

WKE

PROJECT ID: 3852-06-70

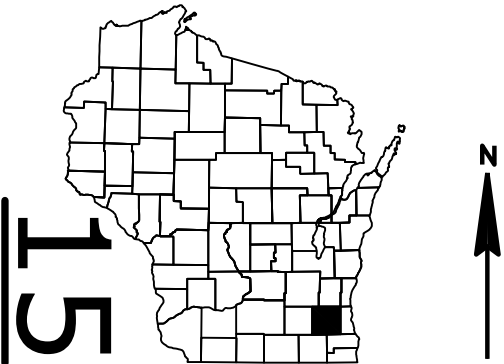
WITH: N/A

COUNTY: WAUKESHA

DECEMBER 2025
ORDER OF SHEETS

Section No.	1	Title
Section No.	2	Typical Sections and Details
Section No.	3	Estimate of Quantities
Section No.	3	Miscellaneous Quantities
Section No.	4	Right of Way 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 = 118



DESIGN DESIGNATION

A.A.D.T.	(2022)	=	600
A.A.D.T.		=	
D.H.V.		=	
D.D.		=	
T.		=	
DESIGN SPEED		=	25 MPH
ESALS		=	

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

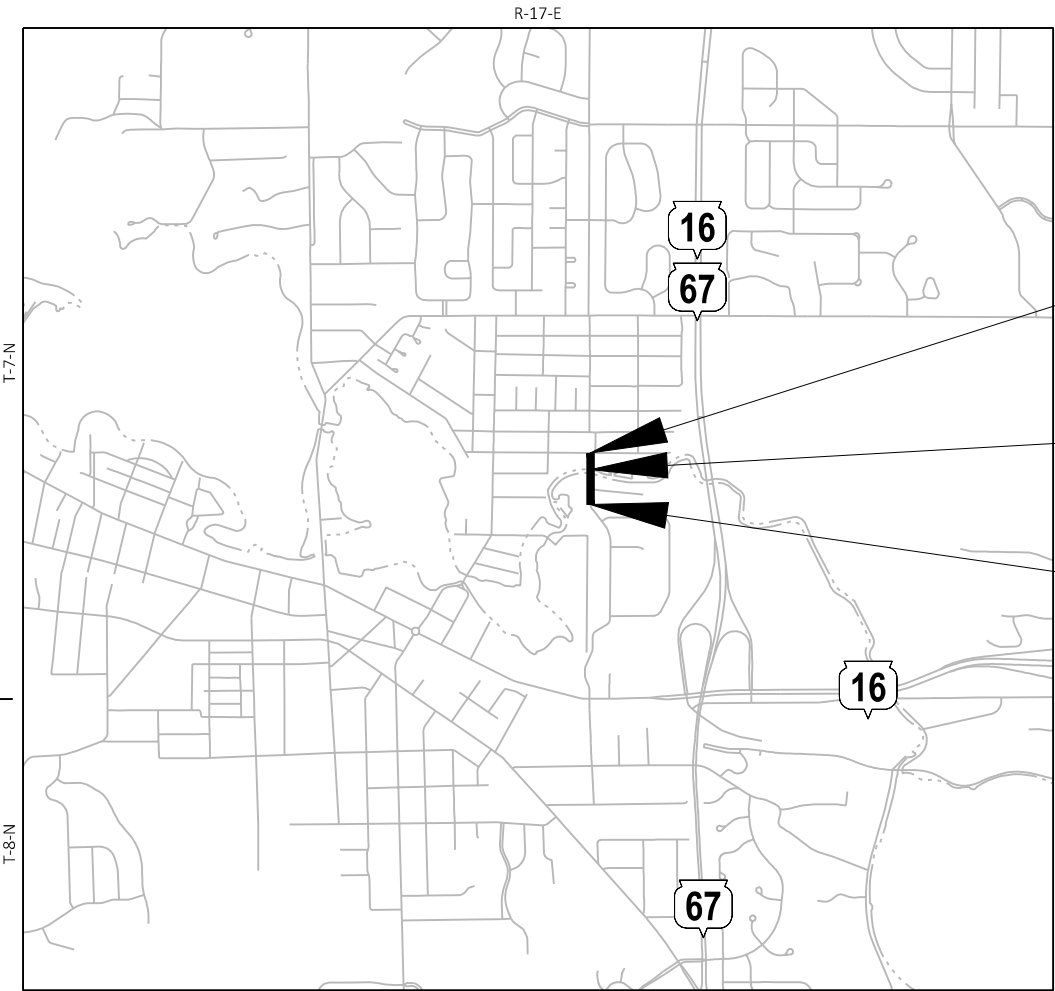
PLAN OF PROPOSED IMPROVEMENT

C OCONOMOWOC, N LAPHAM ST

OCONOMOWOC RIVER BRIDGE P67-770

LOCAL STREET
WAUKESHA

STATE PROJECT NUMBER
3852-06-70



SCALE 0 0.5 MI

TOTAL NET LENGTH OF CENTERLINE = 0.133 MI

HORIZONTAL POSITIONS SHOWN ON THIS PLAN ARE WISCONSIN STATE PLANE, SOUTH ZONE, 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 (2018). GPS DERIVED ELEVATIONS ARE BASED ON GEOID 18.

END PROJECT
STA 07+83
X=2,372,829.21
Y=410,496.36

STRUCTURE B-67-0405
STA 05+21 - STA 05+76

BEGIN PROJECT
STA 00+82
X=2,372,824.23
Y=409,797.12

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
3852-06-70	WISC 2025605	1

ORIGINAL PLANS PREPARED BY
COLLINS ENGINEERS, INC.

DATE: 8/25/2025
(Professional Engineer Signature)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY
Surveyor COLLINS ENGINEERS, INC.
Designer COLLINS ENGINEERS, INC.
Project Manager JOSEPH JELACIO
Regional Examiner
Regional Supervisor AMY TAETSCH

APPROVED FOR THE DEPARTMENT
DATE: 8/26/25 Joseph C Jelacio
(Signature)

E

GENERAL NOTES

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

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

MAINTAIN ACCESS TO PROPERTIES ADJACENT TO THE PROJECT AT ALL TIMES.

THE CONTRACTOR IS RESPONSIBLE FOR PROTECTING MOTORISTS AND PEDESTRIANS THAT MAY ENTER THE WORK ZONE FROM POSSIBLE HAZARDS.

A SAWED JOINT WILL BE REQUIRED WHERE NEW PAVEMENT MEETS AN EXISTING PAVED SURFACE. SAWCUTS SHALL BE NEATLY DELINEATED THROUGH THE ASPHALT OR CONCRETE WITHOUT DAMAGING EXISTING PAVEMENT TO REMAIN. SAWCUT LOCATIONS SHOWN ON THE PLAN ARE SUBJECT TO ADJUSTMENT BY THE ENGINEER IN THE FIELD.

TRAFFIC CONTROL DEVICES AS SHOWN IN THE PLAN ARE AT SUGGESTED LOCATIONS. EXACT LOCATIONS SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS DIRECTED BY THE ENGINEER.

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

NO TREES OR SHRUBS SHALL BE REMOVED WITHOUT APPROVAL OF THE ENGINEER. CLEARING AND GRUBBING LIMITS TO BE MARKED BY THE ENGINEER.

THE EROSION CONTROL FEATURES AS SHOWN IN THE PLANS ARE AT SUGGESTED LOCATIONS. EXACT LOCATIONS WILL BE DETERMINED BY THE ENGINEER IN THE FIELD. ALL EROSION CONTROL MEASURES SHALL BE MAINTAINED UNTIL SUCH TIME AS THE ENGINEER DETERMINES THE MEASURE IS NO LONGER NECESSARY.

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

STOCKPILE EXCESS MATERIAL OR SPOILS ON UPLAND AREAS AWAY FROM WETLANDS, FLOOD PLAINS, AND WATERWAYS. STOCKPILED SOIL SHALL IMMEDIATELY BE PROTECTED AGAINST EROSION WITH SILT FENCE, TEMPORARY SEED AND MULCH, OR AS DIRECTED BY THE ENGINEER. DO NOT STORE EQUIPMENT OR MATERIALS NEAR THESE SITES UNLESS APPROVED BY THE ENGINEER.

RE-TOPSOIL GRADED AREAS, AS DESIGNATED BY THE ENGINEER, IMMEDIATELY AFTER GRADING IS COMPLETED IN THOSE AREAS. SEED, FERTILIZE, AND SOD TOP-SOILED AREAS, AS DESIGNATED BY THE ENGINEER, WITHIN THREE (3) CALENDAR DAYS AFTER PLACEMENT OF TOPSOIL.

IF GRADED AREAS ARE LEFT EXPOSED FOR MORE THAN SEVEN (7) CALENDAR DAYS, SEED THOSE AREAS WITH TEMPORARY SEED AND MULCH/EROSION MAT WITHIN 24 HOURS.

TOPSOIL IN AREAS TO BE SODDED SHALL BE PLACED 1-INCH BELOW THE TOP OF ADJACENT CONCRETE CURBS OR SIDEWALKS.

CONTRACTOR SHALL CONTACT THE PROJECT ENGINEER AND THE SOUTHEASTERN WISCONSIN REGIONAL PLANNING COMMISSION AT LEAST TWO WEEKS PRIOR TO WORK NEAR ANY PUBLIC MONUMENT.

ALL SIGN LOCATIONS SHALL BE REVIEWED BY THE ENGINEER PRIOR TO INSTALLATION.

PROPERTY LINES AS SHOWN ARE APPROXIMATE.

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

ELEVATIONS SHOWN ON THE ROADWAY CROSS SECTIONS ARE SUBGRADE ELEVATIONS.

RADIUS DIMENSIONS FOR THE CURB AND GUTTER ARE TO THE FLANGE LINE UNLESS OTHERWISE NOTED.

CURB AND GUTTER PLAN GRADES ARE AT THE FLANGE LINE UNLESS OTHERWISE NOTED.

HMA PAVEMENT WEIGHT CALCULATIONS ARE BASED ON 115 LBS/SY/IN.

PIPE AND INLET ELEVATIONS AS SHOWN ON THE PLANS MAY BE ADJUSTED BY THE ENGINEER TO FIT EXISTING FIELD CONDITIONS.

MANHOLE STATIONS AND OFFSETS ARE TO CENTER OF STRUCTURE FOR SOLID COVERS AND TO FLOWLINE AT CENTER OF GRATE FOR GRATED INLET COVERS.

ALL TYPES OF PAVEMENT SHALL BE CONSTRUCTED WITH THE FOLLOWING GRADATIONS:

LOCATION	PAVEMENT TYPE	TOTAL THICKNESS	LAYERS
RECONSTRUCT	5 LT 58-28S	4"	1.5" UPPER LAYER
	3 LT 58-28S		2.5" LOWER LAYER

SECTION 2 ORDER OF SHEETS

GENERAL NOTES
TYPICAL SECTIONS
CONSTRUCTION DETAILS
REMOVAL PLAN
PLAN DETAILS
CURB RAMP DETAILS
CONTOUR MAP
EROSION CONTROL
STORM SEWER PLAN
UTILITY PLAN
PERMANENT SIGNING
TRAFFIC CONTROL
ALIGNMENT DETAIL

PROJECT CONTACTS

DNR LIASION

CRAIG WEBSTER
141 NW BARSTOW, ROOM 180
WAUKESHA, WI 53188
PHONE: (262) 574-2141
EMAIL: CRAIG.WEBSTER@WISCONSIN.GOV

WISDOT DESIGN

JOSEPH JELACIC
141 NW BARSTOW
WAUKESHA, WI 53188
PHONE: (262) 548-6762
EMAIL: JOSEPH.JELACIC@DOT.WI.GOV

CITY OF OCONOMOWOC

JASON HERZOG
808 S WORTHINGTON ST.
OCONOMOWOC, WI 53066
PHONE: (262) 569-2184
EMAIL: JHERZOG@OCONOMOWOC-WI.GOV

OTHER CONTACTS

OCONOMOWOC AREA SCHOOL DISTRICT
ADAM WEISS
EMAIL: WEISSA@OASD.ORG

UTILITY CONTACTS

AT&T WISCONSIN
WILL SCHROEDER
435 S 95TH ST
MILWAUKEE, WI 53214
PHONE: (414) 379-7522

WE ENERGIES - GAS
ALEX GONZALEZ
1300 JANESVILLE AVE
FORT ATKINSON, WI 53538
PHONE: (262) 365-6414
EMAIL: ALEXIS.GONZALEZ@WE-ENERGIES.COM

CHARTER
MICHAEL YAEGER
1310 N MLK DR
MILWAUKEE, WI 53212
PHONE: (414) 908-4677
EMAIL: MICHAEL.YAEGER@CHARTER.COM

CITY OF OCONOMOWOC SEWER & WATER
JASON HERZOG
808 S WORTHINGTON ST.
OCONOMOWOC, WI 53066
PHONE: (262) 569-2184
EMAIL: JHERZOG@OCONOMOWOC-WI.GOV

CITY OF OCONOMOWOC - ELECTRIC
LUCAS CAINE
808 S WORTHINGTON ST.
OCONOMOWOC, WI 53066
PHONE: (262) 569-6870
EMAIL: LCAINE@OCONOMOWOC-WI.GOV



Dial 811 or (800)242-8511

www.DiggersHotline.com

STANDARD ABBREVIATIONS

ABUT	ABUTMENT	DE	DRAINAGE EASEMENT	LC	LONG CHORD OF CURVE	SAN	SANITARY SEWER
AC	ACRE	DWY	DRIVEWAY	LS	LUMP SUM	SHLD	SHOULDER
AGG	AGGREGATE	EA	EACH	MGAL	ONE THOUSAND GALLONS	SW	SIDEWALK
AH	AHEAD	EB	EASTBOUND	MH	MANHOLE	SI	SLOPE INTERCEPT
AADT	ANNUAL AVERAGE DAILY TRAFFIC	EL OR ELEV	ELEVATION	ML OR M/L	MATCH LINE	SB	SOUTHBOUND
AEW	APRON ENDWALL	EMB	EMBANKMENT	NOM	NOMINAL	SPECS	SPECIFICATIONS
ASPH	ASPHALTIC	EW	ENDWALL	NC	NORMAL CROWN	SF	SQUARE FEET
AVG	AVERAGE	ESALS	EQUIVALENT SINGLE AXLE LOADS	NB	NORTHBOUND	SY	SQUARE YARD
BK	BACK	EXC	EXCAVATION	NO	NUMBER	SDD	STANDARD DETAIL DRAWINGS
BC	BACK OF CURB	EBS	EXCAVATION BELOW SUBGRADE	OD	OUTSIDE DIAMETER	STH	STATE TRUNK HIGHWAY
BAD	BASE AGGREGATE DENSE	EXIST	EXISTING	PAVT	PAVEMENT	STA	STATION
BL OR B/L	BASE LINE	FERT	FERTILIZER	PC	POINT OF CURVATURE	SS	STORM SEWER
BM	BENCH MARK	FO	FIBER OPTIC	PI	POINT OF INTERSECTION	SSPRC	STORM SEWER PIPE REINFORCED CONCRETE
CB	CATCH BASIN	FL OR F/L	FLOW LINE	PT	POINT OF TANGENCY	SE	SUPERELEVATION
CL OR C/L	CENTER LINE	FT	FOOT	PCC	PORTLAND CEMENT CONCRETE	SL OR S/L	SURVEY LINE
Δ	CENTRAL ANGLE OR DELTA	FTMS	FREEWAY TRAFFIC MANAGEMENT SYSTEM	LB	POUND	TEMP	TEMPORARY
CE	COMMERCIAL ENTRANCE	HES	HIGH EARLY STRENGTH	PSI	POUNDS PER SQUARE INCH	TLE	TEMPORARY LIMITED EASEMENT
CONC	CONCRETE	CWT	HUNDRED WEIGHT	PE	PRIVATE ENTRANCE	TC	TOP OF CURB
CSW	CONCRETE SIDEWALK	HYD	HYDRANT	PROJ	PROJECT	T	TRUCKS (PERCENT OF)
CONST	CONSTRUCTION	IN DIA	INCH DIAMETER	PL	PROPERTY LINE	TYP	TYPICAL
CP	CONTROL POINT	INLT	INLET	PRW	PROPOSED RIGHT OF WAY	USH	UNITED STATES HIGHWAY
CO	COUNTY	ID	INSIDE DIAMETER	R	RADIUS	VAR	VARIABLE
CTH	COUNTY TRUCK HIGHWAY	IH	INTERSTATE HIGHWAY	RL OR R/L	REFERENCE LINE	VC	VERTICAL CURVE
CY	CUBIC YARD	INV	INVERT	REQD	REQUIRED	VPC	VERTICAL POINT OF CURVATURE
C & G	CURB AND GUTTER	JT	JOINT	RT	RIGHT	VPI	VERTICAL POINT OF INTERSECTION
D	DEGREE OF CURVE	LT	LEFT	RHF	RIGHT HAND FORWARD	VPT	VERTICAL POINT OF TANGENCY
DHV	DESIGN HOUR VOLUME	LHF	LEFT HAND FORWARD	R/W	RIGHT OF WAY	W	WEST
DIA	DIAMETER	L	LENGTH OF CURVE	RD	ROAD	WB	WESTBOUND
DD	DIRECTIONAL DISTRIBUTION	LF	LINEAR FOOT	RDWY	ROADWAY		

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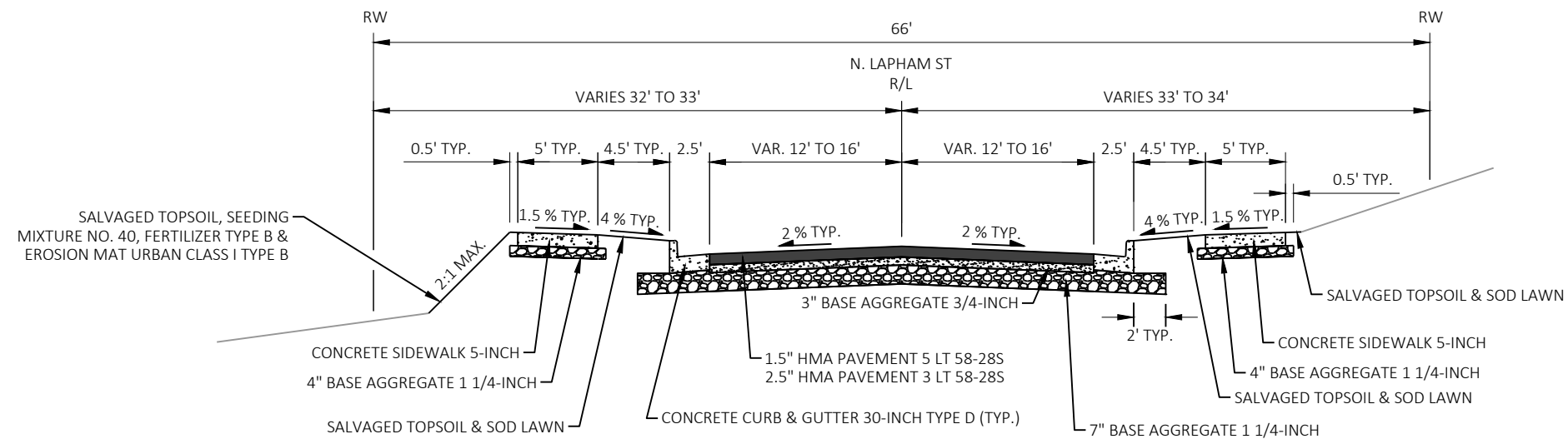
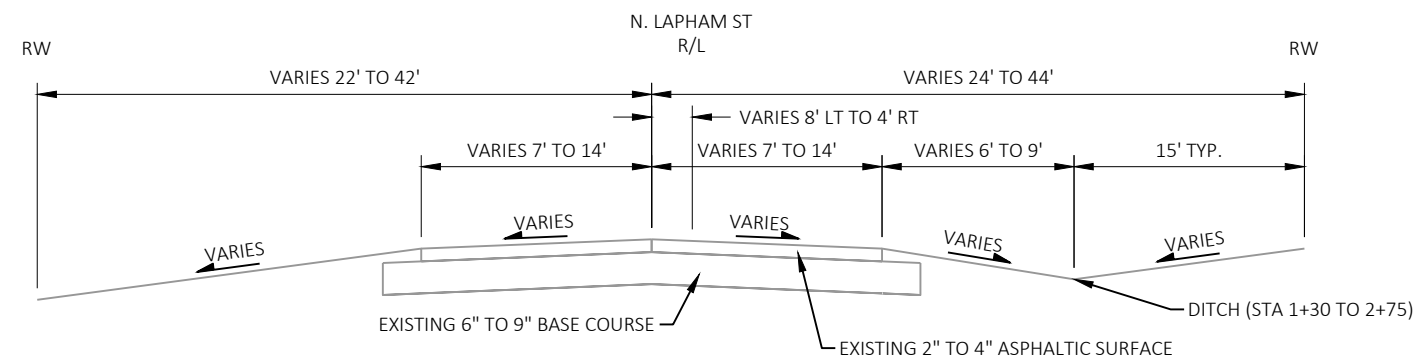
HWY: LOCAL STREET

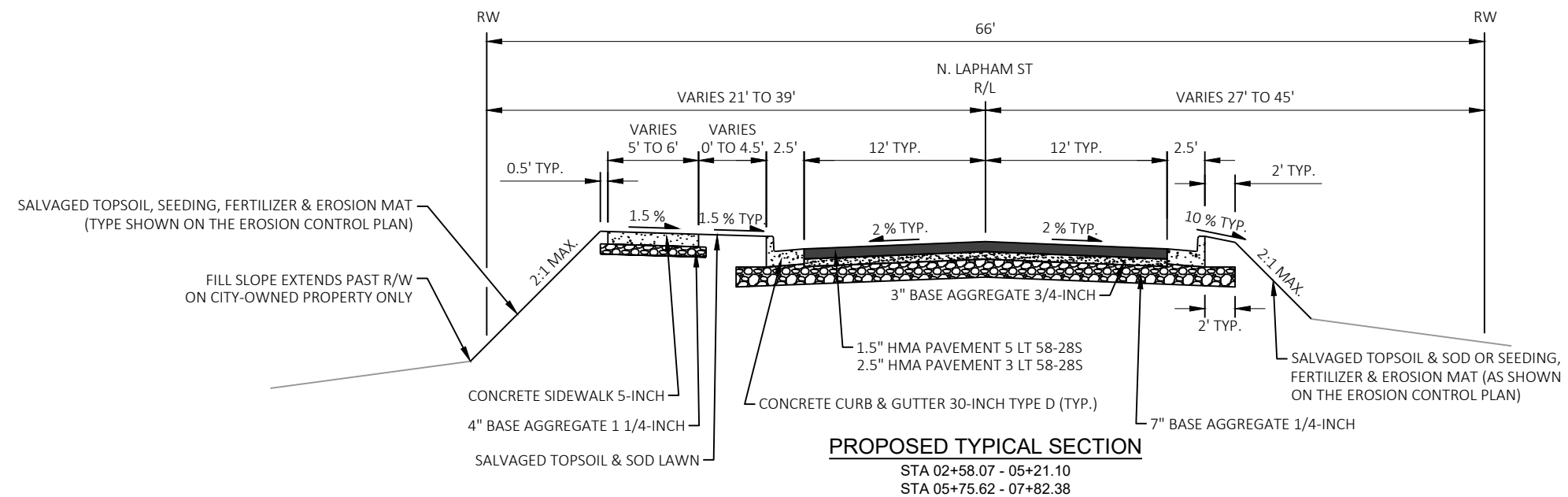
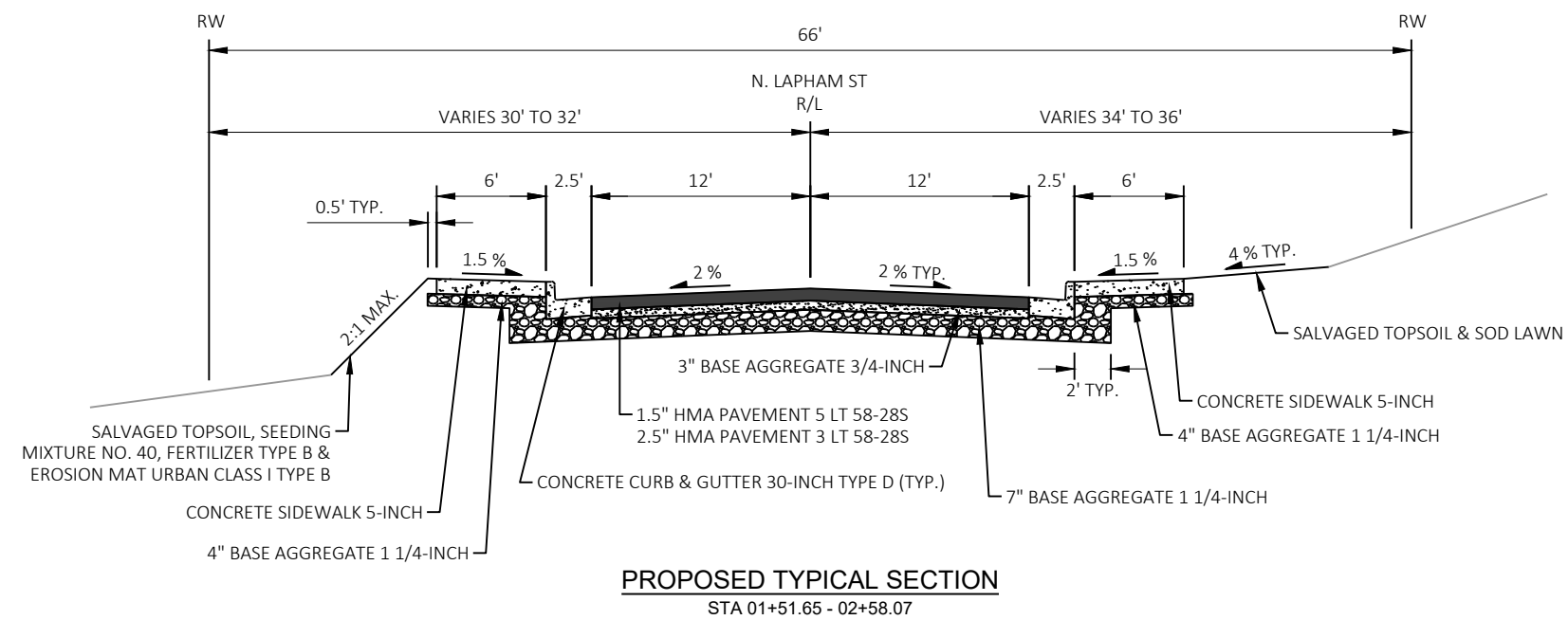
COUNTY: WAUKESHA

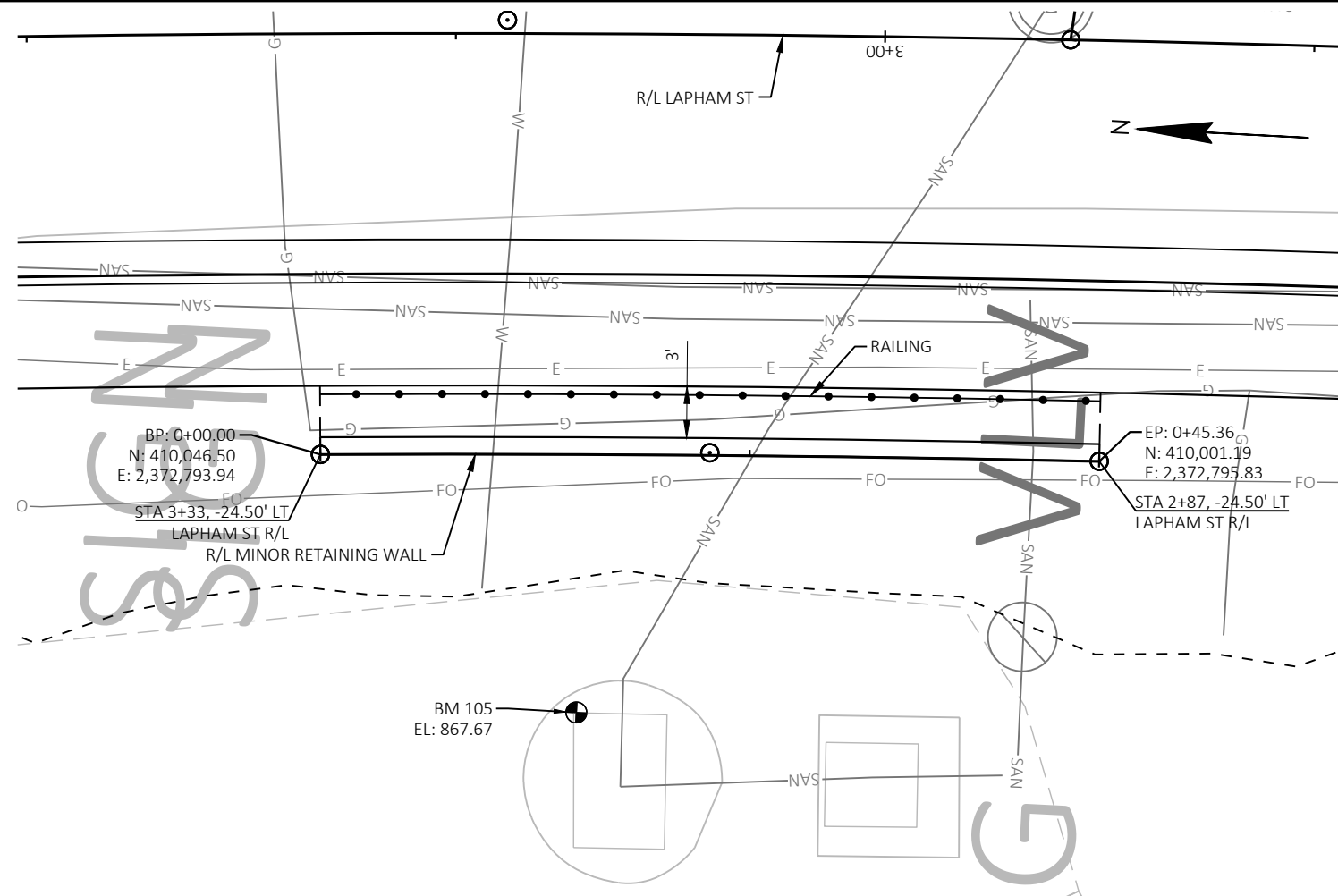
GENERAL NOTES

SHEET

E

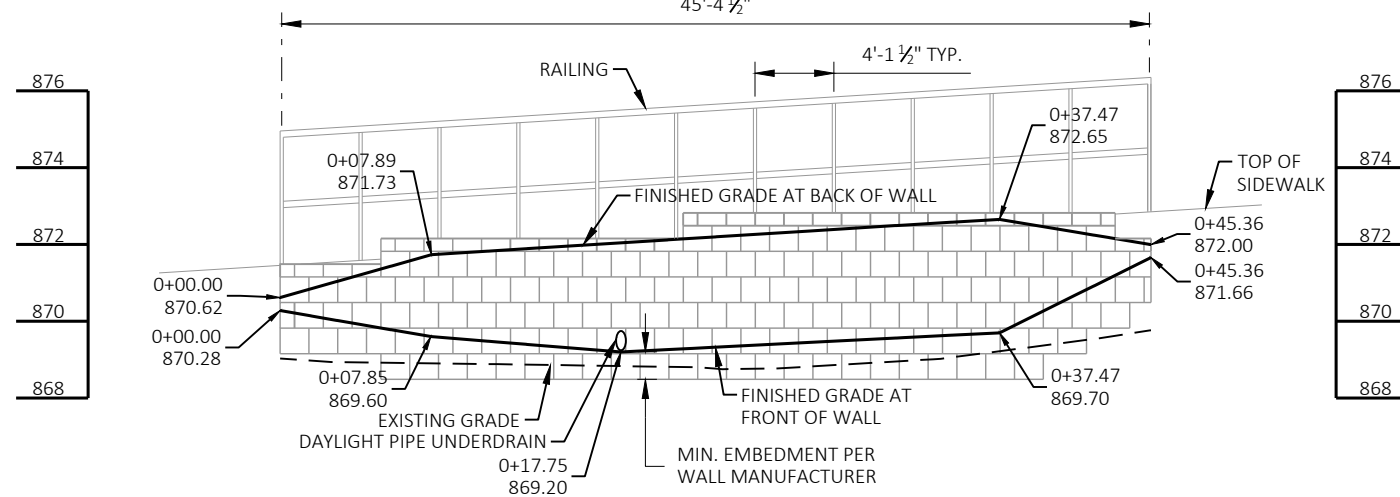






GENERAL PLAN

45'-4 1/2"



ELEVATION

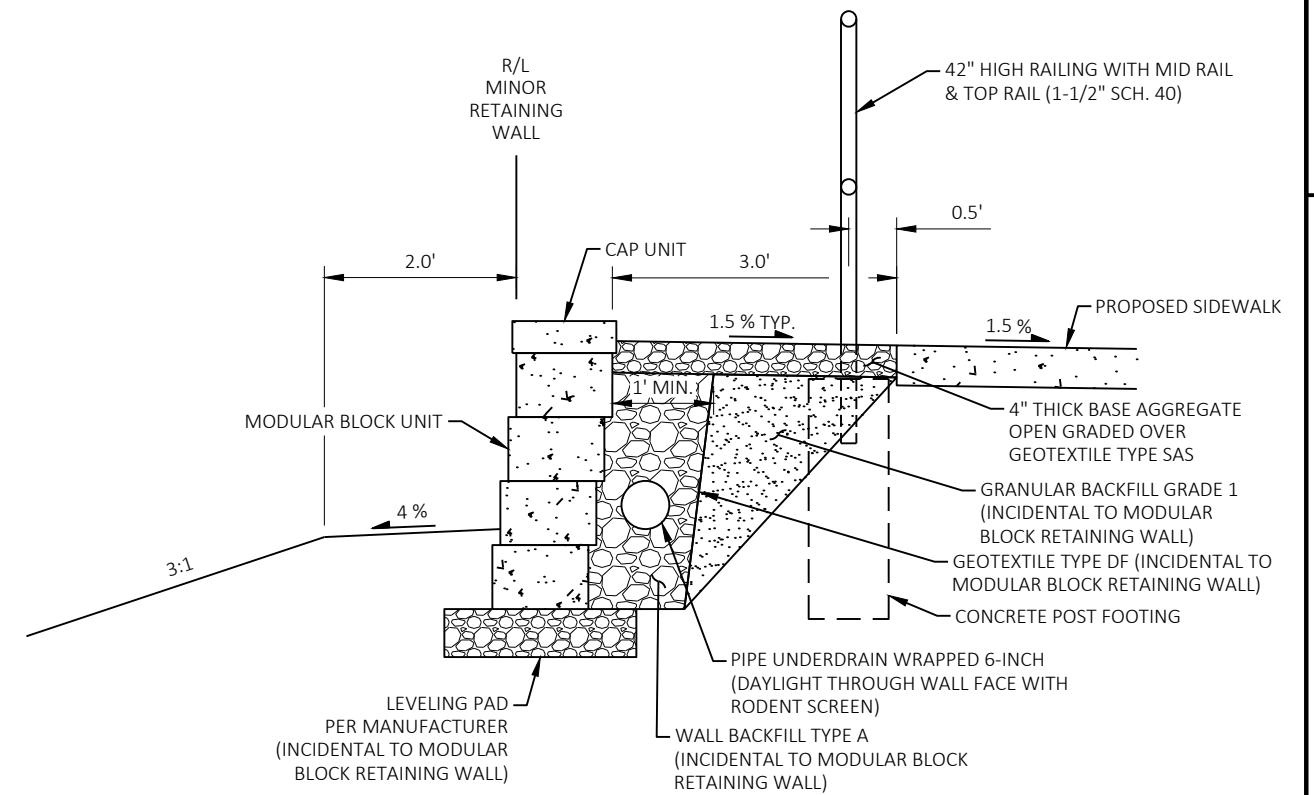
(2:1 VERTICAL EXAGGERATION)

SOIL PARAMETERS

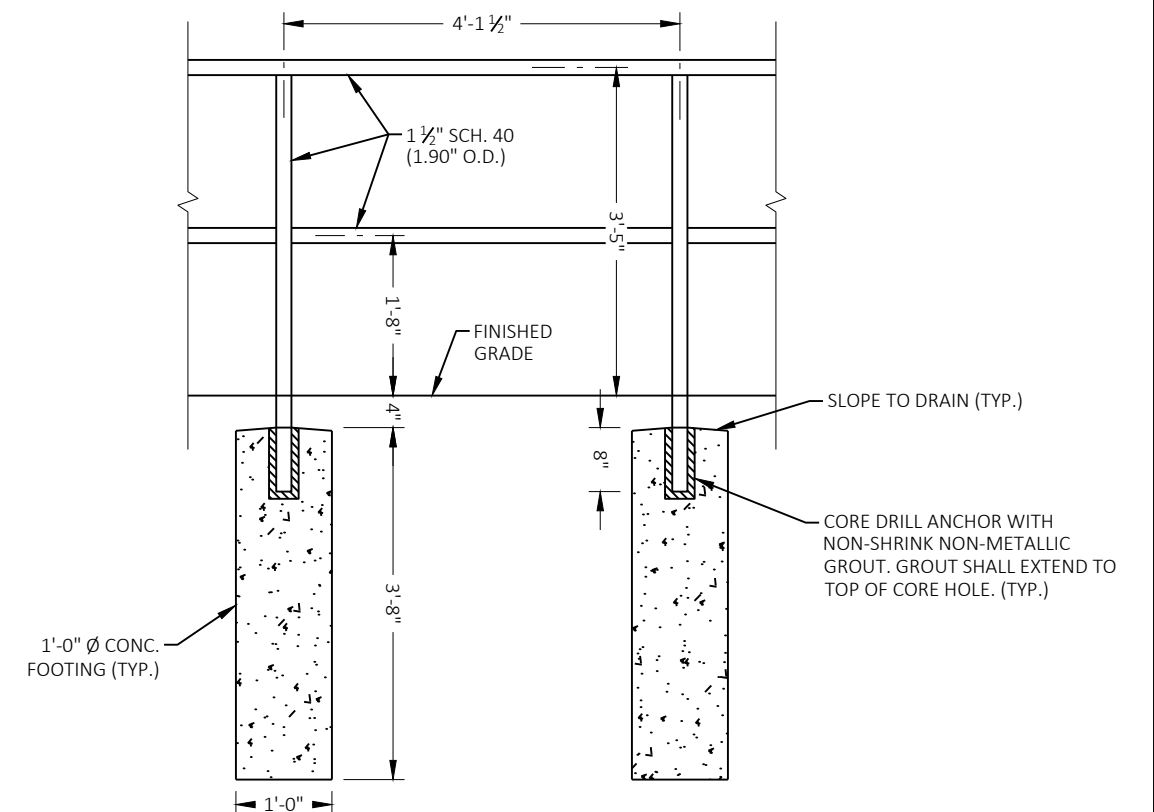
STRATUM LOCATIONS	TOTAL UNIT WEIGHT (PCF)	FRICTION ANGLE (DEGREES)	COHESION (PCF)
GRANULAR BACKFILL (REINFORCING ZONE OR BACKFILL)	120	30	0
RETAINED SOIL *	125	28	0

* DESIGN WALL FOR THESE VALUES

MODULAR BLOCK RETAINING WALL



TYPICAL SECTION



RAILING DETAIL

PROJECT NO: 3852-06-70

HWY: LOCAL STREET

COUNTY: WAUKESHA

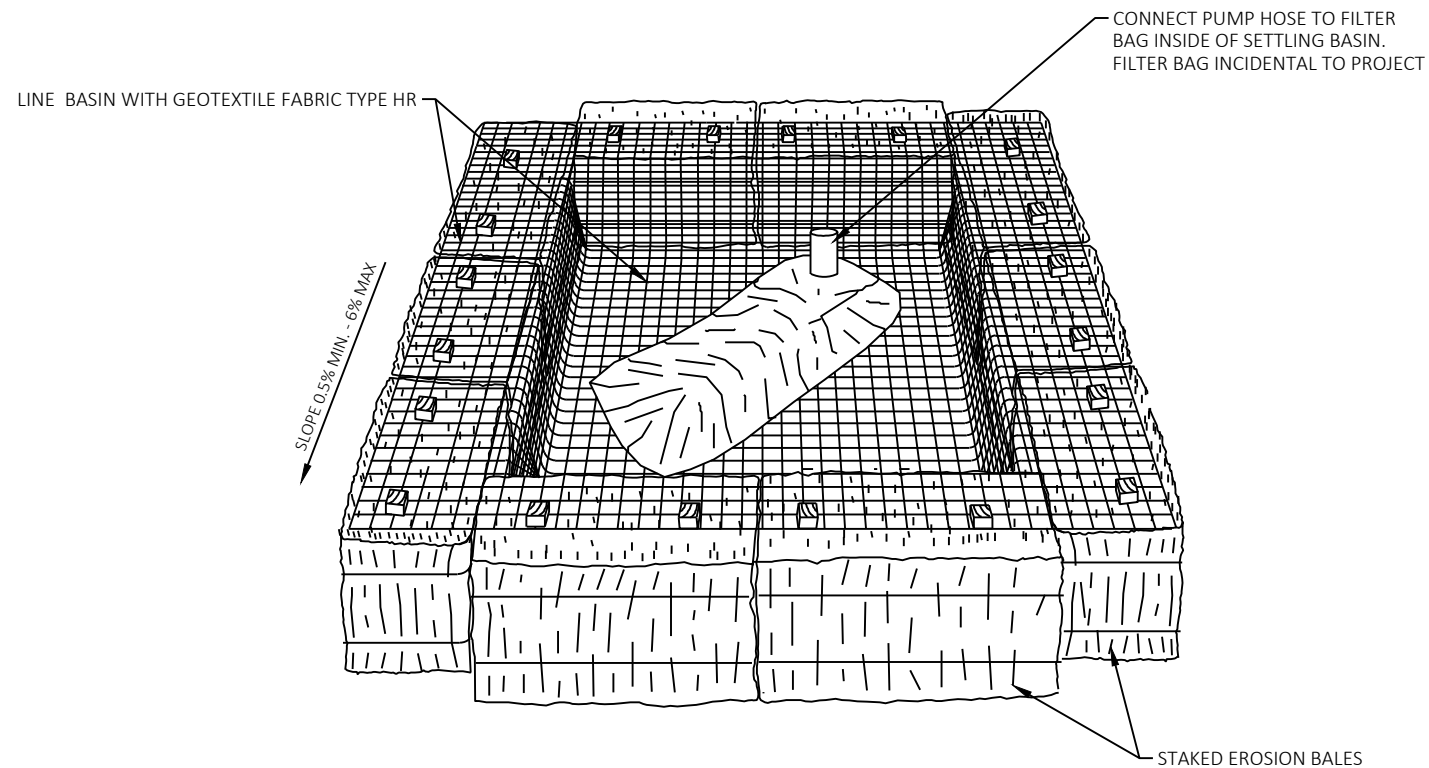
CONSTRUCTION DETAILS

SHEET

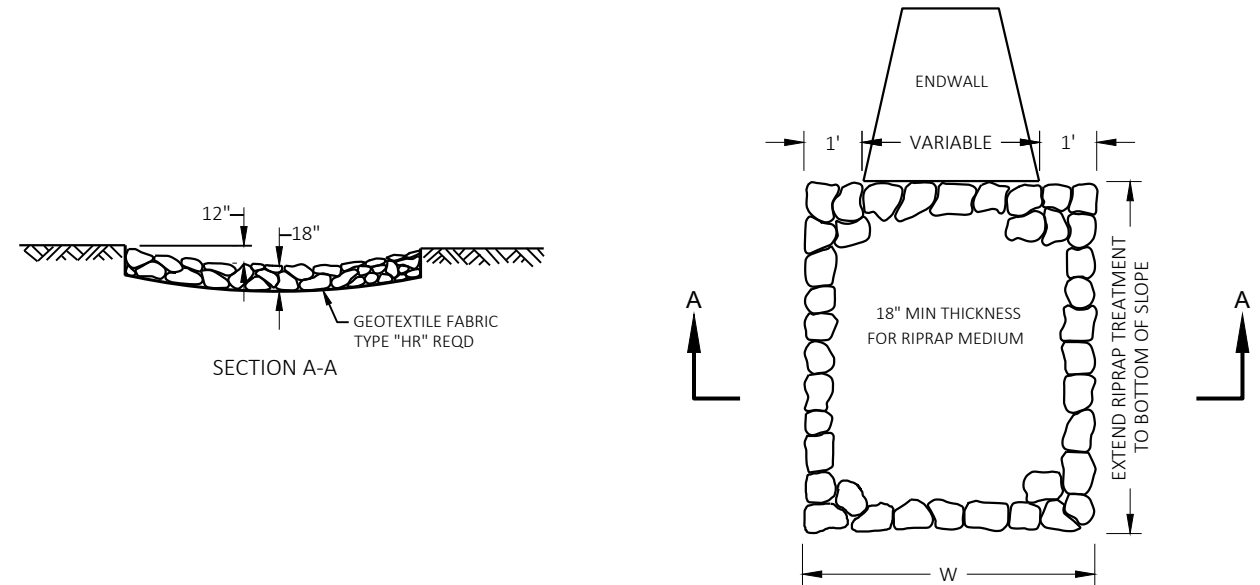
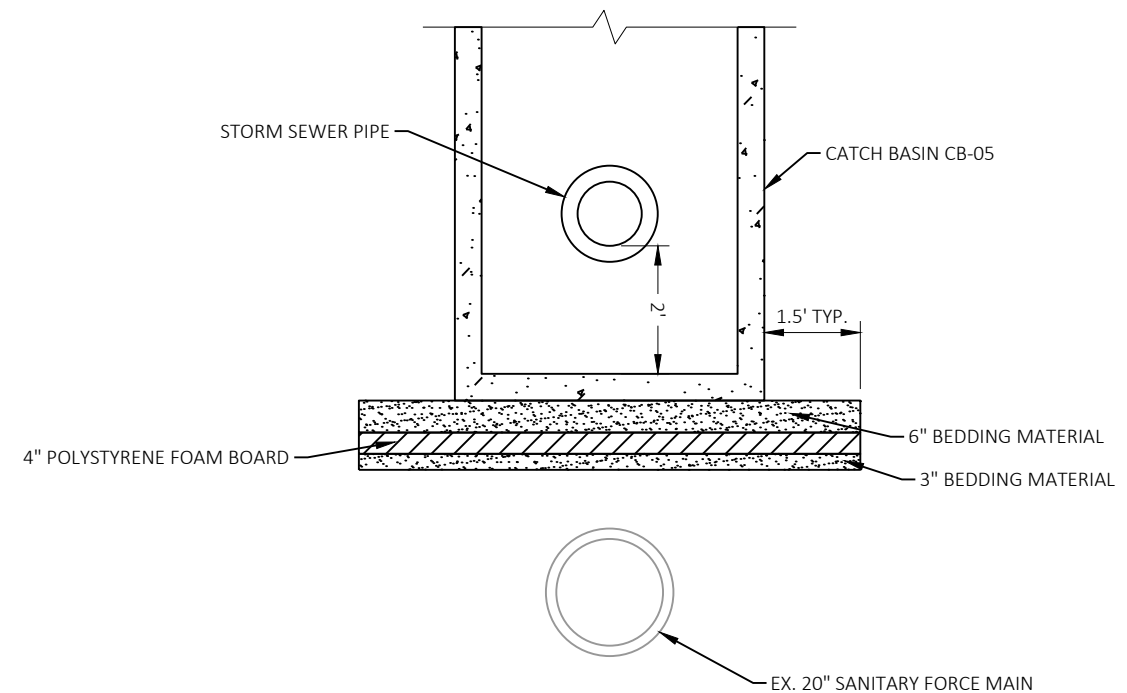
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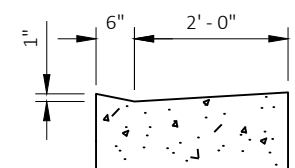
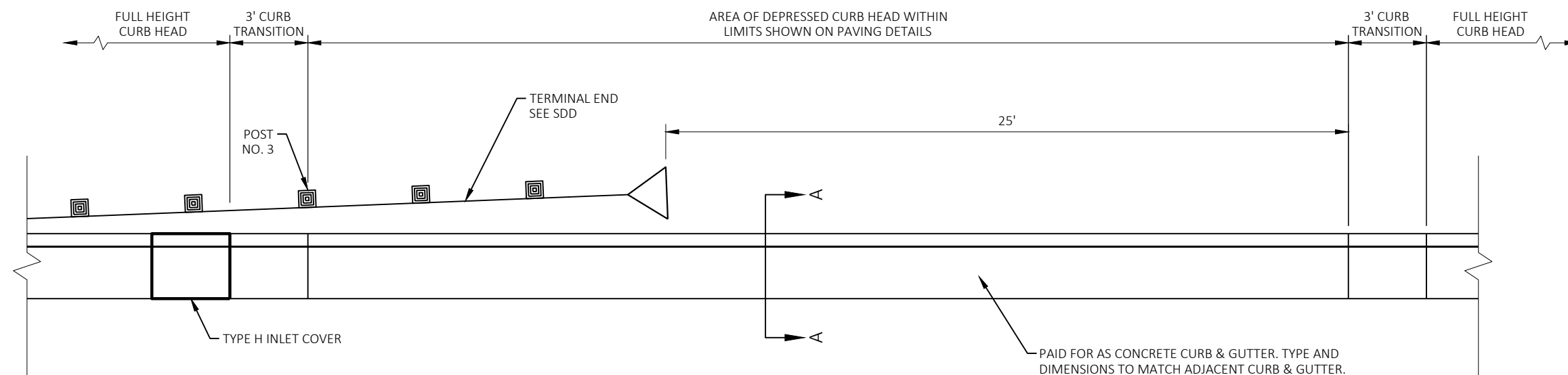
NOTES:

1. PUMP FROM DEWATERING OPERATIONS INTO TEMPORARY SETTLING BASINS PRIOR TO DISCHARGING INTO ROADSIDE DITCHES.
2. BASIN SHALL BE KEPT LESS THAN 10% FULL OF SEDIMENT. GEOTEXTILE FABRIC AND SEDIMENTS SHALL BE DISPOSED BY THE CONTRACTOR OFF THE PROJECT SITE.
3. SETTLING BASIN SHALL BE PLACED IN AN UPLAND, FLAT, VEGETATED AREA OR EQUIVALENT LOCATION APPROVED BY THE ENGINEER.
4. SIZE OF SETTLING BASIN AND FILTER BAG SHALL BE DETERMINED BY THE CONTRACTOR AS PART OF THE EROSION CONTROL IMPLEMENTATION PLAN.
5. ONLY ONE HOSE PER BAG ALLOWED AT A TIME. SIZE BASIN APPROPRIATELY FOR ADDITIONAL BAGS IF MORE THAN ONE HOSE IS NEEDED.
6. THE NECK OF THE BAG WHERE THE HOSE ATTACHES SHALL BE PLACED ON THE UPSTREAM CORNER OF THE SETTLING BASIN.
4. REPLACE SEDIMENT BAG, BALES, AND FABRIC AS NECESSARY OR AS DIRECTED BY THE ENGINEER. REMOVE SPENT BAGS PRIOR TO REPLACING. DO NOT STACK NEW BAG ON TOP OF SPENT BAG.
5. ALL ITEMS ARE INCIDENTAL TO THE CONTRACT. INCLUDING DISPOSAL AND REPLACEMENT OF BAGS AND BASIN MATERIALS

**TEMPORARY SETTLING BASIN WITH SEDIMENT BAG**

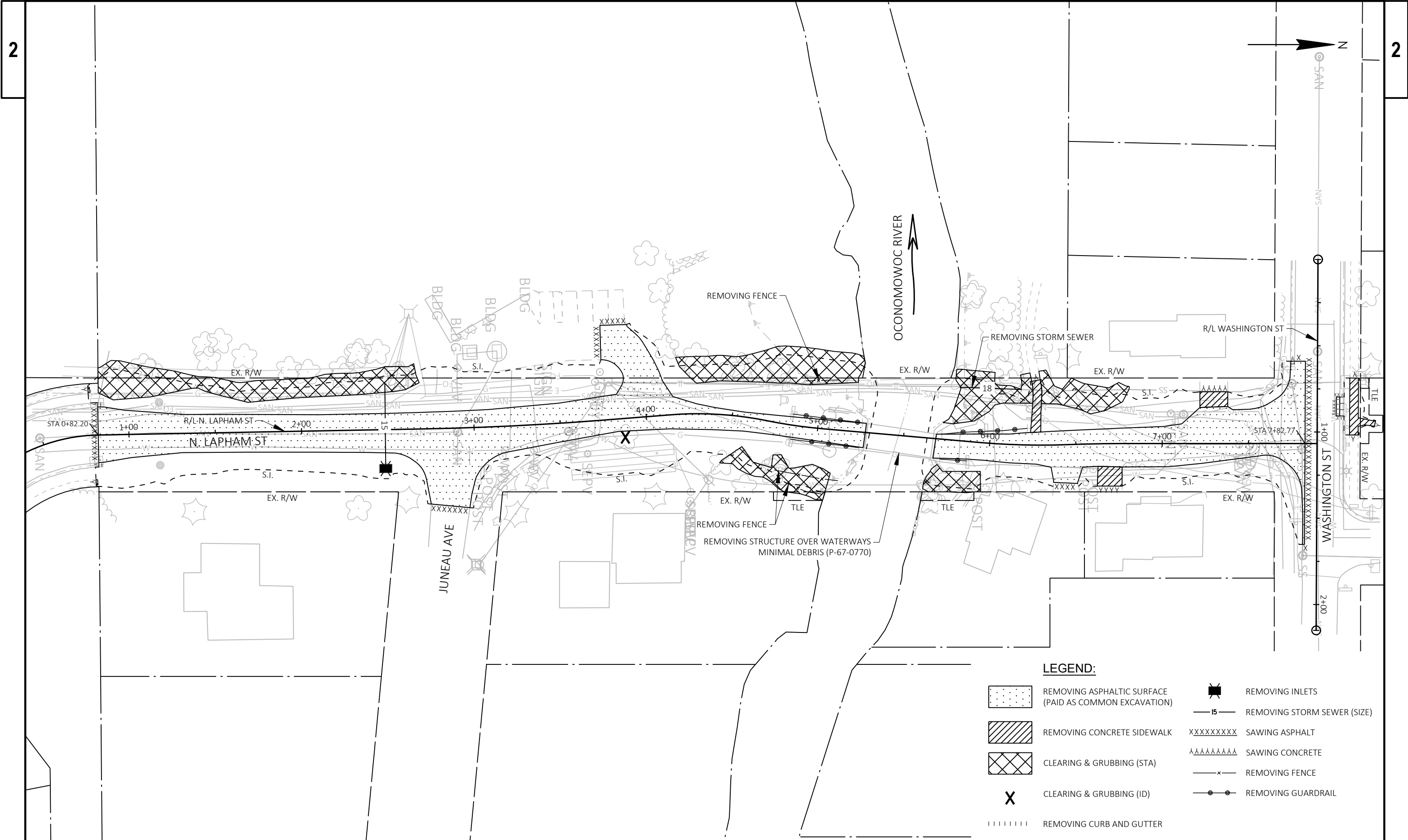
SER (20240905)

**RIPRAP MEDIUM TREATMENT AT CULVERTS****INSULATION BOARD UNDER CATCH BASIN CB-05**



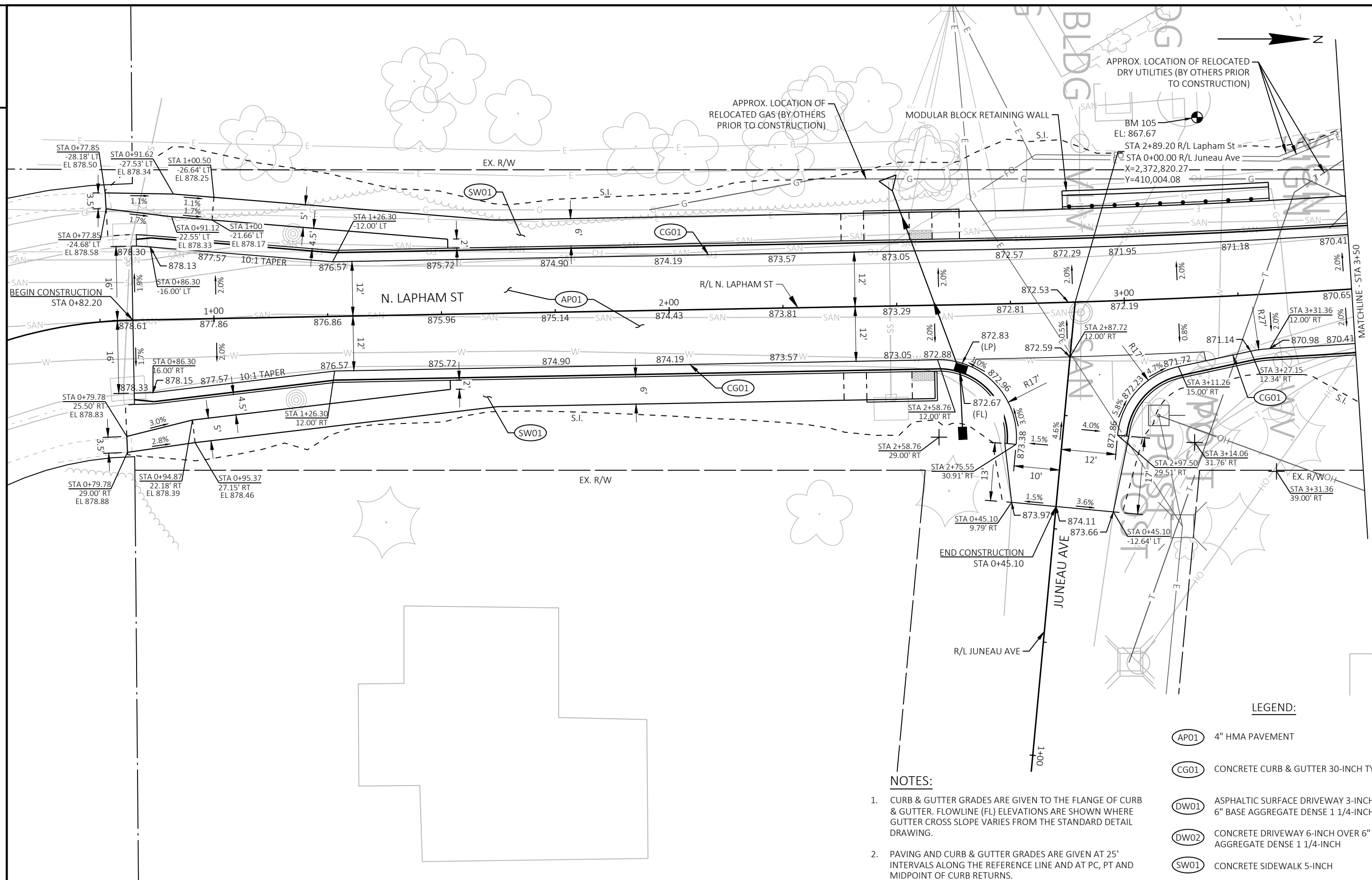
SECTION A-A

DEPRESSED CURB HEAD AT BEAM GUARD TERMINAL



LEGEND:

- | | | | |
|--|---|--|-----------------------------|
| | REMOVING ASPHALTIC SURFACE
(PAID AS COMMON EXCAVATION) | | REMOVING INLETS |
| | REMOVING CONCRETE SIDEWALK | | REMOVING STORM SEWER (SIZE) |
| | CLEARING & GRUBBING (STA) | | SAWING ASPHALT |
| | CLEARING & GRUBBING (ID) | | SAWING CONCRETE |
| | REMOVING CURB AND GUTTER | | REMOVING FENCE |
| | | | REMOVING GUARDRAIL |



PROJECT NO: 3852-06-70

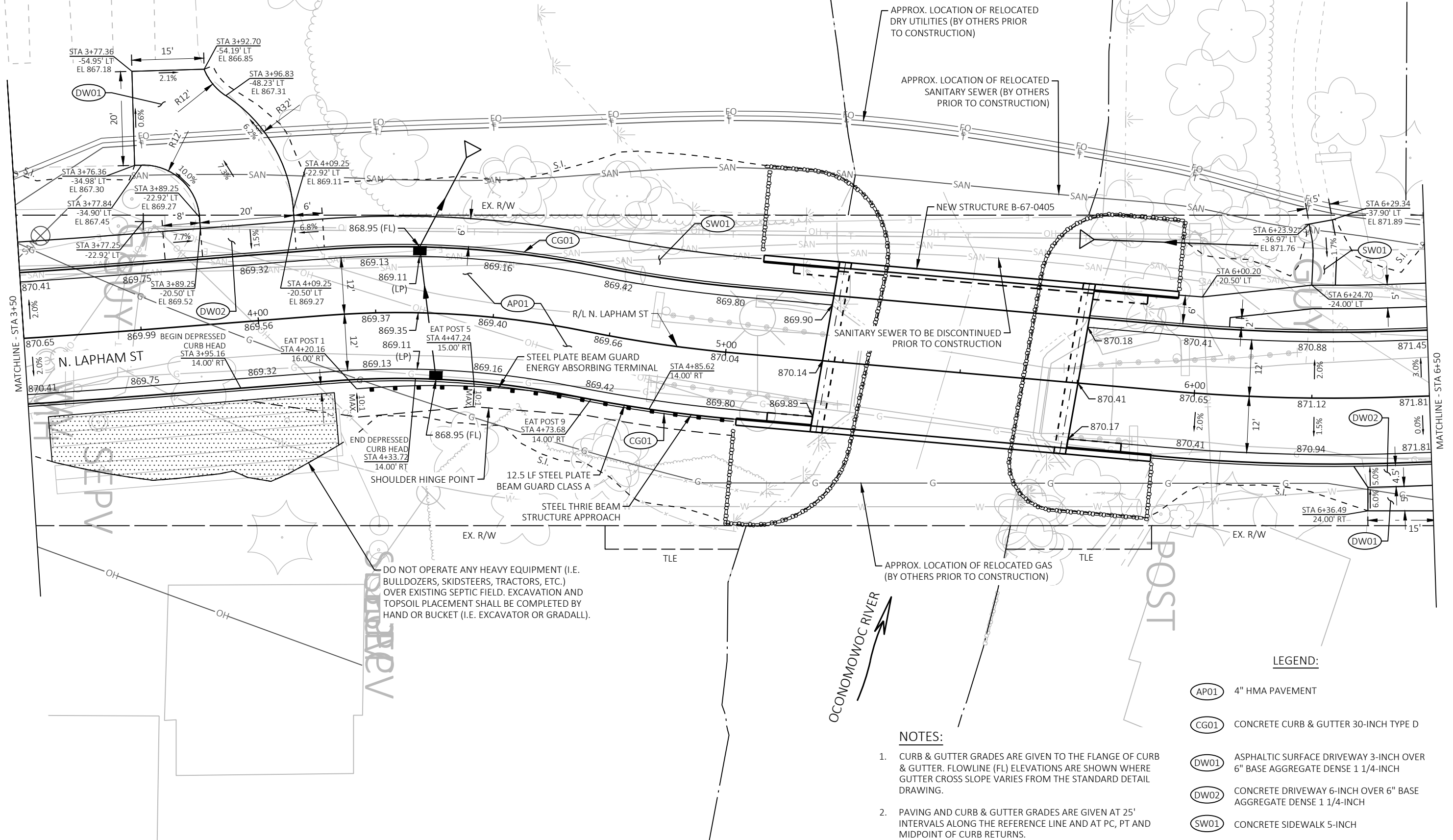
HWY: LOCAL STREET

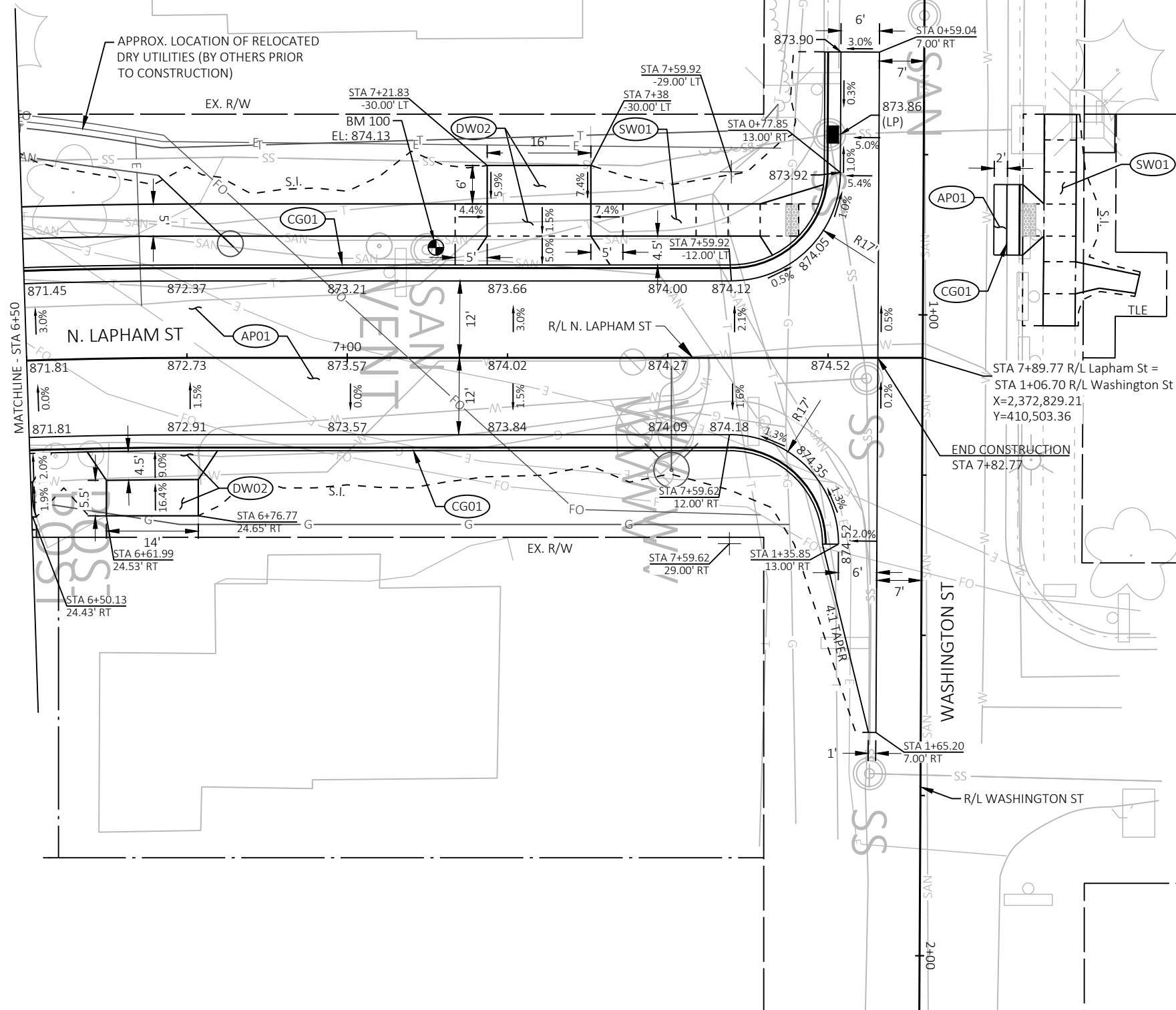
COUNTY: WAUKESHA

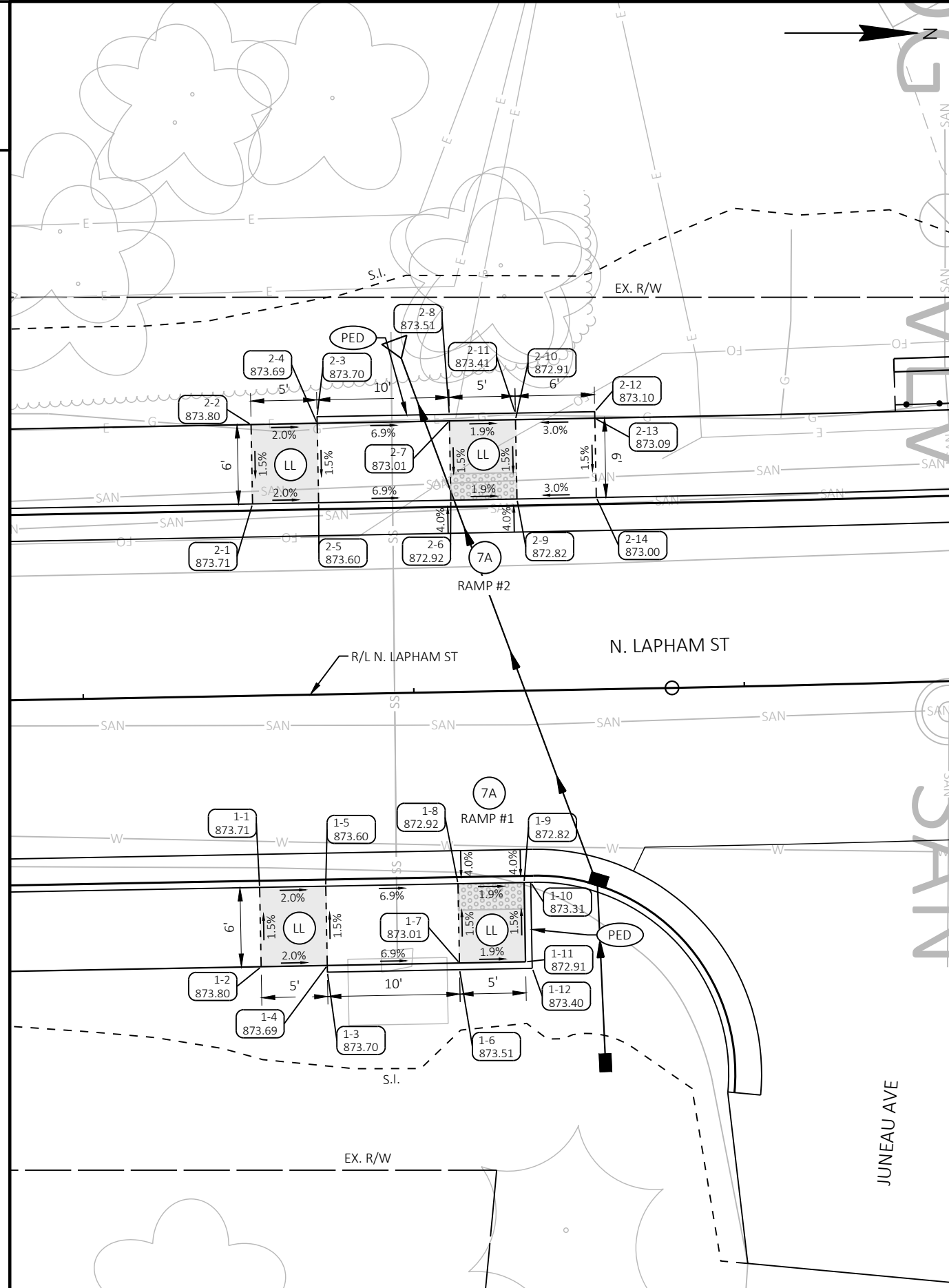
PLAN DETAILS

SHEET

E



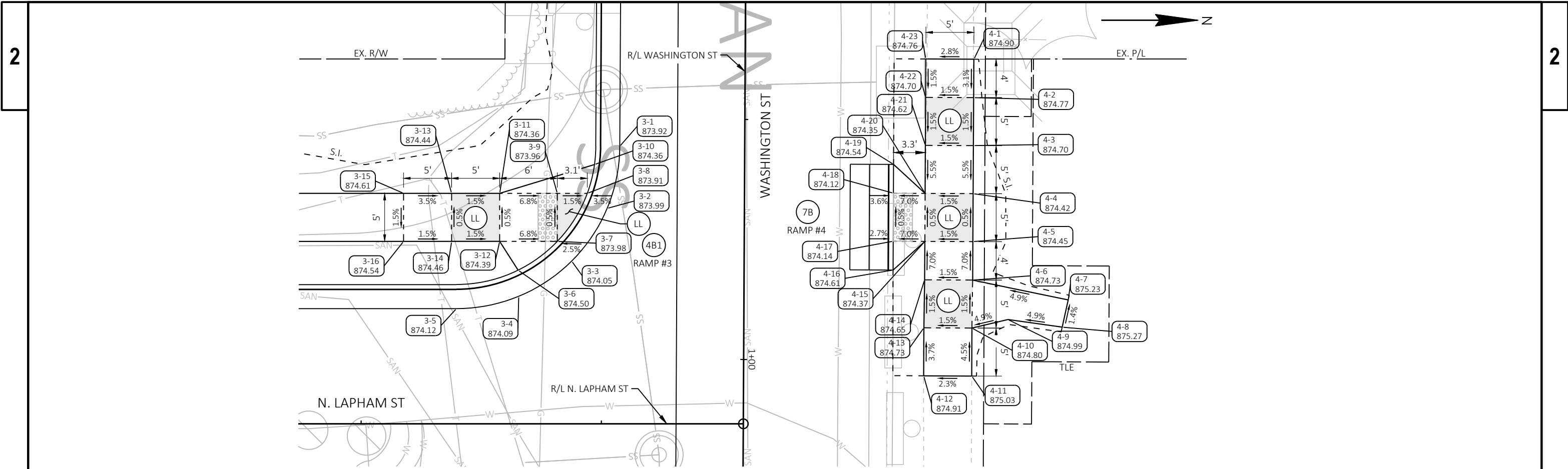




POINT TABLE					
POINT NUMBER	STATION	OFFSET	ELEVATION	NORTHING	EASTING
1-1	2+38.07	14.50' RT	873.71	409953.24	2372835.83
1-2	2+38.07	20.50' RT	873.80	409953.35	2372841.83
1-3	2+43.07	21.00' RT	873.70	409958.36	2372842.23
1-4	2+43.07	20.50' RT	873.69	409958.35	2372841.73
1-5	2+43.07	14.50' RT	873.60	409958.23	2372835.73
1-6	2+53.07	21.00' RT	873.51	409968.35	2372842.05
1-7	2+53.07	20.50' RT	873.01	409968.34	2372841.55
1-8	2+53.07	14.50' RT	872.92	409968.23	2372835.55
1-9	2+58.07	14.50' RT	872.82	409973.23	2372835.46
1-10	2+58.57	14.51' RT	873.31	409973.74	2372835.46
1-11	2+58.07	20.50' RT	872.91	409973.34	2372841.45
1-12	2+58.57	21.00' RT	873.40	409973.85	2372841.94
2-1	2+38.07	14.50' LT	873.71	409952.70	2372806.83
2-2	2+38.07	20.50' LT	873.80	409952.59	2372800.83
2-3	2+43.07	21.00' LT	873.70	409957.58	2372800.24
2-4	2+43.07	20.50' LT	873.69	409957.58	2372800.74
2-5	2+43.07	14.50' LT	873.60	409957.70	2372806.74
2-6	2+53.07	14.50' LT	872.92	409967.69	2372806.55
2-7	2+53.07	20.50' LT	873.01	409967.58	2372800.55
2-8	2+53.07	21.00' LT	873.51	409967.57	2372800.05
2-9	2+58.07	14.50' LT	872.82	409972.69	2372806.46
2-10	2+58.07	20.50' LT	872.91	409972.58	2372800.46
2-11	2+58.07	21.00' LT	873.41	409972.57	2372799.96
2-12	2+64.07	21.00' LT	873.10	409978.57	2372799.85
2-13	2+64.07	20.50' LT	873.09	409978.58	2372800.35
2-14	2+64.07	14.50' LT	873.00	409978.69	2372806.35

- CURB RAMP NUMBER & TYPE
RAMP #X
- POINT NUMBER & ELEVATION
XX
YY.YY
- LEVEL LANDING
LL
- CONCRETE PEDESTRIAN CURB
PED

1. CONTRACTOR TO FIELD VERIFY ELEVATION, GRADES, SLOPES, LENGTHS AND MATCH POINTS PRIOR TO CURB RAMP AND SIDEWALK CONSTRUCTION.
2. THE ENGINEER MAY ADJUST ELEVATIONS TO FIT FIELD CONSTRUCTION.
3. DASHED LINES SHOWN FOR PROPOSED SIDEWALK ARE FOR INFORMATION ONLY AND DO NOT INDICATE JOINT LOCATIONS.
4. SEE STANDARD DETAIL DRAWINGS FOR COMPLETE CURB RAMP REQUIREMENTS.
5. ALL STATION AND OFFSET INFORMATION REFERENCES N. LAPHAM ST.
6. ALL CURB RAMP FLARES ARE 3' WIDE PAVED NON-TRAVERSABLE.



POINT TABLE					
POINT NUMBER	STATION	OFFSET	ELEVATION	NORTHING	EASTING
3-1	0+77.85	13.00' RT	873.92	410490.51	2372800.29
3-2	0+84.34	14.29' RT	873.99	410489.19	2372806.77
3-3	0+89.84	17.95' RT	874.05	410485.50	2372812.26
3-4	0+93.53	23.43' RT	874.09	410479.99	2372815.92
3-5	0+94.85	29.91' RT	874.12	410473.51	2372817.21
3-6	0+90.82	23.51' RT	874.50	410479.93	2372813.21
3-7	0+87.80	19.45' RT	873.98	410484.01	2372810.21
3-8	0+82.78	16.36' RT	873.91	410487.12	2372805.21
3-9	0+82.80	19.47' RT	873.96	410484.01	2372805.21
3-10	0+79.78	15.63' RT	874.36	410487.87	2372802.21
3-11	0+82.83	25.47' RT	874.36	410478.01	2372805.21
3-12	0+87.83	25.45' RT	874.39	410478.01	2372810.21
3-13	0+82.86	30.47' RT	874.44	410473.01	2372805.21
3-14	0+87.86	30.45' RT	874.46	410473.01	2372810.21
3-15	0+82.88	35.47' RT	874.61	410468.01	2372805.21
3-16	0+87.88	35.45' RT	874.54	410468.01	2372810.21
4-1	0+68.60	23.80' LT	874.90	410527.35	2372791.23
4-2	0+72.60	23.80' LT	874.77	410527.33	2372795.23
4-3	0+77.60	23.80' LT	874.70	410527.31	2372800.23
4-4	0+82.60	23.80' LT	874.42	410527.28	2372805.23

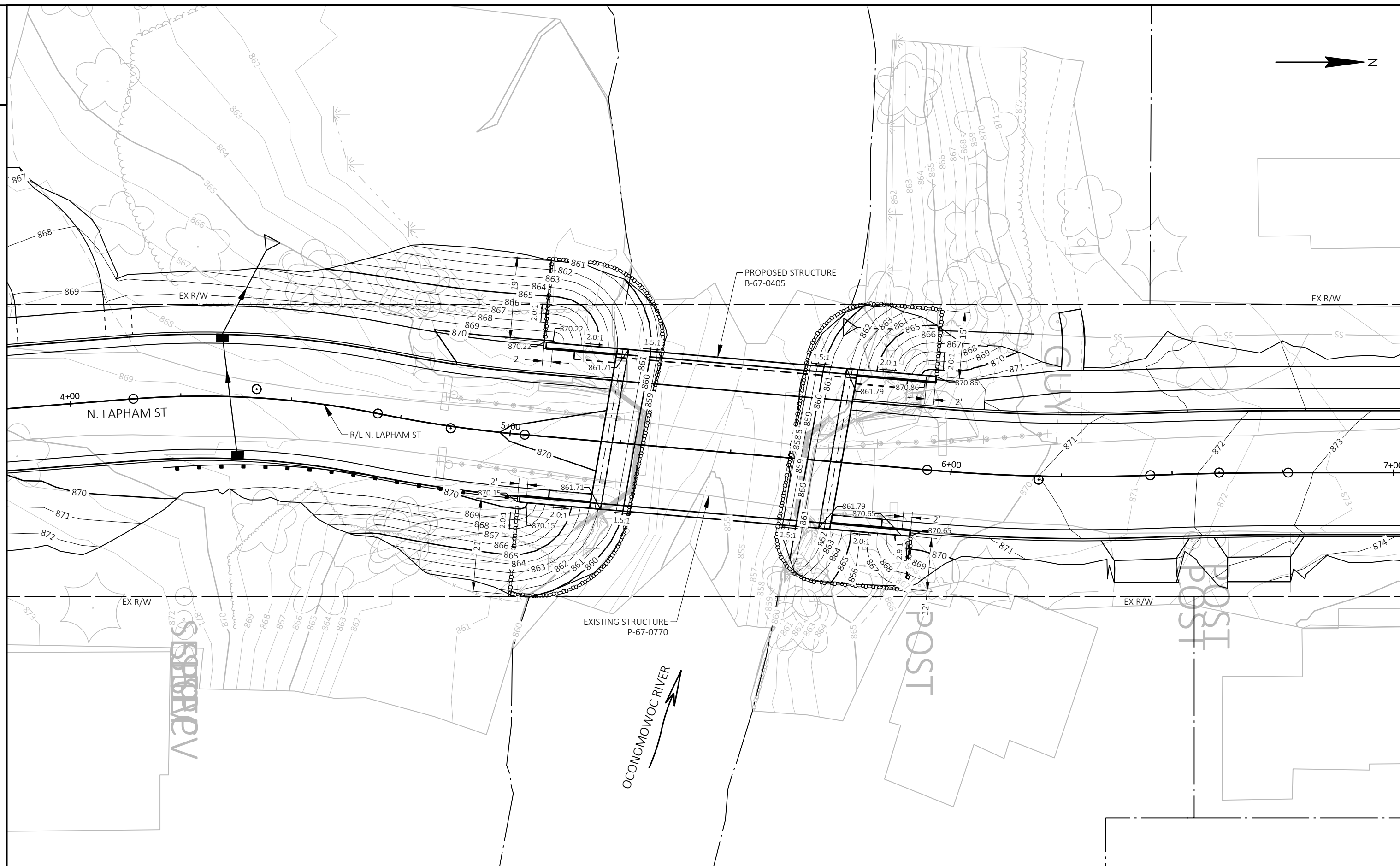
POINT TABLE					
POINT NUMBER	STATION	OFFSET	ELEVATION	NORTHING	EASTING
4-5	0+87.60	23.79' LT	874.45	410527.25	2372810.23
4-6	0+91.60	23.79' LT	874.73	410527.22	2372814.23
4-7	0+93.63	33.75' LT	875.23	410537.17	2372816.30
4-8	0+96.46	33.13' LT	875.27	410536.54	2372819.14
4-9	0+95.70	27.49' LT	874.99	410530.90	2372818.35
4-10	0+96.60	23.74' LT	874.80	410527.15	2372819.23
4-11	1+01.60	23.75' LT	875.03	410527.13	2372824.23
4-12	1+01.60	18.74' LT	874.91	410522.13	2372824.21
4-13	0+96.60	18.74' LT	874.73	410522.15	2372819.21
4-14	0+91.60	18.79' LT	874.65	410522.22	2372814.21
4-15	0+87.60	18.80' LT	874.37	410522.26	2372810.21
4-16	0+90.60	15.50' LT	874.61	410518.94	2372813.19
4-17	0+87.60	15.50' LT	874.14	410518.96	2372810.19
4-18	0+82.60	15.50' LT	874.12	410518.98	2372805.19
4-19	0+79.60	15.50' LT	874.54	410519.00	2372802.19
4-20	0+82.60	18.80' LT	874.35	410522.28	2372805.21
4-21	0+77.60	18.80' LT	874.62	410522.31	2372800.21
4-22	0+72.60	18.80' LT	874.70	410522.33	2372795.21
4-23	0+68.60	18.80' LT	874.76	410522.35	2372791.21

LEGEND:

- (X) CURB RAMP NUMBER & TYPE
RAMP #X
- XX
YYY.YY POINT NUMBER & ELEVATION
- (LL) LEVEL LANDING
- (PED) CONCRETE PEDESTRIAN CURB

NOTES:

- CONTRACTOR TO FIELD VERIFY ELEVATION, GRADES, SLOPES, LENGTHS AND MATCH POINTS PRIOR TO CURB RAMP AND SIDEWALK CONSTRUCTION.
- THE ENGINEER MAY ADJUST ELEVATIONS TO FIT FIELD CONSTRUCTION.
- DASHED LINES SHOWN FOR PROPOSED SIDEWALK ARE FOR INFORMATION ONLY AND DO NOT INDICATE JOINT LOCATIONS.
- SEE STANDARD DETAIL DRAWINGS FOR COMPLETE CURB RAMP REQUIREMENTS.
- ALL STATION AND OFFSET INFORMATION REFERENCES WASHINGTON ST.
- ALL CURB RAMP FLARES ARE 3' WIDE PAVED NON-TRAVERSABLE.



