

EAU

SEPTEMBER 2021

PROJECT ID:
WITH: N/A

7311-00-70

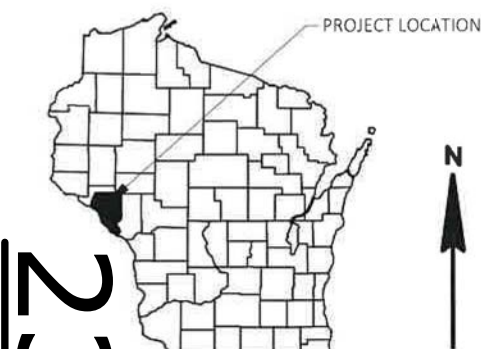
COUNTY:

BUFFALO

ORDER OF SHEETS

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

TOTAL SHEETS = 60



DESIGN DESIGNATION

A.A.D.T.	2021	= 178
A.A.D.T.	2041	= 196
D.H.V.		= 14
D.D.		= 60/40
T.		= 10%
DESIGN SPEED		= 40 MPH
ESALS		= <100,000

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

NELSON - STH 37

TAMARACK CREEK BRIDGE B-06-0193

CTH D

BUFFALO COUNTY

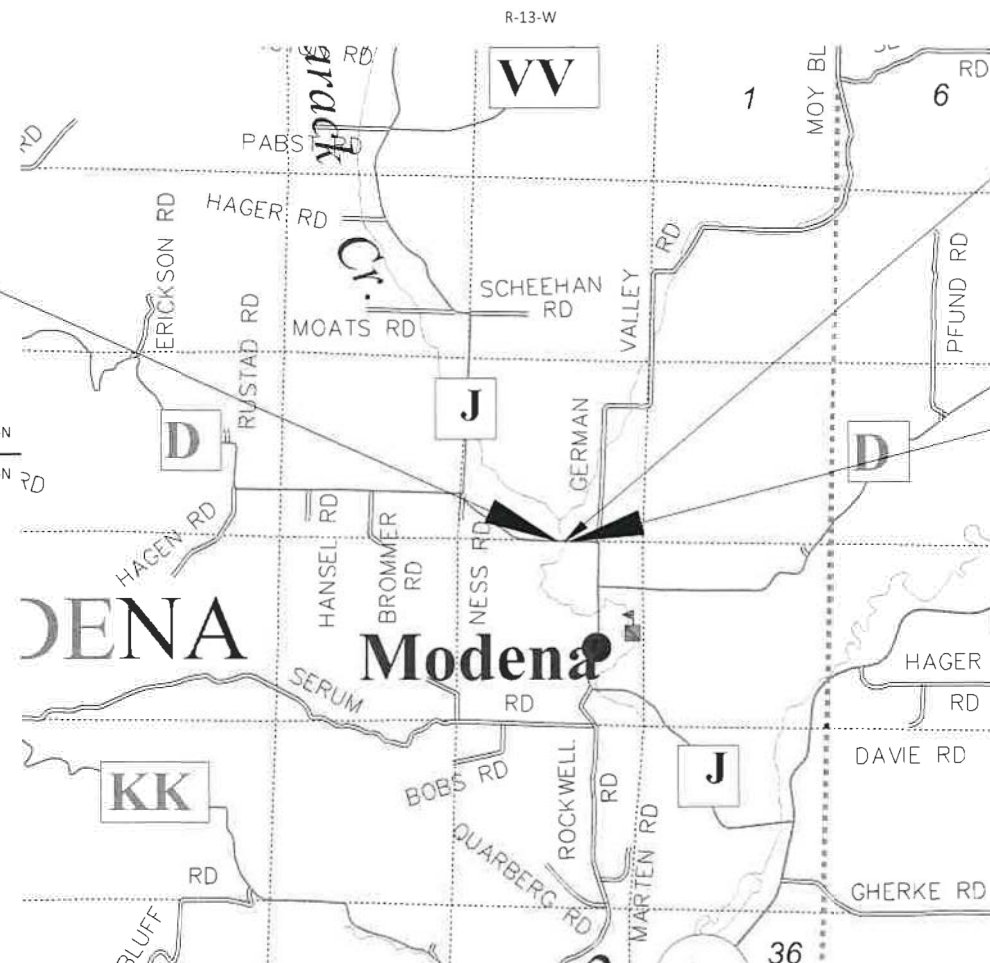
STATE PROJECT NUMBER

7311-00-70

BEGIN PROJECT
STA 9+50.00
Y = 358860.805
X = 573930.179

STRUCTURE B-06-0193
STA 9+91.00

END PROJECT
STA 10+50.00
Y = 358860.508
X = 574030.179



LAYOUT
SCALE 0 1 MI
TOTAL NET LENGTH OF CENTERLINE = 0.0189 MI

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

STATE PROJECT

7311-00-70

FEDERAL PROJECT

PROJECT

CONTRACT

ACCEPTED FOR

COUNTY OF BUFFALO

Date 4/29/21 HIGHWAY COMMISSIONER

ORIGINAL PLANS PREPARED BY
CBS SQUARED INC.



DATE: _____ (Signature)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY
Surveyor CBS SQUARED INC.
Designer CBS SQUARED INC.
Project Manager MATTHEW THORSEN
Region Examiner NORTHWEST REGION
Region Supervisor ANDREW STENSLAND

APPROVED FOR THE DEPARTMENT
DATE: 4/30/2021 (Signature)

E

GENERAL NOTES

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

THE CONTRACTOR SHALL NOTIFY DIGGERS HOTLINE AND AFFECTED UTILITIES PRIOR TO THE START OF WORK. ANY LOCAL MUNICIPAL UTILITY WHICH IS NOT A MEMBER OF DIGGERS HOTLINE MUST BE CONTACTED SEPARATELY.

THE EXACT LOCATION AND WIDTH OF PRIVATE ENTRANCES WILL BE DETERMINED IN THE FIELD BY THE ENGINEER. ALL DRIVEWAYS ARE TO BE REPLACED IN KIND UNLESS OTHERWISE DIRECTED BY THE ENGINEER OR AS SHOWN ON THE PLANS. BASE AGGREGATE DENSE 1 1/4-INCH WILL BE USED UNDER ALL DRIVEWAYS.

MAINTAIN DRIVING SURFACE TO ALL PROPERTY OWNERS WITH BASE AGGREGATE DENSE 1 1/4-INCH.

FILL EXPANSION FACTOR IS 30%.

PROPERTY LINES SHOWN ARE APPROXIMATE.

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

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

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

DISTURBED AREAS WITHIN THE RIGHT OF WAY ARE TO BE FERTILIZED, SEEDED, AND MULCH/EROSION MAT AS DIRECTED BY THE ENGINEER.

ELEVATIONS SHOWN ON THE ROADWAY CROSS SECTIONS ARE SUBGRADE ELEVATIONS AT THE CENTERLINE OF THE ROADWAY.

WISDOT WILL FURNISH A BENCHMARK MONUMENT TO BE SET BY THE CONTRACTOR AS DIRECTED BY THE ENGINEER IN THE FIELD.

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

THE 4" OF ASPHALTIC SURFACE SHALL BE CONSTRUCTED WITH A 2" LOWER LAYER AND A 2" UPPER LAYER.

RUNOFF COEFFICIENT TABLE

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

TOTAL PROJECT AREA = 0.303 ACRES
TOTAL AREA EXPECTED TO BE DISTURBED BY CONSTRUCTION ACTIVITIES = 0.205 ACRES

UTILITY CONTACTS

RIVERLAND ENERGY COOPERATIVE - ELECTRICITY
TIM HOLTAN
N28988 STATE ROAD 93, P.O. BOX 277
ARCADIA, WI 54612
608-323-3381
THOLTAN@RIVERLANDENERGY.COM

NTEC - COMMUNICATION LINE
MATT HOYT
318 3RD AVE. W
DURAND, WI 54736
715-672-4204
MATT@NTEC.NET



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

DESIGN CONTACT

CBS SQUARED INC.
770 TECHNOLOGY WAY, SUITE 1A
CHIPPEWA FALLS, WI 54729
ATTN: MATT GUNDRY, PE
715-861-7425
MGUNDRY@CBSSQUAREDINC.COM

WISCONSIN DOT NORTHWEST REGION LOCAL

WISCONSIN DEPARTMENT OF TRANSPORTATION
EAU CLAIRE OFFICE
718 WEST CLAIREMONT AVENUE
EAU CLAIRE, WI 54701
ATTN: MATT THORNSEN, P.E.
715-225-4159
MATTHEW.THORNSEN@DOT.WI.GOV

WISCONSIN DNR - LIASON

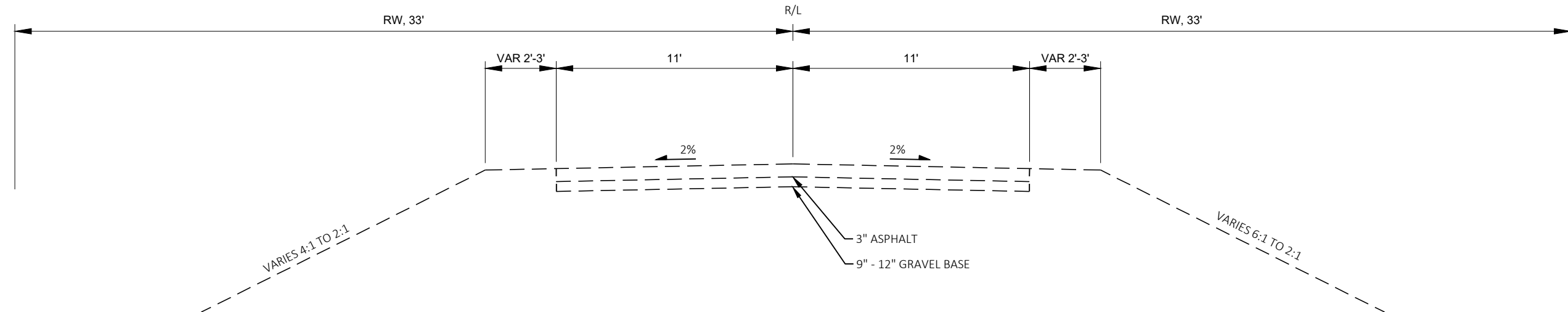
DEPARTMENT OF NATURAL RESOURCES
EAU CLAIRE SERVICE CENTER
1300 WEST CLAIREMONT AVENUE
EAU CLAIRE, WI 54701
ATTN: AMY LESIK
715-495-1903
AMY.LESIK@WISCONSIN.GOV

BUFFALO COUNTY HIGHWAY DEPARTMENT

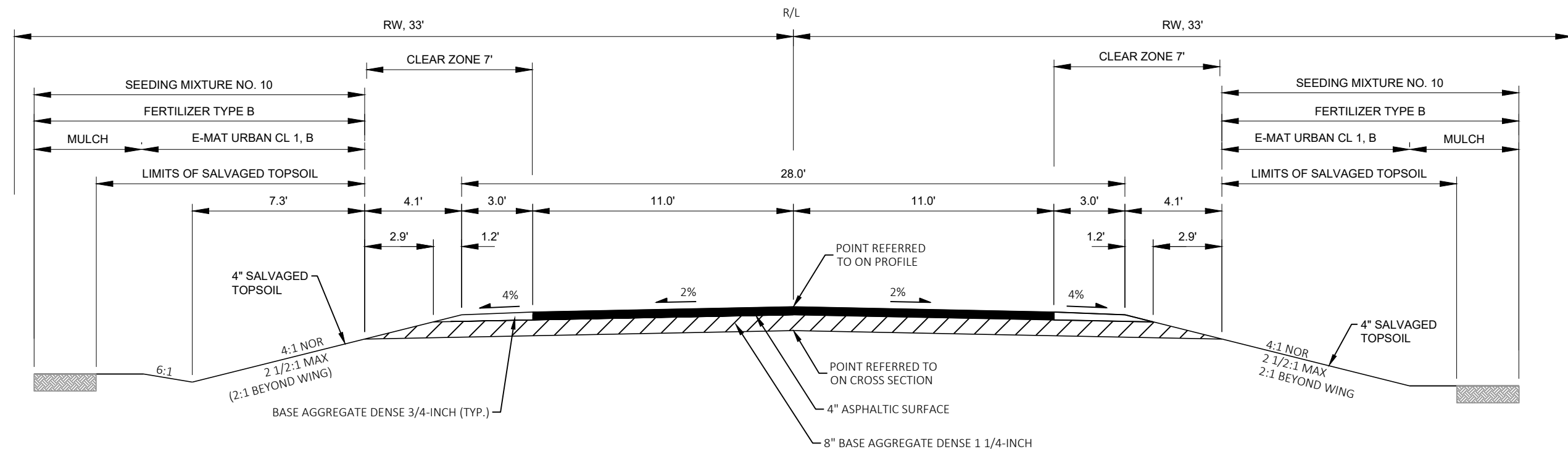
ROBERT PLATTETER, HIGHWAY COMMISSIONER
BUFFALO COUNTY HIGHWAY DEPARTMENT
S1672 STATE HWY 37
ALMA, WI 54610
608-685-6226
Bob.Platteter@co.buffalo.wi.us

2

2 |



EXISTING TYPICAL SECTION - CTH D
STA 9+50.00 - 9+88.54, 10+11.78 - 10+50.00



NOTE: APPLY MULCHING TO ALL TOPSOIL AREAS NOT OTHERWISE COVERED BY EROSION MAT

FINISHED TYPICAL SECTION - CTH D
STA 9+50.00 - 9+72.71, STA 10+09.29 - 10+50.00

PROJECT NO:	7311-00-70
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HWY: CTH D

COUNTY: BUFFALO

PLAN: TYPICAL SECTION

SHEET



FILE NAME : P:\BUFFC\19001 - TAMARACK CREEK BRG P-06-0072, CTH D, BUFFALO CTY DESIGN\CAD\C3D\SHEETS\PLAN\020301-TS.DWG
LAYOUT NAME - 020301-ts

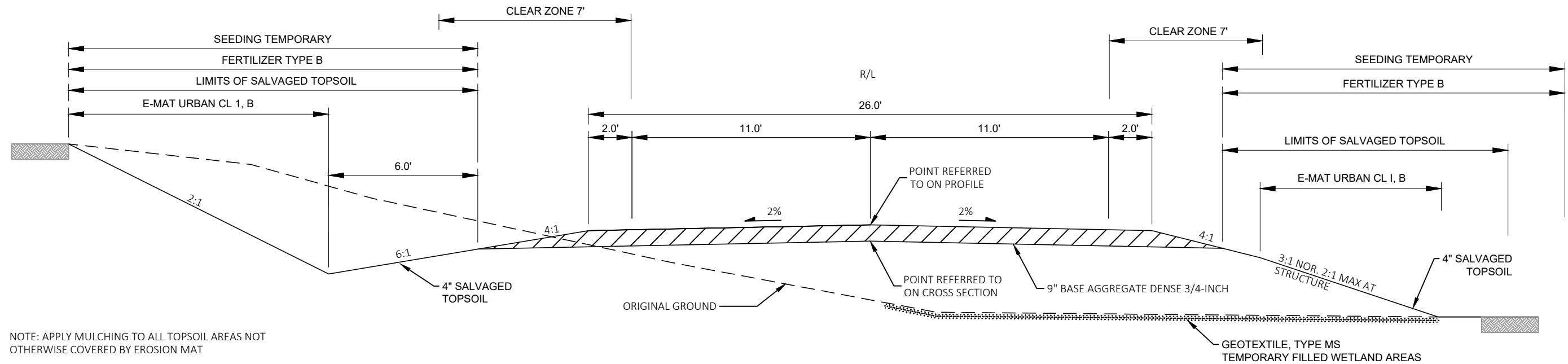
PLOT DATE : 5/3/2021 12:07 PM

PLOT BY : MATT GUNDRY

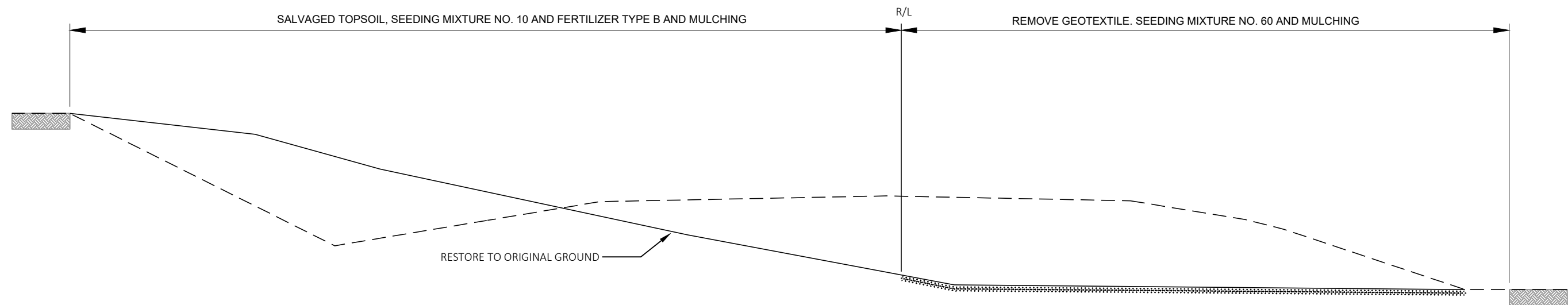
PLOT NAME :

PLOT SCALE : 1 IN:5 FT

WISDOT/CADDS SHEET 42



FINISHED TYPICAL SECTION - CTH D
TEMPORARY BYPASS



RESTORED TYPICAL SECTION - CTH D
TEMPORARY BYPASS

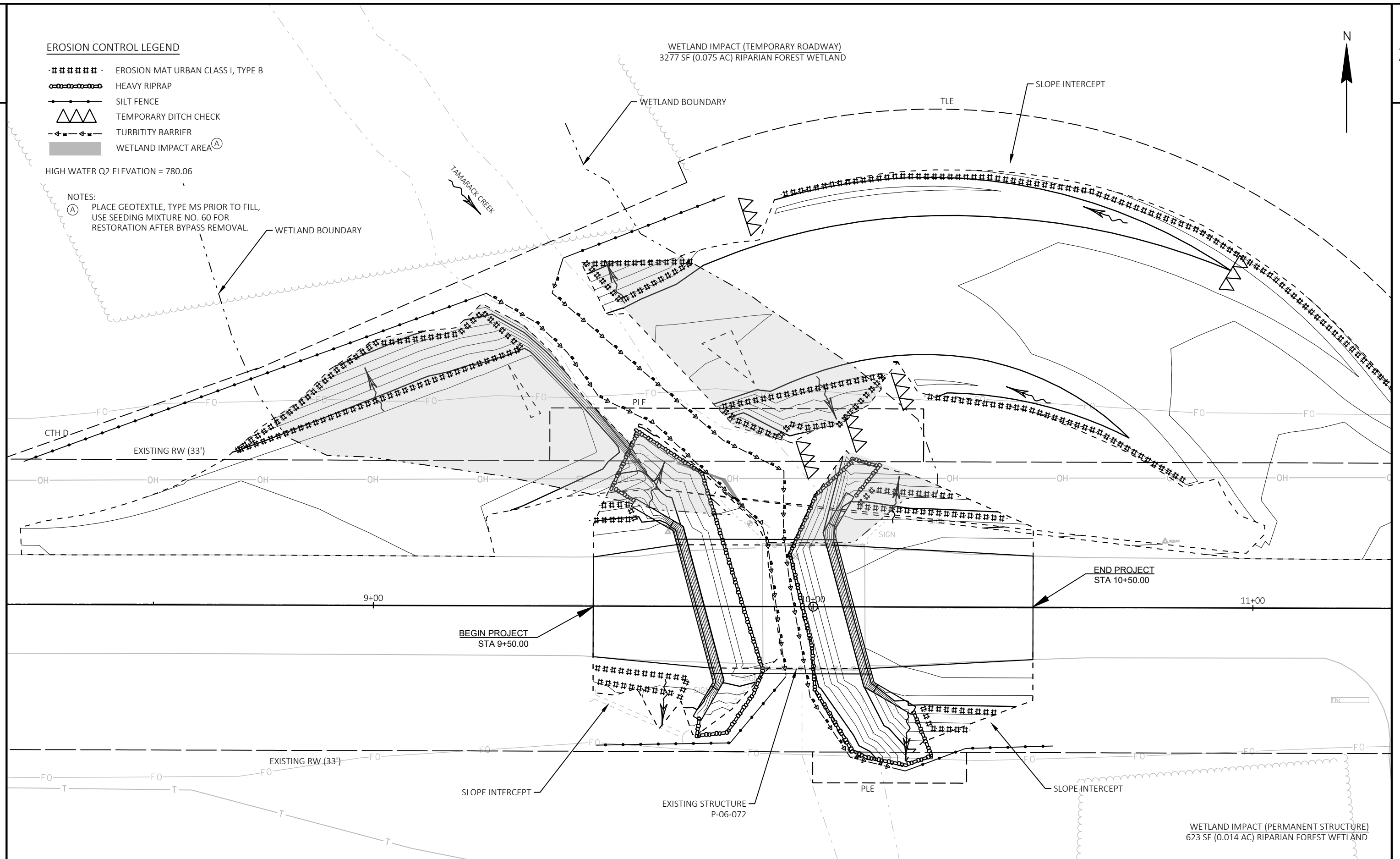
EROSION CONTROL LEGEND

- ##### EROSION MAT URBAN CLASS I, TYPE B
- HEAVY RIPRAP
- SILT FENCE
- TEMPORARY DITCH CHECK
- TURBIDITY BARRIER
- WETLAND IMPACT AREA^(A)

HIGH WATER Q2 ELEVATION = 780.06

NOTES:

- (A) PLACE GEOTEXTILE, TYPE MS PRIOR TO FILL,
USE SEEDING MIXTURE NO. 60 FOR
RESTORATION AFTER BYPASS REMOVAL.



PROJECT NO: 7311-00-70

HWY: CTH D

COUNTY: BUFFALO

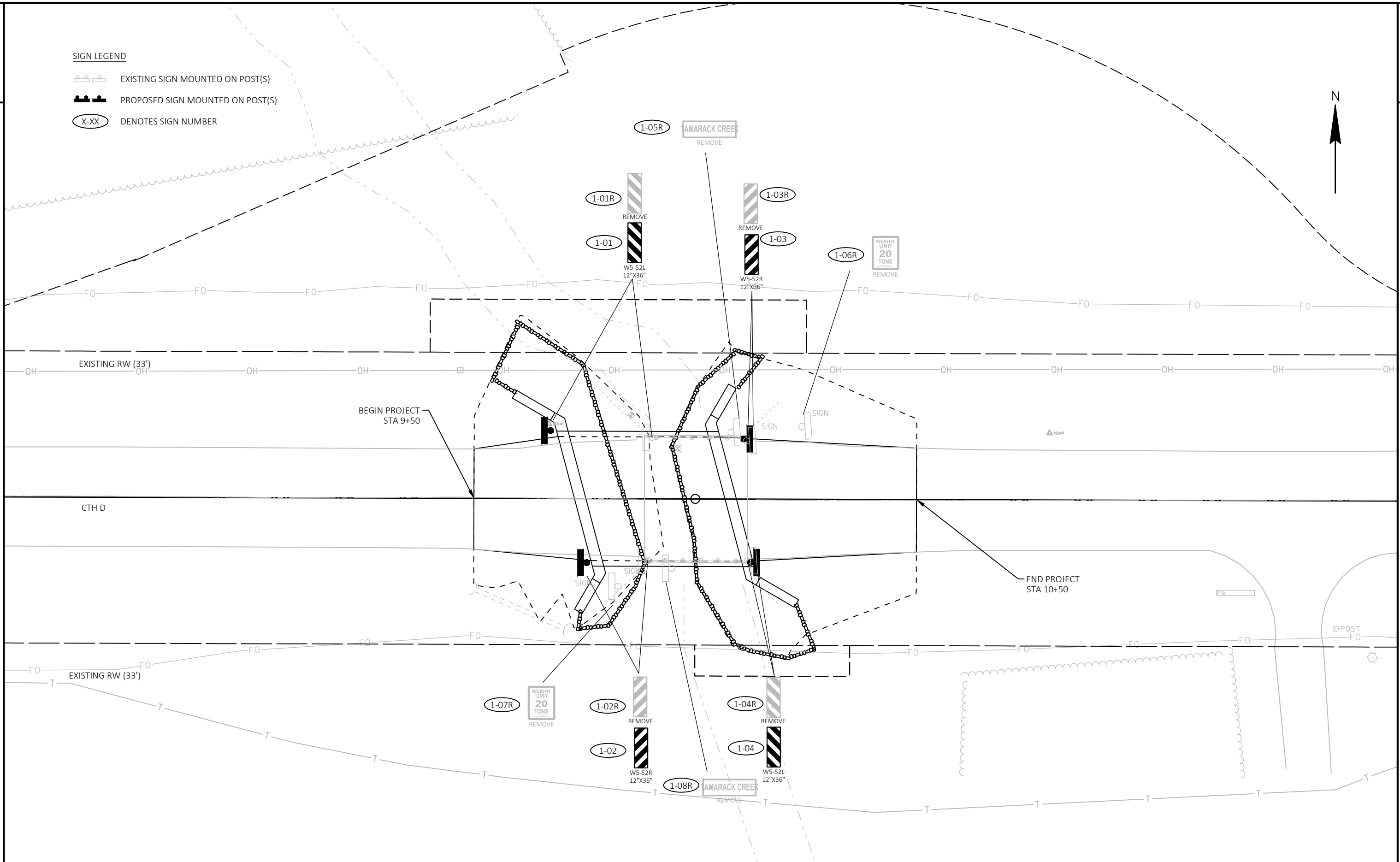
EROSION CONTROL

SHEET

E

SIGN LEGEND

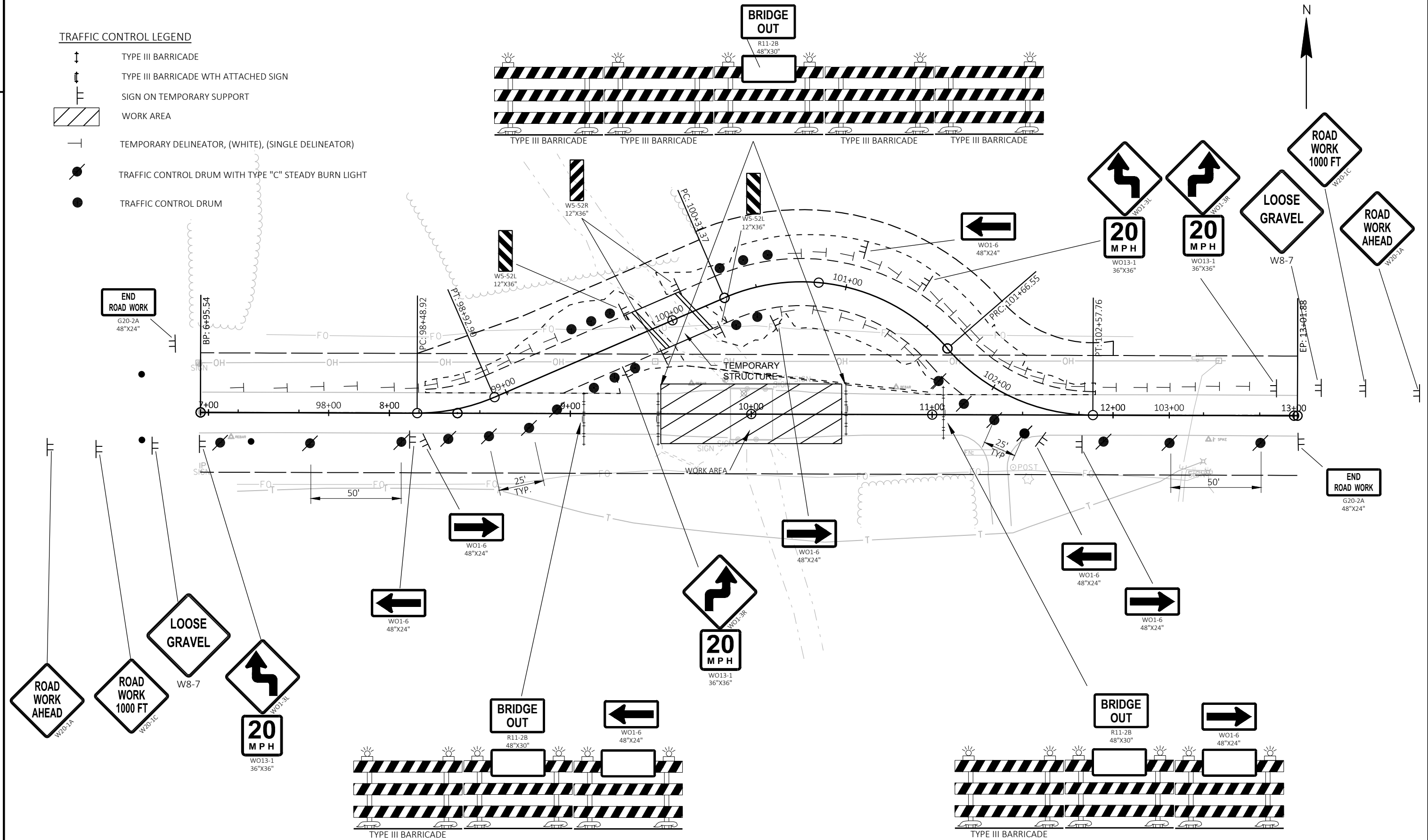
-  EXISTING SIGN MOUNTED ON POST(S)
-  PROPOSED SIGN MOUNTED ON POST(S)
-  DENOTES SIGN NUMBER

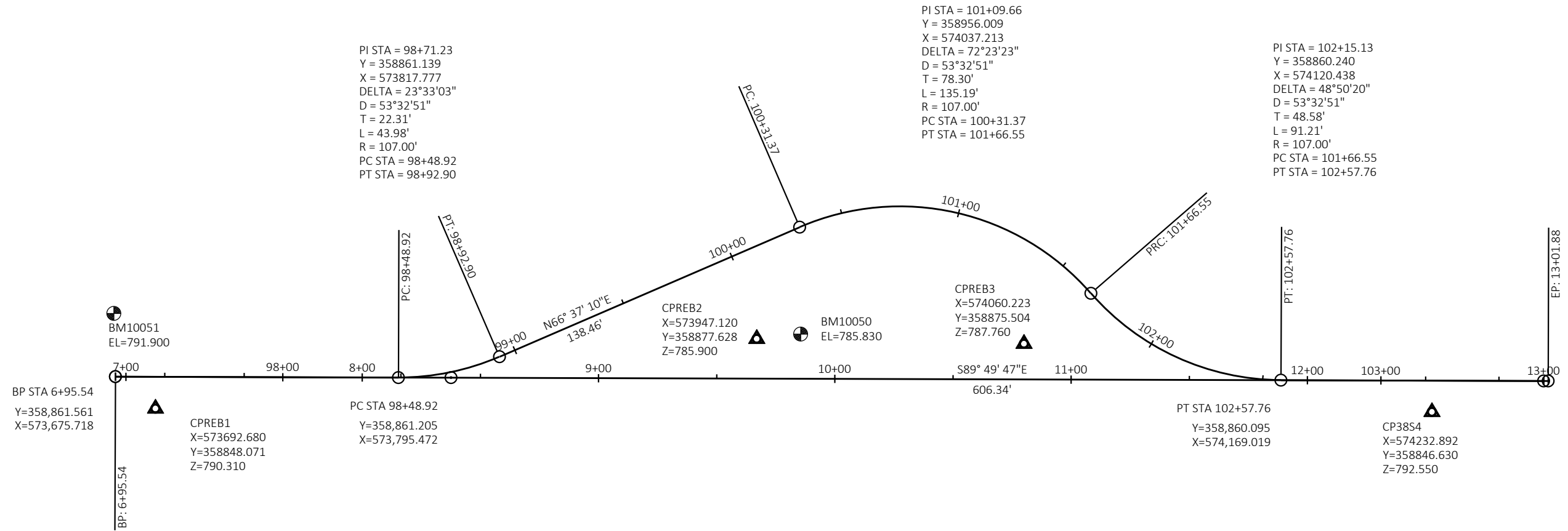


PROJECT NO: 7311-00-70	HWY: CTH D	COUNTY: BUFFALO	PERMANENT SIGNING	SHEET	E
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TRAFFIC CONTROL LEGEND

-  TYPE III BARRICADE
-  TYPE III BARRICADE WITH ATTACHED SIGN
-  SIGN ON TEMPORARY SUPPORT
-  WORK AREA
-  TEMPORARY DELINEATOR, (WHITE), (SINGLE DELINEATOR)
-  TRAFFIC CONTROL DRUM WITH TYPE "C" STEADY BURN LIGHT
-  TRAFFIC CONTROL DRUM





BENCHMARKS (NAVD 88)

NO.	STA./OFFSET	DESCRIPTION	ELEVATION
BM50	9+86, 19' LT	10" SPIKE IN NW WING	785.83
BM51	6+95, 27' LT	10" SPIKE IN POWERPOLE	791.90

Estimate Of Quantities

7311-00-70					
Line	Item	Item Description	Unit	Total	Qty
0002	203.0600.S	Removing Old Structure Over Waterway With Minimal Debris (station) 01. 10+00	LS	1.000	1.000
0004	205.0100	Excavation Common	CY	850.000	850.000
0006	206.1000	Excavation for Structures Bridges (structure) 01. B-06-0193	LS	1.000	1.000
0008	208.0100	Borrow	CY	349.000	349.000
0010	210.1500	Backfill Structure Type A	TON	340.000	340.000
0012	213.0100	Finishing Roadway (project) 01. 7311-00.70	EACH	1.000	1.000
0014	305.0110	Base Aggregate Dense 3/4-Inch	TON	391.000	391.000
0016	305.0120	Base Aggregate Dense 1 1/4-Inch	TON	120.000	120.000
0018	455.0605	Tack Coat	GAL	13.000	13.000
0020	465.0105	Asphaltic Surface	TON	42.000	42.000
0022	502.0100	Concrete Masonry Bridges	CY	148.000	148.000
0024	502.3200	Protective Surface Treatment	SY	142.000	142.000
0026	505.0400	Bar Steel Reinforcement HS Structures	LB	4,910.000	4,910.000
0028	505.0600	Bar Steel Reinforcement HS Coated Structures	LB	15,780.000	15,780.000
0030	513.4061	Railing Tubular Type M	LF	78.000	78.000
0032	516.0500	Rubberized Membrane Waterproofing	SY	18.000	18.000
0034	526.0100	Temporary Structure (station) 01. 100+00	LS	1.000	1.000
0036	550.1100	Piling Steel HP 10-Inch X 42 Lb	LF	525.000	525.000
0038	606.0300	Riprap Heavy	CY	140.000	140.000
0040	612.0406	Pipe Underdrain Wrapped 6-Inch	LF	170.000	170.000
0042	618.0100	Maintenance And Repair of Haul Roads (project) 01. 7311-00-70	EACH	1.000	1.000
0044	619.1000	Mobilization	EACH	1.000	1.000
0046	624.0100	Water	MGAL	11.000	11.000
0048	625.0500	Salvaged Topsoil	SY	2,056.000	2,056.000
0050	627.0200	Mulching	SY	1,930.000	1,930.000
0052	628.1504	Silt Fence	LF	340.000	340.000
0054	628.1520	Silt Fence Maintenance	LF	340.000	340.000
0056	628.1905	Mobilizations Erosion Control	EACH	6.000	6.000
0058	628.1910	Mobilizations Emergency Erosion Control	EACH	4.000	4.000
0060	628.2008	Erosion Mat Urban Class I Type B	SY	403.000	403.000
0062	628.6005	Turbidity Barriers	SY	249.000	249.000
0064	628.7504	Temporary Ditch Checks	LF	108.000	108.000
0066	629.0210	Fertilizer Type B	CWT	1.500	1.500
0068	630.0110	Seeding Mixture No. 10	LB	16.000	16.000
0070	630.0160	Seeding Mixture No. 60	LB	5.000	5.000
0072	630.0200	Seeding Temporary	LB	23.000	23.000
0074	630.0500	Seed Water	MGAL	143.000	143.000
0076	633.1100	Delineators Temporary	EACH	30.000	30.000
0078	634.0612	Posts Wood 4x6-Inch X 12-FT	EACH	4.000	4.000
0080	637.2230	Signs Type II Reflective F	SF	12.000	12.000
0082	638.2602	Removing Signs Type II	EACH	8.000	8.000
0084	638.3000	Removing Small Sign Supports	EACH	8.000	8.000
0086	642.5001	Field Office Type B	EACH	1.000	1.000
0088	643.0300	Traffic Control Drums	DAY	4,400.000	4,400.000
0090	643.0420	Traffic Control Barricades Type III	DAY	880.000	880.000
0092	643.0705	Traffic Control Warning Lights Type A	DAY	440.000	440.000
0094	643.0715	Traffic Control Warning Lights Type C	DAY	1,100.000	1,100.000
0096	643.0900	Traffic Control Signs	DAY	1,870.000	1,870.000
0098	643.5000	Traffic Control	EACH	1.000	1.000
0100	645.0111	Geotextile Type DF Schedule A	SY	70.000	70.000
0102	645.0120	Geotextile Type HR	SY	210.000	210.000
0104	645.0125	Geotextile Type MS	SY	400.000	400.000
0106	650.4500	Construction Staking Subgrade	LF	475.000	475.000

Estimate Of Quantities

7311-00-70					
Line	Item	Item Description	Unit	Total	Qty
0108	650.5000	Construction Staking Base	LF	64.000	64.000
0110	650.6500	Construction Staking Structure Layout (structure) 01. B-06-0193	LS	1.000	1.000
0112	650.9910	Construction Staking Supplemental Control (project) 01. 7311-00-70	LS	1.000	1.000
0114	650.9920	Construction Staking Slope Stakes	LF	475.000	475.000
0116	690.0150	Sawing Asphalt	LF	44.000	44.000
0118	715.0502	Incentive Strength Concrete Structures	DOL	888.000	888.000
0120	999.2000.S	Installing and Maintaining Bird Deterrent System	EACH	1.000	1.000
0122	SPV.0090	Special 01. Flashing Stainless Steel	LF	63.000	63.000

EXCAVATION COMMON

						205.0100	208.0100
						EXCAVATION	BORROW
CATEGORY	STATION	TO	STATION	LOCATION		COMMON	CY
						CY	
0010	9+50	-	9+60	DIVISION 1, MAINLINE W. APPR.		12	-
0010	10+22	-	10+50	DIVISION 2, MAINLINE E. APPR.		31	-
0010	98+54	-	99+77	DIVISION 3, TEMP. BYPASS W.		12	-
0010	100+28	-	102+59	DIVISION 4 TEMP. BYPASS E.		208	349
0010	98+54	-	99+77	DIVISION 5, RESTORATION W.		386	-
0010	100+28	-	102+59	DIVISION 6, RESTORATION E.		201	-
TOTAL 0010						850	349

FINISHING ROADWAY

						213.0100.01
						FINISHING ROADWAY
CATEGORY	STATION	TO	STATION	LOCATION		(PROJECT) (01. 7311-00-70)
						EACH
0010	9+50	-	10+50	CTH D		1
TOTAL 0010						1

BASE AGGREGATE DENSE

* INDICATES ITEM WITH ADDITIONAL QUANTITY ELSEWHERE IN PLAN

						* 305.0110	305.0120	624.0100
						BASE	BASE	
						AGGREGATE	AGGREGATE	
						DENSE 3/4-INCH	DENSE 1 1/4-INCH	WATER
CATEGORY	STATION	TO	STATION	LOCATION		TON	TON	MGAL
0010	9+50	-	9+76	CTH D		4	45	1
0010	10+05	-	10+50	CTH D		7	75	2
TOTAL 0010						11	120	3

