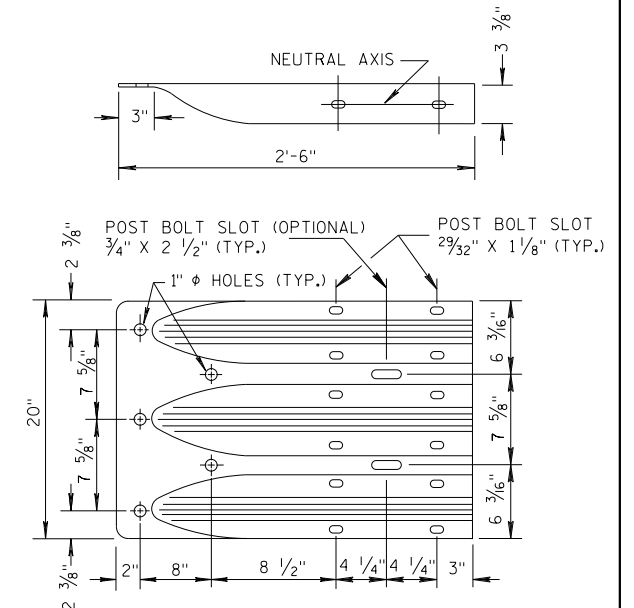


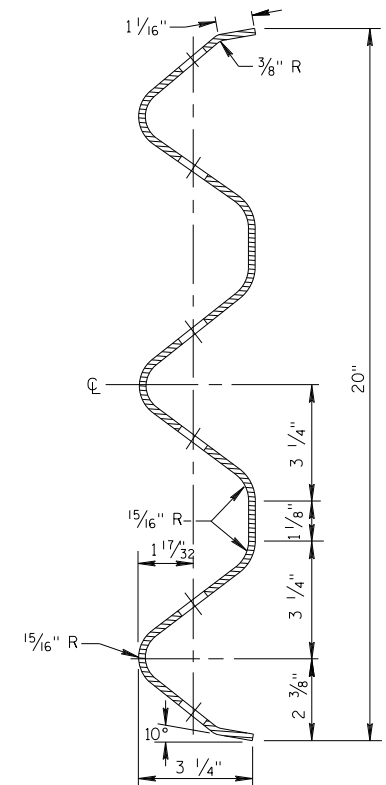
PLATE WASHER DETAIL



SPlice DETAIL



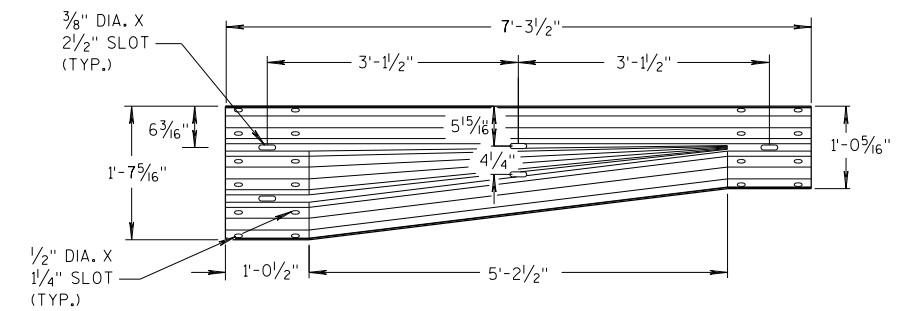
**THRIE BEAM
TERMINAL CONNECTOR**



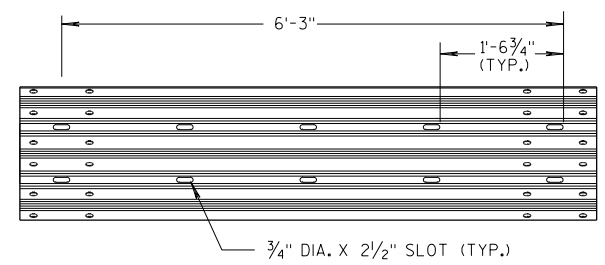
**SECTION THRU THRIE
BEAM RAIL ELEMENT**

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

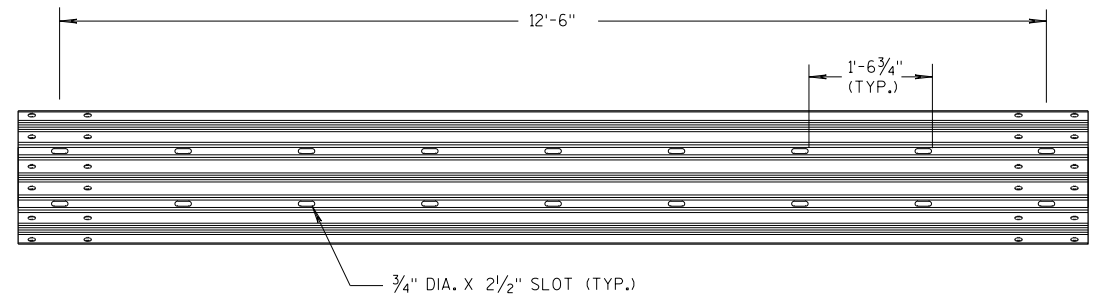
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



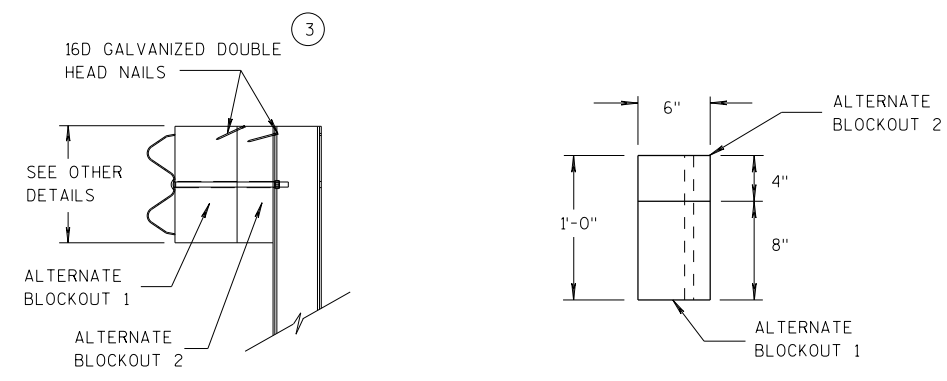
W-BEAM TO THRIE BEAM TRANSITION SECTION



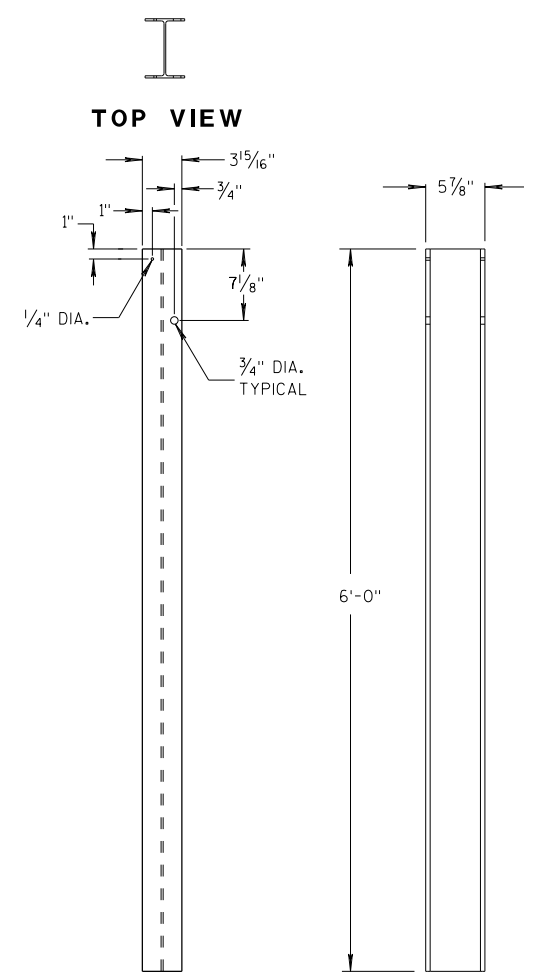
6'-3\"/>



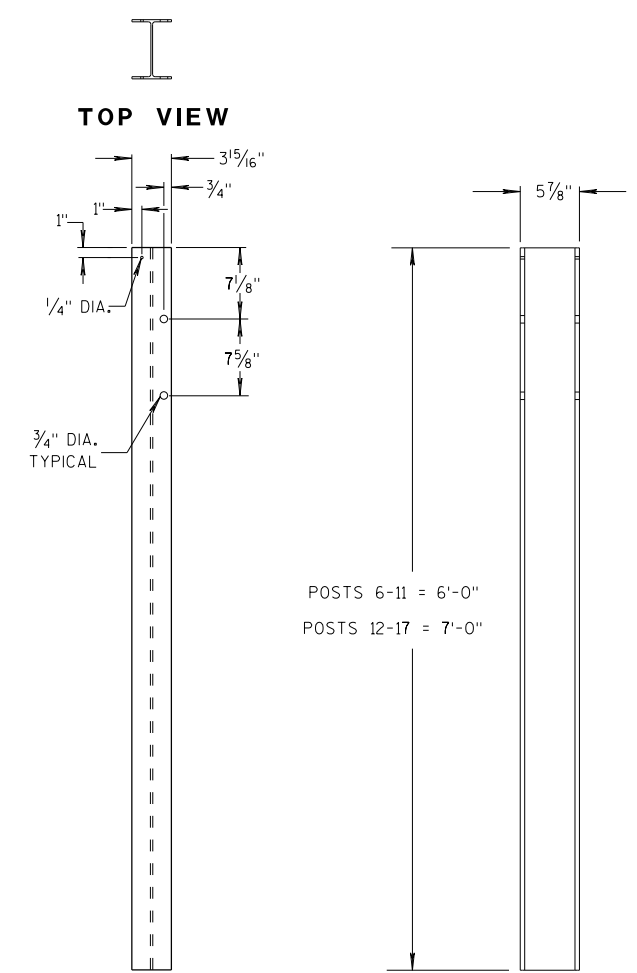
12'-6\"/>



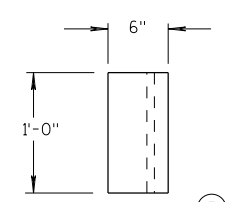
ALTERNATE WOOD BLOCKOUT DETAIL



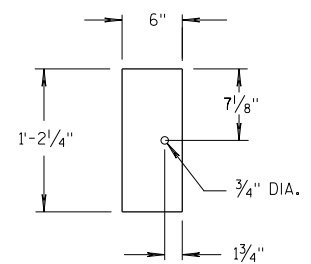
STEEL POSTS 1-5



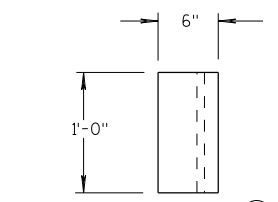
STEEL POSTS 6-17



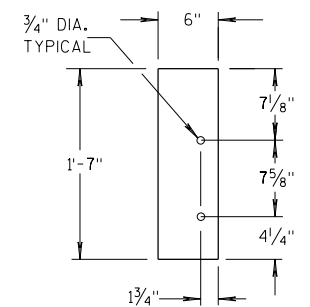
TOP VIEW



**FRONT VIEW
BLOCKOUT
POSTS 1-5**



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

6

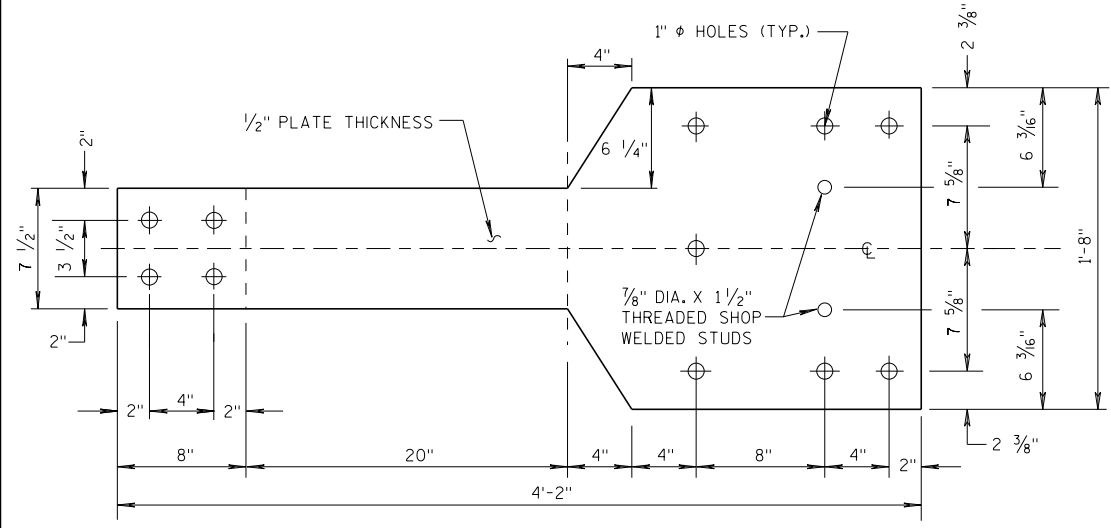
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S.D.D. 14 B 45-5c

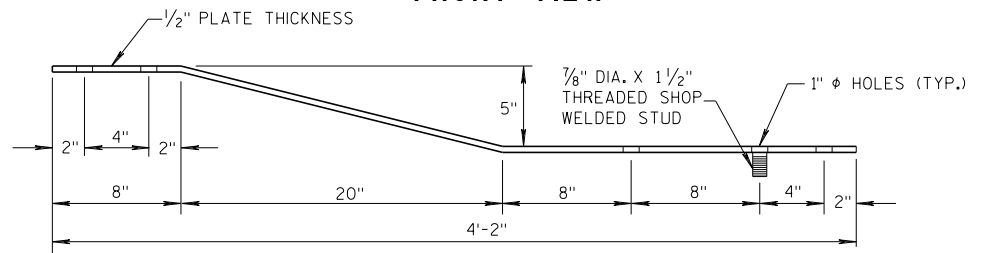
S.D.D. 14 B 45-5c

GENERAL NOTES

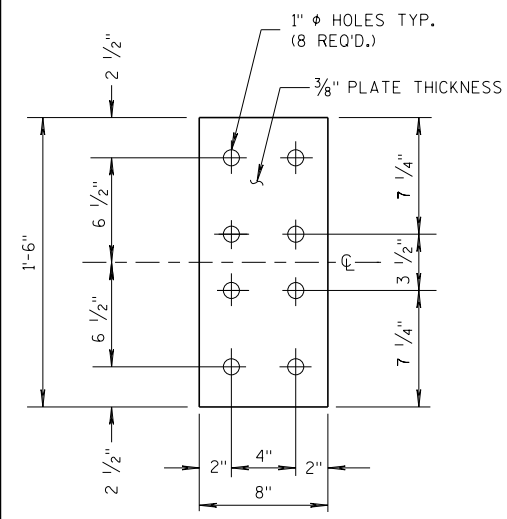
(4) TOLERANCE FOR TOP OF W-BEAM RAIL IS ± 1".



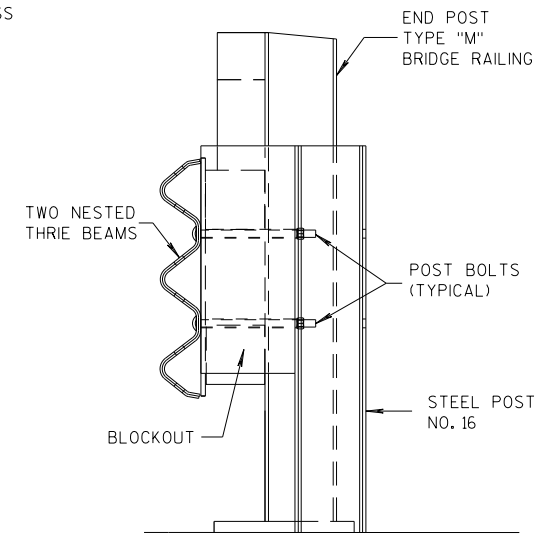
FRONT VIEW



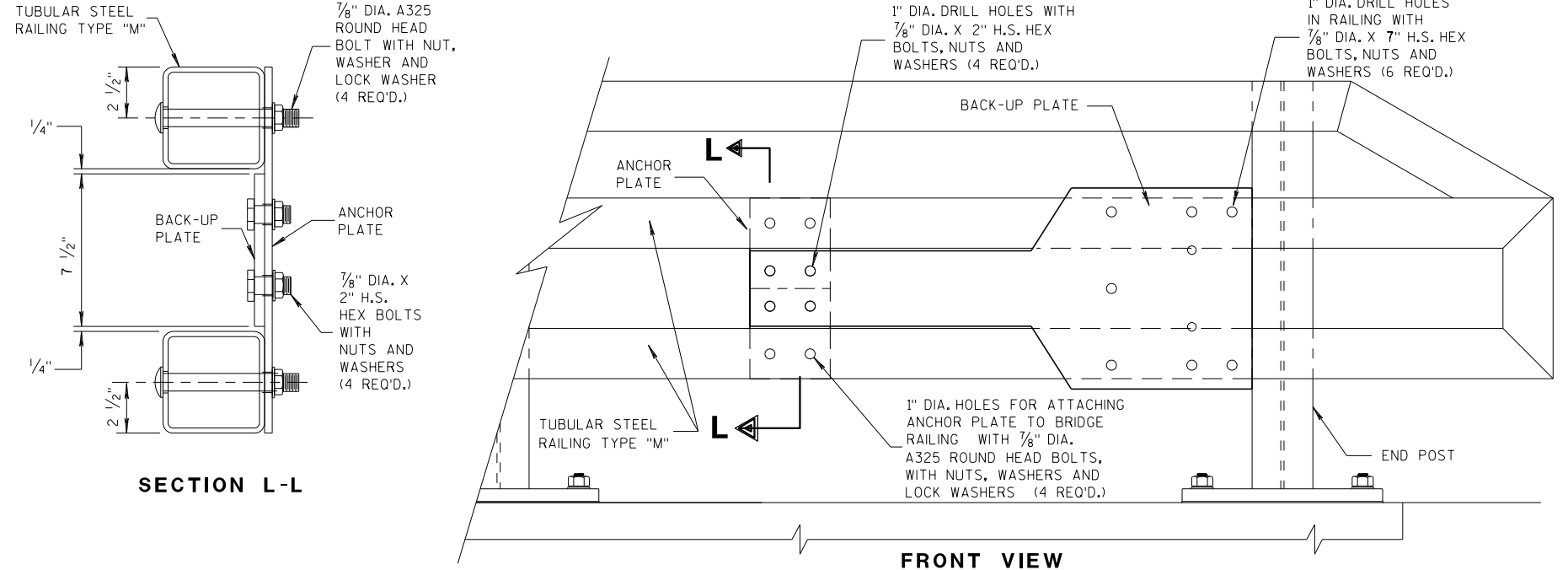
**PLAN VIEW
BACK-UP PLATE DETAIL, TYPE "M"**



**FRONT VIEW
ANCHOR PLATE DETAIL, TYPE "M"**



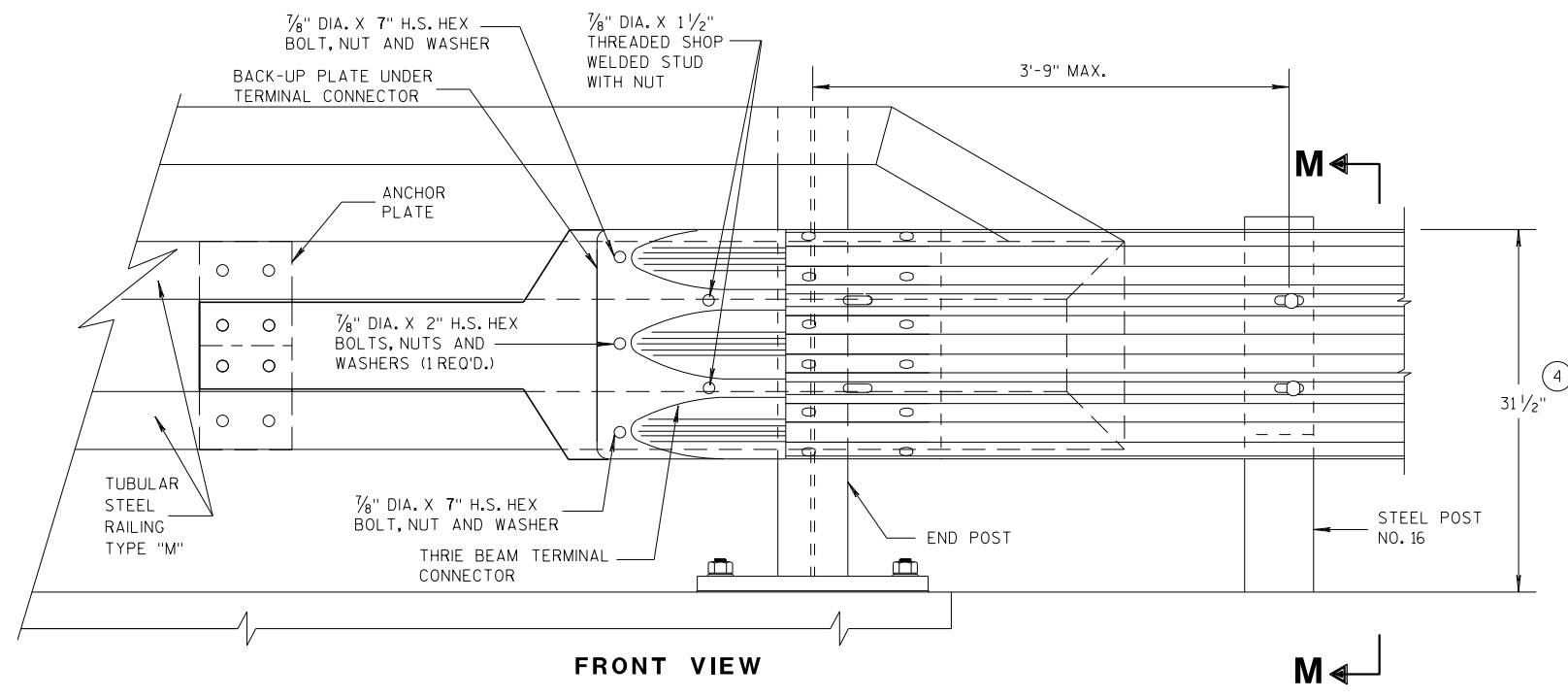
SECTION M-M



SECTION L-L

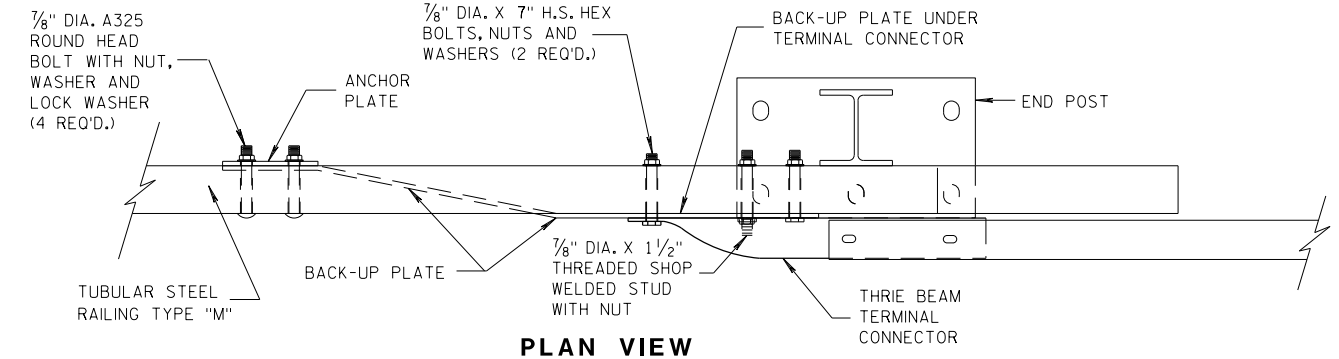
FRONT VIEW

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



FRONT VIEW

M



PLAN VIEW

THRIE BEAM CONNECTION TO TUBULAR RAILING, TYPE "M"

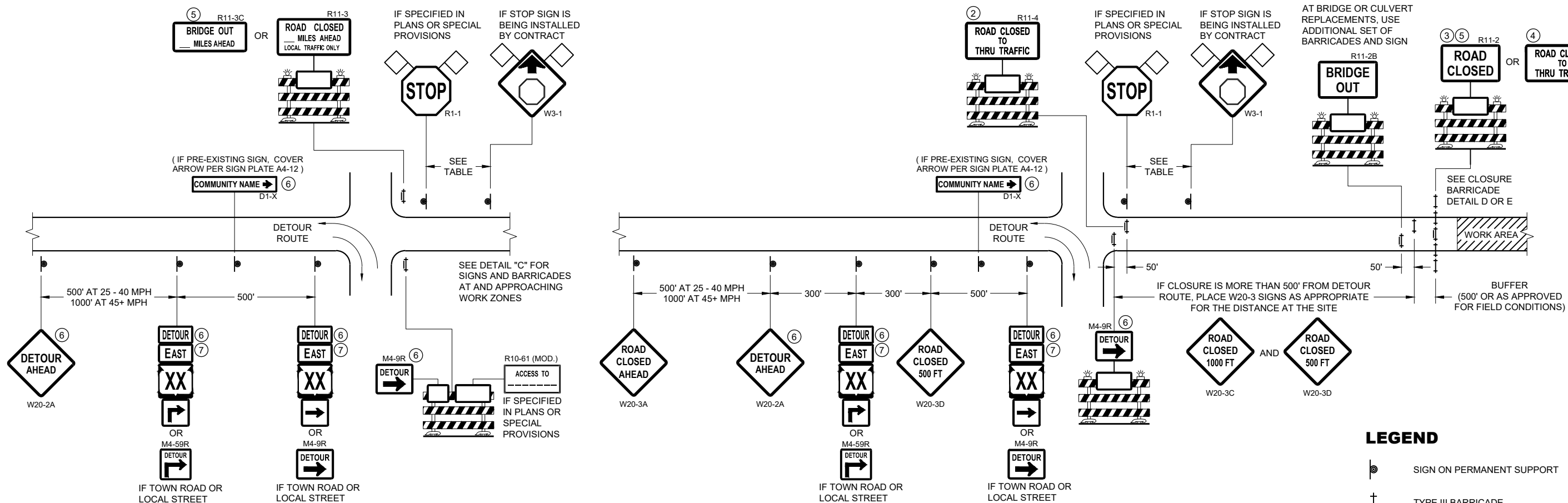
6

6

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

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

MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED DATE FHWA	/s/ Rodney Taylor ROADWAY STANDARDS DEVELOPMENT UNIT SUPERVISOR



**DETAIL A
MAINLINE CLOSURE WITH POSTED DETOUR**

WORK ZONE GREATER THAN OR EQUAL TO 1/2 MILE FROM
DETOUR ROUTE (1000 FEET IF URBAN)

**DETAIL B
MAINLINE CLOSURE WITH POSTED DETOUR**

WORK ZONE LESS THAN 1/2 MILE FROM
DETOUR ROUTE (1000 FEET IF URBAN)

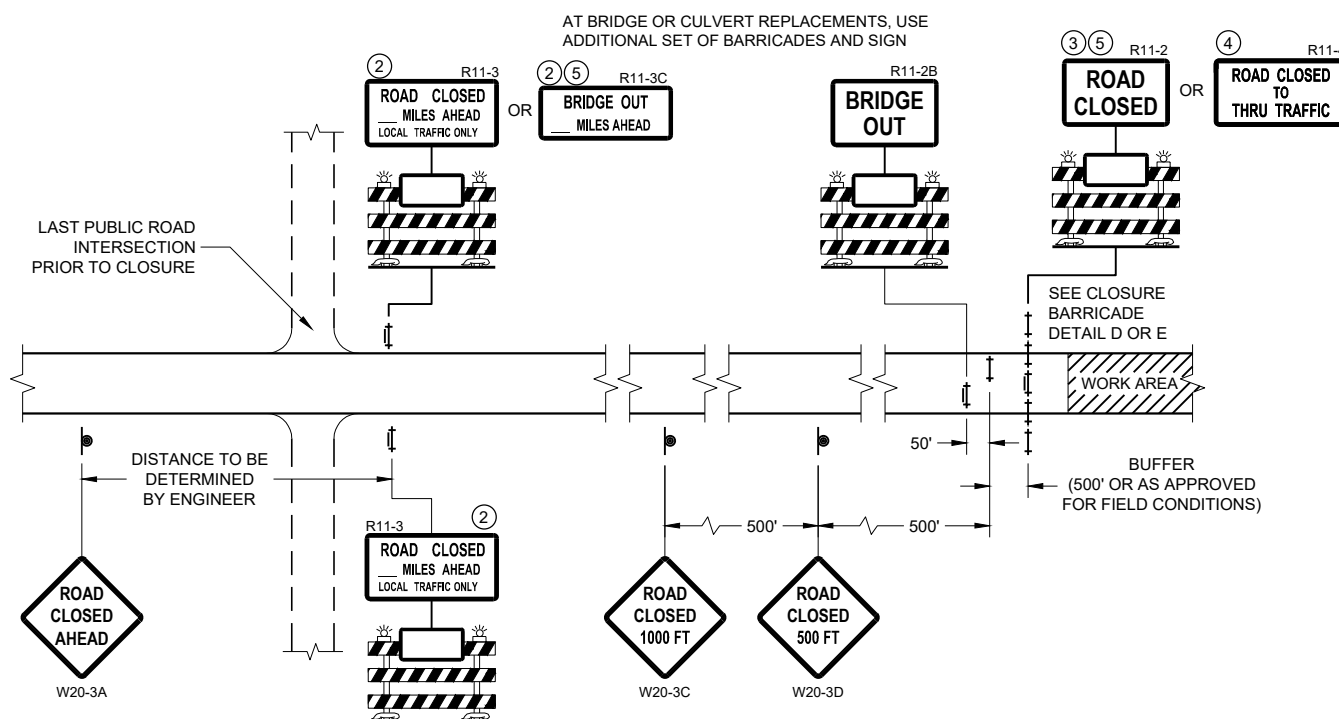
LEGEND

- 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)

- M4 - 8
- M3 - X
- M1 - 4 OR M1 - 6 OR M1 - 5A
- M05 - 1 OR 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



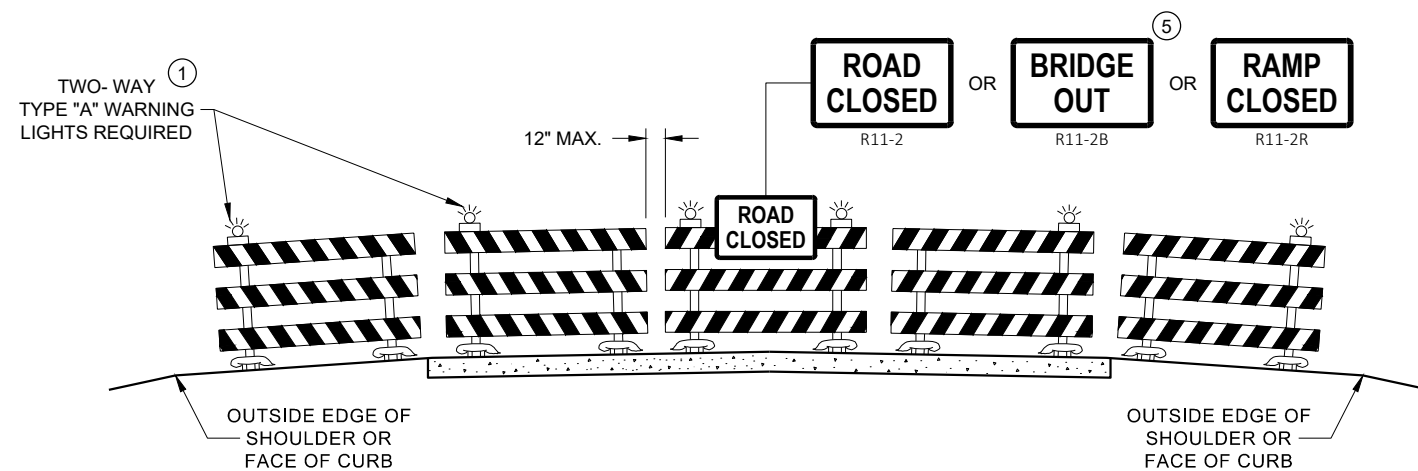
**DETAIL C
MAINLINE CLOSURE, NO POSTED DETOUR**

**BARRICADES AND SIGNS
FOR MAINLINE CLOSURES**

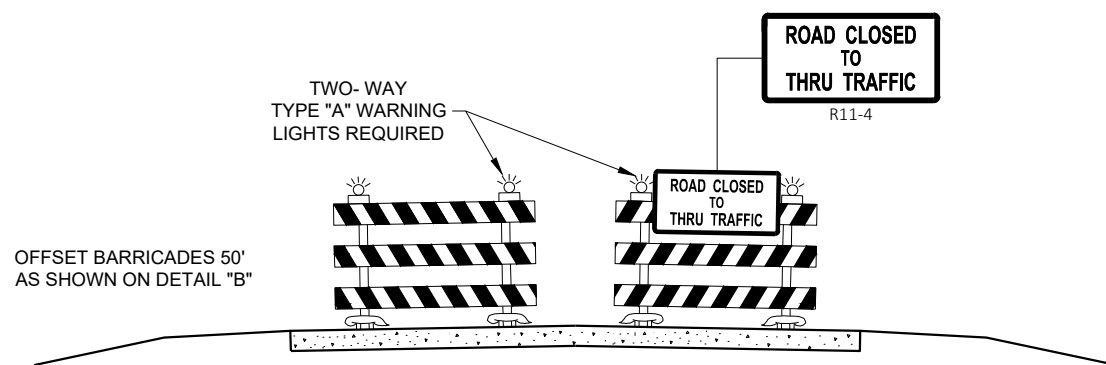
STATE OF WISCONSIN
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APPROVED
February 2020 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER

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**DETAIL D
ROAD CLOSURE BARRICADE DETAIL
APPROACH VIEW**



**DETAIL E
LANE CLOSURE BARRICADE DETAIL
APPROACH VIEW**

SEE SDD 15C2 - SHEET "a" FOR LEGEND

GENERAL NOTES

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

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

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

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

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

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

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

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

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

ALL SIGNS SHALL BE 48" X 48" UNLESS OTHERWISE NOTED BELOW:

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

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

BARRICADES AND SIGNS FOR VARIOUS CLOSURES

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

GENERAL NOTES

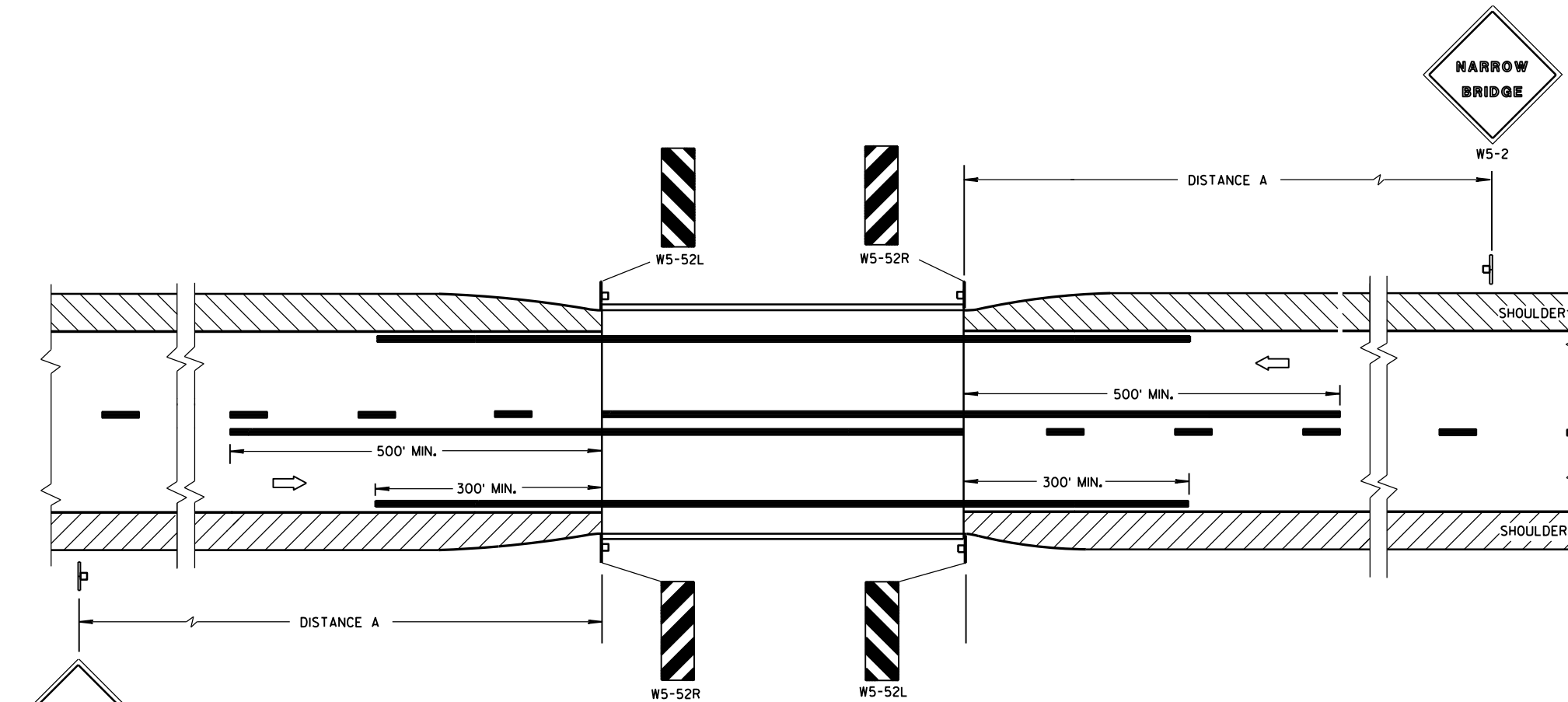
DETAILS OF TRAFFIC CONTROL DEVICES AND INSTALLATION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS, THE SPECIAL PROVISIONS, AND THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

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

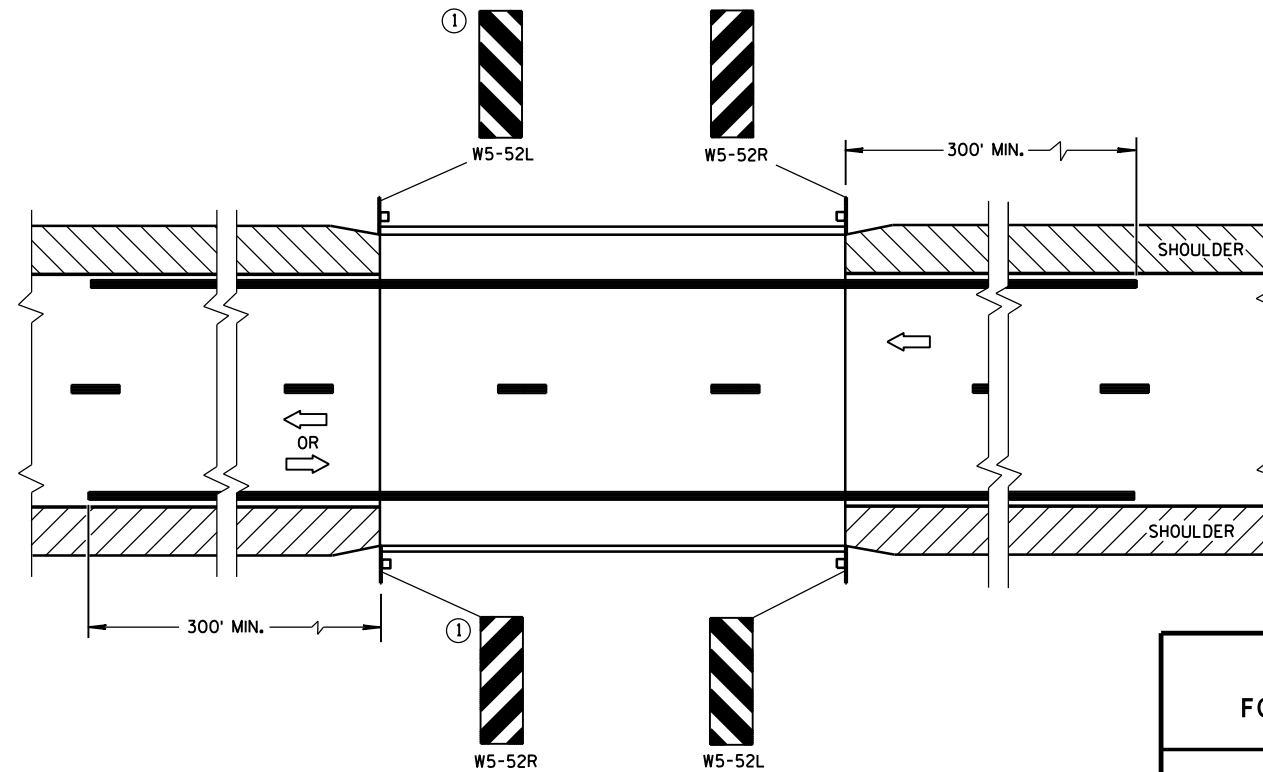
PLACE THE EDGE OF THE W5-52 SIGN IN LINE WITH FACE OF CURB OR PARAPET.

① OMIT ON ONE-WAY TRAVELLED WAYS.

➡ DIRECTION OF TRAFFIC



SITUATION 1
WARRANTING CRITERIA:
BRIDGE WIDTH IS AT LEAST 16 FEET BUT LESS THAN 24 FEET.



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

DISTANCE TABLE

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

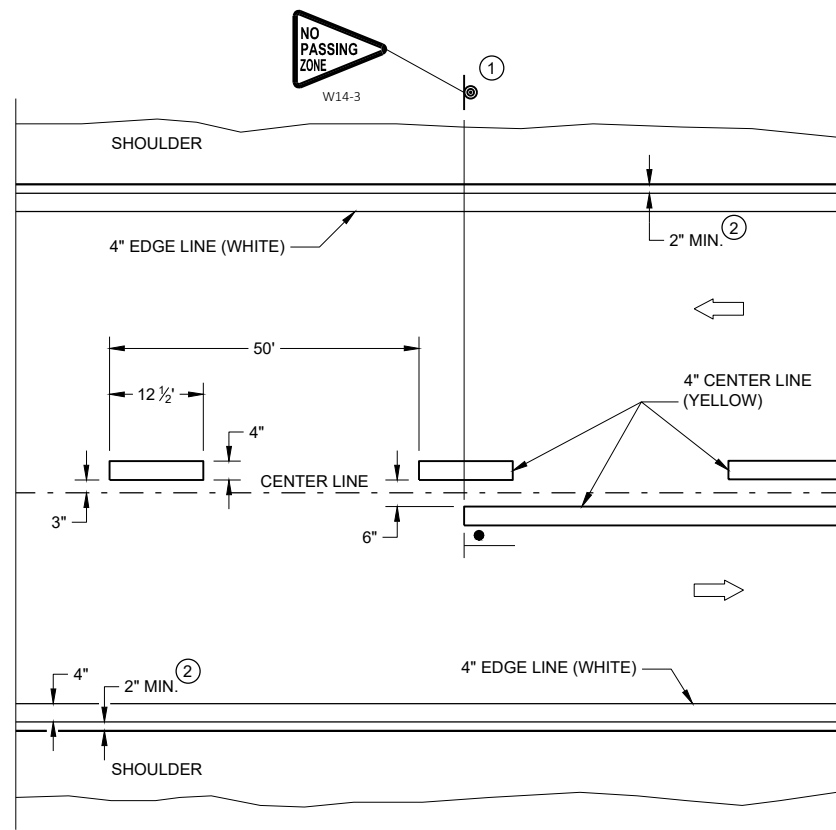
SIGNING & MARKING FOR TWO LANE BRIDGES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

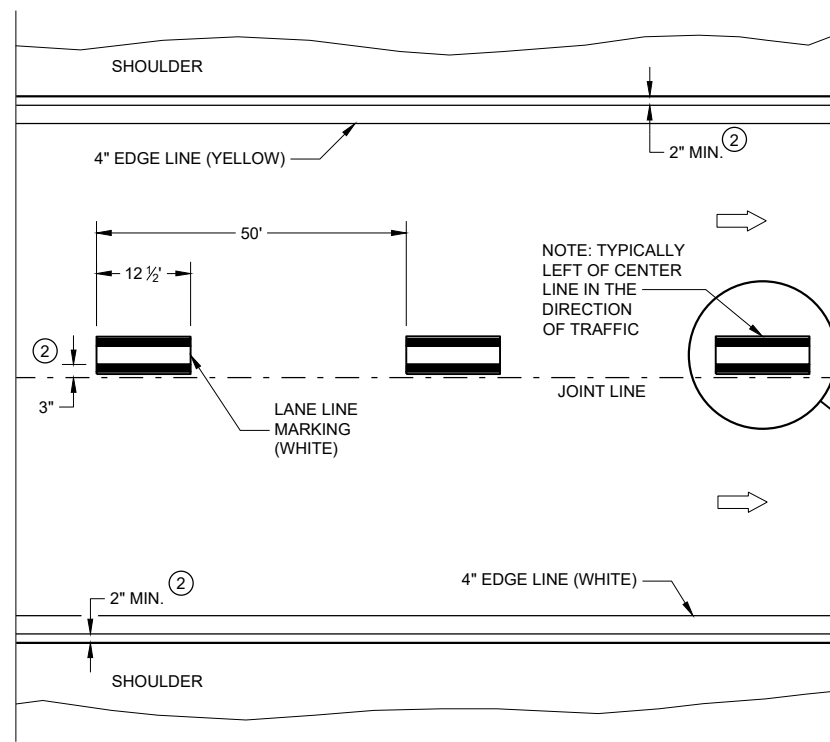
APPROVED
June 2017 /S/ Matthew R. Rauch
DATE STATE SIGNING AND MARKING ENGINEER
FHWA



SDD 15C08-a Longitudinal Marking (Mainline)

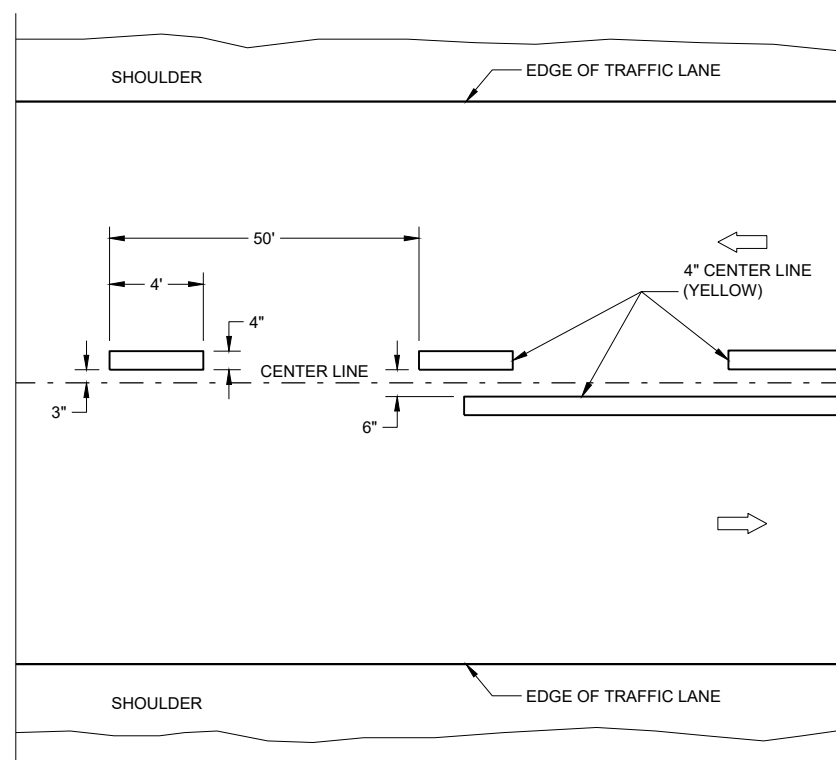


TWO WAY TRAFFIC

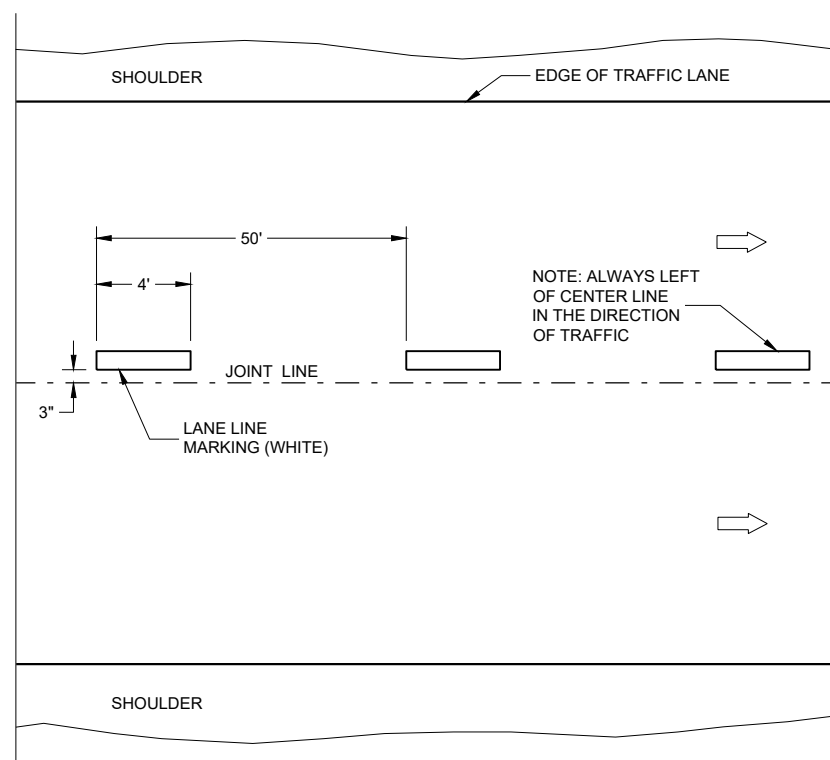


ONE WAY TRAFFIC

PERMANENT PAVEMENT MARKING



TWO WAY TRAFFIC



ONE WAY TRAFFIC

TEMPORARY PAVEMENT MARKING

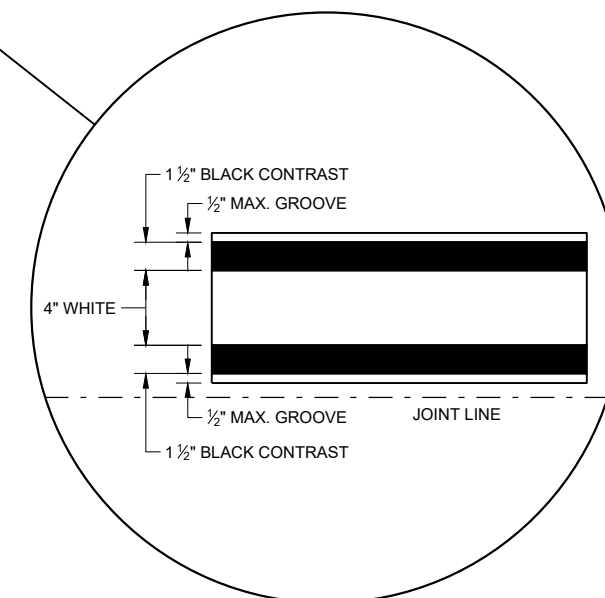
GENERAL NOTES

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

- ① LOCATE THE NO PASSING ZONE W14-3 SIGN WITH 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



6

6

SDD 15C08 - 20a

SDD 15C08 - 20a

LONGITUDINAL MARKING (MAINLINE)

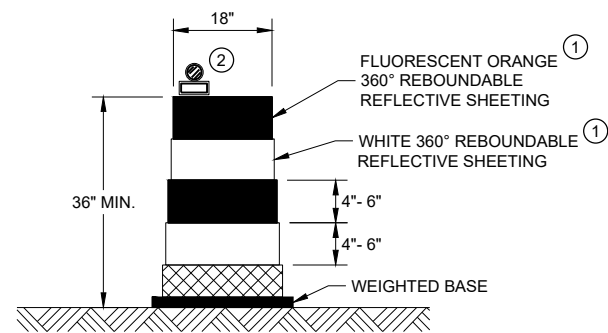
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

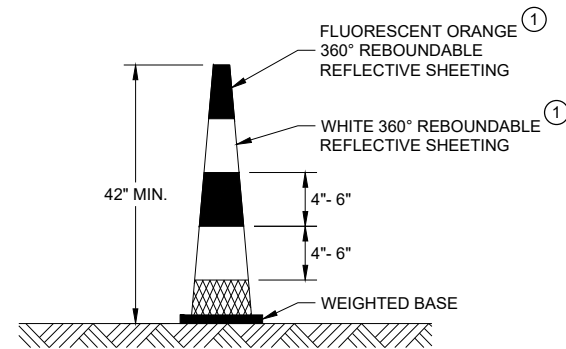
FHWA

GENERAL NOTES

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

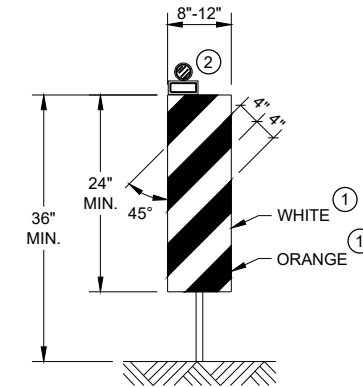


DRUM



42" CONE

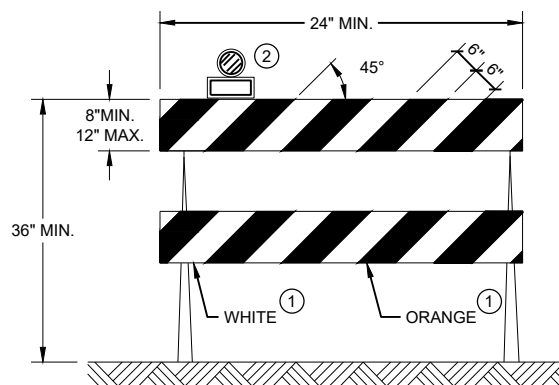
DO NOT USE IN TAPERS
 1/2 SPACING OF DRUMS



VERTICAL PANEL

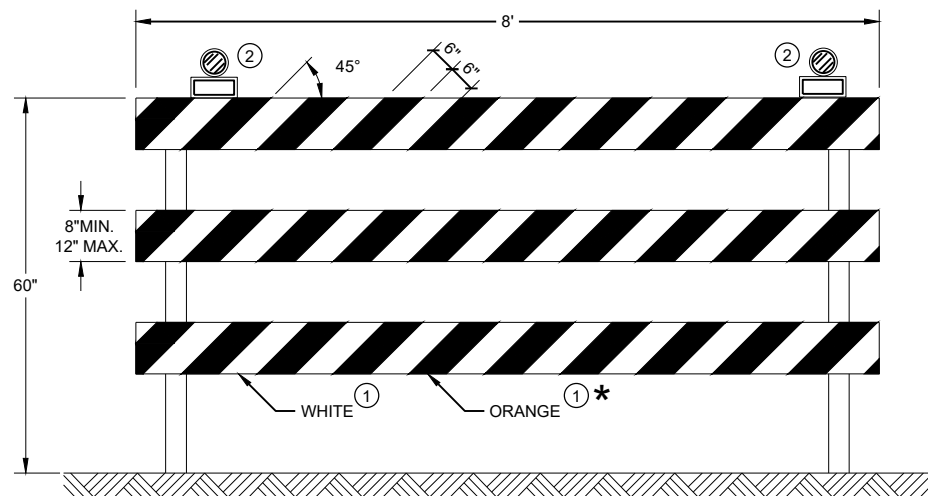
THE STRIPES SHALL SLOPE DOWNWARD TO THE TRAFFIC SIDE FOR CHANNELIZATION.

6



TYPE II BARRICADE

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



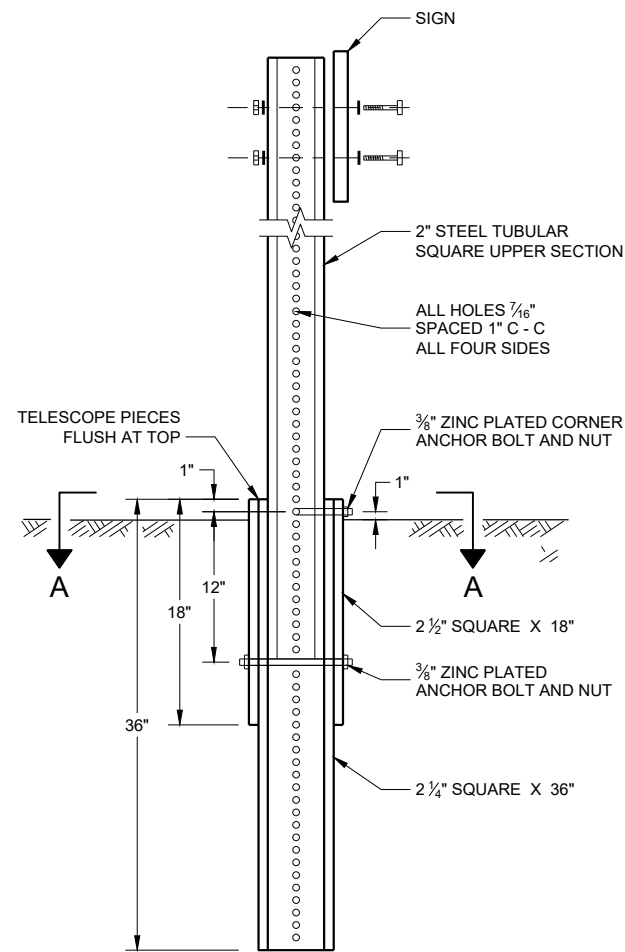
TYPE III BARRICADE

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

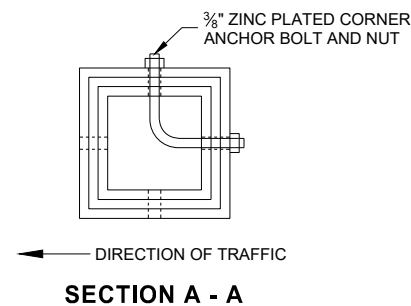
* IF USED FOR A PERMANENT APPLICATION USE RED SHEETING.

6

CHANNELIZING DEVICES DRUMS, CONES, BARRICADES AND VERTICAL PANELS	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED November 2020 DATE	/S/ Andrew Heidtke WORK ZONE ENGINEER
FHWA	



DETAIL OF TUBULAR STEEL SIGN POST



TUBULAR STEEL POSTS

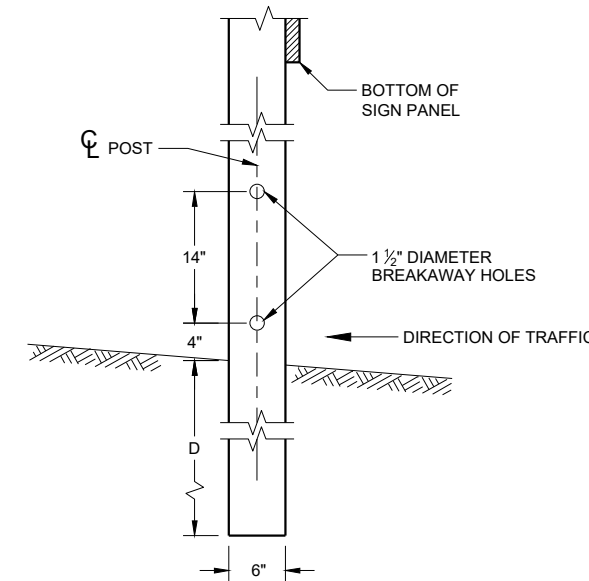
AREA OF SIGN INSTALLATION (SQ. FT.)	NUMBER OF REQUIRED TUBULAR STEEL POSTS
9 OR LESS	1
GREATER THAN 9, LESS THAN OR EQUAL TO 18	2
GREATER THAN 18, LESS THAN OR EQUAL TO 27	3

SIGNS WIDER THAN 3 FEET OR LARGER THAN 9 SQ. FT. SHALL BE MOUNTED ON MULTIPLE POSTS (SEE ABOVE TABLE).

SIGNS LARGER THAN 27 SQ. FT. SHALL NOT BE MOUNTED ON TUBULAR STEEL POSTS.

GENERAL NOTES

- 1 6 FEET FROM THE EDGE OF PAVEMENT (EDGE LINE LOCATION) UNLESS OTHERWISE DIRECTED BY THE PROJECT ENGINEER. LATERAL OFFSET SHOULD BE ADJUSTED TO AVOID THE DITCH FLOWLINE.
- 2 THE EXISTENCE OF CURB AND GUTTER DOES NOT IN ITSELF MANDATE THE VERTICAL CLEARANCE ILLUSTRATED. THAT HEIGHT IS TYPICALLY MEASURED WHERE THERE IS SIDEWALK ADJACENT TO THE ROADWAY OR WHERE PARKING IS PERMITTED. IN THE ABSENCE OF SIDEWALK, VERTICAL CLEARANCE IS MEASURED FROM THE TOP OF THE CURB. IF NO SIDEWALK AND NO PARKING, VERTICAL CLEARANCE MAY BE REDUCED TO 5 FOOT MINIMUM. OFFSET OF SIGNS IS MEASURED FROM THE CURB FLOWLINE.
- 3 FOR SIGNS REQUIRING 4 POSTS, SPACE INTERMEDIATE POSTS EVENLY.



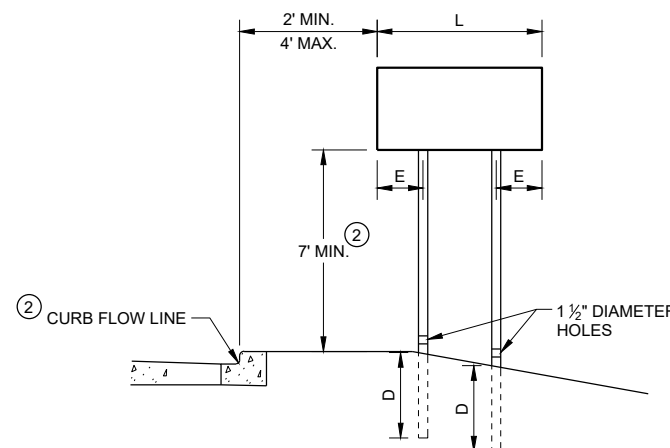
4" X 6" WOOD POST MODIFICATION

4" X 6" WOOD POST

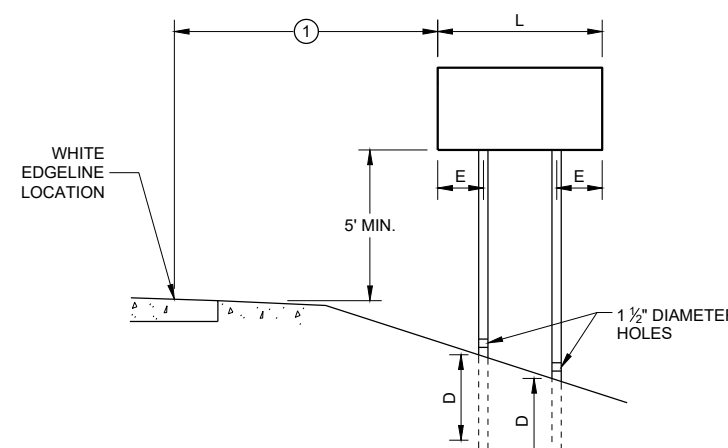
POST SPACING REQUIREMENTS		NUMBER OF WOOD POSTS REQUIRED
L	E	
48" OR LESS AND LESS THAN 20 SQ. FT.	-	1
LESS THAN 60"	12"	2
60" TO 120"	L/5	2
GREATER THAN 120" LESS THAN 168"	12"	3
168" AND GREATER	12"	4

WOOD POST EMBEDMENT DEPTH

AREA OF SIGN INSTALLATION (SQ. FT.)	D (MIN.)
20 OR LESS	4'
GREATER THAN 20	5'



URBAN AREA

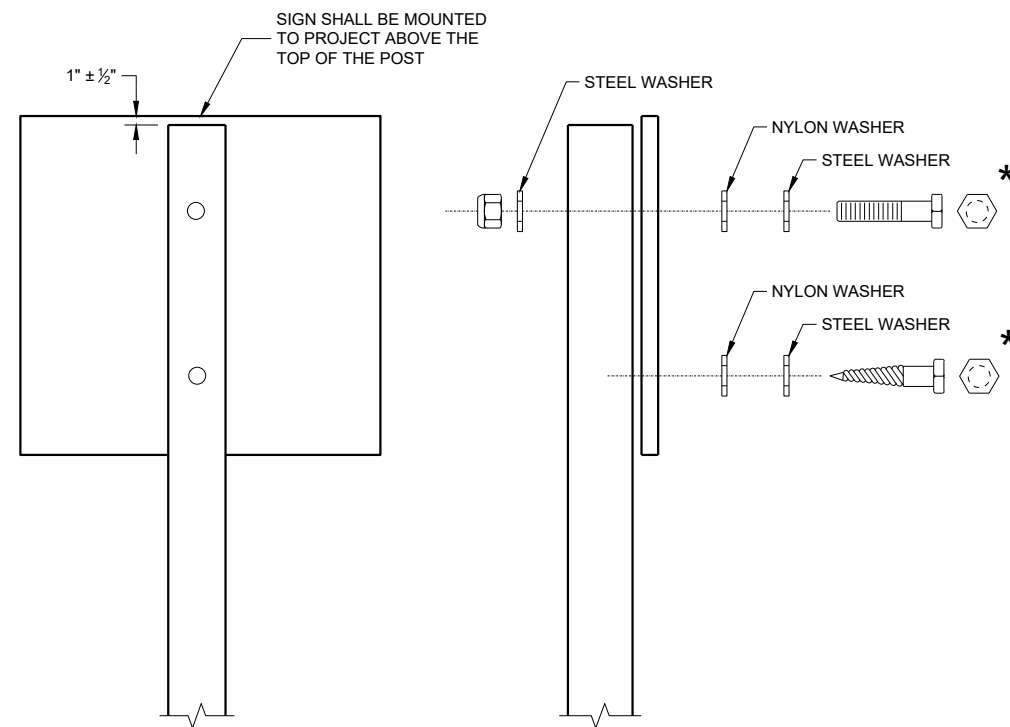


RURAL AREA

POST MOUNTING DETAIL FOR TEMPORARY TRAFFIC CONTROL FIXED MESSAGE SIGNS

TEMPORARY TRAFFIC CONTROL SIGN MOUNTING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



NUTS, BOLTS AND LAGS USED FOR MOUNTING SIGNS SHALL HAVE HEXAGONAL HEADS AND SHALL BE EITHER:

- A. HOT DIP GALVANIZED IN ACCORDANCE WITH ASTM DESIGNATION: A 153, CLASS D, OR SC 3
- B. ELECTRO-GALVANIZED IN ACCORDANCE WITH ASTM DESIGNATION: B 633, TYPE III, SC 3

THREADS ON BOLTS AND NUTS SHALL BE MANUFACTURED WITH SUFFICIENT ALLOWANCE FOR THE CADMIUM PLATE OR GALVANIZED COATING TO PERMIT THE NUTS TO RUN FREELY ON THE BOLTS.

WOOD POST (4" x 6")

- LAG SCREWS - 3/8" x 3"
- MACHINE BOLTS - 5/16" x 6 1/2" OR 7" LENGTH W/NUTS

SQUARE STEEL POST (2" x 2")

- MACHINE BOLTS - 3/8" x 3 1/4" LENGTH W/NUTS
- RIVETS - 3/32" (6605-9-6) BULB-TITE, TRI-FOLD, ALUMINUM BODY/MANDREL O.D. FLANGE 0.720 - 0.765 INCH, GRIP RANGE 0.042 - 0.375 INCH

WASHERS (ALL POSTS) -

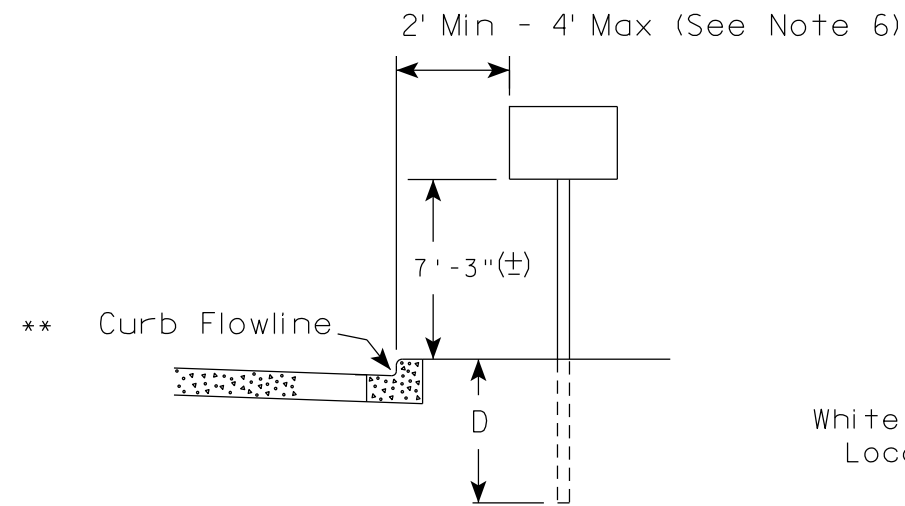
- 1 1/4" O.D. x 3/8" I.D. x 1/16" STEEL
- 1 1/4" O.D. x 3/8" I.D. x 0.080 NYLON

* 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. FOR A SINGLE POST INSTALLATION, ALL SIGNS GREATER THAN 9 SQ. FT. REQUIRE THE USE OF 3 FASTENERS.

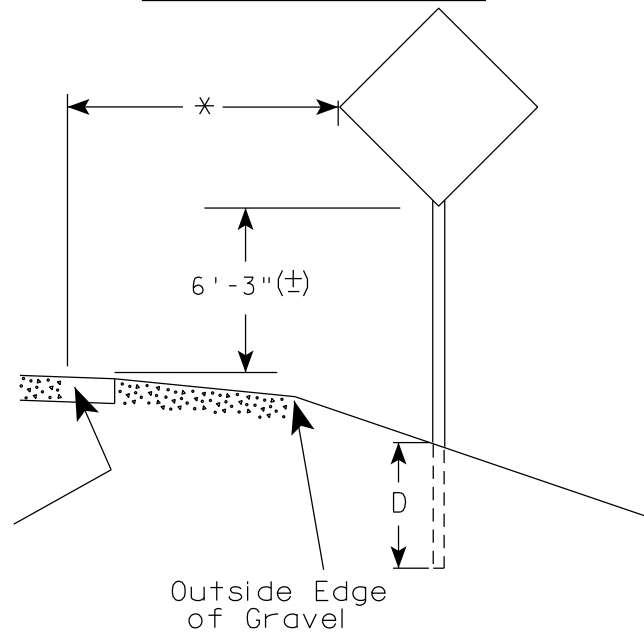
ATTACHMENT OF SIGNS TO POSTS	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED June 2017 DATE	/S/ Andrew Heidtke WORK ZONE ENGINEER
<small>FHWA</small>	

URBAN AREA

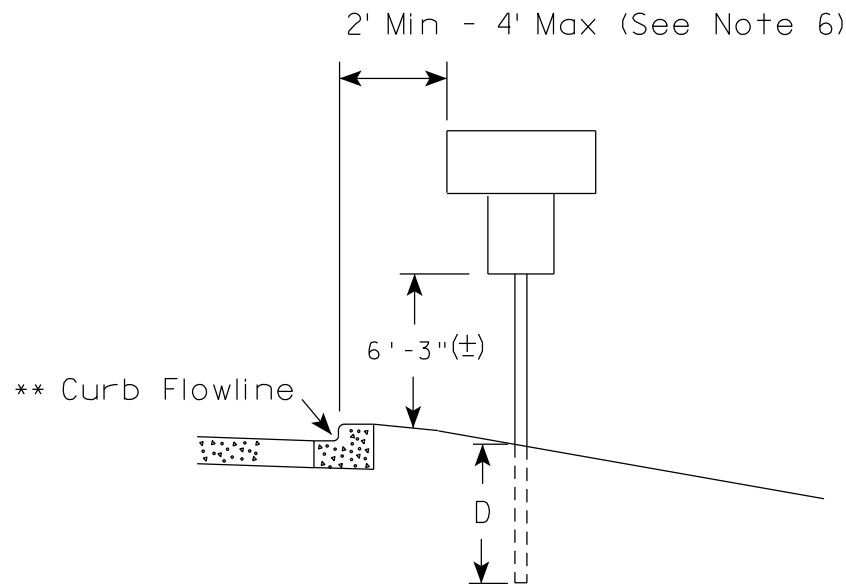
RURAL AREA (See Note 2)



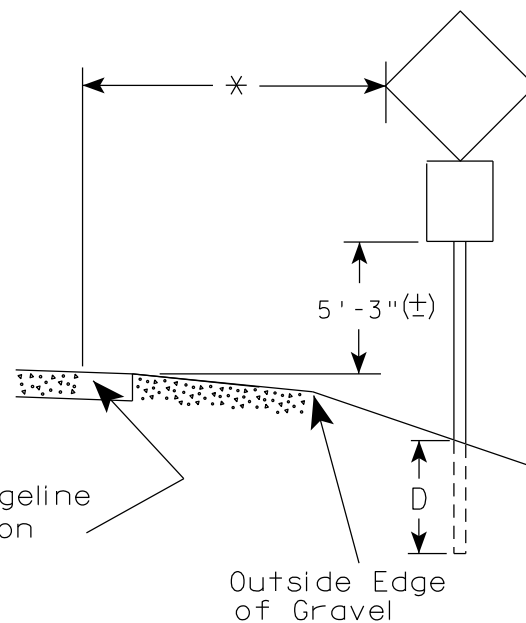
White Edgeline Location



Outside Edge of Gravel



White Edgeline Location



Outside Edge of Gravel

POST EMBEDMENT DEPTH

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

GENERAL NOTES

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

* 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

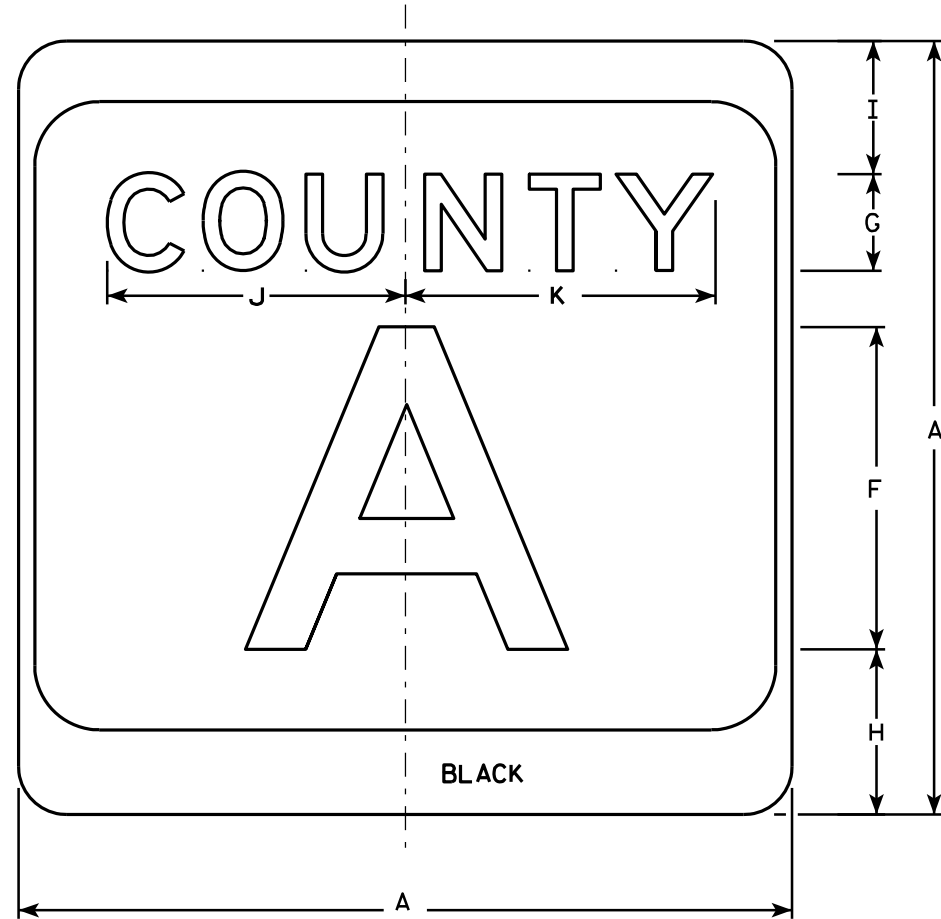
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

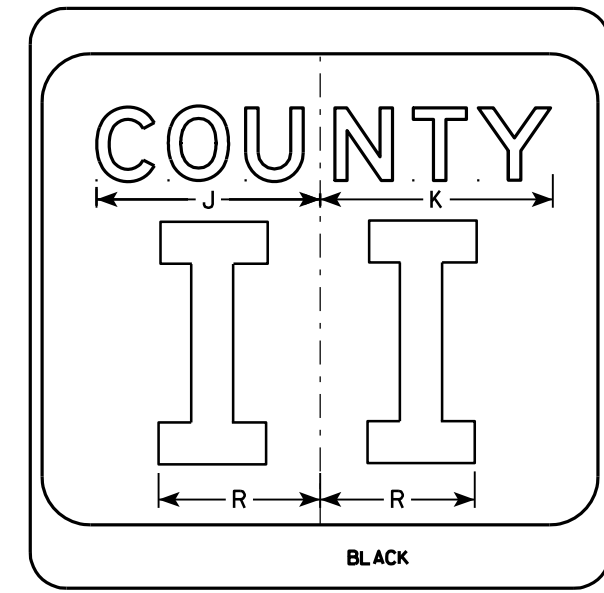
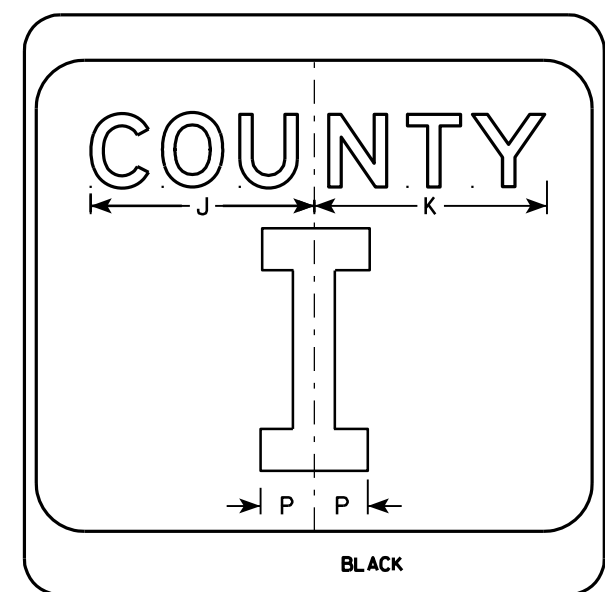
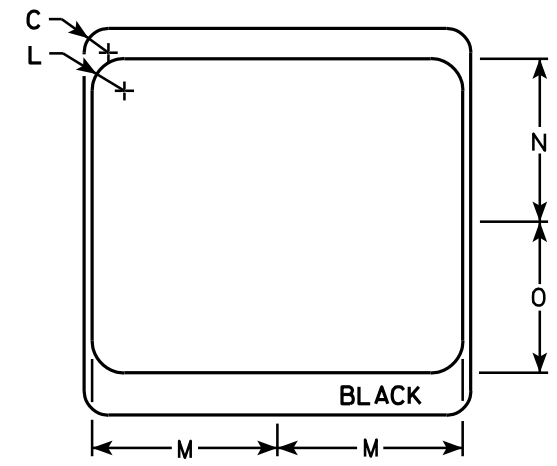
DATE 5/13/2020 PLATE NO. A4-3.22

NOTES

1. Sign is Type II - see Note 7 - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
Background - White & Black - See Note 7
Message - Black
3. Message Series - see Note 5
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. Message Series E for 1 letter.
Message Series D for 2 letters unless message is too big then Series C.
Message Series C for 3 letters unless message is too big then Series B.
6. Substitute appropriate letters & optically center to achieve proper balance.
7. Permanent Signs
Background - Type H Reflective
Detour or temporary Signs
Background - Reflective



M1-5A



7

7

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		1 1/2			10	3	5 1/8	4 1/8	9 1/4	9 5/8	2	11 1/2	10 1/8	9 3/8	2 1/4		6 5/8									4.0
3	36		2 1/4			16	4	7 5/8	5 5/8	12 1/4	12 7/8	3	17 1/8	15 1/4	14	3 3/8		10									9.0
4	36		2 1/4			16	4	7 5/8	5 5/8	12 1/4	12 7/8	3	17 1/8	15 1/4	14	3 3/8		10									9.0
5	36		2 1/4			16	4	7 5/8	5 5/8	12 1/4	12 7/8	3	17 1/8	15 1/4	14	3 3/8		10									9.0

CTH MARKER
M1-5A FOR ASSEMBLIES

WISCONSIN DEPT OF TRANSPORTATION

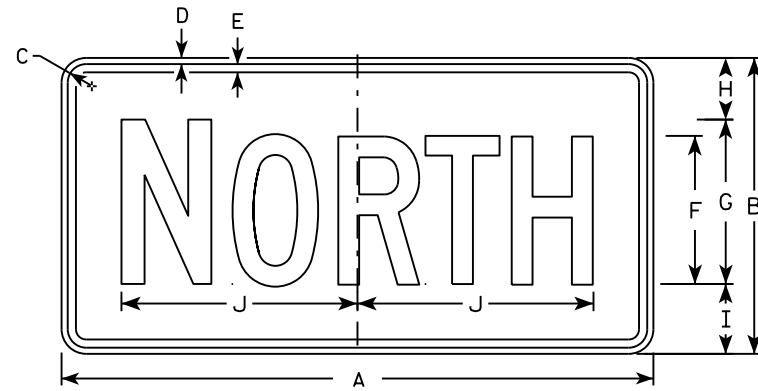
APPROVED *Matthew R. Raub*
For State Traffic Engineer

DATE 9/27/11 PLATE NO. MI-5A.8

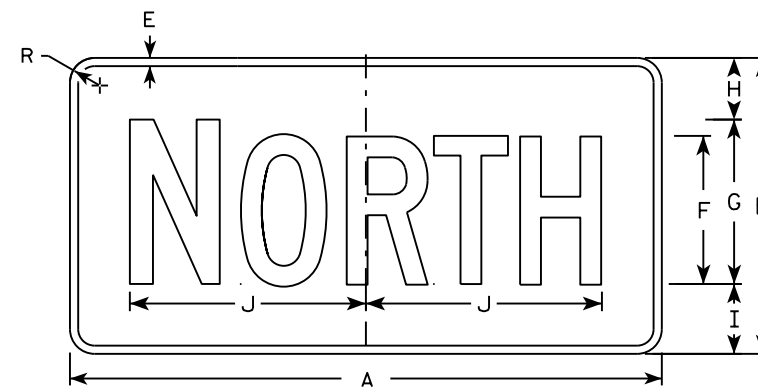
PROJECT NO: _____ HWY: _____ COUNTY: _____ SHEET NO: **E**

NOTES

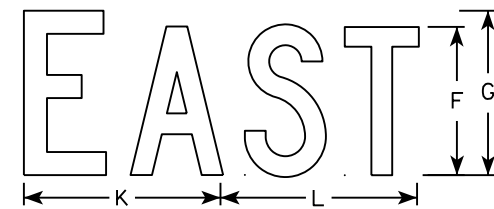
- All Signs Type II - Type H
- Color:
 - Background - See note 5
 - Message - See note 5
- Message Series - C
- Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
- M3-1 thru M3-4 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.



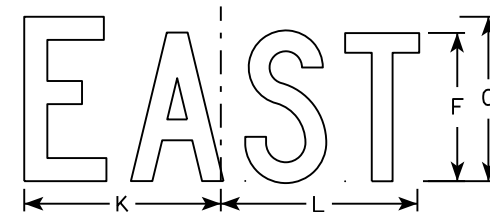
M3-1
MM3-1
MP3-1



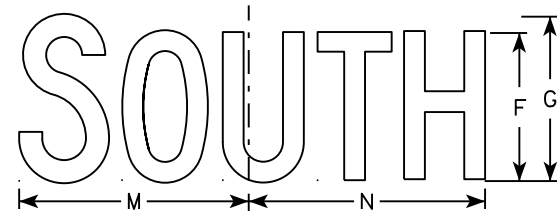
MB3-1
MK3-1
MN3-1



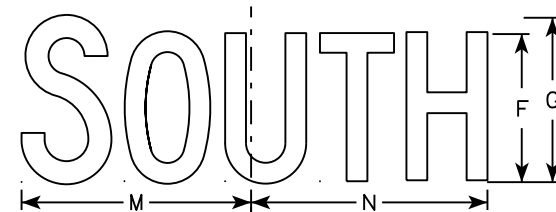
M3-2
MM3-2
MP3-2



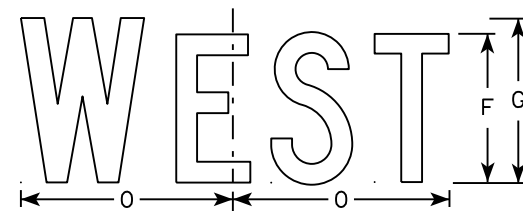
MB3-2
MK3-2
MN3-2



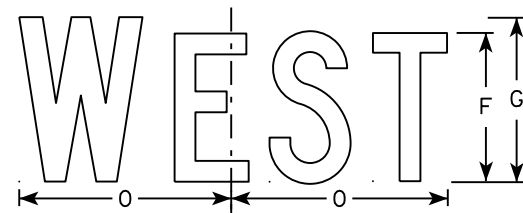
M3-3
MM3-3
MP3-3



MB3-3
MK3-3
MN3-3



M3-4
MM3-4
MP3-4



MB3-4
MK3-4
MN3-4

7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2	24	12	1 1/8	3/8	3/8	6	7	2 1/4	2 3/4	10 1/4	7 7/8	8 3/8	10 1/4	9 3/4	8 3/4			1 1/2									2.00
3	36	18	1 1/8	3/8	1/2	9	10	3 3/4	4 1/4	14 3/8	12	12 1/8	14	14 1/8	13			1 1/2									4.5
4	36	18	1 1/8	3/8	1/2	9	10	3 3/4	4 1/4	14 3/8	12	12 1/8	14	14 1/8	13			1 1/2									4.5
5	36	18	1 1/8	3/8	1/2	9	10	3 3/4	4 1/4	14 3/8	12	12 1/8	14	14 1/8	13			1 1/2									4.5

STANDARD SIGNS
M3-1 thru M3-4
SERIES

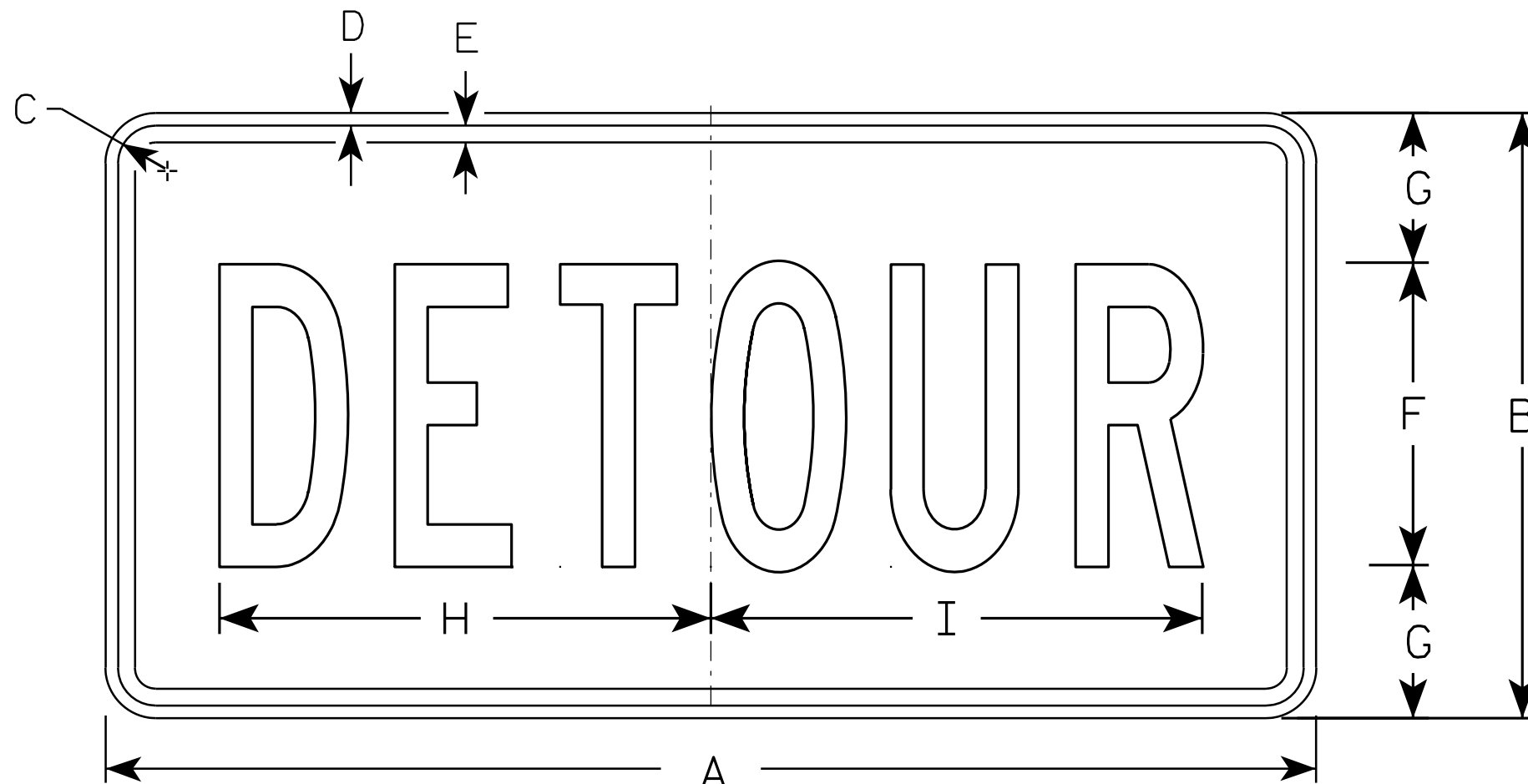
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 10/15/15 PLATE NO. M3-1.14

NOTES

1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
Background - Orange
Message - Black
3. Message Series - 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.



M4-8

7

7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2	24	12	1 1/8	3/8	3/8	6	3	10	10 1/4																		2.0
3	36	18	1 1/8	3/8	1/2	9	4 1/2	14 5/8	14 1/2																		4.5
4																											
5																											

STANDARD SIGN
M4-8

WISCONSIN DEPT OF TRANSPORTATION

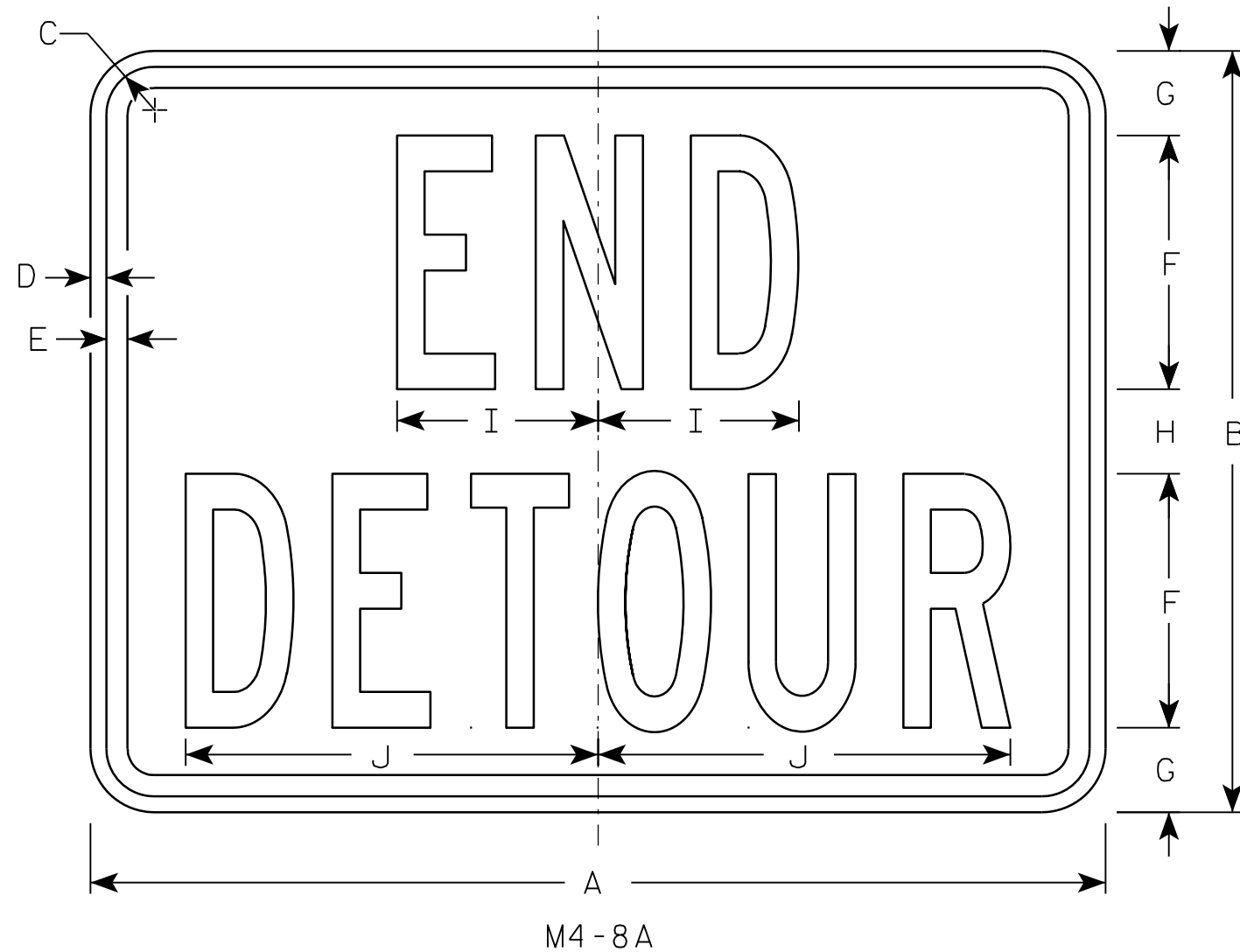
APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 11/10/10 PLATE NO. M4-8.2

PROJECT NO: _____ HWY: _____ COUNTY: _____ SHEET NO: **E**

NOTES

1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
Background - Orange
Message - Black
3. Message Series - 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.



M4-8A

7

7

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	18	1 1/8	3/8	1/2	6	2	2	4 3/4	9 3/4																	3.0
3	30	24	1 1/8	3/8	1/2	8	2 1/2	3	6 3/4	13																	5.0
4																											
5																											

STANDARD SIGN
M4-8A

WISCONSIN DEPT OF TRANSPORTATION

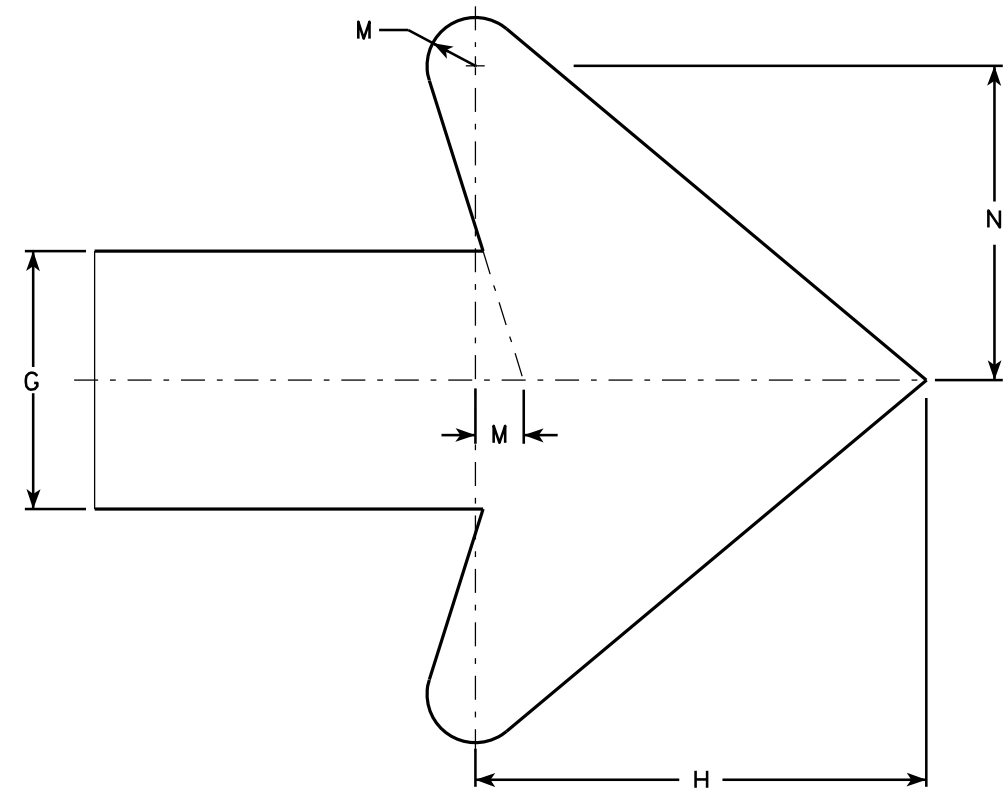
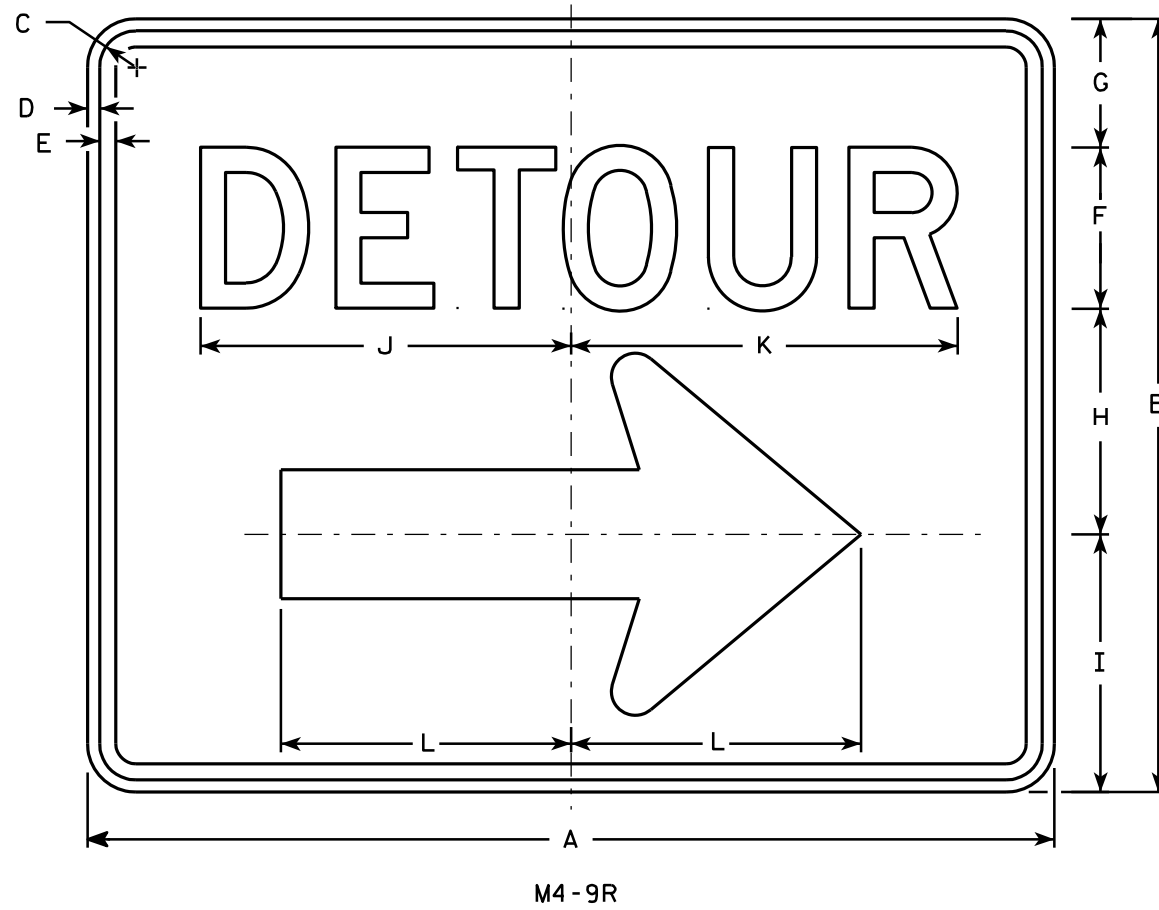
APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 3/9/11 PLATE NO. M4-8A.2

PROJECT NO: _____ HWY: _____ COUNTY: _____ SHEET NO: **E**

NOTES

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



Arrow Detail

7

7

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 1/8	3/8	1/2	5	4	7	8	11 1/2	12	9	3/4	4 7/8													5.00
3	30	24	1 1/8	3/8	1/2	5	4	7	8	11 1/2	12	9	3/4	4 7/8													5.00
4	48	36	1 3/8	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 3/8	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

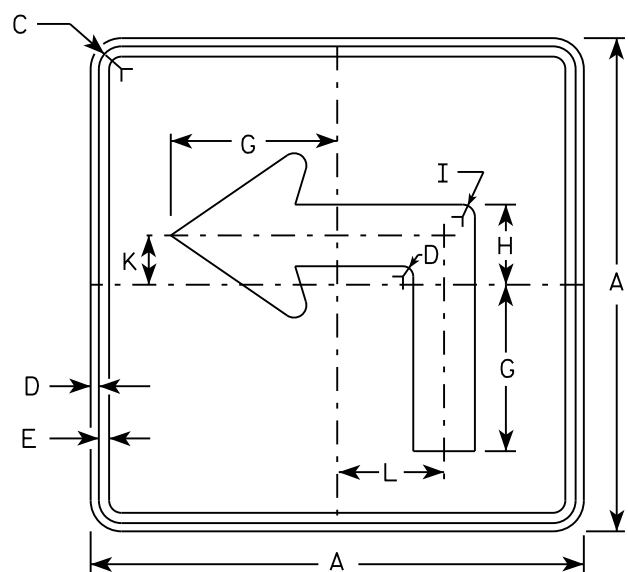
STANDARD SIGN
M4-9 R & L

WISCONSIN DEPT OF TRANSPORTATION

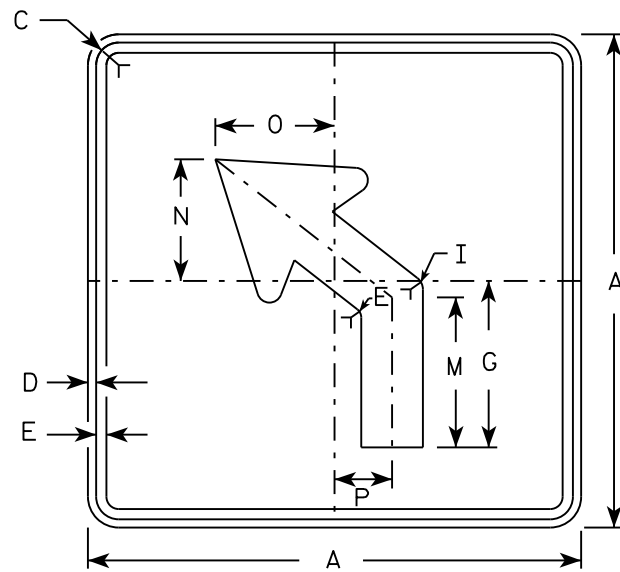
APPROVED *Matthew R. Rauch*
For State Traffic Engineer

DATE 3/9/11 PLATE NO. M4-9R.4

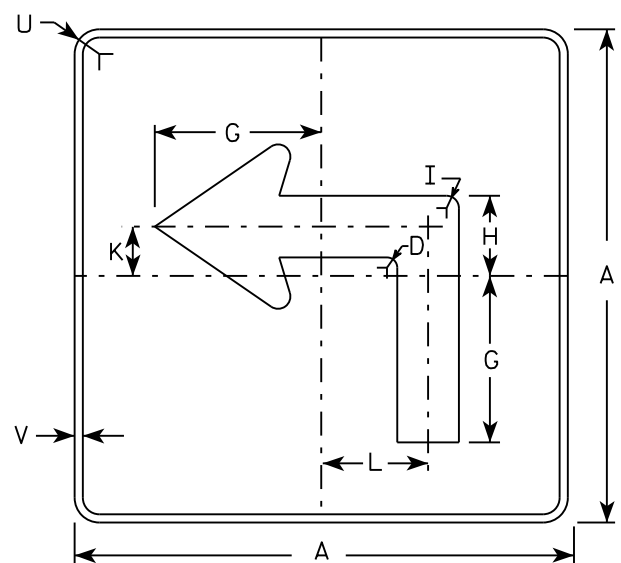
PROJECT NO: _____ HWY: _____ COUNTY: _____ SHEET NO: **E**



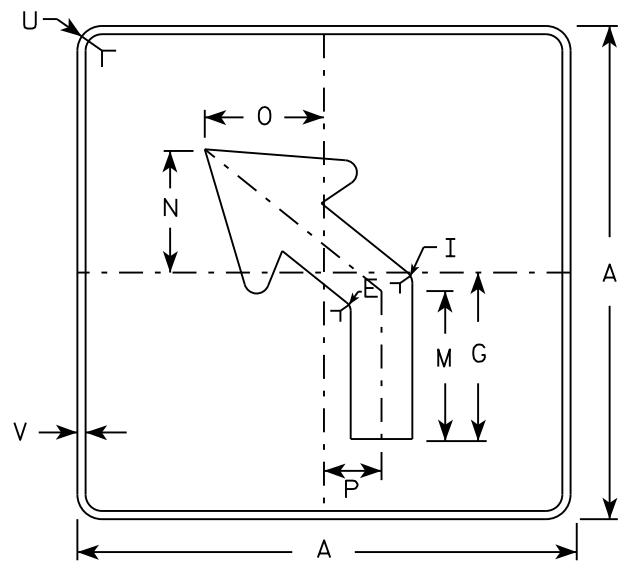
M5-1L
MM5-1L
M05-1L
MP5-1L



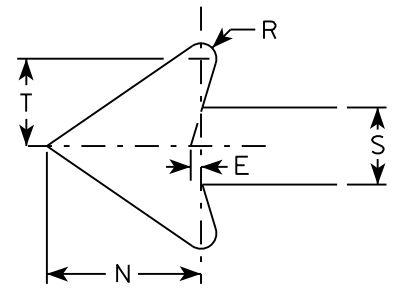
M5-2L
MM5-2L
M05-2L
MP5-2L



MB5-1L
MK5-1L
MN5-1L
MR5-1L



MB5-2L
MK5-2L
MN5-2L
MR5-2L



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 - Type H Reflective |
| | 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.