PROJECT NO: 3852-06-70

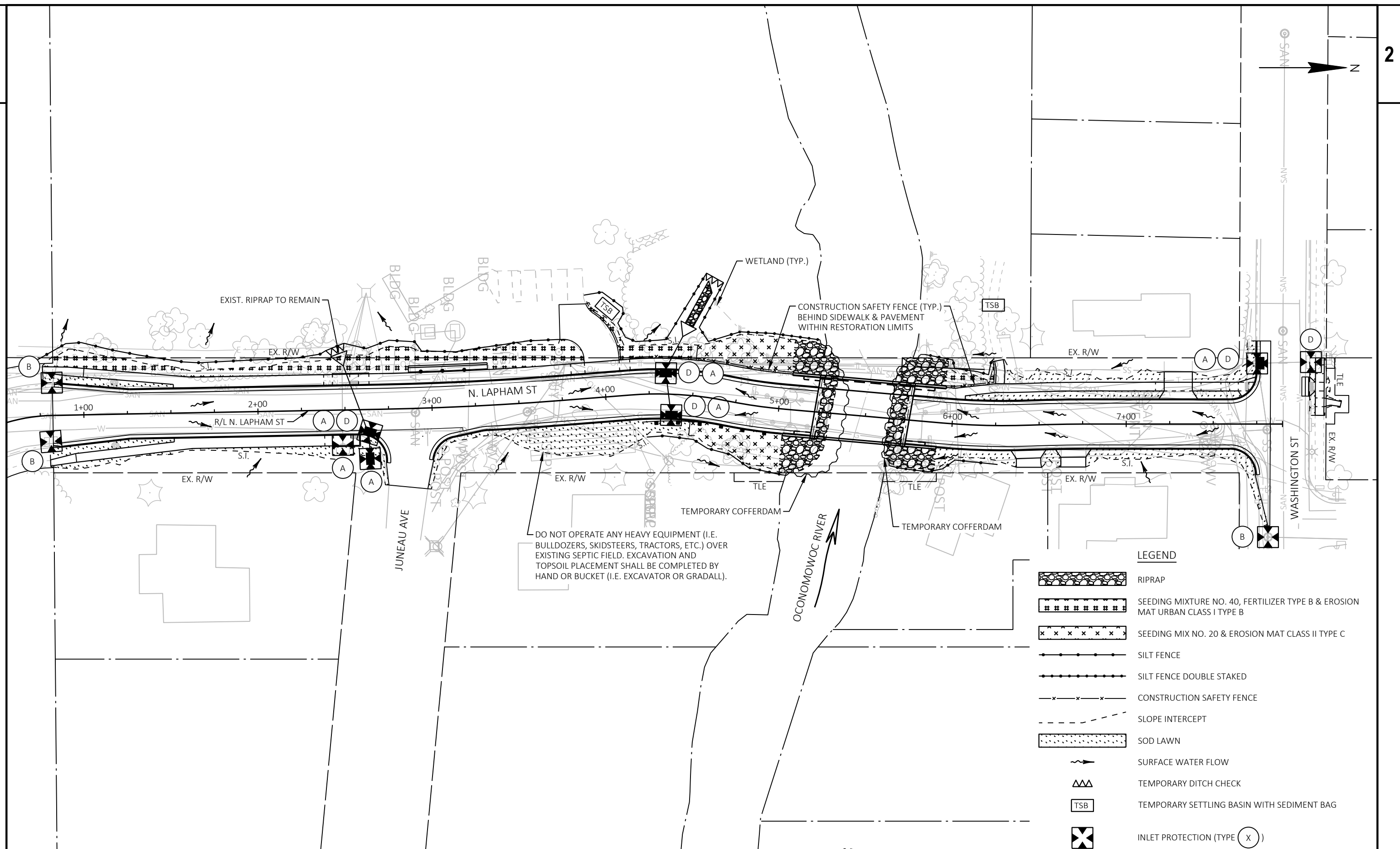
HWY: LOCAL STREET

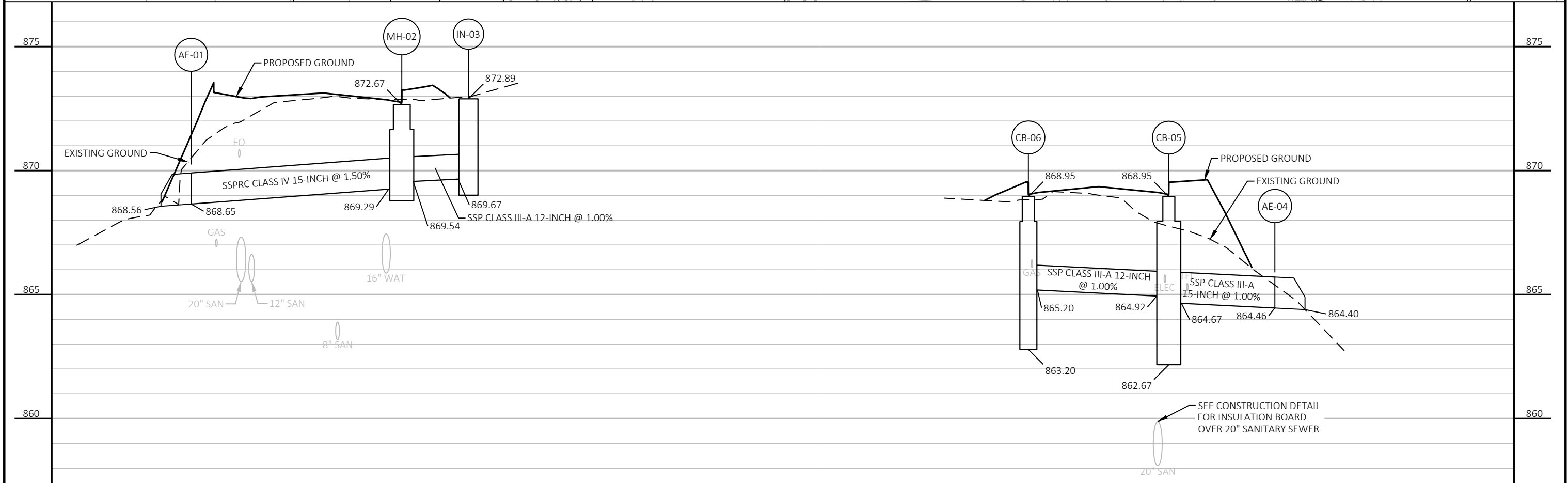
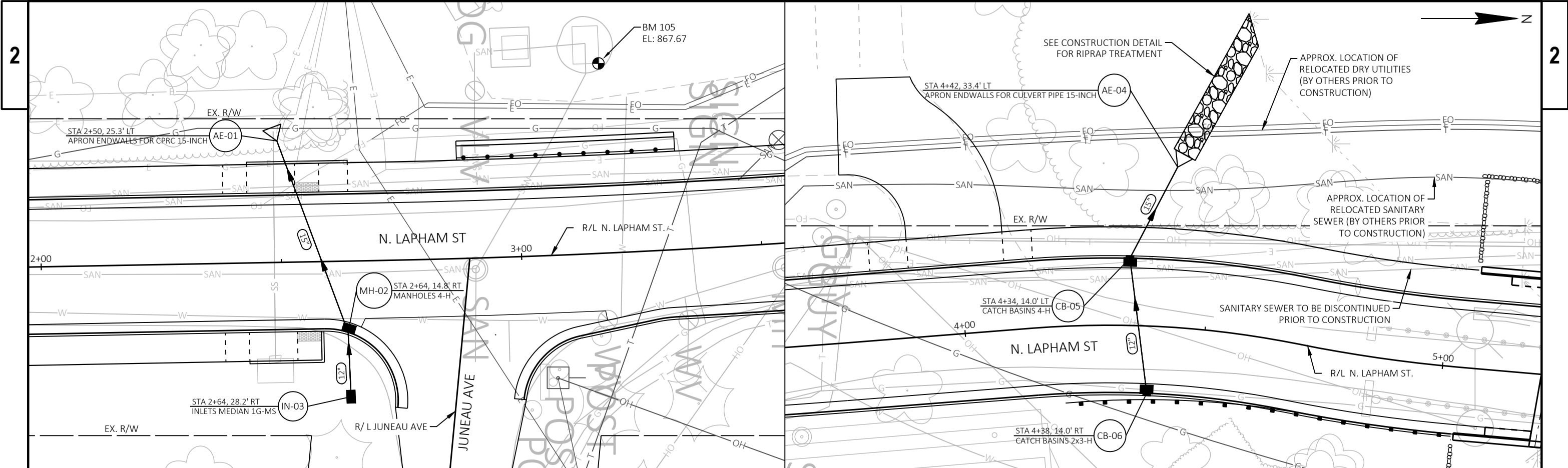
COUNTY: WAUKESHA

CONTOUR MAP

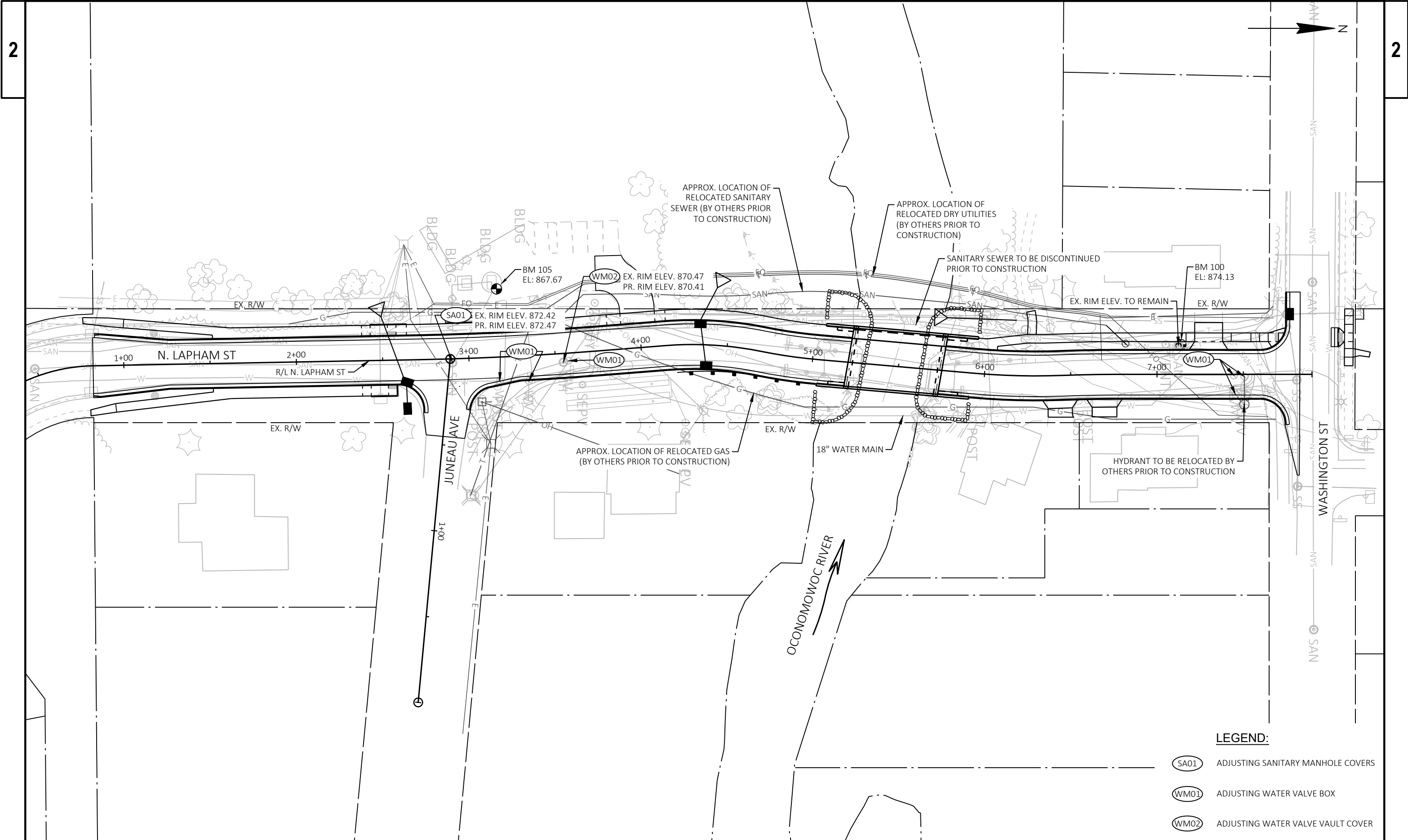
SHEET

E

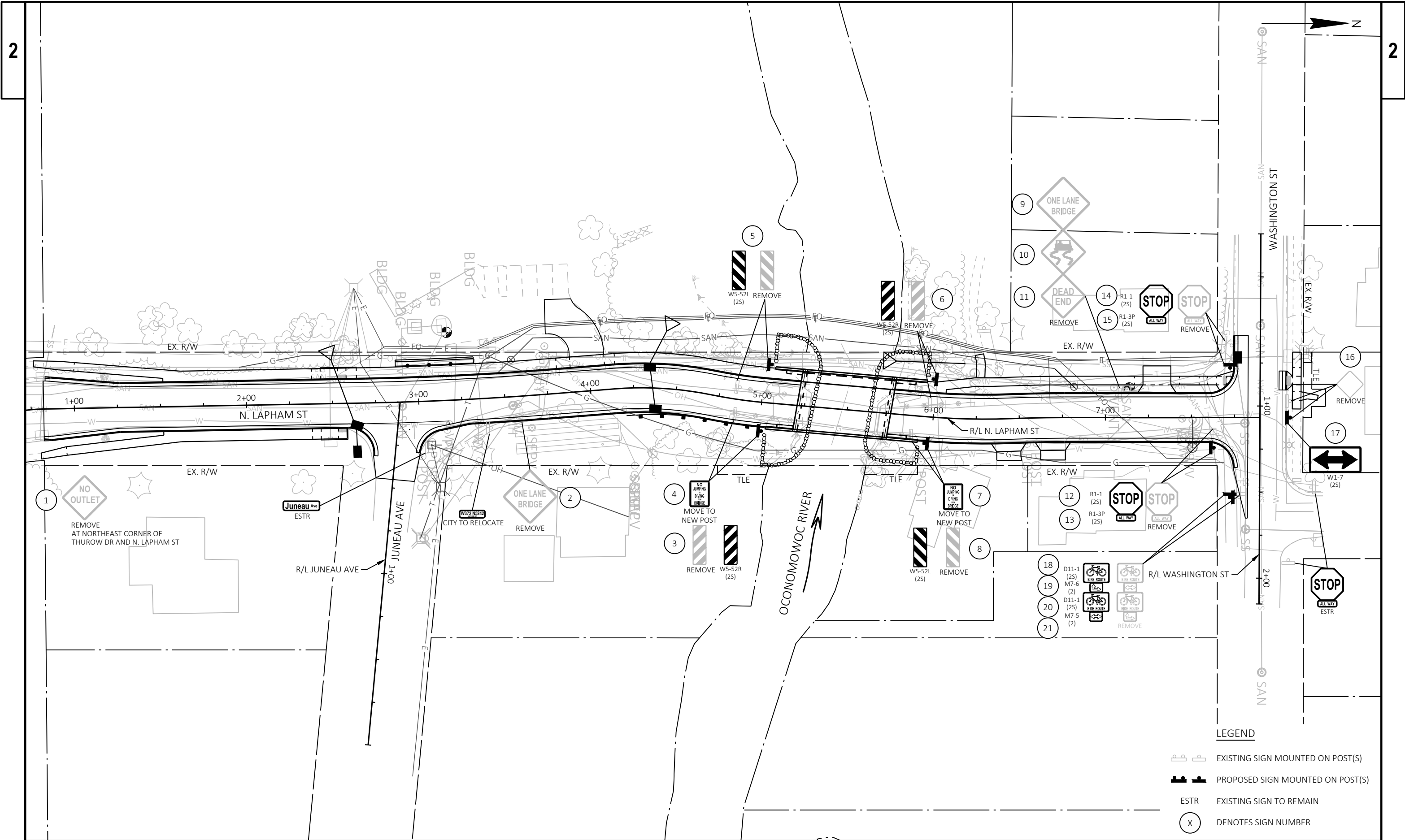


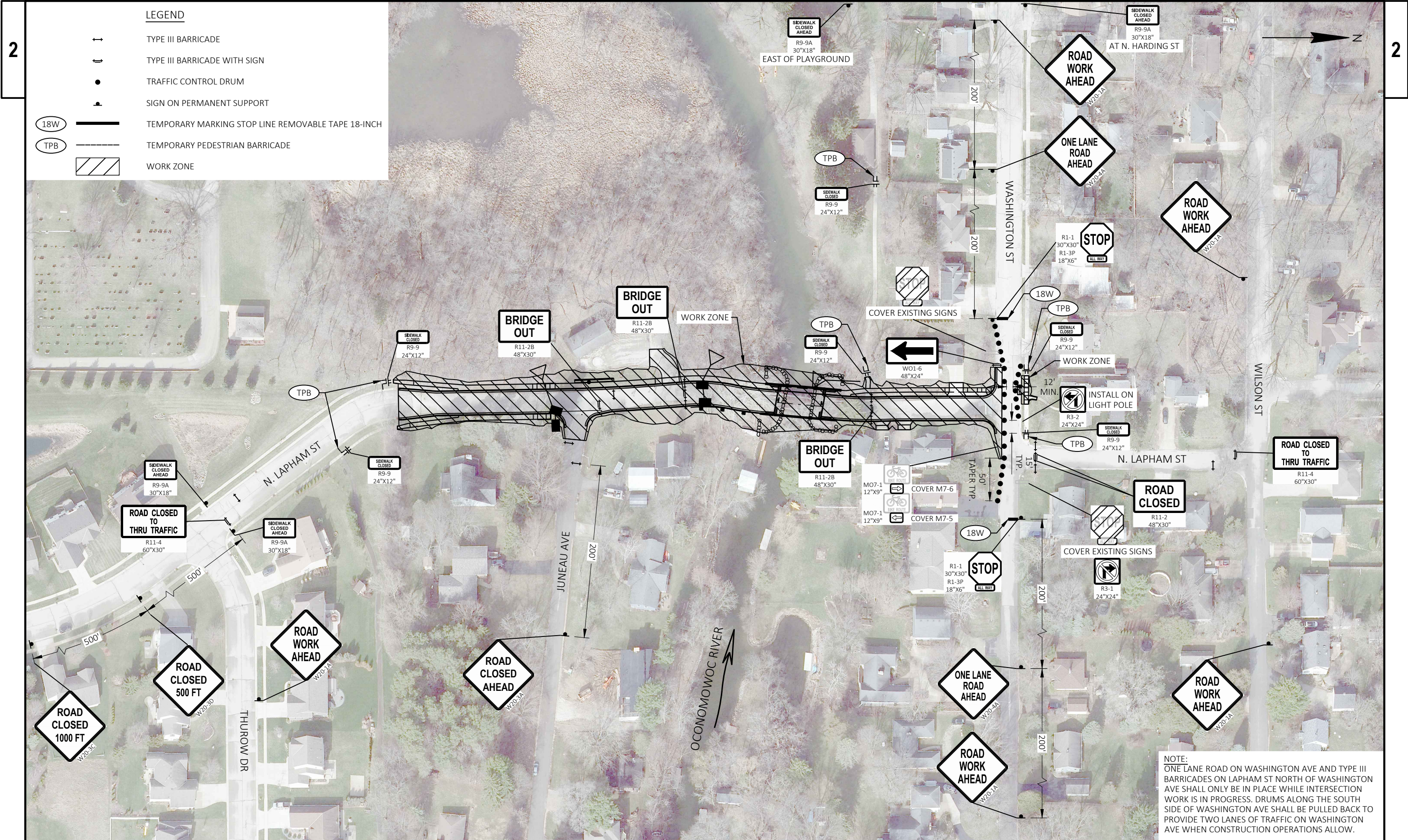


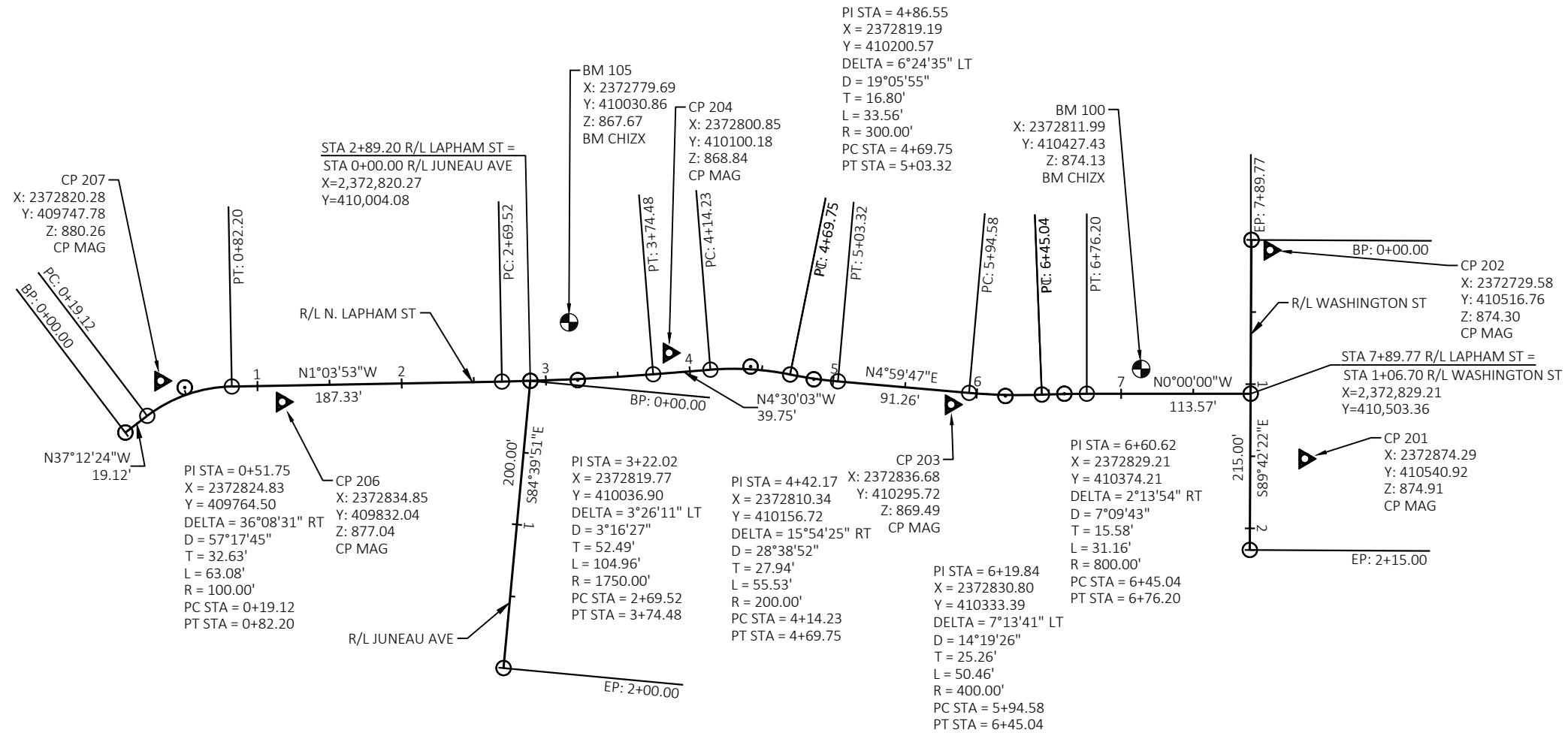
PROJECT NO: 3852-06-70	HWY: LOCAL STREET	COUNTY: WAUKESHA	STORM SEWER PLAN	SHEET	E
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- LEGEND:**
- SA01 ADJUSTING SANITARY MANHOLE COVERS
 - WM01 ADJUSTING WATER VALVE BOX
 - WM02 ADJUSTING WATER VALVE VAULT COVER







Estimate Of Quantities

3852-06-70

Line	Item	Item Description	Unit	Total	Qty
0002	201.0105	Clearing	STA	6.000	6.000
0004	201.0120	Clearing	ID	24.000	24.000
0006	201.0205	Grubbing	STA	6.000	6.000
0008	201.0220	Grubbing	ID	24.000	24.000
0010	203.0211.S	Abatement of Asbestos Containing Material (structure) 01. P-67-0770	EACH	1.000	1.000
0012	203.0260	Removing Structure Over Waterway Minimal Debris (structure) 01. P-67-0770	EACH	1.000	1.000
0014	204.0150	Removing Curb & Gutter	LF	20.000	20.000
0016	204.0155	Removing Concrete Sidewalk	SY	76.000	76.000
0018	204.0165	Removing Guardrail	LF	147.000	147.000
0020	204.0170	Removing Fence	LF	81.000	81.000
0022	204.0220	Removing Inlets	EACH	1.000	1.000
0024	204.0245	Removing Storm Sewer (size) 01. 15-Inch	LF	50.000	50.000
0026	204.0245	Removing Storm Sewer (size) 02. 18-Inch	LF	36.000	36.000
0028	205.0100	Excavation Common	CY	949.000	949.000
0030	206.1001	Excavation for Structures Bridges (structure) 01. B-67-0405	EACH	1.000	1.000
0032	206.5001	Cofferdams (structure) 01. B-67-0405	EACH	1.000	1.000
0034	208.0100	Borrow	CY	43.000	43.000
0036	210.1500	Backfill Structure Type A	TON	509.000	509.000
0038	213.0100	Finishing Roadway (project) 01. 3852-06-70	EACH	1.000	1.000
0040	305.0110	Base Aggregate Dense 3/4-Inch	TON	338.000	338.000
0042	305.0120	Base Aggregate Dense 1 1/4-Inch	TON	1,241.000	1,241.000
0044	310.0110	Base Aggregate Open-Graded	TON	4.000	4.000
0046	311.0110	Breaker Run	TON	62.000	62.000
0048	455.0605	Tack Coat	GAL	136.000	136.000
0050	460.2000	Incentive Density HMA Pavement	DOL	310.000	310.000
0052	460.5223	HMA Pavement 3 LT 58-28 S	TON	278.000	278.000
0054	460.5225	HMA Pavement 5 LT 58-28 S	TON	168.000	168.000
0056	465.0120	Asphaltic Surface Driveways and Field Entrances	TON	17.000	17.000
0058	502.0100	Concrete Masonry Bridges	CY	307.000	307.000
0060	502.3200	Protective Surface Treatment	SY	170.000	170.000
0062	502.3210	Pigmented Surface Sealer	SY	88.000	88.000
0064	505.0400	Bar Steel Reinforcement HS Structures	LB	5,650.000	5,650.000
0066	505.0600	Bar Steel Reinforcement HS Coated Structures	LB	43,190.000	43,190.000
0068	513.7006	Railing Steel Type C1	LF	178.000	178.000
0070	516.0500	Rubberized Membrane Waterproofing	SY	20.000	20.000
0072	517.1050.S	Architectural Surface Treatment (structure) 01. B-67-0405	SF	354.000	354.000
0074	520.1015	Apron Endwalls for Culvert Pipe 15-Inch	EACH	1.000	1.000
0076	522.1015	Apron Endwalls for Culvert Pipe Reinforced Concrete 15-Inch	EACH	1.000	1.000
0078	522.1018	Apron Endwalls for Culvert Pipe Reinforced Concrete 18-Inch	EACH	1.000	1.000
0080	550.0010	Pre-Boring Unconsolidated Materials	LF	40.000	40.000
0082	550.0500	Pile Points	EACH	18.000	18.000
0084	550.1125	Piling Steel HP 12-Inch X 74 Lb	LF	495.000	495.000
0086	601.0411	Concrete Curb & Gutter 30-Inch Type D	LF	1,281.000	1,281.000
0088	601.0600	Concrete Curb Pedestrian	LF	42.000	42.000
0090	602.0410	Concrete Sidewalk 5-Inch	SF	4,690.000	4,690.000
0092	602.0505	Curb Ramp Detectable Warning Field Yellow	SF	40.000	40.000
0094	602.0810	Concrete Driveway 6-Inch	SY	71.000	71.000
0096	606.0200	Riprap Medium	CY	9.000	9.000
0098	606.0300	Riprap Heavy	CY	195.000	195.000

Estimate Of Quantities

3852-06-70

Line	Item	Item Description	Unit	Total	Qty
0100	608.0318	Storm Sewer Pipe Reinforced Concrete Class III 18-Inch	LF	40.000	40.000
0102	608.0415	Storm Sewer Pipe Reinforced Concrete Class IV 15-Inch	LF	43.000	43.000
0104	608.3012	Storm Sewer Pipe Class III-A 12-Inch	LF	42.000	42.000
0106	608.3015	Storm Sewer Pipe Class III-A 15-Inch	LF	22.000	22.000
0108	611.0624	Inlet Covers Type H	EACH	4.000	4.000
0110	611.0642	Inlet Covers Type MS	EACH	1.000	1.000
0112	611.1004	Catch Basins 4-FT Diameter	EACH	1.000	1.000
0114	611.1230	Catch Basins 2x3-FT	EACH	1.000	1.000
0116	611.2004	Manholes 4-FT Diameter	EACH	1.000	1.000
0118	611.3901	Inlets Median 1 Grate	EACH	1.000	1.000
0120	611.8110	Adjusting Manhole Covers	EACH	1.000	1.000
0122	612.0406	Pipe Underdrain Wrapped 6-Inch	LF	163.000	163.000
0124	612.0902.S	Insulation Board Polystyrene (inch) 01. 4-Inch	SY	7.000	7.000
0126	614.0150	Anchor Assemblies for Steel Plate Beam Guard	EACH	1.000	1.000
0128	614.0200	Steel Thrie Beam Structure Approach	LF	20.600	20.600
0130	614.0305	Steel Plate Beam Guard Class A	LF	12.500	12.500
0132	614.0370	Steel Plate Beam Guard Energy Absorbing Terminal	EACH	1.000	1.000
0134	616.0700.S	Fence Safety	LF	225.000	225.000
0136	618.0100	Maintenance and Repair of Haul Roads (project) 01. 3852-06-70	EACH	1.000	1.000
0138	619.1000	Mobilization	EACH	1.000	1.000
0140	624.0100	Water	MGAL	27.000	27.000
0142	625.0500	Salvaged Topsoil	SY	1,660.000	1,660.000
0144	627.0200	Mulching	SY	420.000	420.000
0146	628.1504	Silt Fence	LF	740.000	740.000
0148	628.1520	Silt Fence Maintenance	LF	930.000	930.000
0150	628.1905	Mobilizations Erosion Control	EACH	8.000	8.000
0152	628.1910	Mobilizations Emergency Erosion Control	EACH	4.000	4.000
0154	628.2008	Erosion Mat Urban Class I Type B	SY	620.000	620.000
0156	628.2027	Erosion Mat Class II Type C	SY	300.000	300.000
0158	628.6510	Soil Stabilizer Type B	ACRE	0.350	0.350
0160	628.7005	Inlet Protection Type A	EACH	8.000	8.000
0162	628.7010	Inlet Protection Type B	EACH	4.000	4.000
0164	628.7020	Inlet Protection Type D	EACH	7.000	7.000
0166	628.7504	Temporary Ditch Checks	LF	40.000	40.000
0168	628.7560	Tracking Pads	EACH	1.000	1.000
0170	629.0210	Fertilizer Type B	CWT	1.500	1.500
0172	630.0120	Seeding Mixture No. 20	LB	14.000	14.000
0174	630.0140	Seeding Mixture No. 40	LB	30.000	30.000
0176	630.0200	Seeding Temporary	LB	46.000	46.000
0178	630.0500	Seed Water	MGAL	18.000	18.000
0180	631.0300	Sod Water	MGAL	24.000	24.000
0182	631.1000	Sod Lawn	SY	900.000	900.000
0184	634.0816	Posts Tubular Steel 2x2-Inch X 16-FT	EACH	8.000	8.000
0186	637.2210	Signs Type II Reflective H	SF	19.360	19.360
0188	637.2230	Signs Type II Reflective F	SF	20.000	20.000
0190	638.2102	Moving Signs Type II	EACH	2.000	2.000
0192	638.2602	Removing Signs Type II	EACH	20.000	20.000
0194	638.3000	Removing Small Sign Supports	EACH	13.000	13.000
0196	642.5001	Field Office Type B	EACH	1.000	1.000

Estimate Of Quantities

3852-06-70

Line	Item	Item Description	Unit	Total	Qty
0198	643.0300	Traffic Control Drums	DAY	4,770.000	4,770.000
0200	643.0420	Traffic Control Barricades Type III	DAY	3,190.000	3,190.000
0202	643.0705	Traffic Control Warning Lights Type A	DAY	6,380.000	6,380.000
0204	643.0900	Traffic Control Signs	DAY	4,890.000	4,890.000
0206	643.0920	Traffic Control Covering Signs Type II	EACH	8.000	8.000
0208	643.3850	Temporary Marking Stop Line Removable Tape 18-Inch	LF	24.000	24.000
0210	643.5000	Traffic Control	EACH	1.000	1.000
0212	644.1810	Temporary Pedestrian Barricade	LF	150.000	150.000
0214	645.0111	Geotextile Type DF Schedule A	SY	58.000	58.000
0216	645.0120	Geotextile Type HR	SY	321.000	321.000
0218	645.0140	Geotextile Type SAS	SY	16.000	16.000
0220	650.4000	Construction Staking Storm Sewer	EACH	9.000	9.000
0222	650.4500	Construction Staking Subgrade	LF	647.000	647.000
0224	650.5000	Construction Staking Base	LF	647.000	647.000
0226	650.5500	Construction Staking Curb Gutter and Curb & Gutter	LF	1,281.000	1,281.000
0228	650.6501	Construction Staking Structure Layout (structure) 01. B-67-0405	EACH	1.000	1.000
0230	650.9000	Construction Staking Curb Ramps	EACH	4.000	4.000
0232	650.9500	Construction Staking Sidewalk (project) 01. 3852-06-70	EACH	1.000	1.000
0234	650.9911	Construction Staking Supplemental Control (project) 01. 3852-06-70	EACH	1.000	1.000
0236	650.9920	Construction Staking Slope Stakes	LF	681.000	681.000
0238	690.0150	Sawing Asphalt	LF	235.000	235.000
0240	690.0250	Sawing Concrete	LF	69.000	69.000
0242	715.0502	Incentive Strength Concrete Structures	DOL	1,842.000	1,842.000
0244	ASP.1T0A	On-the-Job Training Apprentice at \$5.00/HR	HRS	1,200.000	1,200.000
0246	ASP.1T0G	On-the-Job Training Graduate at \$5.00/HR	HRS	3,500.000	3,500.000
0248	SPV.0060	Special 01. Adjusting Sanitary Manhole Covers	EACH	1.000	1.000
0250	SPV.0060	Special 02. Adjusting Water Valve Vault Covers	EACH	1.000	1.000
0252	SPV.0060	Special 03. Adjusting Water Valve Boxes	EACH	6.000	6.000
0254	SPV.0060	Special 04. Relocating Mailbox Assemblies	EACH	2.000	2.000
0256	SPV.0060	Special 05. Fisheries Consultant	EACH	1.000	1.000
0258	SPV.0090	Special 02. Pedestrian Railing	LF	46.000	46.000
0260	SPV.0090	Special 03. Silt Fence Double Staked	LF	190.000	190.000
0262	SPV.0165	Special 01. Modular Block Retaining Wall	SF	105.000	105.000

3

CLEARING & GRUBBING							
CATEGORY	STATION		SIDE	201.0105	201.0120	201.0205	201.0220
	FROM	TO		CLEARING STA	CLEARING ID	GRUBBING STA	GRUBBING ID
1000	3+87		11' RT	--	24	--	24
	4+19	6+81	LT/RT	3	--	3	--
	SUBTOTAL 1000			3	24	3	24
1010	0+83	2+69	LT/RT	3	--	3	--
	SUBTOTAL 1010			3	--	3	--
	TOTAL			6	24	6	24

REMOVING CURB & GUTTER					
CATEGORY	ROADWAY	STATION		SIDE	204.0150
		FROM	TO		REMOVING CURB & GUTTER LF
1010	N LAPHAM ST	0+82	0+85	LT/RT	6
	WASHINGTON ST	0+59	0+62	RT	3
		0+80	0+91	LT	11
TOTAL					20

3

REMOVING CONCRETE SIDEWALK						
CATEGORY	ROADWAY	STATION		SIDE	204.0155	REMARKS
		FROM	TO		REMOVING CONCRETE SIDEWALK SY	
1000	N LAPHAM ST	6+24	6+30	LT	18	RIVERSIDE PARK SIDEWALK
		6+63	6+77	RT	18	DRIVEWAY
	SUBTOTAL 1000				36	
1010	N LAPHAM ST	0+78	0+81	LT/RT	1	DRIVEWAY
		7+22	7+38	LT	16	
	WASHINGTON ST	0+68	1+02	LT	23	
	SUBTOTAL 1010				40	
TOTAL				76		

REMOVING GUARDRAIL				
CATEGORY	STATION		SIDE	204.0165 REMOVING GUARDRAIL LF
	FROM	TO		
1000	4+85	5+25	RT	40
	4+84	5+25	LT	41
	5+72	5+88	RT	16
	5+72	6+22	LT	50
TOTAL				147

REMOVING FENCE				
CATEGORY	STATION		SIDE	204.0170 REMOVING FENCE LF
	FROM	TO		
1000	4+79	5+14	RT	61
	4+90	5+10	LT	20
TOTAL				81

REMOVING DRAINAGE ITEMS							
CATEGORY	STATION		OFFSET		204.0220	204.0245.01	204.0245.02
	FROM	TO	FROM	TO	REMOVING INLETS EACH	REMOVING STORM SEWER (15-INCH) LF	REMOVING STORM SEWER (18-INCH) LF
1000	5+80	6+18	31' LT	32' LT	--	--	36
	SUBTOTAL 1000				--	--	36
1010	2+48		23' RT	27' LT	--	50	--
	2+48		23' RT		1	--	--
	SUBTOTAL 1010				1	50	--
	TOTAL				1	50	36

3

3

EARTHWORK SUMMARY

DIVISION	FROM/TO STATION	LOCATION	205.0100 EXCAVATION COMMON (1)		SALVAGED/UNUSABLE PAVEMENT MATERIAL (4)	AVAILABLE MATERIAL (5)	UNEXPANDED FILL	EXPANDED FILL (6)	MASS ORDINATE +/- (7)	WASTE (8)	208.0100 BORROW	COMMENT
			CUT (2)	EBS EXCAVATION (3)				FACTOR 1.20				
1 - CATEGORY 1000	3+50.00/5+20.65	N LAPHAM ST - S OF B-67-0405	165	8	35	130	392	470	-340	0	43	USE 297 CY FROM DIVISION 2
	5+75.17/7+00.00	N LAPHAM ST - N OF B-67-0405	121	6	30	91	88	106	-15	0	0	USE 15 CY FROM DIVISION 2
DIVISION 1 SUBTOTAL			286	14	65	221	480	576	-355	0	43	
2 - CATEGORY 1010	0+82.20/3+50.00	N LAPHAM ST - S OF STA 3+50	433	15	93	340	150	180	160	160	0	
	7+00.00/7+82.77	N LAPHAM ST - N OF STA 7+00	196	5	44	152	0	0	152	152	0	
DIVISION 2 SUBTOTAL			629	20	137	492	150	180	312	312	0	
GRAND TOTAL			915	34	202	713	630	756	-43	0	43	
TOTAL COMMON EXC			949									

NOTES:
(1) COMMON EXCAVATION IS THE SUM OF THE CUT AND EBS EXCAVATION COLUMNS. ITEM NUMBER 205.0100
(2) SALVAGED/UNSUABLE PAVEMENT MATERIAL IS INCLUDED IN CUT.
(3) EBS EXCAVATION QUANTITY IS UNDISTRIBUTED (ESTIMATED AT 12" DEEP OVER 5% OF SUBGRADE AREA). EBS TO BE BACKFILLED WITH BREAKER RUN.
(4) SALVAGED/UNUSABLE PAVEMENT MATERIAL
(5) AVAILABLE MATERIAL = CUT - SALVAGED/UNUSUABLE PAVEMENT MATERIAL
(6) EXPANDED FILL FACTOR = 1.20 EXPANDED FILL = UNEXPANDED FILL * FILL FACTOR
(7) THE MASS ORDINATE + OR - QTY CALCULATED FOR THE DIVISION. PLUS QUANTITY INDICATES AN EXCESS OF MATERIAL WITHIN THE DIVISION. MINUS INDICATES A SHORTAGE OF MATERIAL WITHIN THE DIVISION.
(8) FACTORS USED TO COMPUTE ANTICIPATED WASTE AND THE COMPUTED WASTE VOLUME IDENTIFIED ARE FOR GENERAL INFORMATION ONLY.

AGGREGATE ITEMS

CATEGORY	ROADWAY	STATION		305.0110 BASE AGGREGATE DENSE 3/4-INCH TON	305.0120 BASE AGGREGATE DENSE 1 1/4-INCH TON	311.0110 BREAKER RUN TON	624.0100 WATER MGAL
		FROM	TO				
1000	N LAPHAM ST	3+50	5+21	80	315	15	6
		5+75	7+00	59	215	11	5
	SUBTOTAL 1000			139	530	26	11
1010	N LAPHAM ST	0+82	3+50	148	525	27	11
		7+00	7+83	50	175	9	4
	WASHINGTON ST	0+80	0+91	1	11	--	1
	SUBTOTAL 1010			199	711	36	16
TOTAL				338	1,241	62	27

ASPHALTIC PAVEMENT ITEMS

CATEGORY	ROADWAY	STATION		SIDE	455.0605 TACK COAT GAL	460.2000 INCENTIVE DENSITY HMA PAVEMENT DOL	460.5223 HMA PAVEMENT 3 LT 58-28 S TON	460.5225 HMA PAVEMENT 5 LT 58-28 S TON	465.0120 ASPHALTIC SURFACE DRIVEWAYS AND FIELD ENTRANCES TON
		FROM	TO						
1000	N LAPHAM ST	3+50	5+21	LT/RT	32	70	66	40	15
		5+75	7+00	LT/RT	24	50	48	29	2
	SUBTOTAL 1000				56	120	114	69	17
1010	N LAPHAM ST	0+82	3+50	LT/RT	59	130	121	73	--
		7+00	7+83	LT/RT	20	50	42	25	--
	WASHINGTON ST	0+80	0+91	LT	1	10	1	1	--
	SUBTOTAL 1010				80	190	164	99	--
TOTAL					136	310	278	168	17

					CONCRETE ITEMS				
					602.0810	601.0411	601.0600	602.0410	602.0505
					CONCRETE DRIVEWAY 6-INCH SY	CONCRETE CURB & GUTTER 30-INCH TYPE D LF	CONCRETE CURB PEDESTRIAN LF	CONCRETE SIDEWALK 5-INCH SF	CURB RAMP DETECTABLE WARNING FIELD YELLOW SF
CATEGORY	ROADWAY	STATION FROM	TO	SIDE					
1000	N LAPHAM ST	3+50	5+21	LT/RT	14	325	--	917	--
		5+75	7+00	LT/RT	27	232	--	696	--
	SUBTOTAL 1000				41	557	--	1,613	--
1010		0+78	3+50	LT/RT	--	527	42	2,547	20
		7+00	7+83	LT/RT	30	186	--	304	10
	WASHINGTON ST	0+68	1+02	LT	--	11	--	226	10
	SUBTOTAL 1010				30	724	42	3,077	40
	TOTAL				71	1,281	42	4,690	40

RIPRAP ITEMS				
CATEGORY	STATION	SIDE	606.0200	645.0120
			RIPRAP MEDIUM CY	* GEOTEXTILE TYPE HR SY
1000	4+42	LT	9	29
TOTAL			9	29

* = ADDITIONAL QUANTITIES SHOWN ELSEWHERE.

STORM SEWER STRUCTURE ITEMS																		
					520.1015 APRON ENDWALLS FOR CULVERT PIPE 15-INCH EACH	522.1015 APRON ENDWALLS FOR CULVERT PIPE REINFORCED CONCRETE 15-INCH EACH	522.1018 APRON ENDWALLS FOR CULVERT PIPE REINFORCED CONCRETE 18-INCH EACH	611.0624 INLET COVERS TYPE H EACH	611.0642 INLET COVERS TYPE MS EACH	611.1004 CATCH BASINS 4-FT DIAMETER EACH	611.1230 CATCH BASINS 2X3-FT EACH	611.2004 MANHOLES 4-FT DIAMETER EACH	611.3901 INLETS MEDIAN 1 GRATE EACH	611.8110 ADJUSTING MANHOLE COVERS EACH	612.0902.S INSULATION BOARD POLYSTYRENE (INCH) 4-INCH SY	PR. RIM [3] ELEV.	INVERT [4] ELEV.	DEPTH [5] FT
1000	N LAPHAM ST	AE-04	4+42	33.4' LT	1	--	--	--	--	--	--	--	--	--	--	--	864.40	
		CB-05	4+34	14.0' LT	--	--	--	1	--	1	--	--	--	--	7	868.95	862.67	5.45
		CB-06	4+38	14.0' RT	--	--	--	1	--	--	1	--	--	--	--	868.95	863.20	4.92
		AE-07	5+76	30.7' LT	--	--	1	--	--	--	--	--	--	--	--	--	859.15	
	SUBTOTAL 1000					1	--	1	2	--	1	1	--	--	--	7		
1010	N LAPHAM ST	AE-01	2+50	25.3' LT	--	1	--	--	--	--	--	--	--	--	--	--	868.56	
		MH-02	2+64	14.8' RT	--	--	--	1	--	--	--	1	--	--	--	872.67	869.29	2.55
		IN-03	2+64	28.2' RT	--	--	--	--	1	--	--	--	1	--	--	872.89	869.67	3.22
	WASHINGTON ST		0+72	14.8' RT	--	--	--	1	--	--	--	--	--	--	--	873.70	--	
			1+10	8.8' RT	--	--	--	--	--	--	--	--	--	1	--	874.55	--	
SUBTOTAL 1010					--	1	--	2	1	--	--	1	1	1	--			
TOTAL					1	1	1	4	1	1	1	1	1	1	7			

NOTES: [1] STATION IS TO CENTER OF STRUCTURE FOR INLETS & MANHOLES AND END OF PIPE FOR APRON ENDWALLS.
[2] OFFSET IS TO CENTER OF STRUCTURE FOR TYPE MS COVERS, TO FLOWLINE FOR TYPE H COVERS, AND TO END OF PIPE AT PIPE CENTERLINE FOR APRON ENDWALLS.
[3] RIM ELEVATION IS GIVEN AT THE FLOWLINE FOR TYPE H COVERS AND AT THE CENTER OF COVER FOR TYPE MS COVERS.
[4] FOR STRUCTURES WITH SUMPS, THE INVERT ELEVATION IS THE ELEVATION OF THE SUMP. FOR STRUCTURES WITHOUT SUMPS, THE INVERT ELEVATION IS THE ELEVATION OF THE LOWEST PIPE FLOWLINE.
[5] DEPTH = RIM ELEV - FRAME HEIGHT - 0.5-FT (ASSUMED ADJUSTMENT RINGS) - INVERT ELEV FOR TYPE H COVERS AND DEPTH = RIM ELEV - INVERT ELEV FOR TYPE MS COVERS.

STORM SEWER PIPE ITEMS										
CATEGORY	STRUCTURE		608.0318	608.0415	608.3012	608.3015	JOINT TIES [2]	INLET ELEVATION	DISCHARGE ELEVATION	SLOPE [1]
	FROM	TO	STORM SEWER PIPE REINFORCED CONCRETE CLASS III 18-INCH LF	STORM SEWER PIPE REINFORCED CONCRETE CLASS IV 15-INCH LF	STORM SEWER PIPE CLASS III-A 12-INCH LF	STORM SEWER PIPE CLASS III-A 15-INCH LF				
1000	CB-06	CB-05	--	--	28	--	--	865.20	864.92	1.00%
	MH-05	AE-04	--	--	--	22	3	864.67	864.46	1.00%
	STA 6+18	AE-07	40	--	--	--	3	859.82	859.24	1.45%
	SUBTOTAL 1000		40	--	28	22				
1010	IN-03	MH-02	--	--	14	--	--	869.67	869.54	1.00%
	MH-02	AE-01	--	43	--	--	3	869.29	868.65	1.50%
	SUBTOTAL 1010		--	43	14	--				
	TOTAL		40	43	42	22				

NOTES: [1] PIPE SLOPE CALCULATED FROM CENTER-TO-CENTER OF STRUCTURE (OR END OF PIPE AT APRON ENDWALLS).
[2] NON-BID ITEM. FOR INFORMATION ONLY.

BEAM GUARD ITEMS							
CATEGORY	ROADWAY	STATION		SIDE	614.0200	614.0305	614.0370
		FROM	TO		STEEL THRIE BEAM STRUCTURE APPROACH LF	STEEL PLATE BEAM GUARD CLASS A LF	STEEL PLATE BEAM GUARD ENERGY ABSORBING TERMINAL EACH
1000	N LAPHAM ST	4+20	4+74	RT	--	--	1
		4+74	4+86	RT	--	12.5	--
		4+86	5+05	RT	20.6	--	--
		TOTAL			20.6	12.5	1

				EROSION CONTROL ITEMS												
				628.1504	628.1520	628.1905	628.1910	628.2008	628.2027	628.6510	628.7005	628.7010	628.7020	628.7504	628.7560	SPV.0090.03
CATEGORY	ROADWAY	STATION		SILT FENCE	SILT FENCE MAINTENANCE LF	MOBILIZATIONS EROSION CONTROL EACH	MOBILIZATIONS EMERGENCY EROSION CONTROL EACH	EROSION MAT URBAN CLASS I TYPE B SY	EROSION MAT CLASS II TYPE C SY	SOIL STABILIZER TYPE B ACRE	INLET PROTECTION TYPE A EACH	INLET PROTECTION TYPE B EACH	INLET PROTECTION TYPE D EACH	TEMPORARY DITCH CHECKS LF	TRACKING PADS EACH	SILT FENCE DOUBLE STAKED LF
		FROM	TO													
1000	N LAPHAM ST	3+50	5+21	230	330	--	--	140	240	--	2	--	2	10	--	100
		5+75	7+00	80	130	--	--	30	--	--	--	--	--	--	--	50
	UNDISTRIBUTED		80	120	8	4	40	60	0.17	1	--	1	10	1	40	
	SUBTOTAL 1000		390	580	8	4	210	300	0.17	3	--	3	20	1	190	
1010	N LAPHAM ST	0+82	3+50	280	280	--	--	330	--	--	3	2	1	10	--	--
		7+00	7+82	--	--	--	--	--	--	--	--	--	--	--	--	--
	WASHINGTON ST	0+71	1+72	--	--	--	--	--	--	--	1	1	2	--	--	--
	UNDISTRIBUTED		70	70	--	--	80	--	0.18	1	1	1	10	--	--	
	SUBTOTAL 1010		350	350	--	--	410	--	0.18	5	4	4	20	--	--	
TOTAL				740	930	8	4	620	300	0.35	8	4	7	40	1	190

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				RESTORATION ITEMS									
				616.0700.S	625.0500	627.0200	629.0210	630.0120 SEEDING MIXTURE NO. 20 LB	630.0140 SEEDING MIXTURE NO. 40 LB	630.0200 SEEDING TEMPORARY LB	630.0500 SEED WATER MGAL	631.0300 SOD WATER MGAL	631.1000 SOD LAWN SY
CATEGORY	ROADWAY	STATION FROM	TO	FENCE SAFETY LF	SALVAGED TOPSOIL SY	MULCHING SY	FERTILIZER TYPE B CWT						
1000	N LAPHAM ST	3+50	5+21	139	580	--	0.3	11	7	--	9	5	190
		5+75	7+00	41	240	--	0.2	--	2	--	1	6	230
	UNDISTRIBUTED			45	--	210	0.1	3	2	23	--	--	--
	SUBTOTAL 1000			225	820	210	0.6	14	11	23	10	11	420
1010	N LAPHAM ST	0+82	3+50	--	620	--	0.4	--	15	--	8	7	270
		7+00	7+82	--	190	--	0.2	--	--	--	--	5	180
	WASHINGTON ST	0+68	1+02	--	30	--	0.1	--	--	--	--	1	30
	UNDISTRIBUTED			--	--	210	0.2	--	4	23	--	--	--
	SUBTOTAL 1010			--	840	210	0.9	--	19	23	8	13	480
TOTAL				225	1,660	420	1.5	14	30	46	18	24	900

TYPE II PERMANENT SIGNING

CATEGORY	SIGN NO.	SIGN CODE & SIZE	SIGN MESSAGE	SIGN SIZE			637.2210 SIGNS TYPE II REFLECTIVE	637.2230 SIGNS TYPE II REFLECTIVE	638.2102 MOVING SIGNS TYPE II	638.2602 REMOVING SIGNS TYPE II	638.3000 REMOVING SMALL SIGN SUPPORTS	634.0816 POSTS TUBULAR STEEL 2X2-INCH X 16-FT	MOUNT ON SAME POST AS SIGN #
				W [IN.]	X X	H [IN.]	H [SF]	F [SF]	II [EA]	TYPE II [EA]	TYPE II [EA]	TYPE II [EA]	
1000	1	W14-2	NO JUMPING OR DIVING FROM BRIDGE		X		--	--	--	1	1	--	3
	2	W5-3			X		--	--	--	1	1	--	
	3	W5-52R (2S)		12	X	36	--	3.00	--	1	1	1	
	4				X		--	--	1	--	--	--	
	5	W5-52L (2S)	NO JUMPING OR DIVING FROM BRIDGE	12	X	36	--	3.00	--	1	1	1	8
	6	W5-52R (2S)		12	X	36	--	3.00		1	1	1	
	7				X		--	--	1	--	--	--	
	8	W5-52L (2S)		12	X	36	--	3.00	--	1	1	1	
	9	W5-3			X		--	--	--	1	1	--	
	10	W8-5			X		--	--	--	1	--	--	
	11	W14-1			X		--	--	--	1	--	--	
SUBTOTAL 1000							--	12.00	2	9	7	4	
1010	12	R1-1 (2S)		30	X	30	5.18	--	--	1	1	1	12
	13	R1-3P (2S)		18	X	6	0.75	--	--	1	--	--	
	14	R1-1 (2S)		30	X	30	5.18	--	--	1	1	1	
	15	R1-3P (2S)		18	X	6	0.75	--	--	1	--	--	
	16	W5-56			X		--	--	--	3	3	--	18
	17	W1-7 (2S)		48	X	24	--	8.00	--	--	--	1	
	18	D11-1(2S)		24	X	18	3.00	--	--	1	1	1	
	19	M7-6(2)		12	X	9	0.75	--	--	1	--	--	
	20	D11-1(2S)		24	X	18	3.00	--	--	1	--	--	18
	21	M7-5(2)		12	X	9	0.75	--	--	1	--	--	18
SUBTOTAL 1010							19.36	8.00	--	11	6	4	
TOTAL							19.36	20.00	2	20	13	8	

PROJECT NO: 3852-06-70

HWY: LOCAL STREET

COUNTY: WAUKESHA

MISCELLANEOUS QUANTITIES

SHEET

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TRAFFIC CONTROL ITEMS													
			643.0300		643.0420		643.0705		643.0900		643.0920	643.3850	644.1810
			TRAFFIC CONTROL DRUMS		TRAFFIC CONTROL BARRICADES TYPE III		TRAFFIC CONTROL WARNING LIGHTS TYPE A		TRAFFIC CONTROL SIGNS		TRAFFIC CONTROL COVERING SIGNS	TEMPORARY MARKING STOP LINE REMOVABLE	TEMPORARY PEDESTRIAN BARRICADE
CATEGORY	LOCATION	DAYS	EACH	DAY	EACH	DAY	EACH	DAY	EACH	DAY	TYPE II EACH	TAPE 18-INCH LF	BARRICADE LF
1000	N LAPHAM ST	200	18	3,600	12	2,400	24	4,800	17	3,400	2	--	84
	WASHINGTON ST	30	7	210	5	150	10	300	17	510	4	24	36
	UNDISTRIBUTED			960		640		1,280		980	2	--	30
	TOTAL			4,770		3,190		6,380		4,890	8	24	150

CONSTRUCTION STAKING ITEMS																
					650.4000	650.4500	650.5000	650.5500	650.6501	650.9000	650.9500	650.9911	650.9920			
					CONSTRUCTION STAKING STORM SEWER EACH	CONSTRUCTION STAKING SUBGRADE LF	CONSTRUCTION STAKING BASE LF	CONSTRUCTION STAKING CURB GUTTER & GUTTER LF	CONSTRUCTION STAKING STRUCTURE LAYOUT (STRUCTURE) 01. B-67-0405 EACH	CONSTRUCTION STAKING CURB RAMPS EACH	CONSTRUCTION STAKING SIDEWALK (PROJECT) 01. 3852-06-70 EACH	CONSTRUCTION STAKING SUPPLEMENTAL CONTROL (PROJECT) 01. 3852-06-70 EACH	CONSTRUCTION STAKING SLOPE STAKES LF			
CATEGORY	ROADWAY	STATION FROM	STATION TO	SIDE												
1000	N LAPHAM ST	3+50	5+21	LT/RT	3	171	171	325	1	--	--	--	171			
		5+75	7+00	LT/RT	1	125	125	232	--	--	--	--	125			
	SUBTOTAL 1000				4	296	296	557	1	--	0.35	1	296			
1010	N LAPHAM ST	0+82	3+50	LT/RT	3	268	268	527	--	2	--	--	268			
		7+00	7+82	LT/RT	2	83	83	186	--	--	--	--	83			
	WASHINGTON ST	0+68	1+02	LT	--	--	--	11	--	2	--	--	34			
	SUBTOTAL 1010				5	351	351	724	--	4	0.65	--	385			
TOTAL					9	647	647	1,281	1	4	1.00	1	681			

SAWING ITEMS							
CATEGORY	ROADWAY	STATION		SIDE	690.0150	690.0250	REMARKS
		FROM	TO		SAWING ASPHALT LF	SAWING CONCRETE LF	
1000	N LAPHAM ST	3+76	3+93	LT	36	--	DRIVEWAY
		6+24	6+29	LT	--	5	RIVERSIDE PARK SIDEWALK
		6+37	6+50	RT	14	--	DRIVEWAY
		6+62	6+77	RT	--	15	DRIVEWAY
	SUBTOTAL 1000				50	20	
1010	N LAPHAM ST	0+78		LT/RT	--	7	SIDEWALK
		0+82		LT/RT	33	5	CONSTRUCTION LIMITS
		2+74	2+96	RT	23	--	CONSTRUCTION LIMITS
		7+22	7+38	LT	--	16	DRIVEWAY
	WASHINGTON ST	0+59	1+65	RT	114	3	CONSTRUCTION LIMITS
			0+68	LT	--	5	SIDEWALK
		0+80	0+91	LT	15	5	CURB RAMP
		0+94	0+97	LT	--	3	SIDEWALK
			1+02	LT	--	5	SIDEWALK
		SUBTOTAL 1010				185	49
	TOTAL				235	69	

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SANITARY SEWER ITEMS

CATEGORY	STATION	OFFSET	RIM ELEV.		SPV.0060.01 ADJUSTING SANITARY MANHOLE COVERS EACH
			EX.	PR.	
1020	2+90	2' RT	872.42	872.47	1
	TOTAL				1

WATER MAIN ITEMS

CATEGORY	STATION	OFFSET	RIM ELEV.		SPV.0060.02 ADJUSTING WATER VALVE VAULT COVERS EACH	SPV.0060.03 ADJUSTING WATER VALVE BOXES EACH
			EX.	PR.		
1030	3+17	14' RT	--	--	--	1
	3+34	15' RT	--	--	--	1
	3+55	5' RT	870.47	870.41	1	--
	3+57	5' RT	--	--	--	1
	7+44	1' RT	--	--	--	1
	7+45	12' RT	--	--	--	1
	7+50	1' RT	--	--	--	1
	TOTAL				1	6

RELOCATING MAILBOXES

CATEGORY	STATION	OFFSET	SPV.0060.04 RELOCATING MAILBOX ASSEMBLIES EACH
1000	6+54	15' RT	1
	6+60	15' RT	1
	TOTAL		2

RETAINING WALL ITEMS

CATEGORY	STATION		SIDE	310.0110	612.0406	645.0140	SPV.0090.02	SPV.0165.01
	FROM	TO		BASE AGGREGATE OPEN-GRADED TON	PIPE UNDERDRAIN WRAPPED 6-INCH LF	GEOTEXTILE TYPE SAS SY	PEDESTRIAN RAILING LF	MODULAR BLOCK RETAINING WALL SF
1010	2+87	3+33	LT	4	46	16	46	105
	TOTAL			4	46	16	46	105

* = ADDITIONAL QUANTITIES SHOWN ELSEWHERE.

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

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REFER TO THE CONVEYANCE DOCUMENT FOR PARCEL RELATED DETAILS.

NOTES:
HORIZONTAL POSITIONS SHOWN ON THIS PLAN ARE WISCONSIN STATE PLANE, SOUTH ZONE, 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.

PURPOSE OF ALL TLE IS FOR SIDEWALK IMPROVEMENT, UNLESS NOTED OTHERWISE.

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

R/W PROJECT NUMBER: 3852-06-00	EXHIBIT NUMBER: 4.03
TLE ACQUISITION EXHIBIT C OCONOMOWOC, N LAPHAM ST OCONOMOWOC RIVER BRIDGE P67-770 WAUKESHA COUNTY	
LOC STR	WAUKESHA COUNTY
PART OF THE SE 1/4 OF THE NE 1/4 OF SECTION 33, TOWN 08 NORTH RANGE 17 EAST, IN THE CITY OF OCONOMOWOC, WAUKESHA COUNTY, WISCONSIN.	

Line Table		
Line #	Length	Direction
L9	5.00	N00° 00' 00"W
L10	21.53	S89° 42' 22"E
L11	8.00	N00° 17' 38"E
L12	10.00	S89° 42' 22"E
L13	8.00	S00° 17' 38"W
L14	6.50	S89° 42' 22"E
L15	5.00	S00° 17' 38"W
L16	38.00	N89° 42' 22"W

STATION & OFFSET TABLE		
POINT	STATION	OFFSET
9	0+68.57	25.00' LT
10	0+68.55	30.00' LT
11	0+90.07	30.00' LT
12	0+90.07	38.00' LT
13	1+00.07	38.00' LT
14	1+00.07	30.00' LT
15	1+06.57	30.00' LT
16	1+06.57	25.00' LT

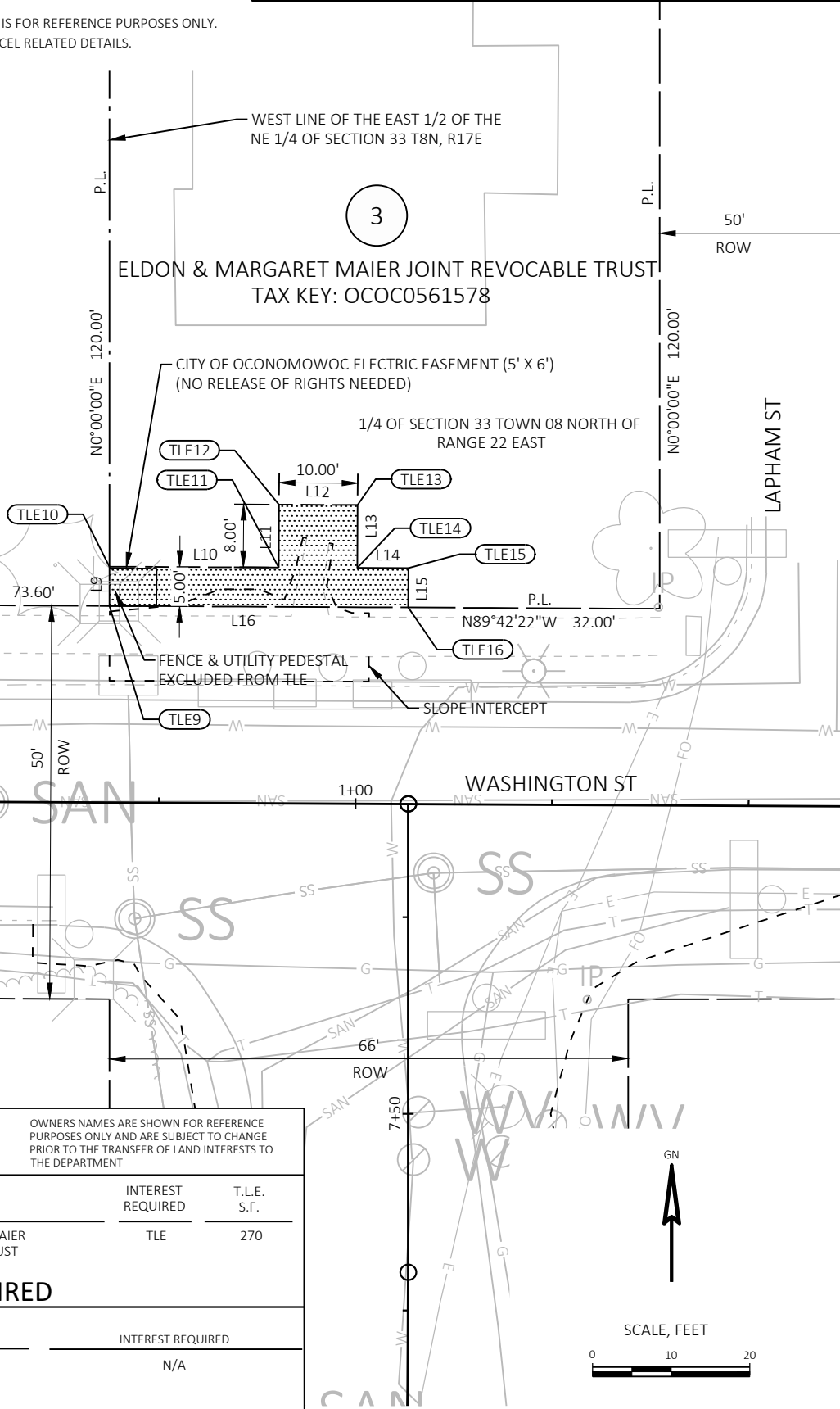
SCHEDULE OF LANDS & INTERESTS REQUIRED

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

PARCEL NUMBER	OWNER(S)	INTEREST REQUIRED	T.L.E. S.F.
3	ELDON & MARGARET MAIER JOINT REVOCABLE TRUST	TLE	270

UTILITY INTERESTS REQUIRED

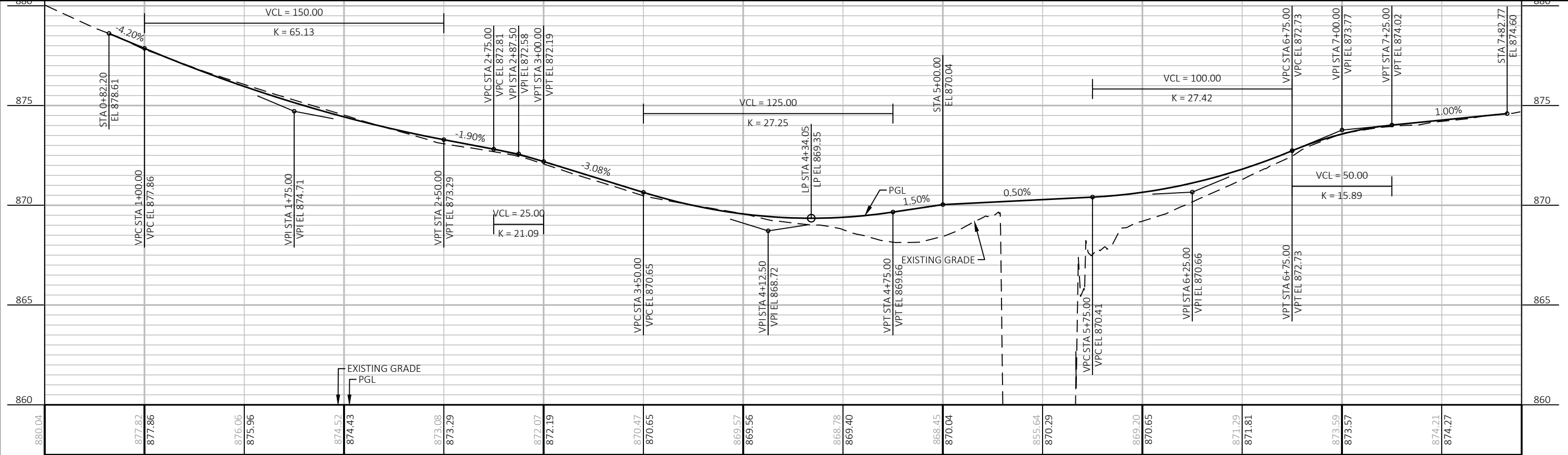
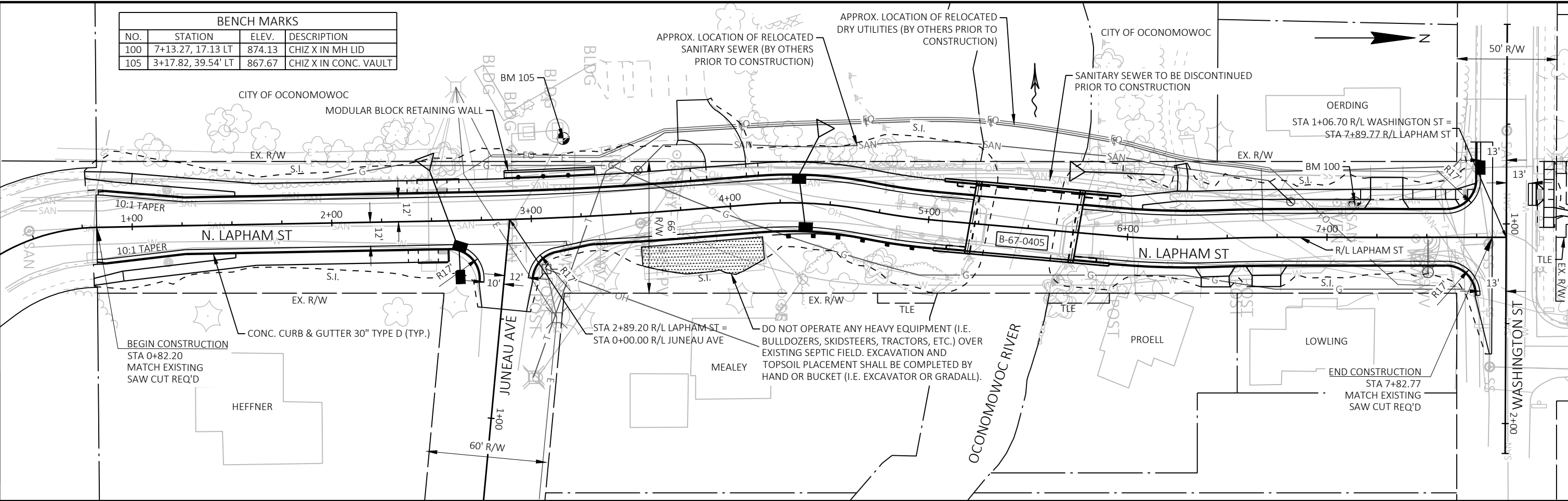
UTILITY NUMBER	UTILITY OWNER(S)	INTEREST REQUIRED
N/A	N/A	N/A



R/W PROJECT NUMBER: 3852-06-00	EXHIBIT NUMBER:
TLE ACQUISITION EXHIBIT C OCONOMOWOC, N LAPHAM ST OCONOMOWOC RIVER BRIDGE P67-770 WAUKESHA COUNTY	
LOC STR	WAUKESHA COUNTY

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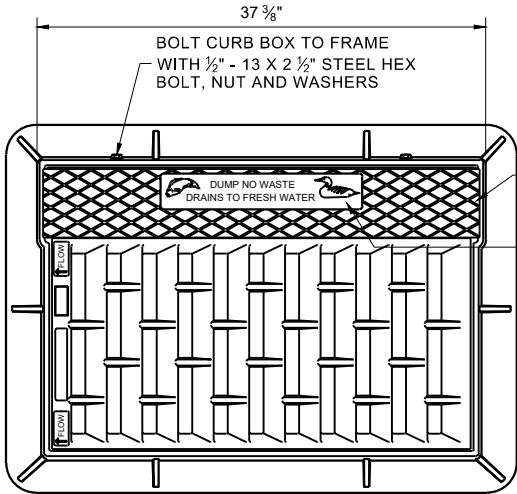
BENCH MARKS			
NO.	STATION	ELEV.	DESCRIPTION
100	7+13.27, 17.13 LT	874.13	CHIZ X IN MH LID
105	3+17.82, 39.54' LT	867.67	CHIZ X IN CONC. VAULT



PROJECT NO: 3852-06-70	HWY: LOCAL STREET	COUNTY: WAUKESHA	PLAN AND PROFILE: N. LAPHAM ST	SHEET	E
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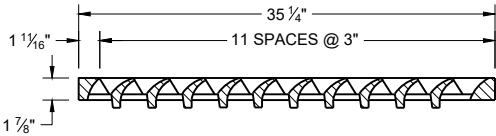
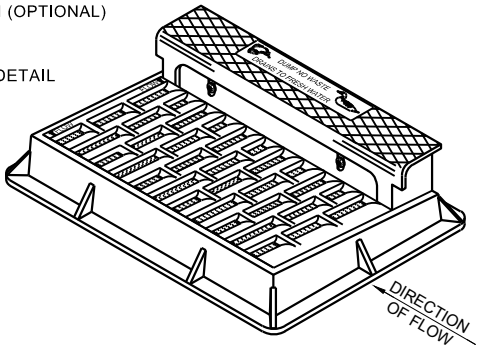
Standard Detail Drawing List

08A05-21A	INLET COVERS TYPE A, H, A-S, H-S & Z
08A05-21B	INLET COVERS TYPE B, B-A, C, MS, MS-A, & WM
08A08-03	CATCH BASINS 3-FT, 4-FT, 5-FT AND 6-FT DIAMETER
08A09-03	CATCH BASINS 2X3-FT AND 2.5X3-FT
08B09-04	MANHOLES 3-FT, 4-FT, 5-FT, 6-FT, 7-FT, 8-FT, 9-FT, 10-FT DIAMETER
08C08-03	INLETS MEDIAN 1 AND 2 GRATE
08D01-24A	CONCRETE CURB & GUTTER
08D01-24B	CONCRETE CURB, TIES AND CURB AND GUTTER APPLICATIONS
08D05-22D	CURB RAMPS TYPE 4B AND 4B1
08D05-22E	CURB RAMPS TYPES 5, 6, 7A, 7B & 8
08D05-22G	CURB RAMPS RECTANGULAR AND RADIAL DETECTABLE WARNING PLATES
08D18-05	DRIVEWAY AND SIDEWALK RAMPS TYPES X & Y
08E09-06	SILT FENCE
08E10-02	INLET PROTECTION TYPE A, B, C AND D
08E14-01	TRACKING PAD
08F01-11	APRON ENDWALLS FOR CULVERT PIPE
08F04-08	JOINT TIES FOR CONCRETE PIPE AND CONCRETE COLLAR DETAIL
12A03-10	NAME PLATE (STRUCTURES)
13C19-03	HMA LONGITUDINAL JOINTS
14B15-11A	STEEL PLATE BEAM GUARD, CLASS "A" INSTALLATION & ELEMENTS
14B15-11B	STEEL PLATE BEAM GUARD, CLASS "A" INSTALLATION & ELEMENTS
14B15-11C	STEEL PLATE BEAM GUARD, CLASS "A", INSTALLATION & ELEMENTS
14B20-12A	STEEL THRIE BEAM STRUCTURE APPROACH
14B20-12B	STEEL THRIE BEAM STRUCTURE APPROACH, CONNECTION TO SQUARE END PARAPETS
14B24-09A	STEEL PLATE BEAM GUARD ENERGY ABSORBING TERMINAL
14B24-09B	STEEL PLATE BEAM GUARD ENERGY ABSORBING TERMINAL
14B24-09C	STEEL PLATE BEAM GUARD ENERGY ABSORBING TERMINAL
15C02-09A	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-09B	BARRICADES AND SIGNS FOR VARIOUS CLOSURES
15C03-05	BARRICADES AND SIGNS FOR SIDEROAD CLOSURES
15C05-05	TRAFFIC CONTROL, ADVANCE WARNING SIGNS 40 M.P.H. OR LESS
15C06-12	SIGNING & MARKING FOR TWO LANE BRIDGES
15C11-10B	CHANNELIZING DEVICES DRUMS, CONES, BARRICADES AND VERTICAL PANELS
15D28-04	TRAFFIC CONTROL, WORK ON SHOULDER OR PARKING LANE, UNDIVIDED ROADWAY
15D32-07	TRAFFIC CONTROL, ONE LANE ROAD STOP CONDITION

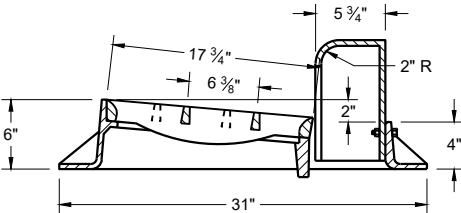
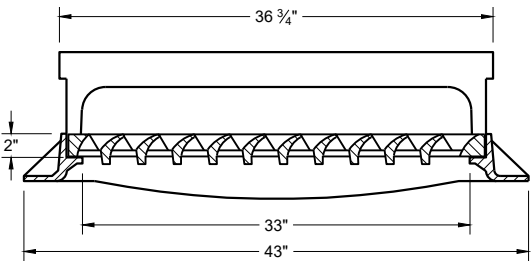
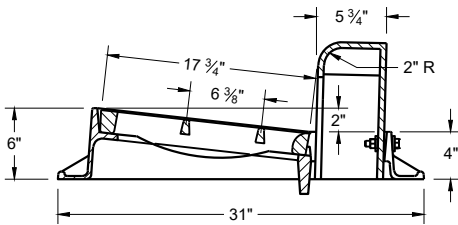
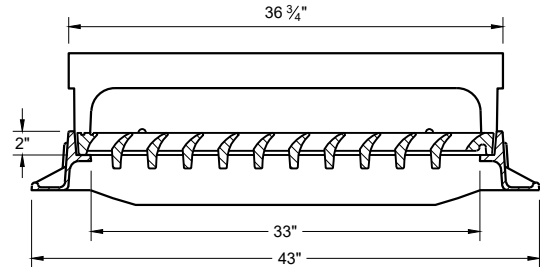


NOTE: EITHER CASTING IS ACCEPTABLE

TYPE "C" CHECKERED TOP DESIGN (OPTIONAL)
SEE LOGO DETAIL

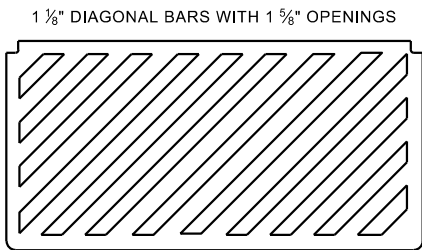


NOTE: CURB BOX HEIGHT ADJUSTABLE 6" - 9"

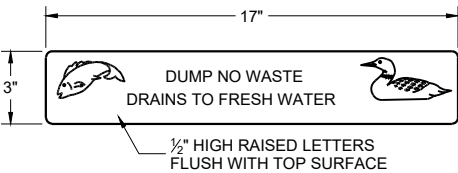


TYPE "H"

NOTE: EITHER CASTING IS ACCEPTABLE

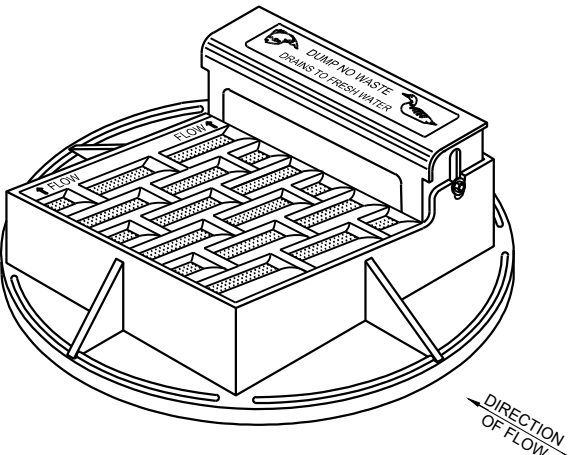


SPECIAL GRATE FOR TYPE "H" COVER
(MEASURES 35" X 17 3/4" X 2")
(NOTED AS TYPE H-S ON DRAINAGE TABLE)



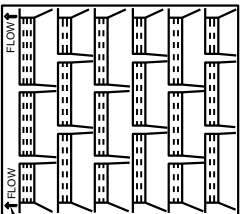
LOGO DETAIL

GENERAL NOTES
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.
DETAIL DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR CATCH BASIN, MANHOLE AND INLET COVERS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PROVIDING THAT SUCH ALTERNATE DESIGNS MAKE PROVISION FOR EQUIVALENT CAPACITY AND STRENGTH.
ROUND FRAMES AND COVERS SHALL HAVE CONTINUOUSLY MACHINED BEARING SURFACES TO PREVENT ROCKING AND RATTLING.

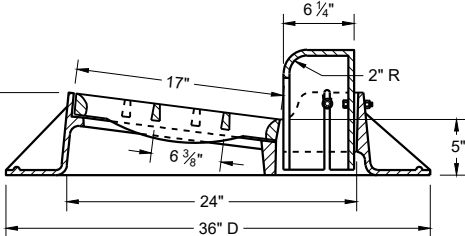
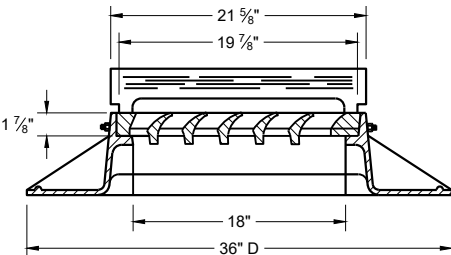
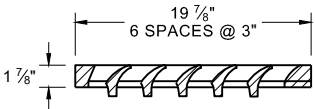


NOTE: CURB BOX HEIGHT ADJUSTABLE 6" - 9"

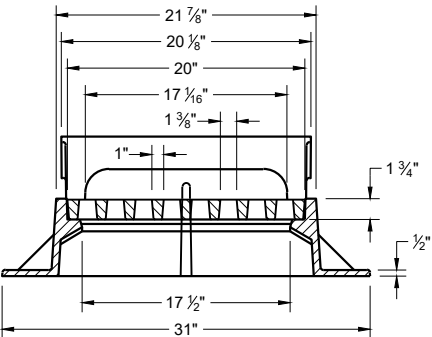
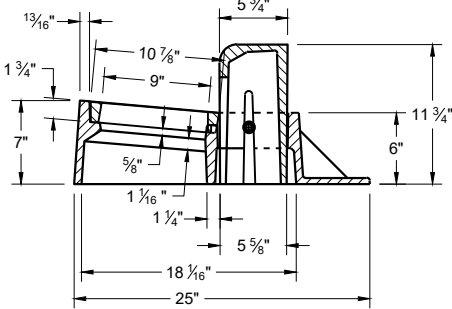
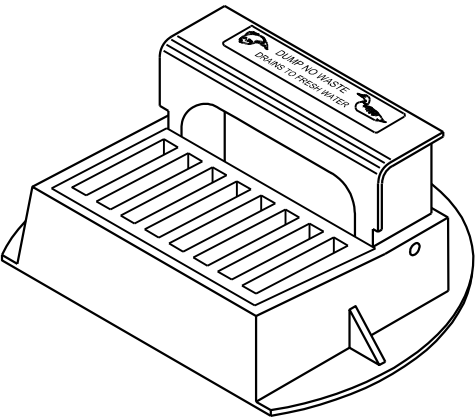
NOTE: EITHER CASTING IS ACCEPTABLE



DIRECTION OF FLOW ARROWS



TYPE "A"

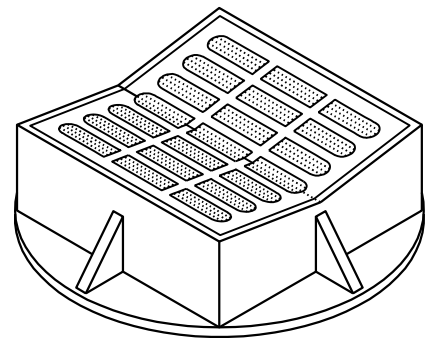
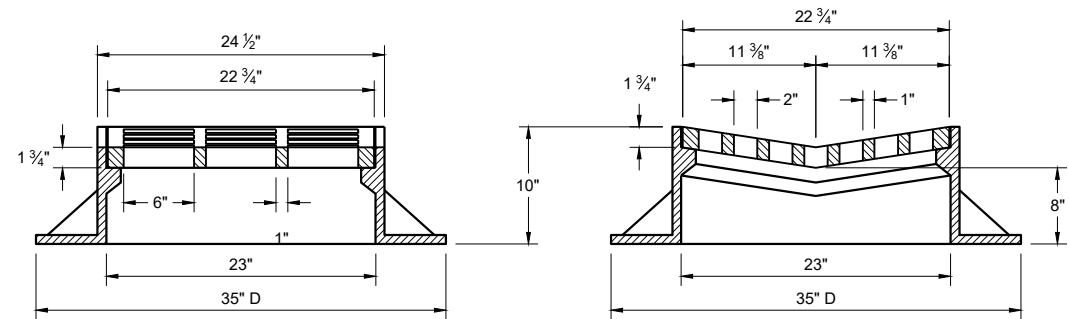


TYPE "Z"

**INLET COVERS
TYPES A, H, A-S, H-S AND Z**

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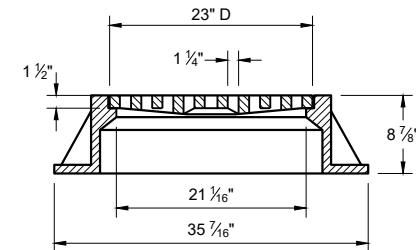
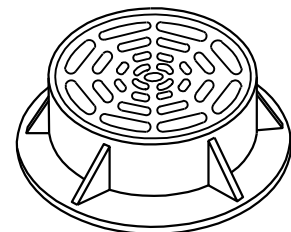
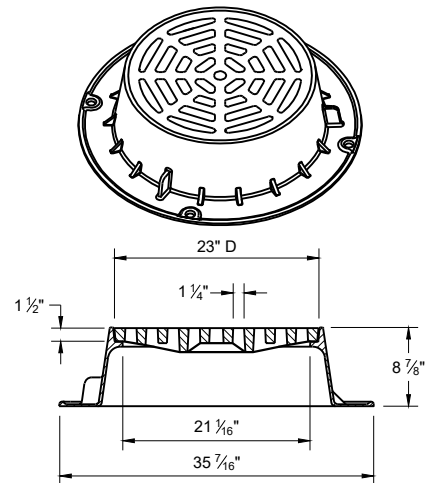
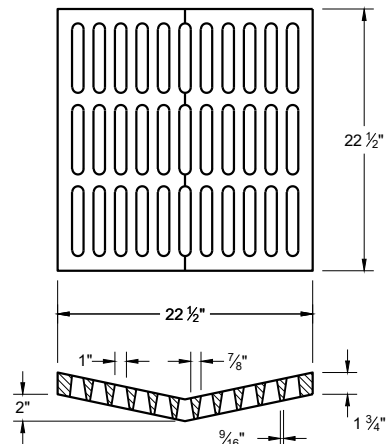
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TYPE "B"

**ALTERNATIVE GRATE FOR
TYPE "B" COVER**

USE WHERE PEDESTRIAN OF BICYCLE TRAFFIC IS POSSIBLE
NOTED AS TYPE B - A ON THE DRAINAGE TABLE



TYPE "C"

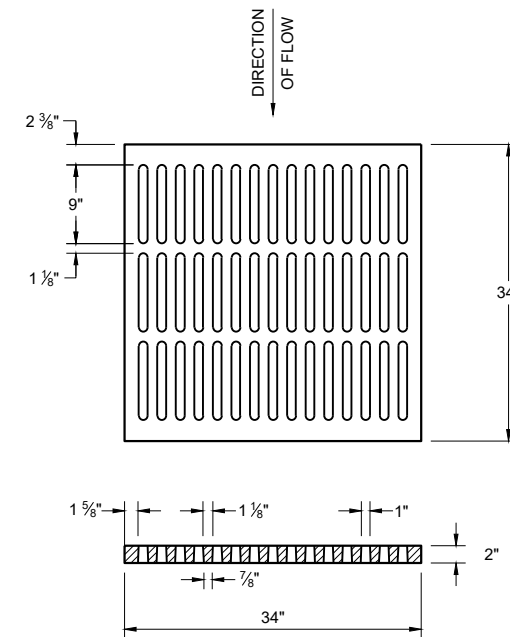
NOTE: EITHER CASTING IS ACCEPTABLE

GENERAL NOTES

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

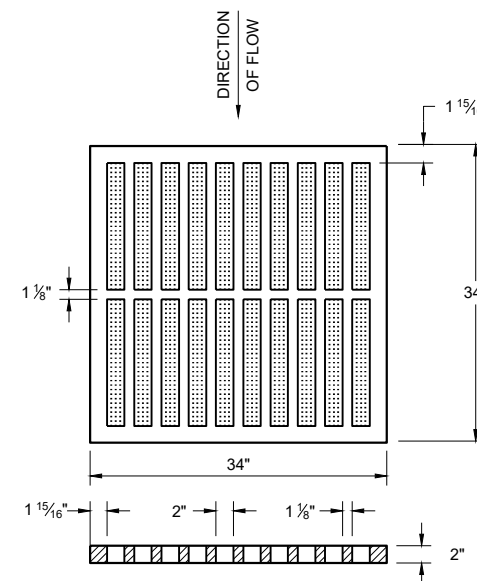
DETAIL DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR CATCH BASIN, MANHOLE AND INLET COVERS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PROVIDING THAT SUCH ALTERNATE DESIGNS MAKE PROVISION FOR EQUIVALENT CAPACITY AND STRENGTH.

ROUND FRAMES AND COVERS SHALL HAVE CONTINUOUSLY MACHINED BEARING SURFACES TO PREVENT ROCKING AND RATTLING.



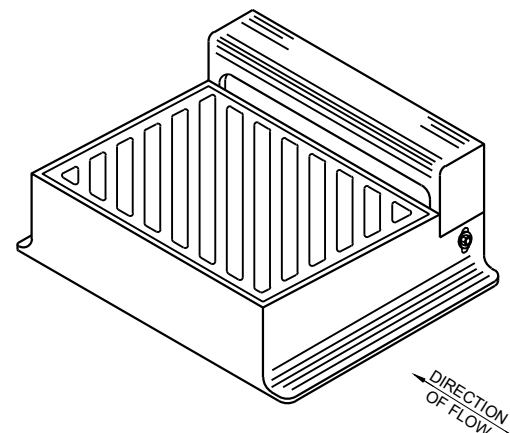
ALTERNATIVE TYPE "MS"

USE WHERE PEDESTRIAN OF BICYCLE TRAFFIC IS PERMITTED
NOTED AS TYPE MS-A ON THE DRAINAGE TABLE

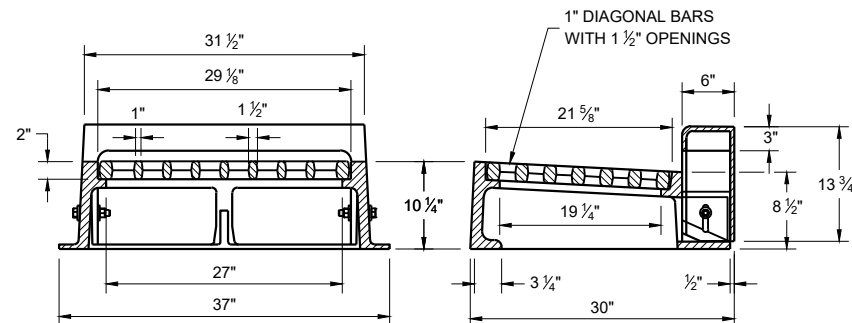


TYPE "MS"

USE ON FREEWAYS AND EXPRESSWAYS
NOTED AS TYPE MS ON THE DRAINAGE TABLE



DIAGONAL SLOTS SHALL BE ORIENTED TO THE DIRECTION OF FLOW AS ILLUSTRATED.
GRATES ARE MANUFACTURED TO BE REVERSIBLE.



