

WKE  
PROJECT ID:  
WITH: N/A

1310-14-70

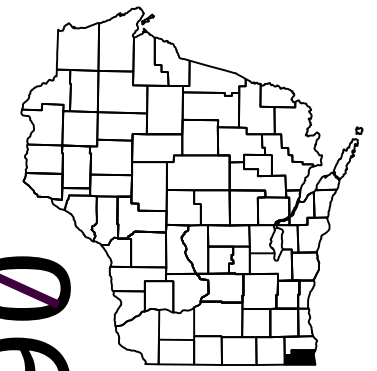
COUNTY:  
KENOSHA

MAY 2023

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 = 320



# STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION

## PLAN OF PROPOSED IMPROVEMENT

# GENEVA ROAD, TOWN OF WHEATLAND

S CTH W TO 1750 FEET EAST

STH 50

KENOSHA COUNTY

STATE PROJECT NUMBER  
**1310-14-70**

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
1310-14-70		

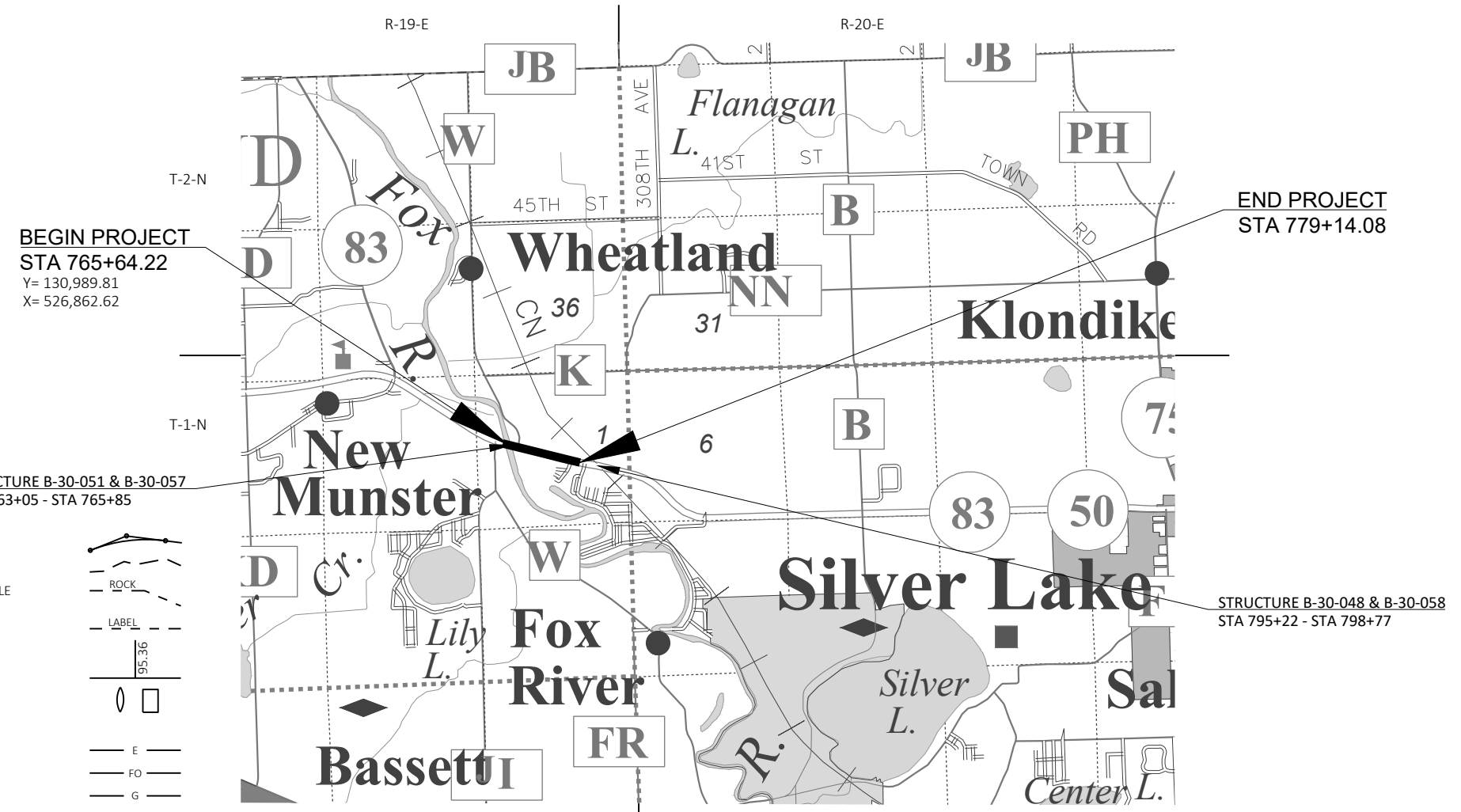
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DESIGN DESIGNATION

A.A.D.T.	2024	=	20,200
A.A.D.T.	2044	=	25,300
D.H.V.		=	3,420
D.D.		=	60/40
T.		=	13.2%
DESIGN SPEED		=	60
ESALS		=	11,000,000

CONVENTIONAL SYMBOLS

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

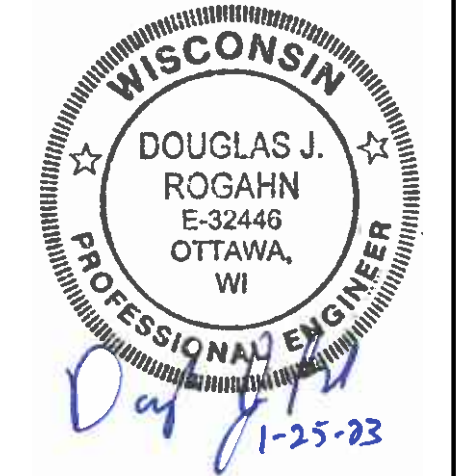


LAYOUT  
SCALE 0 1 MI  
TOTAL NET LENGTH OF CENTERLINE = 0.256

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

ELEVATIONS ARE REFERENCED TO NAVD 88 (2012). GPS DERIVED ELEVATIONS ARE BASED ON GEOID 12A.

ORIGINAL PLANS PREPARED BY  
**GRAEF** 275 W. Wisconsin Avenue, Suite 300  
Milwaukee, WI 53203



STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

PREPARED BY	
Surveyor	WISDOT
Designer	GRAEF
Project Manager	MARK WILFERT
Regional Examiner	
Regional Supervisor	REEM SHAHIN

APPROVED FOR THE DEPARTMENT  
DATE 2/1/23 Mark Wilfert  
(Signature)

E

GENERAL NOTES

NO TREES OR SHRUBS ARE TO BE REMOVED UNLESS INDICATED FOR REMOVAL BY THE ENGINEER.

ALL RADIUS DIMENSIONS FOR CURB & GUTTER ARE GIVEN TO THE FLANGE. ALL ELEVATIONS ALONG CURB & GUTTER ARE GIVEN TO THE FLANGE. OFFSETS NOTED ARE TO THE FLANGE OR EDGE OF LANE IF NO CURB, UNLESS OTHERWISE NOTED.

THE LOCATION OF KNOWN EXISTING UTILITIES IN THE VICINITY OF THE PROJECT ON THE PLANS IS APPROXIMATE. THERE MAY BE OTHER UTILITIES IN THE AREA THAT ARE NOT SHOWN.

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

SIGNS IN CONFLICT WITH TRAFFIC CONTROL "IN USE" SHALL BE COVERED AS DIRECTED BY THE ENGINEER AND PAID FOR UNDER THE ITEM TRAFFIC CONTROL COVERING SIGNS TYPE II.

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

CONCRETE JOINTS SHALL MATCH ABUTTING PAVEMENT AND CURB AND GUTTER JOINTS UNLESS OTHERWISE DESIGNATED BY THE ENGINEER.

THE LOCATIONS OF LONGITUDINAL JOINTS IN HMA PAVEMENT SHALL BE APPROVED BY THE ENGINEER.

HMA PAVEMENT WHERE INDICATED ON THE PLANS SHALL CONSIST OF LAYERS AS FOLLOWS UNLESS OTHERWISE NOTED ON THE PLANS OR DIRECTED BY THE ENGINEER.

2" DEPTH 2" OF HMA PAVEMENT 4 MT 58-28 S AS THE UPPER LAYER

4" DEPTH 1.75" OF HMA PAVEMENT 4 MT 58-28 S, AS THE UPPER LAYER  
2.25" OF HMA PAVEMENT 3 MT 58-28 S, AS THE LOWER LAYER

5" DEPTH 2" OF HMA PAVEMENT 4 MT 58-28 S, AS THE UPPER LAYER  
3" OF HMA PAVEMENT 3 MT 58-28 S, AS THE LOWER LAYER

3" ASPHALTIC DRIVEWAYS AND FIELD ENTRANCES SHALL BE CONSTRUCTED AS ONE LAYER.

RESHAPE, RESTORE AND FINISH ALL PREVIOUSLY GRASSED AREAS DISTURBED BY OPERATIONS OUTSIDE OF THE NORMAL CONSTRUCTION LIMITS AT NO EXPENSE TO THE DEPARTMENT.

ANY REINFORCEMENT LOCATED IN THE EXISTING CONCRETE PAVEMENT SHALL BE CONSIDERED INCIDENTAL TO THE REMOVING PAVEMENT ITEM AND NO ADDITIONAL COMPENSATION WILL BE GRANTED.

VERIFY EXISTING PAVEMENT ELEVATIONS AT ALL TIE-INS TO EXISTING PAVEMENT PRIOR TO CONSTRUCTION. NOTIFY ENGINEER IF DISCREPANCY IS FOUND BETWEEN PROPOSED PLAN ELEVATIONS AND EXISTING PAVEMENT ELEVATIONS.

STANDARD ABBREVIATIONS

AEW	APRON END WALL
AGG	AGGREGATE
BAD	BASE AGGREGATE DENSE
BM	BENCH MARK
C&G	CURB AND GUTTER
C/L	CENTER OR CONSTRUCTION LINE
CONC	CONCRETE
CP	CULVERT PIPE
CPCM	CULVERT PIPE CORRUGATED METAL
CPRC	CULVERT PIPE REINFORCED CONCRETE
CPRCHE	CULVERT PIPE REINFORCED CONCRETE HORIZONTAL ELLIPTICAL
CSCP	CORRUGATED STEEL CULVERT PIPE
CSPA	CORRUGATED STEEL PIPE ARCH
CSD	CONCRETE SURFACE DRAIN
CY	CUBIC-YARD
D	DEGREE OF CURVE
Δ	DELTA
DISCH	DISCHARGE
EOP	EDGE OF PAVEMENT
FE	FIELD ENTRANCE
HERCP	HORIZONTAL ELLIPTICAL REINFORCED CONCRETE PIPE
HMA	HOT MIX ASPHALT
INV	INVERT
L	LENGTH OF CURVE
LHF	LEFT HAND FORWARD
LT	LEFT
MIN	MINIMUM
M/L	MATCHLINE
NB	NORTHBOUND
NC	NORMAL CROWN
NTS	NOT TO SCALE
PAVT	PAVEMENT
PB	PULL BOX
PC	POINT-OF-CURVE
PCC	POINT OF COMPOUND CURVE
PE	PRIVATE ENTRANCE
PI	POINT OF INTERSECTION
PLE	PERMANENT LIMITED EASEMENT
PT	POINT OF TANGENT
PVC	POINT OF VERTICAL CURVE
PVI	POINT OF VERTICAL INTERSECTION
PVT	POINT OF VERTICAL TANGENT
R	RADIUS OF CURVE
R/L	REFERENCE LINE
R/W	RIGHT OF WAY
RAD	RADIUS
RC	REVERSE CROWN
RCAEW	APRON ENDWALL FOR CULVERT PIPE REINFORCED CONCRETE
RCHES	REINFORCED CONCRETE HORIZONTAL ELLIPTICAL STORM SEWER
RCPSS	REINFORCED CONCRETE PIPE - STORM SEWER
REQD	REQUIRED
RHF	RIGHT HAND FORWARD
RO	RUN OFF LENGTH
RT	RIGHT
SALV	SALVAGED
SB	SIGNAL BASE
SDD	STANDARD DETAIL DRAWING
SE	SUPER ELEVATION
SF	SQUARE FOOT
STA	STATION
SY	SQUARE YARD
T	TANGENT LENGTH
TC	TOP OF CURB
TLE	TEMPORARY LIMITED EASEMENT

WISDOT

PROJECT MANAGER  
MR. MARK WILFERT  
141 NW BARSTOW STREET  
WAUKESHA, WI 53187  
(262) 548-5936  
MARK.WILFERT@DOT.WI.GOV

DESIGN CONTACT

GRAEF  
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(414) 266-9023  
DOUG.ROGAHN@GRAEF-USA.COM

DEPT. OF NATURAL RESOURCES

WISCONSIN DEPT. OF NATURAL RESOURCES  
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141 NW BARSTOW STREET #180  
WAUKESHA, WI 53188  
(262) 623-0194  
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UTILITIES

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CDAILEY@ATCLLC.COM

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411 7TH STREET  
RACINE, WI 53403  
(920) 676-3958  
MV3658@ATT.COM

SPECTRUM MID-AMERICA  
MR. BEAU ABUYA  
1320 N DR. MARTIN LUTHER KING JR DRIVE  
MILWAUKEE, WI 53212  
(414) 758-9241  
BEAU.ABUYA@CHARTER.COM

TDS TELECOM  
MR. DAVE HUWE  
525 JUNCTION ROAD  
MADISON, WI 53717  
(608) 664-4312  
DAVE.HUWE@TDSTELECOM.COM

WE ENERGIES ELECTRIC OPERATIONS  
SEND ALL CORRESPONDENCE TO:

UTILITY COORDINATOR  
WE ENERGIES - ELECTRICITY  
500 S. 116TH STREET  
WEST ALLIS, WI 53214  
(414) 221-2738  
WE-UTILITY-RELOCATIONS@WE-ENERGIES.COM

CONSTRUCTION FIELD CONTACT:  
WE ENERGIES ELECTRIC  
MR. ADAM PSICIHULIS  
700 S. KANE STREET  
BURLINGTON, WI 53105  
(262) 763-1011

WE ENERGIES GAS OPERATIONS  
SEND ALL CORRESPONDENCE TO:

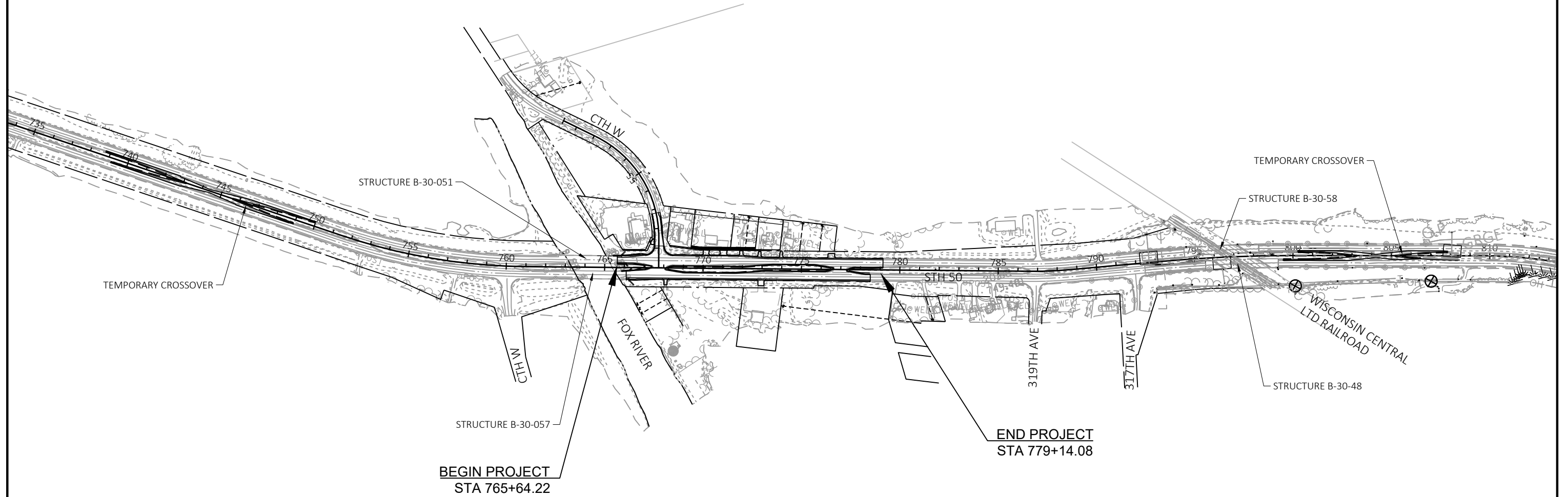
WE ENERGIES UTILITY COORDINATOR  
500 S. 116TH STREET  
WEST ALLIS, WI 53214  
(414) 221-2738  
WE-UTILITY-RELOCATIONS@WE-ENERGIES.COM

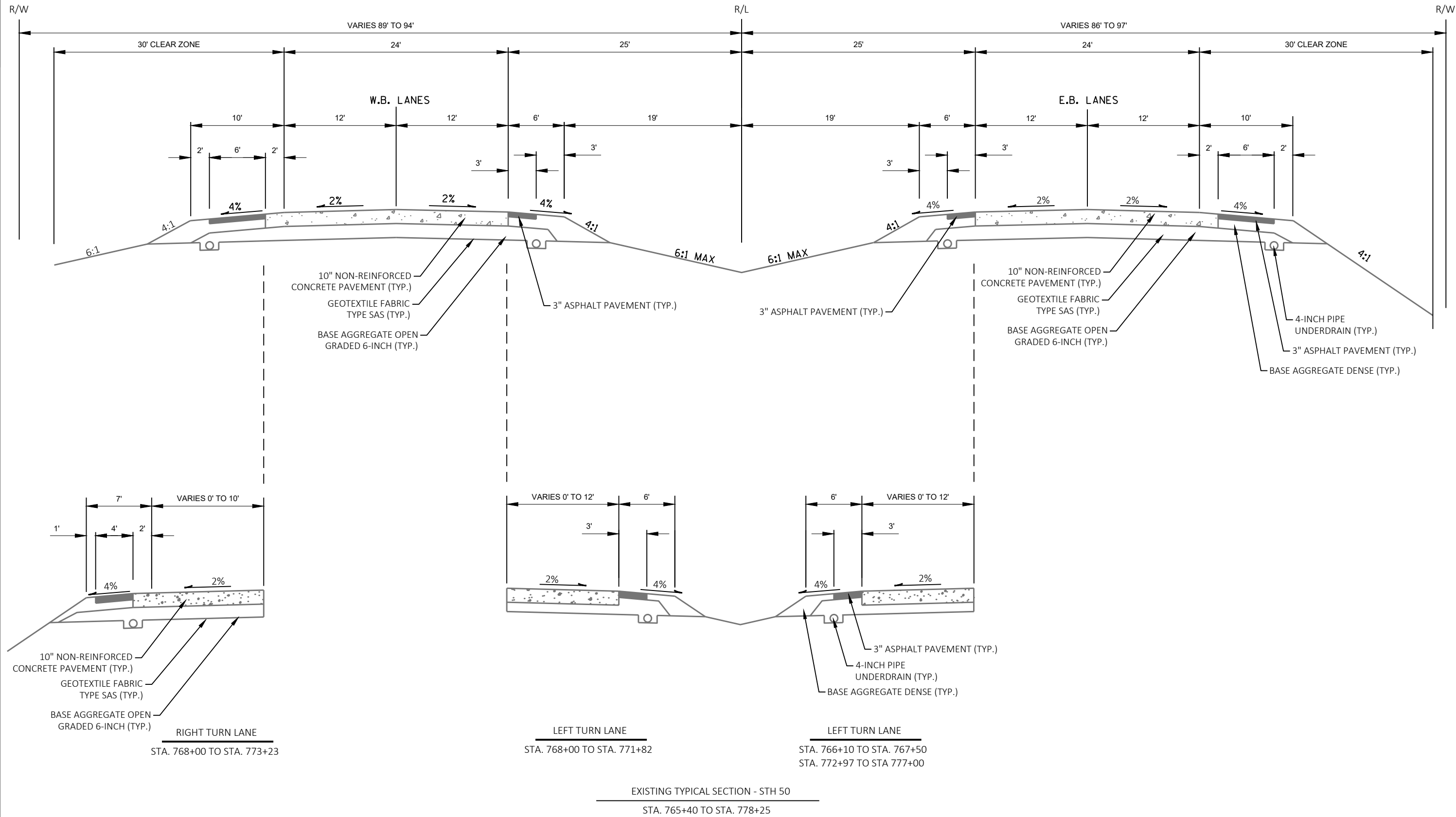
CONSTRUCTION FIELD CONTACT:  
WE ENERGIES GAS  
MR. SCOTT HOLSTEIN  
700 S. KANE STREET  
BURLINGTON, WI 53105  
(262) 763-1011

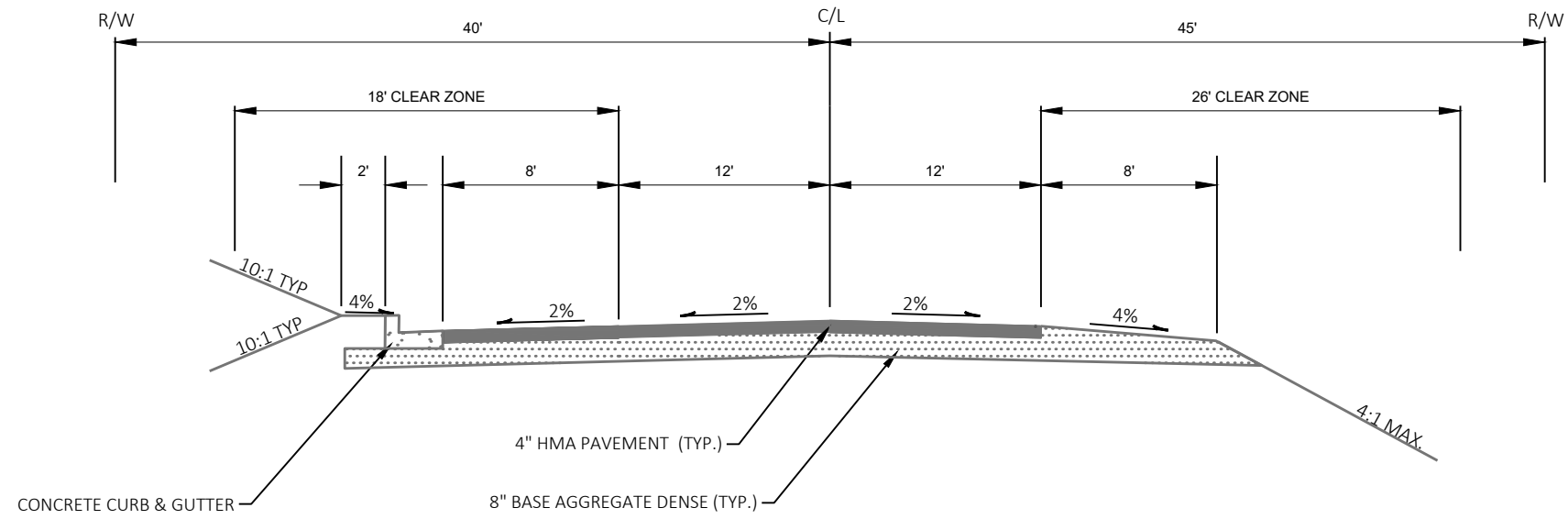


Dial 811 or (800)242-8511

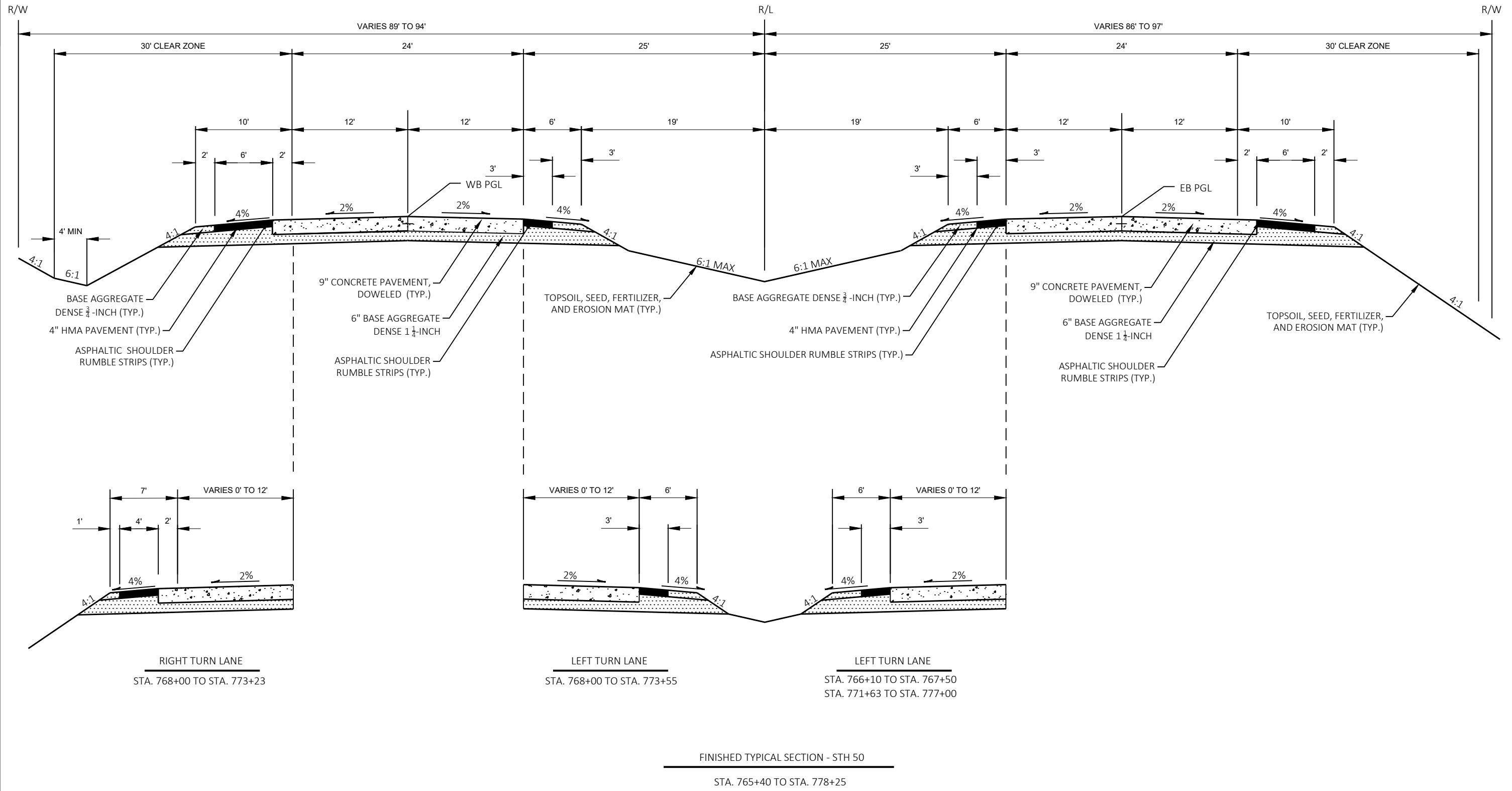
www.DiggersHotline.com

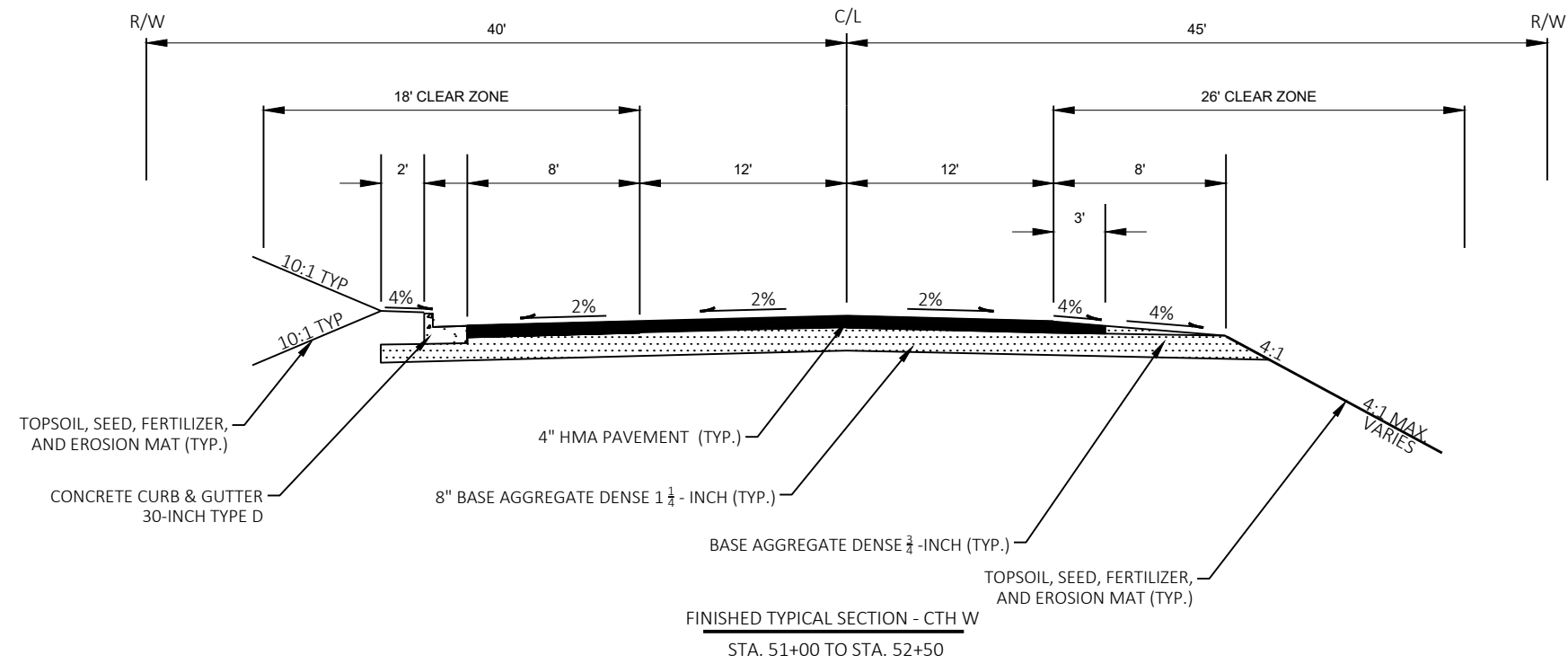


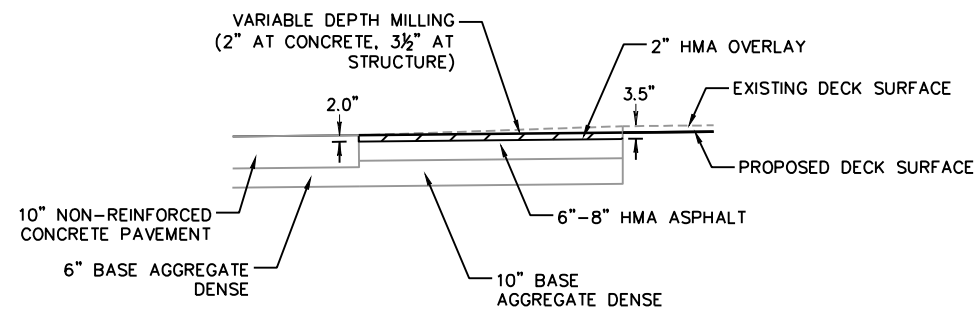




EXISTING TYPICAL SECTION - CTH W  
 STA. 51+00 TO STA. 52+50

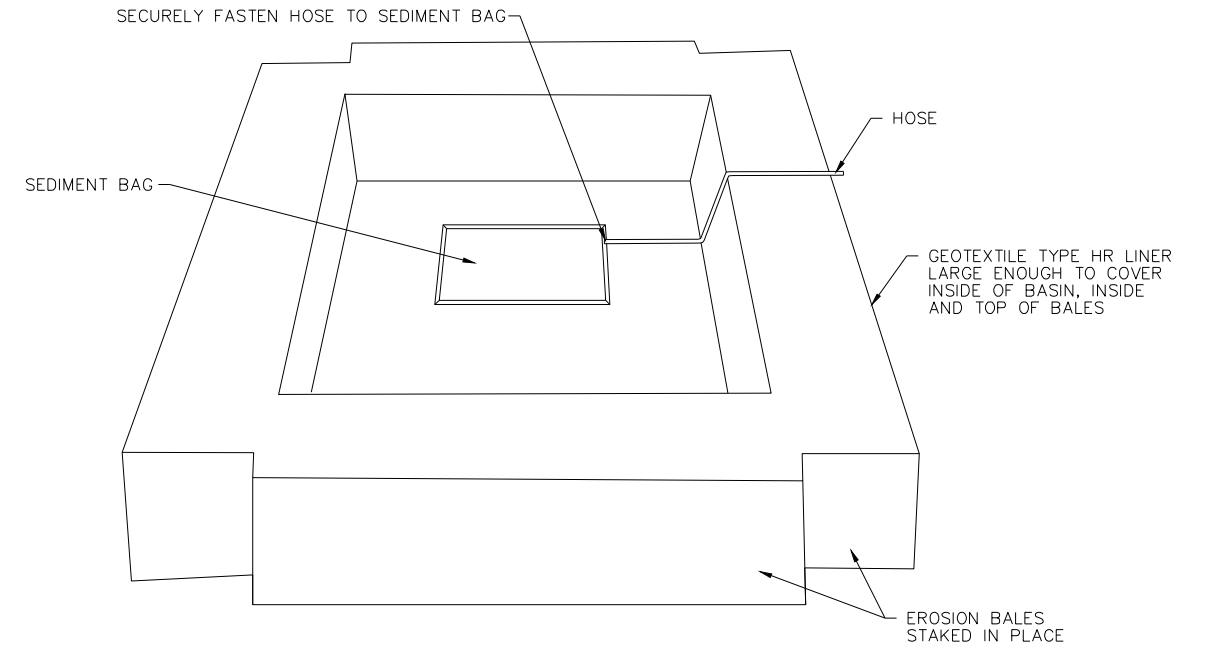






STRUCTURE APPROACH VARIABLE DEPTH MILLING

- STA 794+50 - STRUCTURE (WB)
- STA 795+50 - STRUCTURE (EB)
- STRUCTURE - STA 798+25 (WB)
- STRUCTURE - STA 799+25 (EB)



EXAMPLE TEMPORARY SETTLING BASIN DETAIL

(SIZE TO BE DETERMINED IN FIELD AS INDICATED BELOW:)

STORAGE VOLUME ( C.F.) = 16 X GPM (PUMP RATE)

EXAMPLE:  
CONTRACTOR INDICATES PUMP CAPABLE OF 50 GPM  
HEIGHT OF BALES = 1.5 FT.

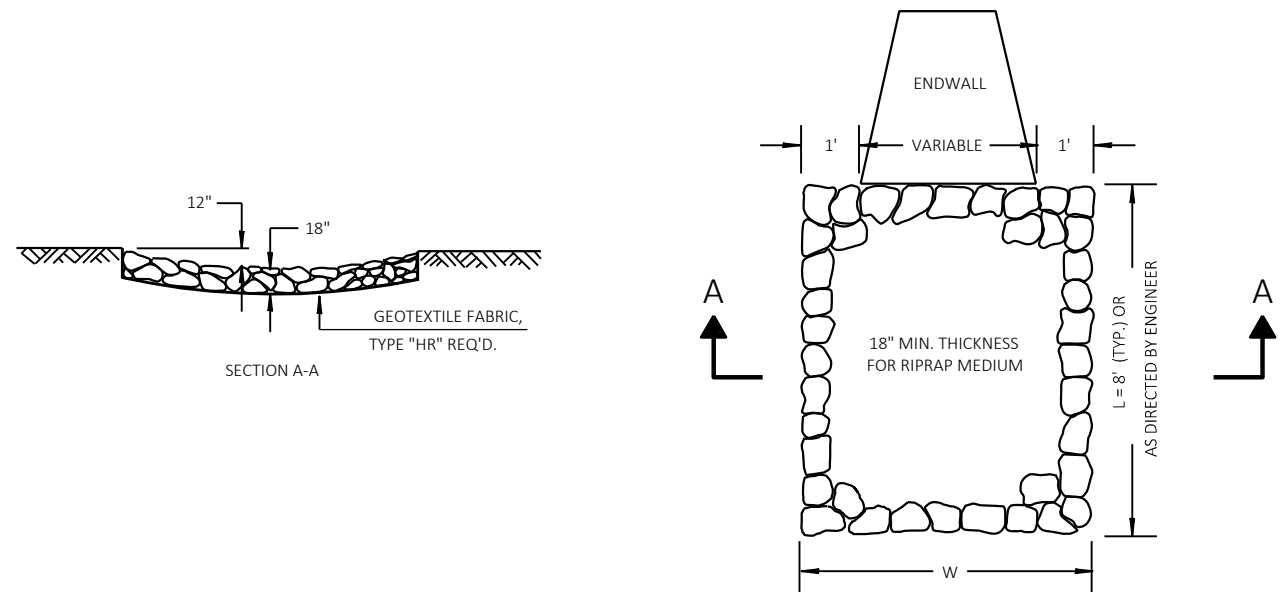
SOLUTION:  
SV ( C.F.) = 16 X 50  
SV = 800 C.F.  
 $\frac{800 \text{ C.F.}}{1.5 \text{ FT.}} = 533 \text{ S.F.}$

USE A 20 FT. X 27 FT. BASIN

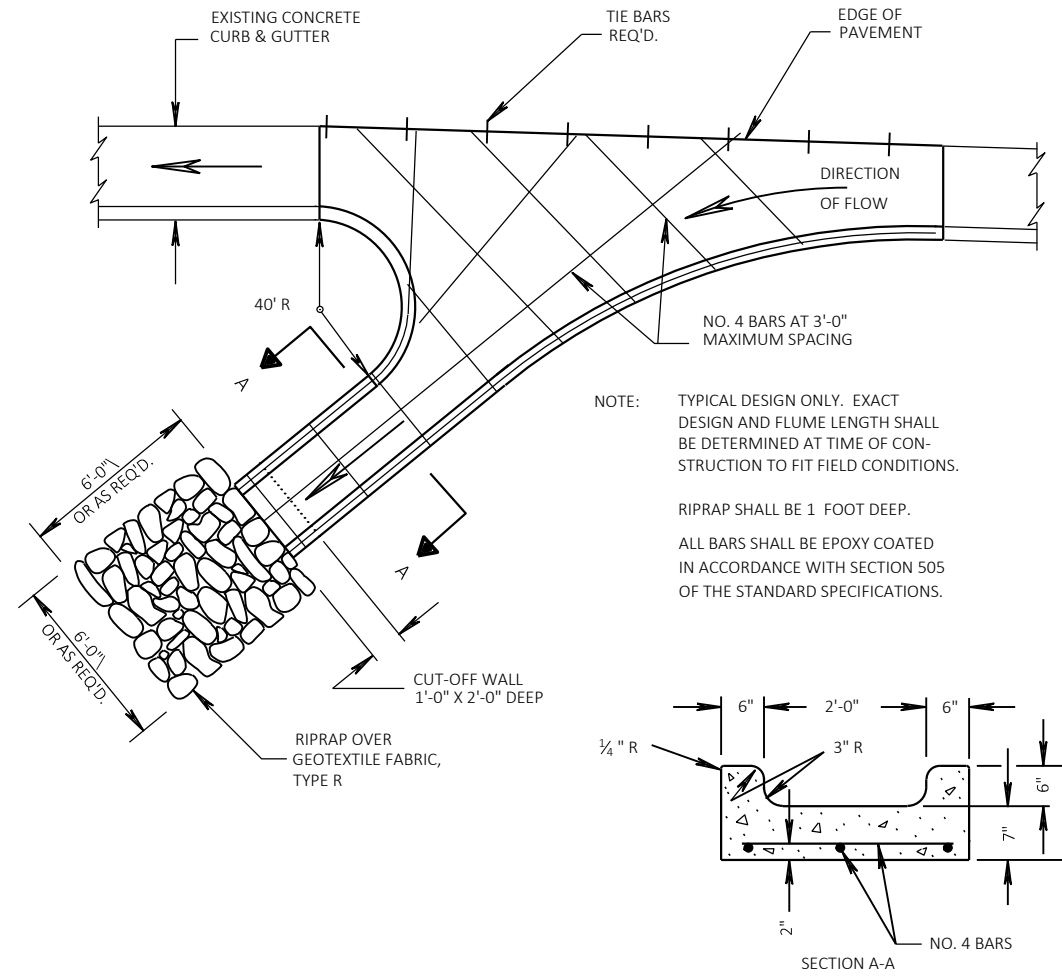
NOTES

1. CONTRACTOR SHALL PUMP TURBID WATER FROM EXCAVATION TO SEDIMENT BAG PLACED INSIDE FABRIC LINED STAKED BALE ENCLOSURE PRIOR TO DISCHARGING TO DITCHES/INLETS/WETLANDS OR WATERWAYS.
2. SEDIMENT BAG TO BE PLACED IN AN UPLAND VEGETATED AREA OR EQUIVALENT LOCATION APPROVED BY THE ENGINEER.
3. BASIN TO BE KEPT LESS THAN 10% FULL OF SEDIMENT. GEOTEXTILE FABRIC AND SEDIMENTS TO BE DISPOSED BY THE CONTRACTOR OFF OF THE PROJECT SITE.
4. TEMPORARY SETTLING BASIN AND SEDIMENT BAG TO BE INCIDENTAL TO CONTRACT.
5. SEDIMENT BAG TO BE REPLACED AS NECESSARY AND IS INCIDENTAL TO CONTRACT.
6. SIZE TO BE DETERMINED BY THE CONTRACTOR AS PART OF THE ECIP SUBMITTAL.





RIPRAP MEDIUM TREATMENT AT CULVERTS








NOTE: TYPICAL DESIGN ONLY. EXACT DESIGN AND FLUME LENGTH SHALL BE DETERMINED AT TIME OF CONSTRUCTION TO FIT FIELD CONDITIONS.

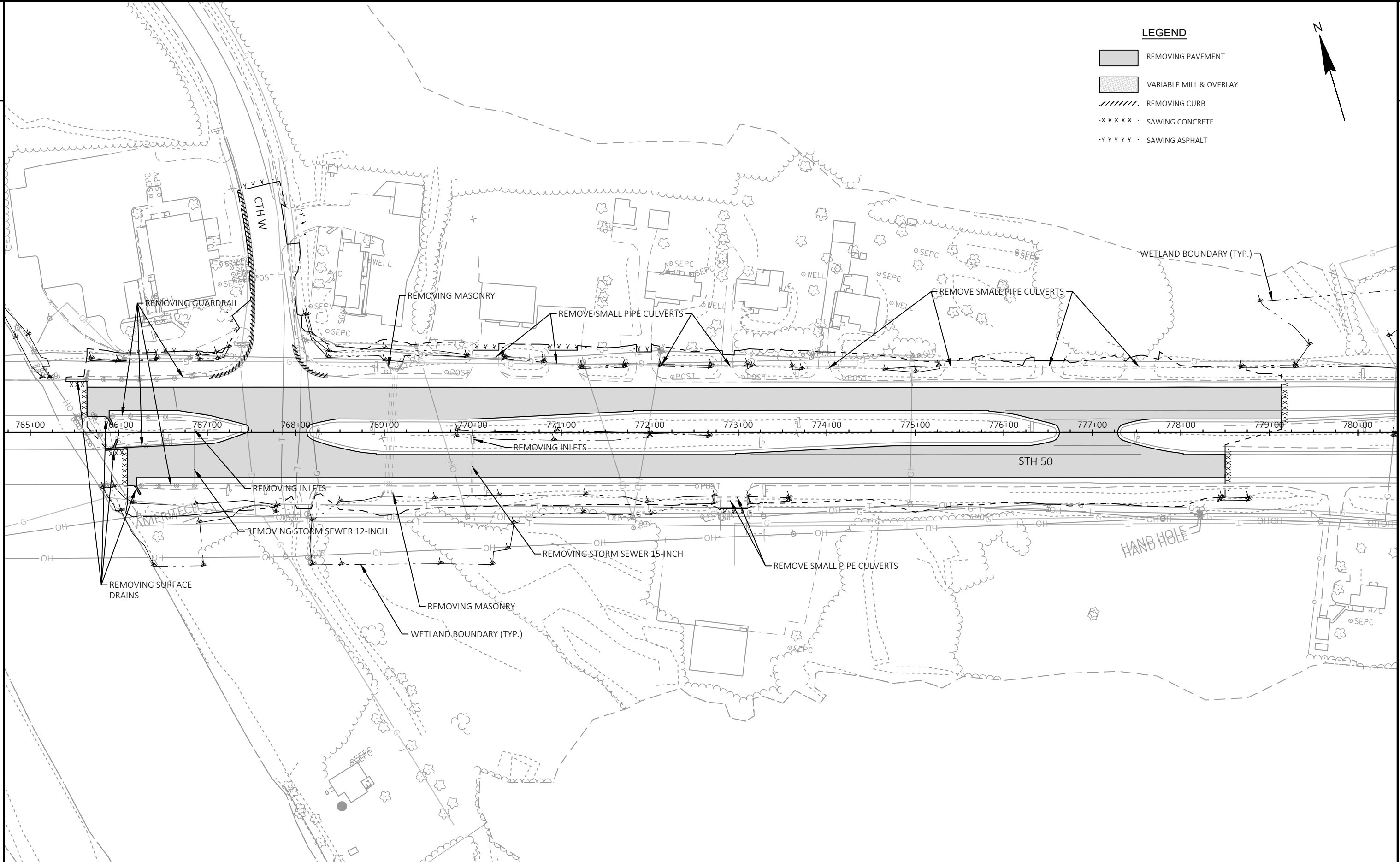
RIPRAP SHALL BE 1 FOOT DEEP.

ALL BARS SHALL BE EPOXY COATED IN ACCORDANCE WITH SECTION 505 OF THE STANDARD SPECIFICATIONS.

CONCRETE SURFACE DRAIN






LEGEND

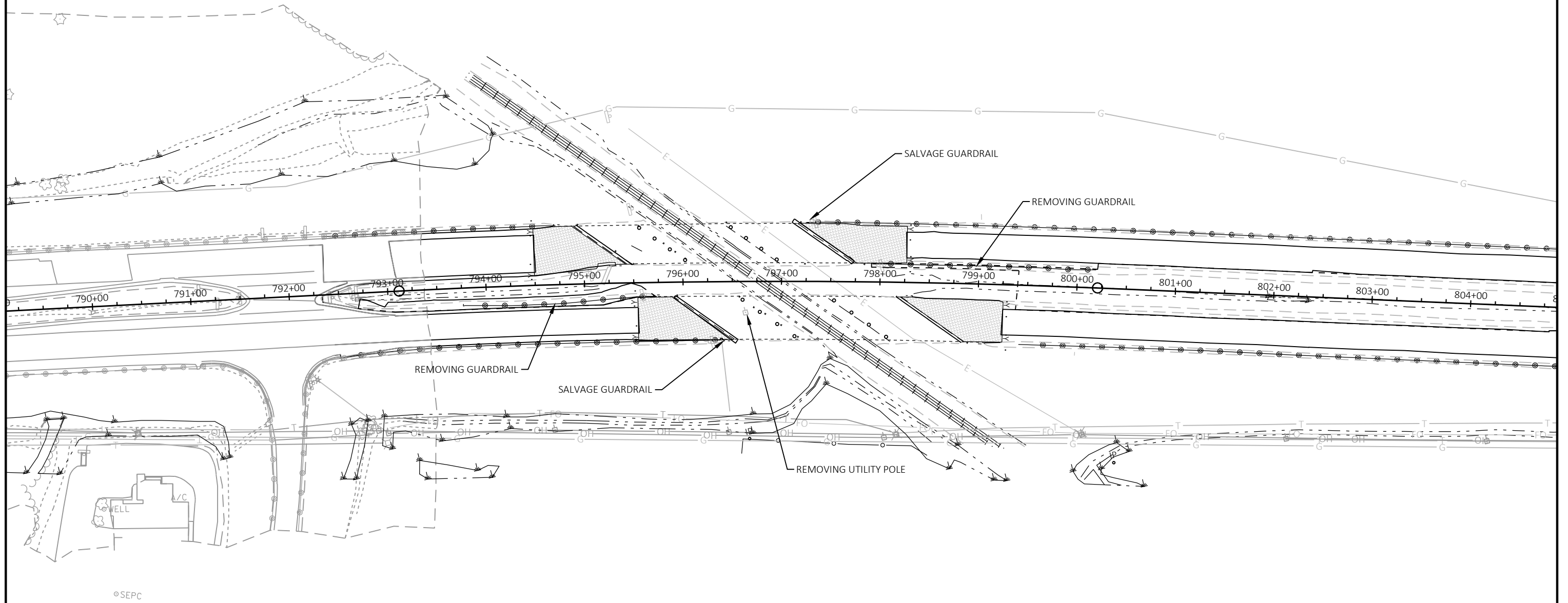
-  REMOVING PAVEMENT
-  VARIABLE MILL & OVERLAY
-  REMOVING CURB
-  SAWING CONCRETE
-  SAWING ASPHALT



PROJECT NO: 1310-14-70	HWY: STH 50	COUNTY: KENOSHA	REMOVAL PLAN	SHEET	<b>E</b>
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LEGEND

-  REMOVING PAVEMENT
-  VARIABLE MILL & OVERLAY
-  REMOVING CURB
-  · x x x x · SAWING CONCRETE
-  · y y y y · SAWING ASPHALT

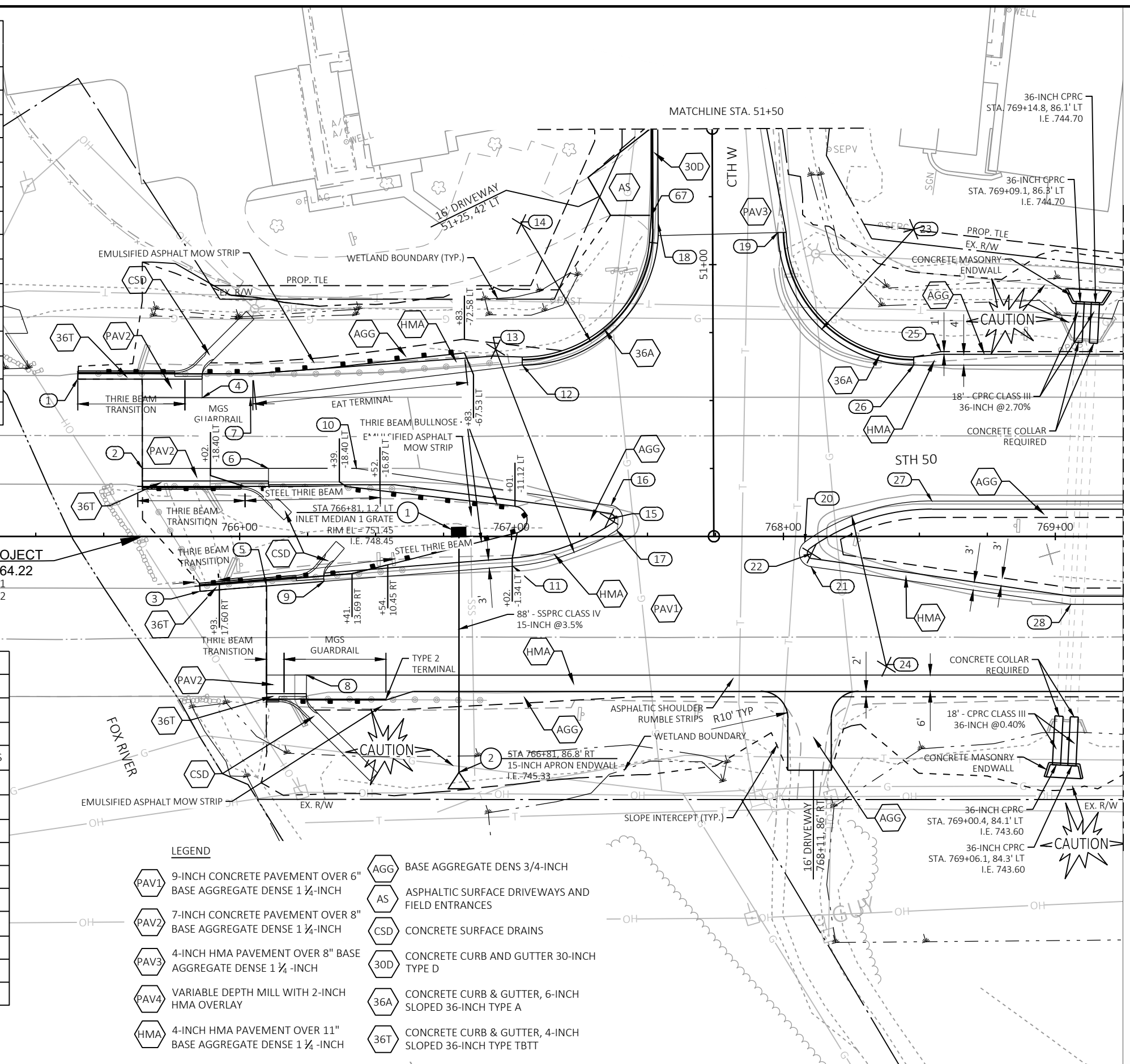


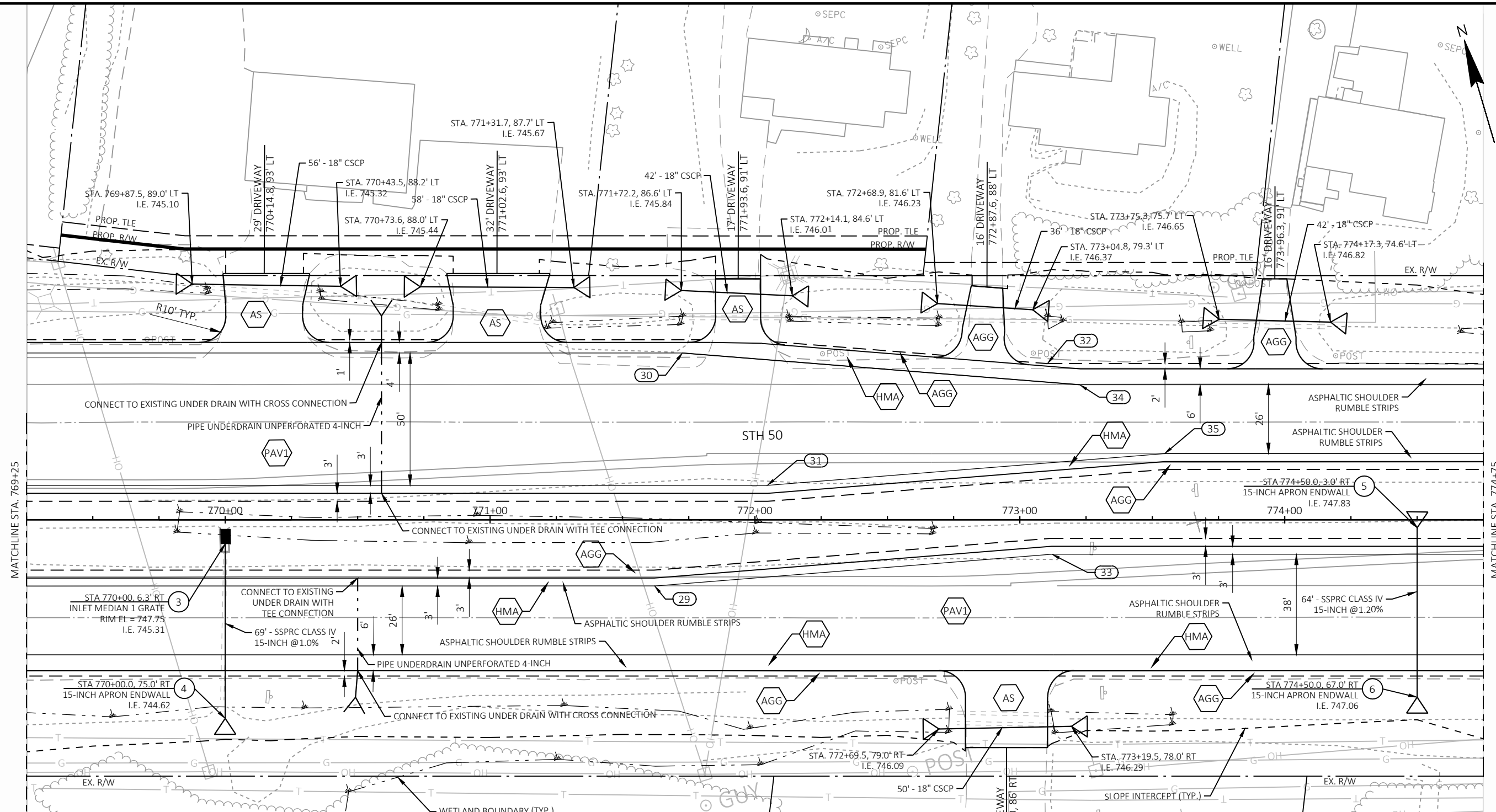
POINT NUMBER	STATION	OFFSET	DESCRIPTION
1	765+40.45	57.86' LT	BEGIN CURB & GUTTER
2	765+64.22	25.00' LT	SAWCUT, MATCH EXISTING
3	765+85.44	20.17' RT	BEGIN CURB AND GUTTER
4	765+86.20	51.00' LT	END CONC. SHLDR, BEGIN HMA SHLDR
5	766+09.94	18.21' RT	SAWCUT, MATCH EXISTING, BEGIN TAPER
6	766+10.61	25.00' LT	END CONC. SHLDR, BEGIN HMA SHLDR
7	766+04.02	51.00' LT	BEGIN TAPER
8	766+24.58	51.00' RT	END CONC. SHLDR, BEGIN HMA SHLDR
9	766+31.01	16.52' RT	END CURB AND GUTTER, BEGIN TAPER
10	766+43.01	25.00' LT	END 50' RADIUS
11	767+00.51	10.97' RT	END TAPER, BEGIN 80' RADIUS
12	767+03.96	63.00' LT	BEGIN CURB & GUTTER, BEGIN 50' RADIUS
13	766+94.13	68.78' LT	80' RADIUS
14	767+03.57	114.89' LT	50' RADIUS
15	767+35.89	6.48' LT	5' RADIUS

POINT NUMBER	STATION	OFFSET	DESCRIPTION
16	767+36.60	11.43' LT	Detail Sheets
17	767+38.67	2.32' LT	END 5' RADIUS, END 80' RADIUS
18	767+53.95	115.19' LT	END 50' RADIUS
19	767+97.97	111.75' LT	BEGIN CURB & GUTTER, BEGIN 50' RADIUS
20	768+07.87	2.11' RT	BEGIN 80' RADIUS, END 5' RADIUS
21	768+10.12	11.12' RT	BEGIN 5' RADIUS, BEGIN TAPER
22	768+10.41	6.28' RT	5' RADIUS
23	768+47.96	112.98' LT	50' RADIUS
24	768+37.87	47.93' RT	80' RADIUS
25	768+57.94	68.00' LT	END HMA TAPER
26	768+47.96	63.00' LT	END CURB & GUTTER, END 50' RADIUS
27	768+54.66	13.00' LT	END 80' RADIUS
28	769+05.79	25.00' RT	END TAPER
67	767+51.44	118.14' LT	BEGIN 30-INCH CURB AND GUTTER

LEGEND

- PAV1 9-INCH CONCRETE PAVEMENT OVER 6" BASE AGGREGATE DENSE 1 1/4-INCH
- PAV2 7-INCH CONCRETE PAVEMENT OVER 8" BASE AGGREGATE DENSE 1 1/4-INCH
- PAV3 4-INCH HMA PAVEMENT OVER 8" BASE AGGREGATE DENSE 1 1/4 -INCH
- PAV4 VARIABLE DEPTH MILL WITH 2-INCH HMA OVERLAY
- HMA 4-INCH HMA PAVEMENT OVER 11" BASE AGGREGATE DENSE 1 1/4 -INCH
- AGG BASE AGGREGATE DENS 3/4-INCH
- AS ASPHALTIC SURFACE DRIVEWAYS AND FIELD ENTRANCES
- CSD CONCRETE SURFACE DRAINS
- 30D CONCRETE CURB AND GUTTER 30-INCH TYPE D
- 36A CONCRETE CURB & GUTTER, 6-INCH SLOPED 36-INCH TYPE A
- 36T CONCRETE CURB & GUTTER, 4-INCH SLOPED 36-INCH TYPE TBTT





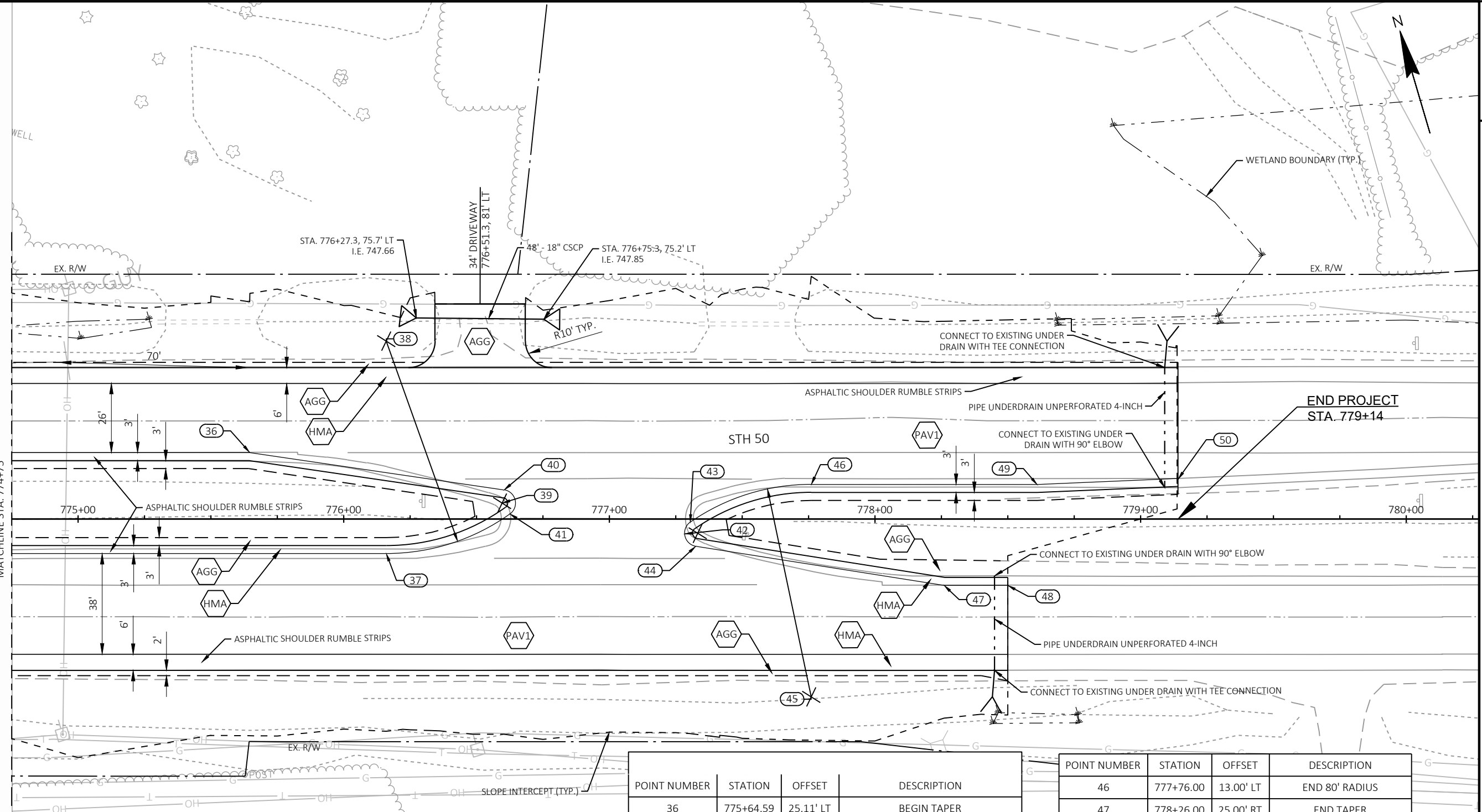
MATCHLINE STA. 769+25

MATCHLINE STA. 774+75

LEGEND

- 9-INCH CONCRETE PAVEMENT OVER 6" BASE AGGREGATE DENSE 1 1/4-INCH
- 7-INCH CONCRETE PAVEMENT OVER 8" BASE AGGREGATE DENSE 1 1/4-INCH
- 4-INCH HMA PAVEMENT OVER 8" BASE AGGREGATE DENSE 1 1/4 -INCH
- VARIABLE DEPTH MILL WITH 2-INCH HMA OVERLAY
- 4-INCH HMA PAVEMENT OVER 11" BASE AGGREGATE DENSE 1 1/4 -INCH
- BASE AGGREGATE DENS 3/4-INCH
- ASPHALTIC SURFACE DRIVEWAYS AND FIELD ENTRANCES
- CONCRETE SURFACE DRAINS
- CONCRETE CURB AND GUTTER 30-INCH TYPE D
- CONCRETE CURB & GUTTER, 6-INCH SLOPED 36-INCH TYPE A
- CONCRETE CURB & GUTTER, 4-INCH SLOPED 36-INCH TYPE TBTT

POINT NUMBER	STATION	OFFSET	DESCRIPTION
29	771+62.13	25.00' RT	BEGIN 150' TAPER
30	771+72.64	63.00' LT	Detail Sheets
31	772+04.66	13.00' LT	BEGIN 150' TAPER
32	773+10.38	59.00' LT	BEGIN 150' TAPER
33	773+12.13	13.00' RT	END 150' TAPER
34	773+22.64	51.00' LT	END 150' TAPER
35	773+54.66	25.00' LT	END 150' TAPER



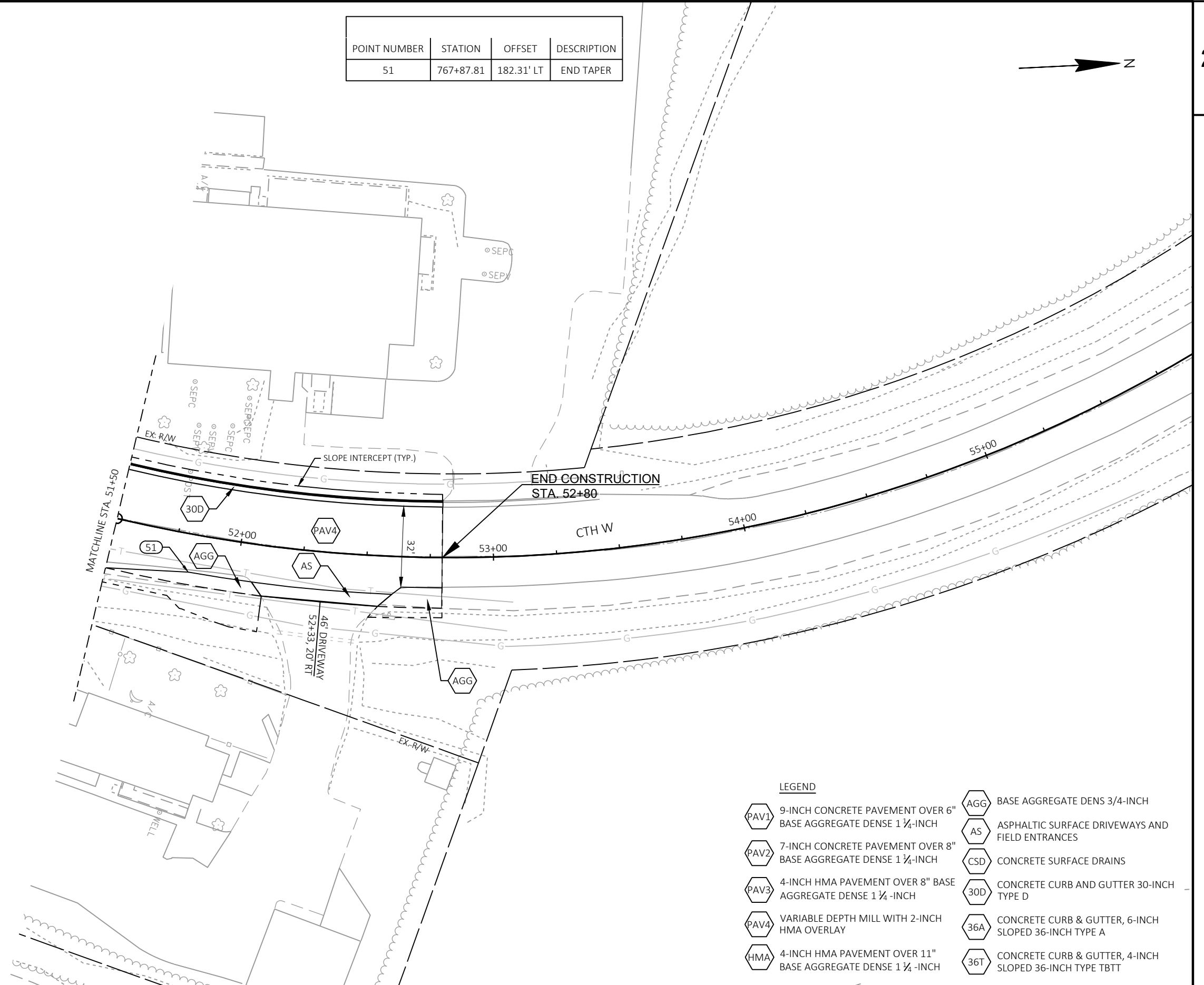
LEGEND

- 9-INCH CONCRETE PAVEMENT OVER 6" BASE AGGREGATE DENSE 1 3/4-INCH
- 7-INCH CONCRETE PAVEMENT OVER 8" BASE AGGREGATE DENSE 1 3/4-INCH
- 4-INCH HMA PAVEMENT OVER 8" BASE AGGREGATE DENSE 1 3/4 -INCH
- VARIABLE DEPTH MILL WITH 2-INCH HMA OVERLAY
- 4-INCH HMA PAVEMENT OVER 11" BASE AGGREGATE DENSE 1 3/4 -INCH
- BASE AGGREGATE DENS 3/4-INCH
- ASPHALTIC SURFACE DRIVEWAYS AND FIELD ENTRANCES
- CONCRETE SURFACE DRAINS
- CONCRETE CURB AND GUTTER 30-INCH TYPE D
- CONCRETE CURB & GUTTER, 6-INCH SLOPED 36-INCH TYPE A
- CONCRETE CURB & GUTTER, 4-INCH SLOPED 36-INCH TYPE TBTT

POINT NUMBER	STATION	OFFSET	DESCRIPTION
36	775+64.59	25.11' LT	BEGIN TAPER
37	776+16.00	13.00' RT	BEGIN 80' RADIUS
38	776+16.00	67.00' LT	80' RADIUS
39	776+59.63	6.00' LT	5' RADIUS
40	776+60.36	10.95' LT	END TAPER, BEGIN 5' RADIUS
41	776+62.54	1.93' LT	END 5' RADIUS, END 80' RADIUS
42	777+28.28	5.61' RT	5' RADIUS
43	777+30.43	1.25' RT	BEGIN 5' RADIUS, BEGIN 80' RADIUS
44	777+32.50	10.30' RT	END 5' RADIUS, BEGIN TAPER
45	777+76.00	67.00' RT	80' RADIUS

POINT NUMBER	STATION	OFFSET	DESCRIPTION
46	777+76.00	13.00' LT	END 80' RADIUS
47	778+26.00	25.00' RT	END TAPER
48	778+50.00	25.00' RT	SAWCUT, MATCH EXISTING
49	778+61.03	13.00' LT	BEGIN TAPER
50	779+14.10	15.00' LT	SAWCUT, MATCH EXISTING

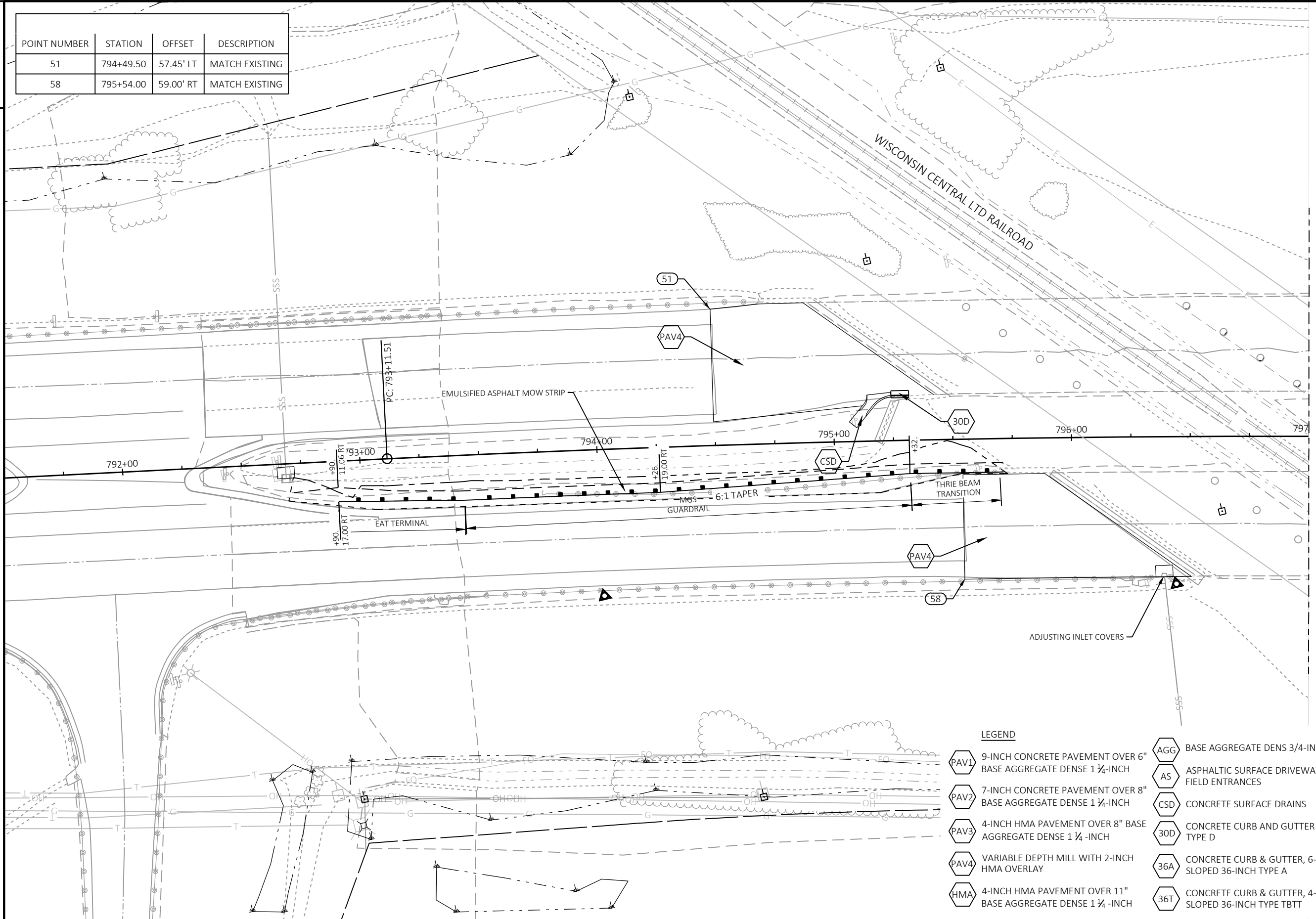
POINT NUMBER	STATION	OFFSET	DESCRIPTION
51	767+87.81	182.31' LT	END TAPER



**LEGEND**

- |      |  |     |   |
|------|--|-----|---|
| PAV1 | 9-INCH CONCRETE PAVEMENT OVER 6" BASE AGGREGATE DENSE 1 1/4-INCH | AGG | BASE AGGREGATE DENS 3/4-INCH                            |
| PAV2 | 7-INCH CONCRETE PAVEMENT OVER 8" BASE AGGREGATE DENSE 1 1/4-INCH | AS  | ASPHALTIC SURFACE DRIVEWAYS AND FIELD ENTRANCES         |
| PAV3 | 4-INCH HMA PAVEMENT OVER 8" BASE AGGREGATE DENSE 1 1/4-INCH      | CSD | CONCRETE SURFACE DRAINS                                 |
| PAV4 | VARIABLE DEPTH MILL WITH 2-INCH HMA OVERLAY                      | 30D | CONCRETE CURB AND GUTTER 30-INCH TYPE D                 |
| HMA  | 4-INCH HMA PAVEMENT OVER 11" BASE AGGREGATE DENSE 1 1/4-INCH     | 36A | CONCRETE CURB & GUTTER, 6-INCH SLOPED 36-INCH TYPE A    |
|      |  | 36T | CONCRETE CURB & GUTTER, 4-INCH SLOPED 36-INCH TYPE TBTT |

POINT NUMBER	STATION	OFFSET	DESCRIPTION
51	794+49.50	57.45' LT	MATCH EXISTING
58	795+54.00	59.00' RT	MATCH EXISTING

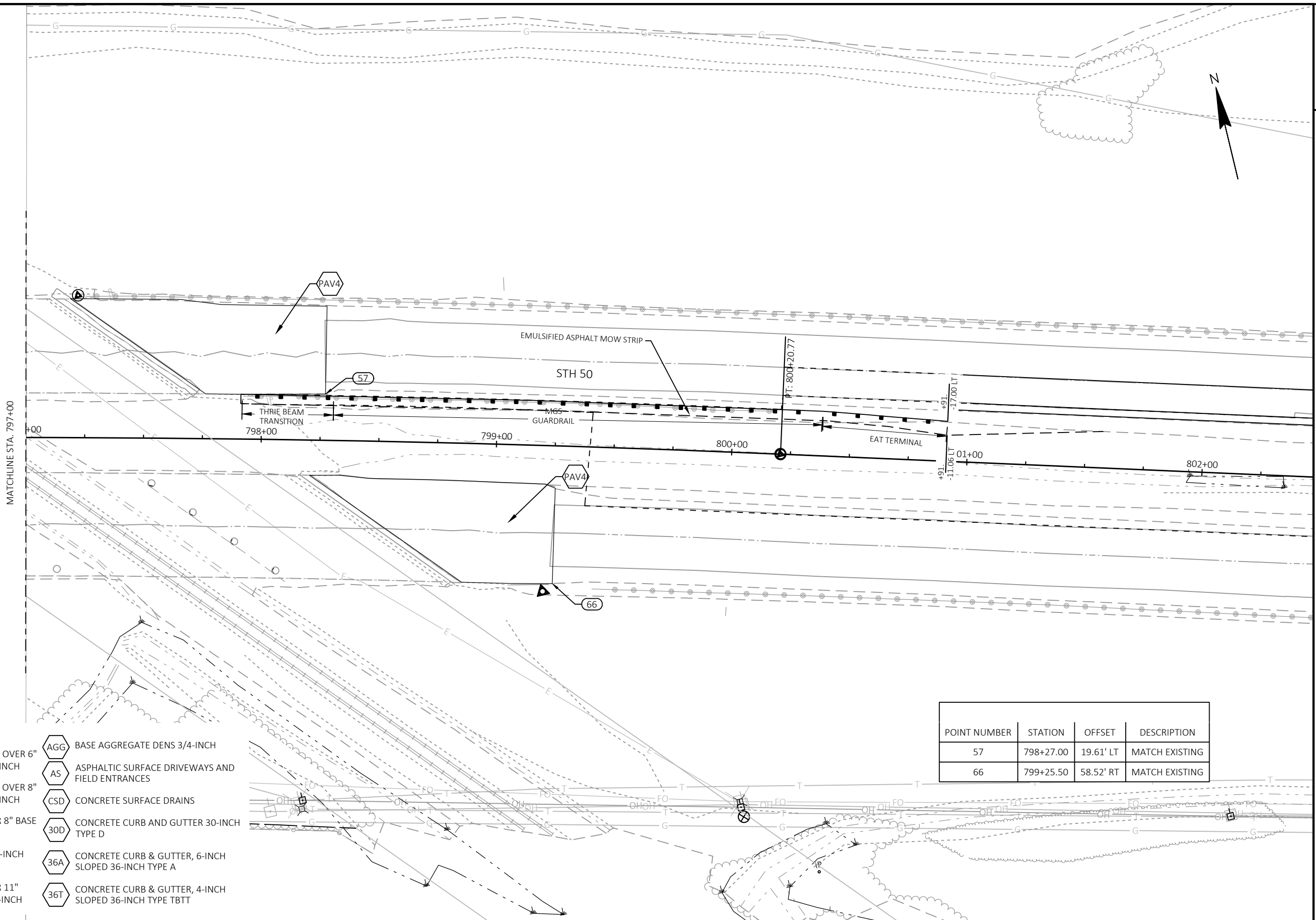


MATCHLINE STA. 797+00

**LEGEND**

- |      |  |     |   |
|------|--|-----|---|
| PAV1 | 9-INCH CONCRETE PAVEMENT OVER 6" BASE AGGREGATE DENSE 1 1/4-INCH | AGG | BASE AGGREGATE DENS 3/4-INCH                            |
| PAV2 | 7-INCH CONCRETE PAVEMENT OVER 8" BASE AGGREGATE DENSE 1 1/4-INCH | AS  | ASPHALTIC SURFACE DRIVEWAYS AND FIELD ENTRANCES         |
| PAV3 | 4-INCH HMA PAVEMENT OVER 8" BASE AGGREGATE DENSE 1 1/4-INCH      | CSD | CONCRETE SURFACE DRAINS                                 |
| PAV4 | VARIABLE DEPTH MILL WITH 2-INCH HMA OVERLAY                      | 30D | CONCRETE CURB AND GUTTER 30-INCH TYPE D                 |
| HMA  | 4-INCH HMA PAVEMENT OVER 11" BASE AGGREGATE DENSE 1 1/4-INCH     | 36A | CONCRETE CURB & GUTTER, 6-INCH SLOPED 36-INCH TYPE A    |
|      |  | 36T | CONCRETE CURB & GUTTER, 4-INCH SLOPED 36-INCH TYPE TBTT |





**LEGEND**

- |   |   |
|---|---|
| PAV1 9-INCH CONCRETE PAVEMENT OVER 6" BASE AGGREGATE DENSE 1 1/4-INCH | AGG BASE AGGREGATE DENS 3/4-INCH                            |
| PAV2 7-INCH CONCRETE PAVEMENT OVER 8" BASE AGGREGATE DENSE 1 1/4-INCH | AS ASPHALTIC SURFACE DRIVEWAYS AND FIELD ENTRANCES          |
| PAV3 4-INCH HMA PAVEMENT OVER 8" BASE AGGREGATE DENSE 1 1/4-INCH      | CSD CONCRETE SURFACE DRAINS                                 |
| PAV4 VARIABLE DEPTH MILL WITH 2-INCH HMA OVERLAY                      | 30D CONCRETE CURB AND GUTTER 30-INCH TYPE D                 |
| HMA 4-INCH HMA PAVEMENT OVER 11" BASE AGGREGATE DENSE 1 1/4-INCH      | 36A CONCRETE CURB & GUTTER, 6-INCH SLOPED 36-INCH TYPE A    |
|   | 36T CONCRETE CURB & GUTTER, 4-INCH SLOPED 36-INCH TYPE TBTT |

POINT NUMBER	STATION	OFFSET	DESCRIPTION
57	798+27.00	19.61' LT	MATCH EXISTING
66	799+25.50	58.52' RT	MATCH EXISTING

LEGEND

XXX.XX PROPOSED ELEVATION  
(XXX.XX) EXISTING ELEVATION

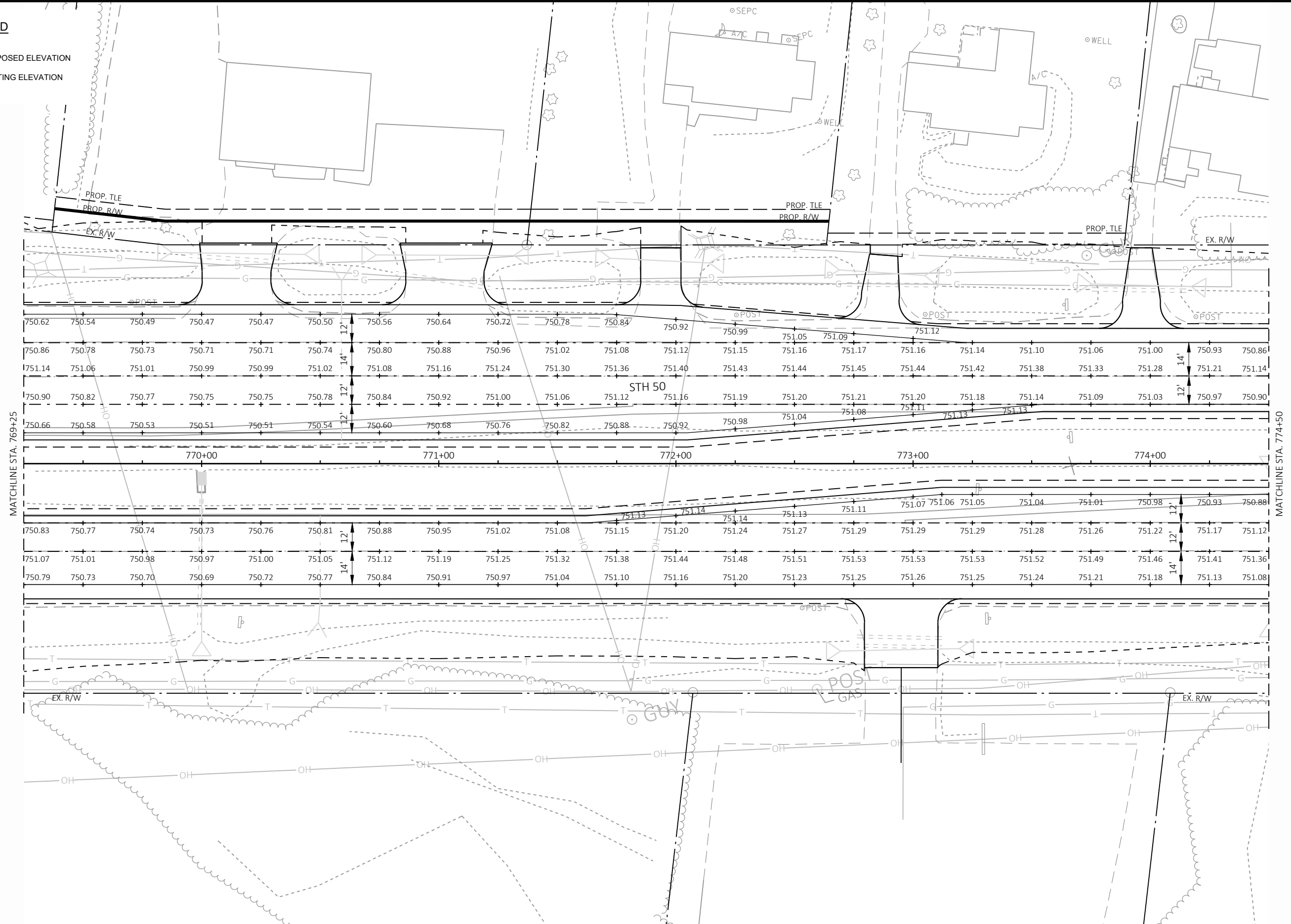


MATCHLINE STA. 769+25

PROJECT NO: 1310-14-70	HWY: STH 50	COUNTY: KENOSHA	JOINTING DETAILS	SHEET E
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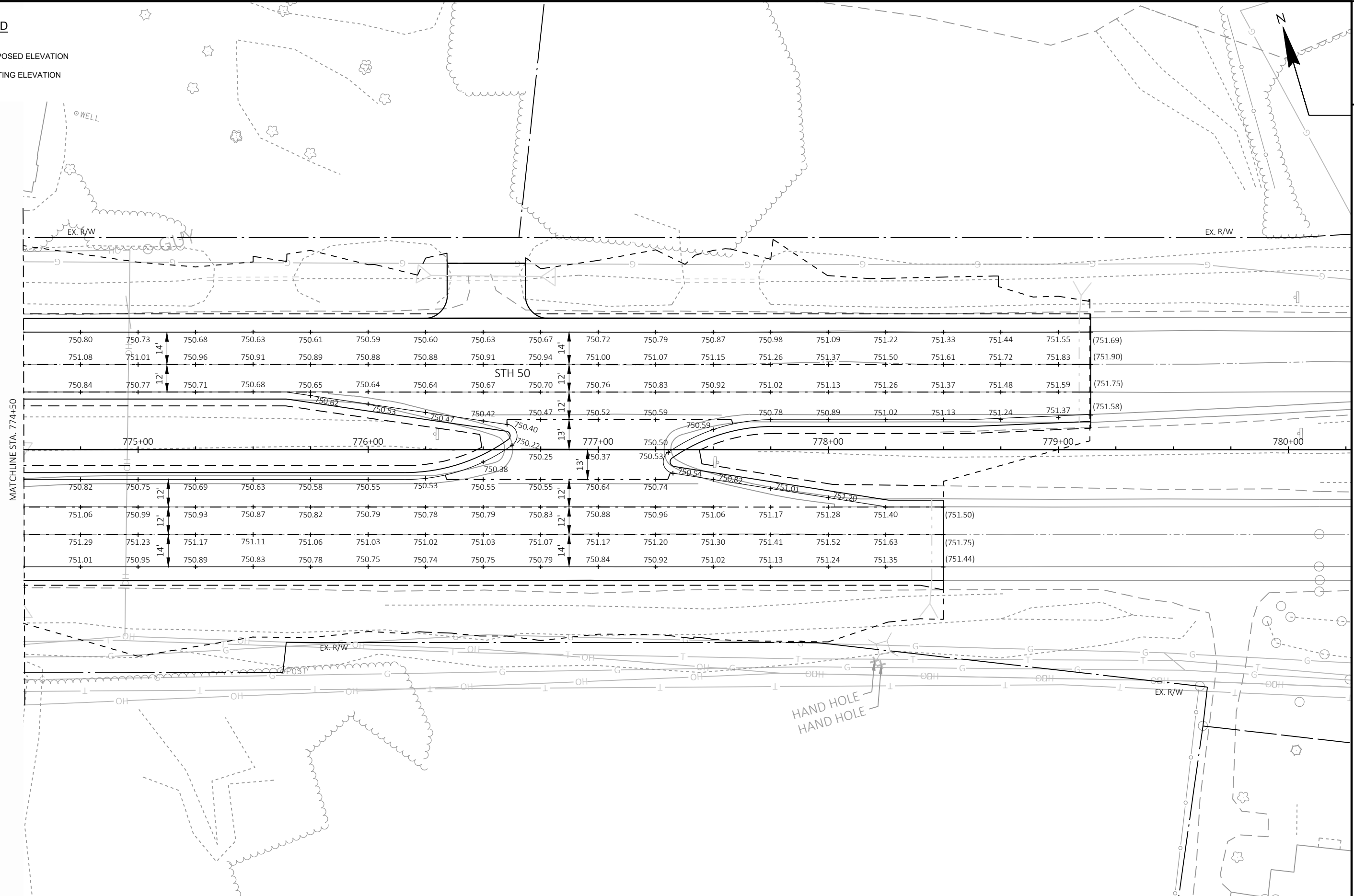
LEGEND

XXX.XX PROPOSED ELEVATION  
(XXX.XX) EXISTING ELEVATION



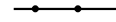






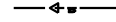


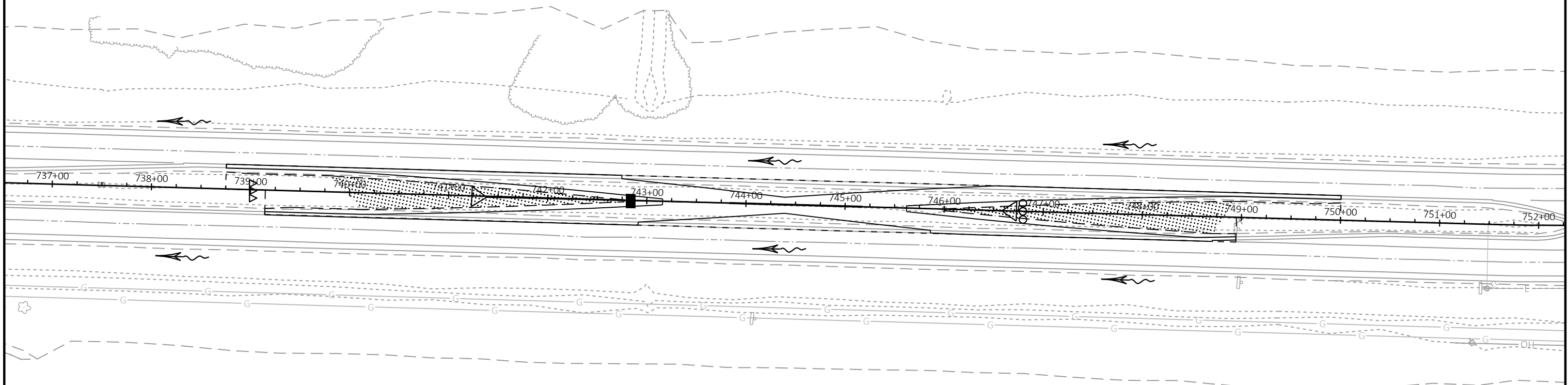
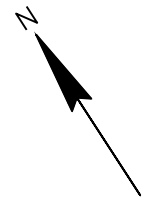
LEGEND

XXX.XX PROPOSED ELEVATION  
(XXX.XX) EXISTING ELEVATION



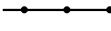
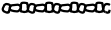
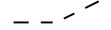


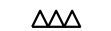
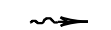
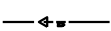


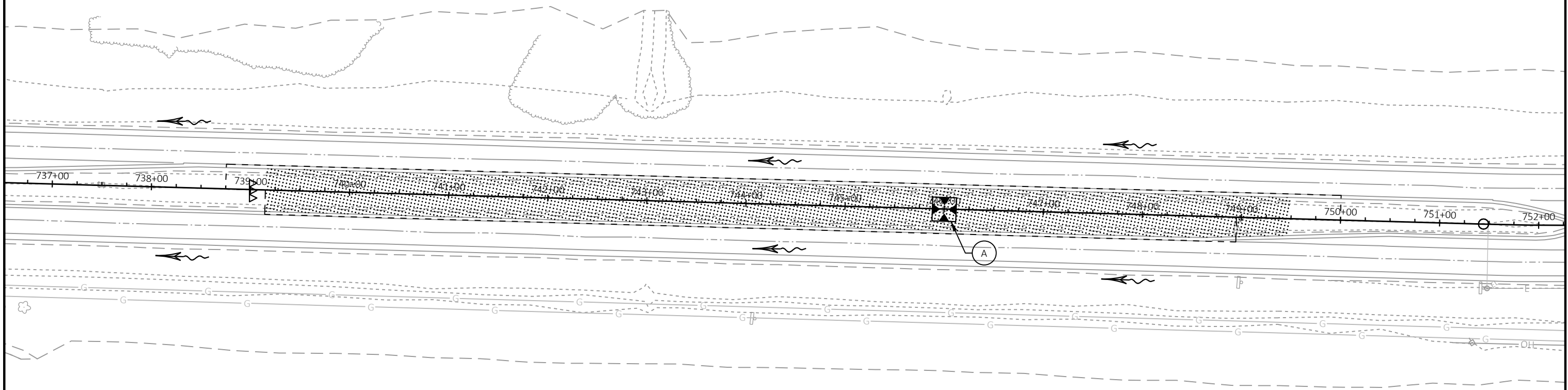
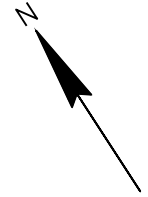
LEGEND

-  SEEDING, TOPSOIL, AND FERTILIZER  
EROSION MAT URBAN CLASS I TYPE A
-  SEEDING, TOPSOIL, AND FERTILIZER  
SOIL STABILIZER TYPE A
-  SILT FENCE
-  RIP RAP
-  SLOPE INTERCEPT
-  INLET PROTECTION
-  CULVERT PIPE CHECK
-  TEMPORARY DITCH CHECK
-  SURFACE WATER FLOW
-  TURBIDITY BARRIER



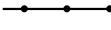
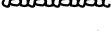




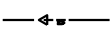



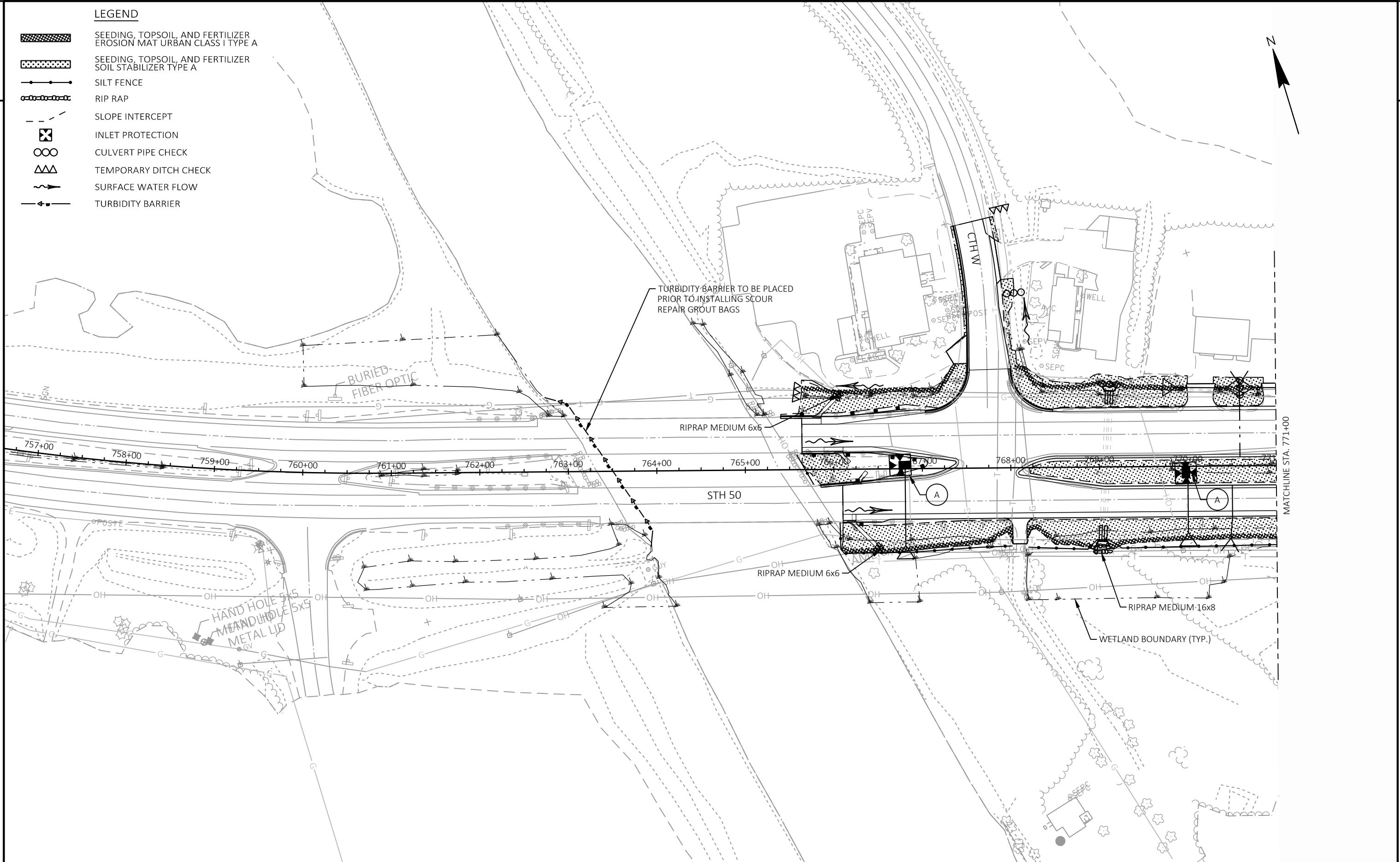
LEGEND

-  SEEDING, TOPSOIL, AND FERTILIZER  
EROSION MAT URBAN CLASS I TYPE A
-  SEEDING, TOPSOIL, AND FERTILIZER  
SOIL STABILIZER TYPE A
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-  SLOPE INTERCEPT
-  INLET PROTECTION
-  CULVERT PIPE CHECK
-  TEMPORARY DITCH CHECK
-  SURFACE WATER FLOW
-  TURBIDITY BARRIER



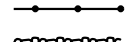
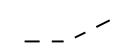


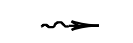
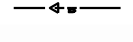




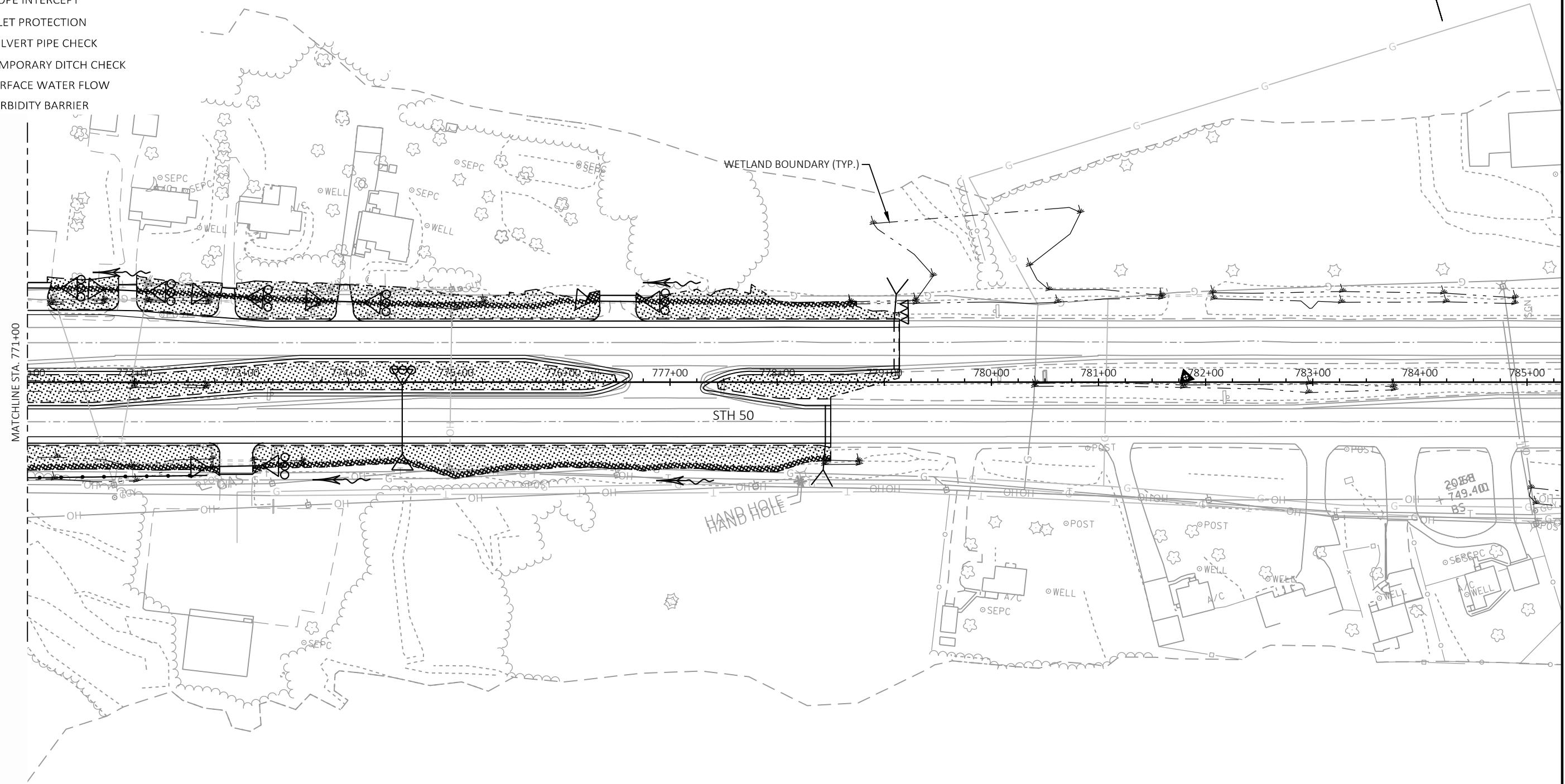
LEGEND

-  SEEDING, TOPSOIL, AND FERTILIZER EROSION MAT URBAN CLASS I TYPE A
-  SEEDING, TOPSOIL, AND FERTILIZER SOIL STABILIZER TYPE A
-  SILT FENCE
-  RIP RAP
-  SLOPE INTERCEPT
-  INLET PROTECTION
-  CULVERT PIPE CHECK
-  TEMPORARY DITCH CHECK
-  SURFACE WATER FLOW
-  TURBIDITY BARRIER





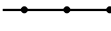
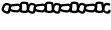
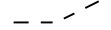




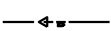
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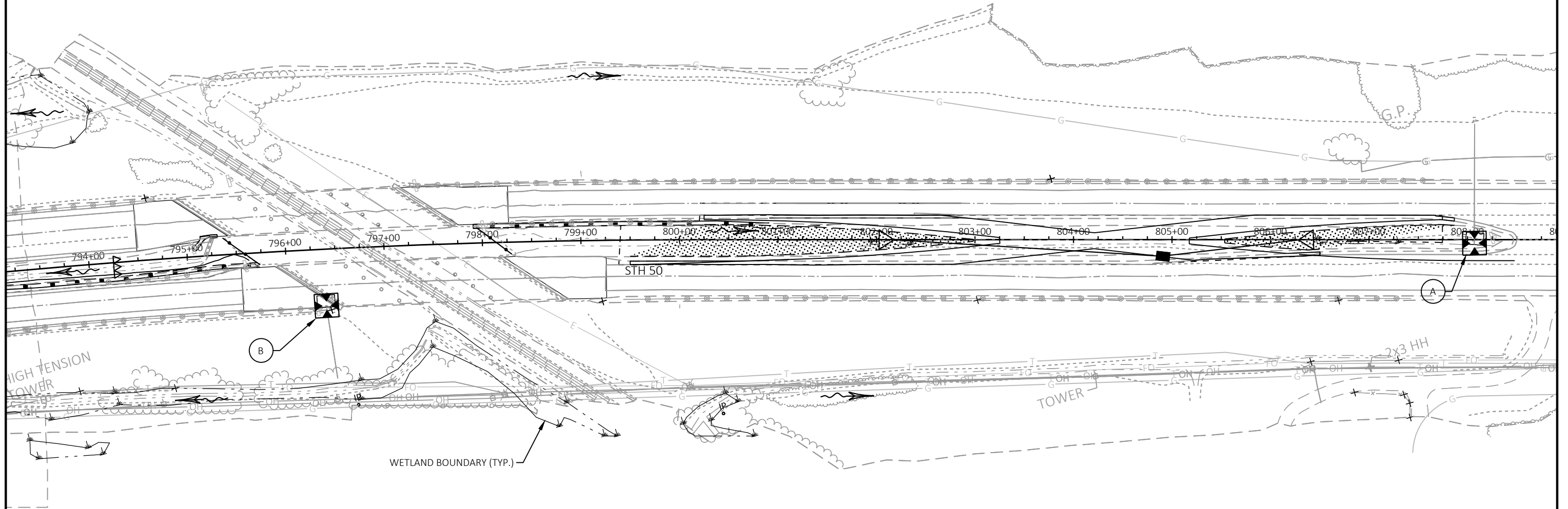
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EROSION MAT URBAN CLASS I TYPE A
-  SEEDING, TOPSOIL, AND FERTILIZER  
SOIL STABILIZER TYPE A
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-  TEMPORARY DITCH CHECK
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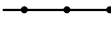
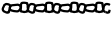
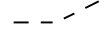




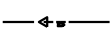


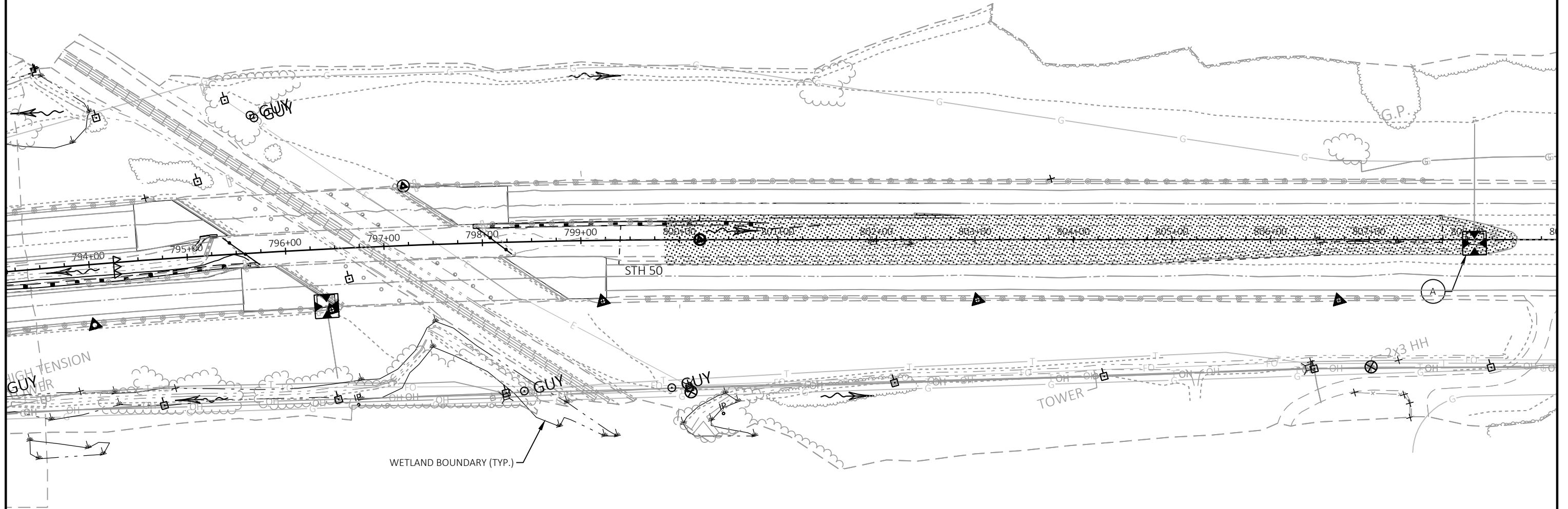
LEGEND

-  SEEDING, TOPSOIL, AND FERTILIZER  
EROSION MAT URBAN CLASS I TYPE A
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






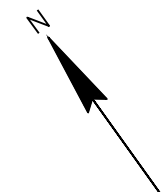
LEGEND

-  SEEDING, TOPSOIL, AND FERTILIZER  
EROSION MAT URBAN CLASS I TYPE A
-  SEEDING, TOPSOIL, AND FERTILIZER  
SOIL STABILIZER TYPE A
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-  INLET PROTECTION
-  CULVERT PIPE CHECK
-  TEMPORARY DITCH CHECK
-  SURFACE WATER FLOW
-  TURBIDITY BARRIER

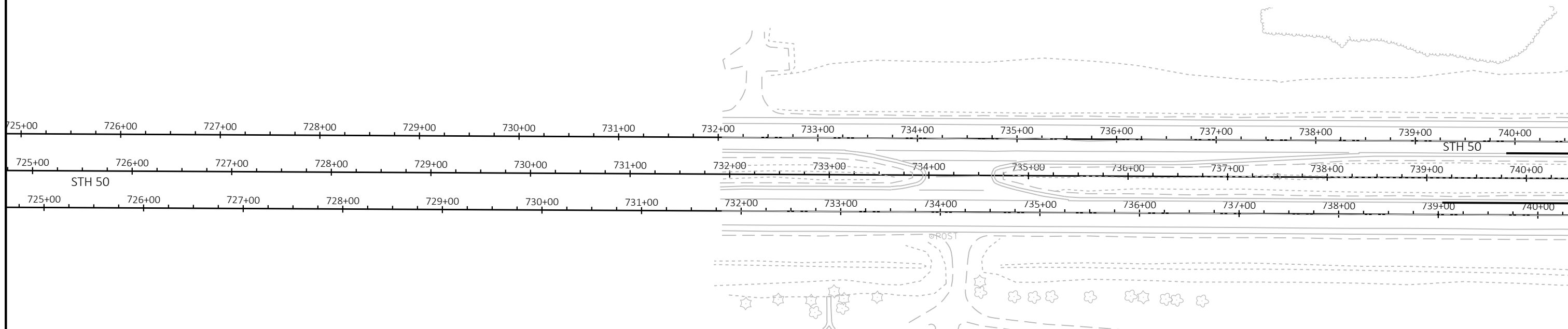


LEGEND

-  EXISTING SIGN MOUNTED ON POST(S)
-  EXISTING SIGN MOUNTED ON BRIDGE OR SIGN BRIDGE
-  PROPOSED SIGN MOUNTED ON POST(S)
-  PROPOSED SIGN MOUNTED ON BRIDGE OR SIGN BRIDGE
-  VARIABLE MESSAGE SIGN
-  EXISTING LIGHT OR SIGNAL POLE
-  SIGN BRIDGE
-  CANTILEVER SIGN BRIDGE
-  DENOTES SIGN NUMBER
-  INDICATES SIGN SIZE
- ESTR EXISTING SIGN TO REMAIN



NO SIGNS IMPACTED



TYPE II ALUMINUM SIGNS REMOVED UNDER THE CONTRACT SHALL BE DELIVERED TO THE COUNTY SIGN SHOP. CONTACT THE FOLLOWING INDIVIDUAL AT THE SIGN SHOP FOR DISTRIBUTION COUNTY LOCATION.

SIGNING COORDINATOR	COUNTIES	PHONE #
JENNY BUCKETT	MILWAUKEE, KENOSHA, WASHINGTON, OZAUKEE	414-750-2427
CHUCK SALDIVAR	RACINE, WALWORTH, WAUKESHA	414-750-1682

SIGNS SHALL BE CAREFULLY REMOVED FROM SIGN SUPPORTS. THE SIGNS SHALL BE PALLETIZED FOR HANDLING WITH A FORKLIFT (SEE STANDARD SPEC 638.3.4). THE REGIONAL SIGN SHOP (414-266-1165) SHALL BE NOTIFIED THREE WORKING DAYS PRIOR TO DELIVERY OF THE SIGNS.

WHEN AN EXISTING STOP SIGN SUPPORT IS TO BE REMOVED AND A NEW STOP SIGN AND SUPPORT ERECTED, THE WORK SHALL BE DONE CONCURRENTLY. FOR OTHER SIGNS AND SUPPORTS THAT ARE TO BE REMOVED AND NEW SIGNS AND SUPPORTS ERECTED, THE REMOVAL OF THE EXISTING SIGN/SUPPORT AND ERECTION OF THE NEW SIGN/SUPPORT SHOULD BE DONE AS CONCURRENTLY AS POSSIBLE. IN NO CASE SHALL A NEW SIGN/SUPPORT BE DOWN FOR MORE THAN 24 HOURS AND THERE SHALL NOT BE MORE THAN ONE SIGN OF THE SAME LEGEND MISSING IN A ROW.











WOOD POST SIZES FOR TYPE II SIGNS ARE ESTIMATED LENGTHS AND THE ACTUAL LENGTH WILL BE DETERMINED IN THE FIELD.

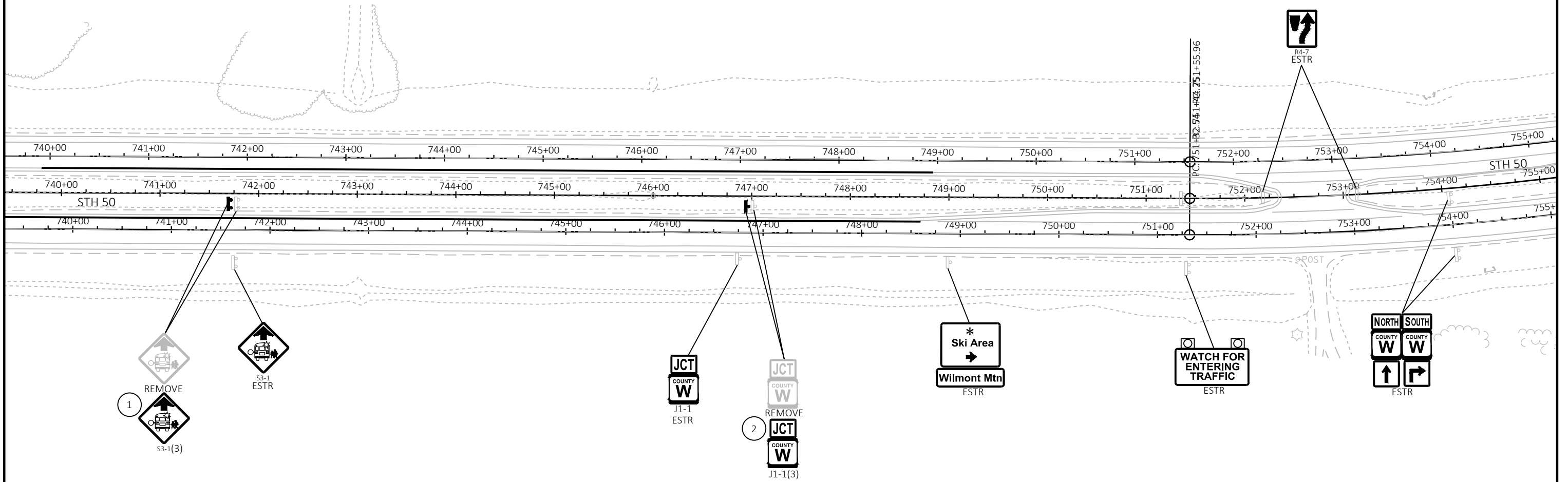
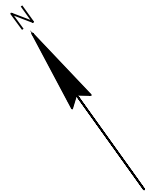
STREET NAME SIGNS ARE PROPERTY OF THE MUNICIPALITY (CITY, VILLAGE OR TOWN). THE MUNICIPALITY SHALL BE CONTACTED TO REMOVE THEIR STREET NAME SIGNS PRIOR TO CONSTRUCTION AND IT IS THEIR RESPONSIBILITY TO REINSTALL THE OLD SIGNS OR REPLACE THEM FOLLOWING CONSTRUCTION. WISDOT DOES NOT FURNISH OR INSTALL STREET NAME SIGNS. THE STREET NAME SIGNS SHALL NOT BE PLACED ON TOP OF THE STOP SIGNS.

LOCATE NO PASSING PENNANTS BASED ON ESTABLISHING NO PASSING ZONES PAY ITEM. PLACE SIGNS BASED ON WHERE THE PAVEMENT MARKING FOR NO PASSING ZONES BEGIN.

BOX OUT OR CORING OF CONCRETE SIGN POSTS IS INCIDENTAL TO THE POST

LEGEND

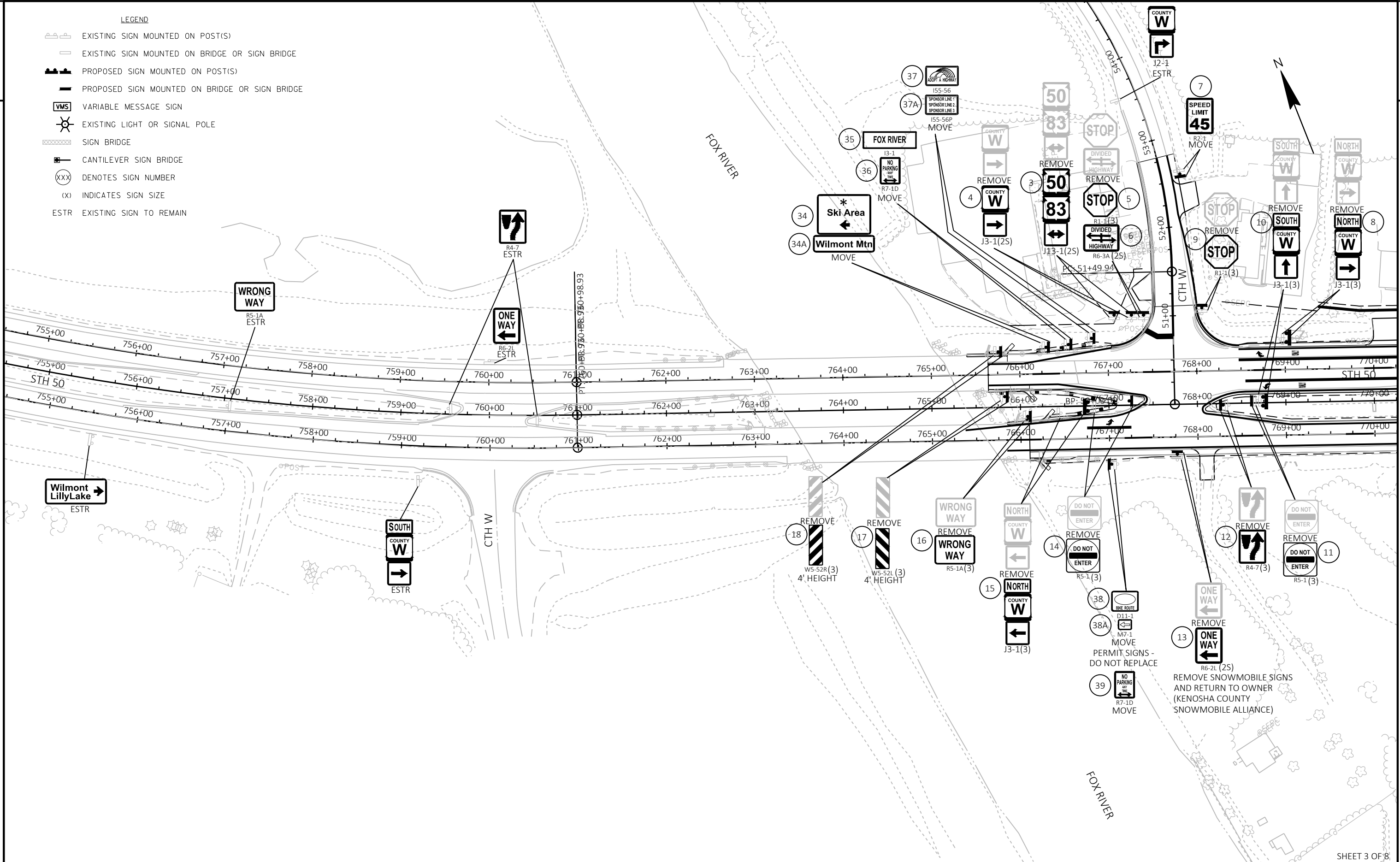
-  EXISTING SIGN MOUNTED ON POST(S)
-  EXISTING SIGN MOUNTED ON BRIDGE OR SIGN BRIDGE
-  PROPOSED SIGN MOUNTED ON POST(S)
-  PROPOSED SIGN MOUNTED ON BRIDGE OR SIGN BRIDGE
-  VARIABLE MESSAGE SIGN
-  EXISTING LIGHT OR SIGNAL POLE
-  SIGN BRIDGE
-  CANTILEVER SIGN BRIDGE
-  DENOTES SIGN NUMBER
-  INDICATES SIGN SIZE
- ESTR EXISTING SIGN TO REMAIN














PROJECT NO: 1310-14-70	HWY: STH 50	COUNTY: KENOSHA	PERMANENT SIGNING	SHEET <b>E</b>
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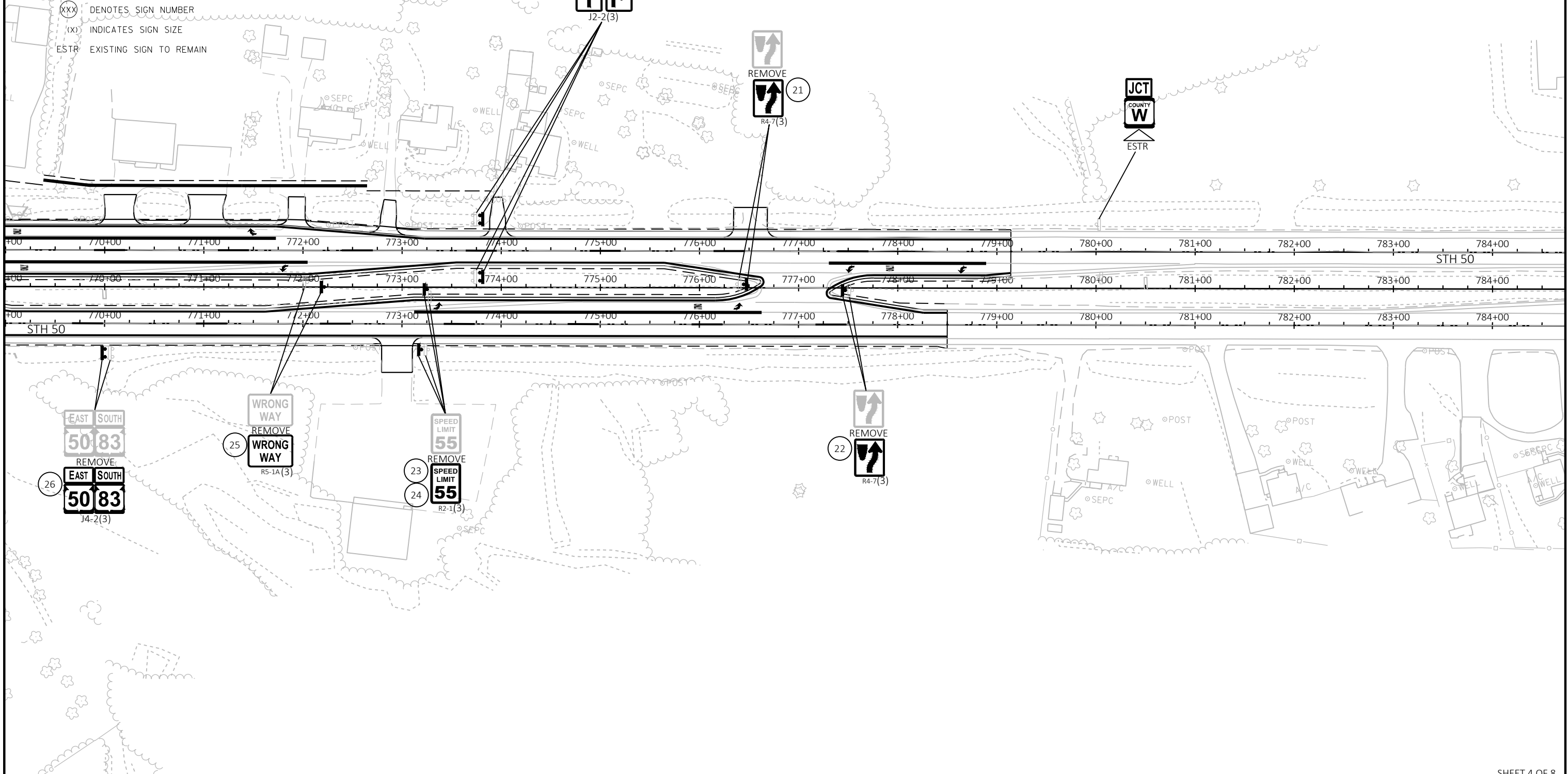
LEGEND

- EXISTING SIGN MOUNTED ON POST(S)
- EXISTING SIGN MOUNTED ON BRIDGE OR SIGN BRIDGE
- PROPOSED SIGN MOUNTED ON POST(S)
- PROPOSED SIGN MOUNTED ON BRIDGE OR SIGN BRIDGE
- VARIABLE MESSAGE SIGN
- EXISTING LIGHT OR SIGNAL POLE
- SIGN BRIDGE
- CANTILEVER SIGN BRIDGE
- DENOTES SIGN NUMBER
- INDICATES SIGN SIZE
- EXISTING SIGN TO REMAIN













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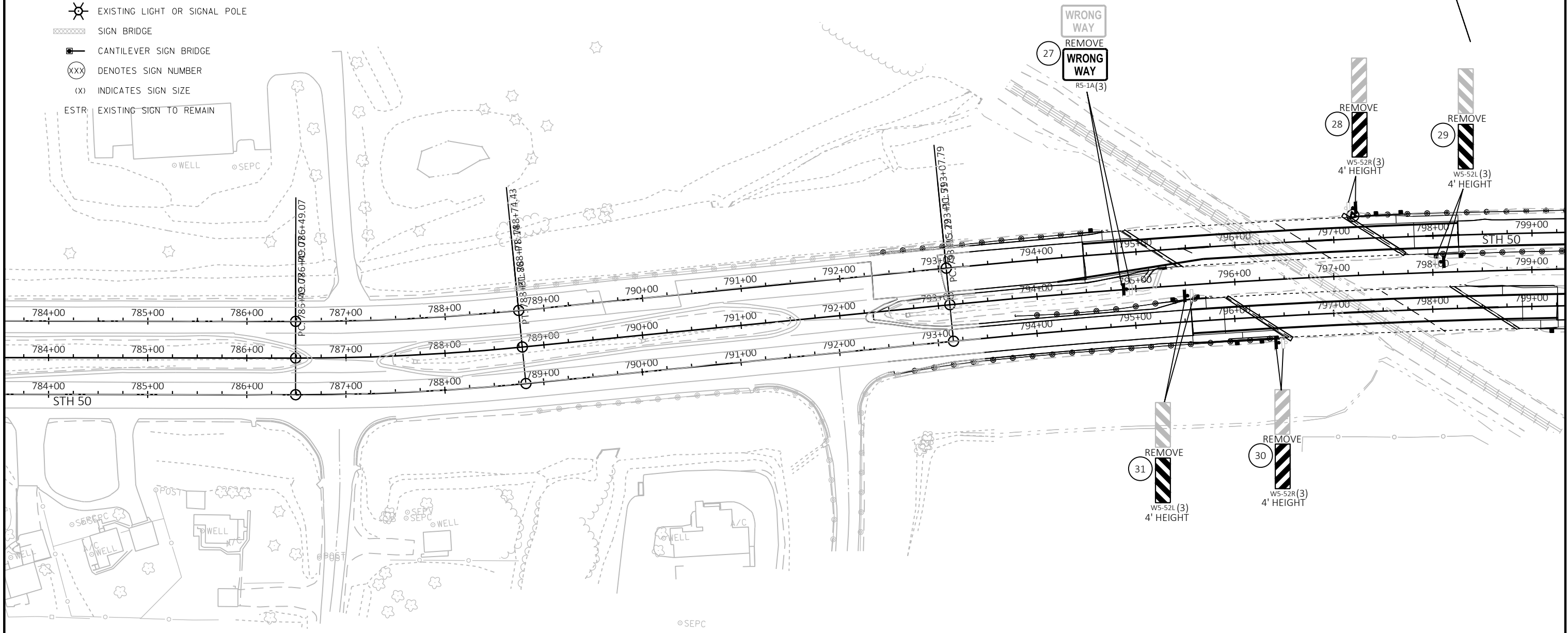
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-  VARIABLE MESSAGE SIGN
-  EXISTING LIGHT OR SIGNAL POLE
-  SIGN BRIDGE
-  CANTILEVER SIGN BRIDGE
-  DENOTES SIGN NUMBER
-  INDICATES SIGN SIZE
-  EXISTING SIGN TO REMAIN













PROJECT NO: 1310-14-70	HWY: STH 50	COUNTY: KENOSHA	PERMANENT SIGNING
SHEET			<b>E</b>

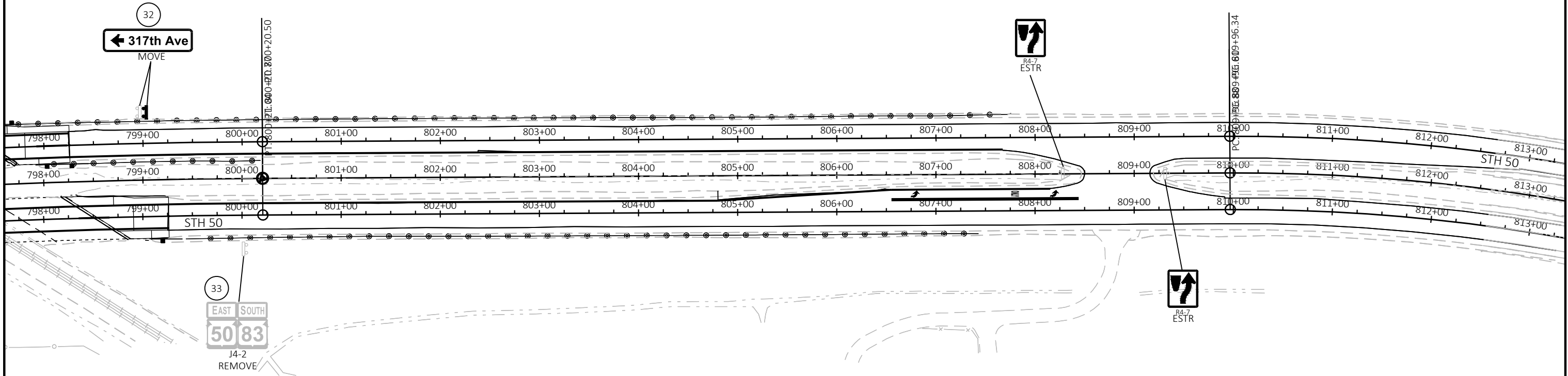
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-  EXISTING SIGN MOUNTED ON BRIDGE OR SIGN BRIDGE
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-  PROPOSED SIGN MOUNTED ON BRIDGE OR SIGN BRIDGE
-  VARIABLE MESSAGE SIGN
-  EXISTING LIGHT OR SIGNAL POLE
-  SIGN BRIDGE
-  CANTILEVER SIGN BRIDGE
-  DENOTES SIGN NUMBER
-  INDICATES SIGN SIZE
- ESTR: EXISTING SIGN TO REMAIN



LEGEND












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-  PROPOSED SIGN MOUNTED ON BRIDGE OR SIGN BRIDGE
-  VARIABLE MESSAGE SIGN
-  EXISTING LIGHT OR SIGNAL POLE
-  SIGN BRIDGE
-  CANTILEVER SIGN BRIDGE
-  DENOTES SIGN NUMBER
-  (X) INDICATES SIGN SIZE
- ESTR EXISTING SIGN TO REMAIN



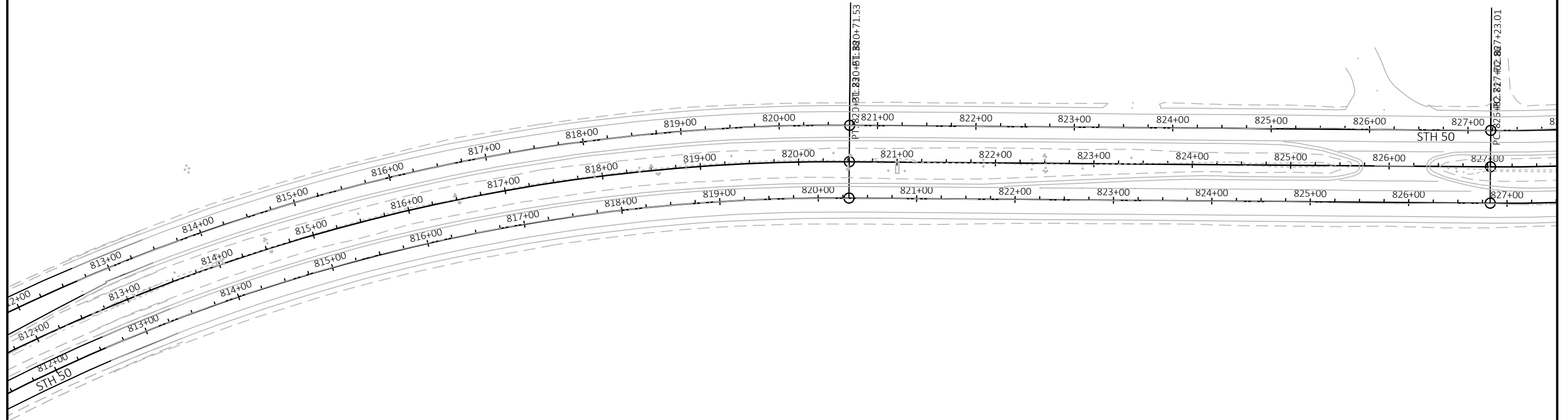
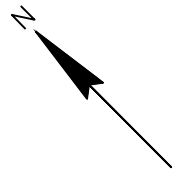
PROJECT NO: 1310-14-70	HWY: STH 50	COUNTY: KENOSHA	PERMANENT SIGNING	SHEET <b>E</b>
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


LEGEND

-  EXISTING SIGN MOUNTED ON POST(S)
-  EXISTING SIGN MOUNTED ON BRIDGE OR SIGN BRIDGE
-  PROPOSED SIGN MOUNTED ON POST(S)
-  PROPOSED SIGN MOUNTED ON BRIDGE OR SIGN BRIDGE
-  VARIABLE MESSAGE SIGN
-  EXISTING LIGHT OR SIGNAL POLE
-  SIGN BRIDGE
-  CANTILEVER SIGN BRIDGE
-  DENOTES SIGN NUMBER
-  (X) INDICATES SIGN SIZE
-  ESTR EXISTING SIGN TO REMAIN

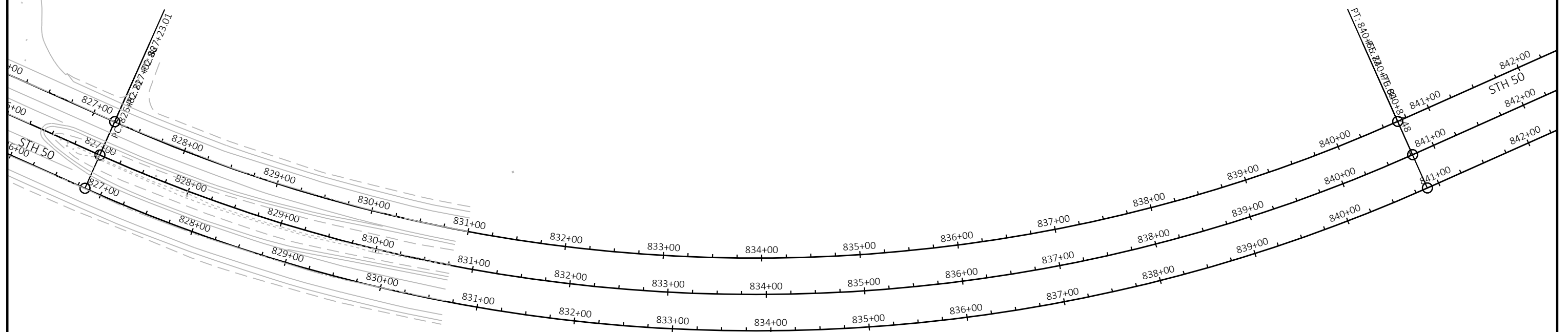
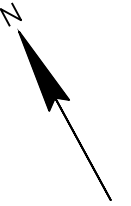
NO SIGNS IMPACTED

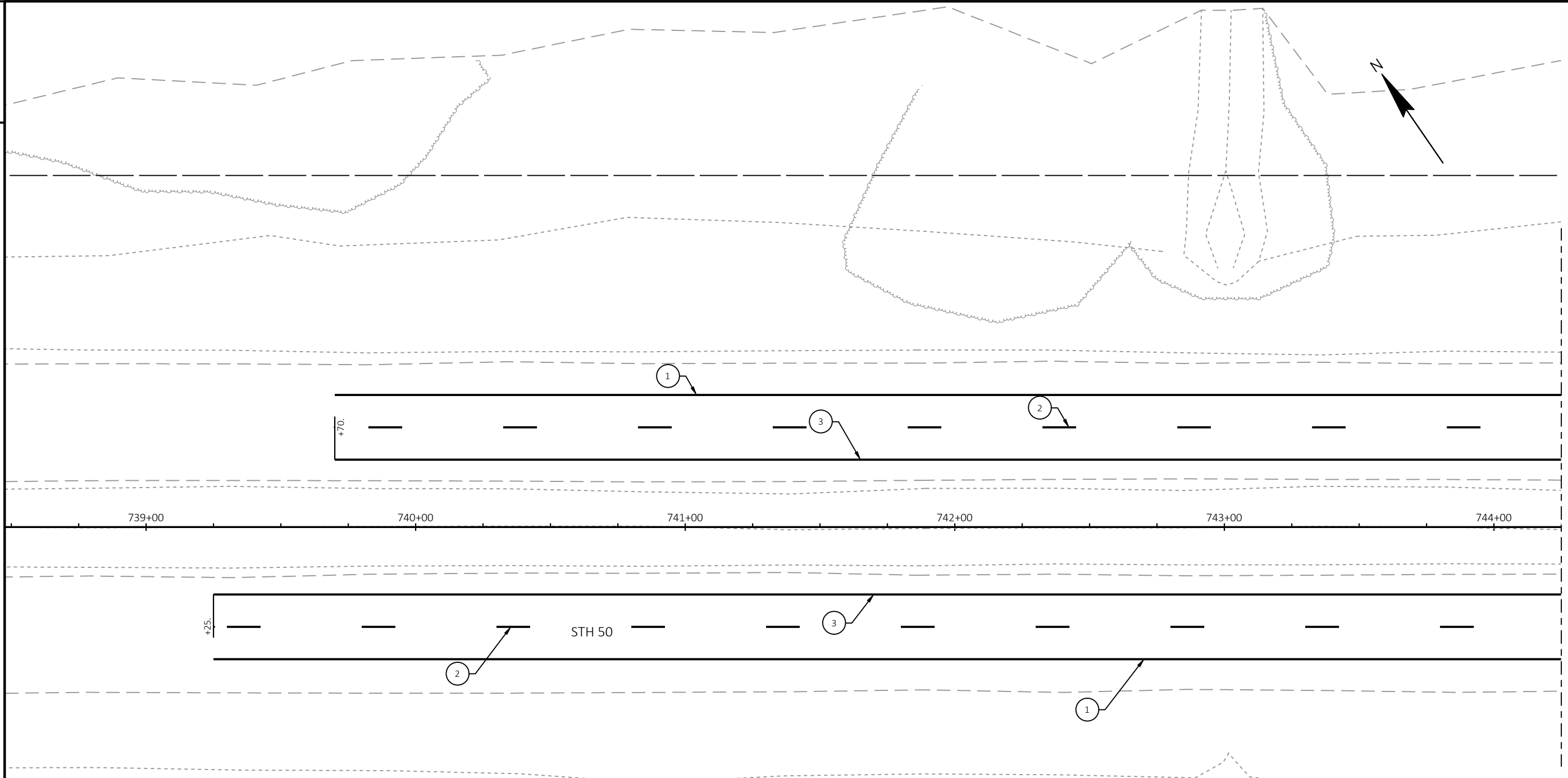


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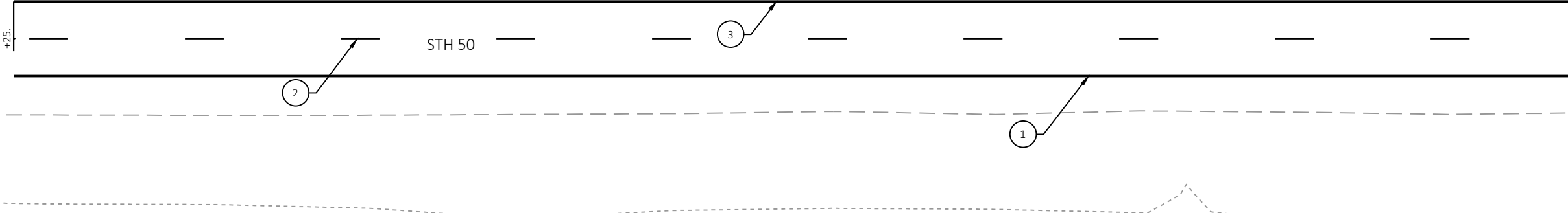
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-  SIGN BRIDGE
-  CANTILEVER SIGN BRIDGE
-  DENOTES SIGN NUMBER
-  (X) INDICATES SIGN SIZE
- ESTR EXISTING SIGN TO REMAIN

NO SIGNS IMPACTED



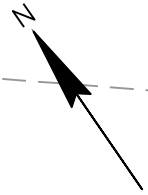


MATCHLINE STA. 744+25

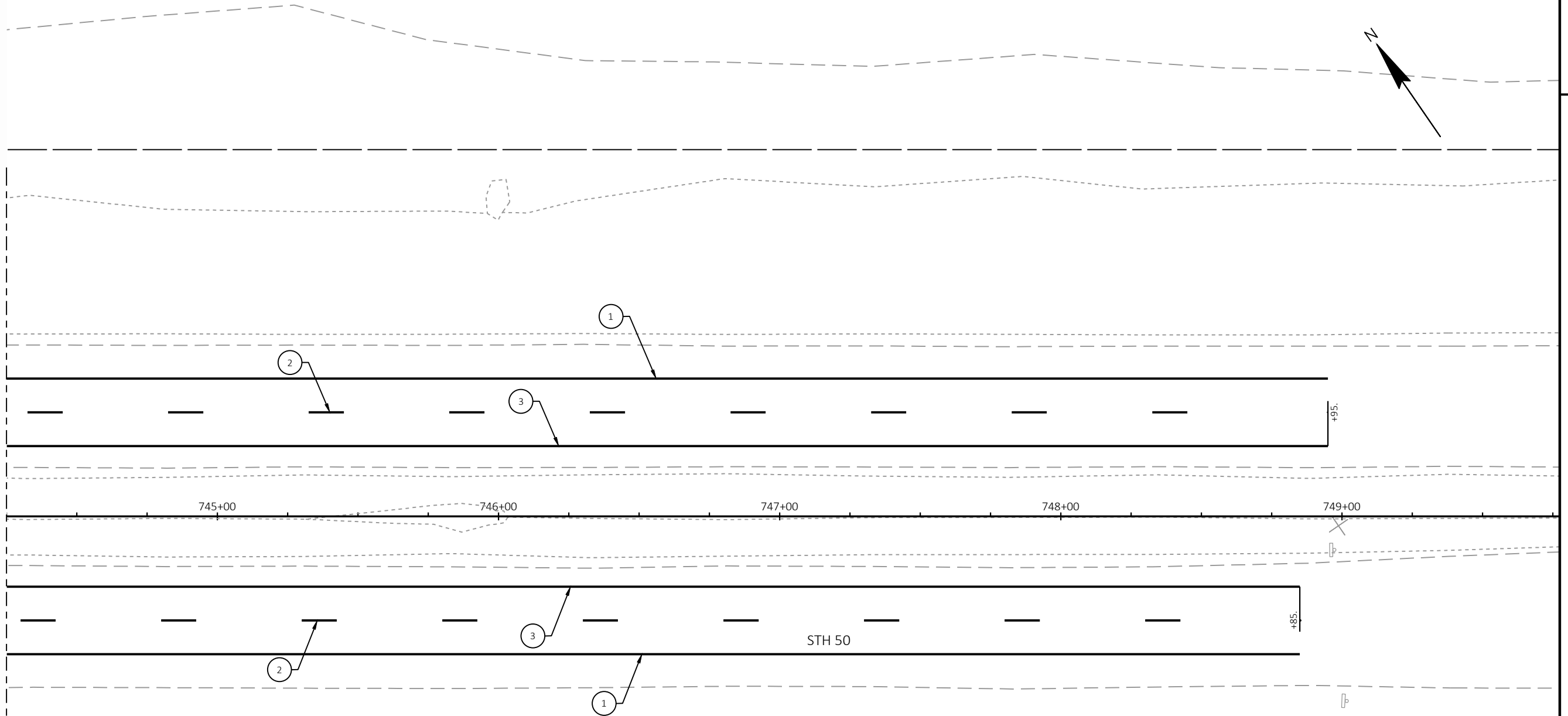


**LEGEND**

- ① MARKING LINE EPOXY 4-INCH, WHITE
- ② MARKING LINE GROOVED WET REF CONTRAST EPOXY 4-INCH, WHITE (37.5' SKIP, 12.5' LINE)
- ③ MARKING LINE EPOXY 4-INCH, YELLOW
- ④ MARKING LINE GROOVED WET REF CONTRAST EPOXY 8-INCH, WHITE
- ⑤ MARKING ARROW EPOXY
- ⑥ MARKING WORD EPOXY
- ⑦ MARKING STOP LINE EPOXY 18-INCH
- ⑧ MARKING OUTFALL EPOXY

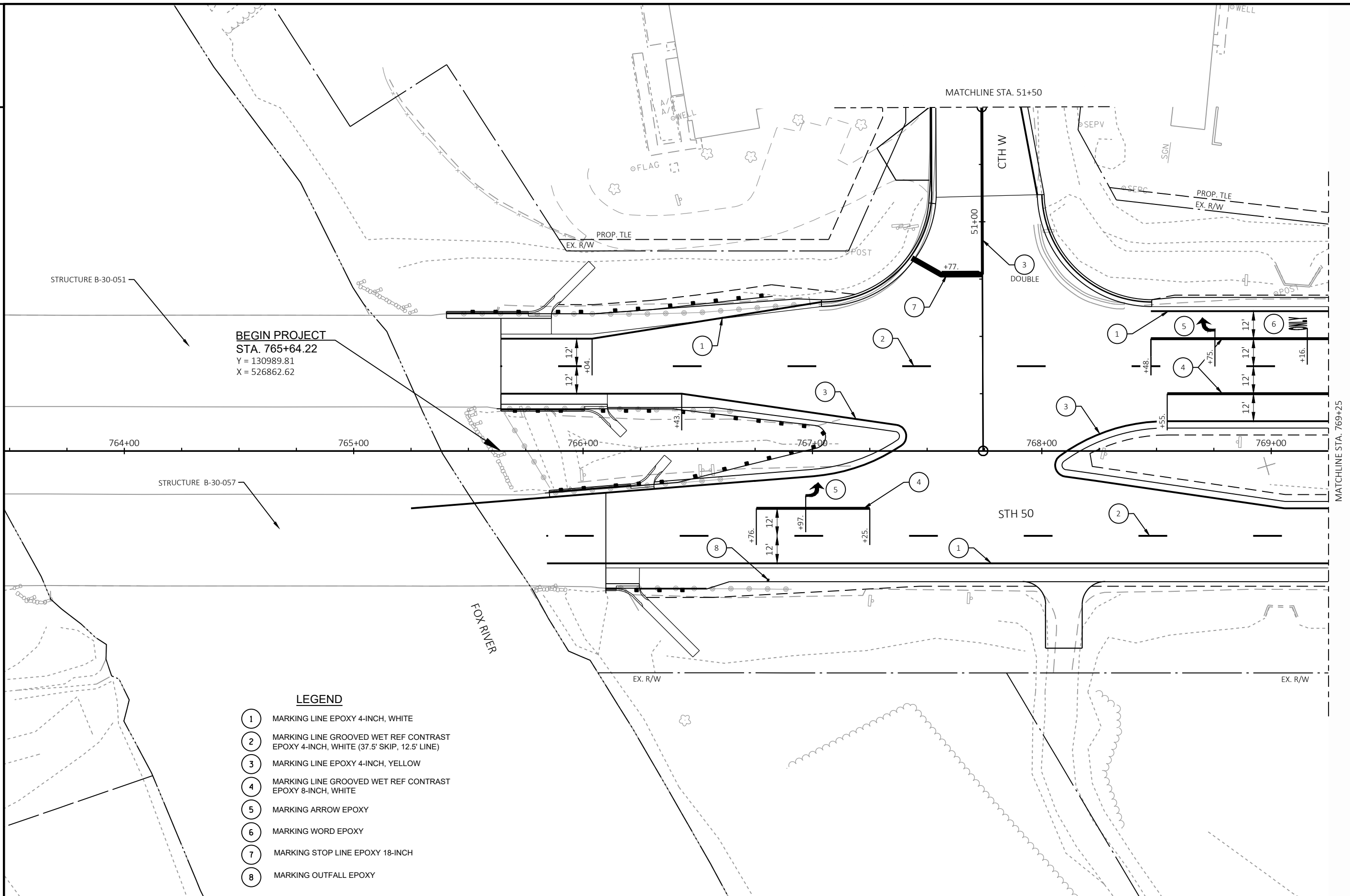


MATCHLINE STA. 744+25



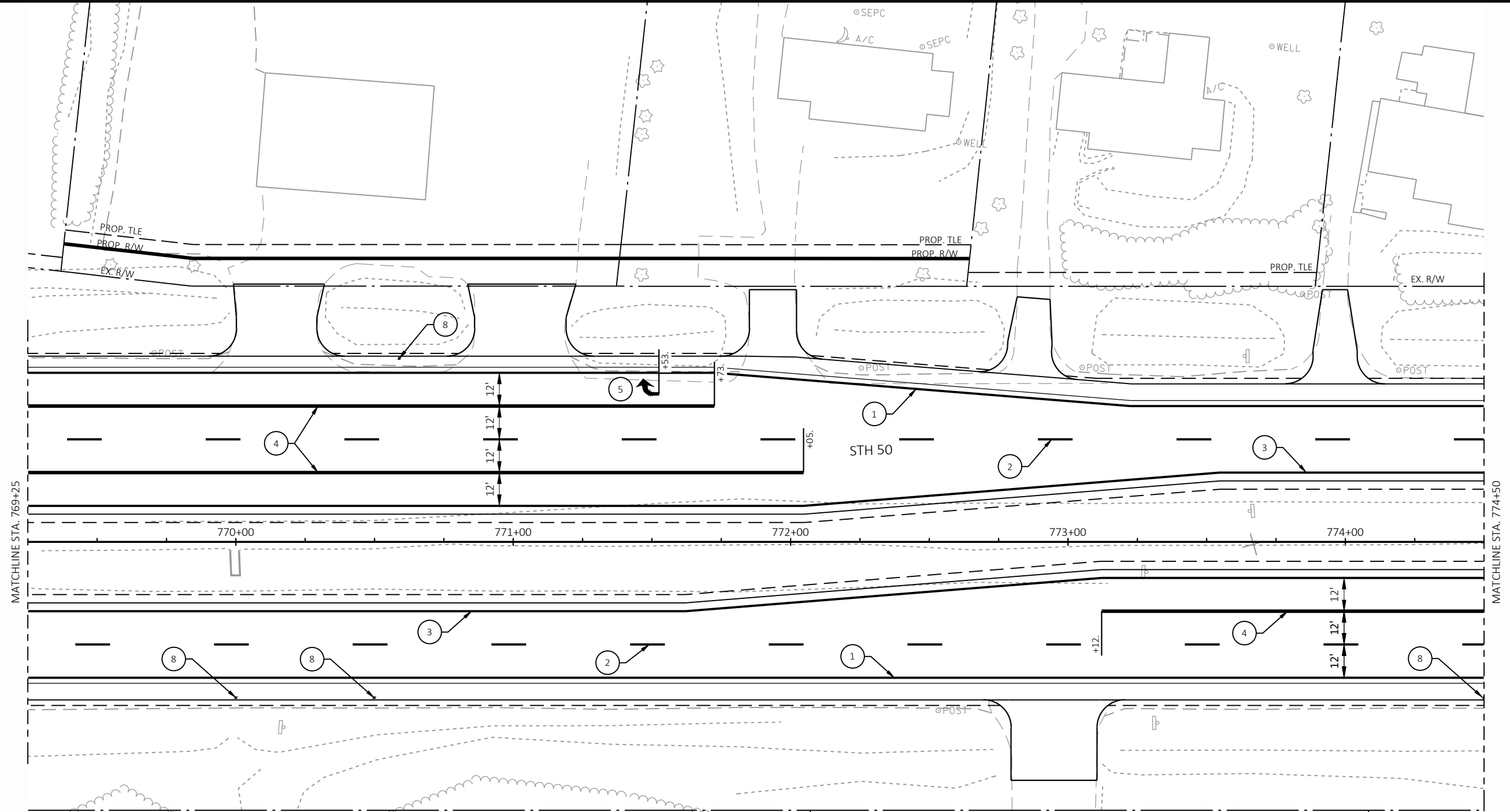
**LEGEND**

- ① MARKING LINE EPOXY 4-INCH, WHITE
- ② MARKING LINE GROOVED WET REF CONTRAST EPOXY 4-INCH, WHITE (37.5' SKIP, 12.5' LINE)
- ③ MARKING LINE EPOXY 4-INCH, YELLOW
- ④ MARKING LINE GROOVED WET REF CONTRAST EPOXY 8-INCH, WHITE
- ⑤ MARKING ARROW EPOXY
- ⑥ MARKING WORD EPOXY
- ⑦ MARKING STOP LINE EPOXY 18-INCH
- ⑧ MARKING OUTFALL EPOXY

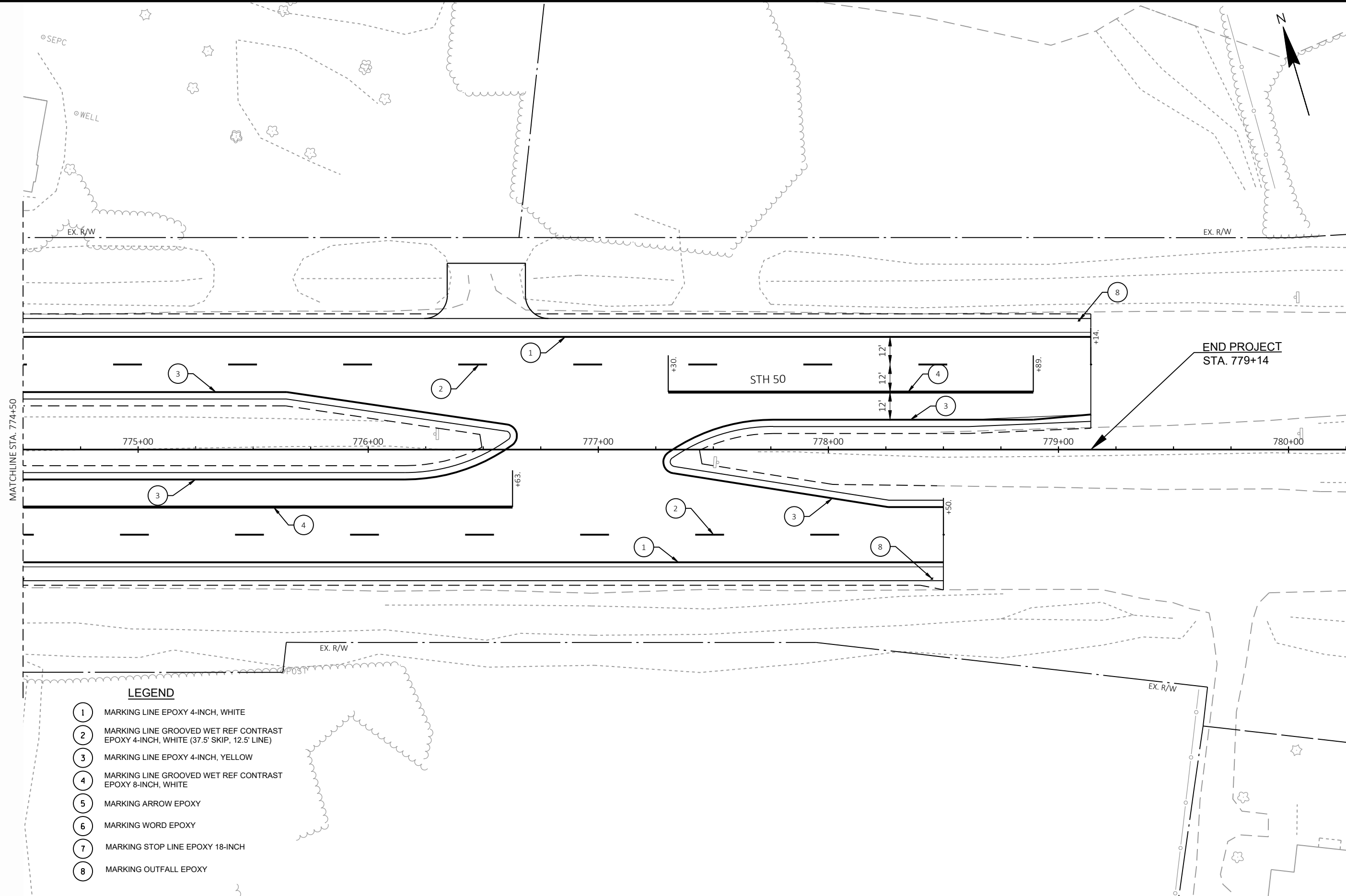


**BEGIN PROJECT**  
 STA. 765+64.22  
 Y = 130989.81  
 X = 526862.62

- LEGEND**
- ① MARKING LINE EPOXY 4-INCH, WHITE
  - ② MARKING LINE GROOVED WET REF CONTRAST EPOXY 4-INCH, WHITE (37.5' SKIP, 12.5' LINE)
  - ③ MARKING LINE EPOXY 4-INCH, YELLOW
  - ④ MARKING LINE GROOVED WET REF CONTRAST EPOXY 8-INCH, WHITE
  - ⑤ MARKING ARROW EPOXY
  - ⑥ MARKING WORD EPOXY
  - ⑦ MARKING STOP LINE EPOXY 18-INCH
  - ⑧ MARKING OUTFALL EPOXY

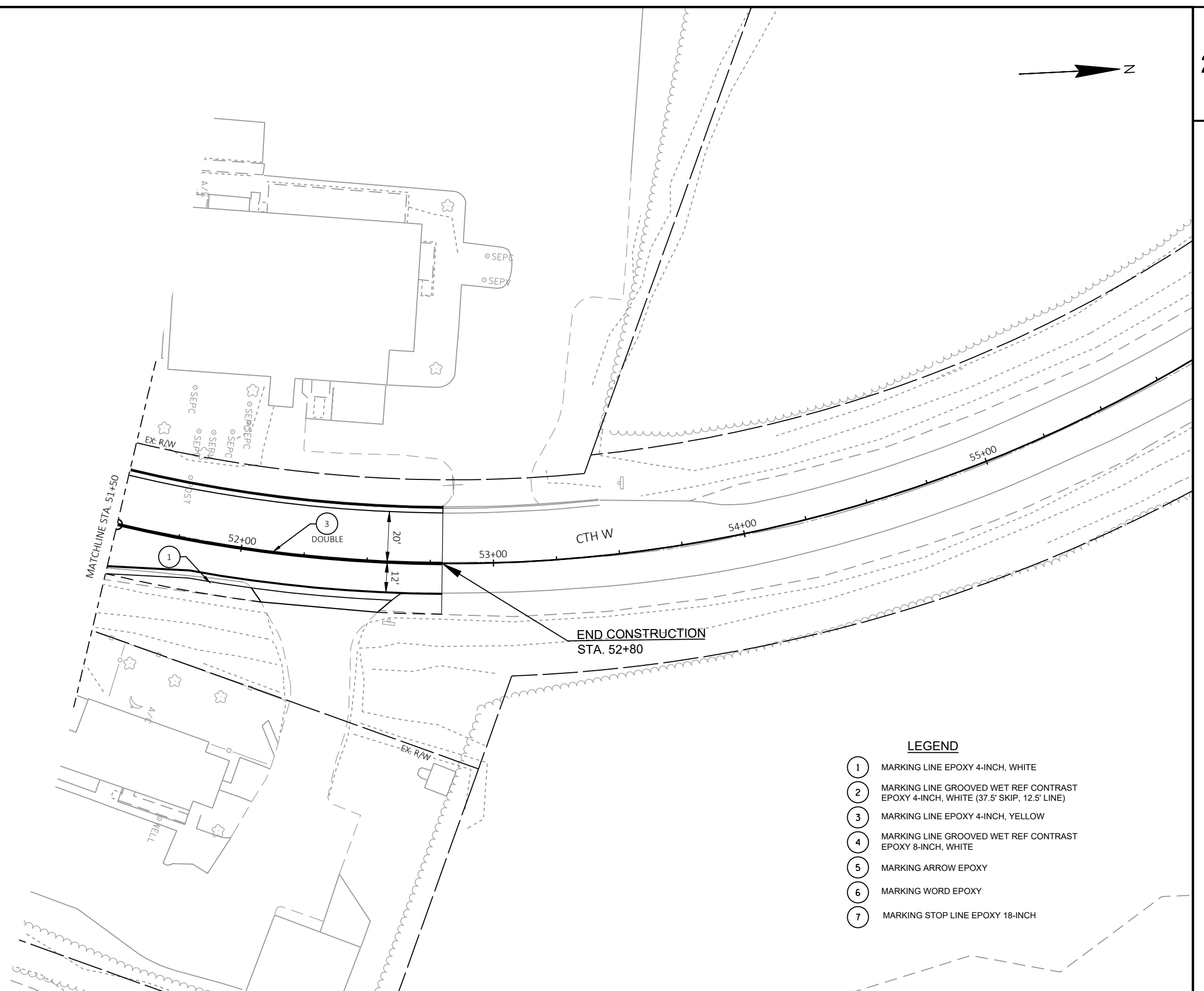


- ① MARKING LINE EPOXY 4-INCH, WHITE
- ② MARKING LINE GROOVED WET REF CONTRAST EPOXY 4-INCH, WHITE (37.5' SKIP, 12.5' LINE)
- ③ MARKING LINE EPOXY 4-INCH, YELLOW
- ④ MARKING LINE GROOVED WET REF CONTRAST EPOXY 8-INCH, WHITE
- ⑤ MARKING ARROW EPOXY
- ⑥ MARKING WORD EPOXY
- ⑦ MARKING STOP LINE EPOXY 18-INCH
- ⑧ MARKING OUTFALL EPOXY



**LEGEND**

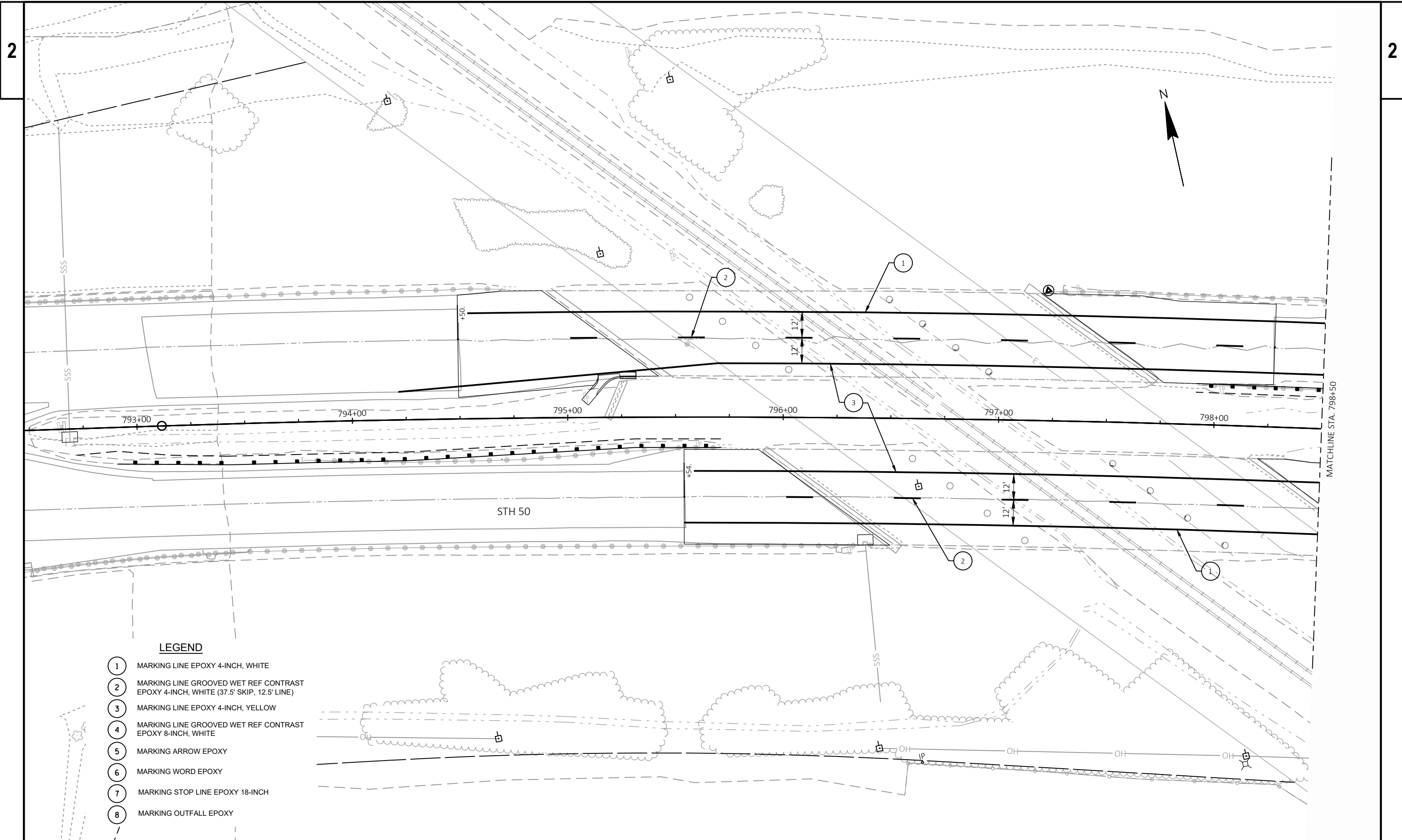
- ① MARKING LINE EPOXY 4-INCH, WHITE
- ② MARKING LINE GROOVED WET REF CONTRAST EPOXY 4-INCH, WHITE (37.5' SKIP, 12.5' LINE)
- ③ MARKING LINE EPOXY 4-INCH, YELLOW
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- ⑤ MARKING ARROW EPOXY
- ⑥ MARKING WORD EPOXY
- ⑦ MARKING STOP LINE EPOXY 18-INCH
- ⑧ MARKING OUTFALL EPOXY



**LEGEND**

- ① MARKING LINE EPOXY 4-INCH, WHITE
- ② MARKING LINE GROOVED WET REF CONTRAST EPOXY 4-INCH, WHITE (37.5' SKIP, 12.5' LINE)
- ③ MARKING LINE EPOXY 4-INCH, YELLOW
- ④ MARKING LINE GROOVED WET REF CONTRAST EPOXY 8-INCH, WHITE
- ⑤ MARKING ARROW EPOXY
- ⑥ MARKING WORD EPOXY
- ⑦ MARKING STOP LINE EPOXY 18-INCH





**LEGEND**

- ① MARKING LINE EPOXY 4-INCH, WHITE
- ② MARKING LINE GROOVED WET REF CONTRAST EPOXY 4-INCH, WHITE (37.5' SKIP, 12.5' LINE)
- ③ MARKING LINE EPOXY 4-INCH, YELLOW
- ④ MARKING LINE GROOVED WET REF CONTRAST EPOXY 8-INCH, WHITE
- ⑤ MARKING ARROW EPOXY
- ⑥ MARKING WORD EPOXY
- ⑦ MARKING STOP LINE EPOXY 18-INCH
- ⑧ MARKING OUTFALL EPOXY

PROJECT NO: 1310-14-70

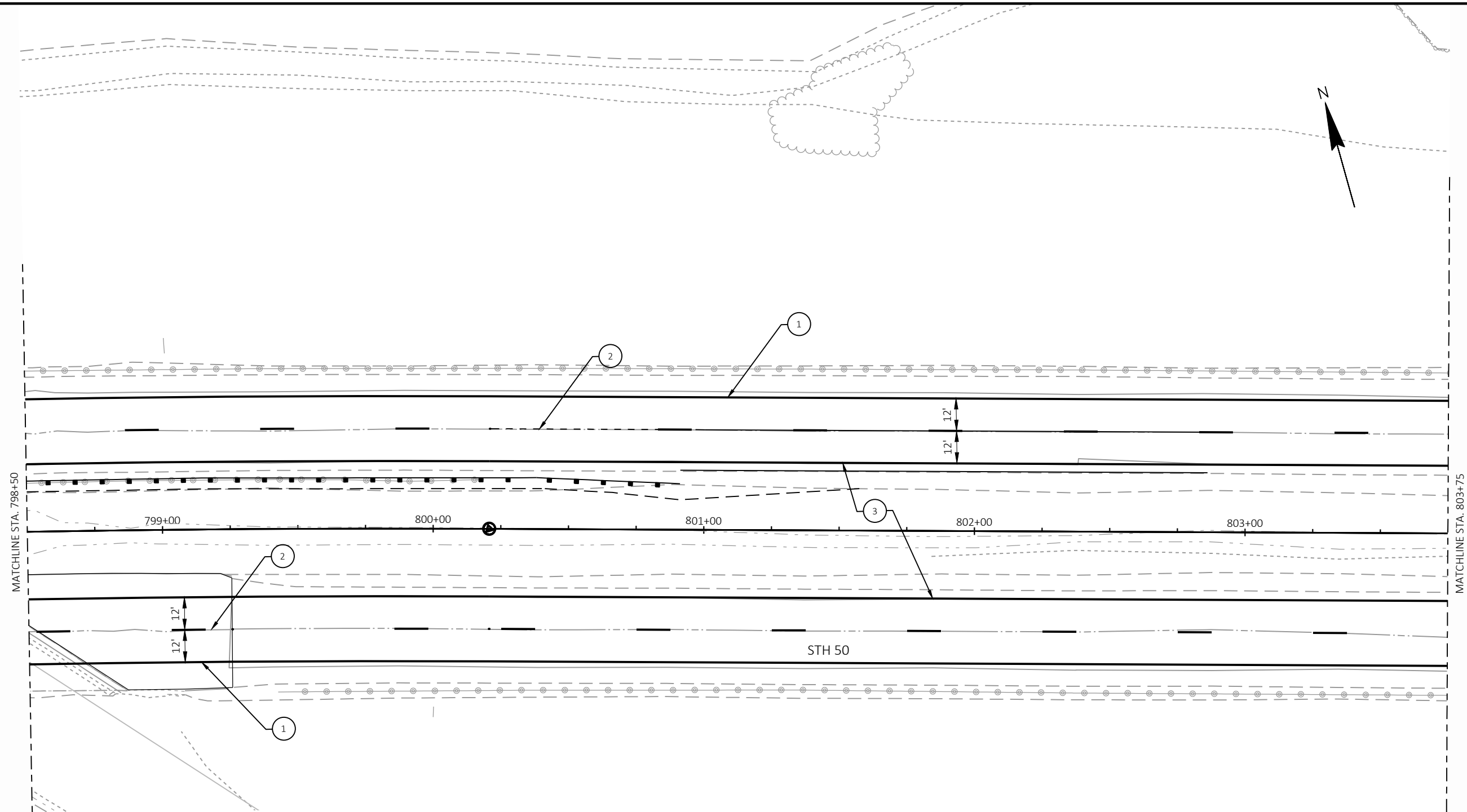
HWY: STH 50

COUNTY: KENOSHA

PAVEMENT MARKING PLAN

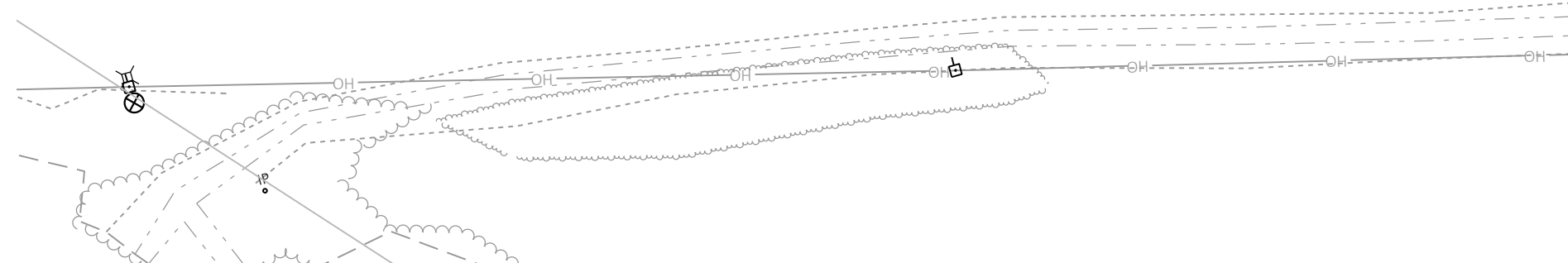
SHEET

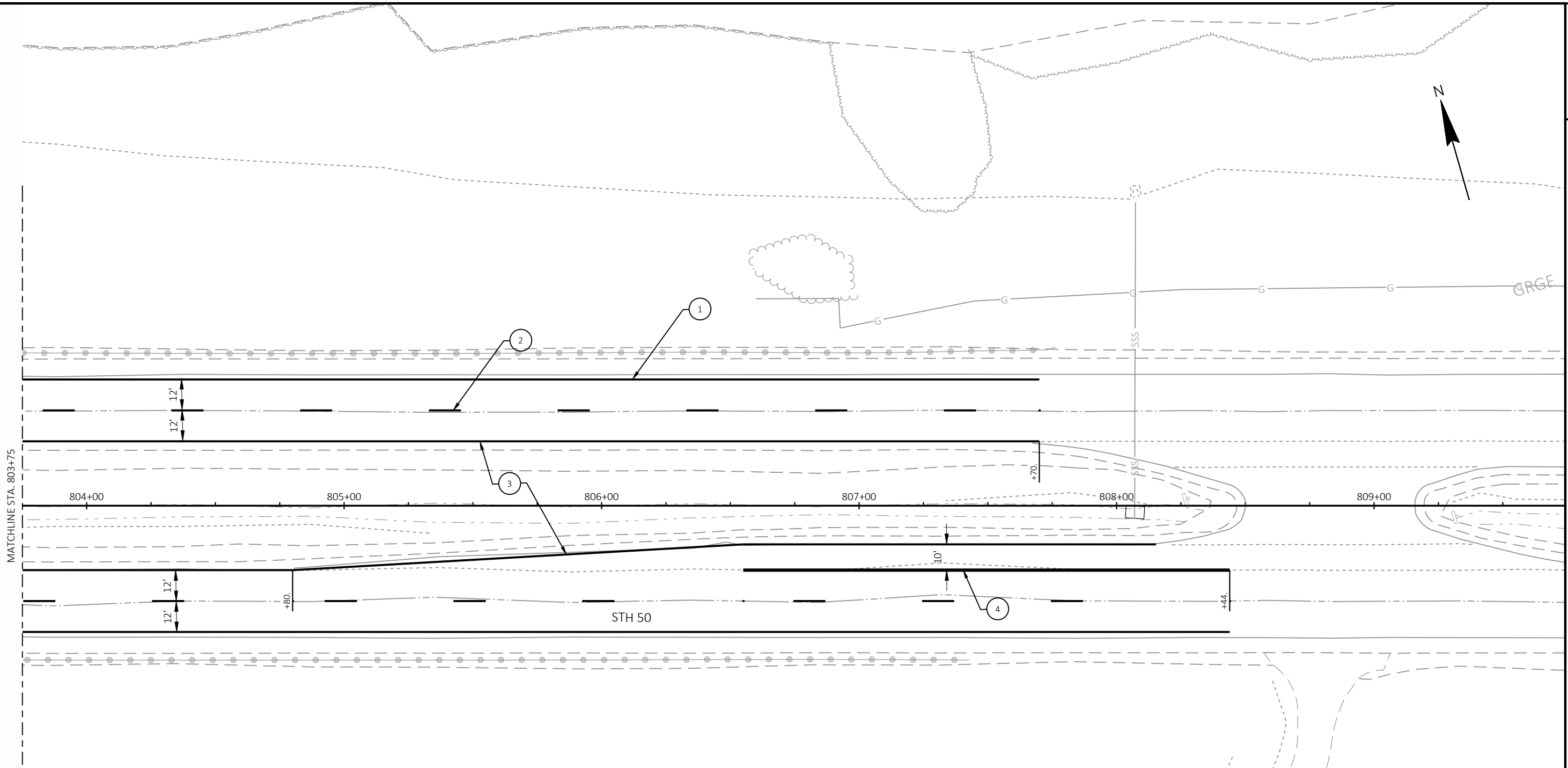
E



**LEGEND**

- 1 MARKING LINE EPOXY 4-INCH, WHITE
- 2 MARKING LINE GROOVED WET REF CONTRAST EPOXY 4-INCH, WHITE (37.5' SKIP, 12.5' LINE)
- 3 MARKING LINE EPOXY 4-INCH, YELLOW
- 4 MARKING LINE GROOVED WET REF CONTRAST EPOXY 8-INCH, WHITE
- 5 MARKING ARROW EPOXY
- 6 MARKING WORD EPOXY
- 7 MARKING STOP LINE EPOXY 18-INCH
- 8 MARKING OUTFALL EPOXY





**LEGEND**

- ① MARKING LINE EPOXY 4-INCH, WHITE
- ② MARKING LINE GROOVED WET REF CONTRAST EPOXY 4-INCH, WHITE (37.5' SKIP, 12.5' LINE)
- ③ MARKING LINE EPOXY 4-INCH, YELLOW
- ④ MARKING LINE GROOVED WET REF CONTRAST EPOXY 8-INCH, WHITE
- ⑤ MARKING ARROW EPOXY
- ⑥ MARKING WORD EPOXY
- ⑦ MARKING STOP LINE EPOXY 18-INCH
- ⑧ MARKING OUTFALL EPOXY

PROJECT NO: 1310-14-70

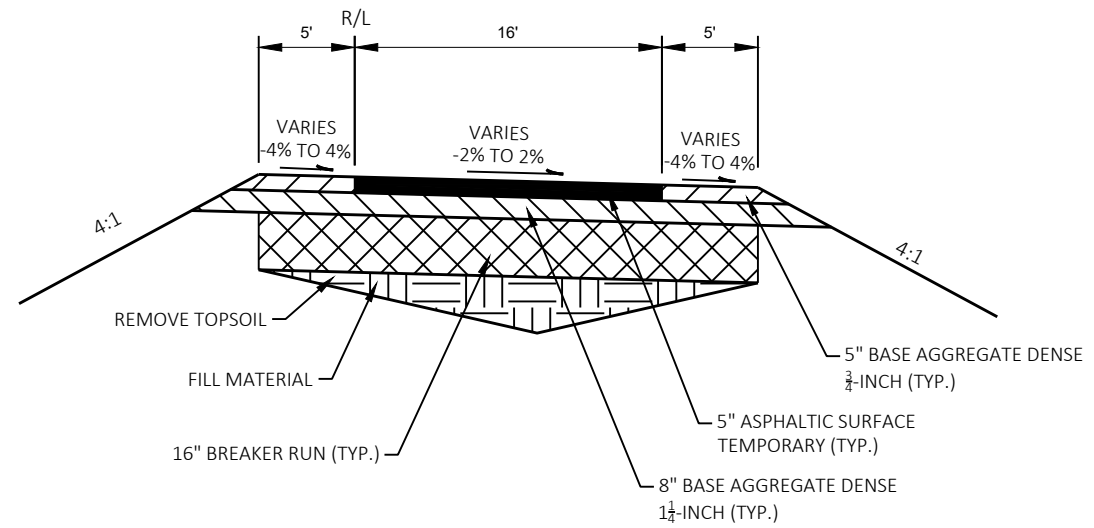
HWY: STH 50

COUNTY: KENOSHA

PAVEMENT MARKING PLAN

SHEET

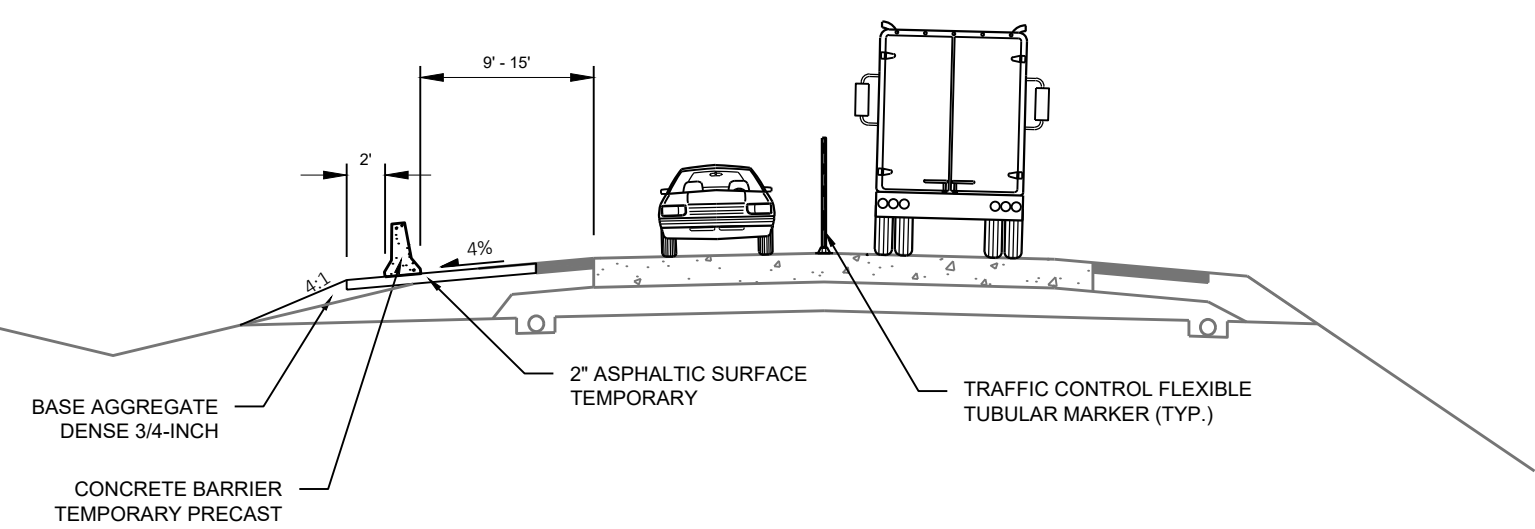
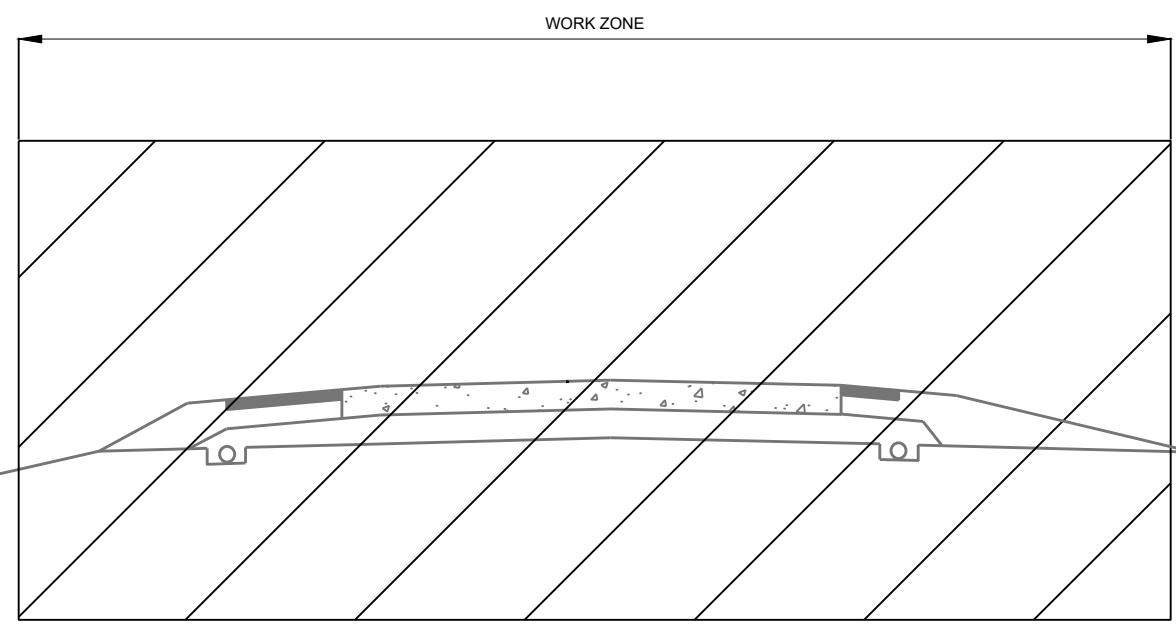
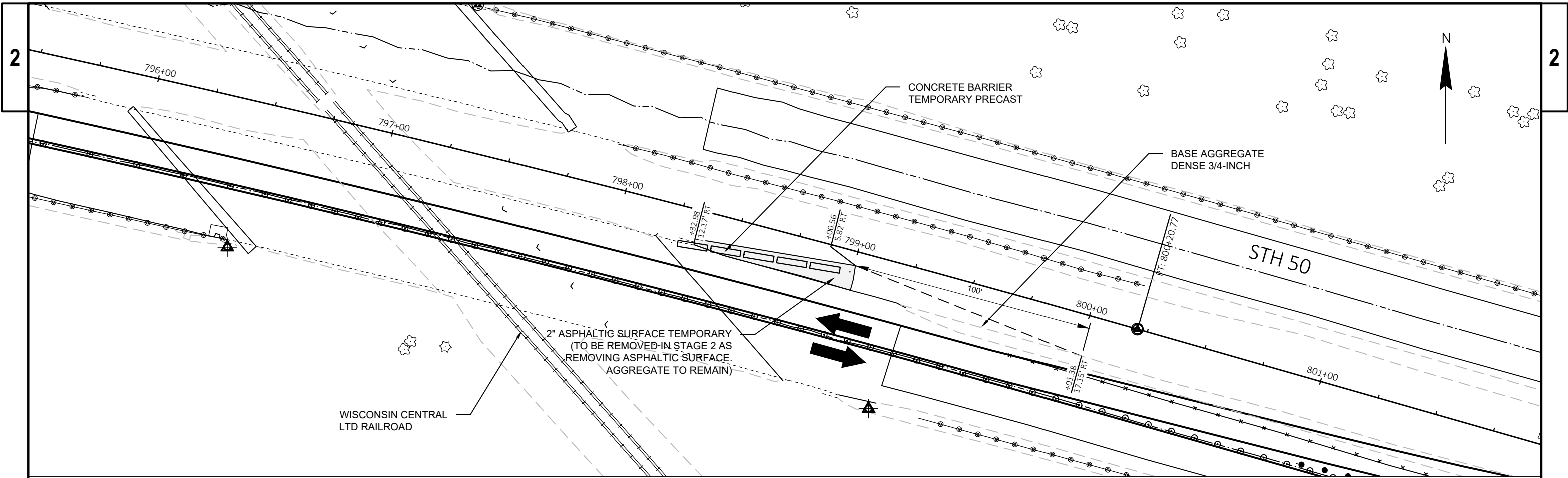
E



TYPICAL SECTION - STH 50 CROSSOVERS  
 STA. 738+75 - 750+00  
 STA. 799+50 - 807+85

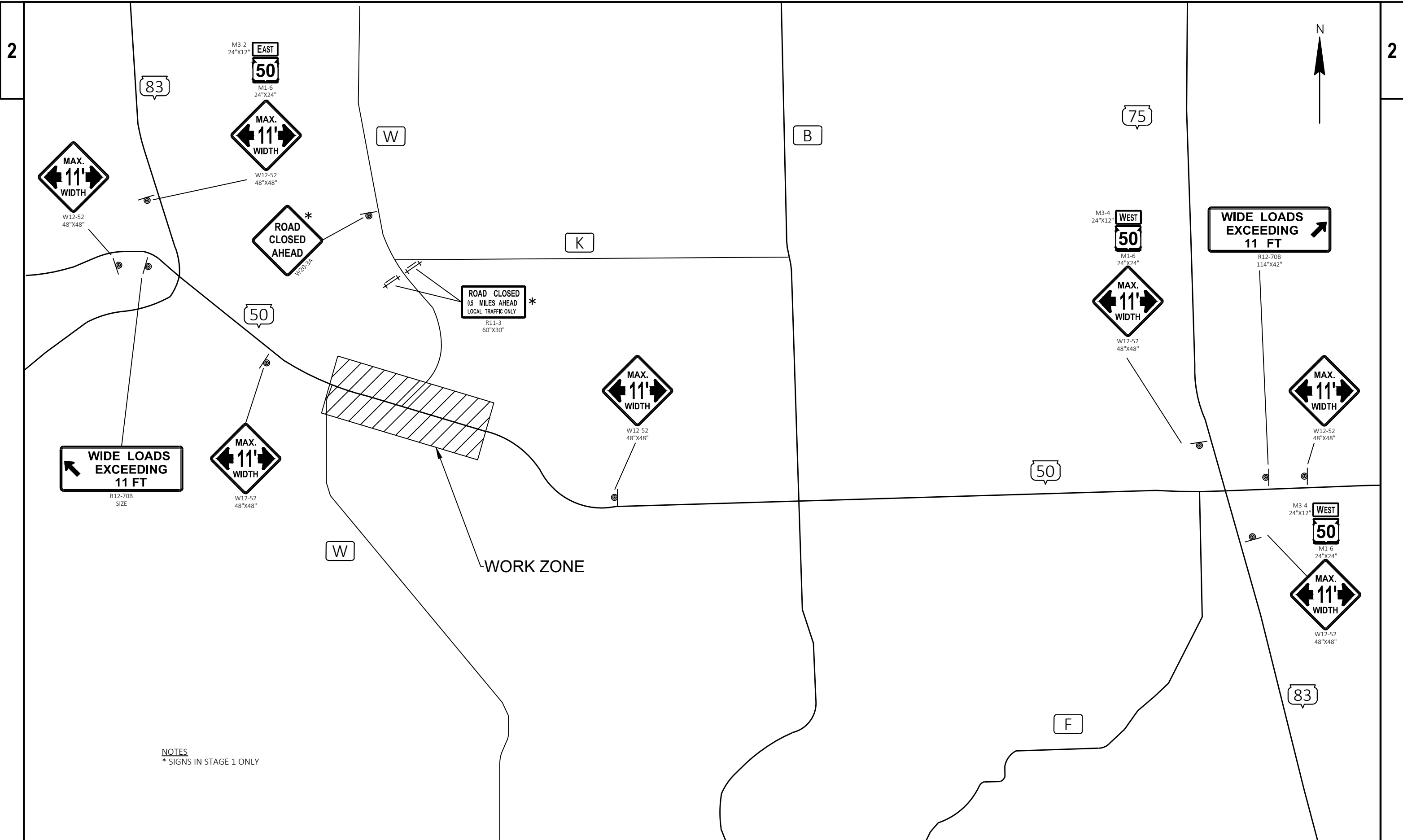
GENERAL NOTES FOR TRAFFIC CONTROL

1. TRAFFIC CONTROL DRUMS IN TAPERS, SHALL BE EQUIPPED WITH WARNING LIGHTS, TYPE "C", ONE WAY LIGHTS IN TAPERS ONLY, UNLESS OTHERWISE SHOWN.
2. SIGN LOCATIONS ARE APPROXIMATE. THE ACTUAL LOCATION SPACING MAY BE ADJUSTED AS DIRECTED BY THE ENGINEER TO MEET FIELD CONDITIONS.
3. "WO" SIGNS ARE THE SAME AS "W" SIGNS EXCEPT THE BACKGROUND IS REFLECTIVE ORANGE.
4. ALL TRAFFIC CONTROL SIGNS SHALL BE 48" X 48" UNLESS OTHERWISE NOTED IN THE PLANS.
5. BARRICADE STRIPES ARE TO BE SLOPED DOWNWARD IN THE DIRECTION OF TRAFFIC FLOW.