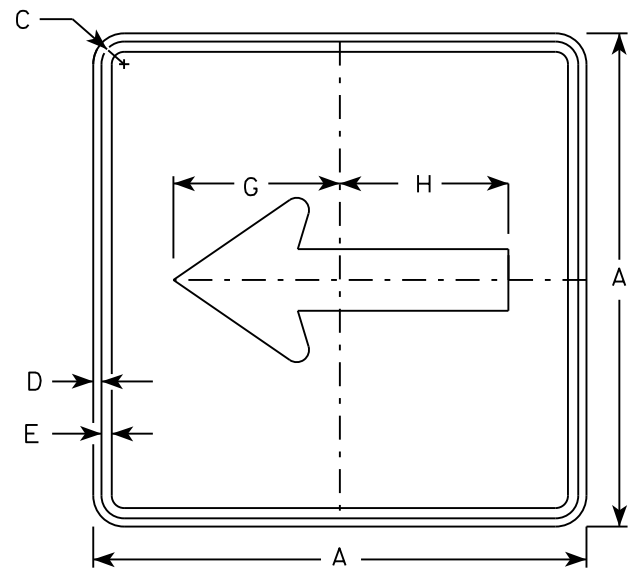
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2	21		1 1/8	3/8	3/8		7	3 3/8	5/8		2 1/8	4 1/2	6 3/8	5 1/4	5	2 1/2		1/2	2 5/8	3	1 1/2	1/2					3.06
3	30		1 3/8	1/2	5/8		10 1/8	4 7/8	7/8		3	6 1/2	9 1/8	7 1/2	7 1/4	3 1/2		3/4	3 3/4	4 1/4	1 7/8	1/2					6.25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

STANDARD SIGN
M5-1 & M5-2

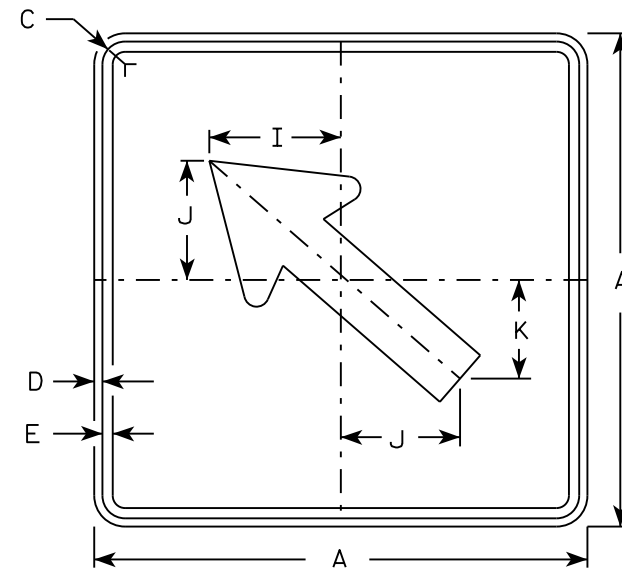
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

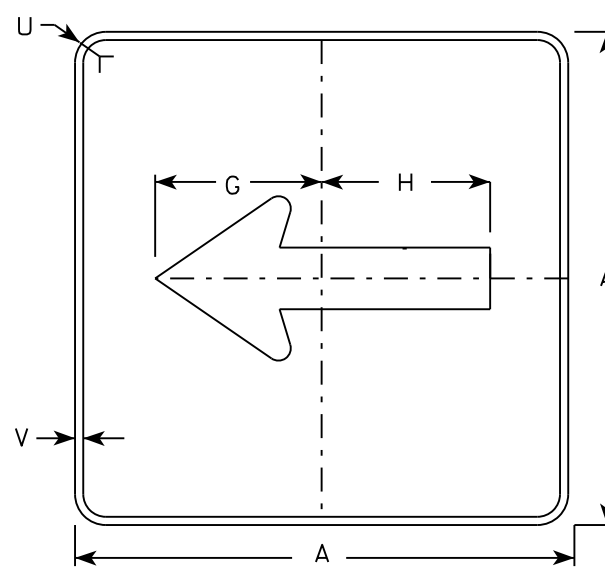
DATE 10/15/15 PLATE NO. M5-1.13



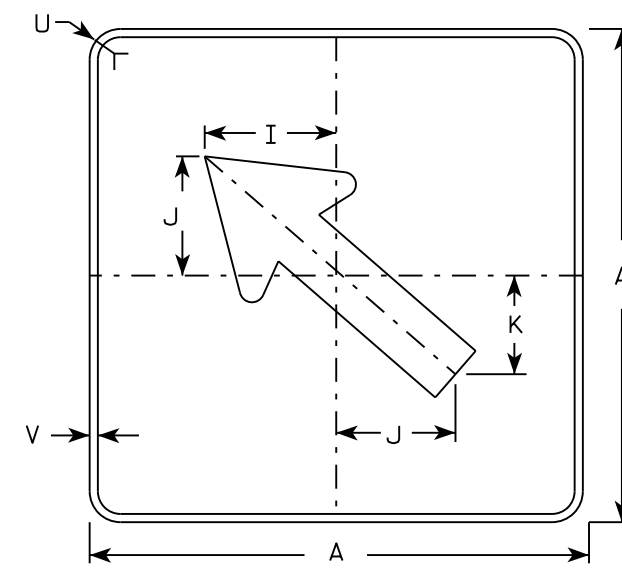
M6-1
MM6-1
M06-1
MP6-1



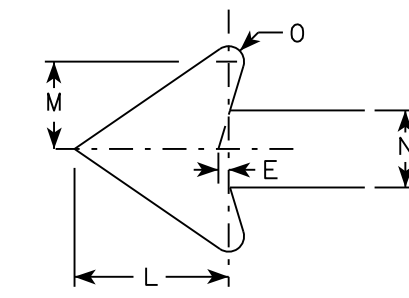
M6-2
MM6-2
M06-2
MP6-2



MB6-1
MK6-1
MN6-1
MR6-1



MB6-2
MK6-2
MN6-2
MR6-2



NOTES

- Signs are Type II - Type H 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

7

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	21		1 1/8	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 1/2	1/2					3.06
3	30		1 3/8	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 7/8	1/2					6.25
4	30		1 3/8	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 7/8	1/2					6.25
5	30		1 3/8	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 7/8	1/2					6.25

STANDARD SIGN
M6-1 & M6-2
SERIES

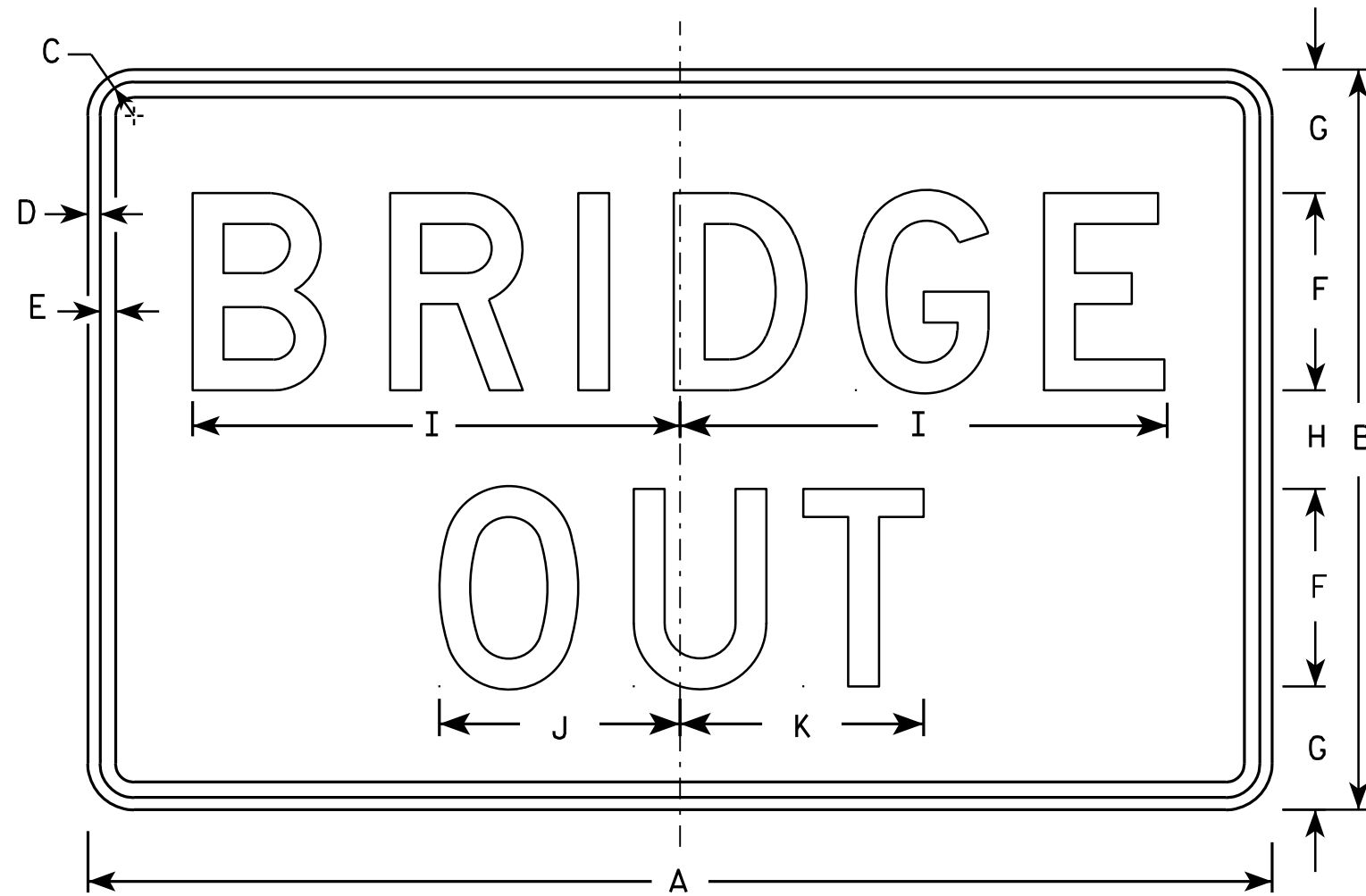
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 10/15/15 PLATE NO. M6-1.15

NOTES

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



R11-2B

7

7

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

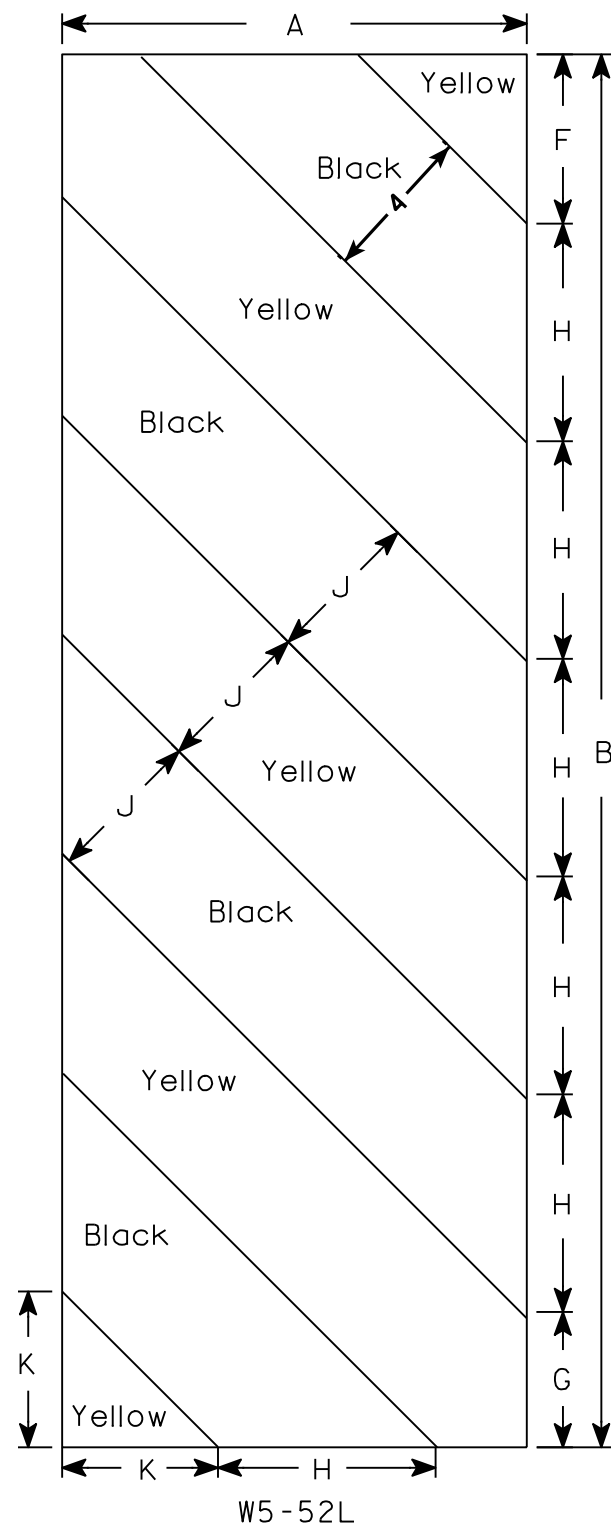
STANDARD SIGN
R11-2B

WISCONSIN DEPT OF TRANSPORTATION

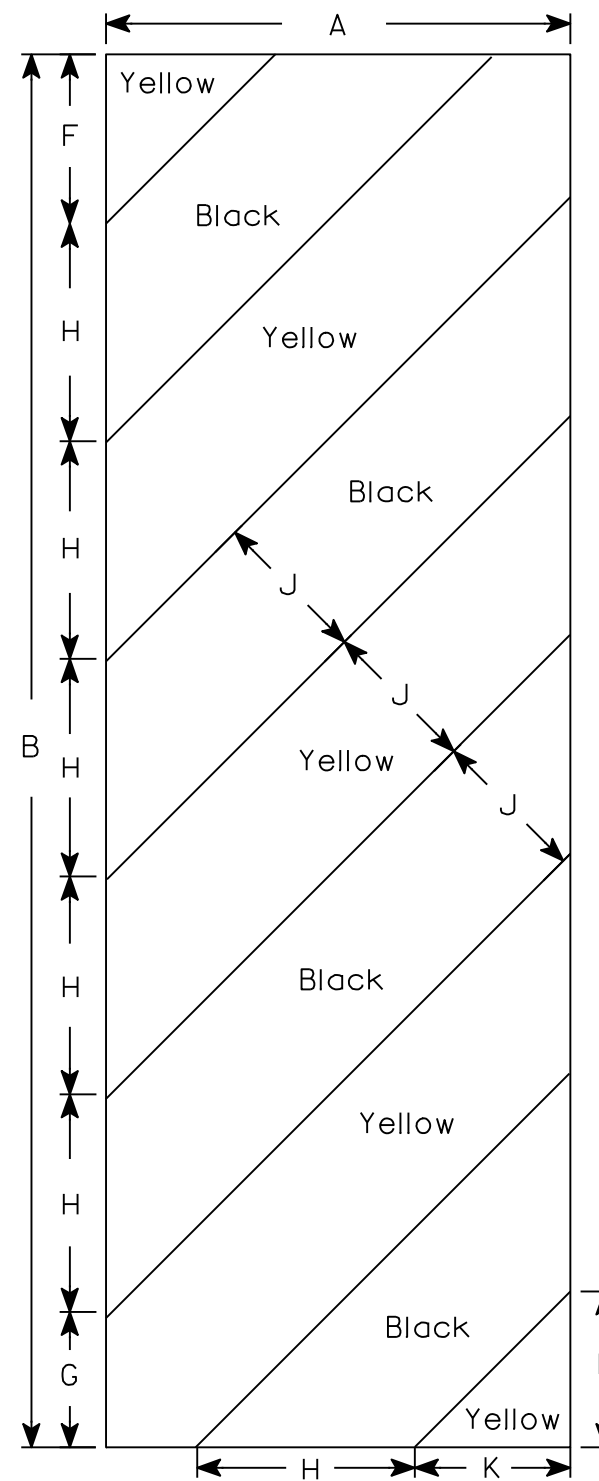
APPROVED *Matthew R. Rauch*
For State Traffic Engineer

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

PROJECT NO: _____ SHEET NO: _____ E



W5-52L



W5-52R

NOTES

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

7

7

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

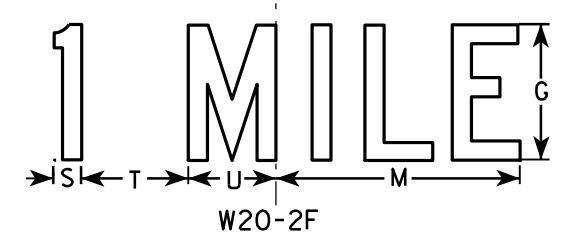
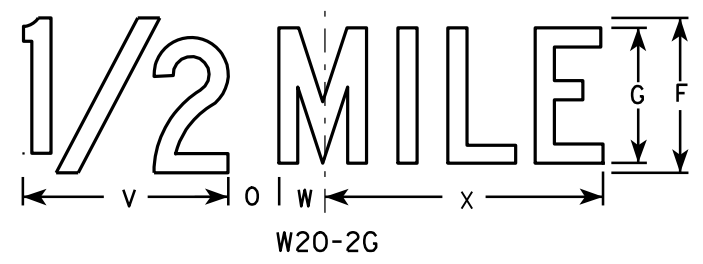
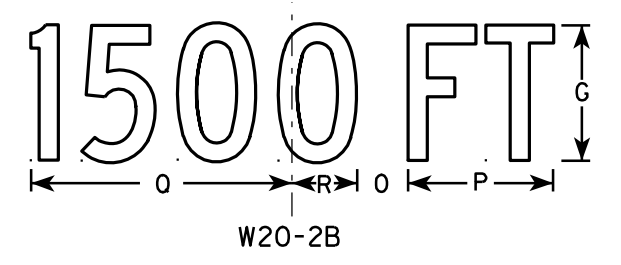
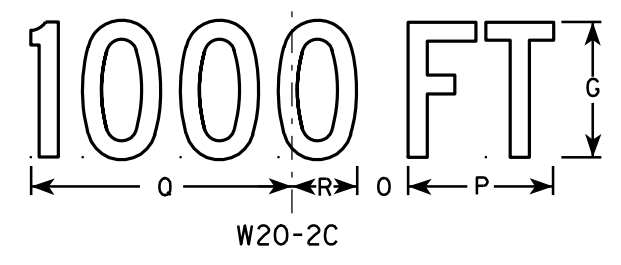
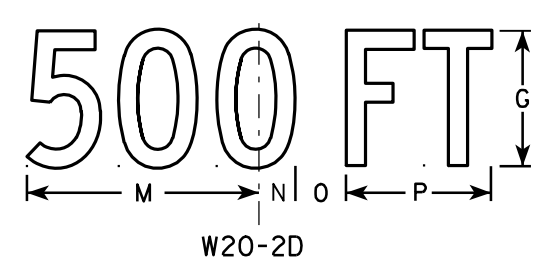
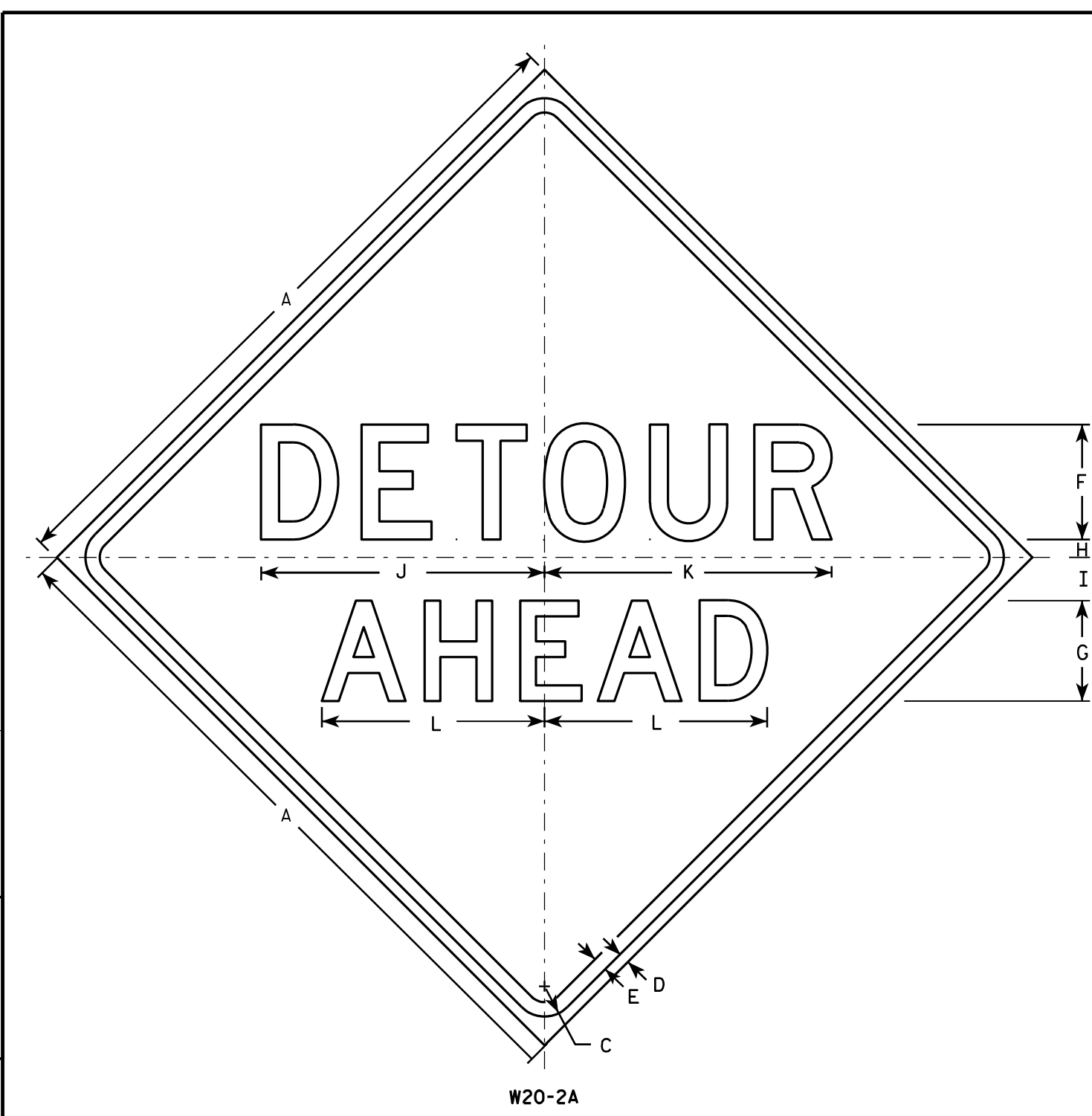
STANDARD SIGN
W5-52L & W5-52R

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

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

PROJECT NO: _____ HWY: _____ COUNTY: _____ SHEET NO: _____ E



NOTES

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

7

7

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

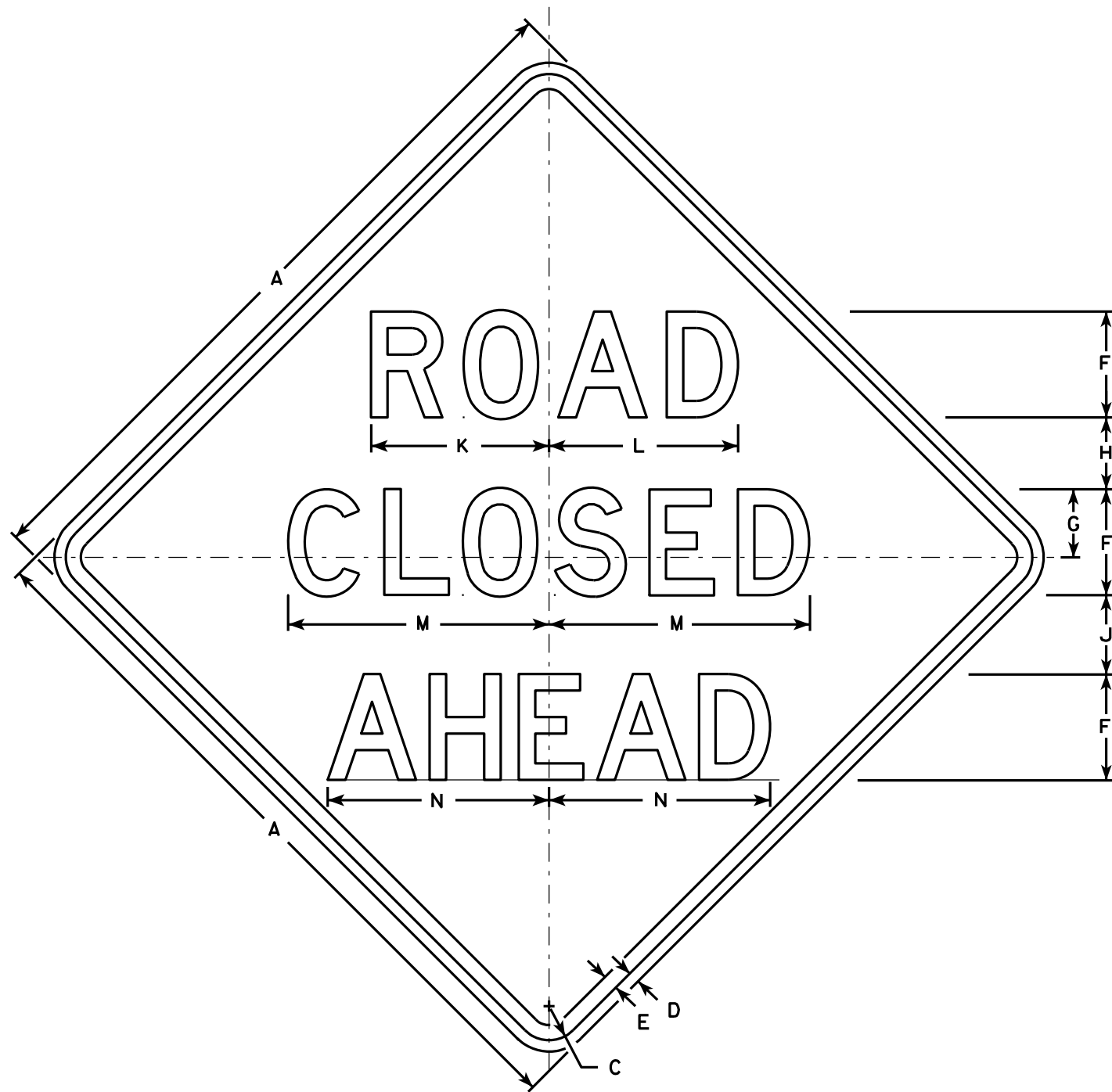
STANDARD SIGN
W20-2A, B, C, D, F & G

WISCONSIN DEPT OF TRANSPORTATION

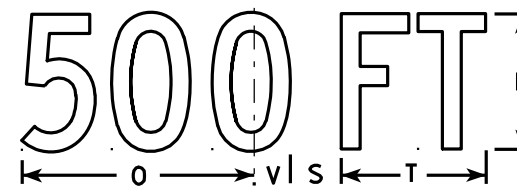
APPROVED *Matthew R. Raub*
for State Traffic Engineer

DATE 3/18/11 PLATE NO. W20-2.6

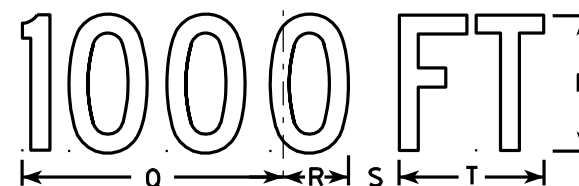
PROJECT NO: _____ HWY: _____ COUNTY: _____ SHEET NO: _____ E



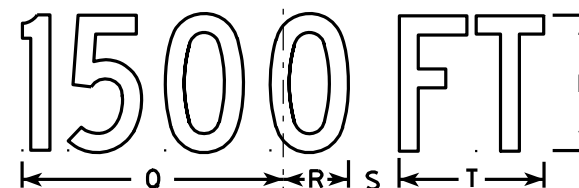
W20-3A



W20-3D



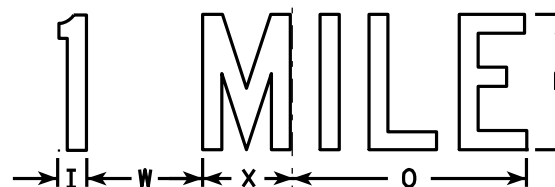
W20-3C



W20-3B



W20-3G



W20-3F

NOTES

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

7

7

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

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

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
For State Traffic Engineer

DATE 3/18/11 PLATE NO. W20-3.7

DESIGN DATA

LIVE LOAD:

DESIGN LOADING	HL-93
INVENTORY RATING FACTOR	RF = 1.34
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	$f_y = 60,000$ P.S.I.
REINFORCEMENT, GRADE 60	$f_y = 60,000$ P.S.I.
28-INCH PRESTRESSED GIRDER	$f_c = 8,000$ P.S.I.
CONCRETE MASONRY	$f_c = 8,000$ P.S.I.
STRANDS 0.6 INCH DIA. WITH ULTIMATE TENSILE STRENGTH	$f_y = 270,000$ P.S.I.

FOUNDATION DATA

ABUTMENTS TO BE SUPPORTED ON PILING CIP CONCRETE 10 $\frac{3}{4}$ X 0.25-INCH DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 130 TONS** PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA. ESTIMATE 55 FT PILE LENGTHS AT WEST ABUTMENT AND 50 FT PILE LENGTHS AT EAST ABUTMENT. PILE POINTS REQ'D. AT ALL LOCATIONS.

**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. (2021)	740
A.D.T. (2041)	1,110
DESIGN SPEED	50 M.P.H.

HYDRAULIC DATA

100 YEAR FREQUENCY	
DRAINAGE AREA	5.7 SQ. MI.
Q ₁₀₀ TOTAL	340 C.F.S.
THROUGH STRUCTURE	340 C.F.S.
OVERTOPPING ROADWAY	N/A
VELOCITY - THROUGH STRUCTURE	2.9 F.P.S.
WATERWAY AREA - THROUGH STRUCTURE	116.4 SQ. FT.
HIGH WATER ₁₀₀ ELEVATION	812.57
SCOUR CRITICAL CODE	5

EROSION CONTROL

Q ₂	130 C.F.S.
VELOCITY ₂	2.2 F.P.S.
HIGH WATER ₂ ELEVATION	810.83

LIST OF DRAWINGS

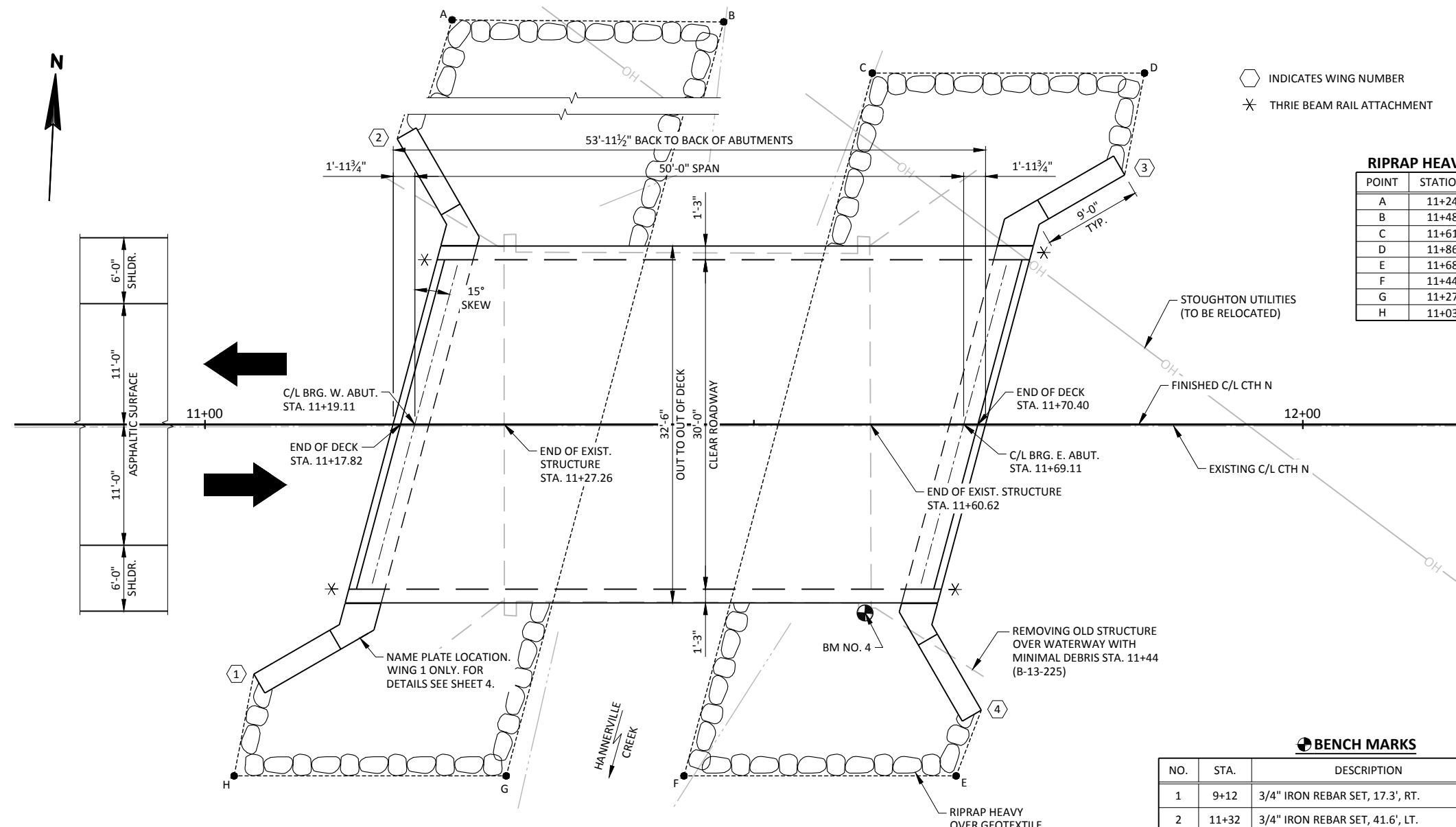
GENERAL PLAN	1.
CROSS SECTION AND QUANTITIES	2.
SUBSURFACE EXPLORATION	3.
WEST ABUTMENT	4.
WEST ABUTMENT DETAILS	5.
EAST ABUTMENT	6.
EAST ABUTMENT DETAILS	7.
GIRDER LAYOUT	8.
28-INCH PRESTRESSED GIRDER DETAILS	9.
STEEL DIAPHRAGM	10.
SUPERSTRUCTURE	11.
SUPERSTRUCTURE DETAILS	12.
TUBULAR RAILING TYPE M	13.

⬡ INDICATES WING NUMBER

* THRIE BEAM RAIL ATTACHMENT

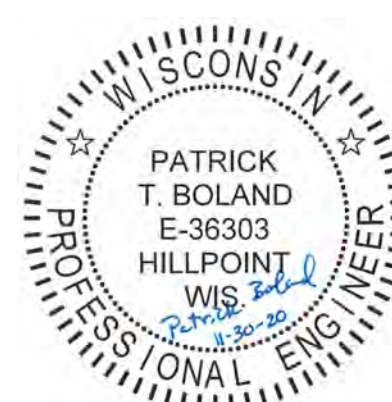
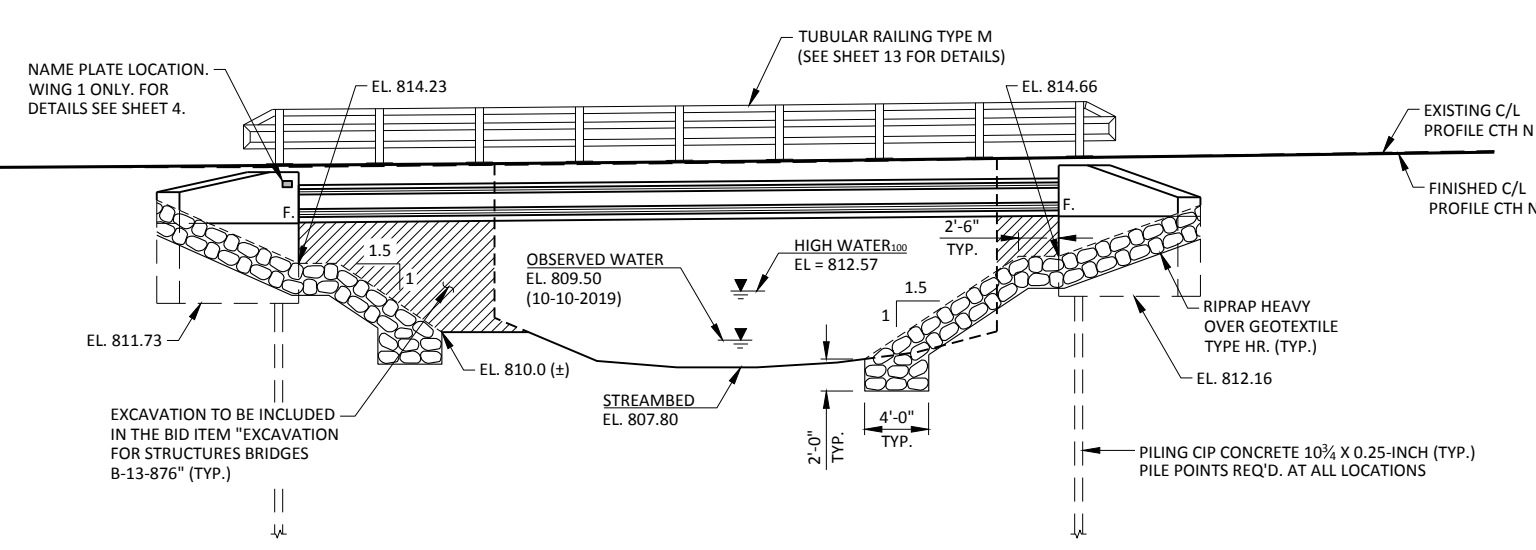
RIPRAP HEAVY LAYOUT

POINT	STATION	OFFSET
A	11+24	46' LT.
B	11+48	46' LT.
C	11+61	32' LT.
D	11+86	32' LT.
E	11+68	32' RT.
F	11+44	32' RT.
G	11+27	32' RT.
H	11+03	32' RT.



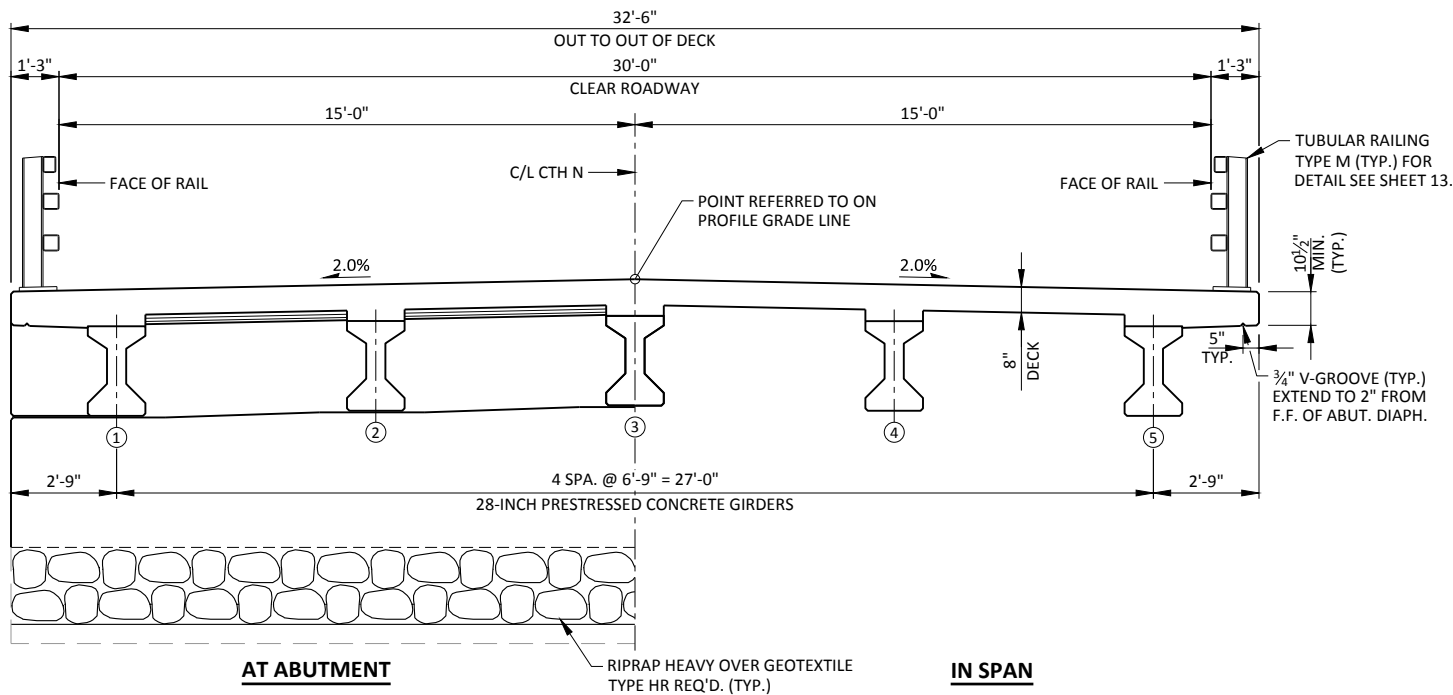
BENCH MARKS

NO.	STA.	DESCRIPTION	ELEV.
1	9+12	3/4" IRON REBAR SET, 17.3', RT.	819.70'
2	11+32	3/4" IRON REBAR SET, 41.6', LT.	813.84'
3	13+92	3/4" IRON REBAR SET, 16.9', LT.	822.52'
4	11+60	METAL DISK IN WINGWALL, 17.2', RT.	820.51'

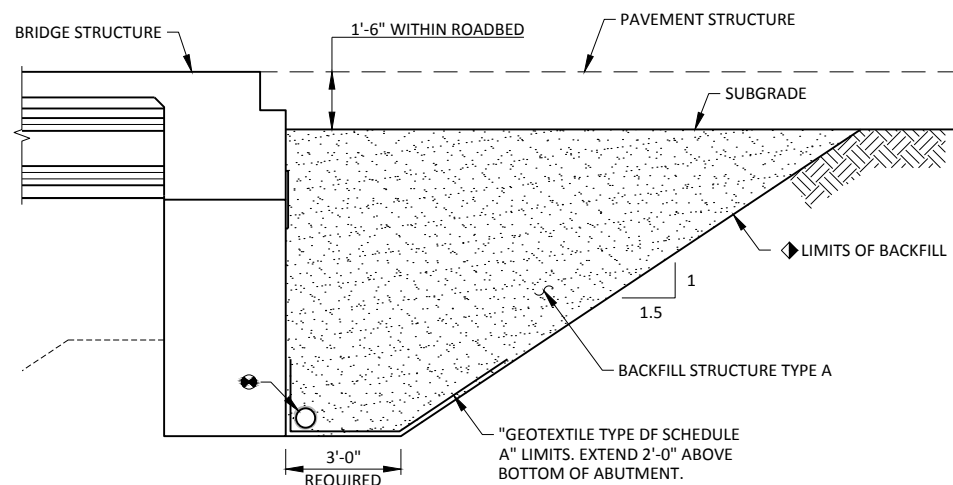


DESIGN CONSULTANT
PATRICK BOLAND, PE
(608) 588-7484

NO.	DATE	REVISION	BY
STRUCTURE B-13-876 CTH N OVER HANNERVILLE CREEK			
COUNTY	DANE	TOWN/CITY/VILLAGE	DUNKIRK
DESIGN SPEC.	AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS		
DESIGNED BY	PMF	DESIGN CK'D.	PTB
DRAWN BY	PMF	PLANS CK'D.	PTB
GENERAL PLAN			SHEET 1 OF 13



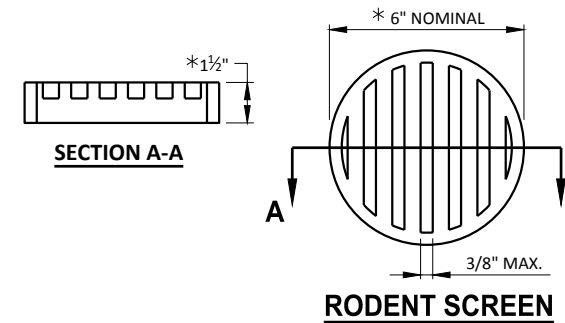
PROPOSED CROSS-SECTION THROUGH ROADWAY
LOOKING EAST



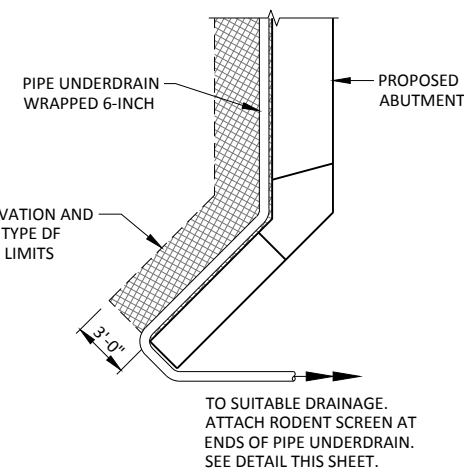
BACKFILL STRUCTURE DETAIL
(TYPICAL AT ABUTMENTS. ABUTMENT BODY SHOWN - WING WALLS SIMILAR)

TOTAL ESTIMATED QUANTITIES

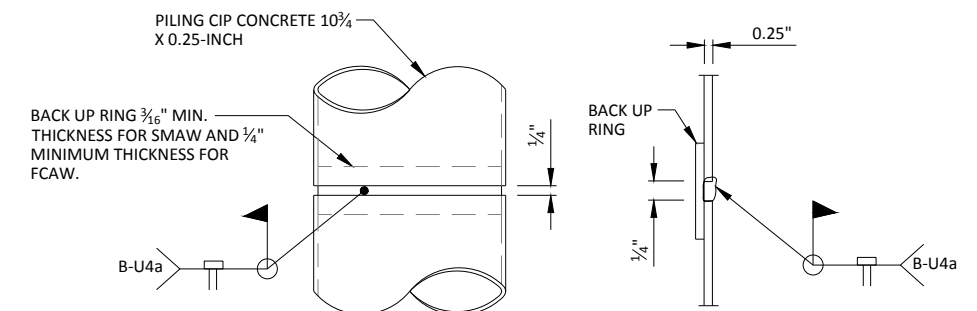
ITEM NUMBER	ITEM DESCRIPTION	UNIT	WEST ABUT.	SUPER	EAST ABUT.	TOTALS
203.0600.S	REMOVING OLD STRUCTURE OVER WATERWAY WITH MINIMAL DEBRIS STA. 11+44	LS	--	--	--	1
206.1000	EXCAVATION FOR STRUCTURES BRIDGES B-13-876	LS	--	--	--	1
210.1500	BACKFILL STRUCTURE TYPE A	TON	190	--	190	380
502.0100	CONCRETE MASONRY BRIDGES	CY	35	66	36	137
502.3200	PROTECTIVE SURFACE TREATMENT	SY	--	215	--	215
503.0128	PRESTRESSED GIRDER TYPE I 28-INCH	LF	--	255	--	255
505.0400	BAR STEEL REINFORCEMENT HS STRUCTURES	LB	2,430	--	2,430	4,860
505.0600	BAR STEEL REINFORCEMENT HS COATED STRUCTURES	LB	1,520	10,890	1,530	13,940
506.2605	BEARING PADS ELASTOMERIC NON-LAMINATED	EACH	5	--	5	10
506.4000	STEEL DIAPHRAGMS B-13-876	EACH	--	4	--	4
513.4061	RAILING TUBULAR TYPE M	LF	--	110	--	110
516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	7	--	7	14
550.0500	PILE POINTS	EACH	9	--	9	18
550.2100	PIILING CIP CONCRETE 10 3/4 X 0.25-INCH	LF	495	--	450	945
606.0300	RIPRAP HEAVY	CY	150	--	115	265
612.0406	PIPE UNDERDRAIN WRAPPED 6-INCH	LF	100	--	100	200
645.0111	GEOTEXTILE TYPE DF SCHEDULE A	SY	55	--	55	110
645.0120	GEOTEXTILE TYPE HR	SY	240	--	190	430
NON-BID ITEMS						
	FILLER	SIZE				1/2"
	NAME PLATE					



NOTES:
* 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.

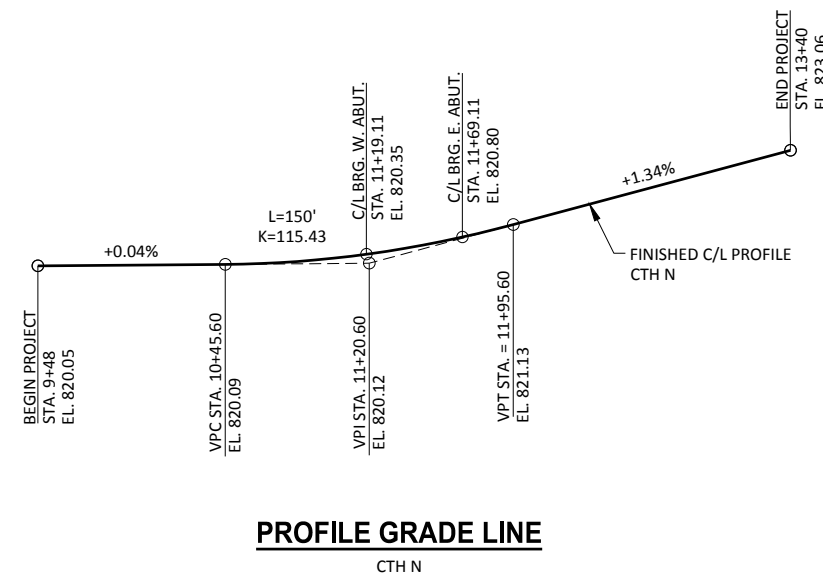


PIPE UNDERDRAIN DETAIL



CAST-IN-PLACE 'PIPE PILE' C.I.P. PILE WELD DETAIL

NOTES:
CAST-IN-PLACE PILE SHELL MATERIAL SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS

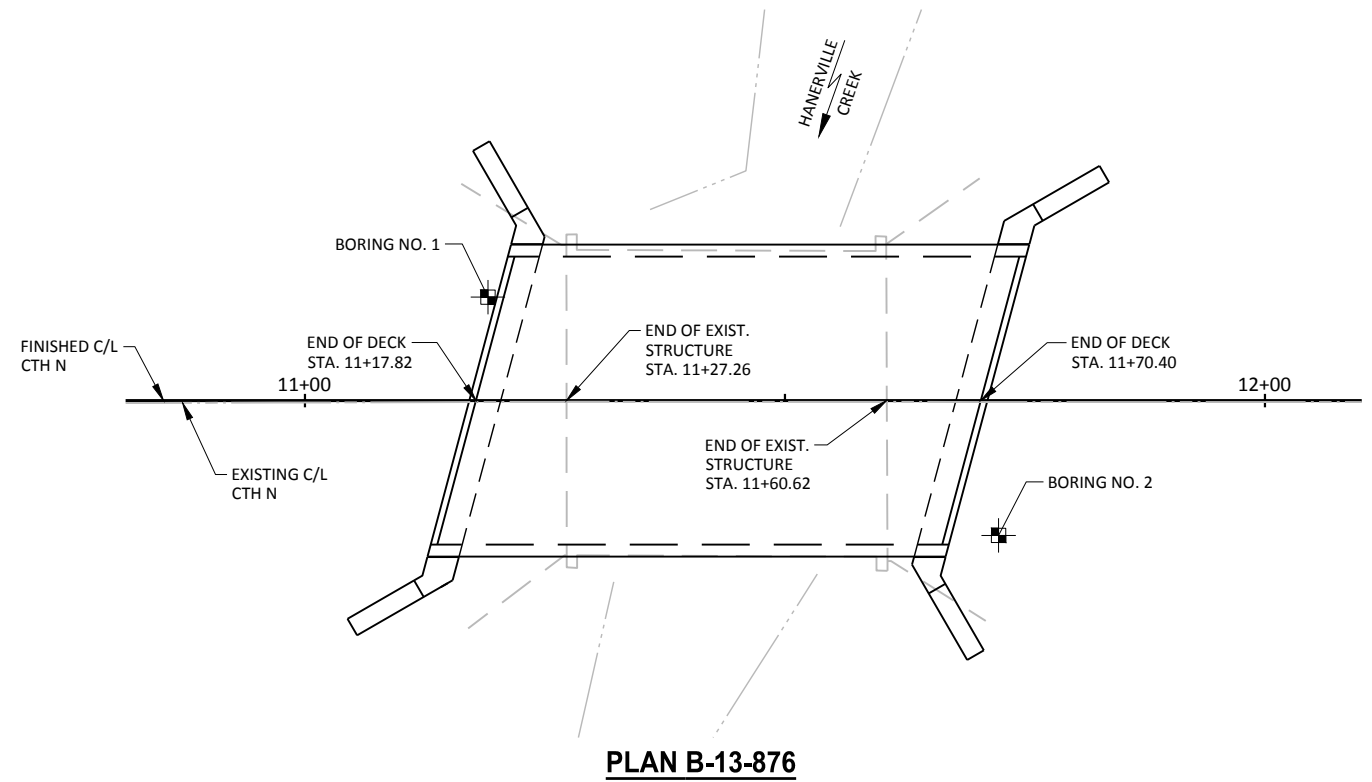


PROFILE GRADE LINE

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.
ELEVATIONS SHOWN ON THE PLAN ARE REFERENCED TO THE NORTH AMERICA VERTICAL DATUM OF 1988 (NAVD 88).
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 M153, 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 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, THE SIDES OF THE DECK AND EXTERIOR 12" OF THE UNDERSIDE OF THE DECK (CONCRETE MATERIAL ONLY).
ALL STATIONS AND ELEVATIONS SHOWN ARE IN FEET.
THE UPPER LIMITS OF "EXCAVATION FOR STRUCTURES BRIDGES B-13-876" SHALL BE THE EXISTING GROUNDLINE.
THE FIRST DIGIT OF A BAR MARK SIGNIFIES THE BAR SIZE.
THE EXISTING STRUCTURE (B-13-225) IS A SINGLE SPAN CONCRETE FLAT SLAB STRUCTURE SUPPORTED ON STEEL PILING WITH TIMBER BACKING. THE STRUCTURE HAS A 32.5' BRIDGE WIDTH AND IS 32.0' LONG AND SHALL BE REMOVED.

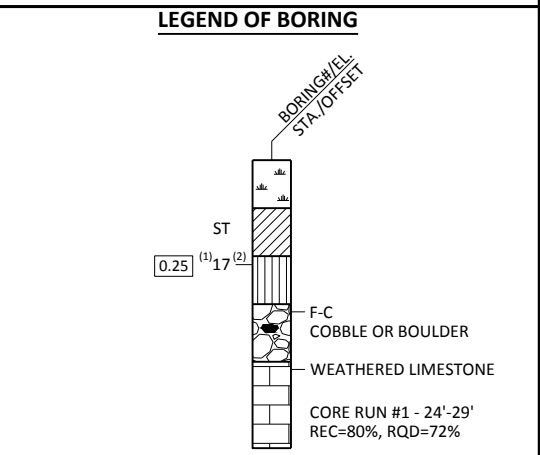
NO.	DATE	REVISION	BY
STRUCTURE B-13-876			
DRAWN BY		PMF	PLANS CK'D. PTB
CROSS SECTION AND QUANTITIES			SHEET 2 OF 13



SOIL BORINGS			
BORING NUMBER	DATE COMPLETED	NORTHING (Y)	EASTING (X)
1	03/11/20	404,994.6	879,059.6
2	03/11/20	404,972.3	879,114.1

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

MATERIAL SYMBOLS		
	Asphalt	
	Concrete	
	Sand	
	Boulders or Cobbles	
	Shale	
	Peat	
	Silt	
	Igneous/meta	

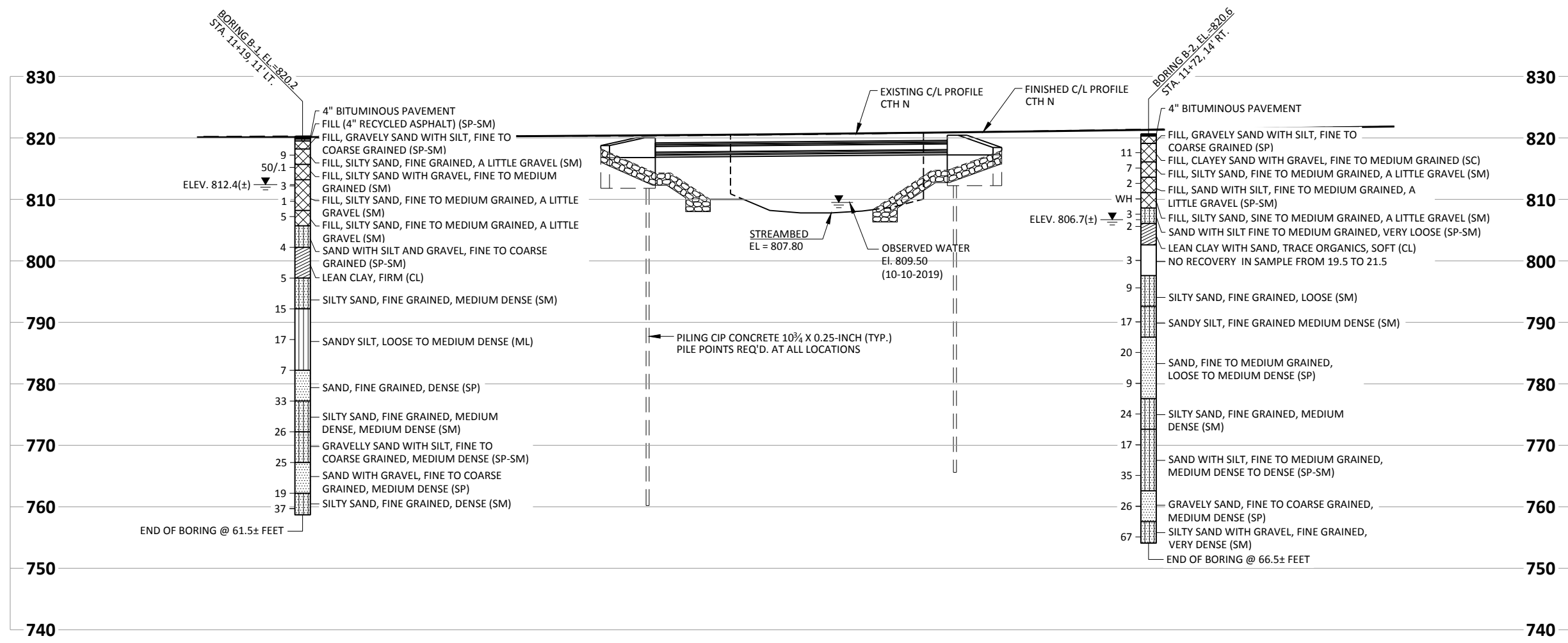


(1) UNCONFINED STRENGTH, AS DETERMINED BY A POCKET PENETROMETER (TSF)
 (2) UNLESS OTHERWISE SPECIFIED, THE SPT 'N' VALUE IS BASED ON AASHTO T-206 STANDARD PENETRATION TEST. THE SPT 'N' VALUE PRESENTED HAS NOT BEEN CORRECTED FOR OVERBURDEN PRESSURE OR HAMMER EFFICIENCY.

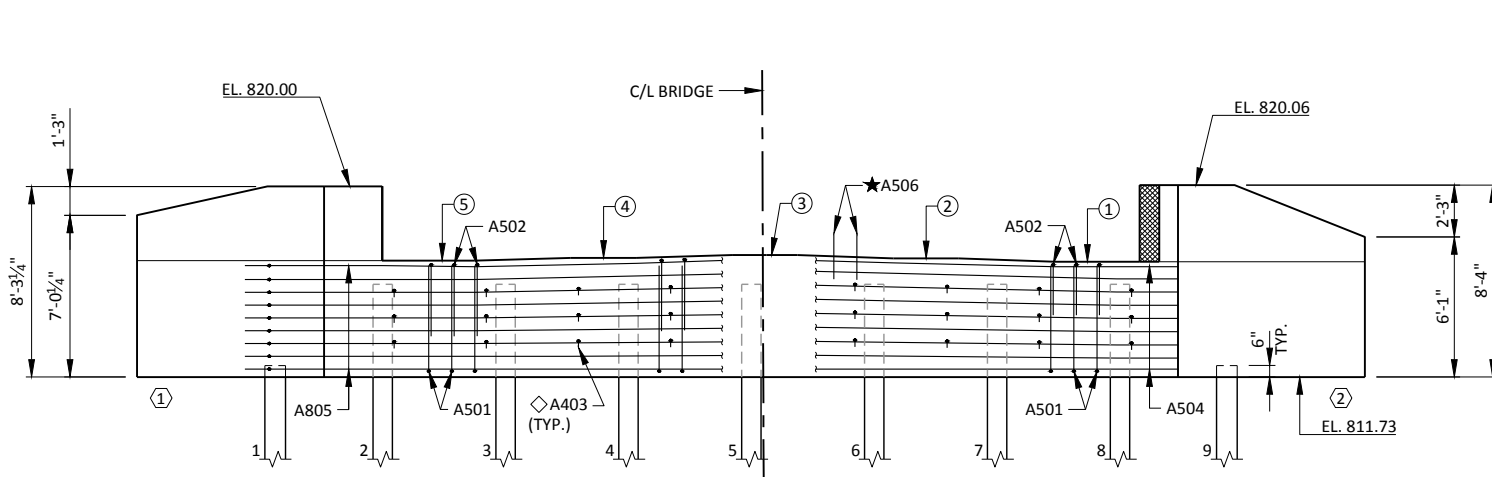
GROUND WATER ELEVATIONS	
	AT TIME OF DRILLING
	END OF DRILLING
	AFTER DRILLING

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

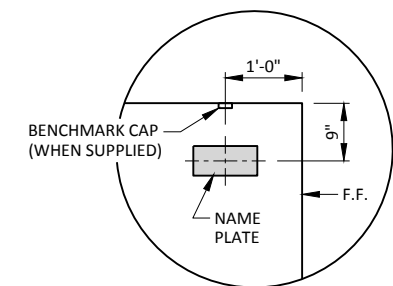
SUBSURFACE EXPLORATION FOR FOUNDATION DESIGN AND BIDDERS INFORMATION
 BORINGS WERE COMPLETED AT POINTS APPROXIMATELY AS INDICATED ON THIS DRAWING TO OBTAIN INFORMATION CONCERNING THE CHARACTER OF SUBSURFACE MATERIALS FOUND AT THE SITE. BECAUSE THE INVESTIGATED DEPTHS ARE LIMITED AND THE AREA OF THE BORINGS 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
STRUCTURE B-13-876			
DRAWN BY		PMF	PLANS CK'D. PTB
SUBSURFACE EXPLORATION		SHEET 3 OF 13	



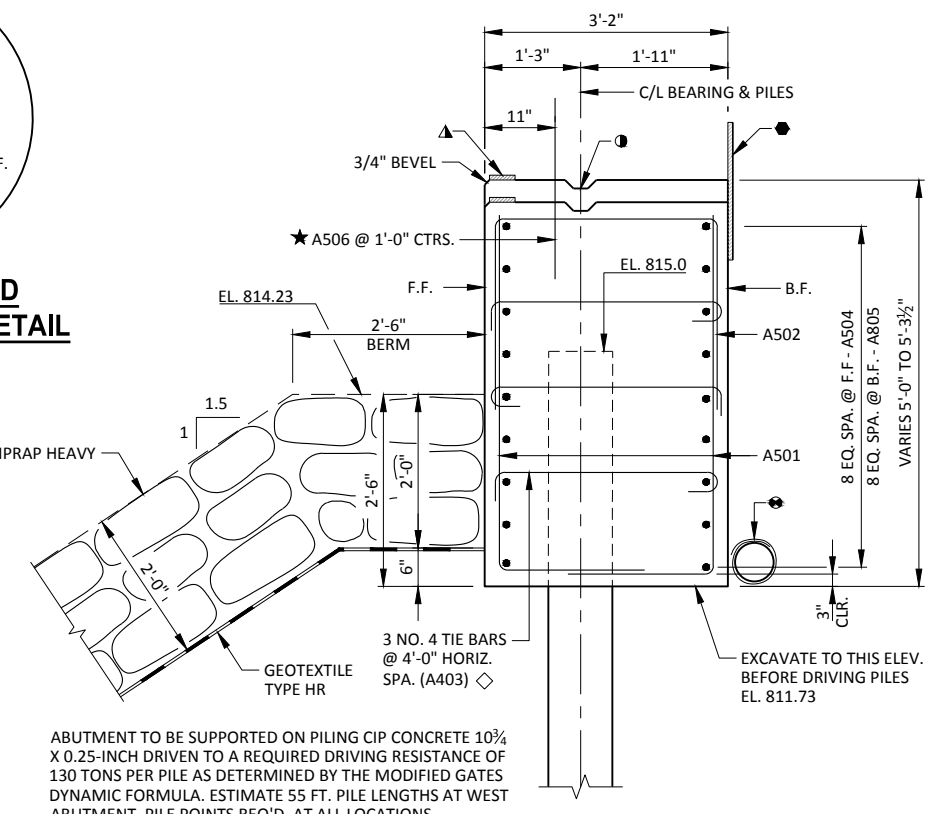
ELEVATION
(WEST ABUTMENT LOOKING WEST)



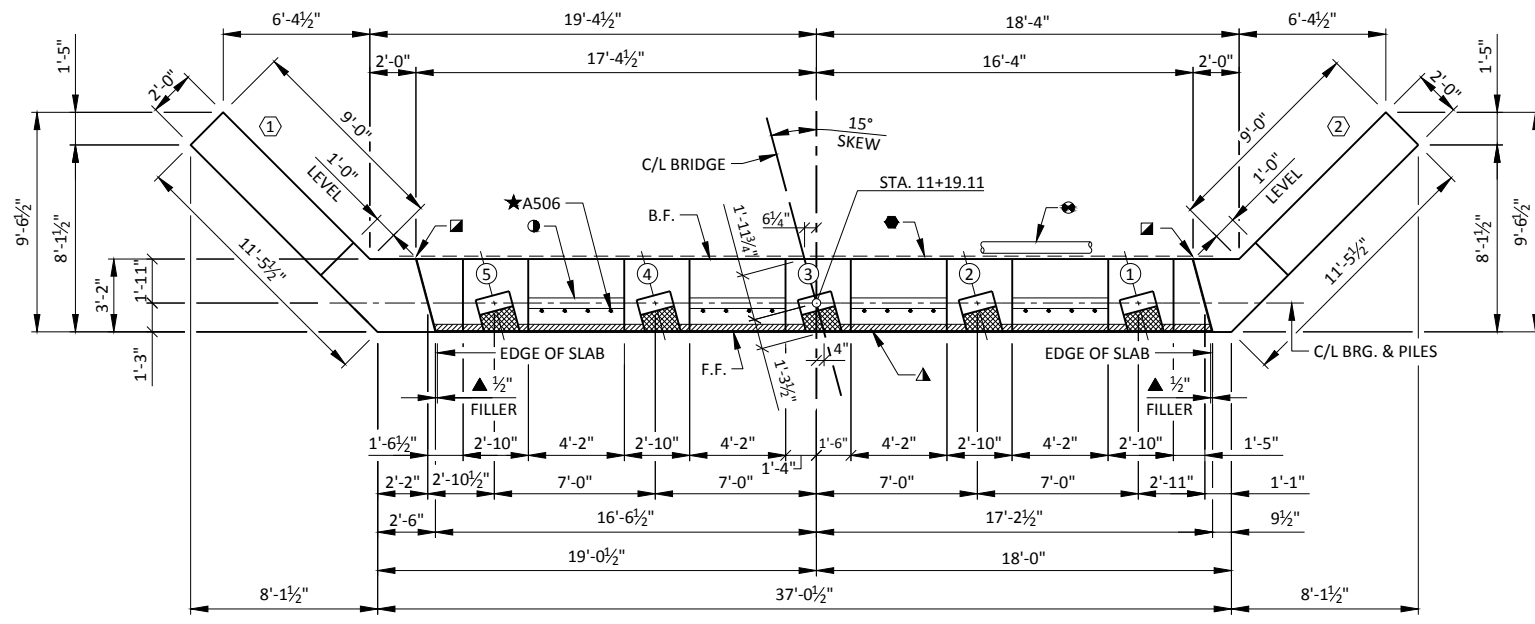
NAME PLATE AND BENCHMARK CAP DETAIL
(WING 1 ONLY)

NOTES

- SOME BARS HAVE BEEN OMITTED FOR CLARITY. SEE SHEET 5 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



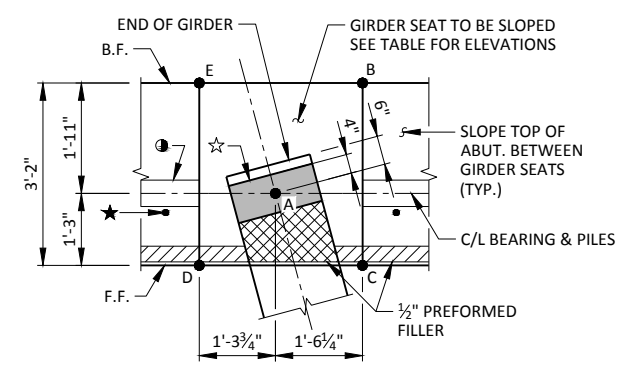
PLAN

GIRDER SEAT ELEVATIONS

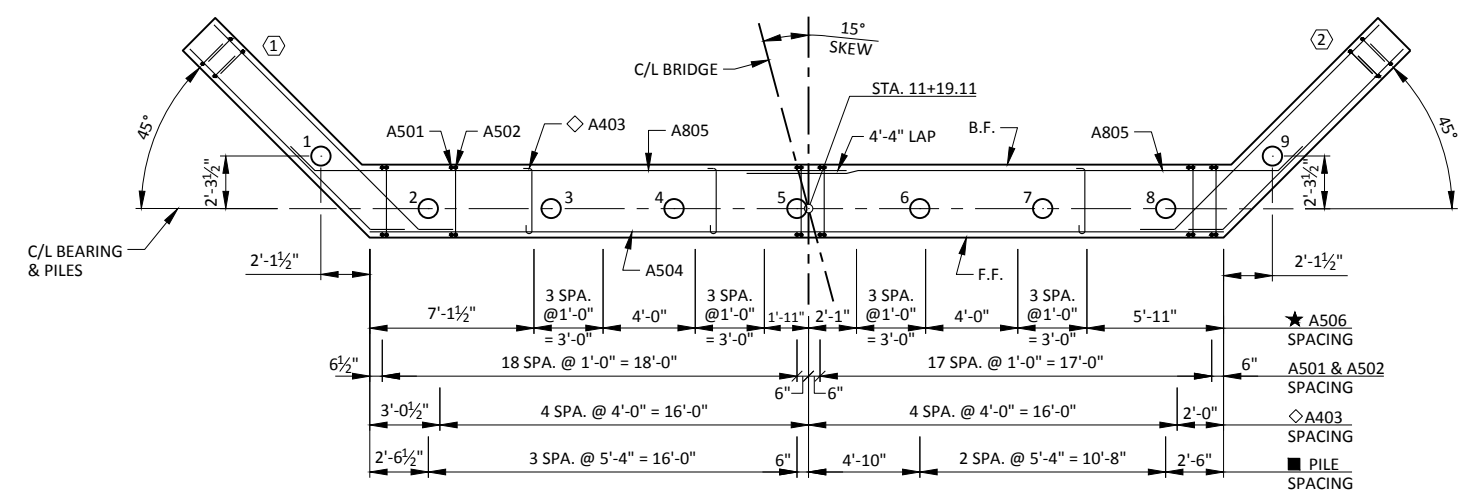
GIRDER NUMBER	POINT ON GIRDER SEAT				
	A	B	C	D	E
①	816.78	816.75	816.82	816.80	816.73
②	816.90	816.87	816.94	816.92	816.85
③	817.02	817.99	816.06	817.04	817.97
④	816.88	816.85	816.92	816.90	816.83
⑤	816.73	816.70	816.76	816.75	816.68

LEGEND

- ① KEYED CONSTRUCTION JOINT FORMED BY SURFACED & BEVELED 2x6.
- VERTICAL 18" RUBBERIZED MEMBRANE WATERPROOFING EXTEND FROM 9" BELOW BRIDGE SEAT TO 1" BELOW TOP OF WINGS.
- 18" RUBBERIZED MEMBRANE WATERPROOFING. (HORIZONTAL)
- ▲ 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)
- ▲ 1/2" x 4" PREFORMED FILLER, EXTEND FULL LENGTH OF ABUTMENTS BETWEEN EDGES OF DIAPHRAGM. USE 1/2" PREFORMED FILLER UNDER GIRDERS.
- ★ A506 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 ABUTMENT BODY.
- 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."
- ☆ 1/2"x8"x1'-6" ELASTOMERIC BEARING PAD.
- ◇ ALTERNATE THE POSITION OF THE 90° AND THE 180° BENDS AT EACH VERTICAL LAYER OF TIES.
- INDICATES WING NUMBER.

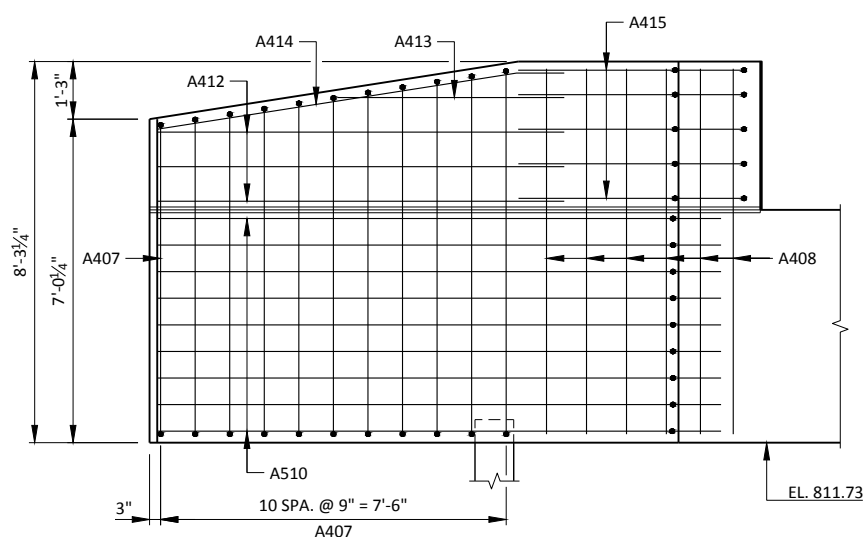


GIRDER SEAT DETAIL
INTERIOR GIRDER SHOWN.
EXTERIOR GIRDERS SIMILAR.

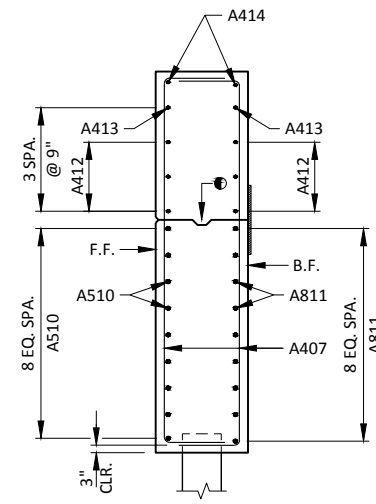


LAYOUT

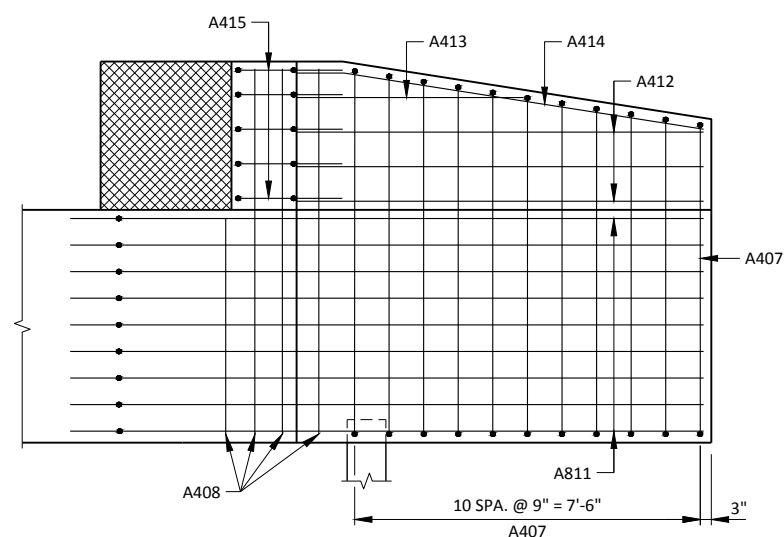
NO.	DATE	REVISION	BY
STRUCTURE B-13-876			
DRAWN BY		PMF	PLANS CK'D. PTB
WEST ABUTMENT			SHEET 4 OF 13



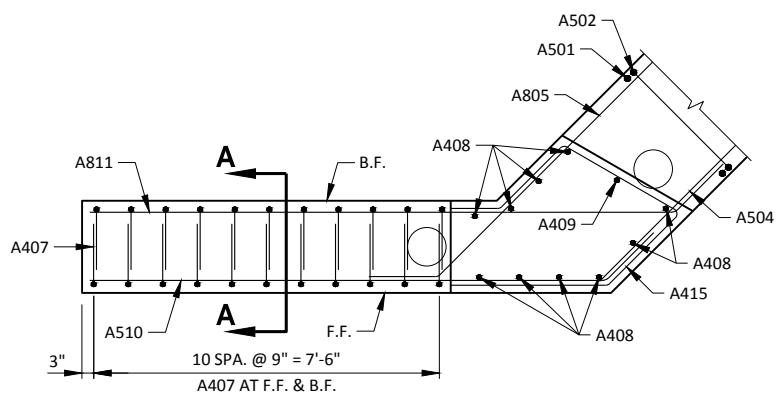
F.F. ELEVATION - WING 1



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".

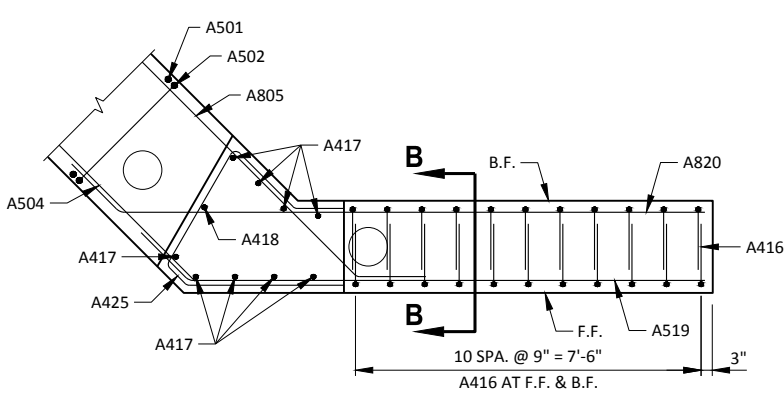
NOTES

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

SPACE REINFORCEMENT TO MISS PILING

F.F. - FRONT FACE

B.F. - BACK FACE



PLAN VIEW - WING 2

BILL OF BARS WEST ABUTMENT
1,520 LB (COATED)
2,430 LB (UNCOATED)

BAR MARK	NO. REQ'D.	LENGTH	BENT	COAT	BAR SERIES	LOCATION
A501	74	6-5	X			BODY - VERT. - F.F. & B.F.
A502	37	8-7	X			BODY - VERT. - TOP
A403	27	3-4	X			TIE BARS
A504	9	37-0				BODY - HORIZ. - F.F.
A805	18	24-11	X			BODY - HORIZ. - B.F.
A506	16	2-0		X		BODY - VERT. - DOWELS
A407	22	9-9	X	X	*	WING 1 - VERT. - F.F. & B.F.
A408	10	7-10		X		WING 1 - VERT.
A409	1	4-4		X		WING 1 - VERT. - TOP
A510	9	12-9	X	X		WING 1 - HORIZ. - F.F.
A811	9	14-4	X	X		WING 1 - HORIZ. - B.F.
A412	6	8-10		X		WING 1 - HORIZ. - F.F. & B.F. - TOP
A413	2	4-11		X		WING 1 - HORIZ. - F.F. & B.F. - TOP
A414	2	8-11	X	X		WING 1 - HORIZ. - F.F. & B.F. - TOP
A415	5	11-5	X	X		WING 1 - HORIZ. - TOP
A416	22	9-3	X	X	*	WING 2 - VERT. - F.F. & B.F.
A417	9	7-11		X		WING 2 - VERT.
A418	1	4-4		X		WING 2 - VERT. - TOP
A519	9	12-9	X	X		WING 2 - HORIZ. - F.F.
A820	9	14-4	X	X		WING 2 - HORIZ. - B.F.
A421	4	8-10		X		WING 2 - HORIZ. - F.F. & B.F. - TOP
A422	2	6-3		X		WING 2 - HORIZ. - F.F. & B.F. - TOP
A423	2	3-7		X		WING 2 - HORIZ. - F.F. & B.F. - TOP
A424	2	9-2	X	X		WING 2 - HORIZ. - F.F. & B.F. - TOP
A425	5	9-8	X	X		WING 2 - HORIZ. - TOP

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

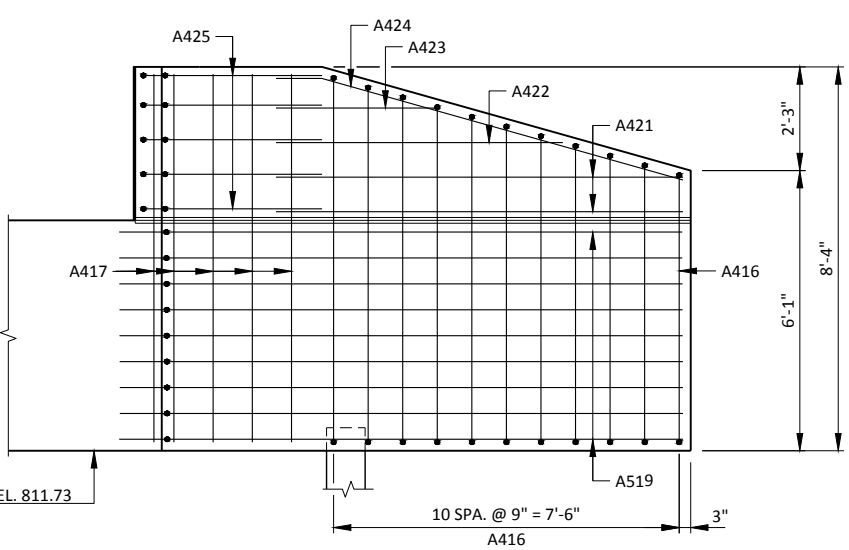
DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT OF BAR.

* LENGTH SHOWN IS AN AVERAGE LENGTH ONLY. SEE BAR SERIES TABLE FOR ACTUAL LENGTHS.

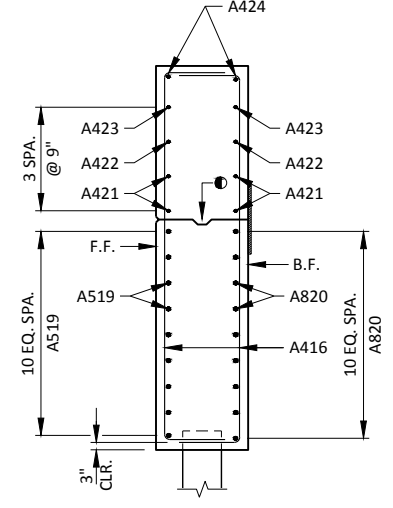
BAR SERIES TABLE

BAR MARK	NO. REQ'D.	LENGTH
A407	2 SERIES OF 11	10-4 TO 9-2
A416	2 SERIES OF 11	10-4 TO 8-2

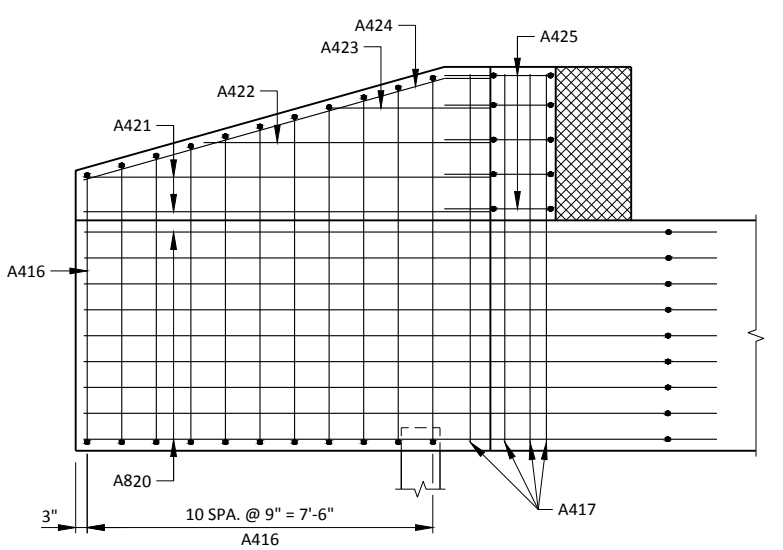
BUNDLE AND TAG EACH SERIES SEPARATELY.



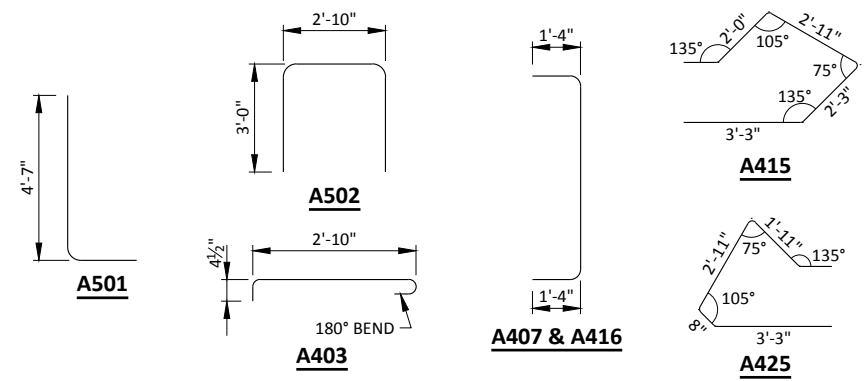
F.F. ELEVATION - WING 2



SECTION B-B



B.F. ELEVATION - WING 2

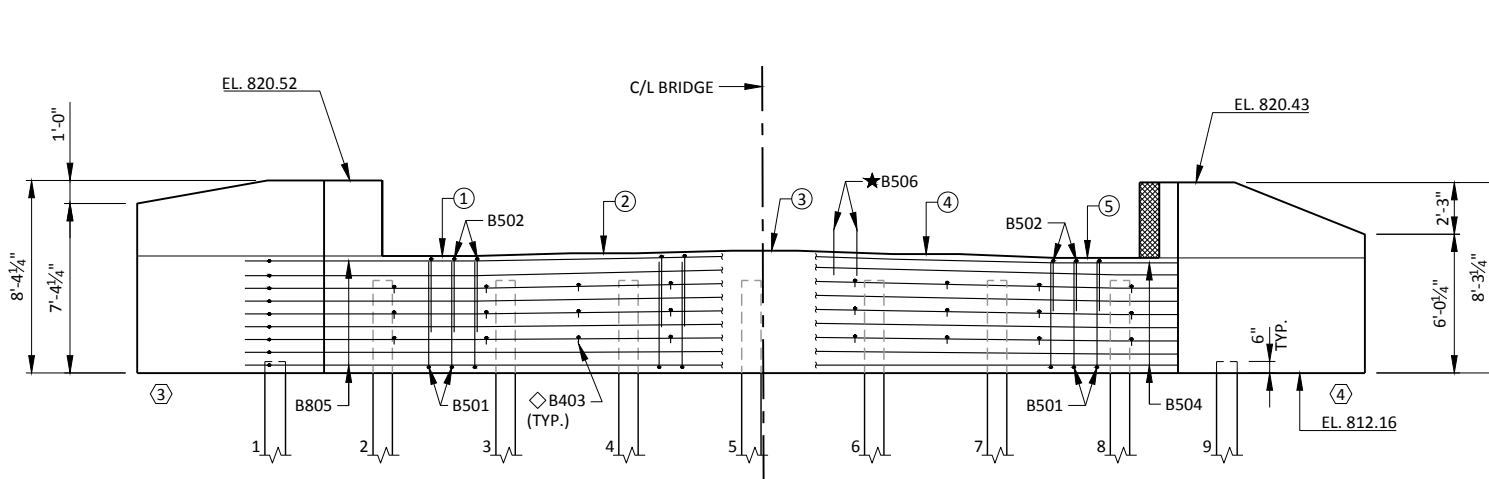


A805, A510, A811, A519 & A820

A414 & A424

MARK	'A'
A414	171'07'
A424	164'17'

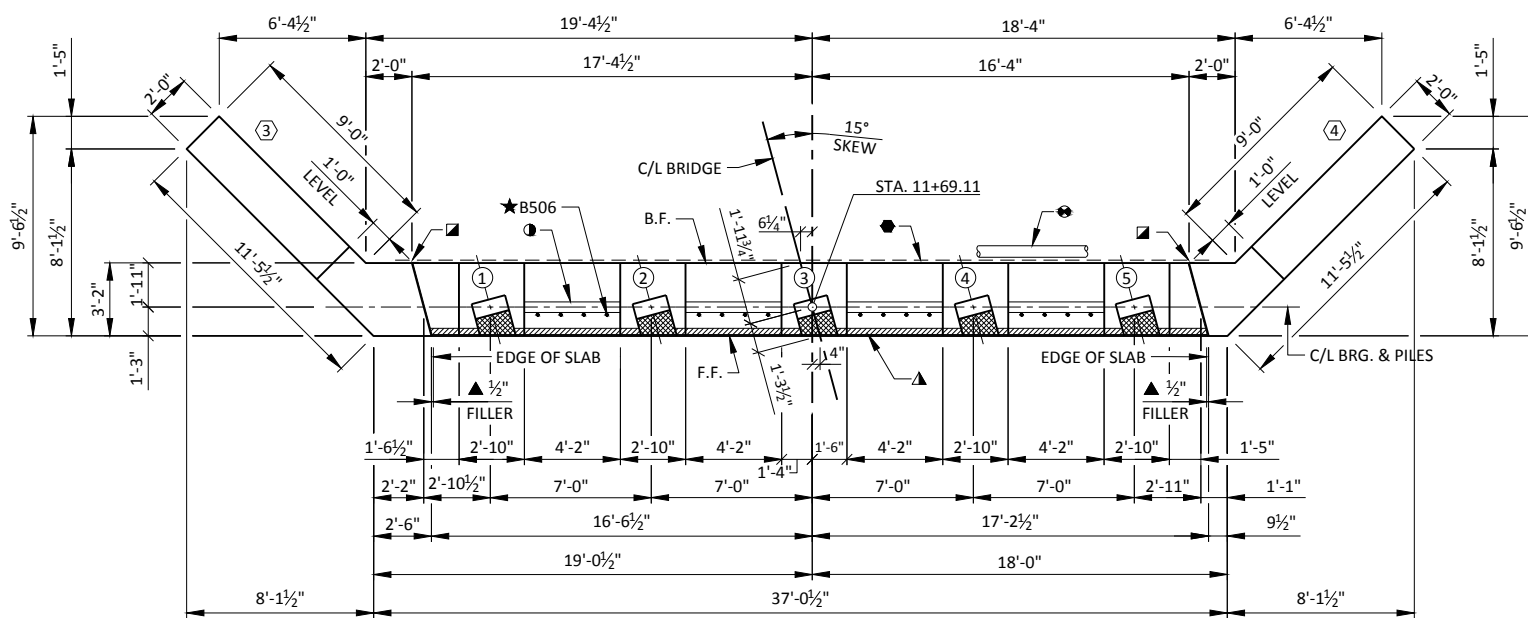
NO.	DATE	REVISION	BY
STRUCTURE B-13-876			
DRAWN BY		PMF	PLANS CK'D. PTB
WEST ABUTMENT DETAILS			SHEET 5 OF 13



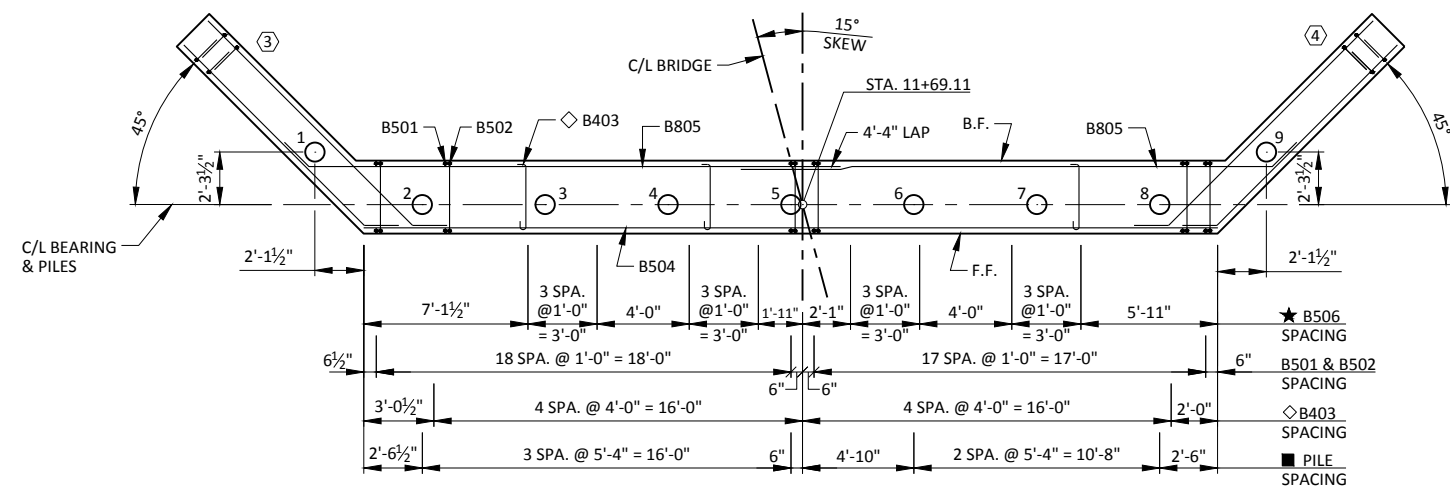
BACK FACE BAR STEEL REINF.

FRONT FACE BAR STEEL REINF.

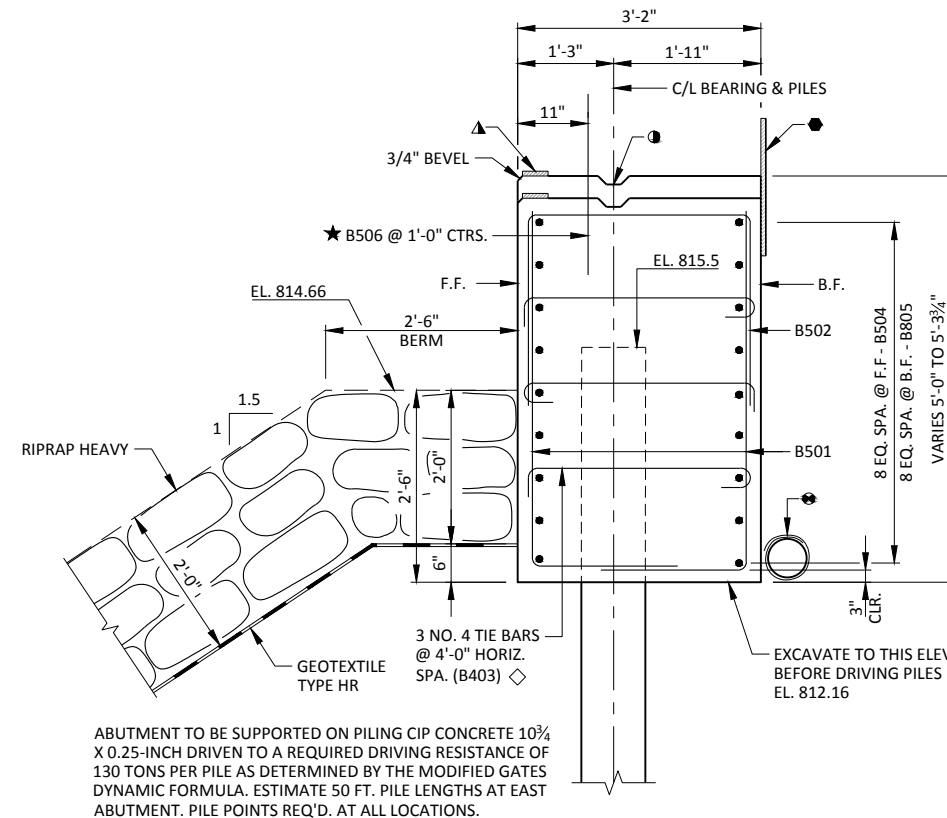
ELEVATION
(EAST ABUTMENT LOOKING EAST)



PLAN



LAYOUT



TYPICAL SECTION THROUGH ABUTMENT BODY

NOTES

SOME BARS HAVE BEEN OMITTED FOR CLARITY. SEE SHEET 7 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

ABUTMENT TO BE SUPPORTED ON PILING CIP CONCRETE 10 3/4 X 0.25-INCH DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 130 TONS PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA. ESTIMATE 50 FT. PILE LENGTHS AT EAST ABUTMENT. PILE POINTS REQ'D. AT ALL LOCATIONS.

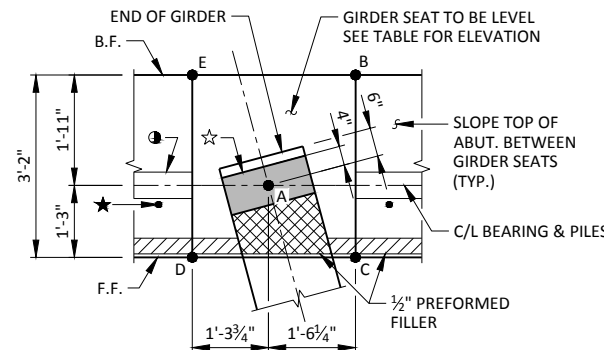
GIRDER SEAT ELEVATIONS

GIRDER NUMBER	POINT ON GIRDER SEAT				
	A	B	C	D	E
①	817.24	817.24	817.24	817.24	817.24
②	817.36	817.36	817.36	817.36	817.36
③	817.47	817.47	817.47	817.47	817.47
④	817.32	817.32	817.32	817.32	817.32
⑤	817.16	817.16	817.16	817.16	817.16

CALCULATED GIRDER SEAT SLOPES AT EAST ABUTMENT ARE <1% THEREFORE GIRDER SEATS ARE SHOWN LEVEL.