ASPHALT ITEMS

						455.0605	465.0105
						TACK COAT	ASPHALTIC
CATEGORY	STATION	TO	STATION	LOCATION		GAL	SURFACE
							TON
0010	9+50	-	9+76	CTH D		5	15
0010	10+05	-	10+50	CTH D		8	27
TOTAL 0010						13	42

MAINTENANCE AND REPAIR

						618.0100.01
						MAINTENANCE AND REPAIR OF
CATEGORY	STATION	TO	STATION	LOCATION		HAUL ROADS (PROJECT) (01. 7311-00-70)
						EACH
0030	9+50	-	10+50	CTH D		1
TOTAL 0010						1

MOBILIZATION

						619.1000
						MOBILIZATION
CATEGORY	STATION	TO	STATION	LOCATION		EACH
0010	9+50	-	10+50	CTH D		0.3
0020	9+50	-	10+50	STRUCTURE B-06-0193		0.7
TOTAL 0010						1

EROSION CONTROL MOBILIZATION

						628.1905	628.1910
						MOBILIZATIONS	MOBILIZATIONS EMERGENCY
CATEGORY	STATION	TO	STATION	LOCATION		EROSION CONTROL	EROSION CONTROL
						EACH	EACH
0010	9+50	-	10+50	CTH D		2	2
0010	98+54	-	102+59	TEMPORARY BYPASS		4	2
TOTAL 0010						6	4

ITEMS OF EROSION CONTROL

* INDICATES ITEM WITH ADDITIONAL QUANTITY ELSEWHERE IN PLAN

					*	*	*	*	*	*	*
					625.0500	628.1504	628.1520	628.2008	629.0210	630.0110	630.0500
					SALVAGED	SILT FENCE	SILT FENCE	EROSION MAT	FERTILIZER TYPE	SEEDING	SEED WATER
					TOPSOIL	LF	MAINTENANCE	URBAN CLASS I	B	MIXTURE NO. 10	MGAL
CATEGORY	STATION	TO	STATION	LOCATION	SY	LF	LF	TYPE B	CWT	LB	
0010	9+50	-	9+76	CTH D	42	35	35	45	0.1	0.6	3.0
0010	10+05	-	10+50	CTH D	89	25	25	90	0.1	1.2	7.0
TOTAL 0010					131	60	60	135	0.2	2	10

BYPASS

* INDICATES ITEM WITH ADDITIONAL QUANTITY ELSEWHERE IN PLAN

INDICATES ITEM WITH ADDITIONAL QUANTITY ELSEWHERE IN PLAN					305.0110	624.01	625.0500	627.0200	628.2008	628.1504	628.1520	628.7504	629.0210	630.0120	630.0160	630.0200	630.0500	645.0125
					BASE				EROSION MAT									
					AGGREGATE				URBAN CLASS I									
					DENSE 3/4-		SALVAGED				SILT FENCE	SILT FENCE	TEMPORARY	FERTILIZER	SEEDING MIX	SEEDING MIX	SEEDING	GEOTEXTILE,
CATEGORY	STATION	TO	STATION	LOCATION	INCH	WATER	TOPSOIL	MULCHING	TYPE B	SILT FENCE	MAINTENANCE	DITCH CHECKS	TYPE B	NO. 10	NO. 60	TEMPORARY	SEED WATER	TYPE MS
					TON	MGAL	SY	SY	SY	LF	LF	LF	CWT	LB	LB	LB	MGAL	SY
0010	99+50	-	99+85	BYPASS LEFT	-	-	190	190	68	115	115	-	0.1	-	-	5	16	-
0010	99+25	-	99+85	BYPASS RIGHT	-	-	30	30	-	-	-	36	0.1	-	-	1	2	-
0010	100+10	-	102+90	BYPASS LEFT	-	-	450	150	130	45	45	-	0.3	-	-	12	13	-
0010	100+10	-	102+00	BYPASS RIGHT	-	-	200	200	70	-	-	36	0.1	-	-	5	18	-
0010	98+50	-	99+85	BYPASS	111	3	-	-	-	-	-	-	-	-	-	-	-	240
0010	100+10	-	102+60	BYPASS	269	5	-	-	-	-	-	-	-	-	-	-	-	160
0010	98+50	-	99+85	RESTORATION	-	-	165	310	-	-	-	-	0.1	2.3	3.2	-	14	-
0010	100+10	-	102+60	RESTORATION	-	-	890	1,050	-	-	-	-	0.6	11.9	2.0	-	70	-
0010				UNDISTRIBUTED	-	-	-	-	-	120	120	36	-	-	-	-	-	-
TOTAL 0010					380	8	1,925	1,930	268	280	280	108	1.3	14	5	23	133	400

TURBIDITY BARRIER

SIGNS

		628.6005										634.0612	637.2230	638.2602	638.3000	
		TURBIDITY										POSTS WOOD	SIGNS TYPE II	REMOVING	REMOVING	
		BARRIERS										4X6-INCH X 12-	REFLECTIVE F	SIGNS TYPE II	SMALL SIGN	
		SY										FT	SF	EACH	SUPPORTS	
CATEGORY	LOCATION			REMARKS			CATEGORY	STATION	LOCATION			EACH				REMARKS
0010	WEST ABUTMENT	107		ESTIMATED @ 8'X120'			0010	9+64	CTH D LEFT			1	3.00	1	1	(1-01) W5-52L
0010	EAST ABUTMENT	142		ESTIMATED @ 8'X160'			0010	9+76	CTH D RIGHT			1	3.00	1	1	(1-02) W5-52R
							0010	10+05	CTH D LEFT			1	3.00	1	1	(1-03) W5-52R
							0010	10+13	CTH D RIGHT			1	3.00	1	1	(1-04) W5-52L
							0010	9+72	CTH D RIGHT			-	-	1	1	(1-06) R12-1
							0010	9+88	CTH D RIGHT			-	-	1	1	(1-08) I3-1
							0010	10+12	CTH D LEFT			-	-	1	1	(1-05) I3-1
							0010	10+26	CTH D LEFT			-	-	1	1	(1-07) R12-1
TOTAL 0010												4	12.00	8	8	

CONSTRUCTION STAKING

					650.4500	650.5000	650.9910	650.9920	650.6500
					CONSTRUCTION STAKING SUBGRADE LF	CONSTRUCTION STAKING BASE LF	CONSTRUCTION STAKING SLOPE STAKES LF	CONSTRUCTION STAKING SUPPLEMENTAL CONTROL (PROJECT) (01 7311-00-70) LS	CONSTRUCTION STAKING STRUCTURE LAYOUT B-06-0193 LS
0010	9+50	-	9+73	CTH D	23	23	23	1	
0010	10+09	-	10+50	CTH D	41	41	41		
0010	98+48	-	102+59	BYPASS	411		411		
0020	9+73	-	10+09	STRUCTURE B-06-0193					1
TOTAL 0010					475	64	475	1	1

SAWING ASPHALT

CATEGORY	STATION	LOCATION	690.0150 SAWING ASPHALT LF
0010	9+50	CTH D	22
0010	10+50	CTH D	22
TOTAL 0010			44

FIELD OFFICE TYPE B

CATEGORY	STATION	TO	STATION	LOCATION	642.5001 FIELD OFFICE TYPE B EACH
0010	9+50	-	10+50	CTH D	1
TOTAL 0010					1

TRAFFIC CONTROL

					633.1100	643.0300	643.0420	643.0705	643.0715	643.0900	643.5000
					DELINEATORS TEMPORARY EACH	TRAFFIC CONTROL DRUMS DAY	TRAFFIC CONTROL BARRICADES TYPE III DAY	TRAFFIC CONTROL WARNING LIGHTS TYPE A DAY	TRAFFIC CONTROL WARNING LIGHTS TYPE C DAY	TRAFFIC CONTROL SIGNS DAY	TRAFFIC CONTROL EACH
0010	9+50	-	10+50	CTH D	30	4,400	880	440	1,100	1,870	1
TOTAL 0010					30	4,400	880	440	1,100	1,870	1

CONVENTIONAL ABBREVIATIONS			
ACCESS RIGHTS	AR	POINT OF INTERSECTION	PI
ACRES	AC	PROPERTY LINE	PL
AHEAD	AH	RECORDED AS	(100')
ALUMINIUM	ALUM	REEL / IMAGE	R/I
AND OTHERS	ET AL	REFERENCE LINE	R/L
BACK	BK	REMAINING	REM
BLOCK	BLK	RESTICTIVE DEVELOPMENT	RDE
CENTERLINE	C/L	EASEMENT	
CERTIFIED SURVEY MAP	CSM	RIGHT	RT
CONCRETE	CONC	RIGHT OF WAY	R/W
COUNTY	CO	SECTION	SEC
COUNTY TRUNK HIGHWAY	CTH	SEPTIC VENT	SEPV
DISTANCE	DIST	SQUARE FEET	SF
CORNER	COR	STATE TRUNK HIGHWAY	STH
DOCUMENT NUMBER	DOC	STATION	STA
EASEMENT	EASE	TELEPHONE PEDESTAL	TP
EXISTING	EX	TEMPORARY LIMITED	TLE
GAS VALVE	GV	EASEMENT	
GRID NORTH	GN	TRANSPORTATION PROJECT	TPP
HIGHWAY EASEMENT	HE	PLAT	
IDENTIFICATION	ID	UNITED STATES HIGHWAY	USH
LAND CONTRACT	LC	VOLUME	V
LEFT	LT		
MONUMENT	MON		
NATIONAL GEODETIC SURVEY	NGS		
NUMBER	NO		
OUTLOT	OL		
PAGE	P		
POINT OF TANGENCY	PT		
PERMANENT LIMITED	PLE		
EASEMENT			
POINT OF BEGINNING	POB		
POINT OF CURVATURE	PC		
POINT OF COMPOUND CURVE	PCC		

CURVE DATA			
LONG CHORD	LCH		
LONG CHORD BEARING	LCB		
RADIUS	R		
DEGREE OF CURVE	D		
CENTRAL ANGLE	Δ/DELTA		
LENGTH OF CURVE	L		
TANGENT	T		
DIRECTION AHEAD	DA		
DIRECTION BACK	DB		

CONVENTIONAL UTILITY SYMBOLS

WATER	—W—
	—G—
TELEPHONE	—T—
OVERHEAD	—OH—
TRANSMISSION LINES	
ELECTRIC	—E—
CABLE TELEVISION	—TV—
FIBER OPTIC	—FO—
SANITARY SEWER	—SAN—
STORM SEWER	—SS—

NOTES:

POSITIONS SHOWN ON THIS PLAT ARE WISCONSIN COORDINATE REFERENCE SYSTEM COORDINATES (WISCRS). BUFFALO COUNTY, NAD83 (2011) IN US SURVEY FEET. VALUES SHOWN ARE GRID COORDINATES, GRID BEARINGS, AND GRID DISTANCES. GRID DISTANCES MAY BE USED AS GROUND DISTANCES.

ALL NEW RIGHT-OF-WAY MONUMENTS WILL BE TYPE 2 (TYPICALLY 3/4"X24" IRON REBARS) UNLESS OTHERWISE NOTED, AND WILL BE PLACED PRIOR TO THE COMPLETION OF THE PROJECT.

RIGHT-OF-WAY BOUNDARIES ARE DEFINED WITH COURSES OF THE PERIMETER OF THE HIGHWAY LANDS REFERENCED TO THE U.S. PUBLIC LAND SURVEY SYSTEM OR OTHER "SURVEYS" OF PUBLIC RECORD.

DIMENSIONING FOR THE NEW RIGHT-OF-WAY IS MEASURED ALONG AND PERPENDICULAR TO THE NEW REFERENCE LINES.

THIS PLAT IS A GRAPHIC REPRESENTATION AND IS FOR REFERENCE PURPOSE ONLY. DEEDS MUST BE CHECKED TO DETERMINE PROPERTY BOUNDARIES AND ACCESS RIGHTS.

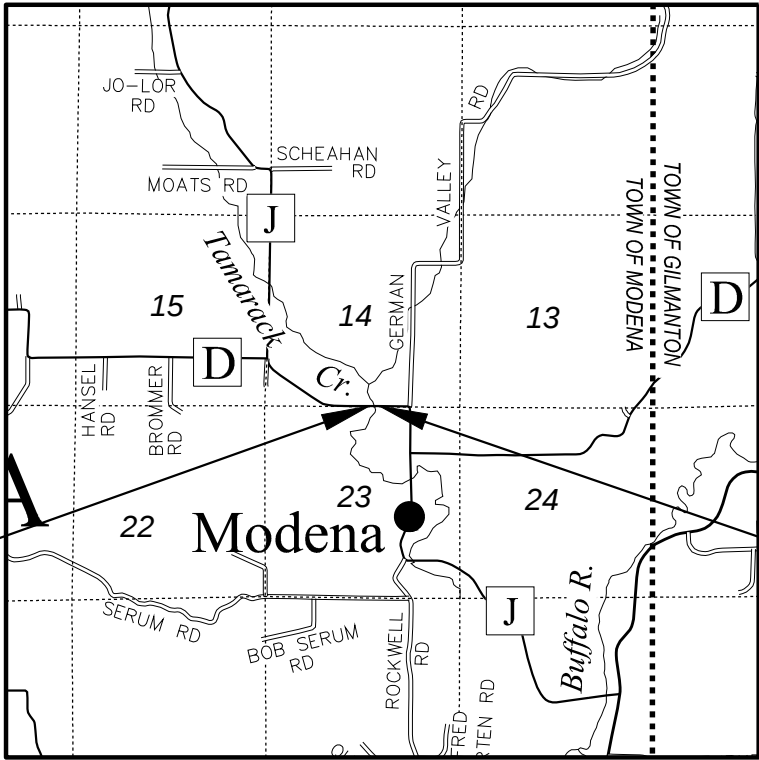
A TEMPORARY LIMITED EASEMENT (TLE) IS A RIGHT FOR CONSTRUCTION PURPOSES, AS DEFINED HEREIN, INCLUDING THE RIGHT TO OPERATE NECESSARY EQUIPMENT THEREON, THE RIGHT OF INGRESS AND EGRESS, AS LONG AS REQUIRED FOR SUCH PUBLIC PURPOSE, INCLUDING THE RIGHT TO PRESERVE, PROTECT, REMOVE, OR PLANT THEREON ANY VEGETATION THAT THE HIGHWAY AUTHORITIES MAY DEEM DESIRABLE. ALL (TLEs) ON THIS PLAT EXPIRE AT THE COMPLETION OF THE CONSTRUCTION PROJECT FOR WHICH THIS INSTRUMENT IS GIVEN.

A PERMANENT LIMITED EASEMENT (PLE) IS A RIGHT FOR CONSTRUCTION AND MAINTENANCE PURPOSES, AS DEFINED HEREIN, INCLUDING THE RIGHT TO OPERATE NECESSARY EQUIPMENT THEREON AND THE RIGHT OF INGRESS AND EGRESS, AS LONG AS REQUIRED FOR SUCH PUBLIC PURPOSE, INCLUDING THE RIGHT TO PRESERVE, PROTECT, REMOVE, OR PLANT THEREON ANY VEGETATION THAT THE HIGHWAY AUTHORITIES MAY DEEM DESIRABLE, BUT WITHOUT PREJUDICE TO THE OWNER'S RIGHTS TO MAKE OR CONSTRUCT IMPROVEMENTS ON SAID LANDS OR TO FLATTEN THE SLOPES; SAID ACTIVITIES WILL NOT IMPAIR OR OTHERWISE ADVERSELY AFFECT THE HIGHWAY FACILITIES.

FOR THE CURRENT ACCESS/DRIVEWAY INFORMATION, CONTACT THE PLANNING UNIT OF THE BUFFALO COUNTY HIGHWAY DEPARTMENT.

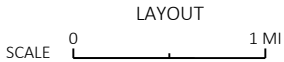
CONVENTIONAL SYMBOLS

SECTION LINE	---	SECTION CORNER SYMBOL		R/W MONUMENT (TO BE SET)	●
QUARTER LINE	- - -	SIXTEENTH LINE		NON-MONUMENTED R/W POINT	○
SIXTEENTH LINE		NEW REFERENCE LINE		FOUND IRON PIN (1-INCH UNLESS NOTED)	IP ●
NEW R/W LINE		EXISTING R/W OR HE LINE			
PROPERTY LINE		LOT, TIE & OTHER MINOR LINES			
SLOPE INTERCEPT		CORPORATE LIMITS			
UNDERGROUND FACILITY (COMMUNICATIONS, ELECTRIC, ETC)		NEW R/W (FEE OR HE) (HATCHING VARIES BY OWNER)			
TEMPORARY LIMITED EASEMENT AREA		EASEMENT AREA (PERMANENT LIMITED OR RESTRICTED DEVELOPMENT)			
TRANSMISSION STRUCTURES					
BUILDING		TO BE REMOVED			
BRIDGE					



BEGIN RELOCATION ORDER
STA 8+00.00
Y= 358,861.251
X= 573,780.180
104.29 FEET EAST AND 0.51 FEET SOUTH
OF THE SOUTH 1/4 CORNER OF
SECTION 14, T23N, R12W.

END RELOCATION ORDER
STA 12+00.00
Y= 358,860.062
X= 574,180.178
2186.36 FEET WEST AND 20.77 FEET NORTH
OF THE SOUTHEAST CORNER
OF SECTION 14, T23N, R12W.



TOTAL NET LENGTH OF CENTERLINE = 0.076 MI

R/W PROJECT NUMBER 7311-00-70	SHEET NUMBER 4.1	TOTAL SHEETS 2
FEDERAL PROJECT NUMBER		
PLAT OF RIGHT-OF-WAY REQUIRED FOR NELSON - STH 37 TAMARACK CREEK BRIDGE B-06-0193		
CTH D		BUFFALO CO.
CONSTRUCTION PROJECT NUMBER		

ORIGINAL PLANS PREPARED BY

770 TECHNOLOGY WAY
CHIPPewa FALLS, WI 54729

DATE: 2/12/21

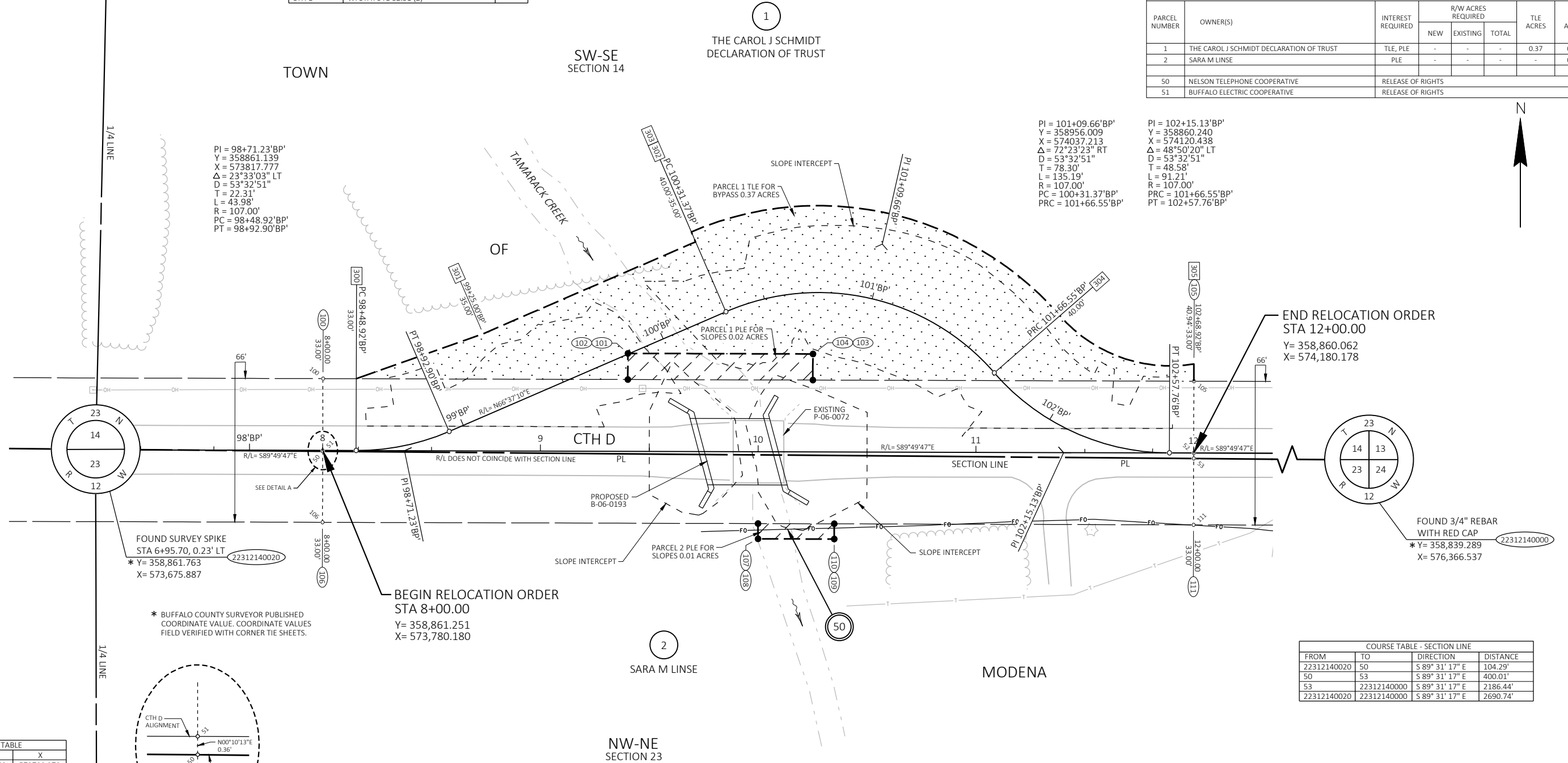
(Signature)

BUFFALO COUNTY
APPROVED FOR BUFFALO COUNTY
DATE: _____ (Signature)

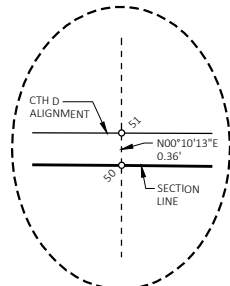
ROAD NAME	BASIS OF EXISTING R/W	YEAR
CTH D	WI STATUTE 82.31 (2)	

SCHEDULE OF LANDS & INTERESTS REQUIRED

PARCEL NUMBER	OWNER(S)	INTEREST REQUIRED	R/W ACRES REQUIRED			TLE ACRES	PLE ACRES
			NEW	EXISTING	TOTAL		
1	THE CAROL J SCHMIDT DECLARATION OF TRUST	TLE, PLE	-	-	-	0.37	0.02
2	SARA M LINSE	PLE	-	-	-	-	0.01
50	NELSON TELEPHONE COOPERATIVE	RELEASE OF RIGHTS					
51	BUFFALO ELECTRIC COOPERATIVE	RELEASE OF RIGHTS					



COORDINATE TABLE		
POINT	Y	X
100	358894.250	573780.278
101	358893.835	573920.277
102	358905.834	573920.313
103	358905.582	574005.312
104	358893.582	574005.277
105	358893.062	574180.276
106	358828.251	573780.082
107	358827.657	573980.081
108	358820.657	573980.060
109	358820.553	574015.060
110	358827.553	574015.081
111	358827.062	574180.080



DETAIL A
NOT TO SCALE

STATION & OFFSET TABLE		
POINT	STATION	OFFSET
101	9+40.00	33.00' LT
102	9+40.00	45.00' LT
103	10+25.00	45.00' LT
104	10+25.00	33.00' LT
107	10+00.00	33.00' RT
108	10+00.00	40.00' RT
109	10+35.00	40.00' RT
110	10+35.00	33.00' RT
50	8+00.00	0.36' RT
51	8+00.00	0.00'
52	12+00.00	0.00'
53	12+00.00	2.51' RT

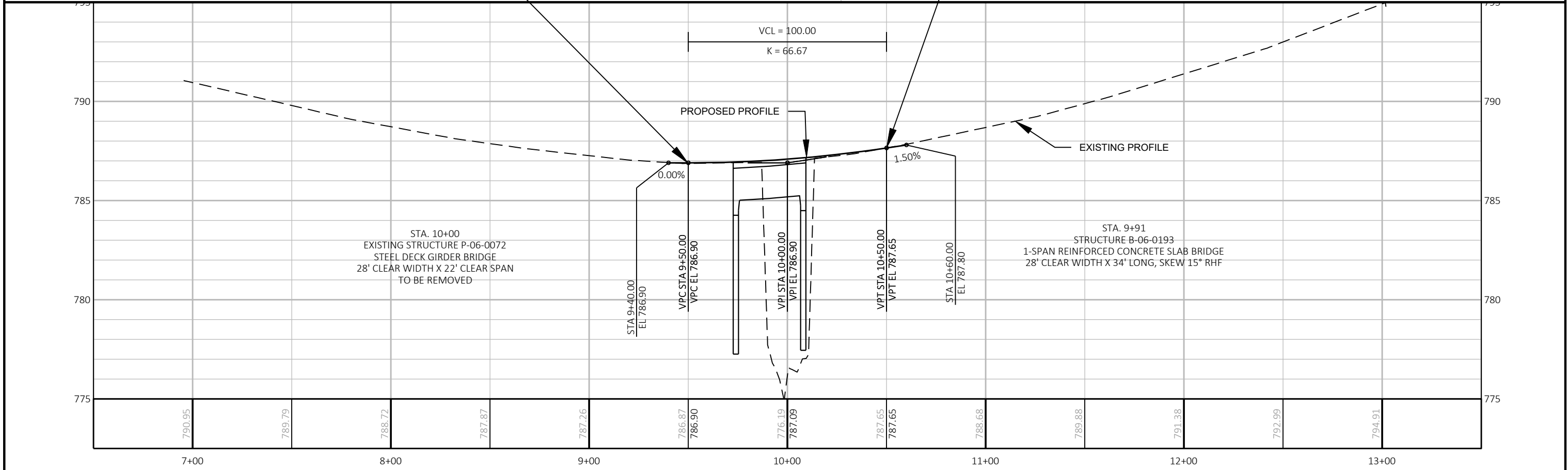
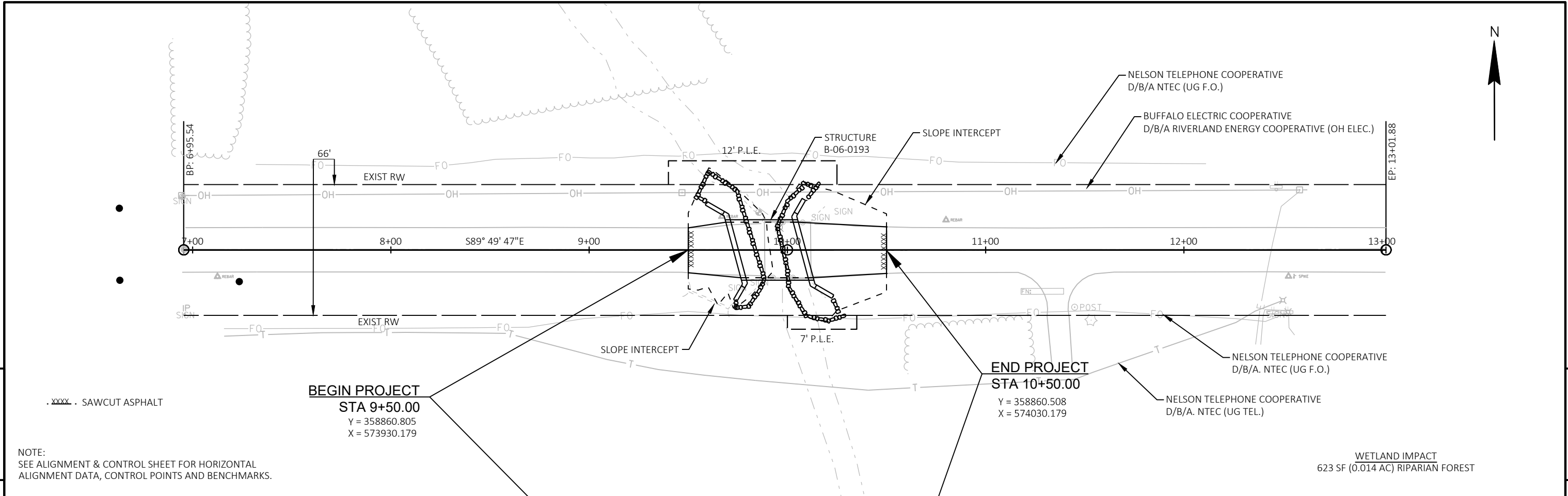
COURSE TABLE (SEGEMENTS)		
FROM	TO	DIRECTION
50	51	N 00° 10' 13" E
51	100	N 00° 10' 13" E
105	52	S 00° 10' 13" W
52	53	S 00° 10' 13" W
53	111	S 00° 10' 13" W
104	101	N 89° 49' 47" W
107	110	S 89° 49' 47" E

COURSE TABLE		
FROM	TO	DIRECTION
50	100	N 00° 10' 13" E
100	101	S 89° 49' 47" E
101	102	N 00° 10' 13" E
102	103	S 89° 49' 47" E
103	104	S 00° 10' 13" W
104	105	S 89° 49' 47" E
105	111	S 00° 10' 13" W
111	110	N 89° 49' 47" W
110	109	S 00° 10' 13" W
109	108	N 89° 49' 47" W
108	107	N 00° 10' 13" E
107	106	N 89° 49' 47" W
106	50	N 00° 10' 13" E

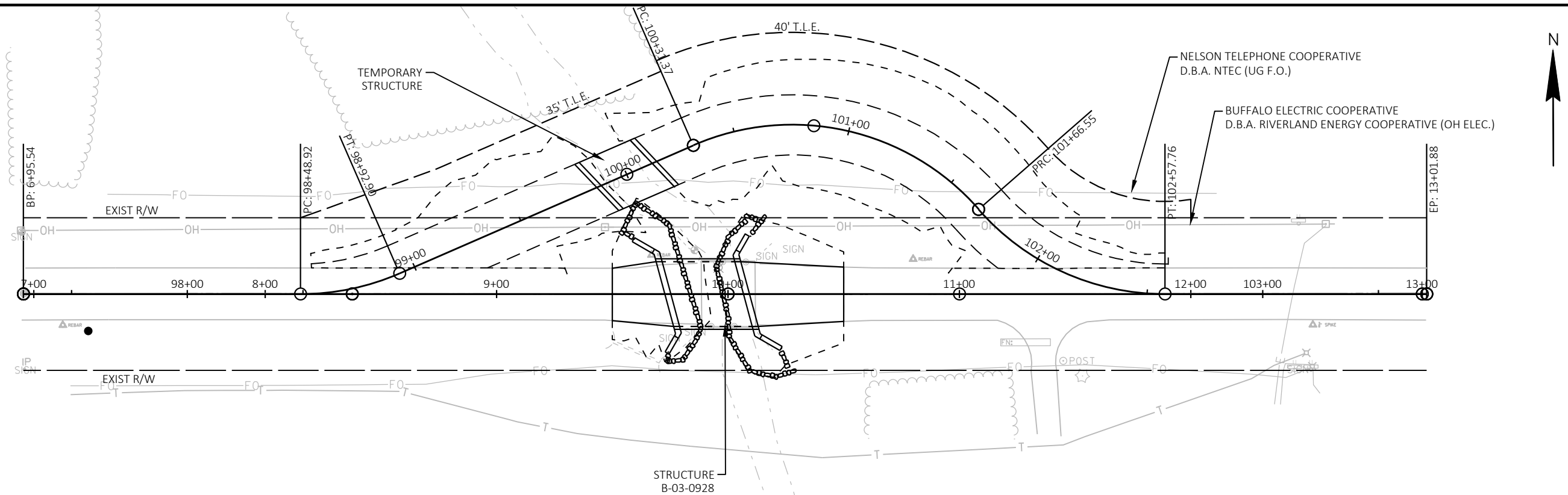
COURSE TABLE - SECTION LINE			
FROM	TO	DIRECTION	DISTANCE
22312140020	50	S 89° 31' 17" E	104.29'
50	53	S 89° 31' 17" E	400.01'
53	22312140000	S 89° 31' 17" E	2186.44'
22312140020	22312140000	S 89° 31' 17" E	2690.74'

UTILITY EASEMENT TABLE			
UTILITY NUMBER	PARCEL	RECORDING INFORMATION	NAME
50	1	DOC 128001, V 6ED, P 713	NELSON TELEPHONE COOPERATIVE
	1	DOC 190147, V 9ED, P 697	
	1	DOC 243111, V 475, P 448	
	2	DOC 242939, V 474, P 879	
51	1	DOC 83776, V 1ED, P 421	BUFFALO ELECTRIC COOPERATIVE
	2	DOC 83853, V 2ED, P 65	
	2	DOC 142255, V 7ED, P 676	
	2	DOC 142254, V 7ED, P 675	

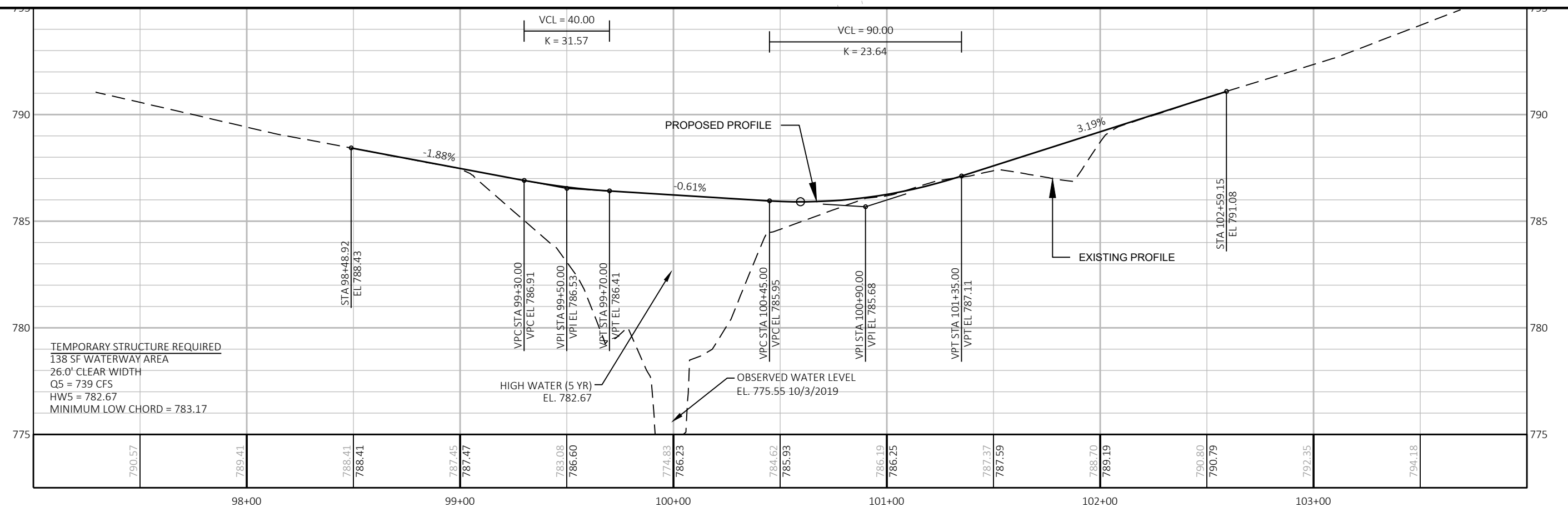
REVISION DATE	DATE 2/12/21	SCALE, FEET 0 25 50	HWY: CTH D	R/W PROJECT NUMBER 7311-00-70	PLAT SHEET 4.2	E
	GRID FACTOR N/A		COUNTY: BUFFALO	CONSTRUCTION PROJECT NUMBER	PS&E SHEET	



PROJECT NO: 7311-00-70	HWY: CTH D	COUNTY: BUFFALO	PLAN AND PROFILE: CTH D	SHEET	E
------------------------	------------	-----------------	-------------------------	-------	---