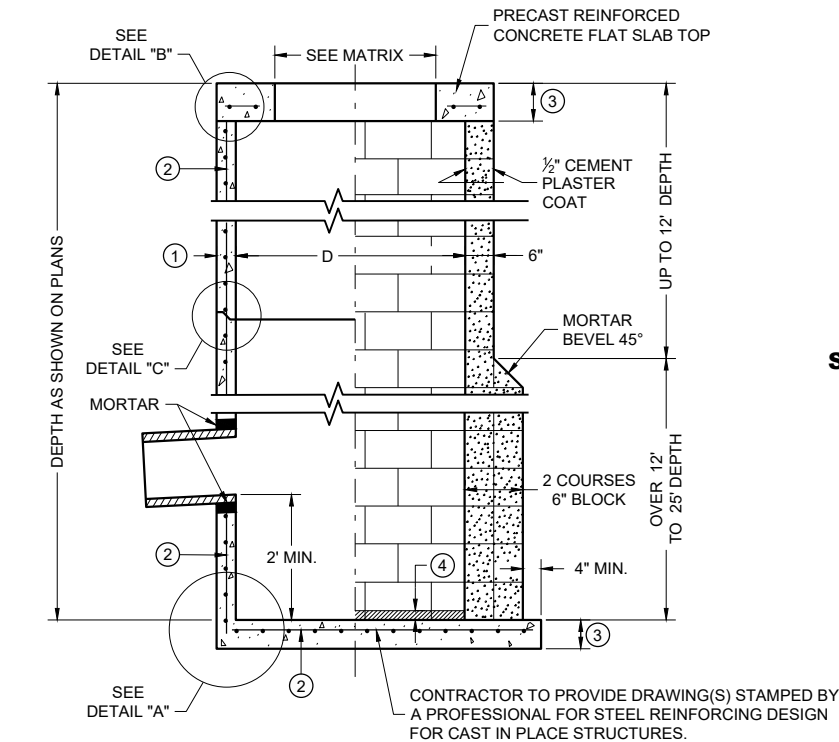
TYPE "WM"

NOTE: CURB BOX HEIGHT ADJUSTABLE 6" - 9"

**INLET COVERS
TYPES B, B-A, C,
MS, MS-A AND WM**

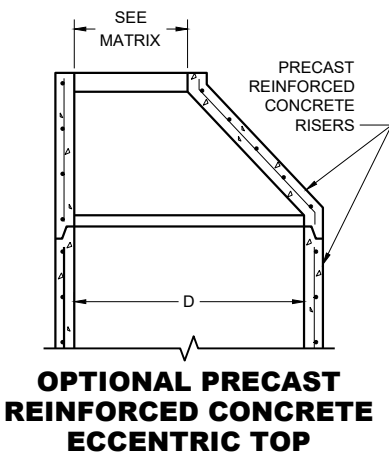
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DATE ROADWAY STANDARDS DEVELOPMENT
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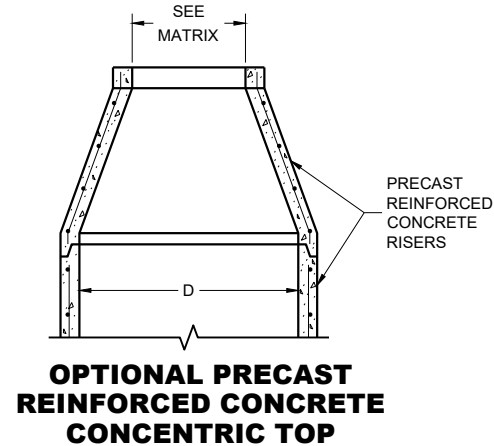


PRECAST REINFORCED CONCRETE WITH MONOLITHIC BASE

CONCRETE BLOCK WITH CAST IN PLACE OR PRECAST REINFORCED CONCRETE BASE ②



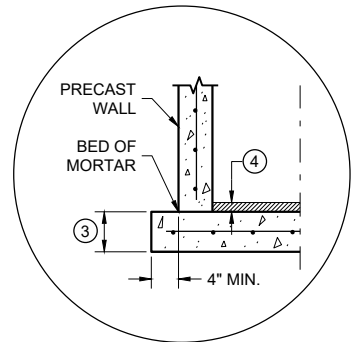
PLAN VIEW CIRCULAR OPENING



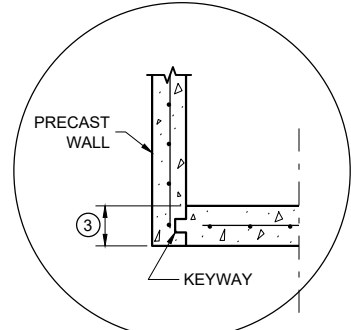
PLAN VIEW RECTANGULAR OPENING

OPTIONAL PRECAST REINFORCED CONCRETE CONCENTRIC TOP

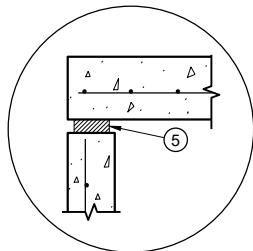
OPTIONAL PRECAST REINFORCED CONCRETE ECCENTRIC TOP



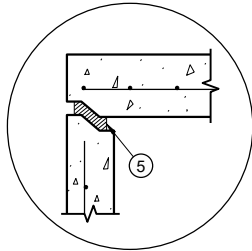
SEPARATE PRECAST REINFORCED CONCRETE BASE OPTION



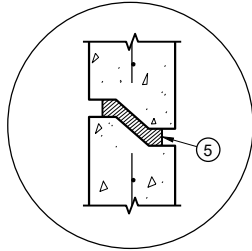
PRECAST REINFORCED CONCRETE WITH INTEGRAL BASE OPTION



TOP WITH PLAIN END JOINT



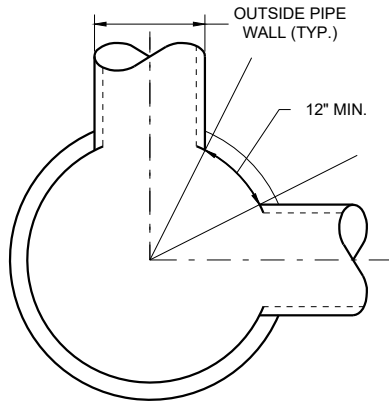
TOP WITH TONGUE AND GROOVE JOINT



RISER WITH TONGUE AND GROOVE JOINT

DETAIL "B"

DETAIL "C"



MINIMUM HORIZONTAL PIPE SEPARATION

DETAIL "D"

COVER MATRIX

CATCH BASIN SIZE	INLET COVER TYPE	ALL A'S	ALL B'S	BW	C	F	ALL H'S	S	T	V V-B	VV-B	WM	Z
	OPENING SIZE (FT.)												
3-FT	2 X 2	X	X					X		X			
	2 DIA.				X								X
4-FT TO 6-FT	2 X 2	X	X					X		X			
	2 X 2.5			X				X	X	X		X	
	2 DIA.				X								X
	2 X 3					X							
	2.5 X 3					X							
	2 X 3.5*										X*		

* REQUIRES 5-FT DIAMETER OR LARGER STRUCTURE

PIPE MATRIX

CATCH BASIN SIZE	MAXIMUM INSIDE PIPE DIAMETER FOR TWO PIPES	
	180° SEPARATION (IN)	90° SEPARATION (IN)
3-FT	15	12
4-FT	24	18
5-FT	36	24
6-FT	42	30

CATCH BASINS 3-FT, 4-FT, 5-FT AND 6-FT DIAMETER

GENERAL NOTES

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

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

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

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

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

PRECAST REINFORCED CONCRETE CONE TOPS (ECCENTRIC OR CONCENTRIC) OR PRECAST REINFORCED CONCRETE FLAT SLAB TOPS MAY BE USED ON CONCRETE BLOCK STRUCTURES.

ECCENTRIC CONE TOPS MAY BE USED ON ALL STRUCTURES. CONCENTRIC CONE TOPS SHALL BE USE ONLY ON STRUCTURES 5 FEET OR LESS IN DEPTH UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

STEPS MEETING AASHTO M199 AND THE FOLLOWING REQUIREMENTS SHALL BE INSTALLED IN ALL STRUCTURES OVER 5 FEET IN DEPTH: 16 INCH C-C MAXIMUM SPACING; PROJECT A MINIMUM CLEAR DISTANCE OF 4 INCHES FROM THE WALL AT THE POINT OF EMBEDMENT; MINIMUM LENGTH OF 10 INCHES; MINIMUM WALL EMBEDMENT OF 3 INCHES. FERROUS METAL STEPS NOT PAINTED OR TREATED TO RESIST CORROSION SHALL HAVE A MINIMUM CROSS SECTIONAL DIMENSION OF 1 INCH.

STEPS OF APPROVED POLYPROPYLENE PLASTIC COATED REINFORCEMENT BAR ARE ACCEPTABLE. REINFORCING BAR MUST BE A MINIMUM OF 1/2 INCH AND MEET THE REQUIREMENTS OF ASTM A615.

CERTIFICATION SHALL BE PROVIDED THAT INSTALLED STEPS WHEN TESTED IN ACCORDANCE WITH SECTION 10 OF AASHTO T280 CAN WITHSTAND A VERTICAL LOAD OF 800 LBS. AND A HORIZONTAL LOAD OF 400 LBS.

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

ALL PRECAST INLET UNITS SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF AASHTO DESIGNATION M199.

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

CONCRETE BLOCK WILL NOT BE PERMITTED FOR STRUCTURES GREATER THAN 4 FEET IN DIAMETER.

4" OVERHANGING BASES ARE REQUIRED FOR ALL CONCRETE BLOCK INSTALLATIONS. 4" OVERHANG IS REQUIRED WHEN SEPARATE PRECAST BASE IS PROVIDED. OVERHANG IS NOT REQUIRED ON PRECAST STRUCTURES WITH AN INTEGRAL OR MONOLITHIC BASE.

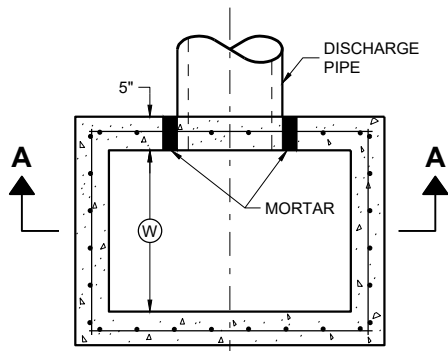
FOR ADDITIONAL CONFIGURATIONS, MAINTAIN A MINIMUM OF 12 INCHES AS MEASURED FROM THE INSIDE OF THE STRUCTURE WALL BETWEEN THE OUTSIDE PIPE WALLS OF ADJACENT PIPES. SEE DETAIL "D".

- ① MINIMUM WALL THICKNESS SHALL BE 4 INCHES FOR 3-FT, 5 INCHES FOR 4-FT, 6 INCHES FOR 5-FT AND 7 INCHES FOR 6-FT DIAMETER PRECAST CATCH BASINS.
- ② FOR PRECAST CATCH BASINS AND REINFORCED CONCRETE BASES PROVIDE REINFORCING STEEL IN ACCORDANCE TO AASHTO M199.
- ③ PRECAST FLAT SLAB TOPS AND BASES WITH A DIAMETER OF 48" AND LESS SHALL HAVE A MINIMUM THICKNESS OF 6". PRECAST FLAT SLAB TOPS AND BASES WITH A DIAMETER LARGER THAN 48" SHALL HAVE A MINIMUM THICKNESS OF 8".
- ④ 1" CONCRETE KEY POURED AFTER INSTALLATION. 2' SUMP MEASURED FROM TOP OF KEY.
- ⑤ JOINTS TO BE SEALED WITH A BUTYL RUBBER SEAL PER SEALANT MANUFACTURERS RECOMMENDATIONS CONFORMING TO ASTM C 990 OR RUBBER GASKETS CONFROMING TO ASTM C443.

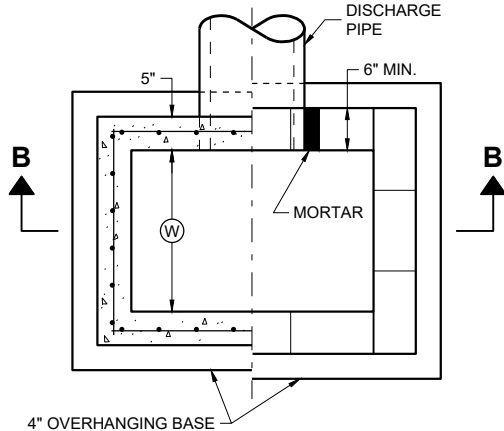
CATCH BASINS, 3-FT. 4-FT., 5 FT., AND 6-FT. DIAMETER

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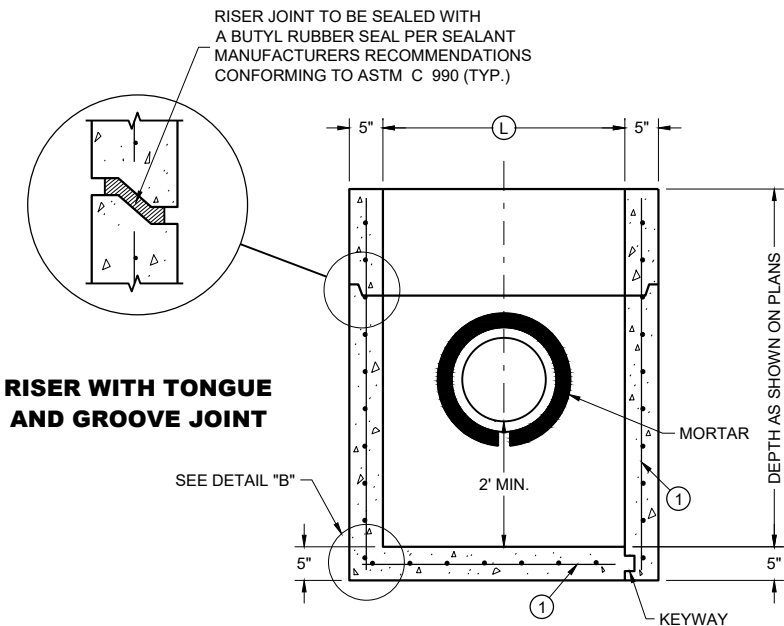
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PLAN VIEW



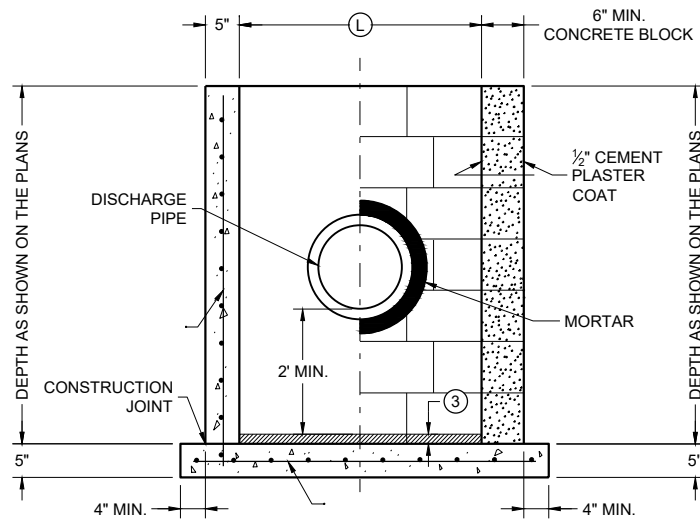
PLAN VIEW



PRECAST REINFORCED
CONCRETE WITH
MONOLITHIC BASE

PRECAST REINFORCED
CONCRETE WITH
INTEGRAL BASE

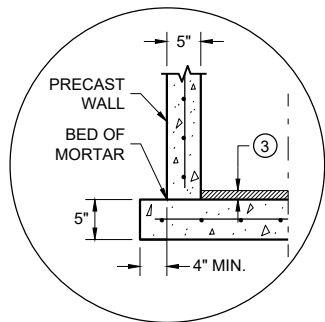
SECTION A - A



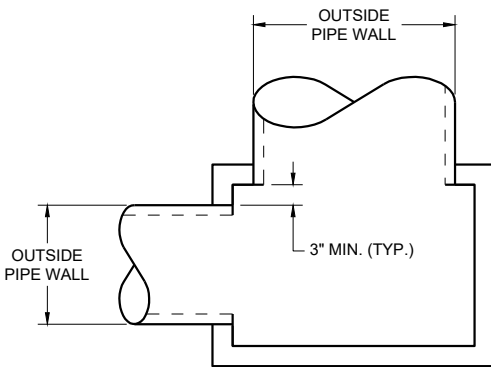
CAST IN PLACE
REINFORCED
CONCRETE

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

SECTION B - B



SEPARATE PRECAST REINFORCED
CONCRETE BASE OPTION
DETAIL "B"



DETAIL "A"

GENERAL NOTES

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

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

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

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

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

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

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

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

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

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

- ① FOR PRECAST CATCH BASINS AND REINFORCED CONCRETE BASES PROVIDE REINFORCING STEEL IN ACCORDANCE TO ASTM C 913.
- ② CONTRACTOR TO PROVIDE DRAWING(S) STAMPED BY A PROFESSIONAL ENGINEER FOR STEEL REINFORCING DESIGN FOR CAST-IN-PLACE STRUCTURES.
- ③ 1" CONCRETE KEY POURED AFTER INSTALLATION. 2' SUMP MEASURED FROM TOP OF KEY.

CATCH BASIN COVER MATRIX

CATCH BASIN SIZE	WIDTH (W) (FT.)	LENGTH (L) (FT.)	INLET COVER TYPE	
			F	ALL H'S
2 X 3-FT	2	3		X
2.5 X 3-FT	2.5	3	X	

PIPE MATRIX

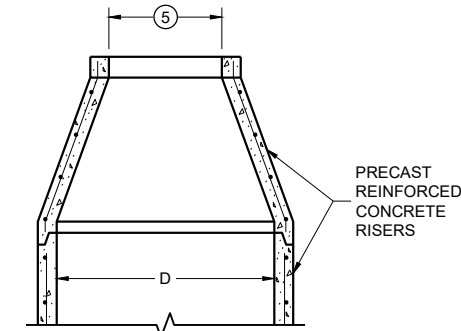
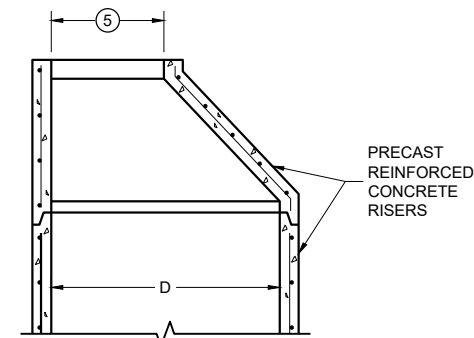
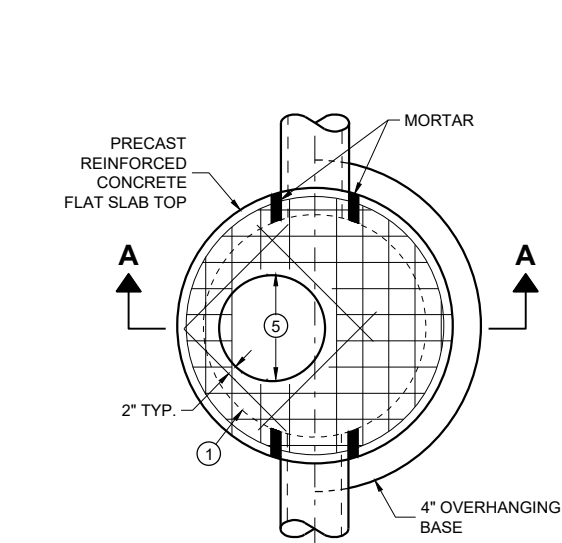
CATCH BASIN SIZE	MAXIMUM INSIDE PIPE DIAMETER (IN)	
	WIDTH (W) (IN)	LENGTH (L) (IN)
2 X 3-FT	12	24
2.5 X 3-FT	18	24

CATCH BASINS 2 X 3-FT AND 2.5 X 3-FT

STATE OF WISCONSIN
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APPROVED
December 2023 /S/ RODNEY TAYLOR
DATE ROADWAY STANDARDS DEVELOPMENT
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CATCH BASINS 2X3-FT AND 2.5X3-FT



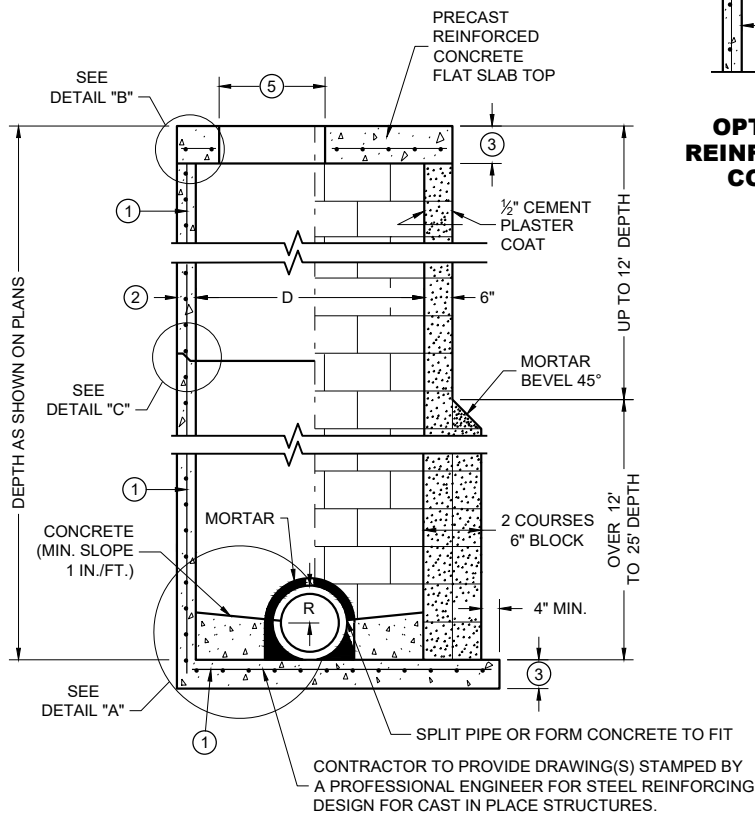
MANHOLE COVER OPENING MATRIX

MANHOLE COVER OPENING SIZE (FT.)	MANHOLE COVER TYPE	C	ALL JS	K	L	M
2 DIA.	5	X	X		X	
3 DIA.				X		X

PIPE MATRIX

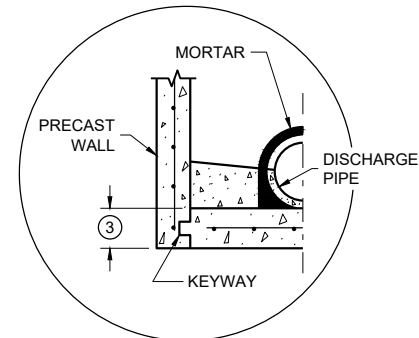
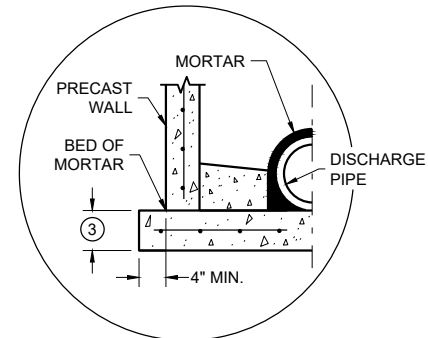
MANHOLE SIZE (DIA.)	MAXIMUM INSIDE PIPE DIAMETER FOR TWO PIPES		MINIMUM WALL THICKNESS (IN)	MINIMUM PRECAST FLAT SLAB TOP AND BASE THICKNESS
	180° SEPARATION (IN)	90° SEPARATION (IN)		
3-FT	15	12	4	6
4-FT	24	18	4	6
5-FT	36	24	5	8
6-FT	42	36	6	8
7-FT	48	36/42 *	7	8
8-FT	60	42	8	8
9-FT	66	54	9	10
10-FT	72	60	10	10

*A 36" PIPE AND A 42" PIPE CAN BE PLACED WITHIN 90 DEGREES.
SEE MINIMUM HORIZONTAL PIPE SEPARATION DETAIL.

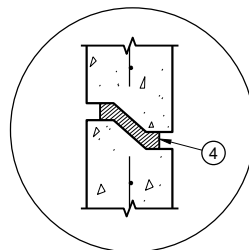
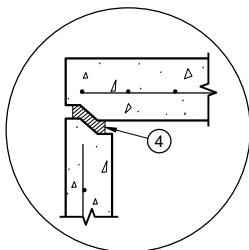
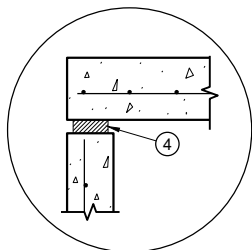


PRECAST REINFORCED
CONCRETE WITH
MONOLITHIC BASE

CONCRETE BLOCK WITH
CAST IN PLACE OR
PRECAST REINFORCED
CONCRETE BASE

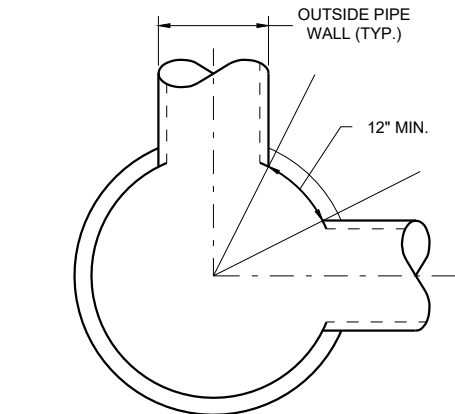


DETAIL "A"



DETAIL "B"

DETAIL "C"



DETAIL "D"

GENERAL NOTES

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

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

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

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

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

PRECAST REINFORCED CONCRETE CONE TOPS (ECCENTRIC OR CONCENTRIC) OR PRECAST REINFORCED CONCRETE FLAT SLAB TOPS MAY BE USED ON CONCRETE BLOCK STRUCTURES.

ECCENTRIC CONE TOPS MAY BE USED ON ALL STRUCTURES. CONCENTRIC CONE TOPS SHALL BE USED ONLY ON STRUCTURES 5 FEET OR LESS IN DEPTH UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

STEPS MEETING AASHTO M199 AND THE FOLLOWING REQUIREMENTS SHALL BE INSTALLED IN ALL STRUCTURES OVER 5 FEET IN DEPTH: 16 INCH C-C MAXIMUM SPACING; PROJECT A MINIMUM CLEAR DISTANCE OF 4 INCHES FROM THE WALL AT THE POINT OF EMBEDMENT; MINIMUM LENGTH OF 10 INCHES; MINIMUM WALL EMBEDMENT OF 3 INCHES. FERROUS METAL STEPS NOT PAINTED OR TREATED TO RESIST CORROSION SHALL HAVE A MINIMUM CROSS SECTIONAL IMENSION OF 1 INCH.

STEPS OF APPROVED POLYPROPYLENE PLASTIC COATED REINFORCEMENT BAR ARE ACCEPTABLE. REINFORCING BAR MUST BE A MINIMUM OF 1/2 INCH AND MEET THE REQUIREMENTS OF ASTM A615.

CERTIFICATION SHALL BE PROVIDED THAT INSTALLED STEPS WHEN TESTED IN ACCORDANCE WITH SECTION 10 OF AASHTO T280 CAN WITHSTAND A VERTICAL LOAD OF 800 LBS. AND A HORIZONTAL LOAD OF 400 LBS.

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

ALL PRECAST MANHOLE UNITS SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF AASHTO DESIGNATION M199.

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

CONCRETE BLOCK WILL NOT BE PERMITTED FOR STRUCTURES GREATER THAN 4 FEET IN DIAMETER.

4" OVERHANGING BASES ARE REQUIRED FOR ALL CONCRETE BLOCK INSTALLATIONS. 4" OVERHANG IS REQUIRED WHEN SEPARATE PRECAST BASE IS PROVIDED. OVERHANG IS NOT REQUIRED ON PRECAST STRUCTURES WITH AN INTEGRAL OR MONOLITHIC BASE.

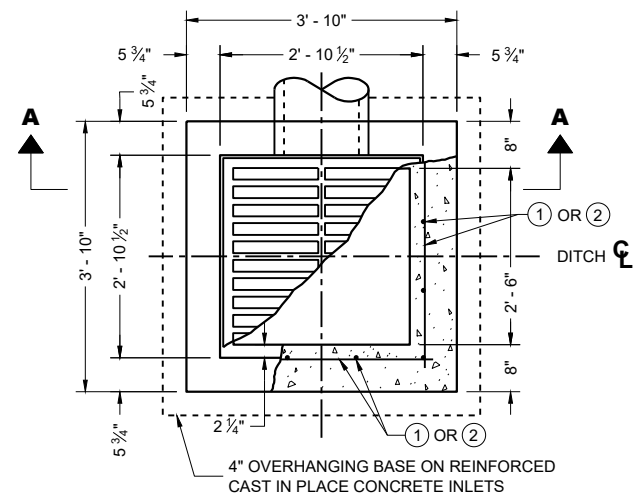
FOR ADDITIONAL CONFIGURATIONS, MAINTAIN A MINIMUM OF 12 INCHES AS MEASURED FROM THE INSIDE OF THE STRUCTURE WALL BETWEEN THE OUTSIDE PIPE WALLS OF ADJACENT PIPES. SEE DETAIL "D".

- FOR PRECAST MANHOLES AND REINFORCED CONCRETE BASES PROVIDE REINFORCING STEEL IN ACCORDANCE TO AASHTO M199.
- SEE PIPE MATRIX TABLE FOR MINIMUM WALL THICKNESS FOR PRECAST MANHOLES
- SEE PIPE MATRIX TABLE FOR MINIMUM THICKNESS OF PRECAST FLAT SLAB TOPS AND BASES.
- JOINTS TO BE SEALED WITH A BUTYL RUBBER SEAL PER SEALANT MANUFACTURERS RECOMMENDATIONS CONFORMING TO ASTM C 990 OR RUBBER GASKETS CONFORMING TO ASTM C443.
- SEE MANHOLE COVER OPENING MATRIX.

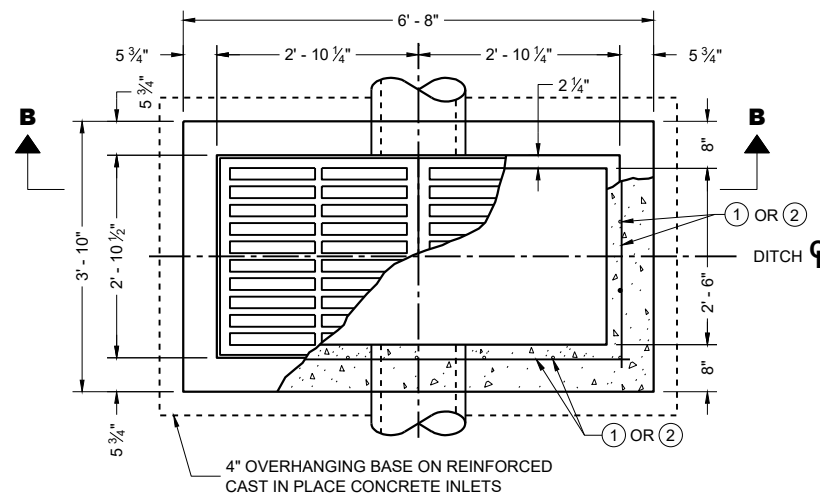
MANHOLES, 3-FT, 4-FT
5-FT, 6-FT, 7-FT, 8-FT, 9-FT
AND 10-FT DIAMETER

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

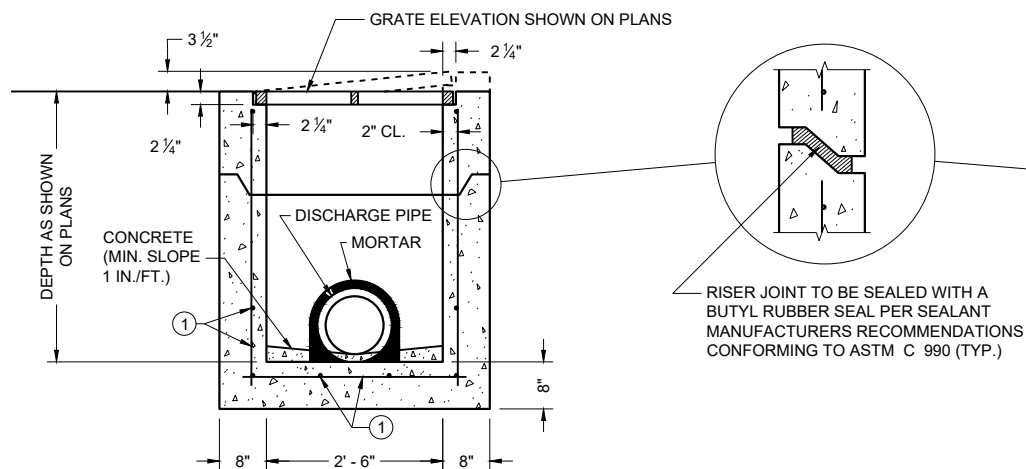
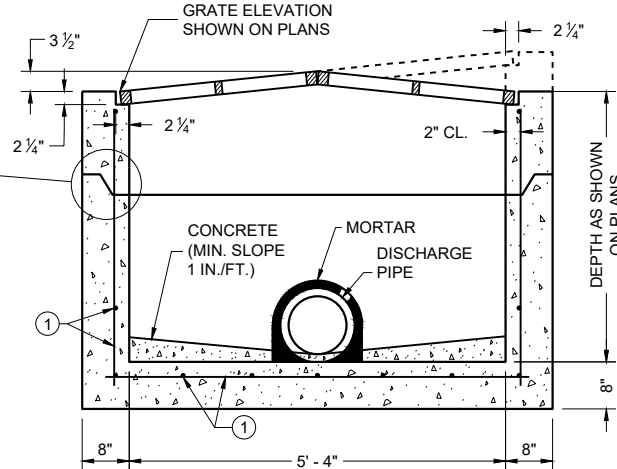
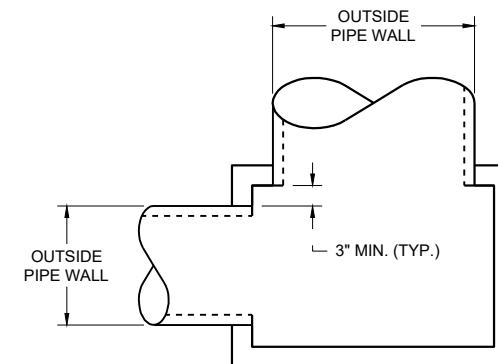
APPROVED
December 2023 /S/ Rodney Taylor
DATE ROADWAY STANDARDS DEVELOPMENT
FHWA UNIT SUPERVISOR



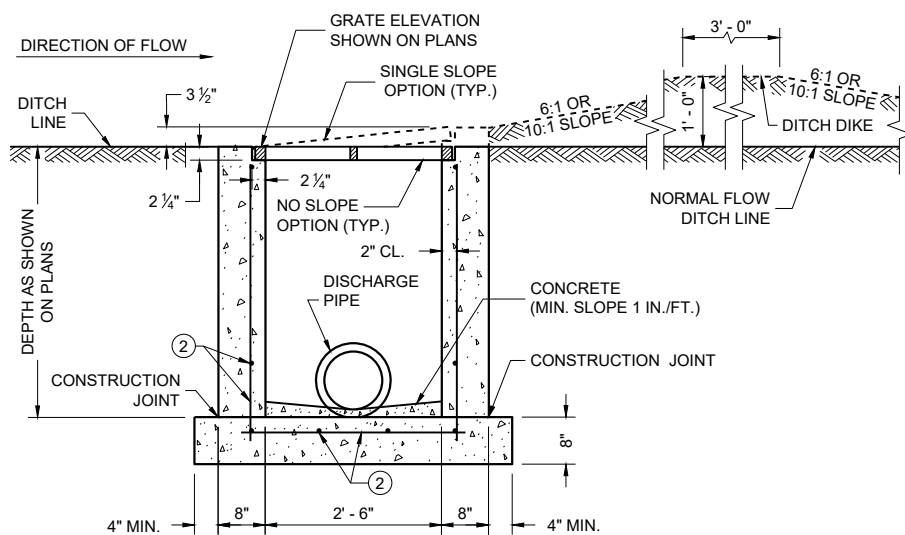
PLAN VIEW



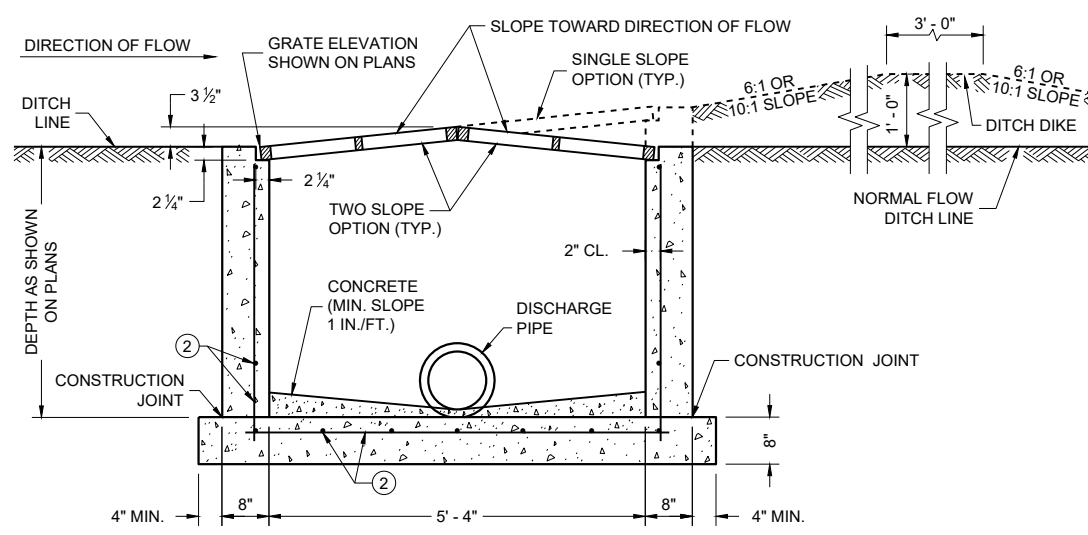
PLAN VIEW

PRECAST REINFORCED CONCRETE
SECTION A - APRECAST REINFORCED CONCRETE
SECTION B - B

DETAIL "A"

REINFORCED CAST IN PLACE CONCRETE
SECTION A - A

INLETS MEDIAN 1 GRATE

REINFORCED CAST IN PLACE CONCRETE
SECTION B - B

INLETS MEDIAN 2 GRATE

GENERAL NOTES

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

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

DETAILED DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR INLETS WHICH MAY INCLUDE PRECAST REINFORCED CONCRETE INLETS, SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PROVIDING THAT SUCH ALTERNATE DESIGNS MAKE PROVISION FOR EQUIVALENT CAPACITY AND STRENGTH.

ALL MEDIAN INLETS ARE DESIGNATED ON THE PLANS AS "INLETS, 1G-MS", ETC. THE FIRST NUMBER AND LETTER DESIGNATE THE TYPE OF STRUCTURE, AND THE FOLLOWING LETTERS DESIGNATE THE TYPE OF COVER TO BE USED TO COMPRISE THE COMPLETE UNIT.

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

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

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

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

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

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

PIPE MATRIX

INLET SIZE	MAXIMUM INSIDE PIPE DIAMETER	
	WIDTH (IN)	LENGTH (IN)
1 GRATE	18	18
2 GRATE	18	42

INLETS
MEDIAN 1 AND 2 GRATE

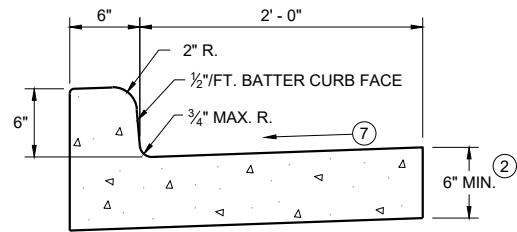
STATE OF WISCONSIN
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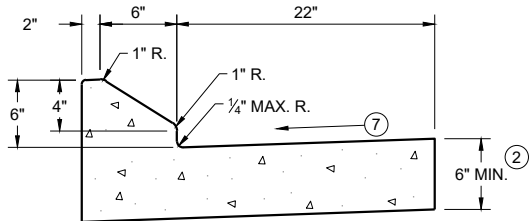
December 2023
DATE

/S/ Rodney Taylor
ROADWAY STANDARDS DEVELOPMENT
UNIT SUPERVISOR

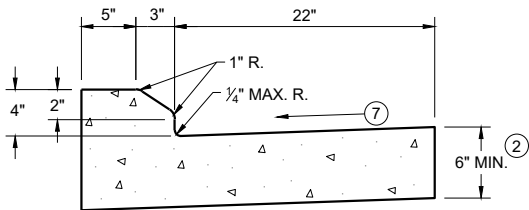
FHWA



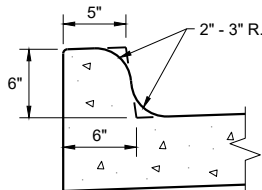
TYPES A^① & D



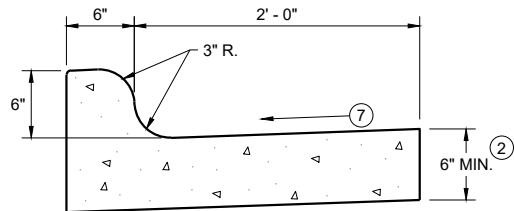
6" SLOPED CURB TYPES G^① & J



4" SLOPED CURB TYPES G^① & J

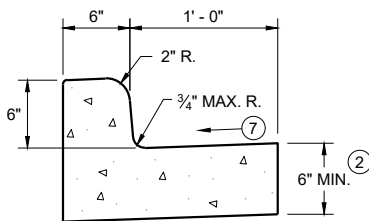


TYPES K^① & L
(OPTIONAL CURB SHAPE)



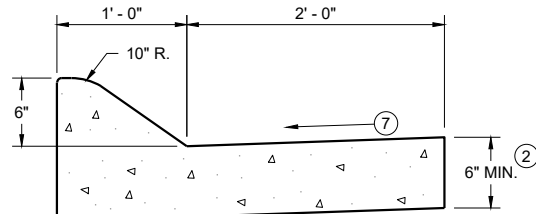
TYPES K^① & L

CONCRETE CURB AND GUTTER 30"

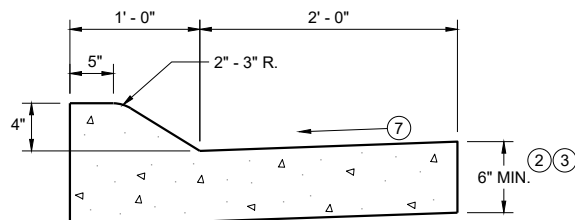


TYPES A^① & D

CONCRETE CURB AND GUTTER 18"

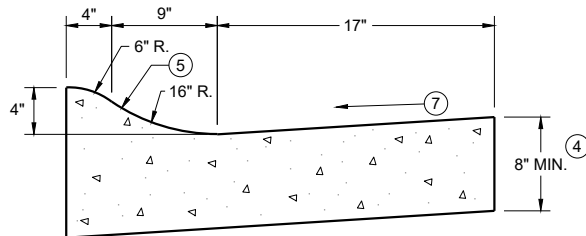


6" SLOPED CURB TYPES A^① & D



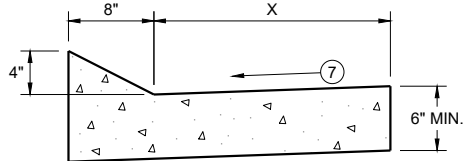
4" SLOPED CURB TYPES A^① & D

CONCRETE CURB AND GUTTER 36"



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

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

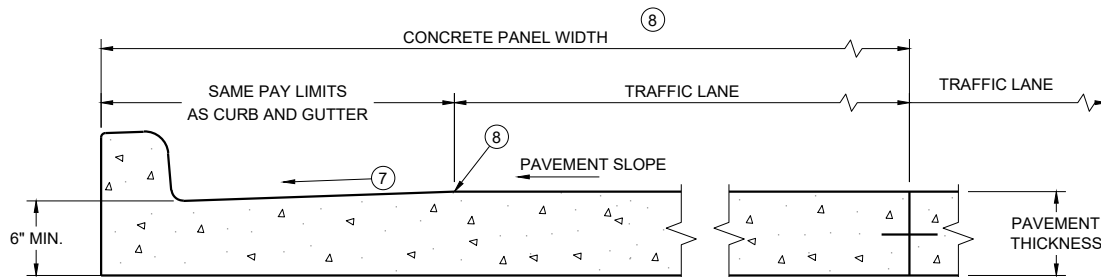


TYPES TBT & TBTT^①

CONCRETE CURB AND GUTTER

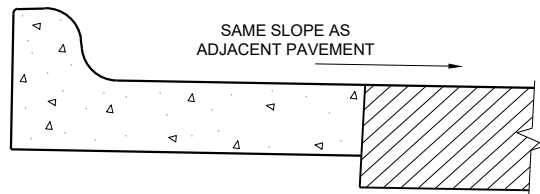
PAVEMENT THICKNESS
AND MAXIMUM CONCRETE
PANEL WIDTH TABLE

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

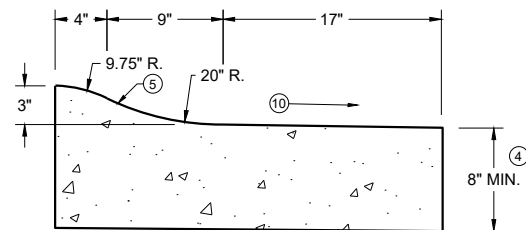


PARTIAL SECTION OF PAVEMENT
WITH INTEGRAL CURB AND GUTTER

* BIKE LANE IS NOT SHOWN



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



3" SLOPED CURB TYPES R^① & T

CONCRETE CURB AND GUTTER

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

GENERAL NOTES

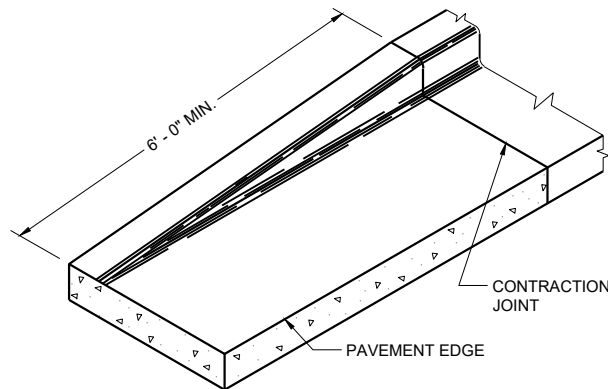
DETAILS OF CONSTRUCTION AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.

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

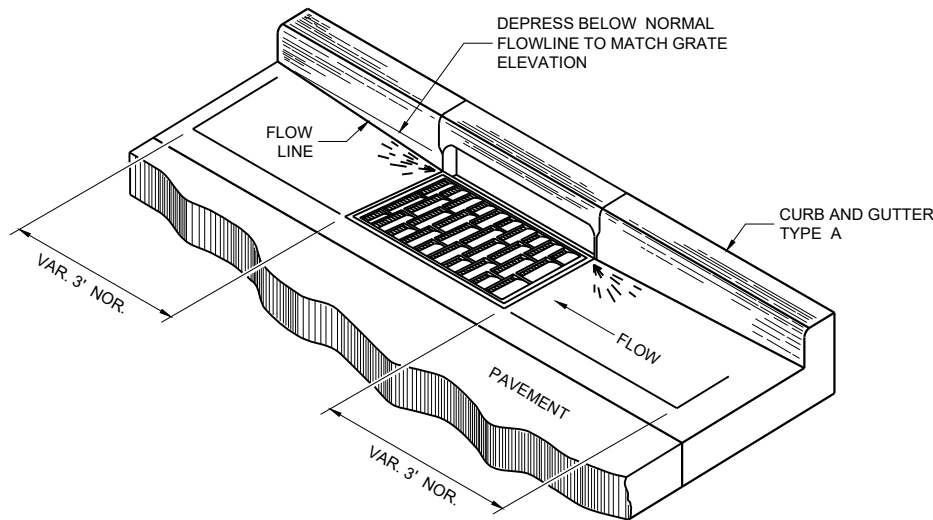
INTEGRAL CURB AND GUTTER SHALL CONFORM TO THE DETAILS SHOWN FOR CONCRETE CURB AND GUTTER INCLUDING THE TRANSVERSE GUTTER SLOPE.

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

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

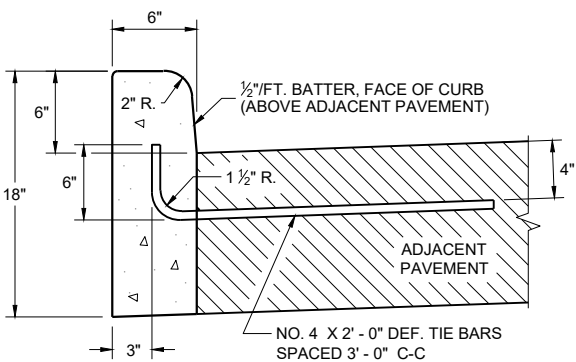


END SECTION CURB AND GUTTER

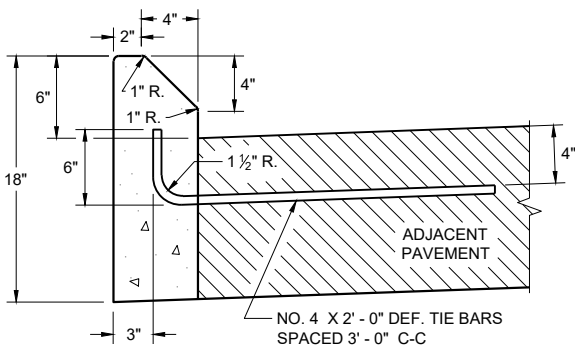


DETAIL OF CURB AND GUTTER AT INLETS

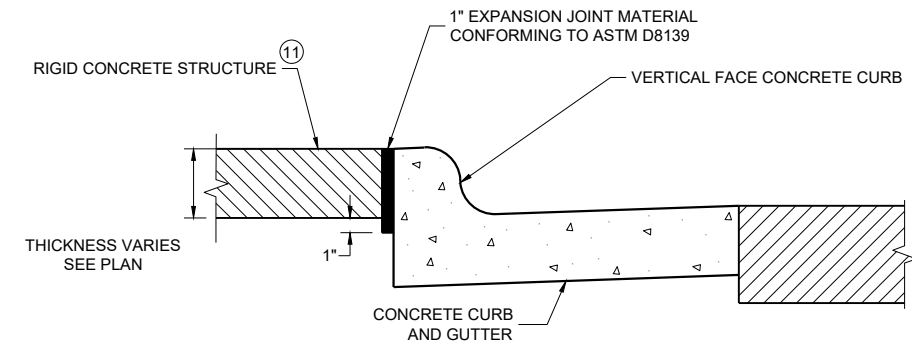
(TYPICAL H INLET COVER SHOWN)



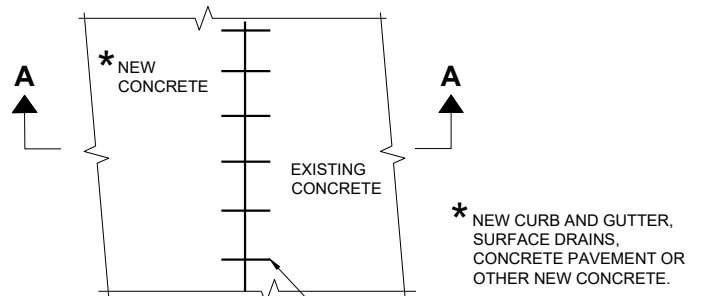
TYPES A^① & D



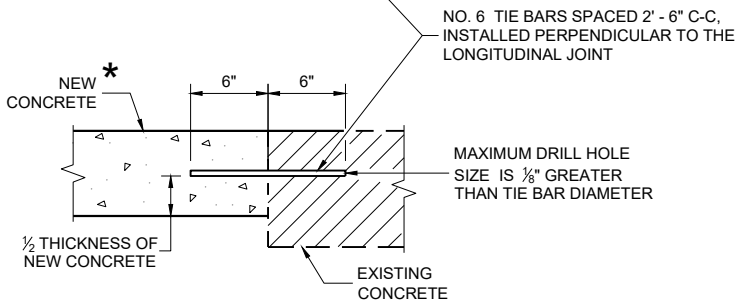
TYPES G^① & J
CONCRETE CURB



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



PLAN VIEW



SECTION A - A
TIE BARS DRILLED INTO EXISTING PAVEMENT

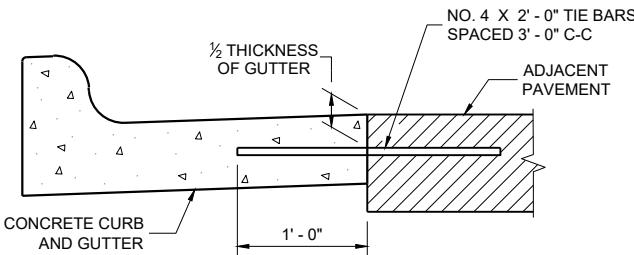
GENERAL NOTES

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

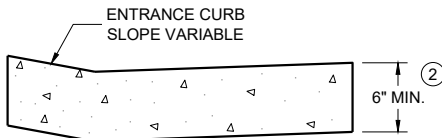
PAVEMENT TIES AND TIE BARS SHALL BE EPOXY COATED IN CONFORMANCE WITH SUBSECTION 505.2.6.2 OF THE STANDARD SPECIFICATIONS.

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

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



TYPICAL TIE BAR LOCATION^①



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

CONCRETE CURB, TIES AND CURB AND GUTTER APPLICATIONS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

FHWA



INTERMEDIATE RADII CAN BE INTERPOLATED
 DIMENSION "Y" IS CALCULATED BASED ON 6'-0" RAMP LENGTH
 DIMENSION "X" IS CALCULATED BASED ON 5'-0" SIDEWALK WIDTH



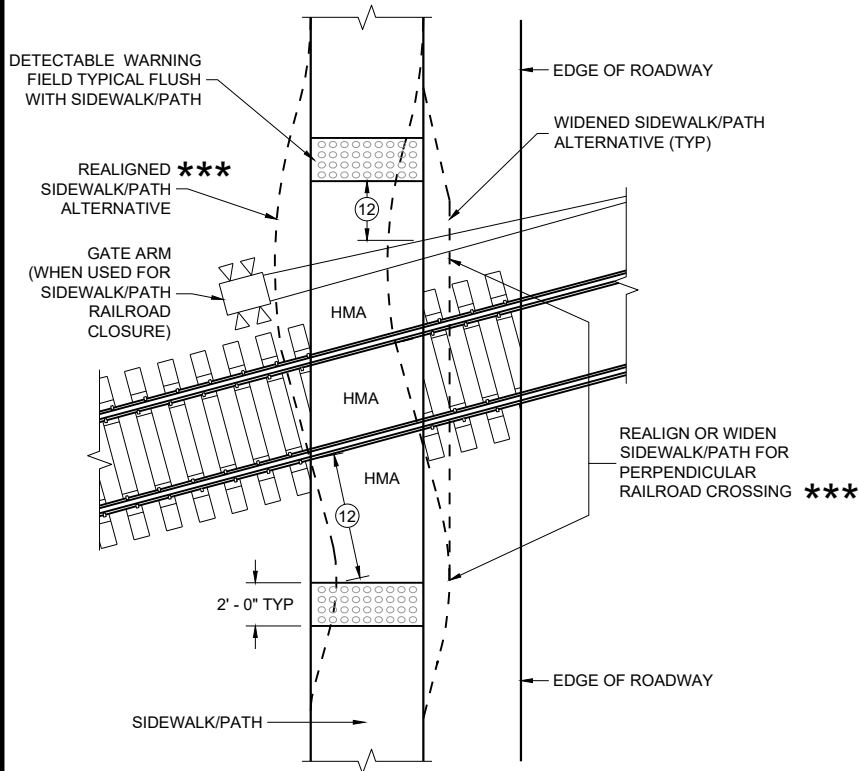
GENERAL NOTES

AVOID PLACING DRAINAGE STRUCTURES, JUNCTION BOXES OR OTHER OBSTRUCTIONS IN FRONT OF CURB RAMP ACCESS AREAS.

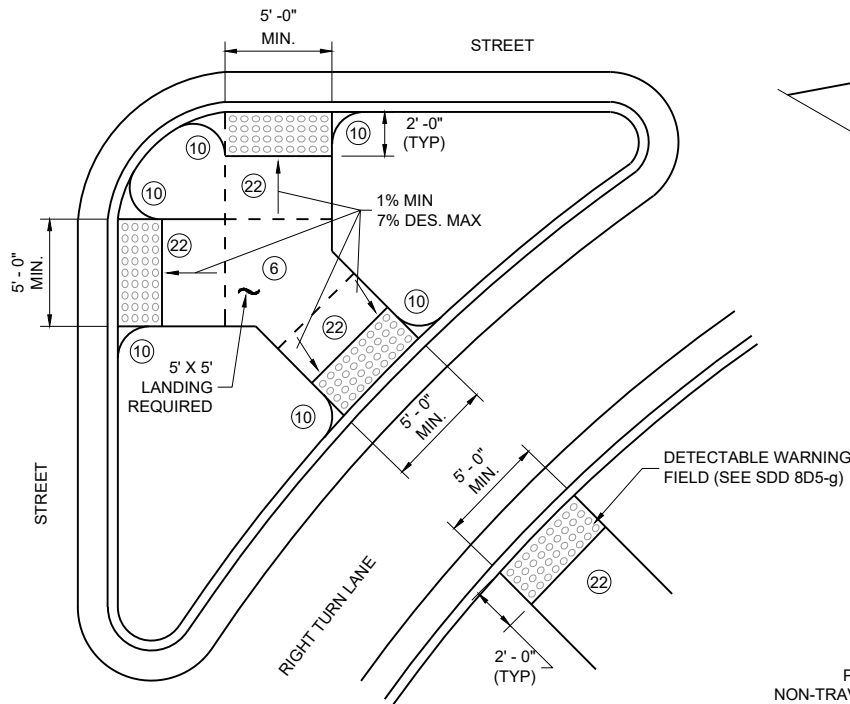
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

DETECTABLE WARNING FIELDS THAT ARE INSTALLED AS A GROUP OR SIDE BY SIDE, SHALL BE FROM THE SAME MANUFACTURER.

- ② GRADE CHANGE BETWEEN GUTTER COUNTER SLOPE AND THE CURB RAMP SLOPE IS DESIRABLY 11% OR LESS AND SHALL NOT EXCEED 13.3%. TYPICAL GUTTER COUNTER SLOPE IS 4% BUT MAY BE MODIFIED TO FIT FIELD CONDITIONS. PROVIDE LONGITUDINAL DRAINAGE AROUND CURB AND AWAY FROM CURB RAMP. NO VERTICAL LIPS OR DISCONTINUITIES ARE ALLOWED. SLOPE OF CURB HEAD OPENING SHALL MATCH THE RAMP SLOPE, MINIMALLY 1.5%, DESIRABLY 7% OR LESS, AND SHALL NOT EXCEED A MAXIMUM OF 8.3%. WHEN ADJACENT TO 1.5% LANDING, CONSTRUCT CURB HEAD OPENING AT 1.5% IN THE DIRECTION OF PEDESTRIAN TRAVEL.
- ③ MAXIMUM 8.3% CURB RAMP SLOPE IS ALLOWABLE WITH GUTTER COUNTER SLOPE OF 5% MAXIMUM AND A 13.3% MAXIMUM GRADE CHANGE.
- ④ $\pm 0.5\%$ CONSTRUCTION TOLERANCE IN SIDEWALK CROSS SLOPE. THE SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2.1% WITHOUT PRIOR APPROVAL FROM THE ENGINEER.
- ⑦ WHEN THIS GRADE BREAK DISTANCE EXCEEDS 5 FEET, USE RADIAL DETECTABLE WARNING FIELD PER SDD 8D5-F.
- ⑧ PROVIDE GRADE BREAK PERPENDICULAR TO DIRECTION OF WHEELCHAIR TRAVEL.
- ⑩ INSTALL TRANSITION NOSE (INCIDENTAL TO OTHER PAY ITEMS). DO NOT MARK TRANSITION NOSE.
- ⑪ A MAXIMUM 2-INCH CONCRETE BORDER IS PERMITTED ALONG ALL SIDES OF THE DETECTABLE WARNING FIELD SURFACE.
- ⑫ MAXIMUM 1.5% DESIGN MAXIMUM AND 2.1% PROWAG MAXIMUM RUNNING SLOPE ON CLEAR AREA. CROSS SLOPE OF CLEAR AREA SHALL MATCH THE CROSS SLOPE OF THE ADJACENT CROSSWALK.
- ⑫ THE ENTIRE RAMP SHALL BE A PLANAR SURFACE. DO NOT WARP THE RUNNING SLOPE OR CROSS SLOPE OF THE RAMP. WARPING OF THE SIDEWALK CROSS SLOPE SHALL TAKE PLACE BETWEEN THE LANDING AND MATCH POINT.
- ⑬ THE CLEAR AREA BETWEEN THE BOTTOM OF RAMP AND BACK OF CURB SHALL BE SLOPED SO THAT WATER DRAINS OUT OF ONE SIDE OR BOTH SIDES OF THE CURB OPENING.

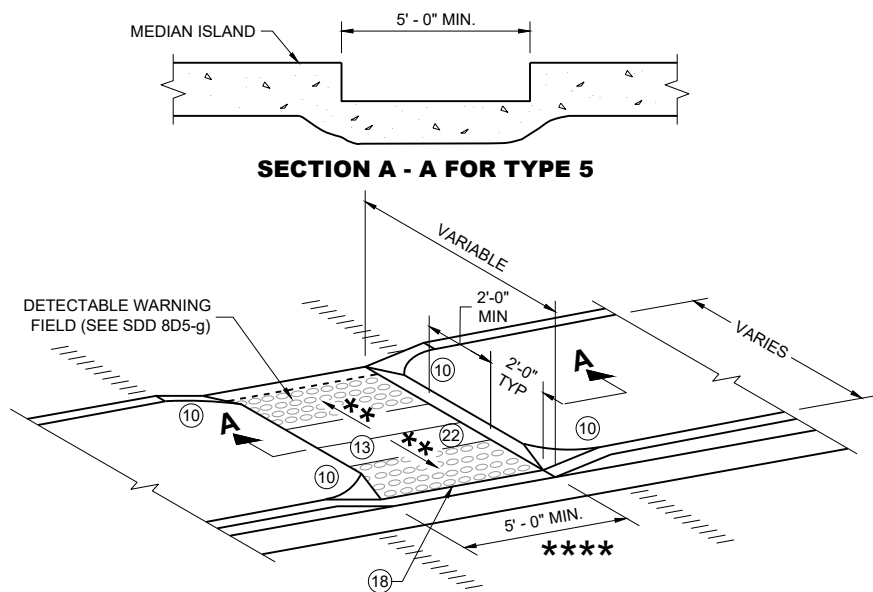


CURB RAMP TYPE 8
DETECTABLE WARNINGS
FOR SIDEWALKS OR SHARED USE PATHS
AT RAILROAD CROSSINGS

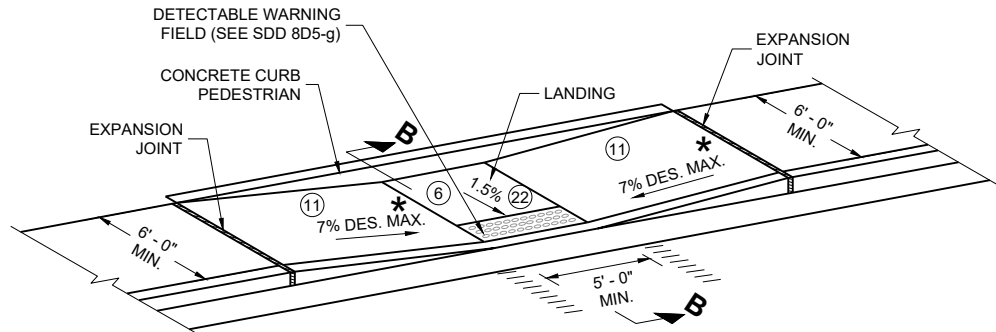


CURB RAMP TYPE 6
DETECTABLE WARNING AT ISLANDS

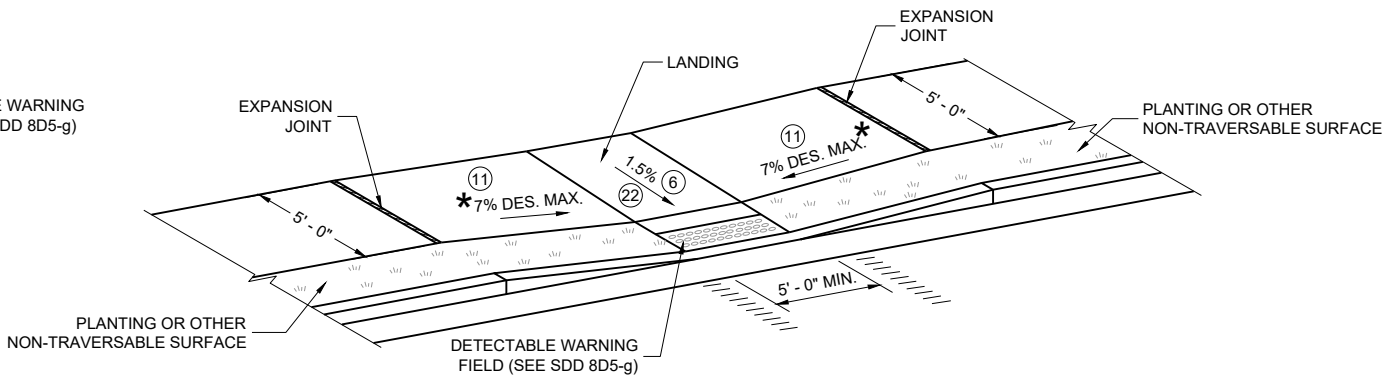
REFER TO GENERAL NOTES (2) AND (3)
FOR ALL ISLAND CURB RAMPS



CURB RAMP TYPE 5
MEDIAN ISLAND
NON-ELEVATED PEDESTRIAN CROSSING



CURB RAMP TYPE 7A
FOR INTERSECTIONS AND
MID BLOCK CROSSINGS



CURB RAMP TYPE 7B
FOR INTERSECTIONS AND
MID BLOCK CROSSINGS

GENERAL NOTES

AVOID PLACING DRAINAGE STRUCTURES, JUNCTION BOXES OR OTHER OBSTRUCTIONS IN FRONT OF CURB RAMP ACCESS AREAS.

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.

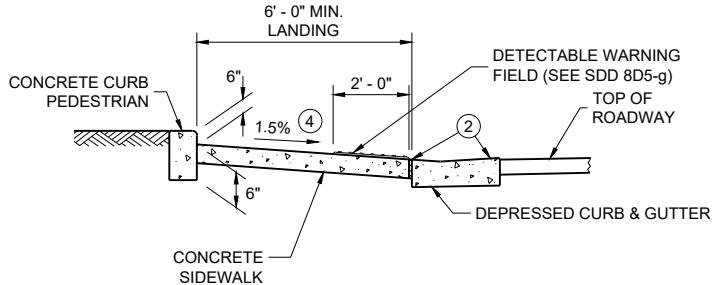
SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2.1%.

DETECTABLE WARNING FIELDS THAT ARE INSTALLED AS A GROUP OR SIDE BY SIDE, SHALL BE FROM THE SAME MANUFACTURER.

- (2) GRADE CHANGE BETWEEN GUTTER COUNTER SLOPE AND THE CURB RAMP SLOPE IS DESIRABLY 11% OR LESS AND SHALL NOT EXCEED 13.3%. TYPICAL GUTTER COUNTER SLOPE IS 4% BUT MAY BE MODIFIED TO FIT FIELD CONDITIONS. PROVIDE LONGITUDINAL DRAINAGE AROUND CURB AND AWAY FROM CURB RAMP. NO VERTICAL LIPS OR DISCONTINUITIES ARE ALLOWED. SLOPE OF CURB HEAD OPENING SHALL MATCH THE RAMP SLOPE, MINIMALLY 1.5%, DESIRABLY 7% OR LESS, AND SHALL NOT EXCEED A MAXIMUM OF 8.3%. WHEN ADJACENT TO 1.5% LANDING, CONSTRUCT CURB HEAD OPENING AT 1.5% IN THE DIRECTION OF PEDESTRIAN TRAVEL.
- (3) MAXIMUM 8.3% CURB RAMP SLOPE IS ALLOWABLE WITH GUTTER COUNTER SLOPE OF 5% MAXIMUM AND A 13.3% MAXIMUM GRADE CHANGE.
- (4) ±0.5% CONSTRUCTION TOLERANCE IN SIDEWALK CROSS SLOPE. THE SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2.1% WITHOUT PRIOR APPROVAL FROM THE ENGINEER.
- (6) PROVIDE A 5 FOOT BY 5 FOOT LANDING. SLOPE PERPENDICULAR TO CURB SHALL BE 2.1% MAXIMUM. SLOPE PARALLEL TO CURB SHALL MATCH THE CURB AND GUTTER LONGITUDINAL SLOPE.
- (10) INSTALL TRANSITION NOSE (INCIDENTAL TO OTHER PAY ITEMS). DO NOT MARK TRANSITION NOSE.
- (11) SLOPE SIDEWALK TOWARD LANDING AS SHOWN WHERE THERE IS NO TERRACE OR WHERE THE TERRACE WIDTH IS LESS THAN 6 FEET WIDE.
- (12) THE EDGE OF THE DETECTABLE WARNING FIELD NEAREST TO A RAILROAD CROSSING SHALL BE 1.5 FEET ±0.1' FROM THE FACE OF THE GATE ARM IF THE GATE ARM EXTENDS ACROSS THE SIDEWALK/PATH. WHERE THERE IS NO PEDESTRIAN GATE, THE EDGE OF THE DETECTABLE WARNING FIELD NEAREST TO THE RAILROAD TRACK IS 15 FEET MAXIMUM AND 12 FEET MINIMUM, 15 FEET TYPICAL FROM THE NEAREST RAIL.
- (13) DO NOT INSTALL DETECTABLE WARNING FIELDS AT THE EDGES OF STEET-LEVEL PEDESTRIAN REFUGE ISLANDS IF A MINIMUM 2 FOOT CONCRETE SURFACE WITHOUT DETECTABLE WARNINGS (MEASURED IN THE DIRECTION OF PEDESTRIAN TRAVEL) CANNOT BE ACHIEVED.
- (17) A MAXIMUM 2-INCH CONCRETE BORDER IS PERMITTED ALONG ALL SIDES OF THE DETECTABLE WARNING FIELD SURFACE.
- (18) WHEN THE DISTANCE BETWEEN THE BACK OF CURBS IS LESS THAN 6 FEET BUT THE FACE OF CURB TO FACE OF CURB DISTANCE IS 6 FEET OR GREATER THEN THE DETECTABLE WARNING FIELDS MAY BE MOVED SO THAT THE EDGE OF THE WARNING FIELD IS PLACED AT THE GUTTER FLOWLINE. MAINTAIN A MINIMUM OF TWO FEET BETWEEN DETECTABLE WARNING FIELD PANELS.
- (22) THE ENTIRE RAMP SHALL BE A PLANAR SURFACE. DO NOT WARP THE RUNNING SLOPE OR CROSS SLOPE OF THE RAMP. WARPING OF THE SIDEWALK CROSS SLOPE SHALL TAKE PLACE BETWEEN THE LANDING AND MATCH POINT.

LEGEND

- 1/2" EXPANSION JOINT SIDEWALK
- CONTRACTION JOINT FIELD LOCATED
- PAVEMENT MARKING CROSSWALK (WHITE)
- MAXIMUM 8.3%
- 1% MINIMUM (PROVIDE DRAINAGE)
- DETAILS TO BE DETERMINED BY ENGINEER
- FOR SHARED USE PATHS, WIDTH MUST BE AS WIDE AS THE CROSSWALK



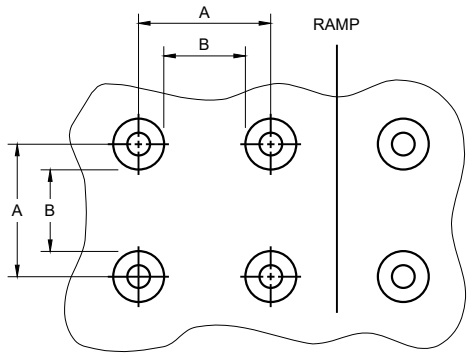
SECTION B - B FOR TYPE 7A

CURB RAMPS
TYPE 5, 6, 7A, 7B & 8

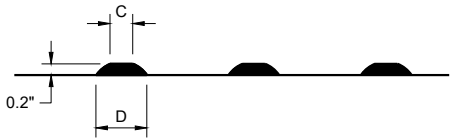
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

	MIN.	MAX.
A	1.6"	2.4"
B	0.65"	1.5"
C	*	*
D	0.9"	1.4"

* THE C DIMENSION IS 50% TO 65% OF THE D DIMENSION.

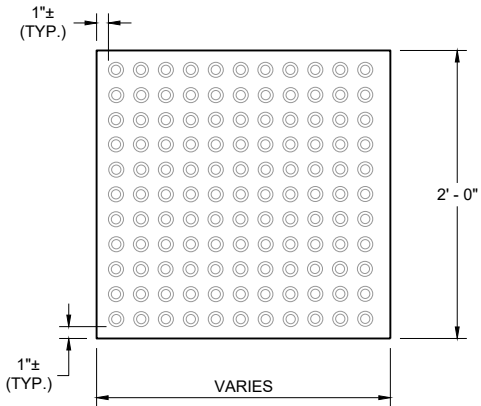


PLAN VIEW

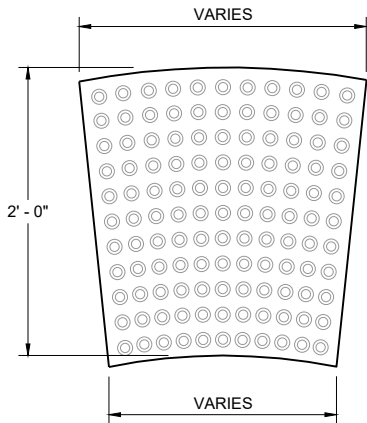


ELEVATION VIEW

TRUNCATED DOMES
DETECTABLE WARNING PATTERN DETAIL

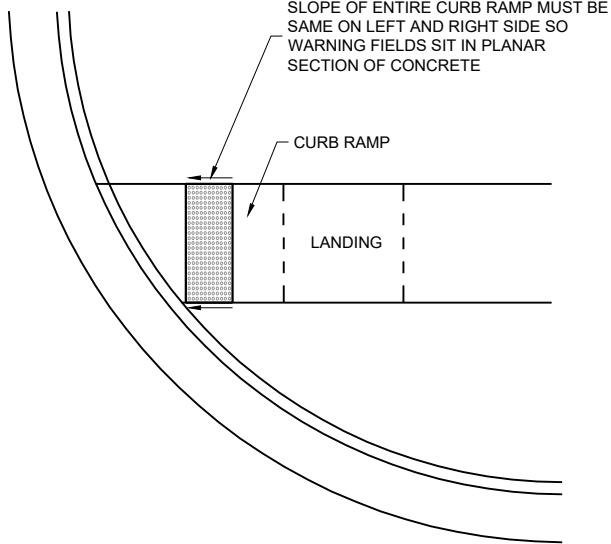


RECTANGULAR
PLATES

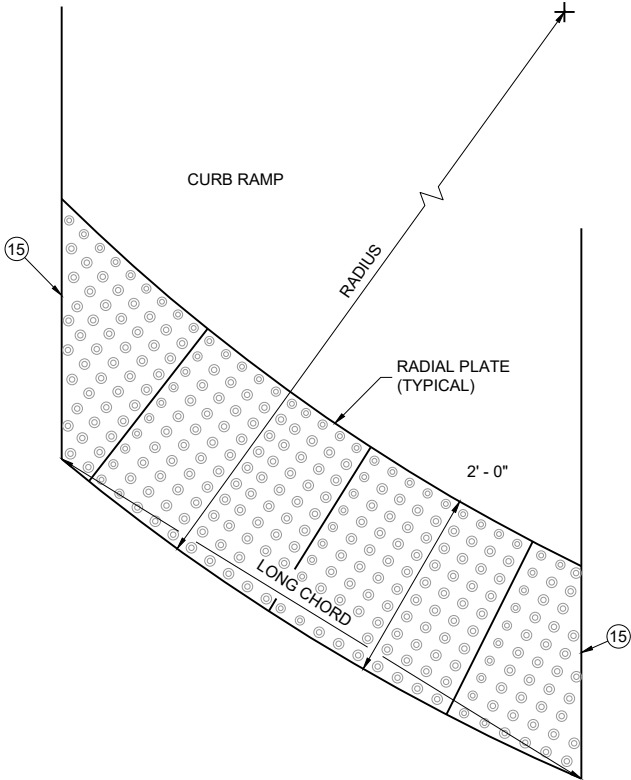


RADIAL
PLATES

PLAN VIEW
DETECTABLE WARNING FIELDS (TYPICAL)



DETECTABLE WARNING FIELD
PLANAR INSTALLATION



PLAN VIEW
RADIAL DETECTABLE
WARNING FIELD ATTRIBUTES

GENERAL NOTES

DETECTABLE WARNING FIELDS THAT ARE INSTALLED AT A CURB RAMP SHALL BE FROM THE SAME MANUFACTURER.

PLACE ALL DETECTABLE WARNING FIELD SYSTEMS IN ACCORDANCE TO THE MANUFACTURER'S RECOMMENDATION.

FIELD CUTS AT INTERMEDIATE JOINTS WITHIN THE RADIAL DETECTABLE WARNING FILED ARE PROHIBITED.

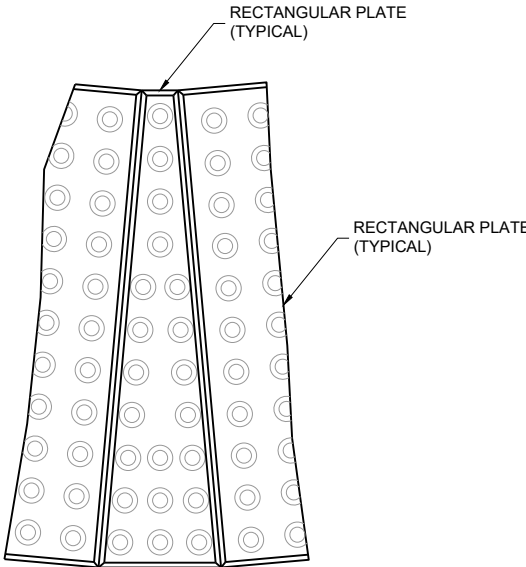
DETERMINE FINAL RADIAL WARNING FIELD CONFIGURATION AND ITS INDIVIDUAL PLATE LOCATIONS. PERFORM PRE-LAYOUT PRIOR TO PLACEMENT IN PLASTIC CONCRETE. FOLLOW MANUFACTURER'S PRODUCT LIST AND INSTALLATION RECOMMENDATIONS.

FOR RADIAL DETECTABLE WARNING FIELD APPLICATIONS WHERE STANDARD RADIAL PLATES ARE NOT AVAILABLE AT AN INTERSECTION CURB RADIUS, A COMBINATION OF SQUARE OR RECTANGULAR PLATES AND RADIAL PLATES MAY BE USED TO FORM RADIAL CONFIGURATION. RADIAL WEDGE PLATES IN COMBINATION WITH SQUARE PLATES ARE ALSO ACCEPTABLE. FOLLOW MANUFACTURER'S RECOMMENDATIONS.

REFER TO CONTRACT AND STANDARD SPECIFICATIONS FOR FIELD CUTTING REQUIREMENTS.

DO NOT EMBED IN CONCRETE ANY FIELD-CUT PLATES WITH CUT EDGES SHORTER THAN 6 INCHES. CONSULT WITH MANUFACTURER FOR RE-DRILLING AND ANCHORING REQUIREMENTS OF FIELD-CUT PLATES.

(15) FIELD SAW CUTS ALONG RADIAL DETECTABLE WARNING PLATES WILL BE NECESSARY TO MATCH EACH CURB RAMP EDGE. AVOID CUTTING THROUGH DOMES WHENEVER POSSIBLE. MAKE FIELD CUTS TRUE TO LINE AND WITHIN 1/8" DEVIATION. SMOOTH EDGES OF FIELD CUT PLATES.



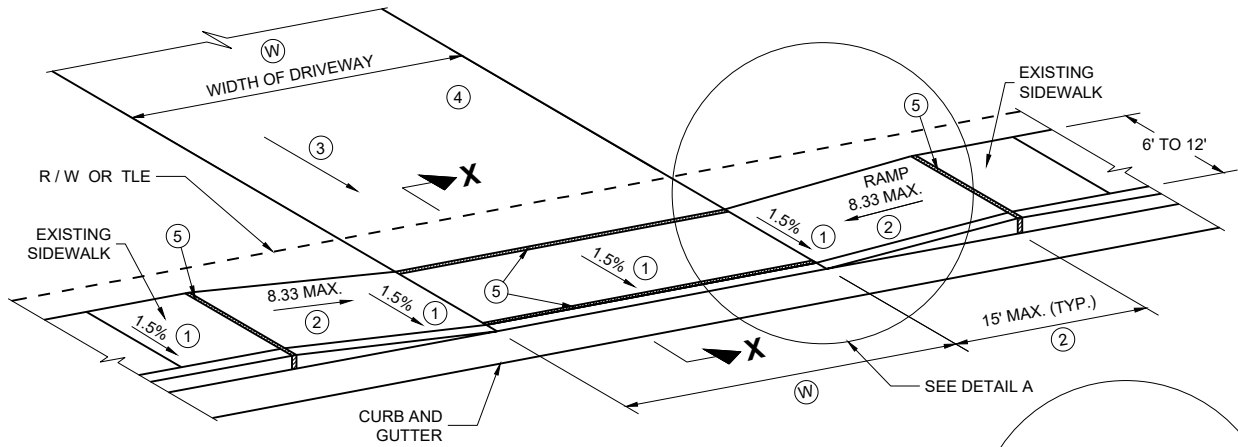
PLAN VIEW
RADIAL WEDGE PLATE
CONNECTION DETAIL

CURB RAMPS
RECTANGULAR AND RADIAL
DETECTABLE WARNING PLATES

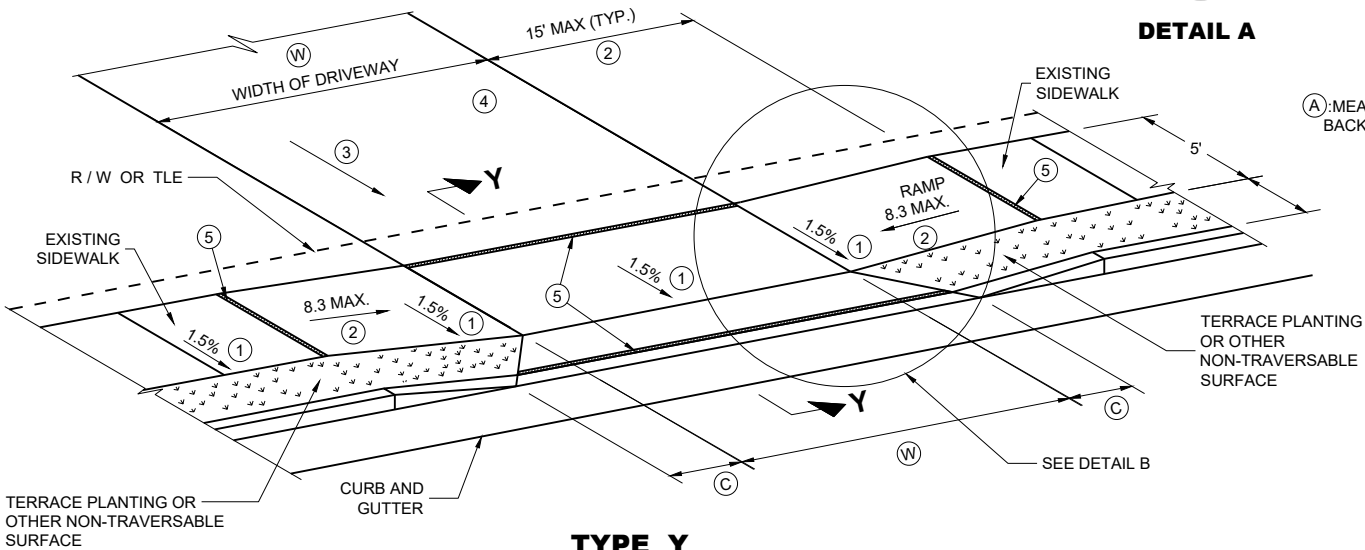
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
February 2025 /S/ Rodney Taylor
DATE <position>

FHWA



TYPE X
SIDEWALK ABUTS CURB AND GUTTER
TERRACE VARIES 0 TO 3 FEET



TYPE Y
SIDEWALK WITH NARROWER TERRACE
TERRACE VARIES 4 TO 6 FEET

GENERAL NOTES

PROVIDE CONSTRUCTION JOINTS ALONG THE CENTER OF THE CONCRETE FOR DRIVEWAYS UNDER 20 FEET IN WIDTH AND AT THE THIRD POINTS OVER 20 FEET IN WIDTH.

(W) IS SHOWN ON PLAN AND PROFILE SHEETS.

OFFSETS, ELEVATIONS, AND PERCENT GRADE ARE SHOWN ON THE CROSS SECTIONS.

① CONSTRUCTION TOLERANCE OF 0.5%± FOR SIDEWALK CROSS SLOPE. THE SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2.1%.

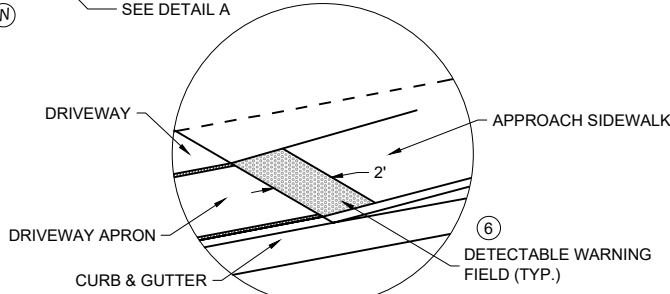
② THE SIDEWALK RAMP MAXIMUM RUNNING SLOPE SHALL NOT REQUIRE THE RAMP LENGTH TO EXCEED 15 FEET TO AVOID CHASING THE SLOPE INDEFINITELY WHEN CONNECTING TO STEEP GRADES. WHEN APPLYING THE 15 FOOT MAXIMUM LENGTH, THE RUNNING SLOPE OF THE SIDEWALK SHALL BE AS FLAT AS FEASIBLE AND NOT EXCEED THE LONGITUDINAL GRADE OF THE ROADWAY. SLOPE SIDEWALK RAMP TOWARD APRON AS SHOWN WHERE THERE IS NO TERRACE OR WHERE THE TERRACE WIDTH IS LESS THAN 6 FEET WIDE.

③ **DRIVEWAY SLOPES: DESIRABLE MAXIMUM**
10.5% UP AWAY FROM SIDEWALK (SAG)
8.5% DOWN AWAY FROM SIDEWALK (CREST)
ABSOLUTE MAXIMUM 15% FOR BOTH CREST AND SAG

④ **DRIVEWAY TYPES**
* 6-INCH CONCRETE DRIVEWAY PAVEMENT OVER 6-INCH BASE AGGREGATE
* 2-INCH TO 3-INCH ASPHALTIC SURFACE OVER 6-INCH BASE AGGREGATE
* 6-INCH BASE AGGREGATE (MAY BE INCREASED FOR CLAY SUBGRADES.)

