

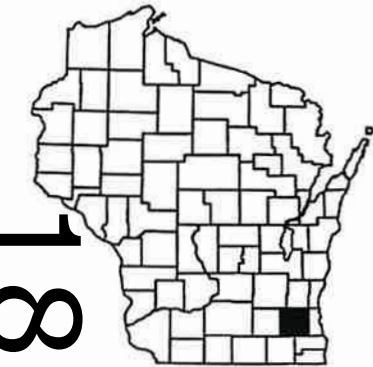
WKE

FEBRUARY 2025

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 Plot
Section No.	5	Plan and Profile
Section No.	6	Standard Detail Drawings
Section No.	7	Sign Plates
Section No.	8	Structure Plans
Section No.	9	Computer Earthwork Data
Section No.	9	Cross Sections

TOTAL SHEETS = 66



DESIGN DESIGNATION

A.A.D.T.	2025	=	1,720
A.A.D.T.	2045	=	1,931
D.H.V.		=	290
D.D.		=	61/39
T.		=	9.0%
DESIGN SPEED		=	40 MPH
ESALS		=	230,000

CONVENTIONAL SYMBOLS

PLAN

CORPORATE LIMITS

PROPERTY LINE

LOT LINE

LIMITED HIGHWAY EASEMENT

EXISTING RIGHT OF WAY

PROPOSED OR NEW R/W LINE

SLOPE INTERCEPT

REFERENCE LINE

EXISTING CULVERT

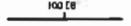
PROPOSED CULVERT

(Box or Pipe)

COMBUSTIBLE FLUIDS

MARSH AREA

WOODED OR SHRUB AREA



PROFILE

GRADE LINE

ORIGINAL GROUND

MARSH OR ROCK PROFILE
(To be noted as such)

SPECIAL DITCH

GRADE ELEVATION

CULVERT (Profile View)

UTILITIES

ELECTRIC

FIBER OPTIC

GAS

SANITARY SEWER

STORM SEWER

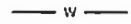
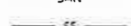
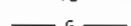
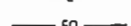
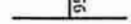
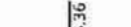
TELEPHONE

WATER

UTILITY PEDESTAL

POWER POLE

TELEPHONE POLE



STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

T MERTON. HARTLING RD

BARK RIVER BRIDGE B67-210

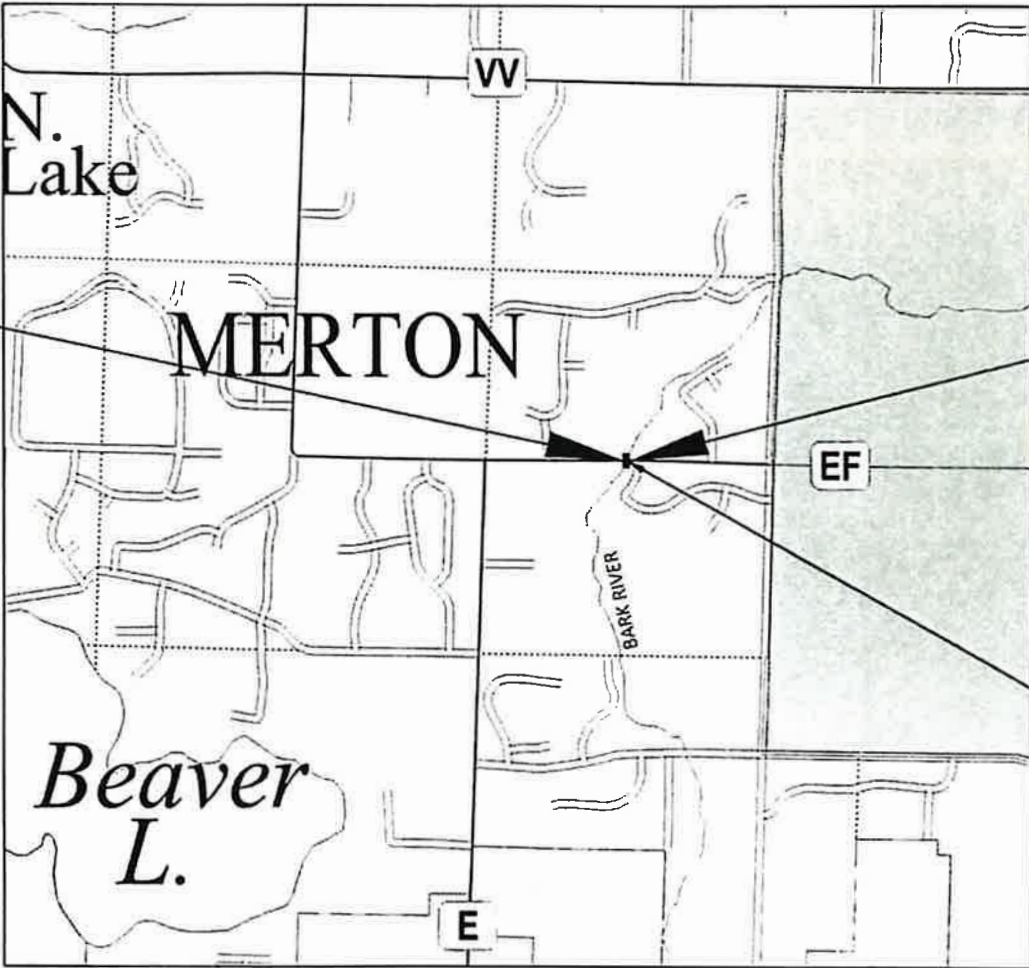
CTH EF

WAUKESHA COUNTY

STATE PROJECT NUMBER

2756-05-71

R-18-E



LAYOUT

SCALE 0 0.5 MI

TOTAL NET LENGTH OF CENTERLINE = 0.023 MI

HORIZONTAL POSITIONS SHOWN ON THIS PLAN ARE WISCONSIN COORDINATE REFERENCE SYSTEM (WISCRS), WAUKESHA COUNTY, NAD83 (2011), IN U.S. SURVEY FEET. POSITIONS SHOWN ARE GRID COORDINATES, GRID BEARINGS, AND GRID DISTANCES. GRID DISTANCES ARE THE SAME AS GROUND DISTANCES.

ELEVATIONS ARE REFERENCED TO NAVD 88 (2012). GPS DERIVED ELEVATIONS ARE BASED ON GEOID 18

STATE PROJECT

2756-05-71

FEDERAL PROJECT

PROJECT

CONTRACT

APPROVED FOR
WAUKESHA COUNTY
DEPARTMENT OF PUBLIC WORKS

10-11-24 *Ally Besh*
10-10-24 *[Signature]*

ORIGINAL PLANS PREPARED BY

it ENGINEERING



DATE: 10/2/24 *[Signature]*
(Professional Engineer Signature)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY

Surveyor IT ENGINEERING
Designer IT ENGINEERING
Project Manager JOE JELACIC, PE
Regional Examiner WISDOT
Regional Supervisor AMY TAETSCH

APPROVED FOR THE DEPARTMENT

DATE: 12/11/2024 *[Signature]*
(Signature)

E

UTILITIES CONTACTS

AT & T
COMMUNICATIONS
TYLER FLECK
220 WISCONSIN AVENUE
WAUKESHA, WI 53186
PHONE: (414) 248-6803 (M)
EMAIL: TF8394@ATT.COM

WE ENERGIES
ELECTRIC
ERIC KICKHAVER
333 W. EVERETT STREET, A279
MILWAUKEE, WI 53203
PHONE: (414)-944-5917
EMAIL: ERIC.KICKHAVER@WE-ENERGIES.COM

CHARTER
COMMUNICATIONS
NEAL LONG
1320 N MARTIN LUTHER KING JR DRIVE
MILWAUKEE, WI 53212
PHONE: (414) 277-4271 (O) / (414) 430-7189 (M)
EMAIL: NEAL.LONG@CHARTER.COM

WE ENERGIES
GAS/PETROLEUM
JOE DABLE
500 S. 116TH STREET
WEST ALLIS, WI 53214
PHONE: (414)-944-5543(O)/(414)-303-0310
EMAIL: JOE.DABLE@WE-ENERGIES.COM

ORDER OF SECTION 2 DETAIL SHEETS

GENERAL NOTES
TYPICAL SECTIONS
EROSION CONTROL
PERMANENT SIGNING AND PAVEMENT MARKING
ICE AGE DETOUR ROUTE
DETOUR ROUTE

WISCONSIN DNR LIAISON

CRAIG WEBSTER
SE REGION
141 NW BARSTOW ST
WAUKESHA, WI 53095
PHONE: (262) 574-2141
EMAIL: CRAIG.WEBSTER@WISCONSIN.GOV

WAUKESHA COUNTY DEPT. OF PUBLIC WORKS

KEVIN YANNY, P.E.
SENIOR CIVIL ENGINEER
515 W. MORELAND BLVD, RM220
WAUKESHA, WI 53188
PHONE: (262) 548-7750
EMAIL: KYANNY@WAUKESHACOUNTY.GOV

TOWN OF MERTON

PAUL GRIFFIN
DIRECTOR OF PUBLIC WORKS
W314 N7624 HIGHWAY 83
NORTH LAKE, WI 53064
PHONE: (262) 966-2118
EMAIL: HIGHWAY@TOWNOFMERTON.COM

DESIGN CONTACT

RICH GLEN, PE
JT ENGINEERING
1077 CENTENNIAL CENTRE BLVD
HOBART, WI 54155
PHONE: (920) 606-6288
EMAIL: RICHG@JT-ENGINEERING.COM

GENERAL NOTES

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

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

TOPSOIL, SEED, FERTILIZER AND EROSION MAT DISTURBED AREAS WITHIN THE RIGHT-OF-WAY, EXCEPT THE AREAS WITHIN THE FINISHED SHOULDER POINTS.

SILT FENCE IS TO BE PLACED AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER AND IN PLACE PRIOR TO GRADING.

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

TACK RATE QUANTITY IN THE MISCELLANEOUS QUANTITY TABLE ARE BASED ON 0.07%. FINAL TACK RATE APPLICATION AS DIRECTED BY THE ENGINEER.

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

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

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

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

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

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

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

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

RUNOFF COEFFICIENT TABLE

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 STRIPTURF:	.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 SLOPETURF:			.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 = 0.566 ACRES
TOTAL AREA EXPECTED TO BE DISTURBED BY CONSTRUCTION ACTIVITIES = 0.099 ACRES

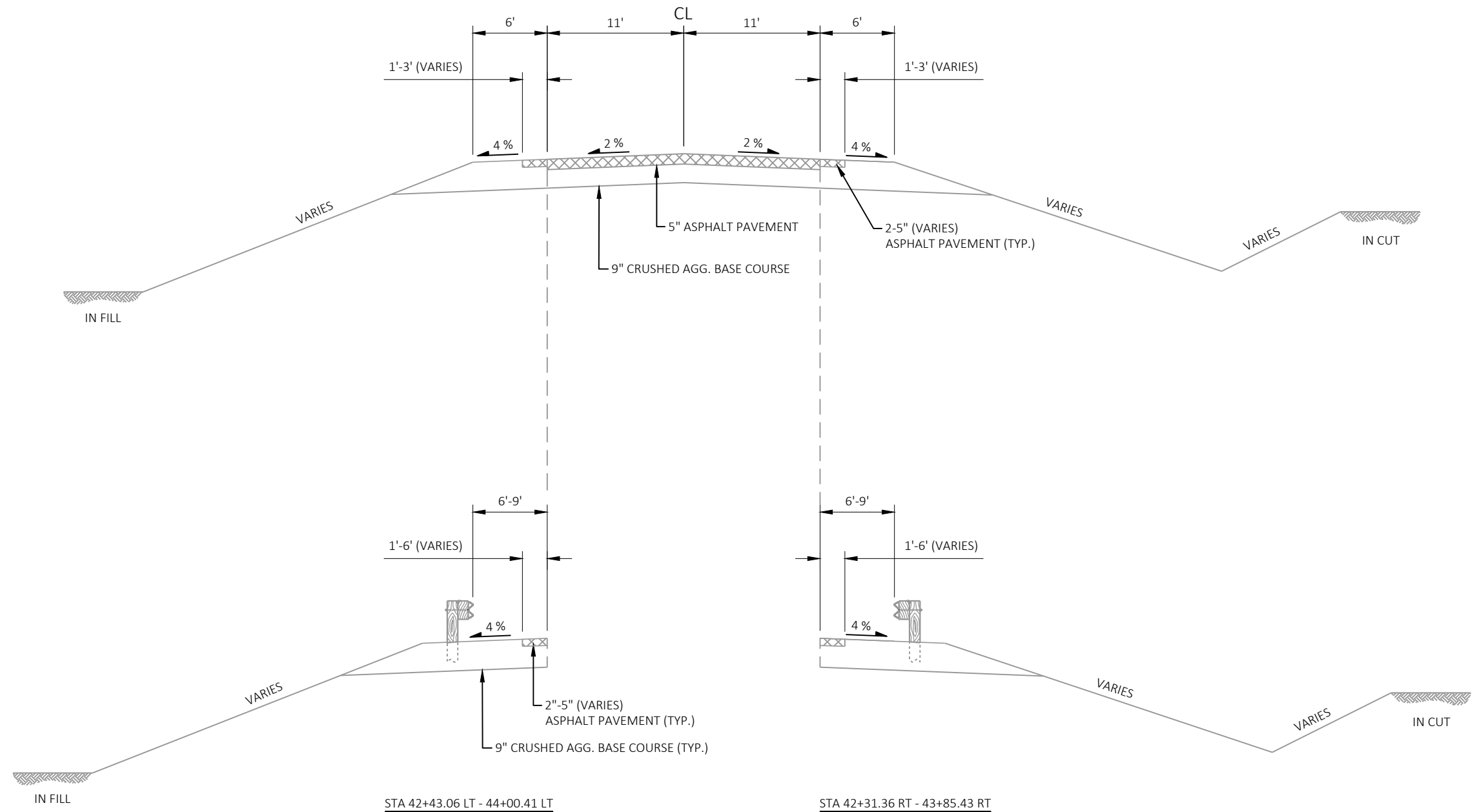
STANDARD ABBREVIATIONS

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

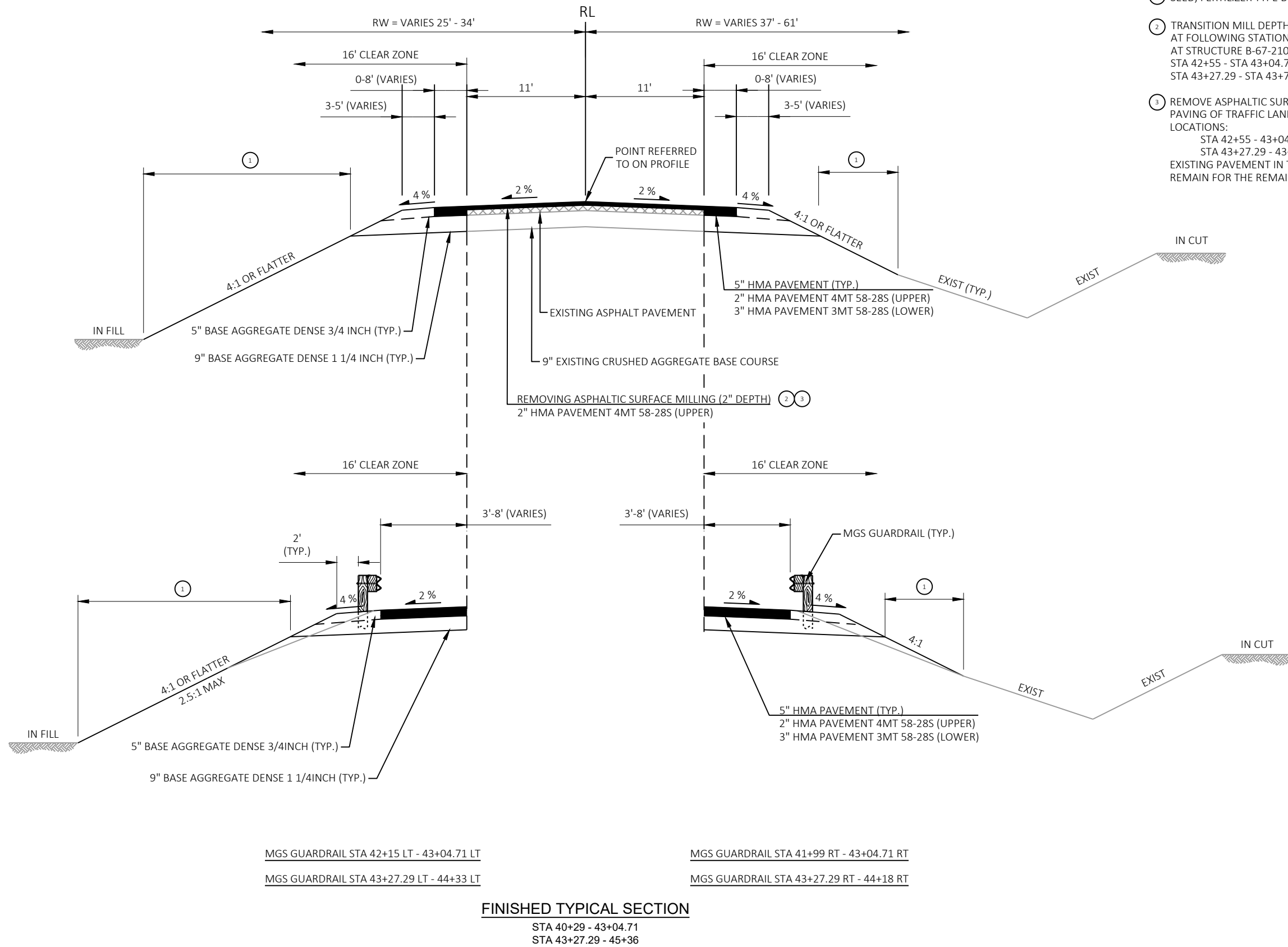
DIGGERSHOTLINE

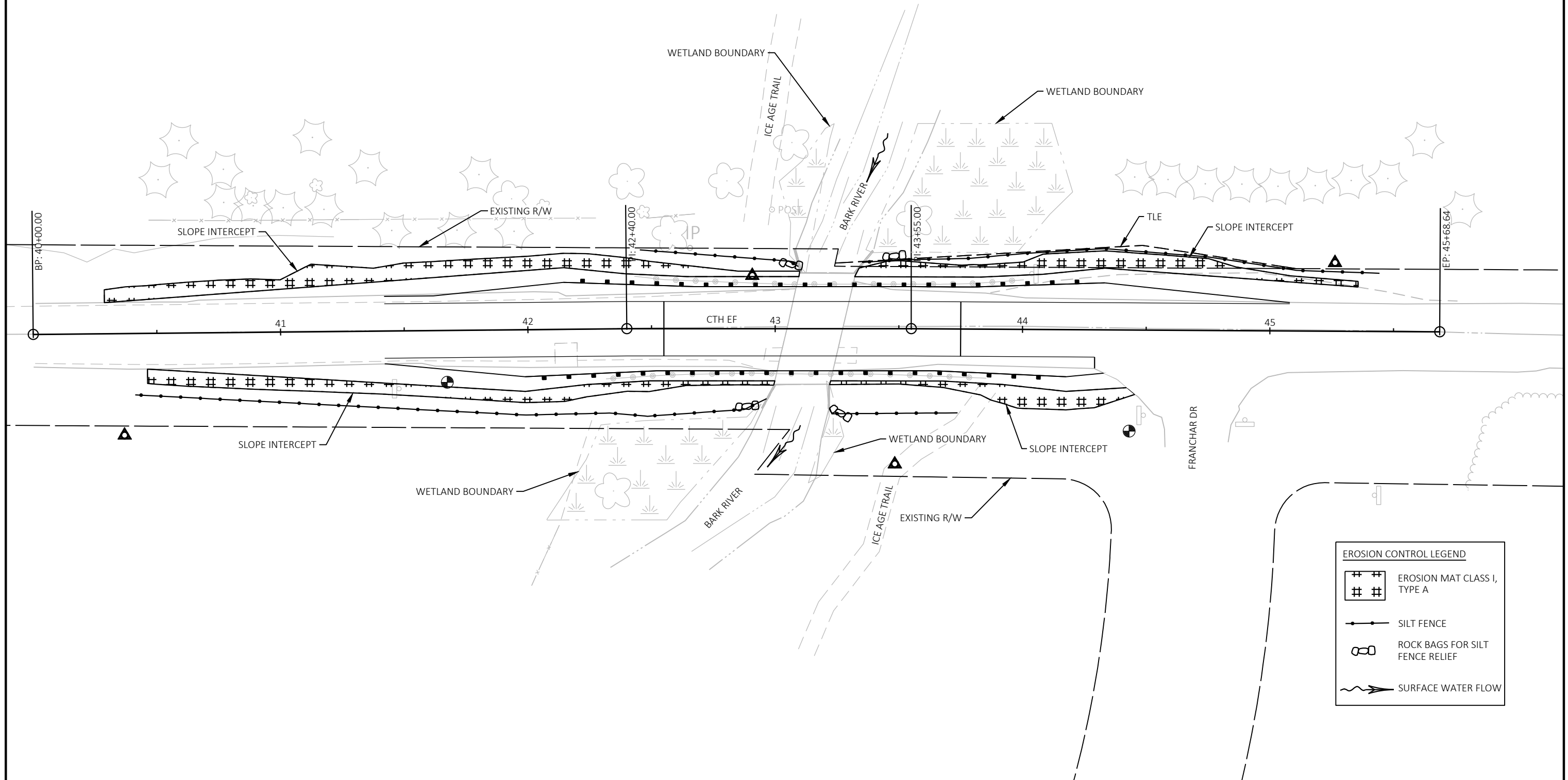
Dial 811 or (800)242-8511

www.DiggersHotline.com

**EXISTING TYPICAL SECTION**

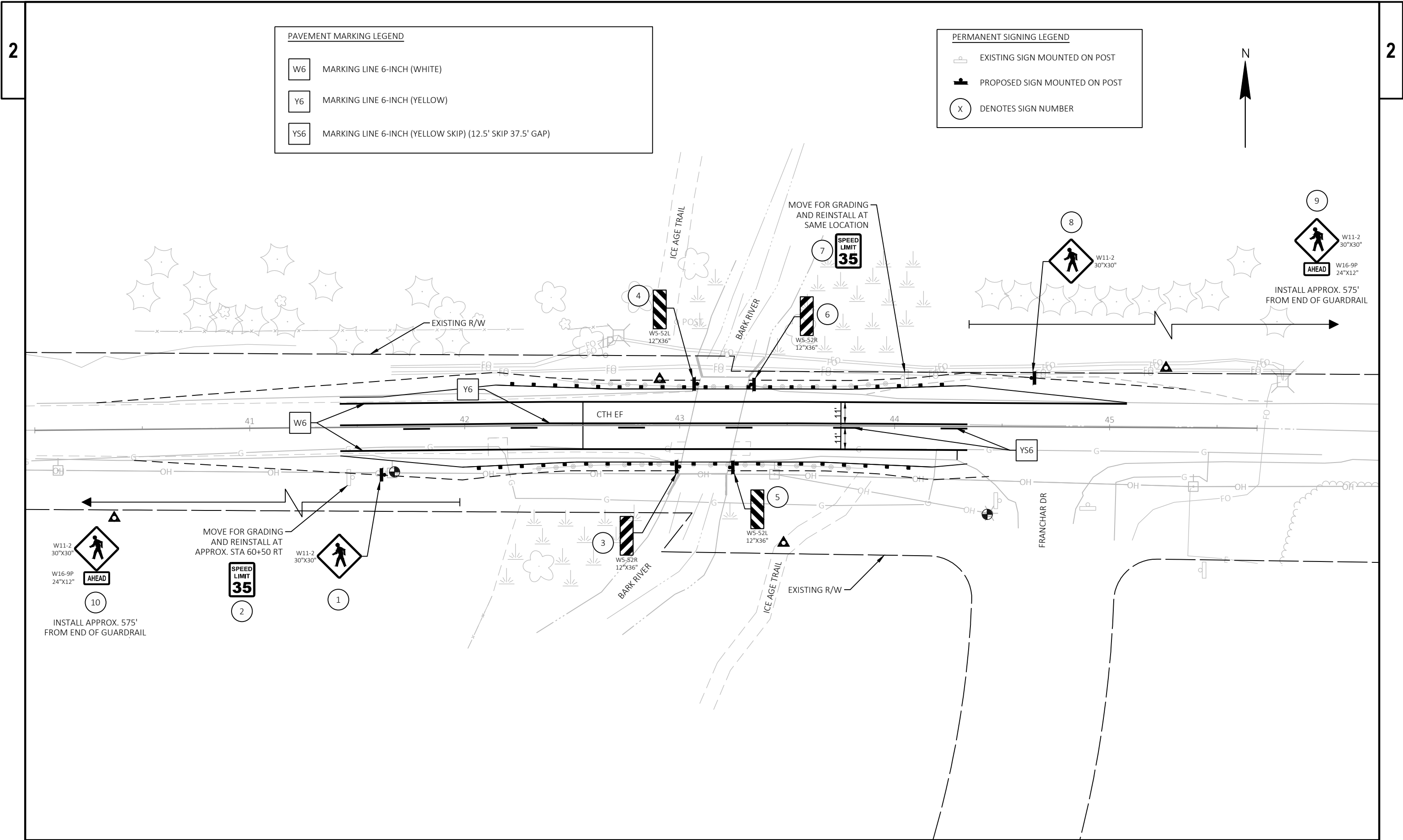
STA 41+42 - 43+04.71
STA 43+27.29 - 45+08

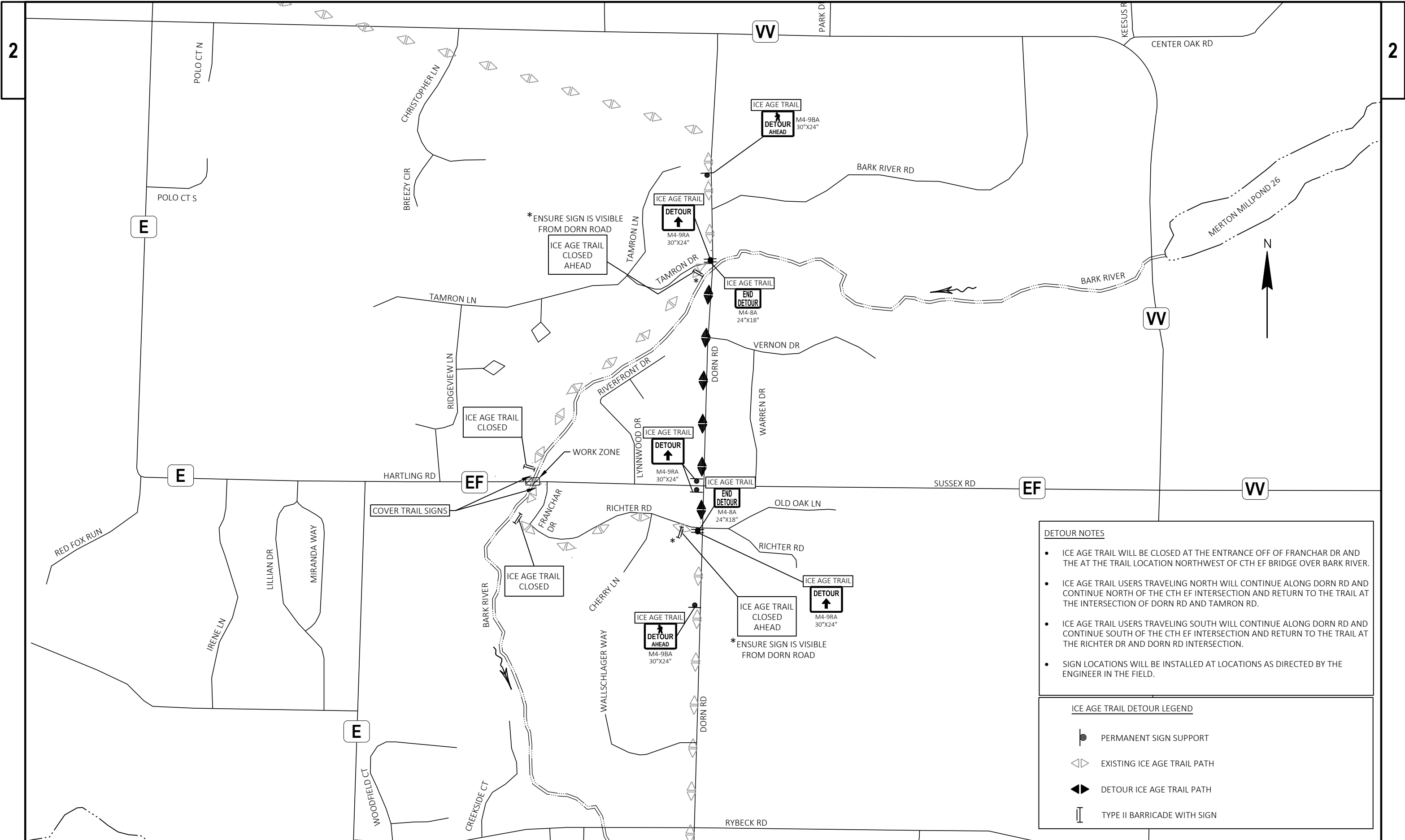




EROSION CONTROL LEGEND

- EROSION MAT CLASS I, TYPE A
- SILT FENCE
- ROCK BAGS FOR SILT FENCE RELIEF
- SURFACE WATER FLOW

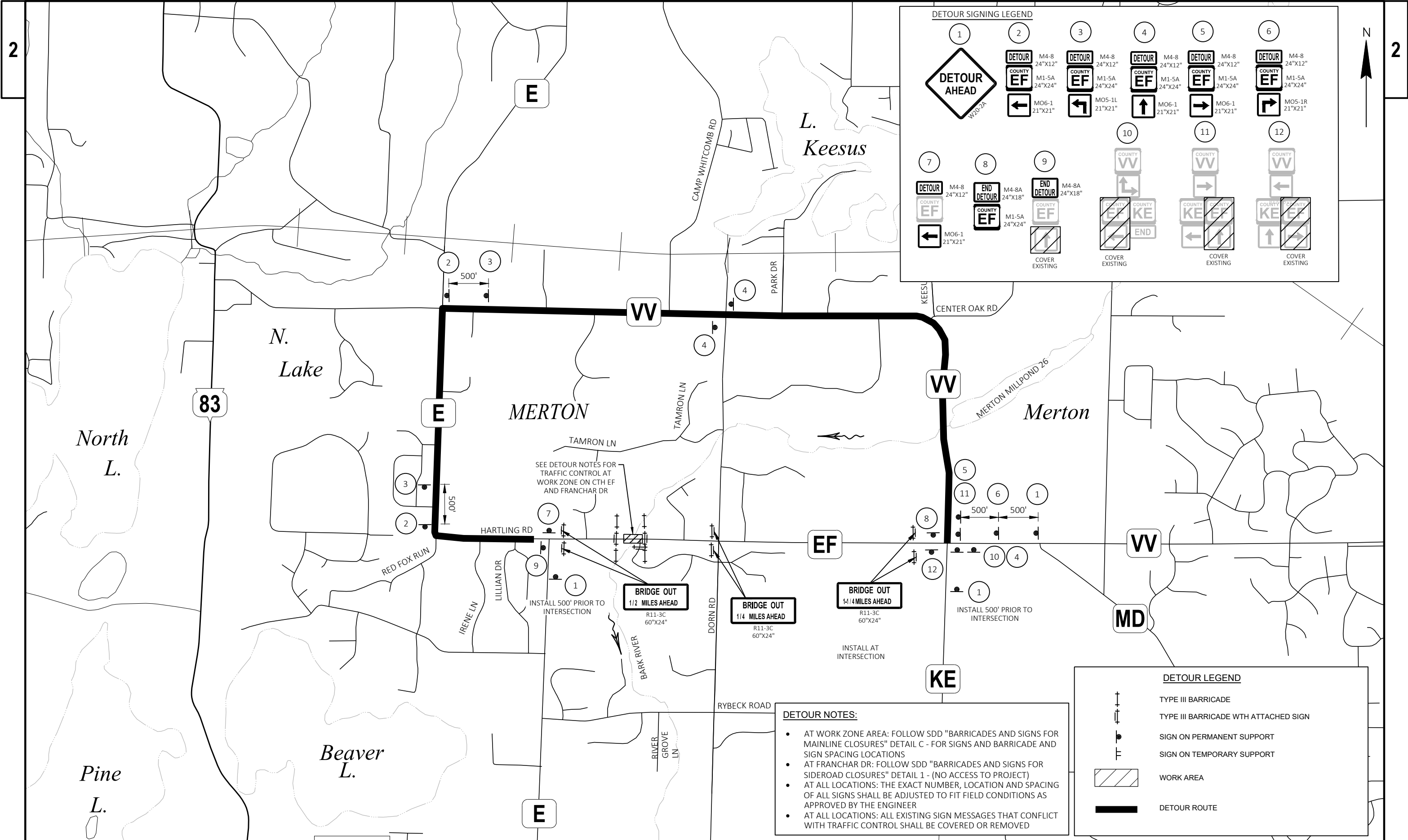




- DETOUR NOTES**
- ICE AGE TRAIL WILL BE CLOSED AT THE ENTRANCE OFF OF FRANCHAR DR AND THE AT THE TRAIL LOCATION NORTHWEST OF CTH EF BRIDGE OVER BARK RIVER.
 - ICE AGE TRAIL USERS TRAVELING NORTH WILL CONTINUE ALONG DORN RD AND CONTINUE NORTH OF THE CTH EF INTERSECTION AND RETURN TO THE TRAIL AT THE INTERSECTION OF DORN RD AND TAMRON RD.
 - ICE AGE TRAIL USERS TRAVELING SOUTH WILL CONTINUE ALONG DORN RD AND CONTINUE SOUTH OF THE CTH EF INTERSECTION AND RETURN TO THE TRAIL AT THE RICHTER DR AND DORN RD INTERSECTION.
 - SIGN LOCATIONS WILL BE INSTALLED AT LOCATIONS AS DIRECTED BY THE ENGINEER IN THE FIELD.