WETLAND IMPACT
3277 SF (0.075 AC) RIPARIAN FOREST WETLAND



TEMPORARY STRUCTURE REQUIRED
138 SF WATERWAY AREA
26.0' CLEAR WIDTH
Q5 = 739 CFS
HW5 = 782.67
MINIMUM LOW CHORD = 783.17

HIGH WATER (5 YR)
EL. 782.67

OBSERVED WATER LEVEL
EL. 775.55 10/3/2019

PROJECT NO: 7311-00-70

HWY: CTH D

COUNTY: BUFFALO

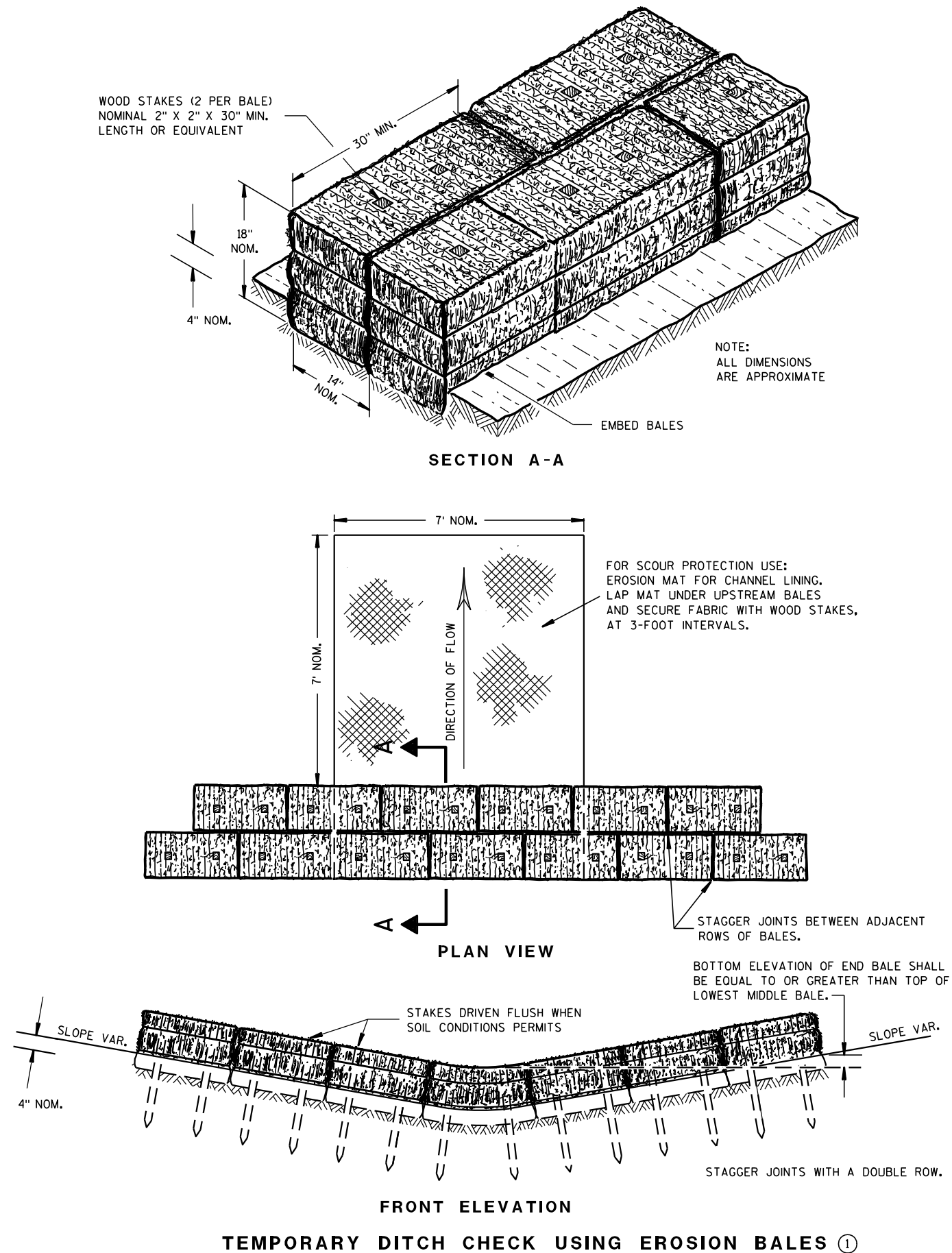
PLAN AND PROFILE: CTH D TEMPORARY BYPASS

SHEET

E

Standard Detail Drawing List

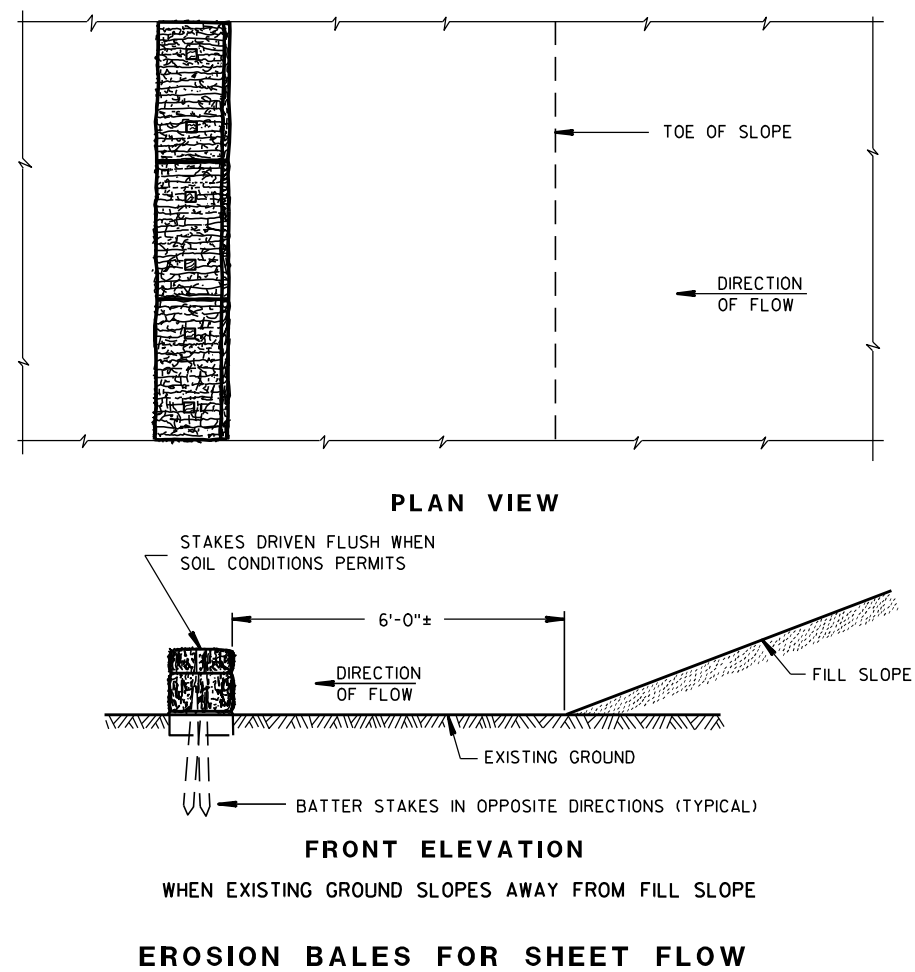
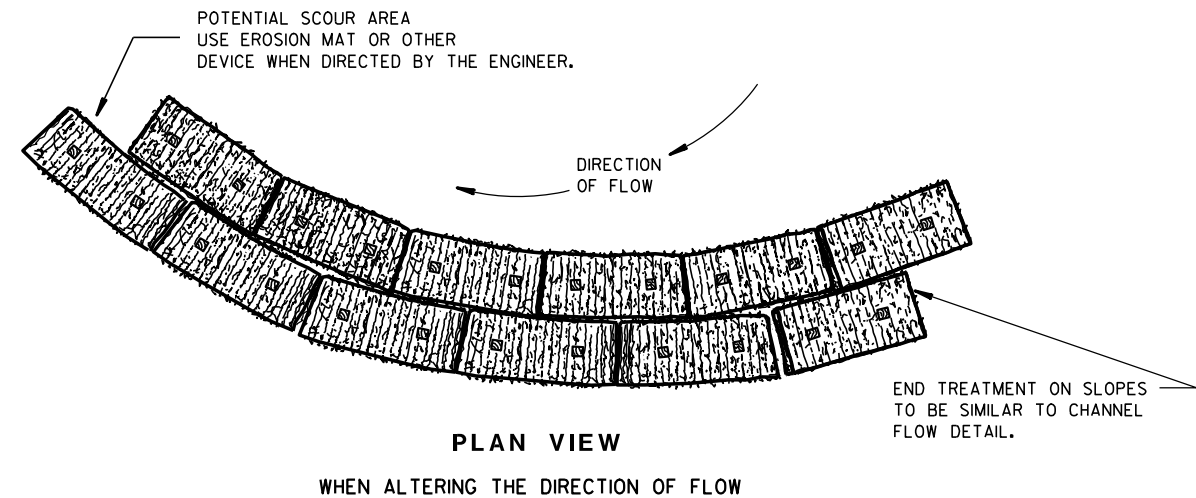
08E08-03	TYPICAL INSTALLATIONS OF EROSION BALES / TEMPORARY DITCH CHECKS
08E09-06	SILT FENCE
08E11-02	TURBIDITY BARRIER
12A03-10	NAME PLATE (STRUCTURES)
15C02-08A	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-08B	BARRICADES AND SIGNS FOR VARIOUS CLOSURES
15C04-05	TRAFFIC CONTROL, ADVANCE WARNING SIGNS 45 M.P.H. OR GREATER TWO-WAY UNDIVIDED ROAD OPEN TO TRAFFIC
15D28-04	TRAFFIC CONTROL, WORK ON SHOULDER OR PARKING LANE, UNDIVIDED ROADWAY
15D31-03	TRAFFIC CONTROL, TEMPORARY BYPASS ROADWAY
15D38-02A	TEMPORARY TRAFFIC CONTROL SIGN MOUNTING
15D38-02B	ATTACHMENT OF SIGNS TO POSTS



GENERAL NOTES

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

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

TYPICAL INSTALLATIONS OF
EROSION BALES / TEMPORARY
DITCH CHECKS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

6/04/02
DATE

/S/ Beth Canestra
CHIEF ROADWAY DEVELOPMENT ENGINEER

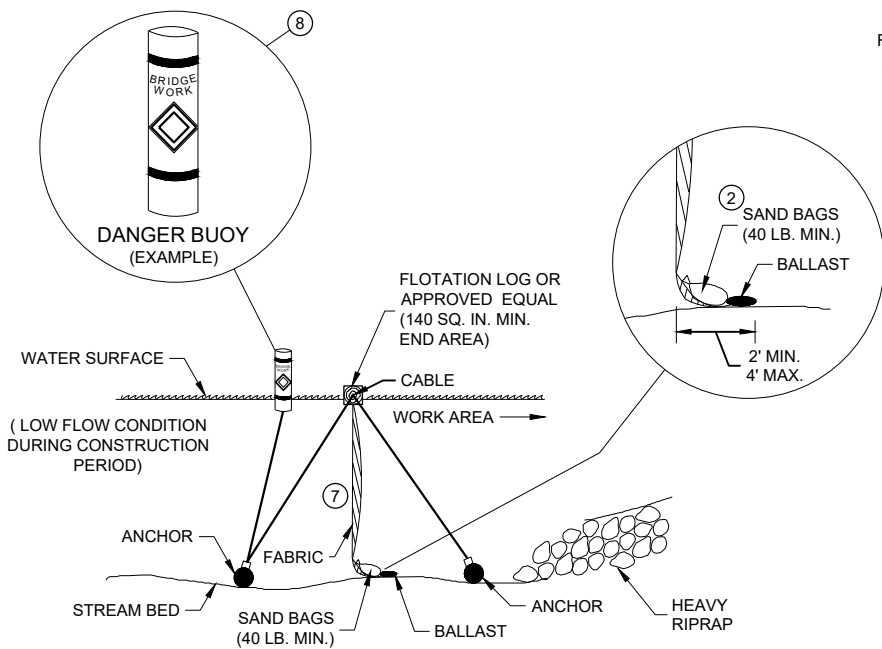
FHWA



- ① HORIZONTAL BRACE REQUIRED WITH 2" X 4" WOODEN FRAME OR EQUIVALENT AT TOP OF POSTS.
- ② FOR MANUAL INSTALLATIONS THE TRENCH SHALL BE A MINIMUM OF 4" WIDE & 6" DEEP TO BURY AND ANCHOR THE GEOTEXTILE FABRIC. FOLD MATERIAL TO FIT TRENCH AND BACKFILL & COMPACT TRENCH WITH EXCAVATED SOIL.
- ③ WOOD POSTS SHALL BE A MINIMUM SIZE OF 1½" X 1½" OF OAK OR HICKORY.
- ④ SILT FENCE TO EXTEND ACROSS THE TOP OF THE PIPE.
- ⑤ CONSTRUCT SILT FENCE FROM A CONTINUOUS ROLL IF POSSIBLE BY CUTTING LENGTHS TO AVOID JOINTS. IF A JOINT IS NECESSARY USE ONE OF THE FOLLOWING TWO METHODS; A) OVERLAP THE END POSTS AND TWIST, OR ROTATE, AT LEAST 180 DEGREES, B) HOOK THE END OF EACH SILT FENCE LENGTH.

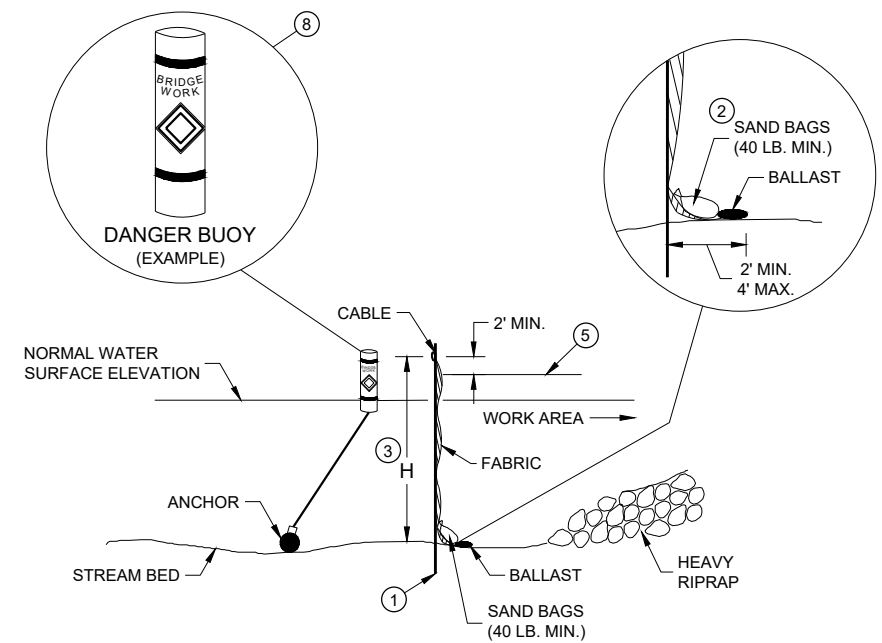


SILT FENCE	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 4-29-05 DATE	/s/ Beth Cannestra CHIEF ROADWAY DEVELOPMENT ENGINEER



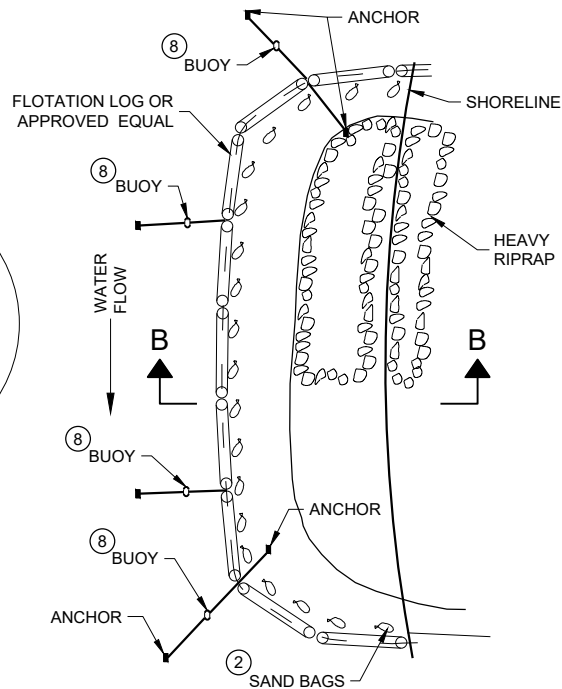
SECTION B - B

TURBIDITY BARRIER - FLOAT ALTERNATIVE
CAUTION - SEE NOTE 6

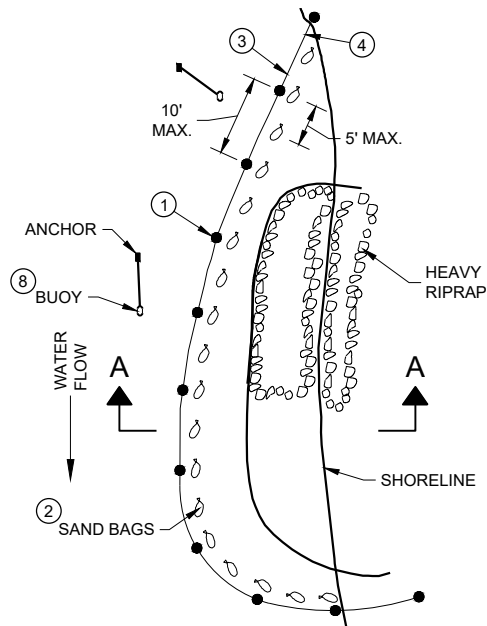


SECTION A - A

TURBIDITY BARRIER - STANDARD POST INSTALLATION



PLAN VIEW



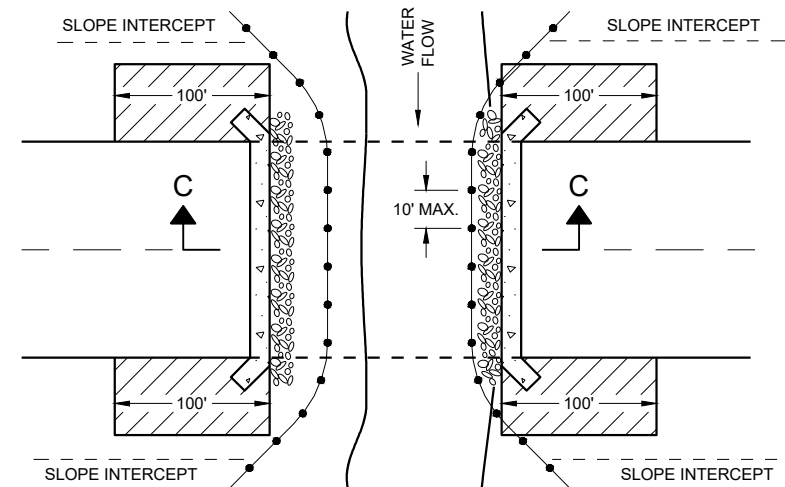
PLAN VIEW

GENERAL NOTES

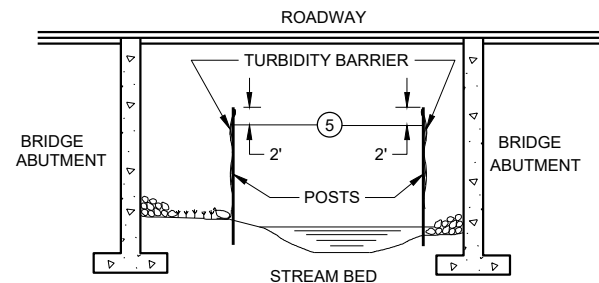
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

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

- 1 DRIVEN STEEL POSTS, PIPES, OR CHANNELS. LENGTH SHALL BE SUFFICIENT TO SECURELY SUPPORT BARRIER AT HIGH WATER ELEVATIONS.
- 2 SAND BAGS TO BE USED AS ADDITIONAL BALLAST WHEN ORDERED BY THE ENGINEER TO MEET ADVERSE FIELD CONDITIONS. SPACE AS APPROPRIATE FOR SITE CONDITIONS.
- 3 WHEN BARRIER HEIGHT "H" EXCEEDS 8 FEET, POST SPACING MAY NEED TO BE DECREASED.
- 4 IN WATERWAYS SUBJECT TO FLUCTUATING WATER ELEVATIONS, PROVISIONS SHOULD BE MADE TO ALLOW THE WATER TO EQUALIZE ON EACH SIDE OF THE BARRIER. THIS MAY BE ACCOMPLISHED BY LEAVING A PORTION OF THE BARRIER OPEN ON THE UPSTREAM END.
- 5 ESTIMATED HIGH WATER ELEVATION DURING CONSTRUCTION PERIOD. MINIMUM BARRIER HEIGHT SHALL BE 2' GREATER THAN EITHER THE Q2 ELEVATION OR THE ESTIMATED HIGH WATER ELEVATION DURING CONSTRUCTION, WHICHEVER IS GREATER.
- 6 FLOAT ALTERNATIVE WILL ONLY BE ALLOWED WITH WRITTEN APPROVAL OF THE ENGINEER, AND IS MEANT FOR LOCATIONS WHERE BEDROCK PREVENTS THE INSTALLATION OF POSTS.
- 7 ALLOW SUFFICIENT SLACK VERTICALLY AND HORIZONTALLY SO THAT SEDIMENT BUILD UP WILL NOT SEPARATE OR LOWER THE TURBIDITY BARRIER.
- 8 USE AS DIRECTED BY COAST GUARD OR DNR PERMIT WHEN WORKING IN NAVIGABLE WATERWAYS.



PLAN VIEW



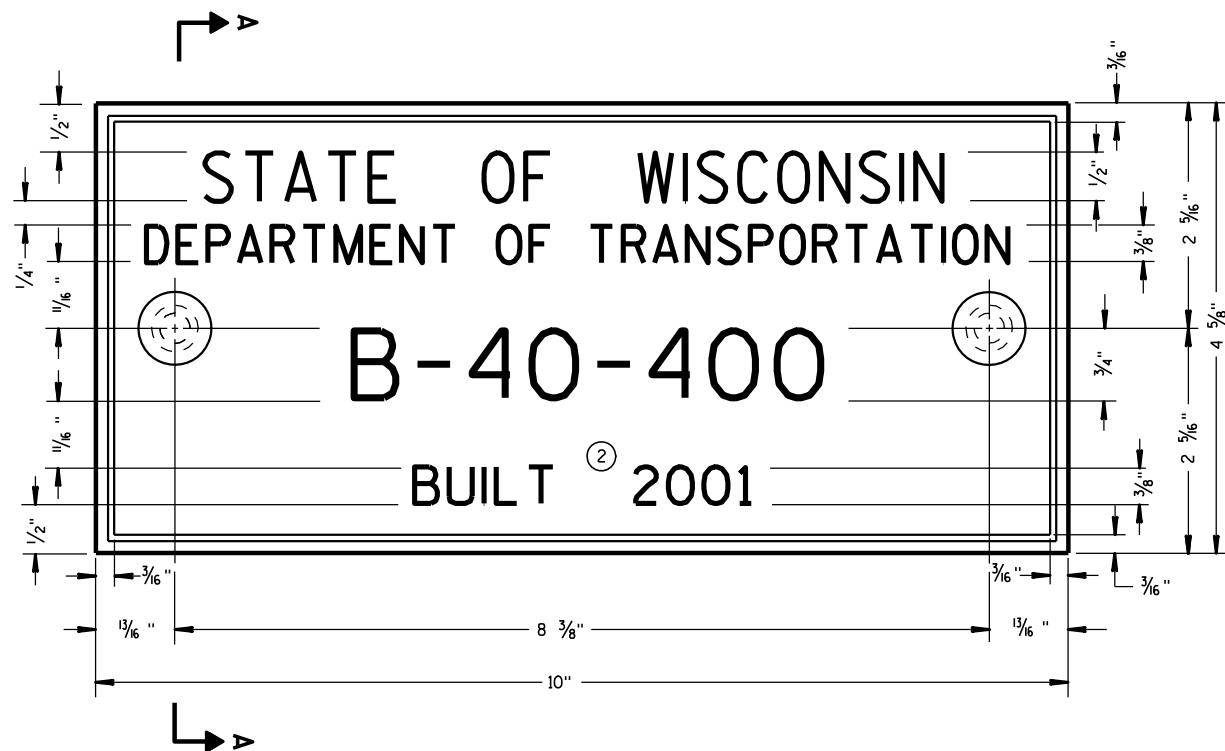
SECTION C - C

TURBIDITY BARRIER DETAIL SHOWING
TYPICAL PLACEMENT AT STRUCTURES

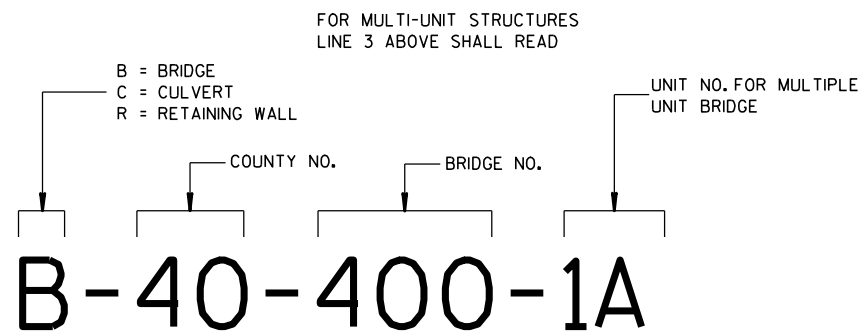
TURBIDITY BARRIER

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
6/4/02 DATE /S/ Beth Canestra
DATE CHIEF ROADWAY DEVELOPMENT
ENGINEER
FHWA



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



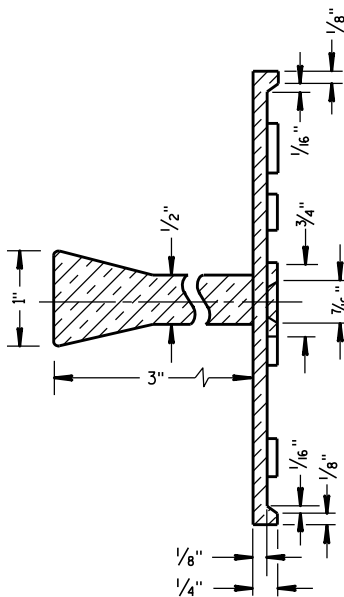
**NUMBERING DESIGNATION
MULTI-UNIT STRUCTURES**

GENERAL NOTES

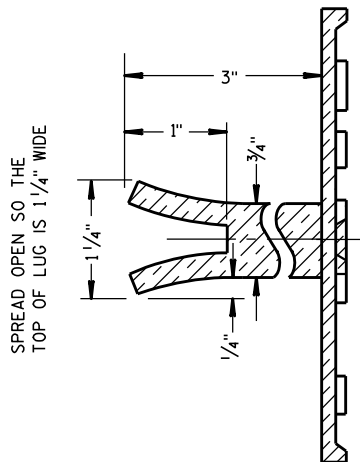
NAME PLATES TO BE INSTALLED ON BRIDGES, CULVERTS, AND RETAINING WALLS SHALL CONFORM TO THE REQUIREMENTS OF SECTION 502.3.11 OF THE STANDARD SPECIFICATIONS.

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

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

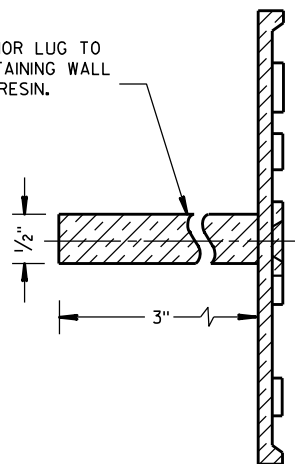


SECTION A-A



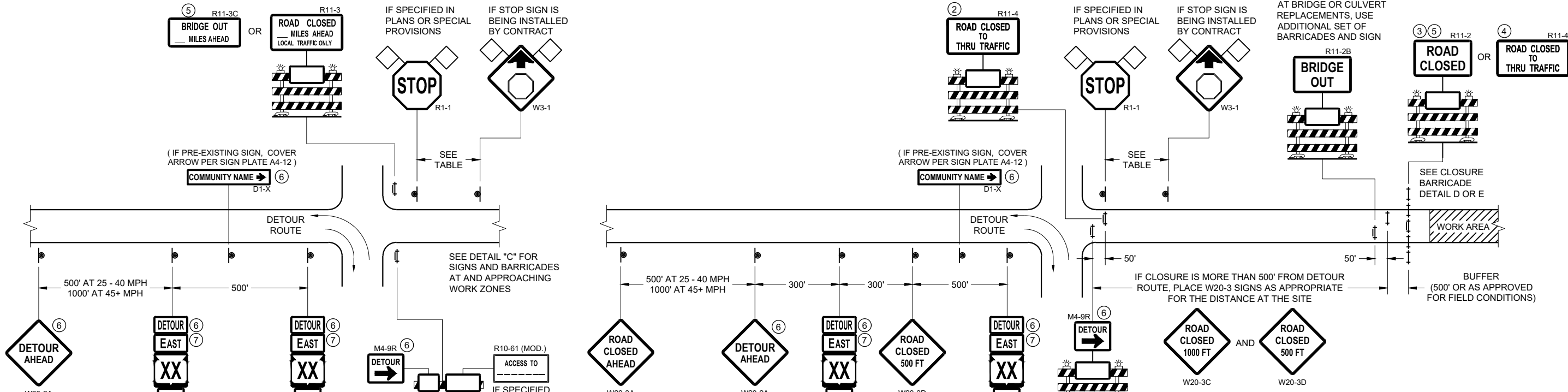
ALTERNATE LUG

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



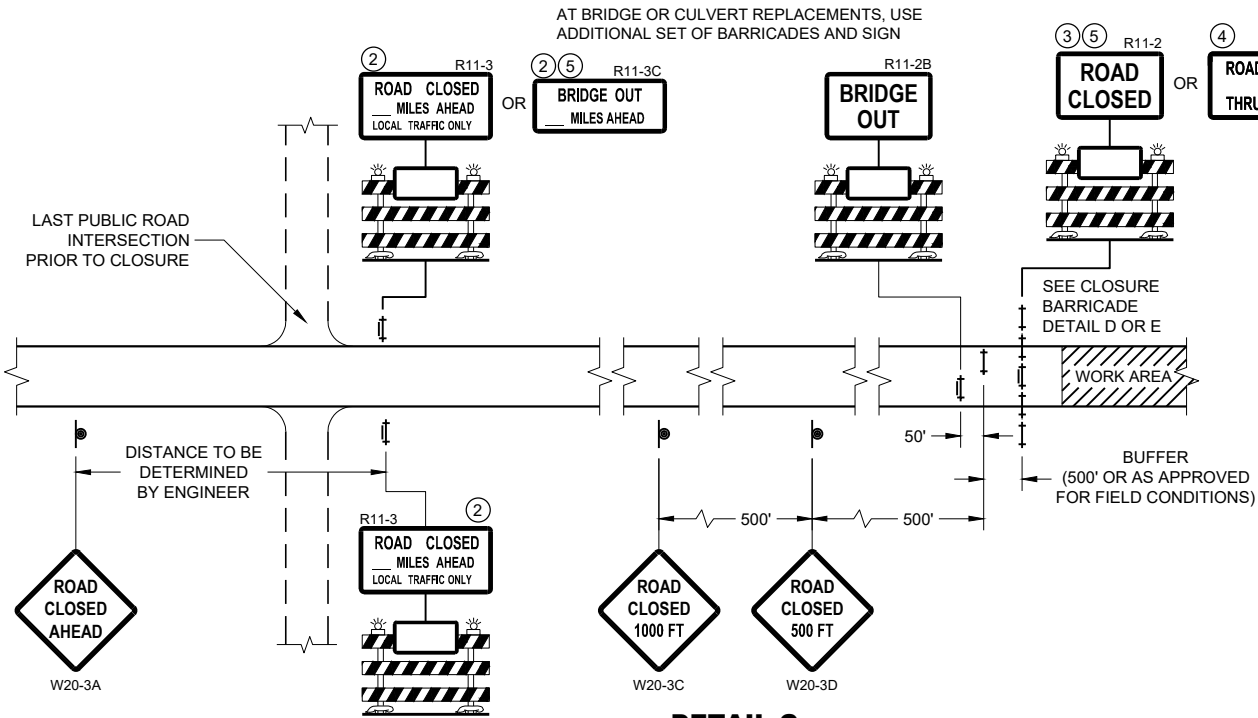
ALTERNATE LUG
(FOR ATTACHMENT TO PRECAST STRUCTURES)

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



DETAIL A
MAINLINE CLOSURE WITH POSTED DETOUR
WORK ZONE GREATER THAN OR EQUAL TO 1/2 MILE FROM
DETOUR ROUTE (1000 FEET IF URBAN)

DETAIL B
MAINLINE CLOSURE WITH POSTED DETOUR
WORK ZONE LESS THAN 1/2 MILE FROM
DETOUR ROUTE (1000 FEET IF URBAN)



DETAIL C
MAINLINE CLOSURE, NO POSTED DETOUR

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

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

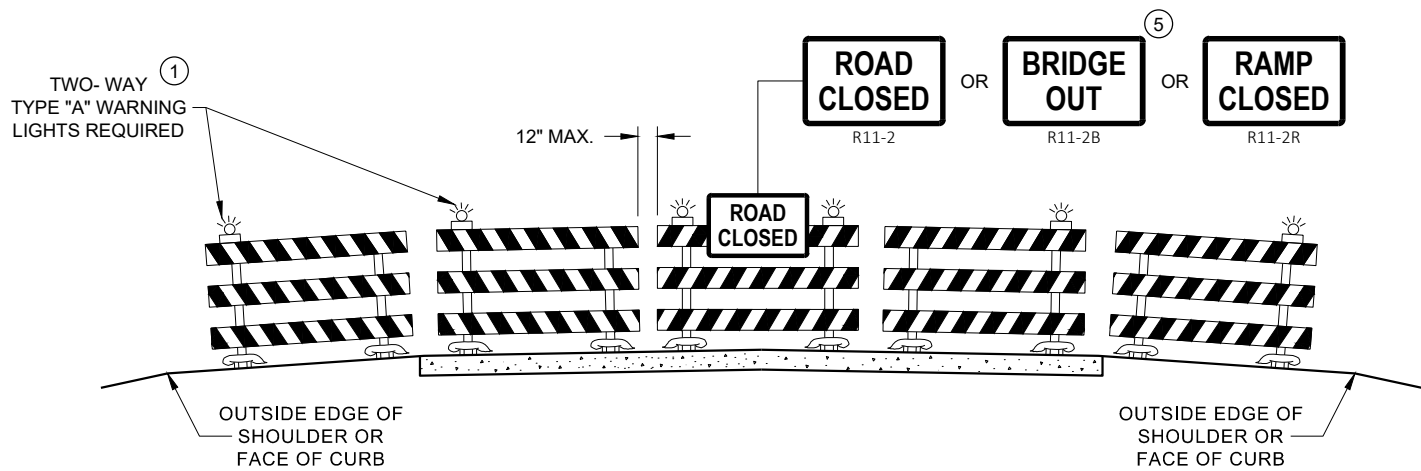
- LEGEND**
- SIGN ON PERMANENT SUPPORT
 - TYPE III BARRICADE
 - TYPE III BARRICADE WITH ATTACHED SIGN
 - TYPE "A" WARNING LIGHT (FLASHING)
 - WORK AREA
 - FLAGS, 16" X 16" MIN. (ORANGE)
 - DETOUR M4 - 8
 - EAST M3 - X
 - XX M1 - 4 OR XX M1 - 6 OR COUNTY M1 - 5A
 - M05 - 1 OR M06 - 1

**BARRICADES AND SIGNS
FOR MAINLINE CLOSURES**

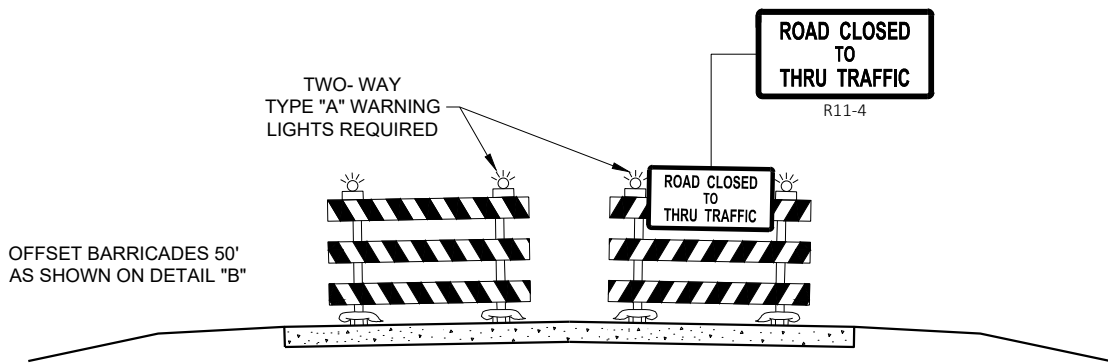
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

FHWA



DETAIL D
ROAD CLOSURE BARRICADE DETAIL
APPROACH VIEW



DETAIL E
LANE CLOSURE BARRICADE DETAIL
APPROACH VIEW

SEE SDD 15C2 - SHEET "a" FOR LEGEND

GENERAL NOTES

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

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

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

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

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

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

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

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

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

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

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

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

BARRICADES AND SIGNS
FOR
VARIOUS CLOSURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

FHWA

GENERAL NOTES

THE EXACT NUMBER, LOCATION, AND SPACING OF ALL SIGNS AND DEVICES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS.

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

ALL SIGNS ARE 48" X 48" UNLESS OTHERWISE NOTED.

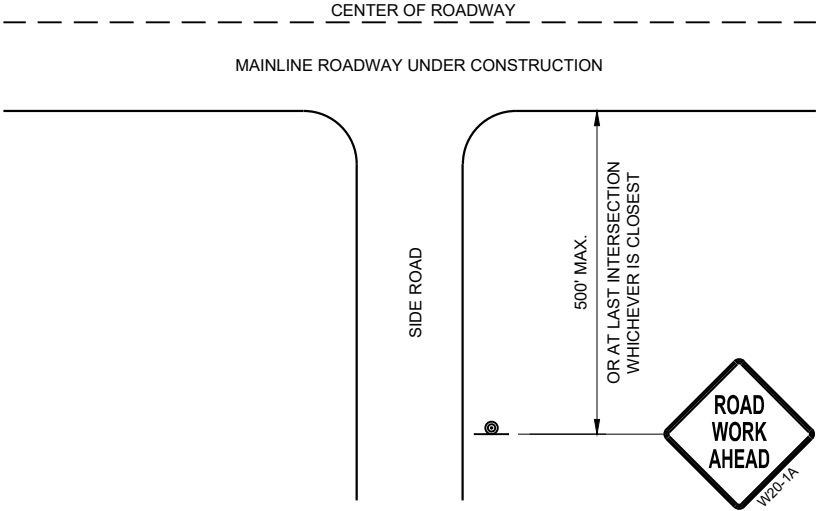
SIGNS THAT WILL BE IN PLACE LESS THAN SEVEN CONTINUOUS DAYS AND NIGHTS MAY BE MOUNTED ON PORTABLE SUPPORTS.

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.

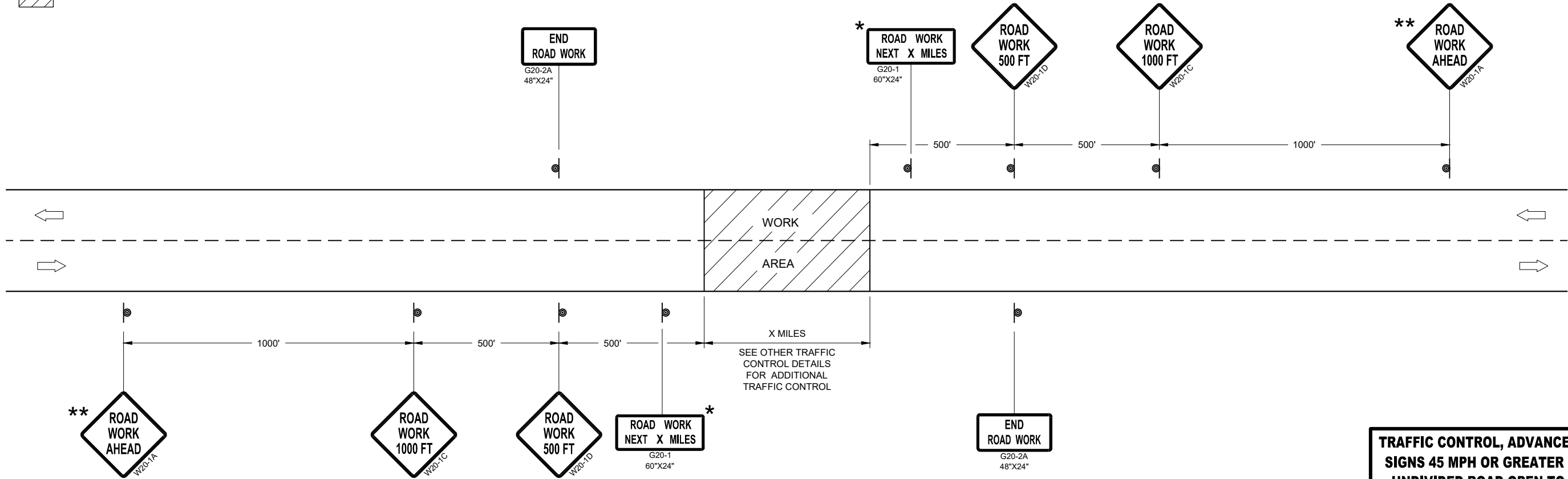
- * OMIT G20-1 SIGNS IF LENGTH OF WORK AREA IS 2 MILES OR LESS
- ** PLACE AN ADDITIONAL W20-1A "ROAD WORK AHEAD" SIGN IF WORK AREA WITHIN THE PROJECT IS SEPARATED BY MORE THAN 2 MILES FROM PREVIOUS WORK AREA.

LEGEND

-  SIGN ON PERMANENT SUPPORT
-  DIRECTION OF TRAFFIC
-  WORK AREA



TYPICAL SIDE ROAD APPROACH
WARNING SIGN DETAIL



TRAFFIC CONTROL, ADVANCE WARNING SIGNS 45MPH OR GREATER

TRAFFIC CONTROL, ADVANCE WARNING
SIGNS 45 MPH OR GREATER TWO-WAY
UNDIVIDED ROAD OPEN TO TRAFFIC

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

LEGEND

-  SIGN ON PERMANENT SUPPORT
-  TRAFFIC CONTROL DRUM
-  DIRECTION OF TRAFFIC
-  WORK ZONE

GENERAL NOTES

ALL SIGNS ARE 48"X48" UNLESS OTHERWISE NOTED. IF NECESSARY DUE TO SPACE CONSTRAINTS IN URBAN AREAS, 36" X 36" SIGNS MAY BE USED IF APPROVED BY THE REGIONAL TRAFFIC UNIT.

"WO" SIGN IS THE SAME AS "W" SIGN EXCEPT THE BACKGROUND IS ORANGE.