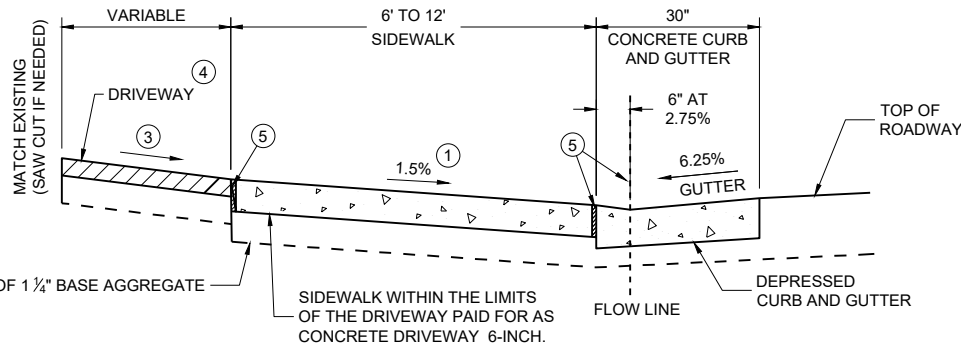
⑤ 1/2" EXPANSION JOINT FILLER

⑥ DETECABLE WARNING FIELDS ARE REQUIRED WHEN A PEDESTRIAN CIRCULATION ROUTE CROSSES A DRIVEWAY THAT IS TRAFFIC SIGNAL, STOP, OR YIELD SIGN CONTROLLED. DETECABLE WARNING FIELDS TO BE 2 FT DEEP AND EXTEND THE WIDTH OF THE PEDESTRIAN CIRCULATION ROUTE.



DETAIL A

(A): MEASURE FROM BACK OF CURB



SECTION X - X

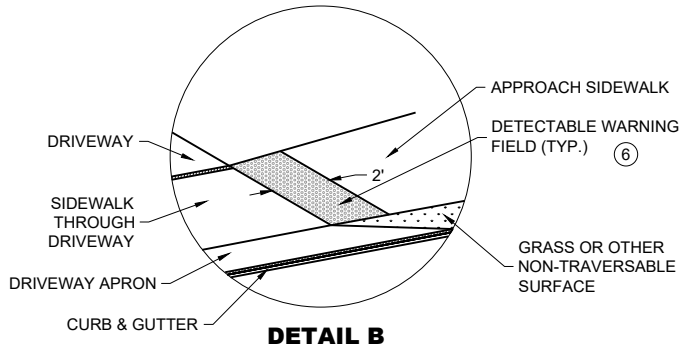
(W): 12' MIN. - 24' MAX. RESIDENTIAL AND NON-COMMERCIAL (PE & FE)
16' MIN. - 35' MAX. COMMERCIAL (CE)

TABLE Y

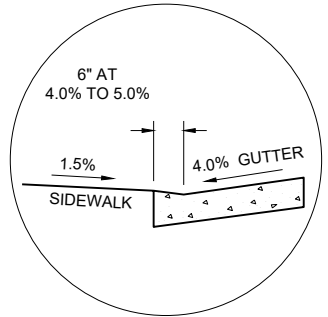
(A) FEET	(C) FEET
3.5'	2.0'
4.5'	3.0'
5.5'	3.5'

NOTE: SIDEWALK MAY BE DEPRESSED IN DRIVEWAY AREAS

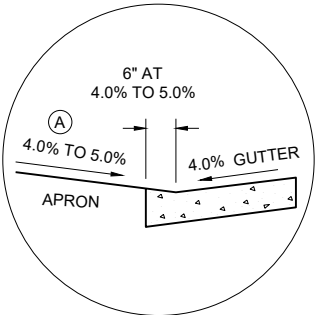
SECTION Y - Y
DRIVEWAY DETAIL WITH CONCRETE CURB AND GUTTER
(URBAN AND SUBURBAN)



DETAIL B



SECTION X - X
4% GUTTER SLOPE



SECTION Y - Y
4% GUTTER SLOPE

DRIVEWAY AND SIDEWALK RAMPS
TYPES X AND Y

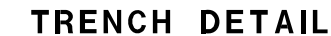
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
February 2025 /S/ Rodney Taylor
DATE

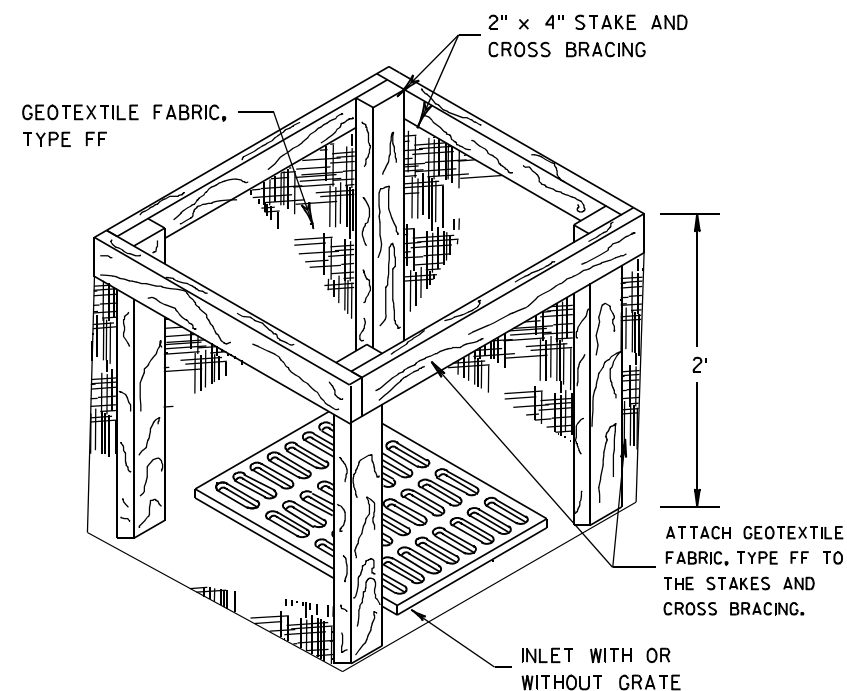
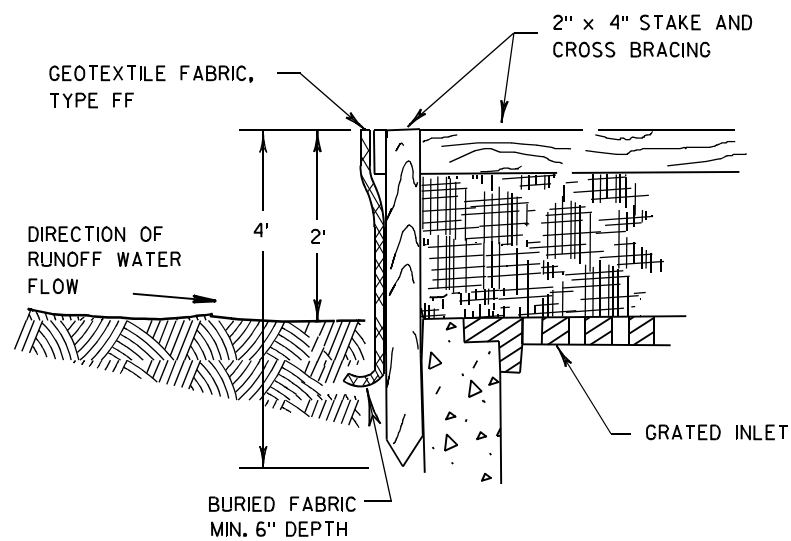
FHWA



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



SILT FENCE	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED <u>4-29-05</u> <u>DATE</u>	<u>/S/ Beth Canestra</u> CHIEF ROADWAY DEVELOPMENT ENGINEER



INLET PROTECTION, TYPE A

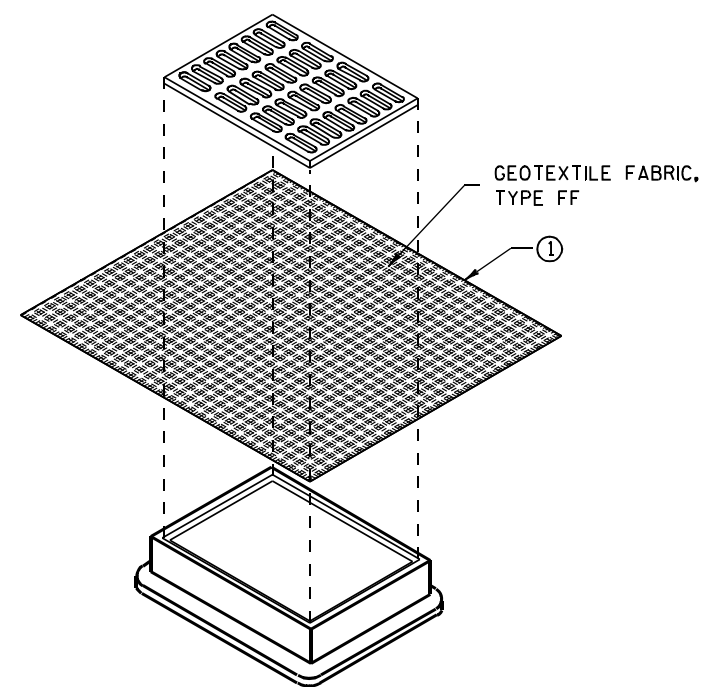
GENERAL NOTES

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

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

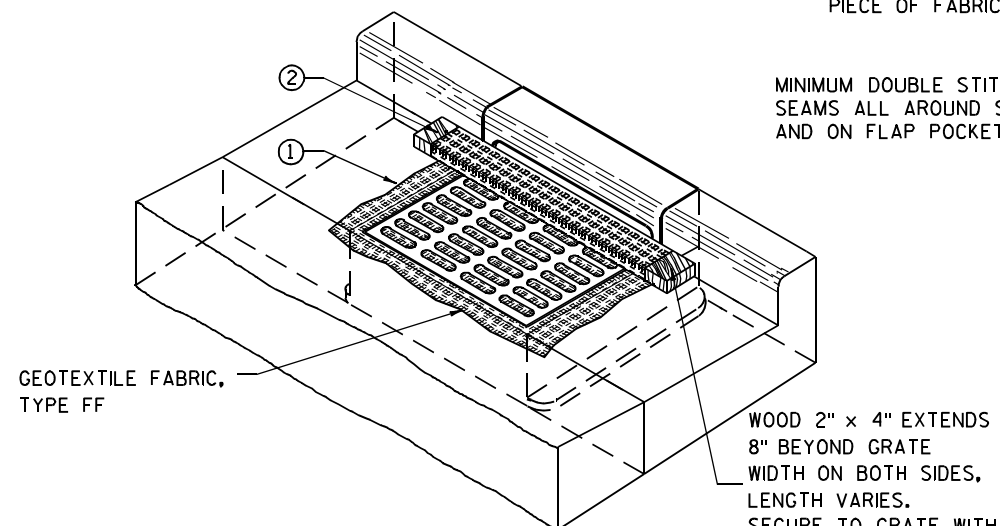
WHEN REMOVING OR MAINTAINING INLET PROTECTION, CARE SHALL BE TAKEN SO THAT THE SEDIMENT TRAPPED ON THE GEOTEXTILE FABRIC DOES NOT FALL INTO THE INLET. ANY MATERIAL FALLING INTO THE INLET SHALL BE REMOVED IMMEDIATELY.

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



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

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



INLET PROTECTION, TYPE C (WITH CURB BOX)

INSTALLATION NOTES

TYPE B & C

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

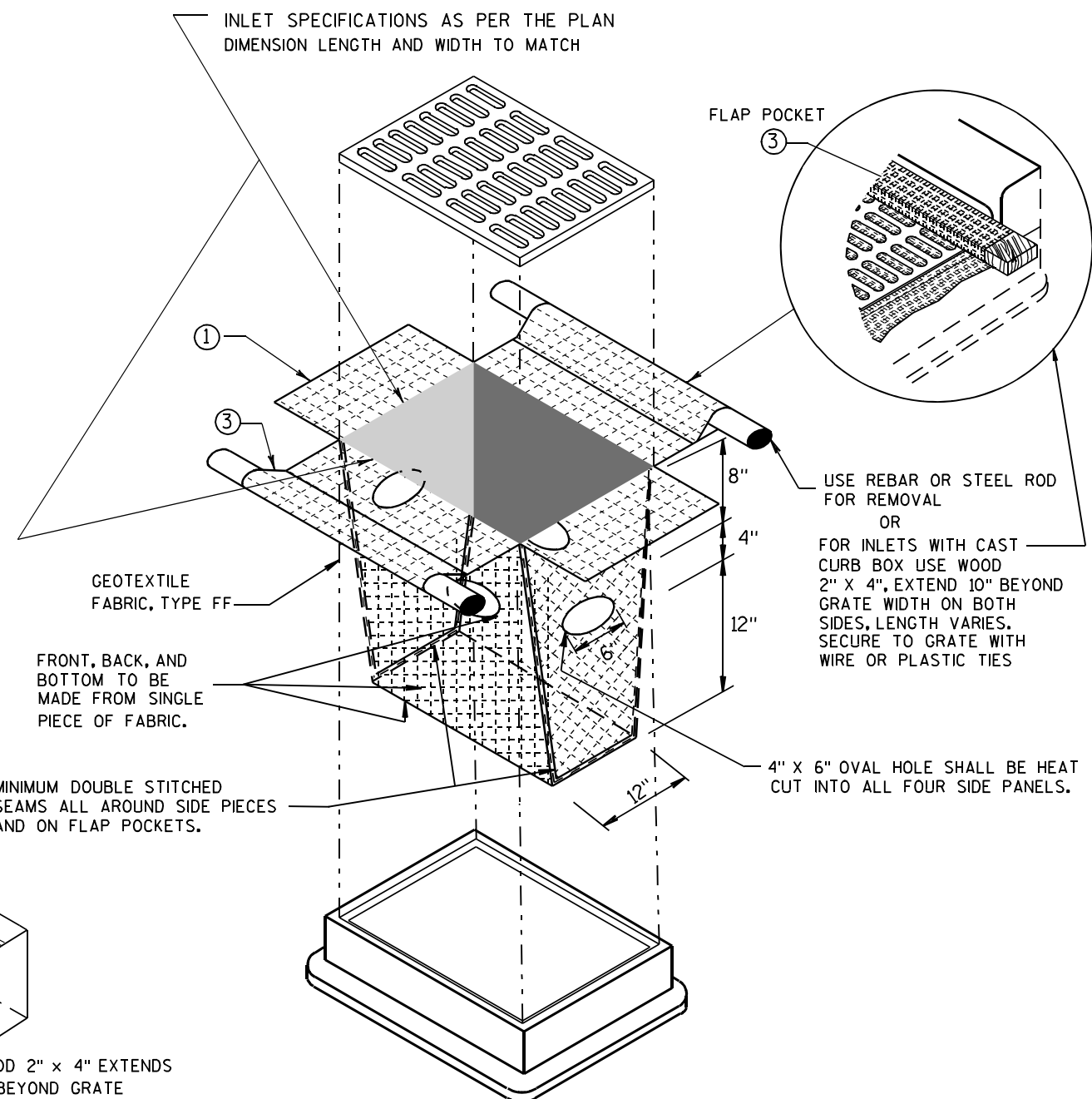
THE CONTRACTOR SHALL DEMONSTRATE A METHOD OF MAINTENANCE, USING A SEWN FLAP, HAND HOLDS OR OTHER METHOD TO PREVENT ACCUMULATED SEDIMENT FROM ENTERING THE INLET.

TYPE D

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

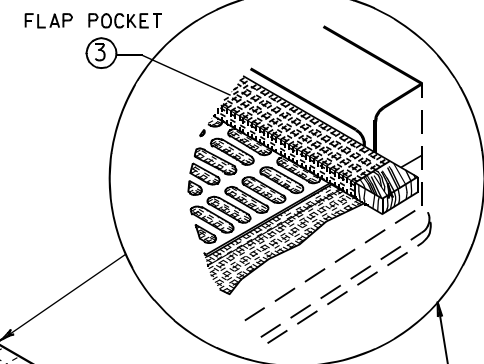
TRIM EXCESS FABRIC IN THE FLOW LINE TO WITHIN 3" OF THE GRATE.

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



INLET PROTECTION, TYPE D

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



USE REBAR OR STEEL ROD FOR REMOVAL OR
FOR INLETS WITH CAST CURB BOX USE WOOD 2" X 4", EXTEND 10" BEYOND GRATE WIDTH ON BOTH SIDES, LENGTH VARIES. SECURE TO GRATE WITH WIRE OR PLASTIC TIES

4" X 6" OVAL HOLE SHALL BE HEAT CUT INTO ALL FOUR SIDE PANELS.

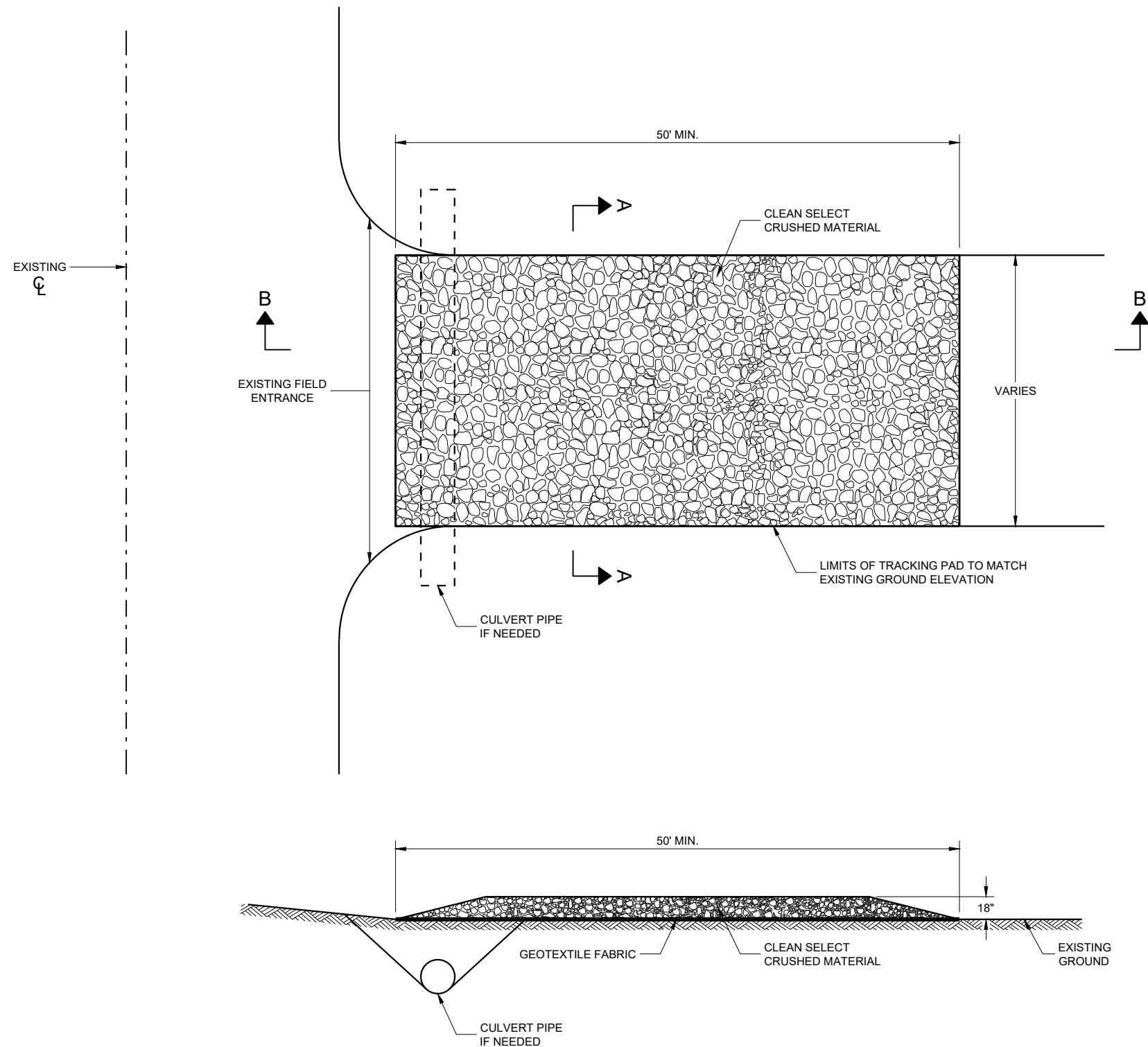
MINIMUM DOUBLE STITCHED SEAMS ALL AROUND SIDE PIECES AND ON FLAP POCKETS.

WOOD 2" X 4" EXTENDS 8" BEYOND GRATE WIDTH ON BOTH SIDES, LENGTH VARIES. SECURE TO GRATE WITH WIRE OR PLASTIC TIES

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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



GENERAL NOTES

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

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

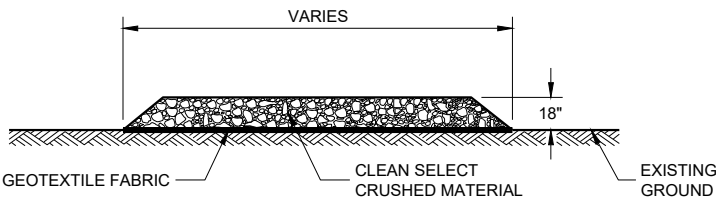
TRACKING PAD TO BE REMOVED AFTER CONSTRUCTION IS COMPLETED.

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

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

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

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



SECTION A - A

TRACKING PAD

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

3/24/2011

DATE

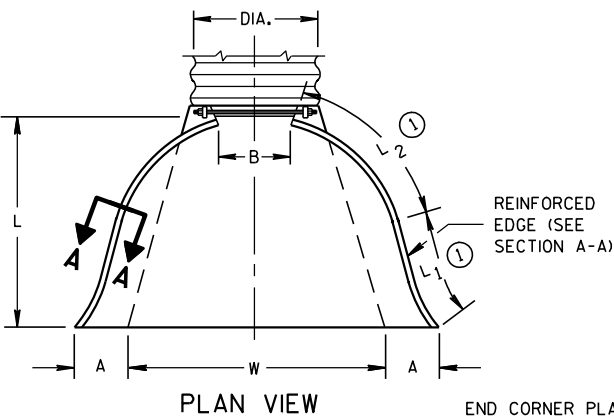
/S/ Jerry H. Zogg

ROADWAY STANDARDS DEVELOPMENT
ENGINEER

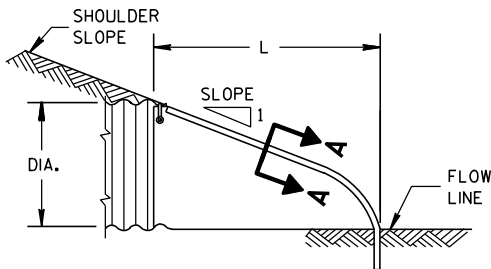
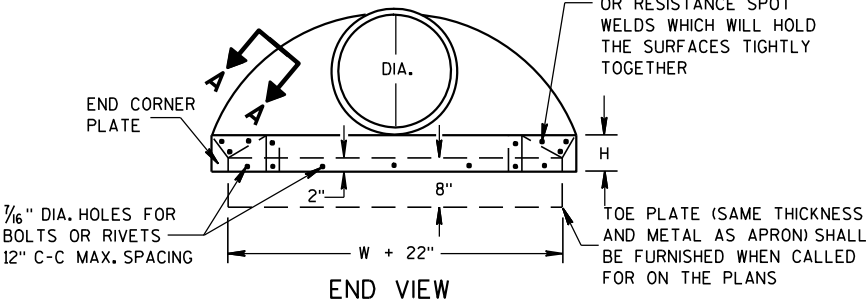
FHWA

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

* EXCEPT CENTER PANEL
SEE GENERAL NOTES



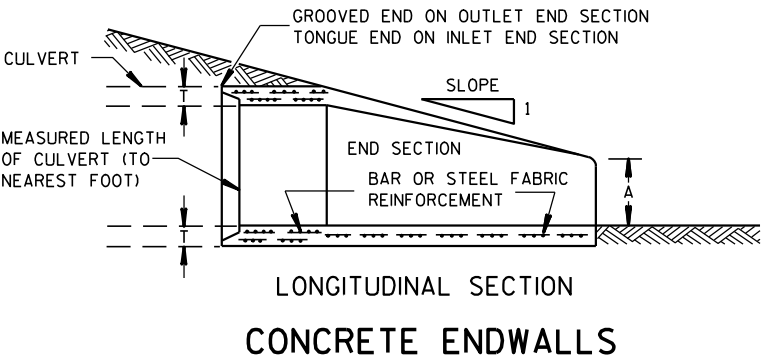
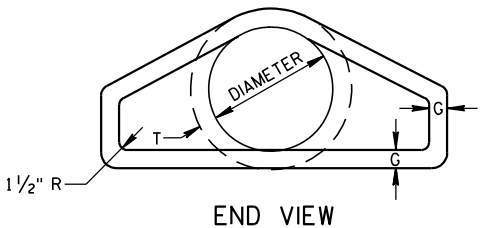
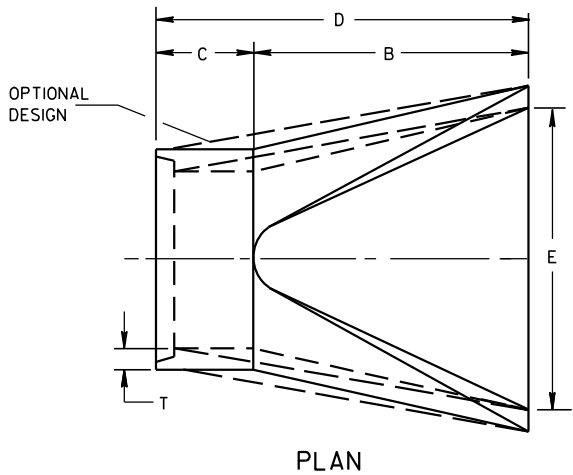
END CORNER PLATES MAY
BE FASTENED TO APRON
PROPER BY BOLTS, RIVETS,
OR RESISTANCE SPOT
WELDS WHICH WILL HOLD
THE SURFACES TIGHTLY
TOGETHER



SIDE ELEVATION
METAL ENDWALLS

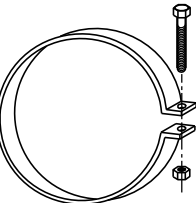
REINFORCED CONCRETE APRON ENDWALLS												
PIPE DIA. (IN.)	DIMENSIONS (Inches)							APPROX. SLOPE				
	T	A	B	C	D	E	G					
12	2	4	24	48 7/8	72 7/8	24	2	3 to 1				
15	2 1/4	6	27	46	73	30	2 1/4	3 to 1				
18	2 1/2	9	27	46	73	36	2 1/2	3 to 1				
21	2 3/4	9	36	37 1/2	73 1/2	42	2 3/4	3 to 1				
24	3	9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

* MINIMUM
** MAXIMUM

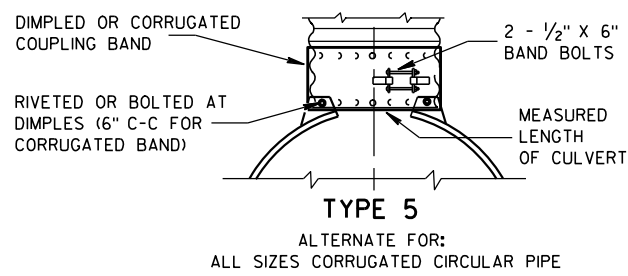
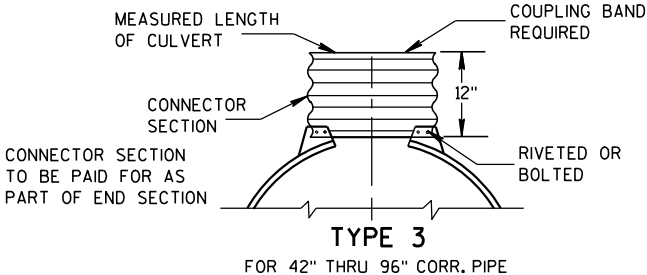
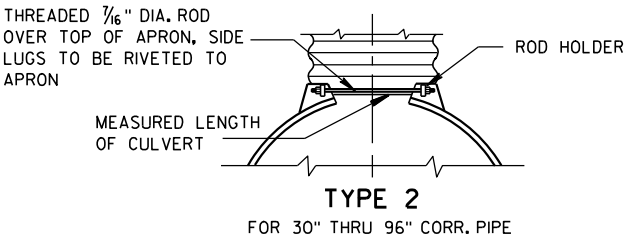
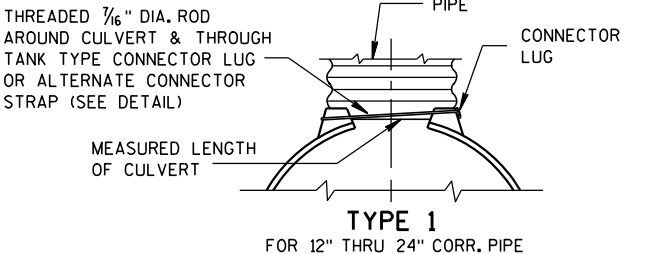


LONGITUDINAL SECTION
CONCRETE ENDWALLS

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



ALTERNATE FOR TYPE 1 CONNECTION
END SECTION CONNECTOR STRAP



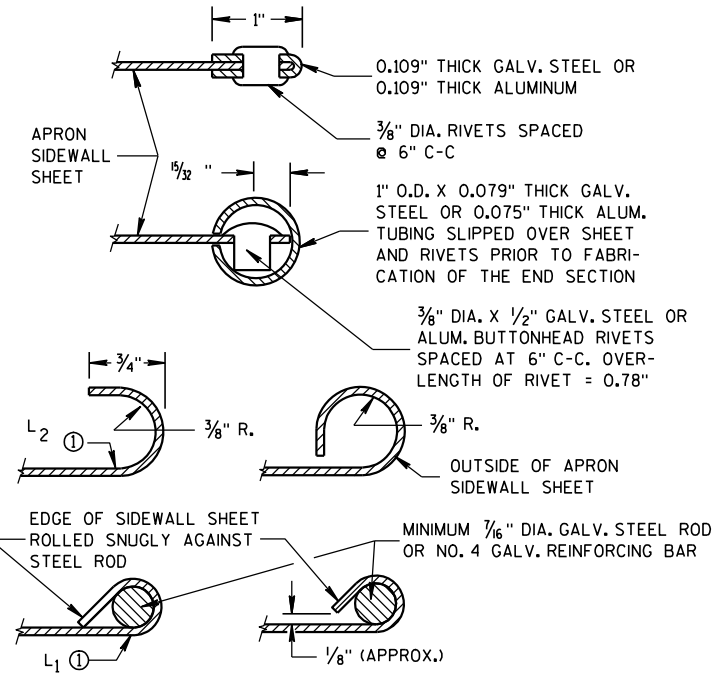
NOTE: DIMPLED BAND FITS OVER OUTSIDE OF ENDWALL,
AND CORRUGATED BAND FITS INSIDE ENDWALL.
DIMPLED BAND MAY BE USED WITH HELICALLY
CORRUGATED PIPE.

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

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

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

CONNECTION DETAILS



SECTION A-A

GENERAL NOTES

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

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

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

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

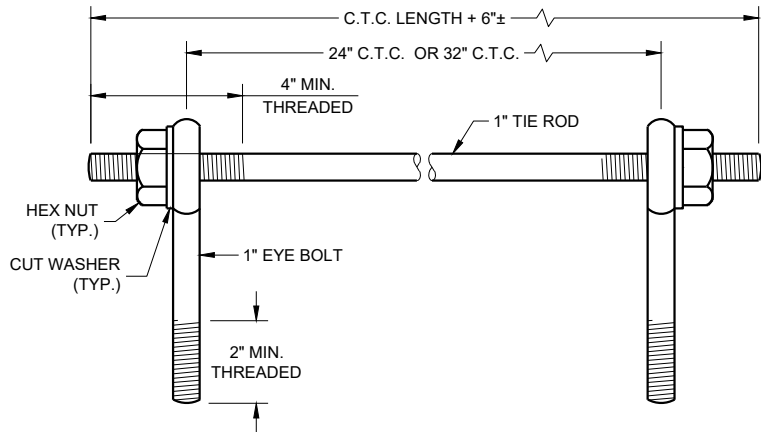
WHERE TWO OR MORE PIPES WITH APRON ENDWALLS ARE LAID ADJACENT
TO EACH OTHER, THEY SHALL BE SEPARATED BY A DISTANCE SUFFICIENT
TO PROVIDE A MINIMUM CLEARANCE OF 6 INCHES BETWEEN APRON ENDWALLS.

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

APRON ENDWALLS FOR
CULVERT PIPE

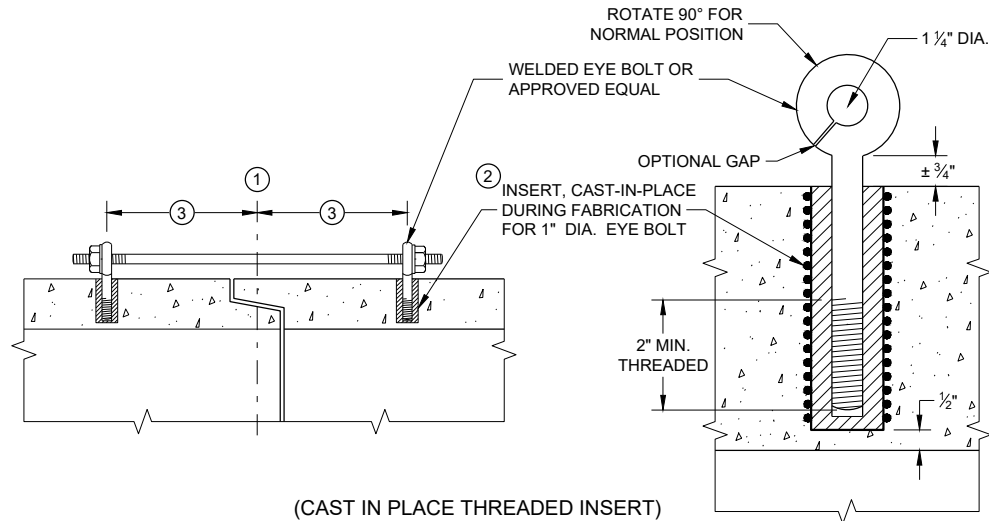
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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



EYE BOLTS AND TIE ROD

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



(CAST IN PLACE THREADED INSERT)

LONGITUDINAL SECTIONS

GENERAL NOTES

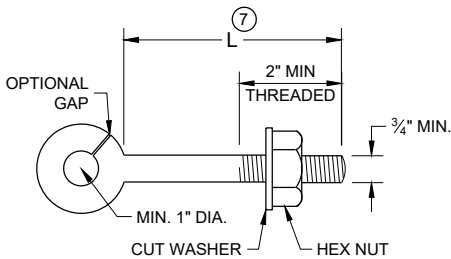
DETAILS OF CONSTRUCTION, MATERIALS, AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

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

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

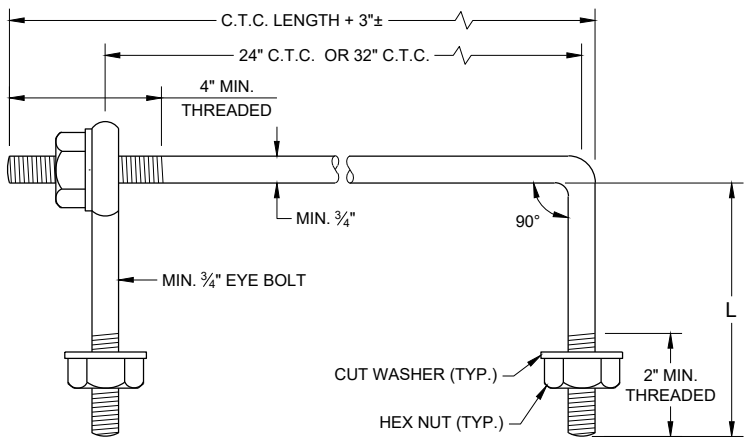
JOINT TIES TO BE HOT-DIP GALVANIZED PER ASTM A 153.

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

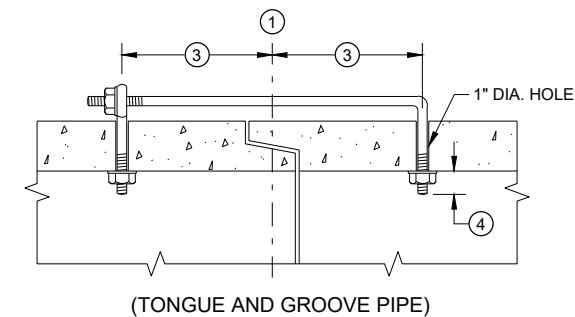


EYE BOLT 7

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



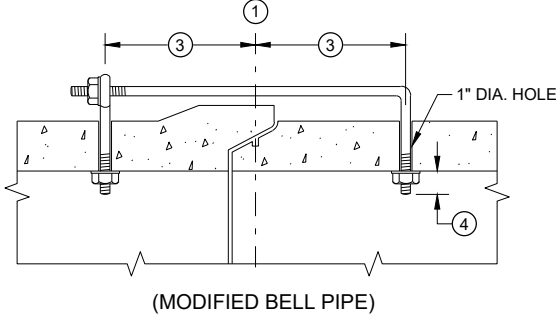
EYE BOLT AND TIE ROD



LONGITUDINAL SECTION

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

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

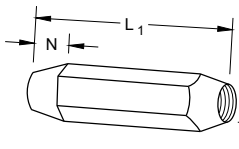


(MODIFIED BELL PIPE)

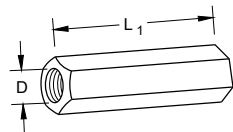
ADJUSTABLE TIE ROD TABLE

PIPE DIAMETER	TIE ROD DIAMETER	D	L ₁	N
12 - 60	5/8	5/8	5	1/2
66 - 84	3/4	3/4	5	1/2
90 - 144	1	1	7	1 1/16

DIMENSIONS SHOWN ARE IN INCHES

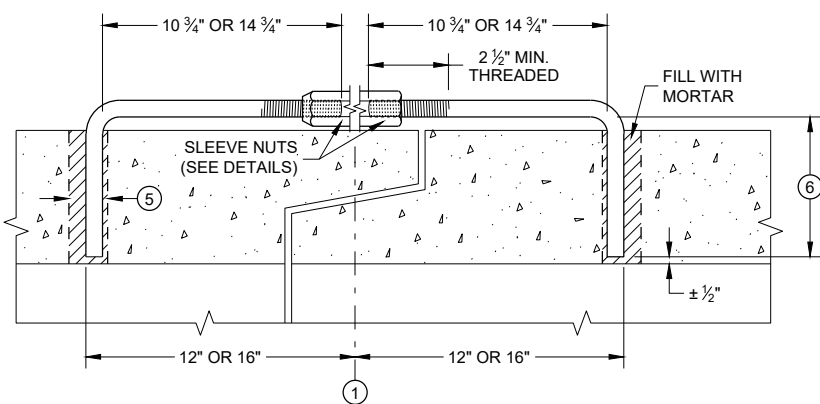


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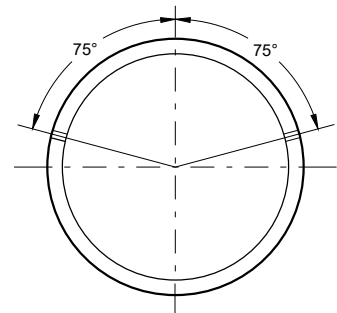
PLAIN

RIGHT AND LEFT THREADS
SLEEVE NUTS



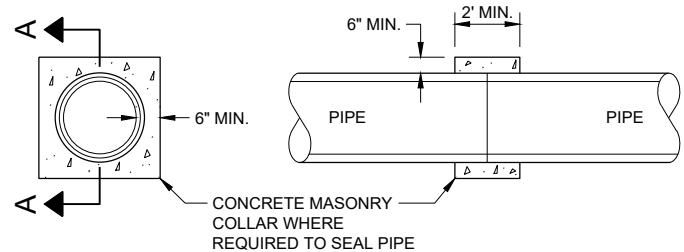
LONGITUDINAL SECTION

ADJUSTABLE TIE ROD (ALTERNATE NO. 3)



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

TRANSVERSE SECTION



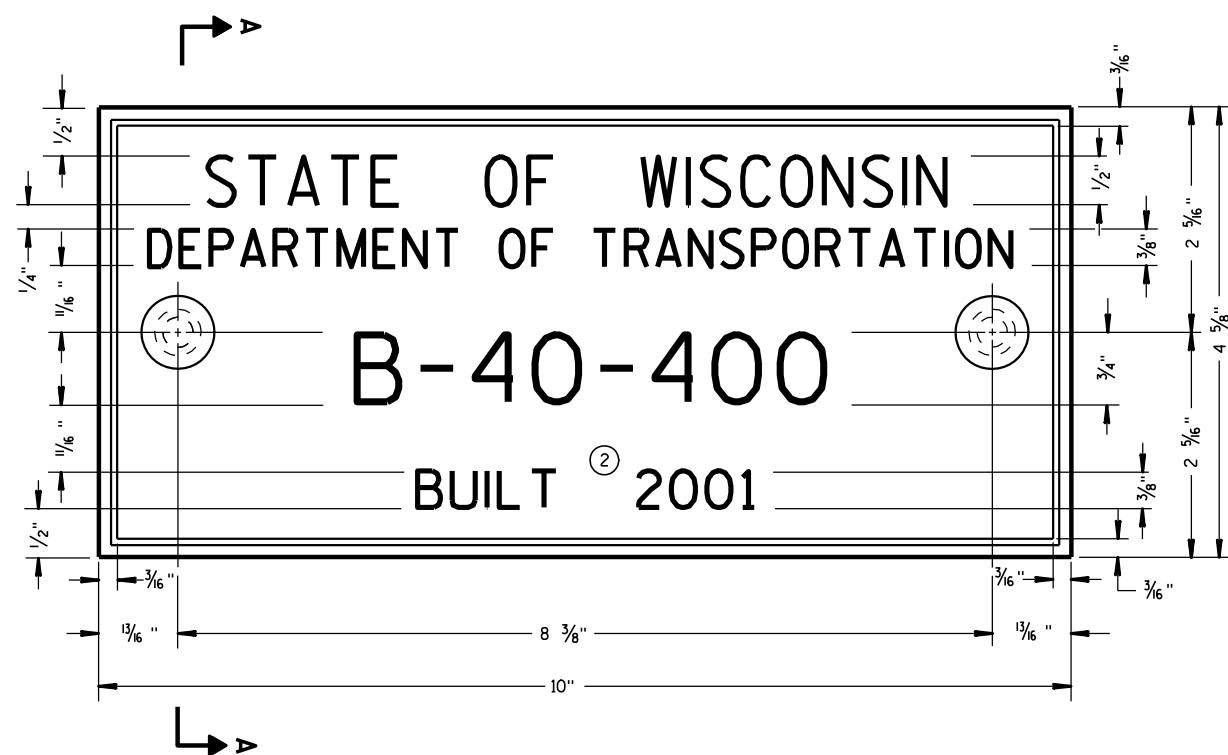
SECTION A - A

CONCRETE COLLAR DETAIL

JOINT TIES FOR CONCRETE PIPE AND CONCRETE COLLAR DETAIL

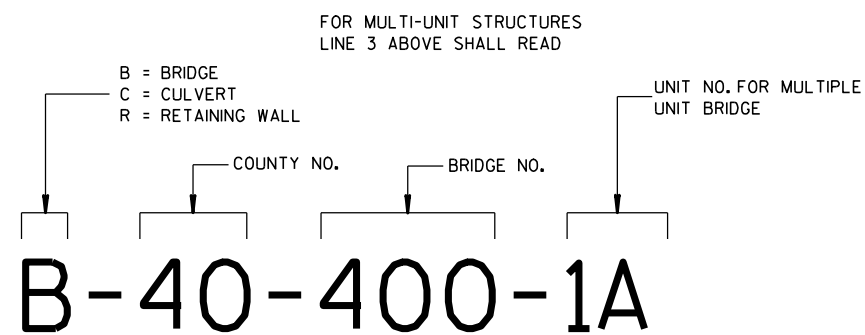
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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



TYPICAL NAME PLATE

(BRIDGES, CULVERTS, AND RETAINING WALLS)



NUMBERING DESIGNATION
MULTI-UNIT STRUCTURES

FOR MULTI-UNIT STRUCTURES
LINE 3 ABOVE SHALL READ

B = BRIDGE
C = CULVERT
R = RETAINING WALL

- C = CULVERT

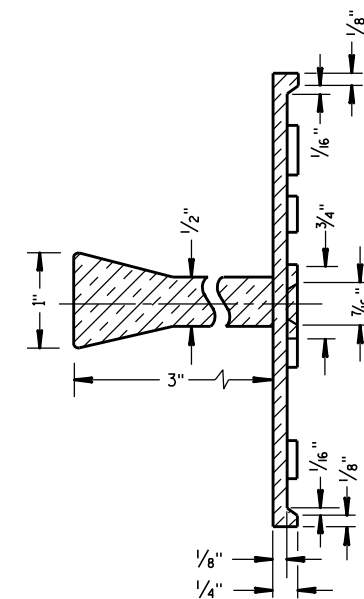
R = RETAINING WALL

UNIT NO. FOR MULTIPLE
UNIT BRIDGE

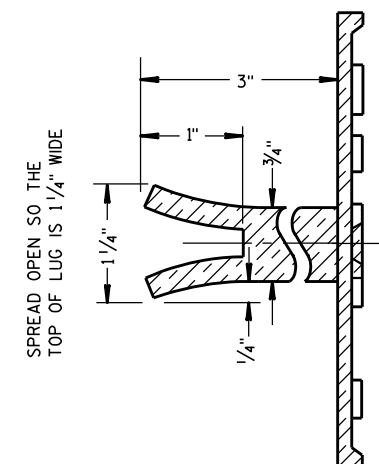
UNIT BRIDGE

— COUNTY NO.

— BRIDGE NO.



SECTION A-A



ALTERNATE LUG

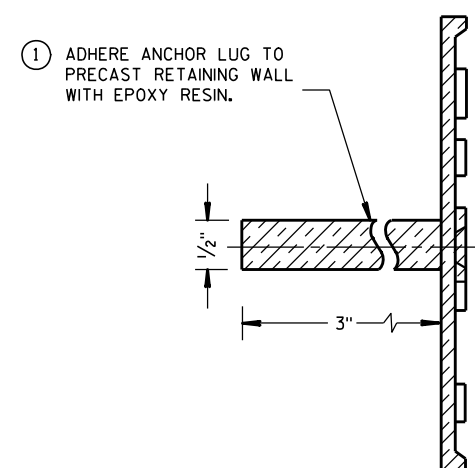
GENERAL NOTES

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.

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



ALTERNATE LUG

(FOR ATTACHMENT TO PRECAST STRUCTURES)

**NAME PLATE
(STRUCTURES)**

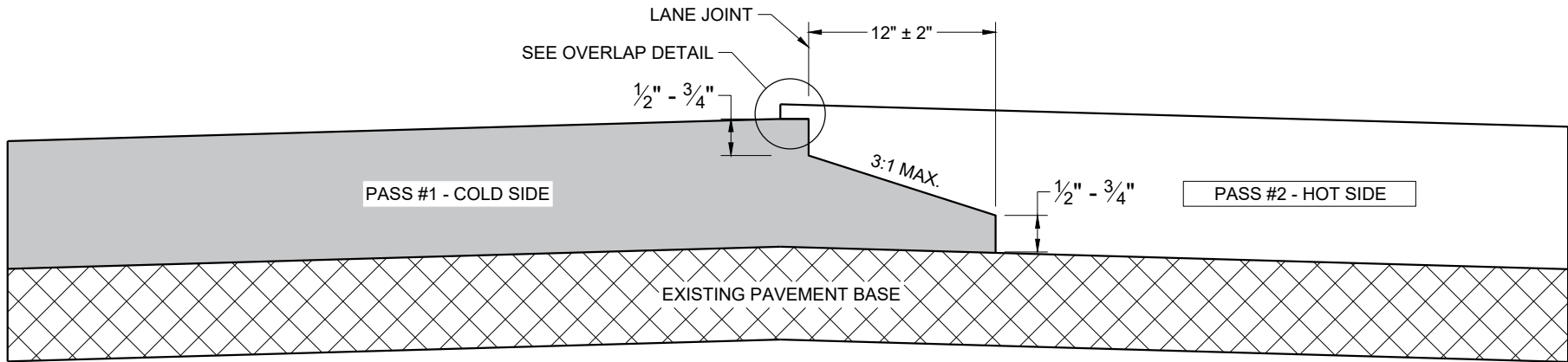
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

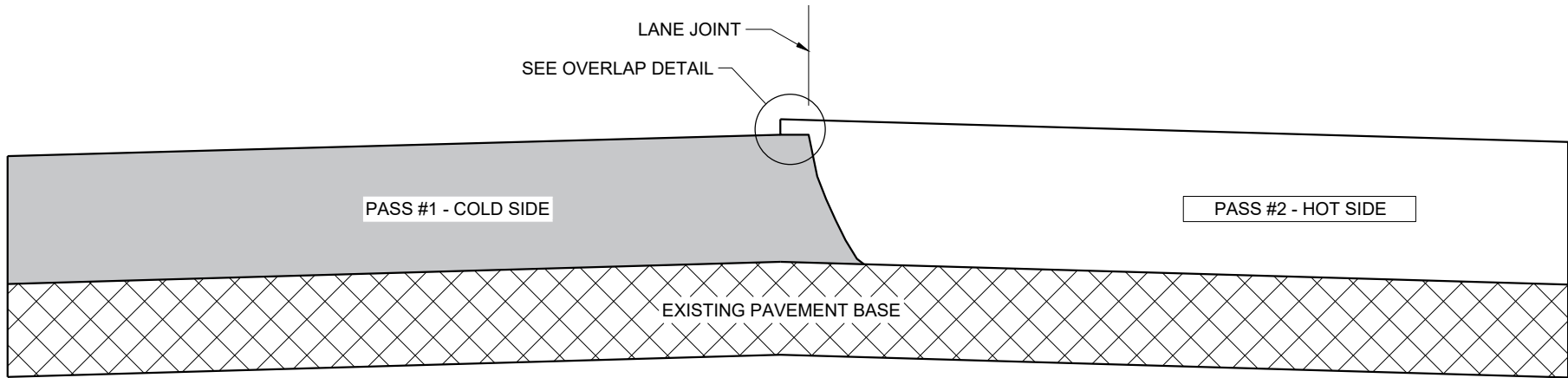
3/26/10
DATE

FHWA

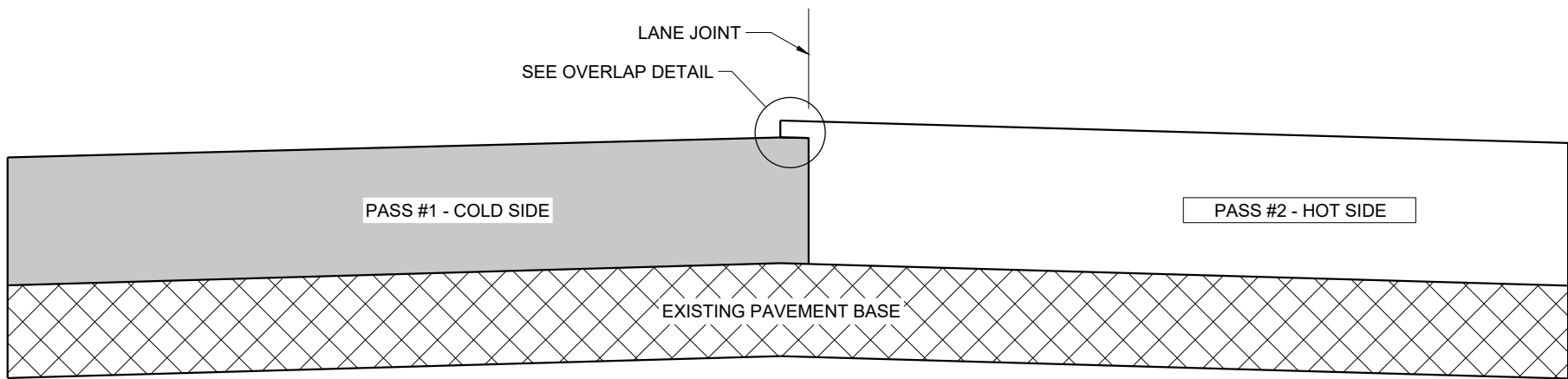
/S/ Scot Becker
CHIEF STRUCTURAL DEVELOPMENT ENGINEER



**TYPICAL PAVEMENT CROSS SECTION
NOTCHED WEDGE JOINT**



**TYPICAL PAVEMENT CROSS SECTION
VERTICAL JOINT**



**TYPICAL PAVEMENT CROSS SECTION
VERTICAL JOINT (MILLED)**

GENERAL NOTES

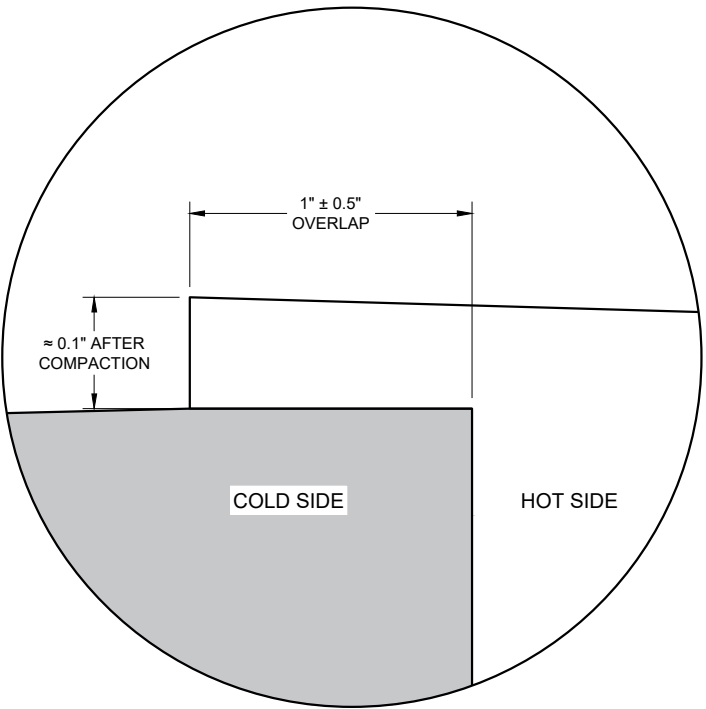
IN ADDITION TO THE DETAILS PROVIDED IN THIS DRAWING, CONFORM TO STANDARD SPECIFICATION 450.3.2.8 FOR WHEN A NOTCHED WEDGE JOINT IS REQUIRED AND FOR GENERAL JOINT CONSTRUCTION REQUIREMENTS.

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

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

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

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



OVERLAP DETAIL (TYPICAL)

HMA LONGITUDINAL JOINTS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

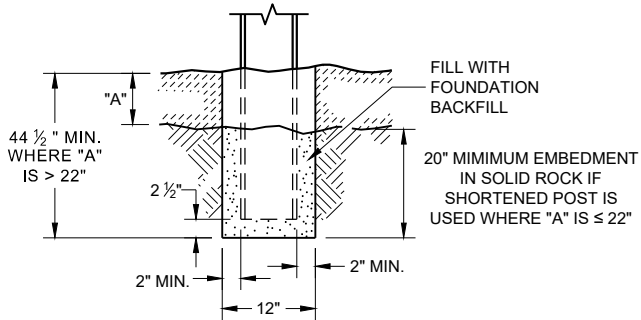
SDD 14B15a Steel Plate Beam Guard, Class "A", Installation and Elements

GENERAL NOTES

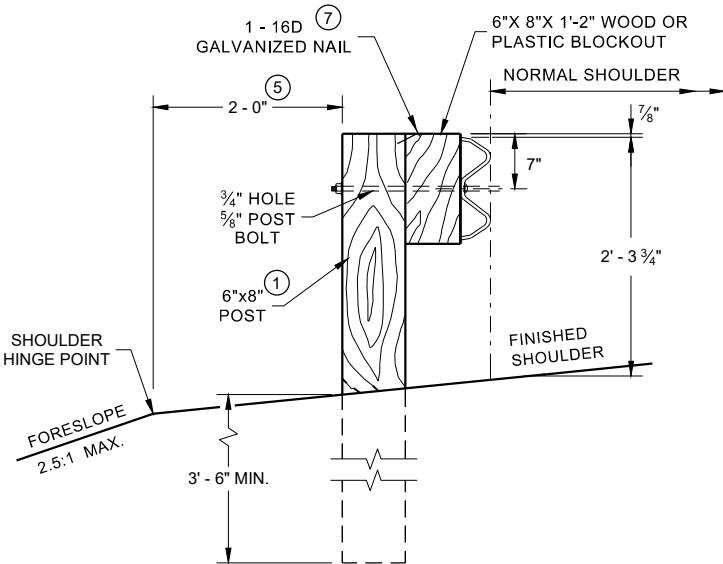
- WOOD OR STEEL POSTS (w6x9 OR w6x8.5) AND NOTCHED PLASTIC BLOCKOUTS ARE ACCEPTABLE ALTERNATIVES FOR 6"x8" WOOD POSTS WITH WOOD OR PLASTIC BLOCKOUTS. USE APPROVED NOTCHED PLASTIC BLOCKOUTS WITH STEEL POSTS. APPROVED PLASTIC BLOCKOUT DESIGNS MAY VARY FROM THIS TYPICAL DETAIL WHEN USED IN CONJUNCTION WITH STEEL POSTS. DO NOT MIX STEEL AND WOOD POSTS IN A SINGLE INSTALLATION.
- USE STRUCTURAL STEEL POSTS CONFORMING TO ASTM A 36. GALVANIZED POSTS ACCORDING TO AASHTO M 111. EITHER SET THE POSTS IN DRILLED HOLES OR DRIVE TO GRADE. REMOVE MUSHROOMING CAUSED BY DRIVING AND REPAIR DAMAGE SPALTER COATING ON GALVANIZED POSTS.
- INSTALL STEEL POSTS WITH HOLES ON APPROACHING TRAFFIC SIDE.
- USE EITHER WOOD OR APPROVED PLASTIC BLOCKOUTS ON WOOD POSTS.
- IF THE DISTANCE FROM BACK OF POST TO SHOULDER HIGHE POINT IS LESS THAN 2 FEET, INSTALL LONGER POST AT HALF POST SPACING, W BEAM (LHW).
- IF ROCK IS ENCOUNTERED DURING EXCAVATION, THE ENGINEER MAY APPROVE USING A 12 INCHES IN DIAMETER POST HOLE EXTENDING 20 INCHES DEEP INTO THE ROCK. PLACE APPROXIMATELY 2 1/2" INCHES OF GRANULAR MATERIAL IN THE BOTTOM OF THE HOLE. CUT THE POSTS THE TO LENGTH AMD INSTALL. BACKFILL WITH EXCAVATED MATERIAL AND COMPACT ADEQUATELY.
- WHEN USING STEEL POSTS AND WOOD BLOCKOUTS, INSTALL FOUR 16d GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.

INSTALL BEAM GUARD SECTIONS AND ALL NECESSARY HARDWARE ACCORDING TO THE APPLICABLE PLAN AND CURRENT STANDARD AND SUPPLEMENTAL SPECIFICATIONS.

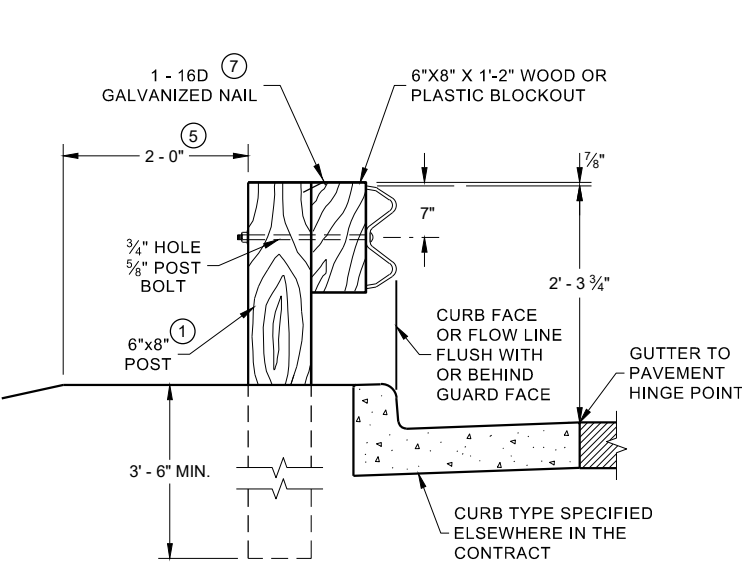
ALL DIMENSIONS ARE SUBJECT TO MANUFACTURER'S TOLERANCES EXCEPT WHERE ALLOWABLE TOLERANCES ARE SHOWN.



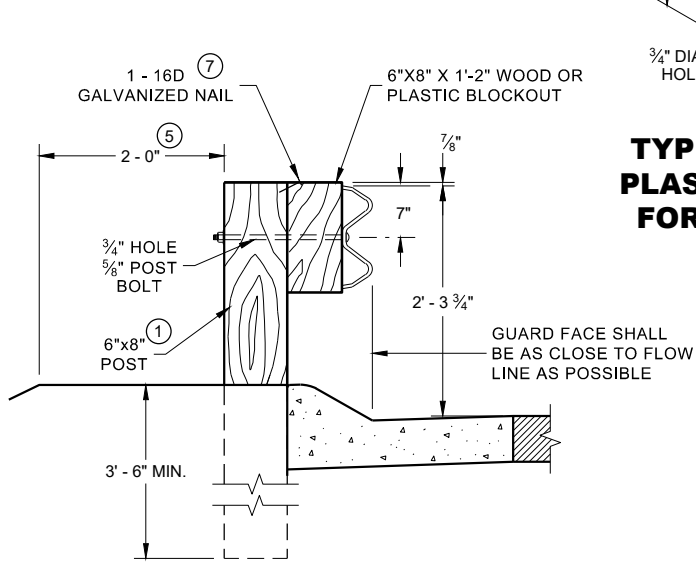
**END VIEW
SETTING STEEL OR WOOD POST IN ROCK ⑥**



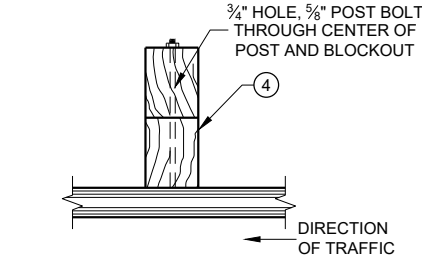
**END VIEW
LOCATED ALONG A ROADWAY
SHOULDER STANDARD INSTALLATION**



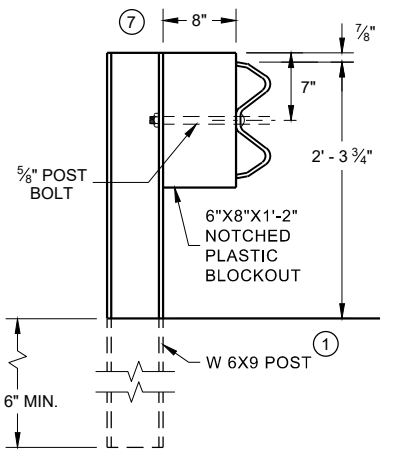
**END VIEW
LOCATED ALONG A CURBED ROADWAY**



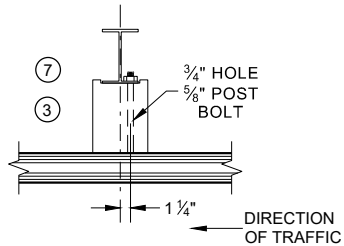
**END VIEW
LOCATED ALONG A
MOUNTABLE CURBED ROADWAY**



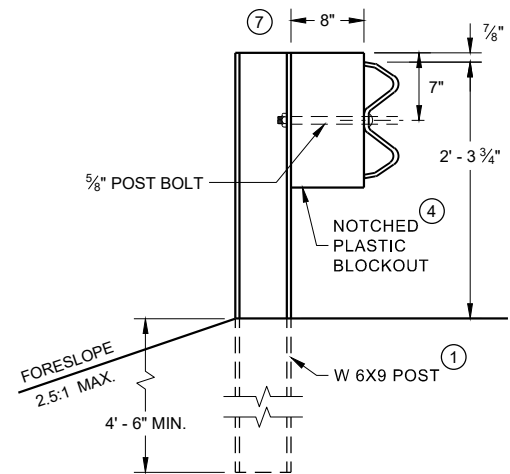
**PLAN VIEW
WOOD POST, BLOCKOUT
AND BEAM**



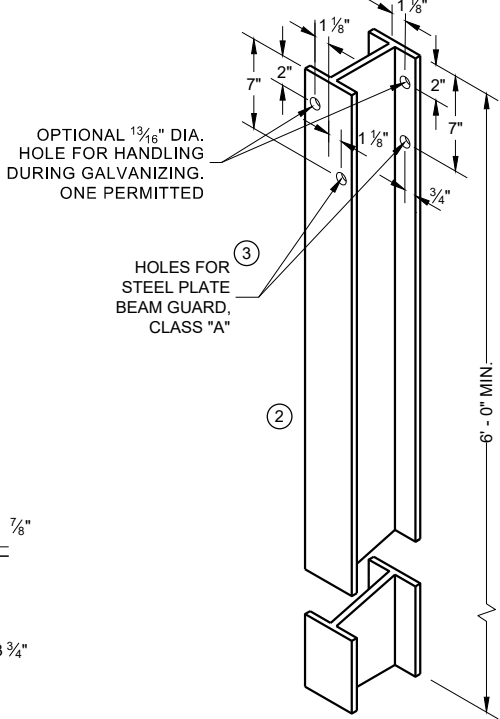
**END VIEW
STEEL POST AND NOTCHED
PLASTIC BLOCKOUT ALTERNATIVE
STANDARD INSTALLATION**



**PLAN VIEW
WOOD POST, BLOCKOUT
AND BEAM**

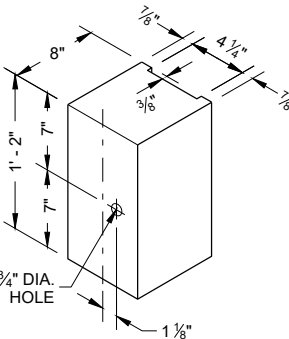


**END VIEW
LONGER POST AT HALF POST
SPACING W BEAM (LHW)**

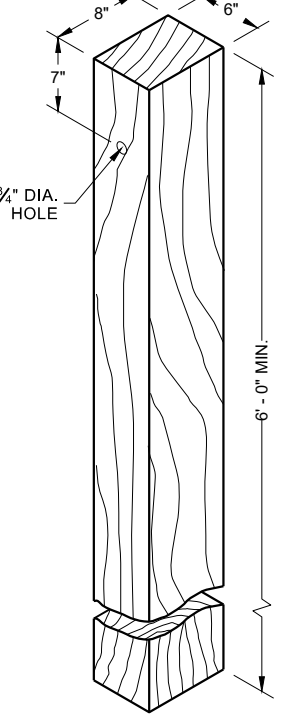


**STEEL POST & HOLE
PUNCHING DETAIL
(W 6 X 9) ①**

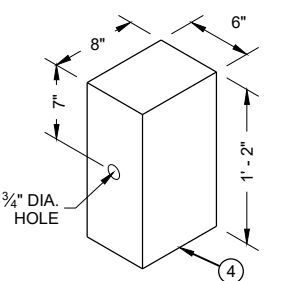
ALL HOLES 13/16" DIAMETER EXCEPT AS NOTED



**TYPICAL NOTCHED
PLASTIC BLOCKOUT
FOR STEEL POSTS**



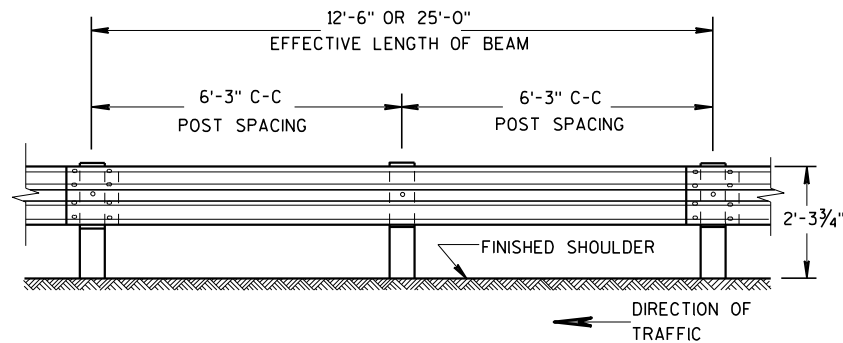
**WOOD POST
(6" X 8") NOMINAL ①**



**WOOD OR PLASTIC
BLOCKOUT FOR
WOOD POSTS**

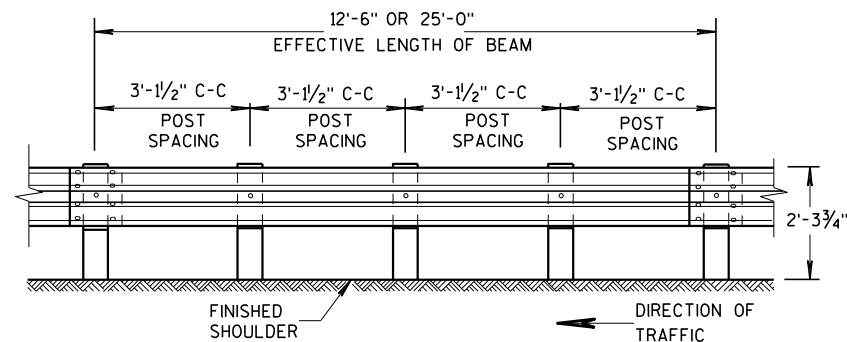
**STEEL PLATE BEAM GUARD,
CLASS "A" INSTALLATION
AND ELEMENTS**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



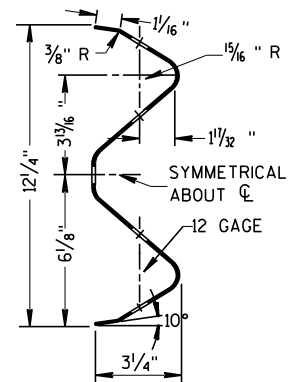
FRONT VIEW

POST SPACING STANDARD INSTALLATION

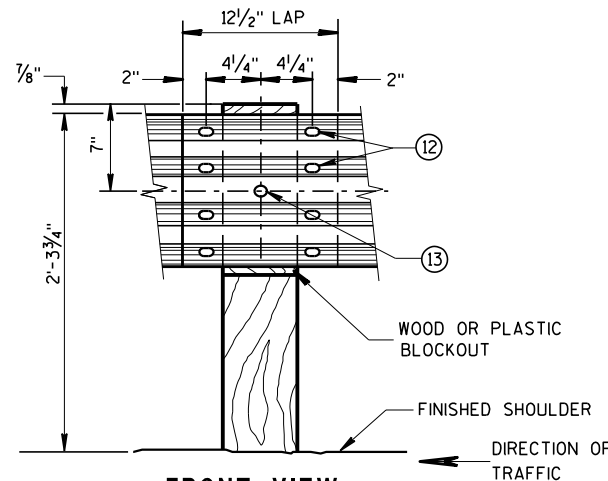


FRONT VIEW

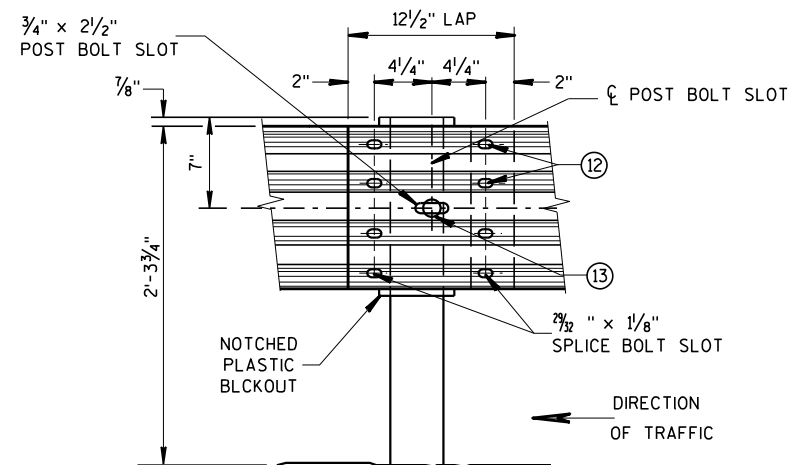
POST SPACING FOR LONGER POST
AT HALF POST SPACING W BEAM (LHW)



SECTION THRU W BEAM



FRONT VIEW
BEAM SPLICE AT WOOD POST
AND POST MOUNTING DETAIL



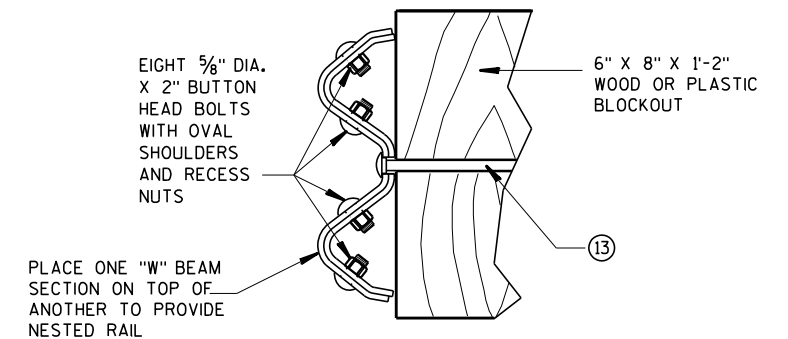
FRONT VIEW
BEAM SPLICE AT STEEL POST

TYPICAL SPLICING DETAILS
OF STEEL PLATE BEAM GUARD

GENERAL NOTES

FURNISH GUARDRAIL DEFLECTORS FROM APPROVED PRODUCTS LIST.

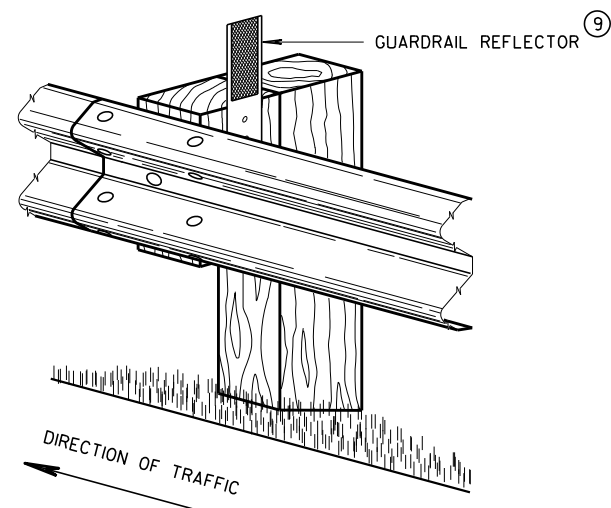
- ⑨ DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINA. START REFLECTORS AT POST #9 AND SPACE EVENLY EVERY 100 FEET (MAX.) TO THE END OF GUARDRAIL RUN, USING A MINIMUM OF 3 REFLECTORS.
- ⑫ 8 - 5/8" ϕ X 2" BUTTON HEAD BOLTS WITH OVAL SHOULDERS & RECESS NUTS.
- ⑬ 5/8" DIA. BUTTON HEAD BOLT AND RECESS NUT WITH 5/8" DIA. F844 FLAT WASHER UNDER NUT.



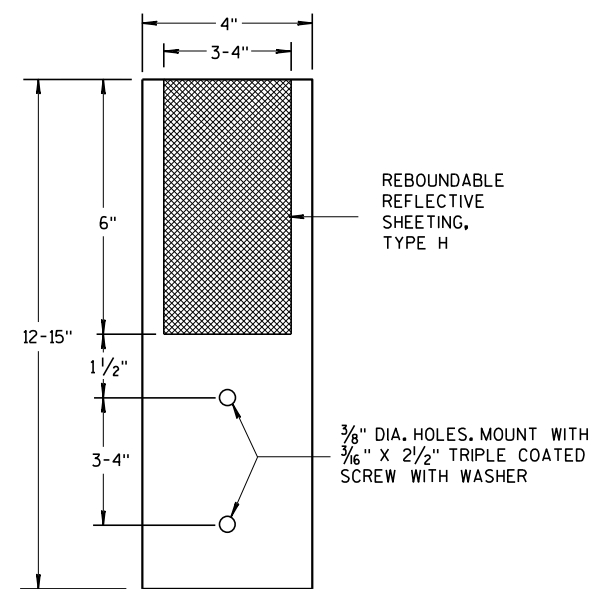
NESTED W BEAM (NW)

USE ALL OTHER STANDARD BEAM GUARD DETAILS FOR
CONSTRUCTING NESTED W BEAM (NW)

* USE DOUBLE SIDED WHITE GUARDRAIL REFLECTORS ON ROADWAYS WITH BI-DIRECTIONAL TRAFFIC (NO MEDIAN). USE SINGLE SIDED WHITE (RIGHT SIDE) AND SINGLE SIDED YELLOW (LEFT SIDE) ON ROADWAYS WITH MEDIAN SEPARATION.



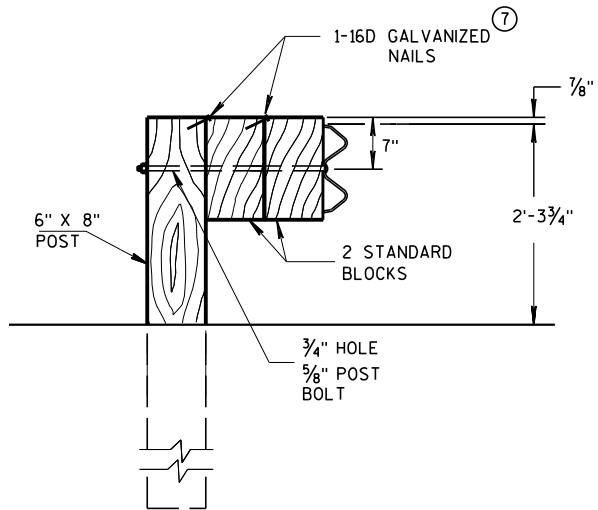
4" X 12" GUARDRAIL REFLECTOR DETAIL
AND TYPICAL INSTALLATION *



4"x 12" GUARDRAIL REFLECTOR

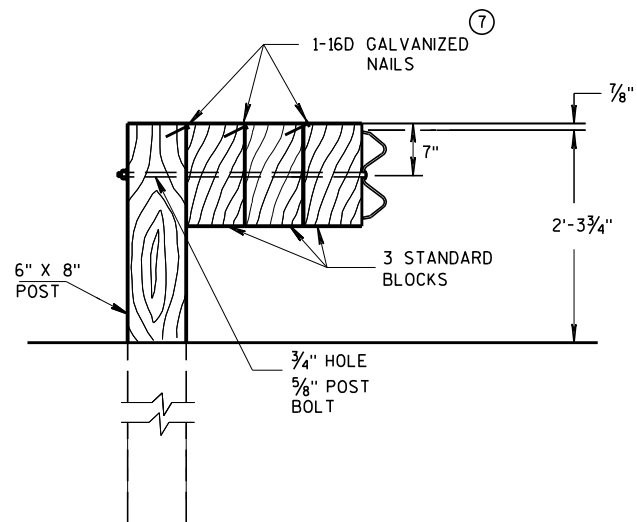
STEEL PLATE BEAM GUARD,
CLASS "A",
INSTALLATION & ELEMENTS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



DETAIL FOR DOUBLE BLOCKS

THE NUMBER OF DOUBLE BLOCK POSTS
WITHIN A BARRIER RUN IS UNLIMITED

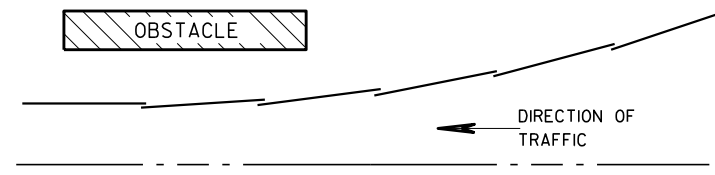


DETAIL FOR TRIPLE BLOCKS

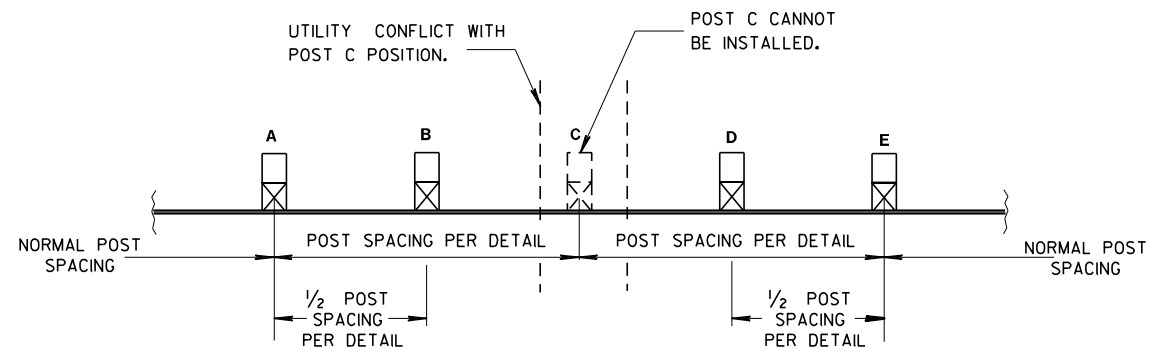
TRIPLE BLOCK DETAIL IS LIMITED TO ONE
LOCATION WITHIN A BEAM GUARD RUN.

NOTES: USE DOUBLE OR TRIPLE BLOCKS WHEN UNDERGROUND OBSTACLES
PREVENT THE POST FROM BEING INSTALLED.

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



PLAN VIEW BEAM LAPPING DETAIL



POST DRIVING FOR CONTINUOUS UNDERGROUND OBSTRUCTION

STEEL PLATE BEAM GUARD, CLASS "A", INSTALLATION & ELEMENTS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED	/S/ Rodney Taylor
June 2017	DATE
	ROADWAY STANDARDS DEVELOPMENT
	UNIT SUPERVISOR
FHWA	

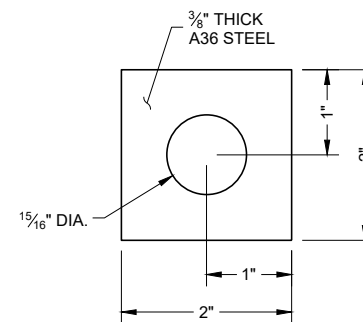
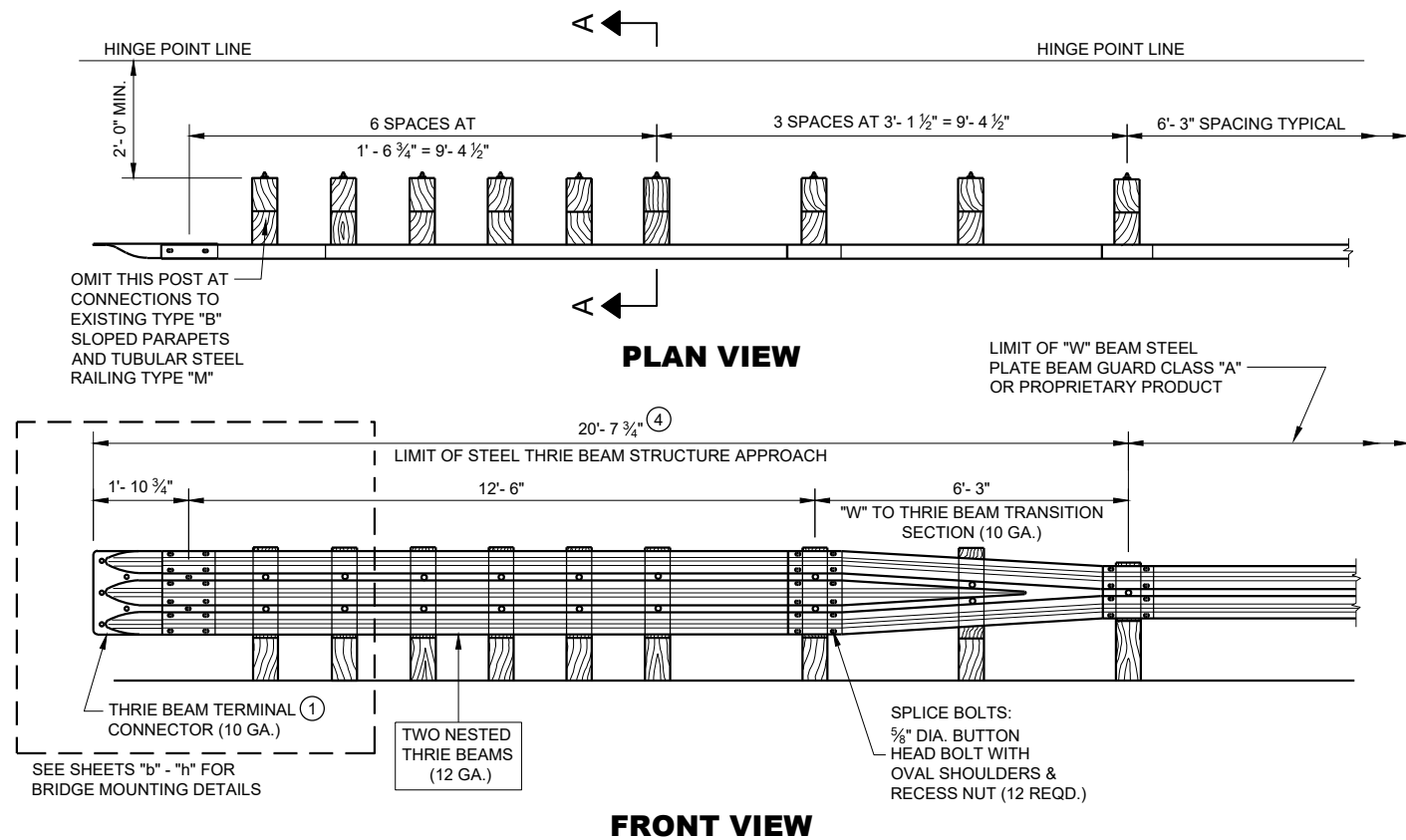


PLATE WASHER DETAIL

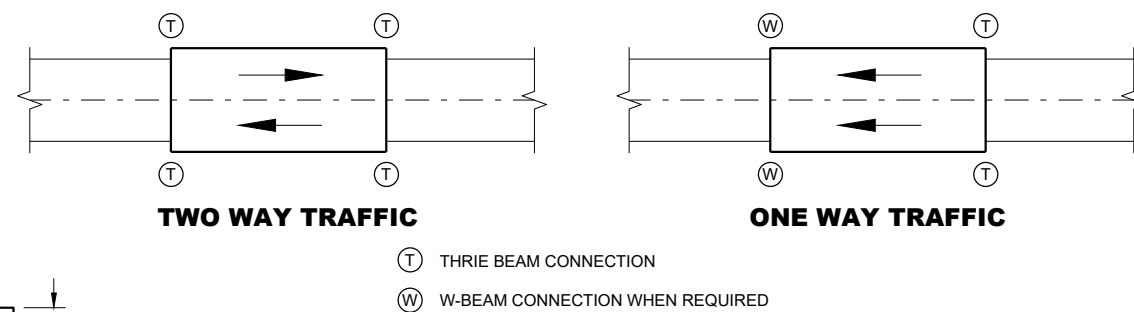
GENERAL NOTES

BOLT THE THRIE BEAM TO ALL POSTS AND BLOCKOUTS. DRILL OR PUNCH BOLT HOLES IN THE BEAM IF THE POST SPACING IS LESS THAN 6'-3".