LEGEND

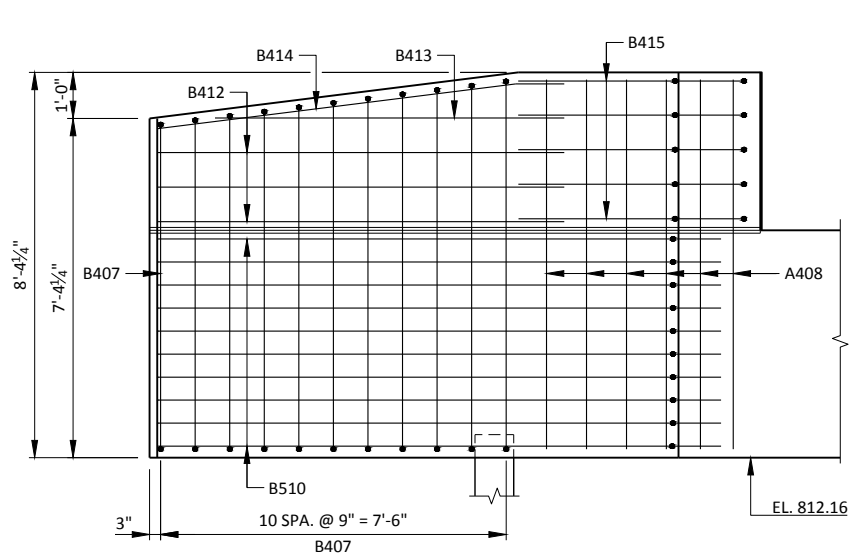
- ① KEYED CONSTRUCTION JOINT FORMED BY SURFACED & BEVELED 2x6.
- VERTICAL 18" RUBBERIZED MEMBRANE WATERPROOFING EXTEND FROM 9" BELOW BRIDGE SEAT TO 1" BELOW TOP OF WINGS.
- 18" RUBBERIZED MEMBRANE WATERPROOFING. (HORIZONTAL)
- ▲ 1/2" FILLER EXTEND AS SHOWN. SEAL ALL EXPOSED HORIZ. & VERT. SURFACES OF FILLER WITH NON-STAINING GRAY, NON-BITUMINOUS JOINT SEALER. (1" DEEP & HOLD 1/8" BELOW SURFACE OF CONCRETE)
- ▲ 1/2" x 4" PREFORMED FILLER, EXTEND FULL LENGTH OF ABUTMENTS BETWEEN EDGES OF DIAPHRAGM. USE 1/2" PREFORMED FILLER UNDER GIRDERS.
- ★ B506 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 ABUTMENT BODY.
- 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."
- ☆ 1/2"x8"x1'-6" ELASTOMERIC BEARING PAD.
- ◇ ALTERNATE THE POSITION OF THE 90° AND THE 180° BENDS AT EACH VERTICAL LAYER OF TIES.
- INDICATES WING NUMBER.



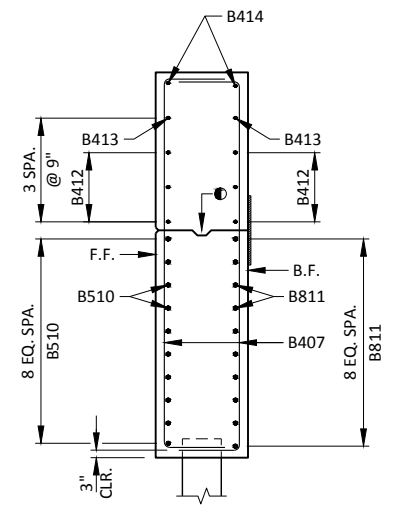
GIRDER SEAT DETAIL

INTERIOR GIRDER SHOWN.
EXTERIOR GIRDERS SIMILAR.

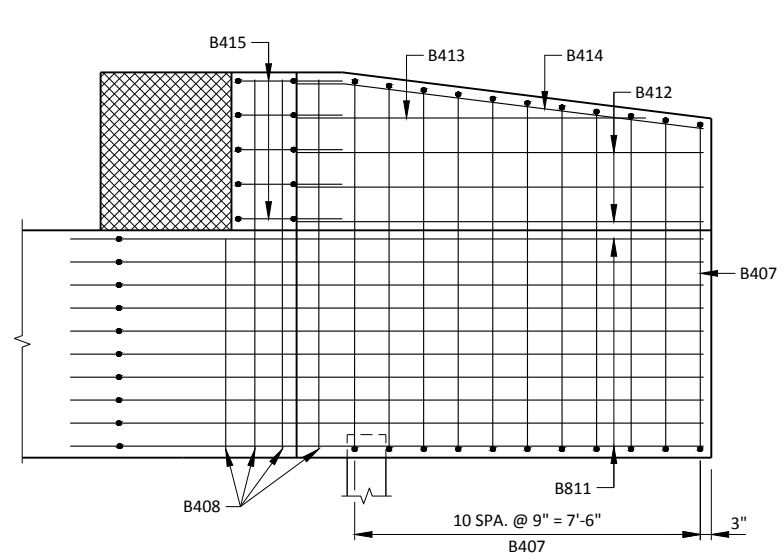
NO.	DATE	REVISION	BY
STRUCTURE B-13-876			
DRAWN BY		PMF	PLANS CKD. PTB
EAST ABUTMENT			SHEET 6 OF 13



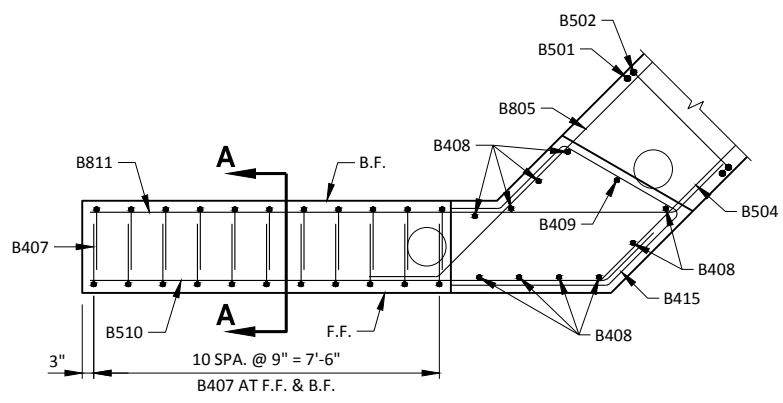
F.F. ELEVATION - WING 3



SECTION A-A



B.F. ELEVATION - WING 3



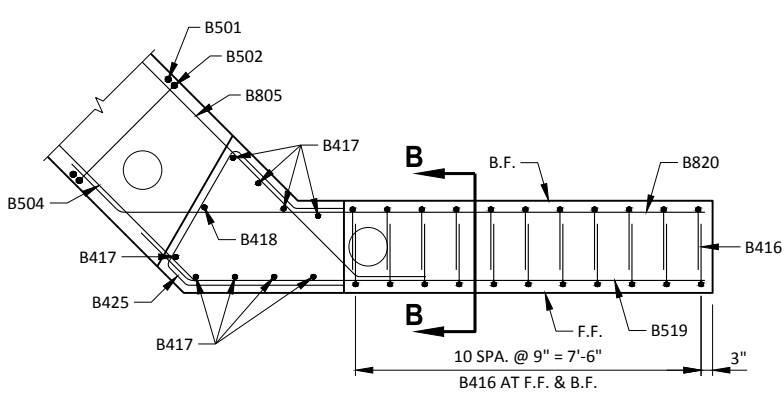
PLAN VIEW - WING 3

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".

NOTES

SOME BARS HAVE BEEN OMITTED FOR CLARITY. SEE THIS SHEET FOR BILL OF BARS.
SPACE REINFORCEMENT TO MISS PILING
F.F. - FRONT FACE
B.F. - BACK FACE



PLAN VIEW - WING 4

BILL OF BARS EAST ABUTMENT

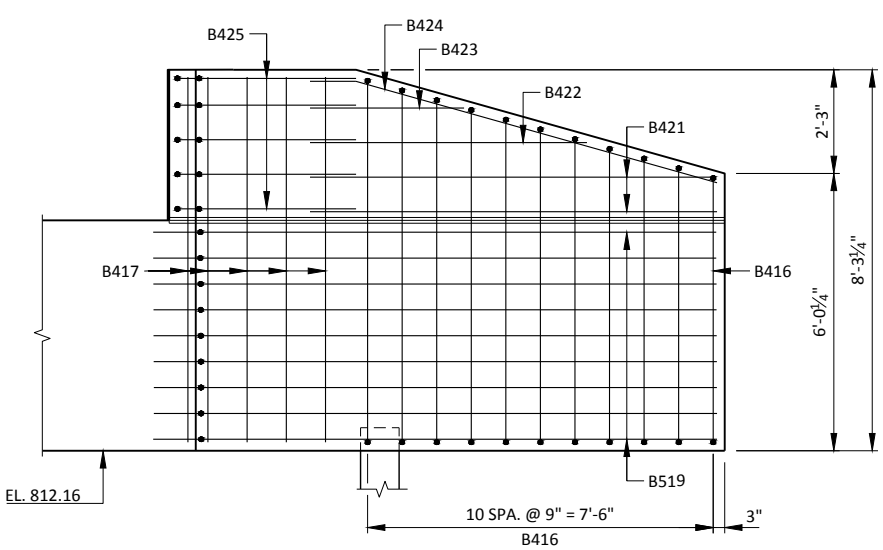
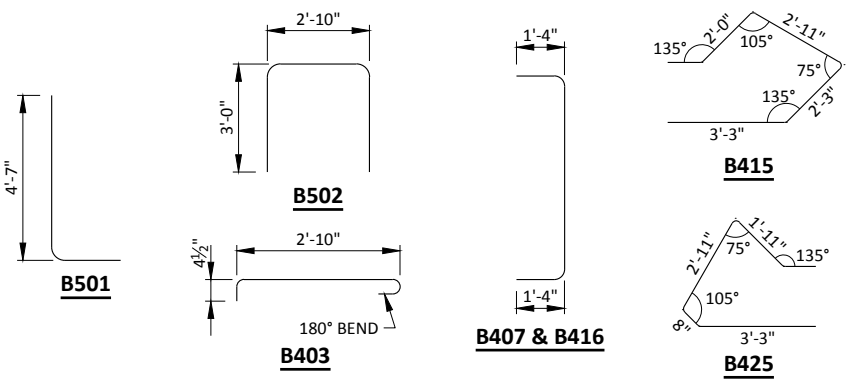
BAR MARK	NO. REQ'D.	LENGTH	BENT	COAT	BAR SERIES	1,530 LB (COATED)		2,430 LB (UNCOATED)	
						NO.	WT.	NO.	WT.
B501	74	6-5	X						BODY - VERT. - F.F. & B.F.
B502	37	8-7	X						BODY - VERT. - TOP
B403	27	3-4	X						TIE BARS
B504	9	37-0							BODY - HORIZ. - F.F.
B805	18	24-11	X						BODY - HORIZ. - B.F.
B506	16	2-0		X					BODY - VERT. - DOWELS
B407	22	10-0	X	X	*				WING 4 - VERT. - F.F. & B.F.
B408	10	7-11		X					WING 3 - VERT.
B409	1	4-4		X					WING 3 - VERT. - TOP
B510	9	12-9	X	X					WING 3 - HORIZ. - F.F.
B811	9	14-4	X	X					WING 3 - HORIZ. - B.F.
B412	6	8-10		X					WING 3 - HORIZ. - F.F. & B.F. - TOP
B413	2	7-7		X					WING 3 - HORIZ. - F.F. & B.F. - TOP
B414	2	8-11	X	X					WING 3 - HORIZ. - F.F. & B.F. - TOP
B415	5	11-5	X	X					WING 3 - HORIZ. - TOP
B416	22	9-2	X	X	*				WING 4 - VERT. - F.F. & B.F.
B417	9	7-10		X					WING 4 - VERT.
B418	1	4-4		X					WING 4 - VERT. - TOP
B519	9	12-9	X	X					WING 4 - HORIZ. - F.F.
B820	9	14-4	X	X					WING 4 - HORIZ. - B.F.
B421	4	8-10		X					WING 4 - HORIZ. - F.F. & B.F. - TOP
B422	2	6-1		X					WING 4 - HORIZ. - F.F. & B.F. - TOP
B423	2	3-5		X					WING 4 - HORIZ. - F.F. & B.F. - TOP
B424	2	9-2	X	X					WING 4 - HORIZ. - F.F. & B.F. - TOP
B425	5	9-8	X	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.
* LENGTH SHOWN IS AN AVERAGE LENGTH ONLY. SEE BAR SERIES TABLE FOR ACTUAL LENGTHS.

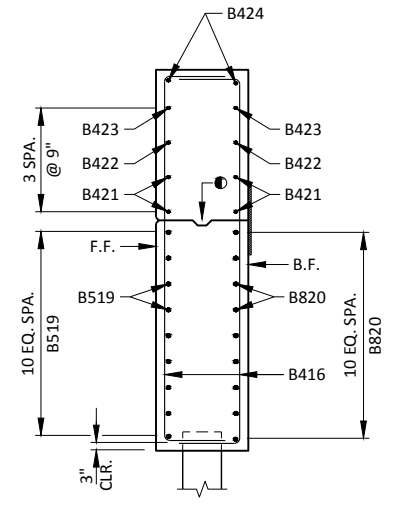
BAR SERIES TABLE

BAR MARK	NO. REQ'D.	LENGTH
B407	2 SERIES OF 11	10-5 TO 9-7
B416	2 SERIES OF 11	10-3 TO 8-1

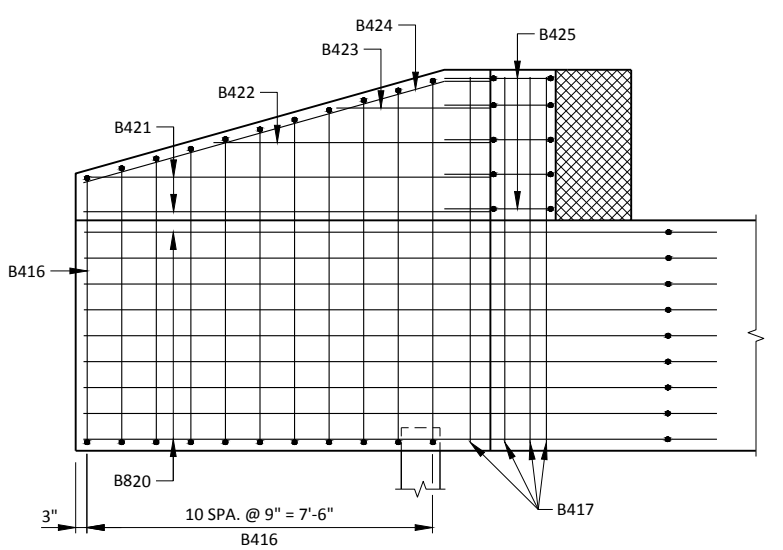
BUNDLE AND TAG EACH SERIES SEPARATELY.



F.F. ELEVATION - WING 4



SECTION B-B

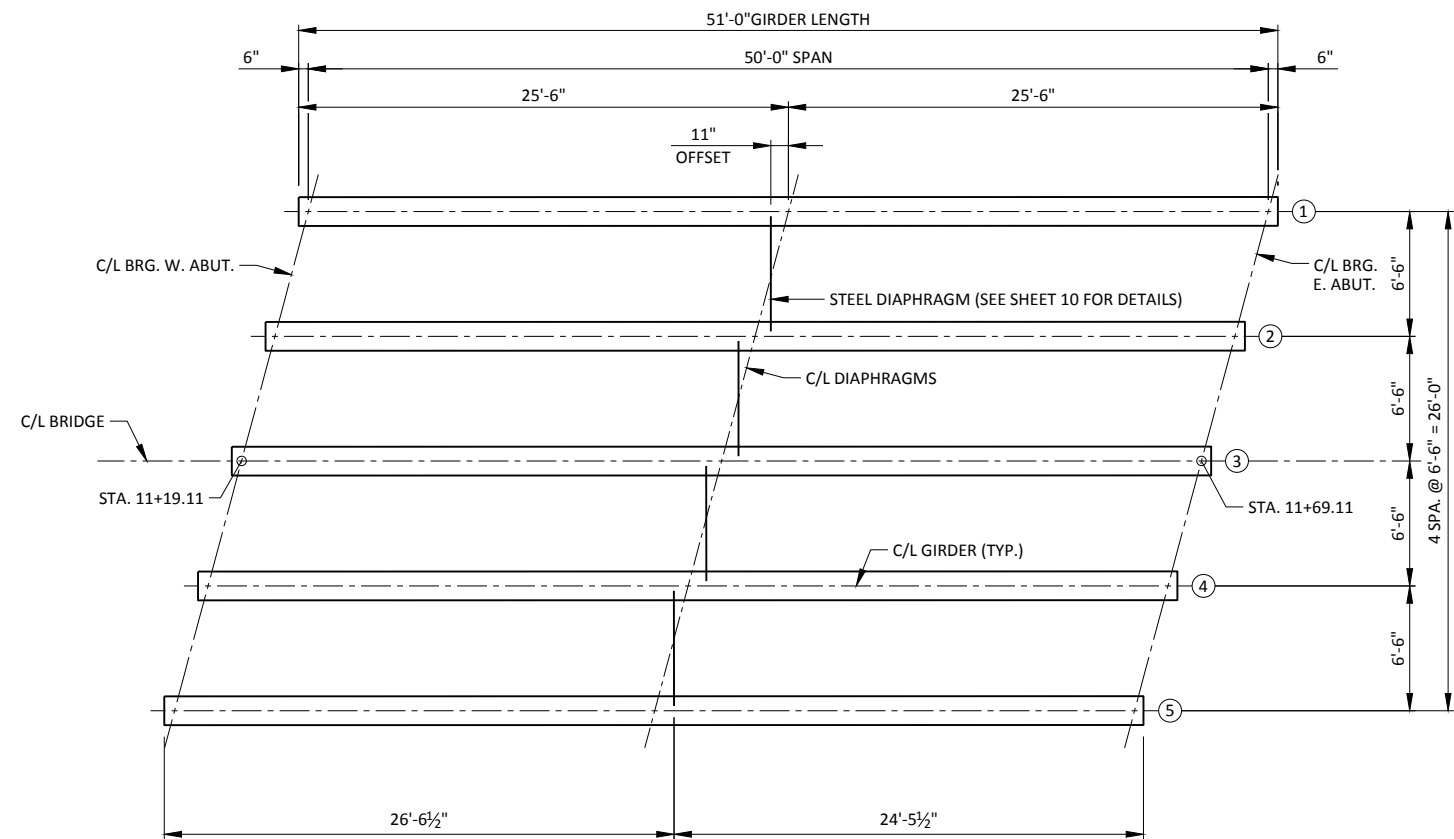


B.F. ELEVATION - WING 4

B414 & B424

MARK	'A'
B414	171°07'
B424	164°17'

NO.	DATE	REVISION	BY
STRUCTURE B-13-876			
DRAWN BY: PMF		PLANS CK'D: PTB	
EAST ABUTMENT DETAILS			SHEET 7 OF 13



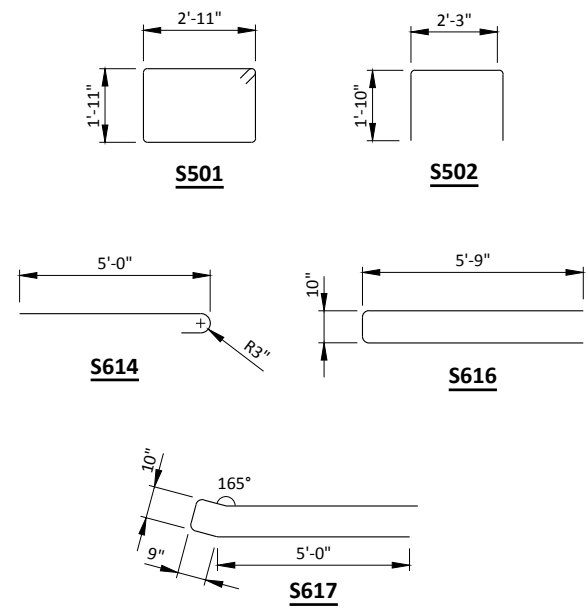
GIRDER LAYOUT

**BILL OF BARS
SUPERSTRUCTURE**

10,890 LB (COATED)

BAR MARK	NO. REQ'D.	LENGTH	BENT	COAT	LOCATION
S501	76	10-0	X	X	ABUT. DIAPHRAGM - VERT.
S502	76	5-8	X	X	ABUT. DIAPHRAGM - VERT. - TOP
S603	8	1-9		X	ABUT. DIAPHRAGM - HORIZ. - FRONT - ENDS
S604	4	2-3		X	ABUT. DIAPHRAGM - HORIZ. - FRONT - ENDS
S605	16	5-1		X	ABUT. DIAPHRAGM - HORIZ. FRONT
S606	8	6-2		X	ABUT. DIAPHRAGM - HORIZ. FRONT
S607	10	33-3		X	ABUT. DIAPHRAGM - HORIZ. - BACK
S408	99	33-3		X	DECK - TOP - TRANSVERSE
S409	98	33-3		X	DECK - BOTTOM - TRANSVERSE
S410	42	52-2		X	DECK - TOP - LONGITUDINAL
S411	4	53-7		X	DECK - TOP - LONGITUDINAL - EDGES
S412	43	52-2		X	DECK - BOTTOM - LONGITUDINAL
S413	4	53-7		X	DECK - BOTTOM - LONGITUDINAL - EDGES
S614	16	6-0	X	X	DECK - RAIL POSTS - ENDS
S615	56	6-0		X	DECK - RAIL POSTS - INTERIOR
S616	32	12-0	X	X	DECK - RAIL POSTS - ENDS
S617	4	12-0	X	X	DECK - RAIL POSTS

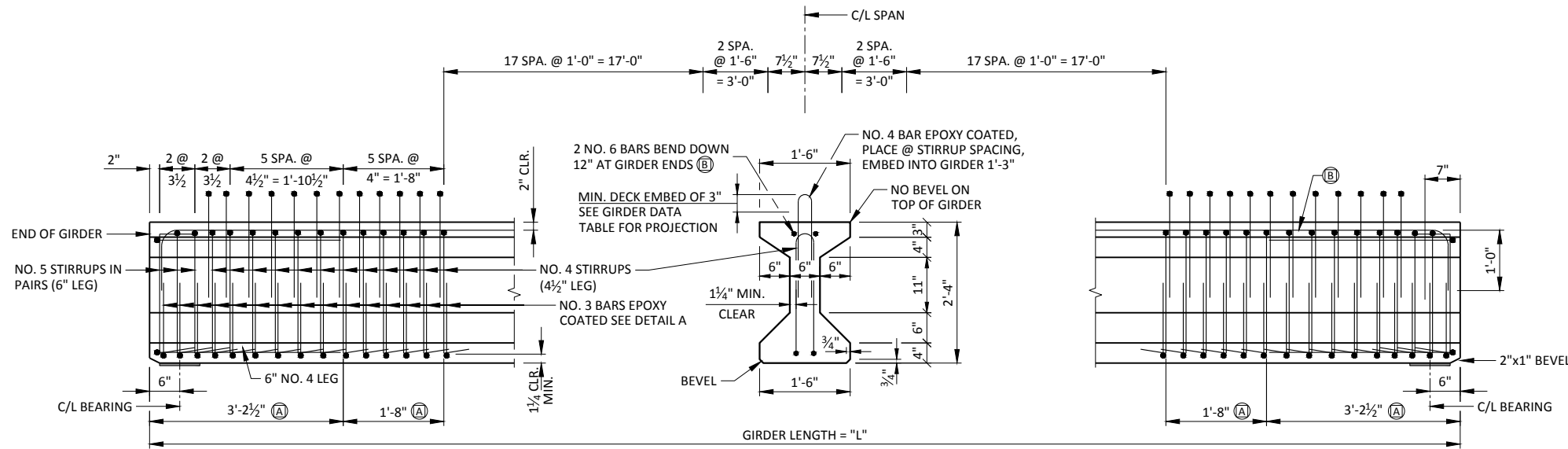
NOTES: THE FIRST DIGIT OF A BAR MARK SIGNIFIES THE BAR SIZE.
DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT OF BAR.



8

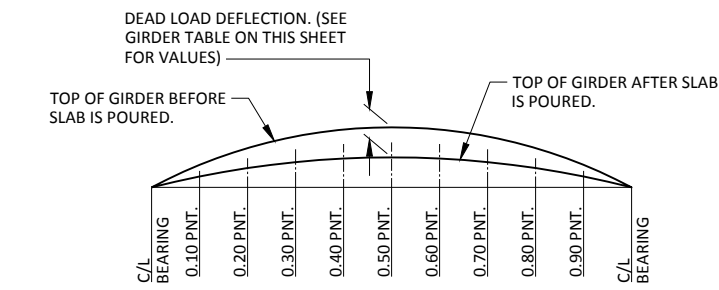
8

NO.	DATE	REVISION	BY
STRUCTURE B-13-876			
DRAWN BY		PMF	PLANS CK'D. PTB
GIRDER LAYOUT			SHEET 8 OF 13

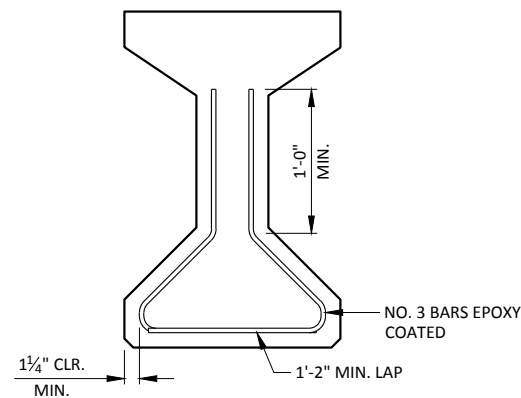


36-INCH GIRDER - SIDE VIEW & TYP. SECTION IN SPAN

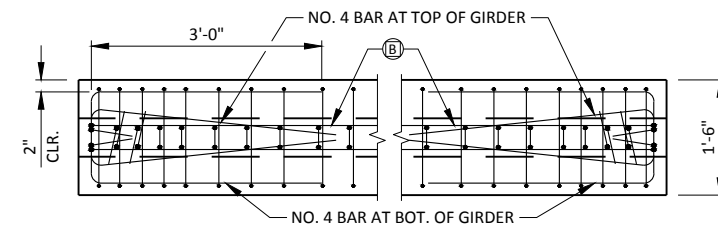
(A) DETAIL TYP. AT EACH END



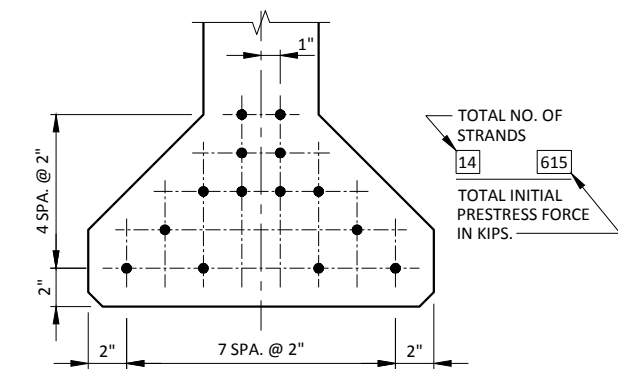
DEAD LOAD DEFLECTION DIAGRAM



DETAIL A



TOP VIEW OF GIRDER ENDS



TYP. STRAND PATTERN

GIRDER NOTES

TOP OF GIRDER TO BE ROUGH FLOATED AND BROOMED TRANSVERSELY, EXCEPT THE OUTSIDE 2" OF GIRDER, WHICH SHALL RECEIVE A SMOOTH FINISH. AN APPROVED CONCRETE SEALER SHALL BE APPLIED TO ALL SMOOTH SURFACES INCLUDING THE OUTSIDE 2" OF THE TOP FLANGE.

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

ALL GIRDERS SHALL BE CAST FULL LENGTH AS SHOWN.

PRESTRESSING STRANDS SHALL BE 0.6-INCH DIAMETER 7-WIRE LOW-RELAXATION STRANDS WITH AN ULTIMATE STRENGTH OF 270 KSI.

STRANDS SHALL BE FLUSH WITH THE ENDS OF THE GIRDER. FOR GIRDER ENDS EMBEDDED COMPLETELY IN CONCRETE, END OF STRANDS SHALL BE COATED WITH NON-BITUMINOUS JOINT SEALER.

SPACING SHOWN FOR NO. 4 STIRRUPS IS FOR GRADE 60 REINFORCEMENT.

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

FOR DIAPHRAGM INSERT & CONNECTION DETAILS SEE SHEET 10.

DATA SHOWN IN DEFLECTION DATA IS THEORETICAL AND MAY VARY WITH CONCRETE STRENGTH, VARIABLE PRESTRESS CONDITIONS AND PRESTRESS LOSSES.

AN AVERAGE HAUNCH HEIGHT OF 2.6" WAS USED IN THE QUANTITY "CONCRETE MASONRY BRIDGES".

THE THEORETICAL INITIAL CAMBER VALUE AT THE TIME OF STRAND RELEASE AT MIDSPAN

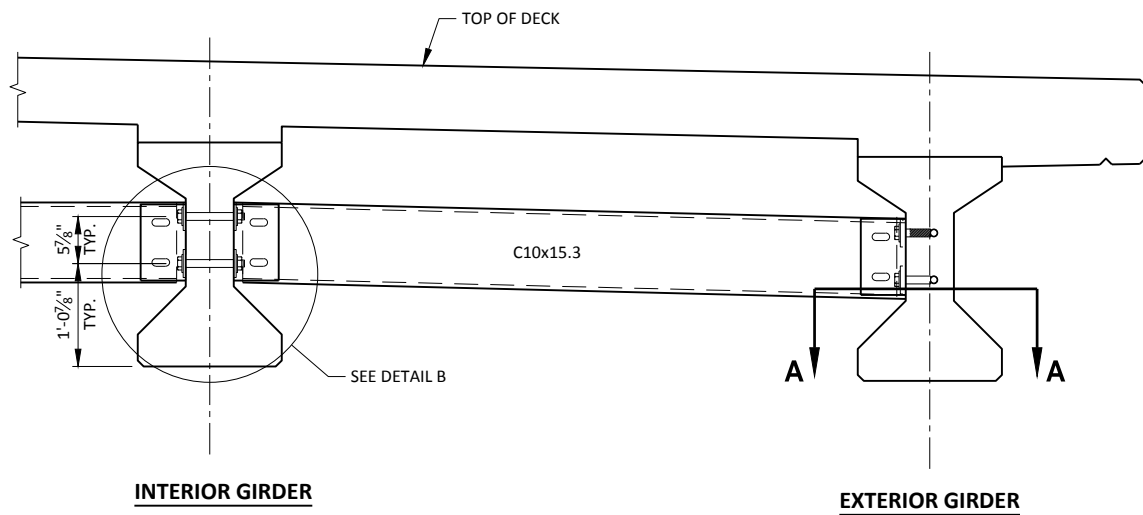
SPAN	CAMBER (IN.)
1	1.54"

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

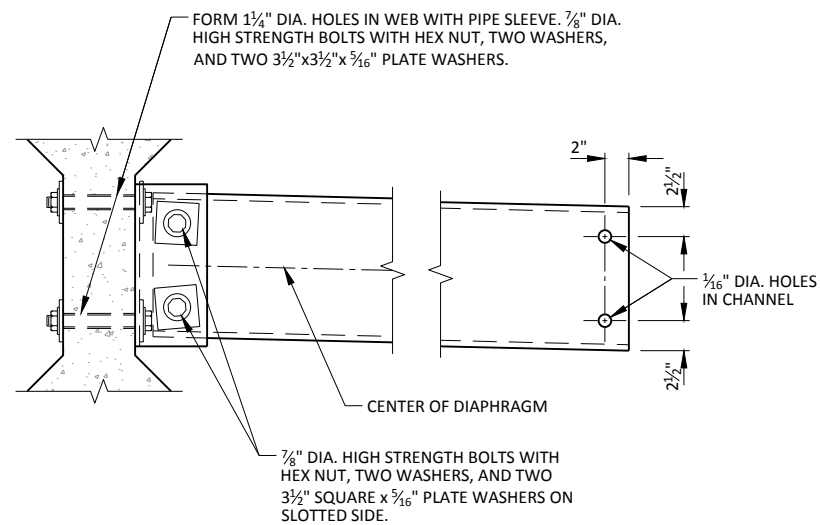
GIRDER LENGTH "L"	QUANT.	DEAD LOAD DEFLECTION									CONC. STRENGTH f'c Ksi	STIRRUP PROJECTION "P"			DIA. OF STRAND (IN.)	NO. 6 "B" BARS MAY BE SPLICED, USE 53" MIN. LAP.								GIRDER NO.
		0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90		1ST 1/3	MID. 1/3	END 1/3		DRAPED PATTERN				UNDRAINED PATTERN				
																TOTAL NO. OF STRANDS	f'ci Ksi *	(INCHES)				TOTAL NO. OF STRANDS	f'ci Ksi *	
51'-0"	5	3/8"	3/8"	1/2"	1/2"	1/2"	1/2"	1/2"	3/8"	1/8"	8	6"	6"	6"	0.6	--	--	--	--	--	14	6.2	1-5	

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

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28-INCH PRESTRESSED GIRDER DETAILS			SHEET 9 OF 13



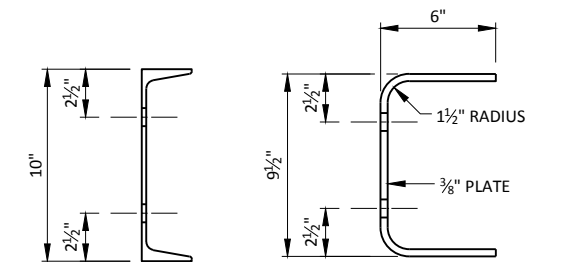
PART TRANSVERSE SECTION AT DIAPHRAGM



DETAIL B
(FOR STAGGERED DIAPHRAGMS)

NOTES

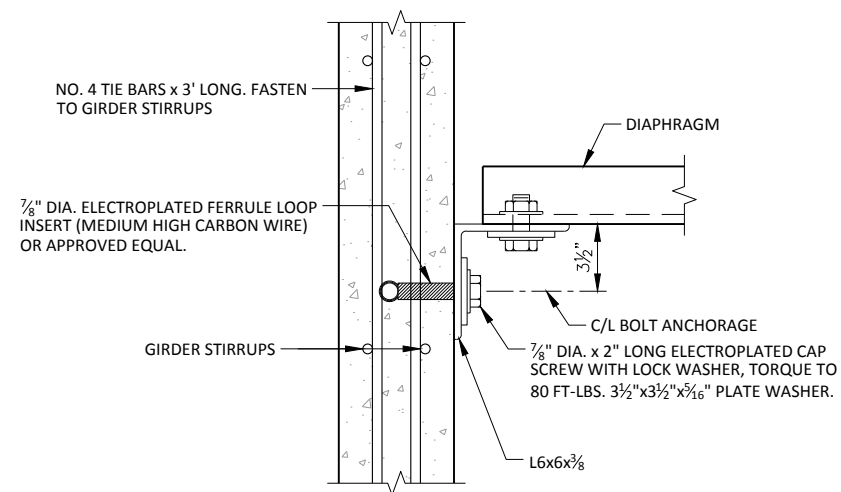
- ALL DIAPHRAGM MATERIAL NOT EMBEDDED IN THE CONCRETE GIRDER SHALL BE PAID FOR AT THE UNIT PRICE BID FOR "STEEL DIAPHRAGMS B-13-876", EACH.
- EACH DIAPHRAGM BETWEEN GIRDERS SHALL CONSTITUTE ONE UNIT.
- ALL DIAPHRAGM STRUCTURAL STEEL SHALL BE ASTM A709 GRADE 36.
- ALL DIAPHRAGM MATERIAL INCLUDING BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED AFTER FABRICATION.
- STEEL DIAPHRAGM TO CONCRETE WEB CONNECTION SHALL BE SNUG-TIGHT PLUS 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 AT MID-LENGTH OF GIRDER AS INDICATED ON SHEET 8.



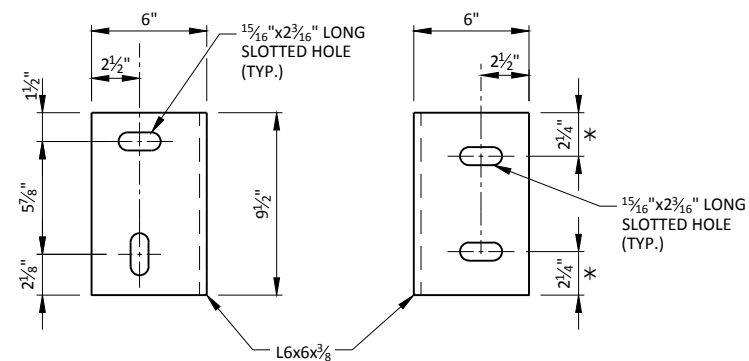
C10x15.3

ALTERNATE DIAPHRAGM

SECTION THROUGH DIAPHRAGM



SECTION A-A
(FOR EXTERIOR ATTACHMENT)



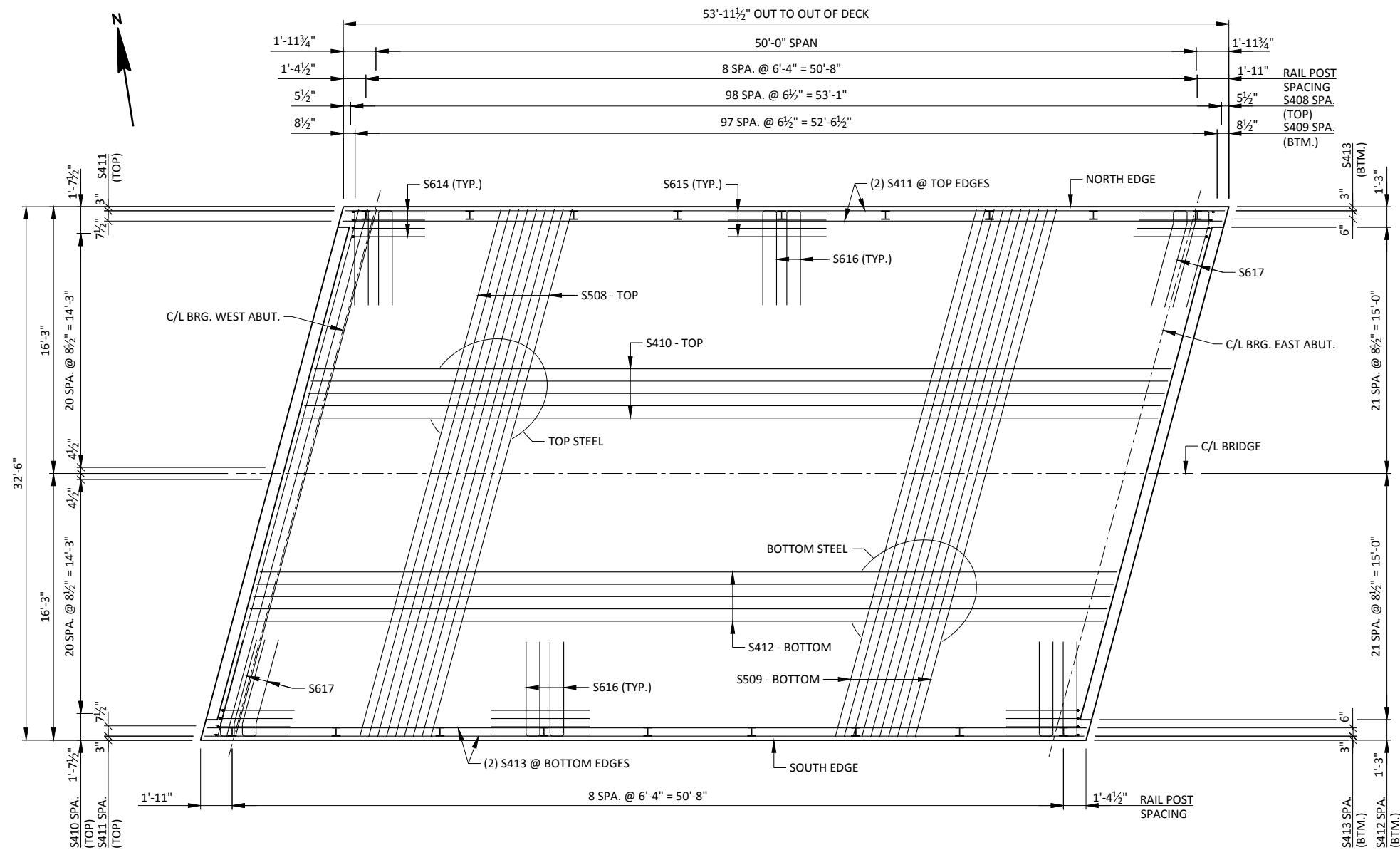
GIRDER FACE

DIAPHRAGM FACE

DIAPHRAGM SUPPORT

* 2 1/2" FOR ALTERNATE PLATE DIAPHRAGM

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STEEL DIAPHRAGM			SHEET 10 OF 13



PLAN

TOP OF DECK ELEVATIONS

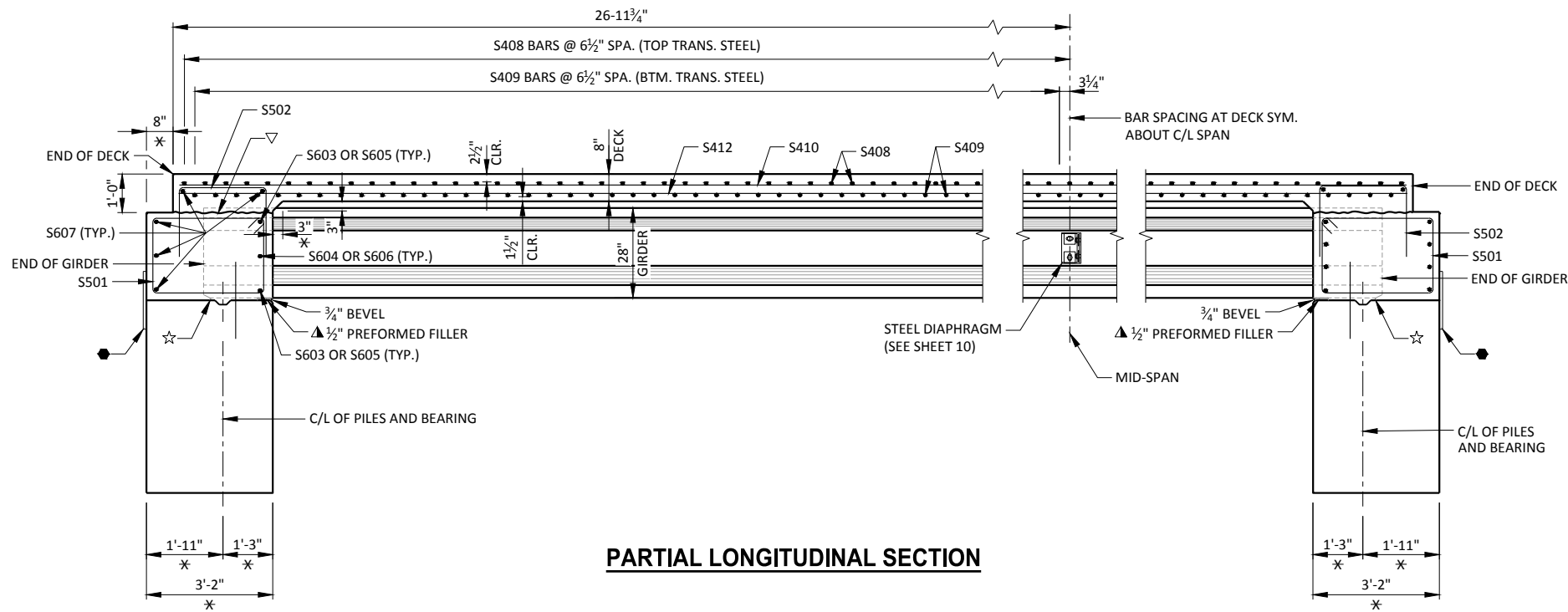
GIRDER LINE	C/L W. ABUT.	0.10 PNT.	0.20 PNT.	0.30 PNT.	0.40 PNT.	0.50 PNT.	0.60 PNT.	0.70 PNT.	0.80 PNT.	0.90 PNT.	C/L E. ABUT.
N. EDGE	820.06	820.09	820.13	820.17	820.22	820.26	820.31	820.36	820.42	820.47	820.52
1	820.11	820.14	820.18	820.22	820.27	820.31	820.36	820.41	820.46	820.52	820.57
2	820.23	820.26	820.30	820.34	820.39	820.43	820.48	820.53	820.58	820.63	820.69
3	820.35	820.39	820.42	820.46	820.51	820.55	820.60	820.65	820.70	820.75	820.80
4	820.21	820.24	820.27	820.31	820.36	820.40	820.44	820.49	820.54	820.60	820.65
5	820.06	820.09	820.13	820.16	820.21	820.25	820.29	820.34	820.39	820.44	820.49
S. EDGE	820.00	820.03	820.07	820.10	820.14	820.19	820.23	820.28	820.33	820.38	820.43

SURVEY TOP OF DECK ELEVATIONS

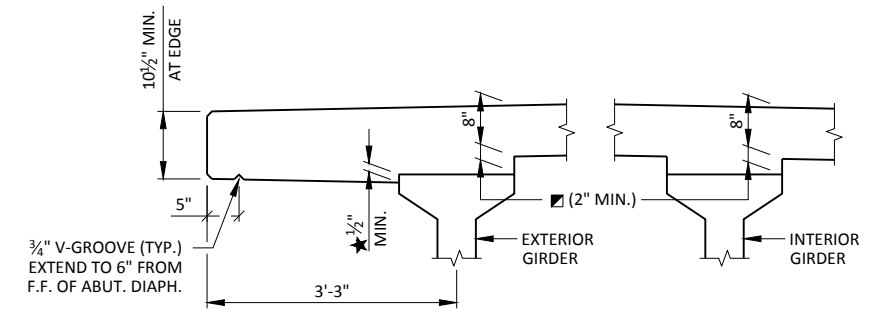
	W. ABUT.	0.50 PT.	E. ABUT.
NORTH EDGE OF DECK			
CENTER LINE			
SOUTH EDGE OF DECK			

PRIOR TO RELEASING SLAB FASLEWORK, TAKE TOP OF DECK ELEVATIONS AT THE C/L OF THE ABUTMENTS AND AT 0.50 PTS. TO VERIFY CAMBER. TAKE ELEVATIONS ALONG THE EDGE OF DECK AND CENTER LINE. RECORD THE ELEVATIONS IN THE ABOVE TABLE FOR THE "AS BUILT" PLANS.

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SUPERSTRUCTURE			SHEET 11 OF 13



PARTIAL LONGITUDINAL SECTION



IF 2" MINIMUM HAUNCH HEIGHT "H" CANNOT BE MAINTAINED, THE GRADE LINE MAY BE REVISED BY THE ENGINEER AT THE OPTION OF THE CONTRACTOR. THE PLAN SLAB THICKNESS SHALL BE HELD. MAXIMUM HAUNCH HEIGHT EQUALS "STIRRUP PROJECTION" MINUS 3".

TO DETERMINE "H" (AFTER GIRDERS ARE IN PLACE):
 OBTAIN THE ELEVATIONS OF THE TOP OF GIRDER AT THE C/L OF SUBSTRUCTURE UNITS AND AT EACH 1/10 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
 - SLAB THICKNESS
 = HAUNCH HEIGHT "H"

NOTE: AN AVERAGE HAUNCH "H" OF 2.6" WAS USED IN THE QUANTITY "CONCRETE MASONRY BRIDGES".

★ SLAB THICKNESS SHALL BE INCREASED AS NECESSARY TO CONCEAL INTERSECTION OF SLAB AND TOP OF GIRDER AT ALL FACIA GIRDERS.

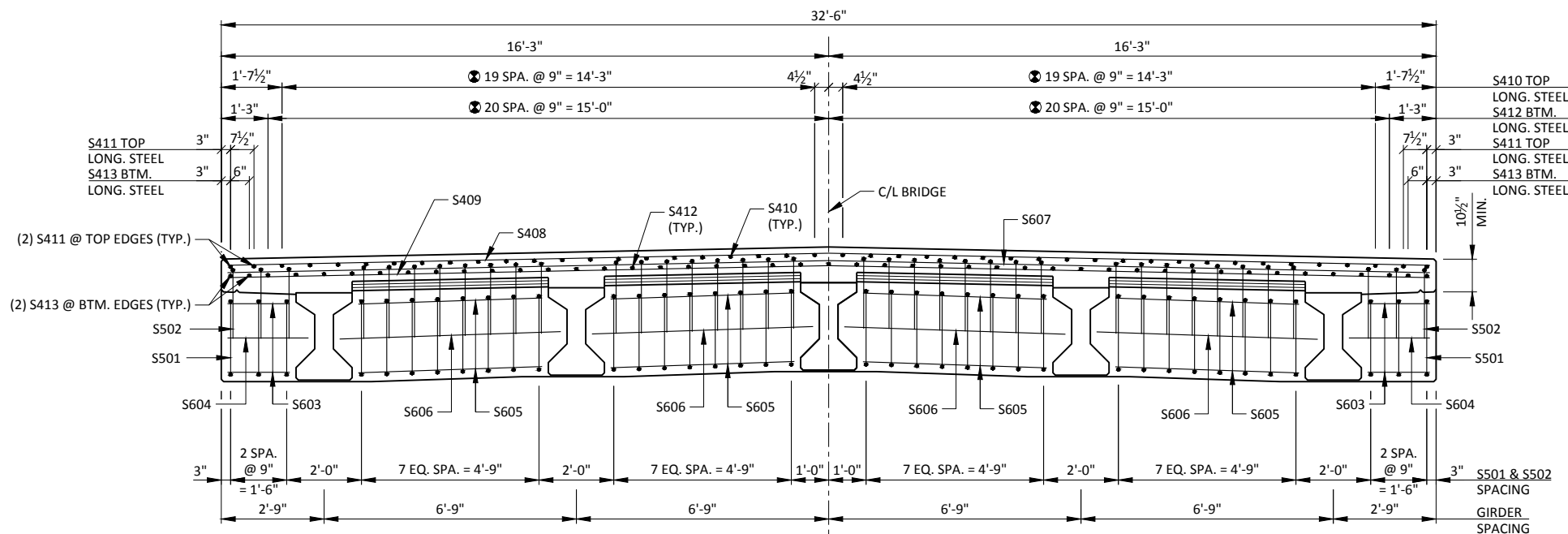
SLAB HAUNCH DETAIL

NOTES

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

LEGEND

- 18" RUBBERIZED MEMBRANE WATERPROOFING (HORIZONTAL)
- ☆ 1/2" NON-LAMINATED ELASTOMERIC BEARING PAD AND 1/2" PREFORMED FILLER.
- ▲ 4"x 1/2" PREFORMED FILLER, EXTEND FULL LENGTH OF ABUTMENTS BETWEEN EDGES OF DIAPHRAGM.
- ⊙ MEASURED PARALLEL TO C/L OF ROADWAY.
- * DIMENSION IS TAKEN NORMAL TO C/L SUBSTRUCTURE.
- ▽ OPTIONAL CONSTRUCTION JOINT. IF USED, DECK POUR MUST BE WITHIN 2 WEEKS FROM THE TIME OF THE DIAPHRAGM POUR

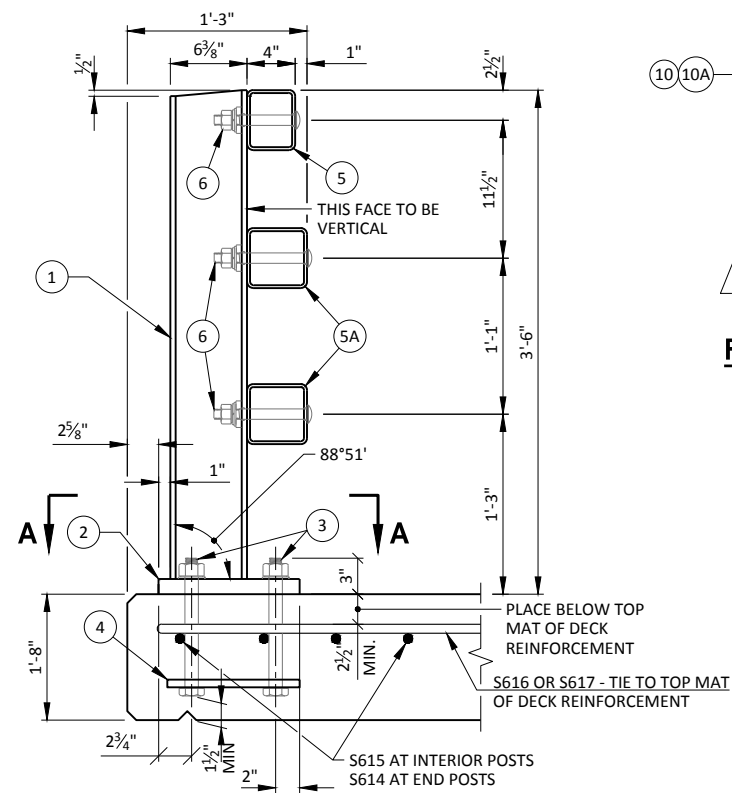


CROSS SECTION THROUGH ROADWAY

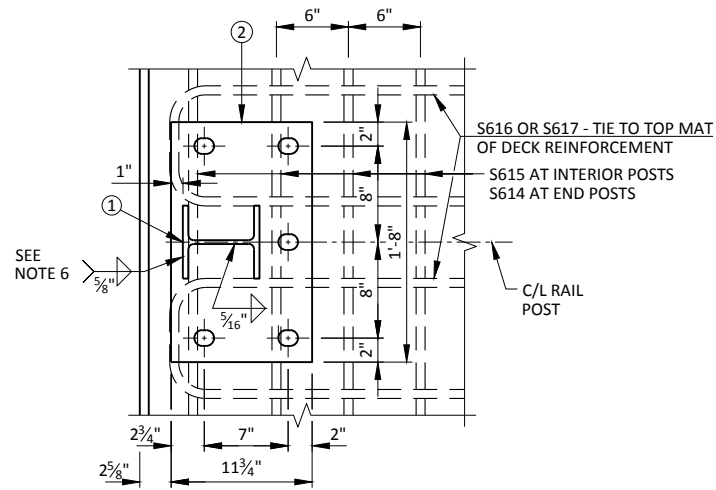
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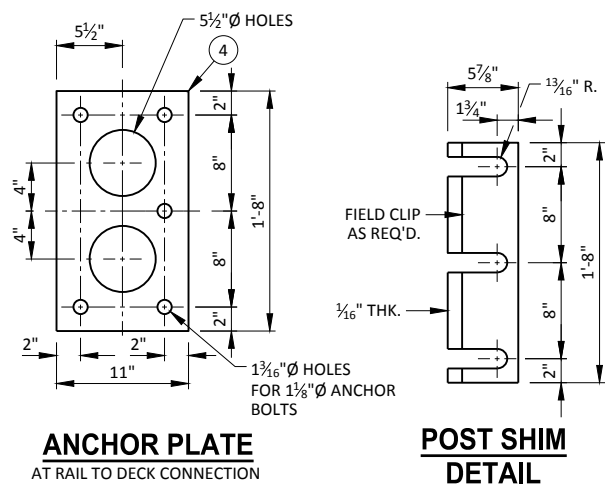
NO.	DATE	REVISION	BY
STRUCTURE B-13-876			
DRAWN BY		PMF	PLANS CK'D. PTB
SUPERSTRUCTURE DETAILS		SHEET 12 OF 13	



SECTION THROUGH RAILING ON DECK

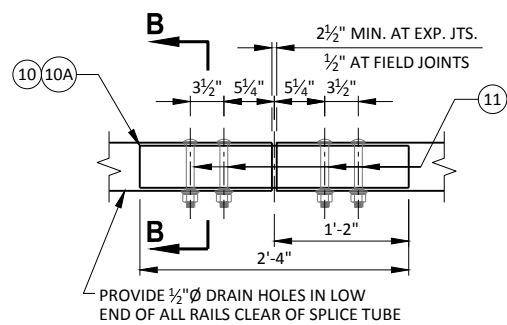


SECTION A-A

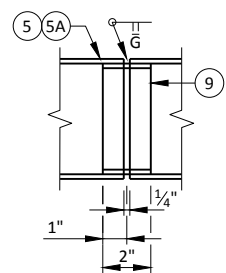


ANCHOR PLATE AT RAIL TO DECK CONNECTION

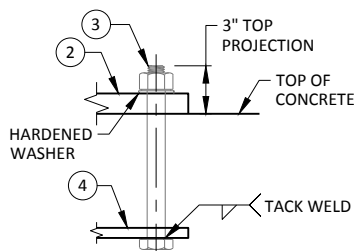
POST SHIM DETAIL



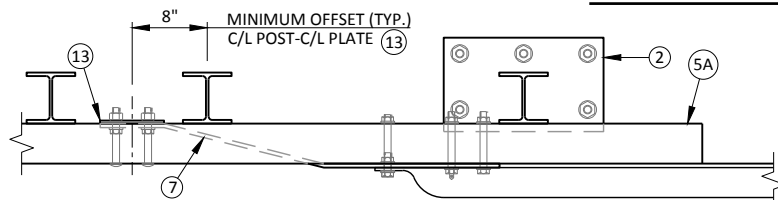
FIELD ERECTION JOINT DETAIL



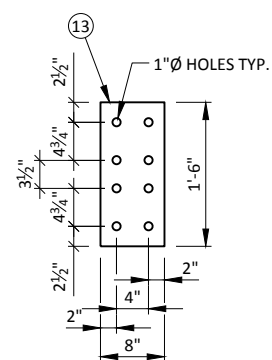
SHOP RAIL SPLICE DETAIL (LOCATION MUST BE SHOWN ON SHOP DRAWINGS)



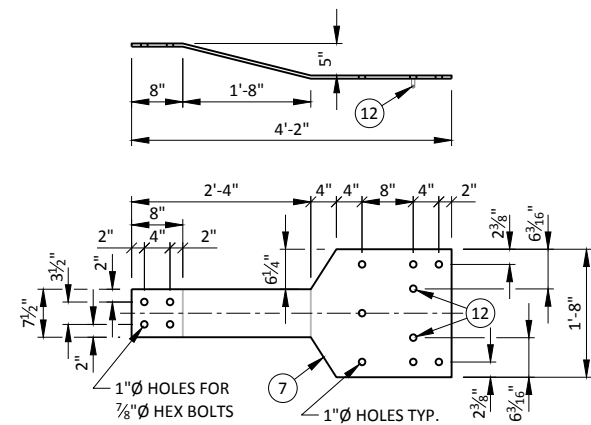
ANCHOR BOLTS



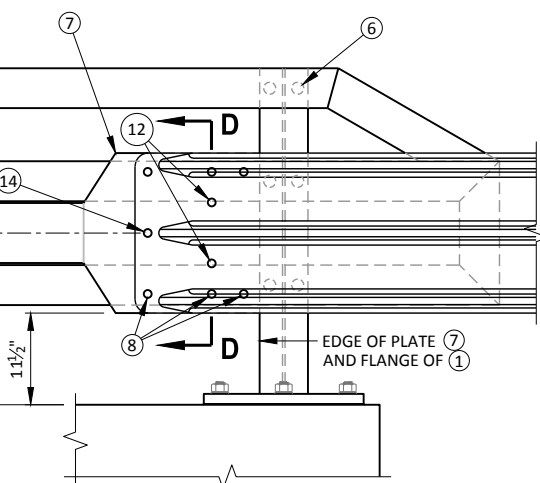
TOP VIEW AT END POST (THREE BEAM RAIL ATTACHMENT)



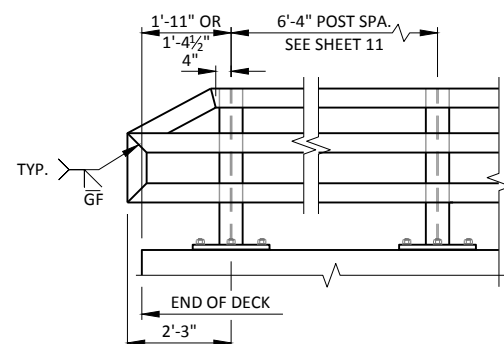
ANCHOR PLATE AT BEAM GUARD ATTACHMENT



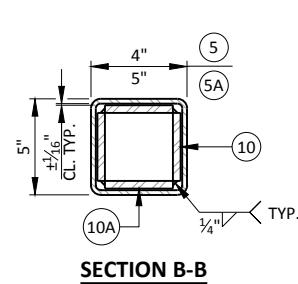
BACK-UP PLATE DETAIL AT BEAM GUARD ATTACHMENT



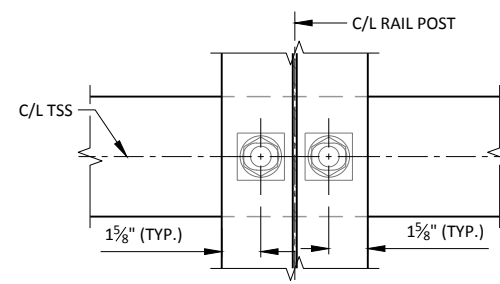
DETAIL AT END POST (THREE BEAM RAIL ATTACHMENT)



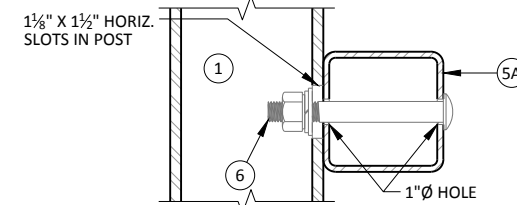
PART ELEVATION OF RAILING



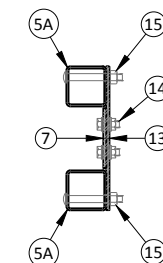
SECTION B-B



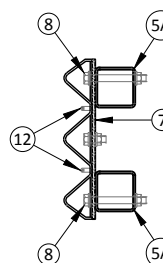
SECTION THROUGH POST WEB



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



SECTION C-C



SECTION D-D

LEGEND

- W6x25 WITH 1 1/2" x 1 1/2" HORIZONTAL SLOTS ON EACH SIDE OF POST FOR BOLT NO. 6. CUT BOTTOM OF POST TO MATCH CROSS SLOPE OF ROADWAY. PLACE POST VERTICAL. PLACE POSTS NORMAL TO GRADE LINE.
- PLATE 1 1/4"x11 3/4"x1'-8" WITH 1 3/16"x1 1/8" SLOTTED HOLES FOR ANCHOR BOLTS NO. 3. WELD TO NO. 1 AS SHOWN. SLOTS PARALLEL TO SHORT SIDE OF PLATE.
- ASTM A449 - 1 1/8" DIA. ANCHOR BOLTS WITH NUT AND HARDENED WASHER (ALL GALVANIZED). 5 REQ'D. PER POST. THREAD 3" AND PLACE NORMAL TO PLATE NO. 2. CHAMFER TOP OF BOLTS BEFORE THREADING. AT POSTS ON CONCRETE SLAB SUPERSTRUCTURES WHERE THE SLAB THICKNESS IS > 16" USE 1'-3" LONG. USE 10 3/4" LONG AT ALL OTHER LOCATIONS.
- 3/8"x11"x1'-8" ANCHOR PLATE (GALVANIZED) WITH 1 3/16" DIA. HOLES FOR ANCHOR BOLTS NO. 3.
- TSS 5x4x0.25 STRUCTURAL TUBING. ATTACH TO NO. 1 WITH NO. 6.
- 5A TSS 5x5x0.25 STRUCTURAL TUBING. ATTACH TO NO. 1 WITH NO. 6.
- 7/8" DIA. A325 SLOTTED ROUND HEAD BOLT WITH NUT, 3/16"x1 1/8"x1 1/8" WASHER, AND LOCK WASHER (2 REQ'D. AT EACH RAIL TO POST LOCATION).
- 1/2" THK. BACK-UP PLATE WITH 2 - 7/8"x1 1/2" THREADED SHOP WELDED STUDS (NO. 12). BOLT TO RAIL AS SHOWN IN DETAIL. REQUIRED AT THRIE BEAM GUARD RAIL ATTACHMENTS ONLY. PLACE SYMMETRICALLY ABOUT TUBES NO. 5A.
- 1" DIA. HOLES IN PLATE NO. 7 & TUBES NO. 5A FOR 7/8" DIA. A325 BOLTS WITH HEX NUTS AND WASHERS. 6 HOLES IN TUBES AND PLATE NO. 7.
- SPLICE SLEEVE FABRICATED FROM 1/4" PLATE. PROVIDE "SLIDING FIT".
- 3/8"x3 3/8"x2'-4" PLATE. 2 PER RAIL. USED IN NO. 5 & 5A.
- 3/8"x2 5/8"x2'-4" PLATE USED IN NO. 5, 3/8"x3 3/8"x2'-4" PLATE USED IN NO. 5A. 2 PER RAIL.
- 7/8" DIA. A325 ROUND HEAD BOLT WITH NUT, WASHER, AND LOCK WASHER. USE 1 3/16"x1 1/2" LONGIT. SLOTTED HOLES AT FIELD JOINTS AND 1 3/16"x2 3/4" MIN. LONGIT. SLOTTED HOLES AT EXP. JOINTS IN PLATE NO. 10A.
- 7/8" DIA. BY 1 1/2" LONG THREADED SHOP WELDED STUDS (2 REQ'D).
- 3/8"x8"x1'-6" PLATE. BOLT TO RAIL AS SHOWN IN DETAIL. REQ'D. AT THRIE BEAM GUARD RAIL ATTACHMENTS ONLY. PLACE SYM. ABOUT TUBES NO. 5A.
- 7/8" DIA. x 2" LONG A325 HEX BOLT WITH NUT AND WASHER (5 REQ'D).
- 1" DIA. HOLES IN TUBES NO. 5A FOR 7/8" A325 ROUND HEAD BOLT WITH NUT, WASHER AND LOCK WASHER (4 REQ'D.). 4 HOLES IN TUBES.

GENERAL NOTES

- BID ITEM SHALL BE "RAILING TUBULAR TYPE M" WHICH INCLUDES ALL ITEMS SHOWN.
- RAIL POST AND BASE PLATES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A709 GRADE 50. HOLLOW RAILING STRUCTURAL TUBING SHALL CONFORM TO THE REQUIREMENTS OF ASTM A500 GRADE B OR C WITH A CERTIFIED FY=50 KSI. ANCHOR PLATES AND SPLICE TUBE PLATES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A709 GRADE 36.
- THE NUT SECURING THE POST BASE PLATE TO THE CONCRETE SHALL BE TIGHTENED TO A SNUG FIT AND GIVEN AN ADDITIONAL 1/8 TURN.
- RAILS SHALL BE CONTINUOUS OVER A MINIMUM OF THREE (3) POSTS WITHOUT SPLICES WHERE POSSIBLE.
- ENDS OF TUBE SECTIONS SHALL BE SAWED. GRIND SMOOTH EXPOSED EDGES. ALL CUT ENDS SHALL BE TRUE AND SMOOTH.
- WELD IS THE SAME ON BOTH FLANGES. FLANGE WELD DOES NOT REQUIRE MAGNETIC PARTICLE TESTING.
- FILL BOLT SLOT OPENINGS IN POST SHIMS AND PLATE NO. 2 AND CAULK AROUND PERIMETER OF PLATE NO. 2 WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. STEEL POST SHIMS MAY BE USED UNDER POSTS WHERE REQ'D. FOR ALIGNMENT.
- POST BASE PLATES SHALL BE FLAT WITH ALL SURFACES SMOOTH AND FREE FROM WARP AND ALL EDGES SMOOTH, STRAIGHT AND VERTICAL. ALL PLATE CUTS SHALL BE MACHINE OR MACHINE FLAME CUT.
- ALL MATERIAL SHALL BE GALVANIZED AFTER FABRICATION. PRIOR TO GALVANIZING, ALL STEEL RAILING POSTS & STEEL TUBING SHALL BE GIVEN A NO. 6 BLAST CLEANING BY S.S.P.C. SPECIFICATIONS.
- THIS RAILING MEETS NCHRP REPORT 350 EVALUATION CRITERIA FOR TEST LEVEL 4 (TL-4).

NO.	DATE	REVISION	BY
STRUCTURE B-13-876			
DRAWN BY		PMF	PLANS CK'D. PTB
TUBULAR RAILING		SHEET 13 OF 13	
TYPE M			

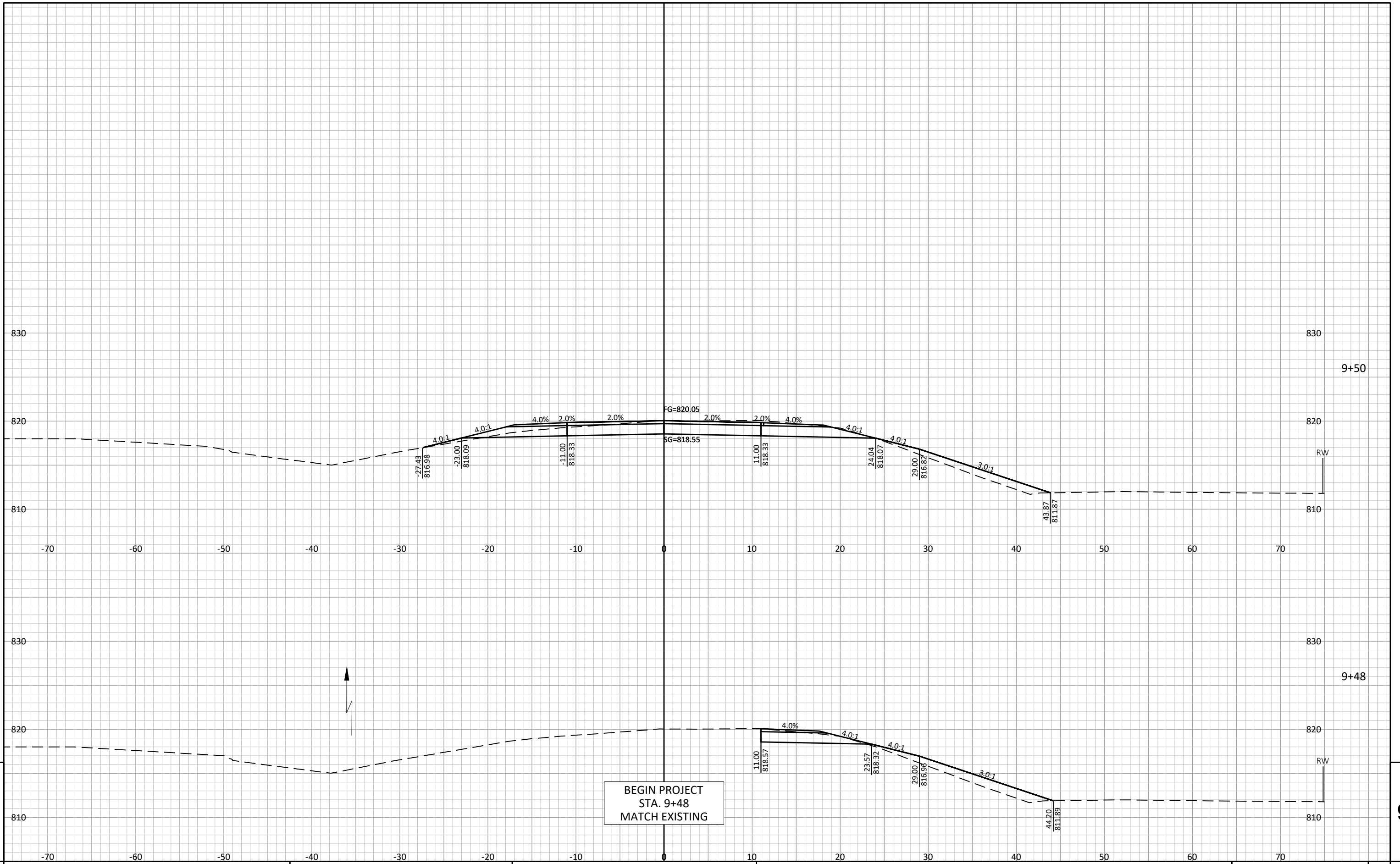
EARTHWORK-CTH N

STATION	AREA (SF)		INCREMENTAL VOL (CY)			CUMMULATIVE VOLUME (CY)			
	CUT	FILL	CUT NOTE 1	FILL NOTE 2	FILL (25%)	CUT 1.00 NOTE 1	FILL	FILL (25%) NOTE 3	MASS ORDINATE NOTE 4
9+41	0	0	0	0	0	0	0	0	0
9+50	60	48	20	16	20	20	16	20	0
10+00	57	94	105	96	120	125	112	140	-15
10+50	58	94	125	96	120	250	208	260	-10
11+00	81	70	150	72	90	400	280	350	50
11+18	24	42	45	44	55	445	324	405	40
11+18	0	0	0	0	0	445	324	405	40
11+50	0	0	0	0	0	445	324	405	40
11+70	0	0	0	0	0	445	324	405	40
11+70	0	0	0	0	0	445	324	405	40
12+00	30	74	55	76	95	500	400	500	0
12+50	59	134	110	136	170	610	536	670	-60
13+00	54	134	100	136	170	710	672	840	-130
13+40	27	90	50	96	120	760	768	960	-200
COLUMN SUBTOTALS =			760	768	960				

NOTES: 1 - CUT 2 - FILL 3 - FILL (25%) 4 - MASS ORDINATE	CUT INCLUDES SALVAGED/UNUSABLE MATERIAL DOES NOT INCLUDE UNUSABLE PAVEMENT EXC VOLUME FILL 25%: (UNEXPANDED FILL - (ROCK * ROCK FACTOR))*1.25 (CUT - FILL (25%))
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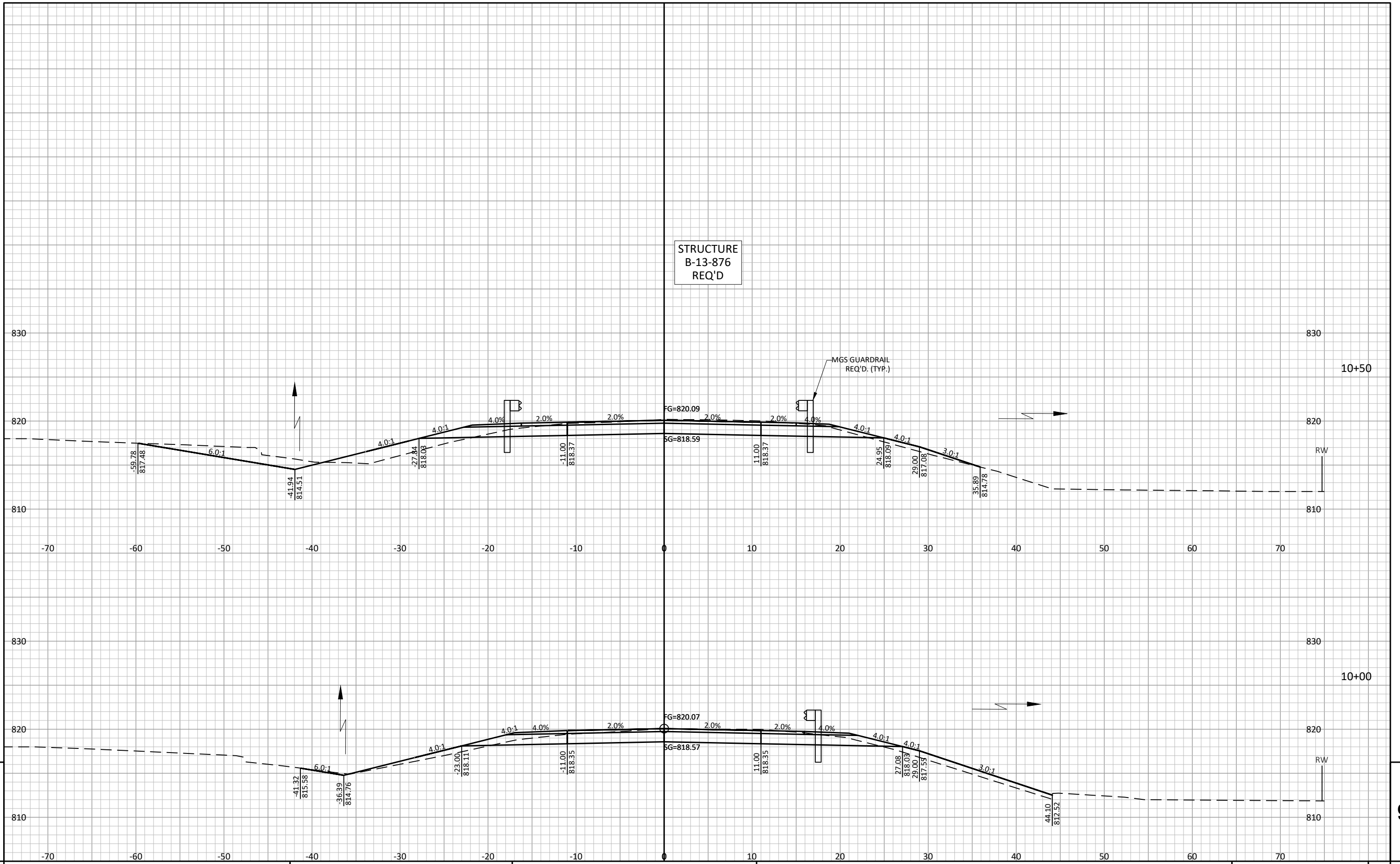
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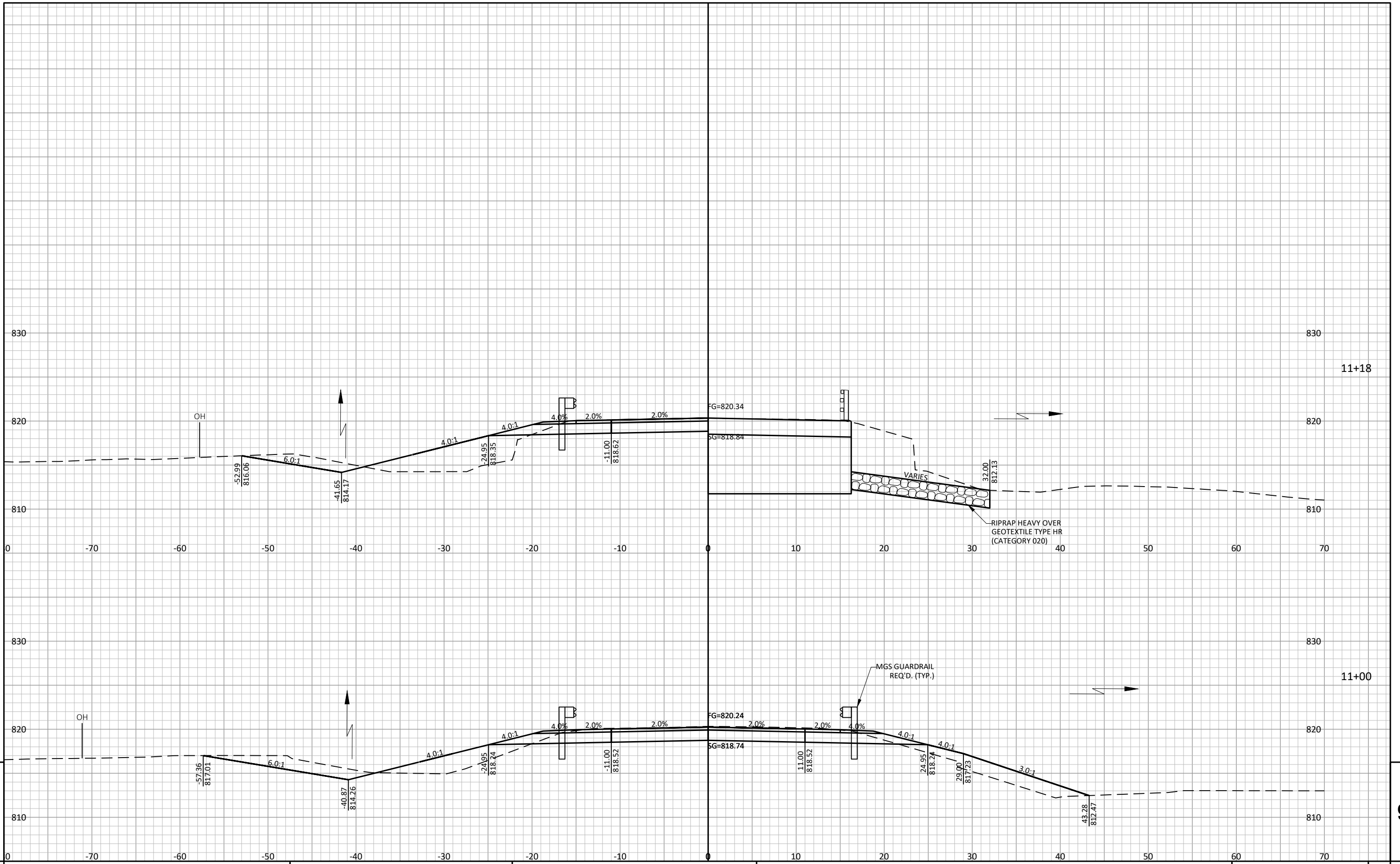
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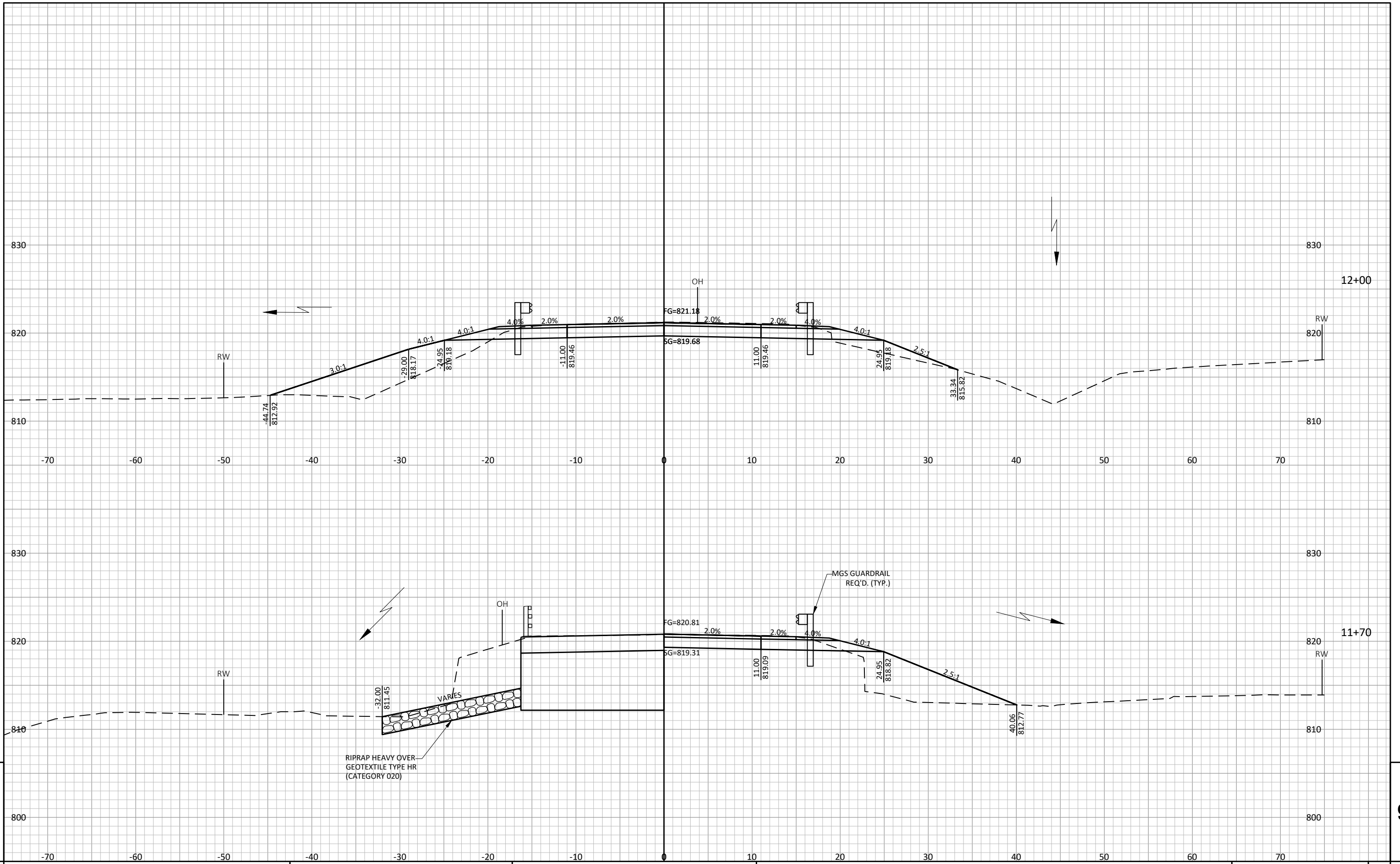
HWY: CTH N

COUNTY: DANE

CROSS SECTIONS: MAINLINE

SHEET

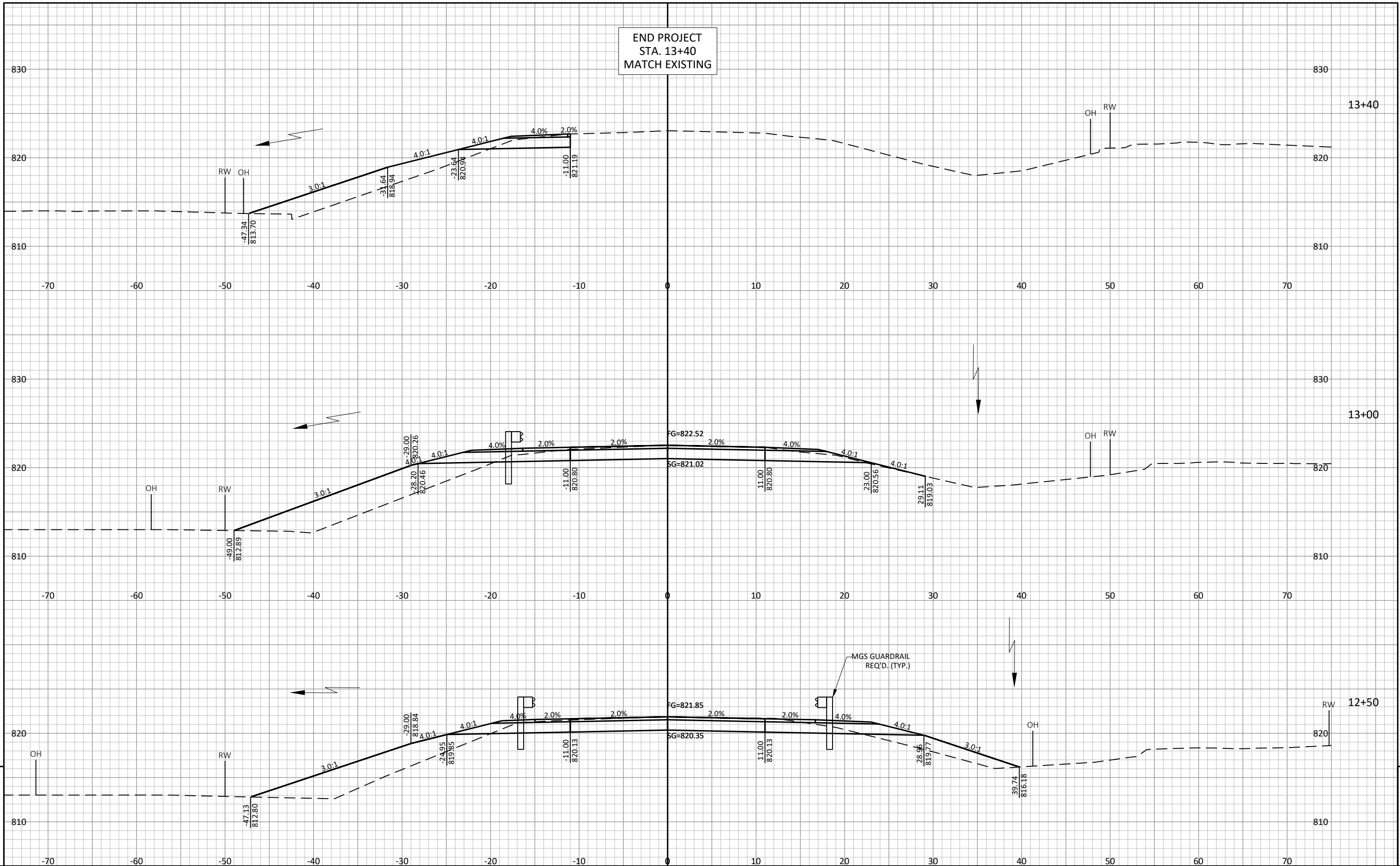
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END PROJECT
STA. 13+40
MATCH EXISTING



PROJECT NO: 62213-1900

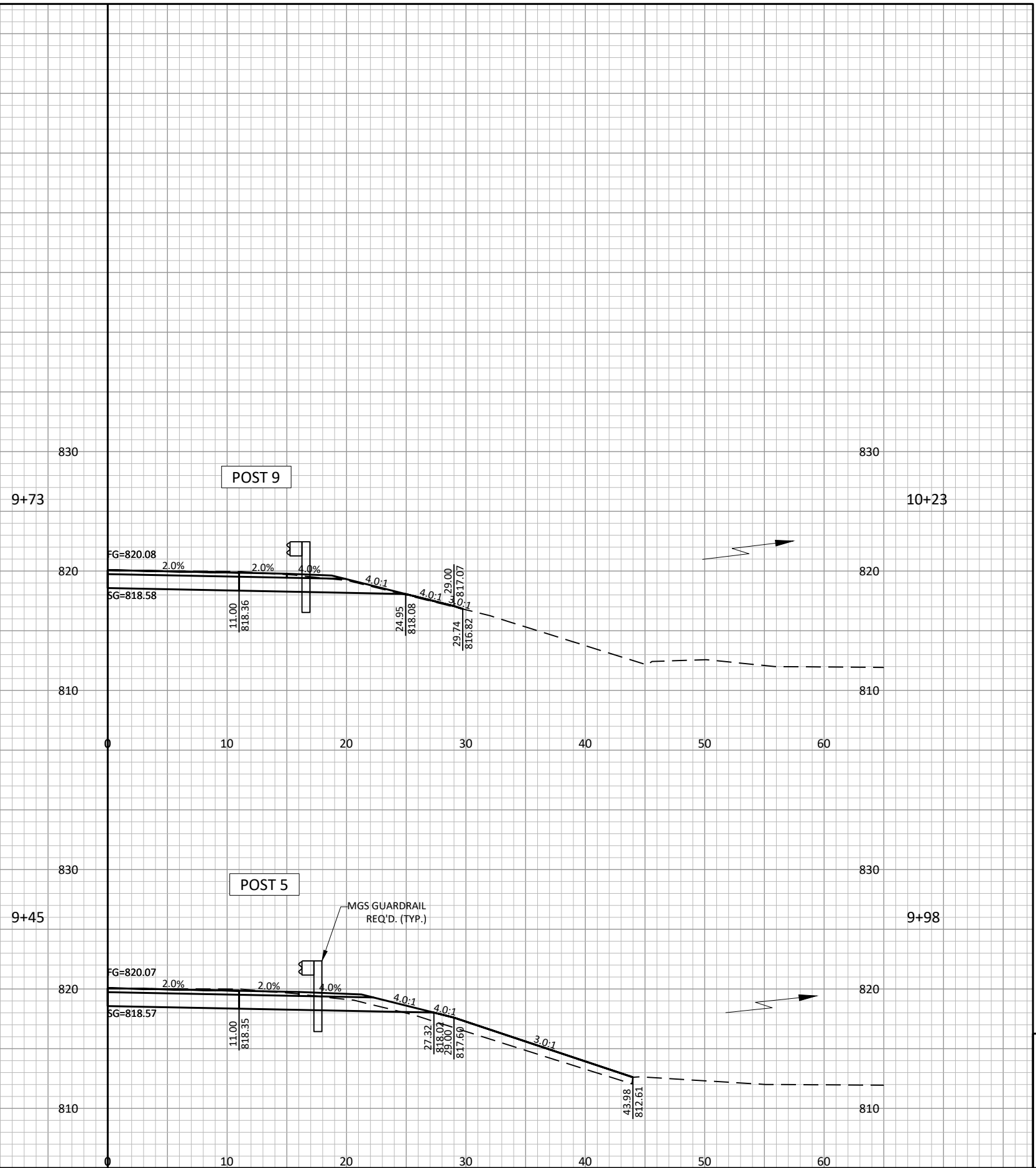
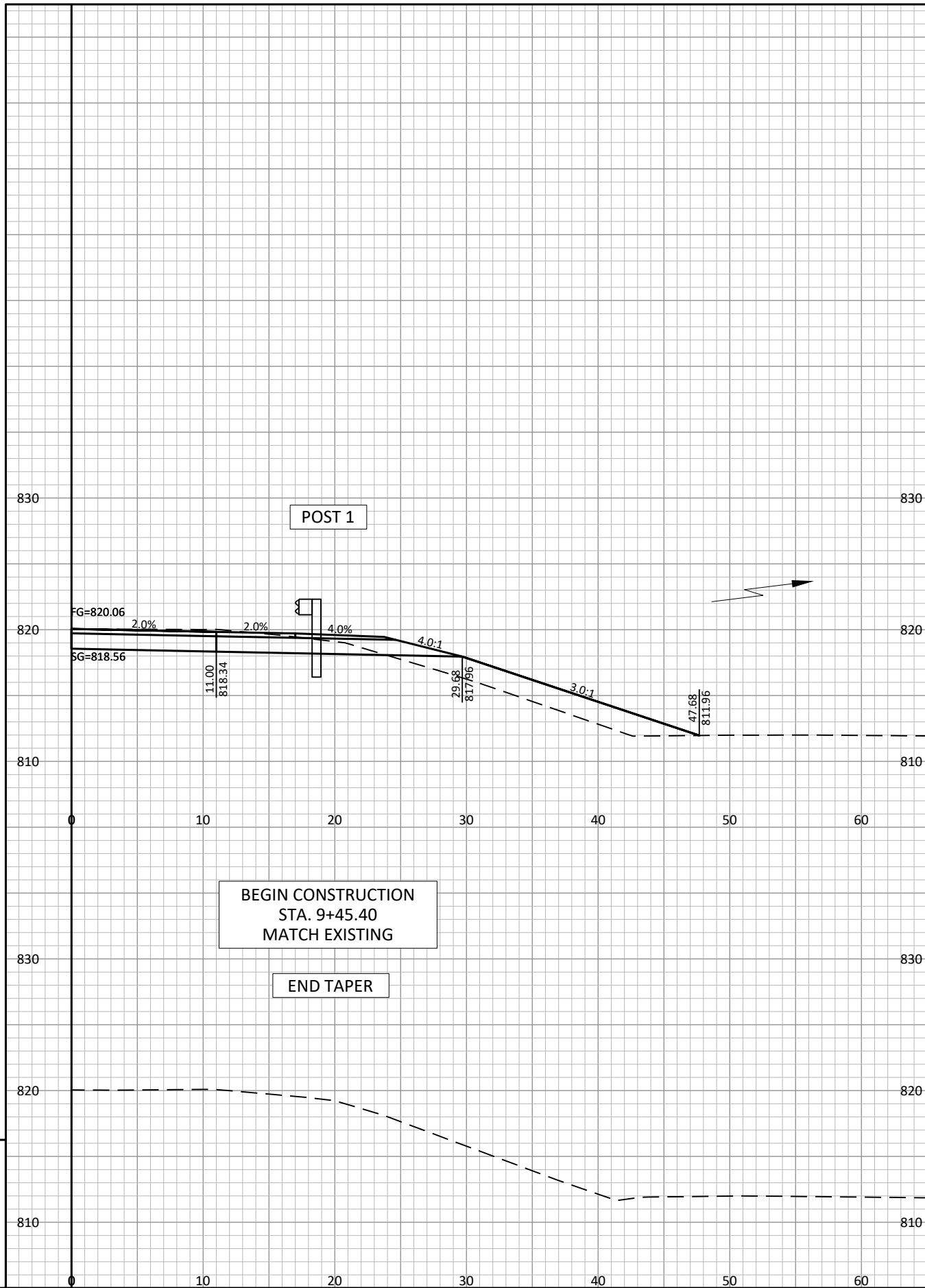
HWY: CTH N

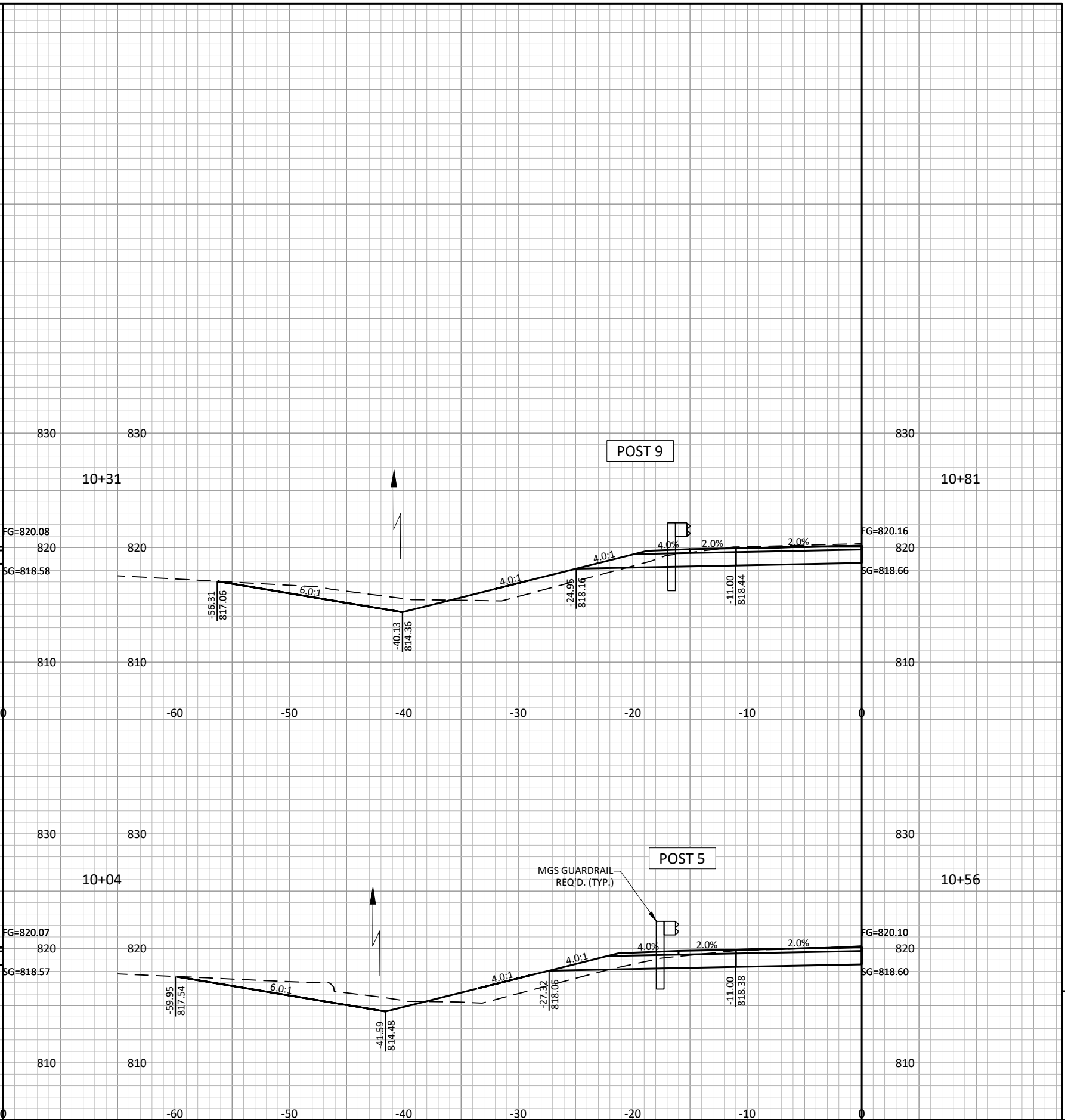
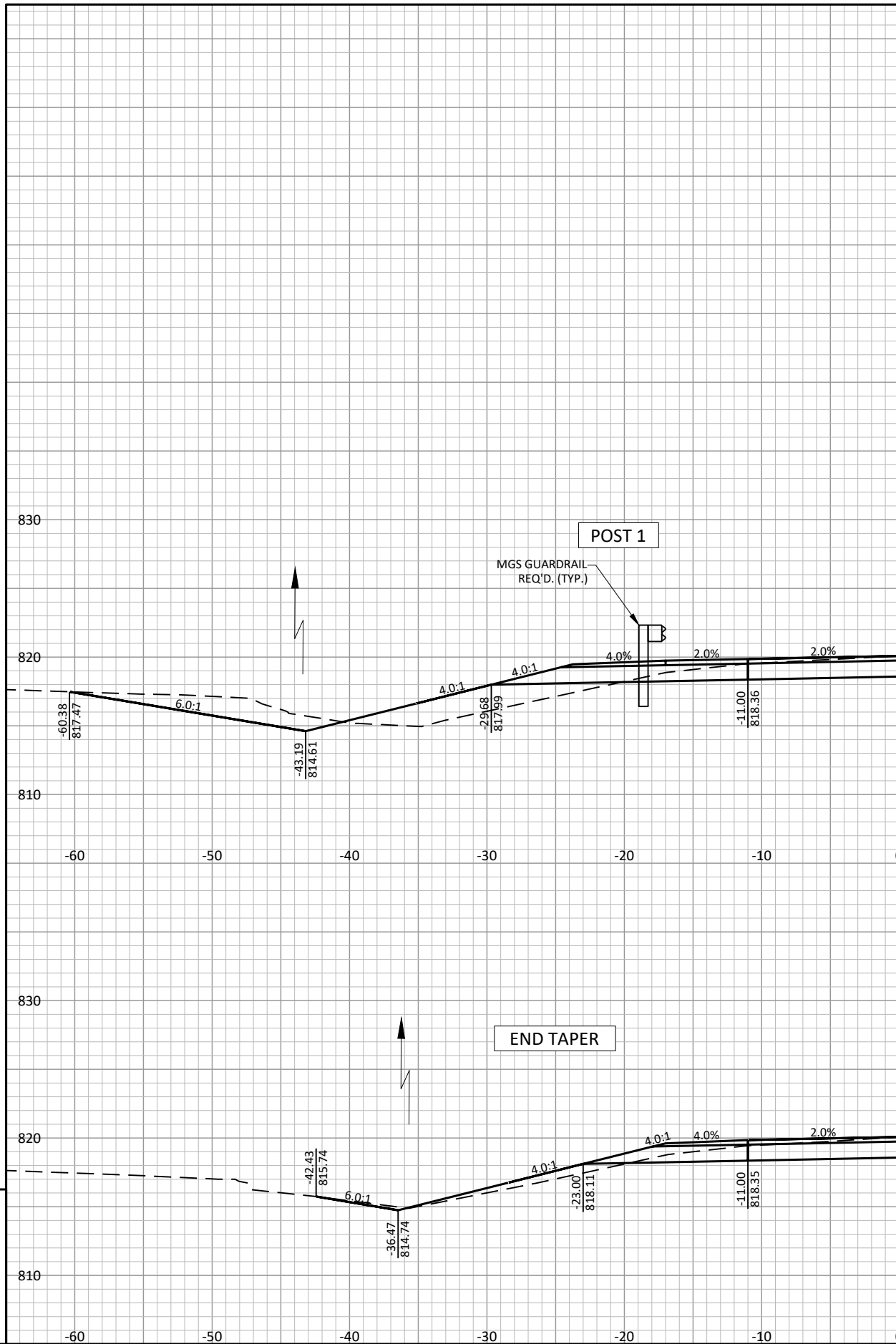
COUNTY: DANE