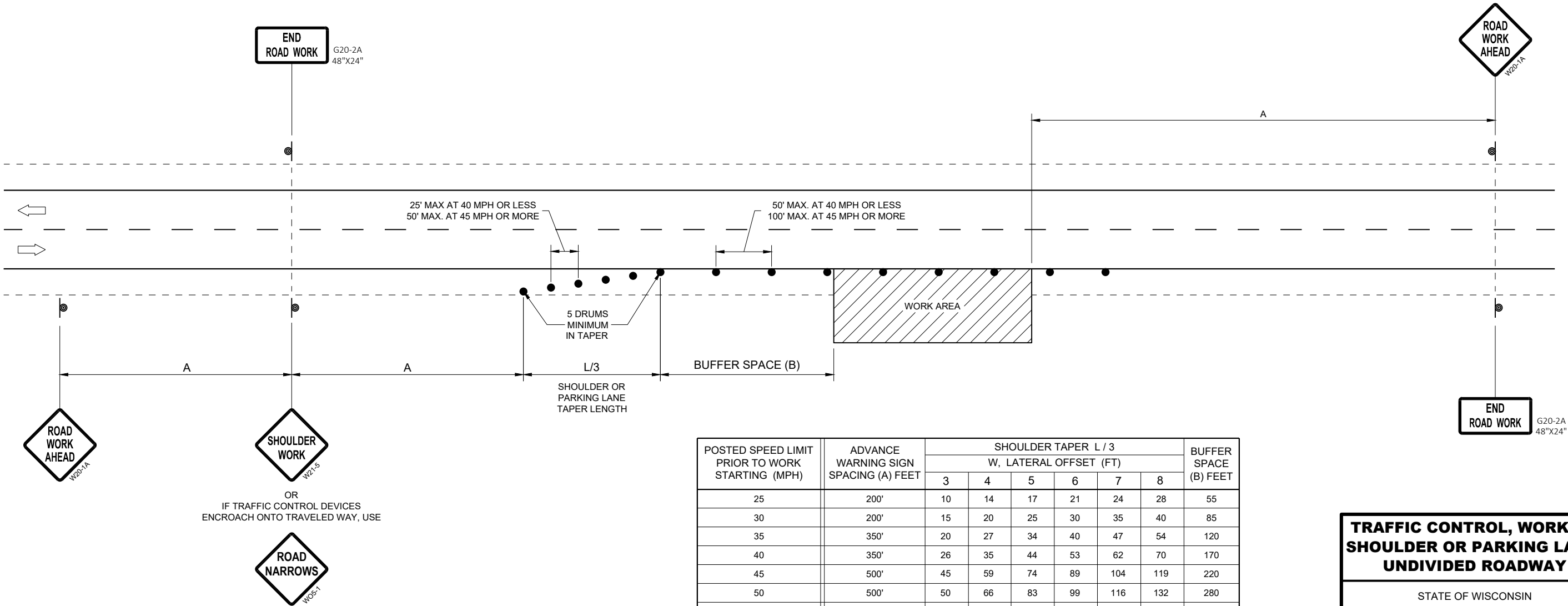
ANY SIGNS TEMPORARY OR EXISTING, WHICH CONFLICT WITH THE TRAFFIC CONTROL "IN USE" SHALL BE REMOVED OR COVERED AS NEEDED AND AS APPROVED BY THE ENGINEER.

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

CHANNELIZING DEVICES PLACED ADJACENT TO WORK AREA SHALL BE PULLED BACK FROM THE TRAVEL LANE WHEN WORK IS NOT IN PROGRESS.

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

W20-1A AND G20-2A SIGNS ARE NOT REQUIRED IF THE WORK AREA IS WITHIN A LARGER WORK ZONE WHERE THESE SIGNS ARE ALREADY PRESENT. G20-2A SIGNS MAY ALSO BE OMITTED IF DURATION OF WORK IS LESS THAN 7 CONTINUOUS DAYS AND NIGHTS.



POSTED SPEED LIMIT PRIOR TO WORK STARTING (MPH)	ADVANCE WARNING SIGN SPACING (A) FEET	SHOULDER TAPER L / 3 W, LATERAL OFFSET (FT)						BUFFER SPACE (B) FEET
		3	4	5	6	7	8	
25	200'	10	14	17	21	24	28	55
30	200'	15	20	25	30	35	40	85
35	350'	20	27	34	40	47	54	120
40	350'	26	35	44	53	62	70	170
45	500'	45	59	74	89	104	119	220
50	500'	50	66	83	99	116	132	280
55	500'	54	73	91	109	127	145	335'

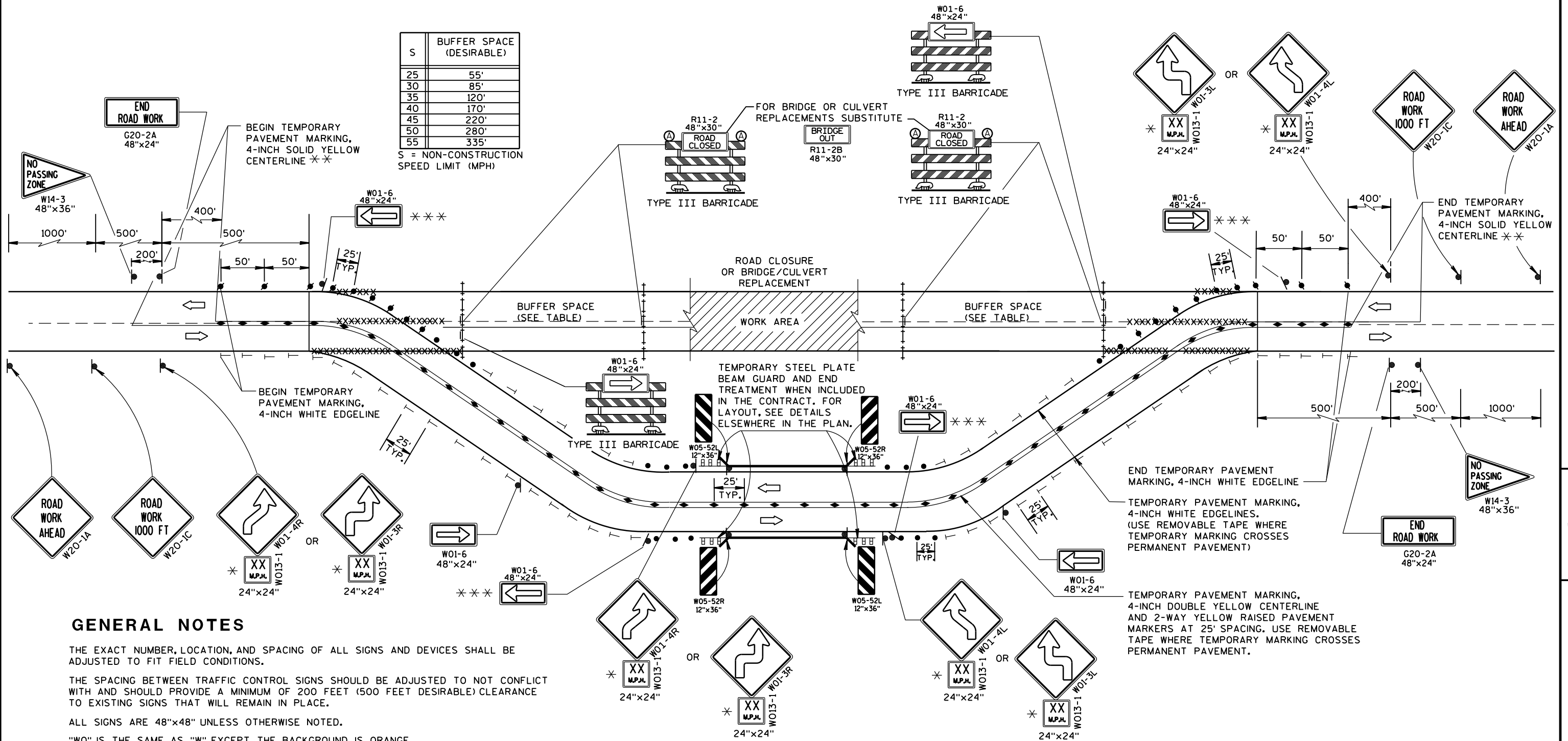
TRAFFIC CONTROL, WORK ON
SHOULDER OR PARKING LANE,
UNDIVIDED ROADWAY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May 2020 DATE /S/ Andrew Heidtke
STATEWIDE WORK ZONE TRAFFIC
SAFETY ENGINEER
FHWA

S	BUFFER SPACE (DESIRABLE)
25	55'
30	85'
35	120'
40	170'
45	220'
50	280'
55	335'

S = NON-CONSTRUCTION
SPEED LIMIT (MPH)



GENERAL NOTES

THE EXACT NUMBER, LOCATION, AND SPACING OF ALL SIGNS AND DEVICES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS.

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

ALL SIGNS ARE 48"x48" UNLESS OTHERWISE NOTED.

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

SIGN LAYOUTS SHALL BE IN ACCORDANCE WITH THE FHWA'S MANUAL OF STANDARD HIGHWAY SIGNS OR THE WISCONSIN STANDARD SIGN PLATES.

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

EQUIPMENT, VEHICLES, OR MATERIAL SHOULD NOT BE STORED IN BUFFER SPACE.

* IF ADVISORY SPEED IS GREATER THAN 30 MPH, USE THE W01-4 SIGN. IF ADVISORY SPEED IS 30 MPH OR LESS, USE THE W01-3 SIGN.

** WHEN THE DISTANCE TO/FROM THE NEXT CLOSEST NO-PASSING ZONE IS LESS THAN THE MINIMUM DISTANCE BETWEEN ZONES AS INDICATED IN THE SPECIFICATIONS, THE TWO ZONES SHALL BE CONNECTED.

*** OMIT THESE W01-6 SIGNS IF THE ADVISORY SPEED OF THE CURVE IS GREATER THAN 30 MPH.

LEGEND

- SIGN ON PERMANENT SUPPORT
- TRAFFIC CONTROL DRUM WITH TYPE "C" STEADY-BURN LIGHT
- TRAFFIC CONTROL DRUM
- † TYPE III BARRICADE
- †† TYPE III BARRICADE WITH ATTACHED SIGN
- Ⓐ TYPE "A" WARNING LIGHT (FLASHING)
- TEMPORARY DELINEATOR, (WHITE) (SINGLE DELINEATOR)
- ◆ TEMPORARY RAISED PAVEMENT MARKERS (TWO-WAY YELLOW)
- XXX REMOVE PAVEMENT MARKING
- ➡ DIRECTION OF TRAFFIC
- ▤ TEMPORARY STEEL PLATE BEAM GUARD AND END TREATMENT
- ▨ WORK AREA

TRAFFIC CONTROL, TEMPORARY BYPASS ROADWAY

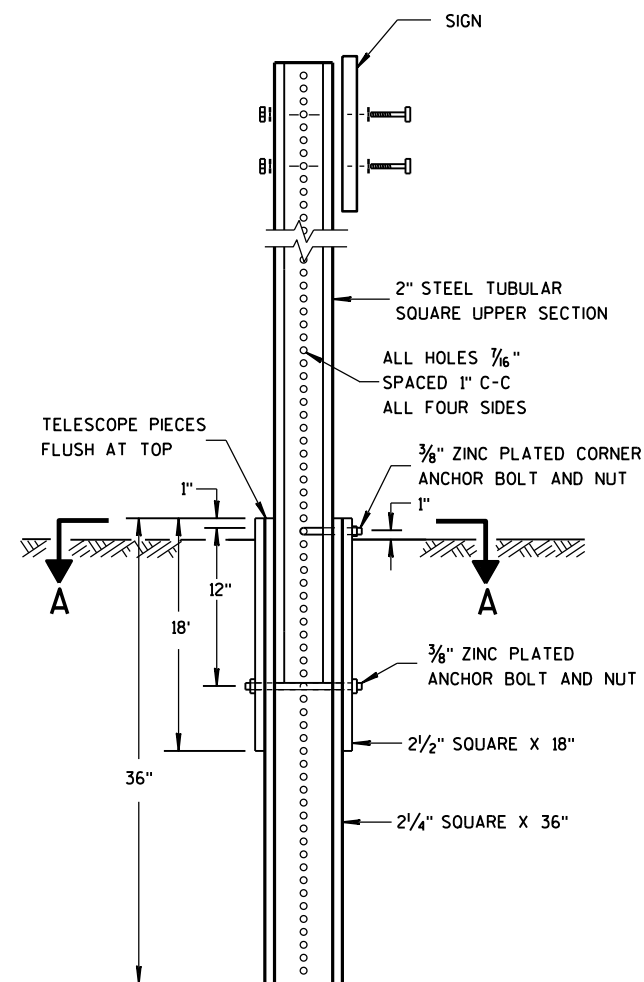
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

Sept. 2015
DATE

FHWA

/S/ Peter Amakobe Atepe
STATEWIDE WORK ZONE TRAFFIC
SAFETY ENGINEER



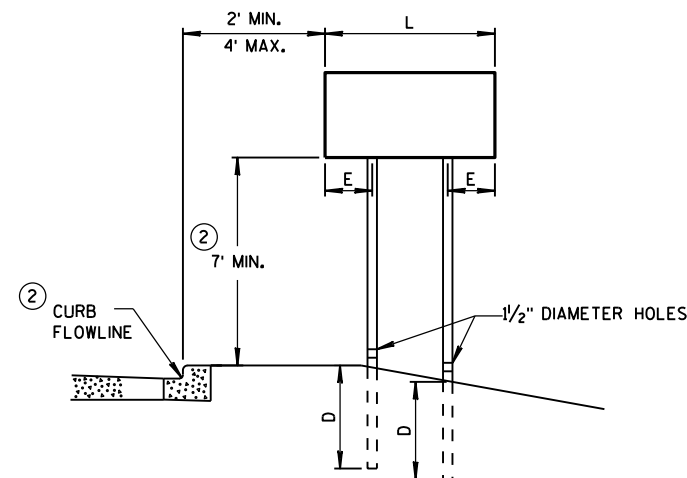
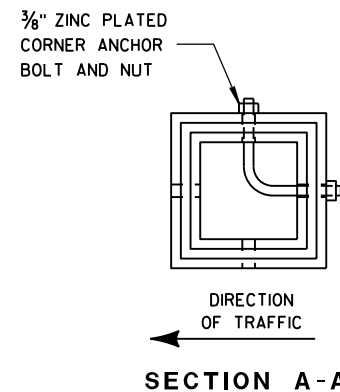
DETAIL OF TUBULAR
STEEL SIGN POST

TUBULAR STEEL POSTS

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

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

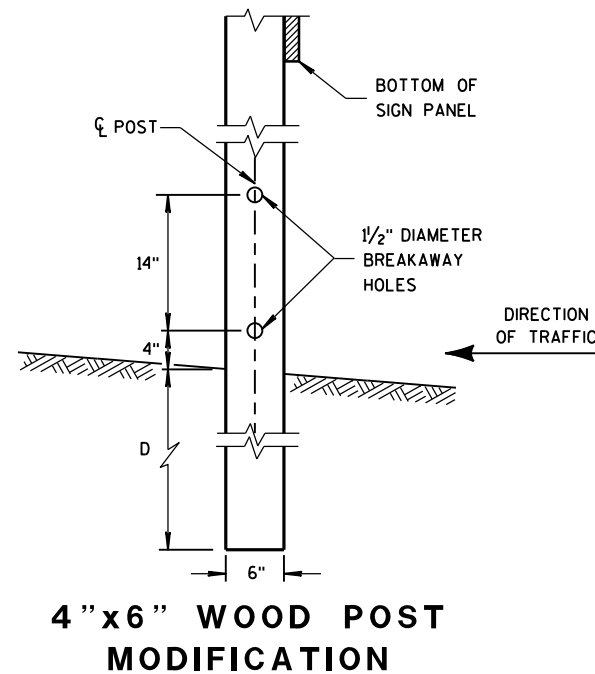
SIGNS LARGER THAN 27 SQ. FT. SHALL NOT BE MOUNTED
ON TUBULAR STEEL POSTS.



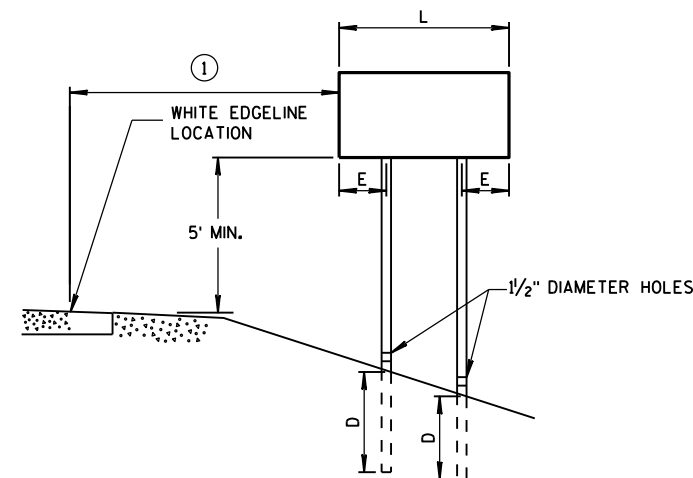
URBAN AREA

POST MOUNTING DETAIL FOR TEMPORARY TRAFFIC CONTROL FIXED MESSAGE SIGNS

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



4 "x6 " WOOD POST
MODIFICATION



RURAL AREA

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

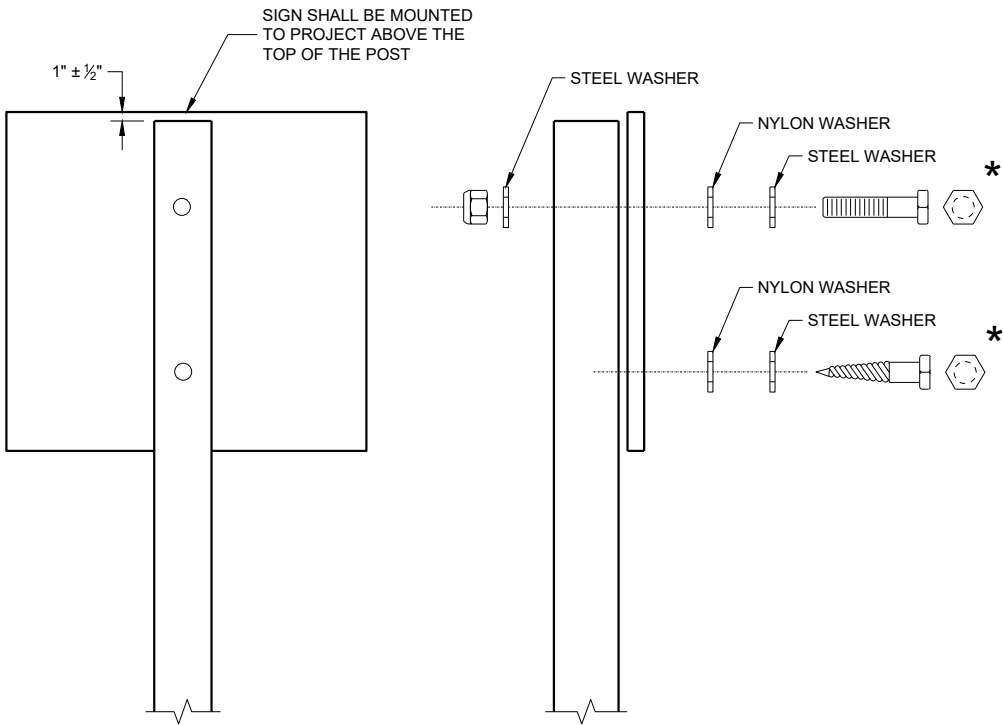
SEE NOTE ③

GENERAL NOTES

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

TEMPORARY TRAFFIC CONTROL
SIGN MOUNTING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



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

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

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

WOOD POST (4" x 6")
LAG SCREWS - ¾" x 3"
MACHINE BOLTS - ⅝" x 6 ½" OR 7" LENGTH W/NUTS

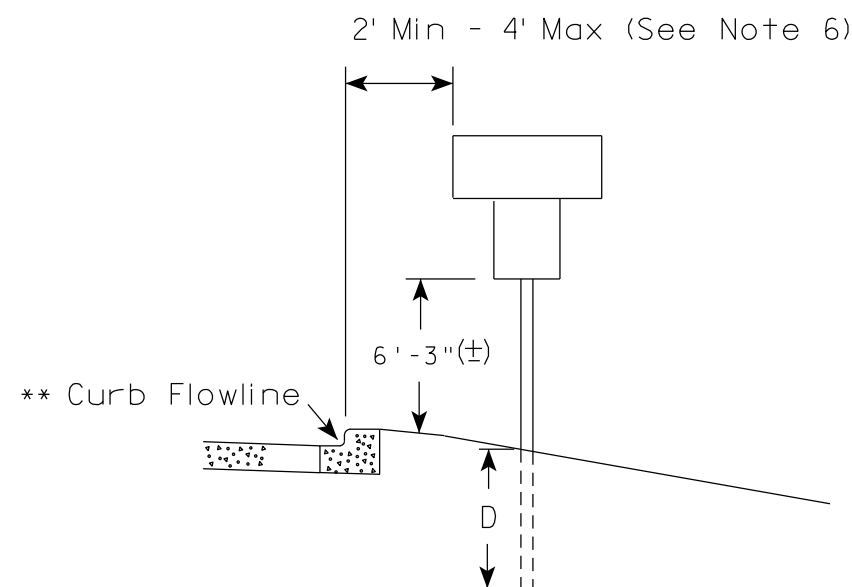
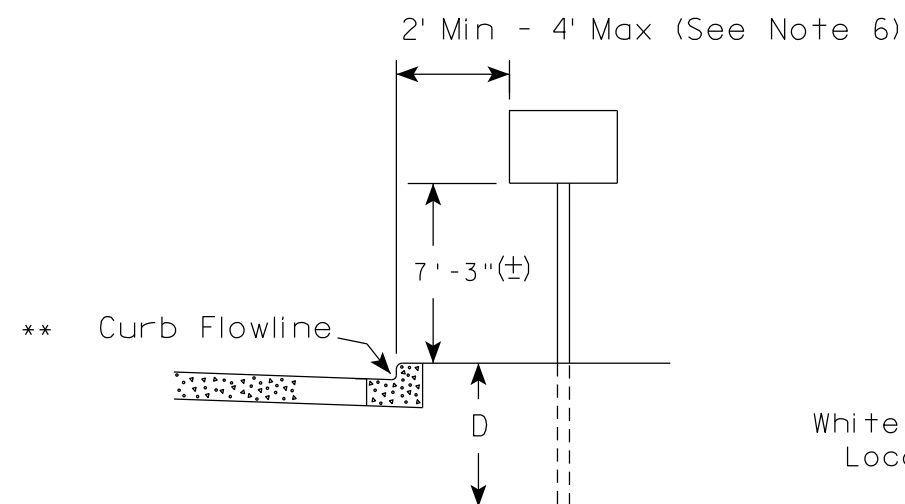
SQUARE STEEL POST (2" x 2")
MACHINE BOLTS - ¾" x 3 ¼" LENGTH W/NUTS
RIVETS - ⅝" (6605-9-6) BULB-TITE, TRI-FOLD, ALUMINUM
BODY/MANDREL O.D. FLANGE 0.720 - 0.765 INCH,
GRIP RANGE 0.042 - 0.375 INCH

WASHERS (ALL POSTS) -
1 ¼" O.D. x ⅜" I.D. x ⅛" STEEL
1 ¼" O.D. x ⅜" I.D. x 0.080 NYLON

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

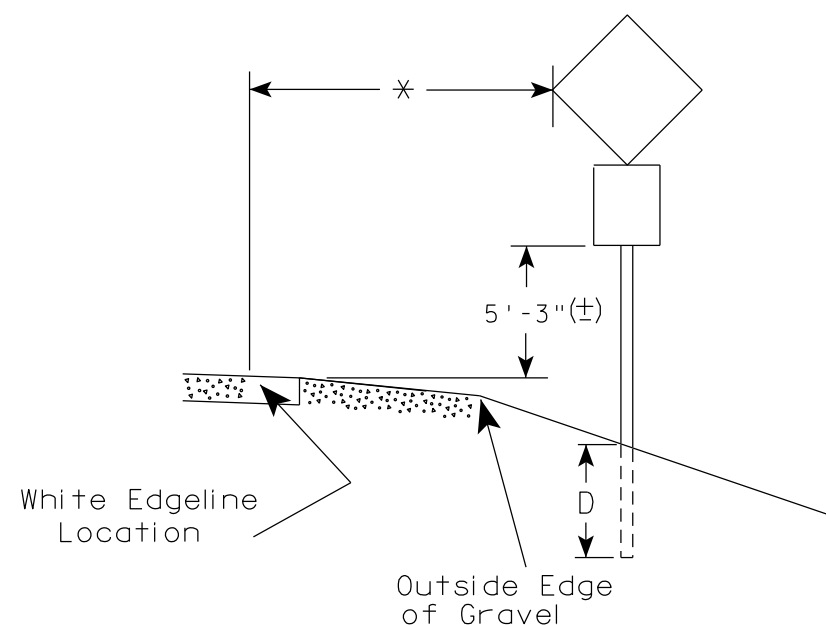
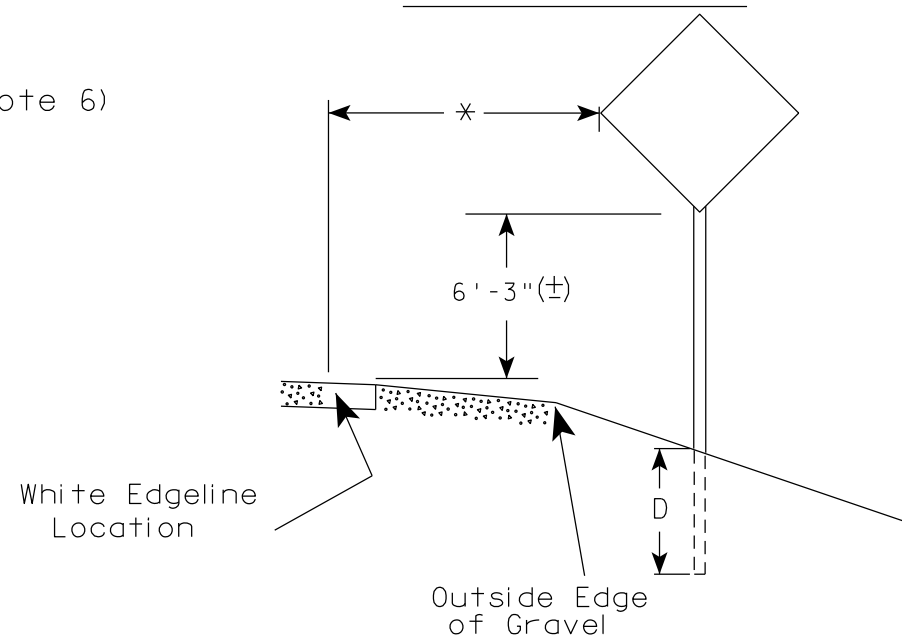
ATTACHMENT OF SIGNS TO POSTS	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED June 2017 DATE	/S/ Andrew Heidtke WORK ZONE ENGINEER
FHWA	

URBAN AREA



✱✱ 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.

RURAL AREA (See Note 2)



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

POST EMBEDMENT DEPTH

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

GENERAL NOTES

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

TYPICAL INSTALLATION
OF PERMANENT TYPE II
SIGNS ON SINGLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

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

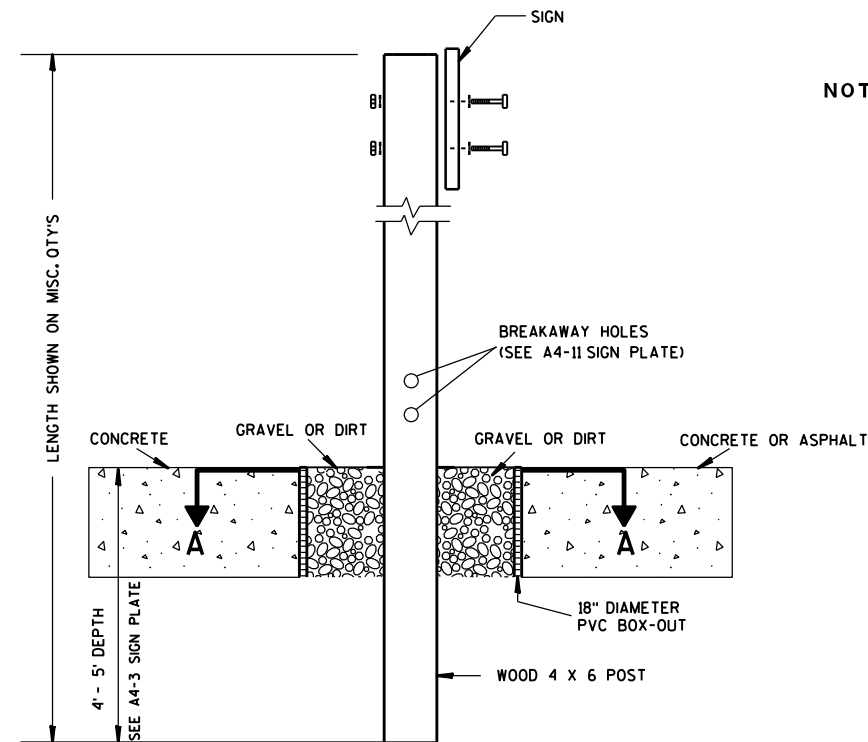
PROJECT NO:

HWY:

COUNTY:

SHEET NO:

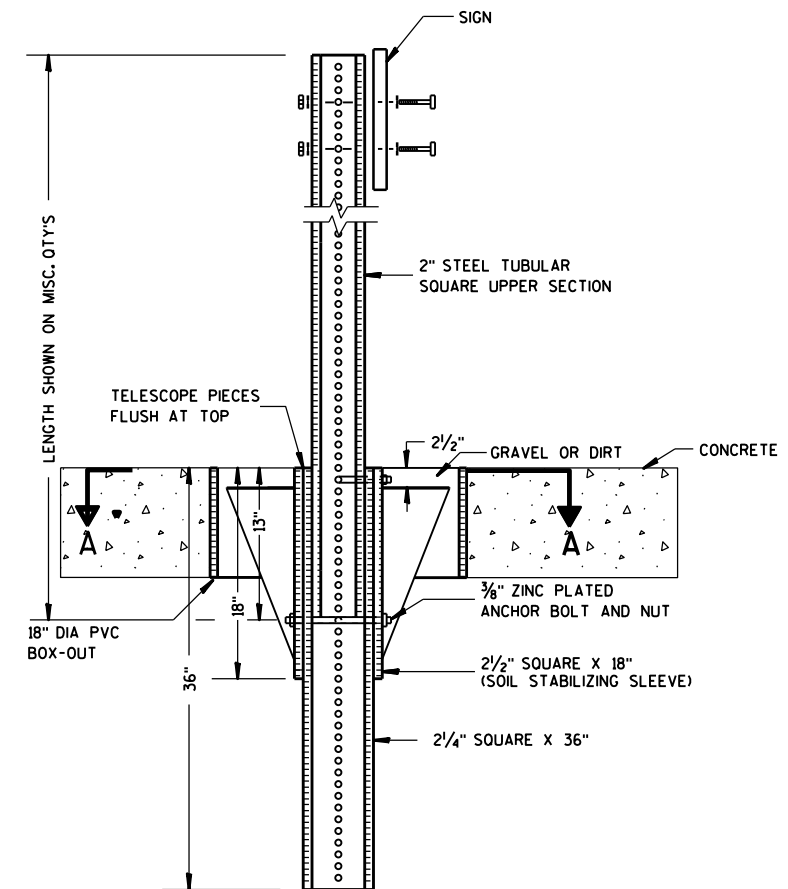
E



ELEVATION VIEW

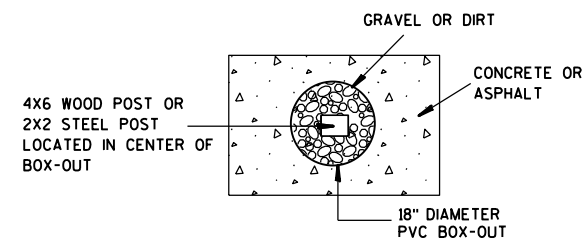
DETAIL OF WOOD 4 X 6 SIGN POST IN BOX-OUT

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



ELEVATION VIEW

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



PLAN VIEW

FOR NEW CONCRETE/ASPHALT INSTALLATIONS

SIGN POST
BOX-OUTS
A4-3B

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

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

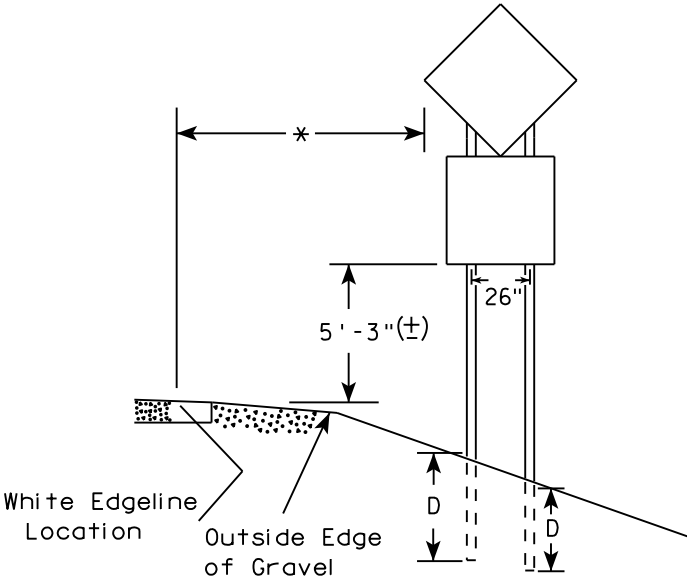
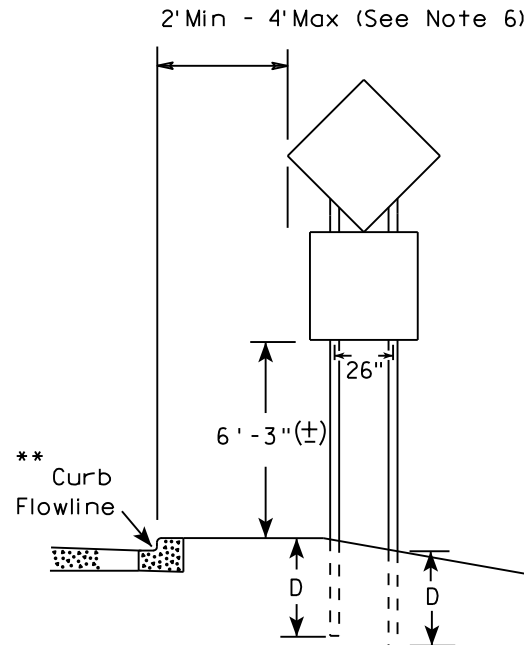
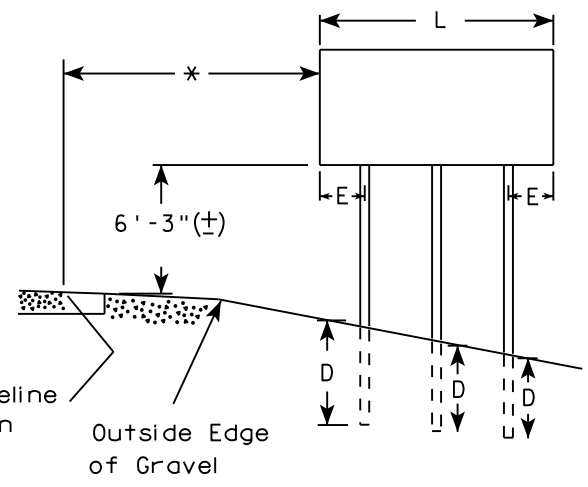
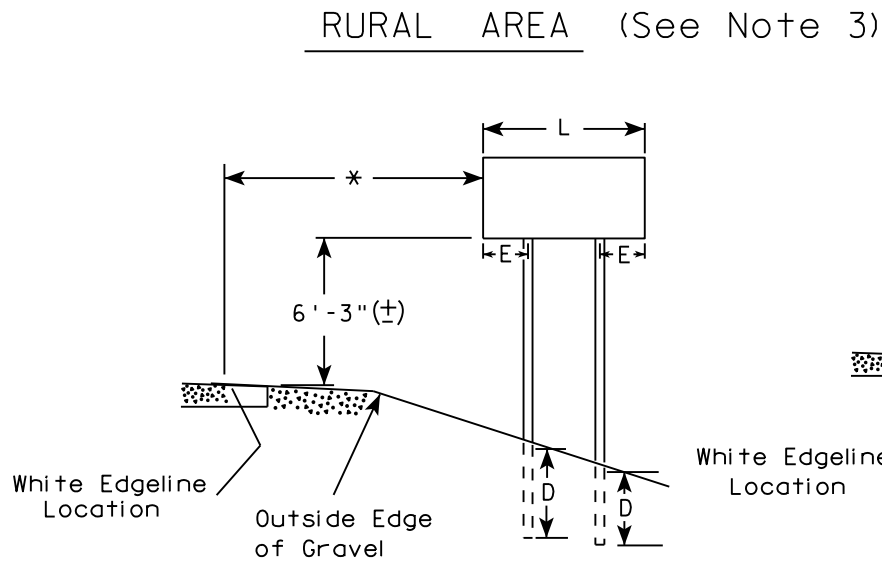
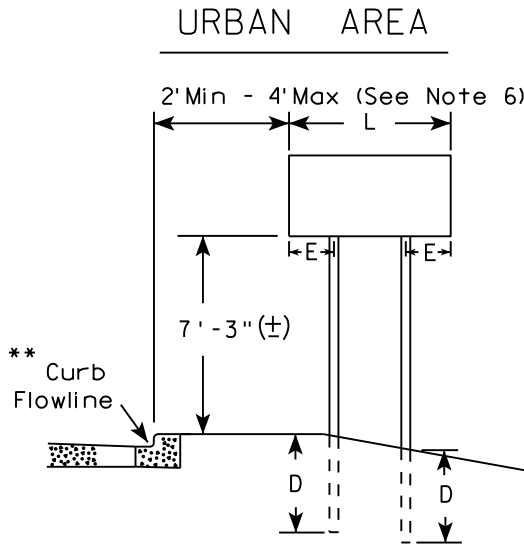
PROJECT NO:

HWY:

COUNTY:

SHEET NO:

E



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

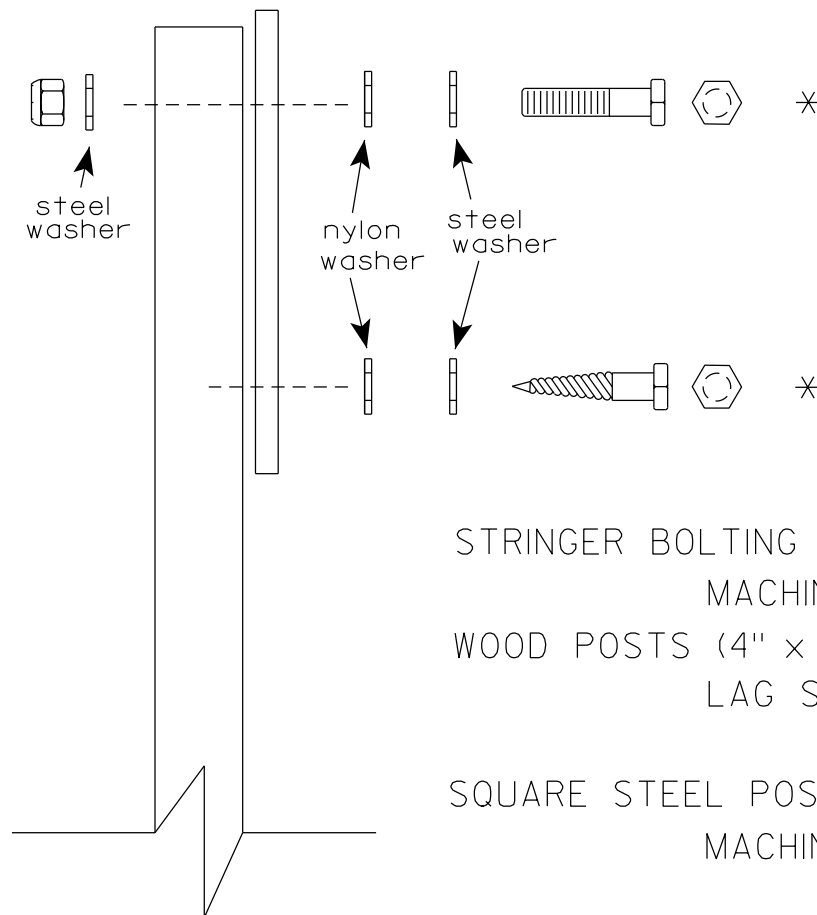
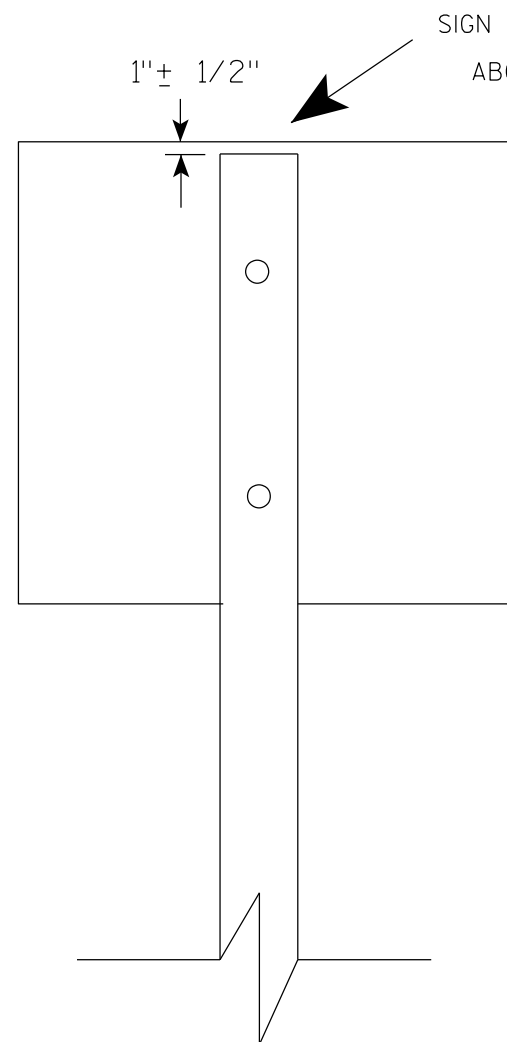
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 8/21/17 PLATE NO. A4-4.15

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

- * 6 feet from edge of a paved shoulder or 12 feet from the edge of pavement (edge line location) or 2 feet from outside edge of gravel, whichever is greater unless directed by project engineer.
- ** The existence of curb and gutter does not in itself mandate the vertical clearance illustrated. That height is typically measured where there is sidewalk adjacent to the roadway or parking is permitted. In the absence of sidewalk vertical clearance is measured from the top of the curb. Offset of signs is measured from the flow line.
- *** See A4-3 sign plate for signs 4' or less in width and less than 20 S.F. in area.