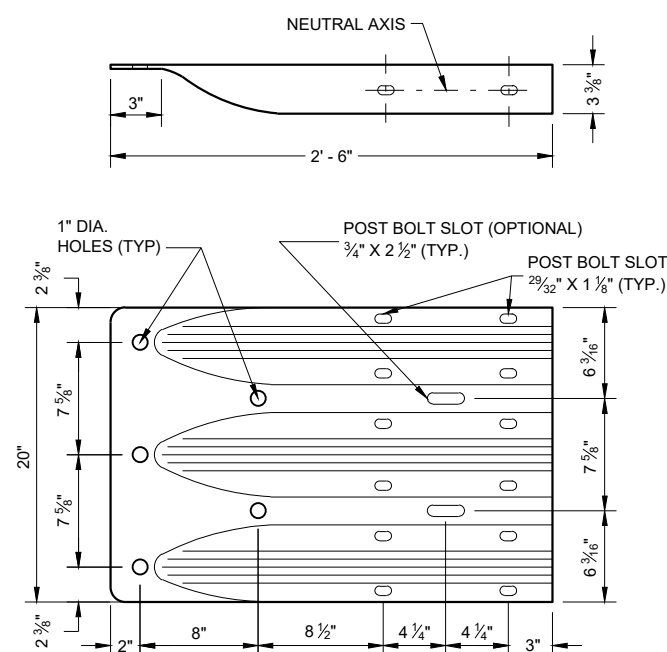
DO NOT USE STEEL POSTS AND NOTCHED PLASTIC BLOCKOUTS IN THE STEEL THRIE BEAM STRUCTURAL APPROACH AND THE TRANSITION SECTION OF STEEL PLATE BEAM GUARD, CLASS "A" INSTALLATIONS.

IF ROCK IS ENCOUNTERED, REMOVE ROCK TO FULL DEPTH OF POST PLUS 2 1/2", AND 12" DIAMETER AROUND POST. SEE 14B15 FOR MORE DETAILS.

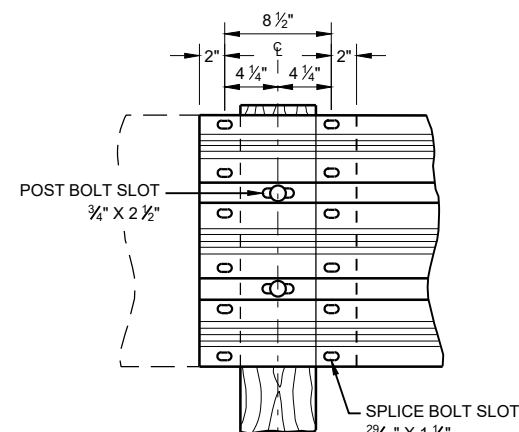
- ① BRIDGE RAILING TYPE "W" DOES NOT REQUIRE A TERMINAL CONNECTOR.
- ② MINIMUM EMBEDMENT SHALL BE 4'-0".
- ③ POST BOLTS ARE 5/8" DIAMETER ASTM A307 BUTTON HEAD BOLT. A POST BOLT REQUIRES A 5/8" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX AND A 5/8" DIAMETER F844 FLAT WASHER. LENGTH OF POST BOLT MAY VARY.
- ④ ALL WOOD POSTS MUST BE 6" X 8" AND AT LEAST 7'-0" LONG.



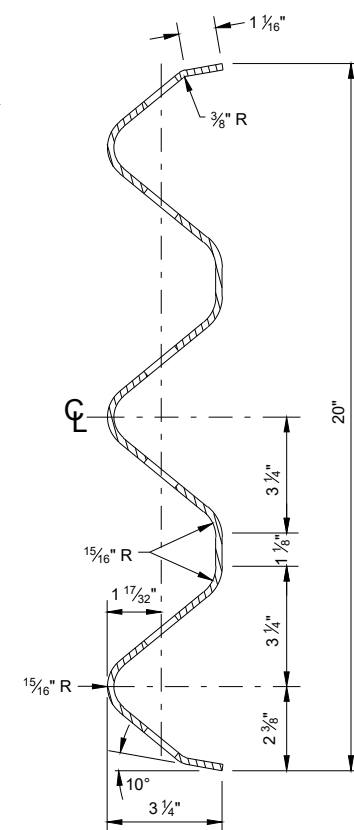
TYPICAL LOCATIONS OF THRIE BEAM AND W-BEAM CONNECTIONS TO BRIDGE



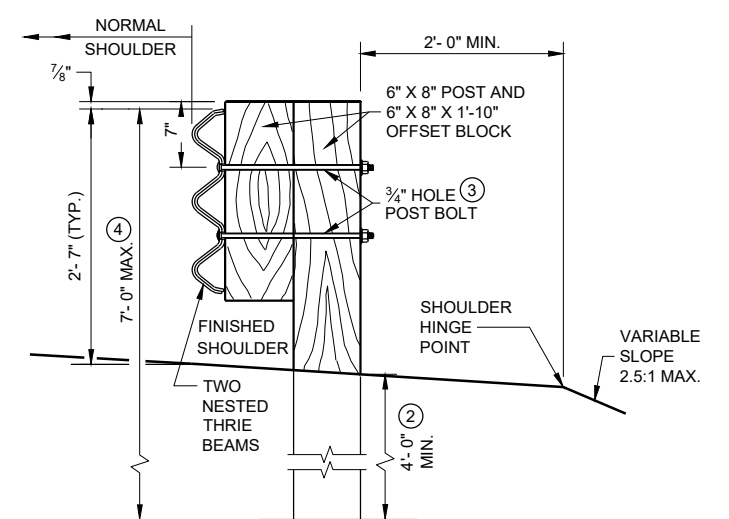
THRIE BEAM TERMINAL CONNECTOR



THRIE BEAM SPLICE



SECTION THRU BEAM RAIL ELEMENT



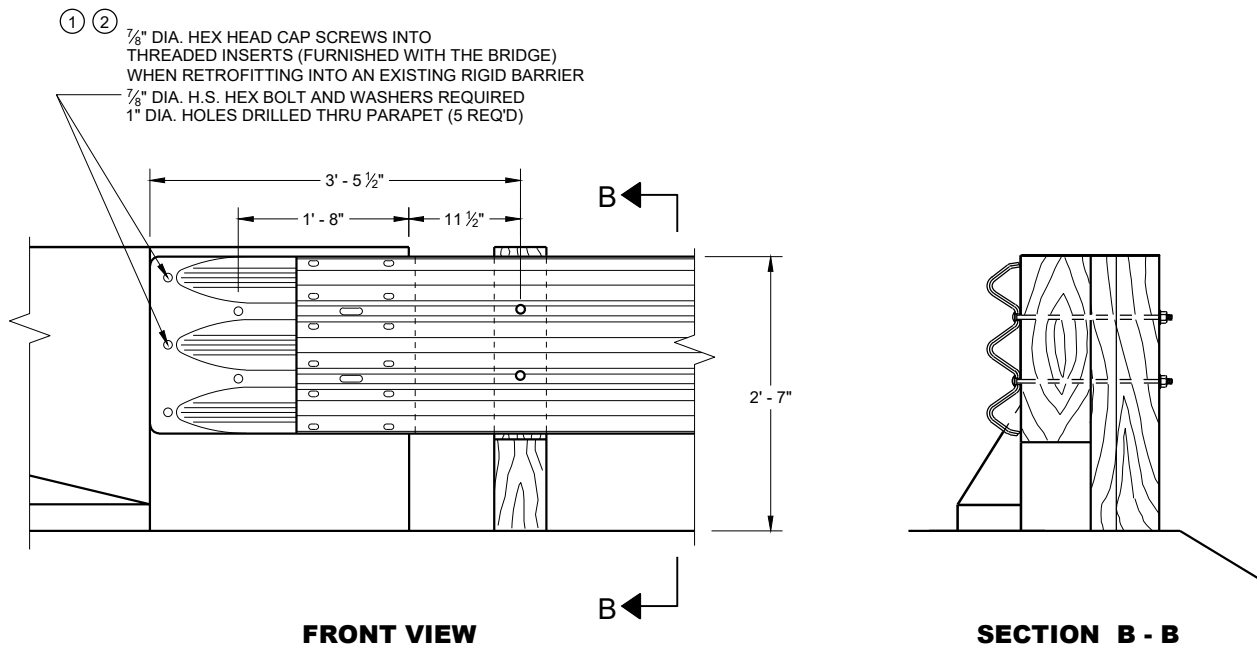
SECTION A-A

STEEL THRIE BEAM STRUCTURE APPROACH

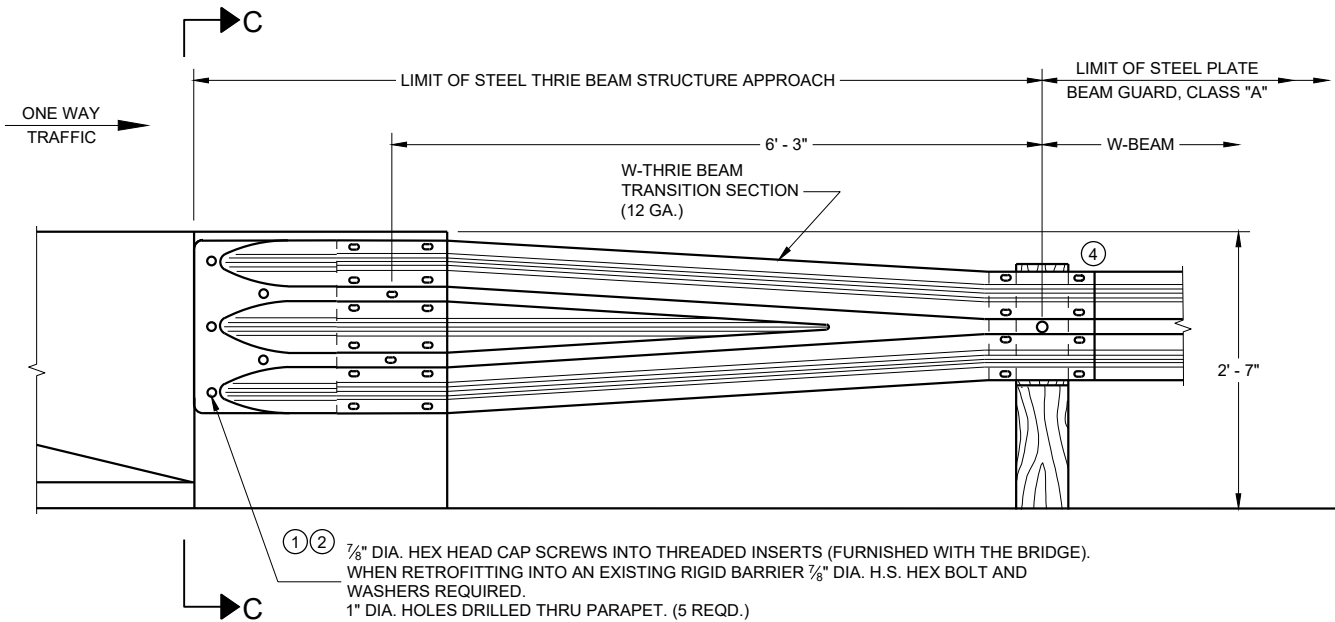
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
November 2022
DATE /S/ Rodney Taylor
ROADWAY STANDARDS DEVELOPMENT ENGINEER

FHWA



**THRIE BEAM CONNECTION TO BRIDGE
PARAPET WITH SQUARE ENDS**



FRONT VIEW
**W BEAM TRANSITION AND CONNECTION TO
BRIDGE PARAPETS WITH SQUARE ENDS**
(USE ONLY ON THE TRAFFIC EXIT END OF ONE WAY BRIDGE)

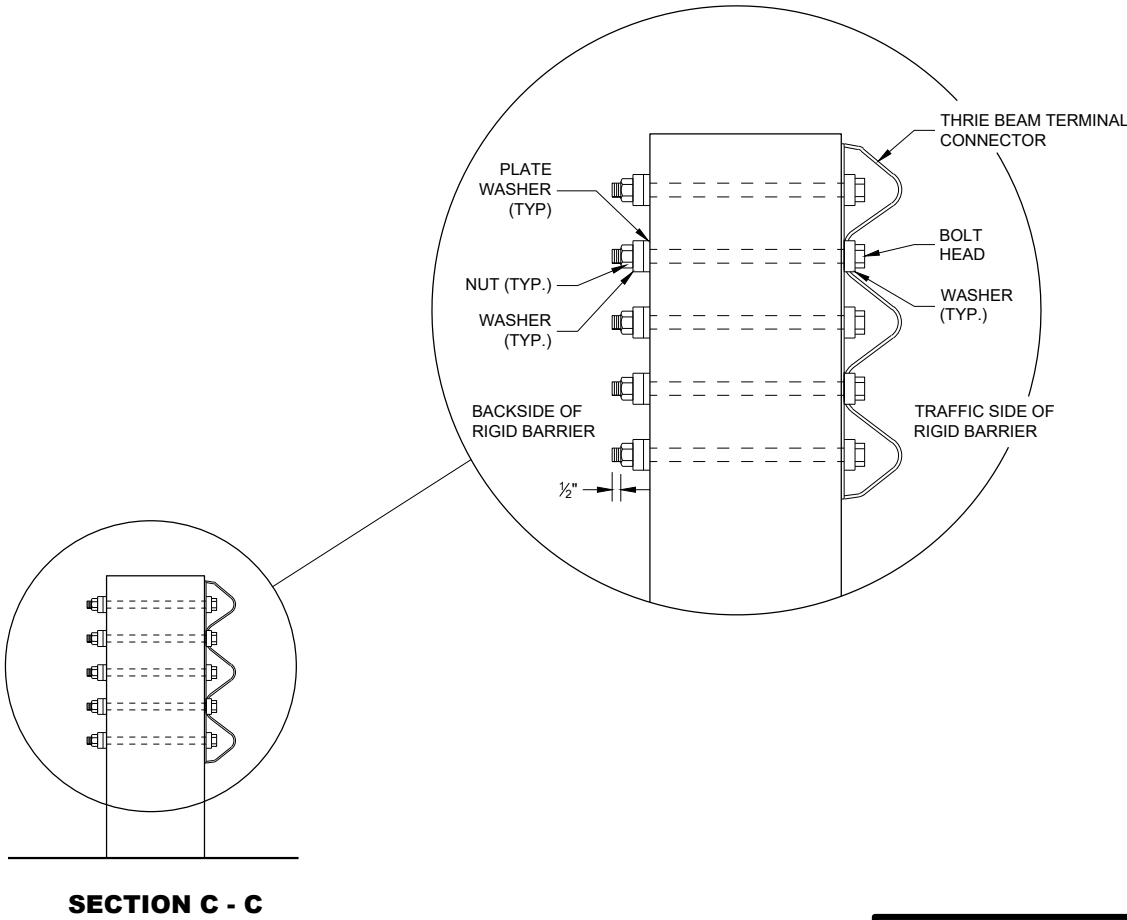
GENERAL NOTES

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

BOLTS, NUTS AND WASHERS SHALL CONFORM TO ASTM A325, A449 AND GALVANIZED PER STANDARD SPECIFICATIONS 614.

- ① DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.
- ② BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM TERMINAL CONNECTOR. BOLTS THAT EXTEND THROUGH THE PARAPET AND OUT THE BACK FACE REQUIRE A HARDENED ROUND STEEL WASHER THAT IS 2" O.D. X 5/8" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.
- ③ THE RECESS FOR A W-BEAM CONNECTION, WHICH EXISTS ON SOME PARAPETS OF THIS TYPE, SHALL BE FILLED WITH A TREATED TIMBER BLOCKOUT. BLOCKOUT SIZE IS 1'-6" X 2'-0" X 3 1/2".
- ④ W6 X 9 OR W6 X 8.5 STEEL POSTS AND NOTCHED PLASTIC BLOCKOUTS ARE ACCEPTABLE ALTERNATIVES FOR 6" X 8" WOOD POST WITH WOOD OR PLASTIC BLOCKOUTS. USE APPROVED NOTCHED PLASTIC BLOCKOUTS WITH STEEL POSTS.

DO NOT USE STEEL POSTS AND NOTCHED PLASTIC BLOCKOUTS IN THE STEEL THRIE BEAM STRUCTURAL APPROACH AND THE TRANSITION SECTION OF STEEL PLATE BEAM GUARD, CLASS "A" INSTALLATIONS.



**STEEL THRIE BEAM STRUCTURE
APPROACH, CONNECTION TO
SQUARE END PARAPETS**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
November 2022
DATE /S/ Rodney Taylor
ROADWAY STANDARDS DEVELOPMENT
ENGINEER
FHWA

BILL OF MATERIALS

NOTE NO.	DESCRIPTION
①	WOOD BREAKAWAY TERMINAL POST: 5½" X 7½" X 3'-9"
②	STEEL TUBE TS 8" X 6" X 0.188", 6'-0"
④	WOOD BREAKAWAY CRT POST: 6" X 8" X 6'-0"
⑤	WOOD OFFSET BLOCKS: 6' X 8" X 1'-2"
⑥	PIPE SLEEVE: 2" X 5 ½" STANDARD PIPE
⑦	BEARING PLATE
⑧	BCT CABLE ASSEMBLY
⑨	CABLE ANCHOR BOX
⑩	STRUT & YOKE
⑪	STEEL PLATE BEAM, END PANEL 12 GA.
⑫	STEEL PLATE BEAM: 12 GA. 13'-6½"
⑬	IMPACT HEAD
⑭	0.040" ALUMINUM SHEET WITH REFLECTIVE SHEETING TYPE F PER SECTION 637 OF THE STANDARD SPECIFICATIONS

GENERAL NOTES

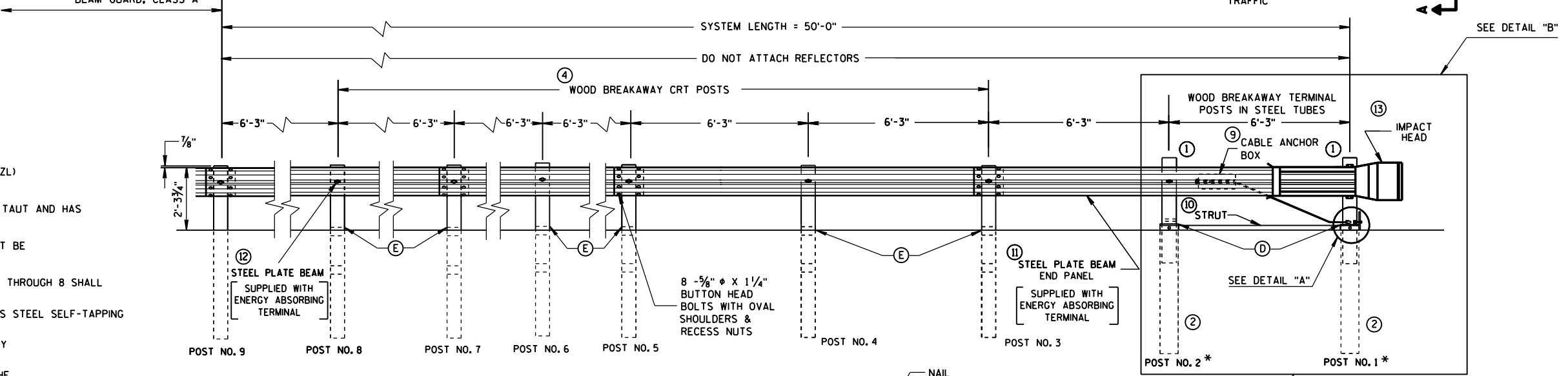
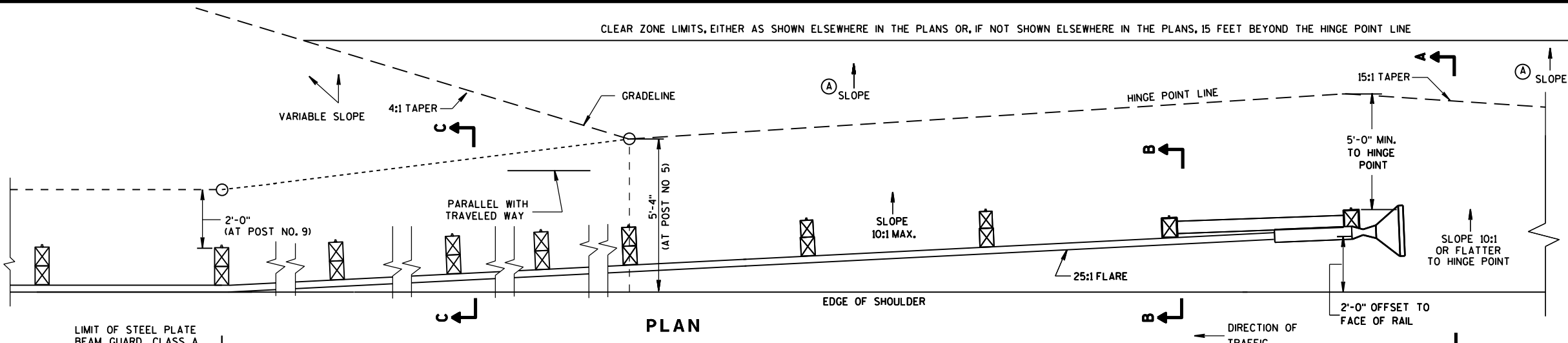
FOLLOW MANUFACTURE'S BOLTING RECOMMENDATIONS.

- (A) THE SLOPE IN THE AREA BOUNDED BY THE GRADELINE, THE HINGE POINT LINE (HPL), AND THE CLEAR ZONE LIMITS (CZL) SHALL BE 4:1 OR FLATTER.
- (B) AFTER FINAL ASSEMBLY, RECHECK CABLE TO BE SURE IT IS TAUT AND HAS NOT RELAXED.
- (D) THE TOP OF THE STEEL TUBE ON POSTS 1 AND 2 SHALL NOT BE MORE THAN 3" ABOVE THE FINISH GROUND ELEVATION.
- (E) THE CENTER OF THE UPPER 3½" DIAMETER HOLE ON POST 3 THROUGH 8 SHALL BE ¾" ABOVE THE FINISHED GROUND LINE.
- (F) ATTACH ALUMINUM SHEET TO E.A.T. HEAD USING 4 STAINLESS STEEL SELF-TAPPING SCREWS, ONE SCREW PER CORNER.

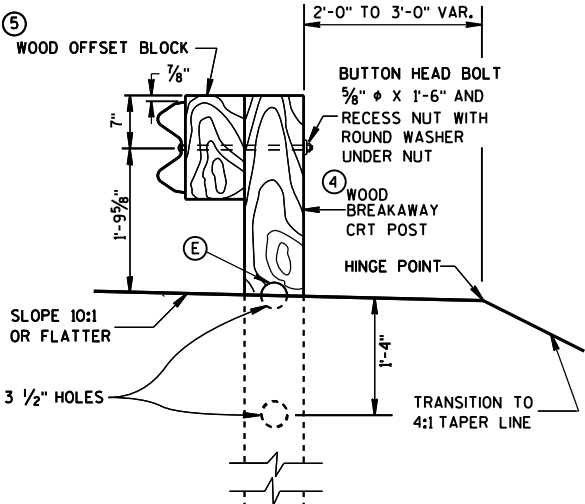
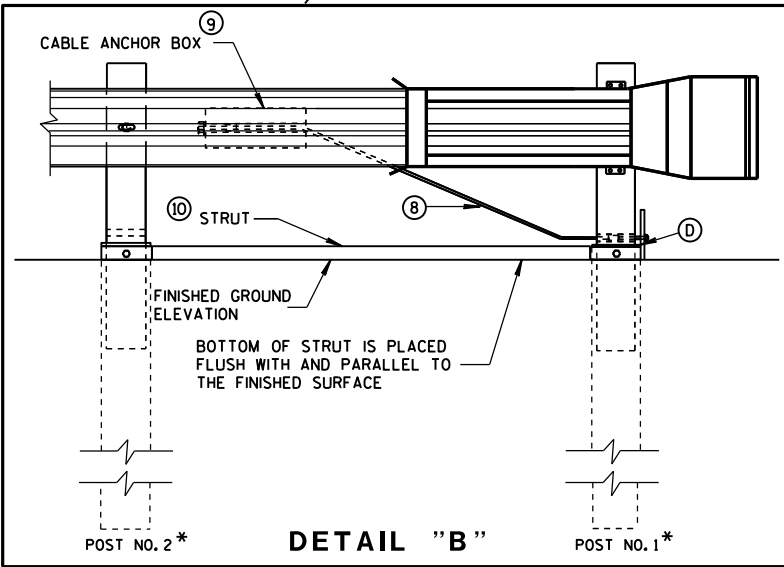
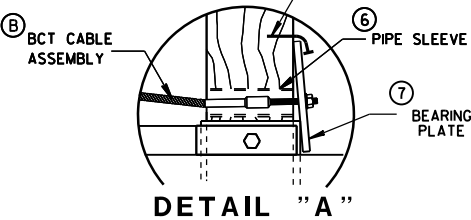
STEEL POSTS SHALL NOT BE ALLOWED FOR USE WITH ENERGY ABSORBING TERMINALS.

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

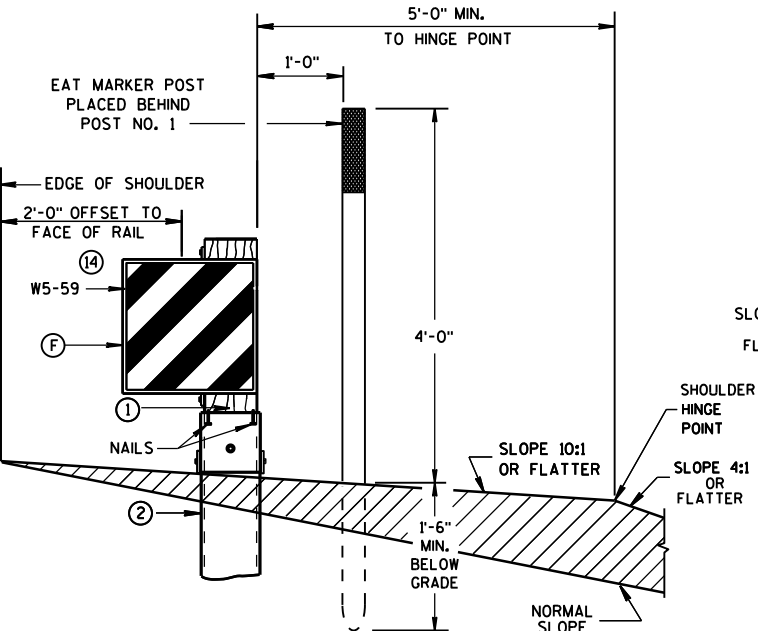
*DO NOT ATTACH BLOCKOUTS TO POSTS 1 AND 2.



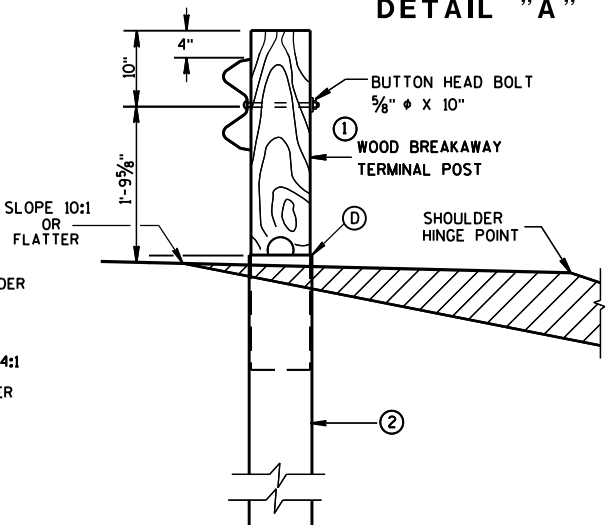
ELEVATION



SECTION C-C
TYPICAL AT POST NOS. 6, 8



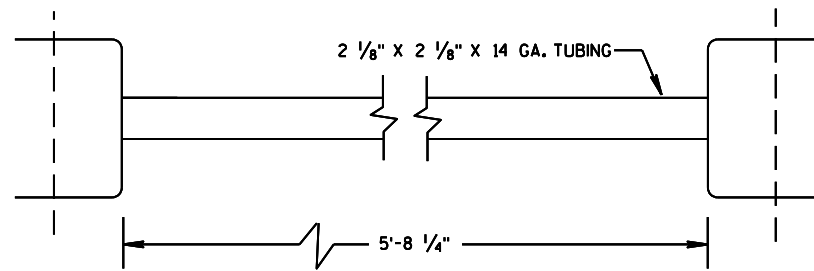
SECTION A-A
TYPICAL AT POST NO. 1*



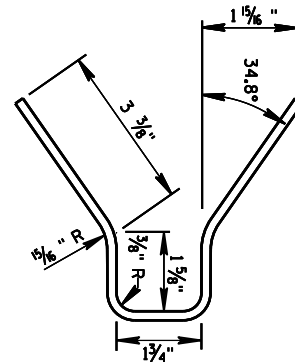
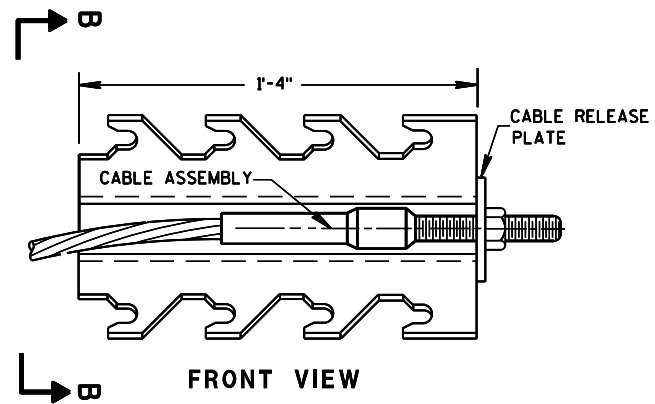
SECTION B-B
TYPICAL AT POST NO. 2*

STEEL PLATE BEAM GUARD
ENERGY ABSORBING TERMINAL

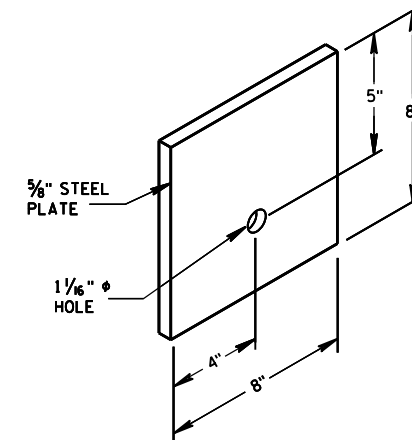
STATE OF WISCONSIN
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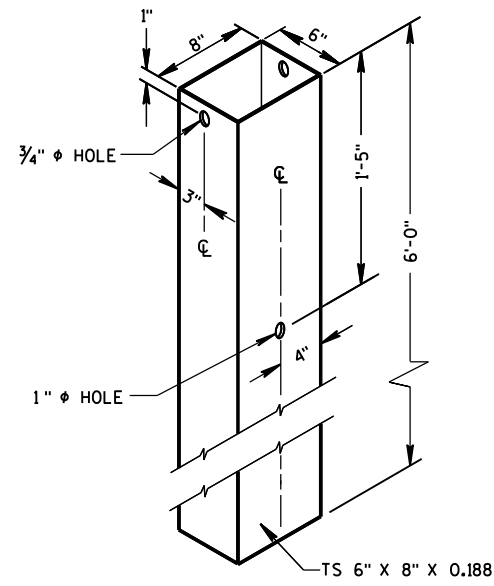
⑩ STRUT DETAIL



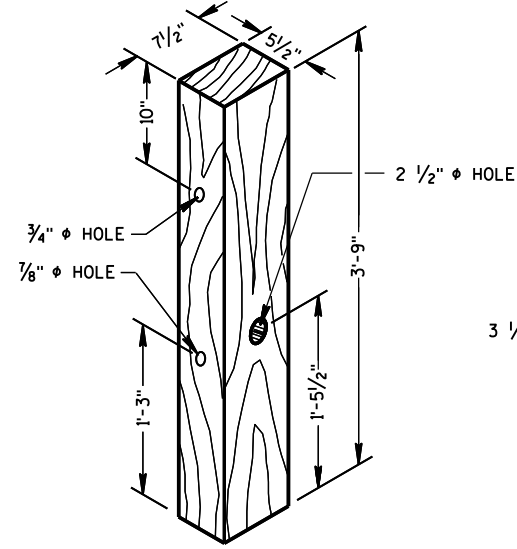
⑨ CABLE ANCHOR BOX



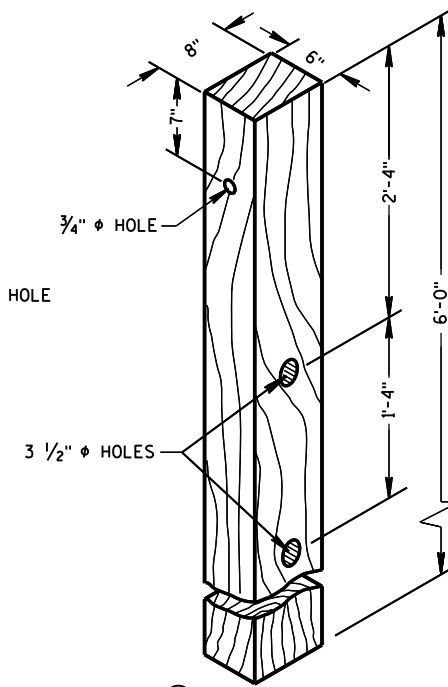
⑦ STEEL BEARING PLATE



② **72" STEEL TUBE**
(POSTS NO. 1-2)



① **TERMINAL POST**

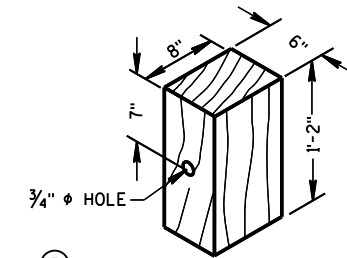


④ **CRT POST**
(POSTS NO'S 5-8)

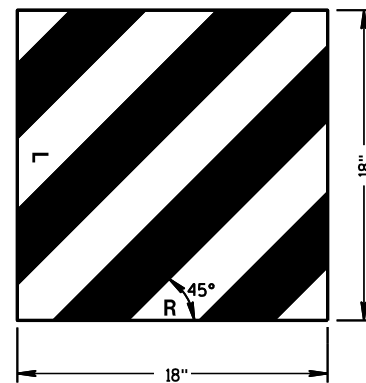
WOOD BREAKAWAY POSTS

GENERAL NOTES

WHEN ROCK IS ENCOUNTERED DURING EXCAVATION, A 12 INCH DIA. POST HOLE EXTENDING 20 INCHES DEEP INTO THE ROCK MAY BE USED IF APPROVED BY THE ENGINEER. GRANULAR MATERIAL SHALL BE PLACED IN THE BOTTOM OF THE HOLE APPROXIMATELY 2 1/2" INCHES DEEP TO PROVIDE DRAINAGE. THE SOIL TUBES SHALL BE FIELD CUT TO LENGTH, PLACED IN THE HOLE AND BACKFILLED WITH ADEQUATELY COMPACTED MATERIAL EXCAVATED FROM THE HOLE.



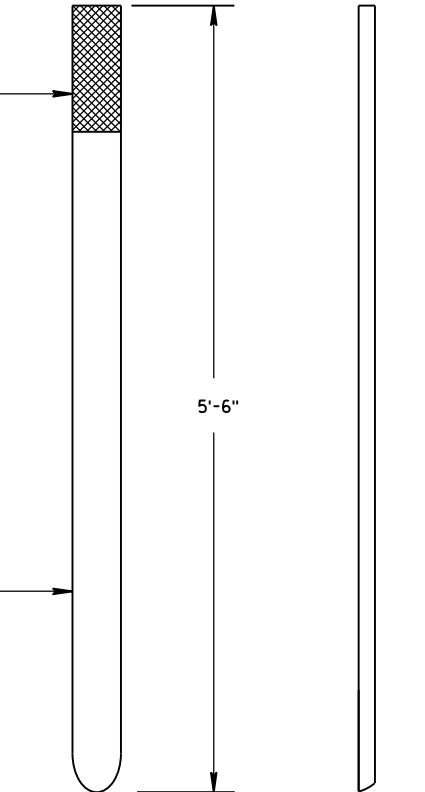
⑤ **WOOD OFFSET BLOCK**
REQ'D. AT ALL POSTS EXCEPT POST NO'S 1 & 2



⑭ **REFLECTIVE SHEETING DETAILS**

TYPE H
YELLOW REFLECTIVE
SHEETING 3" X 9".
SEE STANDARD
SPECIFICATION 637.

E.A.T. MARKER
POST (YELLOW)
SEE APPROVED
PRODUCTS LIST



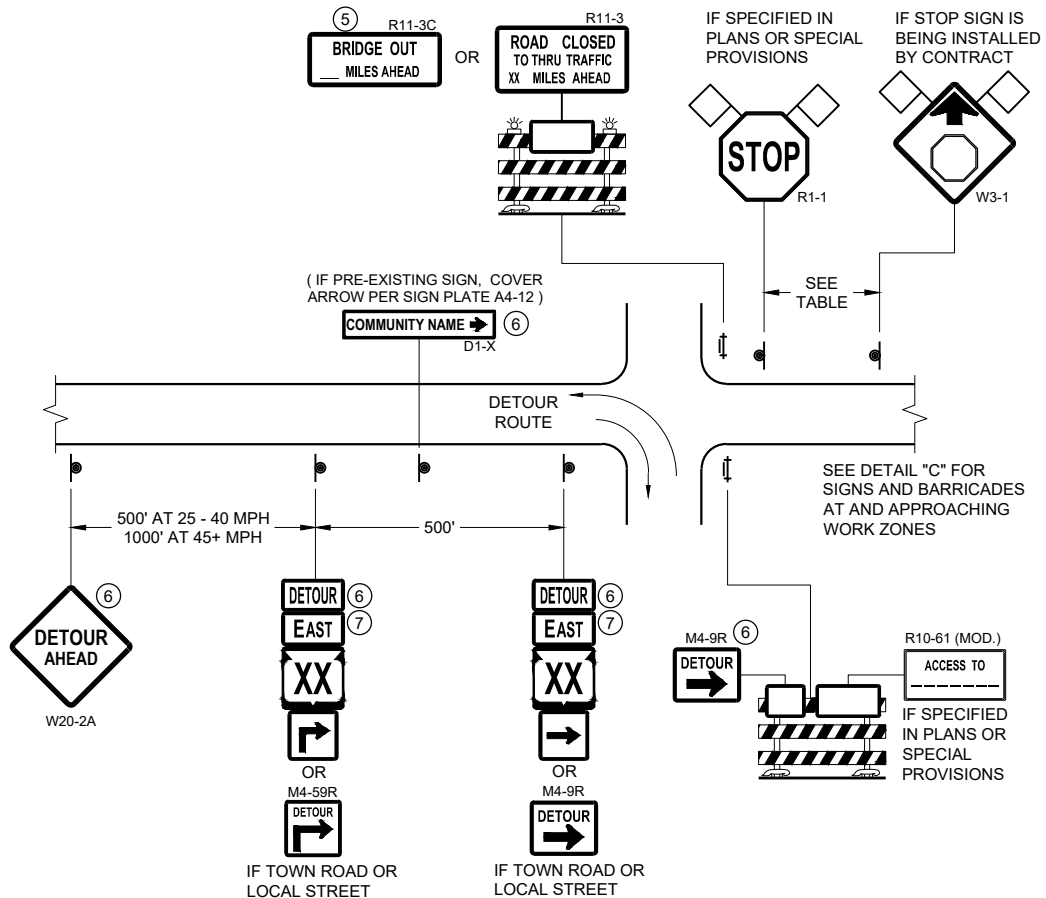
FRONT VIEW SIDE VIEW

E.A.T. MARKER POST

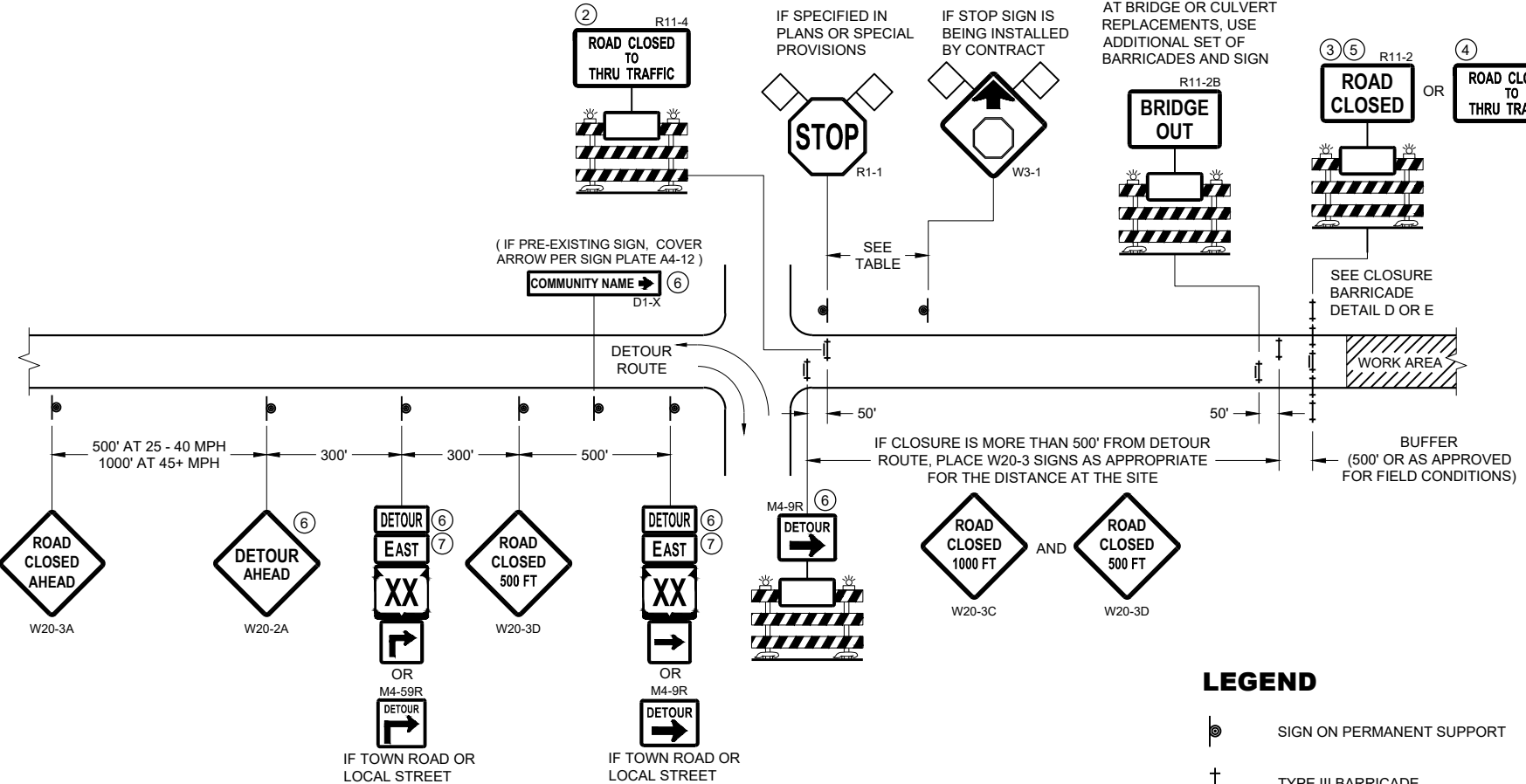
**STEEL PLATE BEAM GUARD
ENERGY ABSORBING TERMINAL**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June 2017 /S/ Rodney Taylor
DATE ROADWAY STANDARDS DEVELOPMENT
FHWA UNIT SUPERVISOR



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



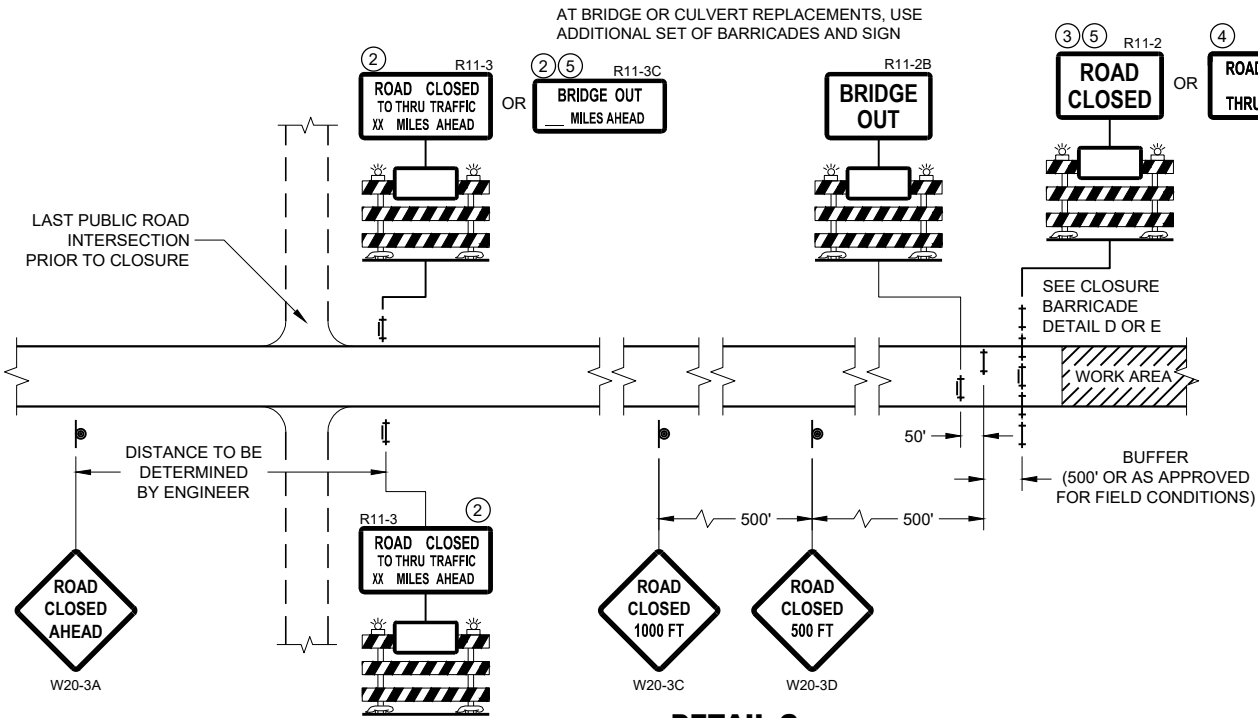
DETAIL B
MAINLINE CLOSURE WITH POSTED DETOUR
WORK ZONE LESS THAN ½ MILE FROM
DETOUR ROUTE (1000 FEET IF URBAN)

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

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

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

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



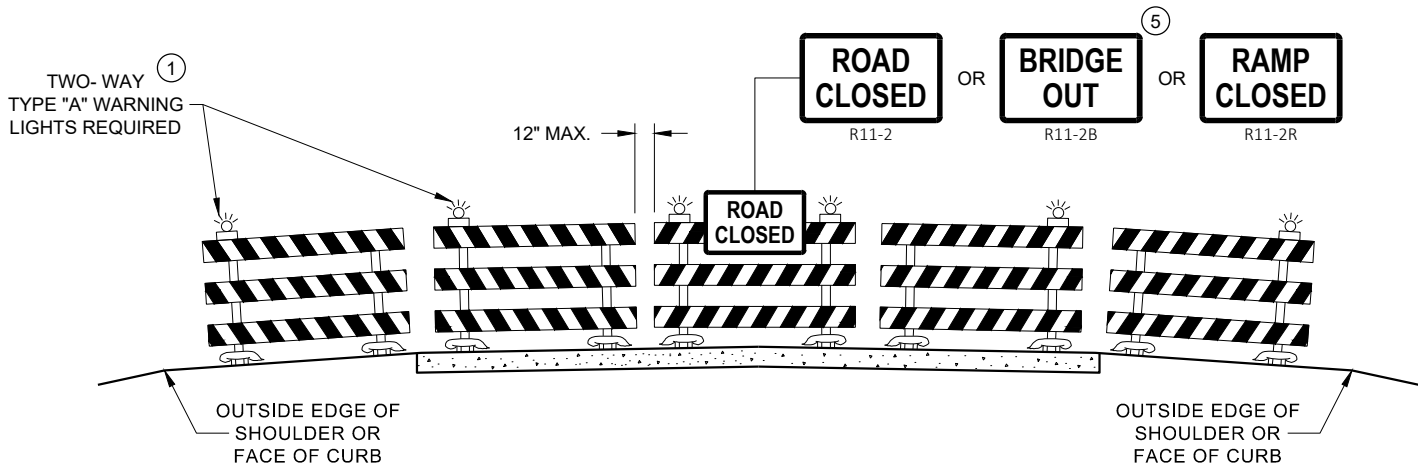
DETAIL C
MAINLINE CLOSURE, NO POSTED DETOUR

**BARRICADES AND SIGNS
FOR MAINLINE CLOSURES**

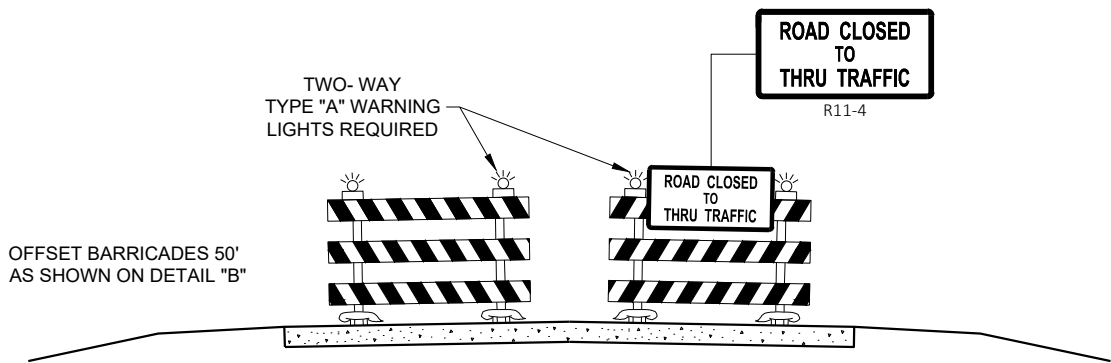
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May 2023 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER

FHWA



DETAIL D
ROAD CLOSURE BARRICADE DETAIL
APPROACH VIEW



DETAIL E
LANE CLOSURE BARRICADE DETAIL
APPROACH VIEW

SEE SDD 15C2 - SHEET "a" FOR LEGEND

GENERAL NOTES

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

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

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

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

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

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

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

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

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

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

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

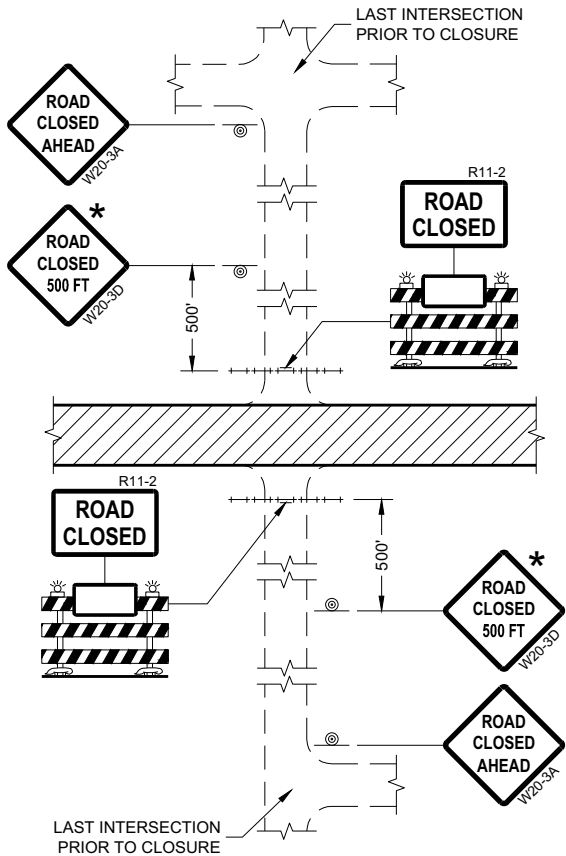
- 1 TWO WARNING LIGHTS SHALL BE PROVIDED ON THE CENTER BARRICADE AND A MINIMUM OF ONE WARNING LIGHT SHALL BE PROVIDED ON EACH OF THE OTHER BARRICADES WITHIN THE ROADWAY LIMITS. SPACING OF THE WARNING LIGHTS SHALL BE UNIFORM TO THE EDGE OF ROADWAY AS SHOWN (APPROX. 8 FOOT LIGHT SPACING).
- 2 THESE SIGNS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

BARRICADES AND SIGNS
FOR
VARIOUS CLOSURES

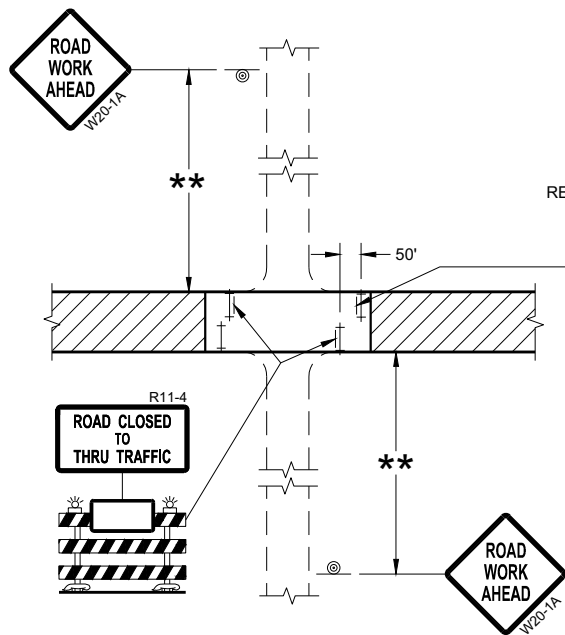
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May 2023 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER

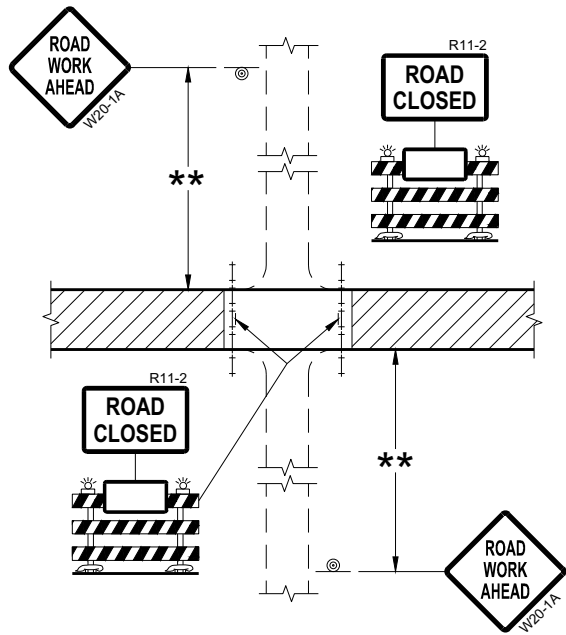
FHWA



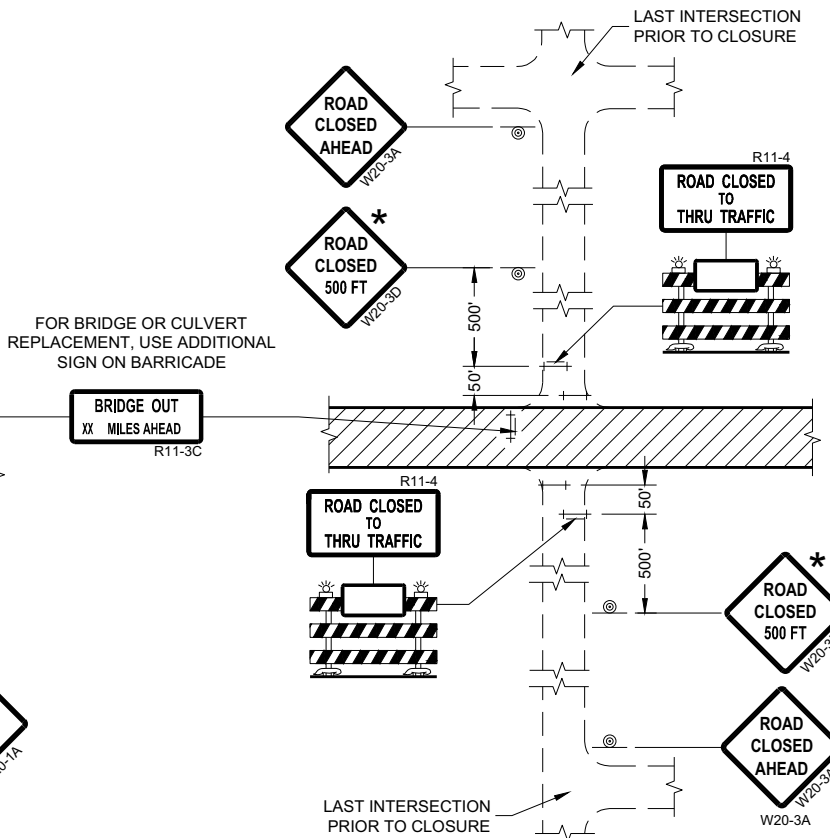
DETAIL 1
(NO ACCESS TO PROJECT)



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



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



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

GENERAL NOTES

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

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

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

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

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

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

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

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

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

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

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

LEGEND

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

BARRICADES AND SIGNS FOR SIDEROAD CLOSURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

FHWA

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. IF NECESSARY DUE TO SPACE CONSTRAINTS, 36"X36" SIGNS MAY BE USED INSTEAD OF 48" X 48" SIGNS.

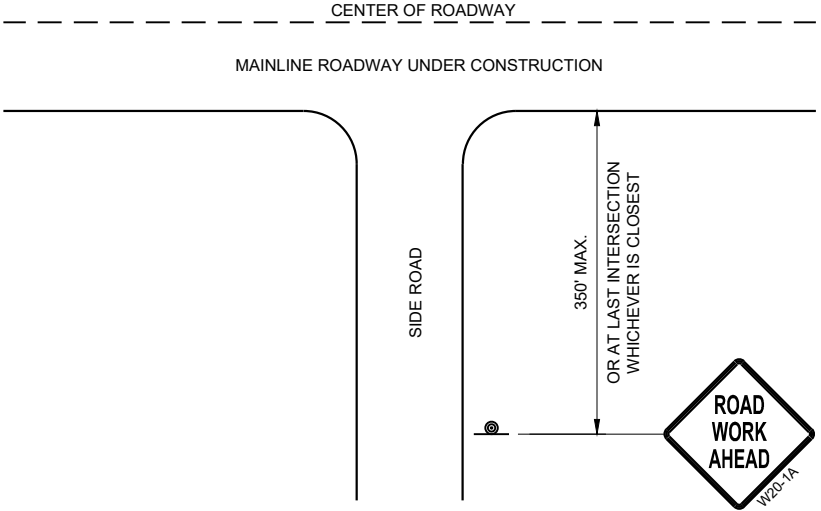
SIGNS THAT WILL BE IN PLACE LESS THAN SEVEN CONTINUOUS DAYS AND NIGHTS MAY BE MOUNTED ON PORTABLE SUPPORTS.

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.

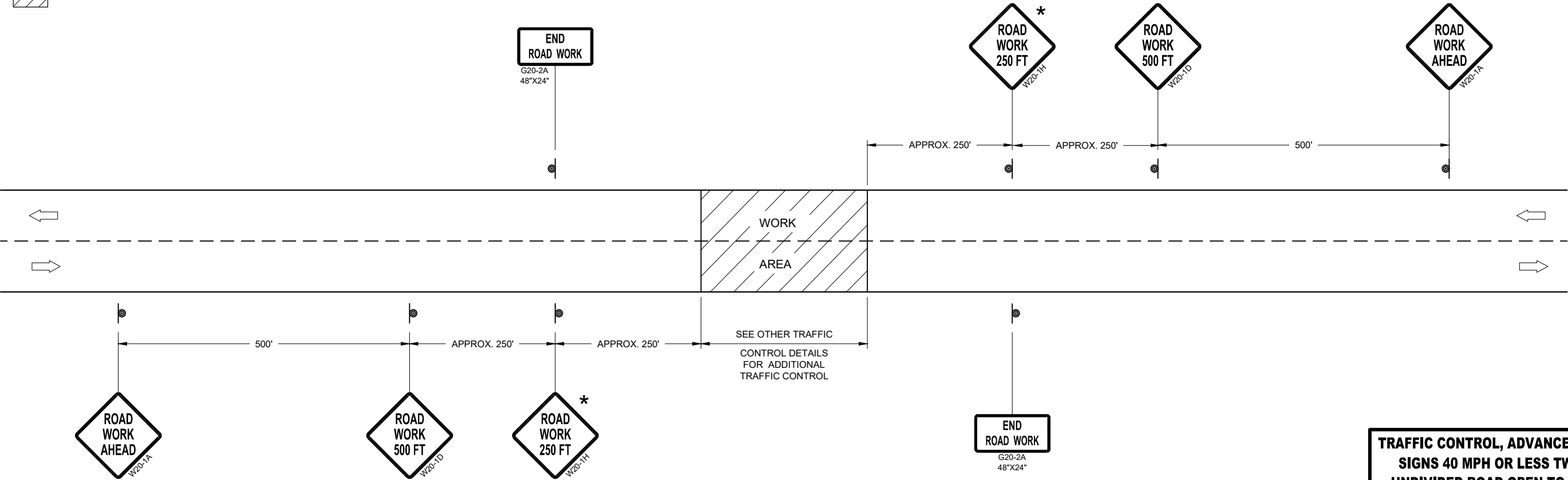
* THE THIRD W20-1 SIGN IS REQUIRED ONLY IF THERE IS AN INTERSECTION BETWEEN THE "ROAD WORK 500 FEET" SIGN AND THE WORK ZONE. ADJUST THE PLACEMENT OF THIS SIGN BASED ON INTERSECTION LOCATION AND OTHER FIELD CONDITIONS.

LEGEND

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



TYPICAL SIDE ROAD APPROACH
WARNING SIGN DETAIL

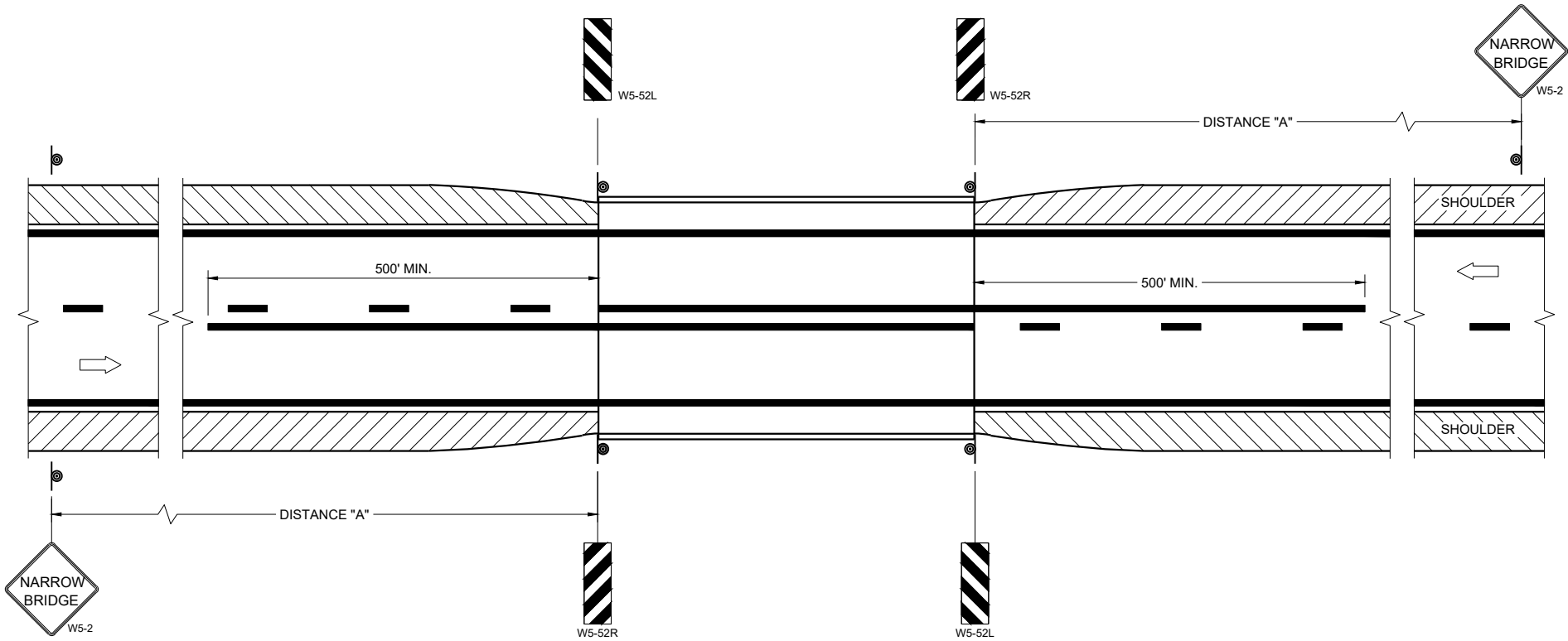


TRAFFIC CONTROL, ADVANCE WARNING SIGNS 40MPH OR LESS

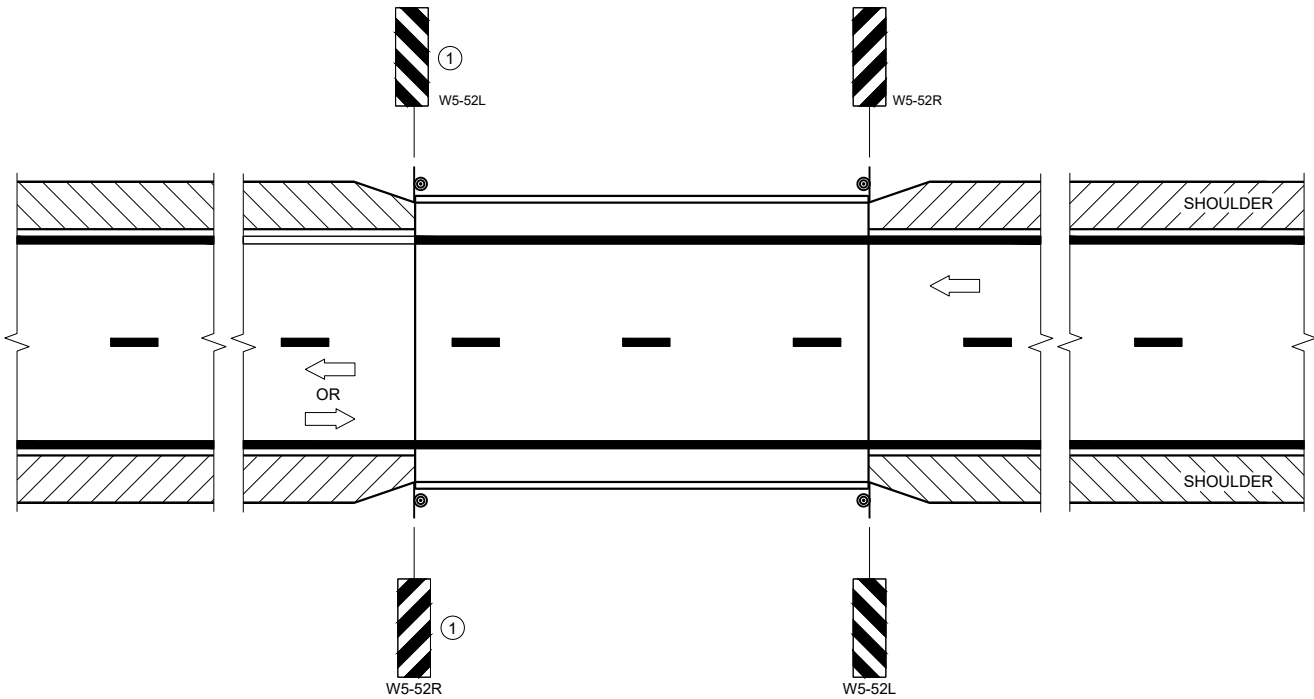
TRAFFIC CONTROL, ADVANCE WARNING
SIGNS 40 MPH OR LESS TWO-WAY
UNDIVIDED ROAD OPEN TO TRAFFIC

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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



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



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

GENERAL NOTES

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

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

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

ON BRIDGE ONLY PROJECTS, PLACE 300 FEET OF EDGELINE.

OMIT EDGELINES ON ROADWAYS WITHOUT EXISTING EDGELINES.

① OMIT ON ONE-WAY TRAVELED WAYS.

LEGEND

⊙ SIGN ON PERMANENT SUPPORT

➡ DIRECTION OF TRAFFIC

DISTANCE TABLE

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

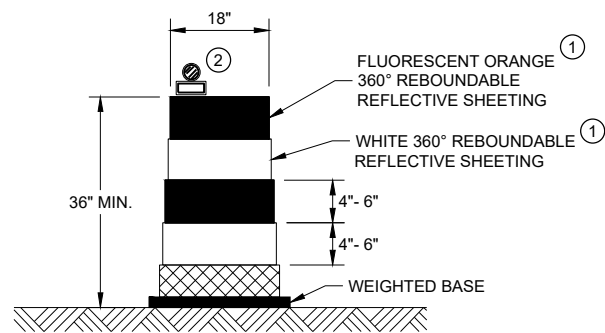
**SIGNING AND MARKING
FOR TWO LANE BRIDGES**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May 2023
DATE

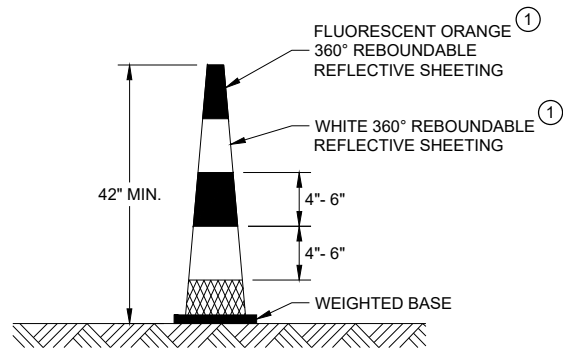
/S/ Jeannie Silver
Statewide Pavement Marking Engineer

FHWA



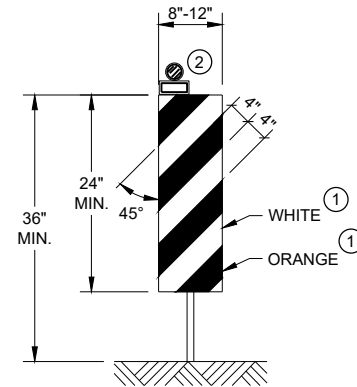
DRUM

BALLAST WIDTHS
RANGE FROM 24"-36"



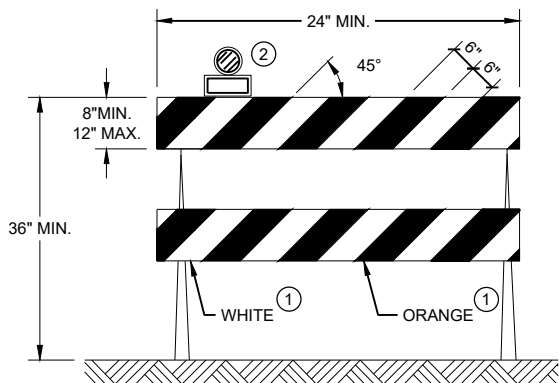
42" CONE

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



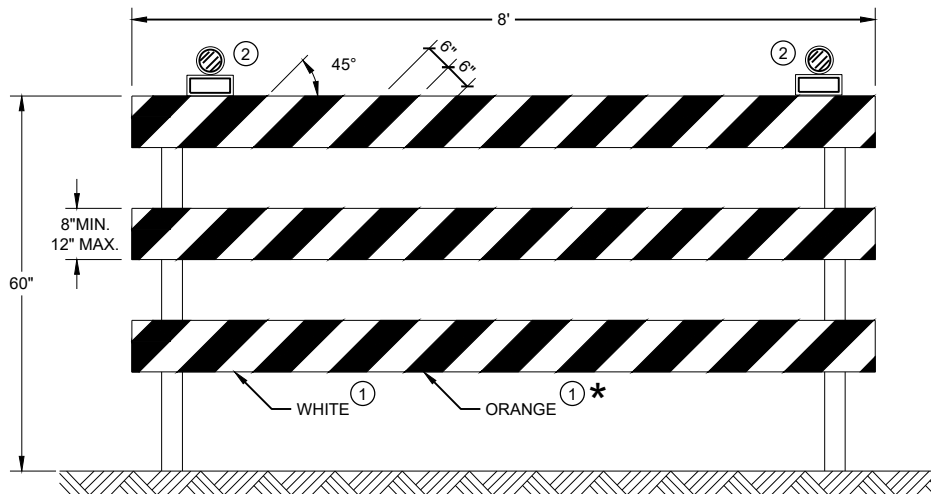
VERTICAL PANEL

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



TYPE II BARRICADE

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



TYPE III BARRICADE

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

* IF USED FOR A PERMANENT APPLICATION USE RED SHEETING.

GENERAL NOTES

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

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

FHWA

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.

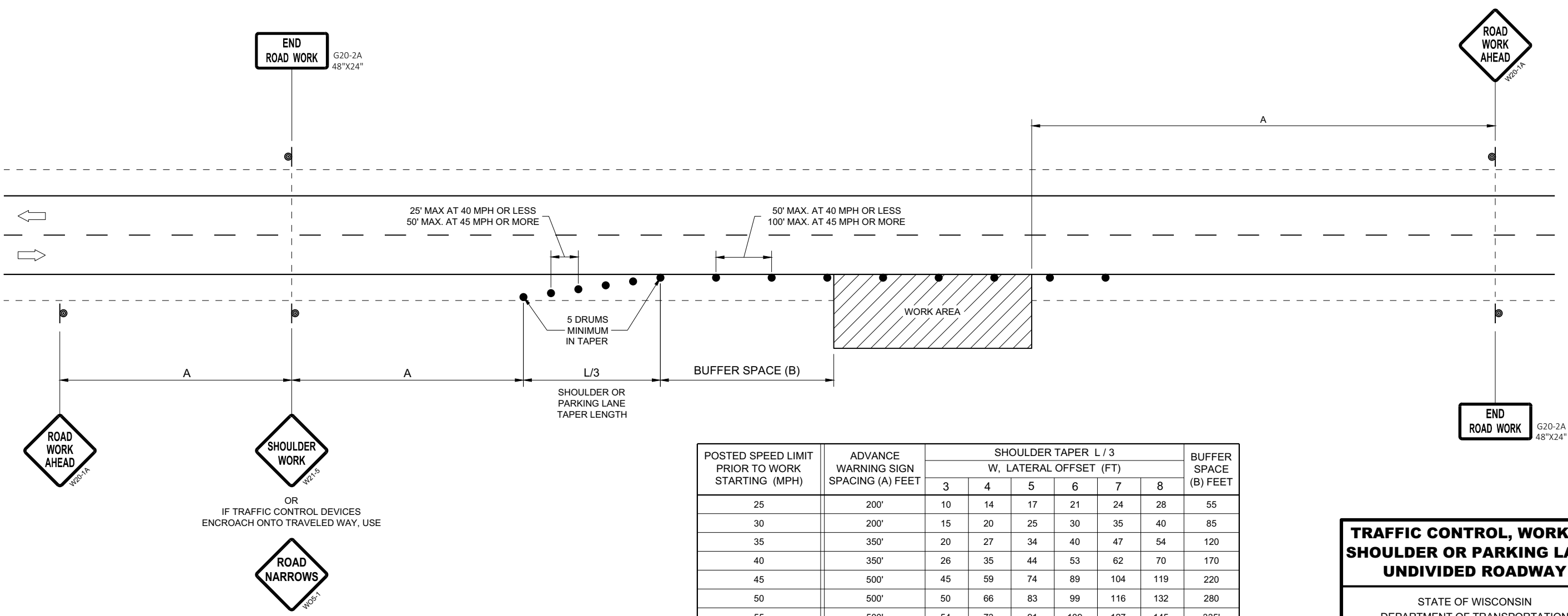
CHANNELIZING DEVICES PLACED ADJACENT TO WORK AREA SHALL BE PULLED BACK FROM THE TRAVEL LANE WHEN WORK IS NOT IN PROGRESS.

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.

6

6



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

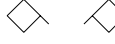
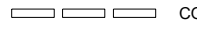
/S/ Andrew Heidtke
STATEWIDE WORK ZONE TRAFFIC
SAFETY ENGINEER

FHWA

SDD 15D28 - 04

SDD 15D28 - 04

LEGEND

-  TYPE III BARRICADE WITH ATTACHED SIGN
-  SIGN ON PERMANENT SUPPORT
-  TRAFFIC CONTROL DRUM WITH TYPE "C" STEADY BURN LIGHT
-  TRAFFIC CONTROL DRUM
-  FLAGS, 16" X 16" MIN. (ORANGE)
-  REMOVING PAVEMENT MARKING
-  DIRECTION OF TRAFFIC
-  ASPHALTIC PAVEMENT WIDENING
-  CONCRETE BARRIER TEMPORARY PRECAST

GENERAL NOTES

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

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

THIS LANE CLOSURE IS TYPICAL FOR CLOSING RIGHT LANE - REVERSE FOR CLOSING LEFT LANE.

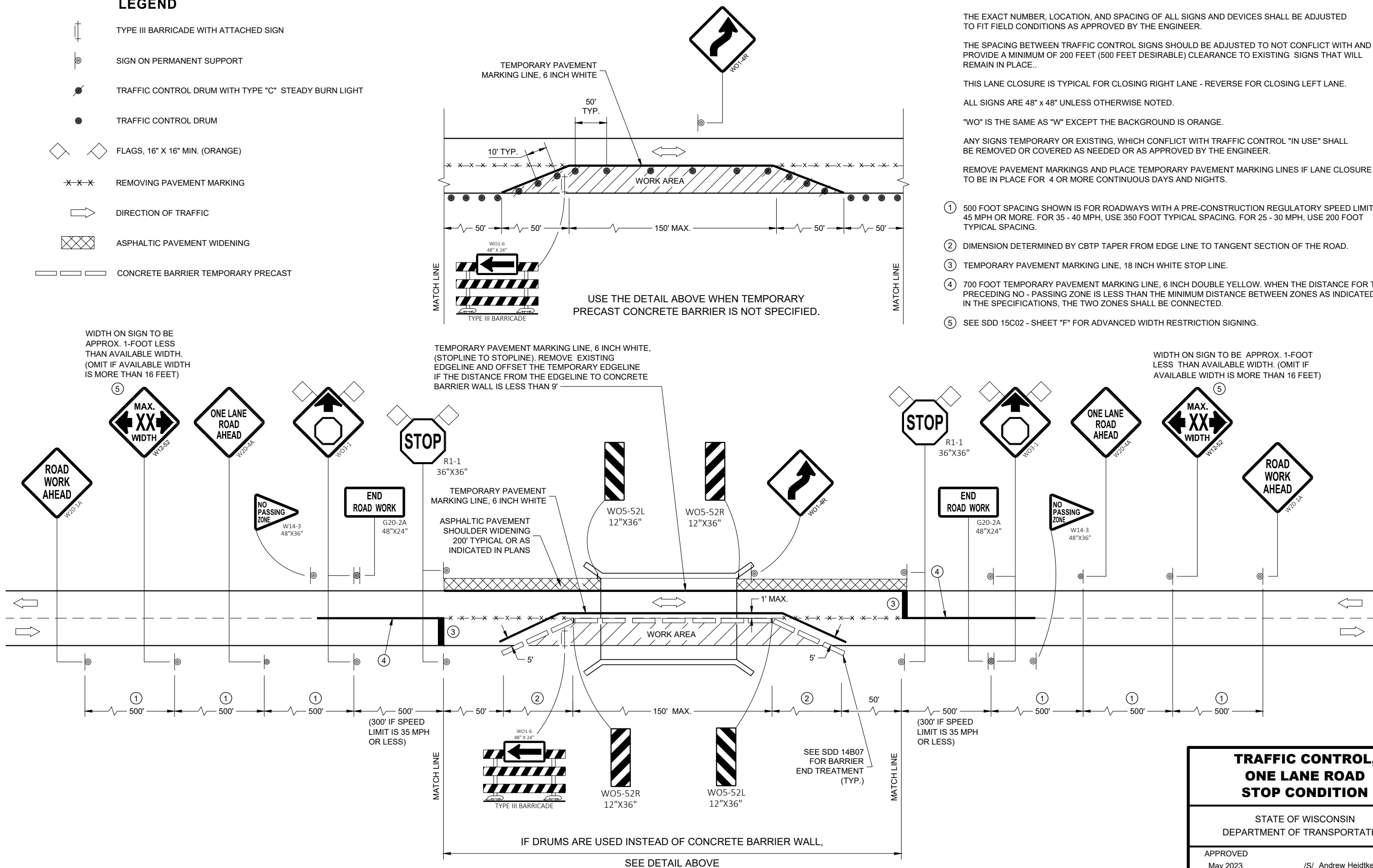
ALL SIGNS ARE 48" X 48" UNLESS OTHERWISE NOTED.

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

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

REMOVE PAVEMENT MARKINGS AND PLACE TEMPORARY PAVEMENT MARKING LINES IF LANE CLOSURE IS TO BE IN PLACE FOR 4 OR MORE CONTINUOUS DAYS AND NIGHTS.

- 500 FOOT SPACING SHOWN IS FOR ROADWAYS WITH A PRE-CONSTRUCTION REGULATORY SPEED LIMIT OF 45 MPH OR MORE. FOR 35 - 40 MPH, USE 350 FOOT TYPICAL SPACING. FOR 25 - 30 MPH, USE 200 FOOT TYPICAL SPACING.
- DIMENSION DETERMINED BY CBTP TAPER FROM EDGE LINE TO TANGENT SECTION OF THE ROAD.
- TEMPORARY PAVEMENT MARKING LINE, 18 INCH WHITE STOP LINE.
- 700 FOOT TEMPORARY PAVEMENT MARKING LINE, 6 INCH DOUBLE YELLOW. WHEN THE DISTANCE FOR THE PRECEDING NO - PASSING ZONE IS LESS THAN THE MINIMUM DISTANCE BETWEEN ZONES AS INDICATED IN THE SPECIFICATIONS, THE TWO ZONES SHALL BE CONNECTED.
- SEE SDD 15C02 - SHEET "F" FOR ADVANCED WIDTH RESTRICTION SIGNING.

TRAFFIC CONTROL,
ONE LANE ROAD
STOP CONDITION

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

May 2023

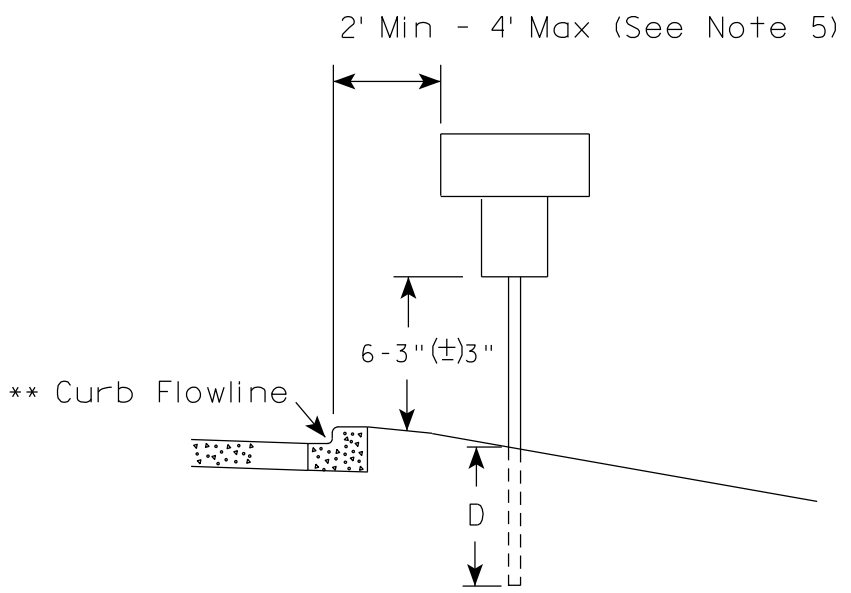
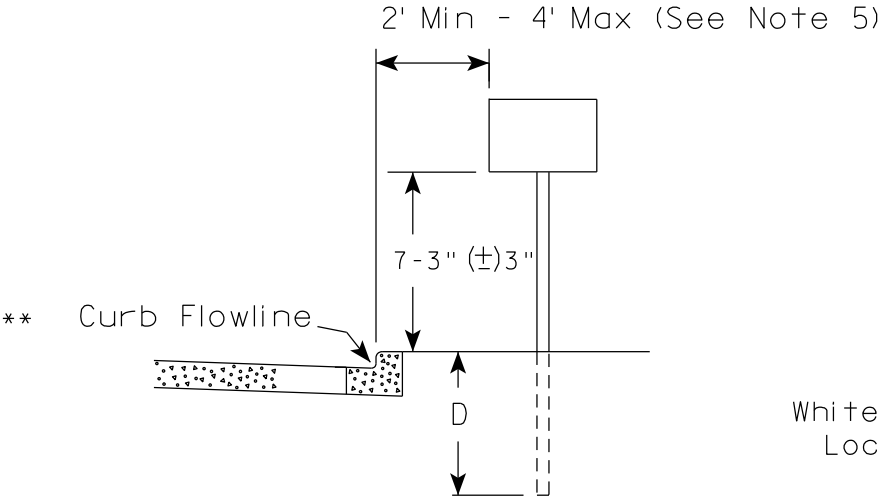
DATE

FHWA

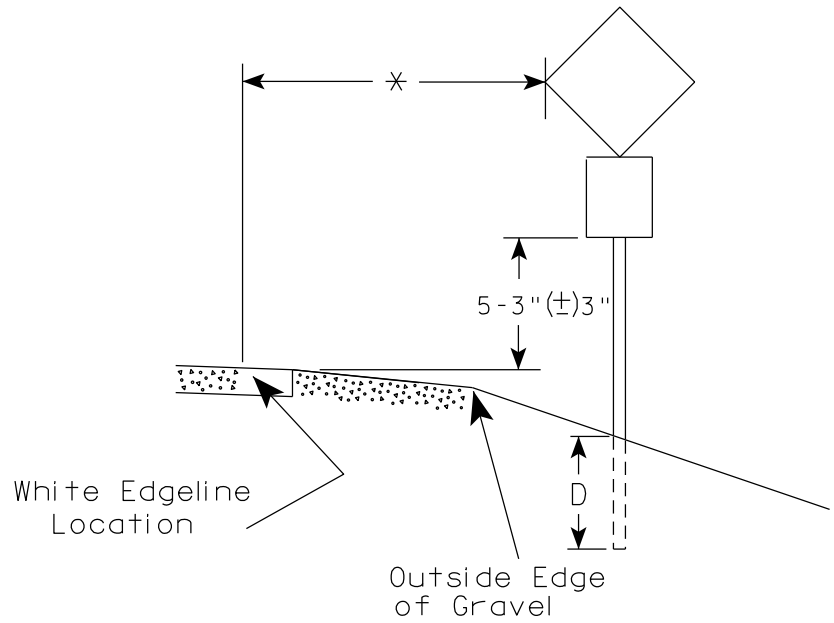
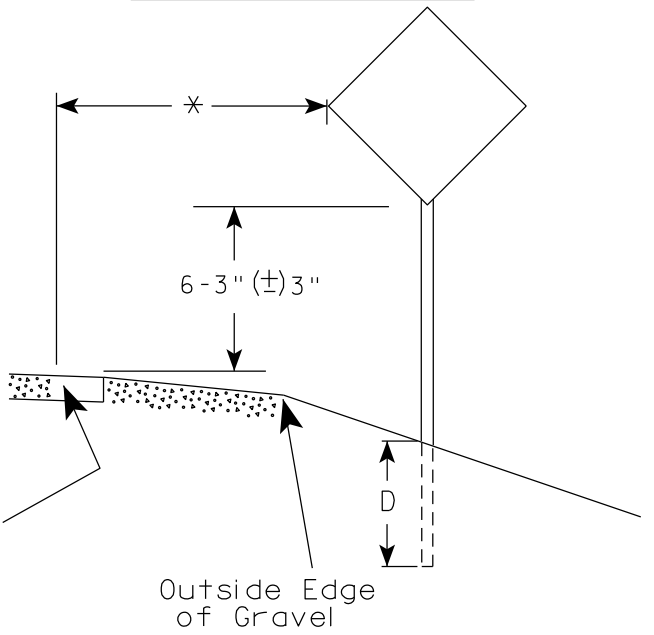
/S/ Andrew Heidtke

WORK ZONE ENGINEER

URBAN AREA



RURAL AREA (See Note 2)



GENERAL NOTES

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

POST EMBEDMENT DEPTH

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

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

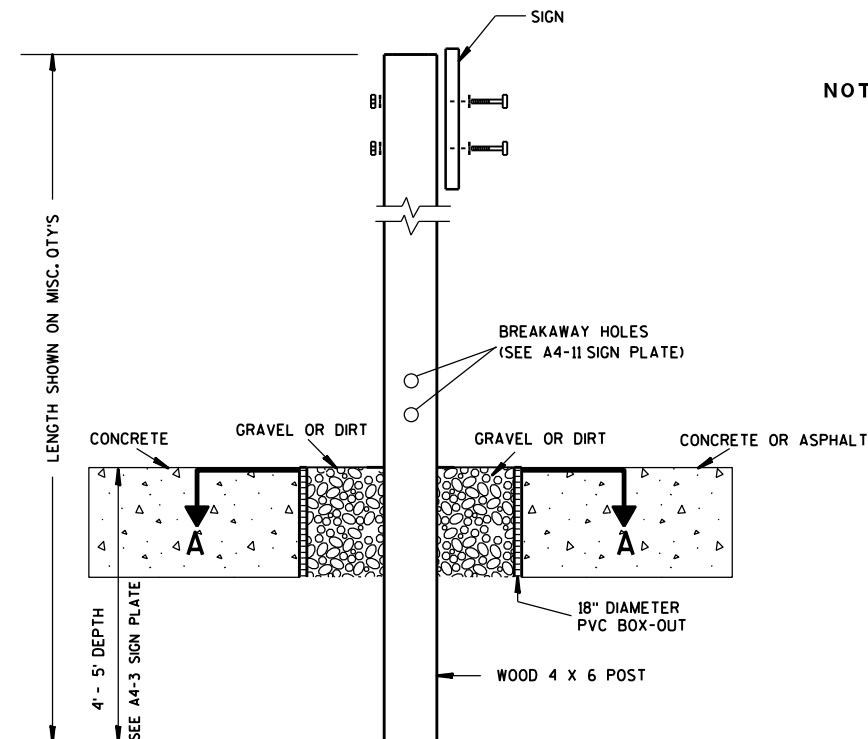
* 6 feet from edge of a paved shoulder or 12 feet from the edge of pavement (edge line location) or 2 feet from outside edge of gravel, whichever is greater unless directed by project engineer.