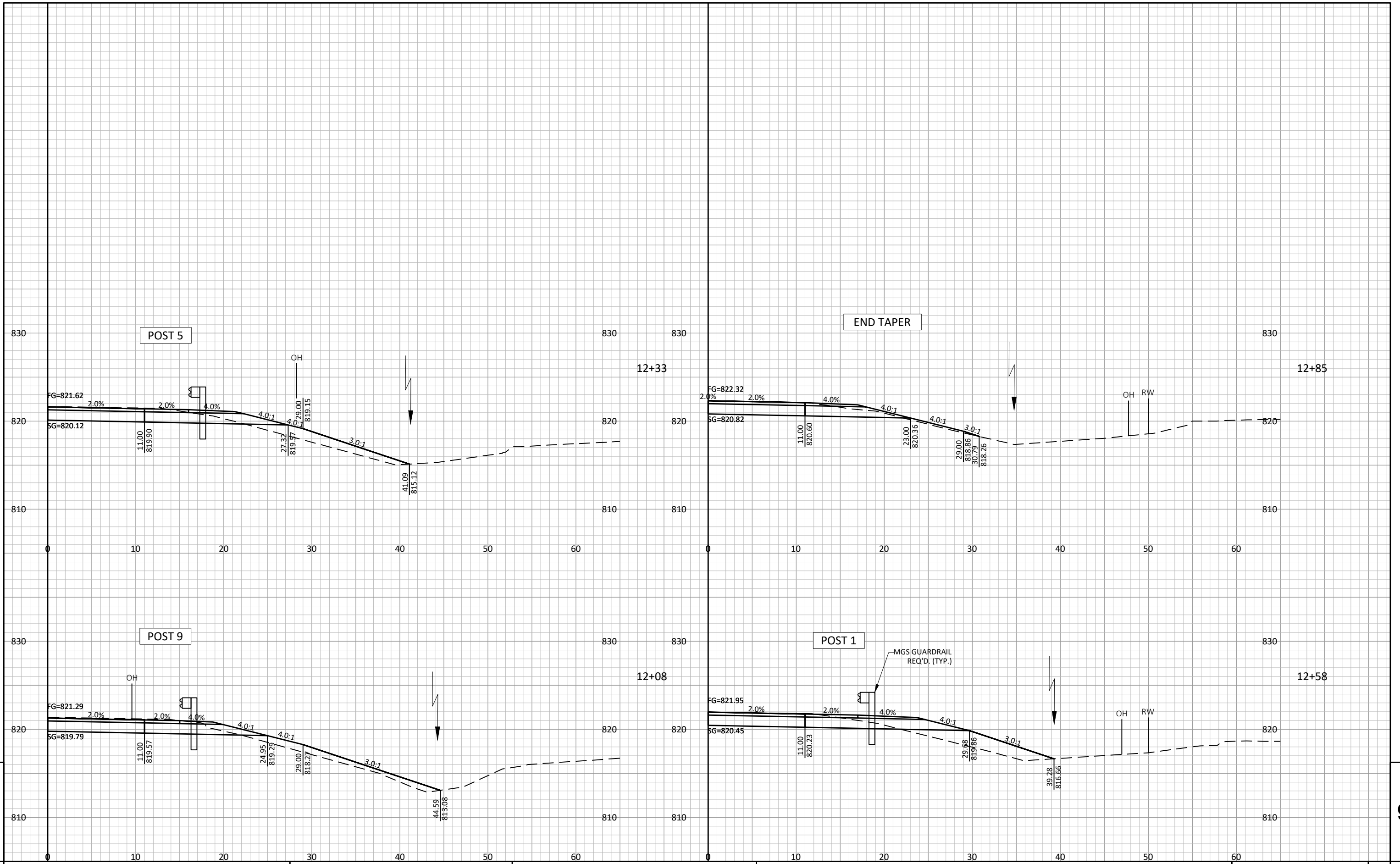
CROSS SECTIONS: MAINLINE

SHEET

E



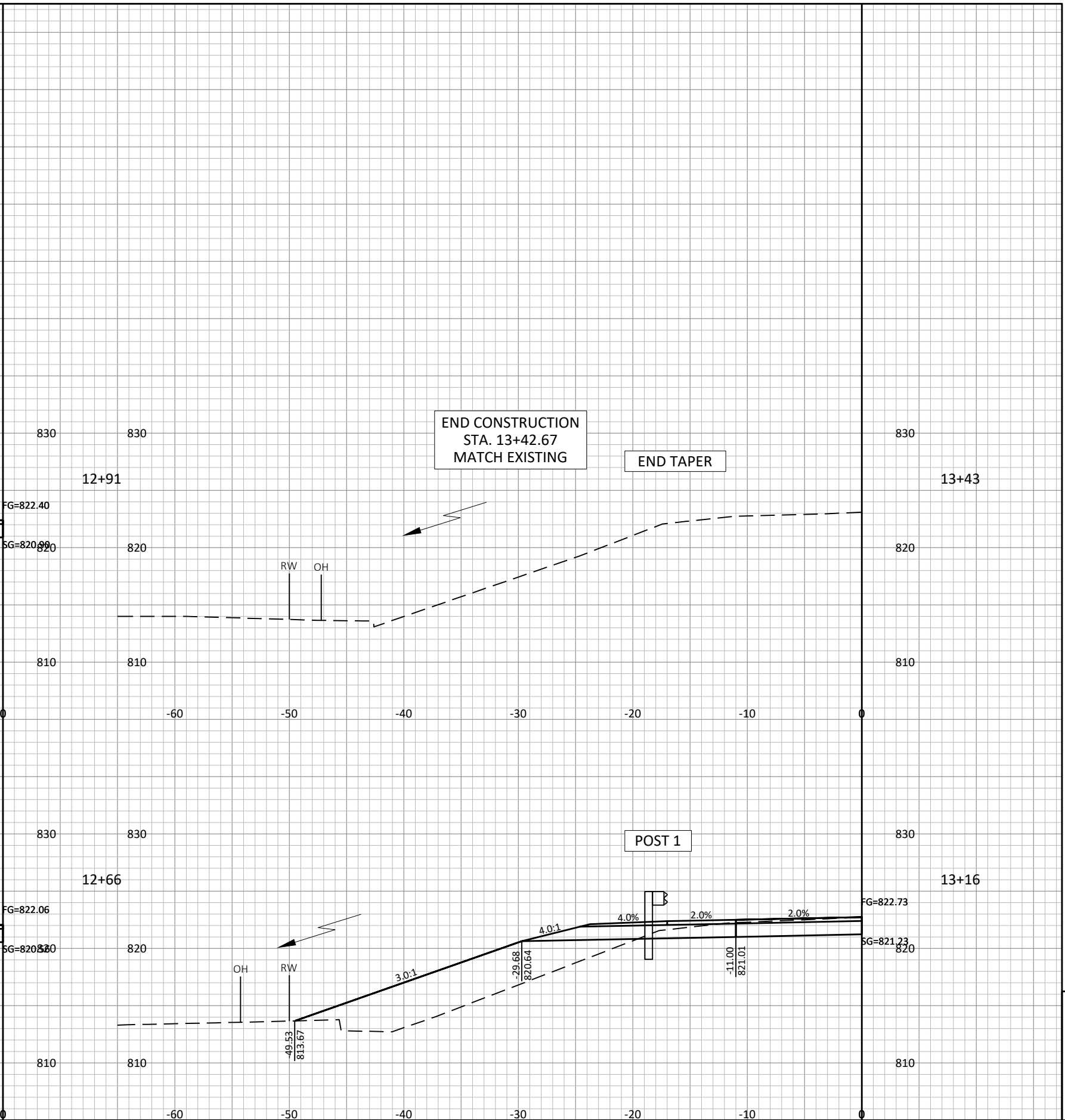
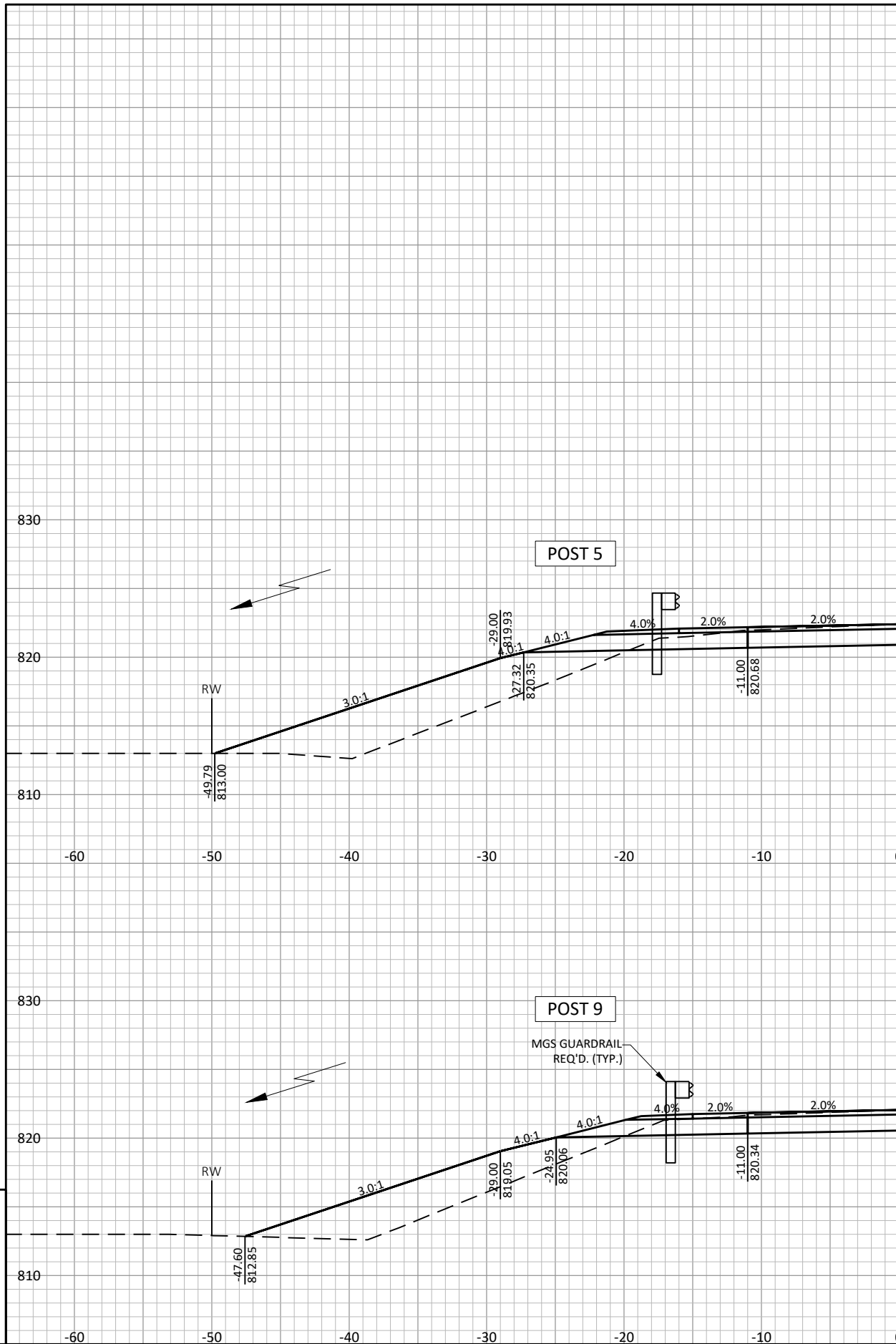




9

9

E



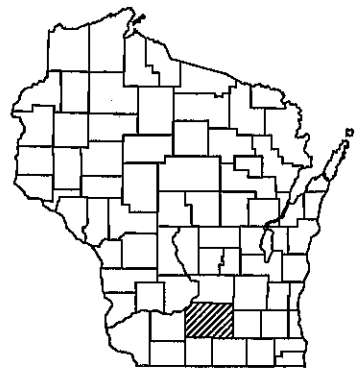
PROJECT ID: 67256-2000
WITH: N/A

COUNTY: DANE

ORDER OF SHEETS

Section No.	1	Title
Section No.	2	Typical Sections and Details
Section No.	3	Estimate of Quantities
Section No.	3	Miscellaneous Quantities
Section No.	4	Right of Way Plat
Section No.	5	Plan and Profile (Includes Erosion Control Plan)
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 =



DESIGN DESIGNATION

A.A.D.T.	(2021)	=	500
A.A.D.T.	(2041)	=	740
D.H.V.		=	67
D.D.		=	60/40
T.		=	10% (ASSUMED)
DESIGN SPEED		=	50 MPH
ESALS		=	226,300

CONVENTIONAL SYMBOLS

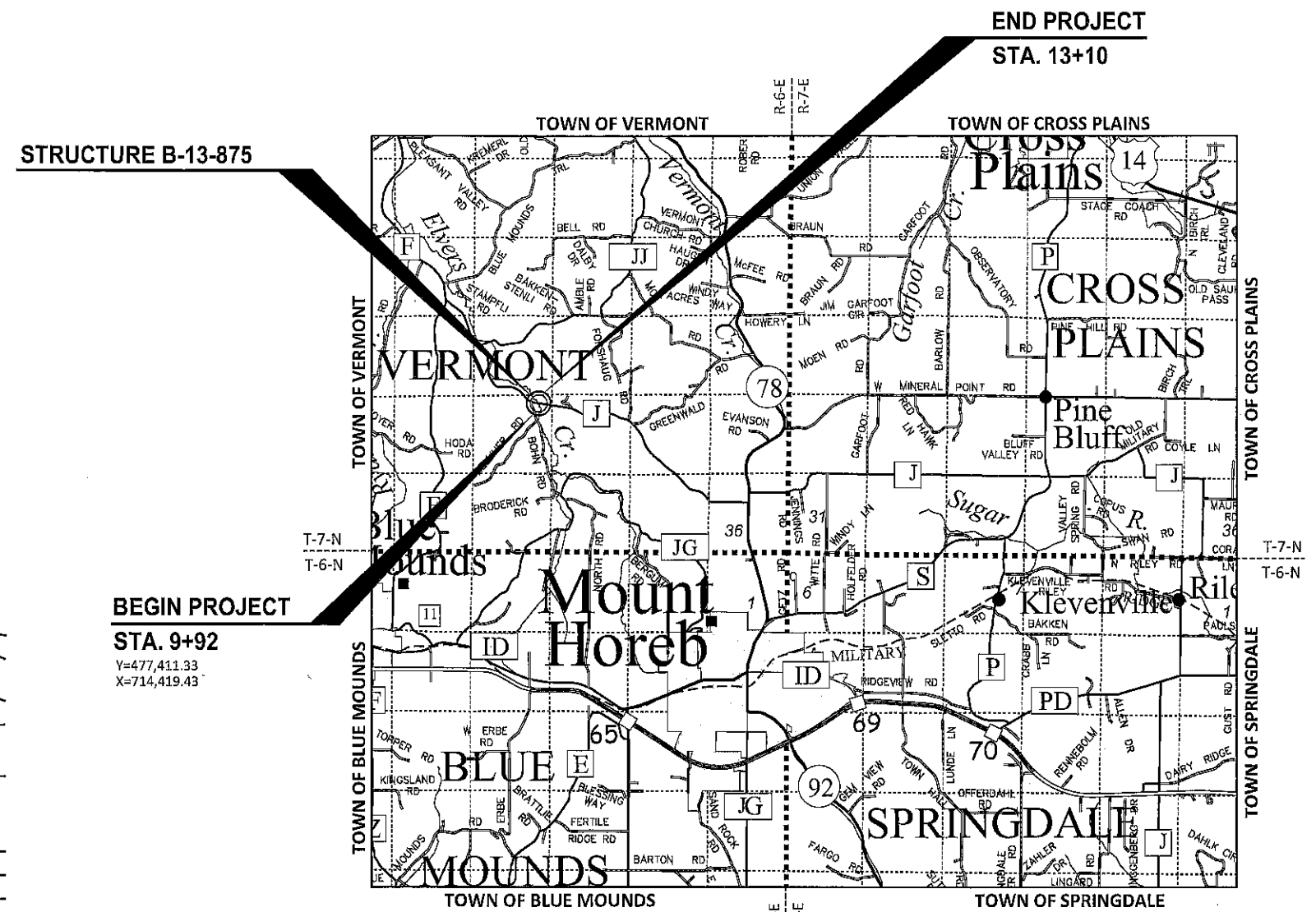
PLAN	PROFILE
CORPORATE LIMITS	GRADE LINE
PROPERTY LINE	ORIGINAL GROUND
LOT LINE	MARSH OR ROCK PROFILE (To be noted as such)
LIMITED HIGHWAY EASEMENT	SPECIAL DITCH
EXISTING RIGHT OF WAY	GRADE ELEVATION
PROPOSED OR NEW R/W LINE	CULVERT (Profile View)
SLOPE INTERCEPT	UTILITIES
REFERENCE LINE	ELECTRIC
EXISTING CULVERT	FIBER OPTIC
PROPOSED CULVERT (Box or Pipe)	GAS
COMBUSTIBLE FLUIDS	SANITARY SEWER
MARSH AREA	STORM SEWER
WOODED OR SHRUB AREA	TELEPHONE
	WATER
	UTILITY PEDESTAL
	POWER POLE
	TELEPHONE POLE

PLAN OF PROPOSED IMPROVEMENT

CTH JJ - STH 78

ELVERS CREEK BRIDGE B-13-875

CTH J
DANE COUNTY



BEGIN PROJECT
STA. 9+92
Y=477,411.33
X=714,419.43

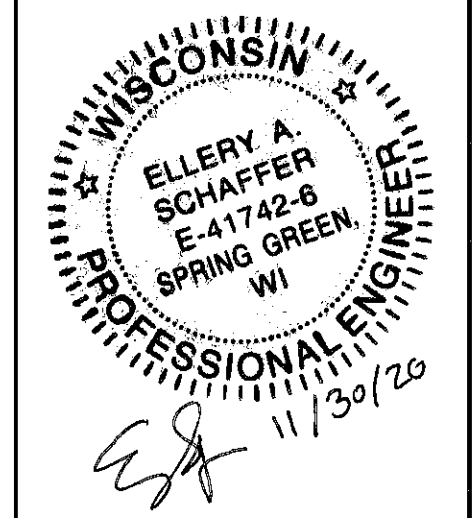
END PROJECT
STA. 13+10

LAYOUT
SCALE 0 2 MI
TOTAL NET LENGTH OF CENTERLINE = 0.060 MILES

HORIZONTAL POSITIONS SHOWN ON THIS PLAN ARE WISCONSIN COUNTY COORDINATES, DANE 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.
ELEVATION SHOWN ON THIS PLAN ARE REFERENCE TO THE NORTH AMERICAN VERTICAL DATUM OF 1988, NAVD (2012).

ACCEPTED FOR
COUNTY of DANE
(Date) (Highway Commissioner)

ORIGINAL PLANS PREPARED BY
JEWELL
associates engineers, inc
Engineers - Architects - Surveyors



E

LIST OF STANDARD ABBREVIATIONS

ABUT	Abutment	INV	Invert	SALV	Salvaged
AC	Acre	IP	Iron Pipe or Pin	SAN S	Sanitary Sewer
AGG	Aggregate	IRS	Iron Rod Set	SEC	Section
AH	Ahead	JT	Joint	SHLDR	Shoulder
<	Angle	JCT	Junction	SHR	Shrinkage
ASPH	Asphaltic	LHF	Left-Hand Forward	SW	Sidewalk
AVG	Average	L	Length of Curve	S	South
ADT	Average Daily Traffic	LIN FT or LF	Linear Foot	SQ	Square
BAD	Base Aggregate Dense	LC	Long Chord of Curve	SF or SQ FT	Square Feet
BK	Back	MH	Manhole	SY or SQ YD	Square Yard
BF	Back Face	MB	Mailbox	STD	Standard
BM	Bench Mark	ML or M/L	Match Line	SDD	Standard Detail Drawings
BR	Bridge	N	North	STH	State Trunk Highways
C or C/L	Center Line	Y	North Grid Coordinate	STA	Station
CC	Center to Center	O.A.L.	Overall Length	SS	Storm Sewer
CTH	County Trunk Highway	OD	Outside Diameter	SG	Subgrade
CR	Creek	PLE	Permanent Limited Easement	SE	Superelevation
CR	Crushed		Point	SL or S/L	Survey Line
CY or CU YD	Cubic Yard	PT	Point of Curvature	SV	Septic Vent
CP	Culvert Pipe	PC	Point of Intersection	T	Tangent
C & G	Curb and Gutter	PI	Point of Reverse Curvature	TEL	Telephone
D	Degree of Curve	PRC	Point of Tangency	TEMP	Temporary
DHV	Design Hour Volume	PT	Point On Curve	TI	Temporary Interest
DIA	Diameter	POC	Point on Tangent	TLE	Temporary Limited Easement
E	East	POT	Polyvinyl Chloride	t	Ton
X	East Grid Coordinate	PVC	Portland Cement Concrete	T or TN	Town
ELEC	Electric (al)	PCC	Pound	TRANS	Transition
EL or ELEV	Elevation	LB	Pounds Per Square Inch	TL or T/L	Transit Line
ESALS	Equivalent Single Axle Loads	PSI	Private Entrance	T	Trucks (percent of)
EBS	Excavation Below Subgrade	PE	Radius	TYP	Typical
ESTR	Existing Sign to Remain	R	Railroad	UNCL	Unclassified
FF	Face to Face	RR	Range	UG	Underground Cable
FE	Field Entrance	R	Reference Line	USH	United States Highway
F	Fill	RL or R/L	Reference Point	VAR	Variable
FG	Finished Grade	RP	Reinforced Concrete Culvert	V	Velocity or Design Speed
FL or F/L	Flow Line	RCCP	Pipe	VERT	Vertical
FT	Foot	REQ'D	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	R	River	YD	Yard
ID	Inside Diameter	RD	Road		
		RDWY	Roadway		

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.

NO TREES OR SHRUBS ARE TO BE REMOVED UNLESS SUCH TREES OR SHRUBS HAVE FIRST BEEN INDICATED FOR REMOVAL BY THE ENGINEER IN THE FIELD.

EXCAVATION BELOW SUBGRADE (EBS) IS NOT USED TO BALANCE YARDAGE, AND IS NOT SHOWN ON THE CROSS SECTIONS BUT IS MEASURED AND PAID FOR AS COMMON EXCAVATION. EXACT LOCATIONS OF EBS WILL BE DETERMINED BY THE ENGINEER.

DISTURBED AREAS SHOWN WITHIN THE RIGHT-OF-WAY, EXCEPT THE AREAS WITHIN THE FINISHED SHOULDER POINTS ARE TO BE FERTILIZED (TYPE B), SEEDED (USE SEED MIX NO. 20), SEEDING TEMPORARY, AND EROSION MATTED AS DIRECTED BY THE ENGINEER. ALL POST CONSTRUCTION WET AREAS SHALL BE SEEDED WITH SEEDING MIXTURE NO. 60. AVOID PLACING FERTILIZER TYPE B NEAR WET AREAS.

WHEN THE QUANTITY OF THE ITEM OF BASE AGGREGATE DENSE, OR ASPHALTIC SURFACE IS MEASURED FOR PAYMENT BY THE TON. THE DEPTH OR THICKNESS OF THE COURSE SHOWN ON THE PLANS IS APPROXIMATE, AND THE ACTUAL THICKNESS WILL DEPEND ON THE DISTRIBUTION OF MATERIAL AS DIRECTED BY THE ENGINEER IN THE FIELD.

SILT FENCE AND TEMPORARY DITCH CHECKS SHALL BE PLACED AS SHOWN ON THE PLAN OR AS DIRECTED BY THE ENGINEER IN THE FIELD. SILT FENCE SHALL BE PLACED PRIOR TO CONSTRUCTION AND IN PLACE PRIOR TO STRUCTURE REMOVAL.

EROSION MAT ALL MAINLINE SLOPES AS DIRECTED BY THE ENGINEER IN THE FIELD.

FILL EXPANSION IS VARIABLE AND IS ESTIMATED AT 25%.

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

THE LOCATION OF ALL PERMANENT SIGNING SHALL BE VERIFIED BY THE ENGINEER IN THE FIELD PRIOR TO PLACEMENT.

WETLANDS ARE PRESENT IN THE PROJECT LIMITS. THE CONTRACTOR SHALL NOT OPERATE EQUIPMENT OR STOCKPILE MATERIALS BEYOND THE EXISTING TOE OF SLOPE OR FINISHED SLOPE INTERCEPT.

ADJUST DITCH GRADING AS NECESSARY TO FIT FIELD CONDITIONS AND AS DIRECTED BY THE ENGINEER.

ASPHALTIC SURFACE QUANTITIES WERE CALCULATED USING 112 LB/SY/IN. 4-INCHES OF ASPHALTIC SURFACE SHALL BE CONSTRUCTED WITH A 2 ¼-INCH LOWER LAYER AND A 1 ¾-INCH UPPER LAYER.

WETLANDS ARE PRESENT WITHIN THE PROJECT LIMITS. DO NOT OPERATE OR STOCKPILE EQUIPMENT BEYOND THE TOE OF SLOPE AT STA. 11+16 - STA. 11+55, RT; STA. 11+75 - STA. 12+72, LT; STA. 11+95 - STA. 13+09. RT.

CONTACTS

DESIGN CONSULTANT

JEWELL ASSOCIATES ENGINEERS, INC.
560 SUNRISE DRIVE
SPRING GREEN, WI 53588
ATTN: ELLERY SCHAFFER, P.E.
PH: (608) 459-6027
CELL: (608) 341-8159
EMAIL: ellery.schaffer@jewellassoc.com

**DANE COUNTY
HIGHWAY DEPARTMENT**

2302 FISH HATCHERY RD
MADISON, WI 53713
ATTN: PAM DUNPHY, P.E.
PH: (608) 266-4036
EMAIL: dunphy@countyofdane.com

DNR LIAISON

STATE OF WISCONSIN
DNR SOUTHWEST REGIONAL HQ
3911 FISH HATCHERY RD
FITCHBURG, WI 53711
ATTN: ERIC HEGGELUND
PHONE: (608) 228-7927
EMAIL: eric.heggelund@wisconsin.gov

UTILITIES

ELECTRIC

MT HOREB ELECTRIC, WATER, & SEWER
301 BLUE MOUNDS STREET
MOUNT HOREB, WI 53572
ATTN: GERRY RICK
PHONE: 608-437-3300
EMAIL: gerry.rick@mounthorebwi.info

TELEPHONE

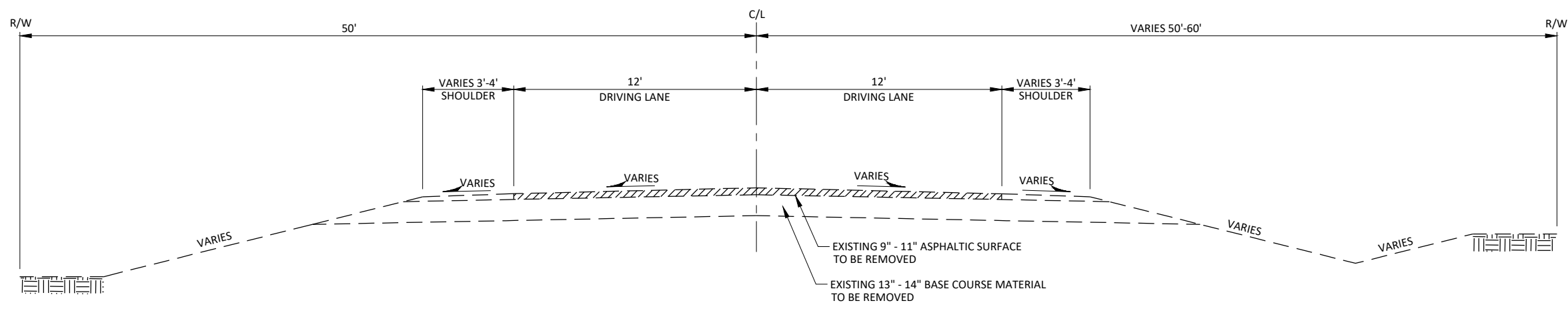
MT HOREB TELEPHONE COMPANY
200 EAST MAIN STREET
MOUNT HOREB, WI 53572
ATTN: KEVIN MAYNE
CELL: 608-437-6770
EMAIL: kevin.mayne@mhtcinc.com



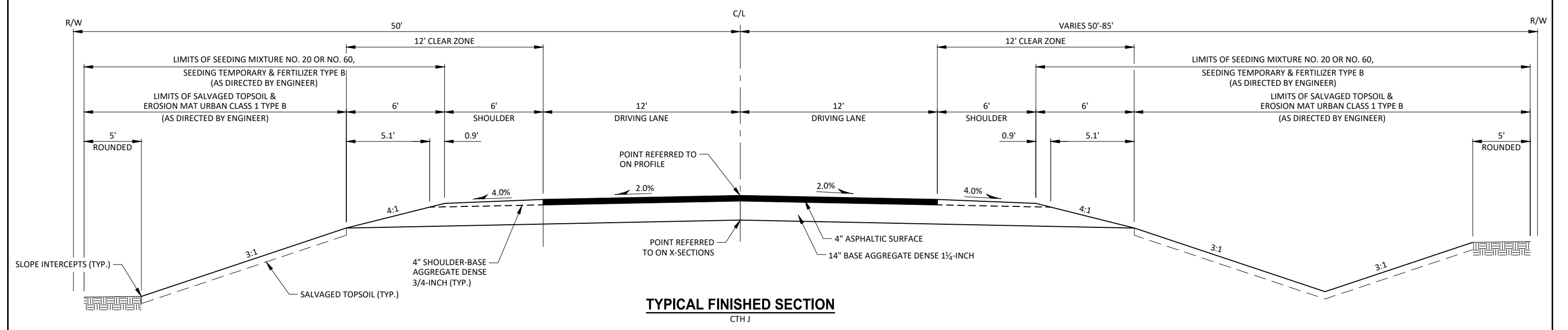
* DENOTES UTILITY IS NOT A MEMBER OF DIGGERS HOTLINE

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

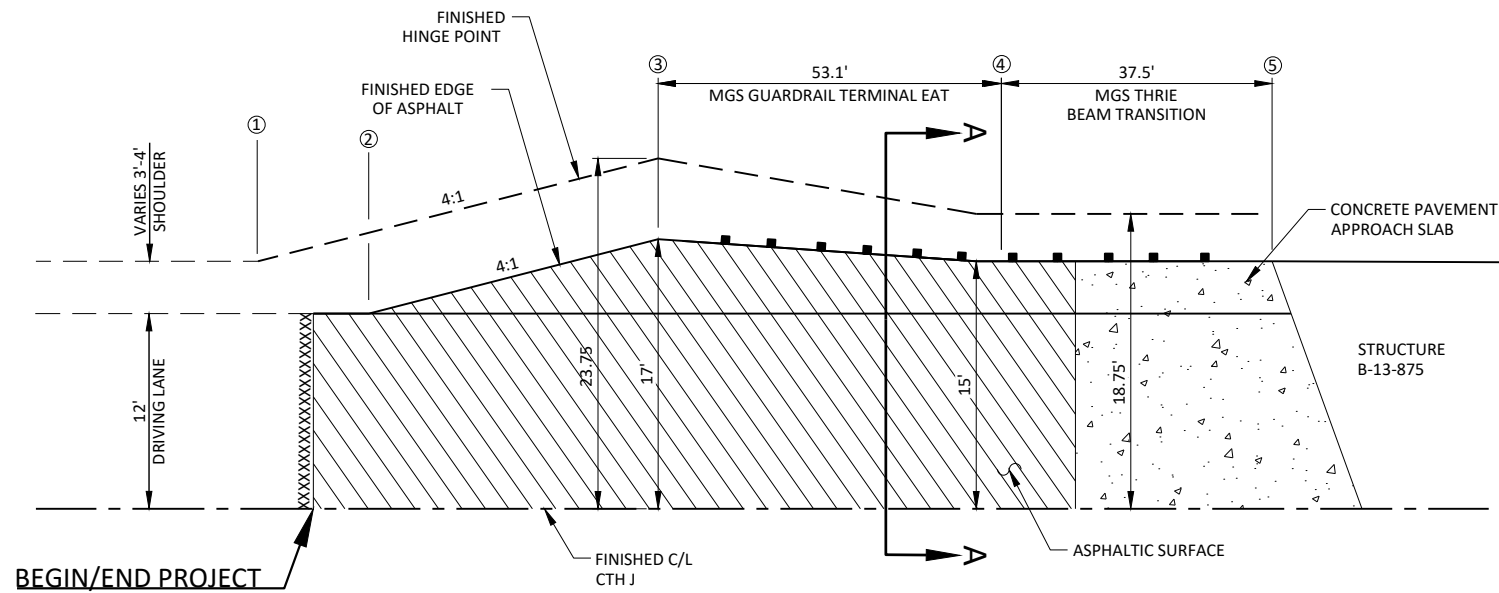
TOTAL PROJECT AREA= 0.90 ACRES
TOTAL AREA EXPECTED TO BE DISTURBED BY CONSTRUCTION ACTIVITIES = 0.63 ACRES



TYPICAL EXISTING SECTION
CTH J

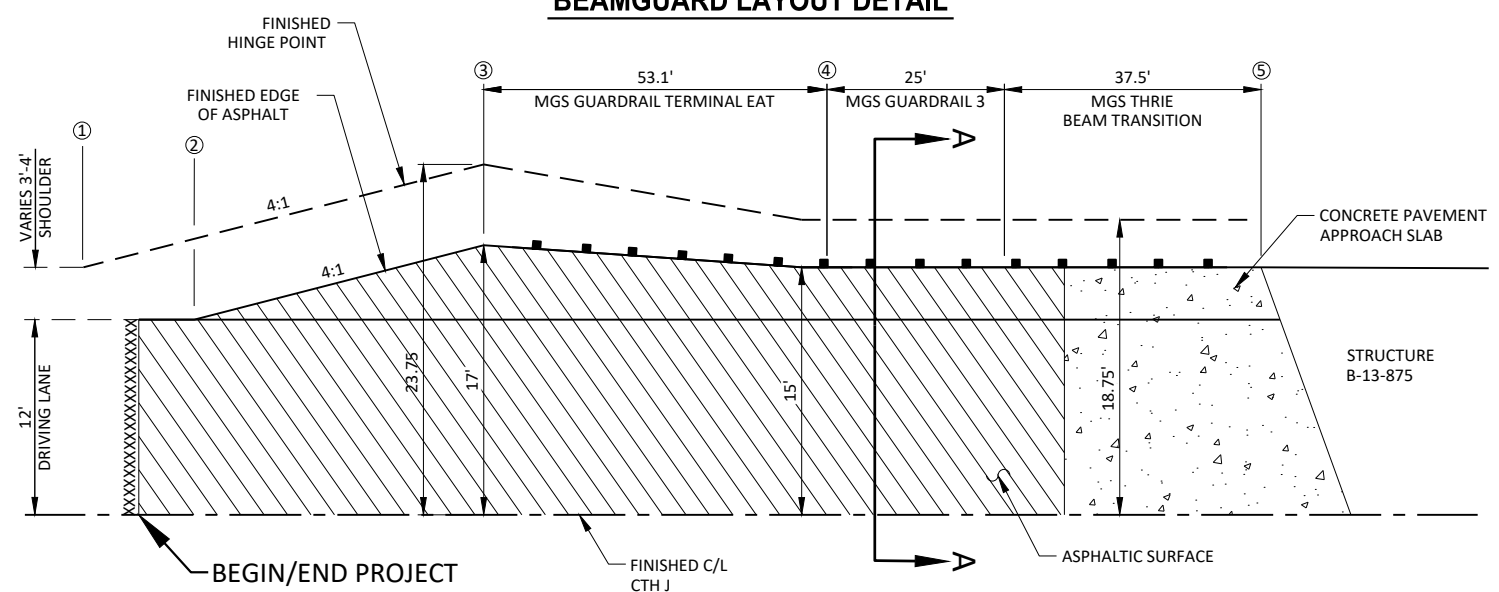


TYPICAL FINISHED SECTION
CTH J



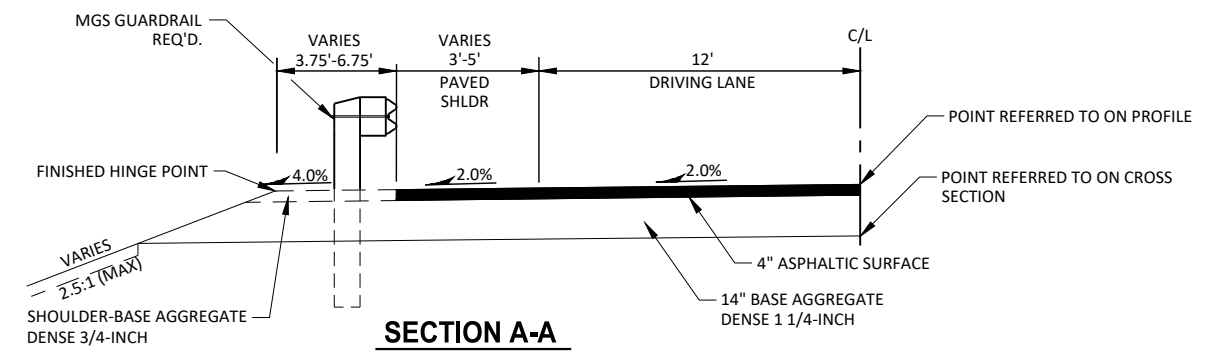
		STATION				
QUADRANT	LOCATION	①	②	③	④	⑤
NORTHWEST	MAINLINE, LT.	9+90	10+00	10+20	10+73	11+10
SOUTHEAST	MAINLINE, RT.	13+17	13+05	12+82	12+29	11+92

BEAMGUARD LAYOUT DETAIL

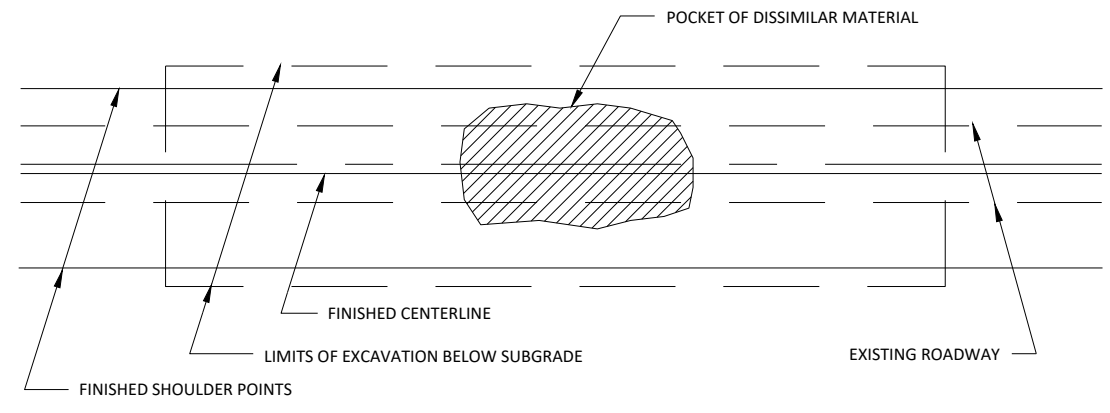


		STATION				
QUADRANT	LOCATION	①	②	③	④	⑤
SOUTHWEST	MAINLINE, RT.	9+77	9+92	10+12	10+65	11+27
NORTHEAST	MAINLINE, LT.	13+26	13+09	12+90	12+37	11+74

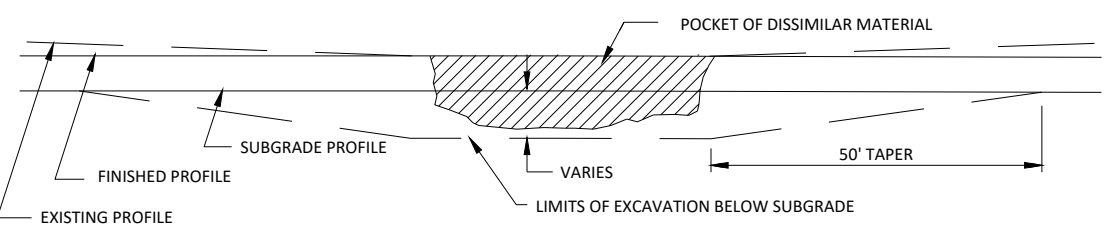
BEAMGUARD LAYOUT DETAIL



SECTION A-A

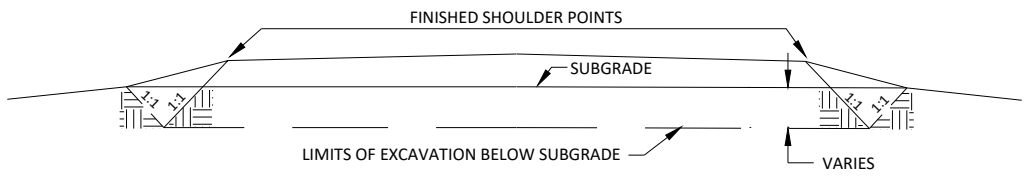


PLAN VIEW



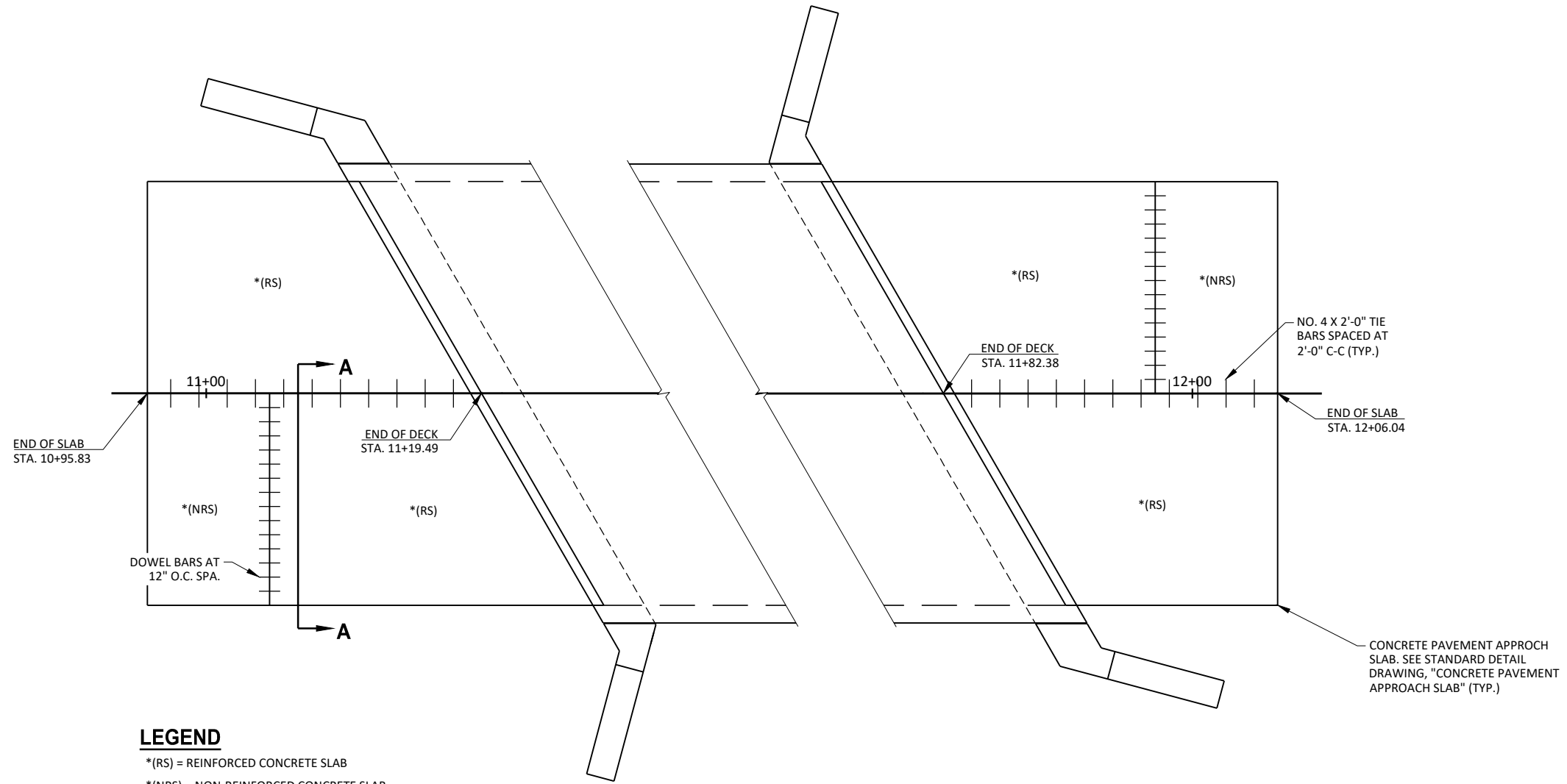
PROFILE VIEW

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



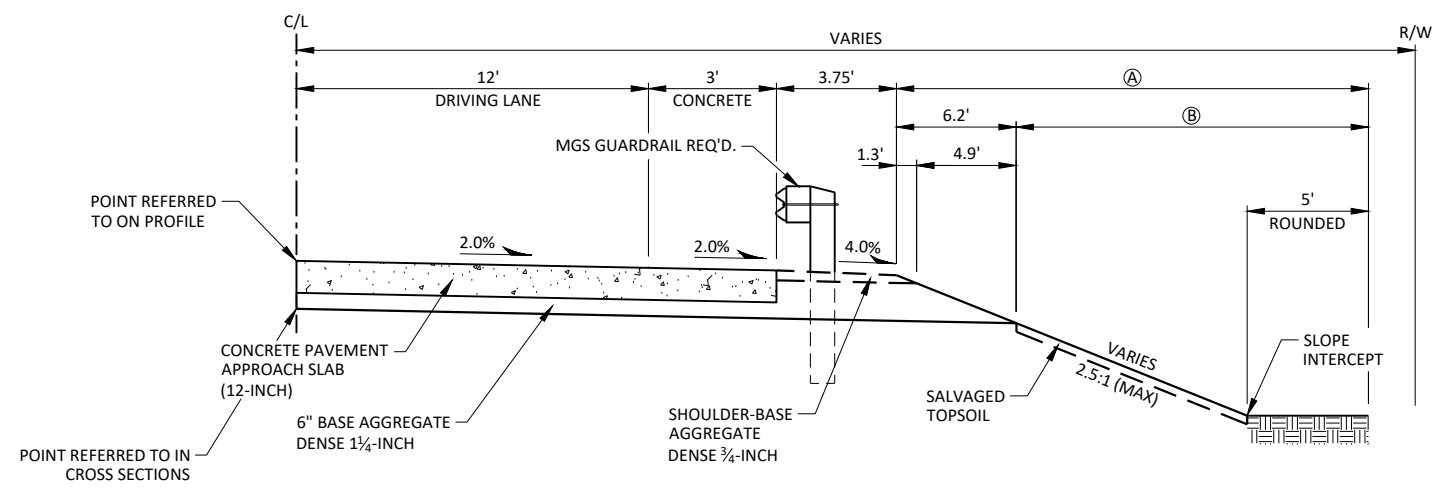
CROSS SECTION VIEW

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.



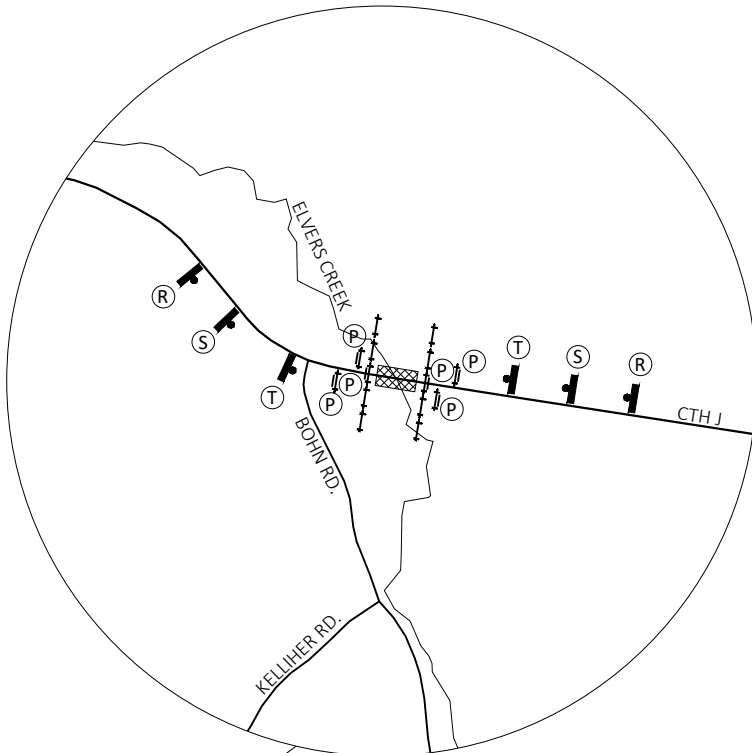
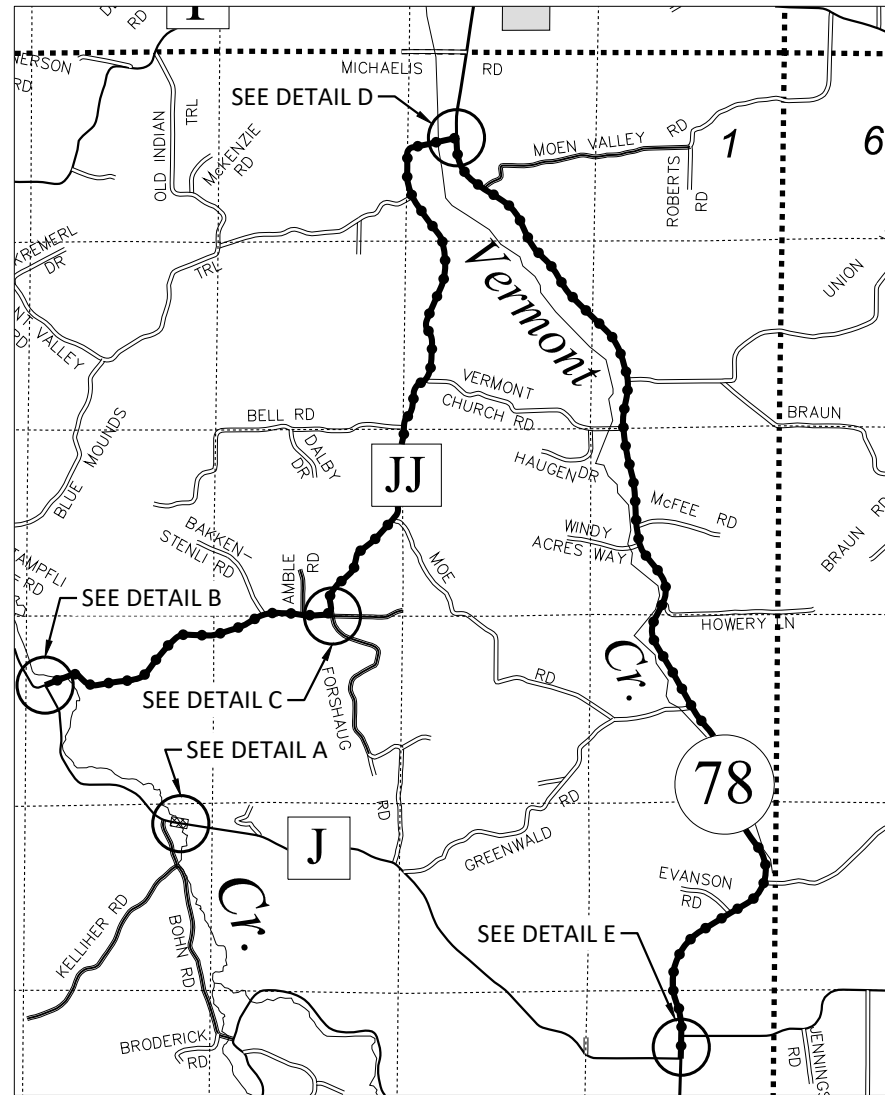
LEGEND
 *(RS) = REINFORCED CONCRETE SLAB
 *(NRS) = NON-REINFORCED CONCRETE SLAB

STRUCTURE APPROACH DETAILS



SECTION A-A

- Ⓐ LIMITS OF SEEDING MIXTURE NO. 20 OR NO. 60, SEEDING TEMPORARY, AND FERTILIZER TYPE B (AS DIRECTED BY ENGINEER)
- Ⓑ LIMITS OF SALVAGED TOPSOIL & EROSION MAT CLASS I TYPE B (AS DIRECTED BY ENGINEER)



SEE S.D.D. "BARRICADES AND SIGNS FOR MAINLINE CLOSURES" DETAIL C AND D
DETAIL A

LEGEND

- DETOUR ROUTE
- WORK ZONE
- COVER SIGN
- SIGN ON PERMANENT SUPPORT
- EXISTING SIGN ON SINGLE POST
- EXISTING SIGN ON DOUBLE POST
- BARRICADES TYPE III WITH ATTACHED SIGN AND WITH TRAFFIC CONTROL LIGHTS TYPE A
- BARRICADES TYPE III

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.

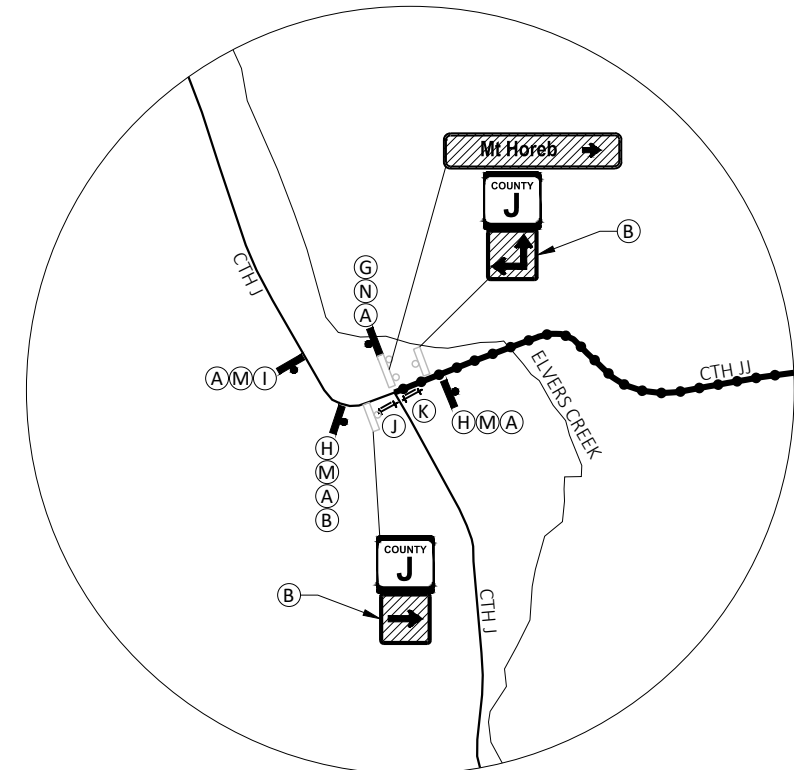
"WO" SIGNS ARE THE SAME AS "W" SIGNS EXCEPT THE BACKGROUND IS ORANGE.

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

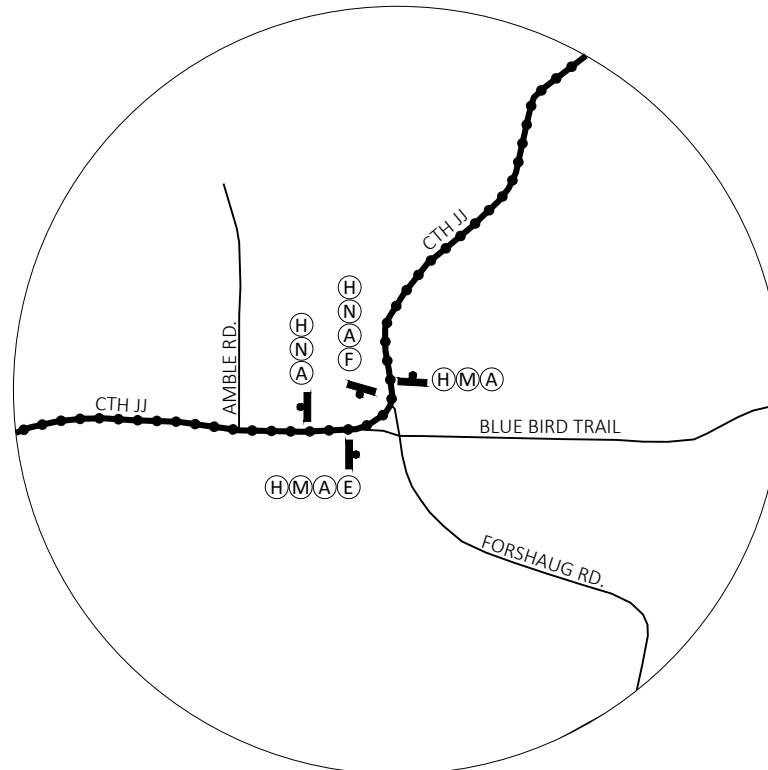
ALL "WO" AND "W" SIGNS SHALL BE 48"X48" UNLESS OTHERWISE NOTE.

IMMEDIATELY RE-ESTABLISH "STOP" SIGNS THAT ARE REMOVED FOR A CONSTRUCTION OPERATION.

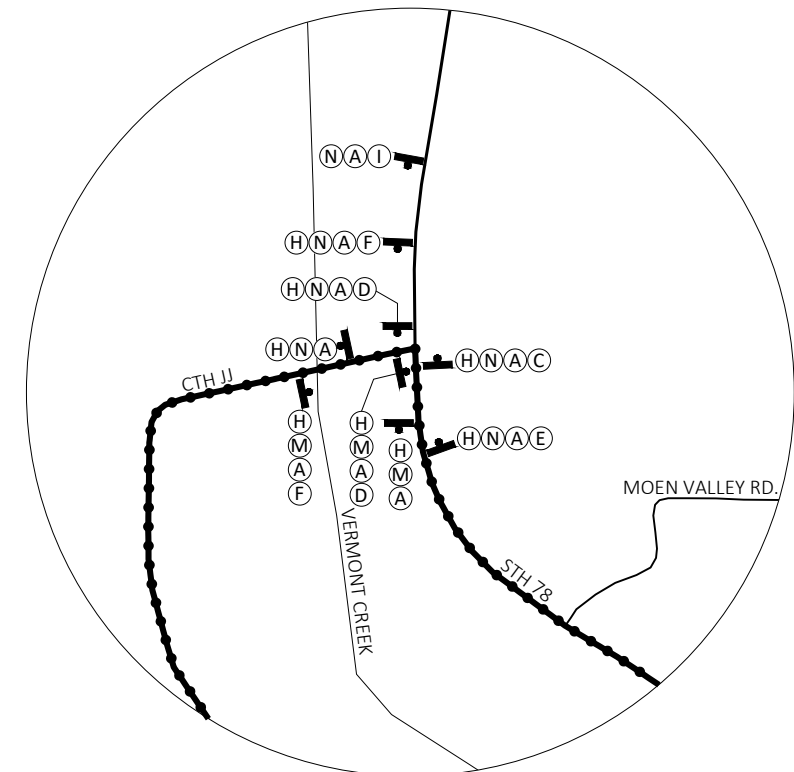
COUNTY J M1-5A 24"x24"	M06-1 21"x21"	M06-1 21"x21"	M06-1 21"x21"	M05-1L 21"x21"	M05-1R 21"x21"	M4-8A 24"x18"	M4-8 24"x12"	M4-9L 30"x24"	M4-9R 30"x24"	M3-2 24"x12"	M3-4 24"x12"	R11-2B 48"x30"	W20-3A	W20-3C	W20-3D
(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(K)	(L)	(M)	(N)	(J)	(P)	(S)	(T)



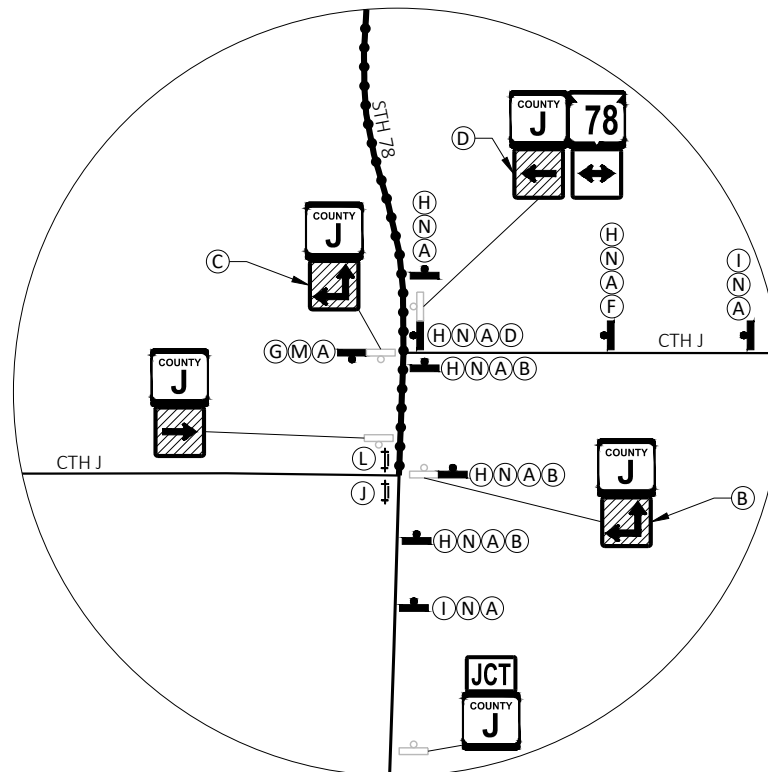
DETAIL B



DETAIL C



DETAIL D



DETAIL E

LEGEND

- DETOUR ROUTE
- WORK ZONE
- COVER SIGN
- SIGN ON PERMANENT SUPPORT
- EXISTING SIGN ON SINGLE POST
- EXISTING SIGN ON DOUBLE POST
- BARRICADES TYPE III WITH ATTACHED SIGN AND WITH TRAFFIC CONTROL LIGHTS TYPE A
- BARRICADES TYPE III

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 IN APPROPRIATE 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.

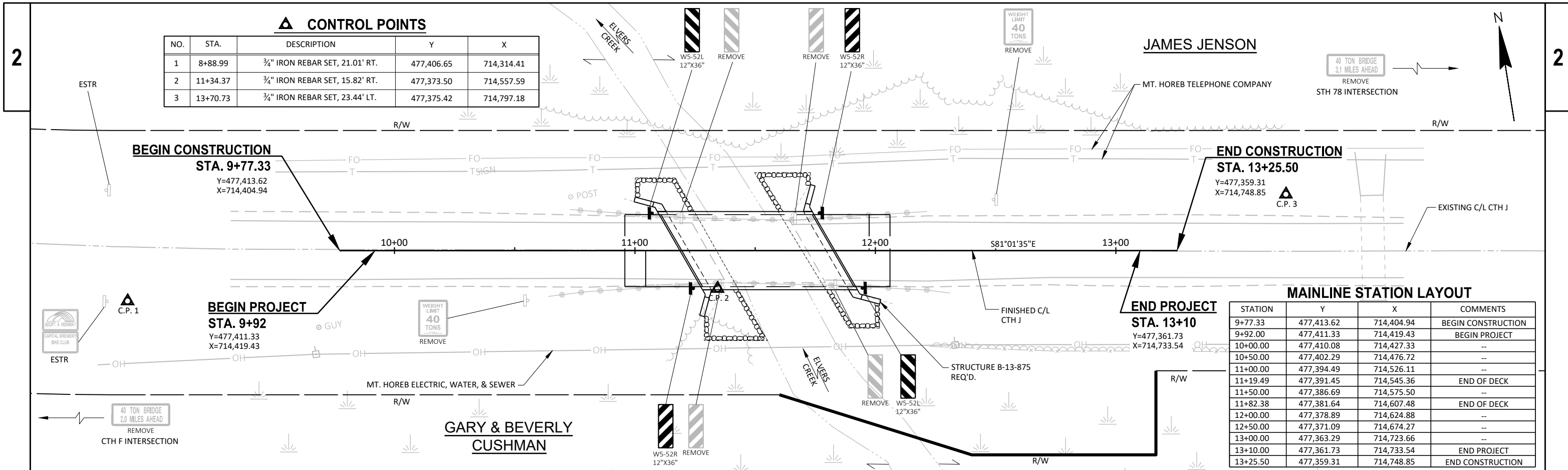
"WO" SIGNS ARE THE SAME AS "W" SIGNS EXCEPT THE BACKGROUND IS ORANGE.

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

ALL "WO" AND "W" SIGNS SHALL BE 48"X48" UNLESS OTHERWISE NOTE.

IMMEDIATELY RE-ESTABLISH "STOP" SIGNS THAT ARE REMOVED FOR A CONSTRUCTION OPERATION.

 M1-5A 24"x24"	 M05-1R 21"x21"	 BRIDGE OUT XX MILES AHEAD LOCAL TRAFFIC ONLY R11-3B 60"x30"	 BRIDGE OUT R11-2B 48"x30"	 ROAD CLOSED 1000 FT W20-3C
 M06-1 21"x21"	 END DETOUR M4-8A 24"x18"	 DETOUR M4-9L 30"x24"	 ROAD CLOSED AHEAD W20-3A	 ROAD CLOSED 500 FT W20-3D
 M06-1 21"x21"	 DETOUR M4-8 24"x12"	 DETOUR M4-9R 30"x24"		
 M06-1 21"x21"	 DETOUR AHEAD W20-2-A	 EAST M3-2 24"x12"		
 M05-1L 21"x21"		 WEST M3-4 24"x12"		

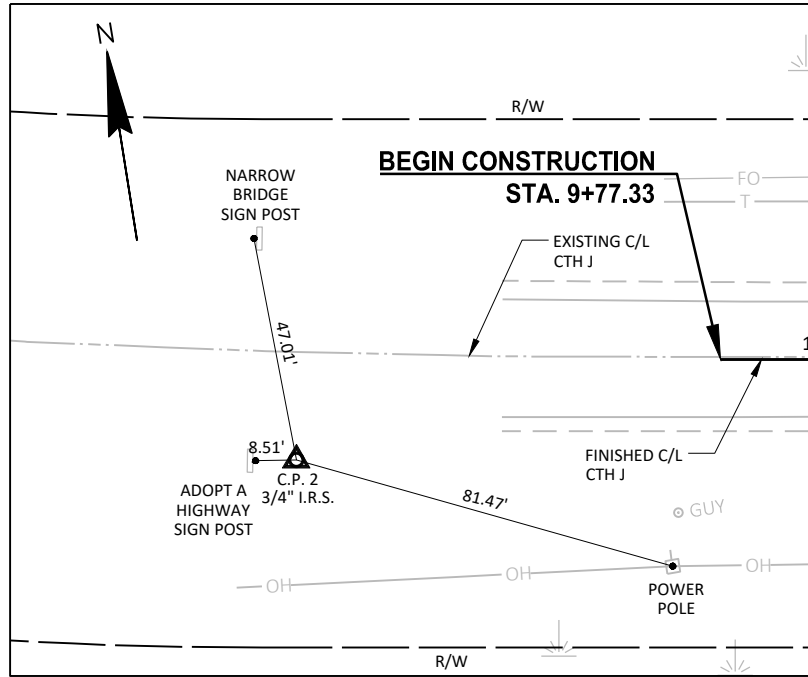


CONTROL POINTS

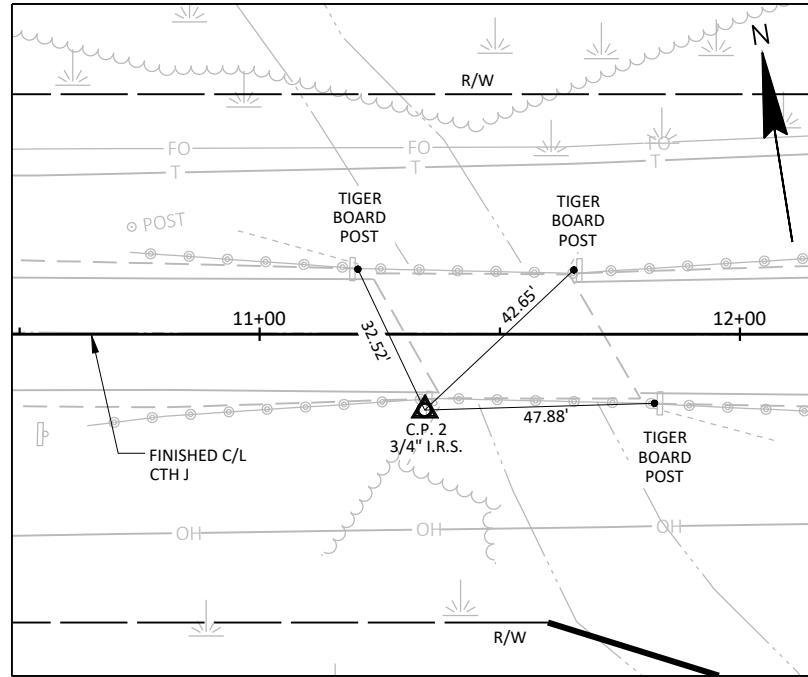
NO.	STA.	DESCRIPTION	Y	X
1	8+88.99	3/4" IRON REBAR SET, 21.01' RT.	477,406.65	714,314.41
2	11+34.37	3/4" IRON REBAR SET, 15.82' RT.	477,373.50	714,557.59
3	13+70.73	3/4" IRON REBAR SET, 23.44' LT.	477,375.42	714,797.18

MAINLINE STATION LAYOUT

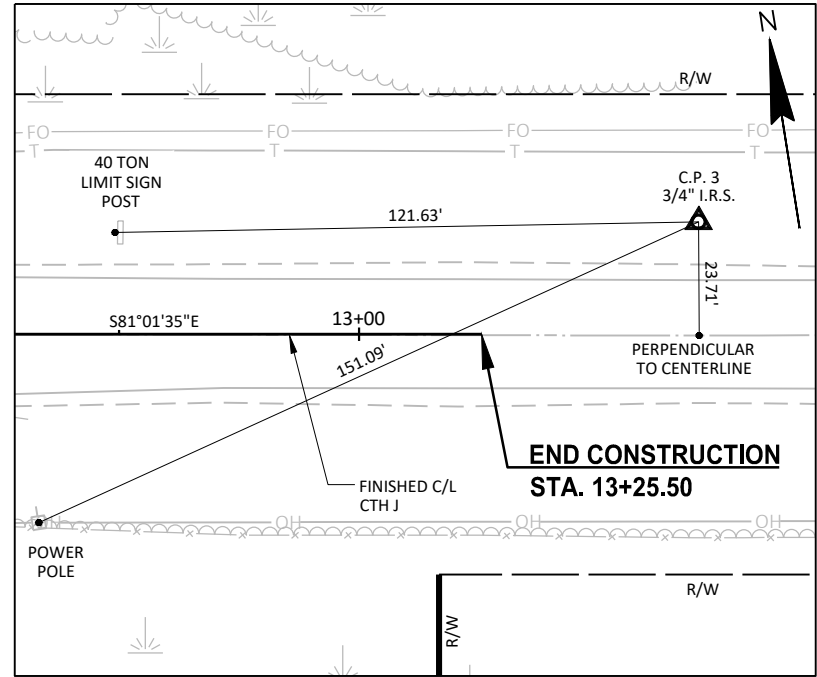
STATION	Y	X	COMMENTS
9+77.33	477,413.62	714,404.94	BEGIN CONSTRUCTION
9+92.00	477,411.33	714,419.43	BEGIN PROJECT
10+00.00	477,410.08	714,427.33	--
10+50.00	477,402.29	714,476.72	--
11+00.00	477,394.49	714,526.11	--
11+19.49	477,391.45	714,545.36	END OF DECK
11+50.00	477,386.69	714,575.50	--
11+82.38	477,381.64	714,607.48	END OF DECK
12+00.00	477,378.89	714,624.88	--
12+50.00	477,371.09	714,674.27	--
13+00.00	477,363.29	714,723.66	--
13+10.00	477,361.73	714,733.54	END PROJECT
13+25.50	477,359.31	714,748.85	END CONSTRUCTION



TIES TO C.P.#1
 STA. 8+88.99; 21.01' RT.
 Y = 477,406.65
 X = 714,314.41



TIES TO C.P.#2
 STA. 11+34.37; 15.82' RT.
 Y = 477,373.50
 X = 714,557.59



TIES TO C.P.#3
 STA. 13+70.73; 23.44' LT.
 Y = 477,375.42
 X = 714,797.18

CLEARING & GRUBBING

STATION	LOCATION	201.0105 CLEARING (STA)	201.0205 GRUBBING (STA)
11+00 - 13+00	MAINLINE	2	2
TOTALS =		2	2

EARTHWORK SUMMARY

FROM/TO STA	LOCATION	205.0100 EXCAVATION COMMON	AVAILABLE MATERIAL (CY) (1)	UNEXPANDED FILL (CY)	EXPANDED FILL (CY) FACTOR 1.25 (2)	MASS ORDINATE +/- (CY) (3)	WASTE (CY)
		CUT (CY)					
9+92 - 13+10	MAINLINE	760.0	760.0	536.0	670.0	90.0	90.0
TOTALS =		760.0	760.0	536.0	670.0	90.0	90.0

NOTES:

- 1.) AVAILABLE MATERIAL = CUT
- 2.) EXPANDED FILL FACTOR 1.25: EXPANDED FILL = (UNEXPANDED FILL)*1.25
- 3.) THE MASS ORDINATE+ OR - QTY CALCULATED FOR THE DIVISION. PLUS QUANTITY INDICATES AN EXCESS OF MATERIAL WITHIN THE CATEGORY. MINUS INDICATES A SHORTAGE OF MATERIAL WITHIN THE CATEGORY.

FINISHING ROADWAY

STATION-STATION	LOCATION	213.0100 (EACH)
-	CTH J	1
TOTAL =		1

FINISHING ITEMS

STATION - STATION	LOCATION	305.0110 BASE AGGREGATE DENSE 3/4-INCH (TON)	305.0120 BASE AGGREGATE DENSE 1 1/4-INCH (TON)	625.0500 SALVAGED TOPSOIL (SY)	628.2008 EROSION MAT URBAN CLASS I TYPE B (SY)	629.0210 FERTILIZER TYPE B (CWT)	630.0120 SEEDING MIXTURE NO. 20 (LB)	*630.0160 SEEDING MIXTURE NO. 60 (LB)	630.0200 SEEDING TEMPORARY (LB)	630.0500 SEED WATER (MGAL)
9+92 - 13+10	MAINLINE	85	1110	1,110	1,110	0.6	30	2	30	28
TOTALS =		85	1110	280	280	0.2	8	1	8	7
TOTALS =				1,390	1,390	0.8	38	3	38	35

*ALL AREAS ADJACENT TO EXISTING WETLANDS (STA. 11+16 - STA. 11+55, RT; STA. 11+75 - STA. 12+72, LT; STA. 11+95 - STA. 13+09 RT)

CONCRETE PAVEMENT APPROACH SLAB

STATION - STATION	LOCATION	415.0410 CONCRETE PAVEMENT APPROACH SLAB (SY)
10+96 - 11+27	MAINLINE	77
11+74 - 12+06	MAINLINE	77
TOTALS =		154

RIPRAP MEDIUM

STATION - STATION	LOCATION	606.0200 RIPRAP MEDIUM (CY)	645.0120 GEOTEXTILE TYPE HR (SY)
11+94 - 13+10	MAINLINE	70	125
TOTALS =		70	125

WATER

STATION-STATION	LOCATION	624.0100 (MGAL)
9+92 - 13+10	MAINLINE	18
TOTAL =		18

ASPHALTIC SURFACE

STATION - STATION	LOCATION	455.0605 TACK COAT (GAL)	465.0105 ASPHALTIC SURFACE (TON)
9+92 - 13+10	MAINLINE	55	175
TOTALS =		55	175

MOBILIZATION EROSION CONTROL

PROJECT	628.1905 MOBILIZATIONS EROSION CONTROL (EACH)	628.1910 MOBILIZATIONS EMERGENCY EROSION CONTROL (EACH)
CTH J	6	3
TOTALS =	6	3

TEMPORARY DITCH CHECKS

STATION	LOCATION	628.7504 (LF)
11+14	MAINLINE, RT.	12
-	UNDISTRIBUTED	12
TOTALS =		24

SILT FENCE

STATION - STATION	LOCATION	628.1504 SILT FENCE (LF)	628.1520 SILT FENCE MAINTENANCE (LF)
9+75 - 11+56	MAINLINE, RT.	239	478
9+91 - 11+27	MAINLINE, LT.	176	352
11+46 - 13+28	MAINLINE, LT.	236	472
11+75 - 12+49	MAINLINE, RT.	125	250
-	UNDISTRIBUTED	194	388
TOTALS =		970	1,940

TRAFFIC CONTROL

LOCATION	643.0420 BARRICADES TYPE III (DAY)	643.0705 WARNING LIGHTS TYPE A (DAY)	643.0900 SIGNS (DAY)	643.5000 TRAFFIC CONTROL (EACH)
PROJECT	1260	1400	8190	0.5
TOTALS =	1260	1400	8190	0.5

MARKING LINE EPOXY 4-INCH

STATION - STATION	LOCATION	TYPE	646.1020 (LF)
9+92 - 13+10	MAINLINE, RT	WHITE EDGE LINE	318
9+92 - 13+10	MAINLINE, LT	WHITE EDGE LINE	318
9+92 - 13+10	MAINLINE	DOUBLE YELLOW	636
TOTAL =			1,272

MGS GUARDRAIL

STATION - STATION	LOCATION	614.2300	614.2500	614.2610
		MGS GUARDRAIL 3 (LF)	MGS THRIE BEAM TRANSITION (LF)	MGS GUARDRAIL TERMINAL EAT (EACH)
10+12	MAINLINE, RT.	-	-	1
10+20	MAINLINE, LT.	-	-	1
10+65 - 11+27	MAINLINE, RT.	25	40	-
10+69 - 11+10	MAINLINE, LT.	-	40	-
11+74 - 12+36	MAINLINE, LT.	25	40	-
11+92 - 12+32	MAINLINE, RT.	-	40	-
12+82	MAINLINE, RT.	-	-	1
12+90	MAINLINE, LT.	-	-	1
TOTALS =		50	160	4

PERMANENT SIGNING

APPROX. STATION	LOCATION	SIGN CODE	SIGN DESCRIPTION	ORDER LINES	SIGN SIZE	634.0612	637.2230	638.2602	638.3000
						POSTS WOOD 4X6- INCH X 12-FT (EACH)	SIGNS TYPE II REFLECTIVE F (SF)	REMOVING SIGNS TYPE II (EACH)	REMOVING SMALL SIGN SUPPORTS (EACH)
-	CTH F INTERSECTION	R12-55	__TON BRIDGE__ MILESS AHEAD	40; 2.0	-	-	-	1	1
11+07	MAINLINE, LT.	W5-52L	BRIDGE HASH MARKS	-	12X36	1	3.00	-	-
11+20	MAINLINE, LT.	W5-52L	BRIDGE HASH MARKS	-	-	-	-	1	1
11+24	MAINLINE, RT.	W5-	BRIDGE HASH MARKS	-	12X36	1	3.00	-	-
11+36	MAINLINE, RT.	W5-	BRIDGE HASH MARKS	-	-	-	-	1	1
11+65	MAINLINE, LT.	W5-	BRIDGE HASH MARKS	-	-	-	-	1	1
11+77	MAINLINE, LT.	W5-52L	BRIDGE HASH MARKS	-	12X36	1	3.00	-	-
11+82	MAINLINE, RT.	W5-52L	BRIDGE HASH MARKS	-	-	-	-	1	1
11+95	MAINLINE, RT.	W5-	BRIDGE HASH MARKS	-	12X36	1	3.00	-	-
12+49	MAINLINE, LT.	R12-1	WEIGHT LIMIT __TON	40	-	-	-	1	1
-	STH 78	R12-55	__TON BRIDGE__ MILESS AHEAD	40; 3.1	-	-	-	1	1
TOTALS =						4	12.00	7	7

MARKERS ROW

PT. NO.	STATION	OFFSET FROM FINISHED C/L	633.5100 (EACH)
100	9+90.07	50.00 LT.	1
101	13+16.62	50.00 LT.	1
102	13+16.62	50.00 RT.	1
103	13+16.62	85.00 RT.	1
104	12+40.00	85.00 RT.	1
105	11+60.00	60.00 RT.	1
106	9+90.07	60.00 RT.	1
TOTALS =			7

CONSTRUCTION STAKING

STATION - STATION	LOCATION	CONSTRUCTION STAKING				
		650.4500 SUBGRADE (LF)	650.5000 BASE (LF)	650.6500 STRUCTURE LAYOUT (B-13-875) (LS)	650.9910 SUPPLEMENTAL CONTROL (LS)	650.9920 SLOPES STAKES (LF)
9+92 - 13+10	MAINLINE	318	318	-	-	318
-	PROJECT	-	-	1	1	-
TOTALS =		318	318	1	1	318

REMOVING GUARDRAIL

STATION - STATION	LOCATION	204.0165 (LF)
10+64 - 11+38	MAINLINE, RT.	74
10+73 - 11+24	MAINLINE, LT.	50
11+64 - 12+22	MAINLINE, LT.	58
11+78 - 12+32	MAINLINE, RT.	54
TOTALS =		236

MOBILIZATION

STATION-STATION	LOCATION	619.1000 (EACH)
-	CTH J	0.5
TOTAL =		0.5

FIELD OFFICE TYPE B

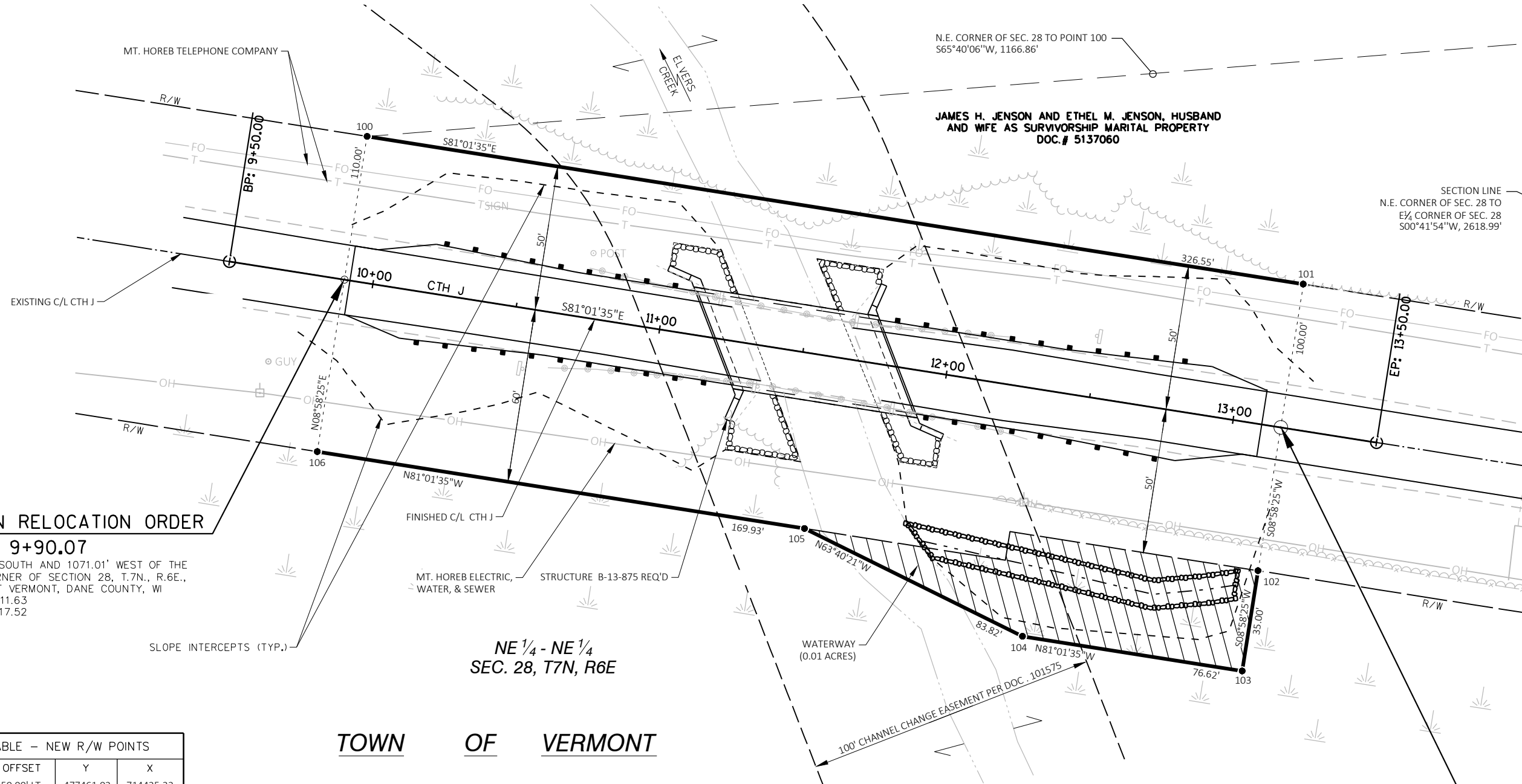
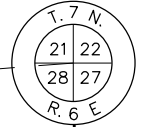
LOCATION	642.5001 TYPE III (EACH)	
CTH J	0.5	
TOTALS =		0.5

SAWING ASPHALT

STATION	LOCATION	690.0150 (LF)
9+92	MAINLINE	24
13+10	MAINLINE	24
TOTAL =		48

EASEMENT TABLE			
OWNER	RECORDING INFORMATION	LOCATED IN	REMARKS
MOUNT HOREB TELEPHONE COMPANY	DOC. #1855132, VOL. 6185, PG. 51-52	JAMES & ETHEL JENSON PROPERTY	TELEPHONE RIGHT-OF-WAY EASEMENT ALONG BOHN ROAD AND CTH J, IN NE¼, SEC. 28, T7N, R6E)

N.E. CORNER SEC. 28
FOUND 1½" IRON PIPE
Y = 477941.79
X = 715488.54



BEGIN RELOCATION ORDER

STA. 9+90.07

530.16' SOUTH AND 1071.01' WEST OF THE N.E. CORNER OF SECTION 28, T.7N., R.6E., TOWN OF VERMONT, DANE COUNTY, WI
Y = 477411.63
X = 714417.52

END RELOCATION ORDER

STA. 13+16.62

581.09' SOUTH AND 748.46' WEST OF THE N.E. CORNER OF SECTION 28, T.7N., R.6E., TOWN OF VERMONT, DANE COUNTY, WI
Y = 477360.70
X = 714740.08

TOWN OF VERMONT

SCHEDULE OF LANDS & INTERESTS REQUIRED

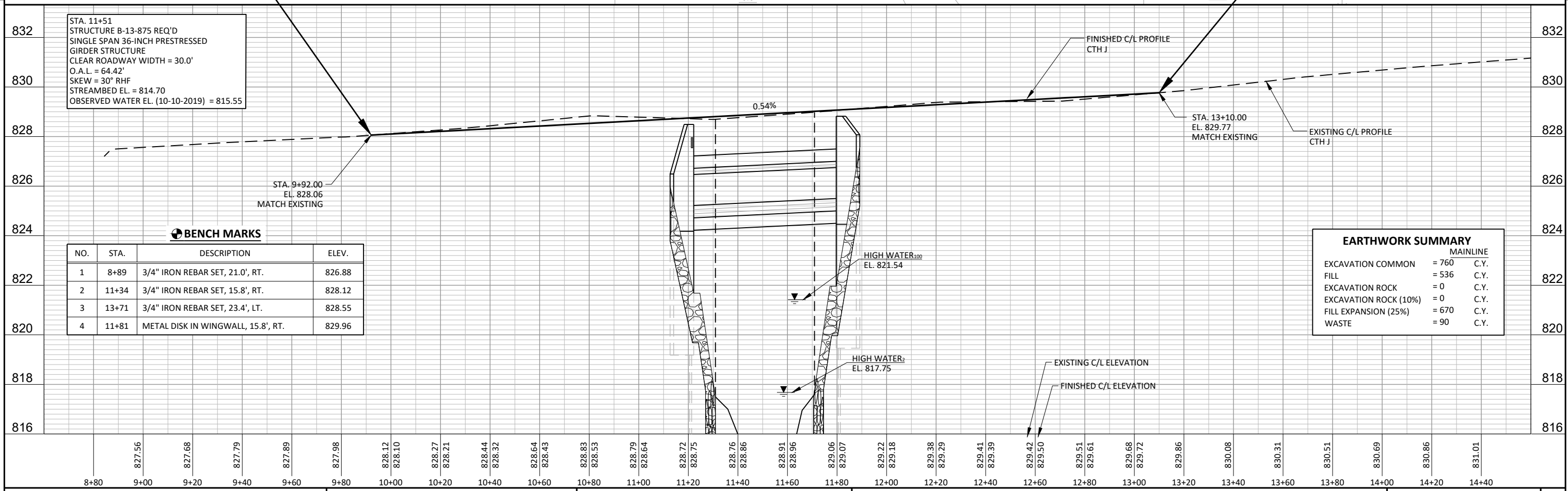
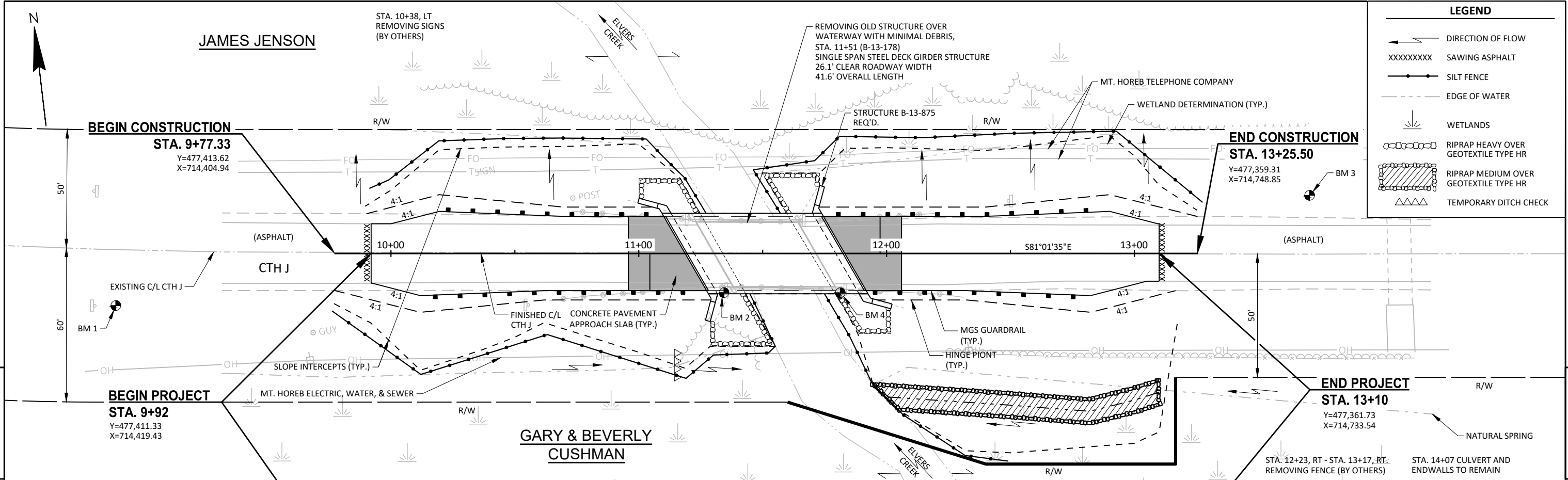
PARCEL NUMBER	OWNER (S)	INTEREST REQUIRED	R/W ACRES REQUIRED		
			NEW	EXISTING	TOTAL
1	GARY C. CUSHMAN AND BEVERLY A. CUSHMAN, HUSBAND AND WIFE AS SURVIVORSHIP MARITAL PROPERTY	FEE	0.09	0.43	0.52

NOTE: AREAS SHOWN IN THE TOTAL ACRES COLUMN MAY BE APPROXIMATE AND ARE DERIVED FROM THE TAX ROLLS OR OTHER AVAILABLE SOURCES AND MAY NOT INCLUDE LANDS OF THE OWNER WHICH ARE NOT CONTIGUOUS TO THE AREA TO BE ACQUIRED. OWNER'S NAMES ARE SHOWN FOR REFERENCE PURPOSES ONLY AND ARE SUBJECT TO CHANGE PRIOR TO THE TRANSFER OF LAND INTERESTS TO DANE COUNTY.

COORDINATE TABLE - NEW R/W POINTS				
PT.#	STATION	OFFSET	Y	X
100	9+90.07	50.00' LT.	477461.02	714425.32
101	13+16.62	50.00' LT.	477410.09	714747.88
102	13+16.62	50.00' RT.	477311.31	714732.28
103	13+16.62	85.00' RT.	477276.74	714726.82
104	12+40.00	85.00' RT.	477288.69	714651.14
105	11+60.00	60.00' RT.	477325.86	714576.01
106	9+90.07	60.00' RT.	477352.37	714408.16

NOTE: EXISTING C/L OF CTH J WAS BASED ON PLAT OF RIGHT OF WAY PROJECT 1212.
BASIS OF EXISTING RIGHT-OF-WAY FOR CTH J WAS BASED ON PLAT OF RIGHT OF WAY PROJECT 1212 AND AWARDS OF DAMAGES DOC 1011575, VOL. 337, PG. 442-443.

REVISION DATE	DATE	SCALE, FEET 0 20 40	HWY: CTH J	PROJECT NUMBER: D73010	PLAT SHEET 4.02
	GRID FACTOR		COUNTY: DANE		PS&E SHEET E



STA. 11+51
 STRUCTURE B-13-875 REQ'D
 SINGLE SPAN 36-INCH PRESTRESSED
 GIRDER STRUCTURE
 CLEAR ROADWAY WIDTH = 30.0'
 O.A.L. = 64.42'
 SKEW = 30° RHF
 STREAMBED EL. = 814.70
 OBSERVED WATER EL. (10-10-2019) = 815.55

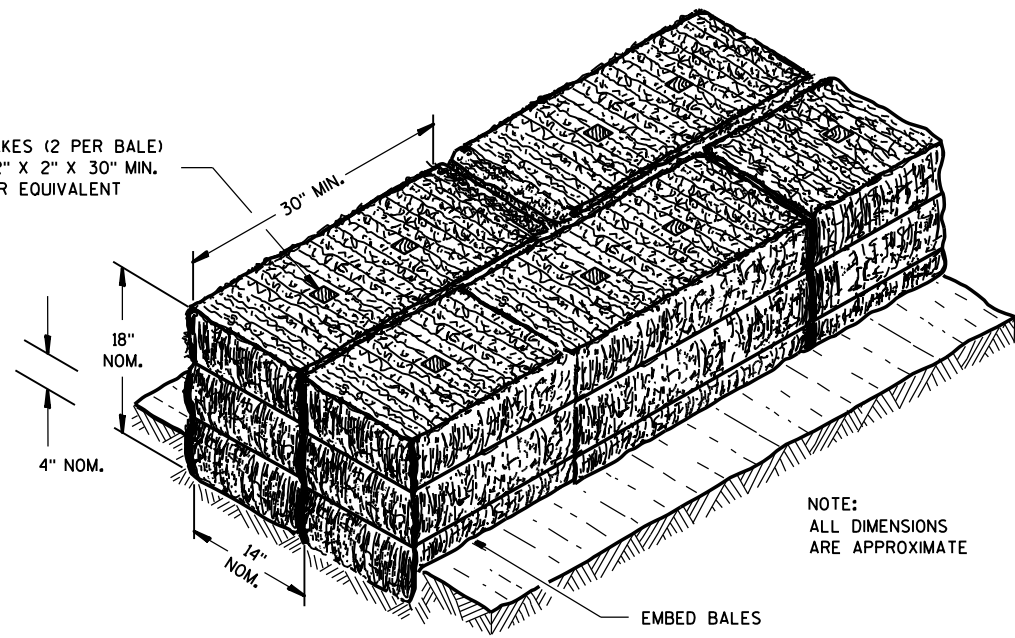
BENCH MARKS

NO.	STA.	DESCRIPTION	ELEV.
1	8+89	3/4" IRON REBAR SET, 21.0', RT.	826.88
2	11+34	3/4" IRON REBAR SET, 15.8', RT.	828.12
3	13+71	3/4" IRON REBAR SET, 23.4', LT.	828.55
4	11+81	METAL DISK IN WINGWALL, 15.8', RT.	829.96

EARTHWORK SUMMARY

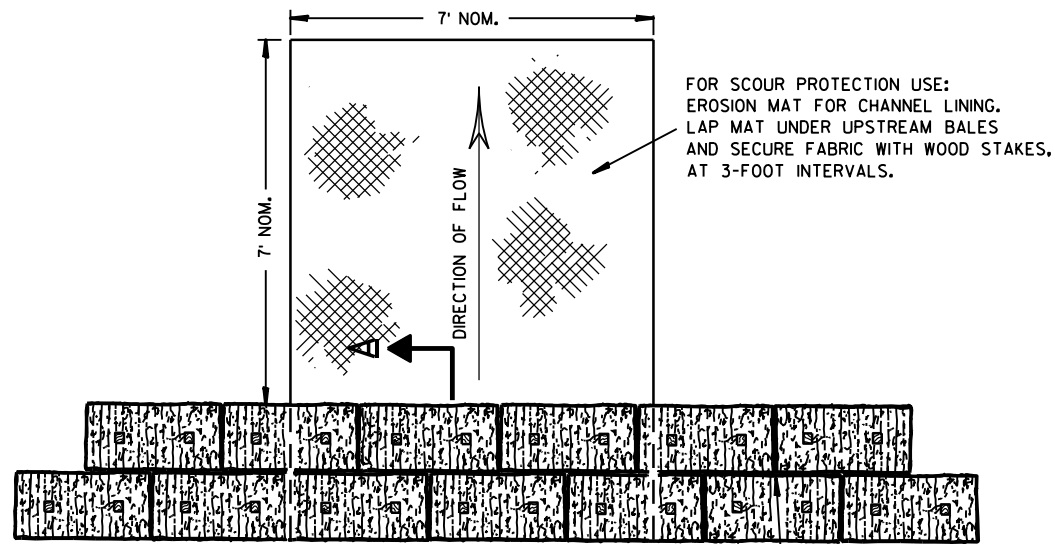
	MAINLINE
EXCAVATION COMMON	= 760 C.Y.
FILL	= 536 C.Y.
EXCAVATION ROCK	= 0 C.Y.
EXCAVATION ROCK (10%)	= 0 C.Y.
FILL EXPANSION (25%)	= 670 C.Y.
WASTE	= 90 C.Y.

WOOD STAKES (2 PER BALE)
NOMINAL 2" X 2" X 30" MIN.
LENGTH OR EQUIVALENT



NOTE:
ALL DIMENSIONS
ARE APPROXIMATE

SECTION A-A

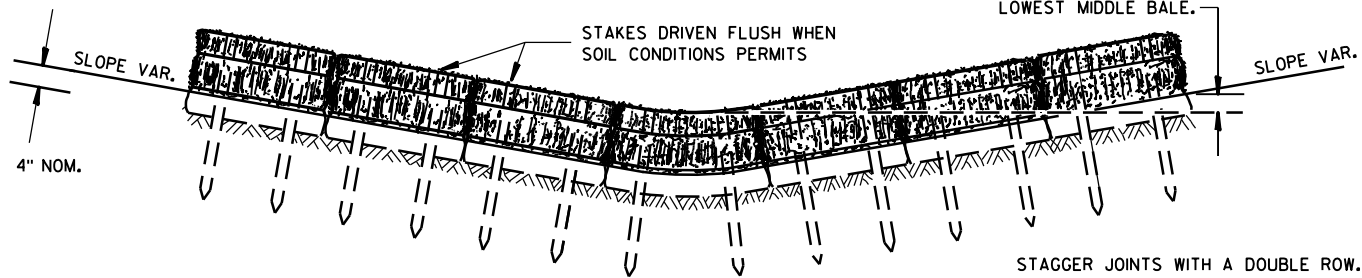


FOR SCOUR PROTECTION USE:
EROSION MAT FOR CHANNEL LINING.
LAP MAT UNDER UPSTREAM BALES
AND SECURE FABRIC WITH WOOD STAKES,
AT 3-FOOT INTERVALS.

PLAN VIEW

STAGGER JOINTS BETWEEN ADJACENT
ROWS OF BALES.

BOTTOM ELEVATION OF END BALE SHALL
BE EQUAL TO OR GREATER THAN TOP OF
LOWEST MIDDLE BALE.