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

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

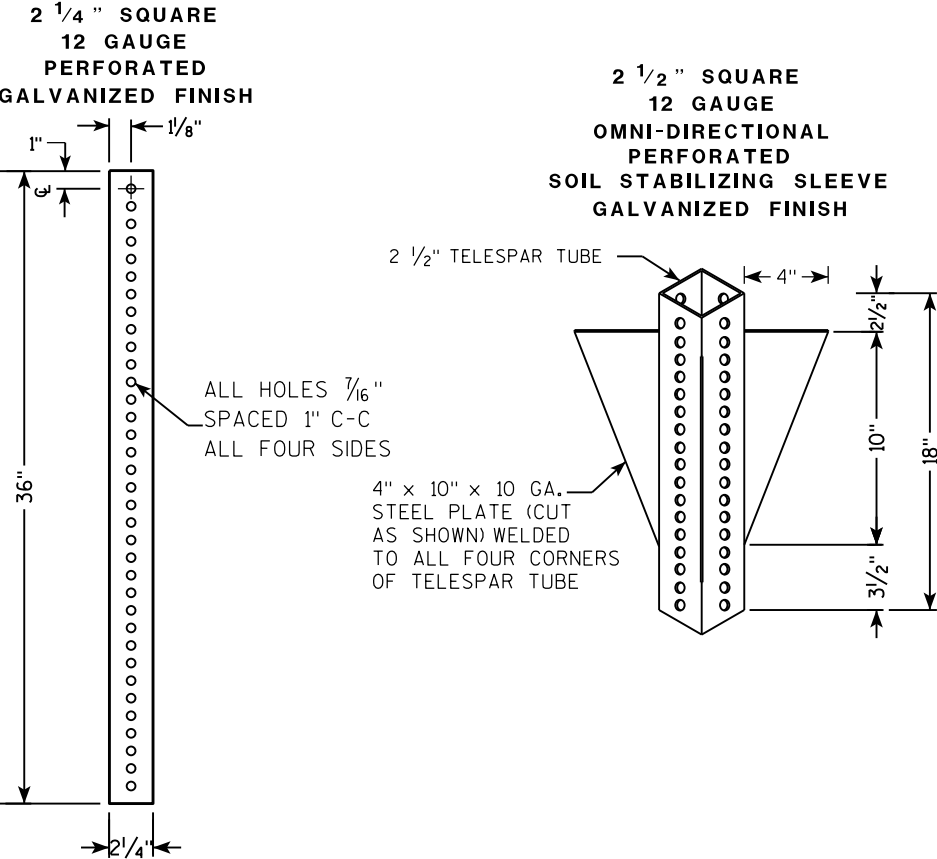
Threads on bolts and nuts shall be manufactured with sufficient allowance for the cadmium plate or galvanized coating to permit the nuts to run freely on the bolts.

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

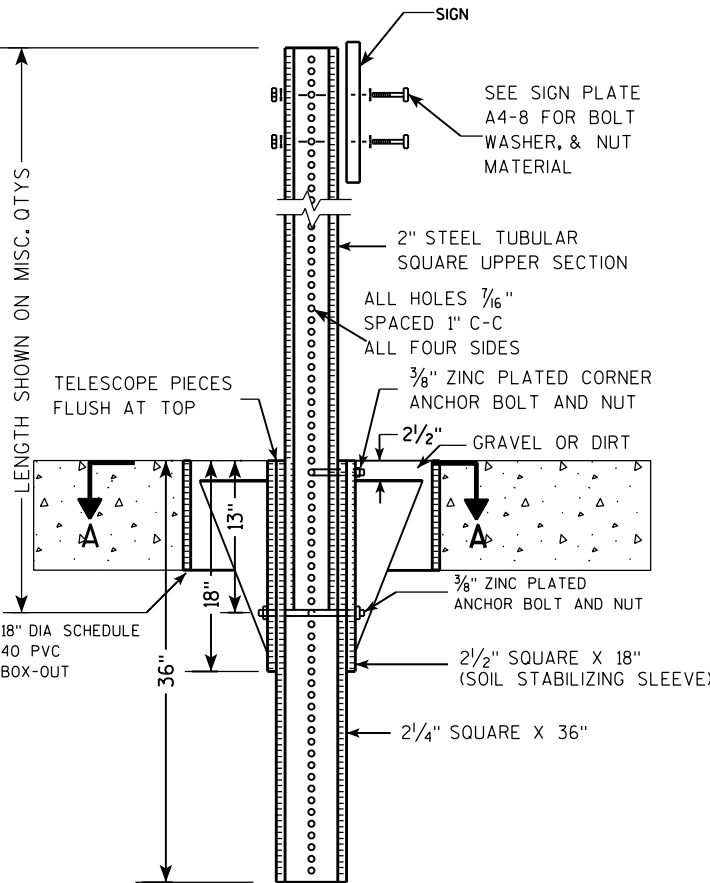
* Two different fastening systems are shown for illustration purposes. On any individual sign, either one or the other system shall be used. Actual number of fasteners per sign varies with the sign area, but normally there are two. For a single post installation, all signs greater than 9 sq. ft. require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

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

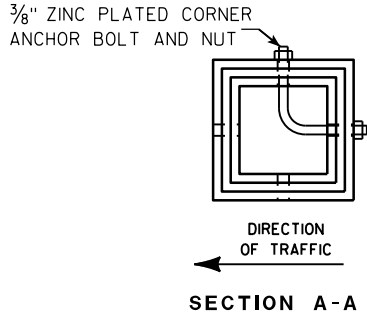
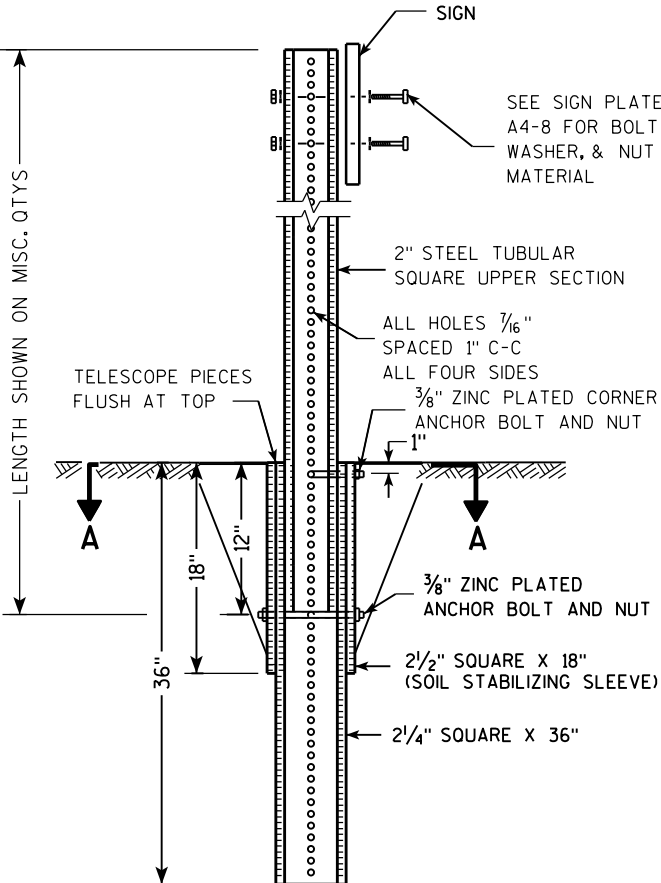
TELESCOPIC TUBING ANCHORS
TWO PIECE SYSTEM



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).

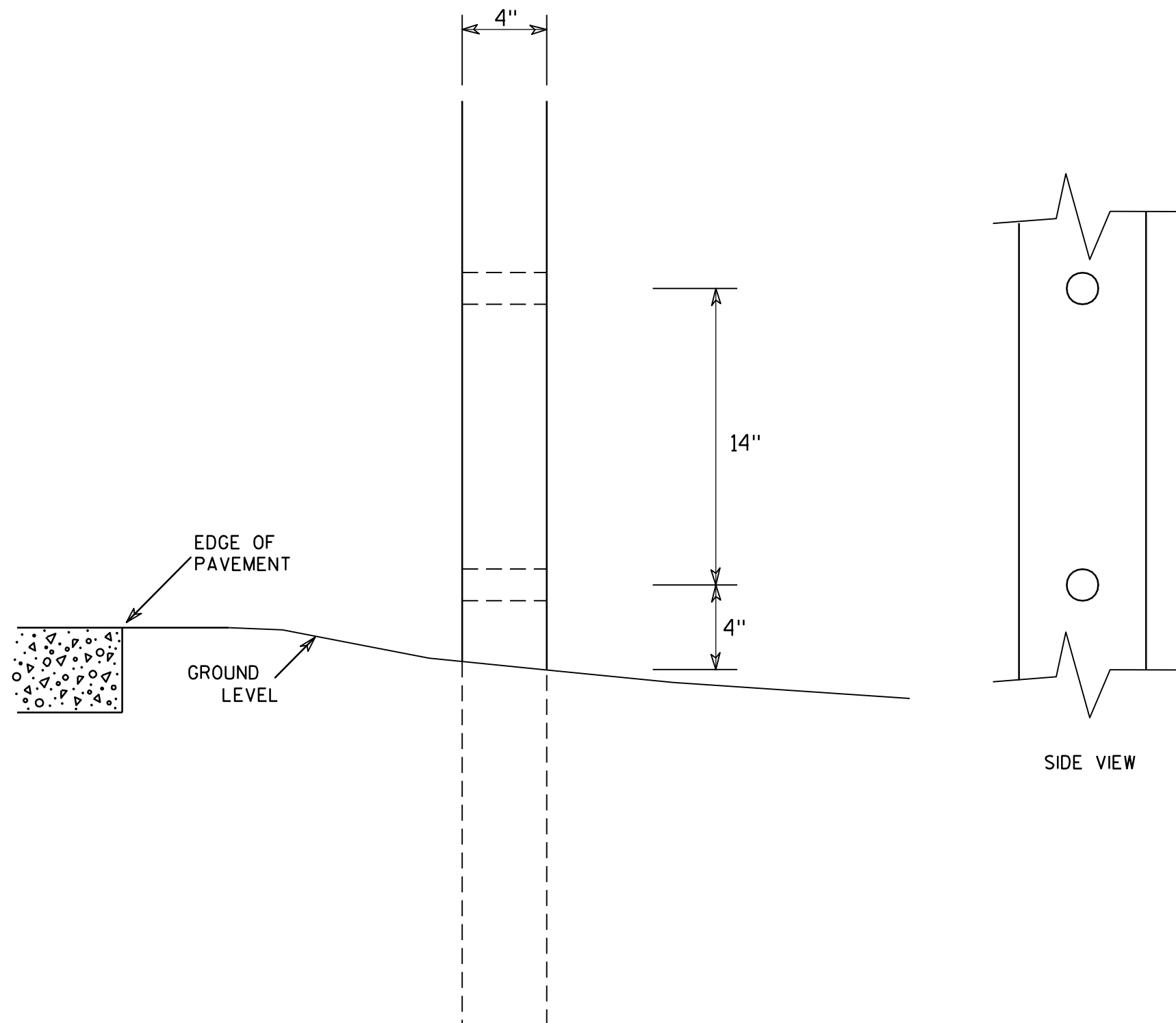
TUBULAR STEEL
SIGN POST
A4-9

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:

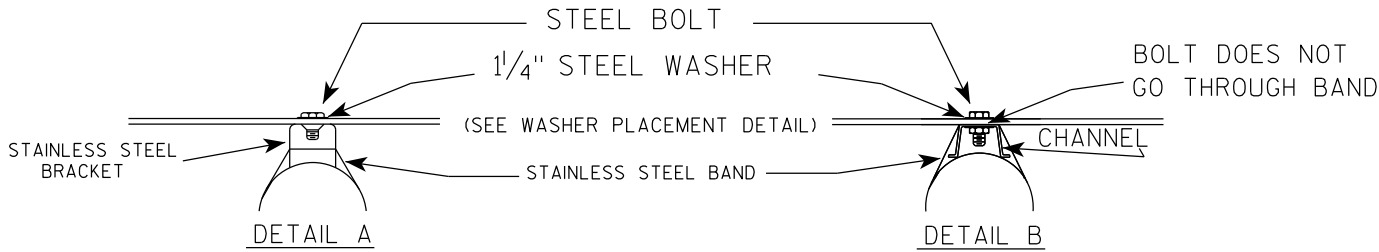
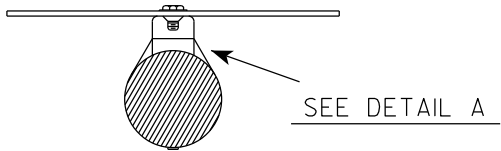
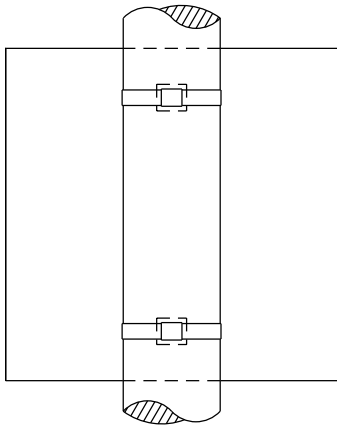
COUNTY:

SHEET NO:

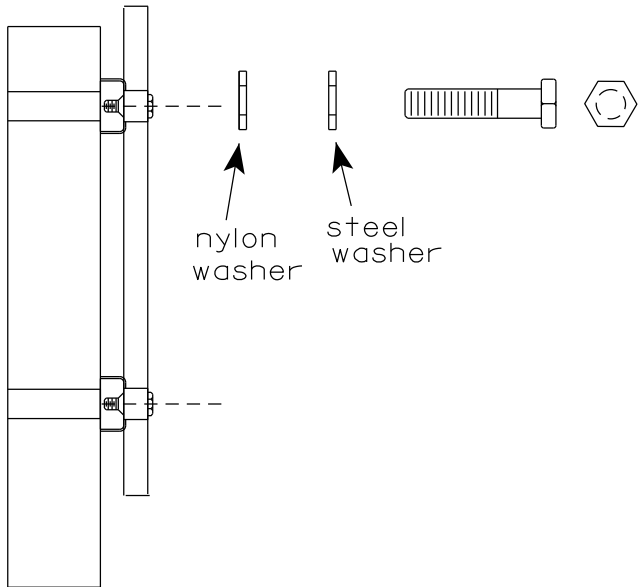
E

BANDING

SINGLE SIGN



WASHER PLACEMENT

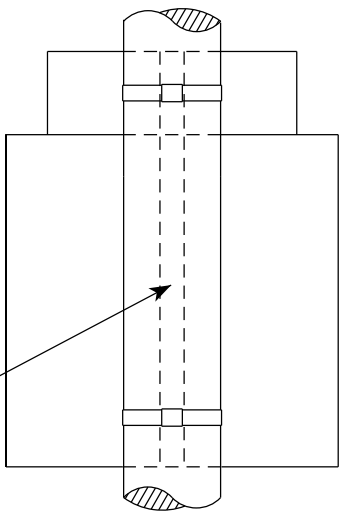


WASHERS (ALL POSTS) -
1-1/4" O.D. X 3/8" I.D. X 1/16" STEEL
1-1/4" O.D. X 3/8" I.D. X .080 NYLON
FOR ALL TYPE H SIGNS

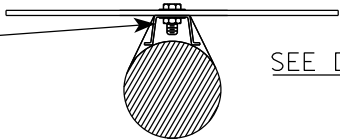
GENERAL NOTES

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

"J" ASSEMBLY



CHANNEL
SEE TYPICAL PANEL
INSTALLATION SHEET

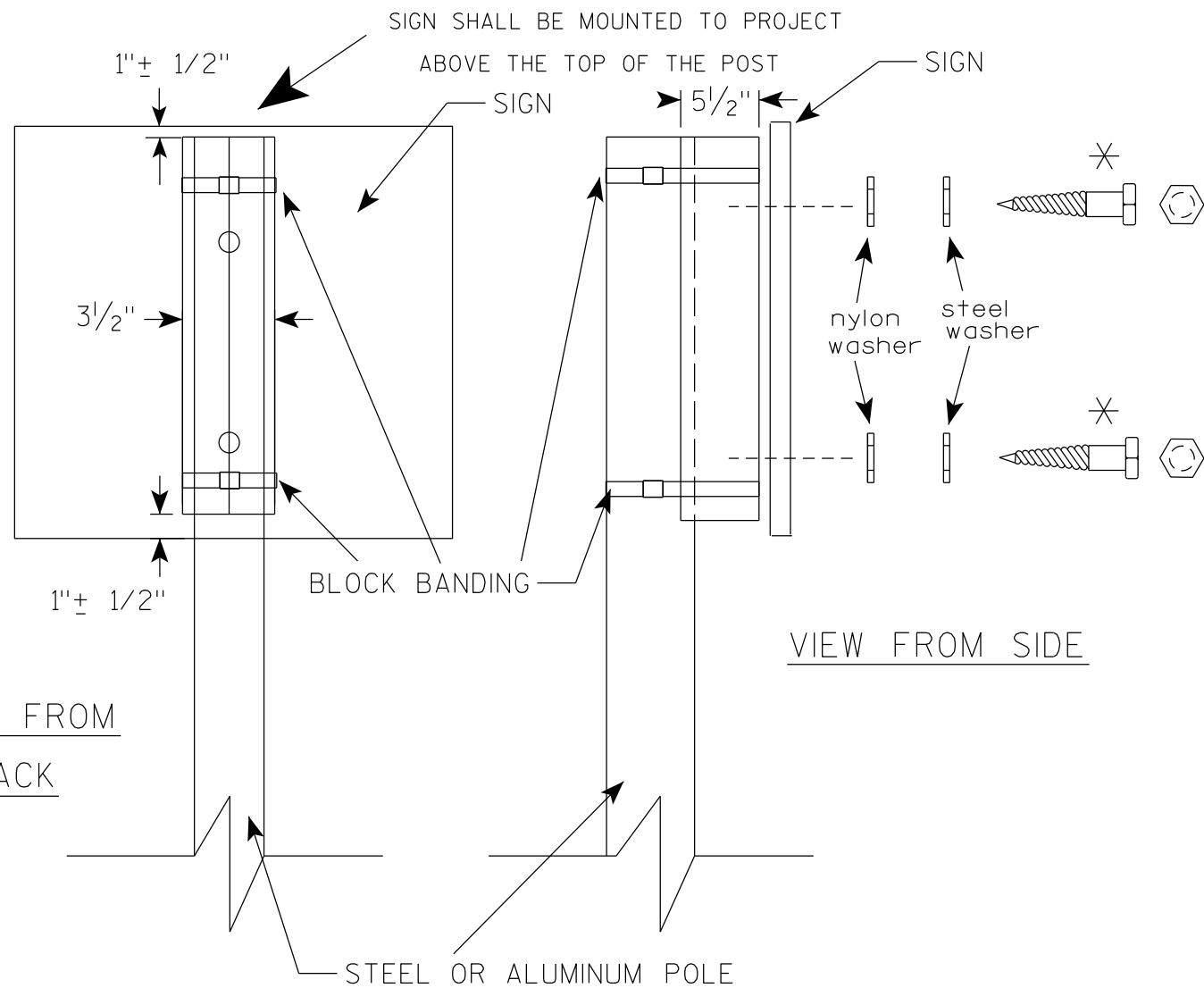


STANDARD SIGN
SIGN BANDING DETAILS

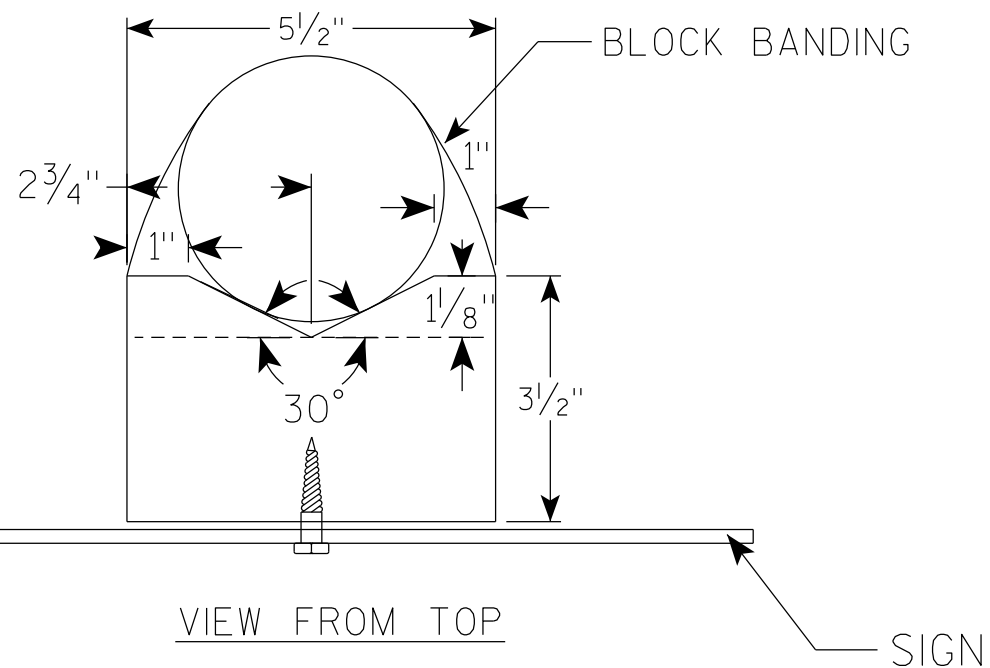
WISCONSIN DEPT OF TRANSPORTATION

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

VIEW FROM
BACK



VIEW FROM SIDE



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 $1\frac{1}{4}$ " O.D. X $\frac{3}{8}$ " I.D. X $\frac{1}{16}$ "
8. NYLON WASHERS SHALL BE $1\frac{1}{4}$ " 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

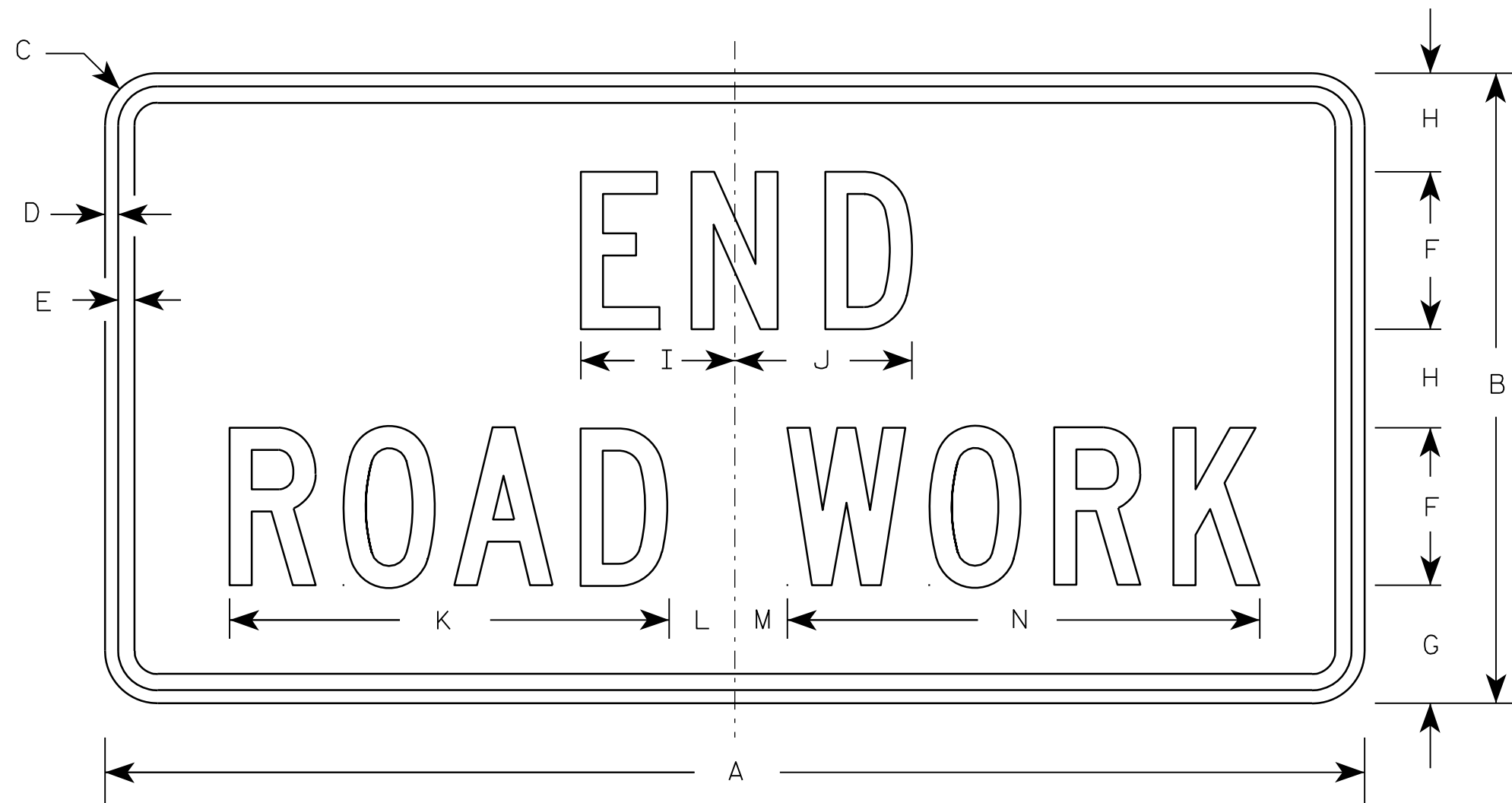
DATE 6/10/19 PLATE NO. A5-10.2

PROJECT NO:

SHEET NO:

E

7



G20-2A

NOTES

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

Metric equivalent
for this sign is:

SIZE	
1	900 mm X 450 mm
2	1200 mm X 600 mm
3	1200 mm X 600 mm
4	1200 mm X 600 mm
5	1200 mm X 600 mm

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.	Area m ²
1	36	18	1 1/8	3/8	1/2	4	3 3/4	2 1/2	4 1/8	4 1/8	11 1/8	2	1	12 1/8													4.5	0.41
2	48	24	1 1/2	1/2	5/8	6	4 1/2	3 3/4	5 7/8	6 3/4	16 3/4	2 1/2	1 3/4	18 1/2													8.0	0.72
3	48	24	1 1/2	1/2	5/8	6	4 1/2	3 3/4	5 7/8	6 3/4	16 3/4	2 1/2	1 3/4	18 1/2													8.0	0.72
4	48	24	1 1/2	1/2	5/8	6	4 1/2	3 3/4	5 7/8	6 3/4	16 3/4	2 1/2	1 3/4	18 1/2													8.0	0.72
5	48	24	1 1/2	1/2	5/8	6	4 1/2	3 3/4	5 7/8	6 3/4	16 3/4	2 1/2	1 3/4	18 1/2													8.0	0.72

STANDARD SIGN
G20-2A

WISCONSIN DEPT OF TRANSPORTATION

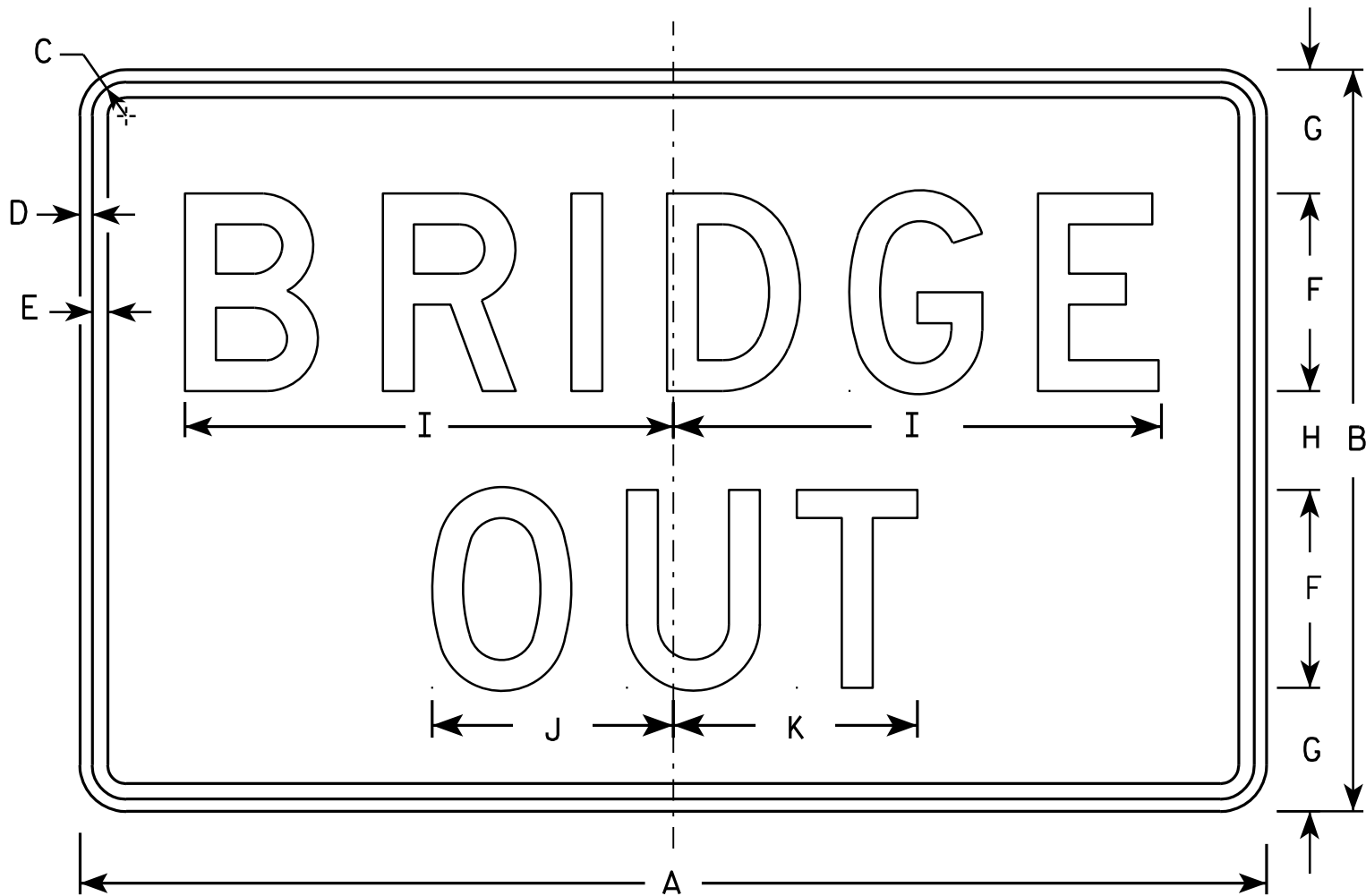
APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 9/30/09 PLATE NO. G20-2A.8

7

NOTES

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



R11-2B

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

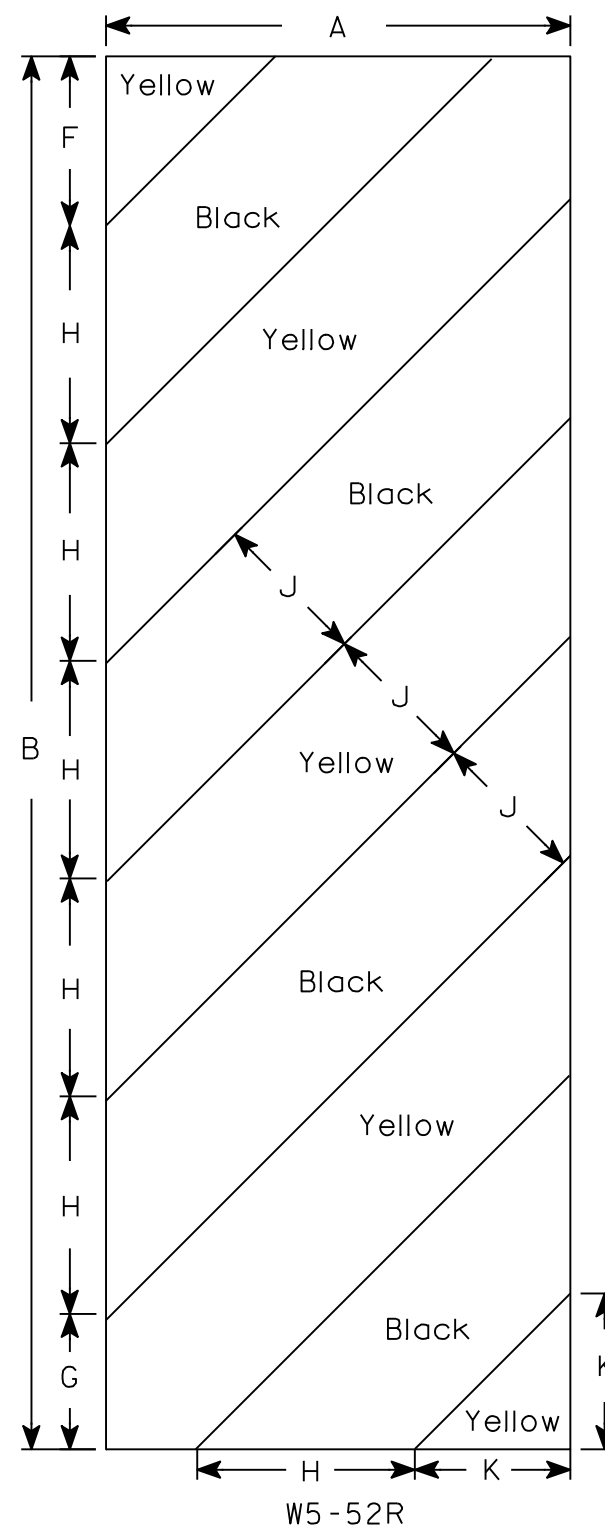
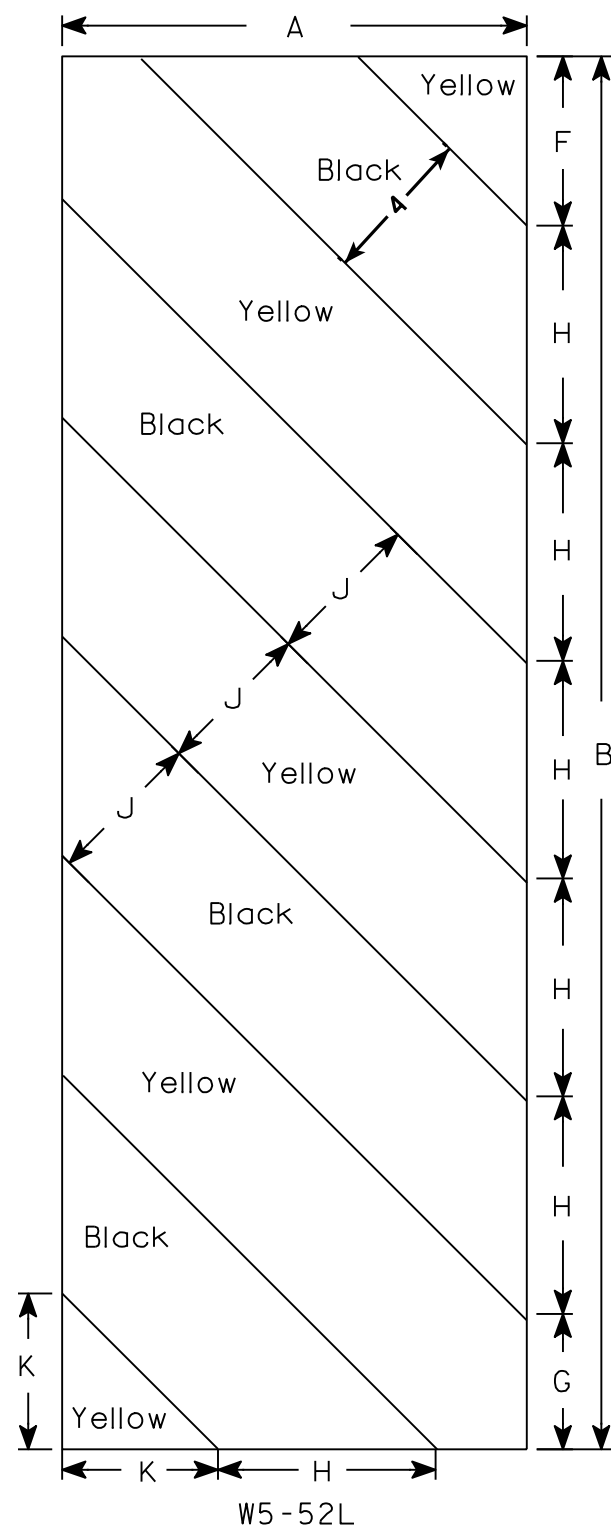
STANDARD SIGN