ICE AGE TRAIL DETOUR LEGEND

- PERMANENT SIGN SUPPORT
- EXISTING ICE AGE TRAIL PATH
- DETOUR ICE AGE TRAIL PATH
- TYPE II BARRICADE WITH SIGN



DETOUR SIGNING LEGEND

1 DETOUR AHEAD W20-2A	2 DETOUR COUNTY EF M4-8 24"x12" M1-5A 24"x24" MO6-1 21"x21"	3 DETOUR COUNTY EF M4-8 24"x12" M1-5A 24"x24" MO5-1L 21"x21"	4 DETOUR COUNTY EF M4-8 24"x12" M1-5A 24"x24" MO6-1 21"x21"	5 DETOUR COUNTY EF M4-8 24"x12" M1-5A 24"x24" MO6-1 21"x21"	6 DETOUR COUNTY EF M4-8 24"x12" M1-5A 24"x24" MO5-1R 21"x21"
7 DETOUR COUNTY EF M4-8 24"x12" MO6-1 21"x21"	8 END DETOUR COUNTY EF M4-8A 24"x18" M1-5A 24"x24"	9 END DETOUR COUNTY EF M4-8A 24"x18"	10 COUNTY VV COVER EXISTING	11 COUNTY VV COVER EXISTING	12 COUNTY VV COVER EXISTING

DETOUR NOTES:

- AT WORK ZONE AREA: FOLLOW SDD "BARRICADES AND SIGNS FOR MAINLINE CLOSURES" DETAIL C - FOR SIGNS AND BARRICADE AND SIGN SPACING LOCATIONS
- AT FRANCHAR DR: FOLLOW SDD "BARRICADES AND SIGNS FOR SIDEROAD CLOSURES" DETAIL 1 - (NO ACCESS TO PROJECT)
- AT ALL LOCATIONS: THE EXACT NUMBER, LOCATION AND SPACING OF ALL SIGNS SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS APPROVED BY THE ENGINEER
- AT ALL LOCATIONS: ALL EXISTING SIGN MESSAGES THAT CONFLICT WITH TRAFFIC CONTROL SHALL BE COVERED OR REMOVED

DETOUR LEGEND

	TYPE III BARRICADE
	TYPE III BARRICADE WITH ATTACHED SIGN
	SIGN ON PERMANENT SUPPORT
	SIGN ON TEMPORARY SUPPORT
	WORK AREA
	DETOUR ROUTE

Estimate Of Quantities

2756-05-71

Line	Item	Item Description	Unit	Total	Qty
0002	204.0115	Removing Asphaltic Surface Butt Joints	SY	100.000	100.000
0004	204.0120	Removing Asphaltic Surface Milling	SY	150.000	150.000
0006	204.0165	Removing Guardrail	LF	311.000	311.000
0008	205.0100	Excavation Common	CY	304.000	304.000
0010	211.0101	Prepare Foundation for Asphaltic Paving (project) 01. 2756-05-71	EACH	1.000	1.000
0012	213.0100	Finishing Roadway (project) 01. 2756-05-71	EACH	1.000	1.000
0014	305.0110	Base Aggregate Dense 3/4-Inch	TON	130.000	130.000
0016	305.0120	Base Aggregate Dense 1 1/4-Inch	TON	530.000	530.000
0018	455.0605	Tack Coat	GAL	48.000	48.000
0020	460.2000	Incentive Density HMA Pavement	DOL	90.000	90.000
0022	460.5223	HMA Pavement 3 LT 58-28 S	TON	54.000	54.000
0024	460.5224	HMA Pavement 4 LT 58-28 S	TON	75.000	75.000
0026	502.3200	Protective Surface Treatment	SY	110.000	110.000
0028	509.0301	Preparation Decks Type 1	SY	15.000	15.000
0030	509.0302	Preparation Decks Type 2	SY	8.000	8.000
0032	509.0500	Cleaning Decks	SY	110.000	110.000
0034	509.1500	Concrete Surface Repair	SF	82.000	82.000
0036	509.2000	Full-Depth Deck Repair	SY	2.000	2.000
0038	509.2500	Concrete Masonry Overlay Decks	CY	8.000	8.000
0040	614.2340	MGS Guardrail 3 L	LF	224.000	224.000
0042	614.2610	MGS Guardrail Terminal EAT	EACH	4.000	4.000
0044	619.1000	Mobilization	EACH	1.000	1.000
0046	624.0100	Water	MGAL	14.000	14.000
0048	625.0100	Topsoil	SY	530.000	530.000
0050	628.1504	Silt Fence	LF	690.000	690.000
0052	628.1520	Silt Fence Maintenance	LF	690.000	690.000
0054	628.1905	Mobilizations Erosion Control	EACH	5.000	5.000
0056	628.1910	Mobilizations Emergency Erosion Control	EACH	3.000	3.000
0058	628.2002	Erosion Mat Class I Type A	SY	530.000	530.000
0060	628.7570	Rock Bags	EACH	40.000	40.000
0062	629.0210	Fertilizer Type B	CWT	1.000	1.000
0064	630.0130	Seeding Mixture No. 30	LB	29.000	29.000
0066	630.0200	Seeding Temporary	LB	44.000	44.000
0068	630.0500	Seed Water	MGAL	17.000	17.000
0070	634.0814	Posts Tubular Steel 2x2-Inch X 14-FT	EACH	8.000	8.000
0072	637.2210	Signs Type II Reflective H	SF	29.000	29.000
0074	637.2230	Signs Type II Reflective F	SF	12.000	12.000
0076	638.2102	Moving Signs Type II	EACH	2.000	2.000
0078	638.2602	Removing Signs Type II	EACH	4.000	4.000
0080	638.3000	Removing Small Sign Supports	EACH	6.000	6.000
0082	642.5001	Field Office Type B	EACH	1.000	1.000
0084	643.0420	Traffic Control Barricades Type III	DAY	735.000	735.000
0086	643.0705	Traffic Control Warning Lights Type A	DAY	1,190.000	1,190.000
0088	643.0900	Traffic Control Signs	DAY	2,030.000	2,030.000
0090	643.0920	Traffic Control Covering Signs Type II	EACH	8.000	8.000
0092	643.1050	Traffic Control Signs PCMS	DAY	14.000	14.000
0094	643.5000	Traffic Control	EACH	1.000	1.000
0096	646.2020	Marking Line Epoxy 6-Inch	LF	1,220.000	1,220.000
0098	650.4500	Construction Staking Subgrade	LF	484.000	484.000

Estimate Of Quantities

2756-05-71					
Line	Item	Item Description	Unit	Total	Qty
0100	650.5000	Construction Staking Base	LF	484.000	484.000
0102	650.6501	Construction Staking Structure Layout (structure) 01. B-67-210	EACH	1.000	1.000
0104	650.8000	Construction Staking Resurfacing Reference	LF	97.000	97.000
0106	650.9911	Construction Staking Supplemental Control (project) 01. 2756-05-71	EACH	1.000	1.000
0108	650.9920	Construction Staking Slope Stakes	LF	484.000	484.000
0110	690.0150	Sawing Asphalt	LF	614.000	614.000
0112	SPV.0060	Special 01. Strapping B-67-210	EACH	4.000	4.000
0114	SPV.0060	Special 02. Removing Guardrail Posts and Assembly Mounted to Box Culvert	EACH	8.000	8.000
0116	SPV.0090	Special 01. Flashing Stainless Steel	LF	43.000	43.000

3

REMOVING ASPHALT

STATION	TO	STATION	LOCATION	204.0115	204.0120
				REMOVING ASPHALTIC SURFACE BUTT JOINTS SY	REMOVING ASPHALTIC SURFACE MILLING SY
41+42	-	43+05	CTH EF MAINLINE	50	80
43+27	-	45+08	CTH EF MAINLINE	50	70
ITEM TOTAL				100	150

ROADWAY

STATION	TO	STATION	LOCATION	211.0101.01	213.0100.01
				PREPARE FOUNDATION FOR ASPHALTIC PAVING (6590-01-02) EACH	FINISHING ROADWAY (6590-01-02) EACH
41+42	-	45+08	CTH EF	1	1
ITEM TOTAL				1	1

3

AGGREGATE

STATION	TO	STATION	LOCATION	305.0110	305.0120	624.0100
				BASE AGGREGATE DENSE 3/4-INCH TON	BASE AGGREGATE DENSE 1 1/4-INCH TON	WATER MGAL
41+42	-	43+05	SHOULDER WIDENING TO STRUCTURE	80	310	8
43+28	-	45+08	SHOULDER WIDENING FROM STRUCTURE	50	220	6
ITEM TOTAL				130	530	14

ASPHALT

STATION	TO	STATION	LOCATION	455.0605	460.6223	460.6224
				TACK COAT GAL	HMA PAVEMENT 3MT 58-28 S TON	HMA PAVEMENT 4MT 58-28S TON
42+55	-	43+05	CTH EF MAINLINE	9	-	14
43+27	-	43+75	CTH EF MAINLINE	9	-	14
41+42	-	43+07	SHOULDER WIDENING LT	8	20	13
41+42	-	43+02	SHOULDER WIDENING RT	8	12	12
43+30	-	45+08	SHOULDER WIDENING LT	8	13	13
43+25	-	44+30	SHOULDER WIDENING RT	6	9	9
ITEM TOTAL				48	54	75

EROSION CONTROL

STATION	TO	STATION	LOCATION	628.1504	628.1520	628.7570
				SILT FENCE LF	SILT FENCE MAINTENANCE LF	ROCK BAGS EACH
40+45	-	43+10	CTH EF RT	265	265	8
43+22	-	43+74	CTH EF RT	55	55	8
42+45	-	43+10	CTH EF LT	65	65	8
43+39	-	45+44	CTH EF LT	205	205	8
		UNDISTRIBUTED		100	100	8
ITEM TOTAL				690	690	40

ALL ITEMS ARE CATEGORY 0010 UNLESS OTHERWISE NOTED

PROJECT NO:	2756-05-71	HWY:	CTH EF	COUNTY:	WAUKESHA	MISCELLANEOUS QUANTITIES	SHEET	E
-------------	------------	------	--------	---------	----------	--------------------------	-------	---

DIVISION	FROM/TO STATION	LOCATION	205.0100 COMMON EXCAVATION (CY) (1)		SALVAGED/UNUSABLE PAVEMENT MATERIAL (CY) (4)	AVAILABLE MATERIAL (CY) (5)	UNEXPANDED FILL (CY)	EXPANDED FILL (CY) (13)	MASS ORDINATE +/- (CY) (14)	WASTE (CY)
			CUT (2)	EBS EXCAVATION (3)				FACTOR 1.25		
DIVISION 1										
CTY EF - WEST OF STRUCTURE	40+29.00/43+04.71	CTH EF	204	0	0	204	12	15	189	189
CTH EF - EAST OF STRUCTURE	43+27.29/45+36.00	CTH EF	100	0	0	100	17	21	79	79
DIVISION 1 SUBTOTAL			304	0	0	304	29	36	268	268
GRAND TOTAL			304	0	0	304	29	36	268	268
TOTAL COMMON EXC			304							

NOTES:

(1) COMMON EXCAVATION IS THE SUM OF THE CUT AND EBS EXCAVATION COLUMNS. ITEM NUMBER 205.0100

(2) SALVAGED/UNSUABLE PAVEMENT MATERIAL IS INCLUDED IN CUT.

(3) EBS EXCAVATION TO BE BACKFILLED WITH CUT MATERIAL.

(4) SALVAGED/UNUSABLE PAVEMENT MATERIAL

5) AVAILABLE MATERIAL = CUT - SALVAGED/UNUSUABLE PAVEMENT MATERIAL

(13) EXPANDED FILL FACTOR = 1.25

DEPENDING ON SELECTIONS:

OR

OR

OR

EXPANDED FILL = (UNEXPANDED FILL - EXPANDED ROCK - REDUCED MARSH - REDUCED EBS) * FILL FACTOR

EXPANDED FILL = (UNEXPANDED FILL - EXPANDED ROCK - REDUCED EBS) * FILL FACTOR

EXPANDED FILL = (UNEXPANDED FILL - EXPANDED ROCK - REDUCED MARSH) * FILL FACTOR

EXPANDED FILL = (UNEXPANDED FILL - EXPANDED ROCK) * FILL FACTOR

(14) THE MASS ORDINATE + OR - QTY CALCULATED FOR THE DIVISION. PLUS QUANTITY INDICATES AN EXCESS OF MATERIAL WITHIN THE DIVISION. MINUS INDICATES A SHORTAGE OF MATERIAL WITHIN THE DIVISION.

(15) FACTORS USED TO COMPUTE ANTICIPATED WASTE AND THE COMPUTED WASTE VOLUME IDENTIFIED ARE FOR GENERAL INFORMATION ONLY.

3

GUARDRAIL

				204.0165	614.2300	614.2610	SPV.0060.02
				REMOVING	MGS GUARDRAIL	MGS GUARDRAIL	REMOVING GUARDRAIL
				GUARDRAIL	3L	TERMINAL EAT	POSTS AND ASSEMBLY
STATION	TO	STATION	LOCATION	LF	LF	EACH	MOUNTED TO BOX CULVERT
							EACH
41+99	-	44+18	CTH EF, RT	154	112	2	4
42+14	-	44+33	CTH EF, LT	157	112	2	4
ITEM TOTAL				311	224	4	8

LANDSCAPING

				625.0100	628.2002	629.0210	630.0130	630.0200	630.0500
				TOPSOIL	EROSION MAT	FERTILIZER	SEEDING	SEEDING	SEED WATER
				SY	CLASS I TYPE A	TYPE B	MIXTURE NO. 30	TEMPORARY	MGAL
STATION	TO	STATION	LOCATION		SY	CWT	LB	LB	
41+42	-	43+00	CTH EF RT	172	172	0.25	8	12	4
43+24	-	44+34	CTH EF RT	117	117	0.20	6	9	4
41+42	-	43+07	CTH EF LT	124	124	0.25	6	9	3
43+30	-	45+08	CTH EF LT	63	63	0.10	3	5	2
			UNDISTRIBUTED	54	54	0.20	6	9	4
ITEM TOTAL				530	530	1.00	29	44	17

3

EROSION CONTROL MOBILIZATIONS

				628.1905	628.1910
				MOBILIZATIONS	MOBILIZATIONS EMERGENCY
				EROSION CONTROL	EROSION CONTROL
STATION	TO	STATION	LOCATION	EACH	EACH
41+42	-	45+08	CTH EF	5	3
ITEM TOTAL				5	3

SIGNING

				634.0814	638.2102	638.2602	638.3000	637.2210	637.2230
				POSTS TUBULAR	MORING SIGNS	REMOVING SIGNS	REMOVING SMALL	SIGNS TYPE II	SIGHTS TYPE II
				STEEL 2x2-INCH x	TYPE II	TYPE II	SIGN SUPPORTS	REFLECTIVE H	REFLECTIVE F
STATION	TO	STATION	LOCATION	14-FT	EACH	EACH	EACH	SF	SF
				EACH					
41+42	-	45+08	CTH EF	8	2	4	6	29	12
ITEM TOTAL				8	2	4	6	29	12

FIELD OFFICE

				642.5001
				FIELD OFFICE TYPE B
STATION	TO	STATION	LOCATION	EACH
41+42	-	45+08	CTH EF	1
ITEM TOTAL				1

TRAFFIC CONTROL

		643.5000			643.105			643.0420			643.0705			643.0900	643.0920
		TRAFFIC	NO. IN	TRAFFIC CONTROL	ANTICIPATED	NO. IN	BARRICADES	NO. IN	WARNING	NO. IN	TRAFFIC	CONTROL SIGNS	COVERING SIGNS		
STATION TO STATION	LOCATION	CONTROL	SERVICE	SIGNS PCMS	SERVICE DAYS	SERVICE	TYPE III	SERVICE	LIGHTS TYPE A	SERVICE	DAY	DAY	DAY	DAY	TYPE II
		EACH		DAY			DAY		DAY						EACH
41+42 - 45+05	CTH EF & DETOUR ROUTE	1	2	14	35	17	595	26	910	40	1,400		7		
-	ICE AGE TRAIL & DETOUR ROUTE		---	---	35	4	140	8	280	18	630		1		
ITEM TOTAL		1		14		21	735		1,190		2,030		8		

ALL ITEMS ARE CATEGORY 0010 UNLESS OTHERWISE NOTED

PROJECT NO:	2756-05-71	HWY: CTH EF	COUNTY: WAUKESHA	MISCELLANEOUS QUANTITIES	SHEET	E
-------------	------------	-------------	------------------	--------------------------	-------	---

PAVEMENT MARKING					
				646.2020	
				MARKING LINE EPOXY 6-INCH	
				YELLOW	WHITE
STATION	TO	STATION	LOCATION	LF	LF
41+42	-	45+08	CTH EF CENTERLINE	488	-
41+42	-	45+08	CTH EF EDGELINE LT	-	366
41+42	-	45+08	CTH EF EDGELINE RT	-	366
ITEM TOAL				488	732
				1,220	

CONSTRUCTION STAKING									
				650.4500	650.5000	650.6501	650.8000	650.9911	650.9920
				SUBGRADE	BASE	STRUCTURE	RESURFACING	SUPPLEMENTAL	
				LF	LF	LAYOUT	REFERENCE	CONTROL	SLOPE STAKES
STATION	TO	STATION	LOCATION	LF	LF	EACH	LF	EACH	LF
40+29	-	45+36	CTH EF	484	484	1	97	1	484
ITEM TOTAL				484	484	1	97	1	484

SAWING				
				690.0150
				SAWING ASPHALT
				LF
STATION	TO	STATION	LOCATION	LF
41+42	-	43+07	CTH EF RT	166
43+30	-	45+08	CTH EF RT	179
41+42	-	43+02	CTH EF LT	160
43+25	-	44+30	CTH EF LT	109
ITEM TOTAL				614

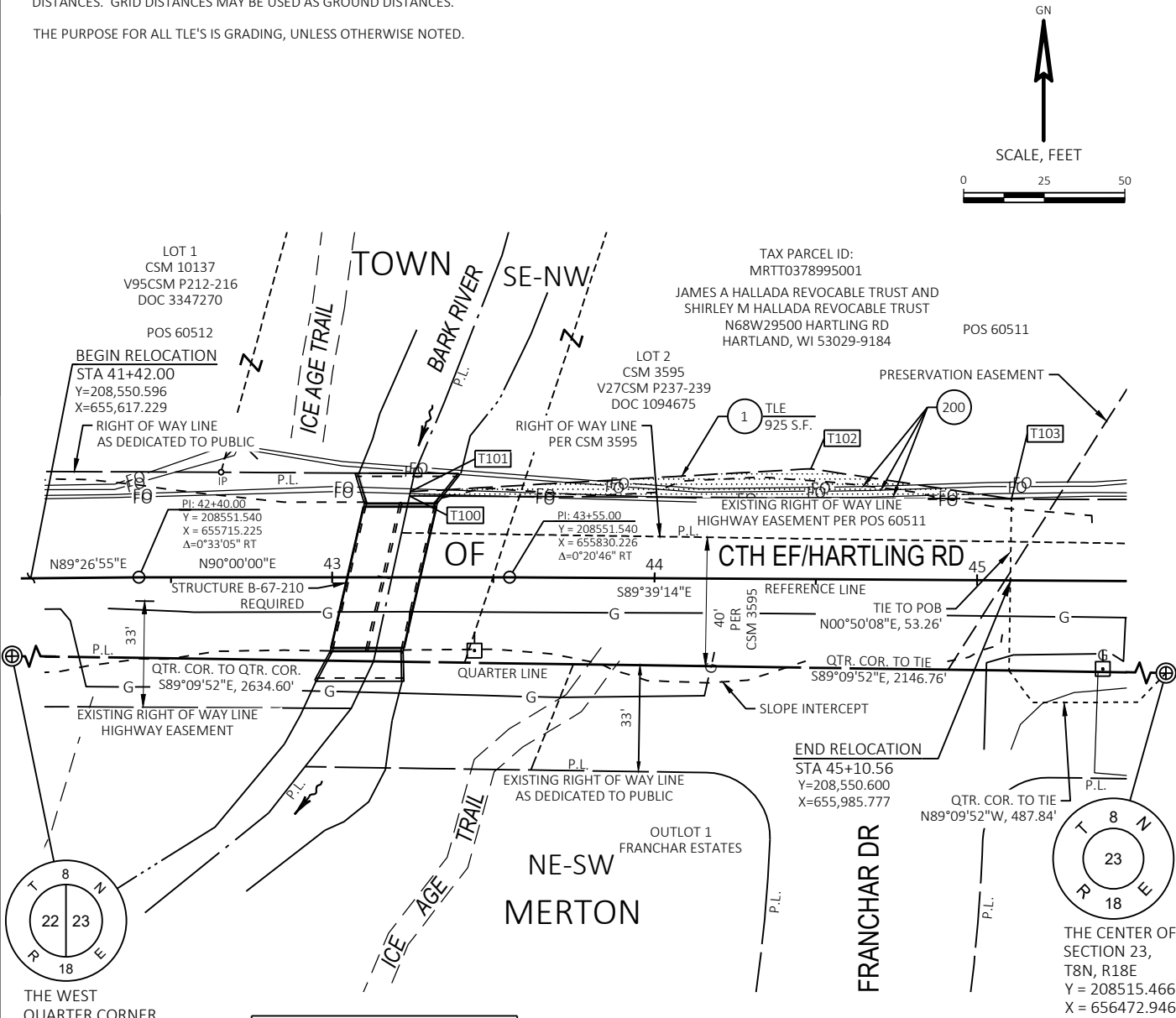
ALL ITEMS ARE CATEGORY 0010 UNLESS OTHERWISE NOTED

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

COORDINATES AND BEARINGS ON THIS EXHIBIT ARE REFERENCED TO WISCONSIN COORDINATE REFERENCE SYSTEM COORDINATES (WISCRS), WAUKESHA COUNTY, NAD83(2011), IN U.S. SURVEY FEET. VALUES ARE GRID COORDINATES, GRID BEARINGS, AND GRID DISTANCES. GRID DISTANCES MAY BE USED AS GROUND DISTANCES.

THE PURPOSE FOR ALL TLE'S IS GRADING, UNLESS OTHERWISE NOTED.

R/W PROJECT NUMBER: 2756-05-71	EXHIBIT NUMBER: 4.01
ACQUISITION EXHIBIT T MERTON, CTH EF (HARTLING ROAD) BRIDGE OVER BARK RIVER(B-67-210)	
CTH EF	WAUKESHA COUNTY
THE SOUTHEAST 1/4 OF THE NORTHWEST 1/4, SECTION 23, TOWN 8 NORTH, RANGE 18 EAST, IN THE TOWN OF MERTON, WAUKESHA COUNTY, WISCONSIN.	



TLE COURSE TABLE		
COURSE	BEARING	DISTANCE
103-100	N89° 42' 18"W	186.71'
100-101	N12° 15' 33"E	1.31'
101-102	N86° 42' 31"E	124.34'
102-103	S81° 26' 07"E	63.00'

TLE STATION & OFFSET TABLE		
POINT	STATION	OFFSET
T100	43+24.00	25.25' LT
T101	43+24.28	26.54' LT
T102	44+48.21	34.24' LT
T103	45+10.56	25.23' LT

SCHEDULE OF LANDS & INTERESTS REQUIRED

PARCEL NUMBER	OWNER(S)	INTEREST REQUIRED	TLE S.F.
1	JAMES A HALLADA REVOCABLE TRUST AND SHIRLEY M HALLADA REVOCABLE TRUST	TLE	925

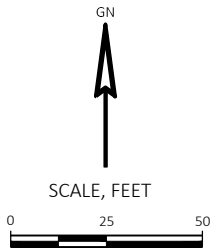
UTILITY INTERESTS REQUIRED

UTILITY NUMBER	UTILITY OWNER(S)	INTEREST REQUIRED
200	AT&T	TEMPORARY RELEASE OF RIGHTS

200 AT&T
NO RECORDED EASEMENT - PARCEL 1

THIS MAP IS APPROVED FOR WAUKESHA COUNTY.

SIGNATURE: Brett Wallace DATE: 6/25/2024
PRINT NAME: Brett Wallace



R/W PROJECT NUMBER: XXXX-XX-XX	EXHIBIT NUMBER: NUM
ACQUISITION EXHIBIT PROJECT TITLE SUBTITLE	
(HWY)	COUNTY
1/4-1/4 DESCRIPTION	

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

THIS PAGE LEFT BLANK

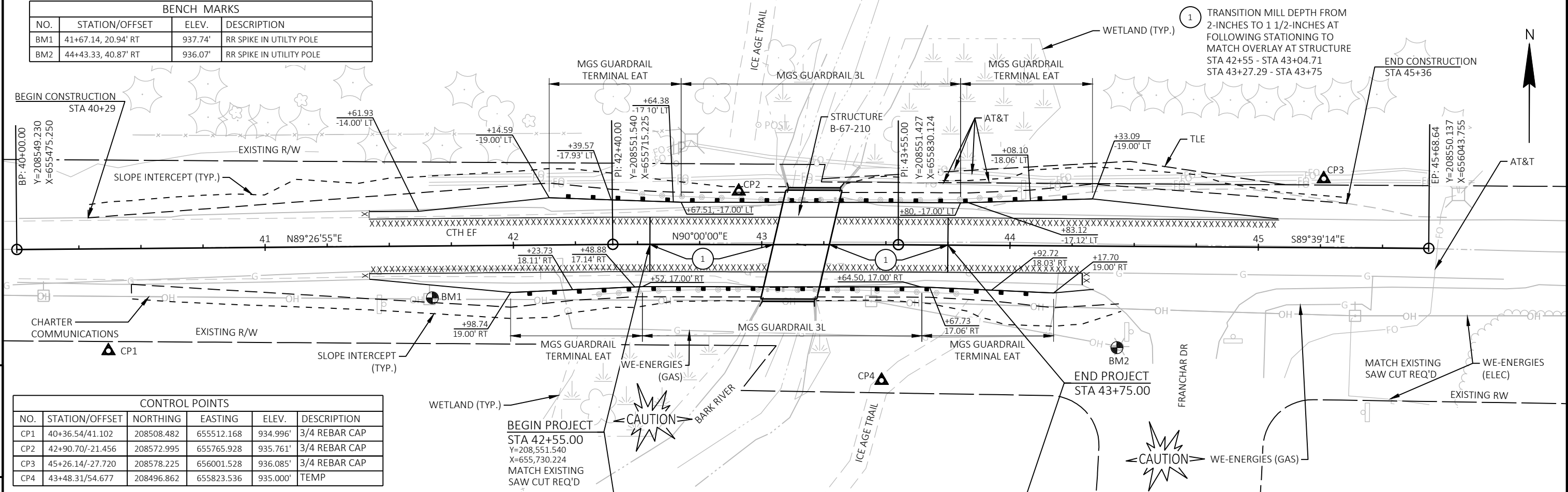
SCHEDULE OF LANDS & INTERESTS REQUIRED

PARCEL NUMBER	OWNER(S)	INTEREST REQUIRED	TLE S.F.

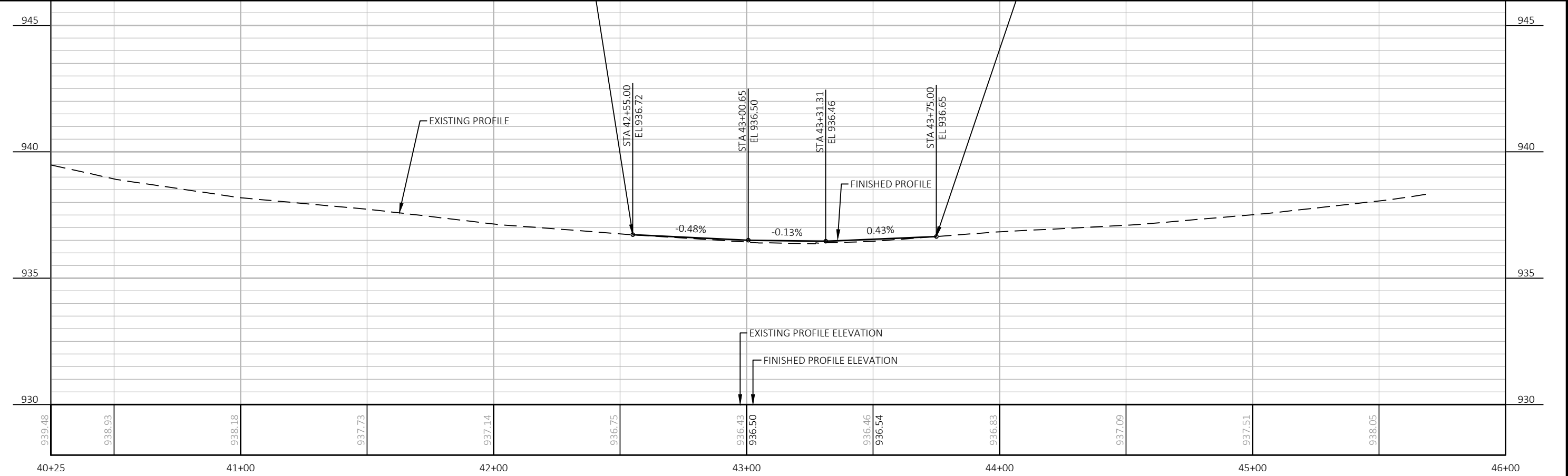
UTILITY INTERESTS REQUIRED

UTILITY NUMBER	UTILITY OWNER(S)	INTEREST REQUIRED

BENCH MARKS			
NO.	STATION/OFFSET	ELEV.	DESCRIPTION
BM1	41+67.14, 20.94' RT	937.74'	RR SPIKE IN UTILITY POLE
BM2	44+43.33, 40.87' RT	936.07'	RR SPIKE IN UTILITY POLE



CONTROL POINTS					
NO.	STATION/OFFSET	NORTHING	EASTING	ELEV.	DESCRIPTION
CP1	40+36.54/41.102	208508.482	655512.168	934.996'	3/4 REBAR CAP
CP2	42+90.70/-21.456	208572.995	655765.928	935.761'	3/4 REBAR CAP
CP3	45+26.14/-27.720	208578.225	656001.528	936.085'	3/4 REBAR CAP
CP4	43+48.31/54.677	208496.862	655823.536	935.000'	TEMP



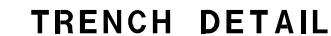
PROJECT NO:	2756-05-71	HWY:	CTH EF	COUNTY:	WAUKESHA	PLAN AND PROFILE:	CTH EF	SHEET	E
-------------	------------	------	--------	---------	----------	-------------------	--------	-------	---

Standard Detail Drawing List

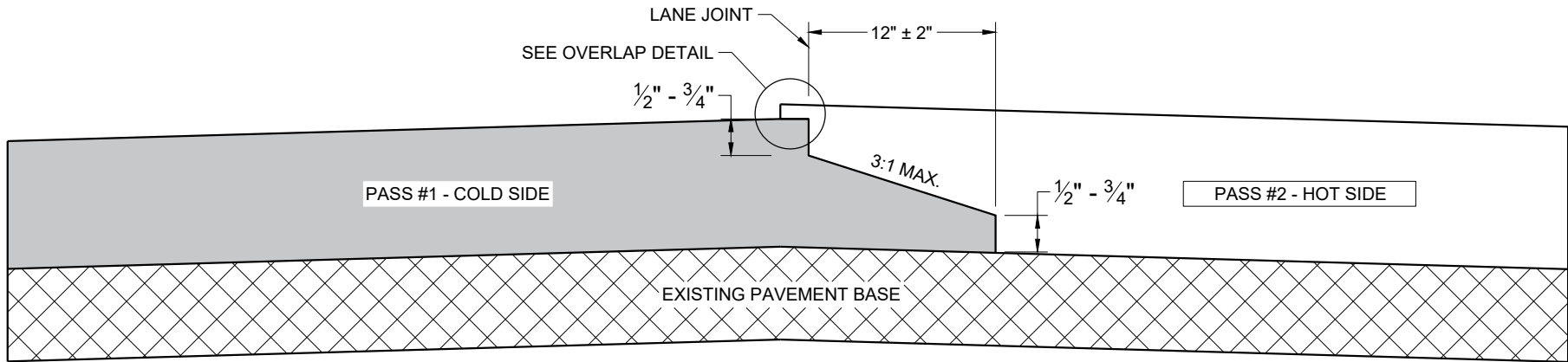
08E09-06	SILT FENCE
13C19-03	HMA LONGITUDINAL JOINTS
14B43-04A	MIDWEST GUARDRAIL SYSTEM LONG SPAN MGS (L)
14B43-04C	MIDWEST GUARDRAIL SYSTEM LONG SPAN MGS (L)
14B44-04A	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-04B	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-04C	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
15C02-09A	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-09B	BARRICADES AND SIGNS FOR VARIOUS CLOSURES
15C02-09C	DETOUR SIGNING FOR MAINLINE CLOSURES
15C02-09H	MODIFIED ROUTE ASSEMBLY FOR DETOUR SIGNING
15C03-05	BARRICADES AND SIGNS FOR SIDEROAD CLOSURES
15C06-12	SIGNING & MARKING FOR TWO LANE BRIDGES
15C08-23A	PERMANENT LONGITUDINAL PAVEMENT MARKINGS
15C11-10B	CHANNELIZING DEVICES DRUMS, CONES, BARRICADES AND VERTICAL PANELS



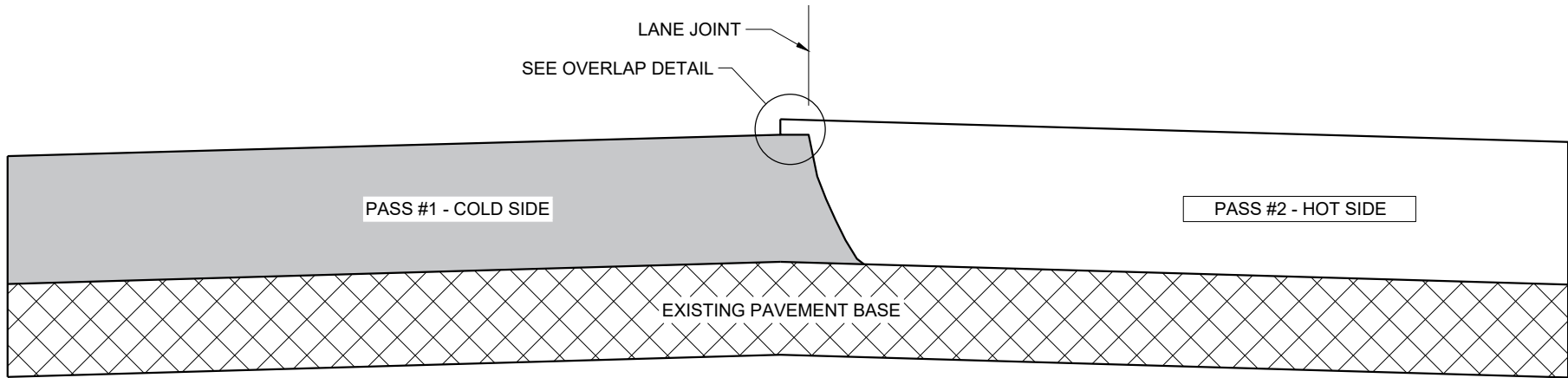
- ① HORIZONTAL BRACE REQUIRED WITH 2" X 4" WOODEN FRAME OR EQUIVALENT AT TOP OF POSTS.
- ② FOR MANUAL INSTALLATIONS THE TRENCH SHALL BE A MINIMUM OF 4" WIDE & 6" DEEP TO BURY AND ANCHOR THE GEOTEXTILE FABRIC. FOLD MATERIAL TO FIT TRENCH AND BACKFILL & COMPACT TRENCH WITH EXCAVATED SOIL.
- ③ WOOD POSTS 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.



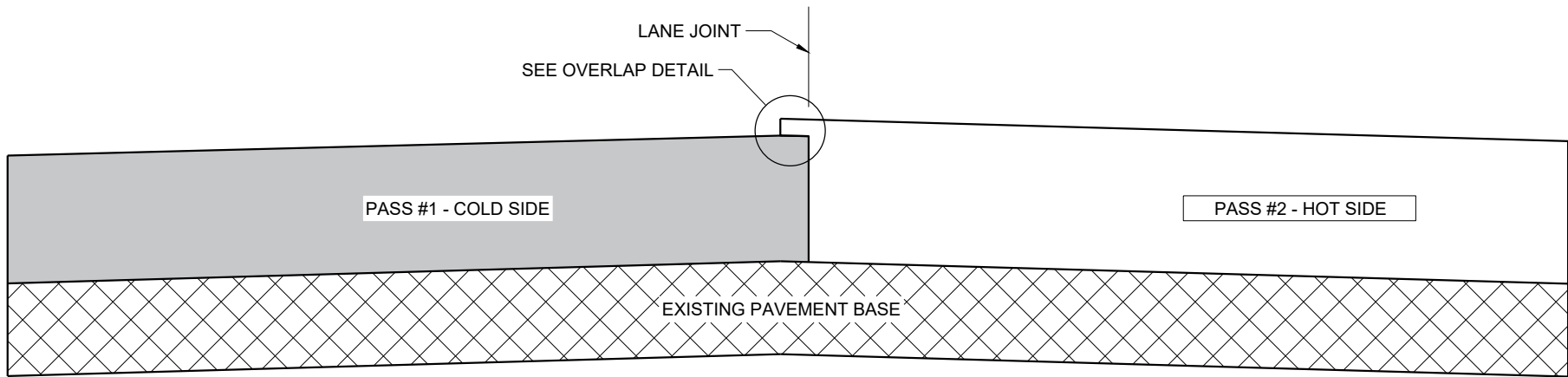
<p style="text-align: center;">SILT FENCE</p>	
<p style="text-align: center;">STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION</p>	
<p>APPROVED</p> <p><u>4-29-05</u></p> <p><u>DATE</u></p>	<p><u>/S/ Beth Canestra</u></p> <p>CHIEF ROADWAY DEVELOPMENT ENGINEER</p>



TYPICAL PAVEMENT CROSS SECTION
NOTCHED WEDGE JOINT



TYPICAL PAVEMENT CROSS SECTION
VERTICAL JOINT



TYPICAL PAVEMENT CROSS SECTION
VERTICAL JOINT (MILLED)

GENERAL NOTES

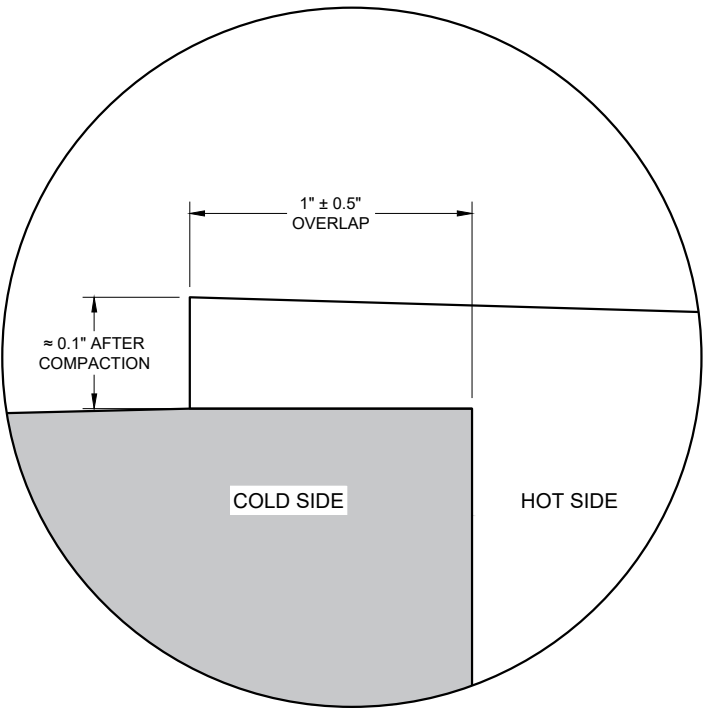
IN ADDITION TO THE DETAILS PROVIDED IN THIS DRAWING, CONFORM TO STANDARD SPECIFICATION 450.3.2.8 FOR WHEN A NOTCHED WEDGE JOINT IS REQUIRED AND FOR GENERAL JOINT CONSTRUCTION REQUIREMENTS.

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

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

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

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



OVERLAP DETAIL (TYPICAL)

HMA LONGITUDINAL JOINTS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
November 2020 /S/ Steven Hefel
DATE HMA PAVEMENT ENGINEER
FHWA

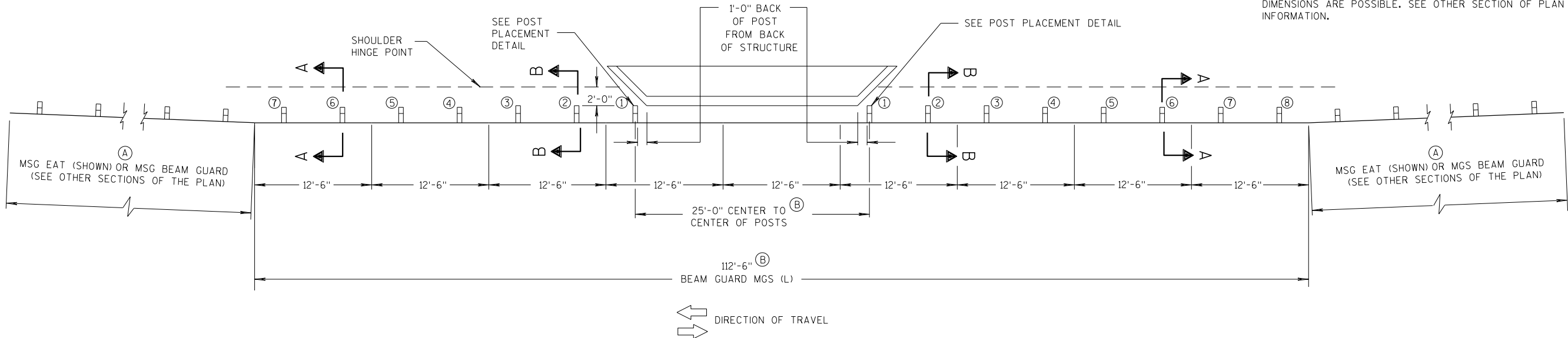
GENERAL NOTES

POSTS 1 THROUGH 3 ARE CRT POSTS.
ALL OTHER POSTS SHALL BE WOOD OR STEEL.

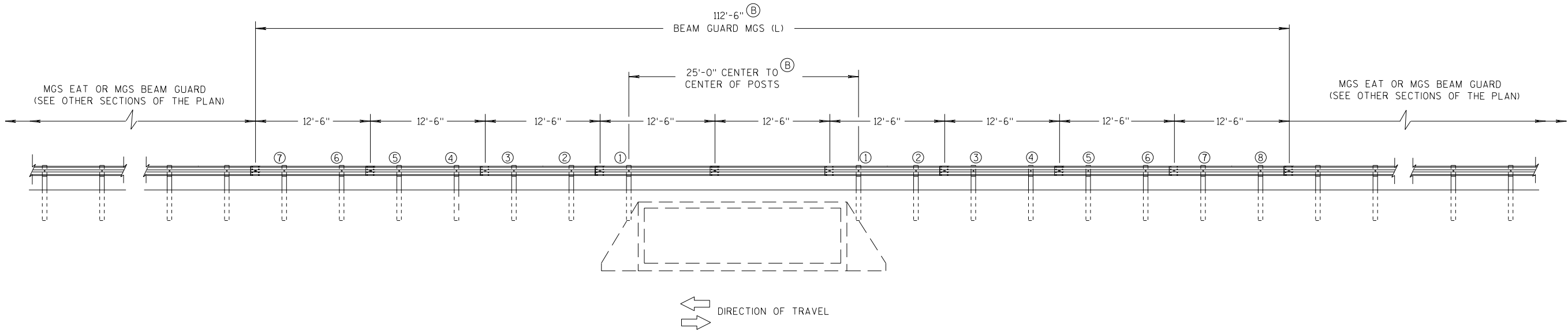
SEE SDD 14 B 42 FOR MORE DETAILS.

(A) FLARE FOR MGS EAT SHOWN, IF INSTALLING MGS NO FLARE NEEDED.

(B) VALUES SHOWN ON DRAWING REPRESENT THE MAXIMUM LENGTH. SHORTER DIMENSIONS ARE POSSIBLE. SEE OTHER SECTION OF PLAN FOR MORE INFORMATION.