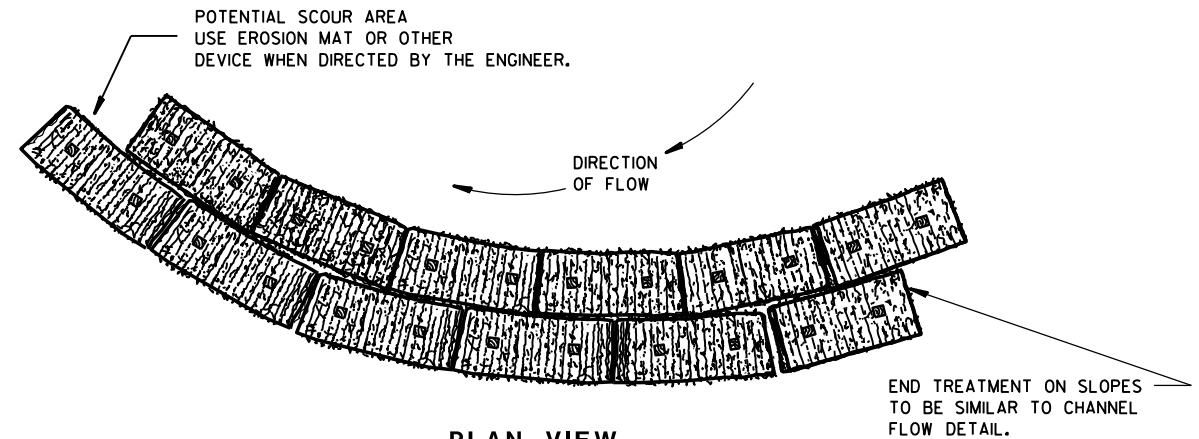
FRONT ELEVATION

TEMPORARY DITCH CHECK USING EROSION BALES ①

GENERAL NOTES

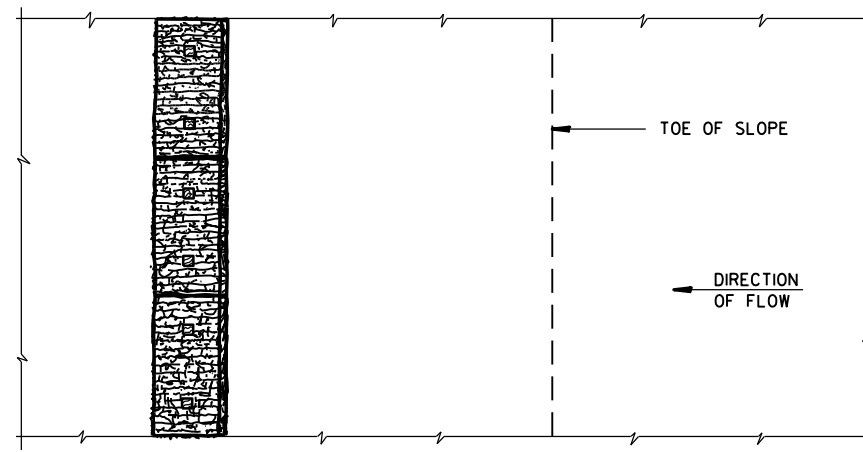
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

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

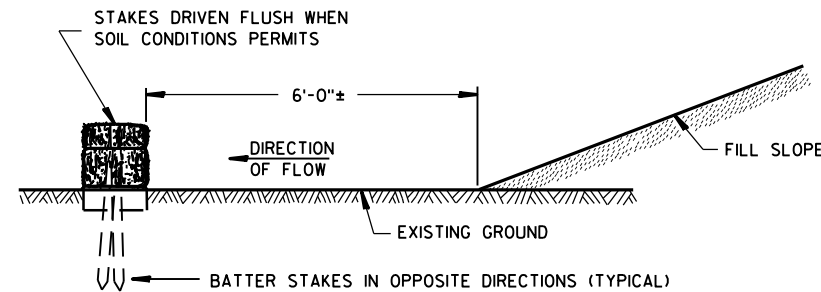


PLAN VIEW

WHEN ALTERING THE DIRECTION OF FLOW



PLAN VIEW



FRONT ELEVATION

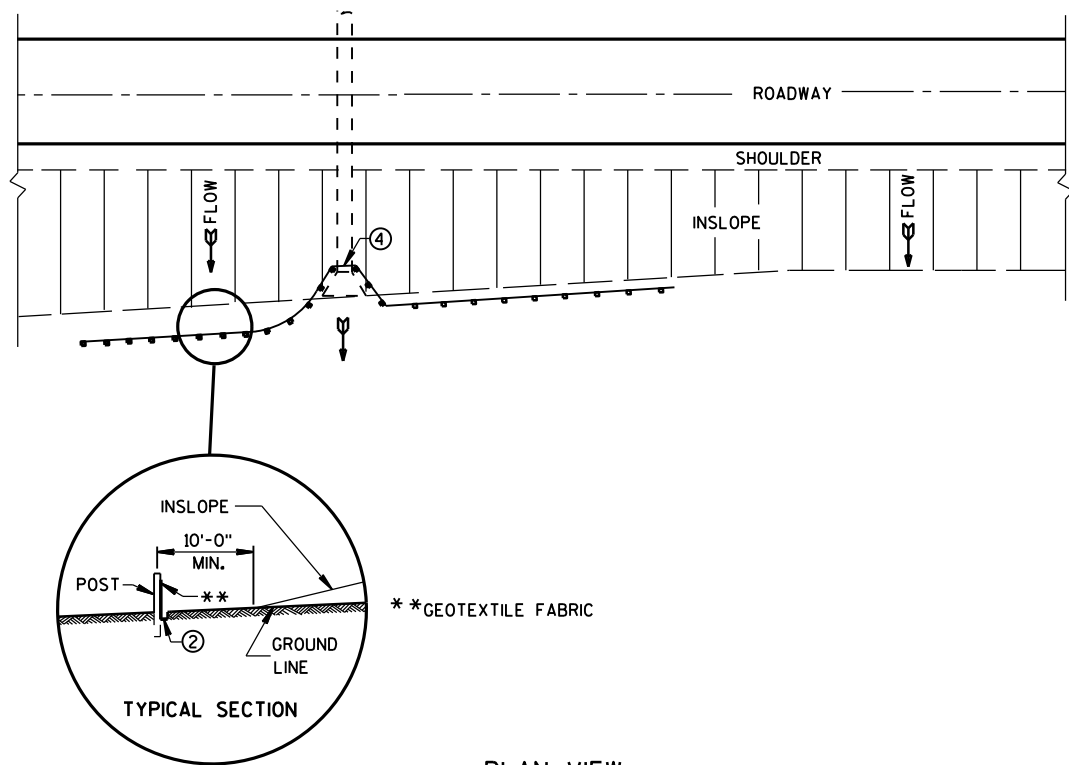
WHEN EXISTING GROUND SLOPES AWAY FROM FILL SLOPE

EROSION BALES FOR SHEET FLOW

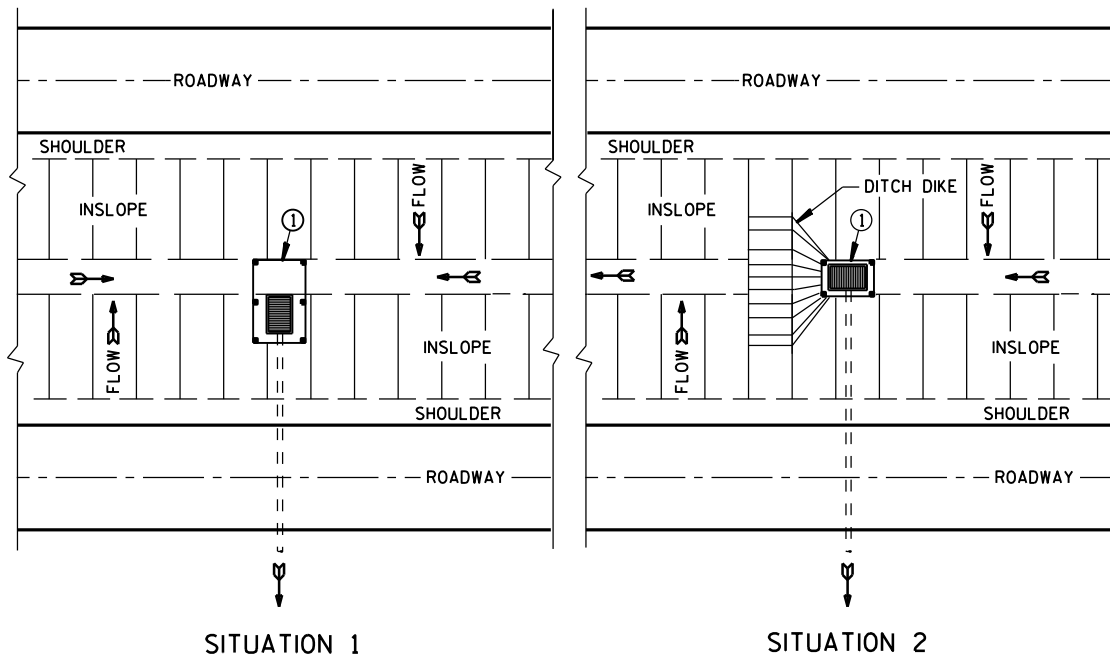
TYPICAL INSTALLATIONS OF
EROSION BALES / TEMPORARY
DITCH CHECKS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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



**PLAN VIEW
TYPICAL APPLICATION OF SILT FENCE**

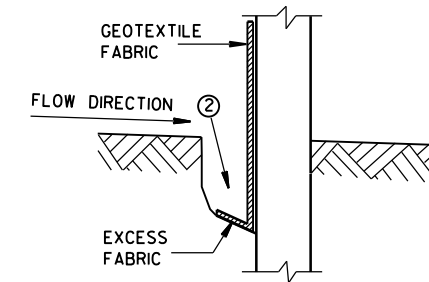


**SITUATION 1 SITUATION 2
PLAN VIEW
SILT FENCE AT MEDIAN SURFACE DRAINS**

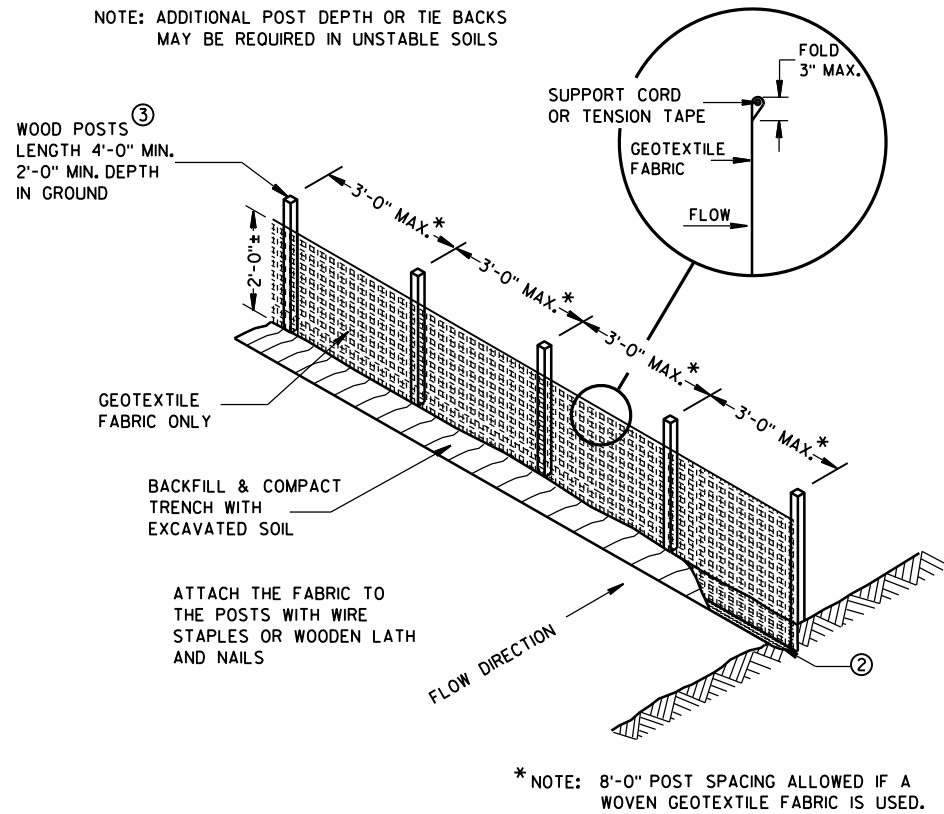
GENERAL NOTES

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

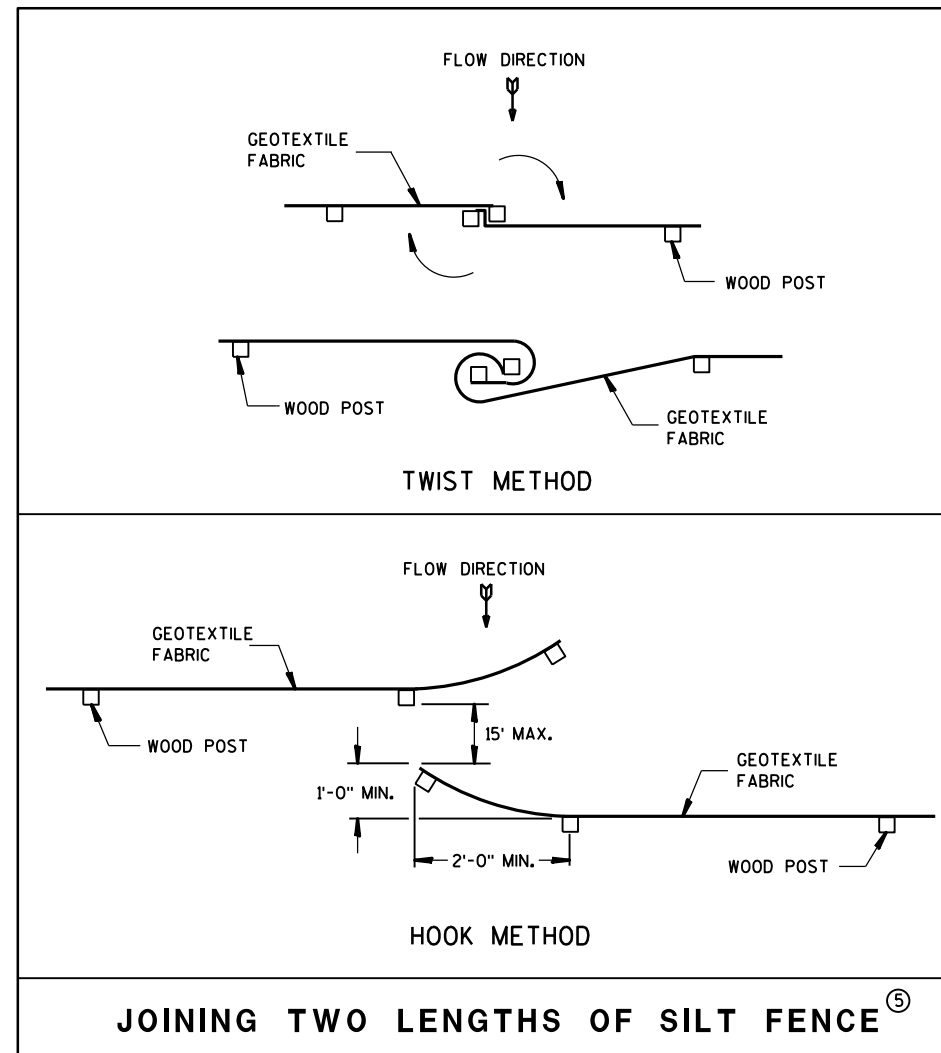
- ① HORIZONTAL BRACE REQUIRED WITH 2" X 4" WOODEN FRAME OR EQUIVALENT AT TOP OF POSTS.
- ② FOR MANUAL INSTALLATIONS THE TRENCH SHALL BE A MINIMUM OF 4" WIDE & 6" DEEP TO BURY AND ANCHOR THE GEOTEXTILE FABRIC. FOLD MATERIAL TO FIT TRENCH AND BACKFILL & COMPACT TRENCH WITH EXCAVATED SOIL.
- ③ WOOD POSTS SHALL BE A MINIMUM SIZE OF 1 1/8" X 1 1/8" OF OAK OR HICKORY.
- ④ SILT FENCE TO EXTEND ACROSS THE TOP OF THE PIPE.
- ⑤ CONSTRUCT SILT FENCE FROM A CONTINUOUS ROLL IF POSSIBLE BY CUTTING LENGTHS TO AVOID JOINTS. IF A JOINT IS NECESSARY USE ONE OF THE FOLLOWING TWO METHODS; A) OVERLAP THE END POSTS AND TWIST, OR ROTATE, AT LEAST 180 DEGREES, B) HOOK THE END OF EACH SILT FENCE LENGTH.



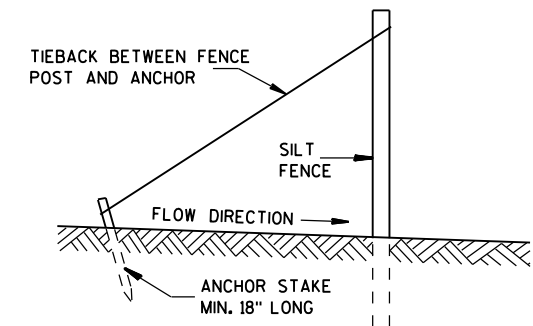
TRENCH DETAIL



SILT FENCE

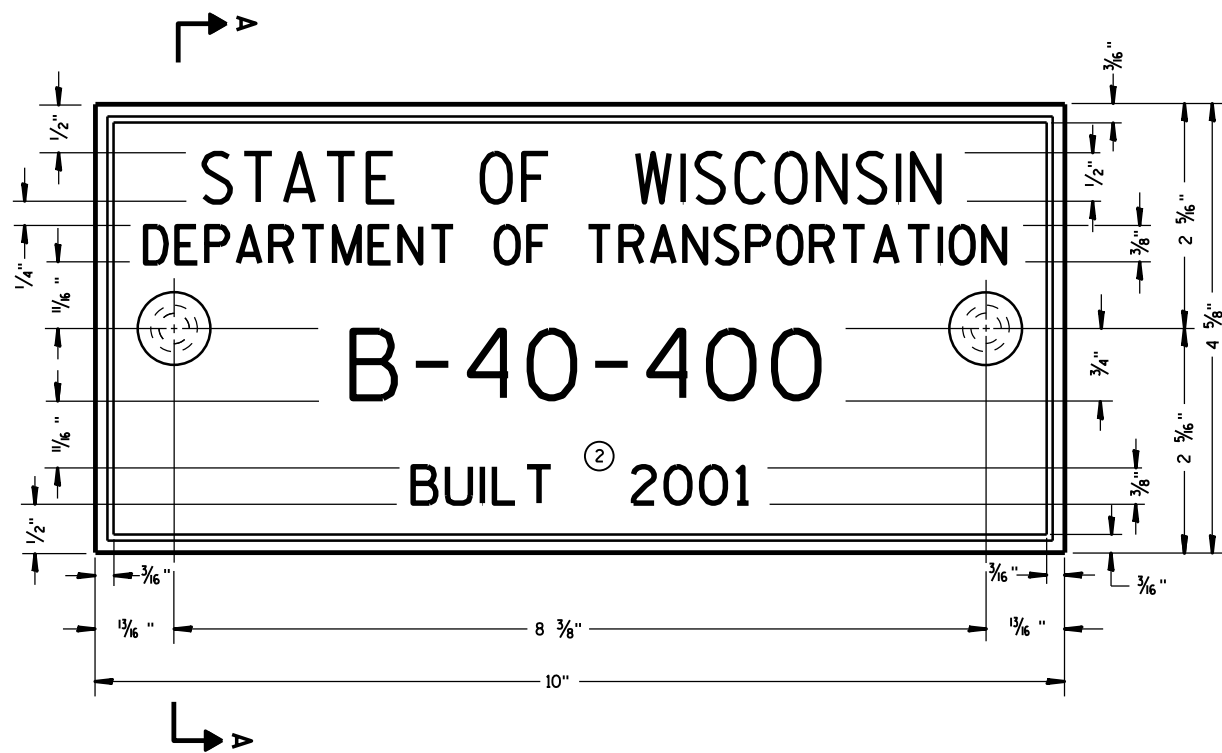


JOINING TWO LENGTHS OF SILT FENCE



**SILT FENCE TIE BACK
(WHEN REQUIRED BY THE ENGINEER)**

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



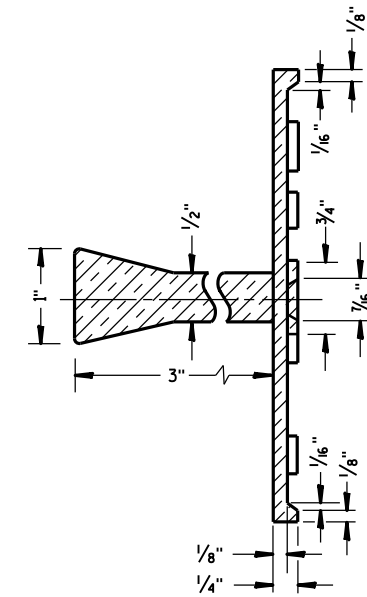
TYPICAL NAME PLATE
(BRIDGES, CULVERTS, AND RETAINING WALLS)

GENERAL NOTES

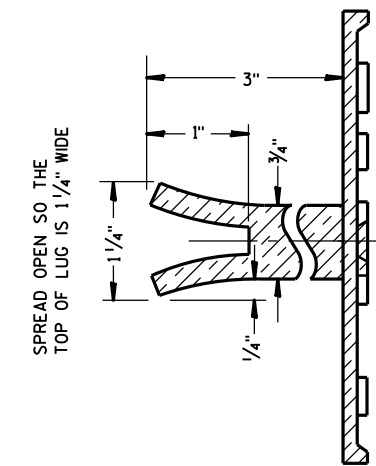
NAME PLATES TO BE INSTALLED ON BRIDGES, CULVERTS, AND RETAINING WALLS SHALL CONFORM TO THE REQUIREMENTS OF SECTION 502.3.11 OF THE STANDARD SPECIFICATIONS.

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

- ① EPOXY RESIN SHALL BE FROM AN APPROVED MANUFACTURER AND USED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
- ② REHABILITATION OF AN EXISTING STRUCTURE SHOULD USE THE DATE OF ORIGINAL STRUCTURE CONSTRUCTION.



SECTION A-A



SPREAD OPEN SO THE TOP OF LUG IS 1 1/4" WIDE

ALTERNATE LUG

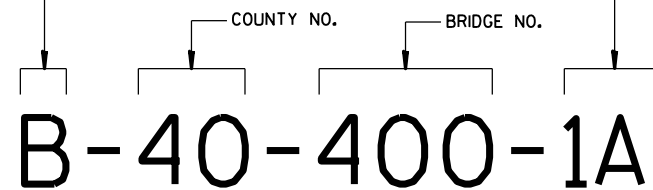
6

6

FOR MULTI-UNIT STRUCTURES
LINE 3 ABOVE SHALL READ

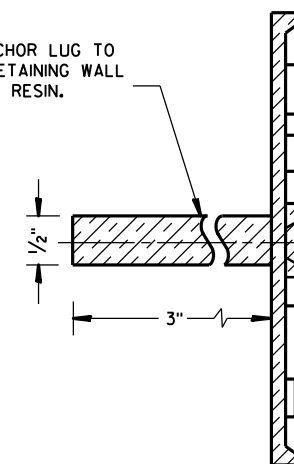
B = BRIDGE
C = CULVERT
R = RETAINING WALL

UNIT NO. FOR MULTIPLE
UNIT BRIDGE



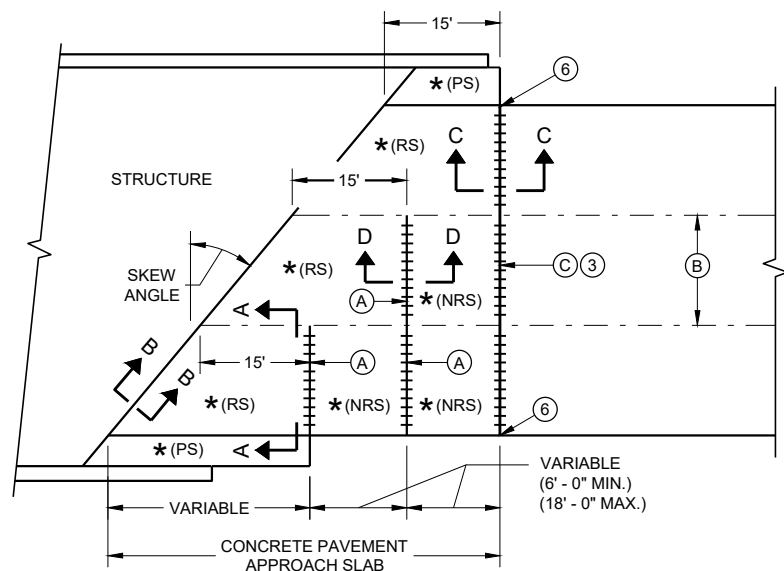
**NUMBERING DESIGNATION
MULTI-UNIT STRUCTURES**

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

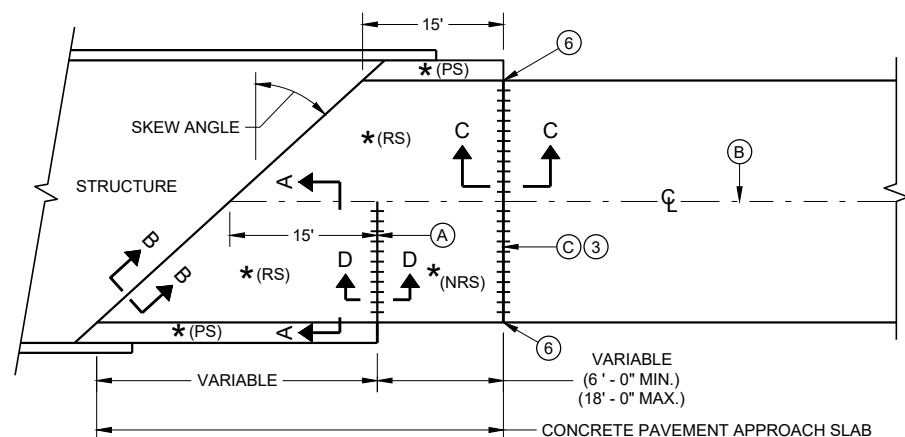


ALTERNATE LUG
(FOR ATTACHMENT TO PRECAST STRUCTURES)

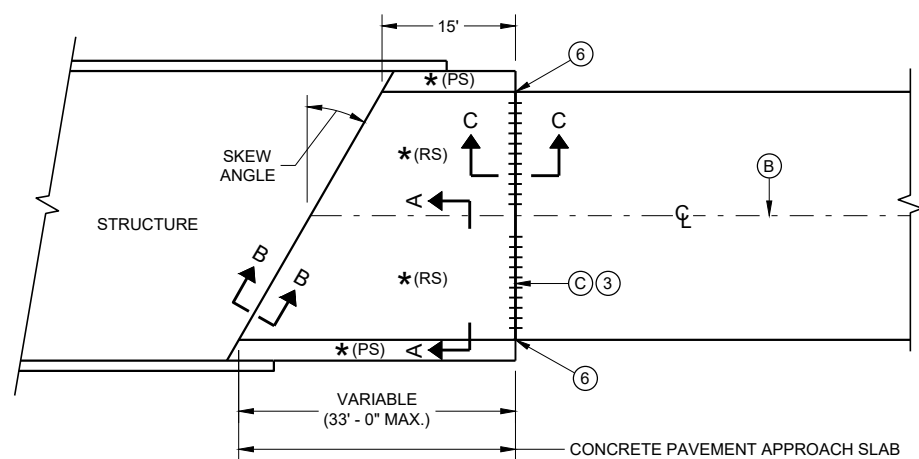
NAME PLATE (STRUCTURES)	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED DATE	/S/ Scot Becker CHIEF STRUCTURAL DEVELOPMENT ENGINEER
FHWA	



**SKewed Approach
(Pavement More Than Two Lanes)**



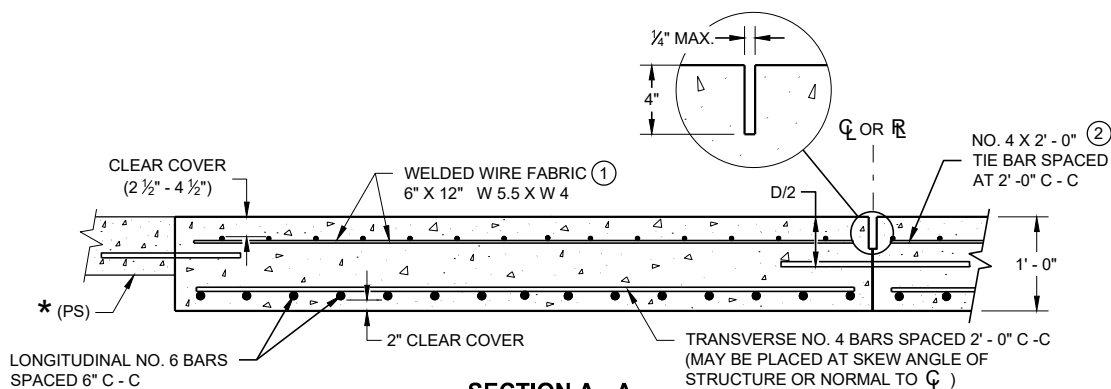
**SKews > 20°
(Pavement Width ≤ 30')**



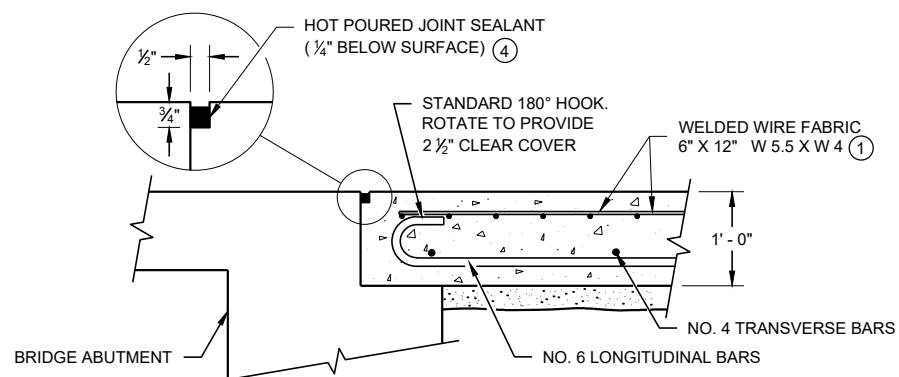
**SKews ≤ 20°
(Pavement Width ≤ 30')**

Approach Slab and Adjacent Pavement

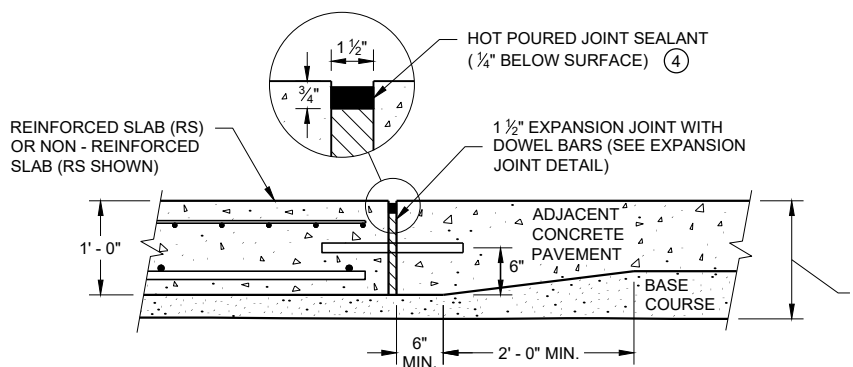
- * (RS) = REINFORCED CONCRETE SLAB
- * (PS) = PAVED CONCRETE SHOULDER OR CONCRETE DRAINAGE SLAB
- * (NRS) = NON - REINFORCED CONCRETE SLAB
- *** STANDARD DOWEL BAR DIAMETER (SEE SDD 13C11 AND SDD 13C13)



**SECTION A - A
REINFORCEMENT POSITIONING DETAIL**



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



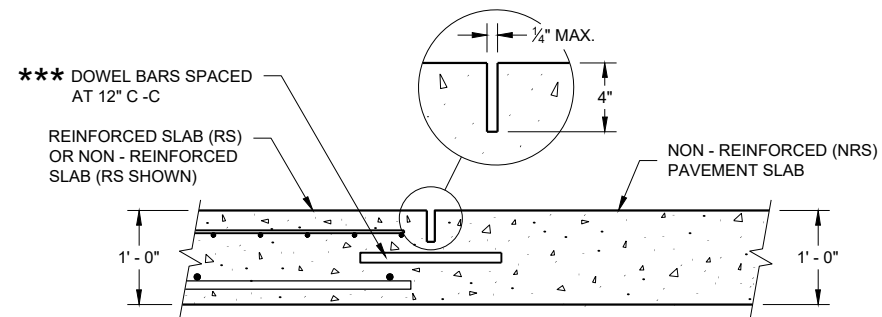
**SECTION C - C
TRANSITION DETAIL
Approach Slab to Adjacent Pavement**

GENERAL NOTES

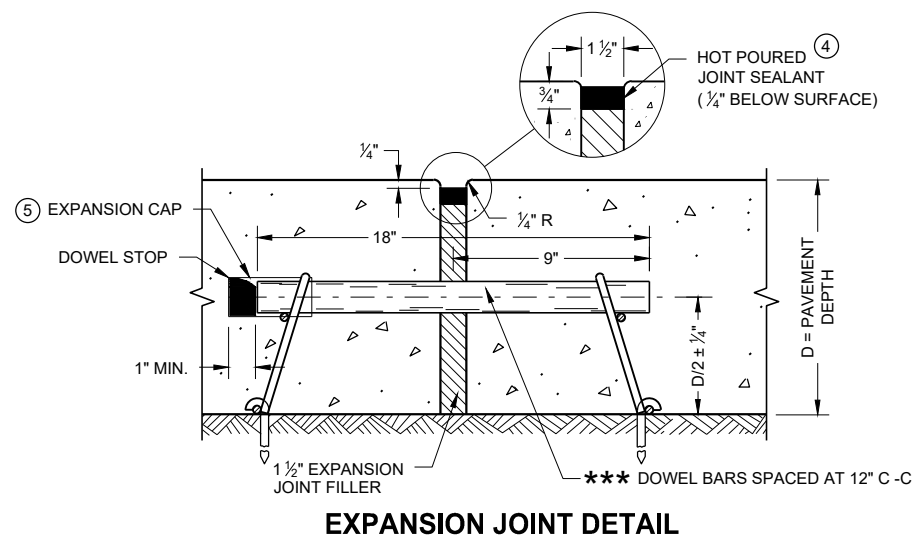
THE CONTRACTOR MAY SPLICE NO. 6 BARS IN THE APPROACH SLAB FOR SKEWED STRUCTURES ONLY. STAGGER SPLICES WITH A MAXIMUM OF ONE SPLICE PER BAR. THE LENGTH OF LAP IS 20 INCHES.

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**

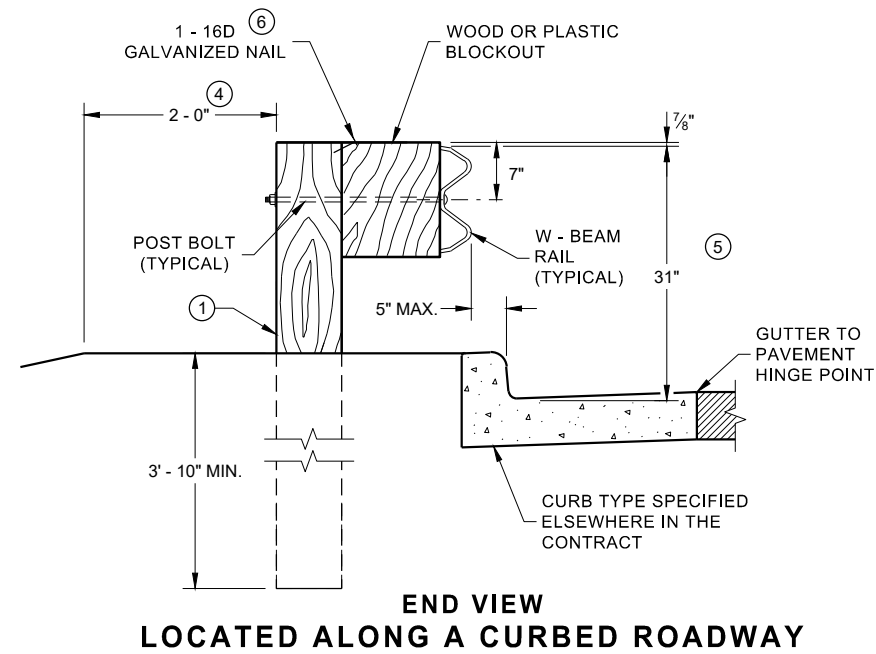
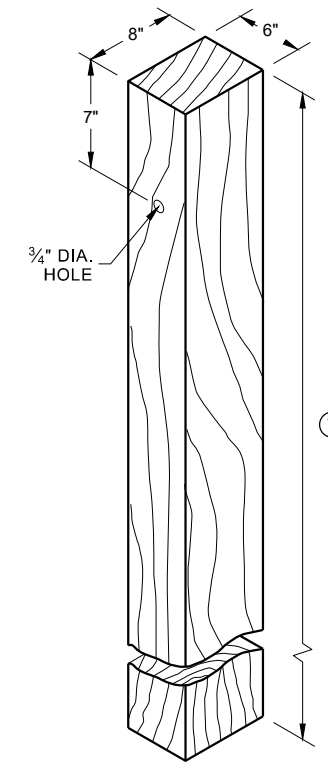
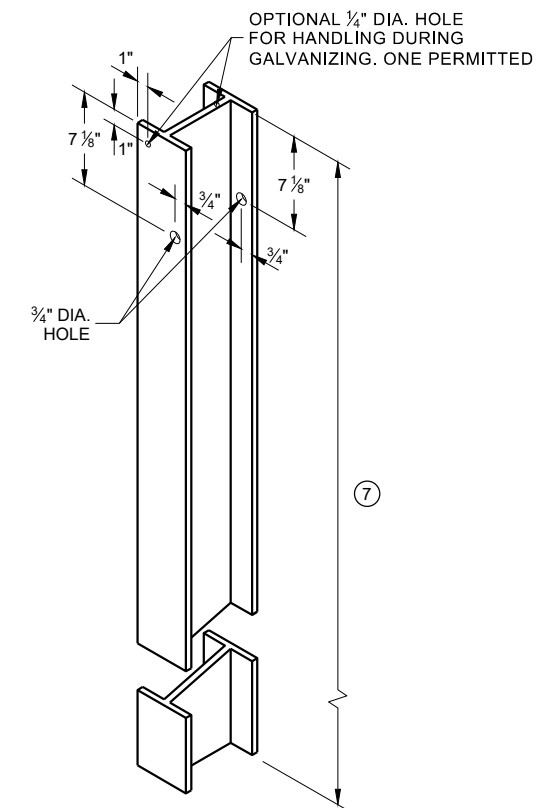
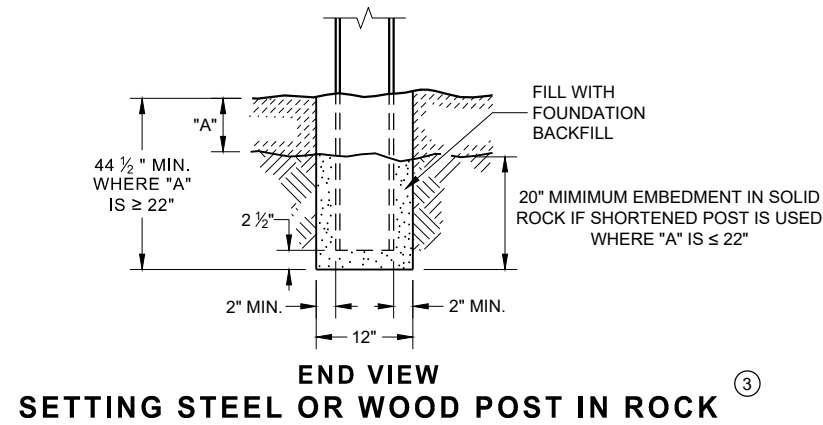
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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



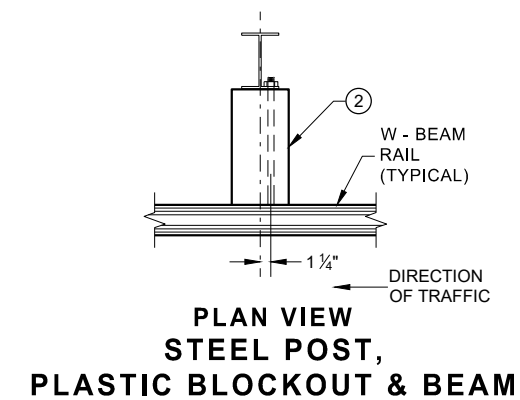
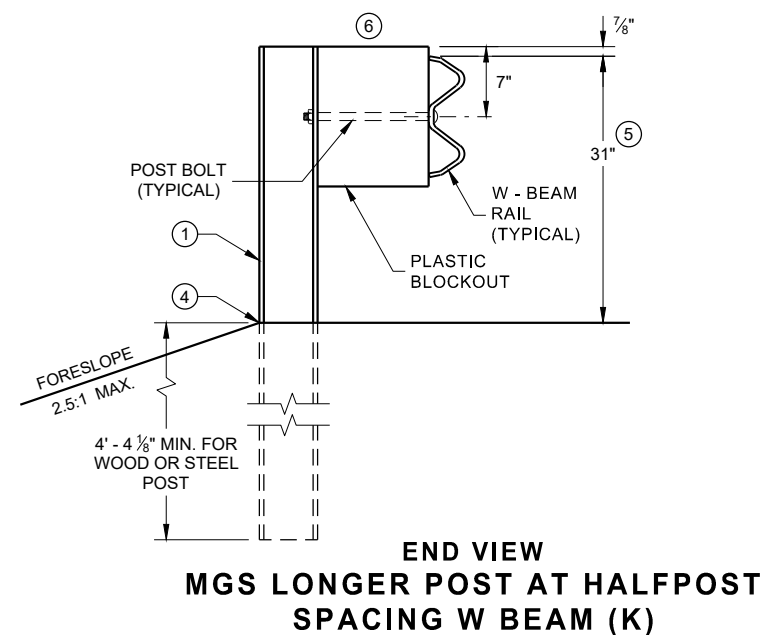
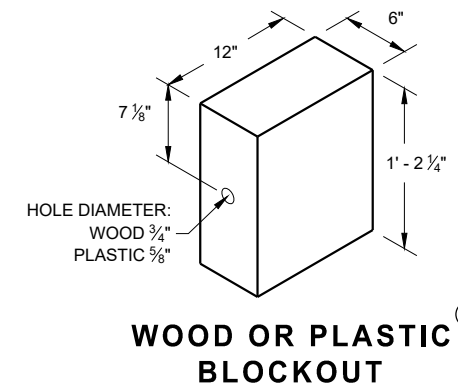
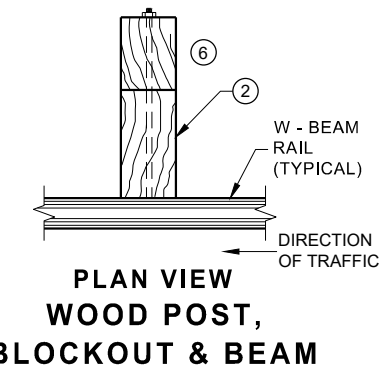
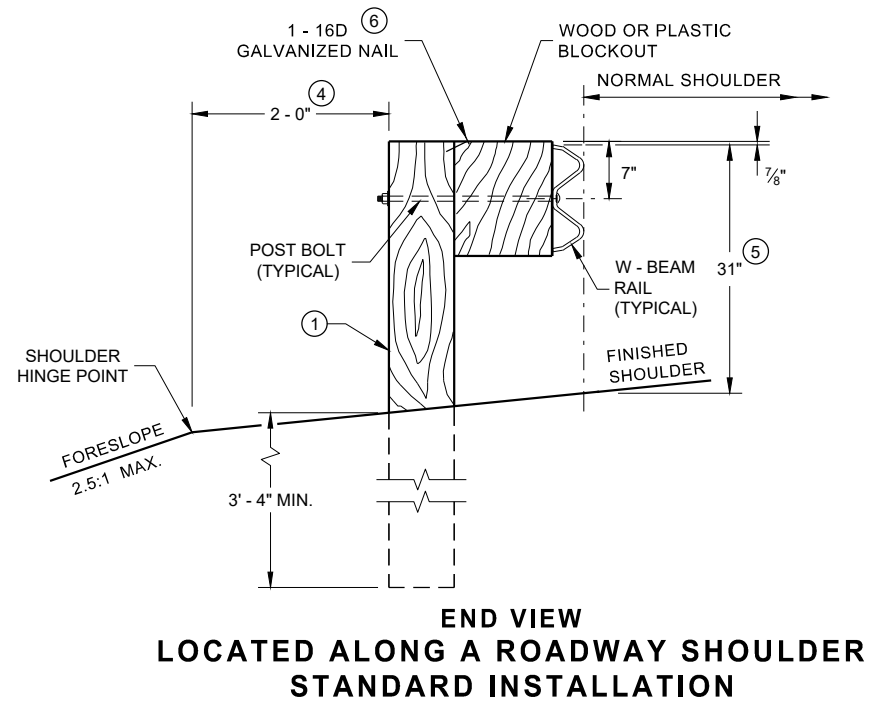
SDD 14B42-a Midwest Guardrail System (MGS) Guardrail

- ① WOOD OR STEEL POSTS (w6X9 OR w6X8.5) MAY BE USED. DO NOT INTERMIX WOOD AND STEEL POSTS. INSTALL STEEL POSTS WITH HOLES ON APPROACHING TRAFFIC SIDE.
- ② USE WOOD OR APPROVED PLASTIC BLOCKOUTS. WOOD BLOCKOUTS MAY BE CONSTRUCTED OUT OF TWO OR MORE WOOD BLOCKOUTS. SEE ALTERNATE WOOD BLOCKOUT DETAIL. DIMENSIONS OF APPROVED PLASTIC BLOCKOUTS MAY VARY.
- ③ IF ROCK IS ENCOUNTERED DURING EXCAVATION, PROVIDE A HOLE 12 INCHES IN DIAMETER EXTENDING 20 INCHES DEEP INTO THE ROCK. PLACE APPROXIMATELY 2 1/2" INCHES OF GRANULAR MATERIAL IN THE BOTTOM OF THE HOLE. CUT THE POSTS THE TO LENGTH AND INSTALL. BACKFILL WITH EXCAVATED MATERIAL AND COMPACT. BACKFILL IS TO BE FREE OF LARGE ROCKS.
- ④ WHEN THE DISTANCE FROM BACK OF POST TO SHOULDER HINGE POINT IS LESS THAN 2 FEET INSTALL LONGER POST AT HALF POST SPACING (K).
- ⑤ FOR NEW MGS INSTALLATION TOP OF W-BEAM RAIL TOLERANCE IS ±1". FOR EXISTING MGS INSTALLATION TOP OF W-BEAM IS BETWEEN 27 3/4" TO 32".
- ⑥ WHEN USING STEEL POST AND WOOD BLOCKOUTS INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.
- ⑦ TOTAL POST LENGTH FOR TYPE K IS 7' - 0". TOTAL POST LENGTH FOR OTHER MGS TYPES IS 6' - 0".



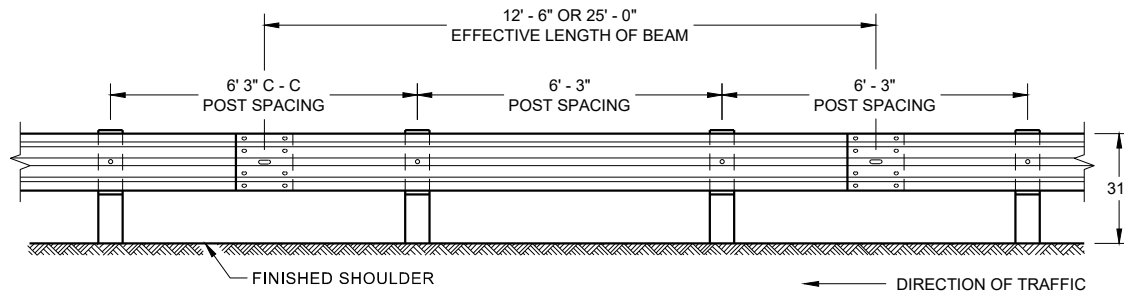
STEEL POST & HOLE PUNCHING DETAIL (W 6 X 9) ①

WOOD POST (6" X 8") NOMINAL ①

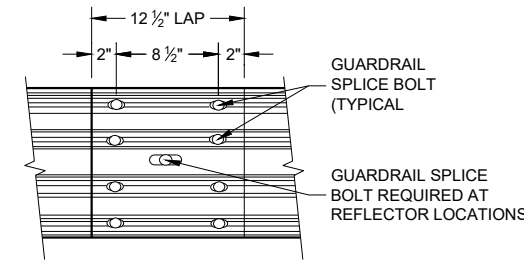


**MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



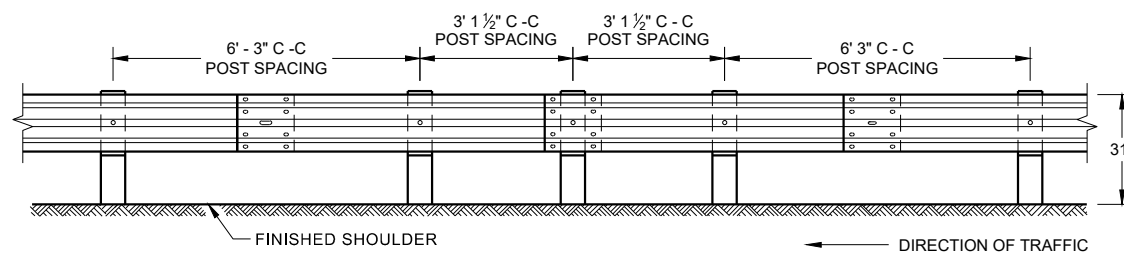
**FRONT VIEW
POST SPACING STANDARD INSTALLATION**



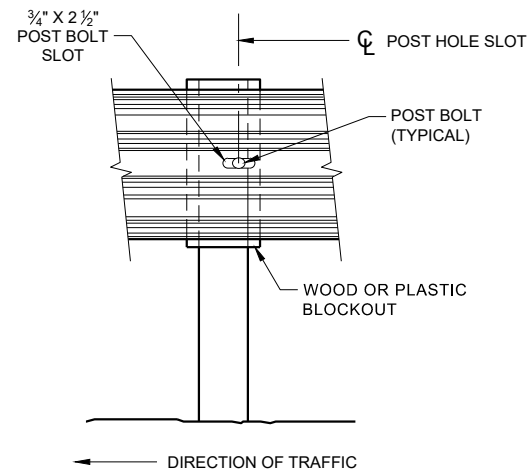
**FRONT VIEW
MID-SPAN BEAM SPLICE**

GENERAL NOTES

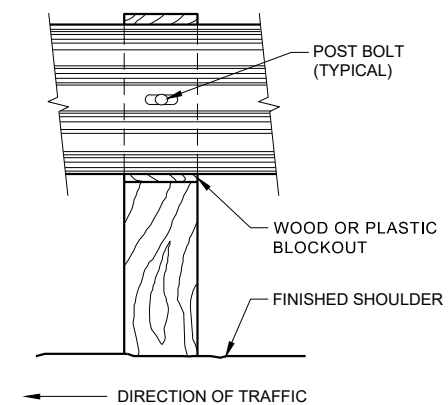
- ⑧ DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL.
 - ⑨ 25 FEET OF HALF POST SPACING IS REQUIRED ON APPROACH AND DEPARTURE ENDS OF QUARTER POST SPACING.
- POST BOLTS ARE A 3/8" DIAMETER ASTM A307 GUARDRAIL BOLT. A POST BOLT REQUIRES 3/4" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT AND 3/8" DIAMETER F844 FLAT WASHER. POST BOLTS MAY BE LONGER IF MULTIPLE BLOCKOUTS ARE BEING USED.
- GUARD RAIL SPLICE BOLTS ARE A 3/8" DIAMETER ASTM A307 GUARDRAIL HEAD BOLT. A GUARDRAIL SPLICE BOLT REQUIRES 3/8" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT.



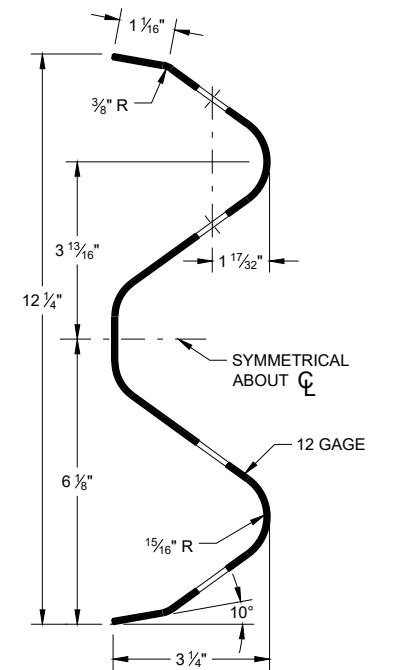
**FRONT VIEW
HALF POST SPACING (HS) AND
HALF POST SPACING WITH LONGER POSTS (K)**



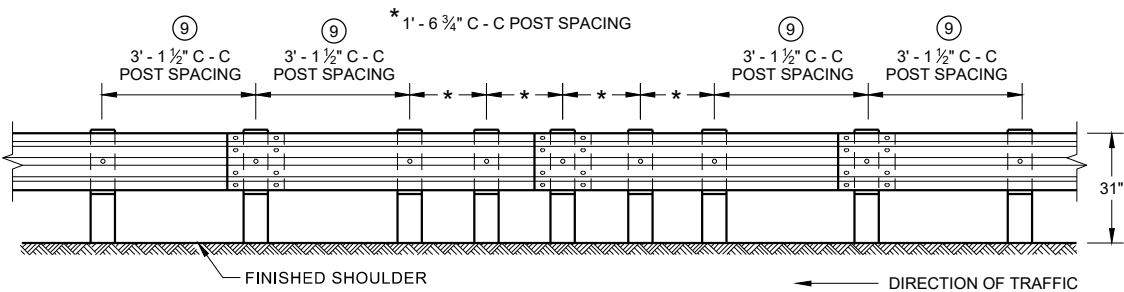
FRONT VIEW AT STEEL POST



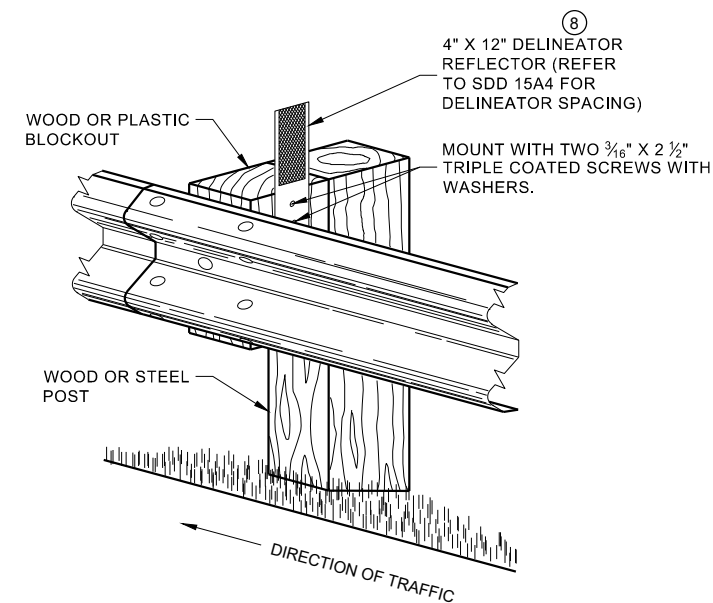
FRONT VIEW AT WOOD POST



SECTION THRU W-BEAM RAIL



**FRONT VIEW
QUARTER POST SPACING (QS)**



**ONE SIDED REFLECTOR DETAIL
AND TYPICAL INSTALLATION**

**MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL**

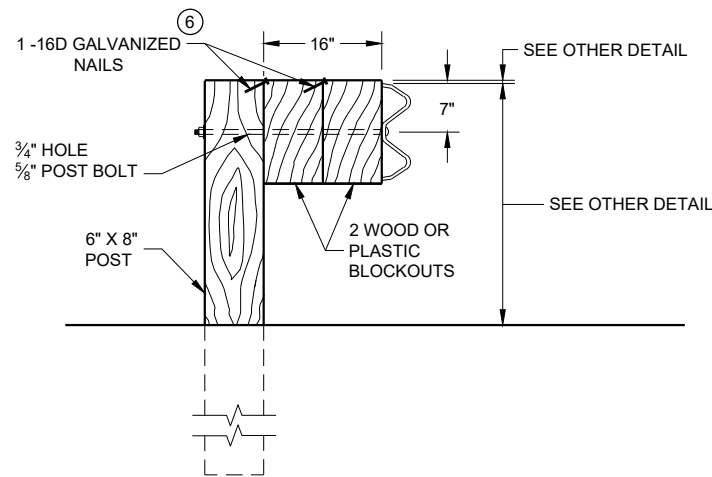
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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SDD 14B42 - 06b

SDD 14B42 - 06b

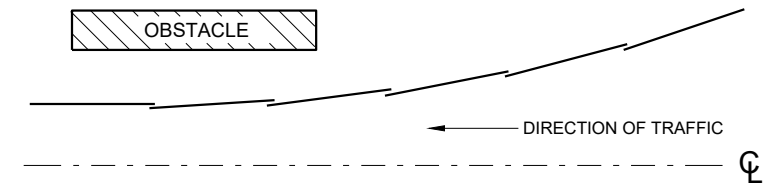
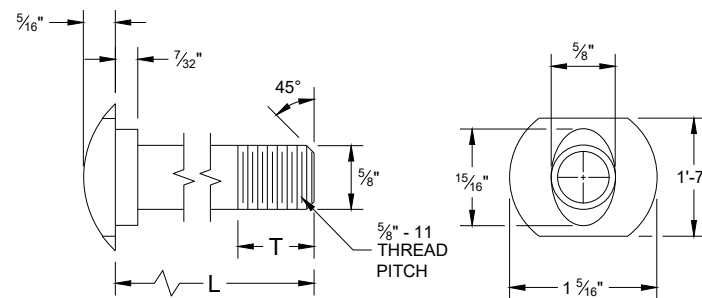


DETAIL FOR 16" BLOCKOUT DEPTH

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

NOTE:

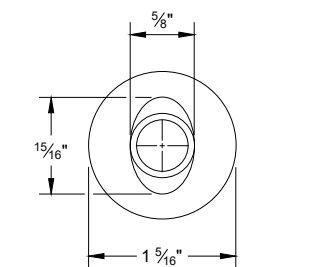
- ALL FILLETS SHALL HAVE A MINIMUM RADIUS OF $\frac{3}{16}$ ".
- IF THE BOLT EXTENDS MORE THAN $\frac{1}{4}$ " FROM THE NUT THE BOLT SHOULD BE TRIMMED BACK.



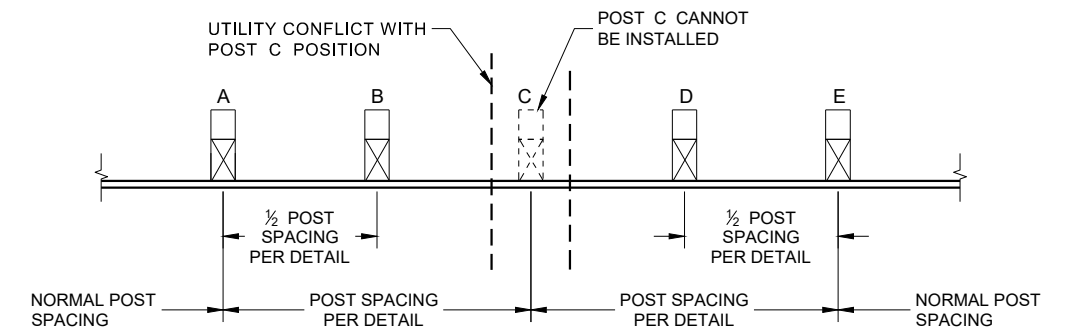
**PLAN VIEW
BEAM LAPPING DETAIL**

POST BOLT TABLE

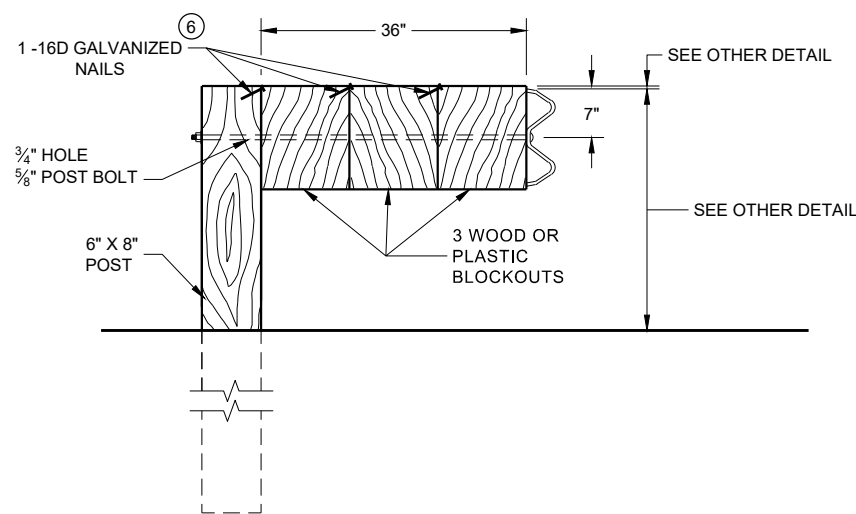
L	T (MIN.)
1 1/4"	1 1/8"
2"	1 3/4"
10"	4"
14"	4 1/16"
18"	4"
21"	4 1/16"
25"	4"



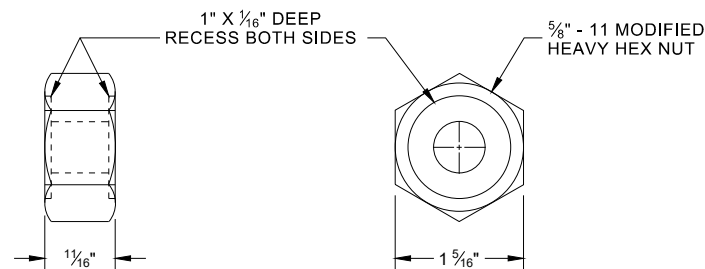
ALTERNATE BOLT HEAD



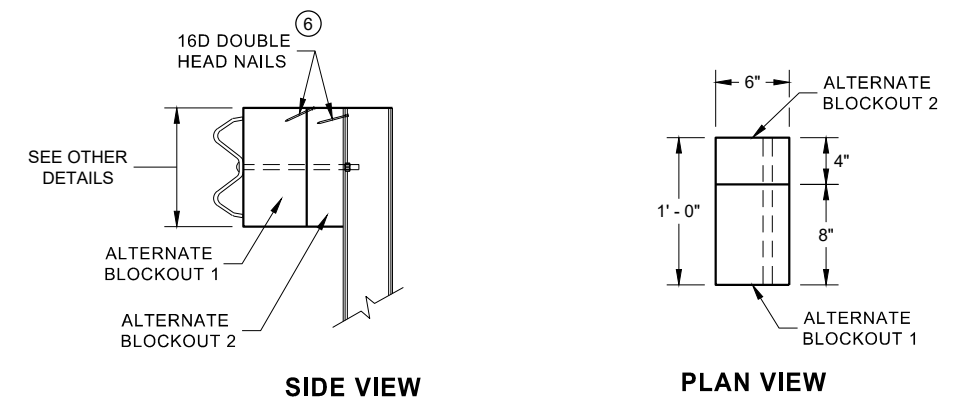
**POST DRIVING FOR CONTINUOUS
UNDERGROUND OBSTRUCTION**



DETAIL FOR 36" BLOCKOUT DEPTH



**POST BOLT, SPLICE BOLT
AND RECESS NUT**



**ALTERNATE WOOD
BLOCKOUT DETAIL**

NOTES: UNDER SPECIAL CIRCUMSTANCES, SUCH AS AVOIDING OBSTACLES THAT ARE NOT RELOCATED, IT IS ACCEPTABLE TO INSTALL ADDITIONAL BLOCKOUTS TO OBTAIN UP TO 36" DEPTH FOR ONE OR TWO POSTS IN A SECTION OF GUARDRAIL.
DO NOT USE 16" OR 36" BLOCKOUTS IF IT CAUSES THE POST TO BE DRIVEN BEYOND SHOULDER HINGE POINT OR CAUSES A FIXED OBJECT TO BE WITHIN THE DEFLECTION DISTANCE OF THE BARRIER.

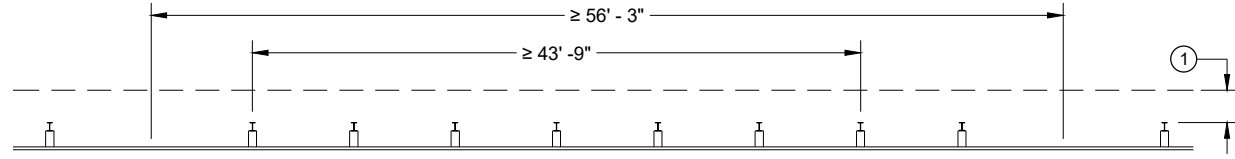
⑥ WHEN USING STEEL POST AND WOOD BLOCKOUTS, INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.

**MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL**

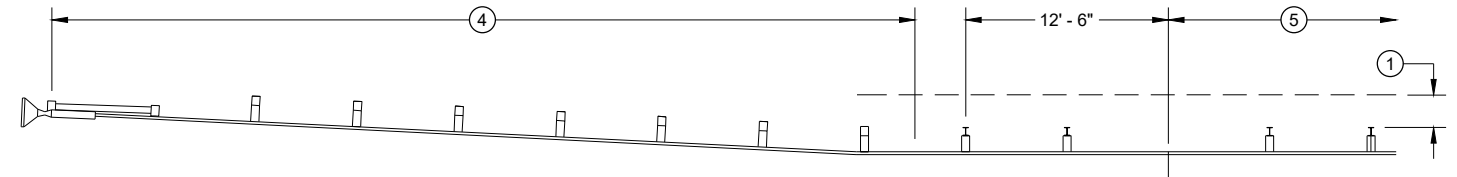
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



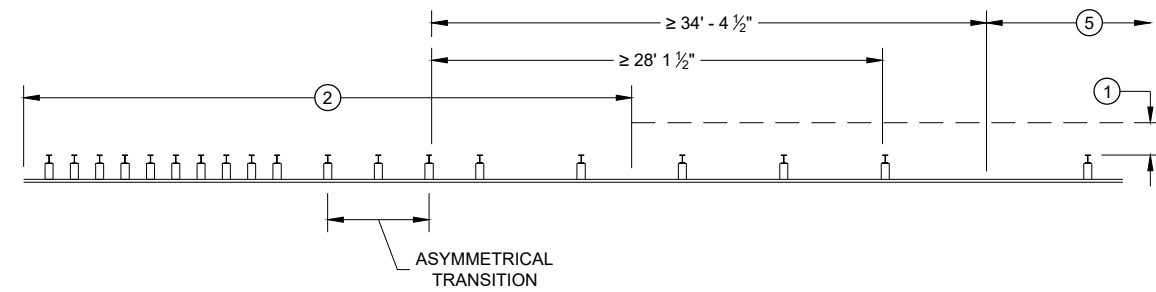
SDD 14B42-d Midwest Guardrail System (MGS) Guardrail



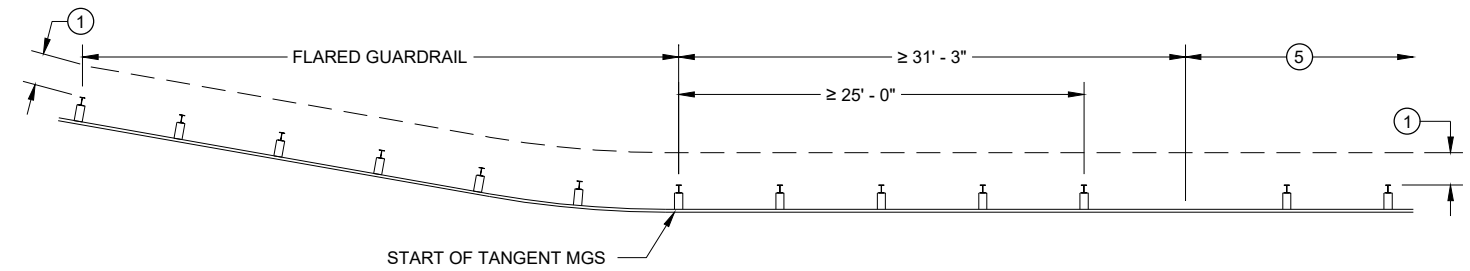
MISSING POST IN NORMAL BEAM GUARD RUN



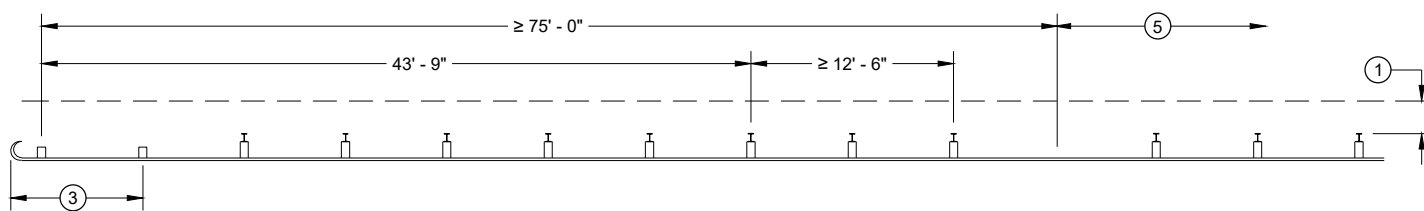
MISSING POST IN NORMAL BEAM GUARD RUN NEAR EAT



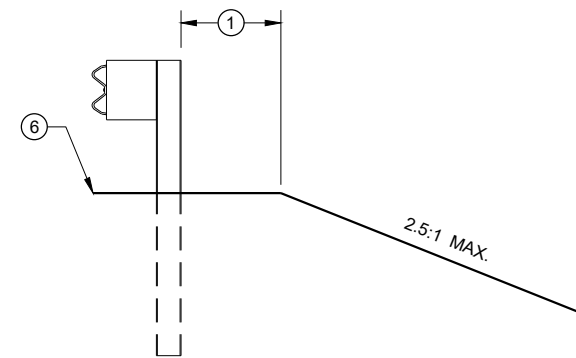
MISSING POST NEAR APPROACH THRIE BEAM TRANSITION



MISSING POST IN NORMAL BEAM GUARD RUN NEAR FLARED BEAM GUARD



MISSING POST IN NORMAL BEAM GUARD RUN NEAR TYPE 2 TERMINAL



CROSS SECTION VIEW

- ① MINIMUM OF 2 FEET OF GRADING BEHIND POST.
- ② SEE SDD 14B45 FOR MORE DETAILS.
- ③ SEE SDD 14B47 FOR MORE DETAILS.
- ④ SEE SDD 14B44 FOR MORE DETAILS.
- ⑤ SEE MISSING POST IN NORMAL BEAM GUARD RUN FOR DISTANCE TO NEXT MISSING POST AND AREA FOR WELL DRAINED, COMPACTED SOILS.
- ⑥ SEE PLAN FOR SHOULDER DESIGN.

6

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SDD 14B42 - 06d

SDD 14B42 - 06d

MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

FHWA



SDD 14B44-a Midwest Guardrail System (MGS) Energy Absorbing Terminal

GENERAL NOTES

- (A) THE SLOPE IN THE AREA BOUNDED BY THE GRADELINE, THE HINGE POINT LINE 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.
- (F) DIMENSIONS MAY VARY, MANUFACTURER'S INFORMATION.

SEE SDD 14B42 FOR MORE INFORMATION.

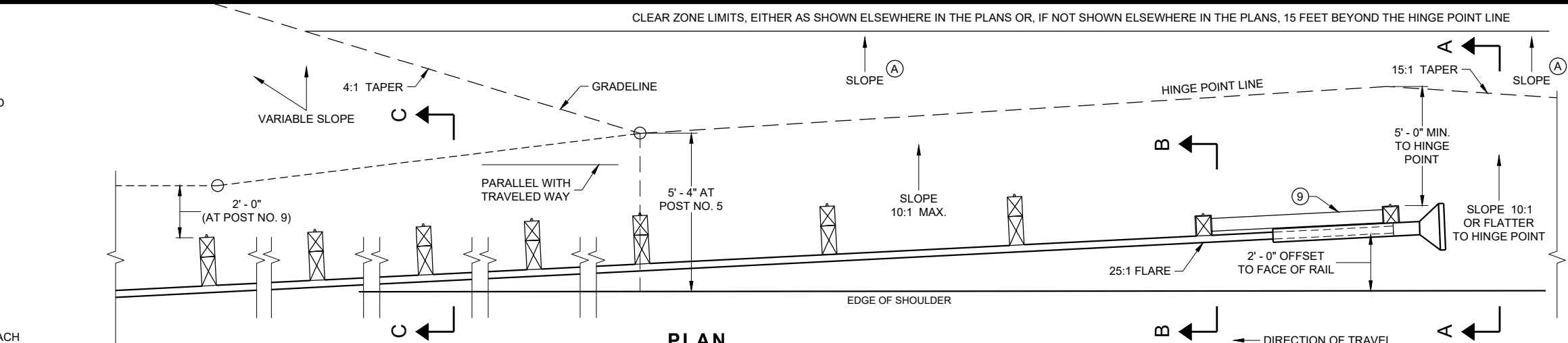
* DO NOT ATTACH BLOCKOUTS TO POST 1 AND 2.

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

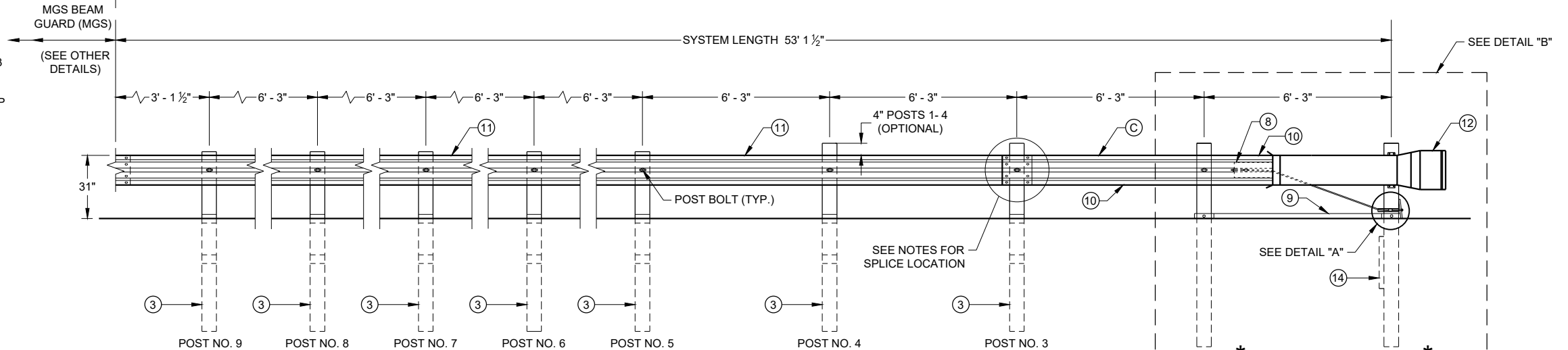
SEE MANUFACTURER'S DRAWING FOR SPLICE LOCATION, HARDWARE DIMENSIONS AND INSTALLATION INSTRUCTIONS.

THE CENTER OF THE UPPER 3 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.

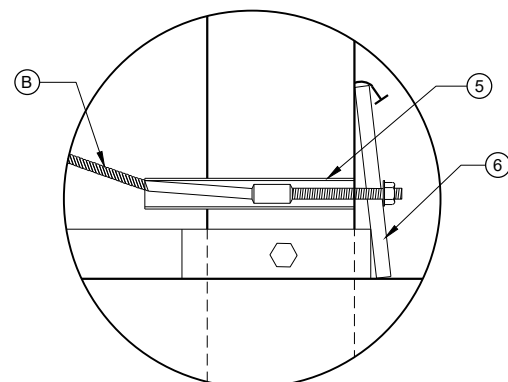
CLEAR ZONE LIMITS, EITHER AS SHOWN ELSEWHERE IN THE PLANS OR, IF NOT SHOWN ELSEWHERE IN THE PLANS, 15 FEET BEYOND THE HINGE POINT LINE



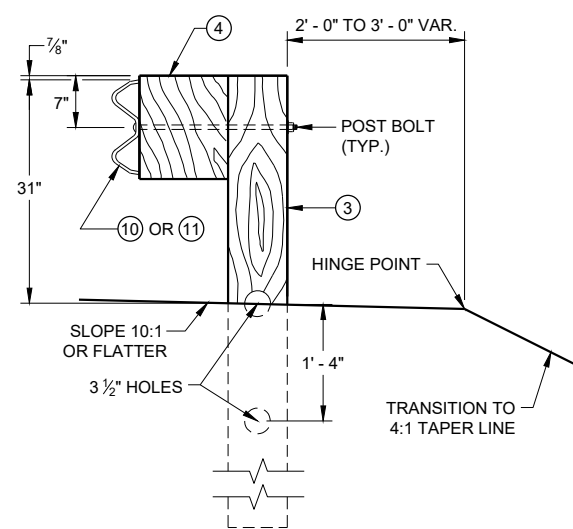
PLAN



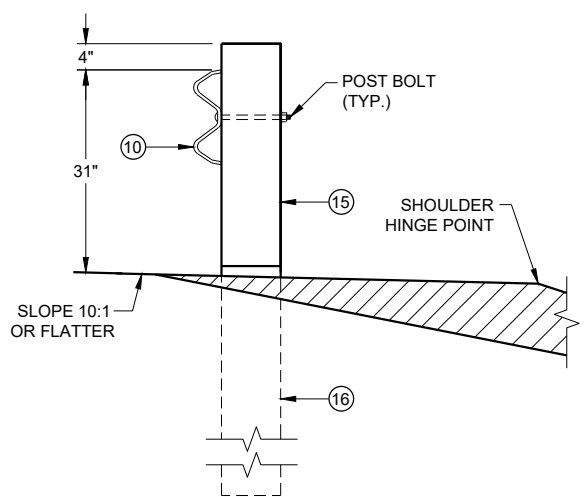
ELEVATION



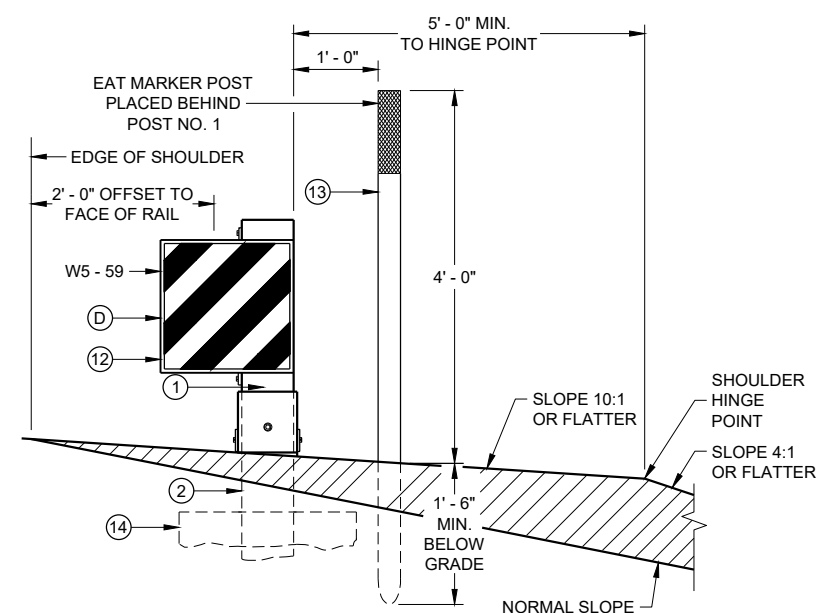
DETAIL "A"



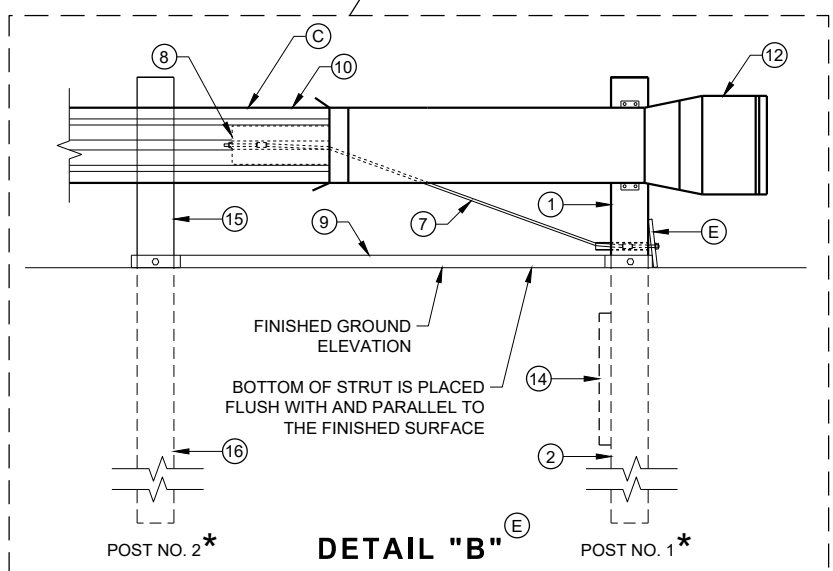
SECTION C - C TYPICAL AT POST NOS. 3 - 9



SECTION B - B TYPICAL AT POST NO. 2*



SECTION A - A TYPICAL AT POST NO. 1*



DETAIL "B"

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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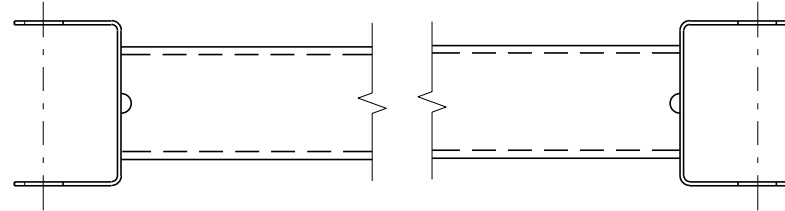
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SDD 14B44 - 04a

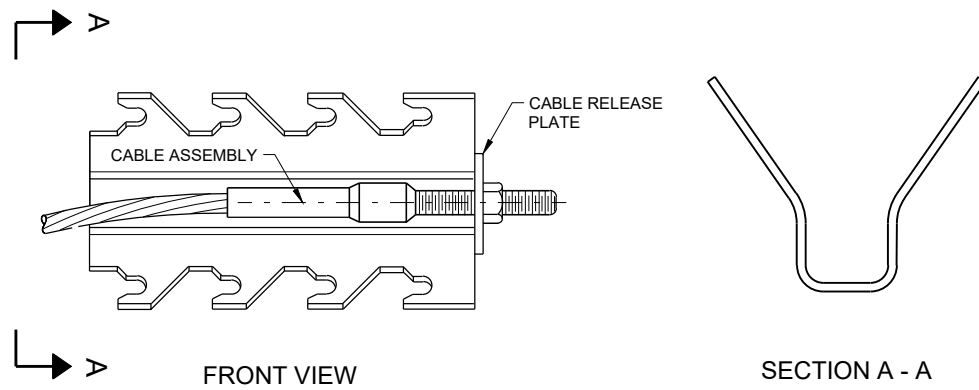
SDD 14B44 - 04a

BILL OF MATERIALS

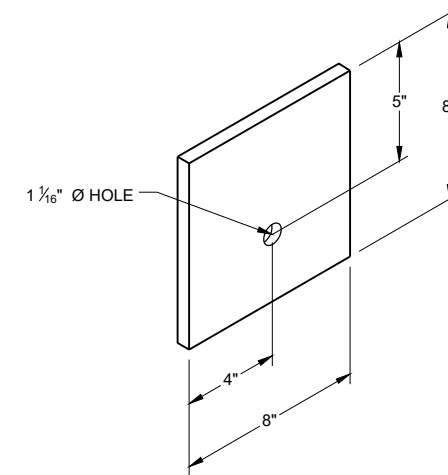
PART NO.	DESCRIPTION MATERIALS PROVIDED BY MGS EAT MANUFACTURER. SEE MANUFACTURER'S DETAILS FOR MORE INFORMATION.
①	UPPER POST NO. 1 6" X 6" TUBE
②	LOWER POST NO. 1
③	WOOD CRT
④	WOOD BLOCKOUT
⑤	PIPE SLEEVE
⑥	BEARING PLATE
⑦	BCT CABLE ASSEMBLY
⑧	ANCHOR CABLE BOX
⑨	GROUND STRUT
⑩	PERFORATED W-BEAM RAIL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



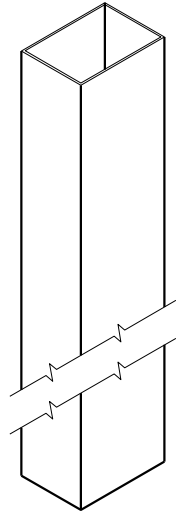
GENERIC ANCHOR CABLE BOX ⑧ ⑤



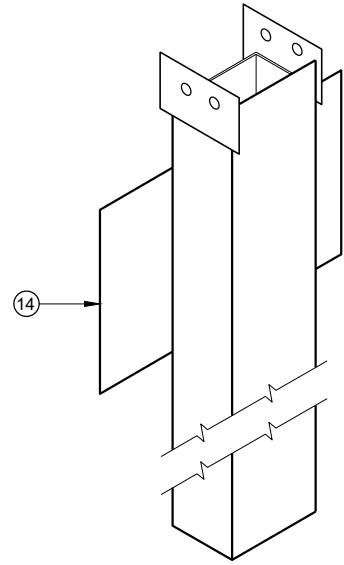
BEARING PLATE ⑥ ⑤



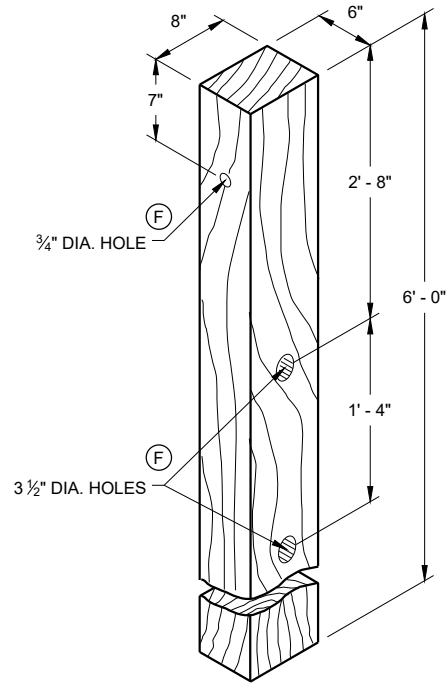
SDD 14B44-c Midwest Guardrail System (MGS) Energy Absorbing Terminal



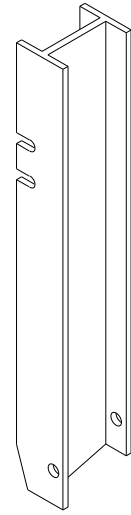
UPPER POST NO. 1 ⁽¹⁾ (E)



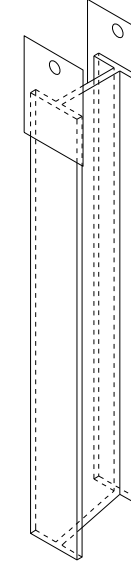
LOWER POST NO. 1 ⁽²⁾ (E)



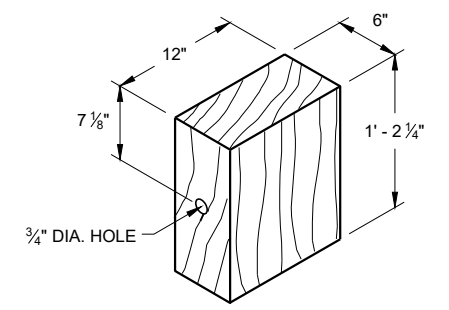
WOOD CRT POST ⁽³⁾ (E)
POSTS NUMBER 3-9



UPPER POST NO. 2 ⁽¹⁵⁾ (E)

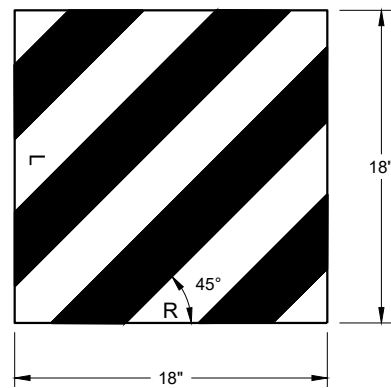


LOWER POST NO. 2 ⁽¹⁶⁾ (E)

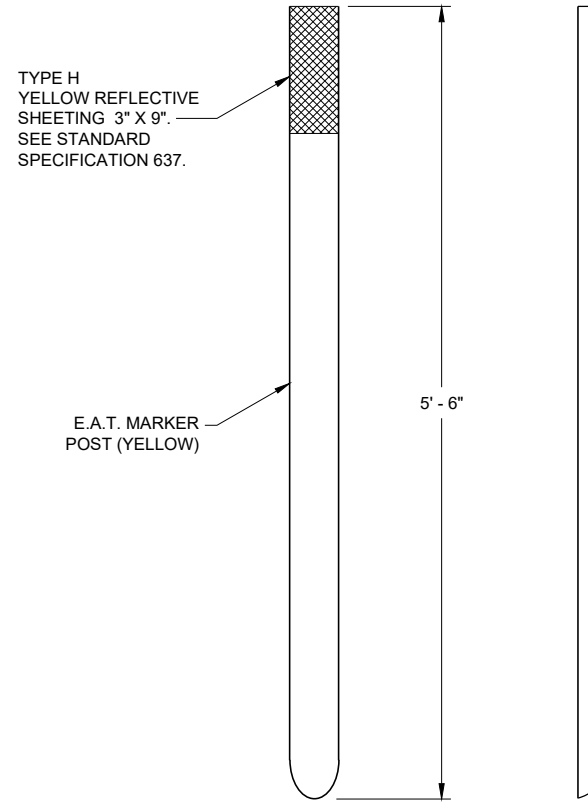


WOOD BLOCKOUT ⁽⁴⁾
REQ'D. AT ALL POSTS EXCEPT POST NO'S 1 & 2

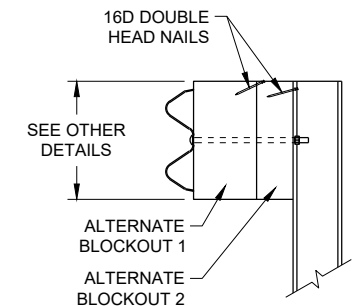
6



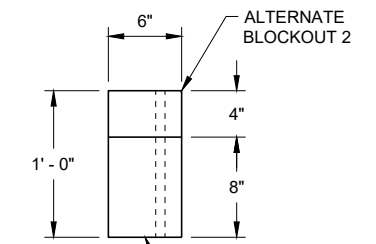
REFLECTIVE SHEETING DETAIL ^(E)



E.A.T. MARKER POST ⁽¹³⁾



SIDE VIEW



TOP VIEW

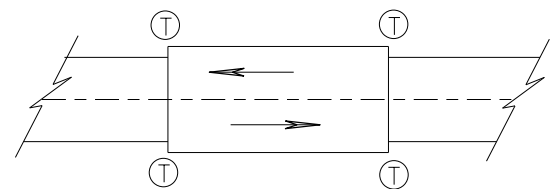
ALTERNATE WOOD BLOCKOUT DETAIL

6

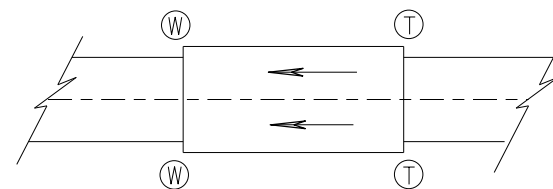
SDD 14B44 - 04c

SDD 14B44 - 04c

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	



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

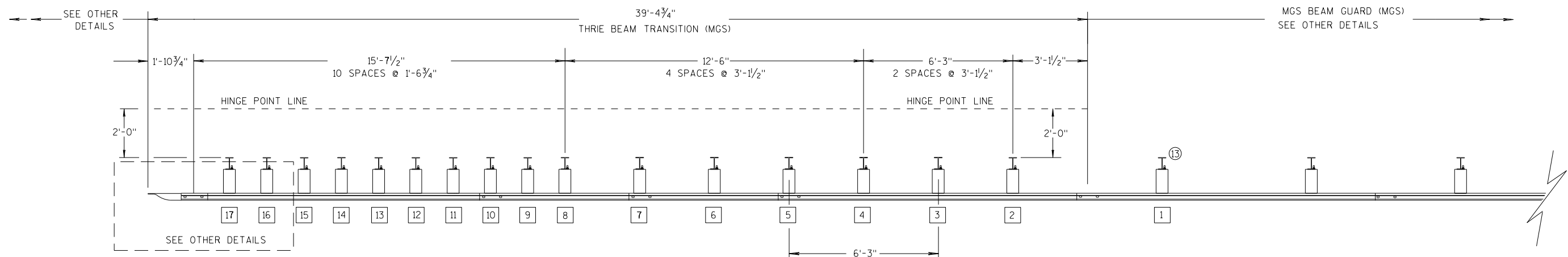
IF ROCK IS ENCOUNTERED, REMOVE ROCK TO FULL DEPTH OF POST PLUS 2 1/2", AND 12" DIAMETER AROUND POST. SEE 14B42 FOR MORE DETAILS.

TRANSITION USES STEEL POSTS ONLY.

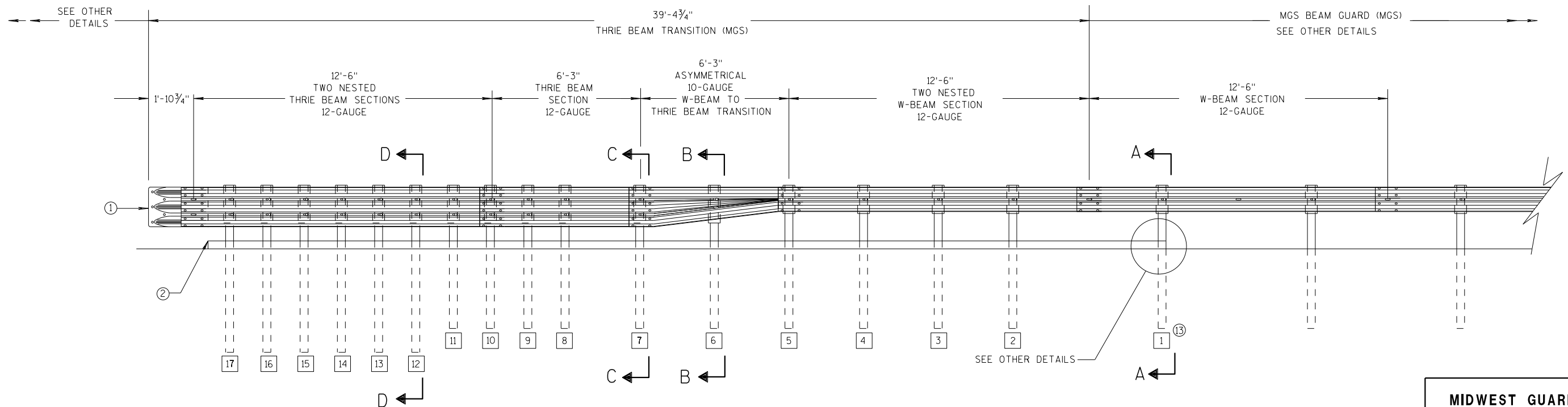
SEE STANDARD DETAIL DRAWING 14 B 42 FOR MORE INFORMATION.