TYPICAL INSTALLATION
OF PERMANENT TYPE II
SIGNS ON SINGLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

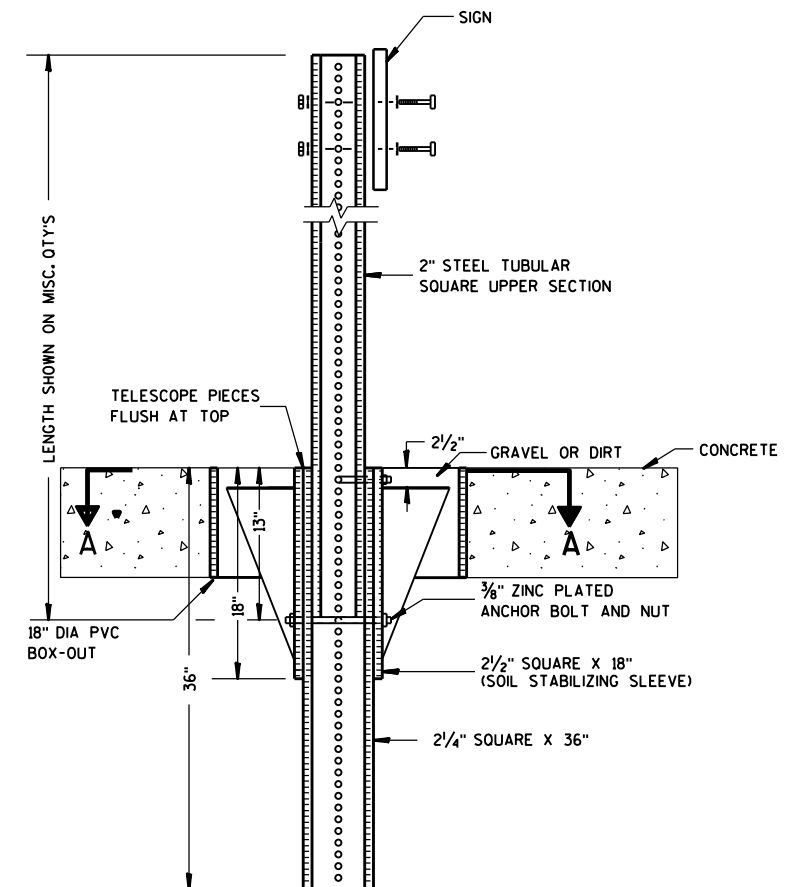
DATE 12/6/23 PLATE NO. A4-3.23



ELEVATION VIEW

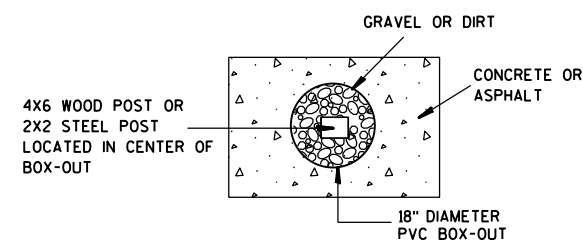
DETAIL OF WOOD 4 X 6 SIGN POST IN BOX-OUT

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



ELEVATION VIEW

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



PLAN VIEW

FOR NEW CONCRETE/ASPHALT INSTALLATIONS

SIGN POST
BOX-OUTS
A4-3B

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

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

PROJECT NO:

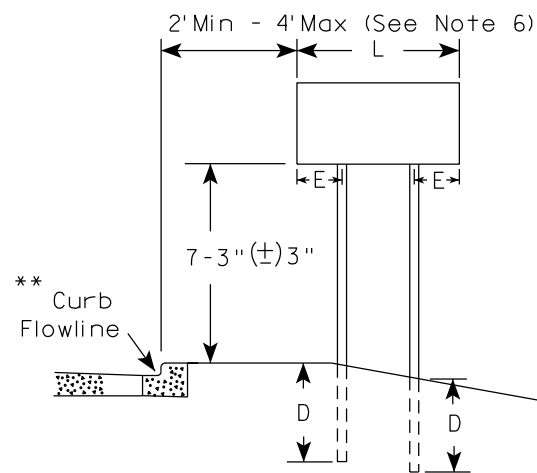
HWY:

COUNTY:

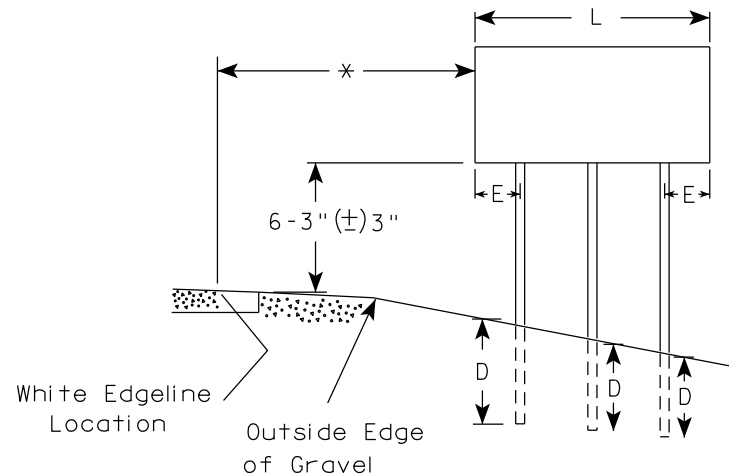
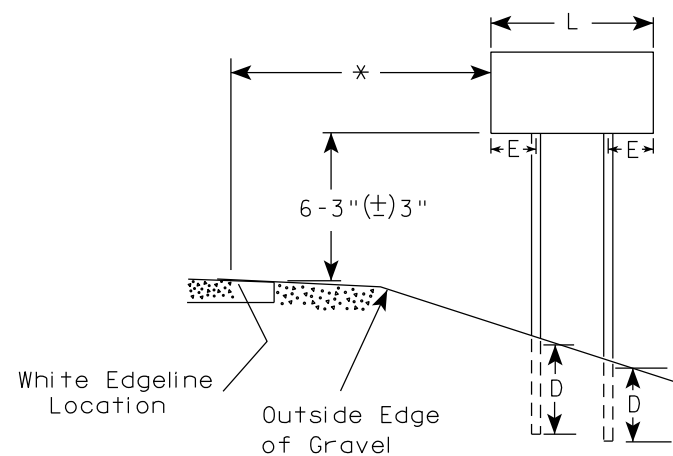
SHEET NO:

E

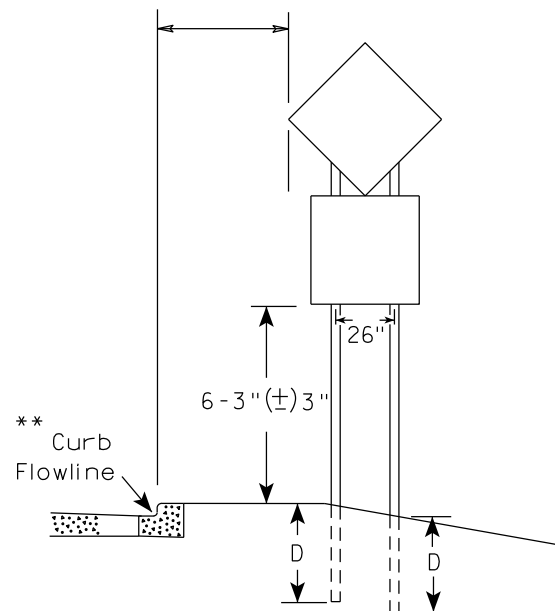
URBAN AREA



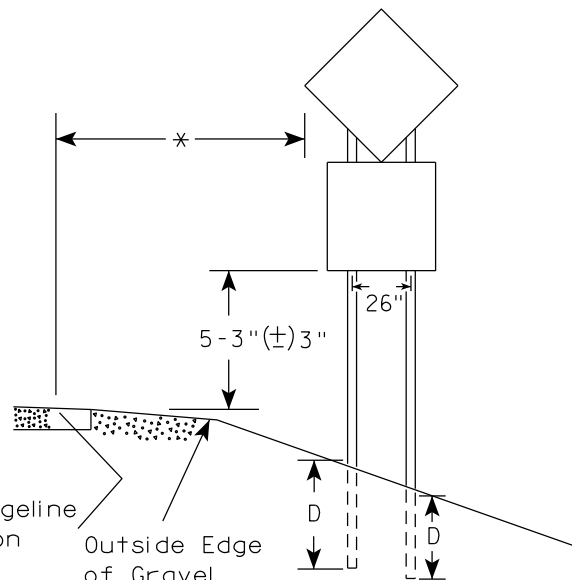
RURAL AREA (See Note 3)



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



48" DIAMOND WARNING SIGN



48" DIAMOND WARNING SIGN

GENERAL NOTES

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

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

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

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

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

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

POST EMBEDMENT DEPTH

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

TYPICAL INSTALLATION
OF TYPE II SIGNS
ON MULTIPLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED

Matthew R. Rauch
for State Traffic Engineer

DATE 12/6/23

PLATE NO. A4-4.16

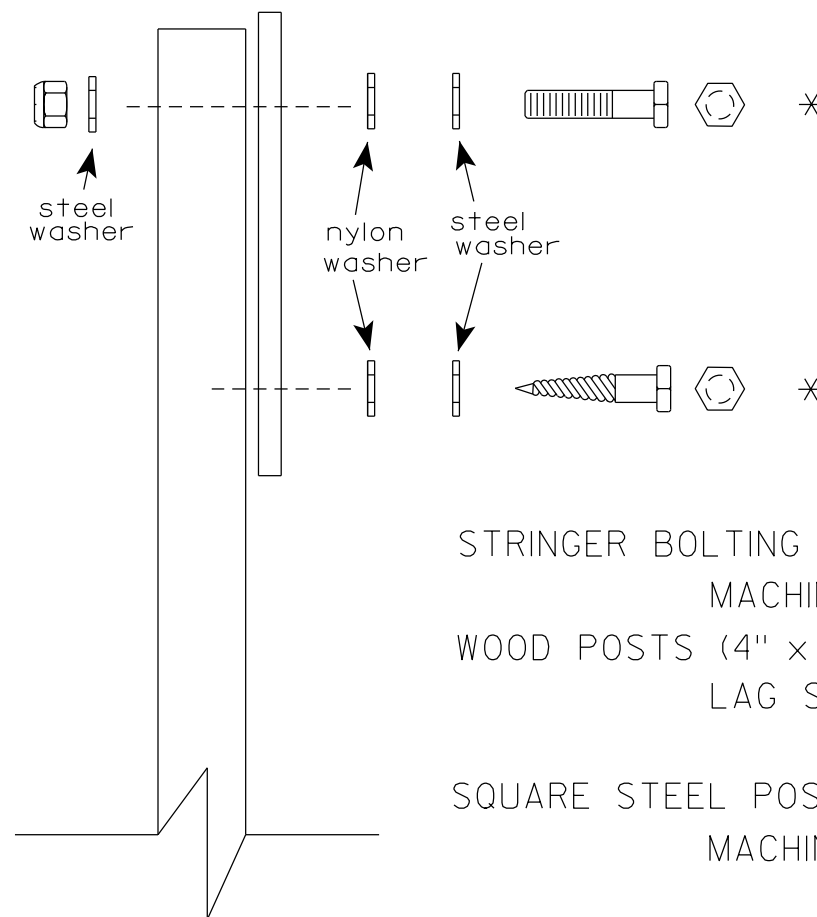
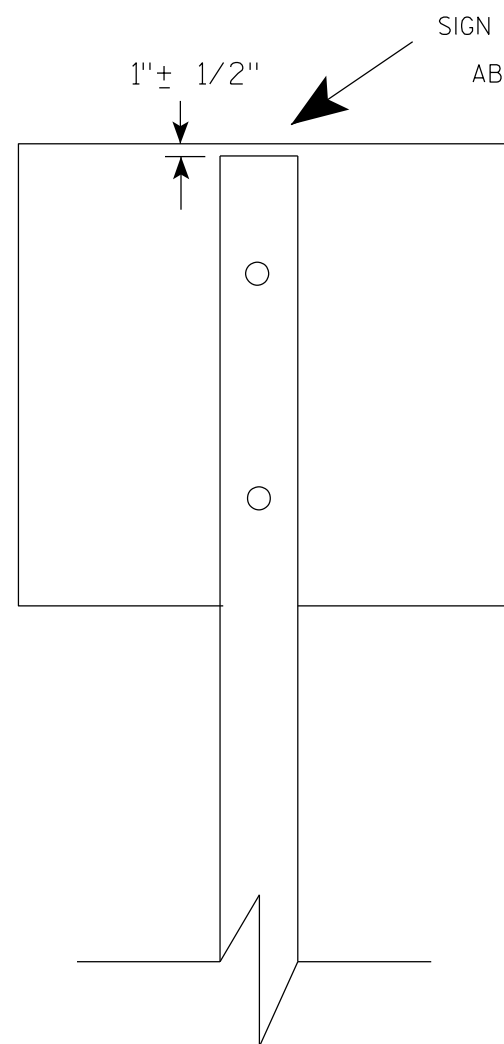
PROJECT NO:

HWY:

COUNTY:

SHEET NO:

E



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

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

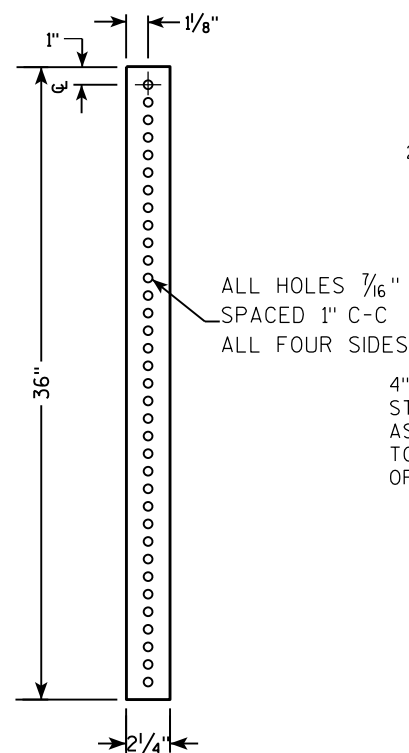
Threads on bolts and nuts shall be manufactured with sufficient allowance for the cadmium plate or galvanized coating to permit the nuts to run freely on the bolts.

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

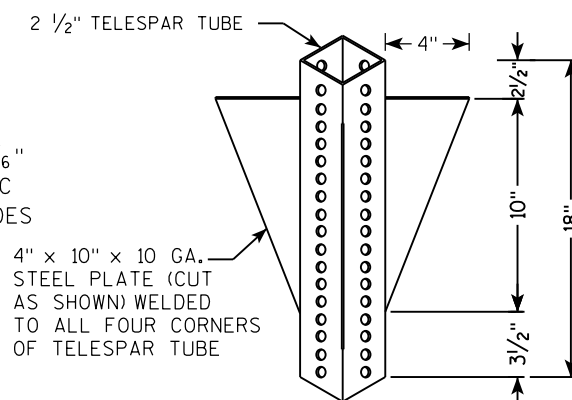
* Two different fastening systems are shown for illustration purposes. On any individual sign, either one or the other system shall be used. Actual number of fasteners per sign varies with the sign area, but normally there are two. For a single post installation, all signs greater than 9 sq. ft. require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

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

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



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



TECHNICAL DRAWING OF A SIGN POST ASSEMBLY.

Side View Labels:

- SIGN
- SEE SIGN PLATE A4-8 FOR BOLT WASHER, & NUT MATERIAL
- 2" STEEL TUBULAR SQUARE UPPER SECTION
- ALL HOLES $\frac{7}{16}$ " SPACED 1" C-C ALL FOUR SIDES
- $\frac{3}{8}$ " ZINC PLATED CORNER ANCHOR BOLT AND NUT
- 2 1/2" GRAVEL OR DIRT
- $\frac{3}{8}$ " ZINC PLATED ANCHOR BOLT AND NUT
- 2 1/2" SQUARE X 18" (SOIL STABILIZING SLEEVE)
- 2 1/4" SQUARE X 36"

Cross Section Labels:

- TELESCOPE PIECES FLUSH AT TOP
- 13"
- 18"
- 36"
- 18" DIA SCHEDULE 40 PVC BOX-OUT

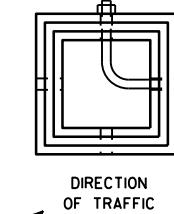
Vertical Dimension:

- LENGTH SHOWN ON MISC. QTY'S

TECHNICAL DRAWING OF A SIGNPOST ASSEMBLY:

- Dimensions:**
 - Overall height: LENGTH SHOWN ON MISC. Q'TYS
 - Section A-A: 36" (total), 18" (upper), 12" (lower)
 - Section B-B: 1"
- Components:**
 - SIGN
 - SEE SIGN PLATE A4-8 FOR BOLT WASHER, & NUT MATERIAL
 - 2" STEEL TUBULAR SQUARE UPPER SECTION
 - ALL HOLES $\frac{7}{16}$ " SPACED 1" C-C
 - ALL FOUR SIDES
 - $\frac{3}{8}$ " ZINC PLATED CORNER ANCHOR BOLT AND NUT
 - $\frac{3}{8}$ " ZINC PLATED ANCHOR BOLT AND NUT
 - 2 1/2" SQUARE X 18" (SOIL STABILIZING SLEEVE)
 - 2 1/4" SQUARE X 36"
 - TELESCOPE PIECES FLUSH AT TOP

3/8" ZINC PLATED CORNER
ANCHOR BOLT AND NUT



SECTION A-A

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

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

PROJECT NO:

HWY:

COUNTY:

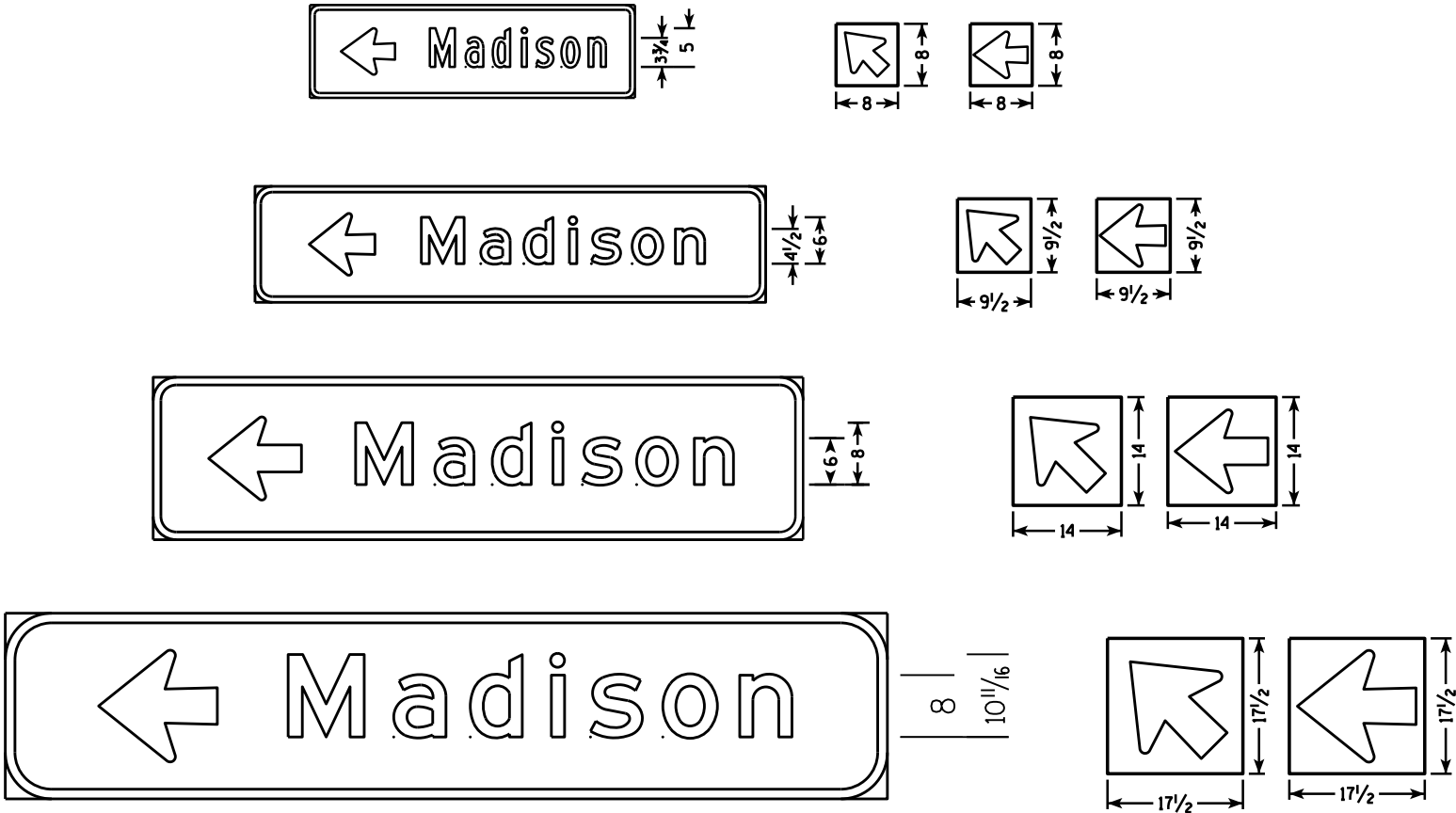
SHEET NO:

E

SIGN LAYOUT WITH VARIOUS SIZED MESSAGES

GENERAL NOTES

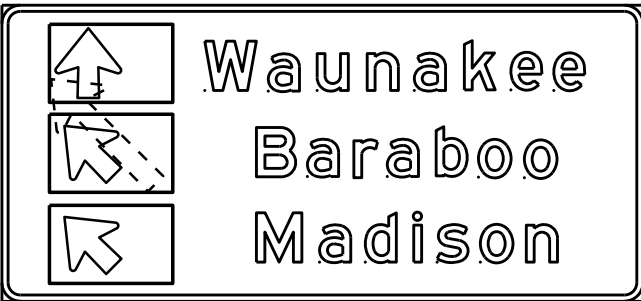
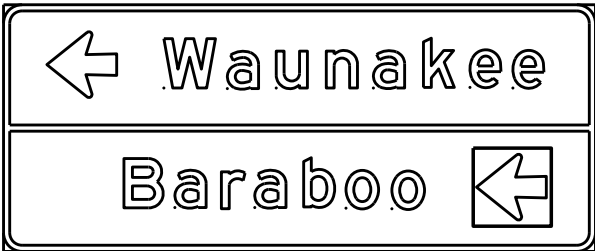
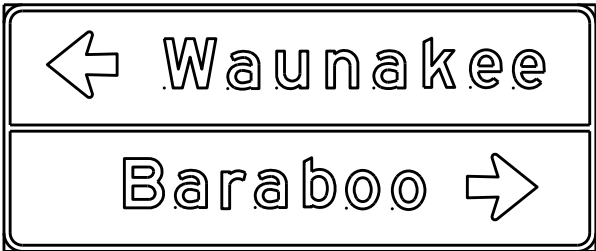
- 1. Materials shall conform to Standard Specification Section 637.
Base - Sheet Aluminum 0.040" Thickness
Sheeting - Orange Type F Reflective
Arrow - Black Non-Reflective
- 2. Arrow signs shall be fastened to permanent sign by either aluminum rivets or aluminum self-tapping sheet metal screws.
There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



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

BEFORE

AFTER



DESTINATION DIRECTIONAL ARROW
FOR DETOUR SIGNS

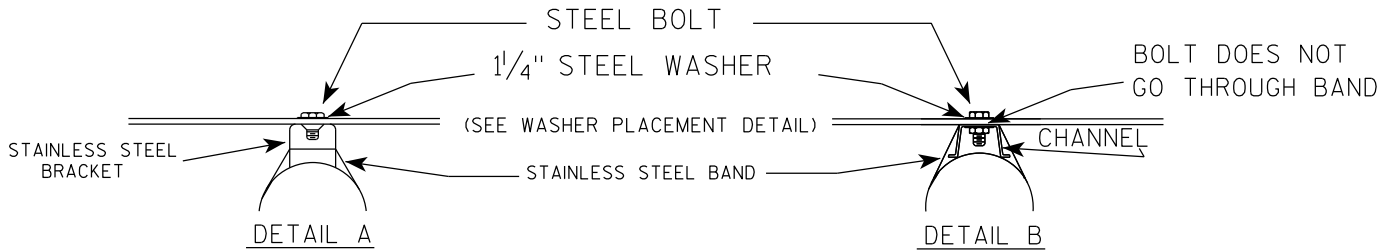
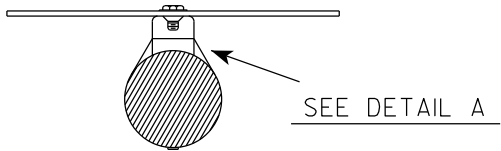
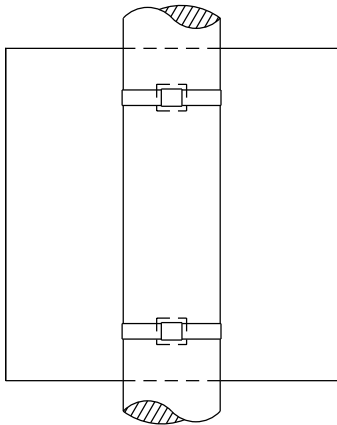
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
For State Traffic Engineer

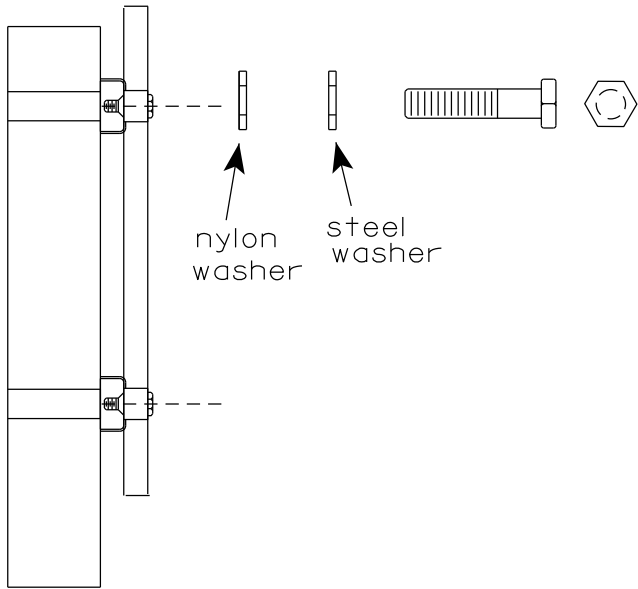
DATE 10/08/14 PLATE NO. A4-12.2

BANDING

SINGLE SIGN



WASHER PLACEMENT

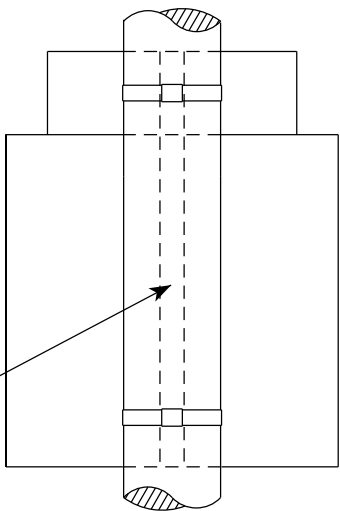


WASHERS (ALL POSTS) -
1-1/4" O.D. X 3/8" I.D. X 1/16" STEEL
1-1/4" O.D. X 3/8" I.D. X .080 NYLON
FOR ALL TYPE H SIGNS

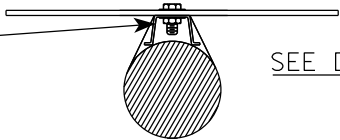
GENERAL NOTES

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



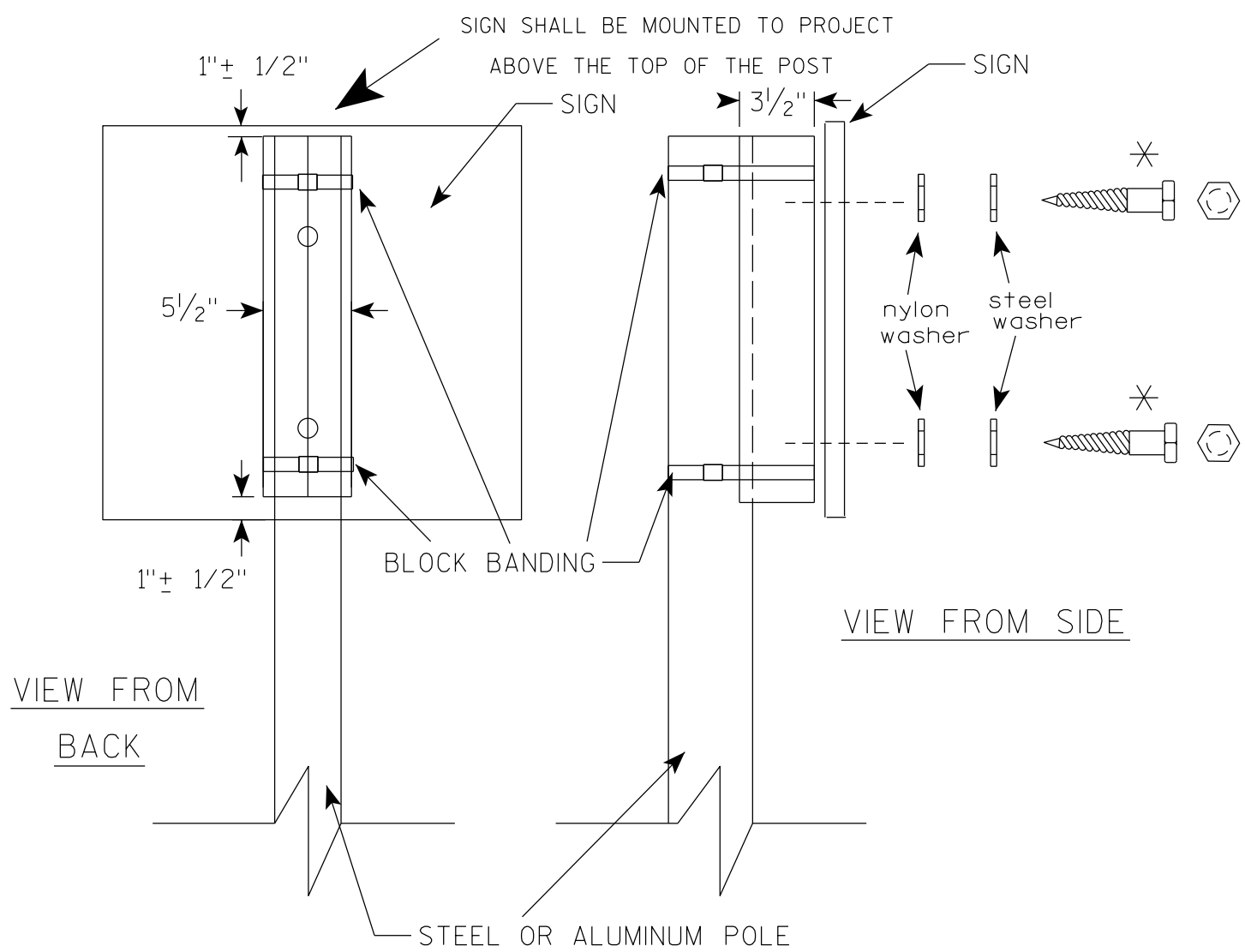
CHANNEL
SEE TYPICAL PANEL
INSTALLATION SHEET



STANDARD SIGN
SIGN BANDING DETAILS

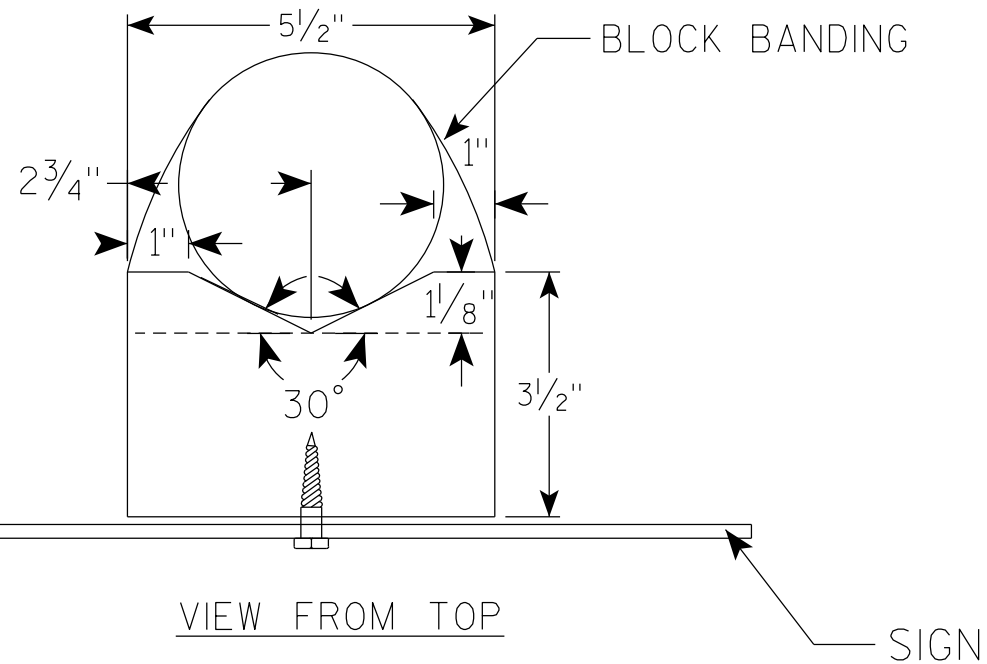
WISCONSIN DEPT OF TRANSPORTATION

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



VIEW FROM
BACK

VIEW FROM SIDE



VIEW FROM TOP

GENERAL NOTES

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

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

BLOCK BANDING DETAIL
(V-BLOCK OPTION)

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

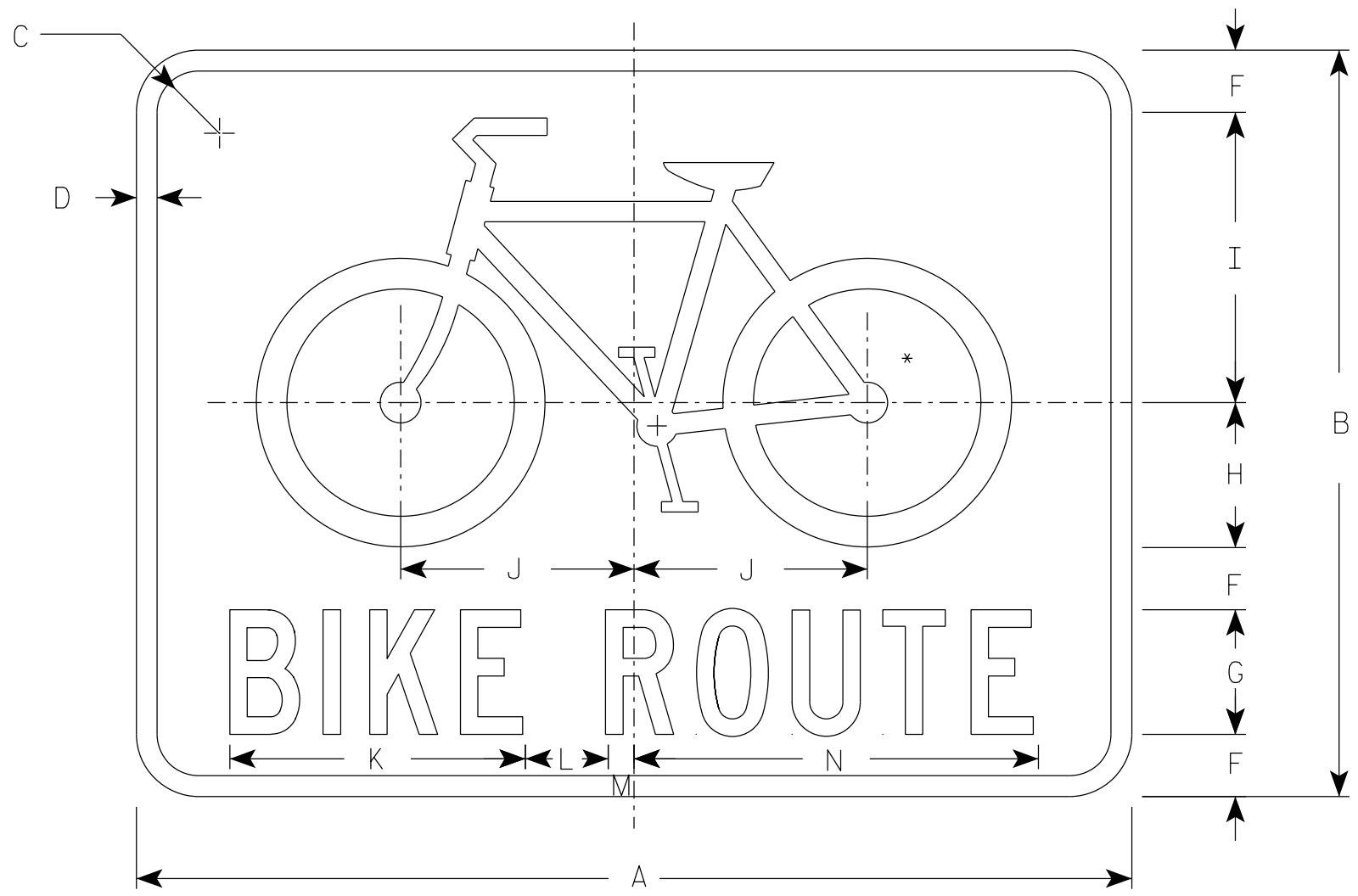
DATE 4/19/2022 PLATE NO. A5-10.3

PROJECT NO:

SHEET NO:

E

7



D11-1

* See W11-1 for symbol design

NOTES

- 1. Sign is Type II - Type H Reflective
- 2. Color:
 - Background - GREEN
 - Message - WHITE
- 3. Message Series - C

7

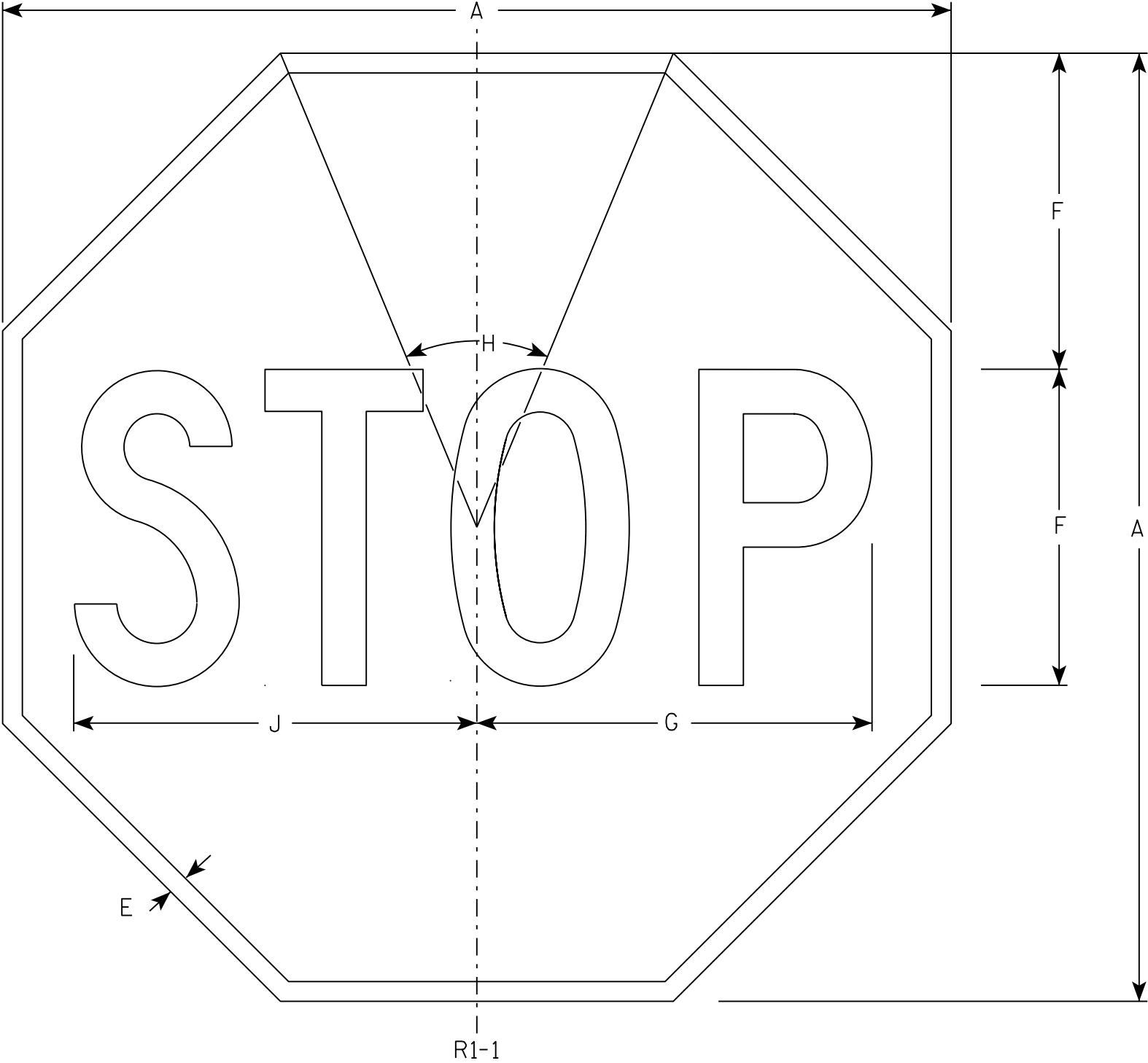
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	24	18	1 1/2	1/2		1 1/2	3	3 1/2	7	5 5/8	7 1/8	2	5/8	9 3/4													3.0
2M	24	18	1 1/2	1/2		1 1/2	3	3 1/2	7	5 5/8	7 1/8	2	5/8	9 3/4													3.0
3	30	24	1 1/2	5/8		2	4	4 3/4	9 1/4	7 1/2	9 1/2	2 5/8	7/8	13													5.0
4																											
5																											

PROJECT NO:

SHEET NO:

E

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 - Red
Message - White
- 3. Message Series - C

7

R1-1

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	30				5/8	10	12 1/2	45°		12 3/4																	5.18
2S	30				5/8	10	12 1/2	45°		12 3/4																	5.18
2M	36				3/4	12	15	45°		15 3/8																	7.46
3	36				3/4	12	15	45°		15 3/8																	7.46
4	48				1	16	20	45°		20 1/2																	13.25
5	48				1	16	20	45°		20 1/2																	13.25
6	18				3/8	6	7 3/4	45°		7 3/4																	1.86
7	12				1/4	4	5	45°		5 1/8																	0.78

STANDARD SIGN

R1 - 1

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

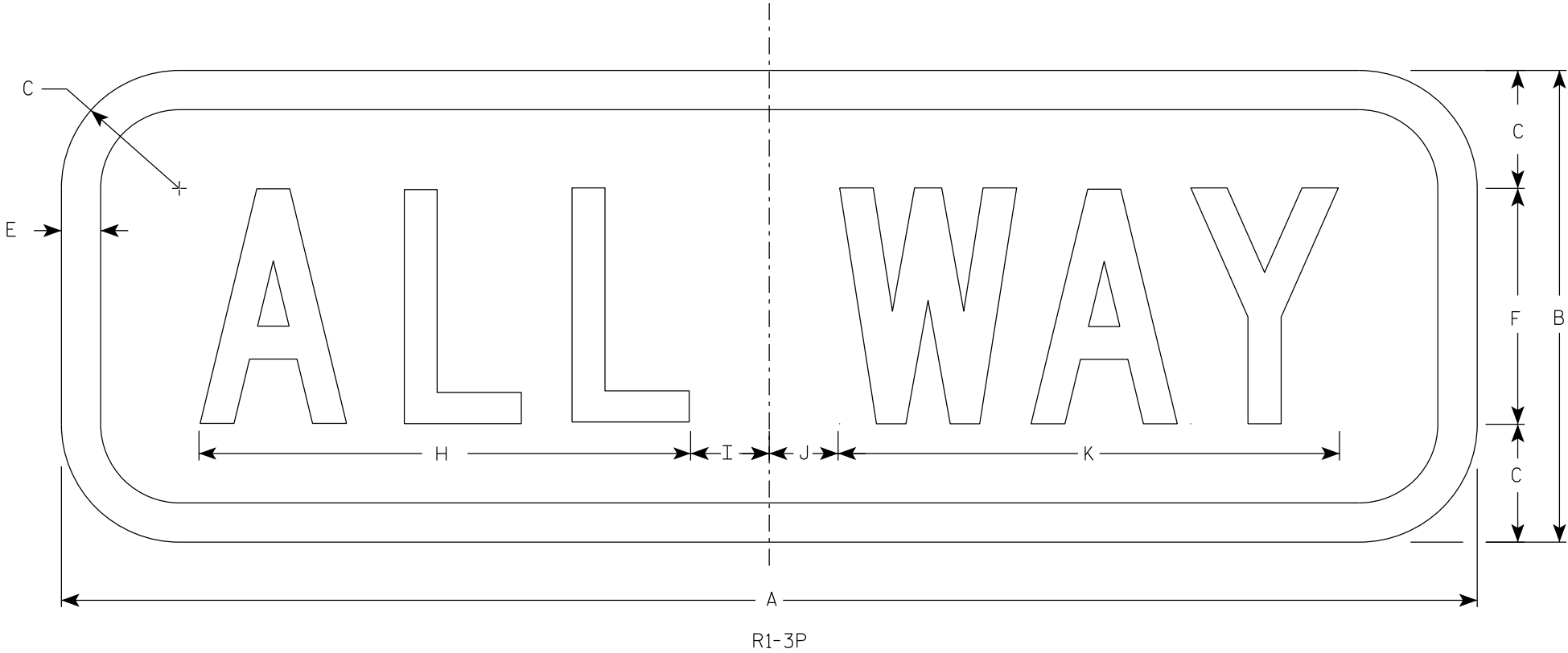
DATE 11/12/15 PLATE NO. R1-1.13

7

7

NOTES

- 1. Sign is Type II - Type H Reflective
- 2. Color:
 - Background - Red
 - Message - White
- 3. Message Series - C
- 4. For 30"x30" R1-1 use 18"x6" R1-3P sign
- For 36"x36" R1-1 use 24"x9" R1-3P sign
- For 48"x48" R1-1 use 30"x12" R1-3P sign



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	18	6	1 1/2		1/2	3		6 1/4	1 1/4	7/8	6 3/8																0.75
2S	18	6	1 1/2		1/2	3		6 1/4	1 1/4	7/8	6 3/8																0.75
2M	24	9	1 1/2		1/2	5		9 1/4	1 1/4	3/4	9 3/4																1.5
3	24	9	1 1/2		1/2	5		9 1/4	1 1/4	3/4	9 3/4																1.5
4	30	12	1 1/2		5/8	6		11	2 1/4	1 1/2	11 3/4																2.5
5	30	12	1 1/2		5/8	6		11	2 1/4	1 1/2	11 3/4																2.5

PROJECT NO:

HWY:

COUNTY:

SHEET NO:

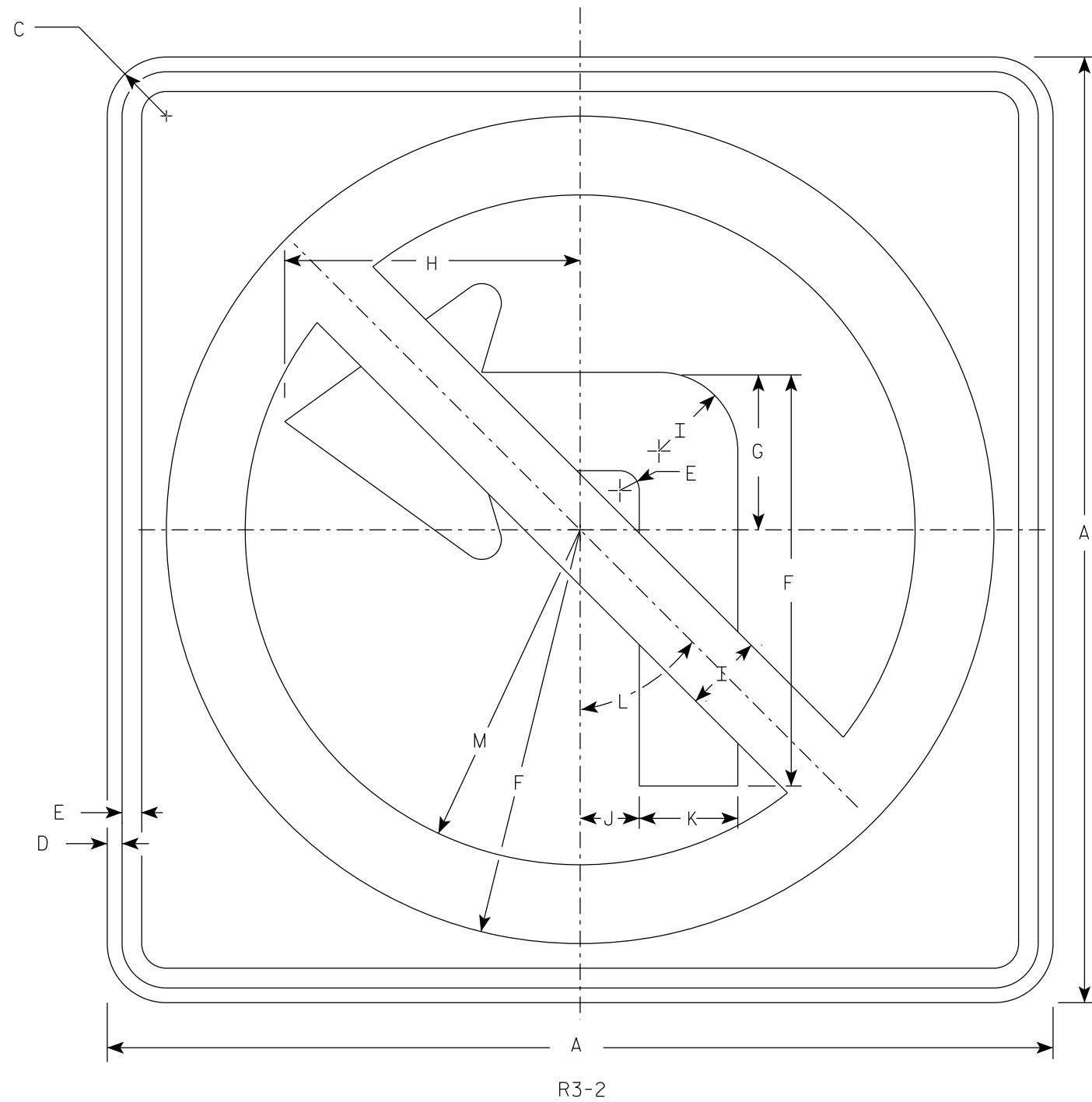
E

STANDARD SIGN
R1 - 3P

WISCONSIN DEPT OF TRANSPORTATION

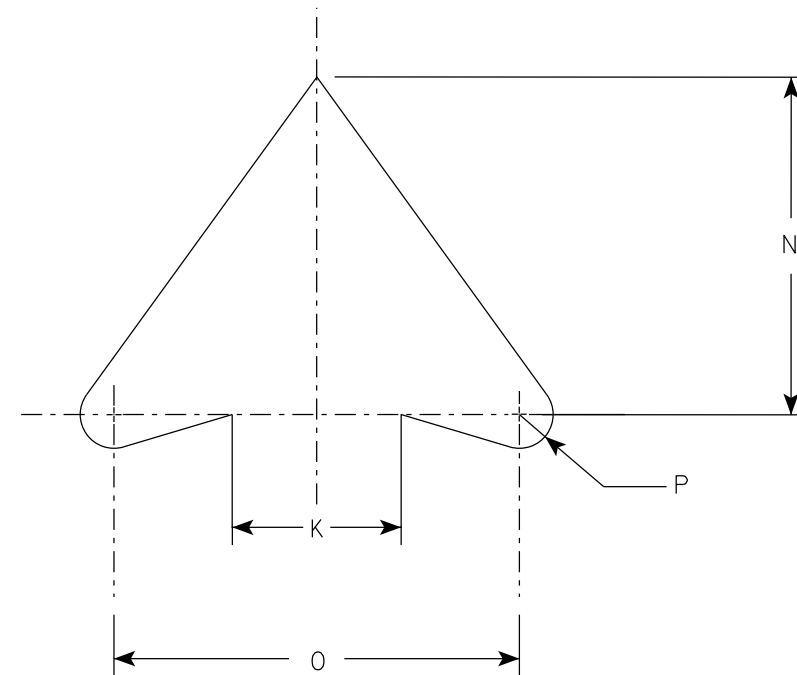
APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 1/19/23 PLATE NO. R1-3P.4



NOTES

1. Sign is Type II - Type H Reflective
2. Color:
Background - White
Message - See note 3
3. Border & Arrow are non reflective black, the circle with diagonal bar is reflective red.

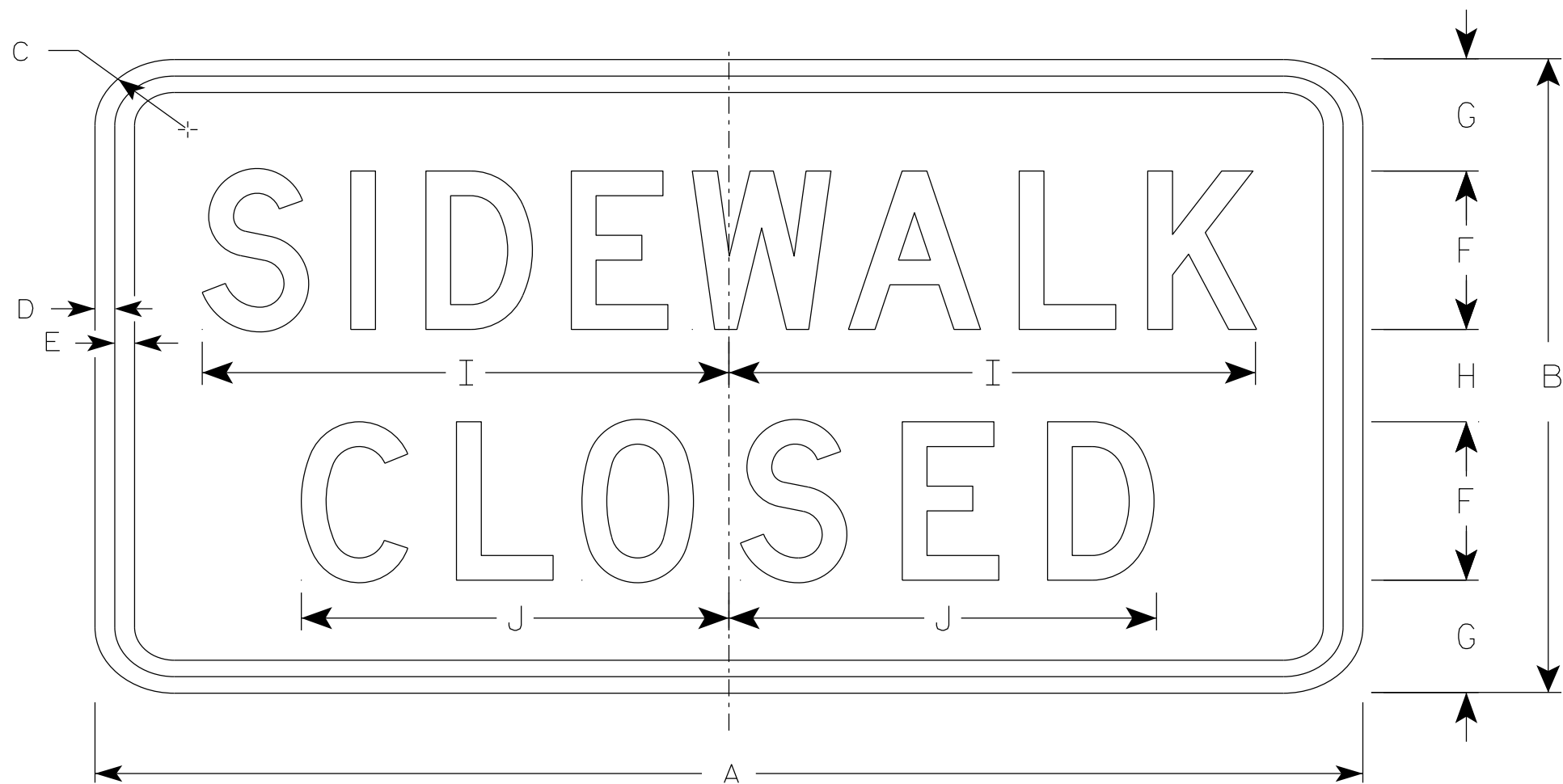


ARROW DETAIL

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	24		1 1/2	3/8	1/2	10 1/2	4	7 1/2	2	1 1/2	2 1/2	45°	8 1/2	5	6	1/2											4.0
2S	24		1 1/2	3/8	1/2	10 1/2	4	7 1/2	2	1 1/2	2 1/2	45°	8 1/2	5	6	1/2											4.0
2M	36		2 1/4	5/8	3/4	15 3/4	6	11 1/4	3	2 1/4	3 3/4	45°	12 3/4	7 1/2	9	3/4											9.0
3	36		2 1/4	5/8	3/4	15 3/4	6	11 1/4	3	2 1/4	3 3/4	45°	12 3/4	7 1/2	9	3/4											9.0
4	36		2 1/4	5/8	3/4	15 3/4	6	11 1/4	3	2 1/4	3 3/4	45°	12 3/4	7 1/2	9	3/4											9.0
5	48		2 1/4	3/4	1	21	8	15	4	3	5	45°	17	10	12	1											16.0

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



R9-9

NOTES

- 1. Sign is Type II - Type H Reflective
- 2. Color:
 - Background - White
 - Message - Black
- 3. Message Series - C
- 4. Use Size 2 for Sidewalks. Use Size 3 for Paths and Trails.

7

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

PROJECT NO:

HWY:

COUNTY:

SHEET NO:

E

STANDARD SIGN
R9-9

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
For State Traffic Engineer

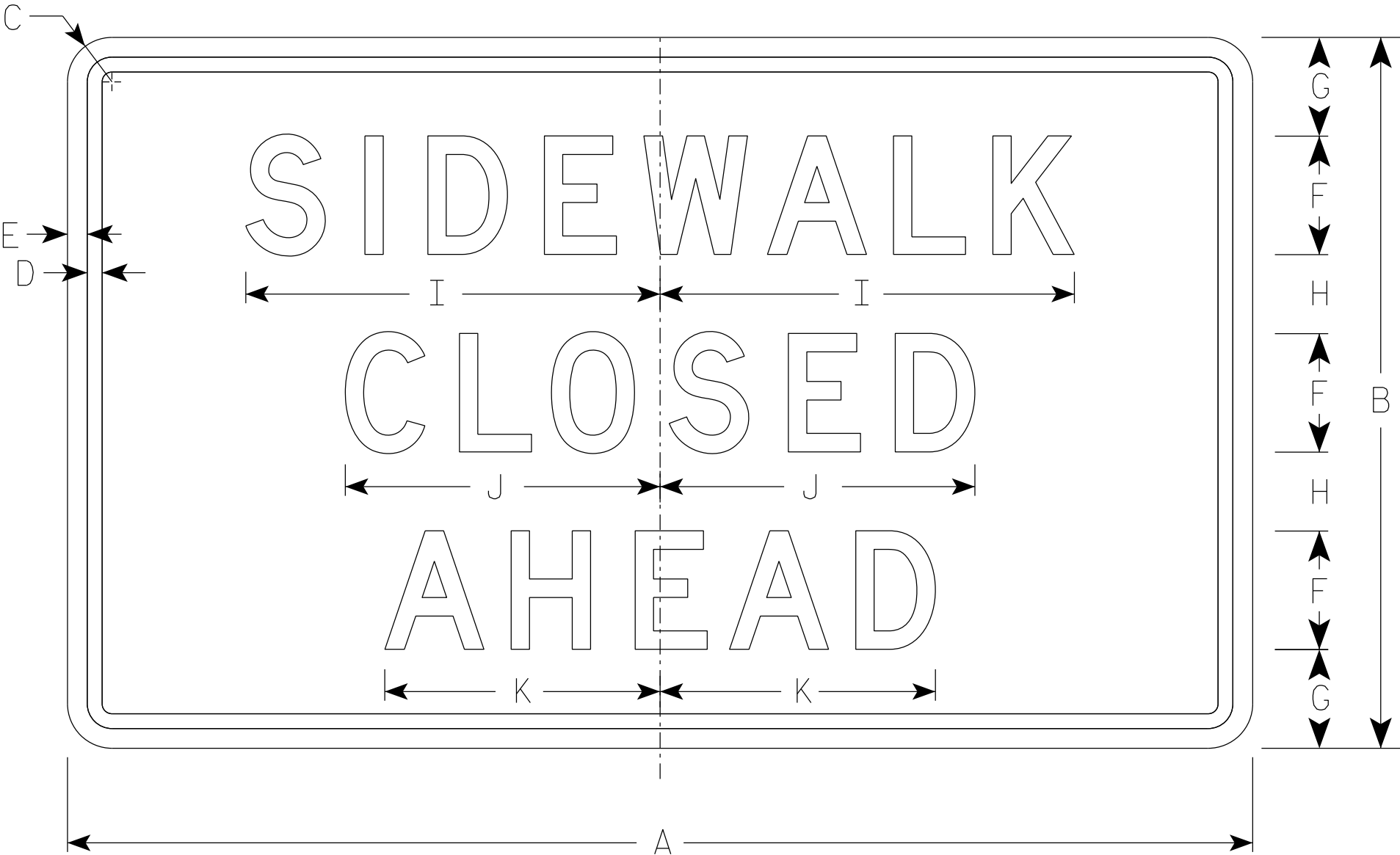
DATE 1/24/24 PLATE NO. R9-9.7

NOTES

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

Background - White

Message - Black
3. Message Series - D



R9-9A

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

PROJECT NO:

HWY:

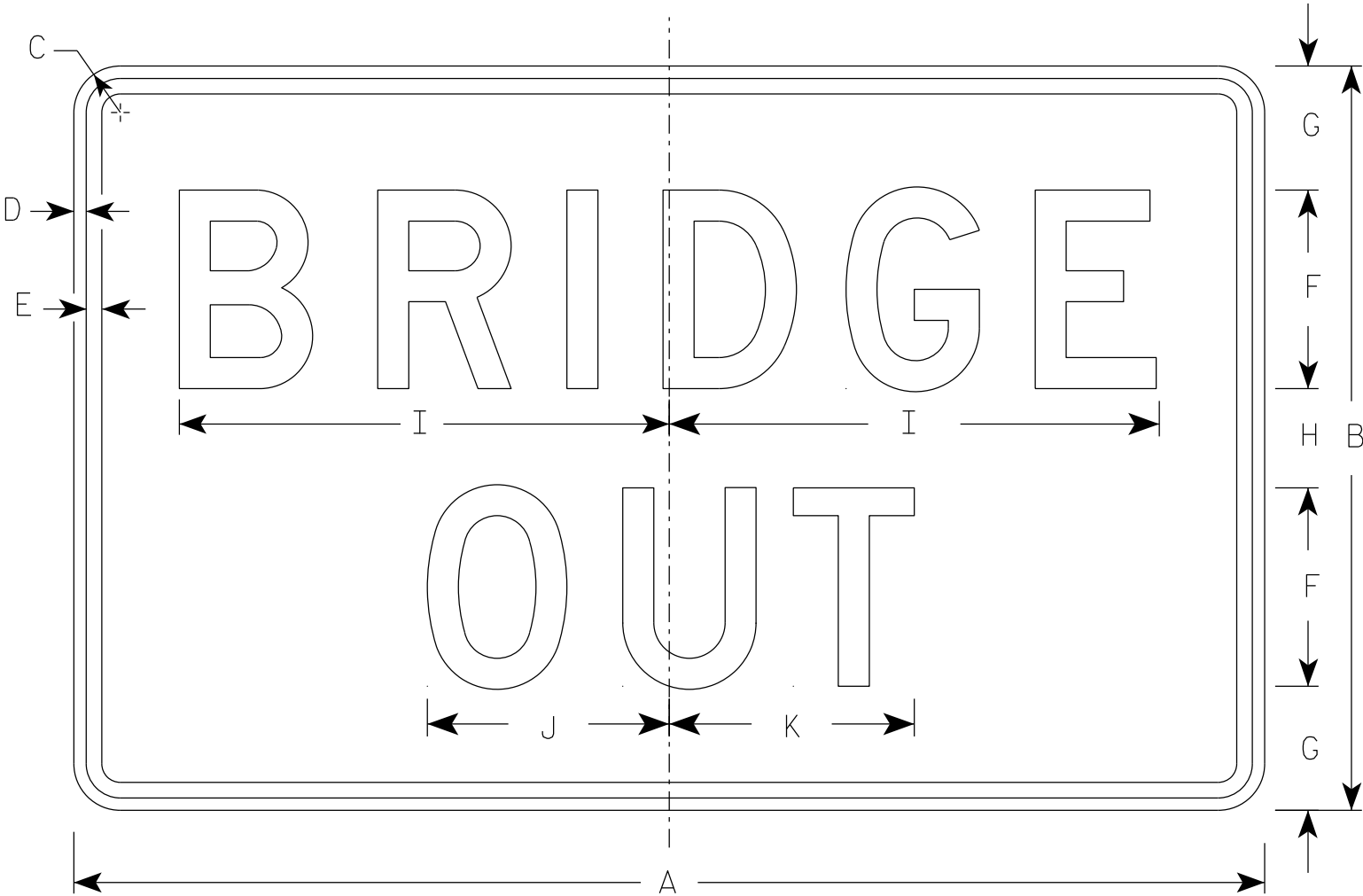
COUNTY:

SHEET NO:

E

NOTES

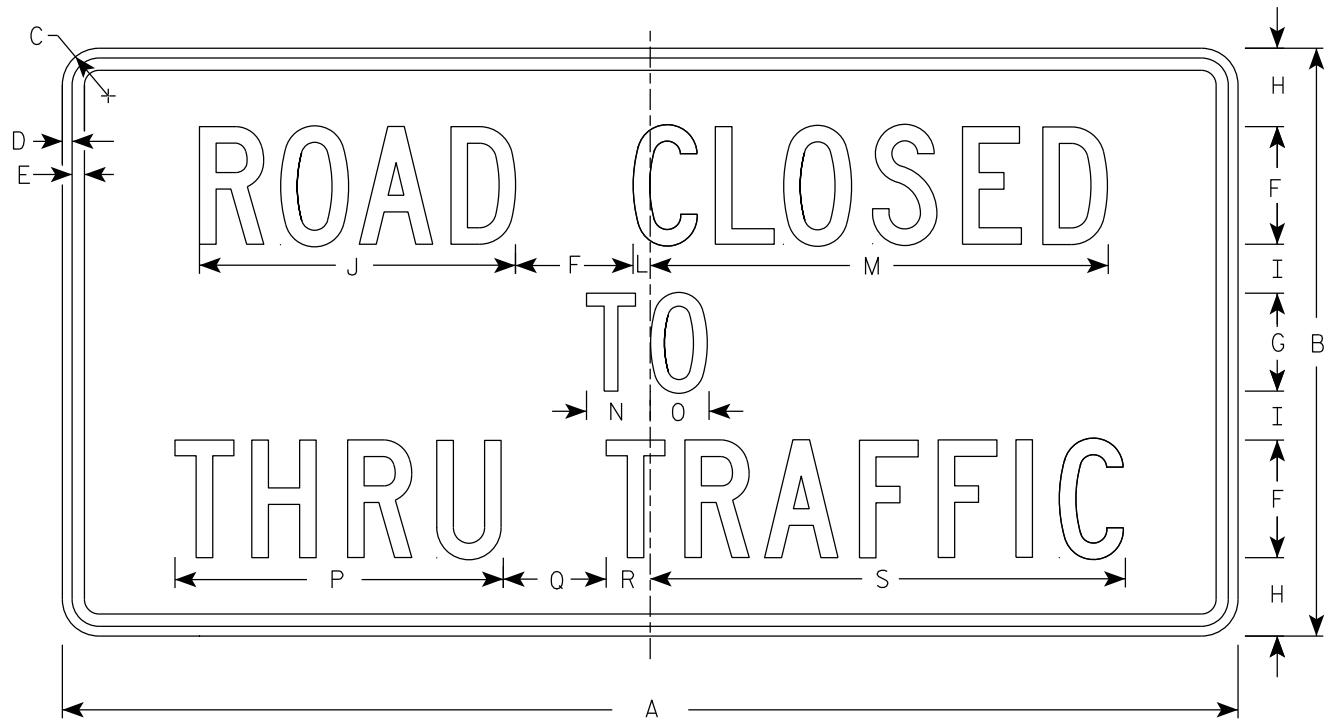
- 1. Sign is Type II - Type H Reflective
- 2. Color:
Background - White
Message - Black
- 3. Message Series - D
- 4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.



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 7/8	1/2	5/8	8	5	4	19 3/4	9 3/4	9 7/8																10.0
2M	48	30	1 7/8	1/2	5/8	8	5	4	19 3/4	9 3/4	9 7/8																10.0
3	48	30	1 7/8	1/2	5/8	8	5	4	19 3/4	9 3/4	9 7/8																10.0
4	48	30	1 7/8	1/2	5/8	8	5	4	19 3/4	9 3/4	9 7/8																10.0
5	48	30	1 7/8	1/2	5/8	8	5	4	19 3/4	9 3/4	9 7/8																10.0

7



R11-4

NOTES

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

7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	60	30	1 7⁄8	1⁄2	5⁄8	6	5	4	2 1⁄2	16 1⁄8		7⁄8	23 3⁄8	3 1⁄4	3	16 3⁄4	5 1⁄4	2 1⁄4	24 1⁄4								12.5
2M	60	30	1 7⁄8	1⁄2	5⁄8	6	5	4	2 1⁄2	16 1⁄8		7⁄8	23 3⁄8	3 1⁄4	3	16 3⁄4	5 1⁄4	2 1⁄4	24 1⁄4								12.5
3																											
4																											
5																											

PROJECT NO:

HWY:

COUNTY:

SHEET NO:

E

7

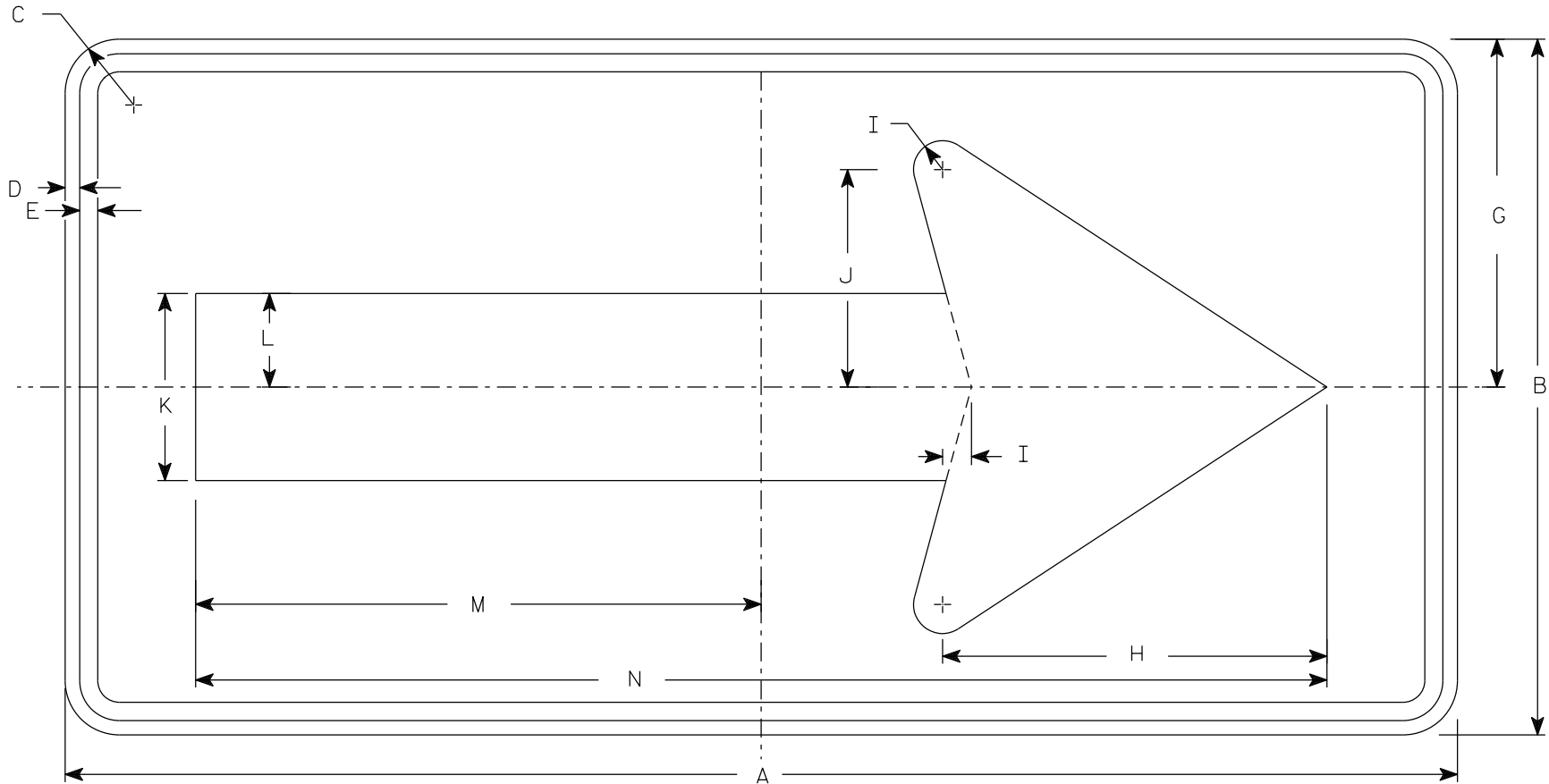
7

NOTES

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

Background - Yellow

Message - Black



W1-6

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	36	18	1 1/2	3/8	3/8		9	10	3/4	5 5/8	4 3/4	2 3/8	14 5/8	29 1/4													4.5
2S	48	24	1 7/8	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 7/8	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 7/8	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 7/8	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	96	48	3	3/4	1		24	26 1/2	2	15	13	6 1/2	39	78													32.0

PROJECT NO:

HWY:

COUNTY:

SHEET NO:

E

STANDARD SIGN

W1-6

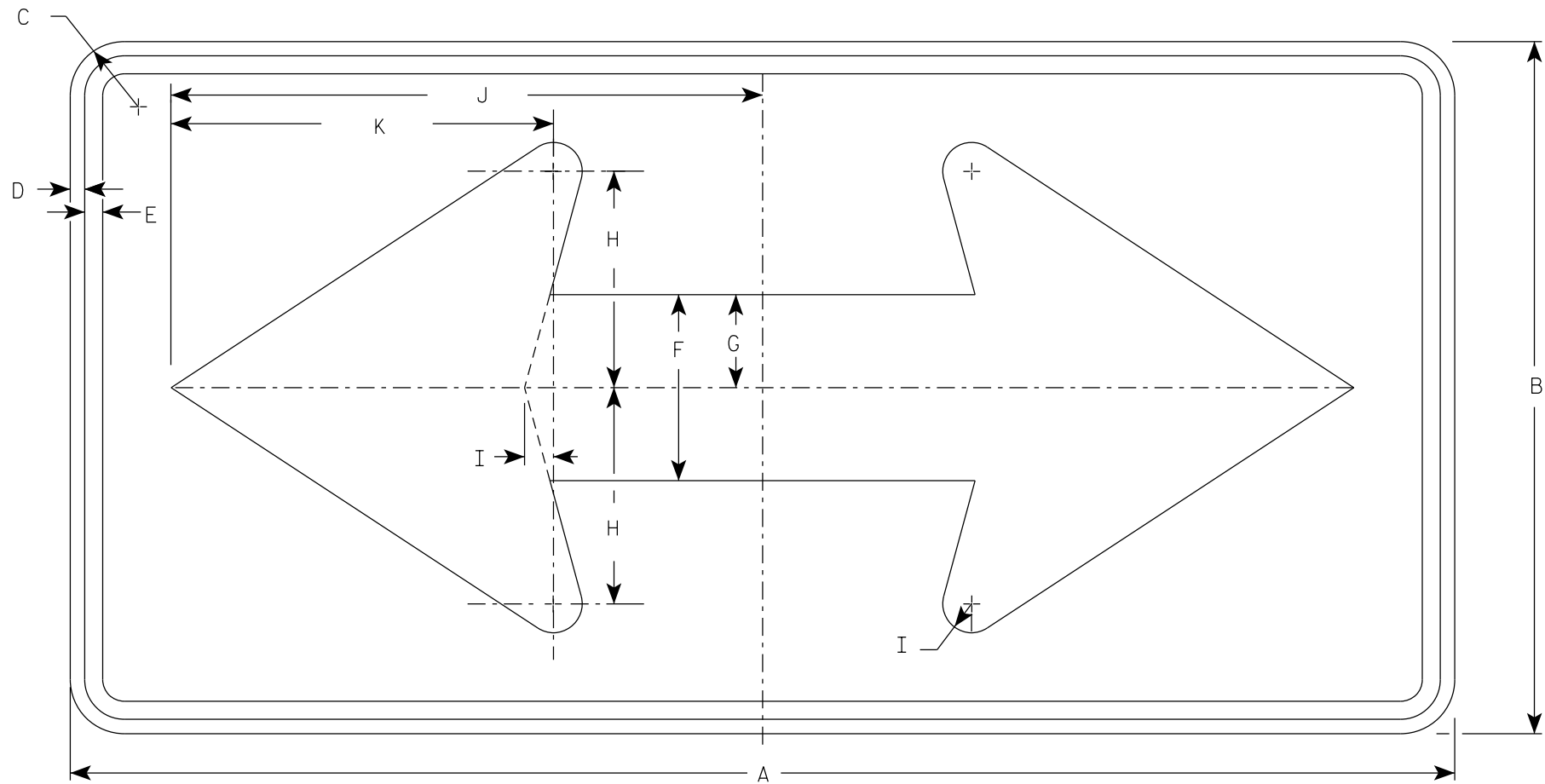
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthae R Rauch*
for State Traffic Engineer

DATE 4/13/2023

PLATE NO. W1-6.9

7



W1-7

NOTES

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

7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36	18	1 1/2	3/8	1/2	5	2 1/2	5 3/4	3/4	15 5/8	10 1/8																4.5
2S	48	24	1 7/8	1/2	5/8	6 1/2	3 1/4	7 1/2	1	20 1/2	13 1/4																8.0
2M	48	24	1 7/8	1/2	5/8	6 1/2	3 1/4	7 1/2	1	20 1/2	13 1/4																8.0
3	60	30	1 7/8	1/2	5/8	8	4	9 1/4	1 1/4	25 3/8	16 1/4																12.5
4	60	30	1 7/8	1/2	5/8	8	4	9 1/4	1 1/4	25 3/8	16 1/4																12.5
5	96	48	3	3/4	1	13	6 1/2	15	2	41	26 1/2																32.0

STANDARD SIGN
W1-7

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 5/10/2023 PLATE NO. W1-7.8

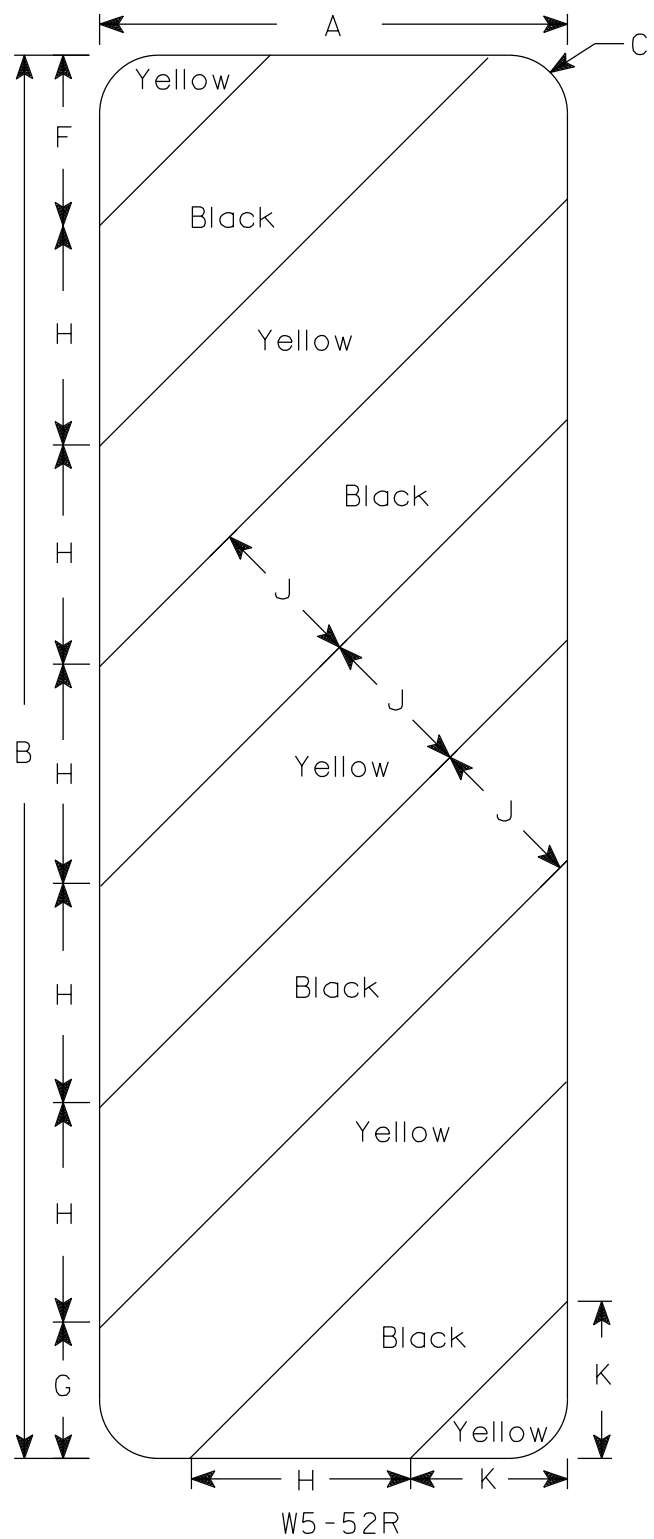
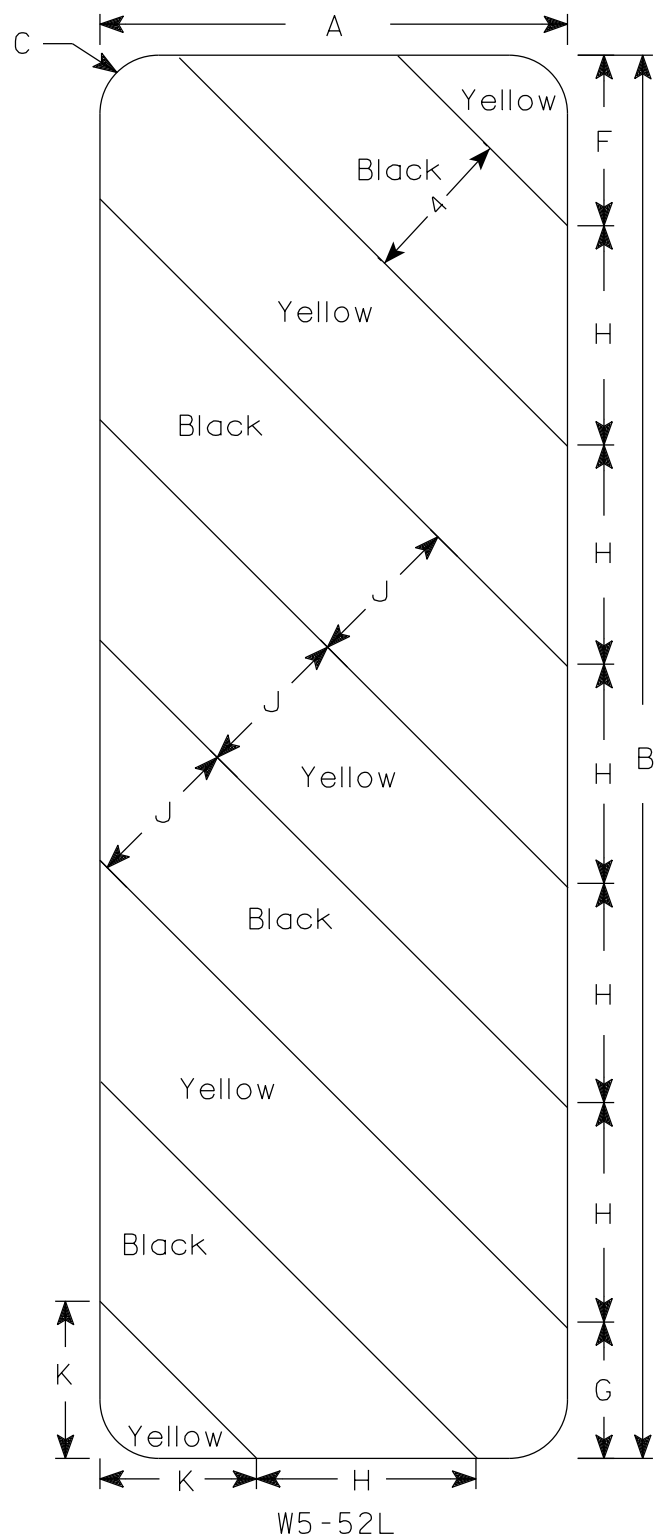
PROJECT NO:

HWY:

COUNTY:

SHEET NO:

E



NOTES

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

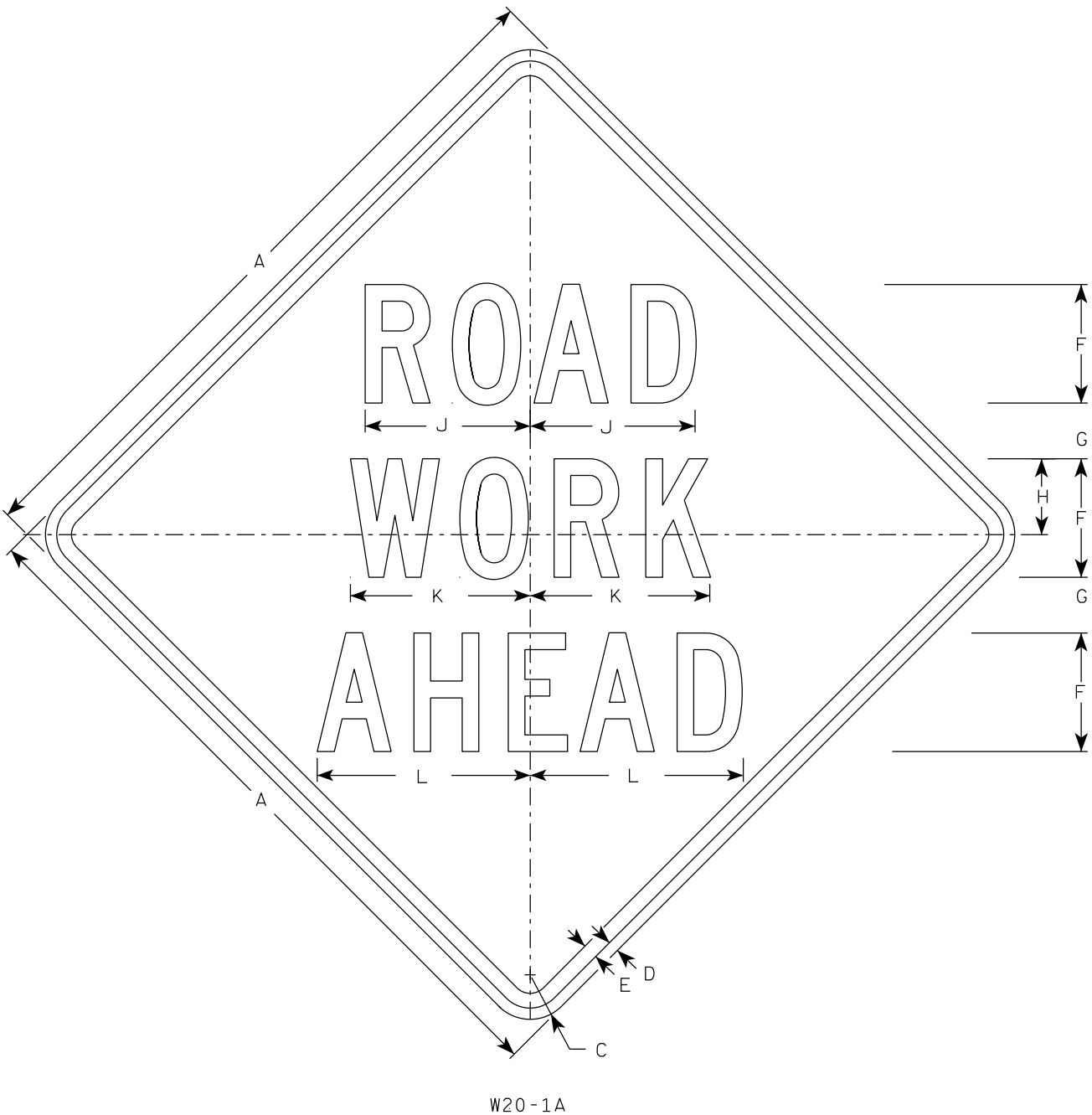
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	12	36	1 1/2			4 3/8	3 1/2	5 5/8	45°	4	4																3.0
2M	12	36	1 1/2			4 3/8	3 1/2	5 5/8	45°	4	4																3.0
3	18	54	1 1/2			6	5 1/2	8 1/2	45°	6	6 9/16																6.75
4													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

STANDARD SIGN
W5-52L & W5-52R

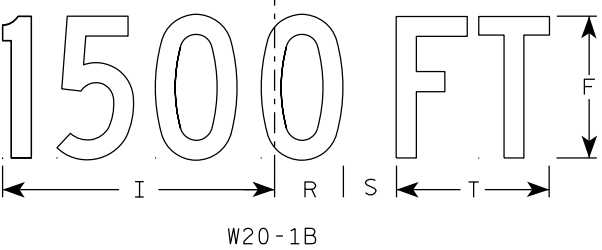
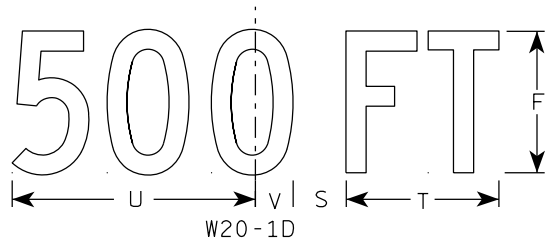
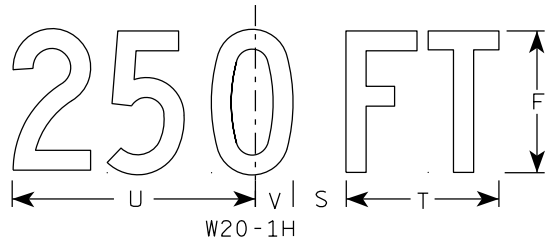
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
For State Traffic Engineer

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

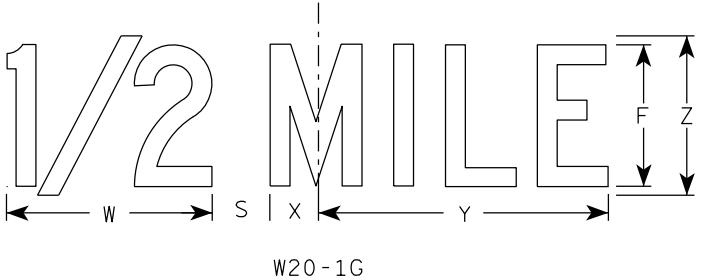


W20-1A

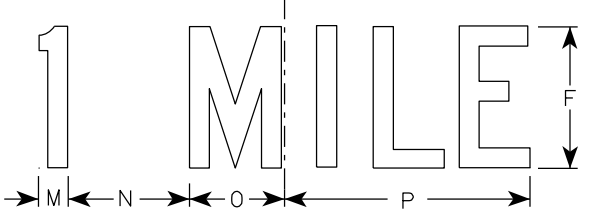


W20-1B

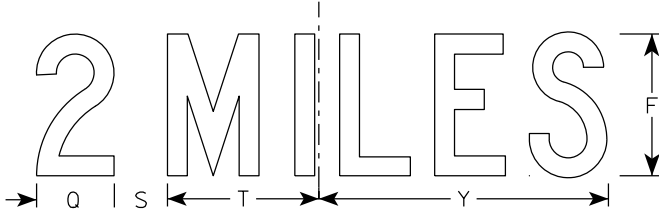
- NOTES
1. Sign is Type II - Type F Reflective
 2. Color:
Background - Orange
Message - Black
 3. Message Series - C
 4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.