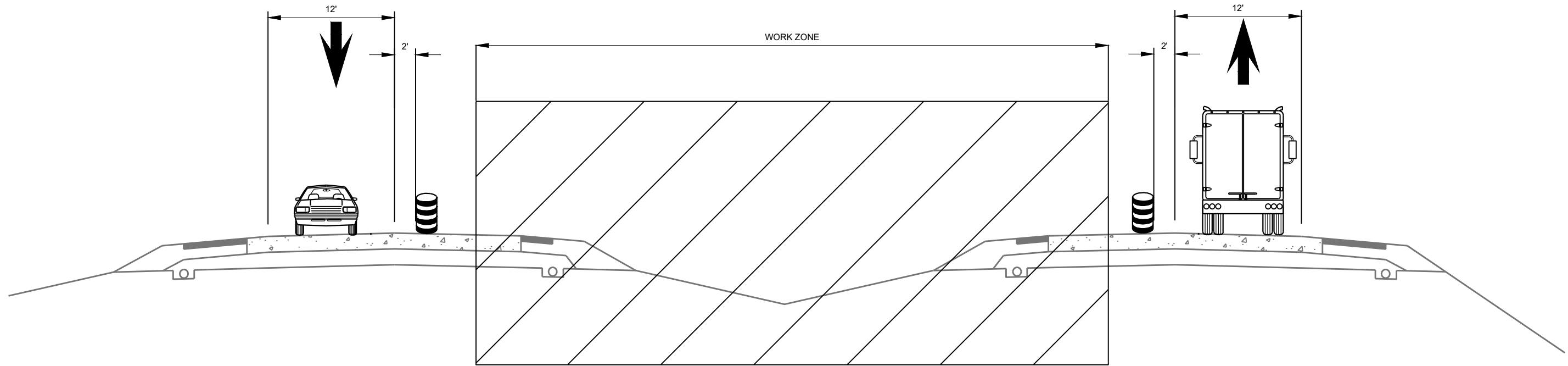


STH 50  
 TEMPORARY BARRIER DETAIL  
 STA. 797+00 - 800+00

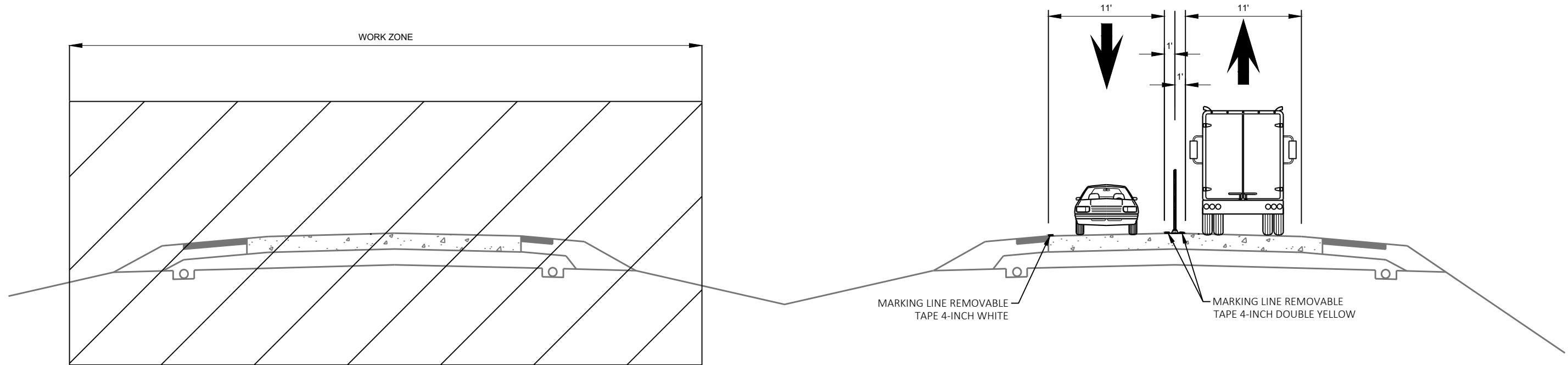
PROJECT NO: 1310-14-70	HWY: STH 50	COUNTY: KENOSHA	TRAFFIC CONTROL	SHEET	<b>E</b>
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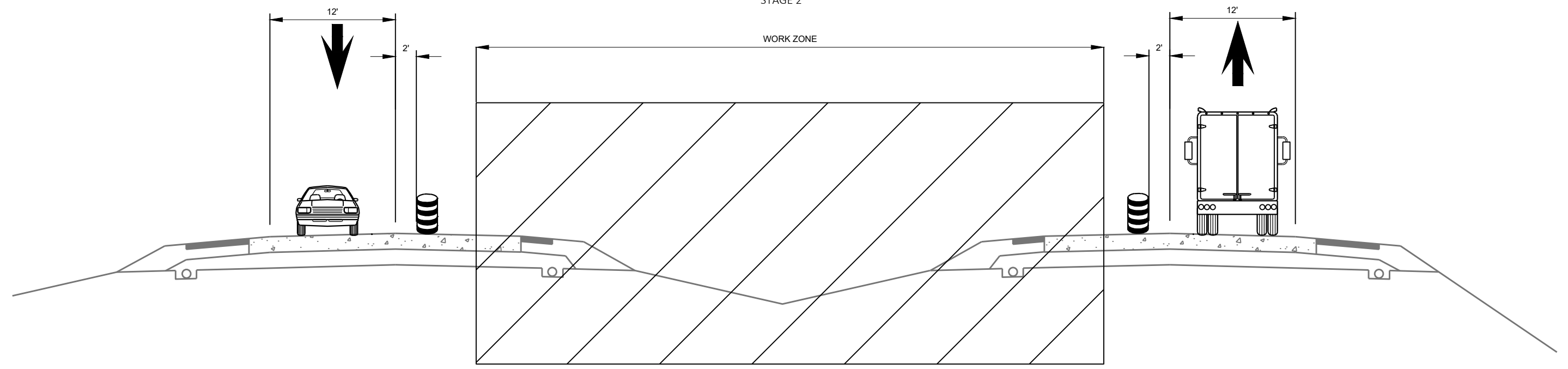
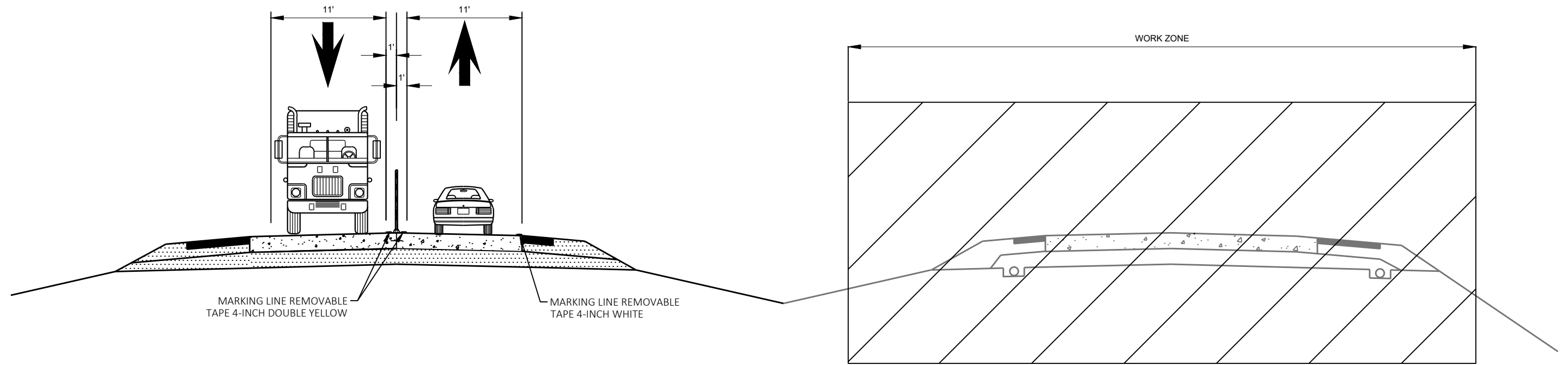
NOTES  
 \* SIGNS IN STAGE 1 ONLY



TYPICAL SECTION - STH 50  
PRE-STAGE








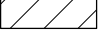



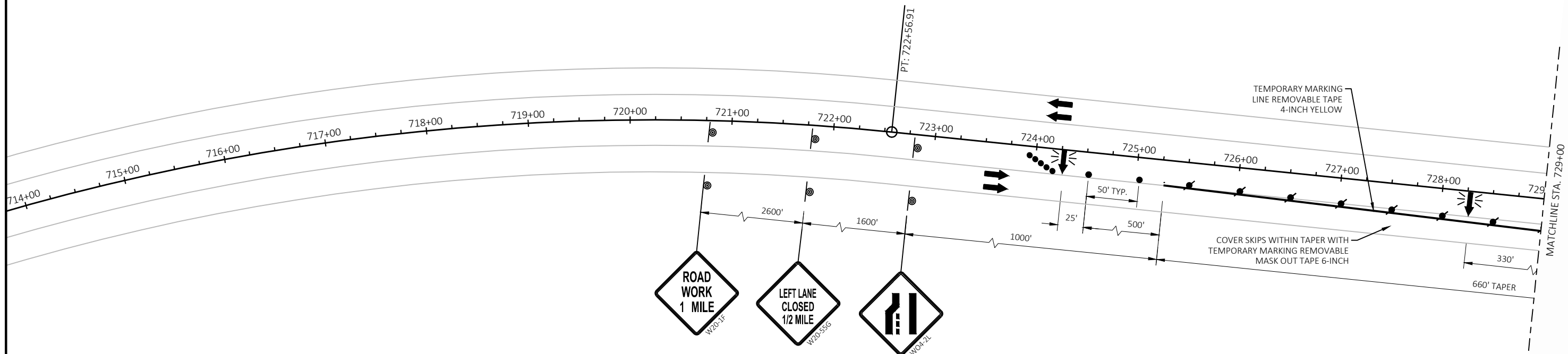
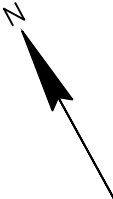
TYPICAL SECTION - STH 50  
STAGE 1

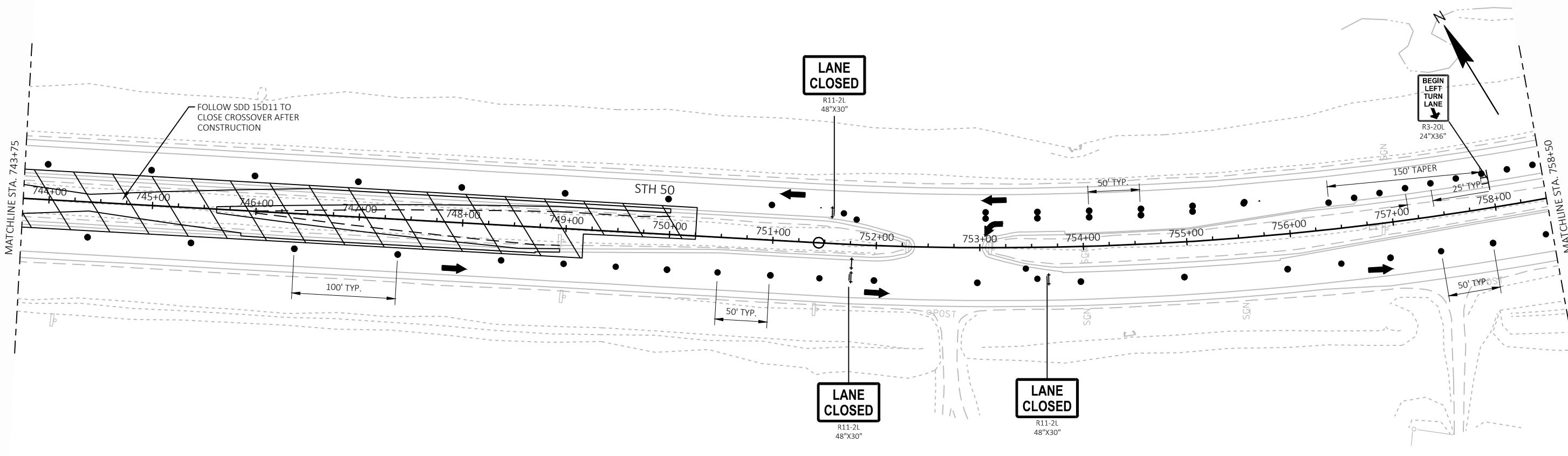
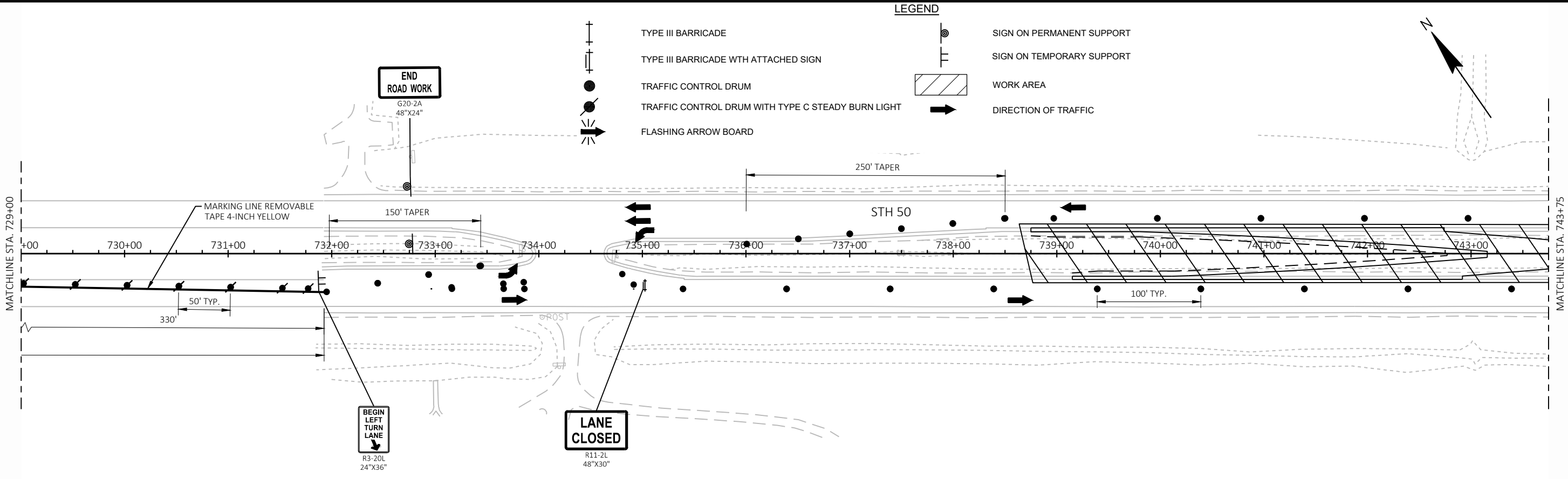













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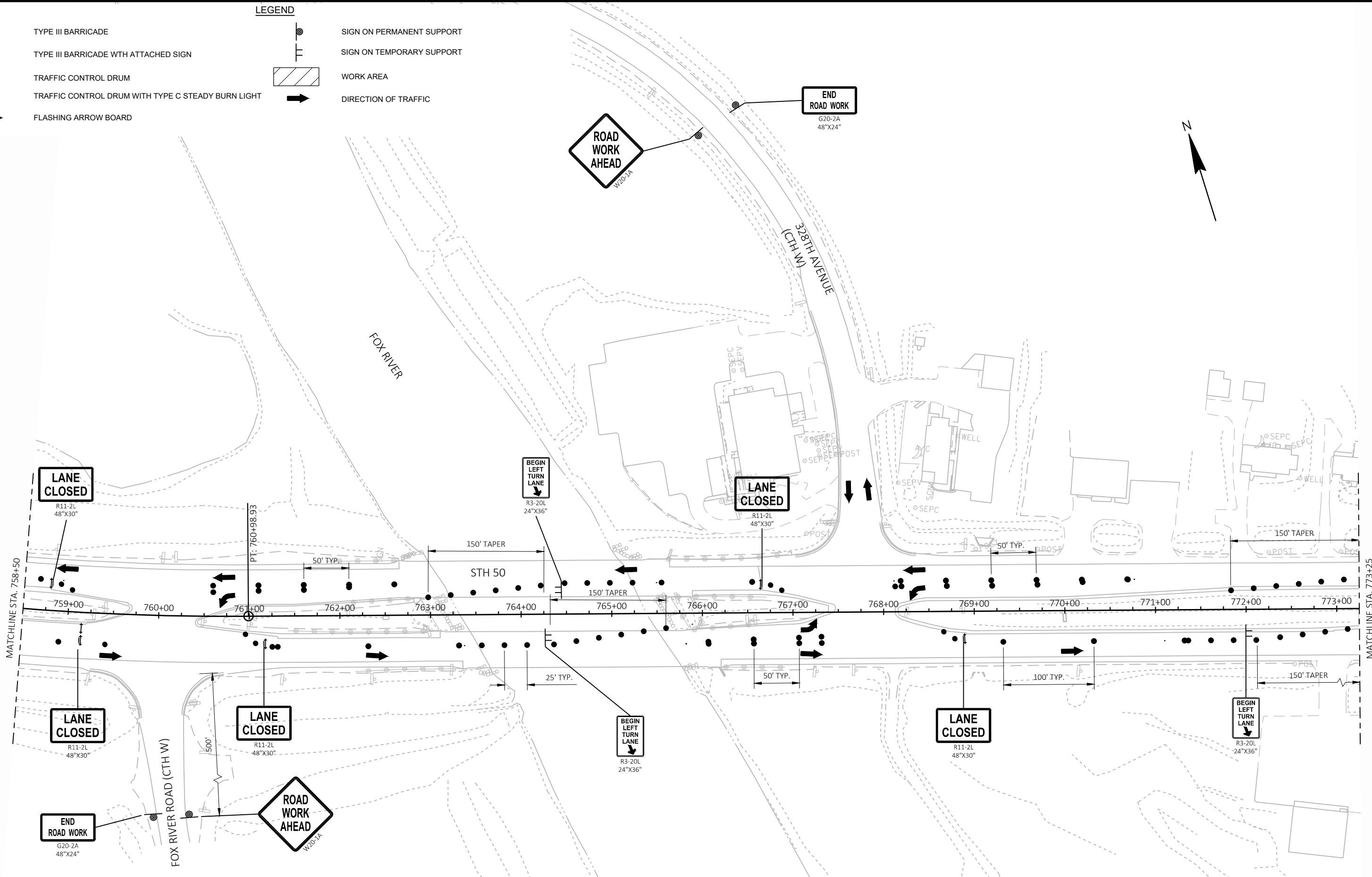
-  TYPE III BARRICADE
-  TYPE III BARRICADE WITH ATTACHED SIGN
-  TRAFFIC CONTROL DRUM
-  TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT
-  FLASHING ARROW BOARD
-  SIGN ON PERMANENT SUPPORT
-  SIGN ON TEMPORARY SUPPORT
-  WORK AREA
-  DIRECTION OF TRAFFIC

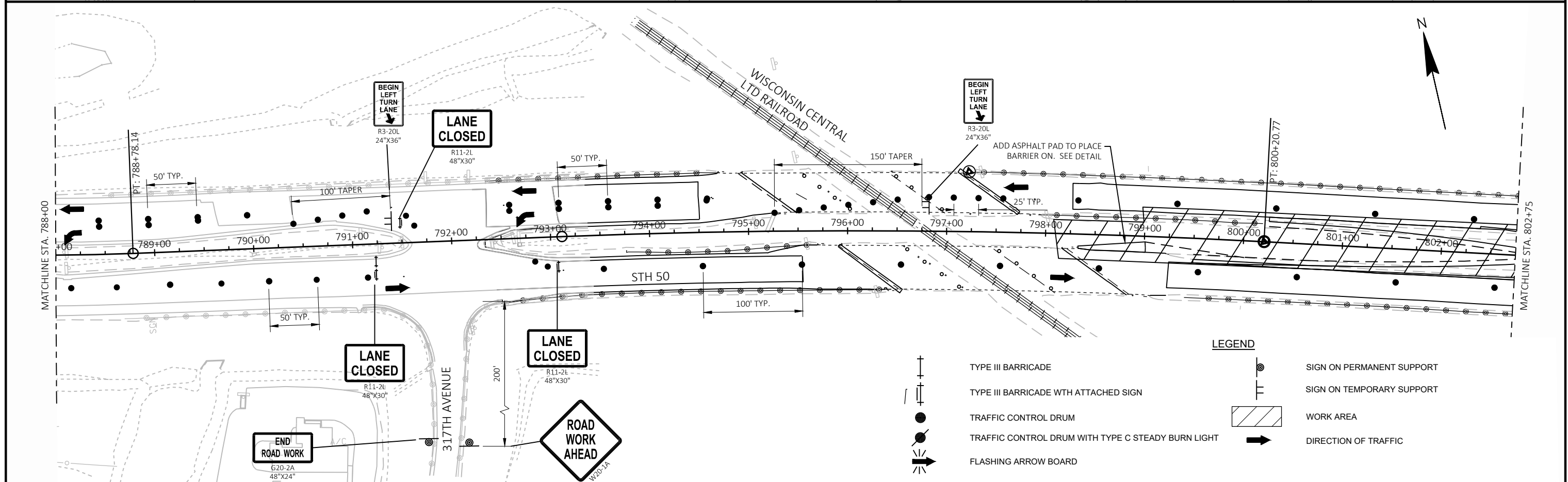
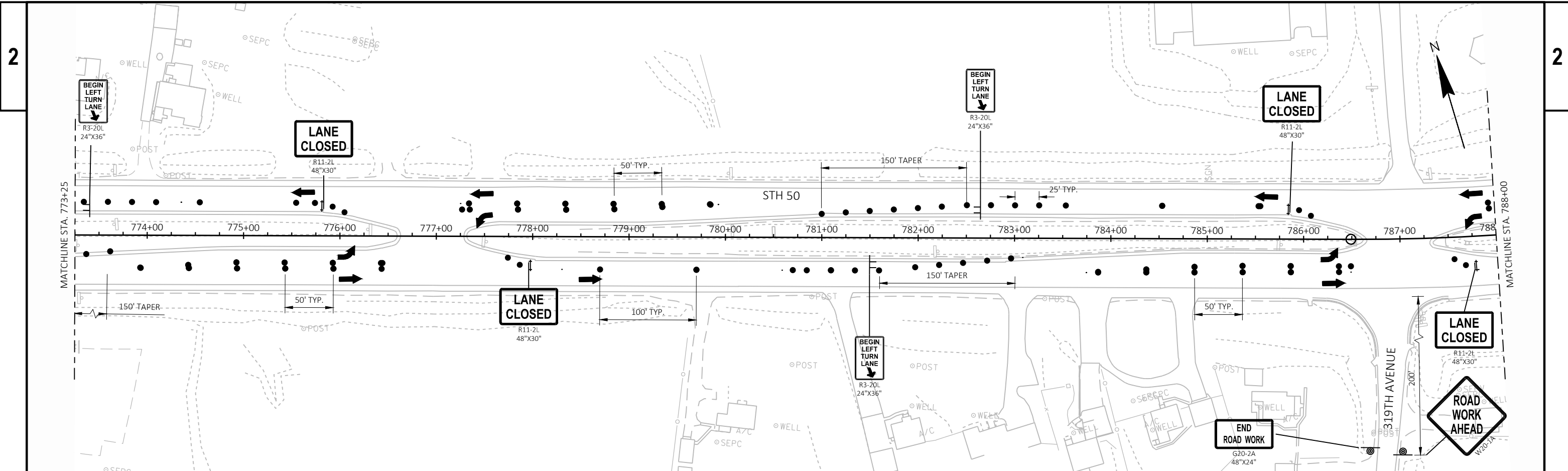




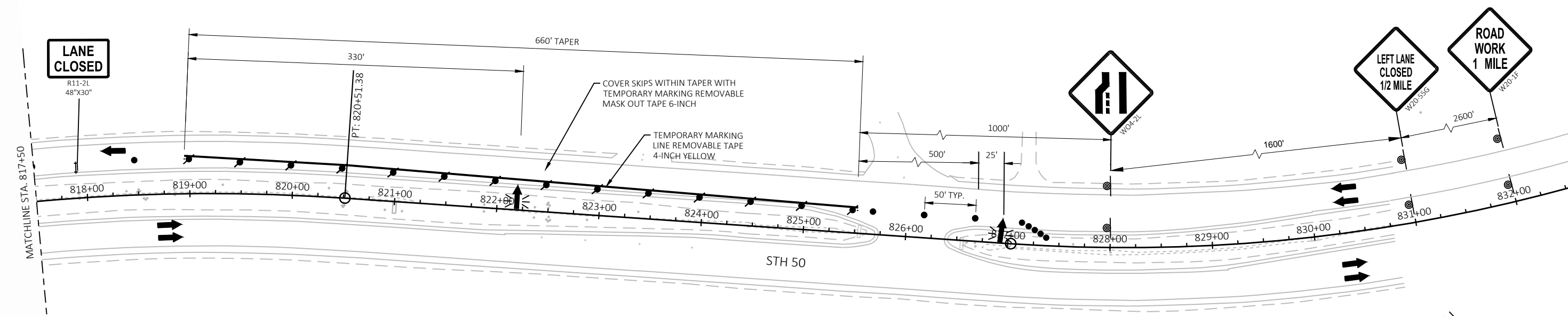
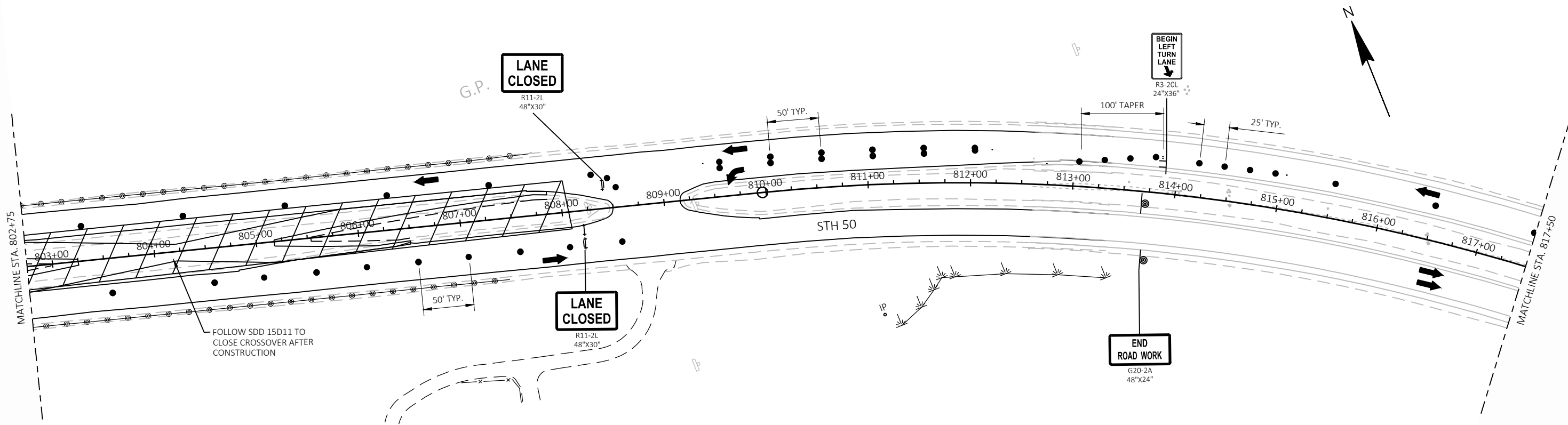
LEGEND

-  TYPE III BARRICADE
-  TYPE III BARRICADE WITH ATTACHED SIGN
-  TRAFFIC CONTROL DRUM
-  TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT
-  FLASHING ARROW BOARD
-  SIGN ON PERMANENT SUPPORT
-  SIGN ON TEMPORARY SUPPORT
-  WORK AREA
-  DIRECTION OF TRAFFIC














PROJECT NO: 1310-14-70      HWY: STH 50      COUNTY: KENOSHA      TRAFFIC CONTROL - PRE-STAGE      SHEET      E

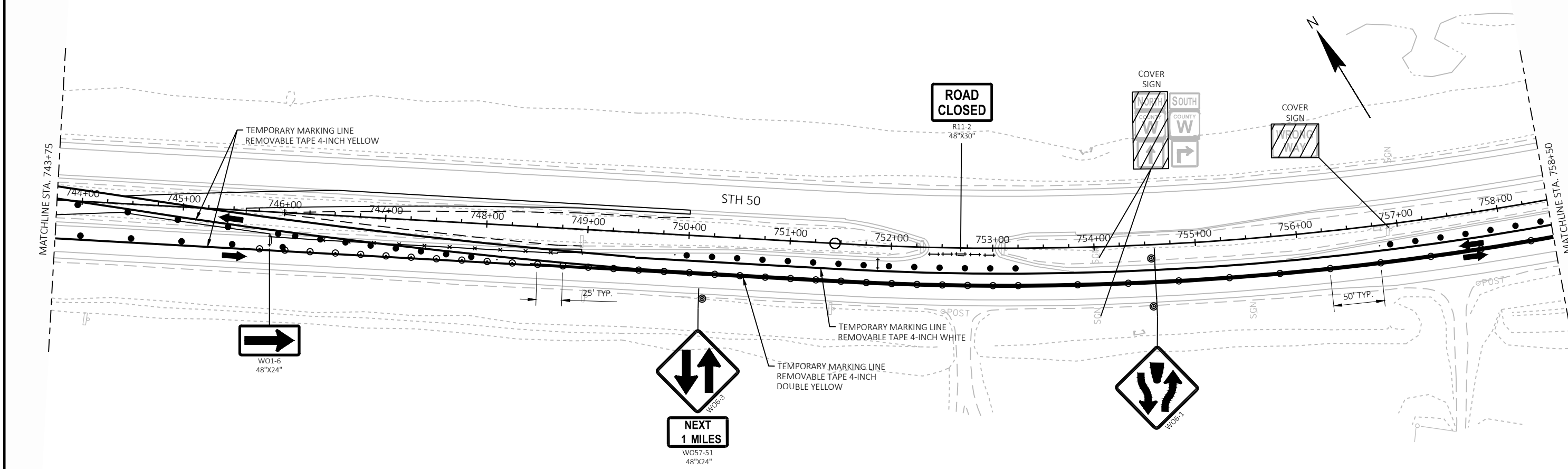
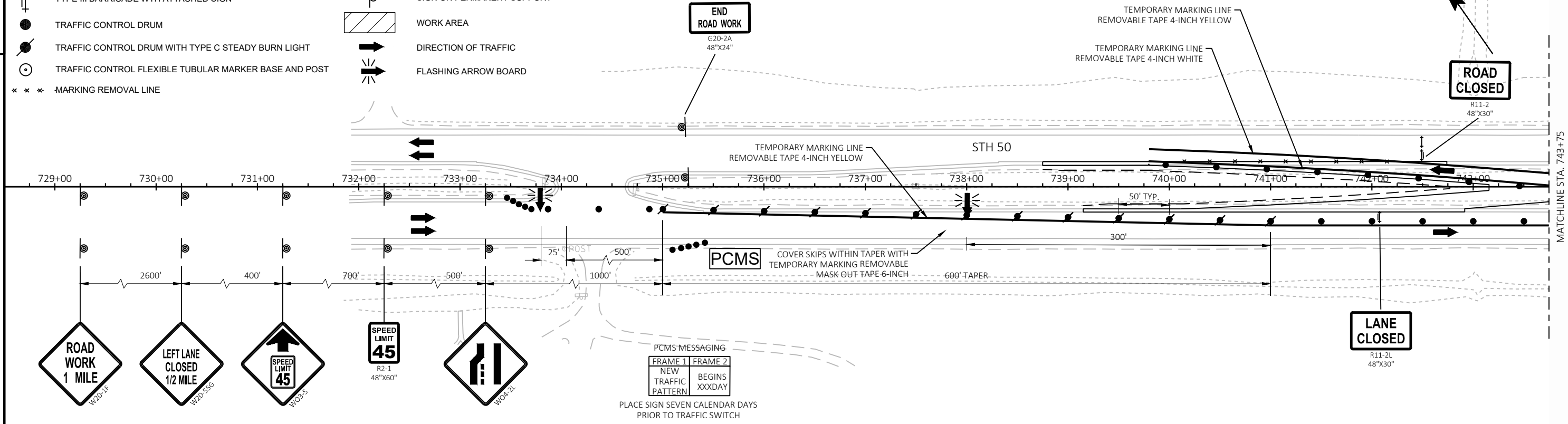


LEGEND

-  TYPE III BARRICADE
-  TYPE III BARRICADE WITH ATTACHED SIGN
-  TRAFFIC CONTROL DRUM
-  TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT
-  FLASHING ARROW BOARD
-  SIGN ON PERMANENT SUPPORT
-  SIGN ON TEMPORARY SUPPORT
-  WORK AREA
-  DIRECTION OF TRAFFIC

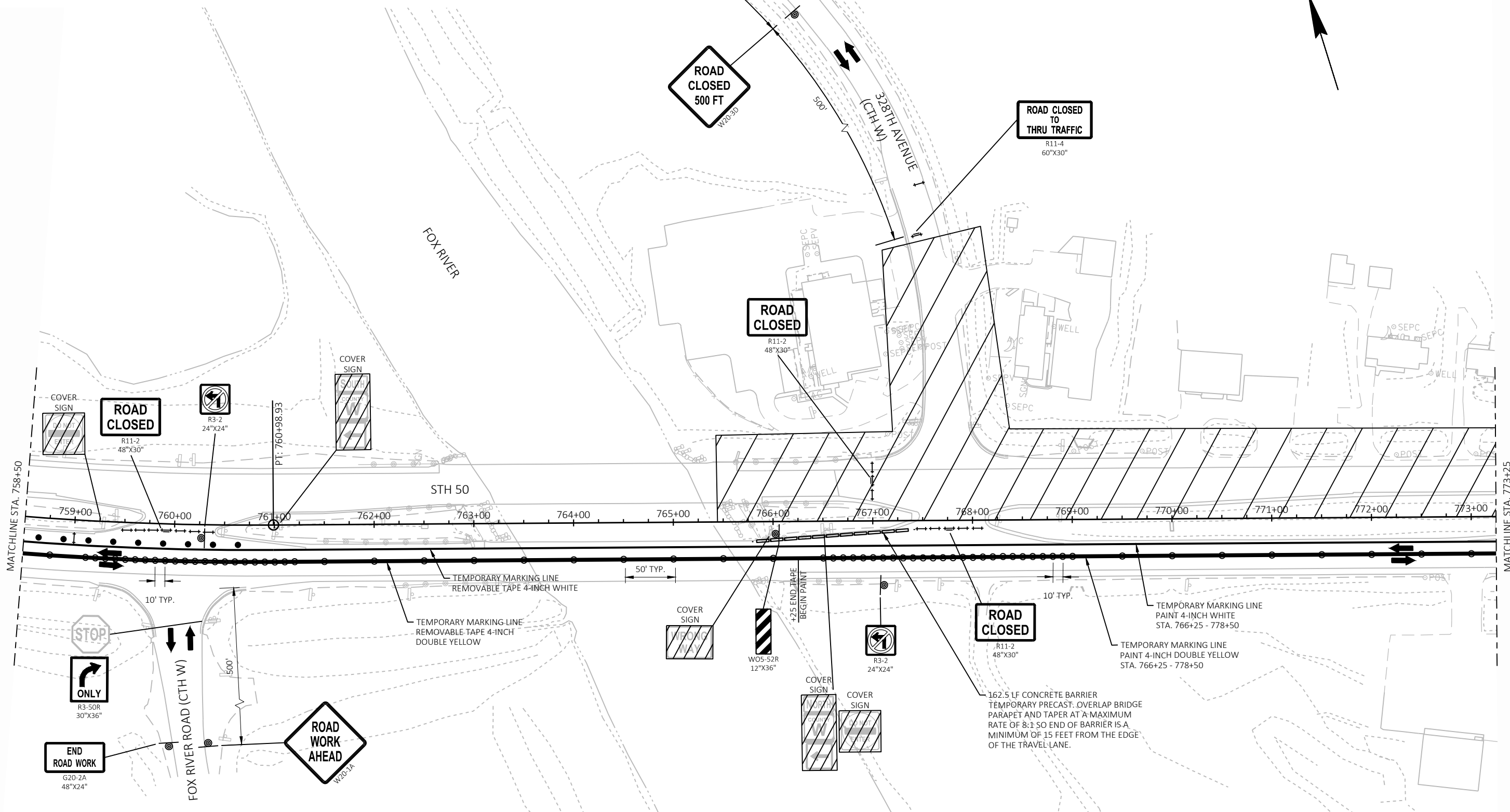
LEGEND

- TYPE III BARRICADE
- TYPE III BARRICADE WITH ATTACHED SIGN
- TRAFFIC CONTROL DRUM
- TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT
- TRAFFIC CONTROL FLEXIBLE TUBULAR MARKER BASE AND POST
- MARKING REMOVAL LINE
- PORTABLE CHANGEABLE MESSAGE SIGN
- SIGN ON PERMANENT SUPPORT
- WORK AREA
- DIRECTION OF TRAFFIC
- FLASHING ARROW BOARD














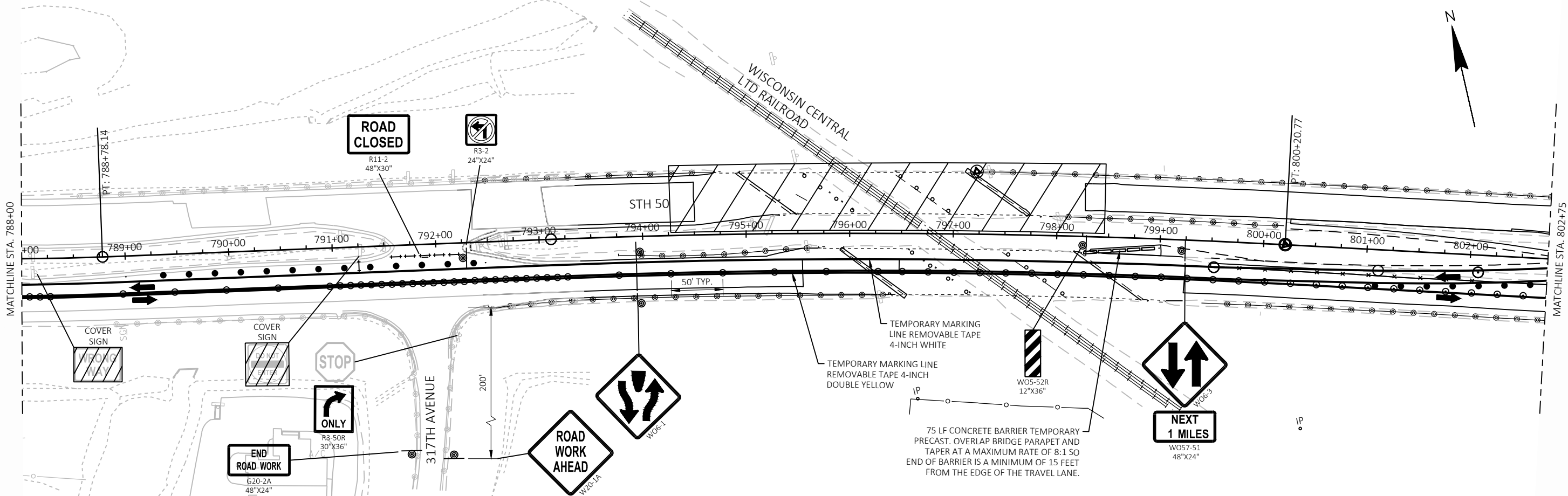
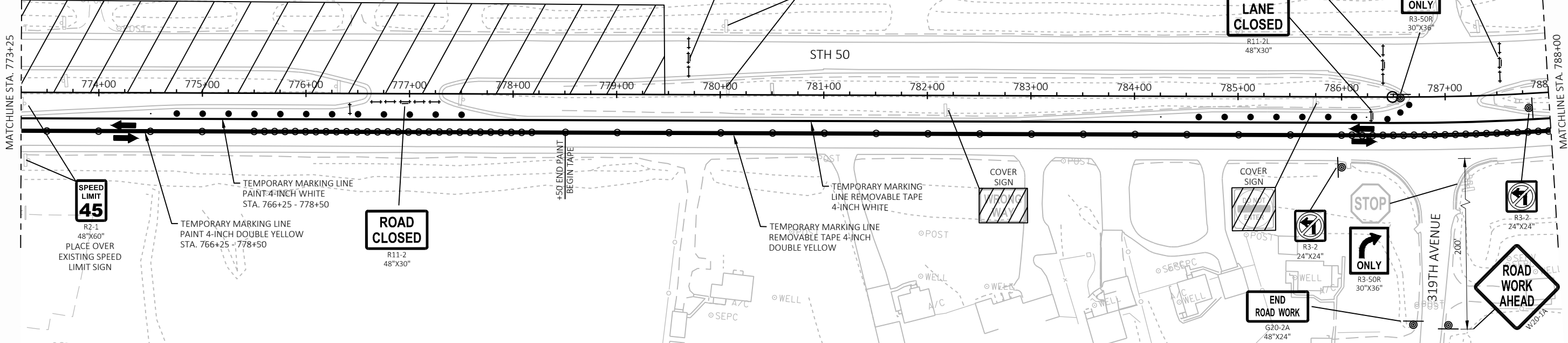
- LEGEND**
- TYPE III BARRICADE
  - TYPE III BARRICADE WITH ATTACHED SIGN
  - TRAFFIC CONTROL DRUM
  - TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT
  - TRAFFIC CONTROL FLEXIBLE TUBULAR MARKER BASE AND POST
  - MARKING REMOVAL LINE

- PCMS PORTABLE CHANGEABLE MESSAGE SIGN
- SIGN ON PERMANENT SUPPORT
- WORK AREA
- DIRECTION OF TRAFFIC
- FLASHING ARROW BOARD

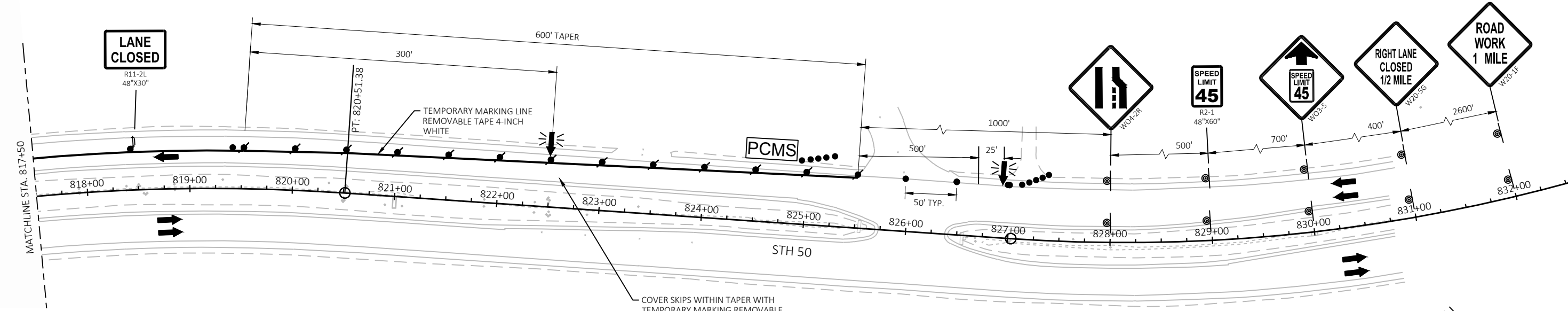
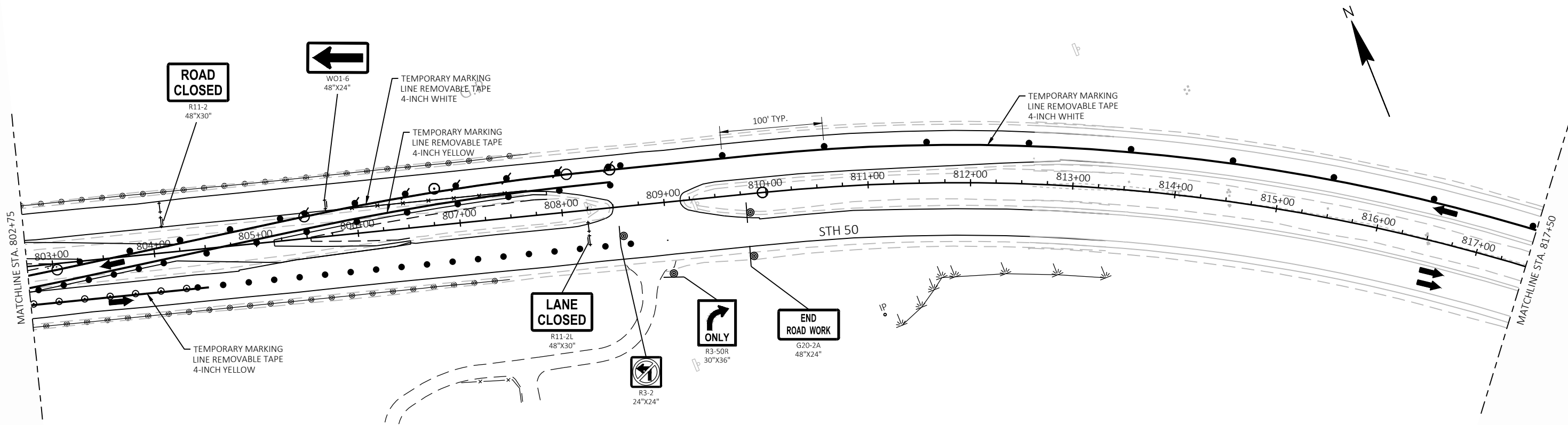


LEGEND

-  TYPE III BARRICADE
-  TYPE III BARRICADE WITH ATTACHED SIGN
-  TRAFFIC CONTROL DRUM
-  TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT
-  TRAFFIC CONTROL FLEXIBLE TUBULAR MARKER BASE AND POST
-  MARKING REMOVAL LINE
-  PCMS
-  SIGN ON PERMANENT SUPPORT
-  WORK AREA
-  DIRECTION OF TRAFFIC
-  FLASHING ARROW BOARD





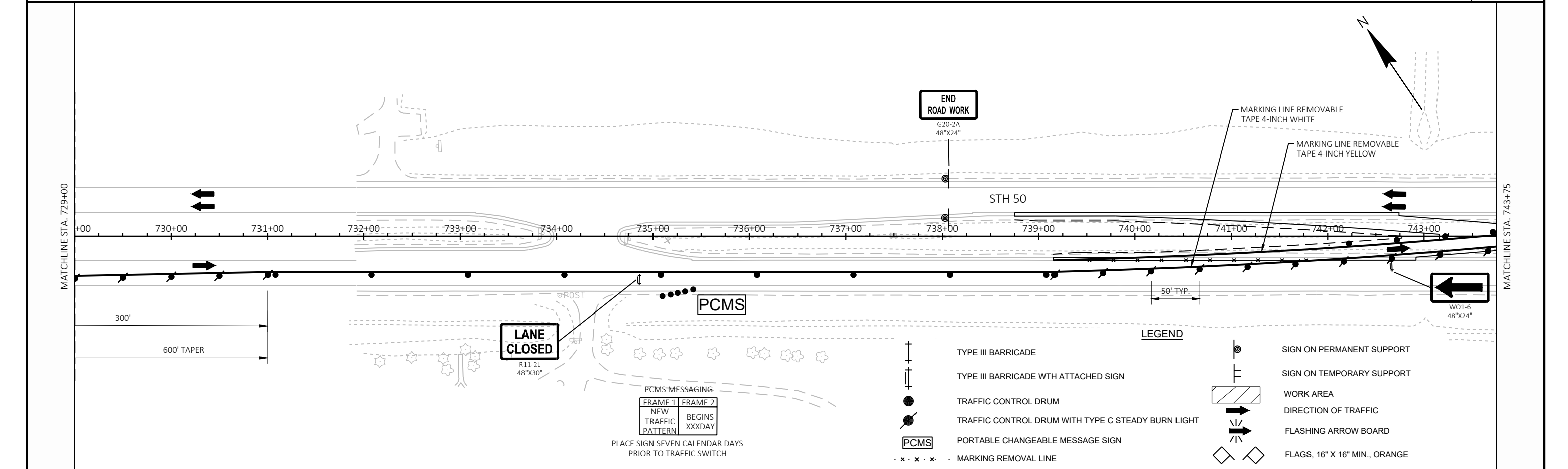
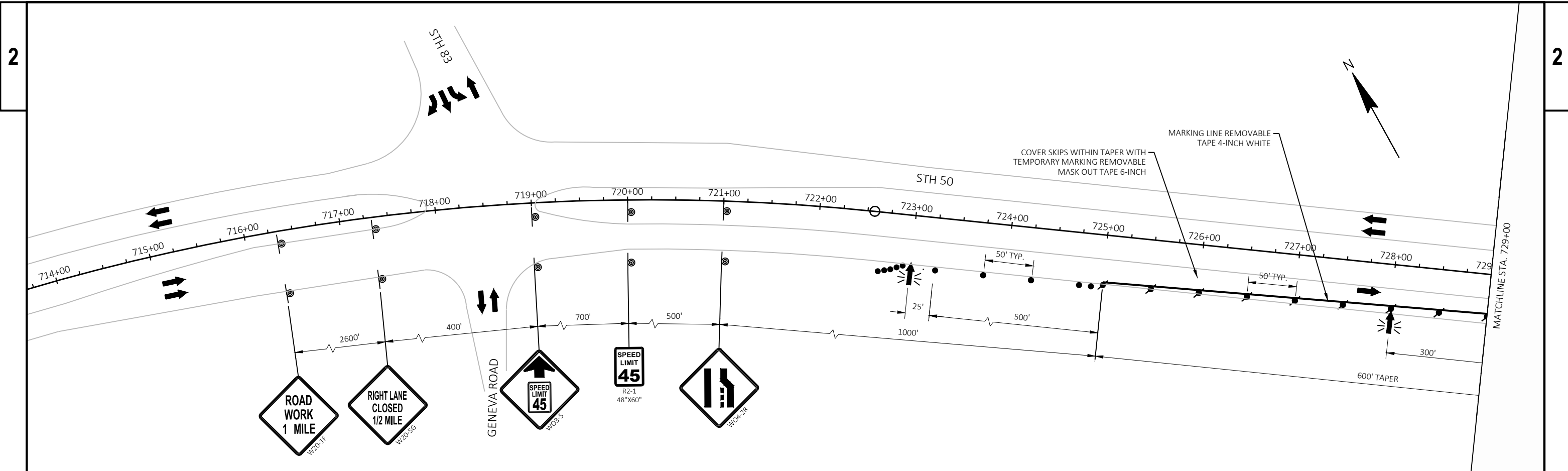


- LEGEND**
- TYPE III BARRICADE
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  - TRAFFIC CONTROL DRUM
  - TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT
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  - PCMS PORTABLE CHANGEABLE MESSAGE SIGN
  - SIGN ON PERMANENT SUPPORT
  - WORK AREA
  - DIRECTION OF TRAFFIC
  - FLASHING ARROW BOARD

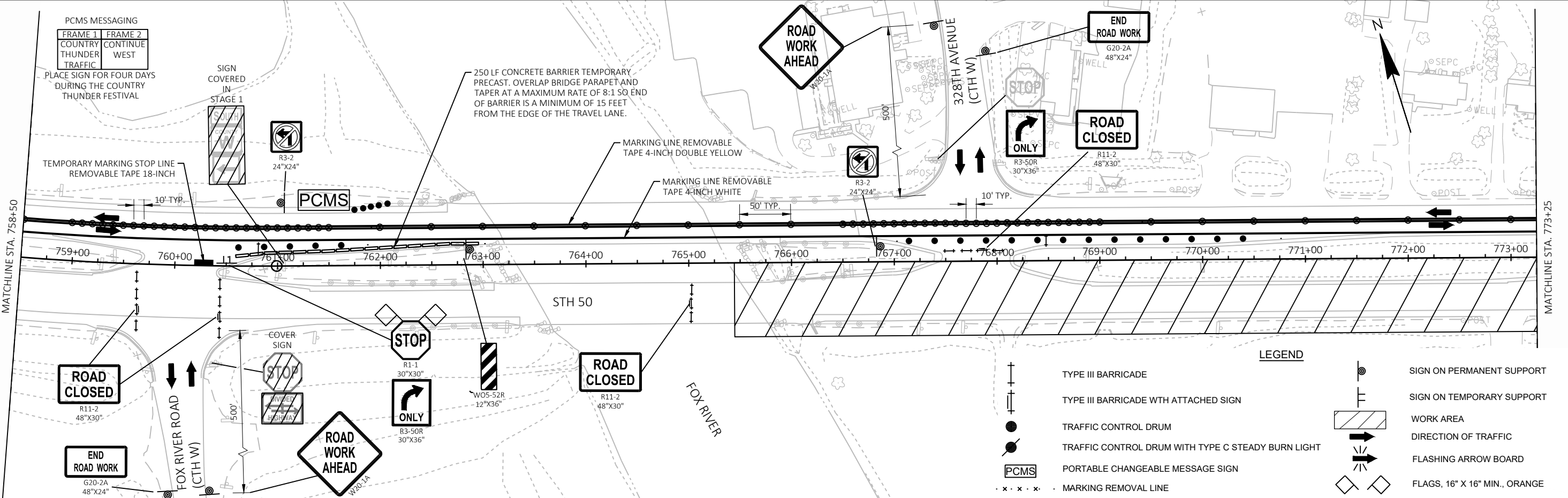
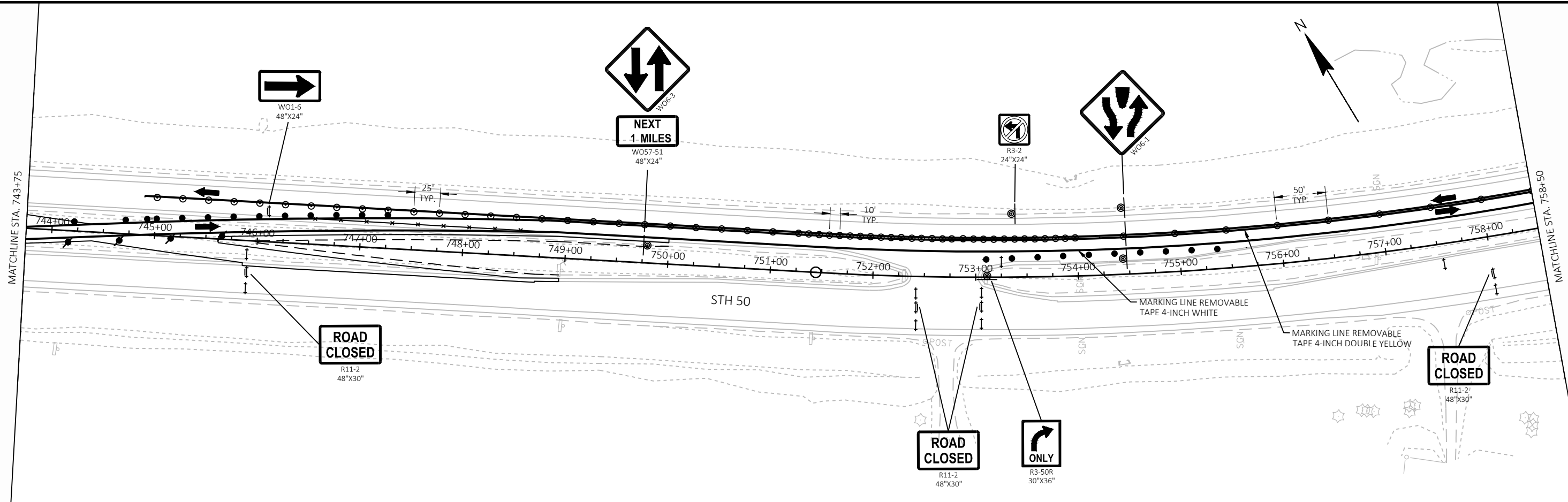
PCMS MESSAGING

FRAME 1	FRAME 2
NEW TRAFFIC PATTERN	BEGINS XXXDAY

PLACE SIGN SEVEN CALENDAR DAYS PRIOR TO TRAFFIC SWITCH

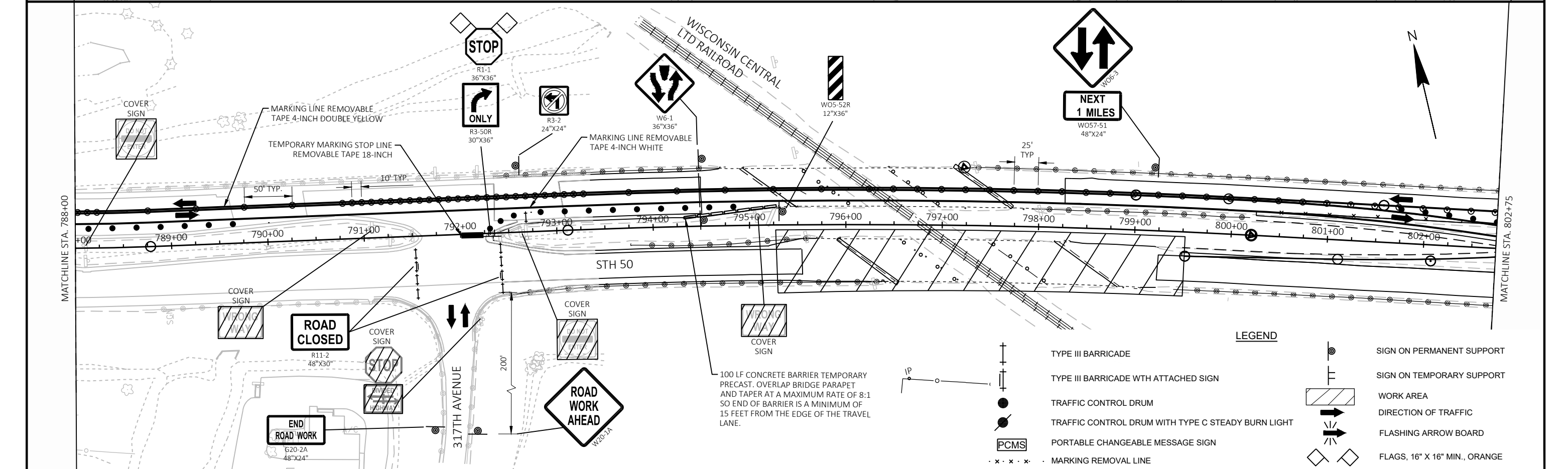
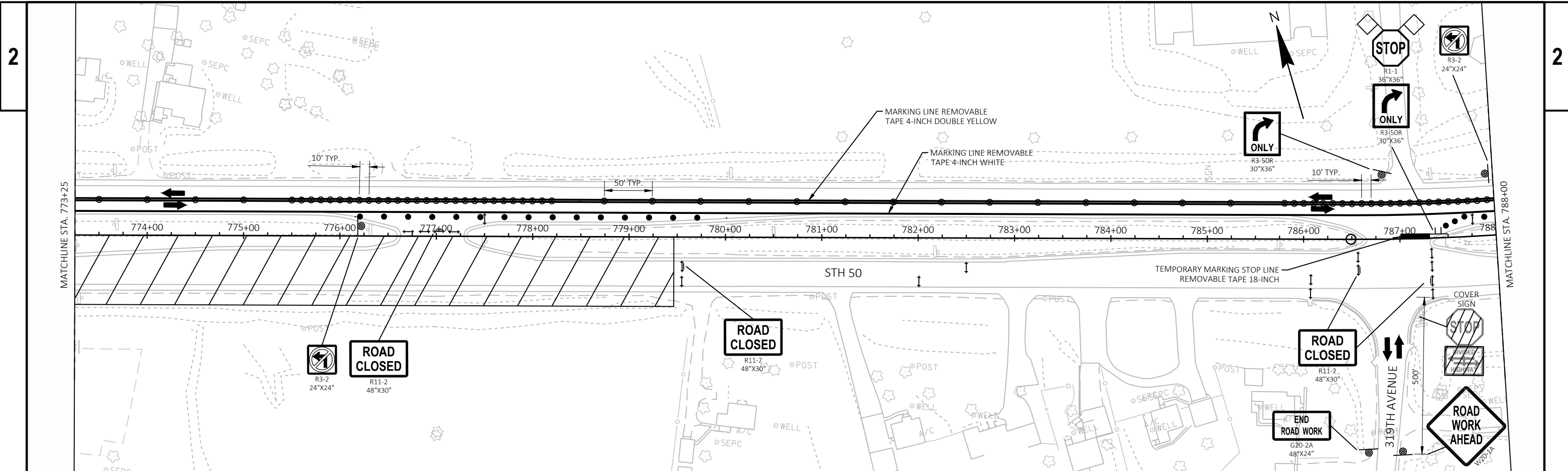


PROJECT NO: 1310-14-70	HWY: STH 50	COUNTY: KENOSHA	TRAFFIC CONTROL - STAGE 2	SHEET	<b>E</b>
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**LEGEND**

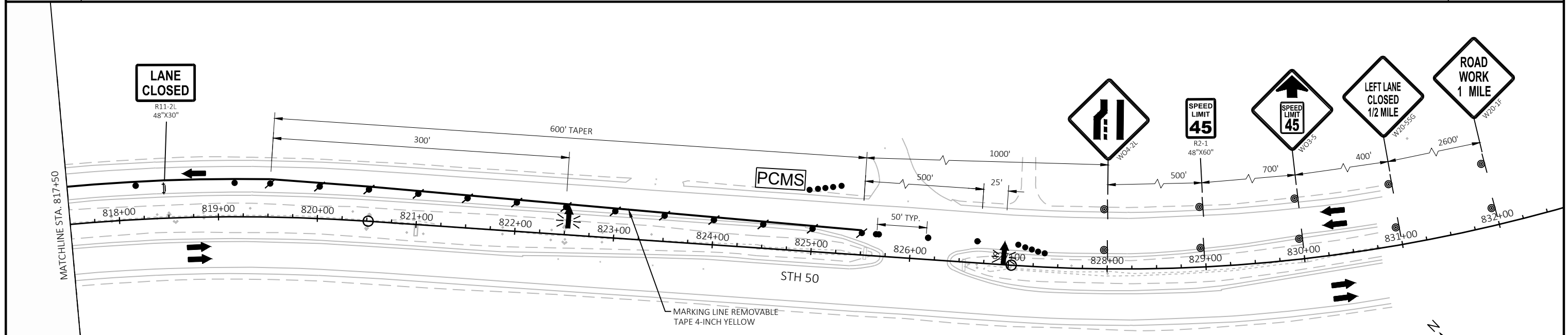
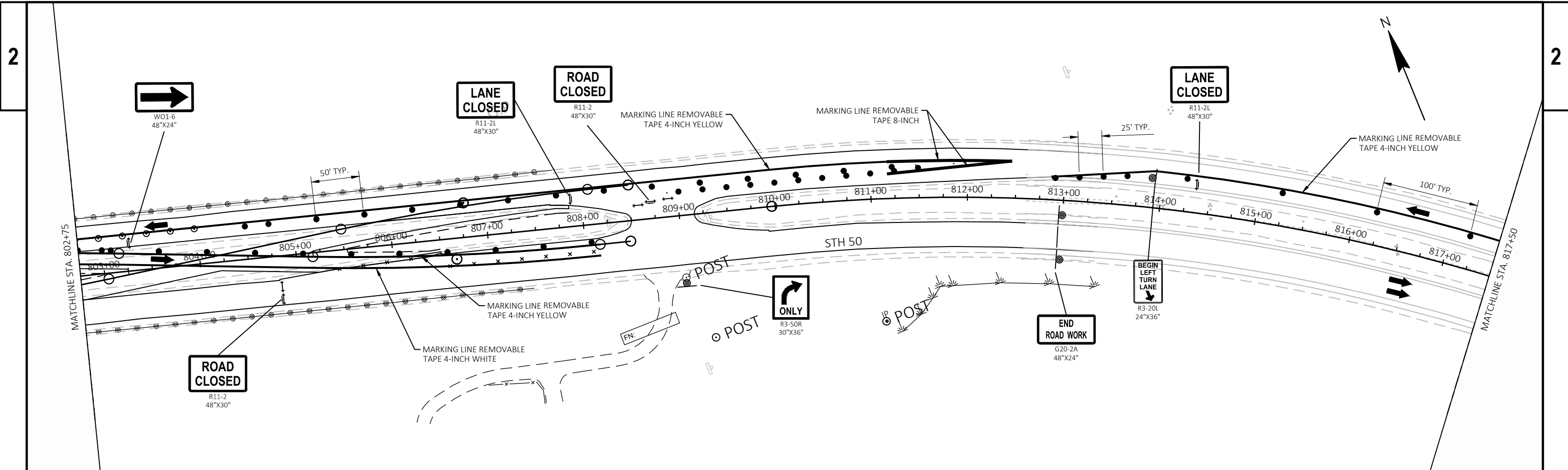
	TYPE III BARRICADE		SIGN ON PERMANENT SUPPORT
	TYPE III BARRICADE WITH ATTACHED SIGN		SIGN ON TEMPORARY SUPPORT
	TRAFFIC CONTROL DRUM		WORK AREA
	TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT		DIRECTION OF TRAFFIC
	PORTABLE CHANGEABLE MESSAGE SIGN		FLASHING ARROW BOARD
	MARKING REMOVAL LINE		FLAGS, 16" X 16" MIN., ORANGE



**LEGEND**

	TYPE III BARRICADE		SIGN ON PERMANENT SUPPORT
	TYPE III BARRICADE WITH ATTACHED SIGN		SIGN ON TEMPORARY SUPPORT
	TRAFFIC CONTROL DRUM		WORK AREA
	TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT		DIRECTION OF TRAFFIC
	PORTABLE CHANGEABLE MESSAGE SIGN		FLASHING ARROW BOARD
	MARKING REMOVAL LINE		FLAGS, 16" X 16" MIN., ORANGE

PROJECT NO: 1310-14-70      HWY: STH 50      COUNTY: KENOSHA      TRAFFIC CONTROL - STAGE 2      SHEET      E



**LEGEND**










	TYPE III BARRICADE		SIGN ON PERMANENT SUPPORT
	TYPE III BARRICADE WITH ATTACHED SIGN		SIGN ON TEMPORARY SUPPORT
	TRAFFIC CONTROL DRUM		WORK AREA
	TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT		DIRECTION OF TRAFFIC
	PORTABLE CHANGEABLE MESSAGE SIGN		FLASHING ARROW BOARD
	MARKING REMOVAL LINE		FLAGS, 16" X 16" MIN., ORANGE

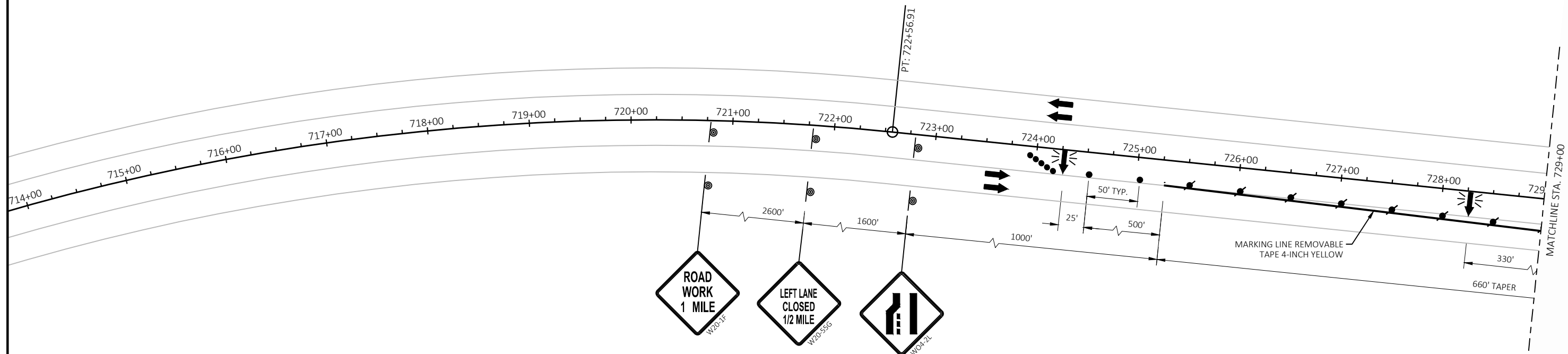
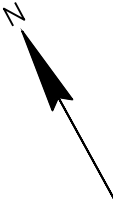
**PCMS MESSAGING**

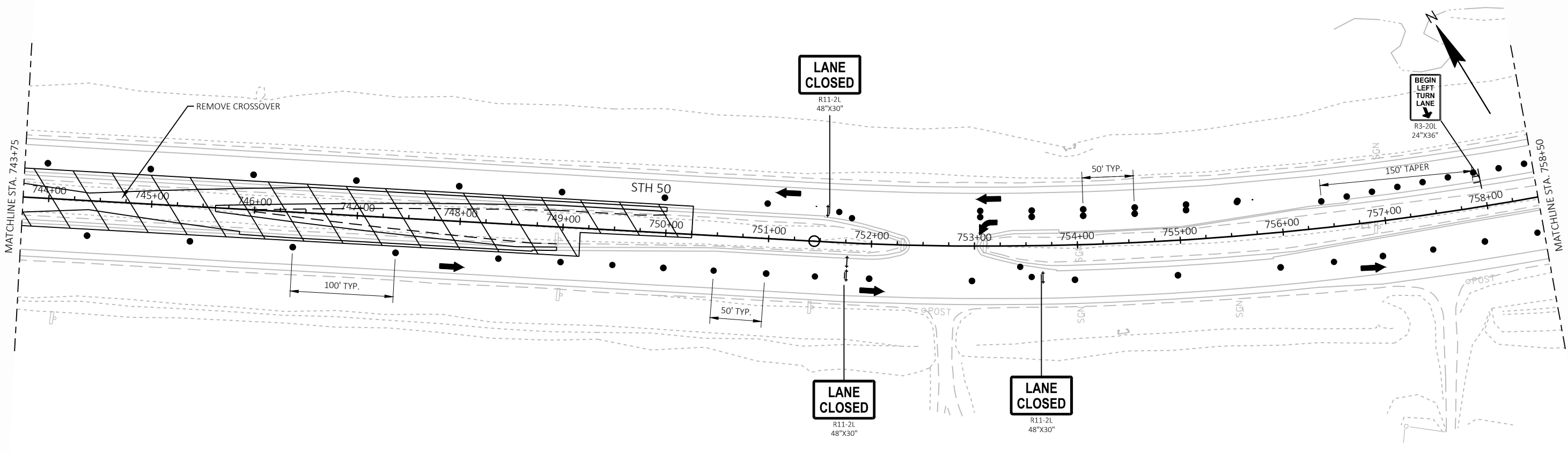
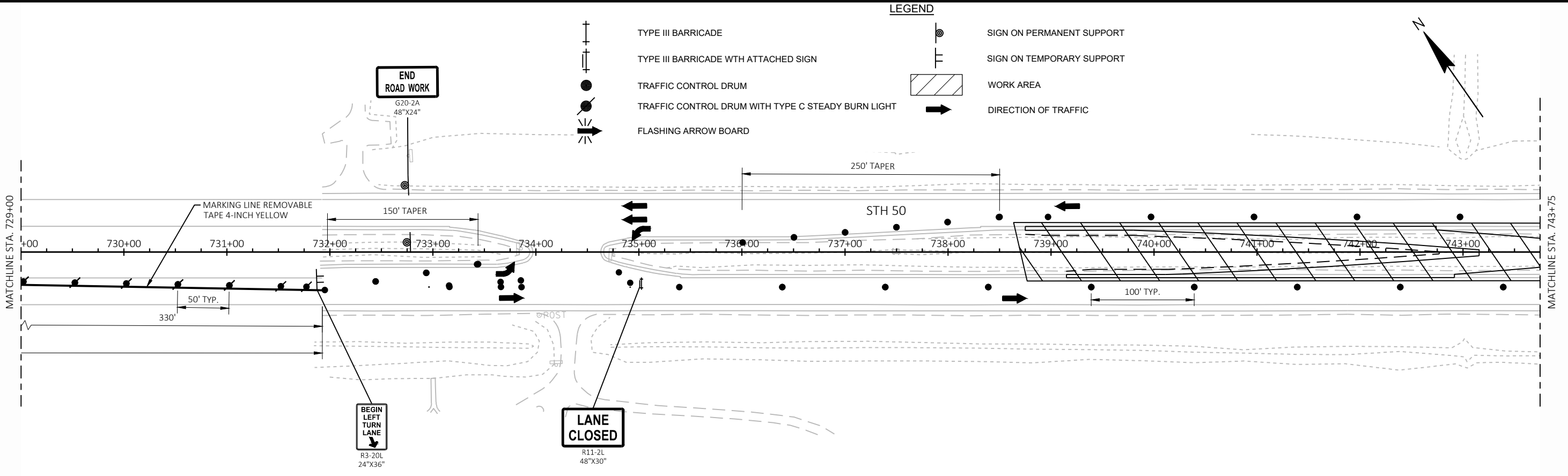
FRAME 1	FRAME 2
NEW TRAFFIC PATTERN	BEGINS XXXDAY

PLACE SIGN SEVEN CALENDAR DAYS PRIOR TO TRAFFIC SWITCH










LEGEND

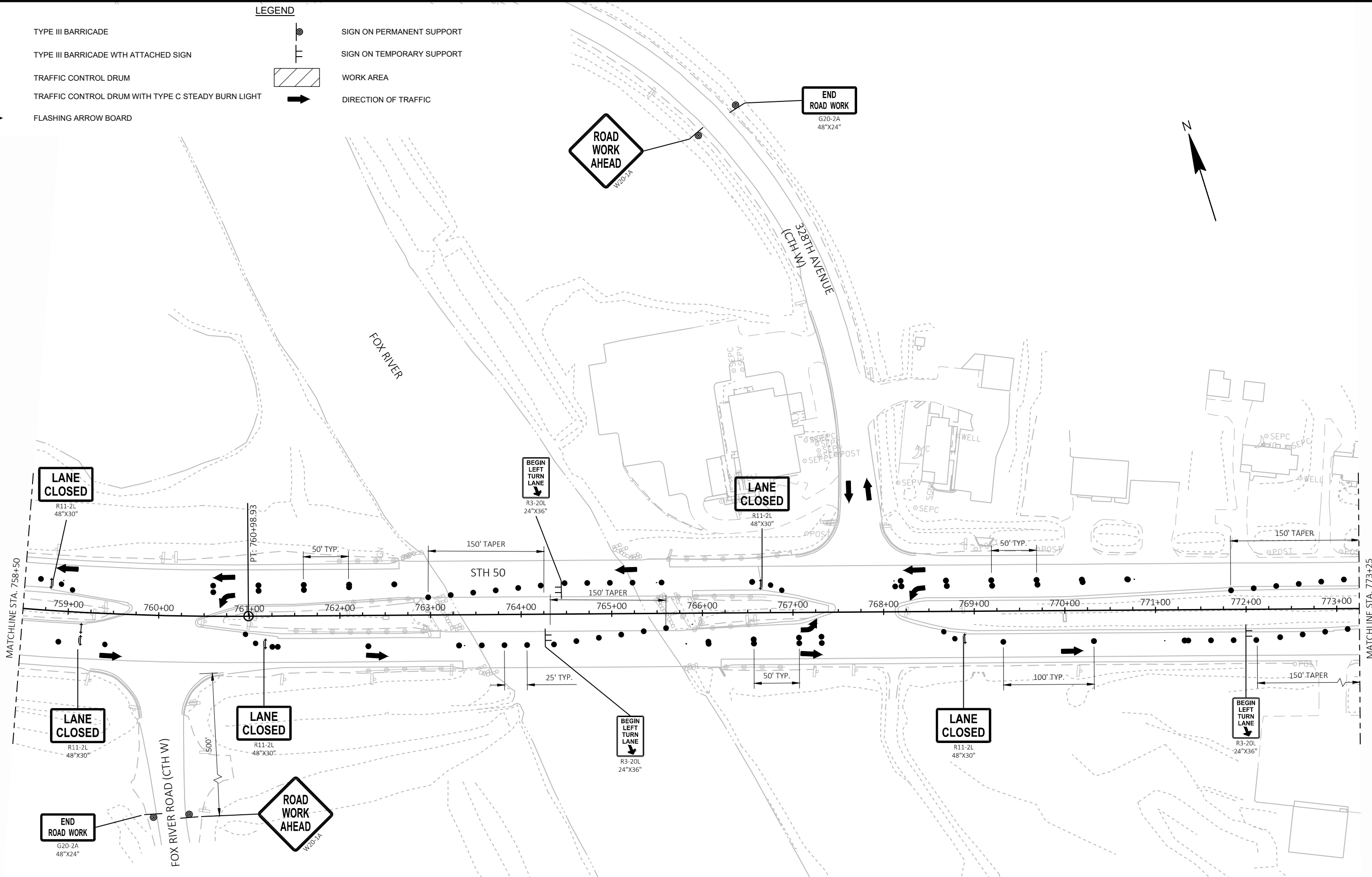
-  TYPE III BARRICADE
-  TYPE III BARRICADE WITH ATTACHED SIGN
-  TRAFFIC CONTROL DRUM
-  TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT
-  FLASHING ARROW BOARD
-  SIGN ON PERMANENT SUPPORT
-  SIGN ON TEMPORARY SUPPORT
-  WORK AREA
-  DIRECTION OF TRAFFIC



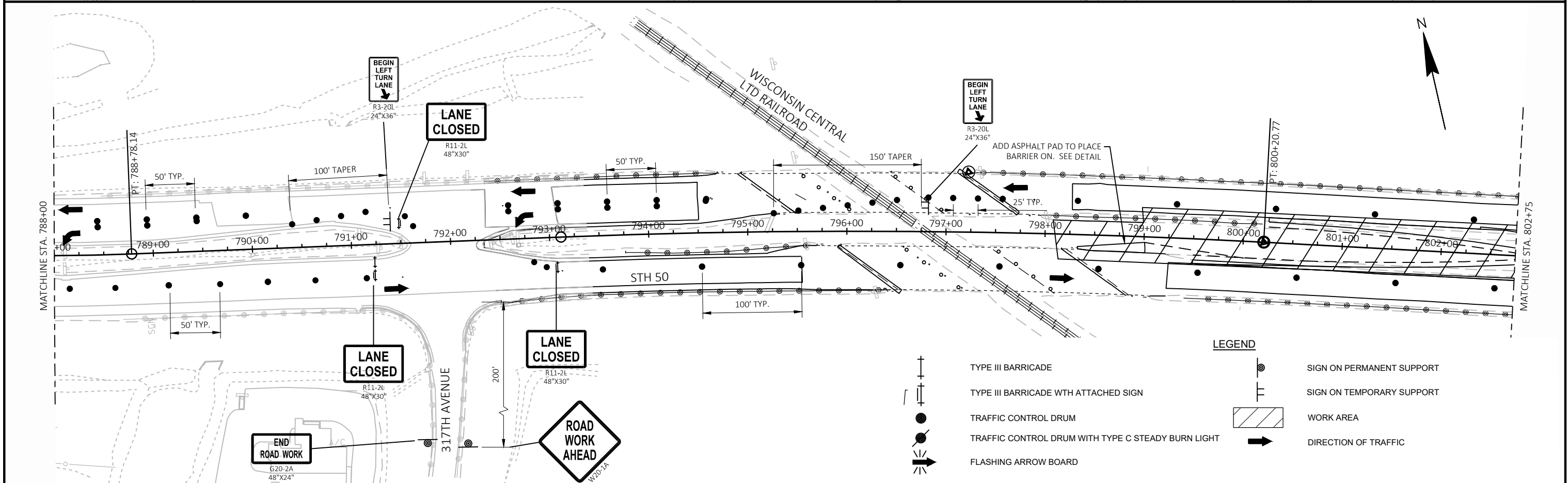
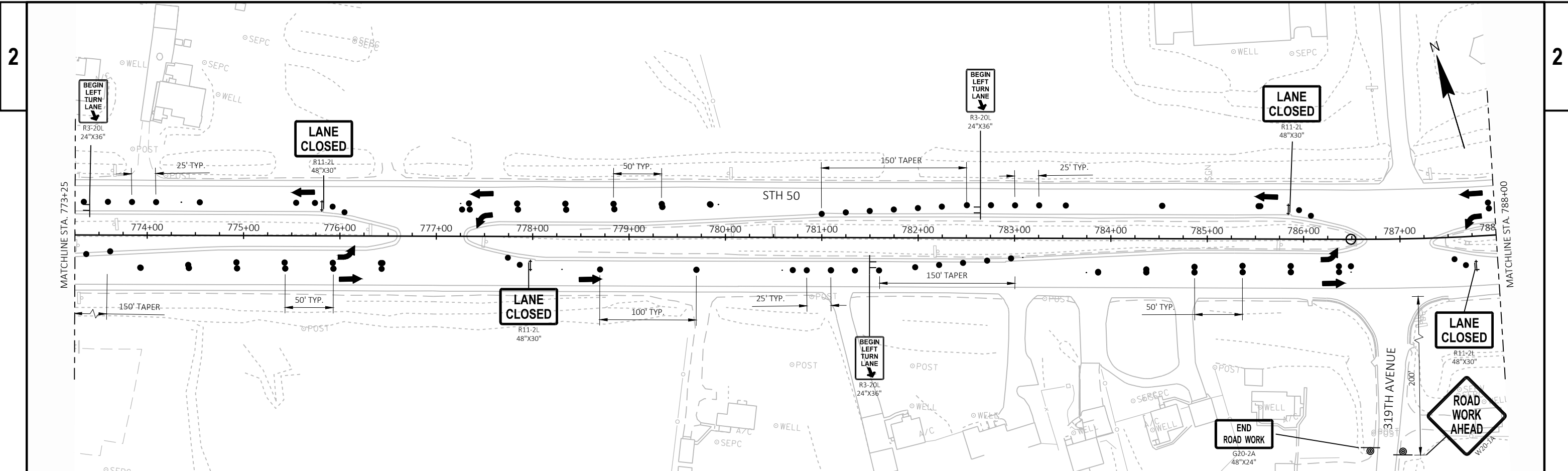


LEGEND

-  TYPE III BARRICADE
-  TYPE III BARRICADE WITH ATTACHED SIGN
-  TRAFFIC CONTROL DRUM
-  TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT
-  FLASHING ARROW BOARD
-  SIGN ON PERMANENT SUPPORT
-  SIGN ON TEMPORARY SUPPORT
-  WORK AREA
-  DIRECTION OF TRAFFIC



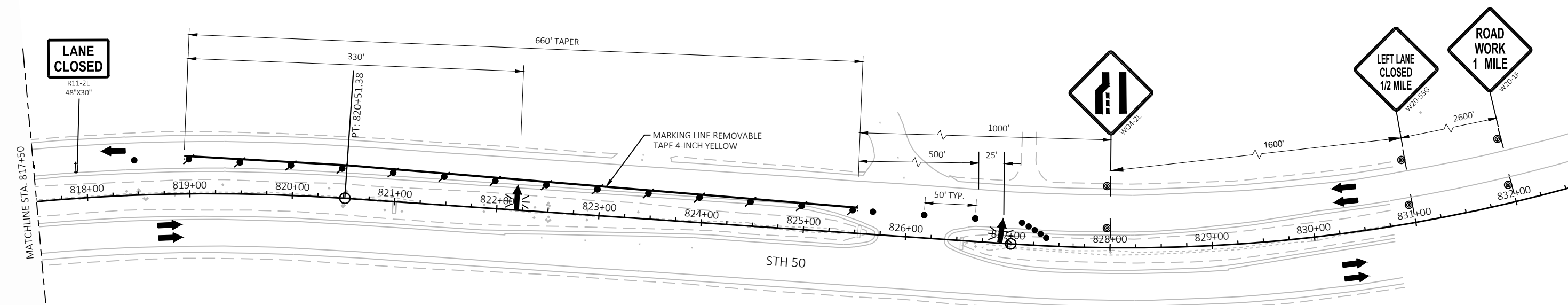
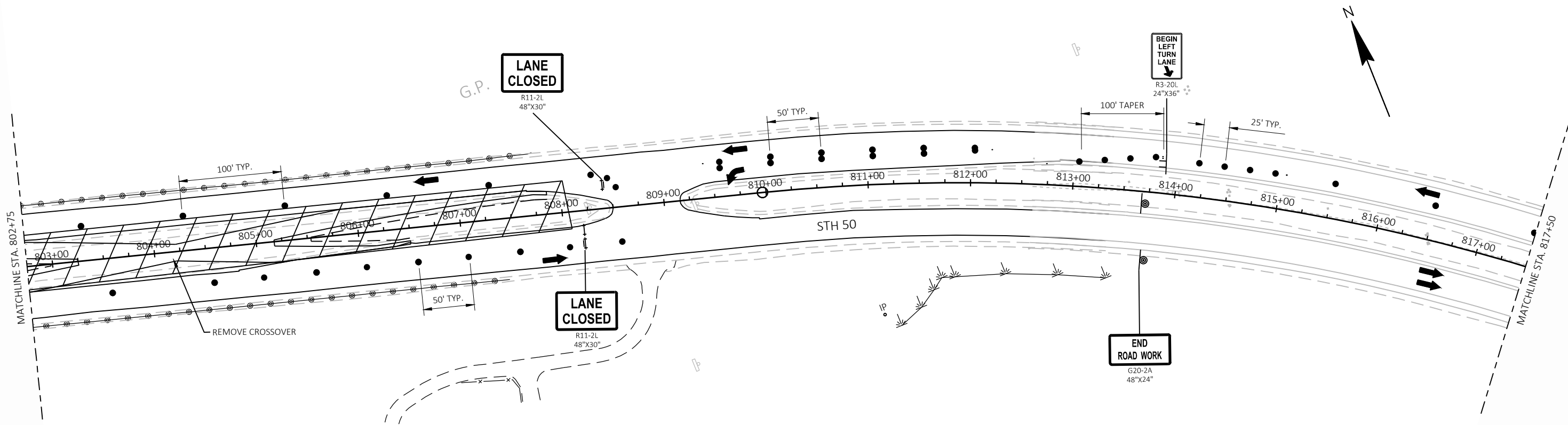




**LEGEND**

	TYPE III BARRICADE		SIGN ON PERMANENT SUPPORT
	TYPE III BARRICADE WITH ATTACHED SIGN		SIGN ON TEMPORARY SUPPORT
	TRAFFIC CONTROL DRUM		WORK AREA
	TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT		DIRECTION OF TRAFFIC
	FLASHING ARROW BOARD		

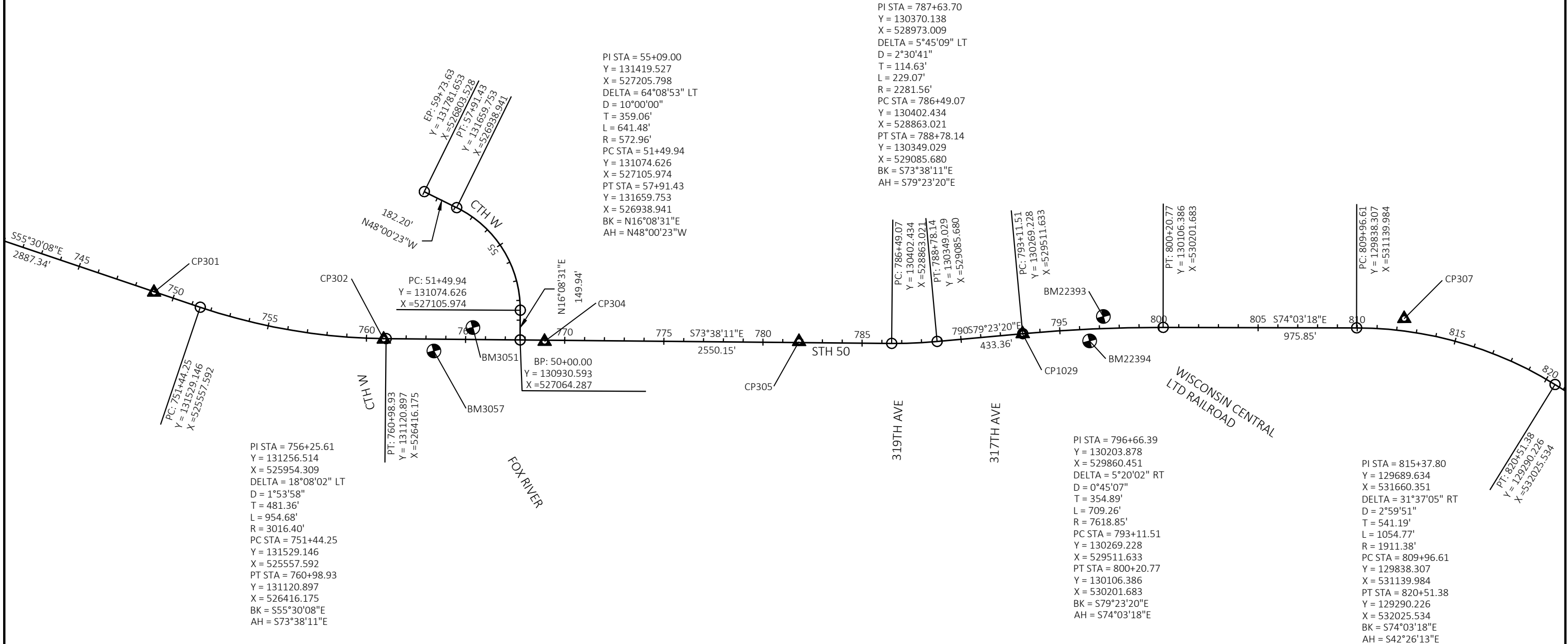
PROJECT NO: 1310-14-70	HWY: STH 50	COUNTY: KENOSHA	TRAFFIC CONTROL - STAGE 3
SHEET			<b>E</b>

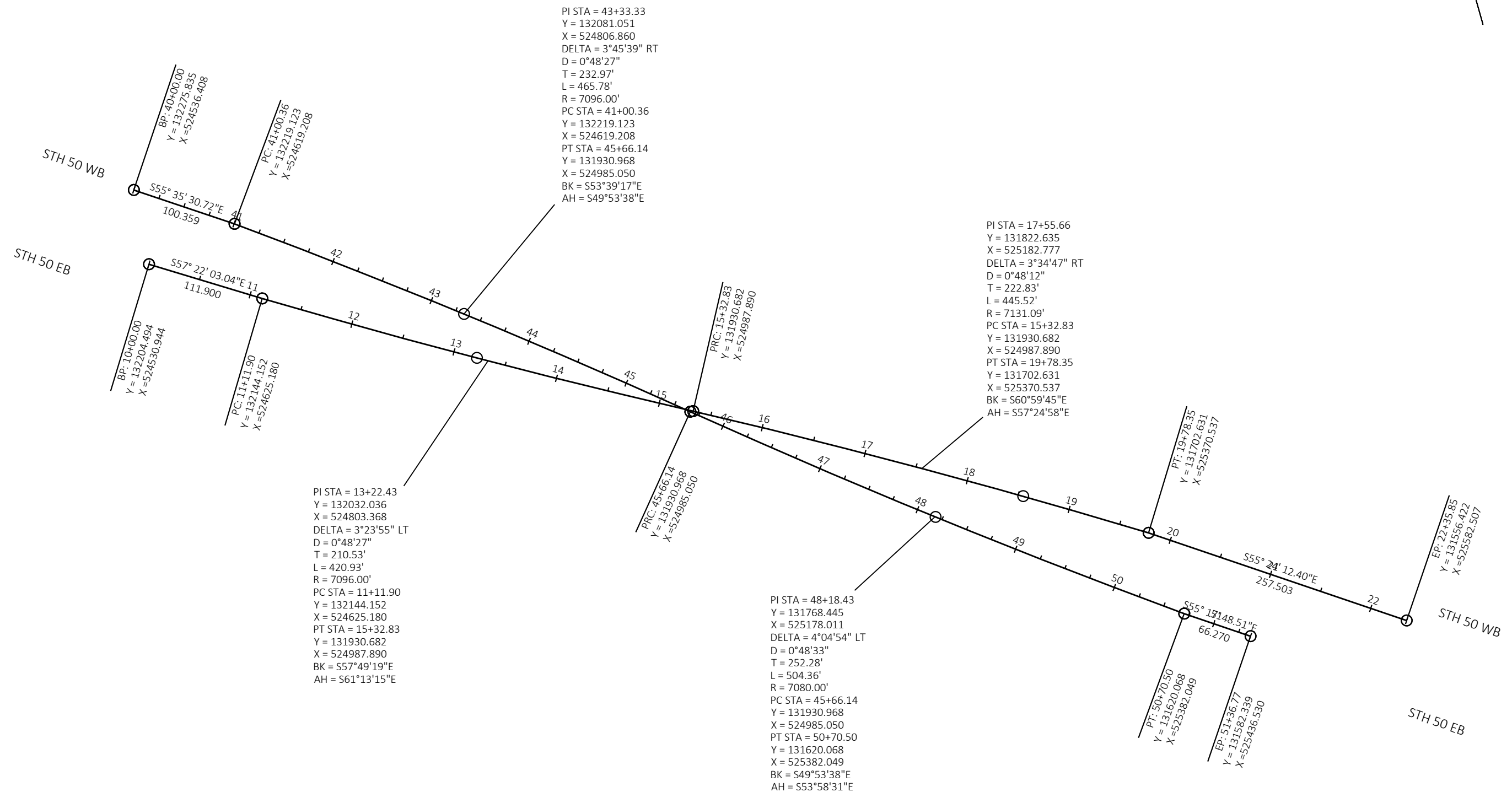


- LEGEND**
- TYPE III BARRICADE
  - TYPE III BARRICADE WITH ATTACHED SIGN
  - TRAFFIC CONTROL DRUM
  - TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT
  - FLASHING ARROW BOARD
  - SIGN ON PERMANENT SUPPORT
  - SIGN ON TEMPORARY SUPPORT
  - WORK AREA
  - DIRECTION OF TRAFFIC

PRIMARY CONTROL POINTS						
CP	DESCRIPTION	STATION	OFFSET	ELEVATION	Y-COORDINATE	X-COORDINATE
300	39" BERNTSEN FENO MONUMENT WITH ALUMINUM CAP	735+15.02	4.47' RT	754.53	132,448.21	524,212.33
301	39" BERNTSEN FENO MONUMENT WITH ALUMINUM CAP	748+98.76	3.35' RT	757.71	131,665.42	525,353.38
302	39" BERNTSEN FENO MONUMENT WITH ALUMINUM CAP	760+86.67	2.92' RT	755.51	131,121.58	526,403.59
304	39" BERNTSEN FENO MONUMENT WITH ALUMINUM CAP	768+97.91	6.53' RT	748.20	130,889.53	527,180.95
305	39" BERNTSEN FENO MONUMENT WITH ALUMINUM CAP	781+81.31	4.56' LT	750.39	130,538.59	528,415.49
1029	CONCRETE MONUMENT WITH ALUMINUM CAP	793+11.35	0.18' RT	775.72	130,269.08	529,511.45
307	1000MM BERNTSEN FENO MONUMENT WITH 2" ALUMINUM CAP	812+29.87	61.94' LT	763.06	129,817.76	531,383.95

BENCHMARKS				
BM	STATION	OFFSET	DESCRIPTION	ELEVATION
3051	765+35.65	60.31' LT	ALUMINUM CAP AT NORTHEAST CORNER OF FOX RIVER BRIDGE	757.50
3057	763+40.02	59.86' RT	ALUMINUM CAP AT SOUTHWEST CORNER OF FOX RIVER BRIDGE	758.51
22393	797+21.97	60.25' LT	ALUMINUM CAP AT NORTHEAST CORNER OF RAILROAD BRIDGE	789.66
22394	796+47.50	59.61' RT	ALUMINUM CAP AT SOUTHWEST CORNER OF RAILROAD BRIDGE	785.91



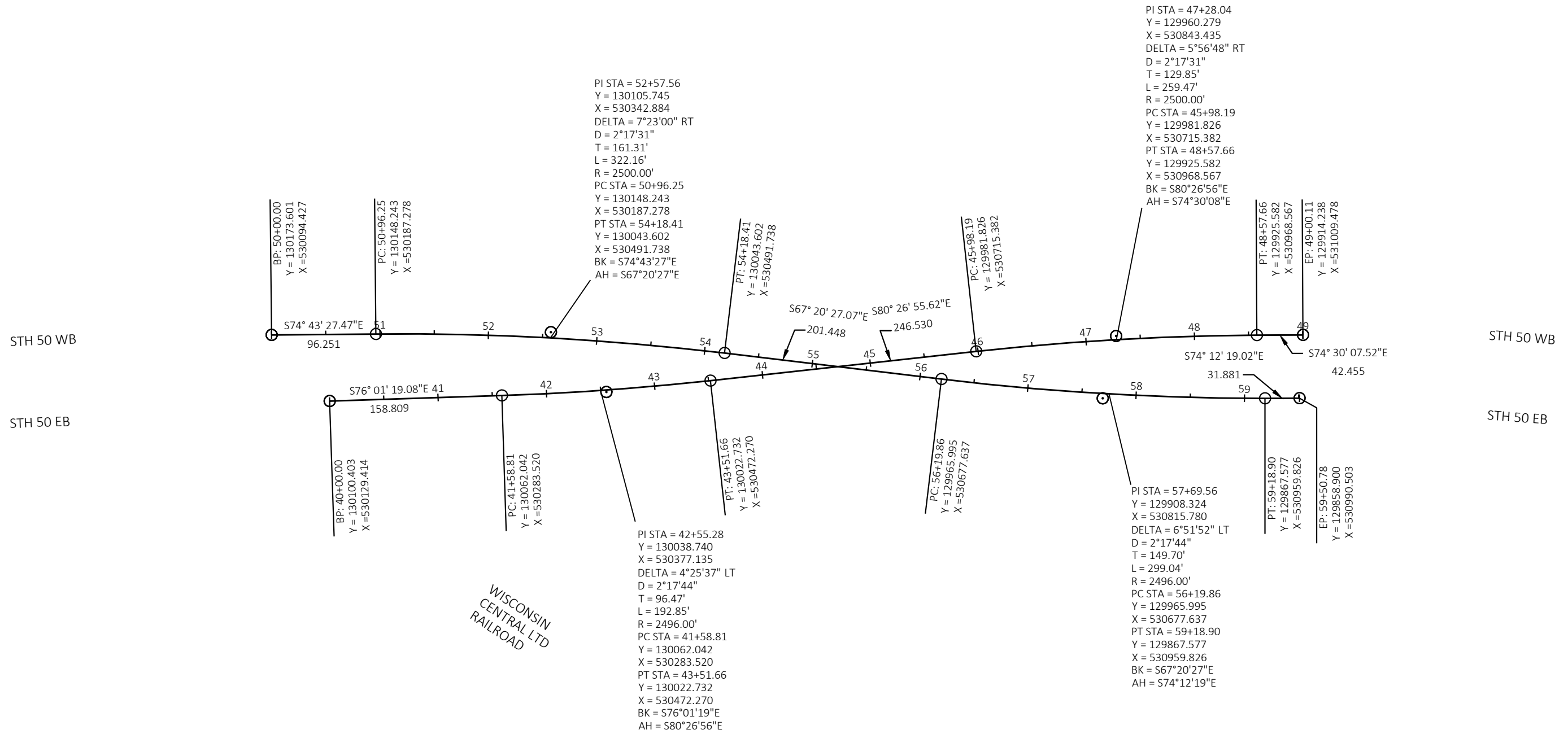


PI STA = 43+33.33  
 Y = 132081.051  
 X = 524806.860  
 DELTA = 3°45'39" RT  
 D = 0°48'27"  
 T = 232.97'  
 L = 465.78'  
 R = 7096.00'  
 PC STA = 41+00.36  
 Y = 132219.123  
 X = 524619.208  
 PT STA = 45+66.14  
 Y = 131930.968  
 X = 524985.050  
 BK = S53°39'17"E  
 AH = S49°53'38"E

PI STA = 17+55.66  
 Y = 131822.635  
 X = 525182.777  
 DELTA = 3°34'47" RT  
 D = 0°48'12"  
 T = 222.83'  
 L = 445.52'  
 R = 7131.09'  
 PC STA = 15+32.83  
 Y = 131930.682  
 X = 524987.890  
 PT STA = 19+78.35  
 Y = 131702.631  
 X = 525370.537  
 BK = S60°59'45"E  
 AH = S57°24'58"E

PI STA = 13+22.43  
 Y = 132032.036  
 X = 524803.368  
 DELTA = 3°23'55" LT  
 D = 0°48'27"  
 T = 210.53'  
 L = 420.93'  
 R = 7096.00'  
 PC STA = 11+11.90  
 Y = 132144.152  
 X = 524625.180  
 PT STA = 15+32.83  
 Y = 131930.682  
 X = 524987.890  
 BK = S57°49'19"E  
 AH = S61°13'15"E

PI STA = 48+18.43  
 Y = 131768.445  
 X = 525178.011  
 DELTA = 4°04'54" LT  
 D = 0°48'33"  
 T = 252.28'  
 L = 504.36'  
 R = 7080.00'  
 PC STA = 45+66.14  
 Y = 131930.968  
 X = 524985.050  
 PT STA = 50+70.50  
 Y = 131620.068  
 X = 525382.049  
 BK = S49°53'38"E  
 AH = S53°58'31"E



Estimate Of Quantities

1310-14-70

Line	Item	Item Description	Unit	Total	Qty
0002	203.0100	Removing Small Pipe Culverts	EACH	10.000	10.000
0004	203.0330	Debris Containment (structure) 01. B-30-48	EACH	1.000	1.000
0006	203.0330	Debris Containment (structure) 02. B-30-58	EACH	1.000	1.000
0008	204.0100	Removing Concrete Pavement	SY	9,583.000	9,583.000
0010	204.0110	Removing Asphaltic Surface	SY	52.000	52.000
0012	204.0120	Removing Asphaltic Surface Milling	SY	1,341.000	1,341.000
0014	204.0150	Removing Curb & Gutter	LF	296.000	296.000
0016	204.0165	Removing Guardrail	LF	840.000	840.000
0018	204.0185	Removing Masonry	CY	7.000	7.000
0020	204.0190	Removing Surface Drains	EACH	5.000	5.000
0022	204.0205	Removing Utility Poles	EACH	1.000	1.000
0024	204.0220	Removing Inlets	EACH	5.000	5.000
0026	204.0245	Removing Storm Sewer (size) 01. 12-Inch	LF	90.000	90.000
0028	204.0245	Removing Storm Sewer (size) 02. 15-Inch	LF	57.000	57.000
0030	205.0100	Excavation Common	CY	11,540.000	11,540.000
0032	208.1100	Select Borrow	CY	4,984.000	4,984.000
0034	209.0200.S	Backfill Controlled Low Strength	CY	12.000	12.000
0036	213.0100	Finishing Roadway (project) 01. 1310-14-70	EACH	1.000	1.000
0038	305.0110	Base Aggregate Dense 3/4-Inch	TON	1,353.000	1,353.000
0040	305.0120	Base Aggregate Dense 1 1/4-Inch	TON	10,823.000	10,823.000
0042	305.0500	Shaping Shoulders	STA	8.000	8.000
0044	311.0110	Breaker Run	TON	5,457.000	5,457.000
0046	415.0070	Concrete Pavement 7-Inch	SY	52.000	52.000
0048	415.0090	Concrete Pavement 9-Inch	SY	11,402.000	11,402.000
0050	416.1010	Concrete Surface Drains	CY	10.300	10.300
0052	455.0605	Tack Coat	GAL	551.000	551.000
0054	460.2000	Incentive Density HMA Pavement	DOL	1,410.000	1,410.000
0056	460.6223	HMA Pavement 3 MT 58-28 S	TON	1,196.000	1,196.000
0058	460.6224	HMA Pavement 4 MT 58-28 S	TON	1,003.000	1,003.000
0060	465.0120	Asphaltic Surface Driveways and Field Entrances	TON	68.000	68.000
0062	465.0125	Asphaltic Surface Temporary	TON	6.000	6.000
0064	465.0400	Asphaltic Shoulder Rumble Strips	LF	4,792.000	4,792.000
0066	502.3101	Expansion Device	LF	218.000	218.000
0068	502.3200	Protective Surface Treatment	SY	2,175.000	2,175.000
0070	502.3205	Pigmented Surface Sealer Reseal	SY	422.000	422.000
0072	502.4205	Adhesive Anchors No. 5 Bar	EACH	230.000	230.000
0074	504.0900	Concrete Masonry Endwalls	CY	7.000	7.000
0076	505.0400	Bar Steel Reinforcement HS Structures	LB	1,030.000	1,030.000
0078	505.0600	Bar Steel Reinforcement HS Coated Structures	LB	5,060.000	5,060.000
0080	506.6000	Bearing Assemblies Expansion (structure) 01. B-30-48	EACH	5.000	5.000
0082	506.6000	Bearing Assemblies Expansion (structure) 02. B-30-58	EACH	10.000	10.000
0084	506.7050.S	Removing Bearings (structure) 01. B-30-48	EACH	5.000	5.000
0086	506.7050.S	Removing Bearings (structure) 02. B-30-58	EACH	10.000	10.000
0088	509.0301	Preparation Decks Type 1	SY	9.000	9.000
0090	509.0302	Preparation Decks Type 2	SY	4.000	4.000
0092	509.0500	Cleaning Decks	SY	2,083.000	2,083.000
0094	509.1000	Joint Repair	SY	105.000	105.000
0096	509.1500	Concrete Surface Repair	SF	196.000	196.000
0098	509.2000	Full-Depth Deck Repair	SY	10.000	10.000

Estimate Of Quantities

1310-14-70

Line	Item	Item Description	Unit	Total	Qty
0100	509.2500	Concrete Masonry Overlay Decks	CY	166.000	166.000
0102	509.9010.S	Removing Asphaltic Concrete Deck Overlay (structure) 01. B-30-48	SY	1,106.000	1,106.000
0104	509.9010.S	Removing Asphaltic Concrete Deck Overlay (structure) 02. B-30-58	SY	977.000	977.000
0106	517.1801.S	Structure Repainting Recycled Abrasive (structure) 01. B-30-48	EACH	1.000	1.000
0108	517.1801.S	Structure Repainting Recycled Abrasive (structure) 02. B-30-58	EACH	1.000	1.000
0110	517.4501.S	Negative Pressure Containment and Collection of Waste Materials (structure) 01. B-30-48	EACH	1.000	1.000
0112	517.4501.S	Negative Pressure Containment and Collection of Waste Materials (structure) 02. B-30-58	EACH	1.000	1.000
0114	517.6001.S	Portable Decontamination Facility	EACH	2.000	2.000
0116	520.2012	Culvert Pipe Temporary 12-Inch	LF	930.000	930.000
0118	520.8000	Concrete Collars for Pipe	EACH	4.000	4.000
0120	521.1518	Apron Endwalls for Culvert Pipe Sloped Side Drains Steel 18-Inch 6 to 1	EACH	14.000	14.000
0122	521.3118	Culvert Pipe Corrugated Steel 18-Inch	LF	332.000	332.000
0124	522.0136	Culvert Pipe Reinforced Concrete Class III 36-Inch	LF	66.000	66.000
0126	522.1015	Apron Endwalls for Culvert Pipe Reinforced Concrete 15-Inch	EACH	4.000	4.000
0128	601.0411	Concrete Curb & Gutter 30-Inch Type D	LF	172.000	172.000
0130	601.0555	Concrete Curb & Gutter 6-Inch Sloped 36-Inch Type A	LF	146.000	146.000
0132	601.0590	Concrete Curb & Gutter 4-Inch Sloped 36-Inch Type TBTT	LF	113.000	113.000
0134	603.8000	Concrete Barrier Temporary Precast Delivered	LF	587.500	587.500
0136	603.8125	Concrete Barrier Temporary Precast Installed	LF	587.500	587.500
0138	604.9010.S	Slope Paving Repair Crushed Aggregate	CY	79.000	79.000
0140	604.9015.S	Reseal Crushed Aggregate Slope Paving	SY	1,860.000	1,860.000
0142	606.0200	Riprap Medium	CY	11.000	11.000
0144	608.0415	Storm Sewer Pipe Reinforced Concrete Class IV 15-Inch	LF	221.000	221.000
0146	611.0642	Inlet Covers Type MS	EACH	2.000	2.000
0148	611.0651	Inlet Covers Type S	EACH	2.000	2.000
0150	611.3220	Inlets 2x2-FT	EACH	2.000	2.000
0152	611.3901	Inlets Median 1 Grate	EACH	2.000	2.000
0154	611.8115	Adjusting Inlet Covers	EACH	1.000	1.000
0156	611.8120.S	Cover Plates Temporary	EACH	1.000	1.000
0158	612.0204	Pipe Underdrain Unperforated 4-Inch	LF	173.000	173.000
0160	612.0406	Pipe Underdrain Wrapped 6-Inch	LF	109.000	109.000
0162	612.0804	Apron Endwalls for Underdrain Reinforced Concrete 4-Inch	EACH	6.000	6.000
0164	614.0150	Anchor Assemblies for Steel Plate Beam Guard	EACH	2.000	2.000
0166	614.0220	Steel Thrie Beam Bullnose Terminal	EACH	1.000	1.000
0168	614.0230	Steel Thrie Beam	LF	112.500	112.500
0170	614.0397	Guardrail Mow Strip Emulsified Asphalt	SY	655.000	655.000
0172	614.0920	Salvaged Rail	LF	29.000	29.000
0174	614.2300	MGS Guardrail 3	LF	487.500	487.500
0176	614.2500	MGS Thrie Beam Transition	LF	174.000	174.000
0178	614.2610	MGS Guardrail Terminal EAT	EACH	3.000	3.000
0180	614.2620	MGS Guardrail Terminal Type 2	EACH	1.000	1.000
0182	616.0800.S	Fence Track Clearance	LF	515.000	515.000
0184	619.1000	Mobilization	EACH	1.000	1.000
0186	624.0100	Water	MGAL	111.000	111.000
0188	625.0100	Topsoil	SY	24,295.000	24,295.000
0190	628.1104	Erosion Bales	EACH	50.000	50.000
0192	628.1504	Silt Fence	LF	1,016.000	1,016.000

Estimate Of Quantities

1310-14-70

Line	Item	Item Description	Unit	Total	Qty
0194	628.1520	Silt Fence Maintenance	LF	1,016.000	1,016.000
0196	628.1905	Mobilizations Erosion Control	EACH	4.000	4.000
0198	628.1910	Mobilizations Emergency Erosion Control	EACH	6.000	6.000
0200	628.2006	Erosion Mat Urban Class I Type A	SY	1,443.000	1,443.000
0202	628.6005	Turbidity Barriers	SY	242.000	242.000
0204	628.6505	Soil Stabilizer Type A	ACRE	4.760	4.760
0206	628.7005	Inlet Protection Type A	EACH	4.000	4.000
0208	628.7010	Inlet Protection Type B	EACH	1.000	1.000
0210	628.7504	Temporary Ditch Checks	LF	70.000	70.000
0212	628.7555	Culvert Pipe Checks	EACH	33.000	33.000
0214	628.7560	Tracking Pads	EACH	4.000	4.000
0216	629.0210	Fertilizer Type B	CWT	14.000	14.000
0218	630.0130	Seeding Mixture No. 30	LB	496.000	496.000
0220	630.0200	Seeding Temporary	LB	149.000	149.000
0222	630.0500	Seed Water	MGAL	620.000	620.000
0224	634.0618	Posts Wood 4x6-Inch X 18-FT	EACH	41.000	41.000
0226	637.2210	Signs Type II Reflective H	SF	336.420	336.420
0228	637.2230	Signs Type II Reflective F	SF	56.500	56.500
0230	638.2102	Moving Signs Type II	EACH	11.000	11.000
0232	638.2602	Removing Signs Type II	EACH	29.000	29.000
0234	638.3000	Removing Small Sign Supports	EACH	40.000	40.000
0236	642.5201	Field Office Type C	EACH	1.000	1.000
0238	643.0300	Traffic Control Drums	DAY	65,332.000	65,332.000
0240	643.0420	Traffic Control Barricades Type III	DAY	8,114.000	8,114.000
0242	643.0500	Traffic Control Flexible Tubular Marker Posts	EACH	601.000	601.000
0244	643.0600	Traffic Control Flexible Tubular Marker Bases	EACH	601.000	601.000
0246	643.0705	Traffic Control Warning Lights Type A	DAY	16,228.000	16,228.000
0248	643.0715	Traffic Control Warning Lights Type C	DAY	11,020.000	11,020.000
0250	643.0800	Traffic Control Arrow Boards	DAY	552.000	552.000
0252	643.0900	Traffic Control Signs	DAY	12,188.000	12,188.000
0254	643.0920	Traffic Control Covering Signs Type II	EACH	18.000	18.000
0256	643.1050	Traffic Control Signs PCMS	DAY	32.000	32.000
0258	643.3105	Temporary Marking Line Paint 4-Inch	LF	3,675.000	3,675.000
0260	643.3150	Temporary Marking Line Removable Tape 4-Inch	LF	44,442.000	44,442.000
0262	643.3250	Temporary Marking Line Removable Tape 8-Inch	LF	261.000	261.000
0264	643.3850	Temporary Marking Stop Line Removable Tape 18-Inch	LF	73.000	73.000
0266	643.3960	Temporary Marking Removable Mask Out Tape 6-Inch	LF	780.000	780.000
0268	643.5000	Traffic Control	EACH	1.000	1.000
0270	645.0120	Geotextile Type HR	SY	189.000	189.000
0272	645.0130	Geotextile Type R	SY	38.000	38.000
0274	646.1020	Marking Line Epoxy 4-Inch	LF	14,501.000	14,501.000
0276	646.1545	Marking Line Grooved Wet Ref Contrast Epoxy 4-Inch	LF	1,778.000	1,778.000
0278	646.3545	Marking Line Grooved Wet Ref Contrast Epoxy 8-Inch	LF	1,423.000	1,423.000
0280	646.5020	Marking Arrow Epoxy	EACH	3.000	3.000
0282	646.5120	Marking Word Epoxy	EACH	1.000	1.000
0284	646.5520	Marking Outfall Epoxy	EACH	7.000	7.000
0286	646.6120	Marking Stop Line Epoxy 18-Inch	LF	33.000	33.000
0288	646.9000	Marking Removal Line 4-Inch	LF	1,800.000	1,800.000
0290	646.9100	Marking Removal Line 8-Inch	LF	150.000	150.000



Estimate Of Quantities

1310-14-70

Line	Item	Item Description	Unit	Total	Qty
0292	650.4000	Construction Staking Storm Sewer	EACH	8.000	8.000
0294	650.4500	Construction Staking Subgrade	LF	2,070.000	2,070.000
0296	650.5000	Construction Staking Base	LF	4,660.000	4,660.000
0298	650.5500	Construction Staking Curb Gutter and Curb & Gutter	LF	431.000	431.000
0300	650.6000	Construction Staking Pipe Culverts	EACH	7.000	7.000
0302	650.7000	Construction Staking Concrete Pavement	LF	2,590.000	2,590.000
0304	650.9911	Construction Staking Supplemental Control (project) 01. 1310-14-70	EACH	1.000	1.000
0306	650.9920	Construction Staking Slope Stakes	LF	2,760.000	2,760.000
0308	690.0150	Sawing Asphalt	LF	2,280.000	2,280.000
0310	690.0250	Sawing Concrete	LF	193.000	193.000
0312	715.0720	Incentive Compressive Strength Concrete Pavement	DOL	3,437.000	3,437.000
0314	801.0117	Railroad Flagging Reimbursement	DOL	26,000.000	26,000.000
0316	999.2000.S	Installing and Maintaining Bird Deterrent System (station) 01. 796+80	EACH	2.000	2.000
0318	SPV.0035	Special 01. Scour Repair Grout Bags	CY	16.000	16.000
0320	SPV.0035	Special 02. Backfill Slurry	CY	24.000	24.000
0322	SPV.0060	Special 01. Parapet Repair	EACH	4.000	4.000
0324	SPV.0060	Special 02. Temporary Pipe Connection 4-inch	EACH	2.000	2.000
0326	SPV.0090	Special 01. Preparation and Coating of Bottom Flanges B-30-48	LF	465.000	465.000
0328	SPV.0090	Special 02. Preparation and Coating of Bottom Flanges B-30-58	LF	465.000	465.000
0330	SPV.0195	Special 01. Select Crushed Material For Travel Corridor	TON	7.000	7.000

**REMOVING SMALL PIPE CULVERTS**

203.0100  
REMOVING SMALL  
PIPE CULVERTS

STATION TO STATION	EACH
<b>STH 50</b>	
765+64 - 779+14	10
794+50 - 799+25	-
<b>CTH W</b>	
51+11 - 52+80	-
<b>CROSSOVER</b>	
739+16 - 765+64	-
799+25 - 808+48	-
TOTALS	10

**REMOVING CONCRETE PAVEMENT**

204.0100  
REMOVING  
CONCRETE  
PAVEMENT

STATION TO STATION	SY
<b>STH 50</b>	
765+64 - 779+14	9,583
794+50 - 799+25	-
<b>CTH W</b>	
51+11 - 52+80	-
<b>CROSSOVER</b>	
739+16 - 765+64	-
799+25 - 808+48	-
TOTALS	9,583

**REMOVING ASPHALTIC SURFACE**

204.0110  
REMOVING  
ASPHALTIC SURFACE

204.0120  
REMOVING ASPHALTIC  
SURFACE MILLING

STATION TO STATION	SY	SY
<b>STH 50</b>		
765+64 - 779+14	-	-
794+50 - 799+25	52	1,341
<b>CTH W</b>		
51+11 - 52+80	-	-
<b>CROSSOVER</b>		
739+16 - 765+64	-	-
799+25 - 808+48	-	-
TOTALS	52	1,341

**REMOVING CURB & GUTTER**

204.0150  
REMOVING CURB &  
GUTTER

STATION TO STATION	LF
<b>STH 50</b>	
765+64 - 779+14	132
794+50 - 799+25	-
<b>CTH W</b>	
51+11 - 52+80	164
<b>CROSSOVER</b>	
739+16 - 765+64	-
799+25 - 808+48	-
TOTALS	296

**REMOVING GUARDRAIL**

204.0165  
REMOVING  
GUARDRAIL

SPV.0035.02  
BACKFILL SLURRY

STATION TO STATION	LF	CY
<b>STH 50</b>		
765+64 - 779+14	424	12
794+50 - 799+25	416	12
<b>CTH W</b>		
51+11 - 52+80	-	-
<b>CROSSOVER</b>		
739+16 - 765+64	-	-
799+25 - 808+48	-	-
TOTALS	840	24

**REMOVING MASONRY**

204.0185  
REMOVING  
MASONRY

STATION TO STATION	CY
<b>STH 50</b>	
765+64 - 779+14	7
794+50 - 799+25	-
<b>CTH W</b>	
51+11 - 52+80	-
<b>CROSSOVER</b>	
739+16 - 765+64	-
799+25 - 808+48	-
TOTALS	7

**REMOVING SURFACE DRAINS**

204.0190  
REMOVING SURFACE  
DRAINS

STATION TO STATION	EACH
<b>STH 50</b>	
765+64 - 779+14	4
794+50 - 799+25	1
<b>CTH W</b>	
51+11 - 52+80	-
<b>CROSSOVER</b>	
739+16 - 765+64	-
799+25 - 808+48	-
TOTALS	5

ALL ITEMS CATEGORY 0010  
UNLESS OTHERWISE NOTED

3

**REMOVING UTILITY POLES**

204.0205 REMOVING UTILITY POLES	
STATION	EACH
STH 50	
796+64, 31' RT	1
TOTALS	1

**REMOVING INLETS**

204.0220 REMOVING INLETS	
STATION	EACH
STH 50	
766+85, 6' LT	1
770+00, 9' RT	1
796+39, 58' RT	1
CROSSOVER	
744+40, 14' RT	1
804+20, 16' RT	1
TOTALS	5

**REMOVING STORM SEWER**

STATION TO STATION	204.0245.01	204.0245.02
	12-INCH LF	15-INCH LF
STH 50		
765+64 - 779+14	90	57
794+50 - 799+25	-	-
CTH W		
51+11 - 52+80	-	-
CROSSOVER		
739+16 - 765+64	-	-
799+25 - 808+48	-	-
TOTALS	90	57

3

DIVISION	FROM/TO STATION	LOCATION	205.0100 COMMON EXCAVATION (1)		SALVAGED/UNUSABLE PAVEMENT MATERIAL (4)	AVAILABLE MATERIAL (5)	UNEXPANDED FILL	EXPANDED FILL (6)	MASS ORDINATE +/- (7)	WASTE	208.1100 SELECT BORROW	COMMENT
			CUT (2)	EBS EXCAVATION (3)				FACTOR 1.20				
DIVISION 1												
CTH W	50+65/52+80		468	0	123	345	6	7	338	338	-338	
EAST CROSSOVER INSTALLATION	801+50/806+50		1,447	0	60	1,387	71	85	1,302	1,302	0	
EAST CROSSOVER REMOVAL	801+50/806+50		986	0	226	760	45	54	706	706	0	
STH 50	765+68/779+00		5,077	500	3,308	1,769	5,909	7,091	-5,322	0	5,322	
WEST CROSSOVER INSTALLATION	740+00/748+99		1,293	0	65	1,228	237	284	944	944	0	
WEST CROSSOVER REMOVAL	740+00/748+99		1,769	0	330	1,439	237	284	1,155	1,155	0	
DIVISION 1 SUBTOTAL			11,040	500	4,112	6,928	6,505	7,806	-878	4,444	4,984	
GRAND TOTAL			11,040	500	4,112	6,928	6,505	7,806	-878	4,444	4,984	
TOTAL COMMON EXC			11,540									

**NOTES:**

- (1) COMMON EXCAVATION IS THE SUM OF THE CUT AND EBS EXCAVATION COLUMNS. ITEM NUMBER 205.0100
- (2) SALVAGED/UNUSABLE PAVEMENT MATERIAL IS INCLUDED IN CUT.
- (3) EBS EXCAVATION TO BE BACKFILLED WITH BREAKER RUN.
- (4) SALVAGED/UNUSABLE PAVEMENT MATERIAL
- (5) AVAILABLE MATERIAL = CUT - SALVAGED/UNUSABLE PAVEMENT MATERIAL
- (6) EXPANDED FILL FACTOR = 1.20
- (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.

ALL ITEMS CATEGORY 0010  
UNLESS OTHERWISE NOTED

**BASE AGGREGATE DENSE 3/4-INCH**

305.0110  
BASE AGGREGATE  
DENSE 3/4-INCH

STATION TO STATION	TON
<b>STH 50</b>	
765+64 - 779+14	420
794+50 - 799+25	58
<b>CTH W</b>	
51+11 - 52+80	13
<b>CROSSOVER</b>	
739+16 - 765+64	477
799+25 - 808+48	385
TOTALS	1,353

**BASE AGGREGATE DENSE 1 1/4-INCH**

305.0120  
BASE AGGREGATE  
DENSE 1 1/4-INCH

STATION TO STATION	TON
<b>STH 50</b>	
765+64 - 779+14	7,322
794+50 - 799+25	-
<b>CTH W</b>	
51+11 - 52+80	440
<b>CROSSOVER</b>	
739+16 - 765+64	1,840
799+25 - 808+48	1,221
TOTALS	10,823

**SHAPING SHOULDERS**

305.0500  
SHAPING  
SHOULDERS

STATION TO STATION	STA
<b>STH 50</b>	
765+64 - 779+14	-
794+50 - 799+25	-
<b>CTH W</b>	
51+11 - 52+80	-
<b>CROSSOVER</b>	
739+16 - 765+64	-
799+25 - 808+48	8
TOTALS	8

**BREAKER RUN**

311.0110  
BREAKER RUN

STATION TO STATION	TON
<b>STH 50</b>	
765+64 - 779+14	-
794+50 - 799+25	-
UNDISTRIBUTED - EBS	900
<b>CTH W</b>	
51+11 - 52+80	-
<b>CROSSOVER</b>	
739+16 - 765+64	2,705
799+25 - 808+48	1,852
TOTALS	5,457

**CONCRETE PAVEMENT**

415.0070  
7-INCH  
415.0090  
9-INCH

STATION TO STATION	SY	SY
<b>STH 50</b>		
765+64 - 779+14	52	11,402
794+50 - 799+25	-	-
<b>CTH W</b>		
51+11 - 52+80	-	-
<b>CROSSOVER</b>		
739+16 - 765+64	-	-
799+25 - 808+48	-	-
TOTALS	52	11,402

**CONCRETE SURFACE DRAINS**

416.1010  
CONCRETE SURFACE  
DRAINS

STATION TO STATION	CY
<b>STH 50</b>	
765+64 - 779+14	8.8
794+50 - 799+25	1.5
<b>CTH W</b>	
51+11 - 52+80	-
<b>CROSSOVER</b>	
739+16 - 765+64	-
799+25 - 808+48	-
TOTALS	10.3

**HMA PAVEMENT**

460.6223  
3 MT 58-28 S  
460.6224  
4 MT 58-28 S  
465.0120  
ASPHALTIC SURFACE  
DRIVEWAYS AND  
FIELD ENTRANCES  
465.0125  
ASPHALTIC SURFACE  
TEMPORARY  
455.0605  
TACK COAT

STATION TO STATION	TON	TON	TON	TON	GAL
<b>STH 50</b>					
765+64 - 779+14	307	238	55	-	142
794+50 - 799+25	29	177	-	6	94
<b>CTH W</b>					
51+11 - 52+80	89	69	13	-	41
<b>CROSSOVER</b>					
739+16 - 765+64	431	287	-	-	150
799+25 - 808+48	340	232	-	-	124
TOTALS	1,196	1,003	68	6	551

ALL ITEMS CATEGORY 0010  
UNLESS OTHERWISE NOTED

**ASPHALTIC SHOULDER RUMBLE STRIPS**

465.0400  
ASPHALTIC  
SHOULDER RUMBLE  
STRIPS

STATION TO STATION	LF
STH 50	
765+64 - 779+14	1,838
794+50 - 799+25	-
CTH W	
51+11 - 52+80	-
CROSSOVER	
739+16 - 765+64	1,898
799+25 - 808+48	1,056
TOTALS	4,792

**CONCRETE MASONRY ENDWALLS**

504.0900 520.8000 522.0136  
CONCRETE MASONRY CONCRETE COLLARS CULVERT PIPE  
ENDWALLS FOR PIPE REINFORCED  
CONCRETE CLASS III  
36-INCH

STATION TO STATION	CY	EACH	LF
STH 50			
769+03 RT	3.5	2	36
769+12 LT	3.5	2	30
TOTALS	7	4	66

**CULVERTS**

521.1518 521.3118  
APRON ENDWALLS FOR CULVERT PIPE SLOPED  
SIDE DRAINS STEEL 18-INCH 6 TO 1  
CULVERT PIPE CORRUGATED  
STEEL 18-INCH

FROM	-	TO	EACH	LF	INLET ELEVATION	DISCHARGE ELEVATION	SLOPE %
STH 50							
770+43.5	-	769+87.5	2	56	745.32	745.10	0.4%
771+31.7	-	770+73.6	2	58	745.67	745.44	0.4%
772+14.1	-	771+72.2	2	42	746.01	745.84	0.4%
773+04.8	-	772+68.9	2	36	746.37	746.23	0.4%
773+19.5	-	772+69.5	2	50	746.29	746.09	0.4%
774+17.3	-	773+75.3	2	42	746.82	746.65	0.4%
776+75.3	-	776+27.3	2	48	747.85	747.66	0.4%
TOTALS			14	332			

**CONCRETE CURB & GUTTER**

601.0411 601.0555 601.0590  
30-INCH TYPE D 6-INCH SLOPED 36-  
INCH TYPE A 4-INCH SLOPED 36-  
INCH TYPE TBTT

STATION TO STATION	LF	LF	LF
STH 50			
765+64 - 779+14	-	146	113
794+50 - 799+25	8	-	-
CTH W			
51+11 - 52+80	164	-	-
CROSSOVER			
739+16 - 765+64	-	-	-
799+25 - 808+48	-	-	-
TOTALS	172	146	113

**STORM SEWER**

520.2012 608.0415 522.1015 611.0642 611.0651 611.3220 611.3901  
CULVERT PIPE STORM SEWER PIPE APRON ENDWALLS INLET INLET INLETS INLETS  
TEMPORARY CONCRETE CLASS IV REINFORCED FOR CULVERT PIPE COVERS COVERS 2x2-FT INLETS  
12-INCH 15-INCH REINFORCED CONCRETE 15- MEDIAN 1  
JOINT

FROM	-	TO	LF	LF	EACH	EACH	EACH	EACH	JOINT TIES	* RIM ELEVATION	INLET ELEVATION	DISCHARGE ELEVATION	SLOPE %	
STH 50														
1	-	2	-	88	1	1	-	-	1	X	751.45	748.45	745.33	3.5%
3	-	4	-	69	1	1	-	-	1	X	747.75	745.31	744.62	1.0%
5	-	6	-	64	2	-	-	-	-	X	-	747.83	747.06	1.2%
CROSSOVER														
747+40	-	746+00	140	-	-	-	-	-	-	-	757.00	754.00	2.1%	
744+40	-	741+00	340	-	-	-	1	1	-	758.57	756.00	754.60	0.4%	
802+00	-	804+20	220	-	-	-	-	-	-	-	781.53	776.20	2.4%	
804+20	-	806+50	230	-	-	1	1	-	-	779.40	776.20	770.71	2.4%	
TOTALS			930	221	4	2	2	2	2					

\* RIM ELEVATION IS AT THE CENTER OF THE INLET COVER

**ADJUSTING INLET COVERS**

611.8115  
ADJUSTING INLET  
COVERS RIM ELEVATION

STATION	EACH	RIM ELEVATION
STH 50		
796+39, 58' RT	1	782.90
TOTALS	1	

ALL ITEMS CATEGORY 0010  
UNLESS OTHERWISE NOTED

3

3

COVER PLATES TEMPORARY

611.8120.S  
COVER PLATES  
TEMPORARY

STATION	EACH
STH 50	
746+00, 0' RT	1
TOTALS	1

GUARDRAIL

614.0220 STEEL THRIE BEAM BULLNOSE TERMINAL  
 614.0230 STEEL THRIE BEAM  
 614.0920 SALVAGED RAIL  
 614.2300 MGS GUARDRAIL 3  
 614.2500 MGS THRIE BEAM TRANSITION  
 614.2610 MGS GUARDRAIL TERMINAL EAT  
 614.2620 MGS GUARDRAIL TERMINAL TYPE 2  
 614.0397 GUARDRAIL MOW STRIP EMULSIFIED

STATION TO STATION	EACH	LF	LF	LF	LF	LF	EACH	EACH	SY
STH 50									
765+64 - 779+14	1	112.5	-	87.5	95	1	1	387	
794+50 - 799+25	-	-	29	400	79	2	-	268	
CTH W									
51+11 - 52+80	-	-	-	-	-	-	-	-	-
CROSSOVER									
739+16 - 765+64	-	-	-	-	-	-	-	-	-
799+25 - 808+48	-	-	-	-	-	-	-	-	-
TOTALS	1	112.5	29	487.5	174	3	1	655	

PIPE UNDERDRAIN

612.0204 PIPE UNDERDRAIN UNPERFORATED 4-INCH  
 612.0804 APRON ENDWALLS FOR UNDERDRAIN REINFORCED CONCRETE 4-INCH

STATION TO STATION	LF	EACH
STH 50		
765+64 - 779+14	173	4
794+50 - 799+25	-	-
CTH W		
51+11 - 52+80	-	-
CROSSOVER		
739+16 - 765+64	-	2
799+25 - 808+48	-	-
TOTALS	173	6

WATER

624.0100 WATER

STATION TO STATION	MGAL
STH 50	
765+64 - 779+14	57
794+50 - 799+25	6
CTH W	
51+11 - 52+80	4
CROSSOVER	
739+16 - 765+64	26
799+25 - 808+48	18
TOTALS	111

SEEDING

630.0130 SEEDING MIXTURE NO. 30  
 630.0200 SEEDING TEMPORARY  
 630.0500 SEED WATER

STATION TO STATION	LB	LB	MGAL
STH 50			
765+64 - 779+14	167	-	209
794+50 - 799+25	1	-	1
CTH W			
51+11 - 52+80	1	-	1
CROSSOVER			
739+16 - 765+64	120	-	150
799+25 - 808+48	108	-	135
UNDISTRIBUTED	99	149	124
TOTALS	496	149	620

TOPSOIL

625.0100 TOPSOIL

STATION TO STATION	SY
STH 50	
765+64 - 779+14	9,292
794+50 - 799+25	49
CTH W	
51+11 - 52+80	64
CROSSOVER	
739+16 - 765+64	6,687
799+25 - 808+48	5,994
UNDISTRIBUTED	2,209
TOTALS	24,295

TEMPORARY SETTLING BASINS

628.1104 EROSION BALES  
 645.0120 GEOTEXTILE TYPE HR

STATION TO STATION	EACH	SY
UNDISTRIBUTED	50	150
TOTALS	50	150

SILT FENCE

628.1504 SILT FENCE  
 628.1520 SILT FENCE MAINTENANCE

STATION TO STATION	LF	LF
STH 50		
765+64 - 779+14	721	721
794+50 - 799+25	92	92
CTH W		
51+11 - 52+80	-	-
CROSSOVER		
739+16 - 765+64	-	-
799+25 - 808+48	-	-
UNDISTRIBUTED	203	203
TOTALS	1,016	1,016

ALL ITEMS CATEGORY 0010  
UNLESS OTHERWISE NOTED

3

EROSION CONTROL MOBILIZATIONS

	628.1905 MOBILIZATIONS EROSION CONTROL	628.1910 MOBILIZATIONS EMERGENCY EROSION CONTROL
STATION TO STATION	EACH	EACH
PROJECT 1310-14-70	4	6
TOTALS	4	6

INLET PROTECTION

	628.7005 INLET PROTECTION TYPE A	628.7010 INLET PROTECTION TYPE B
STATION TO STATION	EACH	EACH
STH 50		
765+64 - 779+14	2	-
794+50 - 799+25	-	1
CTH W		
51+11 - 52+80	-	-
CROSSOVER		
739+16 - 765+64	1	-
799+25 - 808+48	1	-
TOTALS	4	1

TRACKING PADS

	628.7560 TRACKING PADS
STATION TO STATION	EACH
UNDISTRIBUTED	4
TOTALS	4

3

EROSION MATTING

	628.2006 EROSION MAT URBAN CLASS I TYPE A	628.6505 SOIL STABILIZER TYPE A
STATION TO STATION	SY	ACRE
STH 50		
765+64 - 779+14	1,312	1.70
794+50 - 799+25	-	0.01
CTH W		
51+11 - 52+80	0	0.01
CROSSOVER		
739+16 - 765+64	0	1.38
799+25 - 808+48	0	1.24
UNDISTRIBUTED	131	0.43
TOTALS	1,443	4.76

FERTILIZER

	629.0210 FERTILIZER TYPE B
STATION TO STATION	CWT
STH 50	
765+64 - 779+14	5.9
794+50 - 799+25	0.1
CTH W	
51+11 - 52+80	0.1
CROSSOVER	
739+16 - 765+64	4.2
799+25 - 808+48	3.8
TOTALS	14.0

RIPRAP

	606.0200 RIPRAP MEDIUM	645.0130 GEOTEXTILE TYPE R
STATION TO STATION	CY	SY
STH 50		
765+64 - 779+14	11	38
794+50 - 799+25	-	-
CTH W		
51+11 - 52+80	-	-
CROSSOVER		
739+16 - 765+64	-	-
799+25 - 808+48	-	-
TOTALS	11	38

DITCH CHECKS

	628.7504 TEMPORARY DITCH CHECKS	628.7555 CULVERT PIPE CHECKS
STATION TO STATION	LF	EACH
STH 50		
765+64 - 779+14	20	30
794+50 - 799+25	20	-
CTH W		
51+11 - 52+80	10	2
CROSSOVER		
739+16 - 765+64	10	1
799+25 - 808+48	10	-
TOTALS	70	33

TURBIDITY BARRIERS

	628.6005 TURBIDITY BARRIERS
STATION TO STATION	SY
STH 50	
765+64 - 779+14	242
794+50 - 799+25	-
CTH W	
51+11 - 52+80	-
CROSSOVER	
739+16 - 765+64	-
799+25 - 808+48	-
TOTALS	242

ALL ITEMS CATEGORY 0010  
UNLESS OTHERWISE NOTED

TRAFFIC CONTROL

STAGE	DURATION DAYS	643.0300 TRAFFIC CONTROL DRUMS		643.0420 TRAFFIC CONTROL BARRICADES TYPE III		643.0705 TRAFFIC CONTROL WARNING LIGHTS TYPE A		643.0715 TRAFFIC CONTROL WARNING LIGHTS TYPE C		643.0800 TRAFFIC CONTROL ARROW BOARDS		643.0900 TRAFFIC CONTROL SIGNS		643.1050 TRAFFIC CONTROL SIGNS PCMS	
		EACH	DAY	EACH	DAY	EACH	DAY	EACH	DAY	EACH	DAY	EACH	DAY	EACH	DAY
STH 50															
PRE-STAGE 1	21	378	24,192	23	1,472	46	2,944	28	1,792	4	256	52	3,328	-	-
STAGE 1	64	490	31,360	58	3,712	116	7,424	77	4,928	4	256	90	5,760	2	14
STAGE 2	60	478	28,680	68	4,080	136	8,160	95	5,700	4	240	95	5,700	3	18
STAGE 3	14	378	5,292	23	322	46	644	28	392	4	56	52	728	-	-
TOTALS			65,332		8,114		16,228		11,020		552		12,188		32

TEMPORARY MARKING LINE

STAGE	643.3105 PAINT 4-INCH (WHITE)		643.3105 PAINT 4-INCH (YELLOW)		643.3150 REMOVABLE TAPE 4-INCH		643.3250 REMOVABLE TAPE 8-INCH		643.3850 STOP LINE REMOVABLE TAPE 18-INCH		643.3960 REMOVABLE MASK OUT TAPE 6-INCH	
	LF	LF	LF	LF	LF	LF	LF	LF	LF	LF		
STH 50												
PRE-STAGE 1	-	-	-	-	1,330	-	-	-	-	330	-	-
STAGE 1	1,225	-	2,450	-	18,678	-	-	-	-	300	-	-
STAGE 2	-	-	-	-	23,104	-	261	73	-	150	-	-
STAGE 3	-	-	-	-	1,330	-	-	-	-	-	-	-
SUBTOTALS	1225	-	2450	-	44,442	-	261	73	-	780	-	-
TOTALS			3,675		44,442		261	73		780		

TRAFFIC CONTROL

STAGE	603.8000 CONCRETE BARRIER TEMPORARY PRECAST DELIVERED		603.8125 CONCRETE BARRIER TEMPORARY PRECAST INSTALLED		643.0500 TRAFFIC CONTROL FLEXIBLE TUBULAR MARKER POSTS		643.0600 TRAFFIC CONTROL FLEXIBLE TUBULAR MARKER BASES		643.0920 TRAFFIC CONTROL COVERING SIGNS TYPE II		
	LF	LF	LF	LF	EACH	EACH	NO.	CYCLES	EACH		
STH 50											
PRE-STAGE 1	-	-	-	-	87	87	-	-	-	-	-
STAGE 1	237.5	-	237.5	-	245	245	12	1	12	-	-
STAGE 2	350	-	350	-	269	269	6	1	6	-	-
STAGE 3	-	-	-	-	-	-	-	-	-	-	-
TOTALS	587.5	-	587.5	-	601	601			18		

ALL ITEMS CATEGORY 0010  
UNLESS OTHERWISE NOTED



3

MARKING LINE

STATION TO STATION	646.1020 EPOXY 4-INCH	646.1020 EPOXY 4-INCH	646.1545 GROOVED WET REF CONTRAST EPOXY 4- INCH	646.3545 GROOVED WET REF CONTRAST EPOXY 8- INCH
	(WHITE) LF	(YELLOW) LF	LF	LF
<u>STH 50</u>				
765+64 - 779+14	2,474	2,458	654	1,234
794+50 - 799+25	847	875	212	-
<u>CTH W</u>				
51+11 - 52+80	172	405	-	-
<u>CROSSOVER</u>				
739+16 - 765+64	1,885	1,885	471	-
799+25 - 808+48	1,764	1,736	441	189
SUBTOTALS	7,142	7,359	1,778	1,423
TOTALS		14,501	1,778	1,423

MARKING OTHER

STATION TO STATION	646.5020 ARROW EPOXY	646.5120 WORD EPOXY	646.5520 OUTFALL EPOXY	646.6120 STOP LINE EPOXY 18- INCH
	EACH	EACH	EACH	LF
<u>STH 50</u>				
765+64 - 779+14	3	1	7	-
794+50 - 799+25	-	-	-	-
<u>CTH W</u>				
51+11 - 52+80	-	-	-	33
<u>CROSSOVER</u>				
739+16 - 765+64	-	-	-	-
799+25 - 808+48	-	-	-	-
TOTALS	3	1	7	33

3

MARKING REMOVAL

STAGE	646.9000 LINE 4-INCH	646.9100 LINE 8-INCH
	LF	LF
<u>STH 50</u>		
STAGE 1		
739+70 - 742+20 LT	250	-
746+70 - 748+85 RT	215	-
799+65 - 802+35 RT	270	-
805+85 - 807+70 LT	185	-
STAGE 2		
739+25 - 742+10 RT	285	-
746+60 - 748+95 LT	235	-
799+95 - 802+55 LT	260	-
805+45 - 806+45 RT	100	-
806+55 - 808+05 RT	-	150
TOTALS	1,800	150

CONSTRUCTION STAKING

ITEM	DESCRIPTION	QUANTITY	UNIT
650.4000	CONSTRUCTION STAKING STORM SEWER	8	EACH
650.4500	CONSTRUCTION STAKING SUBGRADE	2,070	LF
650.5000	CONSTRUCTION STAKING BASE	4,660	LF
650.5500	CONSTRUCTION STAKING CURB GUTTER AND CURB & GUTTER	431	LF
650.6000	CONSTRUCTION STAKING PIPE CULVERTS	7	EACH
650.7000	CONSTRUCTION STAKING CONCRETE PAVEMENT	2,590	LF
650.9911	CONSTRUCTION STAKING SUPPLEMENTAL CONTROL (ID 1310-14-70)	1	EACH
650.9920	CONSTRUCTION STAKING SLOPE STAKES	2,760	LF

ALL ITEMS CATEGORY 0010  
UNLESS OTHERWISE NOTED

3

<u>SAWING</u>		690.0150	690.0250
STATION TO STATION		ASPHALT	CONCRETE
		LF	LF
<u>STH 50</u>			
	765+64 - 779+14	138	191
	794+50 - 799+25	53	-
<u>CTH W</u>			
	51+11 - 52+80	75	2
<u>CROSSOVER</u>			
	739+16 - 765+64	1,514	-
	799+25 - 808+48	500	-
	TOTALS	2,280	193

3

<u>TEMPORARY PIPE CONNECTION 4-INCH</u>		SPV.0060.02
STATION	EACH	
<u>STH 50</u>		
743+50 LT & RT	2	
TOTALS	2	

ALL ITEMS CATEGORY 0010  
UNLESS OTHERWISE NOTED

SIGN NO.	SIGN CODE & SIZE	SIGN TYPE	SIGN MESSAGE	TYPE II SIGN SIZE		637.2210	637.2230	638.2602	638.3000	634.0618	638.2102	MOUNT ON SAME POST AS SIGN #	REMARKS / NEW SIGN LOCATION
				W [IN.]	H [IN.]	SIGNS TYPE II REFLC H [SF]	SIGNS TYPE II REFLC F [SF]	REMOVING SIGNS TYPE II [EA]	REMOVING SMALL SIGN SUPPORTS [EA]	POSTS WOOD 4"X 6"X18' [EA]	MOVING SIGNS TYPE II [EA]		
1	S3-1(3)	II	--	48	48	--	16.000	1	2	2	--	--	--
2	J1-1(3)	II	--	36	57	14.250	--	1	1	1	--	--	--
	M2-1		JCT	30	21								
	M1-5A		CTH W	36	36								
3	J13-1(2S)	II	--	24	69	11.500	--	1	1	1	--	--	--
	M1-6		STH 50	24	24								
	M1-6		STH 83	24	24								
	M6-4		--	21	21								
4	J3-1(2S)	II	--	24	45	7.500	--	1	1	1	--	--	--
	M1-5A		CTH W	24	24								
	M6-1		--	21	21								
5	R1-1(3)	II	--	36	36	7.460	--	1	1	1	--	--	--
6	R6-3A(2S)	II	--	30	24	5.000	--	--	--	--	--	5	--
7	R2-1	--	--	--	--	--	--	--	--	--	1	--	--
8	J3-1(3)	II	--	36	84	21.000	--	1	1	2	--	--	--
	M3-1		NORTH	36	18								
	M1-5A		CTH W	36	36								
	M6-1		--	30	30								
9	R1-1(3)	II	--	36	36	7.460	--	1	1	1	--	--	--
10	J3-1(3)	II	--	36	84	21.000	--	1	1	2	--	--	--
	M3-3		SOUTH	36	18								
	M1-5A		CTH W	36	36								
	M6-1		--	30	30								
11	R5-1(3)	II	--	36	36	9.000	--	--	--	--	10	BACK OF SIGN #10	
12	R4-7(3)	II	--	36	48	12.000	--	1	1	1	--	--	--
13	R6-2L(2S)	II	--	24	30	5.000	--	1	1	1	--	--	INCLUDES REMOVAL OF SNOWMOBILE SIGN - RETURN TO OWNER
14	R5-1(3)	II	--	36	36	9.000	--	1	1	1	--	--	--
15	J3-1(3)	II	--	36	84	21.000	--	1	1	2	--	--	--
	M3-1		NORTH	36	18								
	M1-5A		CTH W	36	36								
	M6-1		--	30	30								
16	R5-1A(3)	II	--	42	30	8.750	--	1	1	1	--	--	--
17	W5-52L(3)	II	--	18	54	--	6.750	1	1	1	--	--	4 FT MOUNT HEIGHT
18	W5-52R(3S)	II	--	18	54	--	6.750	1	1	1	--	--	4 FT MOUNT HEIGHT
19	J2-2(3)	II	--	72	84	42.000	--	1	2	2	--	--	--
	M3-3		SOUTH	36	18								
	M1-5A		CTH W	36	36								
	M6-1		--	30	30								
	M3-1		NORTH	36	18								
	M1-5A		CTH W	36	36								
M5-1R	--	30	18										

3

3

SIGN NO.	SIGN CODE & SIZE	SIGN TYPE	SIGN MESSAGE	TYPE II SIGN SIZE			637.2210	637.2230	638.2602	638.3000	634.0618	638.2102	MOUNT ON SAME POST AS SIGN #	REMARKS / NEW SIGN LOCATION
				W [IN.]	x	H [IN.]	SIGNS TYPE II REFLC H [SF]	SIGNS TYPE II REFLC F [SF]	REMOVING SIGNS TYPE II [EA]	REMOVING SMALL SIGN SUPPORTS [EA]	POSTS WOOD 4"X 6"X18' [EA]	MOVING SIGNS TYPE II [EA]		
20	J2-2(3) M3-3 M1-5A M6-1 M3-1 M1-5A M5-1R	II	-- SOUTH CTH W -- NORTH CTH W --	72 36 36 30 36 36 30	x	84 18 36 30 18 36 18	42.000	--	1	2	2	--	--	--
21	R4-7(3)	II	--	36	x	48	12.000	--	1	1	1	--	--	--
22	R4-7(3)	II	--	36	x	48	12.000	--	1	1	1	--	--	--
23	R2-1(3)	II	55 MPH	36	x	48	12.000	--	1	1	1	--	--	--
24	R2-1(3)	II	55 MPH	36	x	48	12.000	--	1	1	1	--	--	--
25	R5-1A(3)	II	--	42	x	30	8.750	--	1	1	1	--	--	--
26	J4-2(3) M3-2 M1-6 M3-3 M1-6	II	-- EAST STH 50 SOUTH STH 83	72 36 36 36 36	x	54 18 36 18 36	27.000	--	1	2	2	--	--	--
27	R5-1A(3)	II	--	42	x	30	8.750	--	1	1	1	--	--	--
28	W5-52R(3)	II	--	18	x	54	--	6.750	1	1	1	--	--	4 FT MOUNT HEIGHT
29	W5-52L(3)	II	--	18	x	54	--	6.750	1	1	1	--	--	4 FT MOUNT HEIGHT
30	W5-52R(3)	II	--	18	x	54	--	6.750	1	1	1	--	--	4 FT MOUNT HEIGHT
31	W5-52L(3)	II	--	18	x	54	--	6.750	1	1	1	--	--	4 FT MOUNT HEIGHT
32	D1-1	--	--	--	x	--	--	--	--	2	2	1	--	--
33	J4-2	--	--	--	x	--	--	--	1	2	--	--	--	--
34	D7-82	--	--	--	x	--	--	--	--	1	1	1	--	SHEET 3 - MOVE IF NEEDED
34A	D7-82A	--	--	--	x	--	--	--	--	--	--	1	34	SHEET 3 - MOVE IF NEEDED
35	I3-1	--	--	--	x	--	--	--	--	1	1	1	--	SHEET 3 - MOVE IF NEEDED
36	R7-1D	--	--	--	x	--	--	--	--	--	--	1	35	SHEET 3 - MOVE IF NEEDED
37	I55-56	--	--	--	x	--	--	--	--	1	1	1	--	SHEET 3 - MOVE IF NEEDED
37A	I55-56P	--	--	--	x	--	--	--	--	--	--	1	37	SHEET 3 - MOVE IF NEEDED
38	D11-1(MOD)	--	--	--	x	--	--	--	--	1	1	1	--	SHEET 3 - MOVE IF NEEDED PERMIT SIGN - DO NOT REPLACE
38A	M7-1	--	--	--	x	--	--	--	--	--	--	1	38	SHEET 3 - MOVE IF NEEDED
39	R7-1D	--	--	--	x	--	--	--	--	--	--	1	38	SHEET 3 - MOVE IF NEEDED
--	--	--	--	--	x	--	--	--	--	--	--	--	--	--
TOTALS							336.420	56.500	29	40	41	11		

3

3

PARCEL NUMBER	OWNER(S)	INTEREST	R/W REQUIRED (ACRES OR S.F.)			T.L.E. SQ. FT.
			REQUIRED	NEW	EXISTING	
1	SLY FOX INN, LLC	TLE	0.000	0.000	0.000	1292
2	THE ESTATE OF GERALD S. RASMUSSEN	TLE	0.000	0.000	0.000	534
3	ANTHONY MAROTTA	FEE, TLE	0.046	0.000	0.046	1003
4	JOSEPH J. WEJMAN	FEE, TLE	0.029	0.000	0.029	631
5	LADOGA MANAGEMENT PROPERTY GROUP, LLC	TLE	0.000	0.000	0.000	628

OWNER'S NAMES ARE SHOWN FOR REFERENCE PURPOSES ONLY AND ARE SUBJECT TO CHANGE PRIOR TO THE TRANSFER OF LAND INTERESTS TO THE DEPARTMENT.

### TRANSPORTATION PROJECT PLAT NO: 1310-14-20- 4.01

THAT PART OF THE SOUTHWEST 1/4 OF THE NORTHWEST 1/4 AND THE SOUTHEAST 1/4 OF THE NORTHWEST 1/4 OF SECTION 1, TOWNSHIP 1 NORTH, RANGE 19 EAST, TOWN OF WHEATLAND, KENOSHA COUNTY, WISCONSIN.

RELOCATION ORDER STH 50 GENEVA RD, TOWN OF WHEATLAND SOUTH CTH W TO 1750 FEET EAST KENOSHA COUNTY (MITIGATE FOX RIVER FLOODING)

TO PROPERLY ESTABLISH, LAY OUT, WIDEN, ENLARGE, EXTEND, CONSTRUCT, RECONSTRUCT, IMPROVE, OR MAINTAIN A PORTION OF THE HIGHWAY DESIGNATED ABOVE, THE STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION DEEMS IT NECESSARY TO RELOCATE OR CHANGE SAID HIGHWAY AND ACQUIRE CERTAIN LANDS AND INTERESTS OR RIGHTS IN LANDS FOR THE ABOVE PROJECT.

TO EFFECT THIS CHANGE, PURSUANT TO AUTHORITY GRANTED UNDER SECTION 84.02 (3), 84.09, AND 84.30, WISCONSIN STATUTES, THE DEPARTMENT OF TRANSPORTATION HEREBY ORDERS THAT:

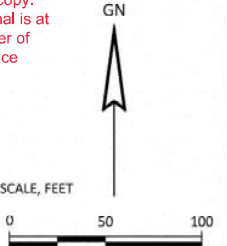
- THAT PORTION OF SAID HIGHWAY AS SHOWN ON THIS PLAT IS LAID OUT AND ESTABLISHED TO THE LINES AND WIDTHS AS SO SHOWN FOR THE ABOVE PROJECT.
- THE LANDS OR INTERESTS OR RIGHTS IN LANDS AS SHOWN ON THIS PLAT ARE REQUIRED BY THE DEPARTMENT FOR THE ABOVE PROJECT AND SHALL BE ACQUIRED IN THE NAME OF THE STATE OF WISCONSIN, PURSUANT TO THE PROVISIONS OF SECTION 84.09 (1) OR (2), WISCONSIN STATUTES.

Document #: 1903164  
Date: 2021-06-29 Time: 9:01 AM Pages: 1  
Fee: \$25.00 County: KENOSHA State: WI  
REGISTER OF DEEDS: JOELLYN H. STORZ

Map # 20184

RESERVED FOR REGISTER OF DEEDS  
PROJECT NUMBER 1310-14-20-4.01  
AMENDMENT NO. \_\_\_\_\_

This is a copy. The original is at the register of deeds office



UTILITY INTERESTS REQUIRED		
UTILITY NUMBER	OWNER	INTERESTS REQUIRED
100	BURLINGTON BRIGHTON & WHEATLAND TELEPHONE CO.	RELEASE OF RIGHTS

#### R/W COURSE TABLE

POINT #	BEARING	DISTANCE
PRW1-PRW2	N 22°30'35"E	10.00'
PRW2-PRW3	S 67°07'29"E	46.86'
PRW3-PRW4	S 73°37'53"E	153.76'
PRW4-PRW5	S 22°33'21"W	10.06'
PRW5-PRW6	N 73°37'53"W	153.25'
PRW6-PRW1	N 67°07'29"W	47.36'
PRW4-PRW7	S 73°37'53"E	126.21'
PRW7-PRW8	S 22°23'24"W	10.06'
PRW8-PRW5	N 73°37'53"W	126.24'

#### NOTES:

POSITIONS SHOWN ON THIS PLAT ARE WISCONSIN COORDINATE REFERENCE SYSTEM COORDINATES (WISCRS), KENOSHA COUNTY, MADIS 2011, IN U.S. SURVEY FEET. VALUES ARE GRID COORDINATES, GRID BEARINGS, AND GRID DISTANCES. GRID DISTANCES MAY BE USED AS GRID DISTANCES.

ALL NEW RIGHT-OF-WAY MONUMENTS WILL BE TYPE 2 (TYPICALLY 3" X 24" IRON REBARS, UNLESS OTHERWISE NOTED, AND WILL BE PLACED PRIOR TO THE COMPLETION OF THE PROJECT.

ALL RIGHT-OF-WAY LINES DEPICTED IN THE NON-ACQUISITION AREAS ARE INTENDED TO RE-ESTABLISH EXISTING RIGHT-OF-WAY LINES AS DETERMINED FROM PREVIOUS PROJECTS, OTHER RECORDED DOCUMENTS, OR FROM CENTERLINE OF EXISTING PAVEMENTS.

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

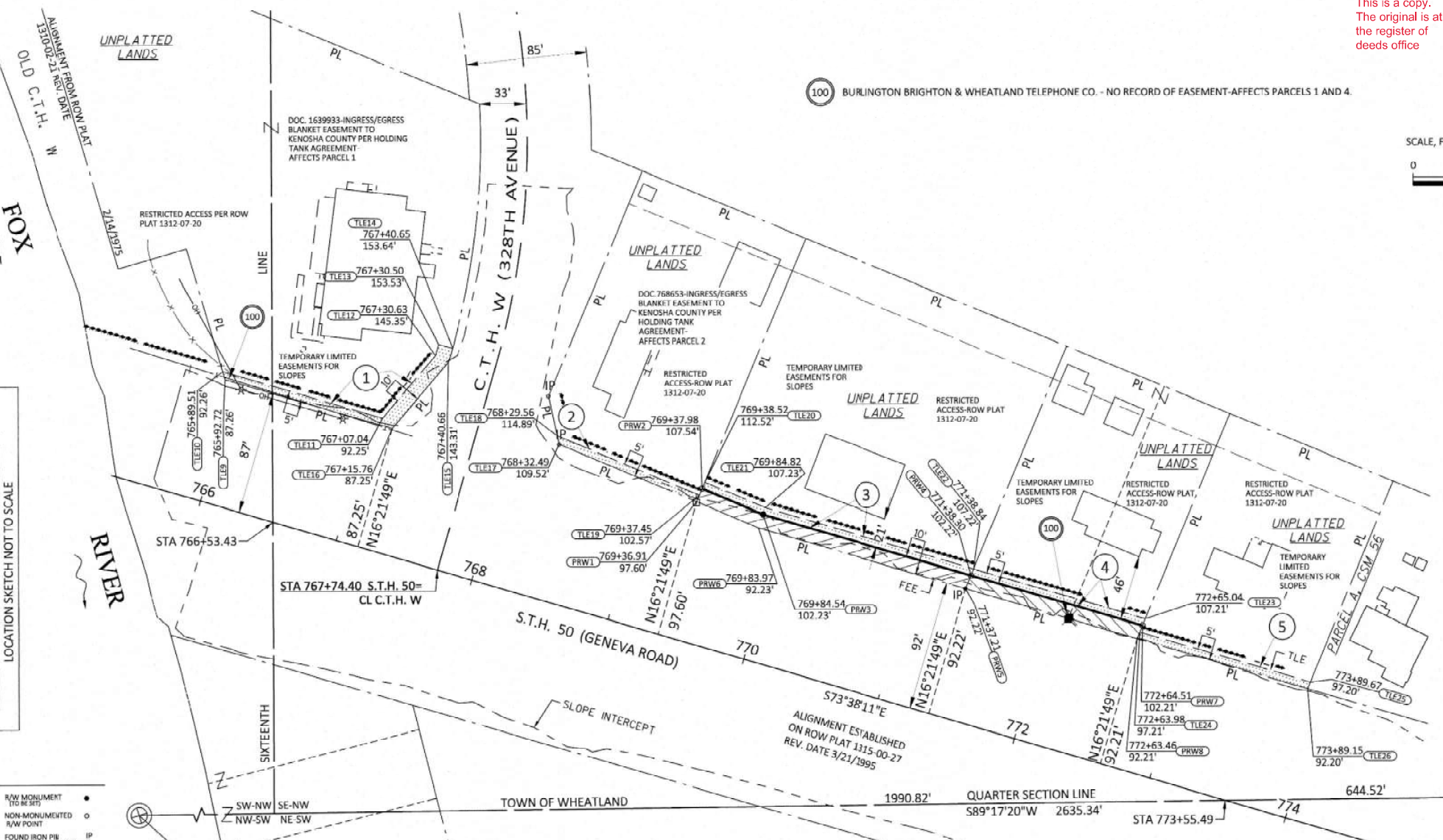
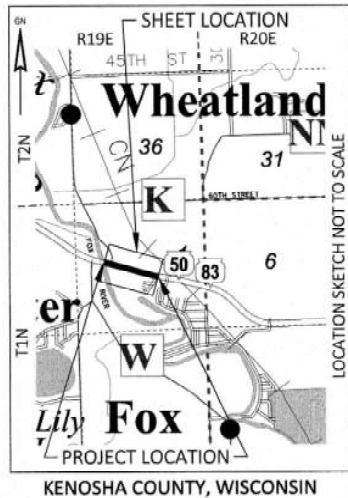
DIMENSIONING FOR THE NEW RIGHT-OF-WAY IS MEASURED ALONG AND PERPENDICULAR TO THE NEW REFERENCE LINES.

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

PROPERTY LINES SHOWN ON THIS PLAT ARE DRAWN FROM DATA DERIVED FROM MAPS AND DOCUMENTS OF PUBLIC RECORD AND/OR EXISTING OCCUPANCY LINES. THIS PLAT MAY NOT BE A TRUE REPRESENTATION OF EXISTING PROPERTY LINES, EXCLUDING RIGHT-OF-WAY, AND SHOULD NOT BE USED AS A SUBSTITUTE FOR AN ACCURATE FIELD SURVEY.

FOR THE CURRENT ACCESS/DRIVEWAY INFORMATION, CONTACT THE PLANNING UNIT OF THE WISCONSIN DEPARTMENT OF TRANSPORTATION OFFICE IN WALKESHA, WISCONSIN.

PARCEL AND UTILITY IDENTIFICATION NUMBERS MAY NOT POINT TO ALL AREAS OF ACQUISITION, AS NOTED ON THE TYPED DETAIL PAGES.



#### CONVENTIONAL ABBREVIATIONS

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

#### CONVENTIONAL SYMBOLS

SECTION LINE	---	SECTION CORNER SYMBOL	⊙	R/W MONUMENT (TO BE SET)	⊙
QUARTER LINE	---	SIXTEENTH LINE	---	NON-MONUMENTED R/W POINT	⊙
SIXTEENTH LINE	---	NEW REFERENCE LINE	---	FOUND IRON PIPE (1" UNLESS NOTED)	⊙
NEW REFERENCE LINE	---	NEW R/W LINE	---	FOUND CONCRETE MONUMENT WITH BRASS CAP	⊙
EXISTING R/W OR HE LINE	---	EXISTING R/W OR HE LINE	---	FOUND CONCRETE MONUMENT WITH BRASS CAP	⊙
PROPERTY LINE	---	SIXTEENTH CORNER MONUMENT	⊙	FOUND CONCRETE MONUMENT WITH BRASS CAP	⊙
RIGHT	RT	SIGN	⊙	FOUND CONCRETE MONUMENT WITH BRASS CAP	⊙
RIGHT OF WAY	R/W	OFF-PREMISE SIGN	⊙	FOUND CONCRETE MONUMENT WITH BRASS CAP	⊙
SECTION	SEC	COMPENSABLE	⊙	FOUND CONCRETE MONUMENT WITH BRASS CAP	⊙
SLOPE INTERCEPT	---	NON-COMPENSABLE	⊙	FOUND CONCRETE MONUMENT WITH BRASS CAP	⊙
CORPORATE LIMITS	---	ELECTRIC POLE	⊙	FOUND CONCRETE MONUMENT WITH BRASS CAP	⊙
UNDEVELOPED LAND (COMMUNICATIONS, ELEC, ETC)	---	TELEPHONE SYMBOL	⊙	FOUND CONCRETE MONUMENT WITH BRASS CAP	⊙
NEW R/W (FEE OR HE)	---	PEDESTAL (LABEL TYPE) (TV, TEL, ELEC, ETC)	⊙	FOUND CONCRETE MONUMENT WITH BRASS CAP	⊙
TEMPORARY LIMITED EASEMENT AREA	---	ACCESS RESTRICTED BY ACQUISITION	---	FOUND CONCRETE MONUMENT WITH BRASS CAP	⊙
NO ACCESS (BY STATUTORY AUTHORITY)	---	NO ACCESS (BY STATUTORY AUTHORITY)	---	FOUND CONCRETE MONUMENT WITH BRASS CAP	⊙
ACCESS RESTRICTED (BY PREVIOUS PROJECT OR CONTROL)	---	ACCESS RESTRICTED (BY PREVIOUS PROJECT OR CONTROL)	---	FOUND CONCRETE MONUMENT WITH BRASS CAP	⊙
NO ACCESS (NEW HIGHWAY)	---	NO ACCESS (NEW HIGHWAY)	---	FOUND CONCRETE MONUMENT WITH BRASS CAP	⊙
TRANSMISSION STRUCTURES	---	PARALLEL OFFSETS	---	FOUND CONCRETE MONUMENT WITH BRASS CAP	⊙
BUILDING TO BE REMOVED	---	UTILITY NUMBER	⊙	FOUND CONCRETE MONUMENT WITH BRASS CAP	⊙
BRIDGE	---			FOUND CONCRETE MONUMENT WITH BRASS CAP	⊙
CULVERT	---			FOUND CONCRETE MONUMENT WITH BRASS CAP	⊙

#### CONVENTIONAL UTILITY SYMBOLS

WATER	---
GAS	---
TELEPHONE	---
OVERHEAD TRANSMISSION LINES	---
ELECTRIC	---
CABLE TELEVISION	---
FIBER OPTIC	---
SANITARY SEWER	---
STORM SEWER	---
ELECTRIC TOWER	---

#### BASIS OF EXISTING RIGHT-OF-WAY

ROUTE	BASIS
OLD CTH W	ROW Plat 1310-02-21 Rev. 2/14/1975
	ROW Plat 1312-07-20 Rev. 10/28/1986
STH 50	ROW Plat 1310-02-21 Rev. 2/14/1975
	ROW Plat 1312-07-20 Rev. 10/28/1986
	ROW Plat 1315-00-27 Rev. 03/21/1995
CTH W	ROW Plat 1312-07-20 Rev. 10/28/1986

The Avenue  
275 West Wisconsin Avenue, Suite 300,  
Milwaukee, WI 53203  
414 / 259 1500 414 / 259 0037 fax  
[www.graef-usa.com](http://www.graef-usa.com)

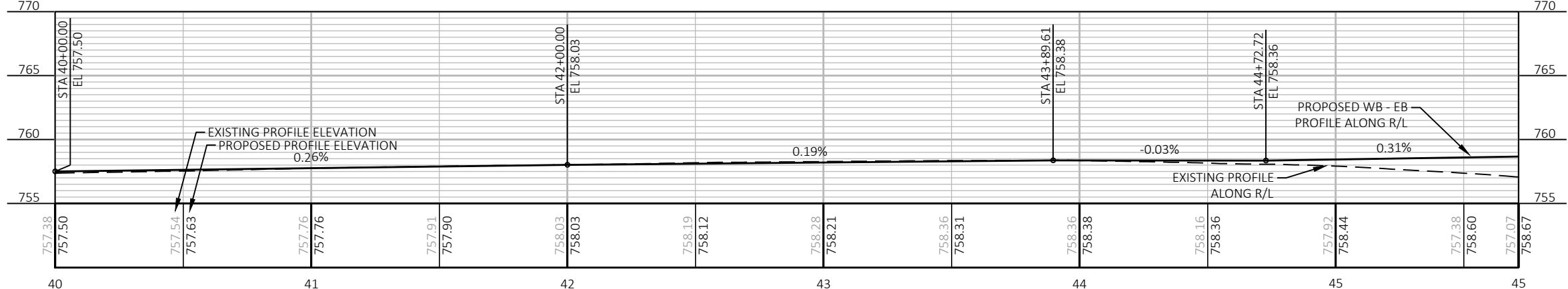
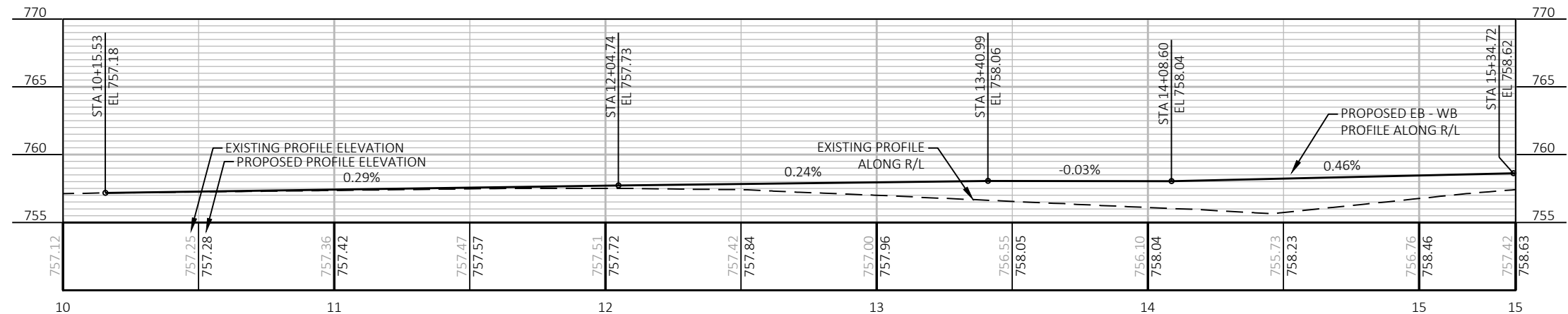
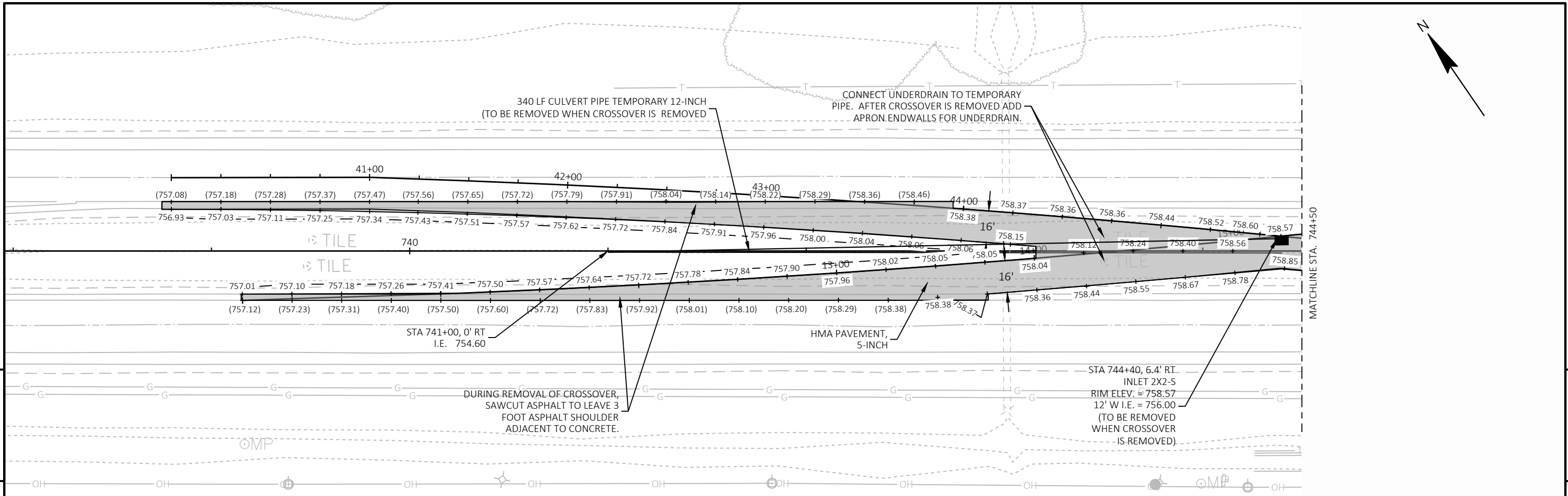
**Gräef**

I, CARLA J. ROLLINS, PROFESSIONAL LAND SURVEYOR, HEREBY CERTIFY THAT IN FULL COMPLIANCE WITH THE PROVISIONS OF SECTION 84.095 OF THE WISCONSIN STATUTES AND UNDER THE DIRECTION OF THE DEPARTMENT OF TRANSPORTATION, I HAVE SURVEYED AND MAPPED THIS TRANSPORTATION PROJECT PLAT AND SUCH PLAT CORRECTLY REPRESENTS ALL EXTERIOR BOUNDARIES OF THE SURVEYED LAND.

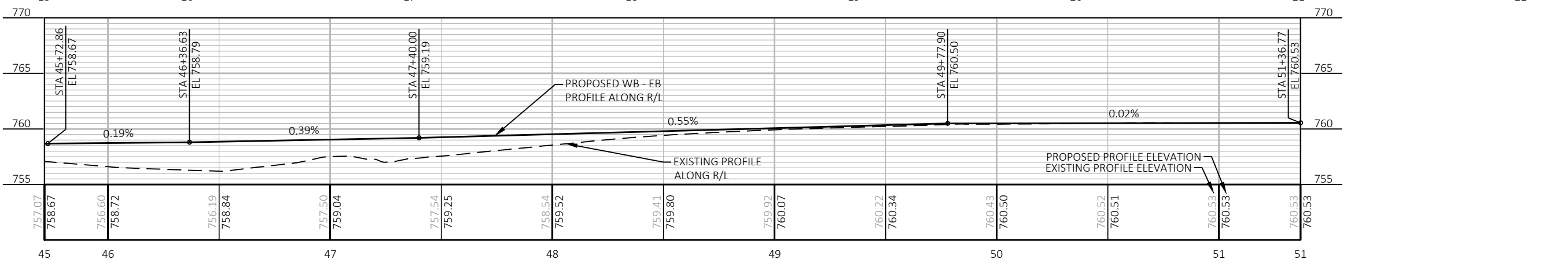
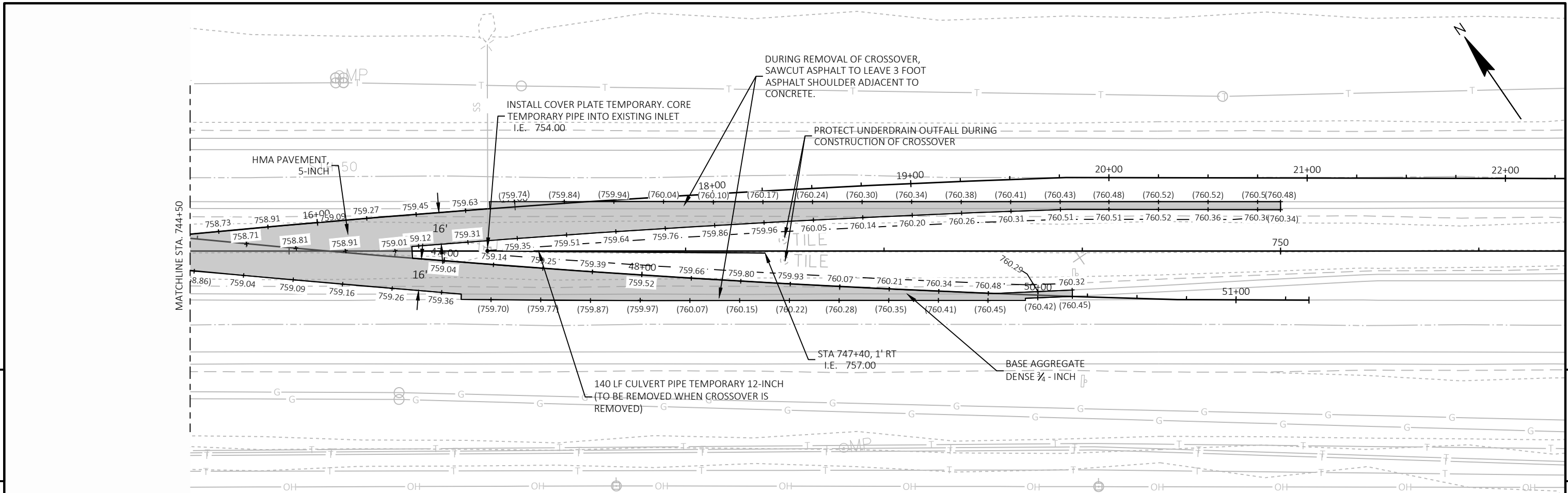
SIGNATURE: *Carla J. Rollins* DATE: 06/23/21  
PRINT NAME: CARLA J. ROLLINS  
REGISTRATION NUMBER: S-3207

THIS PLAT AND RELOCATION ORDER ARE APPROVED FOR THE WISCONSIN DEPARTMENT OF TRANSPORTATION

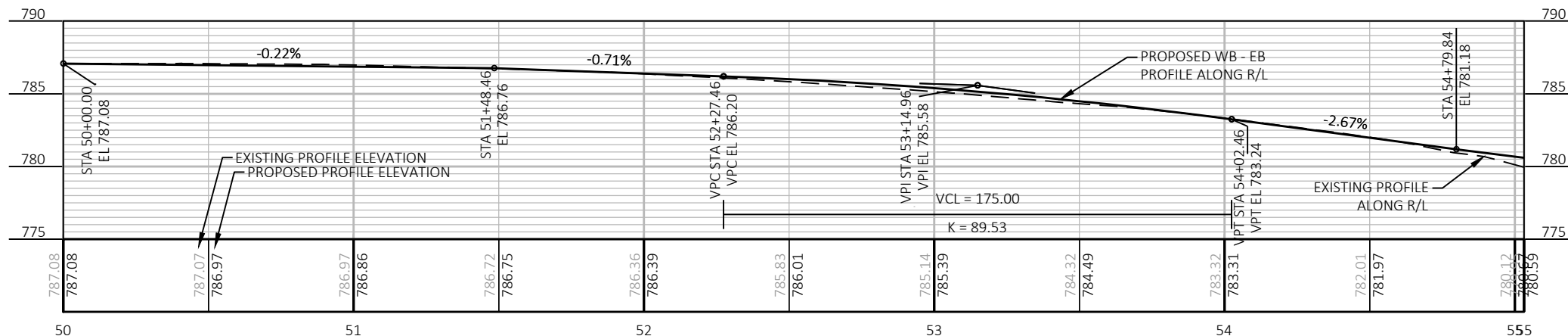
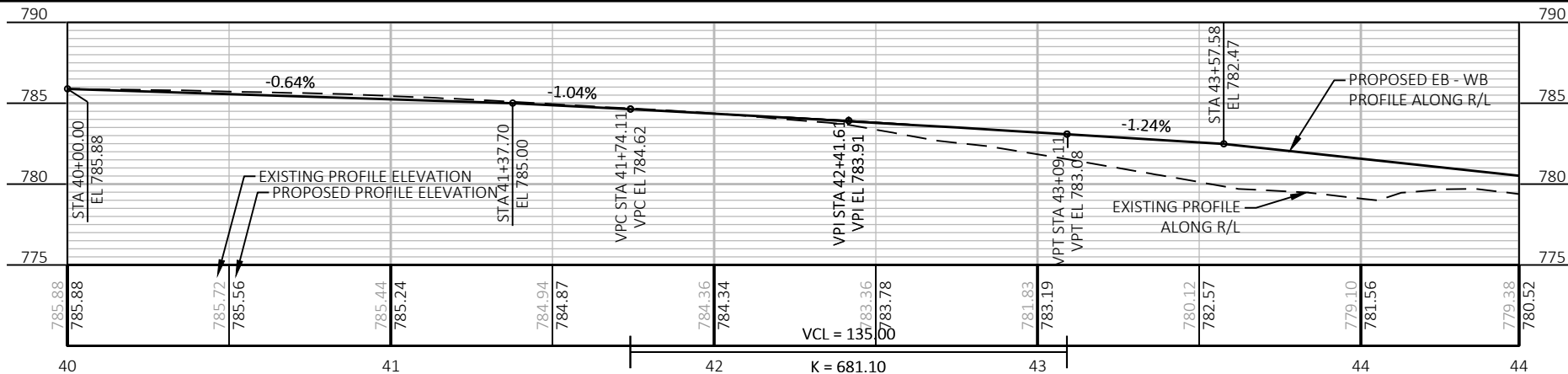
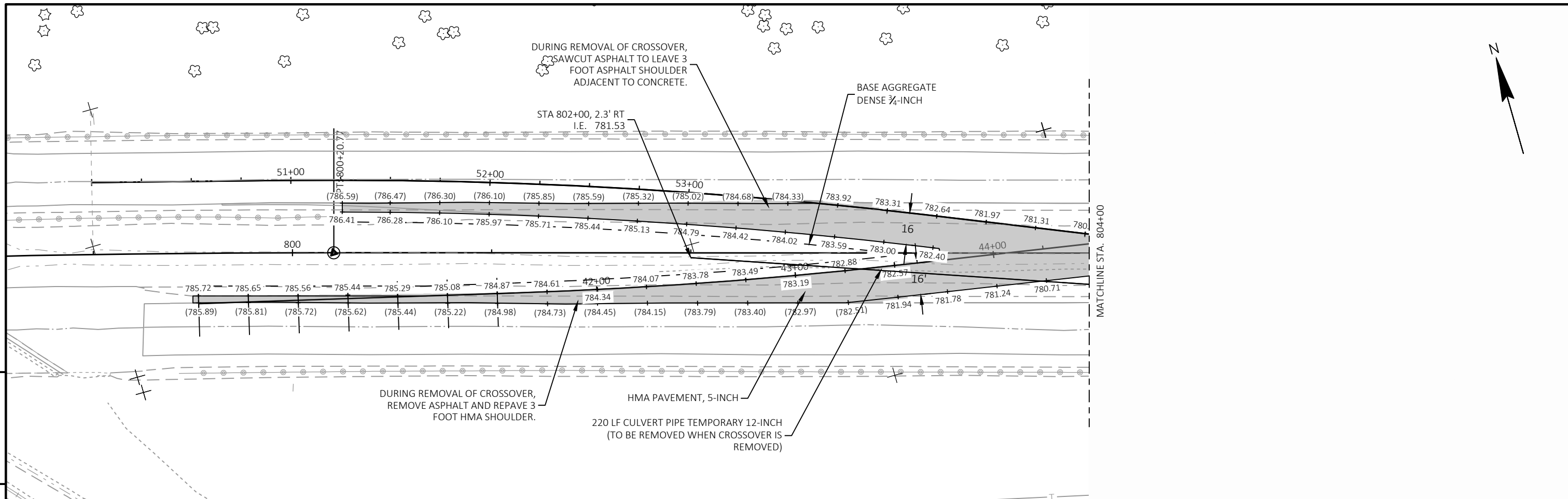
SIGNATURE: *Robert L. Duffeck* DATE: 06/23/21  
PRINT NAME: ROBERT L. DUFFECK



PROJECT NO: 1310-14-70      HWY: STH 50      COUNTY: KENOSHA      PLAN AND PROFILE: CROSSOVER DETAILS      SHEET: 5

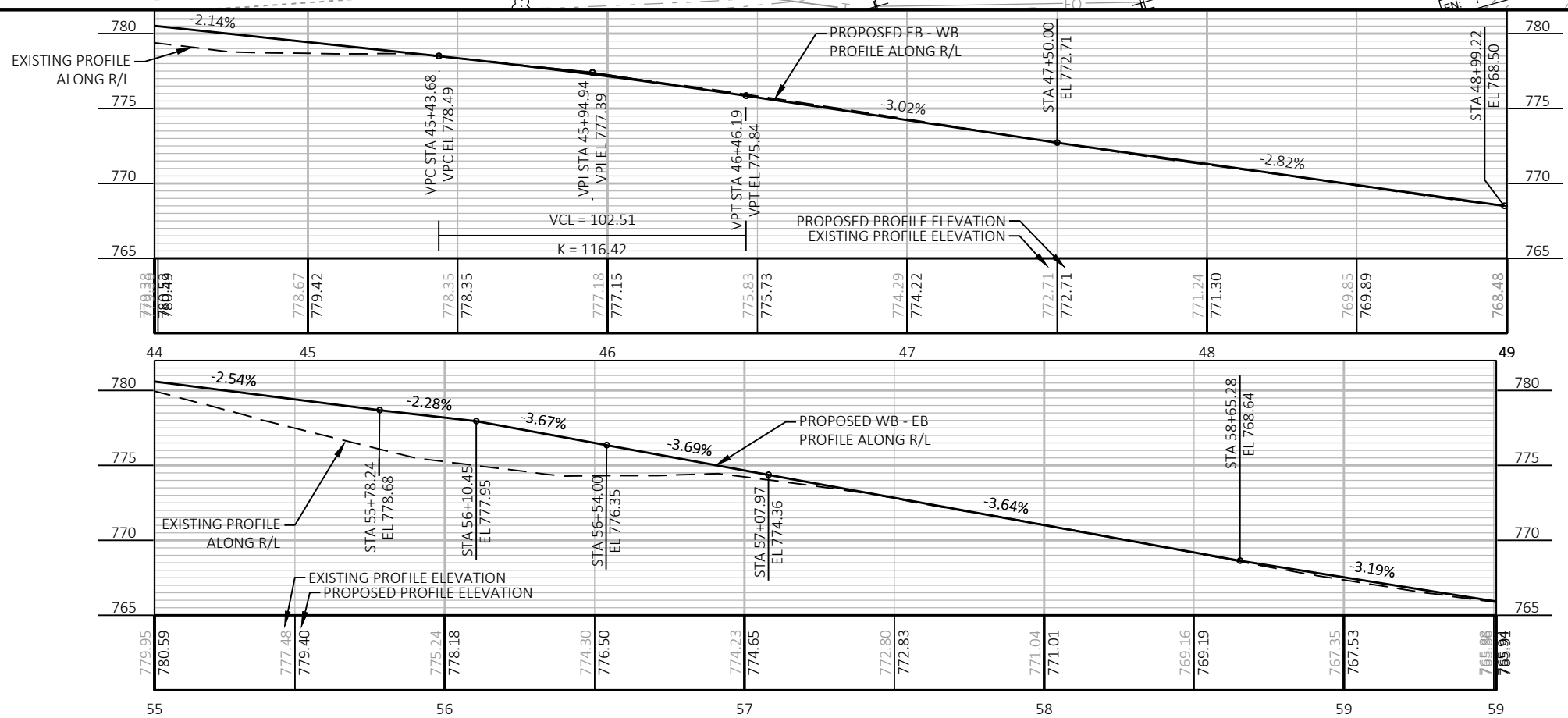
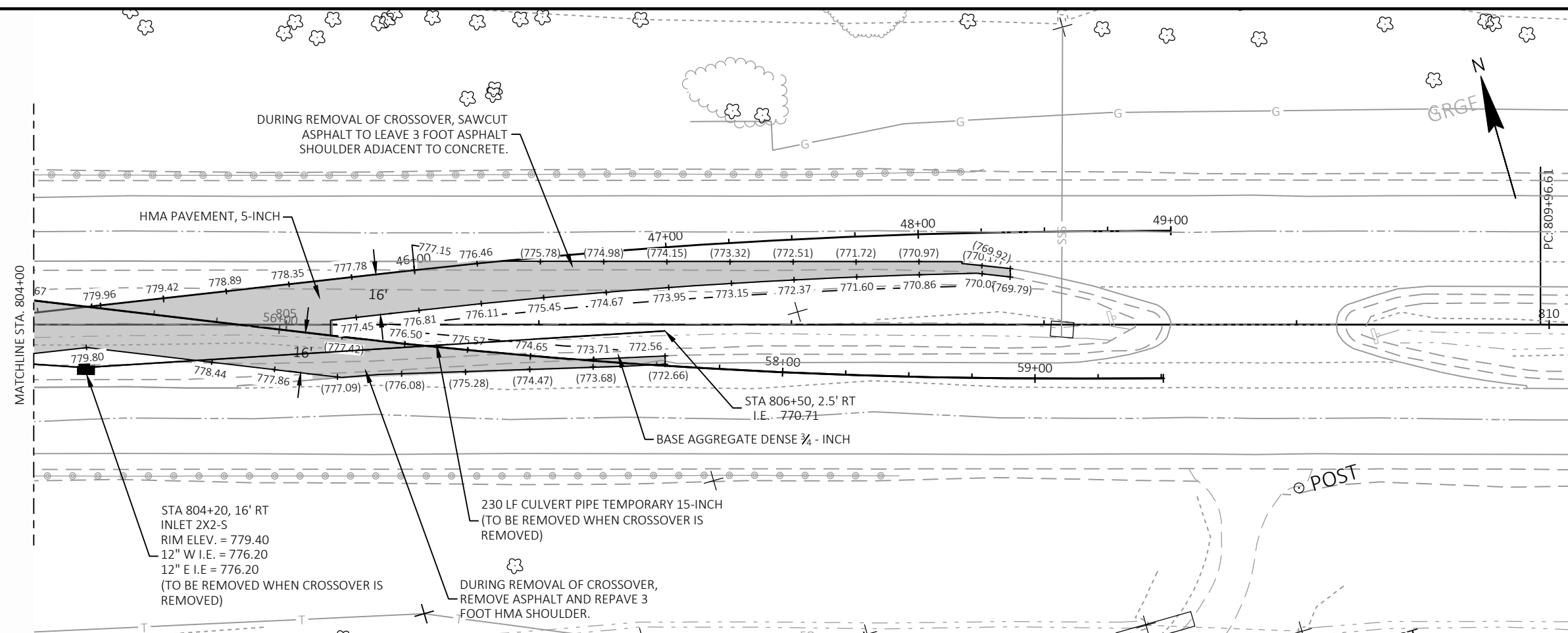


PROJECT NO: 1310-14-70	HWY: STH 50	COUNTY: KENOSHA	PLAN AND PROFILE: CROSSOVER DETAILS	SHEET 5
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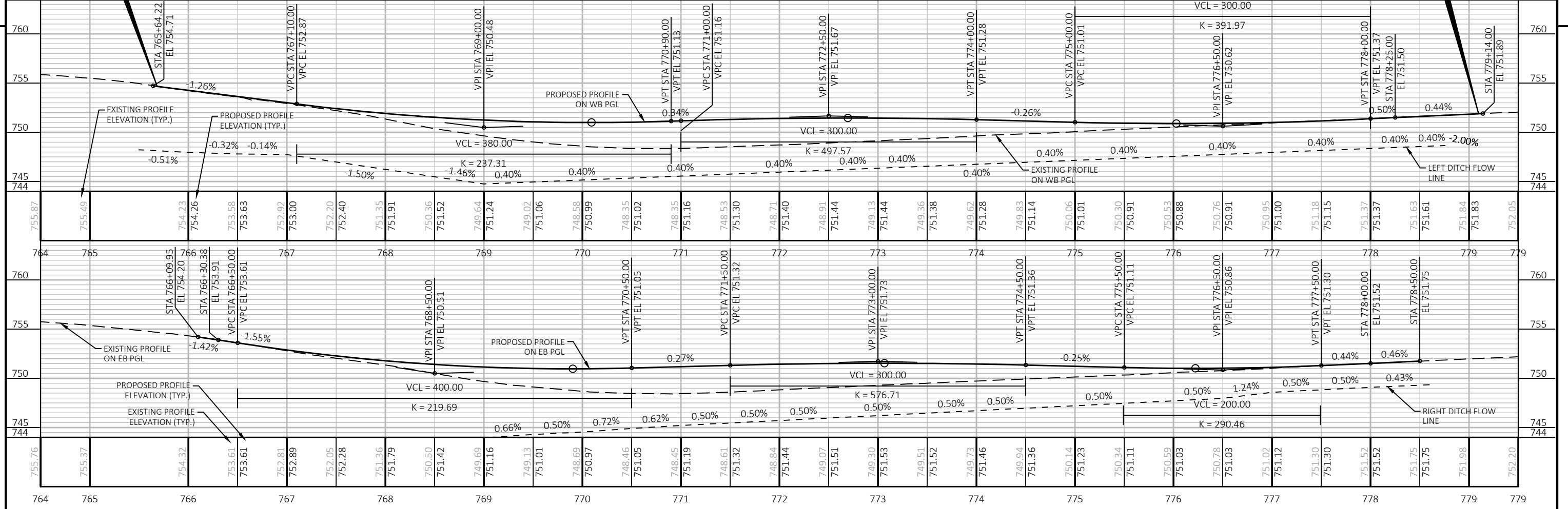
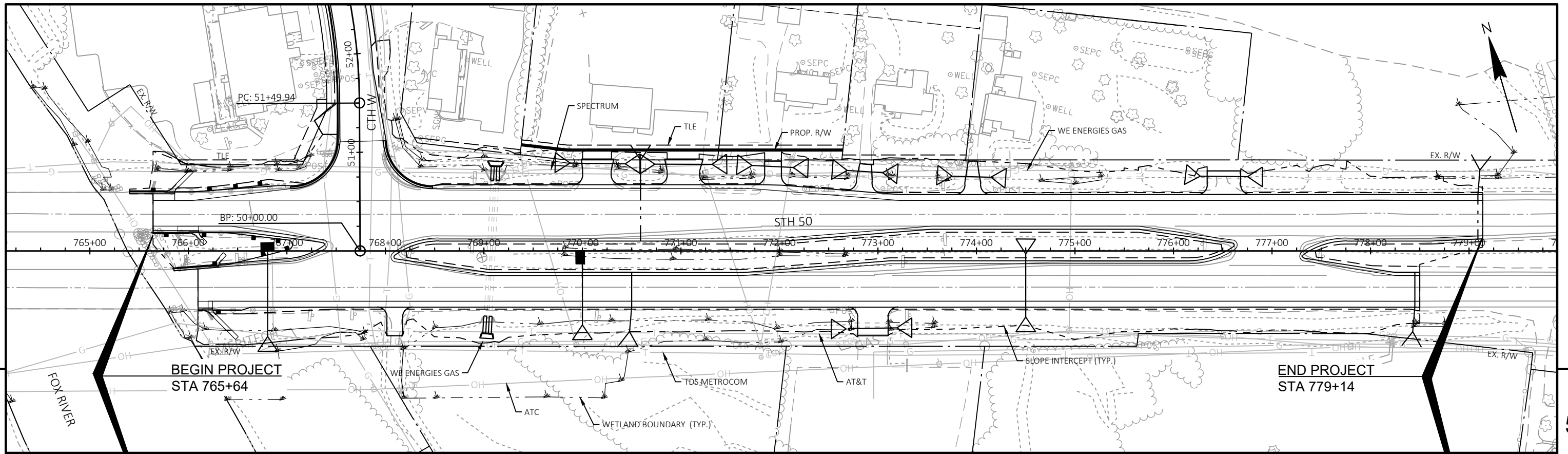


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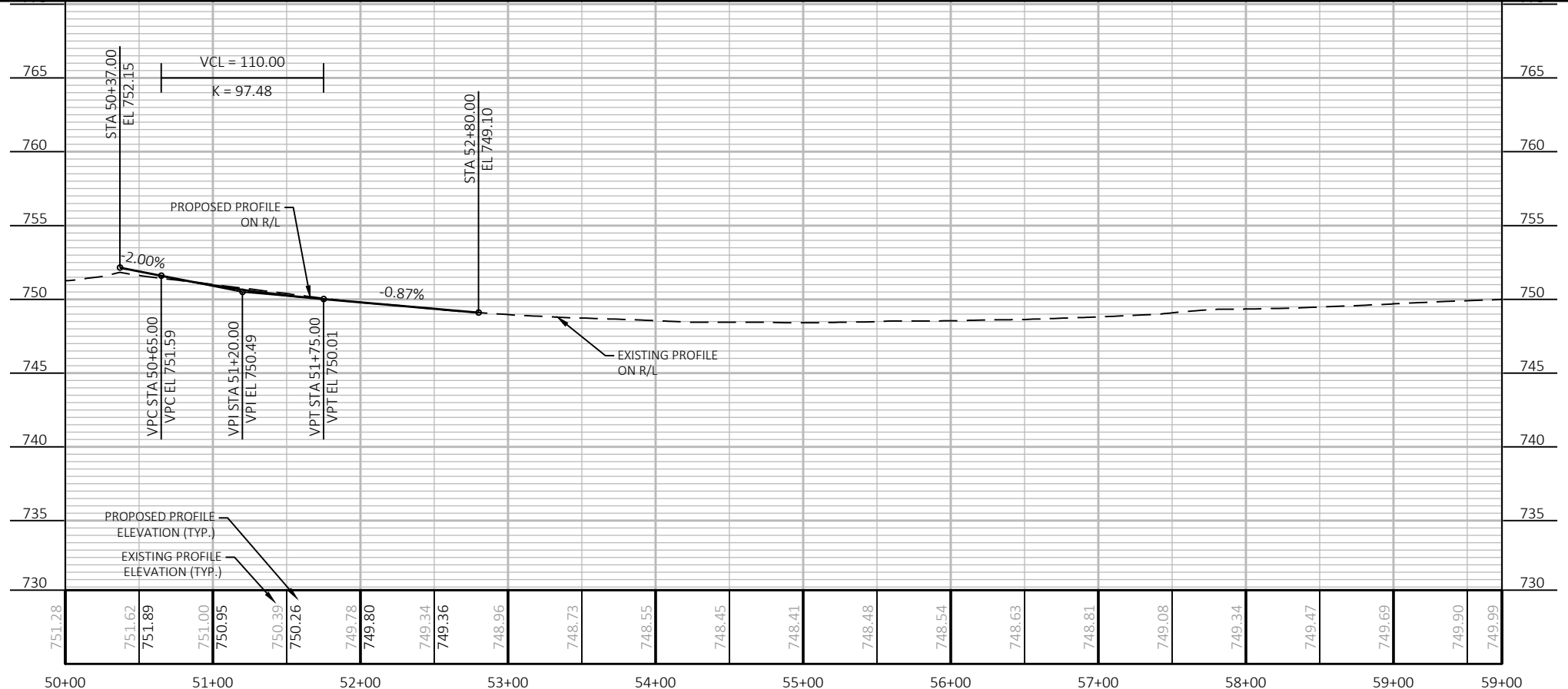
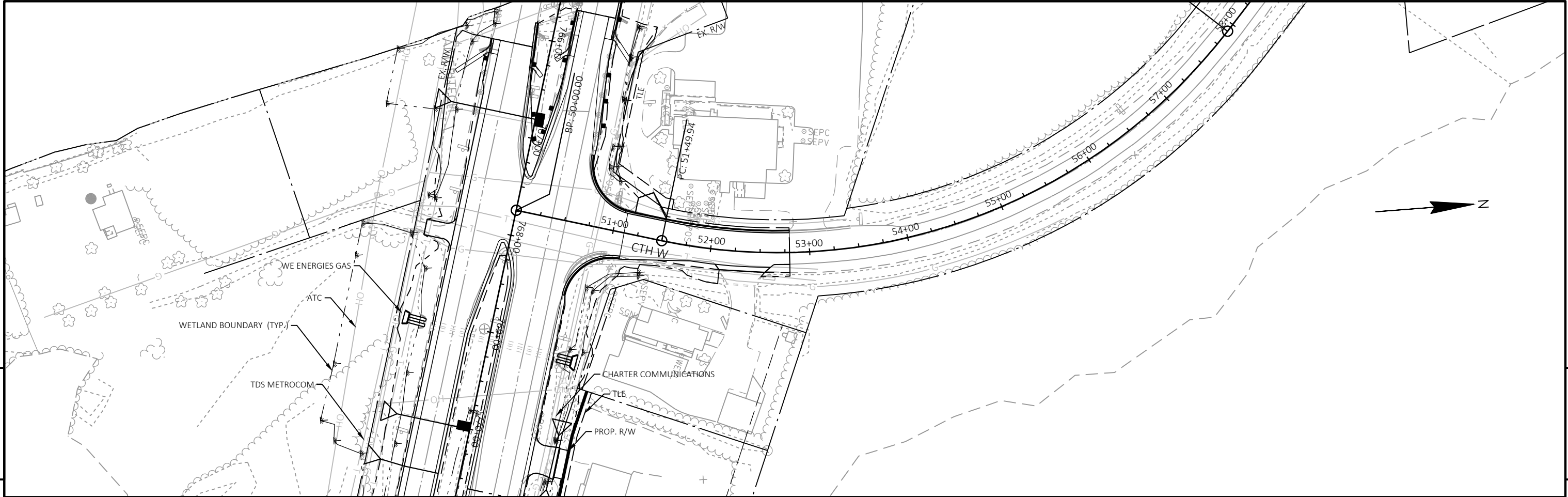




PROJECT NO: 1310-14-70	HWY: STH 50	COUNTY: KENOSHA	PLAN AND PROFILE: CROSSOVER DETAILS	SHEET	E
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PROJECT NO: 1310-14-70	HWY: STH 50	COUNTY: KENOSHA	PLAN AND PROFILE: STH 50
SHEET			<b>E</b>



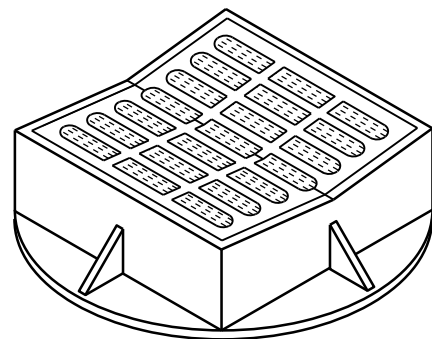
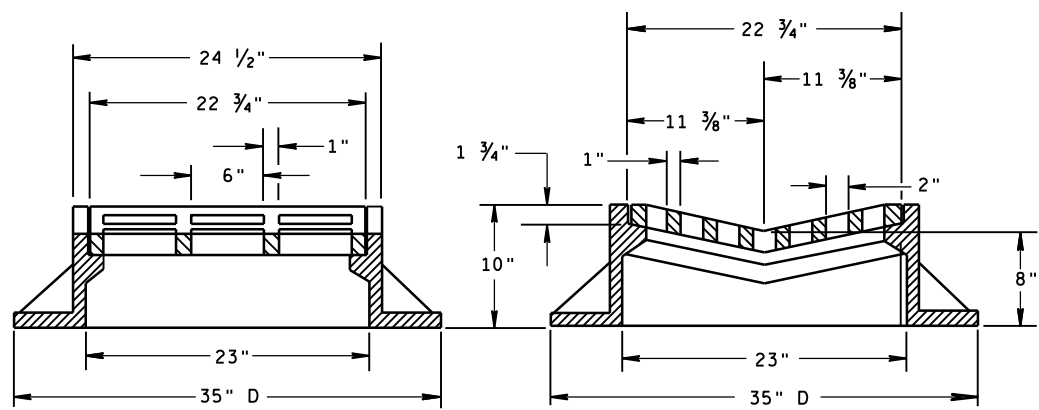
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## Standard Detail Drawing List

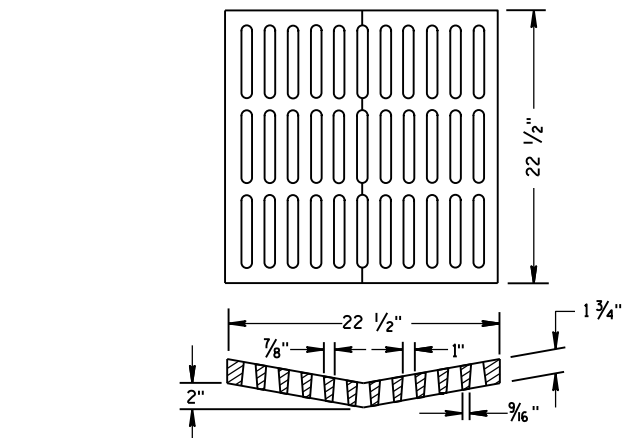
08A05-19B	INLET COVERS TYPE B, B-A, C, MS, MS-A, & WM
08A05-19C	INLET COVERS TYPE F, HM, HM-S, S, T, V, HM-GJ, & HM-GJ-S
08C07-02	INLETS 2X2-FT, 2X2.5-FT, 2X3-FT AND 2.5X3-FT
08C08-02	INLETS MEDIAN 1 AND 2 GRATE
08D01-22A	CONCRETE CURB & GUTTER
08D01-22B	CONCRETE CURB, TIES AND CURB AND GUTTER APPLICATIONS
08D02-07A	CONCRETE SURFACE DRAINS FLUME TYPE AT STRUCTURES
08D02-07B	CONCRETE SURFACE DRAINS FLUME TYPE AT STRUCTURES
08D02-07C	CONCRETE SURFACE DRAINS FLUME TYPE AT STRUCTURES
08D03-08A	CONCRETE SURFACE DRAINS DROP INLET TYPE AT STRUCTURES
08D03-08B	CONCRETE SURFACE DRAINS DROP INLET TYPE AT STRUCTURES
08D04-06	CONCRETE SURFACE DRAINS & ASPHALTIC FLUMES
08D15-05A	EDGEDRAIN OUTLET AND OUTFALL MARKERS
08D21-01	DRIVEWAYS WITHOUT CURB & GUTTER
08E08-03	TYPICAL INSTALLATIONS OF EROSION BALES / TEMPORARY DITCH CHECKS
08E09-06	SILT FENCE
08E10-02	INLET PROTECTION TYPE A, B, C AND D
08E11-02	TURBIDITY BARRIER
08E14-01	TRACKING PAD
08E15-01	CULVERT PIPE CHECK
08F04-08	JOINT TIES FOR CONCRETE PIPE AND CONCRETE COLLAR DETAIL
08F06-04	REINFORCED CONCRETE APRON ENDWALL FOR PIPE UNDERDRAIN
13A03-07	CONCRETE PAVEMENT SHOULDERS
13A05-05A	SHOULDER RUMBLE STRIP, MILLING
13A05-05B	SHOULDER RUMBLE STRIP, MILLING
13B02-09A	CONCRETE PAVEMENT APPROACH SLAB
13C01-19	CONCRETE PAVEMENT LONGITUDINAL JOINTS AND TIES
13C13-11	URBAN DOWELED CONCRETE PAVEMENT
13C18-07A	CONCRETE PAVEMENT JOINTING
13C18-07B	CONCRETE PAVEMENT STEEL REINFORCEMENT
13C18-07C	CONCRETE PAVEMENT JOINT TYPES
13C18-07D	CONCRETE PAVEMENT JOINT TYPES AT UTILITY FIXTURES
14B07-16A	CONCRETE BARRIER TEMPORARY PRECAST, 12' -6"
14B07-16B	CONCRETE BARRIER TEMPORARY PRECAST, 12' -6"
14B07-16C	CONCRETE BARRIER TEMPORARY PRECAST, 12' -6"
14B07-16D	CONCRETE BARRIER TEMPORARY PRECAST, 12' -6"
14B07-16E	CONCRETE BARRIER TEMPORARY PRECAST, 12' -6"
14B07-16F	CONCRETE BARRIER TEMPORARY PRECAST, 12' -6"
14B07-16G	CONCRETE BARRIER TEMPORARY PRECAST, 12' -6"
14B07-16H	CONCRETE BARRIER TEMPORARY PRECAST, 12' -6"
14B07-16I	CONCRETE BARRIER TEMPORARY PRECAST, 12' -6"
14B07-16J	CONCRETE BARRIER TEMPORARY PRECAST, 12' -6"
14B07-16K	CONCRETE BARRIER TEMPORARY PRECAST, 12' -6"
14B07-16L	CONCRETE BARRIER TEMPORARY PRECAST, 12' -6"
14B07-16M	CONCRETE BARRIER TEMPORARY PRECAST, 12' -6"
14B07-16N	CONCRETE BARRIER TEMPORARY PRECAST, 12' -6"
14B08-02A	CRASH CUSHION/SAND BARREL ARRAY AND OTHER TEMPORARY BARRIER LAYOUT DETAILS
14B08-02B	CRASH CUSHION/SAND BARREL ARRAY AND OTHER TEMPORARY BARRIER LAYOUT DETAILS
14B08-02C	CRASH CUSHION/SAND BARREL ARRAY AND OTHER TEMPORARY BARRIER LAYOUT DETAILS
14B08-02D	CRASH CUSHION/SAND BARREL ARRAY AND OTHER TEMPORARY BARRIER LAYOUT DETAILS
14B08-02E	CRASH CUSHION/SAND BARREL ARRAY AND OTHER TEMPORARY BARRIER LAYOUT DETAILS
14B26-05A	STEEL THREE BEAM BULLNOSE TERMINAL
14B26-05B	STEEL THREE BEAM BULLNOSE TERMINAL
14B26-05C	STEEL THREE BEAM BULLNOSE TERMINAL
14B26-05D	STEEL THREE BEAM BULLNOSE TERMINAL
14B26-05E	STEEL THREE BEAM BULLNOSE TERMINAL
14B26-05F	STEEL THREE BEAM BULLNOSE TERMINAL
14B26-05G	STEEL THREE BEAM BULLNOSE TERMINAL
14B26-05H	STEEL THREE BEAM BULLNOSE TERMINAL
14B42-07A	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-07B	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-07C	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-07D	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B44-04A	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-04B	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-04C	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B45-05A	MIDWEST GUARDRAIL SYSTEM THREE BEAM TRANSITION (MGS)

## Standard Detail Drawing List

14B45-05B	MIDWEST GUARDRAIL SYSTEM THREE BEAM TRANSITION (MGS)
14B45-05C	MIDWEST GUARDRAIL SYSTEM THREE BEAM TRANSITION (MGS)
14B45-05D	MIDWEST GUARDRAIL SYSTEM THREE BEAM TRANSITION (MGS)
14B45-05E	MIDWEST GUARDRAIL SYSTEM THREE BEAM TRANSITION (MGS)
14B45-05F	MIDWEST GUARDRAIL SYSTEM THREE BEAM TRANSITION (MGS)
14B45-05G	MIDWEST GUARDRAIL SYSTEM THREE BEAM TRANSITION (MGS)
14B45-05H	MIDWEST GUARDRAIL SYSTEM THREE BEAM TRANSITION (MGS)
14B45-05I	MIDWEST GUARDRAIL SYSTEM THREE BEAM TRANSITION (MGS)
14B45-05J	MIDWEST GUARDRAIL SYSTEM THREE BEAM TRANSITION (MGS)
14B45-05K	MIDWEST GUARDRAIL SYSTEM THREE BEAM TRANSITION (MGS)
14B45-05L	MIDWEST GUARDRAIL SYSTEM THREE BEAM TRANSITION (MGS)
14B47-03A	MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 2 TERMINAL
14B47-03B	MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 2 TERMINAL
14B47-03C	MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 2 TERMINAL
14B47-03D	MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 2 TERMINAL
14B47-03E	MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 2 TERMINAL
14B47-03F	MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 2 TERMINAL
14B47-03G	MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 2 TERMINAL
15C02-08A	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-08B	BARRICADES AND SIGNS FOR VARIOUS CLOSURES
15C02-08F	ADVANCED WIDTH RESTRICTION SIGNING
15C07-15B	PAVEMENT MARKING WORDS
15C07-15C	PAVEMENT MARKING ARROWS
15C08-22A	LONGITUDINAL MARKING (MAINLINE)
15C08-22B	TEMPORARY LONGITUDINAL PAVEMENT MARKING
15C08-22D	PAVEMENT MARKING (TURN LANES)
15C11-10A	CHANNELIZING DEVICES FLEXIBLE TUBULAR MARKER POST
15C11-10B	CHANNELIZING DEVICES DRUMS, CONES, BARRICADES AND VERTICAL PANELS
15C33-04	STOP LINE AND CROSSWALK PAVEMENT MARKING
15D06-05	TRAFFIC CONTROL, TWO LANE TWO WAY OPERATION
15D11-08	TRAFFIC CONTROL, SINGLE LANE CROSSOVER
15D12-10B	TRAFFIC CONTROL, LANE CLOSURE, SPEED REDUCTION
15D21-07B	TRAFFIC CONTROL, INTERSECTION WITHIN SINGLE LANE CLOSURE

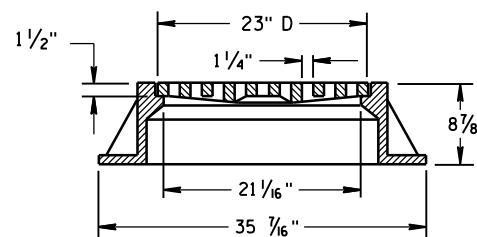
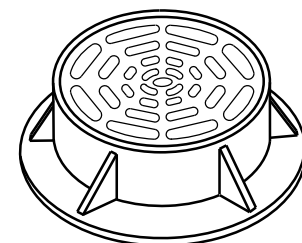
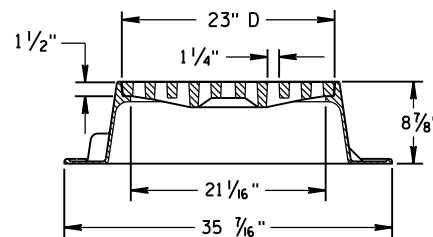
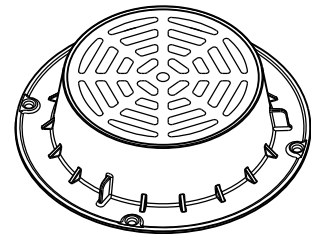


**TYPE "B"**



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

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



**TYPE "C"**

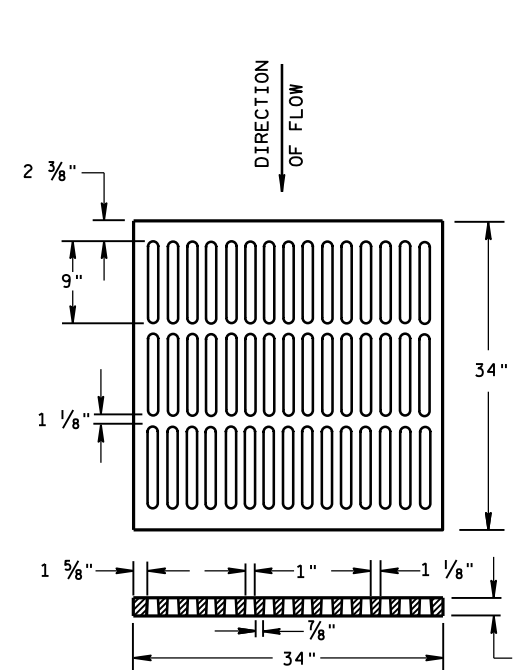
NOTE: EITHER CASTING IS ACCEPTABLE

**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.

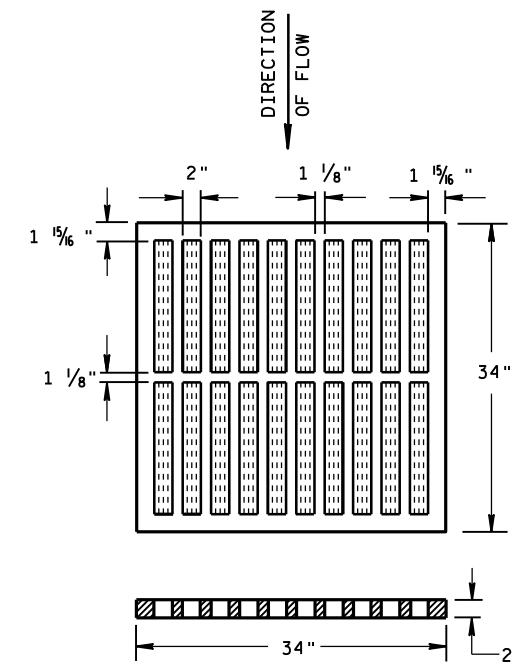
DETAIL DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR CATCH BASIN, MANHOLE AND INLET COVERS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PROVIDING THAT SUCH ALTERNATE DESIGNS MAKE PROVISION FOR EQUIVALENT CAPACITY AND STRENGTH.

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



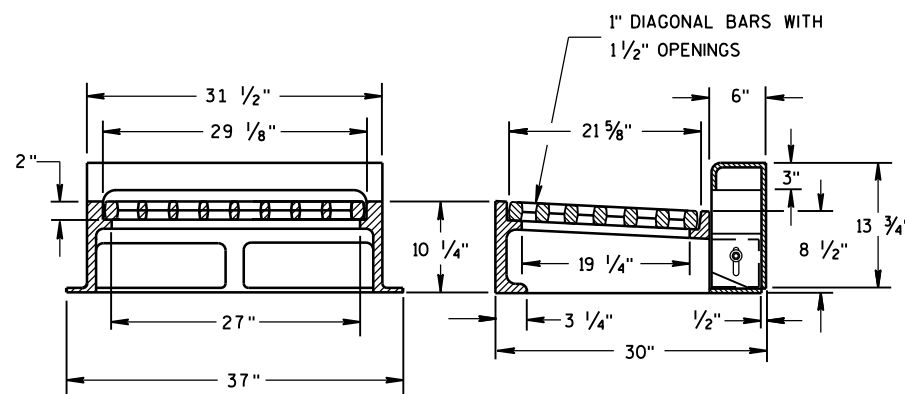
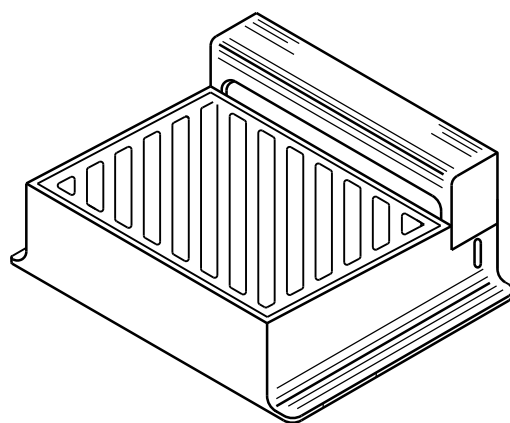
**ALTERNATIVE TYPE "MS"**

USE WHERE PEDESTRIAN OR 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 DRAINAGE TABLE



NOTE: CURB BOX HEIGHT ADJUSTABLE 6" TO 9"

**TYPE "WM"**

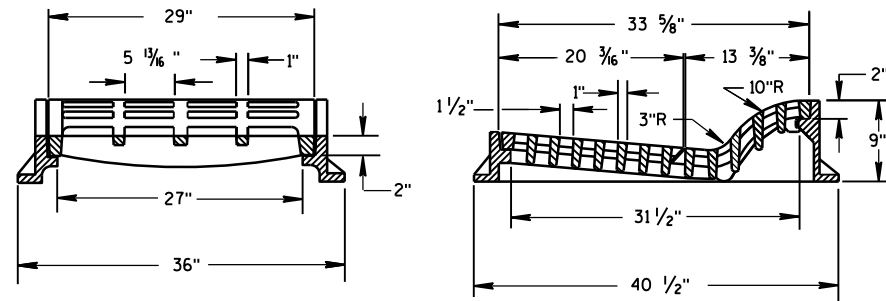
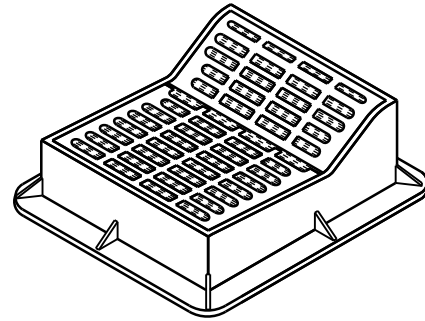
DIAGONAL SLOTS, SHALL BE ORIENTED TO THE DIRECTION OF FLOW AS ILLUSTRATED. GRATES ARE MANUFACTURED TO BE REVERSIBLE.

DIRECTION OF FLOW

**INLET COVERS  
TYPE B, B-A, C,  
MS, MS-A, & WM**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
DATE 11/27/2013 /S/ Jerry H. Zogg  
ROADWAY STANDARDS DEVELOPMENT ENGINEER  
FHWA



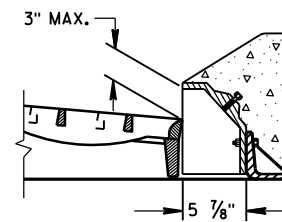
**TYPE "F"**

USE WITH TYPES A & D CONCRETE CURB & GUTTER, 36 INCH.

**GENERAL NOTES**

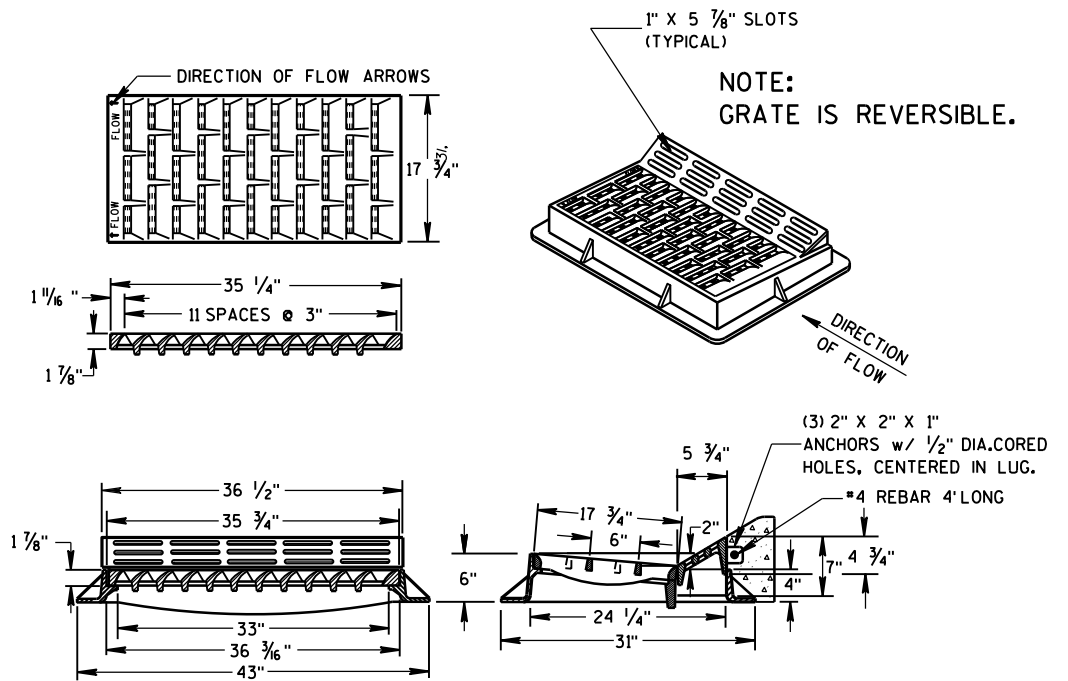
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

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



**ALTERNATIVE CURB BOX FOR TYPE "HM" COVER**

USE WITH TYPES G & J CONCRETE CURB & GUTTER, 30 INCH NOTED AS TYPE HM-GJ ON DRAINAGE TABLE



**TYPE "HM"**

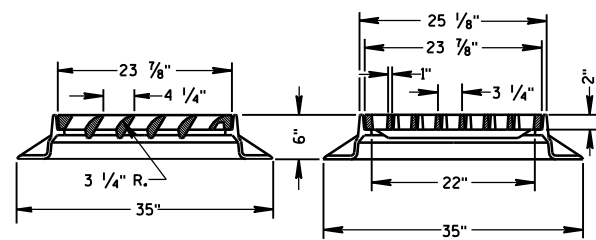
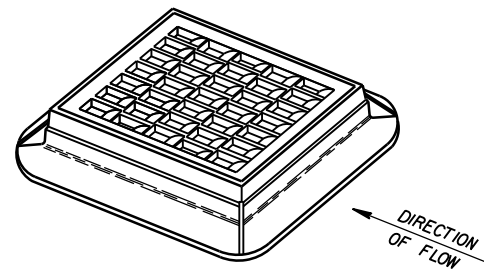
USE WITH TYPES A & D CONCRETE CURB & GUTTER, 36 INCH.

NOTE: SPECIAL GRATE FOR THE TYPE "H" COVER MAY ALSO BE USED FOR THE TYPE "HM" COVER NOTED AS TYPE HM-S ON DRAINAGE TABLE

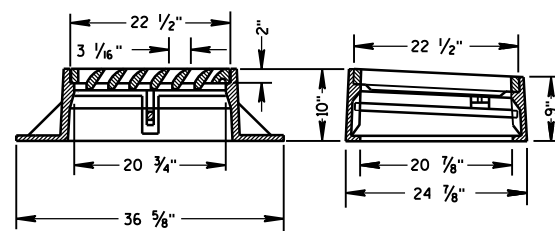
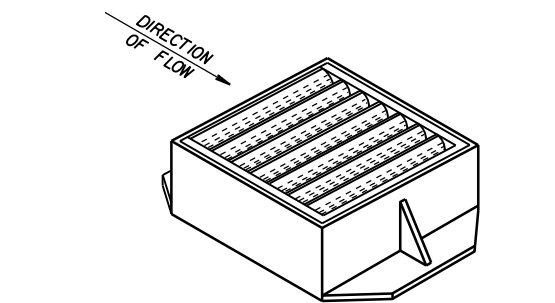
NOTE: SPECIAL GRATE FOR THE TYPE "H" COVER MAY ALSO BE USED FOR THE TYPE "HM-GJ" COVER NOTED AS TYPE HM-GJ-S ON DRAINAGE TABLE

6

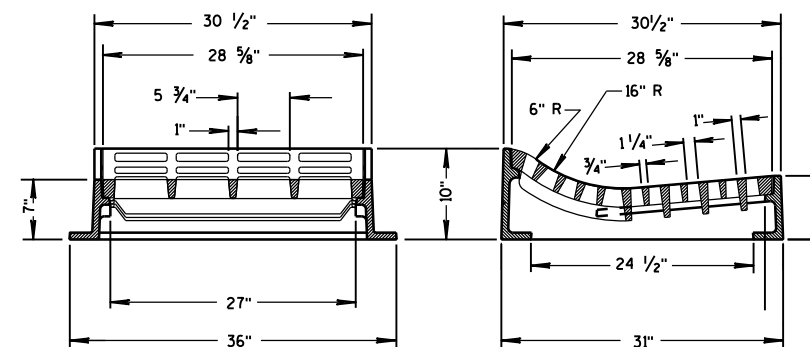
6



**TYPE "S"**

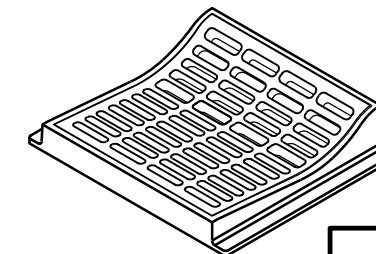


**TYPE "V"**



**TYPE "T"**

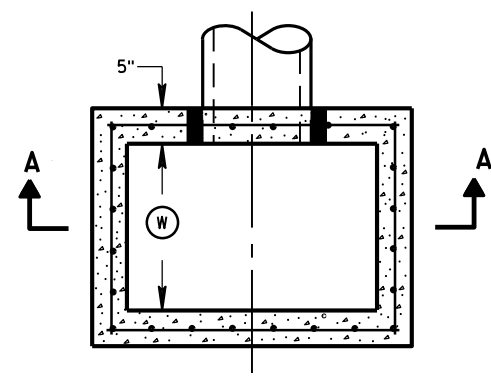
USE WITH TYPES R & T CONCRETE CURB & GUTTER, 36 INCH.



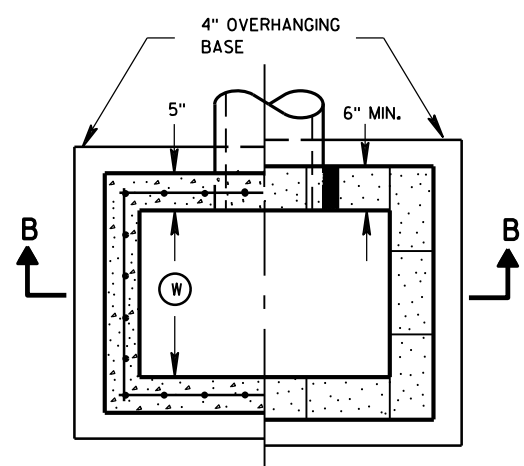
**INLET COVERS**  
TYPE F, HM, HM-S, S, T, V,  
HM-GJ, & HM-GJ-S

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

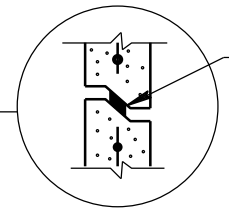
APPROVED  
11/27/2013 DATE /s/ Jerry H. Zogg  
ROADWAY STANDARDS DEVELOPMENT ENGINEER  
FHWA



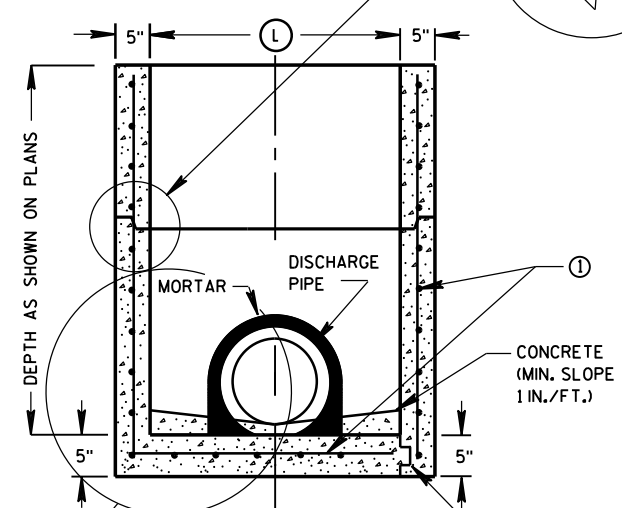
PLAN VIEW



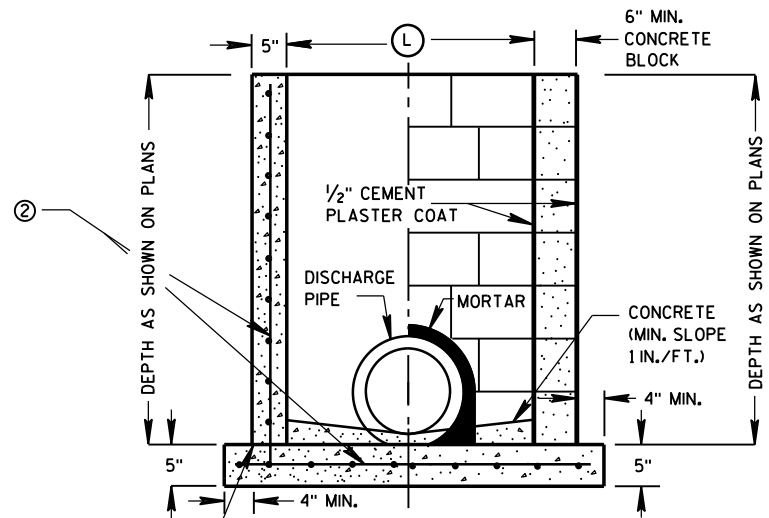
PLAN VIEW



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



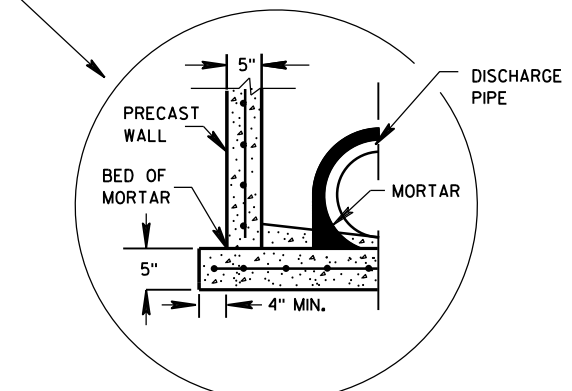
SECTION A-A



SECTION B-B

PRECAST REINFORCED CONCRETE WITH MONOLITHIC BASE  
 PRECAST REINFORCED CONCRETE WITH INTEGRAL BASE  
 KEYWAY  
 CONCRETE (MIN. SLOPE 1 IN./FT.)

CONSTRUCTION JOINT  
 CAST-IN-PLACE REINFORCED CONCRETE  
 CONCRETE BLOCK WITH CAST-IN-PLACE OR PRECAST REINFORCED CONCRETE BASE ①



SEPARATE PRECAST REINFORCED CONCRETE BASE OPTION

**GENERAL NOTES**

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

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

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

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

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

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

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

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

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

MAXIMUM INSIDE PIPE DIAMETER DETERMINED BY 3 INCH 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 PROVIDE REINFORCING STEEL IN ACCORDANCE TO ASTM C 913.

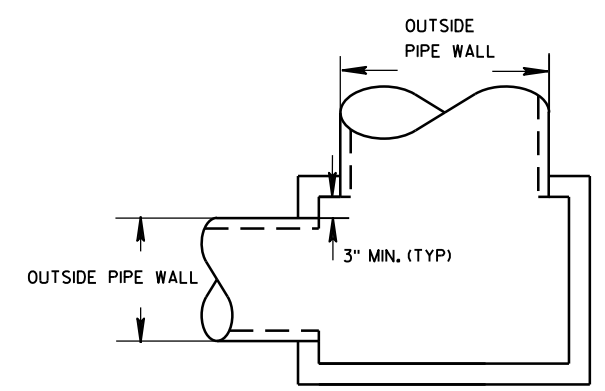
② CONTRACTOR TO PROVIDE DRAWING(S) STAMPED BY A PROFESSIONAL ENGINEER FOR STEEL REINFORCING DESIGN FOR CAST-IN-PLACE STRUCTURES.

**INLET COVER MATRIX**

INLET SIZE	INLET COVER TYPE		ALL A'S	ALL B'S	BW	F	ALL H'S	S	T	V	WM
	WIDTH (W) (FT)	LENGTH (L) (FT)									
2X2-FT	2	2	X	X				X		X	
2X2.5-FT	2	2.5			X			X	X	X	X
2X3-FT	2	3					X				
2.5X3-FT	2.5	3				X					

**PIPE MATRIX**

INLET SIZE	MAXIMUM INSIDE PIPE DIAMETER	
	WIDTH (IN)	LENGTH (IN)
2X2-FT	12	12
2X2.5-FT	12	18
2X3-FT	12	24
2.5X3-FT	18	24



DETAIL "A"

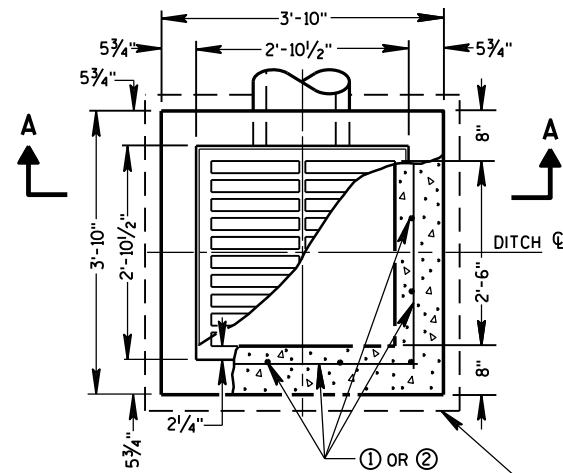
**INLETS 2X2-FT, 2X2.5-FT, 2X3-FT AND 2.5X3-FT**

**INLETS 2X2-FT, 2X2.5-FT,  
2X3-FT AND 2.5X3-FT**

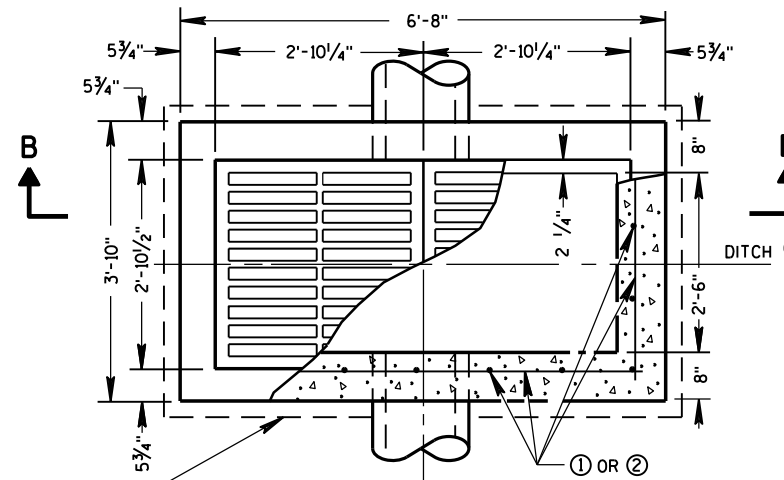
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
 Sept., 2016 /S/ Rodney Taylor  
 DATE ROADWAY STANDARDS DEVELOPMENT  
 FHWA UNIT SUPERVISOR



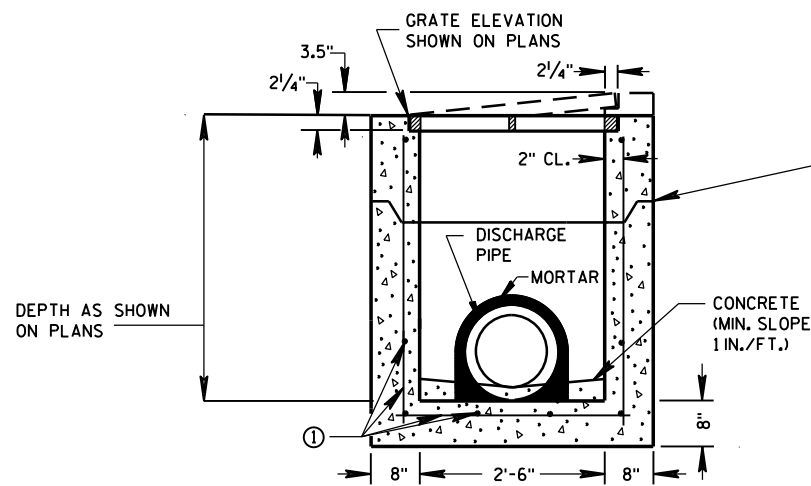


PLAN VIEW

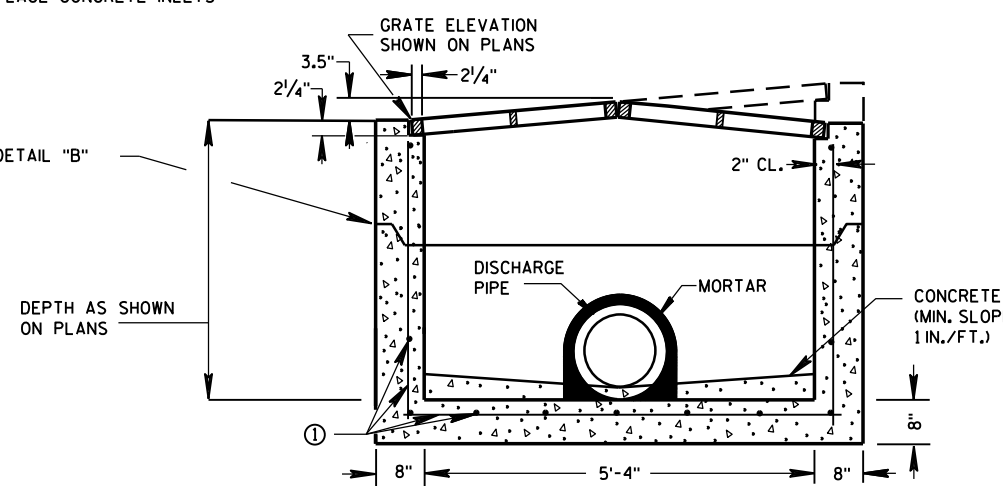


PLAN VIEW

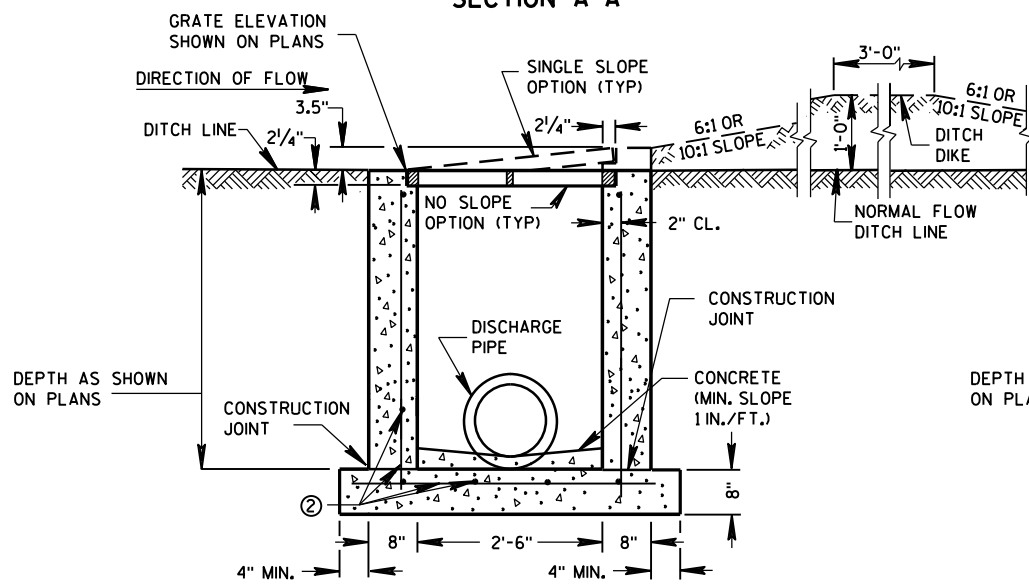
4" OVERHANGING BASE ON REINFORCED CAST-IN-PLACE CONCRETE INLETS



PRECAST REINFORCED CONCRETE SECTION A-A

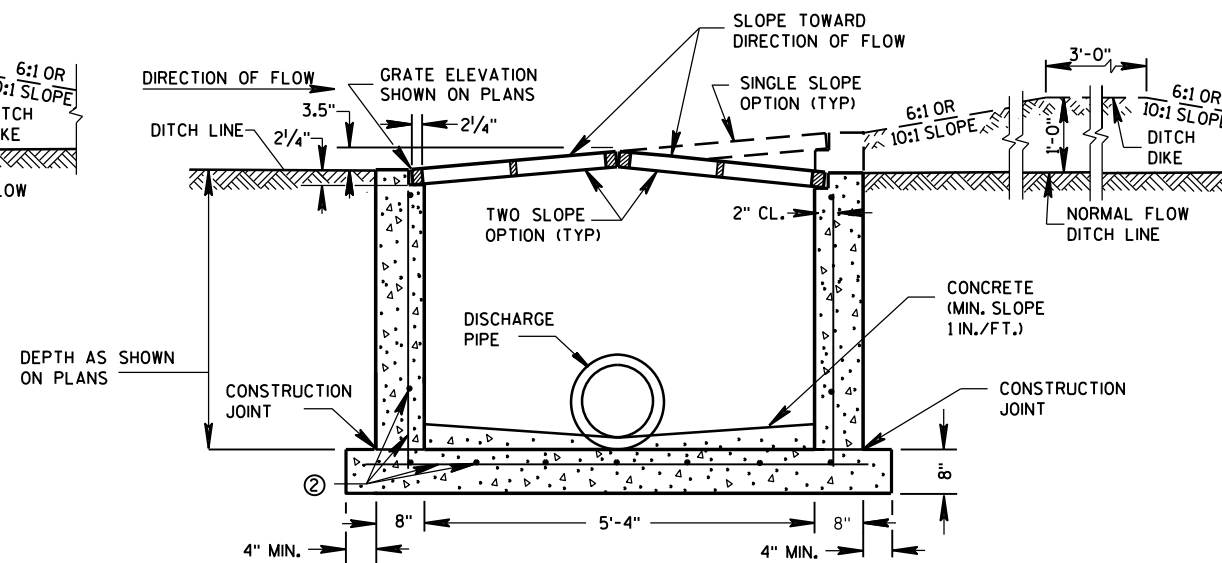


PRECAST REINFORCED CONCRETE SECTION B-B



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, IG-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 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.