PLAN VIEW

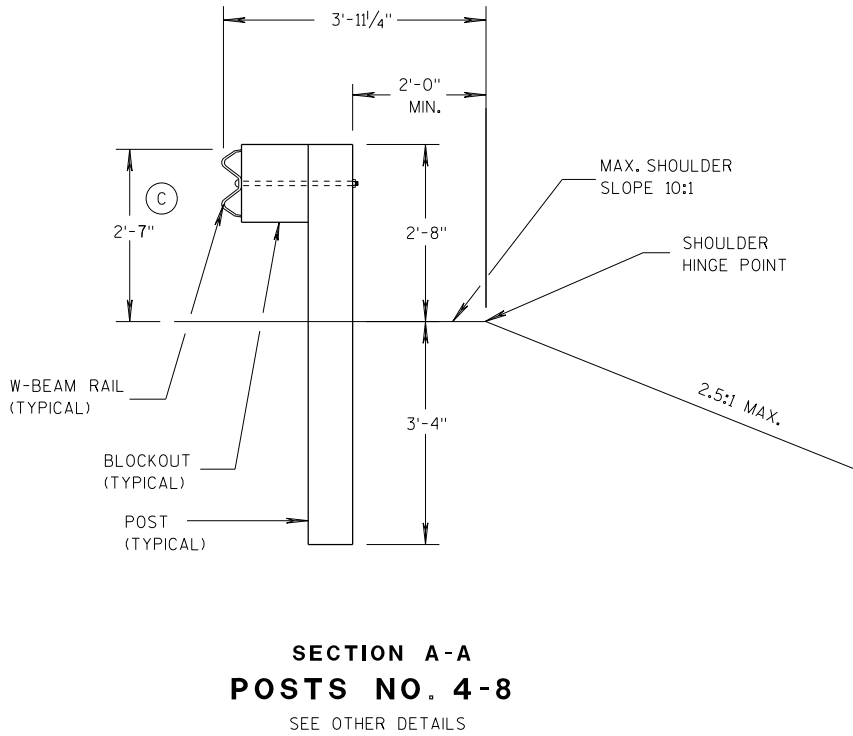
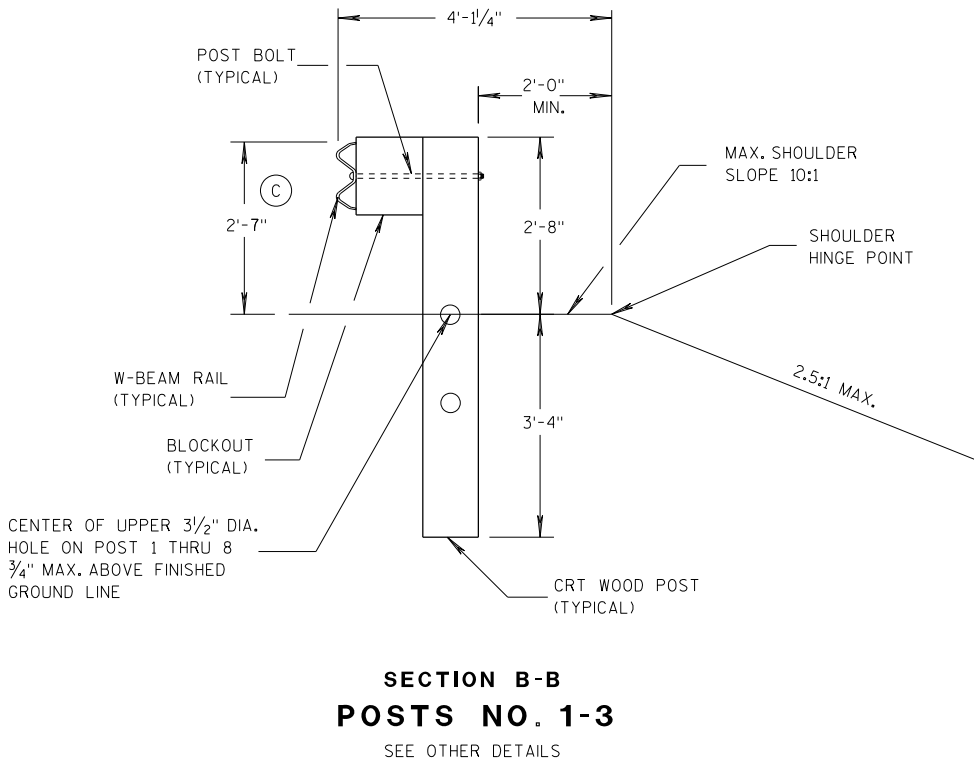
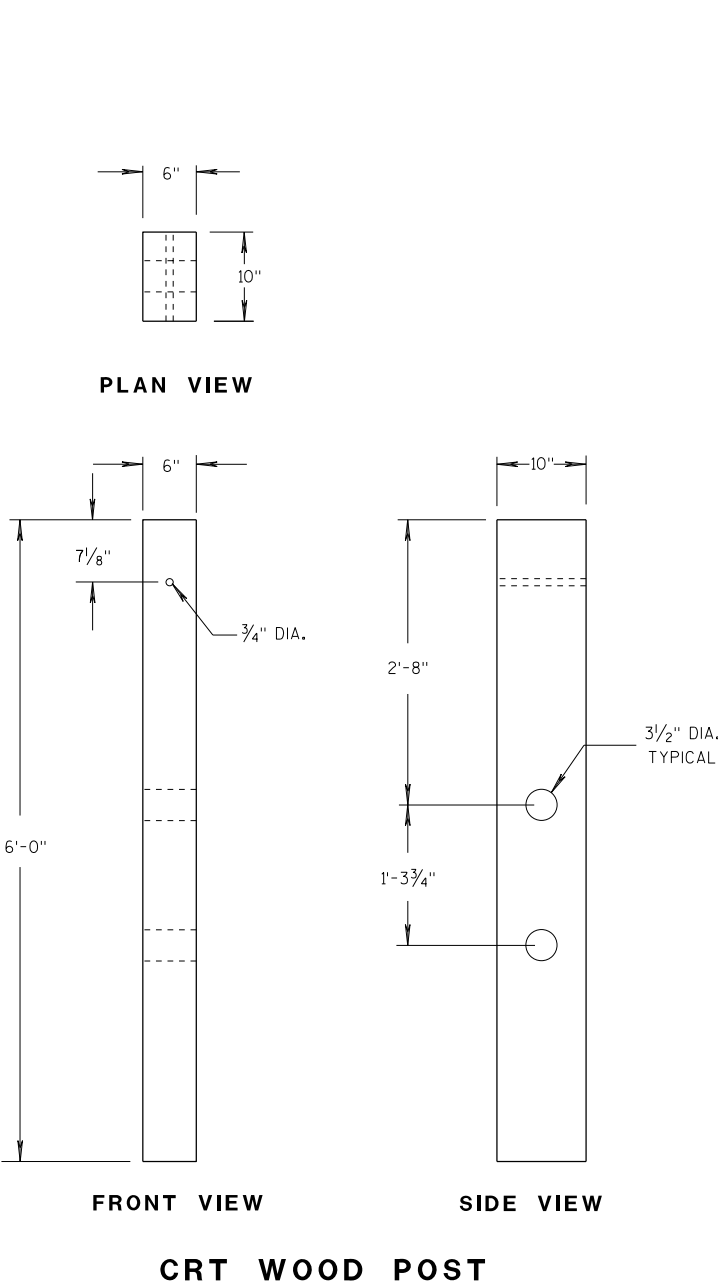


ELEVATION VIEW

MIDWEST GUARDRAIL SYSTEM LONG SPAN MGS (L) TWO-WAY TRAFFIC

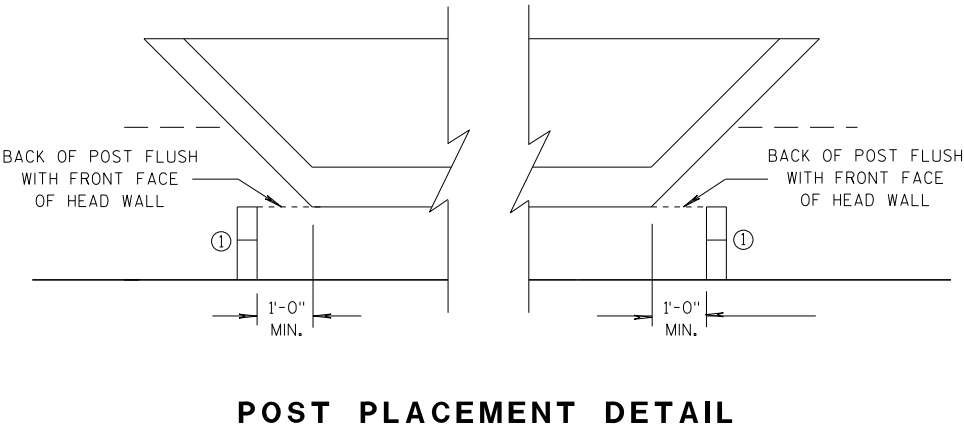
MIDWEST GUARDRAIL SYSTEM
LONG SPAN MGS (L)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



GENERAL NOTES

Ⓒ TOLERANCE FOR TOP OF W-BEAM RAIL IS ± 1".



MIDWEST GUARDRAIL SYSTEM LONG SPAN MGS (L)	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 07/2018 DATE	/S/ Rodney Taylor ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA	

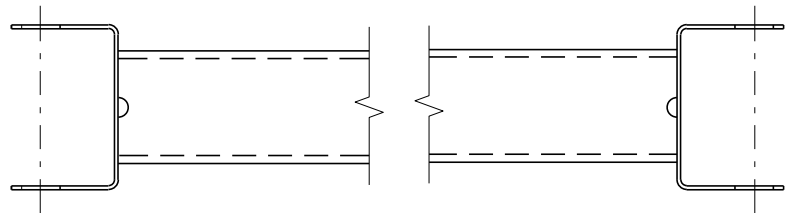
- (A) THE SLOPE IN THE AREA BOUNDED BY THE GRADELINE, THE HINGE POINT LINE (HPL) AND THE CLEAR ZONE LIMITS (CZL) SHALL BE 4:1 OR FLATTER.
- (B) AFTER FINAL ASSEMBLY, RECHECK CABLE TO BE SURE IT IS TAUT AND HAS NOT RELAXED
- (C) DIFFERENT MANUFACTURERS REQUIRE DIFFERENT PERFORATED W - BEAM RAIL END PANELS. SEE MANUFACTURER'S INFORMATION.
- (D) ATTACH ALUMINUM SHEET TO E.A.T. HEAD USING 4 STAINLESS STEEL SELF - TAPPING SCREWS. ONE SCREW PER CORNER.
- (E) HARDWARE MAY VARY BETWEEN MANUFACTURER. SEE MANUFACTURER'S DRAWING FOR INFORMATION.

DIMENSIONS MAY VARY, MANUFACTURER'S INFORMATION.

THE CENTER OF THE UPPER 3½" 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.

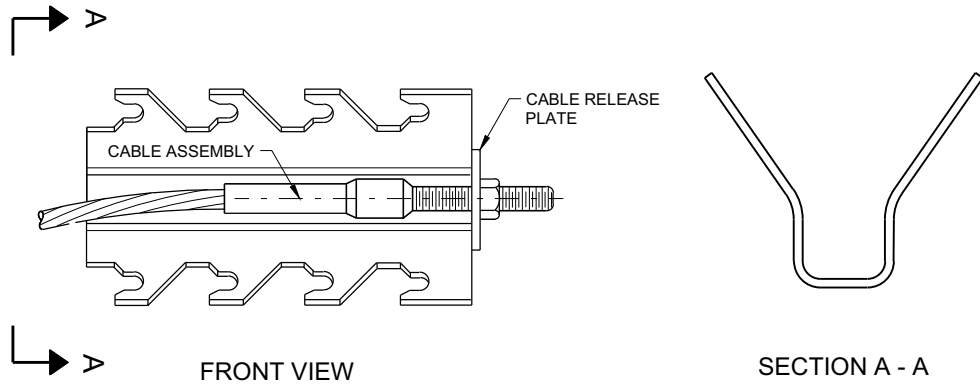


STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

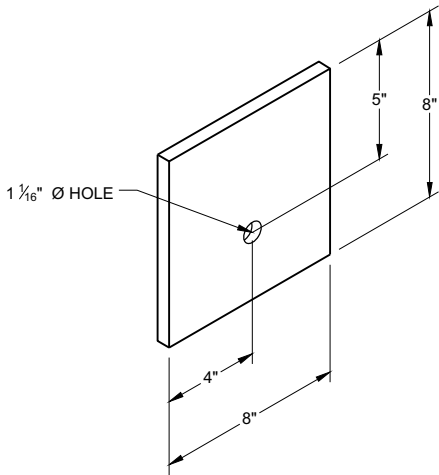


GENERIC GROUND STRUT 9 E

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



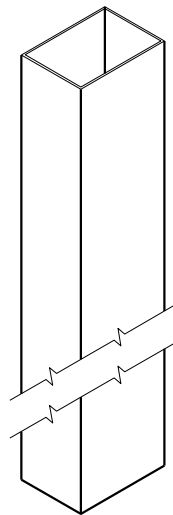
GENERIC ANCHOR CABLE BOX 9 E



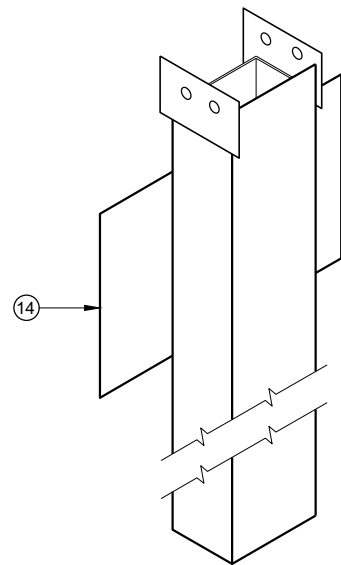
BEARING PLATE 6 E

MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL
(MGS)

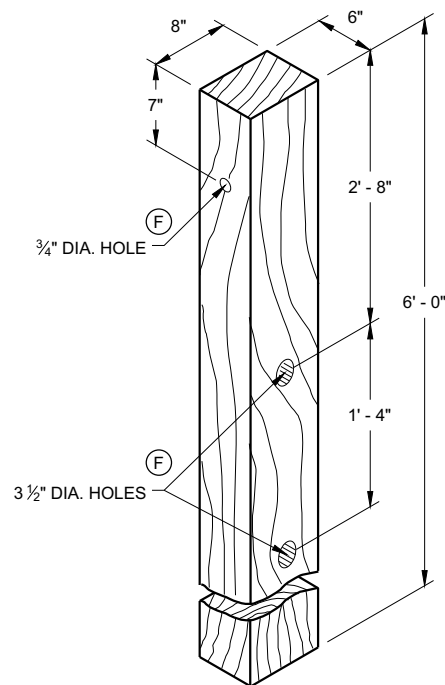
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



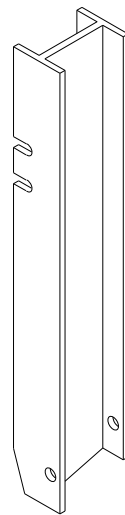
UPPER POST NO. 1^① (E)



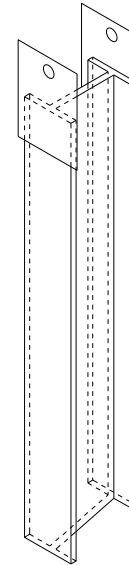
LOWER POST NO. 1^② (E)



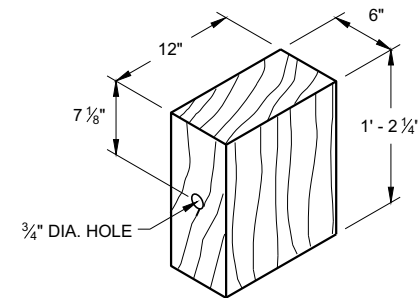
WOOD CRT POST^③ (E)
POSTS NUMBER 3-9



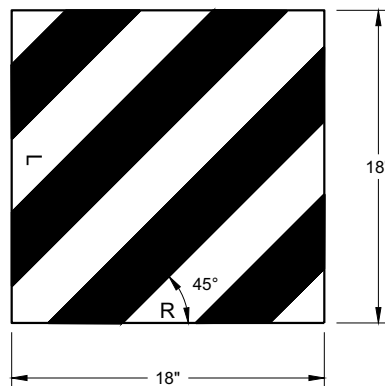
UPPER POST NO. 2^⑮ (E)



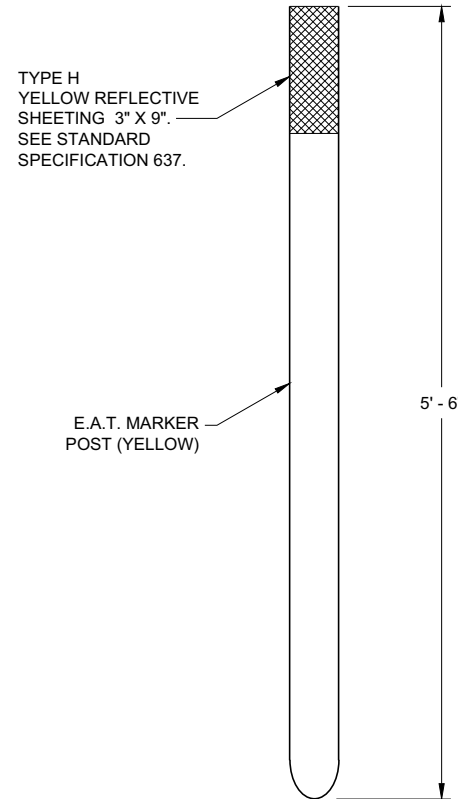
LOWER POST NO. 2^⑯ (E)



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



REFLECTIVE SHEETING DETAIL^⑤

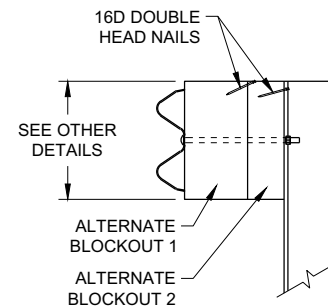


FRONT VIEW

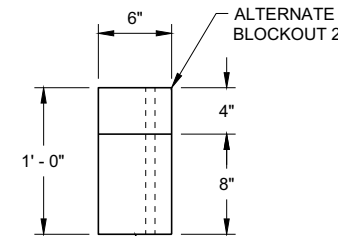


SIDE VIEW

E.A.T. MARKER POST^⑬



SIDE VIEW



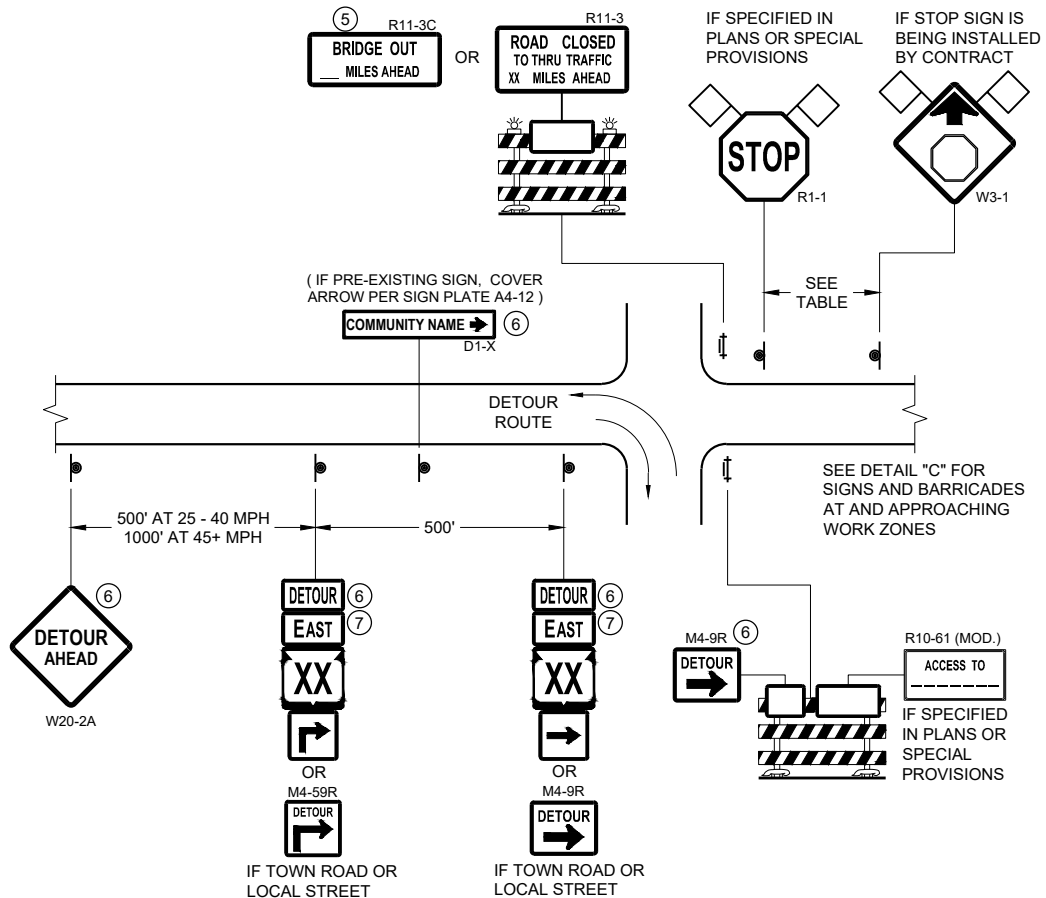
TOP VIEW

ALTERNATE WOOD
BLOCKOUT DETAIL

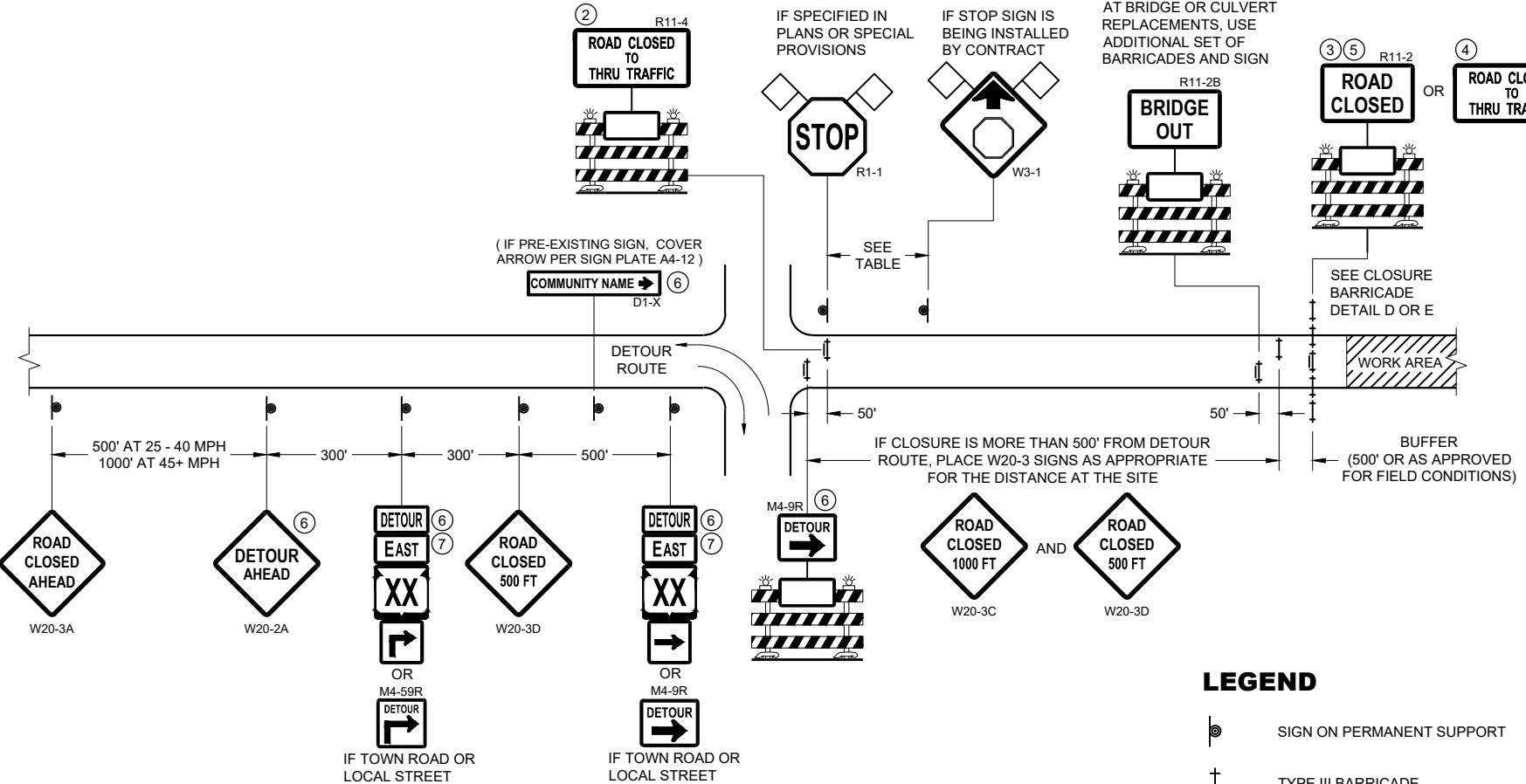
**MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL
(MGS)**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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



DETAIL A
MAINLINE CLOSURE WITH POSTED DETOUR
WORK ZONE GREATER THAN OR EQUAL TO ½ MILE FROM
DETOUR ROUTE (1000 FEET IF URBAN)



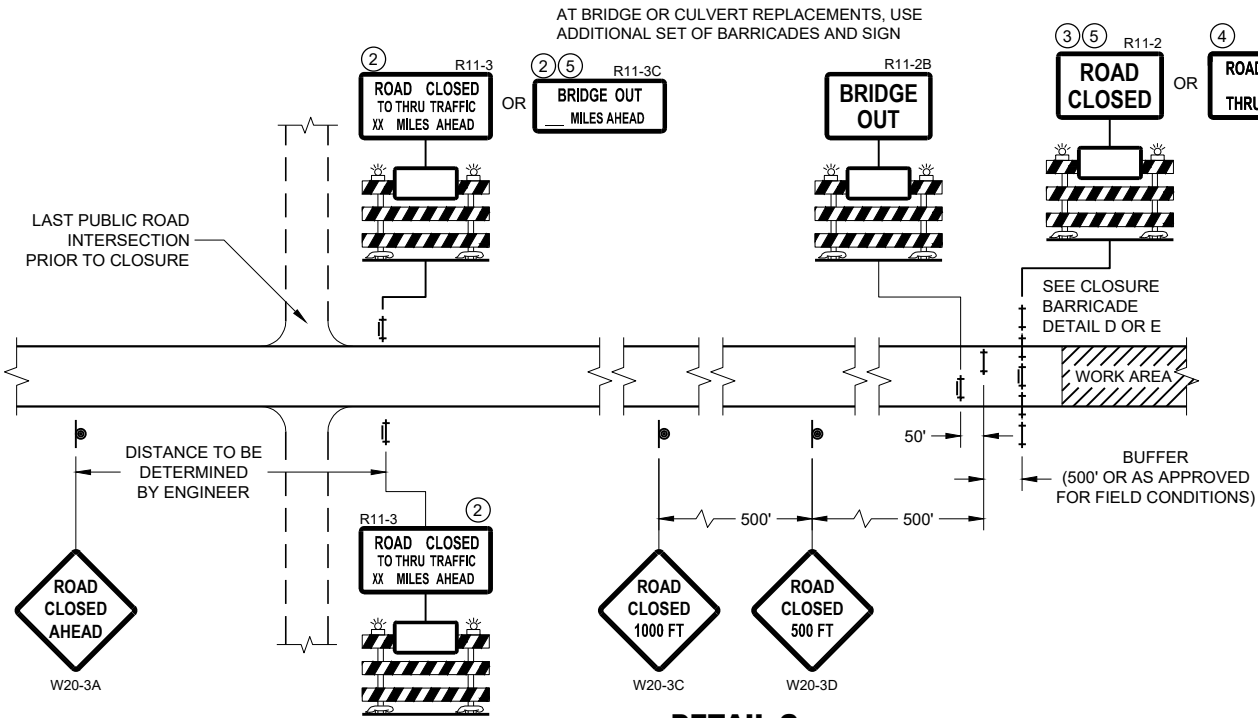
DETAIL B
MAINLINE CLOSURE WITH POSTED DETOUR
WORK ZONE LESS THAN ½ MILE FROM
DETOUR ROUTE (1000 FEET IF URBAN)

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

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



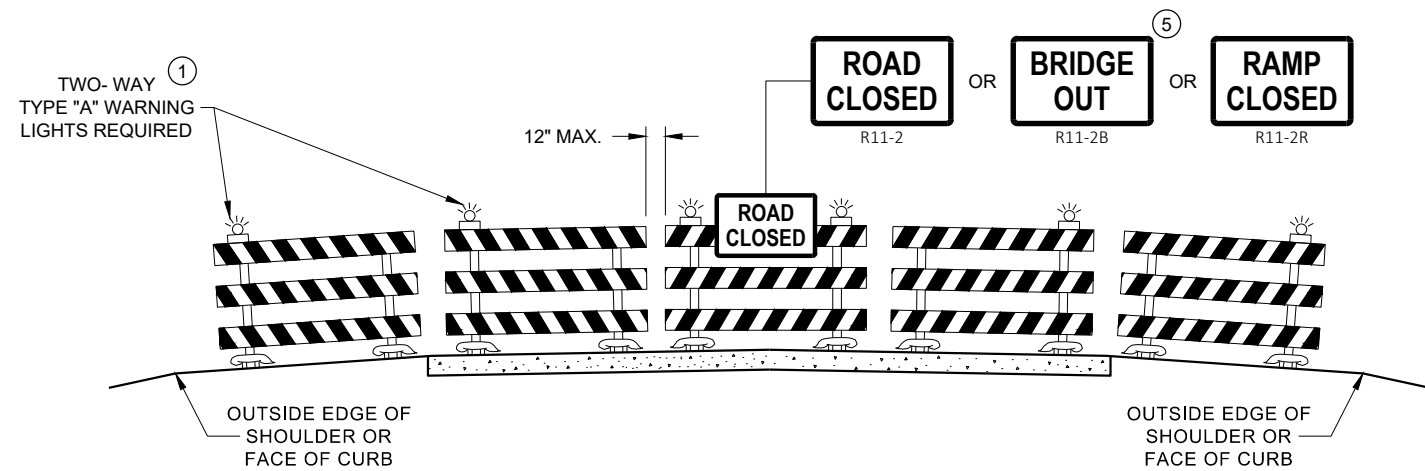
DETAIL C
MAINLINE CLOSURE, NO POSTED DETOUR

**BARRICADES AND SIGNS
FOR MAINLINE CLOSURES**

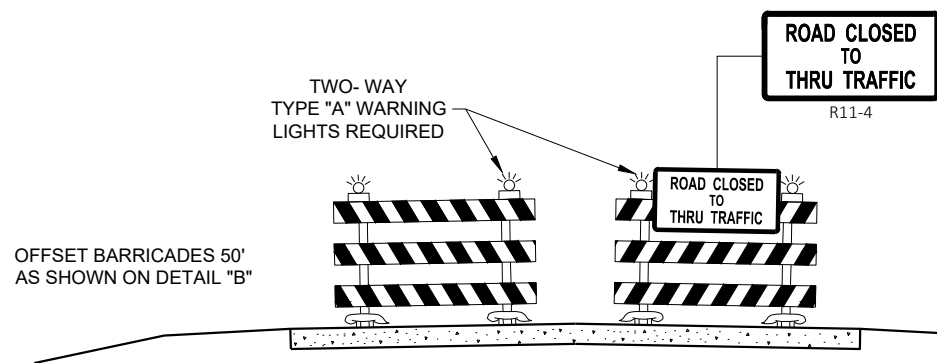
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May 2023 /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"

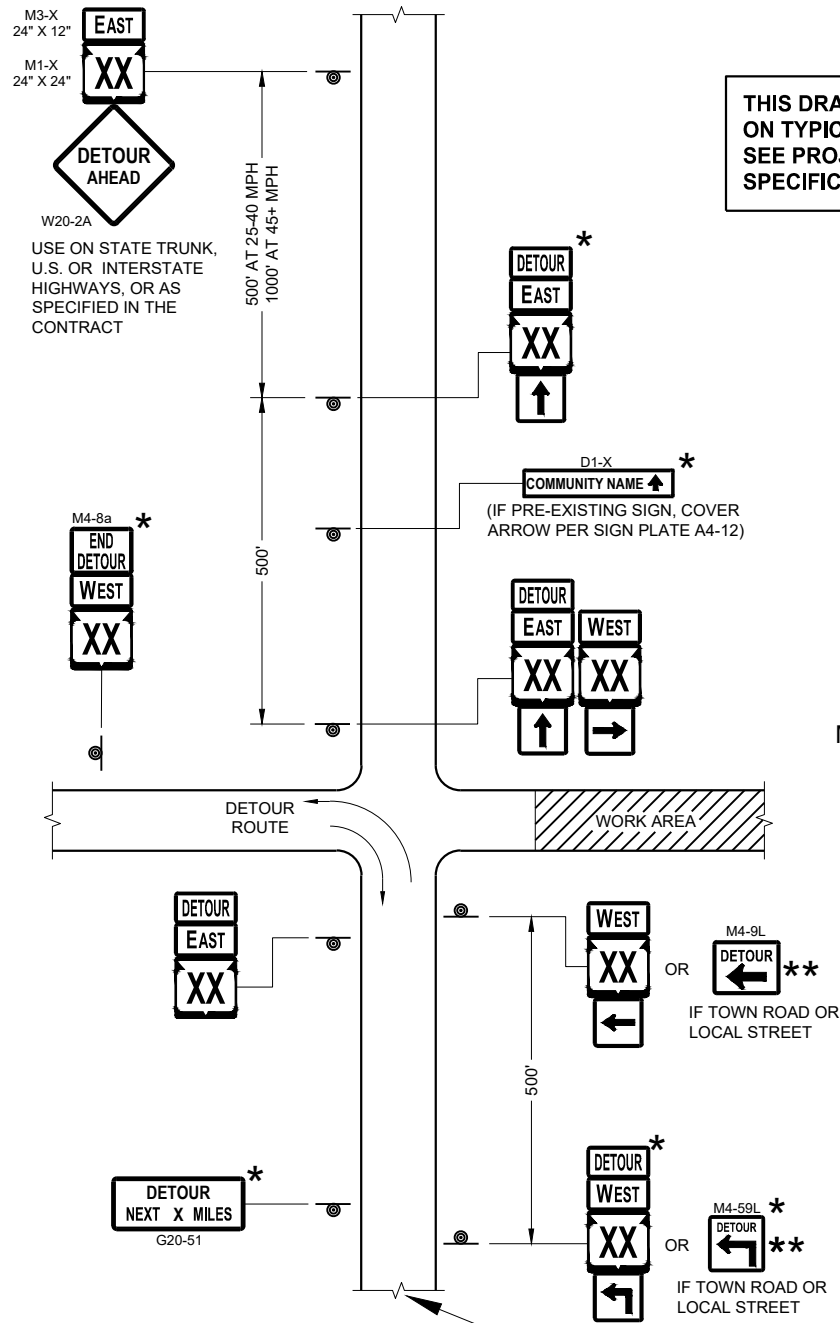
- 1 TWO WARNING LIGHTS SHALL BE PROVIDED ON THE CENTER BARRICADE AND A MINIMUM OF ONE WARNING LIGHT SHALL BE PROVIDED ON EACH OF THE OTHER BARRICADES WITHIN THE ROADWAY LIMITS. SPACING OF THE WARNING LIGHTS SHALL BE UNIFORM TO THE EDGE OF ROADWAY AS SHOWN (APPROX. 8 FOOT LIGHT SPACING).
- 2 THESE SIGNS 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
May 2023 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER

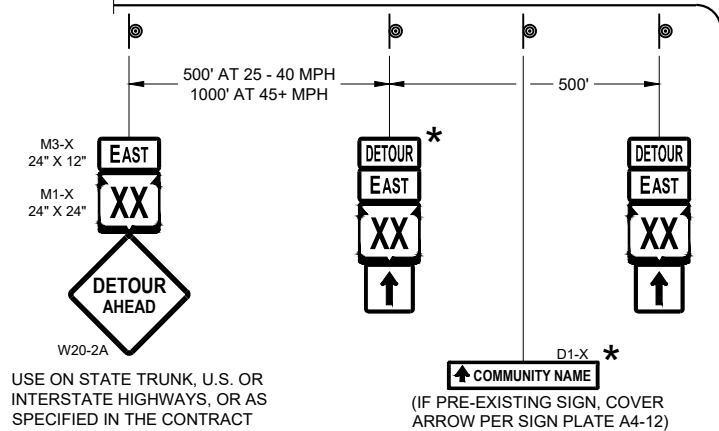
FHWA



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

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

MATCH POINT



DETAIL F
DETOUR SIGNING

LEGEND

- SIGN ON PERMANENT SUPPORT
- WORK AREA
- DETOUR EAST M4 - 8
- DETOUR WEST M3 - X
- DETOUR AHEAD M1 - 4 OR M1 - 6 OR M1 - 5A
- DETOUR NEXT X MILES M05 - 1 OR M06 - 1 OR M06 - 1

GENERAL NOTES

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

IF THERE ARE EXISTING ROUTE MARKER ASSEMBLIES THAT WILL REMAIN IN PLACE, ADJUST THE LOCATION OF THE DETOUR ROUTE SIGNS TO CORRESPOND WITH THE EXISTING ASSEMBLIES. SEE SPECIFIC PROJECT DETOUR SIGNING DETAIL SHEETS. MODIFY EXISTING SIGNS WHERE POSSIBLE.

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

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

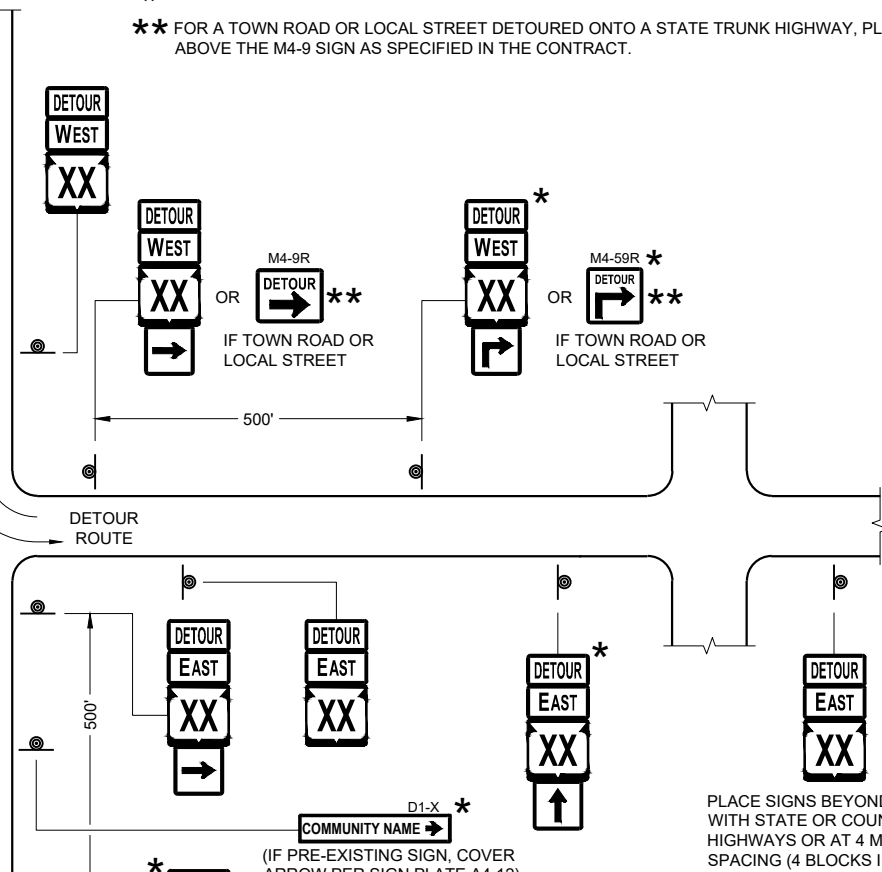
SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS MAY BE MOUNTED ON PORTABLE SUPPORTS.