W20-1G

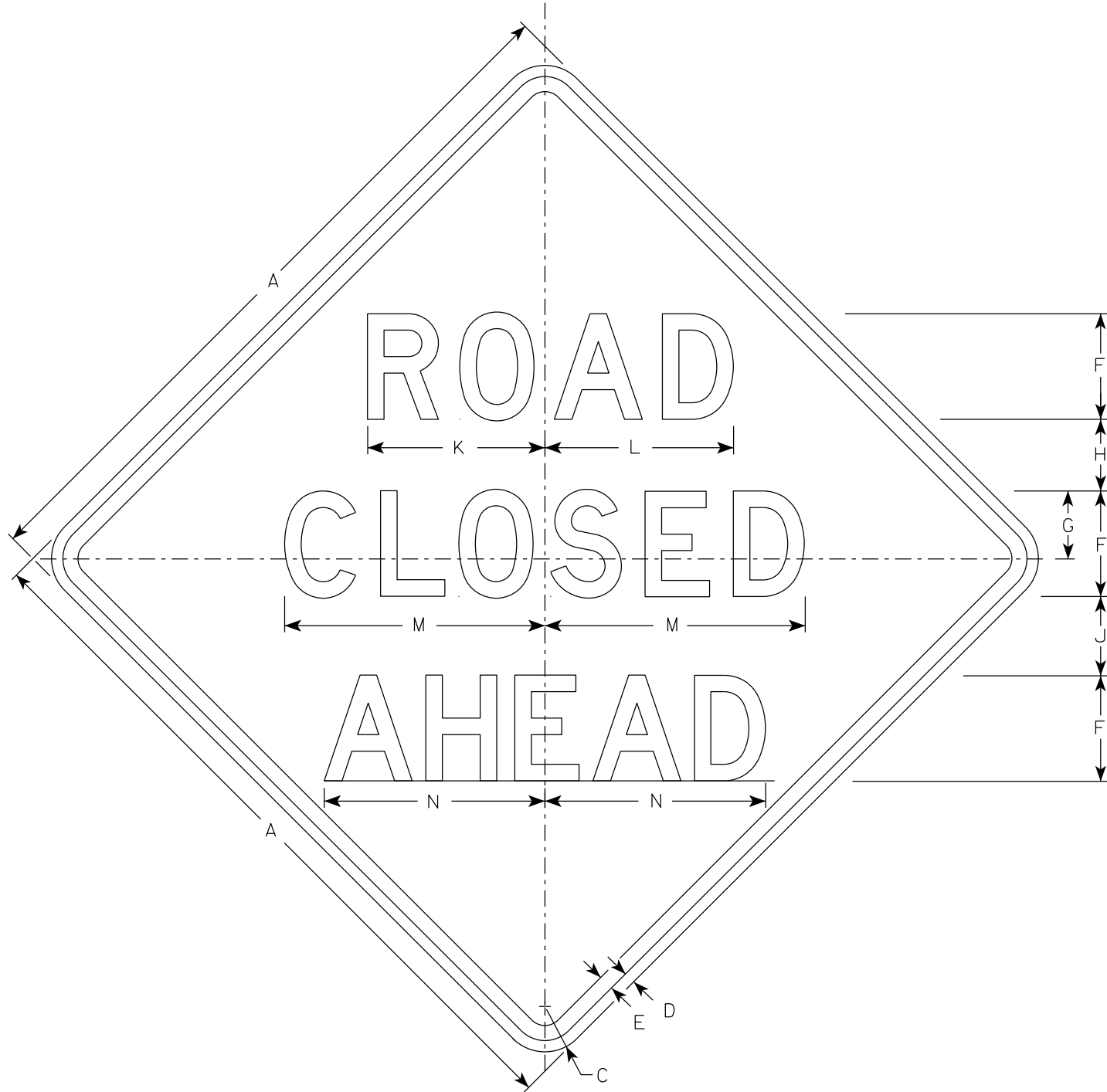


W20-1F

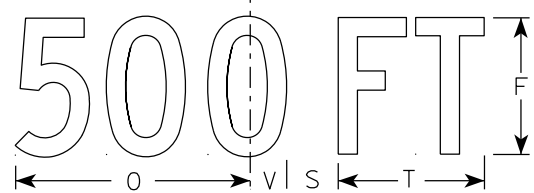


W20-1E

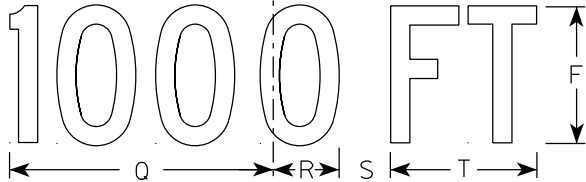
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	v	W	X	Y	Z	Area sq. ft.
1	36		2 1/4	5/8	3/4	5	2 5/8	3 1/4	10 1/8	7	7 5/8	8 7/8	1 1/8	4 1/2	3 1/2	9	3 1/4	2 1/2	2 1/4	5 5/8	9	1 3/8	8	1 3/4	10 3/4	6	9.0
2S	48		3	3/4	1	8	3 3/4	5 1/8	15 3/8	11 1/8	12 1/8	14 3/8	1 5/8	6 7/8	5 3/8	13 7/8	4 3/8	3 7/8	3	8 5/8	13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



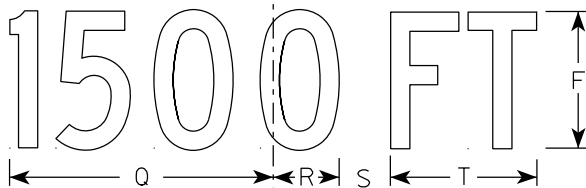
W20-3A



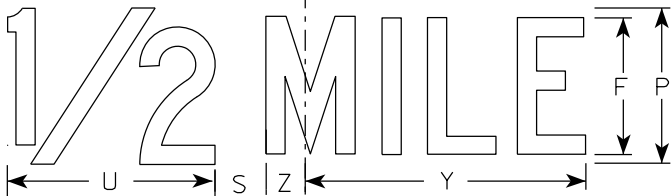
W20-3D



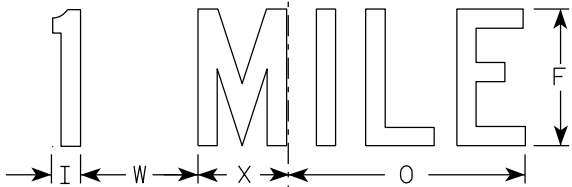
W20-3C



W20-3B



W20-3G



W20-3F

NOTES

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

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

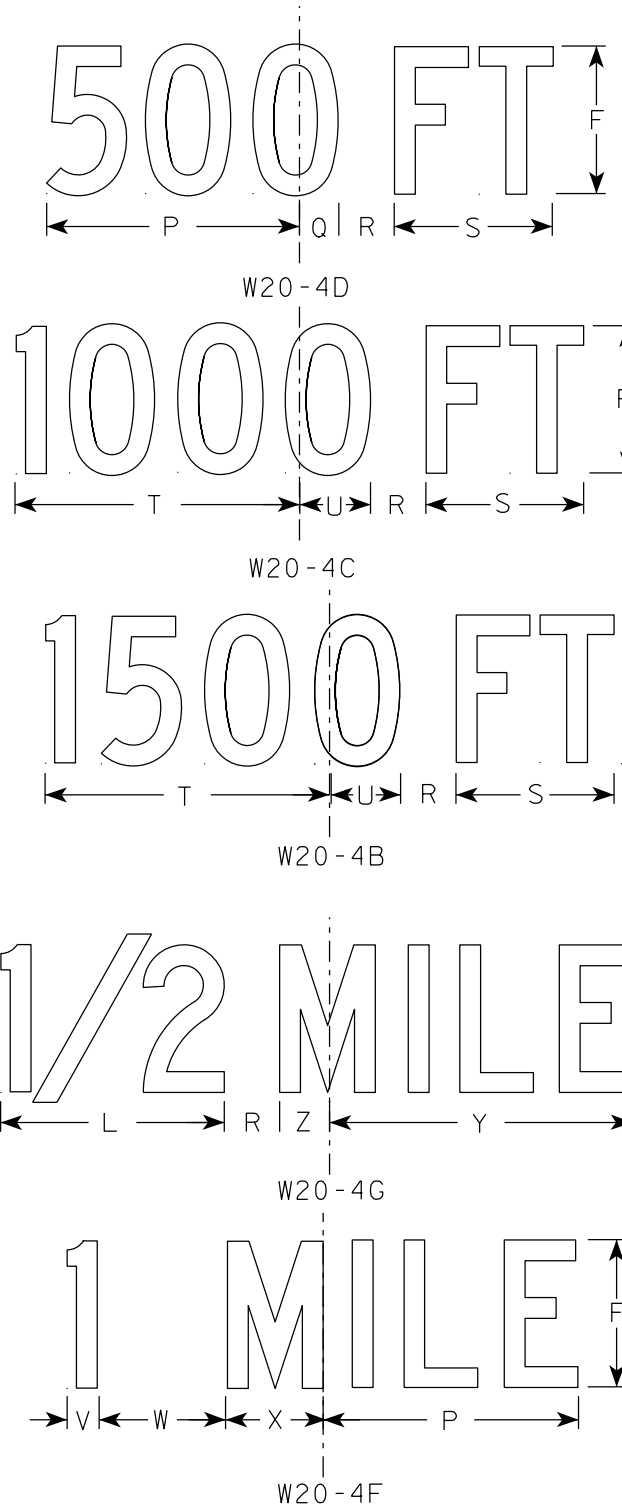
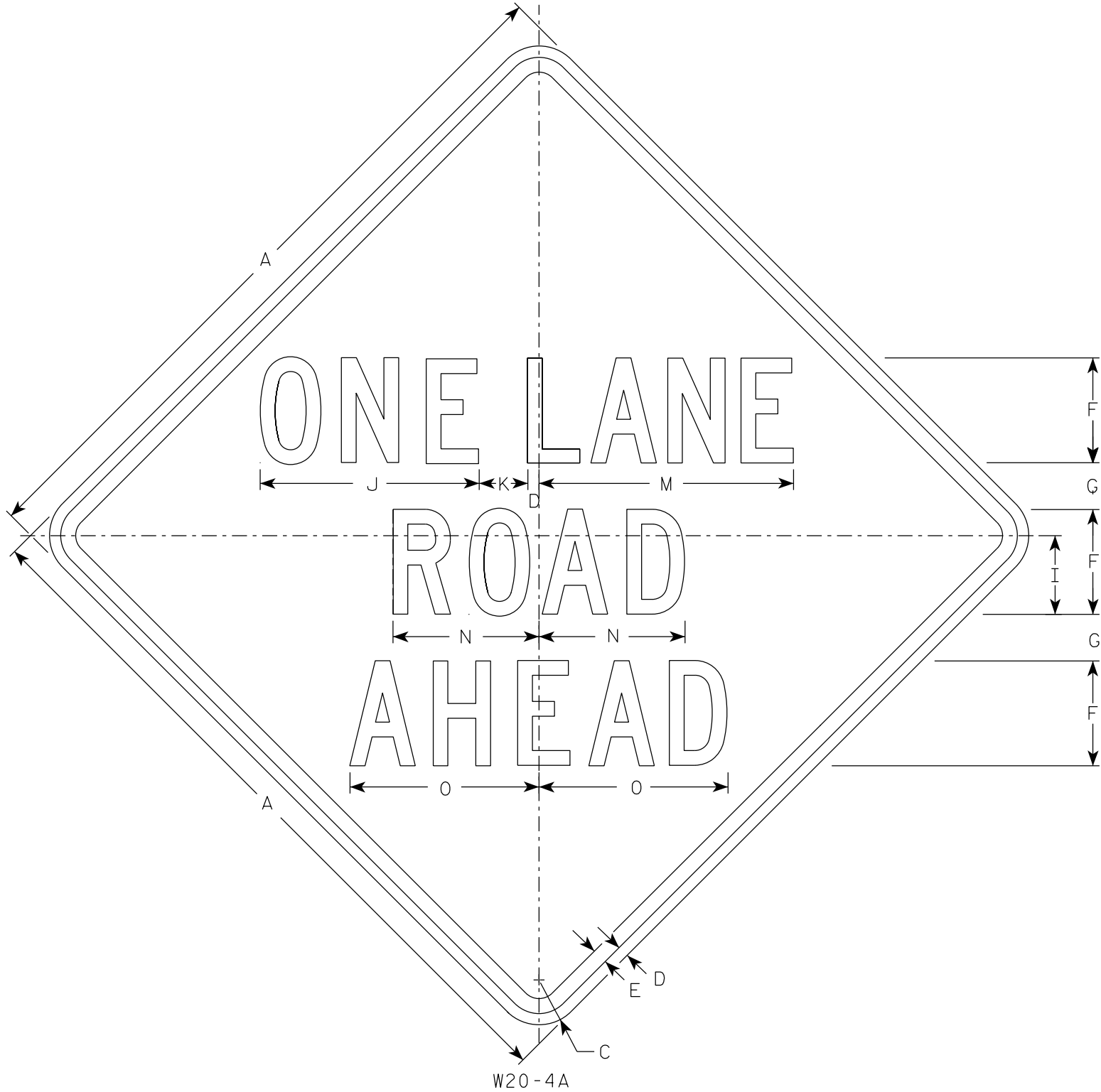
STANDARD SIGN
W20-3A, B, C, D, F & G

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 1/10/2024 PLATE NO. W20-3.8

7



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

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

STANDARD SIGN
W20-4A, B, C, D, F & G

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 1/10/2024 PLATE NO. W20-4.10

DESIGN DATA

LIVE LOAD:

DESIGN LOADING: HL-93
INVENTORY RATING: RF = 1.24
OPERATING RATING: RF = 1.61
WISCONSIN STANDARD PERMIT VEHICLE (WIS-SPV): 250 (KIPS)

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

MATERIAL PROPERTIES:

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

BAR STEEL REINFORCEMENT
GRADE 60 $f_y = 60,000$ PSI

FOUNDATION DATA

ABUTMENTS TO BE SUPPORTED ON STEEL HP PILING DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 160 TONS ** PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA.
N. ABUTMENT ESTIMATED 30'-0" LONG.
S. ABUTMENT ESTIMATED 25'-0" LONG.

**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 PILE CAPACITY.

HYDRAULIC DATA

100-YEAR FREQUENCY:

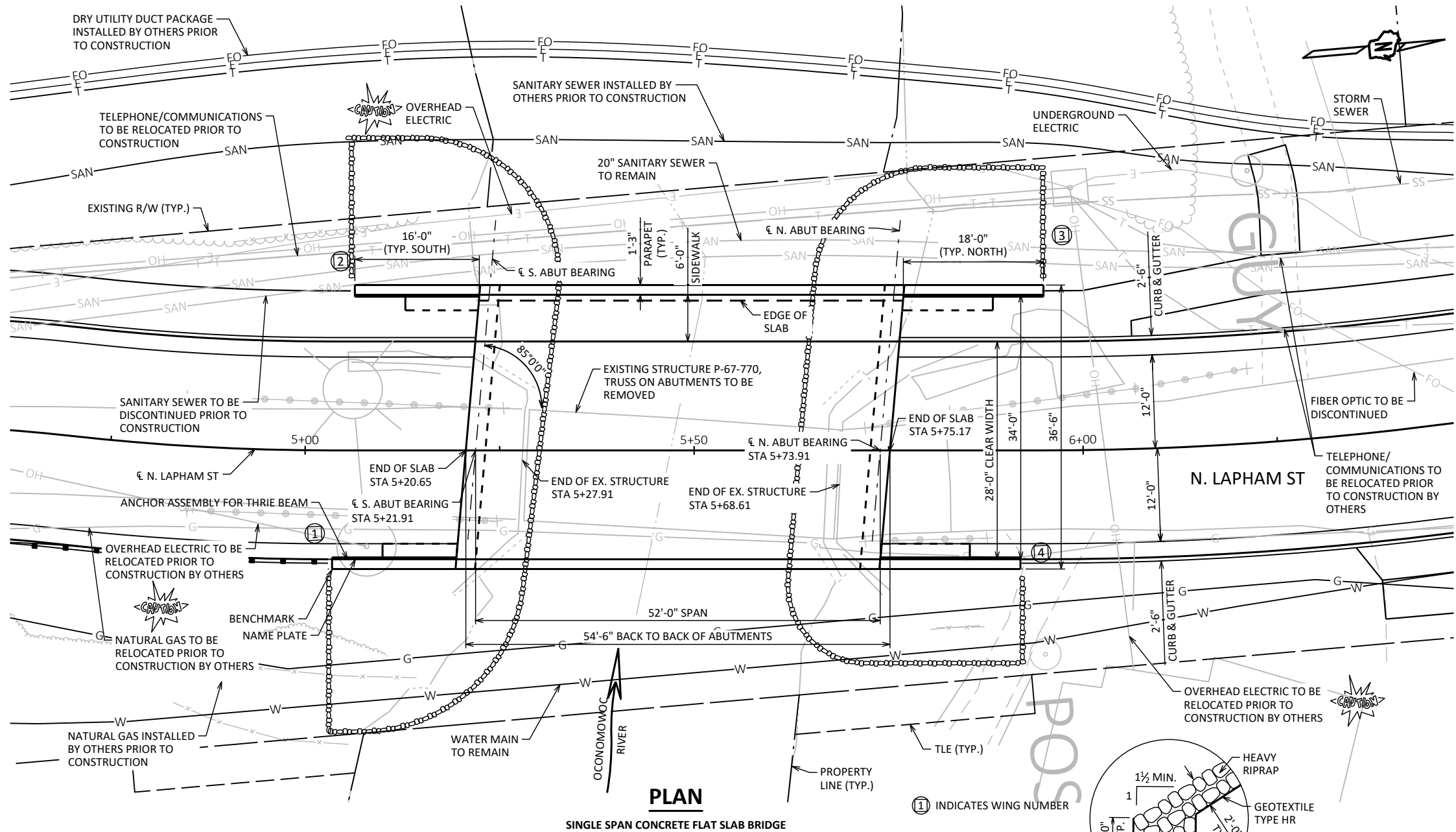
$Q_{100} = 430$ C.F.S.
 $V_{100} = 2.5$ F.P.S.
 $HW_{100} = EL. 861.66$
WATERWAY AREA = 174 SQ. FT.
DRAINAGE AREA = 87.1 SQ. MI.
ROADWAY OVERTOPPING = N/A
SCOUR CRITICAL CODE = 5

2-YEAR FREQUENCY:

$Q_2 = 90$ C.F.S.
 $V_2 = 0.69$ F.P.S.
 $HW_2 = EL. 860.25$

TRAFFIC DATA

LAPHAM ST:
ADT = 100
R.D.S. = 25 MPH

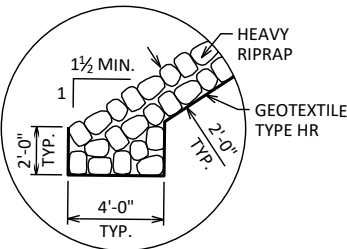


PLAN

SINGLE SPAN CONCRETE FLAT SLAB BRIDGE

(1) INDICATES WING NUMBER

RIPRAP TOE DETAIL



LIST OF DRAWINGS:

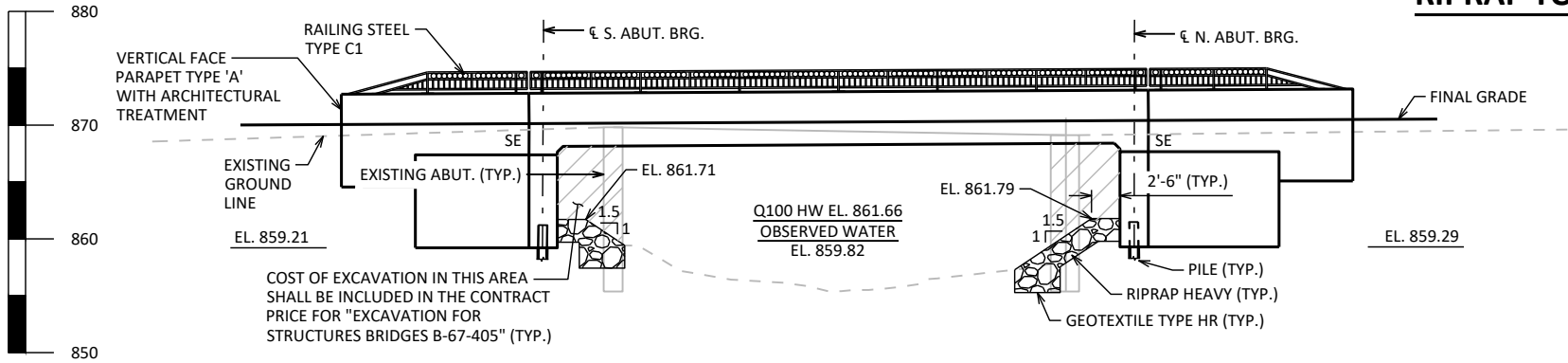
- 1 GENERAL PLAN & ELEVATION
- 2 CROSS SECTION & QUANTITIES
- 3 SUBSURFACE EXPLORATION
- 4 SOUTH ABUTMENT
- 5 SOUTH ABUTMENT DETAILS
- 6 NORTH ABUTMENT
- 7 NORTH ABUTMENT DETAILS
- 8 SUPERSTRUCTURE
- 9 CONCRETE SLAB DETAILS
- 10 VERTICAL FACE PARAPET 'A'
- 11 COMBINATION RAILING
- 12 COMBINATION RAILING DETAILS
- 13 AESTHETIC DETAILS
- 14 COFFERDAM PLAN

BRIDGE OFFICE CONTACTS:

AARON BONK, P.E. (608) 261-6261

CONSULTANT CONTACTS:

MARK MUTZIGER (414) 930-4534



ELEVATION

NORMAL TO OCONOMOWOC RIVER

NO.		DATE		REVISION		BY	
ORIGINAL PLANS PREPARED BY: COLLINS ENGINEERS							
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION							
ACCEPTED		 JLR				10/14/25	
		CHIEF STRUCTURES DESIGN ENGINEER				DATE	
STRUCTURE B-67-405							
N. LAPHAM STREET OVER OCONOMOWOC RIVER							
COUNTY		WAUKESHA		TOWN/CITY/VILLAGE		OCONOMOWOC	
DESIGN SPEC. AASHTO LRFD BRIDGE DESIGN SPECIFICATION							
DESIGNED BY		JLM	DESIGNED CK'D		MJM	DRAWN BY	
						MDG	PLANS CK'D
							MJM
GENERAL PLAN & ELEVATION						SHEET 1 OF 14	

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

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

THE FIRST OR FIRST TWO DIGITS OF THE BAR MARK SIGNIFIES THE BAR SIZE.

BEVEL EXPOSED EDGES OF CONCRETE 3/4" UNLESS OTHERWISE NOTED.

REMOVING STRUCTURES ITEM INCLUDES MULTIPLE CONCRETE MASONRY ELEMENTS AT NORTH ABUTMENT AND STACKED STONE MASONRY WALLS.

THE UPPER LIMITS OF "EXCAVATION FOR STRUCTURES BRIDGES B-67-405" SHALL BE THE EXISTING GROUNDLINE.

AT THE BACK FACE OF ABUTMENT ALL VOLUME WHICH CANNOT BE PLACED BEFORE ABUTMENT CONSTRUCTION AND IS NOT OCCUPIED BY THE NEW STRUCTURE SHALL BE BACKFILLED WITH STRUCTURE BACKFILL TYPE A.

EXCAVATION BELOW THE ABUTMENT AND ABUTMENT BEDDING MATERIALS REQUIRES ENGINEER APPROVAL. GEOTEXTILE SHALL BE SET AT THE BOTTOM OF EXCAVATION AND EXTEND 2'-0" ABOVE BOTTOM OF ABUTMENT.

THE QUANTITY FOR BACKFILL STRUCTURE IS CALCULATED BASED ON THE DETAIL SHOWN IN THE PLANS.

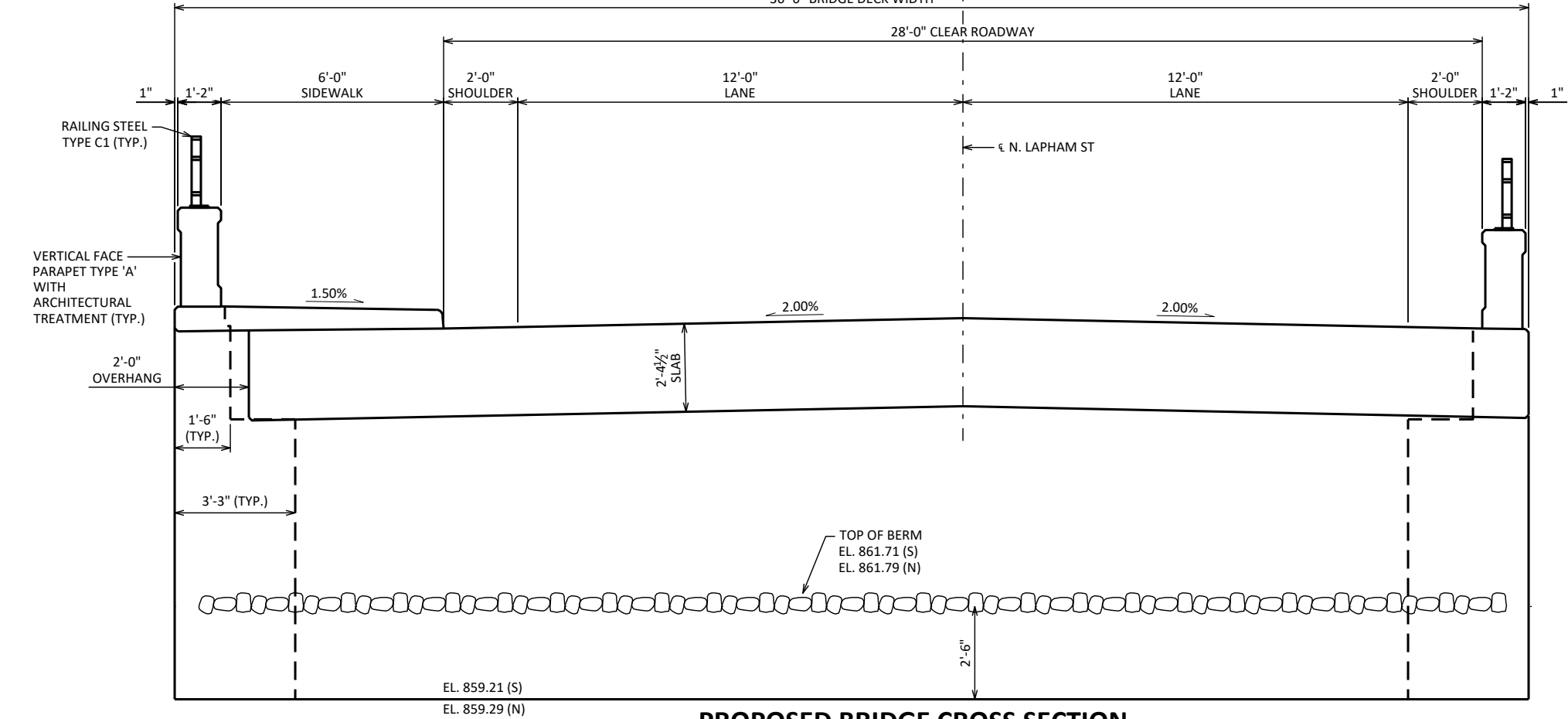
PROTECTIVE SURFACE TREATMENT TO BE APPLIED TO THE ENTIRE EXPOSED TOP OF DECK SURFACE INCLUDING THE HORIZONTAL AND VERTICAL SURFACES OF THE SIDEWALK.

PIGMENTED SURFACE SEALER TO BE APPLIED TO THE FRONT FACE AND THE TOP OF THE PARAPETS.

THE SLOPE OF THE FILL IN FRONT OF THE ABUTMENTS SHALL BE COVERED WITH HEAVY RIPRAP AND GEOTEXTILE TYPE "HR" TO THE EXTENT SHOWN ON SHEET 1 AND THE ABUTMENT DETAILS.

AT ABUTMENTS, CONCRETE POURED UNDER WATER WILL BE ALLOWED AND SHALL BE DONE IN ACCORDANCE WITH SECTION 502.3.5.3 OF THE STANDARD SPECIFICATIONS.

THE CONTRACTOR SHALL SUPPLY A NEW NAME PLATE IN ACCORDANCE WITH SECTION 502.3.11 OF THE STANDARD SPECIFICATIONS AND THE STANDARD DETAIL DRAWINGS. NAME PLATE TO SHOW ORIGINAL CONSTRUCTION YEAR 2025.



PROPOSED BRIDGE CROSS SECTION

TOTAL ESTIMATED QUANTITIES

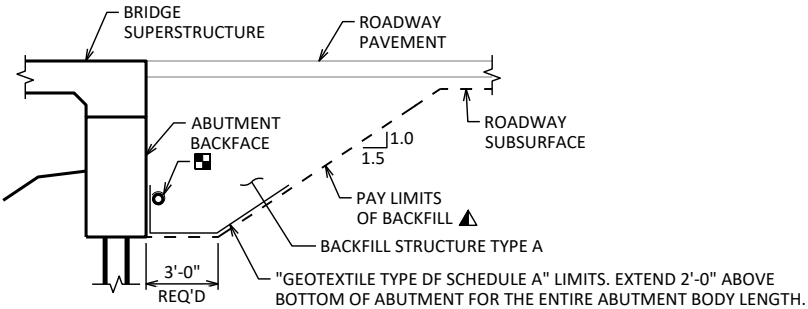
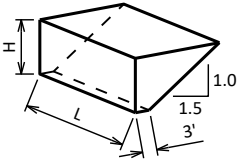
STA. 5+21.91 TO STA. 5+73.91

BID ITEM NUMBER	BID ITEMS	UNIT	SUPER	NORTH ABUT.	SOUTH ABUT.	TOTALS
203.0211.S	ABATEMENT OF ASBESTOS CONTAINING MATERIAL P-67-770	EACH	-	-	-	1
203.0260	REMOVING STRUCTURE OVER WATERWAY MINIMAL DEBRIS P-67-770	EACH	-	-	-	1
206.1001	EXCAVATION FOR STRUCTURES BRIDGES B-67-405	EACH	-	-	-	1
206.5001	COFFERDAMS B-67-405	EACH	-	-	-	1
210.1500	BACKFILL STRUCTURE TYPE A	TON	-	261	248	509
502.0100	CONCRETE MASONRY BRIDGES	CY	198.6	56.8	51.5	307
502.3200	PROTECTIVE SURFACE TREATMENT	SY	170	-	-	170
502.3210	PIGMENTED SURFACE SEALER	SY	54	18	16	88
505.0400	BAR STEEL REINFORCEMENT HS STRUCTURES	LB	-	3,160	2,490	5,650
505.0600	BAR REINFORCEMENT HS-COATED STRUCTURES	LB	37,790	2,970	2,430	43,190
513.7006	RAILING STEEL TYPE C1	LF	178	-	-	178
516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	-	10	10	20
517.1050.S.01	ARCHITECTURAL SURFACE TREATMENT B-67-405	SF	218	72	64	354
550.0010	PRE-BORING UNCONSOLIDATED MATERIALS	LF	-	20	20	40
550.0500	PILE POINTS	EACH	-	9	9	18
550.1125	PILING STEEL HP 12-INCH X 74 LB	LF	-	270	225	495
606.0300	RIPRAP HEAVY	CY	-	94	101	195
612.0406	PIPE UNDERDRAIN WRAPPED 6-INCH	LF	-	60	57	117
614.0150	ANCHOR ASSEMBLIES FOR STEEL PLATE BEAM GUARD	EA	-	-	1	1
645.0111	GEOTEXTILE TYPE DF SCHEDULE A	SY	-	29	29	58
645.0120	GEOTEXTILE TYPE HR	SY	-	141	151	292

NON-BID ITEMS	UNIT	SUPER	NORTH ABUT.	SOUTH ABUT.	TOTALS
1/2 " FILLER	SF	26	18	18	62

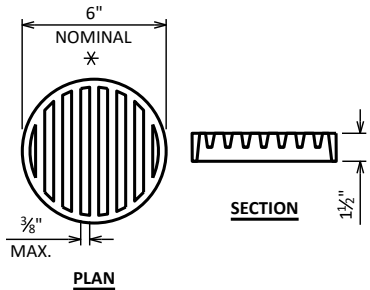
ABUTMENT BACKFILL DIAGRAM

L = OUT TO OUT OF ABUTMENT BODY INCLUDING WINGS (FT)
H = AVERAGE ABUTMENT FILL HEIGHT (FT)
EF = EXPANSION FACTOR (1.20 FOR CY BID ITEMS AND 1.00 FOR TON BID ITEMS)
 $V_{CF} = (L)(3.0')(H) + (L)(0.5)(1.5H)(H)$
 $V_{CY} = V_{CF}(EF)/27$
 $V_{TON} = V_{CY}(2.0)$



TYPICAL SECTION THRU ABUTMENT

- BACKFILL PAY LIMITS. BACKFILL BEYOND PAY LIMITS SHALL BE INCIDENTAL TO EXCAVATION FOR STRUCTURES. LIMITS OF EXCAVATION SHALL BE DETERMINED BY THE CONTRACTOR.
- PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. ATTACH RODENT SHIELD AT ENDS OF PIPE UNDERDRAIN.

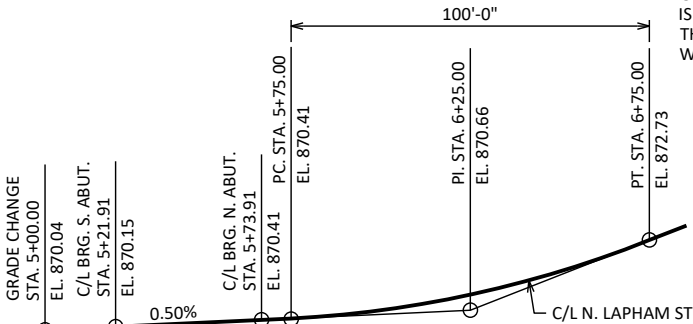


RODENT SHIELD DETAIL

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

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

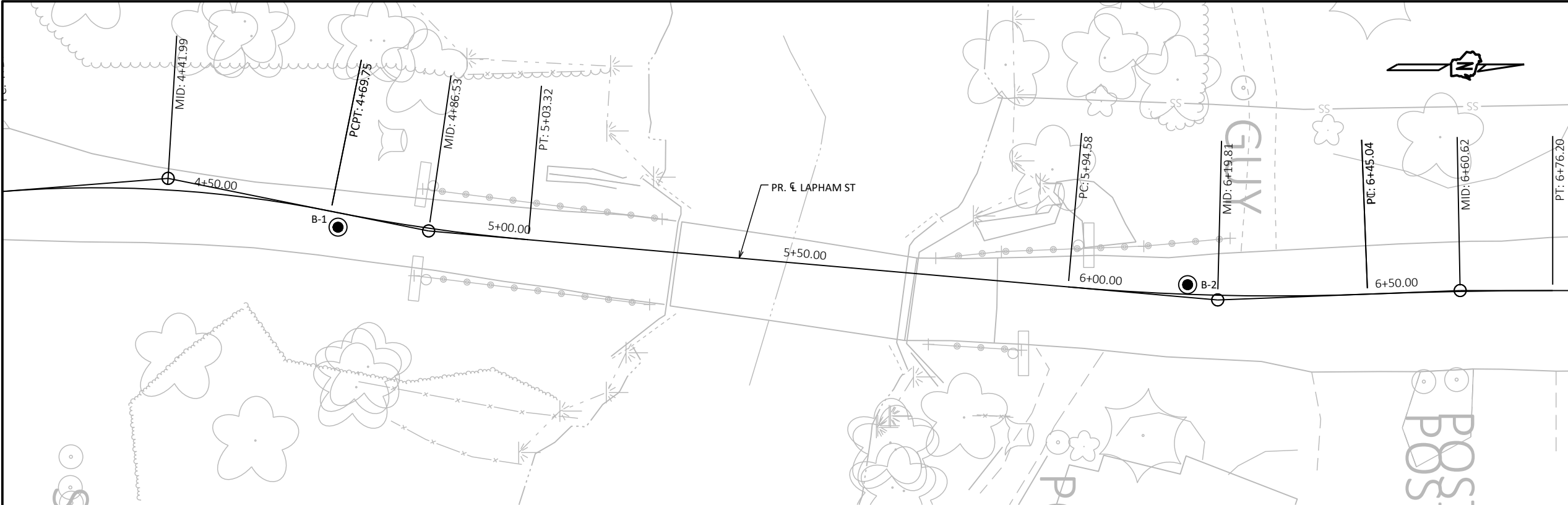
THE RODENT SHIELD SHALL BE A PVC GRATE SIMILAR TO THIS DETAIL. THE GRATE IS COMMERCIALY AVAILABLE AS A FLOOR STRAINER. A PIPE COUPLING IS REQUIRED FOR THE ATTACHMENT OF THIS SHIELD TO THE EXPOSED END OF THE PIPE UNDERDRAIN. THE SHIELD SHALL BE FASTENED TO THE PIPE COUPLING WITH TWO OR MORE NO. 10 X 1-INCH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



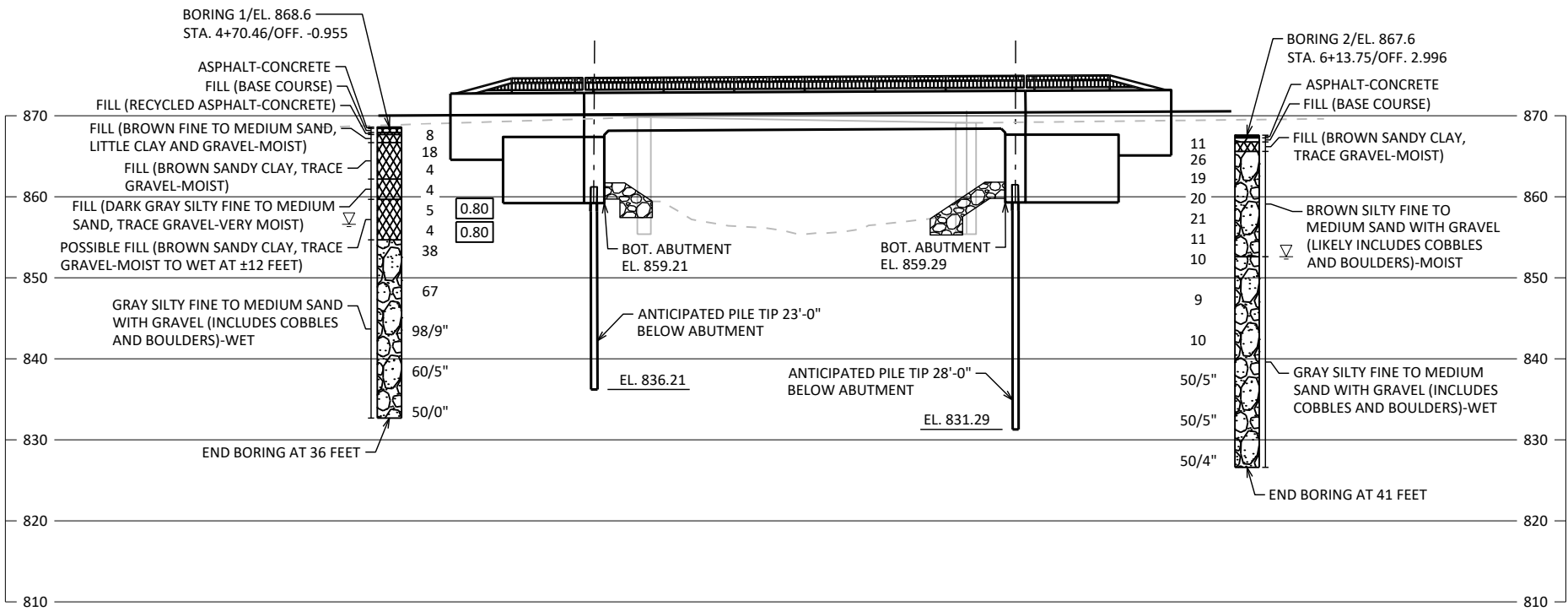
PROFILE GRADE LINE

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-67-405			
DRAWN BY		MDG	PLANS CK'D MJM
CROSS SECTION & QUANTITIES		SHEET 2 OF 14	

SCALE =



BORING #	DATE COMPLETED	NORTHING (Y)	EASTING (X)
1	11/01/2023	410,185.3107	2,372,818.5541
2	11/01/2023	410,328.3352	2,372,828.2343
BORINGS COMPLETED BY: GILES ENGINEERING ASSOCIATES, INC.			
REPORT COMPLETED BY: GILES ENGINEERING ASSOCIATES, INC.			
ALL COORDINATES REFERENCED TO NAD83 WISCONSIN STATE PLANE, SOUTH ZONE			



STATE PROJECT NUMBER

3852-06-70

MATERIAL SYMBOLS

ASPHALT

CONCRETE

SAND

BOULDERS OR COBBLES

SHALE

TOPSOIL

FILL

CLAY

LIMESTONE

SANDSTONE

PEAT

GRAVEL

SILT

BEDROCK (UNKNOWN)

IGNEOUS/META

LEGEND OF BORING

BORING #/EL. STA./OFFSET

ST

0.25

17

F-C

COBBLE OR BOULDER

WEATHERED LIMESTONE

CORE RUN #1 - 24'-29'

REC=80%, RQD=72%

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

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

GROUND WATER ELEVATION

AT TIME OF DRILLING

END OF DRILLING

AFTER DRILLING

ABBREVIATIONS

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

SUBSURFACE EXPLORATION FOR FOUNDATION DESIGN AND BIDDERS INFORMATION

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

NO.

DATE

REVISION

BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE

B-67-405

DRAWN BY

MDG

PLANS CK'D

MJM

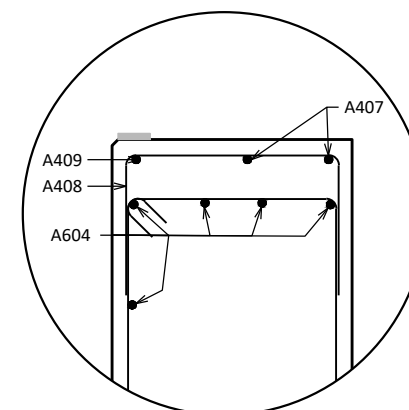
SUBSURFACE EXPLORATION

SHEET 3 OF 14

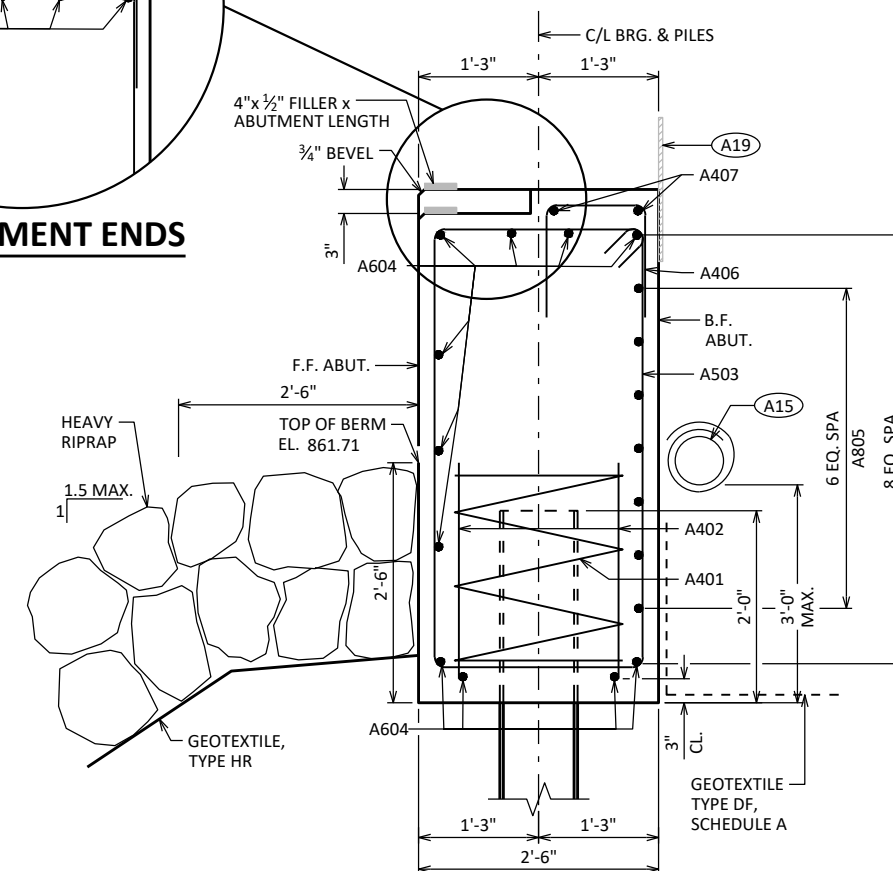
SCALE =

8

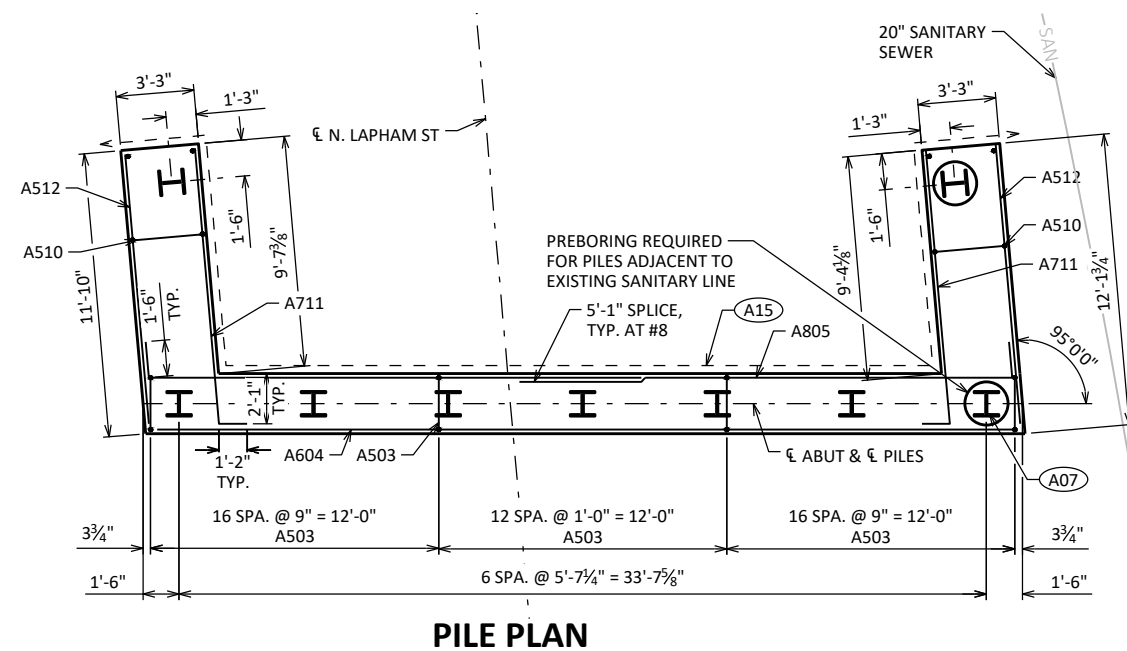
- (A01) CONST. JOINT: KEYWAY FORMED BY A BEVELED 2 x 6.
- (A07) SUPPORT ABUTMENT ON HP 12 x 74 STEEL PILING (WITH PILE POINTS), ESTIMATED 25'-0" LONG WITH A REQUIRED DRIVING RESISTANCE OF 160 TONS PER PILE.
- (A14) CONTRACTOR SHALL SUPPLY A NEW NAME PLATE PER 502.3.11 OF STD. SPEC.
- (A15) PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. RODENT SHIELD REQUIRED.
- (A17) ½" FILLER (INCLUDED IN WING LENGTH): SEAL ALL EXPOSED HORIZ. & VERT. SURFACES OF ½" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD ¾" BELOW SURFACE OF CONCRETE) EXTEND SEALER 3" BELOW GUTTER LINE AT INSIDE FACE
- (A19) 18" (RMW) RUBBERIZED MEMBRANE WATERPROOFING SEAL ALL HORIZ. & VERT. JOINTS AT BACKFACE.



AT ABUTMENT ENDS



SECTION THRU BODY



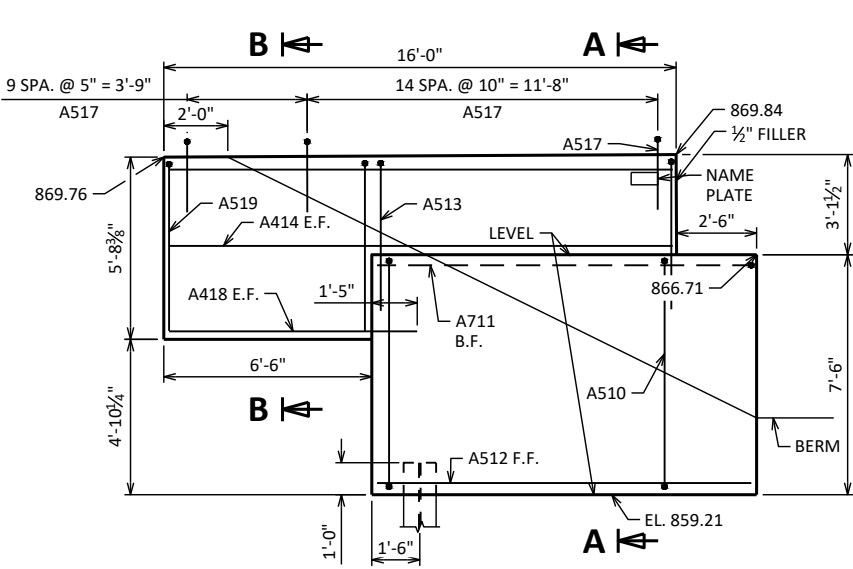
PILE PLAN

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE		B-67-405	
		DRAWN BY	PLANS CK'D
		MDG	MJM
SOUTH ABUTMENT		SHEET 4 OF 14	

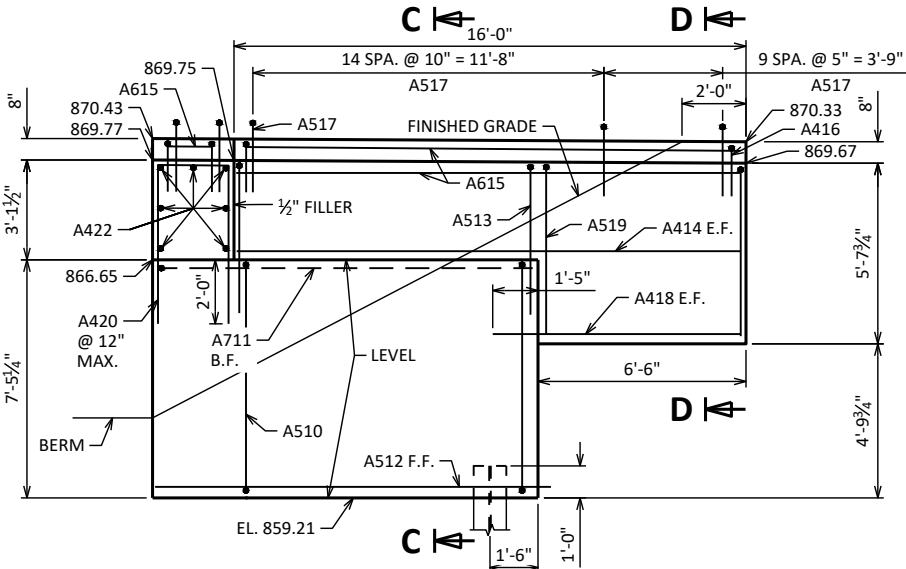
BILL OF BARS

NOTE: THE FIRST OR FIRST TWO DIGITS OF THE BAR MARK SIGNIFIES THE BAR SIZE.

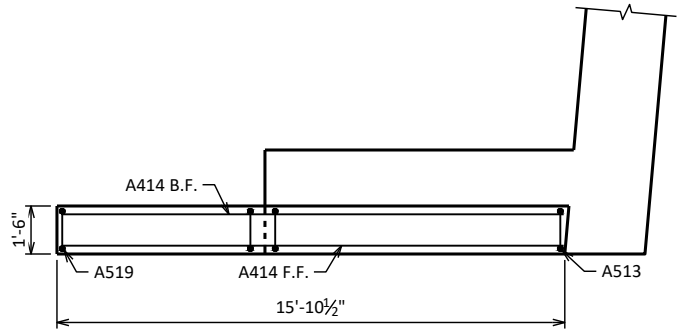
BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	BAR SERIES	LOCATION
A401		7	28'-0"	Δ		BODY @ PILES
A402		14	2'-3"			BODY @ PILES
A503		45	16'-1"	Δ		BODY VERT.
A604		11	36'-3"			BODY HORIZ. F.F.
A805		14	22'-0"	Δ		BODY HORIZ. B.F.
A406		20	3'-9"	Δ		BODY VERT. TOP
A407		4	19'-2"			BODY HORIZ. TOP
A408		6	5'-0"	Δ		BODY VERT. TOP
A409		2	1'-8"			BODY HORIZ. TOP F.F.
A510	X	22	20'-5"	Δ		WINGS VERT. E.F.
A711	X	14	12'-6"	Δ		WINGS HORIZ. B.F.
A512	X	16	11'-8"			WINGS HORIZ. F.F.
A513	X	28	11'-1"	Δ		WINGS VERT. TOP
A414	X	16	15'-8"			WINGS HORIZ. TOP
A615	X	2	15'-8"			WINGS HORIZ. TOP
A416	X	22	4'-9"	Δ		WINGS SLAB TIE
A517	X	50	7'-4"	Δ		WINGS PARAPET TIE
A418	X	14	7'-9"			WINGS HORIZ.
A519	X	20	11'-3"	Δ		WINGS VERT.
A420	X	3	12'-2"	Δ		WING 2 VERT. TOP
A621	X	4	11'-8"			WINGS HORIZ. TOP
A422	X	7	1'-8"			WING 2 HORIZ. TOP



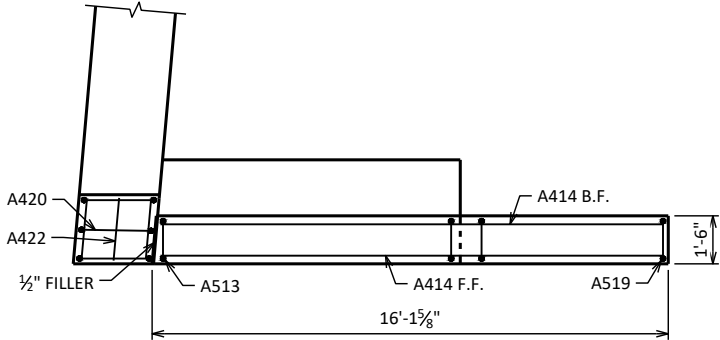
WING 1 ELEVATION



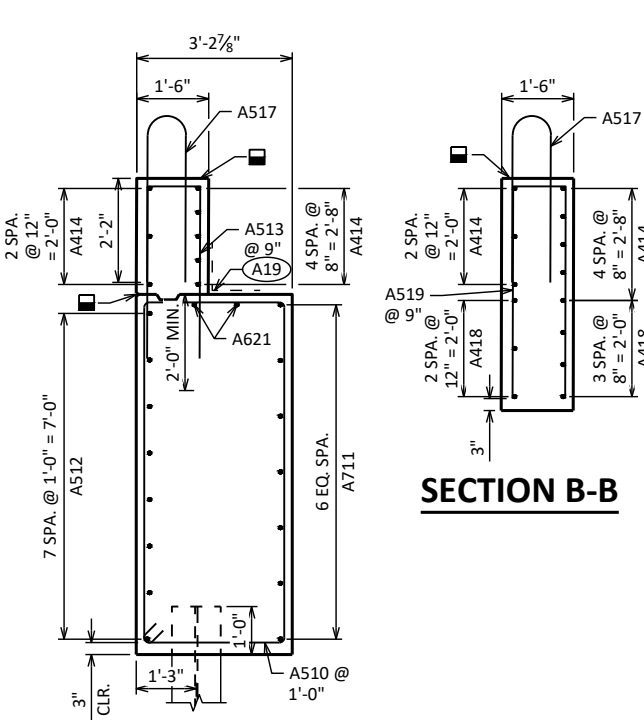
WING 2 ELEVATION



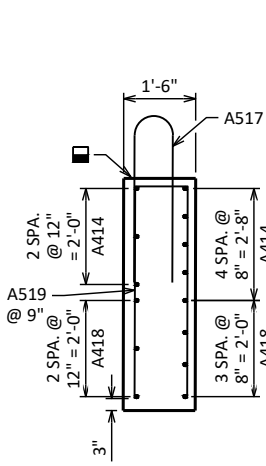
WING 1 PLAN



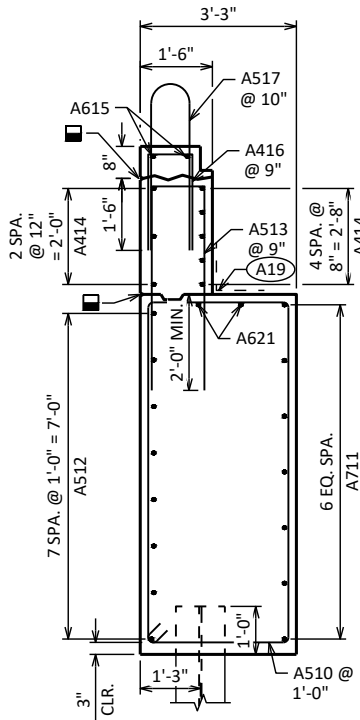
WING 2 PLAN



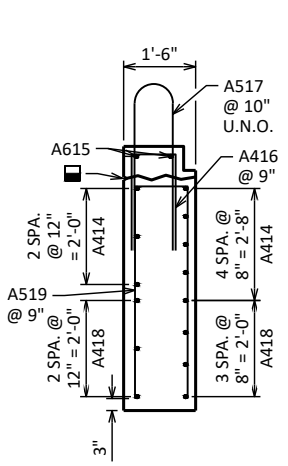
SECTION A-A



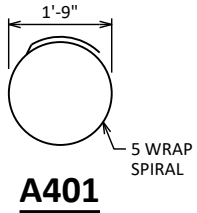
SECTION B-B



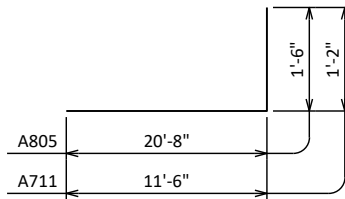
SECTION C-C



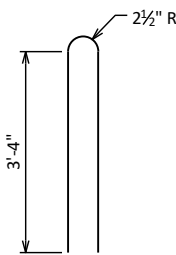
SECTION D-D



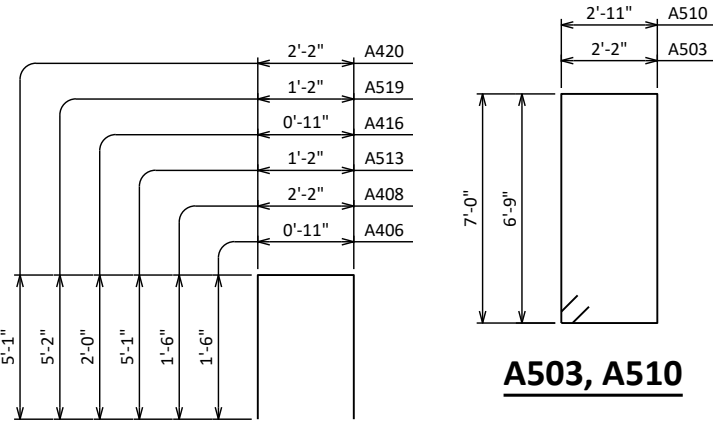
A401



A805, A711



A517

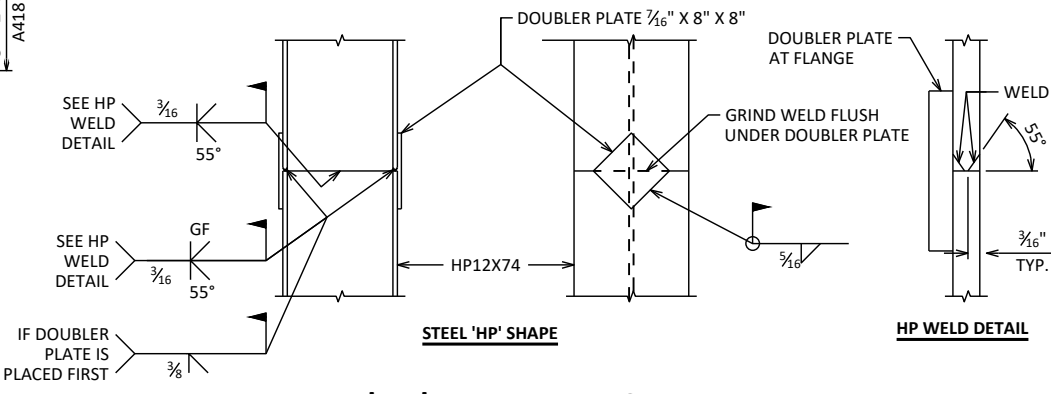


A503, A510

A406, A408, A513, A416, A519, A420

NOTES

B.F. BACK FACE
F.F. FRONT FACE
E.F. EACH FACE
3/4" "V" GROOVE

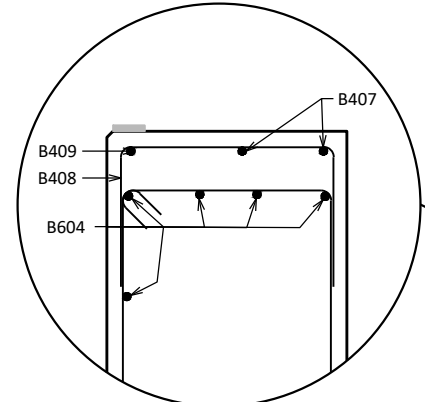
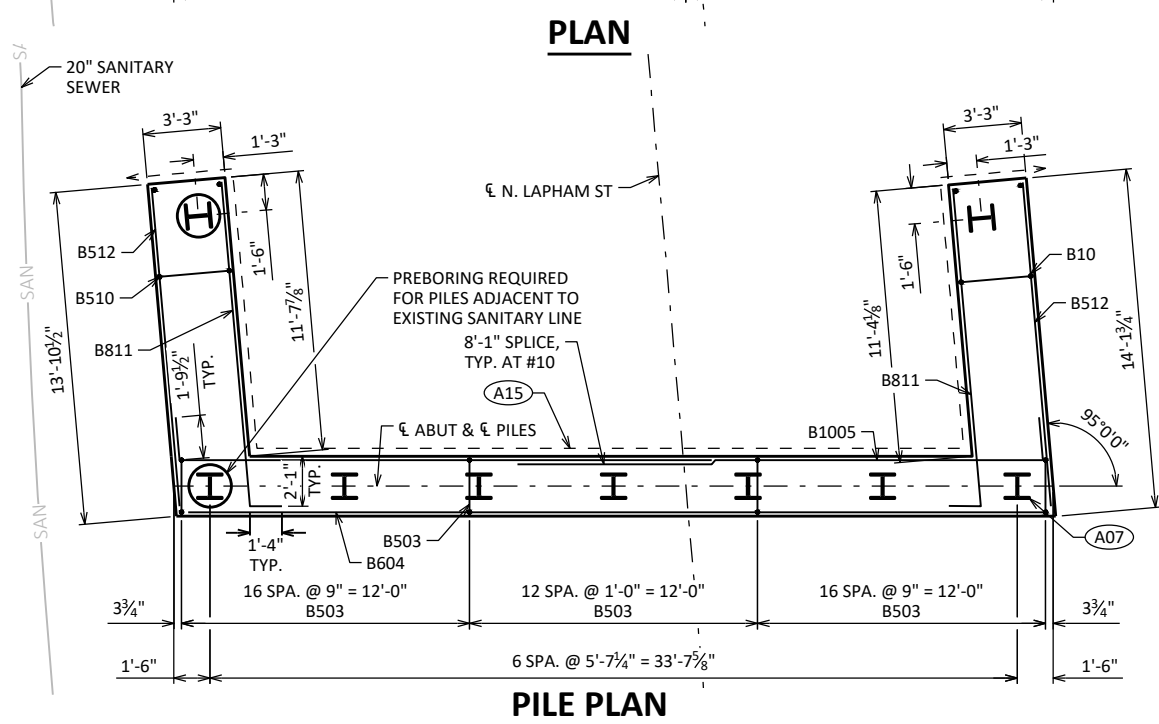
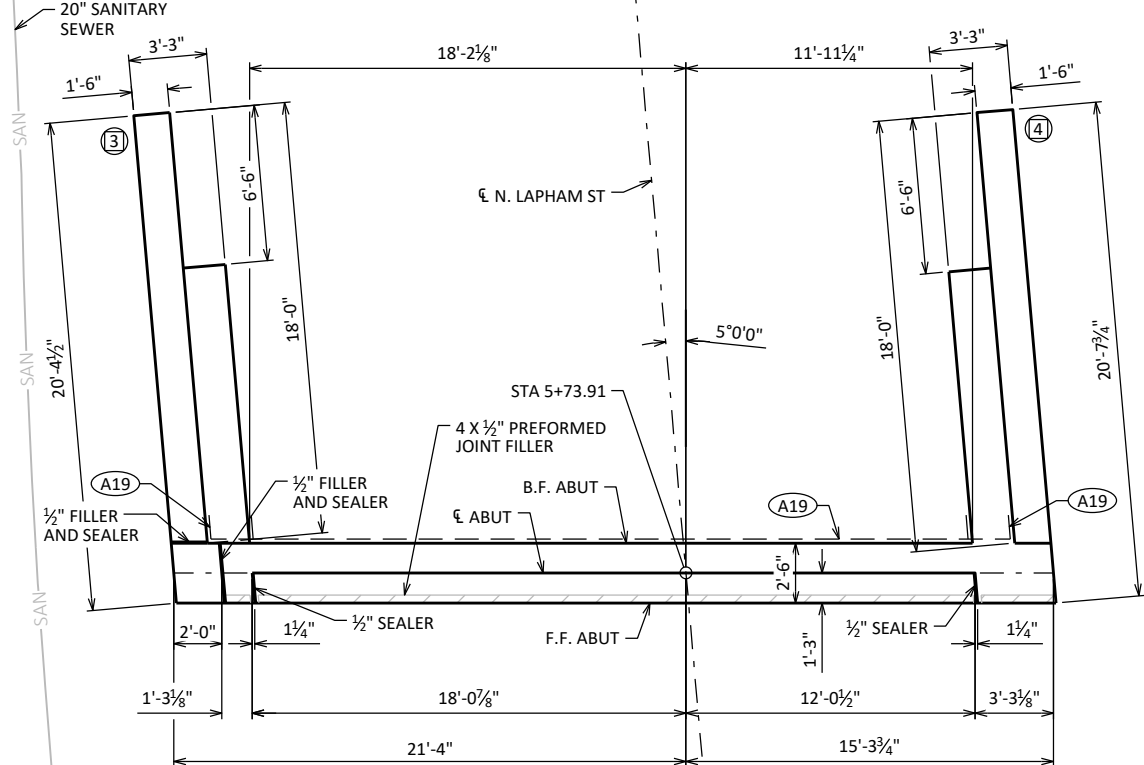
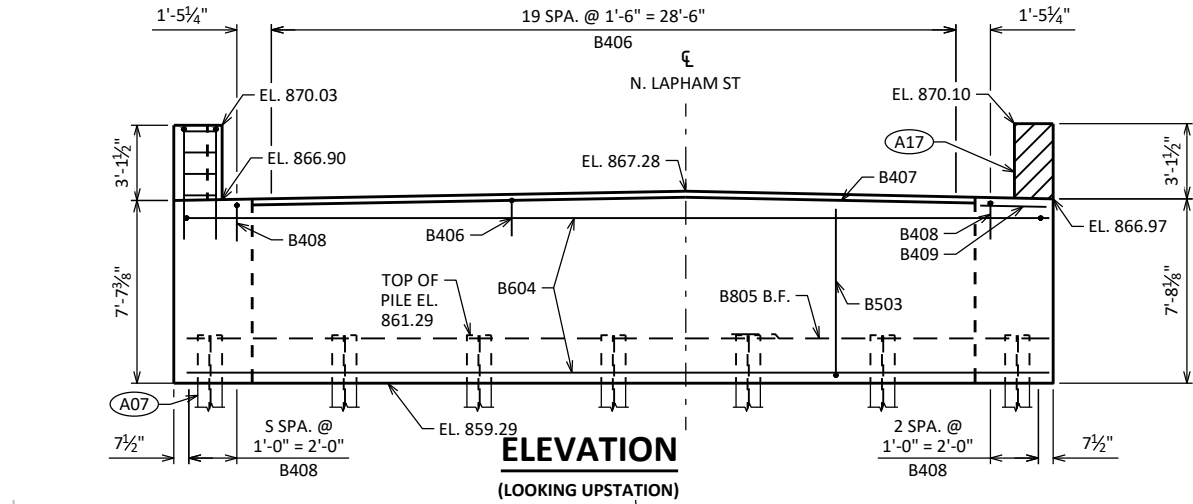


'HP' PILE DETAILS

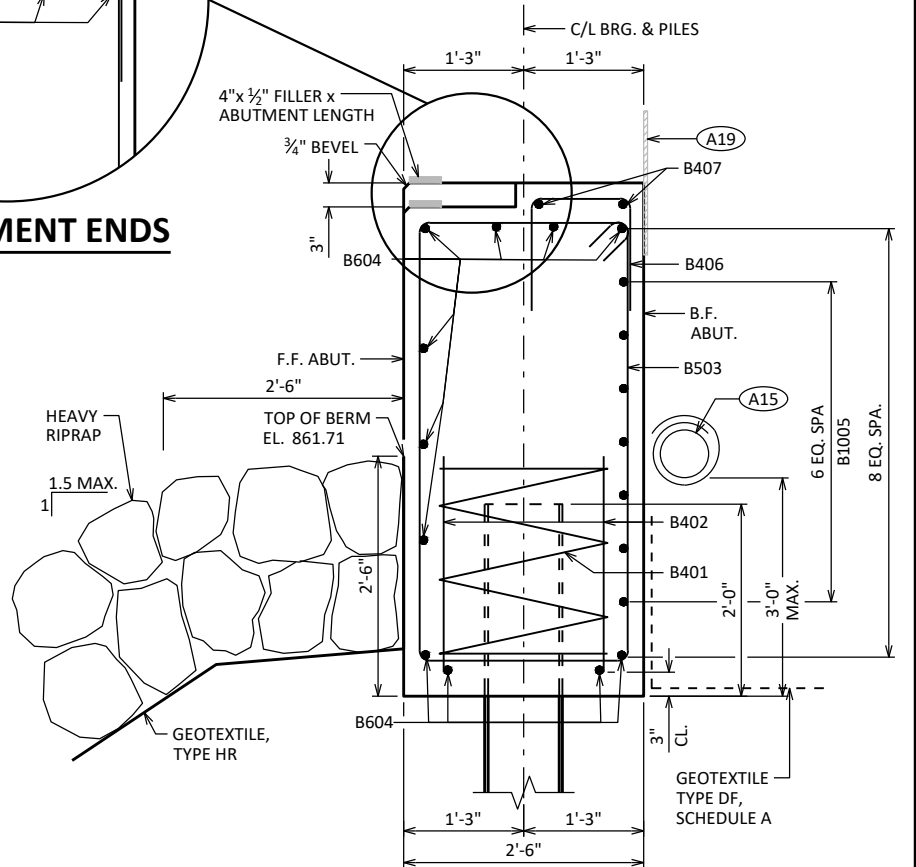
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-67-405			
DRAWN BY		MDG	PLANS CK'D MJM
SOUTH ABUTMENT DETAILS		SHEET 5 OF 14	

NOTES

- (A01) CONST. JOINT: KEYWAY FORMED BY A BEVELED 2 x 6.
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- (A19) 18" (RMW) RUBBERIZED MEMBRANE WATERPROOFING SEAL ALL HORIZ. & VERT. JOINTS AT BACKFACE.



AT ABUTMENT ENDS



SECTION THRU BODY

STATE PROJECT NUMBER
3852-06-70

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-67-405			
DRAWN BY		MDG	PLANS CK'D MJM
NORTH ABUTMENT		SHEET 6 OF 14	

BILL OF BARS

NOTE: THE FIRST OR FIRST TWO DIGITS OF THE BAR MARK SIGNIFIES THE BAR SIZE.

BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	BAR SERIES	LOCATION
B401		7	28'-0"	Δ		BODY @ PILES
B402		14	2'-3"			BODY @ PILES
B503		45	18'-5"	Δ		BODY VERT.
B604		11	36'-3"			BODY HORIZ. F.F.
B1005		14	23'-8"	Δ		BODY HORIZ. B.F.
B406		20	3'-9"	Δ		BODY VERT. TOP
B407		4	19'-2"			BODY HORIZ. TOP
B408		6	5'-0"	Δ		BODY VERT. TOP
B409		2	1'-8"			BODY HORIZ. TOP F.F.
B510	X	26	20'-9"	Δ		WING VERT. E.F.
B811	X	16	14'-7"	Δ		WINGS HORIZ. B.F.
B512	X	18	13'-8"			WINGS HORIZ. F.F.
B513	X	32	11'-1"	Δ		WINGS VERT. TOP
B414	X	16	17'-8"			WINGS HORIZ. TOP
B615	X	2	17'-8"			WINGS HORIZ. TOP
B416	X	25	3'-3"	Δ		WINGS SLAB TIE BARS
B517	X	48	7'-4"	Δ		WINGS PARAPET TIES
B418	X	12	7'-9"			WINGS HORIZ.
B519	X	20	11'-3"	Δ		WINGS VERT.
B420	X	3	12'-2"	Δ		WING 4 VERT. TOP
B621	X	4	13'-8"			WINGS HORIZ. TOP
B422	X	7	1'-8"			WING 4 HORIZ. TOP

WING 3 ELEVATION

WING 4 ELEVATION

WING 3 PLAN

WING 4 PLAN

SECTION B-B

SECTION D-D

SECTION A-A

SECTION C-C

B401

B406, B408, B513,
B416, B519, B420

B503, B510

NOTES

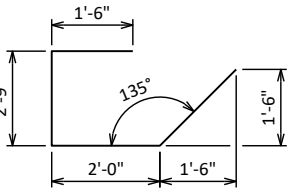
- B.F. BACK FACE
F.F. FRONT FACE
E.F. EACH FACE
3/4" "V" GROOVE

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-67-405			
DRAWN BY		MDG	PLANS CK'D MJM
NORTH ABUTMENT DETAILS		SHEET 7 OF 14	

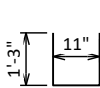
BILL OF BARS

NOTE: THE FIRST OR FIRST TWO DIGITS OF THE BAR MARK SIGNIFIES THE BAR SIZE.

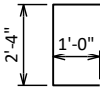
BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	BAR SERIES	LOCATION
S1101	X	82	54'-0"			SLAB LONG. BOT. AT ENDS
S502	X	93	36'-2"			SLAB TRANS. BOT.
S503	X	35	54'-0"			SLAB LONG. TOP
S504	X	59	36'-2"			SLAB TRANS. TOP
S505	X	70	8'-2"	Δ		SLAB AT ABUT.
S406	X	64	3'-2"	Δ		SLAB AT ABUT.
S407	X	4	33'-11"			SLAB TRANS. AT ABUT.
S408	X	109	2'-11"	Δ		SIDEWALK TIE



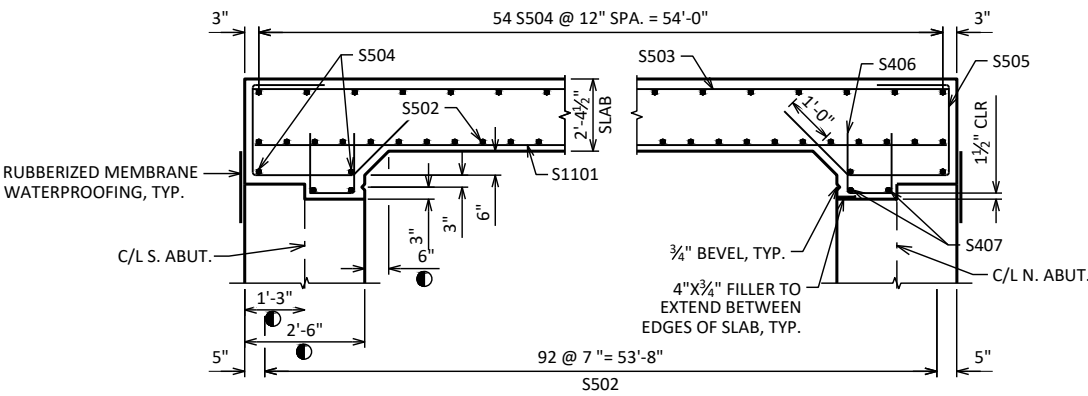
S505



S406



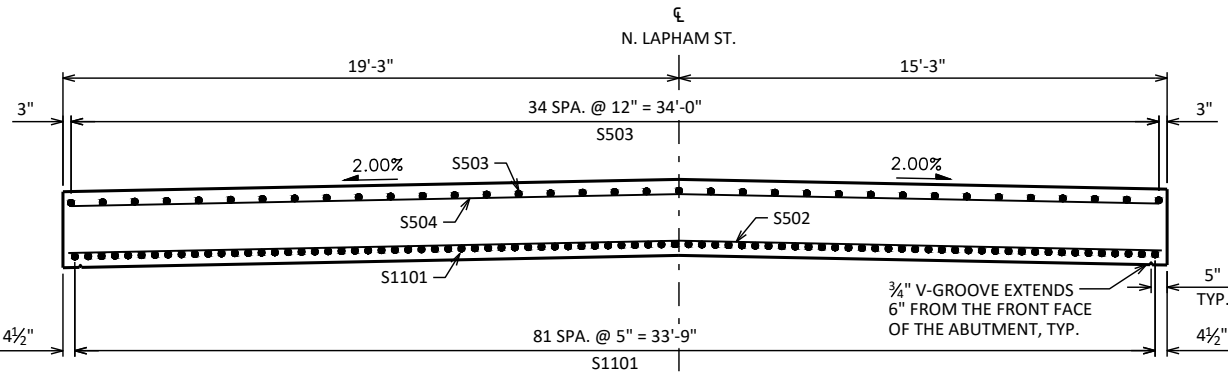
S408



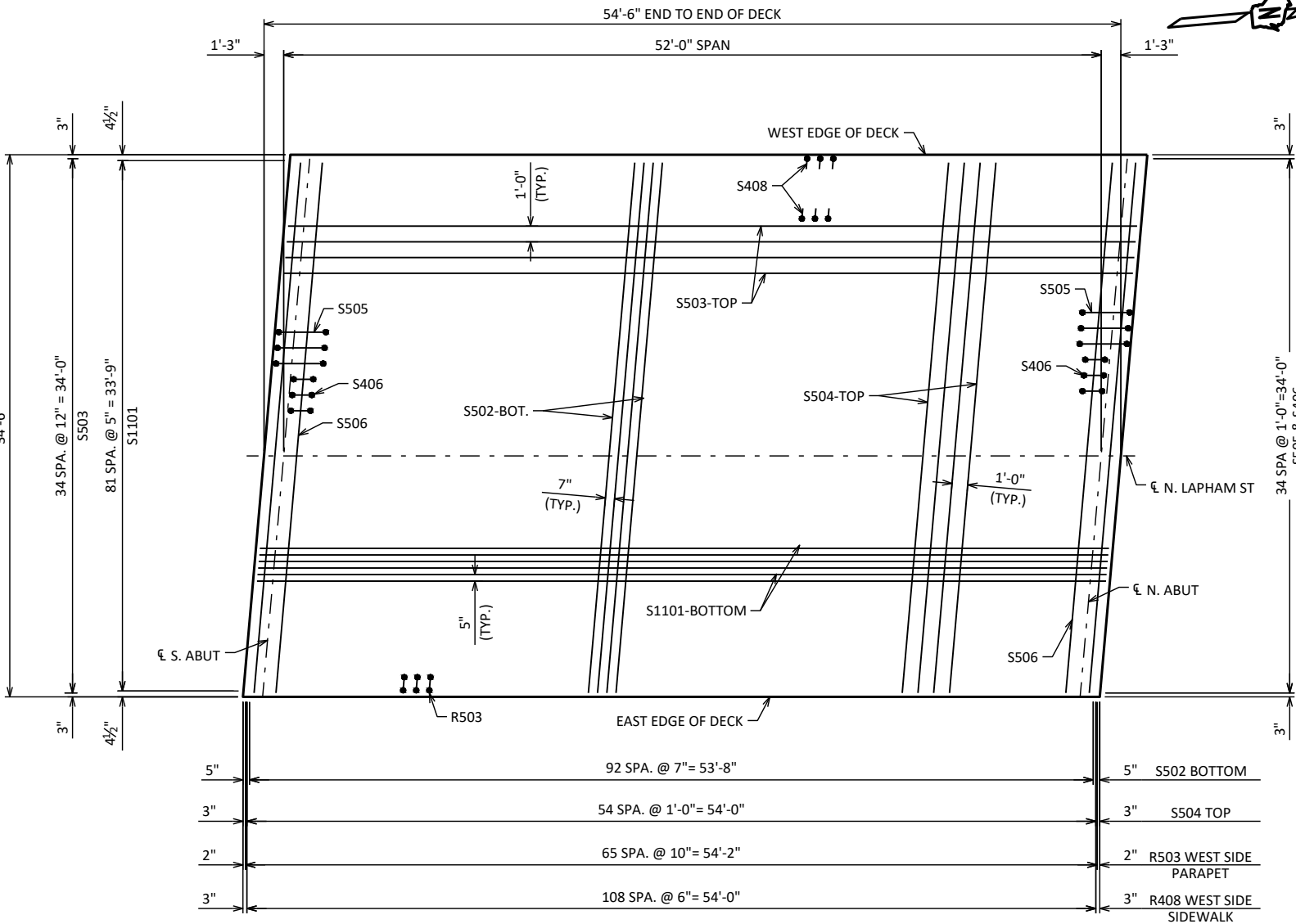
LONGITUDINAL SECTION

DIMENSIONS ARE GIVEN PARALLEL TO C/L ROADWAY UNLESS OTHERWISE NOTED.