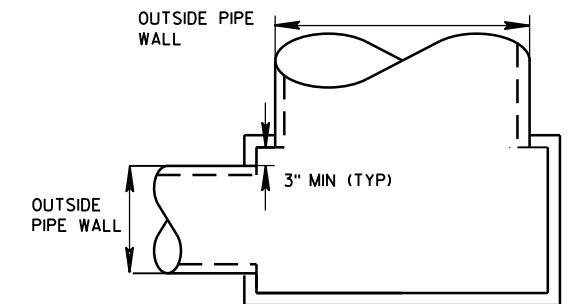
ALL PRECAST INLET UNITS SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF ASTM C 913.

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 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.

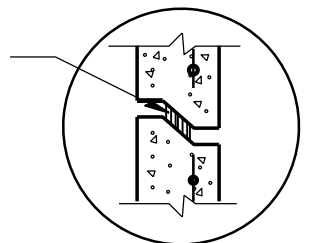
**PIPE MATRIX**

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



DETAIL "A"

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

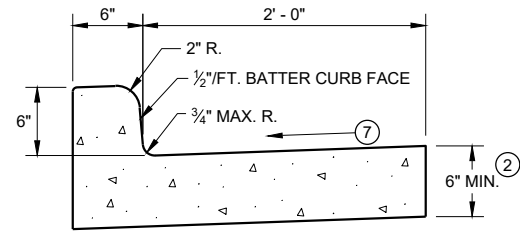


DETAIL "B"

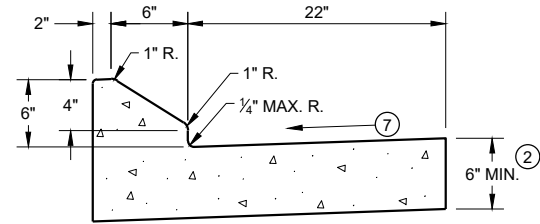
**INLETS MEDIAN 1 AND 2 GRATE**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

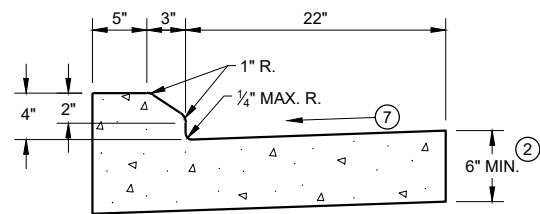
APPROVED  
Sept., 2016 /S/ Rodney Taylor  
DATE ROADWAY STANDARDS DEVELOPMENT  
FHWA UNIT SUPERVISOR



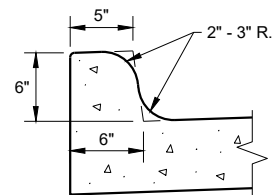
TYPES A<sup>①</sup> & D



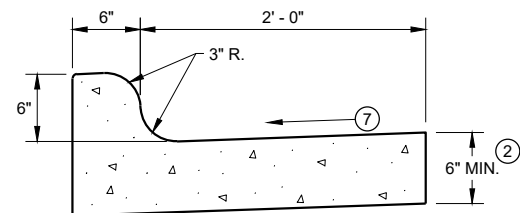
6" SLOPED CURB TYPES G<sup>①</sup> & J



4" SLOPED CURB TYPES G<sup>①</sup> & J

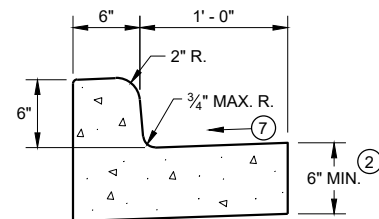


TYPES K<sup>①</sup> & L  
(OPTIONAL CURB SHAPE)



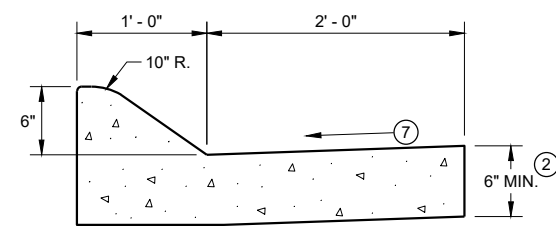
TYPES K<sup>①</sup> & L

CONCRETE CURB AND GUTTER 30"

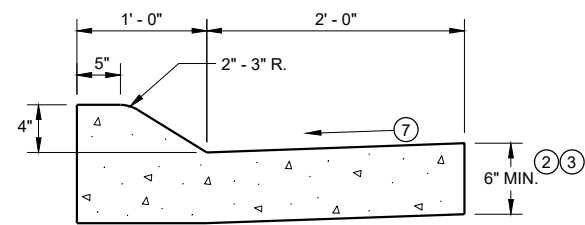


TYPES A<sup>①</sup> & D

CONCRETE CURB AND GUTTER 18"

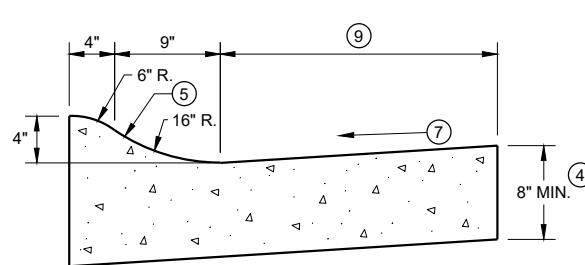


6" SLOPED CURB TYPES A<sup>①</sup> & D



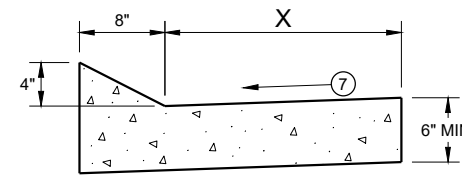
4" SLOPED CURB TYPES A<sup>①</sup> & D

CONCRETE CURB AND GUTTER 36"



4" SLOPED CURB TYPES R<sup>①</sup> & T

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

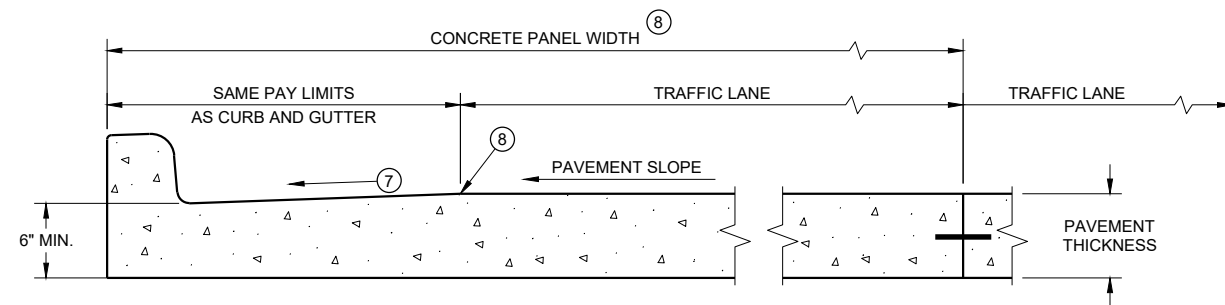


TYPES TBT & TBTT<sup>①</sup>

CONCRETE CURB AND GUTTER

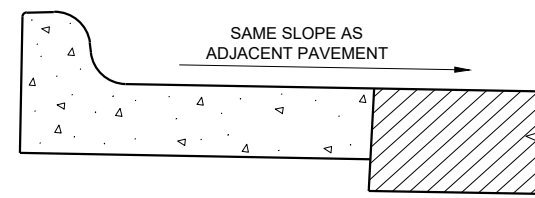
PAVEMENT THICKNESS AND MAXIMUM CONCRETE PANEL WIDTH TABLE

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<sup>⑥</sup>  
(TYPICAL FOR ALL CURB & GUTTER TYPES)

GENERAL NOTES

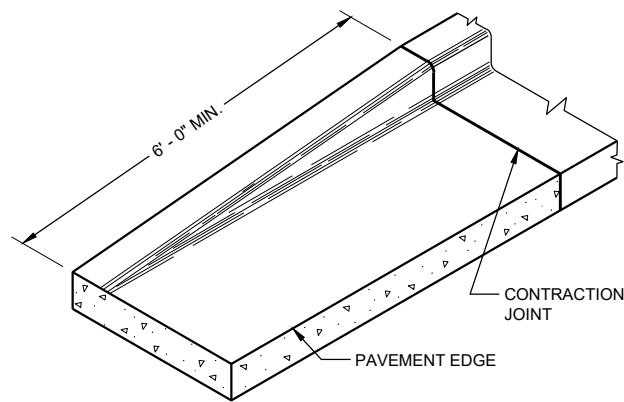
DETAILS OF CONSTRUCTION AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.

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

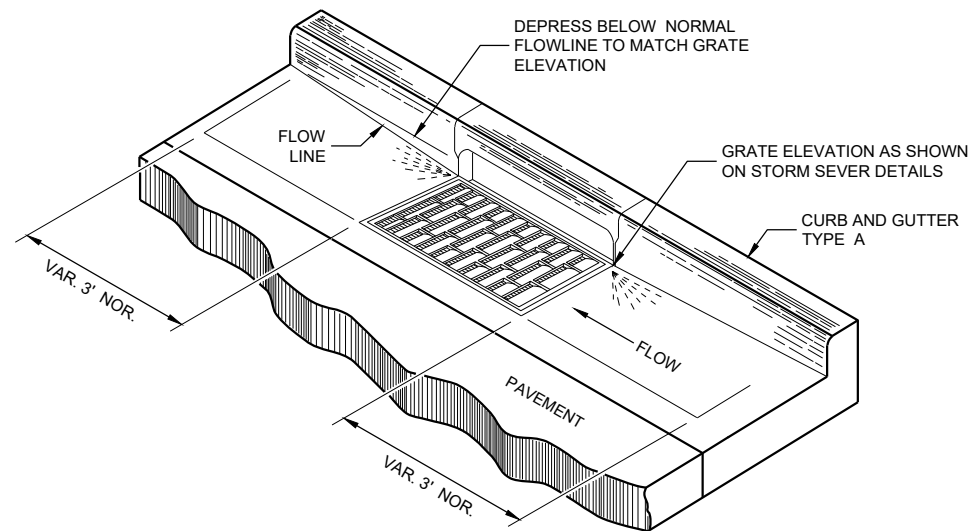
INTEGRAL CURB AND GUTTER SHALL CONFORM TO THE DETAILS SHOWN FOR CONCRETE CURB AND GUTTER INCLUDING THE TRANSVERSE GUTTER SLOPE.

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 CONCRETE CURB AND GUTTER 4-INCH SLOPED 30-INCH TYPE "R" AND "T" = 17 INCHES  
CONCRETE CURB AND GUTTER 4-INCH SLOPED 36-INCH TYPE "R" AND "T" = 23 INCHES



**END SECTION CURB AND GUTTER**



**DETAIL OF CURB AND GUTTER AT INLETS**  
(TYPICAL H INLET COVER SHOWN)

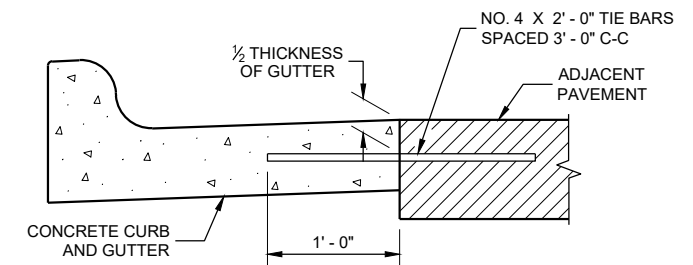
**GENERAL NOTES**

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

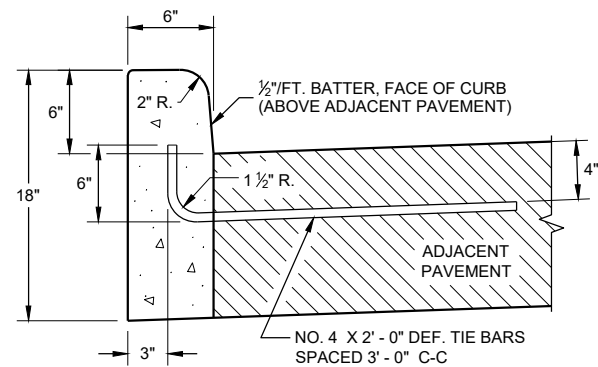
PAVEMENT TIES AND TIE BARS SHALL BE EPOXY COATED IN CONFORMANCE WITH SUBSECTION 505.2.6.2 OF THE STANDARD SPECIFICATIONS.

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

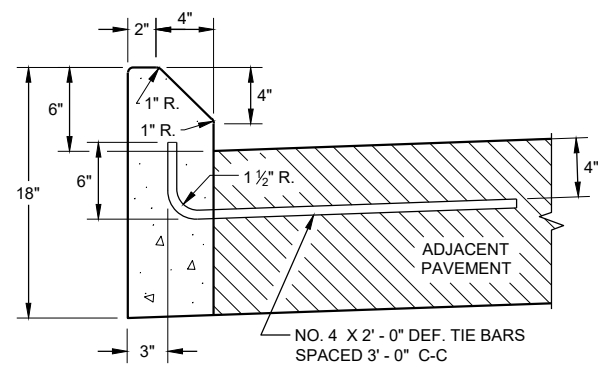
- ① TIE BARS ARE REQUIRED FOR CURB AND GUTTERS TYPES A, G, K, R, AND TBTT.
- ② THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 6" MINIMUM GUTTER THICKNESS IS MAINTAINED.
- ⑨ REFER TO SDD 08D18 AND 08D19 FOR ADDITIONAL DRIVEWAY ENTRANCE CURB DETAILS.



**TYPICAL TIE BAR LOCATION** ①

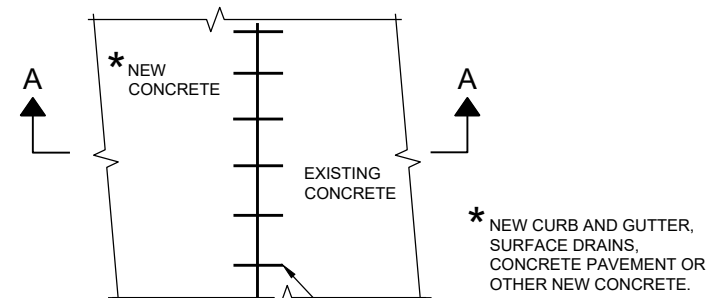


**TYPES A ① & D**

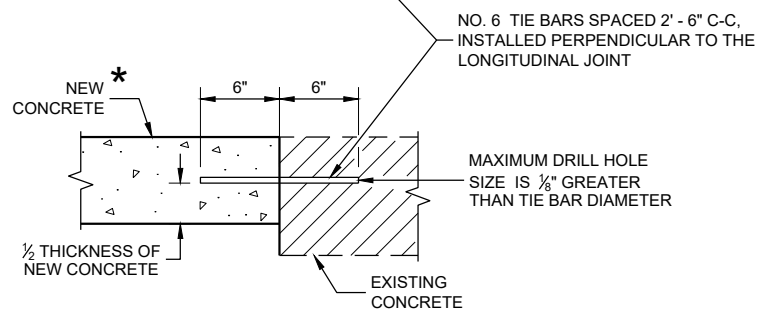


**TYPES G ① & J**

**CONCRETE CURB**

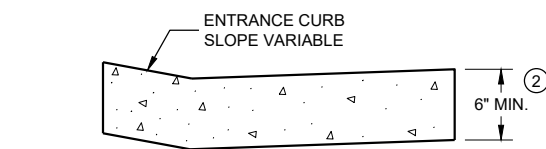


**PLAN VIEW**



**SECTION A - A**

**TIE BARS DRILLED INTO EXISTING PAVEMENT**



**DRIVEWAY ENTRANCE CURB** ⑨  
(WHEN DIRECTED BY THE ENGINEER)

**CONCRETE CURB, TIES AND CURB AND GUTTER APPLICATIONS**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
February 2021 /S/ Rodney Taylor  
DATE ROADWAY STANDARDS DEVELOPMENT ENGINEER

FHWA

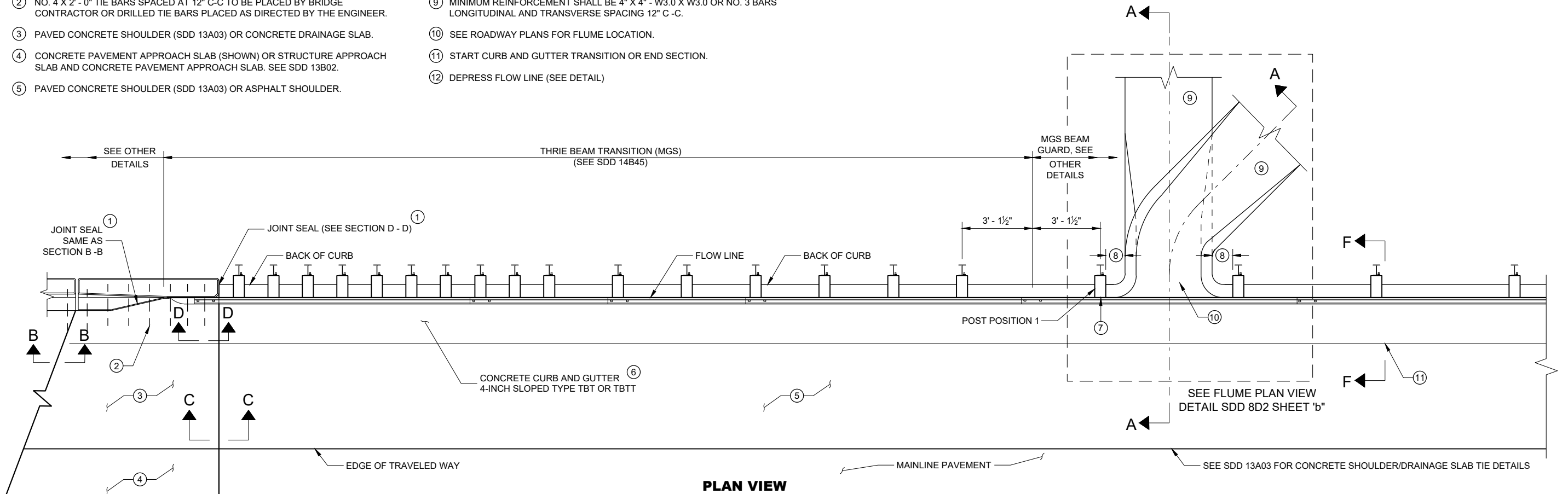
**GENERAL NOTES**

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

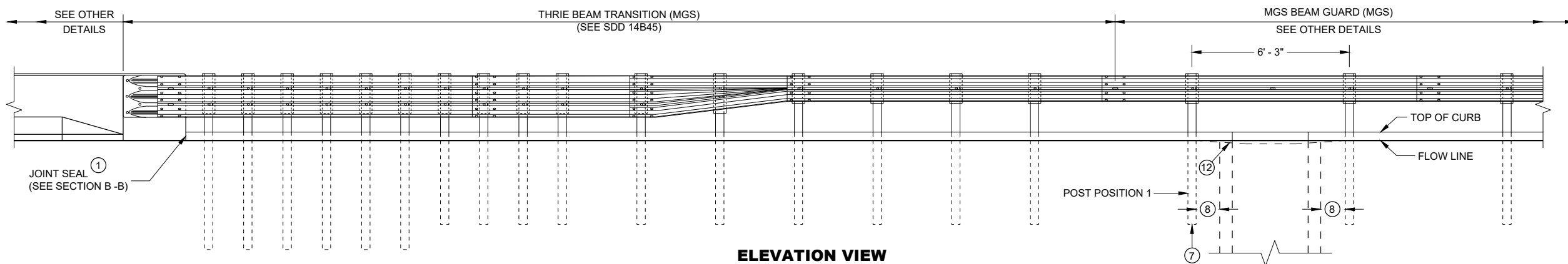
ALL STEEL REINFORCEMENT SHALL BE EMBEDDED 2 INCHES CLEAR UNLESS OTHERWISE SHOWN OR NOTED.

- ① USE A JOINT SEALANT CONFORMING TO STANDARD SPECIFICATION 415.2.6.
- ② NO. 4 X 2' - 0" TIE BARS SPACED AT 12" C-C TO BE PLACED BY BRIDGE CONTRACTOR OR DRILLED TIE BARS PLACED AS DIRECTED BY THE ENGINEER.
- ③ PAVED CONCRETE SHOULDER (SDD 13A03) OR CONCRETE DRAINAGE SLAB.
- ④ CONCRETE PAVEMENT APPROACH SLAB (SHOWN) OR STRUCTURE APPROACH SLAB AND CONCRETE PAVEMENT APPROACH SLAB. SEE SDD 13B02.
- ⑤ PAVED CONCRETE SHOULDER (SDD 13A03) OR ASPHALT SHOULDER.

- ⑥ CONCRETE CURB AND GUTTER 4-INCH SLOPED 36-INCH TYPE TBT OR TBTT. USE TYPE TBTT CURB WITH NO. 4 X 2' - 0" TIE BARS SPACED AT 3' - 0" C-C ONLY WHEN ADJACENT TO CONCRETE PAVEMENTS.
- ⑦ PLACE FLUME BEFORE MSG THRIE BEAM TRANSITION POST 1 (SEE SDD 14B45)
- ⑧ CENTER FLUME BETWEEN POSTS. 6-INCH MINIMUM SEPARATION FROM OUTSIDE EDGE OF FLUME TO POSTS.
- ⑨ MINIMUM REINFORCEMENT SHALL BE 4" X 4" - W3.0 X W3.0 OR NO. 3 BARS LONGITUDINAL AND TRANSVERSE SPACING 12" C-C.
- ⑩ SEE ROADWAY PLANS FOR FLUME LOCATION.
- ⑪ START CURB AND GUTTER TRANSITION OR END SECTION.
- ⑫ DEPRESS FLOW LINE (SEE DETAIL)



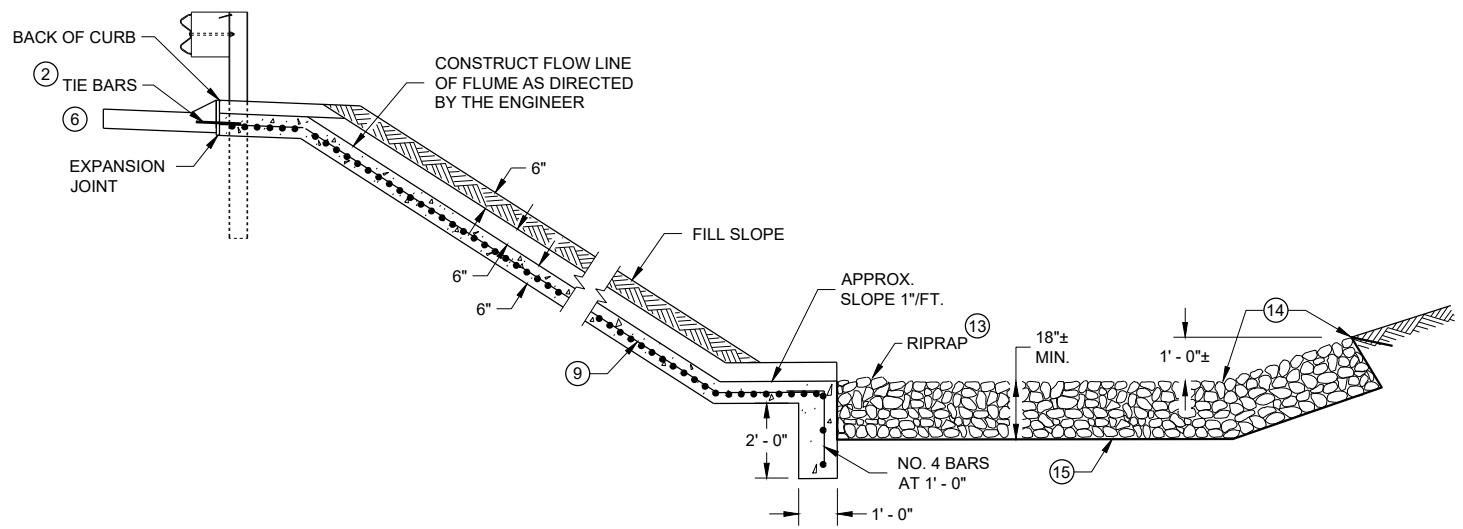
**PLAN VIEW**



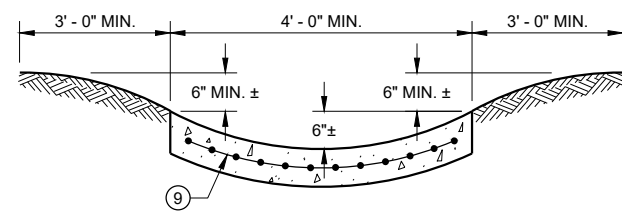
**ELEVATION VIEW**

**CONCRETE SURFACE  
DRAINS FLUME TYPE  
AT STRUCTURES**

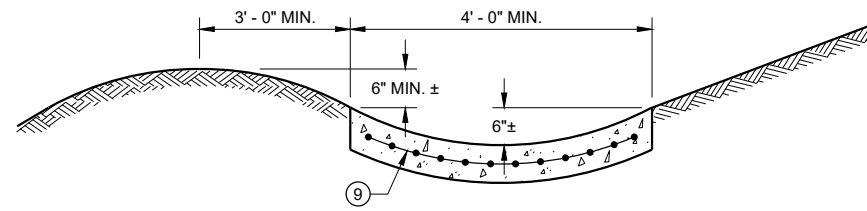
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



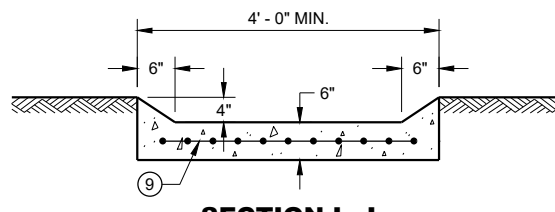
**SECTION A - A**



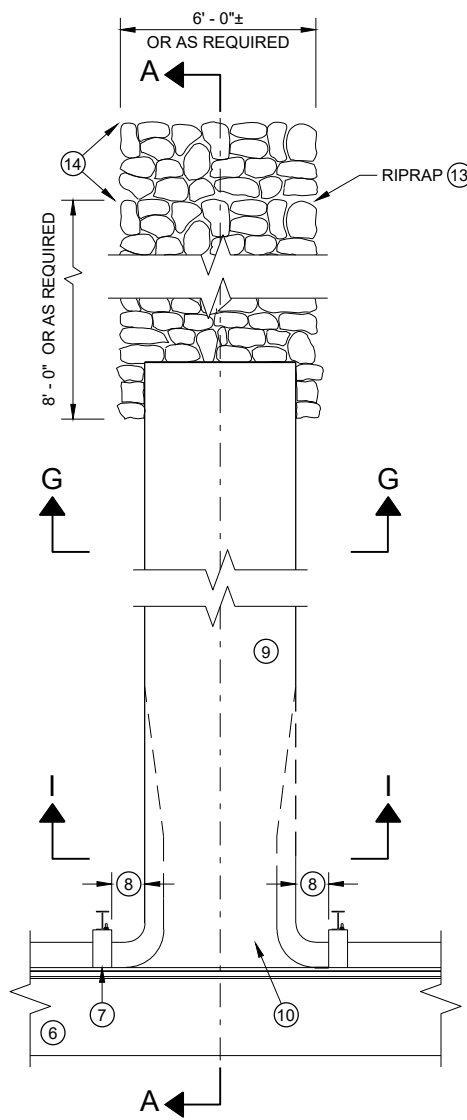
**SECTION G - G**



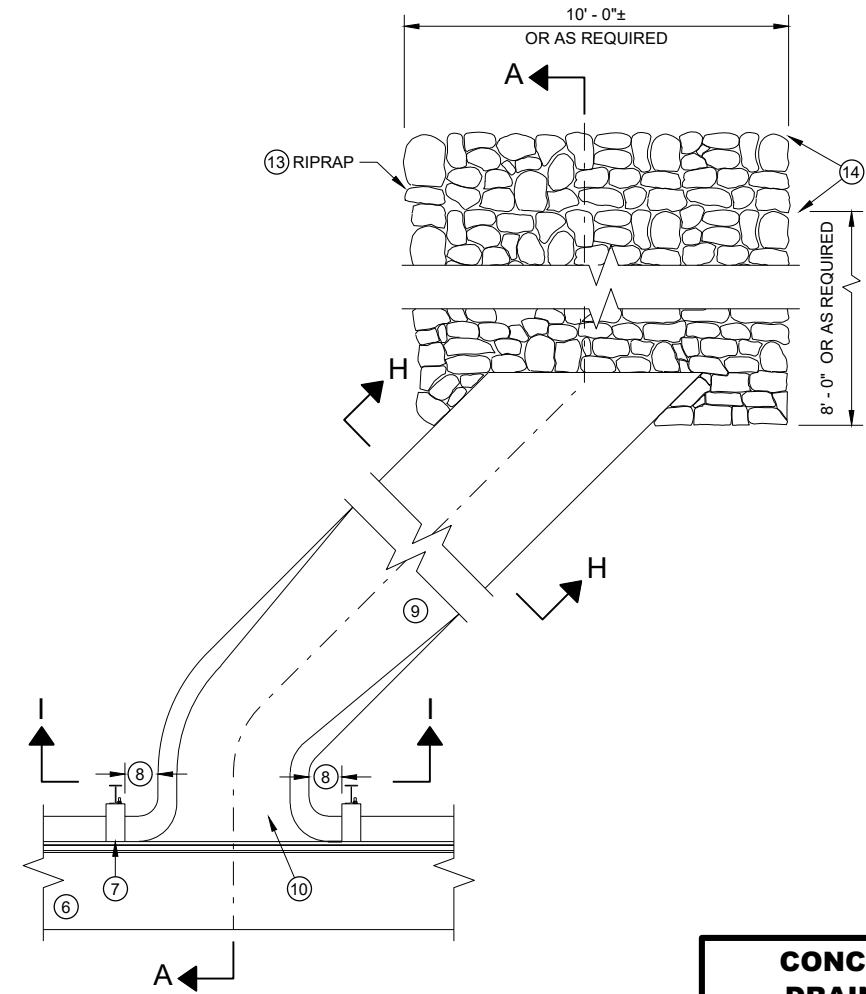
**SECTION H - H**



**SECTION I - I**



**PLAN VIEW PERPENDICULAR FLUME**



**PLAN VIEW SKEWED FLUME**

**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.
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  - ② NO. 4 X 2'-0" TIE BARS SPACED AT 12" C-C TO BE PLACED BY BRIDGE CONTRACTOR OR DRILLED TIE BARS PLACED AS DIRECTED BY THE ENGINEER.
  - ③ PAVED CONCRETE SHOULDER (SDD 13A03) OR CONCRETE DRAINAGE SLAB.
  - ④ CONCRETE PAVEMENT APPROACH SLAB (SHOWN) OR STRUCTURE APPROACH SLAB AND CONCRETE PAVEMENT APPROACH SLAB. SEE SDD 13B02 AND STRUCTURE PLANS.
  - ⑤ PAVED CONCRETE SHOULDER (SDD 13A03) OR ASPHALT SHOULDER.
  - ⑥ CONCRETE CURB AND GUTTER 4-INCH SLOPED 36-INCH TYPE TBT OR TBTT. USE TYPE TBTT CURB WITH NO. 4 X 2'-0" TIE BARS SPACED AT 3'-0" C-C ONLY WHEN ADJACENT TO CONCRETE PAVEMENTS.

- ⑦ PLACE FLUME BEFORE MSG THRIE BEAM TRANSITION POST 1 (SEE SDD 14B45)
- ⑧ CENTER FLUME BETWEEN POSTS. 6-INCH MINIMUM SEPARATION FROM OUTSIDE EDGE OF FLUME TO POSTS.
- ⑨ MINIMUM REINFORCEMENT SHALL BE 4" X 4" - W3.0 X W3.0 OR NO. 3 BARS LONGITUDINAL AND TRANSVERSE SPACING 12" C-C.
- ⑩ SEE ROADWAY PLANS FOR FLUME LOCATION.
- ⑪ START CURB AND GUTTER TRANSITION OR END SECTION.
- ⑫ DEPRESS FLOW LINE (SEE DETAIL)
- ⑬ MEDIUM RIPRAP UNLESS OTHERWISE SPECIFIED.
- ⑭ LIMITS OF ADDITIONAL RIPRAP WHEN SPECIAL DITCH AS REQUIRED.
- ⑮ GEOTEXTILE FABRIC TYPE HR.

**CONCRETE SURFACE DRAINS FLUME TYPE AT STRUCTURES**

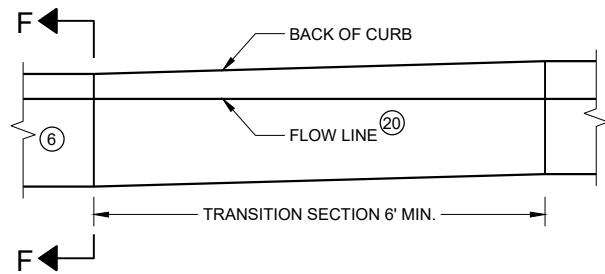
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

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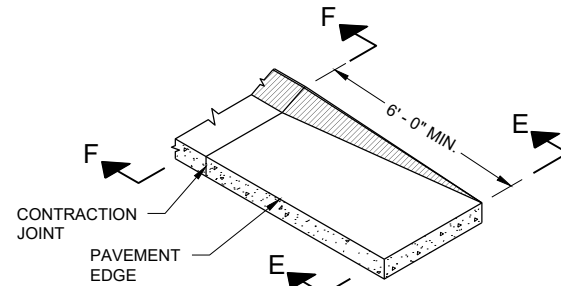
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SDD08D02 - 07b

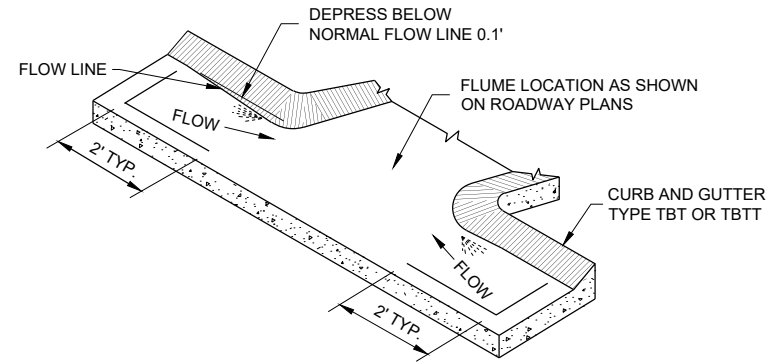
SDD08D02 - 07b



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



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



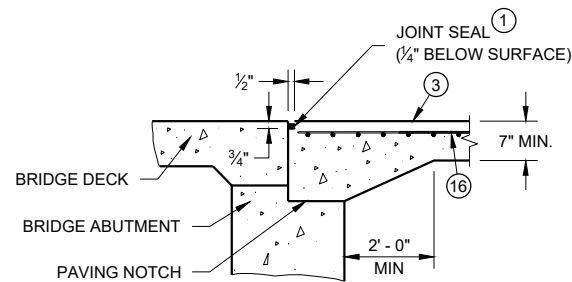
**CURB AND GUTTER FLOW LINE DEPRESSION  
AT FLUMES CONCRETE CURB AND GUTTER  
4-INCH SLOPED 36 INCH TYPE TBT OR TBTT**

**GENERAL NOTES**

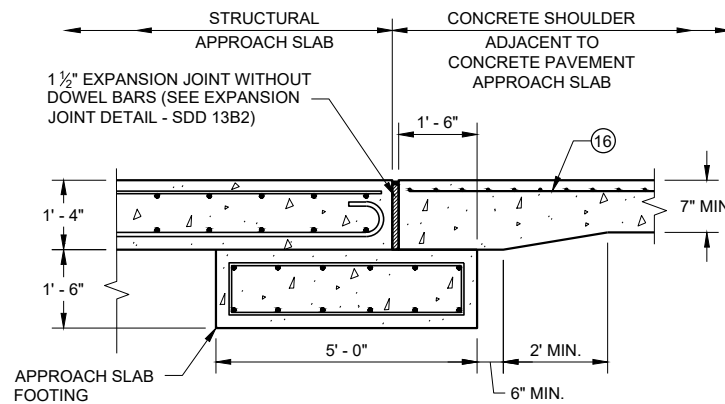
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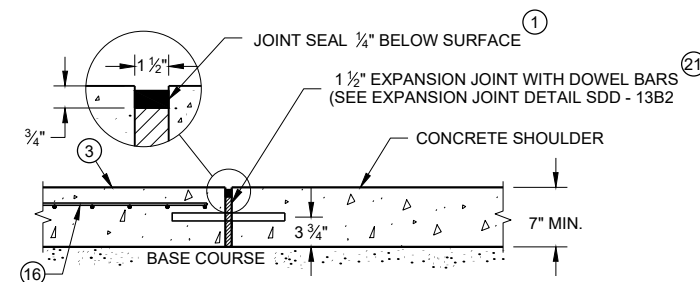
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- ⑭ LIMITS OF ADDITIONAL RIPRAP WHEN SPECIAL DITCH IS REQUIRED.
- ⑮ GEOTEXTILE FABRIC TYPE HR.
- ⑯ MINIMUM REINFORCEMENT SHALL BE 6" X 6" - W4.0 X W4.0 OR NO. 3 BARS LONGITUDINAL AND TRANSVERSE SPACING 12" C-C.
- ⑰ MSG THRIE BEAM TRANSITION POST 1. SEE SDD 14B45 FOR ADDITIONAL CONSTRUCTION DETAILS AND ACCEPTABLE MATERIALS.
- ⑱ MAINTAIN WIDTH, THICKNESS AND CROSS SLOPE OF ADJACENT TYPE TBT OR TBTT CURB. SEE NOTE 6 FOR TIE BAR SPACING.
- ⑲ ALIGN FACE OF POST BLOCK WITH FLOW LINE.
- ⑳ MAINTAIN FLOW LINE AT EDGE OF PAVEMENT/FACE OF BEAM GUARD AS APPLICABLE.
- ㉑ DO NOT CONSTRUCT AN EXPANSION JOINT OR INSTALL DOWEL BARS WHEN ABUTTING HMA PAVEMENTS.



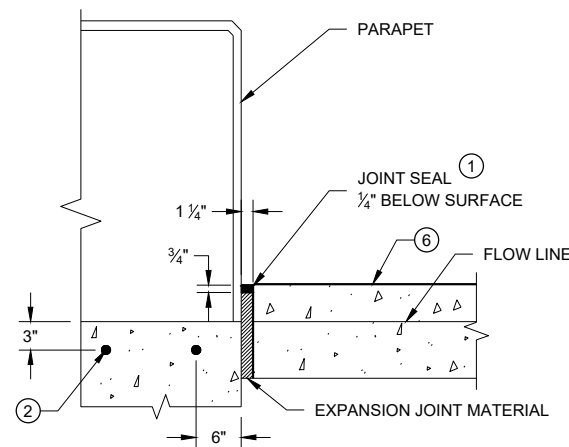
**SECTION B-B**



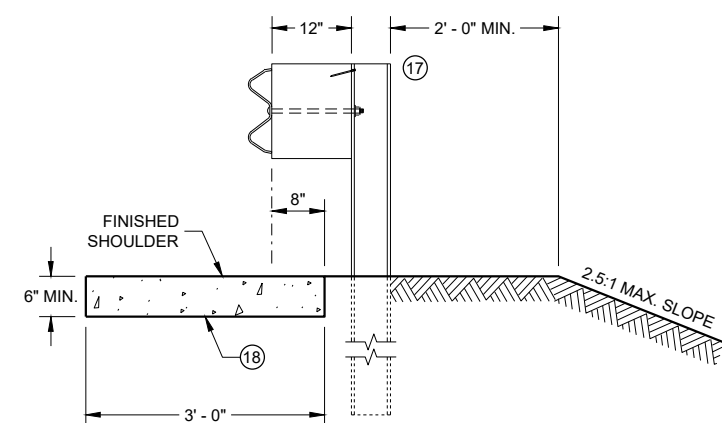
**SECTION C - C  
JOINT DETAIL FOR BRIDGE WITH STRUCTURAL  
APPROACH SLAB AND CONCRETE APPROACH SLAB**



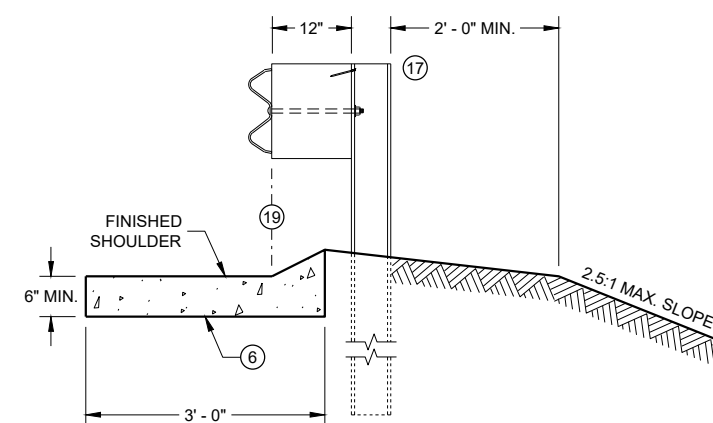
**SECTION C - C  
JOINT DETAIL FOR BRIDGE APPROACH  
WITH CONCRETE SHOULDERS**



**SECTION D - D**



**SECTION E - E**



**SECTION F - F**

6

6

SDD08D02 - 07C

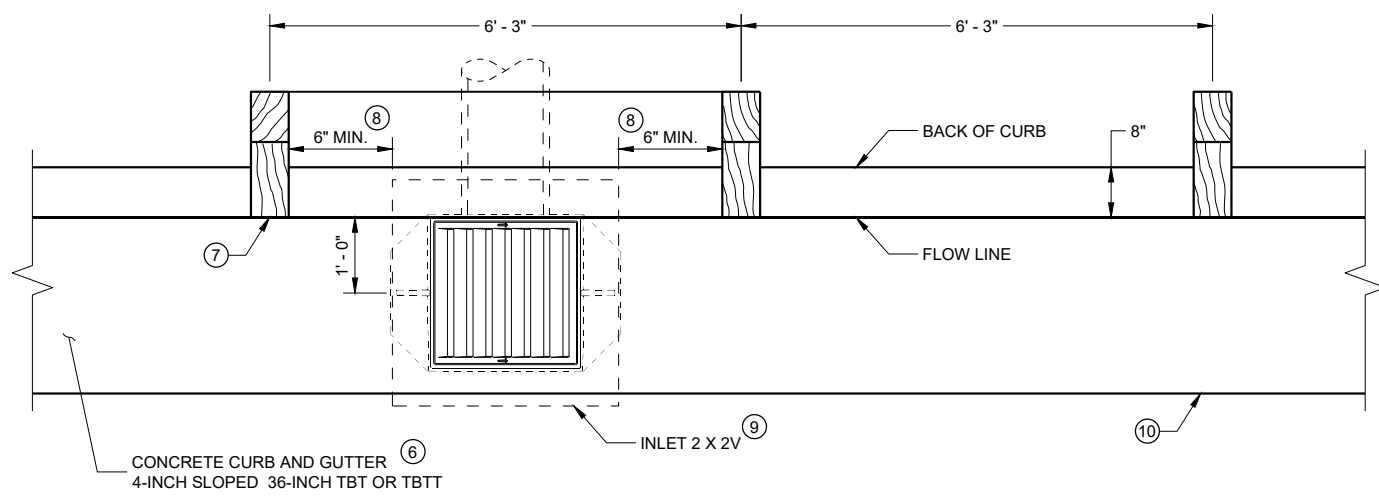
SDD08D02 - 07C

**CONCRETE SURFACE  
DRAINS FLUME TYPE  
AT STRUCTURES**

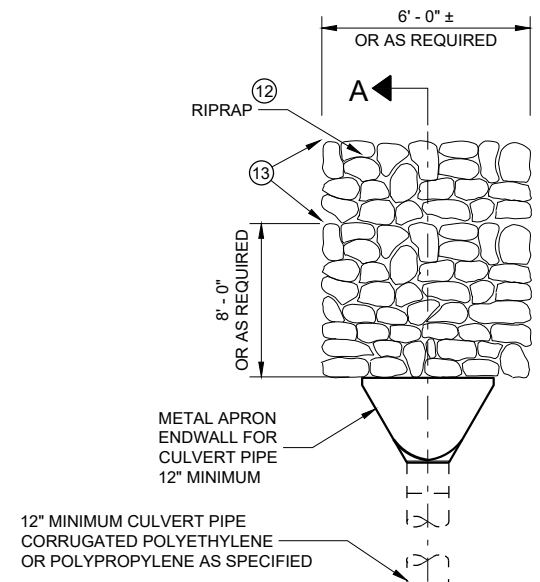
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
February 2020 /S/ Rodney Taylor  
DATE ROADWAY STANDARDS DEVELOPMENT  
ENGINEER

FHWA



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

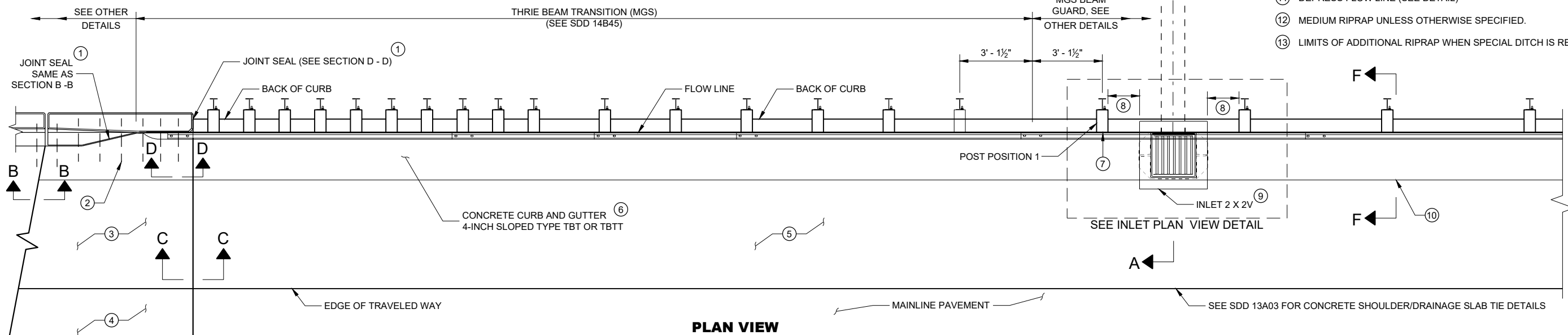


**GENERAL NOTES**

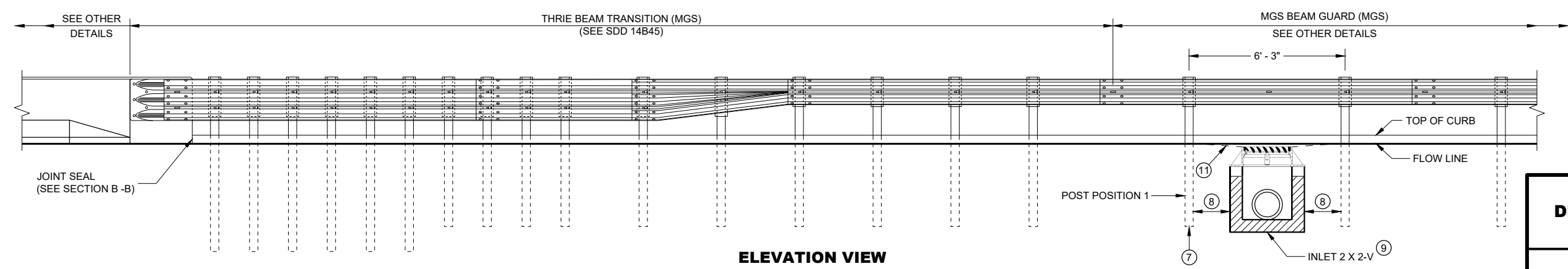
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- ⑦ PLACE DRAINAGE STRUCTURE BEFORE MSG THRIE BEAM TRANSITION POST 1 (SEE SDD 14B45)
- ⑧ CENTER DRAINAGE STRUCTURE BETWEEN POSTS. 6-INCH MINIMUM SEPARATION FROM OUTSIDE WALL OF DRAINAGE STRUCTURE TO POSTS.
- ⑨ SEE SDD 08A05 AND 08C07 FOR DETAILS. SEE ROADWAY PLANS FOR LOCATION.
- ⑩ START CURB AND GUTTER TRANSITION OR END SECTION.
- ⑪ DEPRESS FLOW LINE (SEE DETAIL)
- ⑫ MEDIUM RIPRAP UNLESS OTHERWISE SPECIFIED.
- ⑬ LIMITS OF ADDITIONAL RIPRAP WHEN SPECIAL DITCH IS REQUIRED.



**PLAN VIEW**



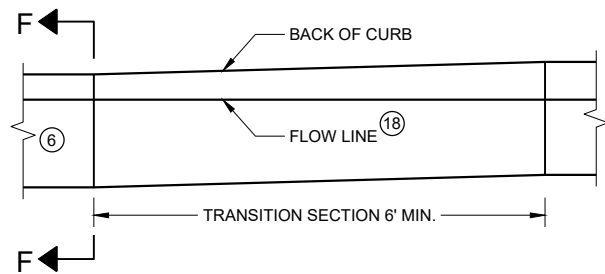
**ELEVATION VIEW**

**CONCRETE SURFACE  
DRAINS DROP INLET TYPE  
AT STRUCTURES**

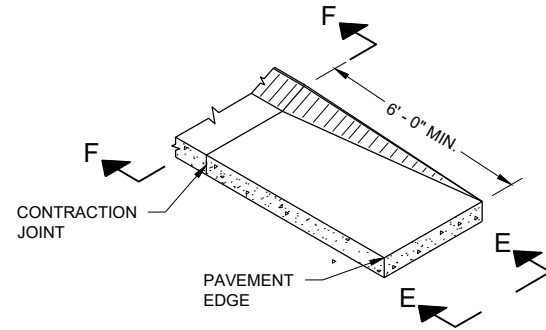
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

SDD 08D03 - 08a

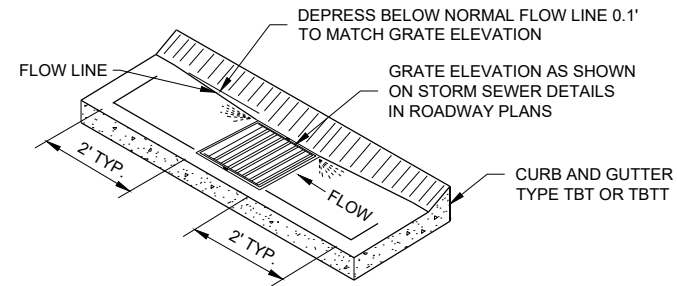
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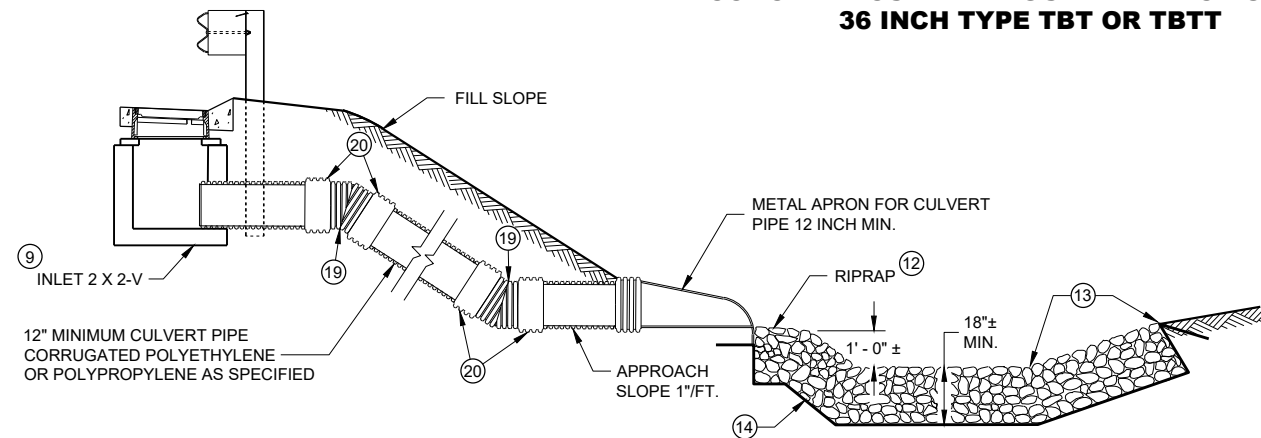
**CURB AND GUTTER TRANSITION SECTION  
CONCRETE CURB AND GUTTER 4-INCH SLOPED  
36 INCH TYPE TBT OR TBTT**



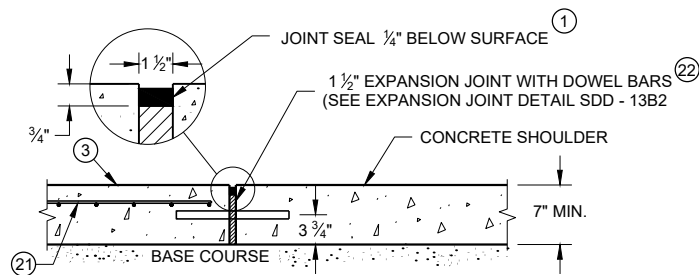
**CURB AND GUTTER END SECTION  
CONCRETE CURB AND GUTTER 4-INCH SLOPED  
36 INCH TYPE TBT OR TBTT**



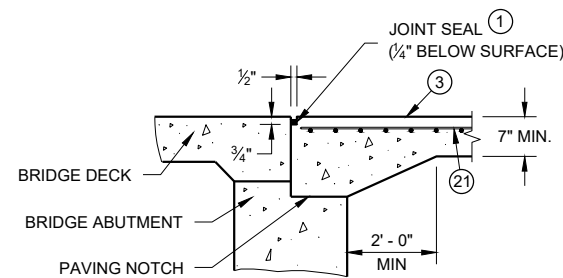
**CURB AND GUTTER FLOW LINE DEPRESSION  
AT INLETS CONCRETE CURB AND GUTTER  
4-INCH SLOPED 36 INCH TYPE TBT OR TBTT**



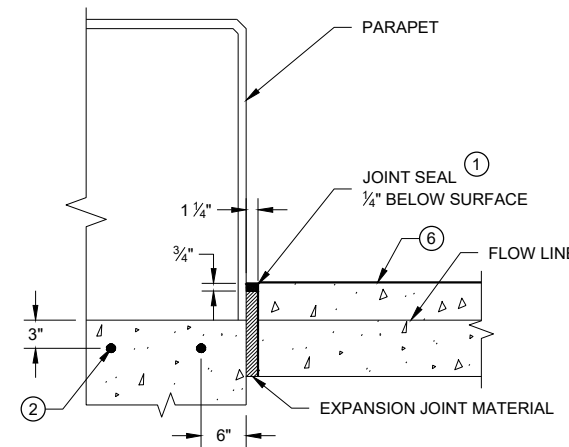
**SECTION A - A**



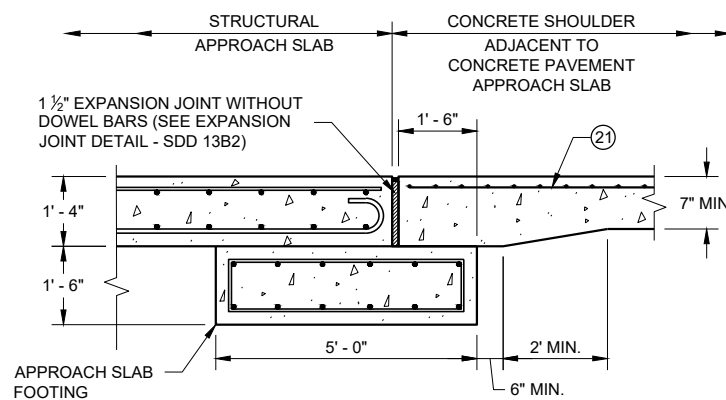
**SECTION C - C  
JOINT DETAIL FOR BRIDGE APPROACH  
WITH CONCRETE SHOULDERS**



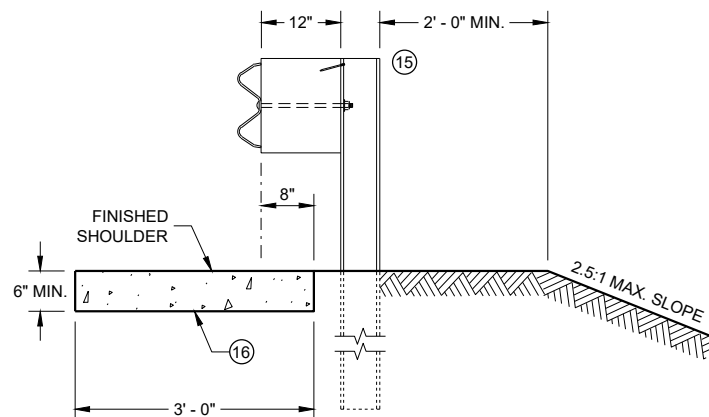
**SECTION B - B**



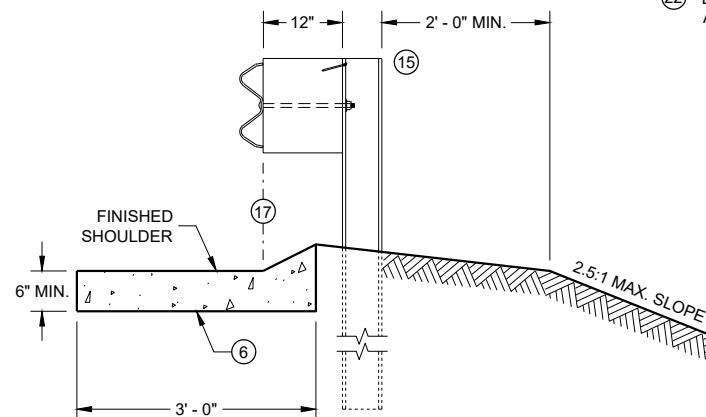
**SECTION D - D**



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



**SECTION E - E**



**SECTION F - F**

**GENERAL NOTES**

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

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

**CONCRETE SURFACE  
DRAINS DROP INLET TYPE  
AT STRUCTURES**

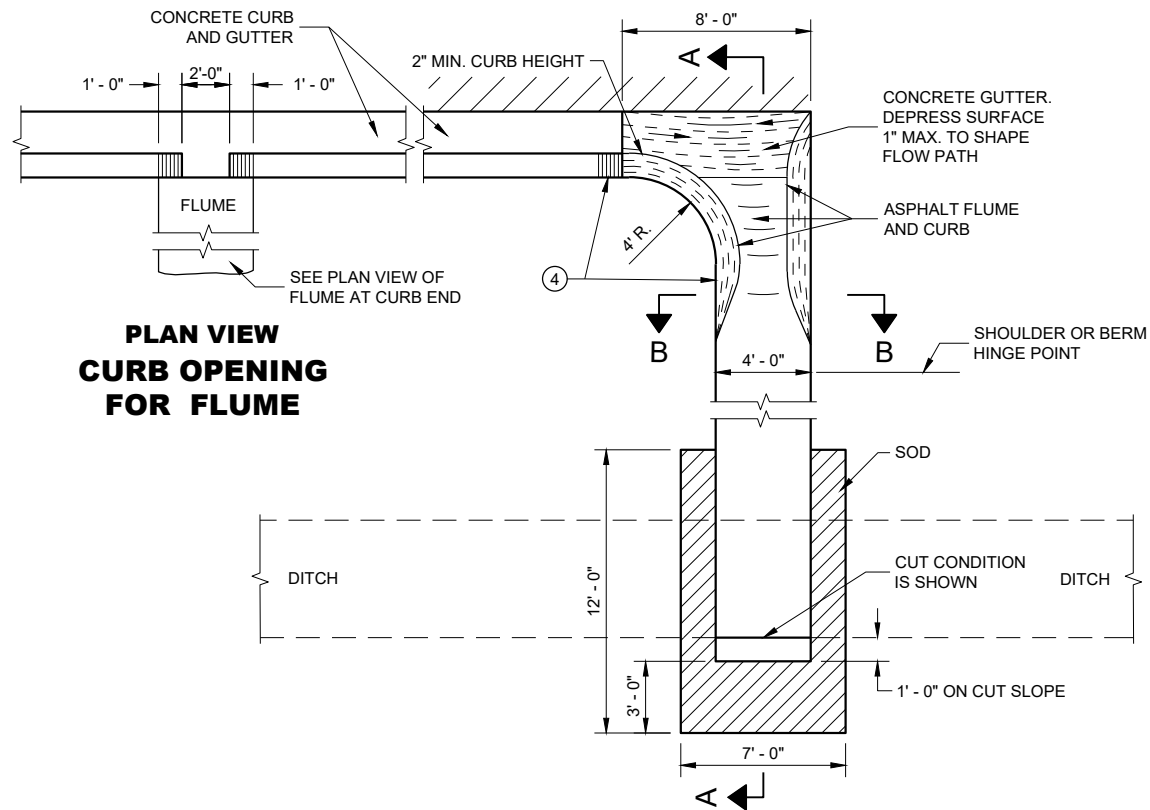
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
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DATE ROADWAY STANDARDS DEVELOPMENT  
ENGINEER  
FHWA



NOTE: TAPER CURB ENDS TO GUTTER IN 1' - 0"

### ASPHALTIC FLUME



**PLAN VIEW  
CURB OPENING  
FOR FLUME**

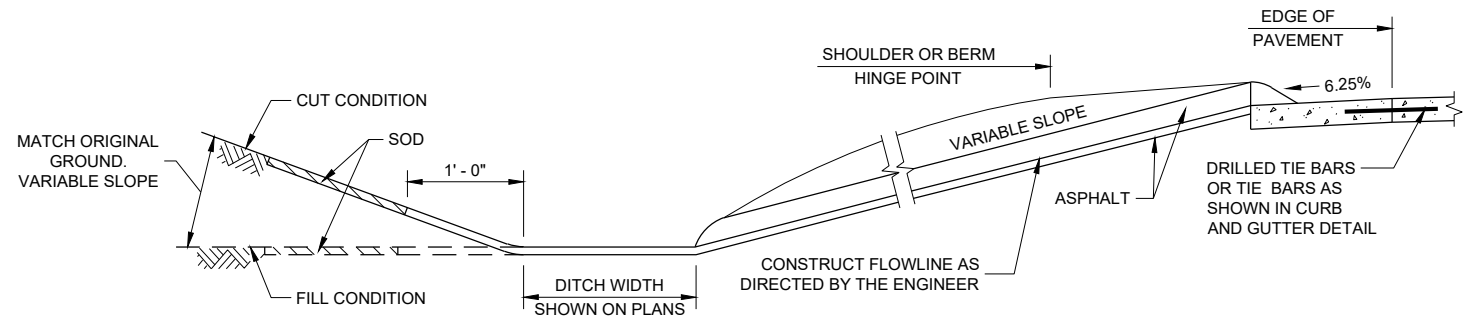
**PLAN VIEW  
FLUME AT CURB END**

### GENERAL NOTES

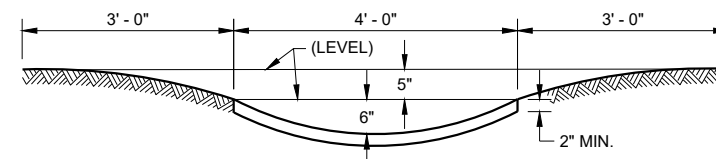
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4" X 4" - W3.0 X W3.0 CONCRETE REINFORCEMENT SHALL BE IN ACCORDANCE WITH AASHTO SPECIFICATION M55.

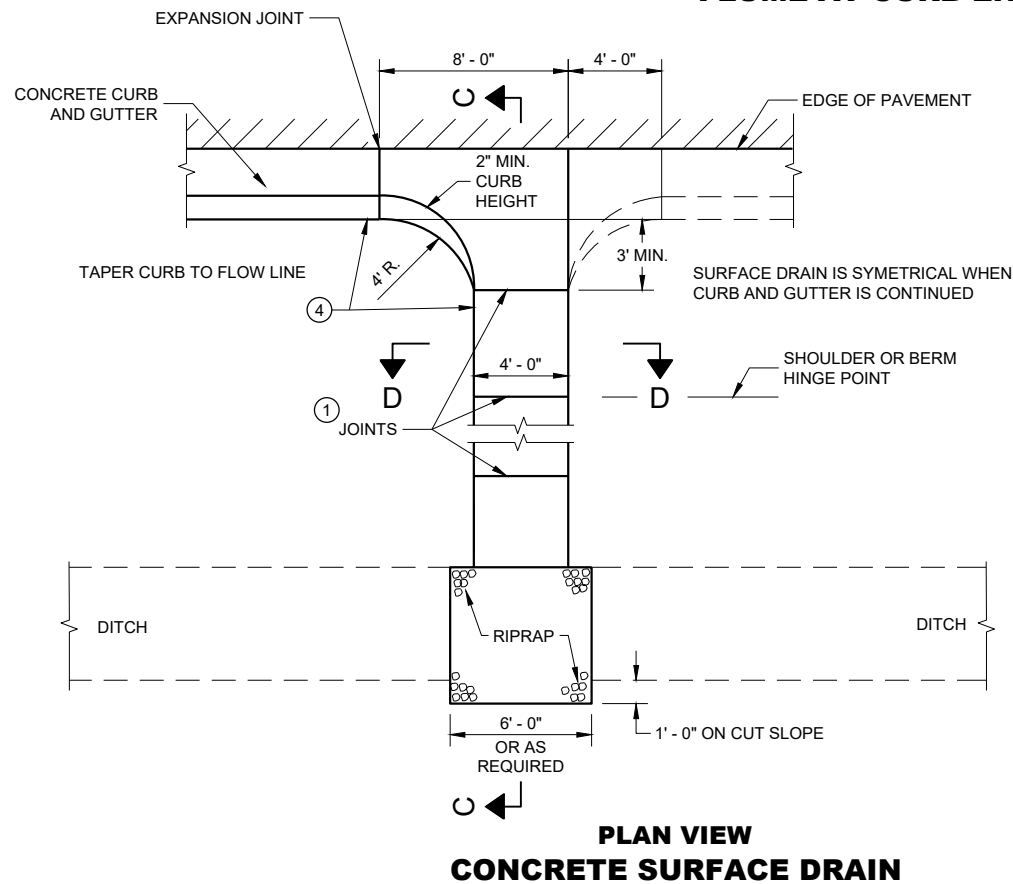
- ① JOINTS SHALL BE 1/8" TO 1/4" WIDE BY 1 1/2" DEEP AND SPACED AT UNIFORM INTERVALS OF APPROXIMATELY 4 FEET.
- ② GEOTEXTILE TYPE "R" SHALL UNDERLAY THE FULL LENGTH AND WIDTH OF THE CONCRETE SURFACE DRAIN AND RIPRAP.
- ③ CONCRETE SURFACE DRAIN WITHOUT CURB AND GUTTER MAY BE USED ON BACKSLOPES WHEN SPECIFIED.
- ④ ANGLE OF FLUME IN RELATION TO BACK OF CURB TO BE CONSTRUCTED PER THE PLAN DETAILS OR AS DIRECTED BY THE ENGINEER. ANGLE OF FLUME MAY BE OTHER THAN 90 DEGREES AS SHOWN.



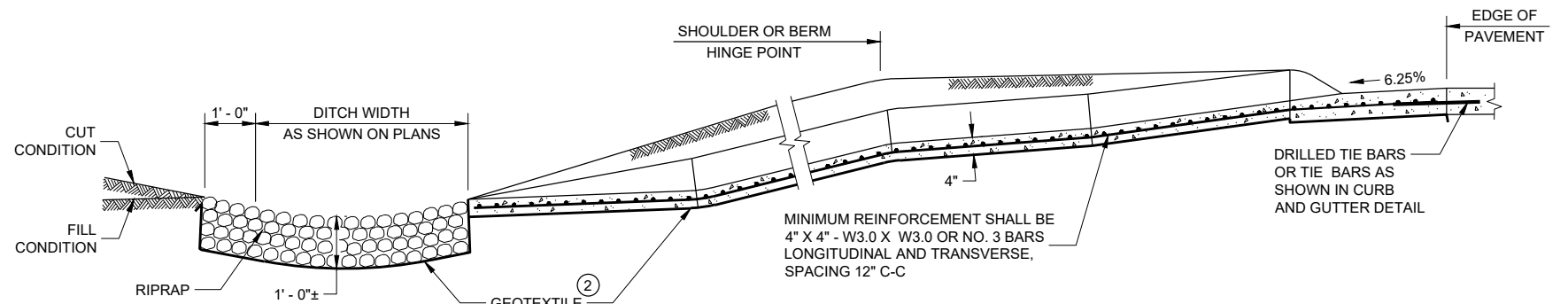
**SECTION A - A**



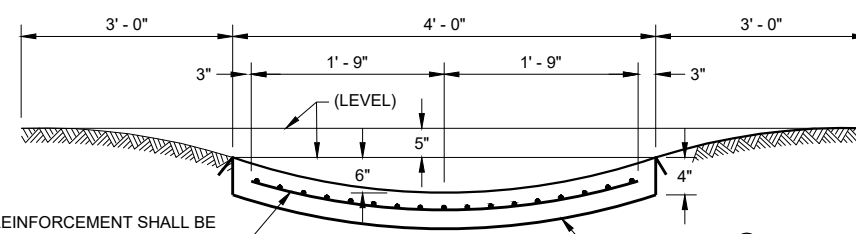
**SECTION B - B**



**PLAN VIEW  
CONCRETE SURFACE DRAIN**



**SECTION C - C**



**SECTION D - D**

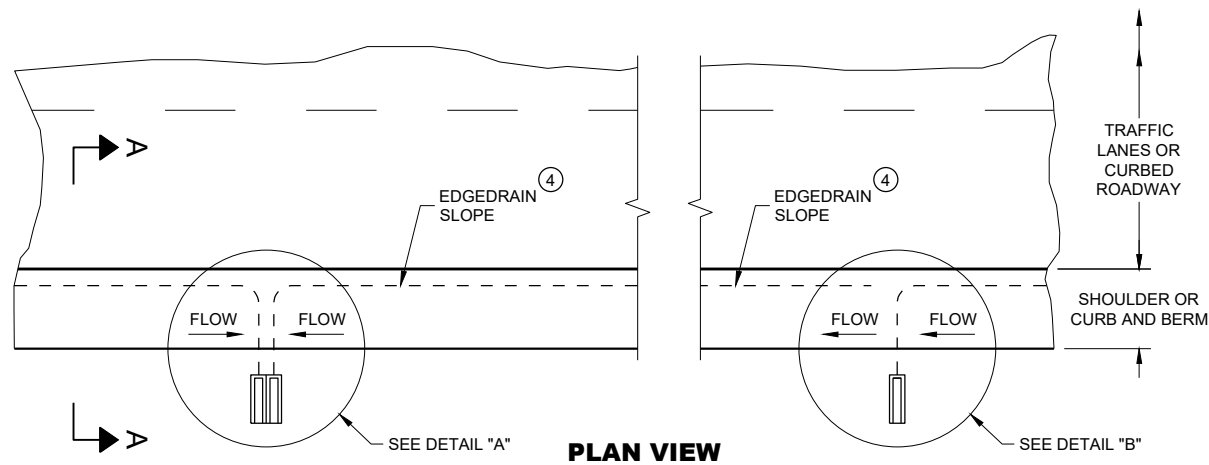
MINIMUM REINFORCEMENT SHALL BE 4" X 4" - W3.0 X W3.0 OR NO. 3 BARS LONGITUDINAL AND TRANSVERSE, SPACING 12" C-C

### CONCRETE SURFACE DRAINS AND ASPHALTIC FLUMES

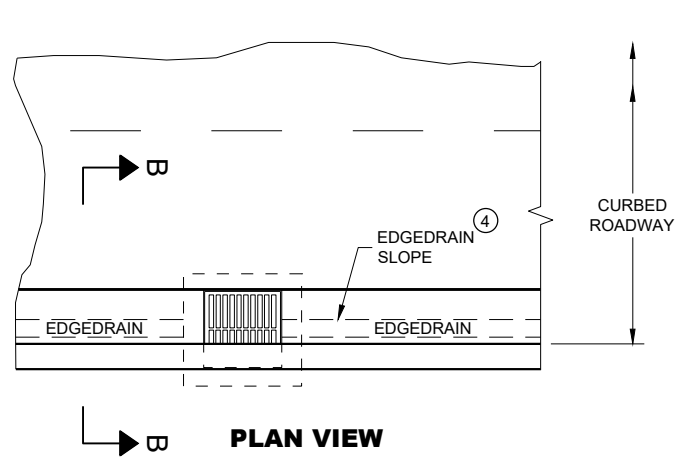
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

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

FHWA



**ROADWAY WITH SHOULDERS OR CURBS  
(EDGEDRAIN CONNECTS TO ROADSIDE) ②**

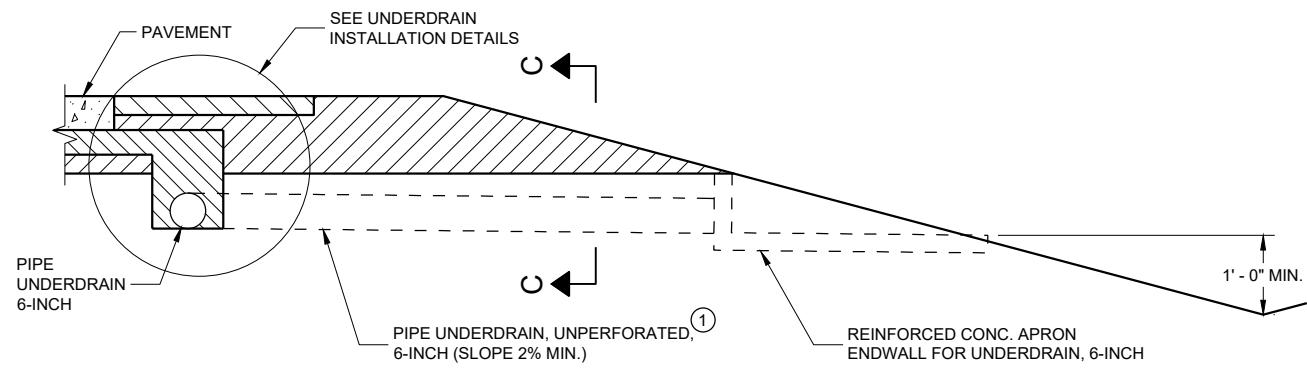


**ROADWAY WITH CURBS  
(EDGEDRAIN CONNECTS INTO INLET STRUCTURE)**

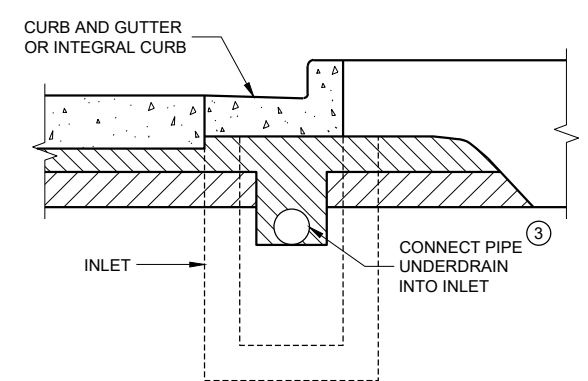
**GENERAL NOTES**

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

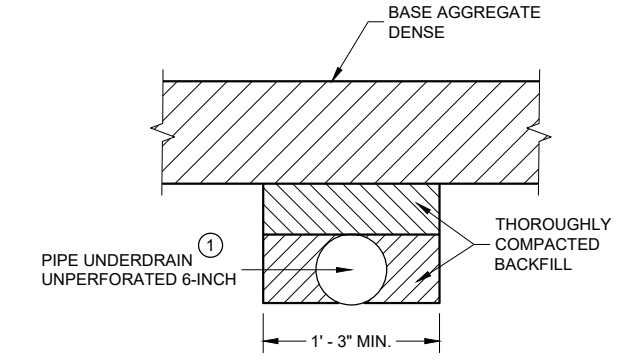
- ① UNPERFORATED PIPE UNDERDRAIN AND FITTINGS FURNISHED FOR OUTFALL PIPE SHALL MEET THE REQUIREMENTS OF ONE OF THE FOLLOWING SPECIFICATIONS:  
  
POLYVINYL CHLORIDE (PVC) PLASTIC DRAIN, WASTE, AND VENT PIPE AND FITTINGS, ASTM D 2665, SCHEDULE 40 PVC.  
  
TYPE PSM POLYVINYL CHLORIDE (PVC) SEWER PIPE AND FITTINGS, ASTM D 3034, SDR 23.5 PVC SEWER PIPE.
- ② MAXIMUM SPACING OF EDGEDRAIN OUTLETS SHALL BE 250 FEET UNLESS OTHERWISE SPECIFIED IN THE CONTRACT OR DIRECTED BY THE ENGINEER.
- ③ EDGEDRAIN SHALL BE CONNECTED TO INLETS REGARDLESS OF FLOW DIRECTION FOR DRAINAGE AND MAINTENANCE ACCESS.
- ④ EDGEDRAIN SHALL BE LAID PARALLEL TO THE GRADE OF ROADWAY.



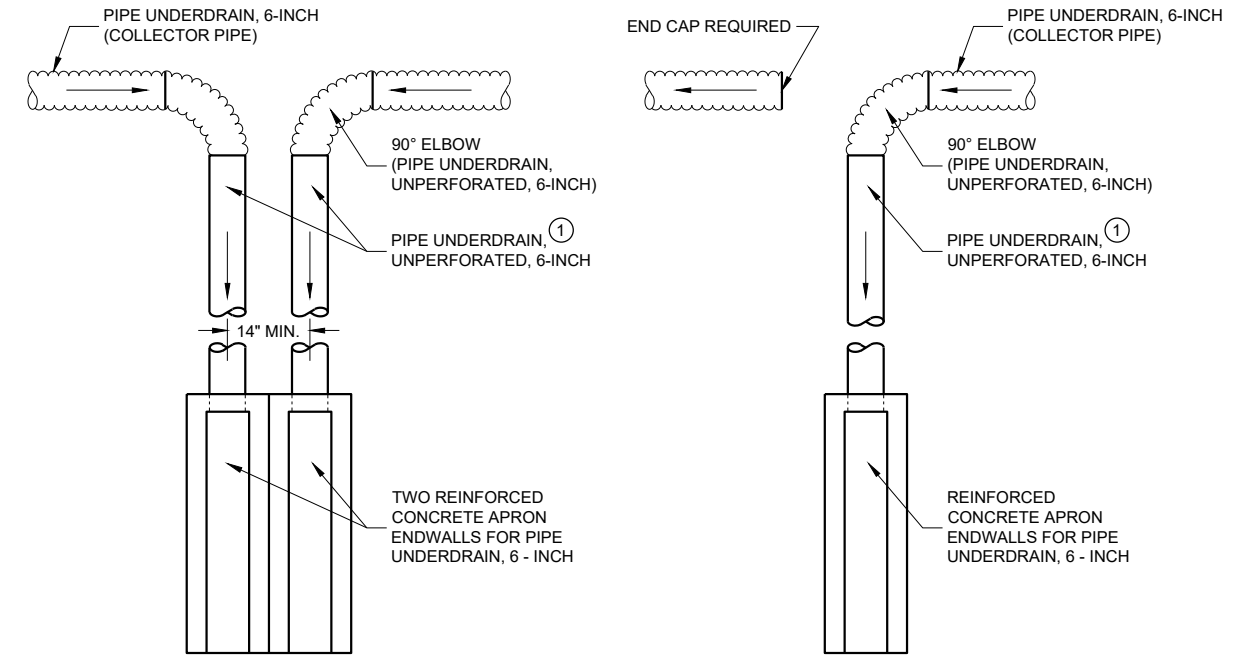
**SECTION A - A  
RURAL CROSS SECTION**



**SECTION B - B  
URBAN CROSS SECTION**



**SECTION C - C  
TRENCH FOR OUTFALL PIPE**



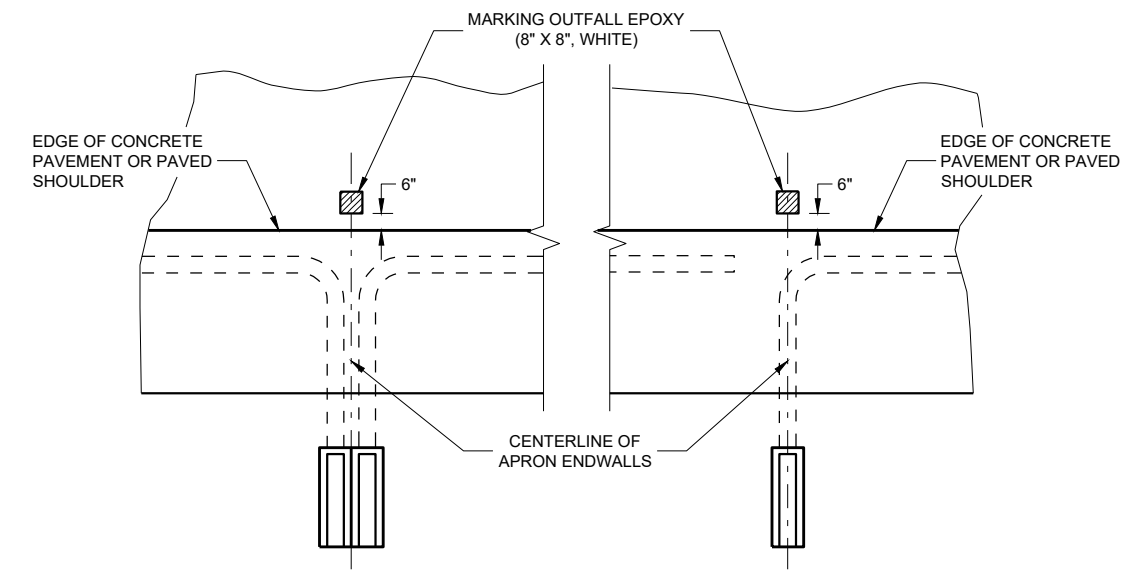
**DETAIL "A"**

TO BE USED AT LOW POINT LOCATIONS

**DETAIL "B"**

TO BE USED AT INTERMEDIATE LOCATIONS

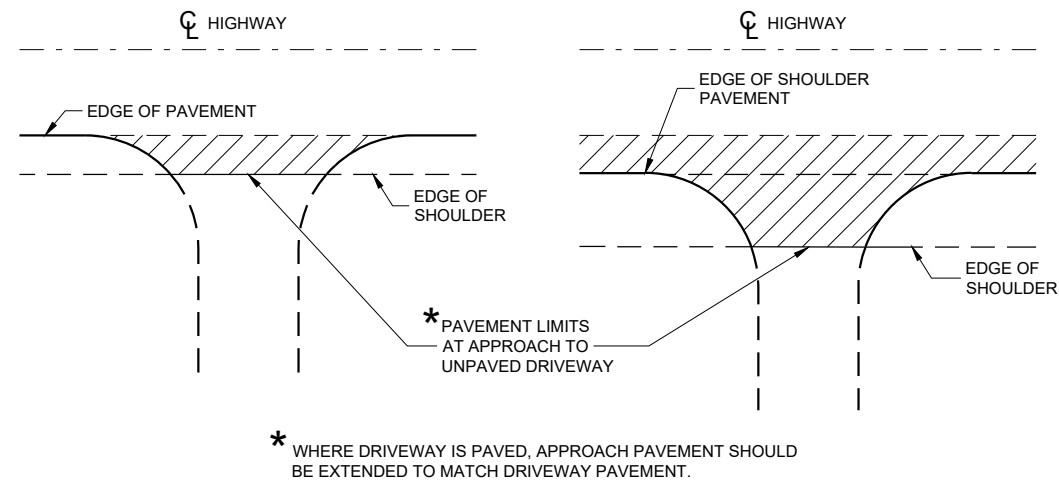
**TYPICAL DRAIN OUT DETAILS**



**PAVEMENT MARKINGS FOR OUTFALL MARKERS**

**EDGEDRAIN OUTLET  
AND OUTFALL MARKERS**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



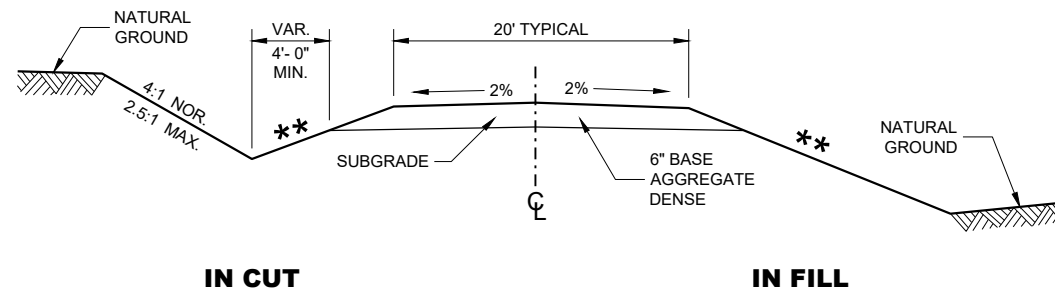
**PLAN VIEW**

(UNPAVED SHOULDER ON HIGHWAY)

**PLAN VIEW**

(PAVED SHOULDER ON HIGHWAY)

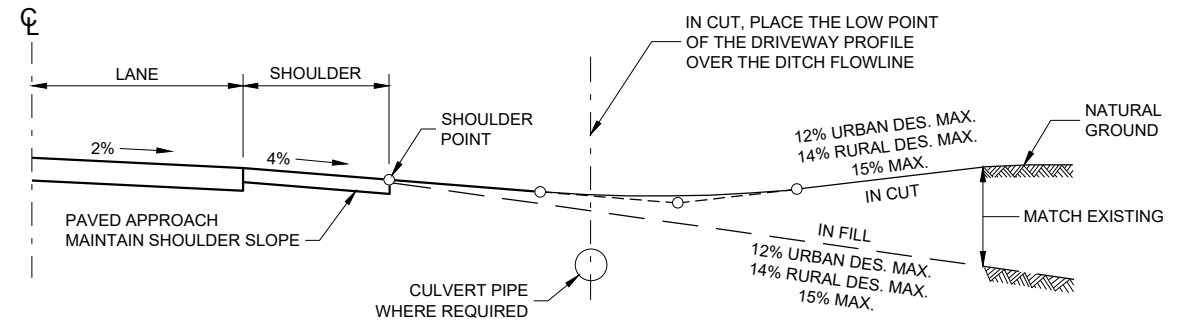
**RURAL DRIVEWAY INTERSECTION DETAIL  
(NO CURB AND GUTTER OR SIDEWALK)**



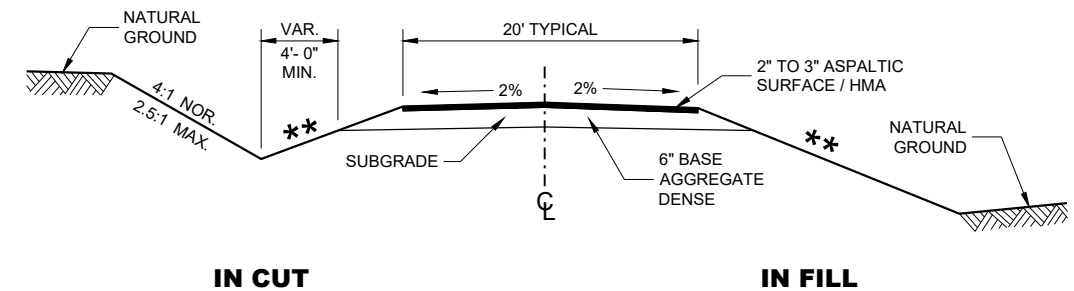
**TYPICAL CROSS SECTION FOR  
PRIVATE DRIVE OR FIELD ENTRANCE  
AGGREGATE SURFACE**

\*\* SLOPE CAN VARY WITH SPEED. SEE 11-45-30.6.2

POSTED SPEED MPH	MAX. SLOPE
<35	4:1
≥ 35 TO < 60	6:1
≥60	10:1



**TYPICAL DRIVEWAY PROFILES**



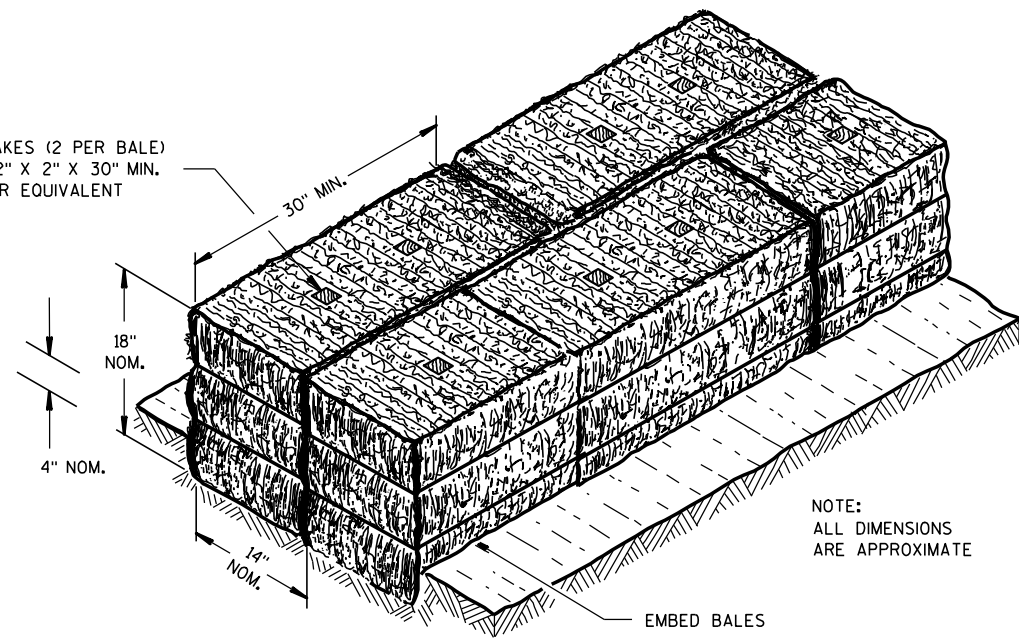
**TYPICAL CROSS SECTION FOR  
PRIVATE DRIVE OR FIELD ENTRANCE  
ASPHALTIC SURFACE**

**DRIVEWAYS WITHOUT CURB AND GUTTER**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

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

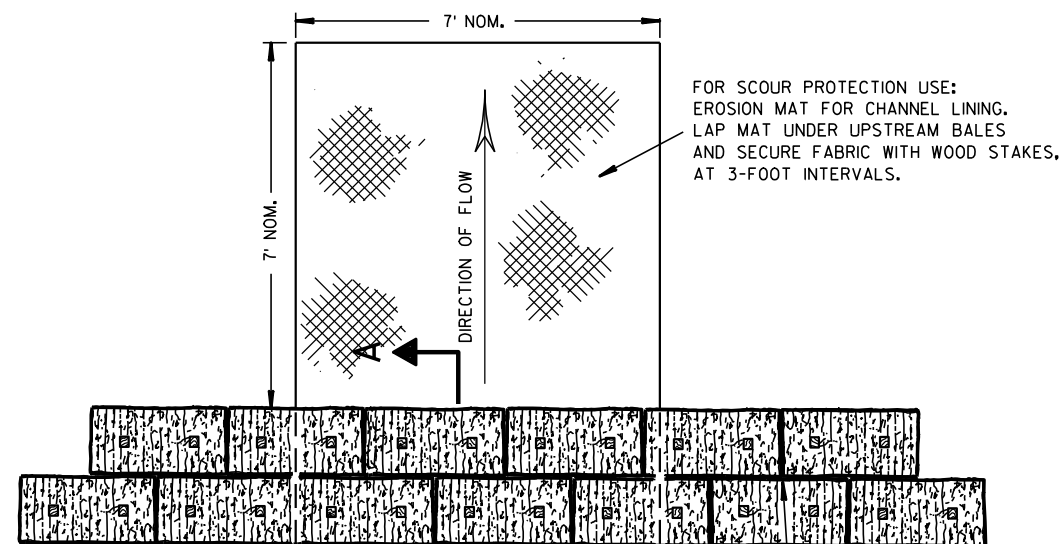
WOOD STAKES (2 PER BALE)  
NOMINAL 2" X 2" X 30" MIN.  
LENGTH OR EQUIVALENT



NOTE:  
ALL DIMENSIONS  
ARE APPROXIMATE

EMBED BALES

SECTION A-A

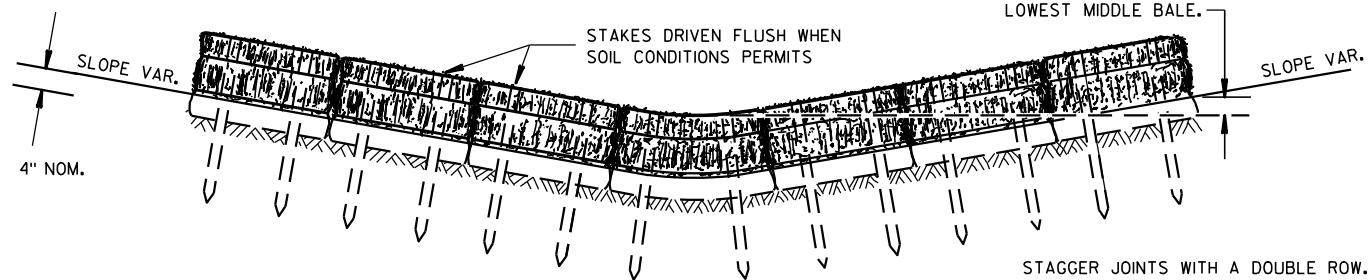


FOR SCOUR PROTECTION USE:  
EROSION MAT FOR CHANNEL LINING.  
LAP MAT UNDER UPSTREAM BALES  
AND SECURE FABRIC WITH WOOD STAKES,  
AT 3-FOOT INTERVALS.

STAGGER JOINTS BETWEEN ADJACENT  
ROWS OF BALES.

PLAN VIEW

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



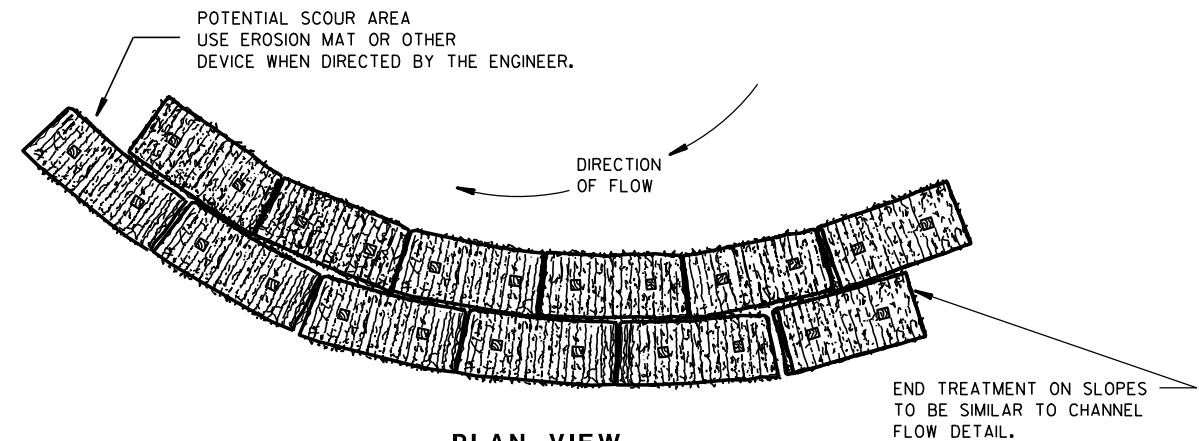
FRONT ELEVATION

TEMPORARY DITCH CHECK USING EROSION BALES ①

GENERAL NOTES

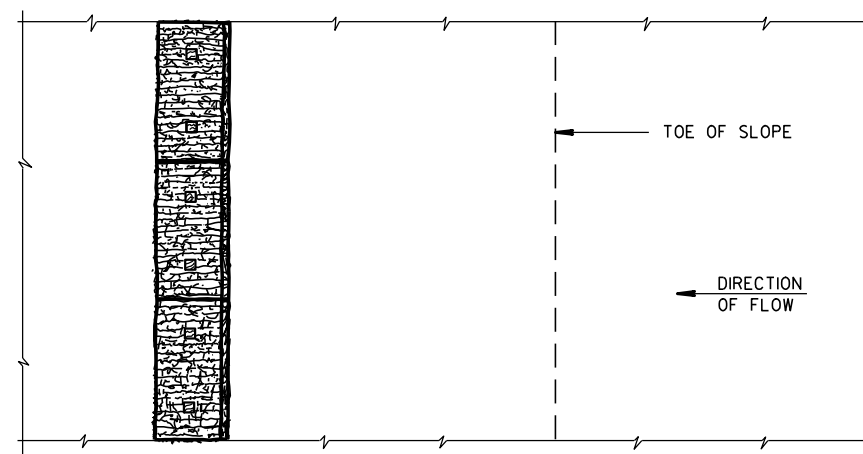
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

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

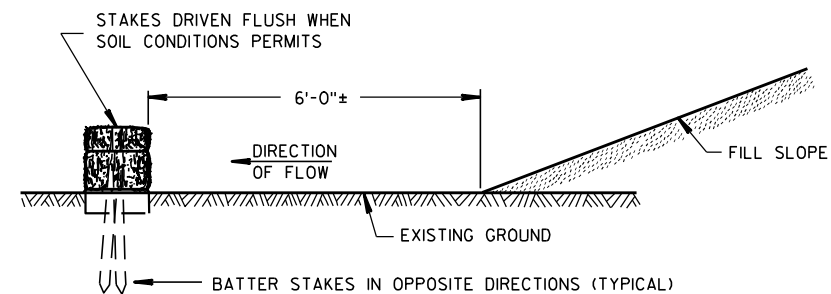


PLAN VIEW

WHEN ALTERING THE DIRECTION OF FLOW



PLAN VIEW



FRONT ELEVATION

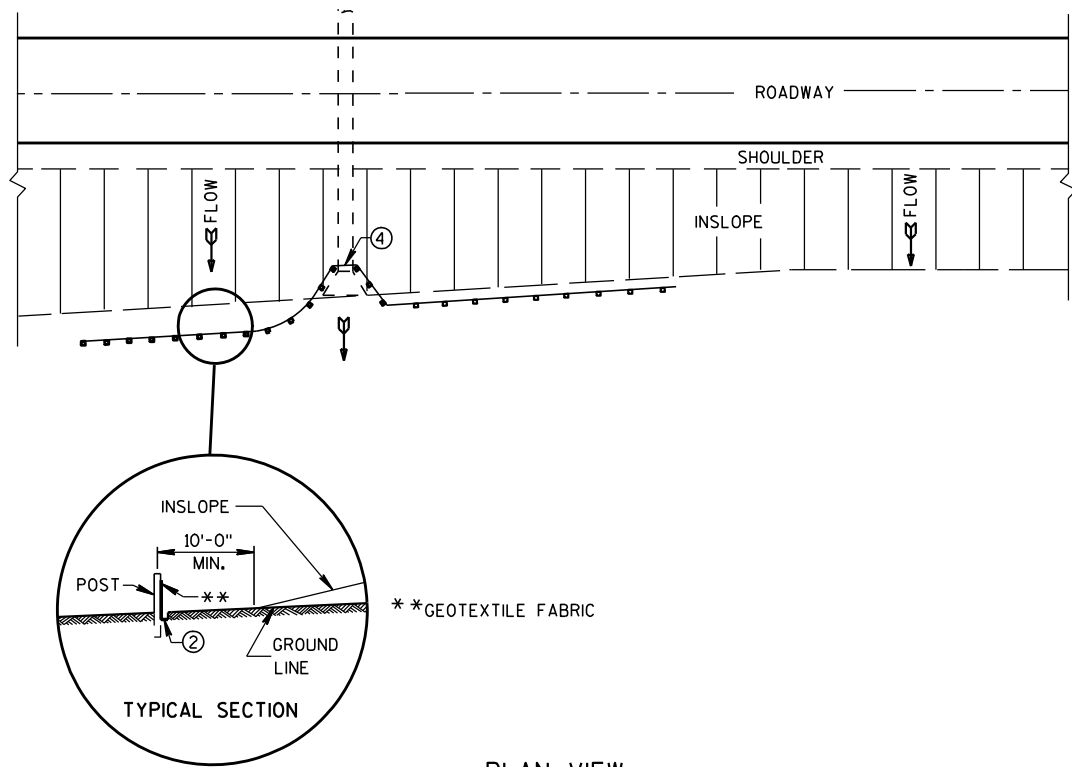
WHEN EXISTING GROUND SLOPES AWAY FROM FILL SLOPE

EROSION BALES FOR SHEET FLOW

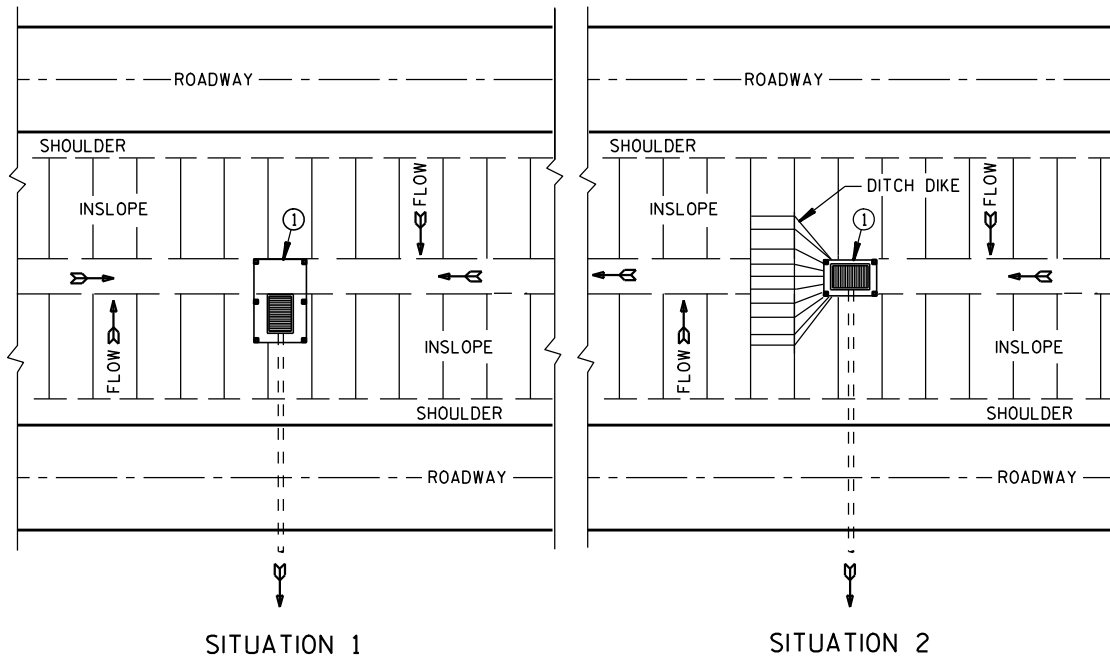
TYPICAL INSTALLATIONS OF  
EROSION BALES / TEMPORARY  
DITCH CHECKS

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

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



PLAN VIEW  
TYPICAL APPLICATION OF SILT FENCE

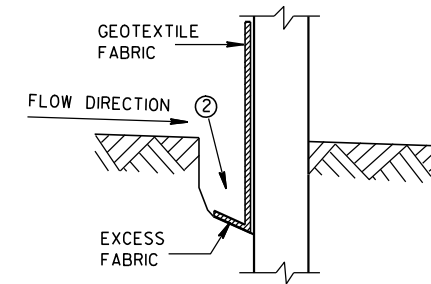


SITUATION 1 SITUATION 2  
PLAN VIEW  
SILT FENCE AT MEDIAN SURFACE DRAINS

**GENERAL NOTES**

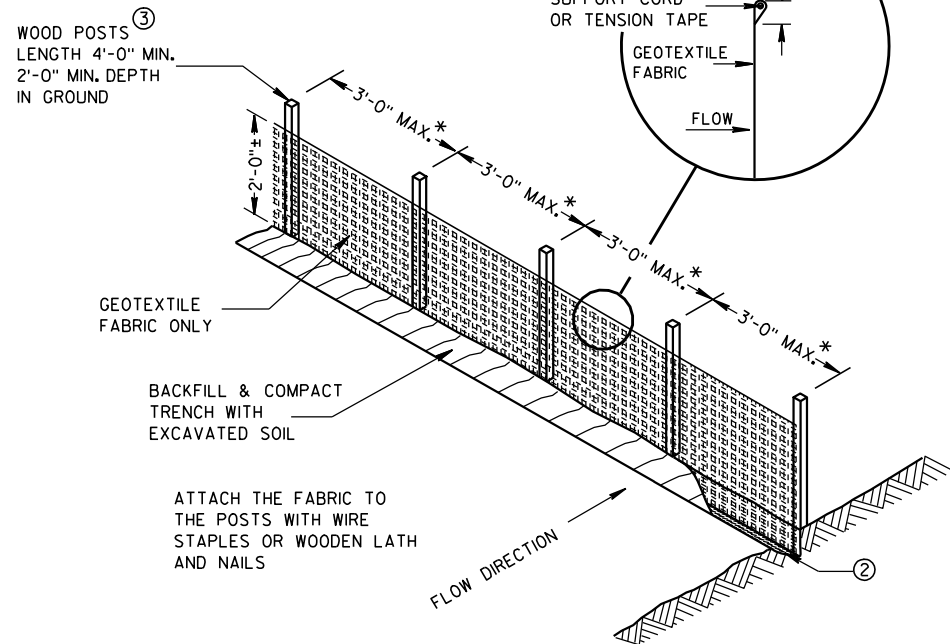
DETAILS OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

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



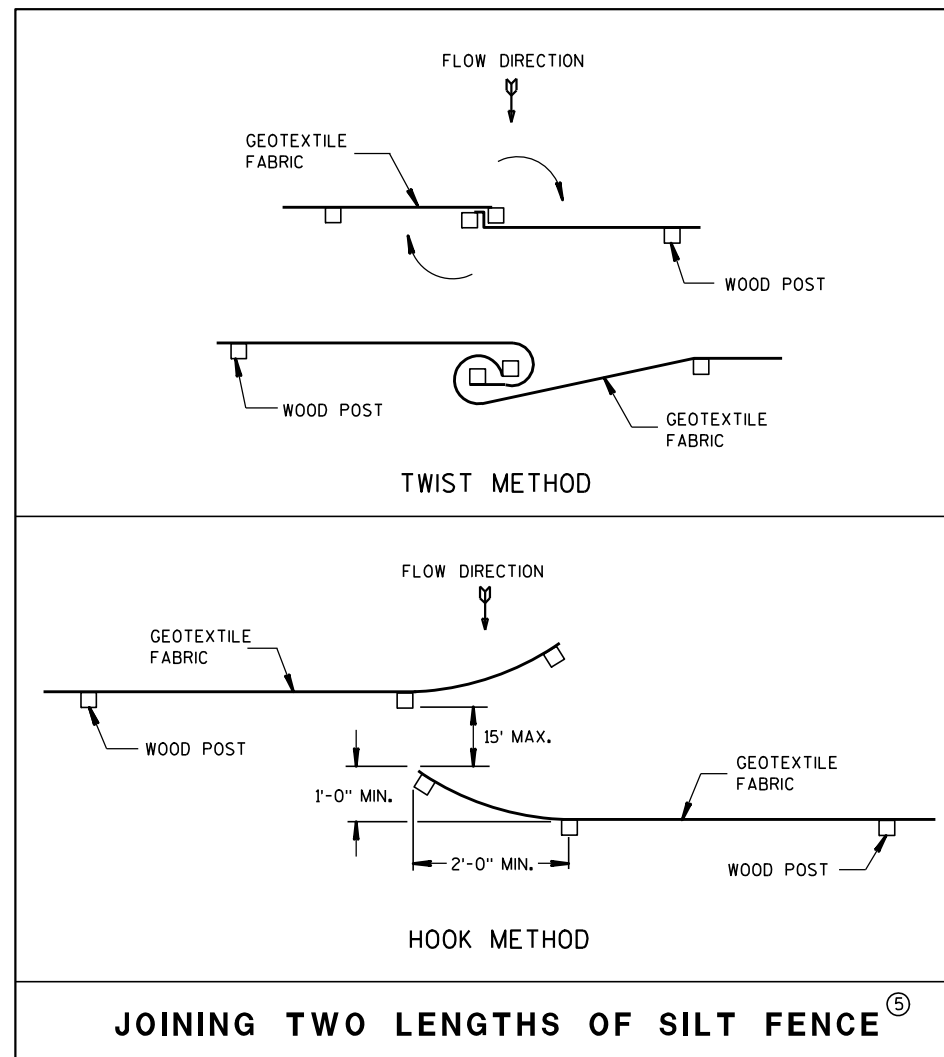
TRENCH DETAIL

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

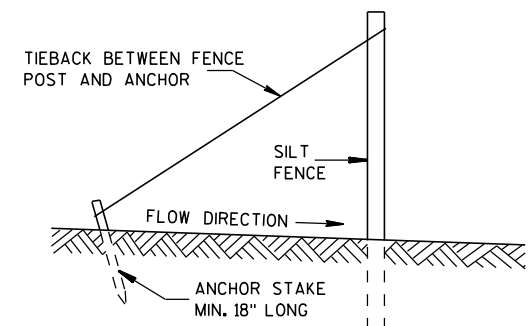


SILT FENCE

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



JOINING TWO LENGTHS OF SILT FENCE ⑤

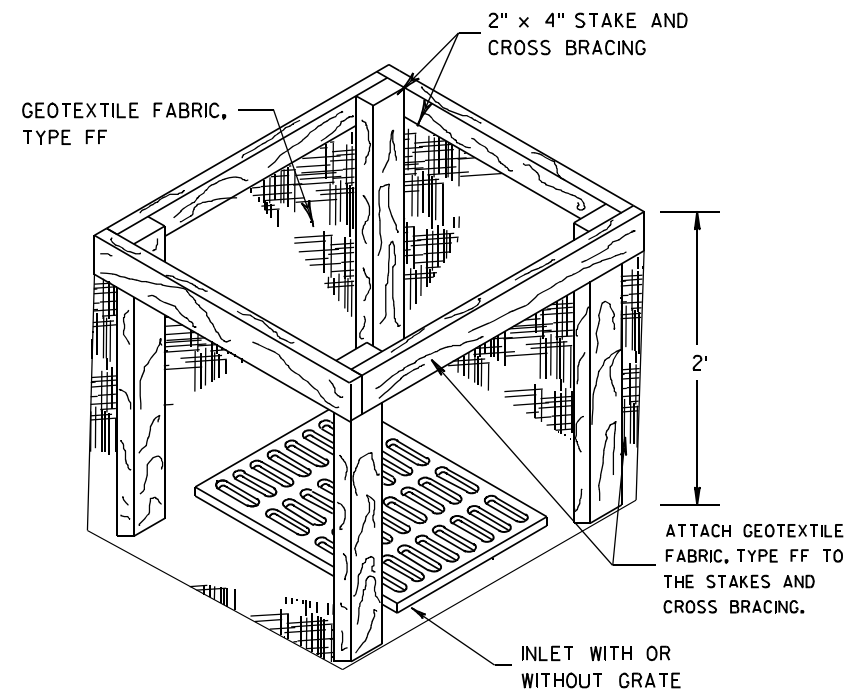
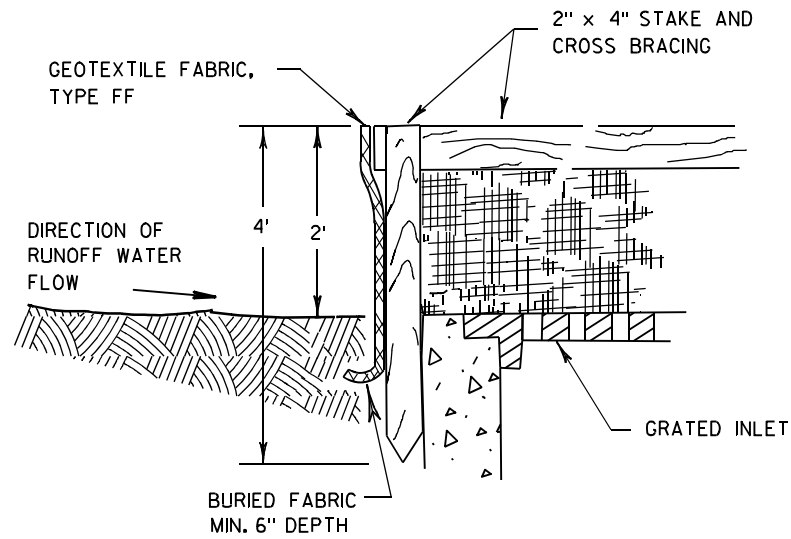


SILT FENCE TIE BACK  
(WHEN REQUIRED BY THE ENGINEER)

**SILT FENCE**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

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



**INLET PROTECTION, TYPE A**

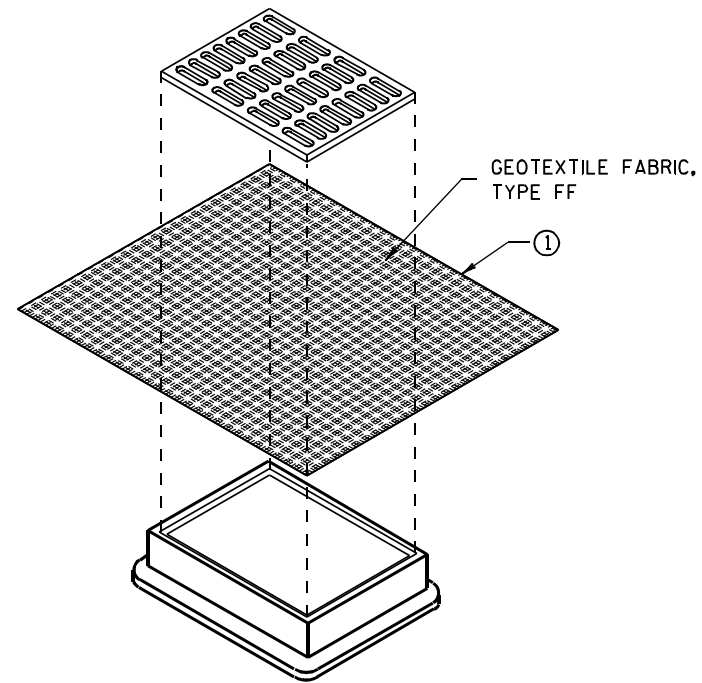
**GENERAL NOTES**

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

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

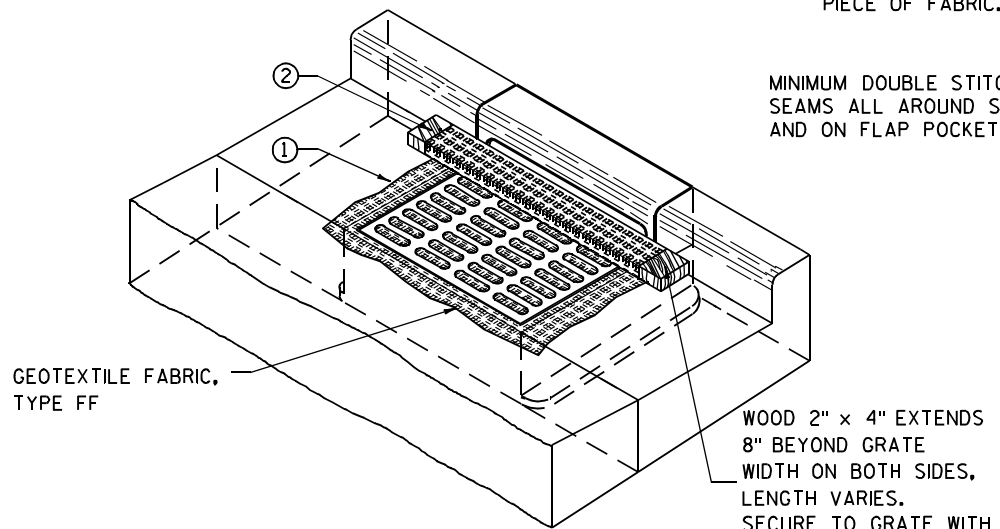
WHEN REMOVING OR MAINTAINING INLET PROTECTION, CARE SHALL BE TAKEN SO THAT THE SEDIMENT TRAPPED ON THE GEOTEXTILE FABRIC DOES NOT FALL INTO THE INLET. ANY MATERIAL FALLING INTO THE INLET SHALL BE REMOVED IMMEDIATELY.

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



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

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



**INLET PROTECTION, TYPE C (WITH CURB BOX)**

**INSTALLATION NOTES**

**TYPE B & C**

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

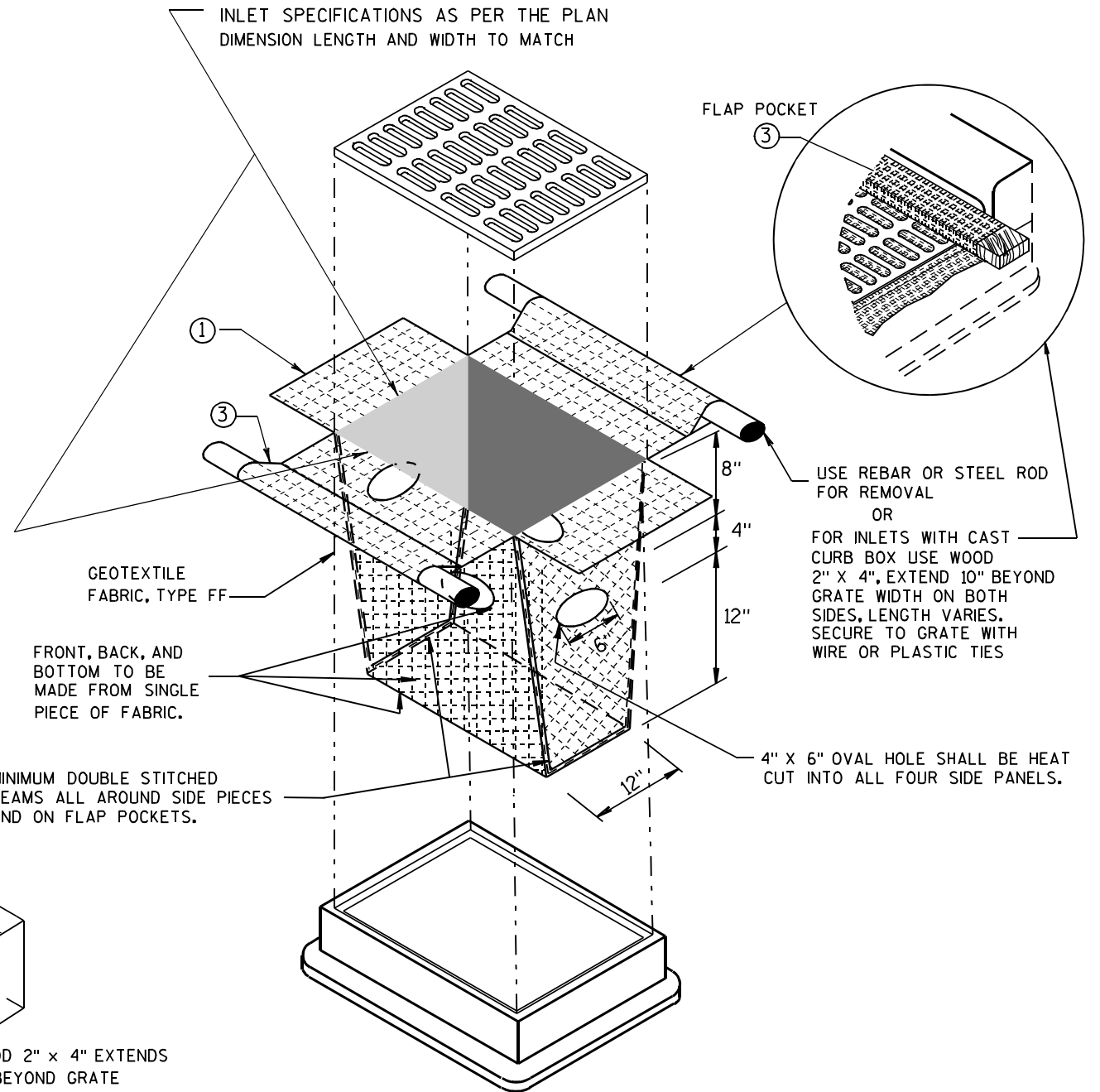
THE CONTRACTOR SHALL DEMONSTRATE A METHOD OF MAINTENANCE, USING A SEWN FLAP, HAND HOLDS OR OTHER METHOD TO PREVENT ACCUMULATED SEDIMENT FROM ENTERING THE INLET.

**TYPE D**

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

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

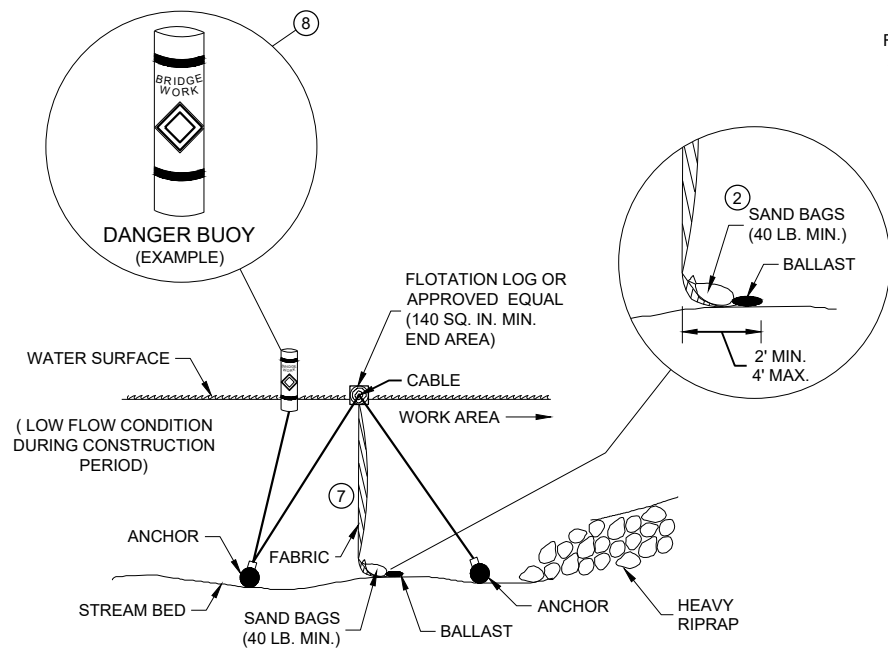
THE INSTALLED BAG SHALL HAVE A MINIMUM SIDE CLEARANCE, BETWEEN THE INLET WALLS AND THE BAG, MEASURED AT THE BOTTOM OF THE OVERFLOW HOLES, OF 3". WHERE NECESSARY THE CONTRACTOR SHALL CINCH THE BAG, USING PLASTIC ZIP TIES, TO ACHIEVE THE 3" CLEARANCE. THE TIES SHALL BE PLACED AT A MAXIMUM OF 4" FROM THE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



**INLET PROTECTION, TYPE D**

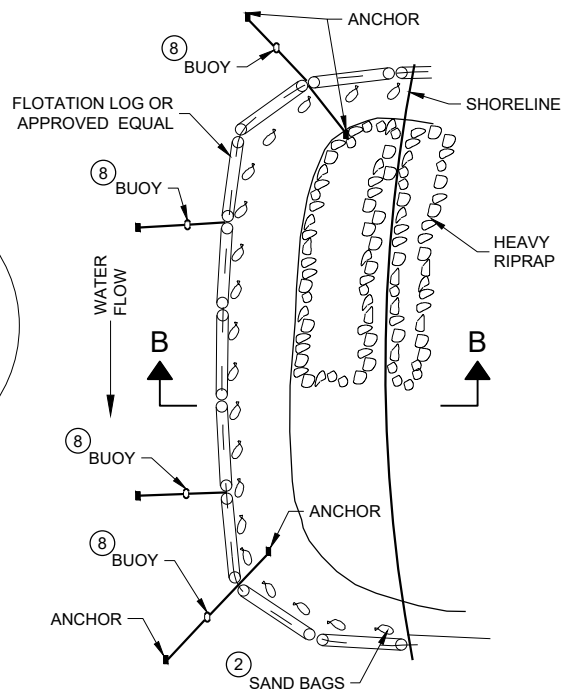
(CAN BE INSTALLED IN ANY INLET TYPE WITH OR WITHOUT A CURB BOX AS PER NOTE ②)

<b>INLET PROTECTION TYPE A, B, C, AND D</b>	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 10/16/02 DATE	/s/ Beth Connestra CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA	

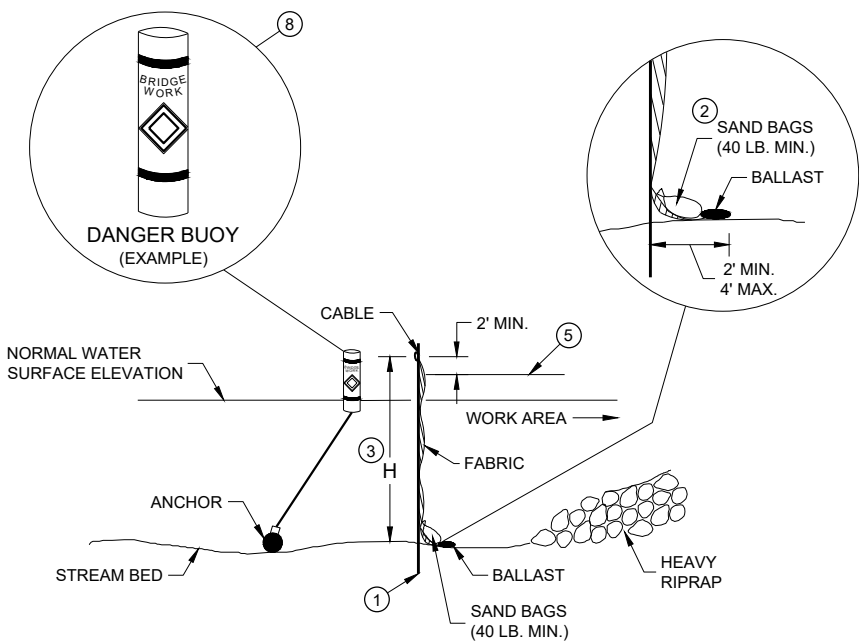


**SECTION B - B**

**TURBIDITY BARRIER - FLOAT ALTERNATIVE  
CAUTION - SEE NOTE 6**

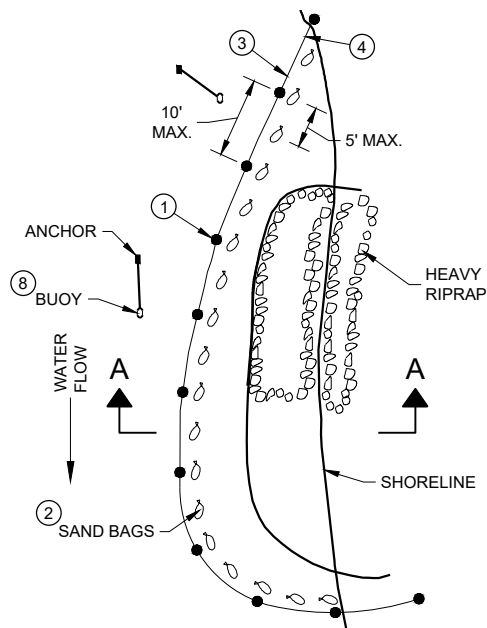


**PLAN VIEW**



**SECTION A - A**

**TURBIDITY BARRIER - STANDARD POST INSTALLATION**



**PLAN VIEW**

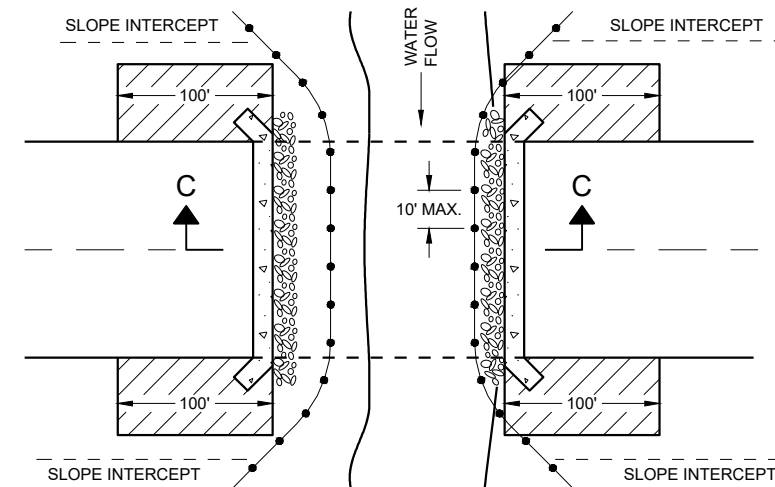
**TURBIDITY BARRIER PLACEMENT DETAILS**

**GENERAL NOTES**

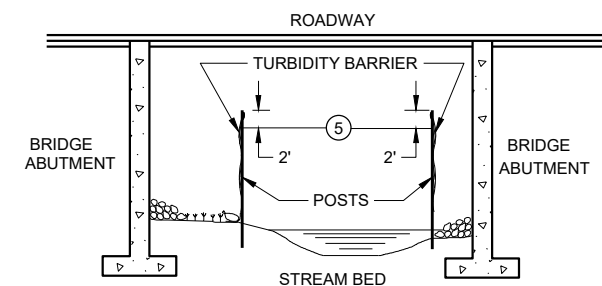
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

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

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



**PLAN VIEW**



**SECTION C - C**

**TURBIDITY BARRIER DETAIL SHOWING  
TYPICAL PLACEMENT AT STRUCTURES**

**TURBIDITY BARRIER**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

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

FHWA

**GENERAL NOTES**

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

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

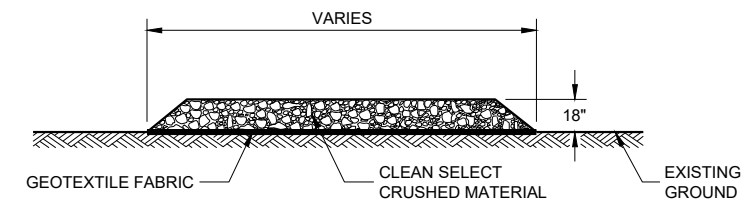
TRACKING PAD TO BE REMOVED AFTER CONSTRUCTION IS COMPLETED.

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

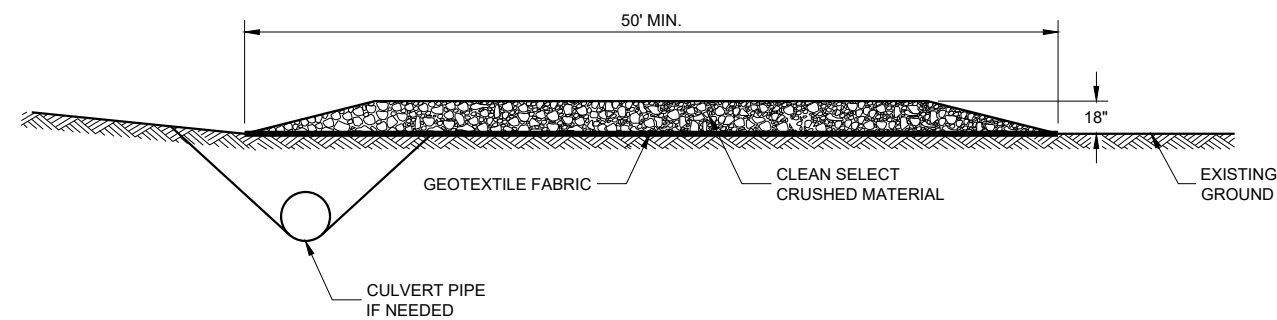
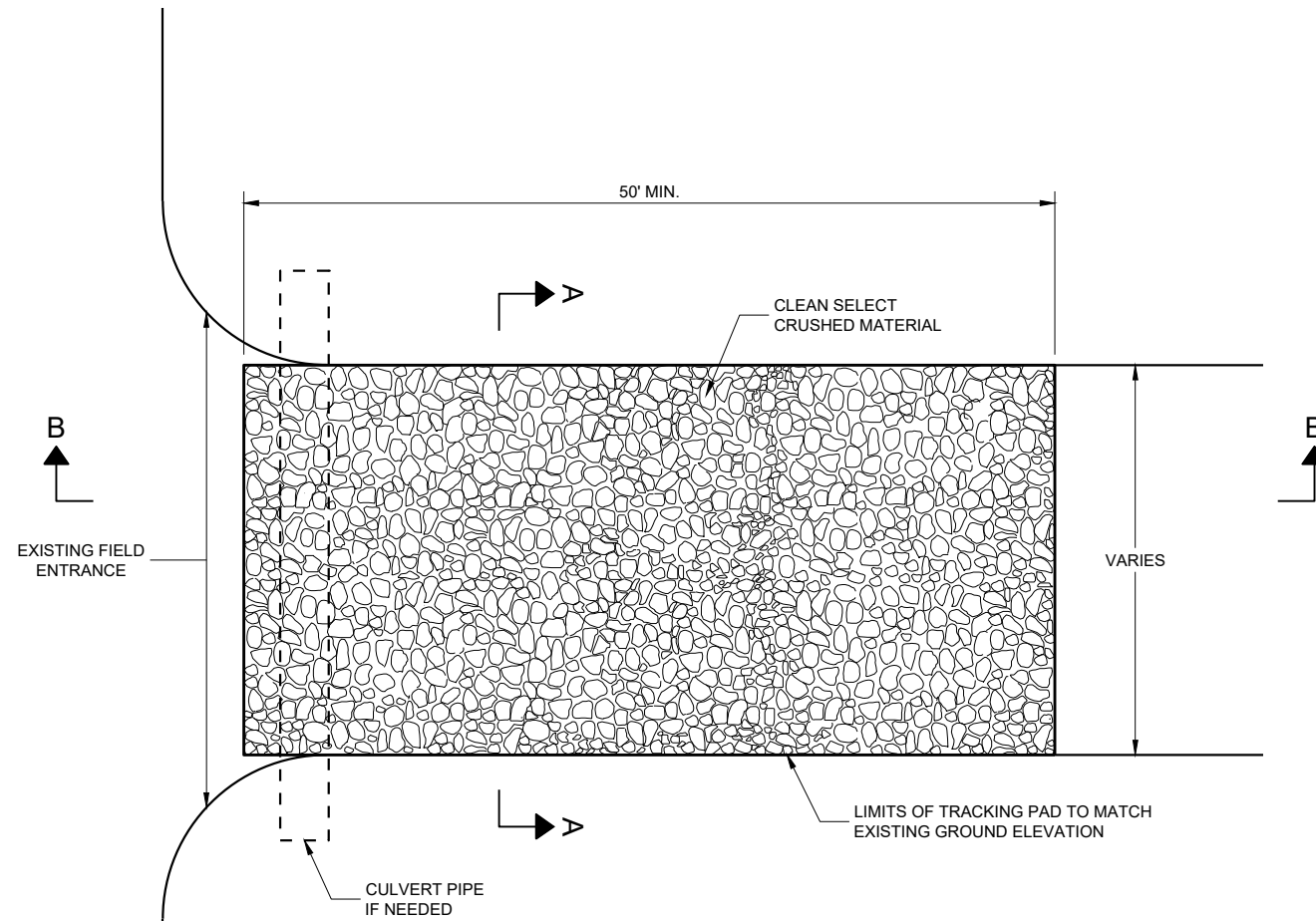
SURFACE WATER MUST BE PREVENTED FROM PASSING THROUGH THE TRACKING PAD. FLOWS SHALL BE DIVERTED AWAY, AROUND OR CONVEYED UNDER THE TRACKING PAD.

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**



**SECTION B - B**

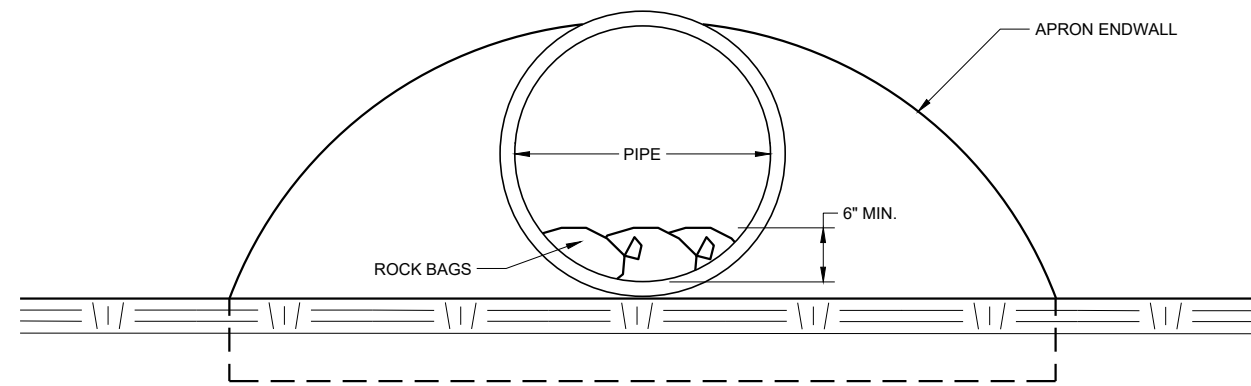
**TRACKING PAD**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

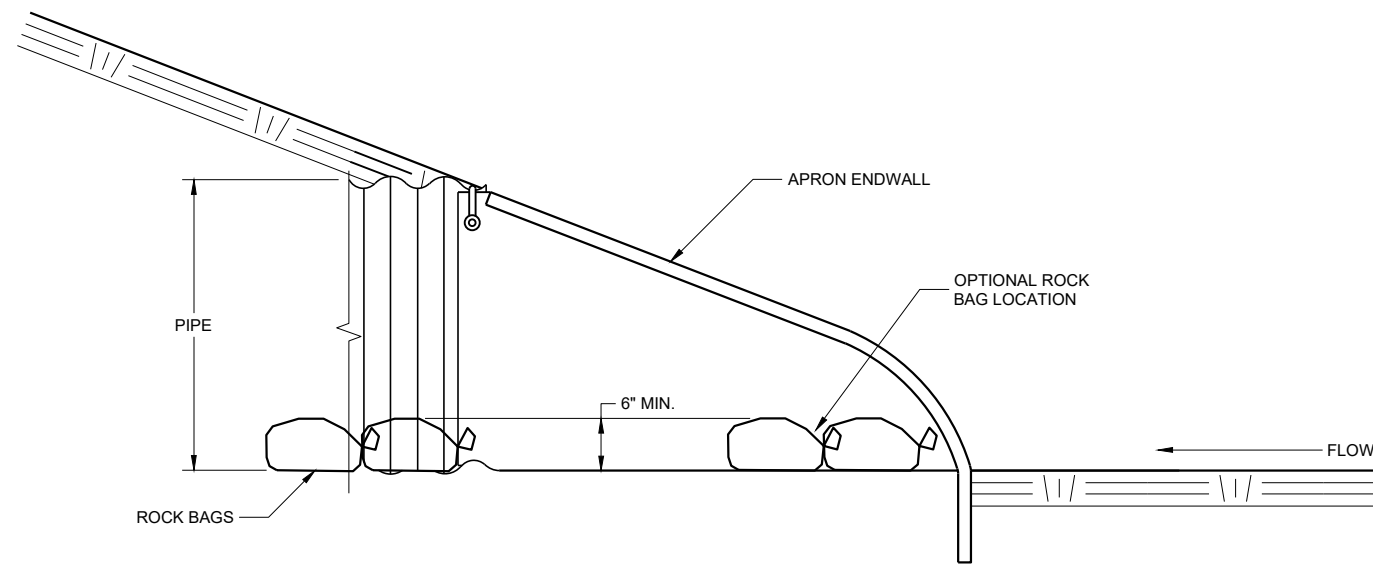
APPROVED  
3/24/2011 DATE /S/ Jerry H. Zogg  
ROADWAY STANDARDS DEVELOPMENT ENGINEER

FHWA





**END VIEW**



**SIDE VIEW**

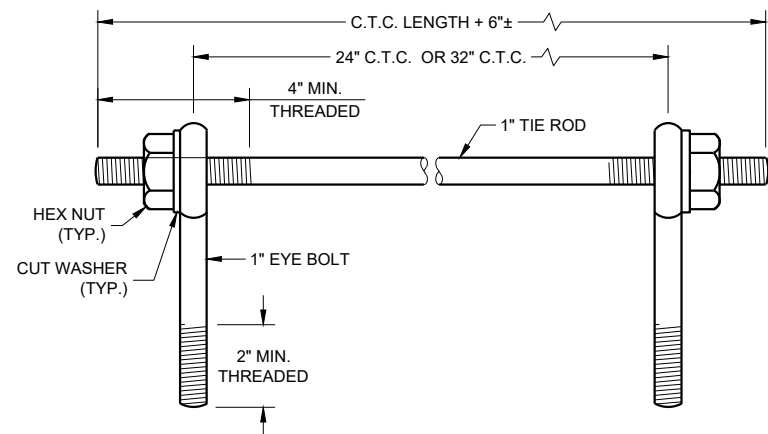
**CULVERT PIPE CHECK**  
(INSTALL ON INLET END ONLY)

**CULVERT PIPE CHECK**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

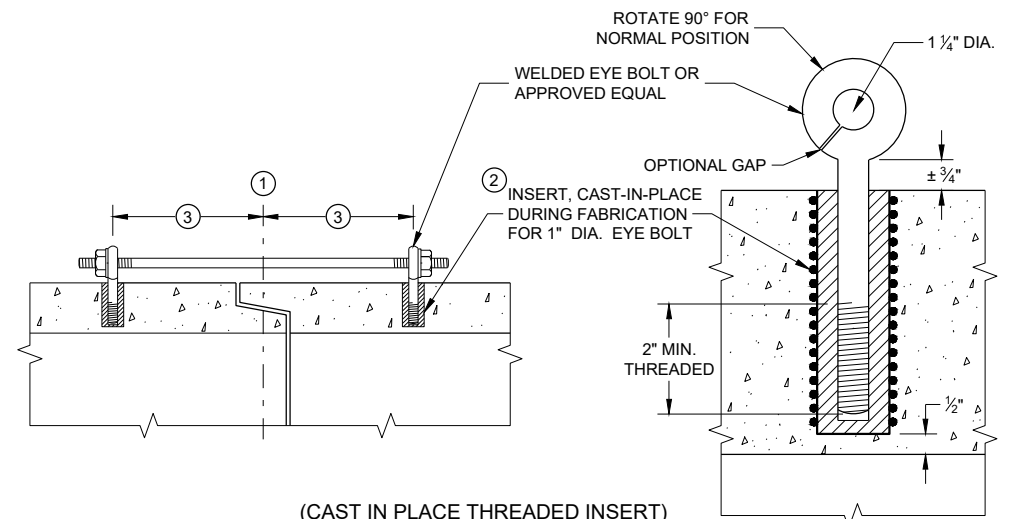
APPROVED  
May 2019 /S/ Daniel Schave  
DATE EROSION CONTROL ENGINEER

FHWA



**EYE BOLTS AND TIE ROD**

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



(CAST IN PLACE THREADED INSERT)  
**LONGITUDINAL SECTIONS**

**GENERAL NOTES**

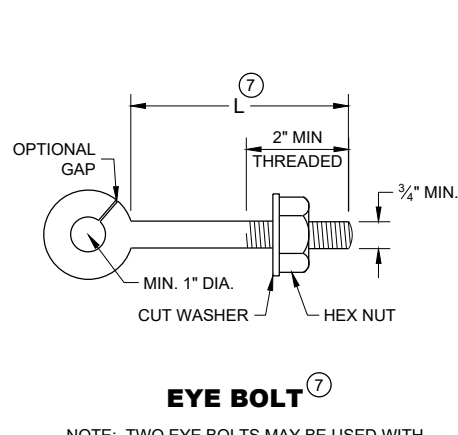
DETAILS OF CONSTRUCTION, MATERIALS, AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

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.

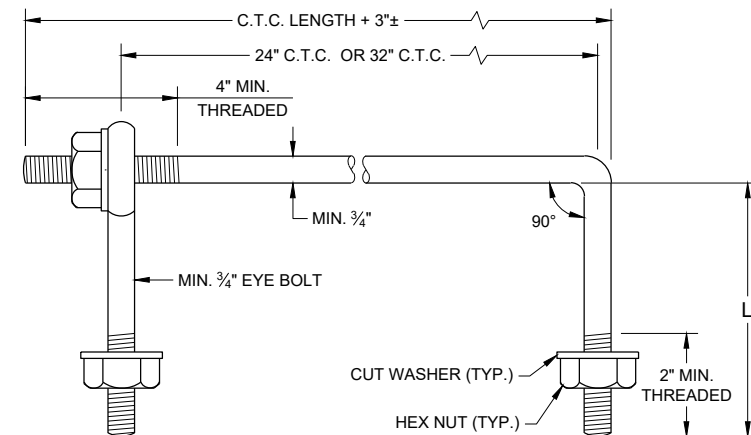
JOINT TIES TO BE HOT-DIP GALVANIZED PER ASTM A 153.

- 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.

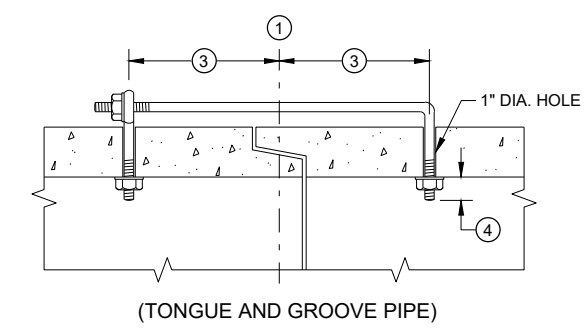


**EYE BOLT** ⑦

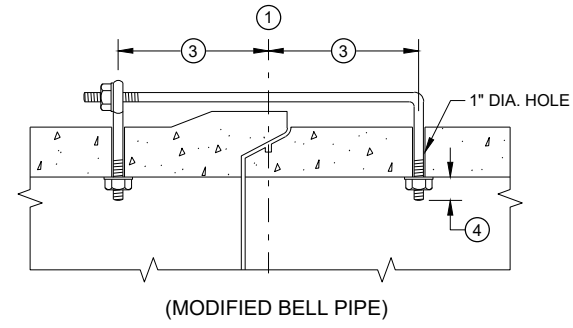
NOTE: TWO EYE BOLTS MAY BE USED WITH A 30" OR 38" LONG THREADED ROD IN LIEU OF THE 90° BENT TIE ROD.



**EYE BOLT AND TIE ROD**



(TONGUE AND GROOVE PIPE)



(MODIFIED BELL PIPE)

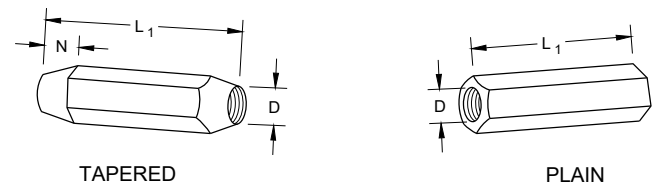
**LONGITUDINAL SECTION**  
(JOINT TIES FOR 18" TO 66" DIA. CONCRETE PIPE)

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

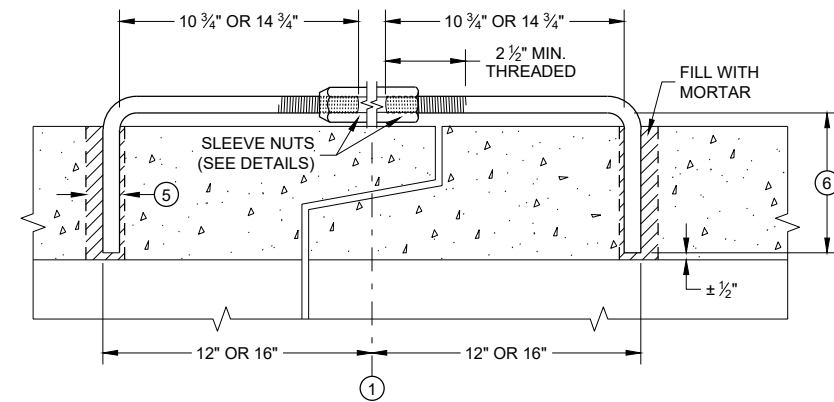
**ADJUSTABLE TIE ROD TABLE**

PIPE DIAMETER	TIE ROD DIAMETER	D	L <sub>1</sub>	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

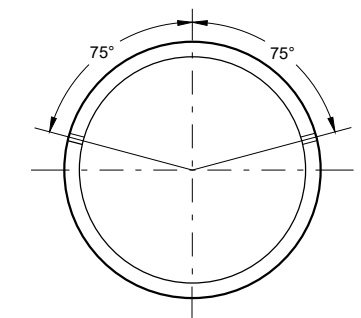


**RIGHT AND LEFT THREADS SLEEVE NUTS**



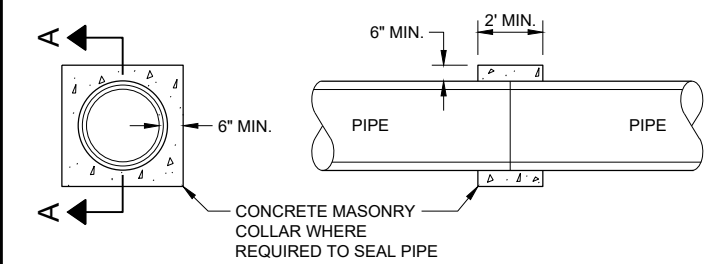
**LONGITUDINAL SECTION**

**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**

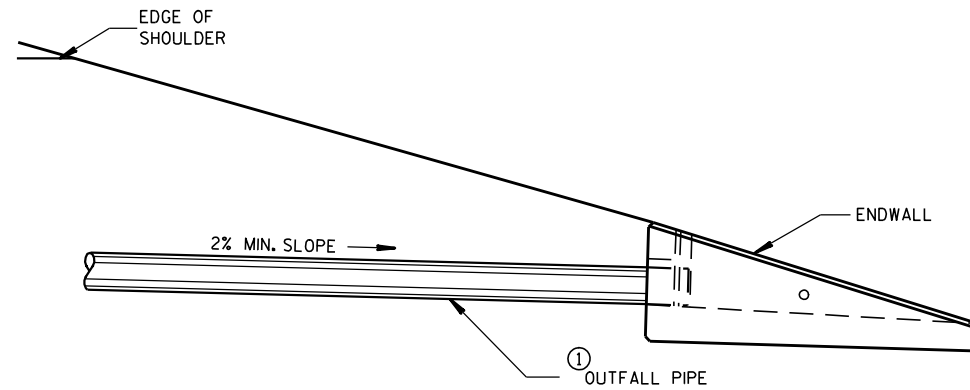
**JOINT TIES FOR CONCRETE PIPE AND CONCRETE COLLAR DETAIL**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

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

DIMENSIONS IN INCHES											
PIPE DIA.	A	B	C	D	E	F	G	H	J	L	Z
**4	6	12	5 1/4	9	8	32	36	11	2 3/8	6 1/2	4
6	8	14	7 1/4	11	10	42	44	13	3 5/8	8 1/2	6

\*\* APRON ENDWALL FOR 6 INCH DIAMETER PIPE MAY BE SUBSTITUTED FOR THIS SIZE PROVIDED THE HOLE IN THE HEADWALL IS SIZED AND LOCATED TO CONFORM TO THE 4 INCH DIAMETER PIPE DIMENSIONS (C & J)



INSTALLATION 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.

ALTERNATIVE DESIGNS WHICH PROVIDE EQUIVALENT CAPACITY AND STRENGTH MAY BE USED WHEN APPROVED BY THE ENGINEER. ENDWALL MAY BE EITHER PRECAST OR CAST-IN-PLACE CONCRETE.

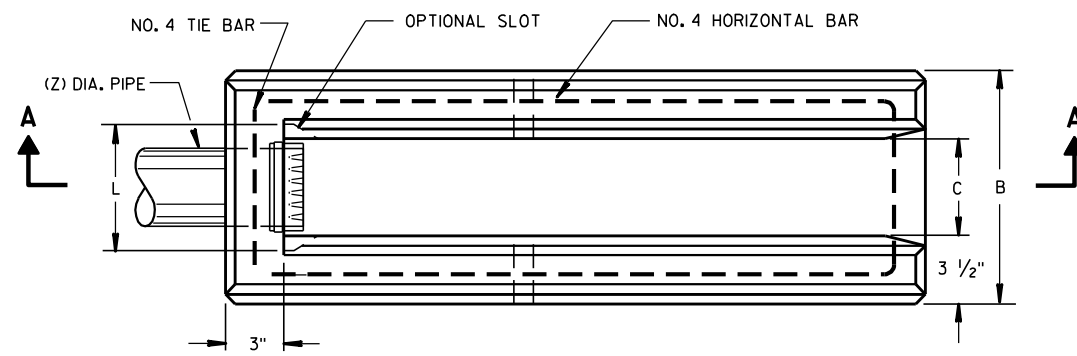
THE UNDERDRAIN PIPE SHALL BE FULLY INSERTED AND SEALED INTO THE ENDWALL WITH CEMENT MORTAR PRIOR TO BACKFILLING AROUND THE STRUCTURE.

THE UPPERMOST POINT OF THE ENDWALL SHALL BE PLACED FLUSH WITH THE ROADWAY SLOPE. ADJACENT EMBANKMENT SLOPES SHALL BE SHAPED TO FIT THE SIDES AND TOE OF THE ENDWALL. EXACT PLACEMENT OF THE OUTFALL PIPE AND ENDWALL SHALL BE DETERMINED BY THE ENGINEER TO MATCH THE ELEVATIONS AND FLOW DIRECTION OF THE ROADSIDE DITCH.

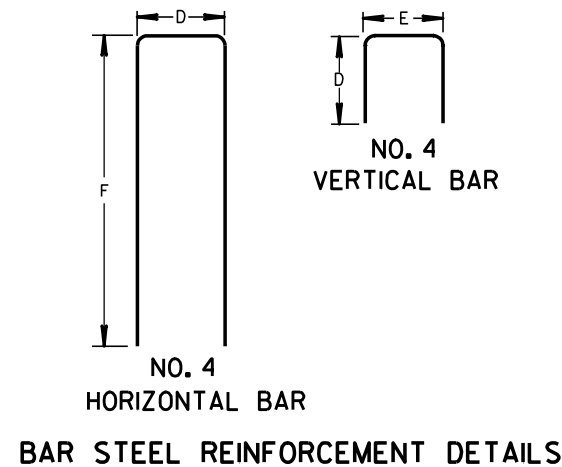
① THE OUTFALL PIPE UNDERDRAIN AND FITTINGS SHALL CONFORM TO THE REQUIREMENTS OF THE SPECIFICATION FOR POLY (VINYL CHORIDE) (PVC) PLASTIC DRAIN, WASTE AND VENT PIPE AND FITTINGS, ASTM DESIGNATION: D 2665, SCHEDULE 40 PVC OR THE STANDARD SPECIFICATION FOR TYPE PSM POLY (VINYL CHORIDE) (PVC) SEWER PIPE AND FITTINGS, ASTM DESIGNATION: D 3034, TYPE PSM SDR 23.5 PVC SEWER PIPE, ALL JOINTS SHALL BE SOLVENT WELDED.

THE OUTFALL PIPE INCLUDING ALL FITTINGS AND THE RODENT SHIELD SHALL BE MEASURED AND PAID FOR AS PIPE UNDERDRAIN UNPERFORATED.

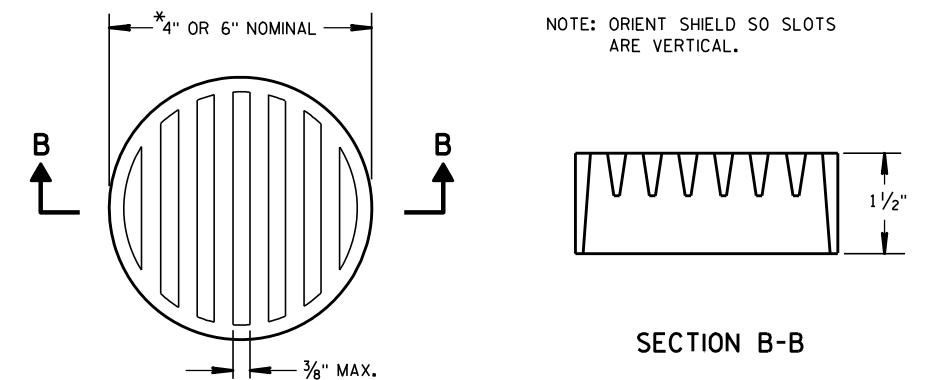
② THE RODENT SHIELD SHALL BE A PVC GRATE SIMILAR TO THIS DETAIL. THE GRATE IS COMMERCIALY AVAILABLE AS A FLOOR STRAINER. A PIPE COUPLING IS REQUIRED FOR THE ATTACHMENT OF THIS SHIELD TO THE OUTFALL PIPE. THE SHIELD SHALL BE FASTENED TO THE PIPE COUPLING WITH TWO OR MORE NO. 10 X 1-INCH STAINLESS STEEL SHEET METAL SCREWS.



PLAN VIEW

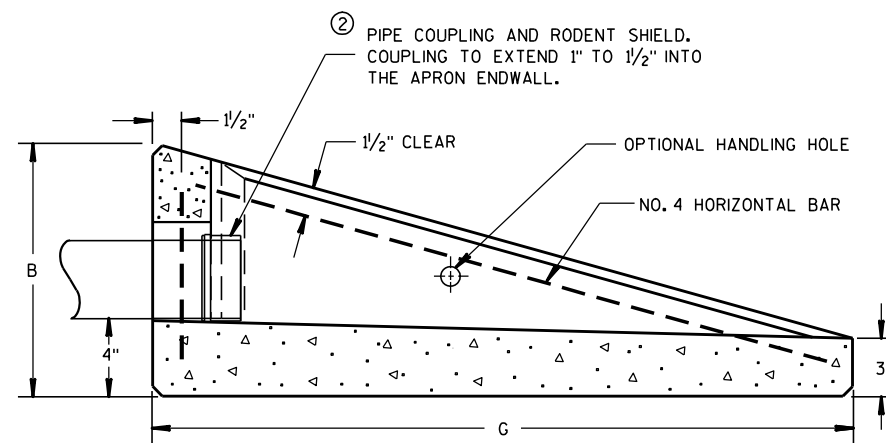


BAR STEEL REINFORCEMENT DETAILS

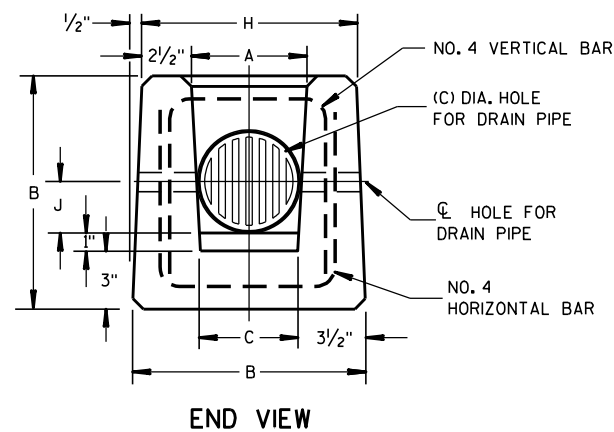


② RODENT SHIELD

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



SECTION A-A  
CONCRETE APRON ENDWALL FOR UNDERDRAIN

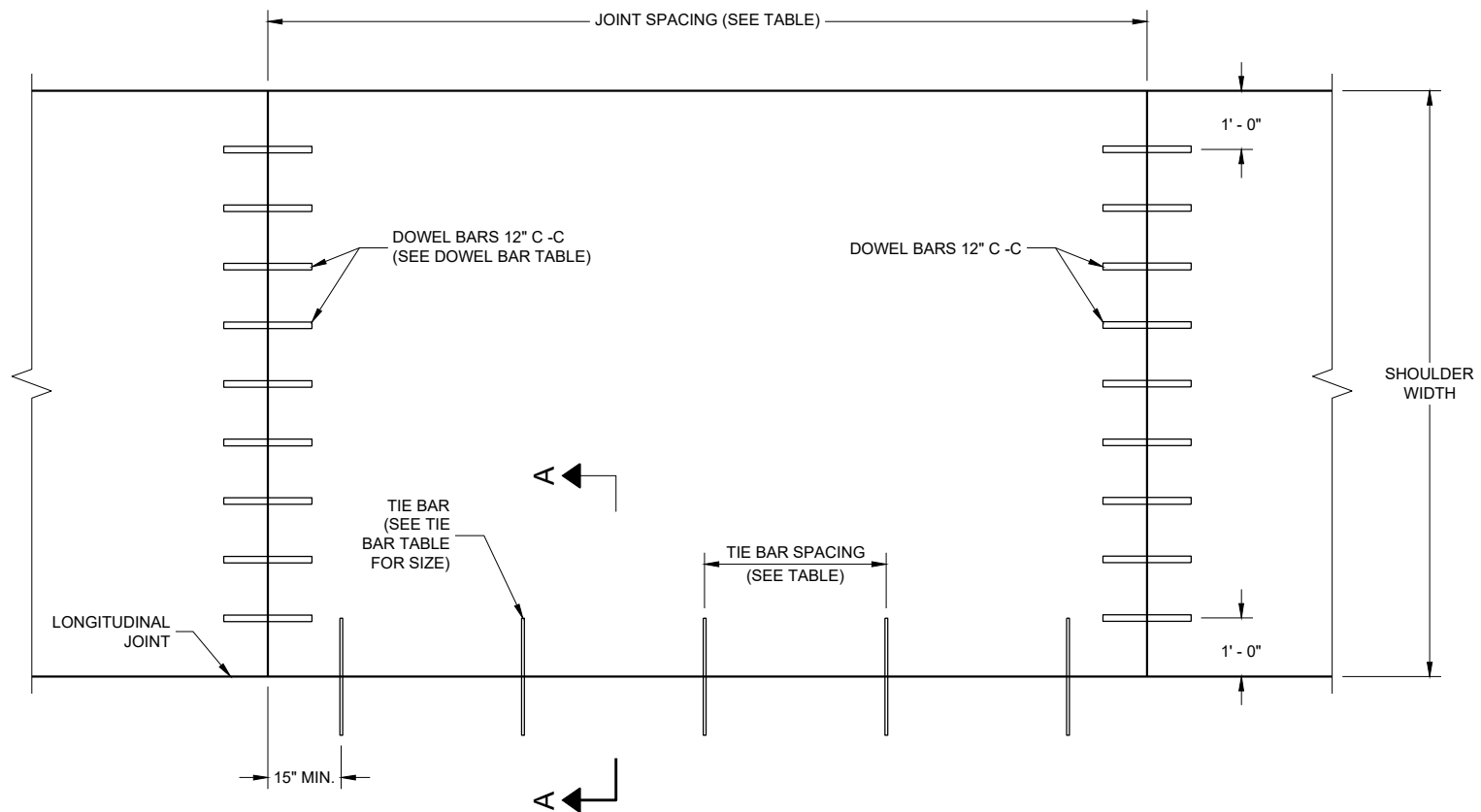


END VIEW

**REINFORCED  
CONCRETE APRON ENDWALL  
FOR PIPE UNDERDRAIN**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
3/10/98 /S/ Rory L. Rhinesmith  
DATE CHIEF ROADWAY DEVELOPMENT ENGINEER  
FHWA



**PLAN VIEW  
CONCRETE PAVEMENT SHOULDER**

**PAVEMENT DEPTH, DOWEL BAR SIZE  
AND JOINT SPACING TABLE**

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

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

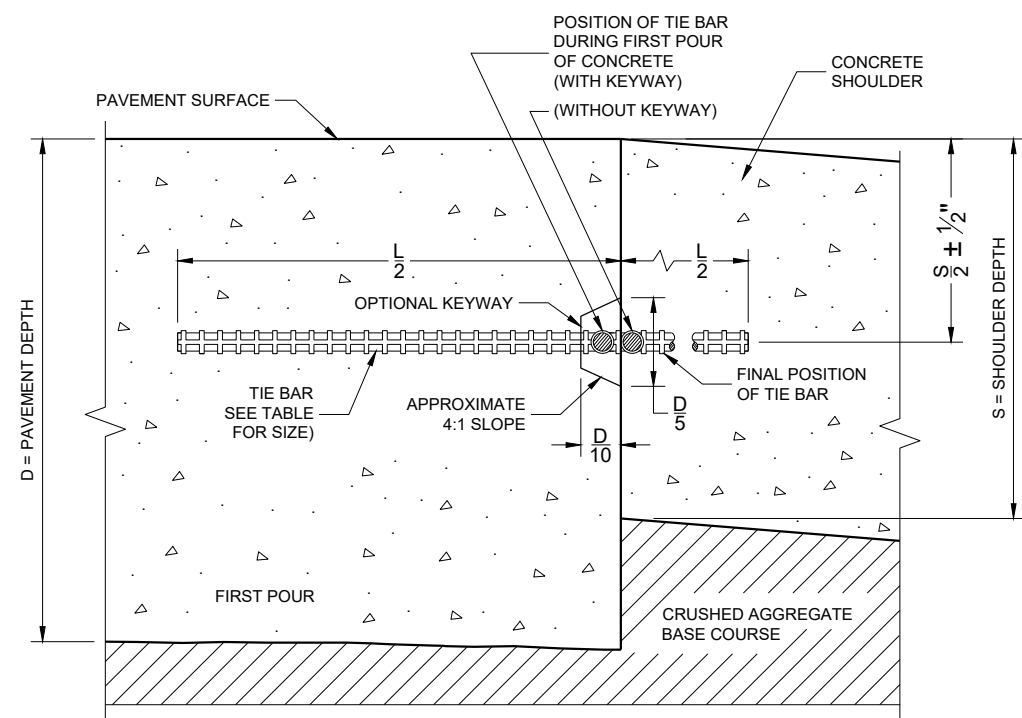
**GENERAL NOTES**

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

TRANSVERSE JOINT DETAILS ARE SHOWN ELSEWHERE IN THE PLAN.

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

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



**SECTION A - A  
LONGITUDINAL CONSTRUCTION JOINT**

**TIE BAR TABLE**

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

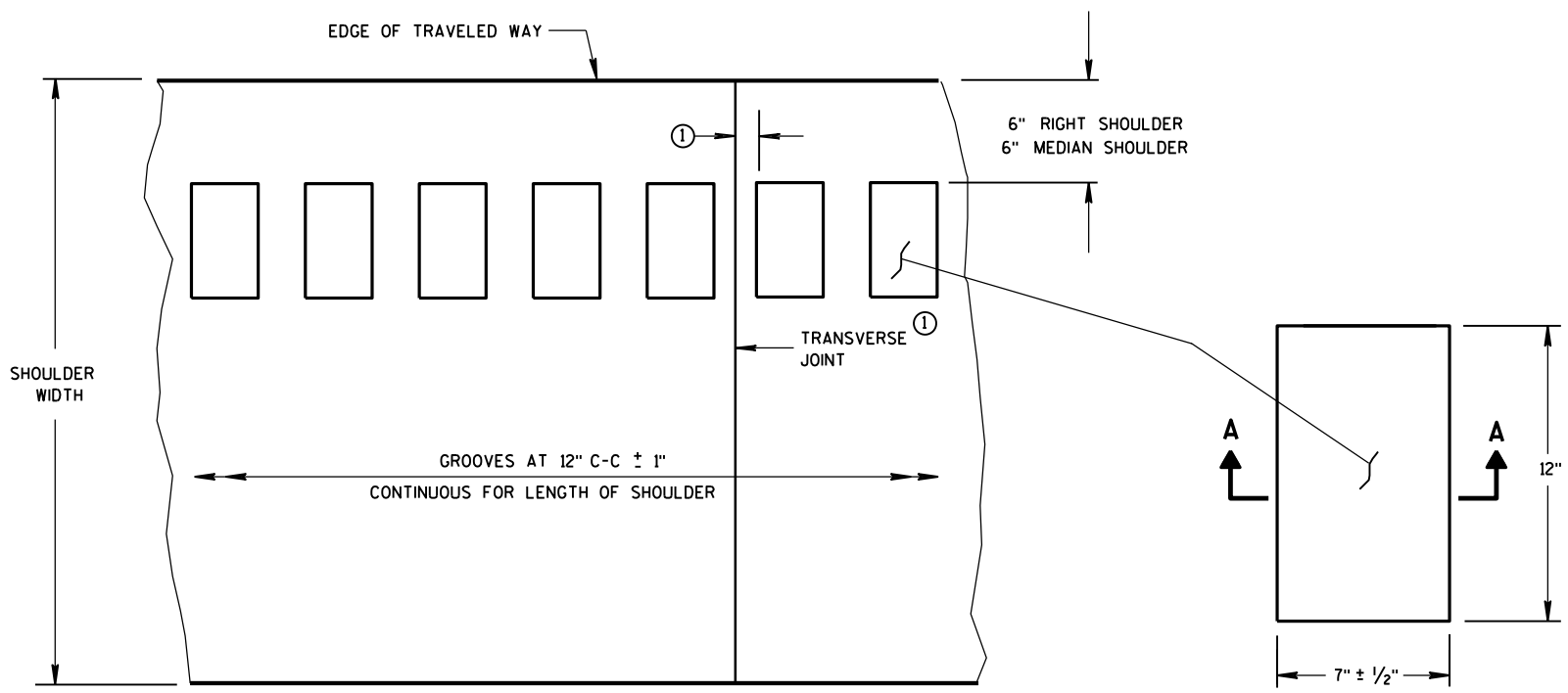
\* SUBSTITUTE BENT BATS AT LONGITUDINAL JOINTS WHEN EQUIPMENT LIMITATIONS DURING CONSTRUCTION WARRANT (e.g. AUXILIARY LANES OR TURN LANES).

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

**CONCRETE PAVEMENT  
SHOULDERS**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
November 2022 /S/ Peter Kemp  
DATE PAVEMENT SUPERVISOR



PLAN VIEW  
SHOULDER WITH GROOVES

PLAN VIEW  
(SINGLE GROOVE)

PLACEMENT DETAIL FOR MILLED RUMBLE STRIP

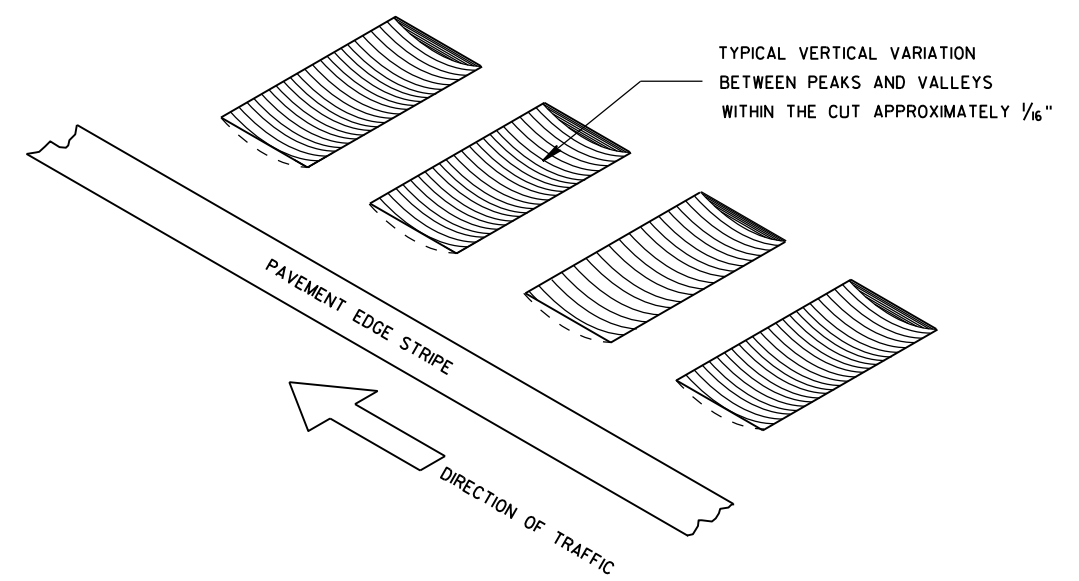
GENERAL NOTES

DETAILS OF CONSTRUCTION SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

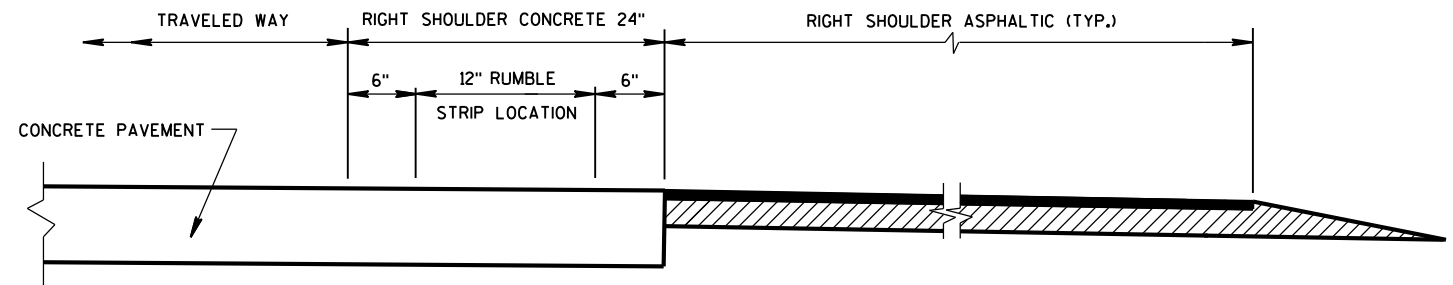
RUMBLE STRIPS ON EXPRESSWAYS

DO NOT INSTALL RUMBLE STRIPS ACROSS SIDE ROAD INTERSECTIONS, COMMERCIAL DRIVEWAYS, PRIVATE DRIVEWAYS OR ADJACENT TO RIGHT TURN LANES, LEFT TURN LANES, TURN LANE TAPERS, BRIDGE DECKS, BRIDGE APPROACHES, OR 100 FEET IN ADVANCE OF RAILROAD CROSSING. THE ATTACHED STANDARD DETAIL DRAWING SHOWS THE LOCATION OF THE RUMBLE STRIPS AT INTERCHANGE AREAS.

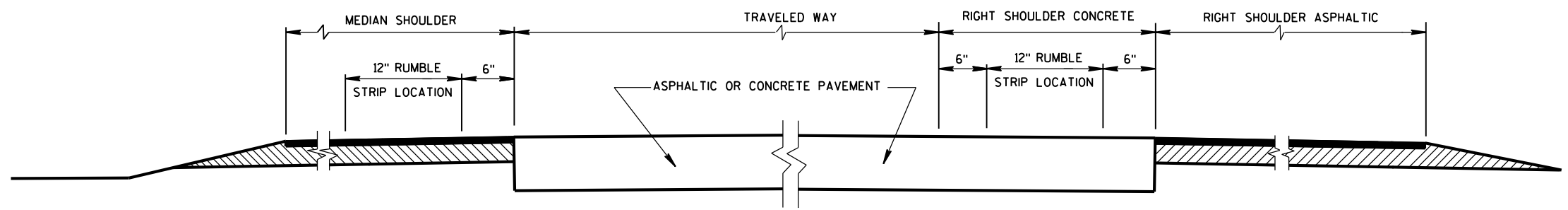
① CONCRETE PAVEMENT - RUMBLE STRIPS SHALL BE A MINIMUM OF 6" AWAY FROM TRANSVERSE JOINTS.



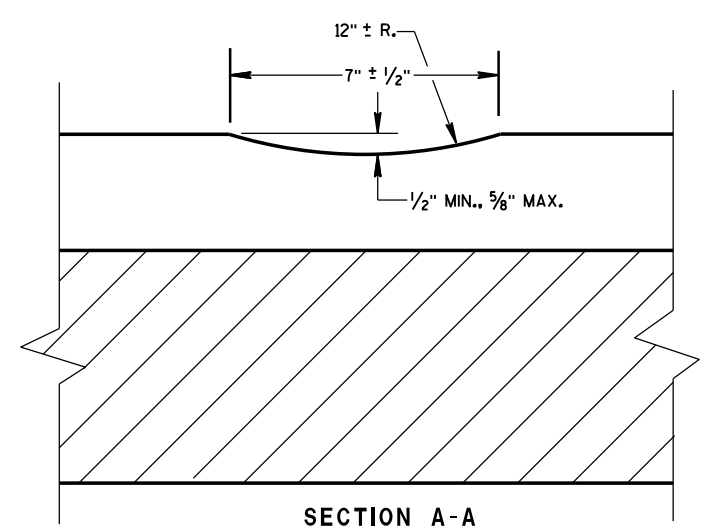
ISOMETRIC



SECTION VIEW  
CONCRETE PAVEMENT EXTENDS INTO RIGHT SHOULDER)



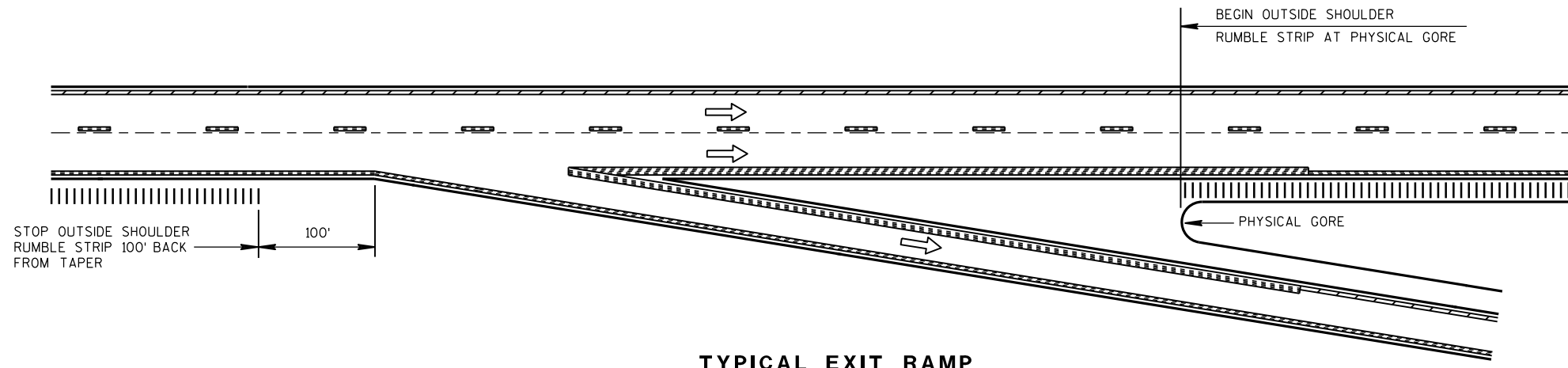
SECTION VIEW  
TYPICAL LOCATIONS OF SHOULDER RUMBLE STRIPS  
IN RURAL DIVIDED HIGHWAYS  
(ONE ROADWAY IS SHOWN)



SECTION A-A

SHOULDER RUMBLE STRIP,  
MILLING

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

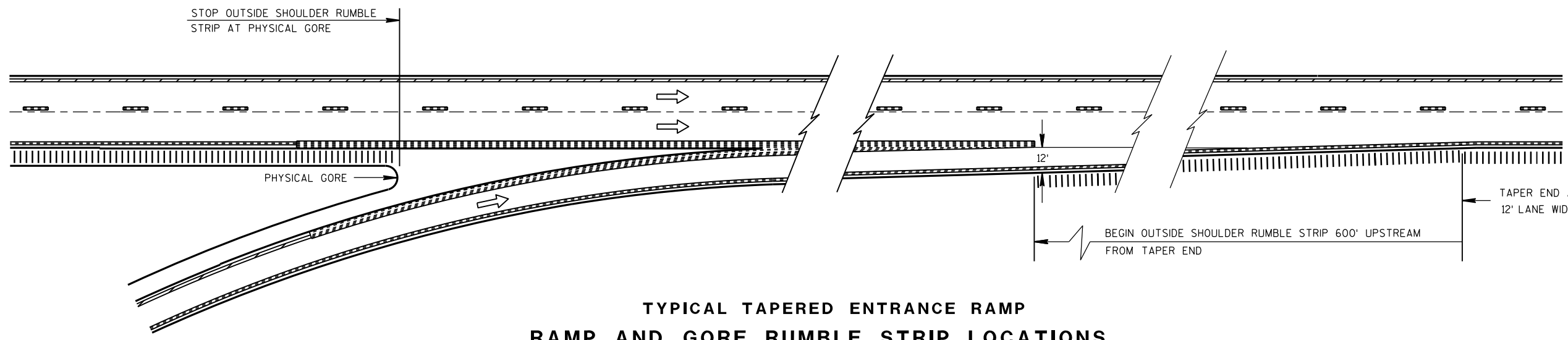


TYPICAL EXIT RAMP

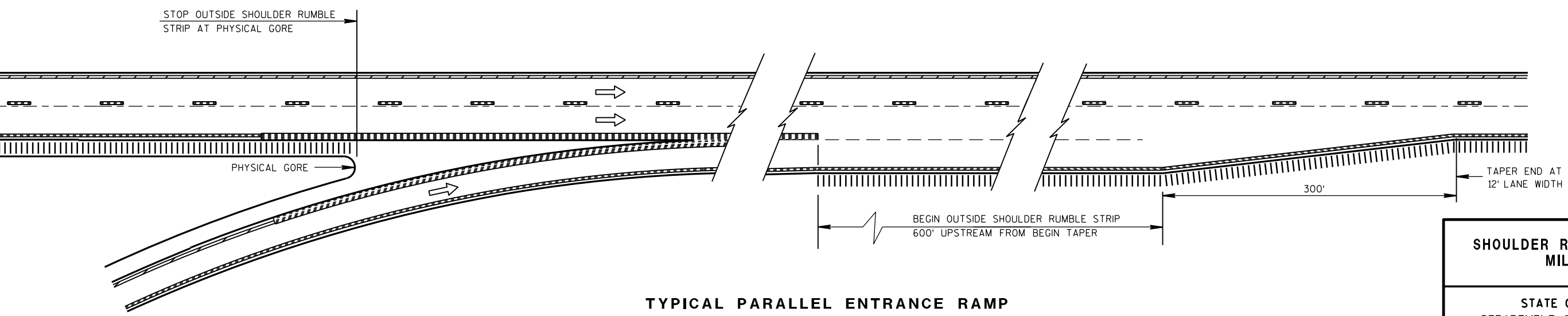
**NOTES:**

NO RUMBLE STRIP ON EXIT, DIRECTIONAL, OR ENTRANCE RAMPS, EXCEPT NEAR THE ENTRANCE TAPER END AND ALONG THE PARALLEL RAMP AREA AS SHOWN.  
PAVEMENT MARKING DETAILS AND SPECIFICATIONS ARE PROVIDED ELSEWHERE IN THE CONTRACT.

NOTE:  
ARROW SYMBOL ( → )  
SHOWS DIRECTION OF TRAVEL



TYPICAL TAPERED ENTRANCE RAMP  
RAMP AND GORE RUMBLE STRIP LOCATIONS



TYPICAL PARALLEL ENTRANCE RAMP  
RAMP AND GORE RUMBLE STRIP LOCATIONS

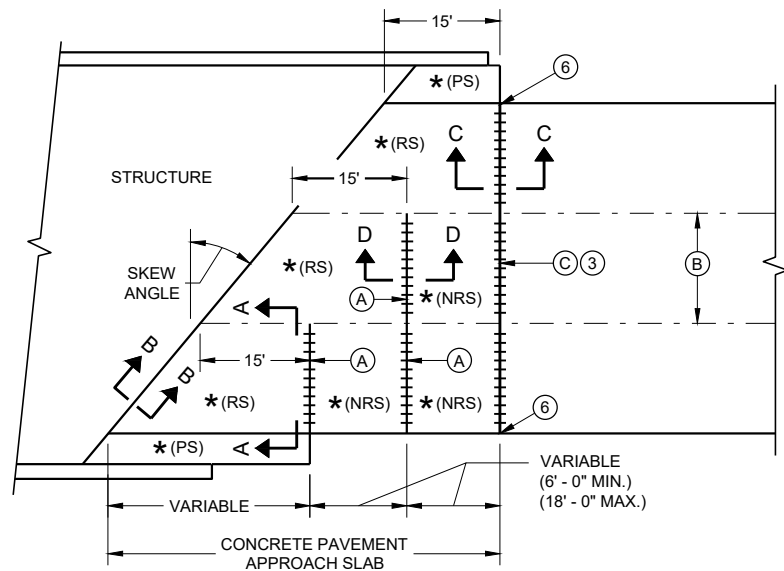
6

6

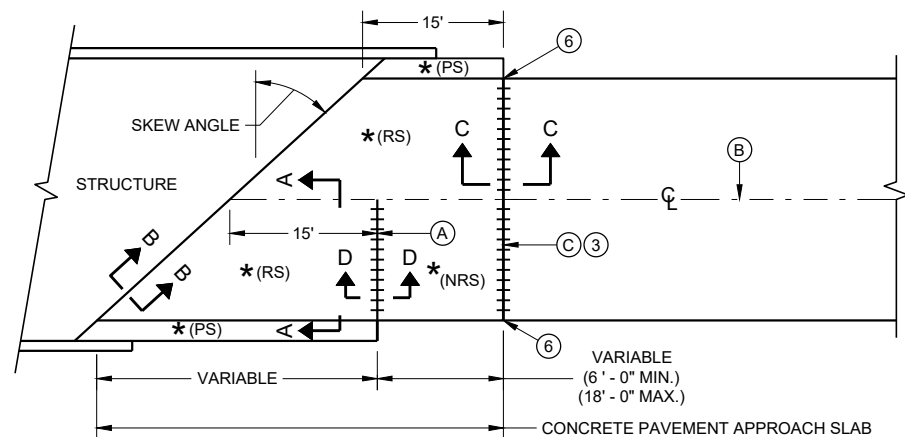
S.D.D. 13 A 5-5b

S.D.D. 13 A 5-5b

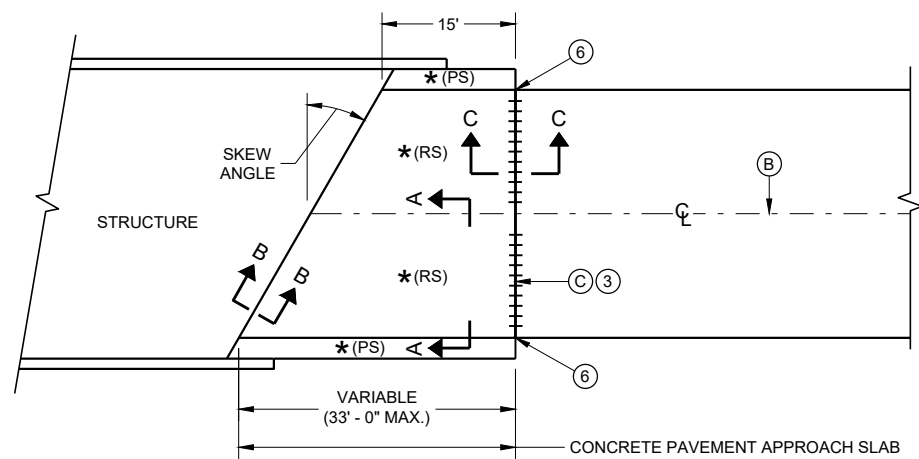
<b>SHOULDER RUMBLE STRIP, MILLING</b>	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED DATE 12/17/2012 FHWA	/s/ Jerry H. Zogg ROADWAY STANDARDS DEVELOPMENT ENGINEER



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

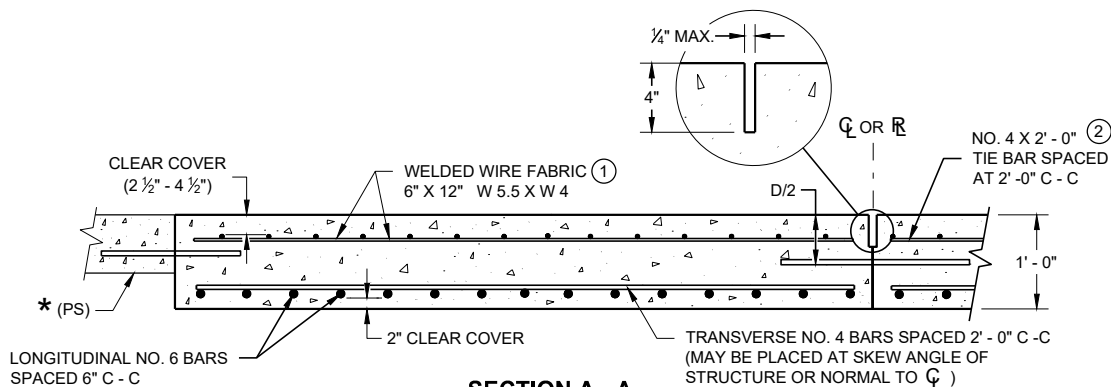


**SKews > 20°  
(PAVEMENT WIDTH ≤ 30')**

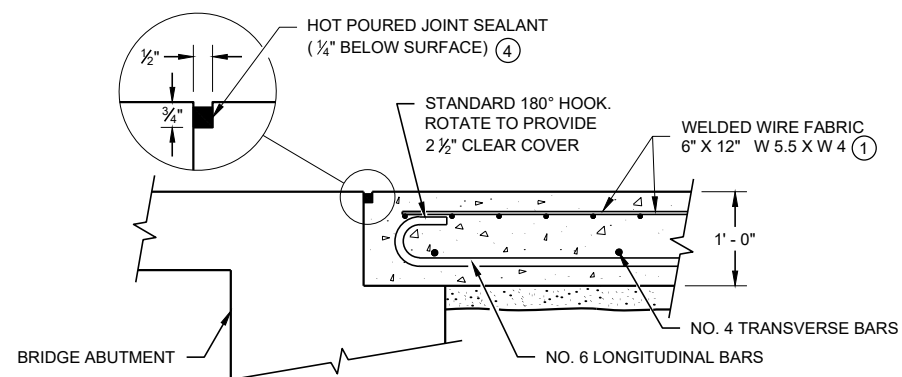


**SKews ≤ 20°  
(PAVEMENT WIDTH ≤ 30')**  
**APPROACH SLAB AND ADJACENT PAVEMENT**

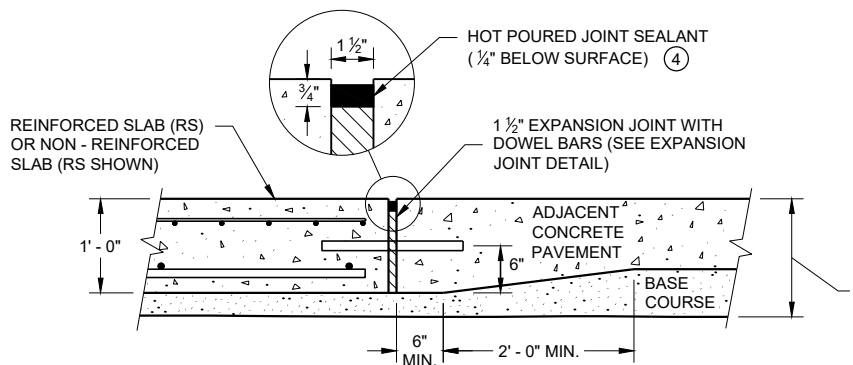
- \* (RS) = REINFORCED CONCRETE SLAB
- \* (PS) = PAVED CONCRETE SHOULDER OR CONCRETE DRAINAGE SLAB
- \* (NRS) - NON - REINFORCED CONCRETE SLAB
- \*\*\* STANDARD DOWEL BAR DIAMETER (SEE SDD 13C11 AND SDD 13C13)



**SECTION A - A  
REINFORCEMENT POSITIONING DETAIL**



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



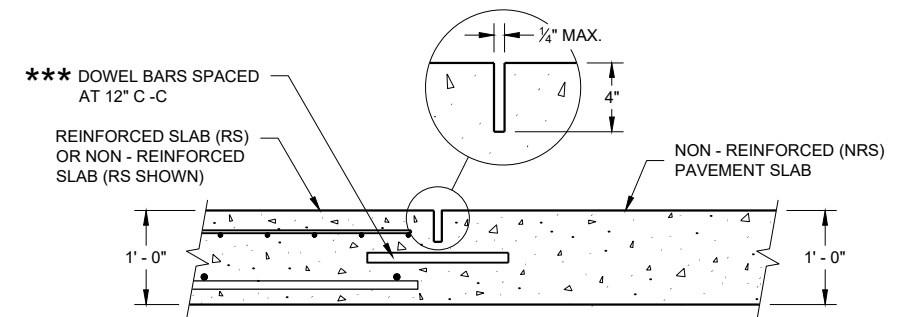
**SECTION C - C  
TRANSITION DETAIL  
APPROACH SLAB TO ADJACENT PAVEMENT**

**GENERAL NOTES**

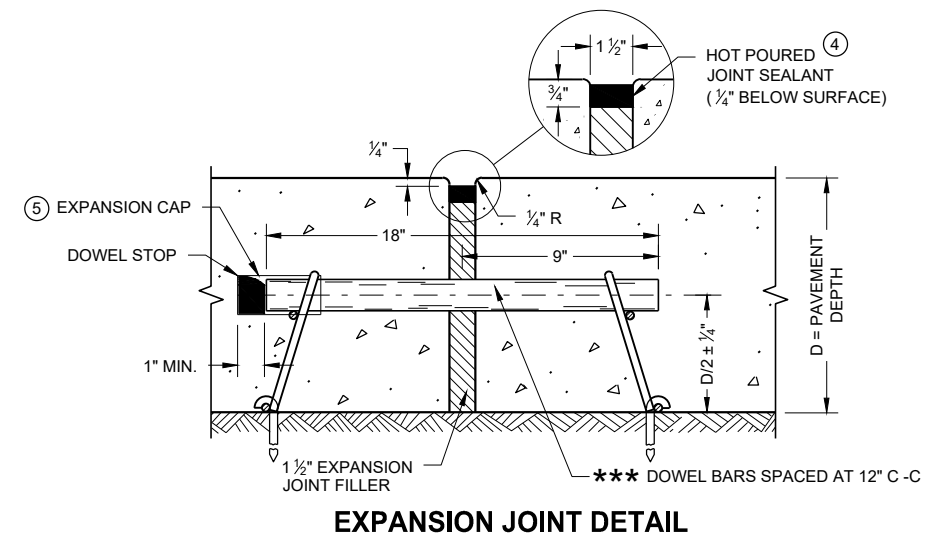
THE CONTRACTOR MAY SPLICE NO. 6 BARS IN THE APPROACH SLAB FOR SKEWED STRUCTURES ONLY. STAGGER SPLICES WITH A MAXIMUM OF ONE SPLICE PER BAR. THE LENGTH OF LAP IS 20 INCHES.

TACK WELD DOWEL BARS TO THE BASKETS ON ALTERNATE ENDS.

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



**SECTION D - D  
CONTRACTION JOINT**



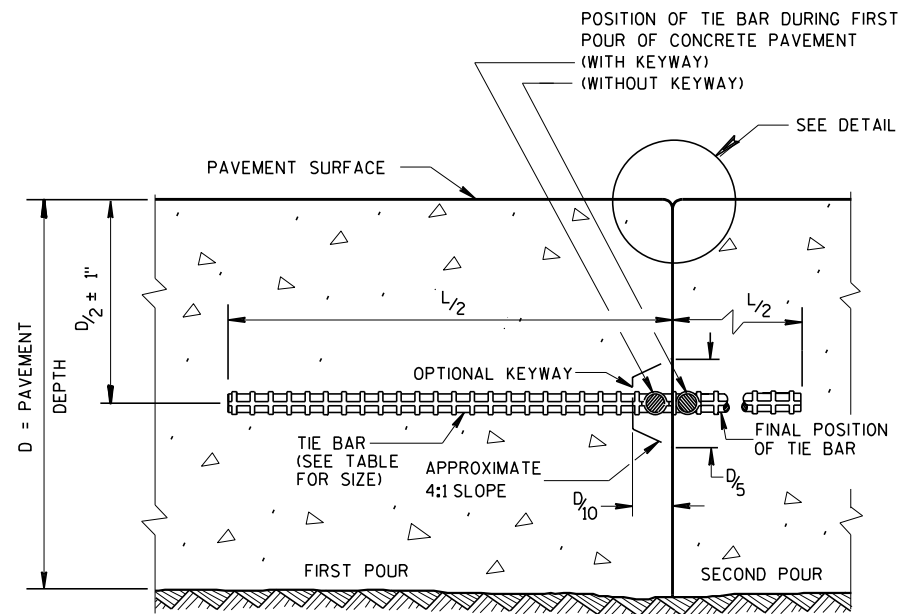
**EXPANSION JOINT DETAIL**

**CONCRETE PAVEMENT  
APPROACH SLAB**

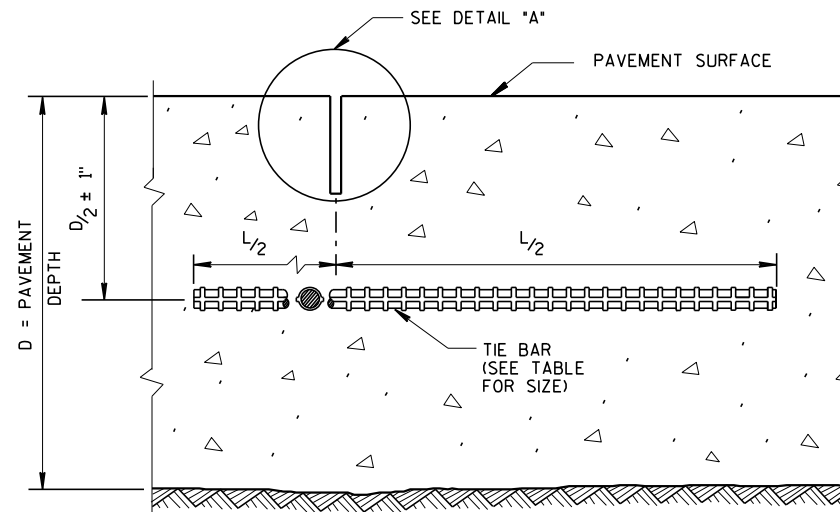
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

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

FHWA



**CONSTRUCTION JOINT**



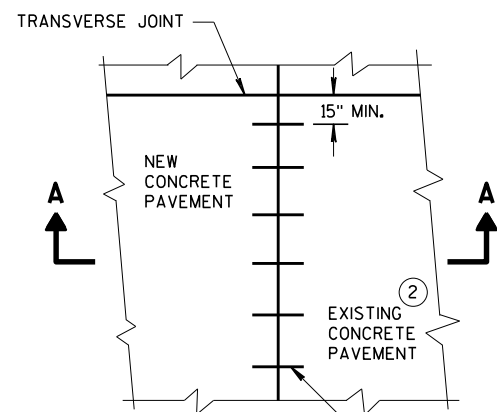
**SAWED JOINT**

**GENERAL NOTES**

CREATE A LONGITUDINAL JOINT FOR PAVEMENT WIDTHS GREATER THAN 15 FEET.

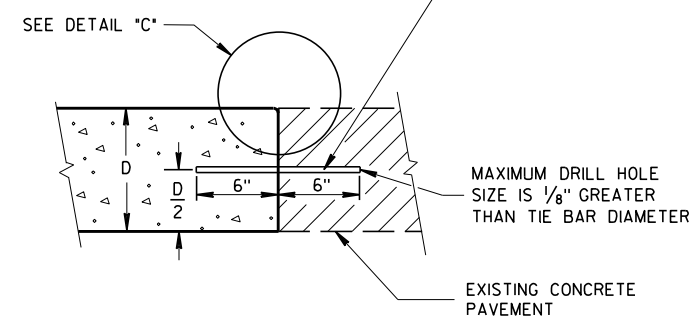
CORRELATE LONGITUDINAL JOINTS WITH LANE LINES WHEN POSSIBLE.

- ① ANCHOR TIE BARS INTO DRILLED HOLES WITH AN EPOXY.
- ② PAVEMENT THAT WAS IN PLACE PRIOR TO THE CONTRACT.

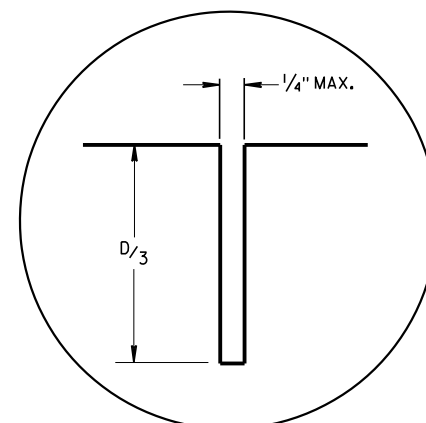


**PLAN VIEW**

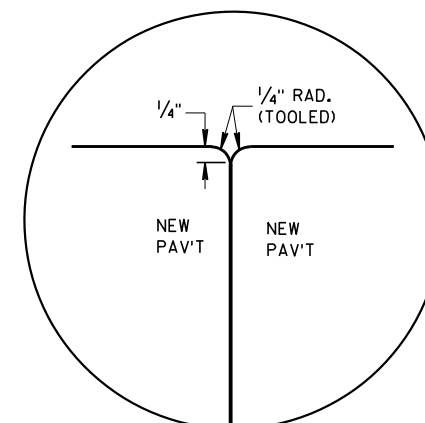
NO. 6 TIE BARS SPACED 30" C-C, INSTALLED PERPENDICULAR TO THE LONGITUDINAL JOINT. ①



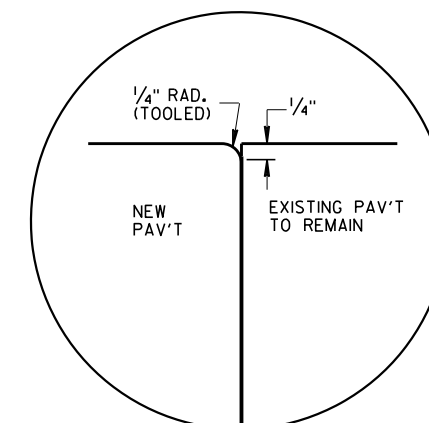
**SECTION A-A  
LONGITUDINAL CONSTRUCTION JOINT  
TIE BARS ANCHORED  
INTO EXISTING PAVEMENT**



**DETAIL "A"**



**DETAIL "B"**



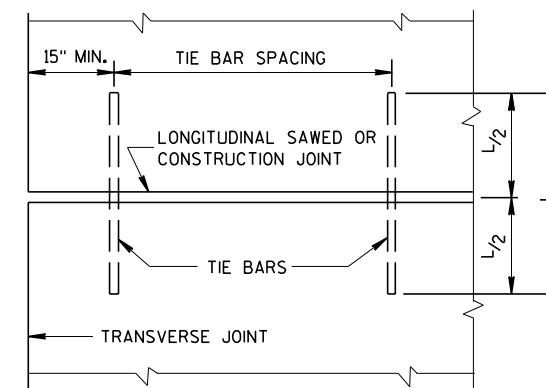
**DETAIL "C"**

**TIE BAR TABLE**

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

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

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



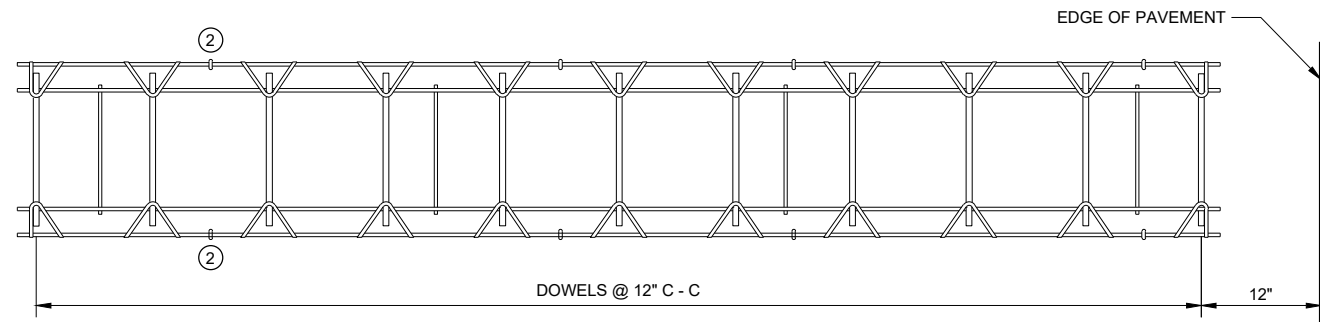
**PLAN VIEW  
SHOWING LOCATION OF TIE BARS**

**CONCRETE PAVEMENT  
LONGITUDINAL JOINTS AND TIES**

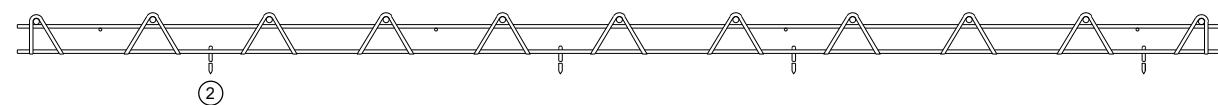
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

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



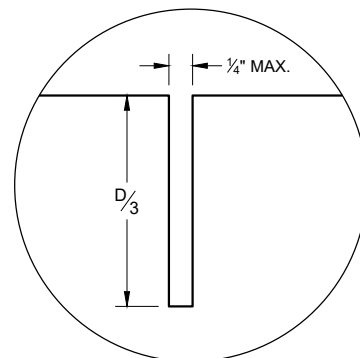


**PLAN VIEW**



**SIDE VIEW**

**CONTRACTION JOINT DOWEL ASSEMBLY** ①



**JOINT DETAIL**

**GENERAL NOTES**

**CONTRACTION JOINTS**

CONSTRUCT TRANSVERSE CONTRACTION JOINTS NORMAL TO THE CENTERLINE. SHOW THE LOCATION OF CONTRACTION JOINTS THROUGH INTERSECTIONS ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

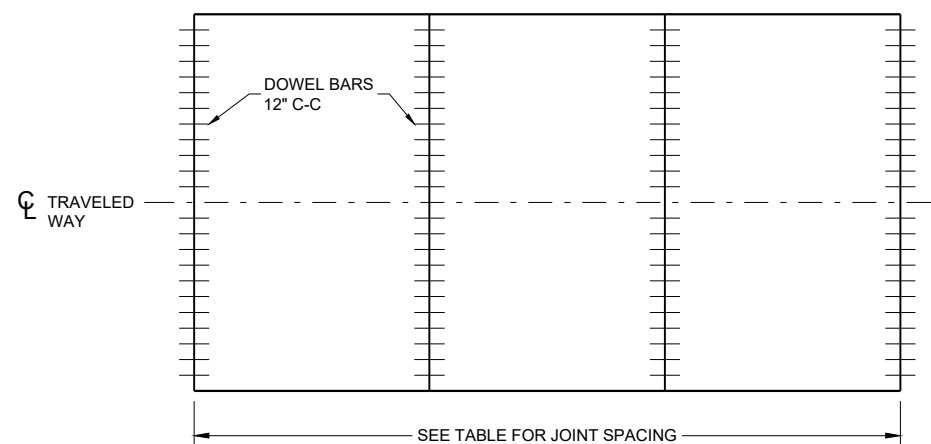
INSTALL DOWEL BARS PARALLEL TO THE PAVEMENT CENTERLINE AND PAVEMENT SURFACE.

FOR PAVEMENT SLABS OF VARYING WIDTHS, LOCATE THE OUTER MOST DOWEL BAR SO THAT THE CENTER OF THE BAR IS A MINIMUM OF 6 INCHES FROM AND A MAXIMUM OF 18 INCHES FROM THE FREE EDGE OF PAVEMENT.

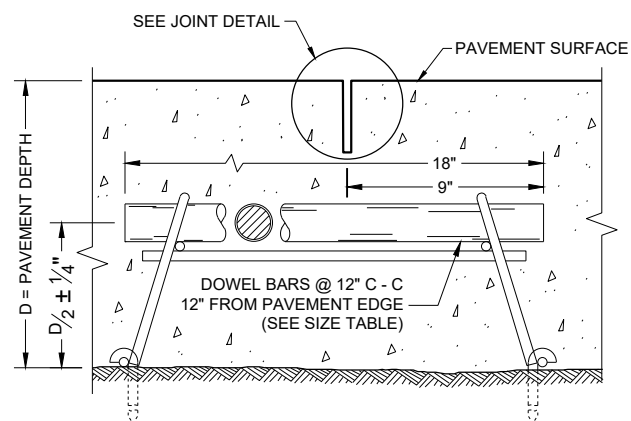
**CONSTRUCTION JOINTS**

LOCATE CONSTRUCTION JOINTS A MINIMUM OF 6 FEET FROM THE NEAREST CONTRACTION JOINT AND ALIGN PARALLEL TO THE CONTRACTION JOINTS.

- ① OBTAIN THE ENGINEER'S APPROVAL FOR THE USE OF ALTERNATIVE DESIGNS OF THE DOWEL ASSEMBLY. USE MECHANICAL DOWEL BAR INSERTERS OR DOWEL ASSEMBLIES WHEN CONSTRUCTION CONTRACTION JOINTS.
- ② SECURE BASKETS WITH ANCHORS TO HOLD DOWEL BARS IN THE CORRECT POSITION AND ALIGNMENT. TYPE, LOCATION, NUMBER AND LENGTH OF ANCHORS ARE DEPENDENT UPON FIELD CONDITIONS.
- ③ FORM OR SAW CONSTRUCTION JOINTS. PROVIDE A 1/4" RADIUS AT FORMED JOINTS.
- ④ PROVIDE A SMOOTH VERTICAL FACE FOR THE ENTIRE DEPTH OF THE PAVEMENT WHEN FORMING CONSTRUCTION JOINTS.
- ⑤ INSTALL DOWEL BARS AT CONSTRUCTION JOINTS BY FORMING OR DRILLING. INSTALL FORMED DOWEL BARS 12 INCHES C - C AND 12 INCHES FROM PAVEMENT EDGE. REMOVE EXCESS CONCRETE FROM THE FREE END OF THE DOWEL BAR IF DOWEL BARS ARE FORMED THROUGH A HEADER BOARD. INSTALL DRILLED DOWEL BARS ACCORDING TO THE "DRILLED DOWEL BAR CONSTRUCTION JOINT" DETAIL.
- ⑥ APPLY A THIN UNIFORM COATING OF SURFACE TREATMENT TO THE FREE END OF DOWEL BARS TO PREVENT BONDING.
- ⑦ ANCHOR DOWEL BARS AND TIE BARS INTO DRILLED HOLES WITH AN EPOXY. MAXIMUM DRILLED HOLE SIZE IS 1/8" GREATER THAN DOWEL BAR DIAMETER, 9 INCHES IN LENGTH.



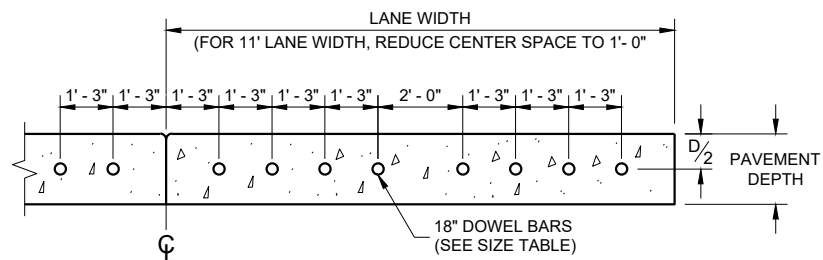
**CONTRACTION JOINT LOCATIONS**



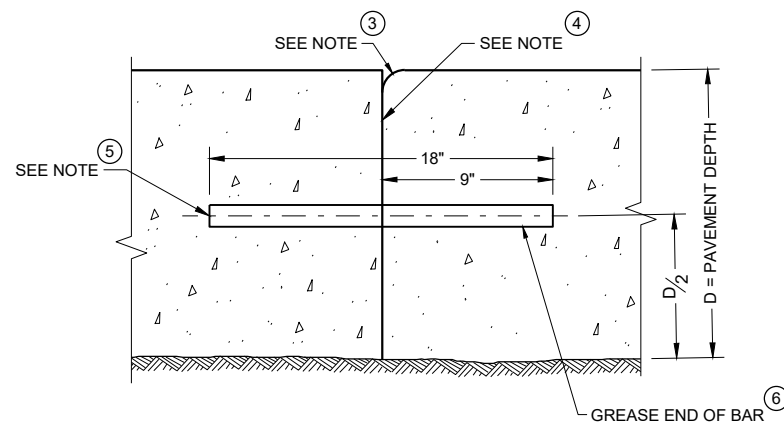
**DOWELED CONTRACTION JOINT**

**PAVEMENT DEPTH, DOWEL BAR SIZE AND JOINT SPACING TABLE**

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



**DRILLED DOWEL BAR CONSTRUCTION JOINT** ⑦



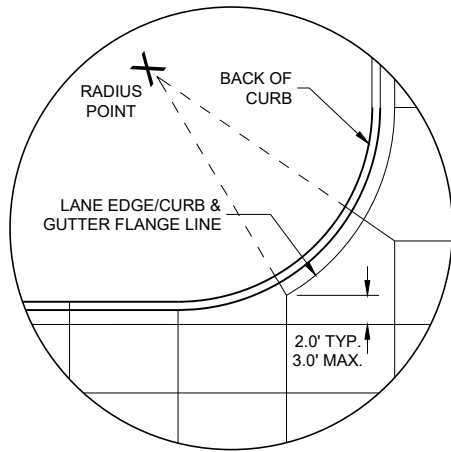
**TRANSVERSE CONSTRUCTION JOINT**

**URBAN DOWELED CONCRETE PAVEMENT**

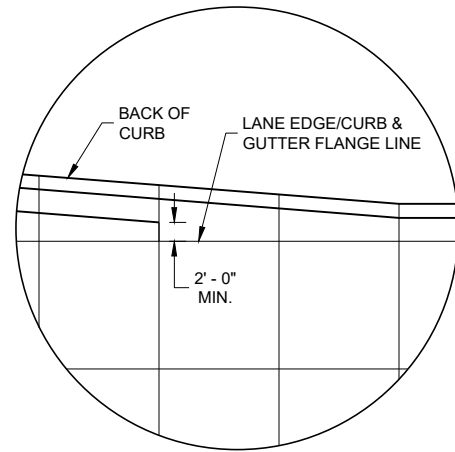
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
November 2022 /S/ Peter Kemp P.E.  
DATE PAVEMENT SUPERVISOR

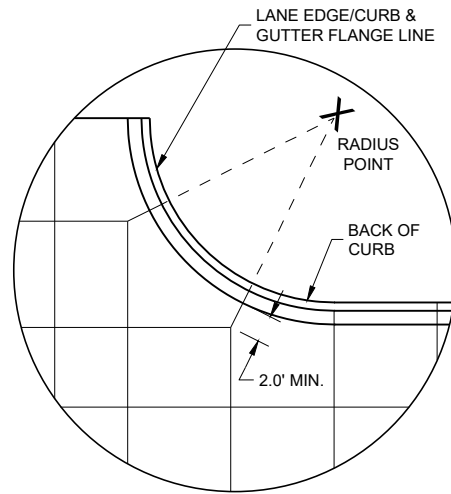
FHWA



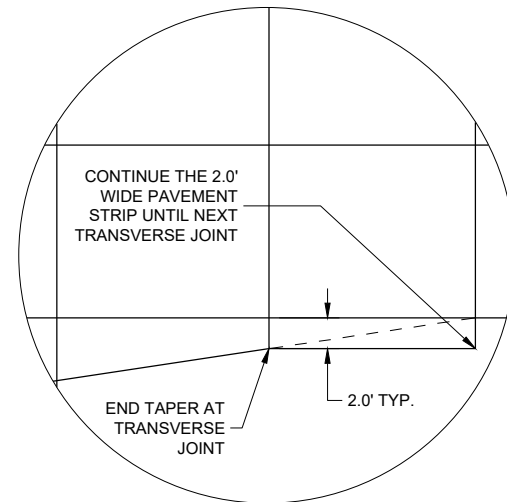
DETAIL "A"



DETAIL "B"



DETAIL "C"

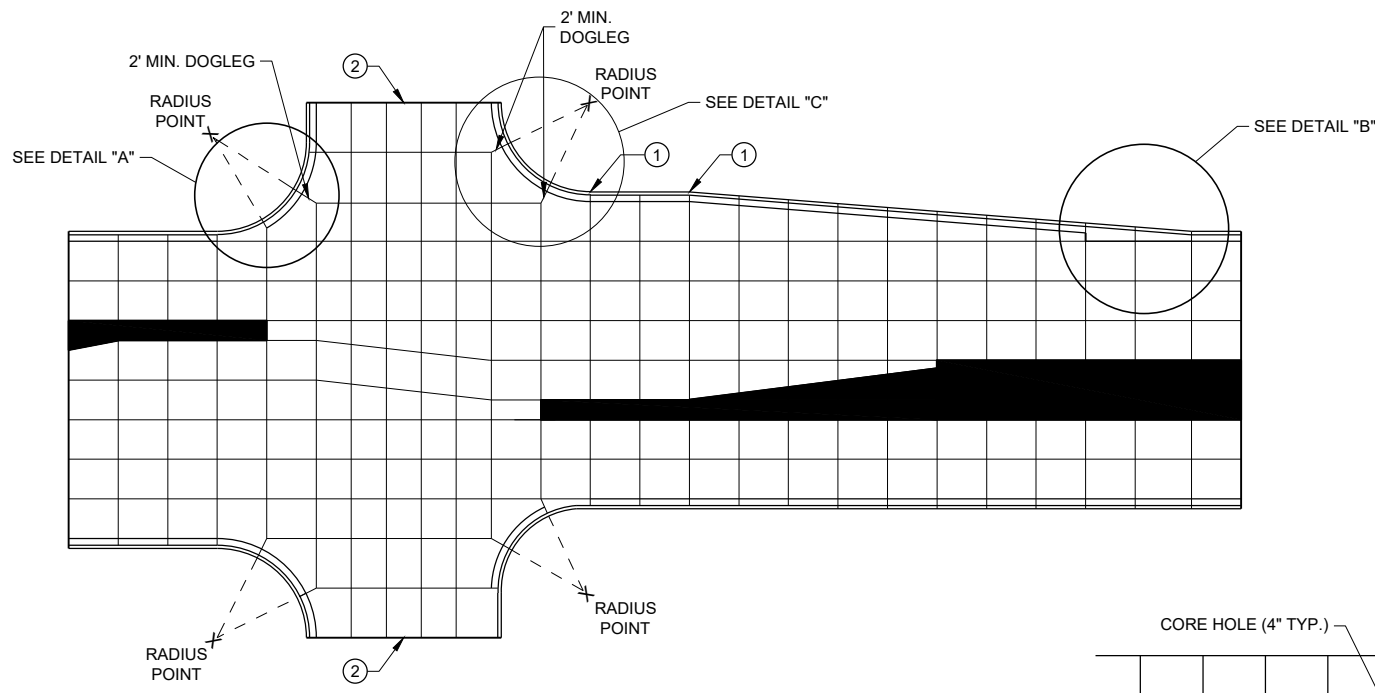


DETAIL "D"

**GENERAL NOTES**

- THE PRIMARY ROADWAY CONTROLS THE TRANSVERSE JOINT PATTERN.
- ALIGN NEW JOINTS WITH EXISTING JOINTS OR CRACKS.
- CONSTRUCT TRANSVERSE JOINTS PERPENDICULAR TO THE ROADWAY.
- ADJUST TRANSVERSE JOINTS TO ALIGN WITH UTILITY FIXTURES (E.G MANHOLES AND INLETS) IN THE PAVEMENT STRUCTURE WHEN POSSIBLE. WATER VALVES DO NOT REQUIRE JOINT ADJUSTMENT.
- AVOID SLABS LESS THAN 2 FEET WIDE OR GREATER THAN 15 FEET WIDE.
- SEE TABLE FOR TRANSVERSE JOINT SPACING. JOINT SPACING SPECIFIED IS MAXIMUM AND ACTUAL SPACING CAN BE ADJUSTED TO ACCOMMODATE INTERSECTIONS.
- AVOID ANGLES LESS THAN 60° BY DOGLEGGING JOINTS THROUGH CURVE RADIUS POINTS. USE 90° ANGLES WHEN POSSIBLE.
- CORRELATE LONGITUDINAL JOINTS WITH LANE LINES WHEN POSSIBLE.