R11-2B

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
For State Traffic Engineer

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



NOTES

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

[illegible]

STANDARD SIGN
W5-52L & W5-52R

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer
DATE 5/29/12 PLATE NO. W5-52.9

PROJECT NO:

HWY:

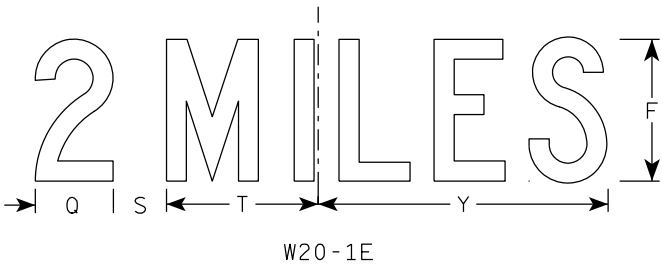
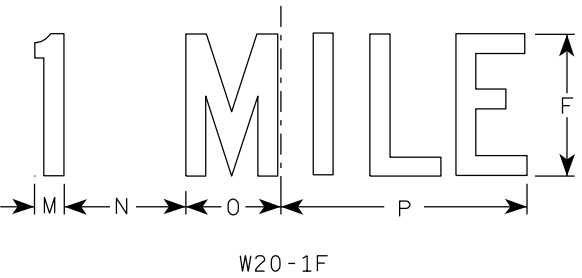
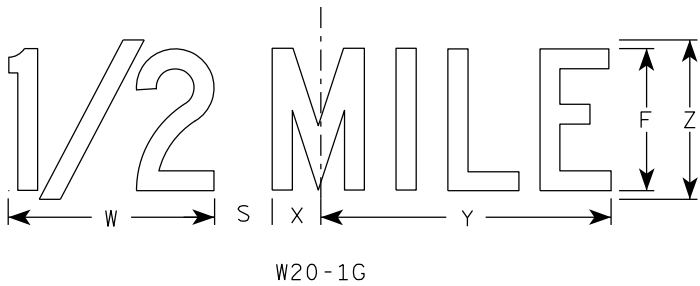
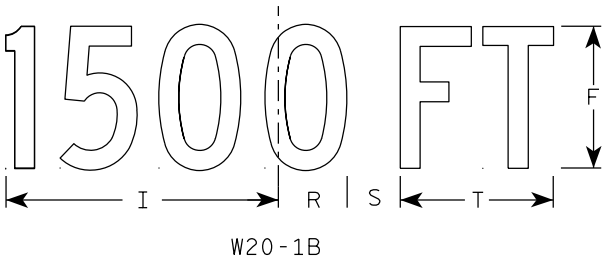
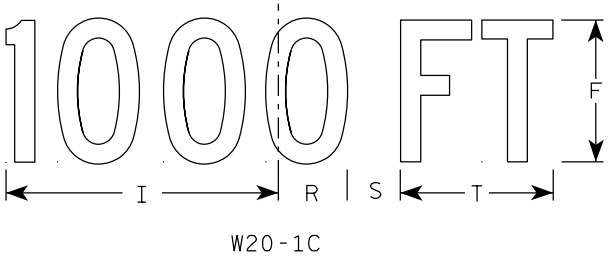
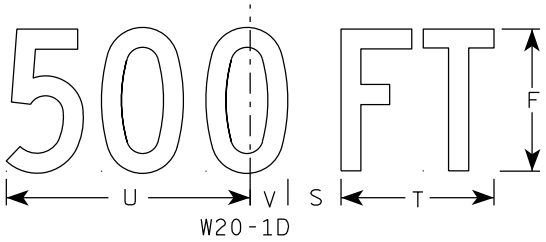
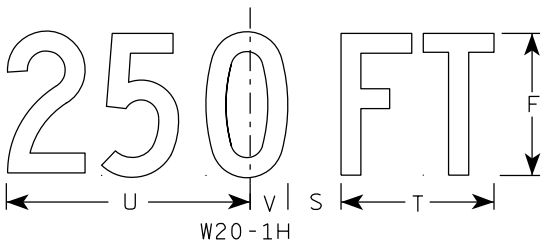
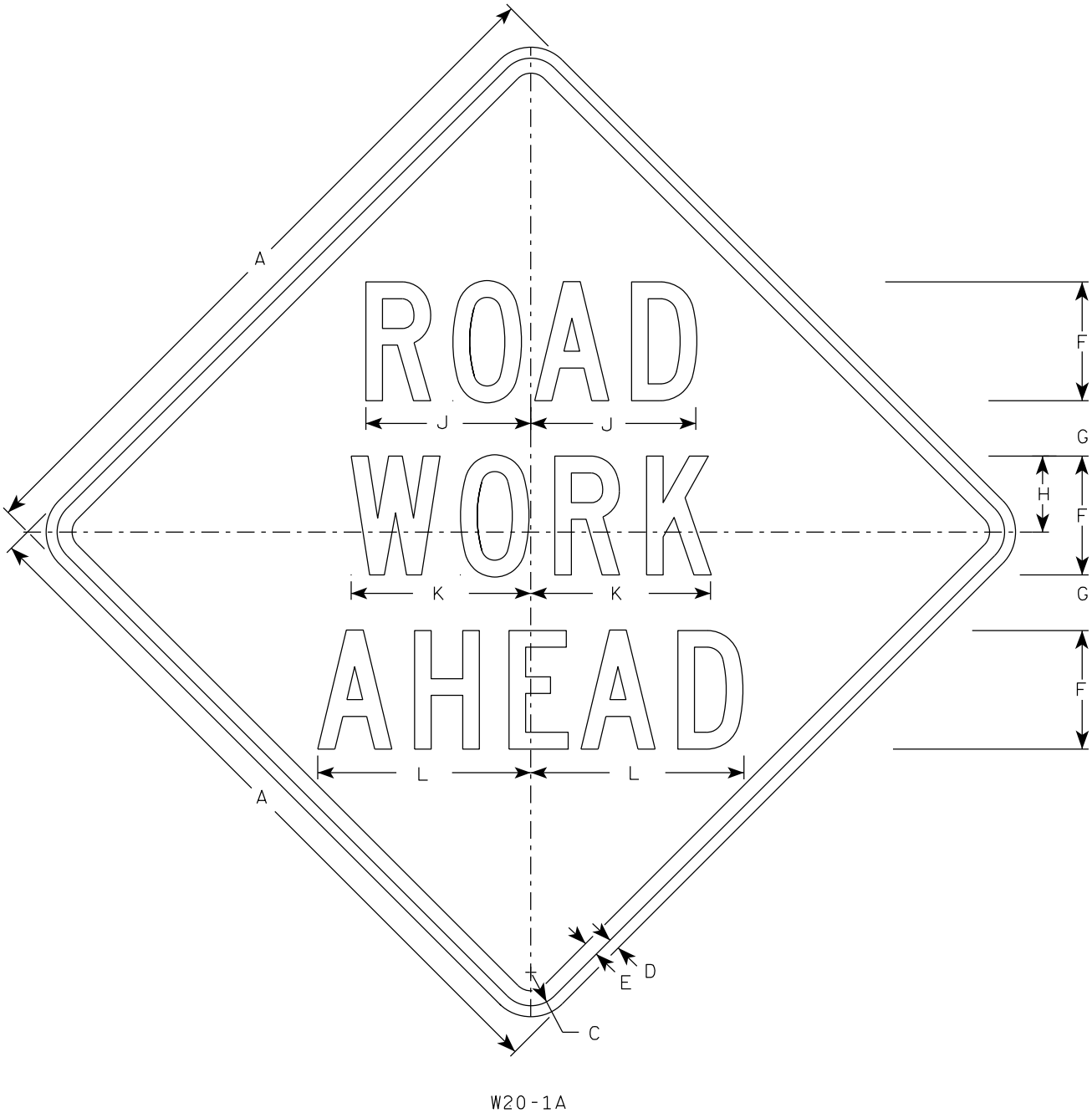
COUNTY:

SHEET NO:

E

NOTES

1. Sign is Type II - Type F Reflective
2. Color:
Background - Orange
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.



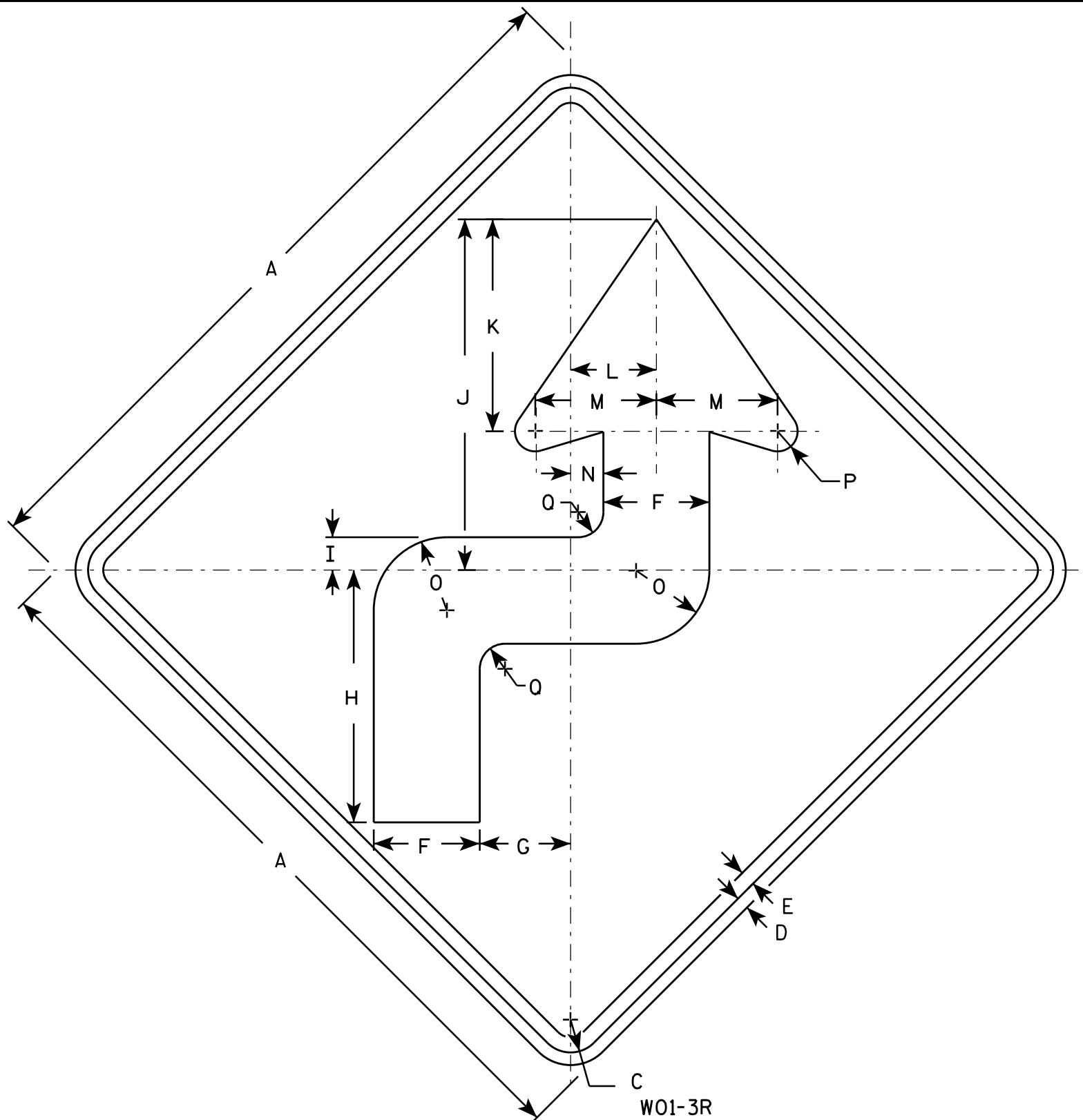
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A _{req} sq. ft.
1	36		1 5/8	5/8	3/4	5	2 5/8	3 1/4	10 1/8	7	7 5/8	8 7/8	1 1/8	4 1/2	3 1/2	9	3 1/4	2 1/2	2 1/4	5 5/8	9	1 3/8	8	1 3/4	10 3/4	6	9.0
2S	48		2 1/4	3/4	1	8	3 3/4	5 1/8	15 3/8	11 1/8	12 1/8	14 3/8	1 5/8	6 7/8	5 3/8	13 7/8	4 3/8	3 7/8	3	8 5/8	13 3/4	2 1/8	11 7/8	2 3/4	16 3/8	9	16.0
2M	48		2 1/4	3/4	1	8	3 3/4	5 1/8	15 3/8	11 1/8	12 1/8	14 3/8	1 5/8	6 7/8	5 3/8	13 7/8	4 3/8	3 7/8	3	8 5/8	13 3/4	2 1/8	11 7/8	2 3/4	16 3/8	9	16.0
3	48		2 1/4	3/4	1	8	3 3/4	5 1/8	15 3/8	11 1/8	12 1/8	14 3/8	1 5/8	6 7/8	5 3/8	13 7/8	4 3/8	3 7/8	3	8 5/8	13 3/4	2 1/8	11 7/8	2 3/4	16 3/8	9	16.0
4	48		2 1/4	3/4	1	8	3 3/4	5 1/8	15 3/8	11 1/8	12 1/8	14 3/8	1 5/8	6 7/8	5 3/8	13 7/8	4 3/8	3 7/8	3	8 5/8	13 3/4	2 1/8	11 7/8	2 3/4	16 3/8	9	16.0
5	48		2 1/4	3/4	1	8	3 3/4	5 1/8	15 3/8	11 1/8	12 1/8	14 3/8	1 5/8	6 7/8	5 3/8	13 7/8	4 3/8	3 7/8	3	8 5/8	13 3/4	2 1/8	11 7/8	2 3/4	16 3/8	9	16.0

STANDARD SIGN
W20-1A, B, C, D, E, F, G & H

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 3/25/2020 PLATE NO. W20-1.11



NOTES

1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
Background - Orange
Message - Black
3. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
4. W01-3L is the same as W01-3R except the arrow is reversed along the vertical centerline.

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36		1 5/8	5/8	3/4	5 1/4	4 1/2	12 1/2	1 5/8	17 3/8	10 1/2	4 1/4	6	1 5/8	3 5/8	1	1 1/4										9.0
2S	48		2 1/4	3/4	1	7	6	16 5/8	2 1/4	23 1/4	14	5 5/8	8	2 1/8	4 7/8	1 1/4	1 5/8										16.0
2M	48		2 1/4	3/4	1	7	6	16 5/8	2 1/4	23 1/4	14	5 5/8	8	2 1/8	4 7/8	1 1/4	1 5/8										16.0
3	48		2 1/4	3/4	1	7	6	16 5/8	2 1/4	23 1/4	14	5 5/8	8	2 1/8	4 7/8	1 1/4	1 5/8										16.0
4	48		2 1/4	3/4	1	7	6	16 5/8	2 1/4	23 1/4	14	5 5/8	8	2 1/8	4 7/8	1 1/4	1 5/8										16.0
5	48		2 1/4	3/4	1	7	6	16 5/8	2 1/4	23 1/4	14	5 5/8	8	2 1/8	4 7/8	1 1/4	1 5/8										16.0

STANDARD SIGN W01-3

WISCONSIN DEPT OF TRANSPORTATION

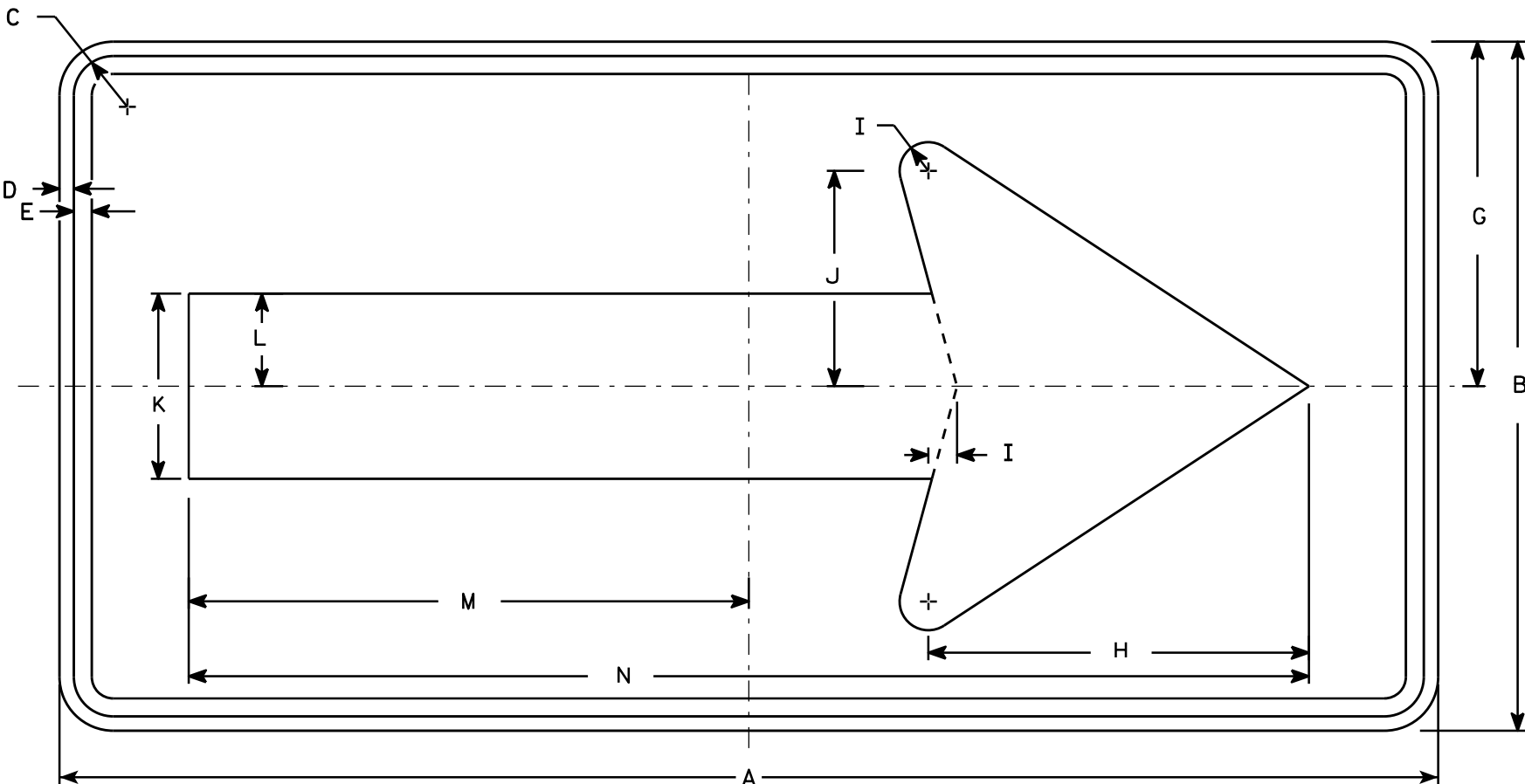
APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 11/18/13 PLATE NO. W01-3.1

PROJECT NO: HWY: COUNTY: SHEET NO: E

NOTES

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



W01-6

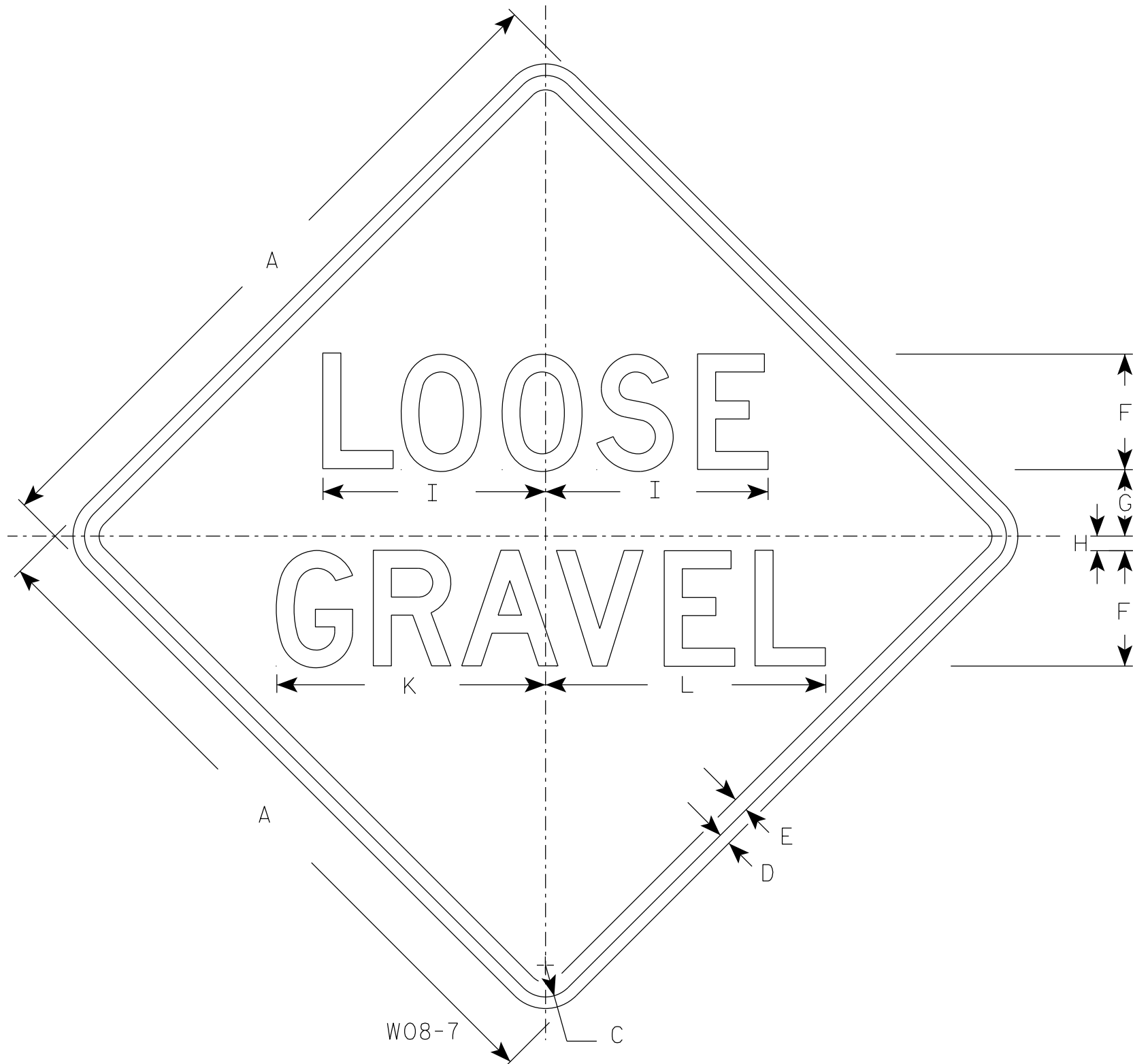
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	48	24	1 3/8	1/2	5/8		12	13 1/4	1	7 1/2	6 1/2	3 1/4	19 1/2	39													8.0
2M	48	24	1 3/8	1/2	5/8		12	13 1/4	1	7 1/2	6 1/2	3 1/4	19 1/2	39													8.0
3	60	30	1 3/8	1/2	5/8		15	16 1/4	1 1/4	9 1/4	8	4	24 3/8	48 3/4													12.5
4	60	30	1 3/8	1/2	5/8		15	16 1/4	1 1/4	9 1/4	8	4	24 3/8	48 3/4													12.5
5	60	30	1 3/8	1/2	5/8		15	16 1/4	1 1/4	9 1/4	8	4	24 3/8	48 3/4													12.5

STANDARD SIGN
W01-6

WISCONSIN DEPT OF TRANSPORTATION

APPROVED
Matthew R. Rauch
for State Traffic Engineer

DATE 11/18/13 PLATE NO. W01-6.1



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.

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36		1 5/8	5/8	3/4	6	4 1/8	3/4	11 5/8		14	14 1/2															9.0
2S	48		2 1/4	3/4	1	8	5 1/2	1	15 1/2		18 5/8	19 3/8															16.0
2M	48		2 1/4	3/4	1	8	5 1/2	1	15 1/2		18 5/8	19 3/8															16.0
3	48		2 1/4	3/4	1	8	5 1/2	1	15 1/2		18 5/8	19 3/8															16.0
4	48		2 1/4	3/4	1	8	5 1/2	1	15 1/2		18 5/8	19 3/8															16.0
5	48		2 1/4	3/4	1	8	5 1/2	1	15 1/2		18 5/8	19 3/8															16.0

STANDARD SIGN

W08-7

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 4/16/2020 PLATE NO. W08-7.8

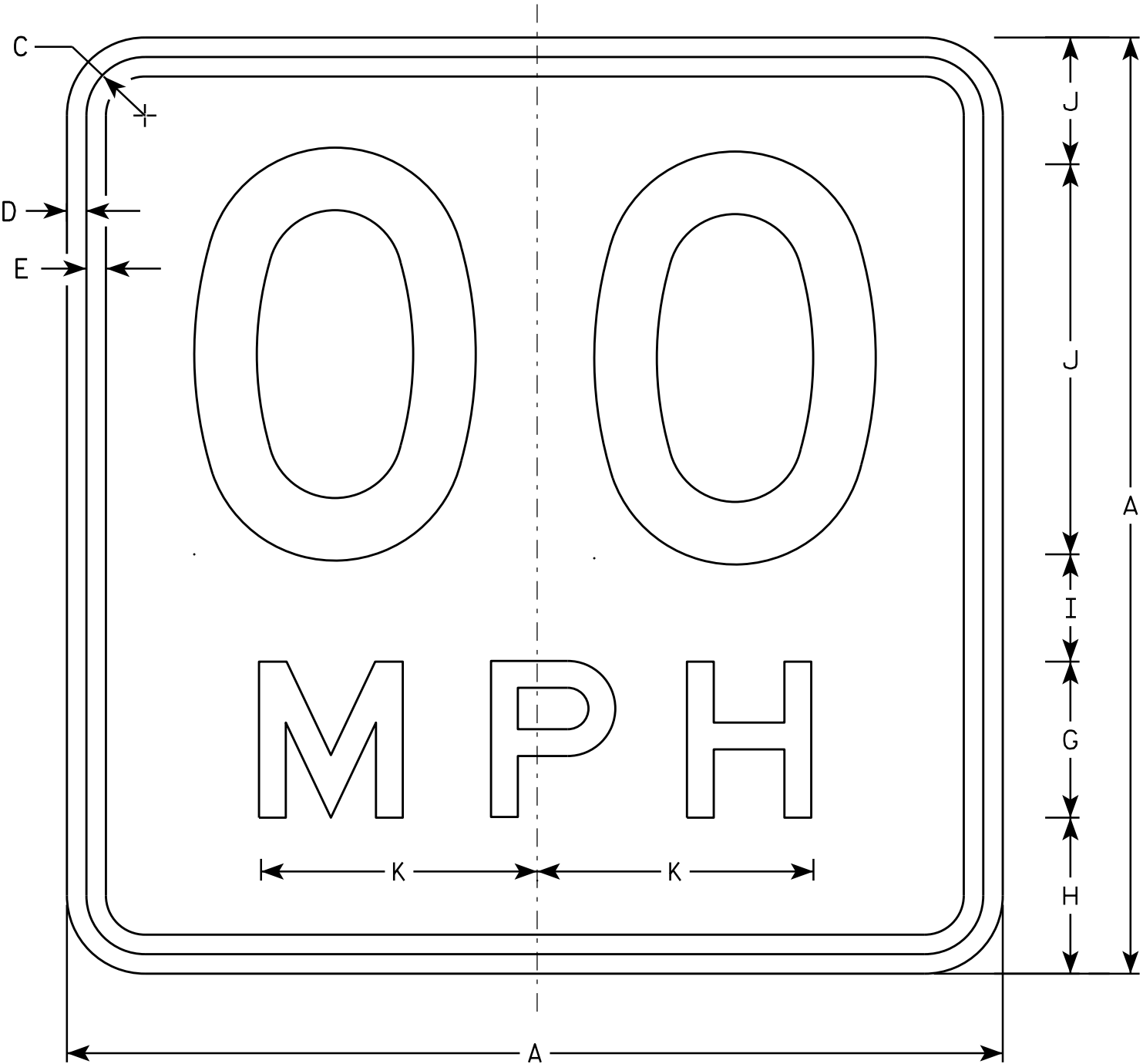
PROJECT NO:

HWY:

COUNTY:

SHEET NO:

E



W013-1

NOTES

1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
Background - Orange
Message - Black
3. Message Series - See Note 6
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 and optically space about centerline to achieve proper balance.
6. Line 1 is Series D
Line 2 is Series E

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 1/8	3/8	1/2	10	4	4	2 3/4	3 1/4	7 1/8																4.00
2S	36		1 5/8	5/8	3/4	16	6	5 1/2	4	4 1/2	10 5/8																9.00
2M	36		1 5/8	5/8	3/4	16	6	5 1/2	4	4 1/2	10 5/8																9.00
3	36		1 5/8	5/8	3/4	16	6	5 1/2	4	4 1/2	10 5/8																9.00
4	36		1 5/8	5/8	3/4	16	6	5 1/2	4	4 1/2	10 5/8																9.00
5	36		1 5/8	5/8	3/4	16	6	5 1/2	4	4 1/2	10 5/8																9.00

STANDARD SIGN
W013-1

WISCONSIN DEPT OF TRANSPORTATION

APPROVED
Matthew R. Rauch
For State Traffic Engineer

DATE 11/21/13 PLATE NO. W013-1.1

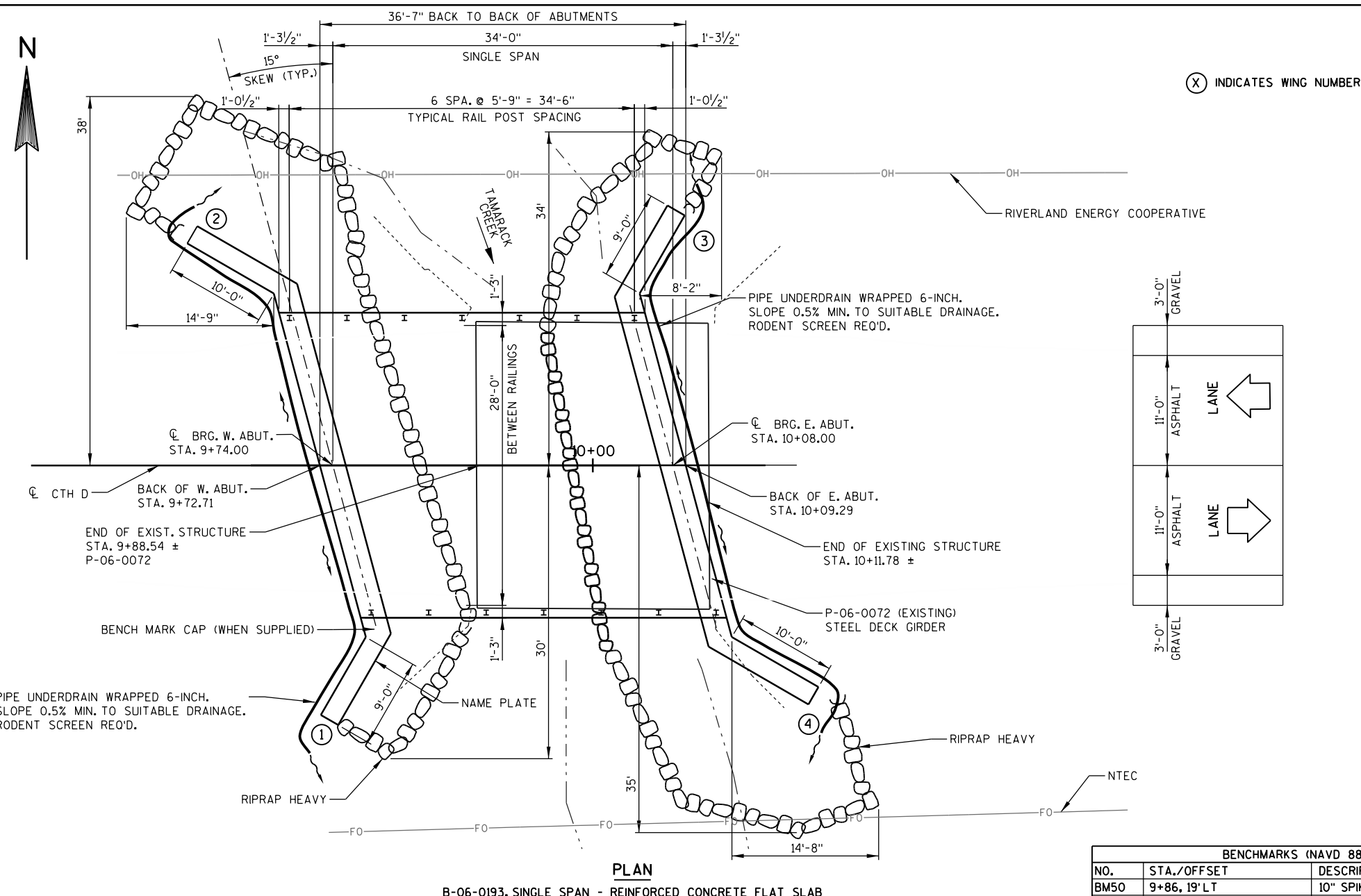
PROJECT NO:

HWY:

COUNTY:

SHEET NO:

E



STATE PROJECT NUMBER

7311-00-70

DESIGN DATA

LIVE LOAD:
DESIGN LOADING; HL-93
INVENTORY RATING FACTOR; RF = 1.20
OPERATING RATING FACTOR; RF = 1.55
WISCONSIN STANDARD PERMIT VEHICLE (Wis-SPV) = 250 KIPS

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

MATERIAL PROPERTIES:
CONCRETE MASONRY SLAB ----- f'c = 4000 P.S.I.
ALL OTHER CONCRETE MASONRY ----- f'c = 3500 P.S.I.
BAR STEEL REINFORCEMENT, GRADE 60 ----- fy = 60,000 P.S.I.

FOUNDATION DATA

ABUTMENTS TO BE SUPPORTED ON HP 10 X 42 STEEL PILING DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 110 TONS ** PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA.
ESTIMATED 35' LONG AT WEST ABUTMENT
ESTIMATED 40' LONG AT EAST ABUTMENT

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

HYDRAULIC DATA

100 YEAR FREQUENCY
Q (100) = 2450 C.F.S.
Q (100) THRU STRUCTURE = 2172 C.F.S.
Q (100) OVER STRUCTURE = 278 C.F.S.
VEL. = 9.38 F.P.S.
HW. EL. (100) = 787.55
WATERWAY AREA (BRIDGE) = 232.30 SQ. FT.
DRAINAGE AREA = 11.5 SQ. MI.
ROAD OVERTOPPING FREQUENCY = 50 YEAR
SCOUR CRITICAL CODE = 5

2 YEAR FREQUENCY
Q (2) = 389 C.F.S.
HW. EL. (2) = 780.06
VEL (2) = 7.19 F.P.S.

TEMPORARY STRUCTURE
Q (5) = 739 C.F.S.
HW. EL. (5) = 782.67
Abr = 138 SQ.FT.