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

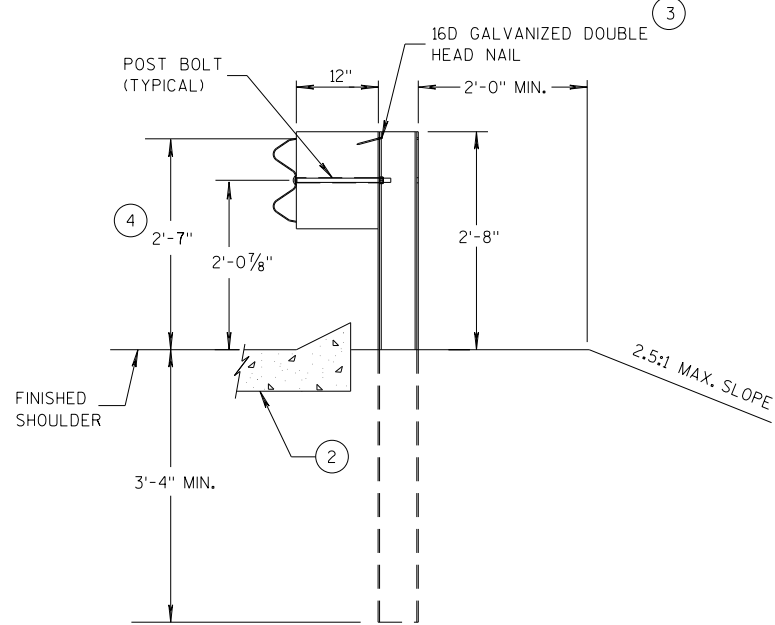
MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION

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

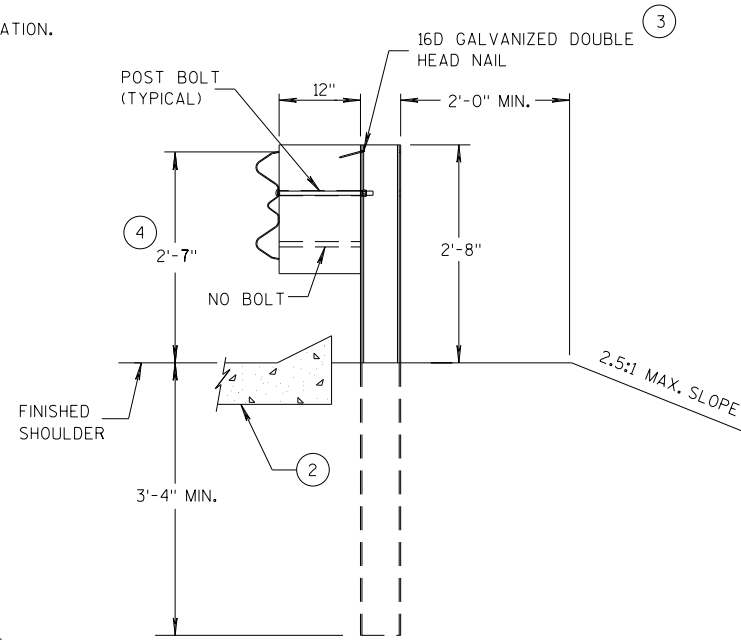
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

GENERAL NOTES

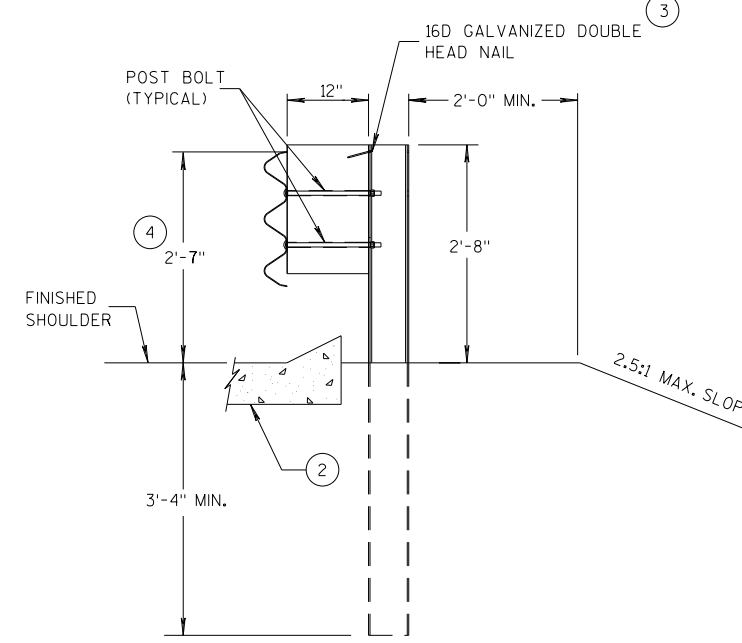
- ② OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.
- ③ WHEN USING STEEL POSTS AND WOOD BLOCKOUTS INSTALL FOUR 10D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.
- ④ TOLERANCE FOR TOP OF W-BEAM RAIL IS ± 1".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



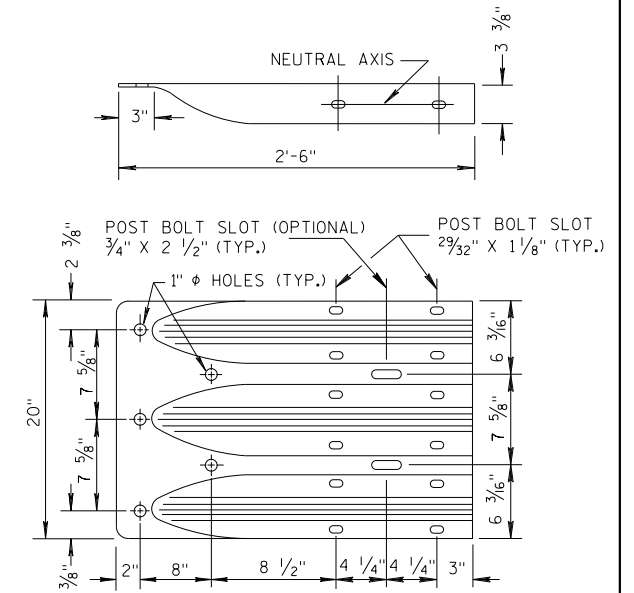
**SECTION A-A
POSTS 1-5**



**SECTION B-B
POST 6**



**SECTION C-C
POSTS 7-11**



**THRIE BEAM
TERMINAL CONNECTOR**

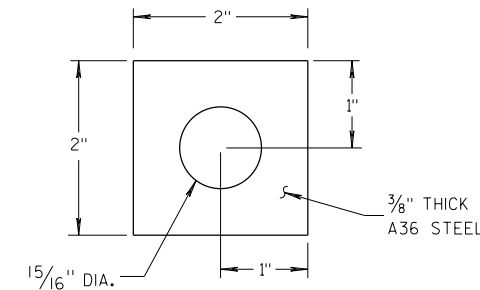
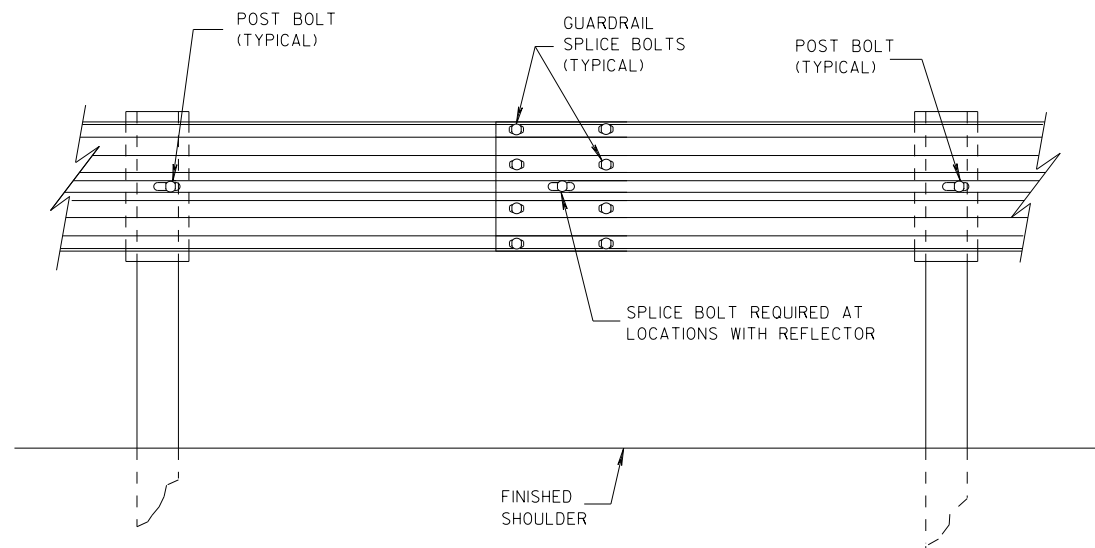
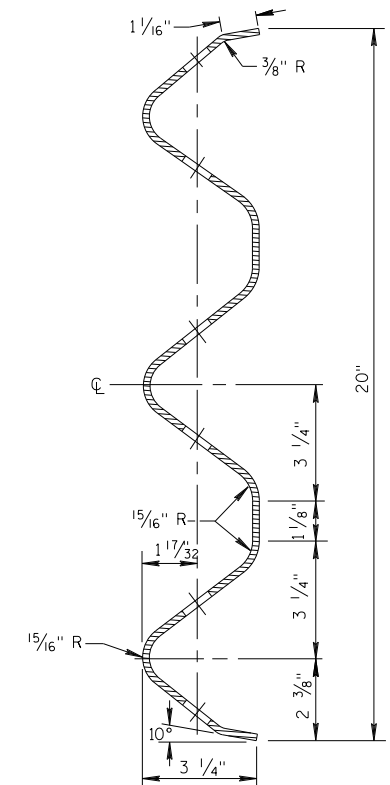


PLATE WASHER DETAIL



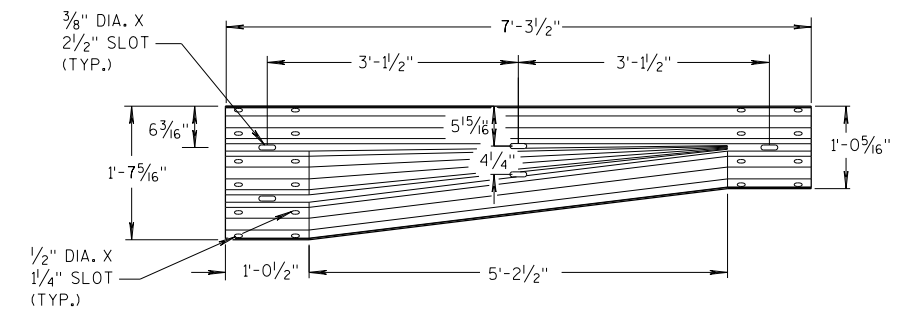
SPLICE DETAIL



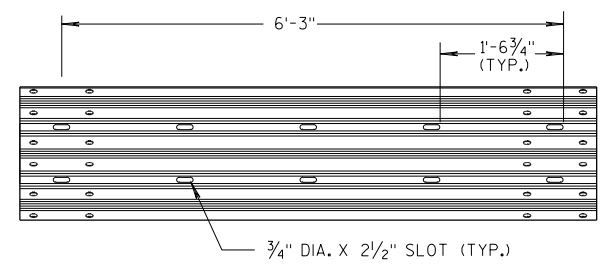
**SECTION THRU THRIE
BEAM RAIL ELEMENT**

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

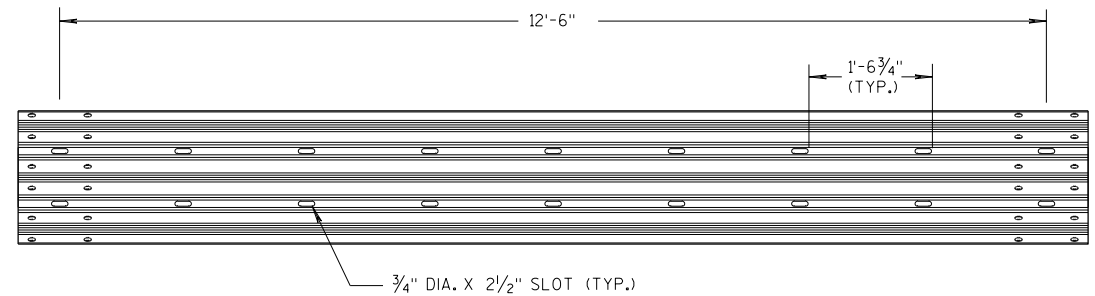
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



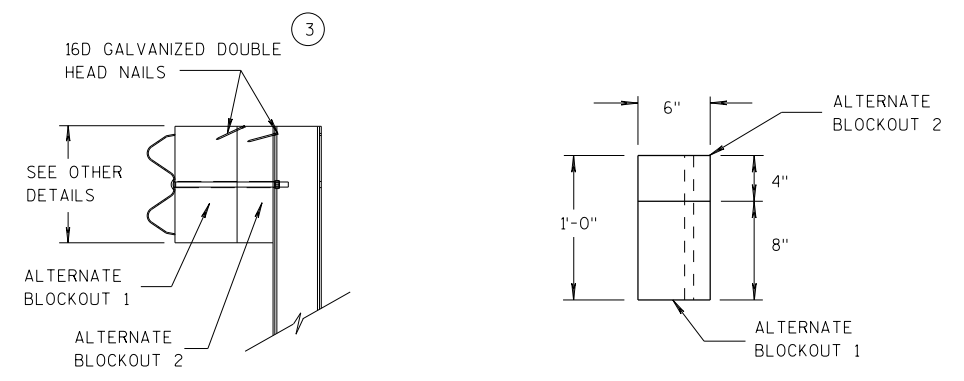
W-BEAM TO THRIE BEAM TRANSITION SECTION



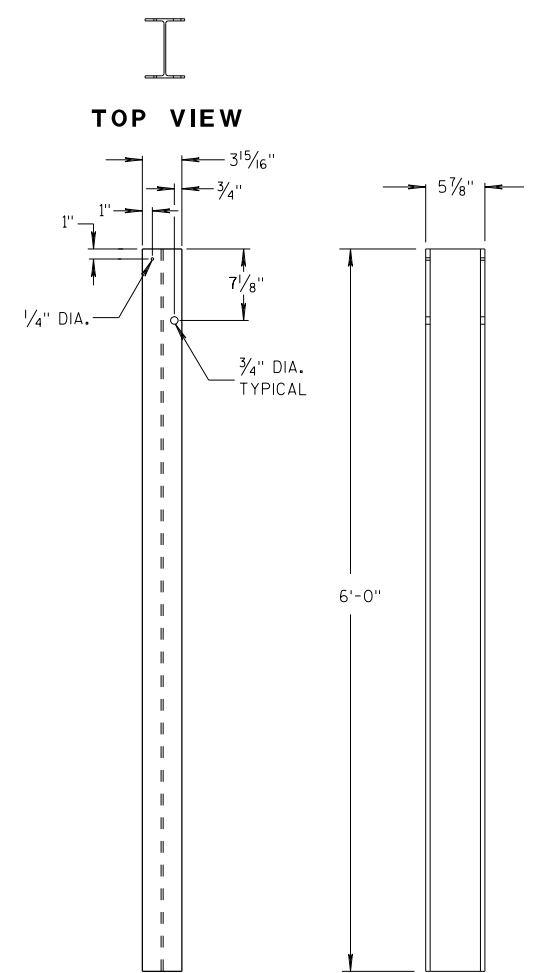
6'-3\"/>



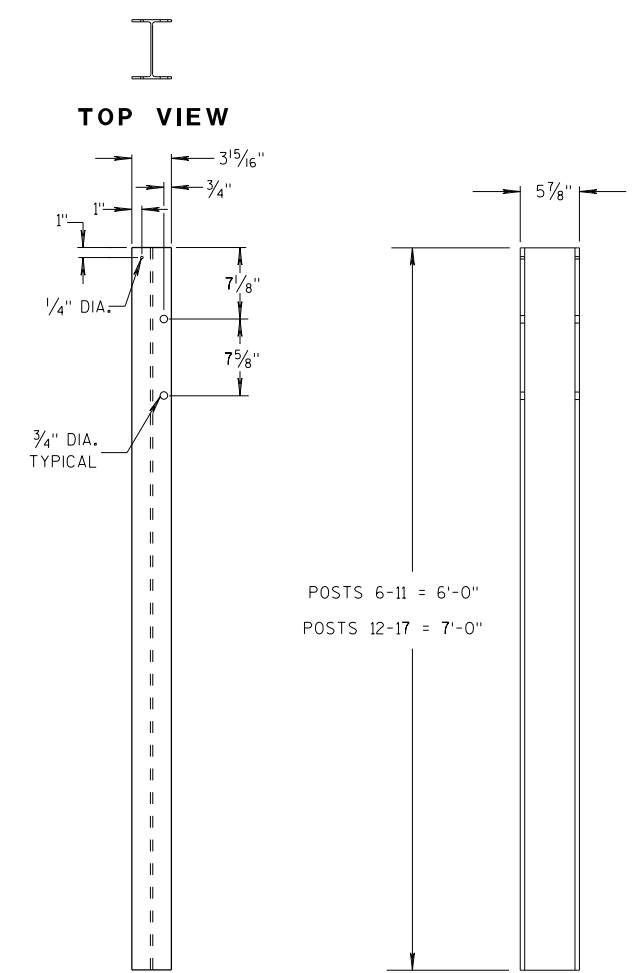
12'-6\"/>



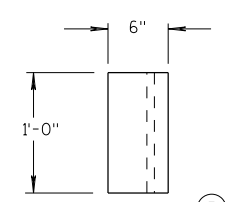
ALTERNATE WOOD BLOCKOUT DETAIL



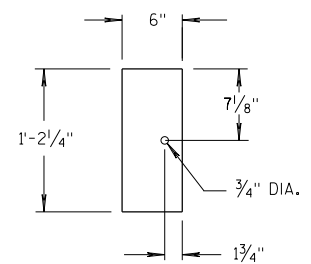
STEEL POSTS 1-5



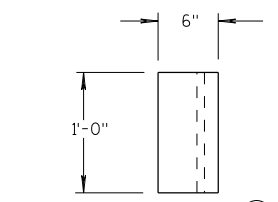
STEEL POSTS 6-17



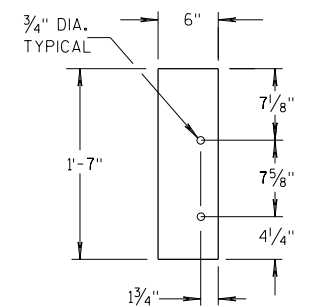
TOP VIEW



**FRONT VIEW
BLOCKOUT
POSTS 1-5**



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

6

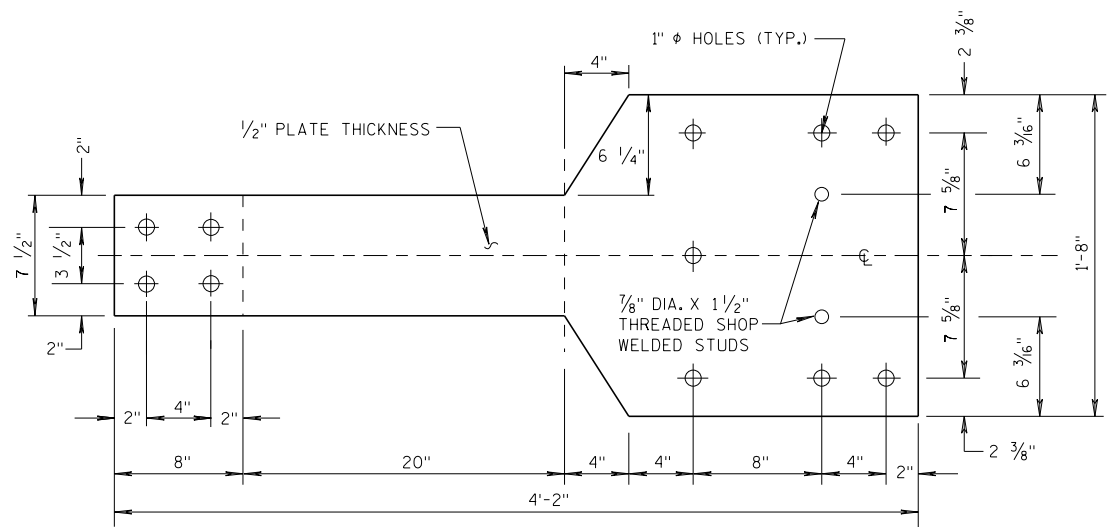
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S.D.D. 14 B 45-5c

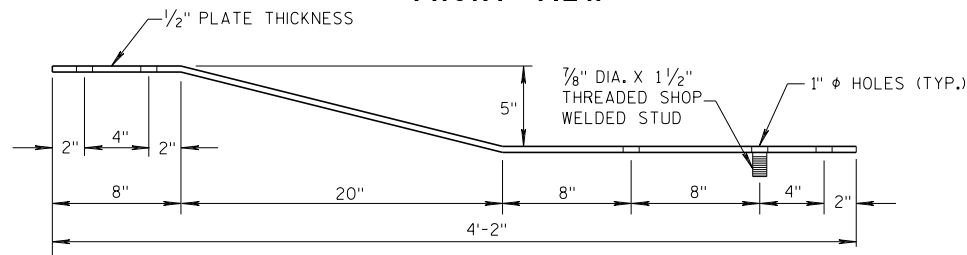
S.D.D. 14 B 45-5c

GENERAL NOTES

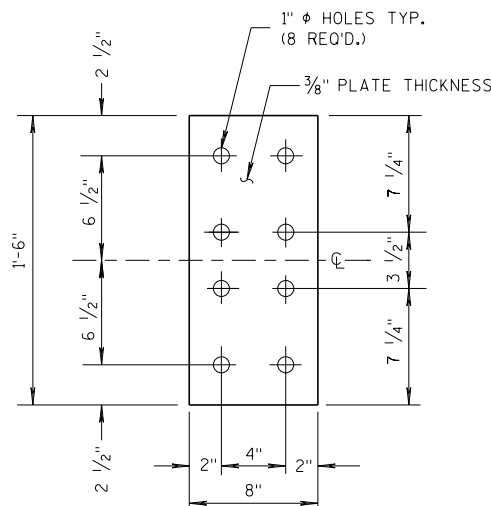
(4) TOLERANCE FOR TOP OF W-BEAM RAIL IS ± 1".



FRONT VIEW

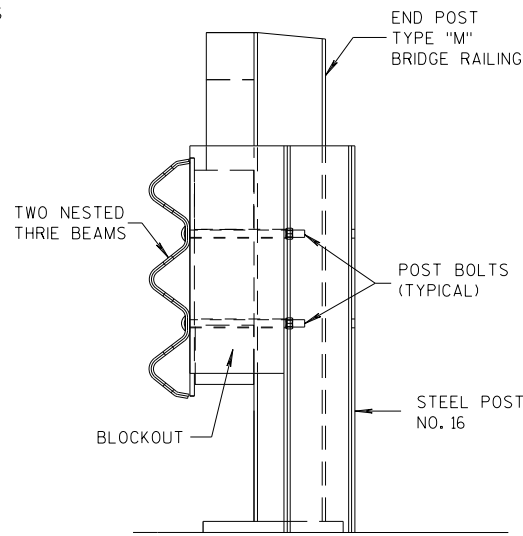


**PLAN VIEW
BACK-UP PLATE DETAIL, TYPE "M"**

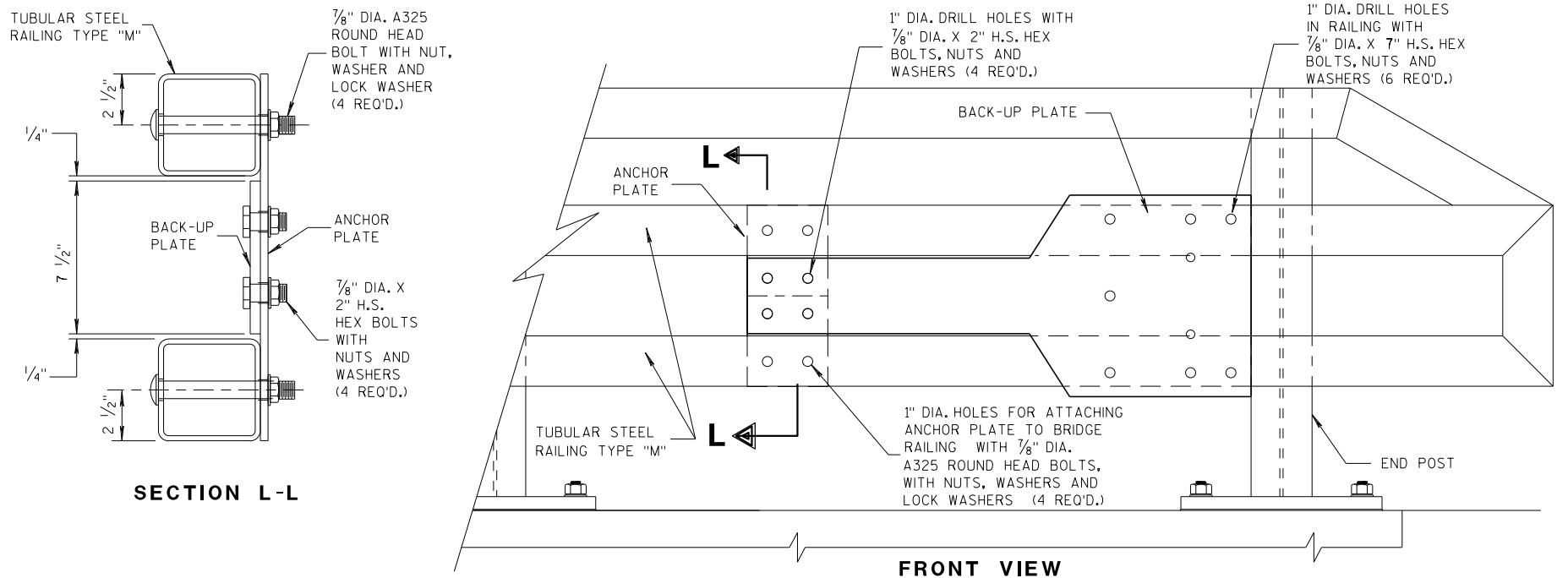


FRONT VIEW

**ANCHOR
PLATE DETAIL,
TYPE "M"**



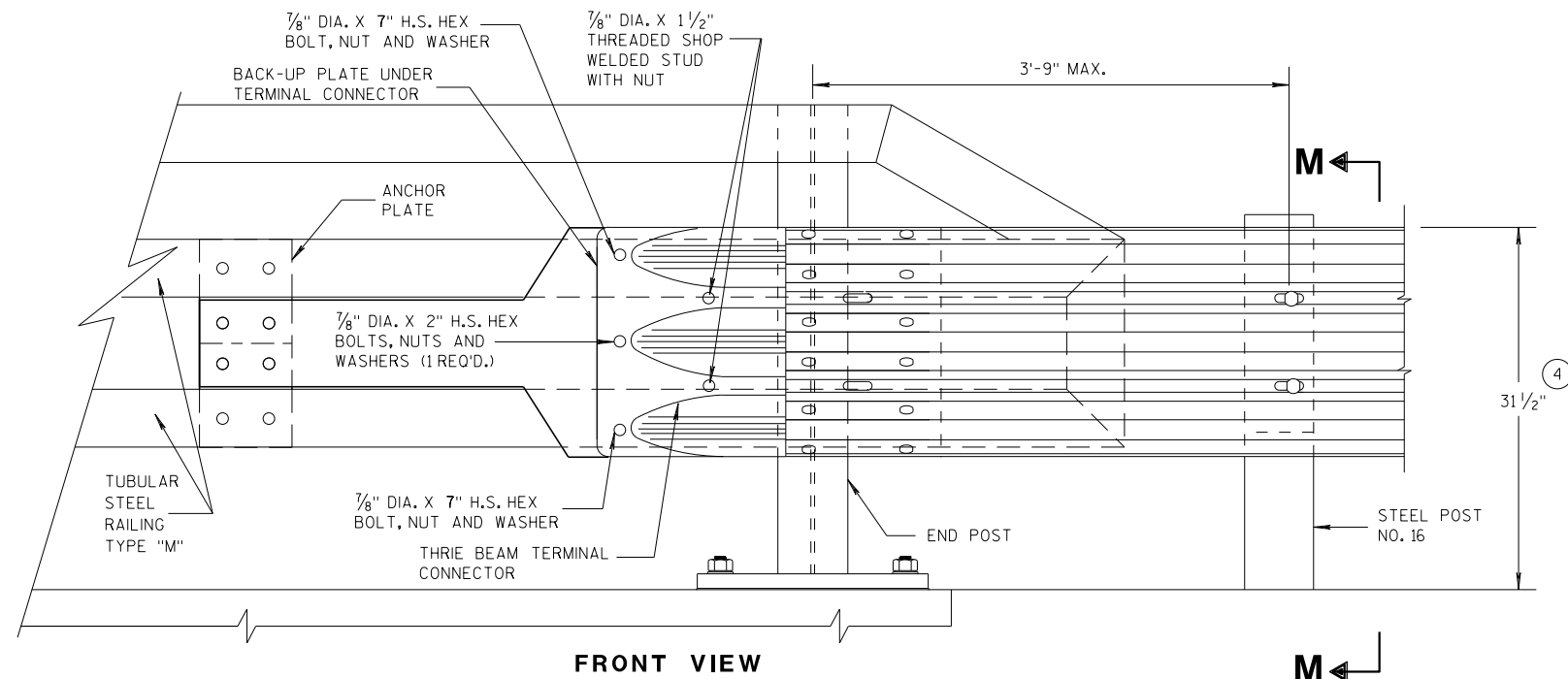
SECTION M-M



SECTION L-L

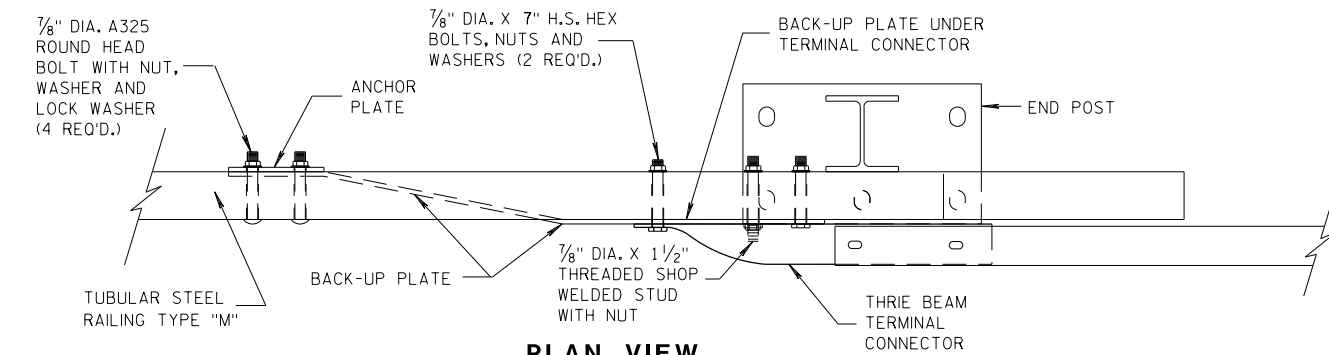
FRONT VIEW

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



FRONT VIEW

M



PLAN VIEW

THRIE BEAM CONNECTION TO TUBULAR RAILING, TYPE "M"

6

6

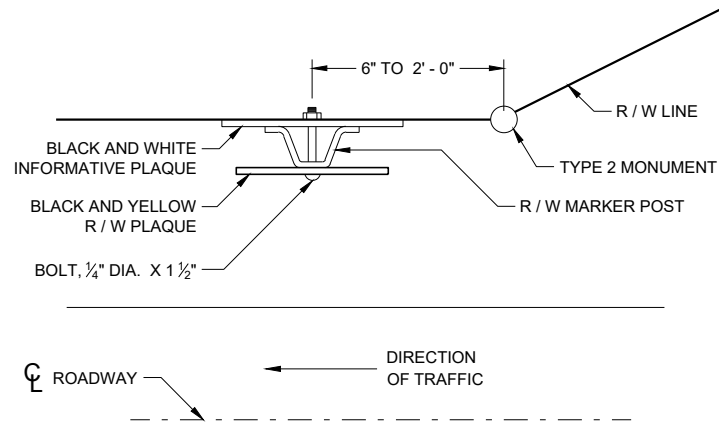
S.D.D. 14 B 45-5h

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

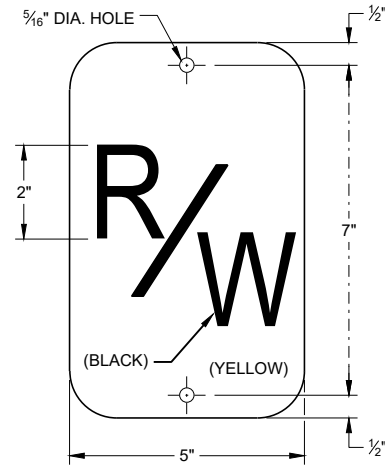
**MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

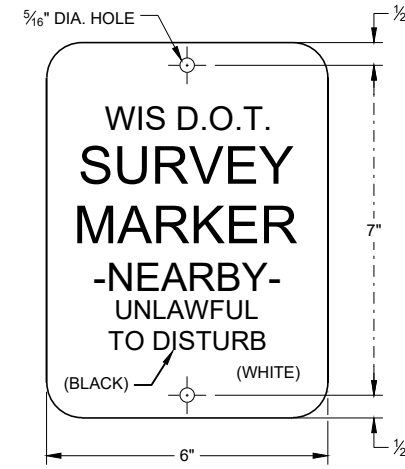


**PLAN VIEW
STEEL MARKER POST**



R / W PLAQUE

THE RIGHT-OF-WAY PLAQUE AND INFORMATIVE PLAQUE WILL BE FURNISHED BY THE WISCONSIN DEPARTMENT OF TRANSPORTATION.



INFORMATIVE PLAQUE

GENERAL NOTES

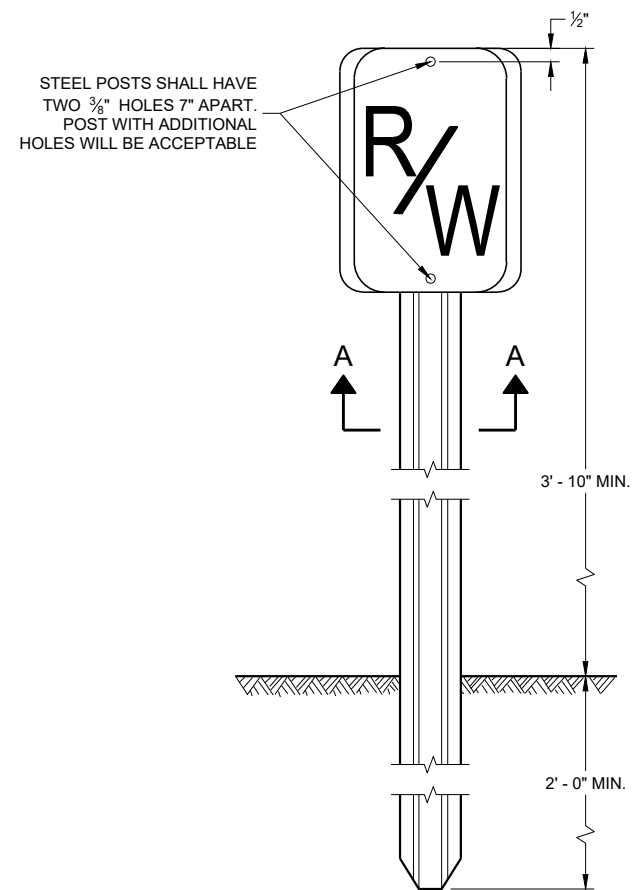
DETAILS OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

A STEEL MARKER POST FOR RIGHT -OF-WAY SHALL BE PLACED IN THE RIGHT-OF-WAY WITH THE BACK OF THE POST ON THE LONGER RIGHT-OF-WAY TANGENT, 6 INCHES TO 24 INCHES FROM EACH TYPE 2 MONUMENT TO SERVE AS A GUARD POST, AND AT OTHER LOCATIONS AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

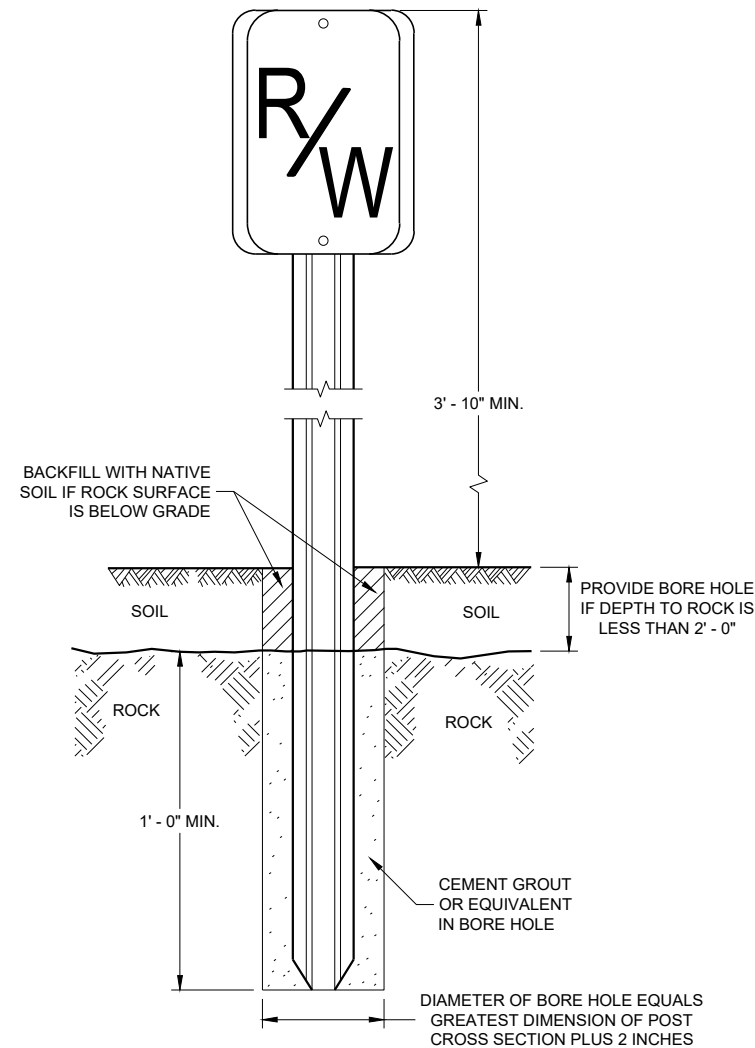
THE "R/W" PLAQUE SHALL FACE THE ROADWAY AND THE INFORMATIVE PLAQUE SHALL FACE AWAY FROM THE ROADWAY. "R/W" AND INFORMATIVE PLAQUES WILL BE FURNISHED BY THE WISCONSIN DEPARTMENT OF TRANSPORTATION.

STEEL MARKER POSTS SHALL MEET THE MINIMUM MATERIAL REQUIREMENTS FOR STEEL DELINEATOR POSTS; EXCEPT POSTS PAINTED WITH FEDERAL YELLOW ENAMEL NEED NOT BE ZINC COATED.

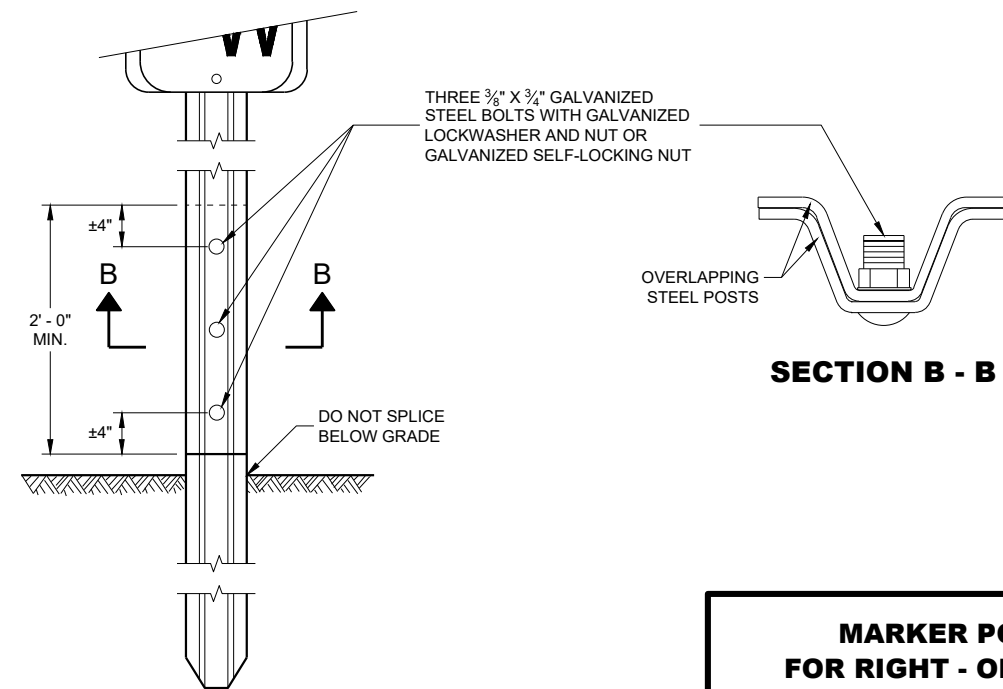
- ① IN AREAS OF SOLID ROCK, DRILL A BORE HOLE 2" GREATER THAN THE WIDEST DIMENSION OF THE POST CROSS SECTION INTO THE ROCK A MINIMUM DEPTH OF 12 INCHES. CUT OR SPLICE THE POST SO THAT A MINIMUM LENGTH OF 3' - 10" PROTRUDES ABOVE THE GROUND. BLOW OUT THE BORE HOLE IN THE ROCK USING COMPRESSED AIR. FILL THE BORE HOLE WITH CEMENT GROUT OR EQUIVALENT, DEPENDING ON THE STABILITY OF THE ROCK.



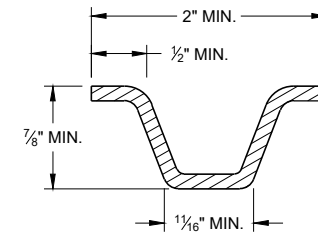
**FRONT VIEW
STEEL MARKER POST**



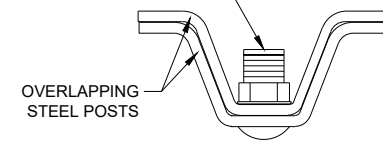
**FRONT VIEW
ROCK INSTALLATION** ①



**FRONT VIEW
SPLICE DETAIL**



MIN. WEIGHT 1.12 LB./FT.
SECTION A - A

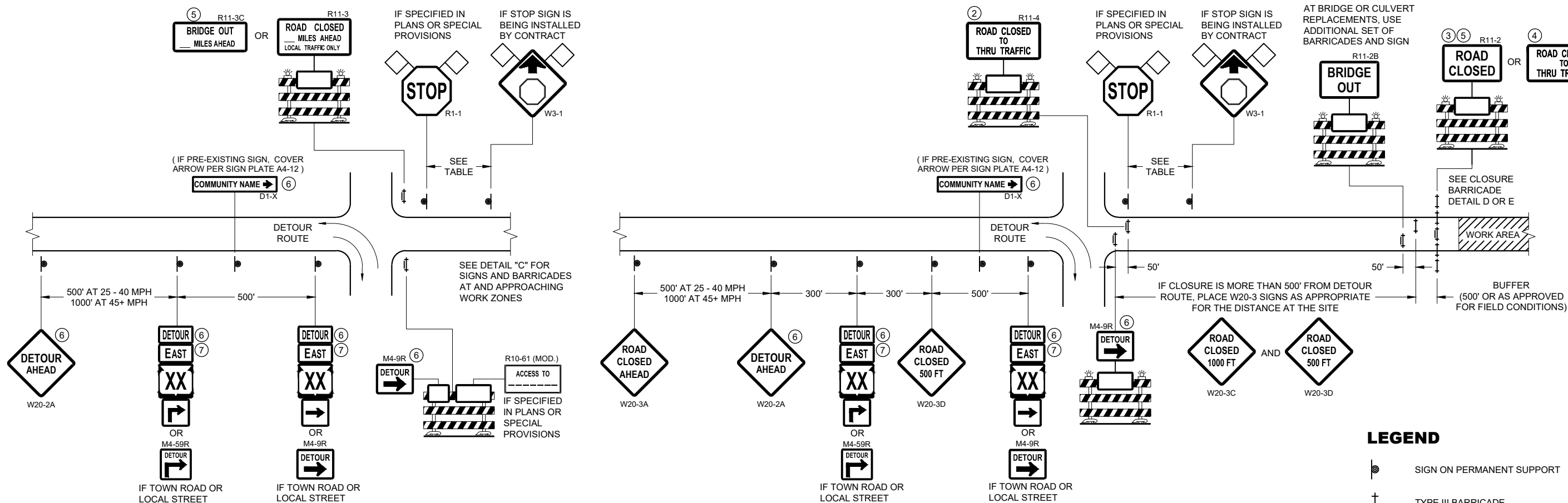


SECTION B - B

**MARKER POST
FOR RIGHT - OF - WAY**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
2/18/2016 DATE /S/ Ray Kumapayi
DATE CHIEF SURVEYING AND MAPPING ENGINEER



**DETAIL A
MAINLINE CLOSURE WITH POSTED DETOUR**

WORK ZONE GREATER THAN OR EQUAL TO 1/2 MILE FROM
DETOUR ROUTE (1000 FEET IF URBAN)

**DETAIL B
MAINLINE CLOSURE WITH POSTED DETOUR**

WORK ZONE LESS THAN 1/2 MILE FROM
DETOUR ROUTE (1000 FEET IF URBAN)

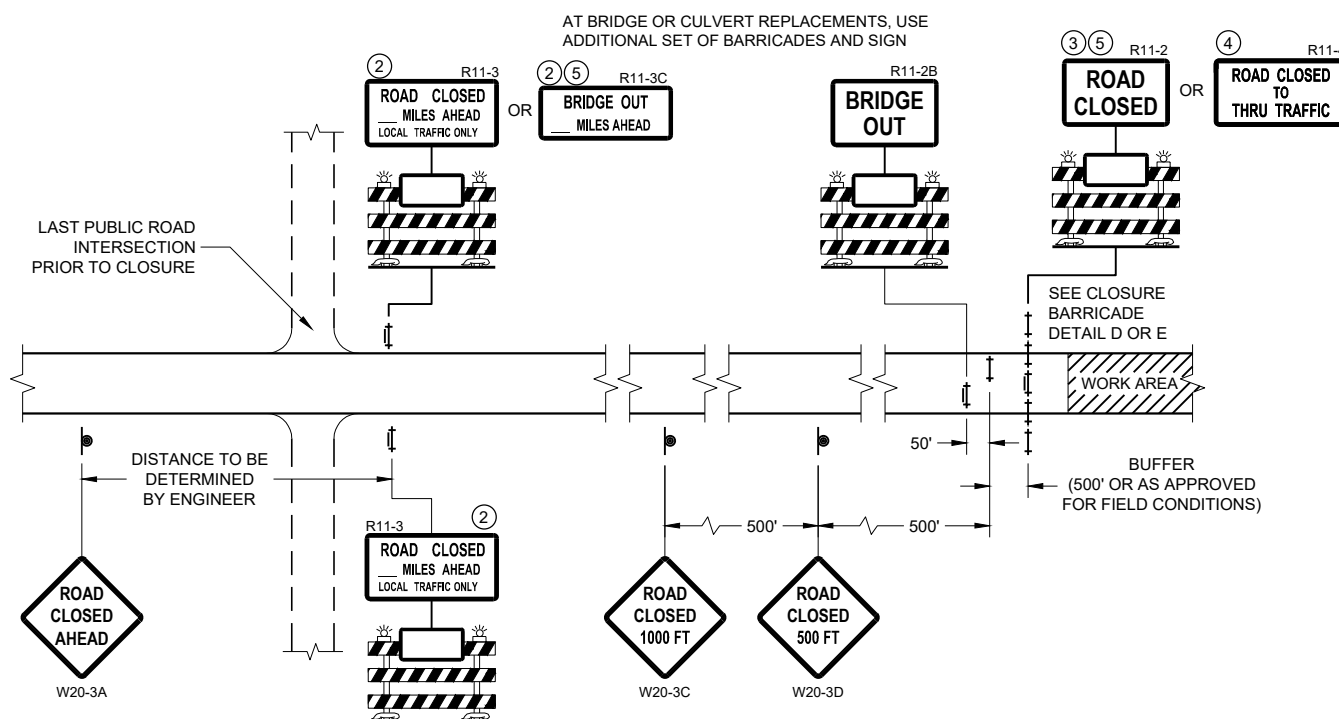
LEGEND

- 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)

- M4 - 8
- M3 - X
- M1 - 4 OR M1 - 6 OR M1 - 5A
- M05 - 1 OR 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



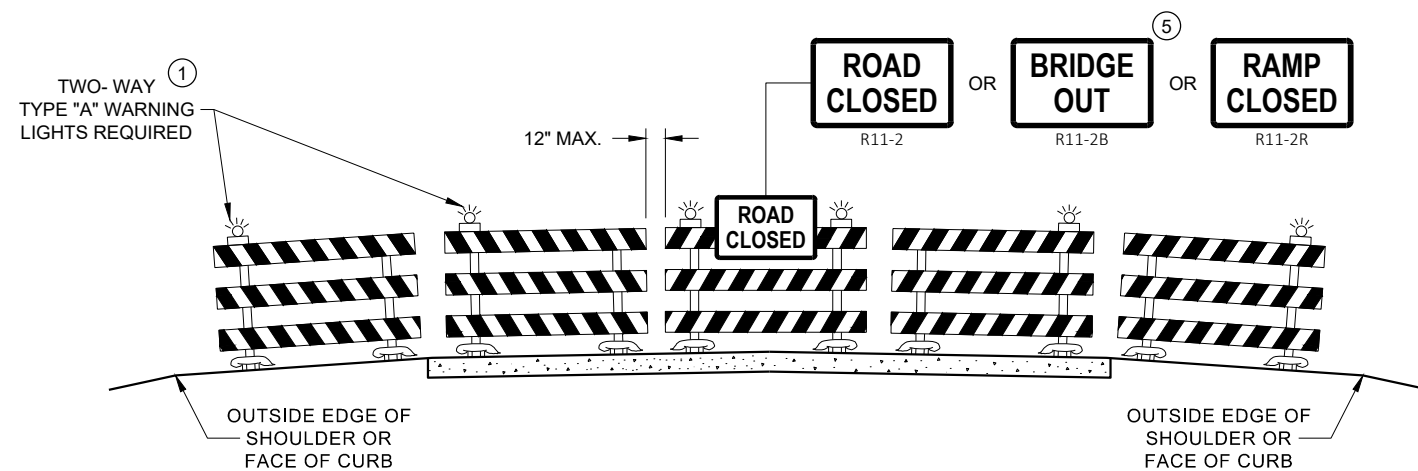
**DETAIL C
MAINLINE CLOSURE, NO POSTED DETOUR**

**BARRICADES AND SIGNS
FOR MAINLINE CLOSURES**

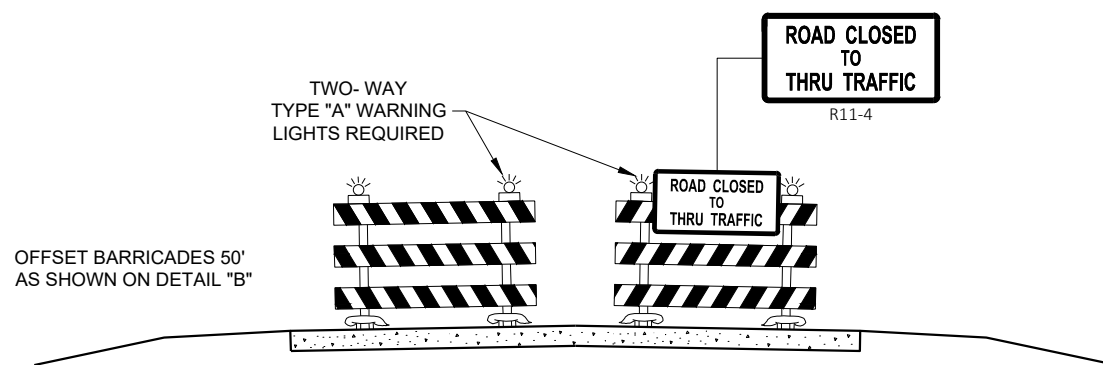
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

FHWA



**DETAIL D
ROAD CLOSURE BARRICADE DETAIL
APPROACH VIEW**



**DETAIL E
LANE CLOSURE BARRICADE DETAIL
APPROACH VIEW**

SEE SDD 15C2 - SHEET "a" FOR LEGEND

GENERAL NOTES

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

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

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

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

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

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

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

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

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

ALL SIGNS SHALL BE 48" X 48" UNLESS OTHERWISE NOTED BELOW:

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

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

BARRICADES AND SIGNS FOR VARIOUS CLOSURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

GENERAL NOTES

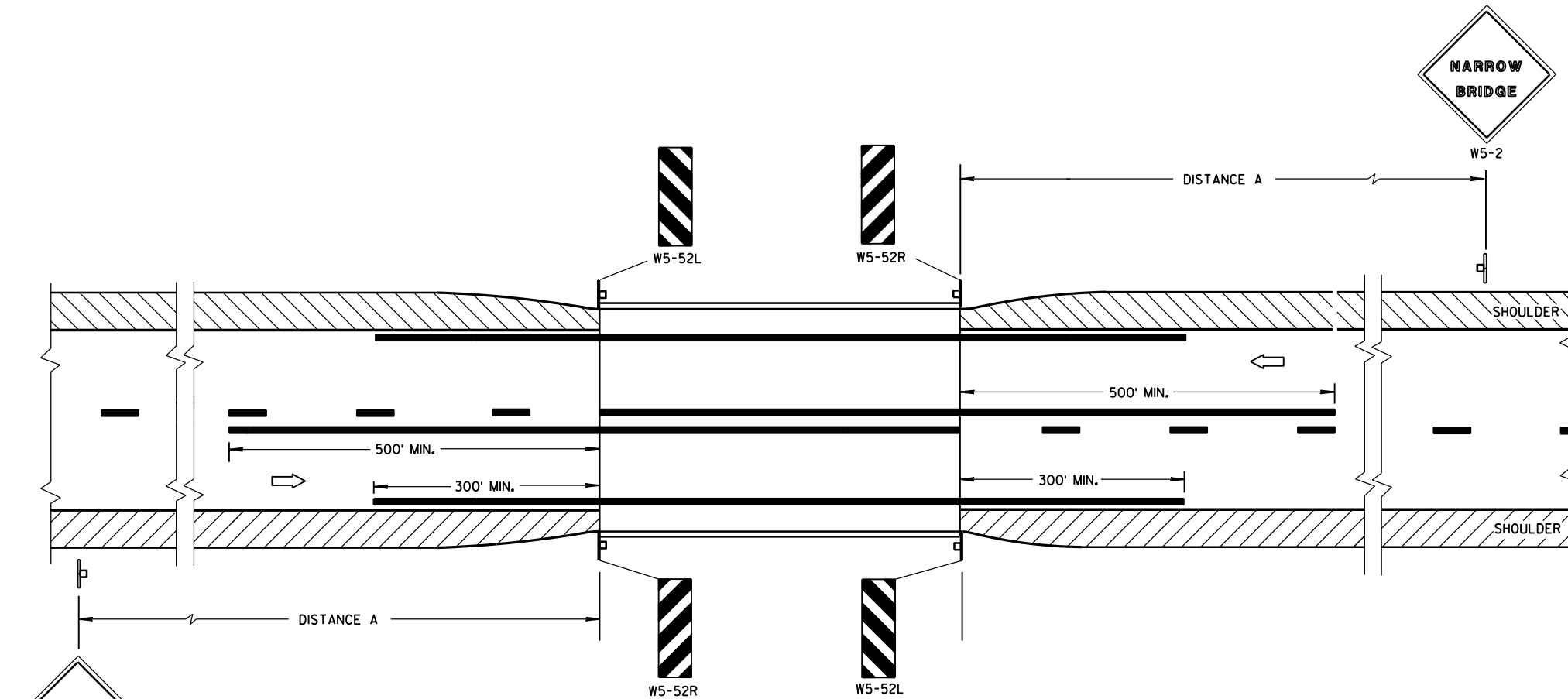
DETAILS OF TRAFFIC CONTROL DEVICES AND INSTALLATION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS, THE SPECIAL PROVISIONS, AND THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

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

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

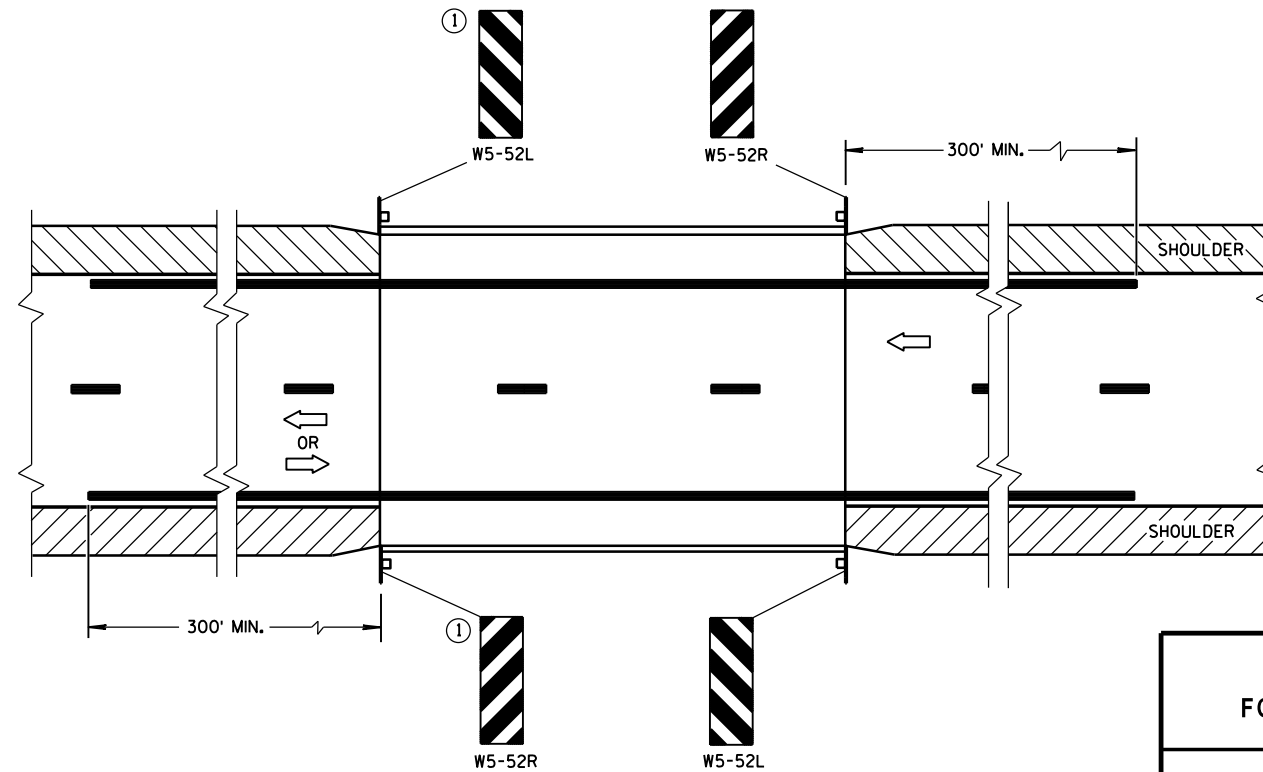
① OMIT ON ONE-WAY TRAVELLED WAYS.

➡ DIRECTION OF TRAFFIC



SITUATION 1

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



SITUATION 2

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

DISTANCE TABLE

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

SIGNING & MARKING FOR TWO LANE BRIDGES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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



SDD 15C08-a Longitudinal Marking (Mainline)

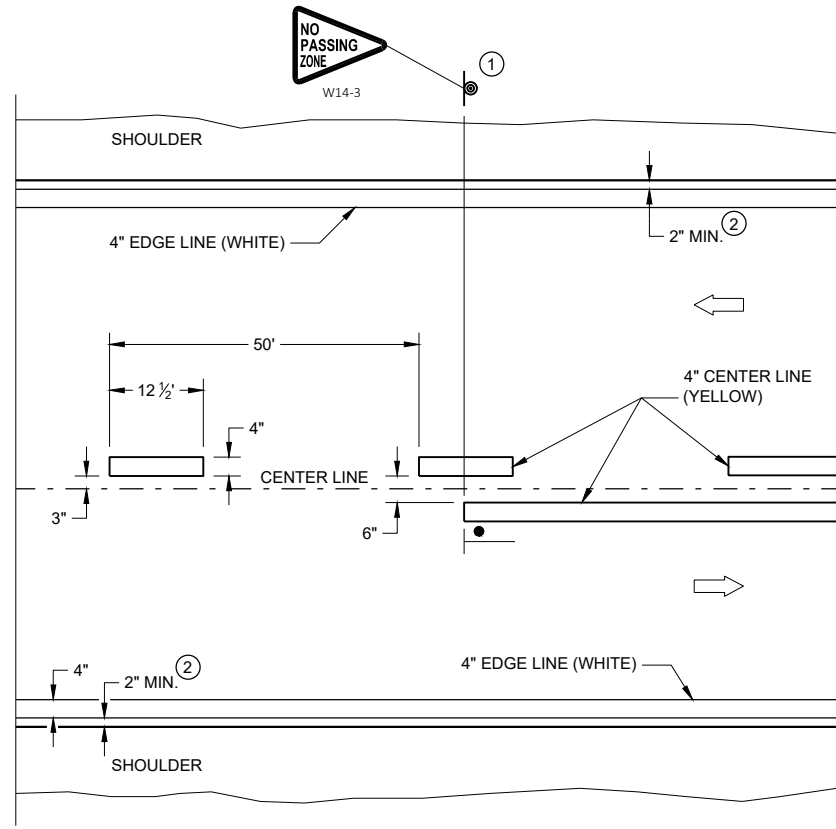
GENERAL NOTES

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

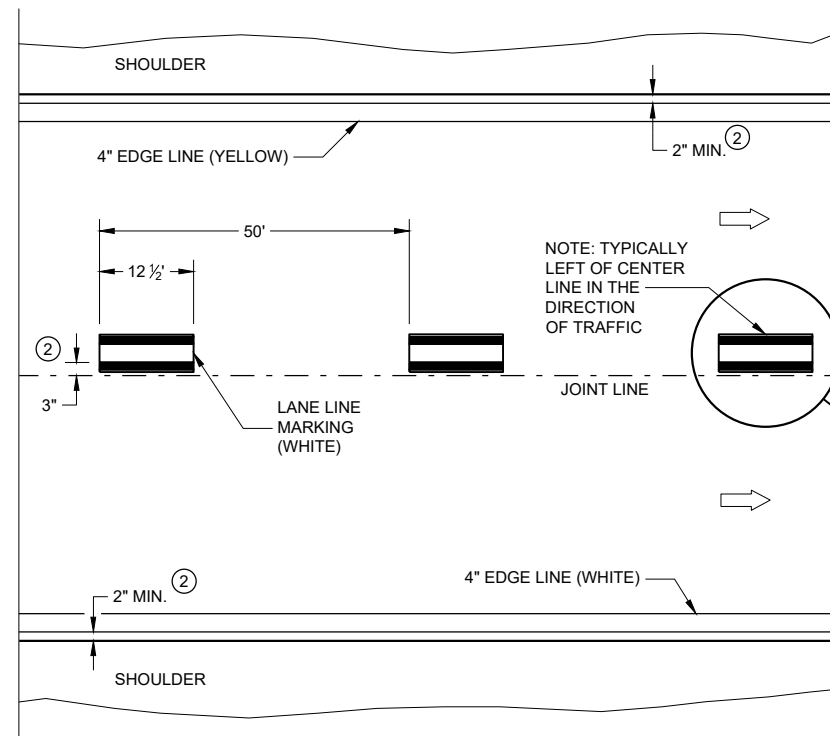
- ① LOCATE THE NO PASSING ZONE W14-3 SIGN WITH 50 FEET OF THE "T" MARKING
- ② MEASURE FROM EDGE OF MARKING TO JOINT LINE. THIS DOES NOT INCLUDE SPACE NEEDED FOR GROOVING OPERATIONS.

LEGEND

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

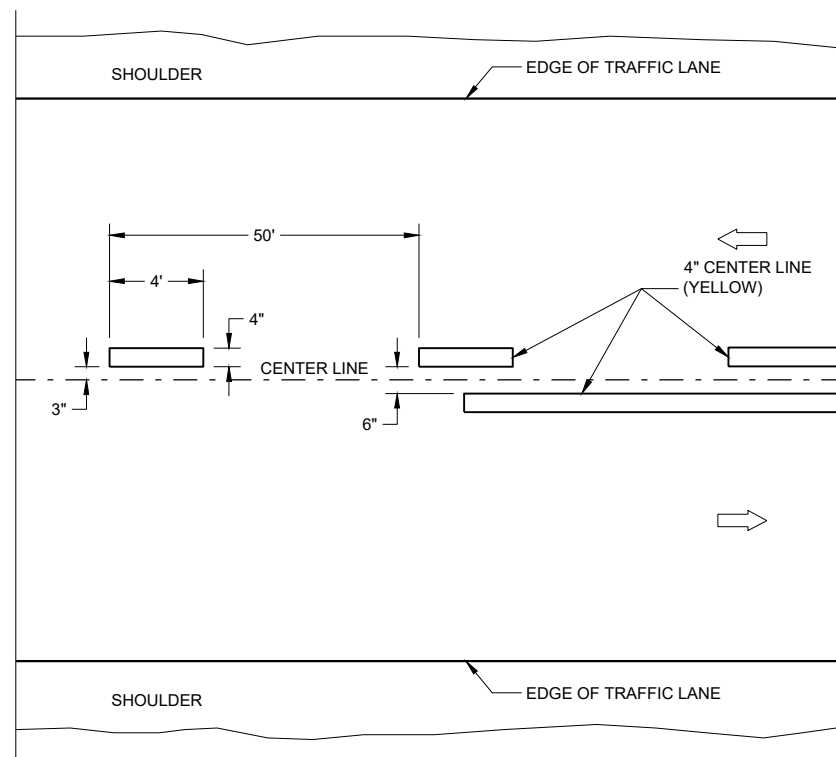
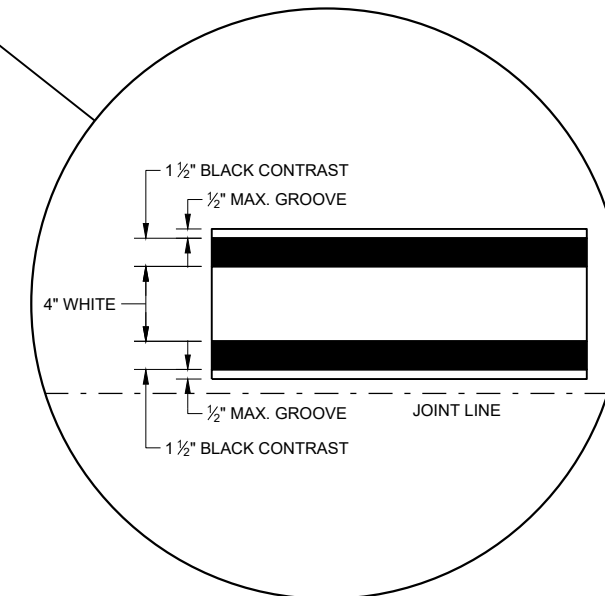


TWO WAY TRAFFIC

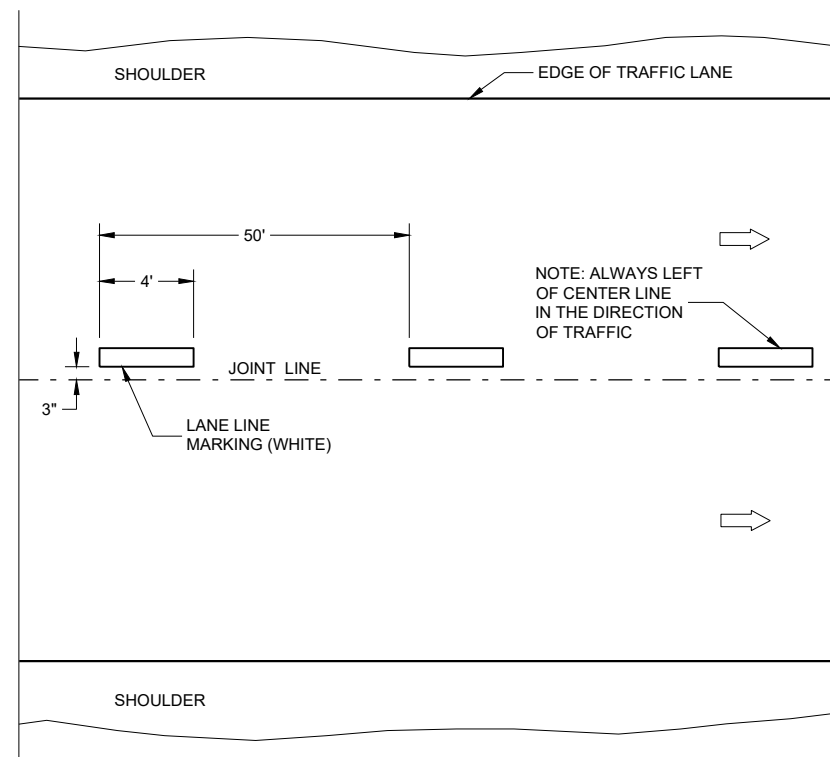


ONE WAY TRAFFIC

PERMANENT PAVEMENT MARKING



TWO WAY TRAFFIC



ONE WAY TRAFFIC

TEMPORARY PAVEMENT MARKING

LONGITUDINAL MARKING (MAINLINE)

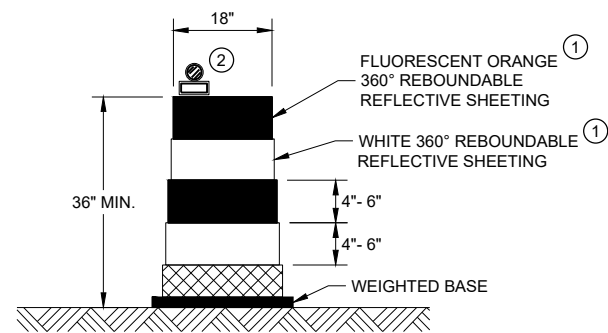
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

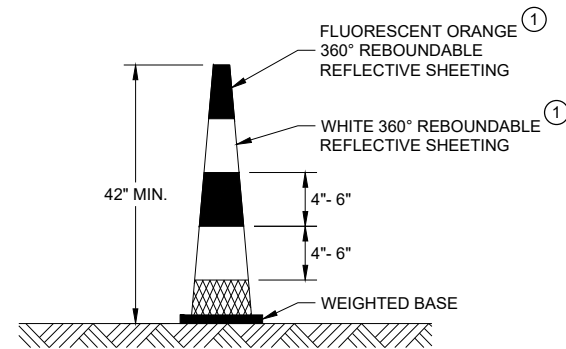
FHWA

GENERAL NOTES

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

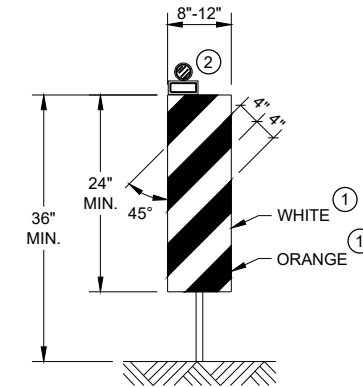


DRUM



42" CONE

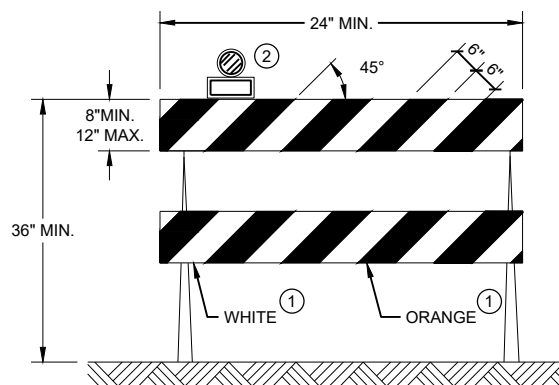
DO NOT USE IN TAPERS
 1/2 SPACING OF DRUMS



VERTICAL PANEL

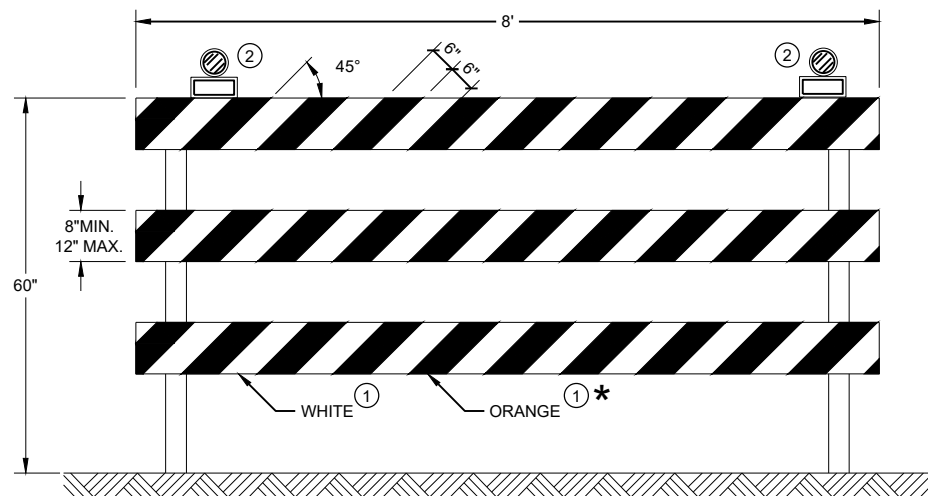
THE STRIPES SHALL SLOPE DOWNWARD TO THE TRAFFIC SIDE FOR CHANNELIZATION.

6



TYPE II BARRICADE

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



TYPE III BARRICADE

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

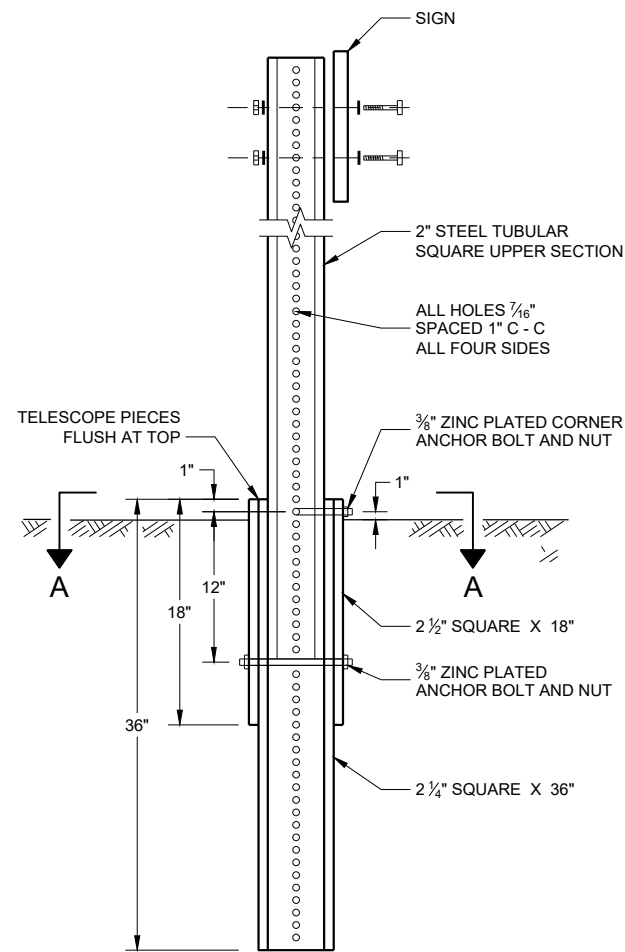
* IF USED FOR A PERMANENT APPLICATION USE RED SHEETING.

6

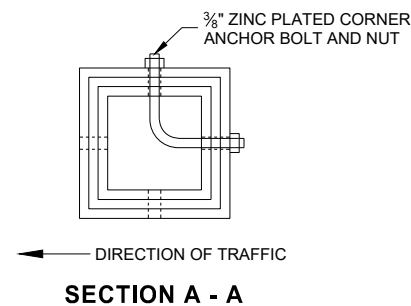
**CHANNELIZING DEVICES
 DRUMS, CONES, BARRICADES
 AND VERTICAL PANELS**

STATE OF WISCONSIN
 DEPARTMENT OF TRANSPORTATION

APPROVED
 November 2020 /S/ Andrew Heidtke
 DATE WORK ZONE ENGINEER
 FHWA



DETAIL OF TUBULAR STEEL SIGN POST



TUBULAR STEEL POSTS

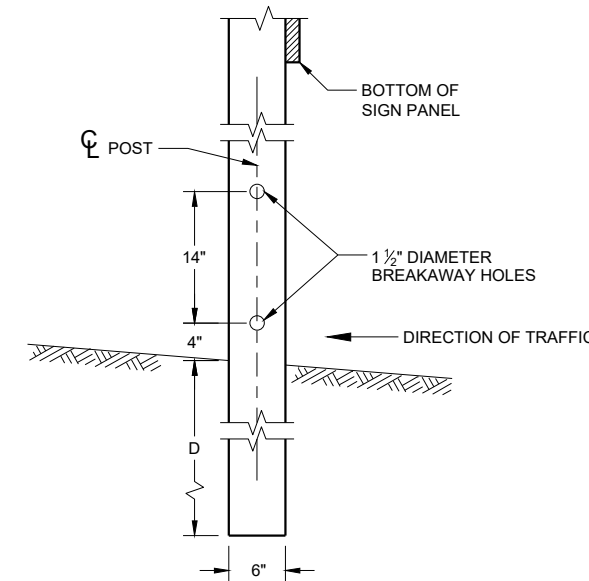
AREA OF SIGN INSTALLATION (SQ. FT.)	NUMBER OF REQUIRED TUBULAR STEEL POSTS
9 OR LESS	1
GREATER THAN 9, LESS THAN OR EQUAL TO 18	2
GREATER THAN 18, LESS THAN OR EQUAL TO 27	3

SIGNS WIDER THAN 3 FEET OR LARGER THAN 9 SQ. FT. SHALL BE MOUNTED ON MULTIPLE POSTS (SEE ABOVE TABLE).

SIGNS LARGER THAN 27 SQ. FT. SHALL NOT BE MOUNTED ON TUBULAR STEEL POSTS.

GENERAL NOTES

- 6 FEET FROM THE EDGE OF PAVEMENT (EDGE LINE LOCATION) UNLESS OTHERWISE DIRECTED BY THE PROJECT ENGINEER. LATERAL OFFSET SHOULD BE ADJUSTED TO AVOID THE DITCH FLOWLINE.
- 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 WHERE PARKING IS PERMITTED. IN THE ABSENCE OF SIDEWALK, VERTICAL CLEARANCE IS MEASURED FROM THE TOP OF THE CURB. IF NO SIDEWALK AND NO PARKING, VERTICAL CLEARANCE MAY BE REDUCED TO 5 FOOT MINIMUM. OFFSET OF SIGNS IS MEASURED FROM THE CURB FLOWLINE.
- FOR SIGNS REQUIRING 4 POSTS, SPACE INTERMEDIATE POSTS EVENLY.



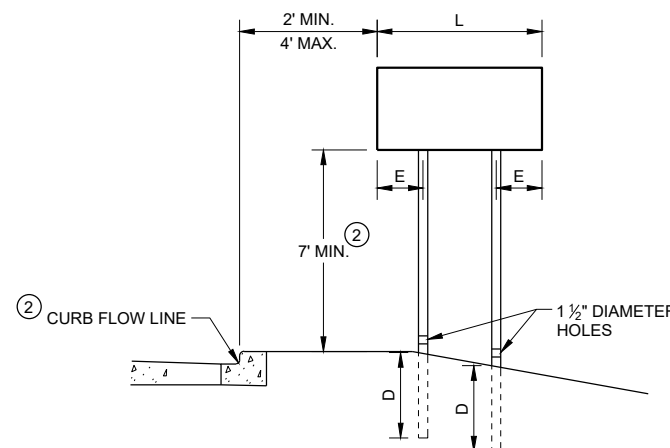
4" X 6" WOOD POST MODIFICATION

4" X 6" WOOD POST

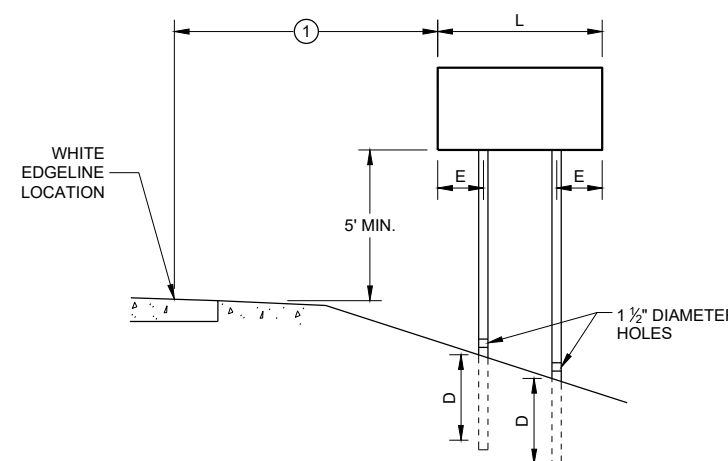
POST SPACING REQUIREMENTS		NUMBER OF WOOD POSTS REQUIRED
L	E	
48" OR LESS AND LESS THAN 20 SQ. FT.	-	1
LESS THAN 60"	12"	2
60" TO 120"	L/5	2
GREATER THAN 120" LESS THAN 168"	12"	3
168" AND GREATER	12"	4

WOOD POST EMBEDMENT DEPTH

AREA OF SIGN INSTALLATION (SQ. FT.)	D (MIN.)
20 OR LESS	4'
GREATER THAN 20	5'



URBAN AREA

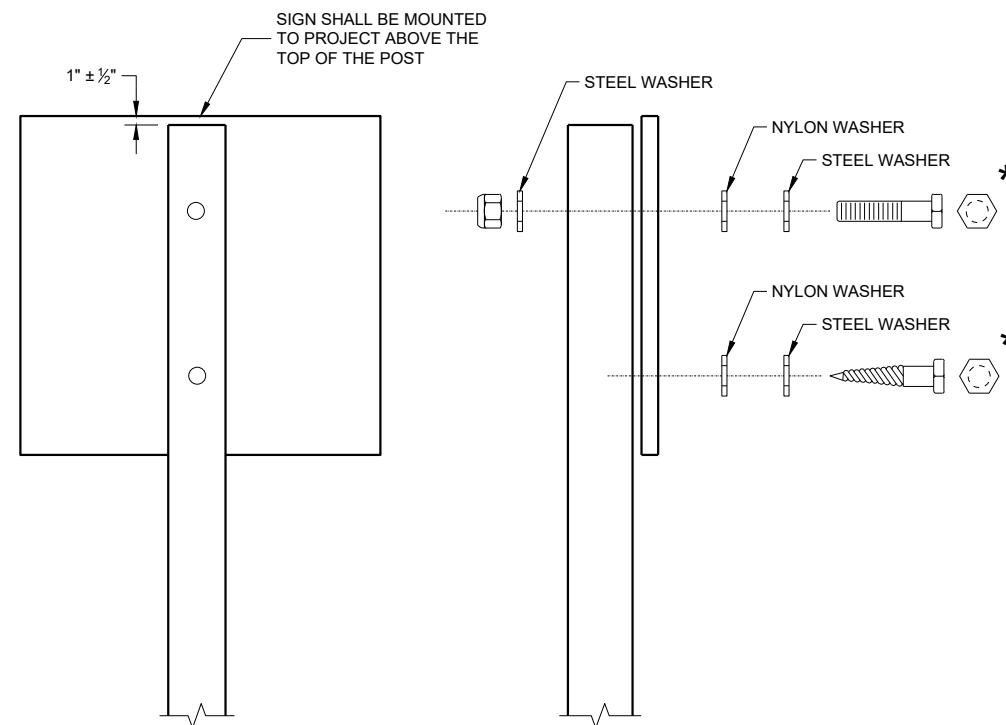


RURAL AREA

POST MOUNTING DETAIL FOR TEMPORARY TRAFFIC CONTROL FIXED MESSAGE SIGNS

TEMPORARY TRAFFIC CONTROL SIGN MOUNTING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



NUTS, BOLTS AND LAGS USED FOR MOUNTING SIGNS SHALL HAVE HEXAGONAL HEADS AND SHALL BE EITHER:

- A. HOT DIP GALVANIZED IN ACCORDANCE WITH ASTM DESIGNATION: A 153, CLASS D, OR SC 3
- B. ELECTRO-GALVANIZED IN ACCORDANCE WITH ASTM DESIGNATION: B 633, TYPE III, SC 3

THREADS ON BOLTS AND NUTS SHALL BE MANUFACTURED WITH SUFFICIENT ALLOWANCE FOR THE CADMIUM PLATE OR GALVANIZED COATING TO PERMIT THE NUTS TO RUN FREELY ON THE BOLTS.

WOOD POST (4" x 6")

- LAG SCREWS - $\frac{3}{8}$ " x 3"
- MACHINE BOLTS - $\frac{5}{16}$ " x 6 $\frac{1}{2}$ " OR 7" LENGTH W/NUTS

SQUARE STEEL POST (2" x 2")

- MACHINE BOLTS - $\frac{3}{8}$ " x 3 $\frac{1}{4}$ " LENGTH W/NUTS
- RIVETS - $\frac{9}{32}$ " (6605-9-6) BULB-TITE, TRI-FOLD, ALUMINUM BODY/MANDREL O.D. FLANGE 0.720 - 0.765 INCH, GRIP RANGE 0.042 - 0.375 INCH

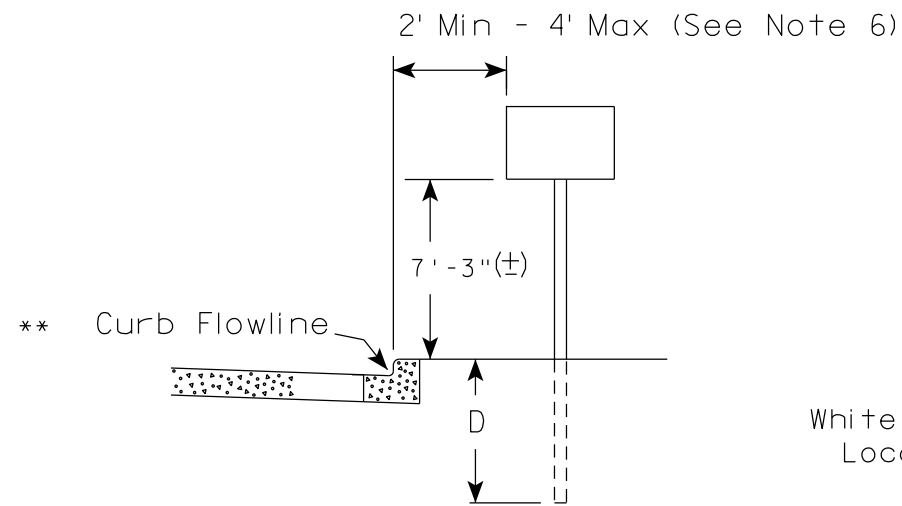
WASHERS (ALL POSTS) -

- 1 $\frac{1}{4}$ " O.D. x $\frac{3}{8}$ " I.D. x $\frac{1}{16}$ " STEEL
- 1 $\frac{1}{4}$ " O.D. x $\frac{3}{8}$ " I.D. x 0.080 NYLON

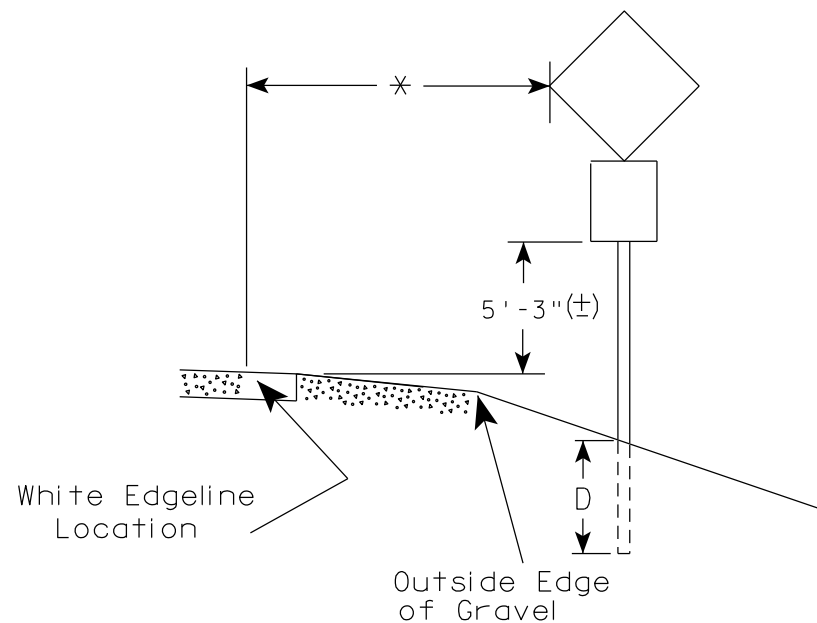
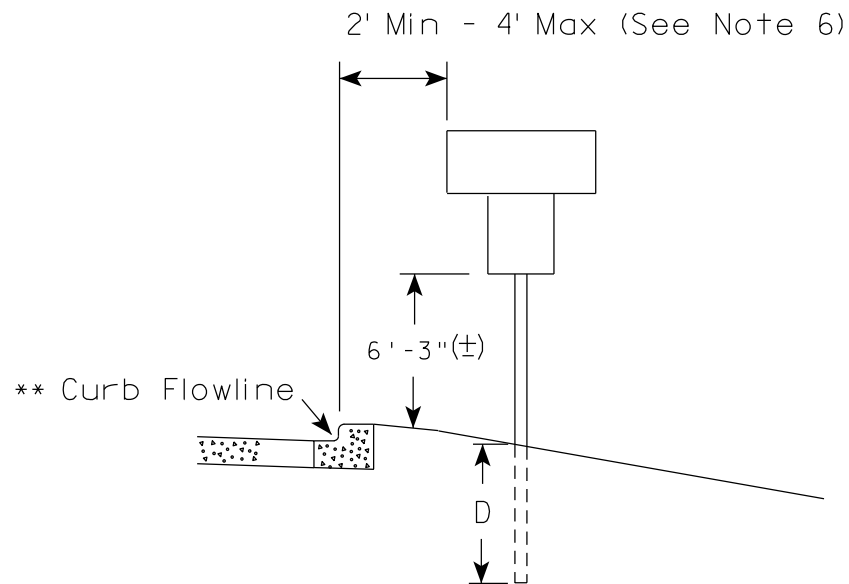
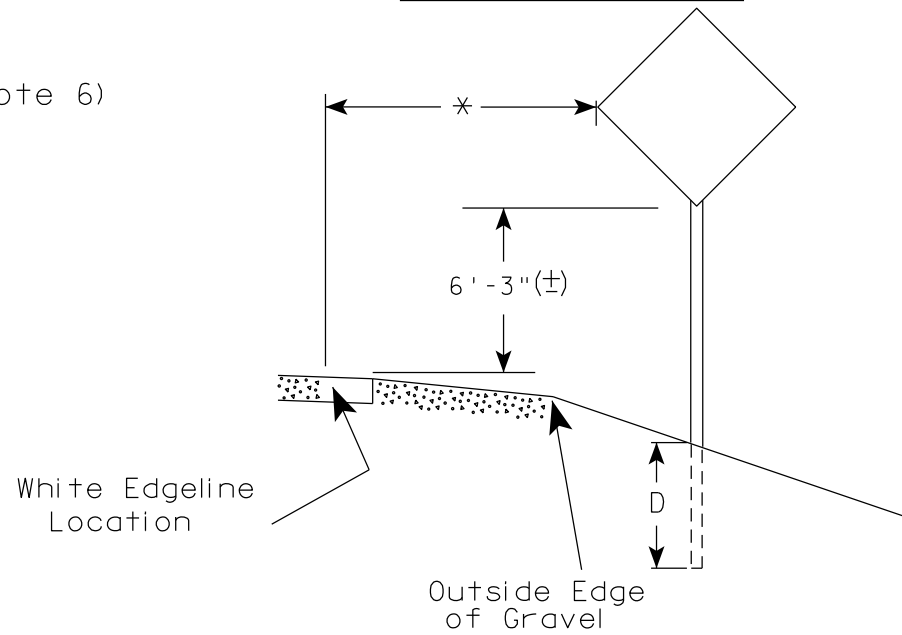
* TWO DIFFERENT FASTENING SYSTEMS ARE SHOWN FOR ILLUSTRATION PURPOSES. ON ANY INDIVIDUAL SIGN, EITHER ONE OR THE OTHER SYSTEM SHALL BE USED. ACTUAL NUMBER OF FASTENERS PER SIGN VARIES WITH THE SIGN AREA. FOR A SINGLE POST INSTALLATION, ALL SIGNS GREATER THAN 9 SQ. FT. REQUIRE THE USE OF 3 FASTENERS.

ATTACHMENT OF SIGNS TO POSTS	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED June 2017 DATE	/S/ Andrew Heidtke WORK ZONE 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" (±). The Chevron sign (W1-8), Roundabout Chevron panel (R6-4B), Enhanced Reference Markers, Clearance Markers (W5-52), Mile Markers (D10 series), In Road Object Markers (W5-54) & End of Road Markers (W5-56) shall be mounted at a height of 4'-3" (±).
3. For expressways and freeways, mounting height is 7'- 3" (±) or 6'-3" (±) depending upon existence of a sub-sign.
4. Minimum mounting height for signs mounted on traffic signal poles is 5'- 3" (±).
5. Offset distance shall be consistent with existing signs or consistent throughout length of project.
6. The (±) tolerance for mounting height is 3 inches.
7. Folding signs shall be mounted at a height of 5'-3" (±) or as 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

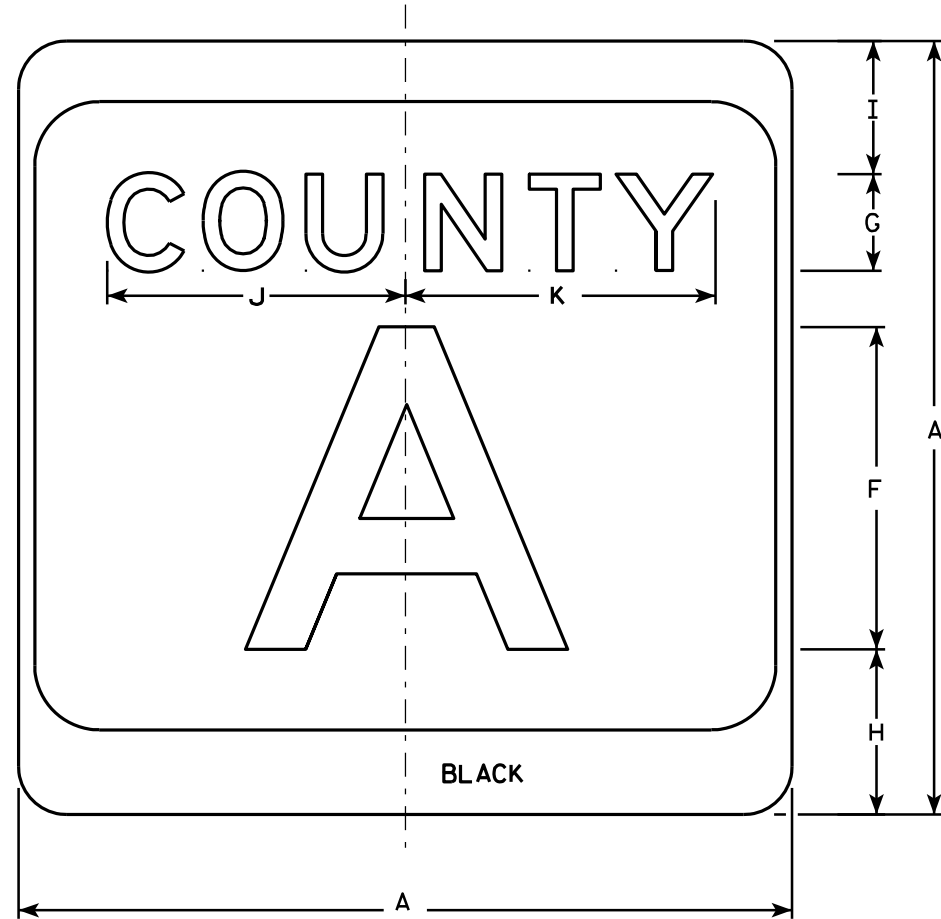
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

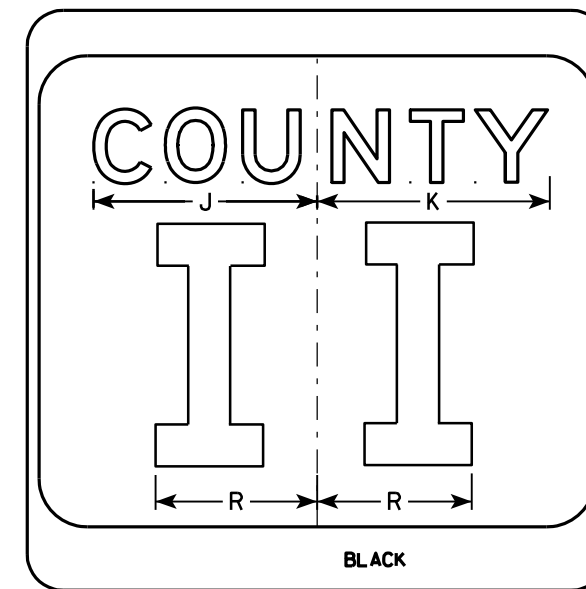
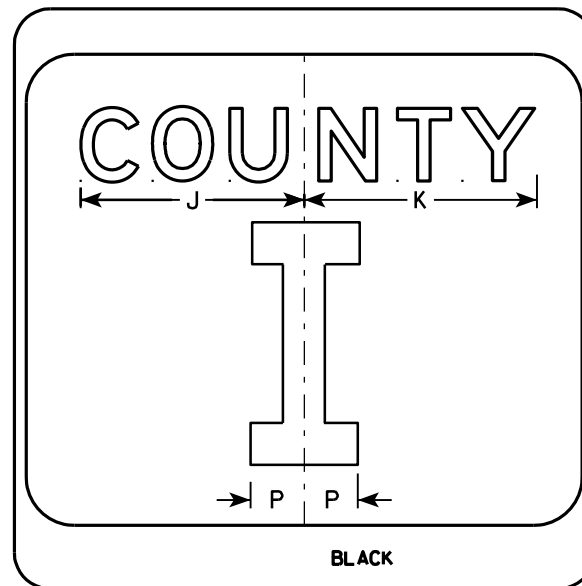
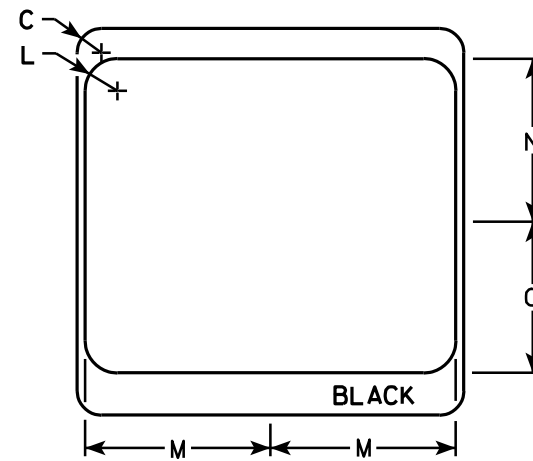
DATE 5/13/2020 PLATE NO. A4-3.22

NOTES

1. Sign is Type II - see Note 7 - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
Background - White & Black - See Note 7
Message - Black
3. Message Series - see Note 5
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. Message Series E for 1 letter.
Message Series D for 2 letters unless message is too big then Series C.
Message Series C for 3 letters unless message is too big then Series B.
6. Substitute appropriate letters & optically center to achieve proper balance.
7. Permanent Signs
Background - Type H Reflective
Detour or temporary Signs
Background - Reflective



M1-5A



7

7

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		1 1/2			10	3	5 1/8	4 1/8	9 1/4	9 5/8	2	11 1/2	10 1/8	9 3/8	2 1/4		6 5/8									4.0
3	36		2 1/4			16	4	7 5/8	5 5/8	12 1/4	12 7/8	3	17 1/8	15 1/4	14	3 3/8		10									9.0
4	36		2 1/4			16	4	7 5/8	5 5/8	12 1/4	12 7/8	3	17 1/8	15 1/4	14	3 3/8		10									9.0
5	36		2 1/4			16	4	7 5/8	5 5/8	12 1/4	12 7/8	3	17 1/8	15 1/4	14	3 3/8		10									9.0

CTH MARKER
M1-5A FOR ASSEMBLIES

WISCONSIN DEPT OF TRANSPORTATION

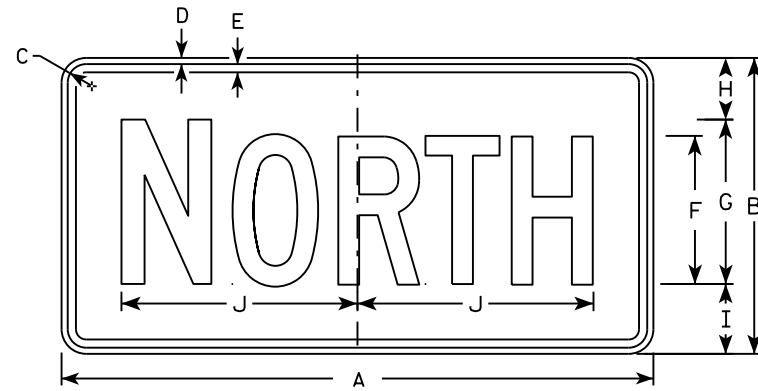
APPROVED *Matthew R. Rauch*
For State Traffic Engineer

DATE 9/27/11 PLATE NO. MI-5A.8

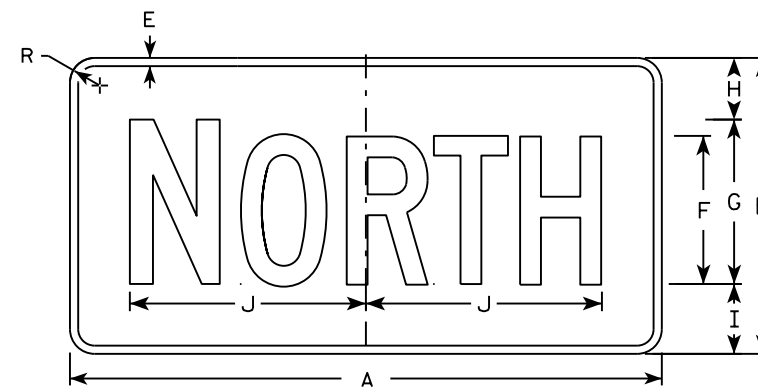
PROJECT NO: _____ HWY: _____ COUNTY: _____ SHEET NO: _____ E

NOTES

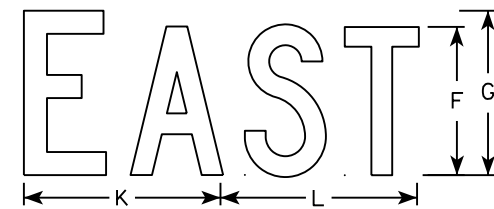
- All Signs Type II - Type H
- Color:
 - Background - See note 5
 - Message - See note 5
- Message Series - C
- Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
- M3-1 thru M3-4 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.



M3-1
MM3-1
MP3-1



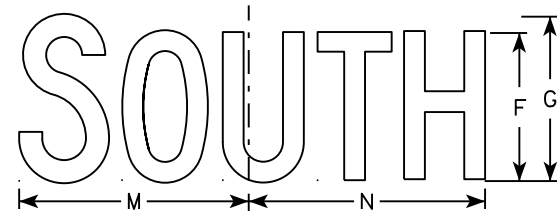
MB3-1
MK3-1
MN3-1



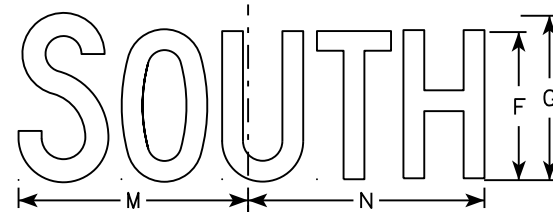
M3-2
MM3-2
MP3-2



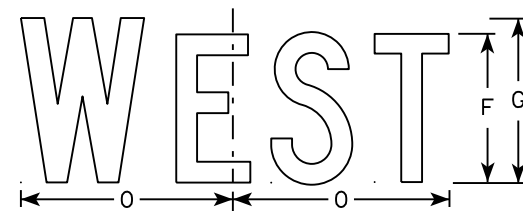
MB3-2
MK3-2
MN3-2



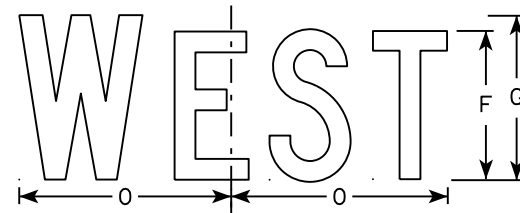
M3-3
MM3-3
MP3-3



MB3-3
MK3-3
MN3-3



M3-4
MM3-4
MP3-4



MB3-4
MK3-4
MN3-4

7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2	24	12	1 1/8	3/8	3/8	6	7	2 1/4	2 3/4	10 1/4	7 7/8	8 3/8	10 1/4	9 3/4	8 3/4			1 1/2									2.00
3	36	18	1 1/8	3/8	1/2	9	10	3 3/4	4 1/4	14 3/8	12	12 1/8	14	14 1/8	13			1 1/2									4.5
4	36	18	1 1/8	3/8	1/2	9	10	3 3/4	4 1/4	14 3/8	12	12 1/8	14	14 1/8	13			1 1/2									4.5
5	36	18	1 1/8	3/8	1/2	9	10	3 3/4	4 1/4	14 3/8	12	12 1/8	14	14 1/8	13			1 1/2									4.5

STANDARD SIGNS
M3-1 thru M3-4
SERIES

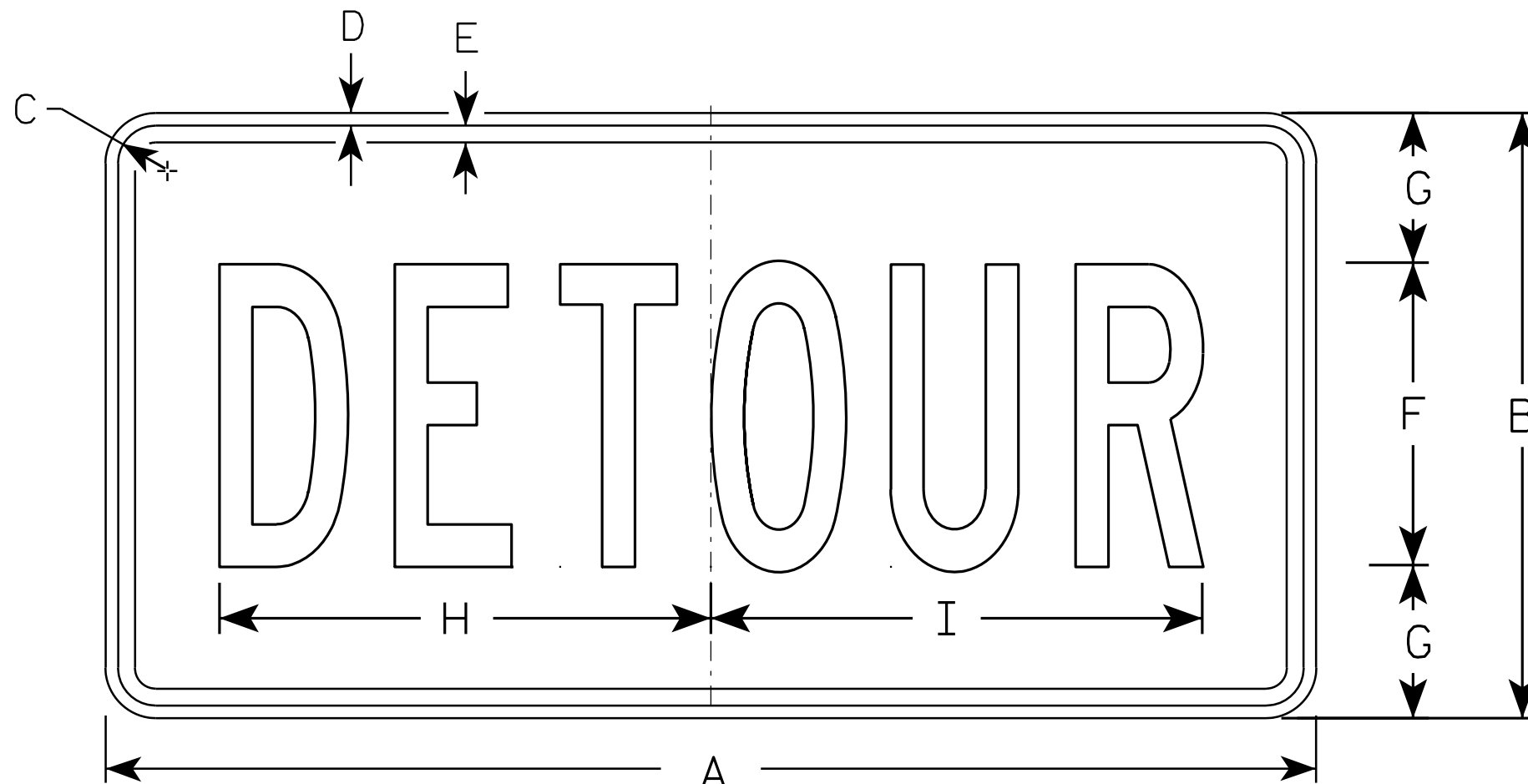
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 10/15/15 PLATE NO. M3-1.14

NOTES

1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
Background - Orange
Message - Black
3. Message Series - 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.