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

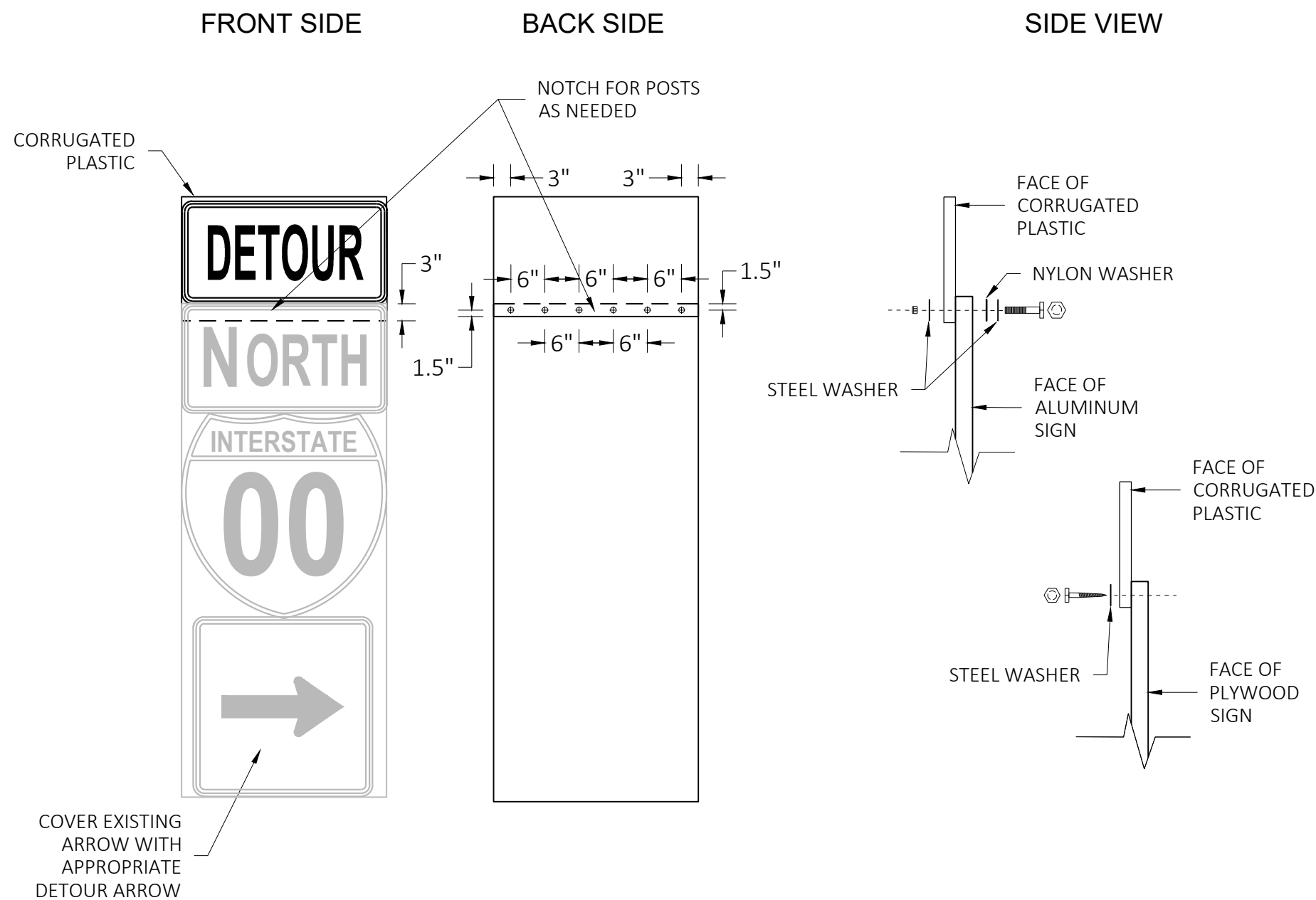
SIGN SIZES SHALL BE AS FOLLOWS:

- M3-X SHALL BE 24" X 12" (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS)
- M4-8 SHALL BE 24" X 12" (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS)
- M1-4, M1-5A AND M1-6 SHALL BE 24" X 24" (36" X 36" IF NEEDED TO MATCH EXISTING SIGNS)
- M05-1 AND M06-1 SHALL BE 21" X 21" (30" X 30" IF NEEDED TO MATCH EXISTING SIGNS)
- M4-9 AND M4-9R SHALL BE 30" X 24"
- M4-8a SHALL BE 24" X 18"
- G20-51 SHALL BE 60" X 24"
- W20-2A SHALL BE 48" X 48"
- D1-X SHALL BE AS SHOWN ON SPECIFIC PROJECT SIGNING DETAIL SHEETS.

- * OPTIONAL SIGNS. SEE SPECIFIC PROJECT DETOUR SIGNING DETAIL SHEETS.
- ** FOR A TOWN ROAD OR LOCAL STREET DETOURED ONTO A STATE TRUNK HIGHWAY, PLACE A ROAD NAME PLAQUE ABOVE THE M4-9 SIGN AS SPECIFIED IN THE CONTRACT.



DETOUR SIGNING FOR MAINLINE CLOSURES	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED May 2023 DATE	/S/ Andrew Heidtke WORK ZONE ENGINEER
FHWA	



GENERAL NOTES

CELLS OF CORRUGATED PLASTIC SHALL BE VERTICALLY ORIENTED.

PROVIDE A 0.4-INCH THICK BASE CORRUGATED PLASTIC WITH A 0.035-INCH WALL THICKNESS AND 0.4-INCH CELL SIZE.

FOR 36" WIDE SIGNS: USE 6 FASTENERS AS SHOWN.

FOR 24" WIDE SIGNS: USE 4 FASTENERS WITH EDGE SPACING AS SHOWN AND 6" SPACING BETWEEN FASTENERS.

METAL WASHERS, NUTS, BOLTS AND LAGS SHALL HAVE HEXAGONAL HEADS AND SHALL BE EITHER:

- A. HOT DIP GALVANIZED IN ACCORDANCE WITH ASTM DESIGNATION: A 153, CLASS D, OR SC 3.
- B. ELECTRO-GALVANIZED IN ACCORDANCE WITH ASTM DESIGNATION: B 633, TYPE III, SC3

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

PLYWOOD SIGNS:

LAG SCREWS - 5/16" x 1"

ALUMINUM SIGNS:

MACHINE BOLTS - 5/16" x 1-1/4" LENGTH W/NUTS

WASHERS:

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

1-1/4" O.D. x 3/8" I.D. x .080 NYLON

MODIFIED ROUTE ASSEMBLY FOR DETOUR SIGNING

MODIFIED ROUTE ASSEMBLY FOR DETOUR SIGNING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

May 2023

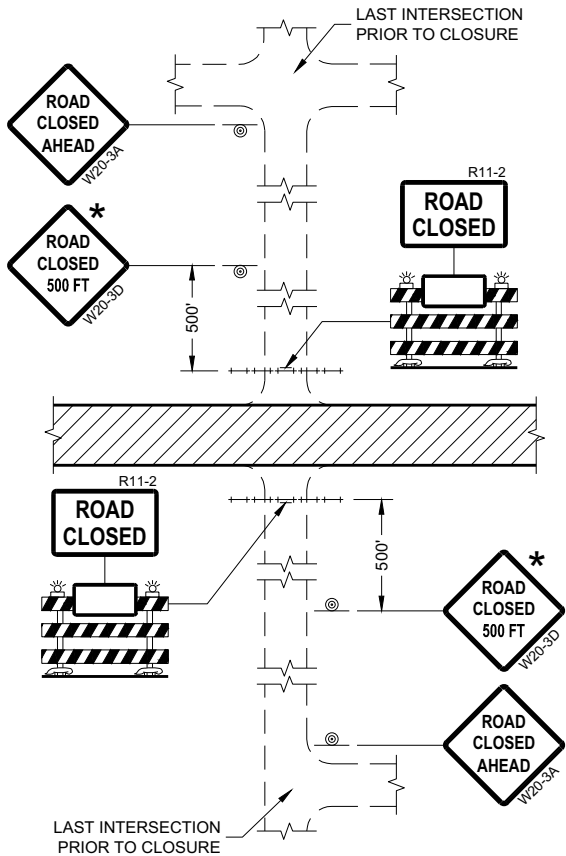
DATE

/S/ Andrew Heidtke

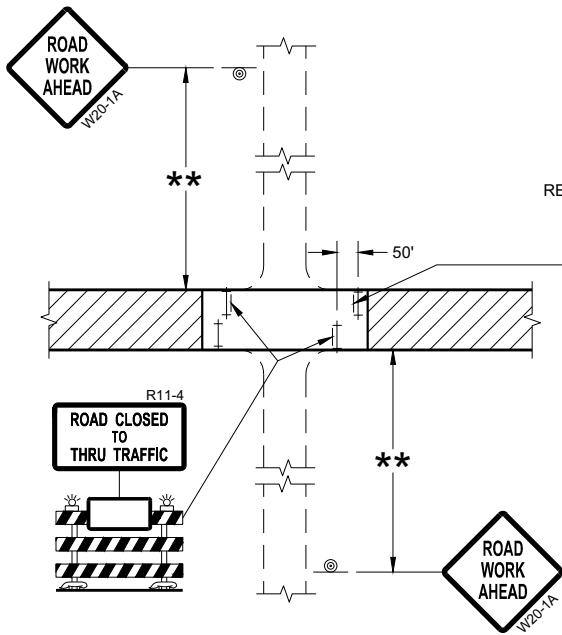
ROADWAY STANDARDS DEVELOPMENT

ENGINEER

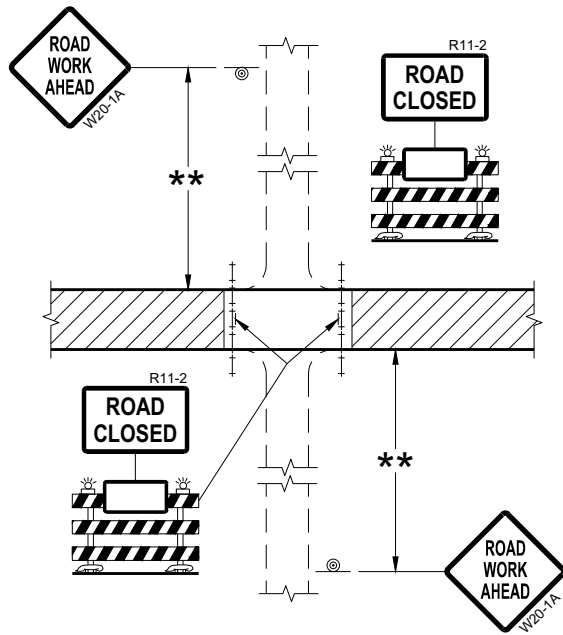
FHWA



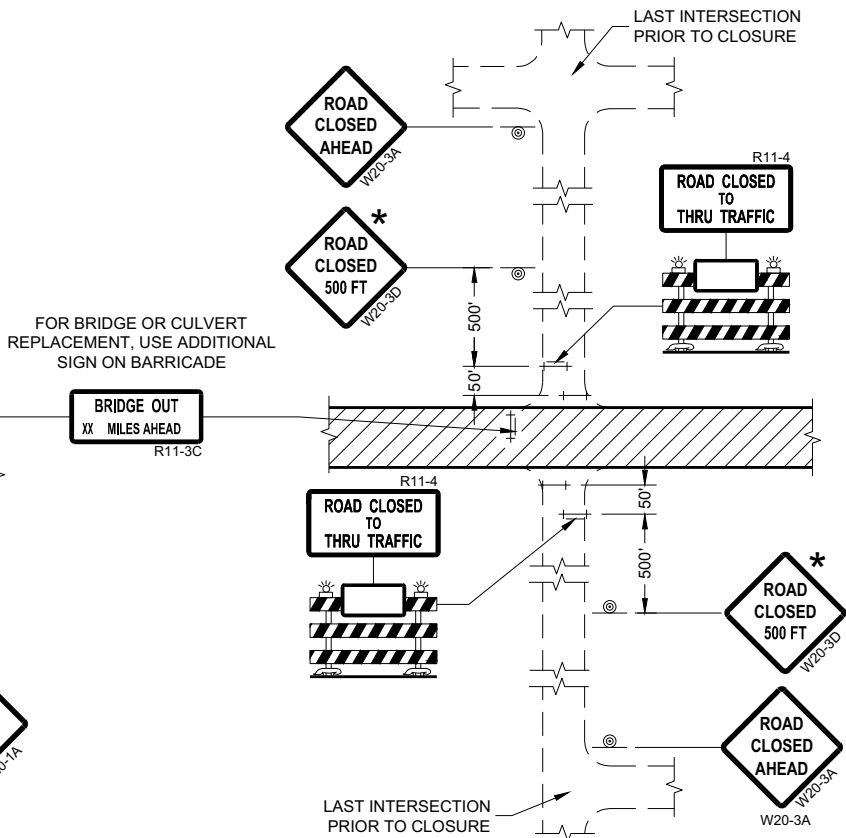
DETAIL 1
(NO ACCESS TO PROJECT)



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



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



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

GENERAL NOTES

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

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

THE SPACING BETWEEN TRAFFIC CONTROL SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND SHOULD PROVIDE A DESIRABLE MINIMUM OF 200 FEET CLEARANCE (500 FEET DESIRABLE) TO EXISTING SIGNS THAT WILL REMAIN IN PLACE.

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

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

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

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

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

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

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

- * OMIT THE "ROAD CLOSED 500 FT." SIGN IF THE LAST INTERSECTION IS 500 FEET OR LESS FROM THE WORK ZONE.
- ** 500' MAX. OR AT LAST INTERSECTION, WHICHEVER IS CLOSEST.

LEGEND

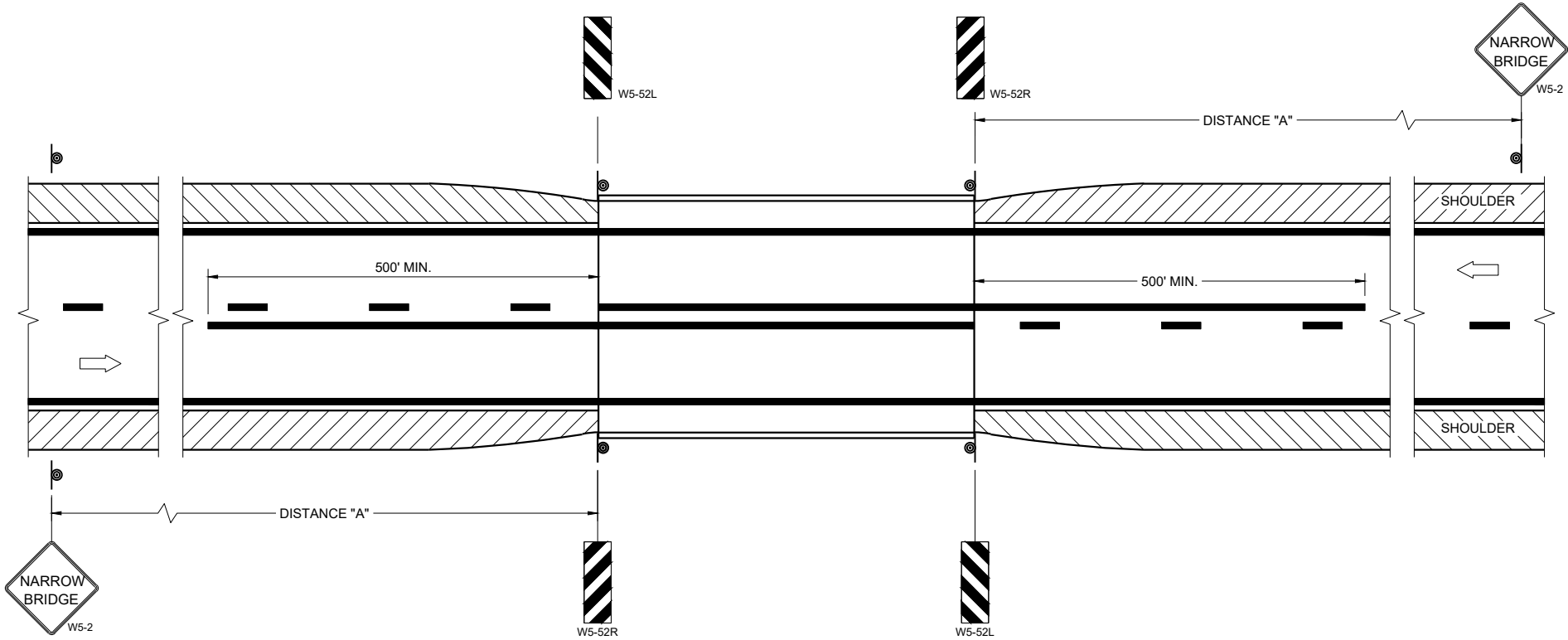
- SIGN ON PERMANENT SUPPORT
- TYPE III BARRICADE
- TYPE III BARRICADE WITH ATTACHED SIGN
- TYPE "A" WARNING LIGHT (FLASHING)
- WORK AREA

BARRICADES AND SIGNS FOR SIDEROAD CLOSURES

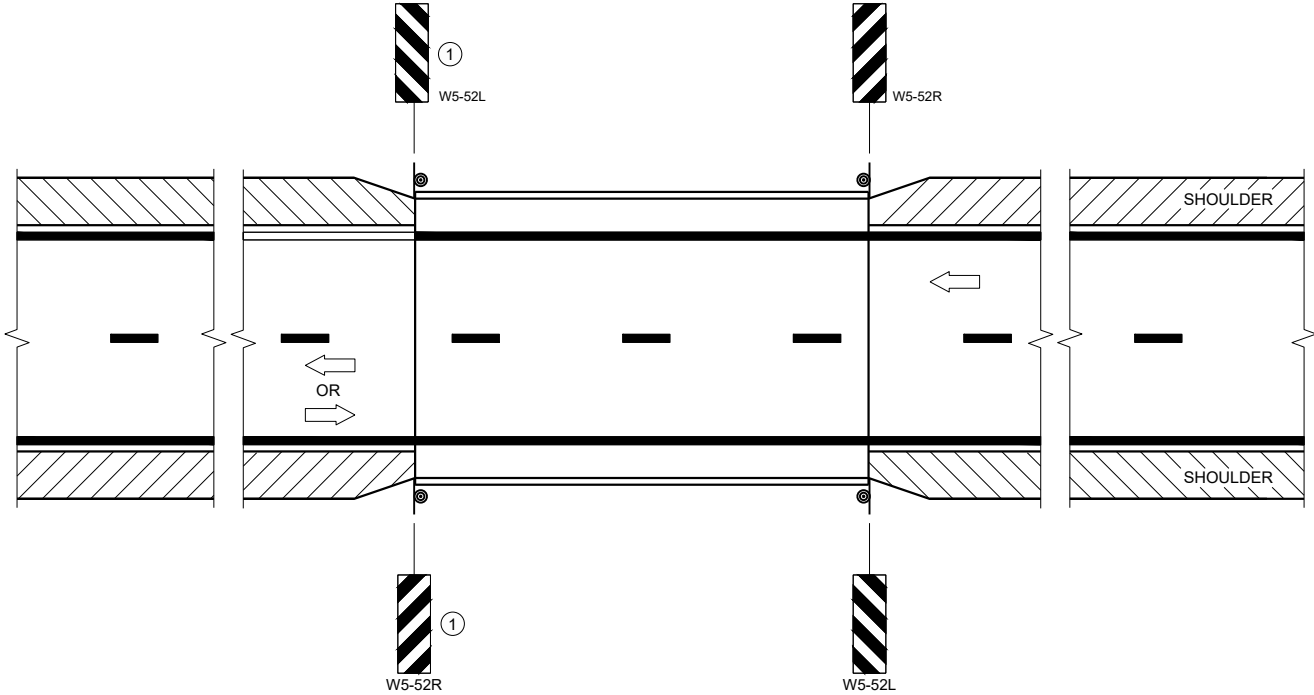
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

FHWA



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



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

GENERAL NOTES

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

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

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

ON BRIDGE ONLY PROJECTS, PLACE 300 FEET OF EDGELINE.

OMIT EDGELINES ON ROADWAYS WITHOUT EXISTING EDGELINES.

① OMIT ON ONE-WAY TRAVELED WAYS.

LEGEND

⊙ SIGN ON PERMANENT SUPPORT

➡ DIRECTION OF TRAFFIC

DISTANCE TABLE

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

**SIGNING AND MARKING
FOR TWO LANE BRIDGES**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May 2023
DATE

/S/ Jeannie Silver
Statewide Pavement Marking Engineer

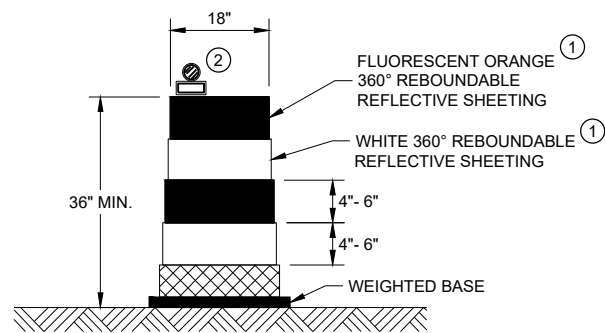
FHWA



PERMANENT PAVEMENT MARKING

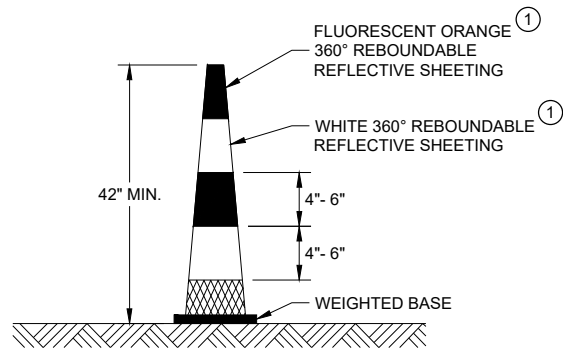
APPROVED
May 2023
DATE

/S/ Jeannie Silver
Statewide Pavement Marking Engineer



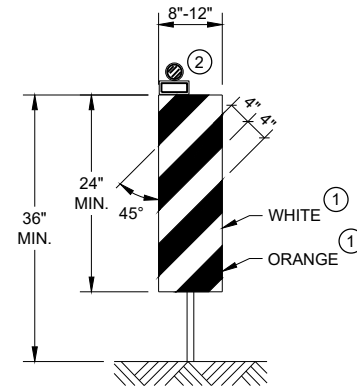
DRUM

BALLAST WIDTHS
RANGE FROM 24"-36"



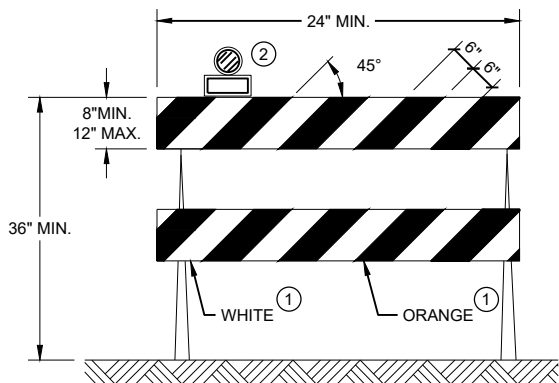
42" CONE

DO NOT USE IN TAPERS
½ SPACING OF DRUMS
BALLAST WIDTHS
RANGE FROM 14"-20"



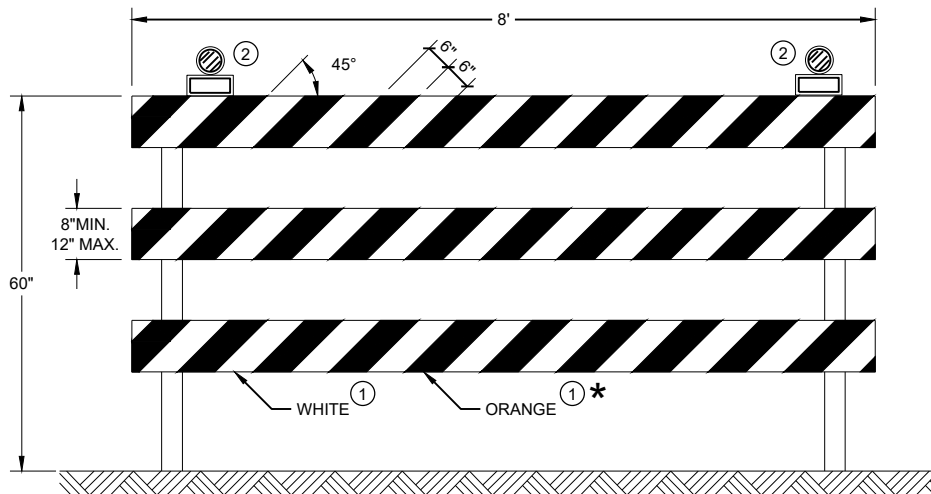
VERTICAL PANEL

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



TYPE II BARRICADE

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



TYPE III BARRICADE

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

* IF USED FOR A PERMANENT APPLICATION USE RED SHEETING.

GENERAL NOTES

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

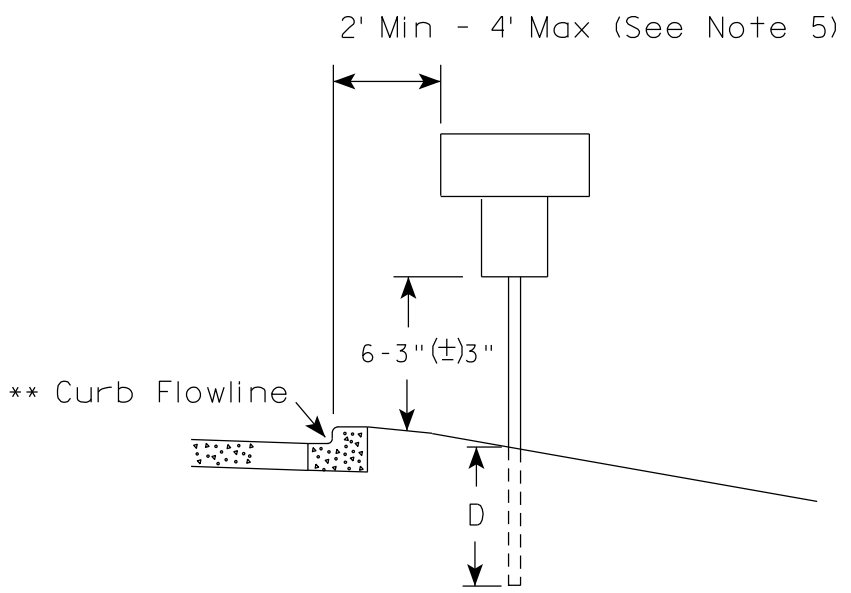
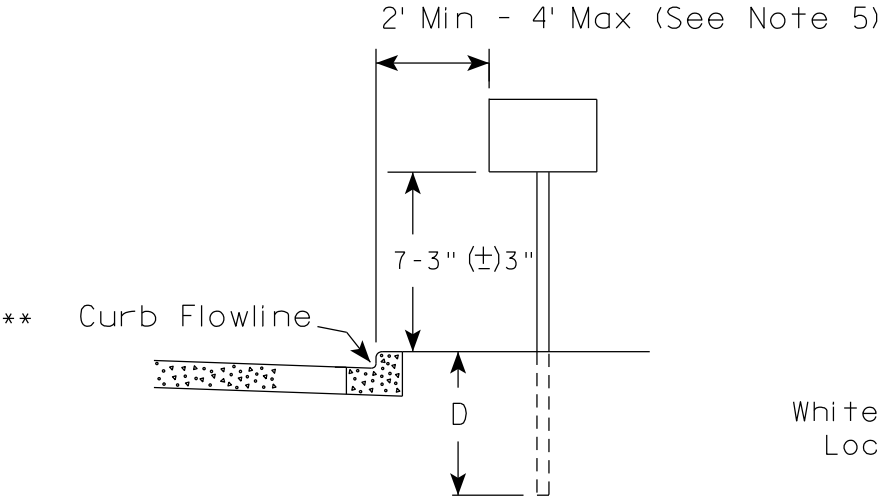
**CHANNELIZING DEVICES
DRUMS, CONES, BARRICADES
AND VERTICAL PANELS**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

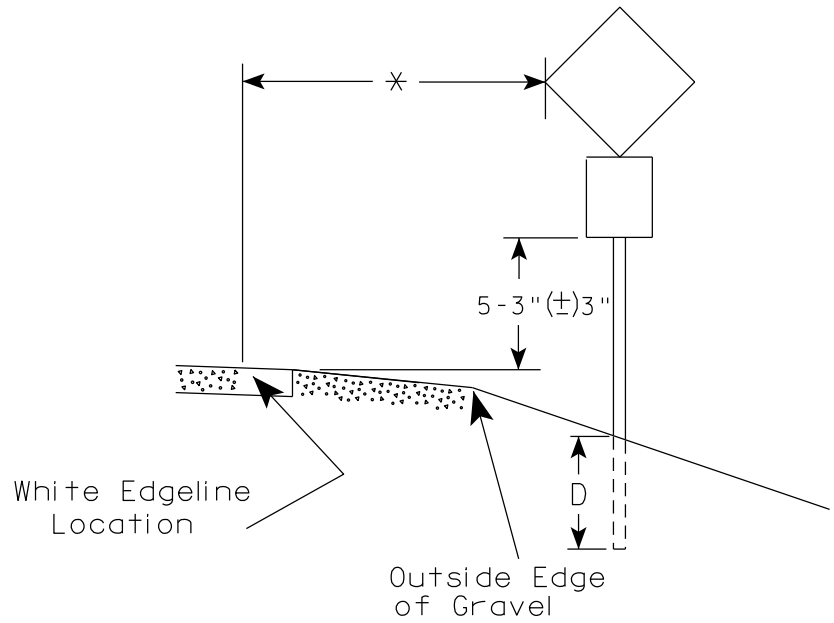
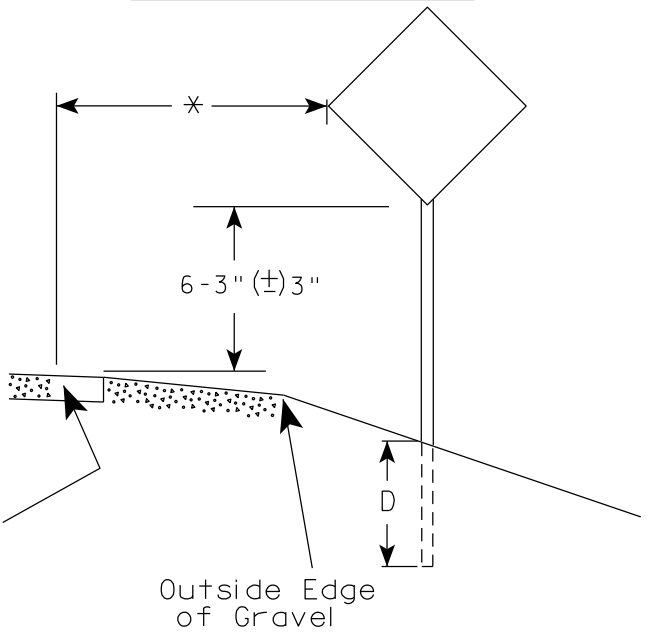
APPROVED
November 2022 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER

FHWA

URBAN AREA



RURAL AREA (See Note 2)



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

GENERAL NOTES


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

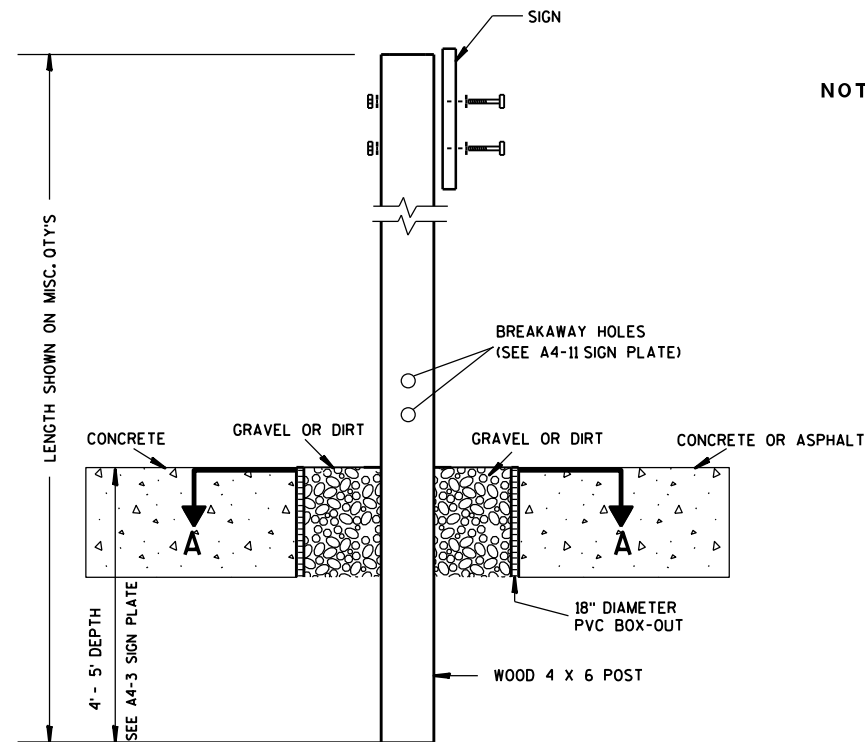
* 6 feet from edge of a paved shoulder or 12 feet from the edge of pavement (edge line location) or 2 feet from outside edge of gravel, whichever is greater unless directed by project engineer.