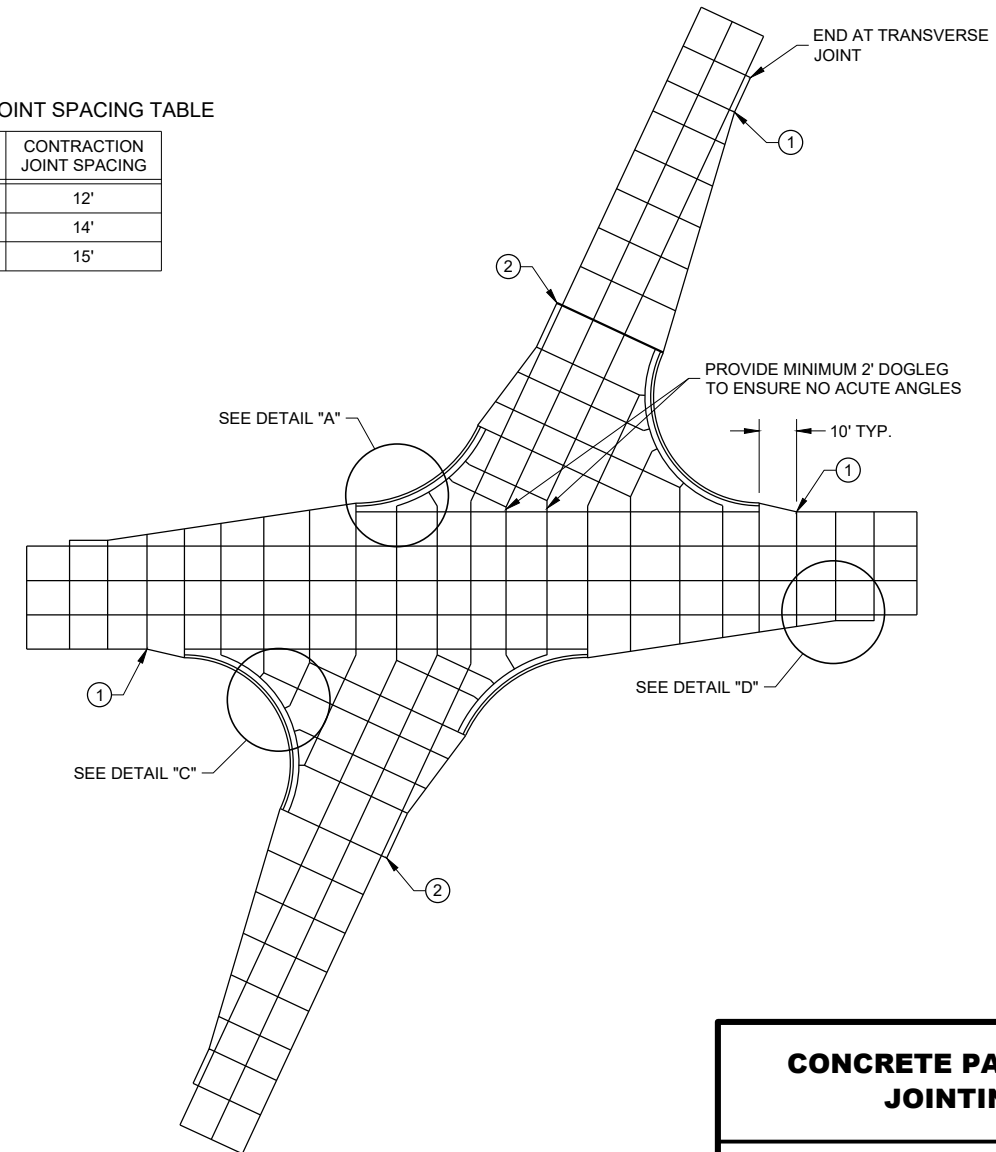
- ① PROVIDE TRANSVERSE JOINTS AT ALL PAVEMENT WIDTH CHANGES.
- ② CONSTRUCT DOWELED EXPANSION JOINT ON THE SIDE ROAD OF AN INTERSECTION IF THE SIDE ROAD IS CONCRETE PAVEMENT AND GREATER THAN 300 FEET IN LENGTH. ALIGN EXPANSION JOINT WITH EDGE OF RADIUS.
- ③ THE ENGINEER MAY APPROVE SLIGHT VARIATIONS FROM THESE JOINTING DETAILS.



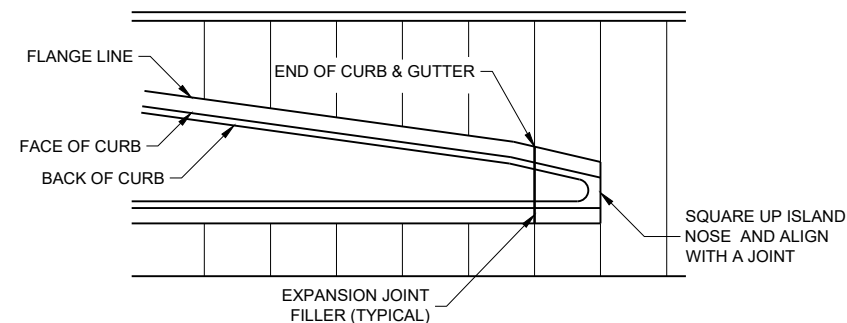
STANDARD INTERSECTION

PAVEMENT DEPTH AND JOINT SPACING TABLE

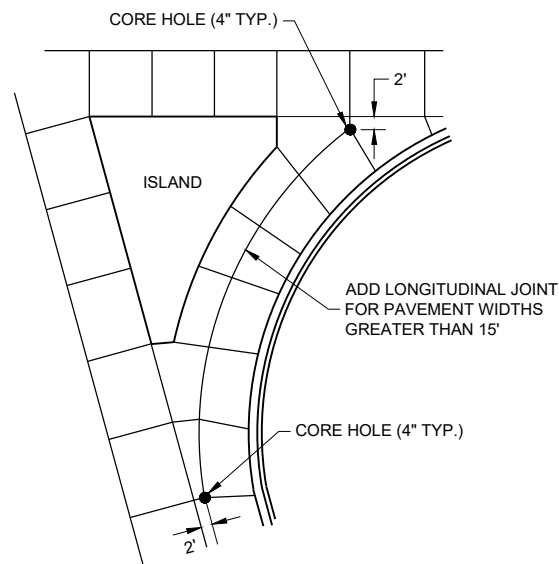
PAVEMENT DEPTH (D)	CONTRACTION JOINT SPACING
6", 6 1/2"	12'
7", 7 1/2"	14'
8" & ABOVE	15'



SKewed INTERSECTION



APPROACH TO MEDIAN



LARGE RIGHT TURN

**CONCRETE PAVEMENT JOINTING**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

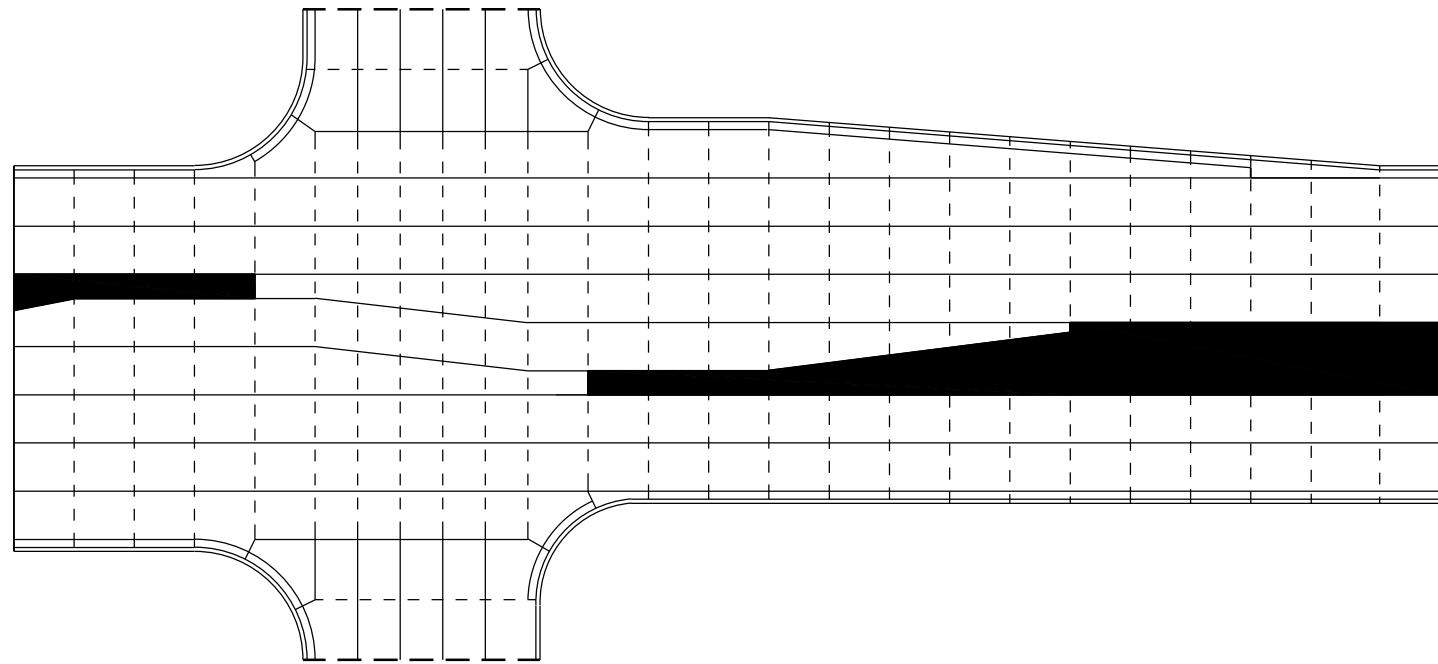
**LEGEND**

- - - - - POTENTIAL DOWELED EXPANSION JOINT
- - - - - DOWELED JOINT
- TIED JOINT

**GENERAL NOTES**

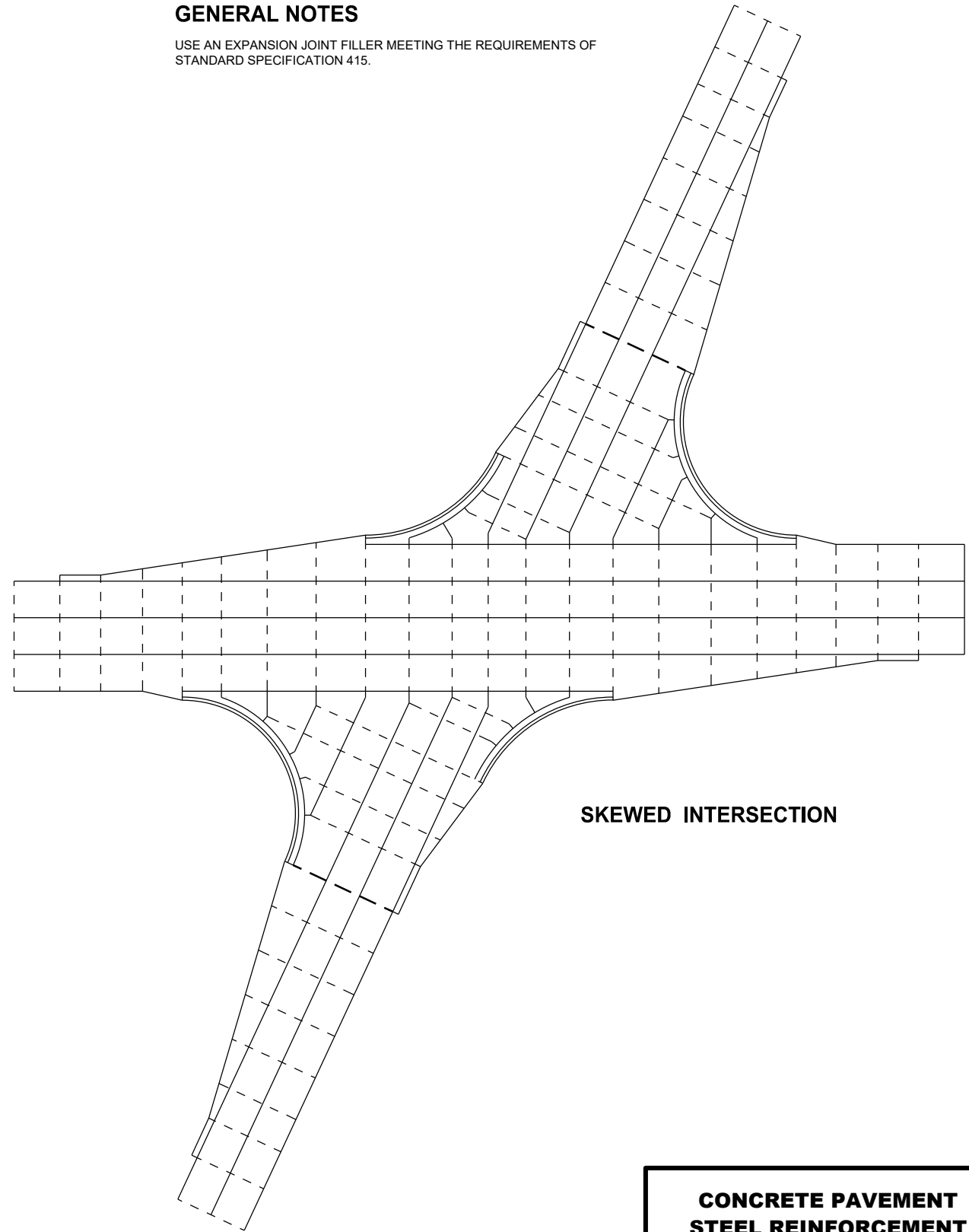
USE AN EXPANSION JOINT FILLER MEETING THE REQUIREMENTS OF STANDARD SPECIFICATION 415.

6



**STANDARD INTERSECTION**

6



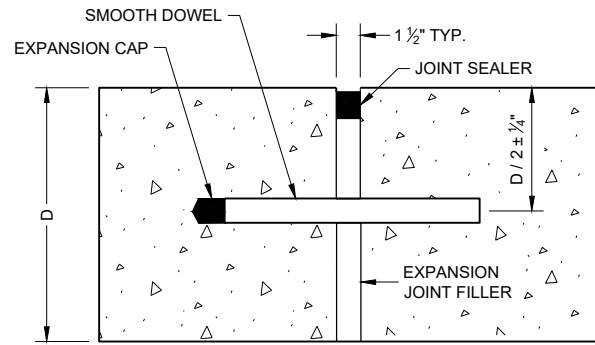
**SKEWED INTERSECTION**

**SDD 13C18 - 07b**

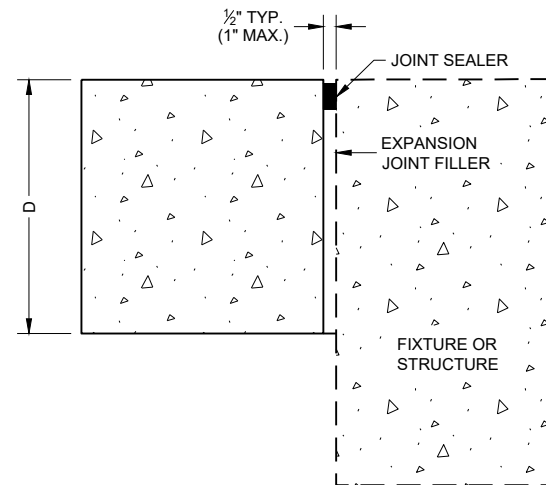
**SDD 13C18 - 07b**

**CONCRETE PAVEMENT  
STEEL REINFORCEMENT**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



**DOWELED TRANSVERSE** ①



**UNTIED - LONGITUDINAL**

**EXPANSION JOINTS**

**TIE BAR TABLE**

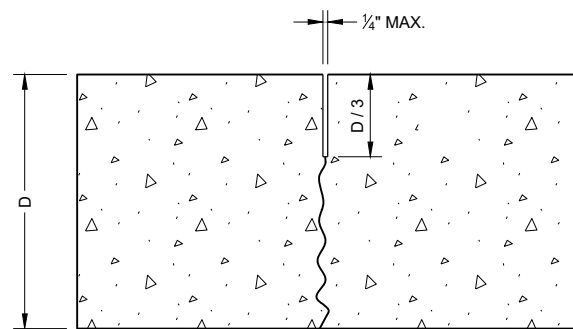
PAVEMENT DEPTH (D)	TIE BAR SIZE	TIE BAR LENGTH (L)	MAX. TIE BAR SPACING
< 10 1/2"	NO. 4	30"	36"
≥ 10 1/2"	NO. 5	36"	36"
	NO. 4*	30"	24" **

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

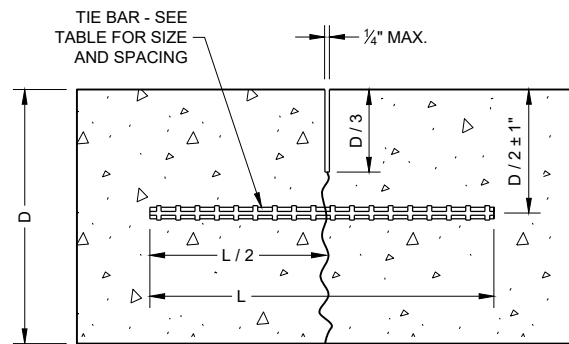
\*\* CONFORM TO 15" MINIMUM SPACING FROM TRANSVERSE JOINTS; SPACING BETWEEN TIE BARS WILL BE 30" AT TRANSVERSE JOINTS.

**GENERAL NOTES**

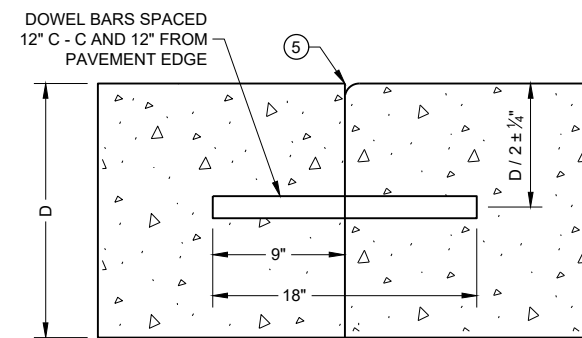
- ① USE DOWELED EXPANSION JOINTS ON SIDE ROADS AT INTERSECTIONS (TO ISOLATE THE SIDE ROAD FROM THE THROUGH STREET) IF THE SIDE ROAD IS CONCRETE PAVEMENT AND GREATER THAN 300 FEET IN LENGTH.
- ② SPACE CONTRACTION JOINTS IN ACCORDANCE WITH SDD 13C4, 13C11 OR 13C13.
- ③ LOCATE CONSTRUCTION JOINTS A MINIMUM OF 6 FEET FROM THE NEAREST CONTRACTION JOINT AND ALIGN PARALLEL TO CONTRACTION JOINTS.
- ④ CONSTRUCTION JOINTS CAN BE FORMED OR SAWED.
- ⑤ IF JOINT IS FORMED, PROVIDE A 1/4" RADIUS.
- ⑥ ANCHOR TIE BARS INTO DRILLED HOLES WITH AN EPOXY.



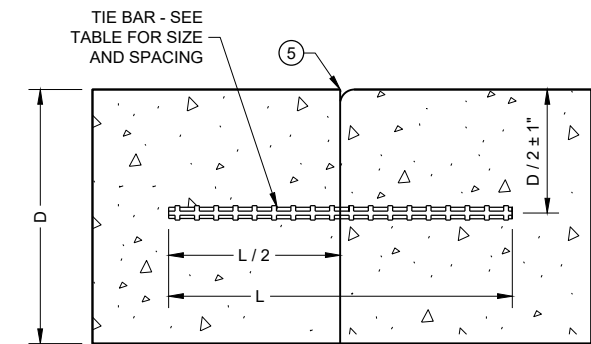
**UNDOWELED TRANSVERSE**



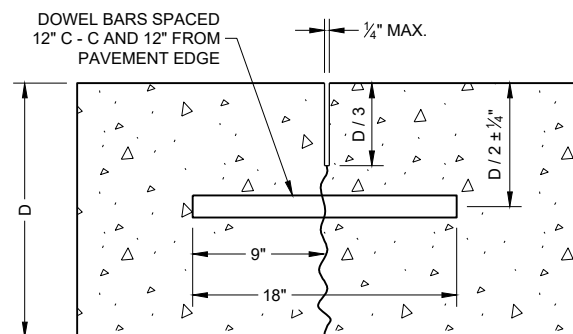
**TIED LONGITUDINAL**



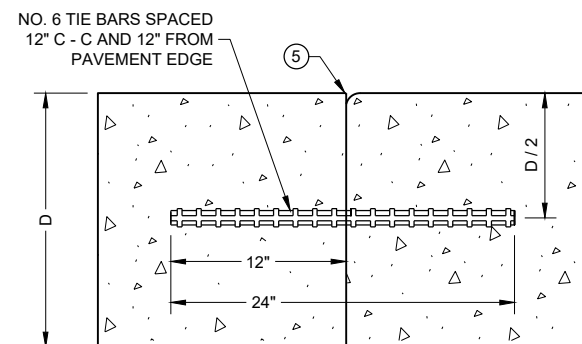
**DOWELED TRANSVERSE** ③



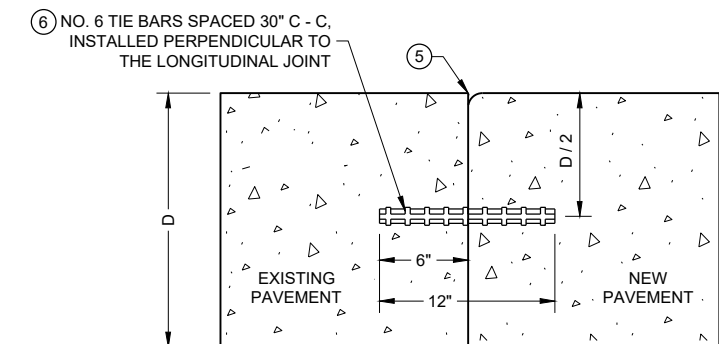
**TIED LONGITUDINAL**



**DOWELED TRANSVERSE**



**TIED TRANSVERSE** ③  
(FOR USE ON NON-DOWELED PAVEMENTS ONLY)



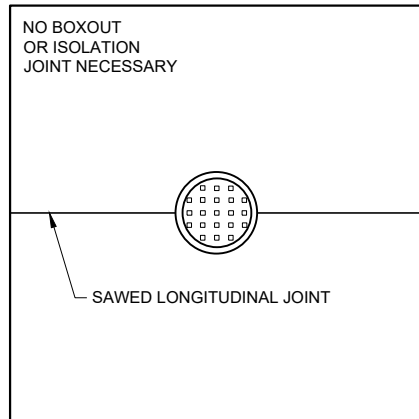
**TIED LONGITUDINAL TO EXISTING**

**CONTRACTION JOINTS** ②

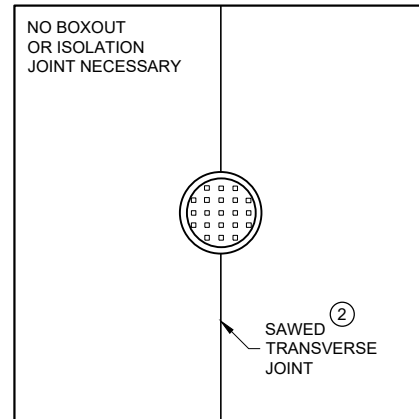
**CONSTRUCTION JOINTS** ④

**CONCRETE PAVEMENT JOINT TYPES**

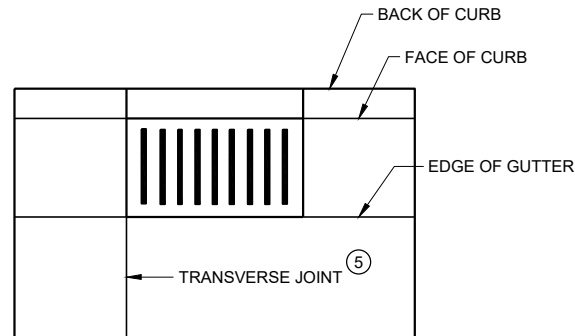
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



**MANHOLE WITH LONGITUDINAL JOINT**



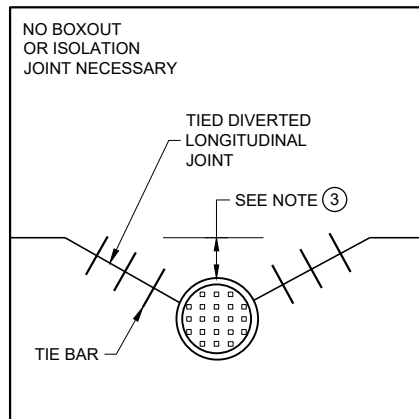
**MANHOLE WITH TRANSVERSE JOINT**



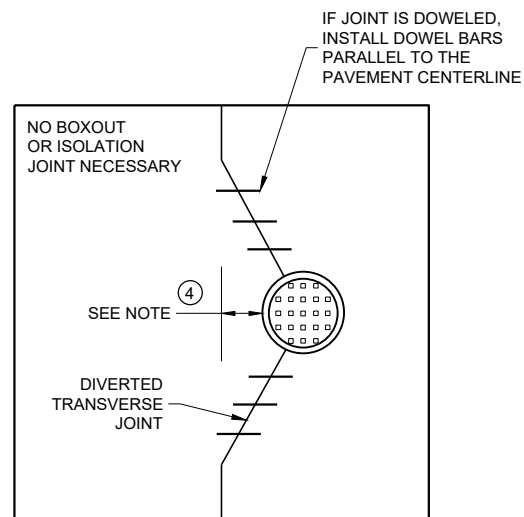
**INLET WITH TRANSVERSE JOINT**

**GENERAL NOTES**

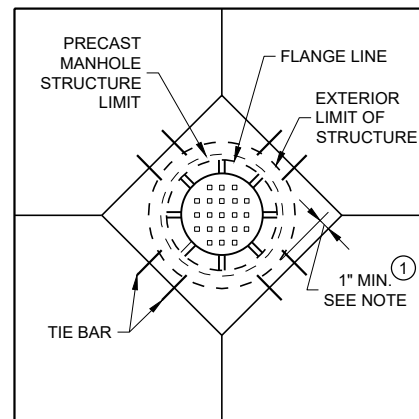
- ① USE BOXOUTS WHEN UTILITY STRUCTURE IS IN THE PATH OF CONSTRUCTION JOINTS. PROVIDE A 1 FOOT MINIMUM CLEARANCE BETWEEN THE EXTERIOR LIMIT OF THE STRUCTURE TO THE DIAMOND BOXOUT.
- ② ADJUST TRANSVERSE JOINT TO INTERSECT MANHOLE IF POSSIBLE.
- ③ IF DISTANCE BETWEEN THE LONGITUDINAL JOINT AND THE EDGE OF MANHOLE IS 2 FEET OR LESS, DIVERT THE LONGITUDINAL JOINT AT A 2:1 TAPER RATE TO THE CENTER OF THE MANHOLE. IF THE DISTANCE IS GREATER THAN 2 FEET, DO NOT DIVERT THE JOINT AND SAW AS NORMAL. PLACE REINFORCEMENT REBAR AROUND THE MANHOLE.
- ④ IF THE DISTANCE FROM THE EDGE OF THE MANHOLE TO THE NEAREST TRANSVERSE JOINT IS LESS 4 FEET OR LESS, REDIRECT JOINT TO INTERSECT THE CENTER OF THE MANHOLE. IF DISTANCE IS GREATER THAN 4 FEET, DO NOT DIVERT THE JOINT AND SAW AS NORMAL. PLACE REINFORCEMENT REBAR AROUND THE MANHOLE.
- ⑤ ALIGN TRANSVERSE JOINT WITH ONE EDGE OF INLET WHEN PRACTICAL.



**MANHOLE WITH DIVERTED LONGITUDINAL CONTRACTION JOINT**



**MANHOLE WITH DIVERTED TRANSVERSE CONTRACTION JOINT**



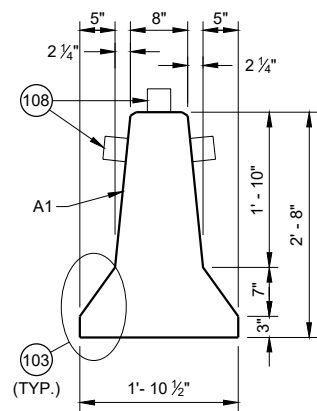
**DIAGONAL MANHOLE BOXOUT FOR CONSTRUCTION JOINTS**

**CONCRETE PAVEMENT JOINTING AT UTILITY FIXTURES**

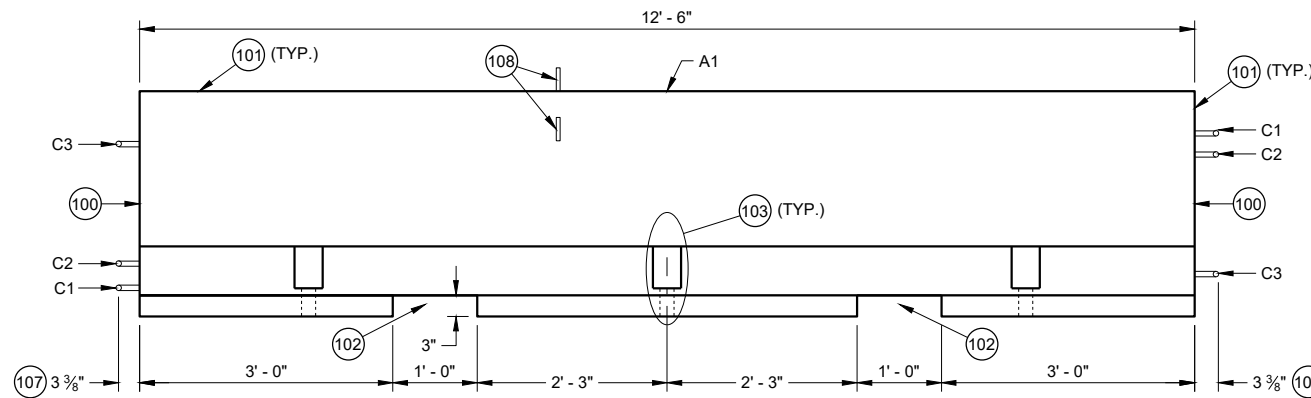
STATE OF WISCONSIN  
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APPROVED  
November 2018 /S/ Peter Kemp P.E.  
DATE PAVEMENT SUPERVISOR

FHWA



**CROSS SECTION**



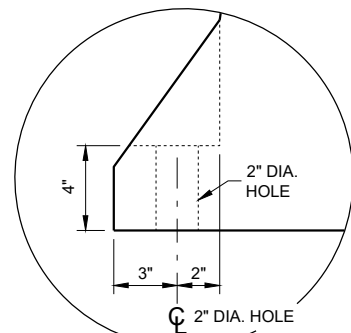
**PROFILE VIEW**

**GENERAL NOTES**

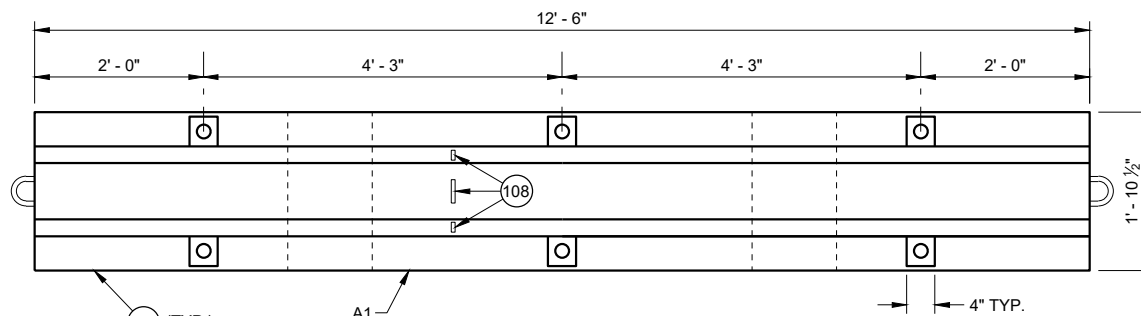
PLACE BARRIER ON PAVED SURFACE. BEFORE PLACEMENT OF TEMPORARY BARRIER, REMOVE ALL LOOSE MATERIAL FROM PAVED SURFACE.

LOOP BARS C1, C2 AND C3 ARE NOT FOR PLACEMENT OR MOVEMENT OF BARRIER.

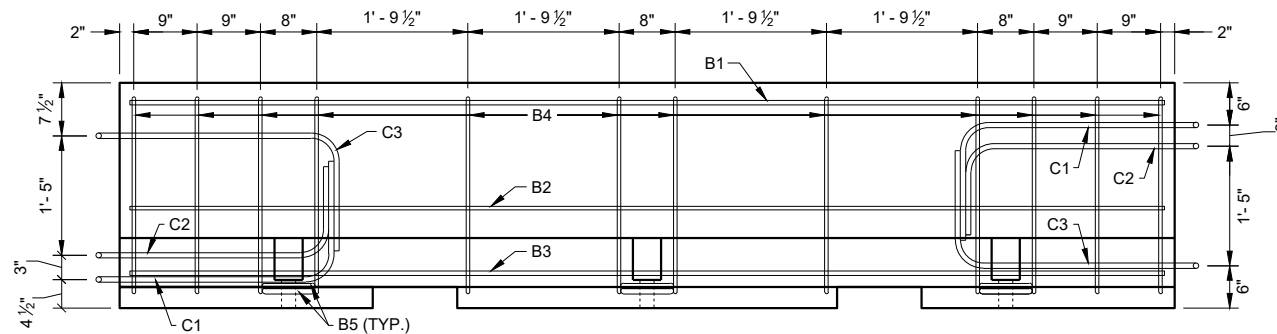
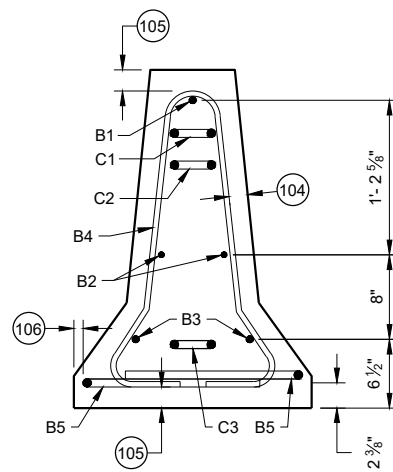
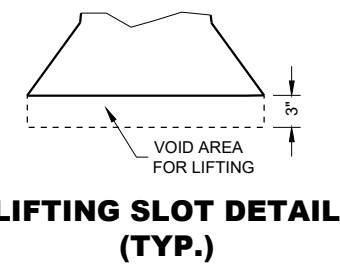
- (100) PERMANENTLY FORM INTO ONE END OF BARRIER THE FOLLOWING INFORMATION:  
A. TYPE OF BARRIER: WI-CBTP  
B. MANUFACTURER  
C. DATE OF MANUFACTURE (MONTH AND YEAR)
- (101) 1" OPTIONAL CHAMFER
- (102) SEE LIFTING SLOT DETAIL
- (103) SEE ANCHOR BLOCK DETAIL
- (104) 1 3/4" MIN. CLEAR COVER
- (105) 2" MIN. CLEAR COVER
- (106) 1" MIN. CLEAR COVER
- (107) ± 1/8" MEASURED FROM FACE OF CONCRETE BARRIER TO OUTSIDE OF LOOP BAR (TYP.)
- (108) USE DELINEATORS CONFORMING TO SECTION 633 OF THE STANDARD SPECIFICATIONS. CONTRACTOR MY USE ALTERNATE SHAPES AND HOUSING. INSTALL DELINEATORS ACCORDING TO MANUFACTURERS INSTRUCTION. INSTALL YELLOW REFLECTORS WHEN BARRIER IS LOCATED LEFT OF TRAFFIC AND WHITE WHEN BARRIER IS LOCATED RIGHT OF TRAFFIC. SPACE DELINEATORS A MAXIMUM OF 25 FEET APART, PROVIDE TO MOUNTED DELINEATORS IN ADDITION TO SIDE MOUNTED DELINEATORS ON BARRIER INSTALLATIONS LOCATED ON A CURVED ALIGNMENT LONGER THAT 200 FEET AND ON BARRIERS USED TO SEPARATE OPPOSING TRAFFIC.



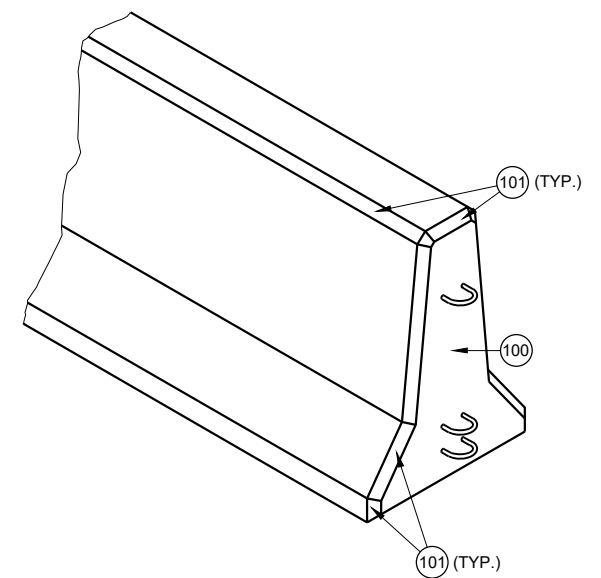
**ANCHOR BLOCK DETAIL**



**PLAN VIEW  
TEMPORARY BARRIER**

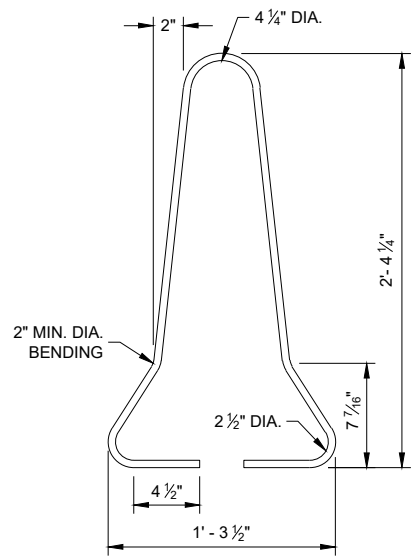


**PROFILE VIEW  
TEMPORARY BARRIER REINFORCEMENT**

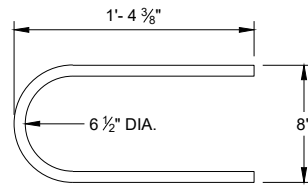


**CONCRETE BARRIER  
TEMPORARY PRECAST,  
12' - 6"**

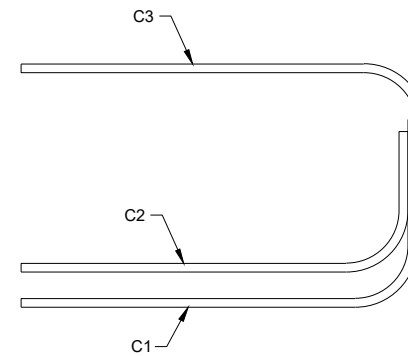
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



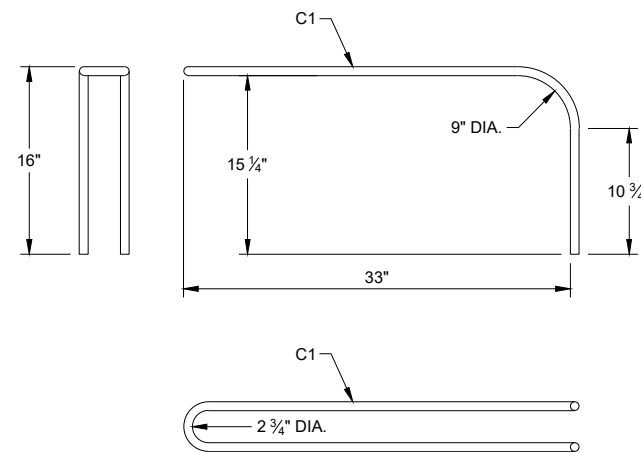
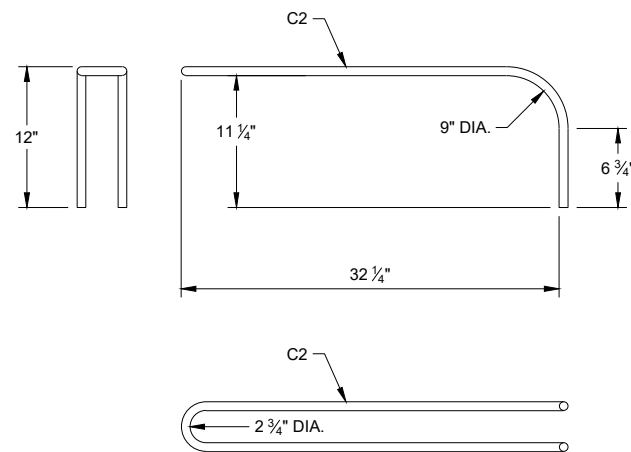
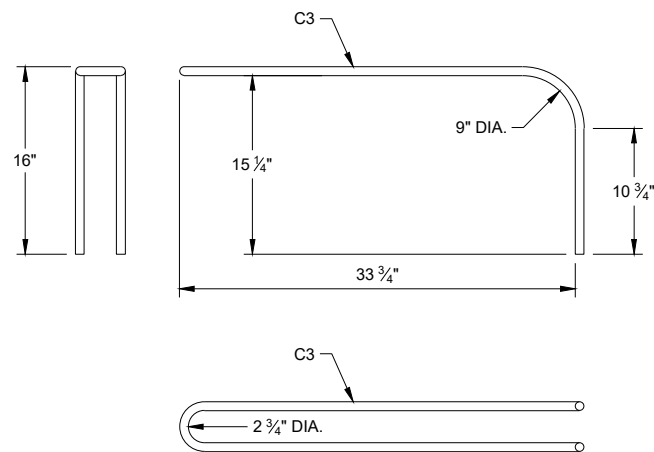
**B4 BAR DETAIL**



**B5 BAR DETAIL**



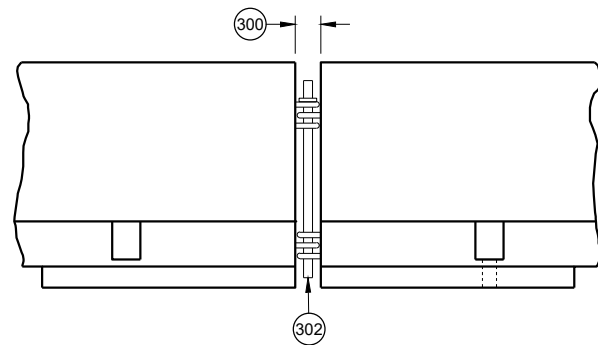
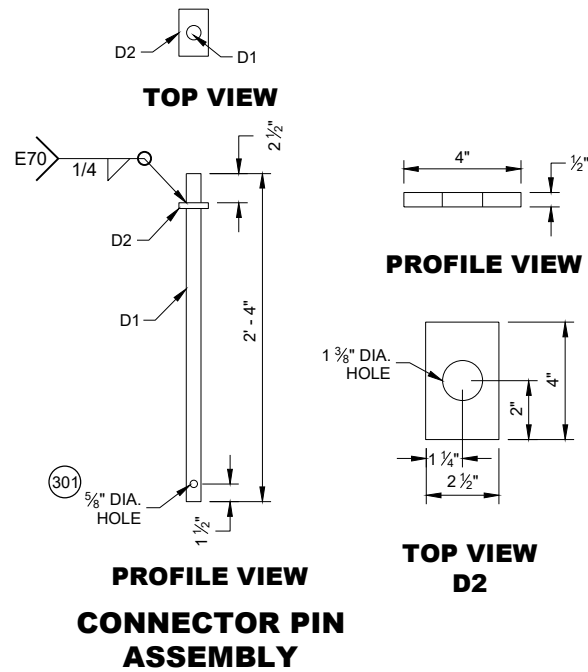
**PROFILE VIEW  
LOOP BAR ASSEMBLY**



**C BAR DETAILS**

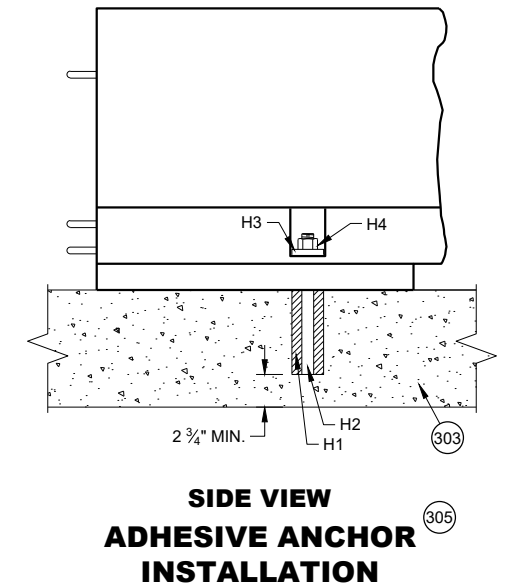
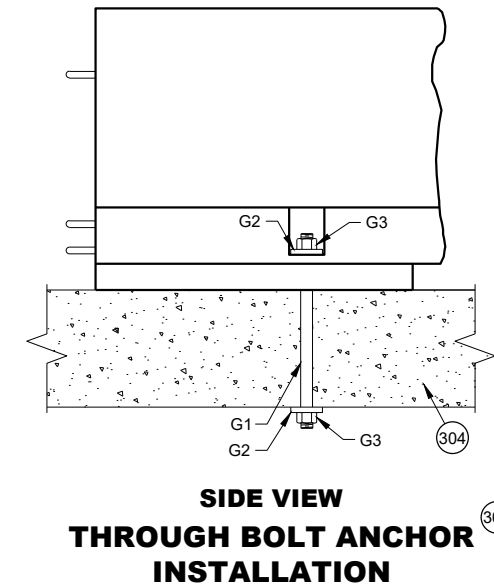
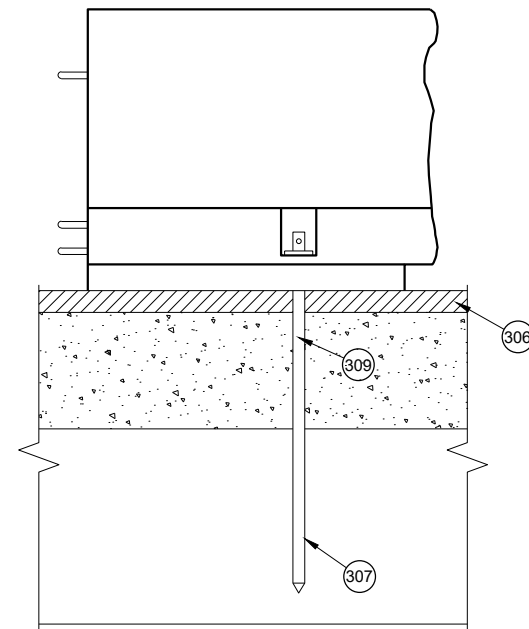
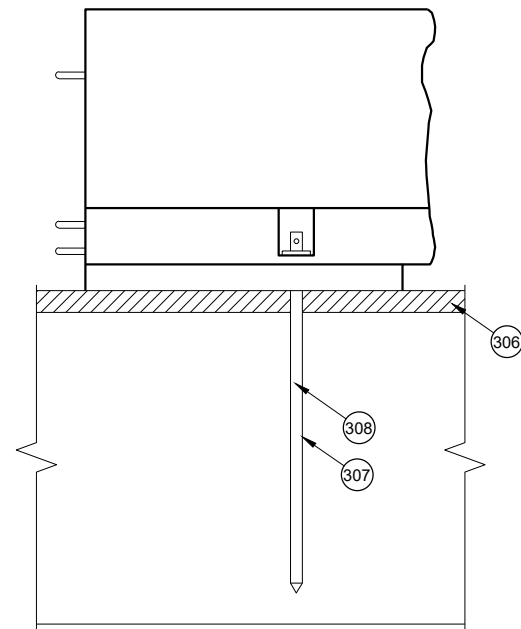
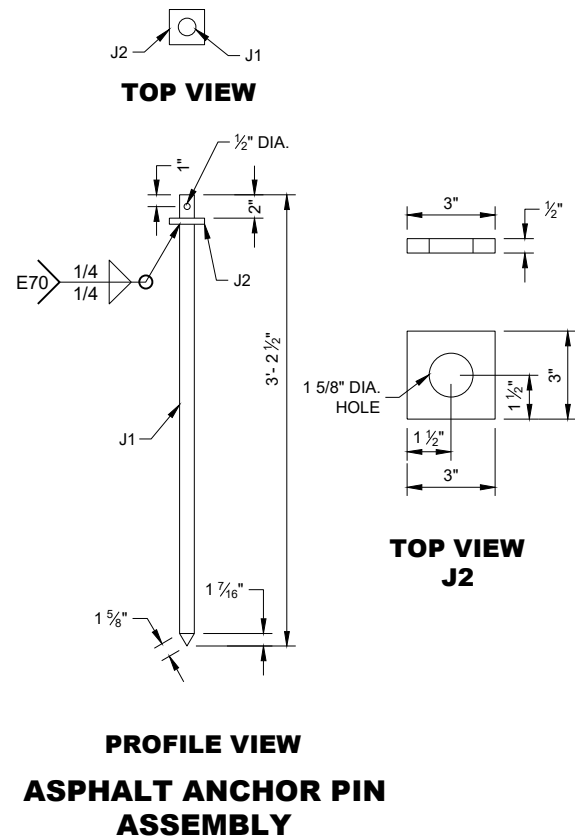
**CONCRETE BARRIER  
TEMPORARY PRECAST,  
12' - 6"**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



**GENERAL NOTES**

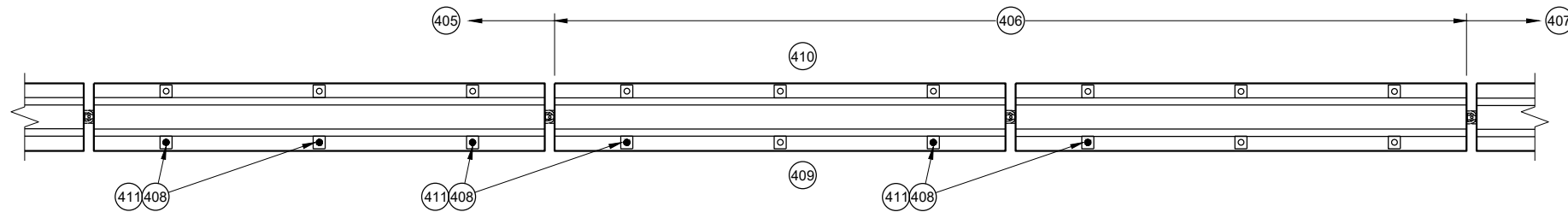
- (300) SET WITH 3 5/8" WOOD BLOCK.
- (301) HOLE IS OPTIONAL.
- (302) CONNECTOR PIN ASSEMBLY.
- (303) CONCRETE PAVEMENT, APPROACH SLAB, OR DECK.
- (304) CONCRETE DECK.
- (305) DO NOT USE ON CONCRETE BRIDGE DECK WITH ASPHALT OVERLAY OR CONCRETE PAVEMENT WITH ASPHALT OVERLAY.
- (306) MINIMUM OF 2" OF ASPHALT.
- (307) ASPHALT ANCHOR PIN ASSEMBLY
- (308) IF DRILLING A PILOT HOLE, THE MAX. DIA. OF THE HOLE IS 3/4"
- (309) WHEN THERE IS ASPHALT OVERLAYING CONCRETE PAVEMENT, A 1 5/8" DIA. PILOT HOLE CAN BE DRILLED INTO THE OVERLAY AND CONCRETE. IF NEEDED DRILL A 3/4" PILOT HOLE IN BASE COURSE.



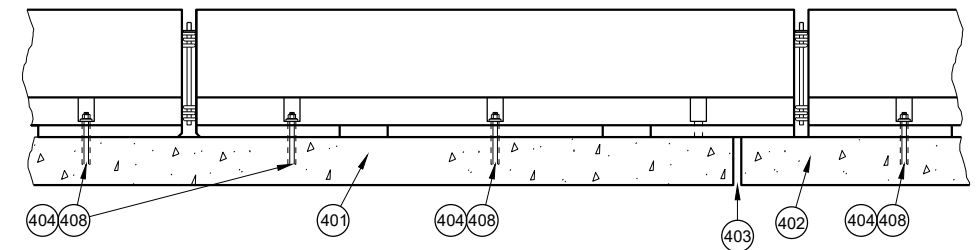
**CONCRETE BARRIER  
TEMPORARY PRECAST,  
12' - 6"**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

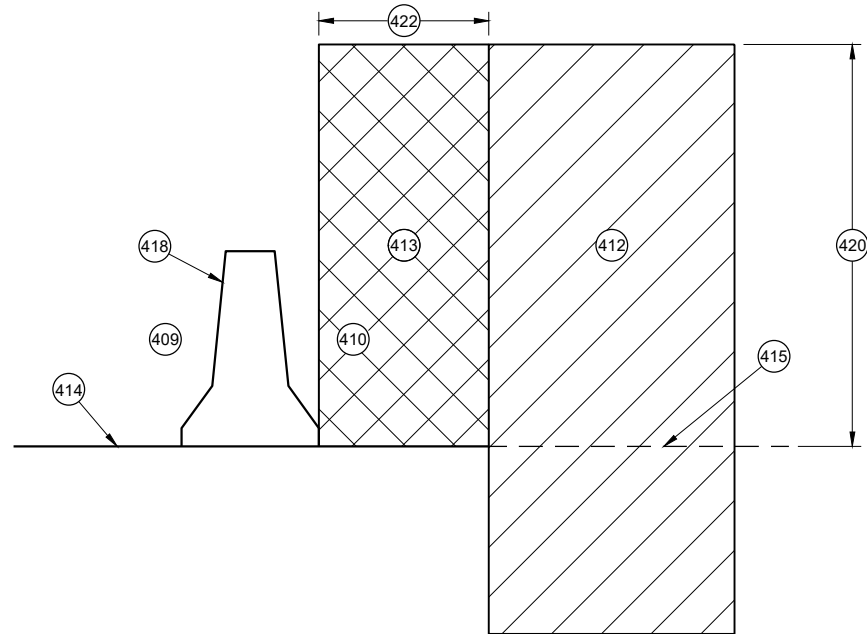




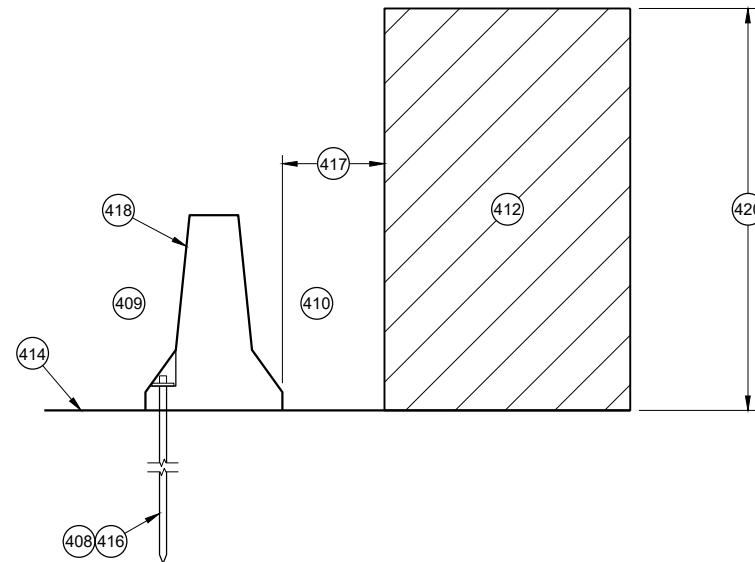
**PLAN VIEW**  
**TRANSITION FROM FREE STANDING TO ANCHORED BARRIER**



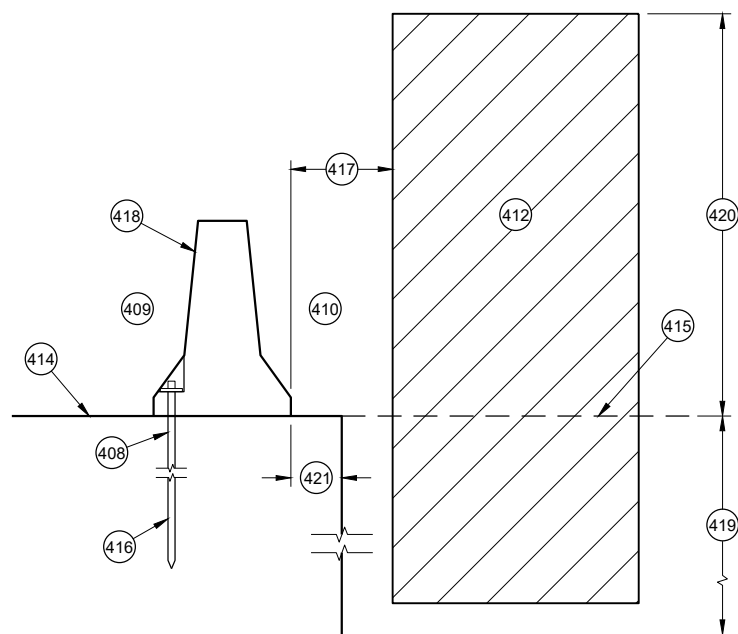
**PROFILE VIEW**  
**ANCHORED BARRIER NEAR EXPANSION JOINT**



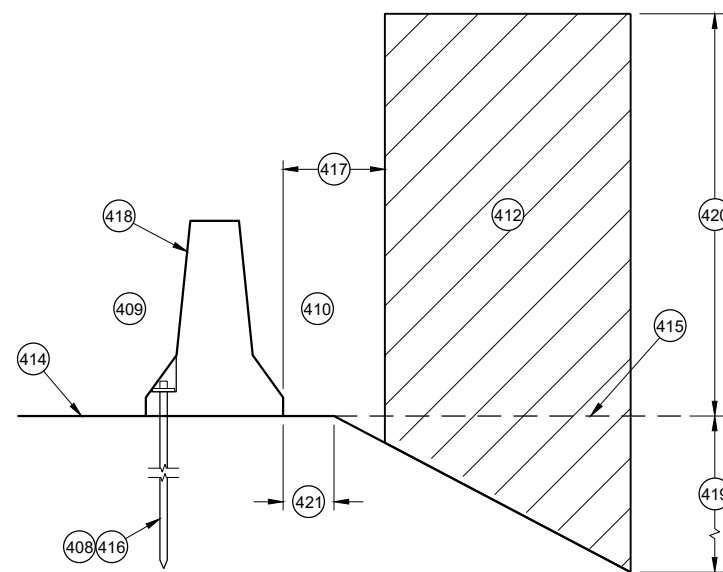
**CROSS SECTION**  
**FREE STANDING BARRIER**



**CROSS SECTION**  
**ANCHORED BARRIER FOR OBJECTS ABOVE THE GRADE LINE AND NEAR THE BARRIER**



**CROSS SECTION**  
**ANCHORED BARRIER NEAR VERTICAL DROP OFF**



**CROSS SECTION**  
**ANCHORED BARRIER NEAR A SLOPE**

**GENERAL NOTES**

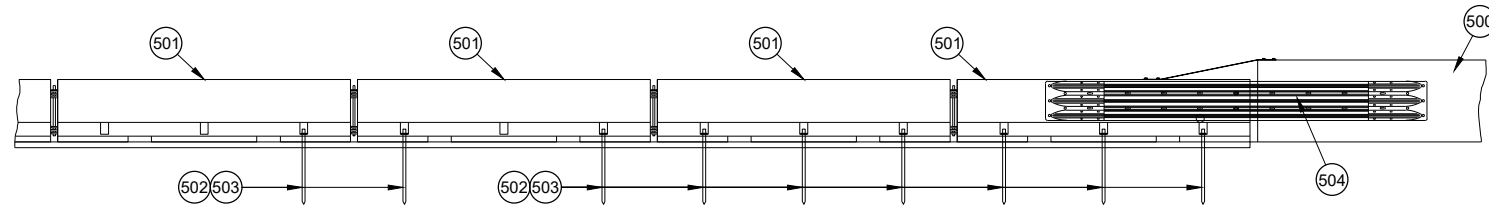
- 400 NO SINGLE CONCRETE BARRIER SECTION SHALL BE ANCHORED TO BOTH THE BRIDGE DECK AND THE APPROACH SLAB. ALL ANCHOR BOLT LOCATIONS SHALL BE ANCHORED TO THE DECK IN ACCORDANCE WITH THE DETAIL. NO MORE THAN ONE ANCHOR BOLT SHALL BE ELIMINATED FROM A BARRIER SECTION WHEN SPANNING AN EXPANSION JOINT.
- 401 CONCRETE DECK
- 402 CONCRETE DECK OR APPROACH SLAB.
- 403 EXPANSION JOINT
- 404 ADHESIVE ANCHOR SHOWN. SEE ANCHOR DETAILS.
- 405 ANCHORED TEMPORARY BARRIER
- 406 TRANSITION FROM ANCHORED TEMPORARY BARRIER TO FREE STANDING
- 407 FREE STANDING BARRIER
- 408 REMOVE ALL ANCHORS WHEN NO LONGER NEEDED. FILL CONCRETE PAVEMENTS, DECKS AND APPROACH SLABS WITH NON-SHRINK COMMERCIAL GROUT FROM THE APPROVED PRODUCT LIST. FILL ASPHALT PAVEMENTS WITH ASTM D6690 TYPE II RUBBERIZED CRACK FILLER.
- 409 TRAFFIC SIDE
- 410 NON-TRAFFIC SIDE
- 411 ANCHOR LOCATION. SEE ANCHORING DETAILS.
- 412 WORK AREA
- 413 AREA FREE OF OBJECTS AND WORKERS
- 414 GRADE LINE
- 415 EXTENDED GRADE LINE
- 416 ANCHORED TEMPORARY BARRIER. SEE BOLT THROUGH DECK, REMOVABLE ADHESIVE ANCHOR, OR AN ASPHALT ANCHOR ROD DETAILS FOR MORE INFORMATION. ASPHALT ANCHOR ROD SHOWN.
- 417 WHEN OBJECTS EXTEND ABOVE THE GRADE. A MINIMUM OF 1 FOOT IS REQUIRED FROM BACK OF BARRIER TO OBJECT.
- 418 OBJECTS ARE NOT TO BE PLACED ON, MOUNTED TO, OR ALLOWED TO LEAN AGAINST THE BARRIER WITHOUT WRITTEN PERMISSION OF THE PROJECT ENGINEER.
- 419 DEPTHS OF 3 FEET OR MORE.
- 420 Y = 6.5'
- 421 OFFSET FROM BACK OF BARRIER EDGE:  
 CONCRETE PAVEMENT 0.5'  
 ASPHALT 0.5'
- 422 POSTED SPEED (MPH):  
 45 OR GREATER 4.0'  
 40 OR LOWER 2.0'

**CONCRETE BARRIER**  
**TEMPORARY PRECAST,**  
**12' - 6"**

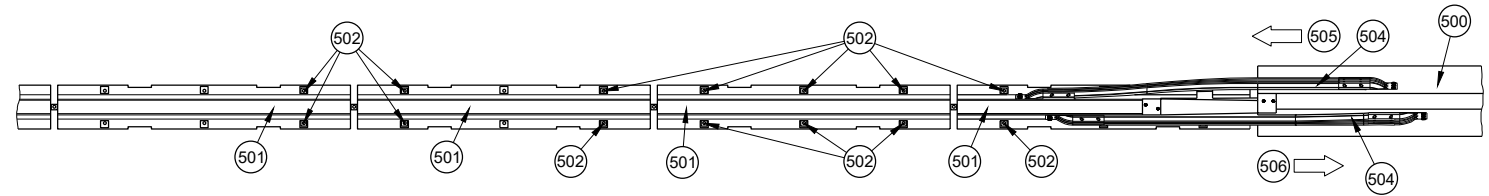
STATE OF WISCONSIN  
 DEPARTMENT OF TRANSPORTATION

**GENERAL NOTES**

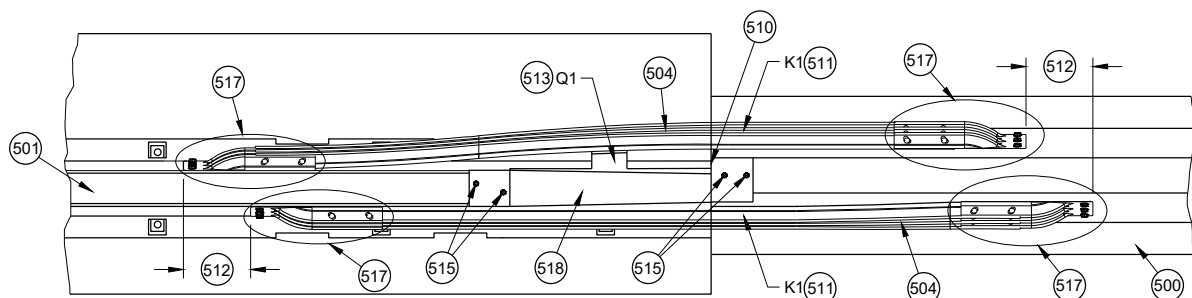
- (500) EXISTING RIGID BARRIERS (VARIES)
- (501) TEMPORARY BARRIER
- (502) SEE OTHER DETAIL ON HOW TO ANCHOR TEMPORARY BARRIER (BARRIER ASPHALT ANCHOR SHOWN).
- (503) ANCHORS ARE REQUIRED ON BOTH SIDE OF THE TEMPORARY BARRIER.
- (504) NESTED RAILS ARE REQUIRED ON BOTH SIDES OF THE TEMPORARY BARRIER FOR ALL INSTALLATIONS.
- (505) TRAFFIC TRAVELS FROM PERMANENT BARRIER TO TEMPORARY BARRIER.
- (506) TRAFFIC TRAVELS FROM TEMPORARY BARRIER TO PERMANENT BARRIER.
- (507) VERTICAL BARRIER
- (508) SAFETY SHAPE BARRIER
- (509) SINGLE SLOPE BARRIER
- (510) CAP END PLATE PLACED FLUSH WITH UPSTREAM END OF RIGID BARRIER.
- (511) BENT THRIE BEAM TO FIT.
- (512) THRIE BEAM PIECES ARE OFFSET 15 1/4" TO PREVENT INTERFERENCE FROM THE ANCHORS ON OPPOSING SIDES.
- (513) TWO (2) P1, P2 AND P3 ARE REQUIRED
- (514) FIVE (5) N1, N2 AND N3 ARE REQUIRED
- (515) TWO (2) R1, R2 AND R3 ARE REQUIRED
- (516) CUT WOOD BLOCK TO FIT.
- (517) SEE THRIE BEAM RAIL TERMINAL CONNECTOR DETAIL ASSEMBLY.
- (518) CAP ASSEMBLY
- (519) 4" MAX. GAP BETWEEN TEMPORARY BARRIER AND RIGID BARRIER.
- (520) ALL TWELVE SPLICE HOLES REQUIRE M1 AND M2



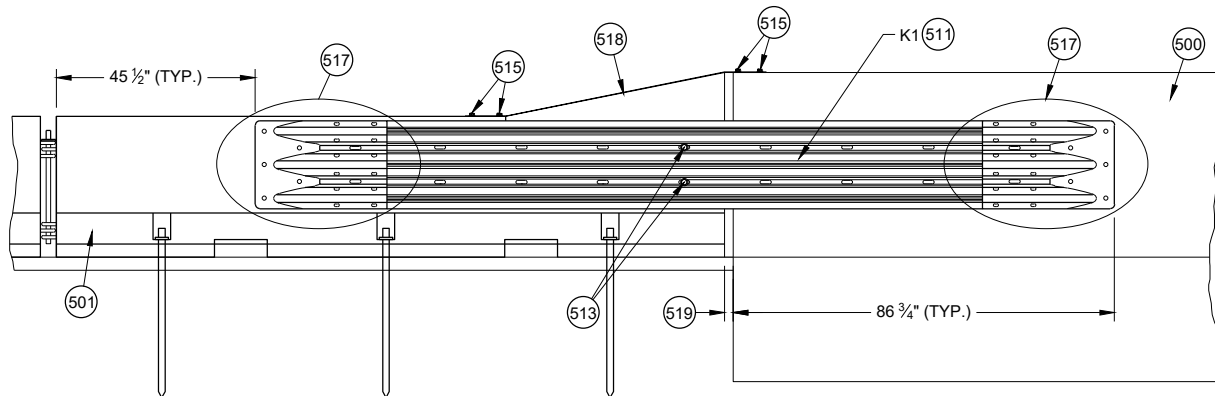
**PROFILE VIEW**



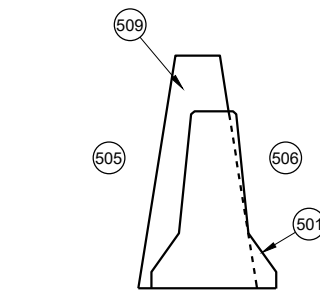
**PLAN VIEW  
TRANSITION TO RIGID BARRIER**



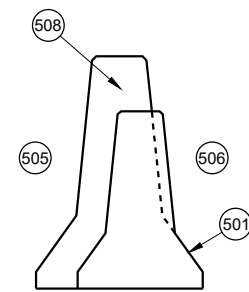
**PLAN DETAIL VIEW  
TRANSITION TO RIGID BARRIER**



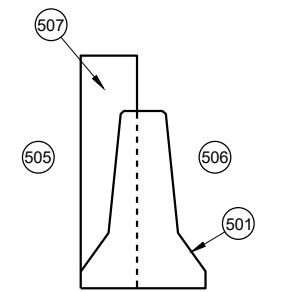
**FRONT DETAIL VIEW  
TRANSITION TO RIGID BARRIER**



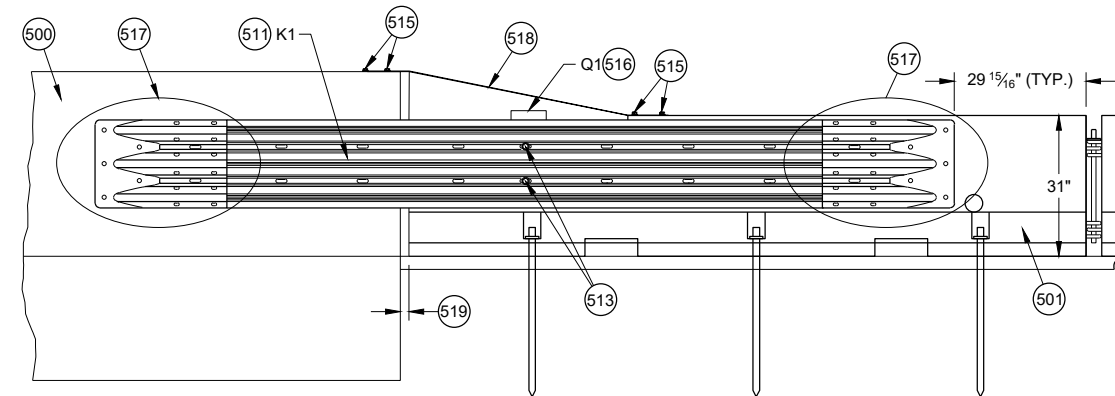
**CROSS SECTION  
TEMPORARY BARRIER  
PLACEMENT SINGLE SLOPE**



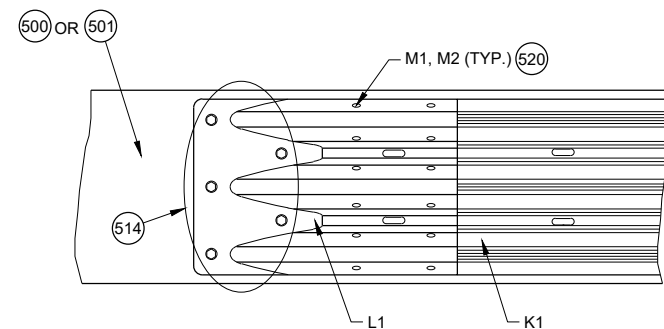
**CROSS SECTION  
TEMPORARY BARRIER  
PLACEMENT SAFETY SHAPE**



**CROSS SECTION  
TEMPORARY BARRIER  
PLACEMENT VERTICAL**



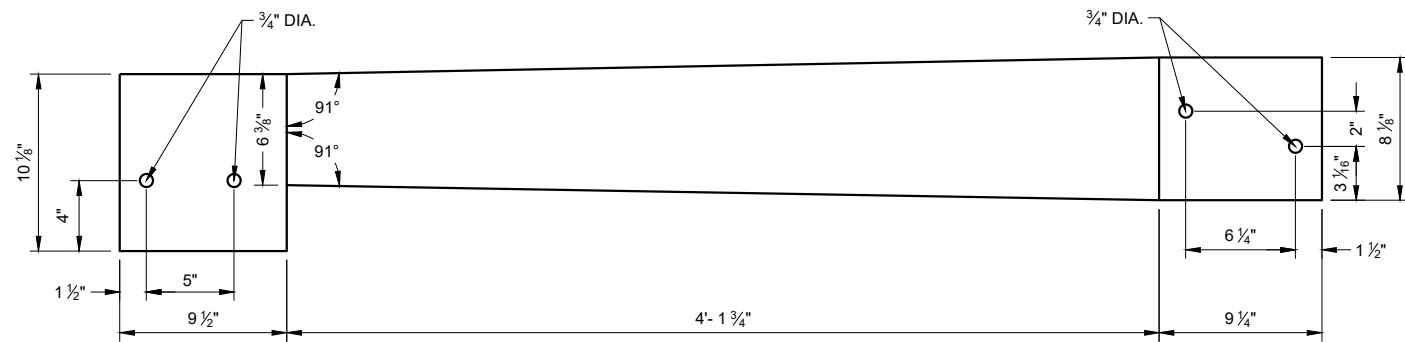
**BACK DETAIL VIEW  
TRANSITION TO RIGID BARRIER**



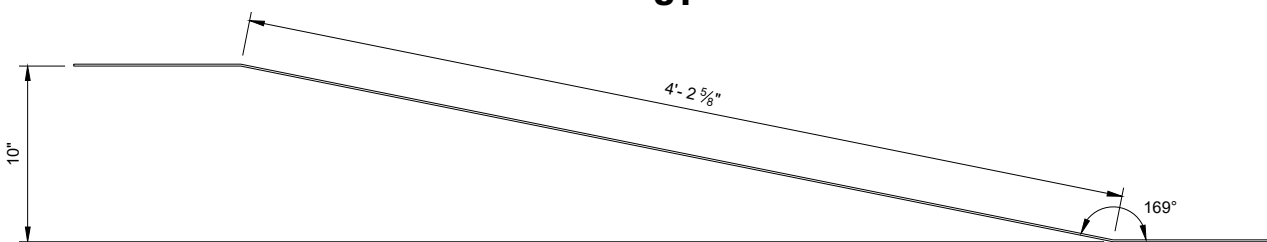
**(517) DETAIL PLAN VIEW  
THRIE BEAM RAIL TERMINAL CONNECTOR ASSEMBLY**

**CONCRETE BARRIER  
TEMPORARY PRECAST,  
12' - 6"**

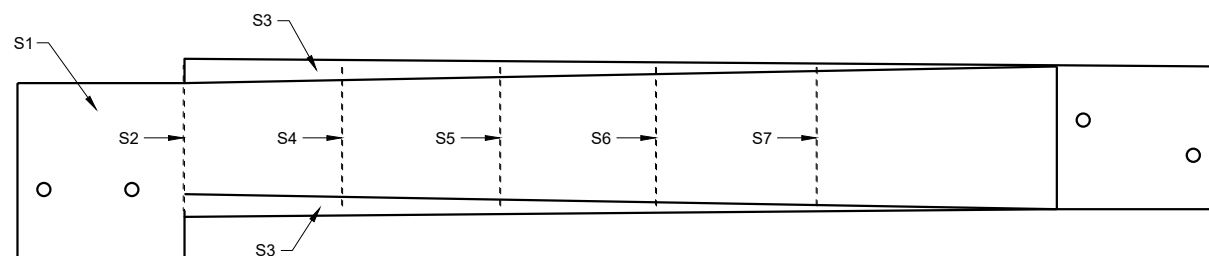
STATE OF WISCONSIN  
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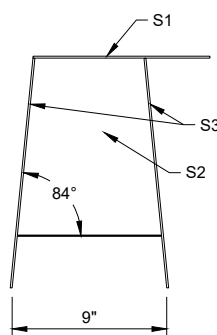
**TOP VIEW  
S1**



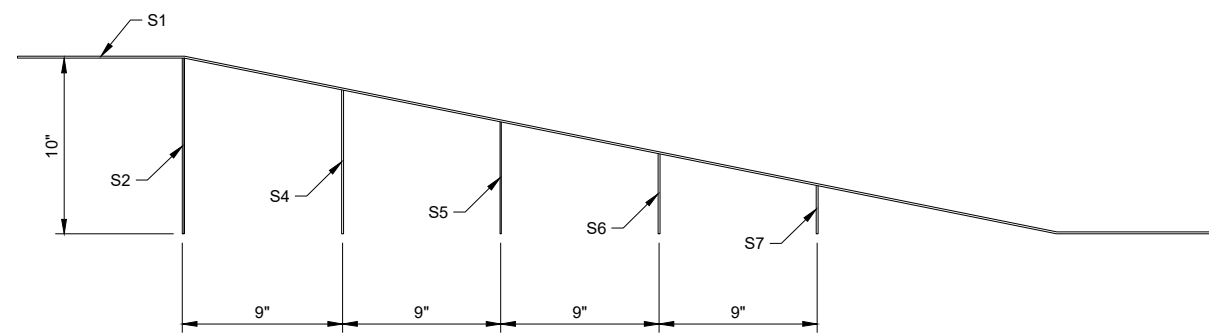
**ELEVATION VIEW  
S1**



**PLAN VIEW**

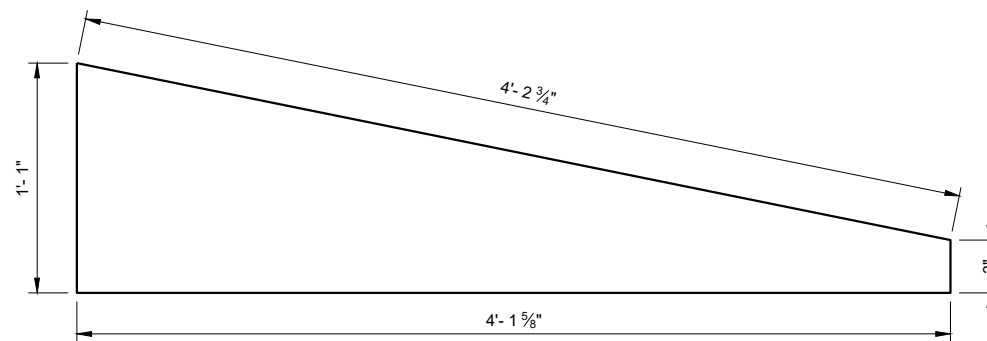


**BACK VIEW**

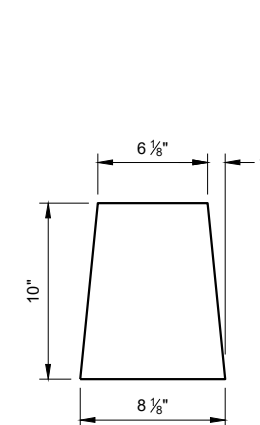


**SIDE VIEW (600)**

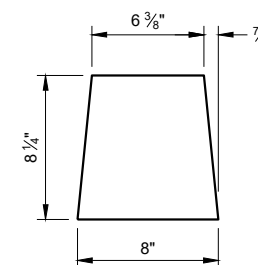
**42\"/>**



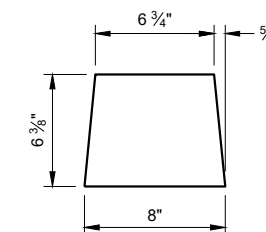
**SIDE VIEW  
S3**



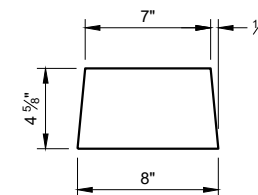
**S2**



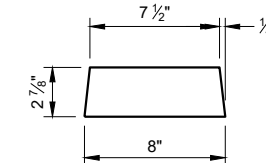
**S4**



**S5**



**S6**



**S7**

**GENERAL NOTES**

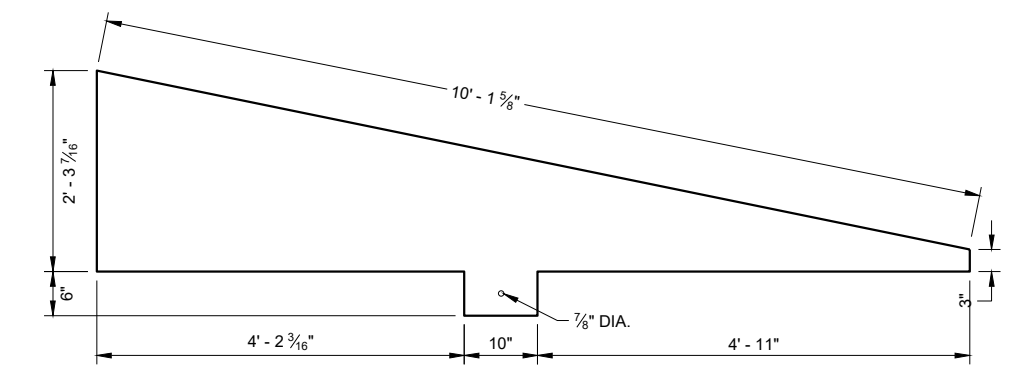
STITCH WELD GUSSET PLATES AND END PLATES ON THREE SIDES

STITCH WELD TWO SIDE PLATES TO TOP PLATE, END PLATE AND GUSSETS.

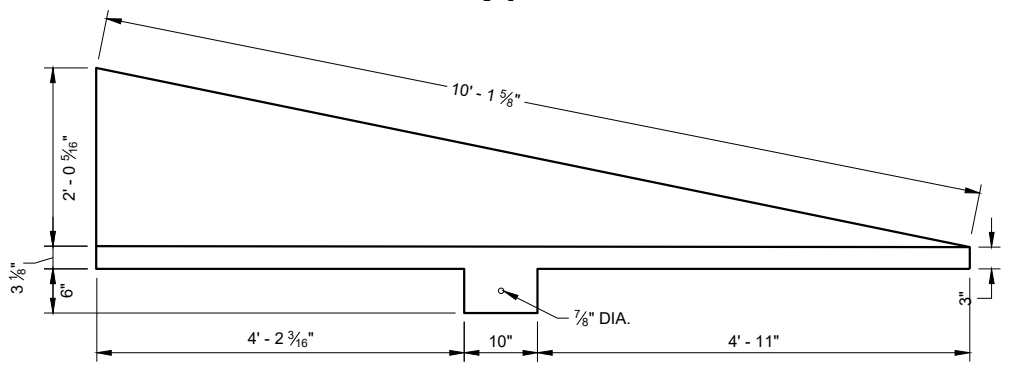
(600) SIDE PLATES (S3) NOT SHOWN FOR CLARITY.

**CONCRETE BARRIER  
TEMPORARY PRECAST,  
12' - 6"**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



**SIDE VIEW T4**



**SIDE VIEW T3**

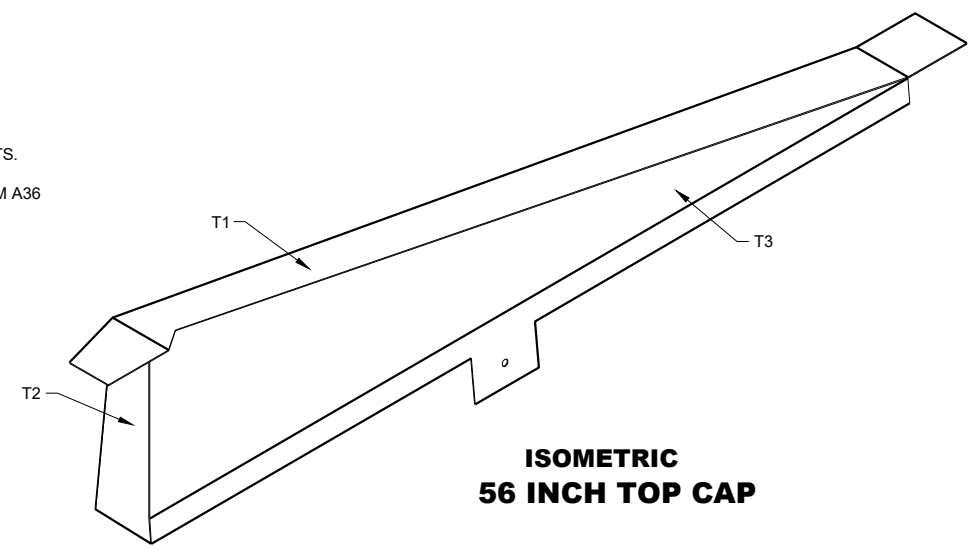
**END VIEW**

**END VIEW**

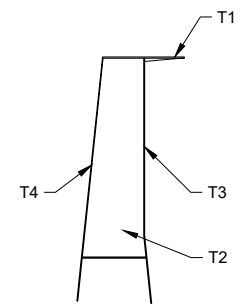
**END VIEW**

**GENERAL NOTES**

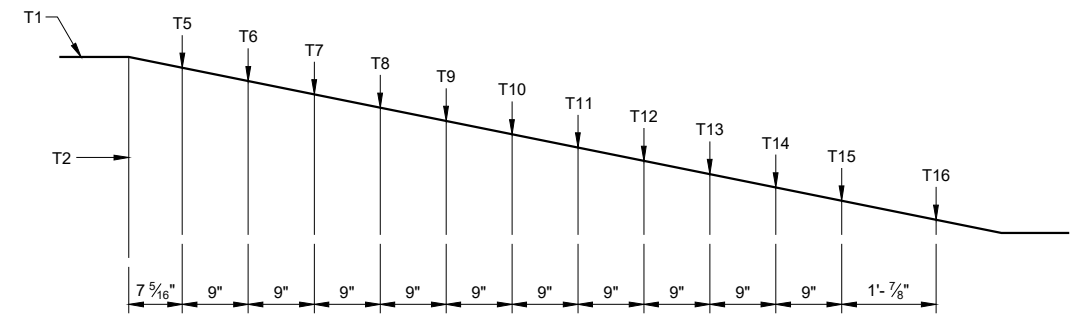
- STITCH WELD GUSSET PLATES AND END PLATES ON THRIE SIDES
- STITCH WELD TWO SIDE PLATES TO TOP PLATE, END PLATE AND GUSSETS.
- SIDE PLATES, TOP PLATE, END PLATE AND GUSSETS ARE 12 GAUGE ASTM A36 GALVANIZED STEEL.
- (700) SIDE PLATES (T3 AND T4) NOT SHOWN FOR CLARITY.



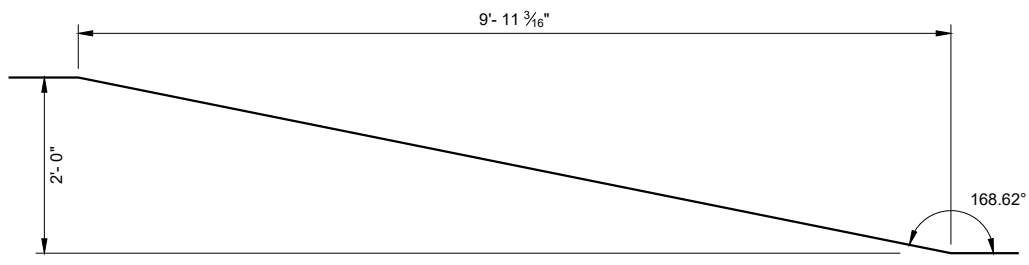
**ISOMETRIC 56 INCH TOP CAP**



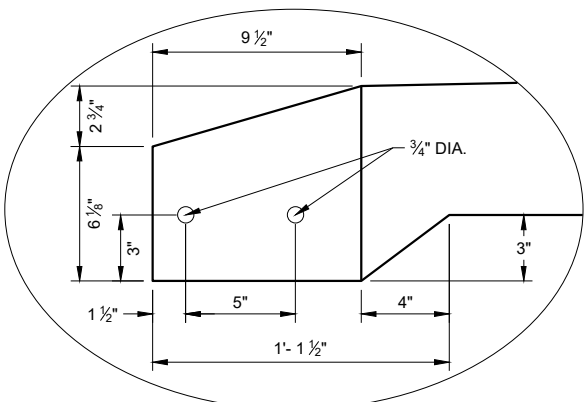
**END VIEW 56 INCH TOP CAP**



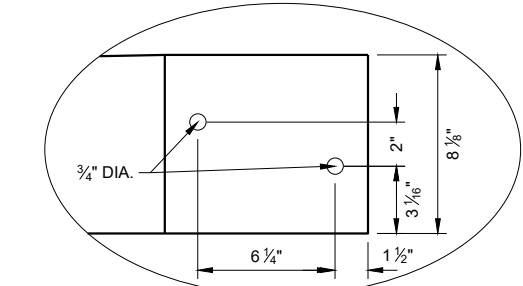
**SIDE VIEW 56 INCH TOP CAP (700)**



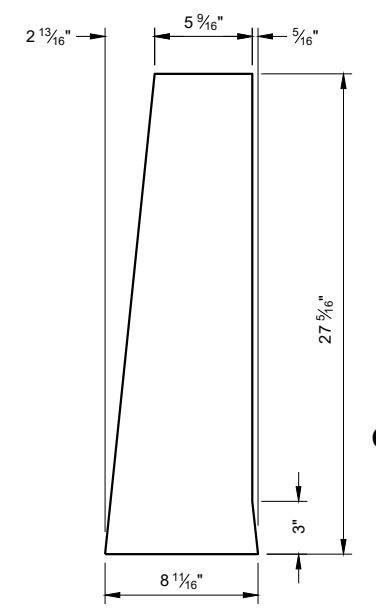
**SIDE VIEW TOP PLATE T1**



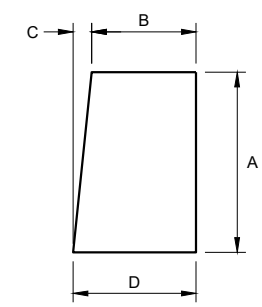
**DETAIL "A"**



**DETAIL "B"**

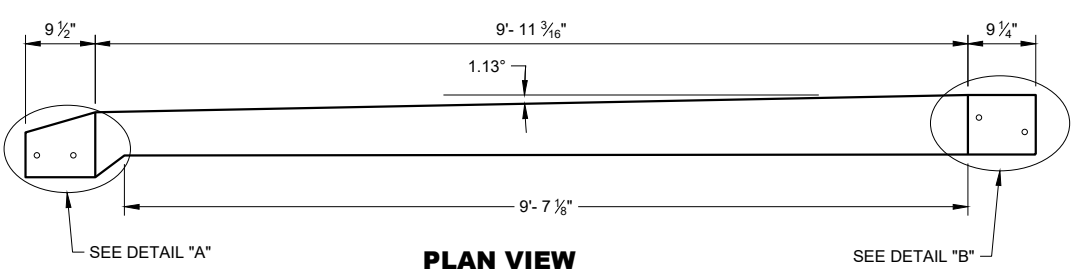


**END PLATE T2**



**GUSSET PLATES T5 - T16**

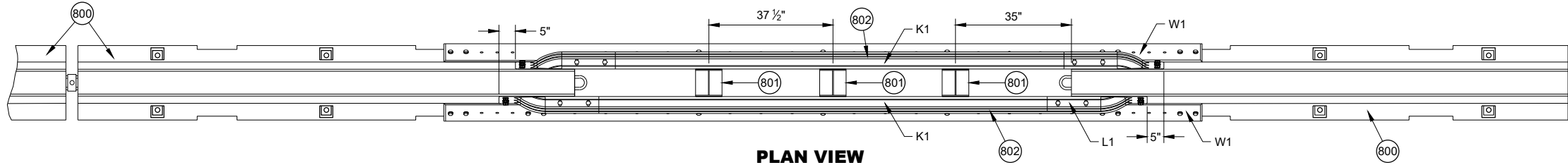
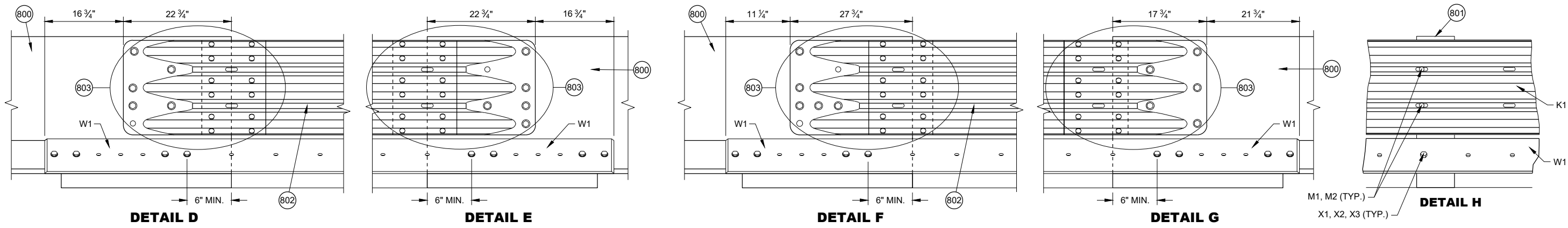
GUSSET DIMENSIONS				
GUSSET NO.	A	B	C	D
T5	22 13/16"	5 1/16"	2 5/16"	8 1/16"
T6	21"	5 7/8"	2 3/16"	8 1/16"
T7	19 3/16"	6 1/8"	1 13/16"	8 1/16"
T8	17 3/8"	6 1/4"	1 13/16"	8 1/16"
T9	15 9/16"	6 7/16"	1 1/16"	8 1/16"
T10	13 3/4"	6 5/8"	1 7/16"	8 1/16"
T11	11 15/16"	6 13/16"	1 1/4"	8 1/16"
T12	10 1/8"	7"	1 1/16"	8 1/16"
T13	8 5/16"	7 3/16"	7/8"	8 1/16"
T14	6 1/2"	7 3/8"	1 1/16"	8 1/16"
T15	4 1/16"	7 1/16"	1/2"	8"
T16	2 7/8"	7 3/4"	1/4"	8"



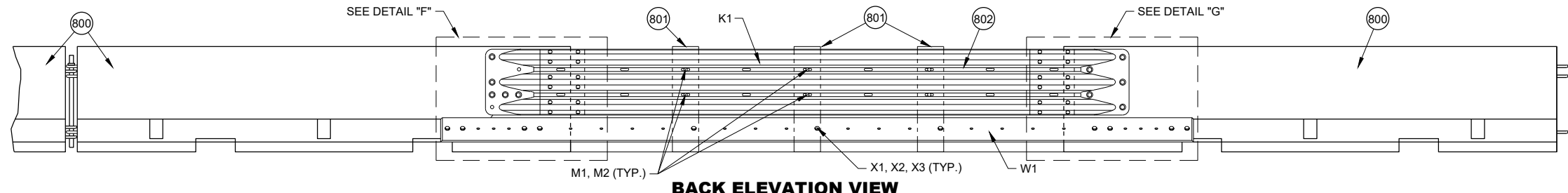
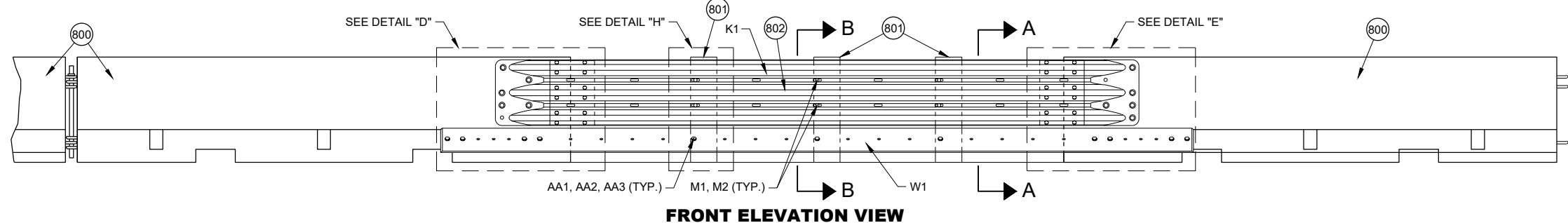
**PLAN VIEW TOP PLATE T1**

**CONCRETE BARRIER  
TEMPORARY PRECAST,  
12' - 6"**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



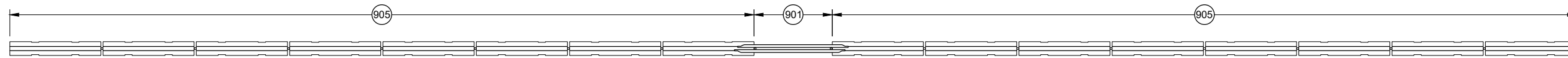
- GENERAL NOTES**
- 800 FREE STANDING TEMPORARY BARRIER
  - 801 GAP STIFFENER ASSEMBLY
  - 802 THRIE BEAMS ARE NESTED ON BOTH SIDES OF THE TEMPORARY BARRIER.
  - 803 SEE THRIE BEAM RAIL TERMINAL CONNECTOR DETAIL



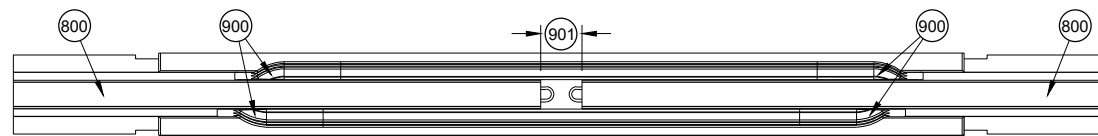
**PORTABLE CONCRETE BARRIER GAP THRIE BEAM COVER**

**CONCRETE BARRIER  
TEMPORARY PRECAST,  
12' - 6"**

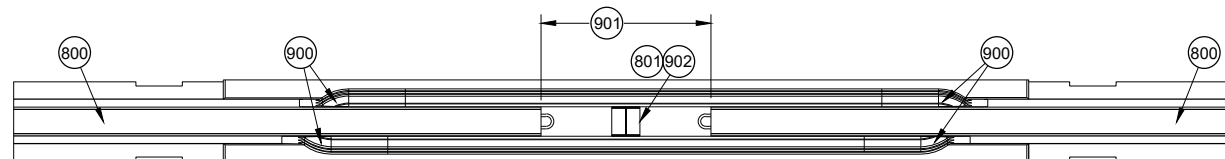
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



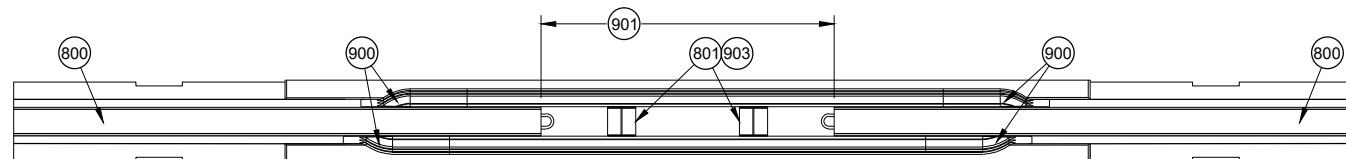
**PLAN VIEW  
GAP WITHIN SPACING**



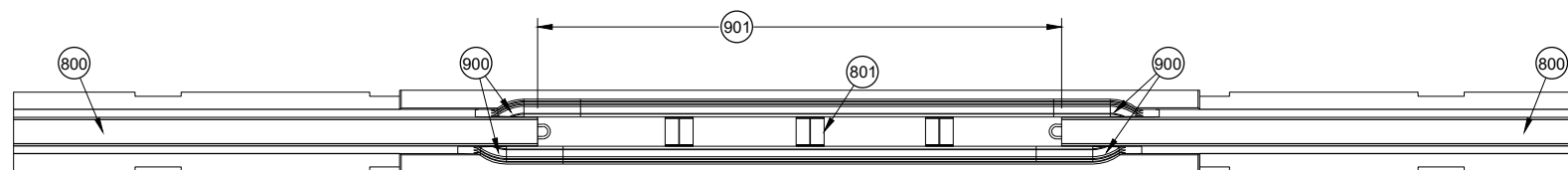
**PLAN VIEW  
TEMPORARY BARRIER GAP OVER 4" TO 1' MAX. 904**



**PLAN VIEW  
TEMPORARY BARRIER GAP OVER 1' TO 4' MAX. 904**



**PLAN VIEW  
TEMPORARY BARRIER GAP OVER 4' TO 7' MAX. 904**



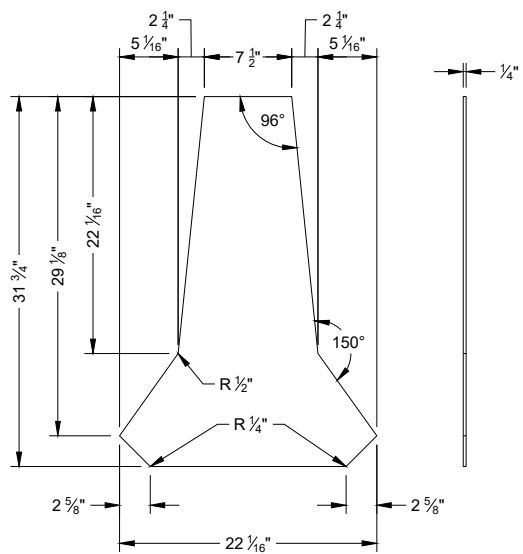
**PLAN VIEW  
TEMPORARY BARRIER GAP OVER 7' TO 12.5' MAX. 904**

**GENERAL NOTES**

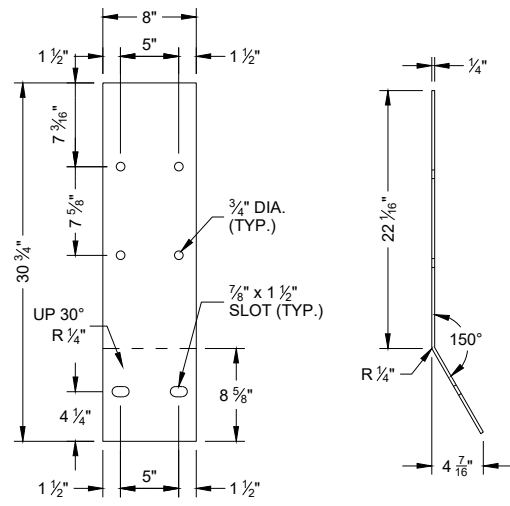
- 900 SEE OTHER DETAILS FOR TEMPORARY GAP HARDWARE (TYP.)
- 901 TEMPORARY BARRIER GAP
- 902 GAP STIFFENER ASSEMBLY CENTERED IN THE GAP.
- 903 GAP STIFFENER ASSEMBLY IS OFFSET 18 3/4" FROM CENTER
- 904 MINIMUM NUMBER OF GAP STIFFENERS SHOWN FOR THE GAP RANGE SHOWN.
- 905 MINIMUM OF 8 CONTINUOUS FREE STANDING TEMPORARY BARRIERS

**CONCRETE BARRIER  
TEMPORARY PRECAST,  
12' - 6"**

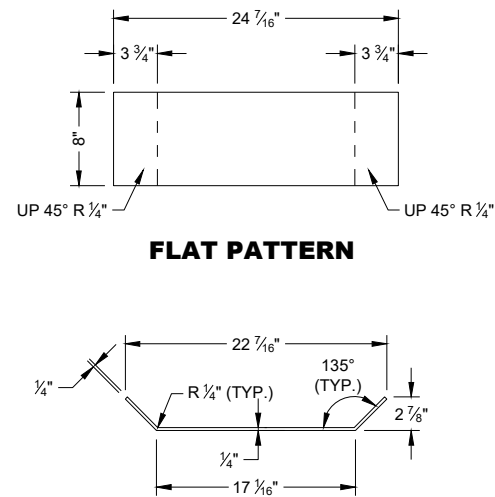
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



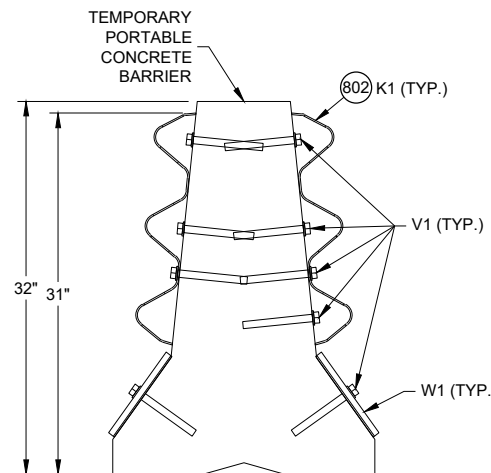
**PROFILE VIEW** **SIDE VIEW**  
**STIFFENER ASSEMBLY**  
**CENTER PANEL U1**



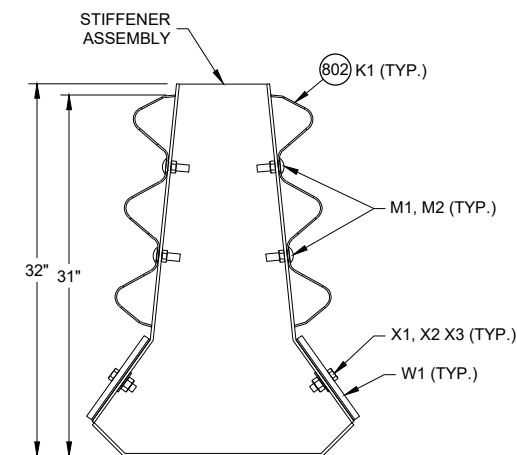
**FLAT PATTERN** **SIDE VIEW**  
**STIFFENER ASSEMBLY**  
**SIDE PANEL U2**



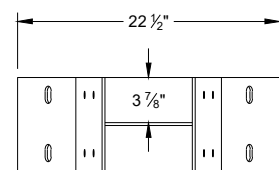
**PROFILE VIEW**  
**FLAT PATTERN**  
**STIFFENER ASSEMBLY**  
**BOTTOM PANEL U3**



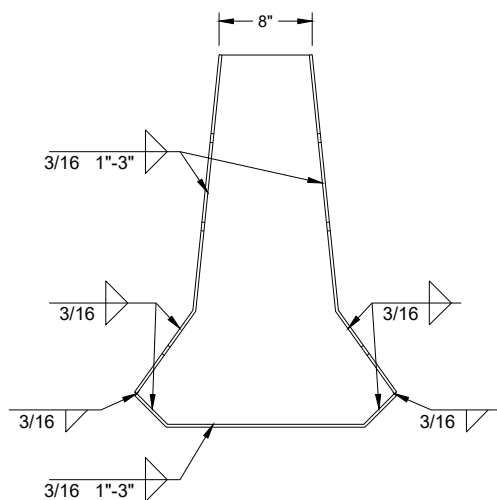
**SECTION A - A**



**SECTION B - B**

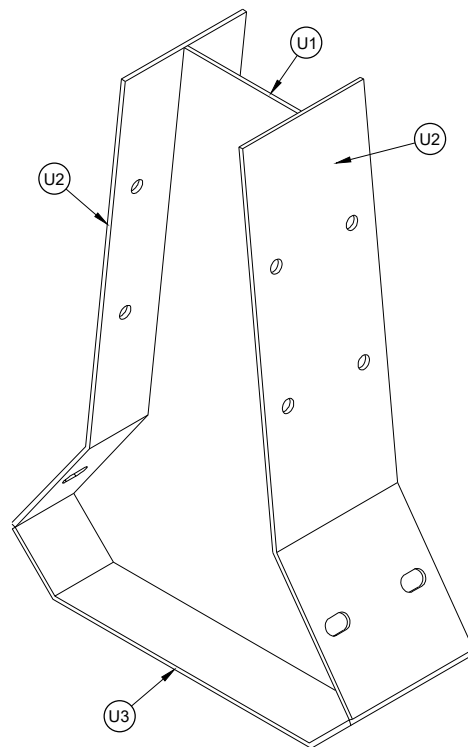


**PLAN VIEW**

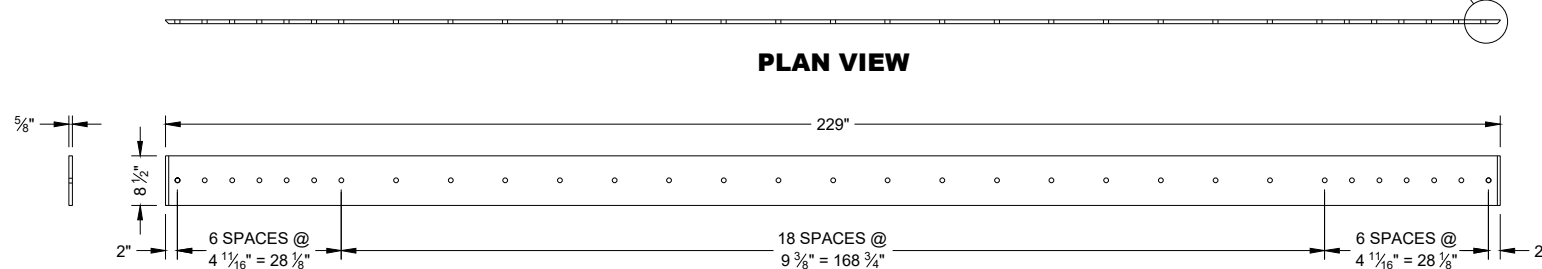
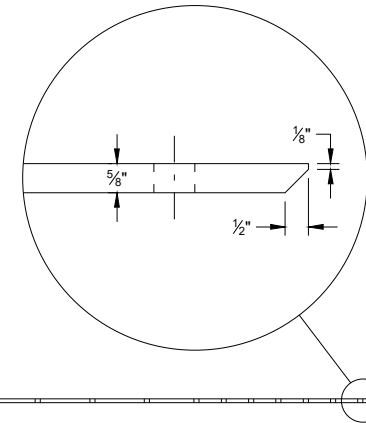


**PROFILE VIEW** **SIDE VIEW**

**GAP STIFFENER ASSEMBLY**



**ISOMETRIC**

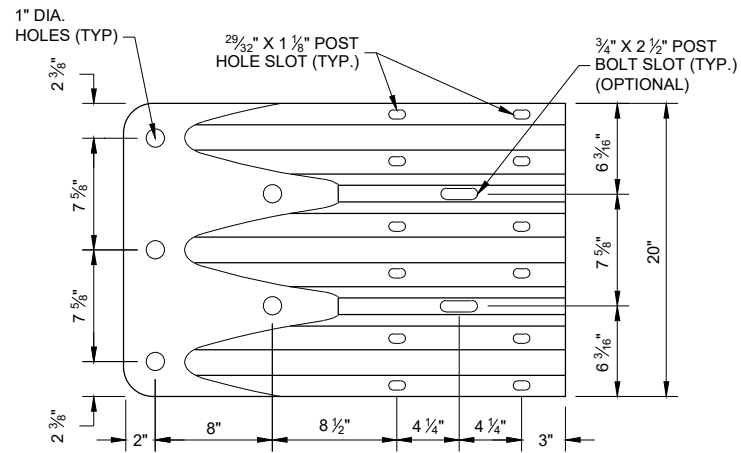


**SIDE VIEW**

**PLAN VIEW**  
**ELEVATION VIEW**  
**W1 TOE PLATE**

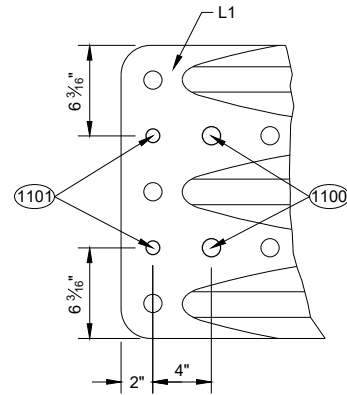
**CONCRETE BARRIER**  
**TEMPORARY PRECAST,**  
**12' - 6"**

STATE OF WISCONSIN  
 DEPARTMENT OF TRANSPORTATION



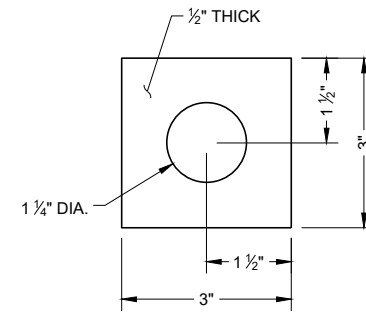
**ELEVATION VIEW**

**THRIE BEAM  
TERMINAL CONNECTOR**



**ELEVATION VIEW**

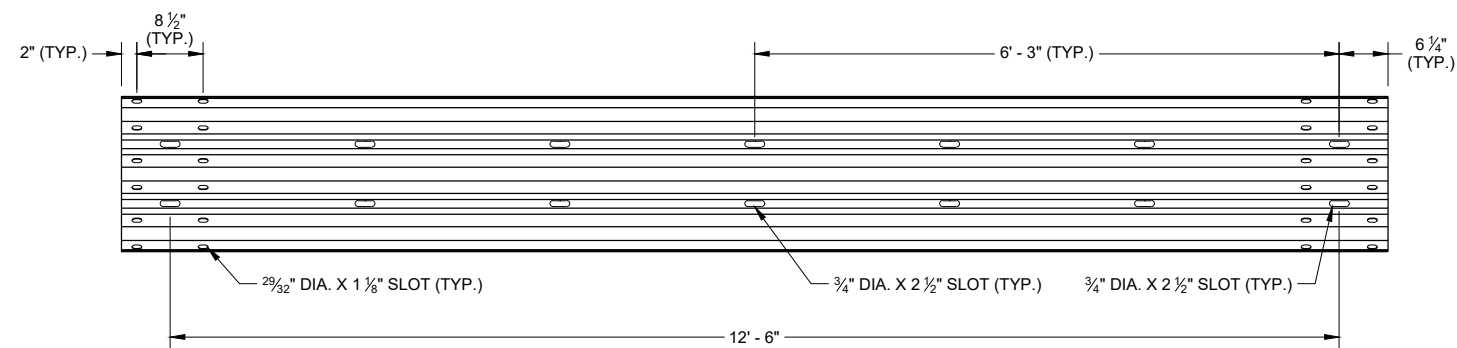
**ADDITIONAL THRIE BEAM  
TERMINAL CONNECTOR HOLE DETAIL**



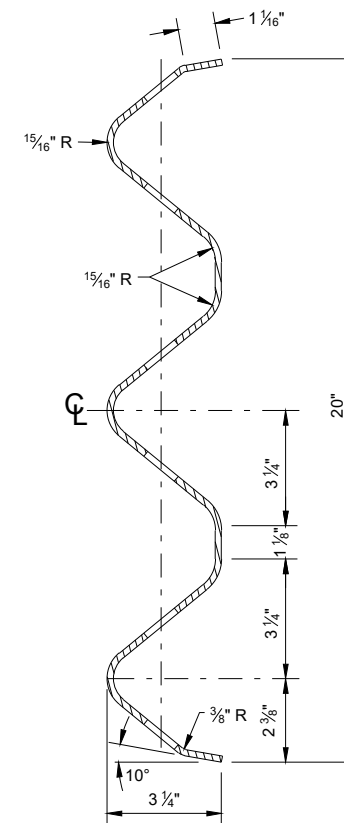
**PLATE WASHER DETAIL  
G2, H3**

**GENERAL NOTES**

- (1100) 1" DIA. HOLE
- (1101) 3/4" DIA. HOLE
- (1102) PROVIDE HOLES IN THRIE BEAM TERMINAL CONNECTOR TO LIMIT STEEL REINFORCEMENT OR LOOP BAR CONFLICT. CONTRACTOR MAY FIELD DRILL ADDITIONAL HOLE OR PROVIDE THRIE BEAM TERMINAL CONNECTOR WITH ADDITIONAL HOLES FROM SUPPLIER.



**SLOTTED THRIE BEAM RAIL K1**

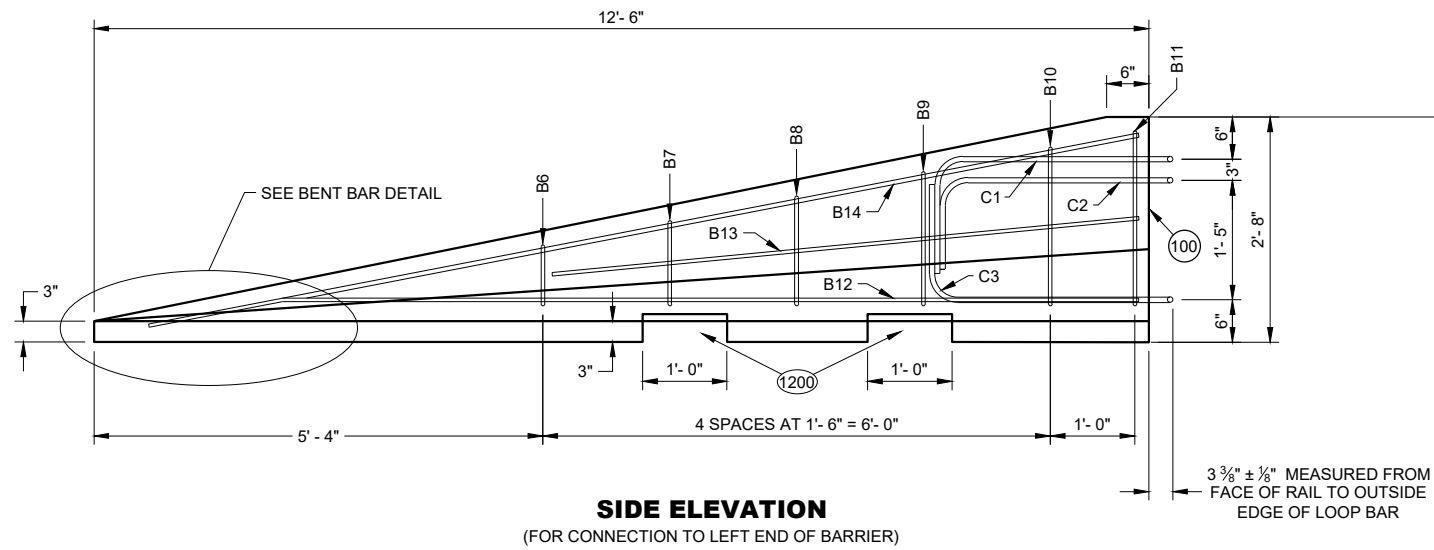


**SECTION THROUGH  
BEAM K1**

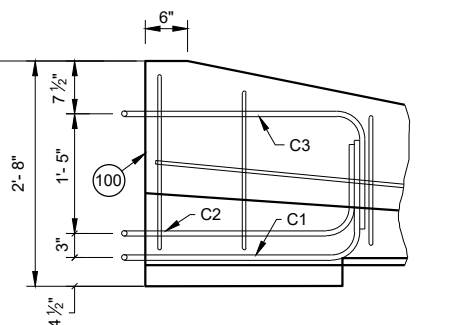
**CONCRETE BARRIER  
TEMPORARY PRECAST,  
12' - 6"**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION





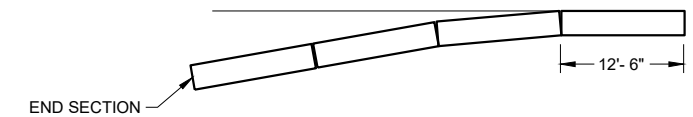
**SIDE ELEVATION**  
(FOR CONNECTION TO LEFT END OF BARRIER)



**SIDE ELEVATION**  
LOOP BAR ASSEMBLY INVERTED FOR OPPOSITE END  
(FOR CONNECTION TO RIGHT END OF BARRIER)

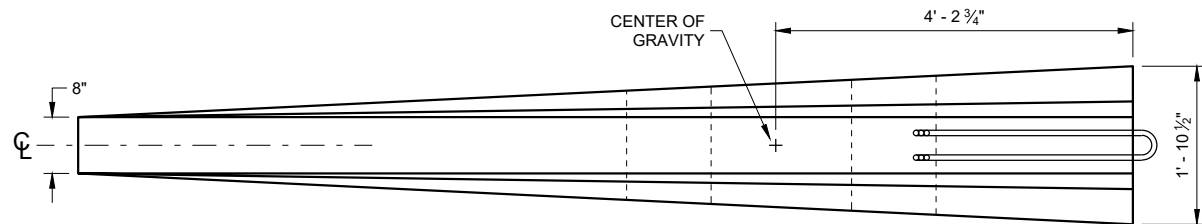
**GENERAL NOTES**

(1200) SEE LIFTING SLOT DETAIL. LOCATION OF LIFTING SLOTS DETERMINED BY CONTRACTOR.

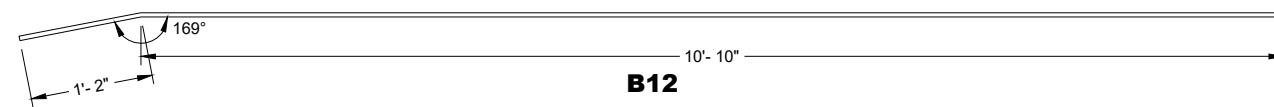


**FLARE AT BARRIER END**

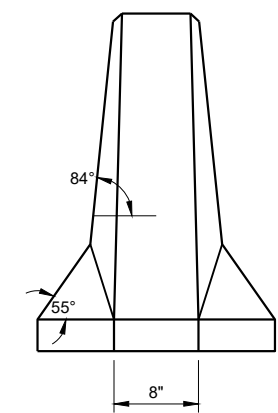
POSTED SPEED, (MPH)	FLARE RATE
40 OR LESS	6:1
45 OR GREATER	8:1



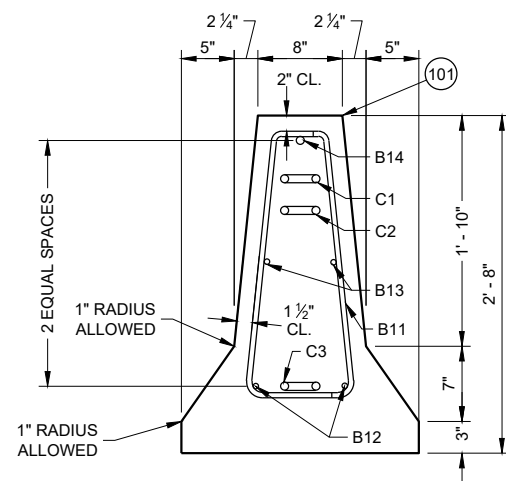
**PLAN VIEW**



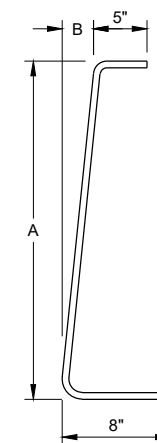
**BENT BAR DETAIL**



**FRONT ELEVATION**



**END SECTION**



BAR	A	B
B6	10"	1"
B7	1'- 1"	1 1/4"
B8	1'- 5"	1 5/8"
B9	1'- 8"	1 7/8"
B10	2'- 0 1/2"	2 3/8"
B11	2'- 3"	2 3/4"

**B BARS**

2 OF EACH SIZE REQUIRED FOR STIRRUP ASSEMBLY

**DETAILS OF BARRIER TAPER SECTION**

**CONCRETE BARRIER  
TEMPORARY PRECAST,  
12' - 6"**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

**BILL OF MATERIALS - CONCRETE BARRIER PRECAST**

PART	DESCRIPTION	MATERIALS SPECIFICATIONS	NOTES
A1	PRECAST TEMPORARY BARRIER - CONCRETE	MIN. = f <sub>c</sub> 5000 PSI	
B1	REBAR	STANDARD SPEC. 505.2 GRADE 60 UNCOATED REBAR	#5 REBAR, LENGTH 12'-2"
B2	REBAR	STANDARD SPEC. 505.2 GRADE 60 UNCOATED REBAR	#4 REBAR, LENGTH 12'-2"
B3	REBAR	STANDARD SPEC. 505.2 GRADE 60 UNCOATED REBAR	#5 REBAR, LENGTH 12'-2"
B4	REBAR	STANDARD SPEC. 505.2 GRADE 60 UNCOATED REBAR	#4 REBAR, LENGTH 6'-0"
B5	REBAR	STANDARD SPEC. 505.2 GRADE 60 UNCOATED REBAR	#6 REBAR, LENGTH 2'-11"
B6	REBAR	STANDARD SPEC. 505.2 GRADE 60 UNCOATED REBAR	#4 REBAR, LENGTH 1'-11"
B7	REBAR	STANDARD SPEC. 505.2 GRADE 60 UNCOATED REBAR	#4 REBAR, LENGTH 2'-2"
B8	REBAR	STANDARD SPEC. 505.2 GRADE 60 UNCOATED REBAR	#4 REBAR, LENGTH 2'-6"
B9	REBAR	STANDARD SPEC. 505.2 GRADE 60 UNCOATED REBAR	#4 REBAR, LENGTH 2'-9"
B10	REBAR	STANDARD SPEC. 505.2 GRADE 60 UNCOATED REBAR	#4 REBAR, LENGTH 3'-2"
B11	REBAR	STANDARD SPEC. 505.2 GRADE 60 UNCOATED REBAR	#4 REBAR, LENGTH 3'-4"
B12	REBAR	STANDARD SPEC. 505.2 GRADE 60 UNCOATED REBAR	#4 REBAR, LENGTH 12'-0"
B13	REBAR	STANDARD SPEC. 505.2 GRADE 60 UNCOATED REBAR	#4 REBAR, LENGTH 7'-9"
B14	REBAR	STANDARD SPEC. 505.2 GRADE 60 UNCOATED REBAR	#5 REBAR, LENGTH 11'-9"
C1	LOOP BAR	ASTM A709 GRADE 70 SMOOTH BAR OR ASTM A706 GRADE 60 REBAR UNCOATED	¾" DIA.
C2	LOOP BAR	ASTM A709 GRADE 70 SMOOTH BAR OR ASTM A706 GRADE 60 REBAR UNCOATED	¾" DIA.
C3	LOOP BAR	ASTM A709 GRADE 70 SMOOTH BAR OR ASTM A706 GRADE 60 REBAR UNCOATED	¾" DIA.
D1	CONNECTION PIN - ROD	ASTM A36 MIN. STRENGTH 36 KSI / ASTM A529 MAX. STRENGTH 50 KSI / ASTM A572 MAX STRENGTH 50 KSI / ASTM A709 MAX STRENGTH 50 KSI / ASTM A992 MAX STRENGTH 50 KSI	1 ½" DIA.
D2	CONNECTION PIN - TOP PLATE	ASTM A36 MIN. STRENGTH 36 KSI / ASTM A529 MAX. STRENGTH 50 KSI / ASTM A572 MAX STRENGTH 50 KSI / ASTM A709 MAX STRENGTH 50 KSI / ASTM A992 MAX STRENGTH 50 KSI	
G1	BOLT THROUGH ANCHOR - THREADED ROD	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GALVANIZE TO AASHTO M298 CLASS 55 TYPE 2 / ASTM B695 CLASS 55 TYPE 2 A307 GRADE A OR SAE J429 GRADE 2 UNC	1 ½" DIA.
G2	BOLT THROUGH ANCHOR - WASHER, SQUARE	ASTM A36 MIN. STRENGTH 36 KSI / ASTM A529 MAX. STRENGTH 50 KSI / ASTM A572 MAX STRENGTH 50 KSI / ASTM A709 MAX STRENGTH 50 KSI / ASTM A992 MAX STRENGTH 50 KSI	
G3	BOLT THROUGH ANCHOR - NUT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GALVANIZE TO AASHTO M298 CLASS 55 TYPE 2 / ASTM B695 CLASS 55 UNC OVER TAP NUTS AS SPECIFIED IN AASHTO 291 / ASTM A 563 HEAVY HEX HEAD ASTM A563DH OR SAE J995 GRADE 5	
H1	ADHESIVE ANCHOR - ADHESIVE	ICC-ES-AC308 5 ¼" EMBEDMENT WITH A MIN. BOND STRENGTH OF 1,650 PSI. SEE 603.2 AND 603.3.1.2 OF THE WISCONSIN STANDARD SPECIFICATIONS FOR MORE INFORMATION ON ADHESIVE ANCHORS.	
H2	ADHESIVE ANCHOR - THREADED ROD	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GALVANIZE TO AASHTO M298 CLASS 55 TYPE 2 / ASTM B695 CLASS 55 TYPE 2 A307 GRADE A / SAE J429 GRADE 2 UNC	1 ½" DIA.
H3	ADHESIVE ANCHOR - WASHER, SQUARE	ASTM A36 MIN. STRENGTH 36 KSI / ASTM A529 MAX. STRENGTH 50 KSI / ASTM A572 MAX STRENGTH 50 KSI / ASTM A709 MAX STRENGTH 50 KSI / ASTM A992 MAX STRENGTH 50 KSI	
H4	ADHESIVE ANCHOR - NUT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GALVANIZE TO AASHTO M298 CLASS 55 TYPE 2 / ASTM B695 CLASS 55 UNC OVER TAP NUTS AS SPECIFIED IN AASHTO 291 / ASTM A 563 HEAVY HEX HEAD ASTM A563DH OR SAE J995 GRADE 5	
J1	ASPHALT ANCHOR PIN - ROD	ASTM A36 MIN. STRENGTH 36 KSI / ASTM A529 MAX. STRENGTH 50 KSI / ASTM A572 MAX STRENGTH 50 KSI / ASTM A709 MAX STRENGTH 50 KSI / ASTM A992 MAX STRENGTH 50 KSI	1 ½" DIA.
J2	ASPHALT ANCHOR PIN - STOP PLATE	ASTM A36 MIN. STRENGTH 36 KSI / ASTM A529 MAX. STRENGTH 50 KSI / ASTM A572 MAX STRENGTH 50 KSI / ASTM A709 MAX STRENGTH 50 KSI / ASTM A992 MAX STRENGTH 50 KSI	
K1	THRIE BEAM RAIL	AASHTO M180 CLASS A TYPE 2 APPROVED PRODUCER	12 GAUGE
L1	THRIE BEAM RAIL - TERMINAL	AASHTO M180 CLASS A TYPE 2 APPROVED PRODUCER	12 GAUGE

PART	DESCRIPTION	MATERIALS SPECIFICATIONS	NOTES
M1	SPLICE BOLT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 55 TYPE 2 / ASTM B695 CLASS 55 TYPE 2 UNC AASHTO M180 HEAD ASTM A307 GRADE B OR SAE J429 GRADE 2 OR ASTM F1554 GRADE 36	¾" DIA.
M2	SPLICE BOLT - NUT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GALVANIZE TO AASHTO M298 CLASS 55 TYPE 2 / ASTM B695 CLASS 55 UNC OVER TAP NUTS AS SPECIFIED IN AASHTO 291 / ASTM A 563 AASHTO M180 RECESSED HEAVY HEX HEAD ASTM A563DH OR SAE J995 GRADE 5	
N1	THRIE BEAM RAIL TERMINAL - MECHANICAL ANCHOR	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GALVANIZE TO AASHTO M298 CLASS 55 TYPE 2 / ASTM B695 CLASS 55 UNC OVER TAP NUTS AS SPECIFIED IN AASHTO 291 / ASTM A 563 AASHTO M180 RECESSED HEAVY HEX HEAD ASTM A563DH OR SAE J995 GRADE 5	¾" DIA. LENGTH 6"
N2	THRIE BEAM RAIL TERMINAL - WASHER	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GALVANIZE TO AASHTO M298 CLASS 55 TYPE 2 / ASTM B695 CLASS 55 TYPE 2 F436 TYPE 1	
N3	THRIE BEAM RAIL TERMINAL MECHANICAL OR ADHESIVE ANCHOR	MINIMUM MECHANICAL OR ADHESIVE ANCHOR STRENGTH REQUIREMENTS: ULTIMATE TENSILE LOAD 17.9 KIPS AND ULTIMATE SHEAR LOAD 21.96 KIPS. SEE 603.2 AND 603.3.1.2 OF THE WISCONSIN STANDARD SPECIFICATIONS FOR MORE INFORMATION ON ADHESIVE ANCHORS.	
P1	THRIE BEAM RAIL CONNECTION 1-BOLT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GALVANIZE TO AASHTO M298 CLASS 55 TYPE 2 / ASTM B695 CLASS 55 UNC OVER TAP NUTS AS SPECIFIED IN AASHTO 291 / ASTM A 563 AASHTO M180 RECESSED HEAVY HEX HEAD ASTM A563DH OR SAE J995 GRADE 5	¾" DIA.
P2	THRIE BEAM RAIL CONNECTION 1-WASHER	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 55 TYPE 2 / ASTM B695 CLASS 55 TYPE 2 F436 TYPE 1	
P3	THRIE BEAM RAIL CONNETION 1- MECHANICAL OR ADHESIVE ANCHOR	MINIMUM MECHANICAL OR ADHESIVE ANCHOR STRENGTH REQUIREMENTS: ULTIMATE TENSILE LOAD 9.48 KIPS AND ULTIMATE SHEAR LOAD 10.48 KIPS. SEE 603.2 AND 603.3.1.2 OF THE WISCONSIN STANDARD SPECIFICATIONS FOR MORE INFORMATION ON ADHESIVE ANCHORS.	
Q1	BLOCK WOOD	SEE STANDARD SPEC. 614	
R1	CAP - BOLT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GALVANIZE TO AASHTO M298 CLASS 55 TYPE 2 / ASTM B695 CLASS 55 UNC OVER TAP NUTS AS SPECIFIED IN AASHTO 291 / ASTM A 563 AASHTO M180 RECESSED HEAVY HEX HEAD ASTM A563DH OR SAE J995 GRADE 5	¾" DIA.
R2	CAP - BOLT - WASHER	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 55 TYPE 2 / ASTM B695 CLASS 55 TYPE 2 F436 TYPE 1	
R3	CAP - BOLT - MECHANICAL ANCHOR	MINIMUM MECHANICAL OR ADHESIVE ANCHOR STRENGTH REQUIREMENTS ULTIMATE TENSILE LOAD 12.14 KIPS AND ULTIMATE SHEAR LOAD 17.5 KIPS. SEE 603.2 AND 603.3.1.2 OF THE WISCONSIN STANDARD SPECIFICATIONS FOR MORE INFORMATION ON ADHESIVE ANCHORS.	12 GAUGE
S1	CAP 42-INCH TOP PLATE	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX. STRENGTH 50 KSI, OR ASTM A709 MAX. STRENGTH 50 KSI, OR ASTM A992 MAX. STRENGTH 50 KSI	12 GAUGE
S2	CAP 42-INCH END PLATE	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX. STRENGTH 50 KSI, OR ASTM A709 MAX. STRENGTH 50 KSI, OR ASTM A992 MAX. STRENGTH 50 KSI	12 GAUGE
S3	CAP 42-INCH SIDE PLATE	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX. STRENGTH 50 KSI, OR ASTM A709 MAX. STRENGTH 50 KSI, OR ASTM A992 MAX. STRENGTH 50 KSI	12 GAUGE
S4	CAP 42-INCH GUSSET 1	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX. STRENGTH 50 KSI, OR ASTM A709 MAX. STRENGTH 50 KSI, OR ASTM A992 MAX. STRENGTH 50 KSI	12 GAUGE
S5	CAP 42-INCH GUSSET 2	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX. STRENGTH 50 KSI, OR ASTM A709 MAX. STRENGTH 50 KSI, OR ASTM A992 MAX. STRENGTH 50 KSI	12 GAUGE
S6	CAP 42-INCH GUSSET 3	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX. STRENGTH 50 KSI, OR ASTM A709 MAX. STRENGTH 50 KSI, OR ASTM A992 MAX. STRENGTH 50 KSI	12 GAUGE
S7	CAP 42-INCH GUSSET 4	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX. STRENGTH 50 KSI, OR ASTM A709 MAX. STRENGTH 50 KSI, OR ASTM A992 MAX. STRENGTH 50 KSI	12 GAUGE

6

SDD 14B07-16m

6

SDD 14B07-16m

**CONCRETE BARRIER  
TEMPORARY PRECAST,  
12' - 6"**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

**BILL OF MATERIALS - CONCRETE BARRIER PRECAST**

PART	DESCRIPTION	MATERIALS SPECIFICATIONS	NOTES
T1	CAP 56-INCH TOP PLATE	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX. STRENGTH 50 KSI, OR ASTM A709 MAX. STRENGTH 50 KSI, OR ASTM A992 MAX. STRENGTH 50 KSI	12 GAUGE
T2	CAP 56-INCH END PLATE	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX. STRENGTH 50 KSI, OR ASTM A709 MAX. STRENGTH 50 KSI, OR ASTM A992 MAX. STRENGTH 50 KSI	12 GAUGE
T3	CAP 56-INCH SIDE PLATE 1	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX. STRENGTH 50 KSI, OR ASTM A709 MAX. STRENGTH 50 KSI, OR ASTM A992 MAX. STRENGTH 50 KSI	12 GAUGE
T4	CAP 56-INCH SIDE PLATE 2	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX. STRENGTH 50 KSI, OR ASTM A709 MAX. STRENGTH 50 KSI, OR ASTM A992 MAX. STRENGTH 50 KSI	12 GAUGE
T5	CAP 56-INCH GUSSET 1	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX. STRENGTH 50 KSI, OR ASTM A709 MAX. STRENGTH 50 KSI, OR ASTM A992 MAX. STRENGTH 50 KSI	12 GAUGE
T6	CAP 56-INCH GUSSET 2	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX. STRENGTH 50 KSI, OR ASTM A709 MAX. STRENGTH 50 KSI, OR ASTM A992 MAX. STRENGTH 50 KSI	12 GAUGE
T7	CAP 56-INCH GUSSET 3	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX. STRENGTH 50 KSI, OR ASTM A709 MAX. STRENGTH 50 KSI, OR ASTM A992 MAX. STRENGTH 50 KSI	12 GAUGE
T8	CAP 42-INCH GUSSET 4	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX. STRENGTH 50 KSI, OR ASTM A709 MAX. STRENGTH 50 KSI, OR ASTM A992 MAX. STRENGTH 50 KSI	12 GAUGE
T9	CAP 42-INCH GUSSET 5	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX. STRENGTH 50 KSI, OR ASTM A709 MAX. STRENGTH 50 KSI, OR ASTM A992 MAX. STRENGTH 50 KSI	12 GAUGE
T10	CAP 42-INCH GUSSET 6	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX. STRENGTH 50 KSI, OR ASTM A709 MAX. STRENGTH 50 KSI, OR ASTM A992 MAX. STRENGTH 50 KSI	12 GAUGE
T11	CAP 42-INCH GUSSET 7	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX. STRENGTH 50 KSI, OR ASTM A709 MAX. STRENGTH 50 KSI, OR ASTM A992 MAX. STRENGTH 50 KSI	12 GAUGE
T12	CAP 42-INCH GUSSET 8	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX. STRENGTH 50 KSI, OR ASTM A709 MAX. STRENGTH 50 KSI, OR ASTM A992 MAX. STRENGTH 50 KSI	12 GAUGE
T13	CAP 42-INCH GUSSET 9	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX. STRENGTH 50 KSI, OR ASTM A709 MAX. STRENGTH 50 KSI, OR ASTM A992 MAX. STRENGTH 50 KSI	12 GAUGE
T14	CAP 42-INCH GUSSET 10	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX. STRENGTH 50 KSI, OR ASTM A709 MAX. STRENGTH 50 KSI, OR ASTM A992 MAX. STRENGTH 50 KSI	12 GAUGE
T15	CAP 42-INCH GUSSET 11	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX. STRENGTH 50 KSI, OR ASTM A709 MAX. STRENGTH 50 KSI, OR ASTM A992 MAX. STRENGTH 50 KSI	12 GAUGE
T16	CAP 42-INCH GUSSET 12	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX. STRENGTH 50 KSI, OR ASTM A709 MAX. STRENGTH 50 KSI, OR ASTM A992 MAX. STRENGTH 50 KSI	12 GAUGE
U1	GAP STIFFENER	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX. STRENGTH 50 KSI, OR ASTM A709 MAX. STRENGTH 50 KSI, OR ASTM A992 MAX. STRENGTH 50 KSI	
U2	GAP STIFFENER - CONNECTOR PLATE 1	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX. STRENGTH 50 KSI, OR ASTM A709 MAX. STRENGTH 50 KSI, OR ASTM A992 MAX. STRENGTH 50 KSI	
U3	GAP STIFFENER - CONNECTOR PLATE 2	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX. STRENGTH 50 KSI, OR ASTM A709 MAX. STRENGTH 50 KSI, OR ASTM A992 MAX. STRENGTH 50 KSI	

PART	DESCRIPTION	MATERIALS SPECIFICATIONS	NOTES
V1	THRIE BEAM RAIL TERMINAL MECHANICAL OR ADHESIVE ANCHOR	MINIMUM MECHANICAL OR ADHESIVE ANCHOR STRENGTH REQUIREMENTS ULTIMATE TENSILE LOAD 24.0 KIPS AND ULTIMATE SHEAR LOAD 21.5 KIPS. SEE 603.2 AND 603.3.1.2 OF THE WISCONSIN STANDARD SPECIFICATIONS FOR MORE INFORMATION ON ADHESIVE ANCHORS.	¾" DIA.
V2	GAP STIFFENER - BOLT - NUT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C O R MECHANICAL GALVANIZE TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 UNC OVER TAP NUTS AS SPECIFIED IN AASHTO 291/ASTM A 563 HEAVY HEX HEAD ASTM A563DH OR SAE J995 GRADE 5	
W1	TOE PLATE	AASHTO M111/ASTM A123 ASTM A36 MIN STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX. STRENGTH 50 KSI, OR ASTM A709 MAX. STRENGTH 50 KSI, OR ASTM A992 MAX. STRENGTH 50 KSI	
X1	TOE PLATE - CONNECTION BOLT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GALVANIZE TO AASHTO M298 CLASS 55 TYPE 2 / ASTM B695 CLASS 55 TYPE 2 UNC HEAVY HEX HEAD OR AASTHO M180 HEAD, ASTM F3125 GRADE A325 TYPE 1 HEAVY HEX HEAD OR SAE J429 GRADE 5 HEAVY HEX HEAD / ASTM A449 TYPE 1 HEAVY HEX HEAD. BOLTS MAY BE FULLY THREADED. PROVIDE ENOUGH THREADING FOR PROPER TIGHTENING OF BOLT.	¾" DIA.
X2	TOE PLATE - CONNECTION BOLT - WASHER	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GALVANIZE TO AASHTO M298 CLASS 55 TYPE 2 / ASTM B695 CLASS 55 TYPE 2 F436 TYPE 1 (HARDEN WASHER ONLY)	
X3	TOE PLATE - CONNECTION BOLT - NUT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GALVANIZE TO AASHTO M298 CLASS 55 TYPE 2 / ASTM B695 CLASS 55 UNC OVER TAP NUTS AS SPECIFIED IN AASHTO 291 / ASTM A 563 HEAVY HEX HEAD ASTM A563DH OR SAE J995 GRADE 5	

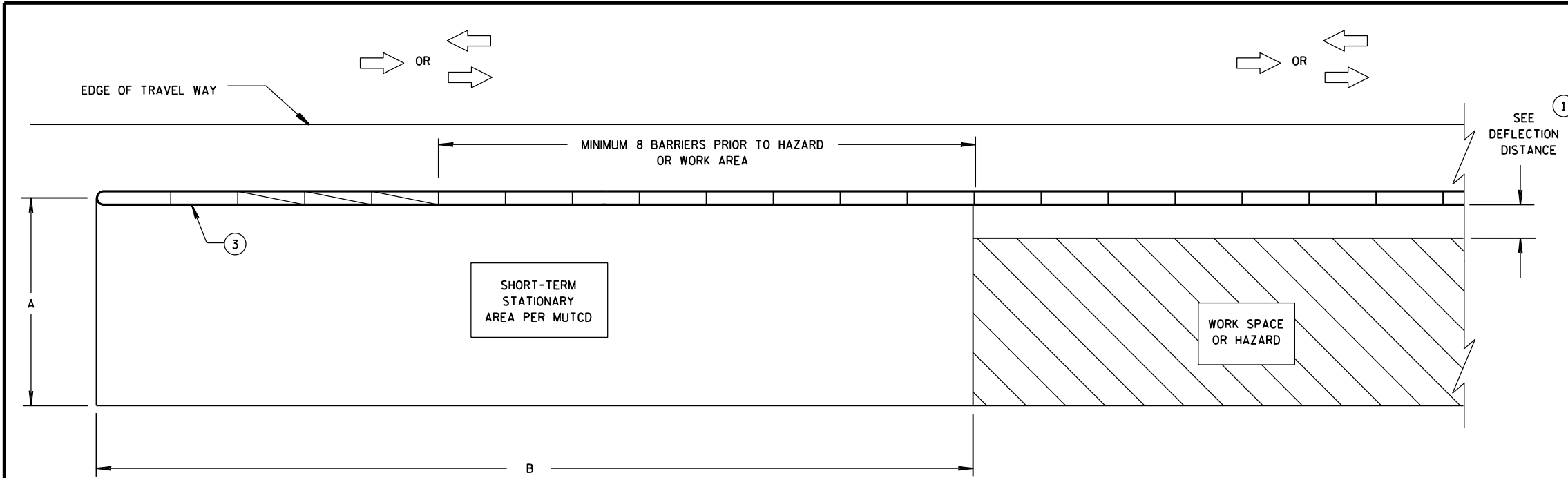
6

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SDD 14B07-16n

SDD 14B07-16n

<b>CONCRETE BARRIER TEMPORARY PRECAST, 12' - 6"</b>	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED February 2023 DATE	/S/ Rodney Taylor ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA	



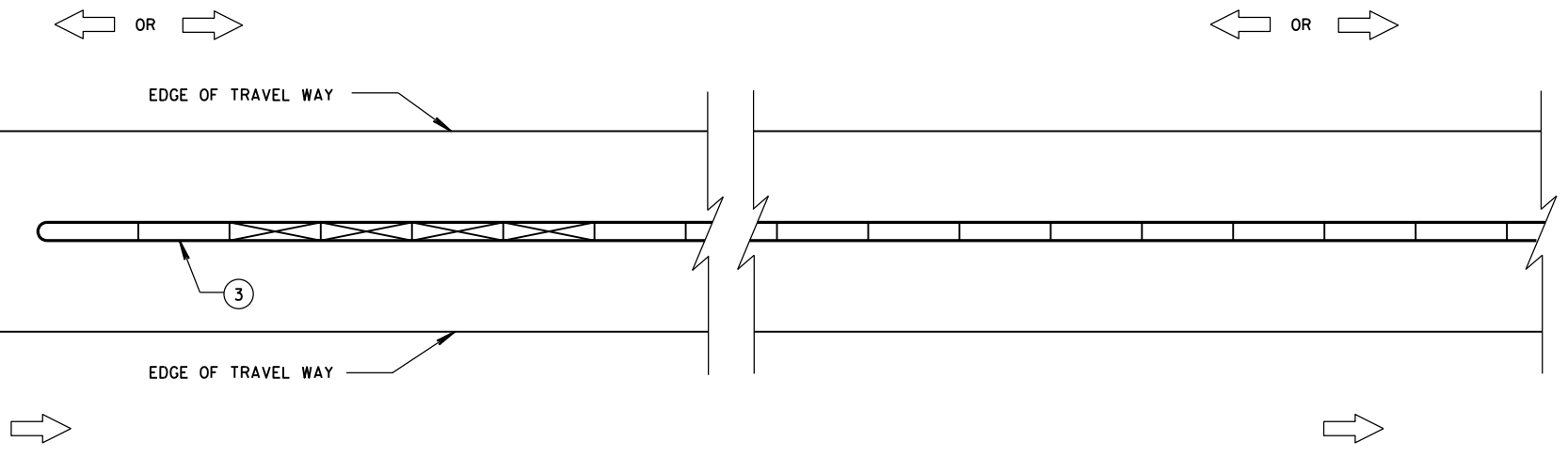
**DIMENSION A TABLE** <sup>②</sup>

FACILITY	POSTED SPEED MPH	DIMENSION A	
		MIN. FT	MAX. FT
FREEWAY/EXPRESSWAY	ALL	15	20
NON-FREEWAY/EXPRESSWAY	GREATER THAN OR EQUAL TO 45	10	15
NON-FREEWAY/EXPRESSWAY	LESS THAN 45	8	10
AADT LESS THAN 1,500	ALL	8	10

**CRASH CUSHION/SAND BARREL ARRAY AND TEMPORARY BARRIER  
INSTALLATION FOR TRAFFIC ON ONE SIDE OF BARRIER**

**DIMENSION B TABLE** <sup>②</sup>

POSTED SPEEDS MPH	DIMENSION B FT
20	115
25	155
30	200
35	250
40	305
45	360
50	425
55	495
60	570
65	645



**CRASH CUSHION/SAND BARREL ARRAY AND TEMPORARY BARRIER  
INSTALLATION FOR TRAFFIC ON BOTH SIDES OF BARRIER**

**LEGEND**

- DIRECTION OF TRAVEL
- CRASH CUSHION OR SAND BARREL ARRAY
- SEE FREE STANDING TRANSITION TO TIED-DOWN SYSTEM DETAILS
- SEE BI-DIRECTIONAL TRANSITION TO TIED-DOWN SYSTEM DETAILS
- 3 PINS PLACED ON TRAFFIC SIDE OF BARRIER
- PERMANENT CONCRETE BARRIER OR CONCRETE PARAPET
- FREE STANDING TEMPORARY BARRIER

**GENERAL NOTES**

SEE STANDARD DETAIL DRAWING 14B7 FOR MORE INFORMATION.

DETAILS PROVIDE A GENERAL LAYOUT OF TEMPORARY CONCRETE BARRIER, CRASH CUSHIONS, SAND BARREL ARRAYS AND TIE DOWN TRANSITIONS. DETAILS PROVIDED MAY NOT FIT ALL POSSIBLE SITUATIONS OR SITE CONDITIONS. SEE OTHER SECTIONS OF THE CONTRACT OR PROJECT ENGINEER FOR MORE DETAILS.

ADDITIONAL TEMPORARY BARRIER MAY BE REQUIRED TO PROTECT TRAVELING PUBLIC FROM HAZARDS, CONTRACTOR'S OPERATIONS OR TO CONTROL TRAFFIC.

TEMPORARY BARRIER MAY BE REQUIRED TO BE ANCHORED TO PAVEMENT OR BRIDGE DECK.

- ① FOR DEFLECTION INFORMATION SEE STANDARD DETAIL DRAWING 14B7.
- ② VALUES PROVIDED MAY NOT FIT ALL POSSIBLE SITUATIONS OR SITE CONDITIONS. SEE OTHER SECTIONS OF THE CONTRACT OR PROJECT ENGINEER FOR MORE DETAILS.
- ③ ANCHOR TEMPORARY BARRIER ACCORDING TO CRASH CUSHION OR SAND BARREL MANUFACTURER'S RECOMMENDATIONS. IF MANUFACTURER'S RECOMMENDATIONS ARE NOT PROVIDED, ANCHOR 3 PINS ON TRAFFIC SIDE.

**CRASH CUSHION/SAND BARREL  
ARRAY AND OTHER TEMPORARY  
BARRIER LAYOUT DETAILS**

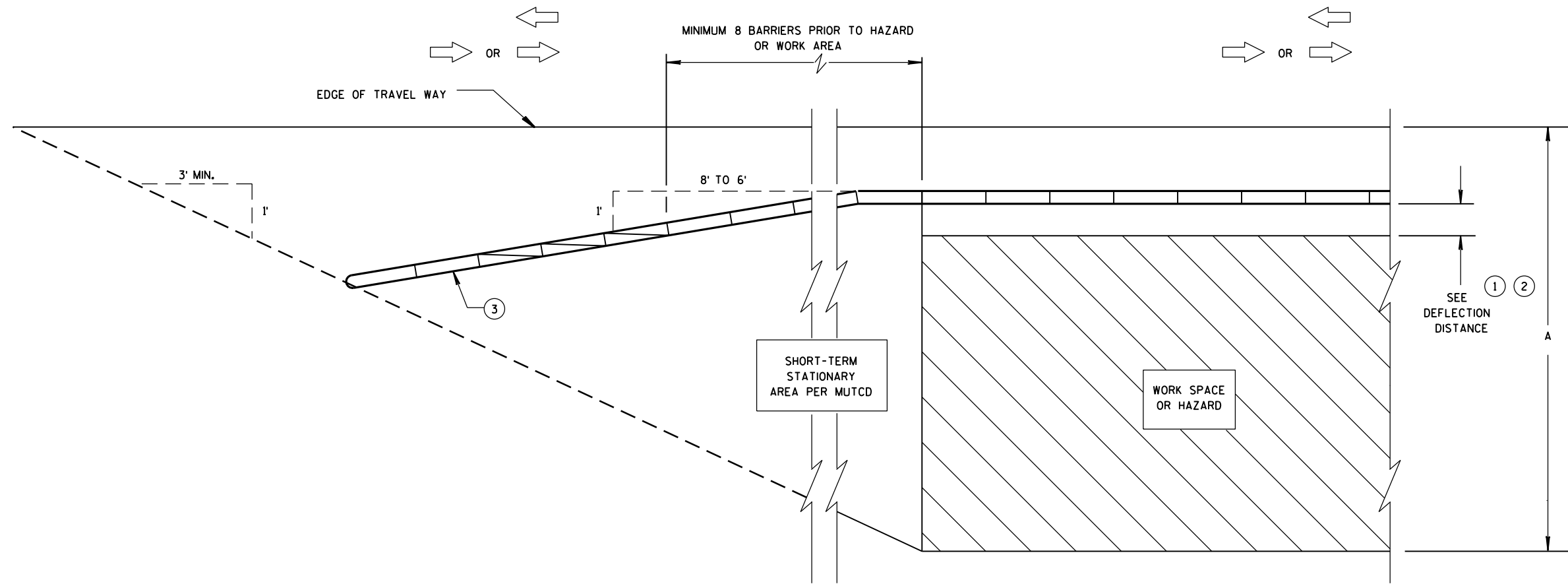
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

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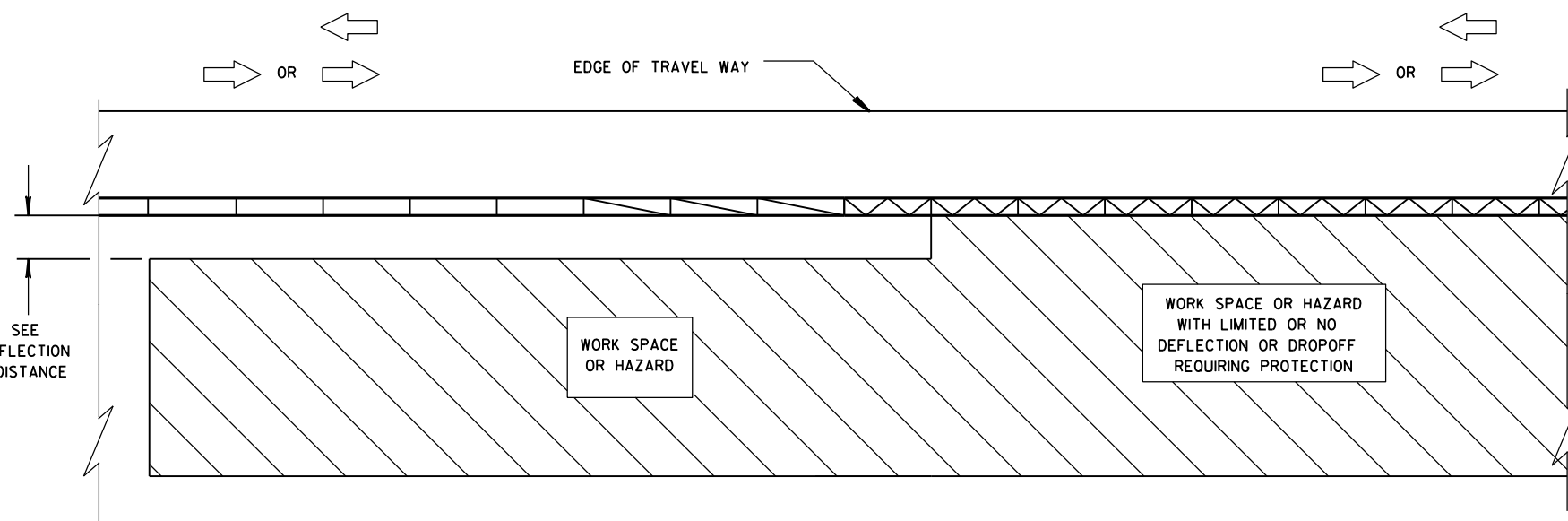
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S.D.D. 14 B 8-2a

S.D.D. 14 B 8-2a



**CRASH CUSHION/SAND BARREL ARRAY AND TEMPORARY BARRIER  
INSTALLATION FOR TRAFFIC ON ONE SIDE - FLARED INSTALLATION**



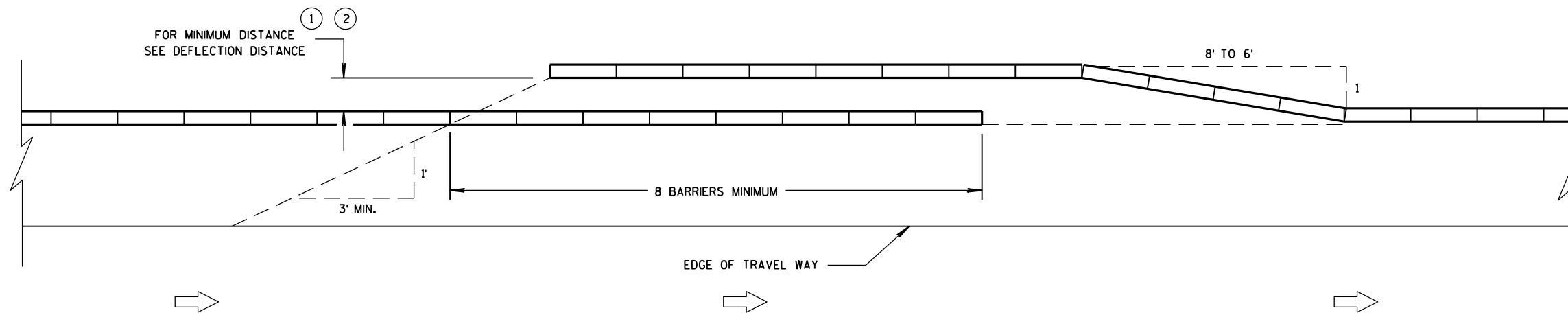
**TRANSITION FROM FREE STANDING TEMPORARY BARRIER  
TO ANCHORED BARRIER**

**LEGEND**

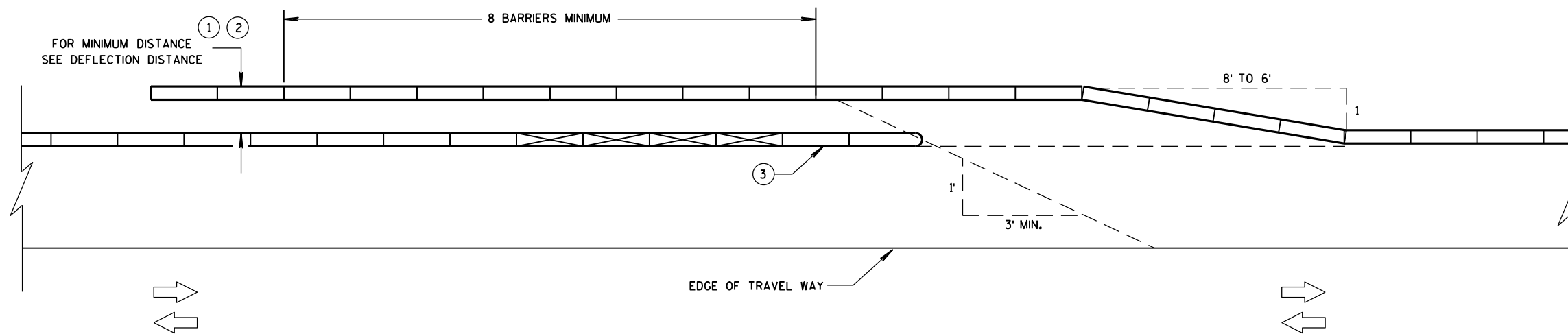
- DIRECTION OF TRAVEL
- CRASH CUSHION OR SAND BARREL ARRAY
- SEE FREE STANDING TRANSITION TO TIED-DOWN SYSTEM DETAILS
- SEE BI-DIRECTIONAL TRANSITION TO TIED-DOWN SYSTEM DETAILS
- 3 PINS PLACED ON TRAFFIC SIDE OF BARRIER
- PERMANENT CONCRETE BARRIER OR CONCRETE PARAPET
- FREE STANDING TEMPORARY BARRIER

**CRASH CUSHION/SAND BARREL  
ARRAY AND OTHER TEMPORARY  
BARRIER LAYOUT DETAILS**

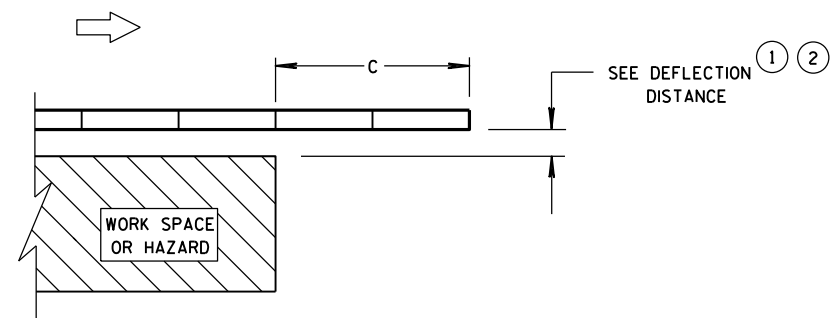
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



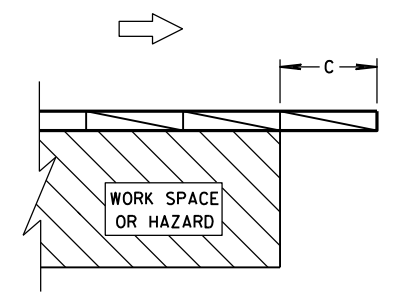
**TEMPORARY BARRIER OVERLAP - ONE-WAY TRAFFIC**



**TEMPORARY BARRIER OVERLAP - TWO-WAY TRAFFIC**



**ENDING TEMPORARY BARRIER  
DOWNSTREAM - UNANCHORED**



**ENDING TEMPORARY BARRIER  
DOWNSTREAM - ANCHORED**

**LEGEND**

- DIRECTION OF TRAVEL
- CRASH CUSHION OR SAND BARREL ARRAY
- SEE FREE STANDING TRANSITION TO TIED-DOWN SYSTEM DETAILS
- SEE BI-DIRECTIONAL TRANSITION TO TIED-DOWN SYSTEM DETAILS
- 3 PINS PLACED ON TRAFFIC SIDE OF BARRIER
- PERMANENT CONCRETE BARRIER OR CONCRETE PARAPET
- FREE STANDING TEMPORARY BARRIER

**CRASH CUSHION/SAND BARREL  
ARRAY AND OTHER TEMPORARY  
BARRIER LAYOUT DETAILS**

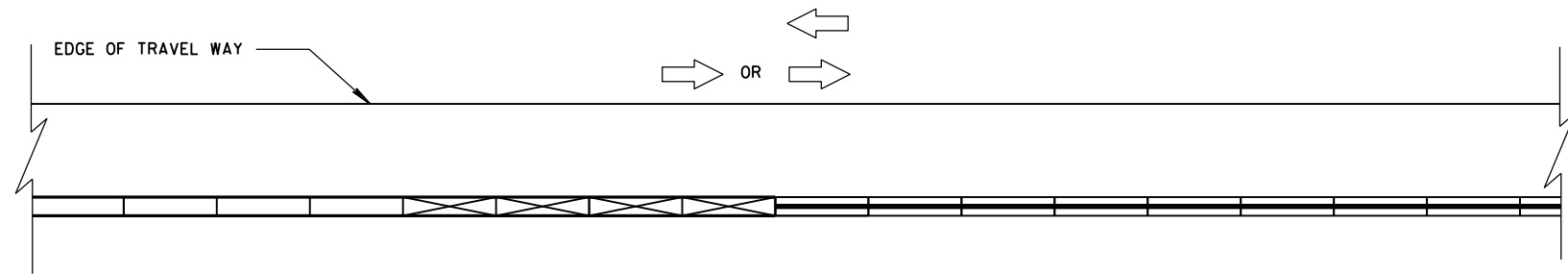
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

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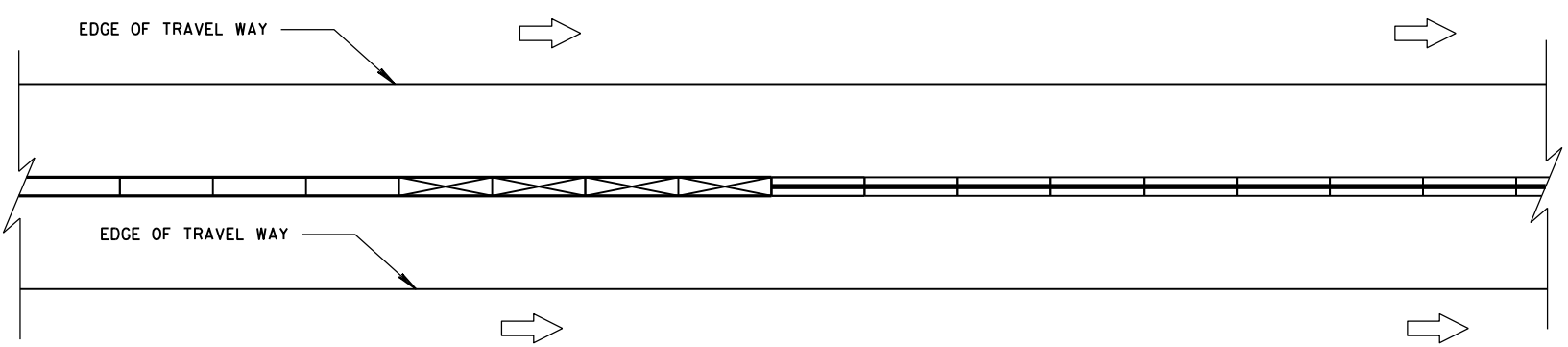
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S.D.D. 14 B 8-2c

S.D.D. 14 B 8-2c



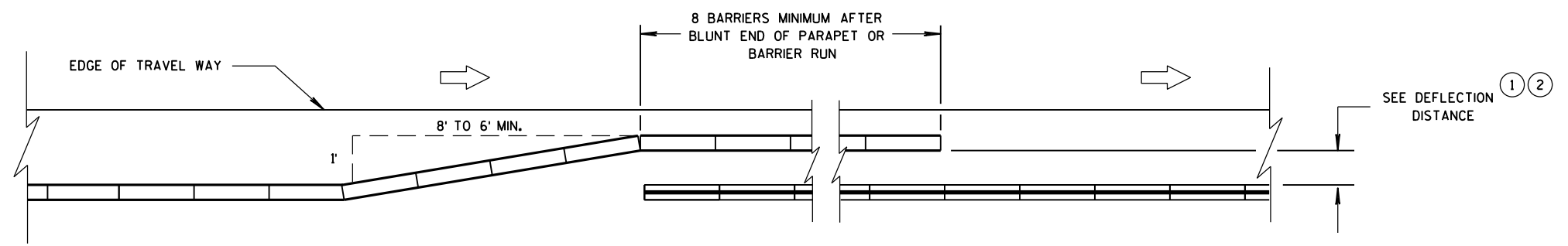
**CONNECTING TEMPORARY BARRIER TO PERMANENT CONCRETE BARRIER-TRAFFIC ON ONE SIDE**



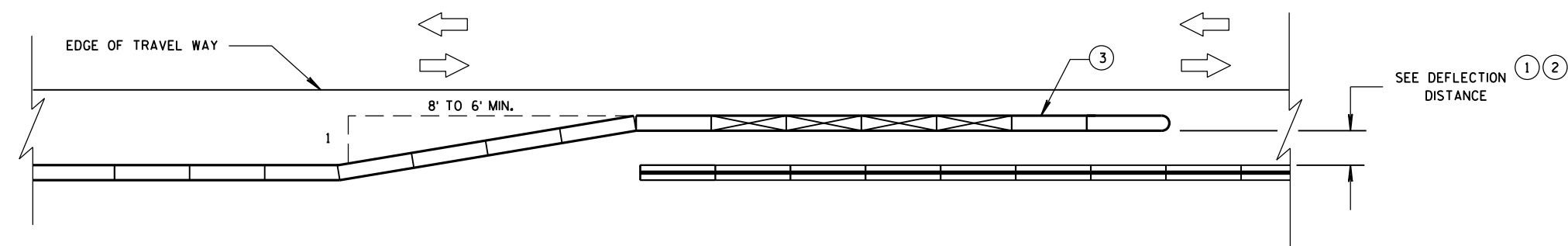
**CONNECTING TEMPORARY BARRIER TO PERMANENT CONCRETE BARRIER-TRAFFIC ON BOTH SIDES**

**LEGEND**

- DIRECTION OF TRAVEL
- CRASH CUSHION OR SAND BARREL ARRAY
- SEE FREE STANDING TRANSITION TO TIED-DOWN SYSTEM DETAILS
- SEE BI-DIRECTIONAL TRANSITION TO TIED-DOWN SYSTEM DETAILS
- 3 PINS PLACED ON TRAFFIC SIDE OF BARRIER
- PERMANENT CONCRETE BARRIER OR CONCRETE PARAPET
- FREE STANDING TEMPORARY BARRIER



**OVERLAPPING TEMPORARY BARRIER AND PERMANENT BARRIER - ONE WAY TRAFFIC**



**OVERLAPPING TEMPORARY BARRIER AND PERMANENT BARRIER - TWO WAY TRAFFIC**

**CRASH CUSHION/SAND BARREL ARRAY AND OTHER TEMPORARY BARRIER LAYOUT DETAILS**

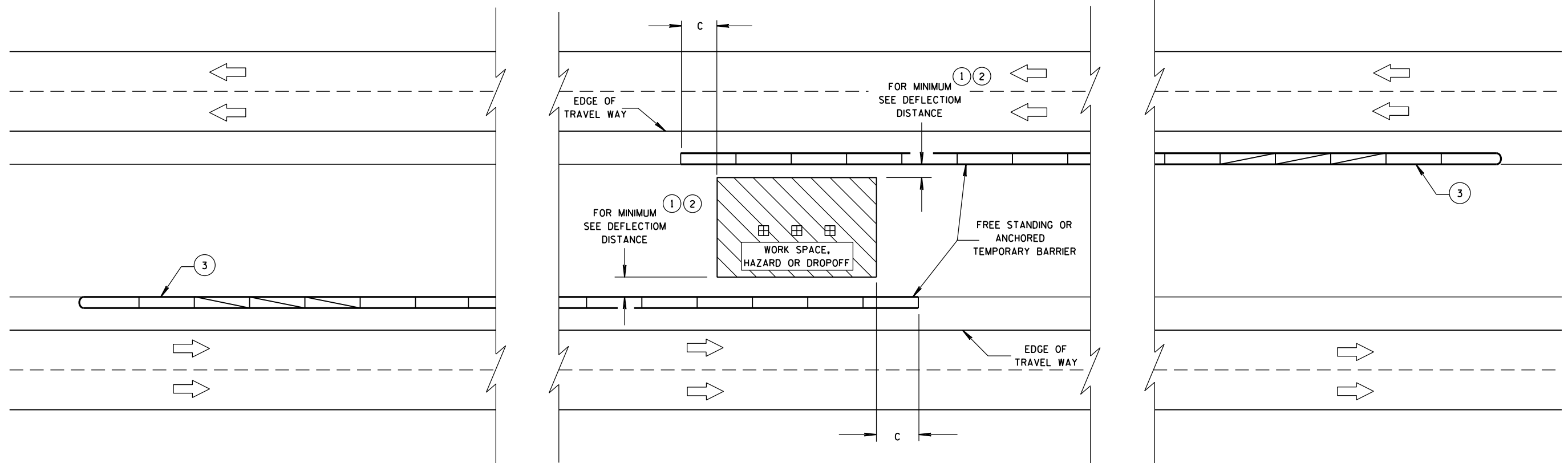
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

**LEGEND**

- DIRECTION OF TRAVEL
- CRASH CUSHION OR SAND BARREL ARRAY
- SEE FREE STANDING TRANSITION TO TIED-DOWN SYSTEM DETAILS
- SEE BI-DIRECTIONAL TRANSITION TO TIED-DOWN SYSTEM DETAILS
- 3 PINS PLACED ON TRAFFIC SIDE OF BARRIER
- PERMANENT CONCRETE BARRIER OR CONCRETE PARAPET
- FREE STANDING TEMPORARY BARRIER

**DIMENSION C TABLE** <sup>2</sup>

AVAILABLE DEFLECTION DISTANCE	MINIMUM LENGTH OF BARRIER BEYOND HAZARD FT
GREATER THAN 8'	12.5
LESS THAN OR EQUAL TO 8' BUT GREATER THAN 4'	50
LESS THAN OR EQUAL TO 4'	100



6

6

S.D.D. 14 B 8-2e

S.D.D. 14 B 8-2e

**CRASH CUSHION/SAND BARREL ARRAY AND OTHER TEMPORARY BARRIER LAYOUT DETAILS**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
June, 2015 DATE /S/ Jerry H. Zogg  
FHWA ROADWAY STANDARDS DEVELOPMENT ENGINEER



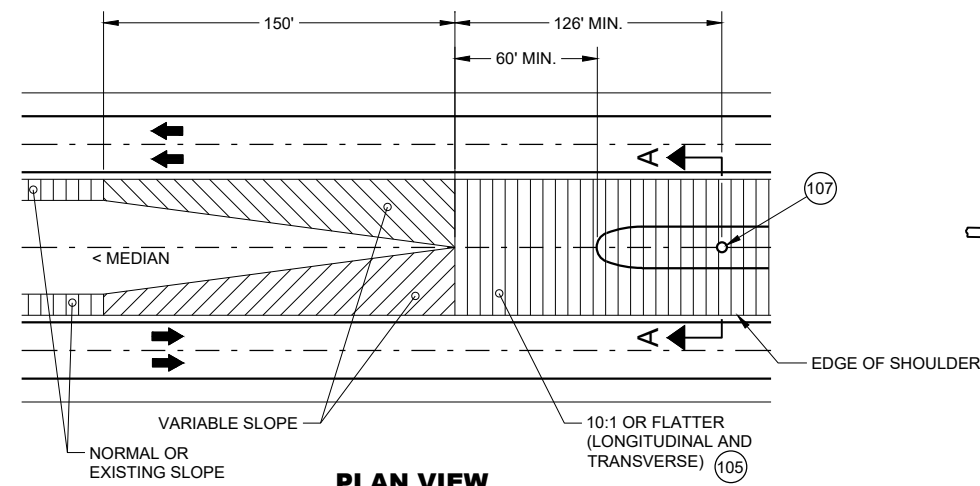
**GENERAL NOTES**

THRIE BEAM RAILS MAY NEED TO BE FIELD BENT TO FIT THE LOCATION.

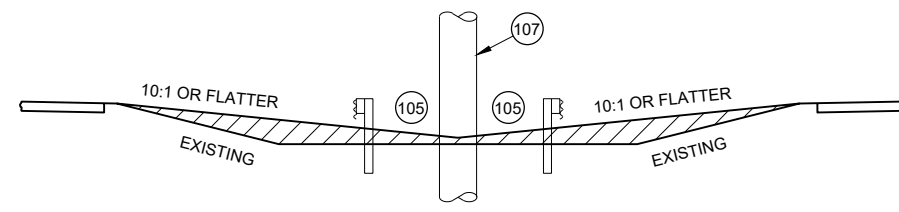
SEE STANDARD DETAIL DRAWINGS 14B26 SHEETS a-h.

IF ROCK IS ENCOUNTERED, REMOVE ROCK TO FULL DEPTH OF POST PLUS 2 1/2". MINIMUM DIAMETER OF THE ROCK REMOVAL IS 12" DIAMETER

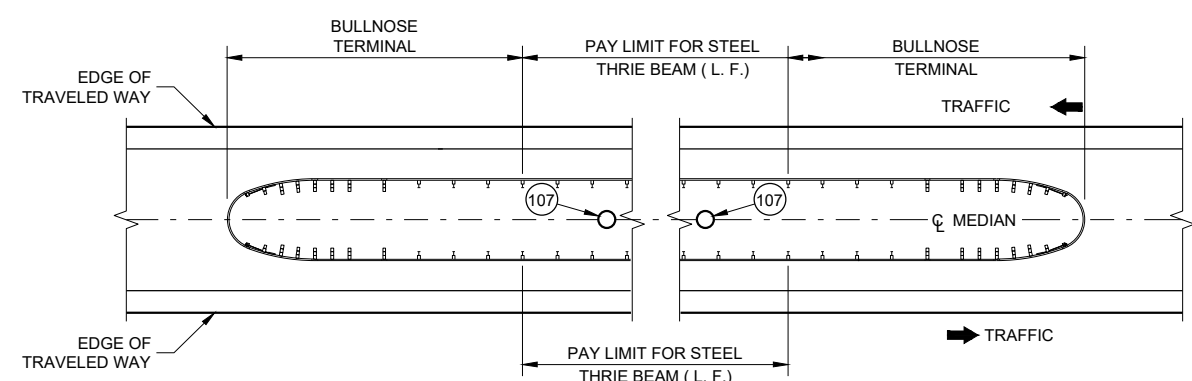
- [E1] UNBENT STANDARD THRIE BEAM RAIL B1 (POST 8 TO POST 10 AND POST 10 TO POST 12)
- [E2] SLOTTED THRIE BEAM RAIL E1 (POST 1 TO POST 1)
- [E3] SLOTTED THRIE BEAM RAIL B3 (POST 5 TO POST 8)
- [E4] SLOTTED THRIE BEAM RAIL E4 (POST 1 TO POST 5)
- [5] BEYOND POST 12: CONSTRUCT STEEL THRIE BEAM - USE UNBENT STANDARD THRIE BEAM RAIL NO. 5.
- (100) DIMENSIONS ARE FROM BACK OF RAIL TO BACK OF RAIL WHERE RAIL IS BOLTED TO POST OR BLOCK.
- (101) U-BOLT CABLE CLIPS (3 PER CABLE) SPACED OUT ON NOSE, TO HOLD CABLE TO BACKSIDE OF THE RAIL.
- (102) NOSE CABLE WITH SWAGGED END BUTTONS.
- (103) NOSE CABLE ANCHOR PLATE (BACKSIDE OF SPLICE).
- (104) THE SLACK IN THE NOSE CABLES SHALL BE EVENLY DISTRIBUTED BETWEEN THE CABLE CLIP FASTENERS AND POST NO. 1 ON EITHER SIDE OF THE NOSE.
- (105) MINIMUM WORKING WIDTH 4' - 2".
- (106) MAX. WIDTH OF SYSTEM IS 14' - 2 1/2" MEASURED FROM THE BACK OF RAIL TO BACK OF RAIL WHERE RAIL IS BOLTED TO A POST OR BLOCK.
- (107) FIXED OBJECT OR OTHER HAZARD.
- (108) PLAN IS TO PROVIDE STATION OFFSET TO CENTER OF POST 5 IN PLANS.



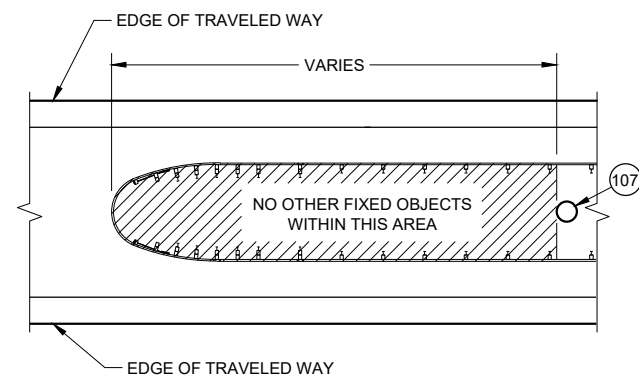
**PLAN VIEW GRADING AT BULLNOSE**  
(ALL INSTALLATIONS)



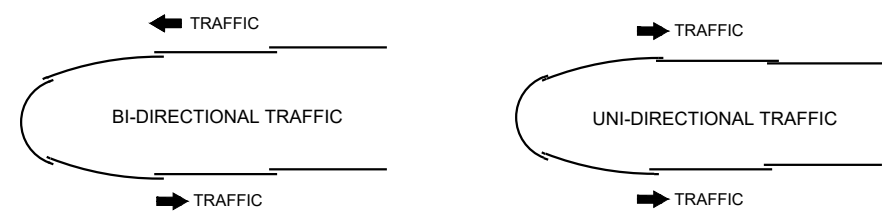
**SECTION A-A MEDIAN GRADING**  
(ALL INSTALLATIONS)



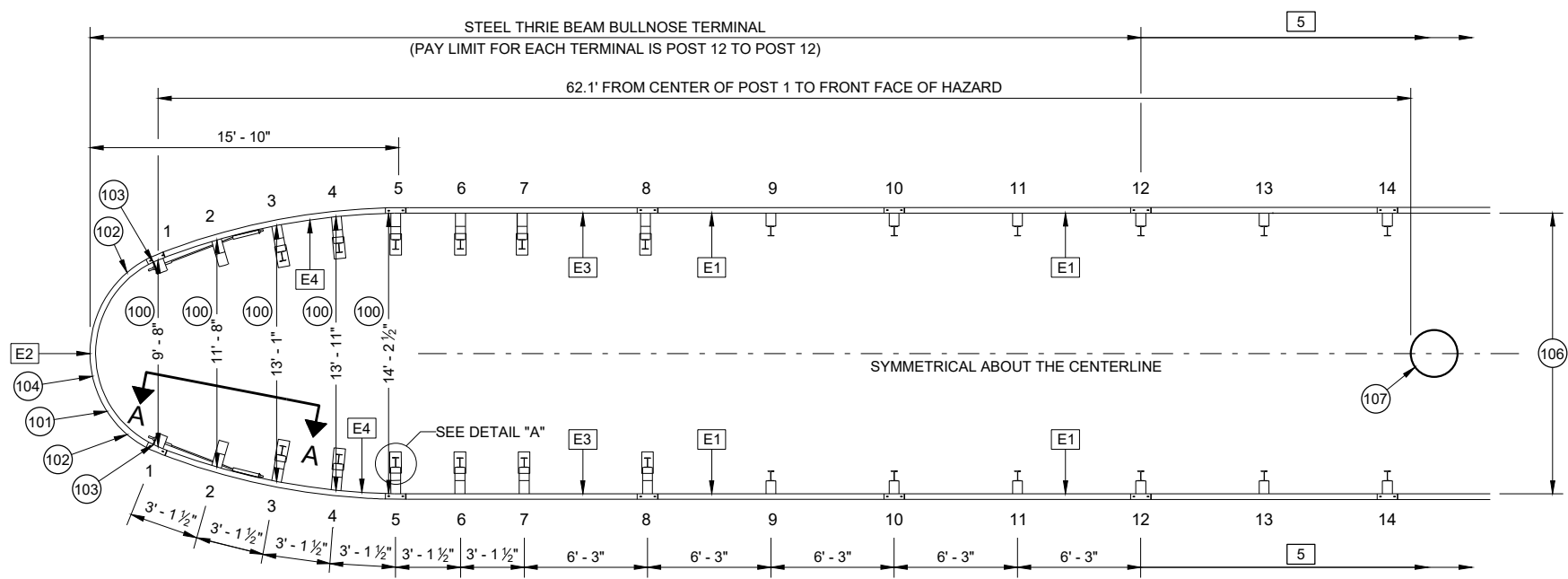
**MEDIAN HAZARD PROTECTION PAY LIMITS**



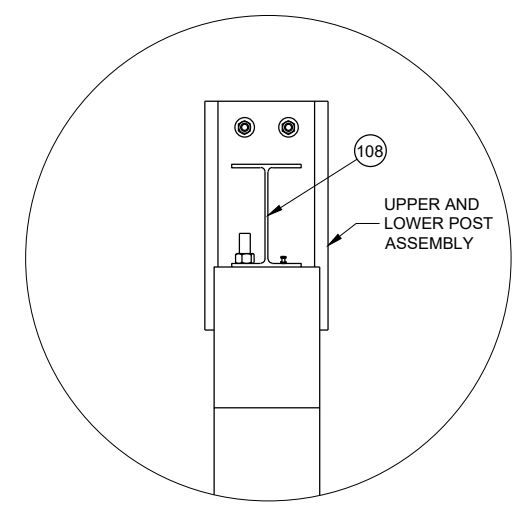
**HAZARD FREE AREA INSIDE BULLNOSE**



**LAPPING DETAIL**



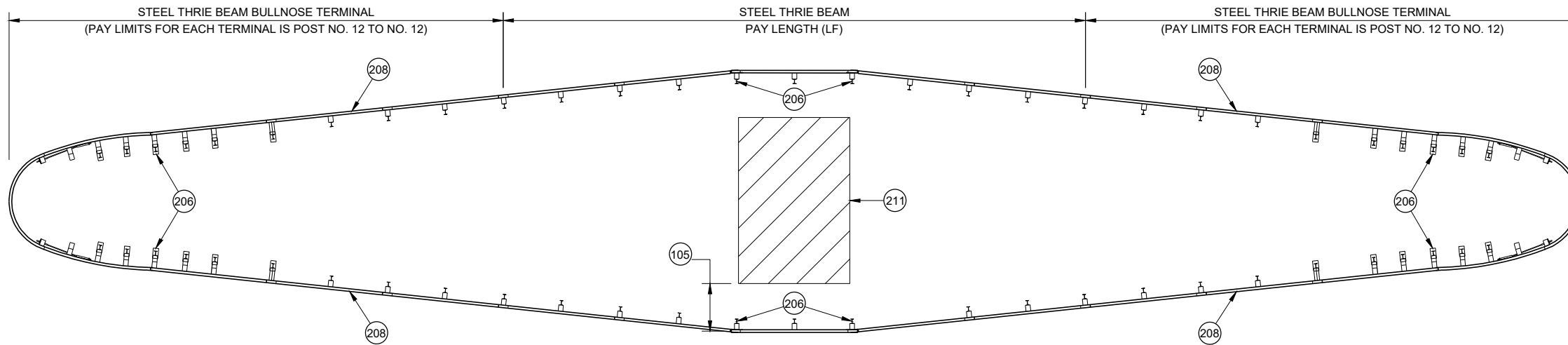
**PLAN VIEW TYPICAL BULLNOSE LAYOUT**



**DETAIL "A"**

**STEEL THRIE BEAM BULLNOSE TERMINAL**

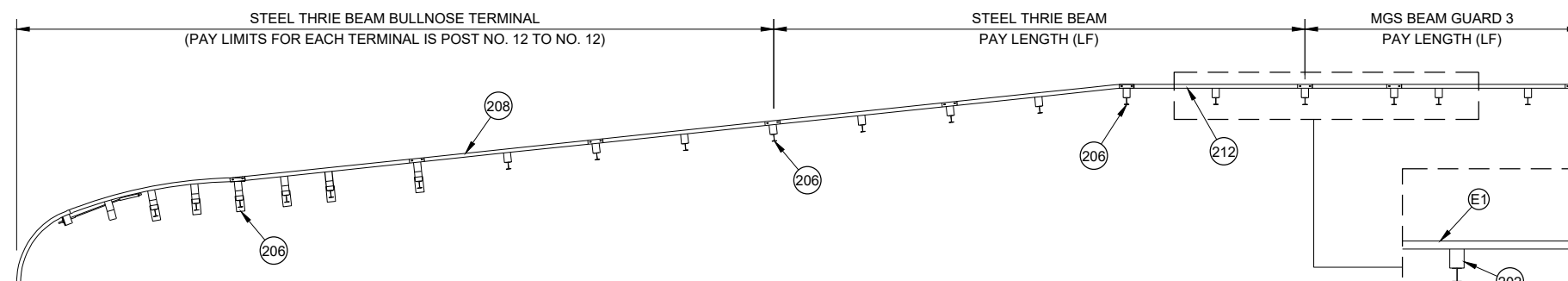
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



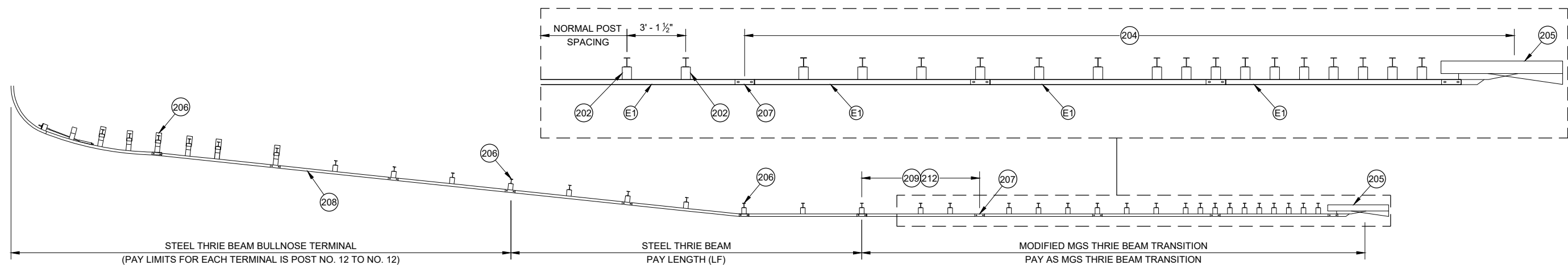
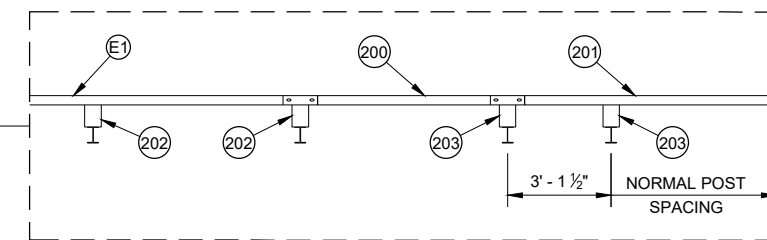
**VARIABLE WIDTH BULLNOSE**

**GENERAL NOTES**

- 200 6' - 3" ASYMMETRICAL 10-GAUGE W-BEAM TO THRIE BEAM GUARD TRANSITION. SEE SDD 14B45 FOR MORE INFORMATION.
- 201 W-BEAM RAIL. SEE SDD 14B42 FOR MORE INFORMATION.
- 202 SEE POST NO. 9 AND ALL STEEL THRIE BEAM POST BEYOND DETAIL.
- 203 SEE SDD 14B42 FOR INSTALLATION INFORMATION.
- 204 SEE SDD 14B45 FOR INSTALLATION DETAILS. REPLACE ASYMMETRICAL W-BEAM TO THRIE BEAM TRANSITION AND W-BEAM RAIL WITH E1. PAY FOR MODIFIED THRIE BEAM TRANSITION.
- 205 CONCRETE BARRIER OR BRIDGE RAIL.
- 206 SEE PLAN FOR STATION AND OFFSET TO CENTER OF POST.
- 207 SEE PLAN FOR STATION AND OFFSET TO CENTER OF SPLICE.
- 208 SEE PLAN FOR FLARE RATE.
- 209 A MINIMUM OF 25 FT OF THRIE BEAM TANGENT BEFORE TRANSITIONING TO BEAM GUARD OR THRIE BEAM TRANSITION.
- 210 NOT ALL BULLNOSE HARDWARE SHOWN. SEE OTHER SHEETS IN 14B26.
- 211 WIDER HAZARD TO BE SHIELDED.
- 212 TRANSITION RAIL HEIGHT TO 31" OVER THE LENGTH OF A 12' - 6" BEAM SECTION.



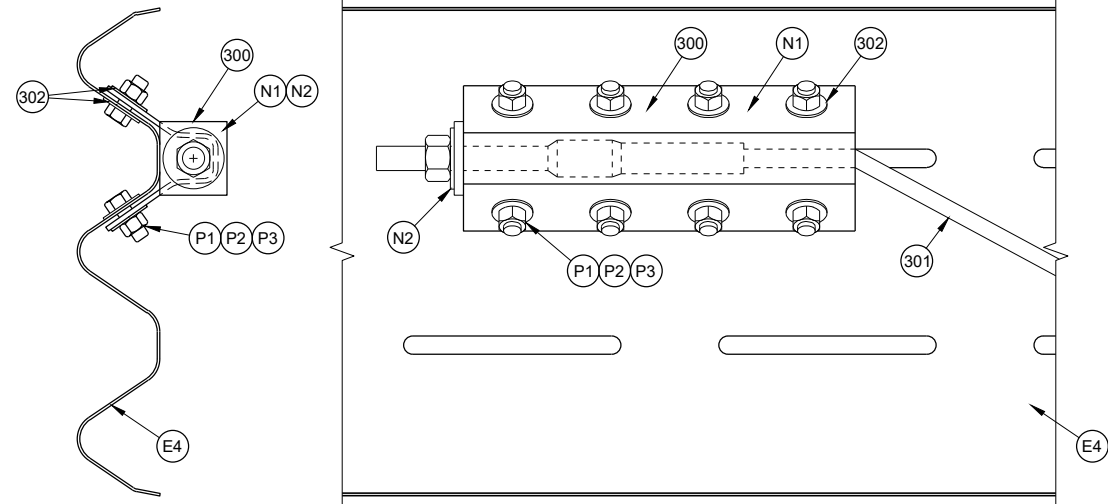
**1/2 PLAN VIEW  
VARIABLE WIDTH BULLNOSE  
WITH CONNECTION TO MGS BEAM GUARD**



**1/2 PLAN VIEW  
VARIABLE WIDTH BULLNOSE  
WITH CONNECTION TO RIGID BARRIER**

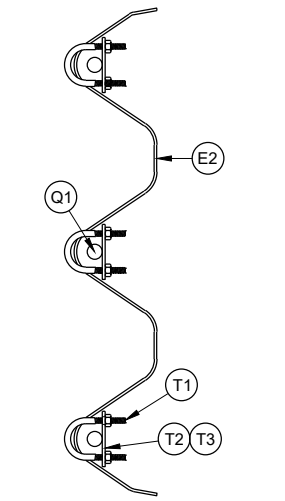
**STEEL THRIE BEAM  
BULLNOSE TERMINAL**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

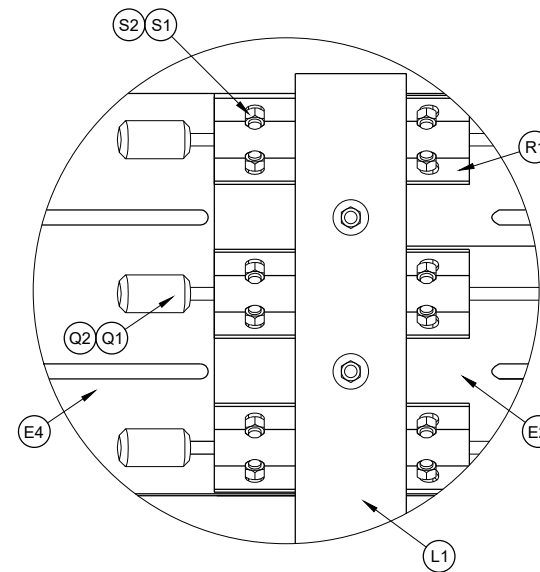


**PROFILE VIEW  
CABLE ANCHOR  
ASSEMBLY CONNECTION**

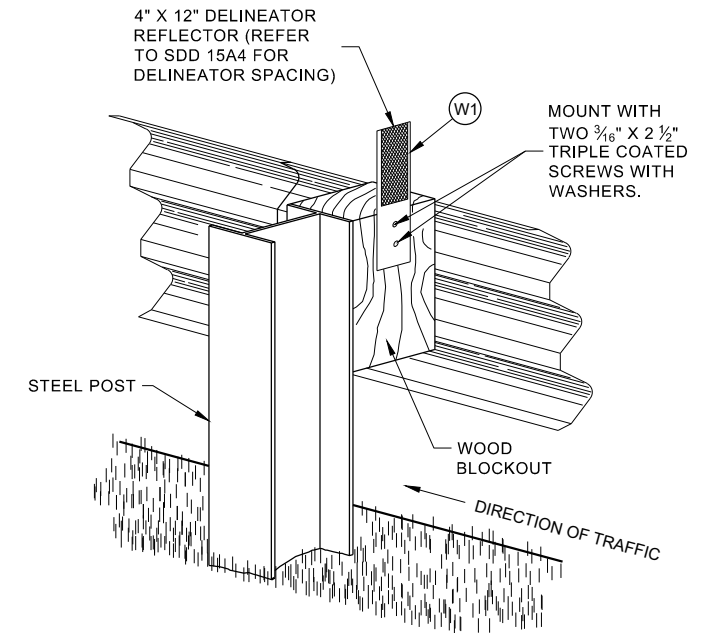
**CABLE ANCHOR ASSEMBLY**



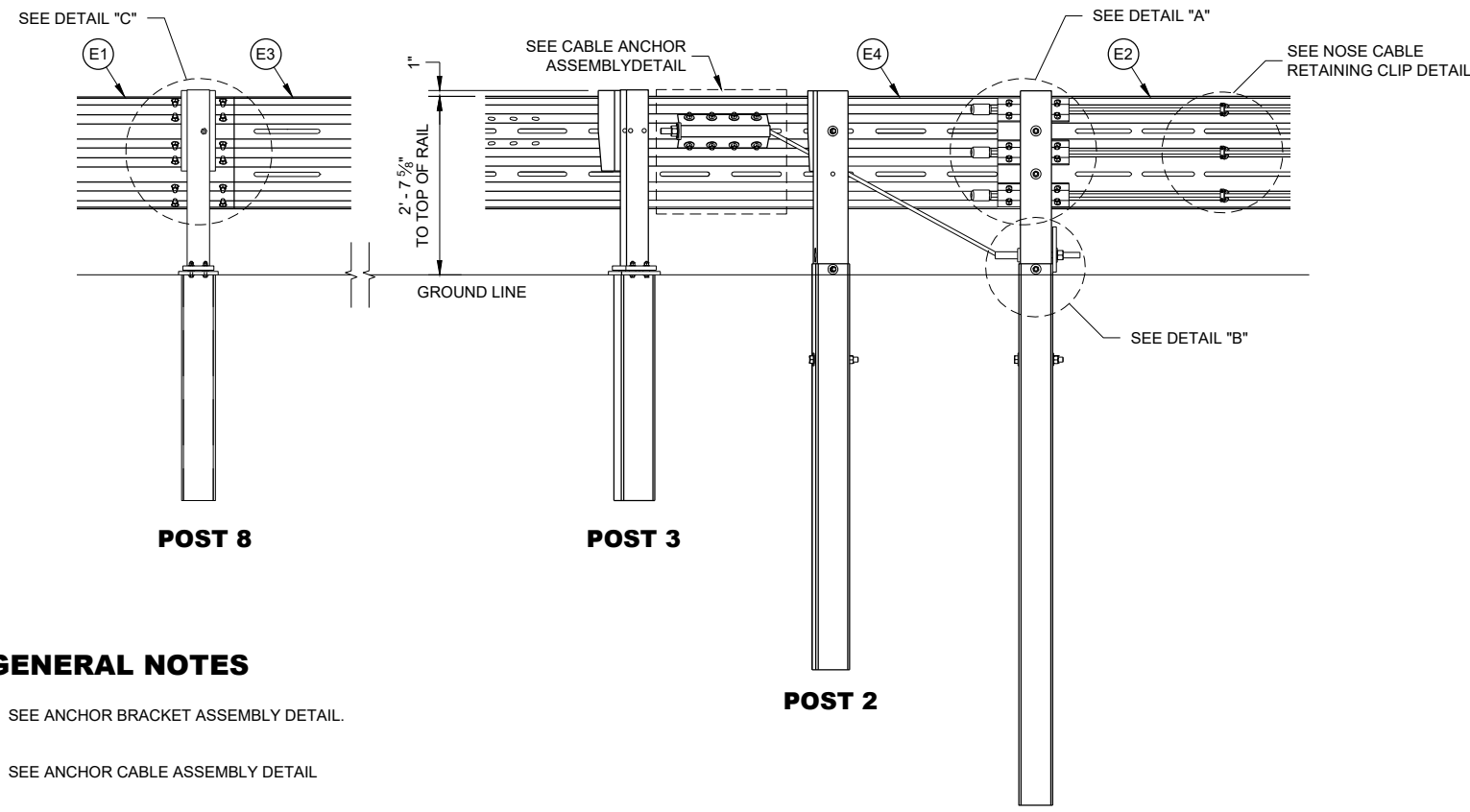
**NOSE CABLE  
RETAINING CLIP**



**DETAIL "A"**



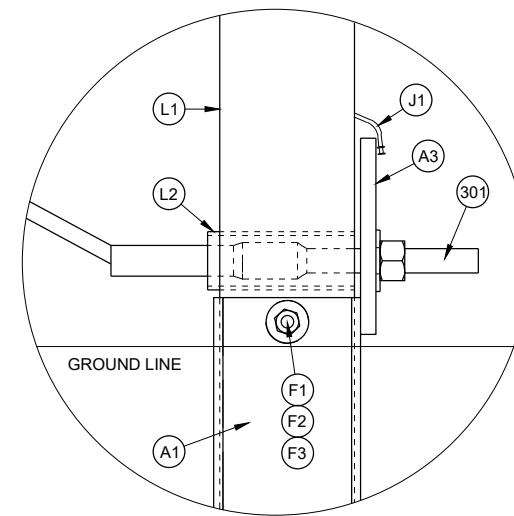
**ONE SIDED REFLECTOR DETAIL  
AND TYPICAL INSTALLATION**



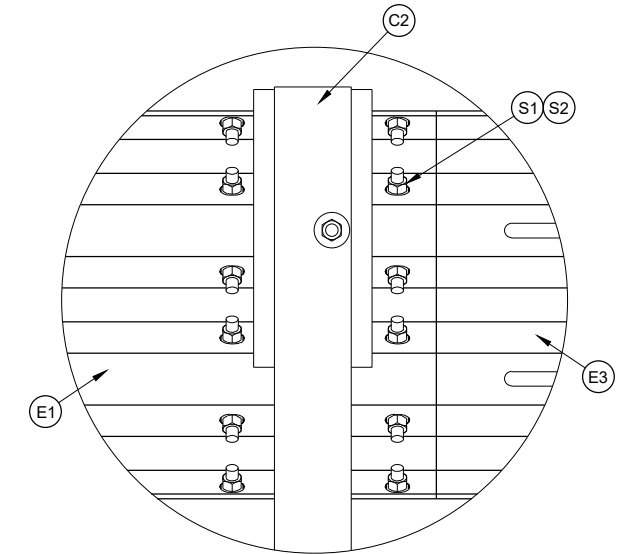
**CROSS SECTION A - A**

**GENERAL NOTES**

- 300 SEE ANCHOR BRACKET ASSEMBLY DETAIL.
- 301 SEE ANCHOR CABLE ASSEMBLY DETAIL
- 302 ONE WASHER BETWEEN BOLT HEAD AND RAIL AND BETWEEN NUT AND ANCHOR BRACKET ASSEMBLY.
- 303 ONE WASHER BETWEEN BOLD HEAD AND FOUNDATION TUBE AND BETWEEN NUT AND FOUNDATION TUBE.



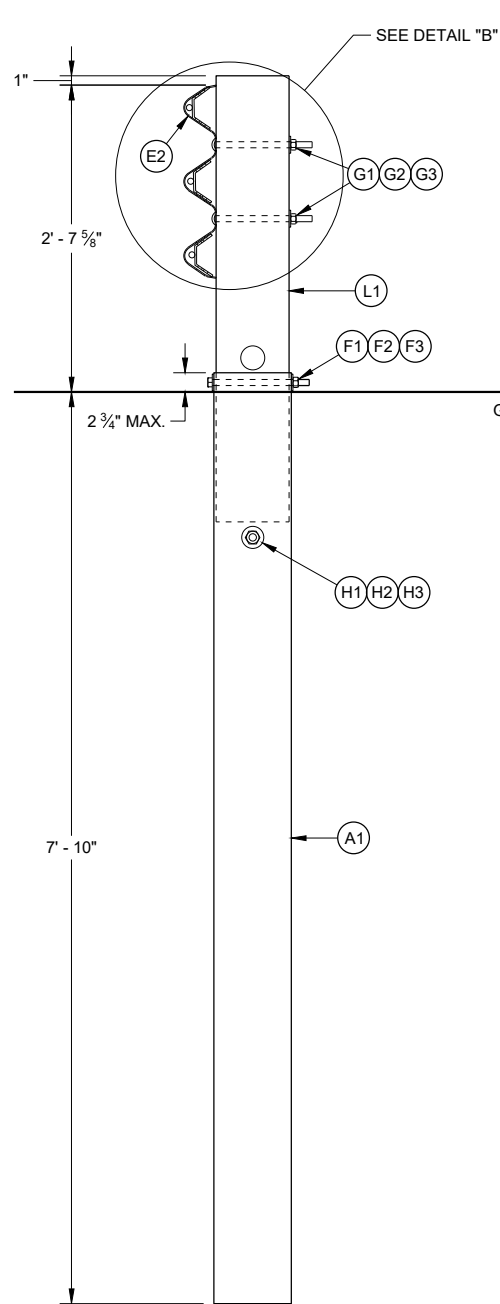
**DETAIL "B"**



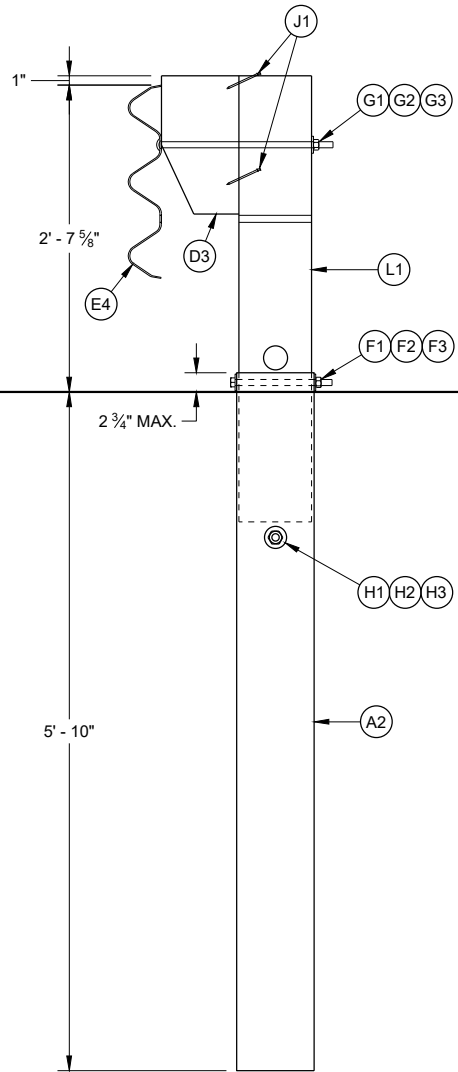
**DETAIL "C"  
THRIE BEAM SPLICE**

**STEEL THRIE BEAM  
BULLNOSE TERMINAL**

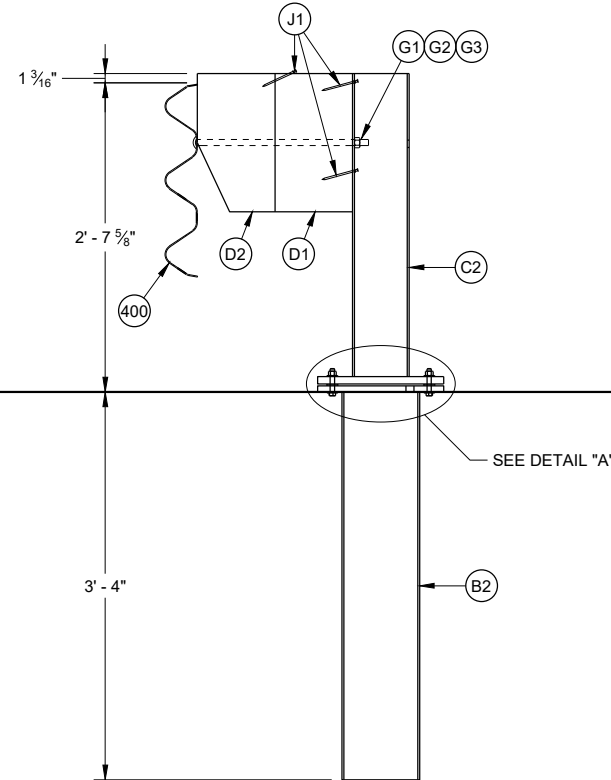
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



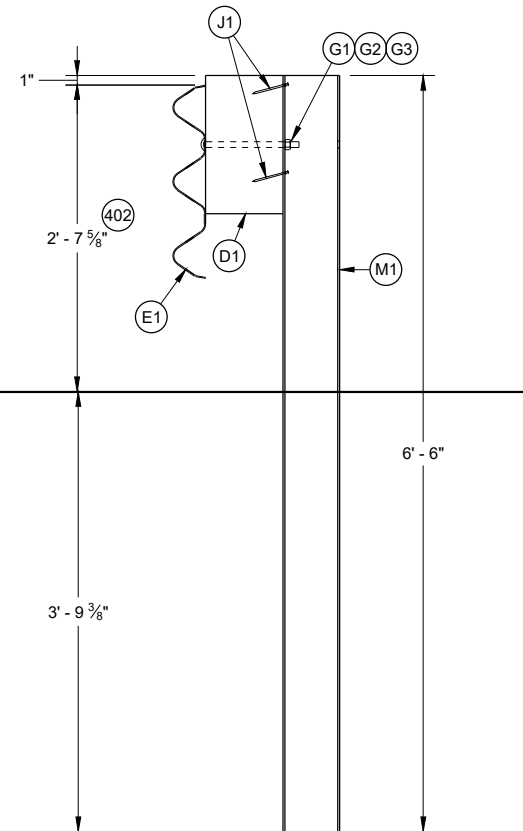
**POST NO. 1**



**POST NO. 2**



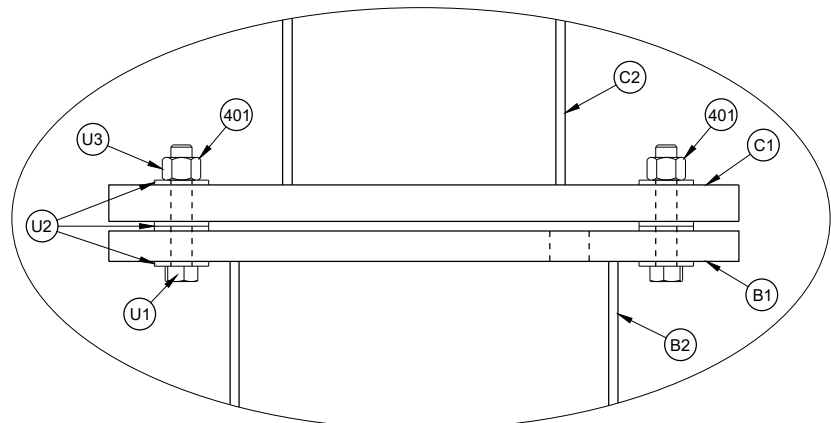
**POST NOS. 3-8**



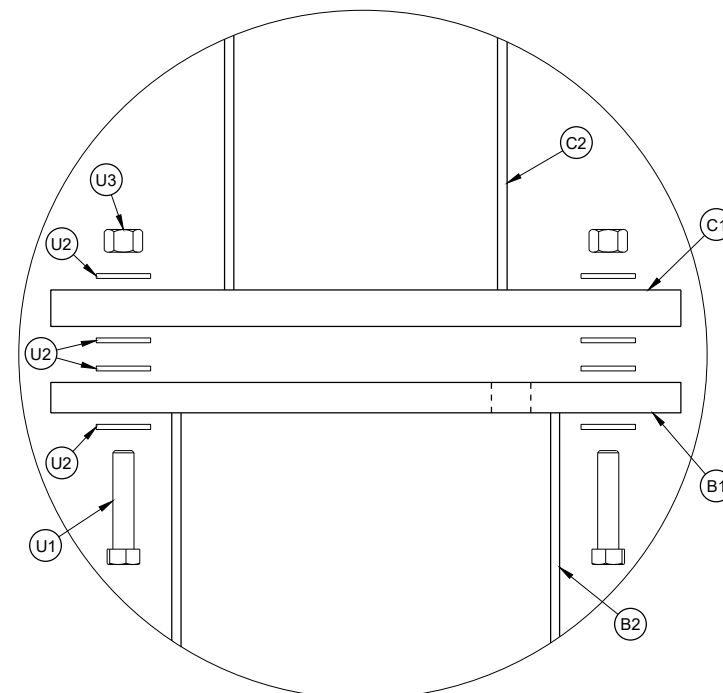
**POST NOS. 9 AND ALL STEEL THRIE BEAM POSTS BEYOND**

**GENERAL NOTES**

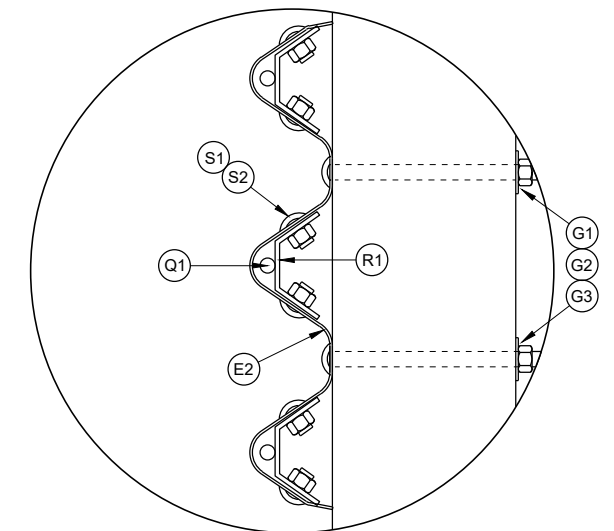
- (400) RAIL CAN BE E3 OR E4 DEPENDING ON POST LOCATION.
- (401) TORQUE BOLD BETWEEN 60-75 FT-LB
- (402) HEIGHT WILL VARY WITHIN HEIGHT TRANSITION TO OTHER HARDWARE. SEE NOTE 213, SHEET "b".