TRAFFIC DATA

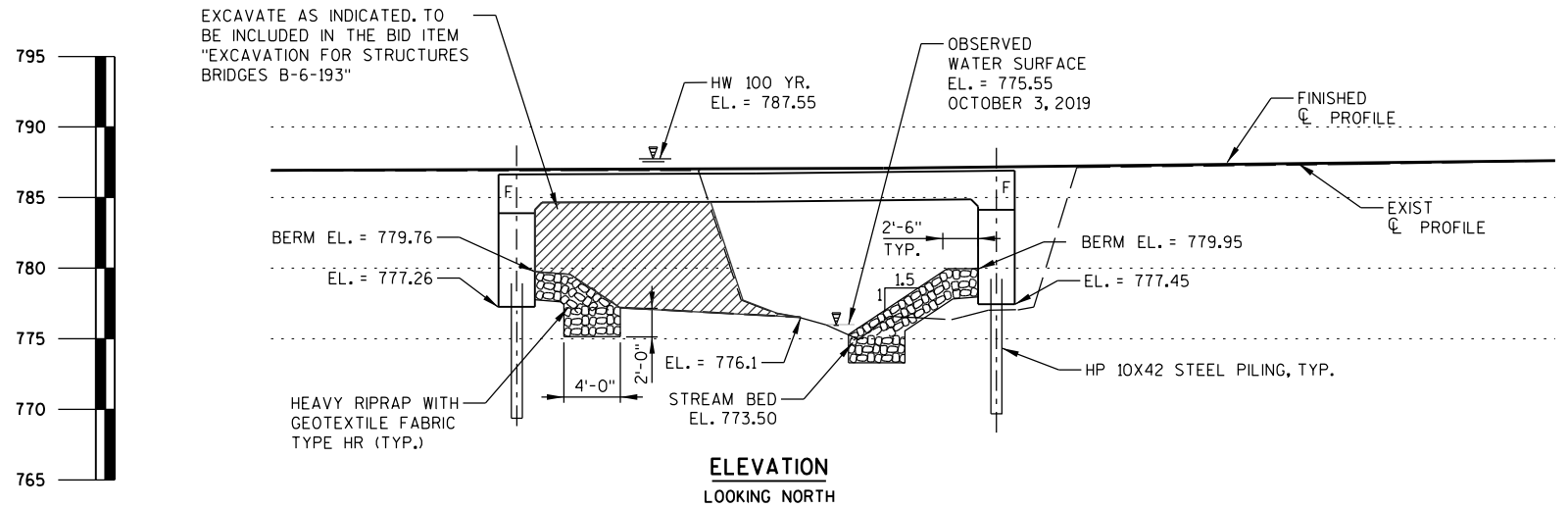
A.D.T. (2041) = 196
R.D.S. = 40 MPH

BENCHMARKS (NAVD 88)

NO.	STA./OFFSET	DESCRIPTION	ELEV.
BM50	9+86, 19' LT	10" SPIKE IN NW WING PILING	785.83
BM51	6+95, 27' LT	10" SPIKE IN PP 300' W OF BRIDGE, N SIDE RD	791.90

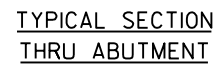
BUREAU OF STRUCTURES:
AARON BONK (608) 261-0261

CONSULTANT:
TIM BOROWSKI (262) 337-1242



- LIST OF DRAWINGS
1. GENERAL PLAN
2. CROSS SECTION & QUANTITIES
3. SUBSURFACE EXPLORATION
4. ABUTMENT ELEVATION DETAILS
5. ABUTMENT WING DETAILS
6. ABUTMENT BILL OF BARS
7. SUPERSTRUCTURE
8. SLAB DETAILS
9. TUBULAR STEEL RAILING TYPE 'M'

NO.	DATE	REVISION	BY
Engineers - Surveyors - Architects 770 Technology Way Chippewa Falls, WI 54729 Phone: 715.861.5226 www.cbsquaredinc.com STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION ACCEPTED <i>[Signature]</i> SDR 06/07/21 CHIEF STRUCTURES DESIGN ENGINEER DATE STRUCTURE B-06-0193 CTH D OVER TAMARACK CREEK COUNTY BUFFALO TOWN/CITY/VILLAGE MODENA DESIGN SPEC. AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS DESIGNED BY MJG DESIGN CK'D. TAB DRAWN BY ALC PLANS CK'D. TAB GENERAL PLAN SHEET 1 OF 9			



L = OUT TO OUT OF ABUTMENT BODY (FT)
H = AVERAGE ABUTMENT FILL HEIGHT (FT)
W1 = WING 1 LENGTH (FT)
W2 = WING 2 LENGTH (FT)
EF = EXPANSION FACTOR (1.20 FOR CY BID ITEMS
AND 1.00 FOR TON BID ITEMS)
 $V_{CF} = (L)(3.0)(H) + (L)(0.5)(L5H)(H) + (3.0)(0.5)(W1+W2)(H)$
 $V_{CY} = V_{CF}(EF)/27$
 $V_{TON} = V_{CY}(2.0)$

TOTAL ESTIMATED QUANTITIES

ITEM NUMBER	BID ITEMS	UNIT	SUPER.	WEST ABUT.	EAST ABUT.	TOTAL
203.0600.S	REMOVING OLD STRUCTURE OVER WATERWAY WITH MINIMAL DEBRIS STA. 10+00.00	LS	-	-	-	1
206.1000	EXCAVATION FOR STRUCTURES BRIDGES B-6-193	LS	-	-	-	1
210.1500	BACKFILL STRUCTURE TYPE A	TON	-	170	170	340
502.0100	CONCRETE MASONRY BRIDGES	CY	72	38	38	148
502.3200	PROTECTIVE SURFACE TREATMENT	SY	142	-	-	142
505.0400	BAR STEEL REINFORCEMENT HS STRUCTURES	LB	-	2,455	2,455	4,910
505.0600	BAR STEEL REINFORCEMENT HS COATED STRUCTURES	LB	12,760	1,510	1,510	15,780
513.4061	RAILING TUBULAR TYPE M	LF	78	-	-	78
516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	-	9	9	18
526.0100	TEMPORARY STRUCTURE STA. 100+00	LS	-	-	-	1
550.1100	PILING STEEL HP 10-INCH X 42 LB	LF	-	245	280	525
606.0300	RIPRAP HEAVY	CY	-	62	78	140
612.0406	PIPE UNDERDRAIN WRAPPED 6-INCH	LF	-	85	85	170
645.0111	GEOTEXTILE FABRIC TYPE DF SCHEDULE A	SY	-	35	35	70
645.0120	GEOTEXTILE FABRIC TYPE HR	SY	-	90	120	210
SPV.0090	FLASHING STAINLESS STEEL	LF	63	-	-	63
NON-BID ITEMS						
PREFORMED FILLER		SIZE	_____	_____	_____	1/2" & 3/4"

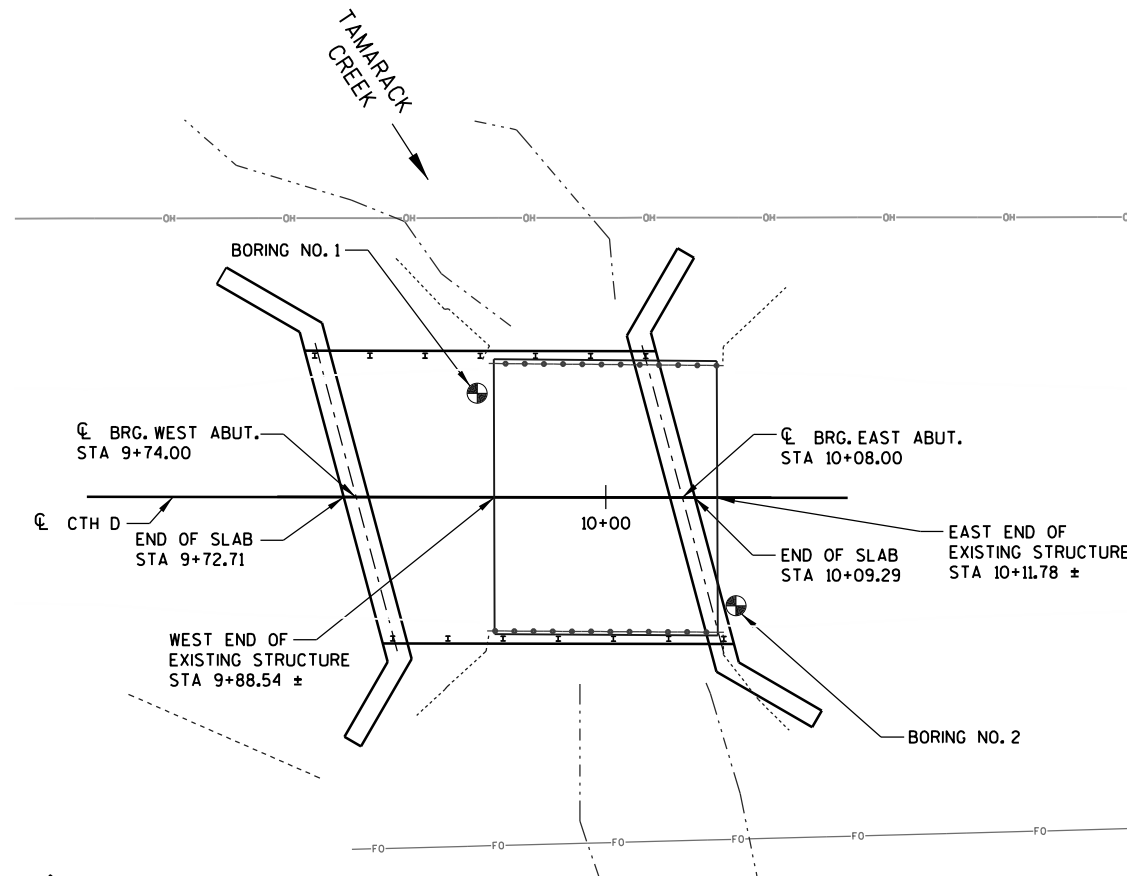
- ▲ BACKFILL PAY LIMITS. BACKFILL BEYOND BACKFILL PAY LIMITS SHALL BE INCIDENTAL TO EXCAVATION FOR STRUCTURES. LIMITS OF EXCAVATION SHALL BE DETERMINED BY THE CONTRATOR.
- PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 5% MIN. TO SUITABLE DRAINAGE. ATTACH RODENT SHIELD AT ENDS OF PIPE UNDERDRAIN. SEE SHEET 6 FOR DETAIL.
- PROTECTIVE SURFACE TREATMENT TO BE APPLIED TO THE ENTIRE TOP OF SLAB, VERTICAL EDGE AND EXTERIOR 1'-0" OF SLAB UNDERSIDE.
- ¾" V-GROOVE, 5" FROM EDGE OF SLAB. EXTEND V-GROOVE TO 6" FROM FRONT FACE OF EACH ABUTMENT.



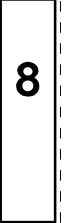
GENERAL NOTES

DO NOT PLACE BACKFILL STRUCTURE ABOVE 3'-0" FROM BOTTOM OF ABUTMENT
UNTIL SUPERSTRUCTURE IS IN PLACE AND MEETS MINIMUM CURING REQUIREMENTS
OF SECTION 502.3.4.2 OF THE STANDARD SPECIFICATIONS

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-06-0193			
DRAWN BY		ALC	PLANS CK'D. TAB
CROSS SECTION & QUANTITIES		SHEET 2 OF 9	



ON: NOVEMBER 29, 2019



LEGEND OF BORING

GROUND WATER ELEVATION

▽ AT TIME OF DRILLING

▽ END OF DRILLING

▽ AFTER DRILLING

ABBREVIATIONS

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

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE B-06-0193			
DRAWN BY		DPB	PLANS CK'D. MJG
SUBSURFACE EXPLORATION		SHEET 3 OF 9	

SCALE =

LEGEND

- KEYED CONST. JOINT FORMED BY BEVELED 2" x 6".
- OPT. KEYED CONST. JOINT FORMED BY BEVELED 2" x 6" KEYWAY WITH MEMBRANE ON BACKFACE.
- 18" RUBBERIZED MEMBRANE WATERPROOFING, SEAL ALL HORIZONTAL JOINTS ON BACKFACE.
- VERTICAL 18" RUBBERIZED MEMBRANE WATERPROOFING TO EXTEND FROM BRIDGE SEAT TO TOP OF WING WALL.
- THESE BARS MAY BE PLACED AFTER CONCRETE IS POURED, BUT BEFORE INITIAL SET HAS TAKEN PLACE.
- PIPE UNDERDRAIN WRAPPED (6-INCH). TO BE PLACED AT AN ELEVATION AND SLOPED 0.5% MIN. TO ALLOW FOR SUITABLE DRAINAGE. ATTACH RODENT SHIELD AT ENDS OF PIPE UNDERDRAIN. SEE DETAIL SHEET 6.
- HP 10 X 42 STEEL PILING ESTIMATED 35'(WEST ABUT.), 40'(EAST ABUT.) LONG DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 110 TONS PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA.

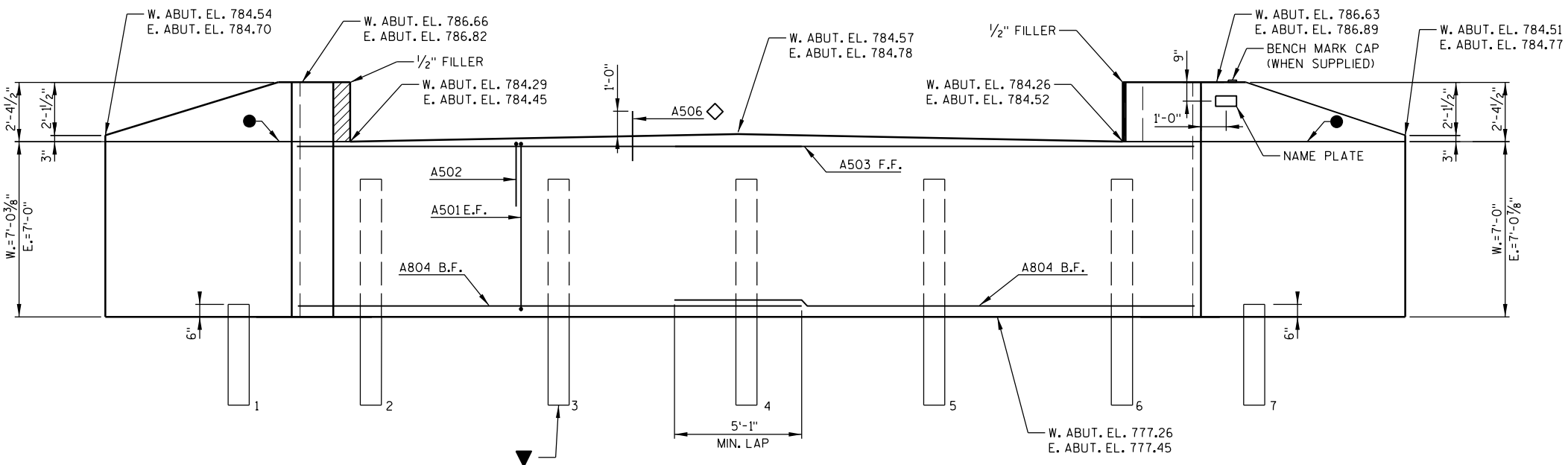
E.F. DENOTES EACH FACE

B.F. DENOTES BACK FACE

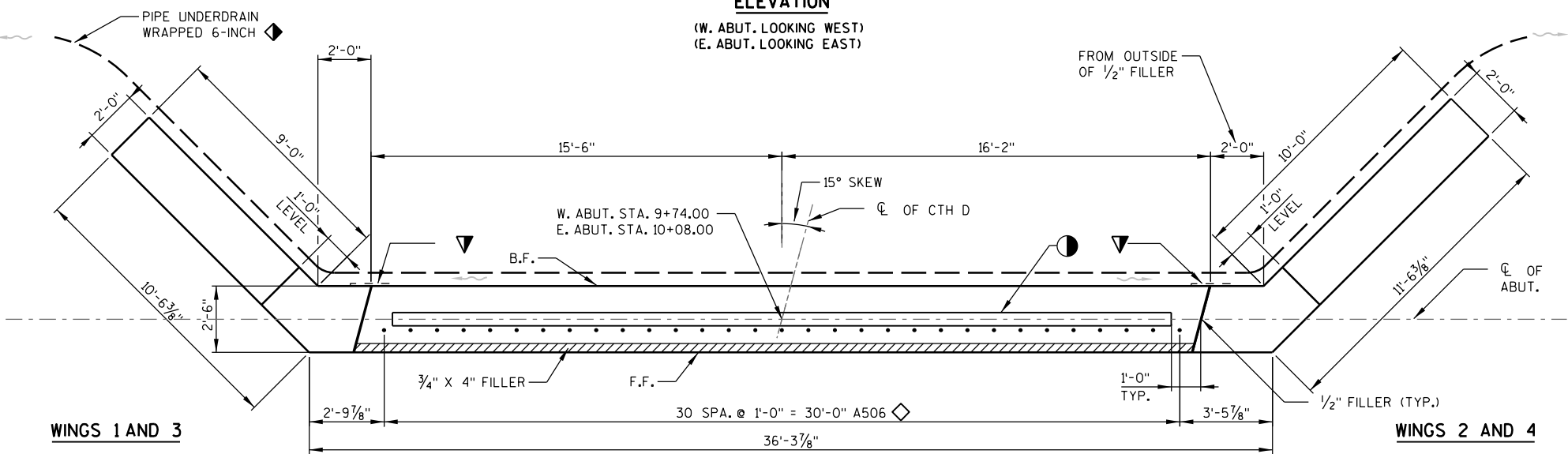
F.F. DENOTES FRONT FACE

ELEVATION

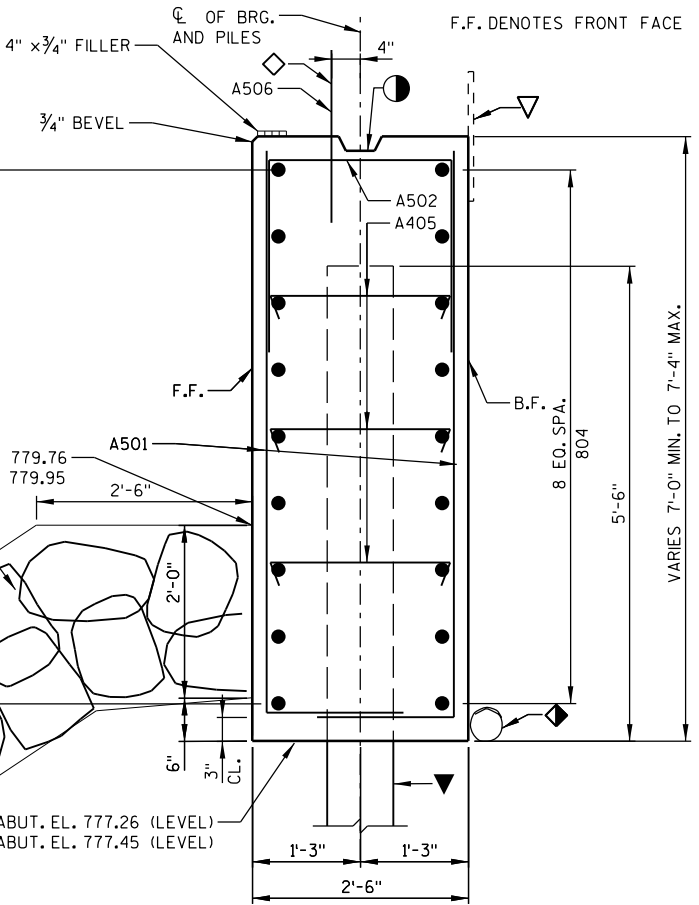
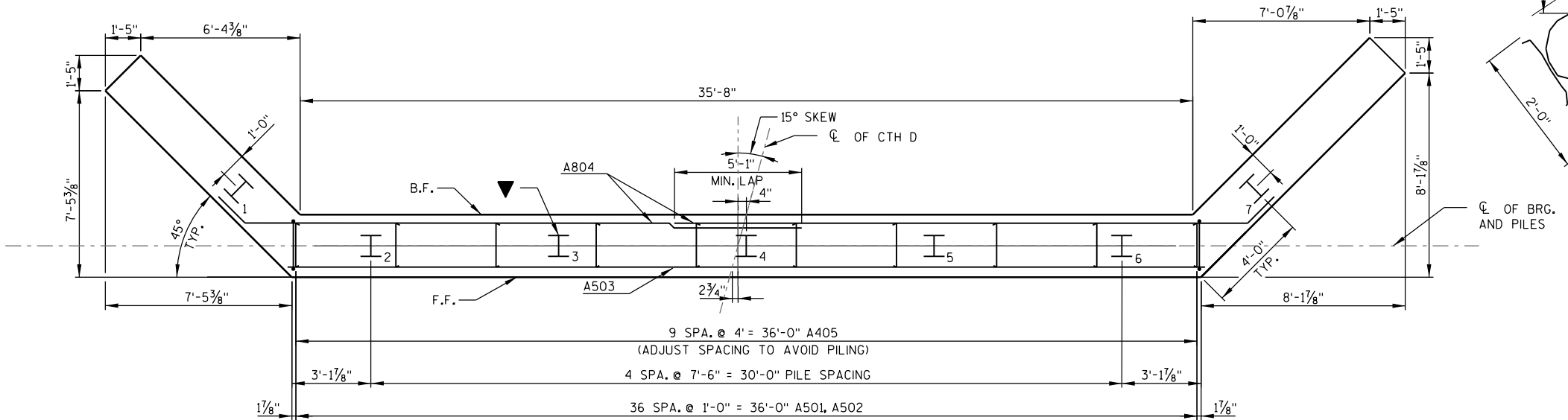
(W. ABUT. LOOKING WEST)
(E. ABUT. LOOKING EAST)



PLAN



PILE LAYOUT



TYPICAL SECTION THRU ABUT. BODY

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-06-0193			
DRAWN BY		ALC	PLANS CK'D. TAB
ABUTMENT ELEVATION DETAILS		SHEET 4 OF 9	

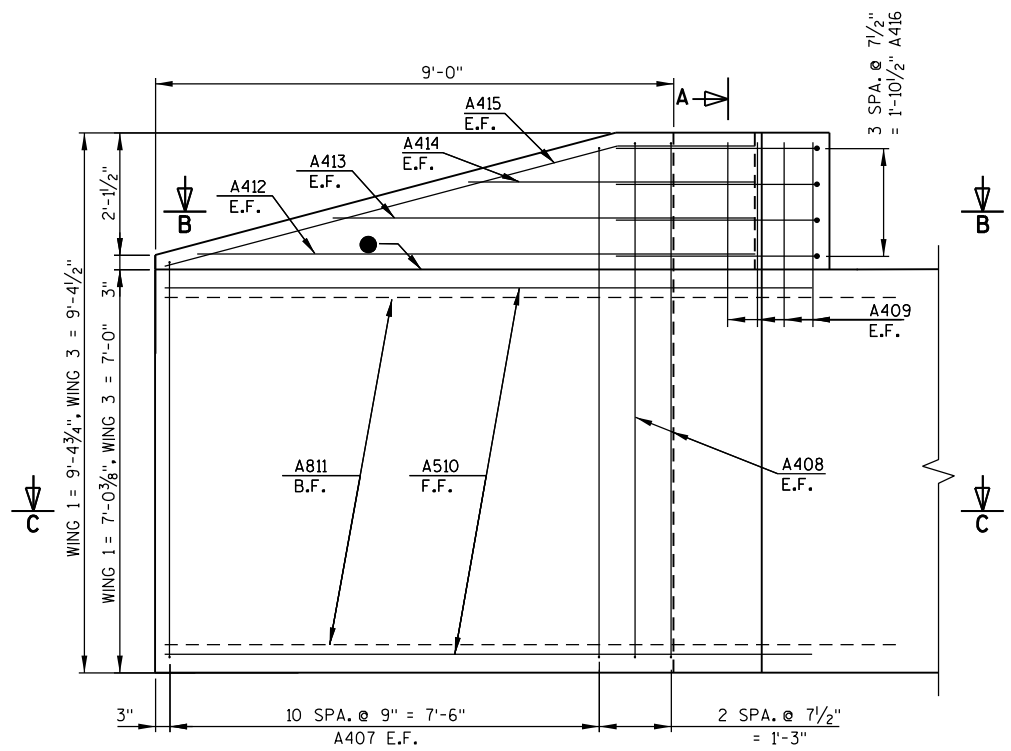
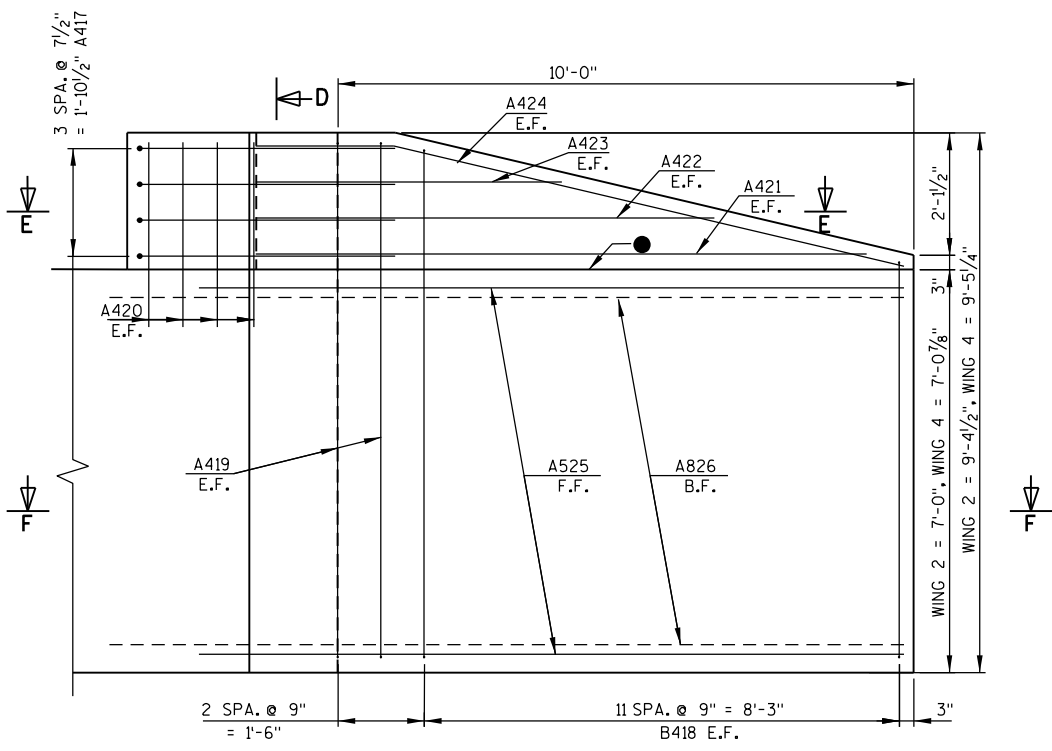
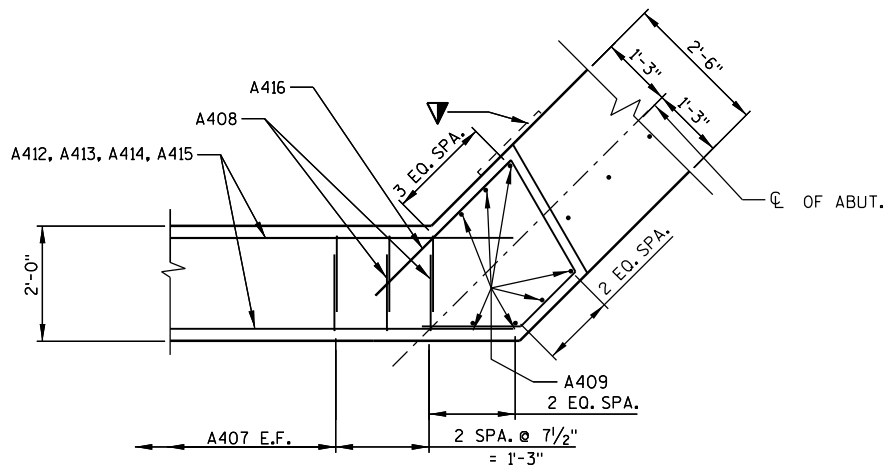
LEGEND

- ▽ 18" RUBBERIZED MEMBRANE WATERPROOFING. SEAL ALL HORIZONTAL JOINTS ON BACKFACE.
- OPT. KEYED CONST. JOINT FORMED BY BEVELED 2" x 6" KEYWAY WITH MEMBRANE ON BACKFACE.
- ▼ VERTICAL 18" RUBBERIZED MEMBRANE WATERPROOFING TO EXTEND FROM BRIDGE SEAT TO TOP OF WING WALL.

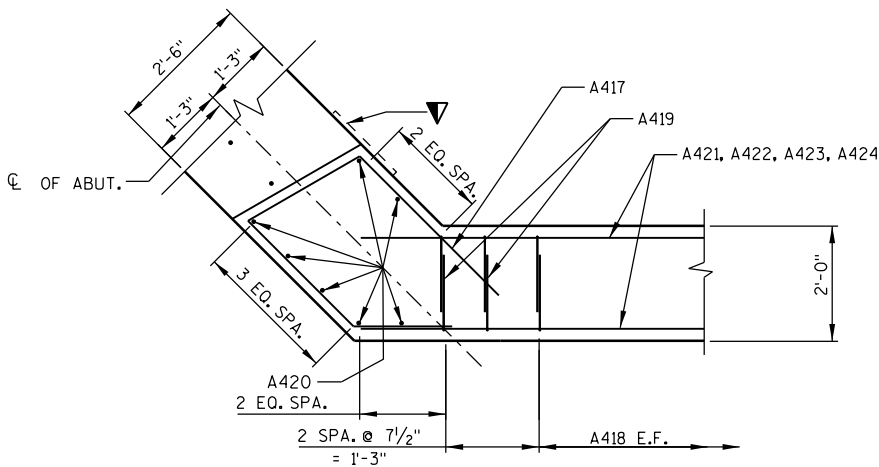
E.F. DENOTES EACH FACE

B.F. DENOTES BACK FACE

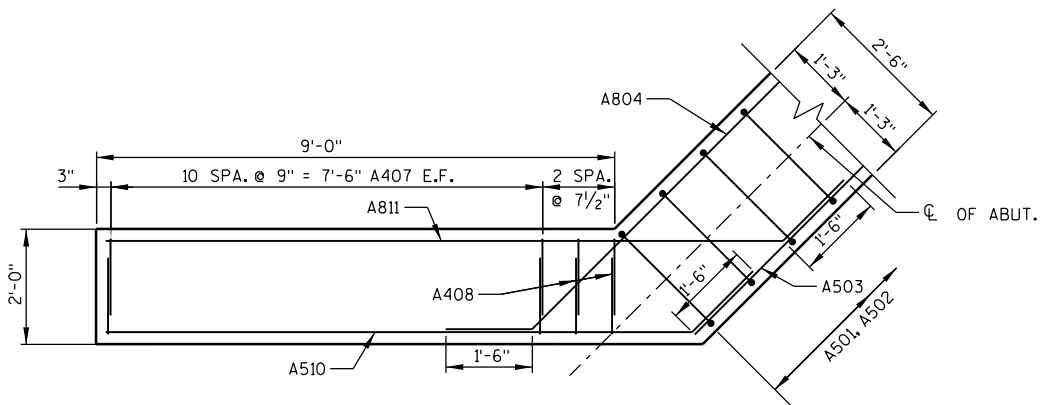
F.F. DENOTES FRONT FACE

**ELEVATION - WINGS 1 AND 3****ELEVATION - WINGS 2 AND 4****SECTION B**

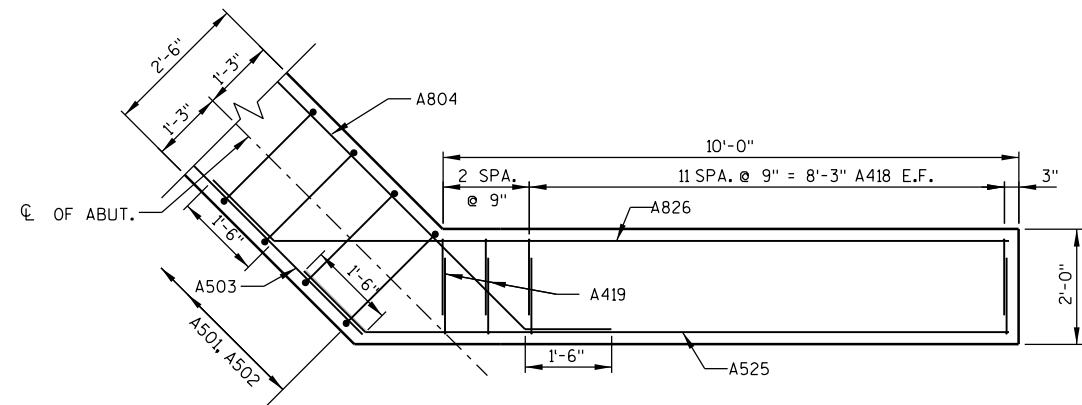
WINGS 1 AND 3

**SECTION E**

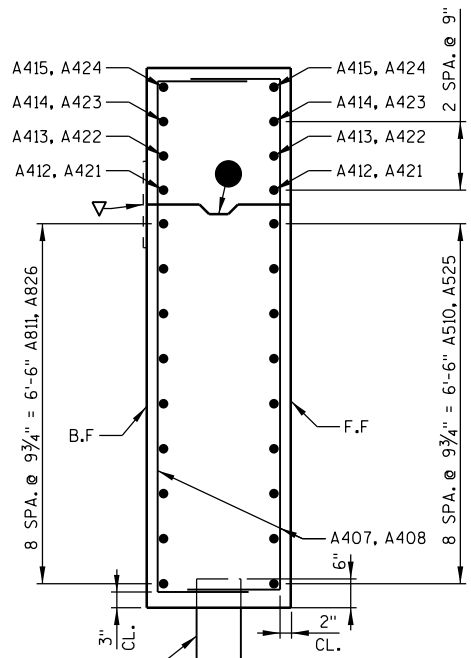
WINGS 2 AND 4

**SECTION C**

WINGS 1 AND 3

**SECTION F**

WINGS 2 AND 4

**SECTION A & D**SEE SHEET 4 FOR
PILE LOCATIONS

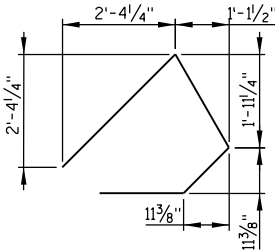
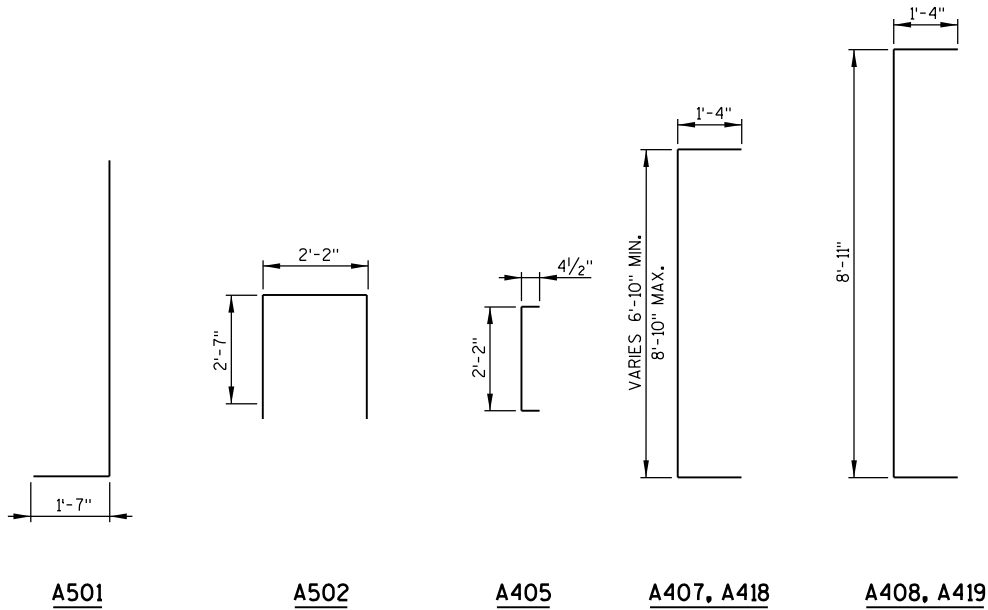
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-06-0193			
DRAWN BY		ALC	PLANS CK'D. TAB
ABUTMENT WING DETAILS			SHEET 5 OF 9

LEGEND

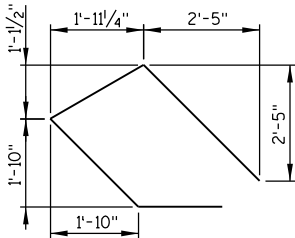
⊗ LENGTH SHOWN FOR BARS IS AN AVERAGE LENGTH AND SHOULD ONLY BE USED FOR BAR WEIGHT CALCULATIONS. SEE BAR SERIES TABLE FOR ACTUAL LENGTHS.

NOTES

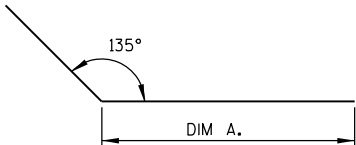
DIMENSIONS ARE OUT TO OUT OF BARS.



A416



A417



A804, A510, A811, A415, A424, A525, A826

MARK	DIM. A	ANGLE
A804	22'-10"	135°
A510	10'-3"	135°
A811	11'-11"	135°
A415	8'-1"	165°
A424	9'-1"	165°
A525	11'-3"	135°
A826	12'-11"	135°

BAR SERIES TABLE

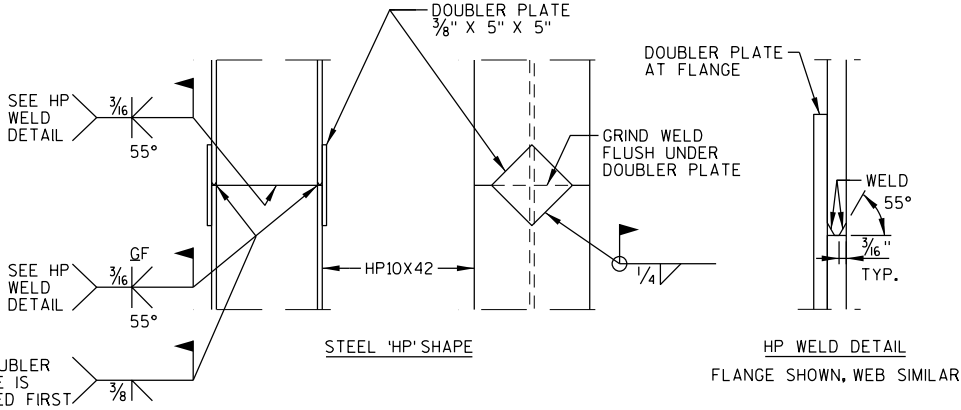
BUNDLE AND TAG EACH SERIES SEPARATELY

MARK	NO. REQ'D	LENGTH
A407	4 SERIES OF 11	9-4 TO 11-4
A418	4 SERIES OF 12	9-4 TO 11-4

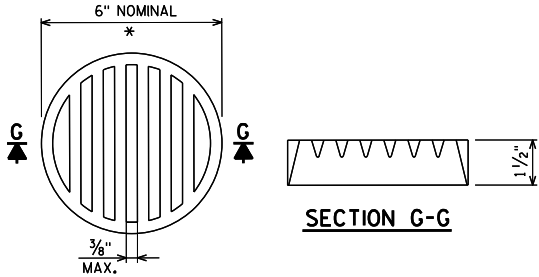
BILL OF BARS

MARK	NO. REQ'D W. ABUT.	NO. REQ'D E. ABUT.	LENGTH	SERIES	COAT	BENT	LOCATION
A501	74	74	8 - 0			X	BODY VERT. E.F.
A502	37	37	7 - 1			X	BODY VERT.
A503	9	9	36 - 2				BODY HORIZ. F.F.
A804	18	18	24 - 4			X	BODY HORIZ. B.F.
A405	30	30	2 - 9			X	BODY TIES
A506	31	31	2 - 0		X		BODY DOWELS
⊗ A407	22	22	10 - 4	X	X	X	WINGS 1 & 3 VERT. E.F.
A408	4	4	11 - 5		X	X	WINGS 1 & 3 VERT. E.F.
A409	7	7	3 - 6		X		WINGS 1 & 3 VERT. E.F.
A510	9	9	11 - 9		X	X	WINGS 1 & 3 HORIZ. F.F.
A811	9	9	13 - 4		X	X	WINGS 1 & 3 HORIZ. B.F.
A412	2	2	9 - 8		X		WINGS 1 & 3 HORIZ. E.F.
A413	2	2	7 - 4		X		WINGS 1 & 3 HORIZ. E.F.
A414	2	2	4 - 11		X		WINGS 1 & 3 HORIZ. E.F.
A415	2	2	10 - 3		X	X	WINGS 1 & 3 DIAG. E.F.
A416	4	4	8 - 6		X	X	WINGS 1 & 3 HORIZ.
A417	4	4	9 - 11		X	X	WINGS 2 & 4 HORIZ.
⊗ A418	24	24	10 - 4	X	X	X	WINGS 2 & 4 VERT. E.F.
A419	4	4	11 - 5		X	X	WINGS 2 & 4 VERT. E.F.
A420	7	7	3 - 6		X		WINGS 2 & 4 VERT. E.F.
A421	2	2	10 - 7		X		WINGS 2 & 4 HORIZ. E.F.
A422	2	2	7 - 11		X		WINGS 2 & 4 HORIZ. E.F.
A423	2	2	5 - 3		X		WINGS 2 & 4 HORIZ. E.F.
A424	2	2	11 - 3		X	X	WINGS 2 & 4 DIAG. E.F.
A525	9	9	12 - 9		X	X	WINGS 2 & 4 HORIZ. F.F.
A826	9	9	14 - 4		X	X	WINGS 2 & 4 HORIZ. B.F.

TOTAL WEIGHT - COATED	3020 LBS
TOTAL WEIGHT - UNCOATED	4910 LBS



PILE DETAILS



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

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

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

RODENT SHIELD DETAIL

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STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-06-0193			
DRAWN BY		ALC	PLANS CK'D. TAB
ABUTMENT BILL OF BARS		SHEET 6 OF 9	

LEGEND

- ▽ 18" RUBBERIZED MEMBRANE WATERPROOFING. SEAL ALL HORIZONTAL JOINTS ON BACKFACE.
- KEYED CONST. JOINT FORMED BY BEVELED 2" x 6".

GENERAL NOTES

DIMENSIONS ARE OUT TO OUT OF BARS.

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

TOP TRANSVERSE BARS IN SLAB SHALL BE SUPPORTED BY INDIVIDUAL BAR CHAIRS AT APPROXIMATELY 3'-0" CENTERS EACH WAY. BOTTOM LONGITUDINAL BARS SHALL BE SUPPORTED BY CONTINUOUS BAR CHAIRS AT APPROXIMATELY 4'-0" CENTERS.

PRIOR TO RELEASING SLAB FALSEWORK, TAKE TOP OF SLAB ELEVATIONS AT THE C. OF ABUTMENTS AND AT THE 1/2 PTS. TO VERIFY CAMBER. TAKE ELEVATIONS ALONG EDGE OF SLAB AND CROWN OR C.