M4-8

7

7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2	24	12	1 1/8	3/8	3/8	6	3	10	10 1/4																		2.0
3	36	18	1 1/8	3/8	1/2	9	4 1/2	14 5/8	14 1/2																		4.5
4																											
5																											

STANDARD SIGN
M4-8

WISCONSIN DEPT OF TRANSPORTATION

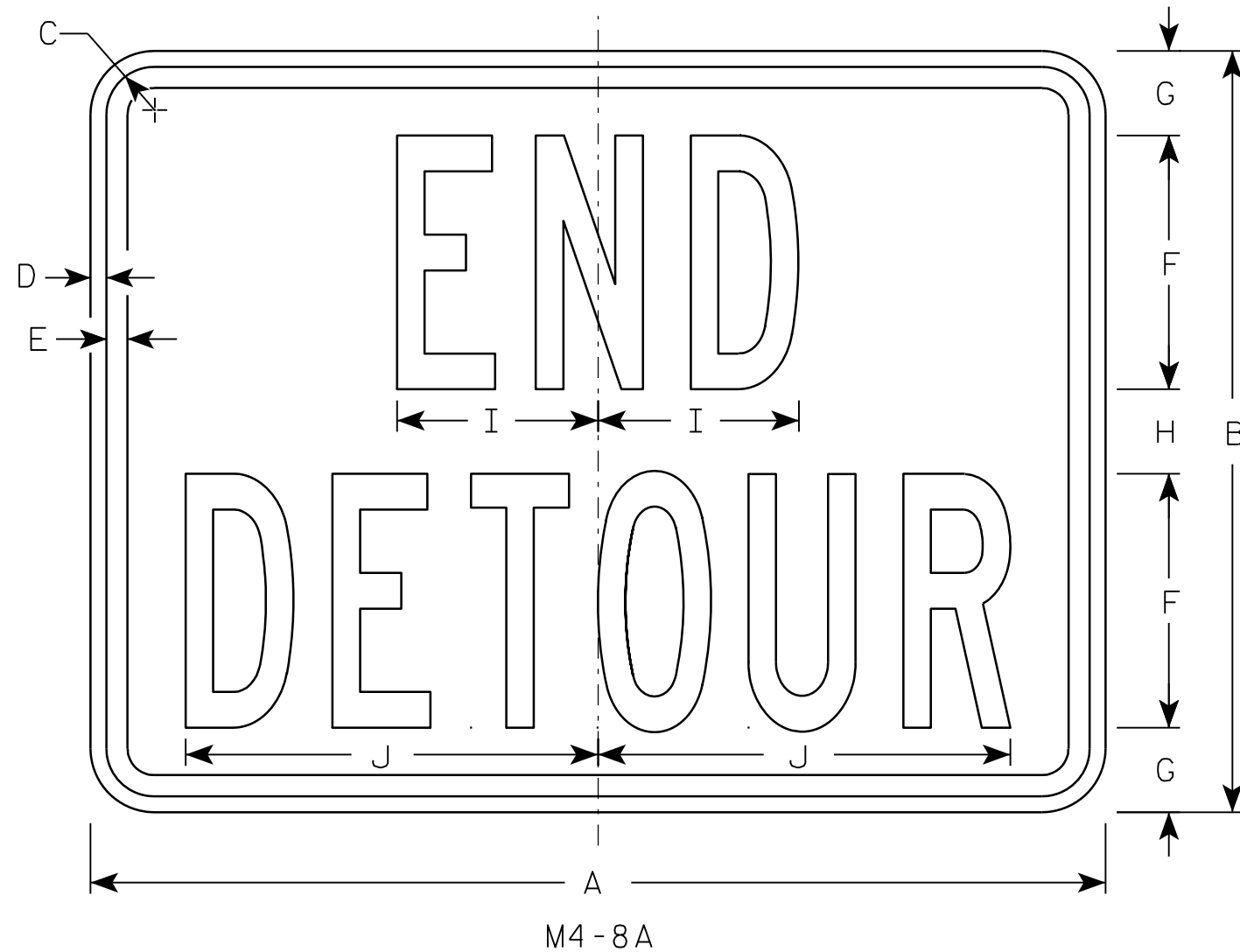
APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 11/10/10 PLATE NO. M4-8.2

PROJECT NO: _____ HWY: _____ COUNTY: _____ SHEET NO: **E**

NOTES

1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
Background - Orange
Message - Black
3. Message Series - 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.



7

7

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	18	1 1/8	3/8	1/2	6	2	2	4 3/4	9 3/4																	3.0
3	30	24	1 1/8	3/8	1/2	8	2 1/2	3	6 3/4	13																	5.0
4																											
5																											

STANDARD SIGN
M4-8A

WISCONSIN DEPT OF TRANSPORTATION

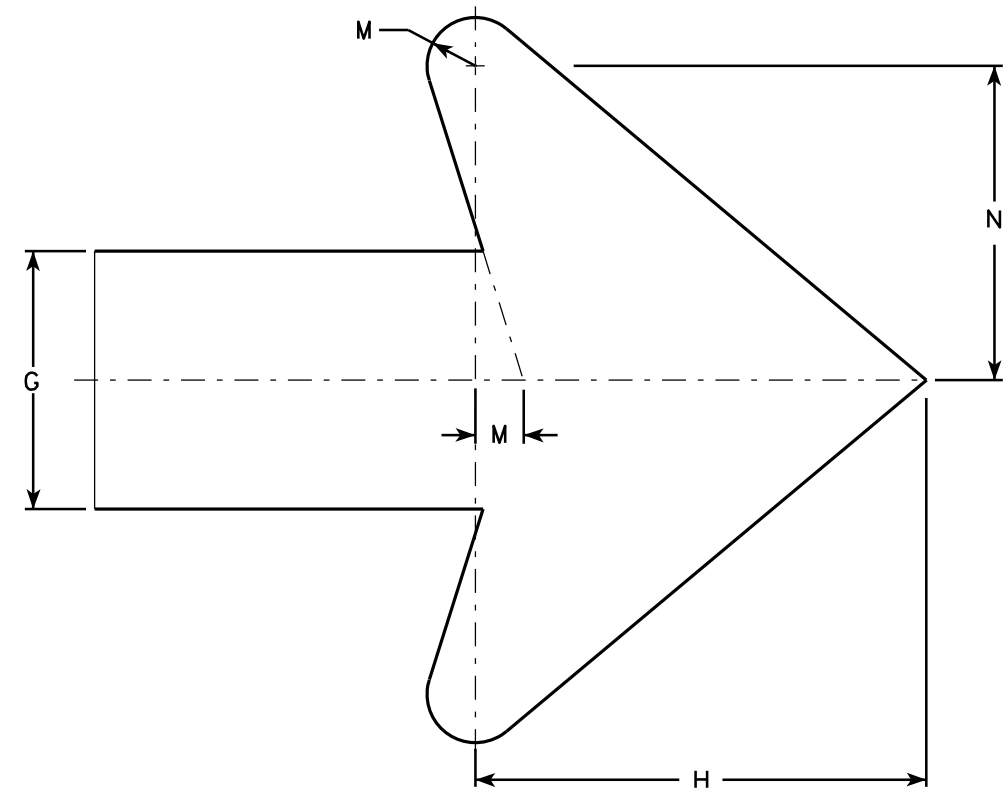
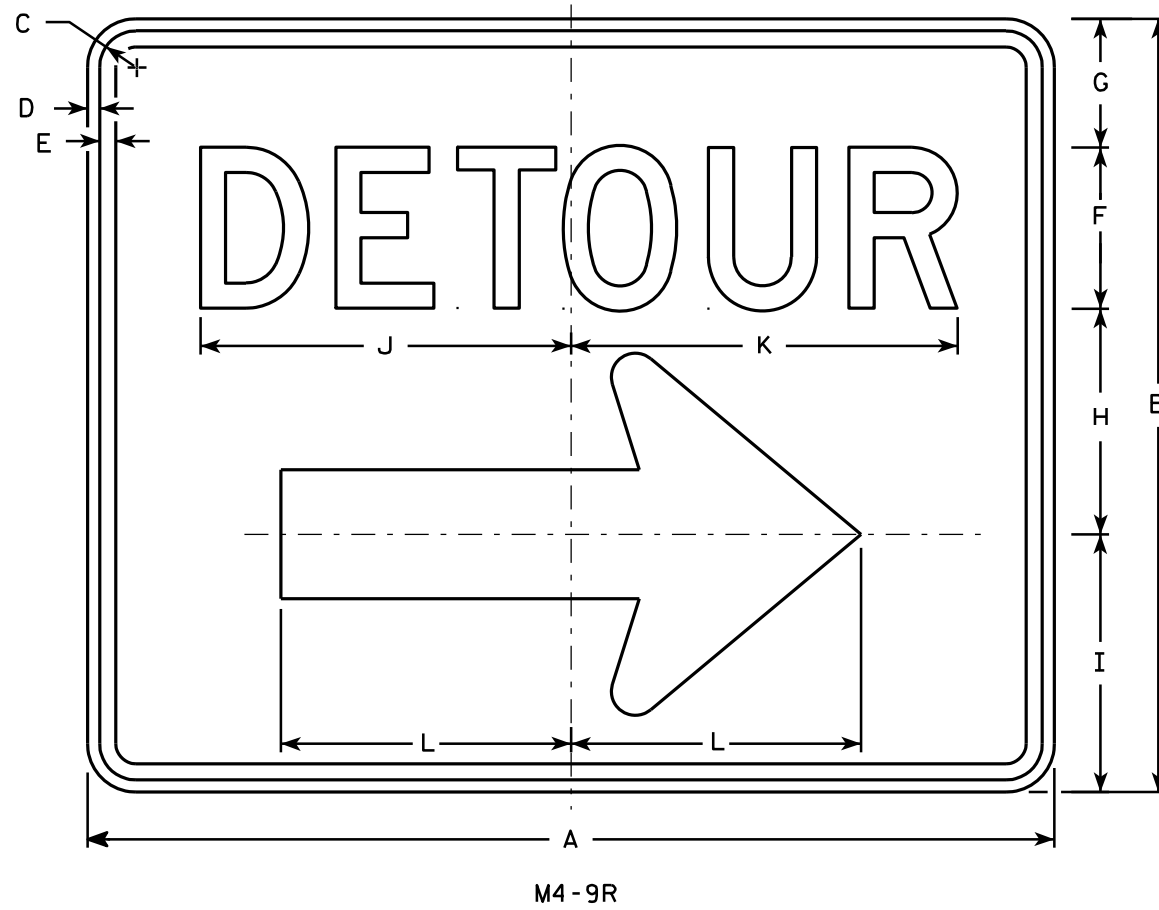
APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 3/9/11 PLATE NO. M4-8A.2

PROJECT NO: _____ HWY: _____ COUNTY: _____ SHEET NO: **E**

NOTES

1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
Background - Orange
Message - Black
3. Message Series - D
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. 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 1/8	3/8	1/2	5	4	7	8	11 1/2	12	9	3/4	4 7/8													5.00
3	30	24	1 1/8	3/8	1/2	5	4	7	8	11 1/2	12	9	3/4	4 7/8													5.00
4	48	36	1 3/8	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 3/8	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

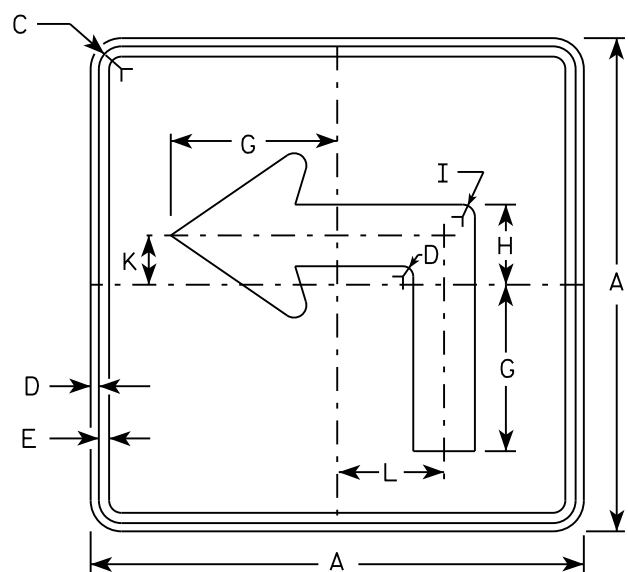
STANDARD SIGN
M4-9 R & L

WISCONSIN DEPT OF TRANSPORTATION

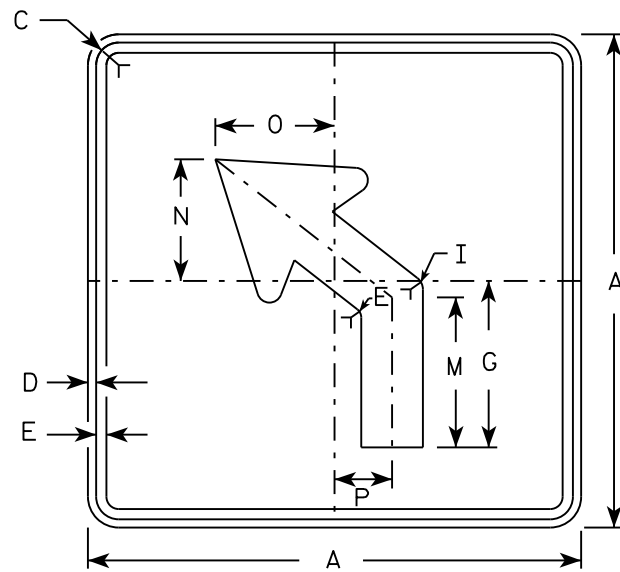
APPROVED *Matthew R. Rauch*
For State Traffic Engineer

DATE 3/9/11 PLATE NO. M4-9R.4

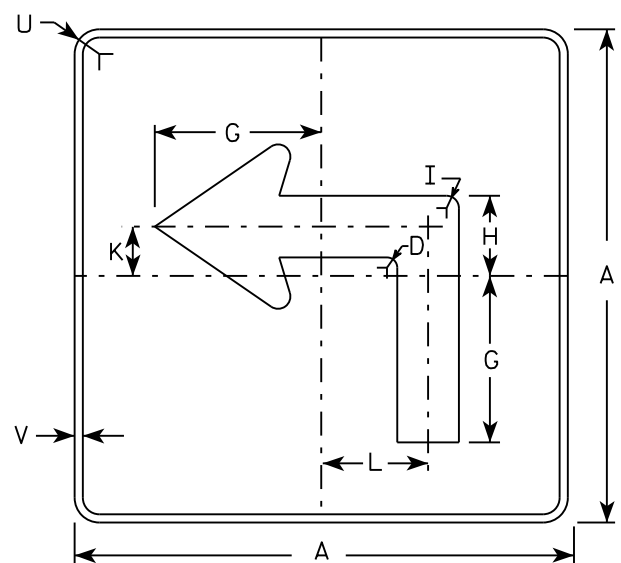
PROJECT NO: _____ HWY: _____ COUNTY: _____ SHEET NO: **E**



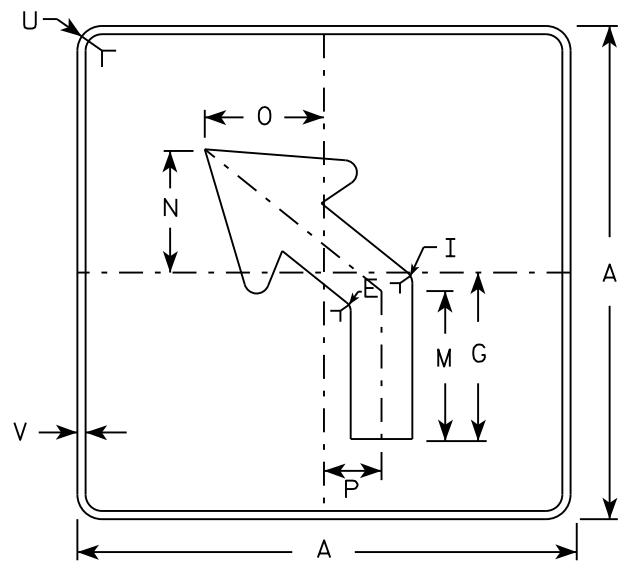
M5-1L
MM5-1L
M05-1L
MP5-1L



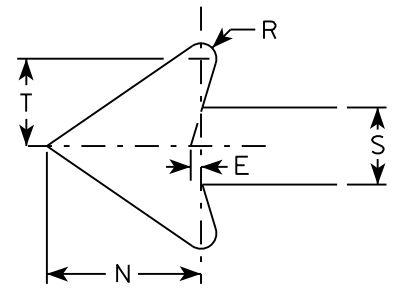
M5-2L
MM5-2L
M05-2L
MP5-2L



MB5-1L
MK5-1L
MN5-1L
MR5-1L



MB5-2L
MK5-2L
MN5-2L
MR5-2L



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 - Type H Reflective
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.

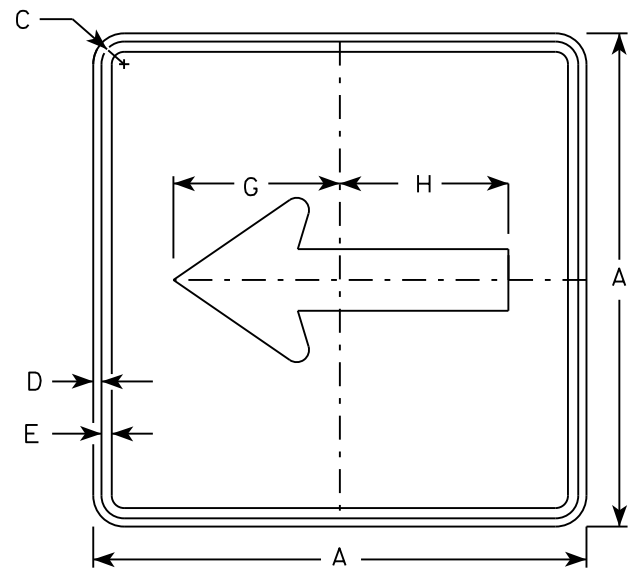
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2	21		1 1/8	3/8	3/8		7	3 3/8	5/8		2 1/8	4 1/2	6 3/8	5 1/4	5	2 1/2		1/2	2 5/8	3	1 1/2	1/2					3.06
3	30		1 3/8	1/2	5/8		10 1/8	4 7/8	7/8		3	6 1/2	9 1/8	7 1/2	7 1/4	3 1/2		3/4	3 3/4	4 1/4	1 7/8	1/2					6.25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

STANDARD SIGN
M5-1 & M5-2

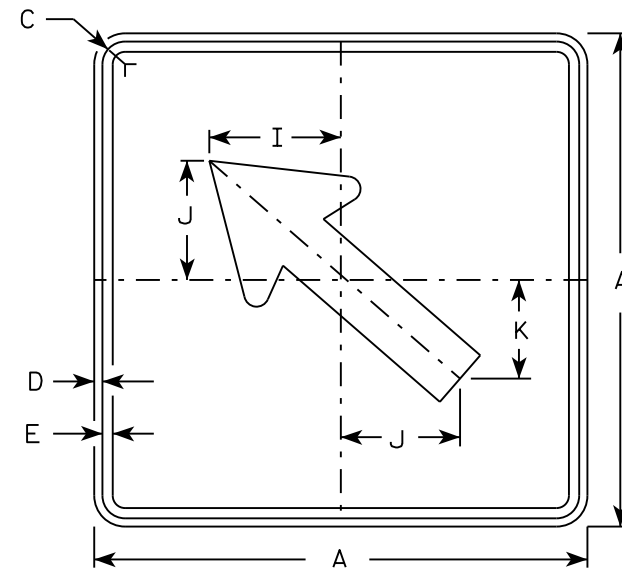
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

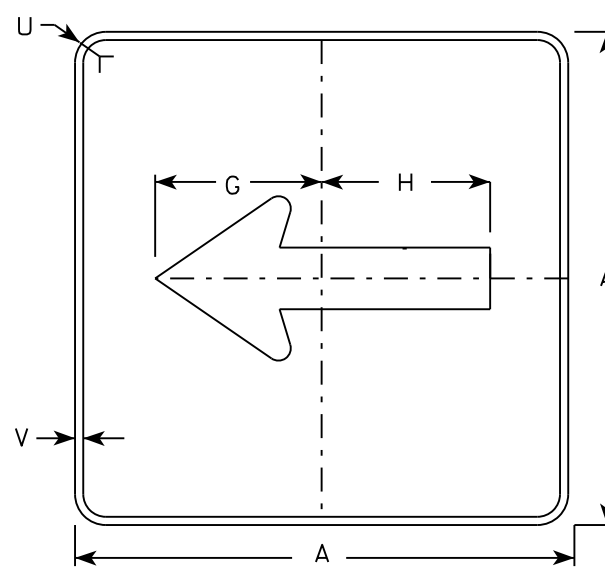
DATE 10/15/15 PLATE NO. M5-1.13



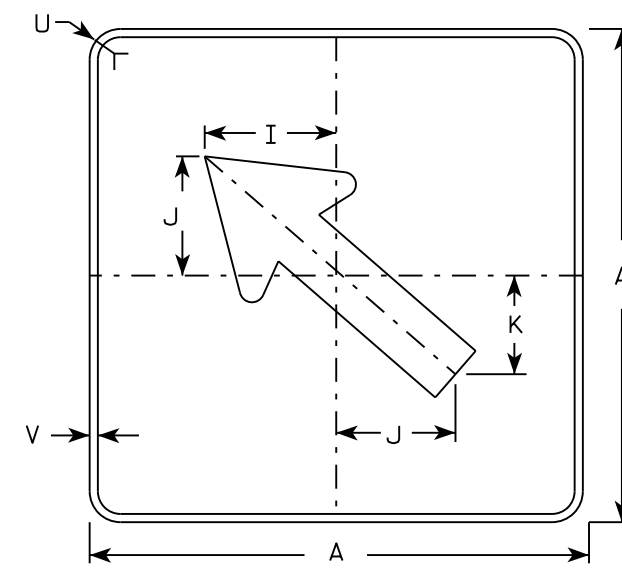
M6-1
MM6-1
M06-1
MP6-1



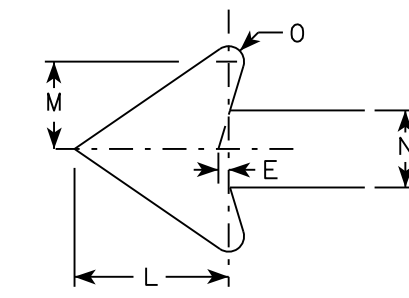
M6-2
MM6-2
M06-2
MP6-2



MB6-1
MK6-1
MN6-1
MR6-1



MB6-2
MK6-2
MN6-2
MR6-2



NOTES

- Signs are Type II - Type H 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

7

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	21		1 1/8	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 1/2	1/2				3.06
3	30		1 3/8	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 7/8	1/2				6.25
4	30		1 3/8	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 7/8	1/2				6.25
5	30		1 3/8	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 7/8	1/2				6.25

STANDARD SIGN
M6-1 & M6-2
SERIES

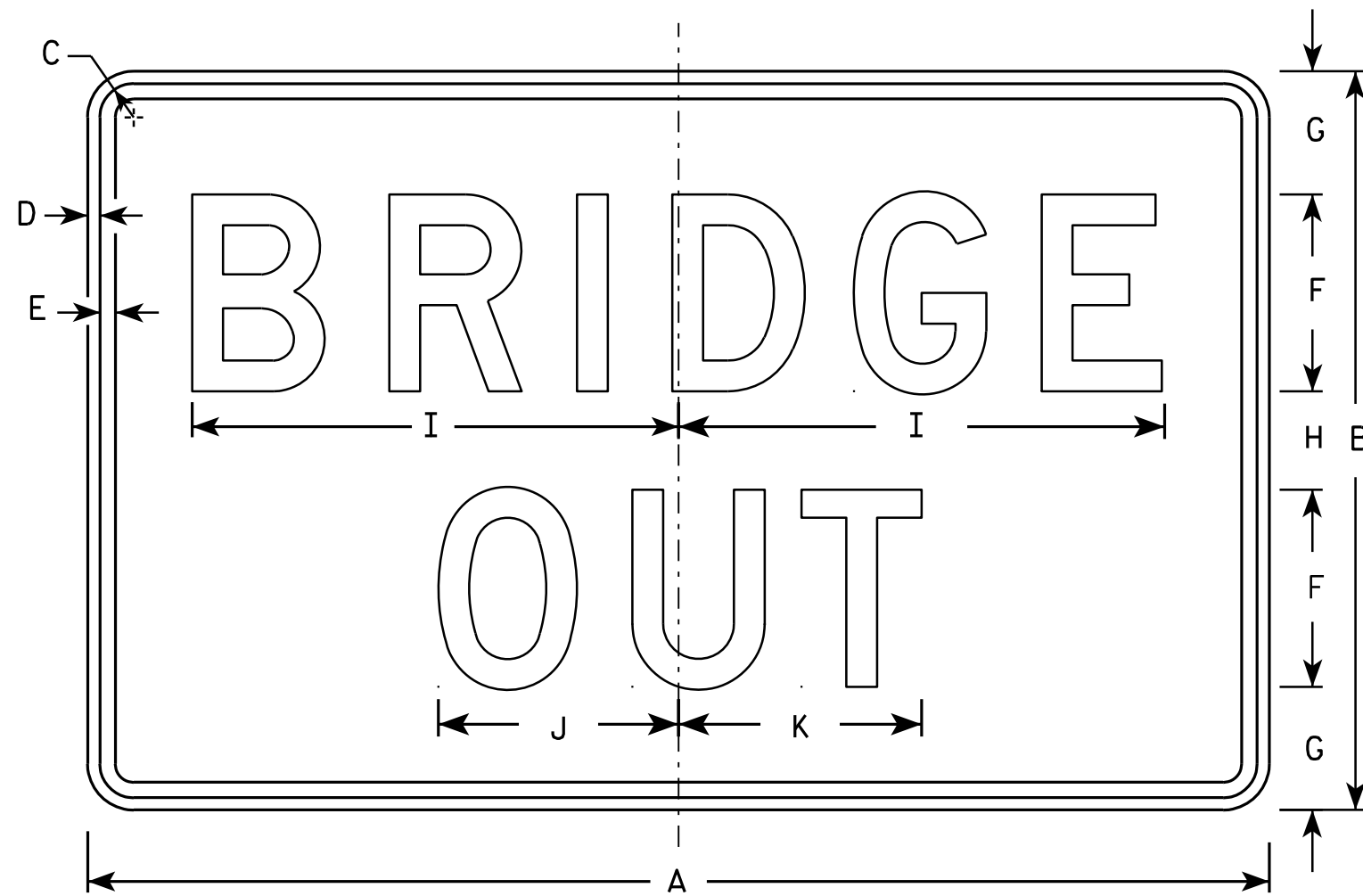
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 10/15/15 PLATE NO. M6-1.15

NOTES

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



R11-2B

7

7

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

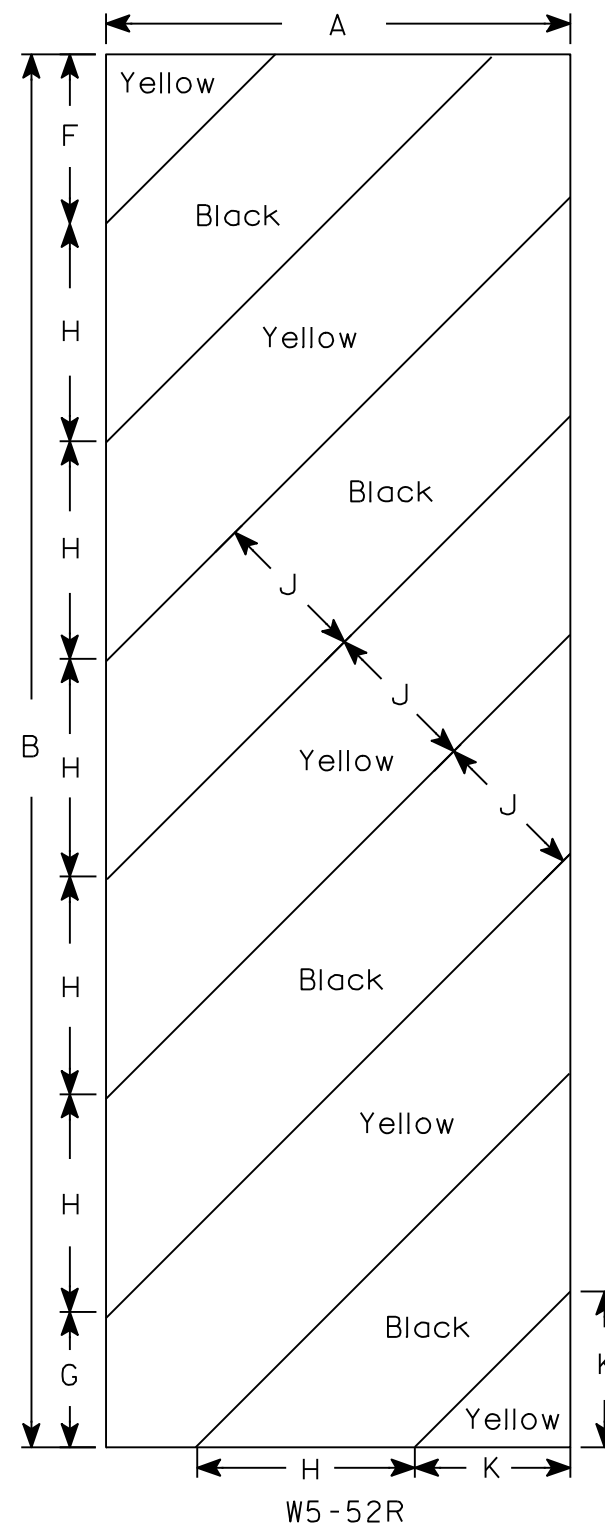
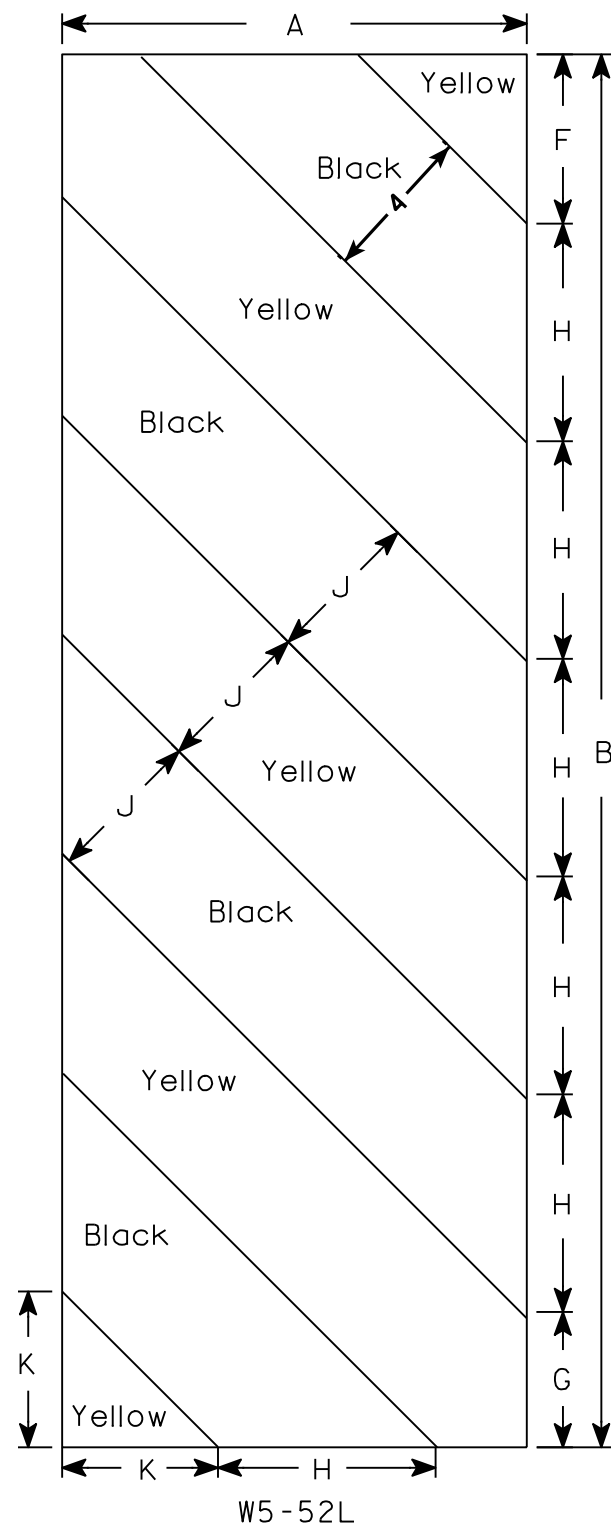
STANDARD SIGN
R11-2B

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
For State Traffic Engineer

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

PROJECT NO: _____ SHEET NO: _____ E



NOTES

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

7

7

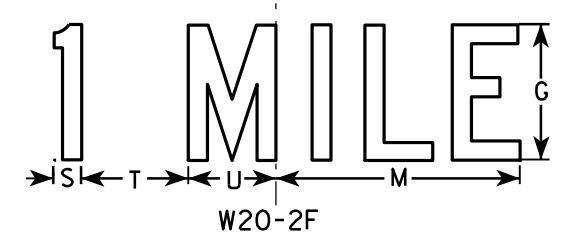
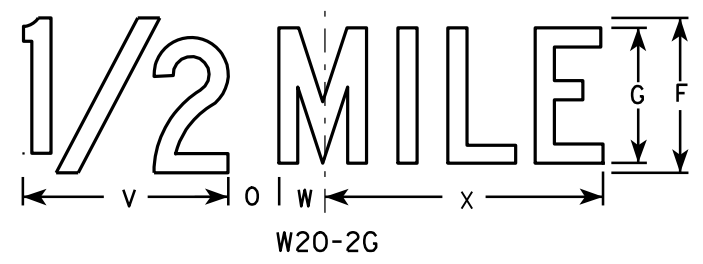
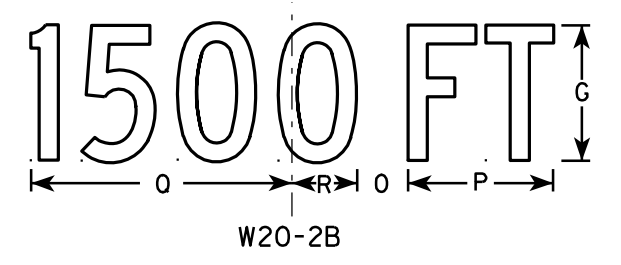
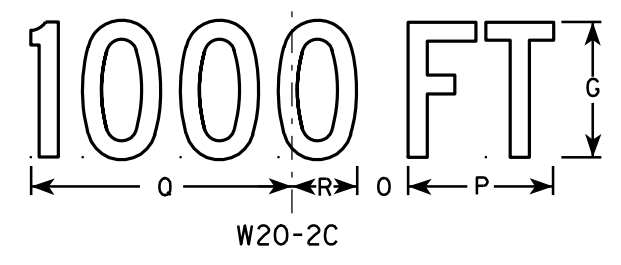
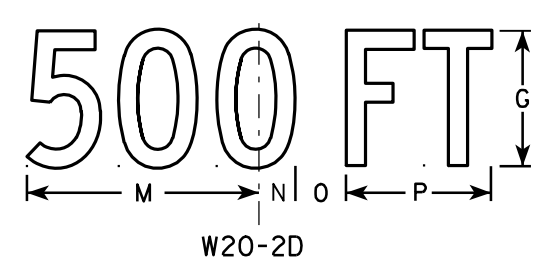
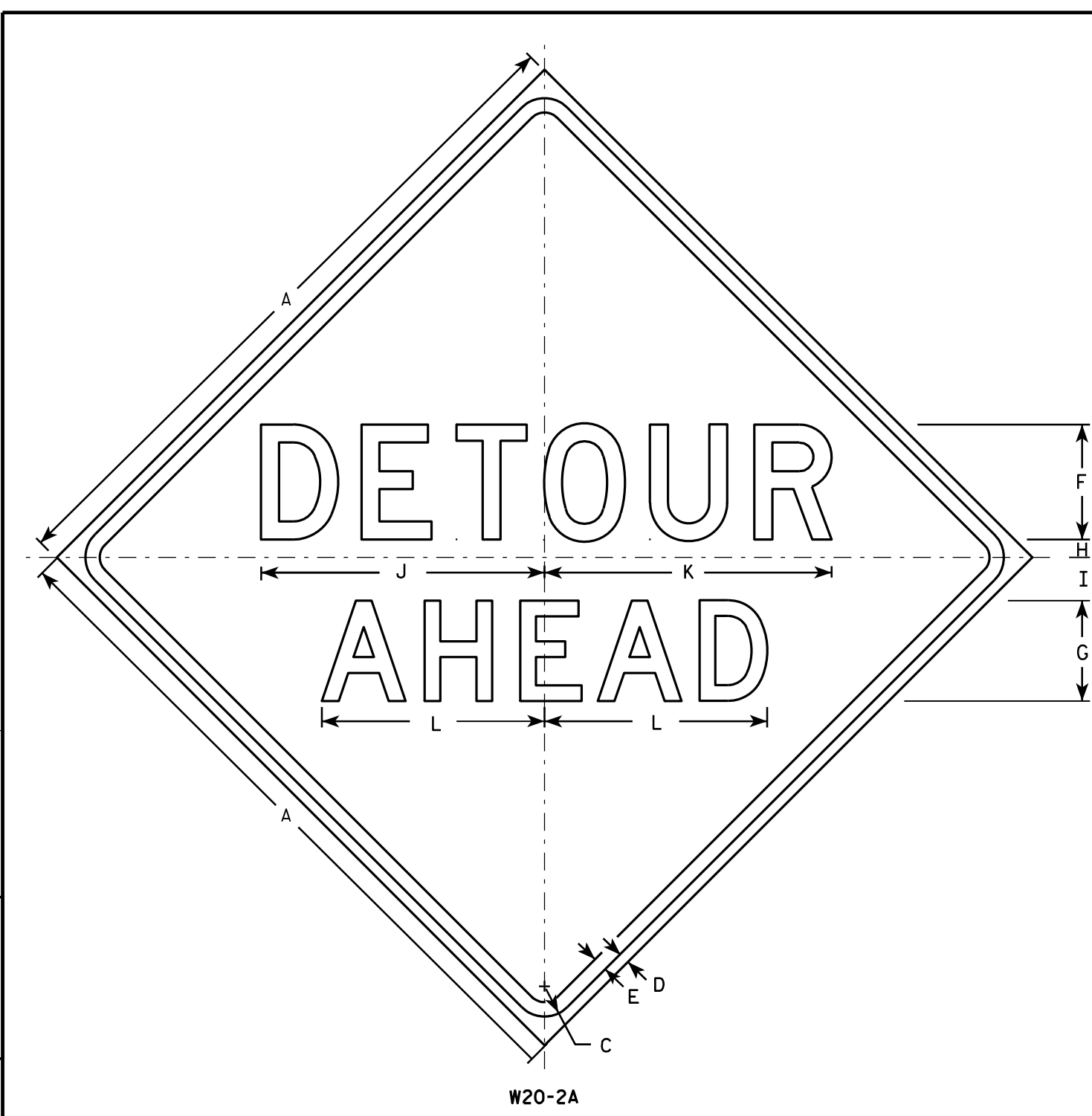
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	12	36				4 3/8	3 1/2	5 5/8	45°	4	4																3.0
2M	12	36				4 3/8	3 1/2	5 5/8	45°	4	4																3.0
3	18	54				6	5 1/2	8 1/2	45°	6	6 9/16																6.75
4																											
5																											

STANDARD SIGN
W5-52L & W5-52R

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

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



NOTES

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

7

7

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

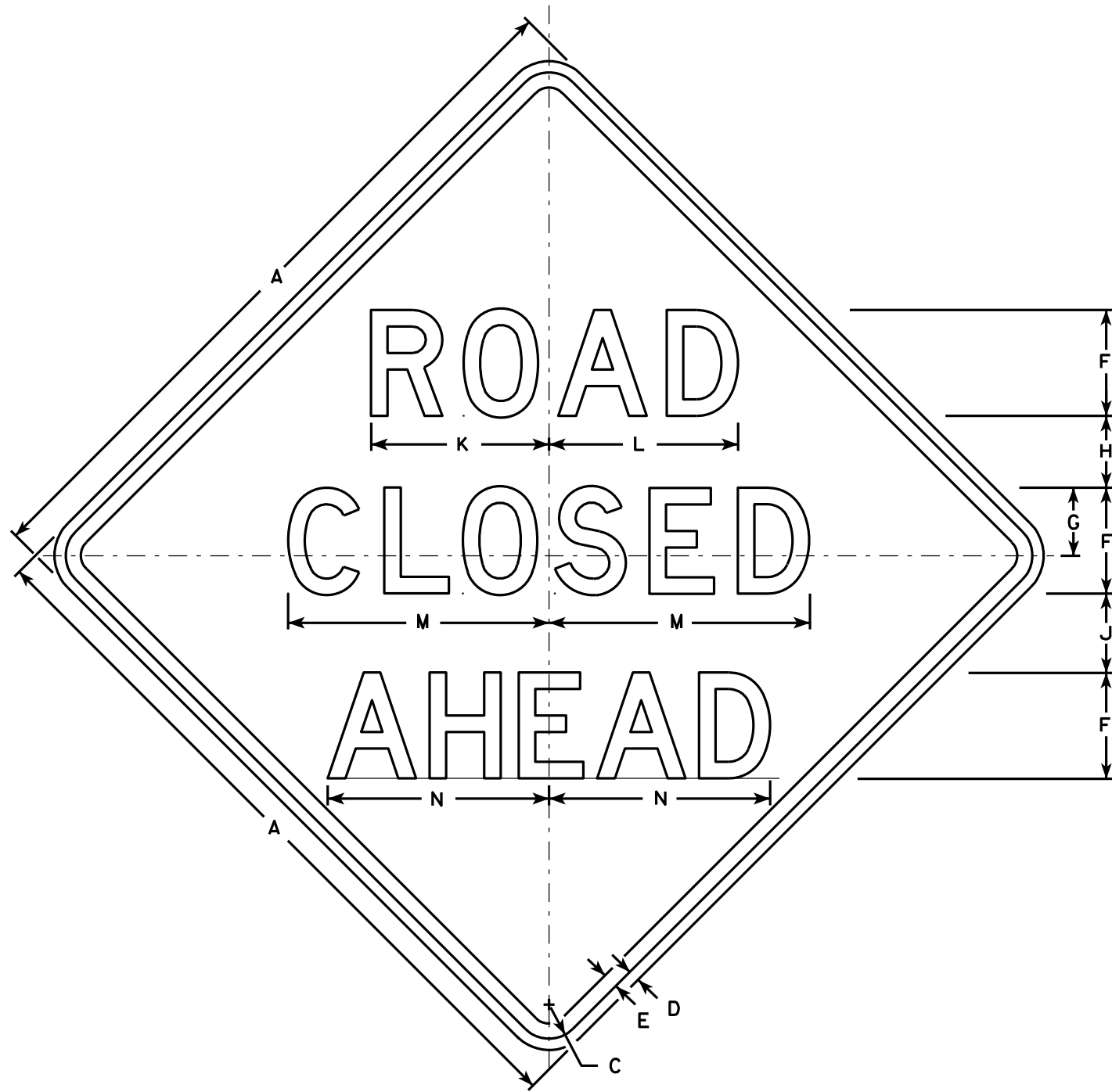
STANDARD SIGN
W20-2A, B, C, D, F & G

WISCONSIN DEPT OF TRANSPORTATION

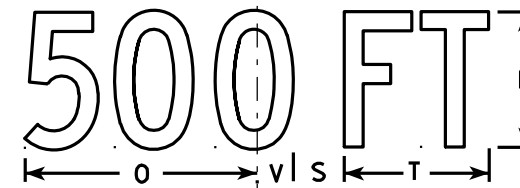
APPROVED *Matthew R. Raub*
for State Traffic Engineer

DATE 3/18/11 PLATE NO. W20-2.6

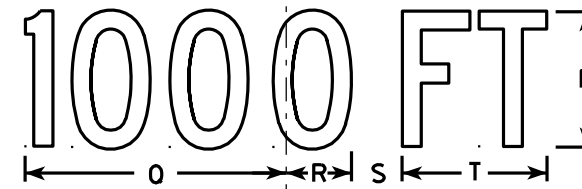
PROJECT NO: _____ HWY: _____ COUNTY: _____ SHEET NO: _____ E



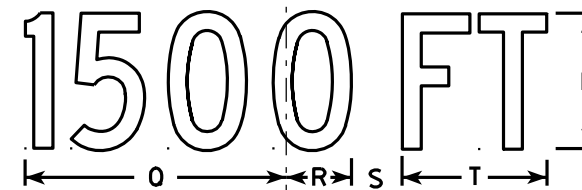
W20-3A



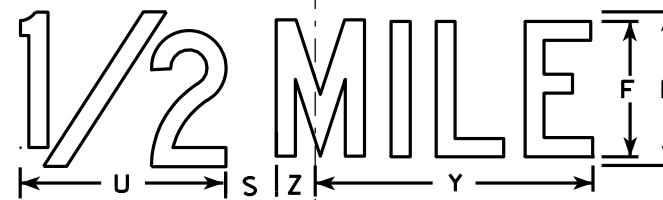
W20-3D



W20-3C



W20-3B



W20-3G



W20-3F

NOTES

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

7

7

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

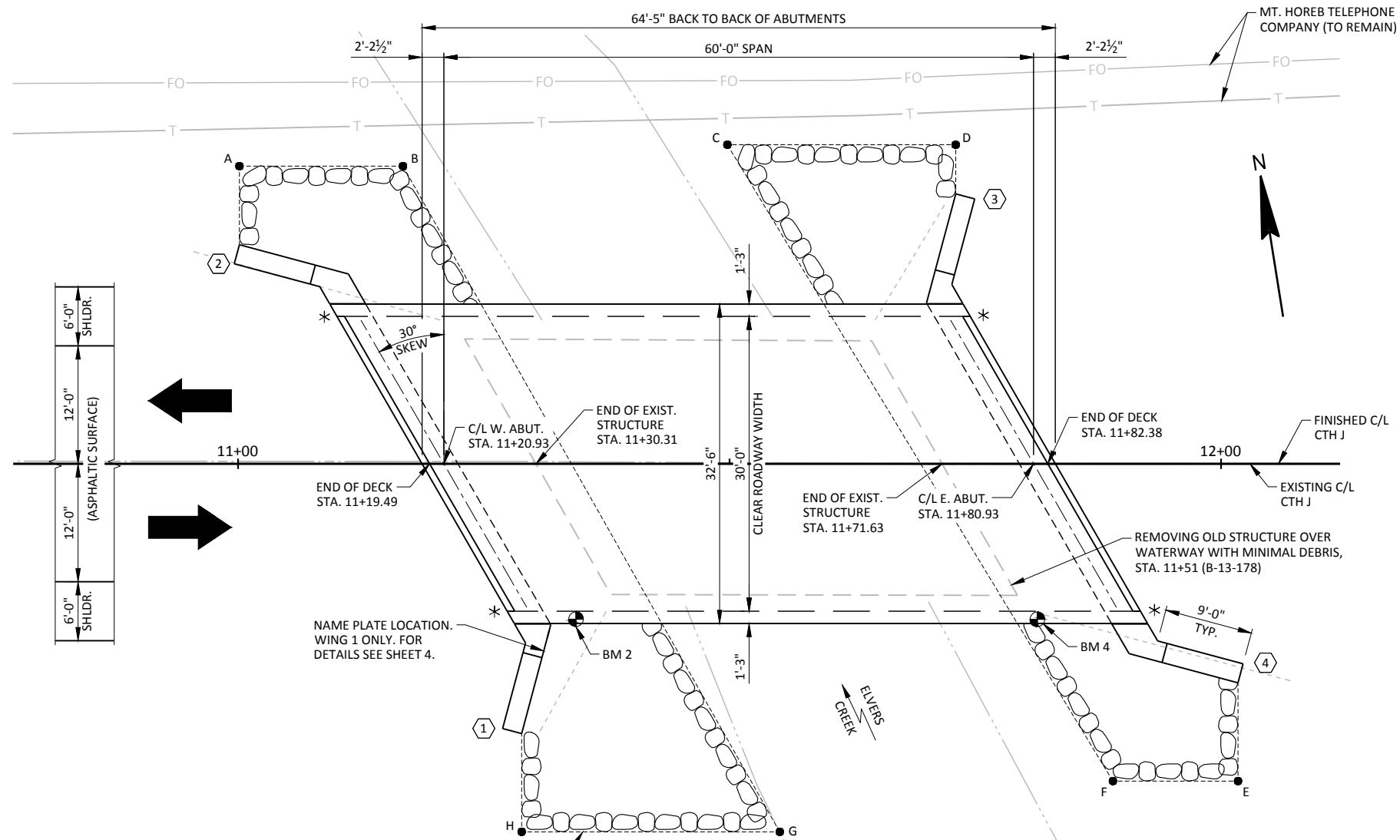
STANDARD SIGN
W20-3A, B, C, D, F & G

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
For State Traffic Engineer

DATE 3/18/11 PLATE NO. W20-3.7

PROJECT NO: _____ HWY: _____ COUNTY: _____ SHEET NO: _____ E



RIPRAP HEAVY LAYOUT

POINT	STATION	OFFSET
A	11+00	30' LT.
B	11+17	30' LT.
C	11+50	32' LT.
D	11+73	32' LT.
E	12+02	32' RT.
F	11+89	32' RT.
G	11+55	37' RT.
H	11+29	37' RT.

⬡ INDICATES WING NUMBER
 * THRIE BEAM RAIL ATTACHMENT

DESIGN DATA

LIVE LOAD:

DESIGN LOADING _____ HL-93
 INVENTORY RATING FACTOR _____ RF = 1.27
 OPERATING RATING FACTOR _____ RF = 1.66
 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.
 36-INCH PRESTRESSED GIRDER CONCRETE MASONRY _____ f'c = 8,000 P.S.I.
 STRANDS 0.5 INCH DIA. WITH ULTIMATE TENSILE STRENGTH _____ fy = 270,000 P.S.I.

FOUNDATION DATA

ABUTMENTS TO BE SUPPORTED ON PILING STEEL HP 10-INCH X 42 LB DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 180 TONS** PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA. ESTIMATE 35 FT PILE LENGTHS AT BOTH ABUTMENTS.

**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. (2021) _____ 500
 A.D.T. (2041) _____ 740
 DESIGN SPEED _____ 50 M.P.H.

HYDRAULIC DATA

100 YEAR FREQUENCY _____
 DRAINAGE AREA _____ 13.8 SQ. MI.
 Q₁₀₀ TOTAL _____ 1,160 C.F.S.
 THROUGH STRUCTURE _____ 1,160 C.F.S.
 OVERTOPPING ROADWAY _____ N/A
 VELOCITY - THROUGH STRUCTURE _____ 6.7 F.P.S.
 WATERWAY AREA - THROUGH STRUCTURE _____ 174.5 SQ. FT.
 HIGH WATER₁₀₀ ELEVATION _____ 821.54
 SCOUR CRITICAL CODE _____ 5

EROSION CONTROL

Q₂ _____ 195 C.F.S.
 VELOCITY₂ _____ 3.3 F.P.S.
 HIGH WATER₂ ELEVATION _____ 817.75

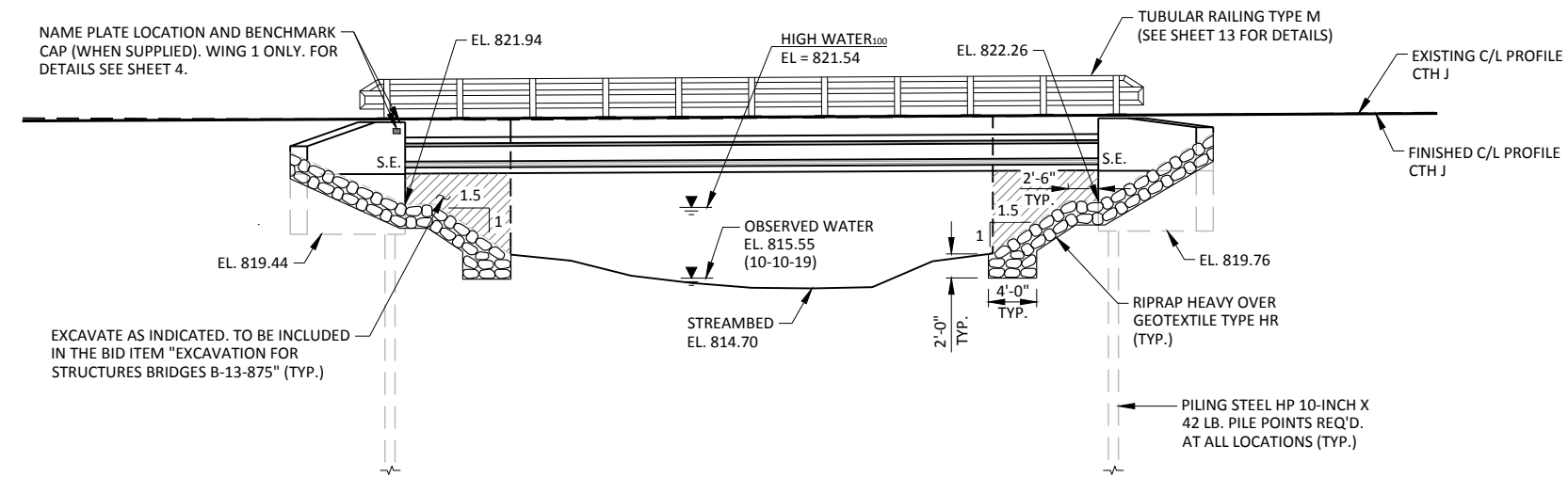
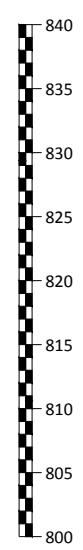
LIST OF DRAWINGS

- GENERAL PLAN _____ 1.
- CROSS SECTION AND QUANTITIES _____ 2.
- SUBSURFACE EXPLORATION _____ 3.
- WEST ABUTMENT _____ 4.
- EAST ABUTMENT DETAILS _____ 5.
- EAST ABUTMENT _____ 6.
- EAST ABUTMENT DETAILS _____ 7.
- GIRDER LAYOUT _____ 8.
- 36-INCH PRESTRESSED GIRDER DETAILS _____ 9.
- STEEL DIAPHRAGM _____ 10.
- SUPERSTRUCTURE _____ 11.
- SUPERSTRUCTURE DETAILS _____ 12.
- TUBULAR RAILING TYPE M _____ 13.

PLAN B-13-875
 (SINGLE-SPAN 36-INCH PRESTRESSED GIRDER STRUCTURE)

BENCH MARKS

NO.	STA.	DESCRIPTION	ELEV.
1	8+89	3/4" IRON REBAR SET, 21.0', RT.	826.88
2	11+34	3/4" IRON REBAR SET, 15.8', RT.	828.12
3	13+71	3/4" IRON REBAR SET, 23.4', LT.	828.55
4	11+81	METAL DISK IN WINGWALL, 15.8', RT.	829.96



ELEVATION
 (NORMAL TO ELVERS CREEK)



DESIGN CONSULTANT
 PATRICK BOLAND, PE
 (608) 588-7484

NO.	DATE	REVISION	BY

JEWELL 560 SUNRISE DRIVE
 SPRING GREEN, WI 53588
 OFFICE: (608) 588-7484
 www.jewellassoc.com

STRUCTURE B-13-875
 CTH J OVER ELVERS CREEK

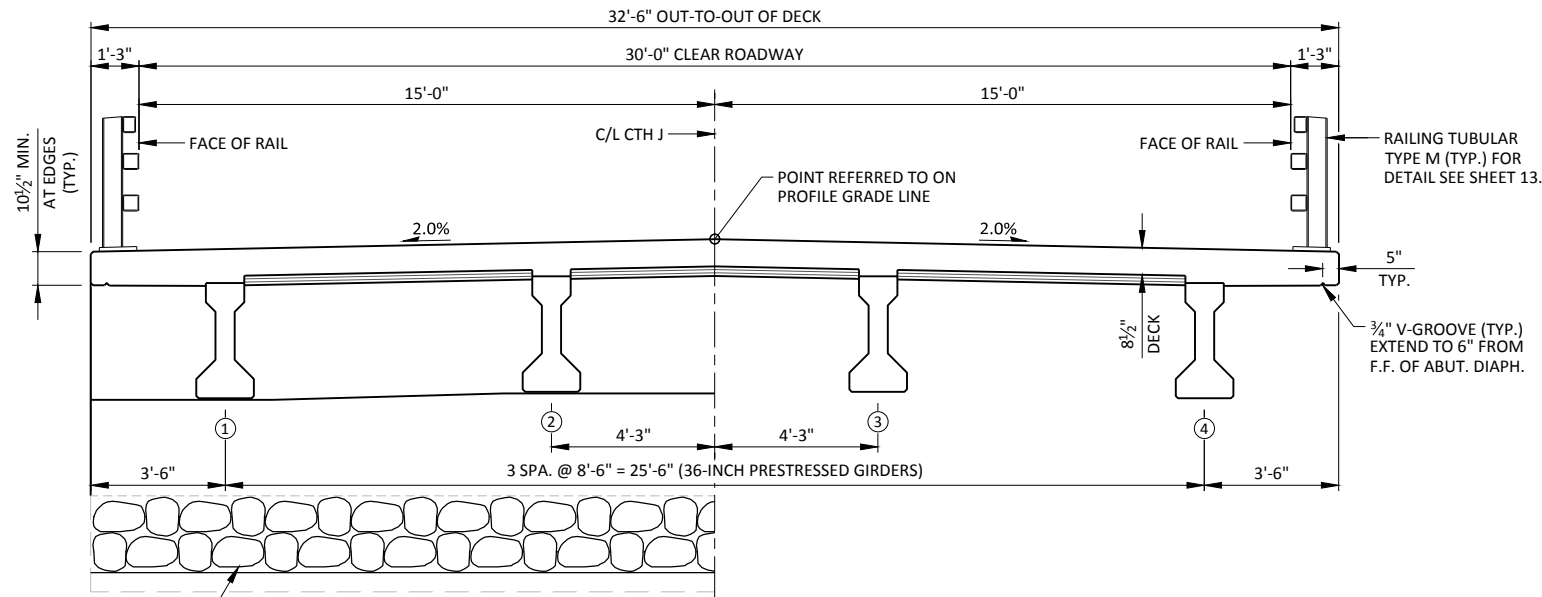
COUNTY: DANE TOWN/GRN/VILLAGE: VERMONT

DESIGN SPEC: AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS

DESIGNED BY: PMF DESIGN CK'D: PTB DRAWN BY: PMF PLANS CK'D: PTB

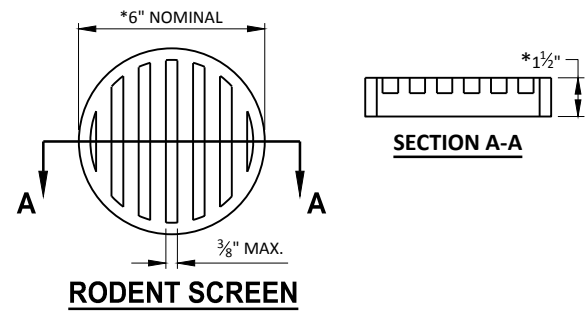
GENERAL PLAN

SHEET 1 OF 13



PROPOSED CROSS-SECTION THROUGH ROADWAY

LOOKING EAST



RODENT SCREEN

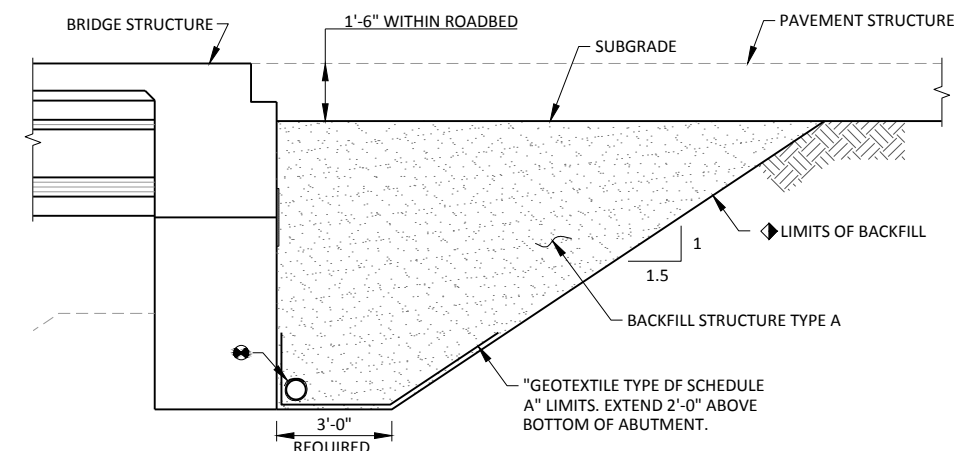
NOTES:
* DIMENSIONS ARE APPROXIMATE. THE GRATE IS SIZED TO FIT INTO A PIPE COUPLING.

ORIENT SHIELD 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.

AT ABUTMENT IN SPAN

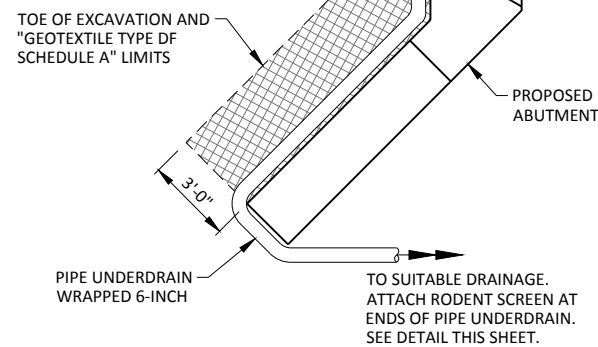


BACKFILL STRUCTURE DETAIL

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

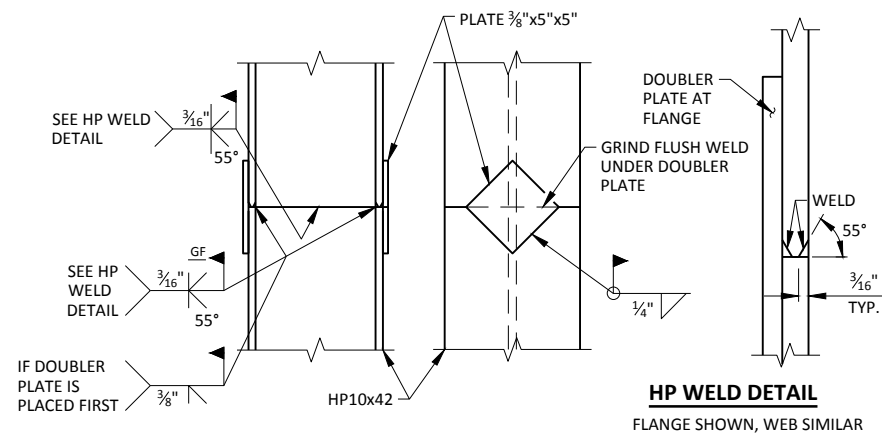
◆ BACKFILL STRUCTURE TYPE A PAY LIMITS. BACKFILL BEYOND PAY LIMITS SHALL BE INCIDENTAL TO THE BID ITEM "EXCAVATION FOR STRUCTURES B-13-875". LIMITS OF EXCAVATION SHALL BE DETERMINED BY THE CONTRACTOR.

● PIPE UNDERDRAIN WRAPPED (6-INCH), SLOPED 0.5% MIN. TO SUITABLE DRAINAGE. ATTACH RODENT SCREEN AT ENDS OF PIPE UNDERDRAIN AS DETAILED ON THIS SHEET. RODENT SCREEN TO BE INCLUDED IN THE BID ITEM "PIPE UNDERDRAIN WRAPPED 6-INCH."



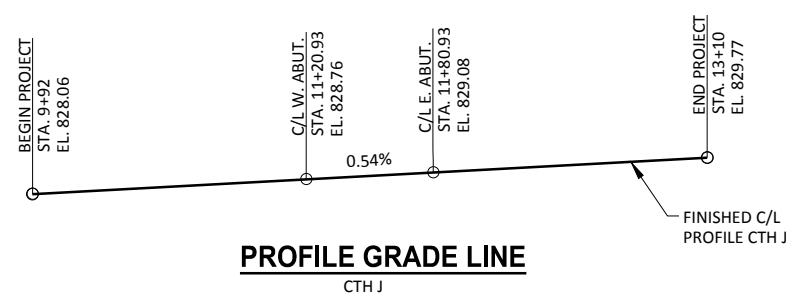
PIPE UNDERDRAIN DETAIL

TO SUITABLE DRAINAGE. ATTACH RODENT SCREEN AT ENDS OF PIPE UNDERDRAIN. SEE DETAIL THIS SHEET.



PILE SPLICE DETAIL

STEEL "HP" PILE MATERIAL SHALL BE ASTM A 572 GRADE 50.



PROFILE GRADE LINE

CTH J

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

ELEVATIONS SHOWN ON THE PLAN ARE REFERENCED TO THE NORTH AMERICA VERTICAL DATUM OF 1988 (NAVD 88).

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 M153, 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 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, THE SIDES OF THE DECK AND EXTERIOR 12" OF THE UNDERSIDE OF THE DECK (CONCRETE MATERIAL ONLY).

THE EXISTING STRUCTURE (B-13-178) IS A STEEL DECK GIRDER STRUCTURE WITH A CONCRETE DECK SUPPORTED ON STEEL PILE BENT ABUTMENTS WITH A REINFORCED CONCRETE CAP AND TIMBER BACKING. THE STRUCTURE HAS A ROADWAY WIDTH BETWEEN RAILINGS OF 26.1 FEET AND SHALL BE REMOVED.

ALL STATIONS AND ELEVATIONS SHOWN ARE IN FEET.

THE EXISTING GROUNDLINE SHALL BE THE UPPER LIMITS OF EXCAVATION FOR STRUCTURES.

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

TOTAL ESTIMATED QUANTITIES

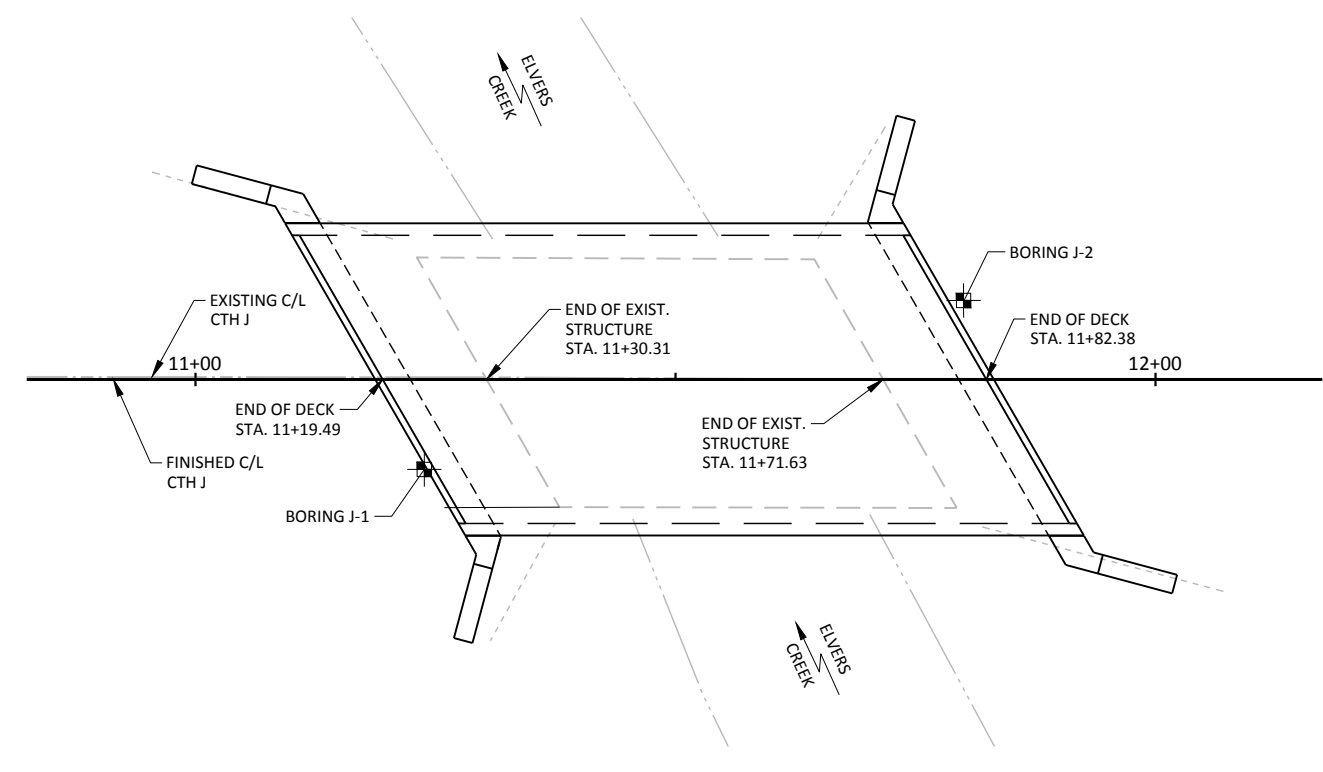
ITEM NUMBER	ITEM DESCRIPTION	UNIT	W. ABUT.	SUPER.	E. ABUT.	TOTALS
203.0600.S	REMOVING OLD STRUCTURE OVER WATERWAY WITH MIN. DEBRIS STA. 11+51	LS	--	--	--	1
206.1000	EXCAVATION FOR STRUCTURES BRIDGES B-13-875	LS	--	--	--	1
210.1500	BACKFILL STRUCTURE TYPE A	TON	215	--	215	430
502.0100	CONCRETE MASONRY BRIDGES	CY	40	90	40	220
502.3200	PROTECTIVE SURFACE TREATMENT	SY	--	260	--	260
503.0136	PRESTRESSED GIRDER TYPE I 36-INCH	LF	--	244	--	244
505.0400	BAR STEEL REINFORCEMENT HS STRUCTURES	LB	2,710	--	2,710	5,420
505.0600	BAR STEEL REINFORCEMENT HS COATED STRUCTURES	LB	1,570	15,020	1,570	18,160
506.2605	BEARING PADS ELASTOMERIC NON-LAMINATED	EACH	4	--	4	8
506.4000	STEEL DIAPHRAGMS B-13-875	EACH	--	3	--	3
513.4061	RAILING TUBULAR TYPE M	LF	--	131	--	131
516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	8	--	8	16
550.0500	PILE POINTS	EACH	8	--	8	16
550.1100	PILING STEEL HP 10-INCH X 42 LB	LF	280	--	280	560
606.0300	RIPRAP HEAVY	CY	105	--	85	190
612.0406	PIPE UNDERDRAIN WRAPPED 6-INCH	LF	100	--	100	200
645.0111	GEOTEXTILE TYPE DF SCHEDULE A	SY	65	--	65	130
645.0120	GEOTEXTILE TYPE HR	SY	170	--	140	310
NON-BID ITEMS						
	FILLER	SIZE	--	--	--	1/2" & 3/4"
	NAME PLATE					

NO.	DATE	REVISION	BY
STRUCTURE B-13-875			
DRAWN BY		DJT	PLANS CK'D. PTB
CROSS SECTION AND QUANTITIES			SHEET 2 OF 13

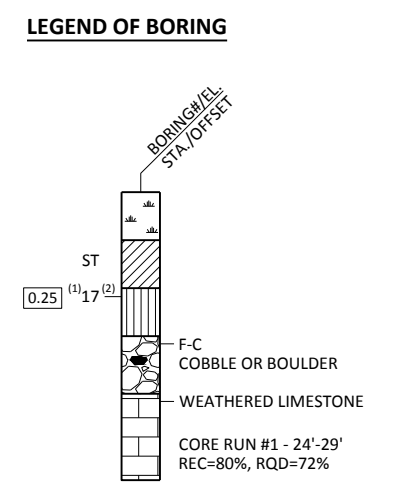
SOIL BORINGS			
BORING NUMBER	DATE COMPLETED	NORTHING (Y)	EASTING (X)
J-1	03/10/20	477,381.5	714,548.2
J-2	03/10/20	477,390.1	714,606.4

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

MATERIAL SYMBOLS		
	Asphalt	
	Concrete	
	Sand	
	Boulders or Cobbles	
	Shale	
	Peat	
	Gravel	
	Bedrock (unknown)	



PLAN B-13-875



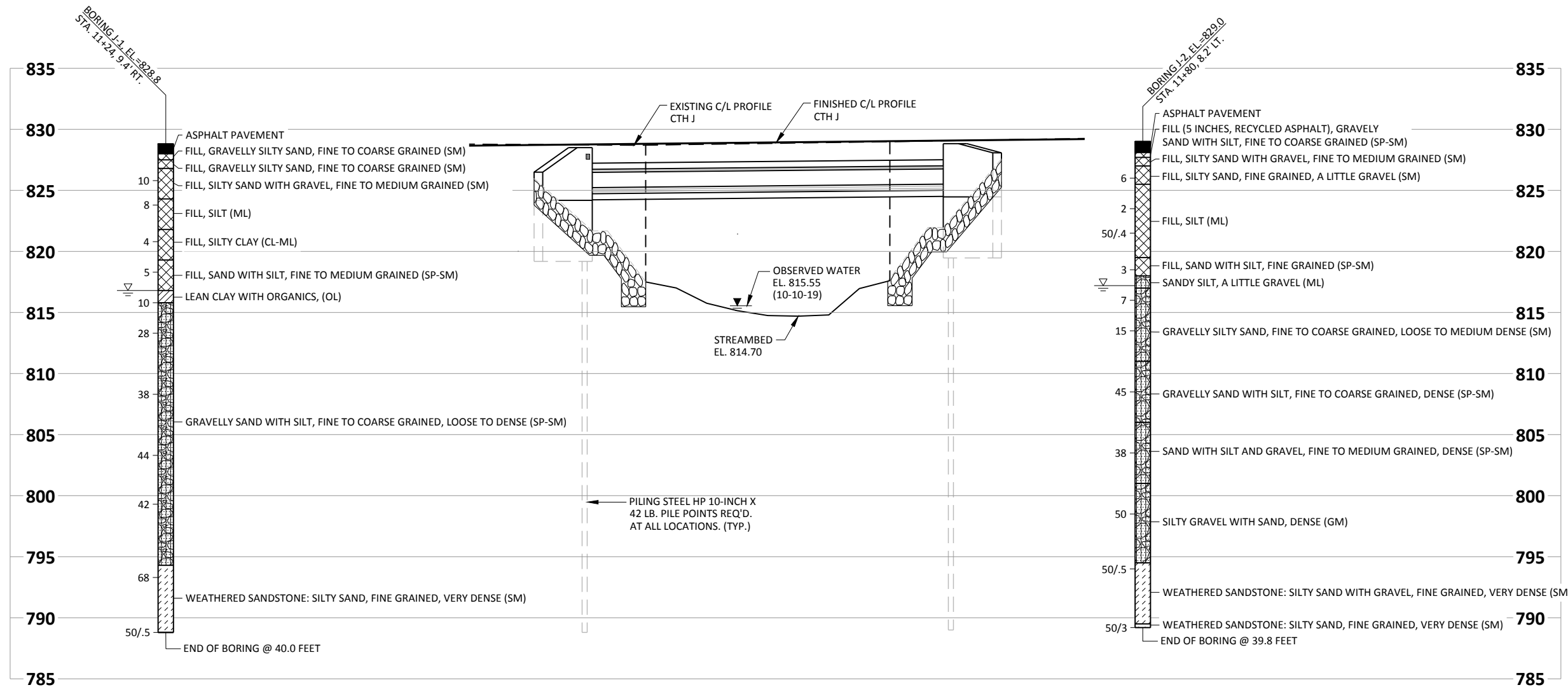
(1) UNCONFINED STRENGTH, AS DETERMINED BY A POCKET PENETROMETER (TSF)
(2) UNLESS OTHERWISE SPECIFIED, THE SPT 'N' VALUE IS BASED ON AASHTO T-206 STANDARD PENETRATION TEST. THE SPT 'N' VALUE PRESENTED HAS NOT BEEN CORRECTED FOR OVERBURDEN PRESSURE OR HAMMER EFFICIENCY.

GROUND WATER ELEVATIONS

 AT TIME OF DRILLING
 END OF DRILLING
 AFTER DRILLING

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

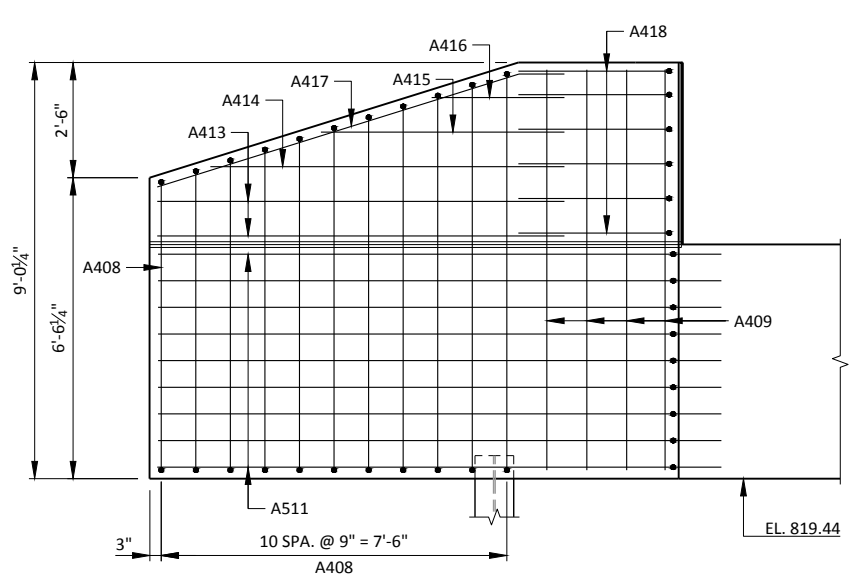
SUBSURFACE EXPLORATION FOR FOUNDATION DESIGN AND BIDDERS INFORMATION
 BORINGS WERE COMPLETED AT POINTS APPROXIMATELY AS INDICATED ON THIS DRAWING TO OBTAIN INFORMATION CONCERNING THE CHARACTER OF SUBSURFACE MATERIALS FOUND AT THE SITE. BECAUSE THE INVESTIGATED DEPTHS ARE LIMITED AND THE AREA OF THE BORINGS 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.



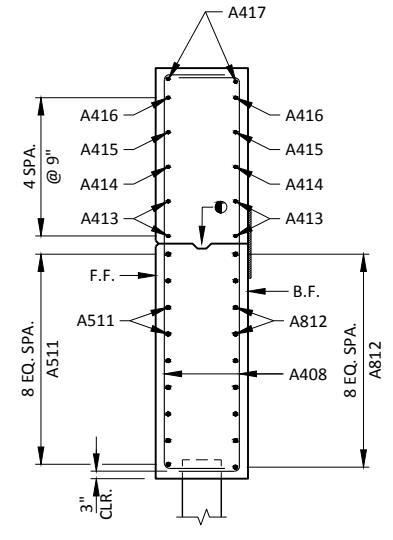
8

8

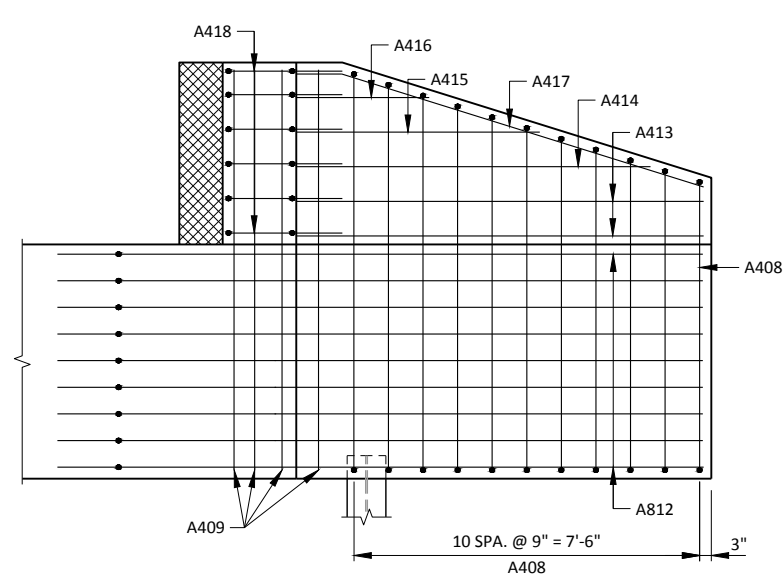
NO.	DATE	REVISION	BY
STRUCTURE B-13-875			
DRAWN BY: PMP		PLANS CK'D: PTB	
SUBSURFACE EXPLORATION		SHEET 3 OF 13	



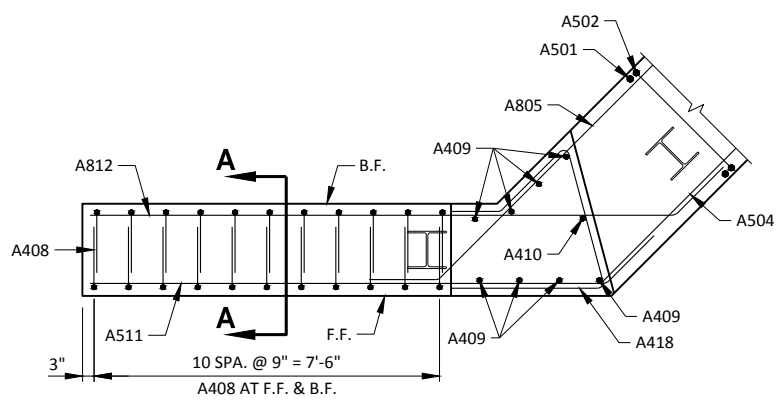
F.F. ELEVATION - WING 1



SECTION A-A



B.F. ELEVATION - WING 1



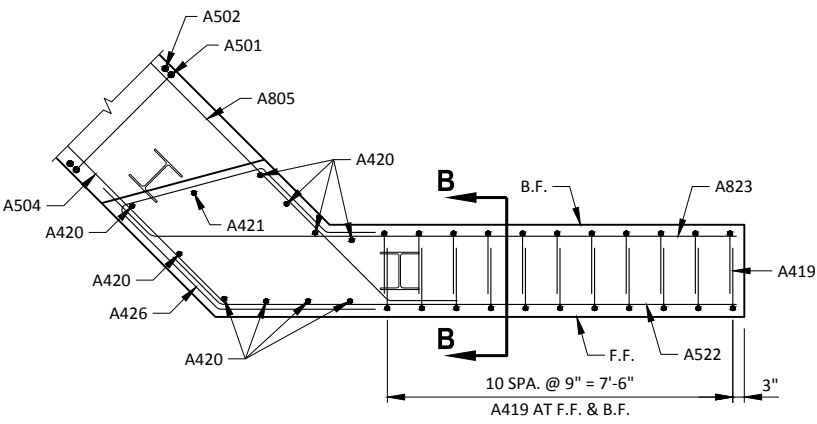
PLAN VIEW - WING 1

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".

NOTES

SOME BARS HAVE BEEN OMITTED FOR CLARITY. SEE THIS SHEET FOR BILL OF BARS.
SPACE REINFORCEMENT TO MISS PILING
F.F. - FRONT FACE
B.F. - BACK FACE



PLAN VIEW - WING 2

BILL OF BARS
WEST ABUTMENT

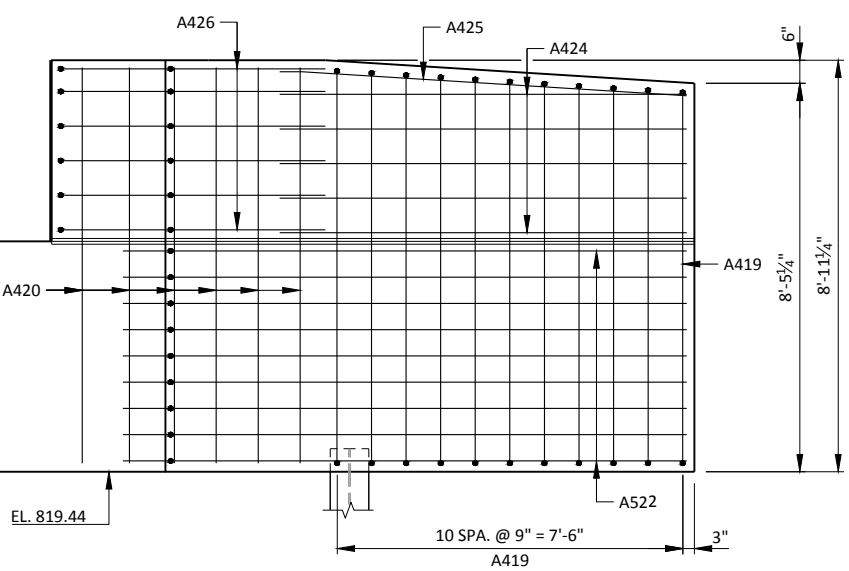
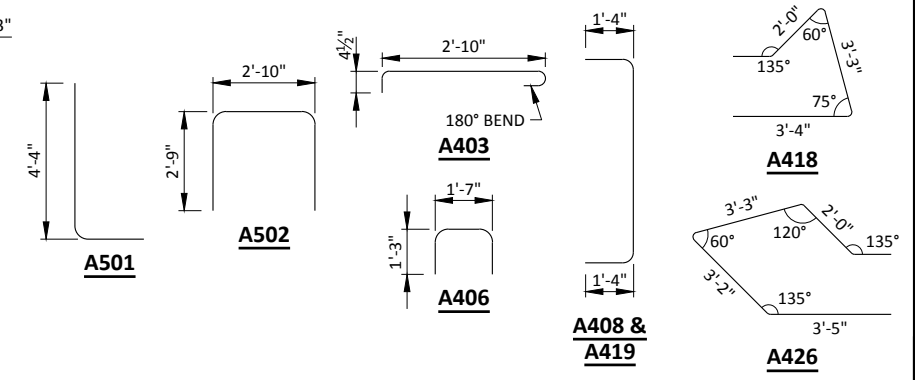
BAR MARK	NO. REQ'D.	LENGTH	BENT	COAT	BAR SERIES	1,570 LB (COATED)		2,710 LB (UNCOATED)	
						NO.	LENGTH	NO.	LENGTH
A501	82	6-2	X						BODY - VERT. - F.F. & B.F.
A502	41	8-1	X						BODY - VERT. - TOP
A403	30	3-8	X						TIE BARS
A504	9	41-2							BODY - HORIZ. - F.F.
A805	18	27-0	X						BODY - HORIZ. - B.F.
A406	15	3-11	X						BODY - VERT. - TOP BETWEEN SEATS
A407	6	9-0							BODY - HORIZ. - TOP BETWEEN SEATS
A408	22	9-10	X	X	*				WING 1 - VERT. - F.F. & B.F.
A409	8	8-7		X					WING 1 - VERT.
A410	1	4-8		X					WING 1 - VERT. - TOP
A511	9	12-8	X	X					WING 1 - HORIZ. - F.F.
A812	9	14-3	X	X					WING 1 - HORIZ. - B.F.
A413	4	8-10		X					WING 1 - HORIZ. - F.F. & B.F. - TOP
A414	2	7-9		X					WING 1 - HORIZ. - F.F. & B.F. - TOP
A415	2	5-4		X					WING 1 - HORIZ. - F.F. & B.F. - TOP
A416	2	2-11		X					WING 1 - HORIZ. - F.F. & B.F. - TOP
A417	5	9-2	X	X					WING 1 - HORIZ. - F.F. & B.F. - TOP
A418	6	9-4	X	X					WING 1 - HORIZ. - TOP
A419	22	10-9	X	X	*				WING 2 - VERT. - F.F. & B.F.
A420	10	8-6		X					WING 2 - VERT.
A421	1	4-8		X					WING 2 - VERT. - TOP
A522	9	12-8	X	X					WING 2 - HORIZ. - F.F.
A823	9	14-3	X	X					WING 2 - HORIZ. - B.F.
A424	10	8-10		X					WING 2 - HORIZ. - F.F. & B.F. - TOP
A425	2	8-10	X	X					WING 2 - HORIZ. - F.F. & B.F. - TOP
A426	6	12-8	X	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.
* LENGTH SHOWN IS AN AVERAGE LENGTH ONLY. SEE BAR SERIES TABLE FOR ACTUAL LENGTHS.

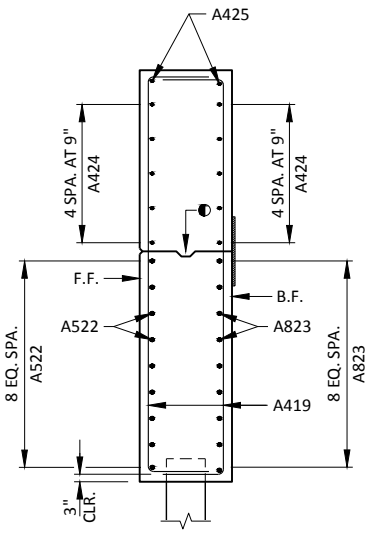
BAR SERIES TABLE

BAR MARK	NO. REQ'D.	LENGTH
A408	2 SERIES OF 11	11-0 TO 8-8
A419	2 SERIES OF 11	11-0 TO 10-6

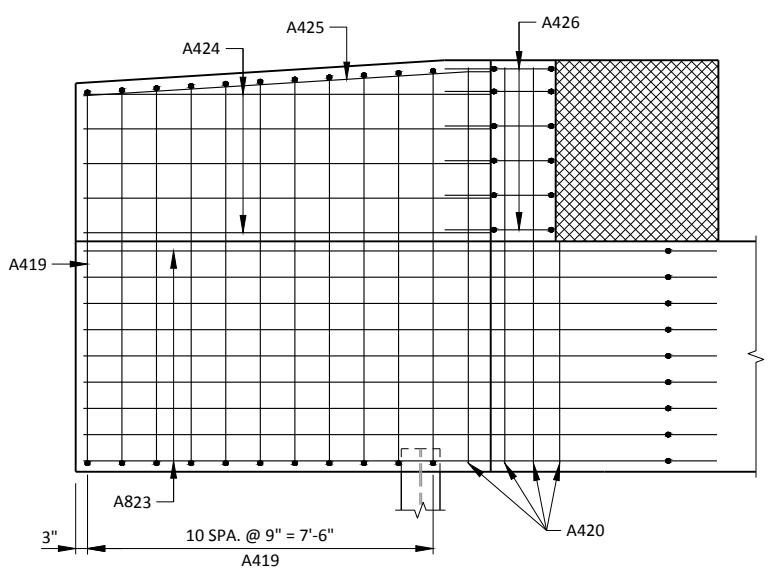
BUNDLE AND TAG EACH SERIES SEPARATELY.



F.F. ELEVATION - WING 2



SECTION B-B

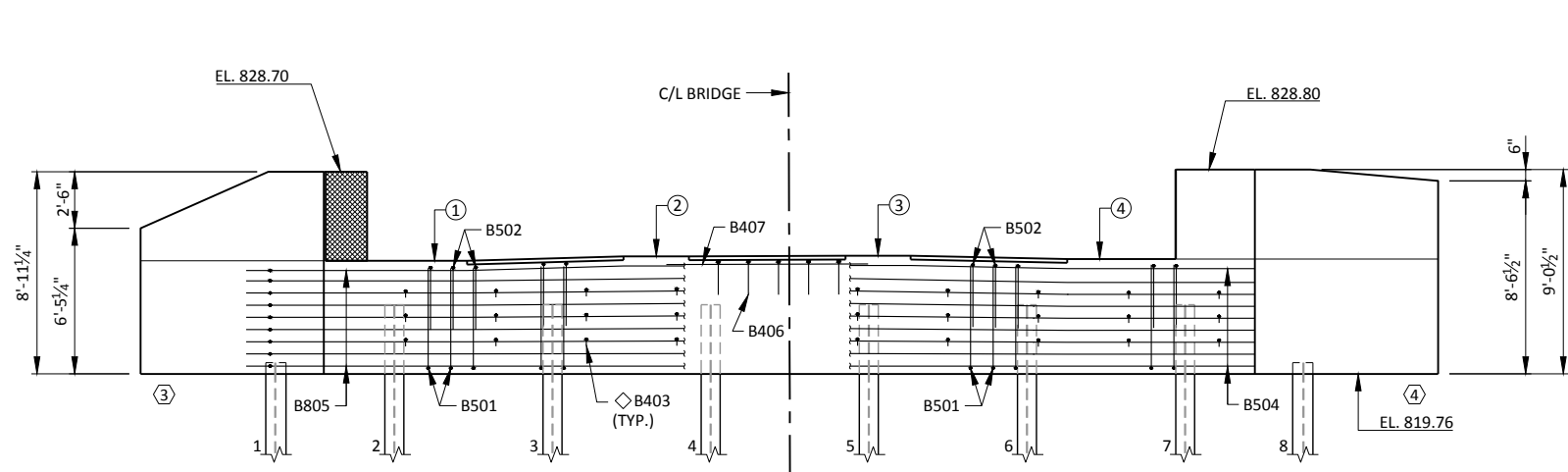


B.F. ELEVATION - WING 2

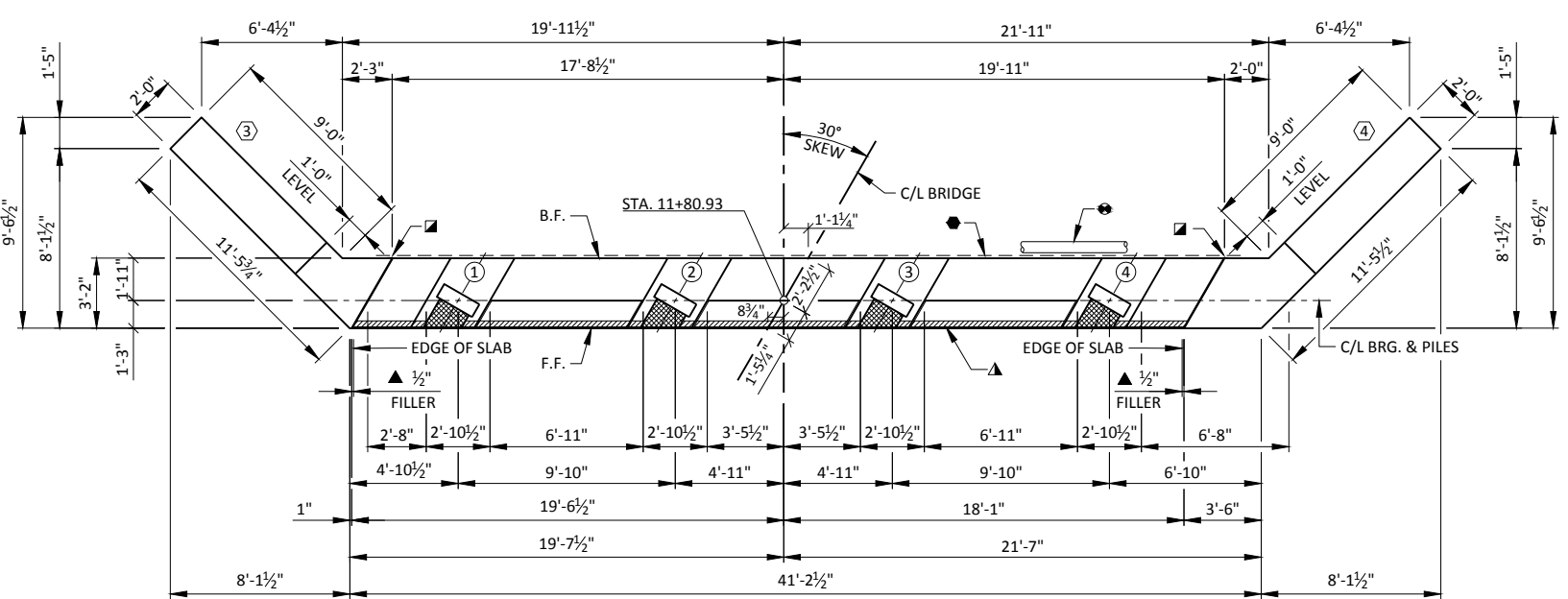
A417 & A425

MARK	'A'
A417	162'39'
A425	176'25'

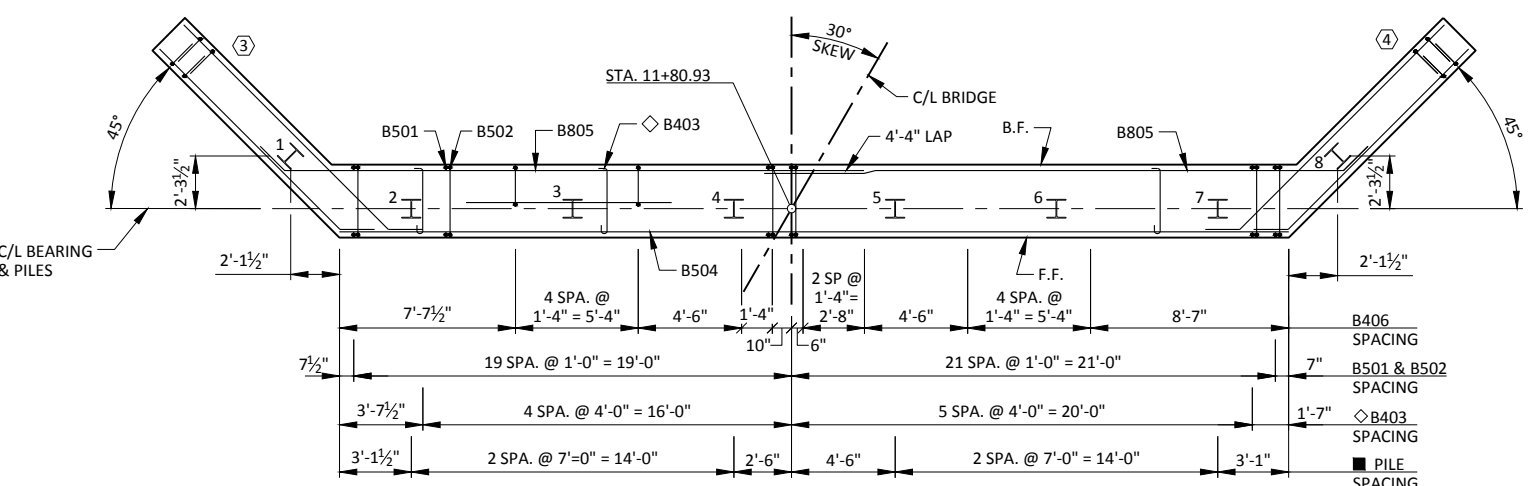
NO.	DATE	REVISION	BY
STRUCTURE B-13-875			
DRAWN BY		PMF	PLANS CK'D. PTB
WEST ABUTMENT DETAILS			SHEET 5 OF 13



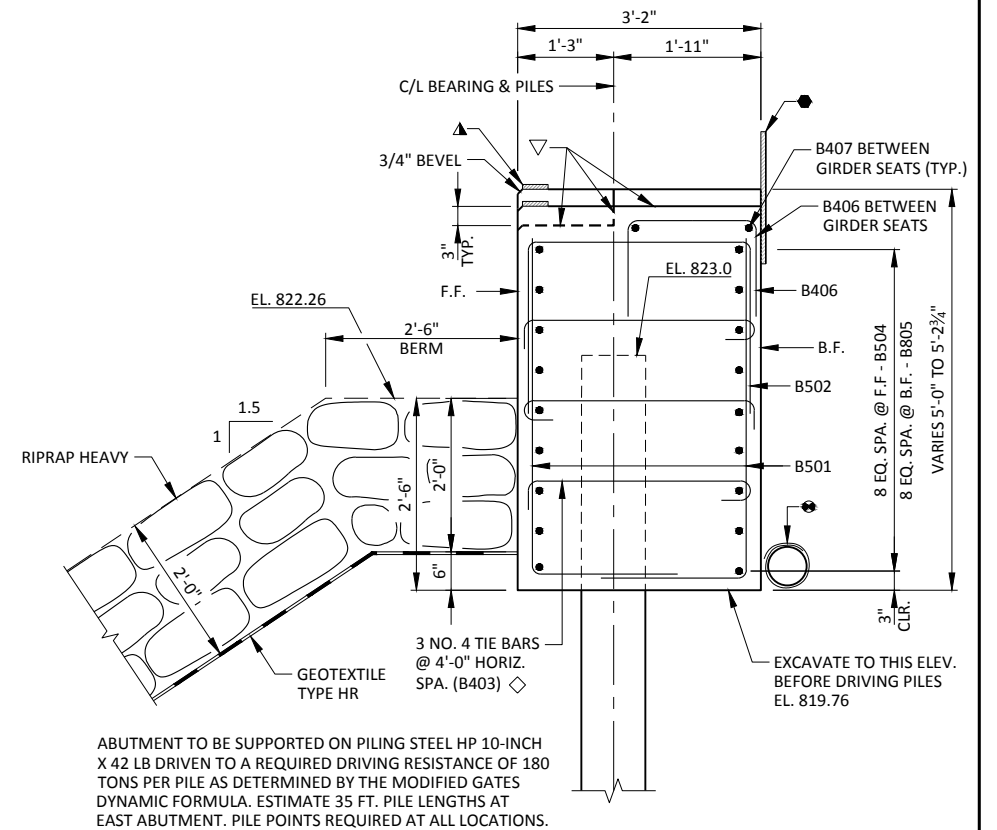
ELEVATION
(EAST ABUTMENT LOOKING EAST)



PLAN



LAYOUT



TYPICAL SECTION THROUGH ABUTMENT BODY

NOTES

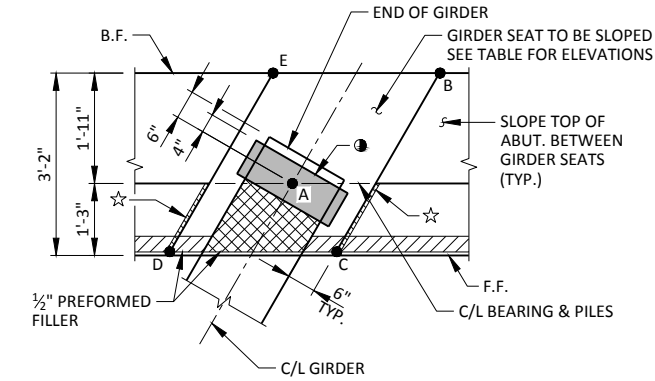
- SOME BARS HAVE BEEN OMITTED FOR CLARITY. SEE SHEET 7 FOR BILL OF BARS.
- DO NOT PLACE FILL HIGHER THAN 3 FEET FROM BOTTOM OF ABUTMENT UNTIL SUPERSTRUCTURE IS IN PLACE.
- SPACE REINFORCEMENT TO MISS PILING
- F.F. - FRONT FACE
- B.F. - BACK FACE

GIRDER SEAT ELEVATIONS

GIRDER NUMBER	POINT ON GIRDER SEAT				
	A	B	C	D	E
①	824.76	824.76	824.76	824.76	824.76
②	824.96	824.96	824.96	824.96	824.96
③	824.99	824.99	824.99	824.99	824.99
④	824.84	824.84	824.84	824.84	824.84

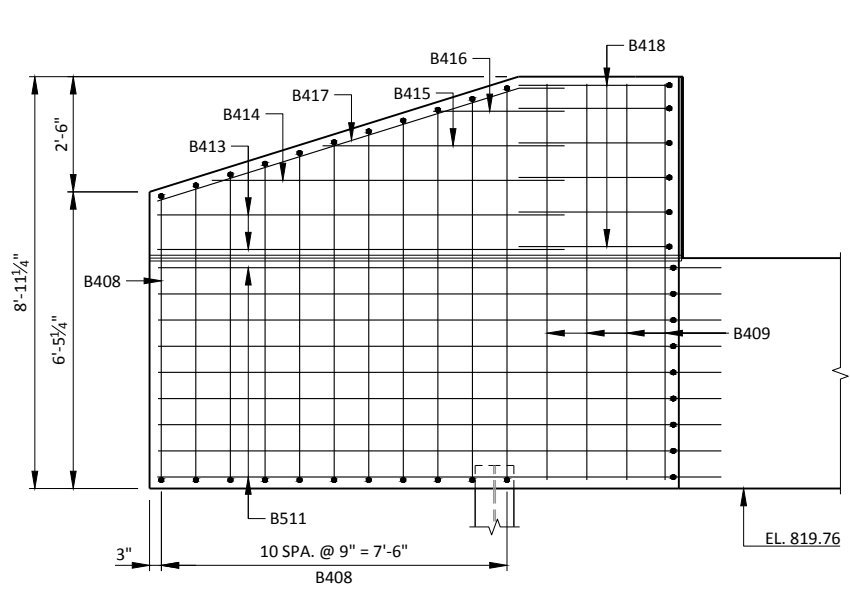
LEGEND

- VERTICAL 18" RUBBERIZED MEMBRANE WATERPROOFING EXTEND FROM 9" BELOW BRIDGE SEAT TO 1" BELOW TOP OF WINGS.
- 18" RUBBERIZED MEMBRANE WATERPROOFING. (HORIZONTAL)
- ▲ 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)
- ▲ 1/2" x 4" PREFORMED FILLER, EXTEND FULL LENGTH OF ABUTMENTS BETWEEN EDGES OF DIAPHRAGM. USE 1/2" PREFORMED FILLER UNDER GIRDERS.
- PILE SPACING MEASURED AT BASE OF ABUTMENT BODY.
- 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."
- ☆ 3/4" CORK FILLER ON VERTICAL GIRDER SEAT FACES THAT RUN PARALLEL WITH GIRDER.
- 1/2" x 8" x 1'-10" ELASTOMERIC BEARING PAD.
- ▽ STEEL TROWEL ENTIRE TOP SURFACE OF ABUTMENT. PLACE MULTIPLE LAYERS OF POLYETHYLENE SHEETS OVER ENTIRE ABUTMENT TOP BEFORE PLACING BEARING PADS AND SUPERSTRUCTURE. TOTAL THICKNESS OF SHEETS SHALL BE AT LEAST 0.03".
- ◇ ALTERNATE THE POSITION OF THE 90° AND THE 180° BENDS AT EACH VERTICAL LAYER OF TIES.
- INDICATES WING NUMBER.