**DETAIL "A"**



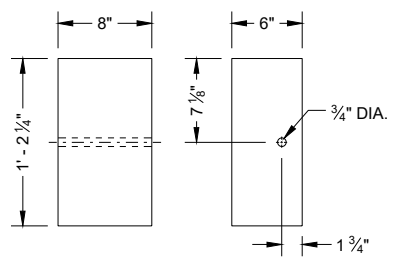
**EXPLODED VIEW  
DETAIL "A"**



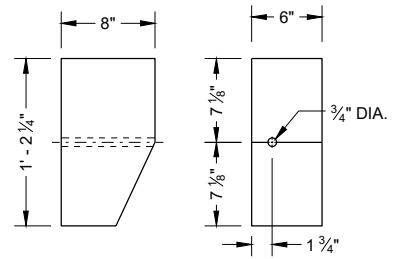
**DETAIL "B"**

**STEEL THRIE BEAM  
BULLNOSE TERMINAL**

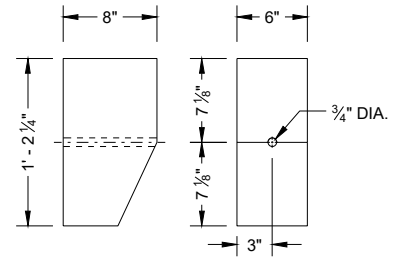
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



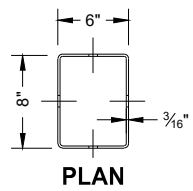
**ELEVATION PROFILE  
BLOCKOUT (D1)**



**ELEVATION PROFILE  
BLOCKOUT (D2)**

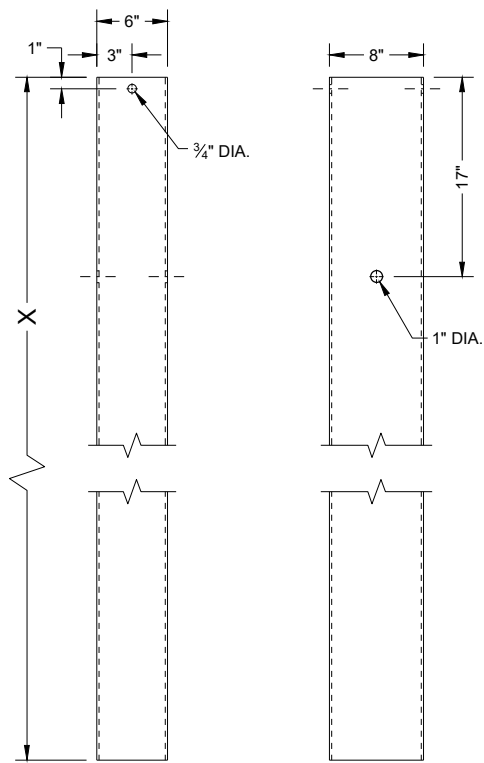


**ELEVATION PROFILE  
BLOCKOUT (D3)**

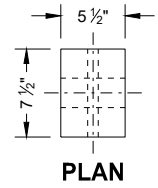


**PLAN**

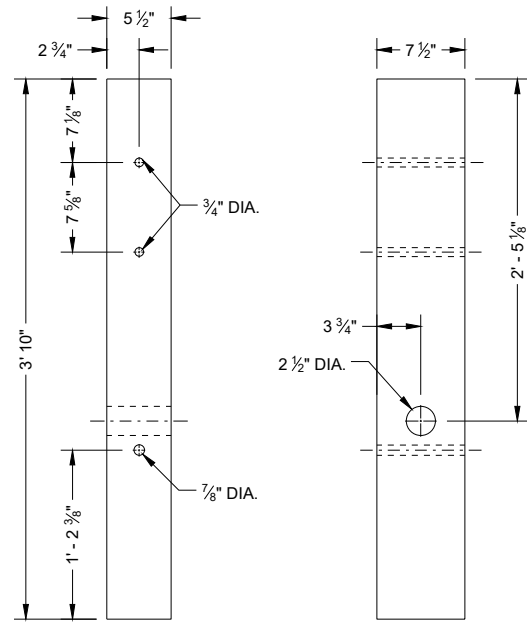
PART	LENGTH "X"
A1	8' - 0"
A2	6' - 0"
B2	3' - 4"



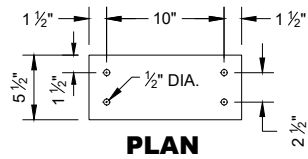
**ELEVATION PROFILE  
FOUNDATION TUBE**



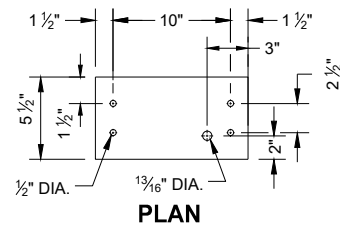
**PLAN**



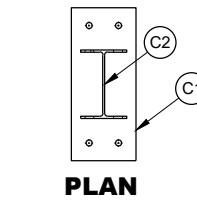
**ELEVATION PROFILE  
BCT POST (L1)**



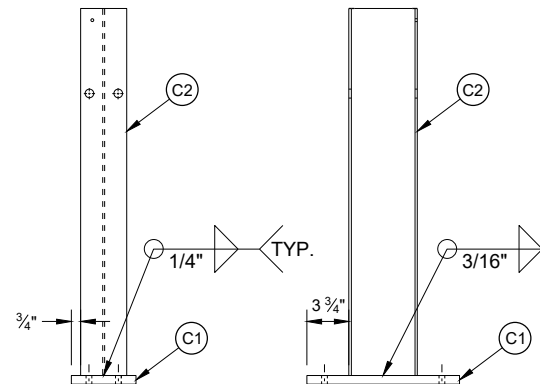
**PLAN PROFILE  
UPPER SHEAR PLATE (C1)**



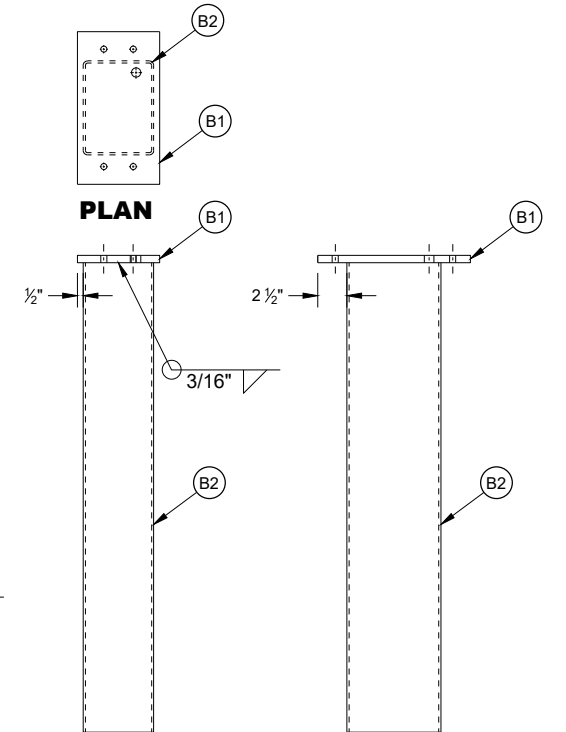
**PLAN PROFILE  
LOWER SHEAR PLATE (B1)**



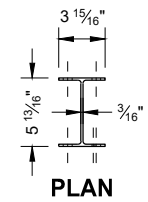
**PLAN**



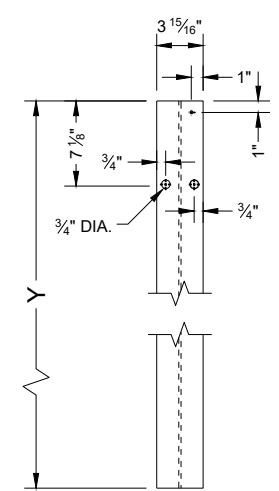
**ELEVATION PROFILE  
UPPER POST ASSEMBLY**



**ELEVATION PROFILE  
LOWER POST ASSEMBLY**



**PLAN**

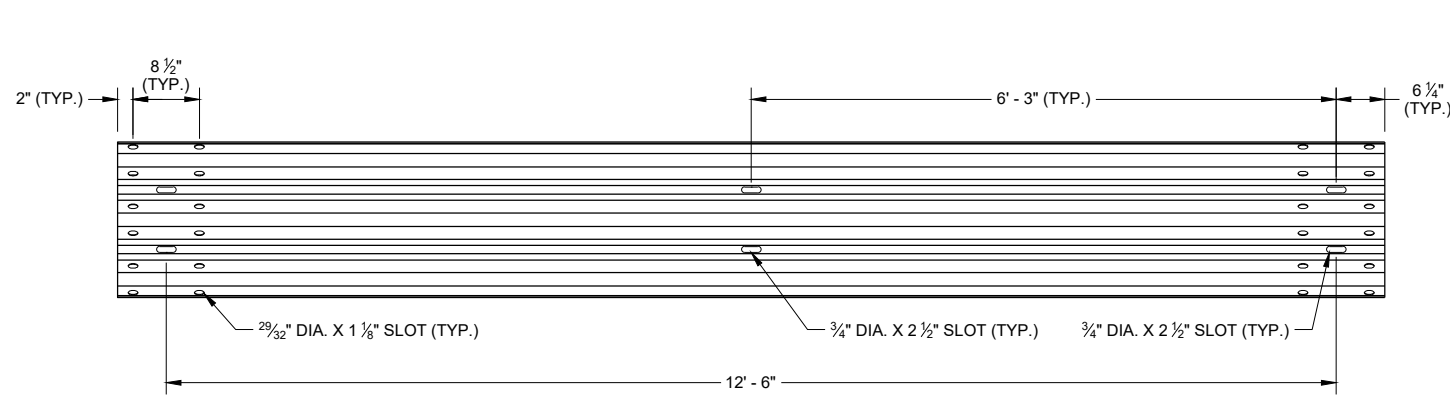


**ELEVATION  
POST**

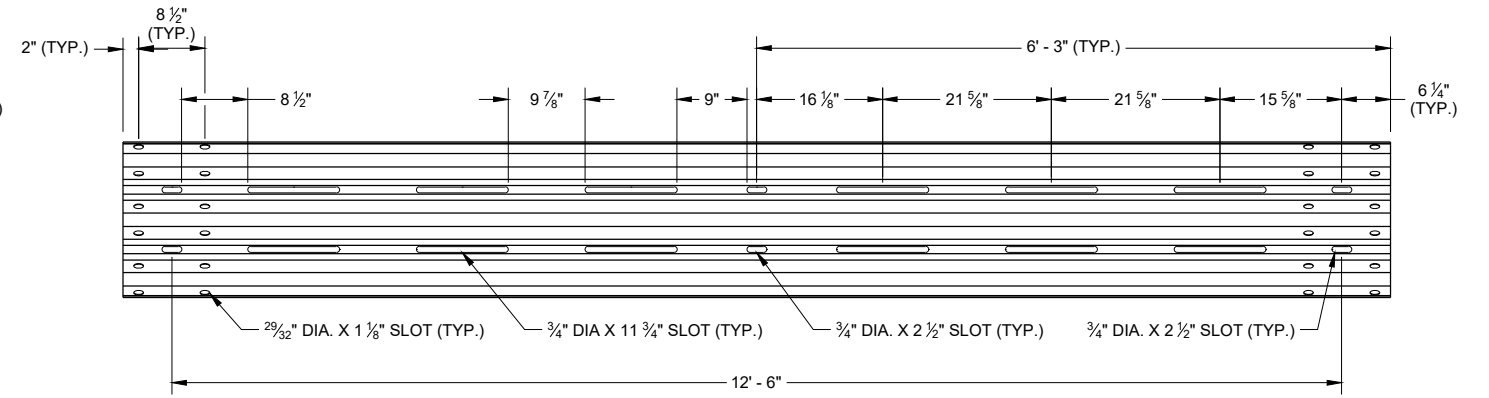
PART	LENGTH "Y"
M1	6' - 6"
M2	5' - 8 5/8"
C2	2' - 7 5/8"

**STEEL THRIE BEAM  
BULLNOSE TERMINAL**

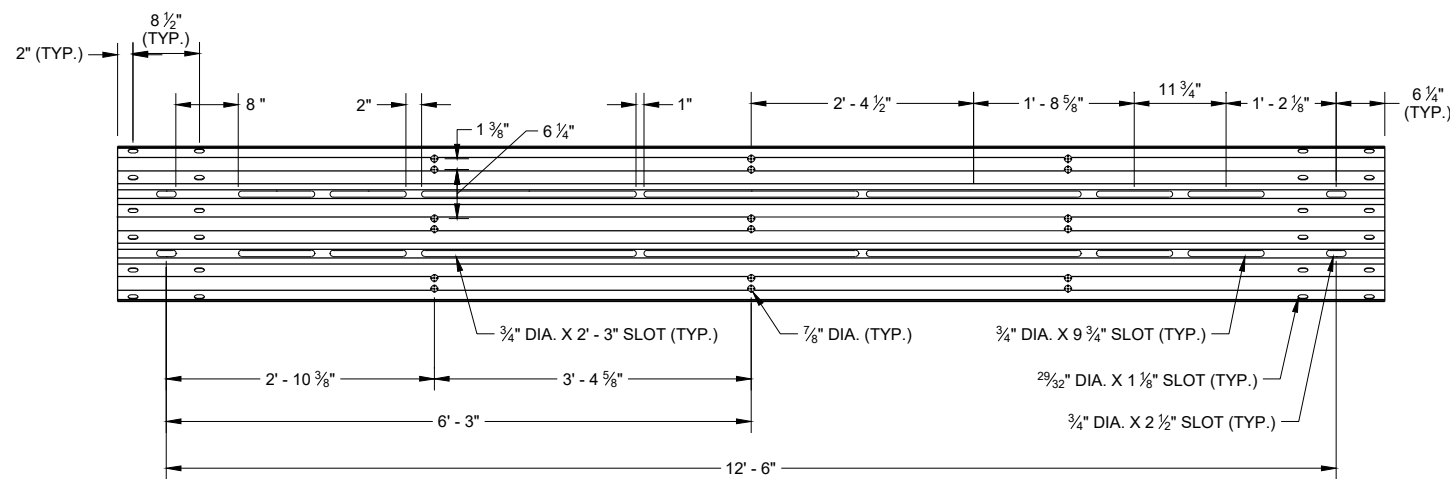
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



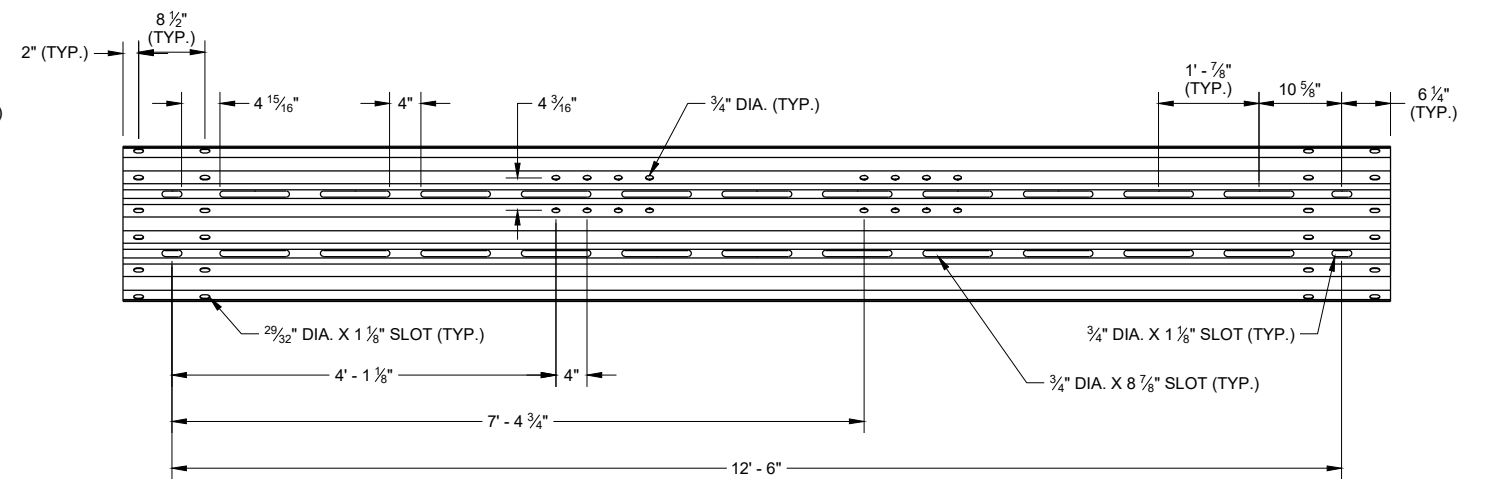
**SLOTTED THRIE BEAM RAIL E1**



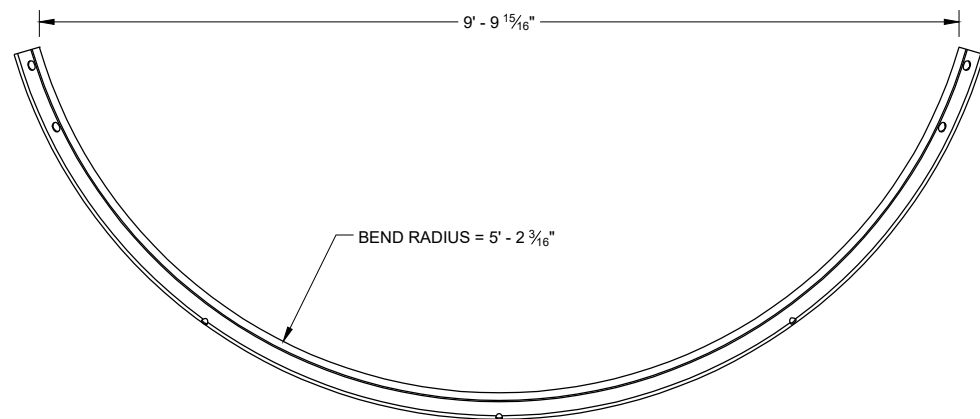
**SLOTTED THRIE BEAM RAIL E3**



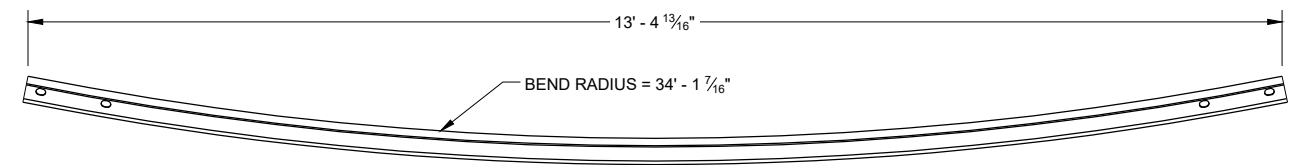
**ELEVATION VIEW NON - RADIUSED  
SLOTTED THRIE BEAM RAIL E2**



**ELEVATION VIEW NON - RADIUSED  
SLOTTED THRIE BEAM RAIL E4**



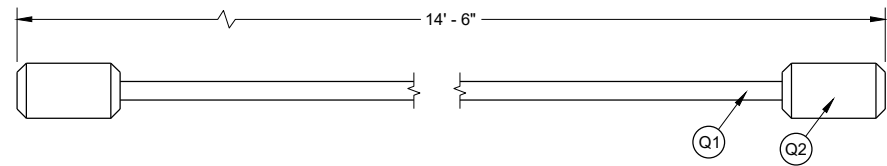
**PLAN VIEW  
SLOTTED THRIE BEAM RAIL E2**



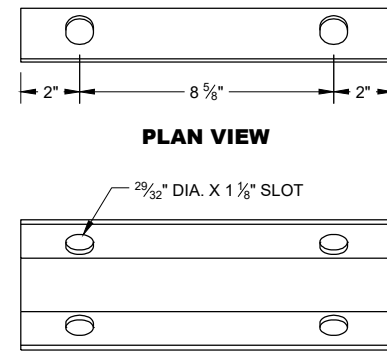
**PLAN VIEW  
SLOTTED THRIE BEAM RAIL E4**

**STEEL THRIE BEAM  
BULLNOSE TERMINAL**

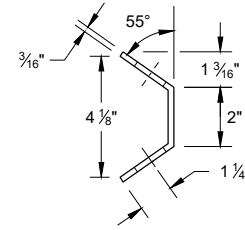
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



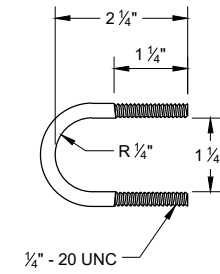
**NOSE CABLE AND SWAGE BUTTON**



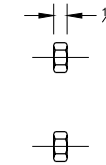
**ELEVATION VIEW  
NOSE CABLE ANCHOR (R1)**



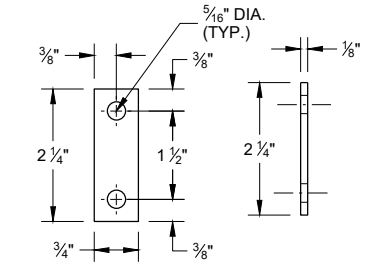
**PROFILE VIEW**



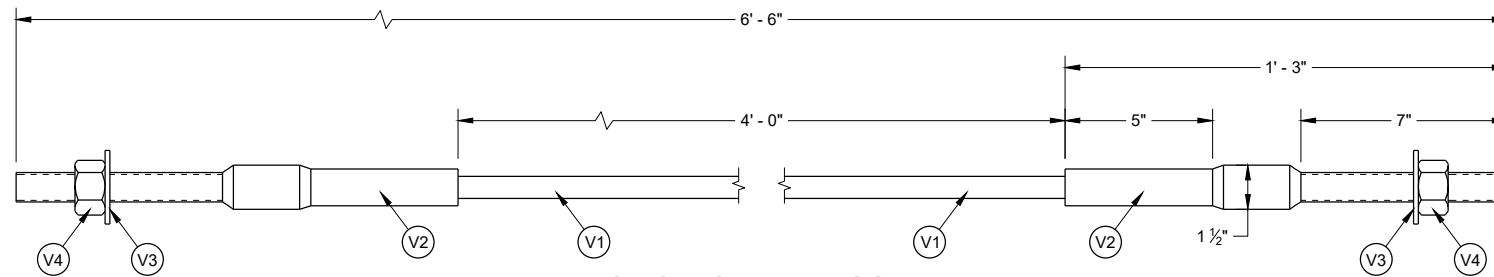
**U - BOLT  
(T1)**



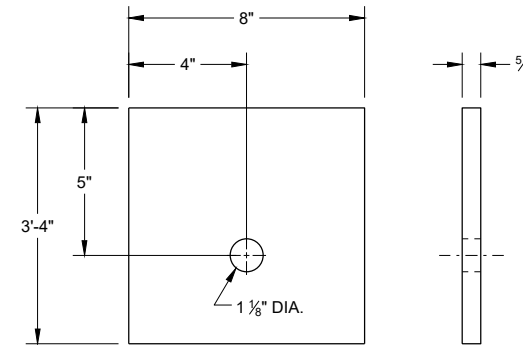
**U - BOLT  
NUT (T3)**



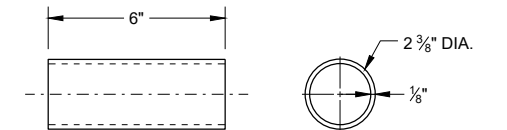
**ELEVATION VIEW PROFILE VIEW  
U - BOLT  
PLATE WASHER (T2)**



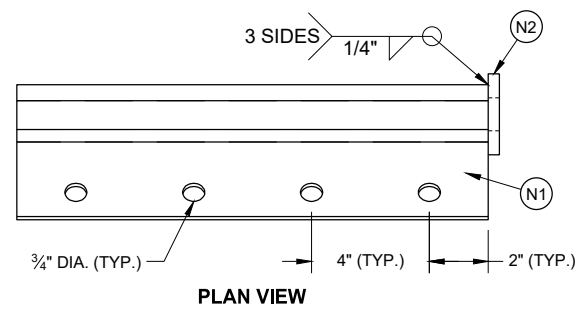
**ANCHOR CABLE ASSEMBLY**



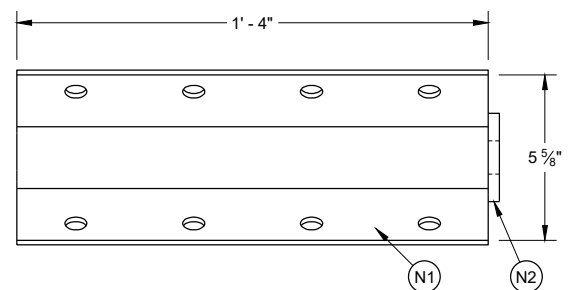
**ELEVATION VIEW PROFILE VIEW  
BCT BEARING PLATE (A3)**



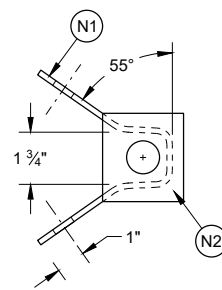
**ELEVATION VIEW PROFILE VIEW  
BCT POST SLEEVE (L2)**



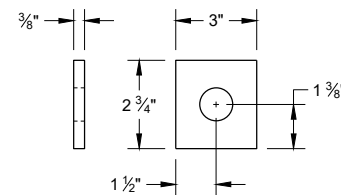
**PLAN VIEW**



**ELEVATION VIEW  
ANCHOR BRACKET ASSEMBLY (N1)**



**PROFILE VIEW**



**ANCHOR BRACKET  
END PLATE (N2)**

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SDD 14B26 - 05g

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**STEEL THRIE BEAM  
BULLNOSE TERMINAL**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

## BILL OF MATERIALS LIST

PART NUMBER	DESCRIPTION	MATERIAL SPECIFICATION
A1	LONG FOUNDATION TUBE	AASHTO M111/ASTM A123 ASTM A500 GRADE B OR ASTM A-501
A2	FOUNDATION TUBE	AASHTO M111/ASTM A123 ASTM A500 GRADE B OR ASTM A-501
A3	BEARING PLATE AT POST	AASHTO M111/ASTM A123 ASTM A36 MIN STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX. STRENGTH 50 KSI, OR ASTM A709 MAX. STRENGTH 50 KSI, OR ASTM A992 MAX. STRENGTH 50 KSI
B1	LOWER SLIP POST ASSEMBLY - PLATE	AASHTO M111/ASTM A123 ASTM A36 MIN STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX. STRENGTH 50 KSI, OR ASTM A709 MAX. STRENGTH 50 KSI, OR ASTM A992 MAX. STRENGTH 50 KSI
B2	LOWER SLIP POST ASSEMBLY - TUBE	AASHTO M111/ASTM A123 ASTM A500 GRADE B OR ASTM A-501
C1	UPPER SLIP POST ASSEMBLY - PLATE	AASHTO M111/ASTM A123 ASTM A36 MIN STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX. STRENGTH 50 KSI, OR ASTM A709 MAX. STRENGTH 50 KSI, OR ASTM A992 MAX. STRENGTH 50 KSI
C2	UPPER SLIP POST ASSEMBLY - POST	AASHTO M111/ASTM A123 ASTM A6 W6X9 OR W6X8.5 ASTM A36 MIN STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX. STRENGTH 50 KSI, OR ASTM A709 MAX. STRENGTH 50 KSI, OR ASTM A992 MAX. STRENGTH 50 KSI
D1	BLOCK FOR STEEL POST - WOOD	WISDOT SPEC. 614
D2	TAPERED BLOCK FOR STEEL POST - WOOD	WISDOT SPEC. 614
D3	TAPERED BLOCK FOR BCT POST - WOOD	WISDOT SPEC. 614
E1	THRIE BEAM RAIL	AASHTO M180 CLASS A TYPE 2 APPROVED PRODUCER
E2	THRIE BEAM RAIL - SHOP BENT AND PUNCHED	AASHTO M180 CLASS A TYPE 2 APPROVED PRODUCER. INDICATE RADIUS BEAM GUARD IS BENT TO ON THE BACKSIDE OF RAIL. FOLLOW AASHTO M180. MARK RADIUS.
E3	THRIE BEAM RAIL - PUNCHED	AASHTO M180 CLASS A TYPE 2 APPROVED PRODUCER
E4	THRIE BEAM RAIL - SHOP BENT AND PUNCHED	AASHTO M180 CLASS A TYPE 2 APPROVED PRODUCER. INDICATE RADIUS BEAM GUARD IS BENT TO ON THE BACKSIDE OF RAIL. FOLLOW AASHTO M180. MARK RADIUS.
F1	5/8" DIA. HEX HEAD GROUND STRUT AND YOKE BOLT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 UNC HEAVY HEX HEAD ASTM A307 GRADE B OR SAE J429 GRADE 2 OR ASTM F1554 GRADE 36
F2	5/8" DIA. GROUND STRUT AND YOKE BOLT - WASHER	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 F436 TYPE 1 (HARDEN WASHER ONLY)
F3	GROUND STRUT AND YOKE BOLT - NUT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 UNC OVER TAP NUTS AS SPECIFIED IN AASHTO 291/ASTM A 563 HEAVY HEX HEAD ASTM A563DH OR SAE J995 GRADE 5
G1	5/8" DIA. POST BOLT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 F436 TYPE 1 (HARDEN WASHER TYPICALLY USED WITH STEEL POSTS) OR ASTM F844 (UNHARDENED WASHER TYPICALLY USED WITH WOOD)
G2	POST BOLT - WASHER	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 F436 TYPE 1 (HARDEN WASHER TYPICALLY USED WITH STEEL POSTS) OR ASTM F844 (UNHARDENED WASHER TYPICALLY USED WITH WOOD)
G3	POST BOLT - NUT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 UNC OVER TAP NUTS AS SPECIFIED IN AASHTO 291/ASTM A 563 AASHTO M180 RECESSED HEAVY HEX HEAD ASTM A563DH OR SAE J995 GRADE 5
H1	7/8" DIA. SOIL TUBE BOLT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 UNC OVER TAP NUTS AS SPECIFIED IN AASHTO 291/ASTM A 563 HEAVY HEX HEAD 7/8" ASTM A563DH OR SAE J995 GRADE 5
H2	SOIL TUBE BOLT - WASHER	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 7/8" ASTM F844 TYPE 1 (HARDEN WASHER ONLY)
H3	SOIL TUBE BOLT - NUT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 UNC OVER TAP NUTS AS SPECIFIED IN AASHTO 291/ASTM A 563 HEAVY HEX HEAD 7/8" ASTM A563DH OR SAE J995 GRADE 5
J1	16D DOUBLE HEAD NAIL	ASTM A153 HOT DIPPED CLASS D DOUBLE HEAD ASTM F1667 TYPE 1 STYLE 12 (16 DOUBLE HEADED)
L1	BCT TIMBER POST	WISDOT SPEC. 614 S4S FINISH ON 4 SIDE
L2	BCT POST SLEEVE	AASHTO M111/ASTM A123 2 3/8" OD ASTM 53 GRADE B
M1	W6X8.5 OR W6X9 STEEL POST	AASHTO M111/ASTM A123 ASTM A6 W6X9 OR W6X8.5 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX. STRENGTH 50 KSI, OR ASTM A709 MAX. STRENGTH 50 KSI, OR ASTM A992 MAX. STRENGTH 50 KSI
M2	W6X8.5 OR W6X9 STEEL POST	AASHTO M111/ASTM A123 ASTM A6 W6X9 OR W6X8.5 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX. STRENGTH 50 KSI, OR ASTM A709 MAX. STRENGTH 50 KSI, OR ASTM A992 MAX. STRENGTH 50 KSI
N1	ANCHOR BRACKET	AASHTO M111/ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX. STRENGTH 50 KSI, OR ASTM A709 MAX. STRENGTH 50 KSI, OR ASTM A992 MAX. STRENGTH 50 KSI
N2	ANCHOR BRACKET - BEARING PLATE	AASHTO M111/ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX. STRENGTH 50 KSI, OR ASTM A709 MAX. STRENGTH 50 KSI, OR ASTM A992 MAX. STRENGTH 50 KSI

PART NUMBER	DESCRIPTION	MATERIAL SPECIFICATION
P1	5/8" DIA. ANCHOR BRACKET BOLT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 UNC HEAVY HEX HEAD 5/8" ASTM A307 GRADE B OR SAE J429 GRADE 2 OR ASTM F1554 GRADE 36
P2	ANCHOR BRACKET BOLT - WASHER	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 F436 TYPE 1 (HARDEN WASHER ONLY)
P3	SOIL TUBE BOLT - NUT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 UNC OVER TAP NUTS AS SPECIFIED IN AASHTO 291/ASTM A 563 HEAVY HEX HEAD ASTM A563DH OR SAE J995 GRADE 5
Q1	5/8" DIA. NOSE CABLE	6X19 AASHTO M30 / ASTM A741 XIPS INDEPENDENT WIRE CORE (IWRC) PR 6X25 XIPS, IWRC NOMINAL BREAKING STRENGTH OF 41.2 KIPS.
Q2	NOSE CABLE-SWAGE BUTTON	COLD TUFF BUTTON, S-409 SIZE NO. 12 STOCK NUMBER 1040395 OR ANY OTHER SIMILAR SIZED WAGED-GRIP-BUTTON FERRULES. ASTM A576 GRADE 1035 SWAGE FITTING ARE TO BE FIELD SWAGED PER MANUFACTURERS RECOMMENDATION. NOMINAL BREAKING STRENGTH OF 41.2 KIPS.
R1	NOSE CABLE ANCHOR BRACKET	AASHTO M111/ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX. STRENGTH 50 KSI, OR ASTM A709 MAX. STRENGTH 50 KSI, OR ASTM A992 MAX. STRENGTH 50 KSI
S1	5/8" DIA. SPLICE BOLT - BOLT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 UNC AASHTO M180 HEAD ASTM A307 GRADE B OR SAE J429 GRADE 2 OR ASTM F1554 GRADE 36
S2	SPLICE - BOLT NUT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 UNC OVER TAP NUTS AS SPECIFIED IN AASHTO 291/ASTM A 563 AASHTO M180 RECESSED HEAVY HEX HEAD 5/8" ASTM A563DH OR SAE J995 GRADE 5
T1	1/4" DIA. NOSE CABLE - U BOLT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 UNC HEAVY HEX HEAD ASTM A307 GRADE B OR SAE J429 GRADE 2 OR ASTM F1554 GRADE 36
T2	U-BOLT - PLATE WASHER	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 F436 TYPE 1 (HARDEN WASHER ONLY)
T3	U-BOLT NUT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 UNC OVER TAP NUTS AS SPECIFIED IN AASHTO 291 / ASTM A 563 HEAVY HEX HEAD ASTM A563DH OR SAE J995 GRADE 5
U1	7/16" DIA. SLIP POST ASSEMBLY - BREAKAWAY BOLT	ASTM A153 OR B695 CLASS 55 OR F2329 UNC FULLY THREADED HEX HEAD TAP BOLT ASTM A449 OR SAE J429 GRADE 5
U2	7/16" DIA. SLIP POST ASSEMBLY - BREAKAWAY BOLT - WASHER	ASTM F436 TYPE I (HARDEN TYPICALLY USED WITH STEEL) GALV. AASHTO M111/ASTM A 123 OR GALV. HOT DIP. TO POST BOLT CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 55, F2329
U3	SLIP POST ASSEMBLY - BREAKAWAY BOLT - NUT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 UNC OVER TAP NUTS AS SPECIFIED IN AASHTO 291/ASTM A 563 HEAVY HEX HEAD ASTM A563DH OR SAE J995 GRADE 5
V1	3/4" DIA. BCT CABLE	AASHTO M30 / ASTM A741 6X19 INDEPENDENT WIRE CORE (IWRC) IMPROVED PLOW STEEL (IPS), 6X19 INDEPENDENT WIRE CORE (IWRC) IMPROVED PLOW STEEL (IPS) TYPE II OR IIC, CLASS C ZINC COATED MIN BREAKING STRENGTH OF 42.7 KIPS
V2	ANCHOR CABLE-SWAGE FITTING	UNC ASTM A576 GRADE 1035 SWAGE FITTING ARE TO BE FACTORY SWAGED. MIN. BREAKING STRENGTH OF 42.7 KIPS. ASME B30.26 "FORGED, CAST, OR DIE STAMPED WITH THE FOLLOWING IN TO CONNECTION: NAME OF MANUFACTURE OR TRADEMARK OF CONNECTION'S MANUFACTURER, SIZE OR RATED LOAD, GRADE FOR ALLOY EYEBOLTS."
V3	1" DIA. ANCHOR CABLE-WASHER	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 F436 TYPE 1 (HARDEN WASHER ONLY)
V4	1" DIA. ANCHOR CABLE-NUT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 UNC OVER TAP NUTS AS SPECIFIED IN AASHTO 291 / ASTM A 563 HEAVY HEX HEAD ASTM A563DH OR SAE J995 GRADE 5
W1	REFLECTOR	SEE SDD 15A4

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SDD 14B26 - 05h

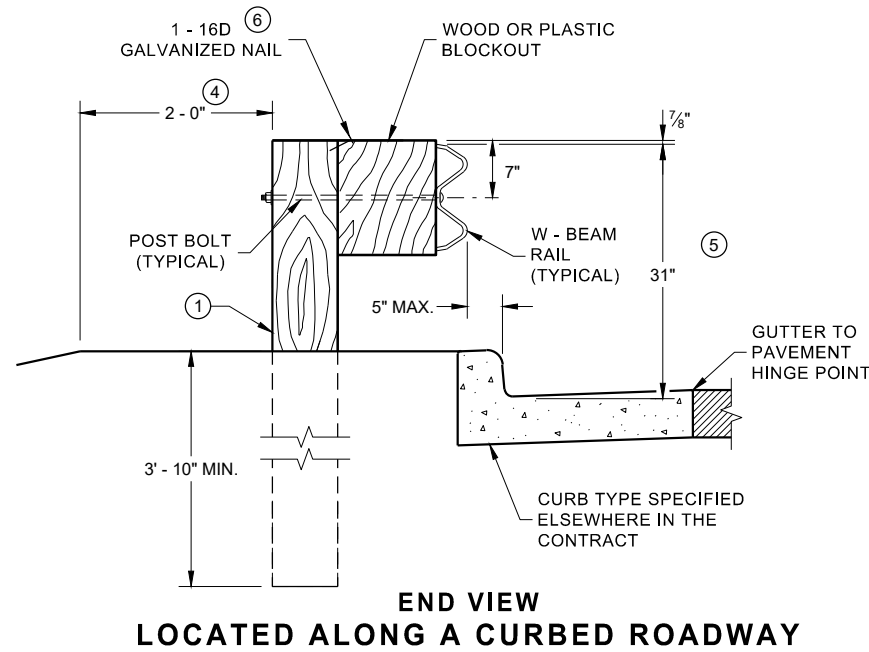
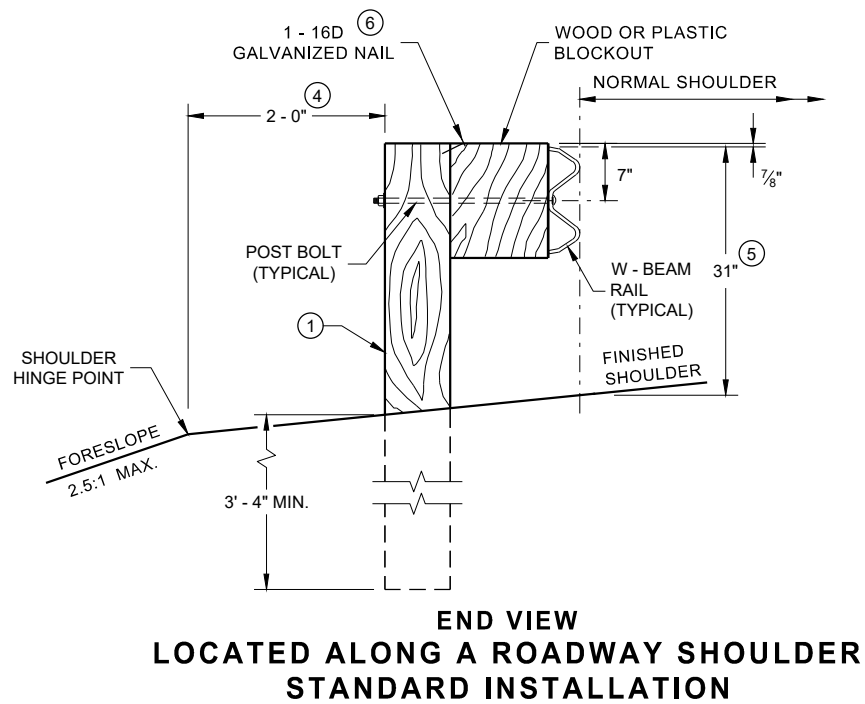
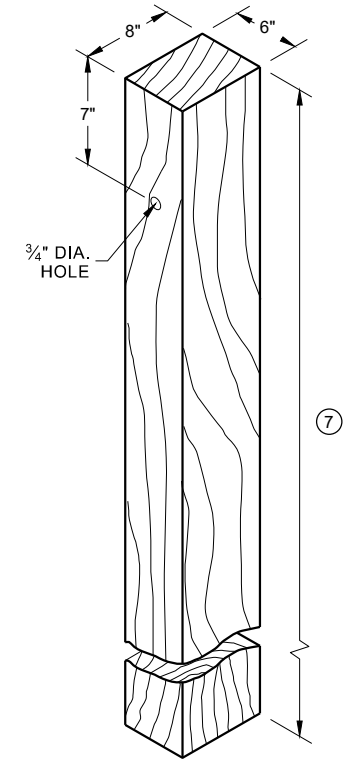
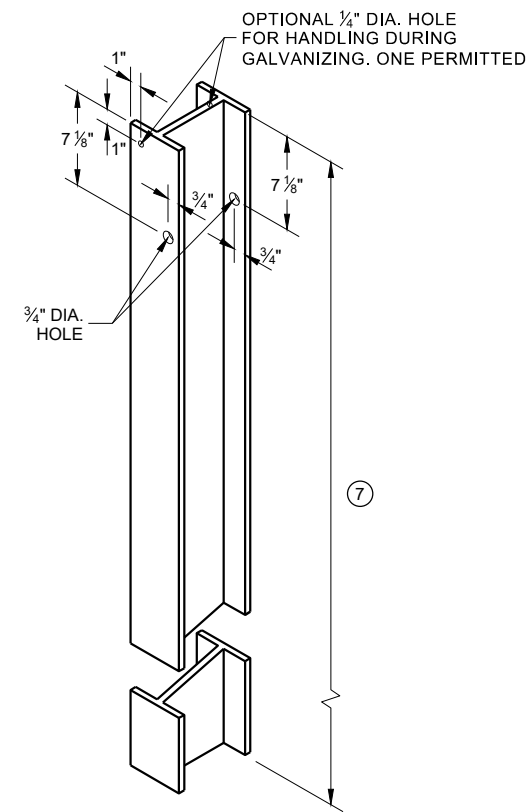
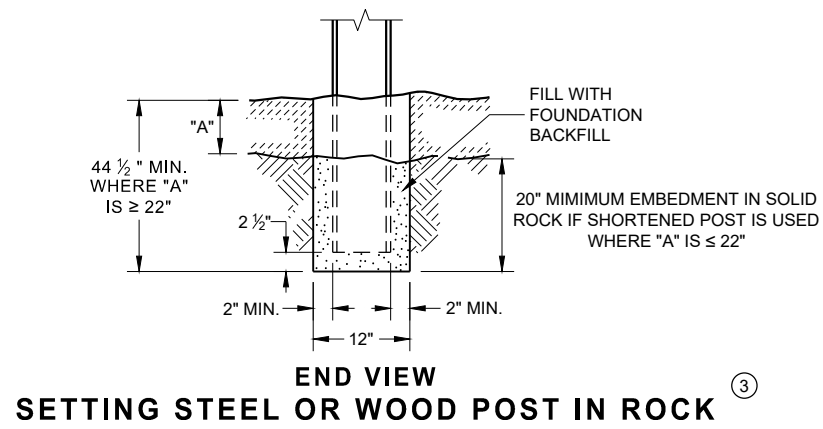
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SDD 14B26 - 05h

<b>STEEL THRIE BEAM BULLNOSE TERMINAL</b>	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED November 2022 DATE	/S/ Rodney Taylor ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA	

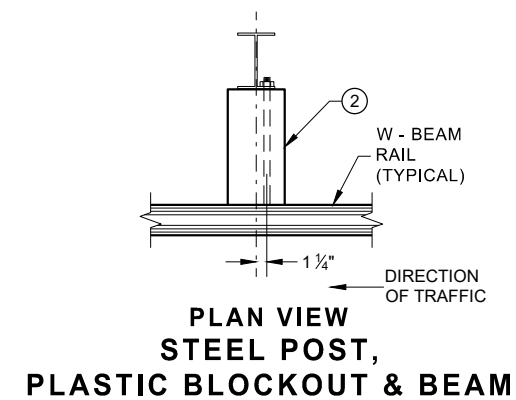
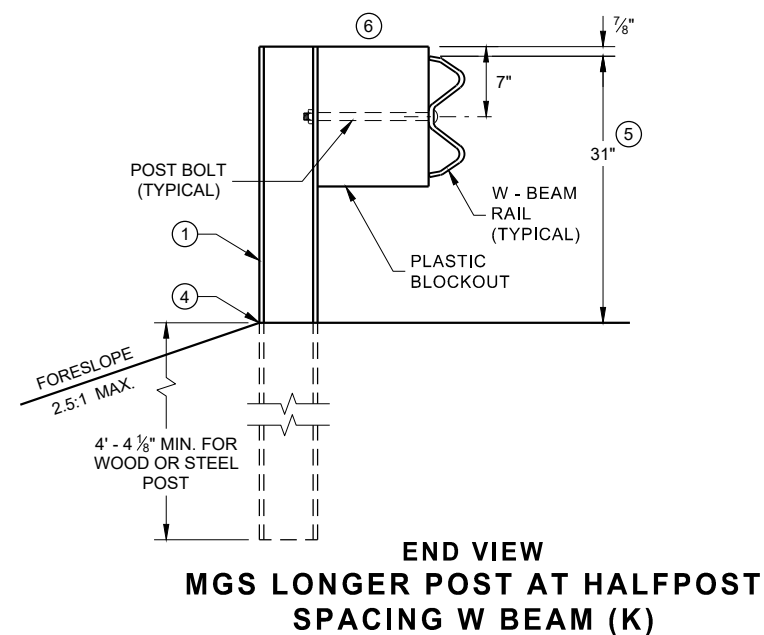
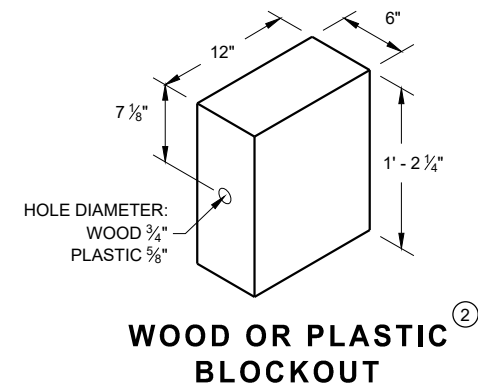
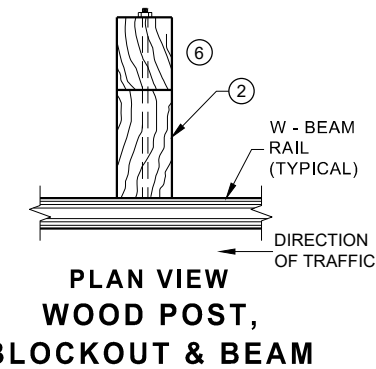


- ① WOOD OR STEEL POSTS (w6X9 OR w6X8.5) MAY BE USED. DO NOT INTERMIX WOOD AND STEEL POSTS. INSTALL STEEL POSTS WITH HOLES ON APPROACHING TRAFFIC SIDE.
- ② USE WOOD OR APPROVED PLASTIC BLOCKOUTS. WOOD BLOCKOUTS MAY BE CONSTRUCTED OUT OF TWO OR MORE WOOD BLOCKOUTS. SEE ALTERNATE WOOD BLOCKOUT DETAIL.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



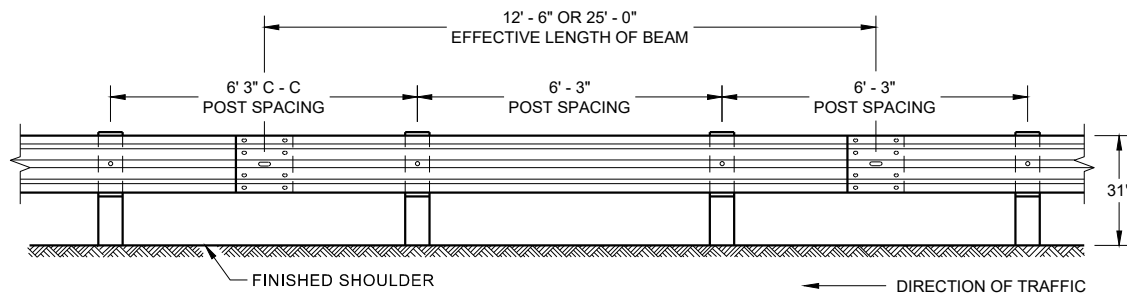
**STEEL POST & HOLE PUNCHING DETAIL (W 6 X 9)**

**WOOD POST (6" X 8") NOMINAL**

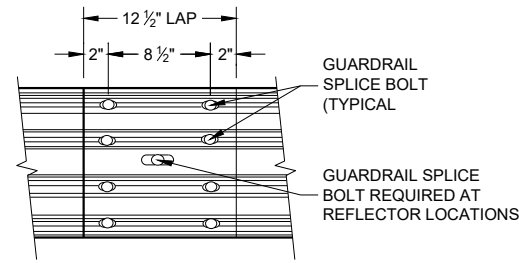


**MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



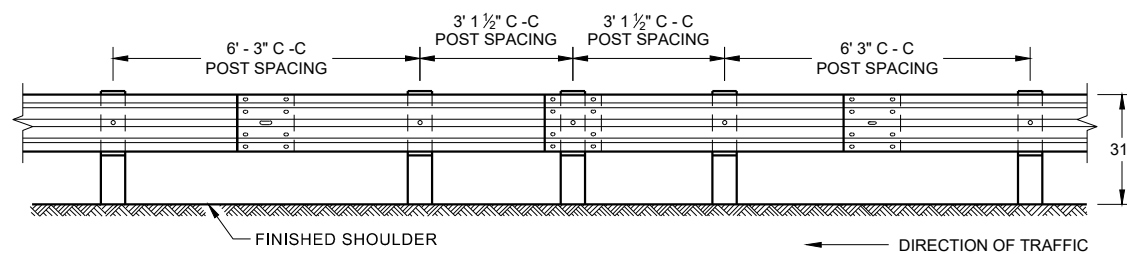
**FRONT VIEW  
POST SPACING STANDARD INSTALLATION**



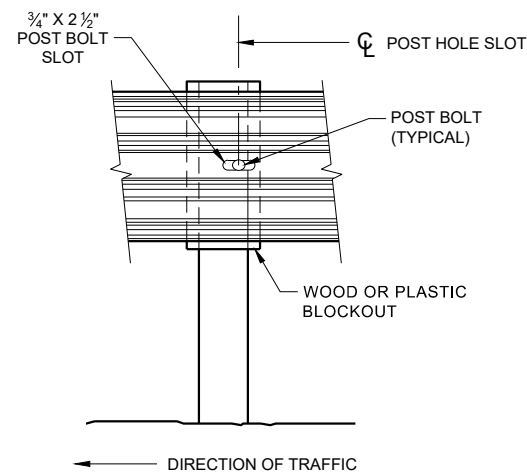
**FRONT VIEW  
MID-SPAN BEAM SPLICE**

**GENERAL NOTES**

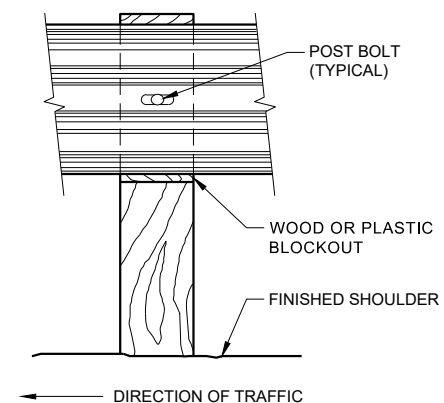
- ⑧ DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL.
  - ⑨ 25 FEET OF HALF POST SPACING IS REQUIRED ON APPROACH AND DEPARTURE ENDS OF QUARTER POST SPACING.
- POST BOLTS ARE A 3/8" DIAMETER ASTM A307 GUARDRAIL BOLT. A POST BOLT REQUIRES 3/4" DIAMETER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



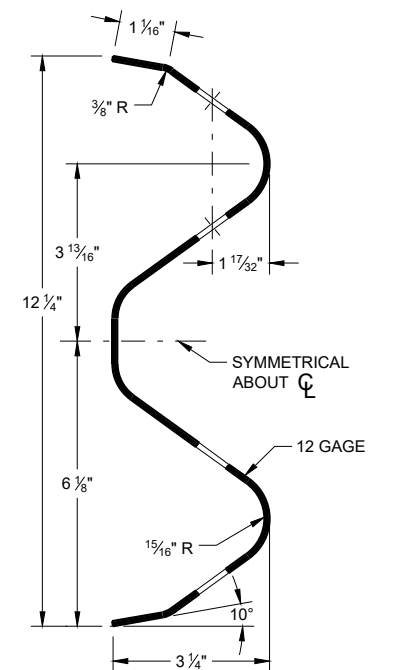
**FRONT VIEW  
HALF POST SPACING (HS) AND  
HALF POST SPACING WITH LONGER POSTS (K)**



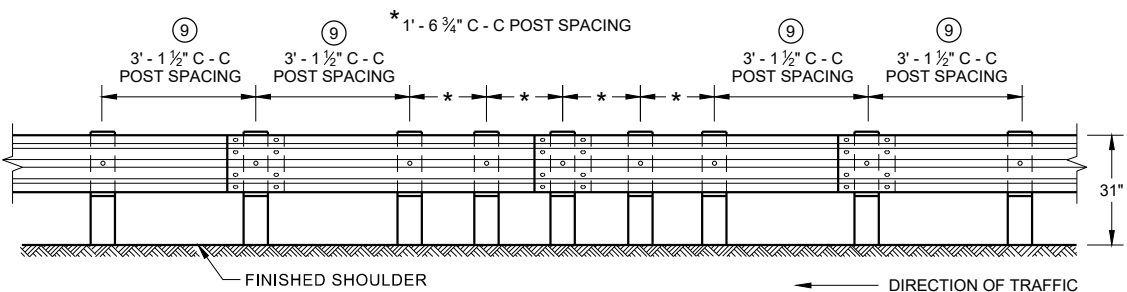
**FRONT VIEW AT STEEL POST**



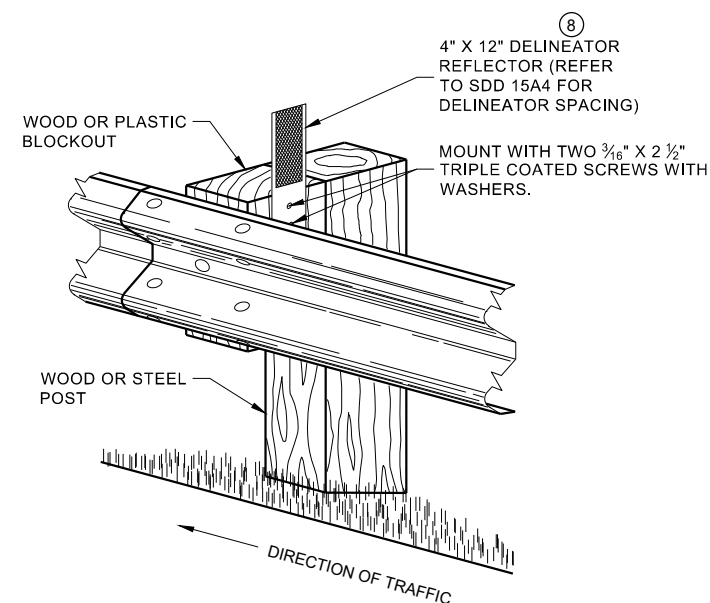
**FRONT VIEW AT WOOD POST**



**SECTION THRU W-BEAM RAIL**



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



**ONE SIDED REFLECTOR DETAIL  
AND TYPICAL INSTALLATION**

**MIDWEST GUARDRAIL SYSTEM  
(MGS) GUARDRAIL**

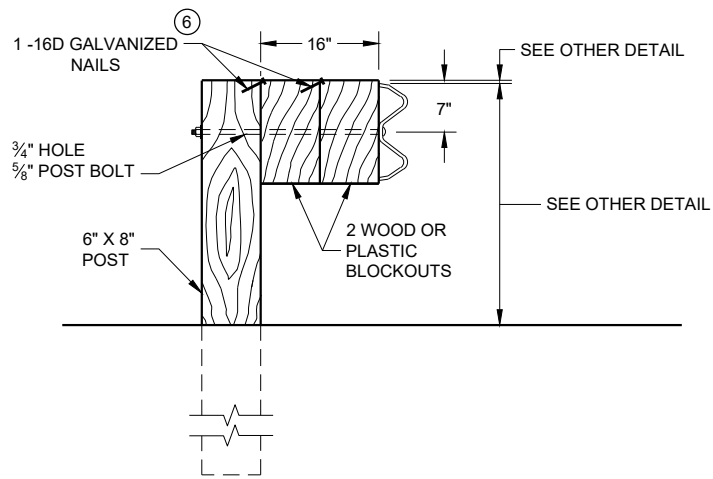
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

6

6

SDD 14B42 - 07b

SDD 14B42 - 07b

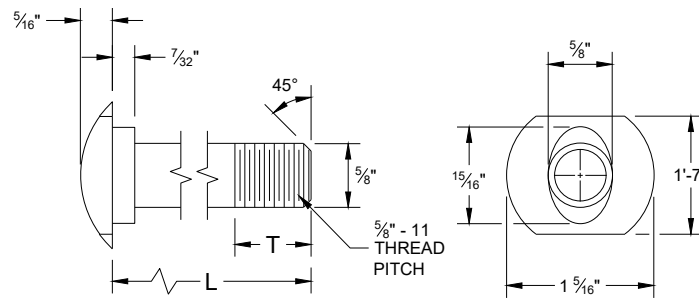


**DETAIL FOR 16" BLOCKOUT DEPTH**

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

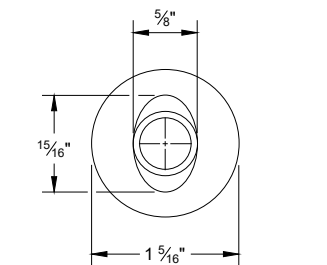
**NOTE:**

1. ALL FILLETS SHALL HAVE A MINIMUM RADIUS OF 3/16".
2. IF THE BOLT EXTENDS MORE THAN 1/4" FROM THE NUT THE BOLT SHOULD BE TRIMMED BACK.

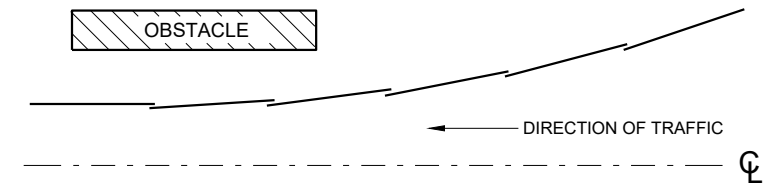


**POST BOLT TABLE**

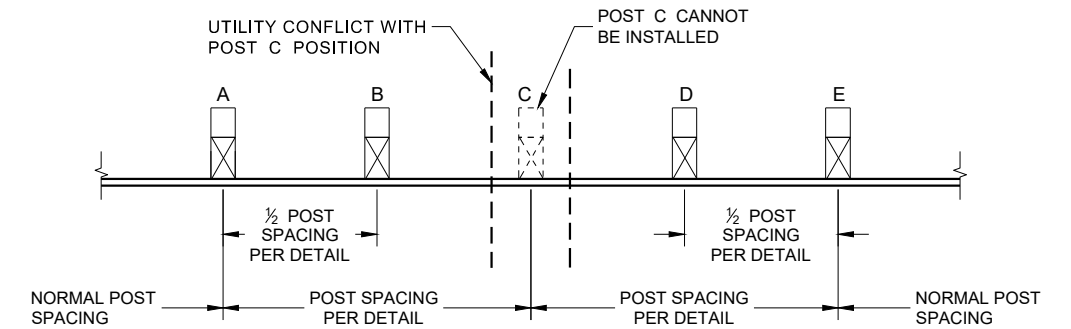
L	T (MIN.)
1 1/4"	1 1/8"
2"	1 3/4"
10"	4"
14"	4 1/16"
18"	4"
21"	4 1/16"
25"	4"



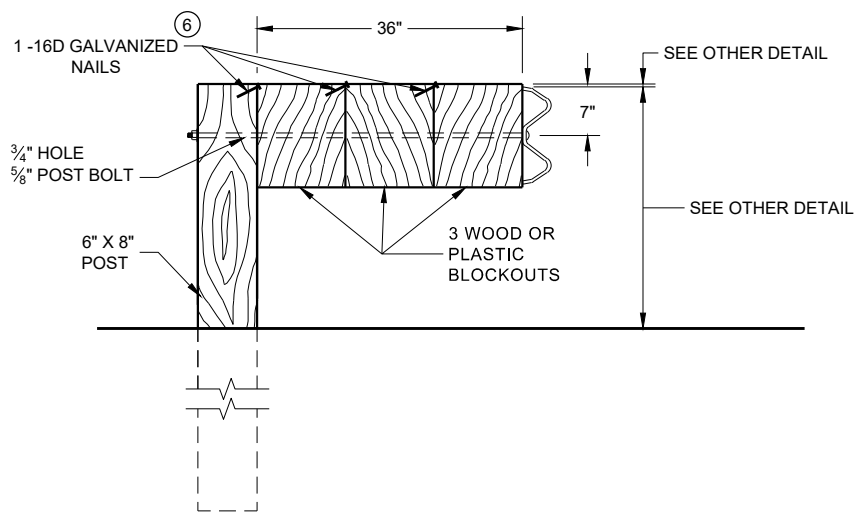
**ALTERNATE BOLT HEAD**



**PLAN VIEW  
BEAM LAPPING DETAIL**

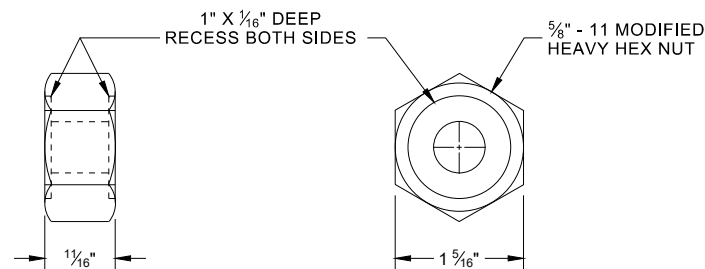


**POST DRIVING FOR CONTINUOUS  
UNDERGROUND OBSTRUCTION**

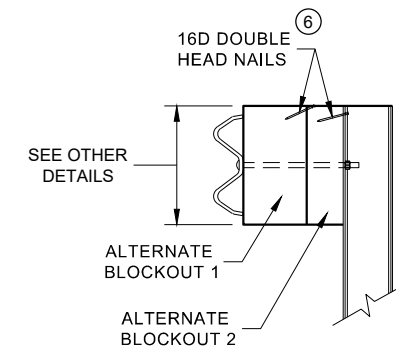


**DETAIL FOR 36" BLOCKOUT DEPTH**

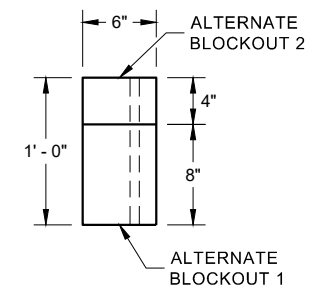
NOTES: UNDER SPECIAL CIRCUMSTANCES, SUCH AS AVOIDING OBSTACLES THAT ARE NOT RELOCATED, IT IS ACCEPTABLE TO INSTALL ADDITIONAL BLOCKOUTS TO OBTAIN UP TO 36" DEPTH FOR ONE OR TWO POSTS IN A SECTION OF GUARDRAIL.  
DO NOT USE 16" OR 36" BLOCKOUTS IF IT CAUSES THE POST TO BE DRIVEN BEYOND SHOULDER HINGE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



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



**SIDE VIEW**



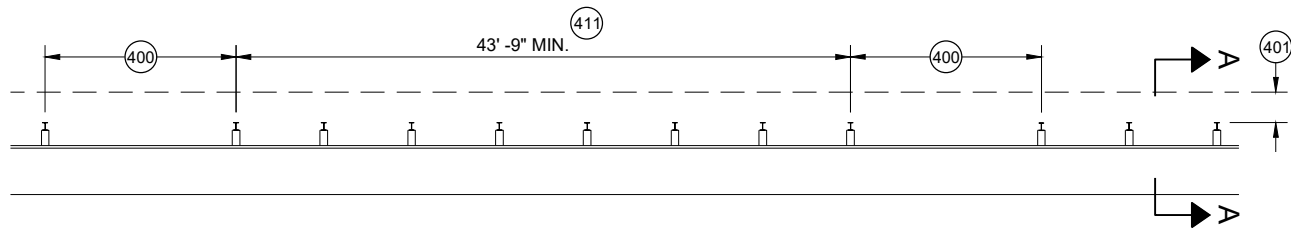
**PLAN VIEW**

**ALTERNATE WOOD  
BLOCKOUT DETAIL**

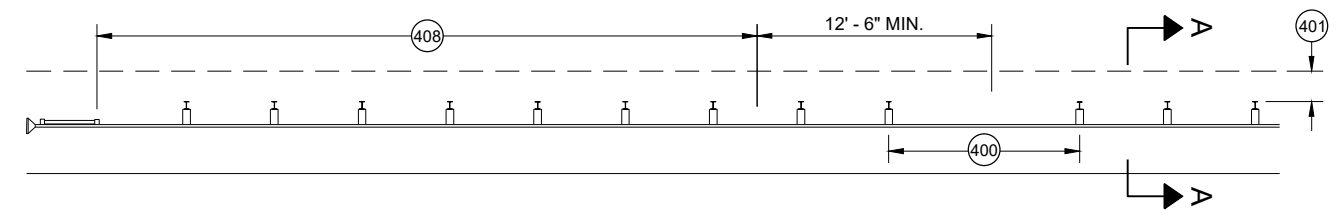
6 WHEN USING STEEL POST AND WOOD BLOCKOUTS, INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.

**MIDWEST GUARDRAIL SYSTEM  
(MGS) GUARDRAIL**

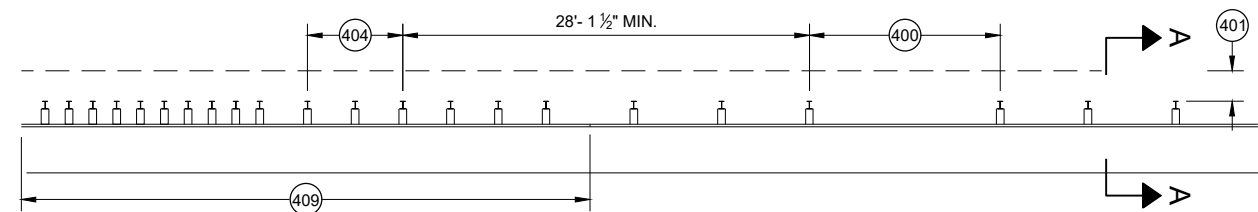
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



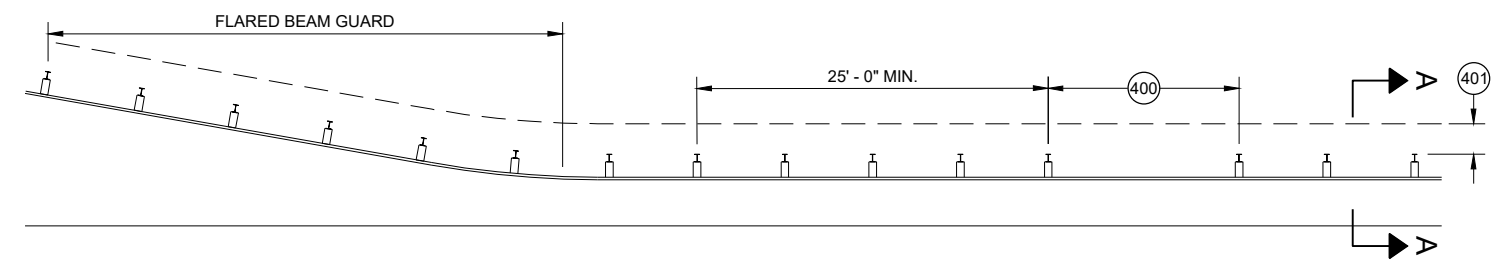
**MISSING POST IN MGS GUARDRAIL**



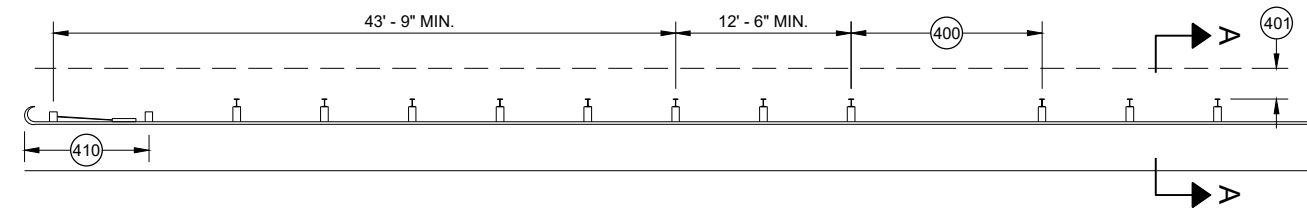
**MISSING POST IN MGS GUARDRAIL NEAR EAT**



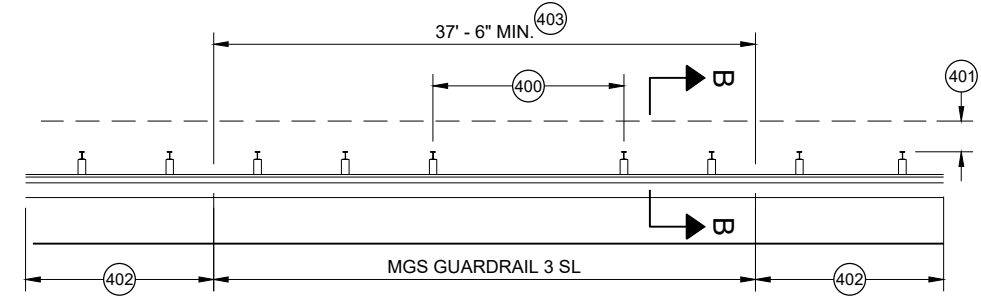
**MISSING POST IN MGS GUARDRAIL NEAR AN APPROACH TRANSITION**



**MISSING POST IN MGS GUARDRAIL NEAR FLARED BEAM GUARD**

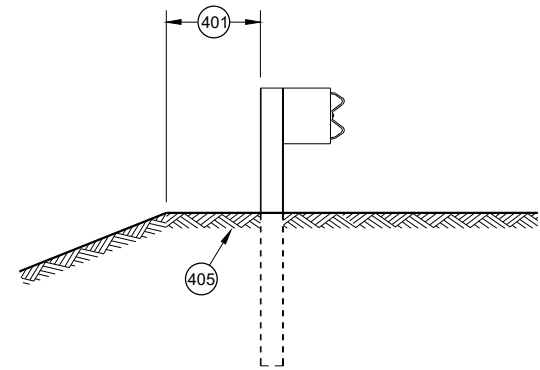


**MISSING POST IN MGS GUARDRAIL NEAR A TYPE 2 END TERMINAL**

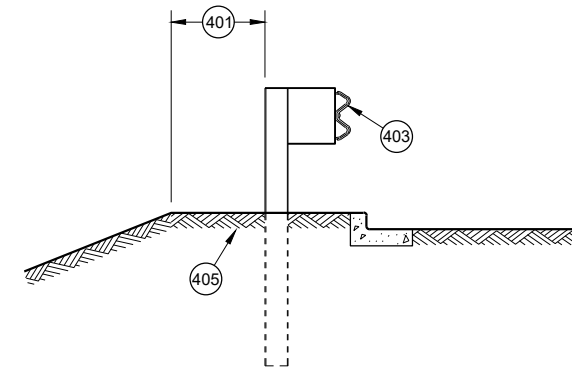


**MISSING POST IN SHORT SPAN MGS GUARDRAIL NEAR CURB (SL)**

- 400 MAX SPAN 12' - 6"
- 401 2' MIN.
- 402 MGS GUARDRAIL 3
- 403 NESTING BEAM GUARD
- 404 ASYMMETRIC TRANSITION
- 405 SOIL WELL DRAINED AND COMPACTED
- 406 SEE OTHER DRAWINGS IN THIS SDD
- 407 SEE OTHER DRAWINGS FOR MIN. SPACING BETWEEN SPANS
- 408 SEE SDD 14B44
- 409 SEE SDD 14B45
- 410 SEE SDD 14B47
- 411 MINIMUM DISTANCE BETWEEN MISSING POST SPANS.



**SECTION A - A**



**SECTION B - B**

<b>MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL</b>	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED May 2021 DATE	/S/ Rodney Taylor ROADWAY STANDARDS DEVELOPMENT UNIT SUPERVISOR
<small>FHWA</small>	

**GENERAL NOTES**

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

SEE SDD 14B42 FOR MORE INFORMATION.

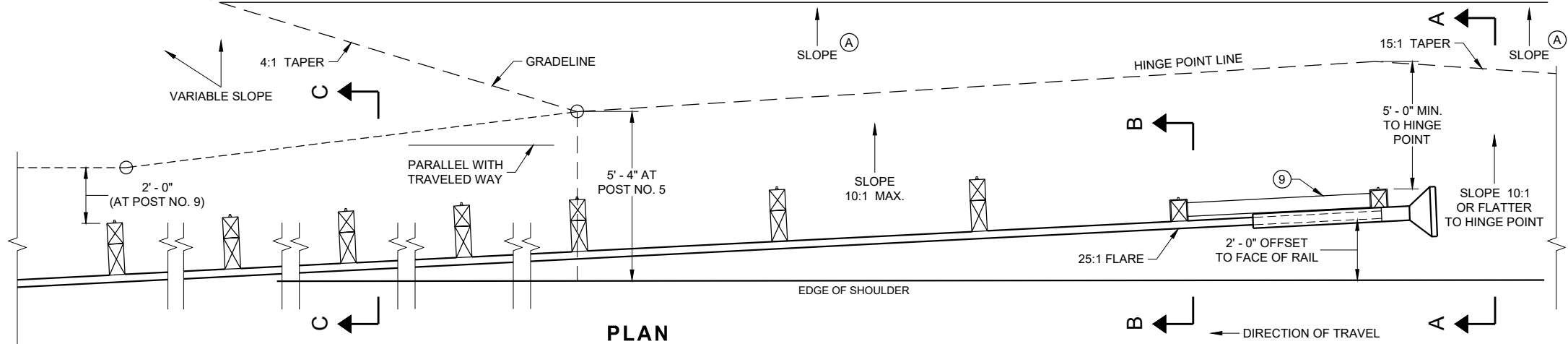
\* DO NOT ATTACH BLOCKOUTS TO POST 1 AND 2.

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

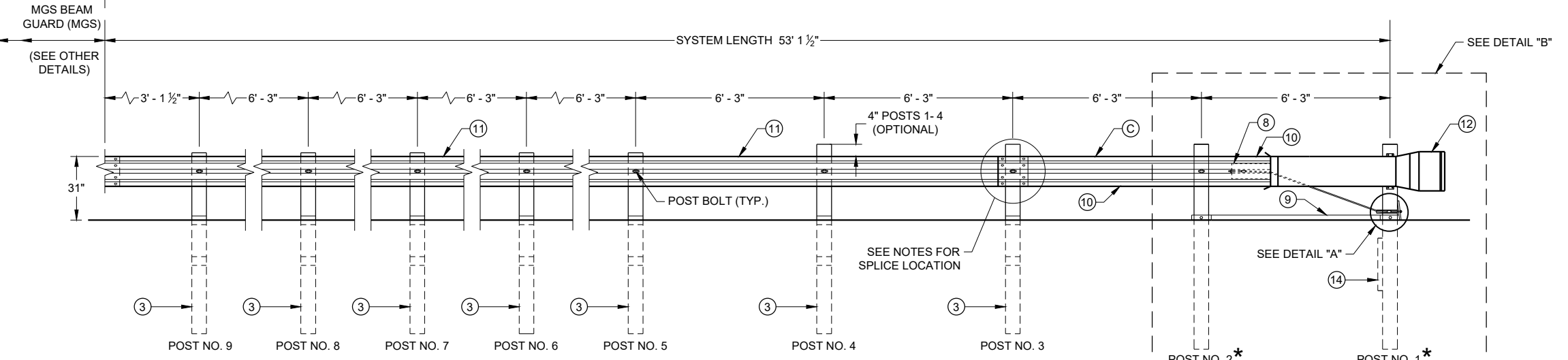
SEE MANUFACTURER'S DRAWING FOR SPLICE LOCATION, HARDWARE DIMENSIONS AND INSTALLATION INSTRUCTIONS.

THE CENTER OF THE UPPER 3 1/2" DIAMETER HOLE ON POST NUMBER 3 THROUGH POST 9 IS TO BE FLUSH WITH THE GROUND LINE UP TO A MAXIMUM OF 2" ABOVE GROUND LINE. WOOD BLOCKS ON POSTS NUMBERED 3 THROUGH 9 MAY BE ADJUSTED UP TO 3" ABOVE THE TOP OF POST.

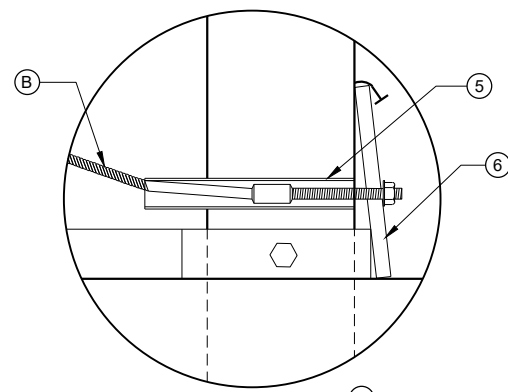
CLEAR ZONE LIMITS, EITHER AS SHOWN ELSEWHERE IN THE PLANS OR, IF NOT SHOWN ELSEWHERE IN THE PLANS, 15 FEET BEYOND THE HINGE POINT LINE



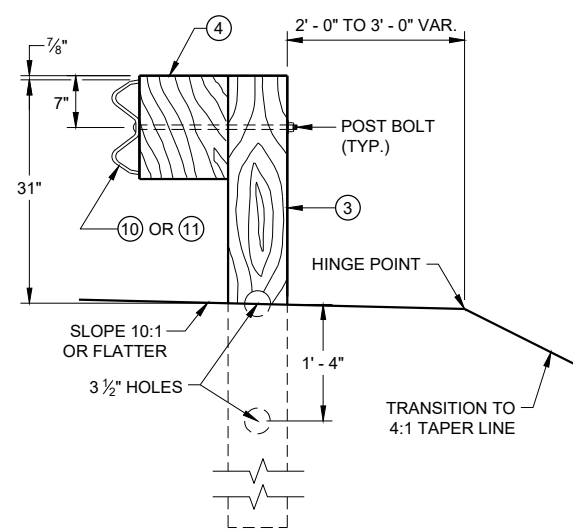
**PLAN**



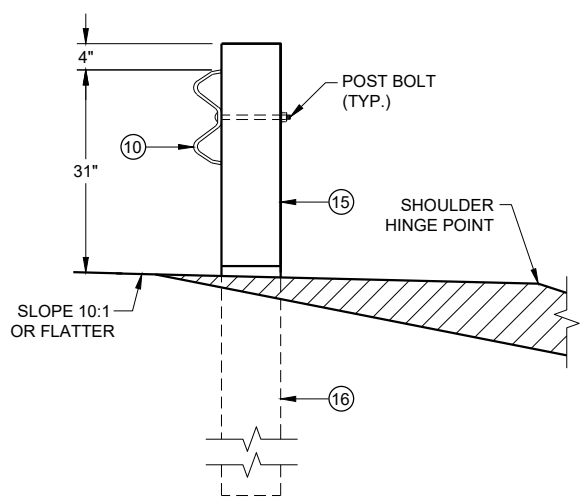
**ELEVATION**



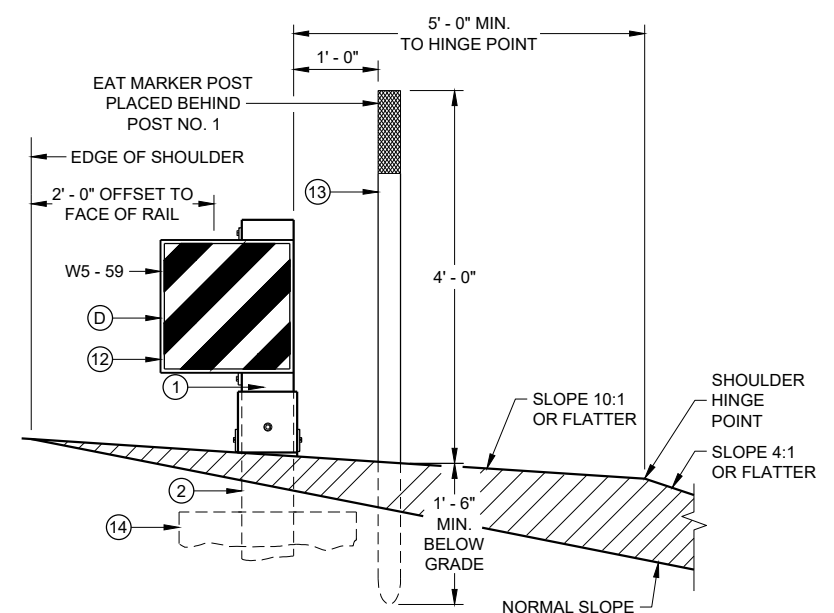
**DETAIL "A"**



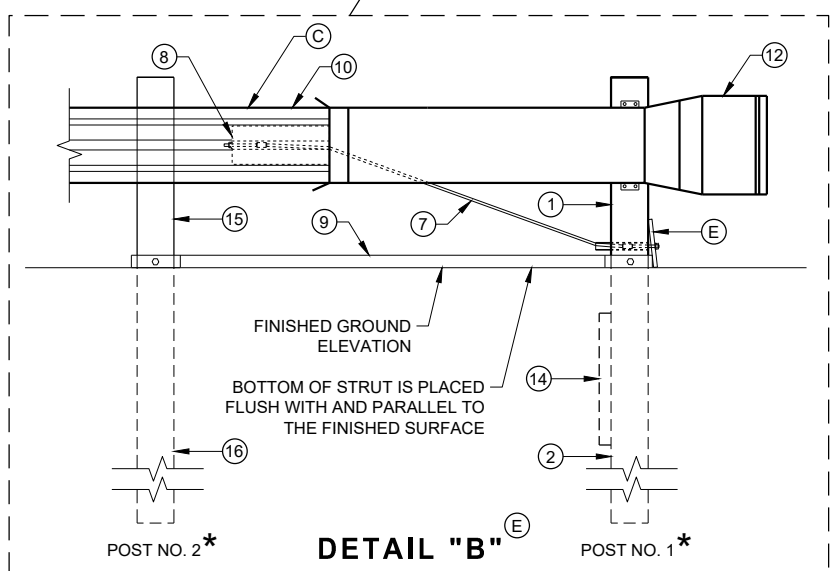
**SECTION C - C  
TYPICAL AT POST NOS. 3 - 9**



**SECTION B - B  
TYPICAL AT POST NO. 2\***



**SECTION A - A  
TYPICAL AT POST NO. 1\***



**DETAIL "B"**

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

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

6

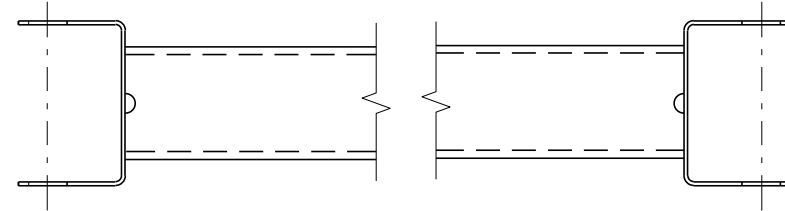
6

SDD 14B44 - 04a

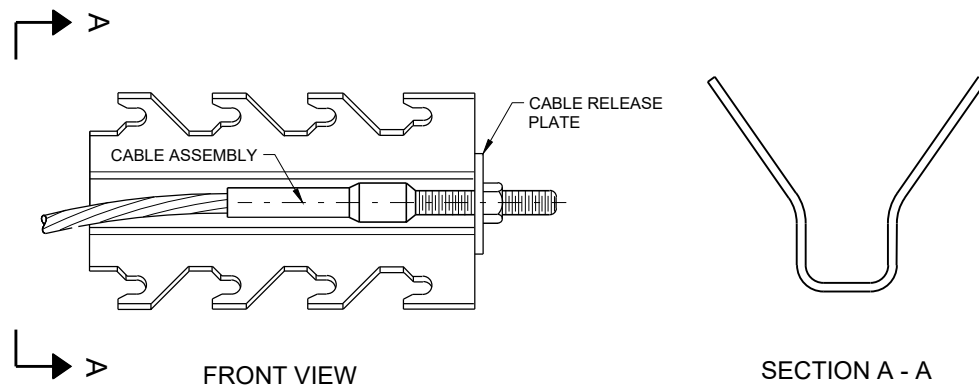
SDD 14B44 - 04a

**BILL OF MATERIALS**

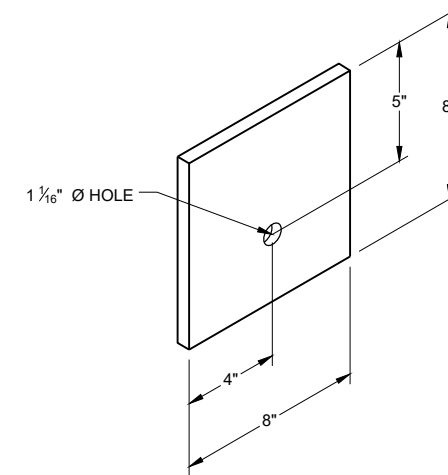
PART NO.	DESCRIPTION MATERIALS PROVIDED BY MGS EAT MANUFACTURER. SEE MANUFACTURER'S DETAILS FOR MORE INFORMATION.
①	UPPER POST NO. 1 6" X 6" TUBE
②	LOWER POST NO. 1
③	WOOD CRT
④	WOOD BLOCKOUT
⑤	PIPE SLEEVE
⑥	BEARING PLATE
⑦	BCT CABLE ASSEMBLY
⑧	ANCHOR CABLE BOX
⑨	GROUND STRUT
⑩	PERFORATED W-BEAM RAIL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



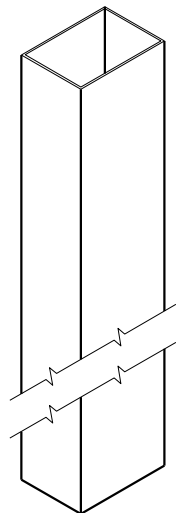
**GENERIC GROUND STRUT** ⑨ ⑤



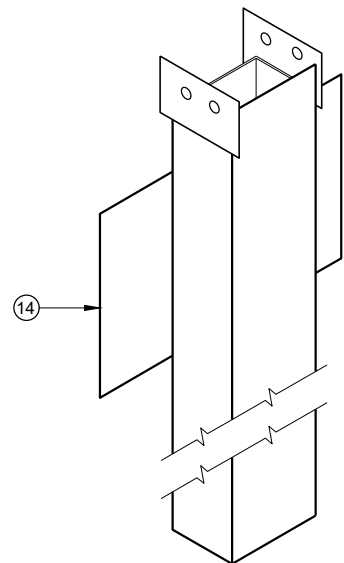
**GENERIC ANCHOR CABLE BOX** ⑨ ⑤



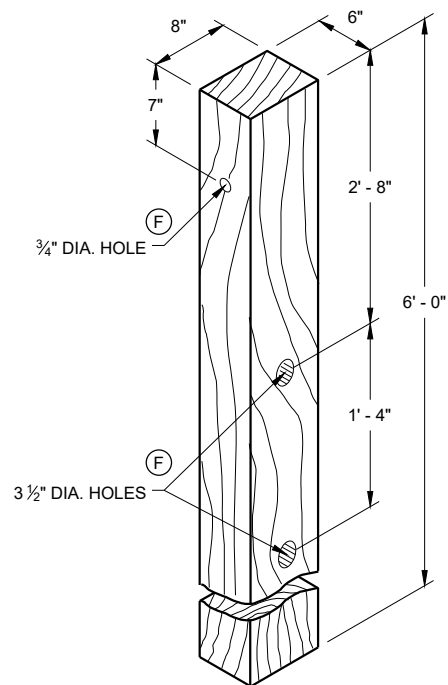
**BEARING PLATE** ⑥ ⑤



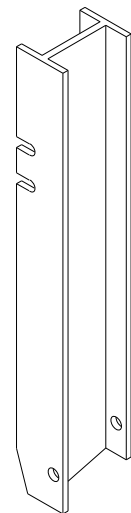
UPPER POST NO. 1 <sup>①</sup> (E)



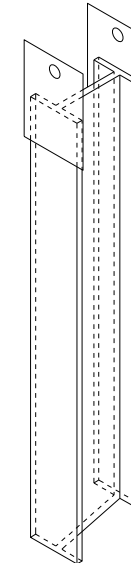
LOWER POST NO. 1 <sup>②</sup> (E)



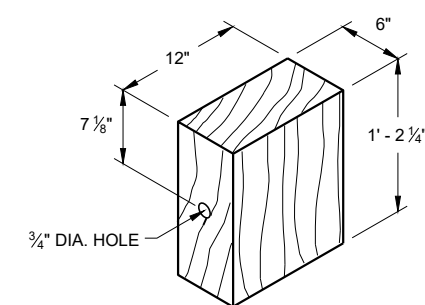
WOOD CRT POST <sup>③</sup> (E)  
POSTS NUMBER 3-9



UPPER POST NO. 2 <sup>⑮</sup> (E)

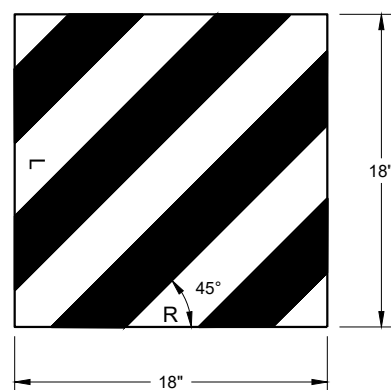


LOWER POST NO. 2 <sup>⑯</sup> (E)



WOOD BLOCKOUT <sup>④</sup>  
REQ'D. AT ALL POSTS EXCEPT POST NO'S 1 & 2

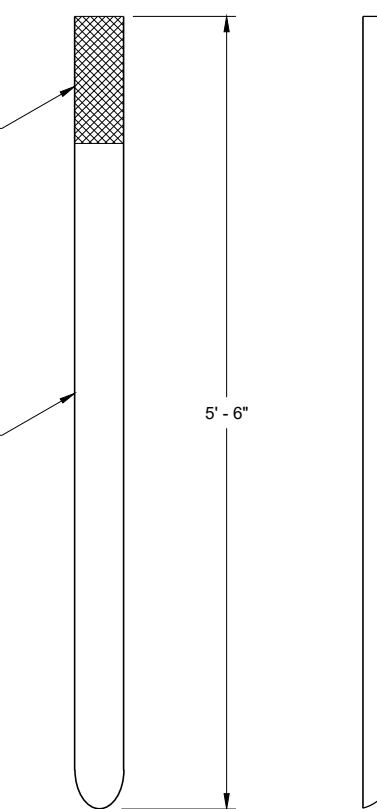
6



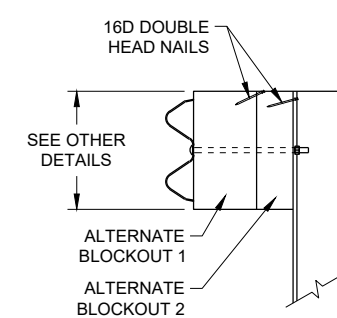
REFLECTIVE SHEETING DETAIL <sup>⑤</sup>

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

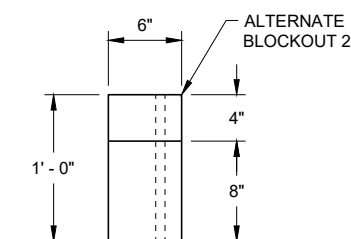
E.A.T. MARKER  
POST (YELLOW)



FRONT VIEW SIDE VIEW  
E.A.T. MARKER POST <sup>⑬</sup>



SIDE VIEW



TOP VIEW

ALTERNATE WOOD  
BLOCKOUT DETAIL

6

SDD 14B44 - 04c

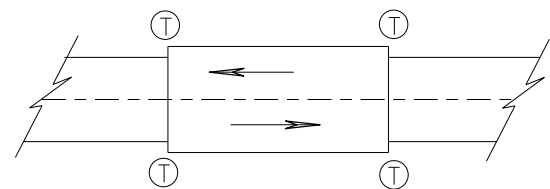
SDD 14B44 - 04c

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

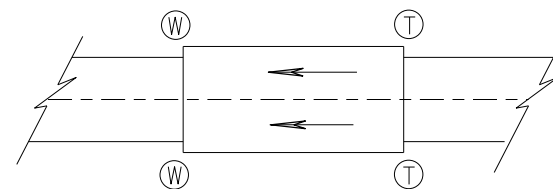
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

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

FHWA



**TWO WAY TRAFFIC**



**ONE WAY TRAFFIC**

(T) THRIE BEAM CONNECTION

(W) W-BEAM CONNECTION WHEN REQUIRED

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

**GENERAL NOTES**

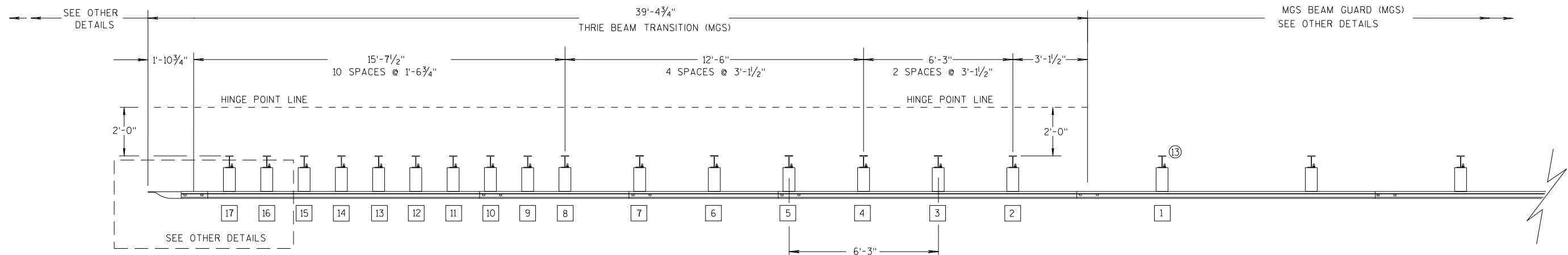
IF ROCK IS ENCOUNTERED, REMOVE ROCK TO FULL DEPTH OF POST PLUS 2 1/2", AND 12" DIAMETER AROUND POST. SEE 14B42 FOR MORE DETAILS.

TRANSITION USES STEEL POSTS ONLY.

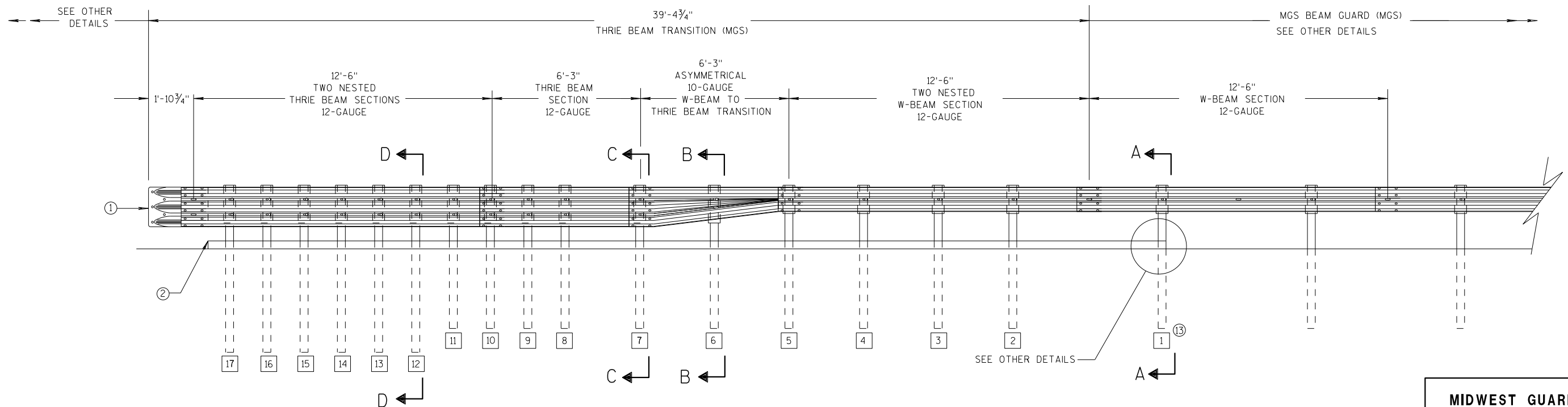
SEE STANDARD DETAIL DRAWING 14 B 42 FOR MORE INFORMATION.

POST 2 THROUGH 17 USES STEEL POST ONLY

- ① BRIDGE RAILING TYPE "W" DOES NOT REQUIRE A TERMINAL CONNECTOR.
- ② OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.
- ⑬ STEEL OR WOOD POST IS ACCEPTABLE AT POST 1. SEE SDD14B42



**PLAN VIEW**



**ELEVATION VIEW**

**MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION**

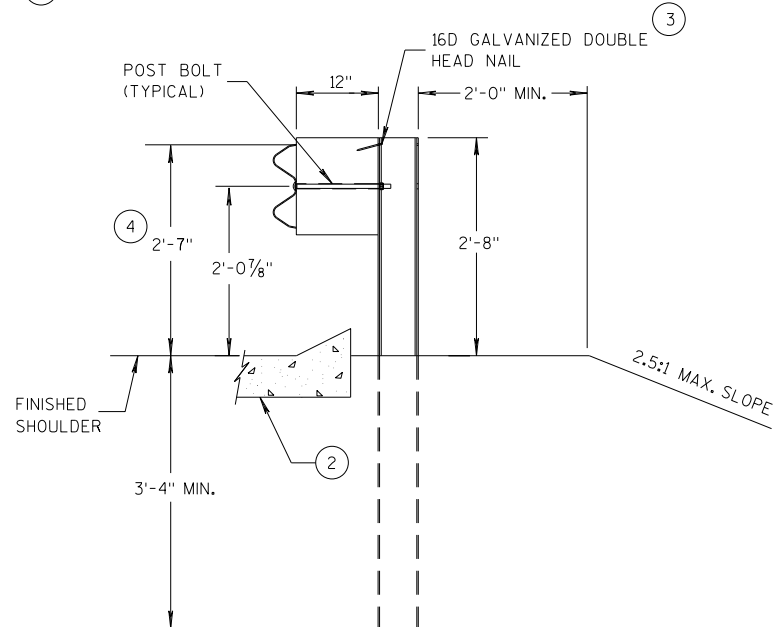
**MIDWEST GUARDRAIL SYSTEM  
THRIE BEAM TRANSITION (MGS)**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

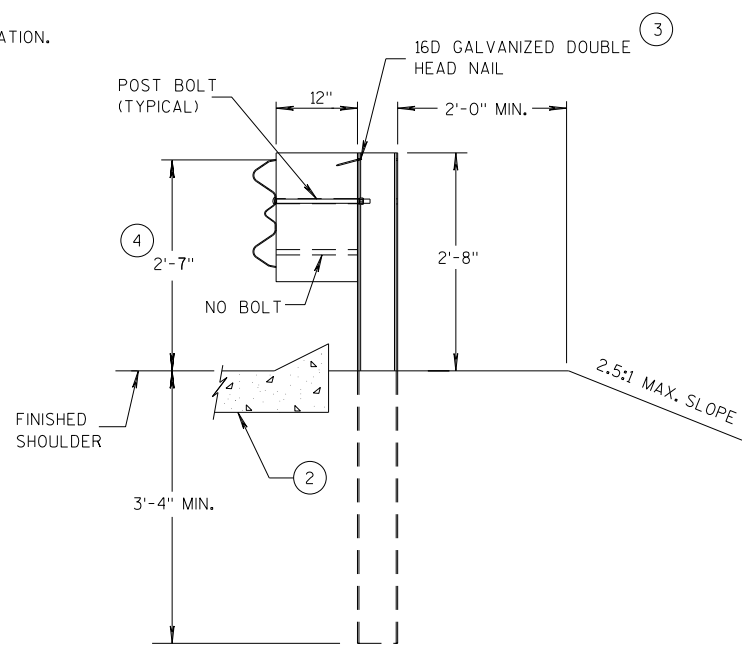


**GENERAL NOTES**

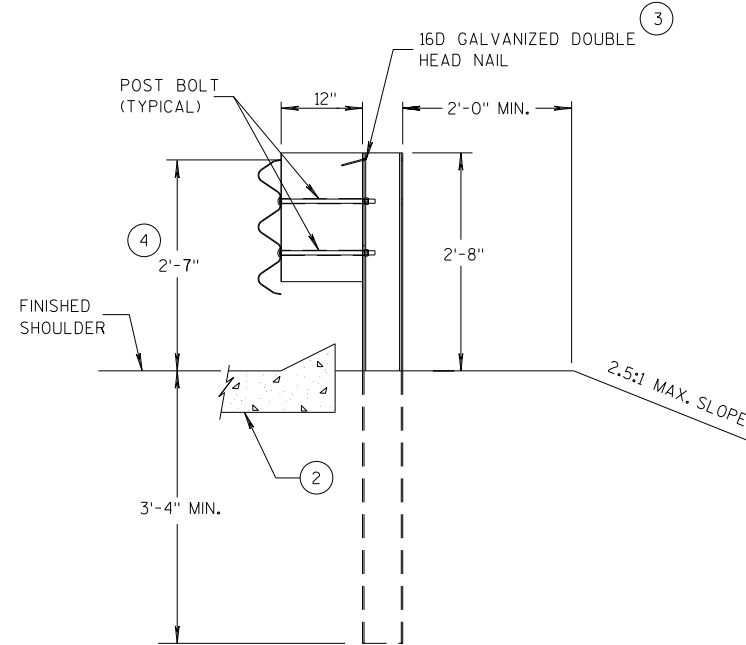
- ② OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.
- ③ WHEN USING STEEL POSTS AND WOOD BLOCKOUTS INSTALL FOUR 10D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.
- ④ TOLERANCE FOR TOP OF W-BEAM RAIL IS ± 1".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



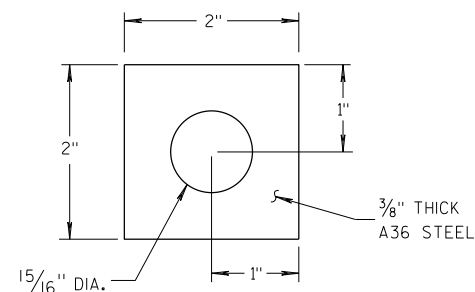
**SECTION A-A  
POSTS 1-5**



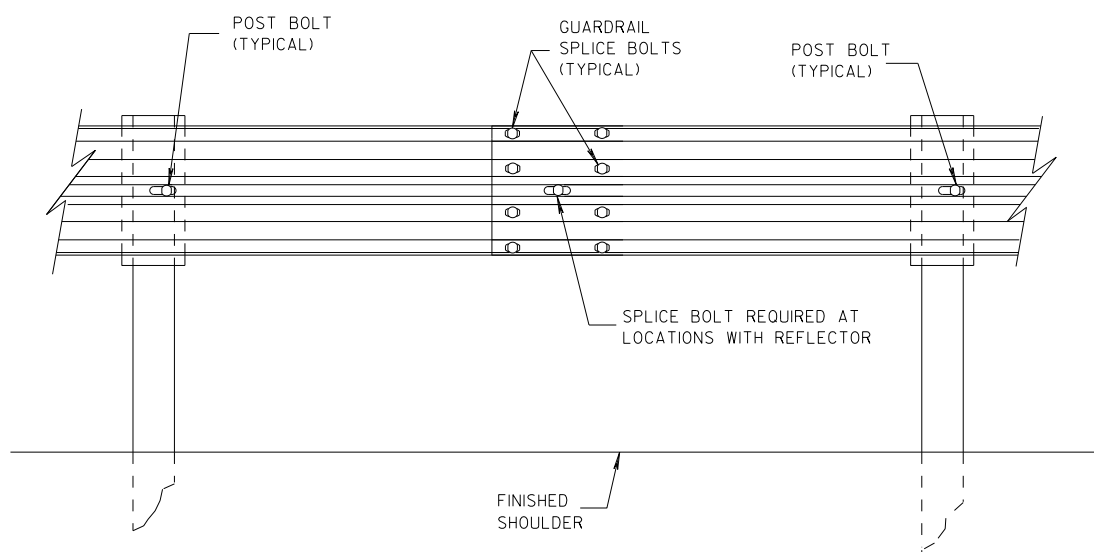
**SECTION B-B  
POST 6**



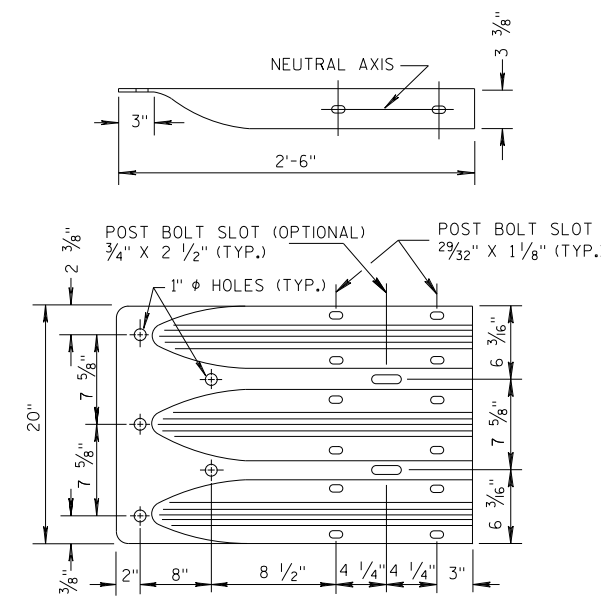
**SECTION C-C  
POSTS 7-11**



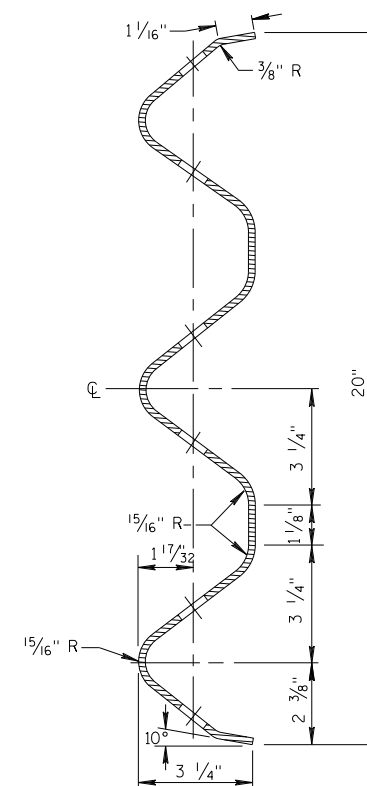
**PLATE WASHER DETAIL**



**SPLICE DETAIL**



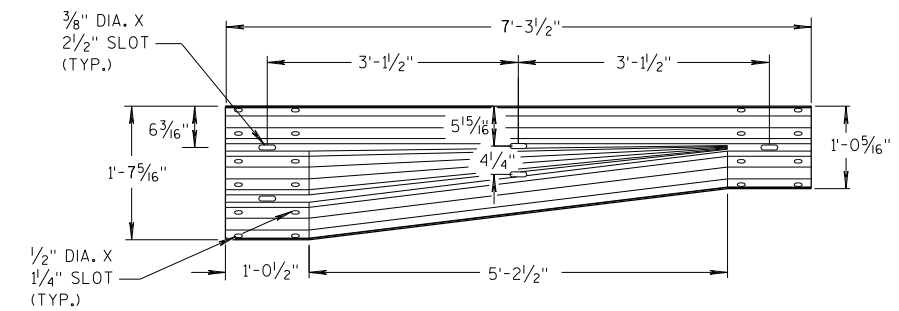
**THRIE BEAM  
TERMINAL CONNECTOR**



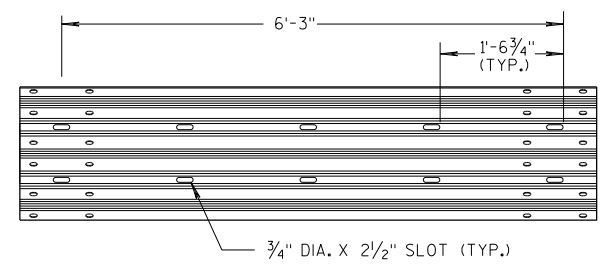
**SECTION THRU THRIE  
BEAM RAIL ELEMENT**

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

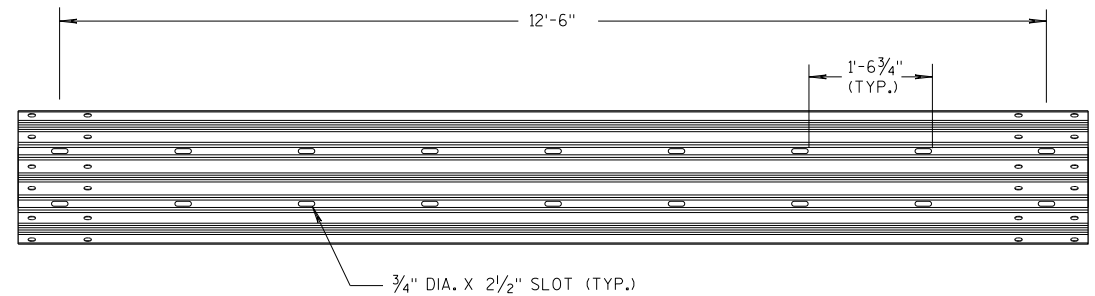
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



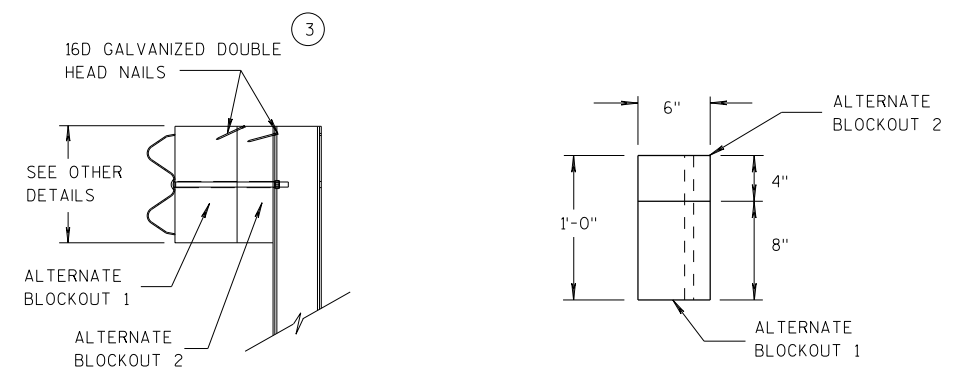
**W-BEAM TO THRIE BEAM TRANSITION SECTION**



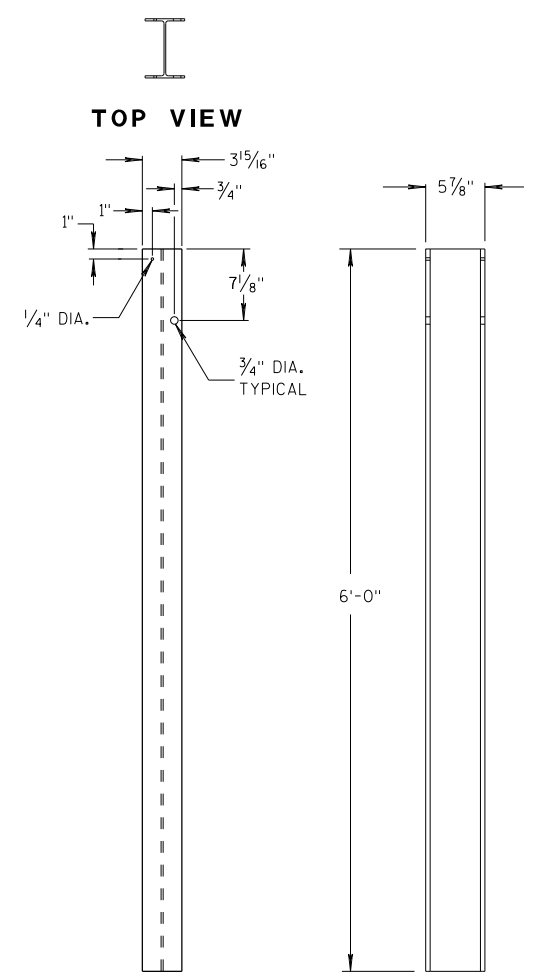
**6'-3\"/>**



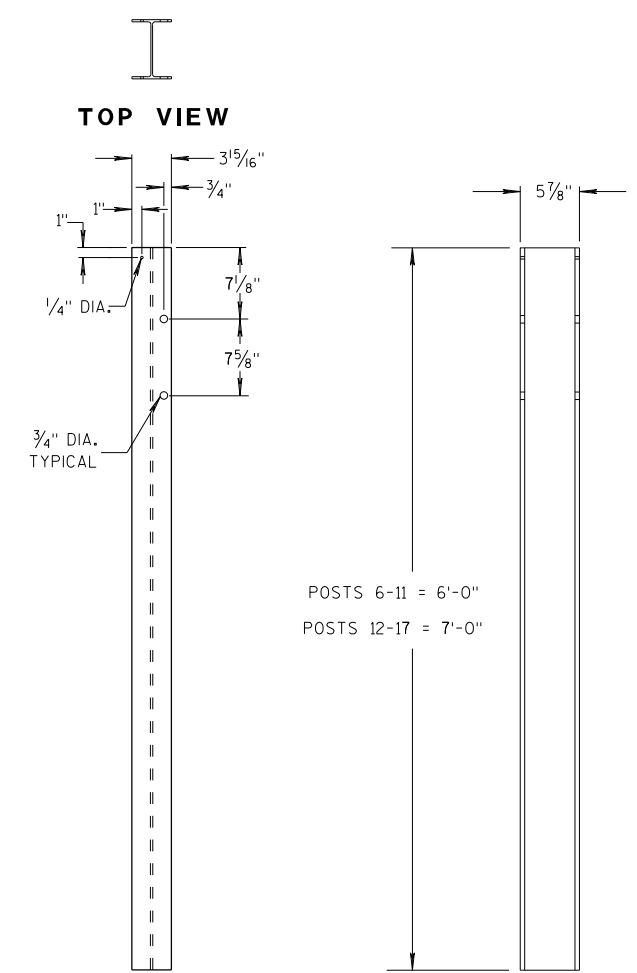
**12'-6\"/>**



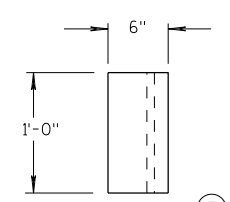
**ALTERNATE WOOD BLOCKOUT DETAIL**



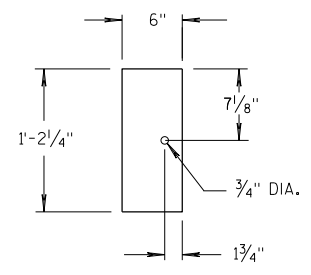
**STEEL POSTS 1-5**



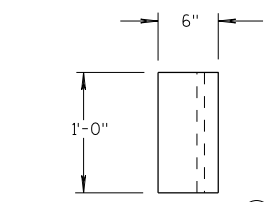
**STEEL POSTS 6-17**



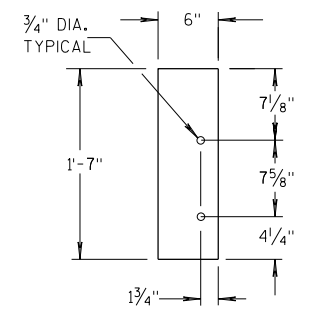
**TOP VIEW**



**FRONT VIEW  
BLOCKOUT  
POSTS 1-5**



**TOP VIEW**



**FRONT VIEW  
BLOCKOUT  
POSTS 6-17**

**GENERAL NOTES**

- STEEL POSTS ARE W6X9 OR W6X8.5.
- BOLT HOLES FOR POST ARE ON FRONT AND OF SIDE OF POST.
- (3) WHEN USING STEEL POSTS AND WOOD BLOCKOUTS INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.
- (5) WOOD BLOCKS MAY BE CONSTRUCTED OUT OF 2 WOOD BLOCKS. SEE ALTERNATE WOOD BLOCK DETAIL.
- (13) STEEL OR WOOD POST IS ACCEPTABLE AT POST 1. SEE SDD 14B42.

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

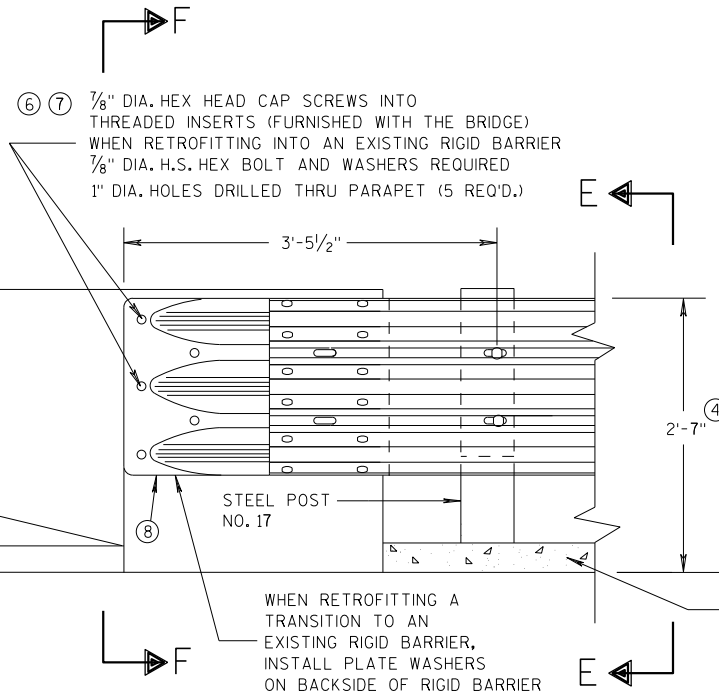
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

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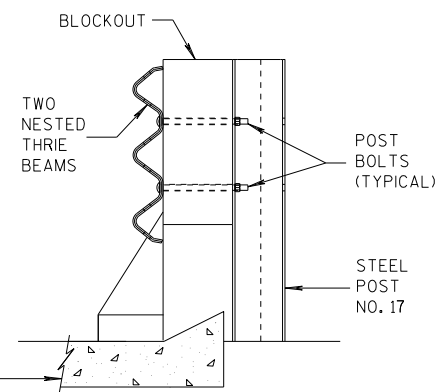
S.D.D. 14 B 45-5c

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



FRONT VIEW

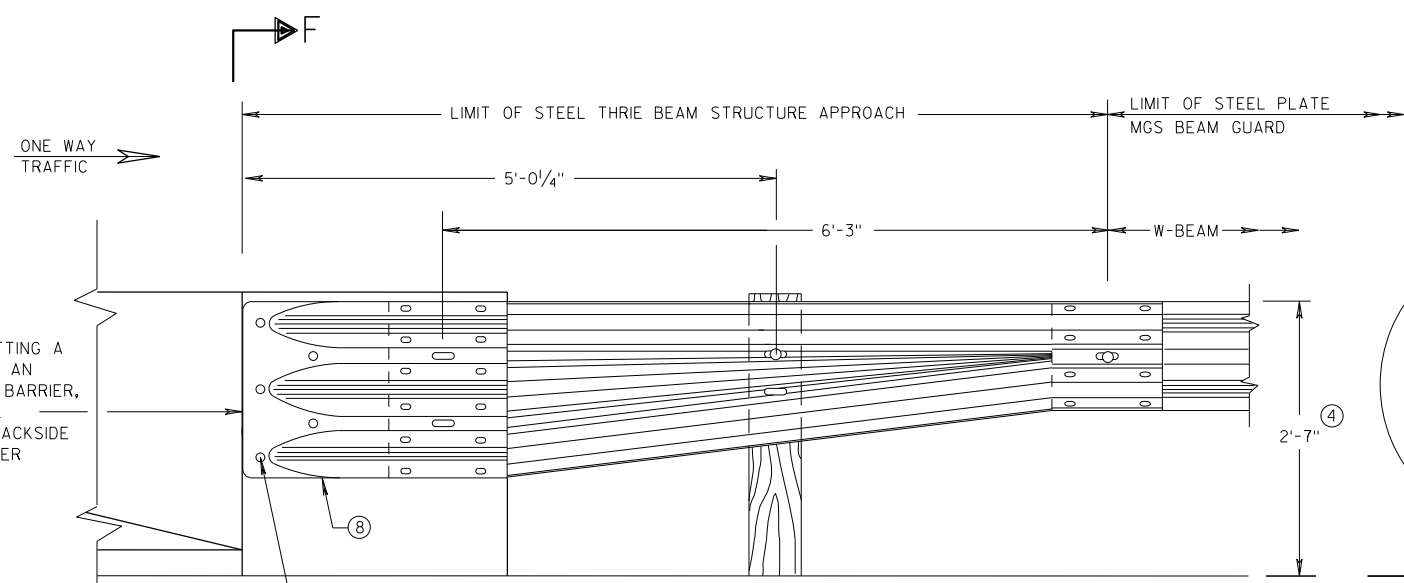
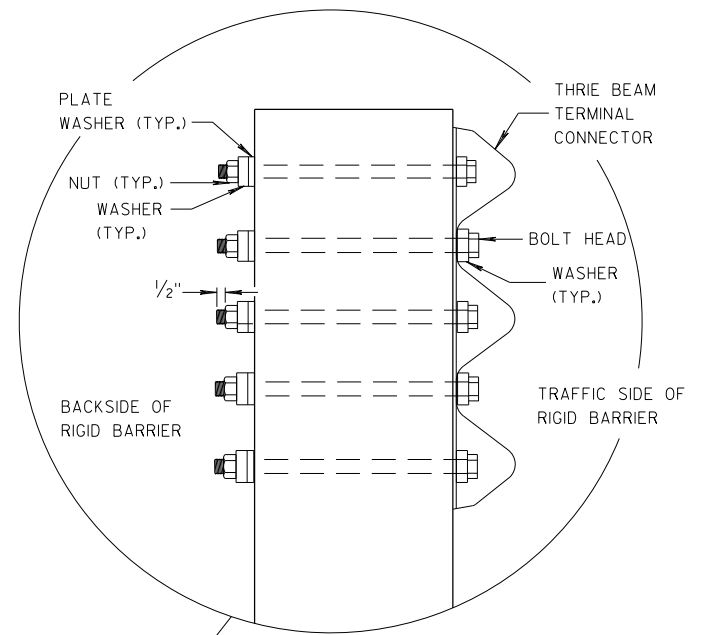
**THRIE BEAM CONNECTION TO BRIDGE PARAPET WITH SQUARE ENDS**



SECTION E-E

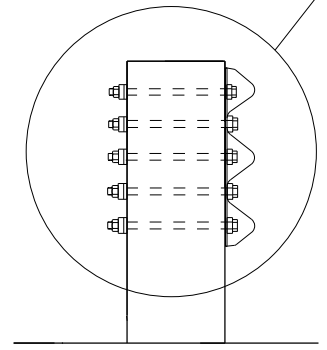
**GENERAL NOTES**

- THESE ARE TYPICAL CONNECTION DETAILS. ADJUST THE POSITION OF CONNECTIONS TO EXISTING BRIDGES TO FIT THE ACTUAL BRIDGE AND SITE DIMENSIONS.
- (2) OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.
  - (4) TOLERANCE FOR TOP OF BEAM IS  $\pm 1"$ .
  - (6) DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.
  - (7) BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTOR PLATE. BOLTS THAT EXTEND THROUGH THE PARAPET AND OUT THE BACK FACE REQUIRE A HARDENED ROUND STEEL WASHER THAT IS 2" O.D. X 5/32" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.
  - (8) THE RECESS FOR A W-BEAM CONNECTION, WHICH EXISTS ON SOME PARAPETS OF THIS TYPE, SHALL BE FILLED WITH A TREATED TIMBER BLOCKOUT. BLOCKOUT SIZE IS 1'-6" X 2'-0" X 3 1/2".

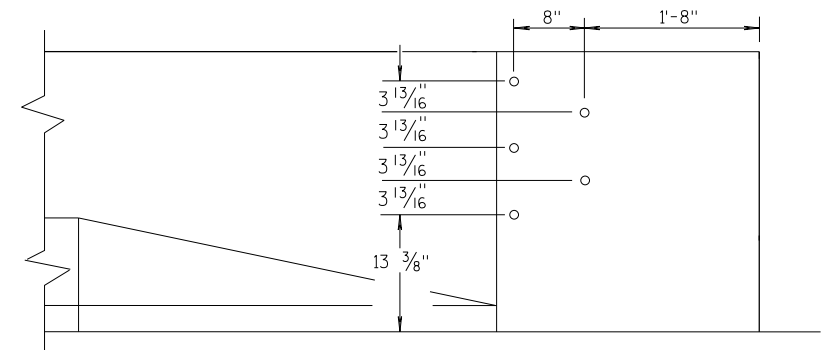


FRONT VIEW

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



SECTION F-F



DRILL HOLE LOCATION

<b>MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)</b>	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 07/2018 DATE	/S/ Rodney Taylor ROADWAY STANDARDS DEVELOPMENT UNIT SUPERVISOR
FHWA	

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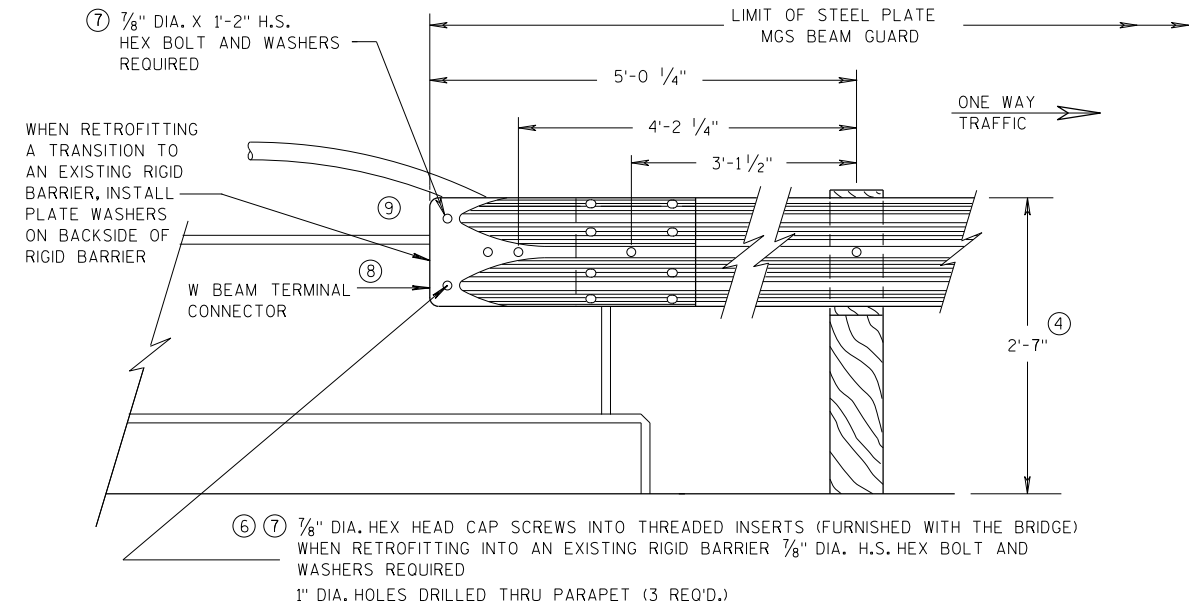
S.D.D. 14 B 45-5d

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

## GENERAL NOTES

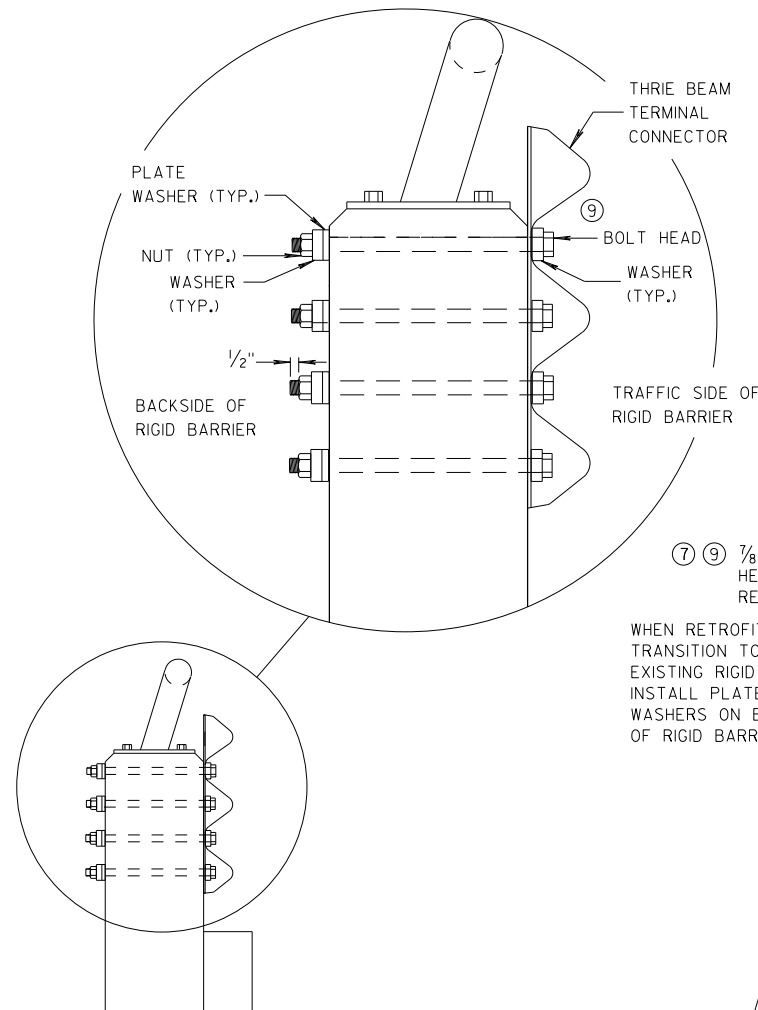
THESE ARE TYPICAL CONNECTION DETAILS. ADJUST THE POSITION OF CONNECTIONS TO EXISTING BRIDGES TO FIT THE ACTUAL BRIDGE AND SITE DIMENSIONS.

- ② OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.
- ④ TOLERANCE FOR TOP OF BEAM IS  $\pm 1"$ .
- ⑥ DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.
- ⑦ BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTOR PLATE. BOLTS THAT EXTEND THROUGH THE PARAPET AND OUT THE BACK FACE REQUIRE A HARDENED ROUND STEEL WASHER THAT IS 2" O.D. X 5/32" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.
- ⑧ THE RECESS FOR A W-BEAM CONNECTION, WHICH EXISTS ON SOME PARAPETS OF THIS TYPE, SHALL BE FILLED WITH A TREATED TIMBER BLOCKOUT. BLOCKOUT SIZE IS 1'-6" X 2'-0" X 3 1/2".
- ⑨ BOLT, NUT AND WASHERS NOT REQUIRED FOR THIS LOCATION WHEN RETROFITTING AN EXISTING PAPAPET AND THE HOLE IS EITHER ABOVE PARAPET OR WITHIN 4 INCHES OF THE EDGE OF PARAPET.

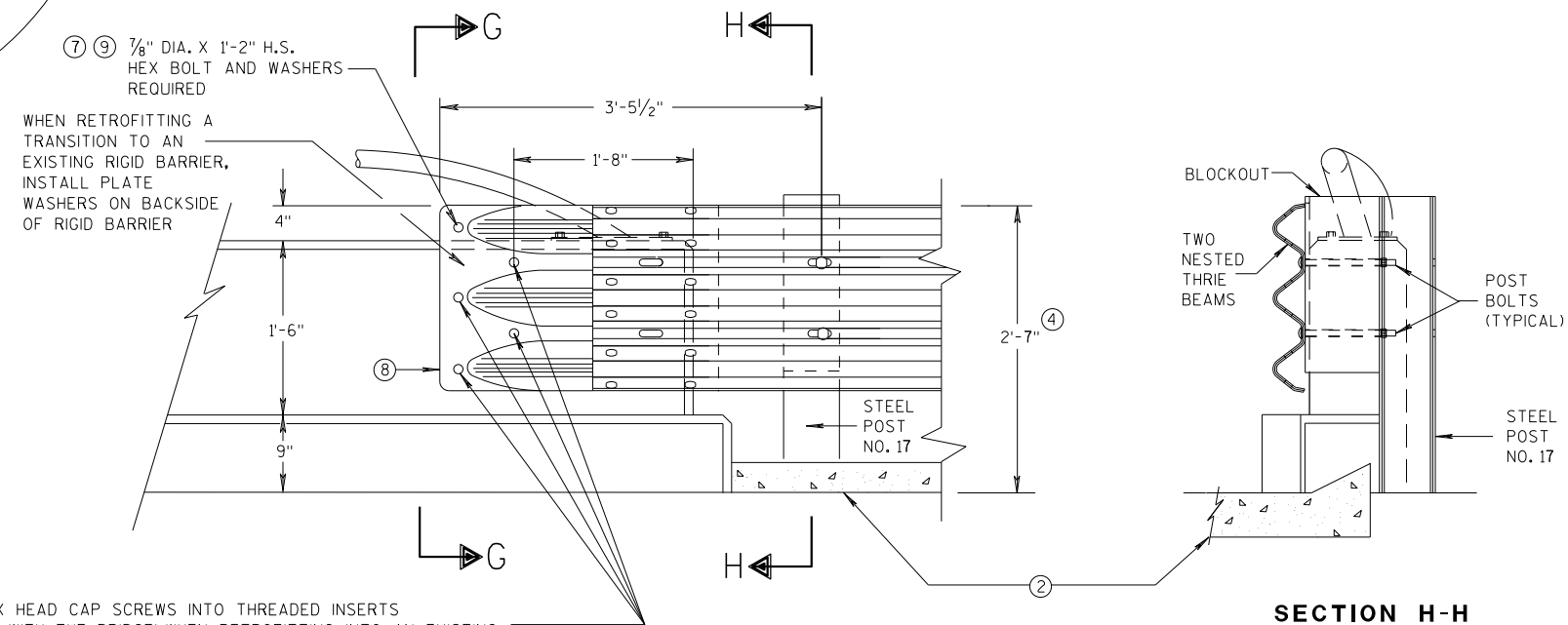


FRONT VIEW

### W BEAM CONNECTION TO VERTICAL FACE PARAPET (USE ONLY ON THE TRAFFIC EXIT END OF ONE WAY BRIDGES)



SECTION G-G



FRONT VIEW

### THRIE BEAM CONNECTION TO VERTICAL FACED PARAPETS

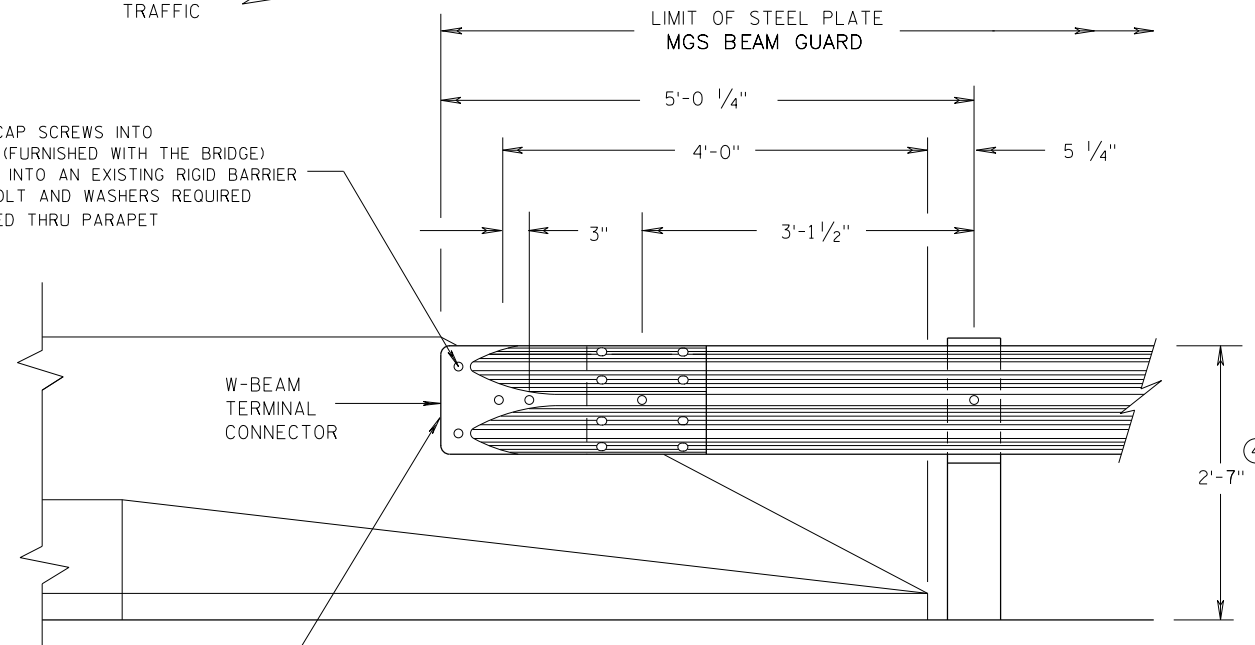
MIDWEST GUARDRAIL SYSTEM  
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

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

ONE WAY  
TRAFFIC

⑥ ⑦ 7/8" DIA. HEX HEAD CAP SCREWS INTO  
THREADED INSERTS (FURNISHED WITH THE BRIDGE)  
WHEN RETROFITTING INTO AN EXISTING RIGID BARRIER  
7/8" DIA. H.S. HEX BOLT AND WASHERS REQUIRED  
1" DIA. HOLES DRILLED THRU PARAPET  
(4 REQ'D.)



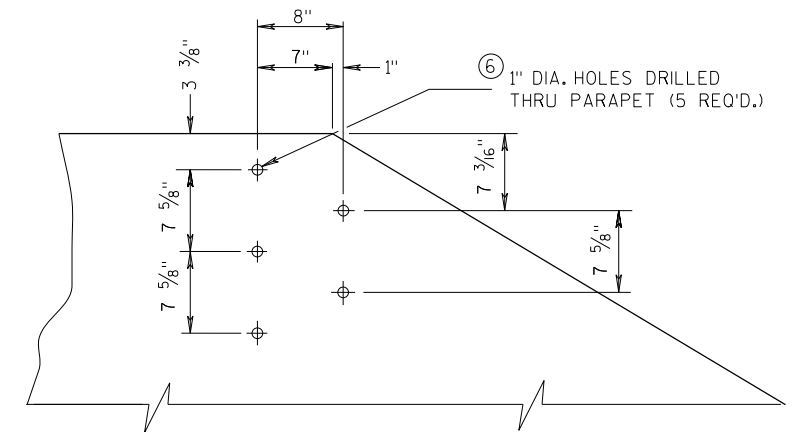
FRONT VIEW

**W BEAM CONNECTION TO  
PARAPETS WITH SLOPED ENDS**

(USE ONLY AT TRAFFIC EXIT END OF ONE WAY BRIDGE)

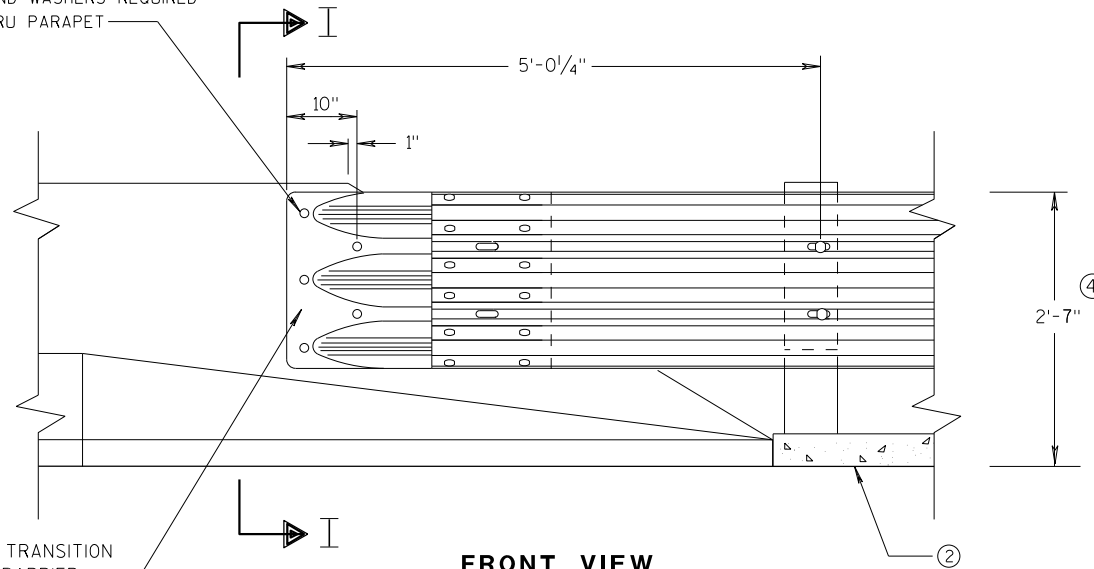
**GENERAL NOTES**

- ② OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.
- ④ TOLERANCE FOR TOP OF BEAM IS  $\pm 1"$ .
- ⑥ DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.
- ⑦ BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTOR PLATE. BOLTS THAT EXTEND THROUGH THE PARAPET AND OUT THE BACK FACE REQUIRE A HARDENED ROUND STEEL WASHER THAT IS 2" O.D. X 5/32" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.



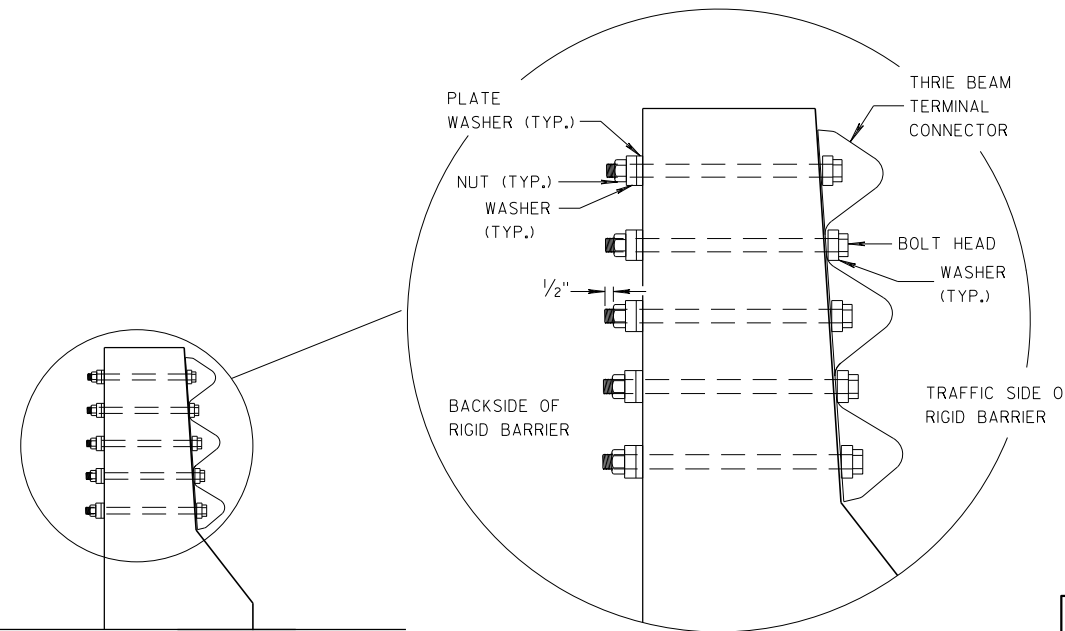
**DRILL HOLE LOCATION AND PATTERN  
FOR THRIE BEAM CONNECTION**

⑥ ⑦ 7/8" DIA. HEX HEAD CAP SCREWS INTO  
THREADED INSERTS (FURNISHED WITH THE BRIDGE)  
WHEN RETROFITTING INTO AN EXISTING RIGID BARRIER  
7/8" DIA. H.S. HEX BOLT AND WASHERS REQUIRED  
1" DIA. HOLES DRILLED THRU PARAPET  
(5 REQ'D.)



FRONT VIEW

**THRIE BEAM CONNECTION TO BRIDGE  
PARAPETS WITH SLOPED ENDS**



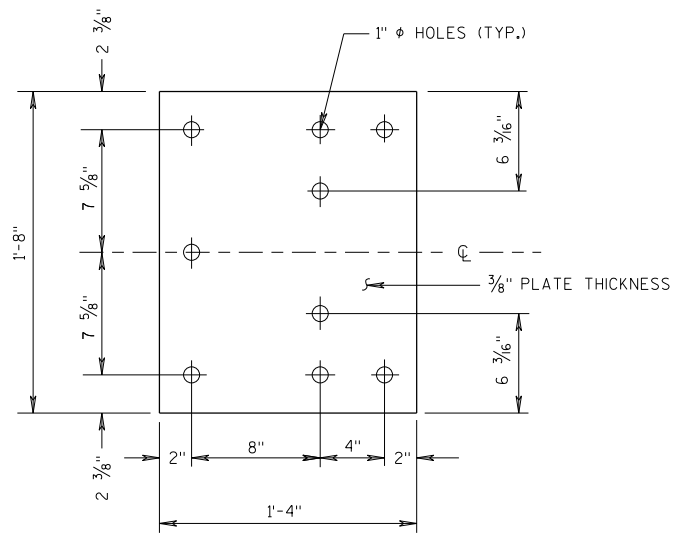
SECTION I-I

WHEN RETROFITTING A TRANSITION  
TO AN EXISTING RIGID BARRIER,  
INSTALL PLATE WASHERS ON  
BACKSIDE OF RIGID BARRIER.

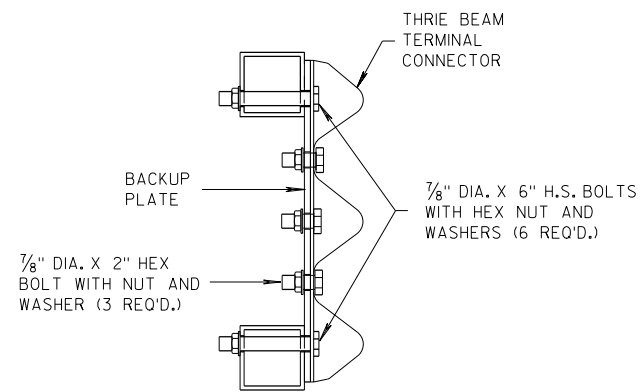
**MIDWEST GUARDRAIL SYSTEM  
THRIE BEAM TRANSITION (MGS)**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

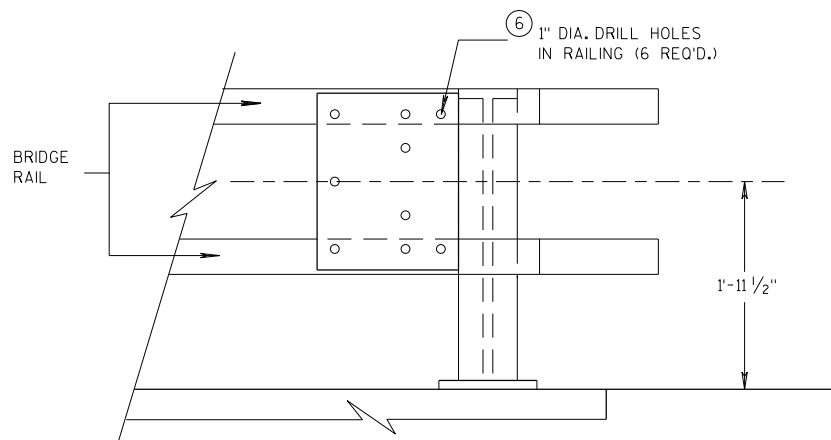
APPROVED  
DATE 07/2018 /S/ Rodney Taylor  
ROADWAY STANDARDS DEVELOPMENT  
UNIT SUPERVISOR  
FHWA



**BACK-UP PLATE DETAIL**



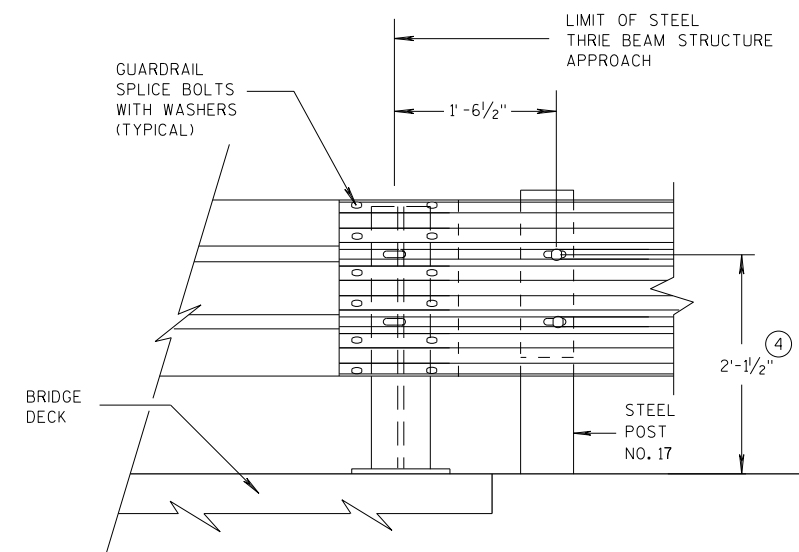
**SECTION J-J**



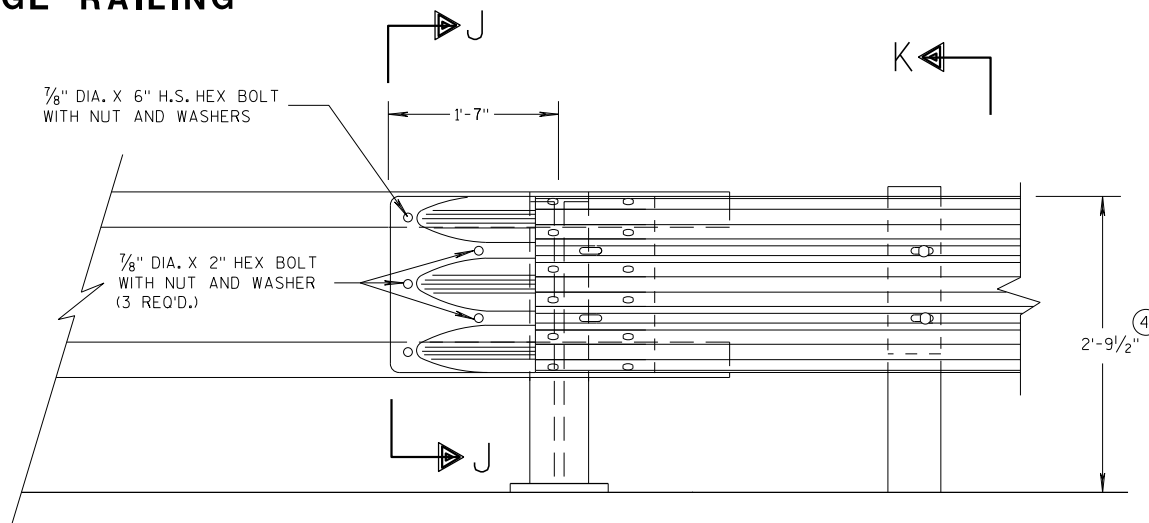
**BACK-UP PLATE MOUNTING ONTO BRIDGE RAILING**

**GENERAL NOTES**

- ④ TOLERANCE FOR TOP OF BEAM IS  $\pm 1'$ .
- ⑥ DRILLING HOLES THROUGH THE PAPER, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.

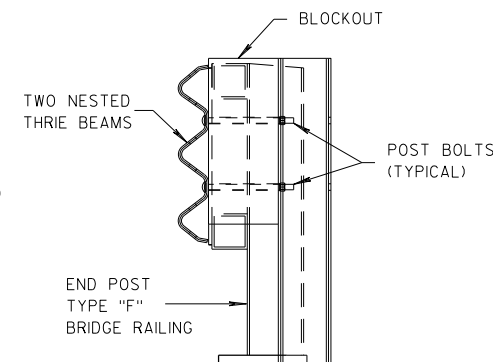


**FRONT VIEW THRIE BEAM CONNECTION TO STEEL RAILING TYPE "W"**



**FRONT VIEW**

**THRIE BEAM CONNECTION TO TUBULAR RAILING TYPE "F"**



**SECTION K-K**

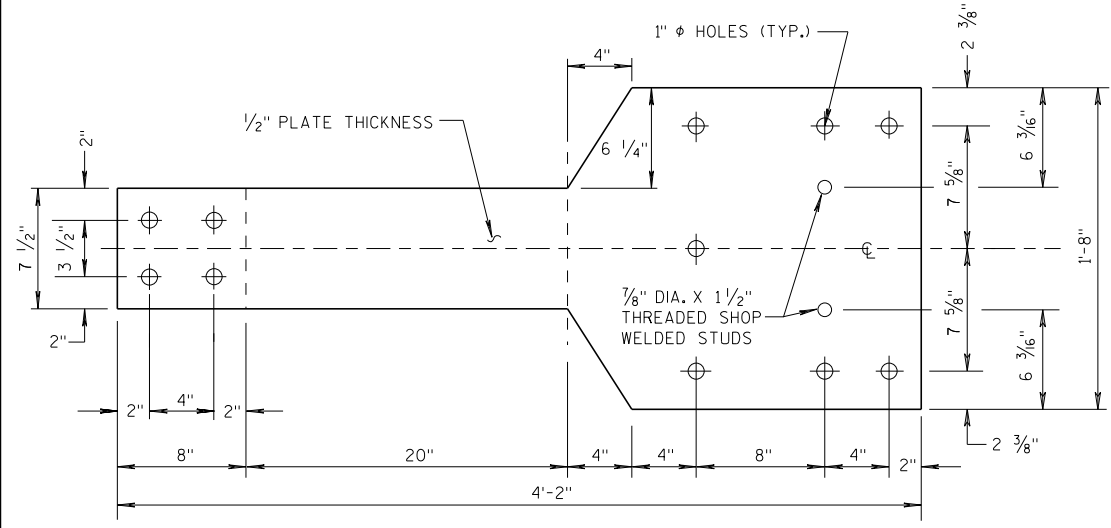
<b>MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)</b>	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 07/2018 DATE	/S/ Rodney Taylor ROADWAY STANDARDS DEVELOPMENT UNIT SUPERVISOR
FHWA	

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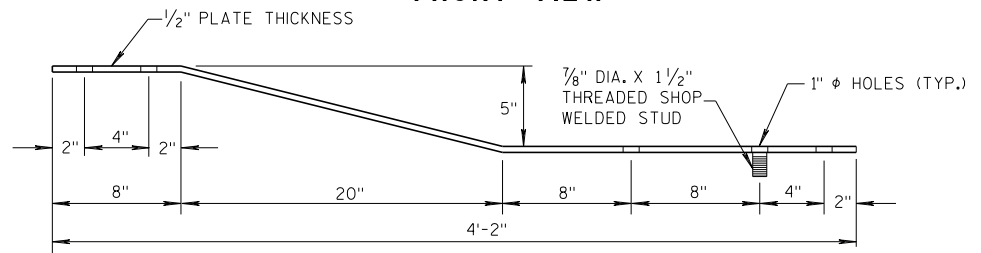
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**GENERAL NOTES**

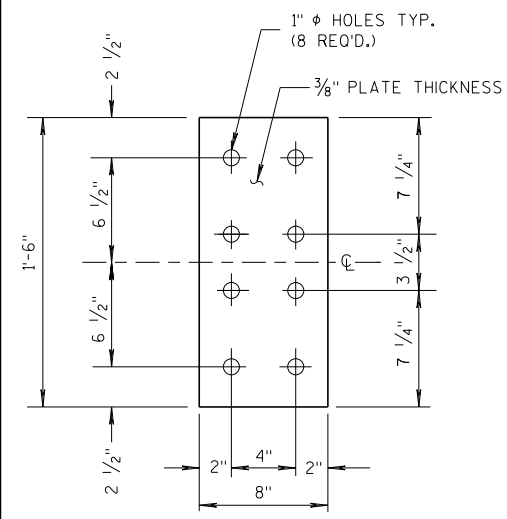
(4) TOLERANCE FOR TOP OF W-BEAM RAIL IS ± 1".



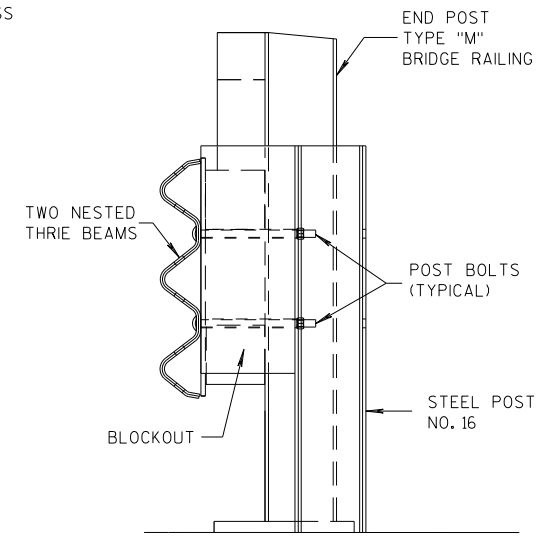
**FRONT VIEW**



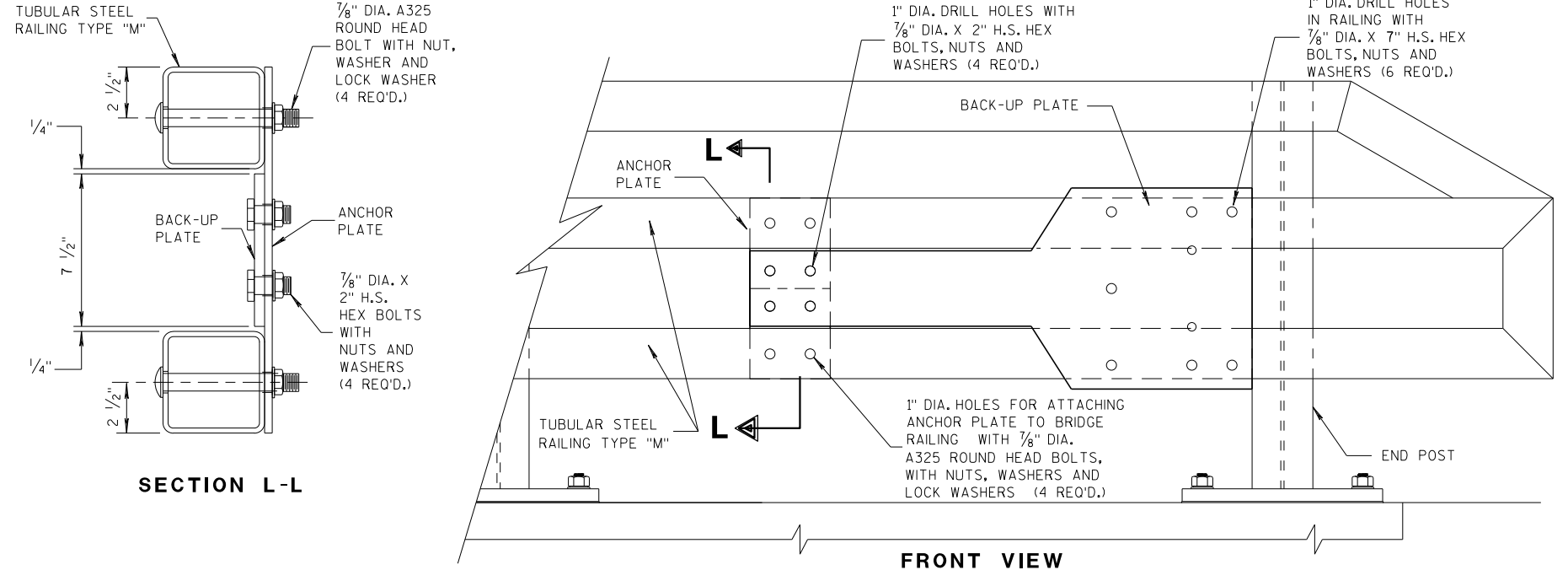
**PLAN VIEW  
BACK-UP PLATE DETAIL, TYPE "M"**



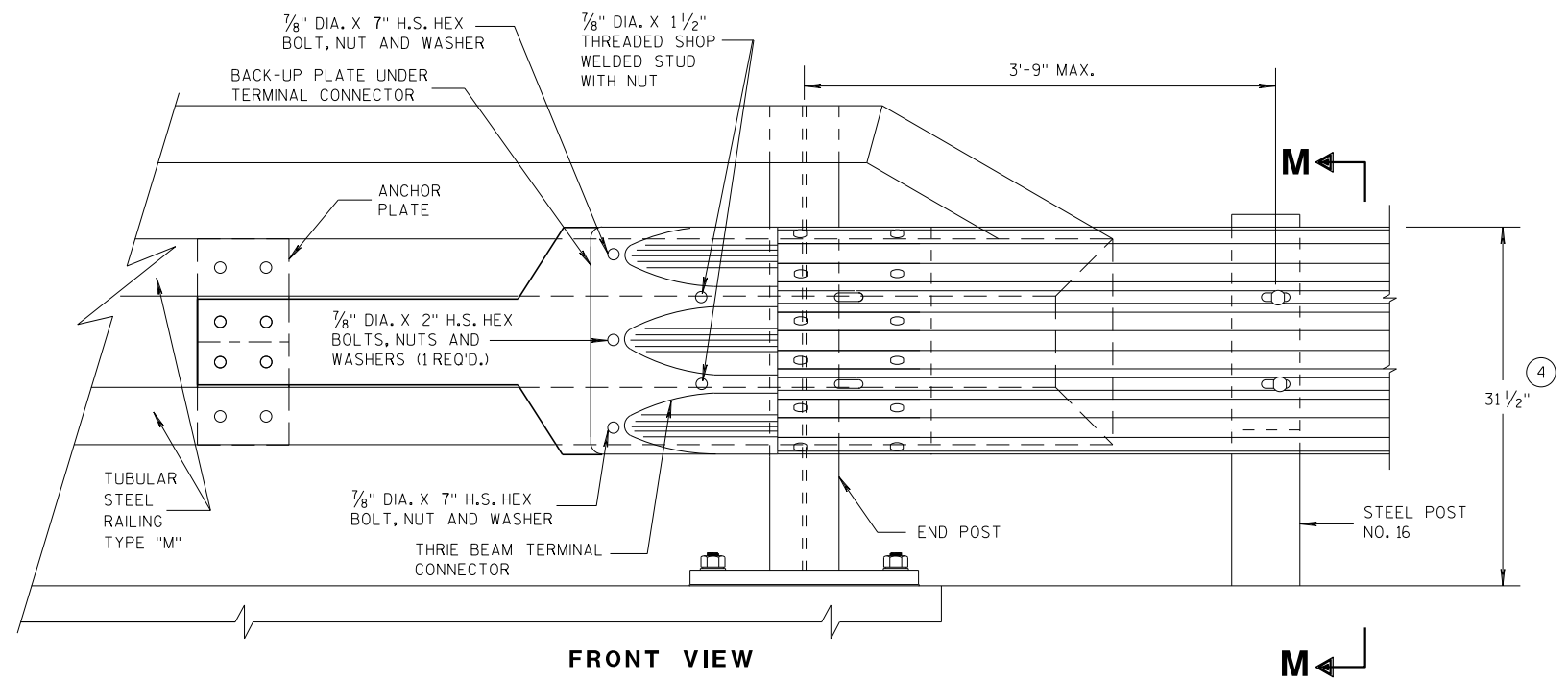
**FRONT VIEW  
ANCHOR PLATE DETAIL, TYPE "M"**



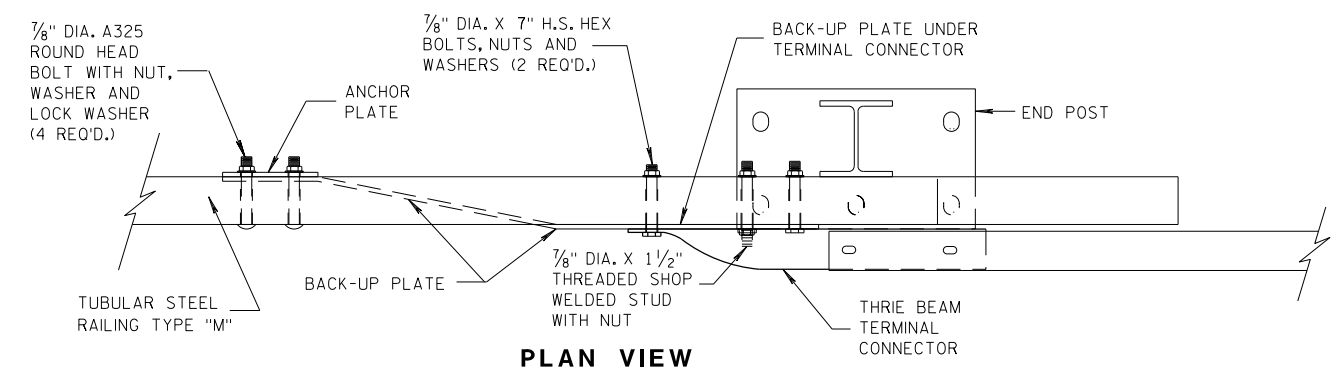
**SECTION M-M**



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



**FRONT VIEW**



**PLAN VIEW**

**THRIE BEAM CONNECTION TO TUBULAR RAILING, TYPE "M"**

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

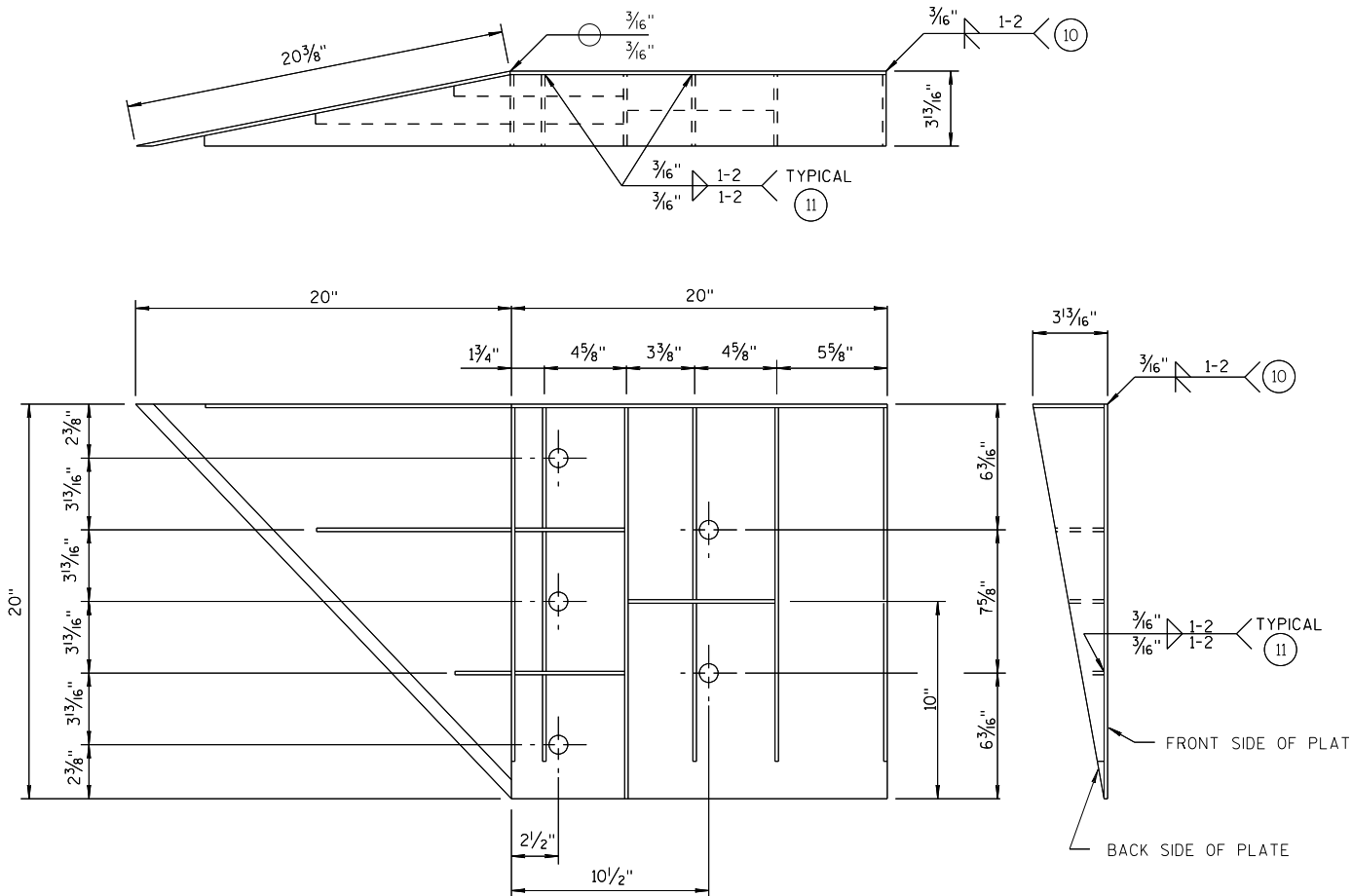
S.D.D. 14 B 45-5h

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

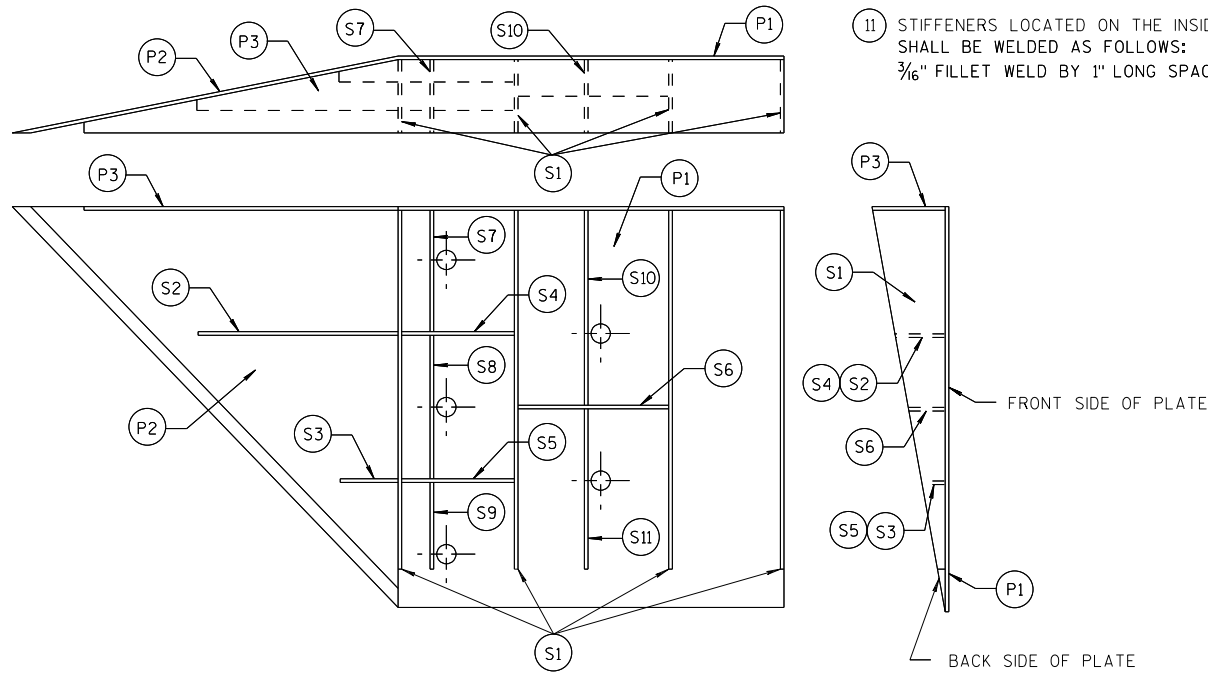
**GENERAL NOTES**

- COVER PLATE PANELS ARE 3/16" THICK.
- ALL STIFFENERS ARE 1/4" THICK.
- CONNECTOR PLATE SHALL BE FABRICATED FROM ASTM GRADE A36 STEEL AND GALVANIZED.
- FOR GALVANIZED REQUIREMENTS, SEE SECTION 614 OF THE STANDARD SPECIFICATIONS.
- ALL HOLE DIAMETERS SHALL BE 1".
- FOR OPPOSITE SIDE INSTALLATION MIRROR DRAWINGS.

- (10) STIFFENERS LOCATED AT THE OUTSIDE EDGES OF THE COVER PLATES SHALL BE WELDED AS FOLLOWS:  
SINGLE BEVEL GROOVE WELD ON EXTERNAL SIDES AND 3/16" FILLET WELD BY 1" LONG SPACED AT 2" ON INTERNAL SIDES.
- (11) STIFFENERS LOCATED ON THE INSIDE OF THE COVER PLATE SHALL BE WELDED AS FOLLOWS:  
3/16" FILLET WELD BY 1" LONG SPACED AT 2".



**WELDING INSTRUCTION**  
(VIEWED FROM BACK SIDE OF PLATE)



**PLATE AND STIFFENER IDENTIFICATION**  
(VIEWED FROM BACK SIDE OF PLATE)

CONNECTOR PLATE DIMENSION (PER ASSEMBLY)				
PLATE	QUANTITY	SHAPE	SIZE (A x B x C x D)	THICKNESS
P1	1		20" x 20"	3/16"
P2	1		20" x 20" x 28 3/16"	3/16"
P3	1		39" x 3 5/8" x 20" x 19 5/16"	3/16"
S1	4		18 7/16" x 3 5/8" x 18 3/4"	1/4"
S2	1		10 1/4" x 2 1/16" x 10 3/8" x 1/2"	1/4"
S3	1		3" x 1 1/16" x 3 3/8" x 1/2"	1/4"
S4	1		6 1/8" x 2 7/16"	1/4"
S5	1		6 1/8" x 1 1/16"	1/4"
S6	1		7 3/4" x 1 3/4"	1/4"
S7	1		2 3/16" x 6" x 3 5/8" x 5 7/8"	1/4"
S8	1		1 5/32" x 7 1/2" x 2 1/2" x 7 3/8"	1/4"
S9	1		6 1/16" x 6 3/16" x 1 3/32"	1/4"
S10	1		1 7/8" x 9 7/8" x 3 5/8" x 9 11/16"	1/4"
S11	1		8 1/2" x 8 3/4" x 1 3/16"	1/4"

**SINGLE SLOPE CONNECTION PLATE**

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

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

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

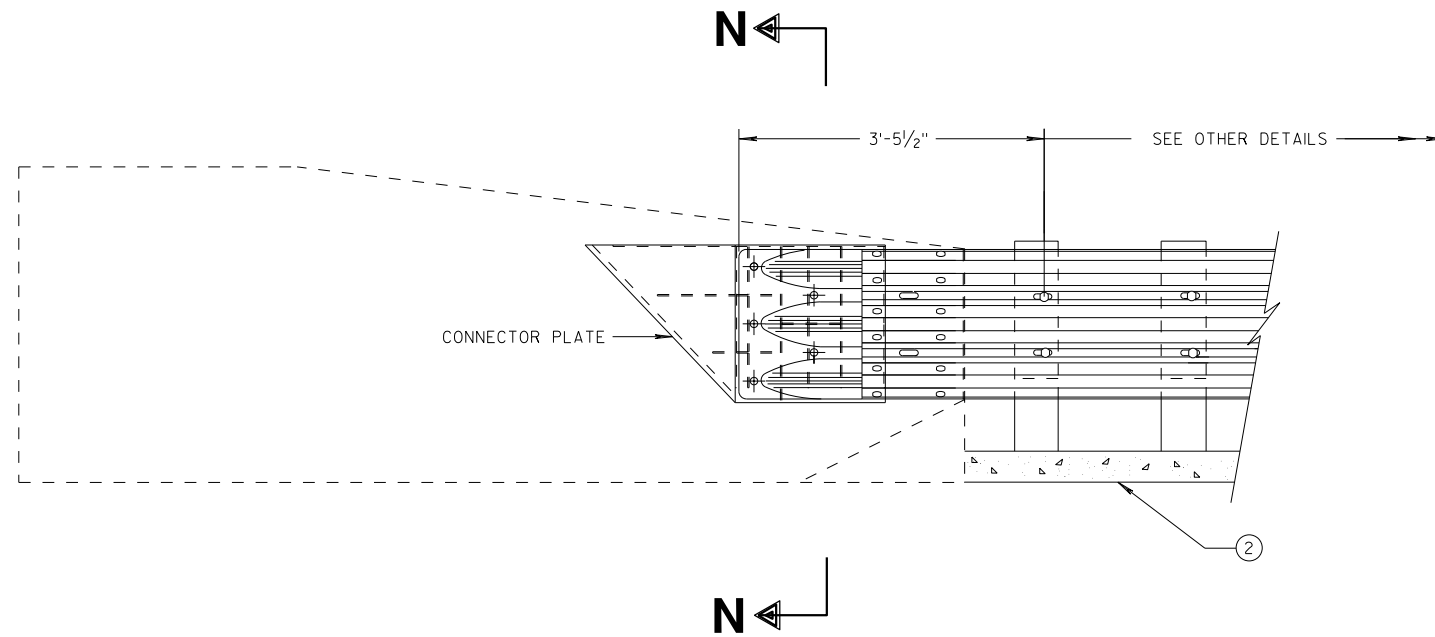


**GENERAL NOTES**

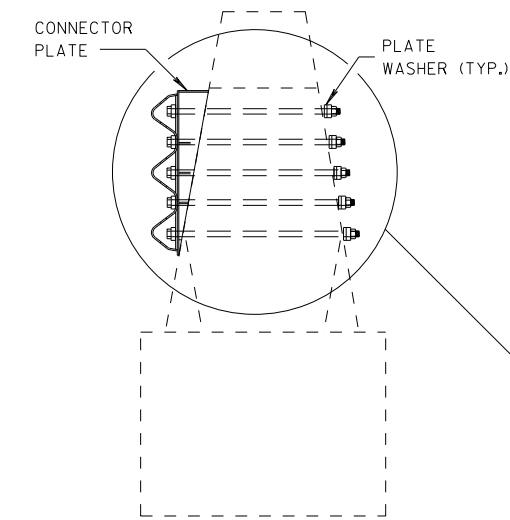
CONNECTOR PLATE, DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.

② OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.

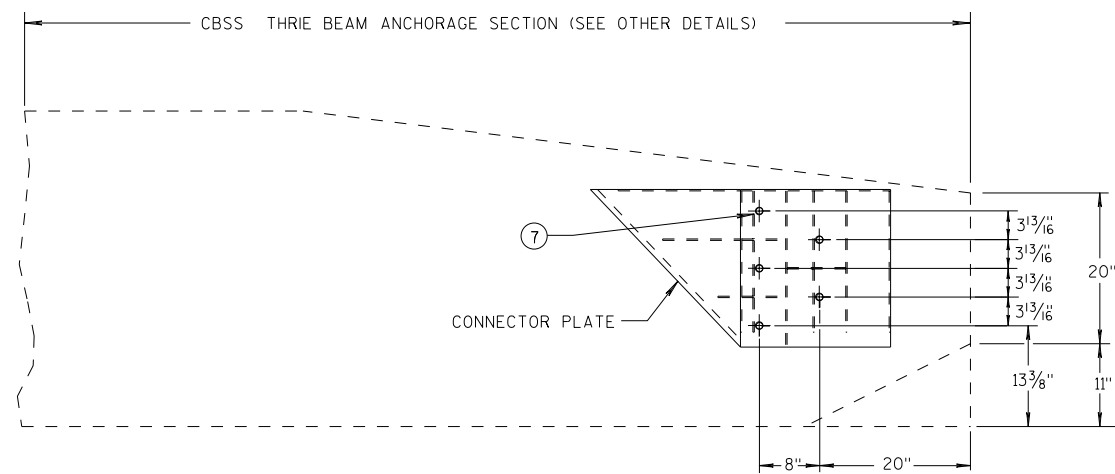
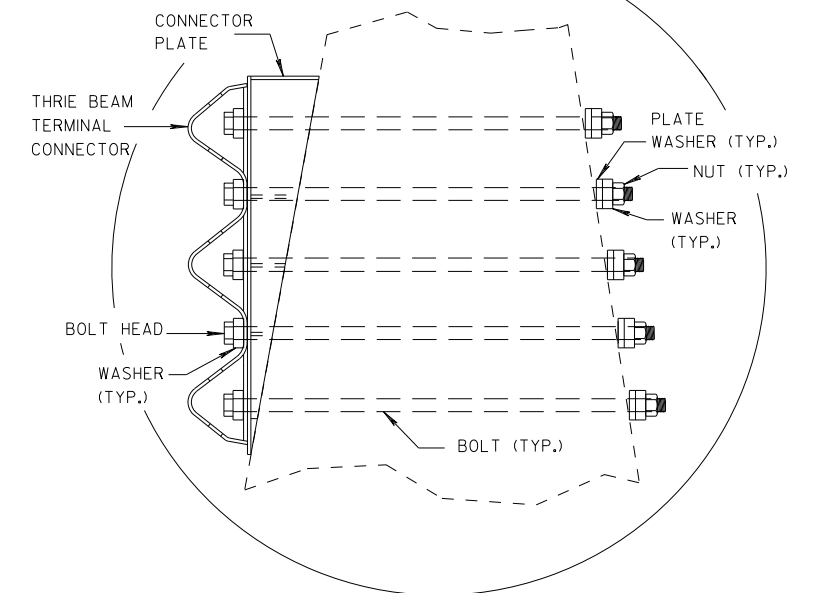
⑦ BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTION PLATE. BOLTS THAT EXTEND THROUGH THE PARAPET AND OUT THE BACK FACE REQUIRE A HARDENED ROUND STEEL WASHER THAT IS 2" O.D. X 5/32" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.



**THRIE BEAM CONNECTION TO SINGLE SLOPE BARRIER**



**SECTION N-N**

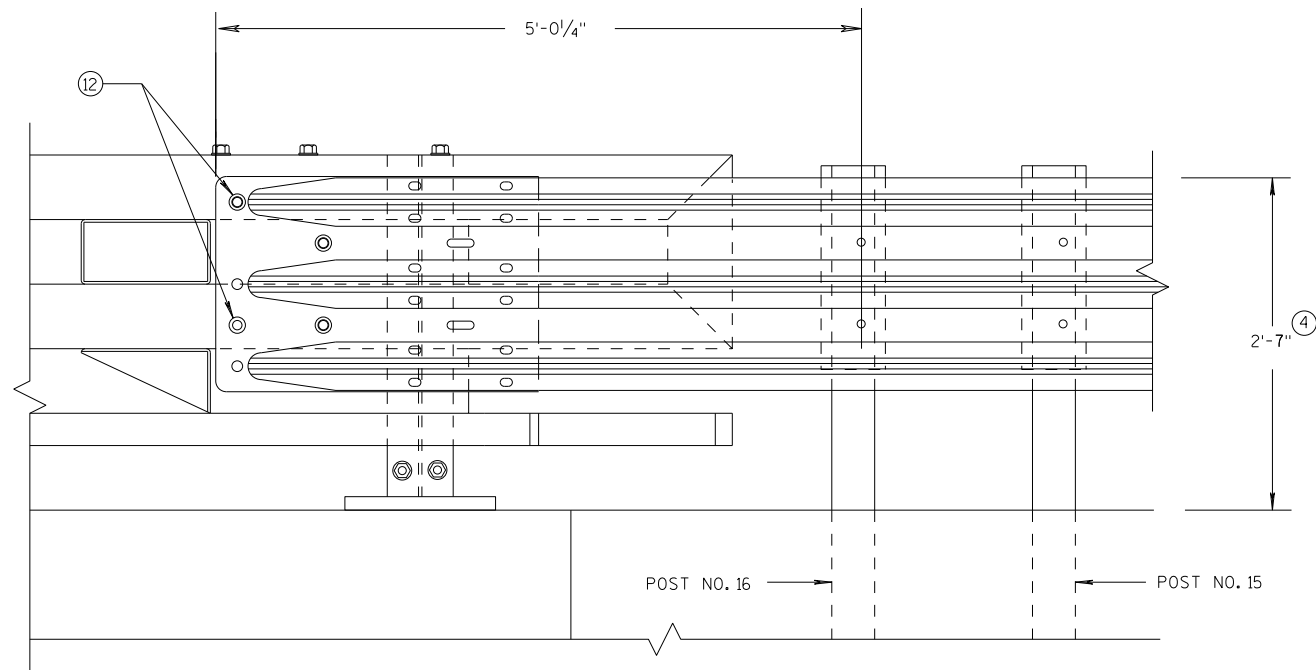


**SINGLE SLOPE CONNECTION PLATE PLACEMENT**

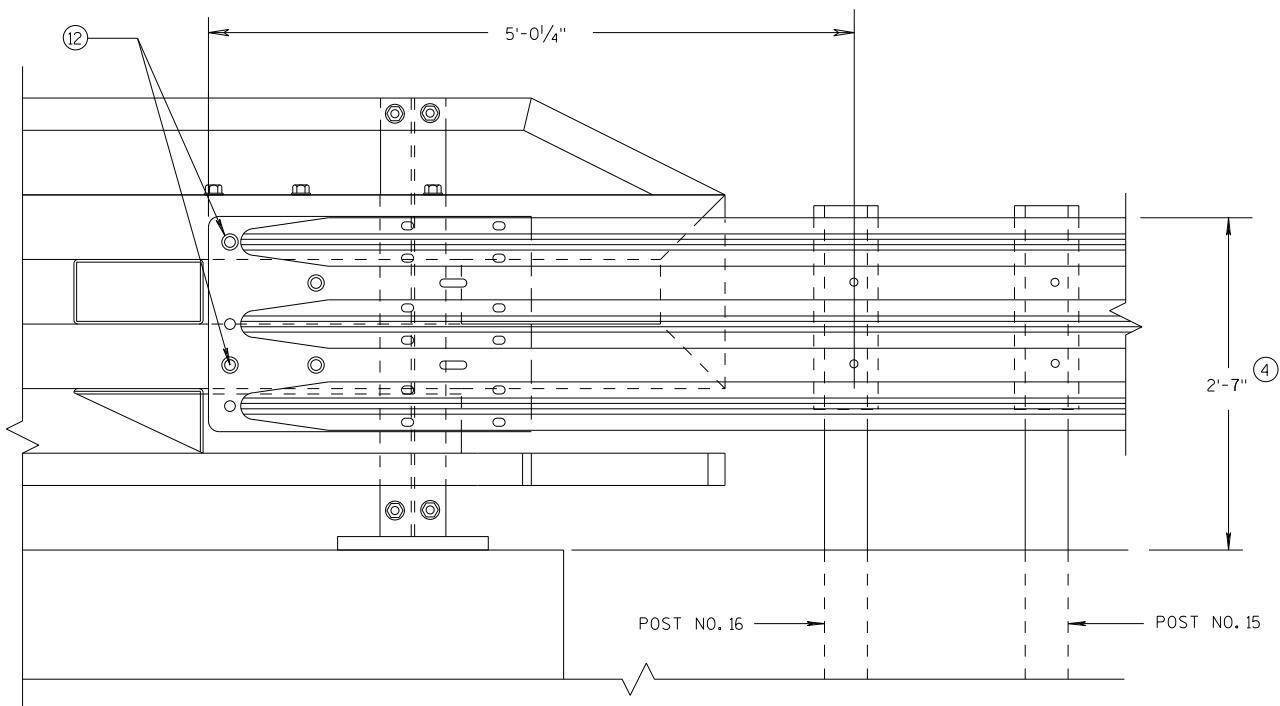
**MIDWEST GUARDRAIL SYSTEM  
THRIE BEAM TRANSITION (MGS)**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

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



**ELEVATION OF DETAIL AT NY3 END POST  
THRIE BEAM RAIL ATTACHMENT**



**ELEVATION OF DETAIL AT NY4 END POST  
THRIE BEAM RAIL ATTACHMENT**

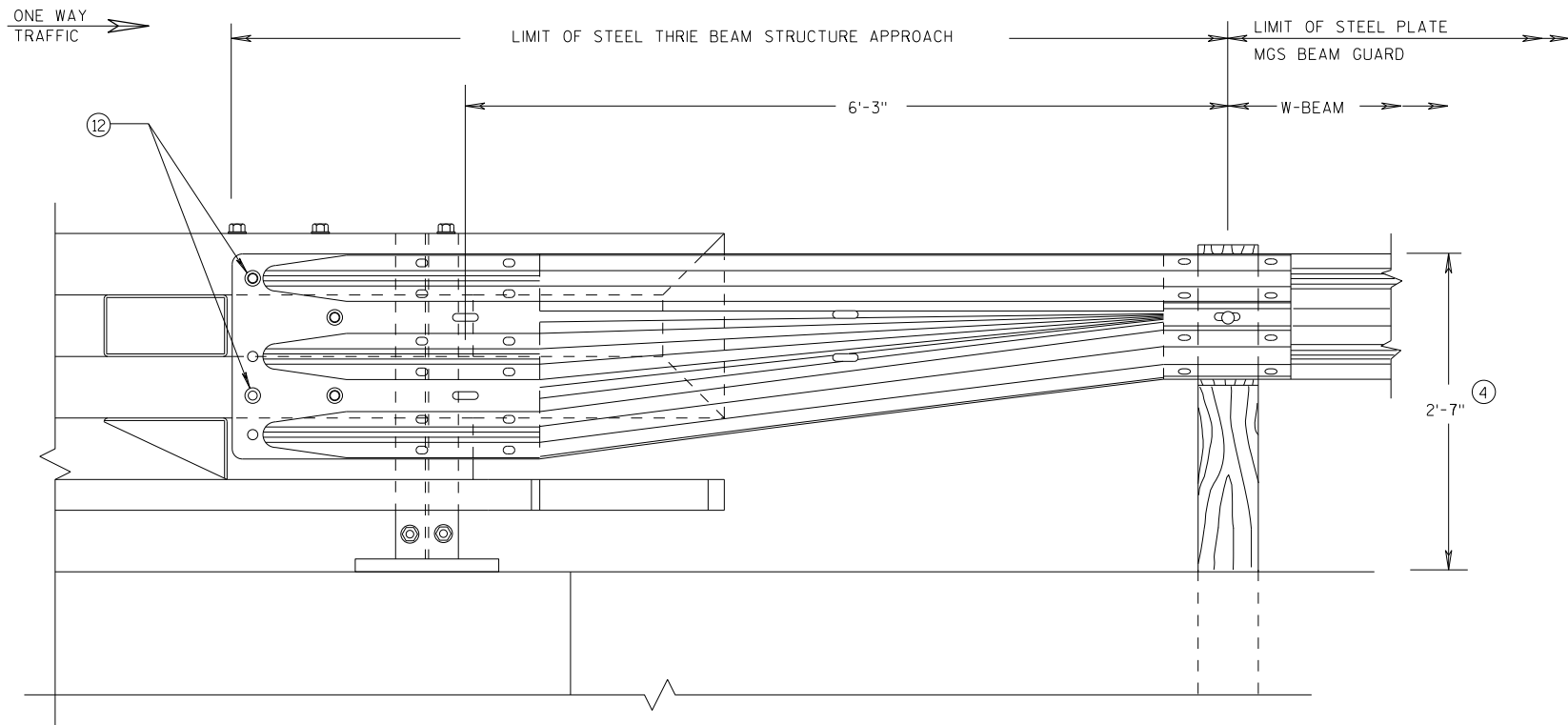
**GENERAL NOTES**

- ④ TOLERANCE FOR TOP OF BEAM IS ± 1".
- ⑫ BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTOR PLATE. ON BACKSIDE OF PARAPET ONE ROUND WASHER, AND NUT REQUIRED. BOLT THREAD IS TO EXTEND 1/2-INCH BEYOND NUT.

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

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

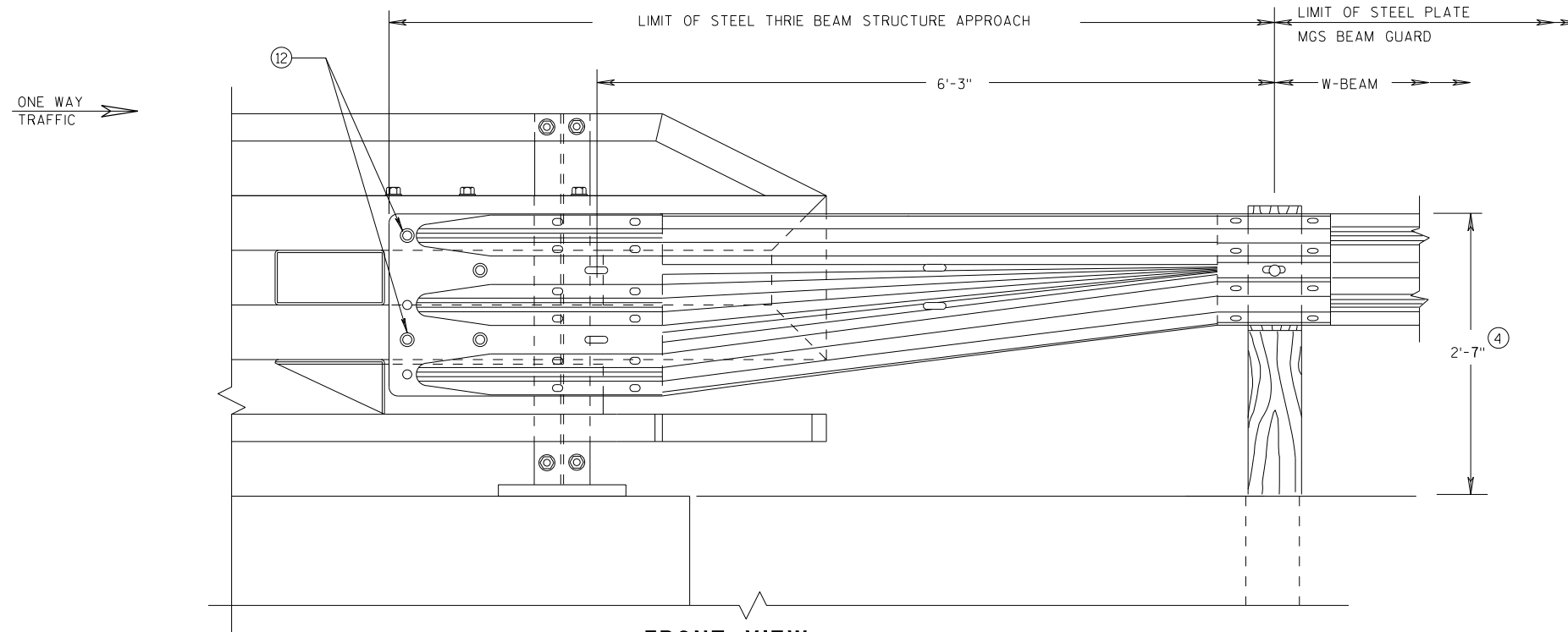
APPROVED  
DATE 7/2018 /S/ Rodney Taylor  
ROADWAY STANDARDS DEVELOPMENT  
UNIT SUPERVISOR  
FHWA



**FRONT VIEW**  
**W BEAM TRANSITION AND**  
**CONNECTION TO BRIDGE RAILING TYPE "NY3"**  
 (USE ONLY ON THE TRAFFIC EXIT END OF ONE WAY BRIDGES)

**GENERAL NOTES**

- ④ TOLERANCE FOR TOP OF BEAM IS  $\pm 1"$ .
- ⑫ BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTOR PLATE. ON BACKSIDE OF PARAPET ONE ROUND WASHER, AND NUT REQUIRED. BOLT THREAD IS TO EXTEND  $\frac{1}{2}$ -INCH BEYOND NUT.

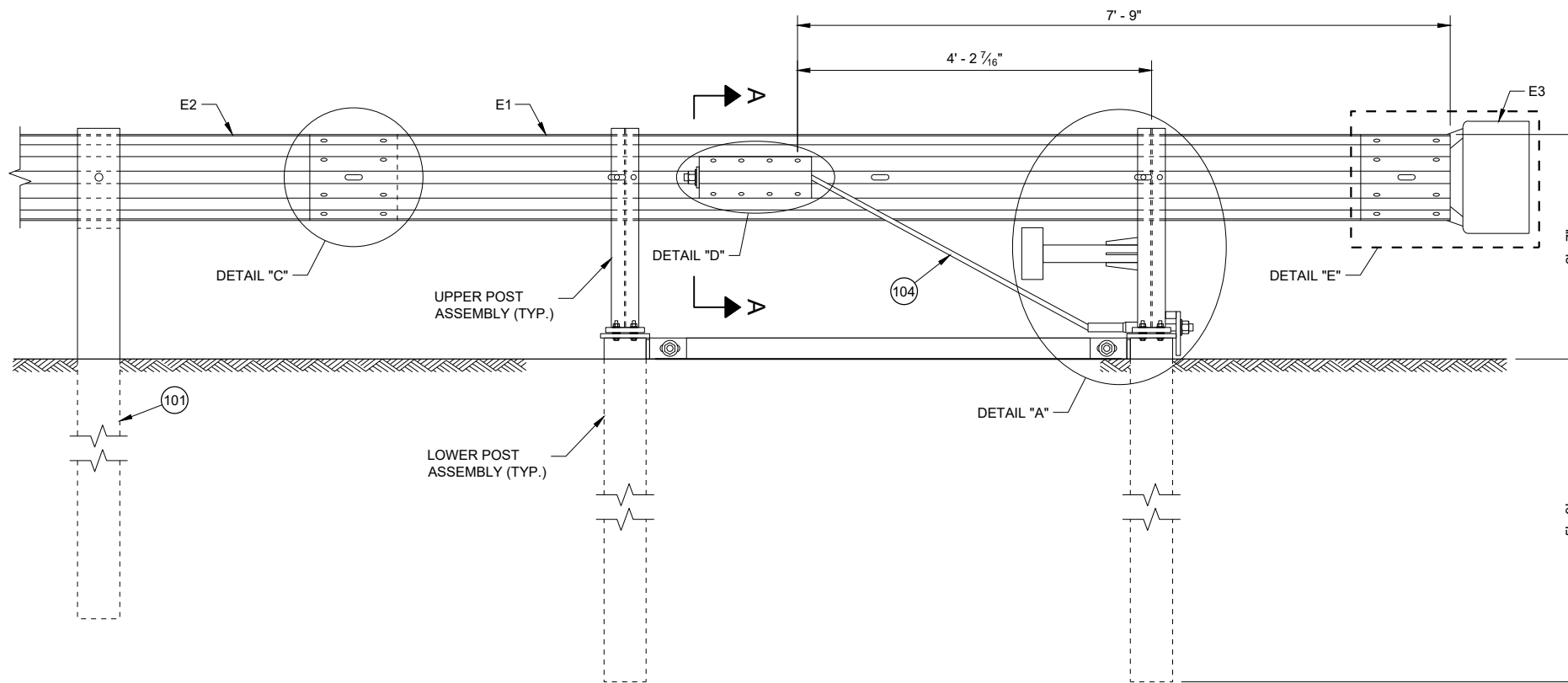


**FRONT VIEW**  
**W BEAM TRANSITION AND**  
**CONNECTION TO BRIDGE RAILING TYPE "NY4"**  
 (USE ONLY ON THE TRAFFIC EXIT END OF ONE WAY BRIDGES)

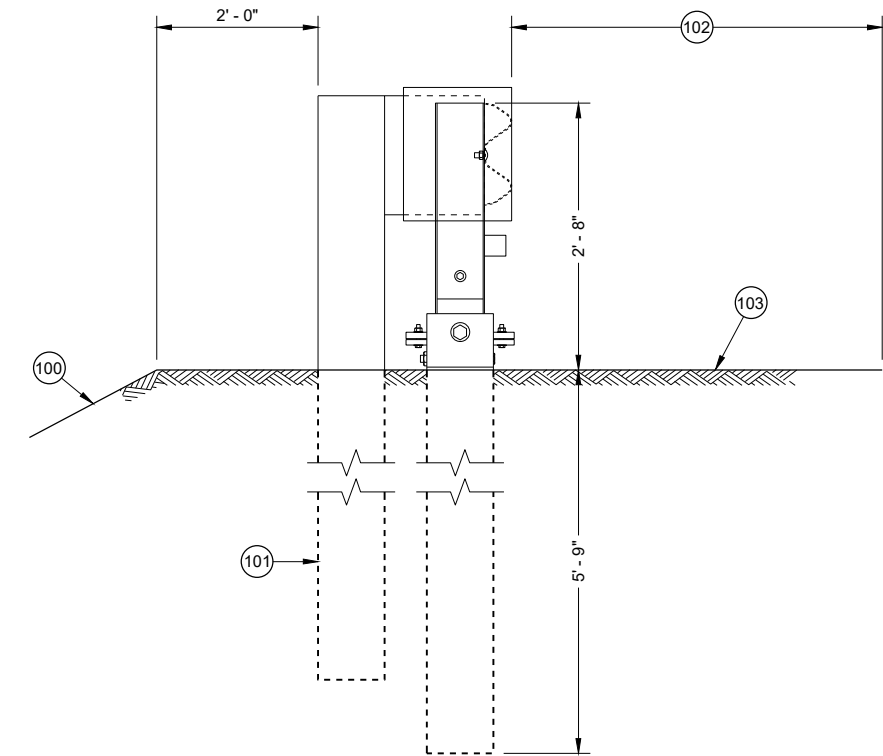
**MIDWEST GUARDRAIL SYSTEM**  
**THRIE BEAM TRANSITION (MGS)**

STATE OF WISCONSIN  
 DEPARTMENT OF TRANSPORTATION

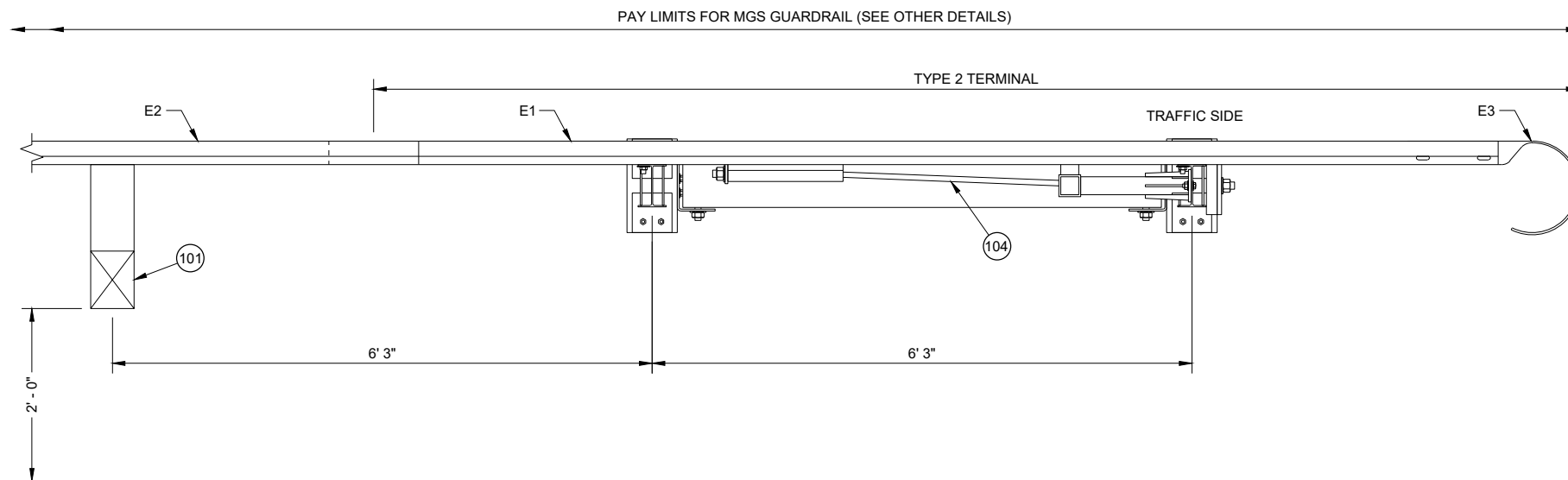
APPROVED  
 DATE 7/2018 /S/ Rodney Taylor  
 ROADWAY STANDARDS DEVELOPMENT  
 UNIT SUPERVISOR  
 FHWA



**BACK VIEW  
TYPE 2 TERMINAL**



**SIDE VIEW  
TYPE 2 TERMINAL**



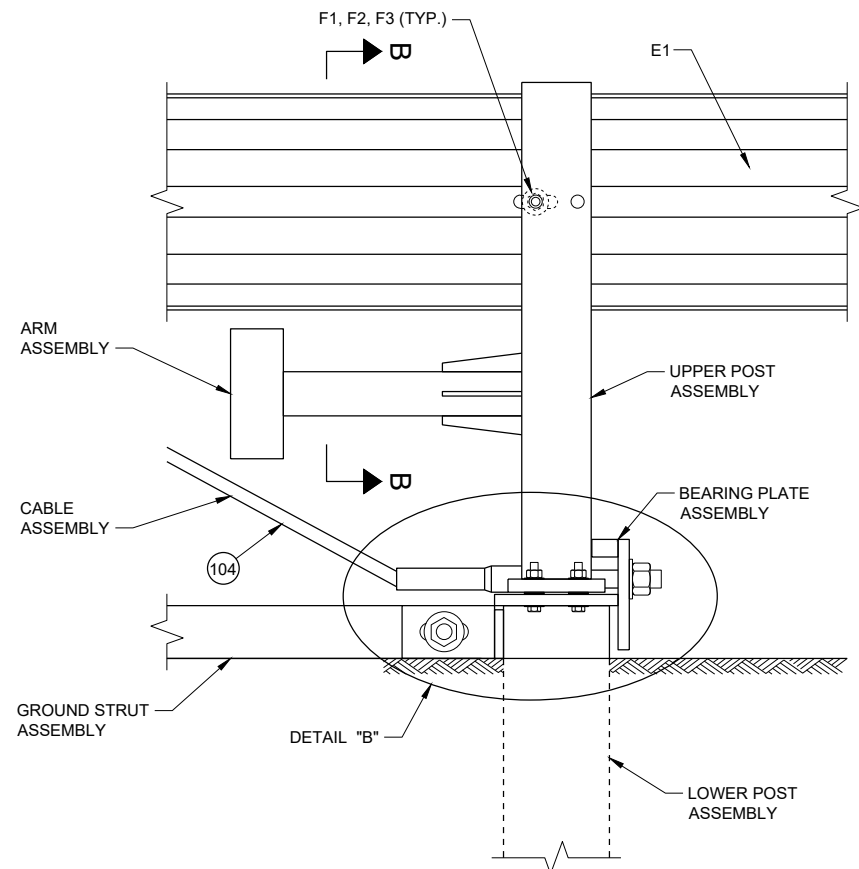
**TOP VIEW  
TYPE 2 TERMINAL**

**GENERAL NOTES**

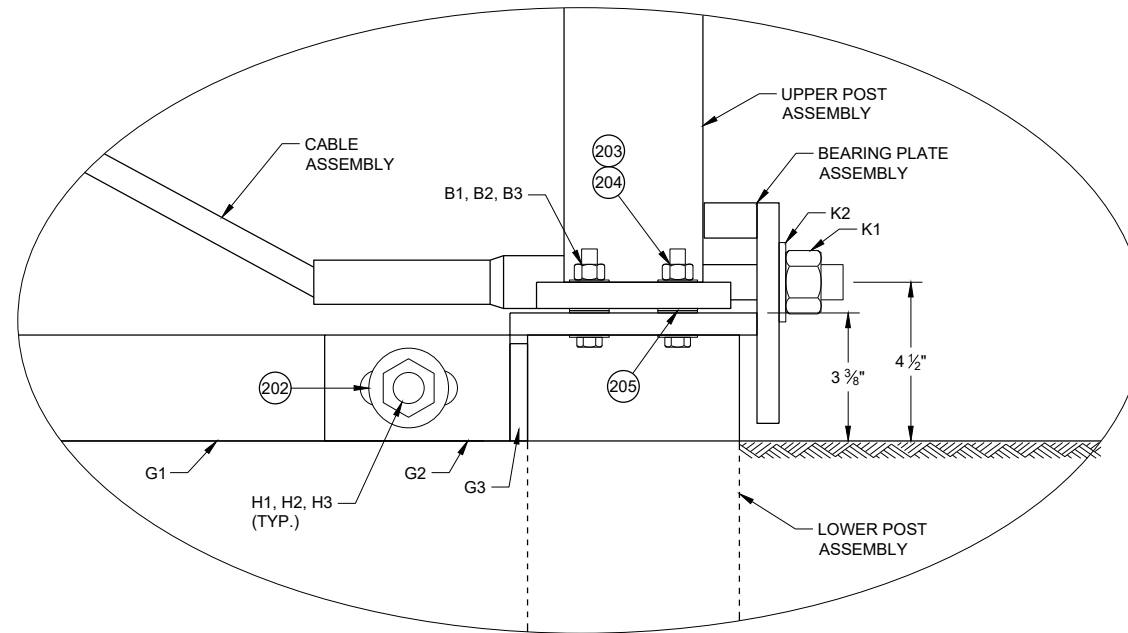
- 100 MAXIMUM SLOPE IS 2.5:1.
- 101 SEE SDD 14B42 FOR MORE INFORMATION.
- 102 SHOULDER
- 103 MAXIMUM SLOPE IS 10:1.
- 104 AFTER ASSEMBLY, CABLE IS TO BE TIGHTENED WITHOUT TWISTING THE CABLE.

**MIDWEST GUARDRAIL  
SYSTEM (MGS)  
TYPE 2 TERMINAL**

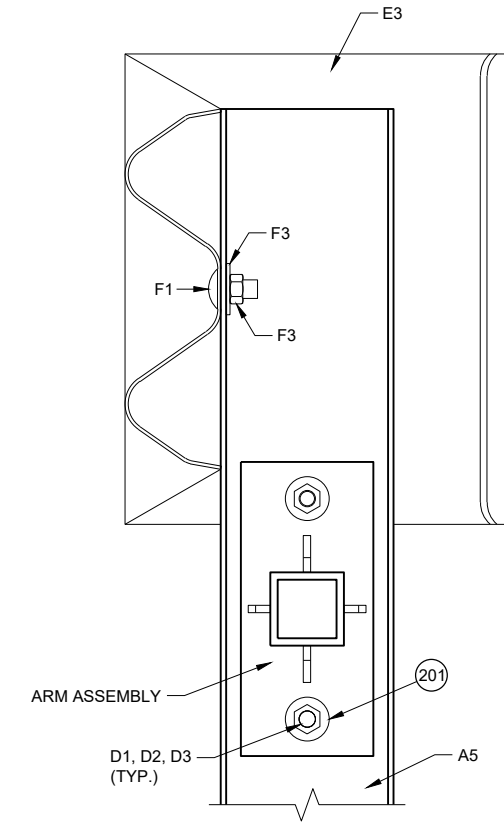
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



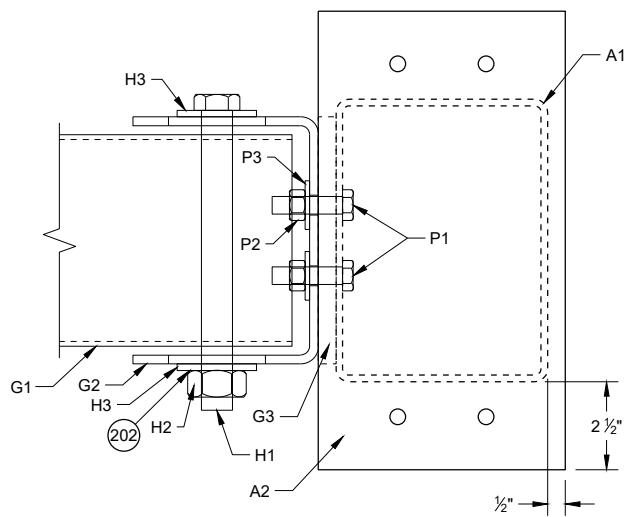
**DETAIL "A"**



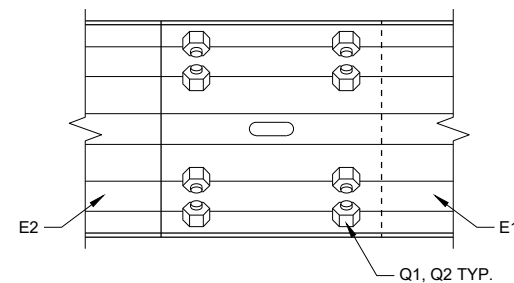
**DETAIL "B"**



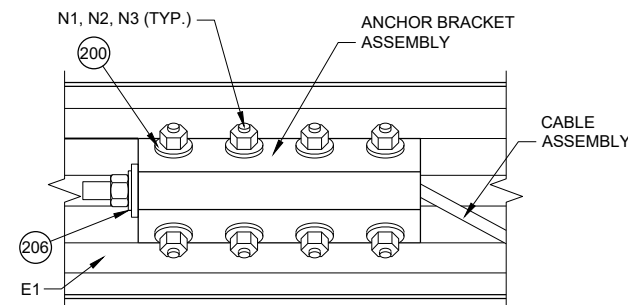
**SECTION B - B**



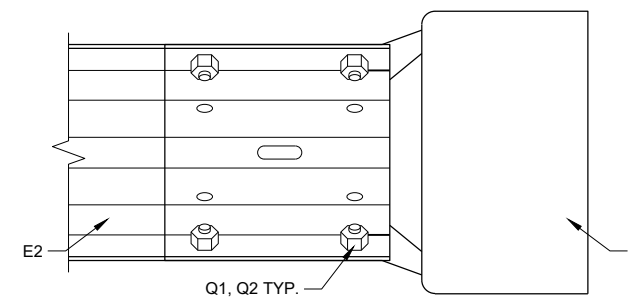
**TOP VIEW  
GROUND STRUT  
CONNECTION DETAIL**



**DETAIL "C"**



**DETAIL "D"**



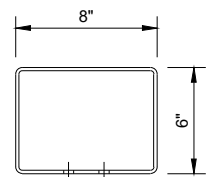
**DETAIL "E"**

**GENERAL NOTES**

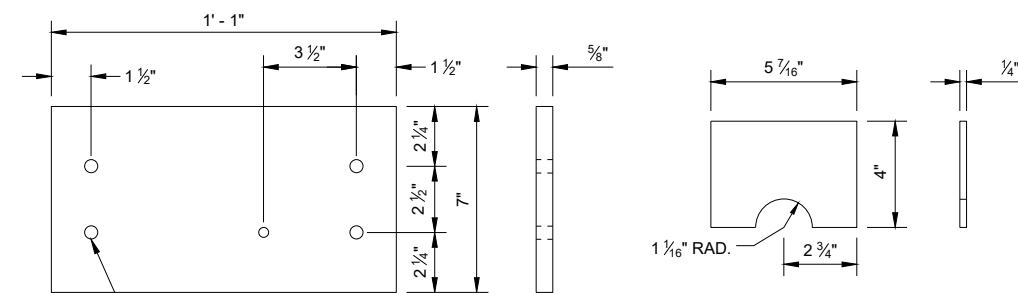
- 200 INSTALL ONE WASHER UNDER BOLT HEAD AND RAIL AND ON WASHER BETWEEN NUT AND ANCHOR BRACKET ASSEMBLY.
- 201 INSTALL ONE WASHER UNDER BOLT HEAD AND UPPER POST ASSEMBLY AND ONE WASHER BETWEEN NUT AND ARM PLATE.
- 202 INSTALL ONE WASHER UNDER BOLT HEAD AND GROUND STRUT CONNECTOR AND ONE WASHER BETWEEN NUT AND GROUND STRUT CONNECTOR.
- 203 INSTALL ONE WASHER UNDER BOLT HEAD AND LOWER POST ASSEMBLY AND ONE WASHER BETWEEN NUT AND UPPER POST ASSEMBLY.
- 204 TORQUE VALUE IS BETWEEN 60 - 75 FT-LB.
- 205 TWO WASHERS BETWEEN UPPER AND LOWER POST ASSEMBLY.
- 206 INSTALL ONE WASHER BETWEEN NUT AND ANCHOR BRACKET ASSEMBLY.