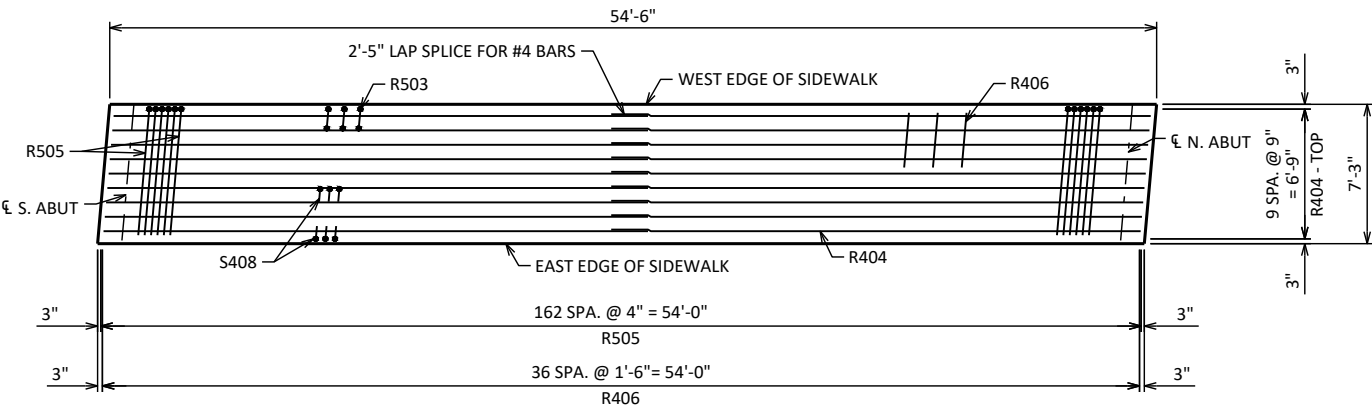
MEASURED NORMAL TO THE C/L OF ABUTMENT. DIMENSIONS ARE TYPICAL FOR BOTH ABUTMENTS.



TYPICAL SECTION THROUGH BRIDGE

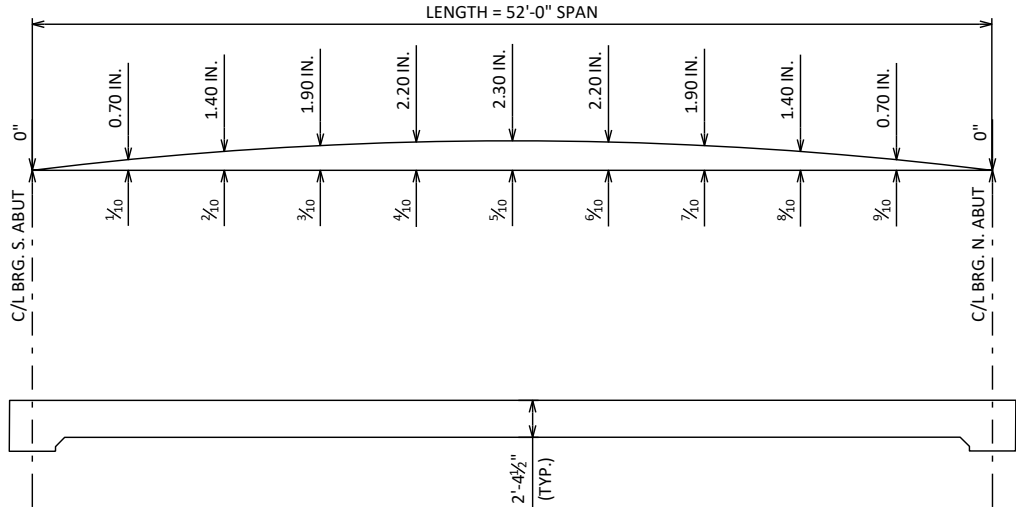


PLAN



SIDEWALK PLAN

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-67-405			
DRAWN BY		MDG	PLANS CK'D MJM
SUPERSTRUCTURE		SHEET 8 OF 14	



CAMBER AND SLAB THICKNESS DIAGRAM

CAMBER SHOWN IS BASED ON 3 TIMES DEAD LOAD DEFLECTION.

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.

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

- MINUS... 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 DECK ELEVATIONS

LOCATION	C/L BRG. S. ABUT	1/10 PT.	2/10 PT.	3/10 PT.	4/10 PT.	5/10 PT.	6/10 PT.	7/10 PT.	8/10 PT.	9/10 PT.	C/L BRG. N. ABUT
W. EOD	869.77	869.80	869.82	869.85	869.87	869.90	869.93	869.95	869.98	870.00	870.03
C/L OR CROWN	870.15	870.18	870.20	870.23	870.25	870.28	870.31	870.33	870.36	870.38	870.41
E. EOD	869.84	869.87	869.89	869.92	869.94	869.97	870.00	870.02	870.05	870.07	870.10

SURVEY TOP OF DECK ELEVATIONS

LOCATION	C/L BRG. S. ABUT	5/10 PT.	C/L BRG. N. ABUT
W. EOD			
C/L OR CROWN			
E. EOD			

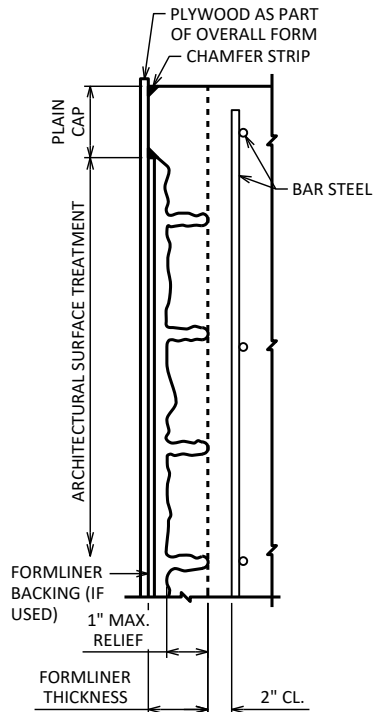
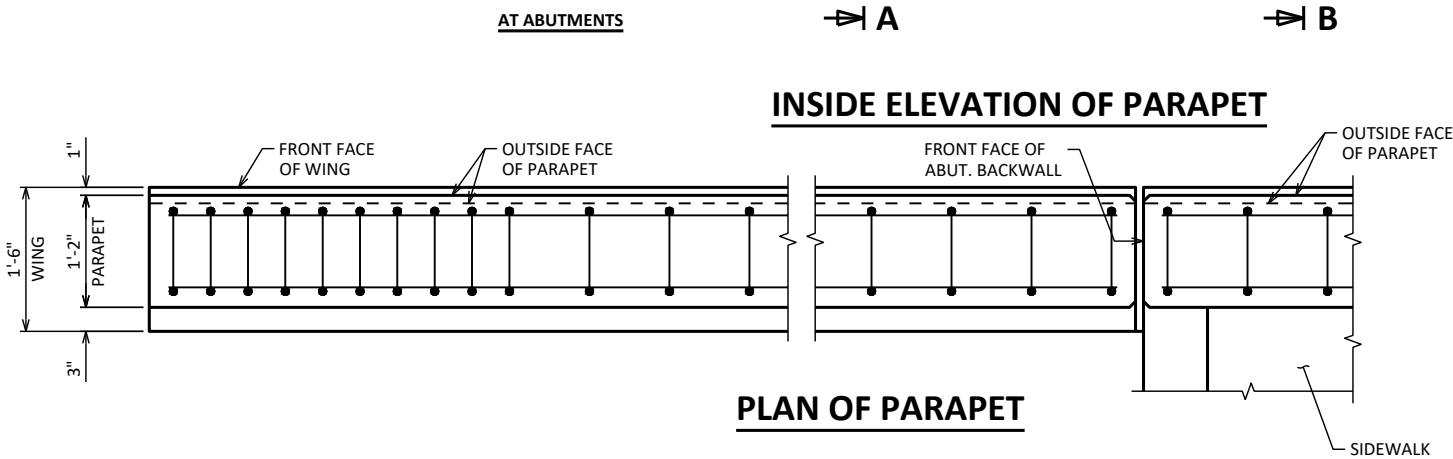
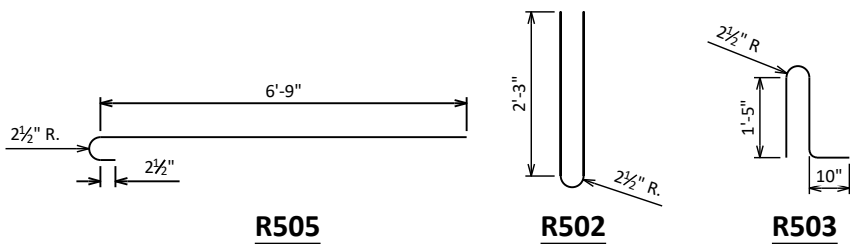
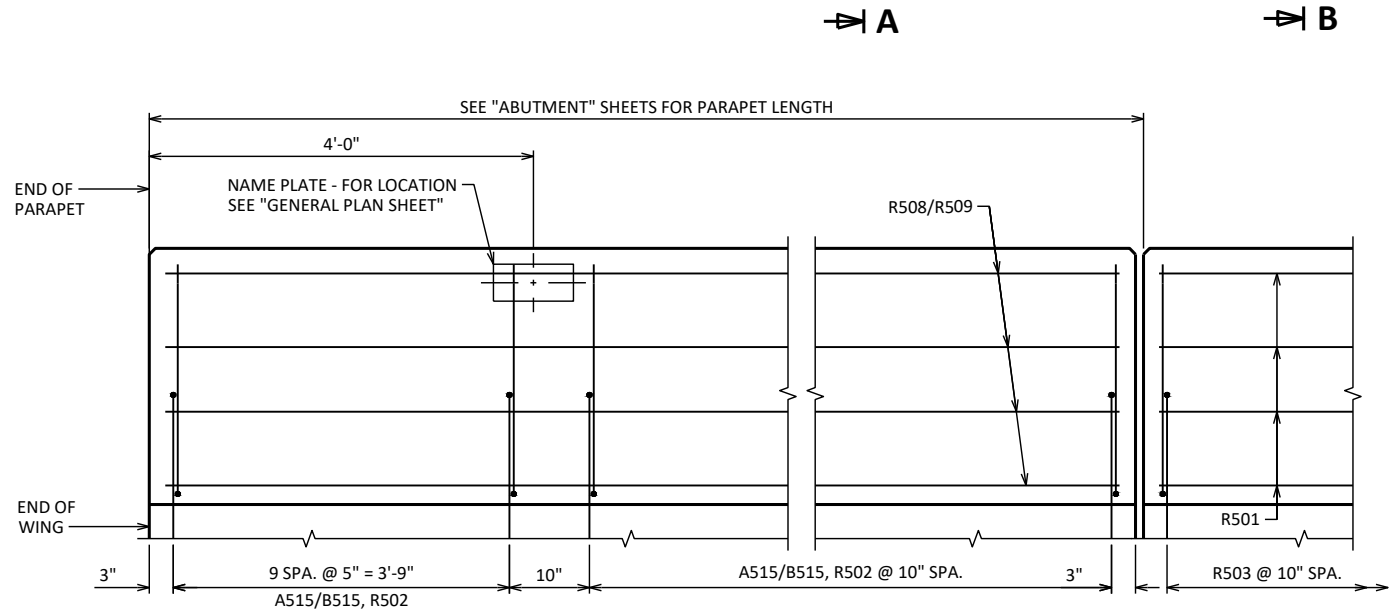
PRIOR TO RELEASING SLAB FALSEWORK, TAKE TOP OF SLAB ELEVATIONS AT THE C/L OF ABUTMENTS AND 5/10 PTS. TO VERIFY CAMBER. TAKE ELEVATIONS ALONG EDGE OF DECK AND CROWN OR R/L. RECORD THE ELEVATIONS IN THE ABOVE TABLE FOR THE "AS BUILT" PLANS.

NO.	DATE	REVISION	BY
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STRUCTURE B-67-405			
DRAWN BY MDG		PLANS CK'D MJM	
CONCRETE SLAB DETAILS		SHEET 9 OF 13	

BILL OF BARS

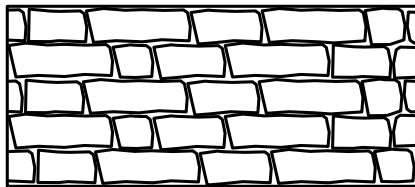
NOTE: THE FIRST OR FIRST TWO DIGITS OF THE BAR MARK SIGNIFIES THE BAR SIZE.

BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	BAR SERIES	LOCATION
R501	X	32	28'-5"			PARAPET HORIZ.
R502	X	238	5'-4"	Δ		PARAPET VERT.
R503	X	132	4'-3"	Δ		PARAPET VERT.
R404	X	24	27'-9"			SIDEWALK LONG.
R505	X	163	7'-7"	Δ		SIDEWALK TRANS. TOP
R406	X	37	2'-10"			SIDEWALK TRANS BOT.
R508	X	16	16'-2"			PARAPET HORIZ. - SOUTH
R509	X	16	17'-8"			PARAPET HORIZ. - NORTH



FORMLINER NOTES

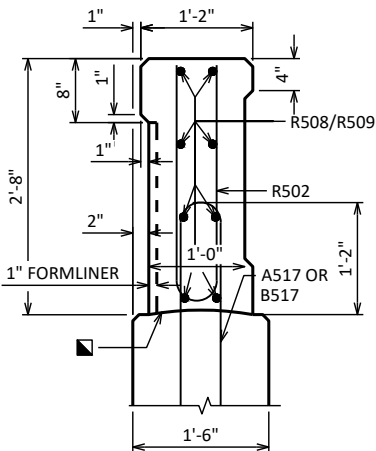
THE FORMLINER PATTERN SHALL BE CONTINUOUS ACROSS CONSTRUCTION JOINTS.



RECTANGULAR CUT STONE

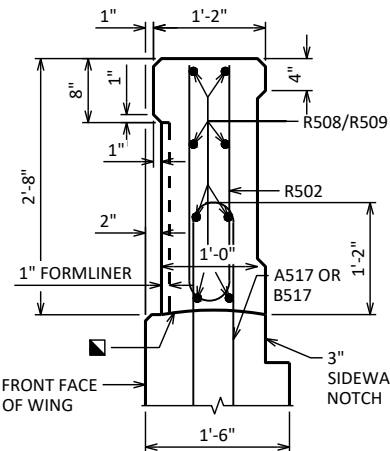
COURSE HEIGHT = 8" to 12"

- CONST. JOINT - STRIKE OFF AS SHOWN AND LEAVE ROUGH.
- * ±0.5% CONSTRUCTION TOLERANCE IN SIDEWALK X-SLOPE. THE SIDEWALK X-SLOPE SHALL NOT EXCEED 2% WITHOUT PRIOR APPROVAL OF THE ENGINEER.



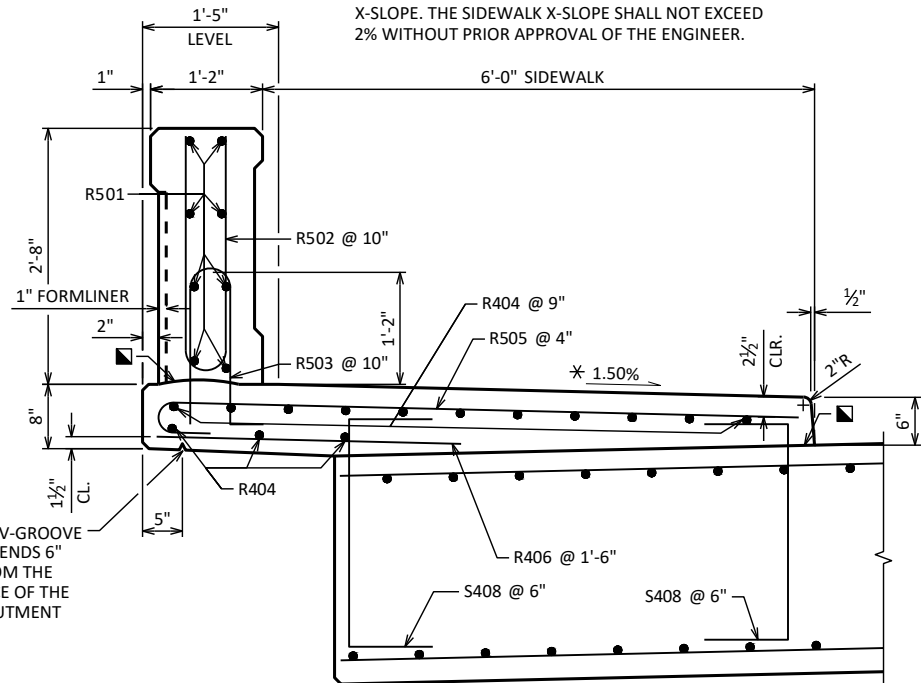
SECTION A-A

EAST



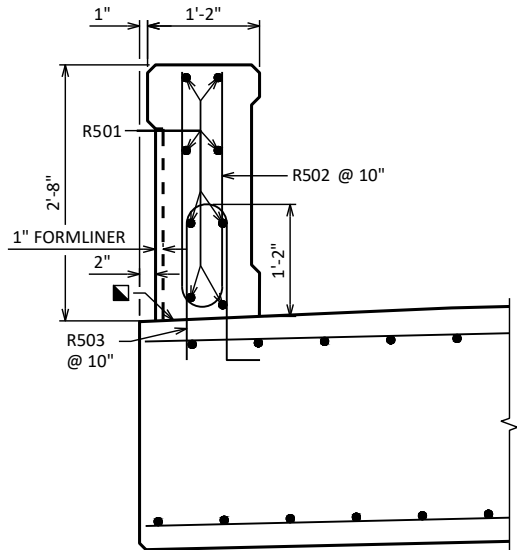
SECTION A-A

WEST



SECTION B-B

WEST

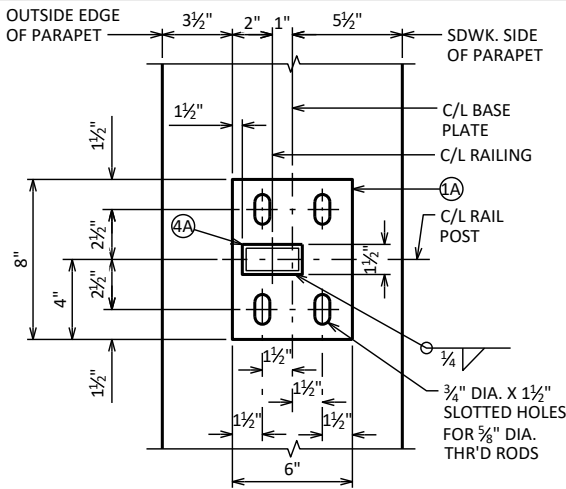


SECTION B-B

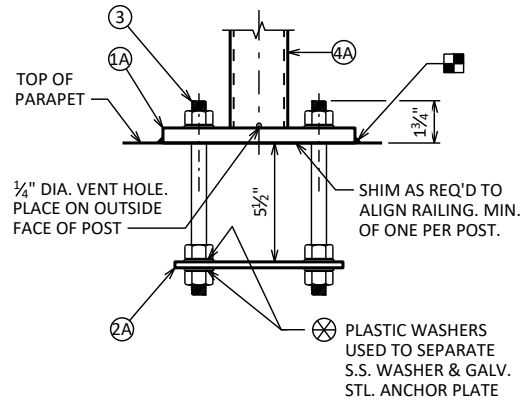
EAST

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-67-405			
DRAWN BY		MDG	PLANS CK'D MJM
VERTICAL FACE PARAPET "A"		SHEET 10 OF 14	

SCALE = 2.00

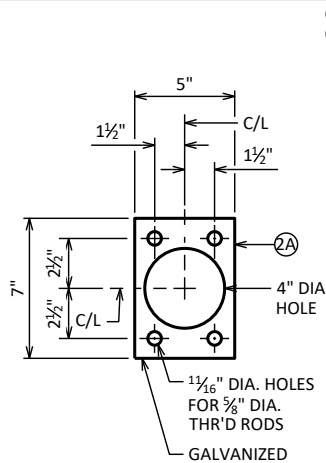


TYPICAL RAIL POST BASE PLATE

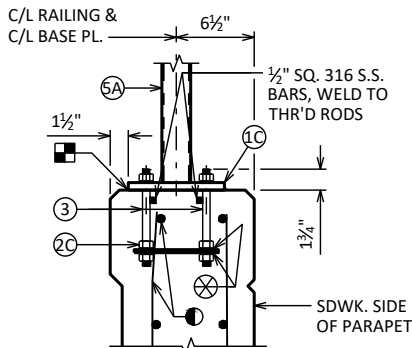


ANCHORAGE FOR RAIL POSTS

NOTE: ANCHOR PLATE NOT REQUIRED WHEN ADHESIVE ANCHORS ARE USED.



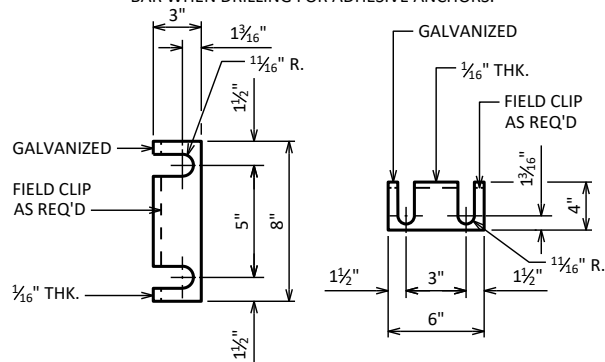
ANCHOR PLATE



ANCHORAGE FOR END RAIL

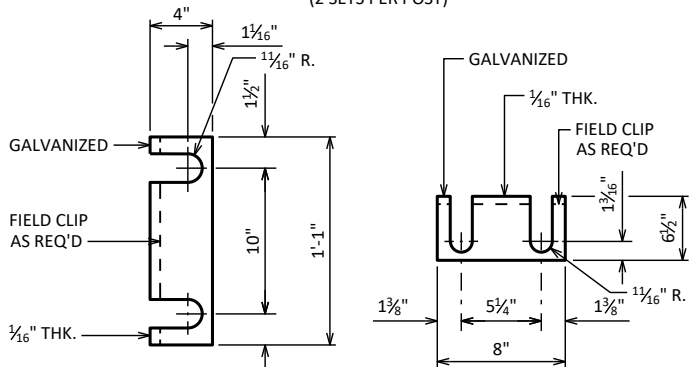
NOTE: ANCHOR PLATE NOT REQUIRED WHEN ADHESIVE ANCHORS ARE USED.

1 WHEN ADHESIVE ANCHORS ARE USED, FIELD BEND AND/OR DISPLACE TO AVOID HITTING LONGITUDINAL BAR WHEN DRILLING FOR ADHESIVE ANCHORS.



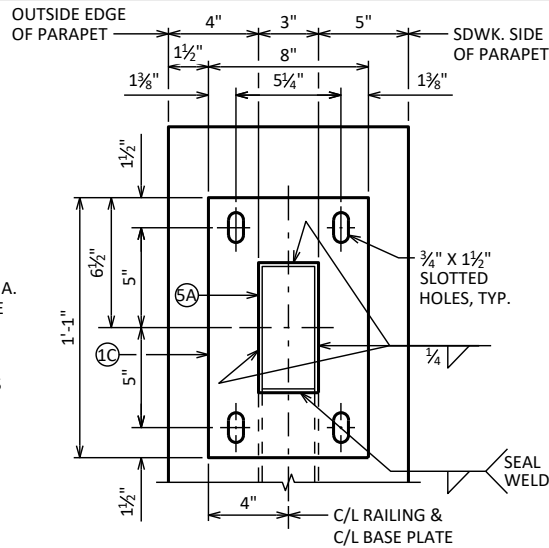
RAIL POST SHIM DETAIL

(2 SETS PER POST)

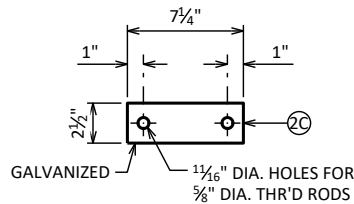


END RAIL SHIM DETAIL

(2 SETS PER POST)

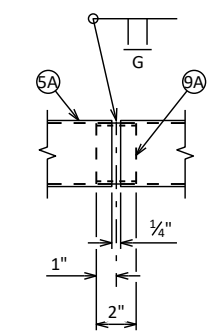


END RAIL BASE PLATE



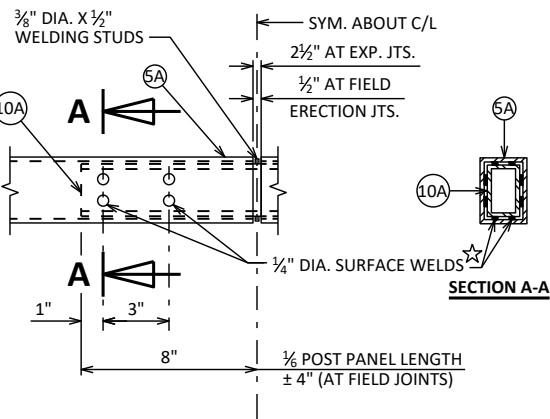
END RAIL ANCHOR PLATE

2 REQ'D. PER END RAIL BASE PLATE



SHOP RAIL
SPLICE DETAIL

(LOCATION MUST BE SHOWN ON SHOP DRAWINGS)



FIELD ERECTION JOINT DETAIL

☆ MIN. 3/8" FLAT SURFACE DIA. PUNCHINGS OR STUDS MAY BE USED AS AN ALTERNATE.

LEGEND

- 1A PLATE 3/8" X 6" X 8" WITH 3/4" X 1 1/2" SLOTTED HOLES.
- 1C PLATE 3/8" X 8" X 1'-1" WITH 3/4" X 1 1/2" SLOTTED HOLES.
- 2A 1/4" X 5" X 7" ANCHOR PLATE WITH 1 1/16" DIA. HOLES FOR THR'D RODS NO. 3.
- 2C 1/4" X 2 1/2" X 7 1/4" ANCHOR PLATE WITH 1 1/16" DIA. HOLES FOR THR'D RODS NO. 3.
- 3 3/8" DIA. X 9" LONG, TYPE 316 STAINLESS STEEL THREADED RODS (MIN. TENSILE STRENGTH = 70 KSI) WITH NUT AND WASHERS OF SAME ALLOY GROUP. ALTERNATIVE ANCHORAGE: CONCRETE ADHESIVE ANCHORS 3/8"-INCH. EMBED 7" IN CONCRETE FOR RAIL POSTS. EMBED 5" IN CONCRETE FOR END RAILS. ADHESIVE ANCHORS SHALL CONFORM TO SECTIONS 502.2.12 AND 502.3.14 OF THE STANDARD SPECIFICATIONS.
- 4A STRUCTURAL TUBING 3" X 1 1/2" X 3/16". PLACE VERTICAL. WELD TO NO. 1 & 5.
- 5A STRUCTURAL TUBING 3" X 1 1/2" X 3/16" RAILS. WELD TO NO. 1 & NO. 4. INSIDE OF TUBE TO BE PAINTED AT ALL FIELD ERECTION & EXPANSION JOINTS.
- 6B BAR 1" X 1 1/2" PICKETS. WELD TO NO. 5. (SPACE AT 6" MAX. C/L TO C/L SPACING) PLACE VERTICAL.
- 8 STRUCTURAL TUBING 5" DIA. (STANDARD SIZE) (5.563" O.D.) 1 1/2" LONG SLICES. WELD TO NO. 5A.
- 9A RECTANGULAR SLEEVE FABRICATED FROM 3/16" PLATES. PROVIDE "SLIDING FIT".
- 10A RECTANGULAR SLEEVE FABRICATED FROM 3/16" PLATES. (1'-4" @ FIELD ERECTION JTS.) (1'-4" @ STRIP SEAL EXP. JTS.)

RAILING NOTES

BID ITEM SHALL BE "RAILING STEEL TYPE C 1", WHICH SHALL INCLUDE ALL STEEL ITEMS SHOWN.

POST BASE PLATES SHALL BE FLAT WITH ALL SURFACES SMOOTH AND FREE FROM WARP AND ALL EDGES SMOOTH, STRAIGHT, AND VERTICAL. ALL PLATE CUTS SHALL BE MACHINE OR MACHINE FLAME CUT.

ALL PLATES, BARS, AND RECTANGULAR SLEEVES SHALL CONFORM TO ASTM A709 GRADE 36. ALL STRUCTURAL TUBING SHALL CONFORM TO ASTM A500 GRADE B.

ANCHORAGES SHALL BE ACCURATELY PLACED TO PROVIDE CORRECT ALIGNMENT OF RAILING. SET NORMAL TO GRADE.

CUT BOTTOM OF POST TO MAKE POST VERTICAL IN BOTH TRANSVERSE AND LONGITUDINAL DIRECTION.

STEEL SHIMS SHALL BE PROVIDED & USED UNDER BASE PLATES WHERE REQUIRED FOR ALIGNMENT, AND SHALL BE GALVANIZED.

CAULK AROUND PERIMETER OF BASE PLATES, NO. 1, AND FILL BOLT SLOT OPENINGS IN SHIMS AND BASE PLATES WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER.

ALL JOINTS AND RECESSES IN CONCRETE PARAPET ARE TO BE VERTICAL.

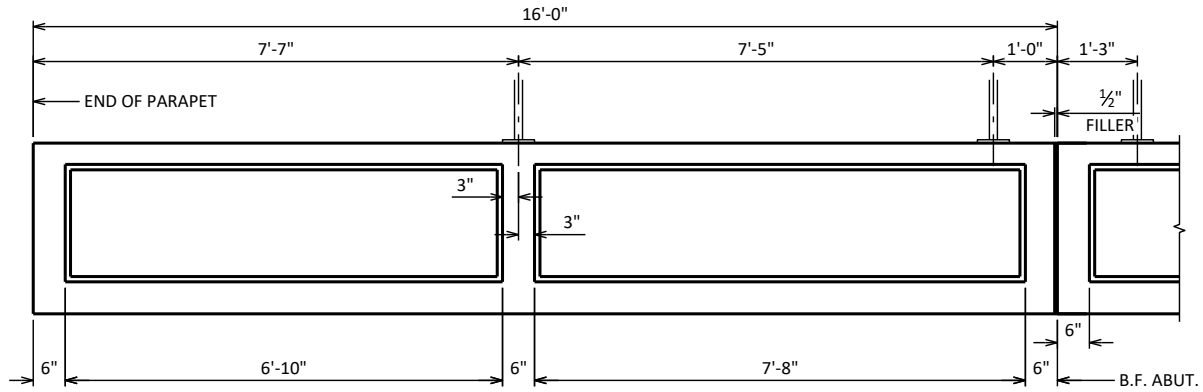
ALL MATERIAL (EXCEPT NO. 3) SHALL BE GALVANIZED AFTER FABRICATION. PRIOR TO GALVANIZING, THE STEEL RAILING SHALL BE GIVEN A NO. 6 BLAST CLEANING PER SSPC SPECIFICATIONS. PAINT OVER GALVANIZING WITH AN APPROVED TIE COAT AND TOP COAT AS SPECIFIED IN THE CONTRACT DOCUMENTS. THE RAILING SHALL BE PAINTED BLACK FEDERAL COLOR NO. 27038.

VENT HOLES SHALL BE DRILLED IN POST AND RAIL MEMBERS AS REQUIRED TO FACILITATE GALVANIZING AND DRAINAGE.

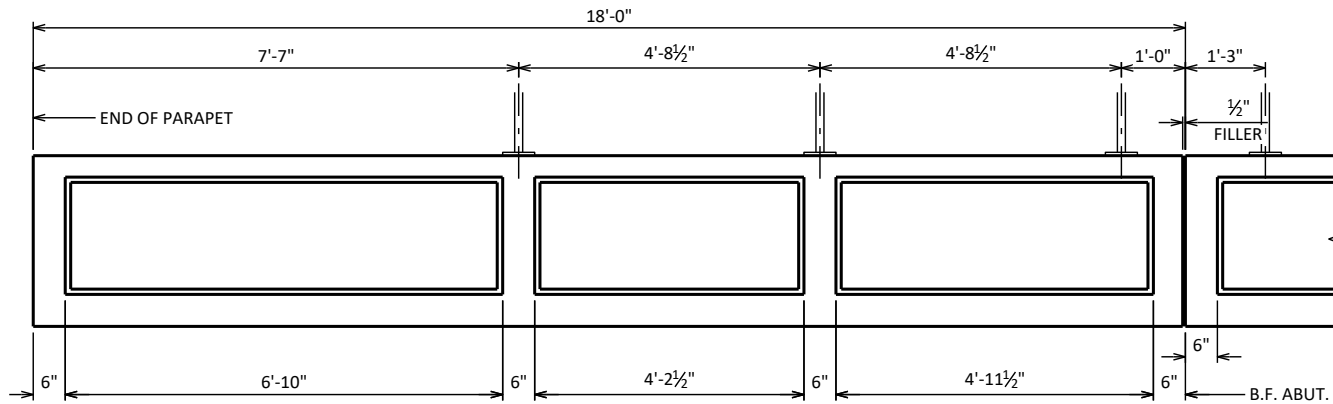
RAILING SHALL BE FABRICATED IN LENGTHS THAT INCLUDE 3 OR 4 POSTS.

TOUCH-UP PAINTING TO BE DONE AT COMPLETION OF STEEL RAILING INSTALLATION TO THE SATISFACTION OF THE ENGINEER AT NO EXTRA COST.

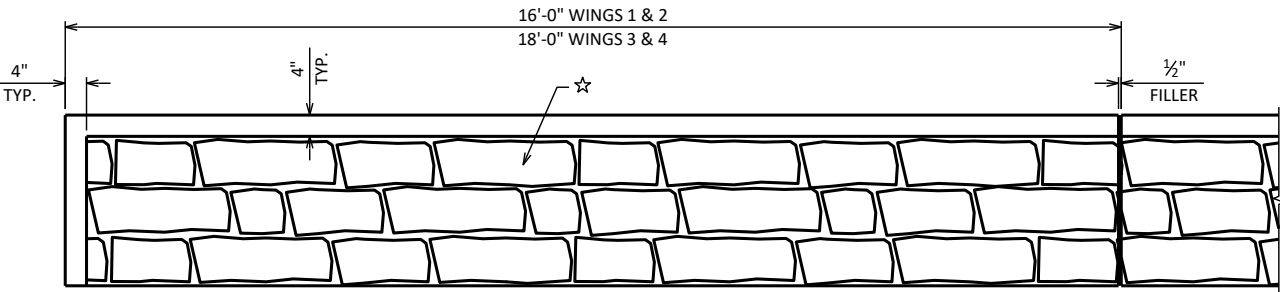
STATE PROJECT NUMBER			
3852-06-70			
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-67-405			
DRAWN BY		MDG	PLANS CK'D MJM
COMBINATION RAILING DETAILS		SHEET 13 OF 14	



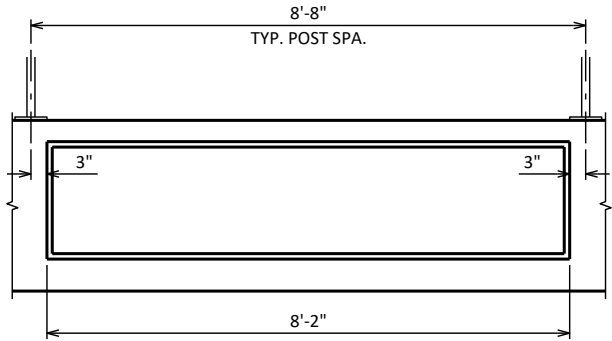
INSIDE ELEVATION OF PPT. @ WING 1 & 2



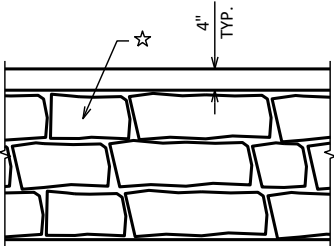
INSIDE ELEVATION OF PPT. @ WING 3 & 4



OUTSIDE ELEVATION OF WINGWALL PPT.



INSIDE ELEVATION OF PPT. IN-SPAN



OUTSIDE ELEV. OF PPT. IN-SPAN

NOTES

☆ ARCHITECTURAL SURFACE TREATMENT

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-67-405			
DRAWN BY MDG		PLANS CK'D MJM	
AESTHETIC DETAILS		SHEET 13 OF 14	

NOTES:

SEE ENVIRONMENTAL COMMITMENTS AND REQUIREMENTS FOR NEED TO INSTALL COFFERDAM. COFFERDAM TO BE INSTALLED PRIOR TO ANY IN STREAM WORK AND MAINTAINED FOR DURATION OF IN STREAM WORK. ALL IN STREAM WORK TO BE DONE UNDER DRY OR NO-FLOW CONDITIONS.

COFFERDAM LOCATION HAS BEEN COORDINATED WITH WDNR AND CAN NOT BE REVISED WITHOUT PRIOR APPROVAL.

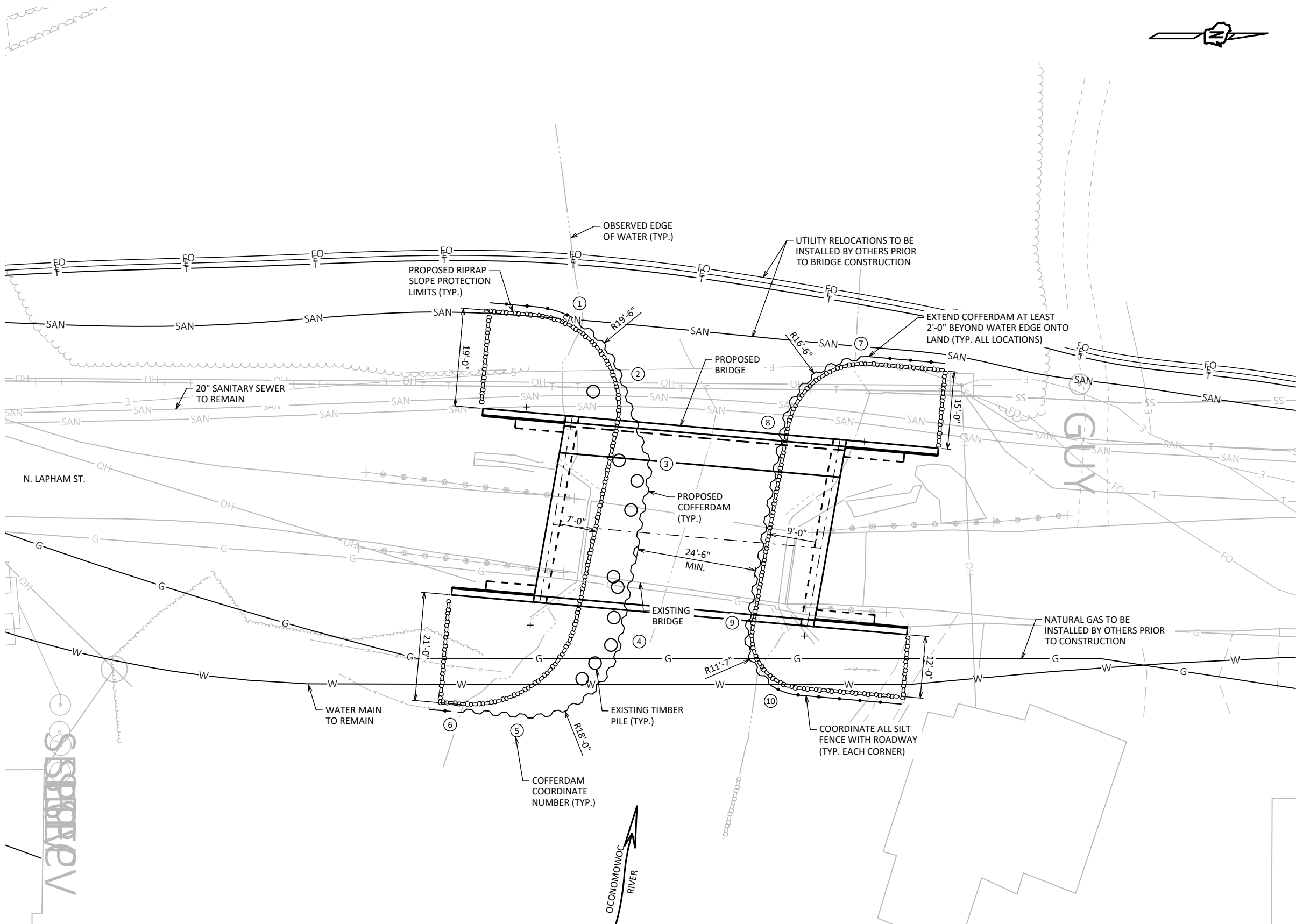
EXISTING UTILITY EXACT DEPTH BELOW PROPOSED COFFERDAM UNKNOWN BUT RECORDS INDICATE EXISTING WATER MAIN IS 10'-0" BELOW THE DEEPEST POINT OF THE RIVER. SANITARY SEWER RELOCATION DEPTH DESIGNED TO BE 6'-0" BELOW THE DEEPEST POINT OF THE RIVER. DRY UTILITY RELOCATION DEPTH DESIGNED TO BE 10'-0" BELOW THE DEEPEST POINT OF THE RIVER.

CONTRACTOR TO REMOVE ALL EXISTING TIMBER PILING TO 1'-0" BELOW STREAMBED ELEVATION. WORK INCIDENTAL TO REMOVING EXISTING STRUCTURES OVER WATERWAY MINIMAL DEBRIS BID ITEM.

CONNECT COFFERDAM TO LAND BASED EROSION CONTROL PROTECTION/SILT FENCE.

COFFERDAM COORDINATE TABLE

NUMBER	NORTHING	EASTING	DESCRIPTION
1	410,239.616	2,372,782.165	SOUTH: START
2	410,249.186	2,372,793.429	SOUTH: PT
3	410,255.010	2,372,811.245	SOUTH: ANGLE
4	410,249.091	2,372,844.827	SOUTH: PC
5	410,229.796	2,372,859.634	SOUTH: PT
6	410,215.879	2,372,858.417	SOUTH: END
7	410,296.283	2,372,789.707	NORTH: START
8	410,279.862	2,372,803.218	NORTH: PT
9	410,273.075	2,372,841.725	NORTH: PC
10	410,277.568	2,372,853.117	NORTH: END



NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-67-405			
		DRAWN BY MDG	PLANS CK'D MJM
COFFERDAM PLAN		SHEET 14 OF 14	

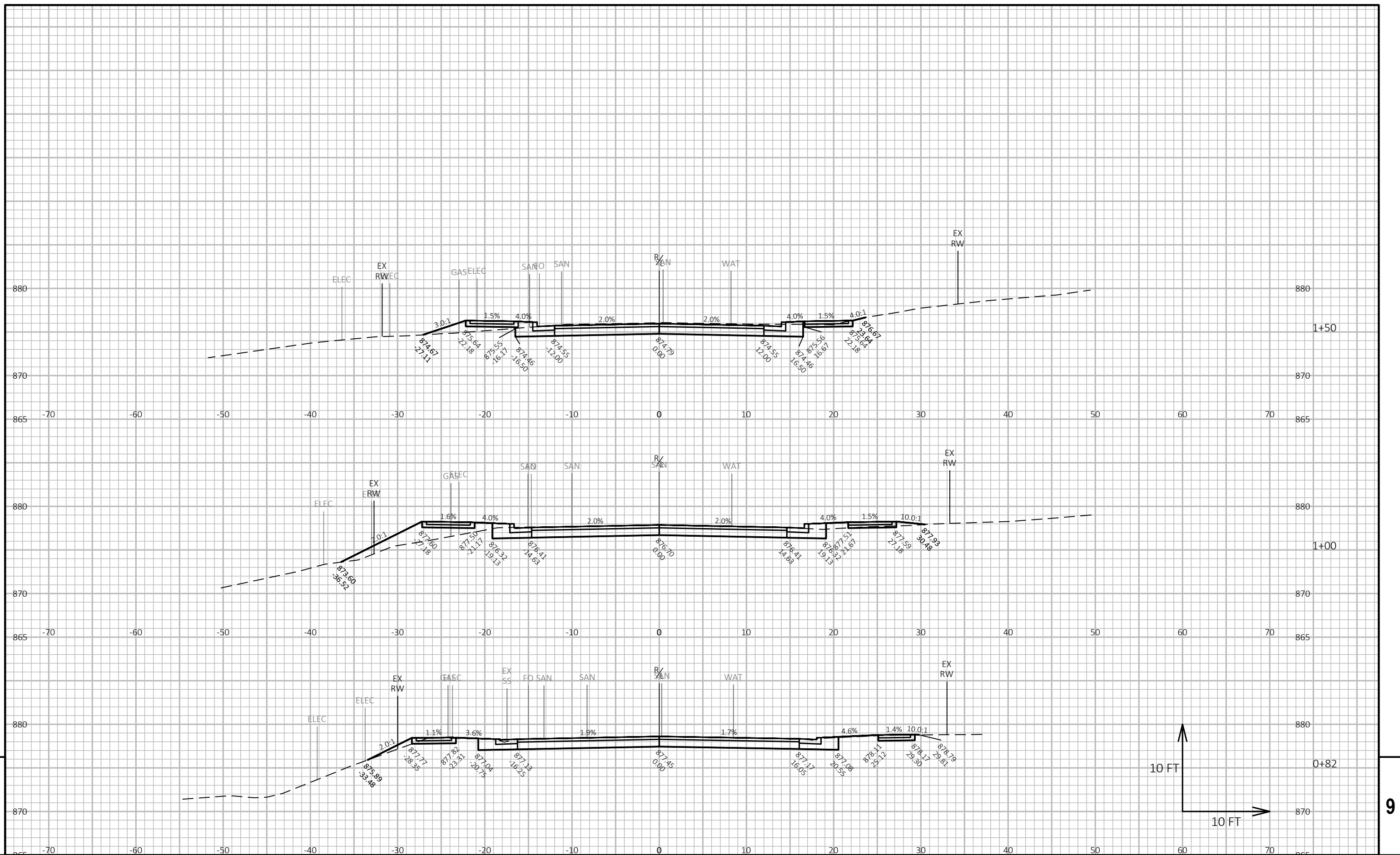
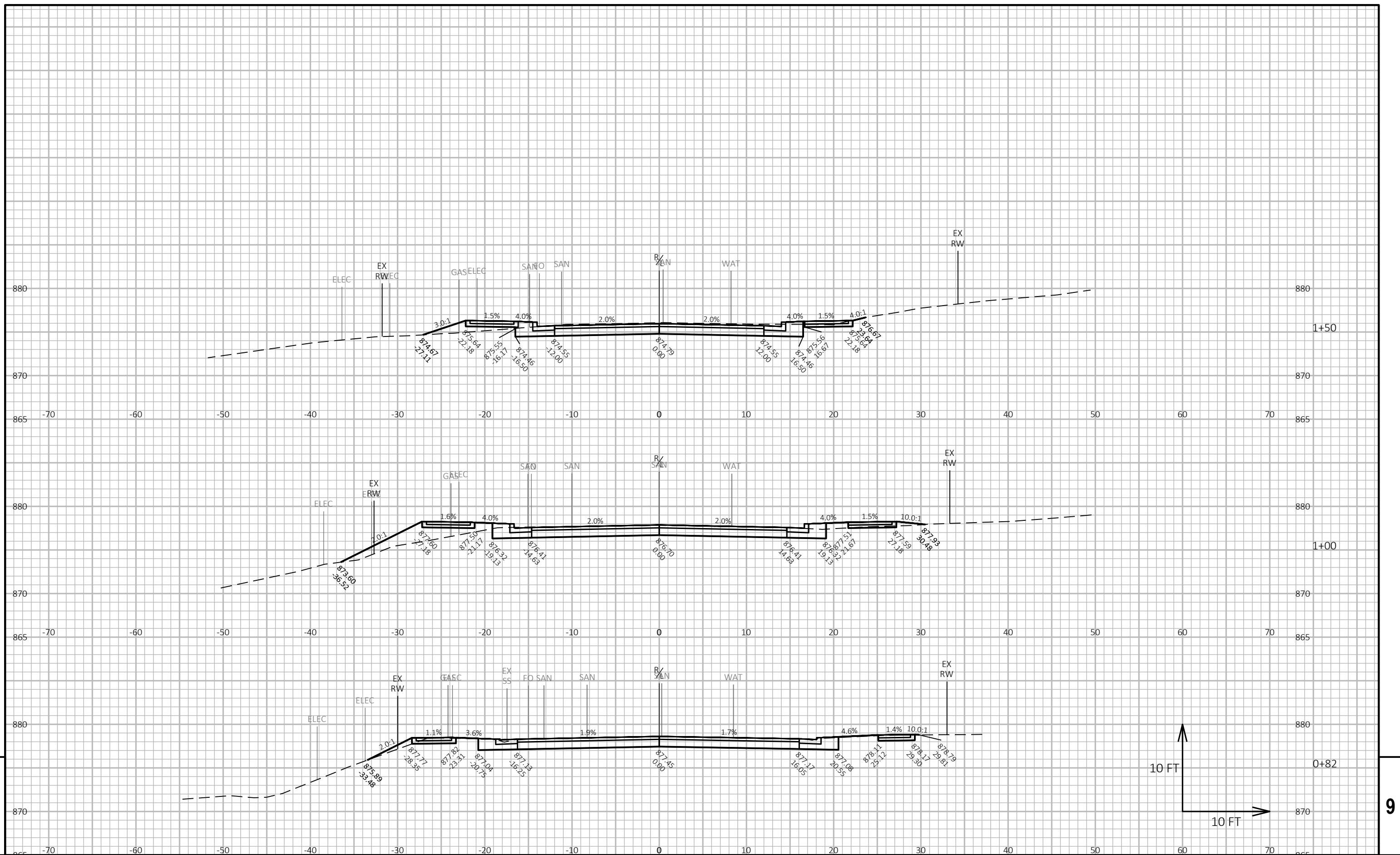
DIVISION 1 - LAPHAM ST (CATEGORY 1000)

STATION	REAL STATION	DISTANCE	AREA (SF)			INCREMENTAL VOL (CY) (UNADJUSTED)			CUMULATIVE VOL (CY)		
			CUT	SALVAGED/UNUSABLE PAVEMENT MATERIAL	FILL	CUT	SALVAGED/UNUSABLE PAVEMENT MATERIAL	FILL	CUT	EXPANDED FILL	MASS ORDINATE
						NOTE 1	NOTE 2	NOTE 3	1.00 NOTE 1	1.20	NOTE 8
3+50.00	AH	350.00	0.00	40.68	7.33	13.52	0	0	0	0	0
4+00.00		400.00	50.00	60.31	7.33	0.76	94	14	13	94	16
4+14.23		414.23	14.23	36.33	6.00	7.93	25	4	2	119	18
4+25.00		425.00	10.77	27.35	5.33	11.27	13	2	4	132	23
4+41.99		441.99	16.99	20.17	4.33	23.09	15	3	11	147	36
4+50.00		450.00	8.01	16.29	3.67	30.24	5	1	8	152	46
4+69.75		469.75	19.75	3.83	3.83	92.31	7	3	45	159	100
4+86.53		486.53	16.78	0.80	4.00	182.74	1	2	85	160	202
5+03.32		503.32	16.79	3.80	4.17	221.51	1	3	126	161	353
5+20.65		520.65	17.33	9.95	4.67	83.15	4	3	98	165	470
5+75.17	AH	575.17	0.00	1.68	4.67	127.39	0	0	0	165	470
5+94.58		594.58	19.41	4.09	5.17	45.00	2	4	62	167	545
6+19.81		619.81	25.23	16.58	6.00	1.95	10	5	22	177	571
6+45.04		645.04	25.23	36.58	7.17	0.81	25	6	1	202	572
6+60.62		660.62	15.58	36.17	7.50	1.53	21	4	1	223	574
6+76.20		676.20	15.58	45.93	7.67	1.15	24	4	1	247	575
7+00.00		700.00	23.80	42.84	7.67	0.87	39	7	1	286	576

DIVISION 2 - LAPHAM ST (CATEGORY 1010)

STATION	REAL STATION	DISTANCE	AREA (SF)			INCREMENTAL VOL (CY) (UNADJUSTED)			CUMULATIVE VOL (CY)		
			CUT	SALVAGED/UNUSABLE PAVEMENT MATERIAL	FILL	CUT	SALVAGED/UNUSABLE PAVEMENT MATERIAL	FILL	CUT	EXPANDED FILL	MASS ORDINATE
						NOTE 1	NOTE 2	NOTE 3	1.00 NOTE 1	1.20	NOTE 8
0+82.20	AH	82.20	0.00	53.52	10.67	2.33	0	0	0	0	0
1+00.00		100.00	17.80	44.61	9.00	21.10	32	6	8	32	10
1+50.00		150.00	50.00	43.93	7.33	5.67	82	15	25	114	40
2+00.00		200.00	50.00	42.91	7.33	3.87	80	14	9	194	50
2+50.00		250.00	50.00	28.45	7.50	25.37	66	14	27	260	83
2+75.00		275.00	25.00	64.02	18.00	25.31	43	12	23	303	110
3+00.00		300.00	25.00	52.35	14.33	22.91	54	15	22	357	137
3+25.00		325.00	25.00	35.40	8.33	20.19	41	10	20	398	161
3+50.00		350.00	25.00	40.68	7.33	13.52	35	7	16	433	180
7+00.00		700.00	0.00	42.84	7.67	0.87	0	0	0	433	180
7+25.00		725.00	25.00	56.69	8.00	0.00	46	7	0	479	180
7+50.00		750.00	25.00	45.63	9.33	0.43	47	8	0	526	180
7+82.77		782.77	32.77	123.80	38.67	0.00	103	29	0	629	180

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 UNUSABLE PAVEMENT EXC VOLUME
4 - MASS ORDINATE	[(CUT - SALVAGED PAVT - ((FILL) * FILL FACTOR)]



PROJECT NO: 3852-06-70	HWY: LOCAL STREET	COUNTY: WAUKESHA	CROSS SECTIONS: N. LAPHAM ST	SHEET	E
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PROJECT NO: 3852-06-70	HWY: LOCAL STREET	COUNTY: WAUKESHA	CROSS SECTIONS: N. LAPHAM ST	SHEET	E
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PROJECT NO: 3852-06-70	HWY: LOCAL STREET	COUNTY: WAUKESHA	CROSS SECTIONS: N. LAPHAM ST	SHEET	E
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PROJECT NO: 3852-06-70	HWY: LOCAL STREET	COUNTY: WAUKESHA	CROSS SECTIONS: N. LAPHAM ST	SHEET	E
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PROJECT NO: 3852-06-70	HWY: LOCAL STREET	COUNTY: WAUKESHA	CROSS SECTIONS: N. LAPHAM ST	SHEET	E
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PLOT DATE : 8/19/2025 12:13 PM
PLOT BY : CHASE ZASTROW
PLOT NAME :
PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.
WISDOT/CADDS SHEET 49

FILE NAME : P:\60-WI\14860-OCONOMOWOC BRIDGE\WORK\00-DESIGN\CAD\38520600\SHEETS\090201-XS.DWG
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PLOT BY : CHASE ZASTROW
PLOT NAME :
PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.
WISDOT/CADDS SHEET 49

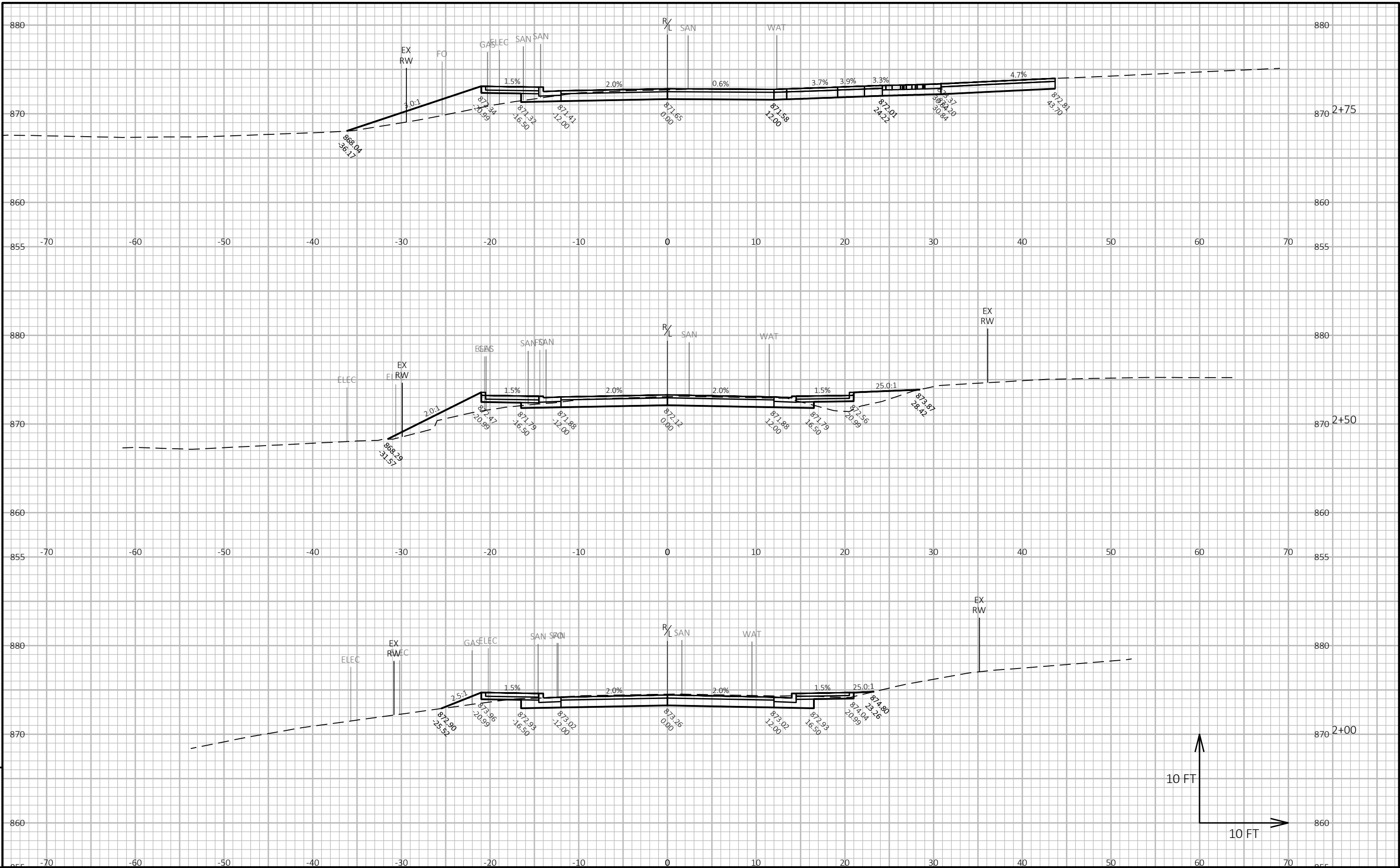
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WISDOT/CADDS SHEET 49

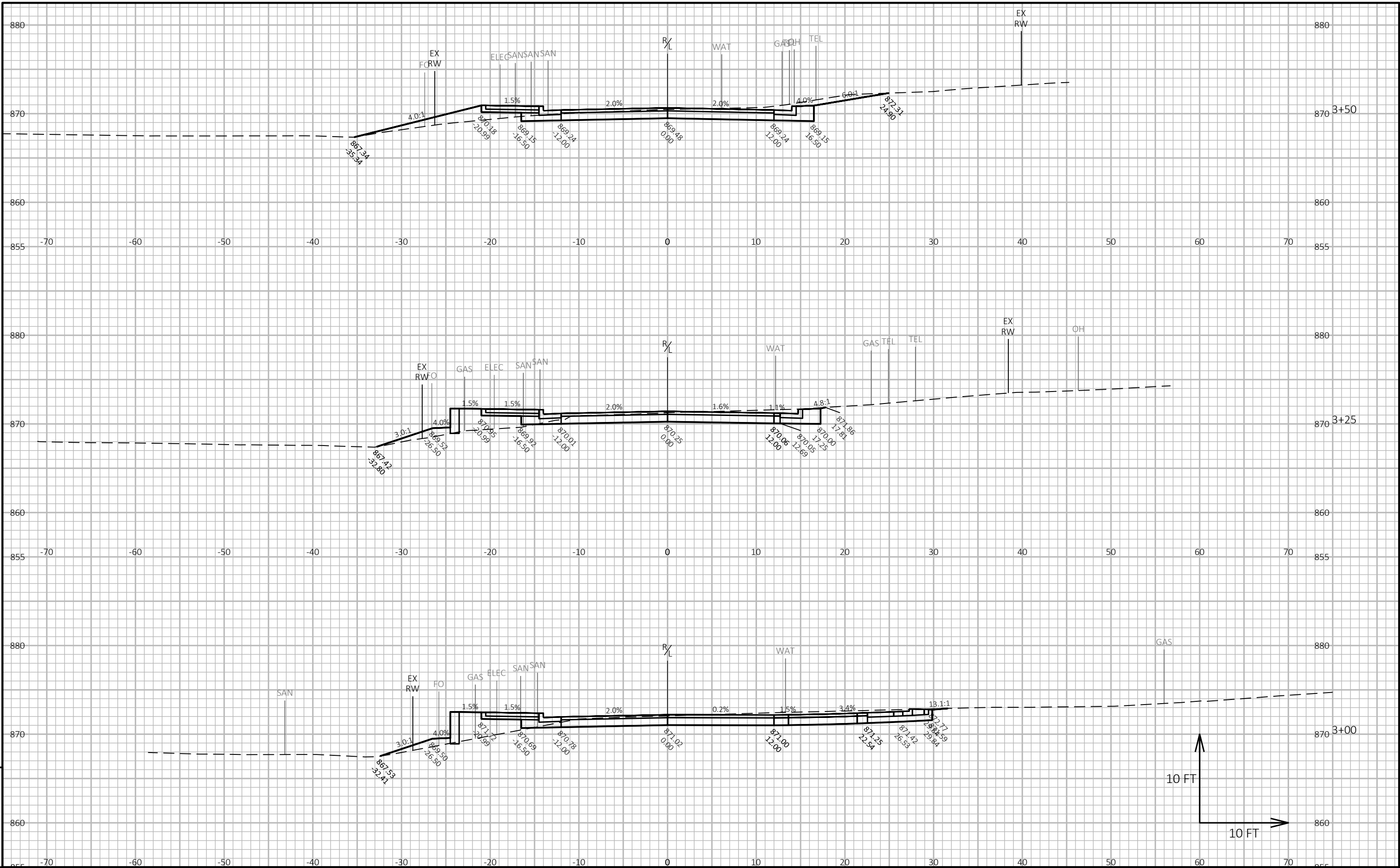
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PLOT BY : CHASE ZASTROW
PLOT NAME :
PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.
WISDOT/CADDS SHEET 49

FILE NAME : P:\60-WI\14860-OCONOMOWOC BRIDGE\WORK\00-DESIGN\CAD\38520600\SHEETS\090201-XS.DWG
LAYOUT NAME - 090201
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PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.
WISDOT/CADDS SHEET 49

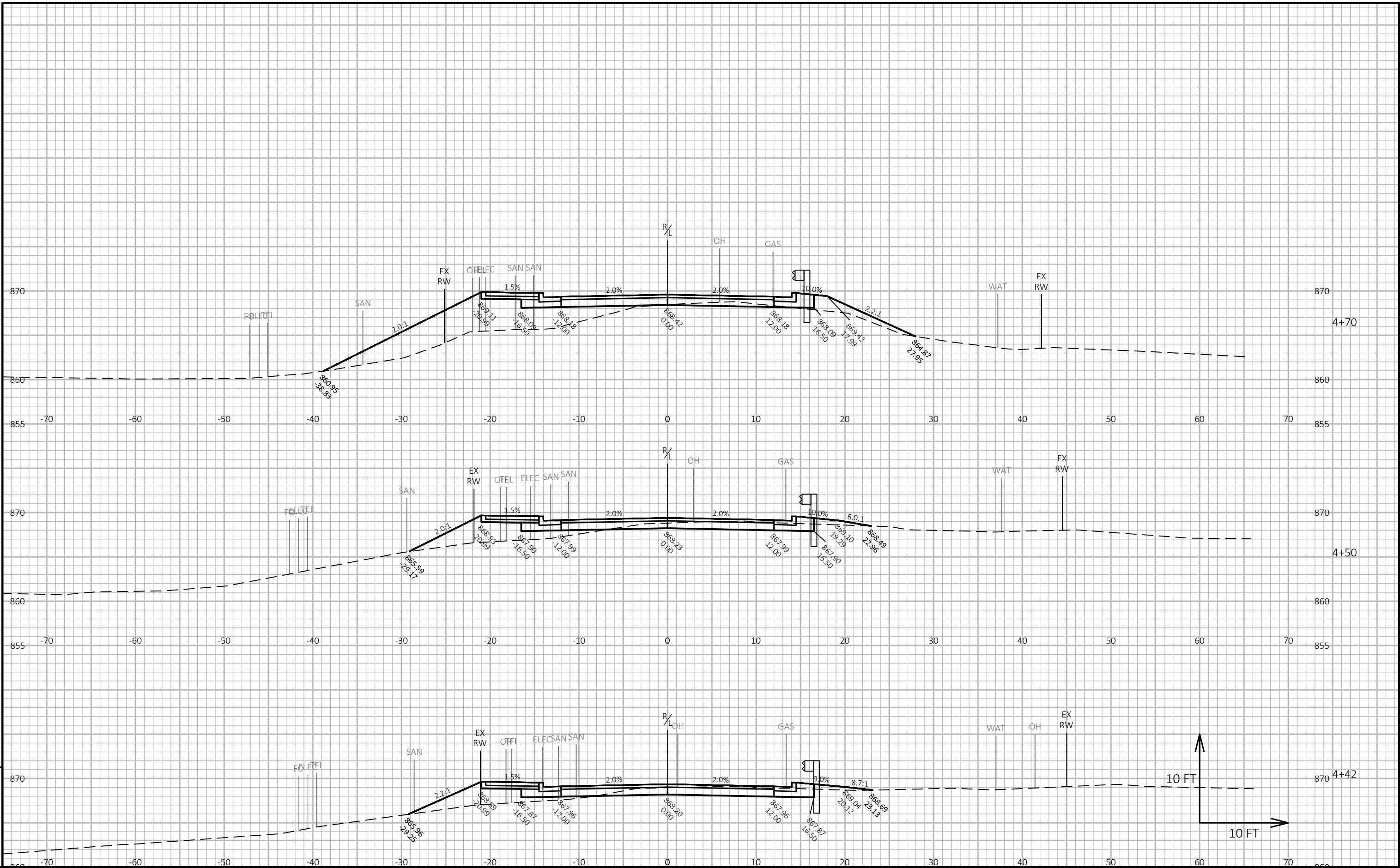
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LAYOUT NAME - 090201
PLOT DATE : 8/19/2025 12:13 PM
PLOT BY : CHASE ZASTROW
PLOT NAME :
PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.
WISDOT/CADDS SHEET 49

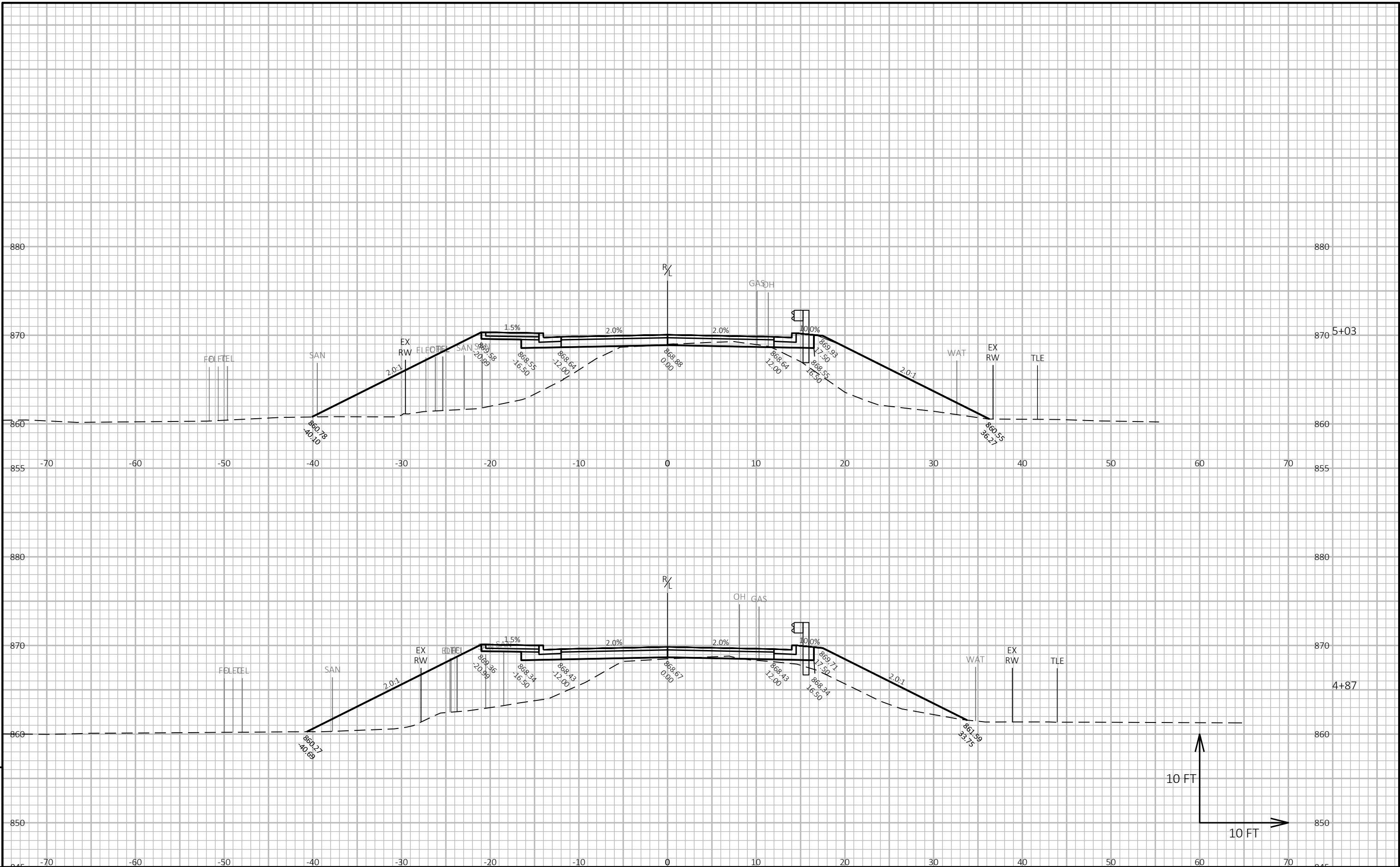
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PLOT DATE : 8/19/2025 12:13 PM
PLOT BY : CHASE ZASTROW
PLOT NAME :
PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.
WISDOT/CADDS SHEET 49



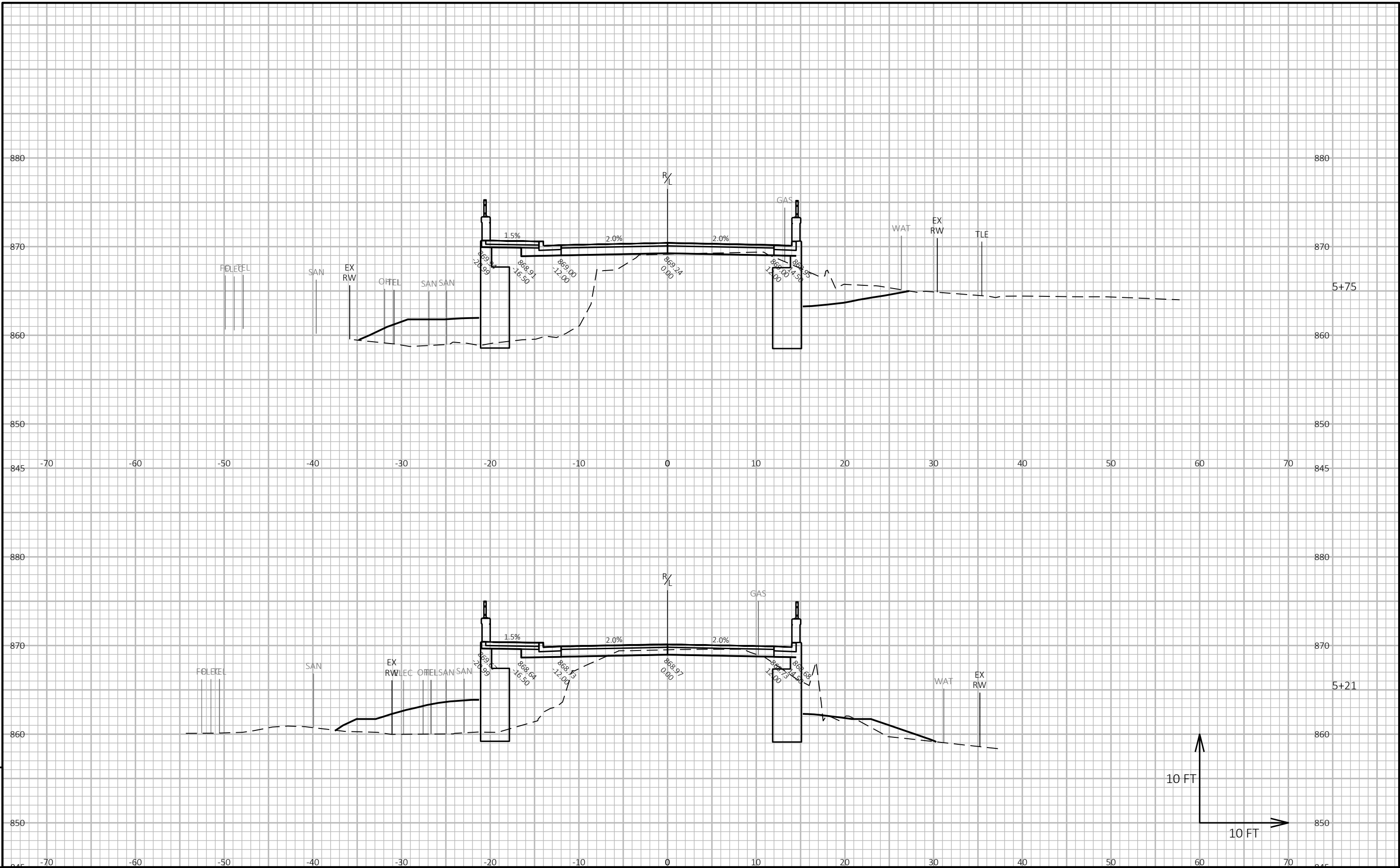




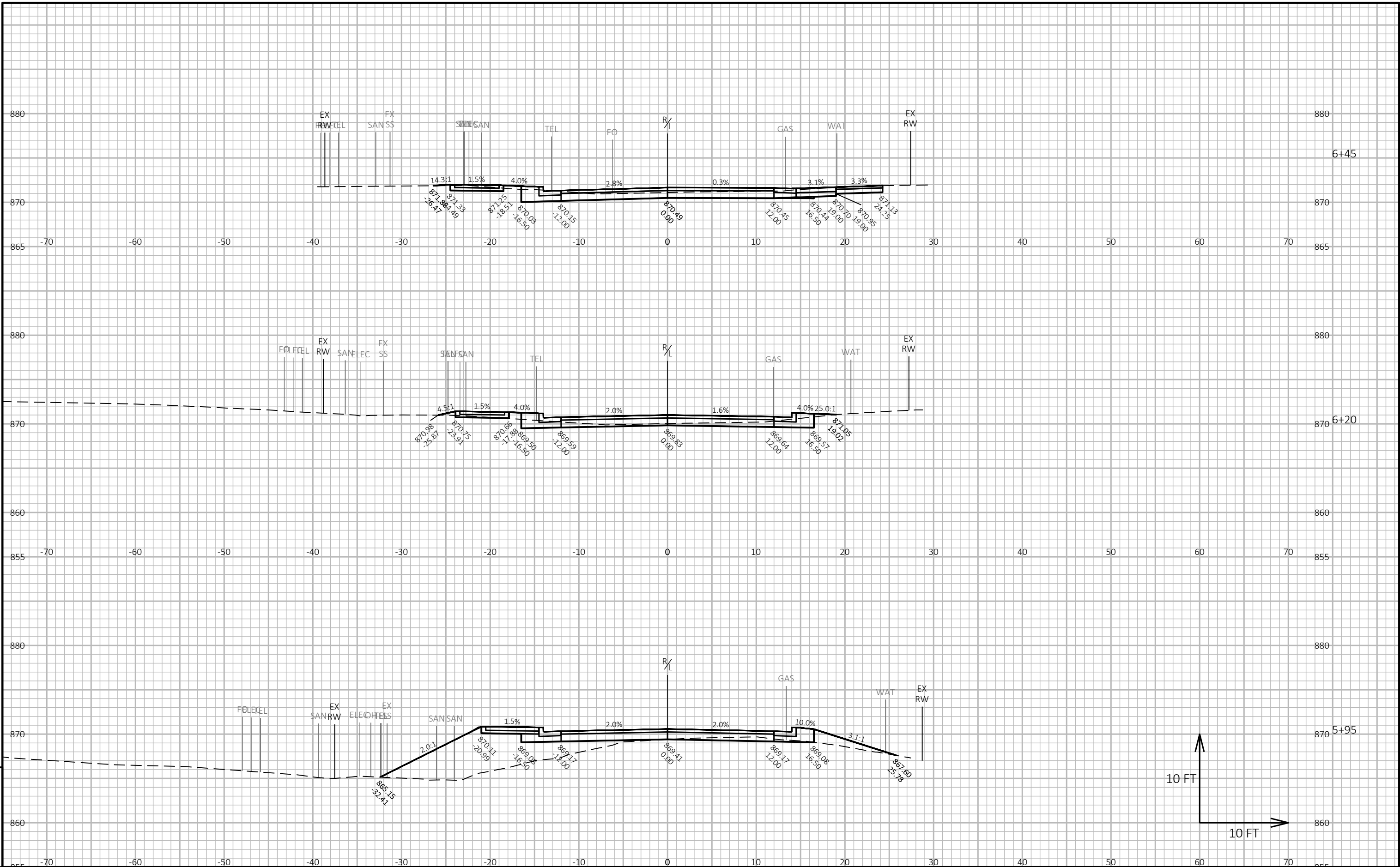


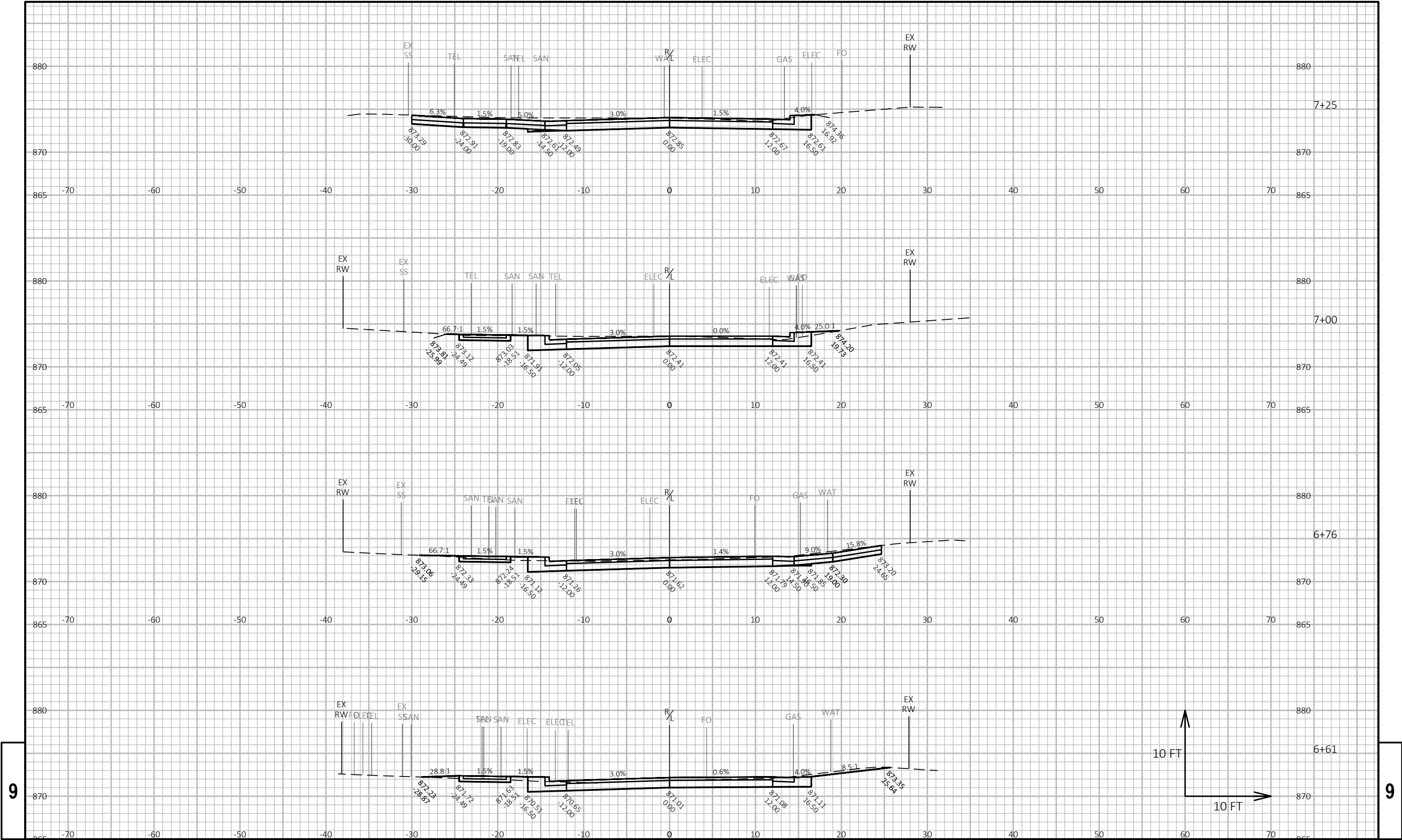


PROJECT NO: 3852-06-70	HWY: LOCAL STREET	COUNTY: WAUKESHA	CROSS SECTIONS: N. LAPHAM ST	SHEET E
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PROJECT NO: 3852-06-70	HWY: LOCAL STREET	COUNTY: WAUKESHA	CROSS SECTIONS: N. LAPHAM ST	SHEET E
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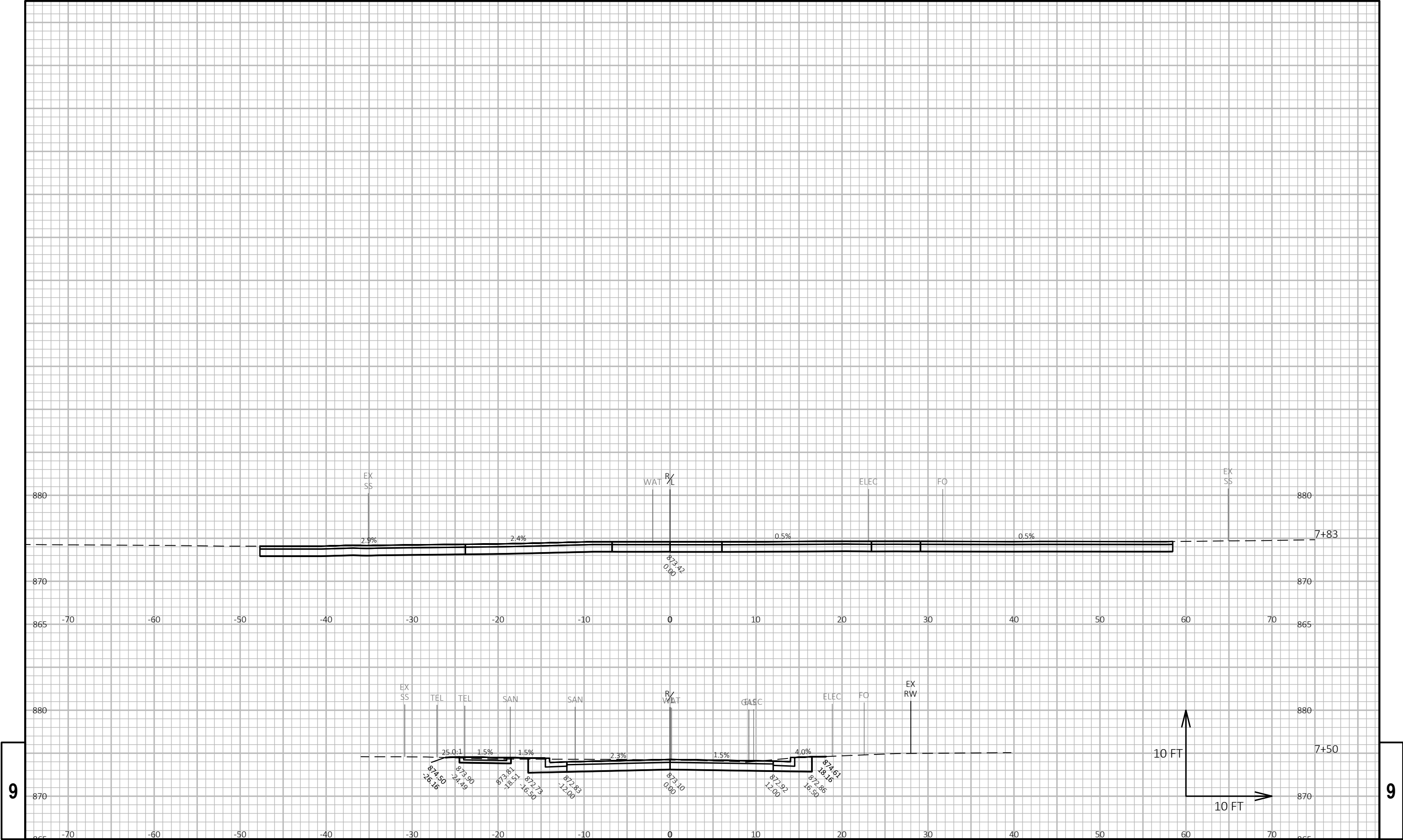




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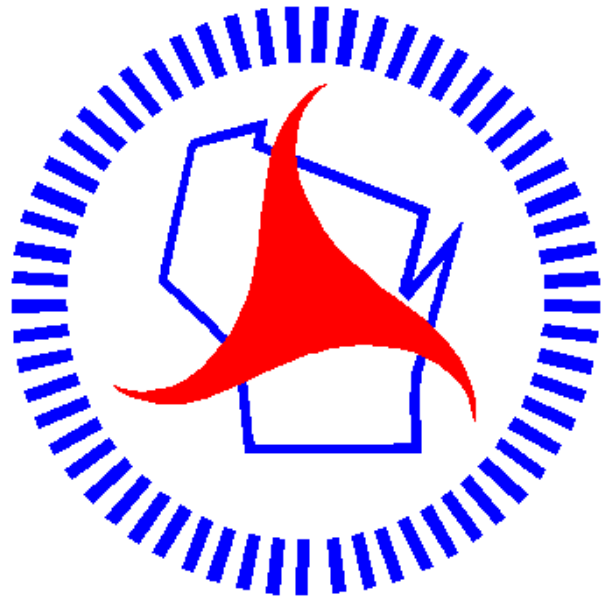
PROJECT NO: 3852-06-70	HWY: LOCAL STREET	COUNTY: WAUKESHA	CROSS SECTIONS: N. LAPHAM ST	SHEET E
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PROJECT NO: 3852-06-70	HWY: LOCAL STREET	COUNTY: WAUKESHA	CROSS SECTIONS: N. LAPHAM ST	SHEET E
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