TYPICAL INSTALLATION
OF PERMANENT TYPE II
SIGNS ON SINGLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED 
for State Traffic Engineer

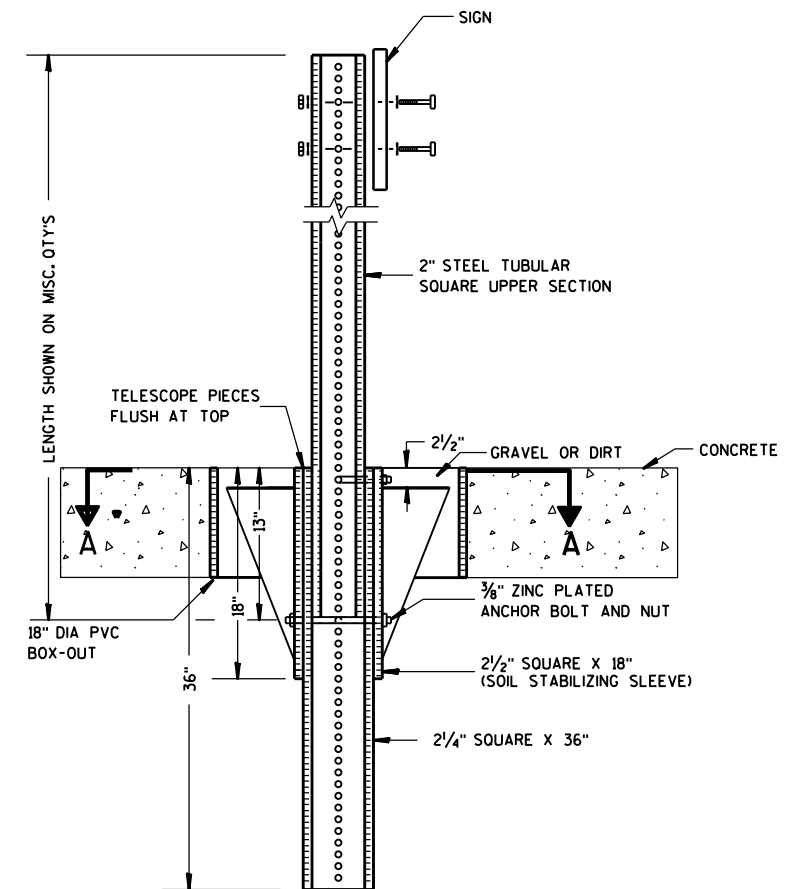
DATE 12/6/23 PLATE NO. A4-3.23



ELEVATION VIEW

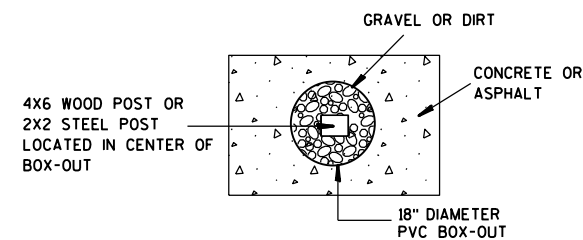
DETAIL OF WOOD 4 X 6 SIGN POST IN BOX-OUT

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



ELEVATION VIEW

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



PLAN VIEW

FOR NEW CONCRETE/ASPHALT INSTALLATIONS

SIGN POST
BOX-OUTS
A4-3B

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

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

PROJECT NO:

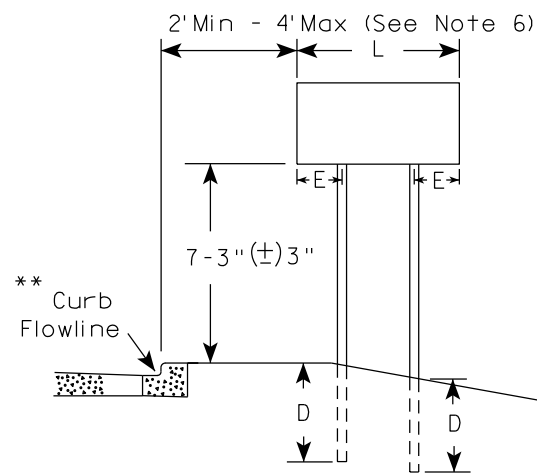
HWY:

COUNTY:

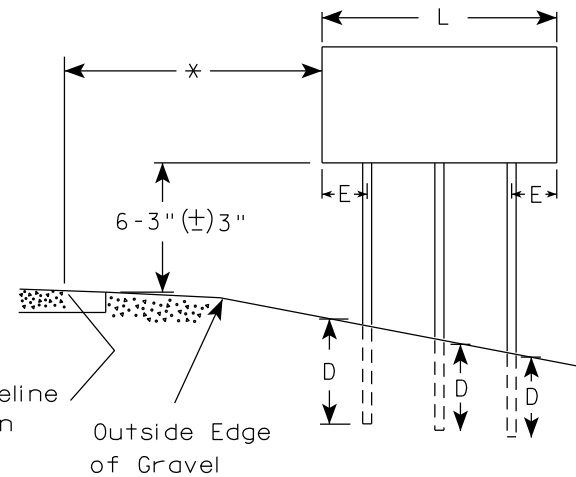
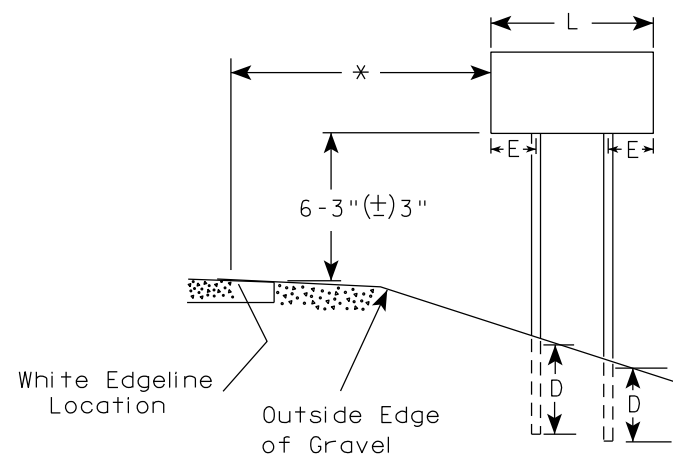
SHEET NO:

E

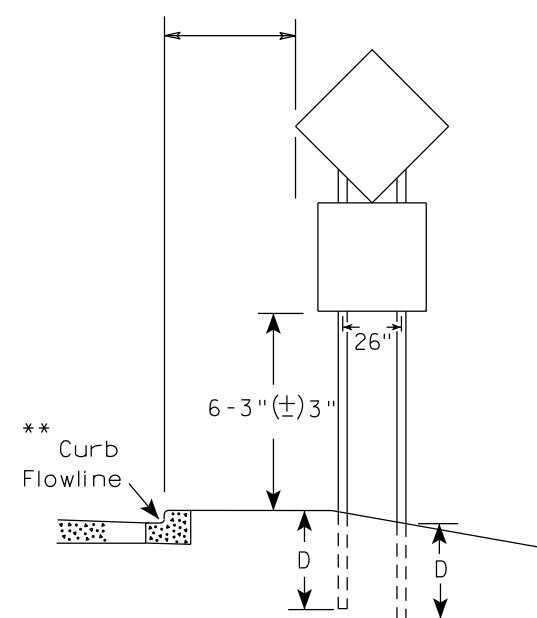
URBAN AREA



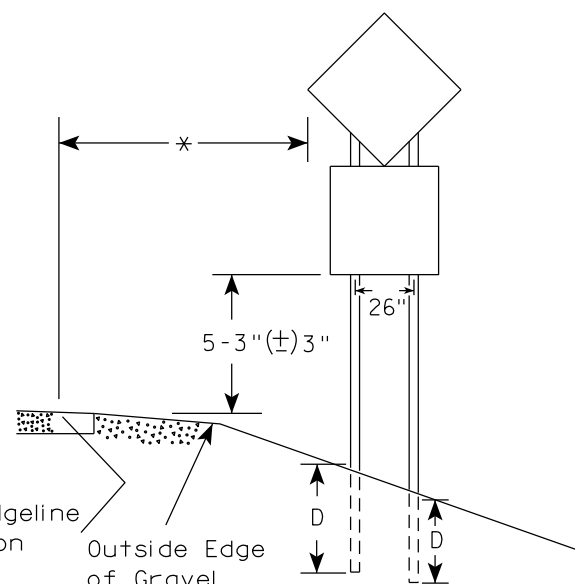
RURAL AREA (See Note 3)



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



48" DIAMOND WARNING SIGN



48" DIAMOND WARNING SIGN

GENERAL NOTES

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

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

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

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

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

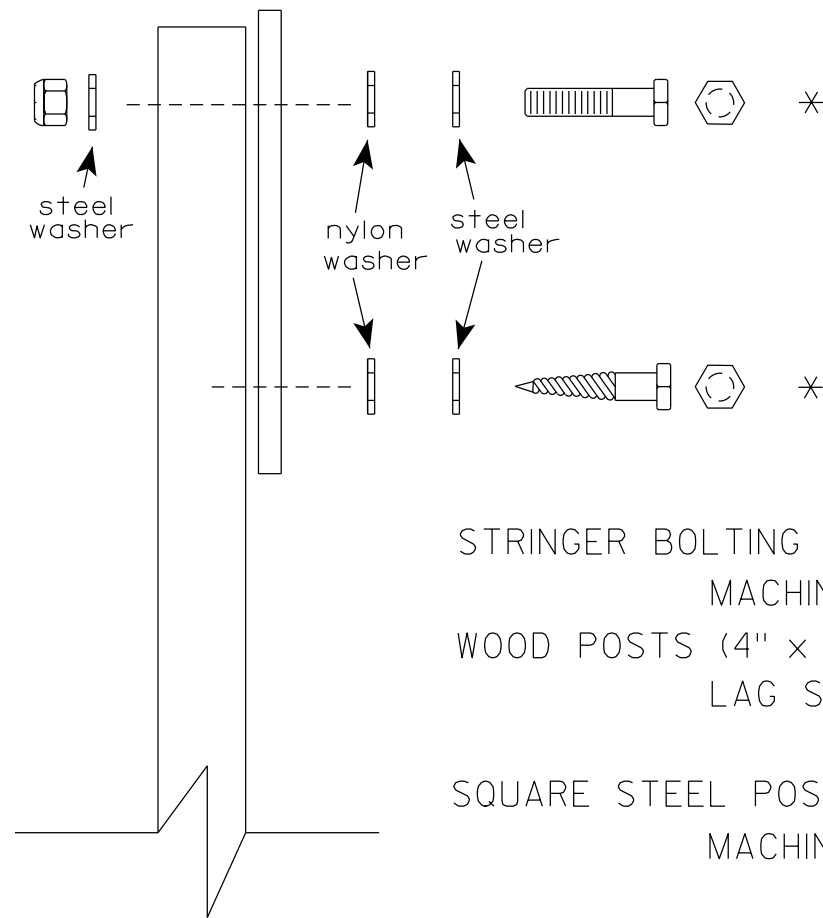
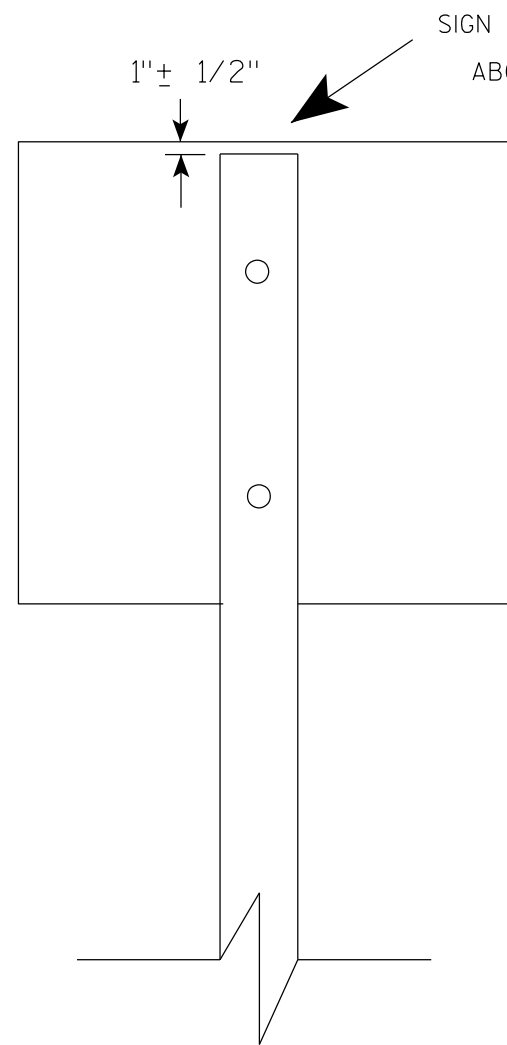
SIGN SHAPE OTHER THAN DIAMOND (THREE POSTS REQUIRED)	
L	E
Greater than 108" to 144"	12"

POST EMBEDMENT DEPTH

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

TYPICAL INSTALLATION
OF TYPE II SIGNS
ON MULTIPLE POSTS

WISCONSIN DEPT OF TRANSPORTATION
APPROVED *Matthew R. Rauch*
for State Traffic Engineer
DATE 12/6/23 PLATE NO. A4-4.16



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

- a. Hot dip galvanized in accordance with ASTM Designation: A 153, Class D, or SC 3
- b. Electro-galvanized in accordance with ASTM Designation : B 633, TYPE III, SC 3.

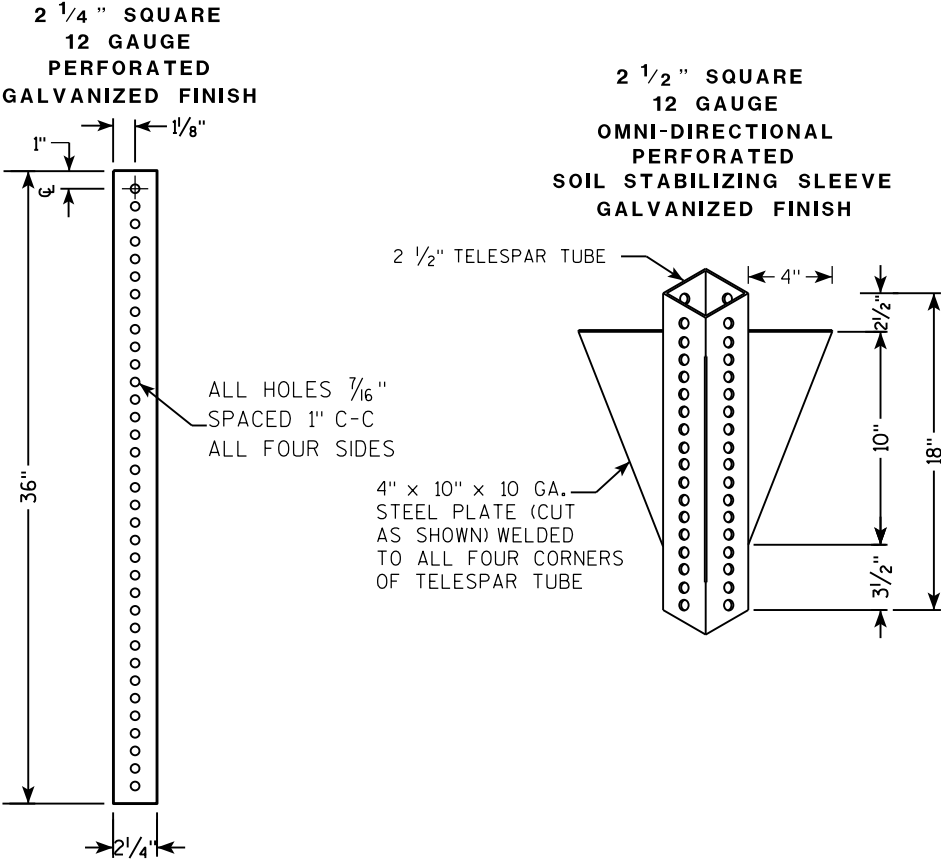
Threads on bolts and nuts shall be manufactured with sufficient allowance for the cadmium plate or galvanized coating to permit the nuts to run freely on the bolts.

- STRINGER BOLTING TO ALUMINUM SIGNS (SEE SIGN PLATE A4-18)
- MACHINE BOLTS - $\frac{5}{16}$ " X 1-3/4" Length w/ lock nuts
- WOOD POSTS (4" x 6")
- LAG SCREWS - $\frac{3}{8}$ " X 3" (NO STRINGERS ON BACK OF SIGN)
 $\frac{3}{8}$ " X 4" (STRINGERS ON BACK OF SIGN)
- SQUARE STEEL POSTS (2" x 2")
- MACHINE BOLTS - $\frac{3}{8}$ " X 3-1/4" Length w/ nuts (NO STRINGER ON BACK OF SIGN)
 $\frac{3}{8}$ " X 5" Length w/ nuts (STRINGERS ON BACK OF SIGN)
- RIVETS - $\frac{9}{32}$ " (6605-9-6) BULB-TITE, TRI-FOLD, ALUMINUM BODY/MANDREL
O.D. FLANGE .720-.765 INCH, GRIP RANGE .042-.375 INCH
- WASHERS (ALL POSTS) -
- 1-1/4" O.D. X $\frac{3}{8}$ " I.D. X $\frac{1}{16}$ " STEEL
 - 1-1/4" O.D. X $\frac{3}{8}$ " I.D. X .080 NYLON

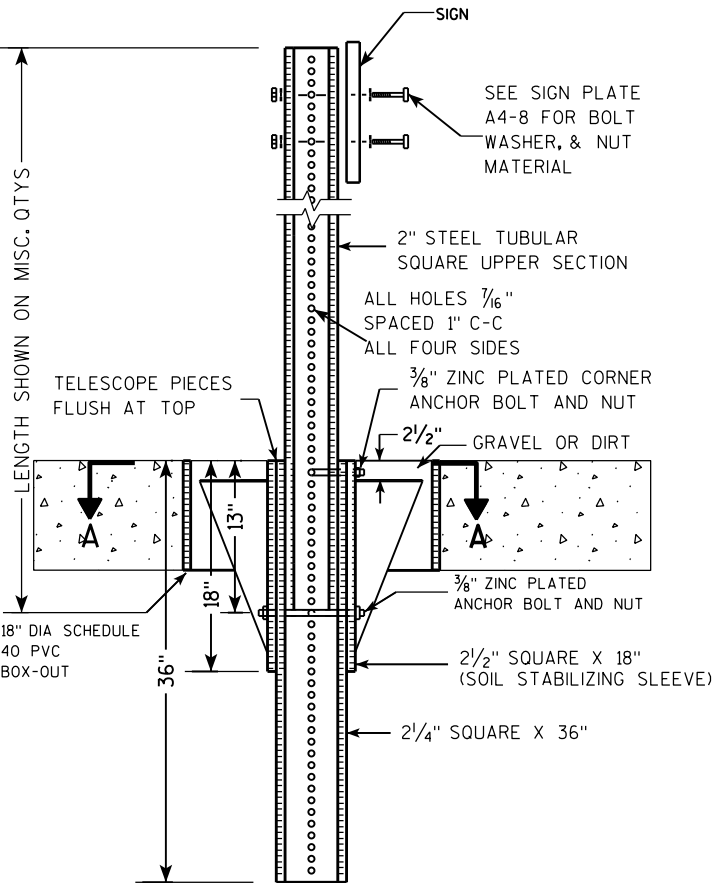
* Two different fastening systems are shown for illustration purposes. On any individual sign, either one or the other system shall be used. Actual number of fasteners per sign varies with the sign area, but normally there are two. For a single post installation, all signs greater than 9 sq. ft. require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

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

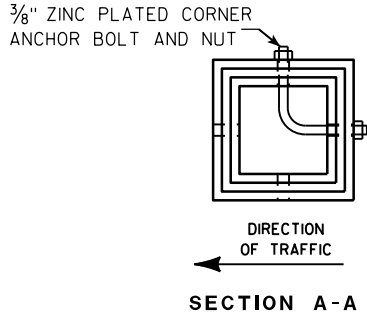
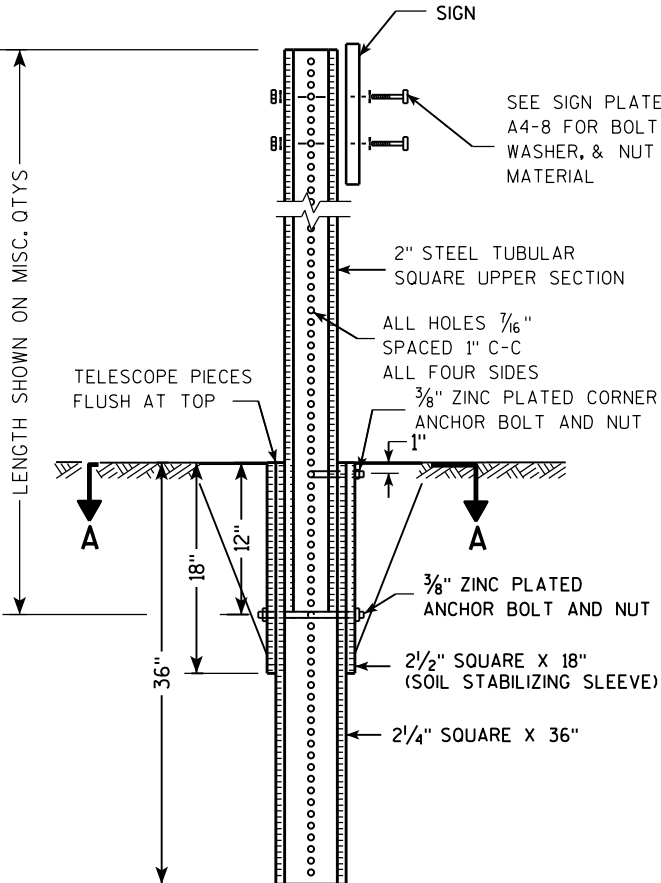
TELESCOPIC TUBING ANCHORS
TWO PIECE SYSTEM



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



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



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

Signs wider than 3 feet or larger than 9 sq. ft shall be mounted on multiple posts (see above table).

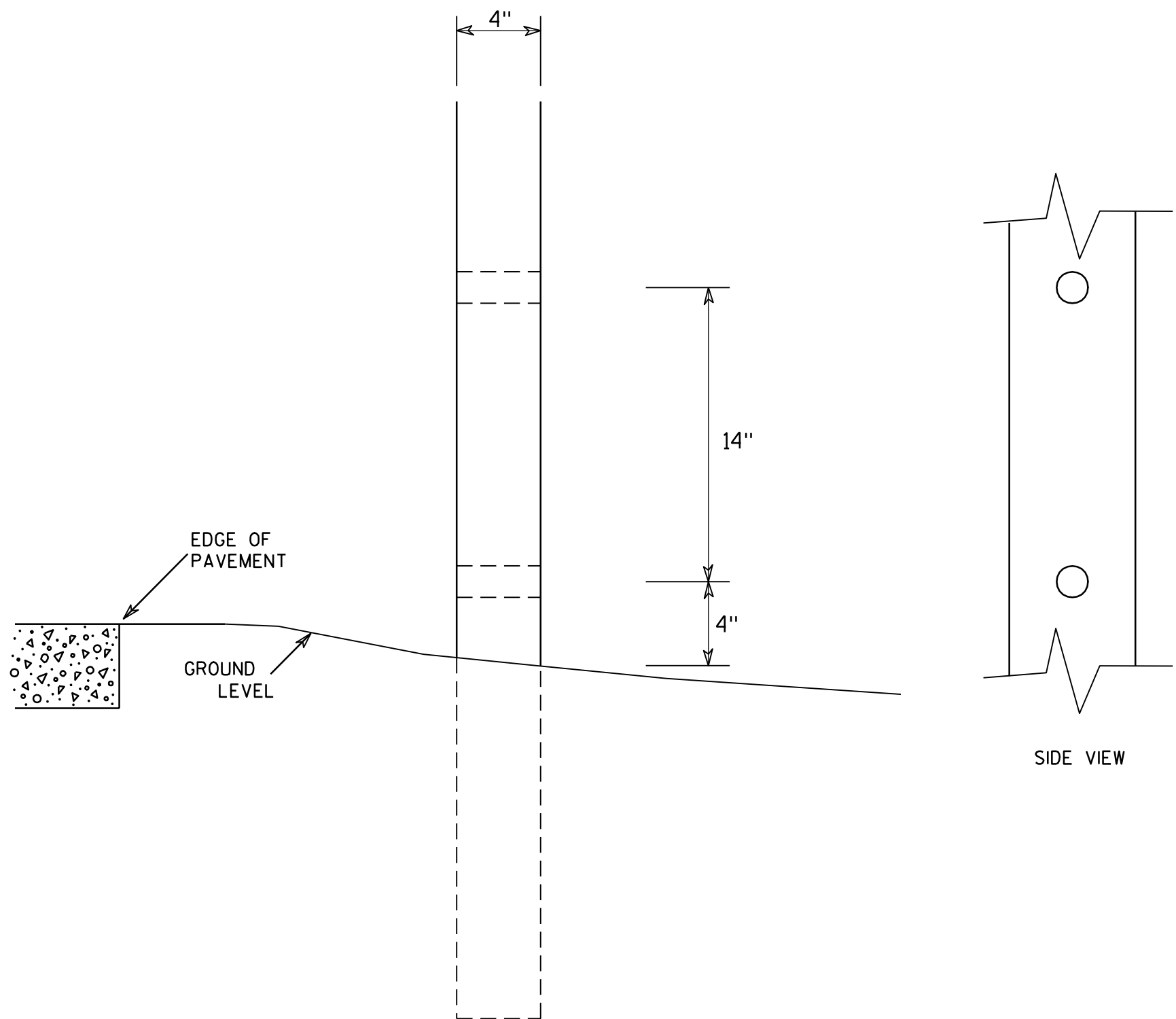
TUBULAR STEEL
SIGN POST
A4-9

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 2/05/15 PLATE NO. A4-9.9

7



GENERAL NOTES

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

7

4 X 6 WOOD POST
MODIFICATIONS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED

Chester J. Spang
for State Traffic Engineer

DATE 3/27/97

PLATE NO. A4-11.2

PROJECT NO:

HWY:

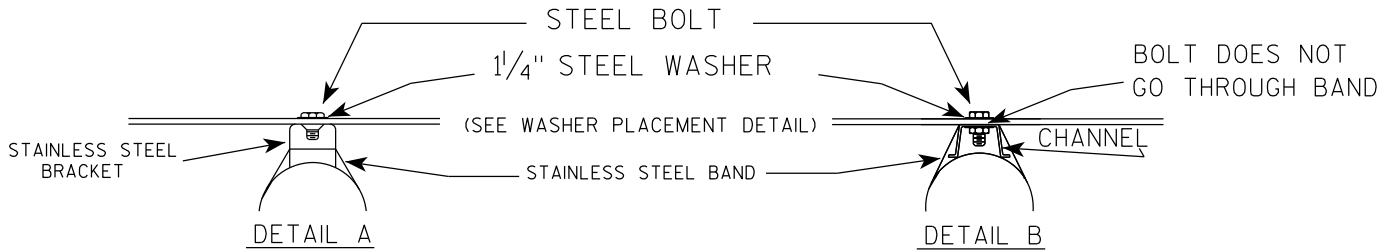
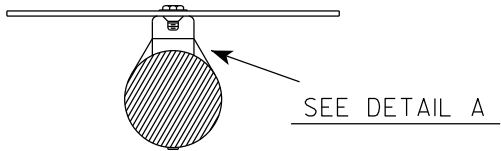
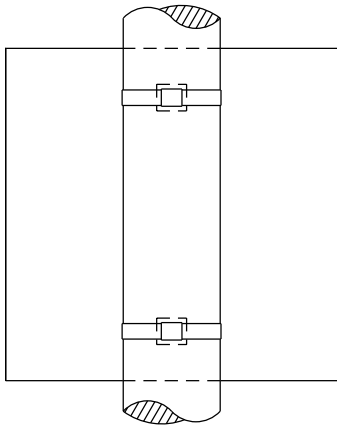
COUNTY:

SHEET NO:

E

BANDING

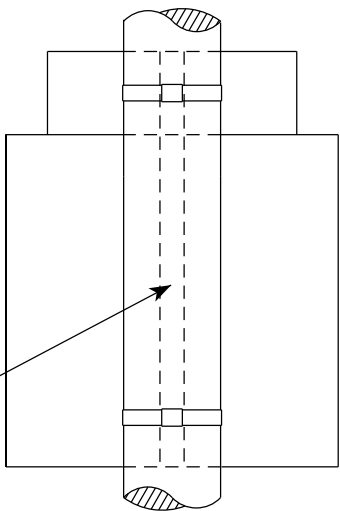
SINGLE SIGN



GENERAL NOTES

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

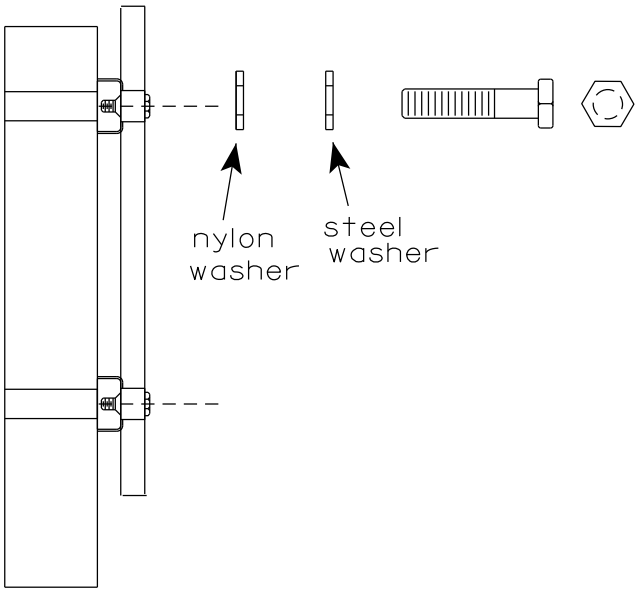
"J" ASSEMBLY



CHANNEL
SEE TYPICAL PANEL
INSTALLATION SHEET

SEE DETAIL B

WASHER PLACEMENT

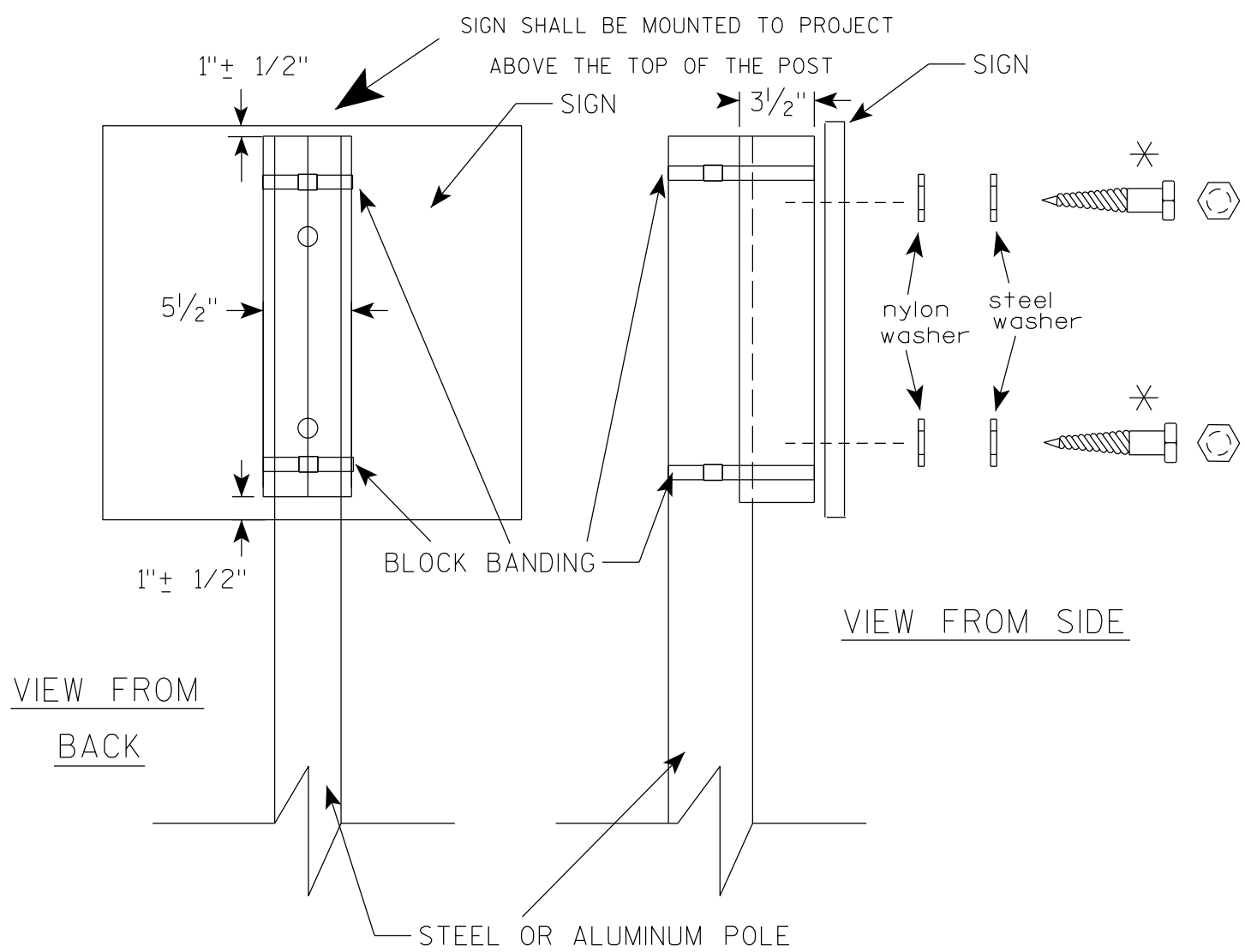


WASHERS (ALL POSTS) -
1-1/4" O.D. X $\frac{3}{8}$ " I.D. X $\frac{1}{16}$ " STEEL
1-1/4" O.D. X $\frac{3}{8}$ " I.D. X .080 NYLON
FOR ALL TYPE H SIGNS

STANDARD SIGN
SIGN BANDING DETAILS

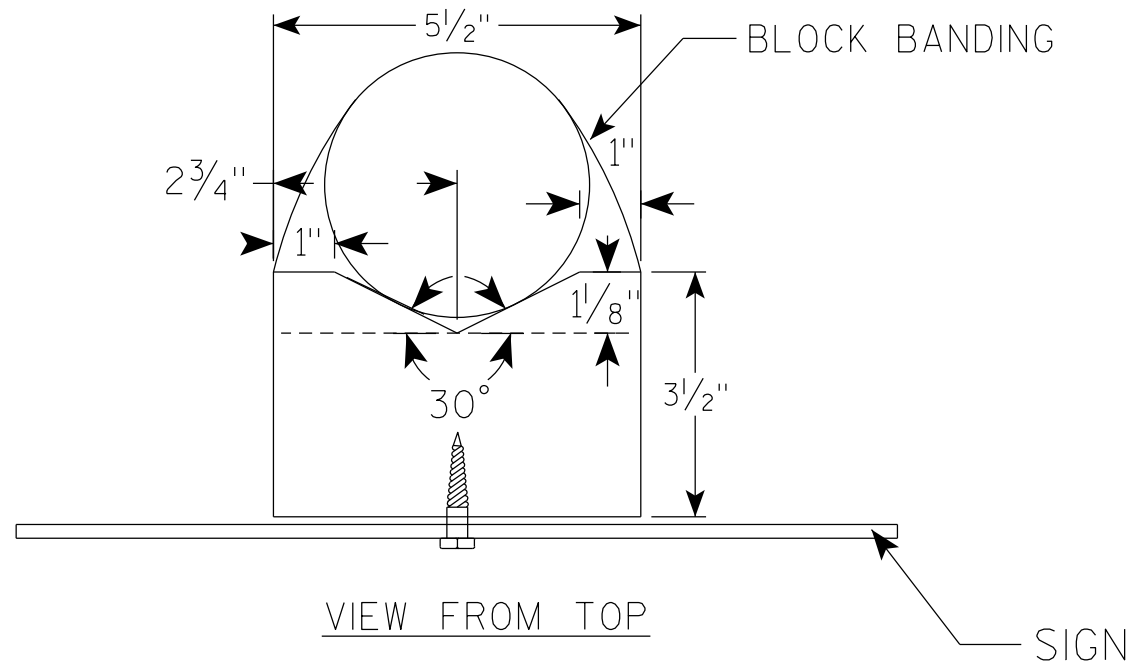
WISCONSIN DEPT OF TRANSPORTATION

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



VIEW FROM
BACK

VIEW FROM SIDE



VIEW FROM TOP

GENERAL NOTES

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

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

BLOCK BANDING DETAIL
(V-BLOCK OPTION)

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

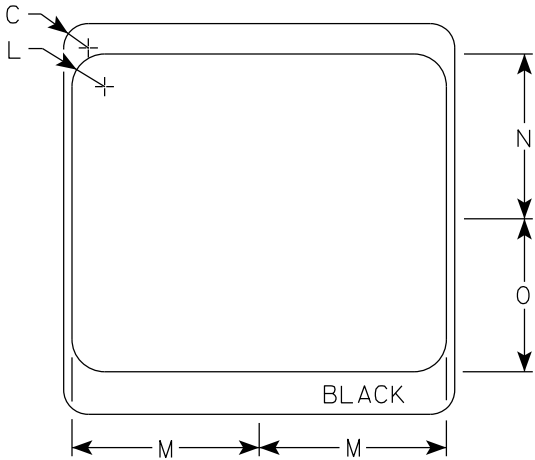
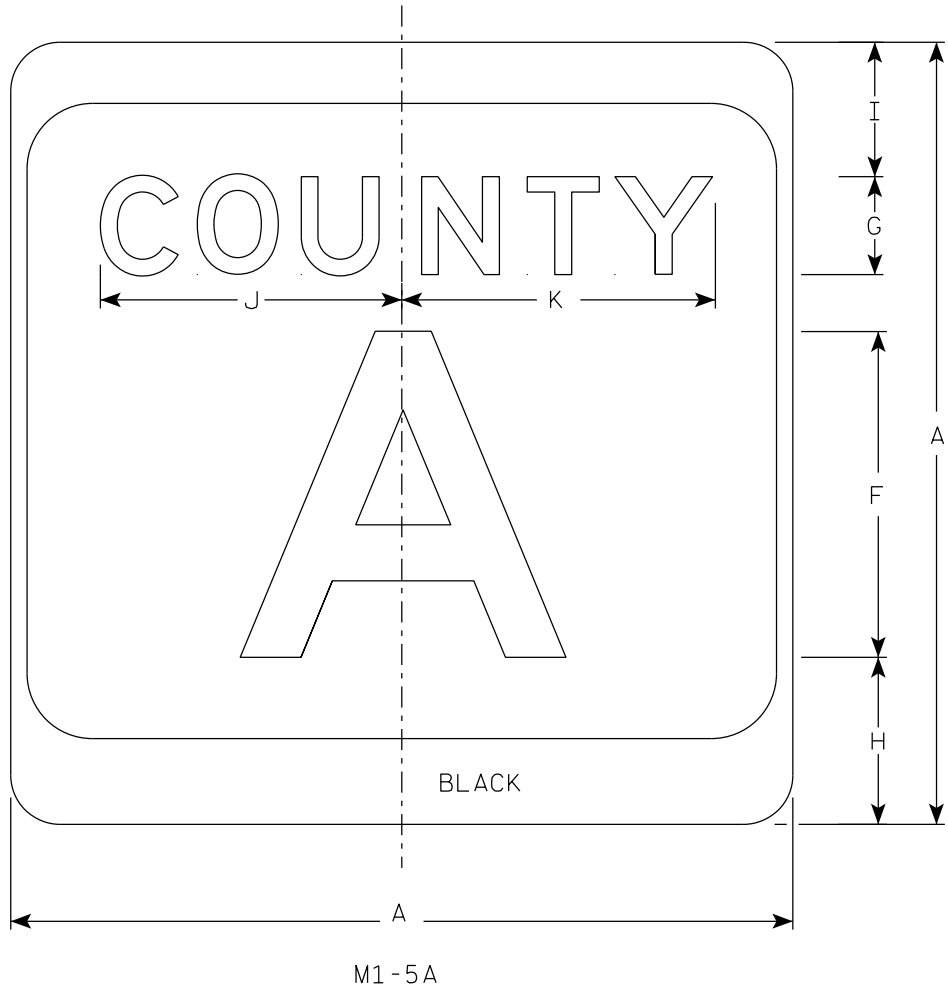
DATE 4/19/2022 PLATE NO. A5-10.3

PROJECT NO:

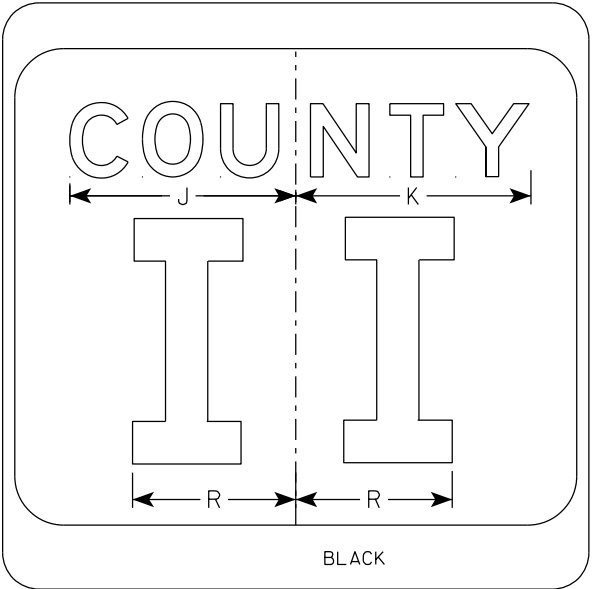
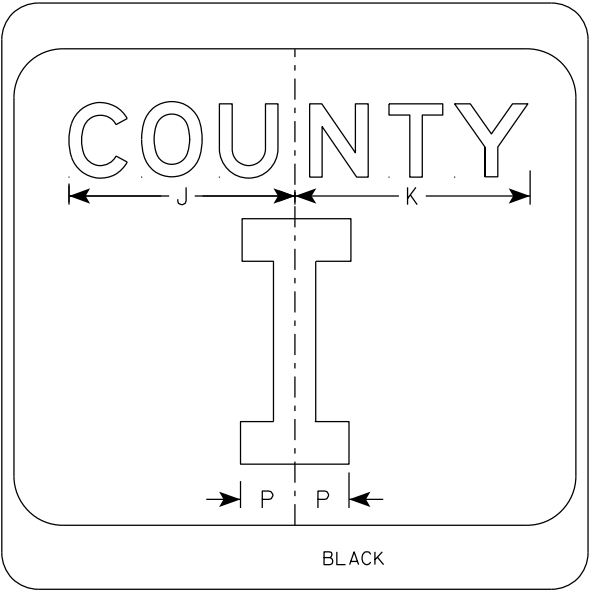
SHEET NO:

E

7



- NOTES
- Sign is Type II - Type H Reflective
 - Color:
Background - White & Black
Message - Black
 - Message Series - see Note 4
 - 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.
 - Substitute appropriate letters & optically center to achieve proper balance.



SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2	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
2M	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 11/8/2022 PLATE NO. M1-5A.9

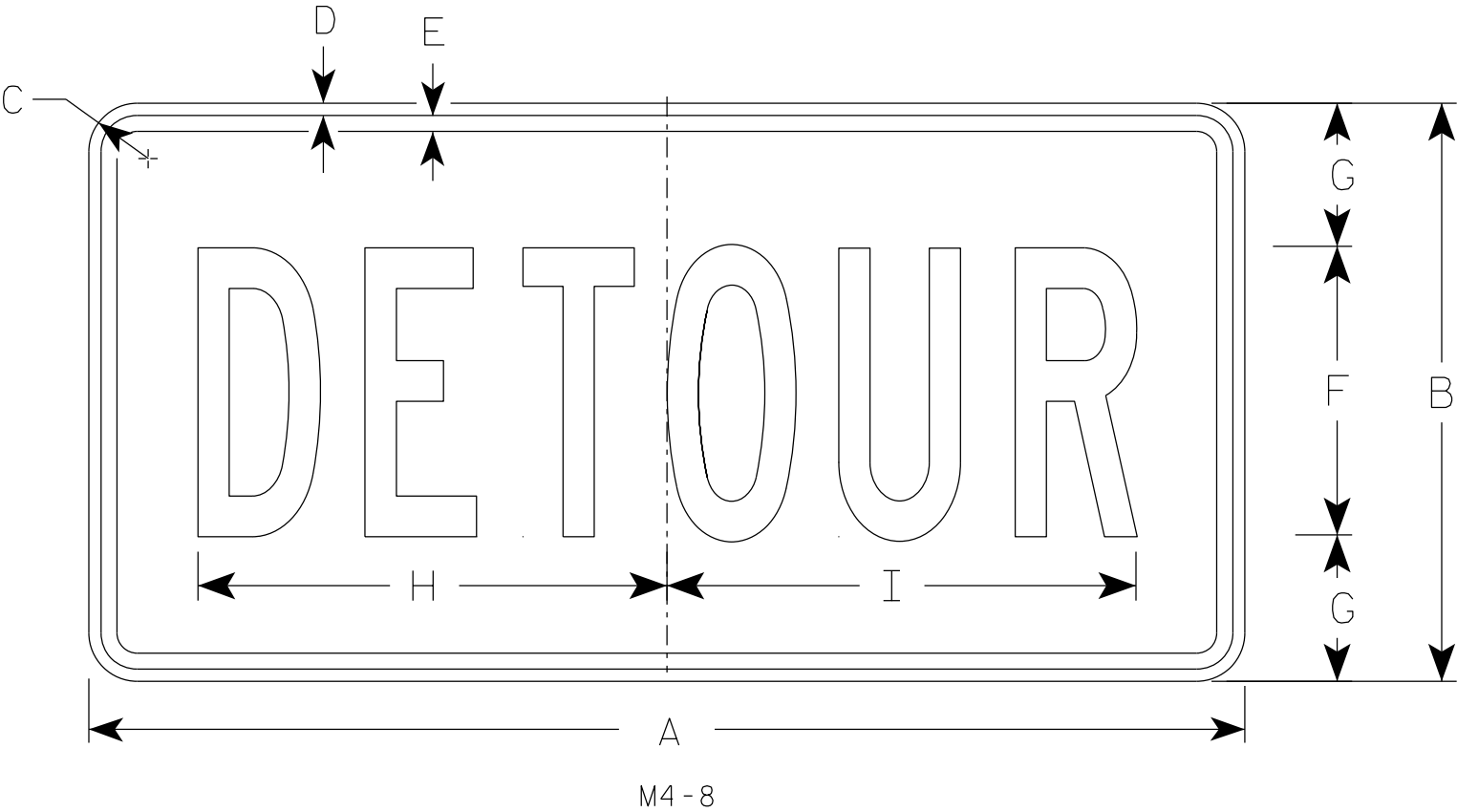
7

7

7

NOTES

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



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

STANDARD SIGN

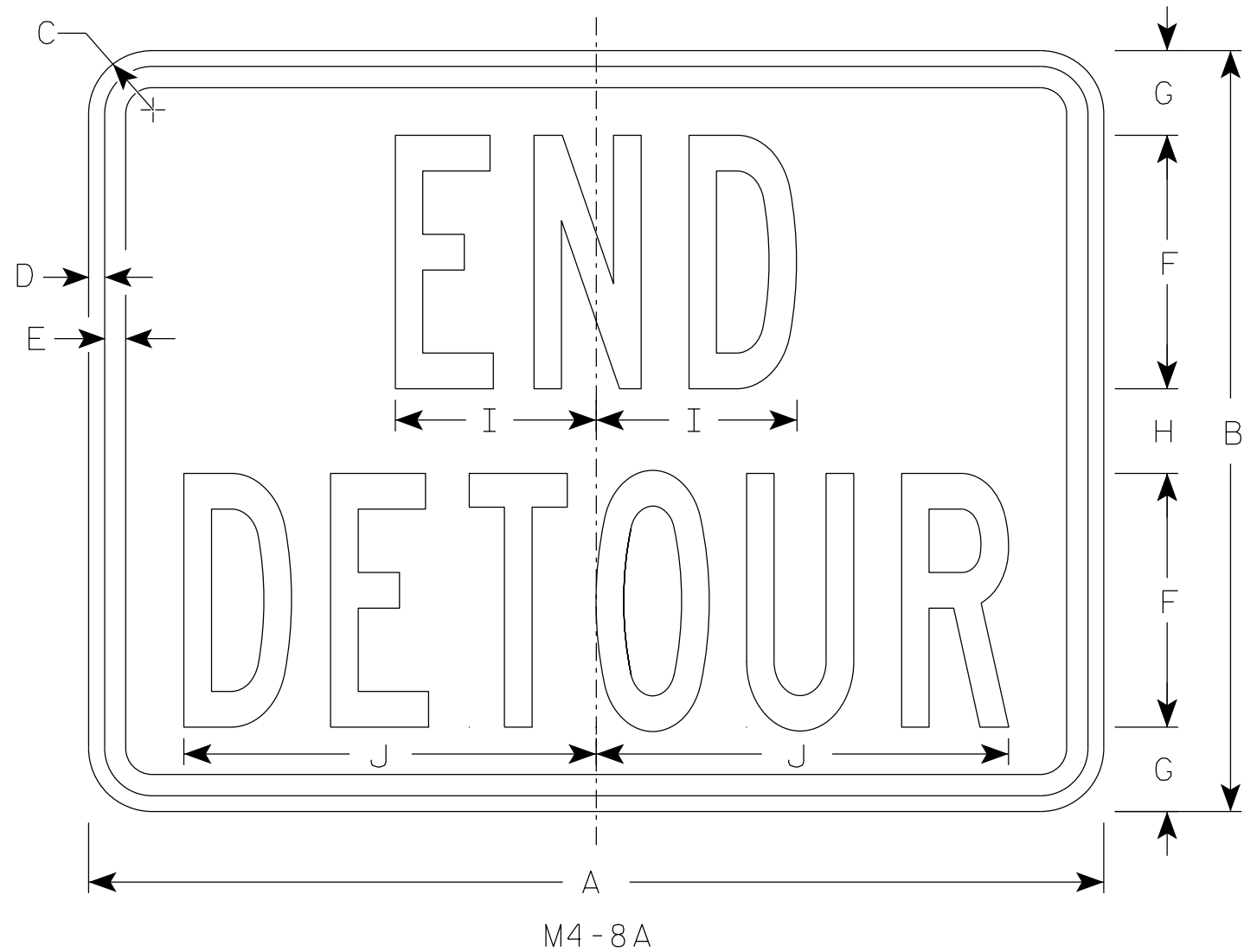
M4-8

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

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

7



NOTES

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

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

STANDARD SIGN

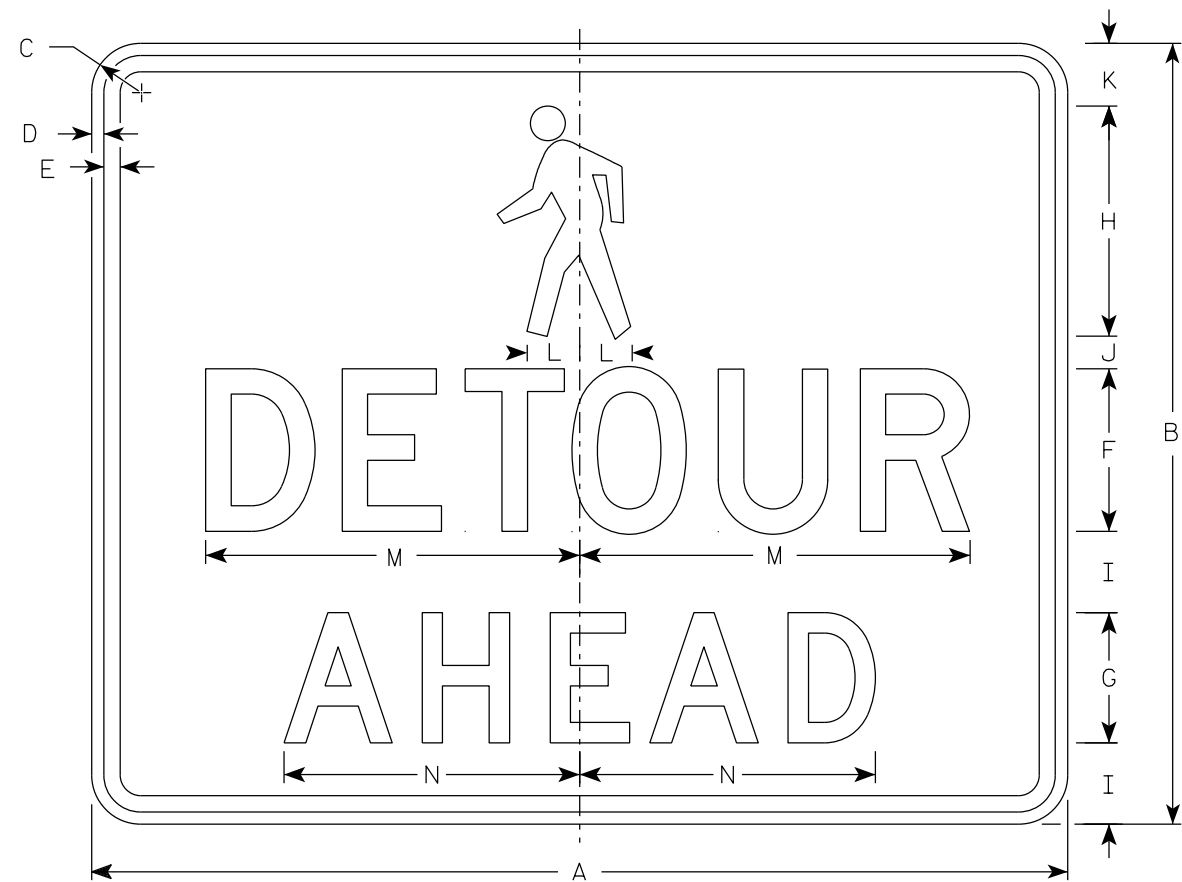
M4-8A

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
For State Traffic Engineer

DATE 2/9/2023 PLATE NO. M4-8A.4

7



M4 - 9BA

NOTES

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

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	30	24	1 1/2	3/8	1/2	5	4	7 1/8	2 1/2	1	1 7/8	1 5/8	11 3/4	9 1/8													5.0
2M	30	24	1 1/2	3/8	1/2	5	4	7 1/8	2 1/2	1	1 7/8	1 5/8	11 3/4	9 1/8													5.0
3																											
4																											
5																											

STANDARD SIGN
M4 - 9BA

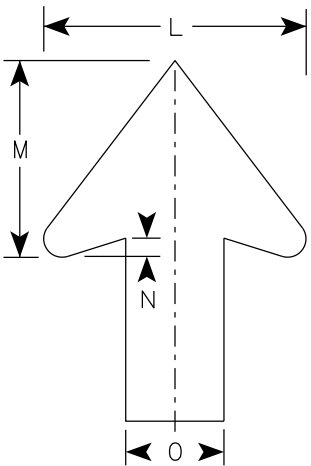
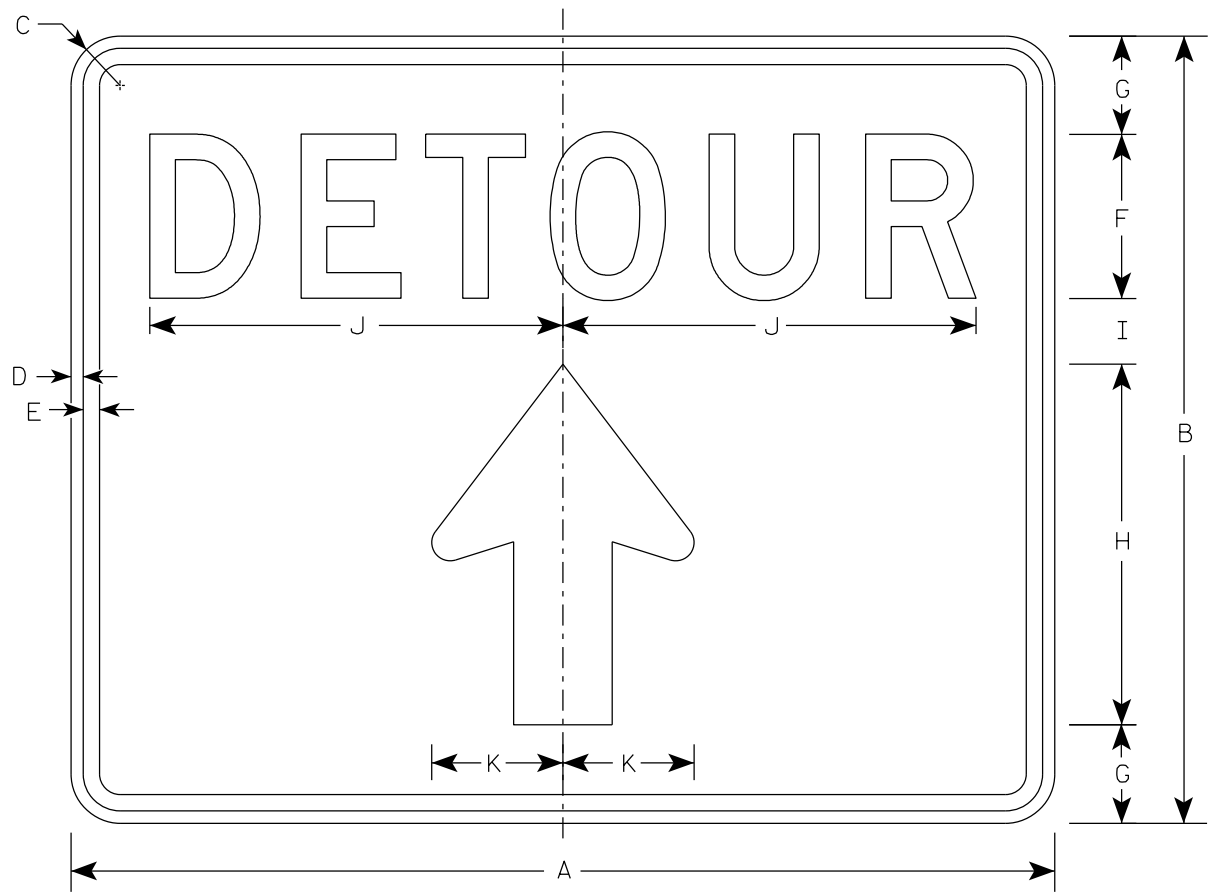
WISCONSIN DEPT OF TRANSPORTATION
APPROVED *Matthew R. Rauch*
for State Traffic Engineer
DATE 2/9/2023 PLATE NO. M4-9BA.3

7

7

NOTES

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



Arrow Detail

M4 - 9RA

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	30	24	1 1/2	3/8	1/2	5	3	11	2	12 5/8	4	8	6	1/2	3												5.00
2M	30	24	1 1/2	3/8	1/2	5	3	11	2	12 5/8	4	8	6	1/2	3												5.00
3																											
4																											
5																											

STANDARD SIGN

M4-9RA

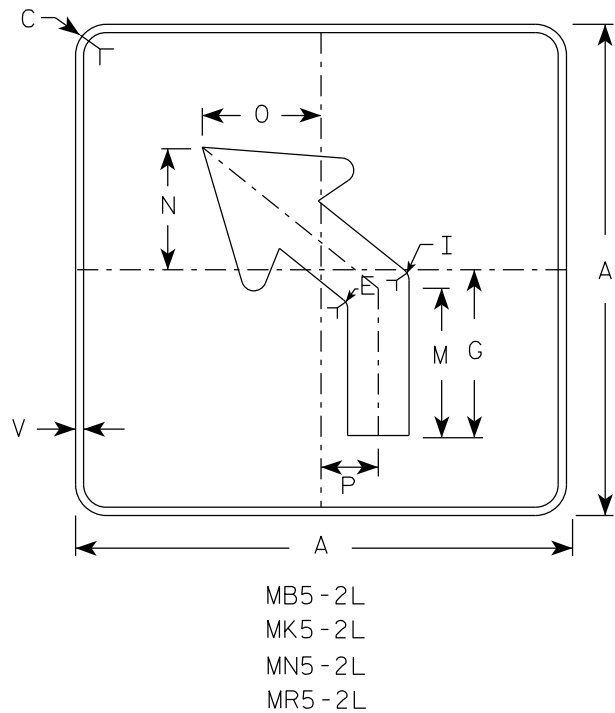
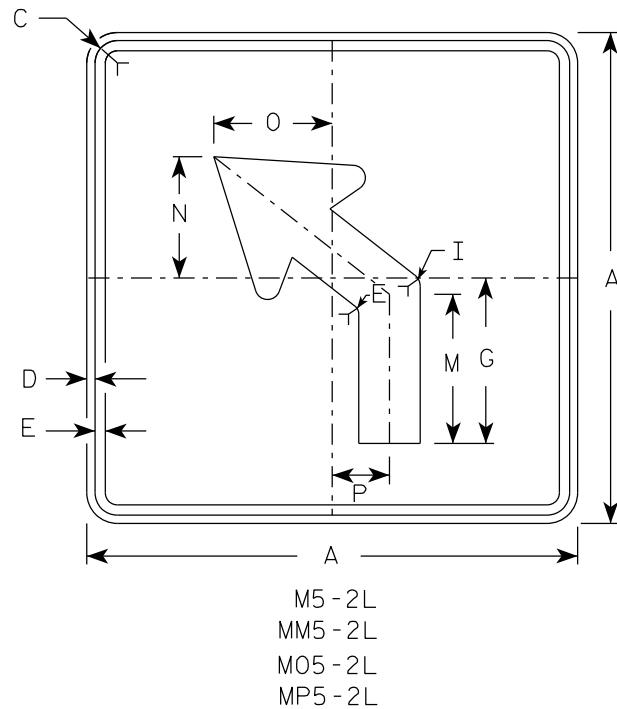
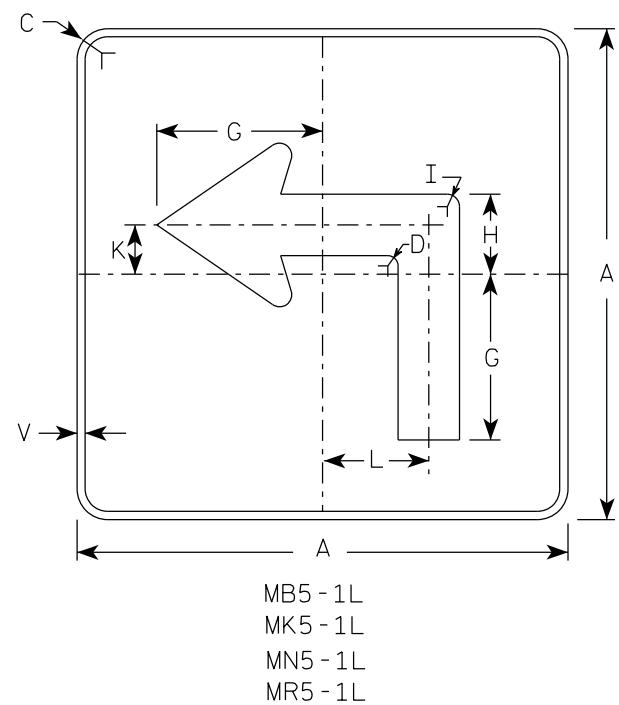
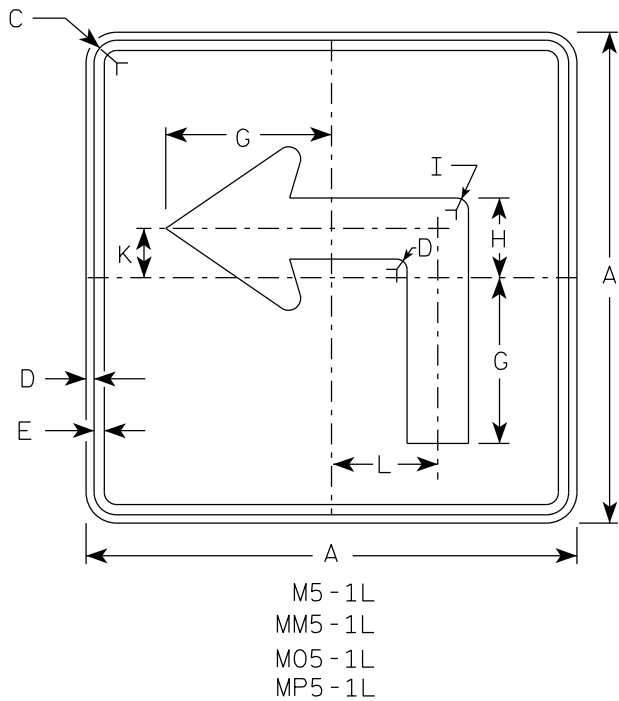
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*

for State Traffic Engineer

DATE 2/9/2023

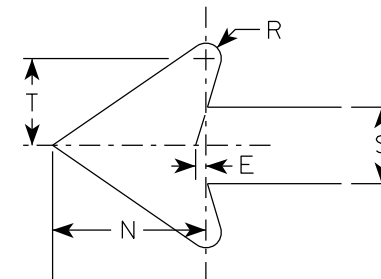
PLATE NO. M4-9RA.3



NOTES

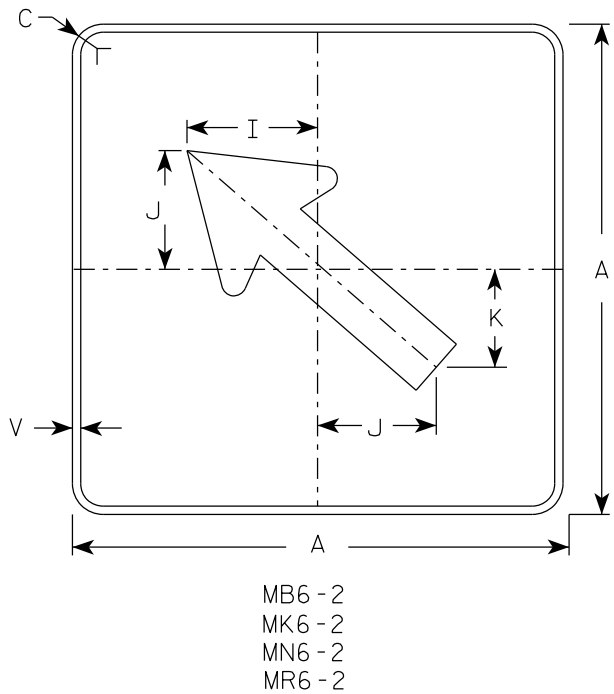
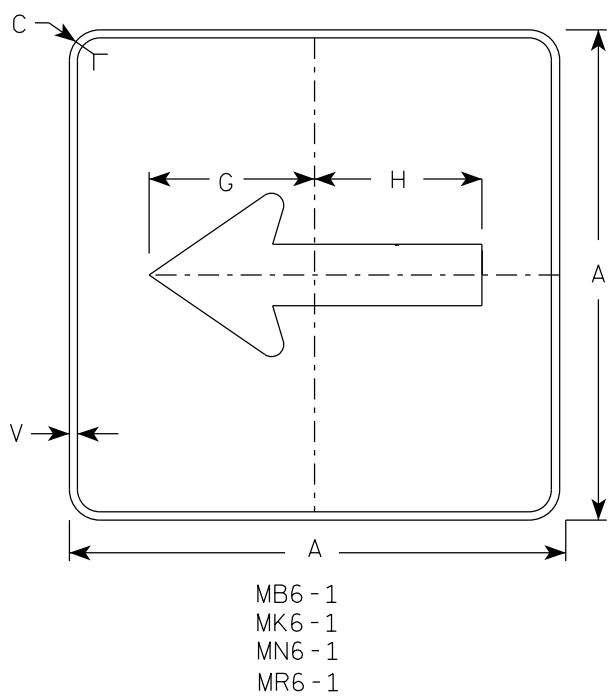
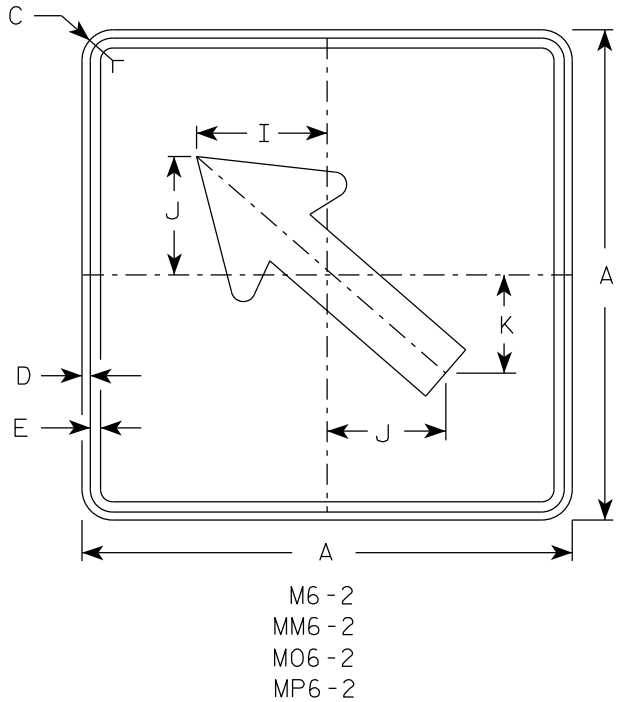
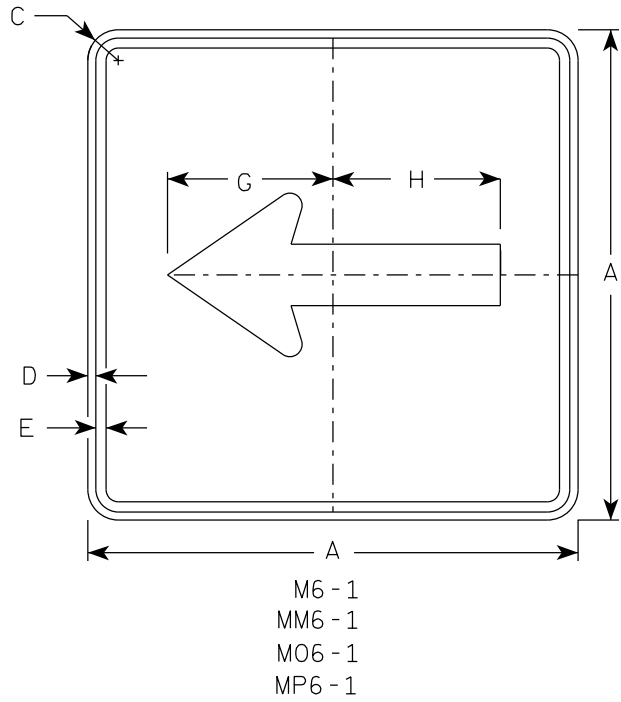
- Signs are Type II - Type H reflective except as shown
- Color:
Background - See note 4
Message - See note 4
- Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
- | | | |
|-----------|-------|---|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

ARROW DETAIL

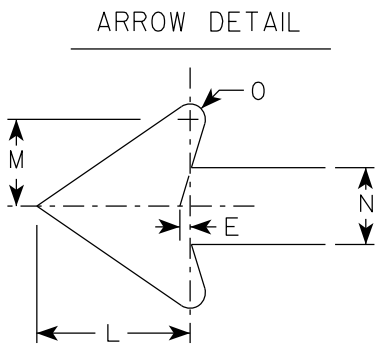


SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	21		1 1/2	3/8	3/8		7	3 3/8	5/8		2 1/8	4 1/2	6 3/8	5 1/4	5	2 1/2		1/2	2 5/8	3		1/2					3.06
2M	21		1 1/2	3/8	3/8		7	3 3/8	5/8		2 1/8	4 1/2	6 3/8	5 1/4	5	2 1/2		1/2	2 5/8	3		1/2					3.06
3	30		1 7/8	1/2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

PROJECT NO:	HWY:	COUNTY:	SHEET NO:	E
-------------	------	---------	-----------	---



- NOTES**
- Signs are Type II - Type H Reflective except as Shown
 - Color:
Background - See note 4
Message - See note 4
 - Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
 - M6-1 and M6-2 Background - White
Message - Black
MB6-1 and MB6-2 Background - Blue
Message - White
MK6-1 and MK6-2 Background - Green
Message - White
MM6-1 and MM6-2 Background - White
Message - Green
MN6-1 and MN6-2 Background - Brown
Message - White
M06-1 and M06-2 Background - Orange - Type F Reflective
Message - Black
MP6-1 and MP6-2 Background - White
Message - Blue
MR6-1 and MR6-2 Background - Brown
Message - Yellow



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

PROJECT NO:

HWY:

COUNTY:

SHEET NO:

E

STANDARD SIGN
M6-1 & M6-2
SERIES

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

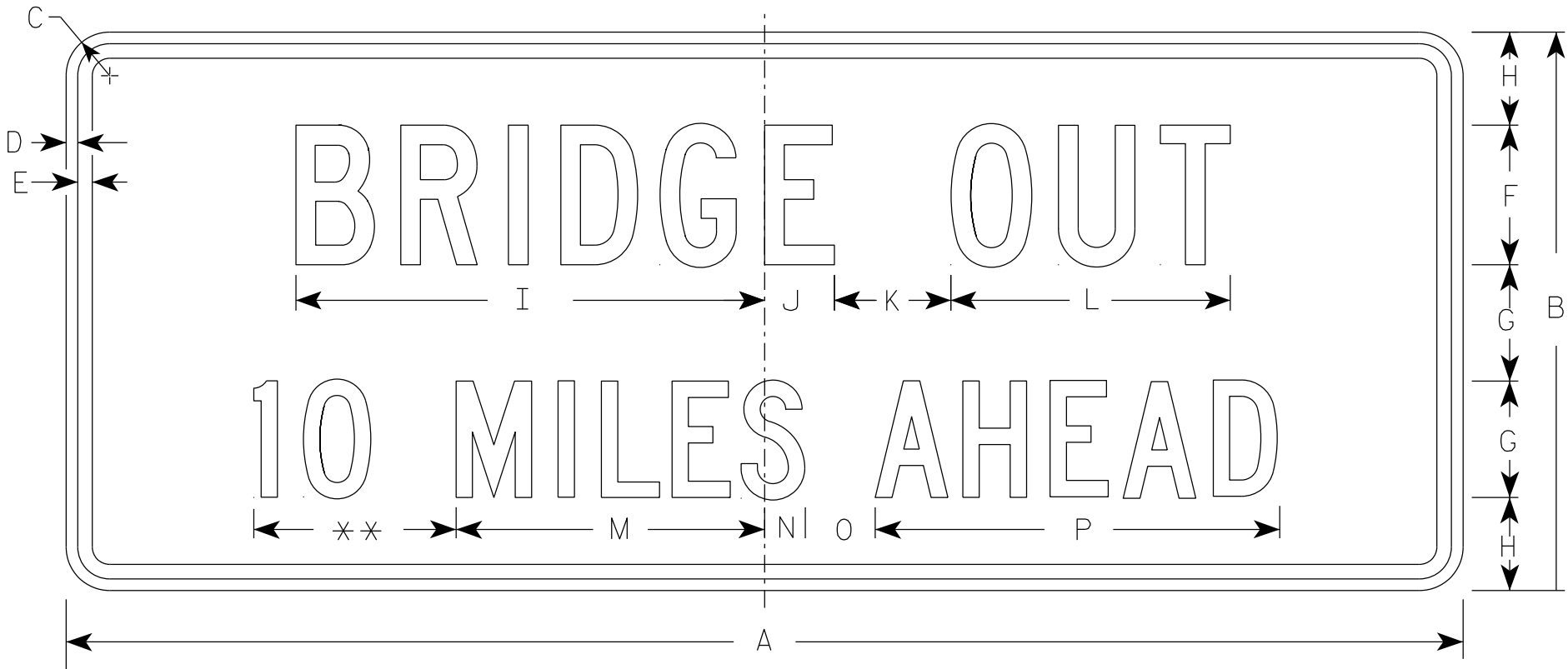
DATE 2/13/2023 PLATE NO. M6-1.16

NOTES

1. Sign is Type II - Type H Reflective
2. Color:

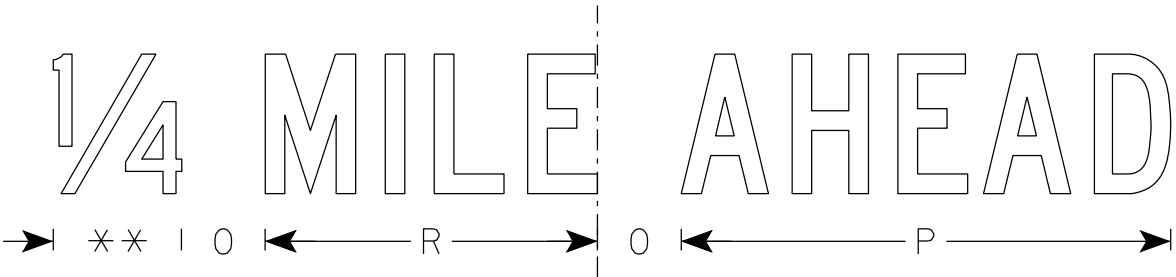
Background - White

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



R11-3C

** See Note 5



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

STANDARD SIGN
R11-3C

WISCONSIN DEPT OF TRANSPORTATION

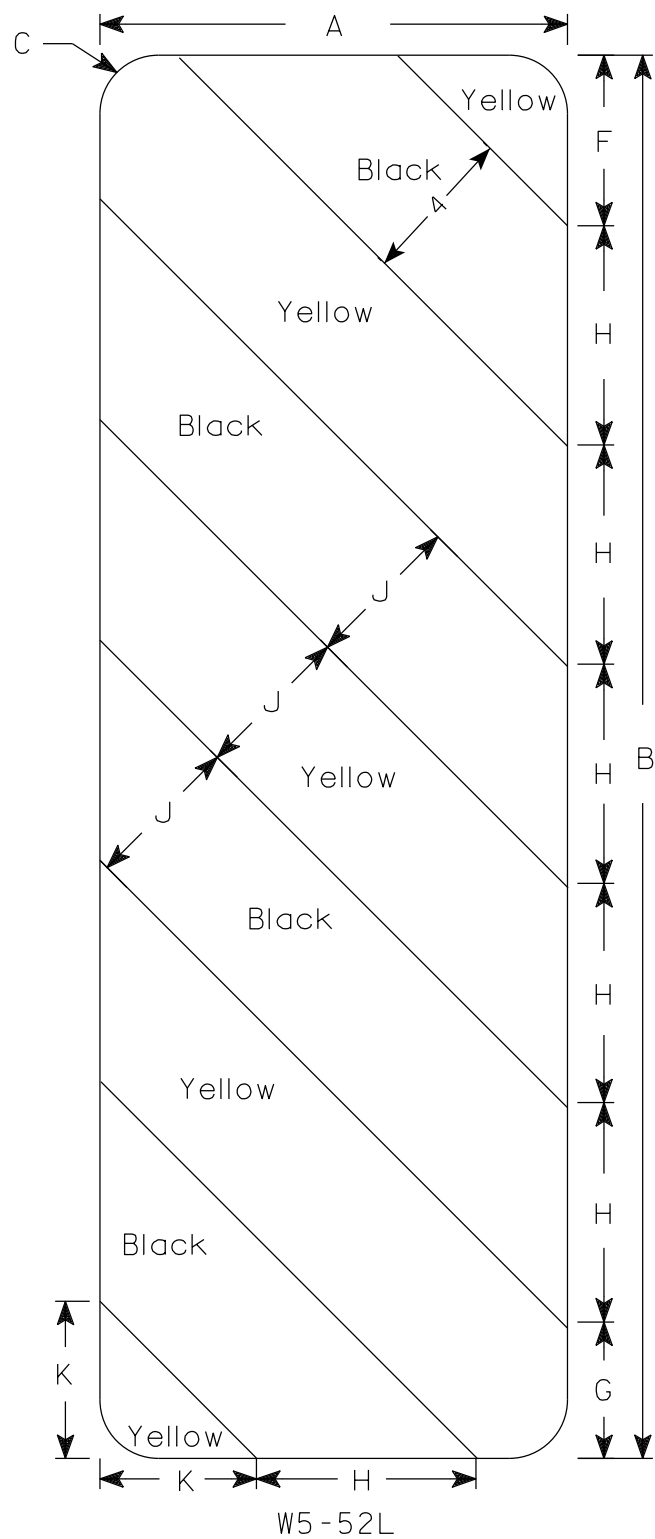
APPROVED
Matthew R. Rauch
for State Traffic Engineer

DATE 2/5/24 PLATE NO. R11-3C.4

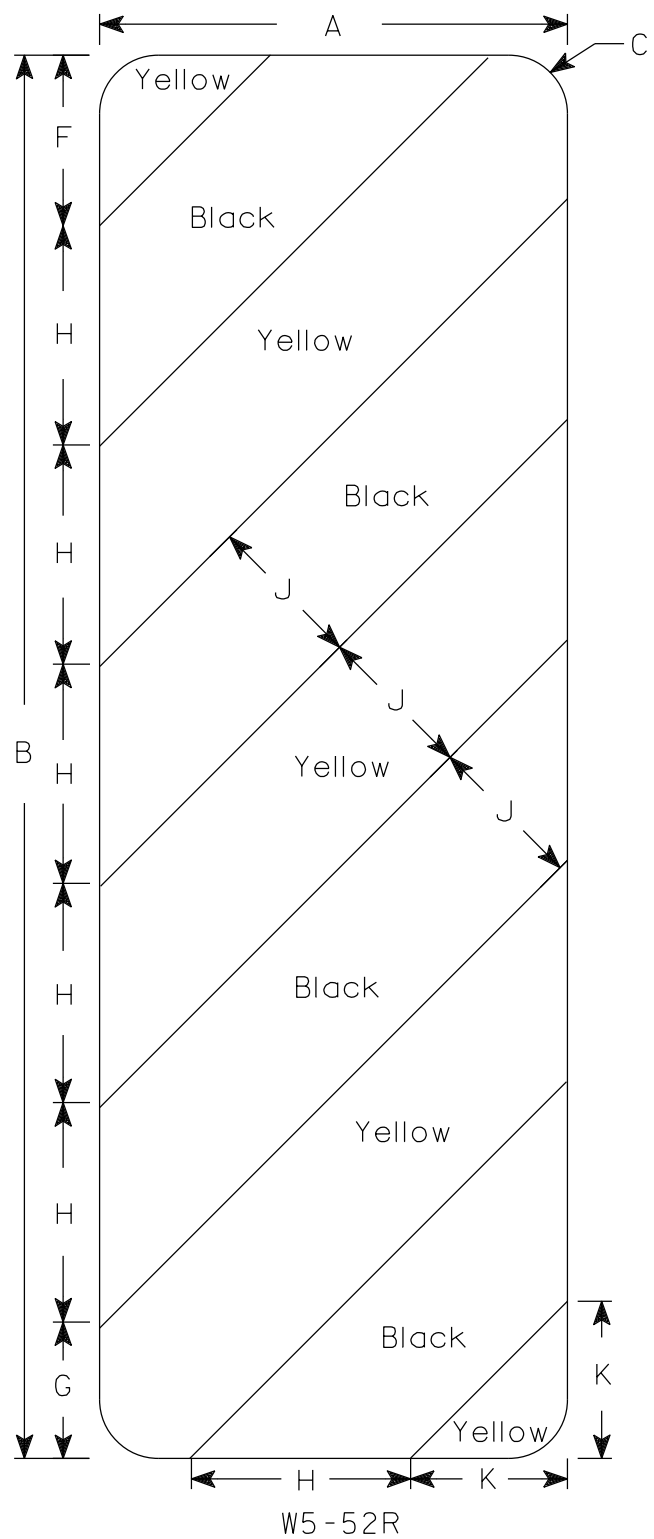
PROJECT NO:

SHEET NO:

E



W5-52L



W5-52R

NOTES

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

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

STANDARD SIGN

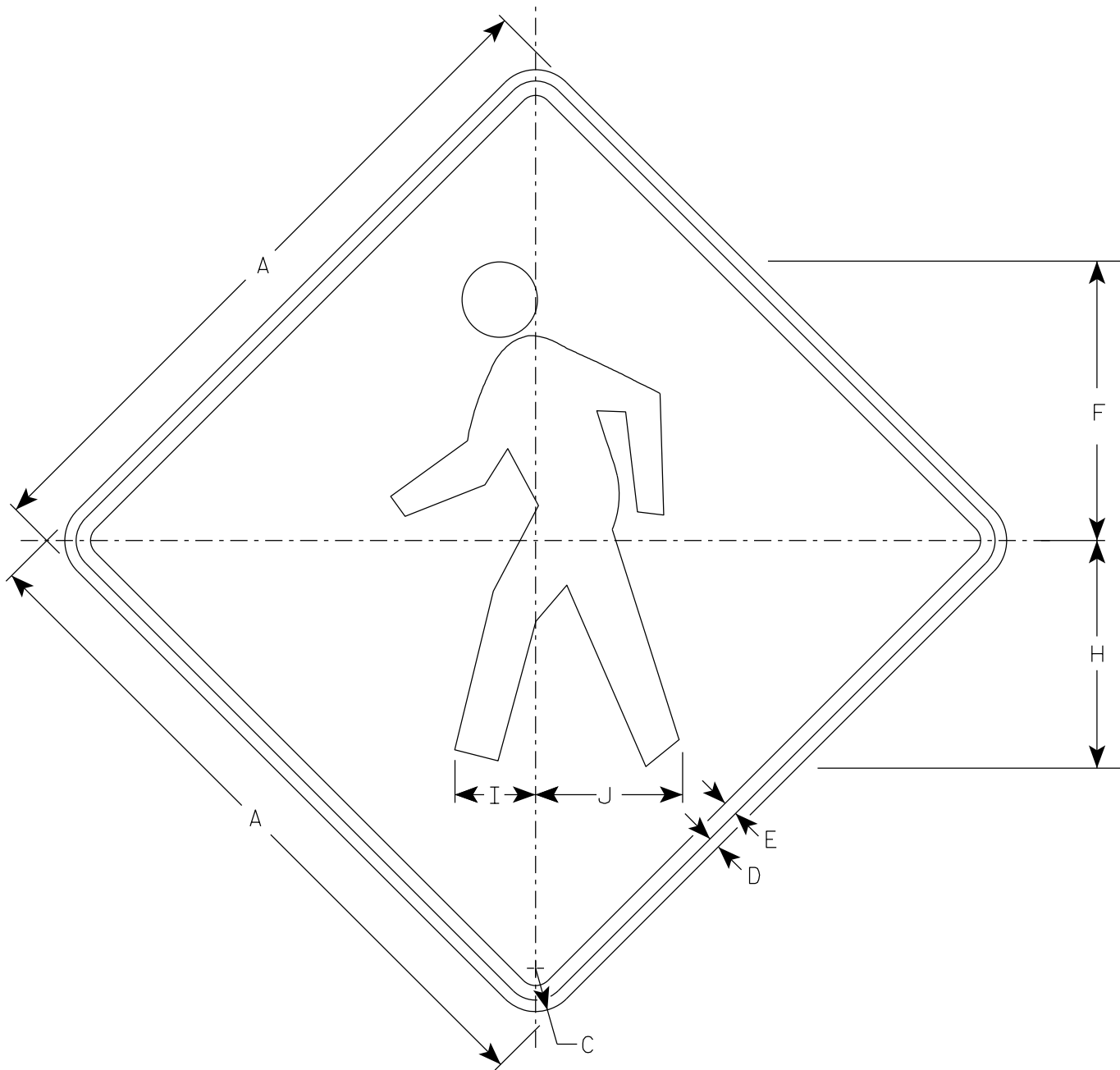
W5-52L & W5-52R

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
For State Traffic Engineer

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

7



W11-2

NOTES

- 1. Sign is Type II - Type F Reflective
- 2. Color:
Background - Yellow
Message - Black

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	24		1 1/2	3/8	1/2	9 3/4		7 7/8	2 7/8	5 1/8																	4.0
2S	30		1 7/8	1/2	5/8	12 1/8		9 7/8	3 1/2	6 3/8																	6.25
2M	36		2 1/4	5/8	3/4	14 1/2		11 7/8	4 1/4	7 5/8																	9.0
3	36		2 1/4	5/8	3/4	14 1/2		11 7/8	4 1/4	7 5/8																	9.0
4	48		3	3/4	1	19 3/8		15 3/4	5 5/8	10 1/4																	16.0
5																											

STANDARD SIGN
W11-2

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 6/15/2023 PLATE NO. W11-2.9

PROJECT NO:

HWY:

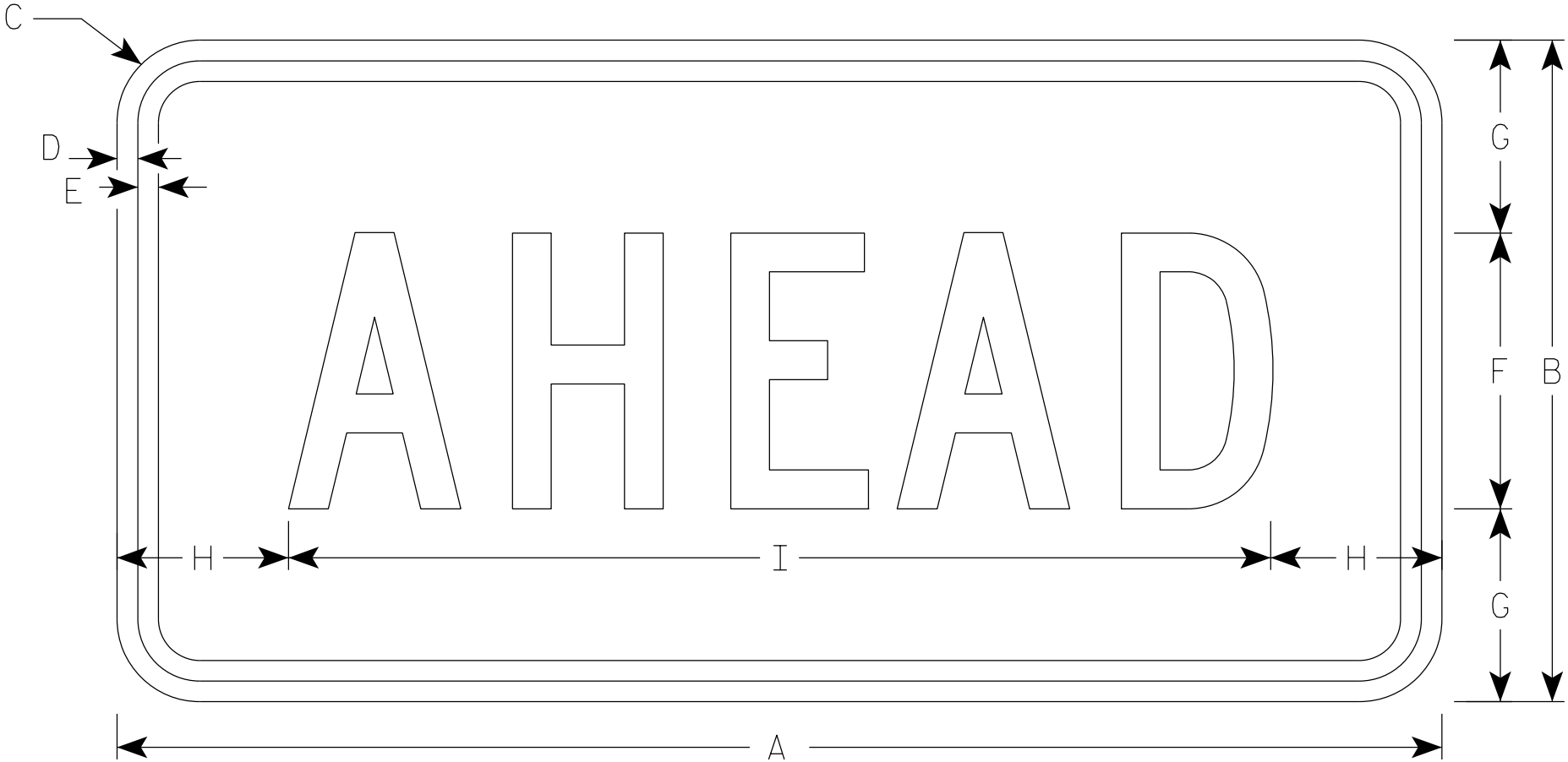
COUNTY:

SHEET NO:

E

NOTES

- 1. Sign is Type II - Type F Reflective
- 2. Color:
Background - Yellow
Message - Black
- 3. Message Series - C



W16-9P

- * For 36" x 36" Warning Signs, use 30" x 18" W16-9P signs.
- * For 48" x 48" Warning Signs, use 48" x 24" W16-9P signs.

✖ ✖ ✖	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
	1																											
	2S	24	12	1 1/2	3/8	3/8	5	3 1/2	3 1/8	17 3/4																		2.0
	2M	30	18	1 1/2	3/8	1/2	7	5 1/2	2 3/4	24 1/2																		3.75
	3	30	18	1 1/2	3/8	1/2	7	3 1/2	2 3/4	24 1/2																		3.75
	4	48	24	1 7/8	1/2	5/8	10	7	6 1/8	35 3/4																		8.0
	5																											

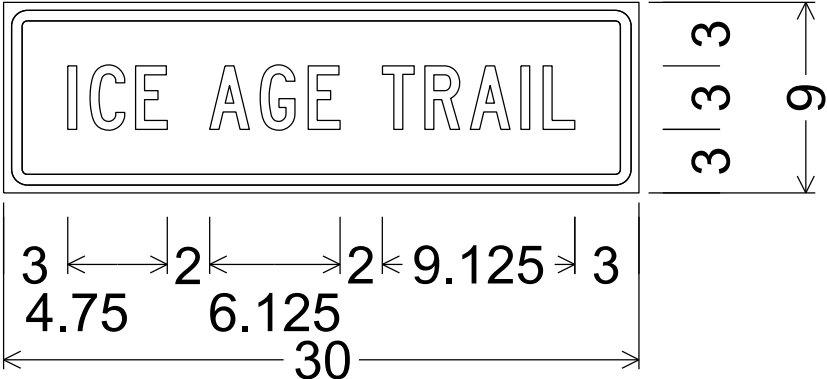
STANDARD SIGN
W16-9P

WISCONSIN DEPT OF TRANSPORTATION

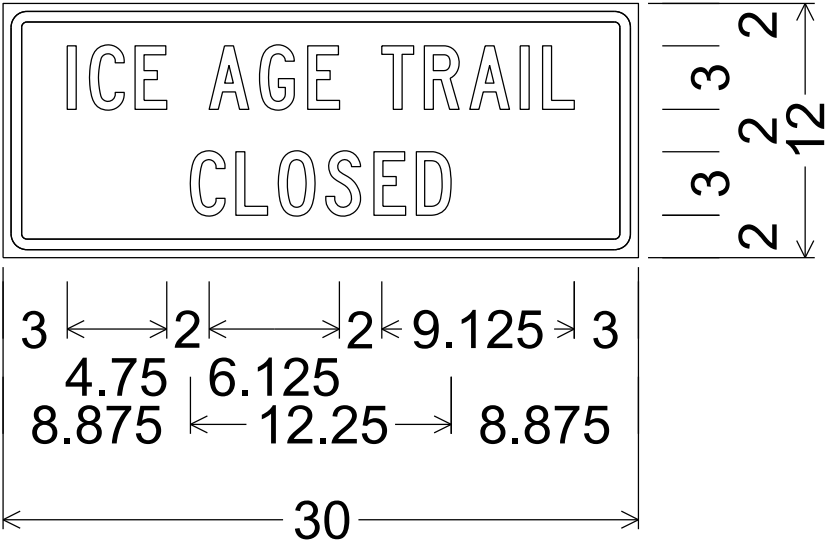
APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 1/9/2024 PLATE NO. W16-9P.9

7



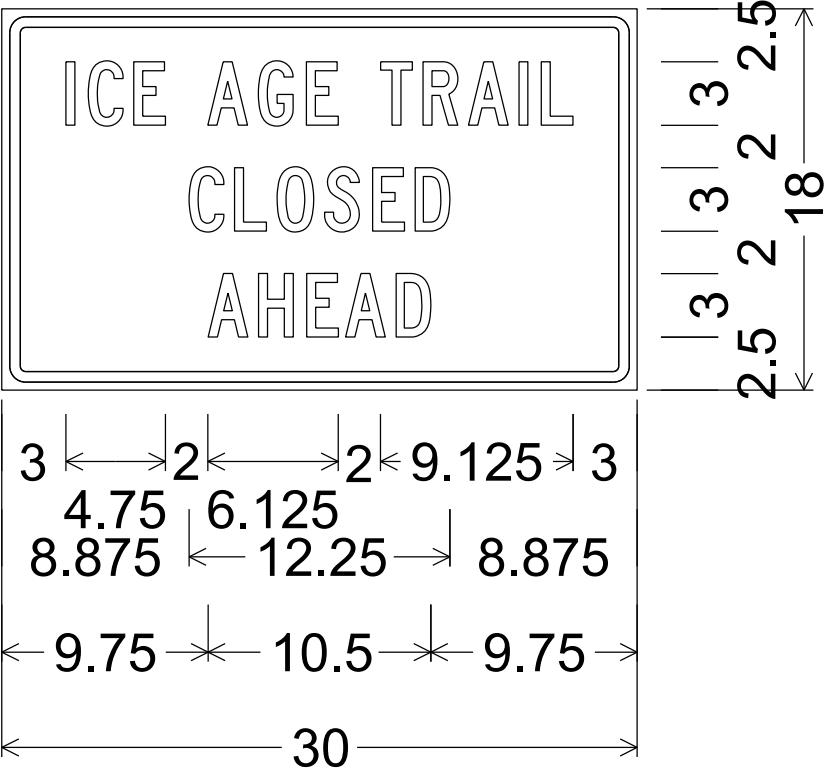
1.125" Radius, 0.500" Border, 0.375" Indent



1.125" Radius, 0.500" Border, 0.375" Indent

NOTES

- 1. Fixed Message Signs Type II- Type F Reflective
- 2. Color:
 - Background - Orange
 - Message - Black
- 3. Message Series - C



1.125" Radius, 0.500" Border, 0.375" Indent

7

DESIGN DATA

LIVE LOAD:

DESIGN LOADING: HS-20
INVENTORY RATING: HS-16
OPERATING RATING: HS 26
WISCONSIN STANDARD PERMIT VEHICLE (WIS-SPV): 160 (KIPS)

MATERIAL PROPERTIES:

CONCRETE MASONRY:
CONCRETE MASONRY OVERLAY DECKS $f'_c = 4,000$ PSI
ALL OTHER $f'_c = 3,500$ PSI

STRUCTURAL CARBON STEEL:
ASTM A709, GRADE 36 $f_y = 36,000$ PSI
ASTM A709, GRADE 50/50S $f_y = 50,000$ PSI

TRAFFIC DATA

FEATURE ON: CTH EF

ADT = 1,720 (2025)
ADT = 1,930 (2045)
R.D.S. = 40 MPH

BENCH MARKS

NO.	STATION	DESCRIPTION	ELEV.
BM1	41+67.14, 20.94' RT.	RR SPIKE IN UTILITY POLE	937.74
BM2	44+43.33, 40.87' RT.	RR SPIKE IN UTILITY POLE	936.07



LEGEND

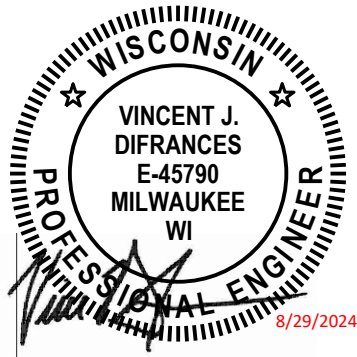
(X) INDICATES WING WALL NUMBER (PER AS-BUILT PLANS)

■ WING STRAPPING REQUIRED. SEE DETAILS ON SHEET 4.

LIST OF DRAWINGS

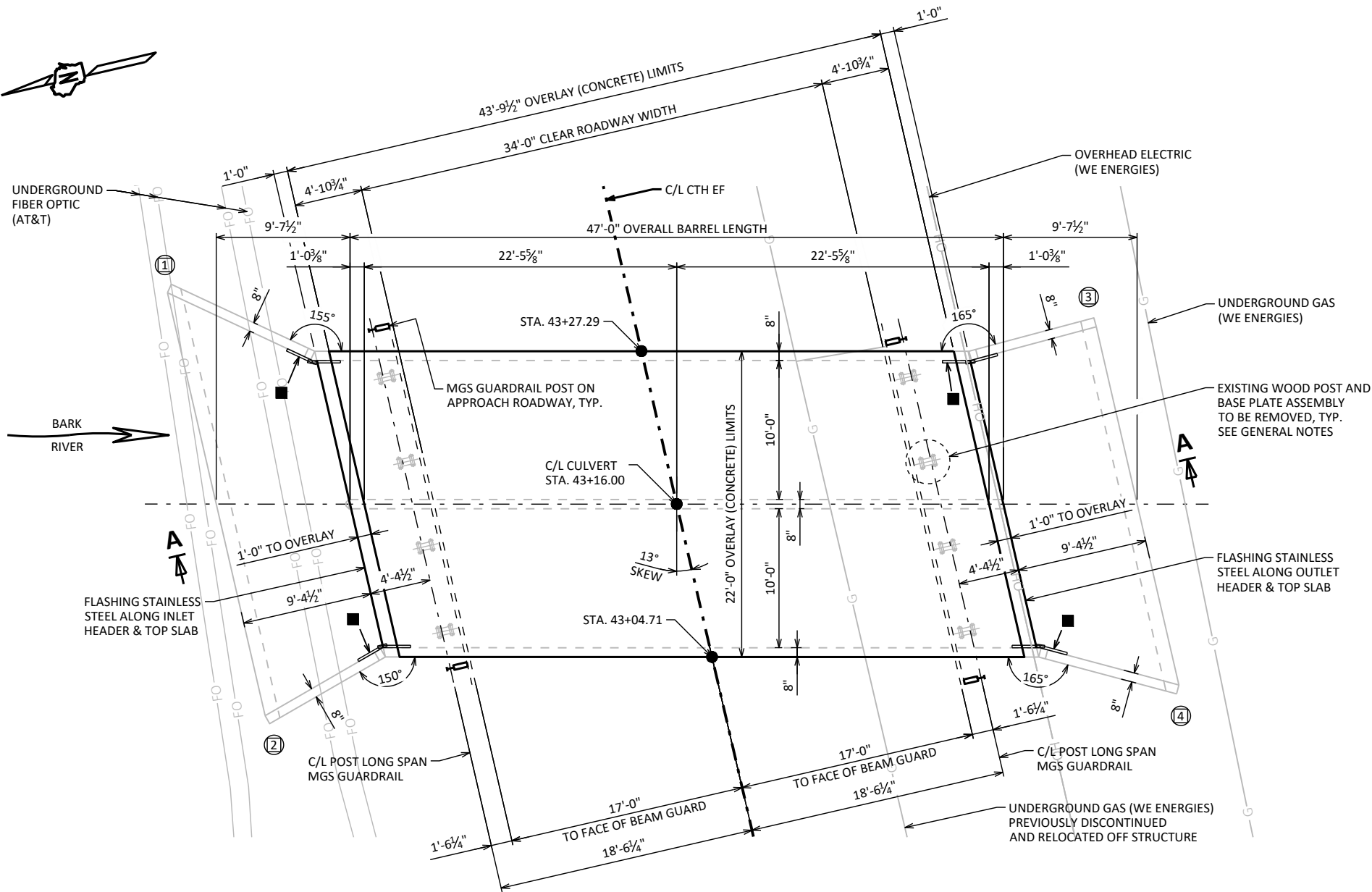
1. GENERAL PLAN
2. GENERAL NOTES, QUANTITIES, AND DETAILS
3. DECK PREPARATION
4. WING STRAPPING

NO.	DATE	REVISION	BY
 STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
ACCEPTED	 CHIEF STRUCTURES DESIGN ENGINEER		SDR 11/07/24 DATE
STRUCTURE B-67-210			
CTH EF (HARTLING RD) OVER BARK RIVER			
COUNTY	WAUKESHA	TOWN	MERTON
DESIGN SPEC. REHABILITATION N/A			
DESIGNED BY	VJD	DESIGNED CK'D	MPG
DRAWN BY	MPG	PLANS CK'D	VJD
GENERAL PLAN			SHEET 1 OF 4



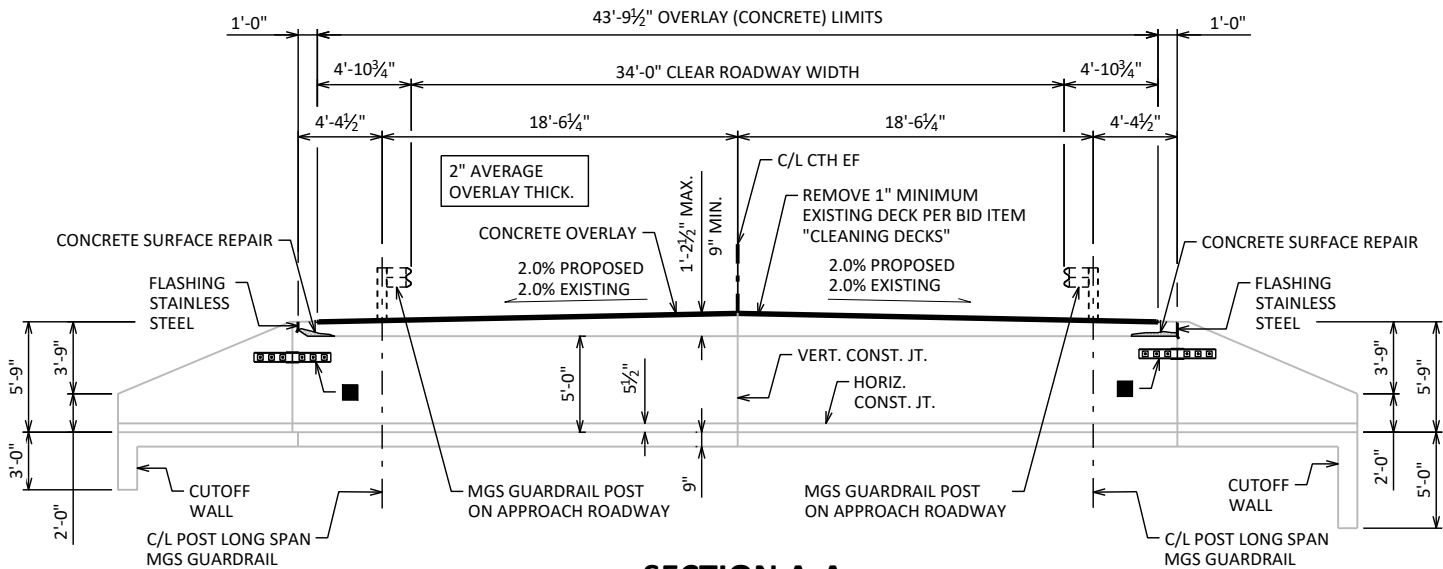
STRUCTURE DESIGN CONTACTS:

VINCENT DIFRANCES 262-573-3864
AARON BONK 608-261-0261



PLAN

TWIN CELL CONCRETE BOX CULVERT - CONCRETE OVERLAY



SECTION A-A

DIMENSIONS SHOWN ARE NORMAL TO C/L CTH EF

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

DIMENSIONS ARE BASED ON THE ORIGINAL STRUCTURE PLANS.

PROTECTIVE SURFACE TREATMENT SHALL BE APPLIED TO THE ENTIRE TOP SURFACE OF THE NEW CONCRETE OVERLAY.

A MINIMUM OF 1-INCH OF CONCRETE SHALL BE REMOVED FROM THE ENTIRE BRIDGE DECK UNDER THE BID ITEM "CLEANING DECKS".

THE AVERAGE OVERLAY THICKNESS IS BASED ON THE MINIMUM OVERLAY THICKNESS PLUS 1/2-INCH TO ACCOUNT FOR VARIATIONS IN THE DECK SURFACE.

PREPARATION DECKS TYPE 1, PREPARATION DECKS TYPE 2, AND FULL-DEPTH DECK REPAIR AREAS ARE BASED ON THE PLANS AND AS DETERMINED BY THE ENGINEER. DECK PREPARATION AND FULL-DEPTH DECK REPAIRS SHALL BE FILLED WITH "CONCRETE MASONRY OVERLAY DECKS".

ANY EXCAVATION REQUIRED TO COMPLETE THE OVERLAY TO BE CONSIDERED INCIDENTAL TO THE BID ITEM "CONCRETE MASONRY OVERLAY DECKS".

PROFILE GRADE LINE SHALL BE DETERMINED IN THE FIELD BASED ON A MINIMUM OVERLAY THICKNESS OF 1½" PLACED ABOVE THE DECK SURFACE AFTER SURFACE PREPARATION. EXPECTED AVERAGE OVERLAY THICKNESS IS 2". IF EXPECTED AVERAGE OVERLAY THICKNESS IS EXCEEDED BY MORE THAN ½", CONTACT THE STRUCTURES DESIGN SECTION.

EXISTING WOOD POSTS AND BASE PLATE ASSEMBLIES ARE TO BE REMOVED. REMOVALS SHALL BE PAID UNDER ROADWAY BID ITEM "REMOVING GUARDRAIL POSTS AND ASSEMBLY MOUNTED TO BOX CULVERT". SEE ROADWAY PLANS AND SPECIAL PROVISIONS. BURN OFF EXISTING ANCHOR BOLTS FLUSH WITH CONCRETE SURFACE AND GRIND SMOOTH.

STAINLESS STEEL FLASHING NOTES

THE BID ITEMS "FLASHING STAINLESS STEEL" SHALL INCLUDE PROVIDING AND INSTALLING THE STAINLESS STEEL FLASHING, SILICONE CAULK AND ¾" CONCRETE SCREWS.

CONCRETE SCREWS SHALL BE 410 STAINLESS STEEL.

EXTEND FLASHING TO THE INSIDE FACE OF THE EXTERIOR BARREL WALLS.

TOP OF FLASHING TO BE EQUAL TO THE TOP OF THE TOP SLAB ELEVATION.

THE FLASHING IS TO BE A CONSTANT HEIGHT BASED ON THE DIMENSIONS SHOWN ON THIS SHEET.

PROVIDE 2" MINIMUM FLASHING OVERLAP, FASTEN WITH ¾" X 2" (MIN) CONCRETE SCREWS.

CAULK SHALL BE NON-STAINING, GRAY NON-BITUMINOUS JOINT SEALER.

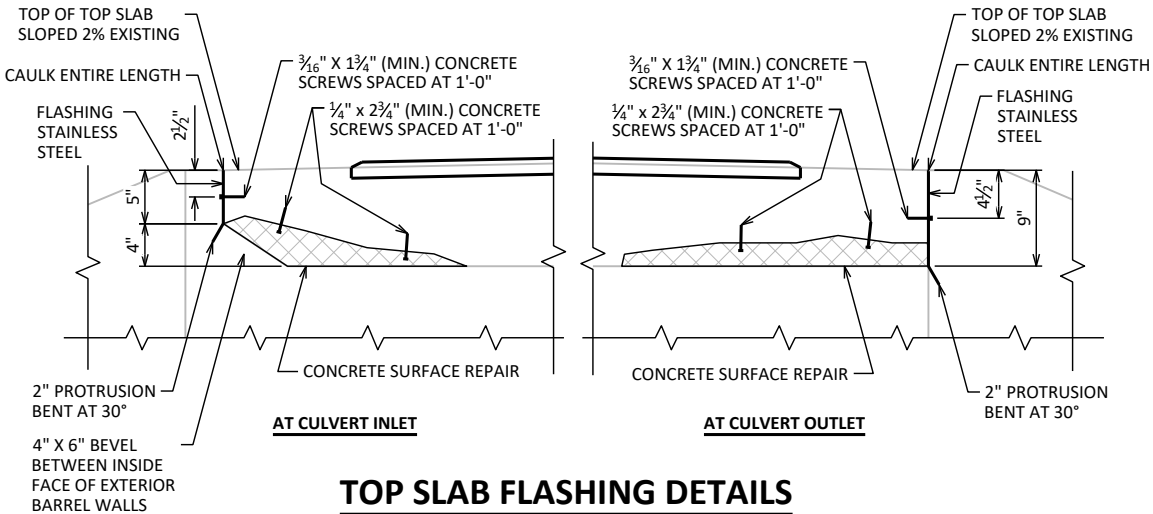
STATE PROJECT NUMBER

2756-05-71

TOTAL ESTIMATED QUANTITIES

BID ITEM NUMBER	BID ITEMS	UNIT	TOTAL
502.3200	PROTECTIVE SURFACE TREATMENT	SY	110
509.0301	PREPARATION DECKS TYPE 1	SY	15
509.0302	PREPARATION DECKS TYPE 2	SY	8
509.0500	CLEANING DECKS	SY	110
509.1500	CONCRETE SURFACE REPAIR	SF	82
509.2000	FULL-DEPTH DECK REPAIR	SY	2
509.2500	CONCRETE MASONRY OVERLAY DECKS	CY	8
SPV.0060.01	STRAPPING B-67-210	EACH	4
SPV.0090.01	FLASHING STAINLESS STEEL	LF	43

ALL B-67-210 BID ITEMS ARE CATEGORY 0020



NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-67-210			
		DRAWN BY	PLANS CK'D
		MPG	VID
GENERAL NOTES, QUANTITIES, AND DETAILS		SHEET 2 OF 4	

SCALE = N.T.S.

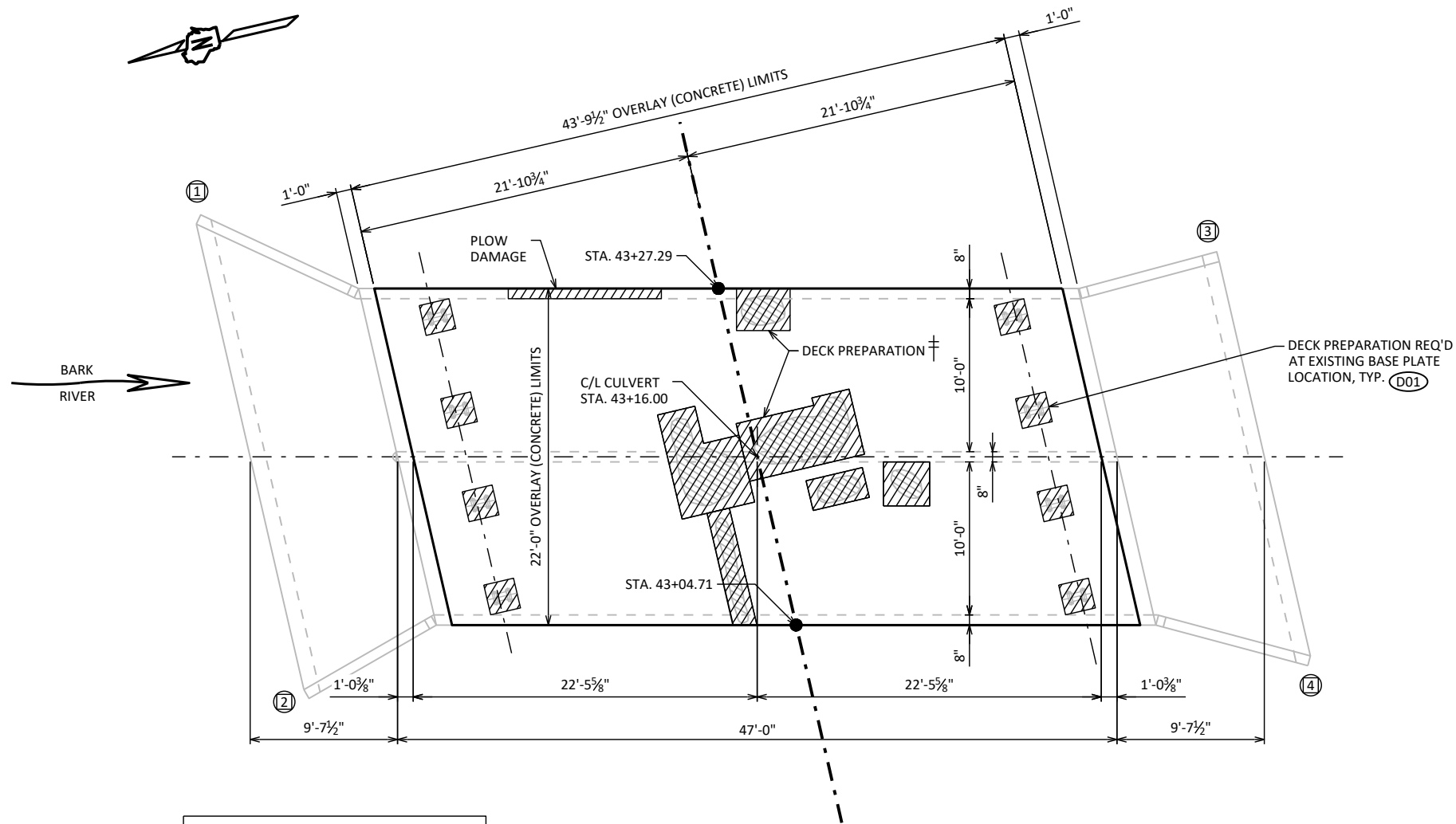
LEGEND

D01 EXISTING WOOD POSTS AND BASE PLATE ASSEMBLIES ARE TO BE REMOVED. PREPARE DECK SURFACE AFTER REMOVAL AND BURN OFF EXISTING ANCHOR BOLTS FLUSH WITH PREPARED CONCRETE SURFACE AND GRIND SMOOTH. REMOVALS, INCLUDING BOLT REMOVAL, SHALL BE PAID UNDER ROADWAY BID ITEM "REMOVING GUARDRAIL POSTS AND ASSEMBLY MOUNTED TO BOX CULVERT". SEE ROADWAY PLANS AND SPECIAL PROVISIONS. DECK PREPARATION WILL BE PAID SEPARATELY.

X INDICATES WING WALL NUMBER

STATE PROJECT NUMBER

2756-05-71



⊕ SURVEY TYPE: INFRARED THERMOGRAPHY
SURVEY COMPLETED DATE: 5/12/21

PLAN

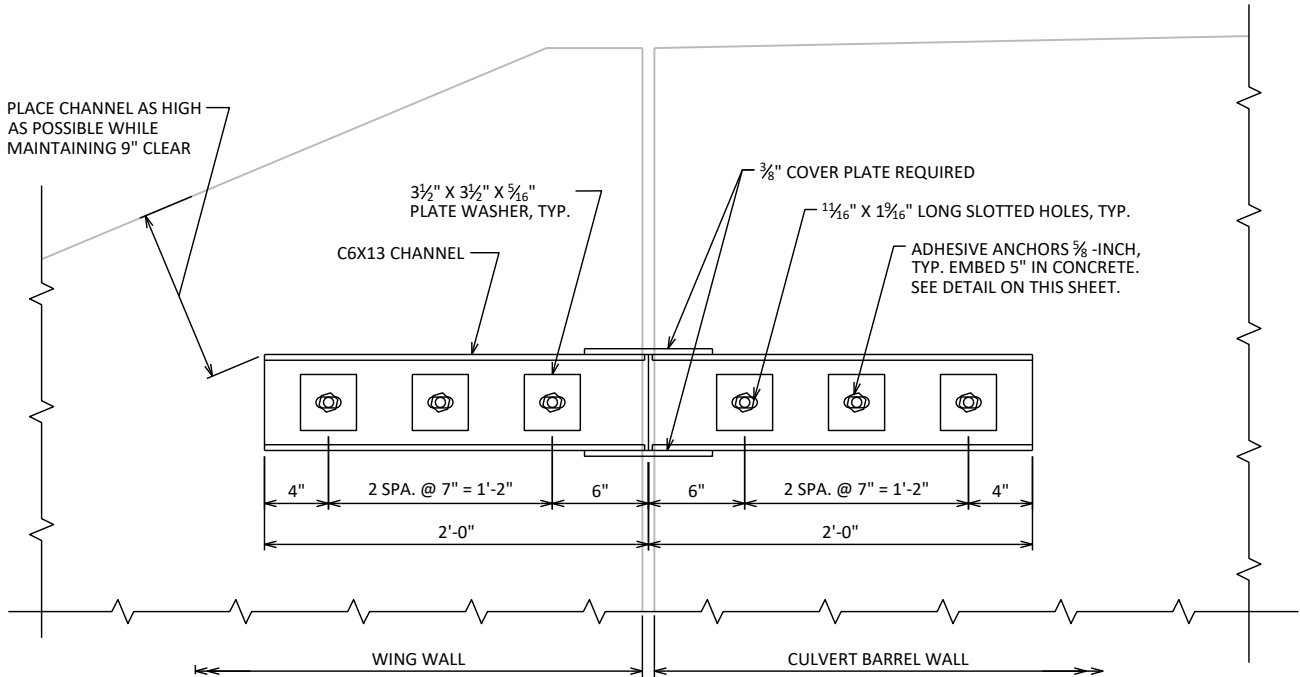
INFRARED THERMOGRAPHIC SURVEY RESULTS

GUARDRAIL AND OTHER PROPOSED WORK NOT SHOWN FOR CLARITY
SHOWING DECK PREPARATION AREAS

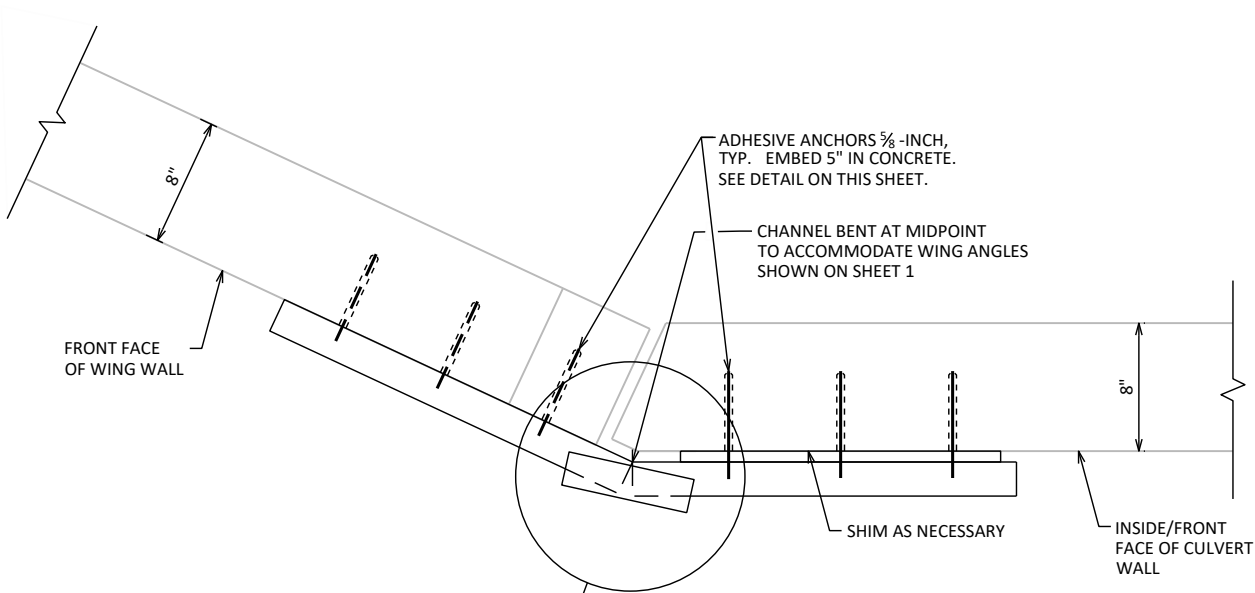
FIELD OBSERVATIONS SUMMARY		B-67-210		LEGEND	
ITEM	UNIT	QTY.	%		
TOTAL AREA	SF	765		DELAMINATION	
SHADE/DEBRIS	SF	0		SPALL	
DELAMINATION	SF	47	6.1	DEBOND	
SPALL	SF	0	0	ASPHALT PATCH	
DEBOND	SF	N/A	N/A	CONCRETE PATCH	
ASPHALT PATCH	SF	0	0	SHADE/DEBRIS	
CONCRETE PATCH	SF	0	0		

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-67-210			
DRAWN BY		MPG	PLANS CK'D VJD
DECK PREPARATION		SHEET 3 OF 4	

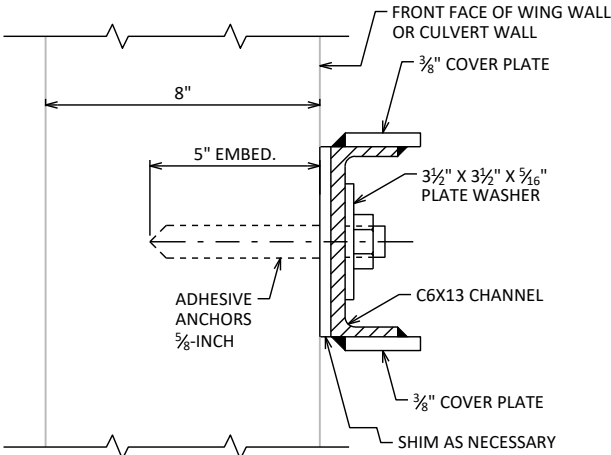
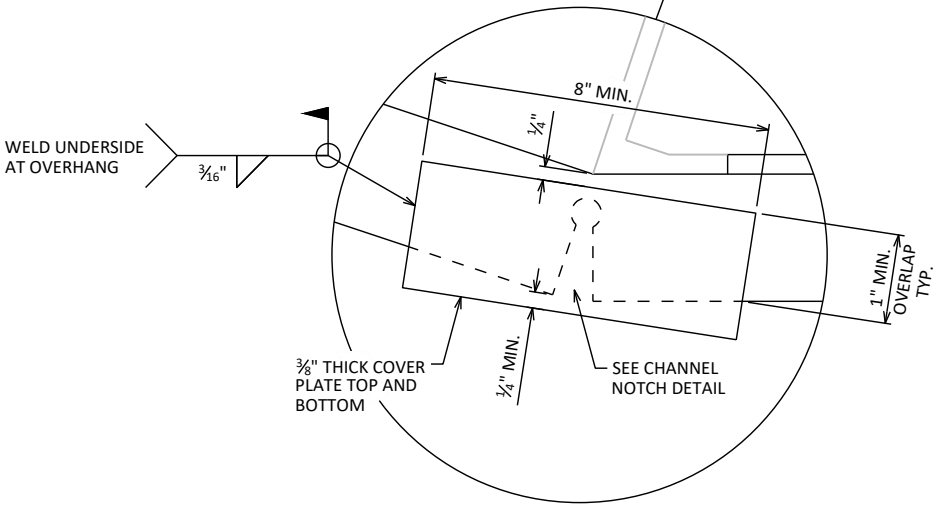
SCALE = N.T.S.