**MIDWEST GUARDRAIL  
SYSTEM (MGS)  
TYPE 2 TERMINAL**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

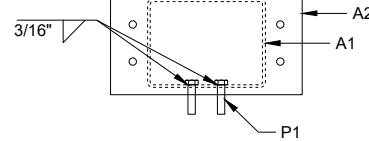


**TOP VIEW**

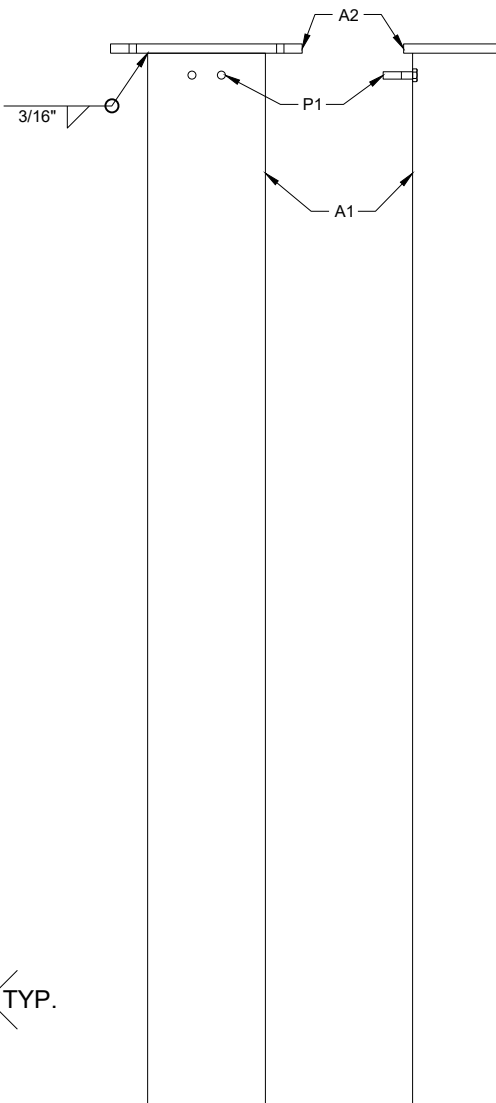
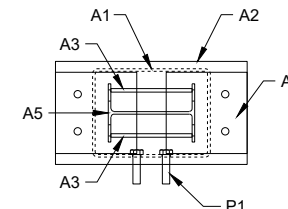


**LOWER PLATE (A2)**

**POST GUSSET (A3)**



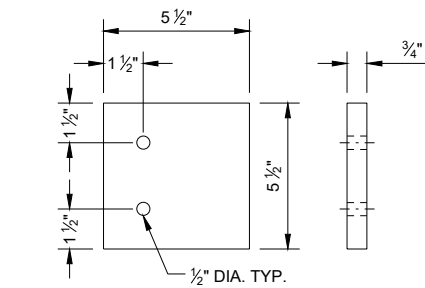
**PLAN VIEW**



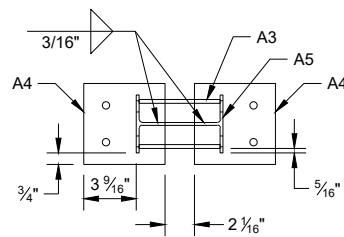
**FRONT VIEW**

**SIDE VIEW**

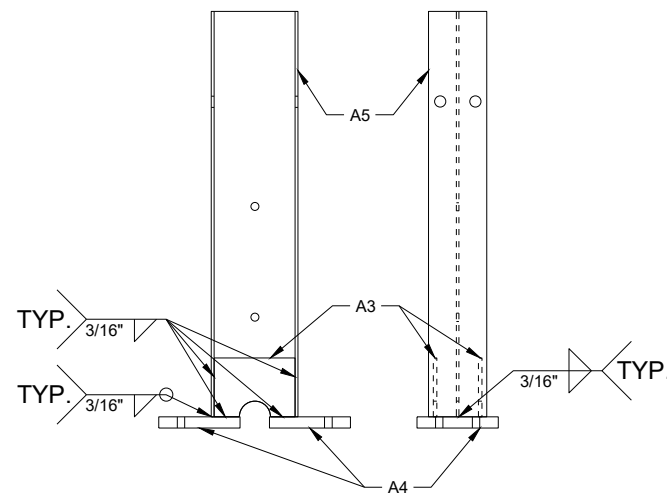
**LOWER POST ASSEMBLY**



**UPPER PLATE (A4)**



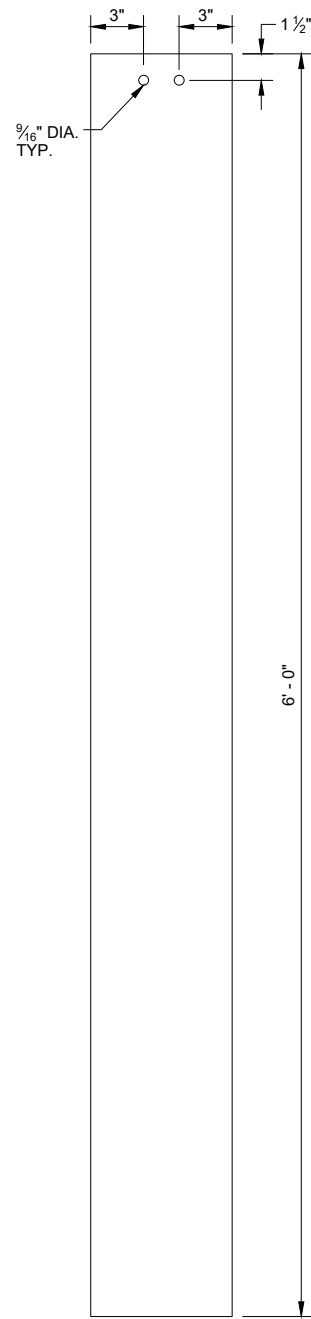
**PLAN VIEW**



**SIDE VIEW**

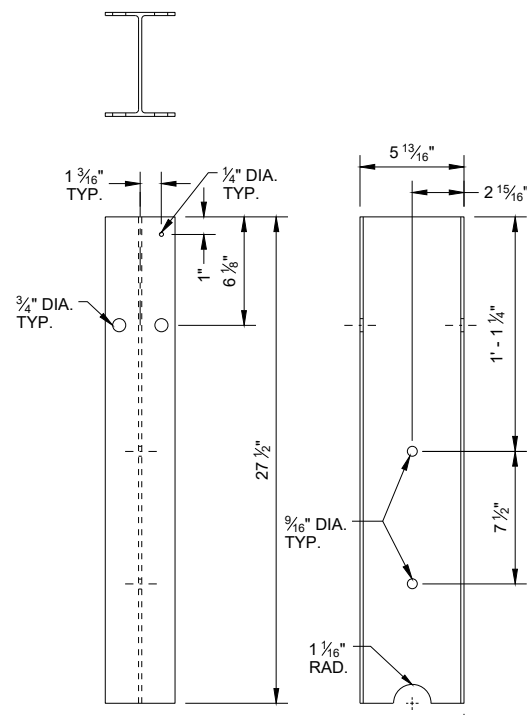
**FRONT VIEW**

**UPPER POST ASSEMBLY**



**SIDE VIEW**

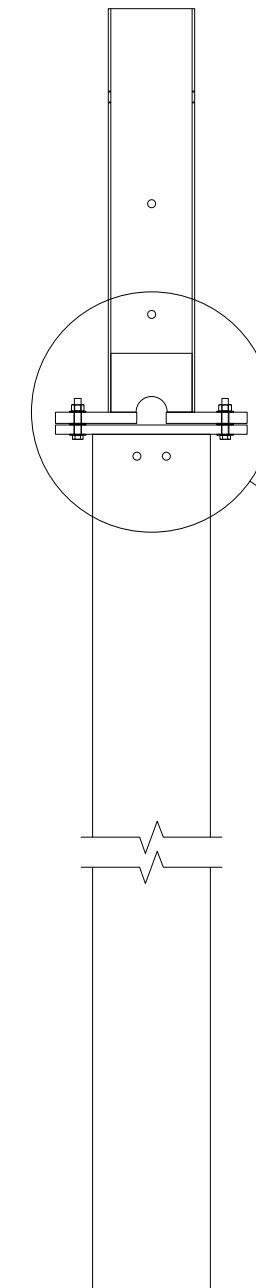
**FOUNDATION TUBE (A1)**



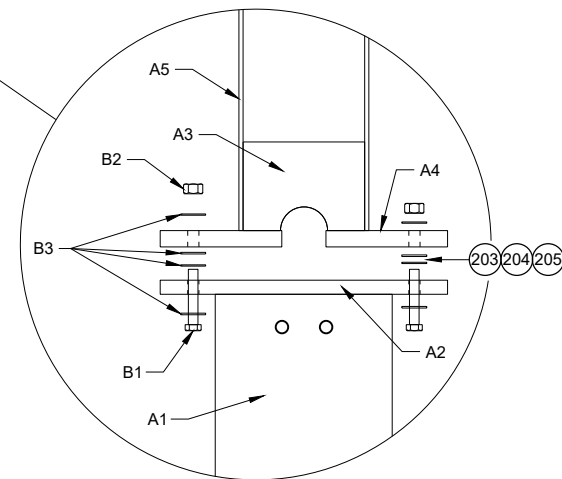
**FRONT VIEW**

**SIDE VIEW**

**TYPE 2 POST (A5)**

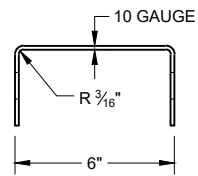


**ASSEMBLED POST**

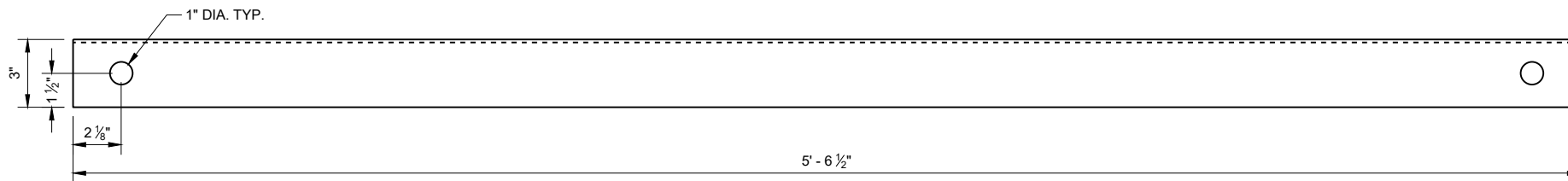


**POST CONNECTION DETAIL**

<p><b>MIDWEST GUARDRAIL SYSTEM (MGS)</b>  <b>TYPE 2 TERMINAL</b></p>
<p>STATE OF WISCONSIN          DEPARTMENT OF TRANSPORTATION</p>

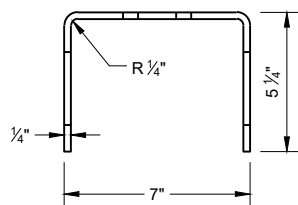


**SIDE VIEW**

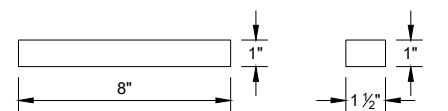


**FRONT VIEW**

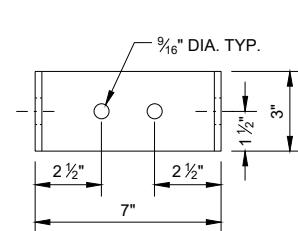
**GROUND STRUT CHANNEL (G1)**



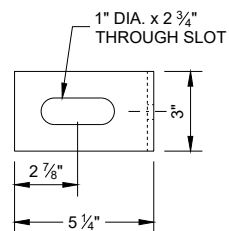
**TOP VIEW**



**BEARING PLATE FLANGE (L2)**

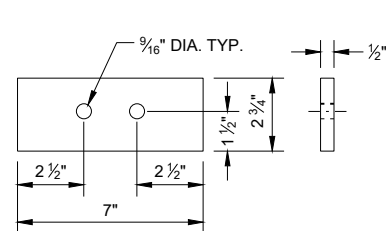


**FRONT VIEW**

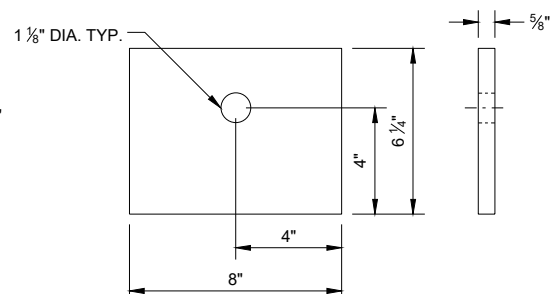


**SIDE VIEW**

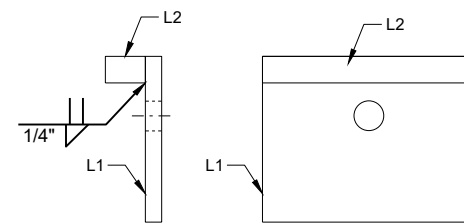
**GROUND STRUT CONNECTOR (G2)**



**GROUND STRUT PLATE (G3)**



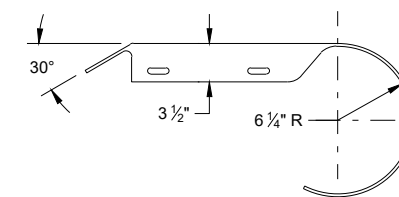
**BEARING PLATE (L1)**



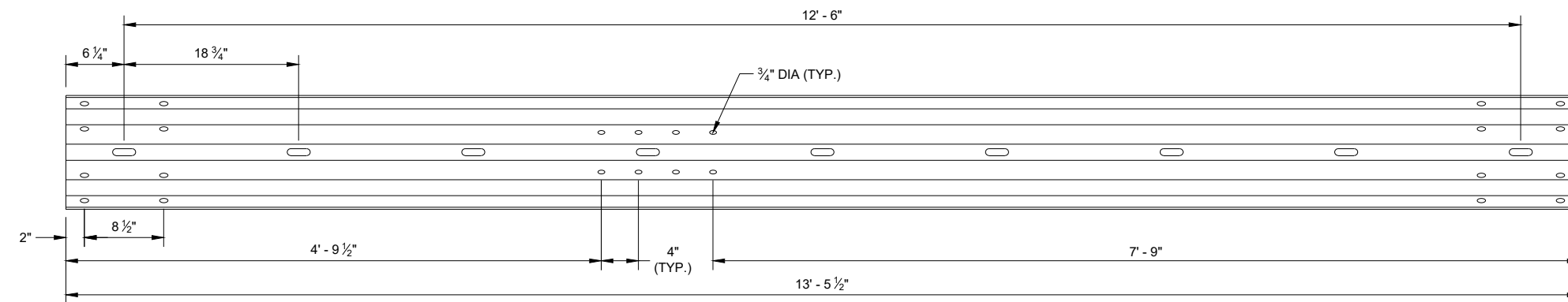
**SIDE VIEW**

**FRONT VIEW**

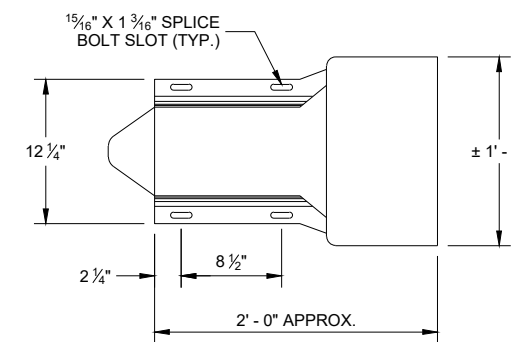
**BEARING PLATE ASSEMBLY**



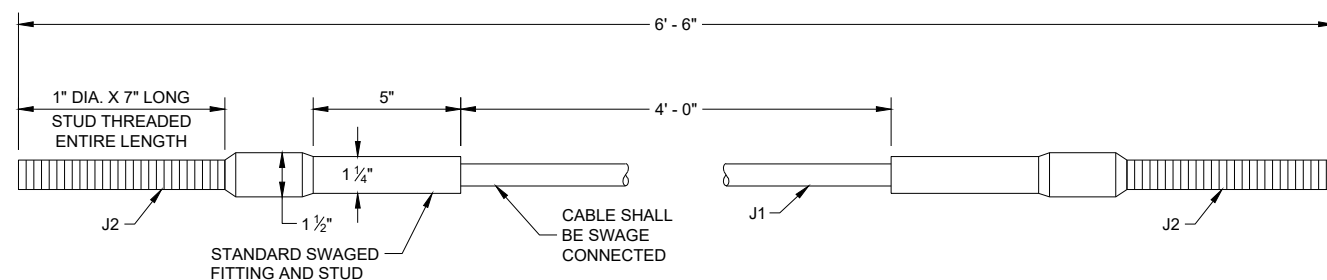
**PLAN VIEW**



**TYPE 2 GUARDRAIL (E1)**



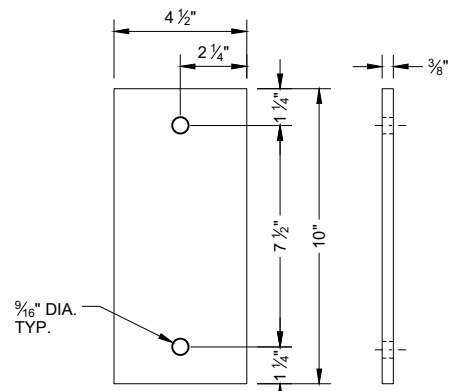
**ELEVATION VIEW  
ROUNDED BUFFER END (E3)**



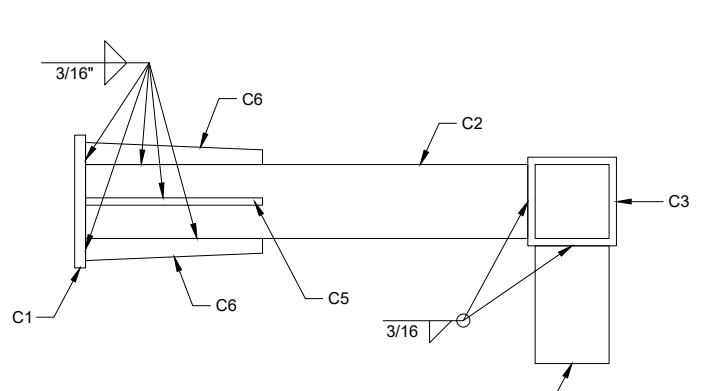
**CABLE ASSEMBLY**

**MIDWEST GUARDRAIL  
SYSTEM (MGS)  
TYPE 2 TERMINAL**

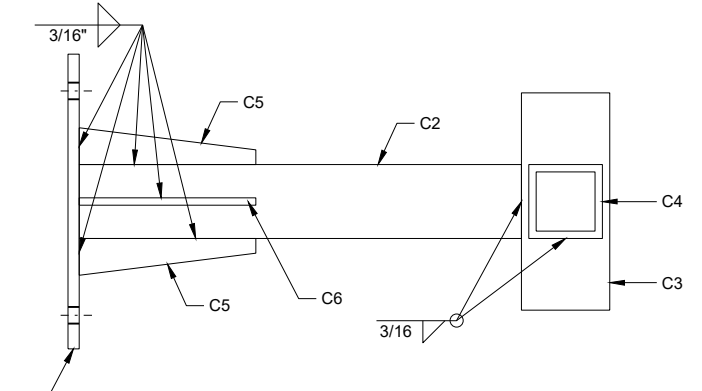
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



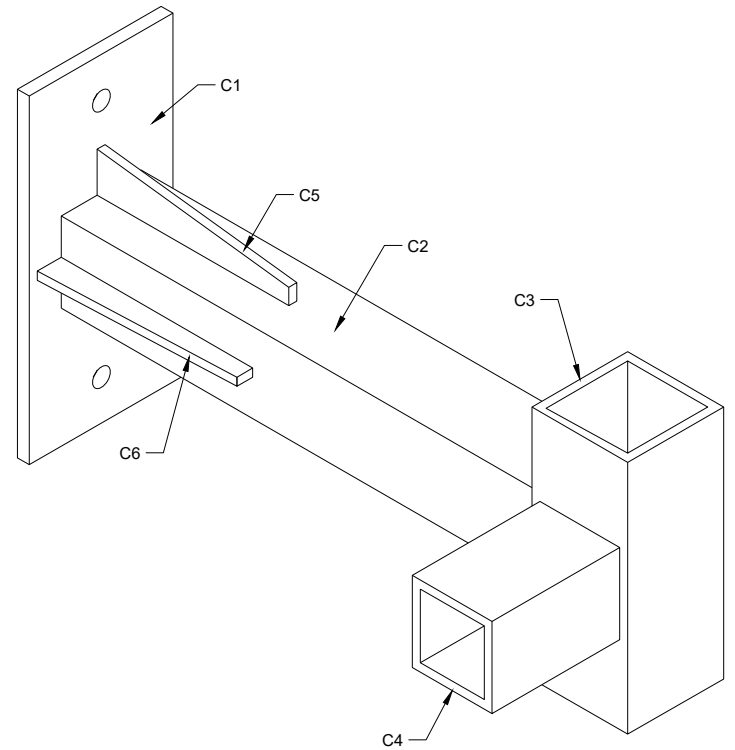
**ARM PLATE (C1)**



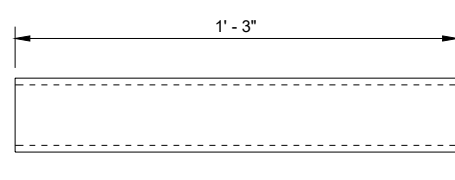
**TOP VIEW  
ARM ASSEMBLY**



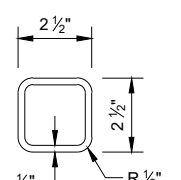
**SIDE VIEW  
ARM ASSEMBLY**



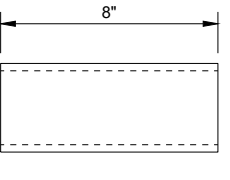
**ISOMETRIC VIEW  
ARM ASSEMBLY**



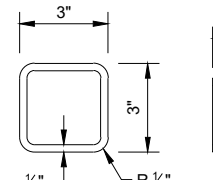
**ARM TUBE 1 (C2)**



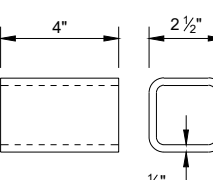
**ARM TUBE 2 (C3)**



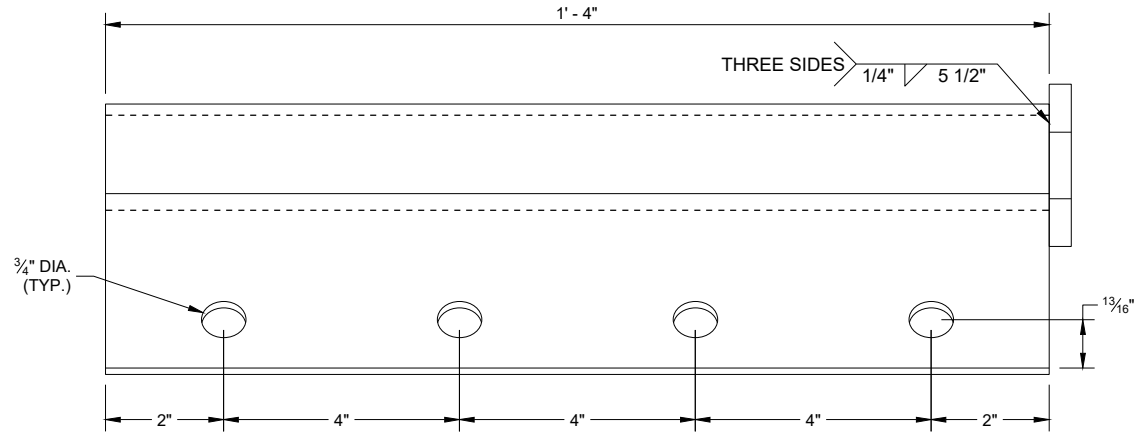
**ARM TUBE 3 (C4)**



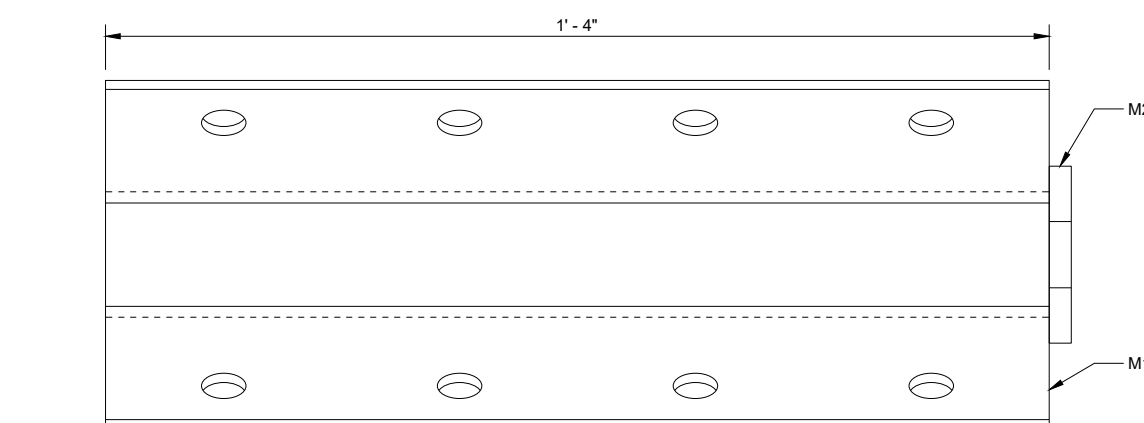
**ARM GUSSET  
PLATE 1 (C5)**



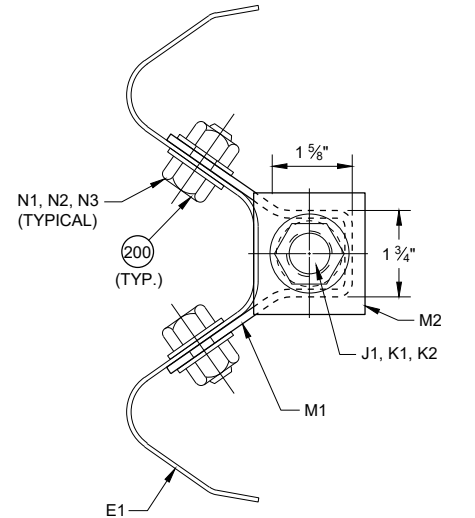
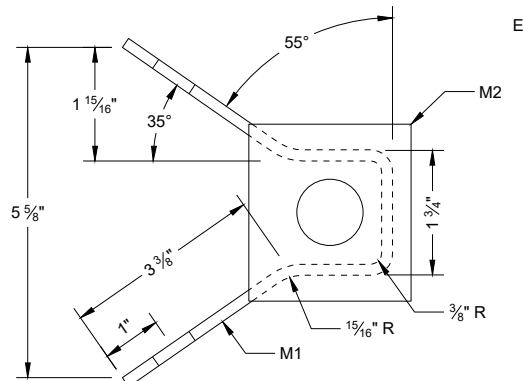
**ARM GUSSET  
PLATE 2 (C6)**



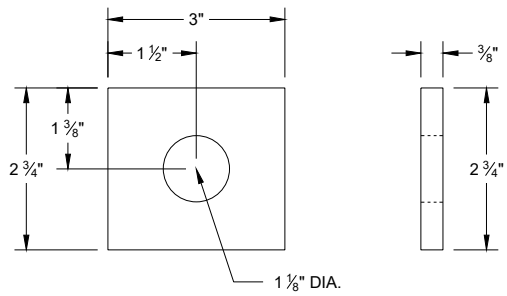
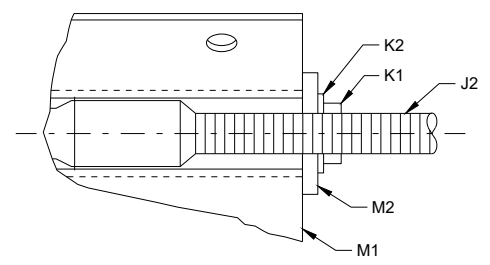
**ANCHOR BRACKET (M1, M2)**



**ANCHOR BRACKET BEARING PLATE (M2)**



**SECTION A - A**



**MIDWEST GUARDRAIL  
SYSTEM (MGS)  
TYPE 2 TERMINAL**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



**BILL OF MATERIALS - TYPE 2 TERMINAL (MGS)**

PART	DESCRIPTION	MATERIALS SPECIFICATIONS	NOTES
A1	TYPE 2 FOUNDATION TUBE	AASHTO M111 / ASTM A123 ASTM A500 GRADE B OR ASTM A-501	TS 8" x 6" x 3/16"
A2	LOWER PLATE	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI, OR ASTM A709 MAX STRENGTH 50 KSI, OR ASTM A992 MAX STRENGTH 50 KSI	5/8" THICKNESS
A3	POST GUSSET	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI, OR ASTM A709 MAX STRENGTH 50 KSI, OR ASTM A992 MAX STRENGTH 50 KSI	1/4" THICKNESS
A4	UPPER PLATE	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI, OR ASTM A709 MAX STRENGTH 50 KSI, OR ASTM A992 MAX STRENGTH 50 KSI	3/4" THICKNESS
A5	TYPE 2 POST	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI, OR ASTM A709 MAX STRENGTH 50 KSI, OR ASTM A992 MAX STRENGTH 50 KSI	
B1	BREAKAWAY BOLT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 UNC HEAVY HEX HEAD ASTM F3125 GRADE A325 TYPE 1 HEAVY HEX HEAD OR SAE J429 GRADE 5 HEAVY HEX HEAD / ASTM A449 TYPE 1 HEAVY HEX HEAD. BOLTS MAY BE FULLY THREADED . PROVIDE ENOUGH THREADING FOR PROPER TIGHTENING OF BOLT.	7/16" DIA.
B2	BREAKAWAY BOLT WASHER	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 F436 TYPE 1 (HARDEN WASHER ONLY)	7/16" DIA.
B3	BREAKAWAY BOLT NUT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 UNC OVER TAP NUTS AS SPECIFIED IN AASHTO 291/ASTM A 563 HEAVY HEX HEAD ASTM A563DH OR SAE J995 GRADE 5	
C1	ARM ASSEMBLY PLATE	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI, OR ASTM A709 MAX STRENGTH 50 KSI, OR ASTM A992 MAX STRENGTH 50 KSI	5/8" THICKNESS
C2	ARM ASSEMBLY TUBE 1	AASHTO M111 / ASTM A123 ASTM A500 GRADE B OR ASTM A-501	TS 8" x 6" x 3/16"
C3	ARM ASSEMBLY TUBE 2	AASHTO M111 / ASTM A123 ASTM A500 GRADE B OR ASTM A-501	TS 3" x 3" x 1/4"
C4	ARM ASSEMBLY TUBE 3	AASHTO M111 / ASTM A123 ASTM A500 GRADE B OR ASTM A-501	TS 2 1/2" x 2 1/2" X 1/4"
C5	ARM ASSEMBLY GUSSET PLATE 1	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI, OR ASTM A709 MAX STRENGTH 50 KSI, OR ASTM A992 MAX STRENGTH 50 KSI	1/4" THICKNESS
C6	ARM ASSEMBLY GUSSET PLATE 2	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI, OR ASTM A709 MAX STRENGTH 50 KSI, OR ASTM A992 MAX STRENGTH 50 KSI	1/4" THICKNESS
D1	ARM ASSEMBLY BOLT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 UNC HEAVY HEX HEAD ASTM A307 GRADE B OR SAE J429 GRADE 2 OR ASTM F1554 GRADE 36	1/2" DIA.
D2	ARM ASSEMBLY WASHER	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 F436 TYPE 1 (HARDEN WASHER ONLY)	1/2" DIA.
D3	ARM ASSEMBLY NUT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 UNC OVER TAP NUTS AS SPECIFIED IN AASHTO 291 / ASTM A 563 HEAVY HEX HEAD ASTM A563DH OR SAE J995 GRADE 5	1/2" DIA.
E1	TYPE 2 GUARD RAIL	AASHTO M180 CLASS A TYPE 2 12 GAUGE APPROVED PRODUCER	
E2	BEAM GUARD RAIL	AASHTO M180 CLASS A TYPE 2 12 GAUGE APPROVED PRODUCER	
E3	BEAM GUARD ROUNDED BUFFER END	AASHTO M180 CLASS A TYPE 2 12 GAUGE APPROVED PRODUCER	
F1	POST BOLT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 UNC HEAVY HEX HEAD ASTM A307 GRADE B OR SAE J429 GRADE 2 OR ASTM F1554 GRADE 36	5/8" DIA.
F2	POST BOLT WASHER	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 F436 TYPE 1 (HARDEN WASHER ONLY)	5/8" DIA.
F3	POST BOLT NUT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 UNC OVER TAP NUTS AS SPECIFIED IN AASHTO 291/ASTM A 563 AASHTO M180 RECESSED HEAVY HEX HEAD ASTM A563DH OR SAE J995 GRADE 5	
G1	GROUND STRUT CHANNEL	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI, OR ASTM A709 MAX STRENGTH 50 KSI, OR ASTM A992 MAX STRENGTH 50 KSI	1/2" x 11 3/4" x 10 GAUGE
G2	GROUND STRUT CONNECTOR	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI, OR ASTM A709 MAX STRENGTH 50 KSI, OR ASTM A992 MAX STRENGTH 50 KSI	1/4" THICKNESS
G3	GROUND STRUT PLATE	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI, OR ASTM A709 MAX STRENGTH 50 KSI, OR ASTM A992 MAX STRENGTH 50 KSI	1/2" THICKNESS

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SDD 14B47 - 03f

SDD 14B47 - 03f

**MIDWEST GUARDRAIL  
SYSTEM (MGS)  
TYPE 2 TERMINAL**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

**BILL OF MATERIALS - TYPE 2 TERMINAL (MGS)**

PART	DESCRIPTION	MATERIALS SPECIFICATIONS	NOTES
H1	GROUND STRUT BOLT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 UNC HEAVY HEX HEAD ASTM A307 GRADE B OR SAE J429 GRADE 2 OR ASTM F1554 GRADE 36	7/8" DIA.
H2	GROUND STRUT BOLT WASHER	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 F436 TYPE 1 (HARDEN WASHER ONLY)	7/8" DIA.
H3	GROUND STRUT BOLT NUT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 UNC HEAVY HEX HEAD 5/8" ASTM A307 GRADE B OR SAE J429 GRADE 2 OR ASTM F1554 GRADE 36	
J1	BCT CABLE	AASHTO M30 / ASTM A741 6 x 19 INDEPENDENT WIRE CORE (IWRC) IMPROVED PLOW STEEL (IPS), 6 x 19 INDEPENDENT WIRE CORE (IWRC) IMPROVED PLOW STEEL (IPS) TYPE II OR IIC, CLASS C ZINC COATED MIN. BREAKING STRENGTH OF 42.7 KIPS	3/4" DIA.
J2	BCT CABLE	UNC 1" ASTM A576 GRADE 1035 SWAGE FITTINGS ARE TO BE FACTORY SWEDGED. MIN BREAKING STRENGTH OF 42.7 KIPS ASME B30.26 "FORGED, CAST, OR DIE STAMPED WITH THE FOLLOWING IN TO CONNECTION: NAME OF MANUFACTURE OR TRADEMARK OF CONNECTION'S MANUFACTURER, SIZE OR RATED LOAD, GRADE FOR ALLOY EYEBOLTS."	
K1	CABLE ASSEMBLY NUT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 UNC OVER TAP NUTS AS SPECIFIED IN AASHTO 291 / ASTM A 563 HEAVY HEX HEAD ASTM A563DH OR SAE J995 GRADE 5	1" DIA.
K2	CABLE ASSEMBLY WASHER	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1	1" DIA.
L1	BEARING PLATE	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI, OR ASTM A709 MAX STRENGTH 50 KSI, OR ASTM A992 MAX STRENGTH 50 KSI	5/8" THICKNESS
L2	BEARING PLATE FLANGE	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI, OR ASTM A709 MAX STRENGTH 50 KSI, OR ASTM A992 MAX STRENGTH 50 KSI	1" THICKNESS
M1	BEAM GUARD ANCHOR BRACKET	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI, OR ASTM A709 MAX STRENGTH 50 KSI, OR ASTM A992 MAX STRENGTH 50 KSI	
M2	BEAM GUARD ANCHOR END PLATE	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI, OR ASTM A709 MAX STRENGTH 50 KSI, OR ASTM A992 MAX STRENGTH 50 KSI	3/8" THICKNESS
N1	ANCHOR BRACKET BOLT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 UNC AASHTO M180 HEAD ASTM A307 GRADE B OR SAE J429 GRADE 2 OR ASTM F1554 GRADE 36	5/8" DIA.
N2	ANCHOR BRACKET BOLT WASHER	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 F436 TYPE 1 (HARDEN WASHER ONLY)	5/8" DIA.
N3	ANCHOR BRACKET BOLT NUT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 UNC OVER TAP NUTS AS SPECIFIED IN AASHTO 291 / ASTM A 563 HEAVY HEX HEAD ASTM A563DH OR SAE J995 GRADE 5	
P1	FOUNDATION TUBE BOLT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 UNC OVER TAP NUTS AS SPECIFIED IN AASHTO 291 / ASTM A 563 HEAVY HEX HEAD ASTM A563DH OR SAE J995 GRADE 5	1/2" DIA.
P2	FOUNDATION TUBE WASHER	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 7/8" ASTM F844 TYPE 1 (HARDENED WASHER ONLY)	1/2" DIA.
P3	FOUNDATION TUBE NUT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 UNC OVER TAP NUTS AS SPECIFIED IN AASHTO 291 / ASTM A 563 AASHTO M180 RECESSED HEAVY HEX HEAD ASTM A563DH OR SAE J995 GRADE 5	
Q1	SPLICE BOLT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 UNC AASHTO M180 HEAD ASTM A307 GRADE B OR SAE J429 GRADE 2 OR ASTM F1554 GRADE 36	
Q2	SPLICE NUT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 UNC OVER TAP NUTS AS SPECIFIED IN AASHTO 291 / ASTM A 563 AASHTO M180 RECESSED HEAVY HEX HEAD ASTM A563DH OR SAE J995 GRADE 5	5/8" DIA.

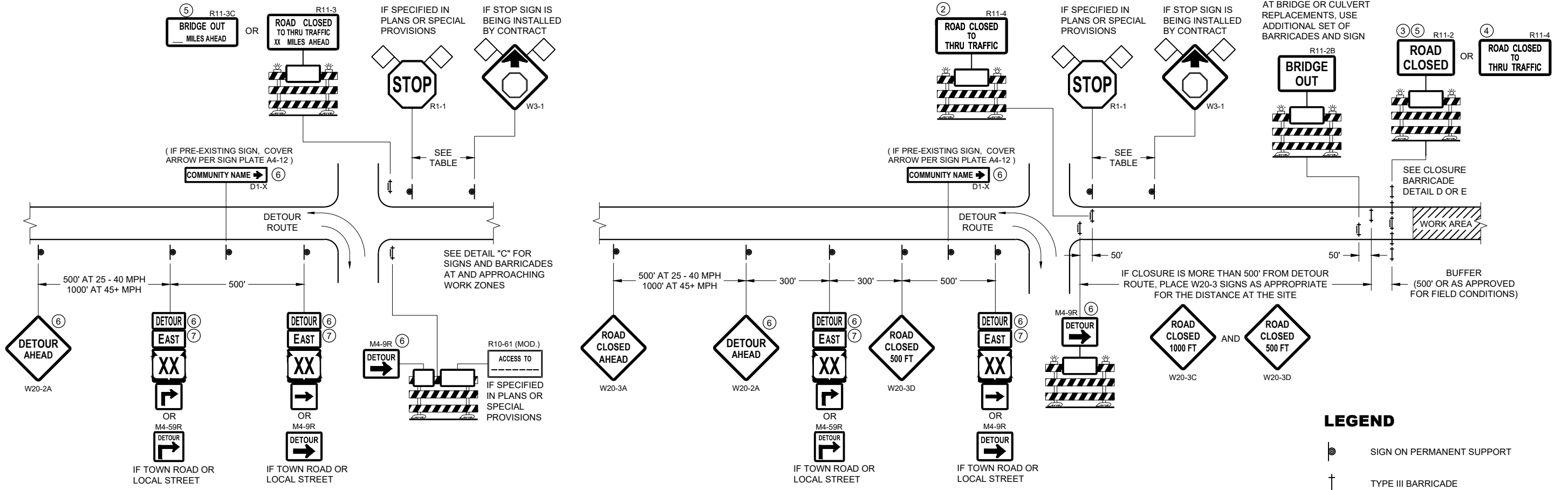
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SDD 14B47 - 039

SDD 14B47 - 039

<b>MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 2 TERMINAL</b>	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED August 2021 DATE	/S/ Rodney Taylor ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA	



**DETAIL A  
MAINLINE CLOSURE WITH POSTED DETOUR**

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

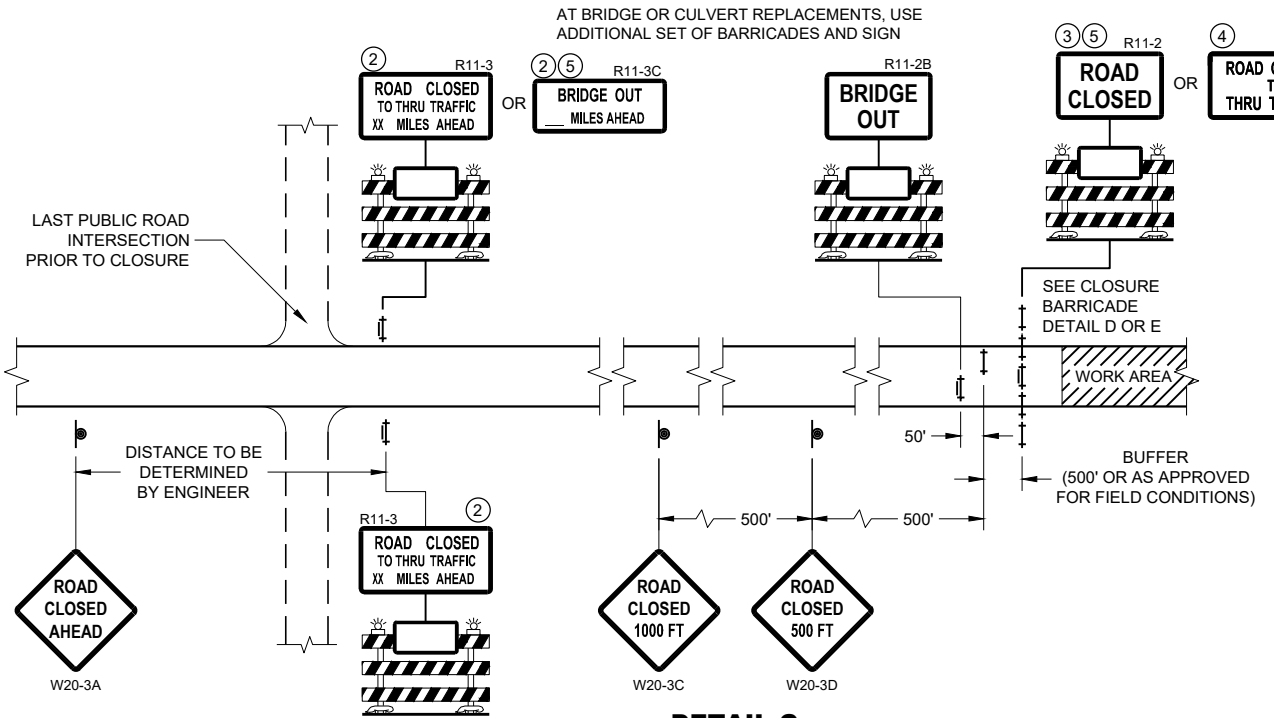
**DETAIL B  
MAINLINE CLOSURE WITH POSTED DETOUR**

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

- 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)

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

- M4 - 8
- M3 - X
- M1 - 4
- M1 - 6
- M1 - 5A
- M05 - 1
- M06 - 1



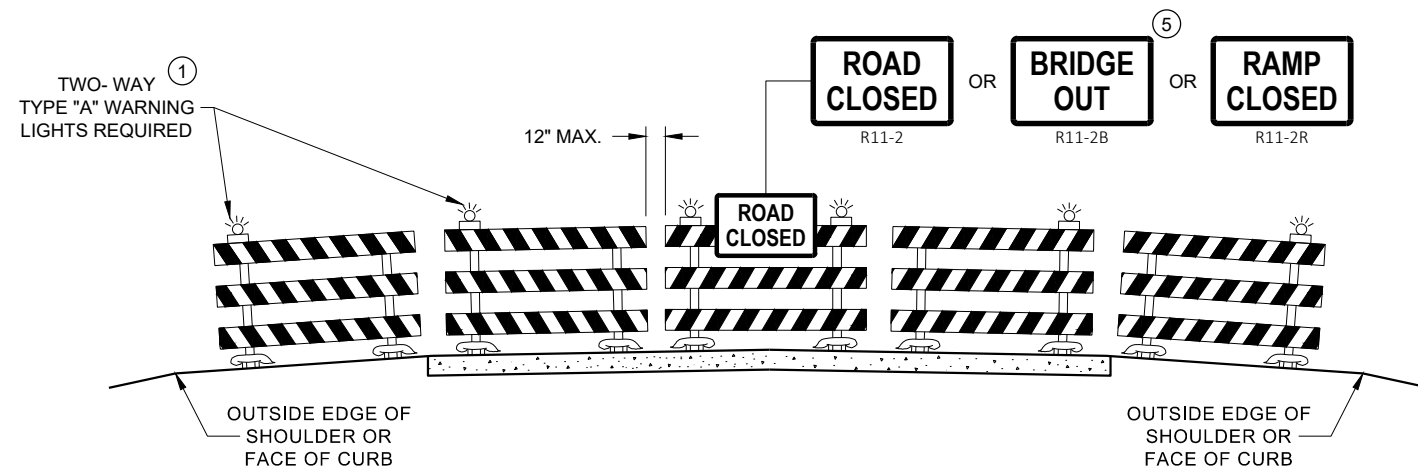
**DETAIL C  
MAINLINE CLOSURE, NO POSTED DETOUR**

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

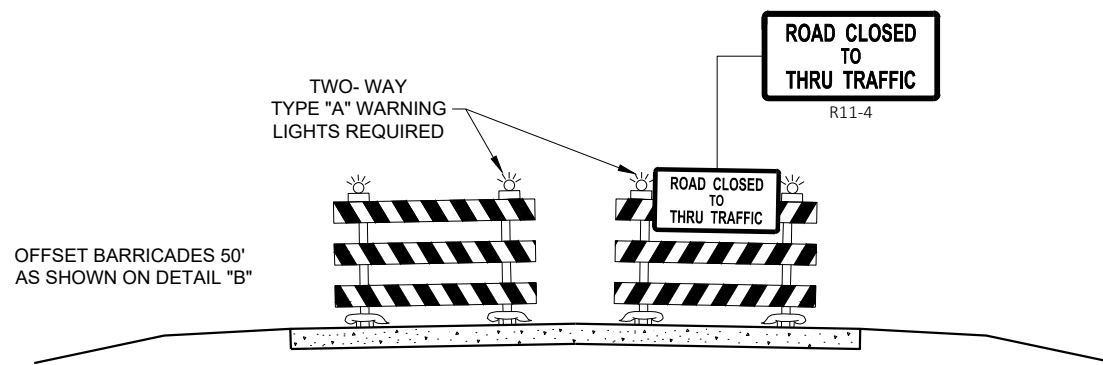
**BARRICADES AND SIGNS  
FOR MAINLINE CLOSURES**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

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



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



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

SEE SDD 15C2 - SHEET "a" FOR LEGEND

**GENERAL NOTES**

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

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

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

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

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

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

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

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

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

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

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

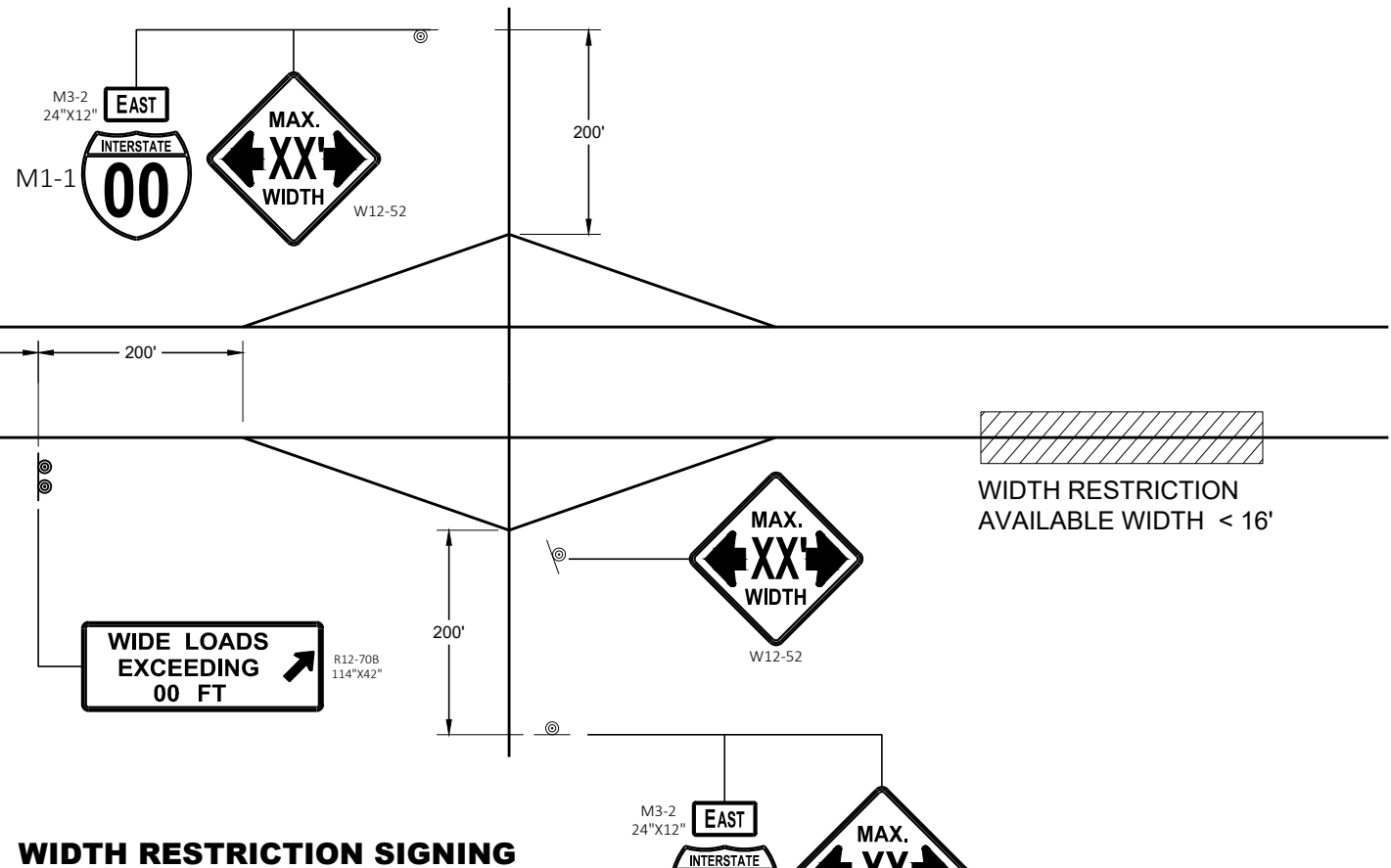
- ① TWO WARNING LIGHTS SHALL BE PROVIDED ON THE CENTER BARRICADE AND A MINIMUM OF ONE WARNING LIGHT SHALL BE PROVIDED ON EACH OF THE OTHER BARRICADES WITHIN THE ROADWAY LIMITS. SPACING OF THE WARNING LIGHTS SHALL BE UNIFORM TO THE EDGE OF ROADWAY AS SHOWN (APPROX. 8 FOOT LIGHT SPACING).
- ② THESE SIGNS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

**BARRICADES AND SIGNS  
FOR  
VARIOUS CLOSURES**

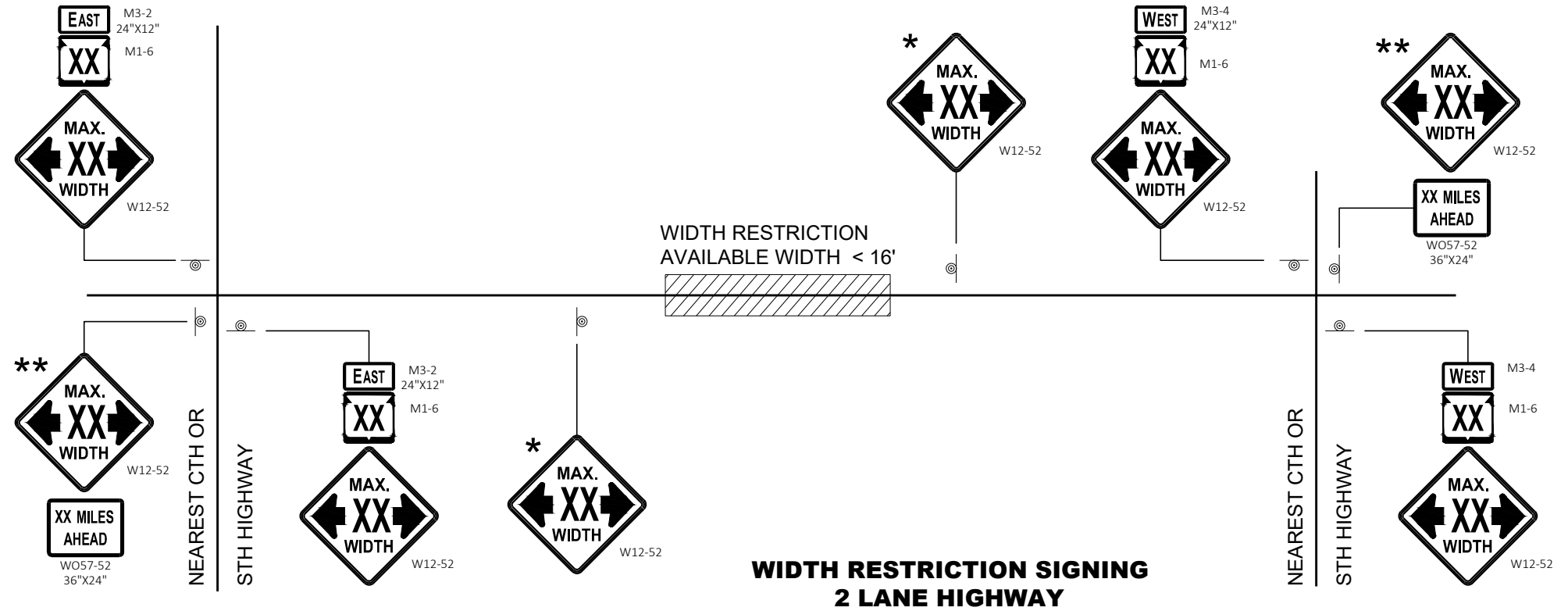
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

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

FHWA



**WIDTH RESTRICTION SIGNING**



**WIDTH RESTRICTION SIGNING  
2 LANE HIGHWAY**

**LEGEND**

⊙ SIGN ON PERMANENT SUPPORT

**GENERAL NOTES**

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

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

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

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

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

WIDTH ON SIGN TO BE APPROXIMATELY ONE FOOT LESS THAN AVAILABLE WIDTH.

\* PLACE 500 FEET AFTER THE W20 - 1A AND 500 FEET BEFORE ADDITIONAL SIGNS FOR ROADWAYS WITH A PRE - CONSTRUCTION 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.

\*\* SIGN SHALL BE VISIBLE FROM ROADWAY.

\*\*\* ADDITIONAL SIGNS NEEDED IF THERE IS AN ON RAMP BETWEEN SIGNS.

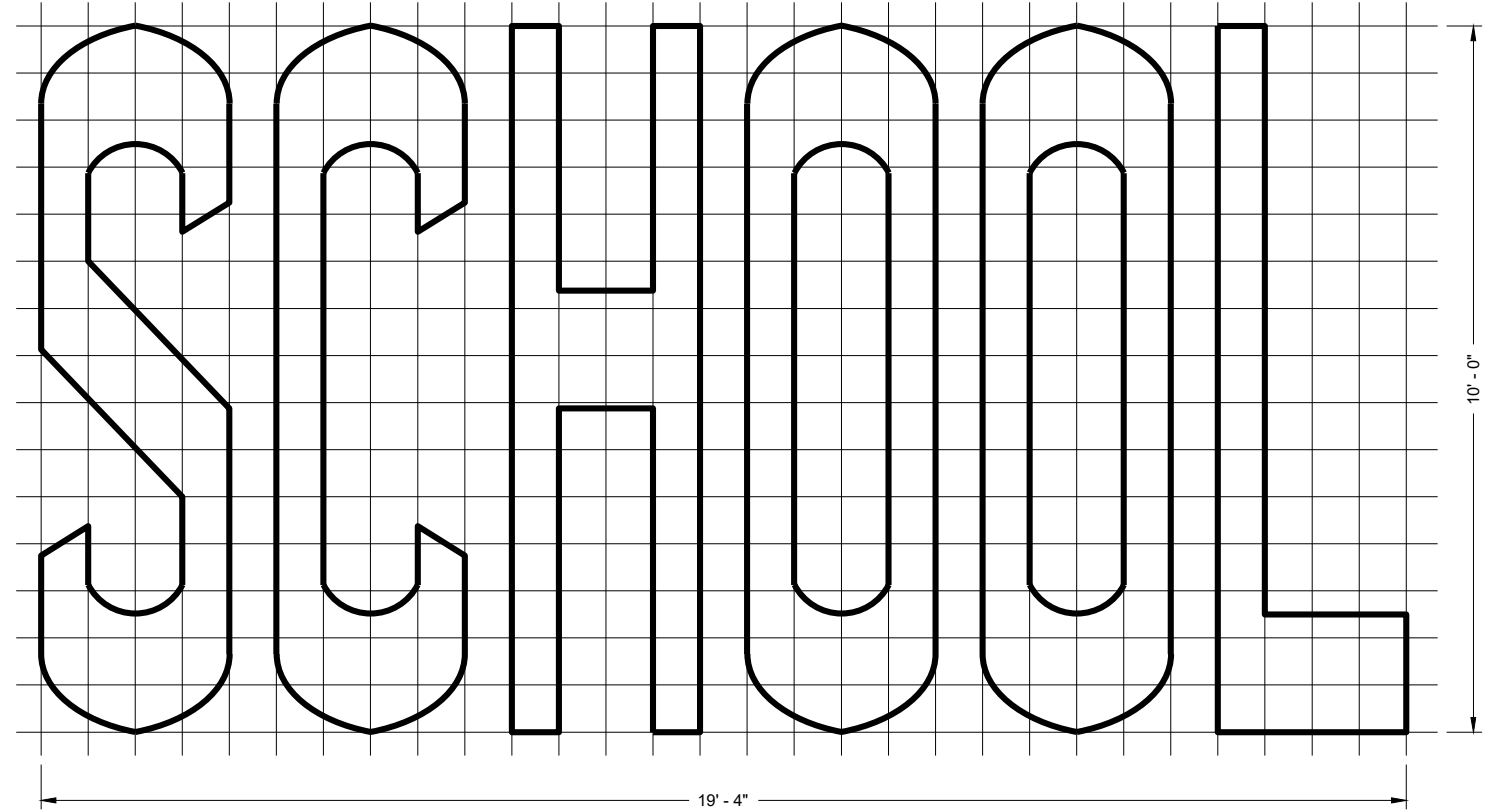
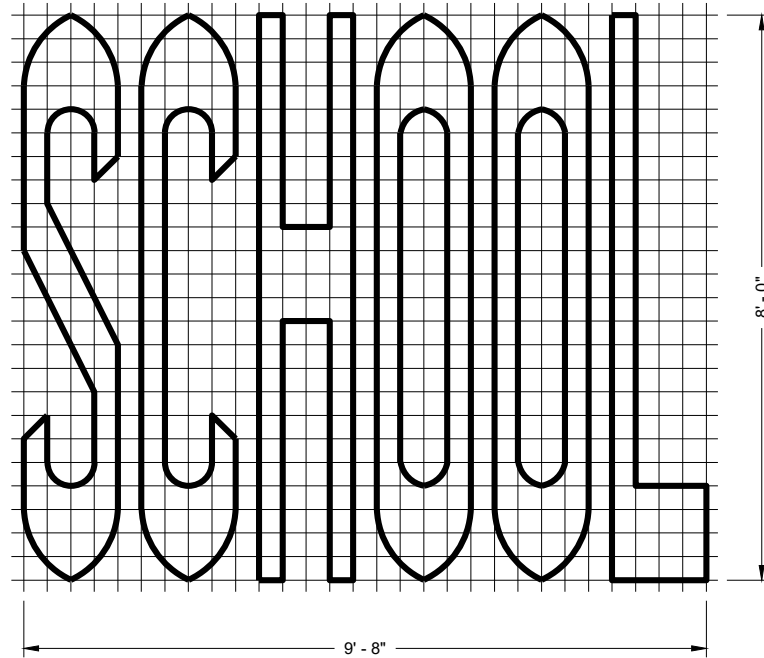
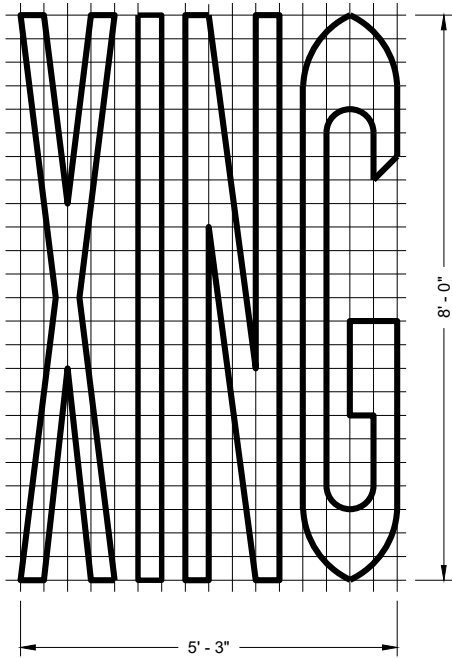
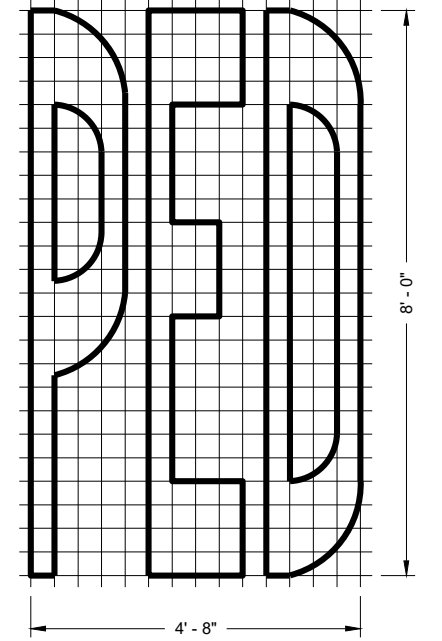
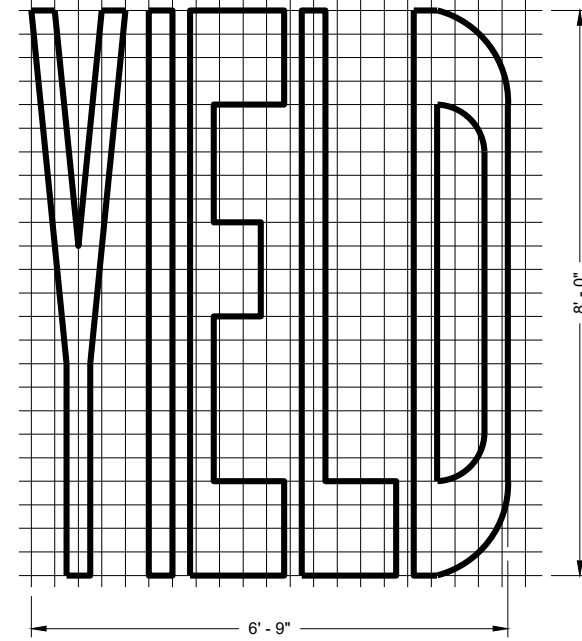
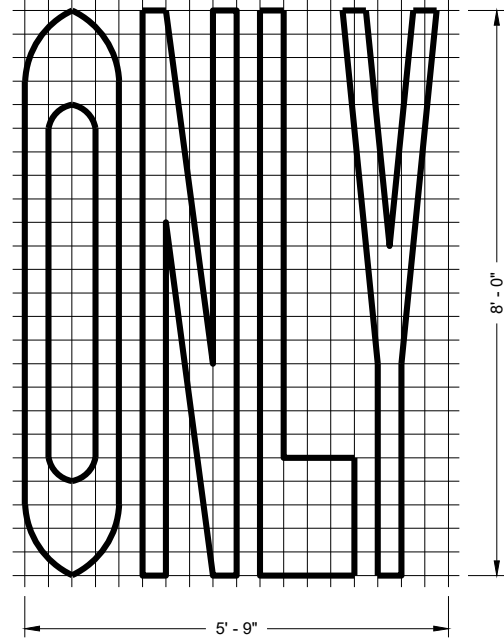
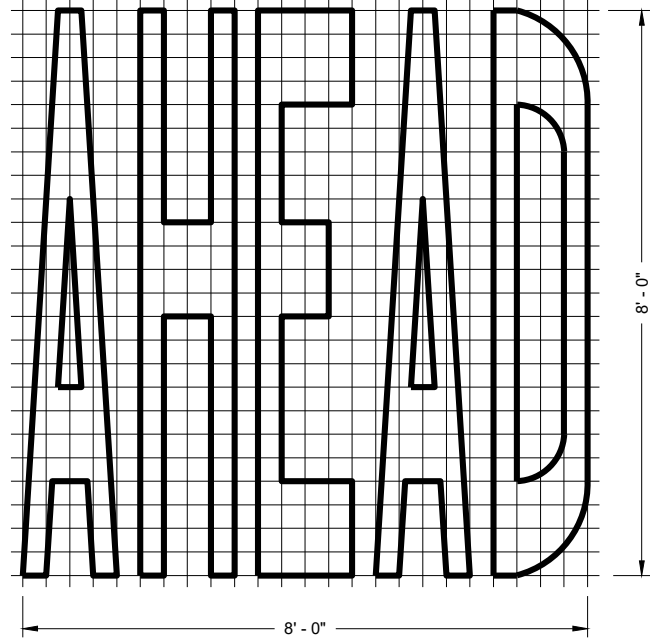
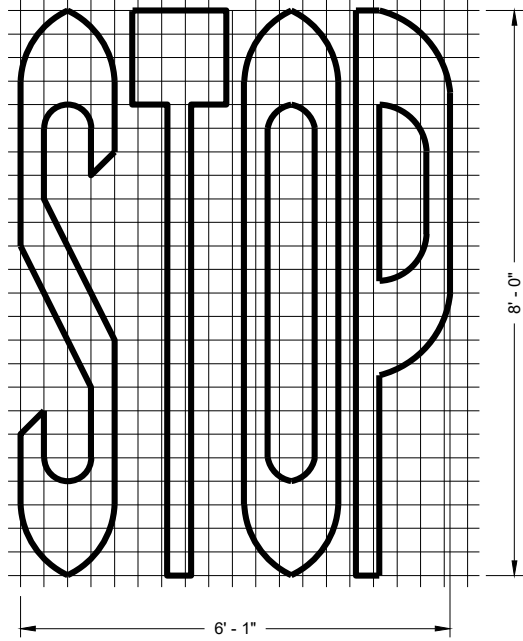


WIDTH ON SIGN TO BE APPROX. 1 - FOOT LESS THAN AVAILABLE WIDTH

**ADVANCED WIDTH RESTRICTION SIGNING**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

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



SINGLE LANE

TWO - LANE

**GENERAL NOTES**

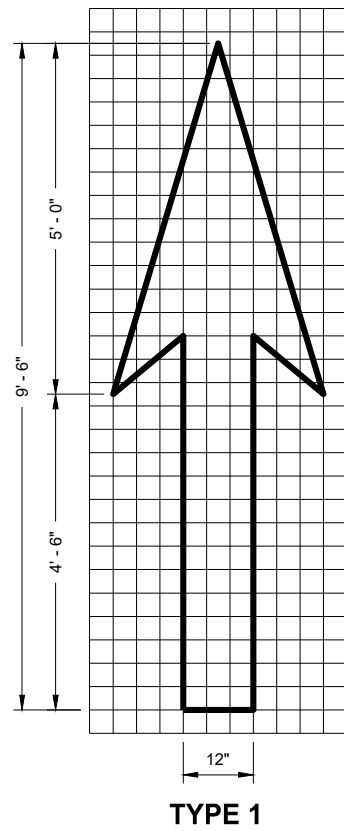
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**PAVEMENT MARKING WORDS**

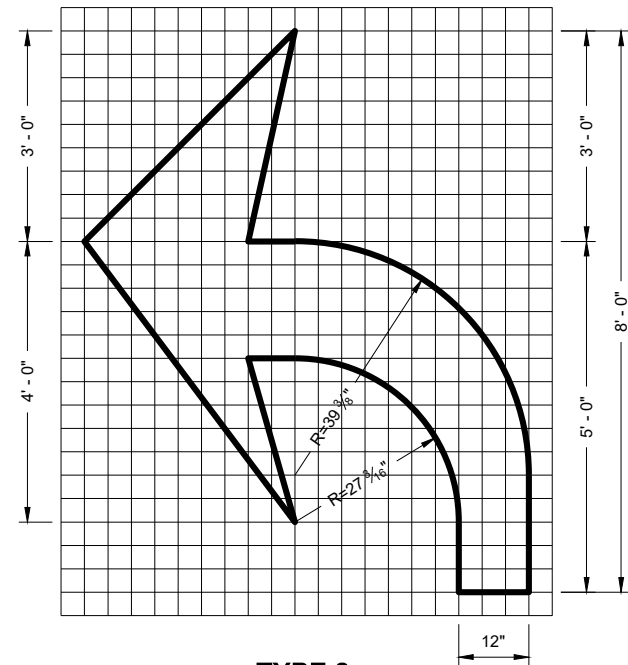
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
November 2019 /S/ Matthew Rauch  
DATE STATE SIGNING AND MARKING  
ENGINEER

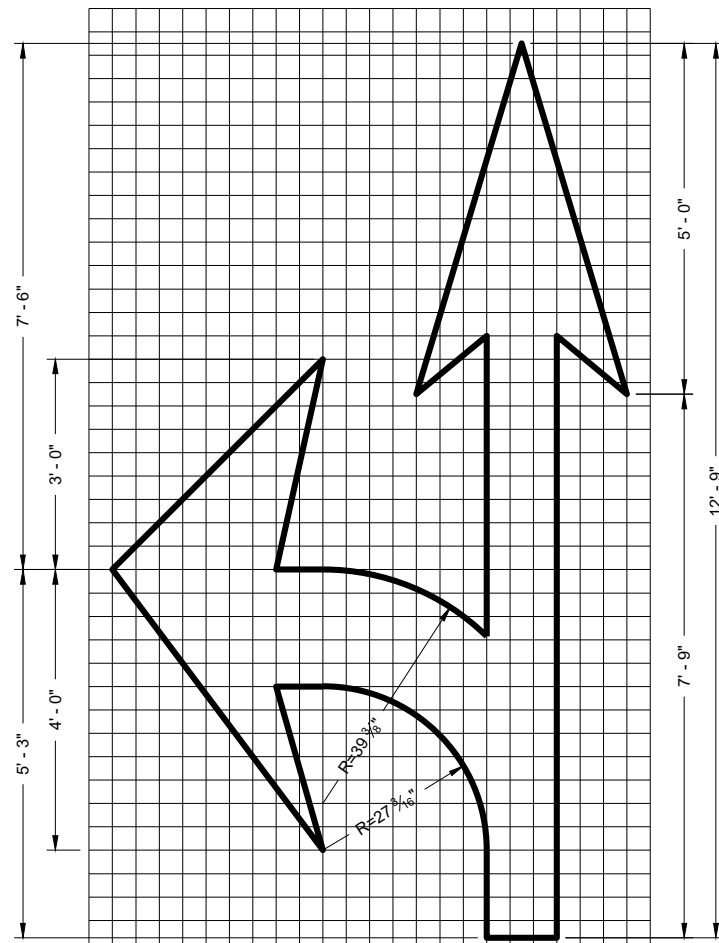
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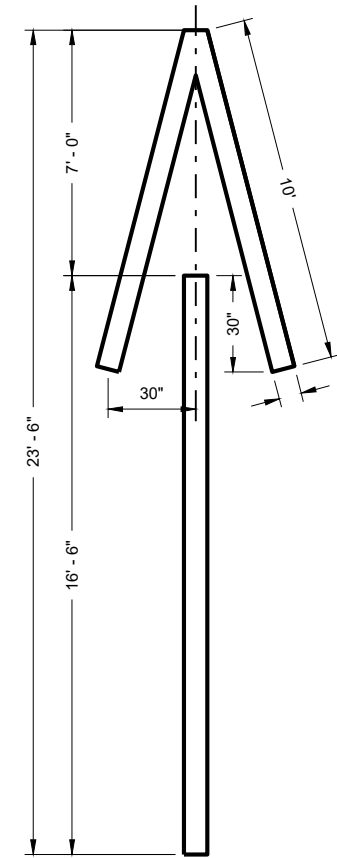
TYPE 1



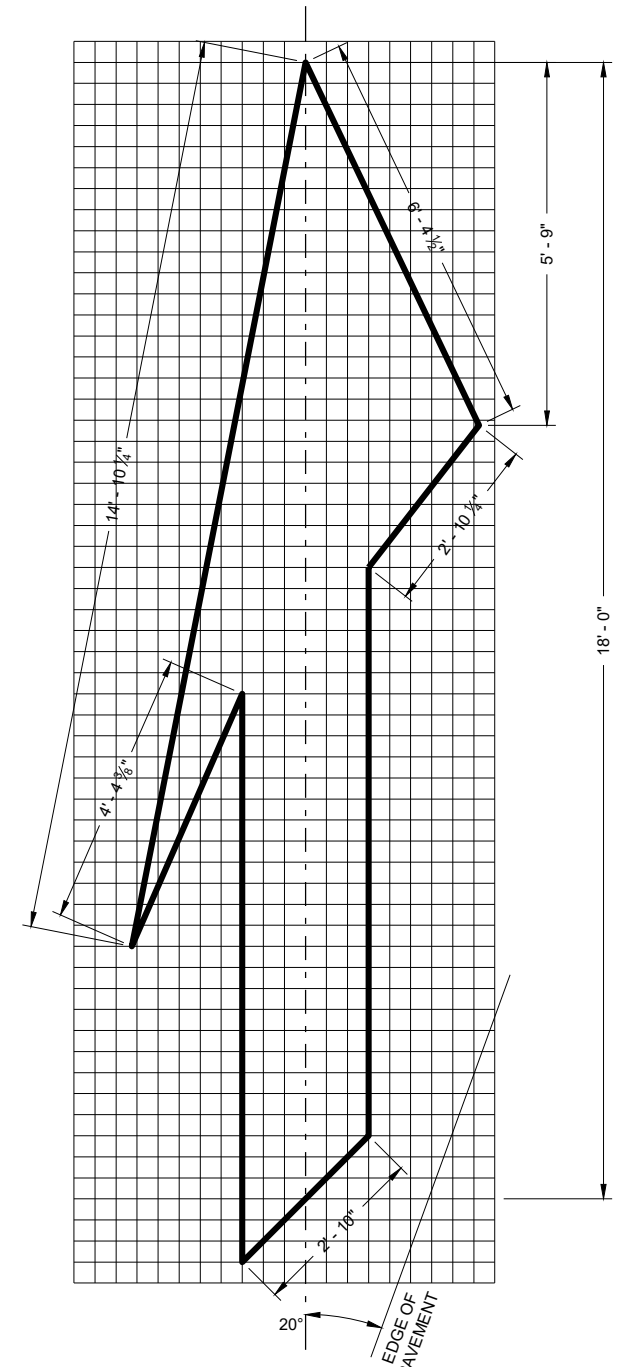
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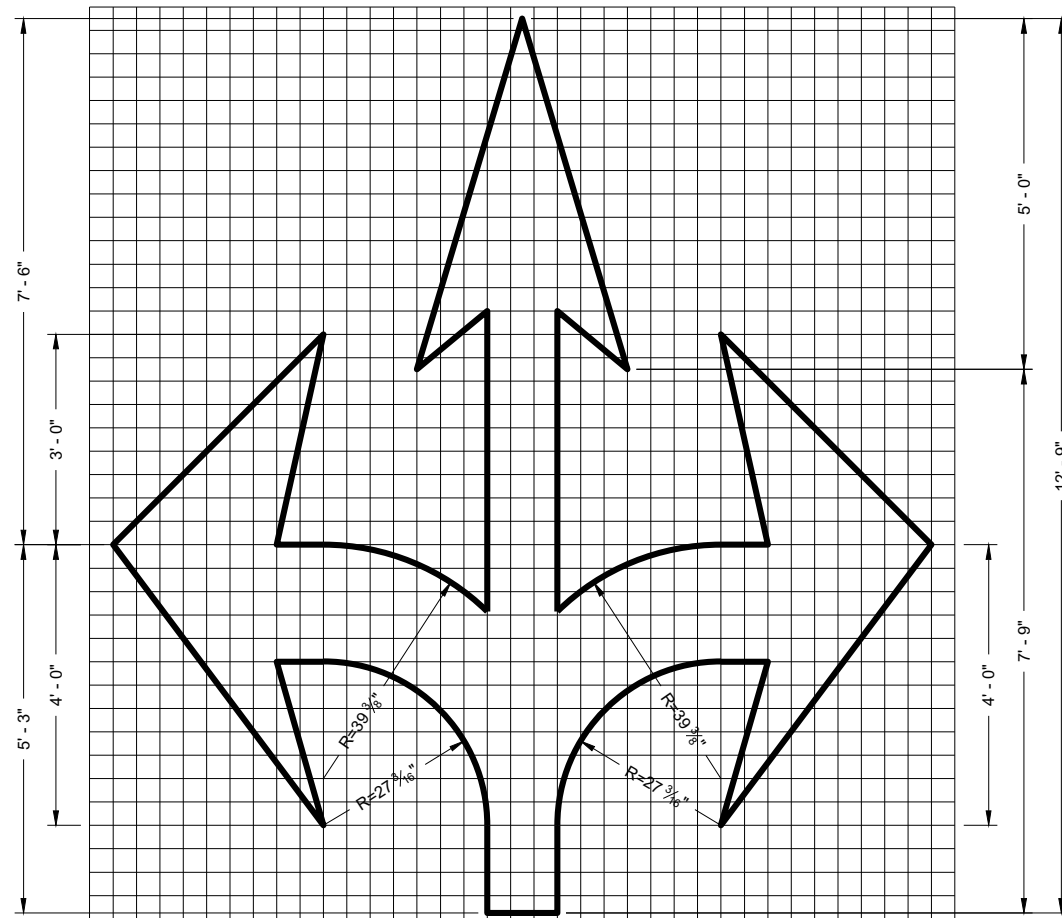
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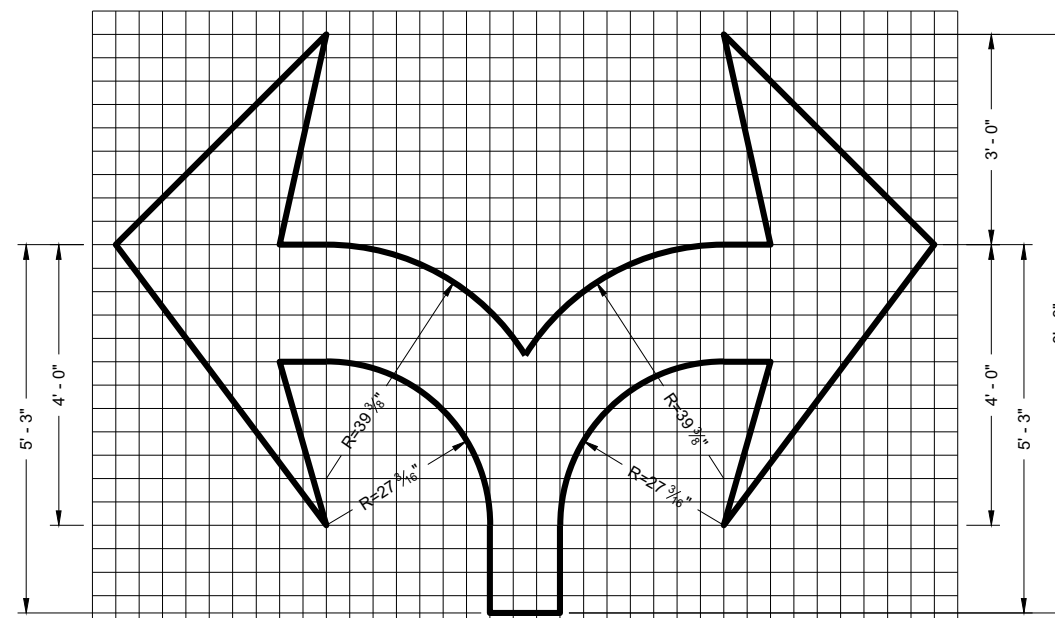
TYPE 4



TYPE 5 LANE DROP ARROW



TYPE 6



TYPE 7

GENERAL NOTES

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

PAVEMENT MARKING ARROWS

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED	/s/ Matthew Rauch
November 2019	STATE SIGNING AND MARKING ENGINEER
DATE	




FHWA

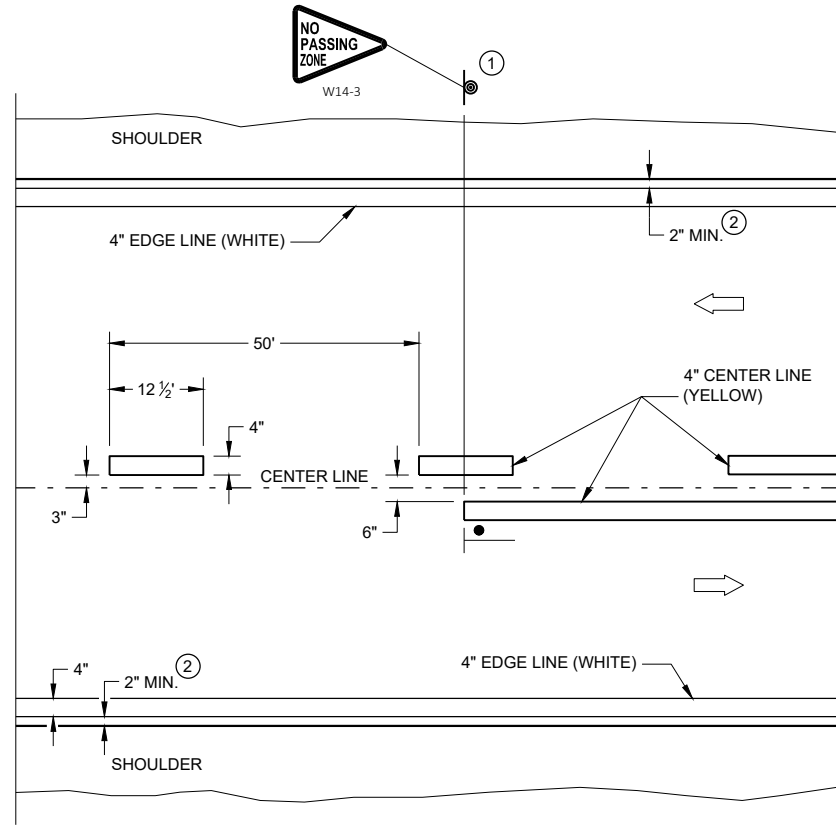
**GENERAL NOTES**

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

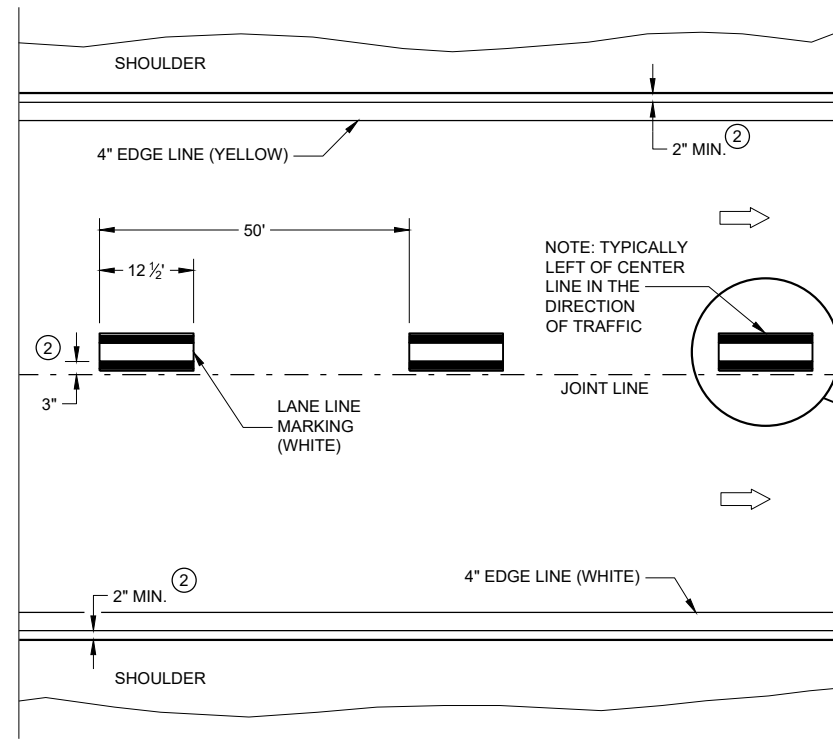
- ① LOCATE THE NO PASSING ZONE W14-3 SIGN WITHIN 50 FEET OF THE "T" MARKING
- ② MEASURE FROM EDGE OF MARKING TO JOINT LINE. THIS DOES NOT INCLUDE SPACE NEEDED FOR GROOVING OPERATIONS.

**LEGEND**

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

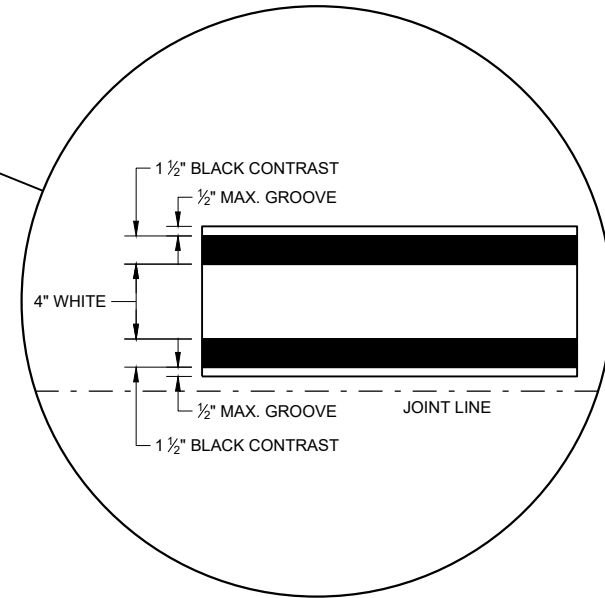


**TWO WAY TRAFFIC**



**ONE WAY TRAFFIC**

**PERMANENT PAVEMENT MARKING**



6

6

SDD 15C08 - 22a

SDD 15C08 - 22a

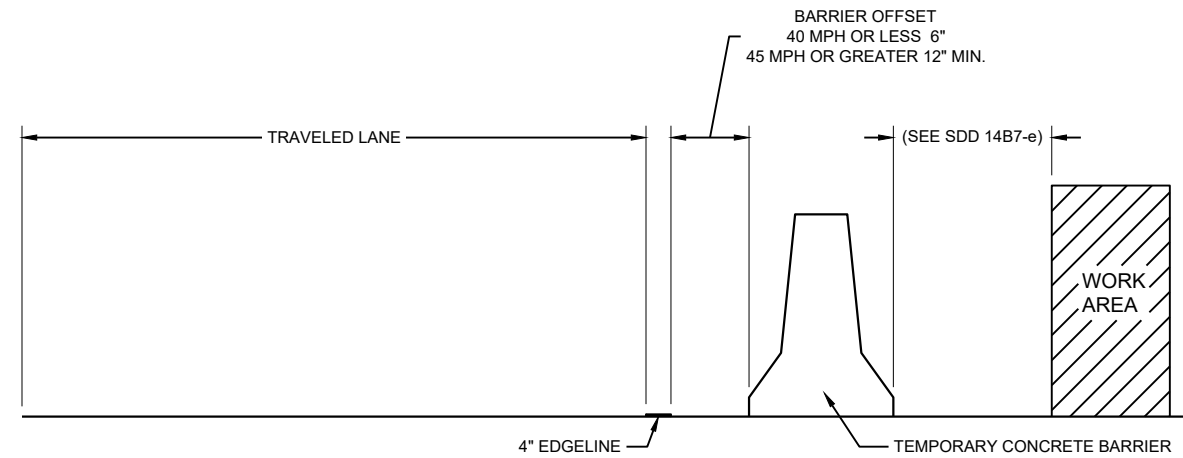
**PERMANENT LONGITUDINAL PAVEMENT MARKINGS**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
DATE: May 2022 /S/ Jeannie Silver  
STATEWIDE SIGNING AND MARKING ENGINEER

FHWA





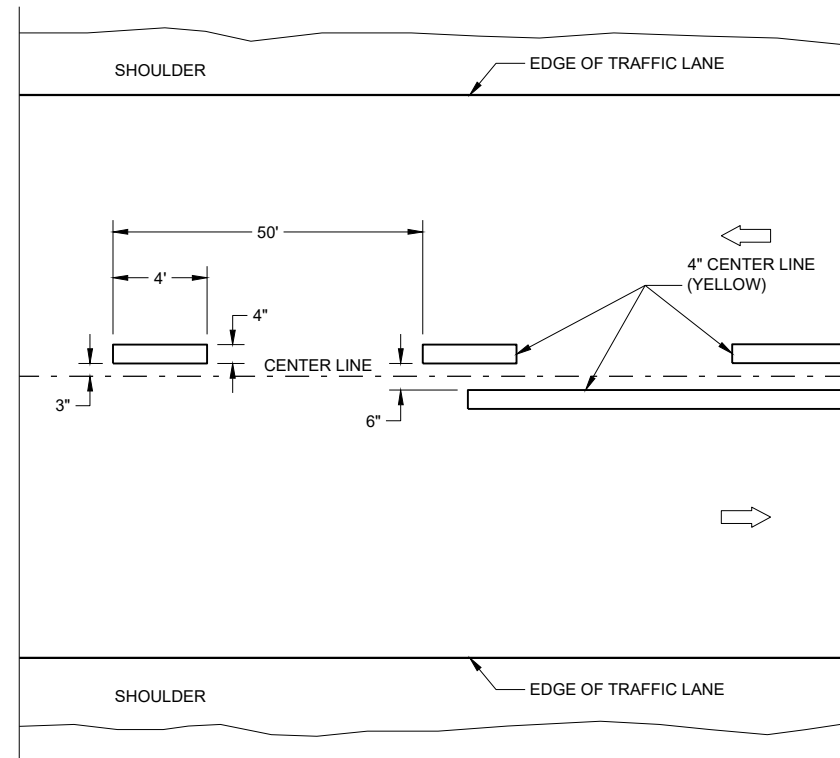
**TEMPORARY BARRIER OFFSET FROM EDGELINE**

**GENERAL NOTES**

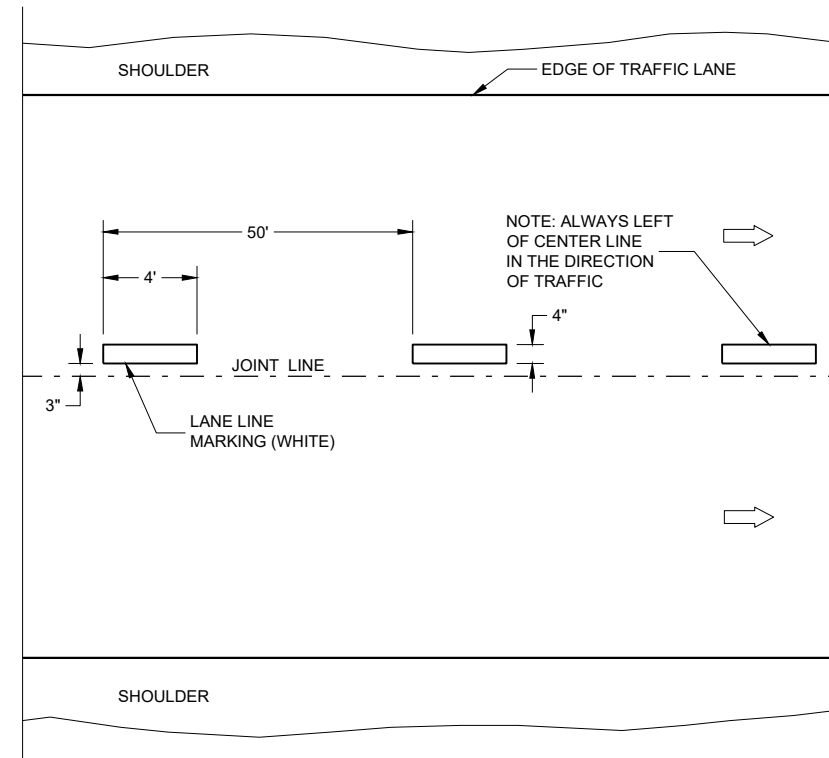
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**LEGEND**

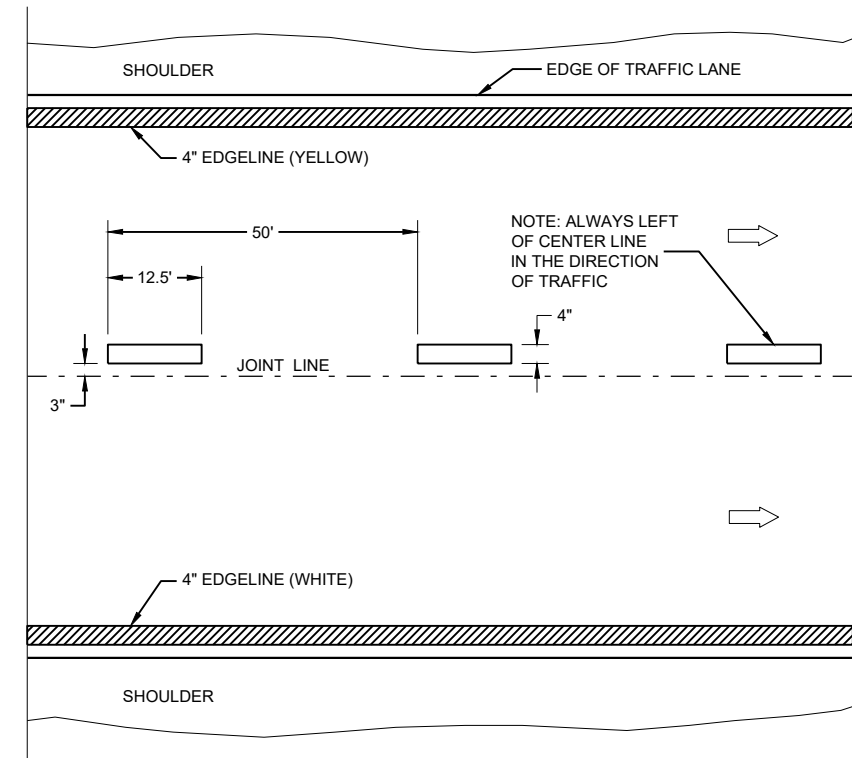
➡ DIRECTION OF TRAFFIC



**TWO WAY TRAFFIC**



**ONE WAY TRAFFIC**



**FREEWAYS AND EXPRESSWAYS**

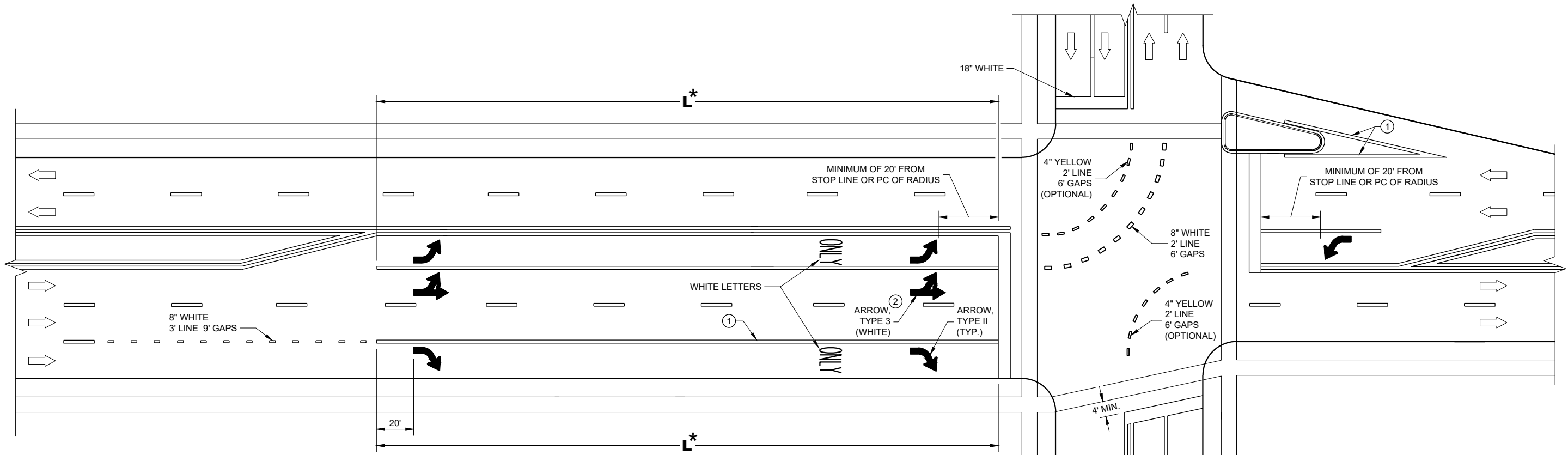
**TEMPORARY PAVEMENT MARKING**

**TEMPORARY LONGITUDINAL PAVEMENT MARKING**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

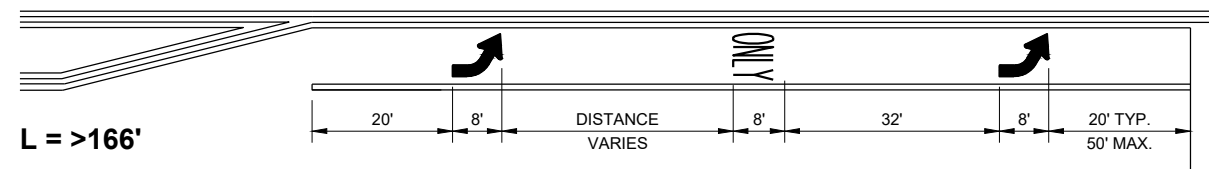
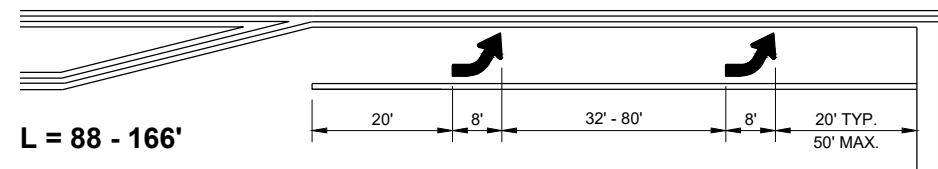
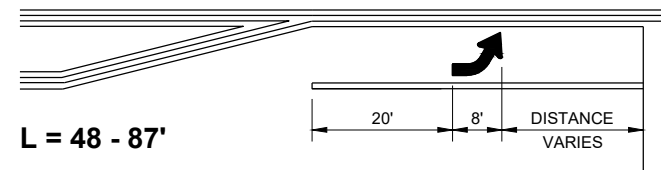
APPROVED  
May 2022 DATE /S/ Jeannie Silver  
STATEWIDE SIGNING AND MARKING ENGINEER

FHWA



**TURN LANE OPTIONS**

LENGTH OF TURN BAY ( **L** ) OF 0 - 47' DOES NOT REQUIRE PAVEMENT MARKING ARROWS OR WORDS



\*(SEE TURN LANE OPTIONS FOR PLACEMENT OF PAVEMENT MARKING ARROWS AND WORDS)

**GENERAL NOTES**

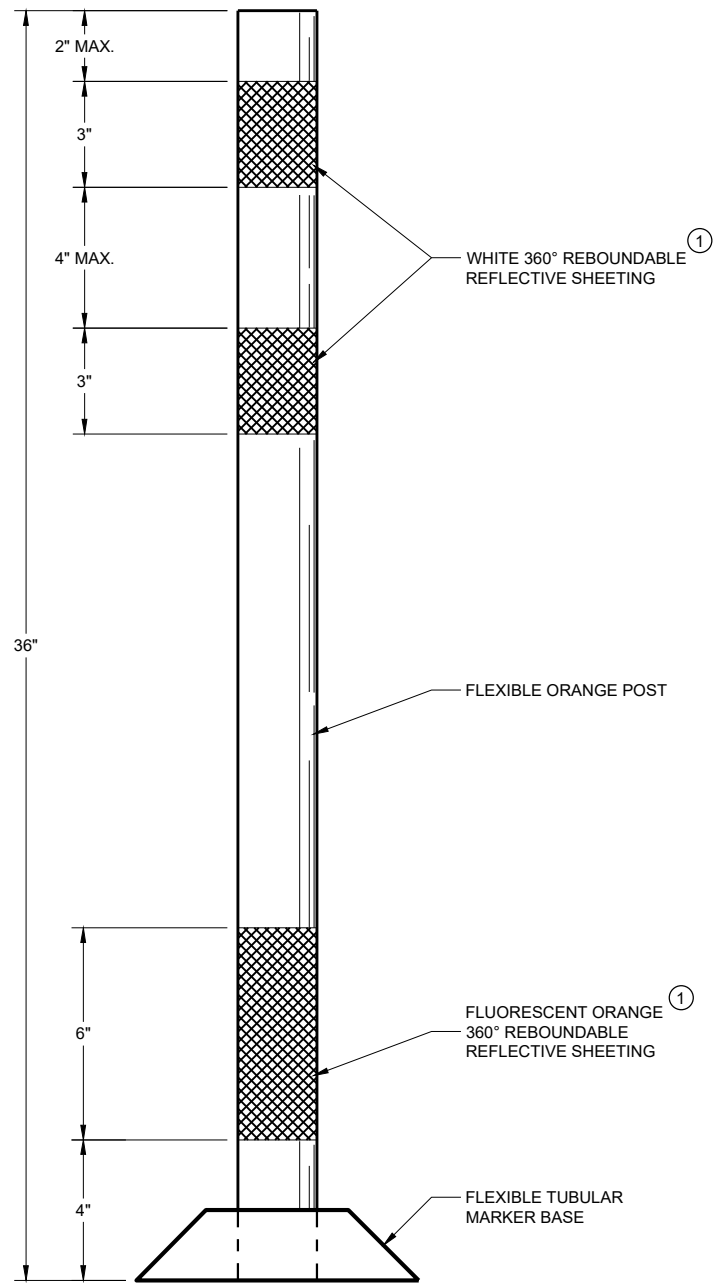
- ① 8" WHITE
- ② QUANTITY AND LOCATION OF TYPE 3 ARROWS ARE THE SAME AS THE TYPE II ARROWS IN THE ADJACENT TURN LANE. FOR TURN LANES WITH A PHYSICAL SEPARATION IN THE SAME DIRECTION OF TRAVEL, THE ARROWS AND "ONLY" MARKING MAY BE ELIMINATED.

➡ DIRECTION OF TRAFFIC

**L** = LENGTH OF TURN BAY

**PAVEMENT MARKING (TURN LANES)**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



FLEXIBLE TUBULAR MARKER POST WORK ZONE

GENERAL NOTES

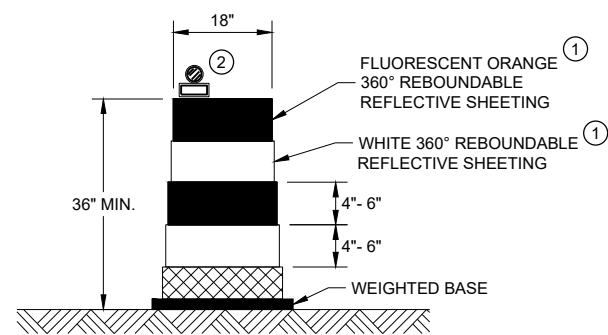
DETAILS OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

SURFACE MOUNTED BASES SHALL BE FURNISHED IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS TO BE COMPATIBLE WITH FLEXIBLE TUBULAR MARKER POSTS TO A SIZE AND SHAPE THAT WILL PROVIDE A STABLE POST FOUNDATION WHEN SECURED TO THE PAVEMENT.

THE ASPHALTIC ADHESIVE OR BUTYL PAD FURNISHED SHALL BE IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS, UNLESS DIRECTED BY THE ENGINEER TO USE BOLTS.

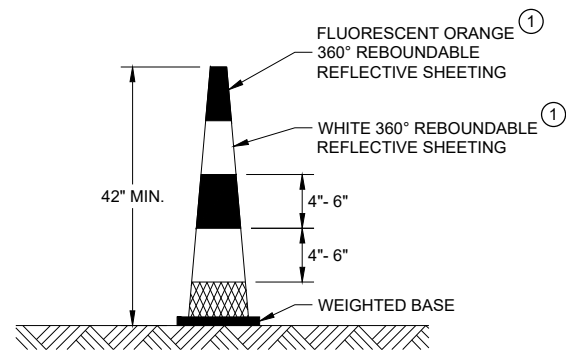
① REFLECTIVE SHEETING SHALL FOLLOW THE REQUIREMENTS IN THE APPROVED PRODUCTS LISTING FOR SIGN SHEETING.

<b>CHANNELIZING DEVICES FLEXIBLE TUBULAR MARKER POST</b>	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED November 2022 DATE	/S/ Andrew Heidtke WORK ZONE ENGINEER
FHWA	



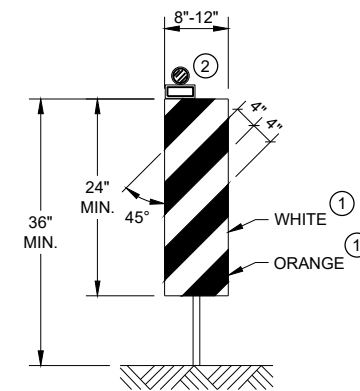
**DRUM**

BALLAST WIDTHS  
RANGE FROM 24"-36"



**42" CONE**

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

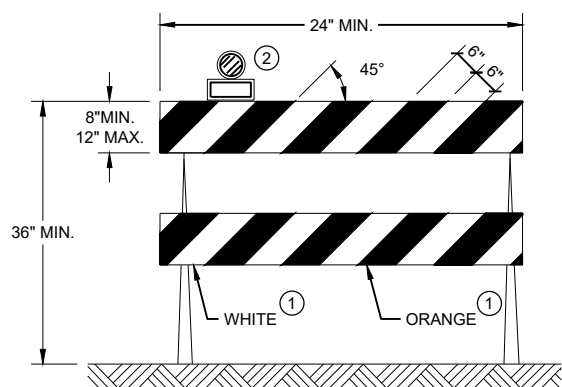


**VERTICAL PANEL**

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

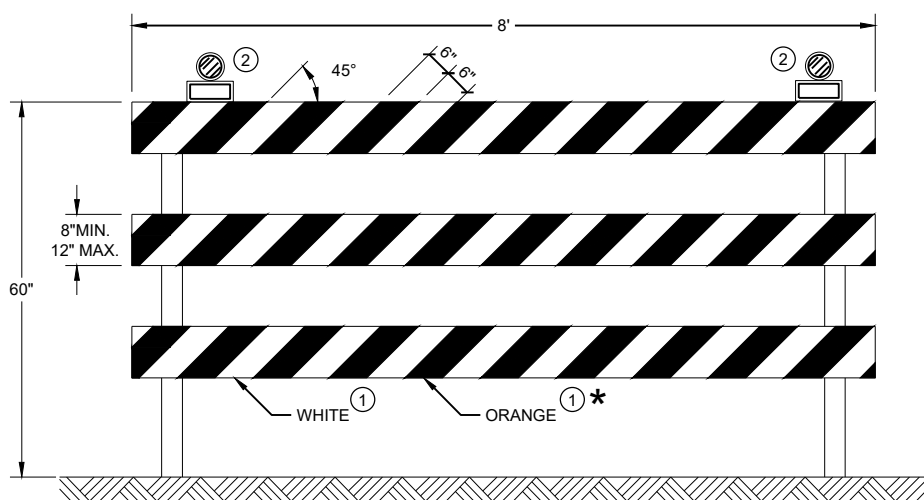
**GENERAL NOTES**

- 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.



**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.

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

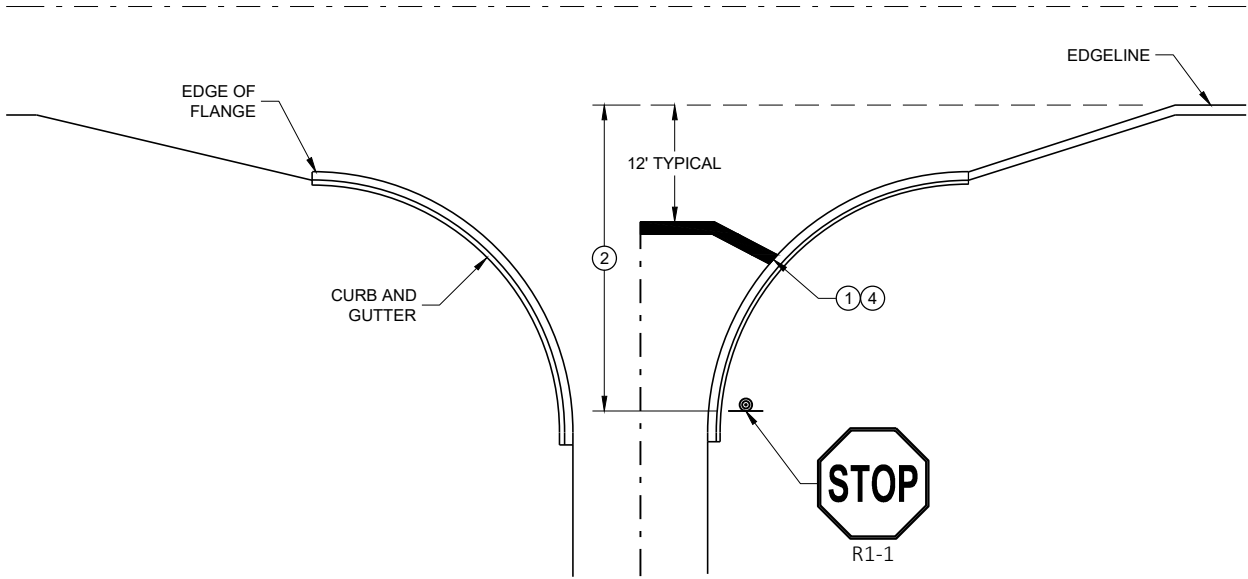
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

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

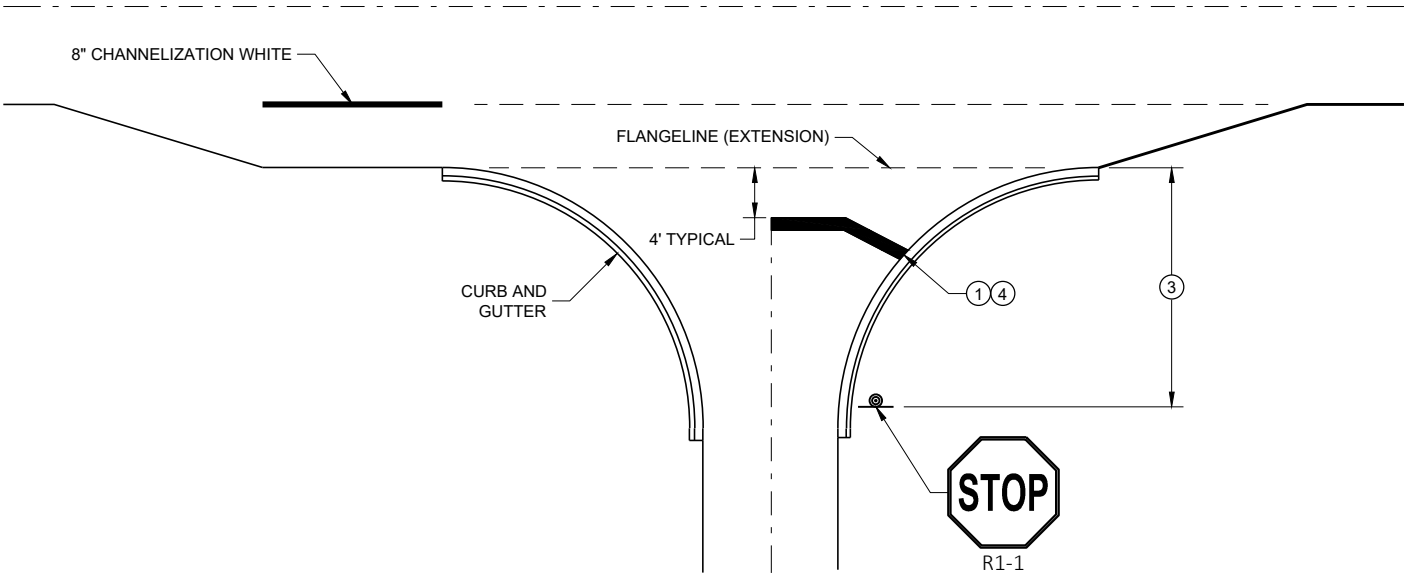
**GENERAL NOTES**

STOP SIGN SHALL BE PLACED A MINIMUM OF 6 FEET TO A MAXIMUM OF 50 FEET FROM THE EDGELINE LOCATION.

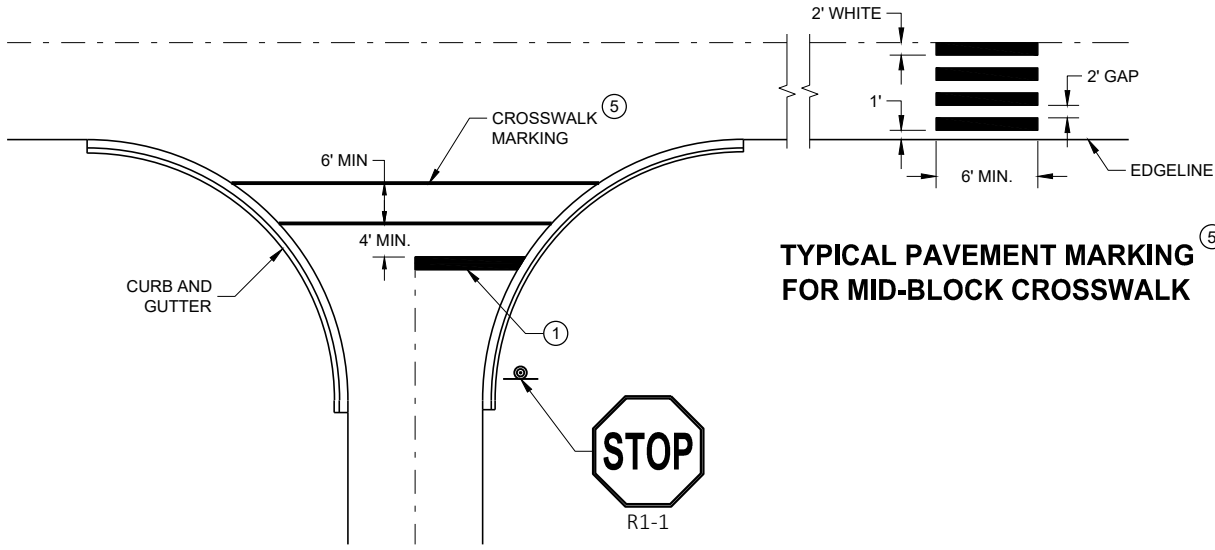
- ① 18-INCH STOP LINES MAY BE DELETED OR ADDED BY THE REGION MARKING ENGINEER BASED ON VISIBILITY AND SIGHT LINES.
- ② NO STOP LINE IS REQUIRED IF STOP SIGN IS LESS THAN OR EQUAL TO 40 FEET FROM THE EDGELINE.
- ③ NO STOP LINE IS REQUIRED IF STOP SIGN IS LESS THAN OR EQUAL TO 30 FEET FROM THE FLANGELINE EXTENSION.
- ④ MOVE CLOSER TO THE EDGE OF TRAVEL LINE AS NEEDED FOR VISIBILITY AND SIGHT LINES (NO CLOSER THAN 4 FEET).
- ⑤ LADDER BAR CROSSWALKS SHOULD ONLY BE USED FOR MID BLOCK CROSSINGS. USE 2 - 6" TRANSVERSE LINES INSTEAD.



**TYPICAL STOP LINE PAVEMENT MARKING WITH CURB AND GUTTER**

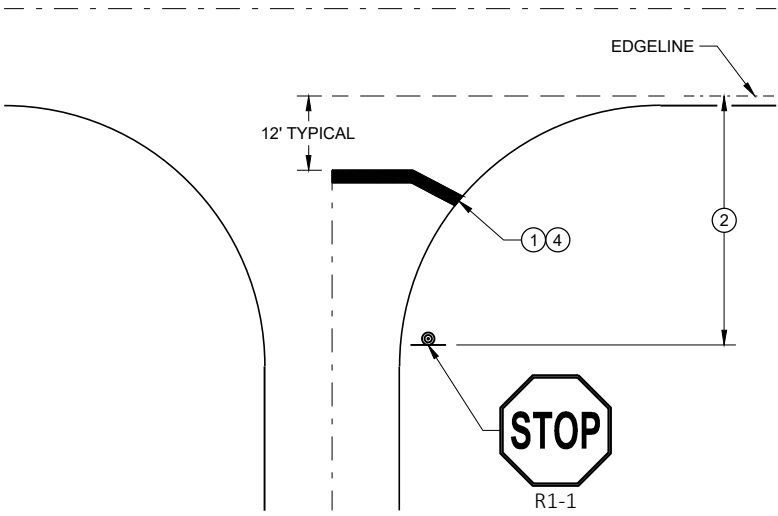


**TYPICAL STOP LINE PAVEMENT MARKING FOR SIDEROADS WITH RIGHT TURN LANE**



**TYPICAL STOP LINE PAVEMENT MARKING FOR SIDEROADS WITH CROSSWALK MARKING**

**TYPICAL PAVEMENT MARKING FOR MID-BLOCK CROSSWALK**



**TYPICAL STOP LINE PAVEMENT MARKING WITHOUT CURB AND GUTTER**




**STOP LINE AND CROSSWALK PAVEMENT MARKING**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
November 2019 /S/ Matthew Rauch  
DATE STATE SIGNING AND MARKING ENGINEER

FHWA

**LEGEND**

-  SIGN ON PERMANENT SUPPORT
-  DELINEATOR, FLEXIBLE/TUBULAR MARKER
-  DIRECTION OF TRAFFIC

**GENERAL NOTES**

ALL SIGNS ARE 48"X48" UNLESS OTHERWISE NOTED.

"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. NO WARNING LIGHTS SHALL BE WORKING ON COVERED OR "DOWNED" SIGNS.

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

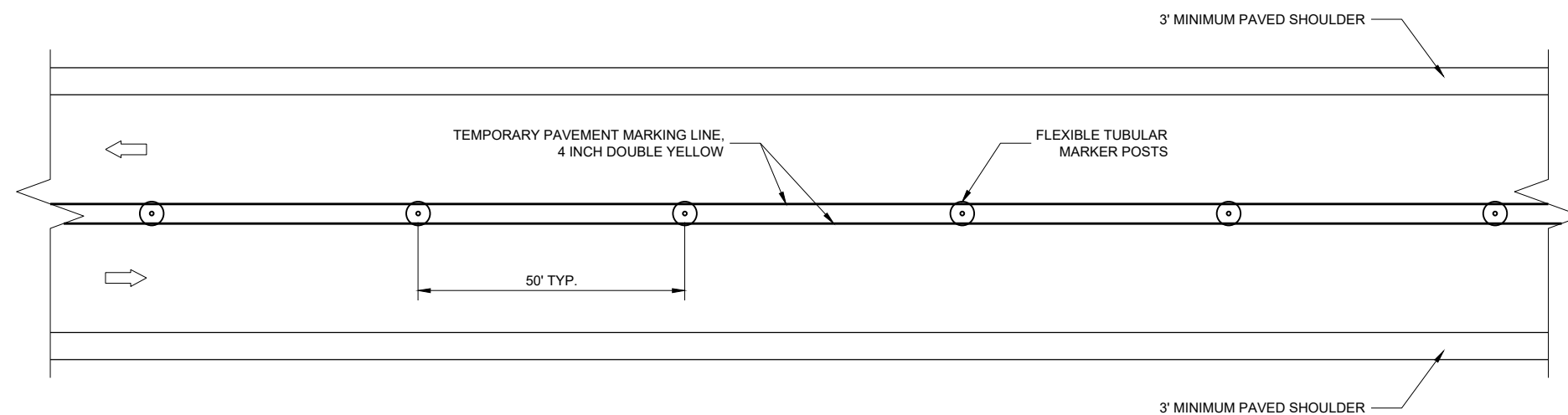
THE SPACING BETWEEN SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND TO PROVIDE A MINIMUM OF 200 FEET (500' DESIRABLE) DISTANCE TO EXISTING SIGNS.

A SINGLE ROW OF FLEXIBLE TUBULAR MARKERS ON CENTERLINE EXTEND FOR THE ENTIRE LENGTH OF TWO-WAY TRAFFIC AT 50 FOOT SPACING.

COVER EXISTING CENTERLINE STRIPE WITH TEMPORARY PAVEMENT MARKING LINE, 4 INCH DOUBLE YELLOW.



- ① THE W06-3 AND W057-51 SHALL BE LOCATED 200 FEET BEYOND THE END OF THE ACCELERATION LANE OF EACH ENTRANCE RAMP AND / OR 500 FEET BEYOND ANY SIDE ROAD. THE R4-1 SHALL BE LOCATED 1000 FEET BEYOND THE W06-3 AND THE W057-51 AND THE SIGNS SHALL BE ALTERNATED WITH ONE MILE INTERVALS BETWEEN THE SIGNS.
- ② CONVENTIONAL: 24" X 30"  
 FREEWAY AND EXPRESSWAY: 36" X 48"



**TWO LANE, TWO WAY OPERATION**

6













6

SDD 15D06 - 05

SDD 15D06 - 05

<b>TRAFFIC CONTROL TWO LANE TWO WAY OPERATION</b>	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED February 2022 DATE	/S/ Andrew Heidtke WORK ZONE ENGINEER
FHWA	

**LEGEND**

-  SIGN ON PERMANENT SUPPORT
-  TRAFFIC CONTROL DRUM
-  TRAFFIC CONTROL DRUM WITH TYPE "C" STEADY BURN LIGHT
-  DELINEATOR FLEXIBLE / TUBULAR MARKER
-  TEMPORARY DELINEATOR (STEEL POST WITH SINGLE DELINEATOR)  
COLOR OF DELINEATOR SHALL MATCH THE COLOR OF THE RESPECTIVE EDGELINE MARKING
-  TEMPORARY DELINEATOR (DOUBLE SIDED)
-  TYPE "A" WARNING LIGHT (FLASHING)
-  TYPE III BARRICADE
-  TYPE III BARRICADE WITH ATTACHED SIGN
-  DIRECTION OF TRAFFIC
-  REMOVE PAVEMENT MARKINGS
-  WORK AREA

**GENERAL NOTES**

ALL SIGNS ARE 48"X48" UNLESS OTHERWISE NOTED.

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

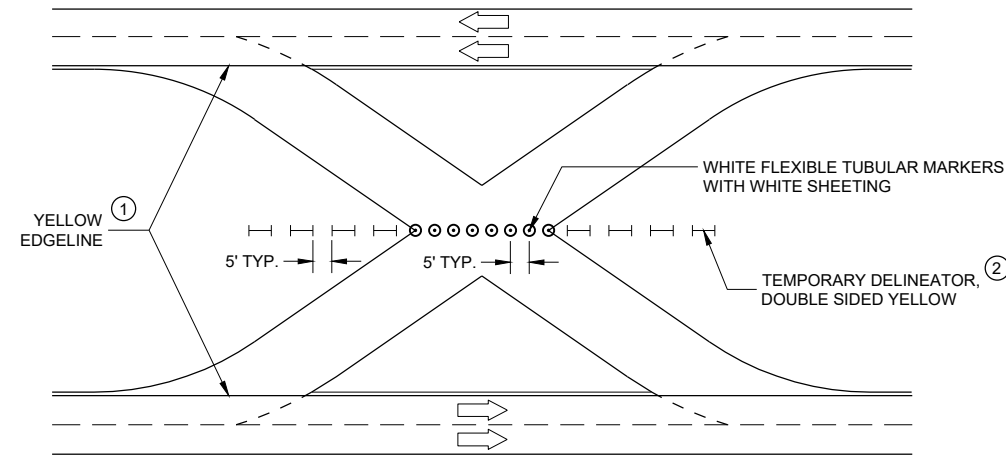
ANY SIGNS TEMPORARY OR EXISTING, WHICH CONFLICT WITH THE TRAFFIC CONTROL "IN USE" SHALL BE REMOVED OR COVERED AS NEEDED AND AS APPROVED BY THE ENGINEER. NO WARNING LIGHTS SHALL BE WORKING ON COVERED OR "DOWNED" SIGNS.

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

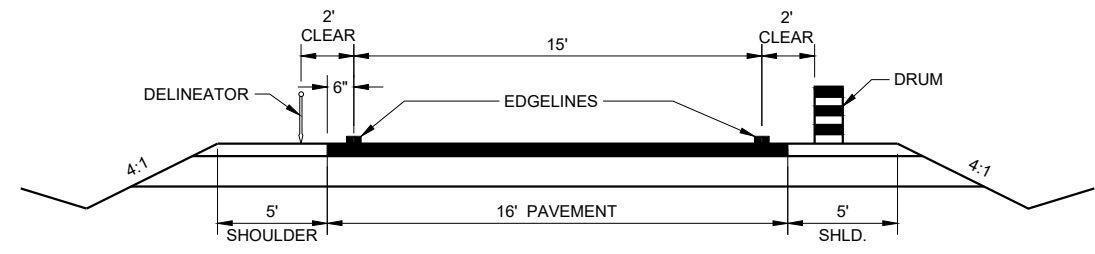
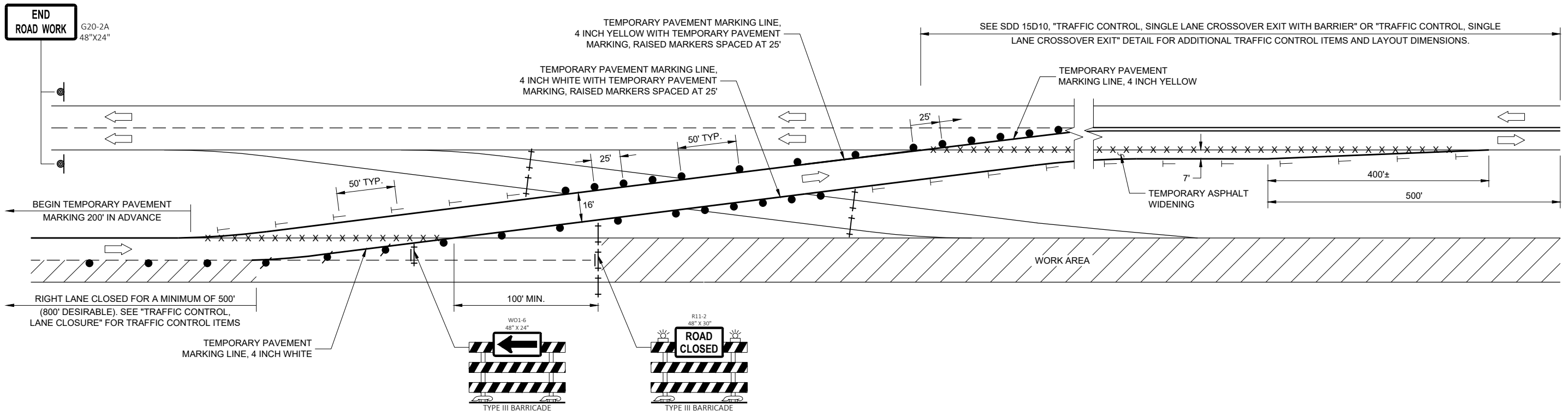
THE SPACING BETWEEN PROPOSED SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND TO PROVIDE A MINIMUM OF 200 FEET (500' DESIRABLE) DISTANCE TO EXISTING SIGNS.

REVERSE DEVICES WHEN OTHER LEG OF CROSSOVER IS IN USE.

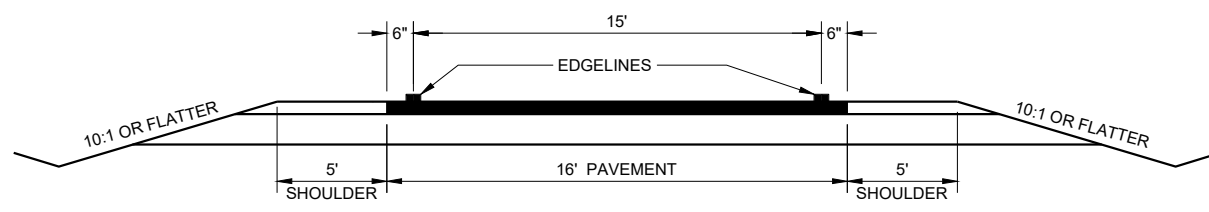
- ① FOR PERMANENT CROSSOVER, PAVEMENT MARKING SHOULD CONFORM TO SECTION 646 OF THE STANDARD SPECIFICATIONS.
- ② FOR PERMANENT CROSSOVER, INSTALL PERMANENT DELINEATORS ACCORDING TO SECTION 633 OF THE STANDARD SPECIFICATIONS.



**TRAFFIC CONTROL FOR CROSSOVER THAT IS NOT IN USE**



**TYPICAL TEMPORARY CROSSOVER ROADWAY DIMENSIONS**  
(SEE PLAN FOR ROADWAY DESIGN ELEMENTS)



**TYPICAL CROSSOVER TO REMAIN IN PLACE ROADWAY DIMENSIONS**  
(SEE PLAN FOR ROADWAY DESIGN ELEMENTS)

**TRAFFIC CONTROL,  
SINGLE LANE CROSSOVER**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
February 2022 /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 AS APPROVED BY THE ENGINEER.

THE SPACING BETWEEN SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND TO PROVIDE A MINIMUM OF 200 FEET (500 FEET DESIRABLE) CLEARANCE TO EXISTING SIGNS.

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

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

"WO" SIGNS ARE THE SAME AS "W" SIGNS 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.

CONSIDER ROADWAY GEOMETRICS WHEN LOCATING SIGNS AND ARROW BOARD SO THE DRIVER HAS A CLEAR VIEW OF THE ARROW BOARD AND LANE CLOSURE DRUMS.

FOR A LANE CLOSURE THAT IS IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS, THE ADVANCED WARNING SIGNS MAY BE MOUNTED ON PORTABLE SUPPORTS.

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










WARNING LIGHTS ARE NOT REQUIRED IF THE LANE CLOSURE IS A DAYTIME ONLY OPERATION.

IF THE HORIZONTAL ALIGNMENT IS SUCH THAT A CURVE MAY REQUIRE ADDITIONAL DELINEATION, THE DEVICE SPACING MAY BE DECREASED TO 50 FEET.

ADJUSTMENTS IN BUFFER SPACE NEED TO BE INCORPORATED WHEN THE LANE CLOSURE OCCURS NEAR AN INTERCHANGE EXIT OR ENTRANCE RAMP OR INTERSECTION. THE LANE CLOSURE MUST TAKE PLACE FAR ENOUGH IN ADVANCE OF AN EXIT OR ENTRANCE RAMP TO STILL ALLOW FOR ADEQUATE BUFFER SPACE. THE MINIMUM LENGTH OF THE BUFFER SPACE BEFORE AN EXIT RAMP SHOULD BE ONE HALF THE LENGTH OF THE TRANSITION AREA. THE ENTRANCE RAMP SHOULD BE FOLLOWED BY THE ORIGINAL BUFFER SPACE LENGTH OF 800 FEET DESIRABLE PRIOR TO ANOTHER TRAFFIC CONTROL CHANGE SUCH AS A CROSSOVER MANEUVER.

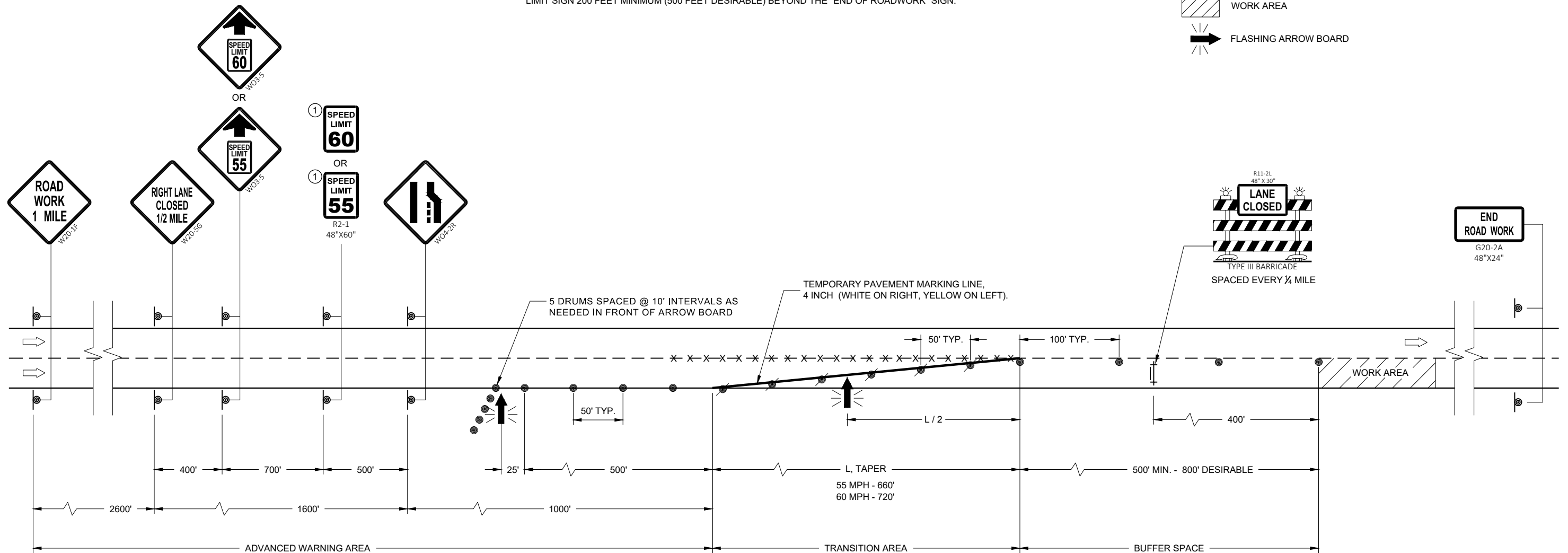
① A SPEED LIMIT SIGN SHALL BE LOCATED 1500 FEET BEYOND THE END OF THE ACCELERATION LANE OF EACH ENTRANCE RAMP. PLACE A SPEED LIMIT SIGN A MINIMUM OF EVERY 3 MILES. INCLUDE A RESUME SPEED LIMIT SIGN 200 FEET MINIMUM (500 FEET DESIRABLE) BEYOND THE "END OF ROADWORK" SIGN.

### LEGEND

-  SIGN ON PERMANENT SUPPORT
-  TRAFFIC CONTROL DRUM
-  TRAFFIC CONTROL DRUM WITH TYPE "C" STEADY BURN LIGHT
-  TYPE III BARRICADE WITH ATTACHED SIGN
-  TYPE "A" WARNING LIGHT (FLASHING)
-  REMOVING PAVEMENT MARKINGS
-  DIRECTION OF TRAFFIC
-  WORK AREA
-  FLASHING ARROW BOARD

6

SDD 15D12 - 10b

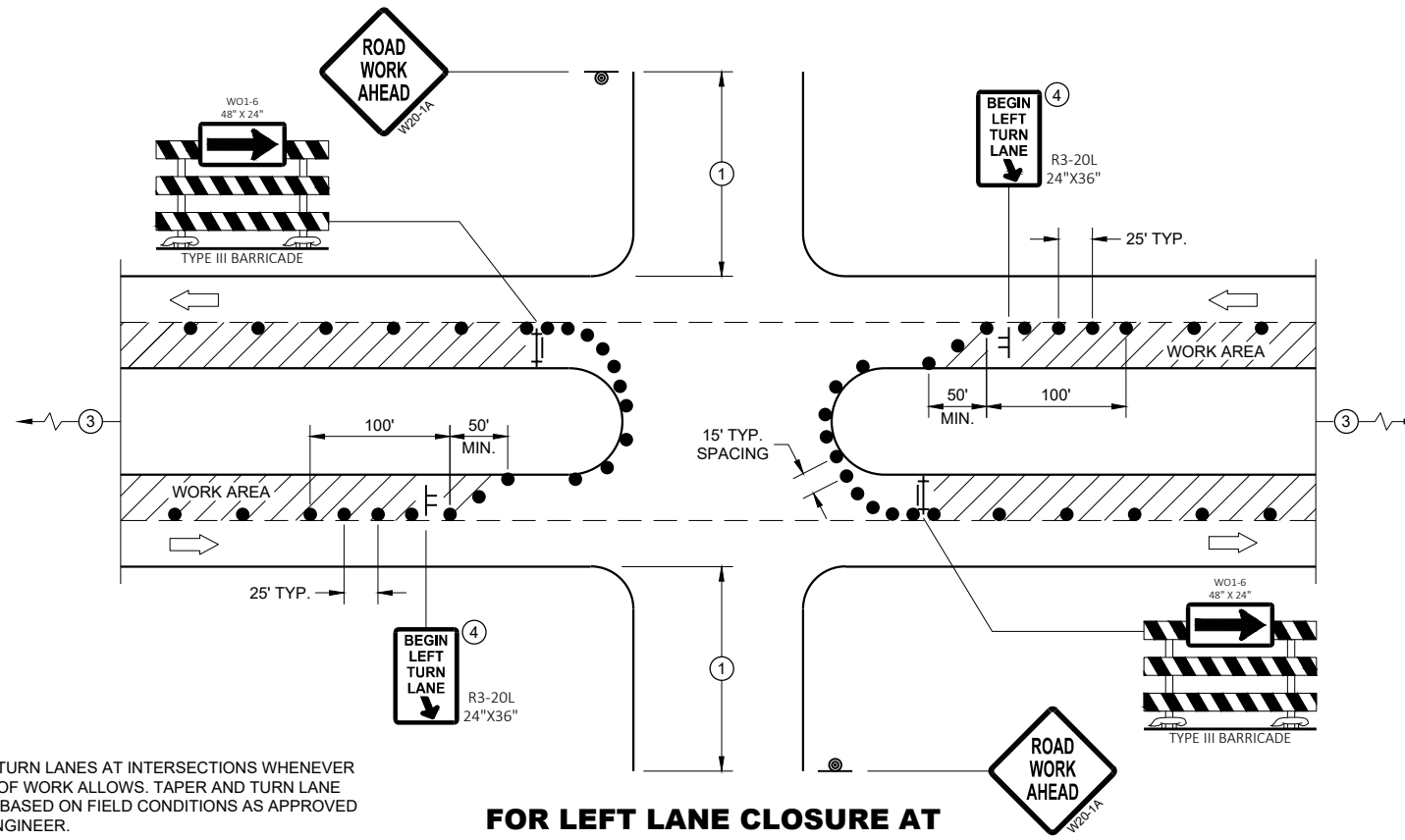


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SDD 15D12 - 10b

<b>TRAFFIC CONTROL, LANE CLOSURE, SPEED REDUCTION</b>	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED February 2022 DATE	/S/ Andrew Heidtke WORK ZONE ENGINEER
FHWA	





PROVIDE TURN LANES AT INTERSECTIONS WHENEVER STAGING OF WORK ALLOWS. TAPER AND TURN LANE LENGTHS BASED ON FIELD CONDITIONS AS APPROVED BY THE ENGINEER.

**FOR LEFT LANE CLOSURE AT INTERSECTION OR MEDIAN OPENING**

**GENERAL NOTES**

ALL SIGNS ARE 48"X48" UNLESS OTHERWISE NOTED. IF NECESSARY DUE TO SPACE CONSTRAINTS IN URBAN AREAS, 36" X 36" MAY BE USED IF APPROVED BY THE DISTRICT 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. NO WARNING LIGHTS SHALL BE WORKING ON COVERED OR "DOWNED" SIGNS.

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' DESIRABLE) DISTANCE TO EXISTING SIGNS THAT WILL REMAIN IN PLACE

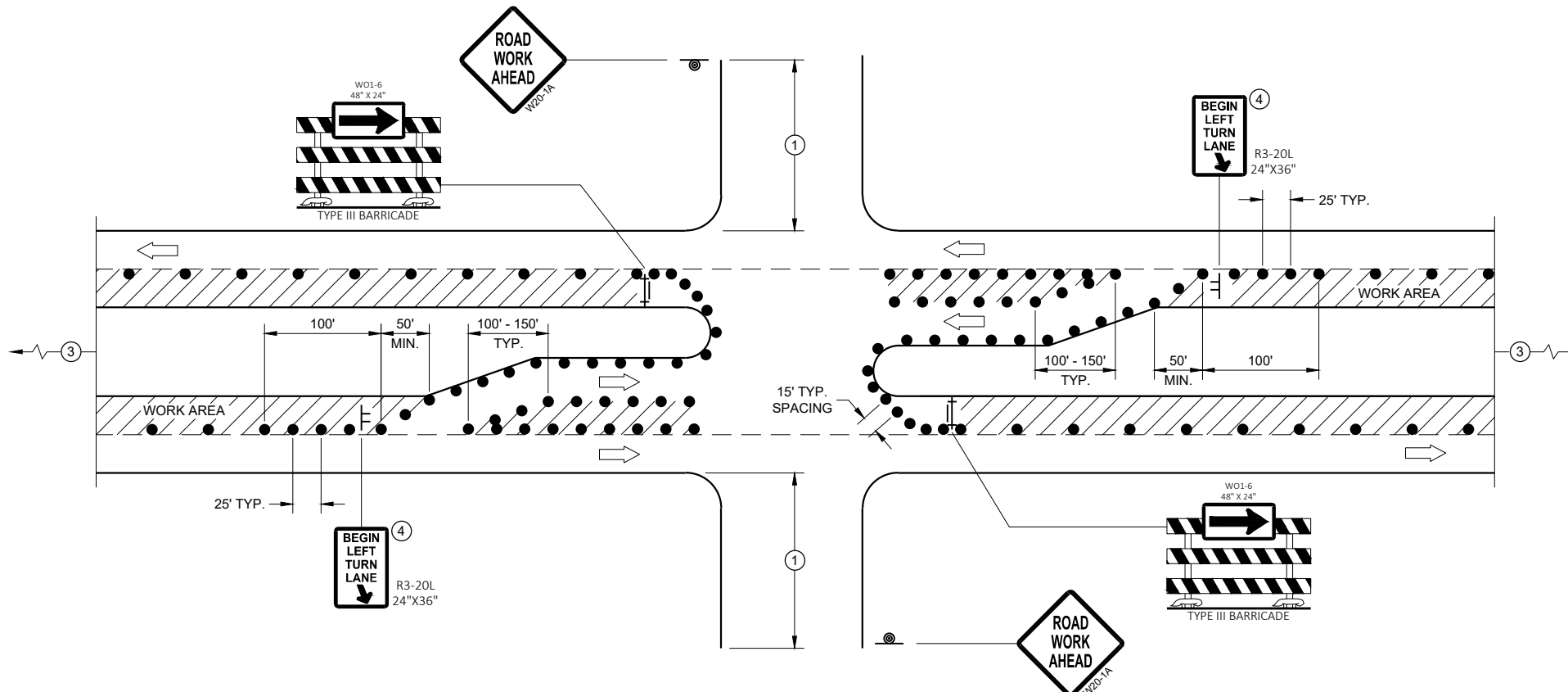
SIGN LAYOUTS SHALL BE IN ACCORDANCE WITH THE FHWA'S MANUAL OF STANDARD HIGHWAY SIGNS OR THE WISCONSIN STANDARD SIGN PLATES.

SIGNS THAT WILL REMAIN IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS OR THAT WILL BE PLACED IN A CLOSED LANE MAY BE MOUNTED ON PORTABLE SUPPORTS.

BARRICADES IN A CLOSED LANE 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.

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

- ① 500' TYPICAL OR AT LAST INTERSECTION, WHICHEVER IS CLOSER.  
350' IF 35 - 40 MPH.  
200' IF 25 - 30 MPH.
- ② ALSO USE BARRICADE AND 15 FOOT TYPICAL DRUM SPACING AT COMMERCIAL DRIVEWAYS
- ③ SEE SEPARATE LANE CLOSURE DETAIL FOR ADDITIONAL TRAFFIC CONTROL.
- ④ MINIMUM MOUNTING HEIGHT OF 5 FEET FROM EDGE OF PAVEMENT (AT EDGE LINE LOCATION) TO BOTTOM OF SIGN.



**FOR LEFT LANE CLOSURE AT INTERSECTION OR MEDIAN OPENING (WITH LEFT TURN BAY OPEN)**

**LEGEND**

- SIGN ON TEMPORARY SUPPORT
- SIGN ON PERMANENT SUPPORT
- TRAFFIC CONTROL DRUM
- TYPE III BARRICADE WITH ATTACHED SIGN
- DIRECTION OF TRAFFIC
- FLAGS, 16" X 16" MIN., ORANGE
- WORK AREA

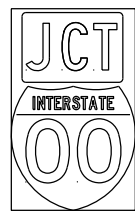
**TRAFFIC CONTROL,  
INTERSECTION WITHIN SINGLE  
LEFT LANE CLOSURE**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

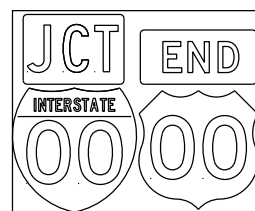
APPROVED  
August 2020 /S/ Andrew Heidtke  
DATE WORK ZONE ENGINEER

FHWA

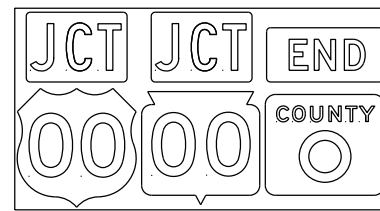
# TYPICAL ASSEMBLIES



J1-1



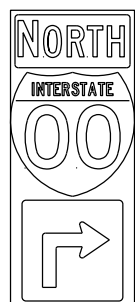
J1-2



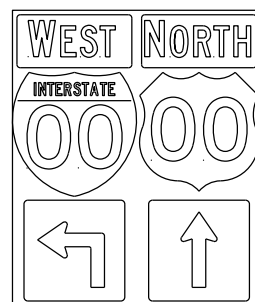
J1-3



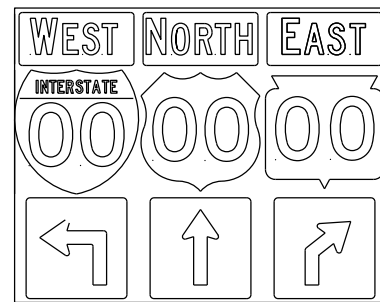
JR1-1



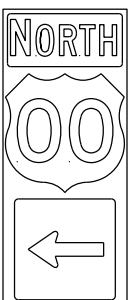
J2-1



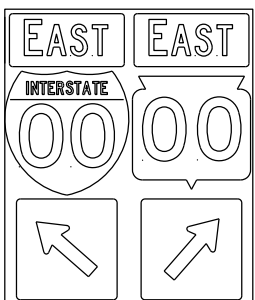
J2-2



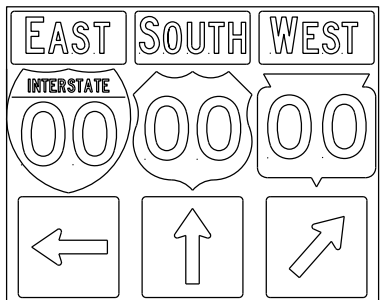
J2-3



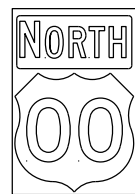
J3-1



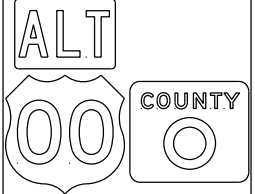
J3-2



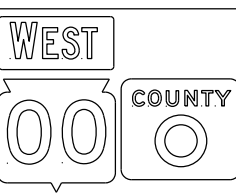
J3-3



J4-1



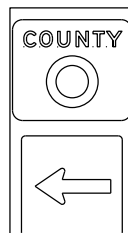
J4-2



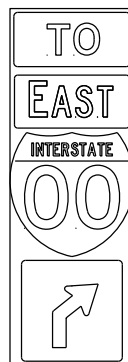
J4-2



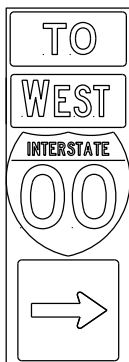
J12-1



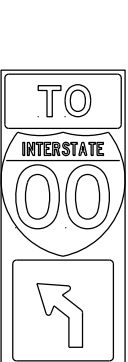
J13-1



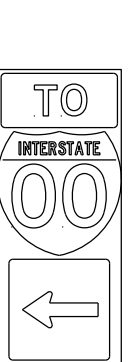
J32-1



J33-1



J22-1



J23-1



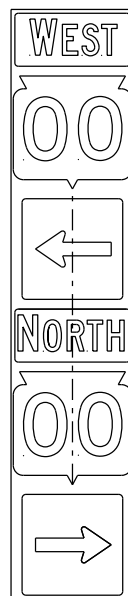
JR13-1



JR23-1

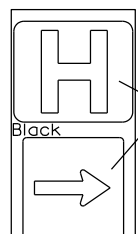


JR99-1



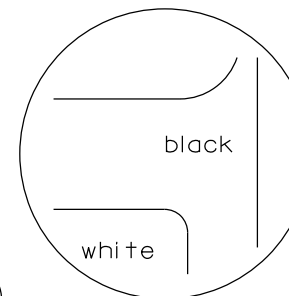
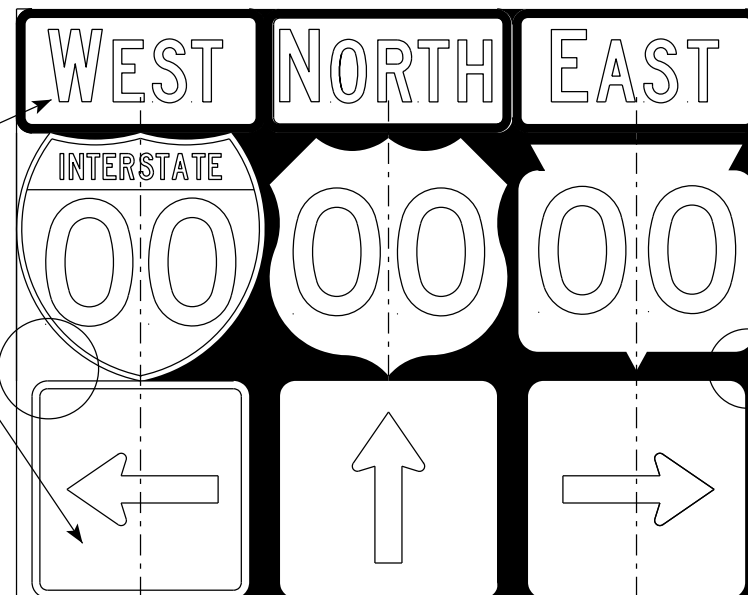
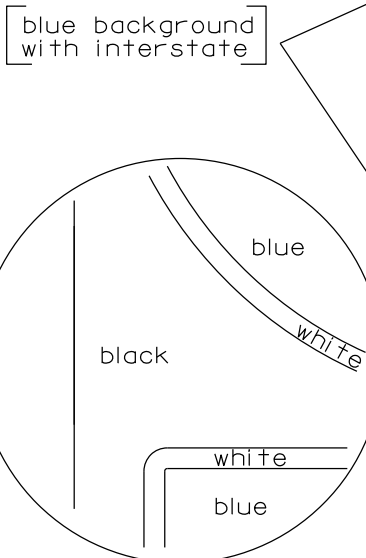
JV

(Typical Vertical J-Assembly See Note 10 and 11)



JH-1

Blue Background



black background

## NOTES

- Signs are Type II - Type H Reflective
- Color:
  - Background - Black Non-reflective
  - Message - see Note 5
- Message Series - See Note 5
- Corners shall be square or rounded if base material is plywood. If base material is metal the corners shall be rounded.
- The colors and message spacing on each marker shall be according to the applicable route marker panel specifications.
- Certain marker heads require the component pieces to be the same color. As an example, all the components used with an MI-1 Interstate marker shall be blue.
- Single panel j-assemblies shall only be used with route marker shields that are same size. If the route marker shields are different size use multiple piece component.
- Route assemblies that have 24 inch route shields and have dimensions greater than 48 inches (both vertical and horizontal) shall have one horizontal splice between the arrows and route shields. Vertical splices shall not be used on route assemblies with a horizontal dimension of 144 inches or less. The contractor shall not use more than one vertical joint per sign and the joint shall be between route shields.
- Route assemblies that have 36 inch shields and have dimensions greater than 48 inches (both vertical and horizontal) shall have two horizontal splices. One horizontal splice shall be between the cardinal direction and route shields and the other horizontal splice shall be between the arrows and route shields. Vertical splices shall not be used on route assemblies with a horizontal dimension of 144 or less. The contractor shall not use more than one vertical joint per sign and the joint shall be between route shields.
- All Vertical J Assemblies are given a Sign Code of JV
- For JV Assemblies that have a mixture of Interstate and non Interstate shields, arrows and cardinals shall be white on blue.

### ROUTE MARKERS & COMPONENTS IN TYPICAL ASSEMBLIES

WISCONSIN DEPT OF TRANSPORTATION

APPROVED

*Matthew R. Rauch*  
for State Traffic Engineer

DATE 3/18/21

PLATE NO. A2-1S.9

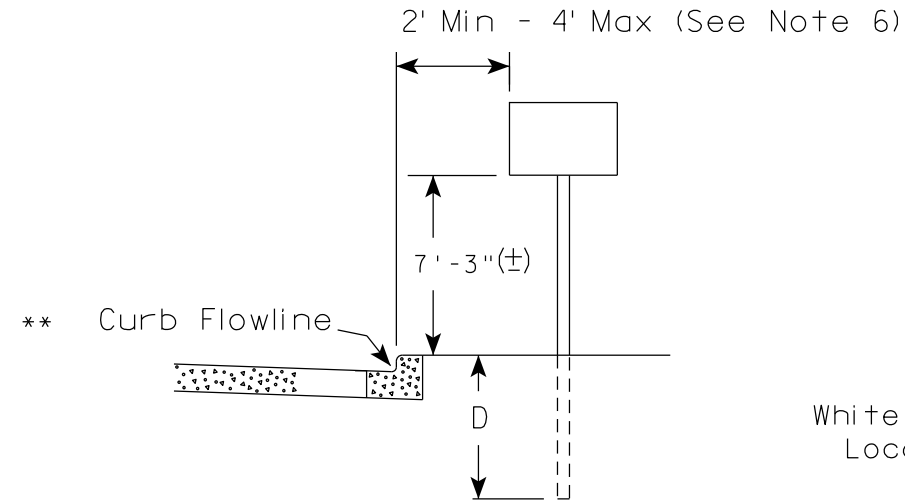
PROJECT NO:

SHEET NO:

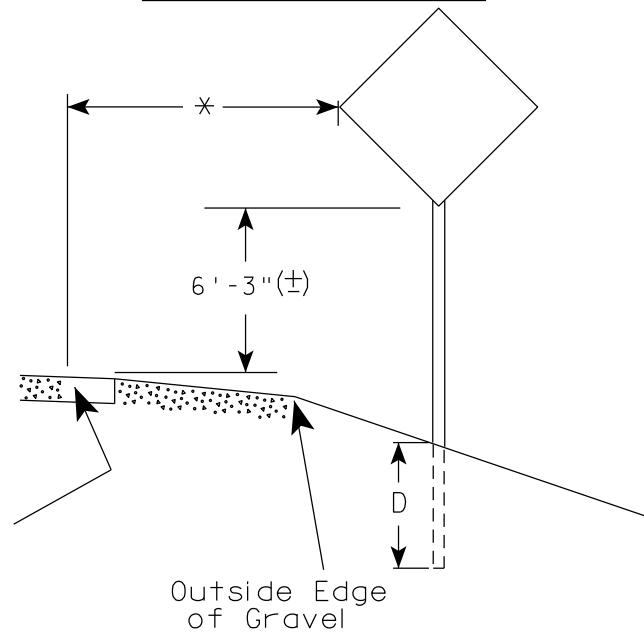
E

URBAN AREA

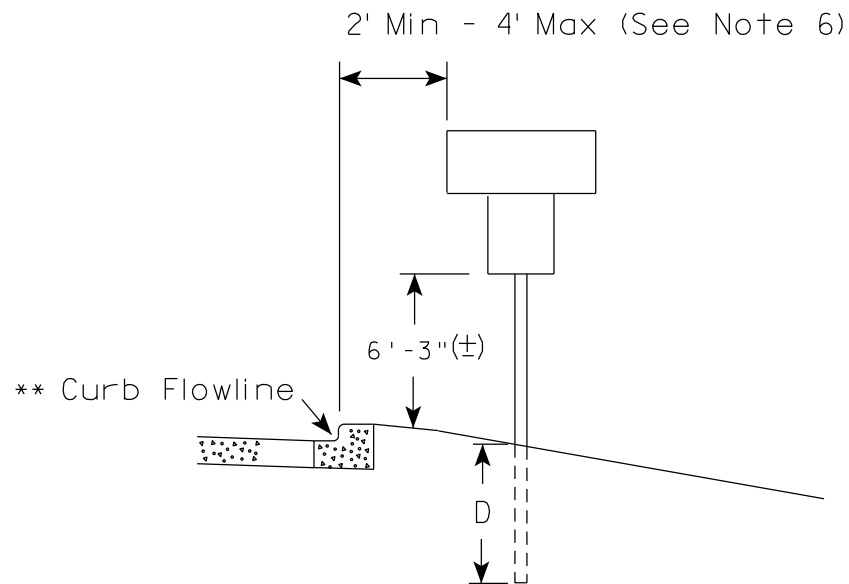
RURAL AREA (See Note 2)



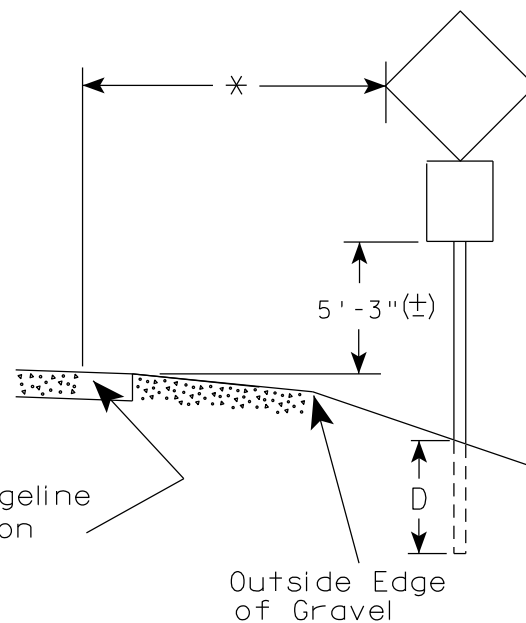
White Edgeline Location



Outside Edge of Gravel



White Edgeline Location



Outside Edge of Gravel

POST EMBEDMENT DEPTH

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

GENERAL NOTES

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

7

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

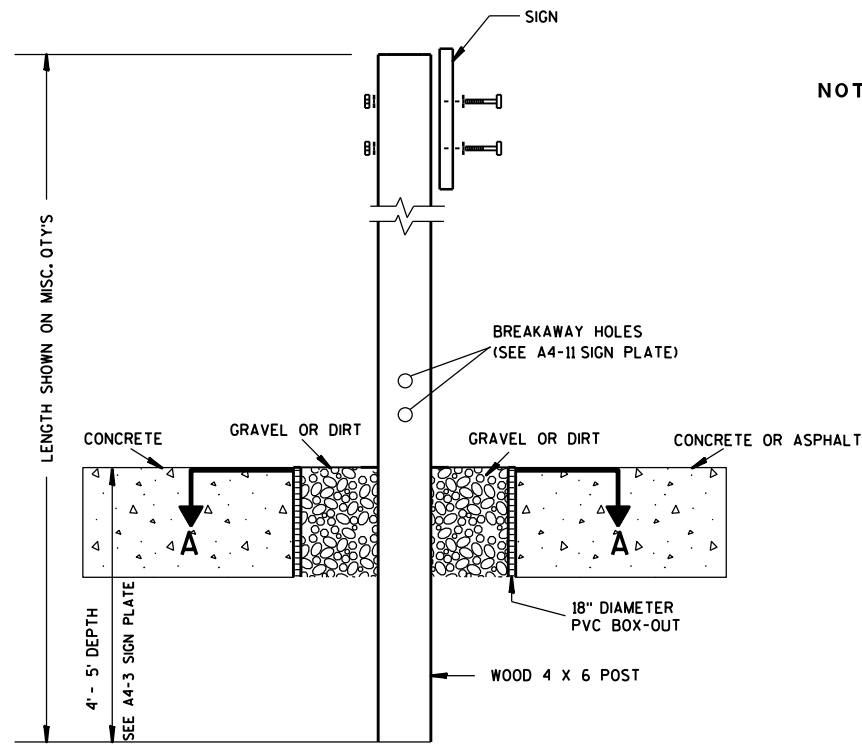
\* 6 feet from edge of a paved shoulder or 12 feet from the edge of pavement (edge line location) or 2 feet from outside edge of gravel, whichever is greater unless directed by project engineer.

TYPICAL INSTALLATION OF PERMANENT TYPE II SIGNS ON SINGLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

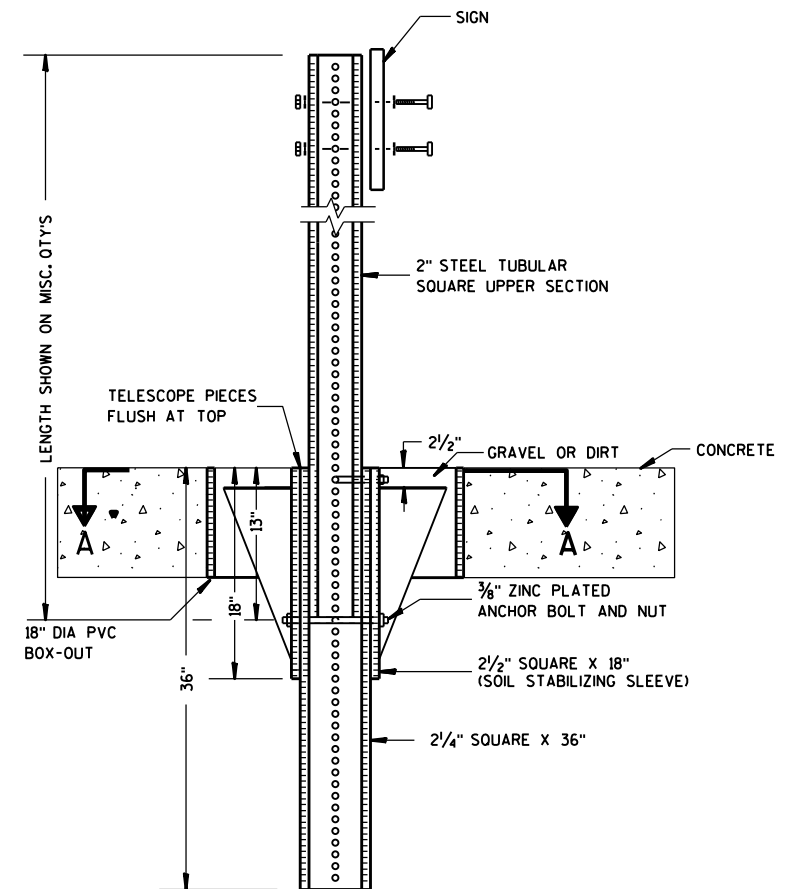
DATE 5/13/2020 PLATE NO. A4-3.22



**ELEVATION VIEW**

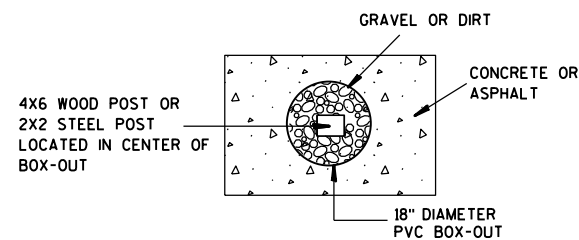
**DETAIL OF WOOD 4 X 6 SIGN POST IN BOX-OUT**

- 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**

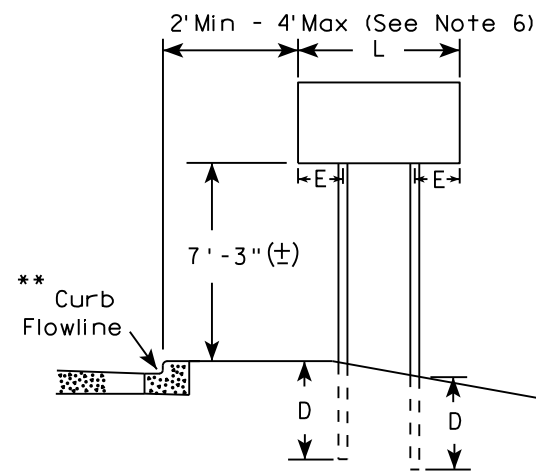
**FOR NEW CONCRETE/ ASPHALT INSTALLATIONS**

<b>SIGN POST BOX-OUTS A4-3B</b>	
<small>WISCONSIN DEPT OF TRANSPORTATION</small>	
APPROVED <i>Matthew R. Rauch</i> <small>for State Traffic Engineer</small>	
<small>DATE 1/27/14</small>	<small>PLATE NO. A4-3B.1</small>

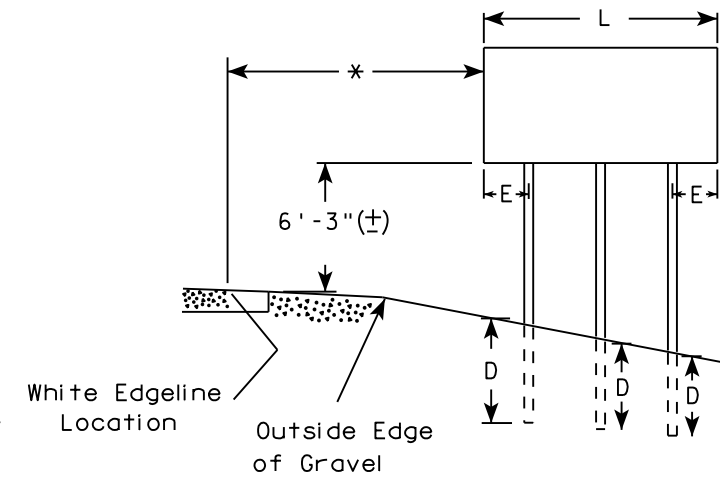
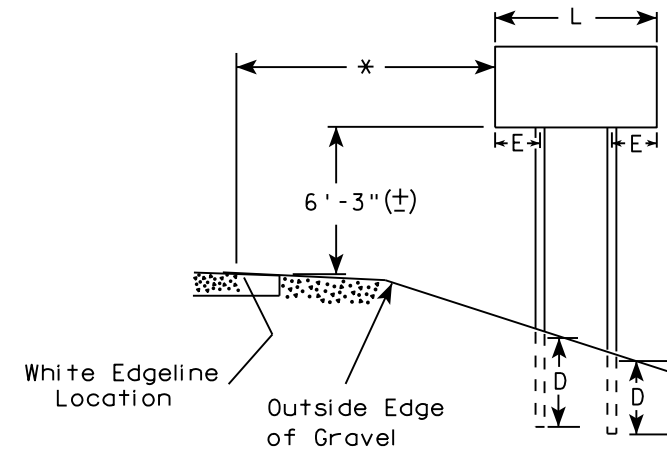
GENERAL NOTES

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

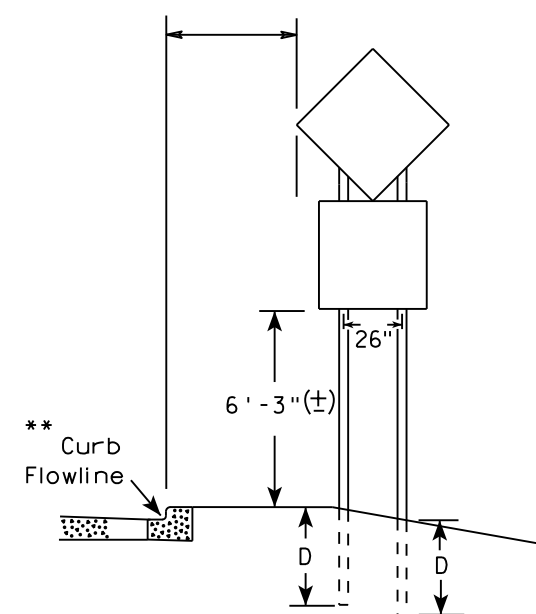
URBAN AREA



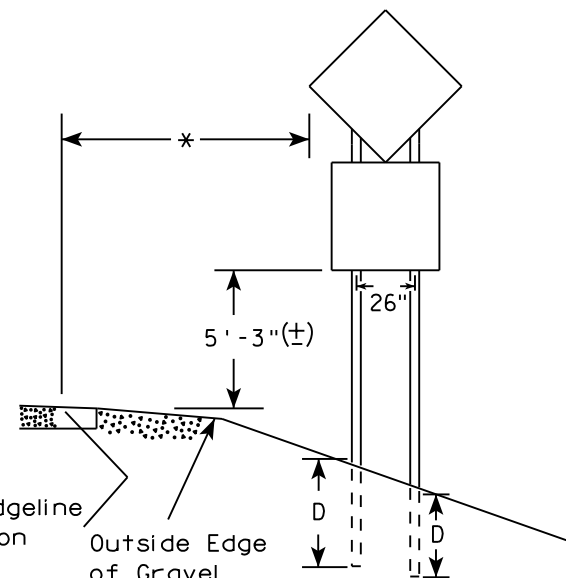
RURAL AREA (See Note 3)



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



48" DIAMOND WARNING SIGN



48" DIAMOND WARNING SIGN

\* 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

\*\*\*

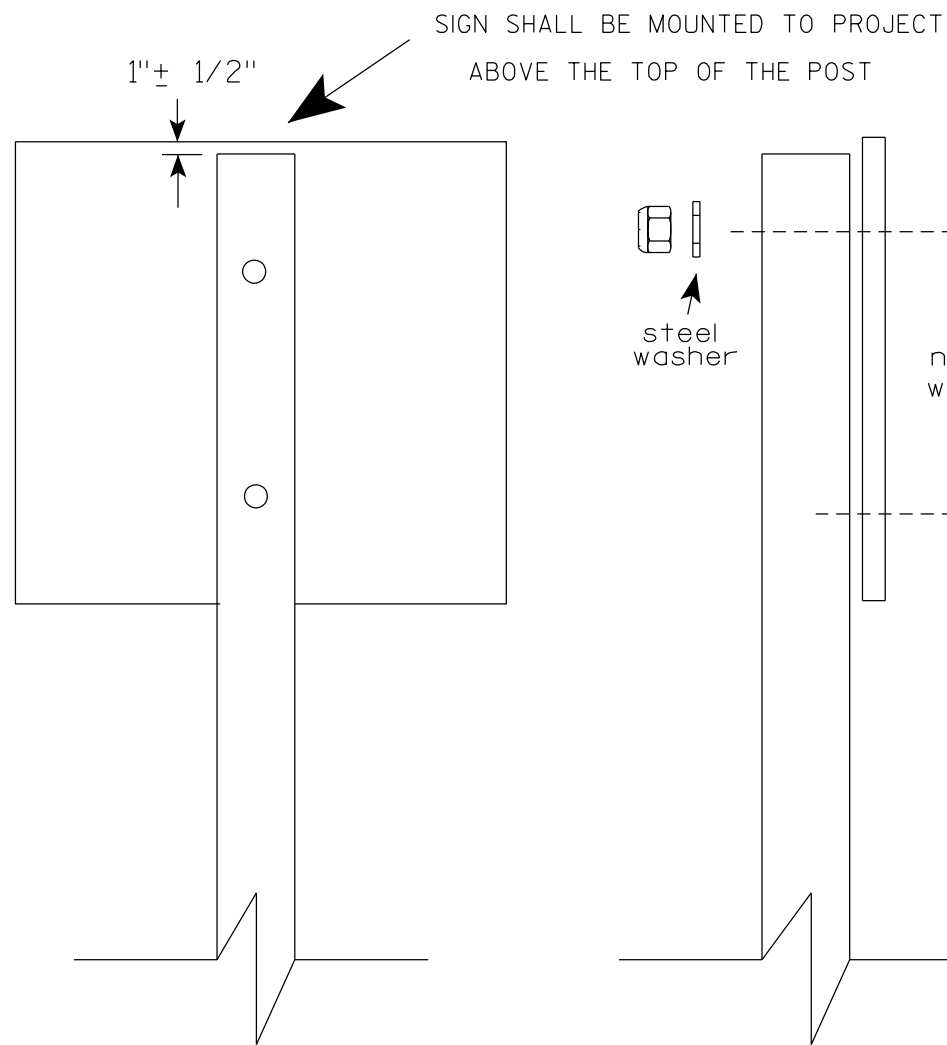
SIGN SHAPE OTHER THAN DIAMOND (THREE POSTS REQUIRED)	
L	E
Greater than 108" to 144"	12"

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 8/21/17 PLATE NO. A4-4.15



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 - 5/16" X 1-3/4" Length w/ lock nuts

WOOD POSTS (4" x 6")

LAG SCREWS - 3/8" X 3" (NO STRINGERS ON BACK OF SIGN)  
3/8" X 4" (STRINGERS ON BACK OF SIGN)

SQUARE STEEL POSTS (2" x 2")

MACHINE BOLTS - 3/8" X 3-1/4" Length w/ nuts (NO STRINGER ON BACK OF SIGN)  
3/8" X 5" Length w/ nuts (STRINGERS ON BACK OF SIGN)

RIVETS - 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 3/8" I.D. X 1/16" STEEL

1-1/4" O.D. X 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

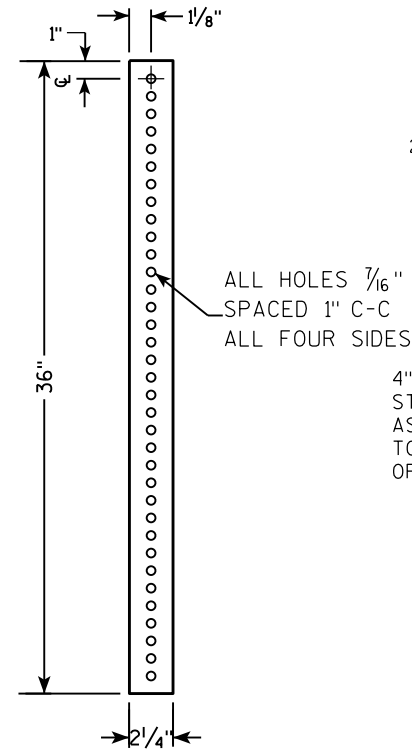
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R Rauch*  
For State Traffic Engineer

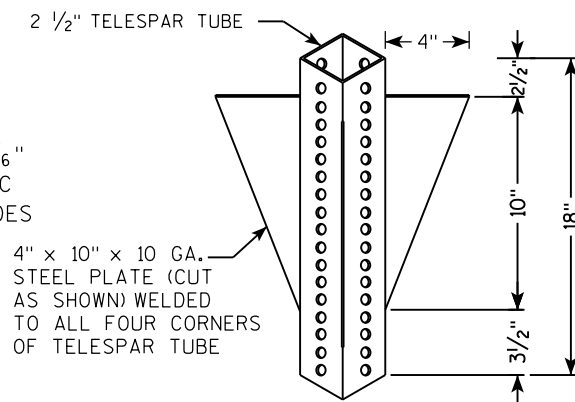
DATE 4/1/2020 PLATE NO. A4-8.9

**TELESCOPIC TUBING ANCHORS  
TWO PIECE SYSTEM**

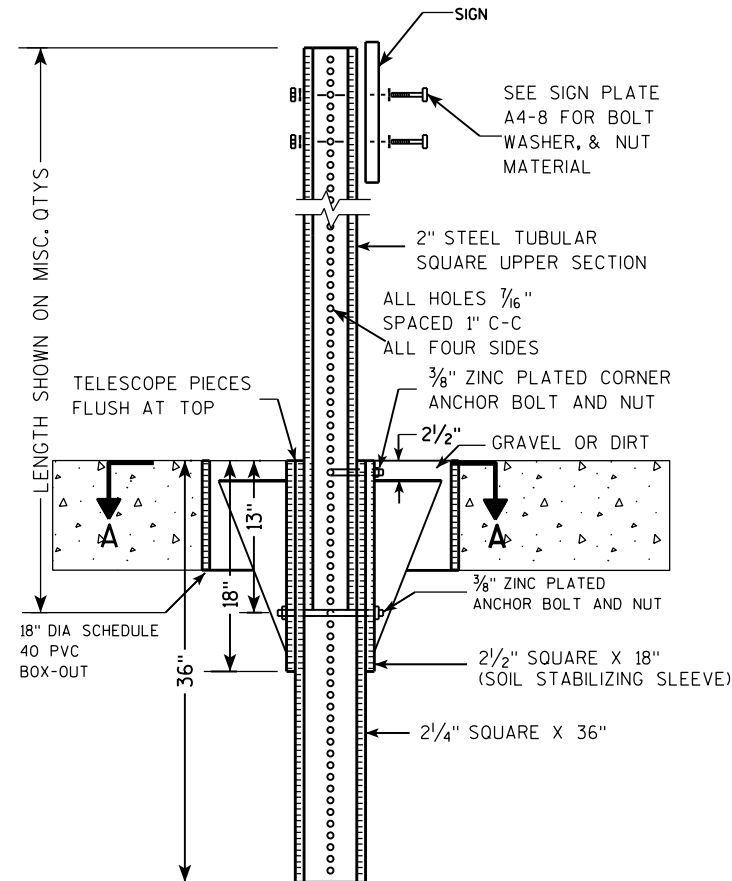
2 1/4" SQUARE  
12 GAUGE  
PERFORATED  
GALVANIZED FINISH



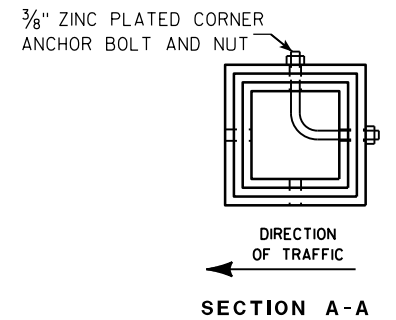
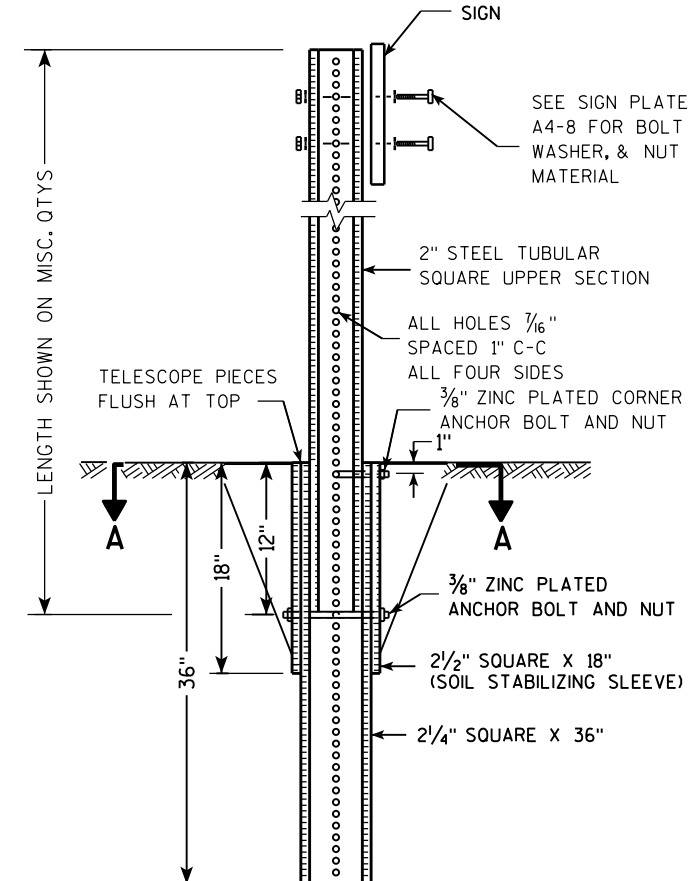
2 1/2" SQUARE  
12 GAUGE  
OMNI-DIRECTIONAL  
PERFORATED  
SOIL STABILIZING SLEEVE  
GALVANIZED FINISH



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



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



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

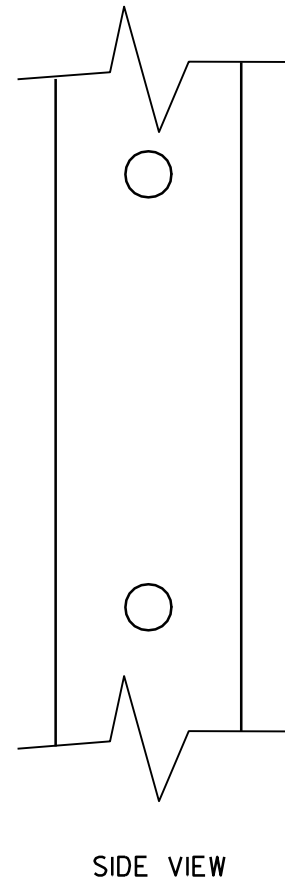
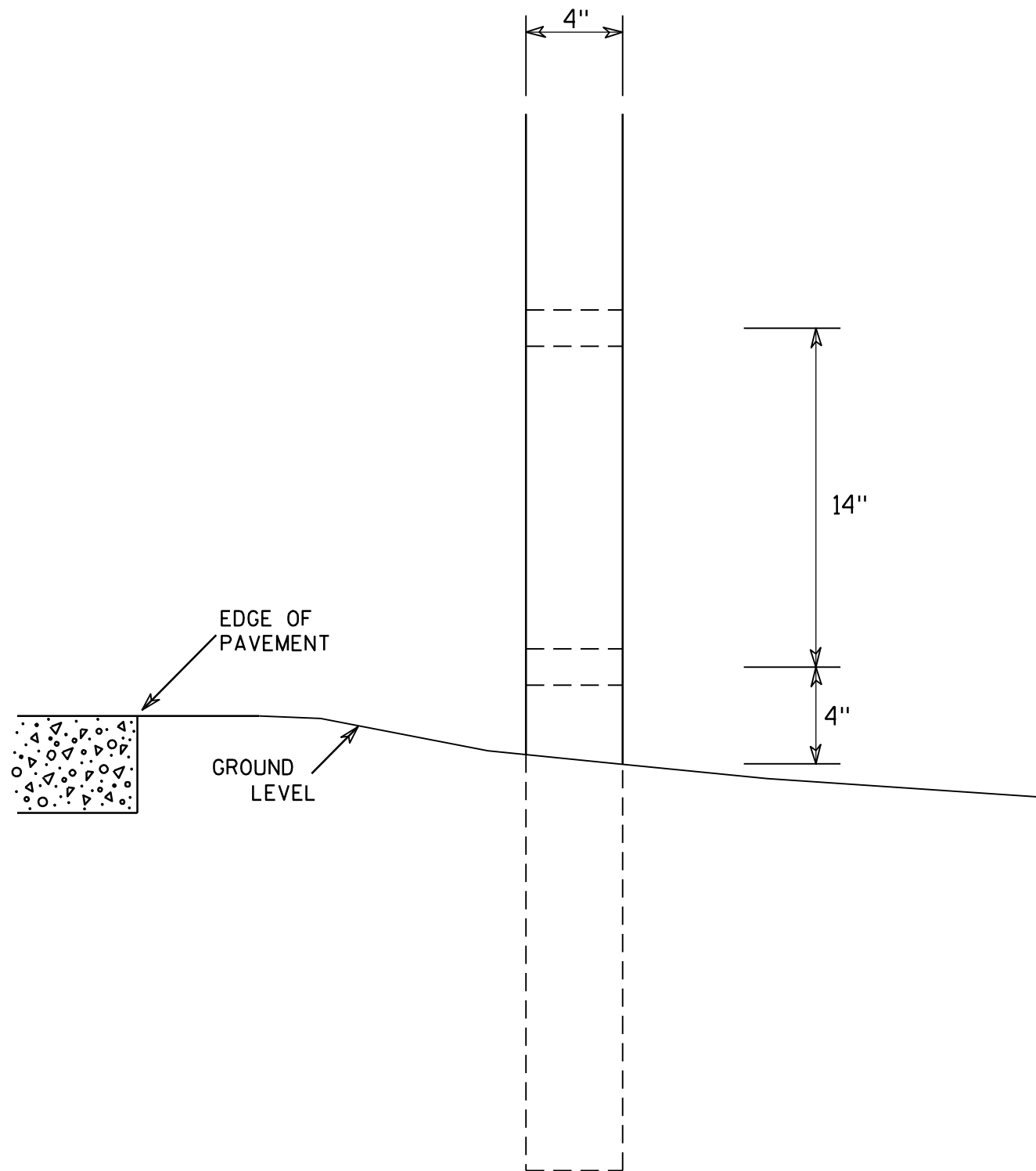
Signs wider than 3 feet or larger than 9 sq. ft shall be mounted on multiple posts (see above table).

**TUBULAR STEEL  
SIGN POST  
A4-9**

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

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



GENERAL NOTES

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

7

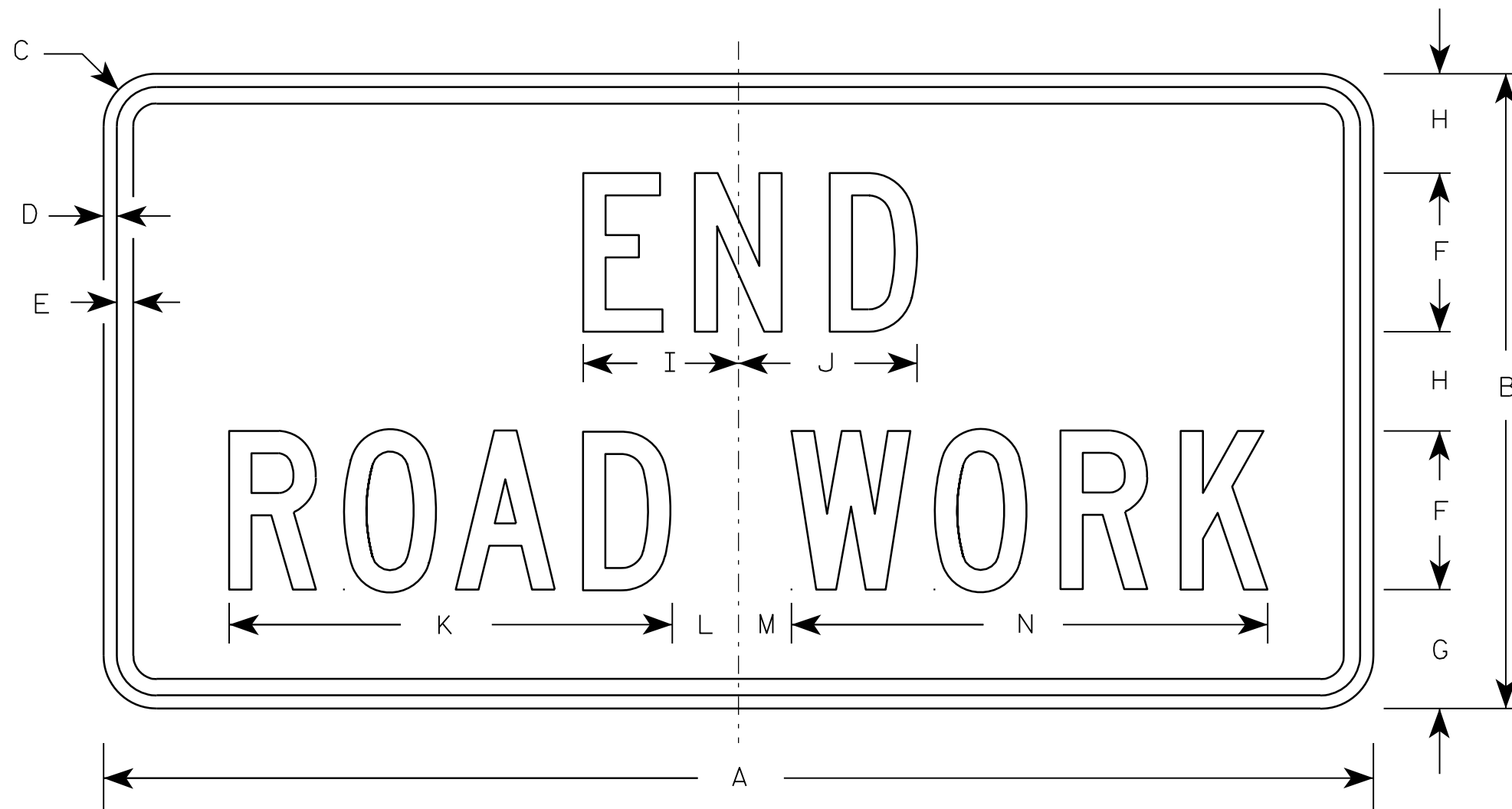
7

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



NOTES

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



G20-2A

7

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Metric equivalent for this sign is:

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

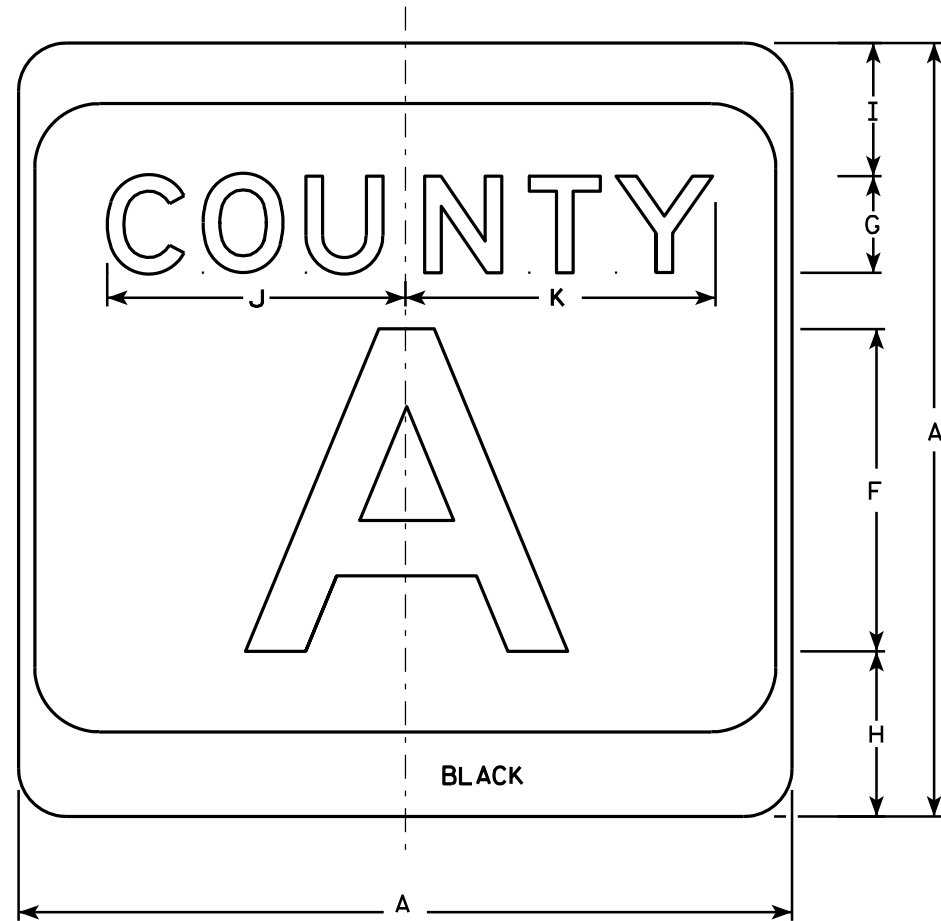
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.	Area sq.
1	36	18	1 1/8	3/8	1/2	4	3 3/4	2 1/2	4 1/8	4 1/8	11 1/8	2	1	12 1/8													4.5	0.41
2	48	24	1 1/2	1/2	5/8	6	4 1/2	3 3/4	5 7/8	6 3/4	16 3/4	2 1/2	1 3/4	18 1/2													8.0	0.72
3	48	24	1 1/2	1/2	5/8	6	4 1/2	3 3/4	5 7/8	6 3/4	16 3/4	2 1/2	1 3/4	18 1/2													8.0	0.72
4	48	24	1 1/2	1/2	5/8	6	4 1/2	3 3/4	5 7/8	6 3/4	16 3/4	2 1/2	1 3/4	18 1/2													8.0	0.72
5	48	24	1 1/2	1/2	5/8	6	4 1/2	3 3/4	5 7/8	6 3/4	16 3/4	2 1/2	1 3/4	18 1/2													8.0	0.72

STANDARD SIGN G20-2A	
WISCONSIN DEPT OF TRANSPORTATION	
APPROVED	<i>Matthew R. Rauch</i> For State Traffic Engineer
DATE 9/30/09	PLATE NO. G20-2A.8

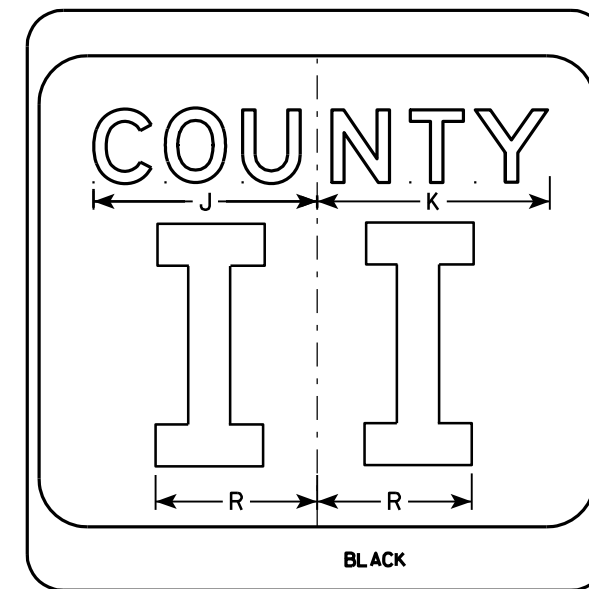
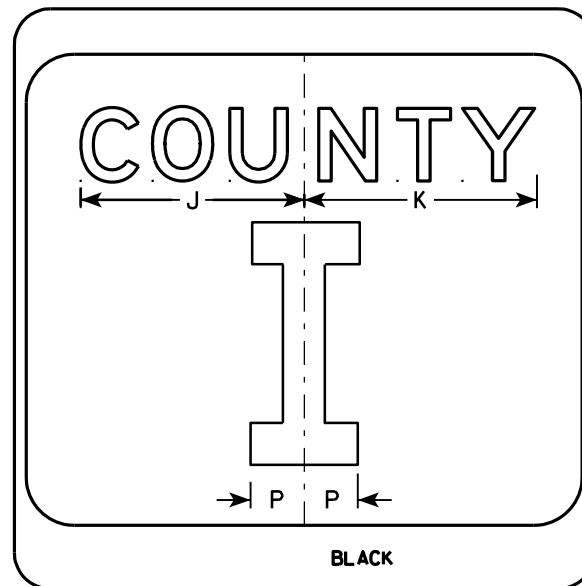
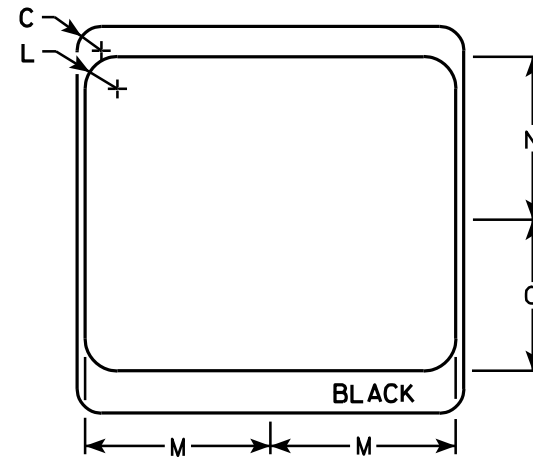
PROJECT NO:	HWY:	COUNTY:	SHEET NO:	<b>E</b>
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**NOTES**

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



M1-5A



7

7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2	24		1 1/2			10	3	5 1/8	4 1/8	9 1/4	9 5/8	2	11 1/2	10 1/8	9 3/8	2 1/4		6 5/8									4.0
3	36		2 1/4			16	4	7 5/8	5 5/8	12 1/4	12 7/8	3	17 1/8	15 1/4	14	3 3/8		10									9.0
4	36		2 1/4			16	4	7 5/8	5 5/8	12 1/4	12 7/8	3	17 1/8	15 1/4	14	3 3/8		10									9.0
5	36		2 1/4			16	4	7 5/8	5 5/8	12 1/4	12 7/8	3	17 1/8	15 1/4	14	3 3/8		10									9.0

**CTH MARKER**  
**M1-5A FOR ASSEMBLIES**

WISCONSIN DEPT OF TRANSPORTATION

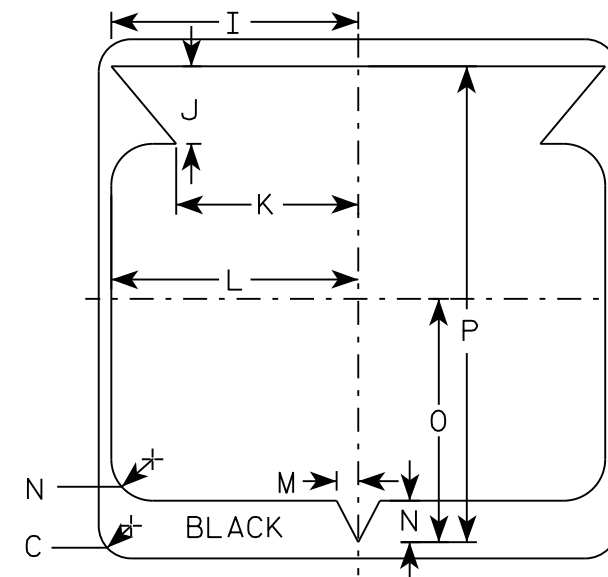
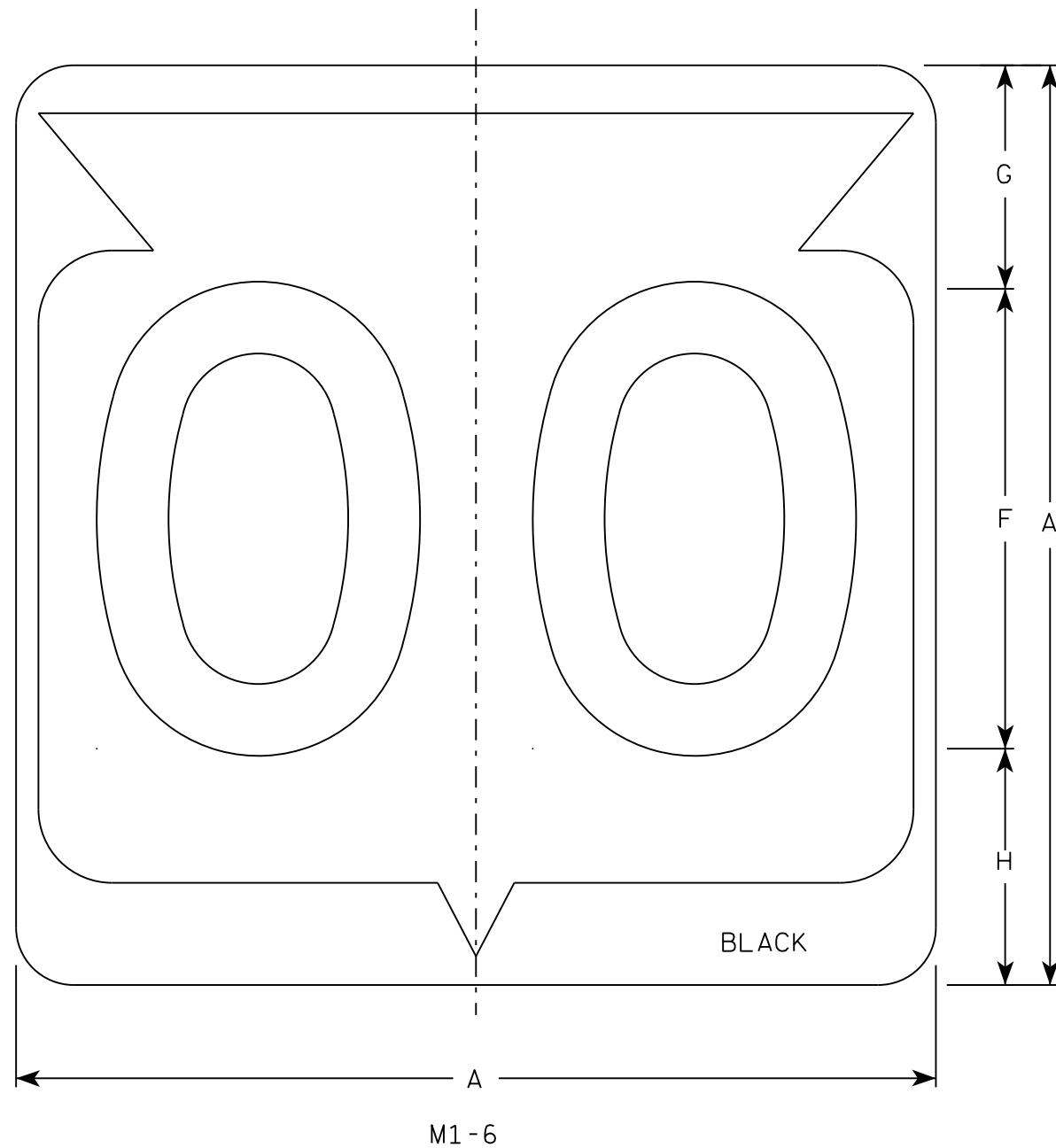
APPROVED *Matthew R. Raub*  
For State Traffic Engineer

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

PROJECT NO: \_\_\_\_\_ HWY: \_\_\_\_\_ COUNTY: \_\_\_\_\_ SHEET NO: **E**

NOTES

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



SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2	24		1 1/2			12	5 1/2	6 1/2	10 1/4	2 1/2	8 7/8	11 1/2	1	1 7/8	11 1/4	21 7/8											4.0
3	36		2 1/4			18	8 3/4	9 1/4	15 3/8	5 3/8	12 5/8	17 1/8	1 1/2	2 7/8	16 7/8	33											9.0
4	36		2 1/4			18	8 3/4	9 1/4	15 3/8	5 3/8	12 5/8	17 1/8	1 1/2	2 7/8	16 7/8	33											9.0
5	36		2 1/4			18	8 3/4	9 1/4	15 3/8	5 3/8	12 5/8	17 1/8	1 1/2	2 7/8	16 7/8	33											9.0

STATE ROUTE MARKER  
M1-6 FOR ASSEMBLIES

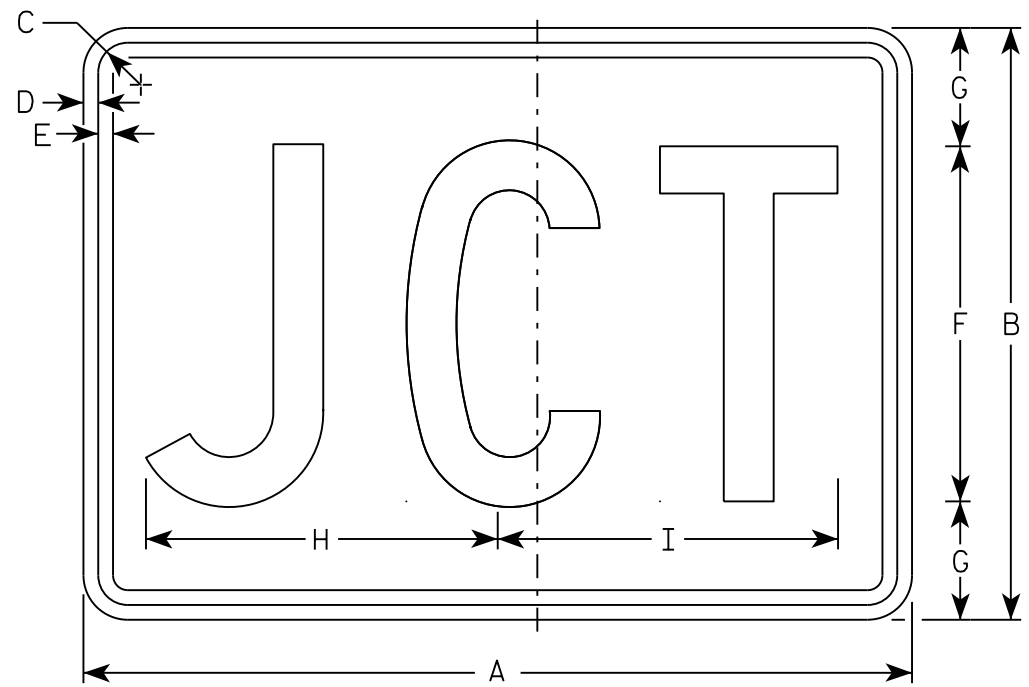
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

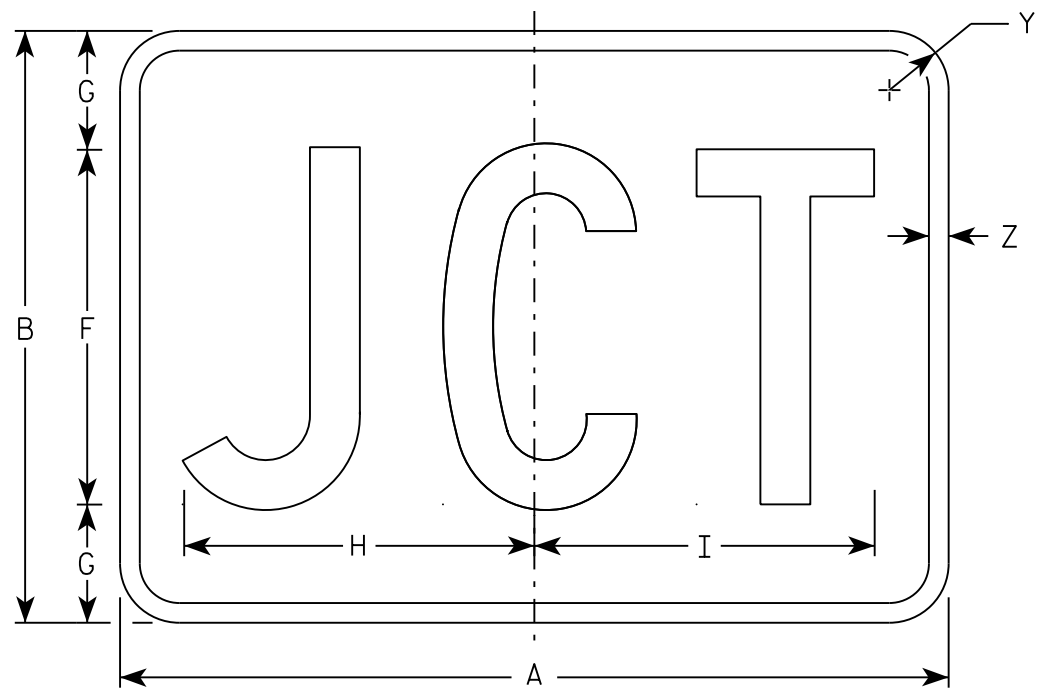
DATE 3/16/18 PLATE NO. M1-6.10

NOTES

1. Sign is Type II - Type H
2. Color:
  - Background - See note 5
  - Message - See note 5
3. Message Series - C
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. M2-1 Background - White  
 Message - Black  
 MB2-1 Background - Blue  
 Message - White  
 MK2-1 Background - Green  
 Message - White  
 MM2-1 Background - White  
 Message - Green  
 MN2-1 Background - Brown  
 Message - White  
 MP2-1 Background - White  
 Message - Blue  
 MR2-1 Background - Brown  
 Message - Yellow



M2-1  
MM2-1  
MP2-1



MB2-1  
MK2-1  
MN2-1  
MR2-1

7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2	21	15	1 1/8	3/8	3/8	9	3	8 7/8	8 5/8																1 1/2	1/2	2.20
3	30	21	1 1/8	3/8	3/8	13	4	12 7/8	12 3/8																1 1/2	1/2	4.40
4	30	21	1 1/8	3/8	3/8	13	4	12 7/8	12 3/8																1 1/2	1/2	4.40
5	30	21	1 1/8	3/8	3/8	13	4	12 7/8	12 3/8																1 1/2	1/2	4.40

STANDARD SIGN  
M2-1

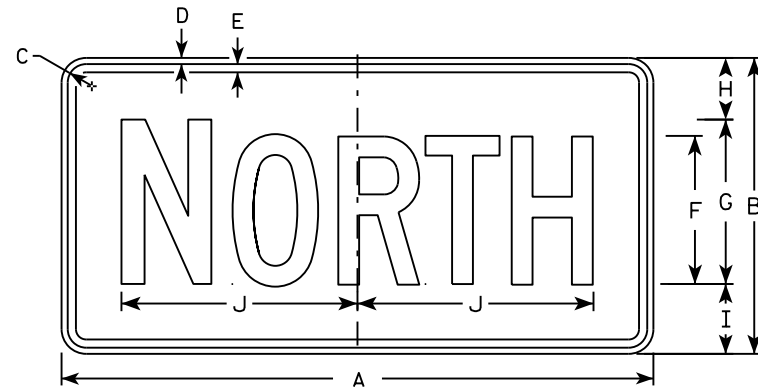
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
For State Traffic Engineer

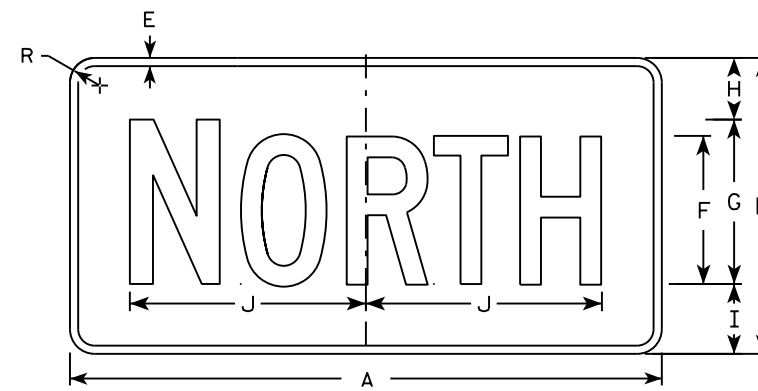
DATE 10/15/15 PLATE NO. M2-1.12

NOTES

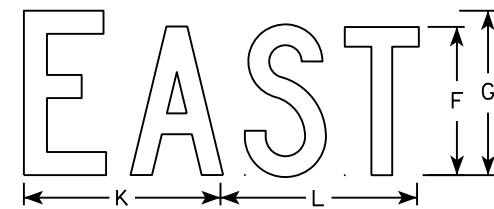
- All Signs Type II - Type H
- Color:
  - Background - See note 5
  - Message - See note 5
- Message Series - C
- Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
- M3-1 thru M3-4 Background - White  
 Message - Black  
 MB3-1 thru MB3-4 Background - Blue  
 Message - White  
 MK3-1 thru MK3-4 Background - Green  
 Message - White  
 MM3-1 thru MM3-4 Background - White  
 Message - Green  
 MN3-1 thru MN3-4 Background - Brown  
 Message - White  
 MP3-1 thru MP3-4 Background - White  
 Message - Blue
- Note the first letter of each direction is larger than the remainder of the message.