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

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

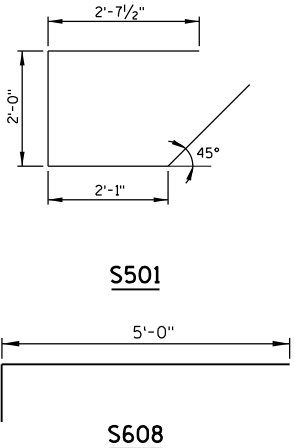
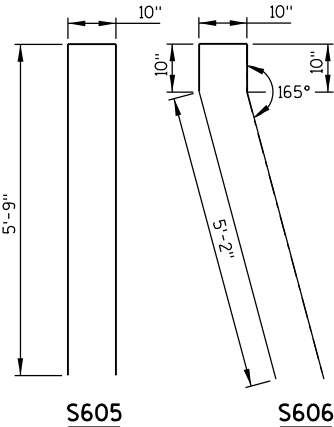
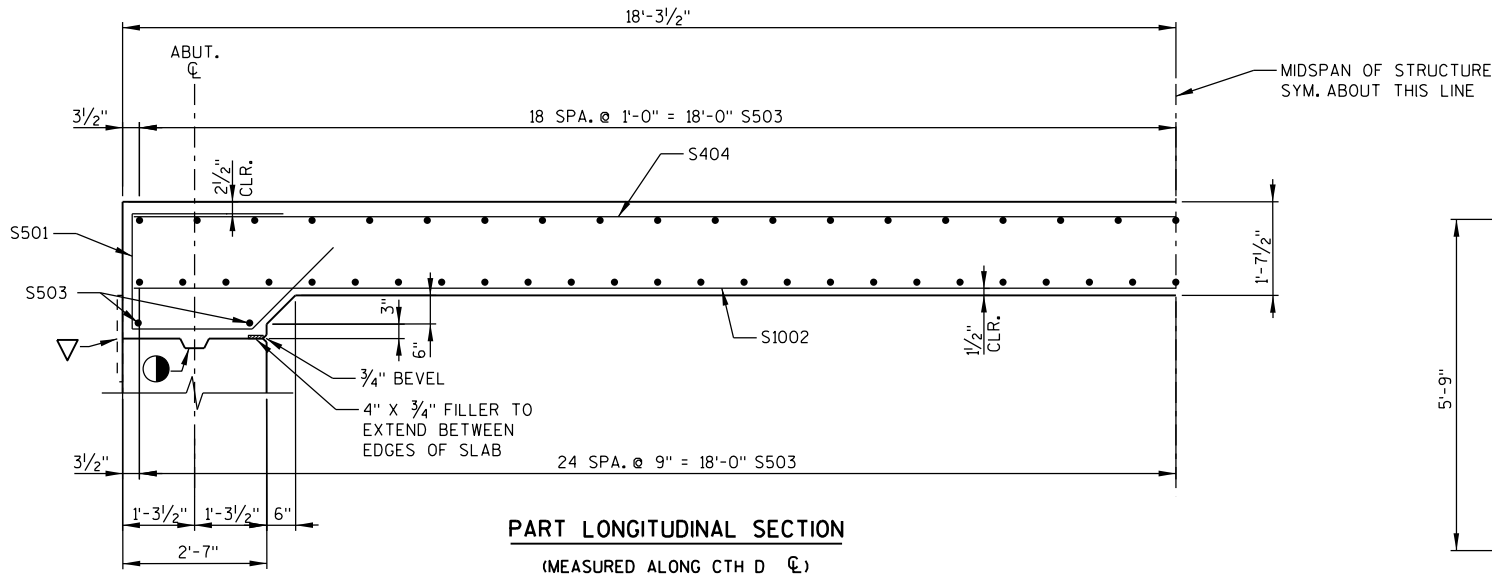
FLASHING TO BE INSTALLED AFTER PROTECTIVE SURFACE TREATMENT APPLICATION.

CONCRETE SCREWS SHALL BE 410 STAINLESS STEEL.

EXTEND FLASHING TO F.F. OF ABUTMENT.

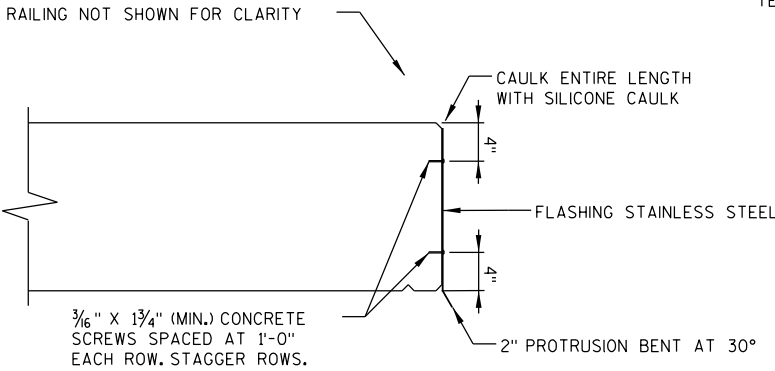
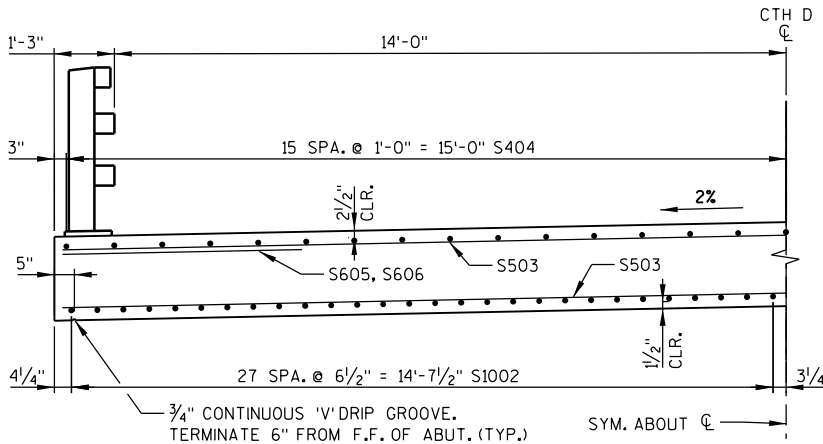
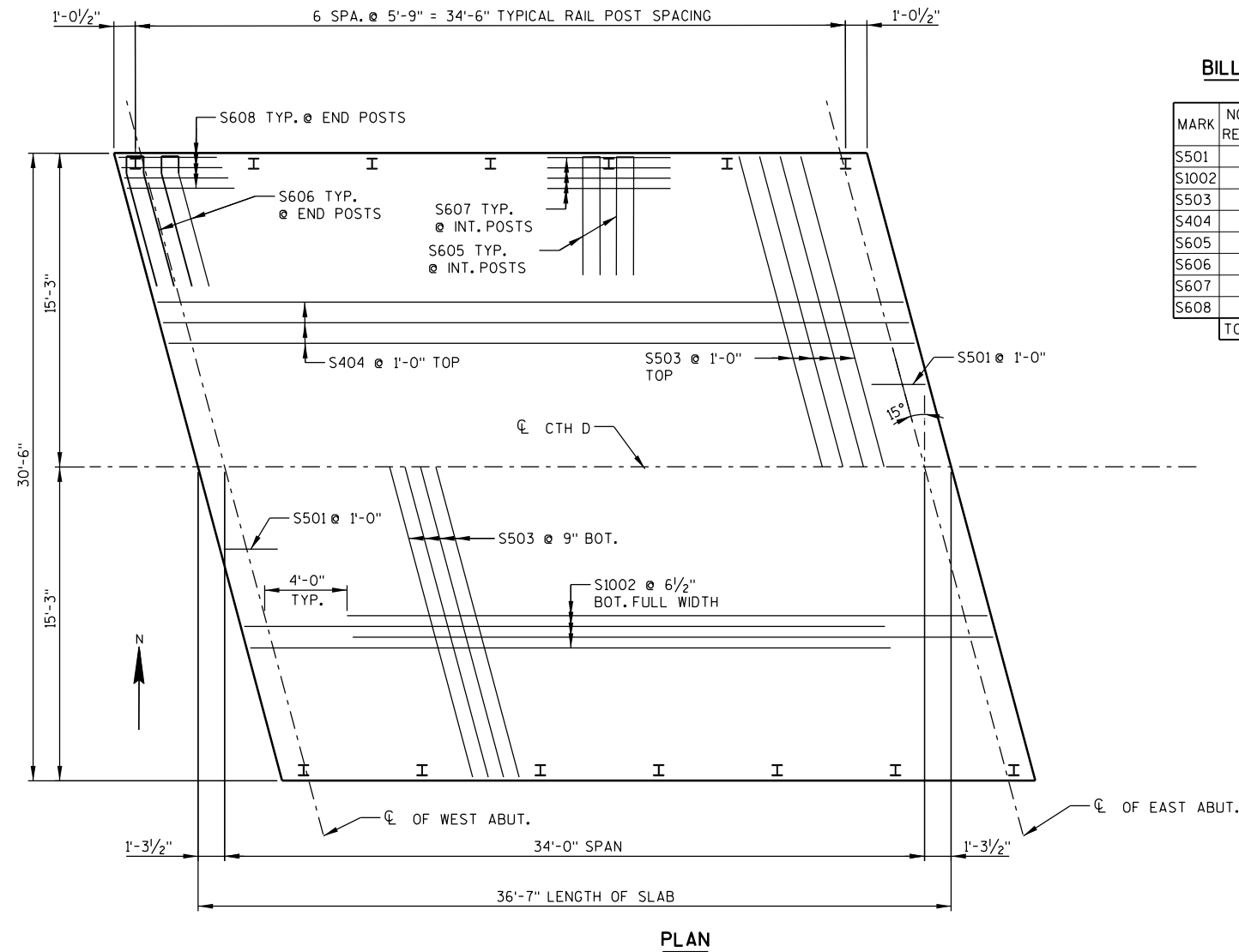
TOP OF FLASHING TO BEGIN APPROX. 1-INCH BELOW TOP OF DECK/SLAB SURFACE.

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



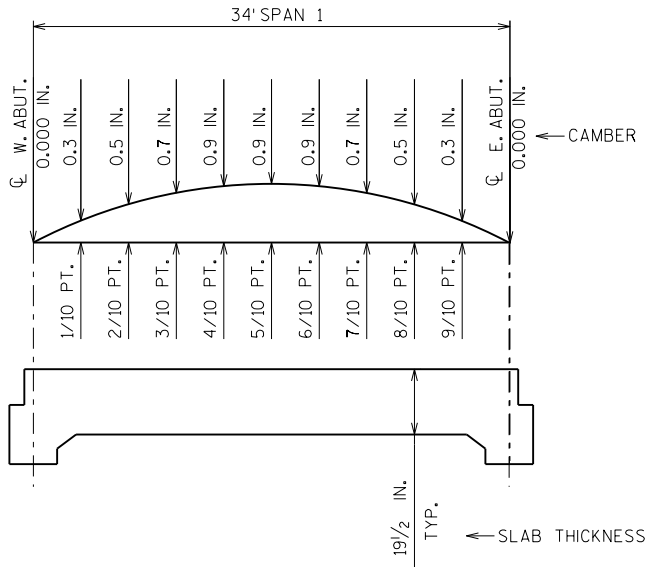
BILL OF BARS - SUPERSTRUCTURE

MARK	NO. REQ'D	LENGTH	COAT	BENT	LOCATION
S501	62	8'-6	X	X	SLAB VERT. @ ABUT.
S1002	56	31'-2	X		SLAB LONG. BOT.
S503	90	31'-2	X		SLAB TRANS. TOP & BOT.
S404	31	36'-3	X		SLAB LONG. TOP
S605	20	12'-0	X	X	SLAB @ INT. RAIL POSTS
S606	8	12'-6	X	X	SLAB @ END RAIL POSTS
S607	40	6'-0	X		SLAB @ INT. RAIL POSTS
S608	16	6'-0	X	X	SLAB @ END RAIL POSTS
TOTAL WEIGHT (COATED BARS) = 12,760 LBS					



FLASHING DETAIL FOR NEW BRIDGES WITH OPEN RAILING

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-06-0193			
DRAWN BY		ALC	PLANS CK'D. TAB
SUPERSTRUCTURE			SHEET 7 OF 9



CAMBER AND SLAB THICKNESS DIAGRAM

CAMBER SHOWN IS BASED ON 3 TIMES DEAD LOAD DEFLECTIONS. CAMBER SPANS AS SHOWN TO PROVIDE FOR DEAD LOAD DEFLECTION AND FUTURE CREEP. CAMBER DOES NOT INCLUDE ALLOWANCE FOR FORM SETTLEMENT. PARAPETS, SIDEWALKS AND MEDIANS PLACED ON TOP OF THE SLAB SHALL BE POURED AFTER FALSEWORK HAS BEEN RELEASED, EXCEPT FOR STAGED CONSTRUCTION.

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

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

TOP OF SLAB ELEVATIONS

	℄ BRG. W. ABUT.	1/10	2/10	3/10	4/10	5/10	6/10	7/10	8/10	9/10	℄ BRG. E. ABUT.
N. EDGE OF DECK	786.62	786.64	786.65	786.66	786.68	786.70	786.72	786.74	786.76	786.79	786.81
CROWN OR R	786.94	786.96	786.97	786.99	787.01	787.03	787.05	787.07	787.10	787.12	787.15
S. EDGE OF DECK	786.65	786.67	786.69	786.70	786.73	786.75	786.77	786.80	786.82	786.85	786.88

SURVEY TOP OF SLAB ELEVATIONS

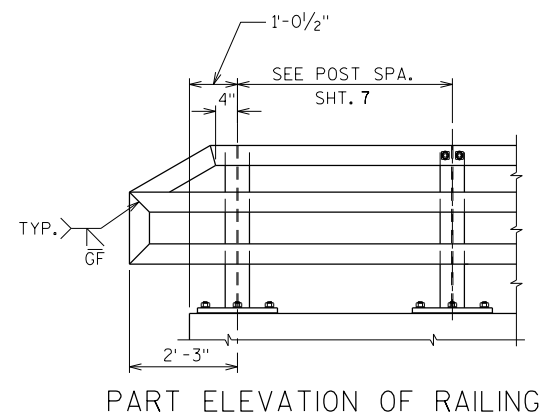
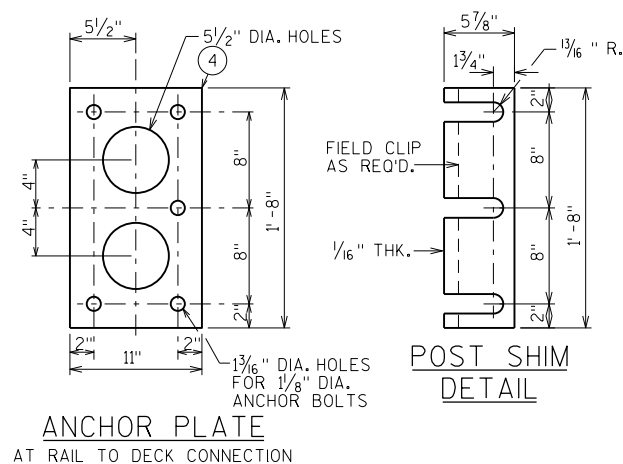
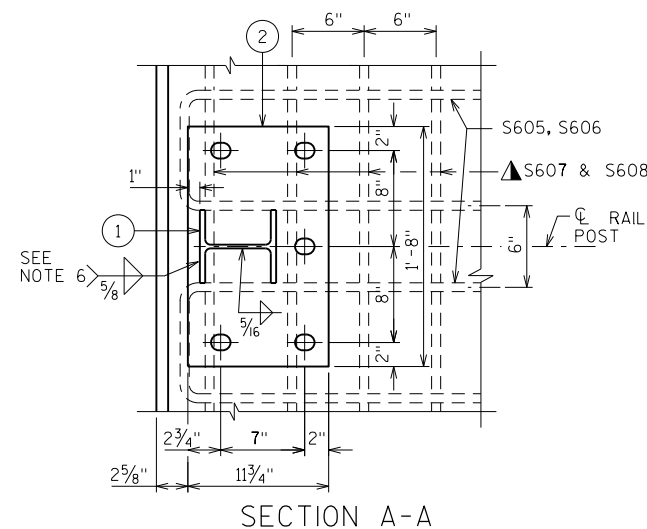
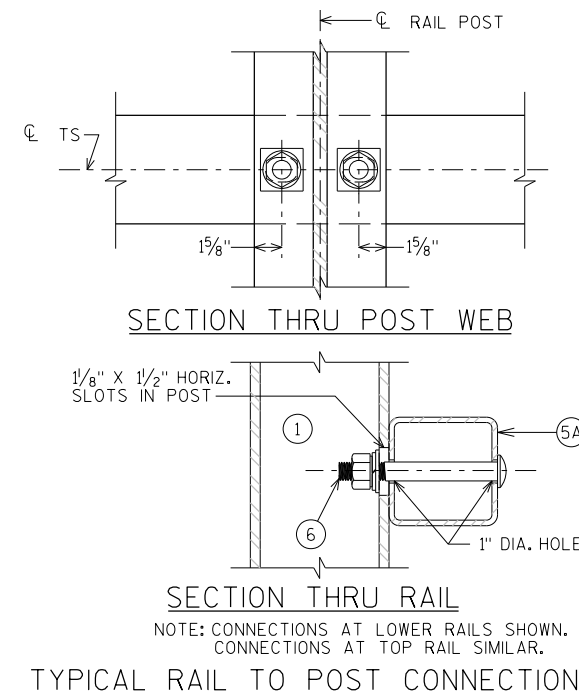
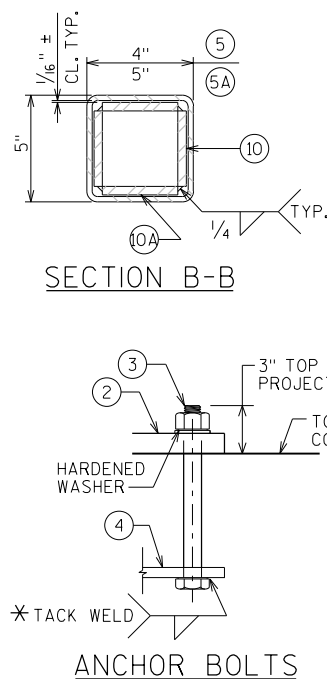
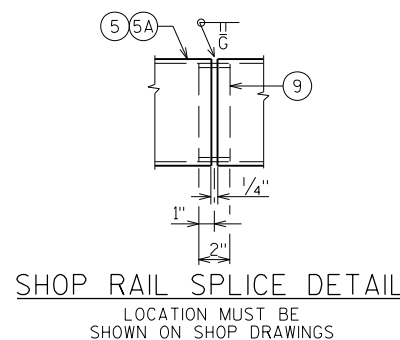
	ABUTMENT	5/10 PT.	ABUTMENT
N. EDGE OF SLAB			
CROWN OR R			
S. EDGE OF SLAB			

PRIOR TO RELEASING SLAB FALSEWORK, TAKE TOP OF DECK ELEVATIONS AT THE ℄ OF ABUTMENTS, THE ℄ OF PIERS AND AT 5/10 PTS. TO VERIFY CAMBER. TAKE ELEVATIONS ALONG GUTTER LINES AND CROWN OR ℄. RECORD THE ELEVATIONS IN THE ABOVE TABLE FOR THE "AS BUILT" PLANS.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-06-0193			
DRAWN BY		ALC	PLANS CK'D. TAB
SLAB DETAILS		SHEET 8 OF 9	

- ① W6 x 25 WITH $1\frac{1}{8}$ " x $1\frac{1}{2}$ " HORIZ. SLOTS ON EACH SIDE OF POST FOR BOLT NO. 6. CUT BOTTOM OF POST TO MATCH CROSS SLOPE OF ROADWAY. PLACE POST VERTICAL. PLACE POSTS NORMAL TO GRADE LINE.
- ② PLATE $1\frac{1}{4}$ " x $13\frac{3}{4}$ " x 1'-8" WITH $1\frac{1}{16}$ " DIA. OVERSIZED HOLES FOR ANCHOR BOLTS NO. 3. WELD TO NO. 1 AS SHOWN. SLOTS PARALLEL TO SHORT SIDE OF PLATE.
- ③ ASTM A449 - $1\frac{1}{8}$ " DIA. ANCHOR BOLTS WITH NUT AND HARDENED WASHER (ALL GALVANIZED), 5 REQ'D. PER POST. THREAD 3" AND PLACE NORMAL TO PLATE NO. 2. CHAMFER TOP OF BOLTS BEFORE THREADING. USE 1'-9" LONG IN ABUTMENT WINGS. AT POSTS ON CONCRETE SLAB SUPERSTRUCTURES WHERE THE SLAB THICKNESS IS > 16 " USE 1'-3" LONG. USE $10\frac{3}{4}$ " LONG AT ALL OTHER LOCATIONS. (AN EQUIVALENT THREADED ROD WITH NUTS AND HARDENED WASHERS MAY BE SUBSTITUTED FOR ANCHOR BOLTS IN WINGS IF REQ'D. FOR CONSTRUCTIBILITY.)
- ④ $5\frac{1}{8}$ " x 11" x 1'-8" ANCHOR PLATE (GALVANIZED) WITH $1\frac{1}{16}$ " DIA. HOLES FOR ANCHOR BOLTS NO. 3
- ⑤ TS 5 x 4 x 0.25 STRUCTURAL TUBING. ATTACH TO NO. 1 WITH NO. 6.
- ⑤A TS 5 x 5 x 0.25 STRUCTURAL TUBING. ATTACH TO NO. 1 WITH NO. 6.
- ⑥ $\frac{7}{8}$ " DIA. A325 SLOTTED ROUND HEAD BOLT WITH NUT, $\frac{3}{16}$ " x $1\frac{5}{8}$ " x $1\frac{5}{8}$ " WASHER, AND LOCK WASHER (2 REQ'D. AT EACH RAIL TO POST LOCATION.)
- ⑨ SPLICE SLEEVE FABRICATED FROM $\frac{1}{4}$ " PLATE. PROVIDE "SLIDING FIT".
- ⑩ $\frac{3}{8}$ " x $3\frac{5}{8}$ " x 2'-4" PLATE. 2 PER RAIL. USED IN NO. 5 & 5A.
- ⑩A $\frac{3}{8}$ " x $2\frac{5}{8}$ " x 2'-4" PLATE USED IN NO. 5, $\frac{3}{8}$ " x $3\frac{5}{8}$ " x 2'-4" PLATE USED IN NO. 5A. 2 PER RAIL.
- ⑪ $\frac{7}{8}$ " DIA. A325 ROUND HEAD BOLT WITH NUT, WASHER, AND LOCK WASHER. USE $1\frac{5}{8}$ " x $1\frac{1}{4}$ " LONGIT. SLOTTED HOLES AT FIELD JOINTS AND $1\frac{5}{8}$ " x $2\frac{1}{4}$ " MIN. LONGIT. SLOTTED HOLES AT EXP. JOINTS IN PLATE NO. 10A.

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



 TIE TO TOP MAT OF STEEL.

NO.	DATE	REVISION	BY
DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-06-0193			
	DRAWN BY	ALC	PLANS CK'D. TAB
TUBULAR STEEL RAILING TYPE 'M'		SHEET 9 OF 9	

MAINLINE EARTHWORK

STATION	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 ORDINATE
	1.00			1.00			1.00	1.25	
	NOTE 1			NOTE 1	NOTE 2	NOTE 3	NOTE 1		NOTE 8
9+50	33	7	0	0	0	0	0	0	0
9+60.31	32	7	21	12	3	4	12	5	5
				12	3	4			

STATION	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 ORDINATE
	1.00			1.00			1.00	1.25	
	NOTE 1			NOTE 1	NOTE 2	NOTE 3	NOTE 1		NOTE 8
10+22	28.6	7.3	34.3	0	0	0	0	0	0
10+50	31.6	7.3	0.7	31	8	18	31	23	1
				31	8	18			

TEMPORARY BYPASS CONSTRUCTION

STATION	AREA (SF)		INCREMENTAL VOL (CY) (UNADJUSTED)		CUMULATIVE VOL (CY)		
	CUT	FILL	CUT	FILL	CUT	EXPANDED FILL	MASS ORDINATE
					1.00	1.25	
			NOTE 1	NOTE 3	NOTE 1		NOTE 8
98+54	2.3	0.1	0	0	0	0	0
99+00	2.8	5.4	4	5	4	6	-2
99+50	3.3	149.5	6	143	10	185	-175
99+77	0.0	197.6	2	176	12	406	-394
			12	325			

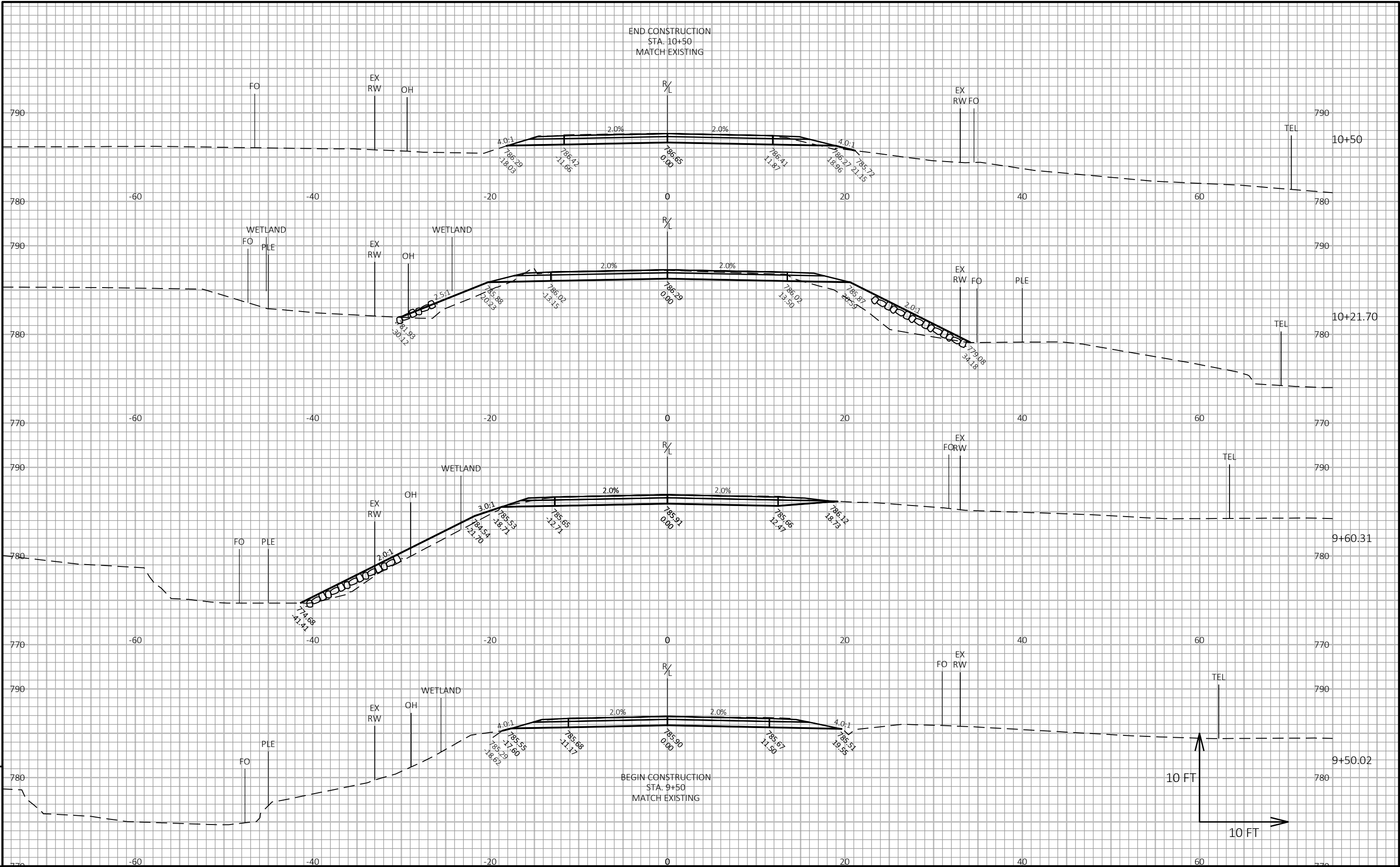
STATION	AREA (SF)		INCREMENTAL VOL (CY) (UNADJUSTED)		CUMULATIVE VOL (CY)		
	CUT	FILL	CUT	FILL	CUT	EXPANDED FILL	MASS ORDINATE
					1.00	1.25	
			NOTE 1	NOTE 3	NOTE 1		NOTE 8
100+28	0.0	165.7	0	0	0	0	0
100+50	6.9	33.3	3	83	3	104	-101
101+00	56.7	0.0	59	31	62	142	-80
101+50	42.2	0.0	92	0	153	142	11
102+00	6.4	9.0	45	8	198	153	46
102+50	2.7	0.0	8	8	207	163	44
102+59	2.6	0.0	1	0	208	163	45
			208	130			

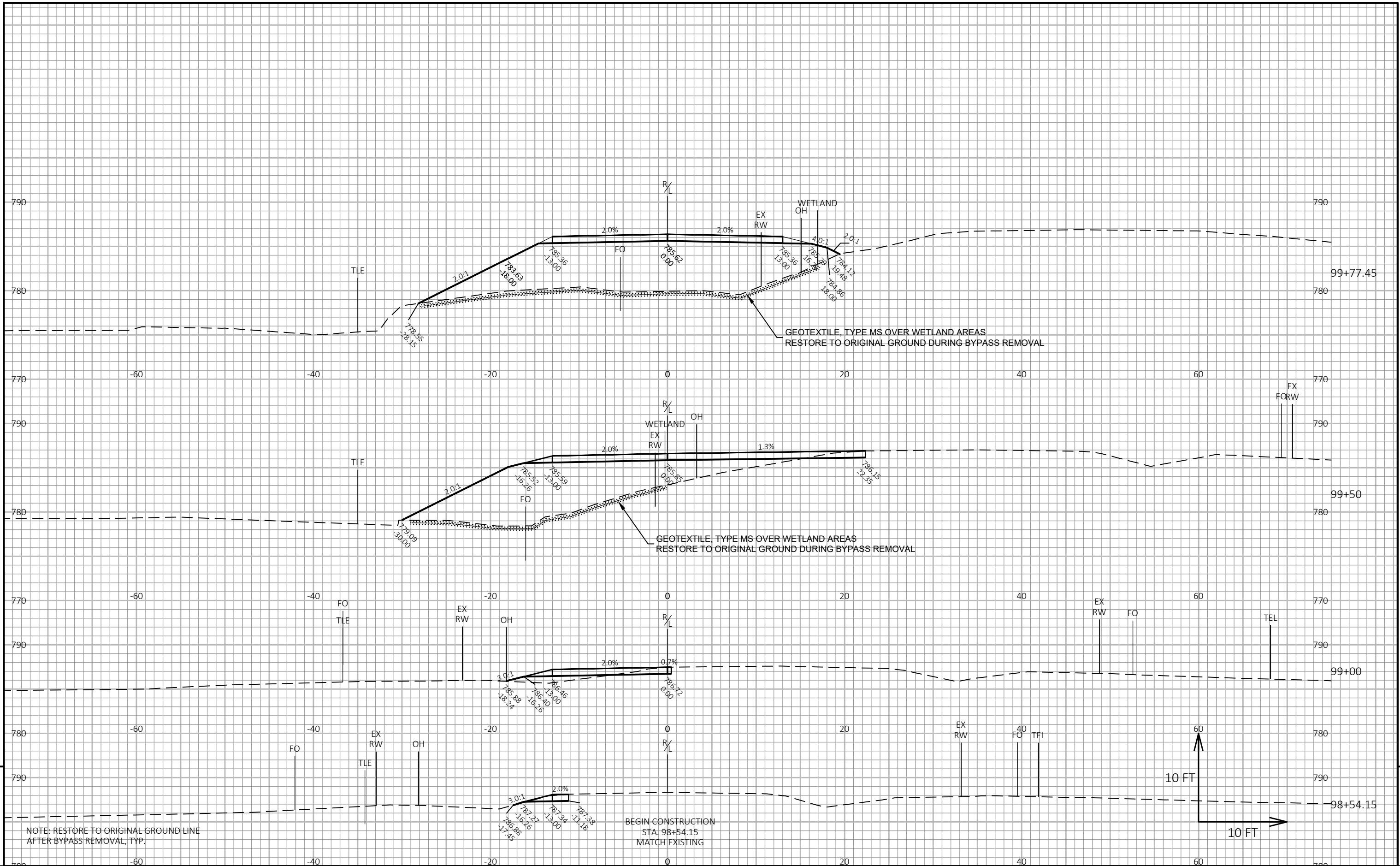
TEMPORARY BYPASS REMOVAL

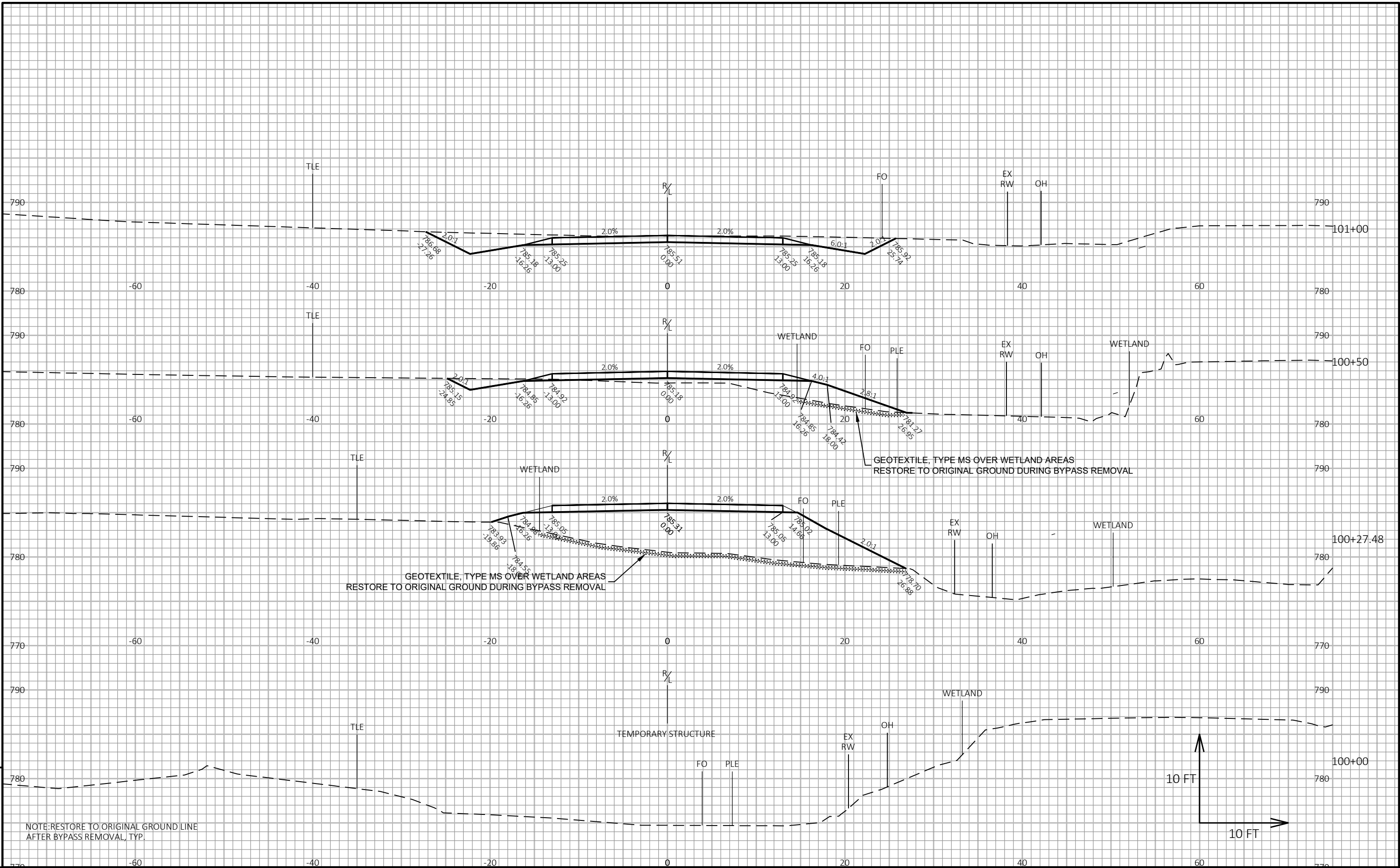
STATION	AREA (SF)		INCREMENTAL VOL (CY) (UNADJUSTED)		CUMULATIVE VOL (CY)		
	CUT	FILL	CUT	FILL	CUT	EXPANDED FILL	MASS ORDINATE
					1.00	1.25	
			NOTE 1	NOTE 3	NOTE 1		NOTE 8
98+54	0.4	0.0	0	0	0	0	0
99+00	13.9	0.0	12	0	12	0	12
99+50	174.0	0.0	174	0	186	0	186
99+77	218.9	0.0	200	0	386	0	386
			386	0			

STATION	AREA (SF)		INCREMENTAL VOL (CY) (UNADJUSTED)		CUMULATIVE VOL (CY)		
	CUT	FILL	CUT	FILL	CUT	EXPANDED FILL	MASS ORDINATE
					1.00	1.25	
			NOTE 1	NOTE 3	NOTE 1		NOTE 8
100+28	189.6	0.0	0	0	0	0	0
100+50	55.8	2.6	102	1	102	1	101
101+00	0.2	38.9	52	38	154	49	105
101+50	4.8	57.5	5	89	159	161	-2
102+00	20.6	27.5	23	79	182	259	-77
102+50	0.2	3.2	19	28	201	295	-93
102+59	0.3	0.0	0	1	201	296	-94
			201	236			

Notes:	
1. CUT	CUT INCLUDES SALVAGED/UNUSABLE PAVEMENT MATERIAL
2. SALVAGED/UNUSABLE PAVEMENT MATERIAL	THIS DOES NOT SHOW UP IN CROSS SECTIONS
3. FILL	DOES NOT INCLUDE SALVAGED PAVEMENT EXC VOLUME
8. MASS ORDINATE	EB&D MARSH EXCLUDED OUTSIDE 1:1 FILL SLOPES

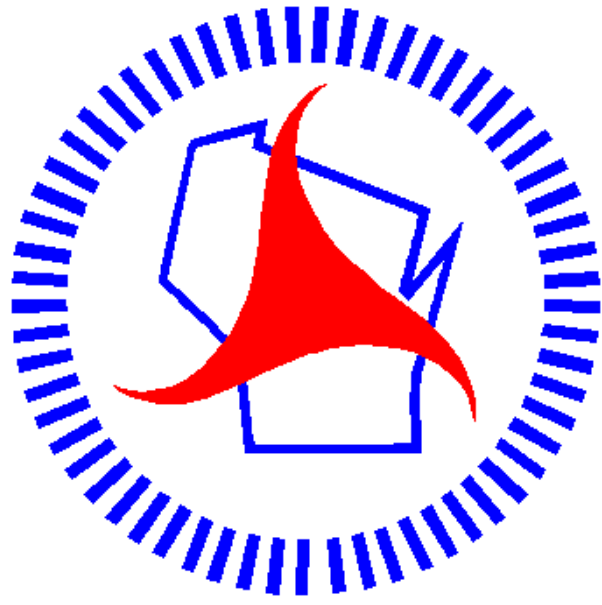








PROJECT NO: 7311-00-70	HWY: CTH D	COUNTY: BUFFALO	CROSS SECTIONS: CTH D - TEMPORARY BYPASS	SHEET	E
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