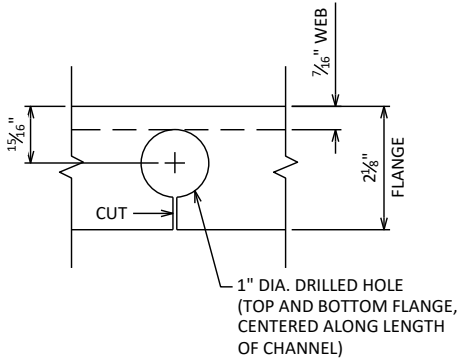
WING ELEVATION



PLAN



SECTION THRU CHANNEL



CHANNEL NOTCH DETAIL

NOTES

BID ITEM SHALL BE "STRAPPING B-67-210" WHICH INCLUDES ALL ITEMS SHOWN.

ALL PROVIDED STEEL MATERIAL SHALL CONFORM TO ASTM A36.

ALL STRUCTURAL STEEL SHOWN SHALL BE GALVANIZED. THREADED RODS, MASONRY ANCHORS, NUTS AND WASHERS SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 CLASS C.

CUTTING AND DRILLING OF CHANNEL SHALL BE DONE IN FABRICATION SHOP, PRIOR TO GALVANIZING.

IF WELDING COVER PLATE IN FIELD, PRIOR TO WELDING, REMOVE GALVANIZING FROM AREA TO BE WELDED. TOUCH UP WITH PAINT ALL AREAS LACKING GALVANIZING WHEN COMPLETE.

CAULK AROUND PERIMETER OF CHANNEL AND FILL PORTION OF HOLE AROUND ANCHOR BOLT AND SHIM WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER.

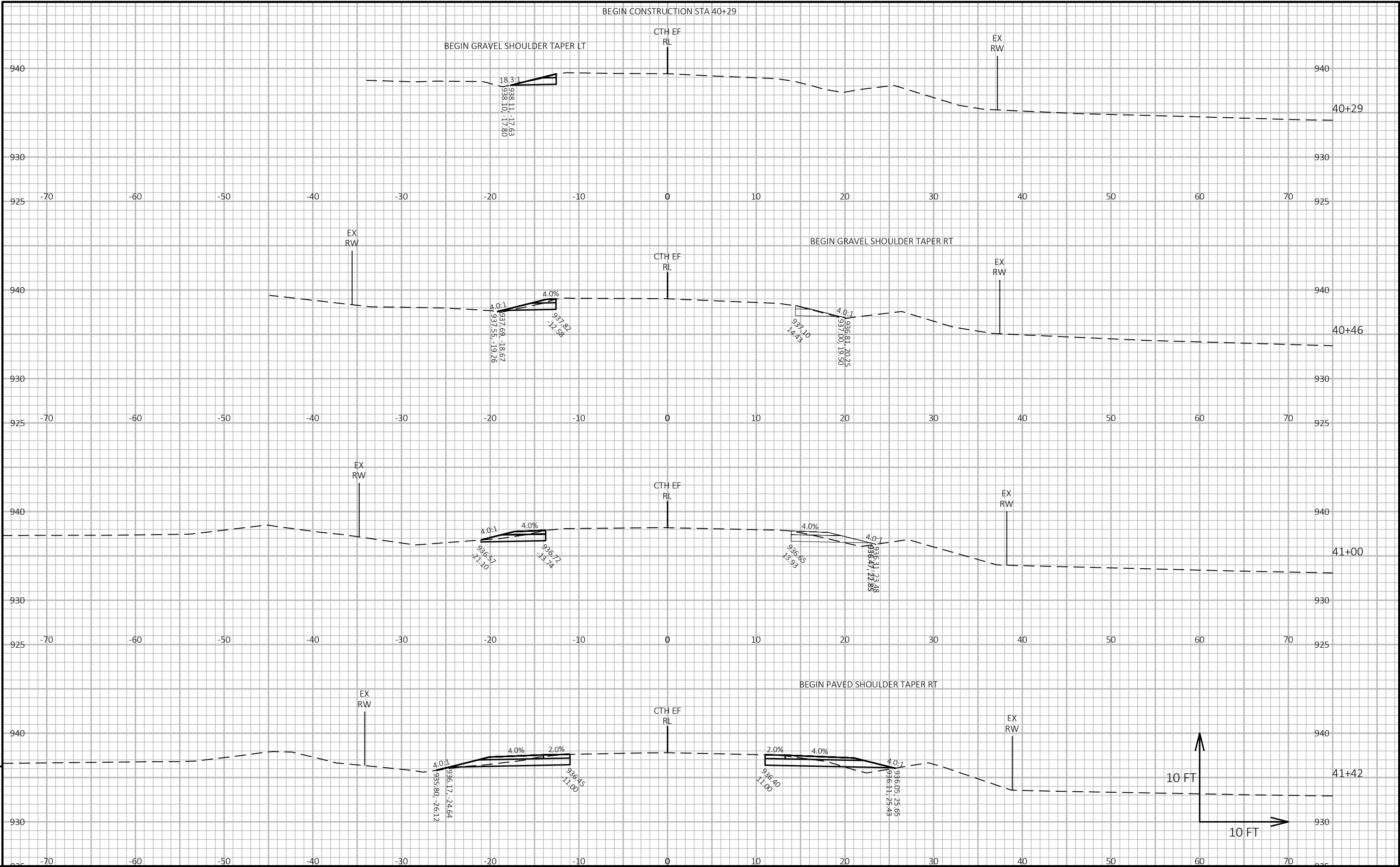
ADHESIVE ANCHORS SHALL CONFORM TO SECTION 502.2.12 OF THE STANDARD SPECIFICATIONS.

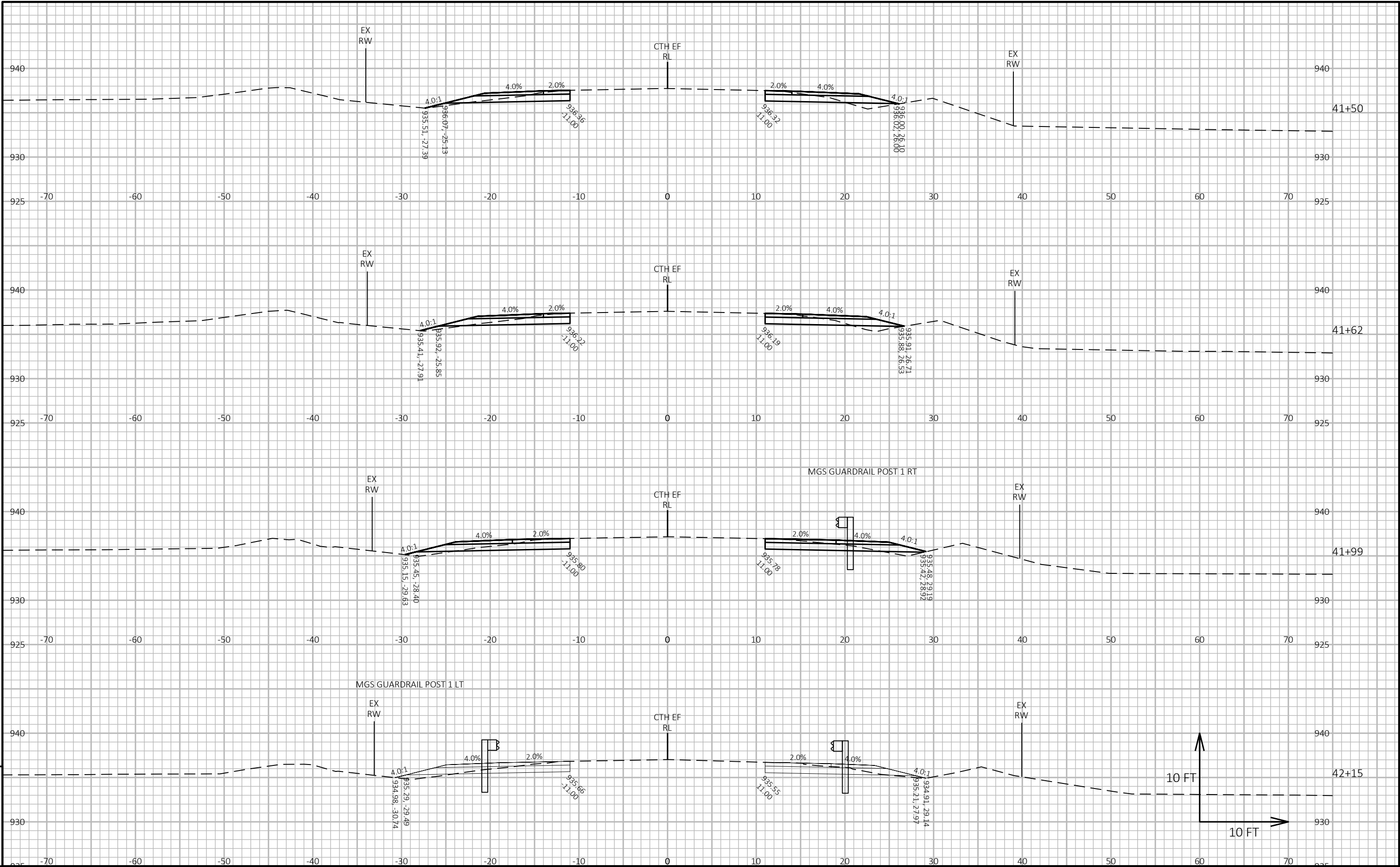
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-67-210			
DRAWN BY		MPG	PLANS CK'D VJD
WING STRAPPING		SHEET 4 OF 4	

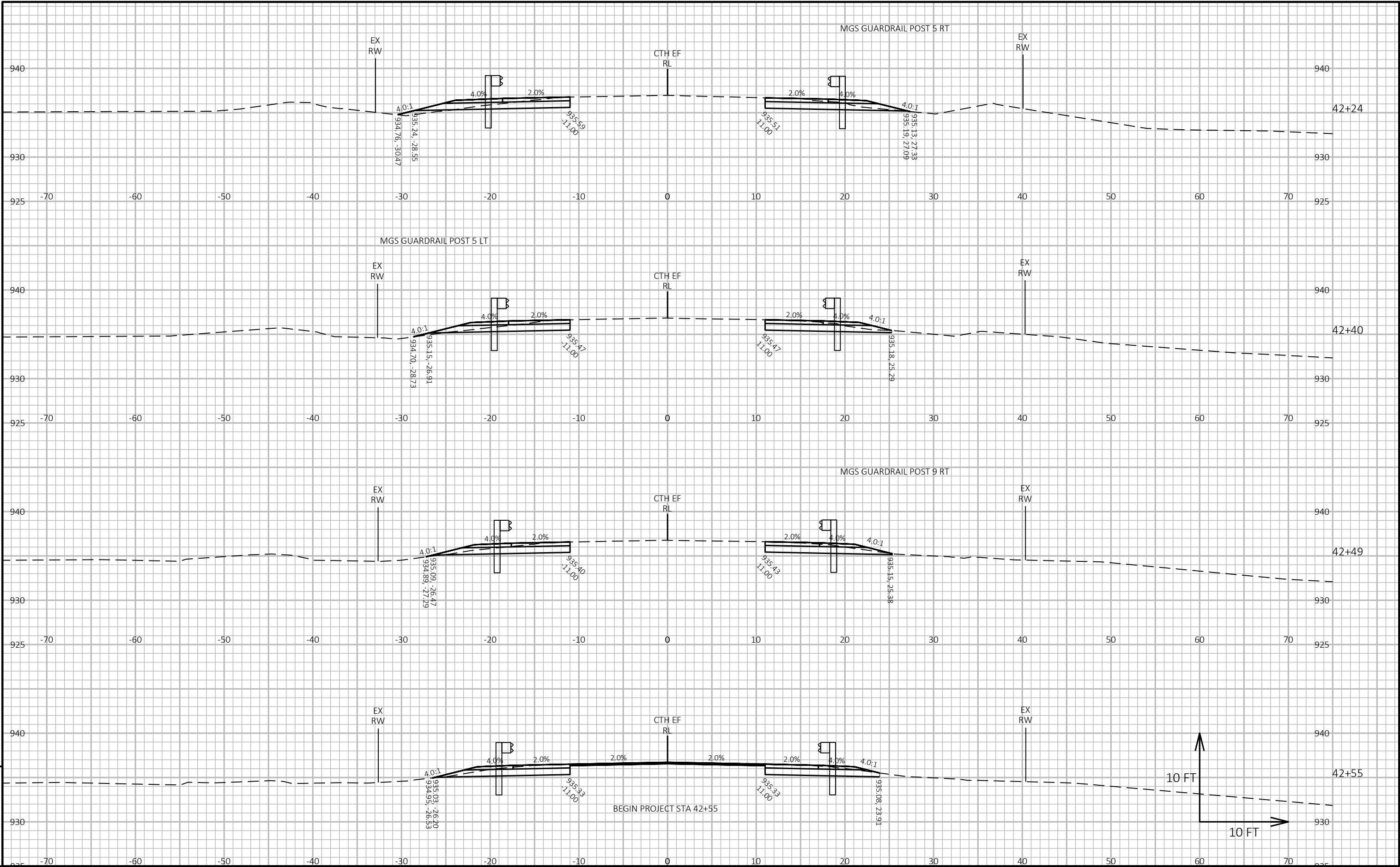
SCALE = N.T.S.

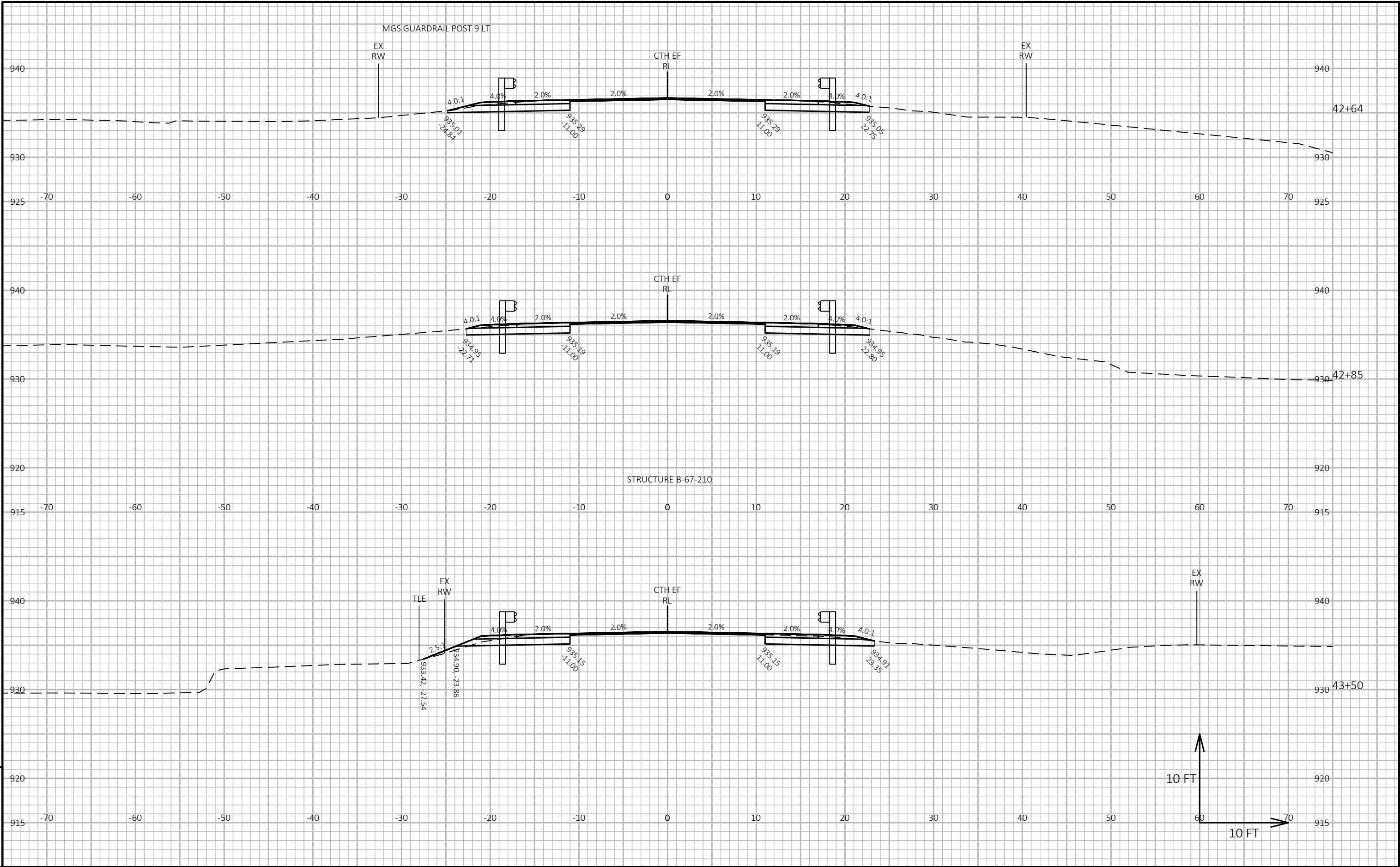
CTH EF - WEST OF STRUCTURE										
STATION	DISTANCE	AREA (SF)			INCREMENTAL VOL (CY) (UNADJUSTED)			CUMULATIVE VOL (CY)		
		CUT	SALVAGED/UNUSABLE PAVEMENT MATERIAL	FILL	CUT	SALVAGED/UNUSABLE PAVEMENT MATERIAL	FILL	CUT 1.00	EXPANDED FILL 1.25	MASS ORDNATE
40+29.00	0.00	2.73	0.00	0.00	0	0	0	0	0	0
40+46.03	17.03	43.08	0.00	0.26	14	0	0	14	0	14
41+00.00	53.97	8.40	0.00	0.87	51	0	1	65	1	64
41+42.00	42.00	14.00	0.00	2.24	17	0	2	82	4	78
41+50.00	8.00	14.26	0.00	2.79	4	0	1	86	5	81
41+61.93	11.93	15.54	0.00	2.87	7	0	1	93	6	87
41+98.74	36.81	19.09	0.00	2.61	24	0	4	117	11	106
42+14.59	15.85	19.75	0.00	2.34	11	0	1	128	13	116
42+23.72	9.13	19.90	0.00	1.56	7	0	1	135	14	121
42+39.62	15.90	20.53	0.00	0.44	12	0	1	147	15	132
42+48.90	9.28	22.08	0.00	0.08	7	0	0	154	15	139
42+55.00	6.10	24.38	0.00	0.03	5	0	0	159	15	144
42+64.38	9.38	24.77	0.00	0.00	9	0	0	168	15	153
43+04.71	40.33	23.41	0.00	0.28	36	0	0	204	15	189
TOTALS:					204	0	12			

CTH EF - EAST OF STRUCTURE										
STATION	DISTANCE	AREA (SF)			INCREMENTAL VOL (CY) (UNADJUSTED)			CUMULATIVE VOL (CY)		
		CUT	SALVAGED/UNUSABLE PAVEMENT MATERIAL	FILL	CUT	SALVAGED/UNUSABLE PAVEMENT MATERIAL	FILL	CUT	EXPANDED FILL	MASS ORDNATE
NOTE 1	NOTE 2	NOTE 3	NOTE 1	1.25	NOTE 8					
43+27.29	0.00	18.30	0.00	2.23	0	0	0	0	0	0
43+67.73	40.44	19.32	0.00	1.23	28	0	3	28	4	24
43+75.00	7.27	19.29	0.00	0.74	5	0	0	33	4	29
43+83.12	8.12	18.69	0.00	0.99	6	0	0	39	4	35
43+92.71	9.59	19.03	0.00	2.47	7	0	1	46	5	41
44+00.00	7.29	19.91	0.00	3.38	5	0	1	51	6	45
44+08.10	8.10	20.16	0.00	6.34	6	0	1	57	8	50
44+17.70	9.60	19.48	0.00	7.82	7	0	3	64	11	53
44+33.09	15.39	8.62	0.00	3.87	8	0	3	72	15	57
44+50.00	16.91	8.55	0.00	2.51	5	0	2	77	18	60
44+75.00	25.00	8.96	0.00	0.40	8	0	1	85	19	66
45+00.00	25.00	3.02	0.00	0.89	6	0	1	91	20	71
45+08.00	8.00	7.00	0.00	2.25	1	0	0	92	20	72
45+36.00	28.00	7.60	0.00	0.00	8	0	1	100	21	79
TOTALS:					100	0	17			

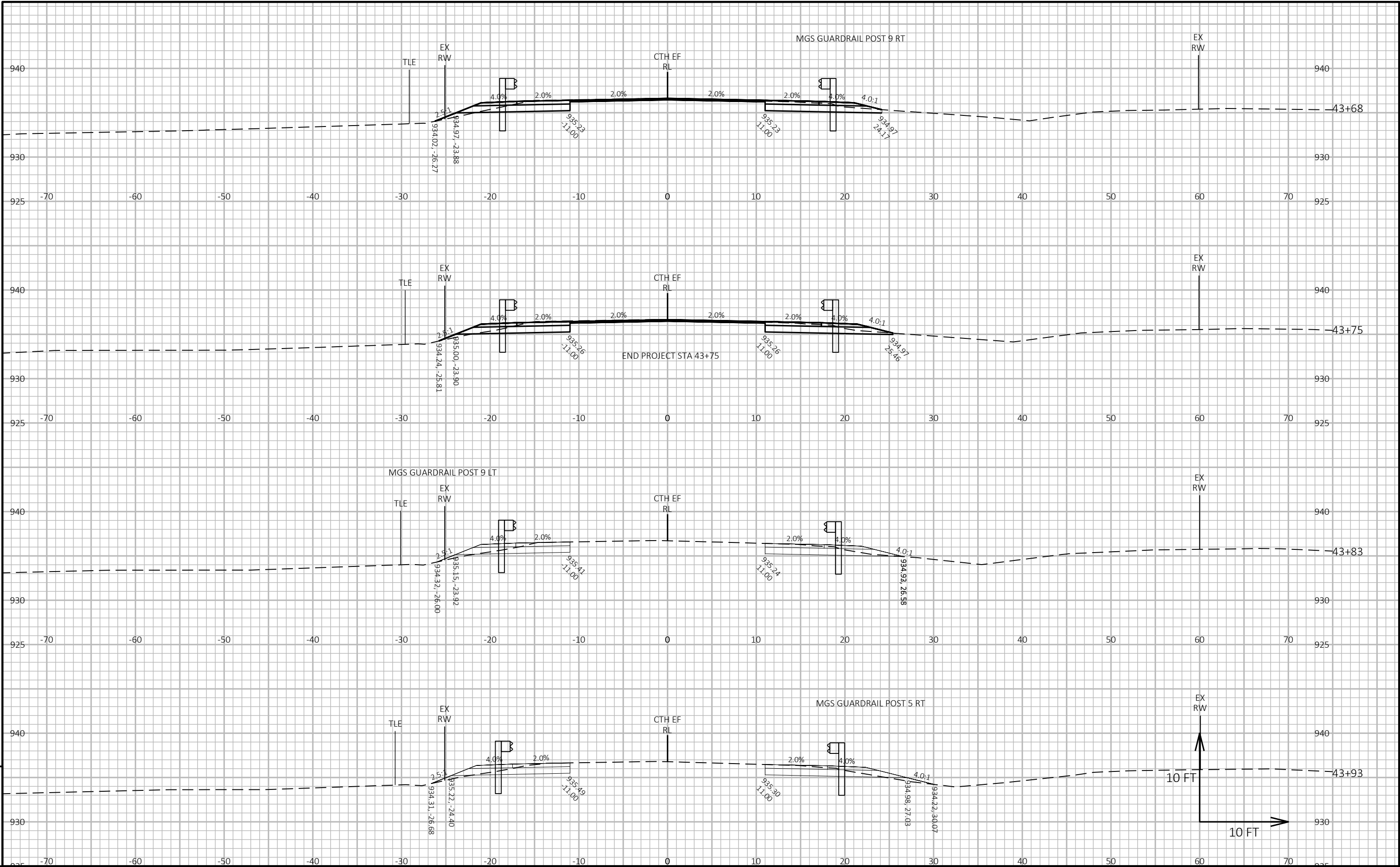


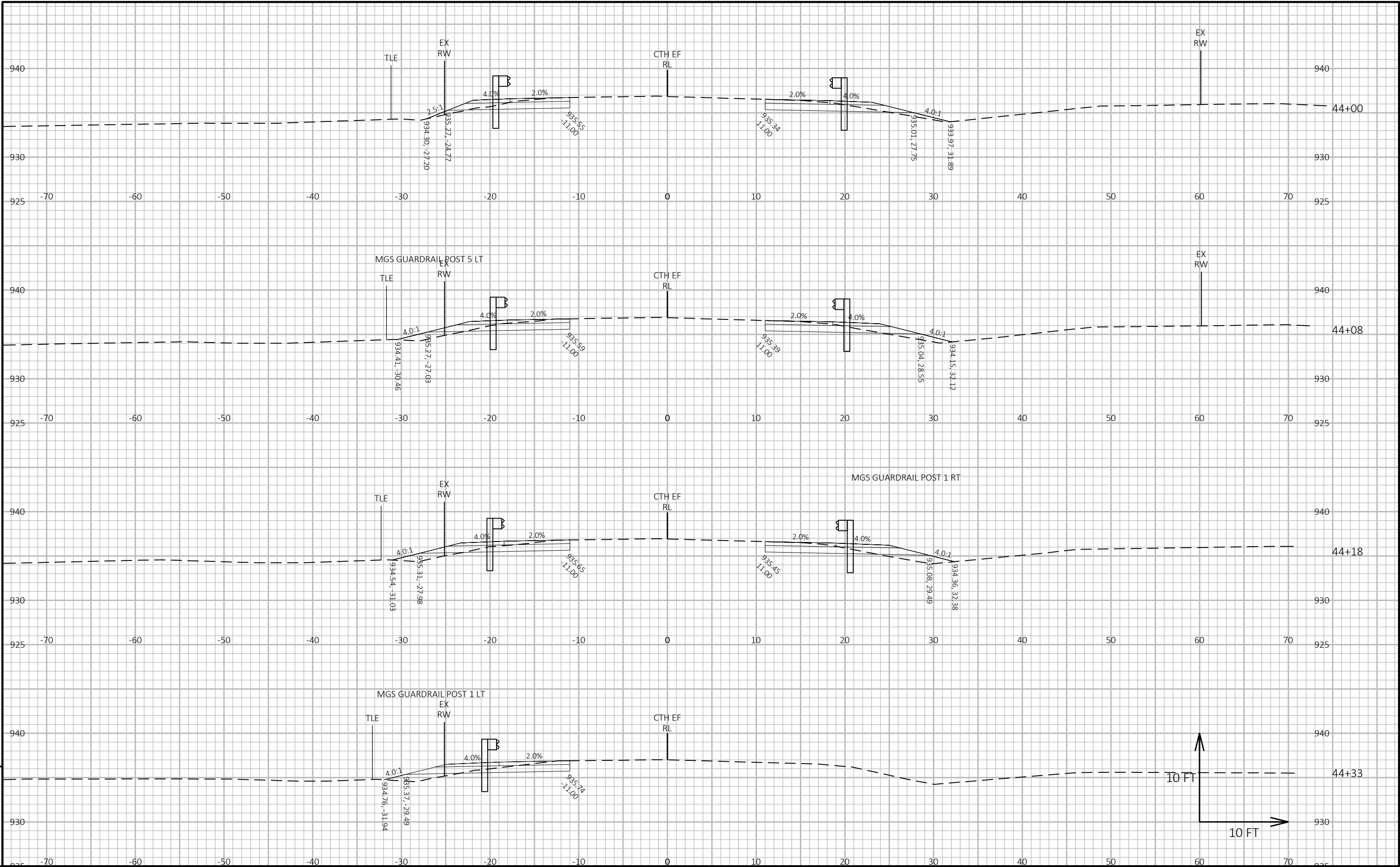


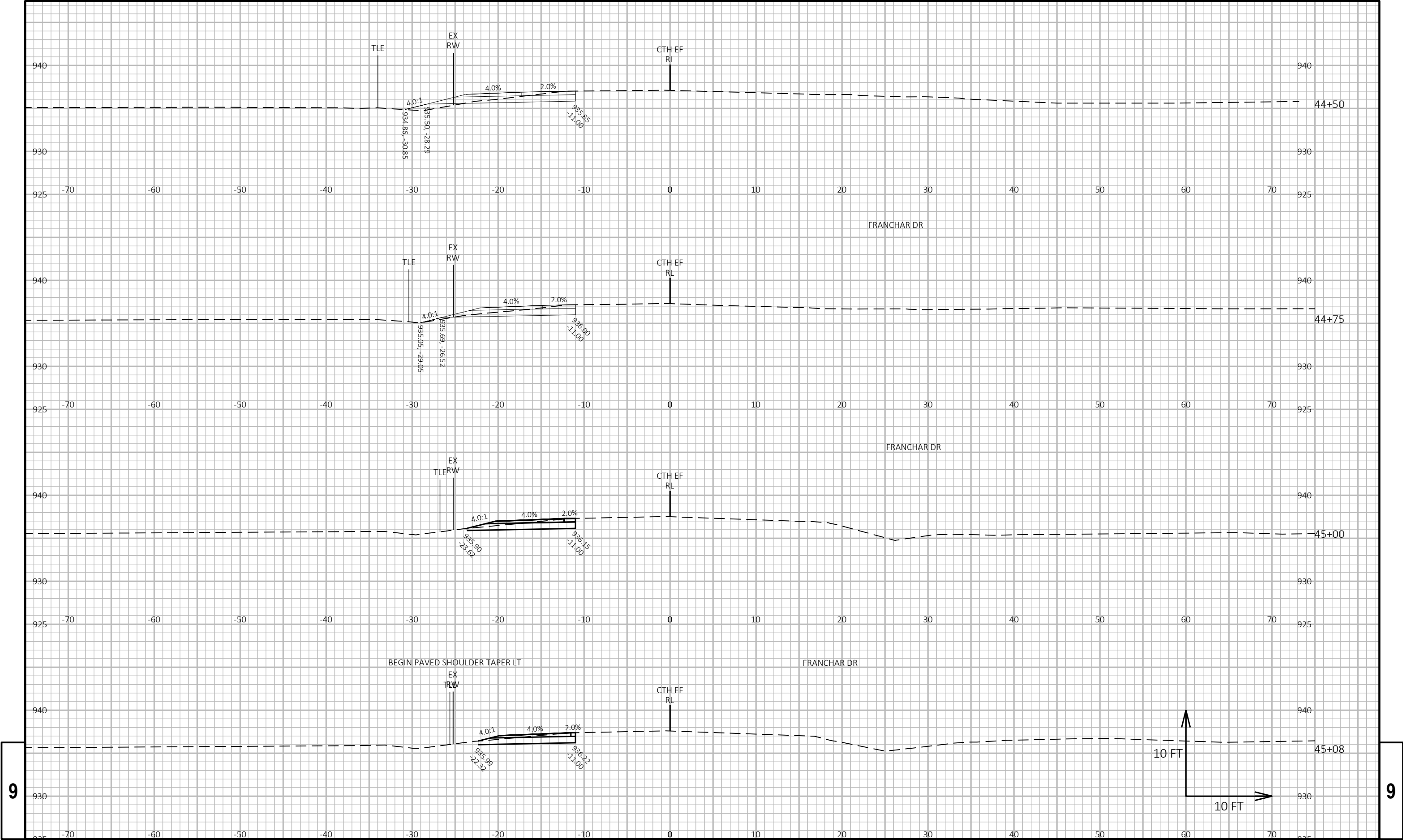




PROJECT NO: 2756-05-71	HWY: CTH EF	COUNTY: WAUKESHA	CROSS SECTIONS: CTH EF	SHEET	E
------------------------	-------------	------------------	------------------------	-------	---

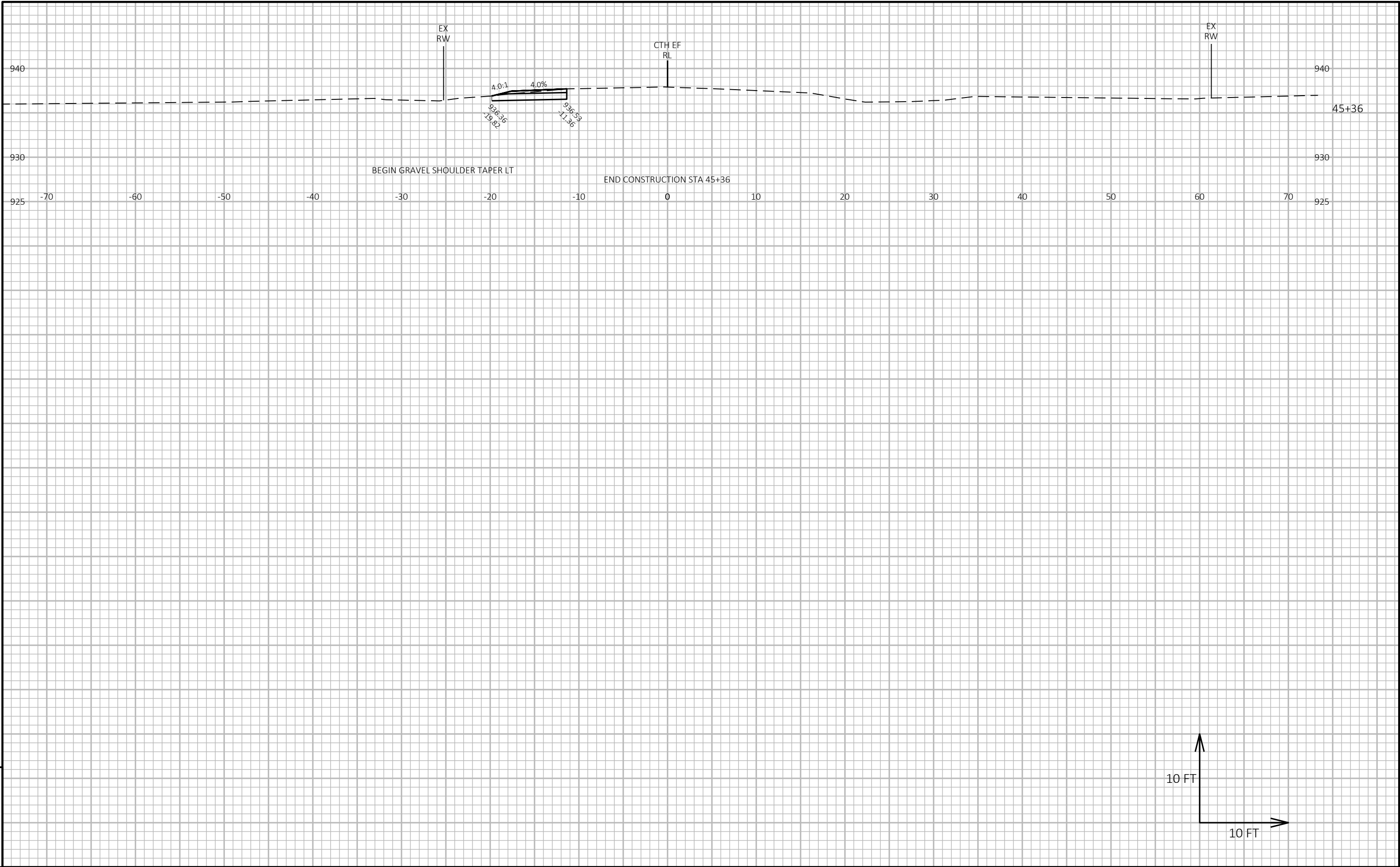






9

9



9

9

PROJECT NO: 2756-05-71	HWY: CTH EF	COUNTY: WAUKESHA	CROSS SECTIONS: CTH EF	SHEET E
------------------------	-------------	------------------	------------------------	---------



Wisconsin Department of Transportation

Dedicated people creating transportation solutions
through innovation and exceptional service.

<http://www.dot.wisconsin.gov>