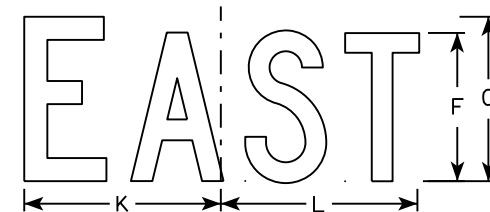
M3-1  
MM3-1  
MP3-1



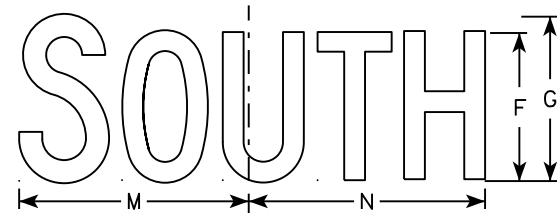
MB3-1  
MK3-1  
MN3-1



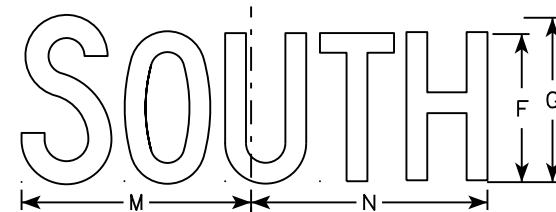
M3-2  
MM3-2  
MP3-2



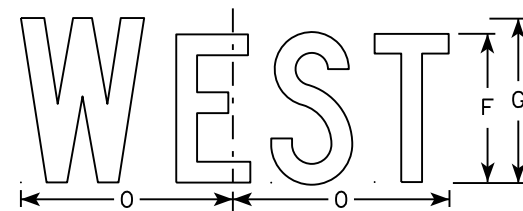
MB3-2  
MK3-2  
MN3-2



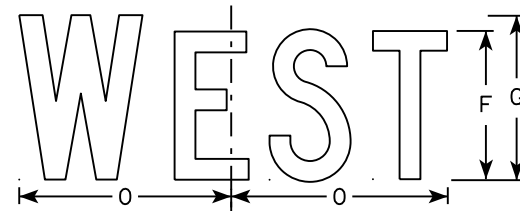
M3-3  
MM3-3  
MP3-3



MB3-3  
MK3-3  
MN3-3



M3-4  
MM3-4  
MP3-4



MB3-4  
MK3-4  
MN3-4

7

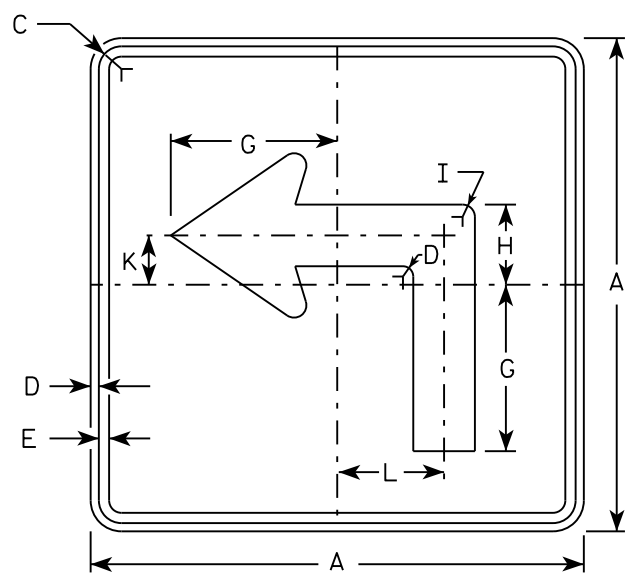
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2	24	12	1 1/8	3/8	3/8	6	7	2 1/4	2 3/4	10 1/4	7 7/8	8 3/8	10 1/4	9 3/4	8 3/4			1 1/2									2.00
3	36	18	1 1/8	3/8	1/2	9	10	3 3/4	4 1/4	14 3/8	12	12 1/8	14	14 1/8	13			1 1/2									4.5
4	36	18	1 1/8	3/8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

STANDARD SIGNS  
M3-1 thru M3-4  
SERIES

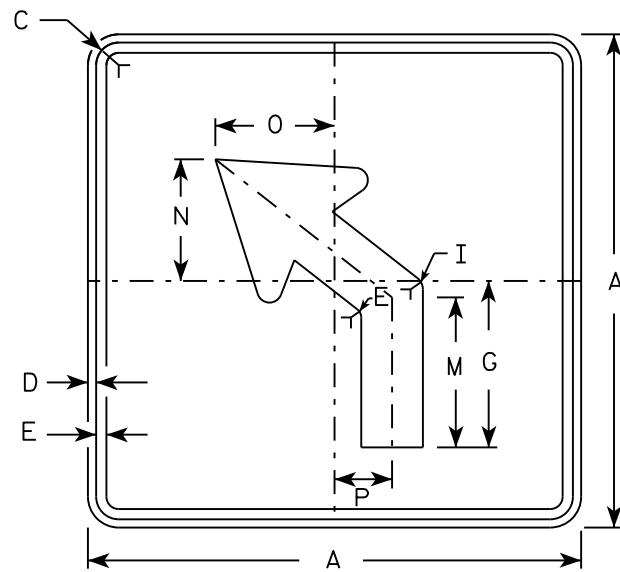
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

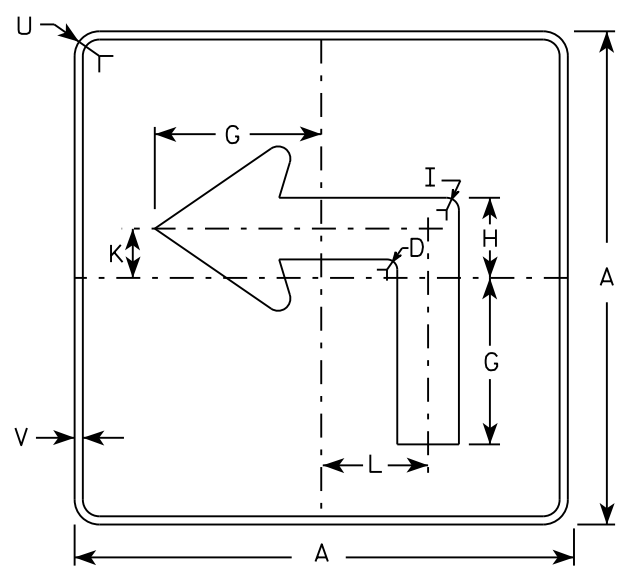
DATE 10/15/15 PLATE NO. M3-1.14



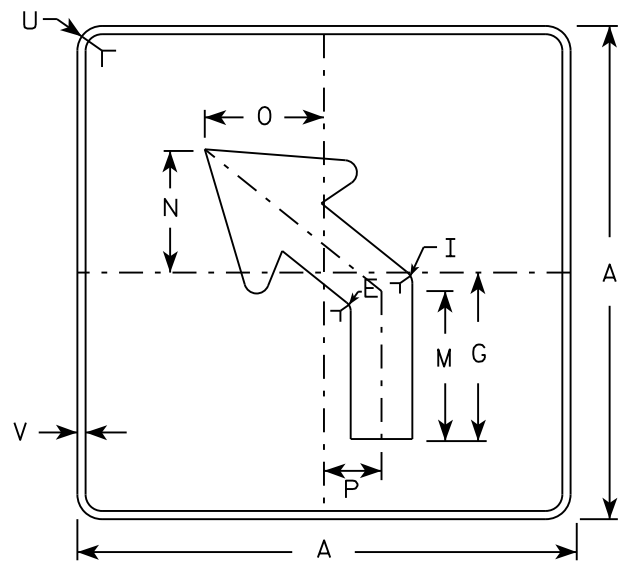
M5-1L  
MM5-1L  
M05-1L  
MP5-1L



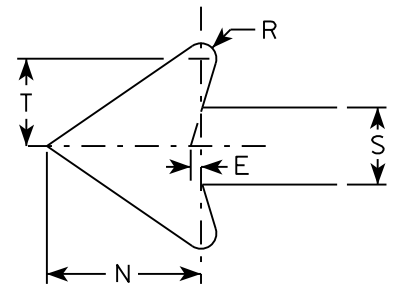
M5-2L  
MM5-2L  
M05-2L  
MP5-2L



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



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



NOTES

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

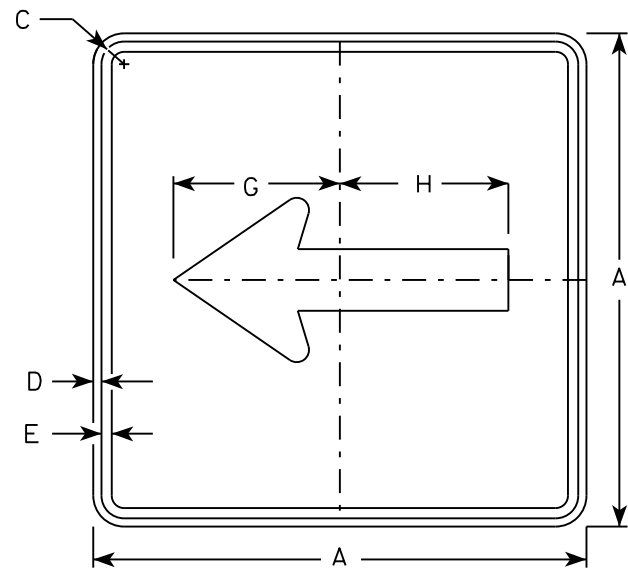
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2	21		1 1/8	3/8	3/8		7	3 3/8	5/8		2 1/8	4 1/2	6 3/8	5 1/4	5	2 1/2		1/2	2 5/8	3	1 1/2	1/2					3.06
3	30		1 3/8	1/2	5/8		10 1/8	4 7/8	7/8		3	6 1/2	9 1/8	7 1/2	7 1/4	3 1/2		3/4	3 3/4	4 1/4	1 7/8	1/2					6.25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

STANDARD SIGN  
M5-1 & M5-2

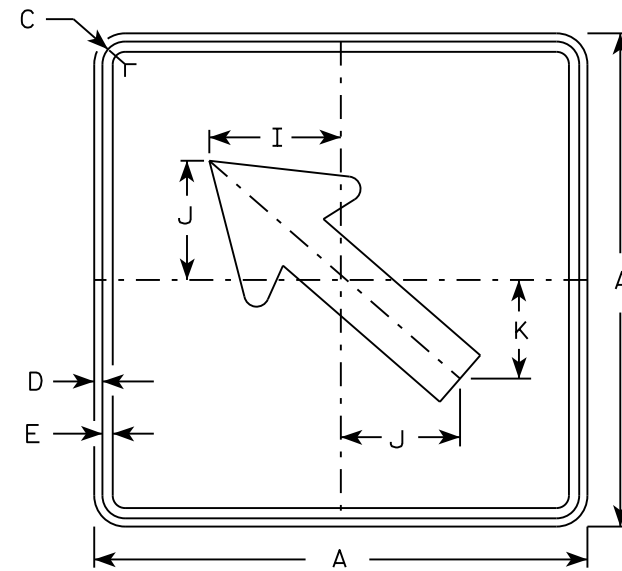
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

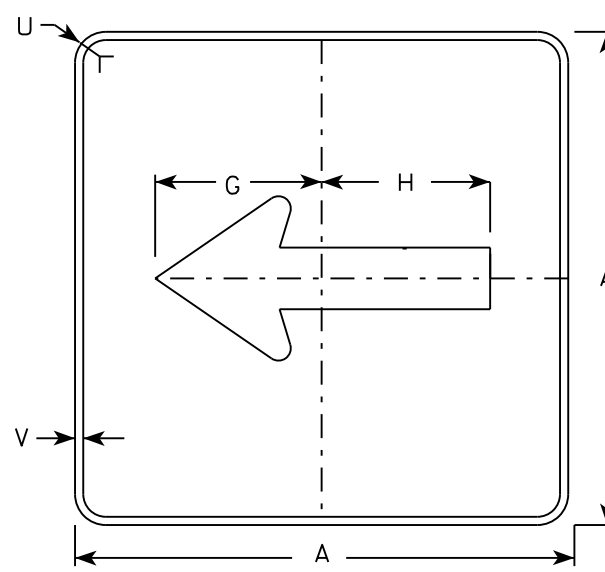
DATE 10/15/15 PLATE NO. M5-1.13



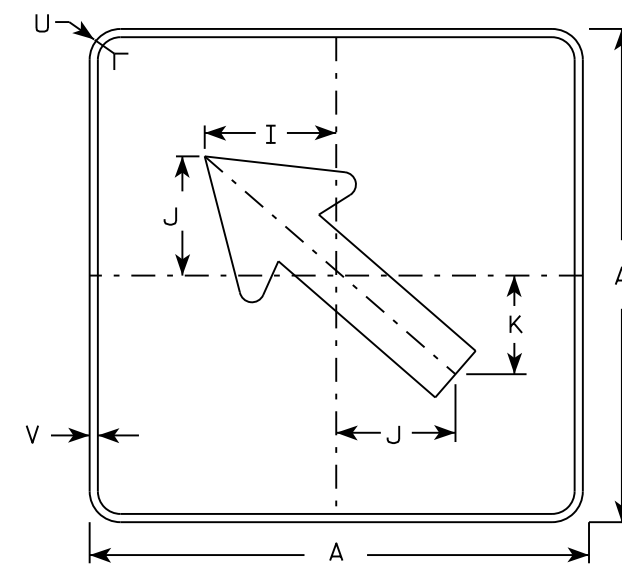
M6-1  
MM6-1  
M06-1  
MP6-1



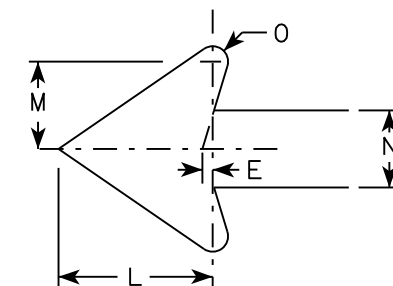
M6-2  
MM6-2  
M06-2  
MP6-2



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



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



NOTES

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

7

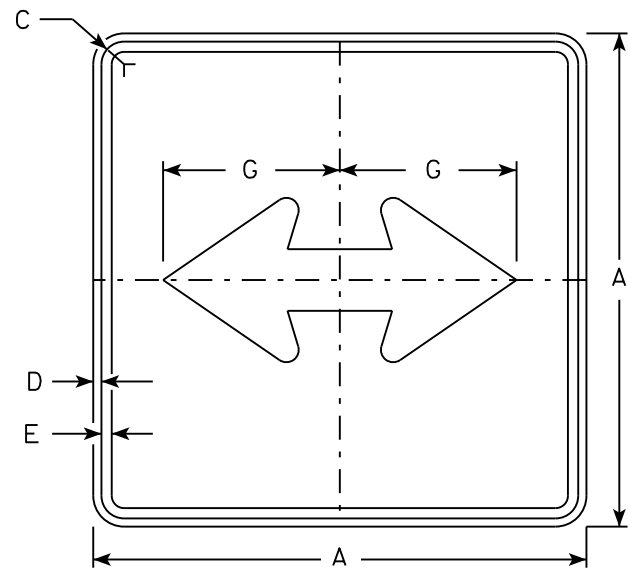
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2	21		1 1/8	3/8	3/8		7 1/2	7 1/8	5 5/8	5	4 1/4	5 1/4	3	2 5/8	1/2						1 1/2	1/2					3.06
3	30		1 3/8	1/2	5/8		10 3/4	10 1/4	8	7 1/4	6	7 1/2	4 1/4	3 3/4	3/4						1 7/8	1/2					6.25
4	30		1 3/8	1/2	5/8		10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

STANDARD SIGN  
M6-1 & M6-2  
SERIES

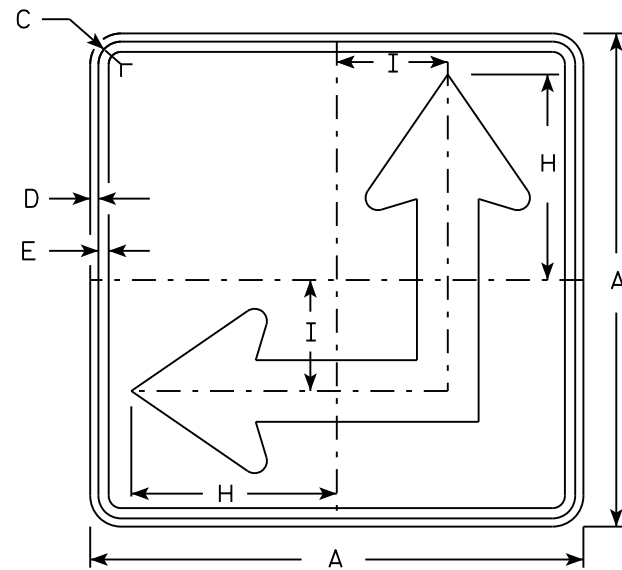
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

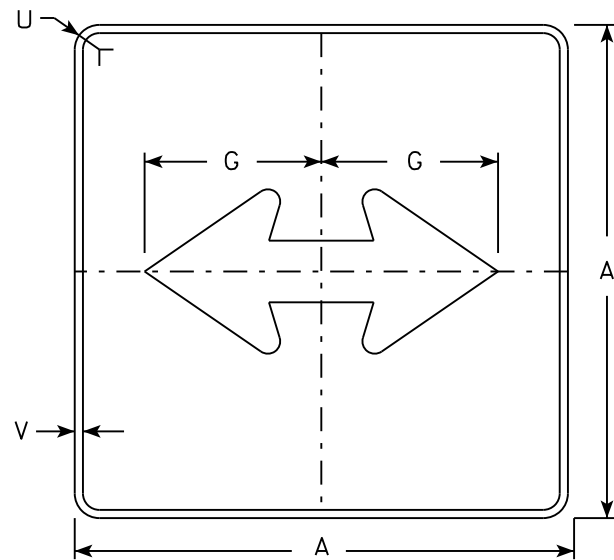
DATE 10/15/15 PLATE NO. M6-1.15



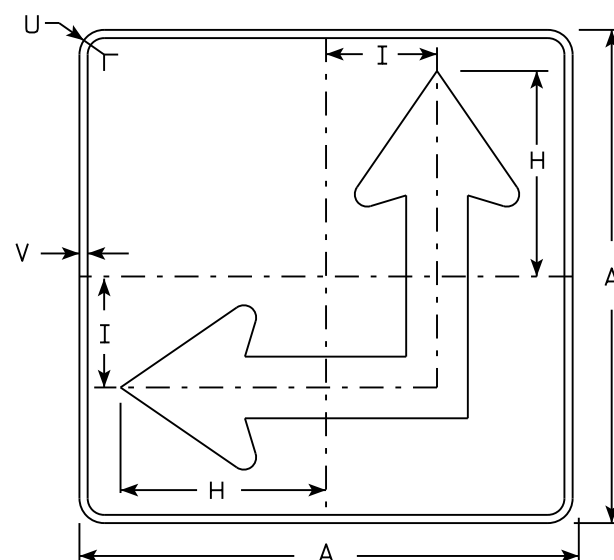
M6-4  
MM6-4  
M06-4  
MP6-4



M6-6  
MM6-6  
M06-6  
MP6-6



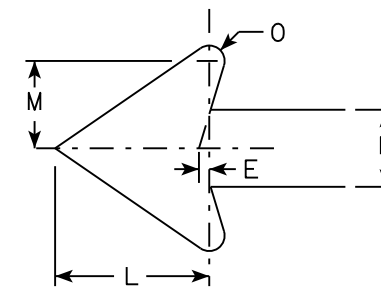
MB6-4  
MK6-4  
MN6-4  
MR6-4



MB6-6  
MK6-6  
MN6-6  
MR6-6

NOTES

- Signs are Type II - Type H except as Shown
- Color:  
Background - See Note 4  
Message - See Note 4
- Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
- M6-4 and M6-6 Background - White  
Message - Black  
MB6-4 and MB6-6 Background - Blue  
Message - White  
MK6-4 and MK6-6 Background - Green  
Message - White  
MM6-4 and MM6-6 Background - White  
Message - Green  
MN6-4 and MN6-6 Background - Brown  
Message - White  
M06-4 and M06-6 Background - Orange - Type F Reflective  
Message - Black  
MP6-4 and MP6-6 Background - White  
Message - Blue  
MR6-4 and MR6-6 Background - Brown  
Message - Yellow
- M6-6R same as M6-6L except arrow points ahead and right.



7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2	21		1 1/8	3/8	3/8		7 1/2	8 3/4	4 1/4			5 1/4	3	2 5/8	1/2						1 1/2	1/2					3.06
3	30		1 3/8	1/2	5/8		10 3/4	12 1/2	6 3/4			7 1/2	4 1/4	3 3/4	3/4						1 7/8	1/2					6.25
4	30		1 3/8	1/2	5/8		10 3/4	12 1/2	6 3/4			7 1/2	4 1/4	3 3/4	3/4						1 7/8	1/2					6.25
5	30		1 3/8	1/2	5/8		10 3/4	12 1/2	6 3/4			7 1/2	4 1/4	3 3/4	3/4						1 7/8	1/2					6.25

STANDARD SIGN  
M6-4 & M6-6  
SERIES

WISCONSIN DEPT OF TRANSPORTATION

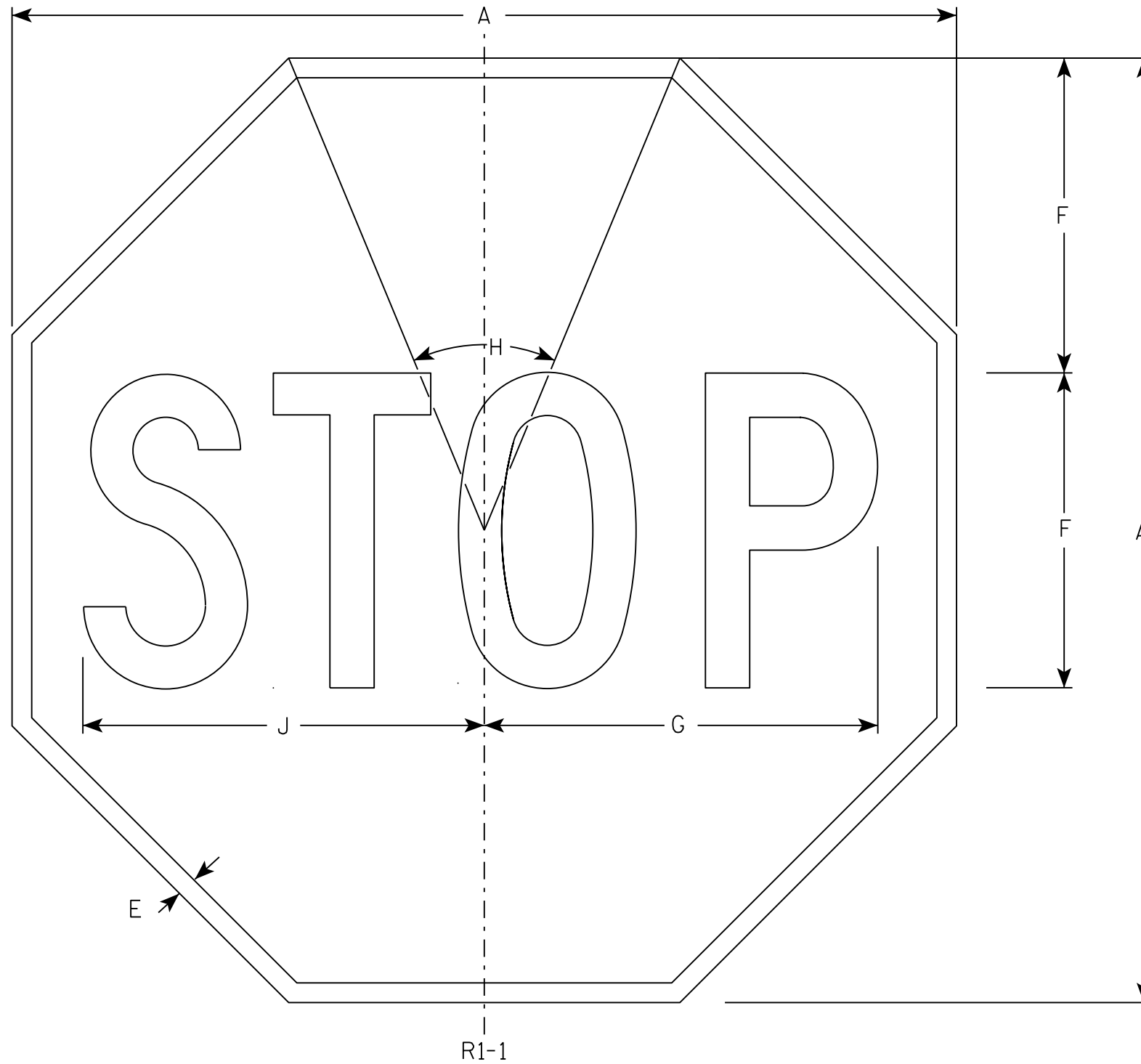
APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

DATE 10/15/15 PLATE NO. M6-4.10



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

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	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

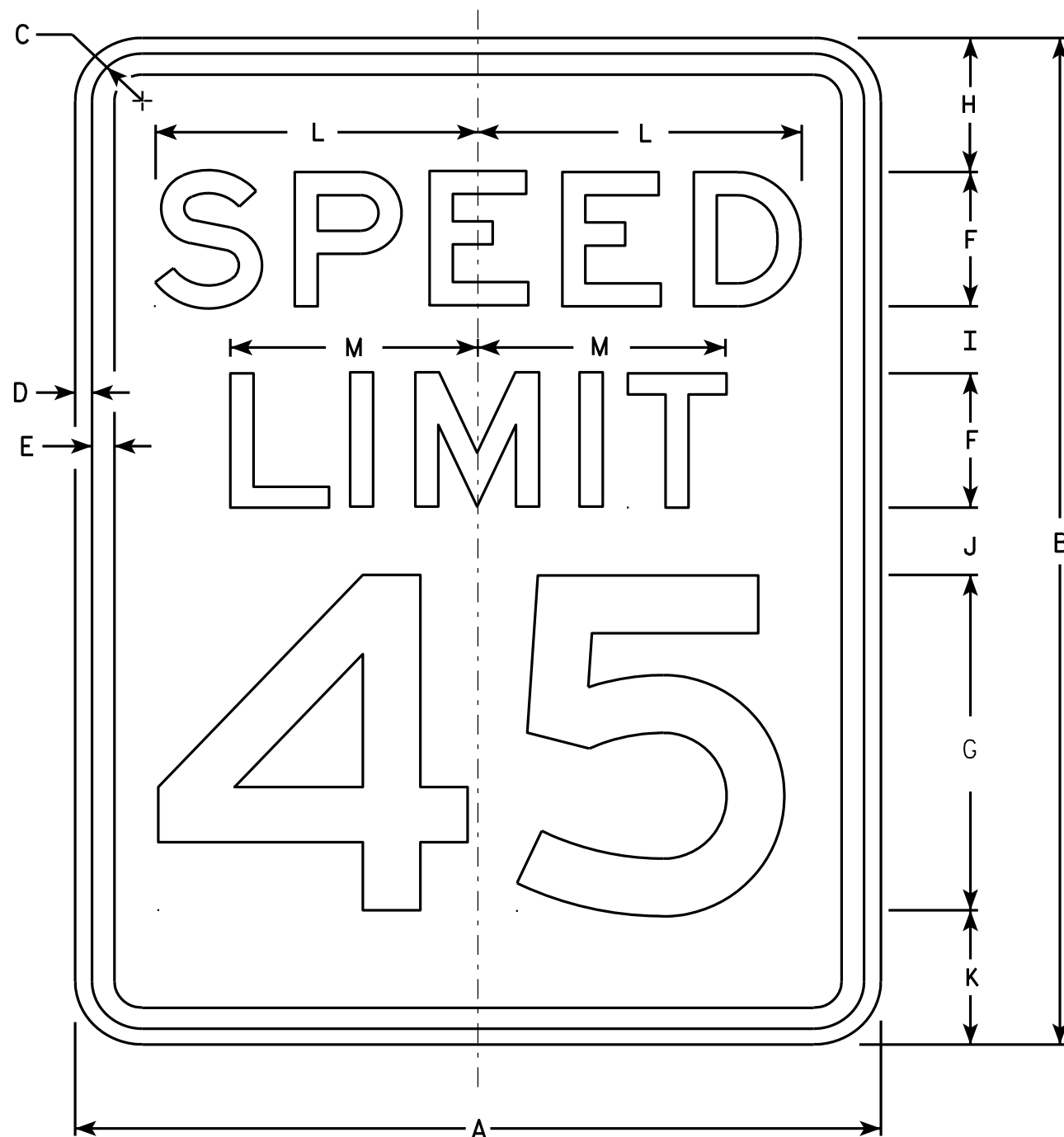
PROJECT NO: \_\_\_\_\_ HWY: \_\_\_\_\_ COUNTY: \_\_\_\_\_ SHEET NO: **E**

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



R2-1

NOTES

1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:  
Background - White  
Message - Black
3. Message Series - E
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. Substitute appropriate numerals and optically adjust spacing to achieve proper balance.

7

7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	18	24	1 1/8	3/8	1/2	3	8	3	2	2	3	7 1/4	5 1/2														3.0
2S	24	30	1 1/8	3/8	1/2	4	10	3	2 1/4	3 3/8	3 3/8	9 5/8	7 3/8														5.0
2M	30	36	1 3/8	1/2	5/8	5	12	5	2 1/2	2 1/2	4	12	9 1/4														7.5
3	36	48	1 3/8	1/2	5/8	6	14	6	5	5	6	14 3/8	11														12.0
4	36	48	1 3/8	1/2	5/8	6	14	6	5	5	6	14 3/8	11														12.0
5	48	60	2 1/4	3/4	1	8	20	6	4 1/2	6 3/4	6 3/4	19 1/4	14 5/8														20.0

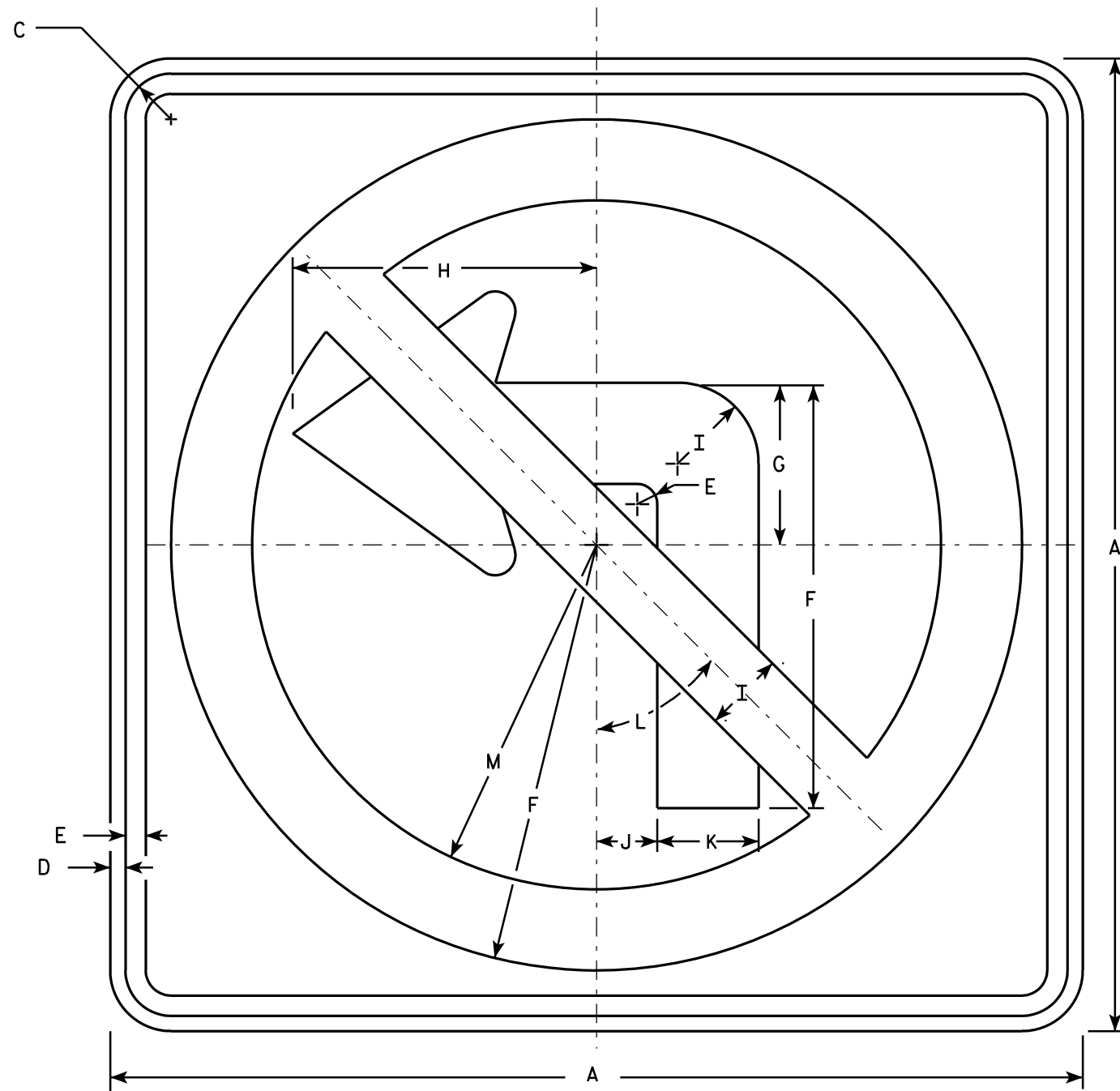
STANDARD SIGN  
R2-1

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
For State Traffic Engineer

DATE 5/26/10 PLATE NO. R2-1.13

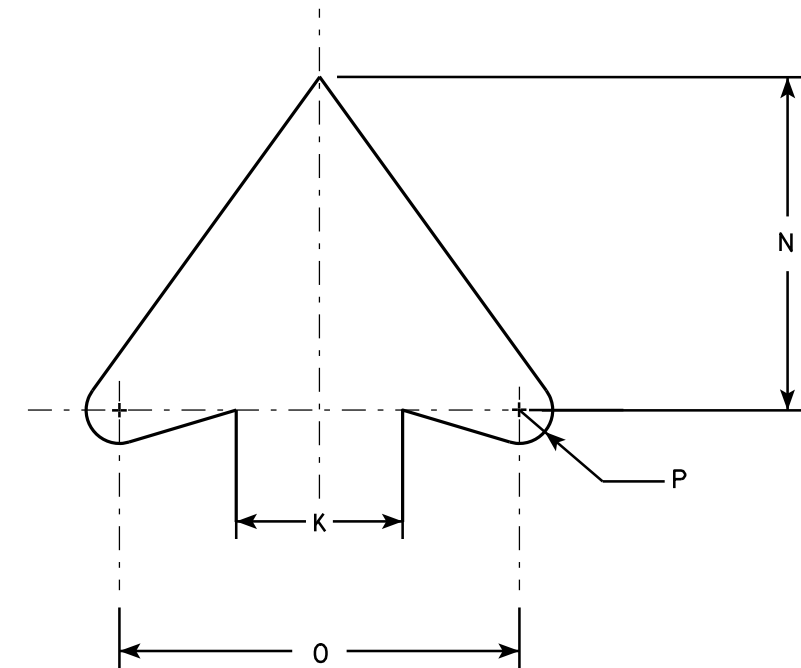
PROJECT NO: \_\_\_\_\_ HWY: \_\_\_\_\_ COUNTY: \_\_\_\_\_ SHEET NO: \_\_\_\_\_ E



R3-2

NOTES

1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:  
Background - White  
Message - See note 4
3. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
4. 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 1/8	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 1/8	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		1 5/8	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		1 5/8	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		1 5/8	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

**STANDARD SIGN**  
R3-2

WISCONSIN DEPT OF TRANSPORTATION

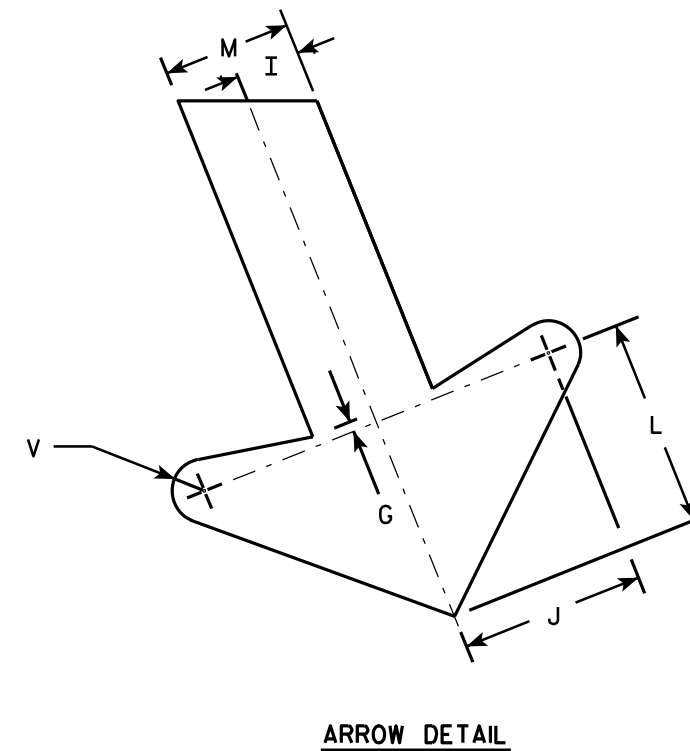
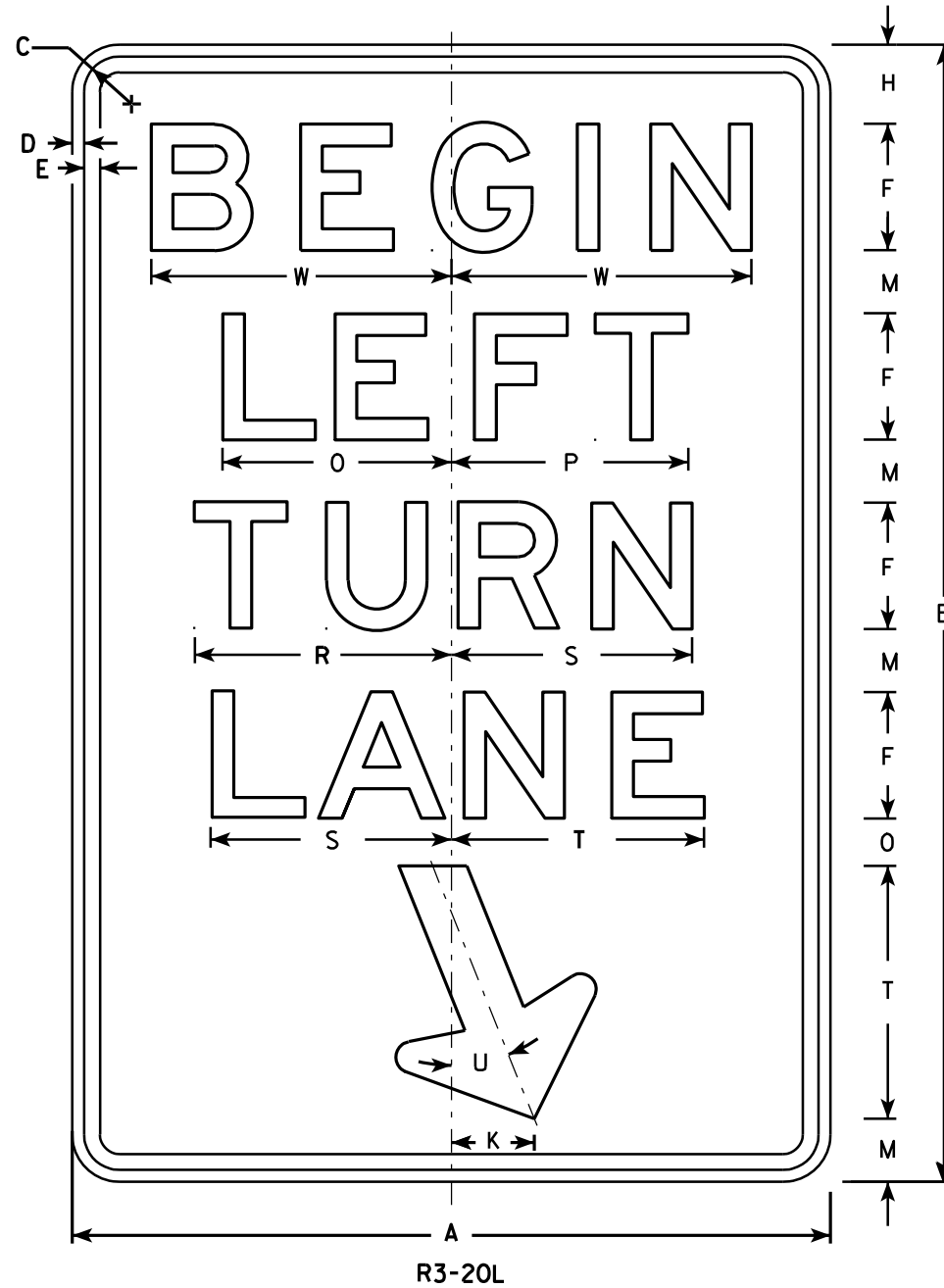
APPROVED *Matthew R. Rauch*  
For State Traffic Engineer

DATE 12/08/10 PLATE NO. R3-2.10

PROJECT NO: \_\_\_\_\_ HWY: \_\_\_\_\_ COUNTY: \_\_\_\_\_ SHEET NO: \_\_\_\_\_ E

**NOTES**

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



7

7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.	
1																												
2S	24	36	1 1/8	3/8	1/2	4	1/4	2 1/2	1	2 7/8	2 5/8	3 1/4	2	1 1/2	7 1/4	7 1/2		8 1/8	7 5/8	8	22°	1/2	9 1/2				6.0	
2M	24	36	1 1/8	3/8	1/2	4	1/4	2 1/2	1	2 7/8	2 5/8	3 1/4	2	1 1/2	7 1/4	7 1/2		8 1/8	7 5/8	8	22°	1/2	9 1/2				6.0	
3	36	54	1 3/4	1/2	5/8	6	3/8	3 3/4	1 1/2	4 1/4	4	4 7/8	3	2 1/4	10 7/8	11 1/4		12 1/4	11 1/2	12	22°	3/4	13 1/4				13.5	
4																												
5																												

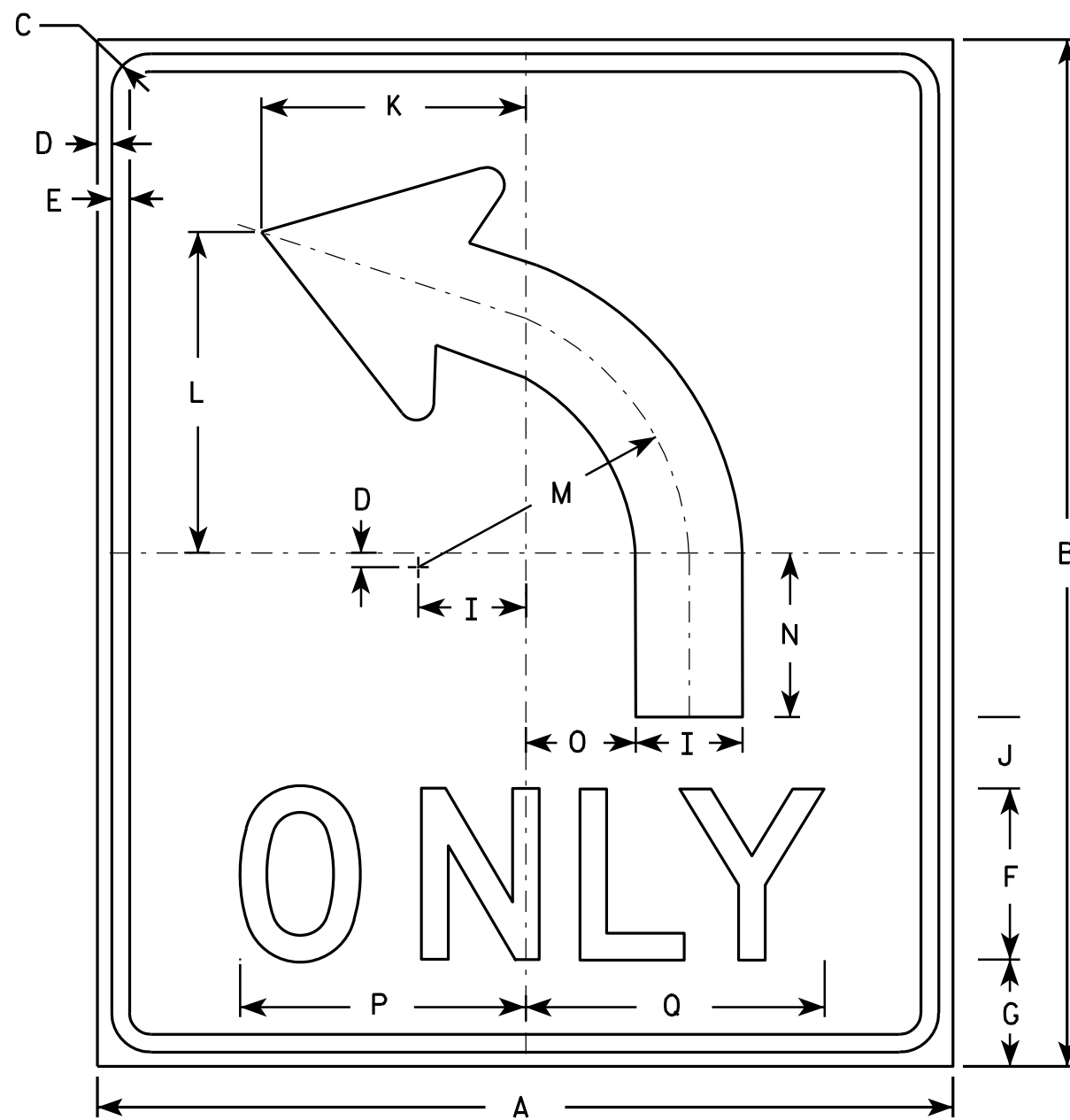
**STANDARD SIGN**  
**R3-20L**

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

DATE 10/18/10 PLATE NO. R3-20L.7

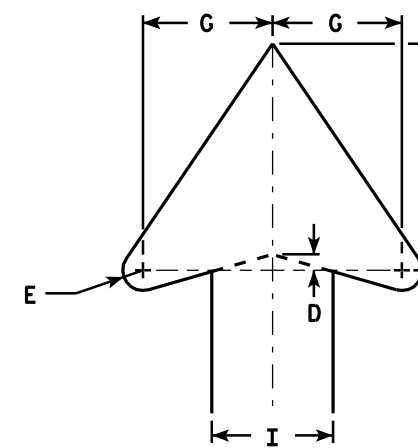
PROJECT NO: \_\_\_\_\_ HWY: \_\_\_\_\_ COUNTY: \_\_\_\_\_ SHEET NO: \_\_\_\_\_ E



R3-50L

**NOTES**

1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:  
Background - White  
Message - Black
3. Message Series - D
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. R3-50R is the same as R3-50L except curved portion of arrow points right.



ARROW DETAIL

7

7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	30	36	1 3/8	1/2	5/8	6	4	7	3 3/4	2 1/2	9 1/4	11 1/4	9 1/2	5 3/4	3 7/8	10	10 1/2										7.5
2M	30	36	1 3/8	1/2	5/8	6	4	7	3 3/4	2 1/2	9 1/4	11 1/4	9 1/2	5 3/4	3 7/8	10	10 1/2										7.5
3																											
4																											
5																											

**STANDARD SIGN**  
**R3-50**

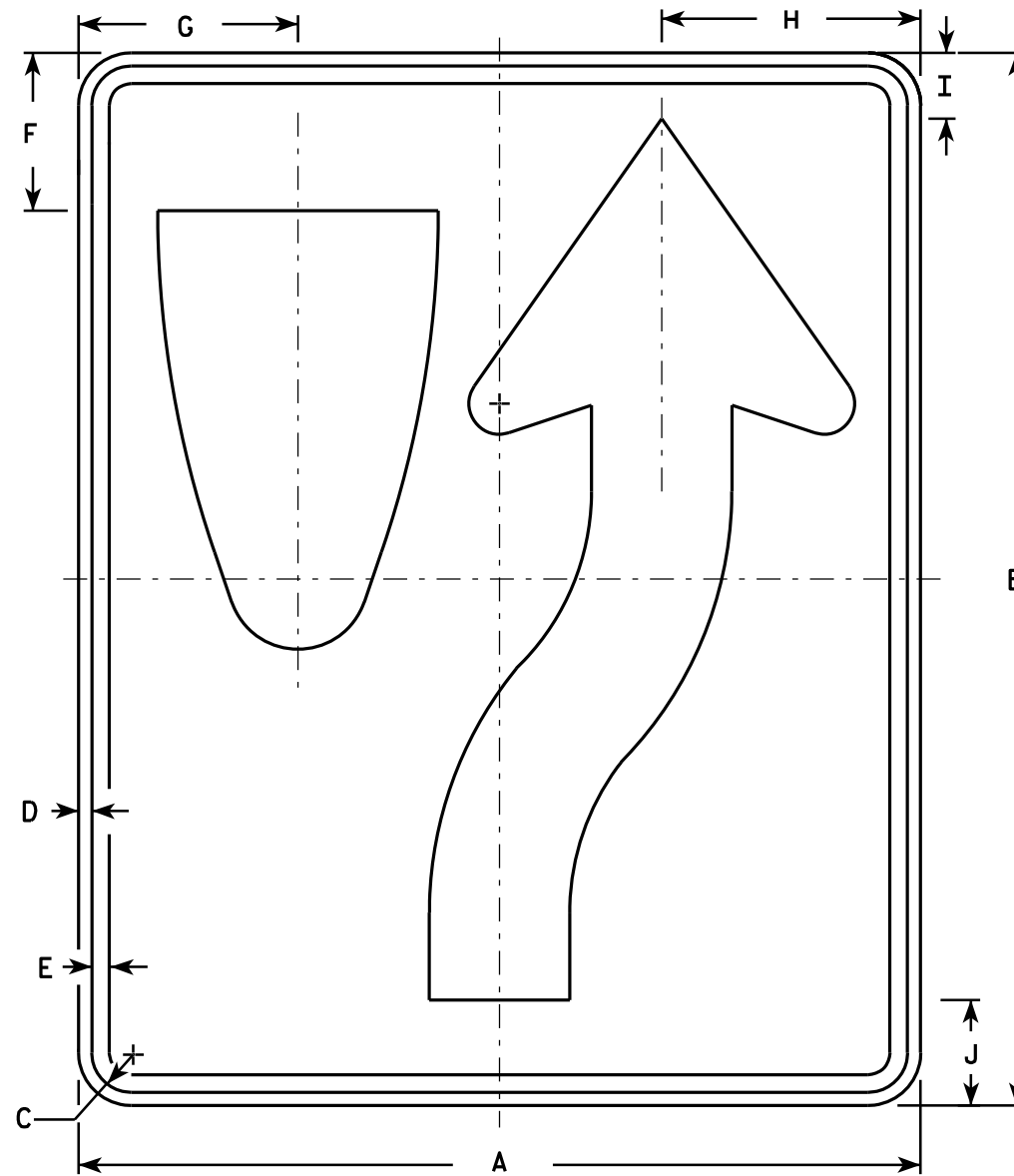
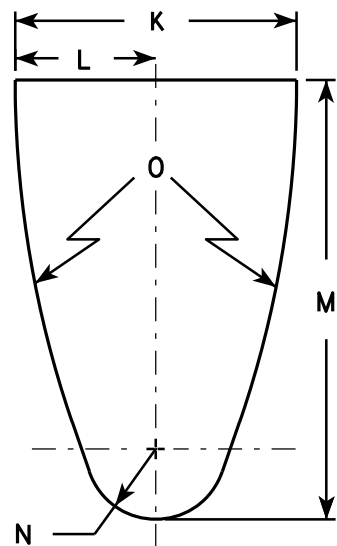
*WISCONSIN DEPT OF TRANSPORTATION*

APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

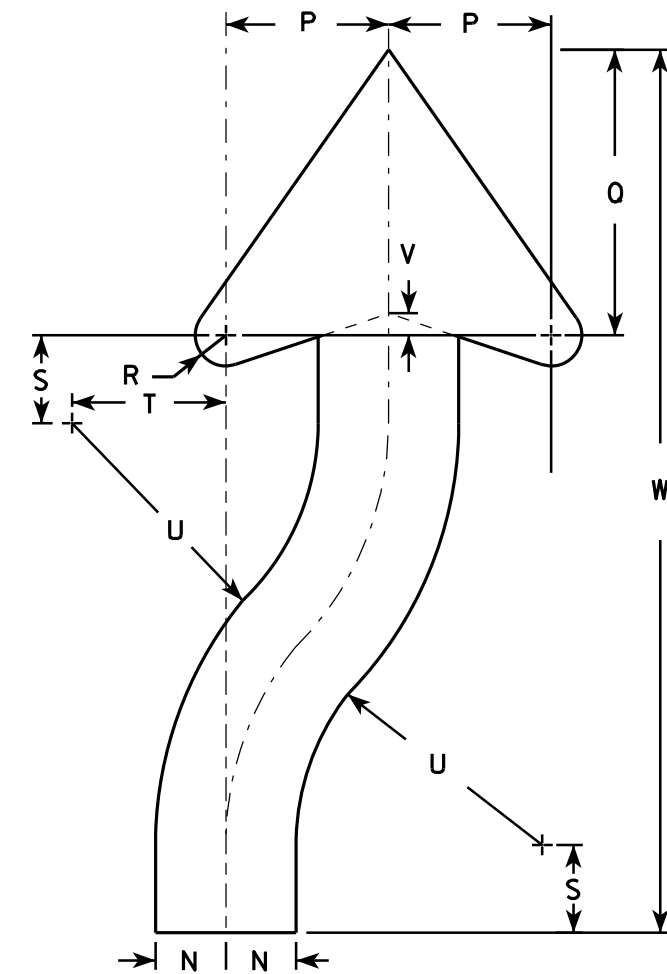
DATE 3/24/2011 PLATE NO. R3-50.2

**NOTES**

1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition. material is plywood but borders shall be rounded
2. Color:  
Background - White  
Message - Black
3. Corners may be square or rounded when base as shown. When base material is metal, the corners and borders shall be rounded.
4. R4-8 is the same as R4-7 except Legend is reversed.



R4-7



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	18	24	1 1/8	3/8	1/2	3 3/8	4 3/4	5 1/2	1 3/8	2 1/4	6	3	9 3/8	1 1/2	22 1/2	3 1/2	6 1/8	5/8	1 7/8	3 1/4	6 3/4	1/2	20 3/8				3.0
2S	24	30	1 1/8	3/8	1/2	4 1/2	6 1/4	7 3/8	1 7/8	3	8	4	12 1/2	2	30	4 5/8	8 1/8	7/8	2 1/2	4 3/8	9	5/8	25 1/8				5.0
2M	24	30	1 1/8	3/8	1/2	4 1/2	6 1/4	7 3/8	1 7/8	3	8	4	12 1/2	2	30	4 5/8	8 1/8	7/8	2 1/2	4 3/8	9	5/8	25 1/8				5.0
3	36	48	1 3/4	1/2	5/8	6 3/4	9 3/8	11 1/8	2 7/8	4 1/2	12	6	18 3/4	3	45	6 7/8	12 1/4	1 1/4	3 3/4	6 5/8	13 1/2	1	40 3/4				12.0
4	36	48	1 3/4	1/2	5/8	6 3/4	9 3/8	11 1/8	2 7/8	4 1/2	12	6	18 3/4	3	45	6 7/8	12 1/4	1 1/4	3 3/4	6 5/8	13 1/2	1	40 3/4				12.0
5	48	60	2 1/4	3/4	1	9	12 1/2	14 3/4	3 3/4	6	16	8	25	4	60	9 1/4	16 1/4	1 5/8	5	8 3/4	18	1 1/4	50 1/4				20.0

**STANDARD SIGN**  
R4-7 & R4-8

WISCONSIN DEPT OF TRANSPORTATION

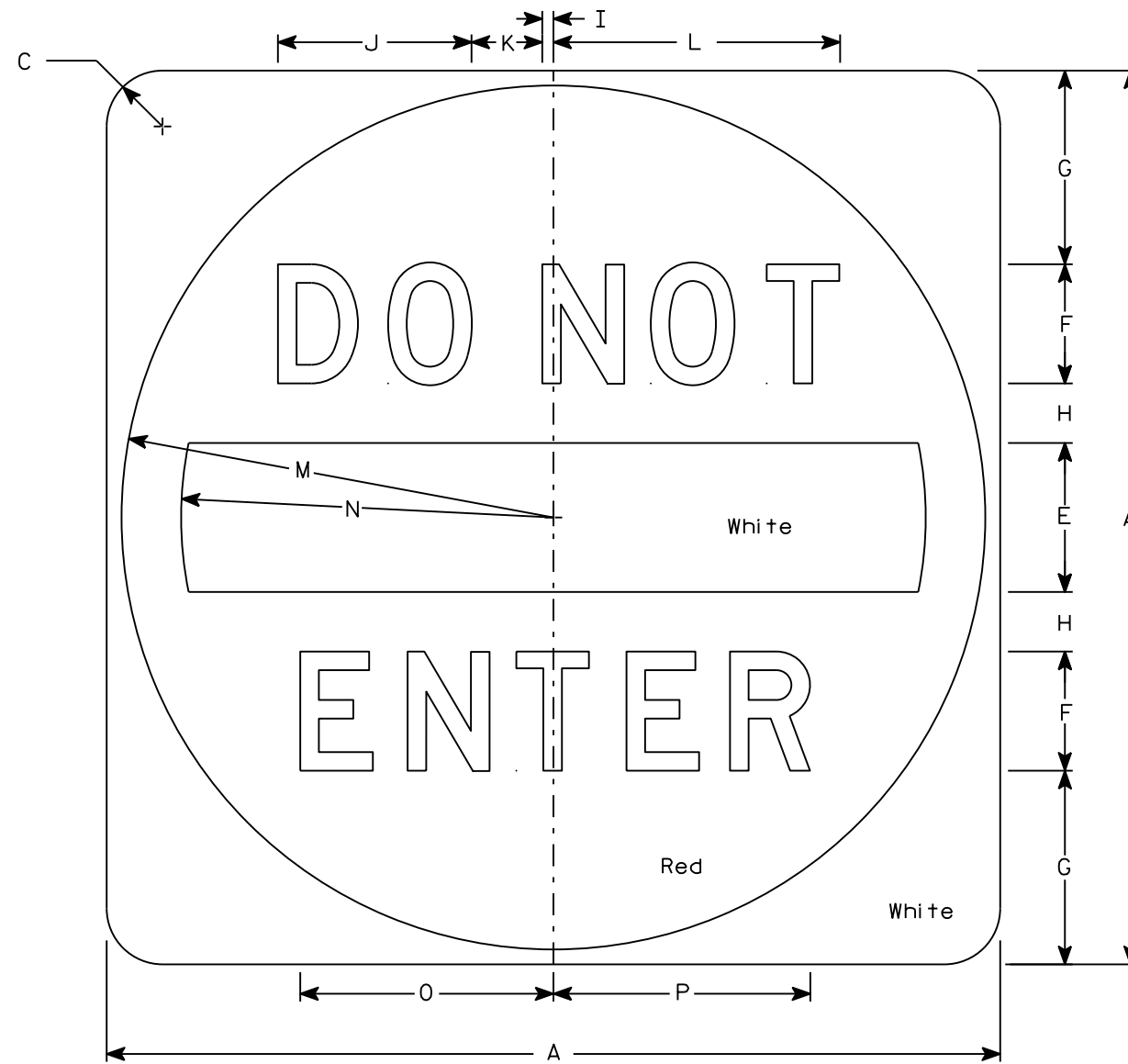
APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

DATE 3/25/2011 PLATE NO. R4-7.8

PROJECT NO: \_\_\_\_\_ HWY: \_\_\_\_\_ COUNTY: \_\_\_\_\_ SHEET NO: \_\_\_\_\_ E

NOTES

1. Sign is Type II - Type H Reflective
2. Color:  
Background - See detail  
Message - White
3. Message Series - D



R5-1

7

7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	30		1 7/8		5	4	6 1/2	2	3/8	6 1/2	2 3/8	9 5/8	14 1/2	12 1/2	8 1/2	8 5/8											6.25
2M	36		2 1/4		6	5	7 1/2	2 1/2	1/2	8 1/8	3	12 1/8	17 1/2	15	10 5/8	10 3/4											9.0
3	36		2 1/4		6	5	7 1/2	2 1/2	1/2	8 1/8	3	12 1/8	17 1/2	15	10 5/8	10 3/4											9.0
4	36		2 1/4		6	5	7 1/2	2 1/2	1/2	8 1/8	3	12 1/8	17 1/2	15	10 5/8	10 3/4											9.0
5	48		3		8	6	11	3	5/8	9 3/4	3 5/8	14 1/2	23 1/2	20	12 3/4	12 7/8											16.0

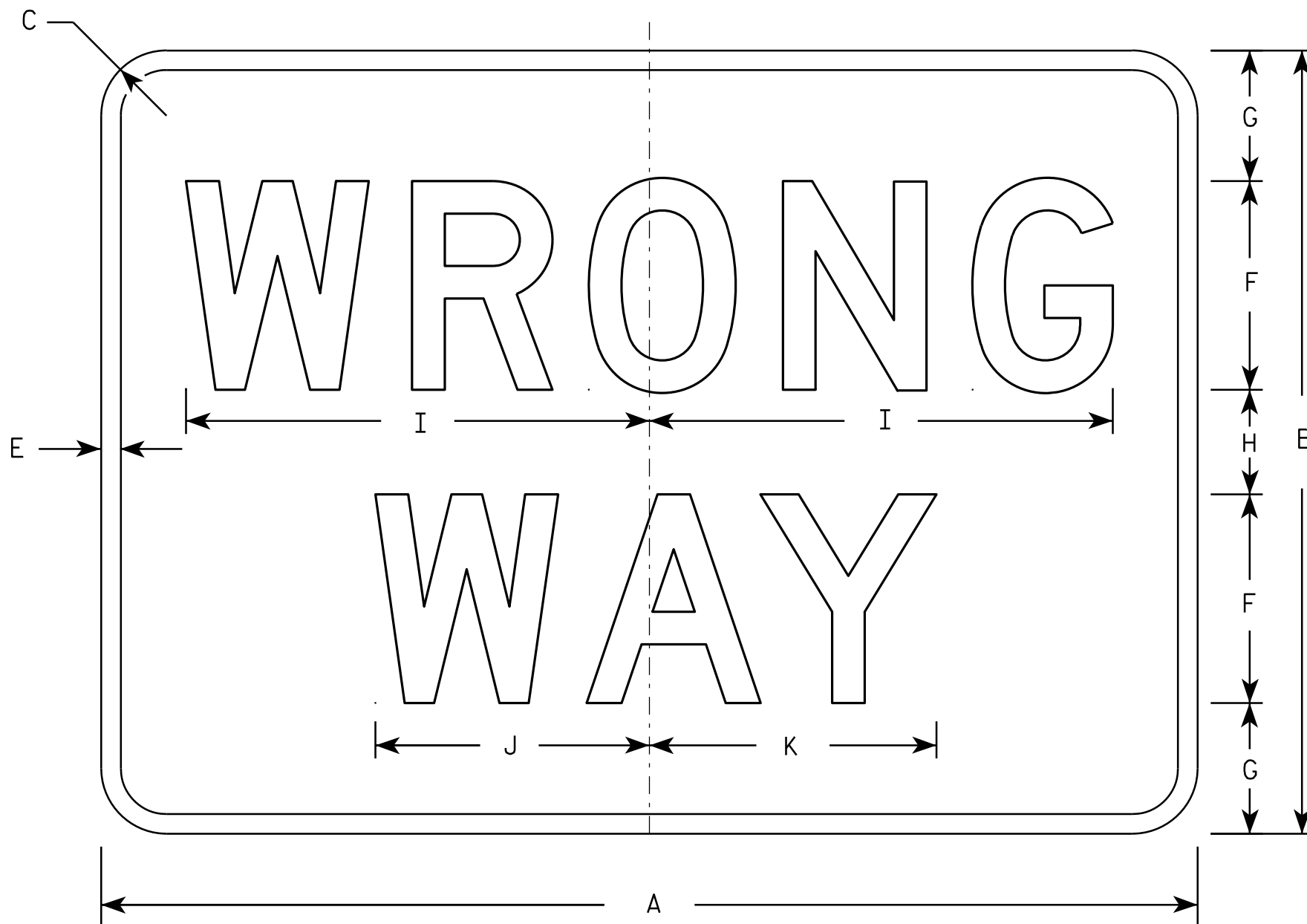
STANDARD SIGN  
R5-1

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

DATE 3/15/18 PLATE NO. R5-1.16

PROJECT NO: \_\_\_\_\_ HWY: \_\_\_\_\_ COUNTY: \_\_\_\_\_ SHEET NO: **E**



**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 - 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.

R5-1A

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	18	1 1/2		1/2	5	3	2	11	6 1/2	6 7/8															3.75	
2S	36	24	2		5/8	6	4 1/2	3	13 1/4	7 7/8	8 1/4															6.00	
2M	42	30	2 1/2		3/4	8	5	4	17 3/4	10 1/2	11															8.75	
3	42	30	2 1/2		3/4	8	5	4	17 3/4	10 1/2	11															8.75	
4	42	30	2 1/2		3/4	8	5	4	17 3/4	10 1/2	11															8.75	
5	42	30	2 1/2		3/4	8	5	4	17 3/4	10 1/2	11															8.75	

**STANDARD SIGN**  
R5-1A

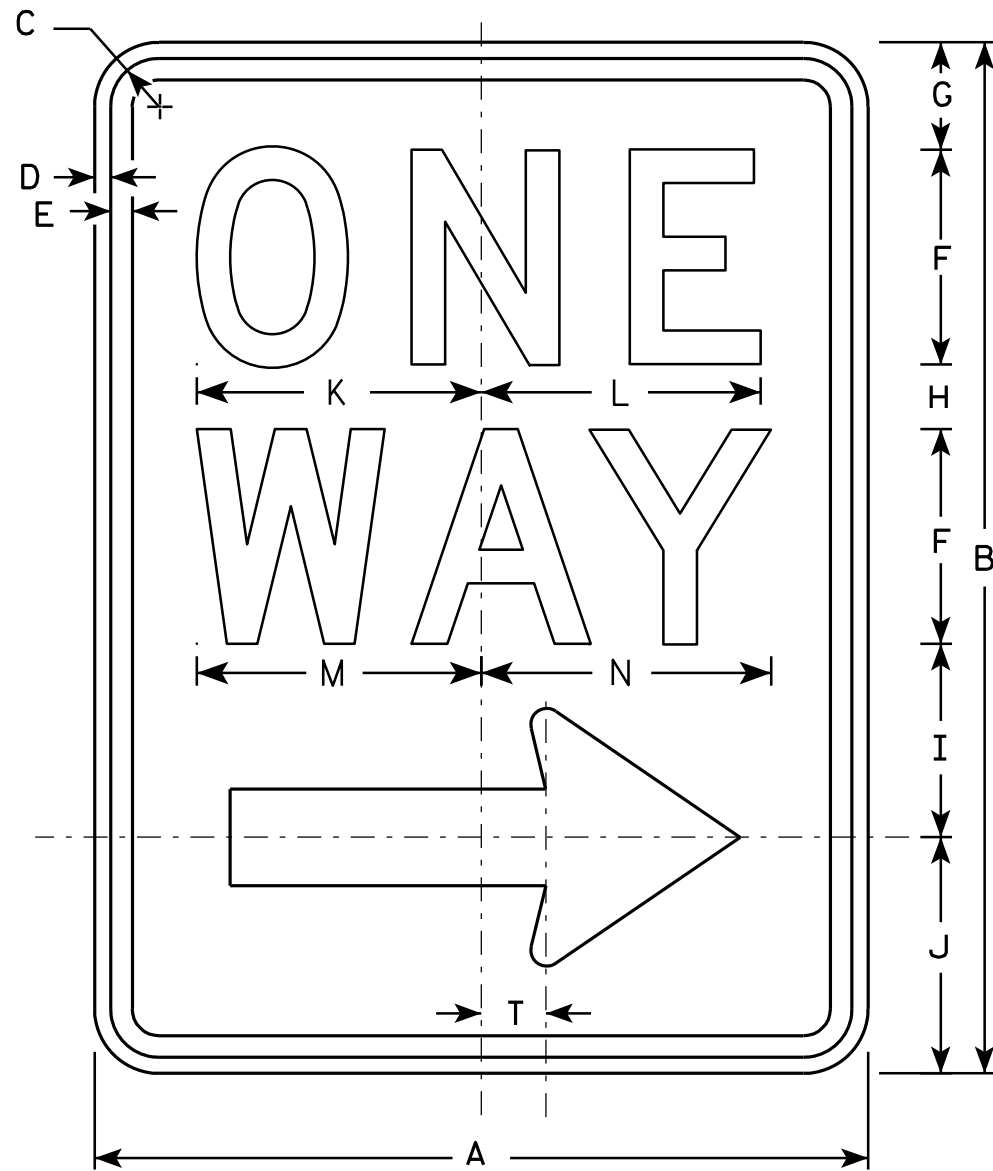
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

DATE 12/17/10 PLATE NO. R5-1A.2

PROJECT NO: \_\_\_\_\_ HWY: \_\_\_\_\_ COUNTY: \_\_\_\_\_ SHEET NO: **E**

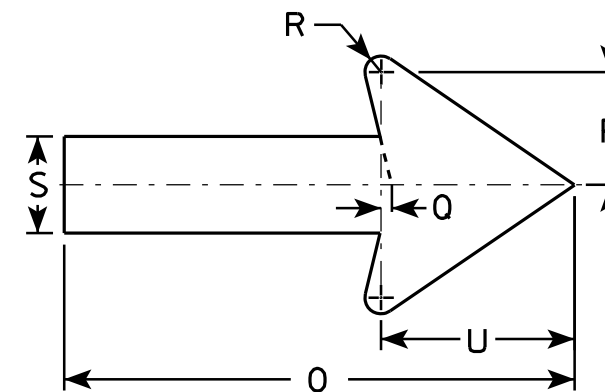




R6-2R

**NOTES**

1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:  
Background - White  
Message - Black
3. Message Series - D
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. R6-2L same as R6-2R except arrow points to the left.



7

7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
1	18	24	1 1/8	3/8	1/2	5	2 1/2	1 1/2	4 1/2	5 1/2	6 5/8	6 1/2	6 5/8	6 3/4	11 7/8	2 5/8	1/4	3/8	2 1/4	1 1/2	4 1/2					
2S	24	30	1 1/8	3/8	1/2	6	3	2 1/2	5 1/2	7	8 1/8	8 1/8	8 1/2	8 5/8	16	3 1/2	3/8	1/2	3	2	6					
2M	30	36	1 3/8	1/2	5/8	8	2 1/2	2 5/8	6 7/8	8	10 1/2	10 1/2	11 1/4	11 1/4	20	4 3/8	1/2	5/8	3 3/4	2 1/2	7 1/2					
3	36	48	1 7/8	1/2	5/8	10	5 1/4	3 1/4	9	10 1/2	12 3/4	12 3/4	13 1/4	13 1/2	24	5 5/8	1/2	3/4	4 3/4	3	9					
4	36	48	1 7/8	1/2	5/8	10	5 1/4	3 1/4	9	10 1/2	12 3/4	12 3/4	13 1/4	13 1/2	24	5 5/8	1/2	3/4	4 3/4	3	9					
5																										

**STANDARD SIGN**  
R6-2 R&L

WISCONSIN DEPT OF TRANSPORTATION

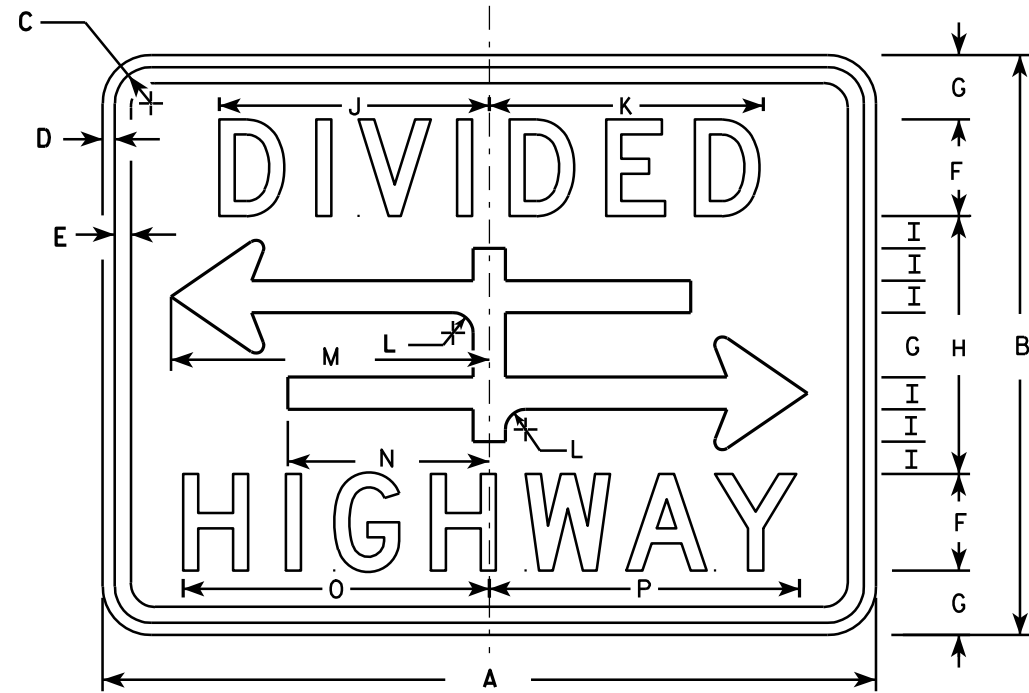
APPROVED *Matthew R. Rauch*  
For State Traffic Engineer

DATE 11/2/10 PLATE NO. R6-2.8

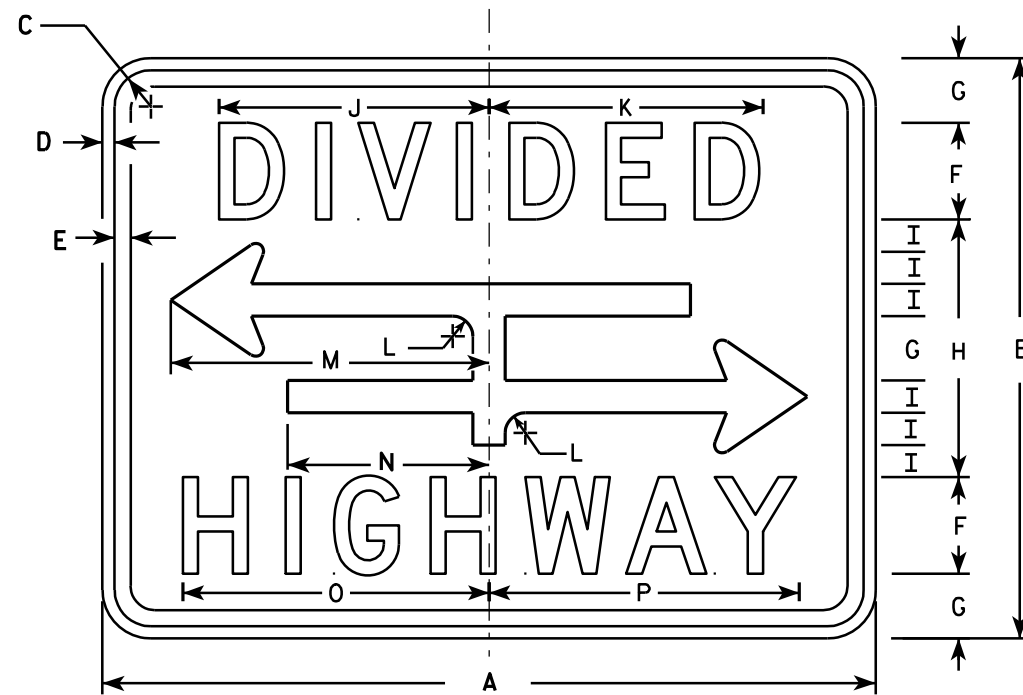
PROJECT NO: \_\_\_\_\_ HWY: \_\_\_\_\_ COUNTY: \_\_\_\_\_ SHEET NO: \_\_\_\_\_ E

NOTES

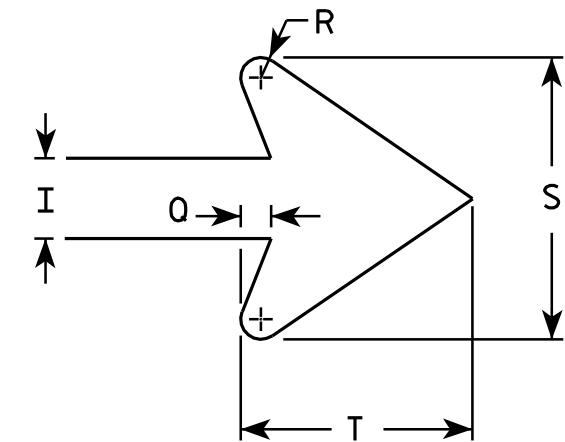
1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:  
Background - White  
Message - Black
3. Message Series - D
4. Corners may be square or rounded when base material is plywood but borders shall be rounded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



R6-3



R6-3A



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	18	1/8	3/8	3/8	3	2	8	1	8 3/8	8 1/2	5/8	9 7/8	6 1/4	9 1/2	9 5/8	3/8	1/4	3 1/2	2 3/4							3.0
2S	30	24	1/8	3/8	1/2	4	2 5/8	10 3/4	1 3/8	10 1/2	10 5/8	7/8	12 1/2	7 7/8	12 1/4	12 3/8	1/2	3/8	4 5/8	3 5/8							5.0
2M	30	24	1/8	3/8	1/2	4	2 5/8	10 3/4	1 3/8	10 1/2	10 5/8	7/8	12 1/2	7 7/8	12 1/4	12 3/8	1/2	3/8	4 5/8	3 5/8							5.0
3																											
4																											
5																											

STANDARD SIGN  
R6-3 & R6-3A

WISCONSIN DEPT OF TRANSPORTATION

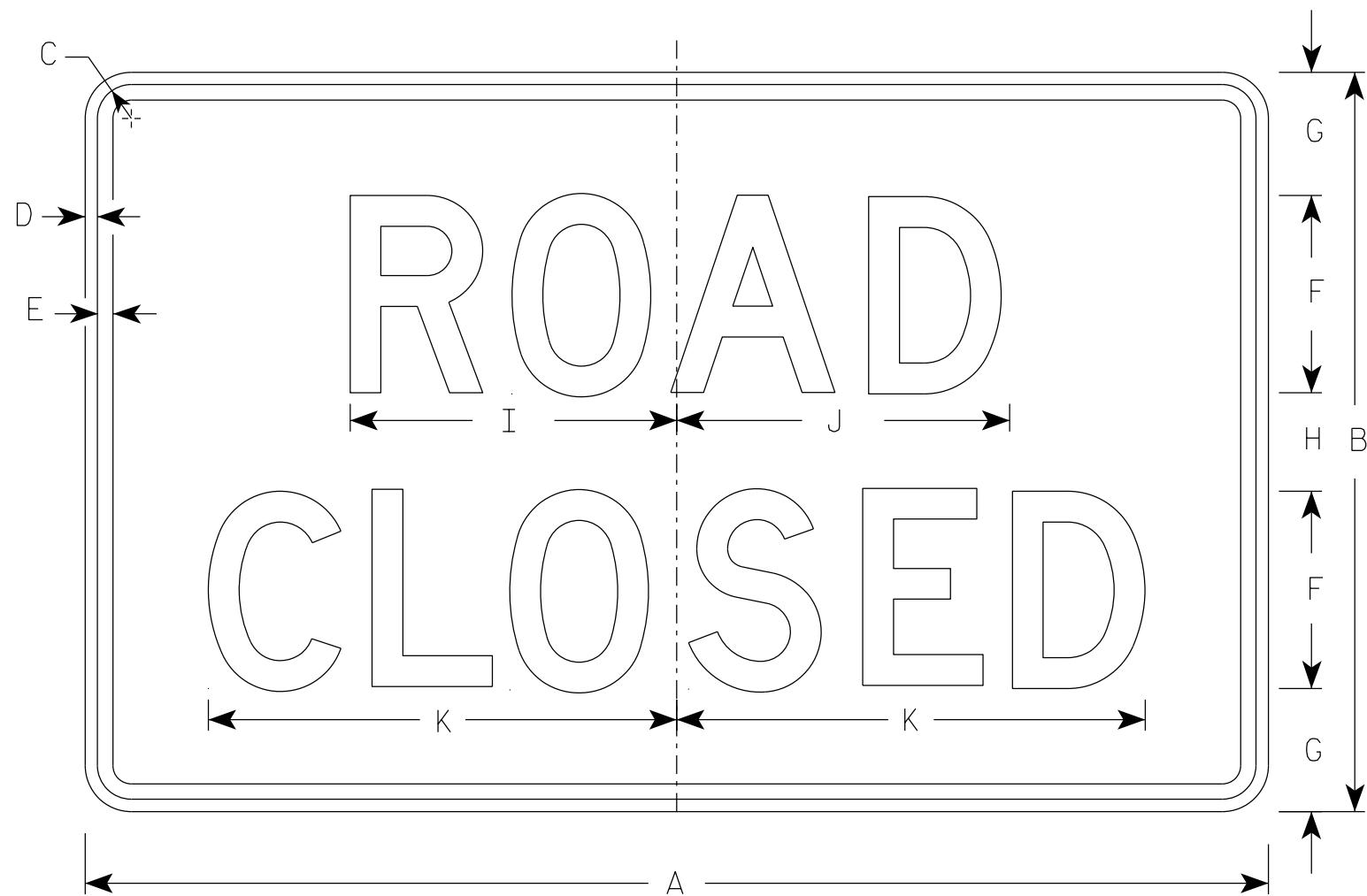
APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

DATE 3/31/2011 PLATE NO. R6-3.5

PROJECT NO:

SHEET NO:

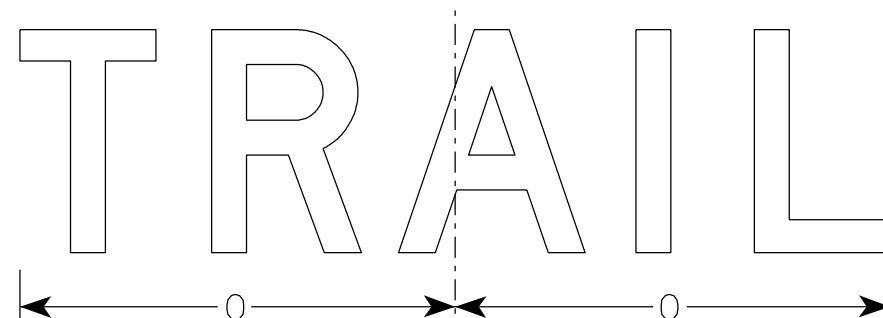
E



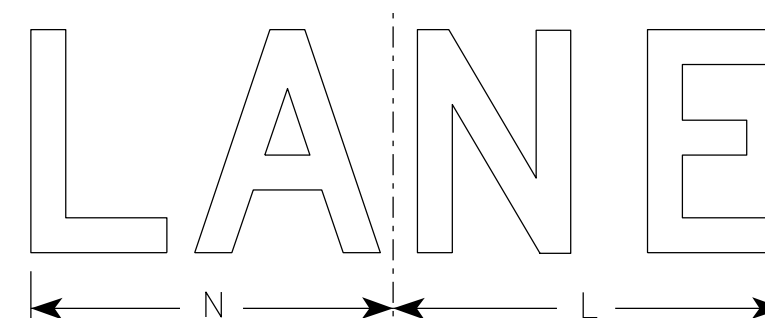
R11-2



R11-2R



R11-2T



R11-2L

NOTES

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

7

7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	48	30	1 3/8	1/2	5/8	8	5	4	13 1/4	13 1/2	19	14	15	13	15 5/8												10.0
2M	48	30	1 3/8	1/2	5/8	8	5	4	13 1/4	13 1/2	19	14	15	13	15 5/8												10.0
3	48	30	1 3/8	1/2	5/8	8	5	4	13 1/4	13 1/2	19	14	15	13	15 5/8												10.0
4	48	30	1 3/8	1/2	5/8	8	5	4	13 1/4	13 1/2	19	14	15	13	15 5/8												10.0
5	48	30	1 3/8	1/2	5/8	8	5	4	13 1/4	13 1/2	19	14	15	13	15 5/8												10.0

STANDARD SIGN  
R11-2

WISCONSIN DEPT OF TRANSPORTATION

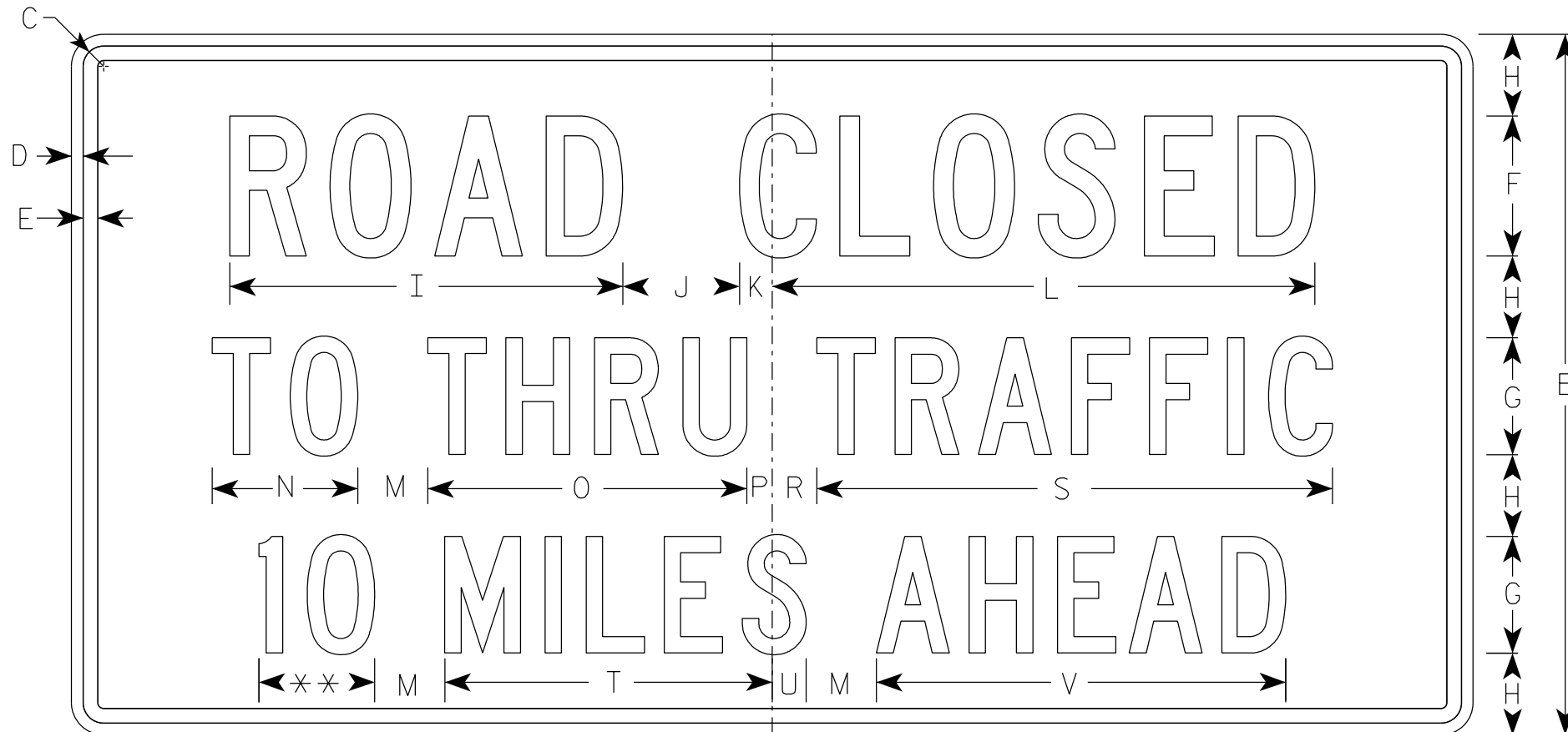
APPROVED *Matthew R Rauch*  
For State Traffic Engineer

DATE 3/29/2021 PLATE NO. R11-2.11

PROJECT NO: \_\_\_\_\_ HWY: \_\_\_\_\_ COUNTY: \_\_\_\_\_ SHEET NO: \_\_\_\_\_ **E**

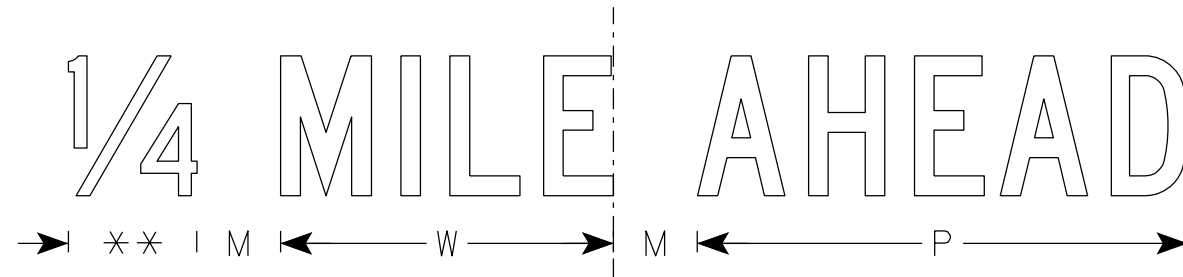
NOTES

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



R11-3

\*\* See Note 5



SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	v	W	X	Y	Z	Area sq. ft.
1	36	18	1 1/4	3/8	3/8	4	3	2	11 1/4	3	1 1/8	15 3/8	2	3 3/4	8 1/4	5/8		1 3/8	13 1/4	8 3/8	7/8	10 1/2	7 1/8			4.5	
2S	60	30	1 3/8	1/2	5/8	6	5	3 1/2	16 7/8	5	1 3/8	23 1/4	3	6 1/4	13 5/8	1 1/8		1 7/8	22 1/8	14	1 1/2	17 1/2	11 7/8			12.5	
2M	60	30	1 3/8	1/2	5/8	6	5	3 1/2	16 7/8	5	1 3/8	23 1/4	3	6 1/4	13 5/8	1 1/8		1 7/8	22 1/8	14	1 1/2	17 1/2	11 7/8			12.5	
3																											
4																											
5																											

STANDARD SIGN  
R11-3

WISCONSIN DEPT OF TRANSPORTATION

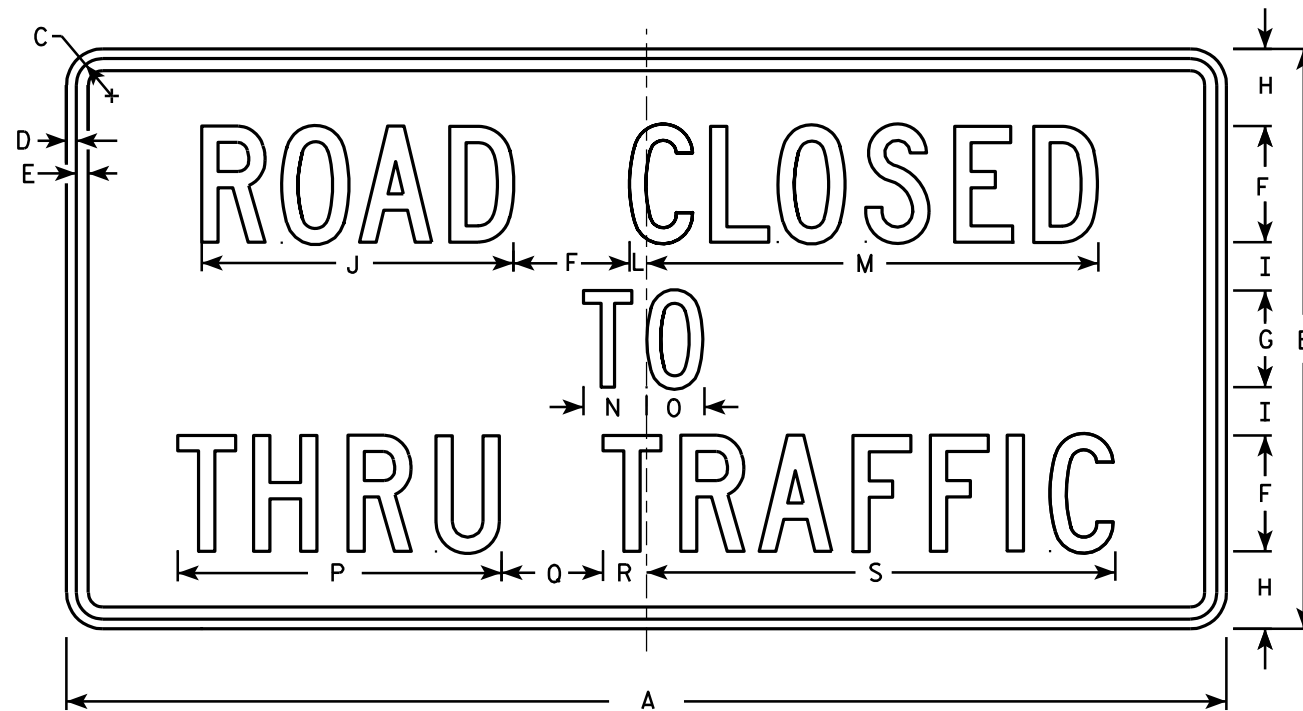
APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

DATE 6/14/2021 PLATE NO. R11-3.9

PROJECT NO: \_\_\_\_\_ HWY: \_\_\_\_\_ COUNTY: \_\_\_\_\_ SHEET NO: \_\_\_\_\_ **E**

NOTES

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



R11-4

7

7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	60	30	1 3/8	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 3/8	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																											

**STANDARD SIGN**  
R11 - 4

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*WISCONSIN DEPT OF TRANSPORTATION*

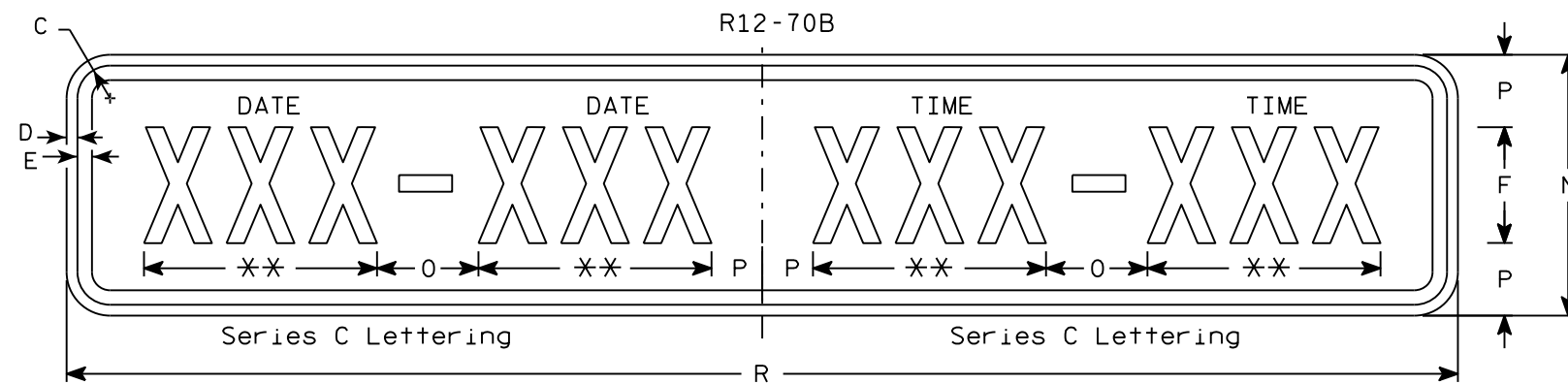
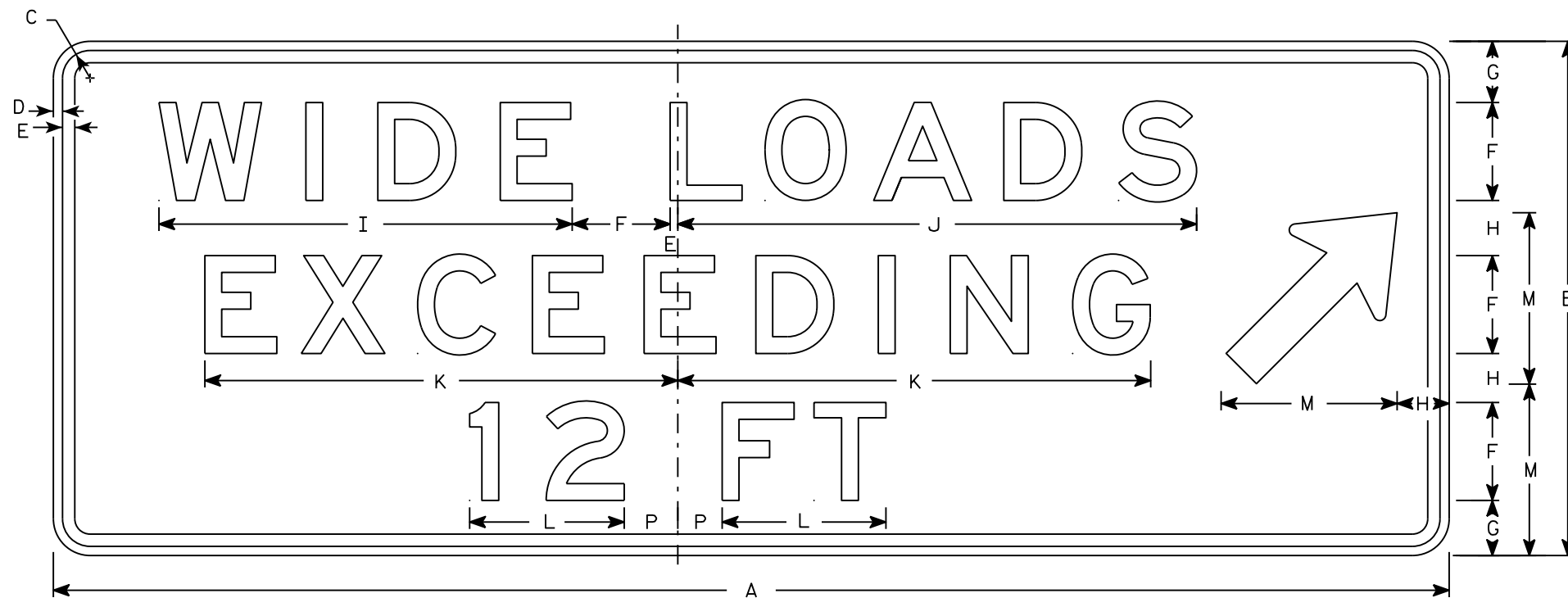
APPROVED *Matthew R. Raush*  
for State Traffic Engineer

DATE 4/1/11 PLATE NO. R11-4.3

PROJECT NO: \_\_\_\_\_ HWY: \_\_\_\_\_ COUNTY: \_\_\_\_\_ SHEET NO: \_\_\_\_\_ E

NOTES

1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
  2. Color:  
Background - White  
Message - Black
  3. Message Series - E except as noted
  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.
- \*\* Substitute appropriate message, optically center message



R12-70C

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	R12-70 Area sq. ft.	R12-70C Area sq. ft.
1																												
2S	90	36	2 1/4	1/2	5/8	6	4	5	20 7/8	28 3/8	24 5/8	8 1/8	12	12	6	3		66									22.5	5.5
2M	90	36	2 1/4	1/2	5/8	6	4	5	20 7/8	28 3/8	24 5/8	8 1/8	12	12	6	3		66									22.5	5.5
3																												
4	114	42	2 1/4	3/4	1	8	5	4	34	42	39	13	14	18	7	3 1/2		96									36.75	12.0
5	114	42	2 1/4	3/4	1	8	5	4	34	42	39	13	14	18	7	3 1/2		96									36.75	12.0

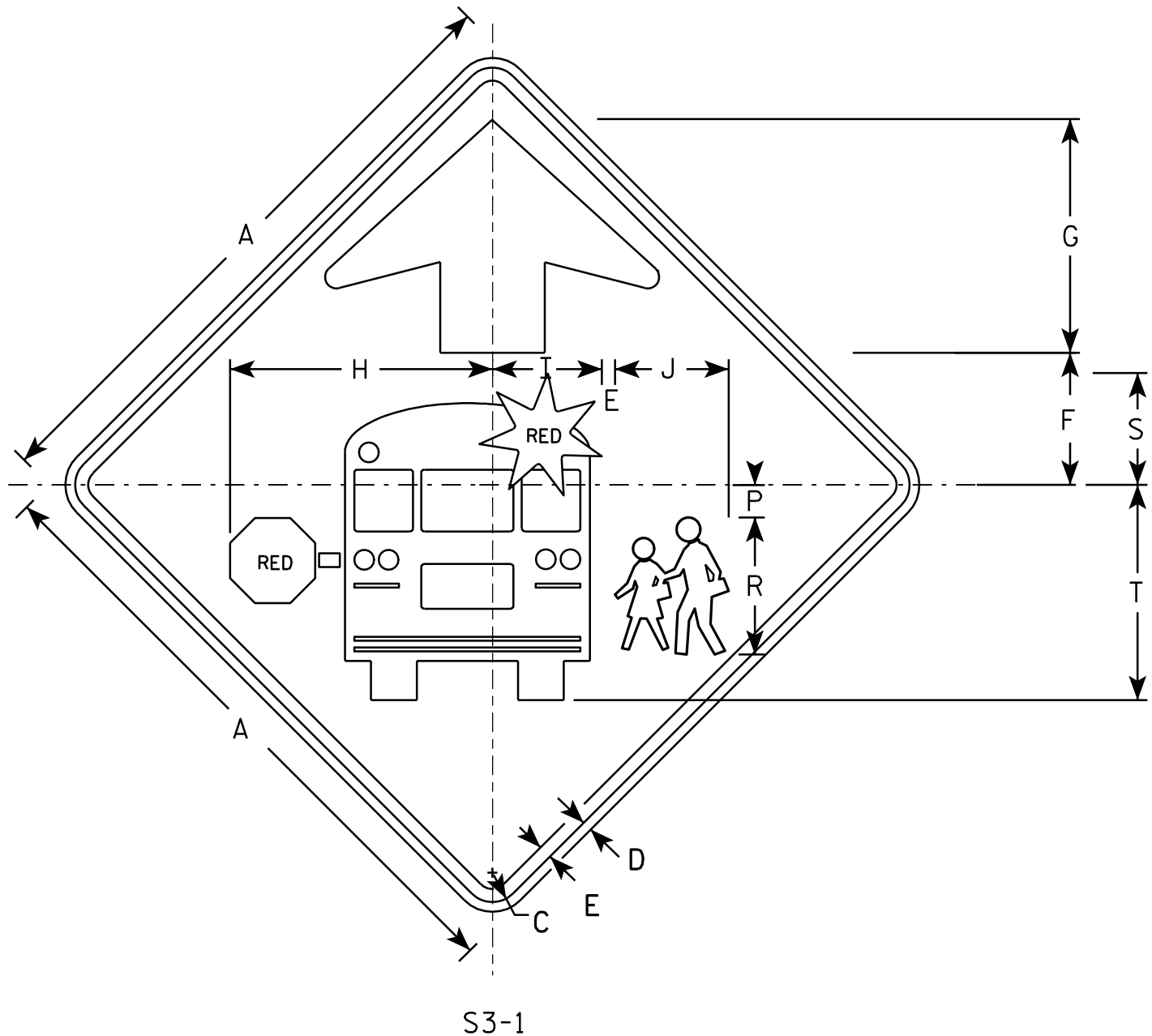
TYPICAL SIGN  
R12-70B

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

DATE 11/10/15 PLATE NO. R12-70B.3

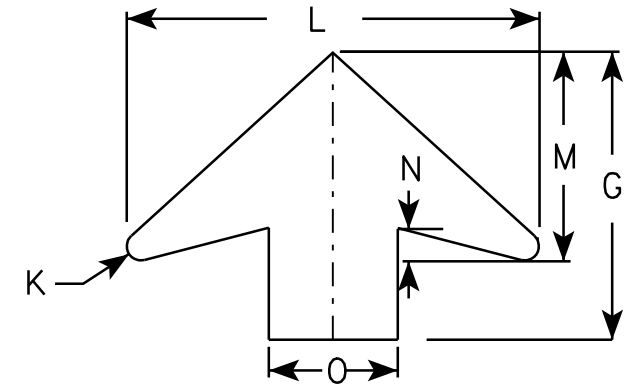
7



S3-1

NOTES

1. All Signs Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:  
 Background - YELLOW-GREEN  
 Message - BLACK except as noted  
 Circles except PEDS- RED BACKGROUND
3. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.



ARROW DETAIL

7

7

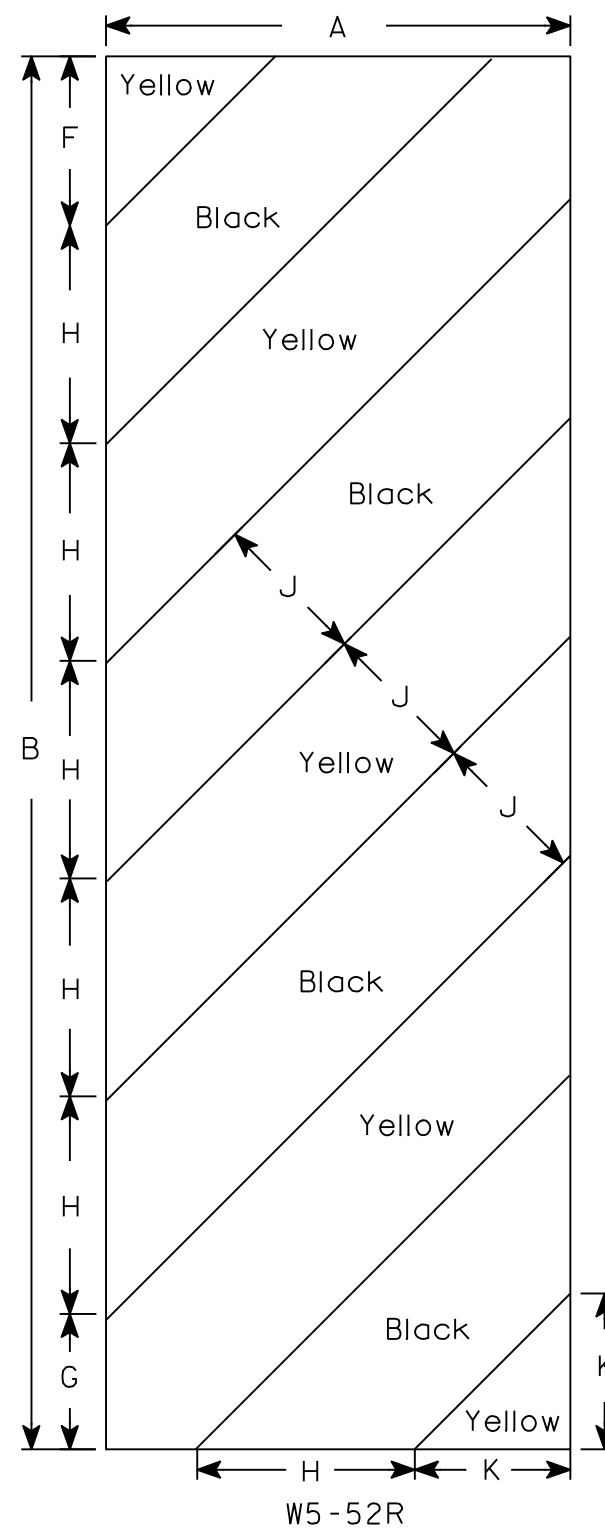
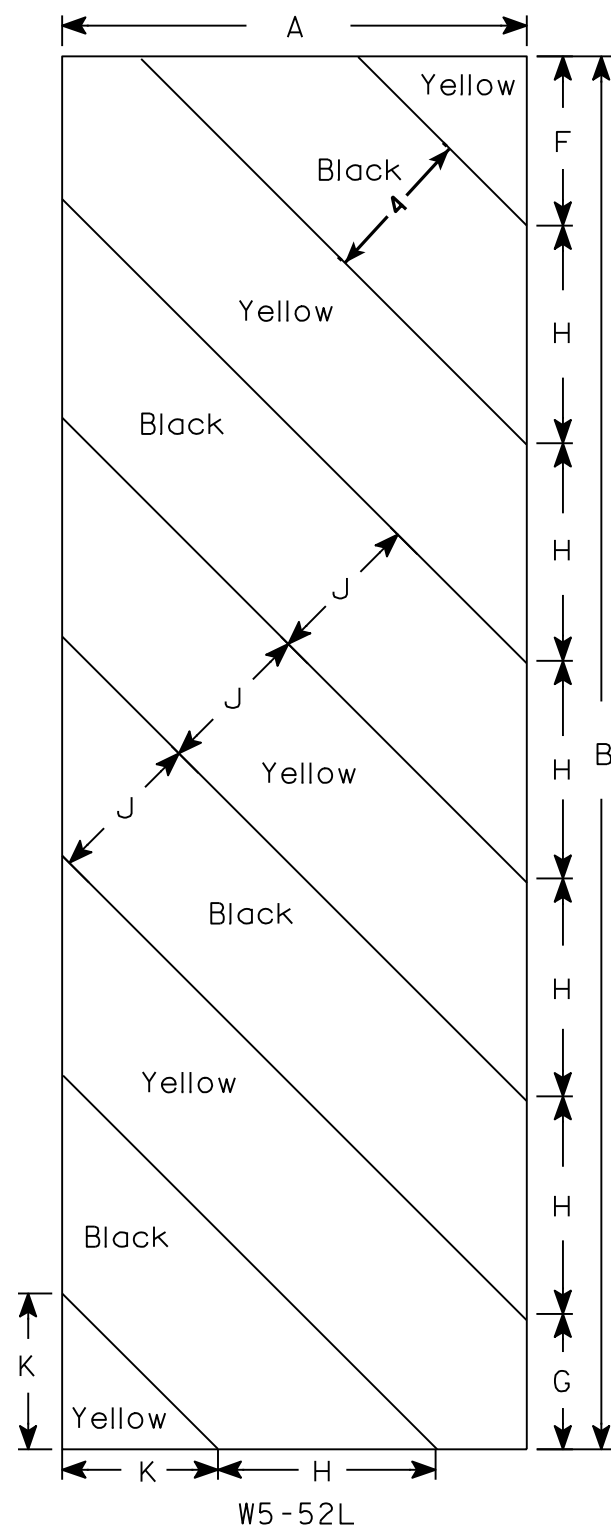
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	30		1 3/8	1/2	5/8	6 1/4	11 1/4	12 1/2	5 1/4	5 1/2	1/2	16	8	1 1/4	5	1 1/2		6 5/8	5 3/8	10 3/8							6.25
2	36		1 5/8	5/8	3/4	7 1/2	13 1/2	15 1/8	6 1/4	6 1/2	5/8	19 1/4	9 3/4	1 5/8	6	1 7/8		7 1/8	6 3/8	12 3/8							9.0
3	48		2 1/4	3/4	1	10	17 7/8	20 1/8	8 3/8	8 3/4	7/8	25 5/8	13	2	8	2 1/2		10 1/2	8 1/2	16 1/2							16.0
4	48		2 1/4	3/4	1	10	17 7/8	20 1/8	8 3/8	8 3/4	7/8	25 5/8	13	2	8	2 1/2		10 1/2	8 1/2	16 1/2							16.0
5																											

**STANDARD SIGN**  
S3-1

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

DATE 6/8/10 PLATE NO. S3-1.6



NOTES

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

7

7

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

STANDARD SIGN  
W5-52L & W5-52R

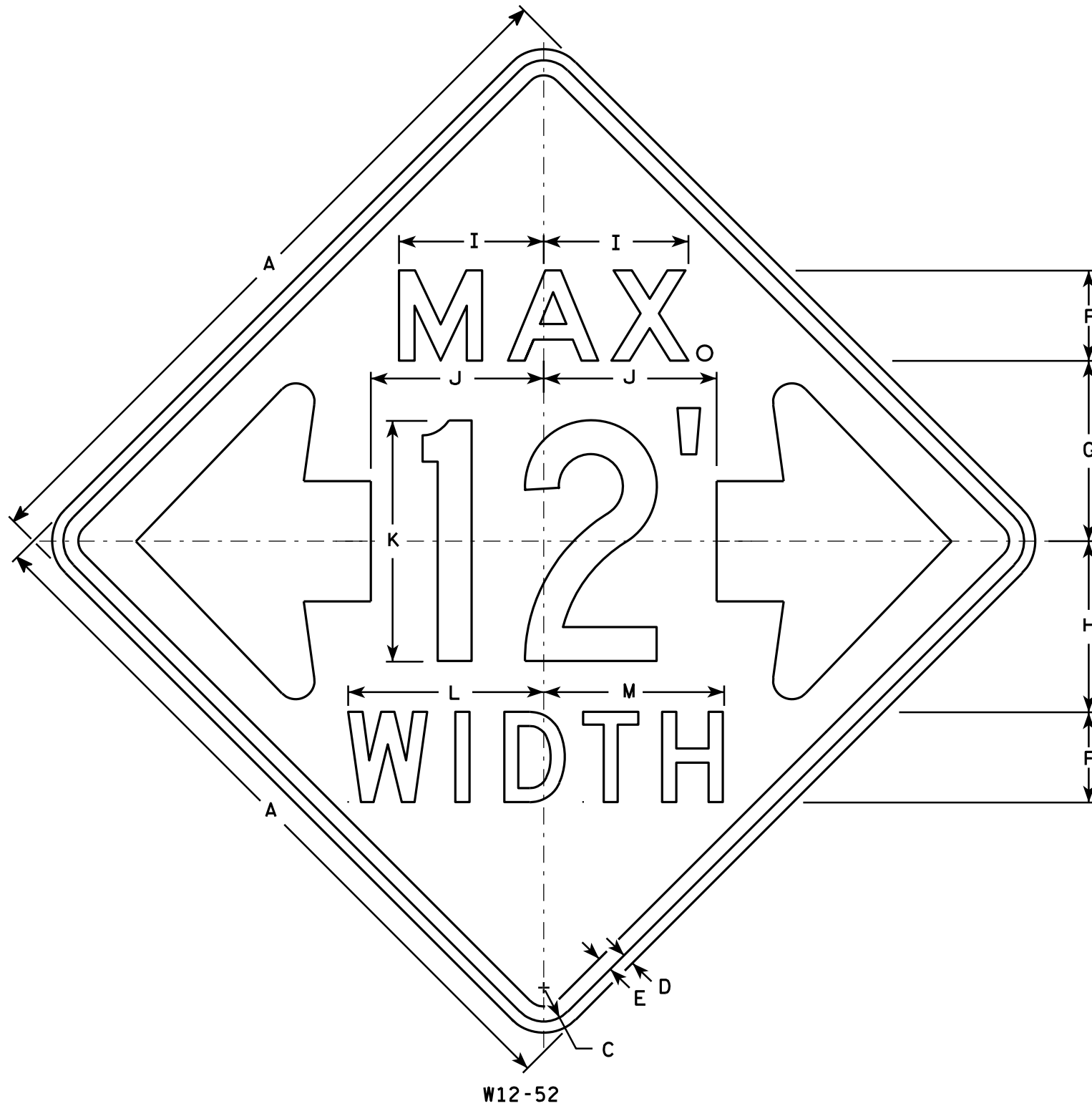
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

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

PROJECT NO: \_\_\_\_\_ HWY: \_\_\_\_\_ COUNTY: \_\_\_\_\_ SHEET NO: \_\_\_\_\_ E

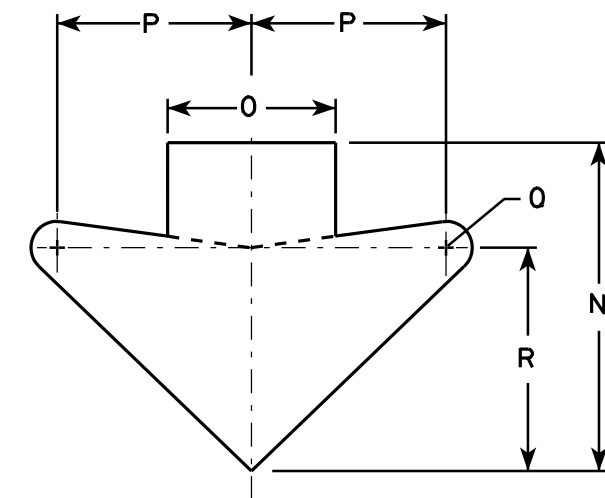




W12-52

**NOTES**

1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:  
Background - Orange  
Message - Black
3. Message Series - See note 5
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. The top line is series E, the numerals are series C, and the bottom line is series D.
6. Substitute appropriate numerals and adjust spacing as required.



**ARROW DETAIL**

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

**STANDARD SIGN**  
W12-52

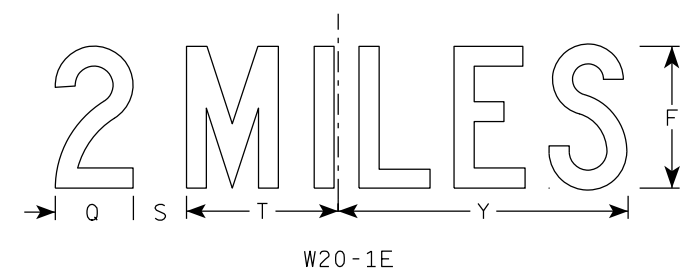
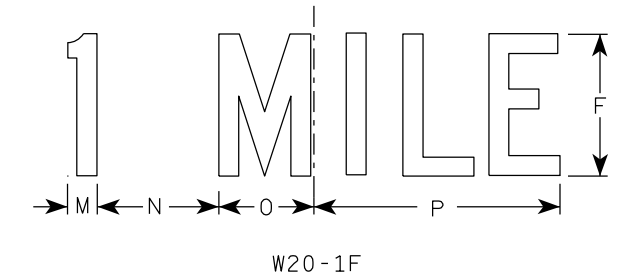
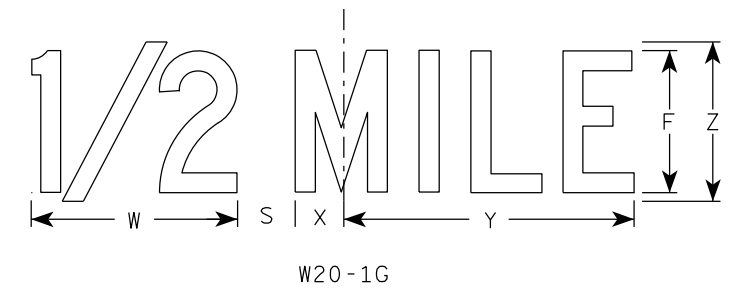
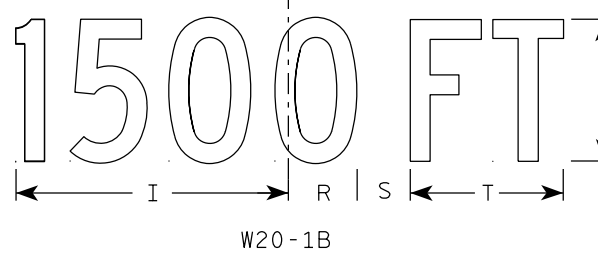
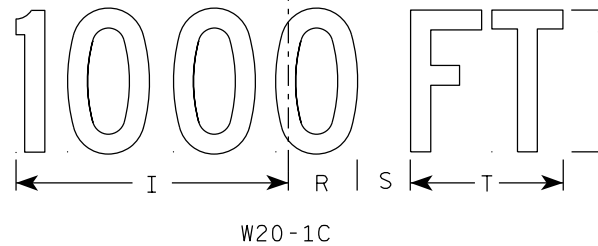
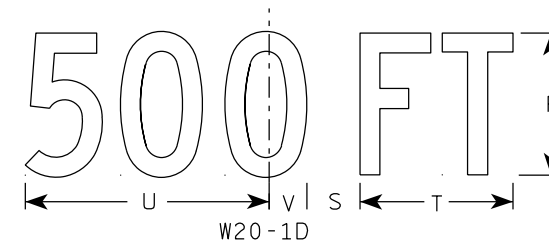
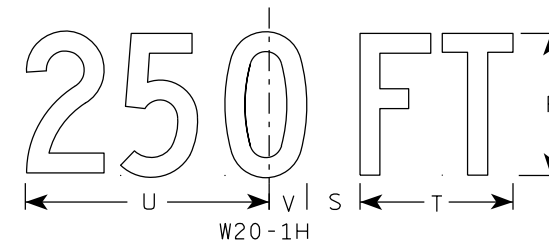
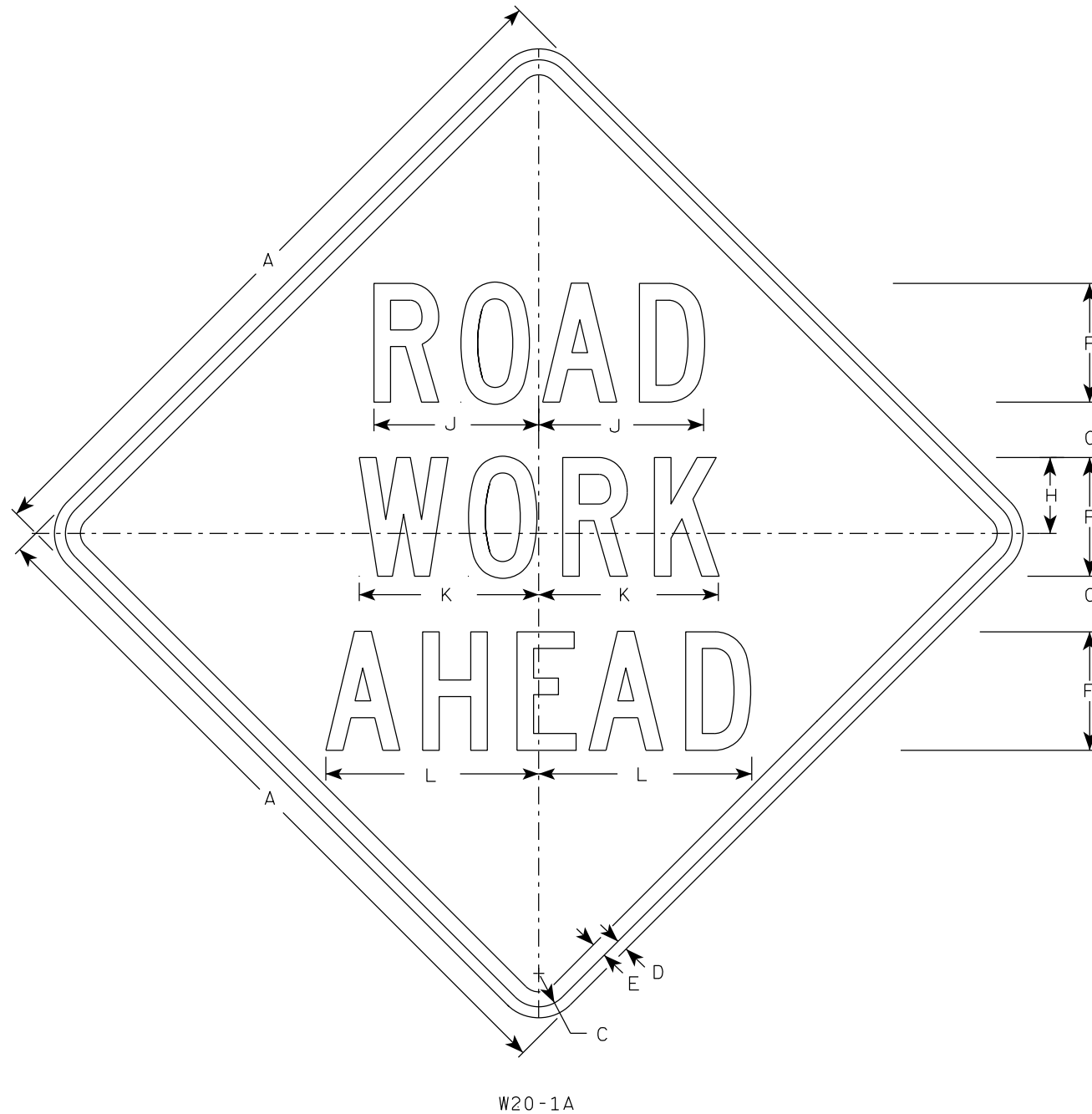
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

DATE 3/16/11 PLATE NO. W12-52.7

**NOTES**

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



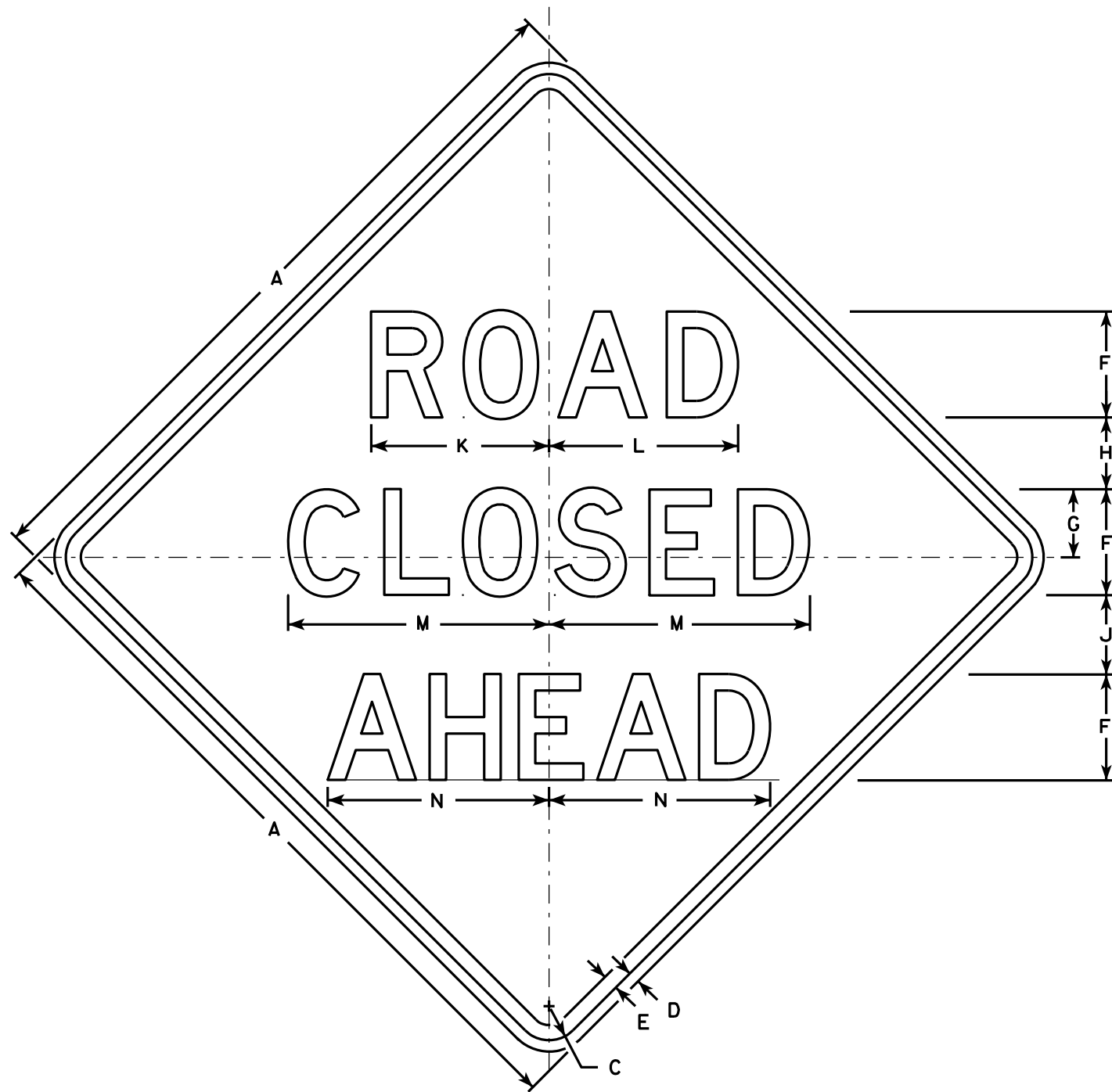
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36		1 5/8	5/8	3/4	5	2 5/8	3 1/4	10 1/8	7	7 5/8	8 7/8	1 1/8	4 1/2	3 1/2	9	3 1/4	2 1/2	2 1/4	5 5/8	9	1 3/8	8	1 3/4	10 3/4	6	9.0
2S	48		2 1/4	3/4	1	8	3 3/4	5 1/8	15 3/8	11 1/8	12 1/8	14 3/8	1 5/8	6 7/8	5 3/8	13 7/8	4 3/8	3 7/8	3	8 5/8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

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

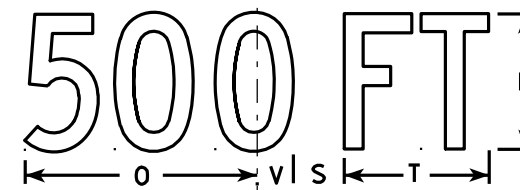
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
For State Traffic Engineer

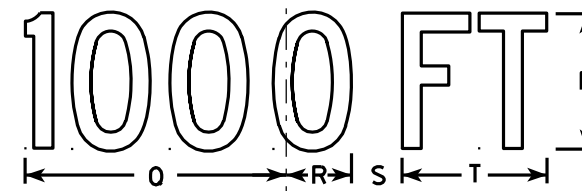
DATE 3/25/2020 PLATE NO. W20-1.11



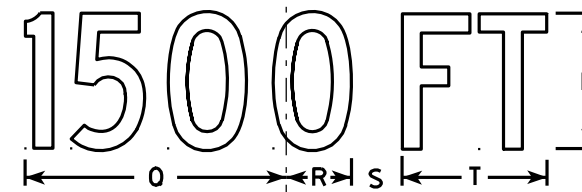
W20-3A



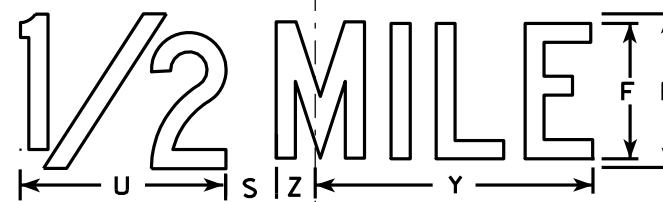
W20-3D



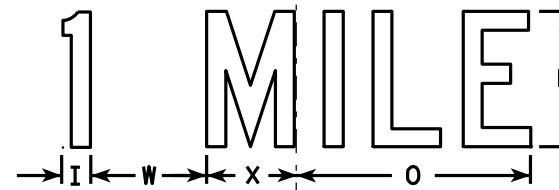
W20-3C



W20-3B



W20-3G



W20-3F

**NOTES**

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

7

7

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

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

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
For State Traffic Engineer

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

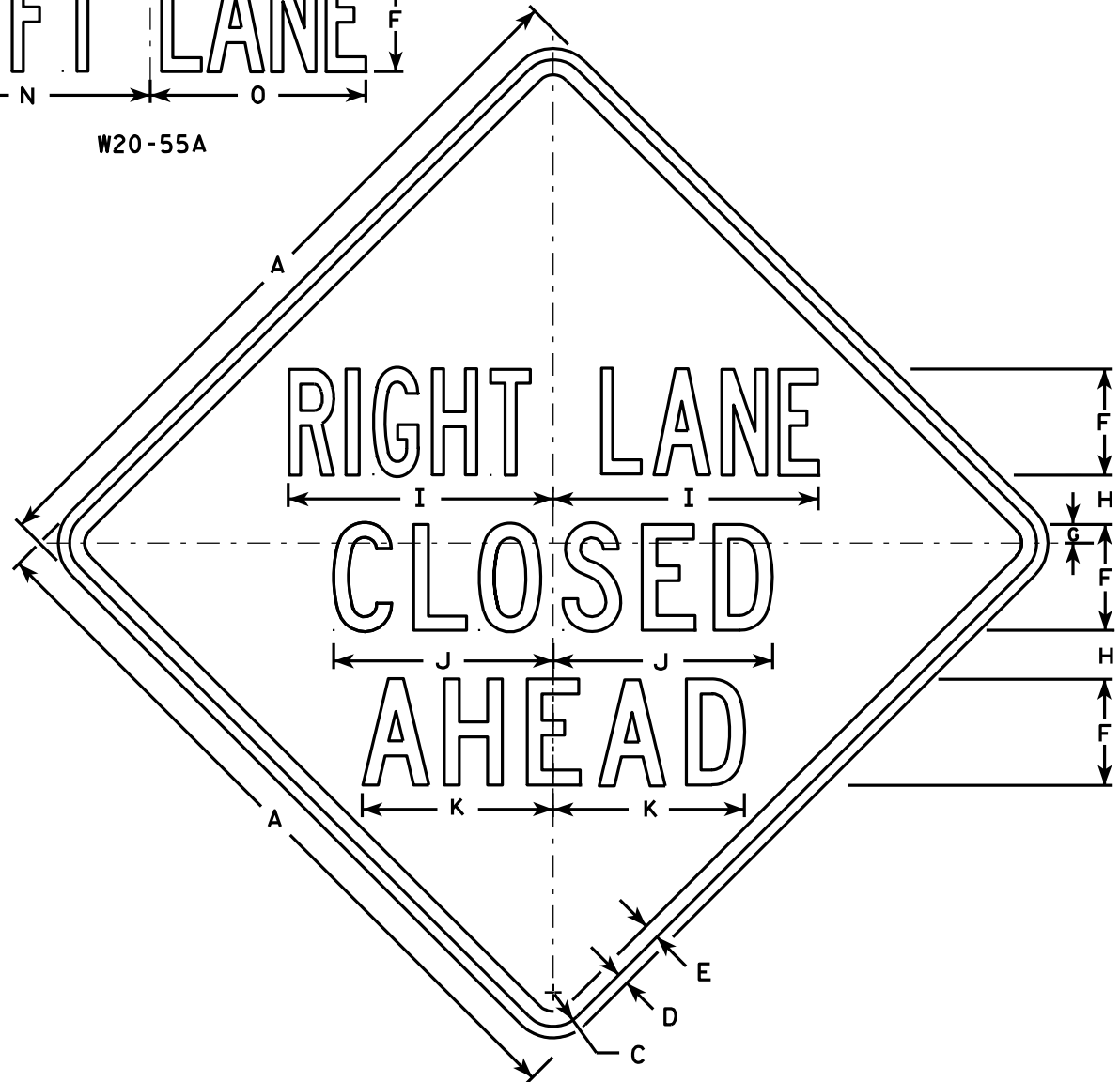
PROJECT NO: \_\_\_\_\_ HWY: \_\_\_\_\_ COUNTY: \_\_\_\_\_ SHEET NO: \_\_\_\_\_ E

CENTER LANE

W20-56A

LEFT LANE

W20-55A



W20-5A

NOTES

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

500 FT

W20-5D

1000 FT

W20-5C

1500 FT

W20-5B

1/2 MILE

W20-5G

1 MILE

W20-5F

7

7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36	6	1 5/8	5/8	3/4	5	7/8	2 1/2	13 1/8	10 3/4	9 1/2	14 1/4	13 5/8	12	12	1 3/8	1 1/8	4 1/2	3 1/2	9	1 7/8	5 5/8	10 1/8	2 1/2	1 3/4	8	9.0
2S	48	8	2 1/4	3/4	1	7	1 1/4	3 1/4	17 1/2	14 3/8	12 5/8	19	18 3/8	16	14 1/4	1 7/8	1 1/2	6	4 5/8	12	2 5/8	7 1/2	13 1/2	3 3/8	2 3/8	10 5/8	16.0
2M	48	8	2 1/4	3/4	1	7	1 1/4	3 1/4	17 1/2	14 3/8	12 5/8	19	18 3/8	16	14 1/4	1 7/8	1 1/2	6	4 5/8	12	2 5/8	7 1/2	13 1/2	3 3/8	2 3/8	10 5/8	16.0
3	48	8	2 1/4	3/4	1	7	1 1/4	3 1/4	17 1/2	14 3/8	12 5/8	19	18 3/8	16	14 1/4	1 7/8	1 1/2	6	4 5/8	12	2 5/8	7 1/2	13 1/2	3 3/8	2 3/8	10 5/8	16.0
4	48	8	2 1/4	3/4	1	7	1 1/4	3 1/4	17 1/2	14 3/8	12 5/8	19	18 3/8	16	14 1/4	1 7/8	1 1/2	6	4 5/8	12	2 5/8	7 1/2	13 1/2	3 3/8	2 3/8	10 5/8	16.0
5	48	8	2 1/4	3/4	1	7	1 1/4	3 1/4	17 1/2	14 3/8	12 5/8	19	18 3/8	16	14 1/4	1 7/8	1 1/2	6	4 5/8	12	2 5/8	7 1/2	13 1/2	3 3/8	2 3/8	10 5/8	16.0

STANDARD SIGN  
W20-5A, B, C, D, F & G

WISCONSIN DEPT OF TRANSPORTATION

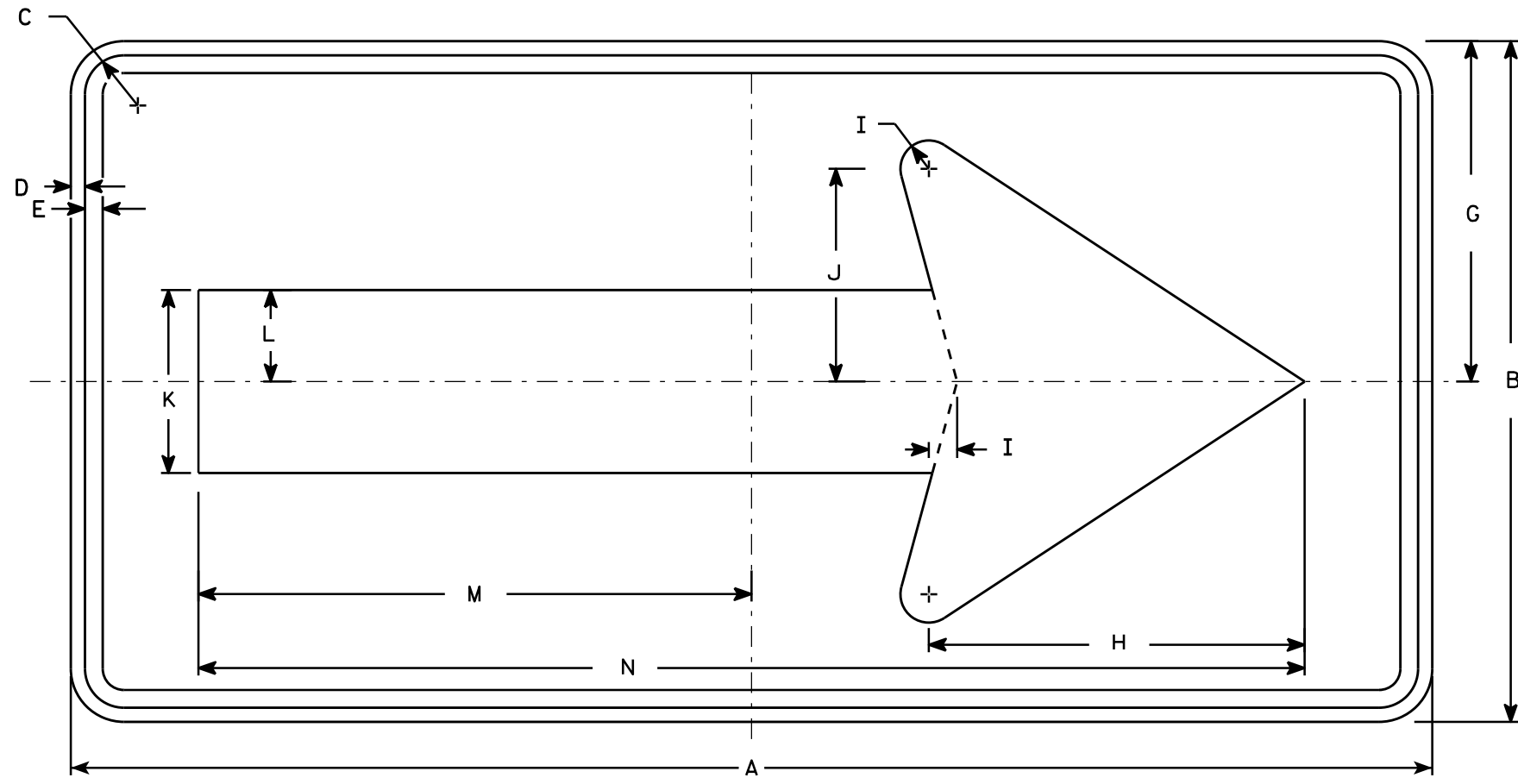
APPROVED *Matthew R. Rauch*  
For State Traffic Engineer

DATE 3/18/11 PLATE NO. W20-5.11

PROJECT NO: \_\_\_\_\_ HWY: \_\_\_\_\_ COUNTY: \_\_\_\_\_ SHEET NO: **E**

NOTES

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



W01-6

7

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

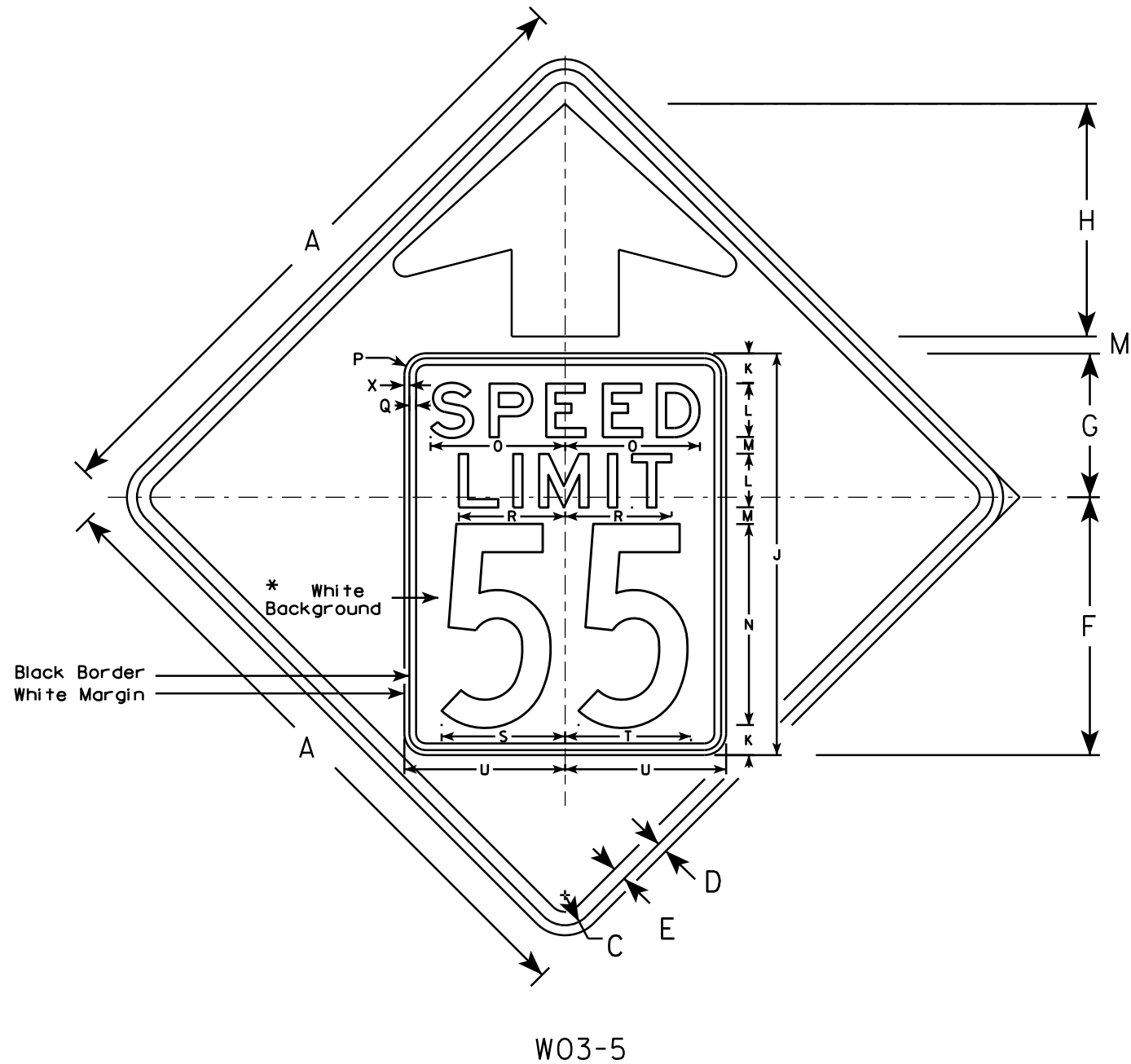
**STANDARD SIGN**  
**W01-6**

*WISCONSIN DEPT OF TRANSPORTATION*

APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

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

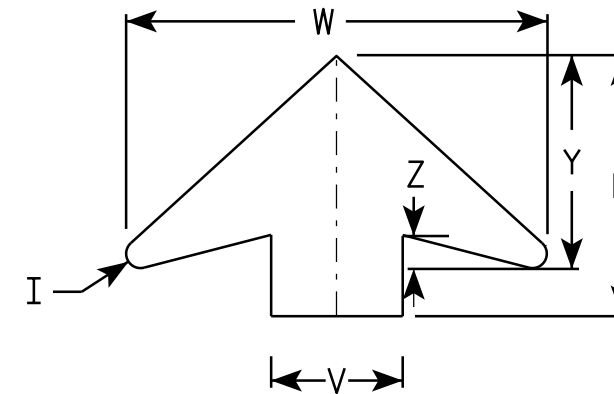
PROJECT NO: \_\_\_\_\_ HWY: \_\_\_\_\_ COUNTY: \_\_\_\_\_ SHEET NO: **E**



NOTES

1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color: \*  
Background - ORANGE\*  
Message - BLACK
3. Message Series - C for numbers Series E for wording
4. Substitute appropriate numerals and optically adjust spacing to achieve proper balance

\*Speed Limit Sign shall have a White Background



ARROW DETAIL

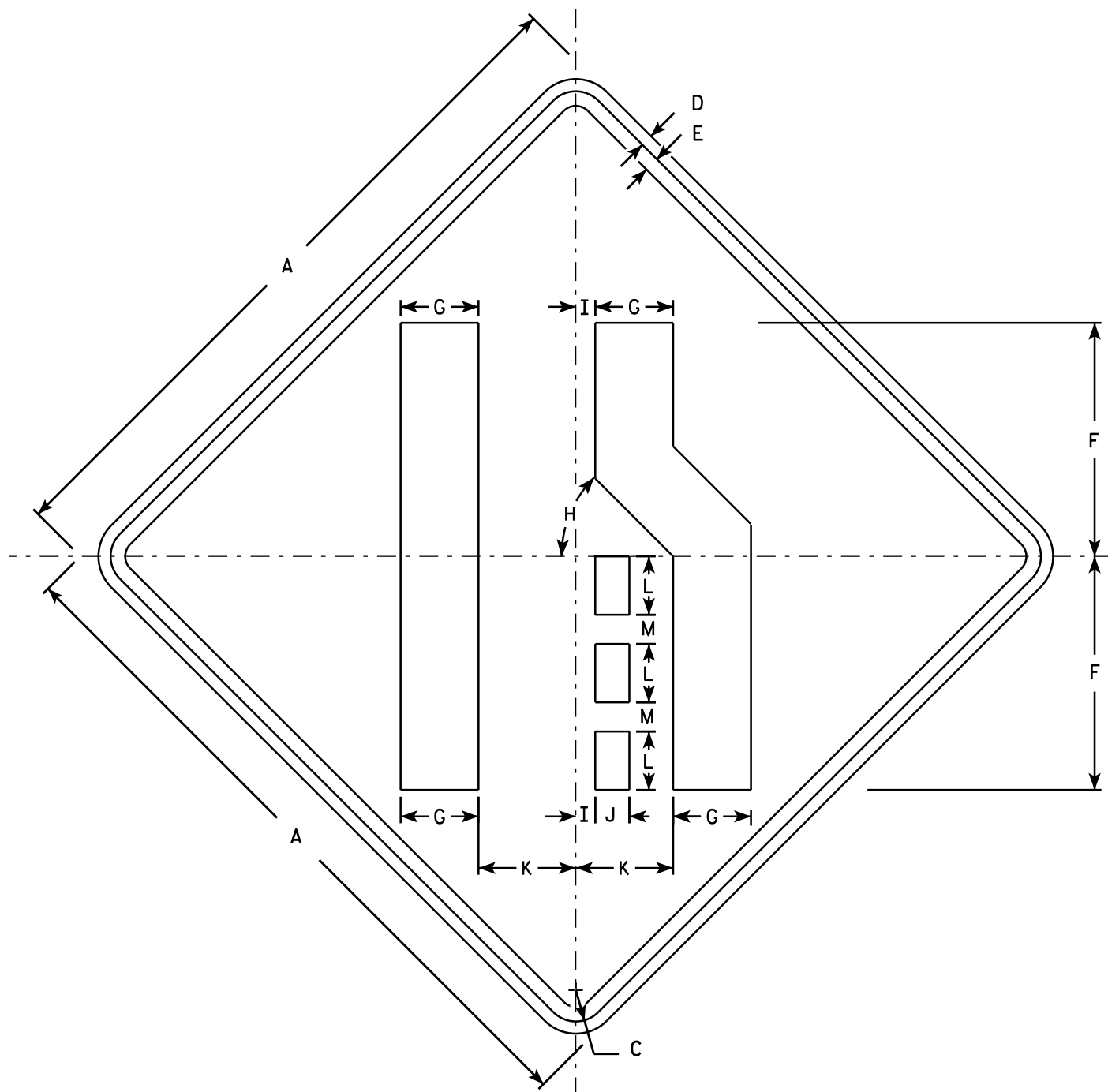
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36		1 5/8	5/8	3/4	14 1/2	9 1/2	11 1/2	5/8	24	2	3	1	12	7 1/8	1 1/2	3/8	5 3/4	7 1/4	7 1/8	9	6	19 1/4	3/8	9 3/4	1 5/8	9.0
2S	48		2 1/4	3/4	1	19 1/4	10 3/4	17 3/8	7/8	30	2 1/4	4	1 1/4	15	10	1 5/8	1/2	8	9 1/4	9 3/8	12	8	25 5/8	3/8	13	2	16.0
2M	48		2 1/4	3/4	1	19 1/4	10 3/4	17 3/8	7/8	30	2 1/4	4	1 1/4	15	10	1 5/8	1/2	8	9 1/4	9 3/8	12	8	25 5/8	3/8	13	2	16.0
3	48		2 1/4	3/4	1	19 1/4	10 3/4	17 3/8	7/8	30	2 1/4	4	1 1/4	15	10	1 5/8	1/2	8	9 1/4	9 3/8	12	8	25 5/8	3/8	13	2	16.0
4	48		2 1/4	3/4	1	19 1/4	10 3/4	17 3/8	7/8	30	2 1/4	4	1 1/4	15	10	1 5/8	1/2	8	9 1/4	9 3/8	12	8	25 5/8	3/8	13	2	16.0
5	48		2 1/4	3/4	1	19 1/4	10 3/4	17 3/8	7/8	30	2 1/4	4	1 1/4	15	10	1 5/8	1/2	8	9 1/4	9 3/8	12	8	25 5/8	3/8	13	2	16.0

STANDARD SIGN  
W03-5

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
For State Traffic Engineer

DATE 11/20/13 PLATE NO. W03-5.1



W04-2R

NOTES

1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:  
Background - Orange  
Message - Black
3. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
4. W04-2L is the same as W04-2R except the symbol is reversed along the vertical centerline.

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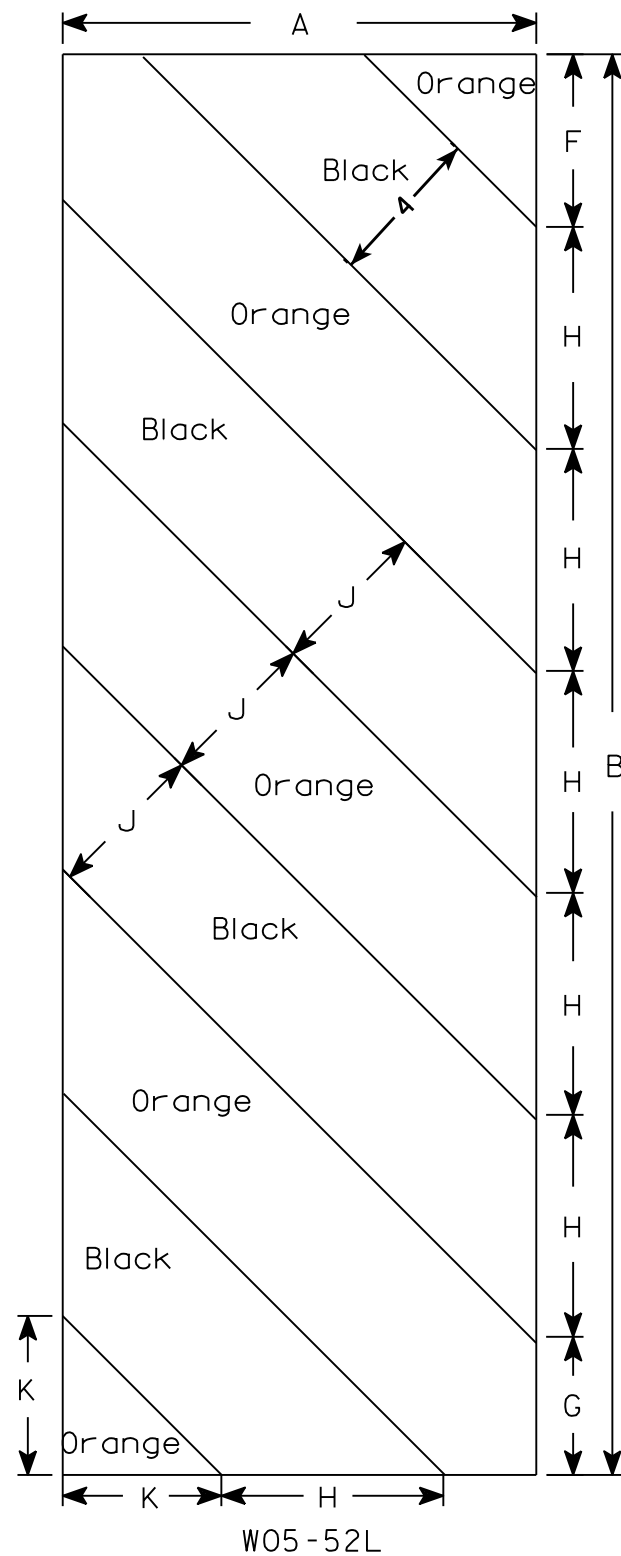
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36		1 5/8	5/8	3/4	12	4	45°	1	1 3/4	5	3	1 1/2														9.0
2S	48		2 1/4	3/4	1	16	5 3/8	45°	1 1/4	2 3/8	6 3/4	4	2														16.0
2M	48		2 1/4	3/4	1	16	5 3/8	45°	1 1/4	2 3/8	6 3/4	4	2														16.0
3	48		2 1/4	3/4	1	16	5 3/8	45°	1 1/4	2 3/8	6 3/4	4	2														16.0
4	48		2 1/4	3/4	1	16	5 3/8	45°	1 1/4	2 3/8	6 3/4	4	2														16.0
5	48		2 1/4	3/4	1	16	5 3/8	45°	1 1/4	2 3/8	6 3/4	4	2														16.0

**STANDARD SIGN**  
**W04-2**

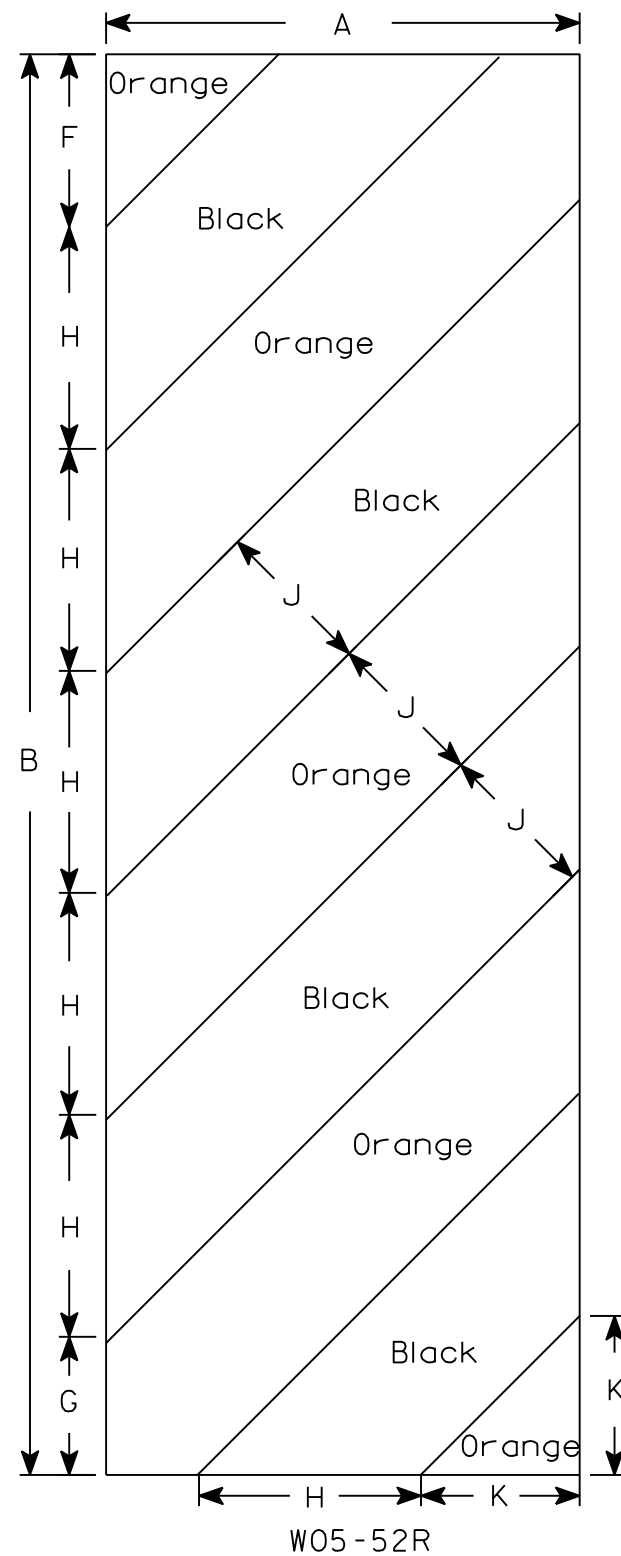
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
For State Traffic Engineer

DATE 11/20/13 PLATE NO. W04-2.1



W05-52L



W05-52R

**NOTES**

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

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

**STANDARD SIGN**  
W05-52L & W05-52R

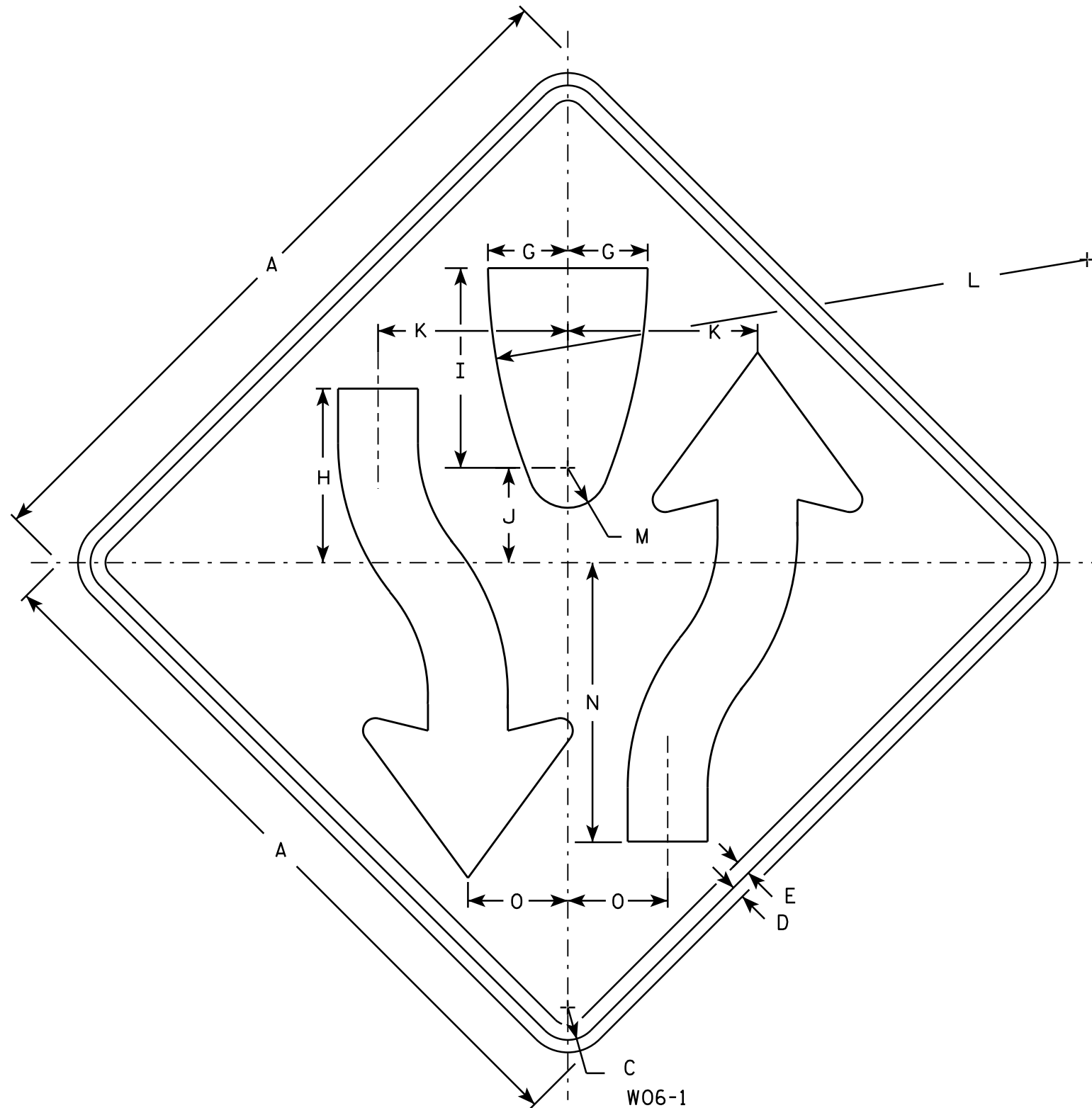
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R Raub*  
for State Traffic Engineer

DATE 11/20/13 PLATE NO. W05-52.1

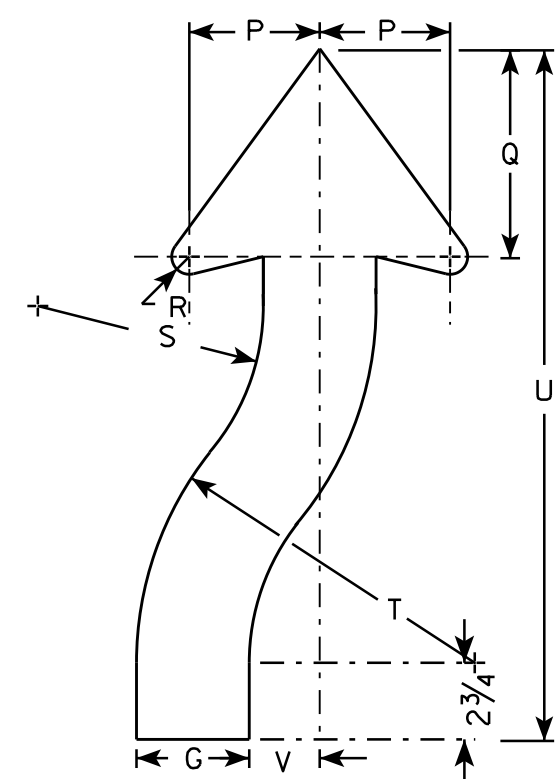
PROJECT NO: \_\_\_\_\_ HWY: \_\_\_\_\_ COUNTY: \_\_\_\_\_ SHEET NO: **E**





**NOTES**

1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:  
Background - Orange  
Message - Black
3. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
4. W06-2 same as W06-1 but is rotated 180° when mounted.



**ARROW DETAIL**

W06-1

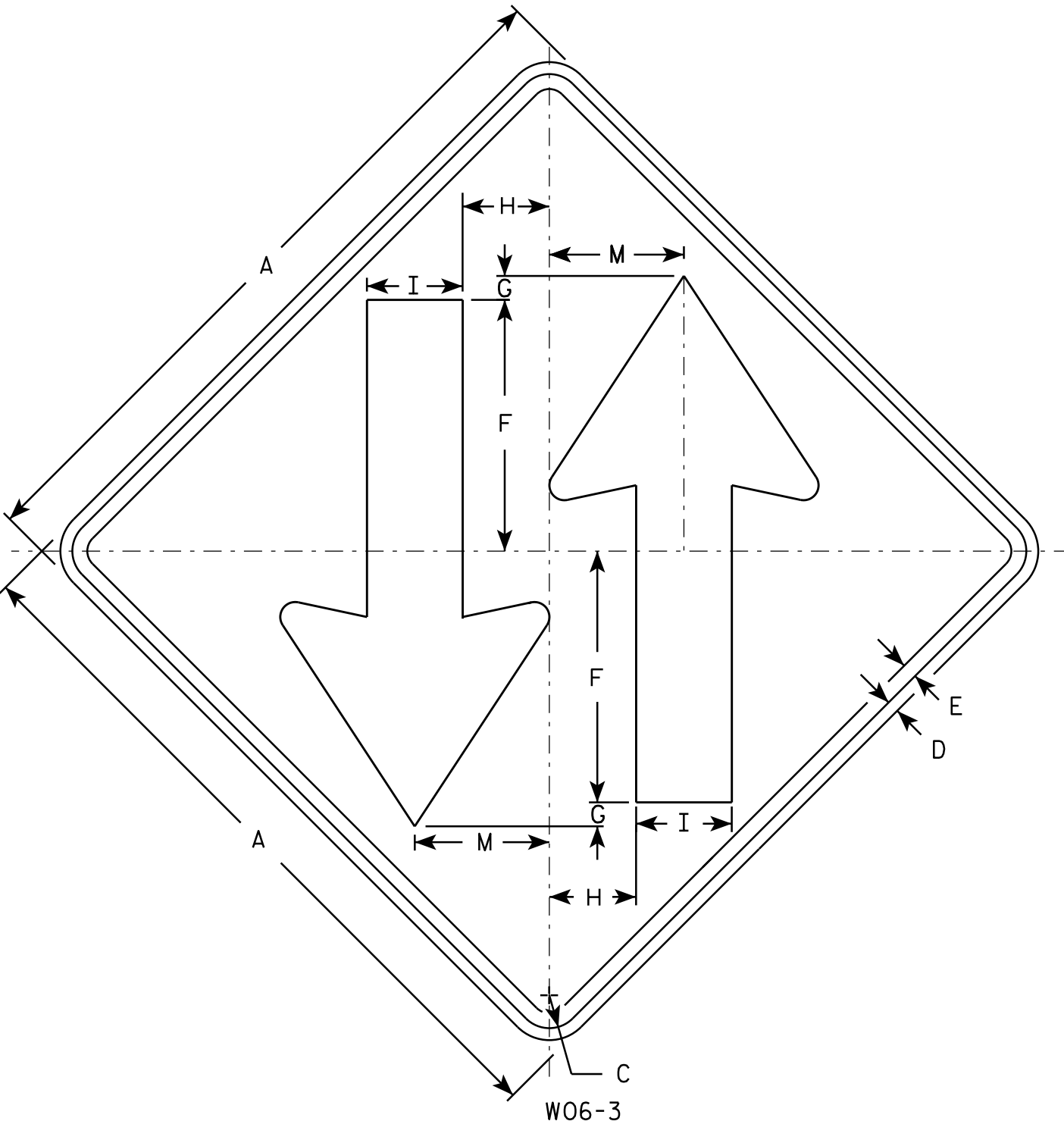
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36		1 5/8	5/8	3/4		4	8 3/4	10	4 3/4	9 1/2	30	2	14	5	4 5/8	7 3/8	7/8	8	12	24 1/2	2 1/2				9.0	
2S	48		2 1/4	3/4	1		5 3/8	11 5/8	13 3/8	6 3/8	12 5/8	40	2 5/8	18 5/8	6 5/8	6 1/4	9 7/8	1 1/4	10 5/8	16	32 5/8	3 3/8				16.0	
2M	48		2 1/4	3/4	1		5 3/8	11 5/8	13 3/8	6 3/8	12 5/8	40	2 5/8	18 5/8	6 5/8	6 1/4	9 7/8	1 1/4	10 5/8	16	32 5/8	3 3/8				16.0	
3	48		2 1/4	3/4	1		5 3/8	11 5/8	13 3/8	6 3/8	12 5/8	40	2 5/8	18 5/8	6 5/8	6 1/4	9 7/8	1 1/4	10 5/8	16	32 5/8	3 3/8				16.0	
4	48		2 1/4	3/4	1		5 3/8	11 5/8	13 3/8	6 3/8	12 5/8	40	2 5/8	18 5/8	6 5/8	6 1/4	9 7/8	1 1/4	10 5/8	16	32 5/8	3 3/8				16.0	
5	48		2 1/4	3/4	1		5 3/8	11 5/8	13 3/8	6 3/8	12 5/8	40	2 5/8	18 5/8	6 5/8	6 1/4	9 7/8	1 1/4	10 5/8	16	32 5/8	3 3/8				16.0	

**STANDARD SIGN**  
W06-1 & W06-2

WISCONSIN DEPT OF TRANSPORTATION

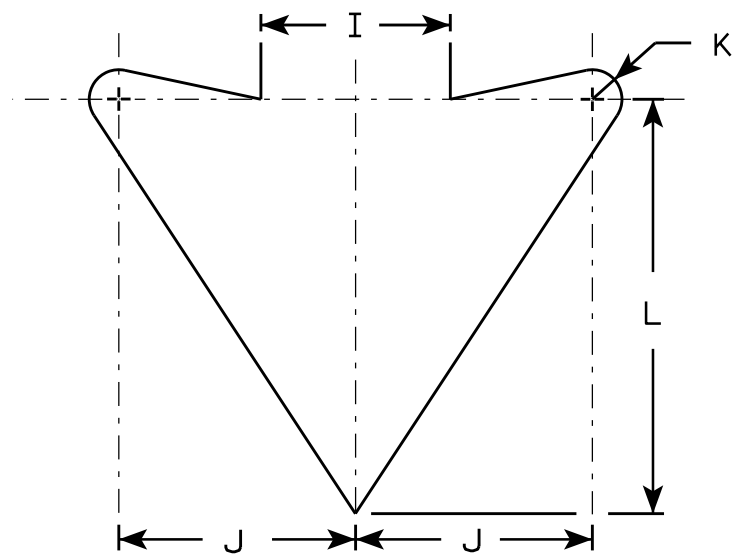
APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

DATE 11/20/13 PLATE NO. W06-1.1



NOTES

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



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	36		1 5/8	5/8	3/4	12	1	4 1/4	5	6	3/4	10 1/2	6 3/4														9.0
2S	48		2 1/4	3/4	1	15 1/2	1	6	6	8	1	14	9														16.0
2M	48		2 1/4	3/4	1	15 1/2	1	6	6	8	1	14	9														16.0
3	48		2 1/4	3/4	1	15 1/2	1	6	6	8	1	14	9														16.0
4	48		2 1/4	3/4	1	15 1/2	1	6	6	8	1	14	9														16.0
5	48		2 1/4	3/4	1	15 1/2	1	6	6	8	1	14	9														16.0

**STANDARD SIGN**  
**W06-3**

WISCONSIN DEPT OF TRANSPORTATION

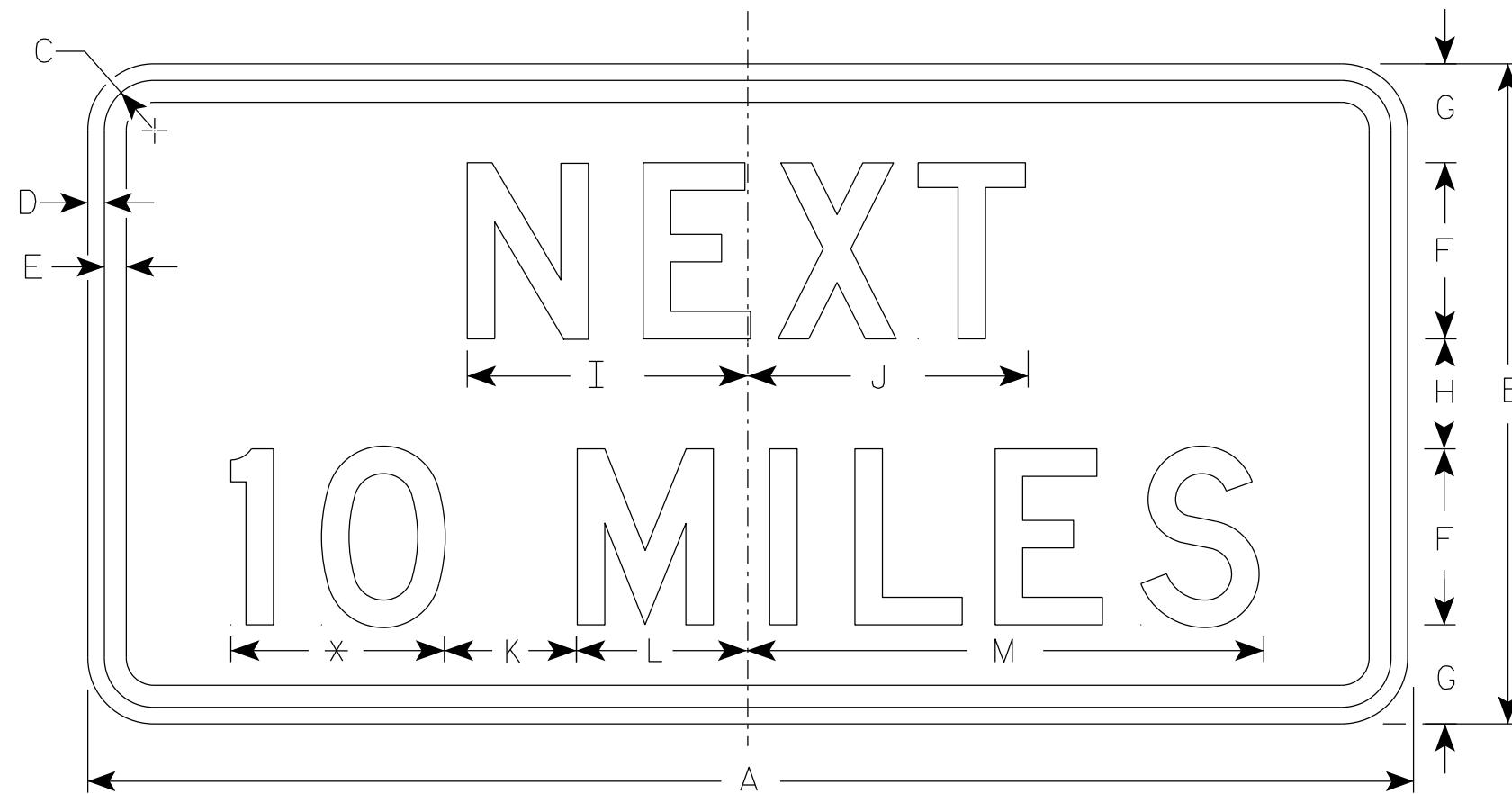
APPROVED *Matthew R. Raub*  
For State Traffic Engineer

DATE 11/20/13 PLATE NO. W06-3.1

PROJECT NO: \_\_\_\_\_ HWY: \_\_\_\_\_ COUNTY: \_\_\_\_\_ SHEET NO: **E**

NOTES

1. Sign is Type II - Type F Reflective
2. Color:  
Background - Orange  
Message - Black
3. Message Series - D
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. Round distance to the nearest whole Mile and substitute appropriate numerals and optically adjust spacing to achieve proper balance.



W057-51

\* See note 5

7

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SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36	18	1 1/8	3/8	1/2	5	2 3/4	2 1/2	7 7/8	8	5	4 1/8	15 3/8														4.5
2S	48	24	1 3/8	1/2	5/8	6	4	4	10	10 1/8	6	5 5/8	19														8.0
2M	48	24	1 3/8	1/2	5/8	6	4	4	10	10 1/8	6	5 5/8	19														8.0
3	48	24	1 3/8	1/2	5/8	6	4	4	10	10 1/8	6	5 5/8	19														8.0
4	48	24	1 3/8	1/2	5/8	6	4	4	10	10 1/8	6	5 5/8	19														8.0
5	48	24	1 3/8	1/2	5/8	6	4	4	10	10 1/8	6	5 5/8	19														8.0

STANDARD SIGN  
W057-51

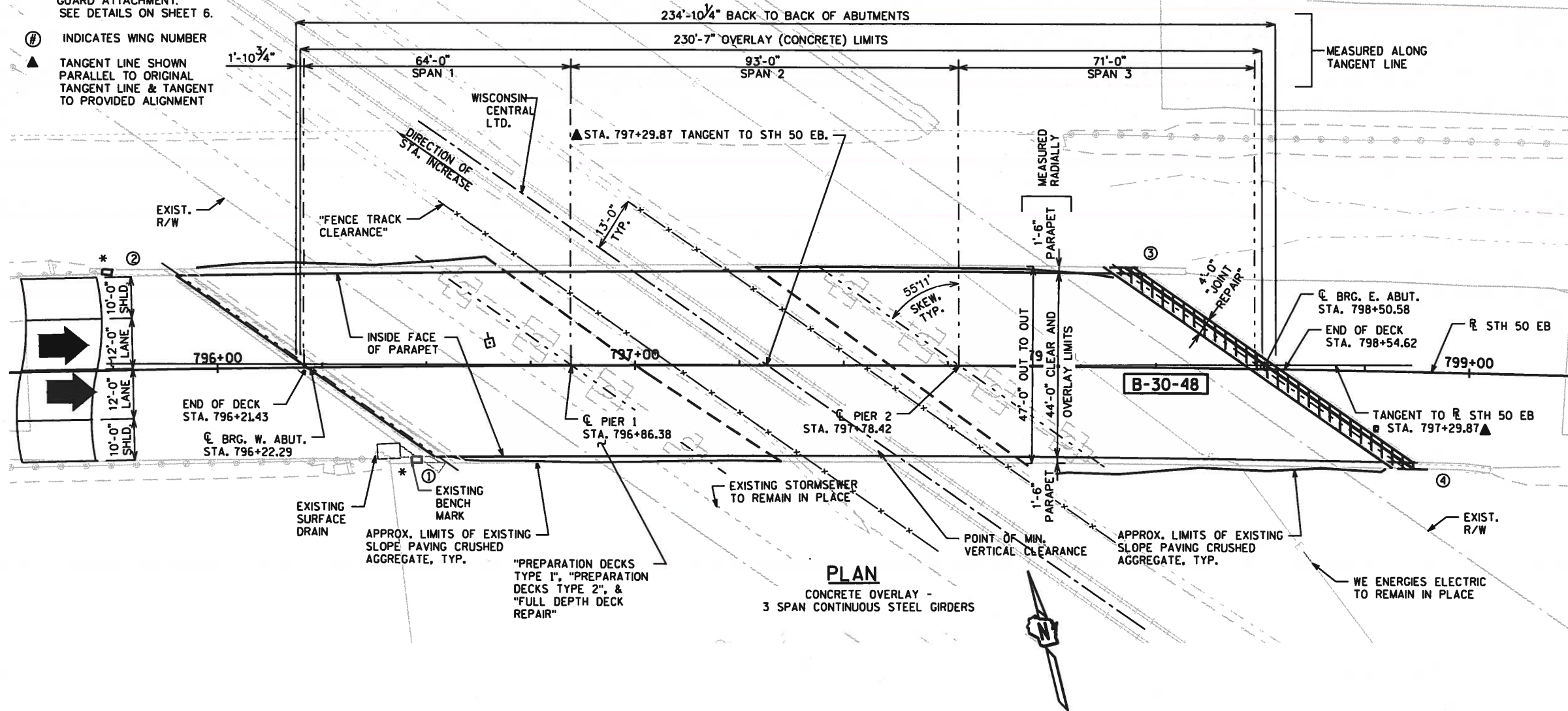
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

DATE 5/1/19 PLATE NO. W057-51.3

PROJECT NO: \_\_\_\_\_ HWY: \_\_\_\_\_ COUNTY: \_\_\_\_\_ SHEET NO: **E**

- \* PROVIDE THREE BEAM GUARD ATTACHMENT. SEE DETAILS ON SHEET 6.
- ② INDICATES WING NUMBER
- ▲ TANGENT LINE SHOWN PARALLEL TO ORIGINAL TANGENT LINE & TANGENT TO PROVIDED ALIGNMENT



**PLAN**  
CONCRETE OVERLAY -  
3 SPAN CONTINUOUS STEEL GIRDERS

**DESIGN DATA**

**LIVE LOAD:**  
 DESIGN LOADING: HS-20  
 INVENTORY RATING: HS-20  
 OPERATING RATING: HS-34  
 WIS. STD. PERMIT VEHICLE (Wis-SPV): 250 KIPS

**MATERIAL PROPERTIES**  
 CONCRETE MASONRY OVERLAY DECKS  $f_c = 4,000$  PSI  
 ALL OTHERS  $f_c = 3,500$  PSI  
 HIGH STRENGTH BAR STEEL  
 REINFORCEMENT GRADE 60  $f_y = 60,000$  PSI

**SCOPE OF WORK B-30-48**

1. PLACE OVERLAY ON SLAB
2. CONCRETE SURFACE REPAIR
3. JOINT REPLACEMENT
4. BEARING REPLACEMENT
5. GIRDER PAINTING
6. SLOPE PAVING REPAIR

**TRAFFIC DATA**

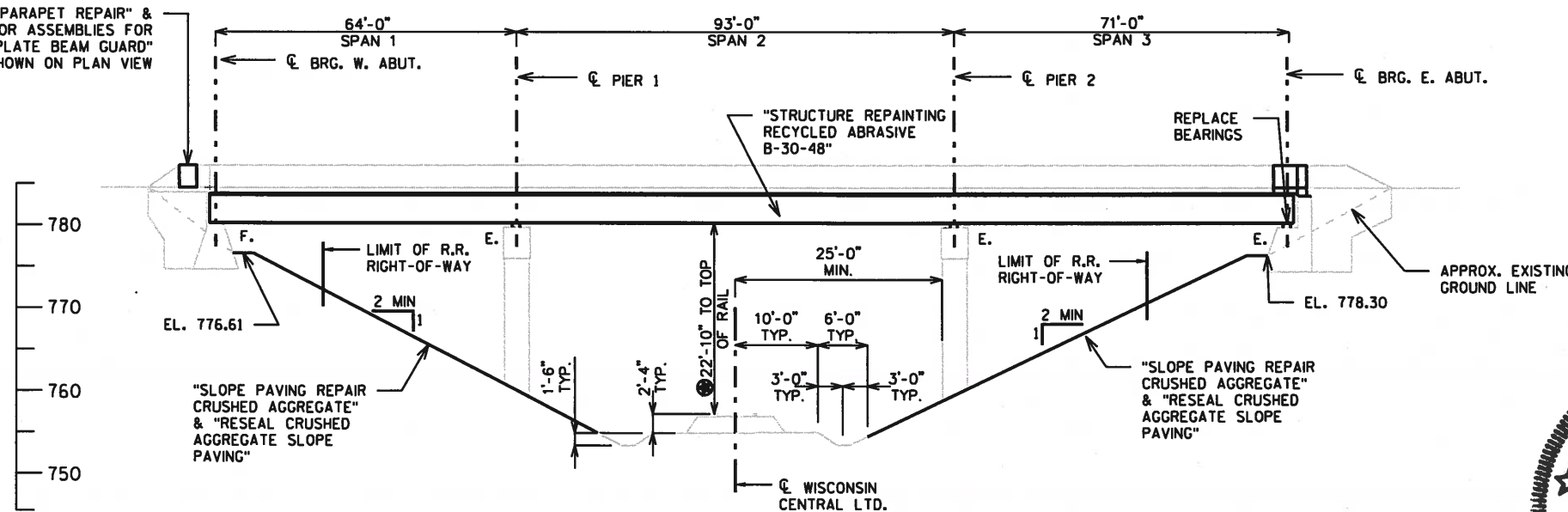
STH 50  
 AADT = 20,200 (2024)  
 25,300 (2044)  
 RDS = 60 MPH

WISCONSIN CENTRAL LTD. (CROSSING #689825M)  
 24 TRAINS/DAY  
 @ 5-60 MPH

**CURVE DATA**

P.I. STA. 796+66.39  
 $\Delta = 5^\circ-20'-1.68''$   
 $D = 0^\circ-45'-7.2''$   
 $L = 709.26'$   
 $R = 7618.85'$   
 $S.E. = 0.021\%$   
 P.C. = STA. 793+11.51  
 P.T. = STA. 800+20.77

"PARAPET REPAIR" &  
 "ANCHOR ASSEMBLIES FOR  
 STEEL PLATE BEAM GUARD"  
 AS SHOWN ON PLAN VIEW



**ELEVATION**

(LOOKING NORTH - NORMAL TO WISCONSIN CENTRAL R.R.)

**DRAWING LIST**

1. GENERAL PLAN & ELEVATION
2. CROSS SECTION & QUANTITIES
3. EXPANSION BEARING DETAILS
4. CONCRETE DETAILS & DECK BILL OF BARS
5. STRIP SEAL EXP. JT. & ABUT. BILL OF BARS
6. COVER PLATE & PARAPET DETAILS
7. SLOPE REPAIR
8. INFRARED DECK SURVEY

**BUREAU OF STRUCTURES CONTACT:**  
 AARON BONK (608) 261-0261  
**CONSULTANT CONTACT:**  
 KEVIN WOOD (414) 259-1500

NO.	DATE	REVISION	BY



STATE OF WISCONSIN  
 DEPARTMENT OF  
 TRANSPORTATION  
 ACCEPTED *[Signature]* SDR **02/06/23**  
 CHIEF STRUCTURES DESIGN ENGINEER DATE

**STRUCTURE B-30-48**

STH 50 EB & 83 SB OVER WISCONSIN CENTRAL R.R.

COUNTY KENOSHA TOWN WHEATLAND

DESIGN SPEC. N/A REHABILITATION

DESIGNED BY WAR CKD DESIGNED BY KGW DRAWN BY WAR CKD PLANS BY KGW

**GENERAL PLAN & ELEVATION**

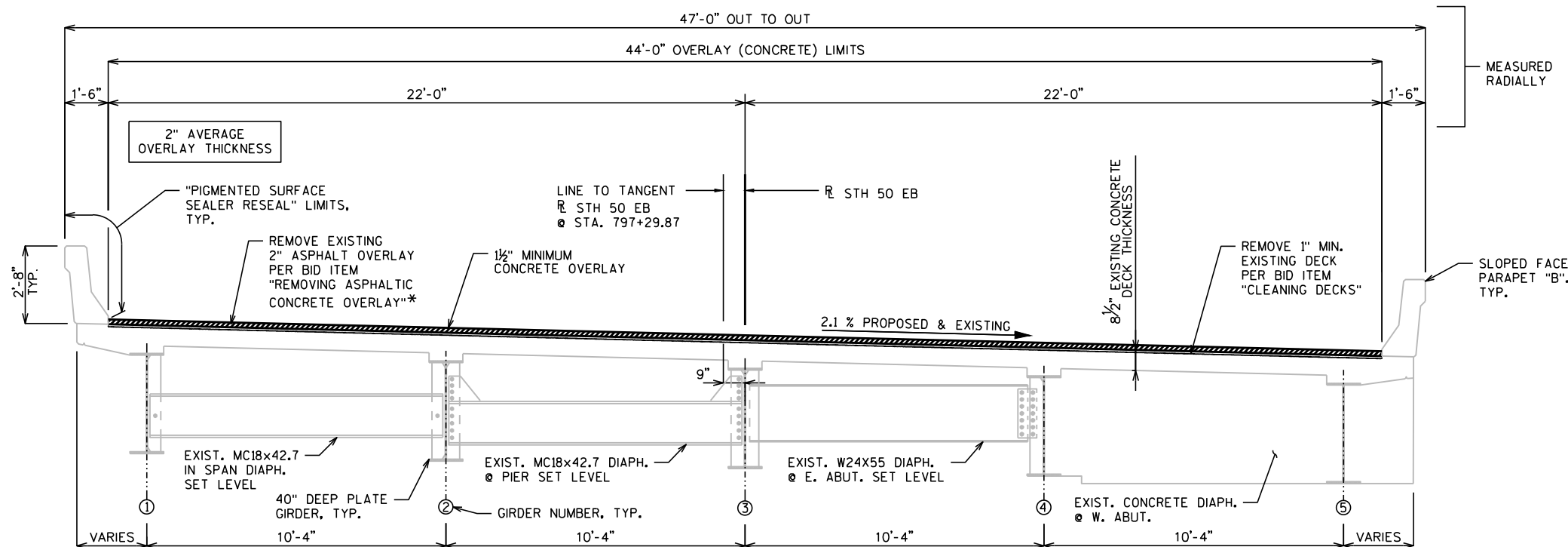
SHEET 1 OF 8



January 13, 2023

**LEGEND**

● MEASUREMENT TAKEN FROM HSI 12/03/2021. MEASUREMENT UPDATED IN HSI 06/18/2012.



## TYPICAL SECTION

(LOOKING EAST)

\*THE CONCRETE DECK WAS NOT MILLED PRIOR TO PLACING THE EXISTING ASPHALT OVERLAY.

## TOTAL ESTIMATED QUANTITIES

ITEM NUMBER	BID ITEM	UNIT	W. ABUT.	PIER 1	PIER 2	E. ABUT.	SUPER.	TOTALS
203.0330	DEBRIS CONTAINMENT B-30-48	EACH	-	-	-	-	-	1
502.3101	EXPANSION DEVICE	LF	-	-	-	79	-	79
502.3200	PROTECTIVE SURFACE TREATMENT	SY	-	-	-	10	1,129	1,139
502.3205	PIGMENTED SURFACE SEALER RESEAL	SY	11	-	-	12	188	211
502.4205	ADHESIVE ANCHORS NO. 5 BAR	EACH	-	-	-	82	-	82
505.0400	BAR STEEL REINFORCEMENT HS STRUCTURES	LB	10	-	-	770	250	1,030
505.0600	BAR STEEL REINFORCEMENT HS COATED STRUCTURES	LB	-	-	-	-	1,150	1,150
506.6000	BEARING ASSEMBLIES EXPANSION B-30-48	EACH	-	-	-	-	5	5
506.7050.S.01	REMOVING BEARINGS B-30-48	EACH	-	-	-	-	5	5
509.0301	PREPARATION DECKS TYPE 1	SY	-	-	-	-	4	4
509.0302	PREPARATION DECKS TYPE 2	SY	-	-	-	-	2	2
509.0500	CLEANING DECKS	SY	-	-	-	-	1,106	1,106
509.1000	JOINT REPAIR	SY	-	-	-	11	28	39
509.1500	CONCRETE SURFACE REPAIR	SF	4	-	-	-	184	188
509.2000	FULL-DEPTH DECK REPAIR	SY	-	-	-	-	5	5
509.2500	CONCRETE MASONRY OVERLAY DECKS	CY	-	-	-	4	80	84
509.9010.S.01	REMOVING ASPHALTIC CONCRETE DECK OVERLAY B-30-48	SY	-	-	-	-	1,106	1,106
* 517.1801.S.01	STRUCTURE REPAINTING RECYCLED ABRASIVE B-30-48	EACH	-	-	-	-	-	1
517.4501.S.01	NEGATIVE PRESSURE CONTAINMENT AND COLLECTION OF WASTE MATERIALS B-30-48	EACH	-	-	-	-	-	1
517.6001.S	PORTABLE DECONTAMINATION FACILITY	EACH	-	-	-	-	-	1
604.9010.S	SLOPE PAVING REPAIR CRUSHED AGGREGATE	CY	21	-	-	22	-	43
604.9015.S	RESEAL CRUSHED AGGREGATE SLOPE PAVING	SY	490	-	-	520	-	1,010
614.0150	ANCHOR ASSEMBLIES FOR STEEL PLATE BEAM GUARD	EACH	1	-	-	-	-	1
616.0800.S	FENCE TRACK CLEARANCE	LF	-	-	-	-	-	265
SPV.0060.01	PARAPET REPAIR	EACH	2	-	-	-	-	2
* SPV.0090.01	PREPARATION AND COATING OF BOTTOM FLANGES B-30-48	LF	-	-	-	-	-	465

\* FOR INFORMATIONAL PURPOSES ONLY: APPROXIMATELY 16,836 SF OF STRUCTURAL STEEL TO BE PAINTED. SEE GENERAL NOTES.

## GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

ALL STATIONS AND ELEVATIONS ARE IN FEET. ELEVATIONS ARE REFERENCE TO THE NAVD 88 2012.

ROADWAY ALIGNMENT PROVIDED BY WISDOT SE REGION. STRUCTURE STATIONING ESTABLISHED ALONG PROVIDED ALIGNMENT WITH REFERENCE TO SURVEY DATA.

DIMENSIONS SHOWN ARE BASED ON THE ORIGINAL STRUCTURE PLANS.

EXISTING STRUCTURE B-30-48 IS A 3 SPAN CONTINUOUS STEEL GIRDER BRIDGE WITH A WIDTH OF 47'-0" AND END TO END OF DECK LENGTH OF 232'-1 3/8" (MEASURED ALONG TANGENT LINE). THE ENTIRE BRIDGE DECK IS TO BE PREPARED FOR A NEW CONCRETE OVERLAY.

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

"PIGMENTED SURFACE SEALER" TO BE APPLIED TO THE TOP AND INSIDE FACES OF NEW PARAPETS AT JOINT REPAIR & THRIE BEAM ATTACHMENT.

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

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

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

PROFILE GRADE LINE SHALL BE DETERMINED IN THE FIELD BASED ON A MINIMUM OVERLAY THICKNESS OF 1 1/2" PLACED ABOVE THE DECK SURFACE AFTER SURFACE PREPARATION. EXPECTED AVERAGE OVERLAY THICKNESS IS 2". IF EXPECTED AVERAGE OVERLAY THICKNESS EXCEED BY 1/2", CONTACT THE STRUCTURES DESIGN SECTION.

CONCRETE SURFACE REPAIR AS DIRECTED BY THE FIELD ENGINEER. QUANTITIES SHOWN ON PLANS ARE APPROXIMATE.

ALL CONCRETE REMOVE NOT COVERED WITH A CONCRETE OVERLAY SHALL BE DEFINED BY A 1 INCH DEEP SAW CUT.

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

THE FIRST DIGIT OF A THREE DIGIT AND THE FIRST TWO DIGITS OF A FOUR DIGIT BAR MARK SIGNIFIES THE BAR SIZE. BEVEL ALL EXPOSED EDGES OF CONCRETE 3/4" UNLESS OTHERWISE NOTED.

UTILIZE EXISTING BAR STEEL REINFORCEMENT WHERE SHOWN AND EXTEND 24 BAR DIAMETERS INTO NEW WORK, UNLESS SPECIFIED OTHERWISE.

ALL STRUCTURAL STEEL SURFACES BENEATH THE BRIDGE ARE TO BE CLEANED AND PAINTED UNDER THE BID ITEM FOR "STRUCTURE REPAINTING RECYCLED ABRASIVE B-30-48" AND "PREPARATION AND COATING OF BOTTOM FLANGES B-30-48". THE SURFACES INCLUDE GIRDERS, DIAPHRAGMS, STIFFENERS, BEARINGS AND CONNECTIONS. PAINT COLOR TO BE FEDERAL STANDARD COLOR NO. 26293 (LIGHT GRAY).

## PRIMARY CONTROL PROVIDED BY WISDOT/R.A. SMITH NATIONAL FOR WISDOT PROJECT 1310-14-00

TYPE	POINT	DESCRIPTION	NORTHING	EASTING	ELEVATION
CP	305	FOUND 39" BERNTSEN FENO MONUMENT WITH ALUMINUM CAP IN THE MEDIAN OF STH-50 APPROX. 500 FEET WEST OF 319TH AVE.	130538.591	528415.490	750.39
CP	307	FOUND 1000MM BERNTSEN FENO MONUMENT WITH 2" ALUMINUM CAP ON THE NORTH SIDE OF STH-50 APPROX. 300' EAST OF THE TURNAROUND	129817.761	531383.950	763.060
BM	22393	FOUND ALUMINUM MONUMENT AT NE CORNER OF STRUCTURE B-30-058 OF WB STH-50 IN CONCRETE BRIDGE WALL	-	-	789.660 (789.583)*
BM	22394	FOUND ALUMINUM MONUMENT AT SW CORNER OF STRUCTURE B-30-048 OF EB STH-50 IN CONCRETE BRIDGE WALL	-	-	785.910 (785.885)*

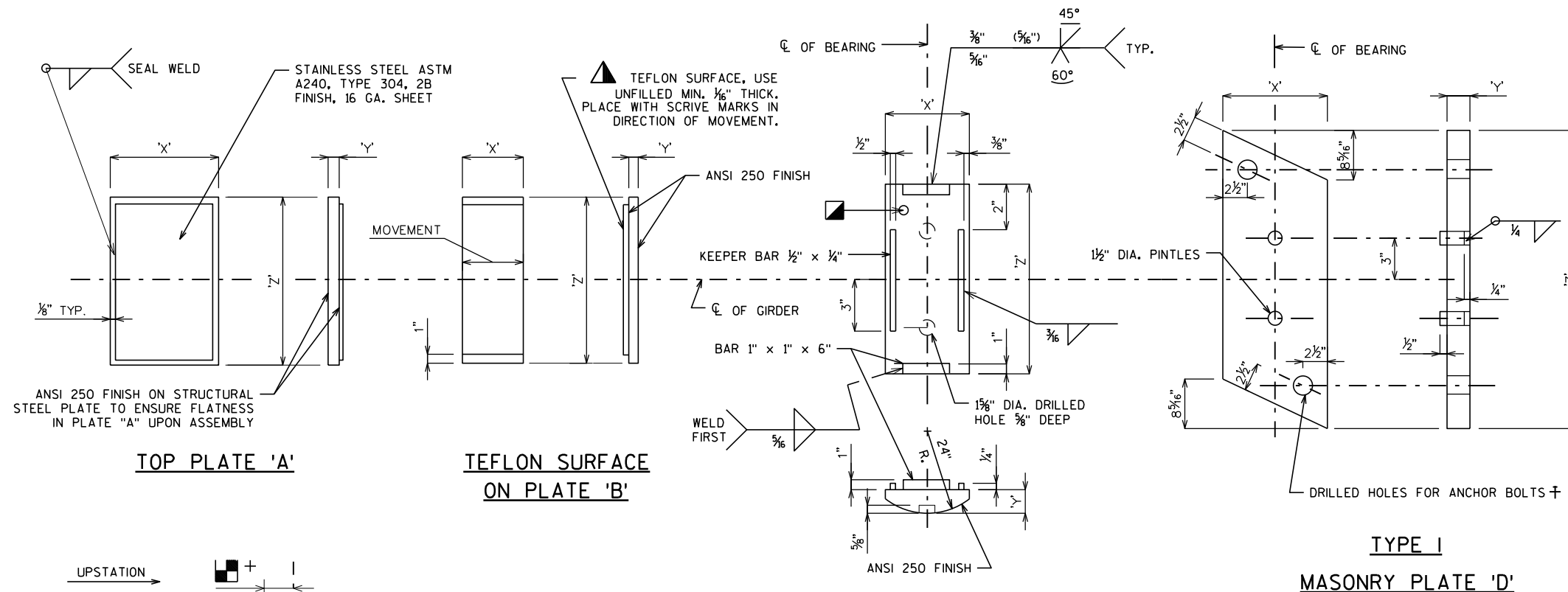
ABOVE HORIZONTAL COORDINATE ARE REFERENCE TO WCCS KENOSHA COUNTY ZONE, NAD 83 (2011)

ABOVE ELEVATIONS ARE REFERENCE TO NAVD 88 (2012)

( )\* = OBSERVED AS

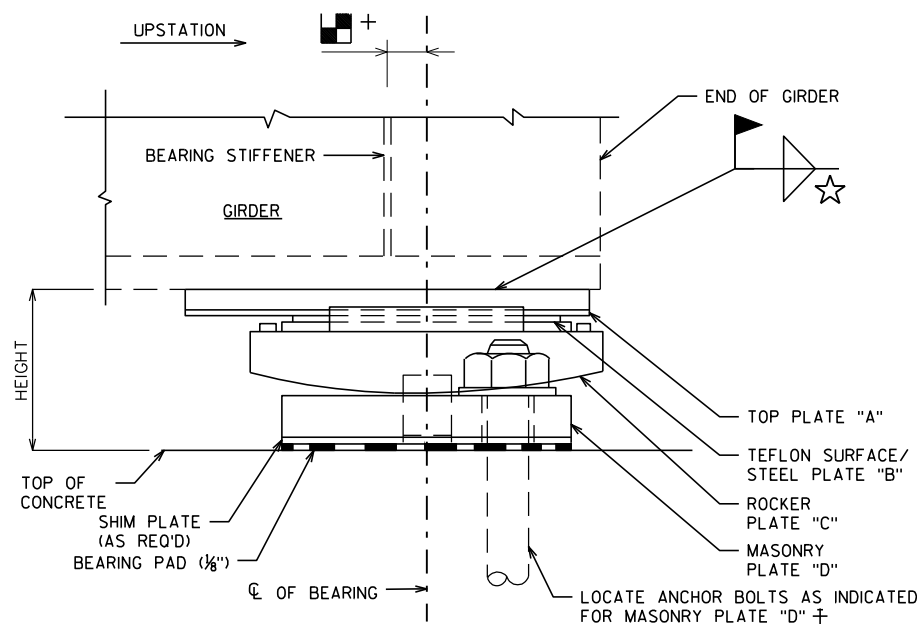
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-30-48</b>			
DRAWN BY		WAR	PLANS CKD KGW
<b>CROSS SECTION &amp; QUANTITIES</b>			SHEET 2 OF 8

SCALE =



**NOTES**

- ALL BEARINGS ARE SYMMETRICAL ABOUT CL OF GIRDER AND CL OF BEARING.
- ANCHOR BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153, CLASS C.
- ROCKER PLATE "C" AND MASONRY PLATE "D" SHALL BE GALVANIZED. TOP PLATE "A" AND STEEL PLATE "B" SHALL BE SHOP PAINTED. USE A WELDABLE PRIMER ON TOP PLATE "A". DO NOT PAINT STAINLESS STEEL OR TEFLON SURFACES.
- ALL MATERIAL IN BEARINGS, INCLUDING SHIM PLATES, BUT EXCLUDING STAINLESS STEEL SHEET, TEFLON SURFACES, PINTLES. ANCHOR BOLTS, NUTS AND WASHERS SHALL CONFORM TO ASTM A709 GRADE 50W.
- IN LIEU OF USING SHIM PLATES FABRICATOR MAY INCREASE THICKNESS OF TOP PLATE "A" OR MASONRY PLATE "D" BY THE SHIM PLATE THICKNESS.
- ALL MATERIALS IN TYPE "A-T" BEARINGS, INCLUDING SHIM PLATES AND BEARING PADS, SHALL BE PAID FOR AT THE UNIT PRICE BID FOR "BEARING ASSEMBLIES EXPANSION B-30-48", EACH.
- CHAMFER ANCHOR BOLTS PRIOR TO THREADING.
- ALL FINISHED SURFACES SHALL BE MACHINE FINISHED BY AN AUTOMATIC PROCESS.
- ALL PLATE CUTS SHALL BE MACHINE OR MACHINE FLAME CUTS.
- ALL STRUCTURAL STEEL BEARING PLATES SHALL BE FLAT ROLLED STEEL PLATES WITH ALL SURFACES SMOOTH AND FREE FROM WARP AND ALL EDGES SMOOTH, STRAIGHT AND VERTICAL.
- PROVIDE 1/8" THICK BEARING PAD THE SAME SIZE AS MASONRY PLATE "D" FOR EACH BEARING.
- ANCHOR BOLTS SHALL BE THREADED 3". PROVIDE ONE STANDARD WROUGHT WASHER AND ONE HEX NUT PER BOLT. PROJECT ANCHOR BOLTS, MASONRY PLATE "D" THICKNESS + SHIM PLATE THICKNESS + 2 1/4", ABOVE TOP OF CONCRETE.
- CHAMFER TOP OF PINTLES 1/8". DRILL HOLES FOR ALL PINTLES IN MASONRY PLATE "D" FOR A DRIVING FIT.
- STEEL PINTLES SHALL CONFORM TO ASTM A449 OR ASTM A572 GRADE 50.
- ANCHOR BOLTS, NUTS AND WASHERS SHALL CONFORM TO ASTM F1554 GRADE 50, OR MATERIAL OF EQUIVALENT YIELD STRENGTH AND ELONGATION.
- PLACE SHIM PLATES BETWEEN BEARING PAD AND MASONRY PLATE "D". PLATES SHALL HAVE 'X' AND 'Z' DIMENSIONS THAT MATCH MASONRY PLATE "D". PROVIDE SHIM PLATES AS SHOWN.
- PROVIDE A METHOD FOR HANDLING ROCKER PLATE "C" DURING GALVANIZING.
- BOND STEEL PLATE "B" AND TEFLON WITH ADHESIVE MATERIAL MEETING THE REQUIREMENTS FOUND IN THE STANDARD SPECIFICATIONS.
- DRILLED HOLES FOR ANCHOR BOLTS IN MASONRY PLATE "D" SHALL HAVE A DIAMETER 3/8" LARGER THAN ANCHOR BOLT. TWO BOLTS ARE REQUIRED.
- AT INSTALLATION, ENSURE STAINLESS STEEL SLIDING FACE OF THE UPPER ELEMENT AND THE TFE SLIDING FACE OF THE LOWER ELEMENT HAVE THE SURFACE FINISH SPECIFIED AND ARE CLEAN AND FREE OF ALL DUST, MOISTURE, OR ANY OTHER FOREIGN MATTER.
- ANCHOR BOLTS TO BE 1 1/4" DIA x 1'-5" LONG.



**EAST ABUTMENT BEARINGS**

PLATE A			PLATE B			PLATE C			PLATE D			HEIGHT FEET
X	Y	Z	X	Y	Z	X	Y	Z	X	Y	Z	
1'-1"	5/8"	1'-4"	7"	1/2"	1'-4"	9"	1 15/16"	1'-6 1/4"	1'-0"	1 1/2"	2'-8 3/4"	0.401

USED AT EAST ABUTMENT - 5 REQUIRED

**EXPANSION BEARING ASSEMBLY**

		C/L BRG. E. ABUT.
INTERIOR GIRDER	DL	36.6
	LL	75.4
EXTERIOR GIRDER	DL	31.6
	LL	57.8

**GIRDER REACTIONS AT BEARING (KIPS)**

REACTION SHOWN ARE SERVICE. LIVE LOAD INCLUDES IMPACT.

GIRDER NO.	SHIM PLATE THICKNESS
1	3/16"
2	1/8"
3	1/8"
4	5/16"
5	1/8"

**BEARING SHIM PLATE TABLE**

SHIM PLATE THICKNESS BASED ON BEARING HEIGHT FIELD MEASUREMENTS TAKEN AT (D) SIDE OF GIRDER

°F	E. ABUT.
30	0.1
45	0
60	-0.1
75	-0.3
90	-0.5

**BEARING OFFSET TABLE**

ALL DIMENSIONS IN INCHES AMBIENT TEMPERATURE DURING BEARING INSTALLATION

**TABLE OF FILLET WELD SIZES**

MATERIAL THICKNESS OF THICKER PART JOINED.	MIN. SIZE OF FILLET WELD
TO 1/2" INCLUSIVE	3/16"
OVER 1/2" TO 3/4"	1/4"
OVER 3/4" TO 1 1/2"	5/16"
OVER 1 1/2"	3/8"

EXCEPT THAT THE WELD SIZE SHALL NOT EXCEED THE THICKNESS OF THE THINNER PART JOINED.

MIN. PASS SIZE IS 5/16"

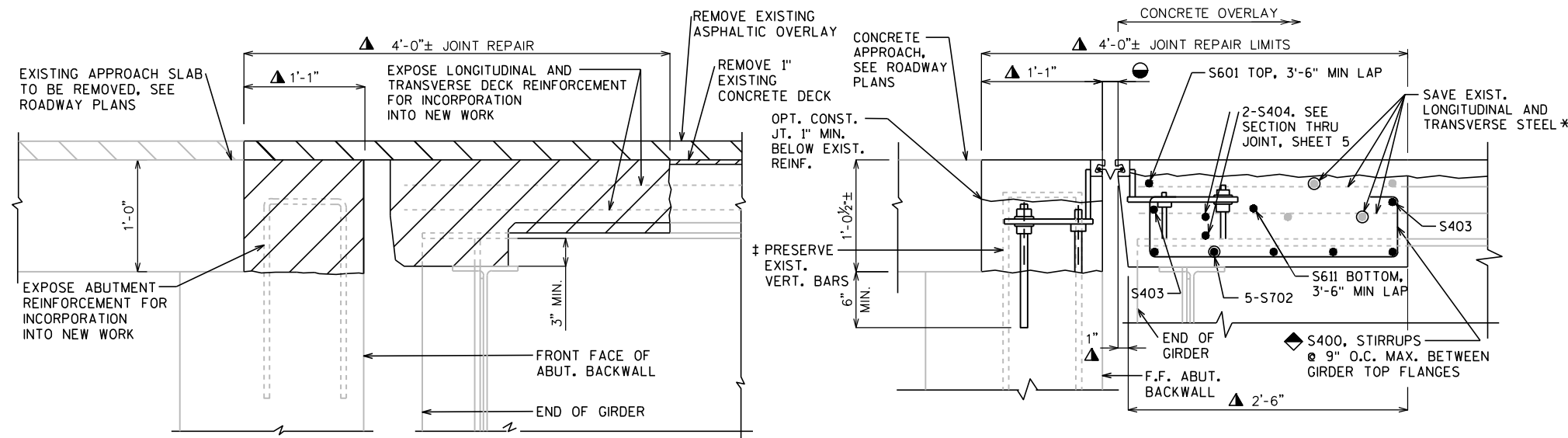
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-30-48</b>			
DRAWN BY		PLANS CK'D	
WAR		KGW	
<b>EXPANSION BEARING DETAILS</b>			SHEET 3 OF 8

**SUPERSTRUCTURE BILL OF BARS**

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

BILL OF BARS						
MARK	COATED	NO. REQ'D	LENGTH	BAR SERIES	BENT	LOCATION
S400	X	52	6'-0"		X	DIAPHRAGM STIRRUP
S601	X	2	42'-3"			DECK TRANSVERSE TOP
S702	X	20	15'-9"			DIAPHRAGM BOTTOM
S403	X	8	15'-9"			DIAPHRAGM TOP
S404	X	8	15'-9"			EXPANSION JOINT TRANSVERSE
S611		2	42'-3"			DECK TRANSVERSE BOTTOM
S430		14	4'-3"		X	PARAPET DOWEL
S431		14	4'-10"		X	PARAPET VERTICAL
S532		10	4'-0"			PARAPET HORIZONTAL

ALL DIMENSIONS OF THE BAR BENDS ARE OUT TO OUT.

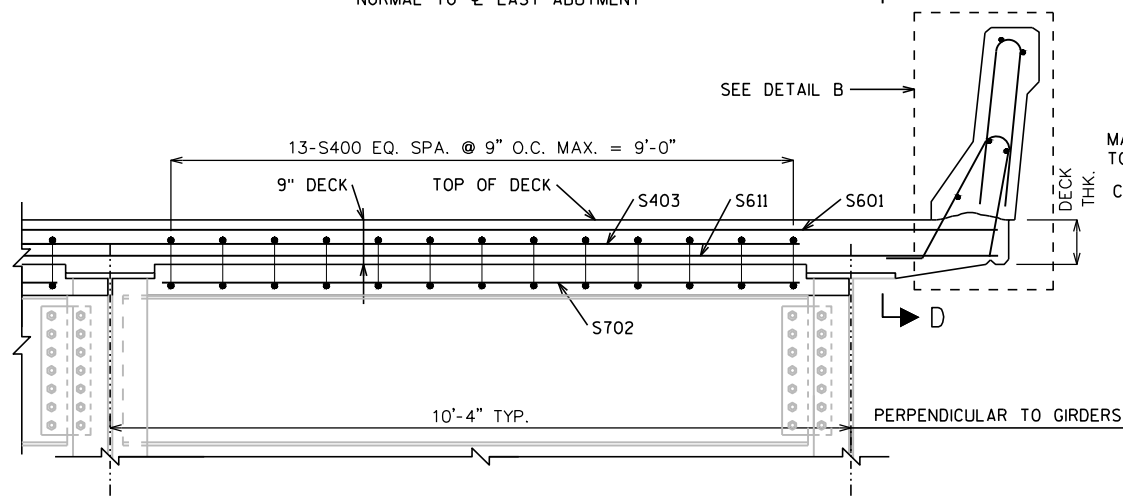


**JOINT REPAIR - REMOVAL**

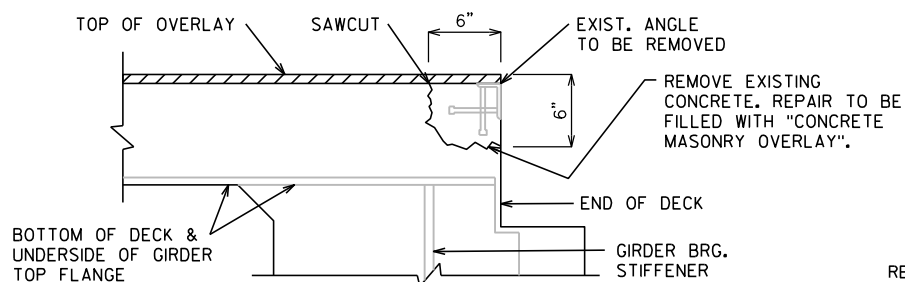
NORMAL TO CL EAST ABUTMENT

**SECTION THRU EXPANSION JOINT**

NORMAL TO CL EAST ABUTMENT  
SEE SHEET 5 FOR PAVING,  
BLOCK REINFORCING DETAILS

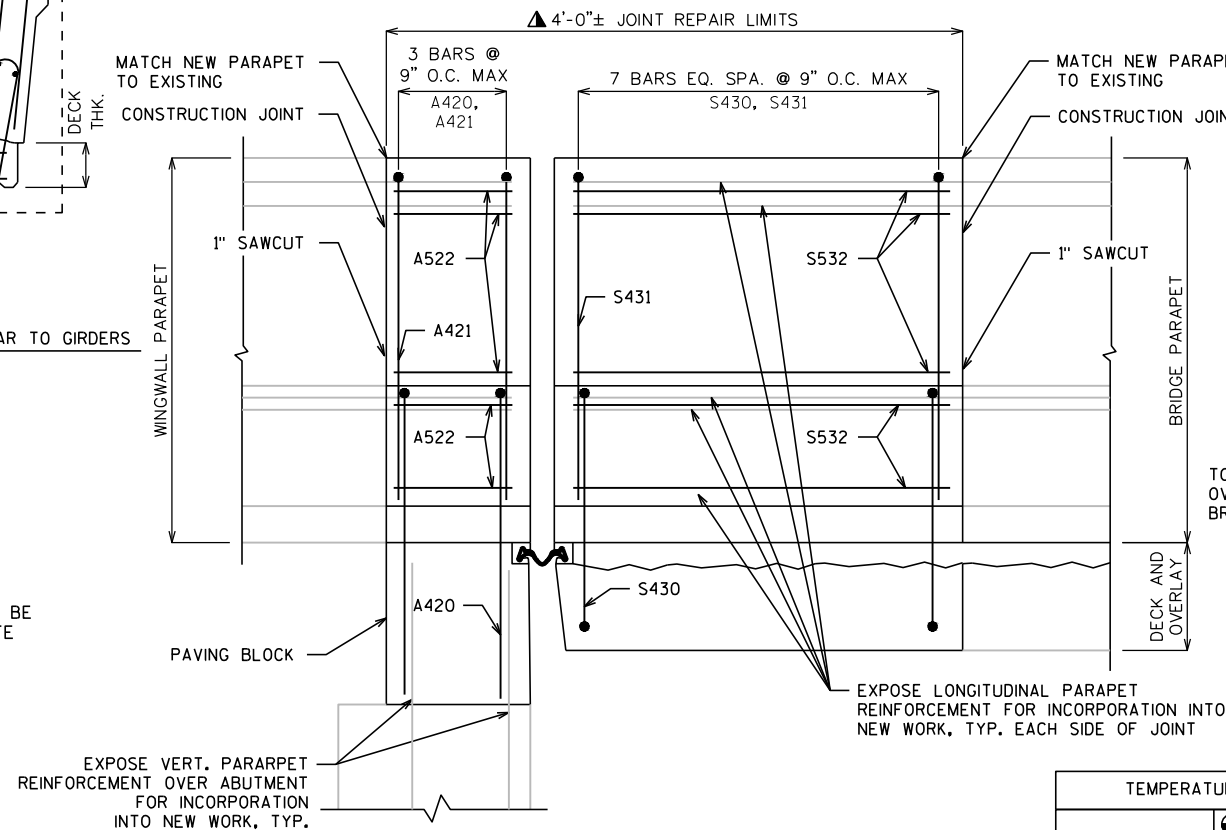


**PART TRANSVERSE SECTION AT DIAPHRAGM**

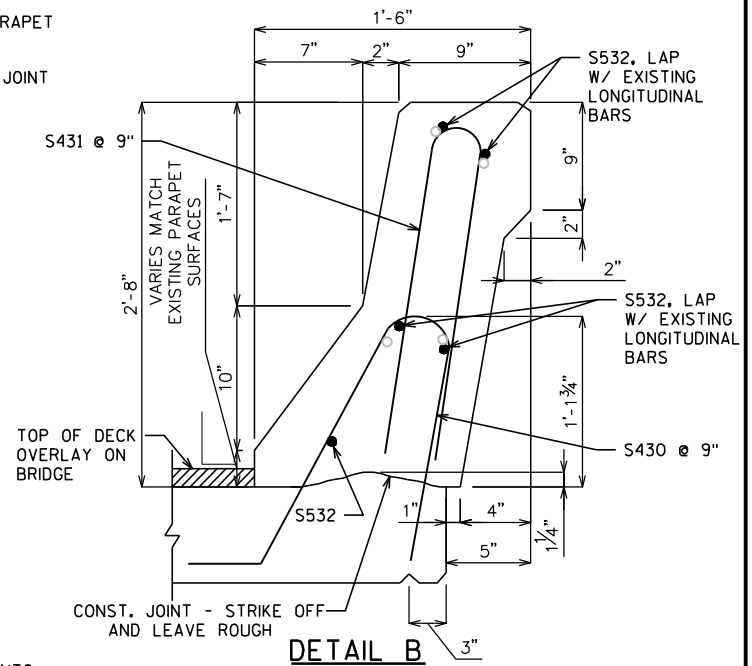


**SECTION AT END OF DECK**

NORMAL TO CL WEST ABUTMENT



**SECTION D-D**



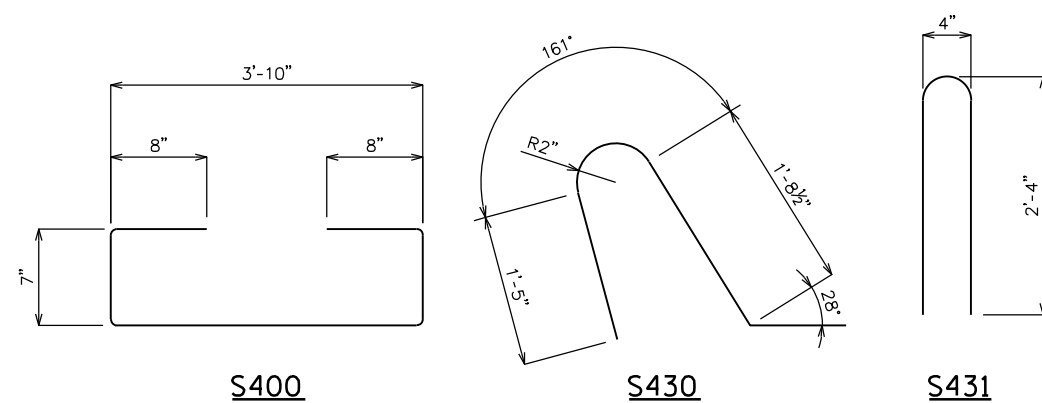
**DETAIL B**

**LEGEND**

- ‡ EXISTING BARS ARE LIKELY TO BE CORRODED AND/OR DAMAGED DURING CONCRETE REMOVAL. PRESERVE AND INCORPORATE AS MUCH REBAR AS PRACTICAL. SUPPLEMENT WITH THE BARS INDICATED BY ☆ ON SHEET 5.
- \* SAVE AND INCORPORATE 1'-6" MINIMUM OF TRANSVERSE REINFORCING BARS.
- ▲ DIMENSIONS GIVEN ARE NORMAL TO CL OF SUBSTRUCTURE UNIT. INCORPORATE EXISTING REINFORCEMENT.
- ◆ BARS PLACED PARALLEL TO GIRDERS. SPACING PERPENDICULAR TO CL GIRDERS.
- ▨ EXISTING 2" ASPHALT OVERLAY TO BE REMOVED.
- ▩ EXISTING CONCRETE TO BE REMOVED.

TEMPERATURE TABLE	
TEMPERATURE	JOINT OPENING NORMAL TO JOINT
	E. ABUT.
5°	2 5/8"
15°	2 1/2"
25°	2 1/2"
35°	2 3/8"
45°	2 1/4"
55°	2 1/8"
65°	2"
75°	2"
85°	1 7/8"

A SMALL JOINT OPENING DUE TO A HIGH TEMPERATURE AT TIME OF CONSTRUCTION MAY REQUIRE NEOPRENE STRIP SEAL INSTALLATION INTO STEEL EXTRUSIONS PRIOR TO SETTING THE EXPANSION JOINT.