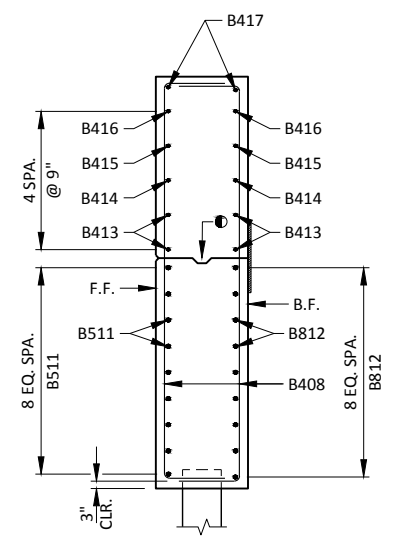


GIRDER SEAT DETAIL
INTERIOR GIRDER SHOWN.
EXTERIOR GIRDERS SIMILAR.

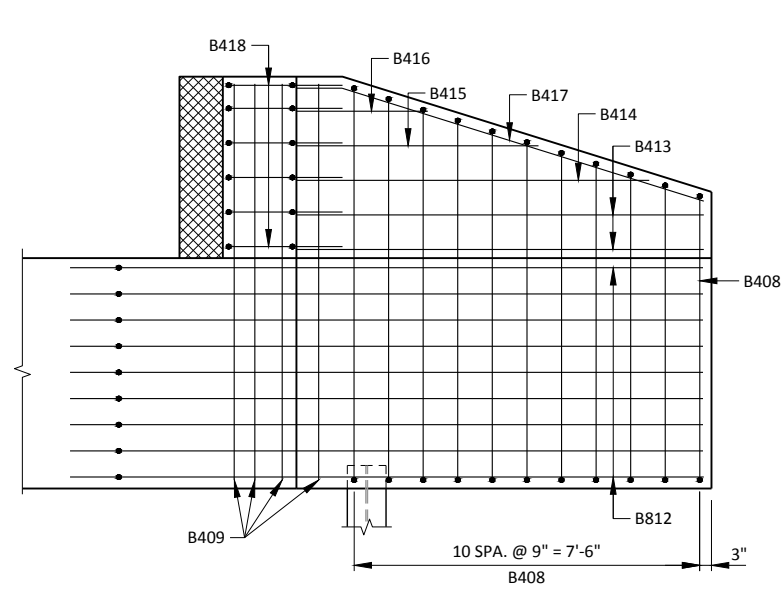
NO.	DATE	REVISION	BY
STRUCTURE B-13-875			
DRAWN BY: PMF		PLANS CKD: PTB	
EAST ABUTMENT			SHEET 6 OF 13



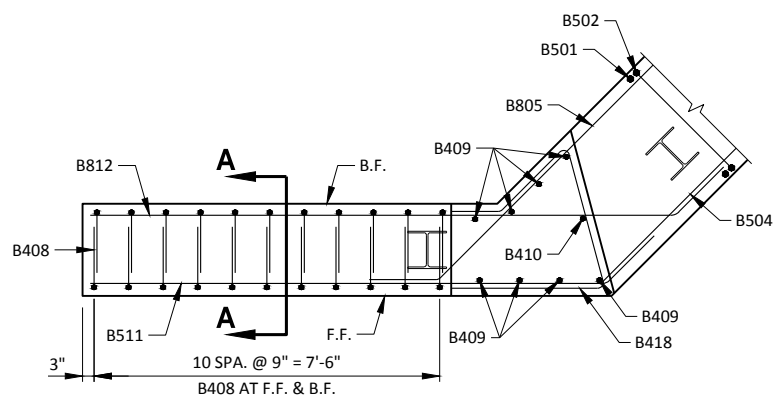
F.F. ELEVATION - WING 3



SECTION A-A



B.F. ELEVATION - WING 3



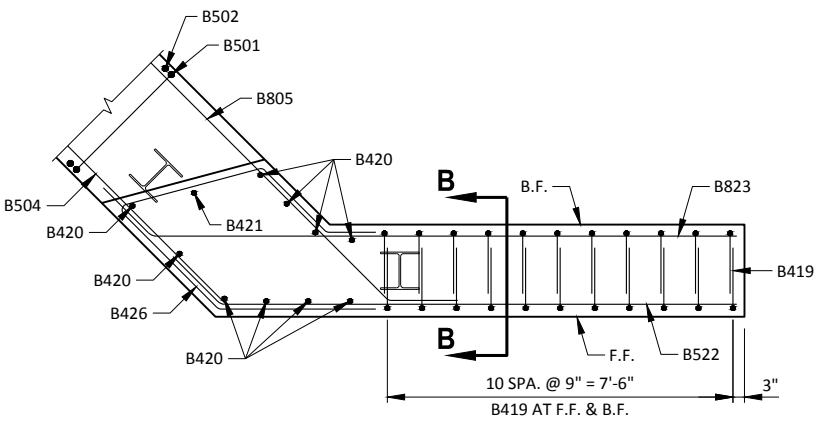
PLAN VIEW - WING 3

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".

NOTES

SOME BARS HAVE BEEN OMITTED FOR CLARITY. SEE THIS SHEET FOR BILL OF BARS.
SPACE REINFORCEMENT TO MISS PILING
F.F. - FRONT FACE
B.F. - BACK FACE



PLAN VIEW - WING 4

BILL OF BARS EAST ABUTMENT

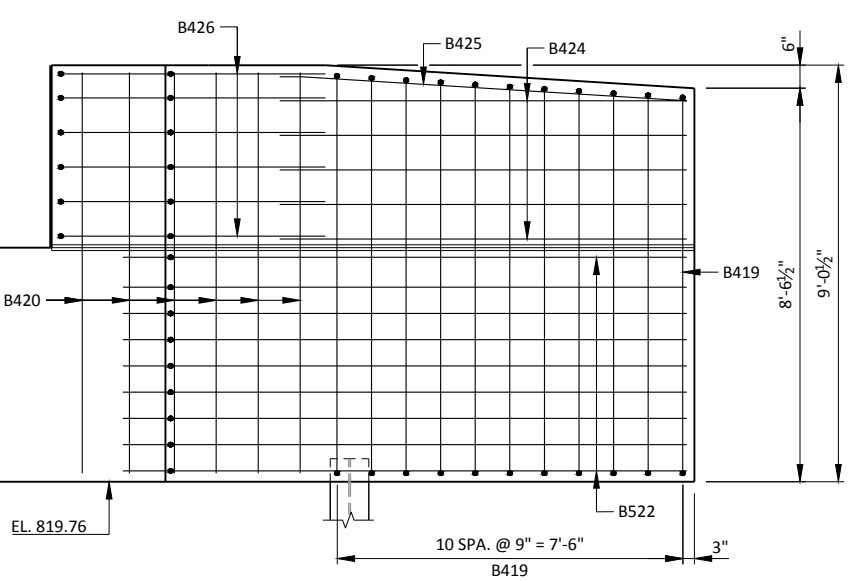
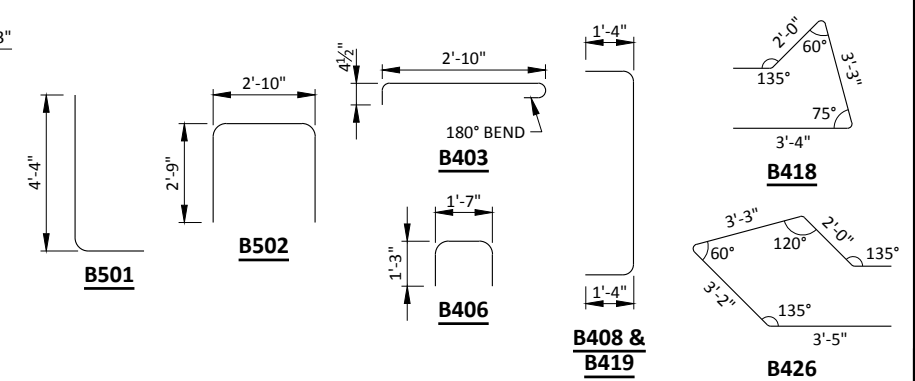
BAR MARK	NO. REQ'D.	LENGTH	BENT	COAT	BAR SERIES	1,570 LB (COATED)		2,710 LB (UNCOATED)	
						NO. REQ'D.	LENGTH	NO. REQ'D.	LENGTH
B501	82	6-2	X						BODY - VERT. - F.F. & B.F.
B502	41	8-1	X						BODY - VERT. - TOP
B403	30	3-8	X						TIE BARS
B504	9	41-2							BODY - HORIZ. - F.F.
B805	18	27-0	X						BODY - HORIZ. - B.F.
B406	15	3-11	X						BODY - HORIZ. - TOP BETWEEN SEATS
B407	6	9-0							BODY - HORIZ. - TOP BETWEEN SEATS
B408	22	9-9	X	X	*				WING 3 - VERT. - F.F. & B.F.
B409	8	8-6		X					WING 3 - VERT.
B410	1	4-8		X					WING 3 - VERT. - TOP
B511	9	12-8	X	X					WING 3 - HORIZ. - F.F.
B812	9	14-3	X	X					WING 3 - HORIZ. - B.F.
B413	4	8-10		X					WING 3 - HORIZ. - F.F. & B.F. - TOP
B414	2	7-8		X					WING 3 - HORIZ. - F.F. & B.F. - TOP
B415	2	5-3		X					WING 3 - HORIZ. - F.F. & B.F. - TOP
B416	2	2-10		X					WING 3 - HORIZ. - F.F. & B.F. - TOP
B417	5	9-2	X	X					WING 3 - HORIZ. - F.F. & B.F. - TOP
B418	6	9-4	X	X					WING 3 - HORIZ. - TOP
B419	22	10-10	X	X	*				WING 4 - VERT. - F.F. & B.F.
B420	10	8-7		X					WING 4 - VERT.
B421	1	4-8		X					WING 4 - VERT. - TOP
B522	9	12-8	X	X					WING 4 - HORIZ. - F.F.
B823	9	14-3	X	X					WING 4 - HORIZ. - B.F.
B424	10	8-10		X					WING 4 - HORIZ. - F.F. & B.F. - TOP
B425	2	8-10	X	X					WING 4 - HORIZ. - F.F. & B.F. - TOP
B426	6	12-8	X	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.
* LENGTH SHOWN IS AN AVERAGE LENGTH ONLY. SEE BAR SERIES TABLE FOR ACTUAL LENGTHS.

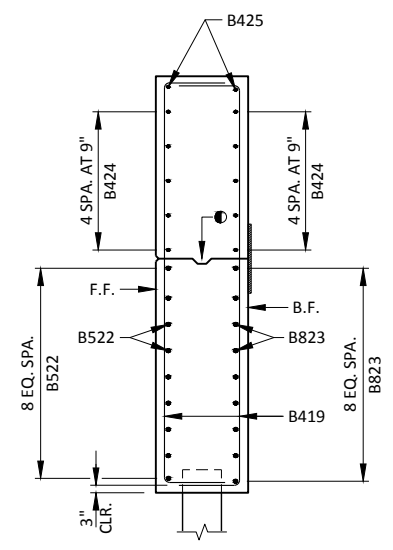
BAR SERIES TABLE

BAR MARK	NO. REQ'D.	LENGTH
B408	2 SERIES OF 11	10-11 TO 8-7
B419	2 SERIES OF 11	11-1 TO 10-7

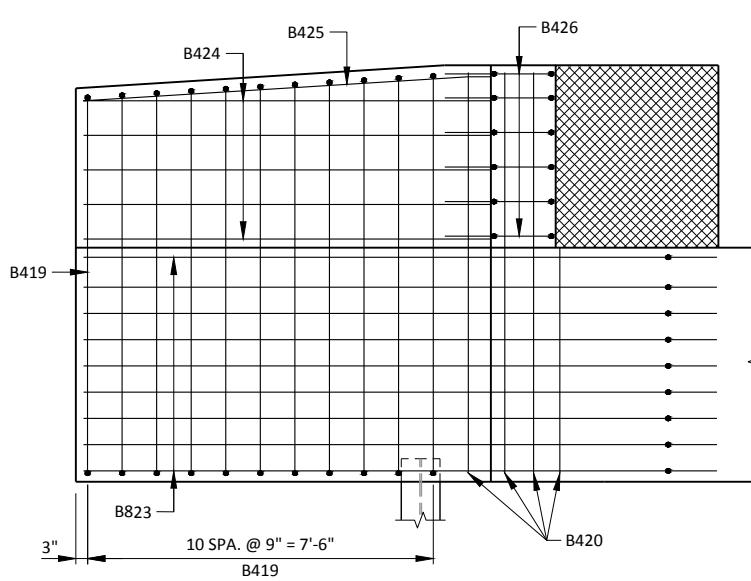
BUNDLE AND TAG EACH SERIES SEPARATELY.



F.F. ELEVATION - WING 4



SECTION B-B

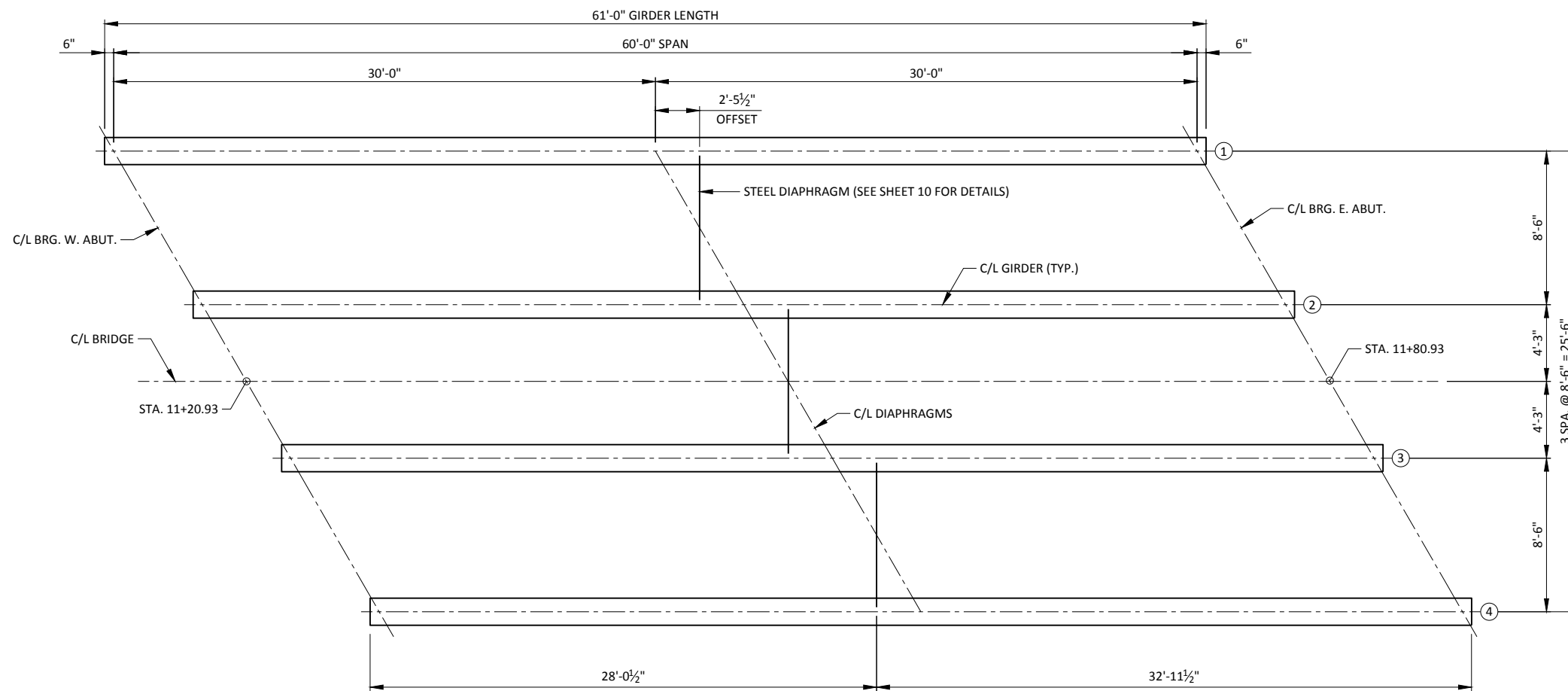


B.F. ELEVATION - WING 4

B417 & B425

MARK	'A'
B417	162'39'
B425	176'25'

NO.	DATE	REVISION	BY
STRUCTURE B-13-875			
DRAWN BY		PMF	PLANS CK'D. PTB
EAST ABUTMENT DETAILS			SHEET 7 OF 13



GIRDER LAYOUT

**BILL OF BARS
SUPERSTRUCTURE**

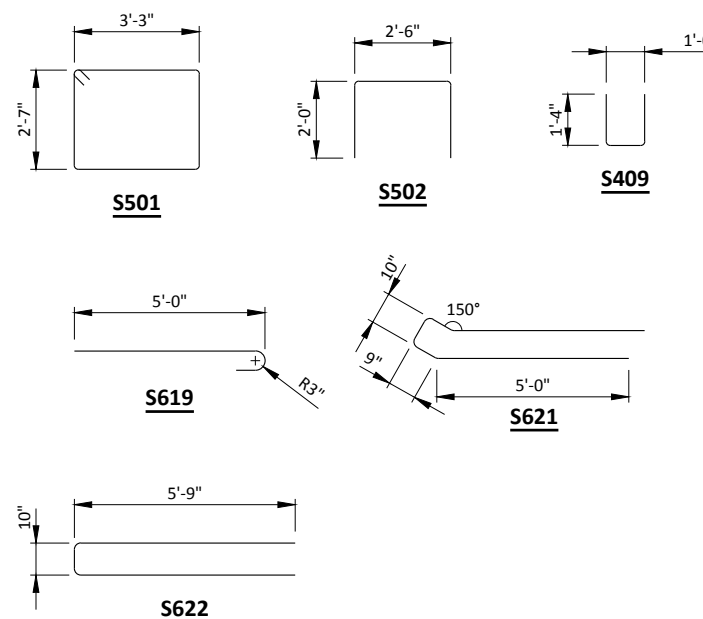
15,020 LB (COATED)

BAR MARK	NO. REQ'D.	LENGTH	BENT	COAT	BAR SERIES	LOCATION
S501	76	12-0	X	X		ABUT. DIAPHRAGM - VERT.
S502	76	6-3	X	X		ABUT. DIAPHRAGM - VERT. - TOP
S603	4	2-9		X		ABUT. DIAPHRAGM - HORIZ. - FRONT - ENDS
S604	12	3-1		X		ABUT. DIAPHRAGM - HORIZ. - FRONT - ENDS
S605	6	7-8		X		ABUT. DIAPHRAGM - HORIZ. FRONT
S606	18	8-3		X		ABUT. DIAPHRAGM - HORIZ. FRONT
S607	12	37-1		X		ABUT. DIAPHRAGM - HORIZ. - BACK
S408	12	6-6		X		ABUT. DIAPHRAGM - HORIZ. BOT.
S409	42	3-6	X	X		ABUT. DIAPHRAGM - VERT. - BOT.
S510	16	6-0		X		ABUT. DIAPHRAGM - GIRDER WEB
S511	73	32-2		X		DECK - TOP - TRANSVERSE
S512	54	16-1		X	*	DECK - TOP - TRANSVERSE - AT ENDS
S513	72	32-2		X		DECK - BOTTOM - TRANSVERSE
S514	56	16-1		X	*	DECK - BOTTOM - TRANSVERSE - AT ENDS
S415	84	32-1		X		DECK - TOP - LONGITUDINAL
S416	8	32-10		X		DECK - TOP - LONGITUDINAL - EDGES
S417	86	32-1		X		DECK - BOTTOM - LONGITUDINAL
S418	8	32-10		X		DECK - BOTTOM - LONGITUDINAL - EDGES
S619	16	6-0	X	X		DECK - RAIL POSTS - ENDS
S620	72	6-0		X		DECK - RAIL POSTS - INTERIOR
S621	4	12-0	X	X		DECK - RAIL POSTS - ENDS
S622	40	12-0	X	X		DECK - RAIL POSTS

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

DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT OF BAR.

* LENGTH SHOWN IS AN AVERAGE LENGTH ONLY. SEE BAR SERIES TABLE FOR ACTUAL LENGTHS.



BAR SERIES TABLE

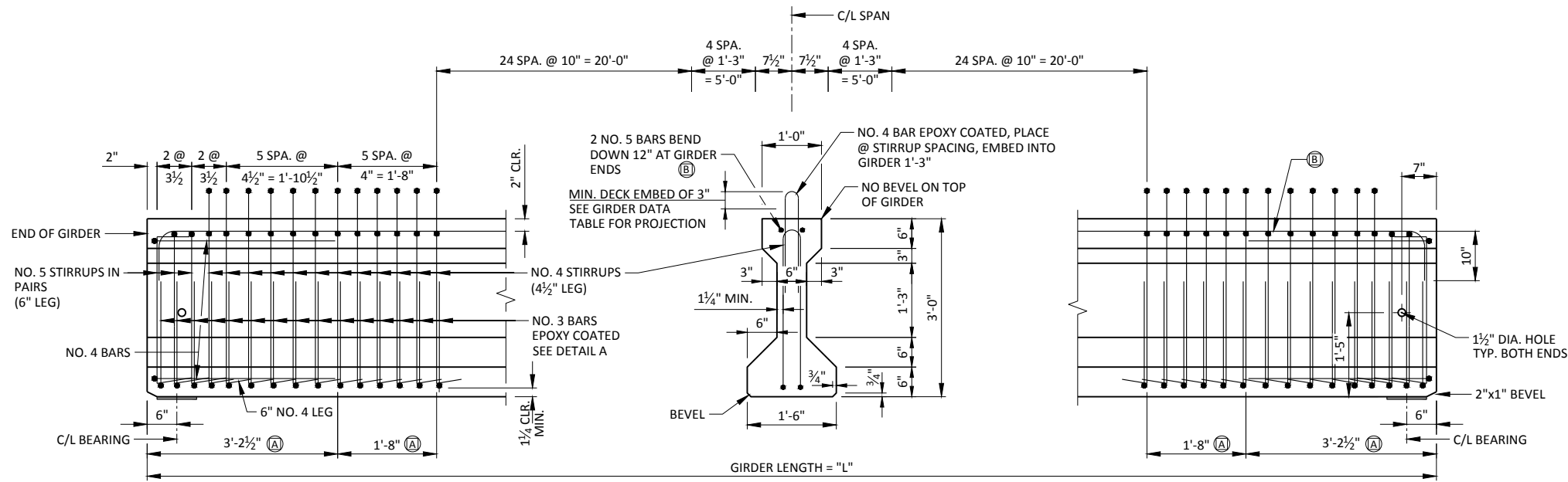
BAR MARK	NO. REQ'D.	LENGTH
S512	2 SERIES OF 27	30-2 TO 2-0
S514	2 SERIES OF 28	30-8 TO 1-6

BUNDLE AND TAG EACH SERIES SEPARATELY.

8

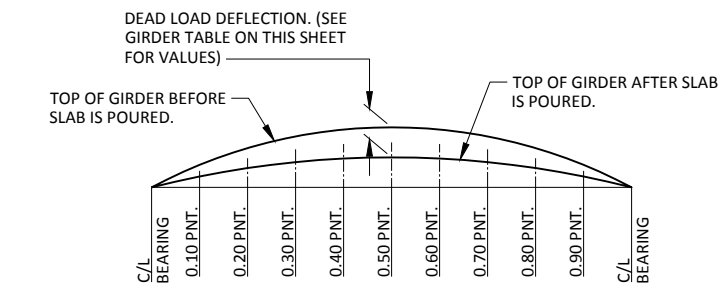
8

NO.	DATE	REVISION	BY
STRUCTURE B-13-875			
DRAWN BY		PMF	PLANS CK'D. PTB
GIRDER LAYOUT			SHEET 8 OF 13

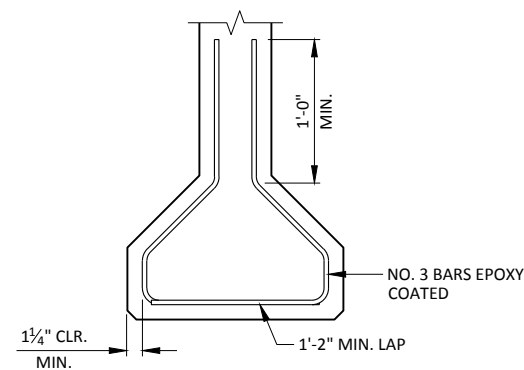


36-INCH GIRDER - SIDE VIEW & TYP. SECTION IN SPAN

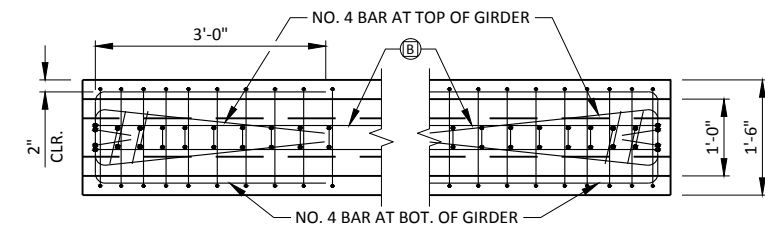
(A) DETAIL TYP. AT EACH END



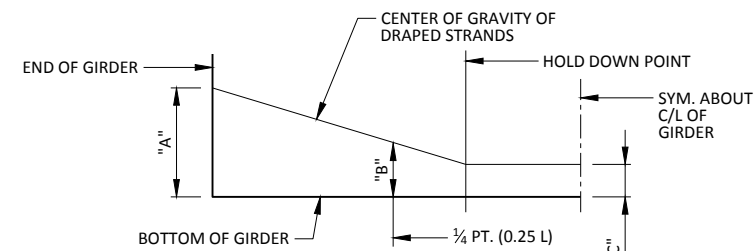
DEAD LOAD DEFLECTION DIAGRAM



DETAIL A



TOP VIEW OF GIRDER ENDS

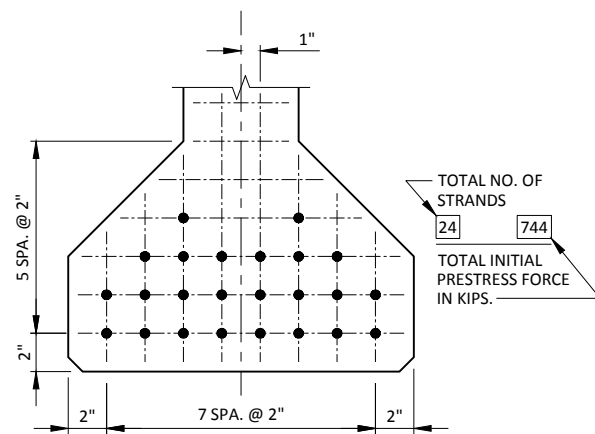


DRAPED STRAND PROFILE

THE THEORETICAL INITIAL CAMBER VALUE AT THE TIME OF STRAND RELEASE AT MIDSPAN

SPAN	CAMBER (IN.)
1	1.95"

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



TYP. STRAND PATTERN

GIRDER LENGTH "L"	QUANT.	DEAD LOAD DEFLECTION										CONC. STRENGTH f'c Ksi	STIRRUP PROJECTION "P"			DIA. OF STRAND (IN.)	DRAPED PATTERN					UNDRAPED PATTERN		GIRDER NO.
		0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1ST 1/3		MID. 1/3	END 1/3	TOTAL NO. OF STRANDS		f'ci Ksi *	(INCHES)				TOTAL NO. OF STRANDS	f'ci Ksi *	
		"A"	"B"	"B"	"B"	"C"	"A"	"B"	"B"	"C"	"A"		"B"	"B"	"C"		"A"	"B"	"B"	"C"				
61'-0"	4	3/4"	1/2"	3/4"	3/4"	7/8"	3/4"	3/4"	1/2"	1/4"	8	7"	6"	7"	0.5	24	6.2	32	11	14	4	--	--	1-4

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

GIRDER NOTES

TOP OF GIRDER TO BE ROUGH FLOATED AND BROOMED TRANSVERSELY, EXCEPT THE OUTSIDE 2" OF GIRDER, WHICH SHALL RECEIVE A SMOOTH FINISH. AN APPROVED CONCRETE SEALER SHALL BE APPLIED TO ALL SMOOTH SURFACES INCLUDING THE OUTSIDE 2" OF THE TOP FLANGE.

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

ALL GIRDERS SHALL BE CAST FULL LENGTH AS SHOWN.

PRESTRESSING STRANDS SHALL BE 0.5-INCH DIAMETER 7-WIRE LOW-RELAXATION STRANDS WITH AN ULTIMATE STRENGTH OF 270 KSI.

STRANDS SHALL BE FLUSH WITH THE ENDS OF THE GIRDER. FOR GIRDER ENDS EMBEDDED COMPLETELY IN CONCRETE, END OF STRANDS SHALL BE COATED WITH NON-BITUMINOUS JOINT SEALER.

SPACING SHOWN FOR NO. 4 STIRRUPS IS FOR GRADE 60 REINFORCEMENT.

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

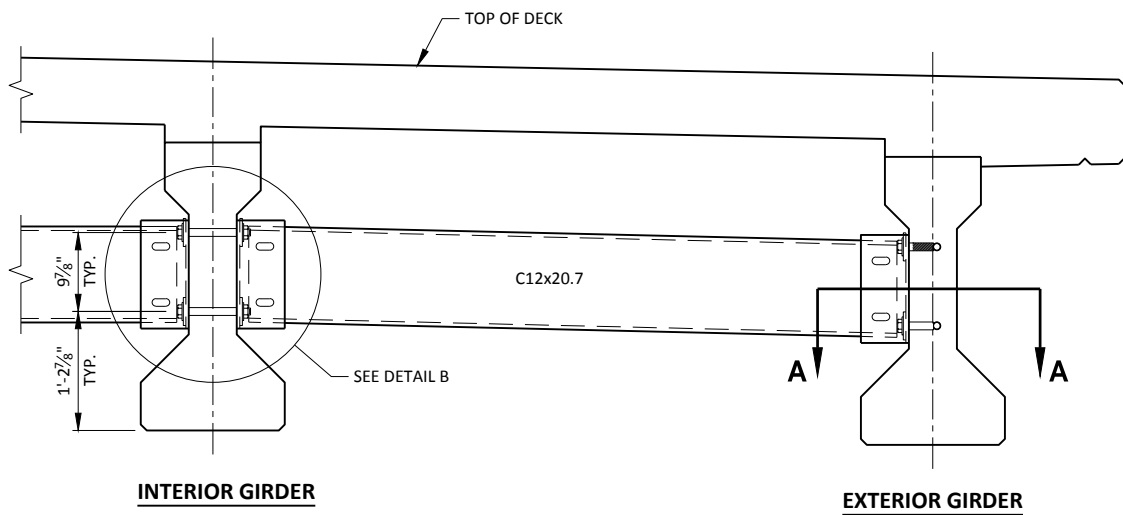
FOR DIAPHRAGM INSERT & CONNECTION DETAILS SEE SHEET 10.

DATA SHOWN IN DEFLECTION DATA IS THEORETICAL AND MAY VARY WITH CONCRETE STRENGTH, VARIABLE PRESTRESS CONDITIONS AND PRESTRESS LOSSES.

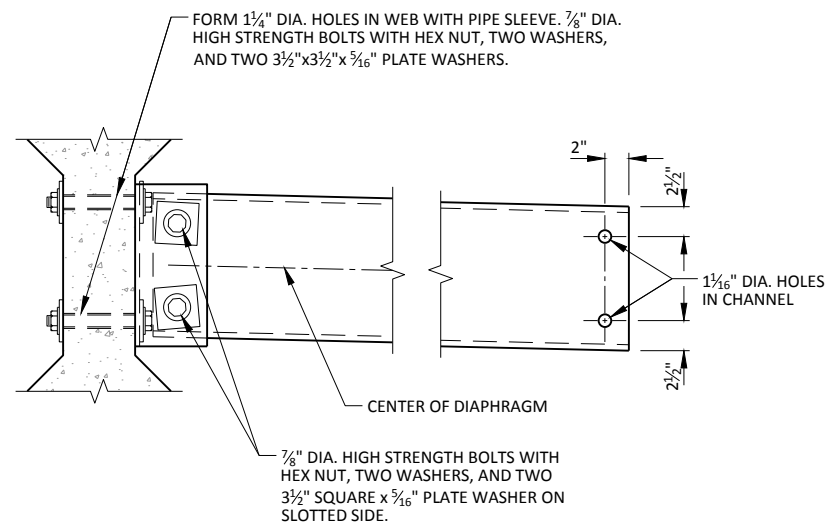
8

8

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-13-875			
DRAWN BY PMF		PLANS CK'D. PTB	
36-INCH PRESTRESSED GIRDER DETAILS			SHEET 9 OF 13



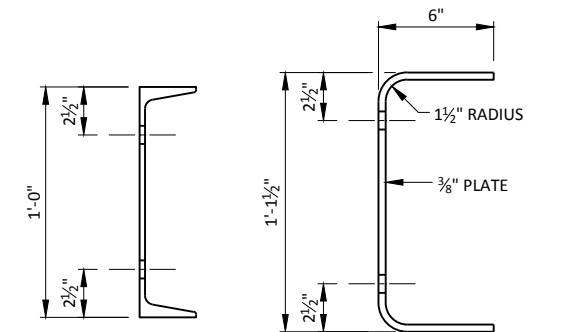
PART TRANSVERSE SECTION AT DIAPHRAGM



DETAIL B
(FOR STAGGERED DIAPHRAGMS)

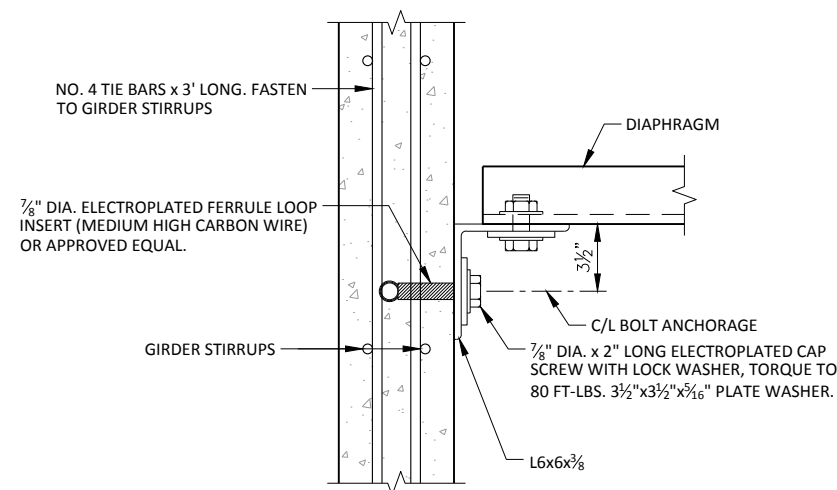
NOTES

- ALL DIAPHRAGM MATERIAL NOT EMBEDDED IN THE CONCRETE GIRDER SHALL BE PAID FOR AT THE UNIT PRICE BID FOR "STEEL DIAPHRAGMS B-13-875", 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 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 AT MID-LENGTH OF GIRDER AS INDICATED ON SHEET 8.

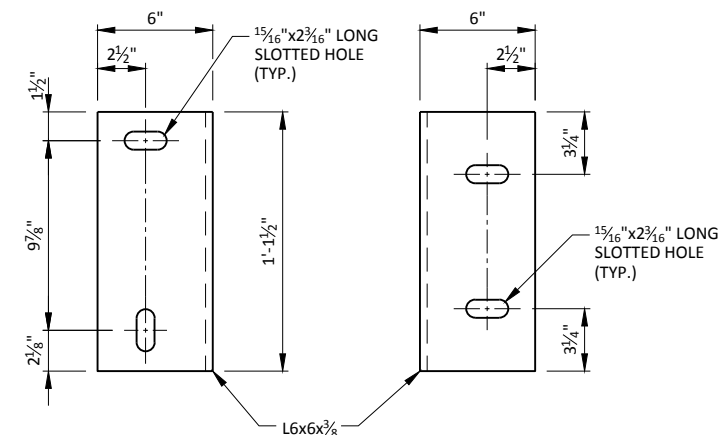


C12x20.7

ALTERNATE DIAPHRAGM



SECTION A-A
(FOR EXTERIOR ATTACHMENT)



GIRDER FACE

DIAPHRAGM FACE

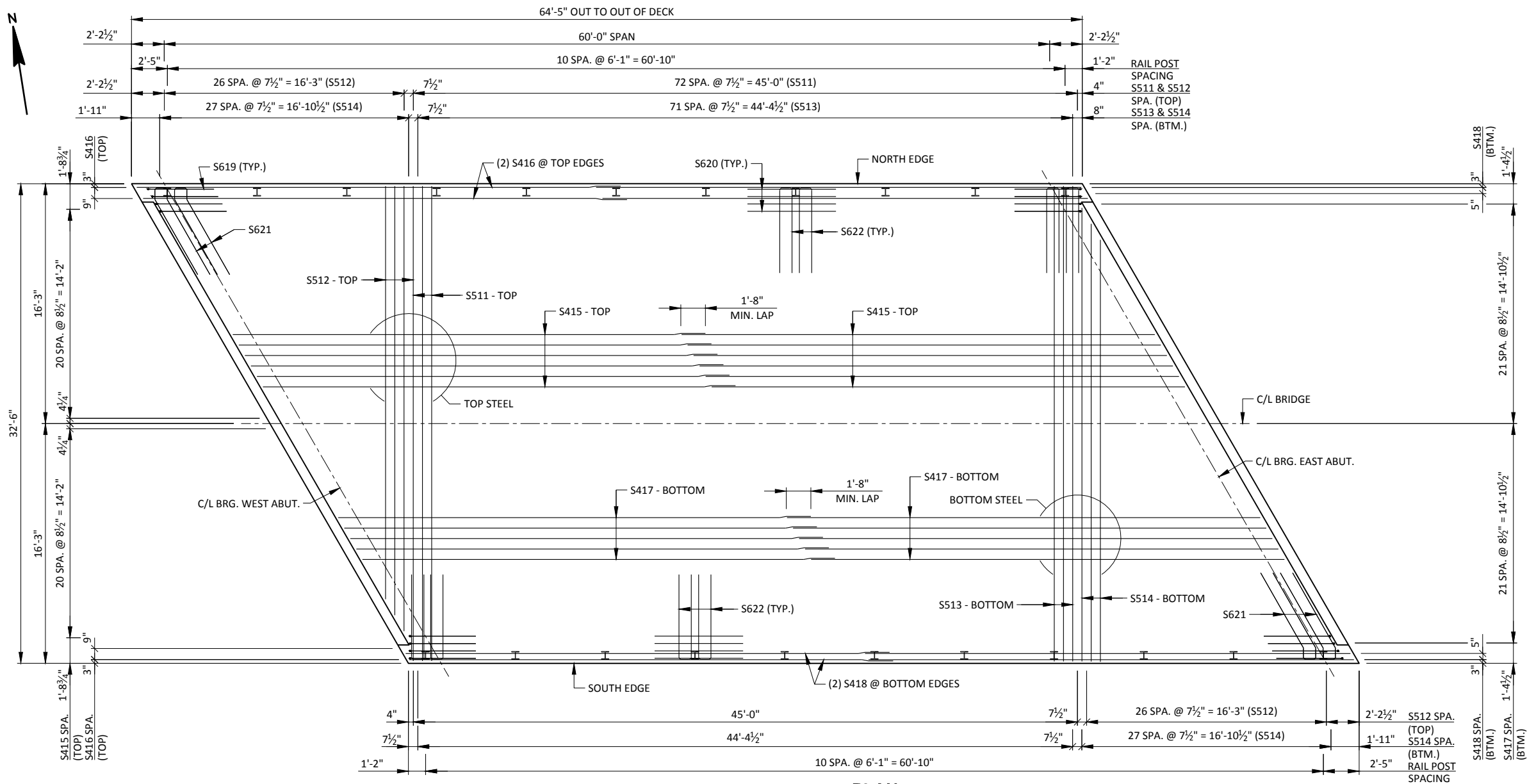
DIAPHRAGM SUPPORT

SECTION THROUGH DIAPHRAGM

8

8

NO.	DATE	REVISION	BY
STRUCTURE B-13-875			
DRAWN BY		PMF	PLANS CK'D. PTB
STEEL DIAPHRAGM			SHEET 10 OF 13



PLAN

LEGEND

- 18" RUBBERIZED MEMBRANE WATERPROOFING. (HORIZONTAL)
- ▲ ½" x 4" PREFORMED FILLER, EXTEND FULL LENGTH OF ABUTMENTS BETWEEN EDGES OF DIAPHRAGM.
- * DIMENSION IS NORMAL TO THE C/L OF SUBSTRUCTURE UNITS.

TOP OF DECK ELEVATIONS

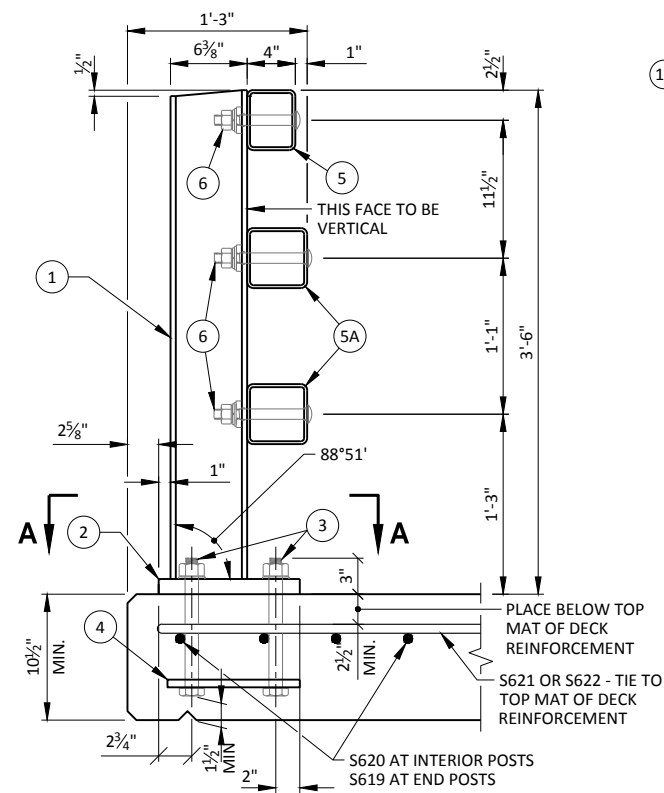
GIRDER LINE	C/L W. ABUT.	0.10 PNT.	0.20 PNT.	0.30 PNT.	0.40 PNT.	0.50 PNT.	0.60 PNT.	0.70 PNT.	0.80 PNT.	0.90 PNT.	C/L E. ABUT.
N. EDGE	828.38	828.41	828.44	828.48	828.51	828.54	828.57	828.60	828.64	828.67	828.70
1	828.46	828.49	828.52	828.56	828.59	828.62	828.65	828.69	828.72	828.75	828.78
2	828.66	828.69	828.72	828.75	828.78	828.82	828.85	828.88	828.91	828.95	828.98
C/L	828.75	828.79	828.82	828.85	828.88	828.92	828.95	828.98	829.01	829.04	829.08
3	828.68	828.71	828.75	828.78	828.81	828.84	828.88	828.91	828.94	828.97	829.00
4	828.54	828.57	828.60	828.64	828.67	828.70	828.73	828.76	828.80	828.83	828.86
S. EDGE	828.48	828.51	828.54	828.58	828.61	828.64	828.67	828.71	828.74	828.77	828.80

SURVEY TOP OF DECK ELEVATIONS

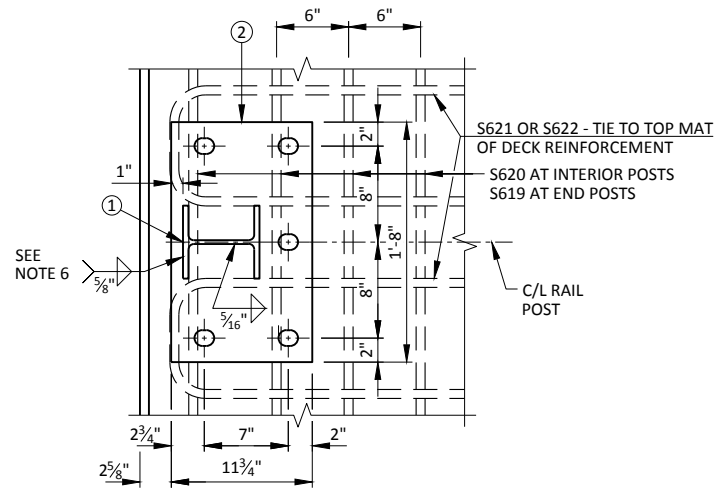
	W. ABUT.	0.50 PT.	E. ABUT.
NORTH EDGE OF DECK			
CENTER LINE			
SOUTH EDGE OF DECK			

PRIOR TO RELEASING SLAB FASLEWORK, TAKE TOP OF DECK ELEVATIONS AT THE C/L OF THE ABUTMENTS AND AT 0.50 PTS. TO VERIFY CAMBER. TAKE ELEVATIONS ALONG THE EDGE OF DECK AND CENTER LINE. RECORD THE ELEVATIONS IN THE ABOVE TABLE FOR THE "AS BUILT" PLANS.

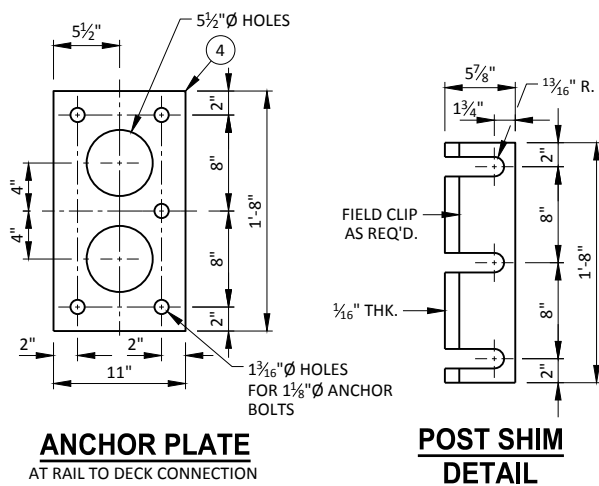
NO.	DATE	REVISION	BY
STRUCTURE B-13-875			
DRAWN BY		PMF	PLANS CK'D. PTB
SUPERSTRUCTURE			SHEET 11 OF 13



SECTION THROUGH RAILING ON DECK

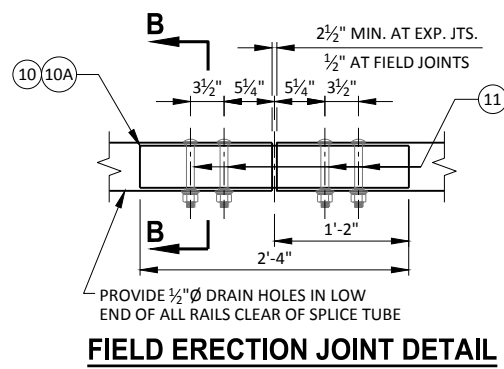


SECTION A-A

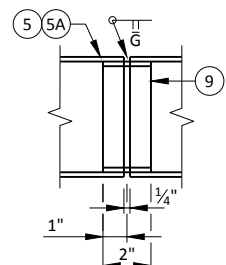


ANCHOR PLATE AT RAIL TO DECK CONNECTION

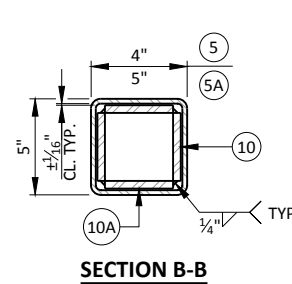
POST SHIM DETAIL



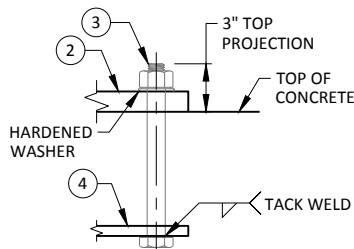
FIELD ERECTION JOINT DETAIL



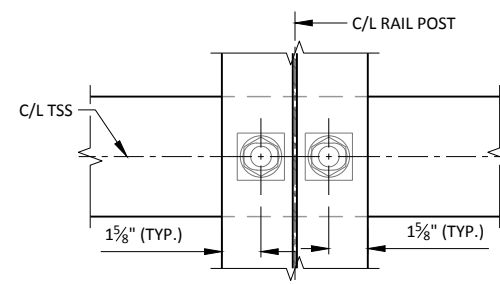
SHOP RAIL SPLICE DETAIL
(LOCATION MUST BE SHOWN ON SHOP DRAWINGS)



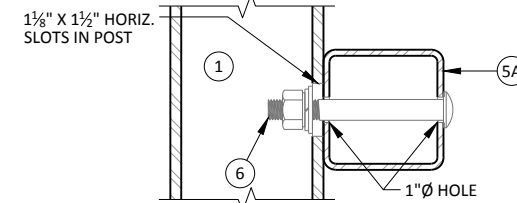
SECTION B-B



ANCHOR BOLTS



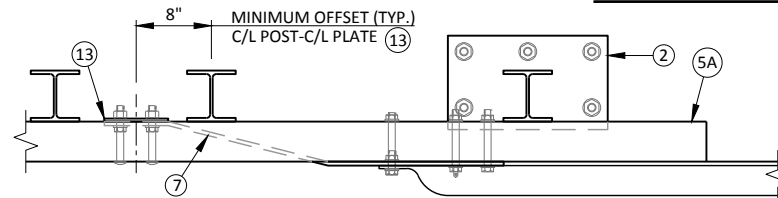
SECTION THROUGH POST WEB



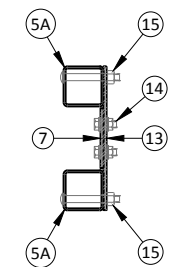
SECTION THROUGH RAIL

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

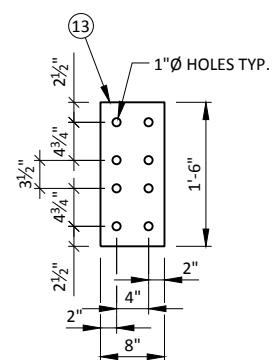
TYPICAL RAIL TO POST CONNECTIONS



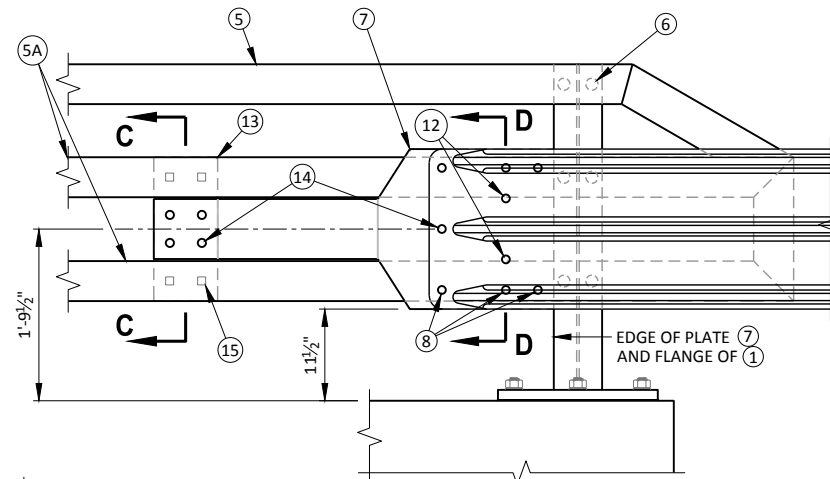
TOP VIEW AT END POST
(THREE BEAM RAIL ATTACHMENT)



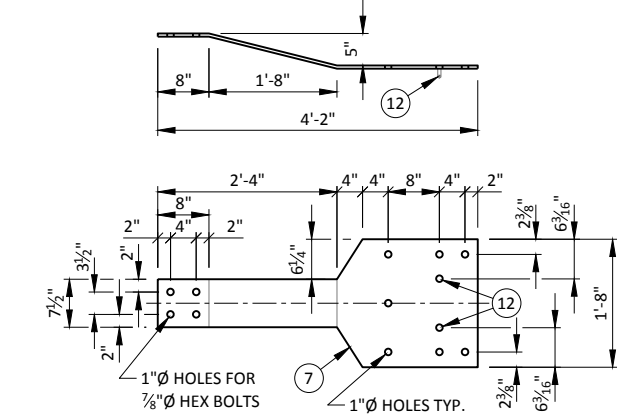
SECTION C-C



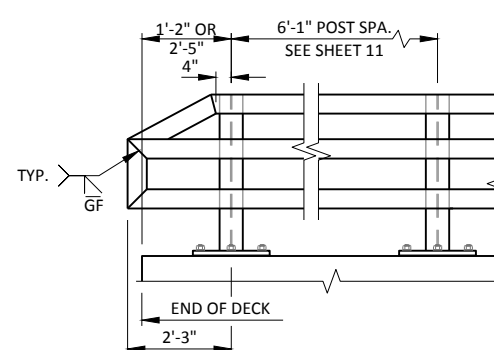
ANCHOR PLATE AT BEAM GUARD ATTACHMENT



DETAIL AT END POST
(THREE BEAM RAIL ATTACHMENT)



BACK-UP PLATE DETAIL AT BEAM GUARD ATTACHMENT



PART ELEVATION OF RAILING

LEGEND

- W6x25 WITH 1 1/8" x 1 1/2" HORIZONTAL SLOTS ON EACH SIDE OF POST FOR BOLT NO. 6. CUT BOTTOM OF POST TO MATCH CROSS SLOPE OF ROADWAY. PLACE POST VERTICAL. PLACE POSTS NORMAL TO GRADE LINE.
- PLATE 1 1/4"x11 3/4"x1'-8" WITH 1 3/16"x1 1/8" SLOTTED HOLES FOR ANCHOR BOLTS NO. 3. WELD TO NO. 1 AS SHOWN. SLOTS PARALLEL TO SHORT SIDE OF PLATE.
- ASTM A449 - 1 1/8" DIA. ANCHOR BOLTS WITH NUT AND HARDENED WASHER (ALL GALVANIZED). 5 REQ'D. PER POST. THREAD 3" AND PLACE NORMAL TO PLATE NO. 2. CHAMFER TOP OF BOLTS BEFORE THREADING. AT POSTS ON CONCRETE SLAB SUPERSTRUCTURES WHERE THE SLAB THICKNESS IS > 16" USE 1'-3" LONG. USE 10 3/4" LONG AT ALL OTHER LOCATIONS.
- 3/8"x11"x1'-8" ANCHOR PLATE (GALVANIZED) WITH 1 3/16" DIA. HOLES FOR ANCHOR BOLTS NO. 3.
- TSS 5x4x0.25 STRUCTURAL TUBING. ATTACH TO NO. 1 WITH NO. 6.
- 5A TSS 5x5x0.25 STRUCTURAL TUBING. ATTACH TO NO. 1 WITH NO. 6.
- 7/8" DIA. A325 SLOTTED ROUND HEAD BOLT WITH NUT, 3/16"x1 3/8"x1 1/8" WASHER, AND LOCK WASHER (2 REQ'D. AT EACH RAIL TO POST LOCATION).
- 1/2" THK. BACK-UP PLATE WITH 2 - 7/8"x1 1/2" THREADED SHOP WELDED STUDS (NO. 12). BOLT TO RAIL AS SHOWN IN DETAIL. REQUIRED AT THREE BEAM GUARD RAIL ATTACHMENTS ONLY. PLACE SYMMETRICALLY ABOUT TUBES NO. 3A.
- 1" DIA. HOLES IN PLATE NO. 7 & TUBES NO. 5A FOR 7/8" DIA. A325 BOLTS WITH HEX NUTS AND WASHERS. 6 HOLES IN TUBES AND PLATE NO. 7.
- SPLICE SLEEVE FABRICATED FROM 1/4" PLATE. PROVIDE "SLIDING FIT".
- 3/8"x3 3/8"x2'-4" PLATE. 2 PER RAIL. USED IN NO. 5 & 5A.
- 3/8"x2 5/8"x2'-4" PLATE USED IN NO. 5, 3/8"x3 3/8"x2'-4" PLATE USED IN NO. 5A. 2 PER RAIL.
- 7/8" DIA. A325 ROUND HEAD BOLT WITH NUT, WASHER, AND LOCK WASHER. USE 1 5/16"x1 1/2" LONGIT. SLOTTED HOLES AT FIELD JOINTS AND 1 3/16"x2 3/4" MIN. LONGIT. SLOTTED HOLES AT EXP. JOINTS IN PLATE NO. 10A.
- 7/8" DIA. BY 1 1/2" LONG THREADED SHOP WELDED STUDS (2 REQ'D).
- 3/8"x8"x1'-6" PLATE. BOLT TO RAIL AS SHOWN IN DETAIL. REQ'D. AT THREE BEAM GUARD RAIL ATTACHMENTS ONLY. PLACE SYM. ABOUT TUBES NO. 5A.
- 7/8" DIA. x 2" LONG A325 HEX BOLT WITH NUT AND WASHER (5 REQ'D).
- 1" DIA. HOLES IN TUBES NO. 5A FOR 7/8" A325 ROUND HEAD BOLT WITH NUT, WASHER AND LOCK WASHER (4 REQ'D.). 4 HOLES IN TUBES.

GENERAL NOTES

- BID ITEM SHALL BE "RAILING TUBULAR TYPE M" WHICH INCLUDES ALL ITEMS SHOWN.
- RAIL POST AND BASE PLATES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A709 GRADE 50. HOLLOW RAILING STRUCTURAL TUBING SHALL CONFORM TO THE REQUIREMENTS OF ASTM A500 GRADE B OR C WITH A CERTIFIED FY=50 KSI. ANCHOR PLATES AND SPLICE TUBE PLATES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A709 GRADE 36.
- THE NUT SECURING THE POST BASE PLATE TO THE CONCRETE SHALL BE TIGHTENED TO A SNUG FIT AND GIVEN AN ADDITIONAL 1/8 TURN.
- RAILS SHALL BE CONTINUOUS OVER A MINIMUM OF THREE (3) POSTS WITHOUT SPLICES WHERE POSSIBLE.
- ENDS OF TUBE SECTIONS SHALL BE SAWED. GRIND SMOOTH EXPOSED EDGES. ALL CUT ENDS SHALL BE TRUE AND SMOOTH.
- WELD IS THE SAME ON BOTH FLANGES. FLANGE WELD DOES NOT REQUIRE MAGNETIC PARTICLE TESTING.
- FILL BOLT SLOT OPENINGS IN POST SHIMS AND PLATE NO. 2 AND CAULK AROUND PERIMETER OF PLATE NO. 2 WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. STEEL POST SHIMS MAY BE USED UNDER POSTS WHERE REQ'D. FOR ALIGNMENT.
- POST BASE PLATES SHALL BE FLAT WITH ALL SURFACES SMOOTH AND FREE FROM WARP AND ALL EDGES SMOOTH, STRAIGHT AND VERTICAL. ALL PLATE CUTS SHALL BE MACHINE OR MACHINE FLAME CUT.
- ALL MATERIAL SHALL BE GALVANIZED AFTER FABRICATION. PRIOR TO GALVANIZING, ALL STEEL RAILING POSTS & STEEL TUBING SHALL BE GIVEN A NO. 6 BLAST CLEANING BY S.S.P.C. SPECIFICATIONS.
- THIS RAILING MEETS NCHRP REPORT 350 EVALUATION CRITERIA FOR TEST LEVEL 4 (TL-4).

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NO.	DATE	REVISION	BY
STRUCTURE B-13-875			
DRAWN BY		PMF	PLANS CK'D. PTB
TUBULAR RAILING TYPE M		SHEET 13 OF 13	

EARTHWORK-CTH J

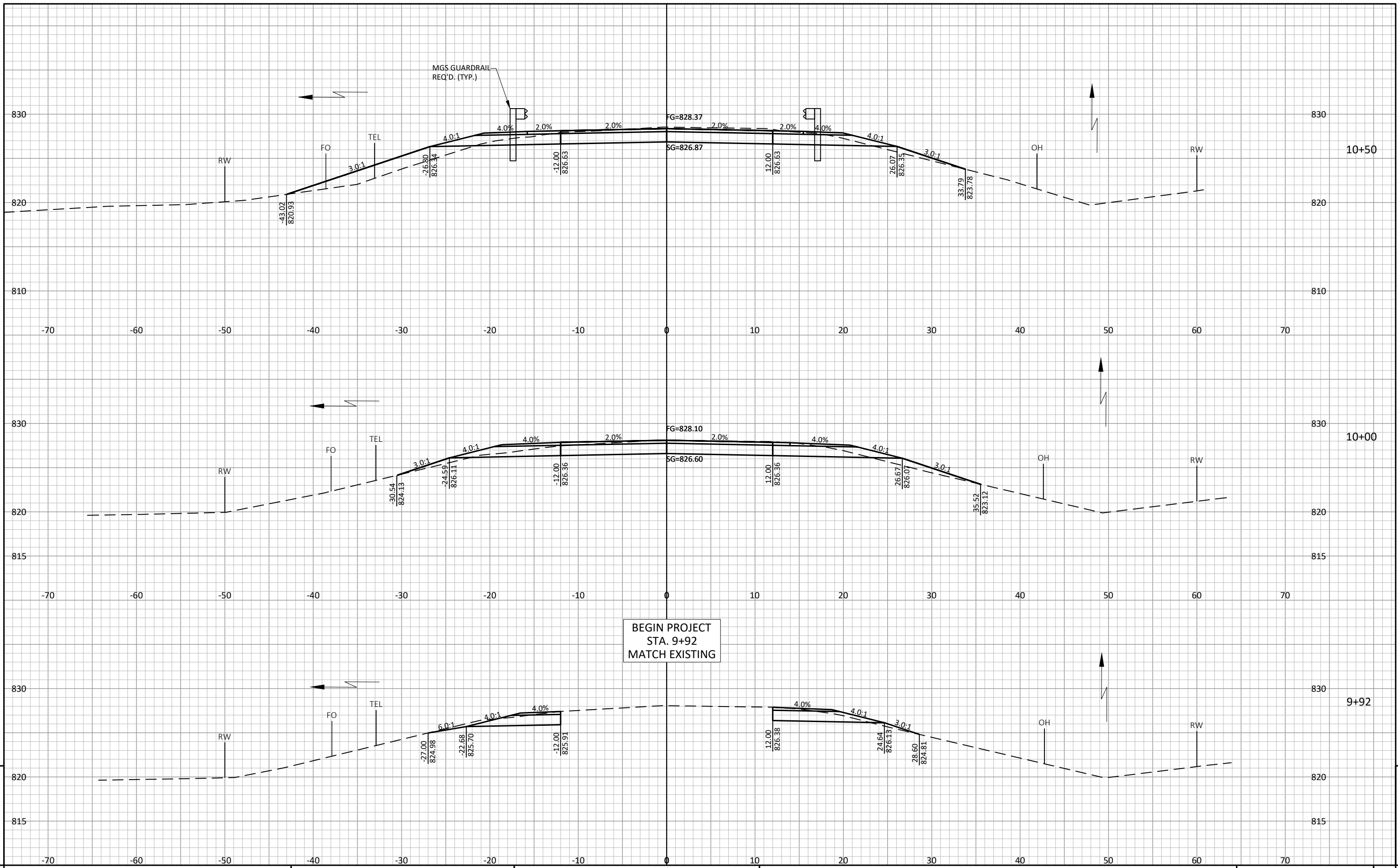
STATION	AREA (SF)			INCREMENTAL VOL (CY)			CUMMULATIVE VOLUME (CY)			
	CUT	SALVAGED/ UNUSABLE PAV'T MATERIAL	FILL	CUT NOTE 1	FILL NOTE 2	FILL (25%)	CUT 1.00 NOTE 1	FILL	FILL (25%) NOTE 3	MASS ORDINATE NOTE 4
9+90	0	0	0	0	0	0	0	0	0	0
10+00	7	0	3	20	4	5	20	4	5	15
10+50	36	0	11	110	40	50	130	44	55	75
11+00	29	0	46	110	92	115	240	136	170	70
11+19	37	0	15	40	40	50	280	176	220	60
11+19	41	0	119	0	0	0	280	176	220	60
11+50	0	0	0	0	0	0	280	176	220	60
11+83	0	0	0	0	0	0	280	176	220	60
11+83	39	0	117	0	0	0	280	176	220	60
12+00	45	0	93	30	48	60	310	224	280	30
12+50	63	0	66	190	168	210	500	392	490	10
13+00	33	0	33	220	128	160	720	520	650	70
13+10	3	0	16	20	8	10	740	528	660	80
13+25	0	0	0	20	8	10	760	536	670	90

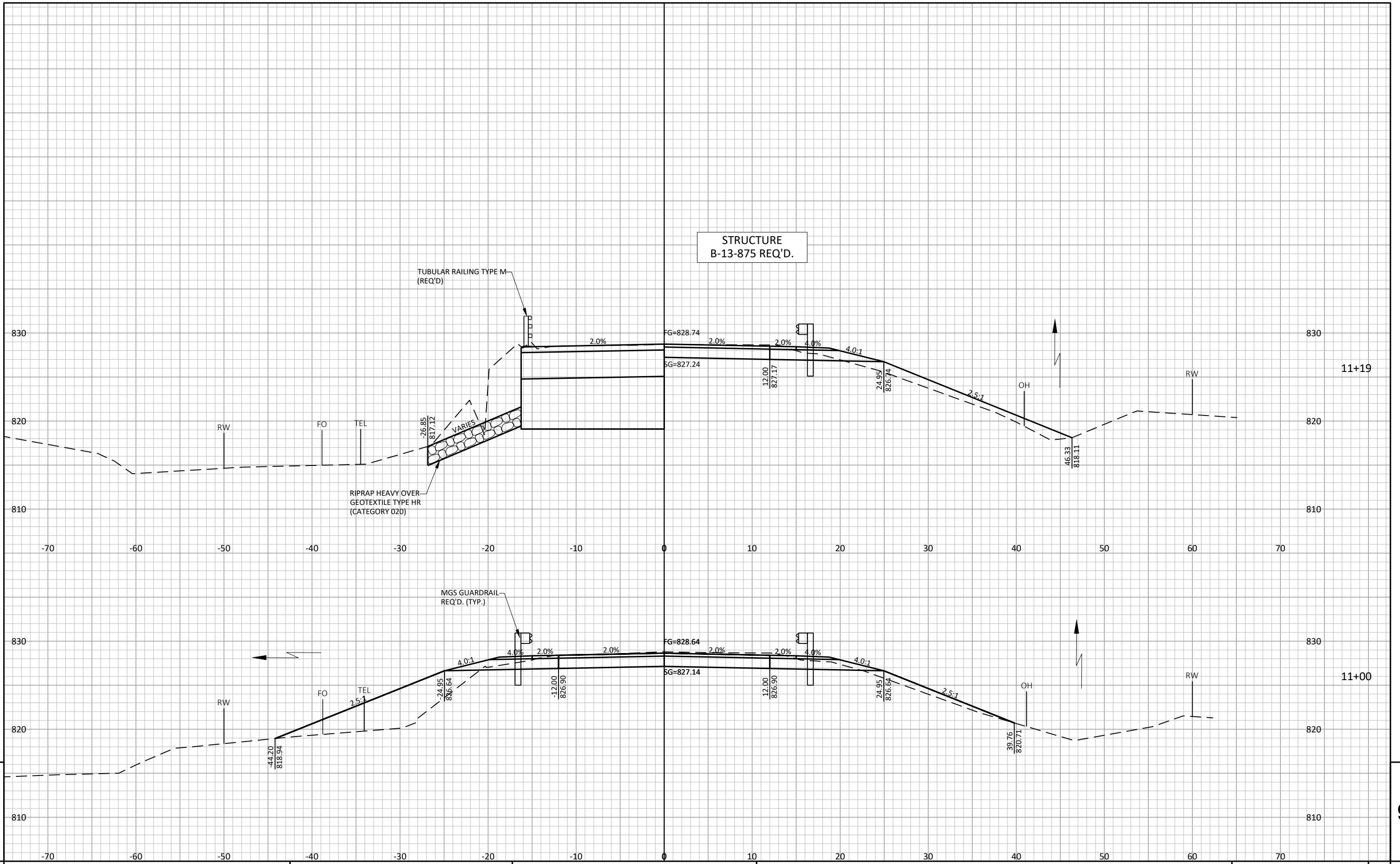
COLUMN SUBTOTALS = 760 536 670

NOTES: 1 - CUT 2 - FILL 3 - FILL (25%) 4 - MASS ORDINATE	CUT INCLUDES SALVAGED/UNUSABLE MATERIAL DOES NOT INCLUDE UNUSABLE PAVEMENT EXC VOLUME FILL 25%: (UNEXPANDED FILL - (ROCK * ROCK FACTOR))*1.25 (CUT - FILL (25%))
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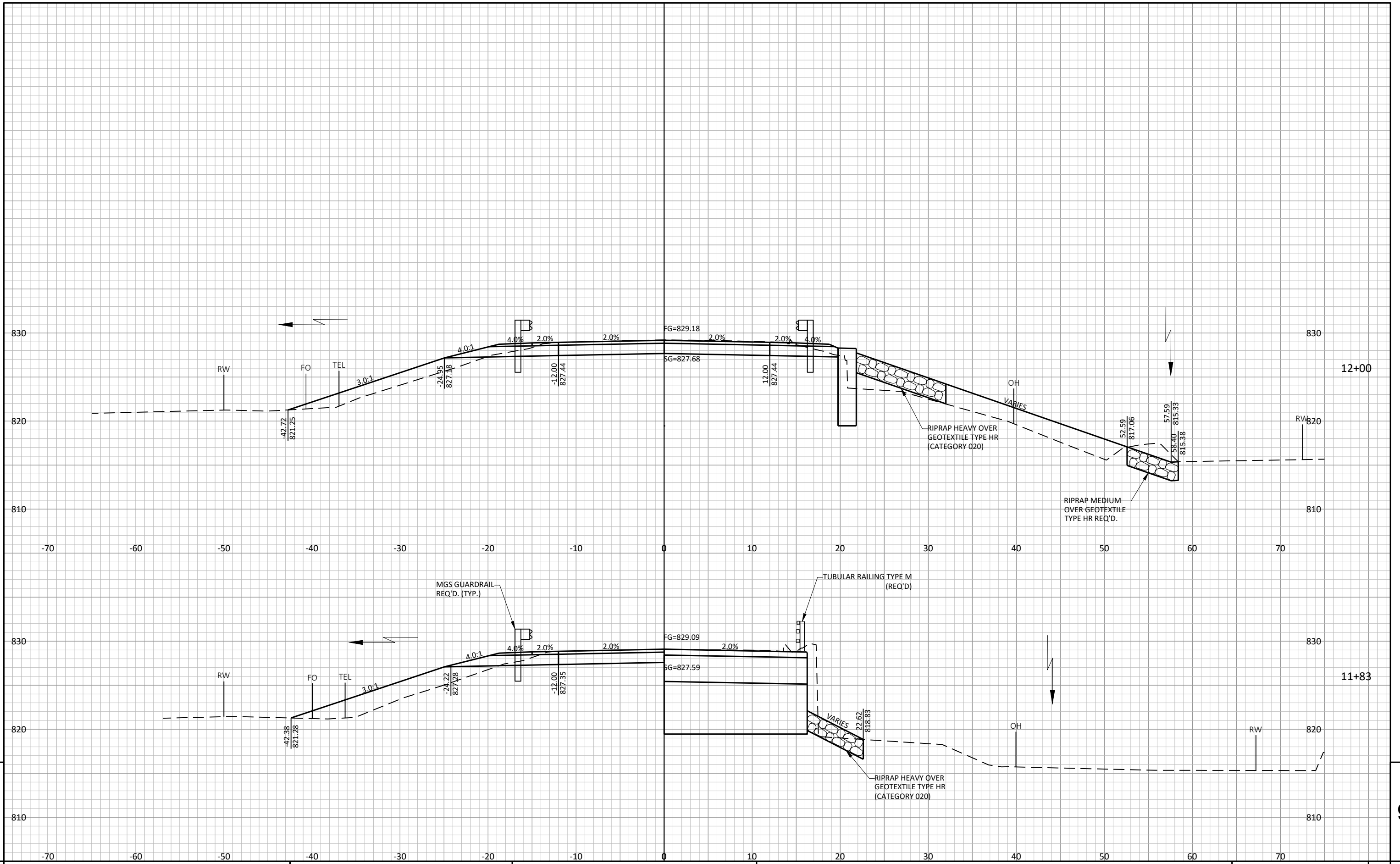


STRUCTURE
B-13-875 REQ'D.

TUBULAR RAILING TYPE M
(REQ'D.)

RIPRAP HEAVY OVER
GEOTEXTILE TYPE HR
(CATEGORY 020)

MGS GUARDRAIL
REQ'D. (TYP.)



PROJECT NO: 67256-2000

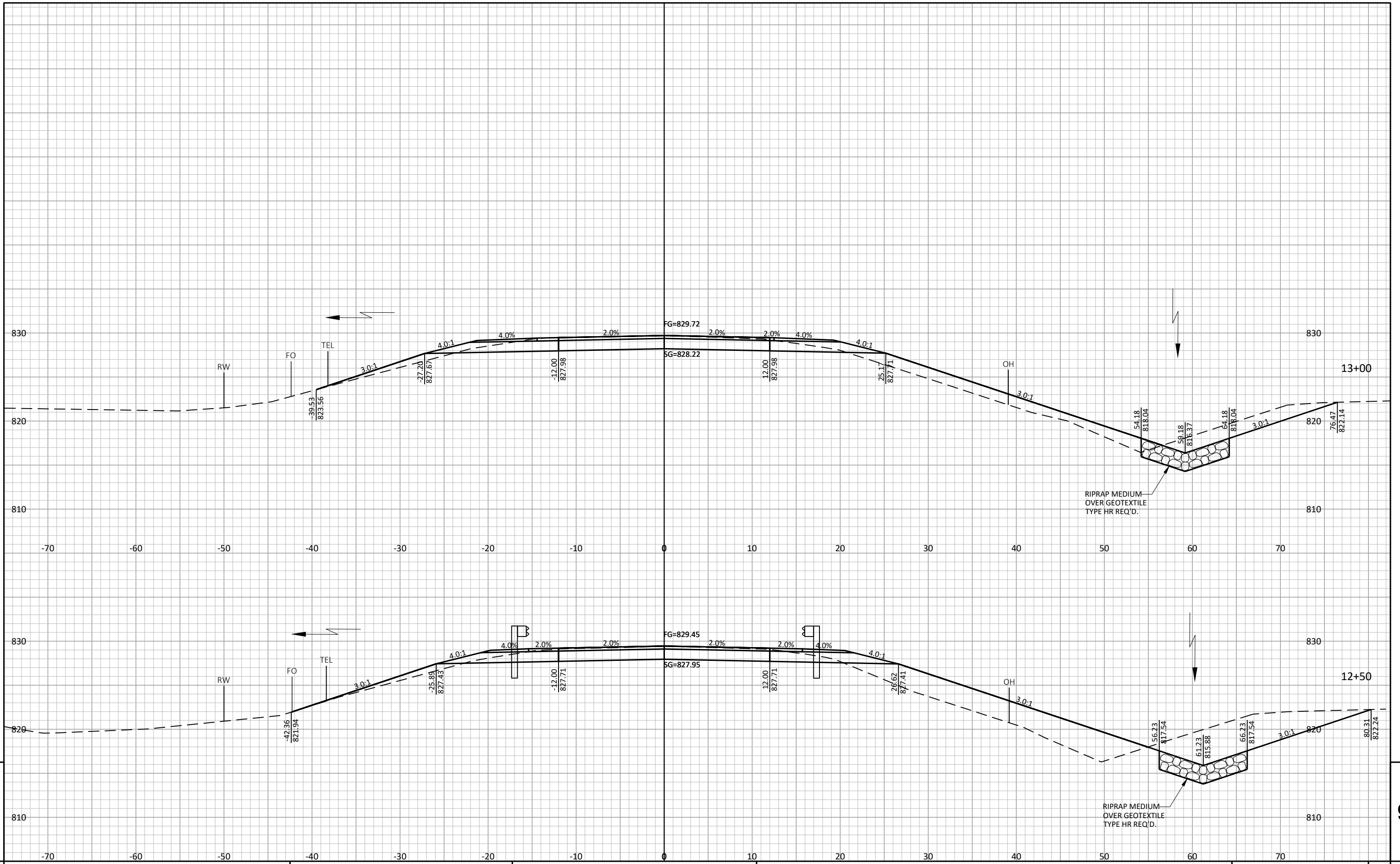
HWY: CTH J

COUNTY: DANE

CROSS SECTIONS: MAINLINE (MGS GUARDRAIL)

SHEET

E



PROJECT NO: 67256-2000

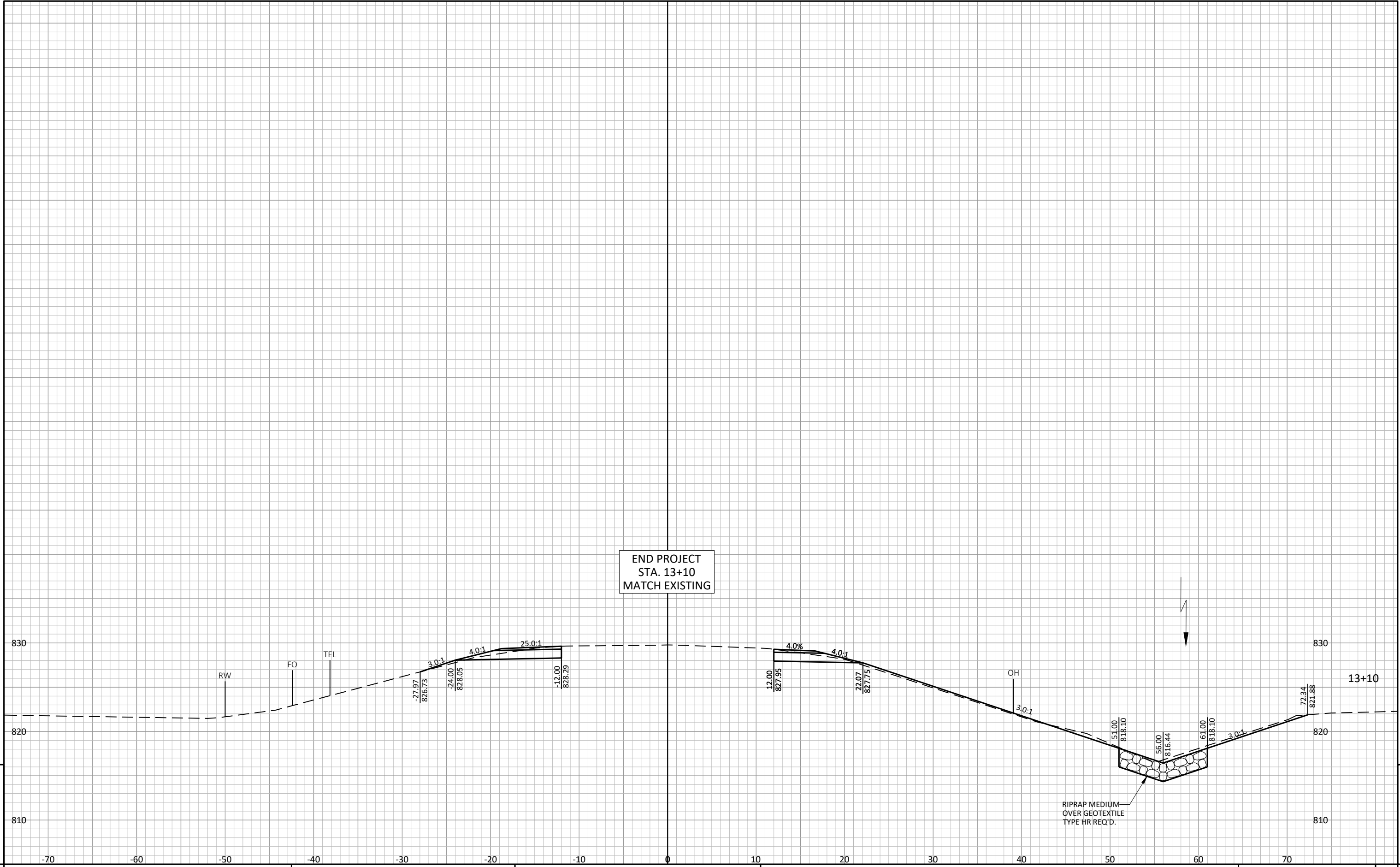
HWY: CTH J

COUNTY: DANE

CROSS SECTIONS: MAINLINE (MGS GUARDRAIL)

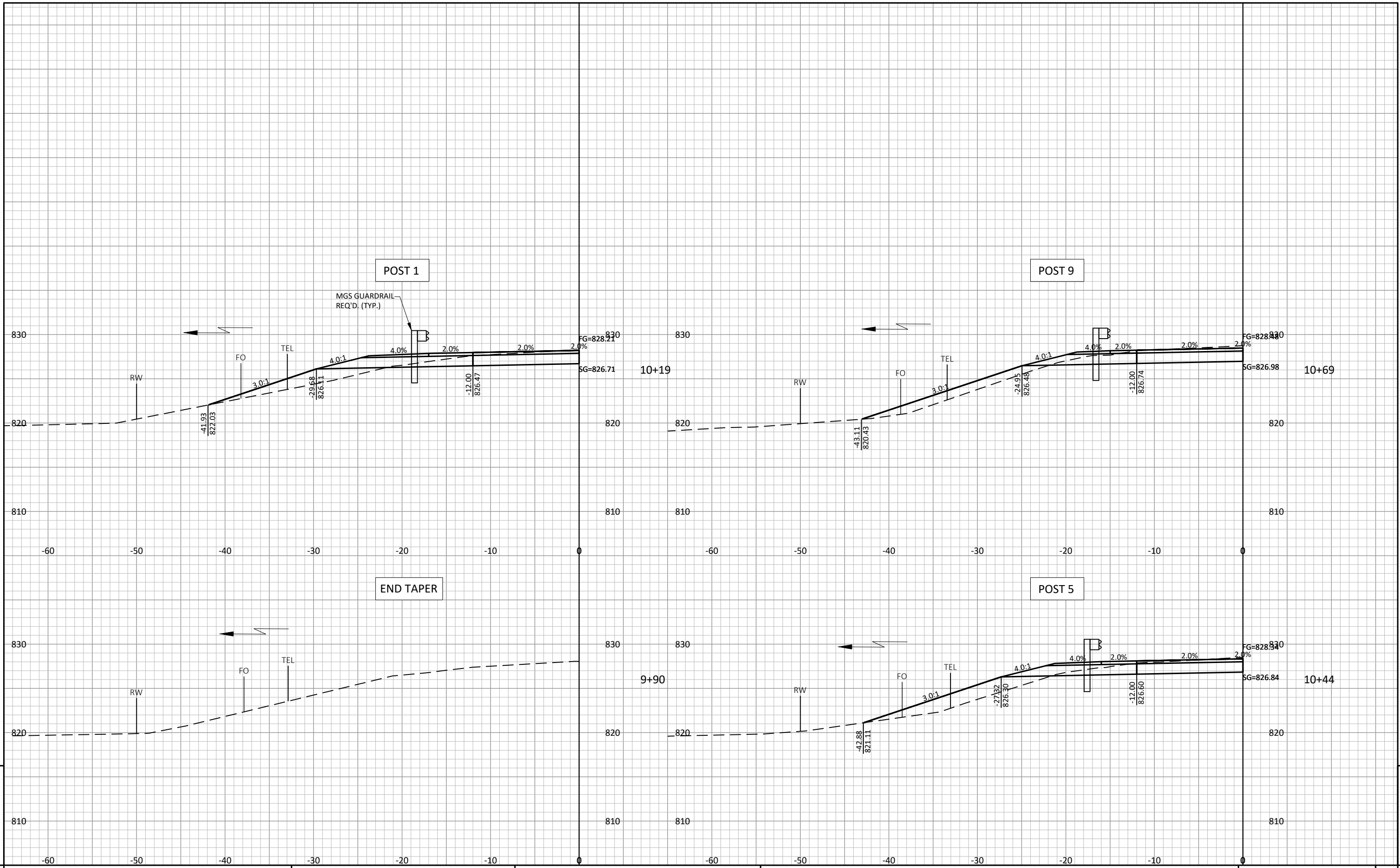
SHEET

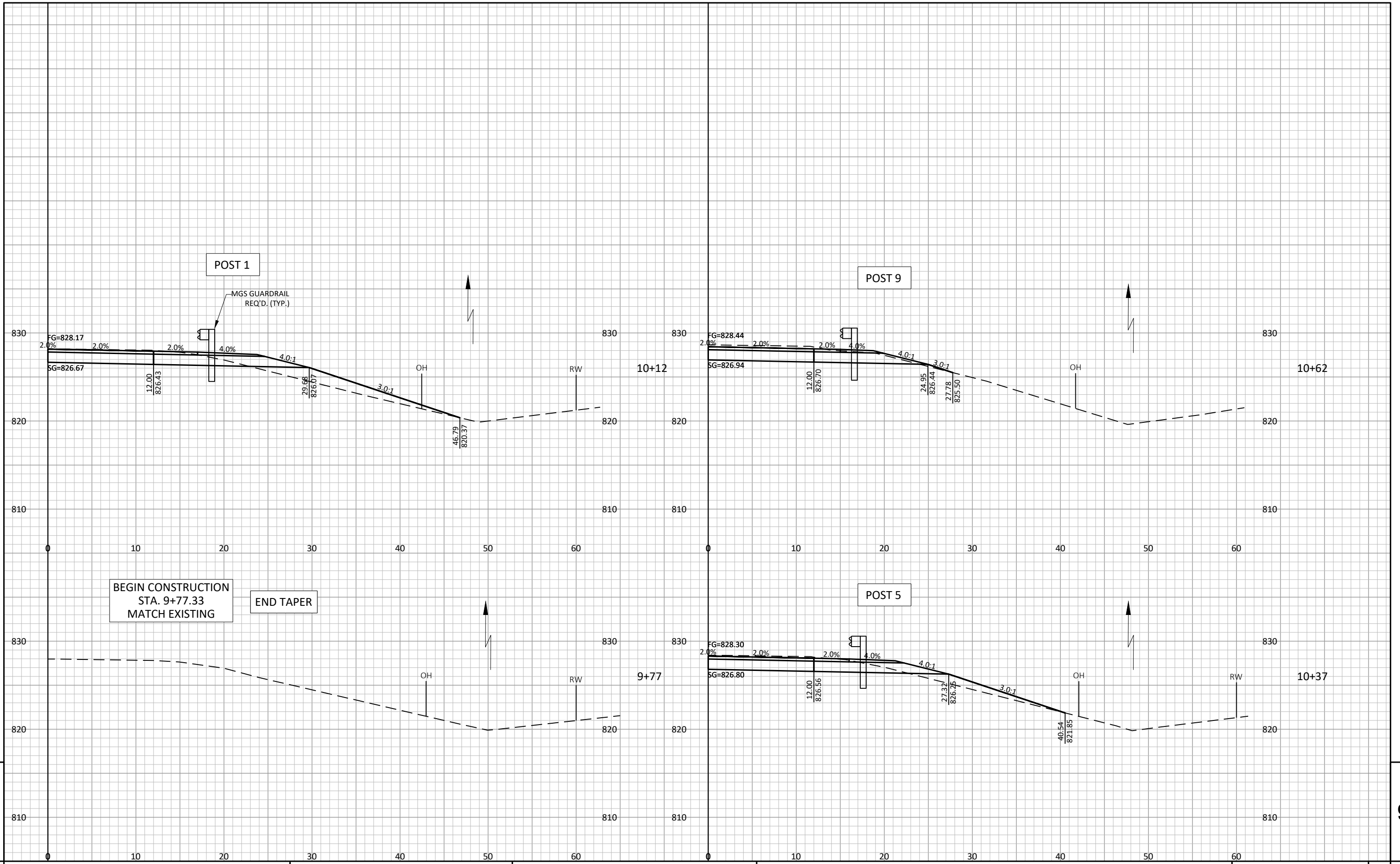
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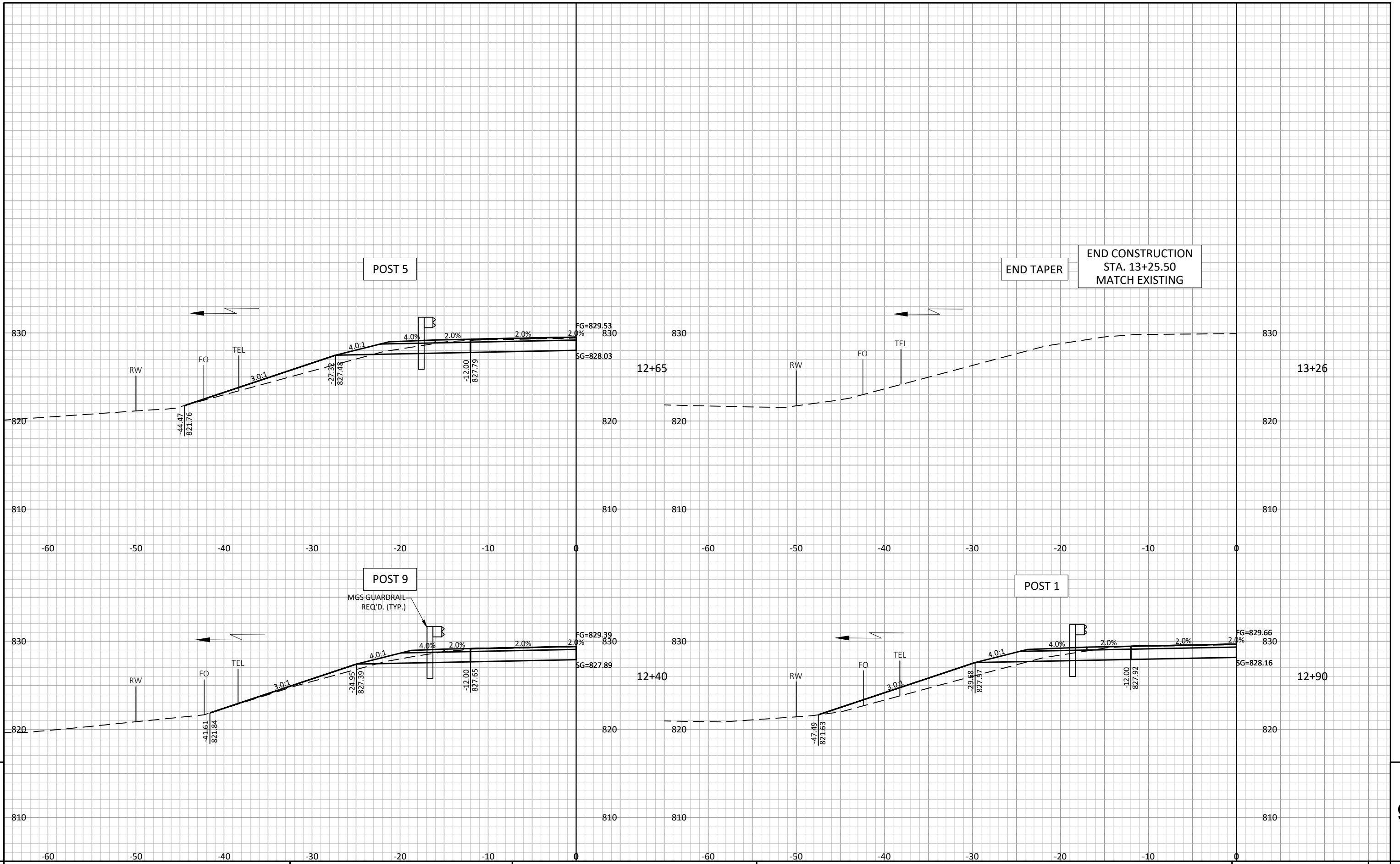


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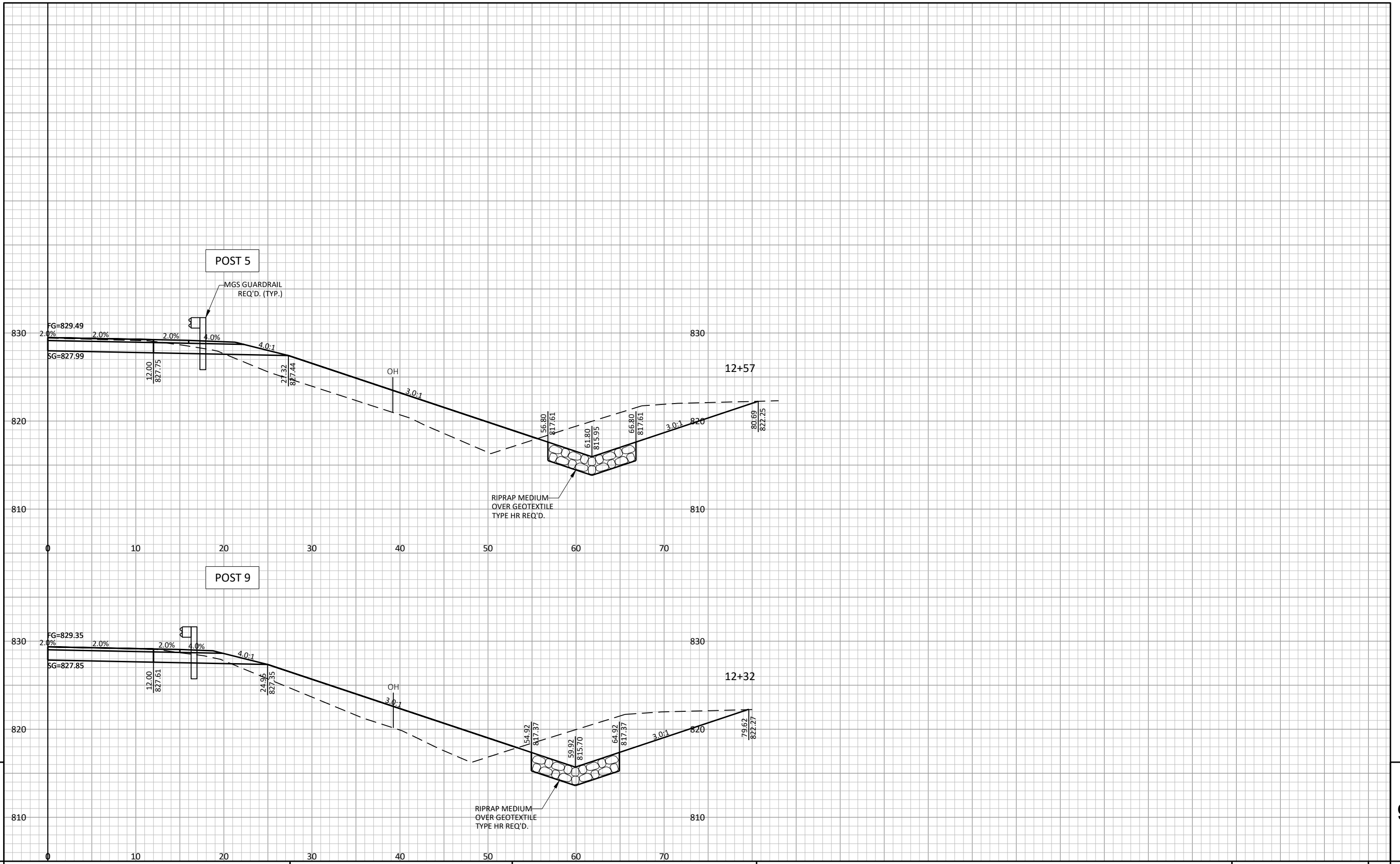






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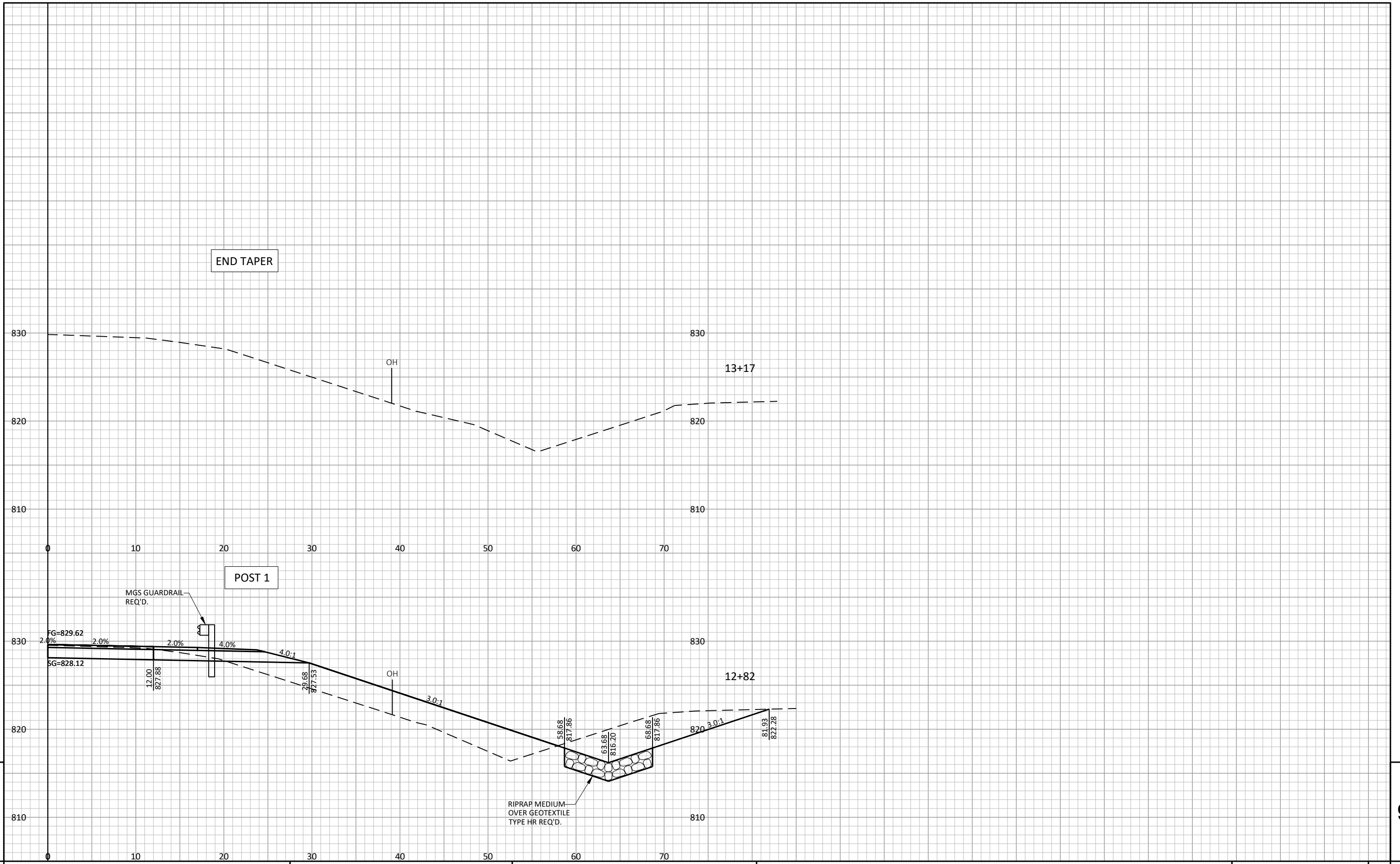
POST 5

POST 9

MGS GUARDRAIL
REQ'D. (TYP.)

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