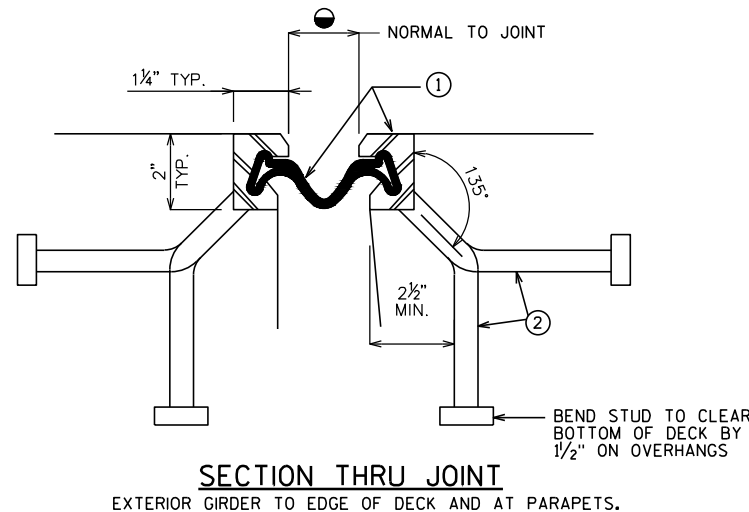


**S400**

**S430**

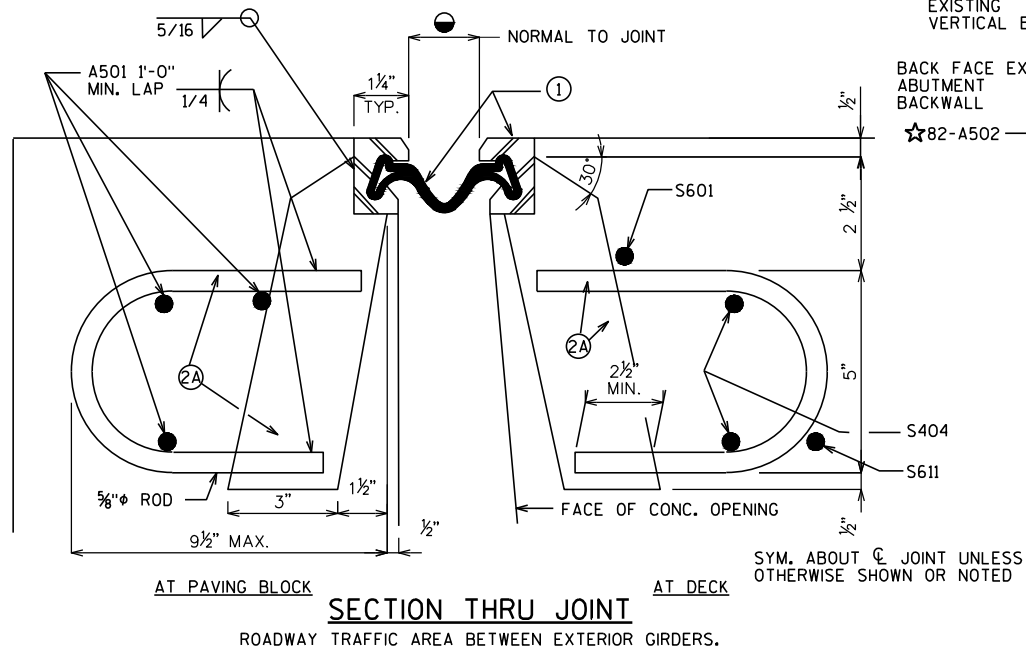
**S431**

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-30-48</b>			
DRAWN BY		WAR	PLANS CK'D KGW
<b>CONCRETE DETAILS &amp; DECK BILL OF BARS</b>			SHEET 4 OF 8



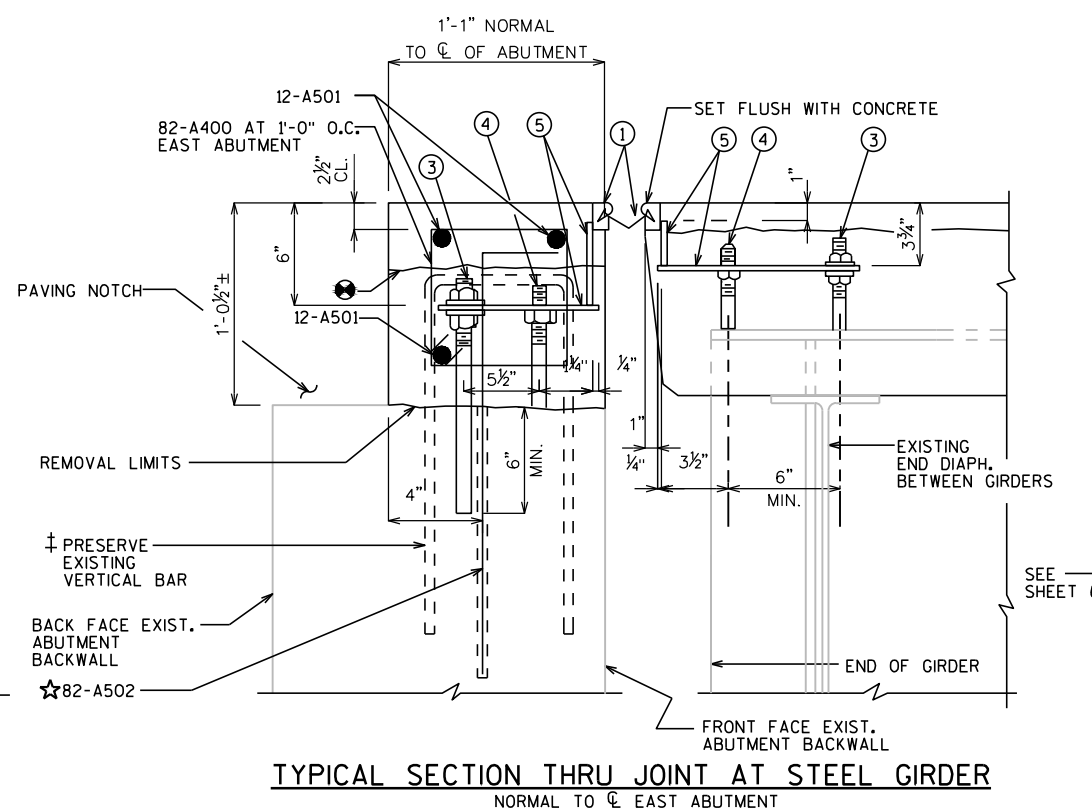
**SECTION THRU JOINT**

EXTERIOR GIRDER TO EDGE OF DECK AND AT PARAPETS.



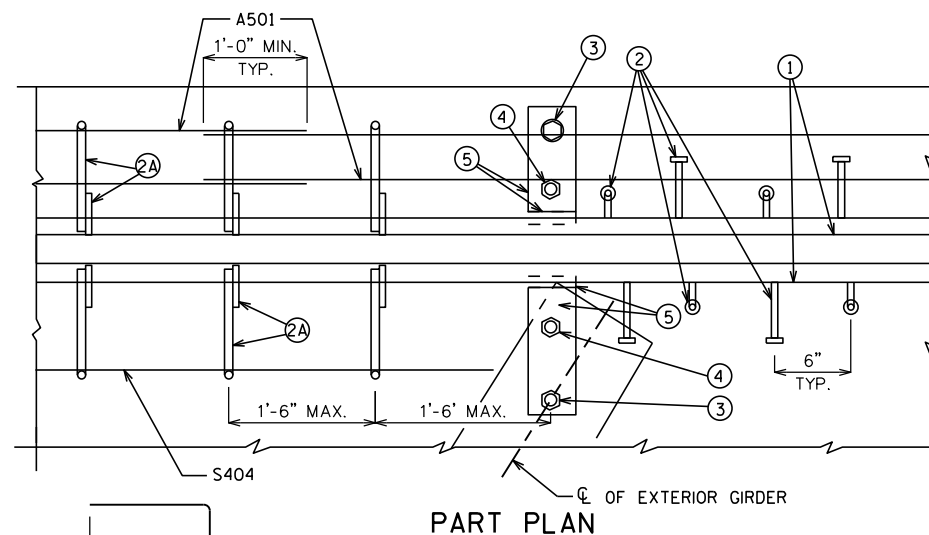
**SECTION THRU JOINT**

ROADWAY TRAFFIC AREA BETWEEN EXTERIOR GIRDERS.



**TYPICAL SECTION THRU JOINT AT STEEL GIRDER**

NORMAL TO CL OF EAST ABUTMENT



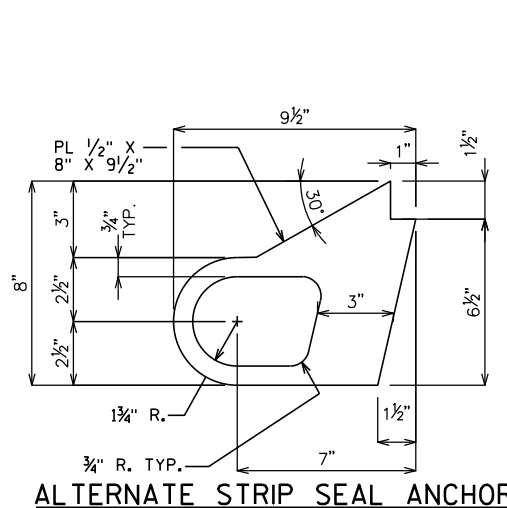
**PART PLAN**

**LEGEND**

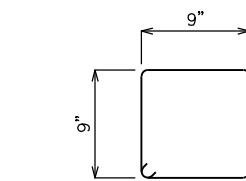
- ① NEOPRENE STRIP SEAL (5-INCH) AND STEEL EXTRUSIONS. JOINT OPENINGS GIVEN NORMAL TO JOINT.
- ② STUDS 5/8"φ × 6 3/8" LONG AT 6" ALTERNATE CENTERS, WELD TO EXTRUSIONS AND BEND AS SHOWN AFTER WELDING.
- ②A 1/2" THICK ANCHOR PLATE WITH 3/8"φ ROD (OR ALTERNATE STRIP SEAL ANCHOR), WELD ROD TO ANCHOR PLATE, WELD ANCHOR PLATE TO NO. 1 AT 1'-6" CENTERS BETWEEN GIRDERS.
- ③ 3/4"φ THREADED ROD WITH 2 NUTS AND PLATE WASHERS. WELD THREADED ROD TO TOP FLANGE OR ATTACH BY BOLTING THRU FLANGE. ON ABUTMENT SIDE, GROUT THREADED ROD INTO FIELD DRILLED HOLES IN ABUTMENT BACKWALL AS SHOWN.
- ④ 3/4"φ THREADED ROD WITH NUT, TACK WELD NUT TO NO. 5.
- ⑤ FABRICATE SUPPORT FROM 3" × 1/2" BAR AS SHOWN OR EQUIVALENT. ONE PER GIRDER PER SIDE, SHOP OR FIELD WELD TO NO. 1 IF FIELD WELDED, COVER WELDED AREAS WITH EPOXY-COATING MATERIAL. PROVIDE 1/2"φ HOLE FOR NO. 3 AND 1"φ HOLE FOR NO. 4.
- ⑥ GALVANIZED PLATE 3/8" × 10 1/2" × 3'-0" LONG WITH HOLES FOR NO. 7. BEND AS SHOWN.
- ⑦ 3/4"φ × 1 1/2" STAINLESS STEEL SOCKET FLAT HEAD SCREWS WITH ANTI-SEIZE LUBRICANT. PLACE IN COUNTERSUNK HOLE. RECESS 3/16" BELOW PLATE SURFACE.
- ⑧ 3/4"φ × 4" GALVANIZED HEX HEAD BOLT. BEND 45°.
- ⑨ 3/4"φ × 2 1/4", GALVANIZED THREADED COUPLING.
- ⑩ 1" × 5" SLOTTED COUNTERSUNK HOLE FOR NO. 7. PLACE SLOT PARALLEL TO DIRECTION OF MOVEMENT.
- ☆ A502 ADHESIVE ANCHORS NO. 5 BARS, EMBED 1'-0" INTO CONCRETE. SPACE AT 1'-0", TURN 10" LEG AS NECESSARY TO FIT.
- ‡ EXISTING BARS ARE LIKELY TO BE CORRODED AND/OR DAMAGED DURING CONCRETE REMOVAL. PRESERVE AND INCORPORATE AS MUCH REBAR AS PRACTICAL.
- SEE TEMPERATURE TABLE SHEET 4.
- OPT. CONST. JT. 1" MIN. BELOW EXIST. REINF.

**NOTES**

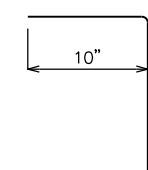
1. ONE FIELD SPLICE PERMITTED IN STEEL EXTRUSIONS, UNLESS MORE ARE REQUIRED FOR HANDLING, OR GALVANIZING REQUIREMENTS. IF USED, DETAILS SHALL BE SUBMITTED FOR APPROVAL. NO SPLICING PERMITTED IN NEOPRENE STRIP SEAL.
2. AFTER FABRICATION, BUT BEFORE SHIPMENT, STRAIGHTEN STEEL EXTRUSIONS SUCH THAT THEY SHALL BE FREE FROM WARP, TWIST AND SWEEP.
3. FABRICATOR SHALL PROVIDE MEANS OF KEEPING GALVANIZED EXTRUSIONS CLEAN AND SMOOTH DURING SHIPMENT AND PRIOR TO APPLYING LUBRICANT ADHESIVE FOR NEOPRENE GLAND INSTALLATION.
4. SANDBLAST PLATES AND EXTRUSIONS AFTER FABRICATION IN ACCORDANCE WITH SSPC SP. #6 "COMMERCIAL BLAST CLEANING". AFTER BLAST CLEANING, THE PLATES, SUPPORTS AND EXTRUSIONS SHALL BE HOT DIPPED GALVANIZED.
5. ANCHOR SYSTEM NO. 8 AND NO. 9 SHALL CONFORM TO ASTM A307 AND SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM 153 CLASS C AND D.
6. ALL MATERIAL IN THE EXPANSION JOINT ASSEMBLY, INCLUDING ANCHOR STUDS AND HARDWARE SHALL BE PAID AT THE UNIT BID PRICE FOR "EXPANSION DEVICE", LF.



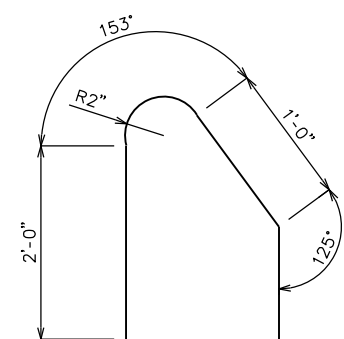
**ALTERNATE STRIP SEAL ANCHOR**



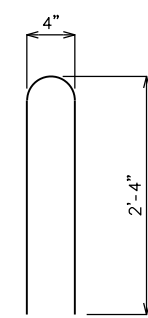
**A400**



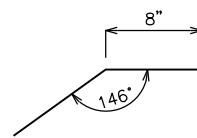
**A502**



**A420**



**A421**



**A430**

**ABUTMENT BILL OF BARS**

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

BILL OF BARS						
MARK	COATED	NO. REQ'D	LENGTH	BAR SERIES	BENT	LOCATION
A400		82	3'-6"		X	PAVING BLOCK STIRRUP
A501		36	8'-3"			PAVING BLOCK TRANSVERSE
A502		82	2'-5"		X	PAVING BLOCK VERTICAL
A420		6	4'-7"		X	PARAPET DOWEL @ JOINT
A421		6	4'-10"		X	PARAPET VERTICAL @ JOINT
A522		10	1'-6"			PARAPET HORIZ. @ JOINT
A430		2	1'-5"		X	PARAPET HORIZ. THRIE BEAM
A431		2	1'-4"			PARAPET HORIZ. THRIE BEAM

ALL DIMENSIONS OF THE BAR BENDS ARE OUT TO OUT.

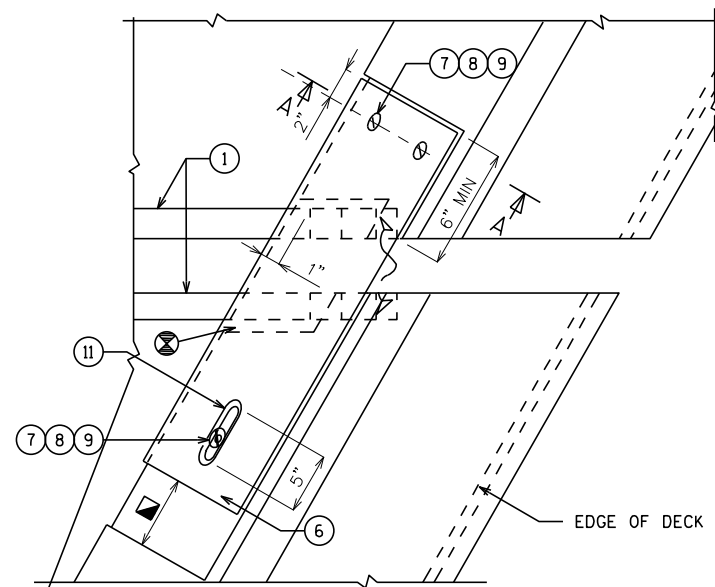
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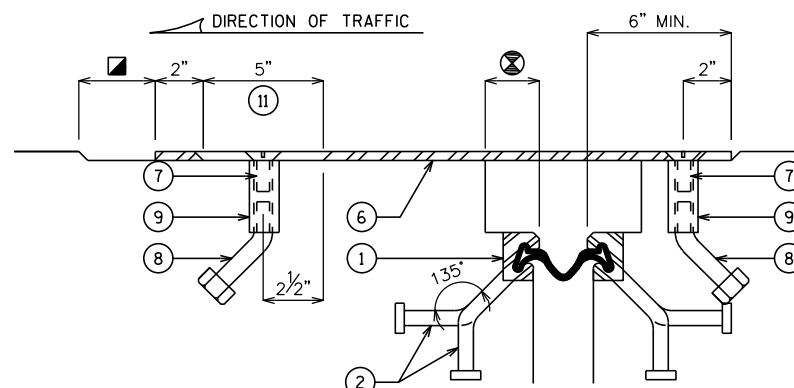
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-30-48</b>			
DRAWN BY		WAR	PLANS CK'D KGW
<b>STRIP SEAL EXP. JT. &amp; ABUT. BILL OF BARS</b>			SHEET 5 OF 8

SCALE =

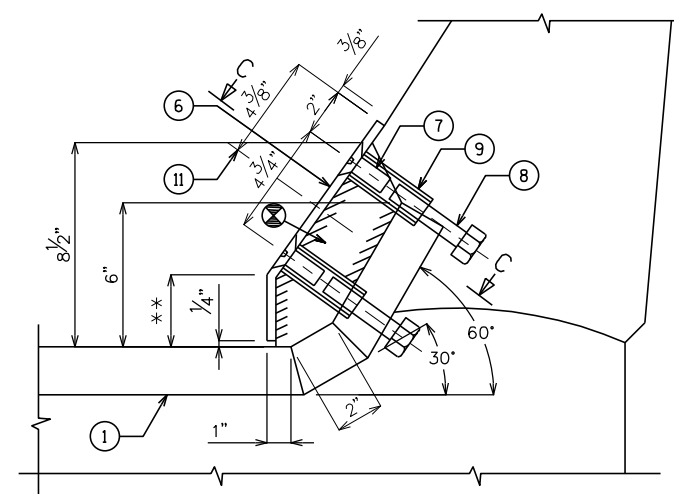




PLAN

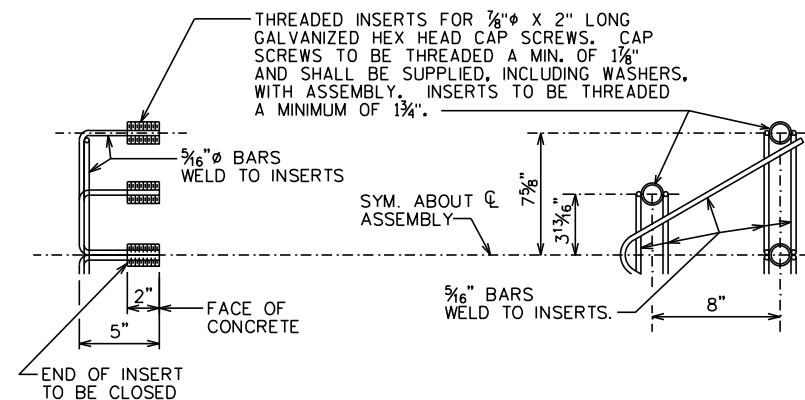


SECTION C-C



SECTION A-A

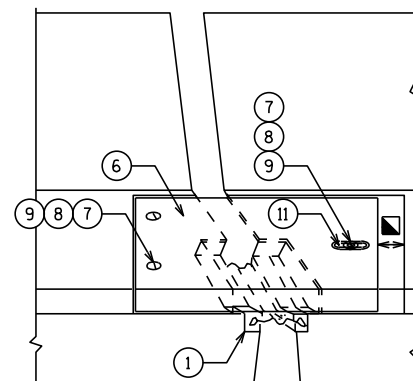
\*\* AS REQUIRED FOR OVERLAY, COORDINATE WITH EXPANSION JOINT MANUFACTURER.



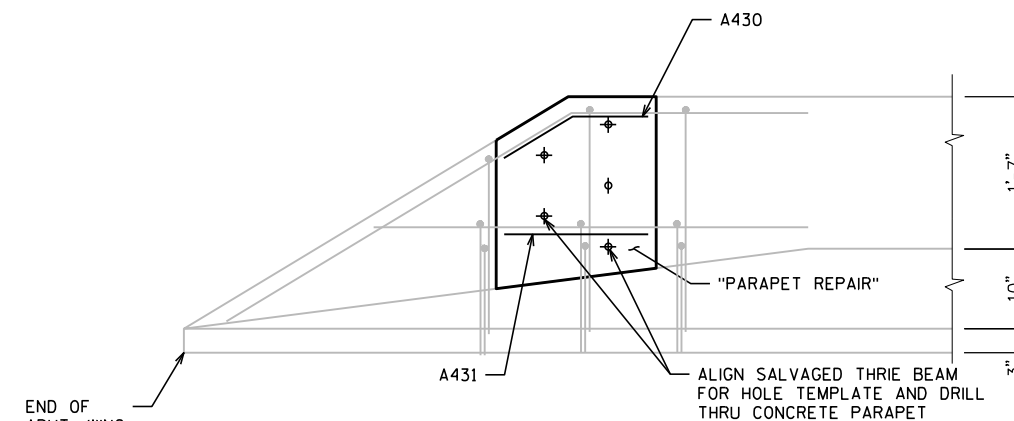
DETAIL OF ANCHOR ASSEMBLY

NOTE: HEX HEAD CAP SCREWS & WASHERS TO BE GALVANIZED IN ACCORDANCE WITH AASHTO M232 CLASS C.

ASSEMBLY SHALL BE BID ITEM "ANCHOR ASSEMBLIES FOR STEEL PLATE BEAM GUARD", EACH.



VIEW OF PARAPET PLATES FROM ROADWAY



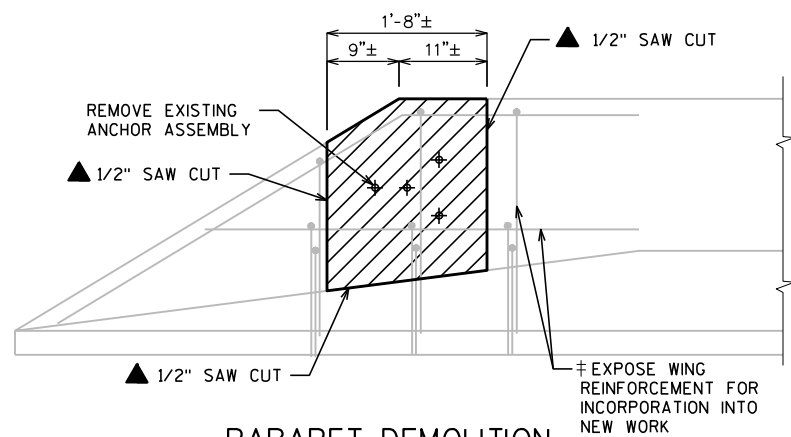
PARAPET RECONSTRUCTION FOR THRIE BEAM GUARD ATTACHMENT WINGWALL 1

NOTES

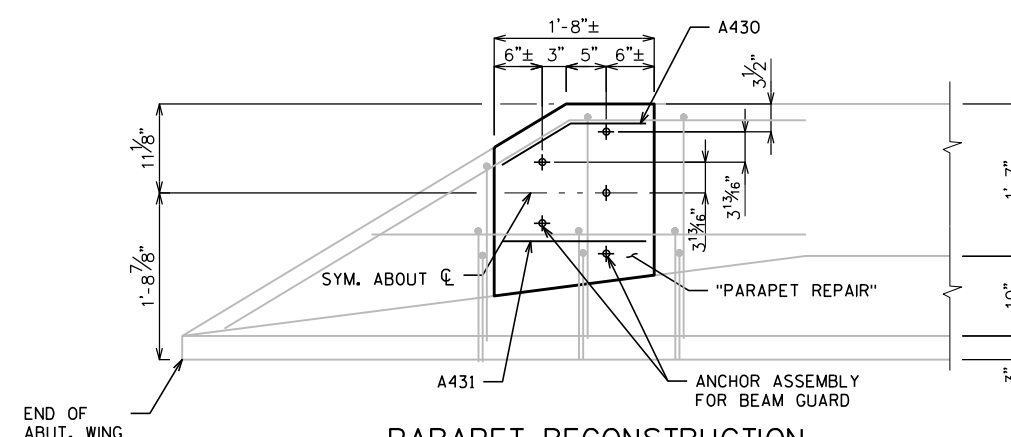
SEE SHEET 5 LEGEND FOR MATERIAL NOTES.

LEGEND

- ⊗ BLOCK OUT CONCRETE 2" EACH SIDE OF JOINT OPENING.
- ▣ JOINT OPENING DIM. ALONG SKEW PLUS 1/2"
- ‡ EXISTING BARS ARE LIKELY TO BE CORRODED AND/OR DAMAGED DURING CONCRETE REMOVAL. PRESERVE AND INCORPORATE AS MUCH REBAR AS PRACTICAL. SUPPLEMENT WITH THE BARS SHOWN ON RECONSTRUCTION DETAIL THIS SHEET.
- ▨ CONCRETE REMOVAL FULL THICKNESS OF PARAPET
- ▲ COST OF SAW CUTTING IS INCIDENTAL TO "PARAPET REPAIR".



PARAPET DEMOLITION FOR THRIE BEAM GUARD ATTACHMENT WINGWALLS 1 & 2



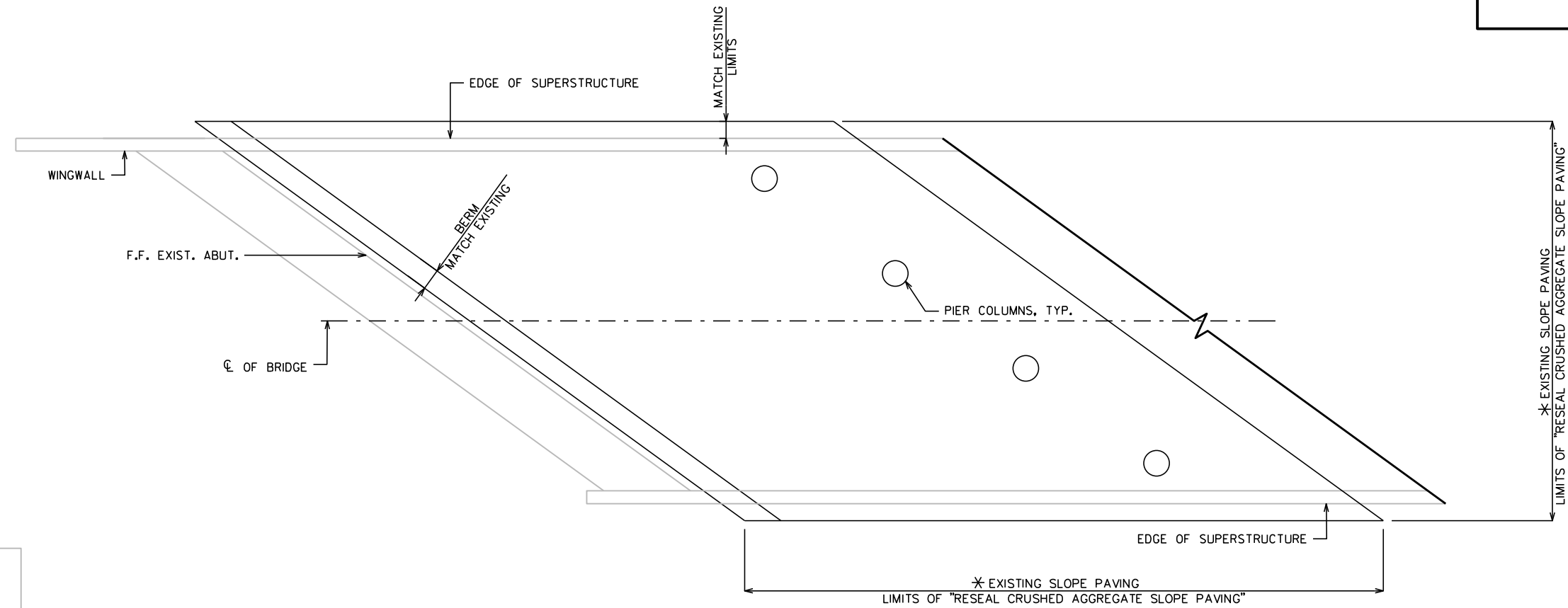
PARAPET RECONSTRUCTION FOR THRIE BEAM GUARD ATTACHMENT WINGWALL 2

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-30-48</b>			
DRAWN BY		PLANS CK'D	
WAR		KGW	
<b>COVER PLATE &amp; PARAPET DETAILS</b>			SHEET 6 OF 8

SCALE =

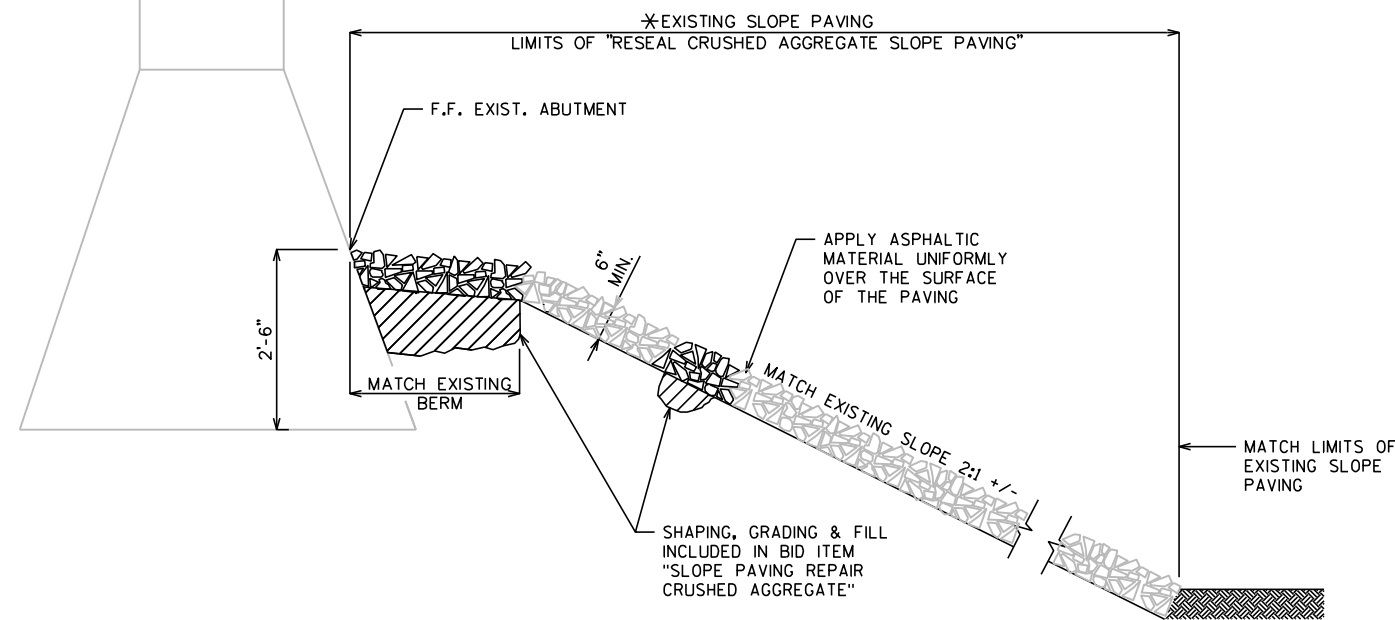
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**PLAN - SLOPE PAVING CRUSHED AGGREGATE**

WEST ABUTMENT SHOWN, EAST ABUTMENT SIMILAR



**CROSS SECTION THRU CRUSHED AGGREGATE SLOPE PAVING**

ROUND STONE WILL NOT BE ACCEPTED

**NOTES**

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

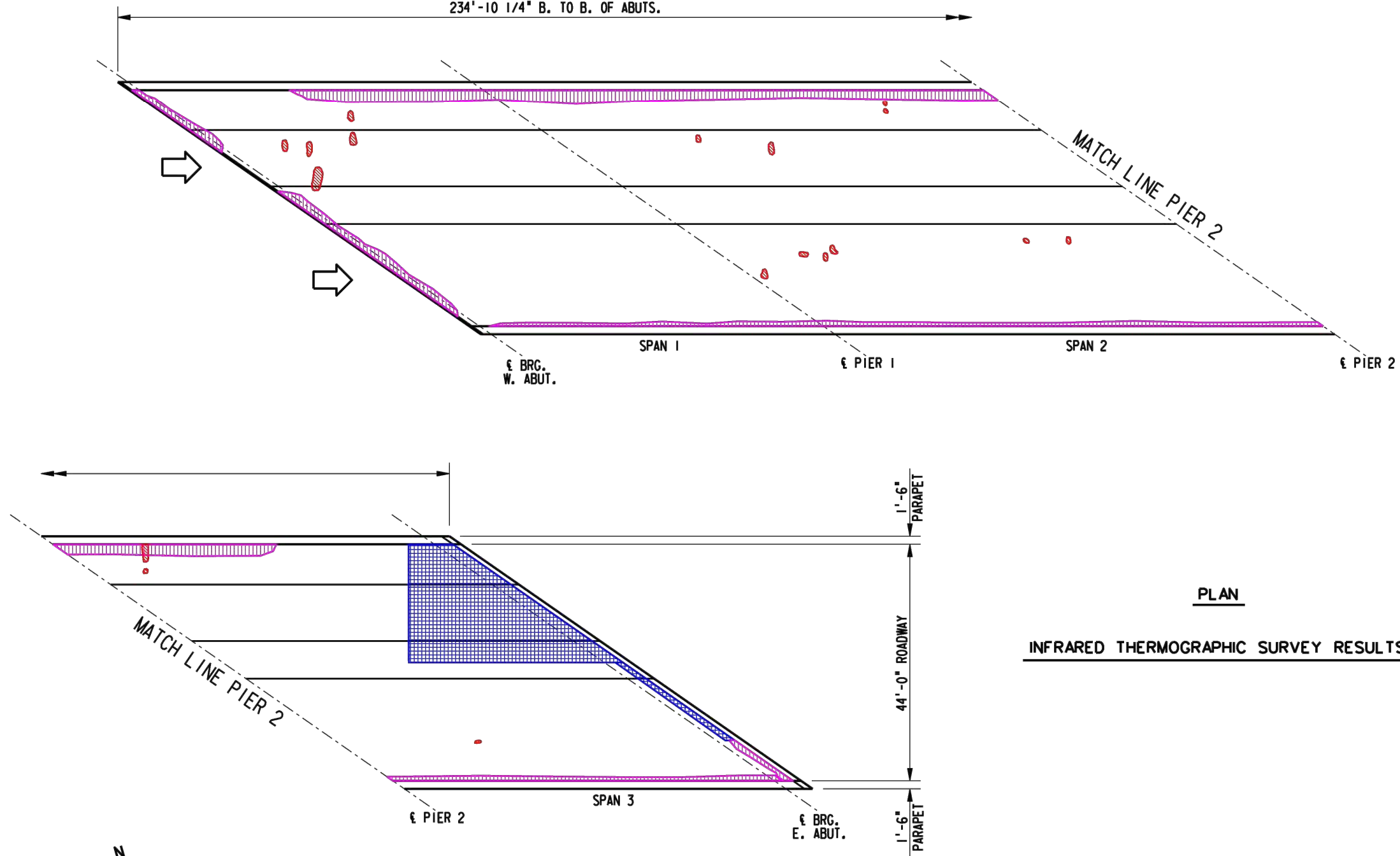
**LEGEND**

\* ENTIRE LIMITS OF EXISTING SLOPE PAVING CRUSHED AGGREGATE SHOWN, ONLY EXISTING DETERIORATED AREAS TO BE REPAIRED. REPAIR LIMITS SHALL BE DETERMINED IN THE FIELD BY THE ENGINEER.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-30-48</b>			
DRAWN BY		PLANS CK'D	BY
WAR		KGW	
<b>SLOPE REPAIR</b>			SHEET 7 OF 8

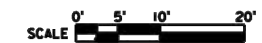
SCALE =

234'-10 1/4" B. TO B. OF ABUTS.



**PLAN**

**INFRARED THERMOGRAPHIC SURVEY RESULTS**



FIELD OBSERVATIONS SUMMARY		STRUCTURE NO. B-30-48		LEGEND	
ITEM	UNIT	QUANT.	%		
TOTAL AREA	ft <sup>2</sup>	10256		DELAMINATION	
SHADE/DEBRIS	ft <sup>2</sup>	0		SPALL	
DELAMINATION	ft <sup>2</sup>	28	0.3	DEBOND	
SPALL	ft <sup>2</sup>	0	0	ASPHALT PATCH	
DEBOND	ft <sup>2</sup>	595	5.8	PCC PATCH	
ASPHALT PATCH	ft <sup>2</sup>	553	5.4	SHADE/DEBRIS	
PCC PATCH	ft <sup>2</sup>	0	0		

SURFACE TYPE: PMA OVERLAY  
 INFRARED INSPECTION DATE: 9/10/21  
 INFRARED SURVEY PERFORMED BY AECOM

8

8

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-30-48</b>			
DRAWN BY	WAR	PLANS CK'D	KGW
<b>INFRARED DECK SURVEY</b>			SHEET 8 OF 8

SCALE =

**DESIGN DATA**

**LIVE LOAD:**  
 TAKEN FROM HSI, 11/13/2020  
**DESIGN LOADING:** HS20  
**INVENTORY RATING:** HS14  
**OPERATING RATING:** HS50  
**WS. STD. PERMIT VEHICLE (Wis-SPV):** 250 KIPS

**SCOPE OF WORK: B-30-51**

1. REMOVE UNSTABLE RIPRAP AT WEST ABUTMENT
2. PLACE LOW STRENGTH BACKFILL UNDER VOID AT WEST ABUTMENT.
3. PLACE SCOUR REPAIR GROUT BAGS AT WEST ABUTMENT SLOPE.

**TRAFFIC DATA**

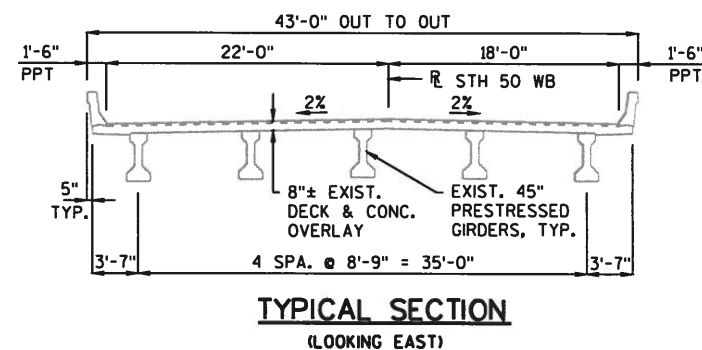
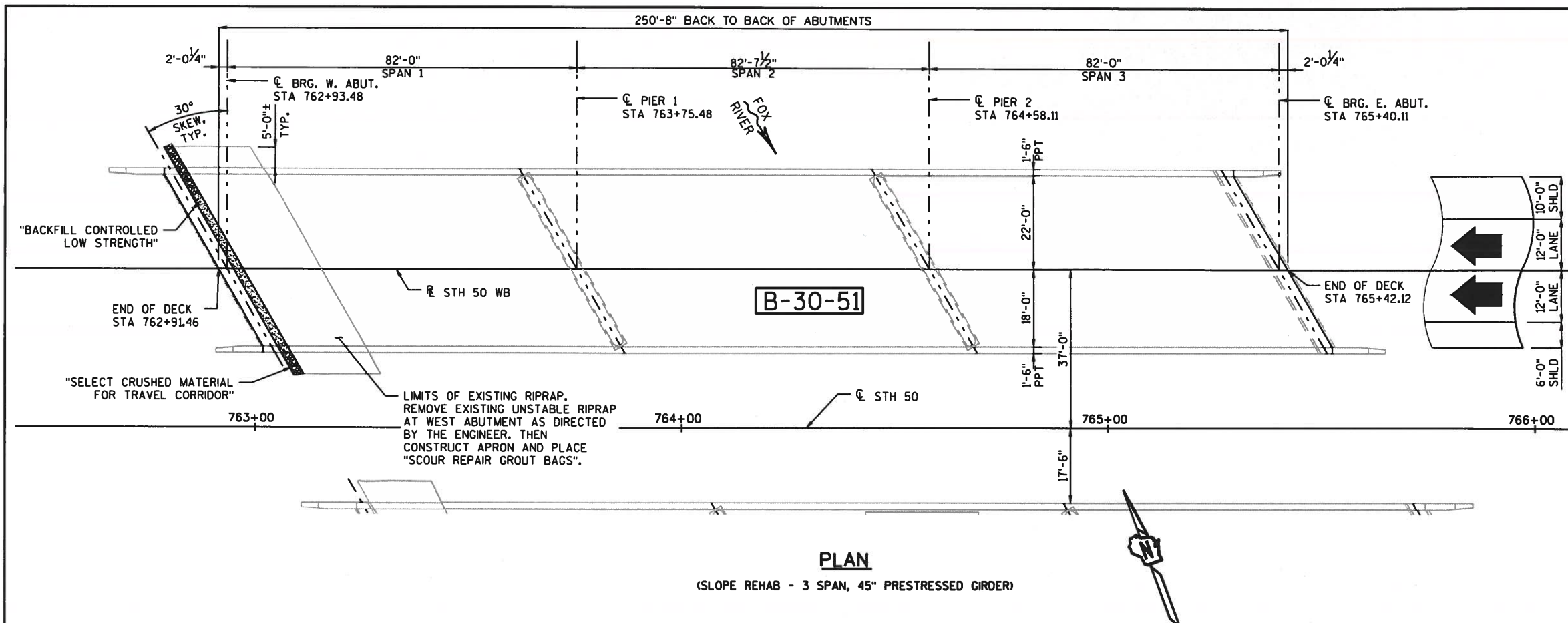
**STH 50**  
 AADT=20,200 (2024)  
 AADT=25,300 (2044)  
 RDS = 60 MPH

**LIST OF DRAWINGS**

1. PLAN & ELEVATION
2. EMBANKMENT REPAIR

**HYDRAULIC DATA**

**2 YEAR FREQUENCY**  
 $Q_2 = 2,750$  C.F.S  
 $HW_2 = 745.75$   
 VELOCITY = 1.90 F.P.S

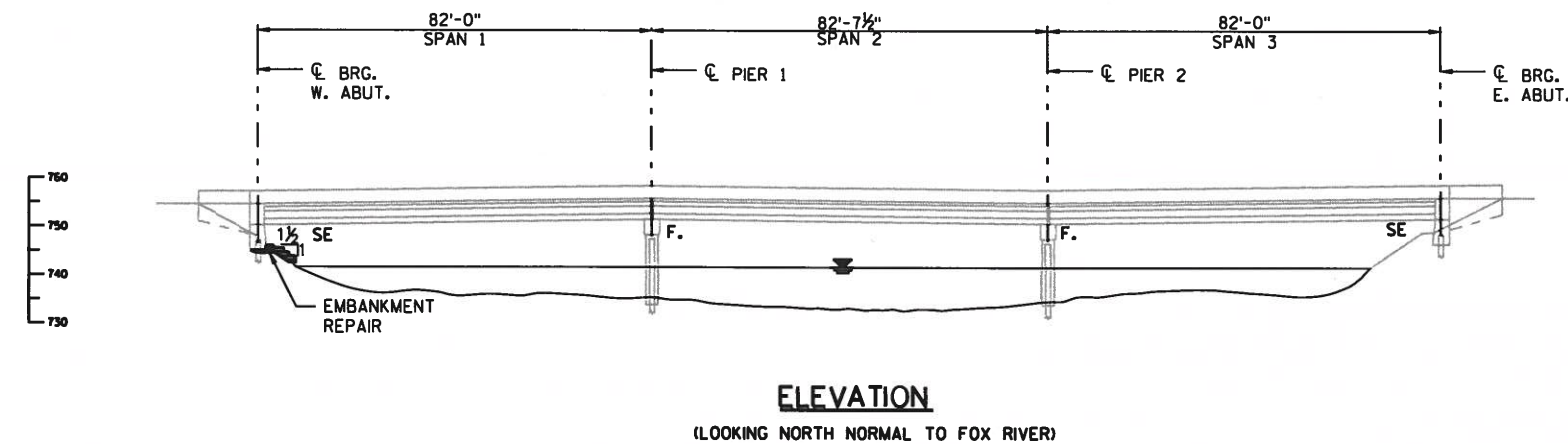
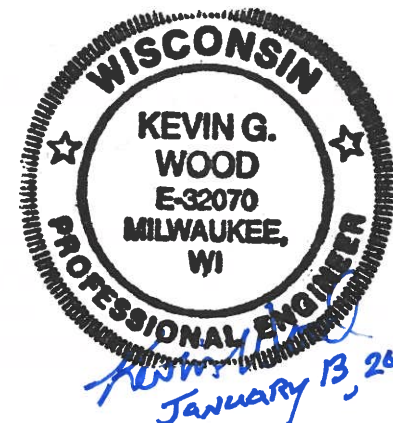


**TOTAL ESTIMATED QUANTITIES**

ITEM NUMBER	BID ITEM	UNIT	TOTAL
209.0200.5	BACKFILL CONTROLLED LOW STRENGTH	CY	8
645.0120	GEOTEXTILE TYPE HR	SY	39
SPV.0035.01	SCOUR REPAIR GROUT BAGS	CY	16
SPV.0195.01	SELECT CRUSHED MATERIAL FOR TRAVEL CORRIDOR	TON	3

**BUREAU OF STRUCTURES CONTACT:**  
 AARON BONK (608) 261-0261  
**CONSULTANT CONTACT:**  
 KEVIN WOOD (414) 259-1500

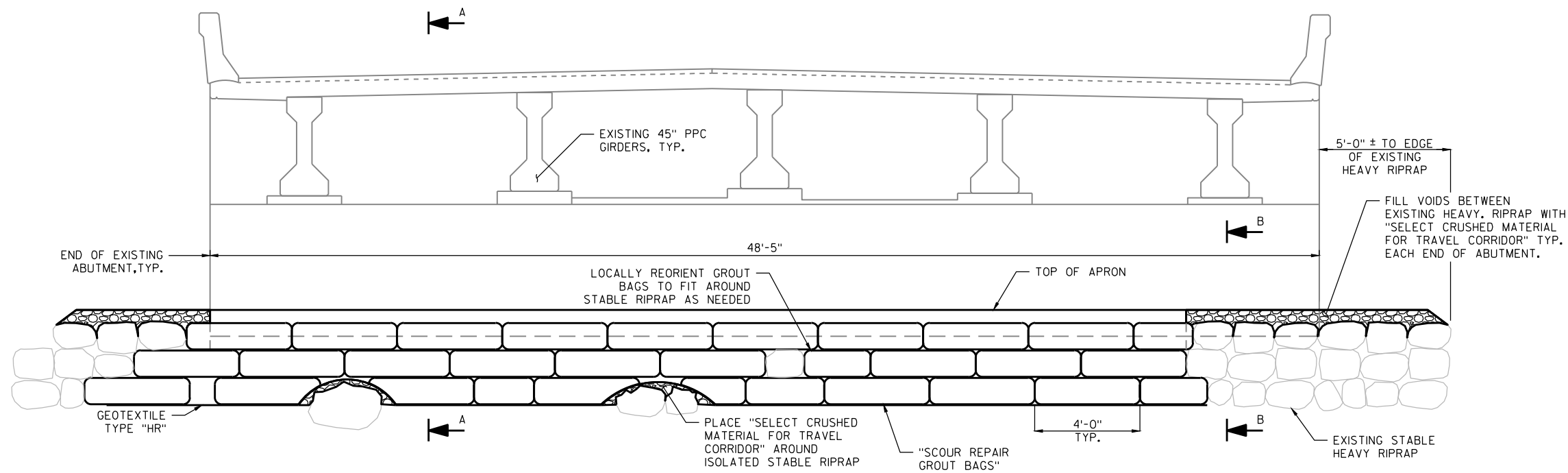
NO.	DATE	REVISION	BY
<b>GRAEF</b>			
275 W. Wisconsin Avenue, Suite 300 Milwaukee, WI 53203 414 / 259 1500 414 / 259 0037 fax www.graef-usa.com			
ACCEPTED		SDR 02/15/23	
CHIEF STRUCTURES DESIGN ENGINEER		DATE	
<b>STRUCTURE B-30-51</b>			
STH 50 WB OVER FOX RIVER			
COUNTY	TOWN/VILLAGE		
KENOSHA	WHEATLAND		
DESIGN SPEC.			
DESIGNED BY	REHABILITATION	N/A	
WAR	DESIGN CK'D.	KGW	BY.
WAR	CK'D.	KGW	BY.
<b>PLAN &amp; ELEVATION</b>		SHEET 1 OF 2	



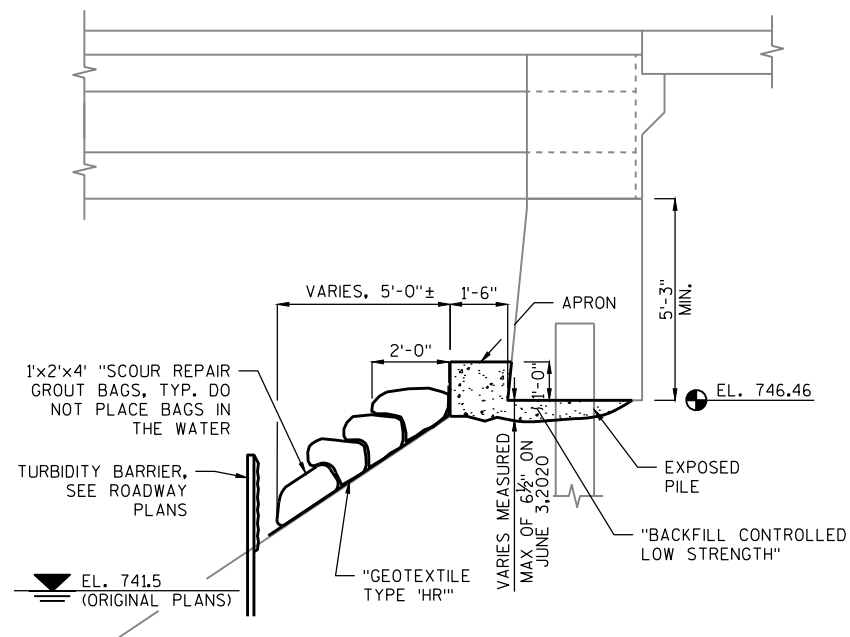
**GENERAL NOTES**

- DRAWINGS SHALL NOT BE SCALED.
- ALL STATIONS ARE IN FEET.
- DIMENSIONS SHOWN ARE BASED ON THE ORIGINAL STRUCTURE PLANS AND REHAB PLANS. STATIONING IS FROM 2010 REHAB PLANS.
- EXISTING STRUCTURE B-30-51 IS A 3-SPAN 45" PRESTRESSED GIRDER BRIDGE WITH A CLEAR WIDTH OF 40'-0" AND A DECK LENGTH OF 250'-8".
- FILL VOIDS UNDER WEST ABUTMENT AS DIRECTED BY THE ENGINEER. WORK SHALL BE PAID FOR UNDER THE BID ITEM "BACKFILL CONTROLLED LOW STRENGTH".
- PLACE FILTER FABRIC UNDER ALL GROUT BAGS INCLUDING A SINGLE LAYER OF BAGS. PRIOR TO PLACING FILTER FABRIC, PLACE SELECT CRUSHED MATERIAL AROUND ISOLATED RIPRAP TO PROVIDE A SMOOTH SURFACE.
- PLACE BAGS AROUND EXISTING STABLE RIPRAP. DO NOT BRIDGE BAGS OVER EXISTING STABLE HEAVY RIPRAP THAT WOULD OTHERWISE CREATE VOIDS.
- PLACE TOP BAG FLUSH WITH FACE OF APRON.
- ADDITIONAL GROUT BAGS MAY BE PLACED BEYOND THE LIMITS SHOWN AS DIRECTED BY THE ENGINEER.
- STACK BAGS SO THAT THE JOINTS OF THE PRECEDING LAYER ARE OVERLAPPED.
- DO NOT TIE GROUT BAGS TOGETHER WITH REBAR OR OTHER MEANS.
- PROVIDE A METHOD TO PREVENT GROUT BAGS FROM ROLLING DOWNSLOPE DURING GROUT FILLING.
- DO NOT OVERFILL BAGS OR ALLOW GROUT TO BE POURED BETWEEN THE SEAMS OF TWO BAGS.
- REPOSITION EXISTING UNSTABLE HEAVY RIPRAP AWAY FROM WORK AREA AS DIRECTED BY THE ENGINEER. DO NOT DIG OUT SOLIDLY EMBEDDED RIPRAP.
- JOINTS BETWEEN BAGS IN SUCCESSIVE ROWS AND TIERS SHALL BE STAGGERED.

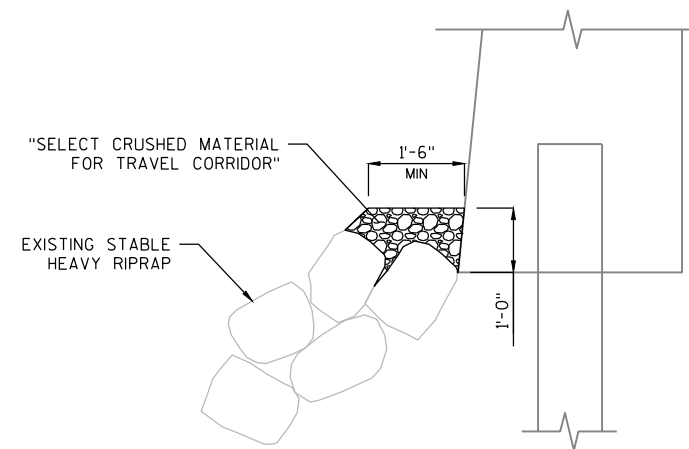
CUT OFF EXPOSED GROUT FILLING PORTS AFTER GROUT CURES.



**WEST ABUTMENT ELEVATION**  
(LOOKING WEST)



**SECTION A-A**



**SECTION B-B**

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-30-51</b>			
DRAWN BY WAR		PLANS CKD. KGW	
<b>EMBANKMENT REPAIR</b>		SHEET 2 OF 2	

SCALE =

B-30-51

STATE PROJECT NUMBER

1310-14-70

DESIGN DATA

LIVE LOAD: TAKEN FROM HSI, 12/29/2020
DESIGN LOADING: HS20
INVENTORY RATING: HS14
OPERATING RATING: HS50
WS. STD. PERMIT VEHICLE (Wis-SPV): 250 KIPS

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.
ALL STATIONS ARE IN FEET.
DIMENSIONS SHOWN ARE BASED ON THE ORIGINAL STRUCTURE PLANS AND REHAB PLANS. STATIONING IS FROM 2010 REHAB PLANS.
EXISTING STRUCTURE B-30-57 IS A 3-SPAN 45' PRESTRESSED GIRDER BRIDGE WITH A CLEAR WIDTH OF 40'-0" AND A DECK LENGTH OF 250'-8".

SCOPE OF WORK: B-30-57

- 1. PLACE LOW STRENGTH BACKFILL UNDER VOID AT WEST ABUTMENT.

TRAFFIC DATA

STH 50
AADT=20,200 (2024)
AADT=25,300 (2044)
RDS = 60 MPH

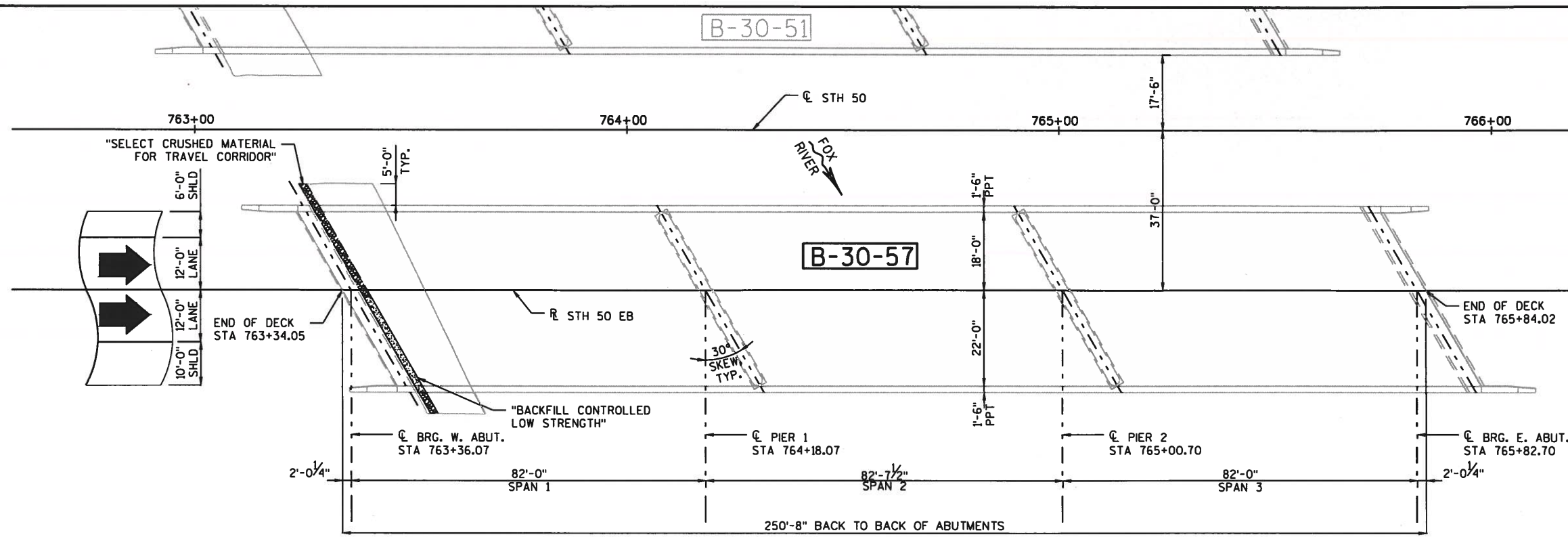
LIST OF DRAWINGS

- 1. PLAN & ELEVATION
2. EMBANKMENT REPAIR

HYDRAULIC DATA

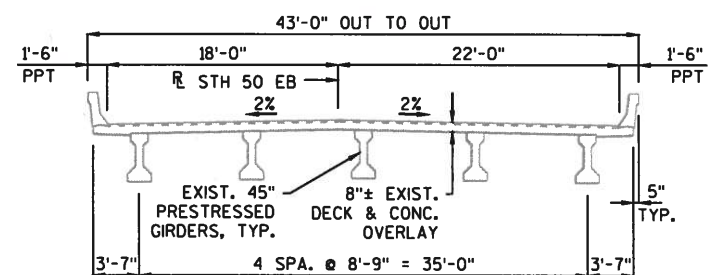
2 YEAR FREQUENCY
Q2 = 2,750 C.F.S
HW2 = 745.75
VELOCITY = 1.90 F.P.S

BUREAU OF STRUCTURES CONTACT:
AARON BONK (608) 261-0261
CONSULTANT CONTACT:
KEVIN WOOD (414) 259-1500



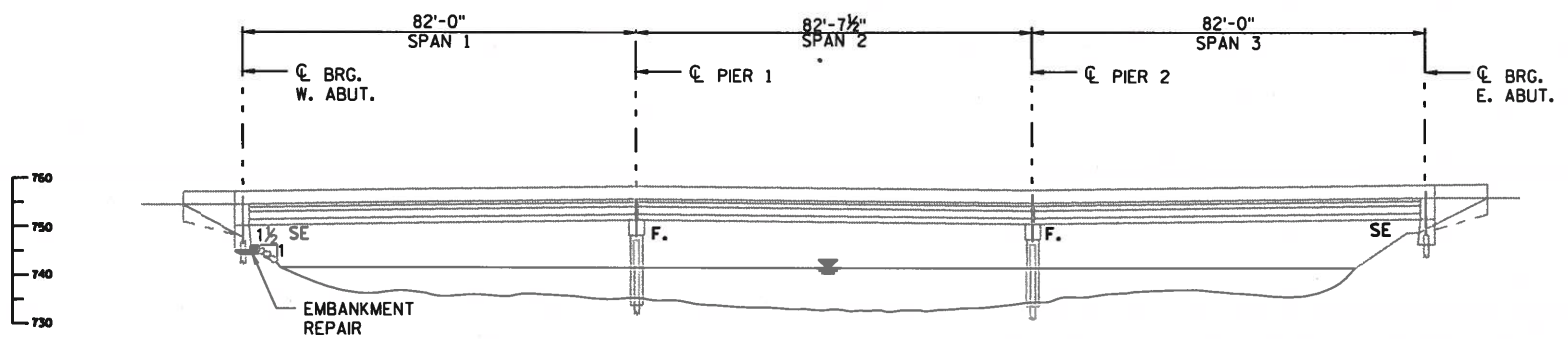
PLAN

(SLOPE REHAB - 3 SPAN, 45' PRESTRESSED GIRDER)



TYPICAL SECTION

(LOOKING EAST)



ELEVATION

(LOOKING NORTH NORMAL TO FOX RIVER)

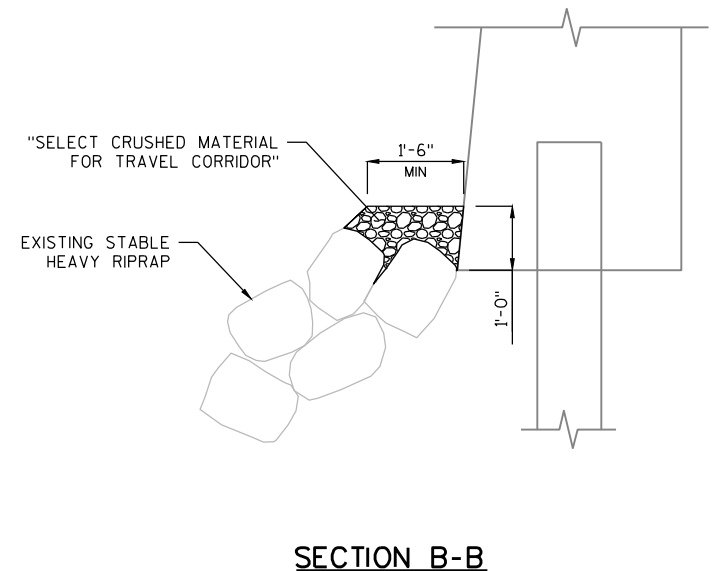
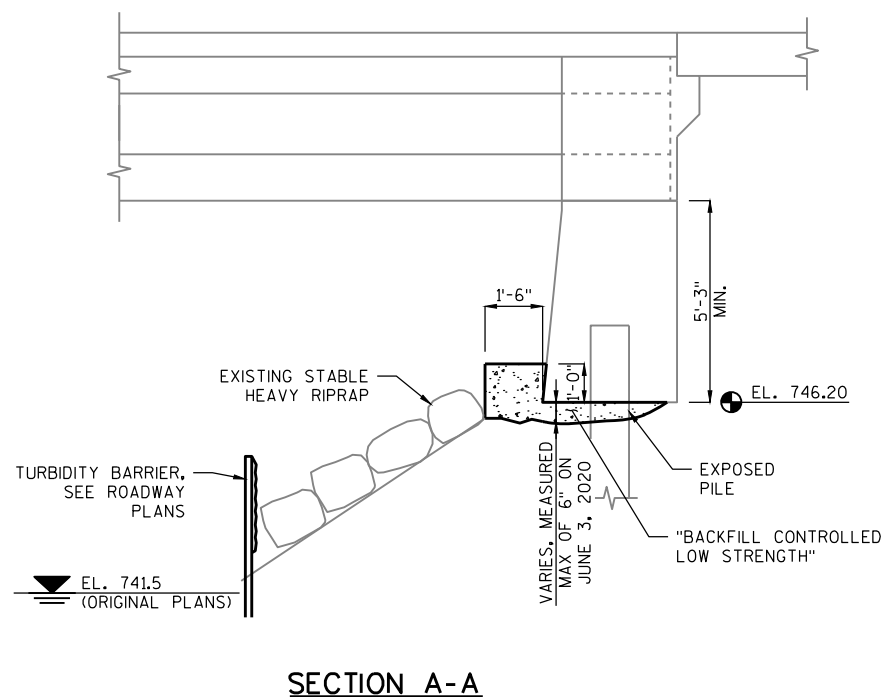
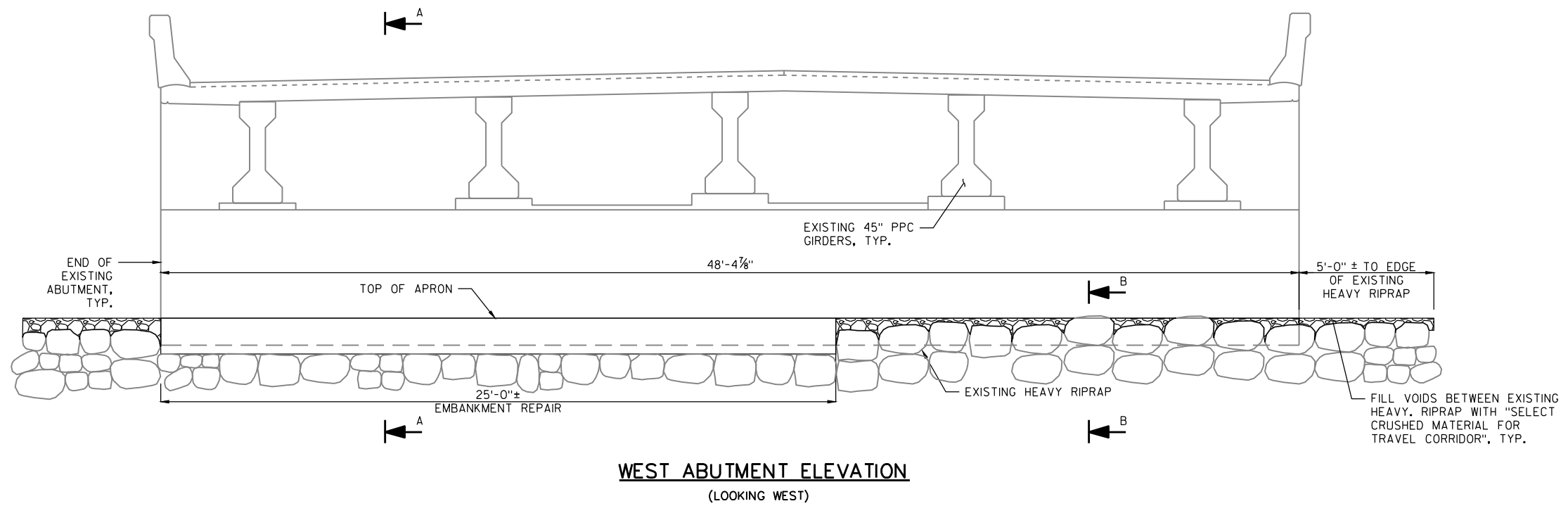


January 13, 2023

TOTAL ESTIMATED QUANTITIES

Table with 4 columns: ITEM NUMBER, BID ITEM, UNIT, TOTAL. Includes items for backfill and crushed material.

Revision table and project information table including project name, location, and drawing title.



NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-30-57</b>			
DRAWN BY WAR		PLANS CKD. KGW	
<b>EMBANKMENT REPAIR</b>		SHEET 2 OF 2	

8

8

SCALE =

\* PROVIDE FOR THREE BEAM GUARD ATTACHMENT. SEE DETAILS ON SHEET 6.

Ⓜ INDICATES WING NUMBER

DESIGN DATA

LIVE LOAD:
DESIGN LOADING: HS-20
INVENTORY RATING: HS-20
OPERATING RATING: HS-34
WS. STD. PERMIT VEHICLE (Wis-SPV): 250 KIPS

MATERIAL PROPERTIES

CONCRETE MASONRY OVERLAY DECKS f\_c = 4,000 PSI
ALL OTHERS f\_c = 3,500 PSI
HIGH STRENGTH BAR STEEL
REINFORCEMENT GRADE 60 f\_y = 60,000 PSI

SCOPE OF WORK B-30-58

- 1. PLACE OVERLAY ON SLAB
2. CONCRETE SURFACE REPAIR
3. JOINT REPLACEMENT
4. BEARING REPLACEMENT
5. GIRDER PAINTING
6. PIPE UNDERDRAIN AT W. ABUTMENT
7. SLOPE PAVING REPAIR

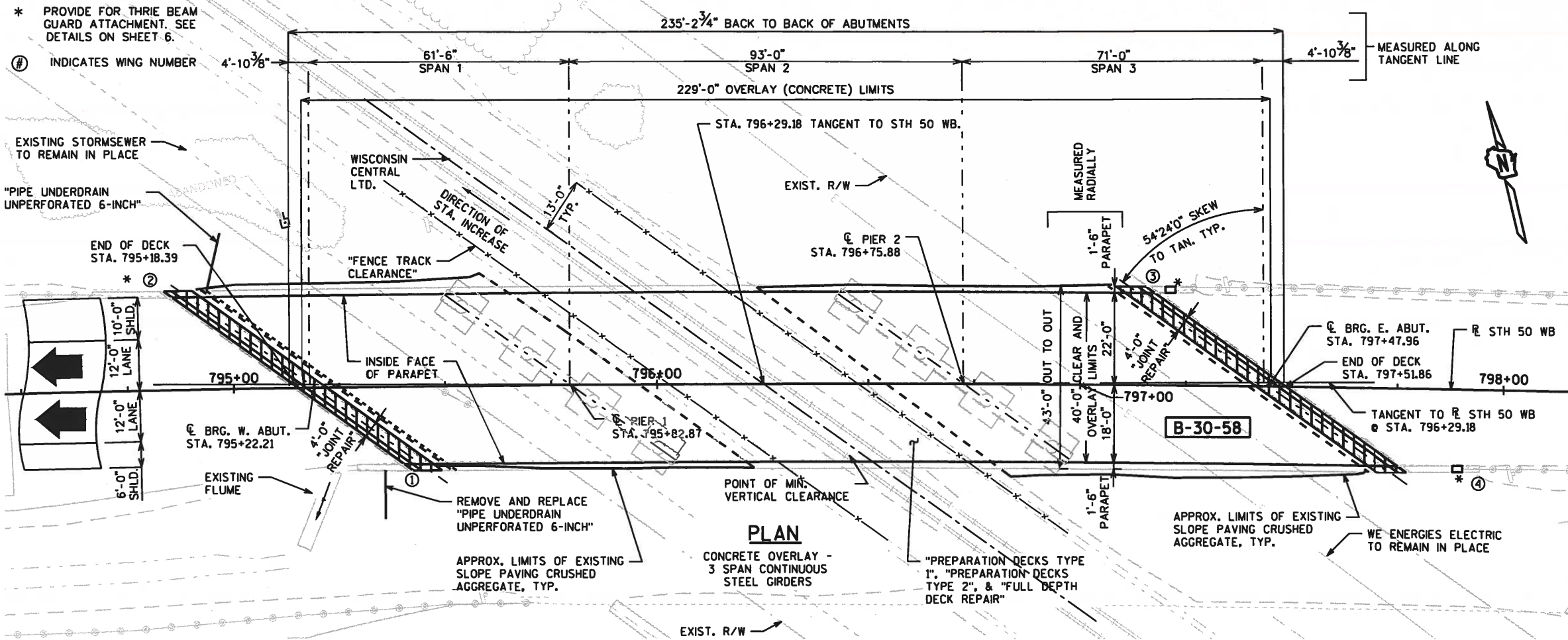
TRAFFIC DATA

STH 50
ADT = 20,200 (2024)
25,300 (2044)
RDS = 60 MPH

WISCONSIN CENTRAL LTD. (CROSSING #689825M)
24 TRAINS/DAY
5-60 MPH

CURVE DATA

P.I. STA. 796+64.40
Delta = 5'-20'02"
D = 0'-44'-54"
T = 356.61'
L = 112.70'
R = 7655.85'
S.E. = 0.025 FT/FT
P.C. = STA. 793+07.79
P.T. = STA. 800+20.50



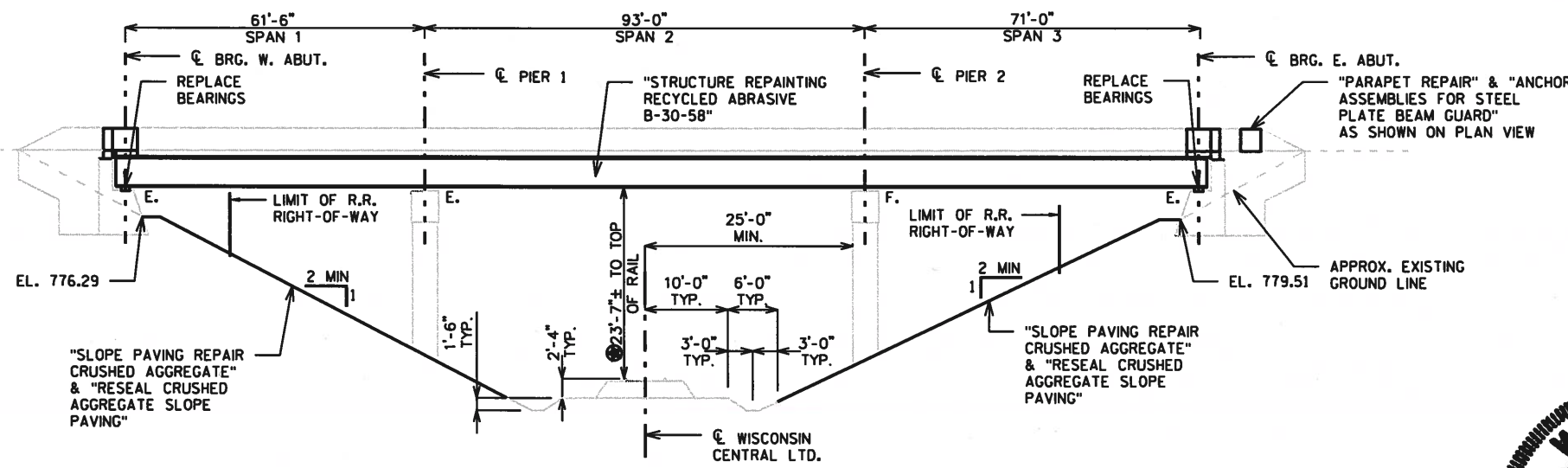
PLAN

CONCRETE OVERLAY - 3 SPAN CONTINUOUS STEEL GIRDERS

DRAWING LIST

- 1. GENERAL PLAN & ELEVATION
2. CROSS SECTION & QUANTITIES
3. EXPANSION BEARING DETAILS
4. CONCRETE DETAILS & DECK BILL OF BARS
5. STRIP SEAL EXP. JT. & ABUT. BILL OF BARS
6. COVER PLATE & PARAPET DETAILS
7. SLOPE REPAIR
8. INFRARED DECK SURVEY

BUREAU OF STRUCTURES CONTACT:
AARON BONK (608) 261-0261
CONSULTANT CONTACT:
KEVIN WOOD (414) 259-1500



ELEVATION

(LOOKING NORTH - NORMAL TO WISCONSIN CENTRAL R.R.)



January 13, 2023

LEGEND

Ⓜ MEASUREMENT TAKEN FROM HSI 12/03/2021.

Table with columns for NO., DATE, REVISION, and BY. Includes project details like 'STRUCTURE B-30-58', 'STH 50 WB & 83 NB OVER WISCONSIN CENTRAL R.R.', and 'GENERAL PLAN & ELEVATION'.



**GENERAL NOTES**

DRAWINGS SHALL NOT BE SCALED.

ALL STATIONS AND ELEVATIONS ARE IN FEET. ELEVATIONS ARE REFERENCE TO THE NAVD 88 2012.

ROADWAY ALIGNMENT PROVIDED BY WISDOT SE REGION. STRUCTURE STATIONING ESTABLISHED ALONG PROVIDED ALIGNMENT WITH REFERENCE TO SURVEY DATA.

DIMENSIONS SHOWN ARE BASED ON THE ORIGINAL STRUCTURE PLANS.

EXISTING STRUCTURE B-30-58 IS A 3 SPAN CONTINUOUS STEEL GIRDER BRIDGE WITH A WIDTH OF 43'-0" AND END TO END OF DECK LENGTH OF 233'-9 1/2" (MEASURED ALONG TANGENT LINE). THE ENTIRE BRIDGE DECK IS TO BE PREPARED FOR A NEW CONCRETE OVERLAY.

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

"PIGMENTED SURFACE SEALER" TO BE APPLIED TO THE TOP AND INSIDE FACE OF NEW PARAPETS AT JOINT REPAIR & THRIE BEAM ATTACHMENT.

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

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

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

PROFILE GRADE LINE SHALL BE DETERMINED IN THE FIELD BASED ON A MINIMUM OVERLAY THICKNESS OF 1 1/2" PLACED ABOVE THE DECK SURFACE AFTER SURFACE PREPARATION. EXPECTED AVERAGE OVERLAY THICKNESS IS 2". IF EXPECTED AVERAGE OVERLAY THICKNESS EXCEED BY 1/2", CONTACT THE STRUCTURES DESIGN SECTION.

CONCRETE SURFACE REPAIR AS DIRECTED BY THE FIELD ENGINEER. QUANTITIES SHOWN ON PLANS ARE APPROXIMATE.

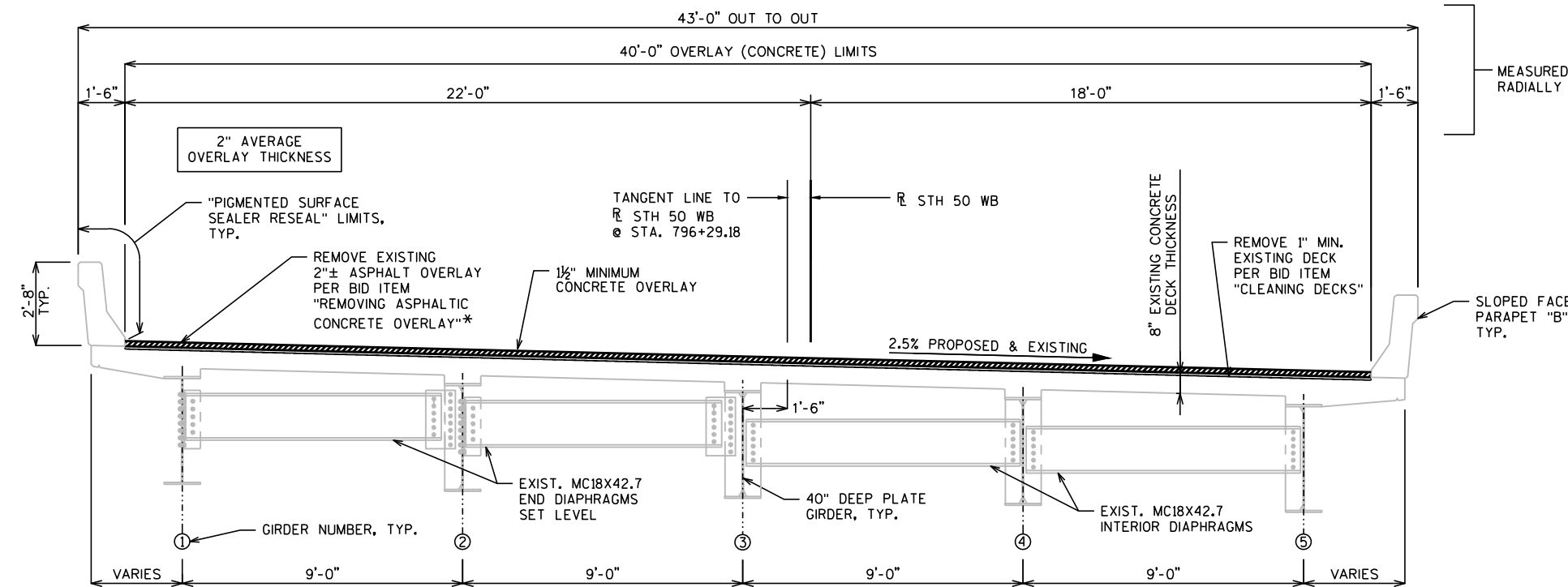
ALL CONCRETE REMOVE NOT COVERED WITH A CONCRETE OVERLAY SHALL BE DEFINED BY A 1 INCH DEEP SAW CUT.

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

THE FIRST DIGIT OF A THREE DIGIT AND THE FIRST TWO DIGITS OF A FOUR DIGIT BAR MARK SIGNIFIES THE BAR SIZE. BEVEL ALL EXPOSED EDGES OF CONCRETE 3/4" UNLESS OTHERWISE NOTED.

UTILIZE EXISTING BAR STEEL REINFORCEMENT WHERE SHOWN AND EXTEND 24 BAR DIAMETERS INTO NEW WORK, UNLESS SPECIFIED OTHERWISE.

ALL STRUCTURAL STEEL SURFACES BENEATH THE BRIDGE ARE TO BE CLEANED AND PAINTED UNDER THE BID ITEM FOR "STRUCTURE REPAINTING RECYCLED ABRASIVE B-30-58" AND "PREPARATION AND COATING OF BOTTOM FLANGES B-30-58". THE SURFACES INCLUDE GIRDERS, DIAPHRAGMS, STIFFENERS, BEARINGS AND CONNECTIONS. PAINT COLOR TO BE FEDERAL STANDARD COLOR NO. 26293 (LIGHT GRAY).



\*THE CONCRETE DECK WAS NOT MILLED PRIOR TO PLACING THE EXISTING ASPHALT OVERLAY.

**TYPICAL SECTION**  
(LOOKING EAST)

**TOTAL ESTIMATED QUANTITIES**

ITEM NUMBER	BID ITEM	UNIT	W. ABUT.	PIER 1	PIER 2	E. ABUT.	SUPER.	TOTALS
203.0330	DEBRIS CONTAINMENT B-30-58	EACH	-	-	-	-	-	1
502.3101	EXPANSION DEVICE	LF	68	-	-	71	-	139
502.3200	PROTECTIVE SURFACE TREATMENT	SY	9	-	-	9	1,018	1,036
502.3205	PIGMENTED SURFACE SEALER RESEAL	SY	12	-	-	13	186	211
502.4205	ADHESIVE ANCHORS NO. 5 BAR	EACH	74	-	-	74	-	148
505.0600	BAR STEEL REINFORCEMENT HS COATED STRUCTURES	LB	730	-	-	730	2,450	3,910
506.6000	BEARING ASSEMBLIES EXPANSION B-30-58	EACH	-	-	-	-	10	10
506.7050.S.02	REMOVING BEARINGS B-30-58	EACH	-	-	-	-	10	10
509.0301	PREPARATION DECKS TYPE 1	SY	-	-	-	-	5	5
509.0302	PREPARATION DECKS TYPE 2	SY	-	-	-	-	2	2
509.0500	CLEANING DECKS	SY	-	-	-	-	977	977
509.1000	JOINT REPAIR	SY	9	-	-	9	48	66
509.1500	CONCRETE SURFACE REPAIR	SF	-	-	-	-	8	8
509.2000	FULL-DEPTH DECK REPAIR	SY	-	-	-	-	5	5
509.2500	CONCRETE MASONRY OVERLAY DECKS	CY	4	-	-	4	74	82
509.9010.S.02	REMOVING ASPHALTIC CONCRETE DECK OVERLAY B-30-58	SY	-	-	-	-	977	977
* 517.1801.S.02	STRUCTURE REPAINTING RECYCLED ABRASIVE B-30-58	EACH	-	-	-	-	-	1
517.4501.S.02	NEGATIVE PRESSURE CONTAINMENT AND COLLECTION OF WASTE MATERIALS B-30-58	EACH	-	-	-	-	-	1
517.6001.S	PORTABLE DECONTAMINATION FACILITY	EACH	-	-	-	-	-	1
604.9010.S	SLOPE PAVING REPAIR CRUSHED AGGREGATE	CY	17	-	-	19	-	36
604.9015.S	RESEAL CRUSHED AGGREGATE SLOPE PAVING	SY	400	-	-	450	-	850
612.0406	PIPE UNDERDRAIN WRAPPED 6-INCH	LF	109	-	-	-	-	109
614.0150	ANCHOR ASSEMBLIES FOR STEEL PLATE BEAM GUARD	EACH	-	-	-	1	-	1
616.0800.S	FENCE TRACK CLEARANCE	LF	-	-	-	-	-	250
SPV.0060.01	PARAPET REPAIR	EACH	-	-	-	2	-	2
* SPV.0090.02	PREPARATION AND COATING OF BOTTOM FLANGES B-30-58	LF	-	-	-	-	-	465

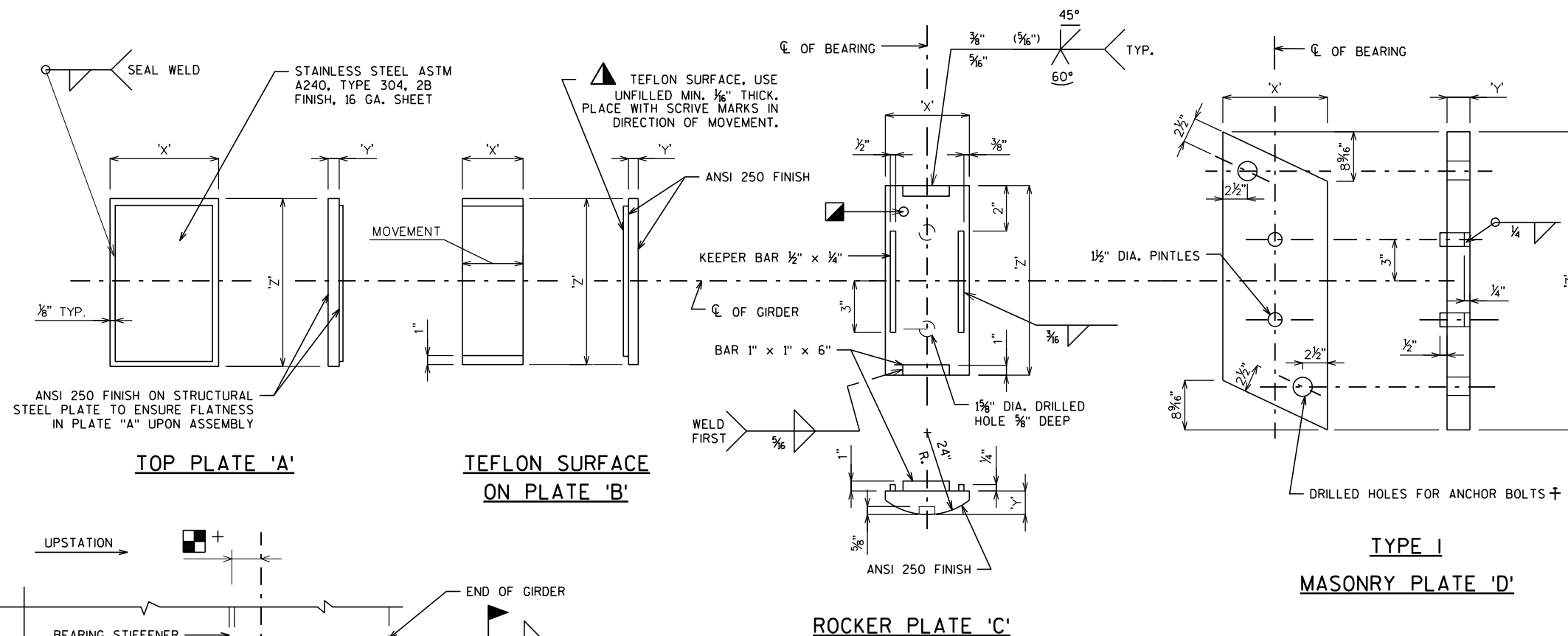
\* FOR INFORMATIONAL PURPOSES ONLY: APPROXIMATELY 13,820 SF OF STRUCTURAL STEEL TO BE PAINTED. SEE GENERAL NOTES.

PRIMARY CONTROL PROVIDED BY WISDOT/R.A. SMITH NATIONAL FOR WISDOT PROJECT 1310-14-00					
TYPE	POINT	DESCRIPTION	NORTHING	EASTING	ELEVATION
CP	305	FOUND 39" BERNTSEN FENO MONUMENT WITH ALUMINUM CAP IN THE MEDIAN OF STH-50 APPROX. 500 FEET WEST OF 319TH AVE.	130538.591	528415.490	750.39
CP	307	FOUND 100MM BERNTSEN FENO MONUMENT WITH 2" ALUMINUM CAP ON THE NORTH SIDE OF STH-50 APPROX. 300' EAST OF THE TURNAROUND	129817.761	531383.950	763.060
BM	22393	FOUND ALUMINUM MONUMENT AT NE CORNER OF STRUCTURE B-30-058 OF WB STH-50 IN CONCRETE BRIDGE WALL	-	-	789.660 (789.583)*
BM	22394	FOUND ALUMINUM MONUMENT AT SW CORNER OF STRUCTURE B-30-048 OF EB STH-50 IN CONCRETE BRIDGE WALL	-	-	785.910 (785.885)*

ABOVE HORIZONTAL COORDINATE ARE REFERENCE TO WCCS KENOSHA COUNTY ZONE, NAD 83 (2011)  
ABOVE ELEVATIONS ARE REFERENCE TO NAVD 88 (2012)  
( ) \* = OBSERVED AS

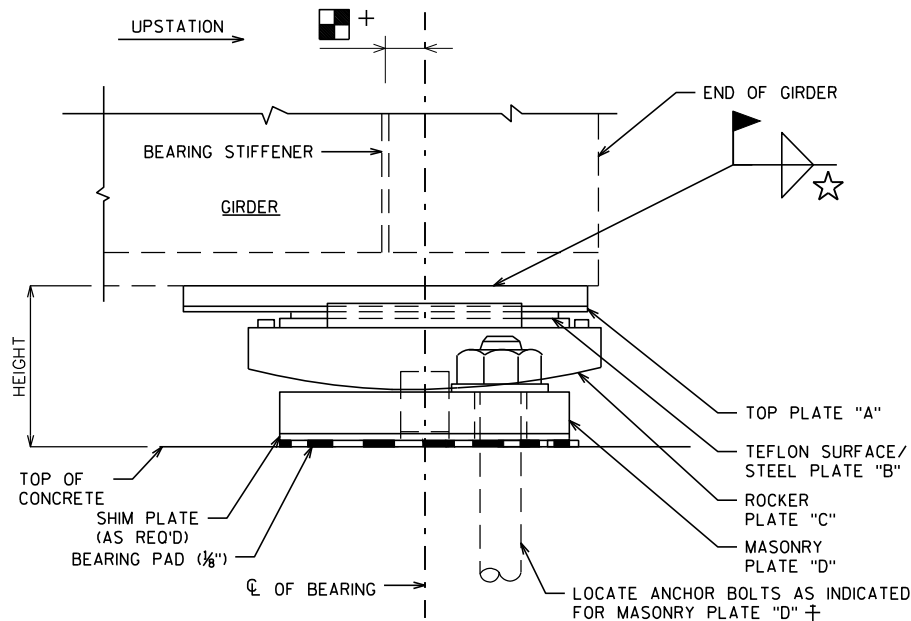
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-30-58</b>			
DRAWN BY		WAR	PLANS CK'D KGW
<b>CROSS SECTION &amp; QUANTITIES</b>			SHEET 2 OF 8

SCALE =



**NOTES**

- ALL BEARINGS ARE SYMMETRICAL ABOUT  $\bar{C}$  OF GIRDER AND  $\bar{C}$  OF BEARING.
- ANCHOR BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153, CLASS C.
- ROCKER PLATE "C" AND MASONRY PLATE "D" SHALL BE GALVANIZED. TOP PLATE "A" AND STEEL PLATE "B" SHALL BE SHOP PAINTED. USE A WELDABLE PRIMER ON TOP PLATE "A". DO NOT PAINT STAINLESS STEEL OR TEFLON SURFACES.
- ALL MATERIAL IN BEARINGS, INCLUDING SHIM PLATES, BUT EXCLUDING STAINLESS STEEL SHEET, TEFLON SURFACES, PINTLES. ANCHOR BOLTS, NUTS AND WASHERS SHALL CONFORM TO ASTM A709 GRADE 50W.
- IN LIEU OF USING SHIM PLATES FABRICATOR MAY INCREASE THICKNESS OF TOP PLATE PLATE "A" OR MASONRY PLATE "D" BY THE SHIM PLATE THICKNESS.
- ALL MATERIALS IN TYPE "A-T" BEARINGS, INCLUDING SHIM PLATES AND BEARING PADS, SHALL BE PAID FOR AT THE UNIT PRICE BID FOR "BEARING ASSEMBLIES EXPANSION B-30-58", EACH.
- CHAMFER ANCHOR BOLTS PRIOR TO THREADING.
- ALL FINISHED SURFACES SHALL BE MACHINE FINISHED BY AN AUTOMATIC PROCESS.
- ALL PLATE CUTS SHALL BE MACHINE OR MACHINE FLAME CUTS.
- ALL STRUCTURAL STEEL BEARING PLATES SHALL BE FLAT ROLLED STEEL PLATES WITH ALL SURFACES SMOOTH AND FREE FROM WARP AND ALL EDGES SMOOTH, STRAIGHT AND VERTICAL.
- PROVIDE 1/8" THICK BEARING PAD THE SAME SIZE AS MASONRY PLATE "D" FOR EACH BEARING.
- ANCHOR BOLTS SHALL BE THREADED 3". PROVIDE ONE STANDARD WROUGHT WASHER AND ONE HEX NUT PER BOLT. PROJECT ANCHOR BOLTS, MASONRY PLATE "D" THICKNESS + SHIM PLATE THICKNESS + 2 1/4", ABOVE TOP OF CONCRETE.
- CHAMFER TOP OF PINTLES 1/8". DRILL HOLES FOR ALL PINTLES IN MASONRY PLATE "D" FOR A DRIVING FIT.
- STEEL PINTLES SHALL CONFORM TO ASTM A449 OR ASTM A572 GRADE 50.
- ANCHOR BOLTS, NUTS AND WASHERS SHALL CONFORM TO ASTM F1554 GRADE 50, OR MATERIAL OF EQUIVALENT YIELD STRENGTH AND ELONGATION.
- PLACE SHIM PLATES BETWEEN BEARING PAD AND MASONRY PLATE "D". PLATES SHALL HAVE 'X' AND 'Z' DIMENSIONS THAT MATCH MASONRY PLATE "D". PROVIDE SHIM PLATES AS SHOWN.
- PROVIDE A METHOD FOR HANDLING ROCKER PLATE "C" DURING GALVANIZING.
- BOND STEEL PLATE "B" AND TEFLON WITH ADHESIVE MATERIAL MEETING THE REQUIREMENTS FOUND IN THE STANDARD SPECIFICATIONS.
- DRILLED HOLES FOR ANCHOR BOLTS IN MASONRY PLATE "D" SHALL HAVE A DIAMETER 3/8" LARGER THAN ANCHOR BOLT. TWO BOLTS ARE REQUIRED.
- AT INSTALLATION, ENSURE STAINLESS STEEL SLIDING FACE OF THE UPPER ELEMENT AND THE TFE SLIDING FACE OF THE LOWER ELEMENT HAVE THE SURFACE FINISH SPECIFIED AND ARE CLEAN AND FREE OF ALL DUST, MOISTURE, OR ANY OTHER FOREIGN MATTER.
- ANCHOR BOLTS TO BE 1/4" DIA x 1'-5" LONG.



**ABUTMENT BEARINGS**

PLATE A			PLATE B			PLATE C			PLATE D			HEIGHT FEET	LOCATION
X	Y	Z	X	Y	Z	X	Y	Z	X	Y	Z		
11"	5/8"	1'-4"	7"	1/2"	1'-4"	9"	1 5/16"	1'-6 1/4"	1'-0"	1 1/2"	2'-9 3/8"	0.401	W. ABUT.
11"	5/8"	1'-4"	7"	1/2"	1'-4"	9"	1 5/16"	1'-6 1/4"	1'-0"	1 1/4"	2'-9 3/8"	0.380	E. ABUT.

5 REQUIRED @ W. ABUT.  
5 REQUIRED @ E. ABUT.

☆ **TABLE OF FILLET WELD SIZES**

MATERIAL THICKNESS OF THICKER PART JOINED.	MIN. SIZE OF FILLET WELD
TO 1/2" INCLUSIVE	3/16"
OVER 1/2" TO 3/4"	1/4"
OVER 3/4" TO 1 1/2"	5/16"
OVER 1 1/2"	3/8"

EXCEPT THAT THE WELD SIZE SHALL NOT EXCEED THE THICKNESS OF THE THINNER PART JOINED.  
MIN. PASS SIZE IS 5/16"

■ **BEARING OFFSET TABLE**

ALL DIMENSIONS IN INCHES  
AMBIENT TEMPERATURE DURING BEARING INSTALLATION

°F	W. ABUT.	E. ABUT.
30	-0.1	0.1
45	0	0
60	0.1	-0.1
75	0.3	-0.2
90	0.5	-0.3

		C/L BRG. W. ABUT.	C/L BRG. E. ABUT.
INTERIOR GIRDER	DL	25.5	31.2
	LL	58.7	59.8
EXTERIOR GIRDER	DL	24.6	30.2
	LL	56.3	57.3

**GIRDER REACTIONS AT BEARING (KIPS)**

REACTION SHOWN ARE SERVICE. LIVE LOAD INCLUDES IMPACT.

GIRDER NO.	W. ABUT. SHIM PLATE THICKNESS	E. ABUT. SHIM PLATE THICKNESS
1	3/16"	1/8"
2	7/16"	1/8"
3	7/16"	1/8"
4	1 1/16"	1/8"
5	3/4"	1/8"

**BEARING SHIM PLATE TABLE**

SHIM PLATE THICKNESS BASED ON BEARING HEIGHT FIELD MEASUREMENTS TAKEN AT (1) SIDE OF GIRDER

8

8

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-30-58</b>			
DRAWN BY		WAR	PLANS CK'D KGW
<b>EXPANSION BEARING DETAILS</b>			SHEET 3 OF 8

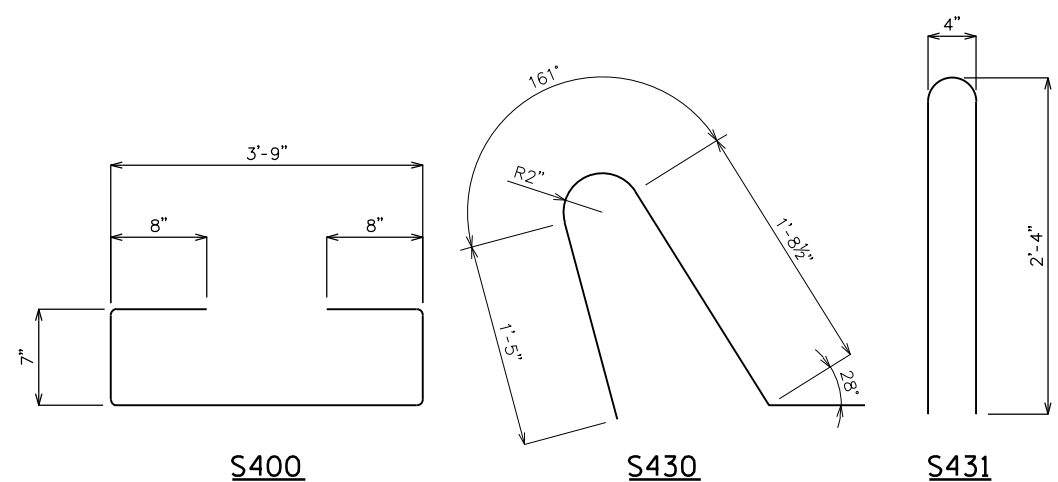
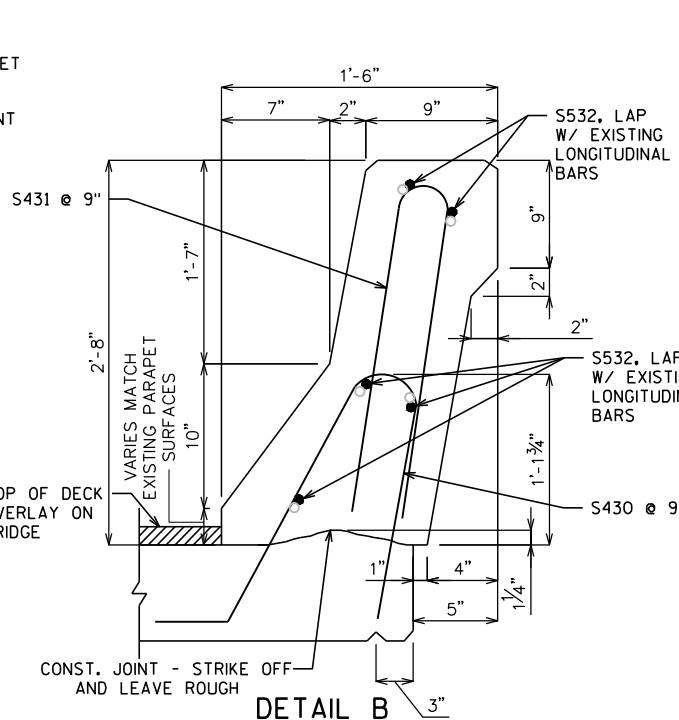
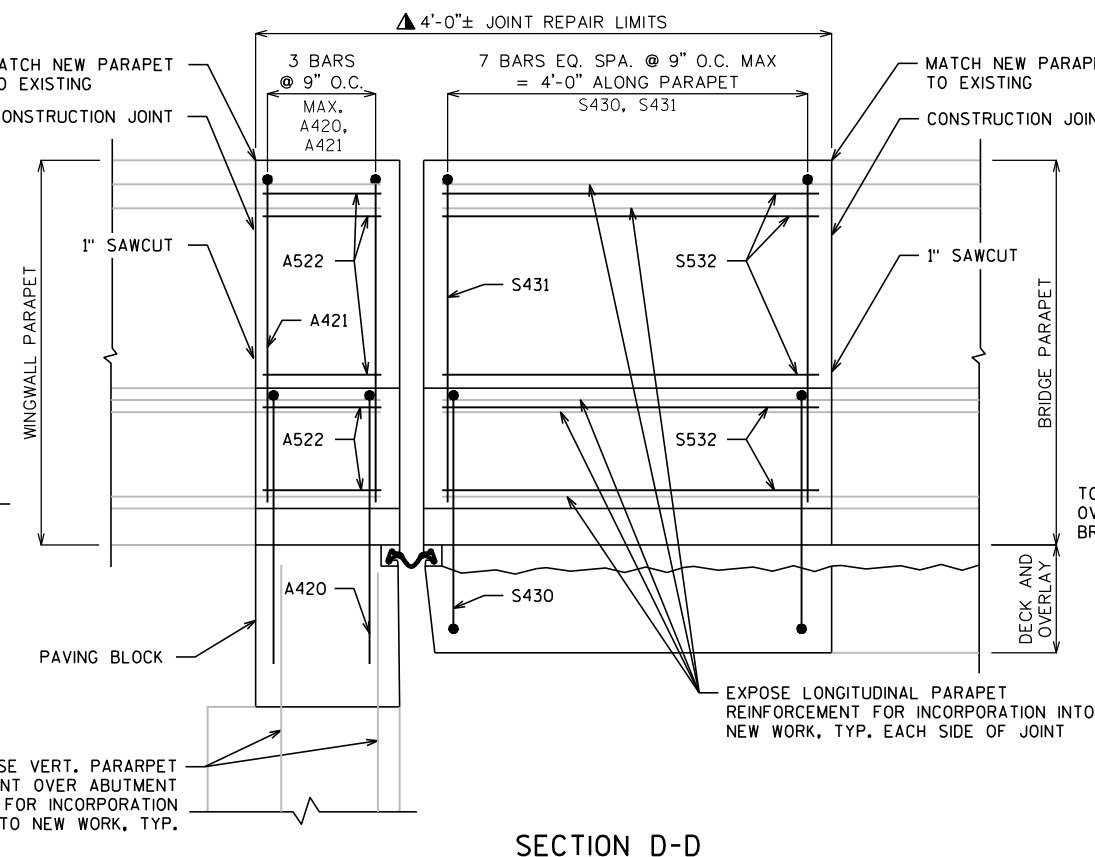
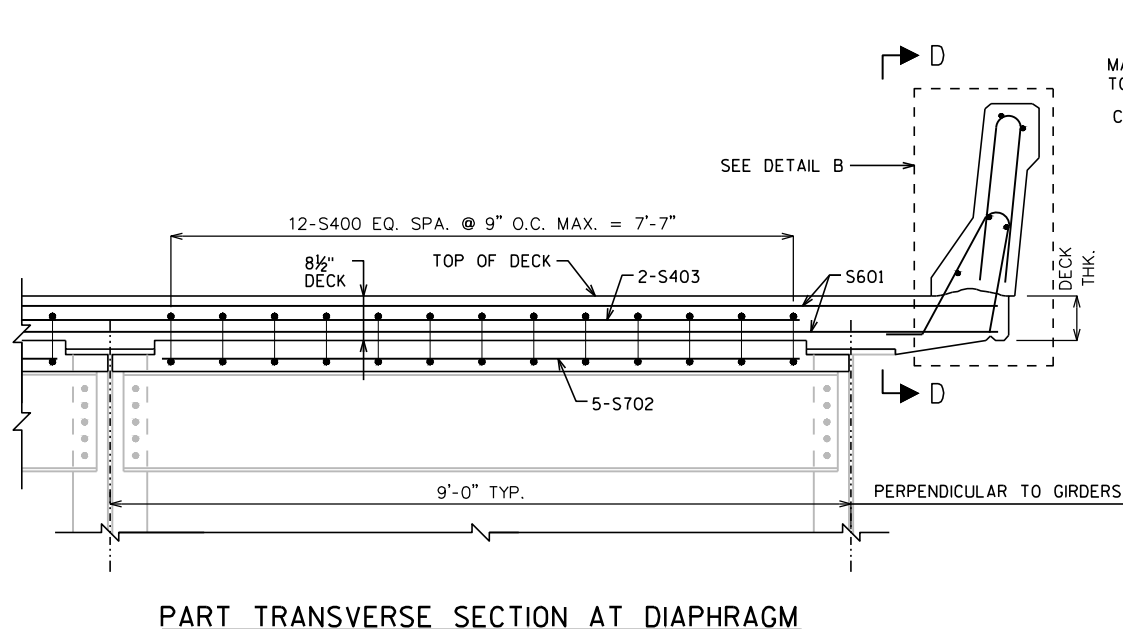
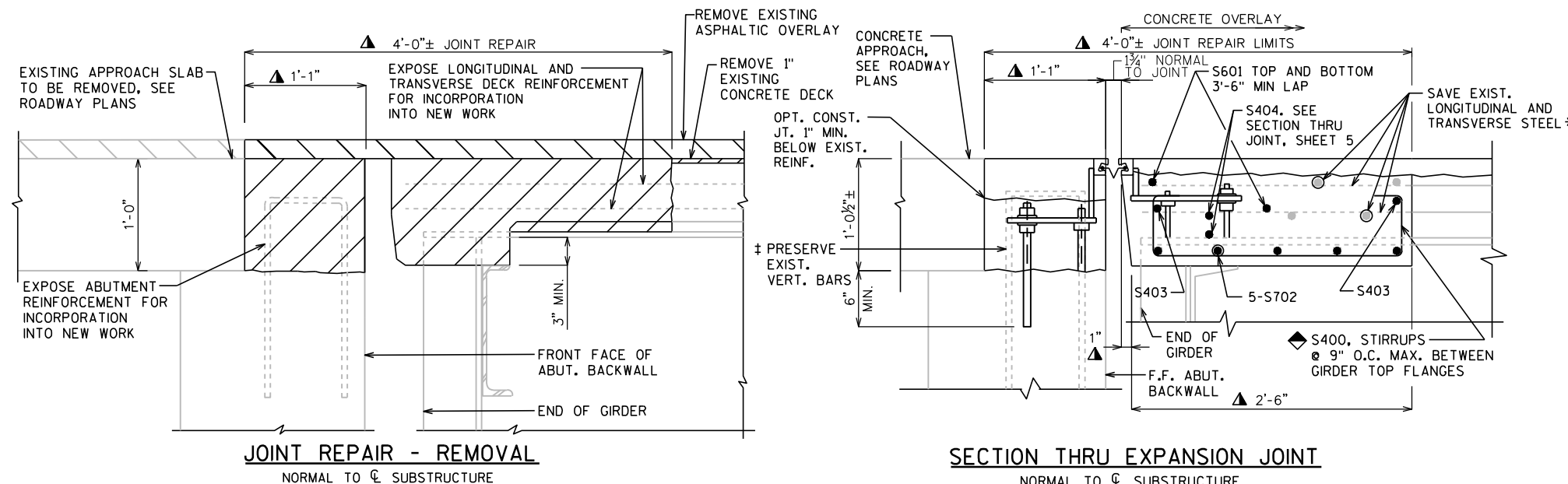
SCALE =

**SUPERSTRUCTURE BILL OF BARS**

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

BILL OF BARS						
MARK	COATED	NO. REQ'D	LENGTH	BAR SERIES	BENT	LOCATION
S400	X	96	5'-11"		X	DIAPHRAGM STIRRUP
S601	X	8	38'-0"			DECK TRANSVERSE
S702	X	40	13'-2"			DIAPHRAGM BOTTOM
S403	X	16	13'-2"			DIAPHRAGM TOP
S404	X	16	13'-2"			EXPANSION JOINT TRANSVERSE
S430	X	28	4'-3"		X	PARAPET DOWEL
S431	X	28	4'-10"		X	PARAPET VERTICAL
S532	X	20	4'-0"			PARAPET HORIZONTAL

ALL DIMENSIONS OF THE BAR BENDS ARE OUT TO OUT.

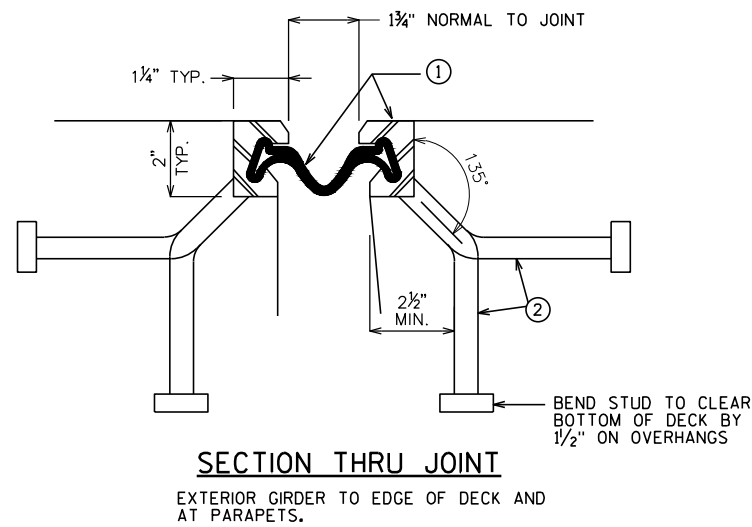


**LEGEND**

- ‡ EXISTING BARS ARE LIKELY TO BE CORRODED AND/OR DAMAGED DURING CONCRETE REMOVAL. PRESERVE AND INCORPORATE AS MUCH REBAR AS PRACTICAL. SUPPLEMENT WITH THE BARS INDICATED BY ☆ ON SHEET 5.
- \* SAVE AND INCORPORATE 1'-6" MINIMUM OF TRANSVERSE REINFORCING BARS.
- ▲ DIMENSIONS GIVEN ARE NORMAL TO CL OF SUBSTRUCTURE UNIT. INCORPORATE EXISTING REINFORCEMENT.
- ◆ BARS PLACED PARALLEL TO GIRDERS. SPACING PERPENDICULAR TO CL GIRDERS.
- ▨ EXISTING 2" ASPHALT OVERLAY TO BE REMOVED.
- ▩ EXISTING CONCRETE TO BE REMOVED.

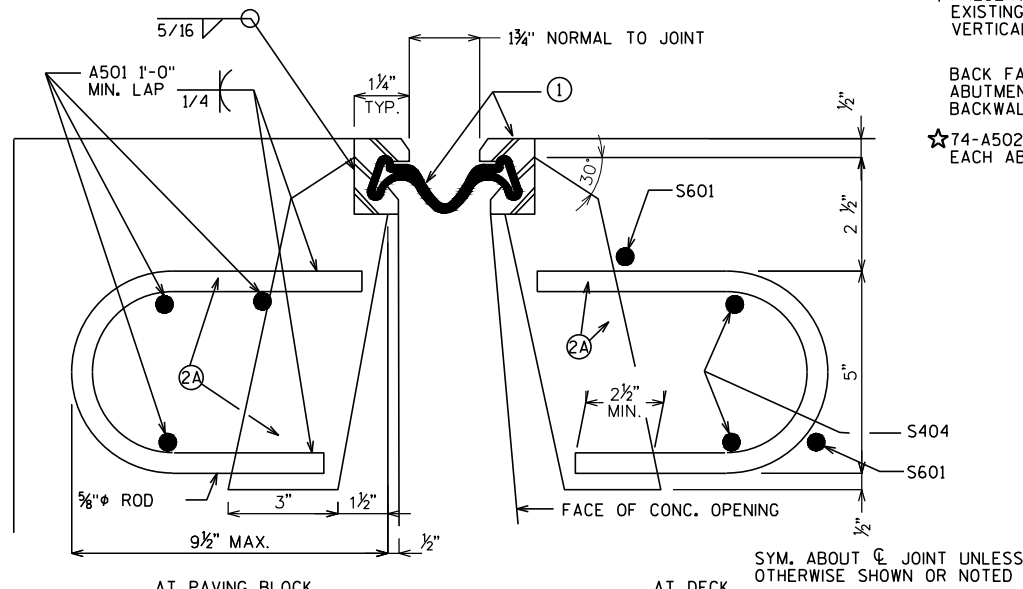
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-30-58</b>			
DRAWN BY		PLANS CK'D	
WAR		KGW	
<b>CONCRETE DETAILS &amp; DECK BILL OF BARS</b>			SHEET 4 OF 8

SCALE =



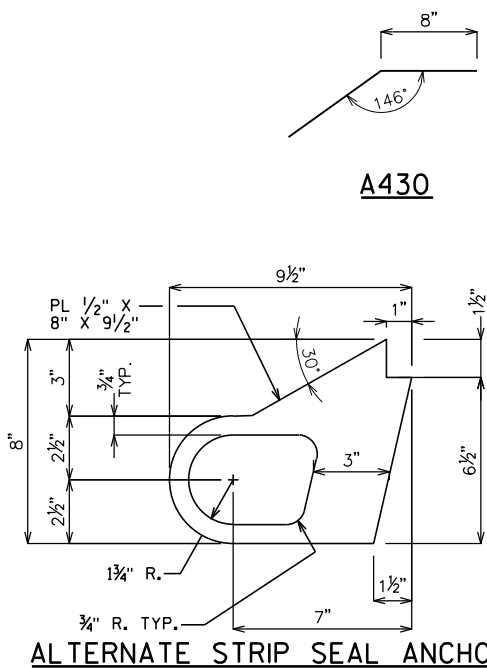
**SECTION THRU JOINT**

EXTERIOR GIRDER TO EDGE OF DECK AND AT PARAPETS.



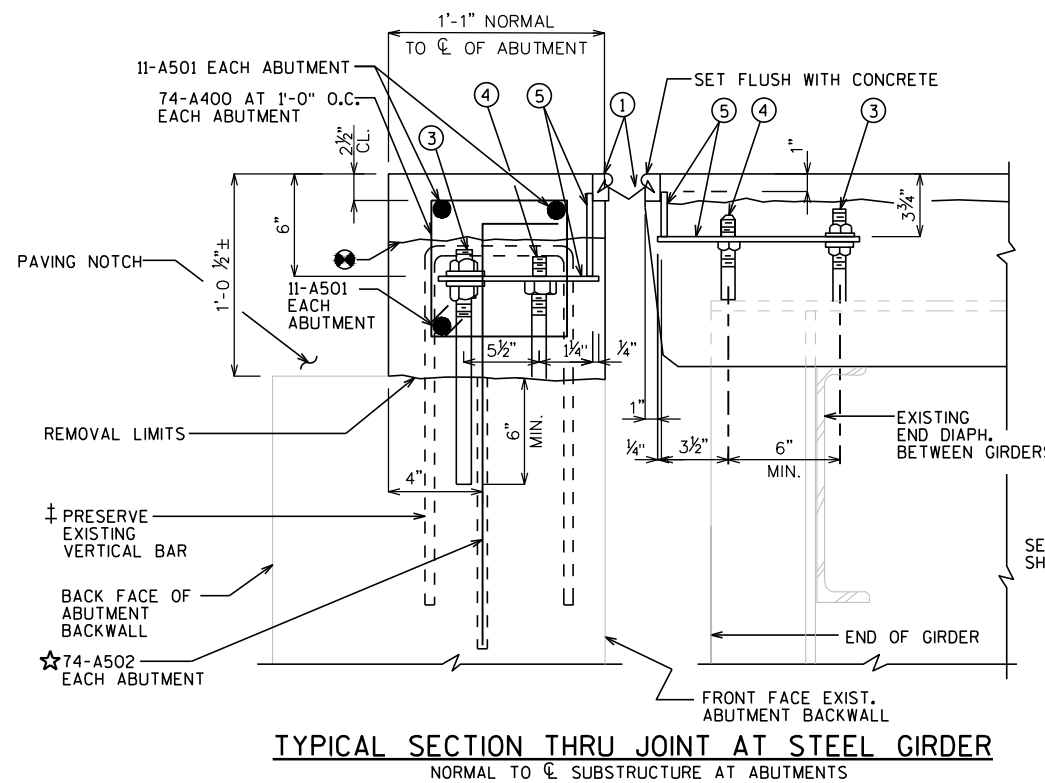
**SECTION THRU JOINT**

ROADWAY TRAFFIC AREA BETWEEN EXTERIOR GIRDERS.



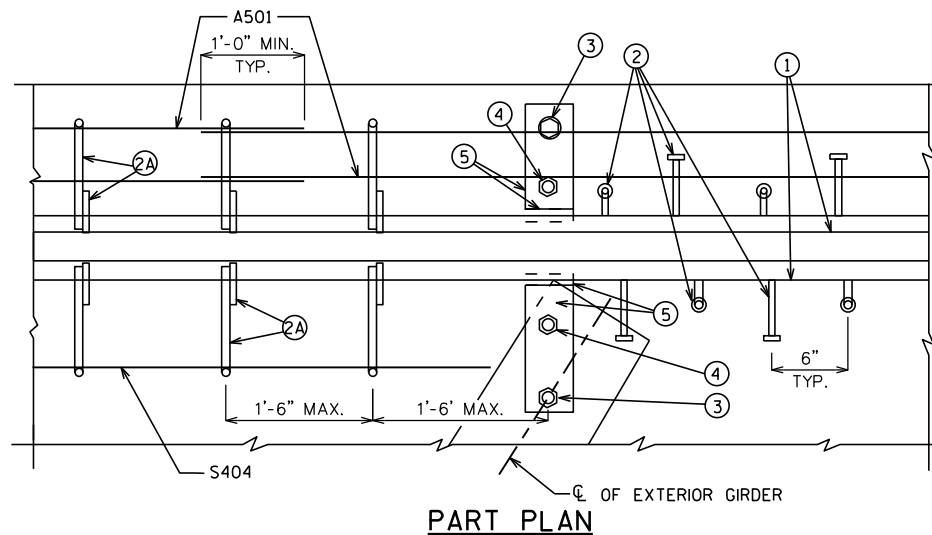
**A430**  
ALTERNATE STRIP SEAL ANCHOR

**A502**



**TYPICAL SECTION THRU JOINT AT STEEL GIRDER**

NORMAL TO CL SUBSTRUCTURE AT ABUTMENTS



**PART PLAN**

**ABUTMENT BILL OF BARS**

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

BILL OF BARS						
MARK	COATED	NO. REQ'D	LENGTH	BAR SERIES	BENT	LOCATION
A400	X	148	3'-6"		X	PAVING BLOCK STIRRUP
A501	X	66	7'-9"			PAVING BLOCK TRANSVERSE
A502	X	148	3'-0"		X	PAVING BLOCK VERTICAL
A420	X	12	4'-7"		X	PARAPET DOWEL @ JOINT
A421	X	12	4'-10"		X	PARAPET VERTICAL @ JOINT
A522	X	20	1'-6"			PARAPET HORIZ. @ JOINT
A430	X	2	1'-5"		X	PARAPET HORIZ. THRIE BEAM
A431	X	2	1'-4"			PARAPET HORIZ. THRIE BEAM

ALL DIMENSIONS OF THE BAR BENDS ARE OUT TO OUT.

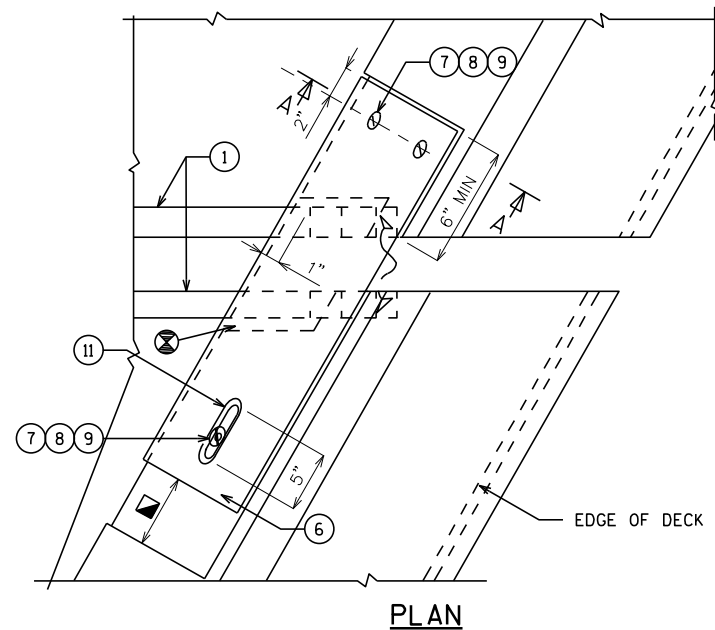
**LEGEND**

- ① NEOPRENE STRIP SEAL (5-INCH) AND STEEL EXTRUSIONS. JOINT OPENINGS GIVEN NORMAL TO JOINT.
- ② STUDS 5/8"φ × 6 3/8" LONG AT 6" ALTERNATE CENTERS, WELD TO EXTRUSIONS AND BEND AS SHOWN AFTER WELDING.
- ②A 1/2" THICK ANCHOR PLATE WITH 3/8"φ ROD (OR ALTERNATE STRIP SEAL ANCHOR), WELD ROD TO ANCHOR PLATE, WELD ANCHOR PLATE TO NO. 1 AT 1'-6" CENTERS BETWEEN GIRDERS.
- ③ 3/4"φ THREADED ROD WITH 2 NUTS AND PLATE WASHERS. WELD THREADED ROD TO TOP FLANGE OR ATTACH BY BOLTING THRU FLANGE. ON ABUTMENT SIDE, GROUT THREADED ROD INTO FIELD DRILLED HOLES IN ABUTMENT BACKWALL AS SHOWN.
- ④ 3/4"φ THREADED ROD WITH NUT, TACK WELD NUT TO NO. 5.
- ⑤ FABRICATE SUPPORT FROM 3" × 1/2" BAR AS SHOWN OR EQUIVALENT. ONE PER GIRDER PER SIDE. SHOP OR FIELD WELD TO NO. 1 IF FIELD WELDED, COVER WELDED AREAS WITH EPOXY-COATING MATERIAL. PROVIDE 1/2"φ HOLE FOR NO. 3 AND 1"φ HOLE FOR NO. 4.
- ⑥ GALVANIZED PLATE 3/8" × 10 1/2" × 3'-0" LONG WITH HOLES FOR NO. 7. BEND AS SHOWN.
- ⑦ 3/4"φ × 1 1/2" STAINLESS STEEL SOCKET FLAT HEAD SCREWS WITH ANTI-SEIZE LUBRICANT. PLACE IN COUNTERSUNK HOLE. RECESS 3/16" BELOW PLATE SURFACE.
- ⑧ 3/4"φ × 4" GALVANIZED HEX HEAD BOLT. BEND 45°.
- ⑨ 3/4"φ × 2 1/4", GALVANIZED THREADED COUPLING.
- ⑩ 1" × 5" SLOTTED COUNTERSUNK HOLE FOR NO. 7. PLACE SLOT PARALLEL TO DIRECTION OF MOVEMENT.
- ☆ A502 ADHESIVE ANCHORS NO. 5 BARS, EMBED 1'-6" INTO CONCRETE. SPACE AT 1'-0", TURN 10" LEG AS NECESSARY TO FIT.
- ‡ EXISTING BARS ARE LIKELY TO BE CORRODED AND/OR DAMAGED DURING CONCRETE REMOVAL. PRESERVE AND INCORPORATE AS MUCH REBAR AS PRACTICAL.
- OPT. CONST. JT. 1" MIN. BELOW EXIST. REINF.

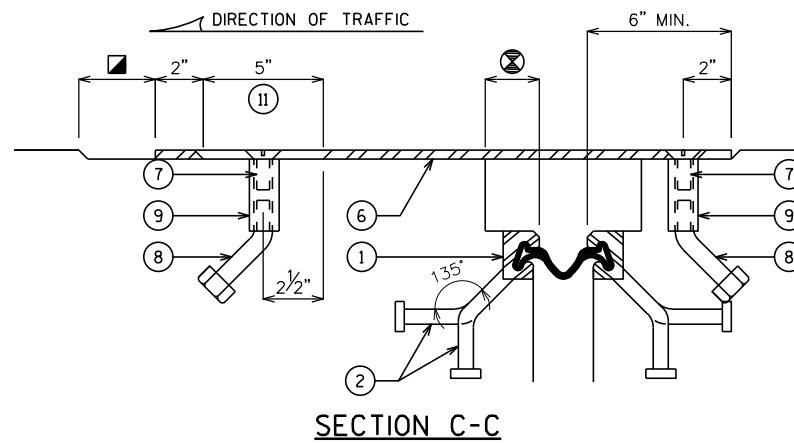
**NOTES**

- 1. ONE FIELD SPLICE PERMITTED IN STEEL EXTRUSIONS, UNLESS MORE ARE REQUIRED FOR HANDLING, OR GALVANIZING REQUIREMENTS. IF USED, DETAILS SHALL BE SUBMITTED FOR APPROVAL. NO SPLICING PERMITTED IN NEOPRENE STRIP SEAL.
- 2. AFTER FABRICATION, BUT BEFORE SHIPMENT, STRAIGHTEN STEEL EXTRUSIONS SUCH THAT THEY SHALL BE FREE FROM WARP, TWIST AND SWEEP.
- 3. FABRICATOR SHALL PROVIDE MEANS OF KEEPING GALVANIZED EXTRUSIONS CLEAN AND SMOOTH DURING SHIPMENT AND PRIOR TO APPLYING LUBRICANT ADHESIVE FOR NEOPRENE GLAND INSTALLATION.
- 4. SANDBLAST PLATES AND EXTRUSIONS AFTER FABRICATION IN ACCORDANCE WITH SSPC SP. #6 "COMMERCIAL BLAST CLEANING". AFTER BLAST CLEANING, THE PLATES, SUPPORTS AND EXTRUSIONS SHALL BE HOT DIPPED GALVANIZED.
- 5. ANCHOR SYSTEM NO. 8 AND NO. 9 SHALL CONFORM TO ASTM A307 AND SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM 153 CLASS C AND D.
- 6. ALL MATERIAL IN THE EXPANSION JOINT ASSEMBLY, INCLUDING ANCHOR STUDS AND HARDWARE SHALL BE PAID AT THE UNIT BID PRICE FOR "EXPANSION DEVICE", LF.

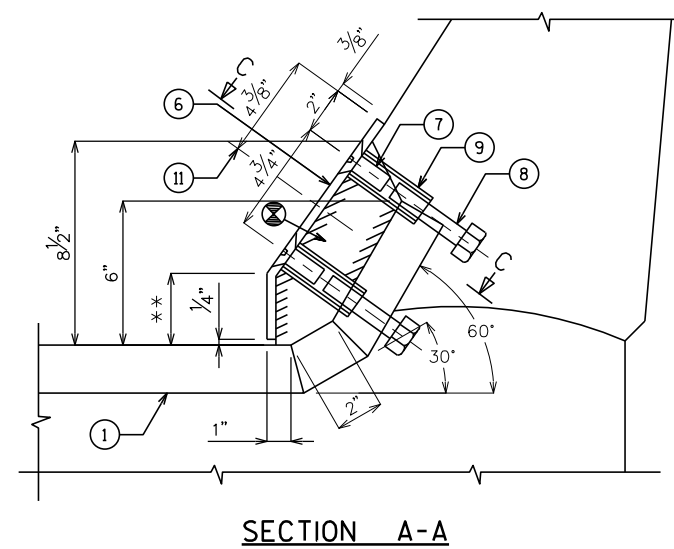
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-30-58</b>			
DRAWN BY		WAR	PLANS CK'D KGW
<b>STRIP SEAL EXP. JT. &amp; ABUT. BILL OF BARS</b>			SHEET 5 OF 8



PLAN

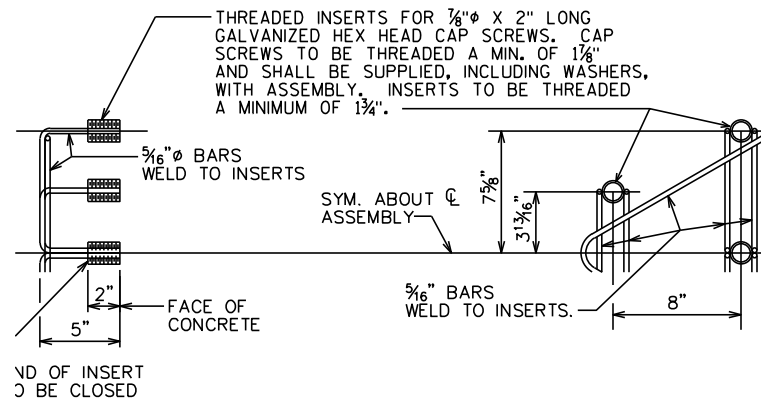


SECTION C-C



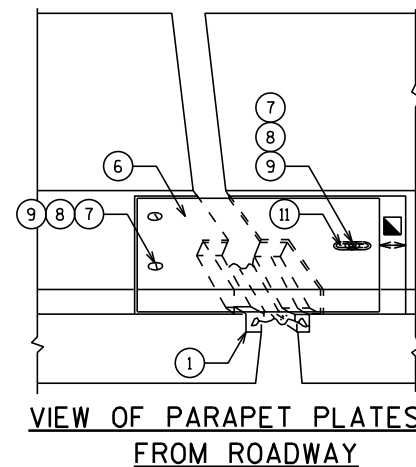
SECTION A-A

\*\* AS REQUIRED FOR OVERLAY. COORDINATE WITH EXPANSION JOINT MANUFACTURER.

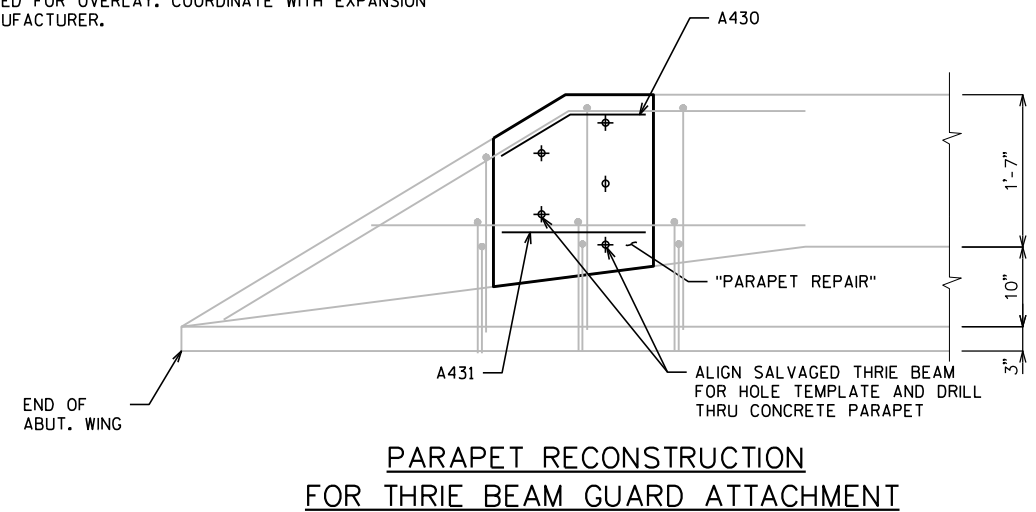


DETAIL OF ANCHOR ASSEMBLY

NOTE: HEX HEAD CAP SCREWS & WASHERS TO BE GALVANIZED IN ACCORDANCE WITH AASHTO M232 CLASS C. ASSEMBLY SHALL BE BID ITEM "ANCHOR ASSEMBLIES"



VIEW OF PARAPET PLATES FROM ROADWAY



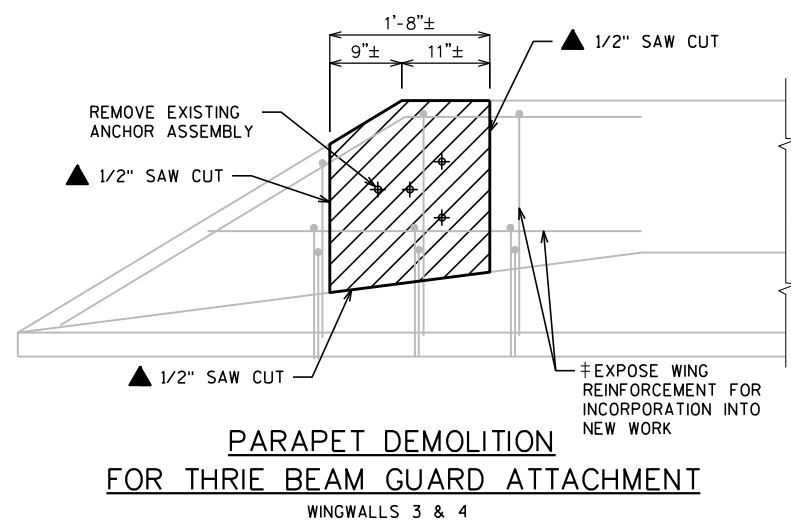
PARAPET RECONSTRUCTION FOR THRIE BEAM GUARD ATTACHMENT

NOTES

SEE SHEET 5 LEGEND FOR MATERIAL NOTES.

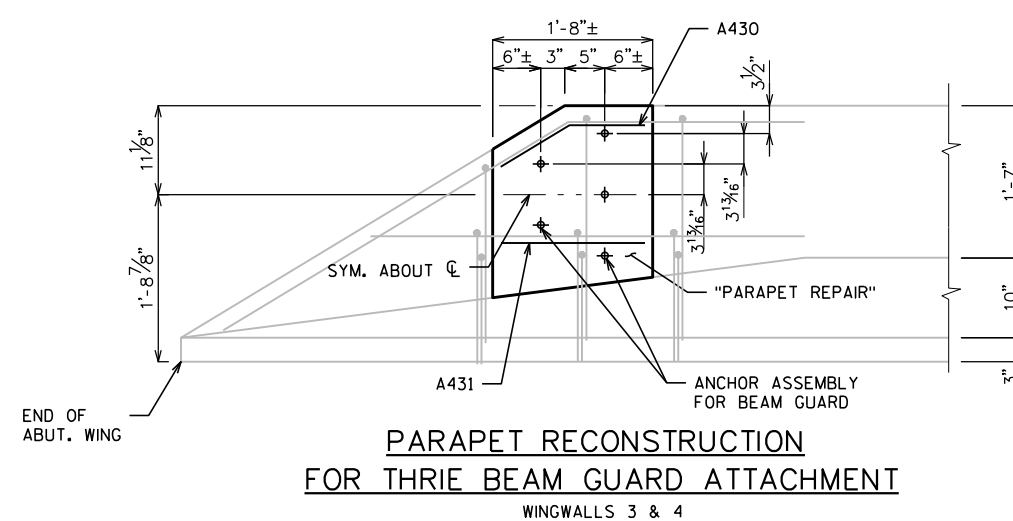
LEGEND

- ⊗ BLOCK OUT CONCRETE 2" EACH SIDE OF JOINT OPENING.
- ⊠ JOINT OPENING DIM. ALONG SKEW PLUS 1/2"
- ‡ EXISTING BARS ARE LIKELY TO BE CORRODED AND/OR DAMAGED DURING CONCRETE REMOVAL. PRESERVE AND INCORPORATE AS MUCH REBAR AS PRACTICAL. SUPPLEMENT WITH THE BARS SHOWN ON RECONSTRUCTION DETAIL THIS SHEET.
- ▨ CONCRETE REMOVAL FULL THICKNESS OF PARAPET
- ▲ COST OF SAW CUTTING IS INCIDENTAL TO "PARAPET REPAIR"



PARAPET DEMOLITION FOR THRIE BEAM GUARD ATTACHMENT

WINGWALLS 3 & 4



PARAPET RECONSTRUCTION FOR THRIE BEAM GUARD ATTACHMENT

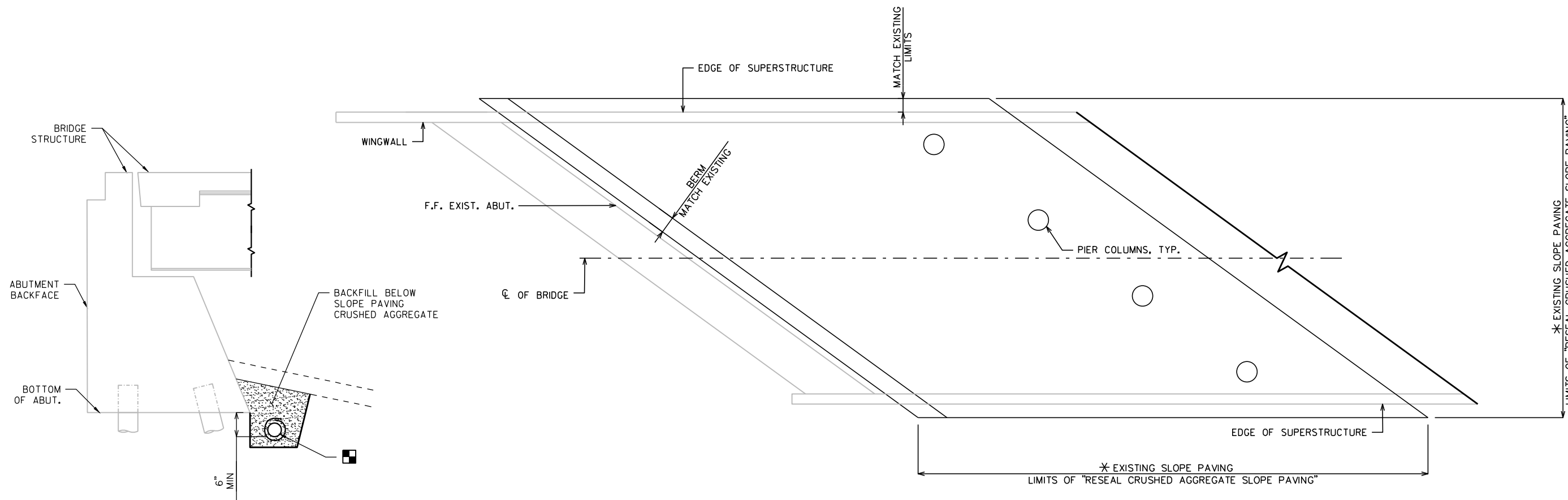
WINGWALLS 3 & 4

8

8

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-30-58</b>			
DRAWN BY		PLANS CK'D	
WAR		KGW	
<b>COVER PLATE &amp; PARAPET DETAILS</b>			SHEET 6 OF 8

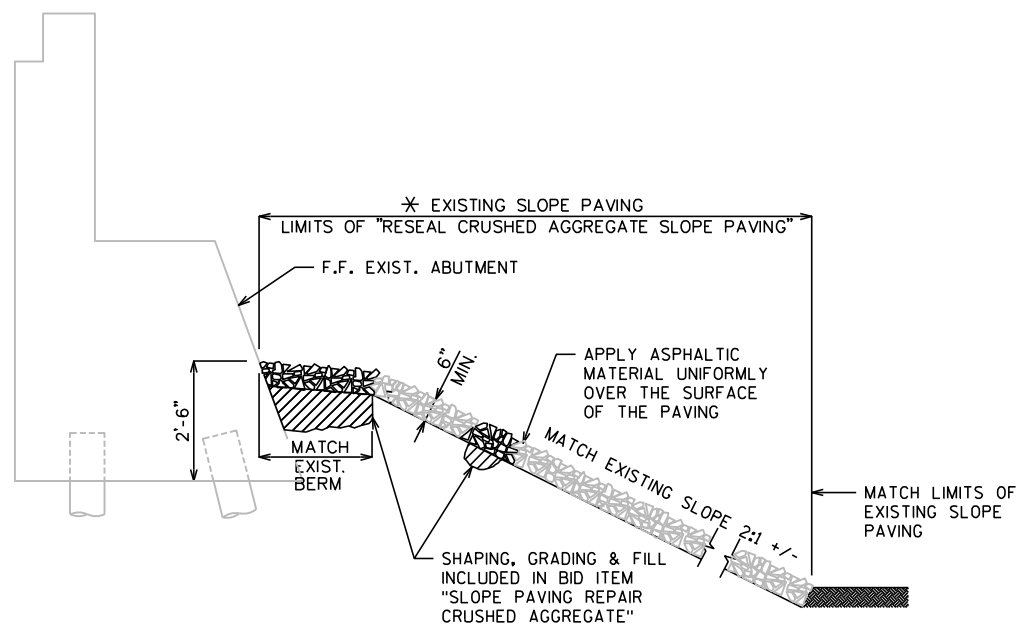
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SECTION THRU WEST ABUTMENT

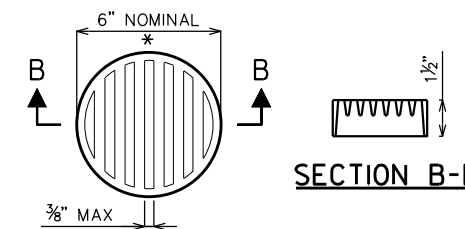
PLAN - SLOPE PAVING CRUSHED AGGREGATE

WEST ABUTMENT SHOWN, EAST ABUTMENT SIMILAR



CROSS SECTION THRU CRUSHED AGGREGATE SLOPE PAVING

ROUND STONE WILL NOT BE ACCEPTED



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.

NOTES

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

LEGEND

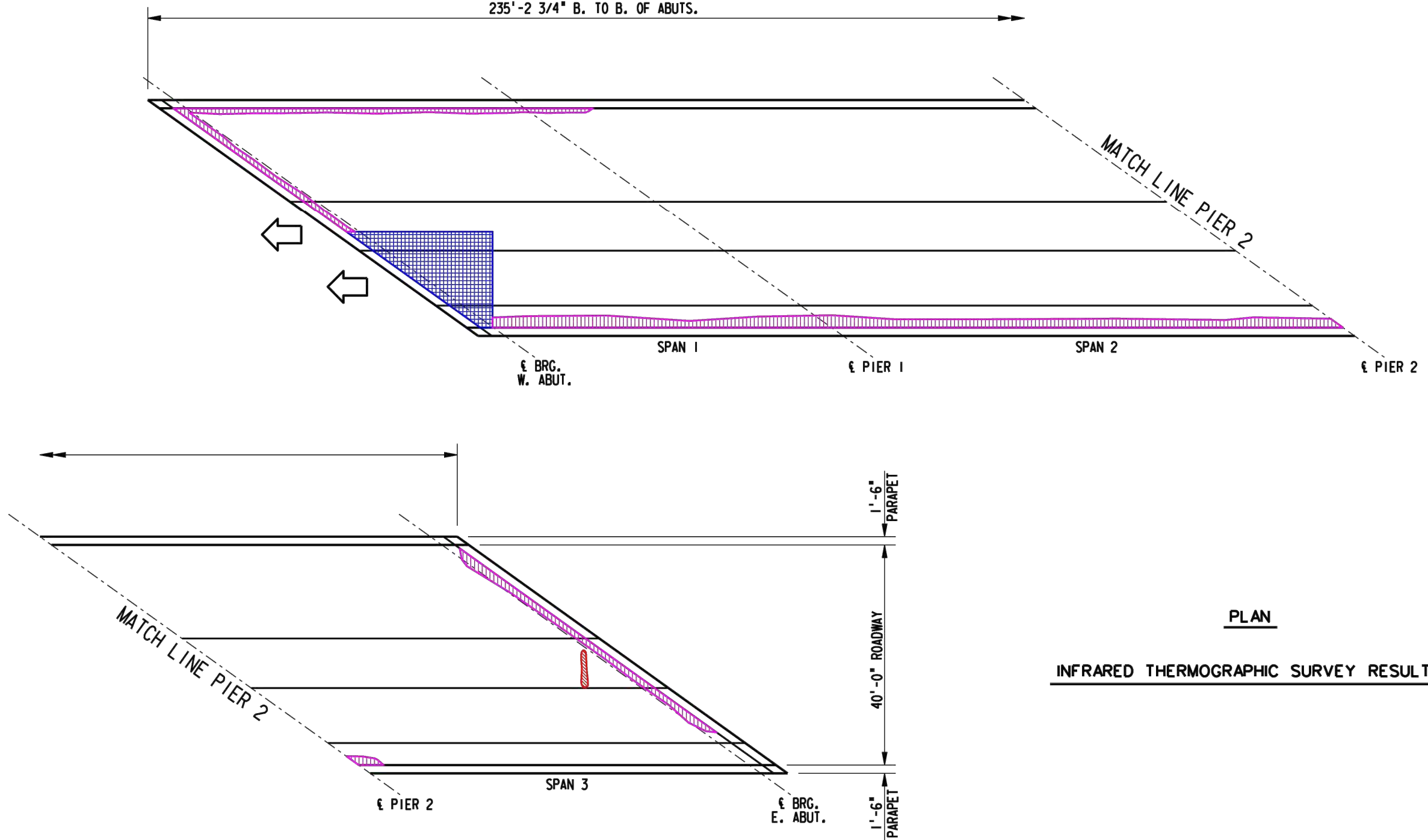
\* ENTIRE LIMITS OF EXISTING SLOPE PAVING CRUSHED AGGREGATE SHOWN, ONLY EXISTING DETERIORATED AREAS TO BE REPAIRED. REPAIR LIMITS SHALL BE DETERMINED IN THE FIELD BY THE ENGINEER.

PIPE UNDERDRAIN WRAPPED (6-INCH. SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. ATTACHED RODENT SHIELD AT ENDS OF PIPE UNDERDRAIN.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-30-58</b>			
DRAWN BY		WAR	PLANS CK'D KGW
<b>SLOPE REPAIR</b>		SHEET 7 OF 8	

SCALE =

235'-2 3/4" B. TO B. OF ABUTS.

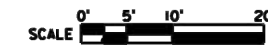


**PLAN**

**INFRARED THERMOGRAPHIC SURVEY RESULTS**



FIELD OBSERVATIONS SUMMARY		STRUCTURE NO. B-30-58		LEGEND	
ITEM	UNIT	QUANT.	%		
TOTAL AREA	ft <sup>2</sup>	9340		DELAMINATION	
SHADE/DEBRIS	ft <sup>2</sup>	0		SPALL	
DELAMINATION	ft <sup>2</sup>	6	0.1	DEBOND	
SPALL	ft <sup>2</sup>	0	0	ASPHALT PATCH	
DEBOND	ft <sup>2</sup>	440	4.7	PCC PATCH	
ASPHALT PATCH	ft <sup>2</sup>	251	2.7	SHADE/DEBRIS	
PCC PATCH	ft <sup>2</sup>	0	0		



SURFACE TYPE: PMA OVERLAY  
 INFRARED INSPECTION DATE: 9/10/21  
 INFRARED SURVEY PERFORMED BY AECOM

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-30-58</b>			
DRAWN BY	WAR	PLANS CK'D	KGW
<b>INFRARED DECK SURVEY</b>			SHEET 8 OF 8

8

8

SCALE =

DIVISION 1 - STH 50 CONSTRUCTION ALIGNM		STH 50 MAINLINE				INCREMENTAL VOL (CY) (UNADJUSTED)			CUMULATIVE VOL (CY)		
STATION	DISTANCE	AREA (SF)				CUT	SALVAGED/UNUSABLE PAVEMENT MATERIAL	FILL	EXPANDED FILL	MASS ORDINATE	
		CUT	SALVAGED/UNUSABLE PAVEMENT MATERIAL	FILL	EBS						
						NOTE 1	NOTE 2	NOTE 3	NOTE 1	NOTE 8	
765+68	0.00	67.24	66.67	11.68	0.00	0	0	0	0	0	0
766+00	32.02	80.00	66.67	9.22	0.00	87	79	12	87	14	-6
766+50	50.00	149.80	66.67	29.75	0.00	213	123	36	300	58	40
766+98	48.11	149.34	66.67	25.04	0.00	267	119	49	567	116	130
767+00	1.89	150.64	66.67	24.45	0.00	10	5	2	577	119	132
767+05	5.00	148.43	66.67	15.97	0.00	28	12	4	605	124	143
767+10	5.00	158.47	66.67	16.15	0.00	28	12	3	633	127	156
767+15	5.00	161.22	66.67	11.52	0.00	30	12	3	663	131	170
767+40	5.00	166.11	84.17	12.55	0.00	30	14	2	693	133	184
767+45	25.00	158.26	84.17	14.36	0.00	147	78	13	840	149	237
767+50	5.00	149.79	66.67	17.09	0.00	29	14	3	869	152	249
767+55	5.00	141.15	66.67	32.39	0.00	27	12	5	896	158	258
767+60	5.00	133.10	66.67	36.29	0.00	25	12	6	921	166	263
767+65	5.00	125.18	66.67	40.12	0.00	24	12	7	945	174	267
767+70	5.00	117.53	66.67	41.91	0.00	22	12	8	967	184	267
767+75	5.00	111.34	66.67	0.82	0.00	21	12	4	988	188	272
767+80	5.00	111.28	66.67	0.98	0.00	21	12	0	1,009	188	281
767+85	5.00	110.67	51.00	1.38	0.00	21	11	0	1,030	188	291
767+90	5.00	111.80	51.00	3.08	0.00	21	9	0	1,051	188	303
767+95	5.00	113.75	51.00	5.70	0.00	21	9	1	1,072	190	313
768+00	5.00	115.69	51.00	9.38	0.00	21	9	1	1,093	191	324
768+05	5.00	117.45	51.00	13.92	0.00	22	9	2	1,115	193	335
768+10	5.00	136.07	51.00	21.33	0.00	23	9	3	1,138	197	345
768+15	5.00	137.67	51.00	26.91	0.00	25	9	4	1,163	202	356
768+20	5.00	113.62	51.00	23.39	0.00	23	9	5	1,186	208	364
768+25	5.00	101.03	51.00	29.48	0.00	20	9	5	1,206	214	369
768+30	5.00	93.76	51.00	34.40	0.00	18	9	6	1,224	221	371
768+35	5.00	92.11	51.00	43.46	0.00	17	9	7	1,241	229	371
768+40	5.00	87.04	51.00	48.88	0.00	17	9	9	1,258	240	368
768+45	5.00	76.92	51.00	53.82	0.00	15	9	10	1,273	252	362
768+50	5.00	68.26	51.00	66.37	0.00	13	9	11	1,286	265	353
768+53	2.78	69.75	51.00	70.07	0.00	7	5	7	1,293	274	346
769+00	47.22	69.74	51.00	221.15	0.00	122	89	255	1,415	580	73
769+50	50.00	64.32	66.67	193.34	0.00	124	109	384	1,539	1,040	-372
770+00	50.00	89.31	66.67	283.99	0.00	142	123	442	1,681	1,571	-884
770+17	17.18	62.90	66.67	277.03	0.00	48	42	179	1,729	1,786	-1,093
770+50	32.82	67.24	66.67	308.93	0.00	79	81	356	1,808	2,213	-1,522
771+00	50.00	59.27	66.67	317.49	0.00	117	123	580	1,925	2,909	-2,224
771+50	50.00	66.87	66.67	345.12	0.00	117	123	614	2,042	3,646	-2,967
772+00	50.00	73.68	66.67	311.41	0.00	130	123	608	2,172	4,375	-3,689
772+50	50.00	66.82	66.67	296.17	0.00	130	123	563	2,302	5,051	-4,358
772+89	38.61	90.78	66.67	240.80	0.00	113	95	384	2,415	5,512	-4,801
773+00	11.39	90.11	66.67	222.97	0.00	38	28	98	2,453	5,629	-4,908
773+50	50.00	69.25	66.67	197.49	0.00	148	123	389	2,601	6,096	-5,350
774+00	50.00	92.51	66.67	141.66	0.00	150	123	314	2,751	6,473	-5,700
774+50	50.00	66.15	66.67	103.49	0.00	147	123	227	2,898	6,745	-5,948
775+00	50.00	70.64	66.67	61.52	0.00	127	123	153	3,025	6,929	-6,128
775+50	50.00	103.82	66.67	25.13	0.00	162	123	80	3,187	7,025	-6,185
776+00	50.00	106.54	66.67	4.94	0.00	195	123	28	3,382	7,058	-6,146
776+50	50.00	166.27	84.17	4.18	0.00	253	140	8	3,635	7,068	-6,043
777+00	50.00	167.08	84.17	1.88	0.00	309	156	6	3,944	7,075	-5,897
777+50	50.00	193.85	84.17	0.00	0.00	334	156	2	4,278	7,078	-5,722
778+00	50.00	149.90	66.67	2.00	0.00	318	140	2	4,596	7,080	-5,546
778+50	50.00	147.44	66.67	2.99	0.00	275	123	5	4,871	7,086	-5,400
779+00	50.00	74.62	66.67	0.96	0.00	206	123	4	5,077	7,091	-5,322

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PROJECT NO: 1310-14-70

HWY: STH 50

COUNTY: KENOSHA

EARTHWORK DATA

SHEET:

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FILE NAME :

PLOT DATE :

PLOT BY :

PLOT NAME :

PLOT SCALE : 1:1



DIVISION 1 - CTH W REFEREN		CTH W								
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	NOTE 1		NOTE 8					
50+65	0.00	15.68	14.85	0.00	0	0	0	0	0	0
50+70	5.00	29.78	14.85	0.00	4	3	0	4	0	1
50+75	5.00	45.19	14.85	0.00	7	3	0	11	0	5
50+80	5.00	62.28	14.85	0.00	10	3	0	21	0	12
50+85	5.00	83.20	14.85	0.00	13	3	0	34	0	22
50+90	5.00	102.75	14.85	0.00	17	3	0	51	0	36
50+95	5.00	99.17	14.85	6.51	19	3	1	70	1	51
51+00	5.00	96.16	14.85	7.10	18	3	1	88	2	65
51+05	5.00	90.49	14.85	7.25	17	3	1	105	4	77
51+10	5.00	81.40	14.85	10.91	16	3	2	121	6	88
51+15	5.00	66.36	14.85	2.83	14	3	1	135	7	98
51+20	5.00	72.01	14.85	0.00	13	3	0	148	7	108
51+25	5.00	76.52	14.85	0.00	14	3	0	162	7	119
51+50	25.00	58.08	14.85	0.00	62	14	0	224	7	167
51+75	25.00	60.20	14.85	0.00	55	14	0	279	7	208
52+25	50.00	46.08	14.85	0.00	98	28	0	377	7	278
52+50	25.00	44.88	14.85	0.00	42	14	0	419	7	306
52+75	25.00	51.24	14.85	0.00	45	14	0	464	7	337
52+80	4.74	0.00	14.85	0.00	4	3	0	468	7	338

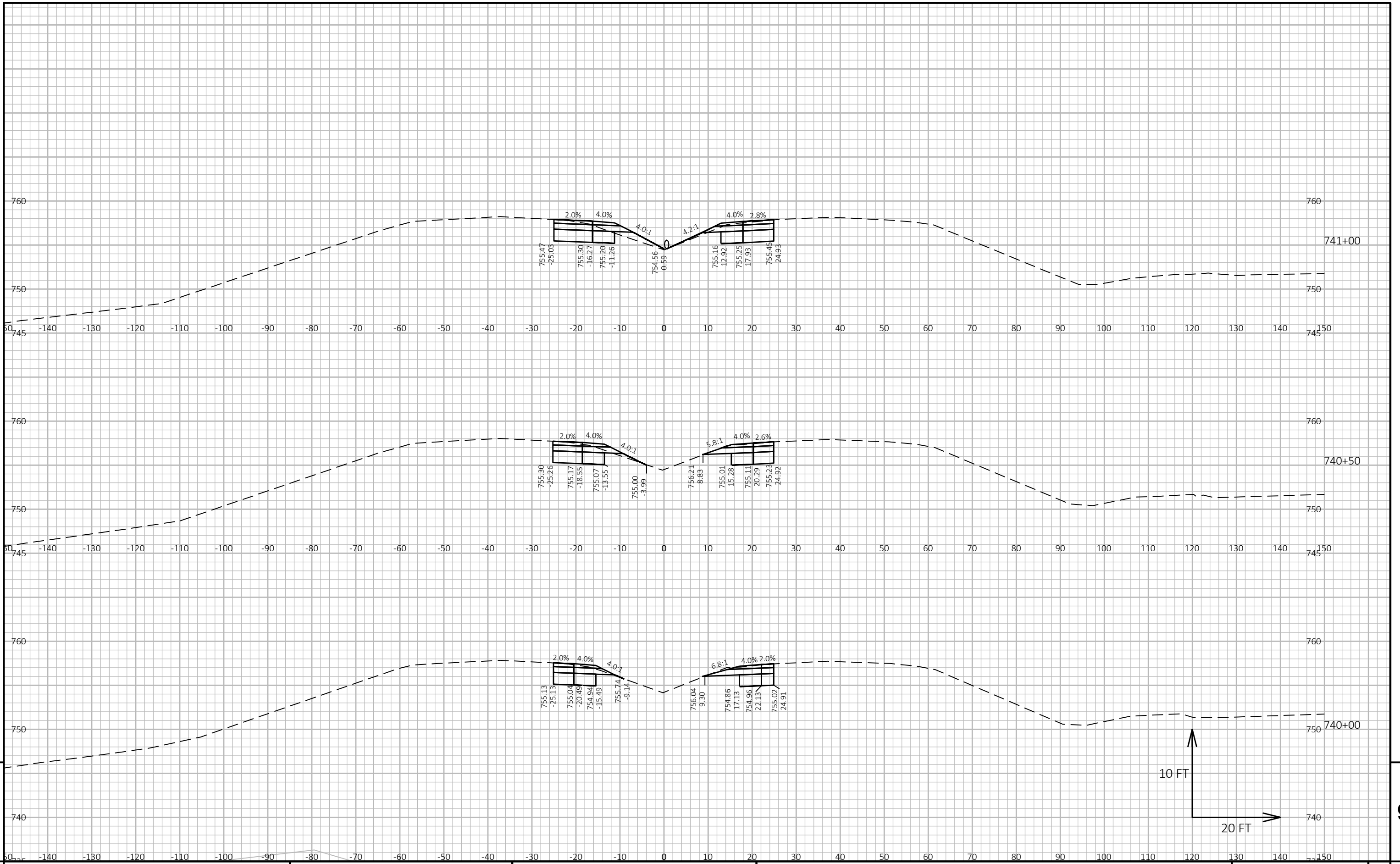
NOTES:	
1 - CUT	CUT INCLUDES SALVAGED/UNUSABLE PAVEMENT MATERIAL
2 - SALVAGED/UNUSABLE PAVEMENT MATER	THIS DOES NOT SHOW UP IN CROSS SECTIONS
3 - FILL	DOES NOT INCLUDE UNUSABLE PAVEMENT EXC VOLUME
8 - MASS ORDINATE	IF MARSH AND EBS TO BE BACKFILLED WITH GRANULAR: [CUT - SALVAGED PAVT-EXPANDED FILL]

DIVISION 1 - STH 50 CONSTRUCTION AL WEST CROSSOVER INSTALLATION											
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	
											1.00
NOTE 1	NOTE 2	NOTE 3	NOTE 1	NOTE 2	NOTE 3	NOTE 1	NOTE 2	NOTE 3	NOTE 8		
738+80	0.00	3.20	2.00	0.00	0	0	0	0	0	0	
739+16	35.87	3.88	2.00	0.00	5	3	0	5	0	2	
739+50	34.36	24.77	2.00	0.00	18	3	0	23	0	17	
740+00	0.00	40.59	2.00	0.20	0	0	0	0	0	17	
740+50	50.00	42.67	2.00	0.80	77	4	1	77	1	89	
741+00	50.00	43.37	2.00	2.04	80	4	3	157	5	161	
741+50	50.00	41.35	2.00	5.48	78	4	7	235	13	227	
742+00	50.00	39.65	2.00	10.64	75	4	15	310	31	280	
742+50	50.00	36.03	2.00	7.39	70	4	17	380	52	325	
743+00	50.00	22.81	2.00	12.40	54	4	18	434	73	354	
743+50	50.00	25.25	0.00	11.88	44	2	22	478	100	369	
744+00	50.00	29.62	0.00	10.59	51	0	21	529	125	395	
744+50	50.00	30.81	0.00	11.58	56	0	21	585	150	426	
745+00	50.00	30.72	0.00	8.74	57	0	19	642	173	460	
745+50	50.00	28.27	0.00	8.37	55	0	16	697	192	496	
746+00	50.00	22.98	2.00	14.12	47	2	21	744	217	516	
746+50	50.00	35.36	2.00	13.52	54	4	26	798	248	535	
747+00	50.00	43.32	2.00	7.54	73	4	19	871	271	581	
747+50	50.00	45.28	2.00	1.68	82	4	9	953	282	648	
748+00	50.00	44.98	2.00	0.44	84	4	2	1,037	284	726	
748+50	50.00	44.08	2.00	0.00	82	4	0	1,119	284	804	
748+95	44.65	24.64	2.00	0.00	57	3	0	1,176	284	858	
749+50	55.35	18.73	2.00	0.00	44	4	0	1,220	284	898	
748+99	49.19	22.53	2.00	0.00	50	4	0	1,169	284	944	

DIVISION 1 - STH 50 CONSTRUCTION AL WEST CROSSOVER REMOVAL											
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	
											1.00
NOTE 1	NOTE 2	NOTE 3	NOTE 1	NOTE 2	NOTE 3	NOTE 1	NOTE 2	NOTE 3	NOTE 8		
738+75	0.00	0.00	1.67	0.00	0	0	0	0	0	0	
739+19	44.23	1.86	3.40	0.06	2	4	0	2	0	-2	
740+00	0.00	12.67	4.60	0.20	0	0	0	0	0	0	
740+50	50.00	36.59	5.82	0.80	46	10	1	46	1	35	
741+00	50.00	37.49	7.67	2.04	69	12	3	115	5	88	
741+50	50.00	51.74	9.74	5.48	83	16	7	198	13	147	
742+00	50.00	61.88	11.81	10.64	105	20	15	303	31	214	
742+50	50.00	66.49	13.66	7.39	119	24	17	422	52	288	
743+00	50.00	71.98	13.03	12.40	128	25	18	550	73	370	
743+50	50.00	66.23	12.94	11.88	128	24	22	678	100	447	
744+00	50.00	71.11	9.46	10.59	127	21	21	805	125	528	
744+50	50.00	73.15	7.46	11.58	134	16	21	939	150	621	
745+00	50.00	66.85	10.95	8.74	130	17	19	1,069	173	711	
745+50	50.00	63.34	14.44	8.37	121	24	16	1,190	192	789	
746+00	50.00	61.04	13.24	14.12	115	26	21	1,305	217	853	
746+50	50.00	60.50	13.38	13.52	113	25	26	1,418	248	910	
747+00	50.00	52.63	10.90	7.54	105	22	19	1,523	271	970	
747+50	50.00	35.43	8.40	1.68	82	18	9	1,605	282	1,023	
748+00	50.00	38.38	5.97	0.44	68	13	2	1,673	284	1,076	
748+50	50.00	26.60	4.01	0.00	60	9	0	1,733	284	1,127	
749+12	61.85	0.84	1.45	0.00	31	3	0	1,764	284	1,155	
750+00	88.13	0.84	1.41	0.09	3	5	0	1,767	284	1,153	

DIVISION 1 - STH 50 CONSTRUCTION ALI EAST CROSSOVER INSTALLATION										
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	NOTE 1	NOTE 2	NOTE 3	NOTE 1	NOTE 2	NOTE 3	NOTE 8	
799+55	0.00	5.36	2.00	0.00	0	0	0	0	0	0
800+29	73.70	8.55	2.00	0.00	19	5	0	19	0	14
800+50	20.87	8.59	2.00	0.00	7	2	0	26	0	19
801+00	50.00	50.15	2.00	0.61	54	4	1	80	1	68
801+50	0.00	48.57	2.00	0.17	0	0	0	0	0	68
802+00	50.00	49.82	2.00	7.18	91	4	7	91	8	146
802+50	50.00	64.72	2.00	16.95	106	4	22	197	35	222
803+00	50.00	76.81	2.00	0.39	131	4	16	328	54	330
803+50	50.00	87.64	2.00	0.00	152	4	0	480	54	478
804+00	50.00	90.20	2.00	0.00	165	4	0	645	54	639
804+50	50.00	71.57	2.00	0.00	150	4	0	795	54	785
805+00	50.00	67.69	2.00	1.28	129	4	1	924	55	909
805+50	50.00	73.50	2.00	0.81	131	4	2	1,055	58	1,033
806+00	50.00	52.03	2.00	9.16	116	4	9	1,171	68	1,134
806+50	50.00	31.20	2.00	1.13	77	4	10	1,248	80	1,195
807+00	50.00	28.58	2.00	0.35	55	4	1	1,303	82	1,245
807+68	67.92	21.94	2.00	1.56	64	5	2	1,367	84	1,302

DIVISION 1 - STH 50 CONSTRUCTION ALI EAST CROSSOVER REMOVAL										
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	NOTE 1	NOTE 2	NOTE 3	NOTE 1	NOTE 2	NOTE 3	NOTE 8	
798+12	0.00	0.98	0.00	0.03	0	0	0	0	0	0
798+49	35.98	0.91	0.00	0.10	1	0	0	1	0	1
799+00	50.62	0.93	0.00	0.08	2	0	0	3	0	3
799+49	49.87	4.60	0.00	2.44	5	0	2	8	2	6
800+00	50.24	4.55	2.95	6.26	9	3	8	17	12	2
800+50	50.64	3.91	2.98	5.56	8	6	11	25	25	-9
801+00	49.73	4.64	2.67	8.04	8	5	13	33	41	-22
801+50	0.00	10.91	6.16	3.83	0	0	0	0	0	-22
802+00	50.00	36.23	9.19	0.00	44	14	4	44	5	3
802+50	50.00	49.61	13.10	0.00	79	21	0	123	5	61
803+00	50.00	66.16	13.32	0.00	107	24	0	230	5	144
803+50	50.00	56.38	13.31	0.00	113	25	0	343	5	232
804+00	50.00	55.53	8.67	0.00	104	20	0	447	5	316
804+50	50.00	60.89	9.44	0.01	108	17	0	555	5	407
805+00	50.00	65.07	14.16	0.00	117	22	0	672	5	502
805+50	50.00	58.24	12.00	0.00	114	24	0	786	5	592
806+00	50.00	34.85	8.78	0.00	86	19	0	872	5	659
806+50	50.00	17.85	4.45	0.09	49	12	0	921	5	696
807+00	50.00	5.51	3.38	1.03	22	7	1	921	5	710
807+68	67.92	2.58	2.18	4.10	10	7	6	921	5	706



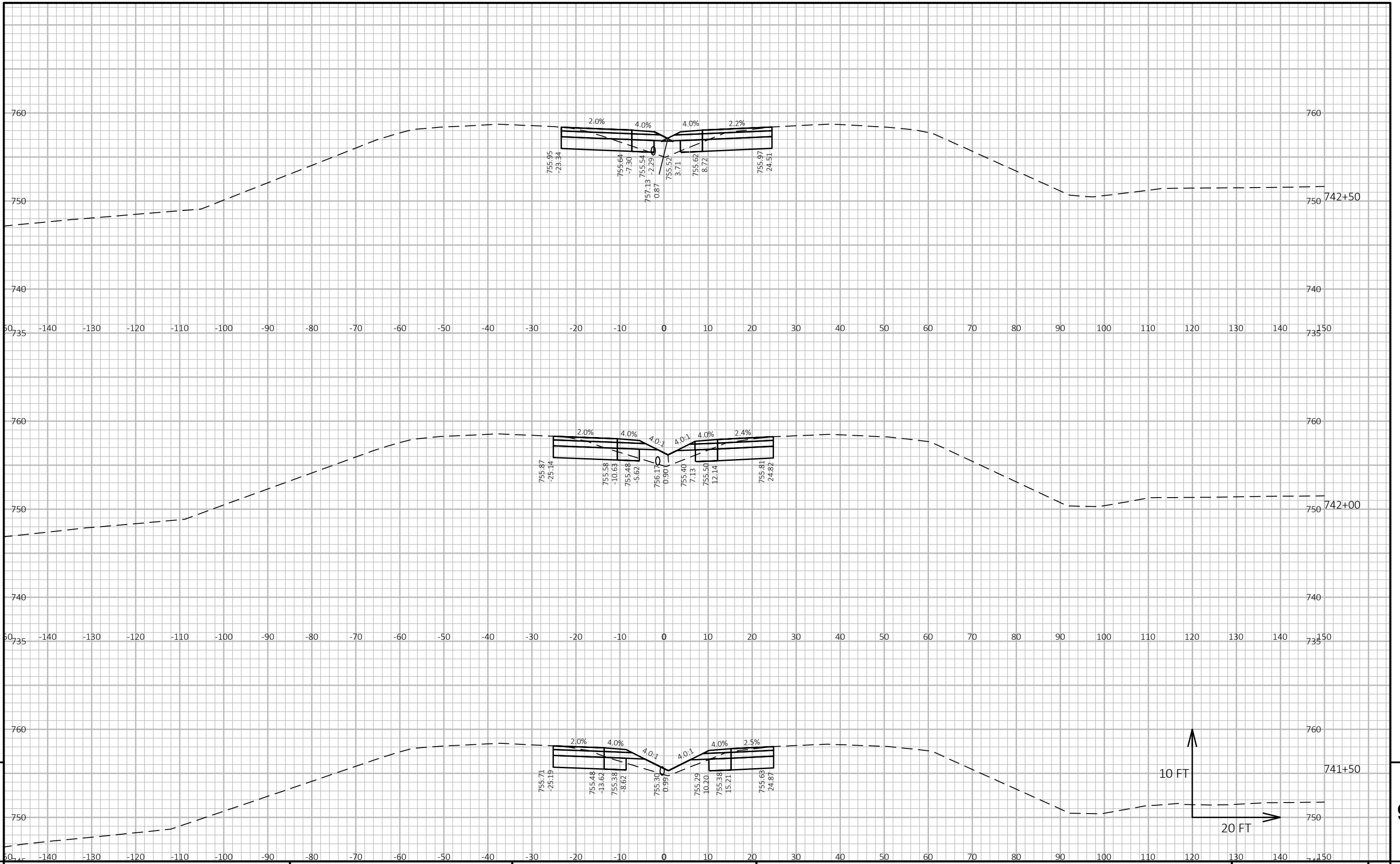
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PROJECT NO: 1310-14-70      HWY: STH 50      COUNTY: KENOSHA      CROSS SECTIONS: WEST CROSSOVER      SHEET      E

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LAYOUT NAME - 090201\_xs



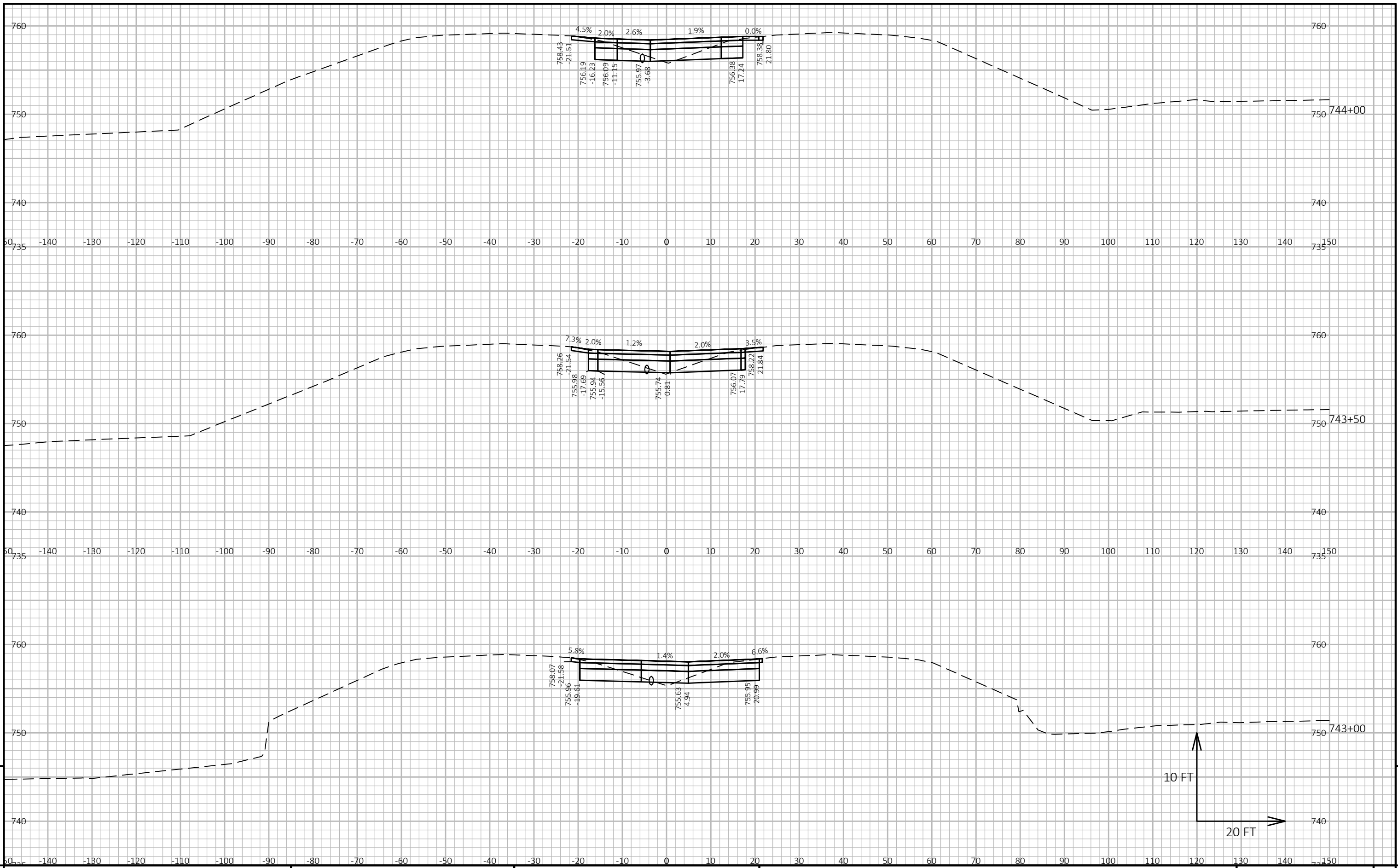
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PROJECT NO: 1310-14-70      HWY: STH 50      COUNTY: KENOSHA      CROSS SECTIONS: WEST CROSSOVER      SHEET      E

FILE NAME : X:\ML\2020\2020068\DESIGN\TRANSPORTATION\SHEETSPLAN\090202\_CROSSOVER\_XS.DWG      PLOT DATE : 1/31/2023 1:25 PM      PLOT BY : STRASSER, JEFFREY      PLOT NAME :      PLOT SCALE : 1 IN:20 FT HORZ. / 1 IN:10 FT VERT.      WISDOT/CADD SHEET 49

LAYOUT NAME - 090202\_xs



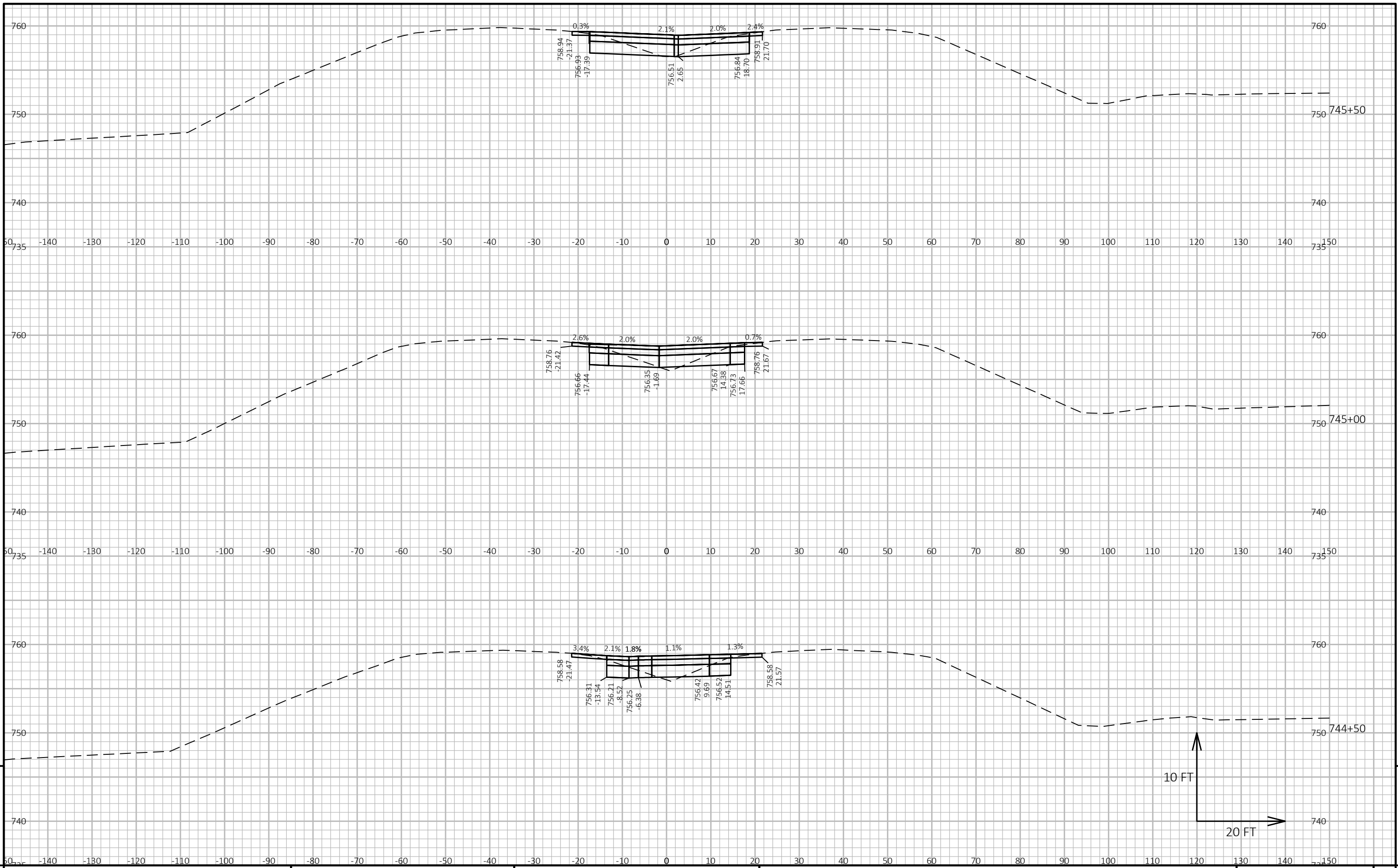
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PROJECT NO: 1310-14-70      HWY: STH 50      COUNTY: KENOSHA      CROSS SECTIONS: WEST CROSSOVER      SHEET      E

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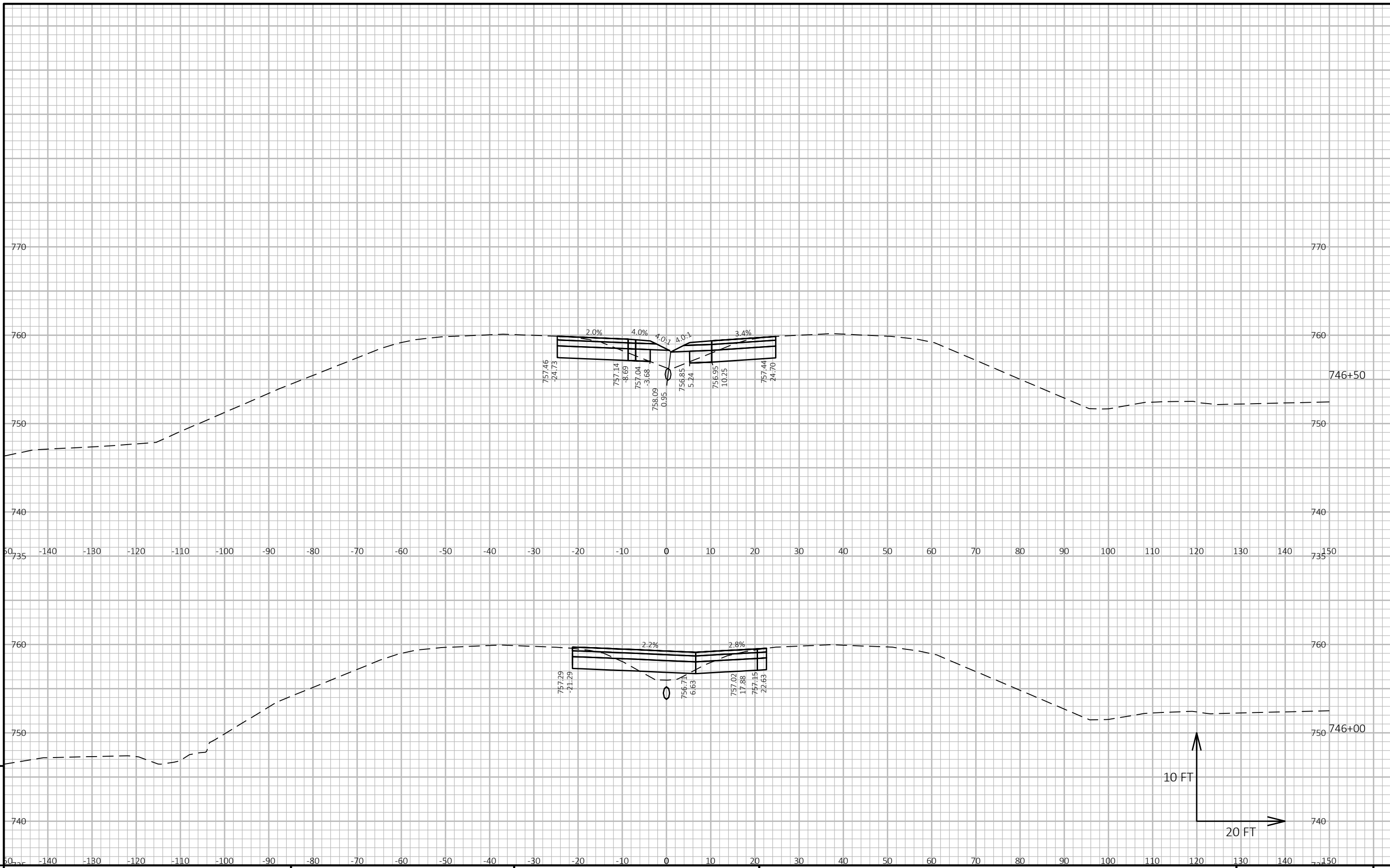
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PROJECT NO: 1310-14-70      HWY: STH 50      COUNTY: KENOSHA      CROSS SECTIONS: WEST CROSSOVER      SHEET      E

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LAYOUT NAME - 090204\_xs



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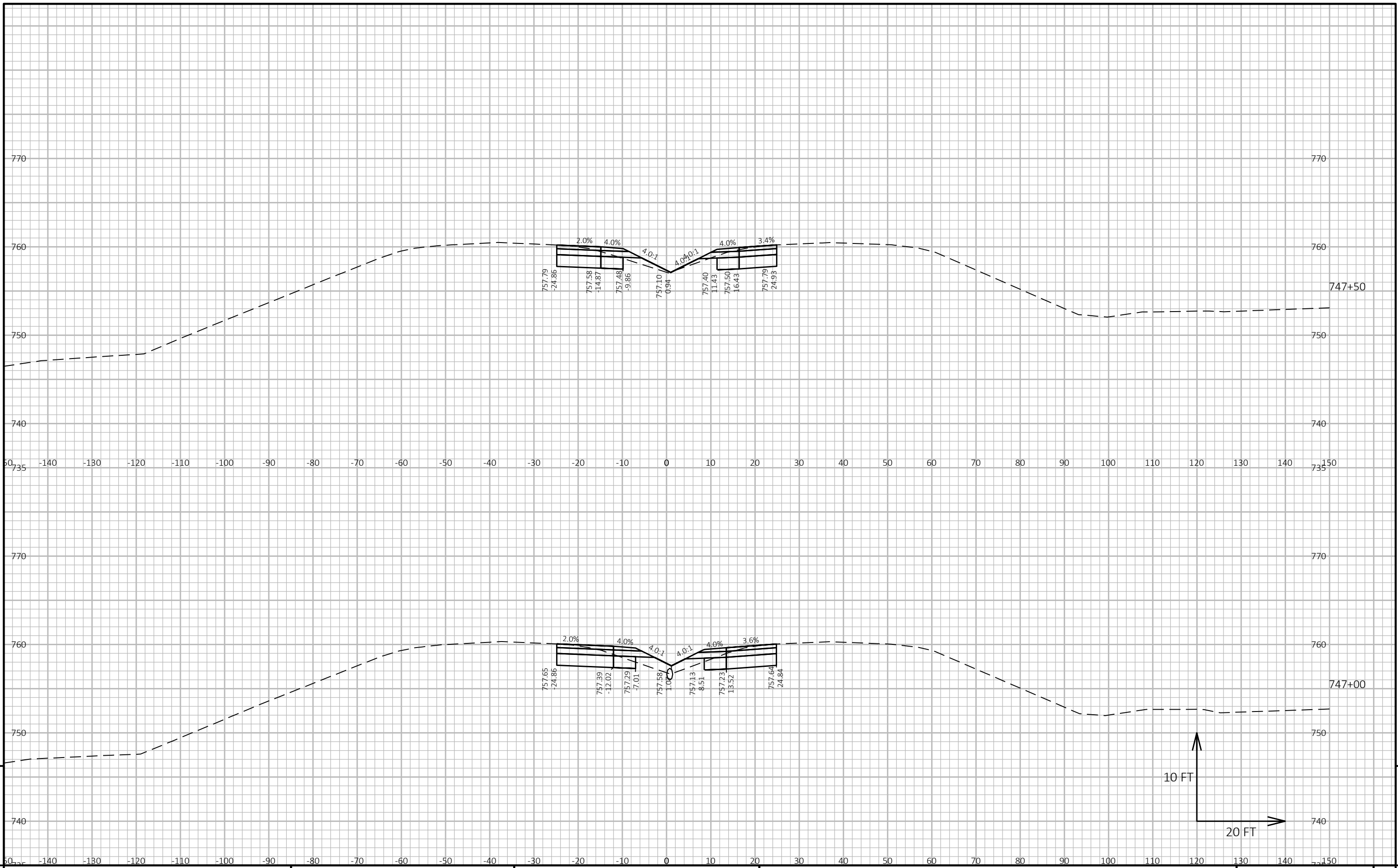
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PROJECT NO: 1310-14-70      HWY: STH 50      COUNTY: KENOSHA      CROSS SECTIONS: WEST CROSSOVER      SHEET      E

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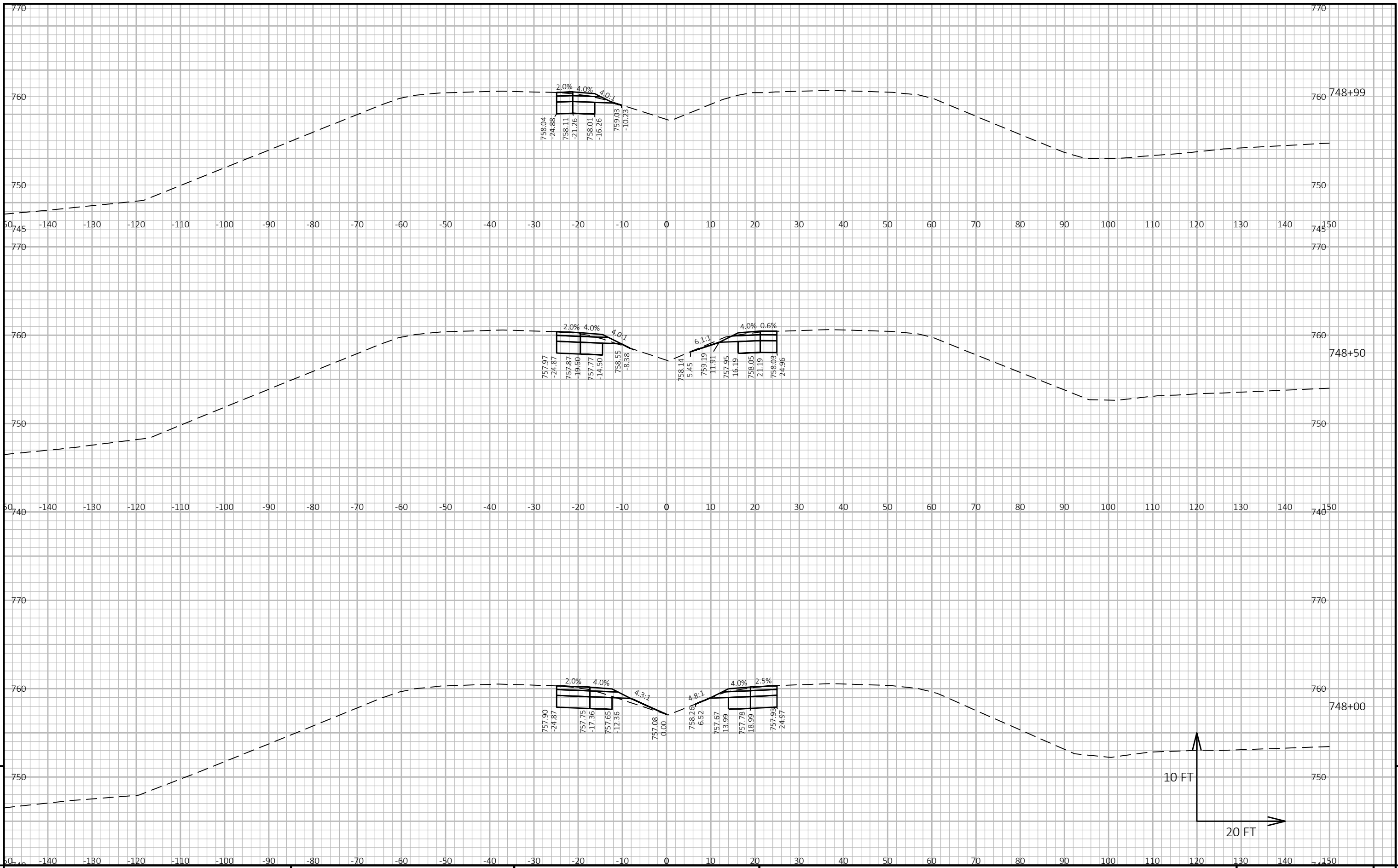
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10 FT
20 FT
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PROJECT NO: 1310-14-70      HWY: STH 50      COUNTY: KENOSHA      CROSS SECTIONS: WEST CROSSOVER      SHEET E



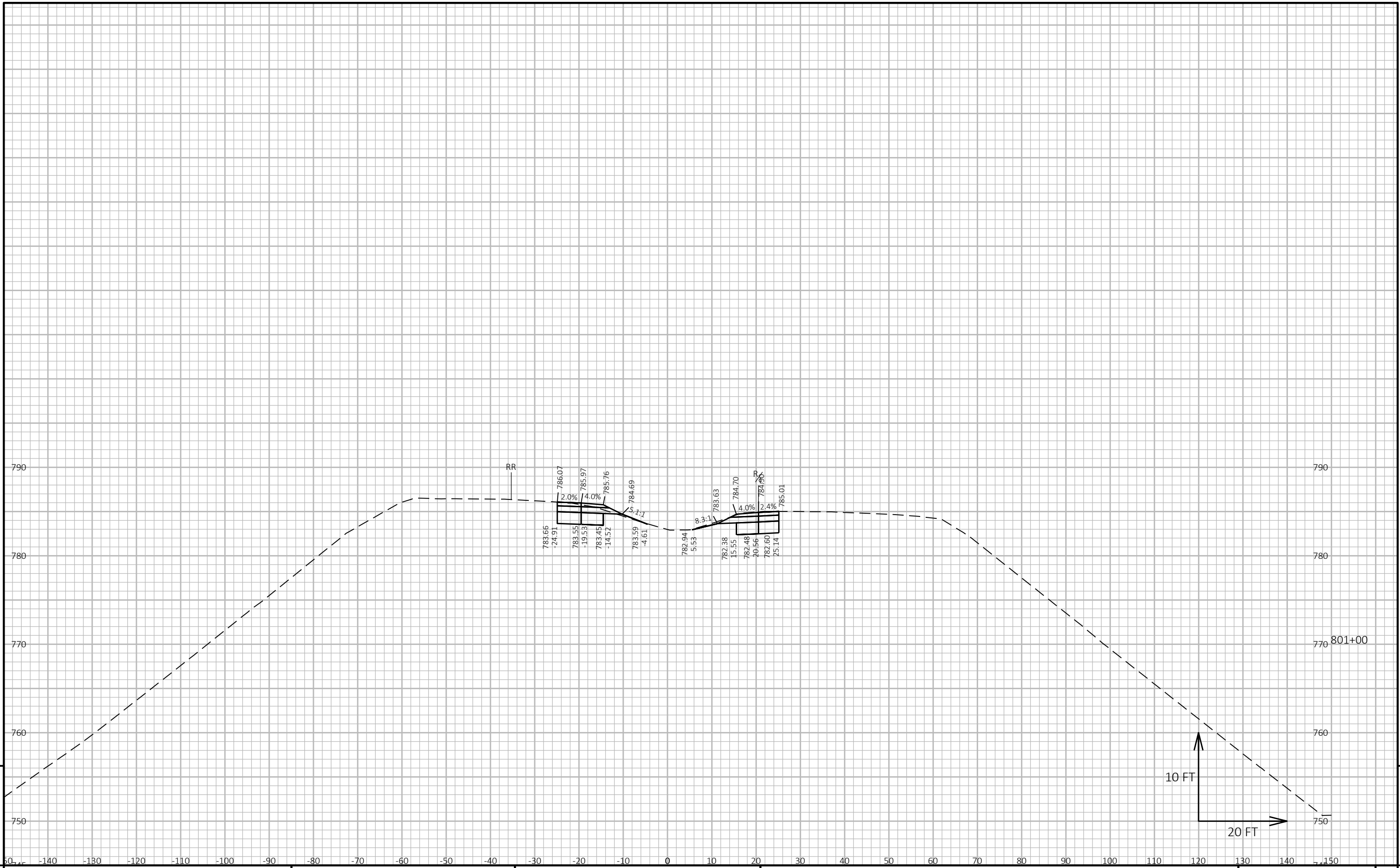
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PROJECT NO: 1310-14-70      HWY: STH 50      COUNTY: KENOSHA      CROSS SECTIONS: WEST CROSSOVER      SHEET      E

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LAYOUT NAME - 090207\_xs



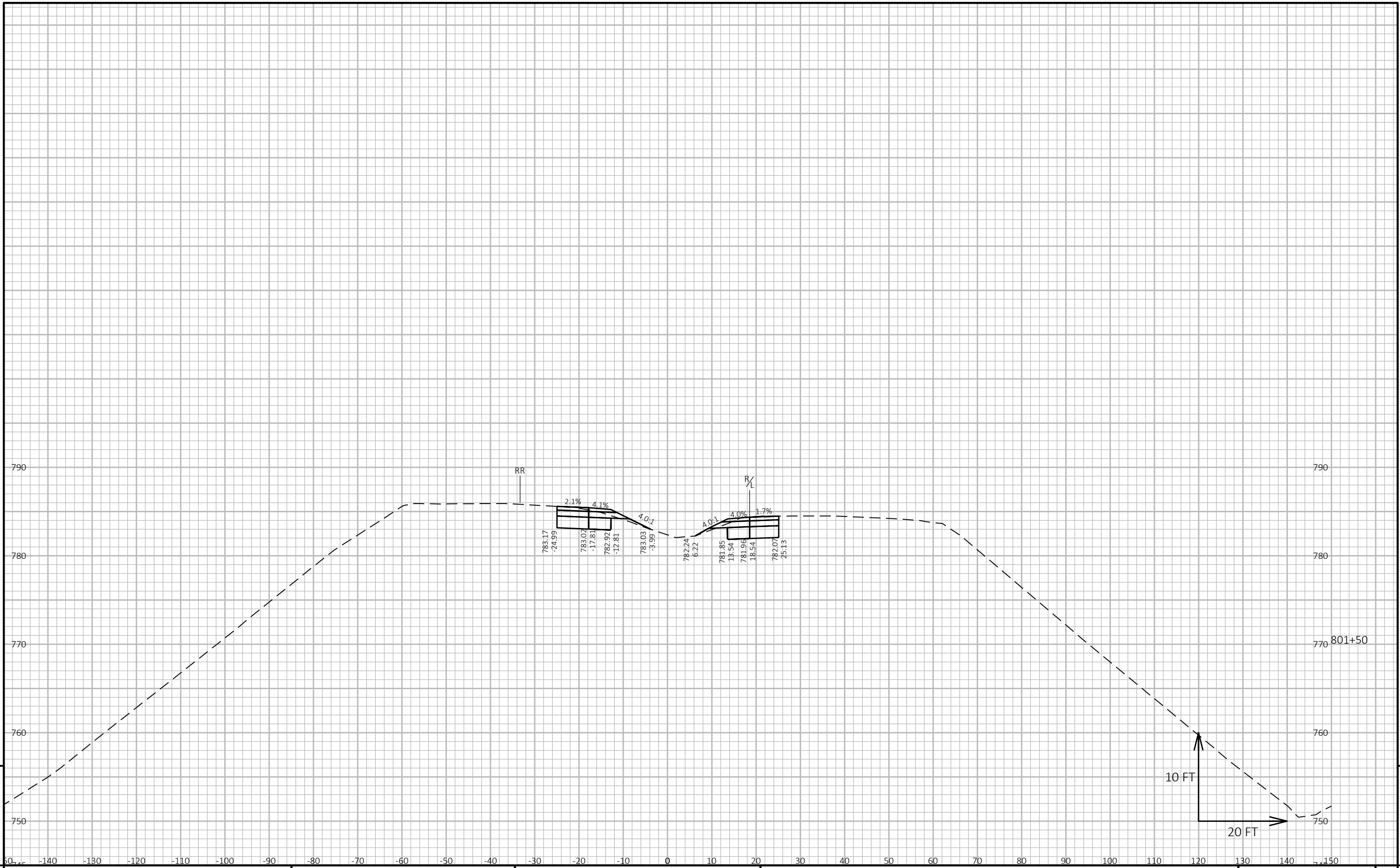
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PROJECT NO: 1310-14-70      HWY: STH 50      COUNTY: KENOSHA      CROSS SECTIONS: EAST CROSSOVER      SHEET      E

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LAYOUT NAME - 090208\_xs



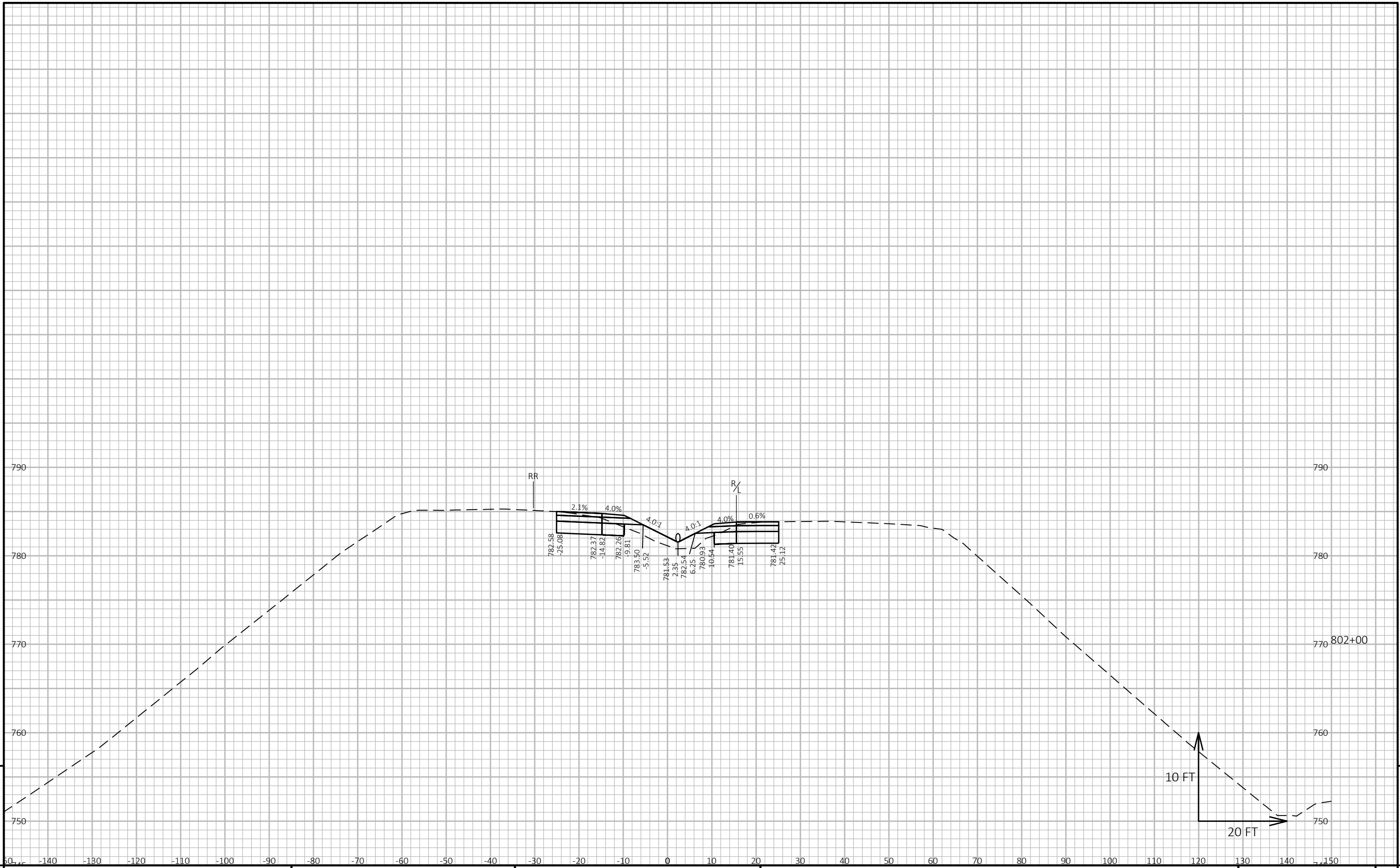
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PROJECT NO: 1310-14-70      HWY: STH 50      COUNTY: KENOSHA      CROSS SECTIONS: EAST CROSSOVER      SHEET      E

FILE NAME : X:\ML\2020\2020068\DESIGN\TRANSPORTATION\SHEETSPLAN\090202\_CROSSOVER\_XS.DWG      PLOT DATE : 1/31/2023 1:25 PM      PLOT BY : STRASSER, JEFFREY      PLOT NAME :      PLOT SCALE : 1 IN:20 FT HORZ. / 1 IN:10 FT VERT.      WISDOT/CADD SHEET 49

LAYOUT NAME - 090209\_xs

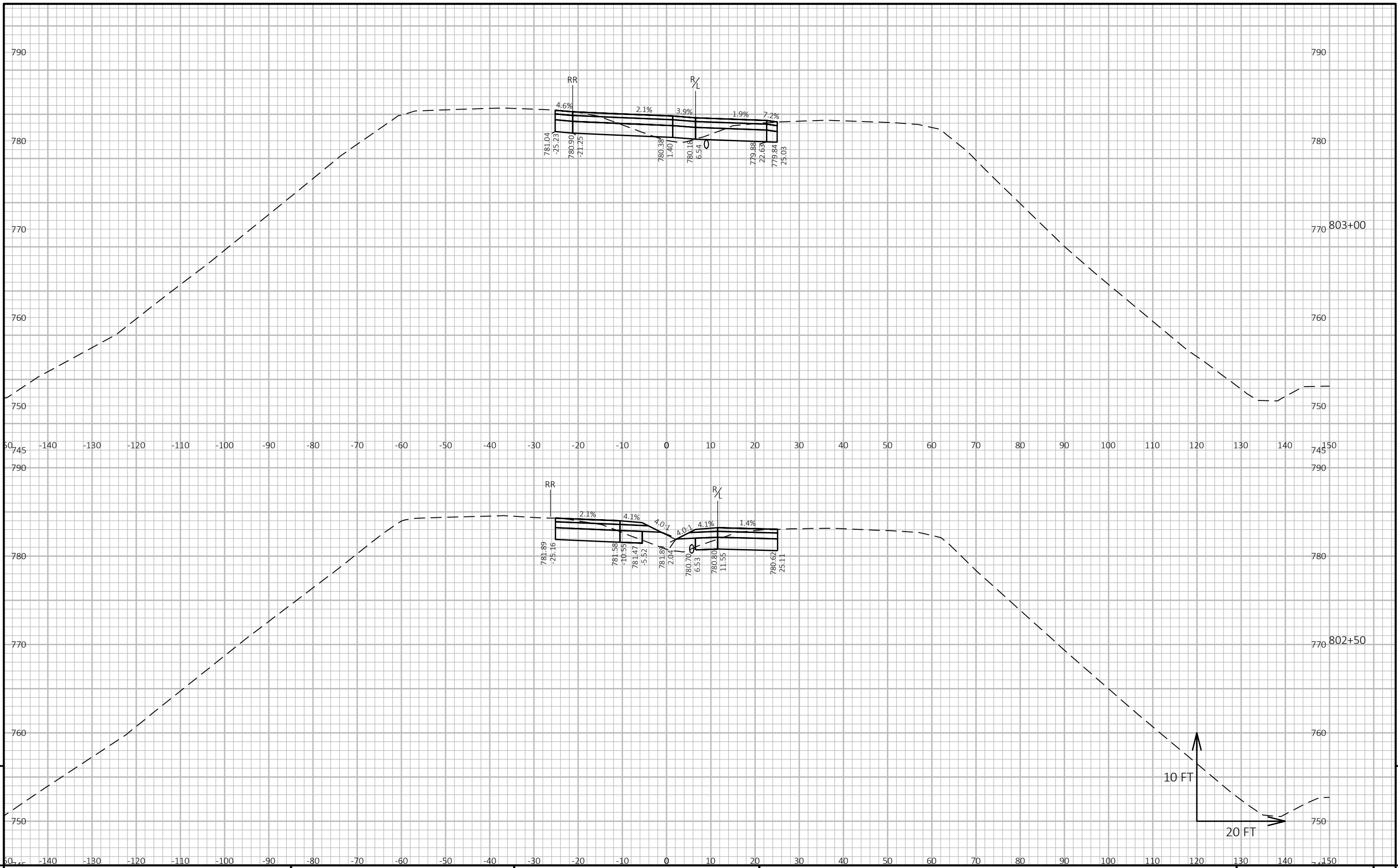


PROJECT NO: 1310-14-70      HWY: STH 50      COUNTY: KENOSHA      CROSS SECTIONS: EAST CROSSOVER      SHEET      E

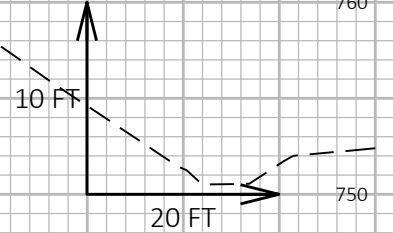
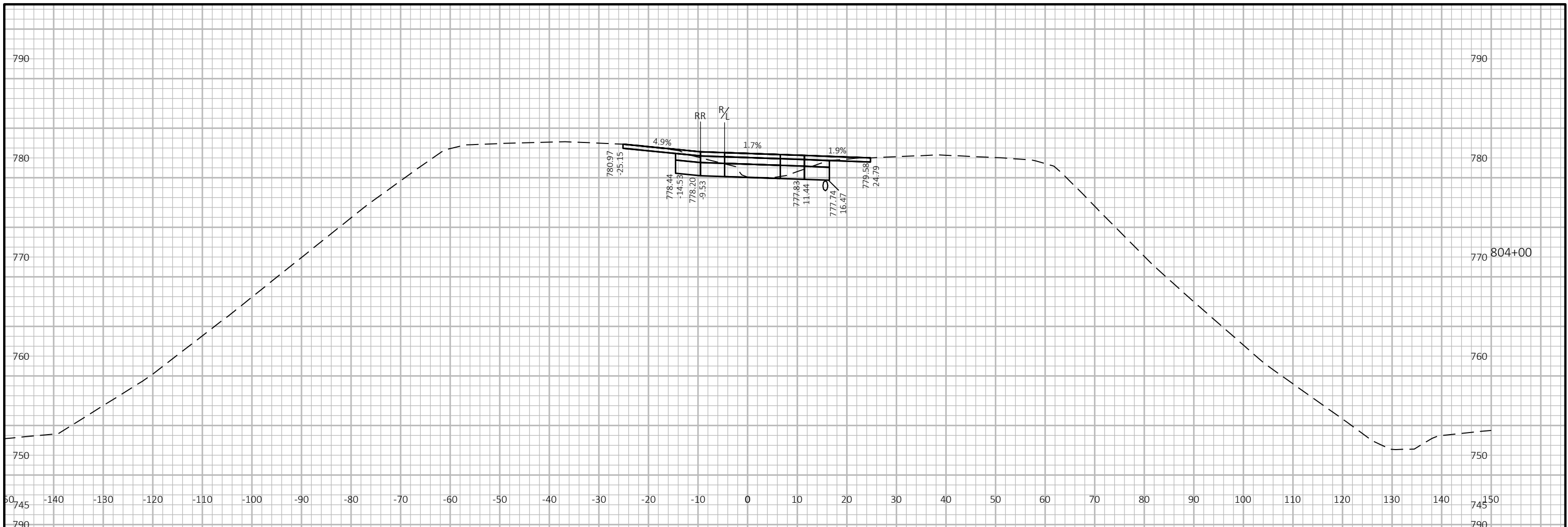
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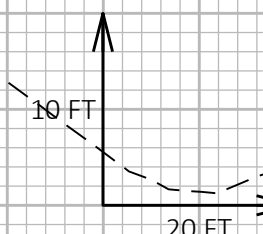
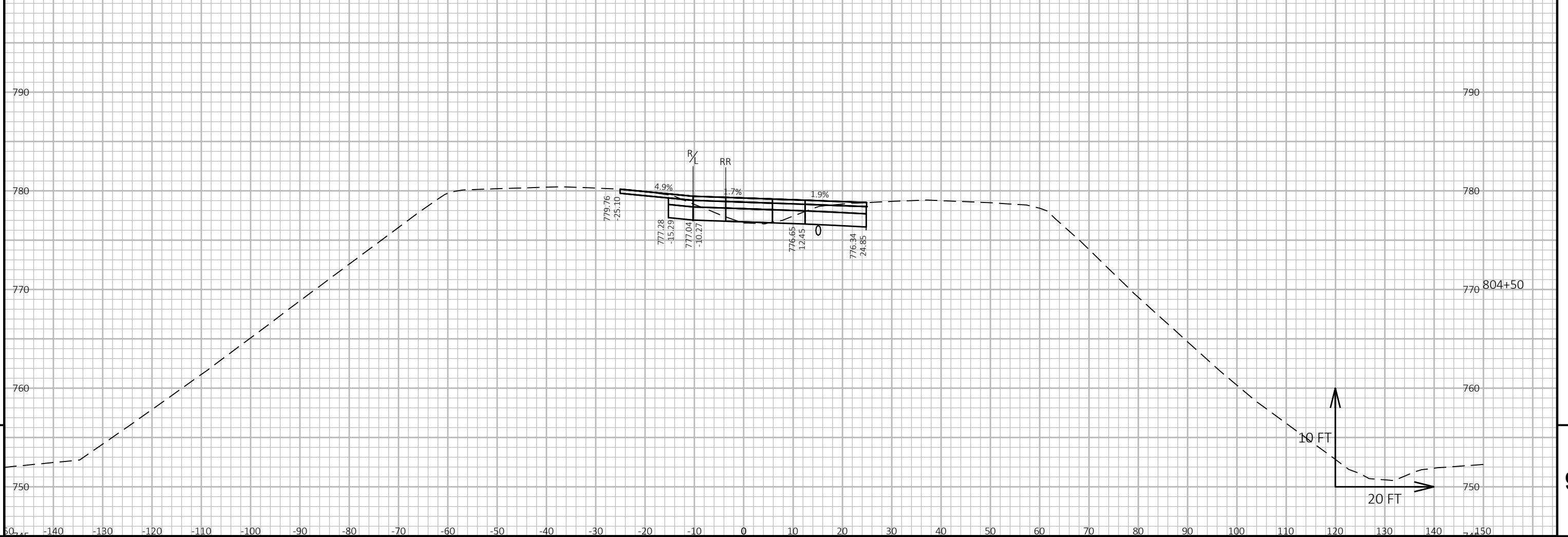
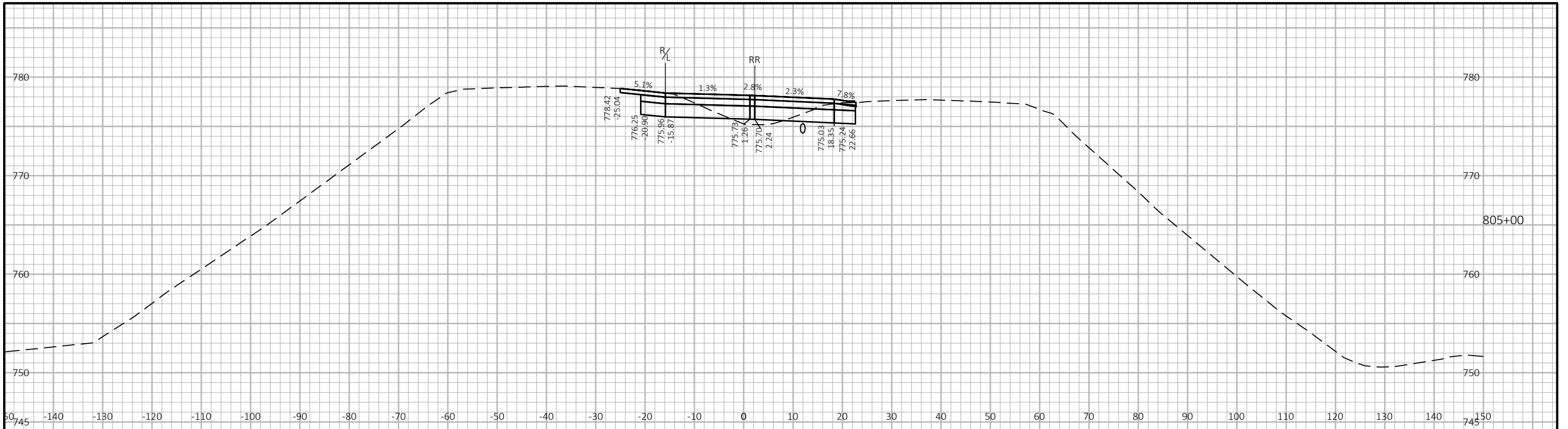
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PROJECT NO: 1310-14-70      HWY: STH 50      COUNTY: KENOSHA      CROSS SECTIONS: EAST CROSSOVER      SHEET      E



9
PROJECT NO: 1310-14-70
HWY: STH 50
COUNTY: KENOSHA
CROSS SECTIONS: EAST CROSSOVER
SHEET
9



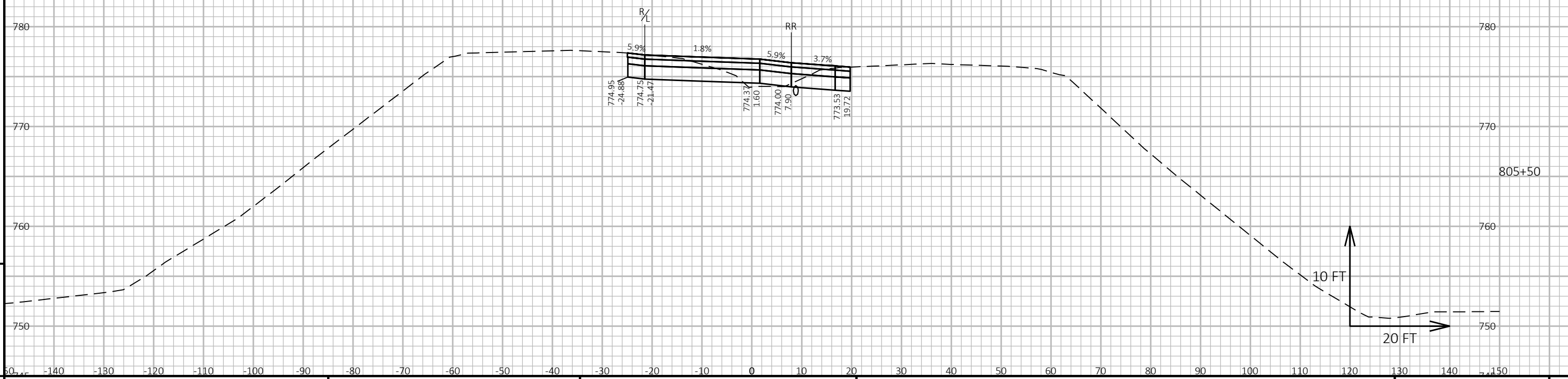
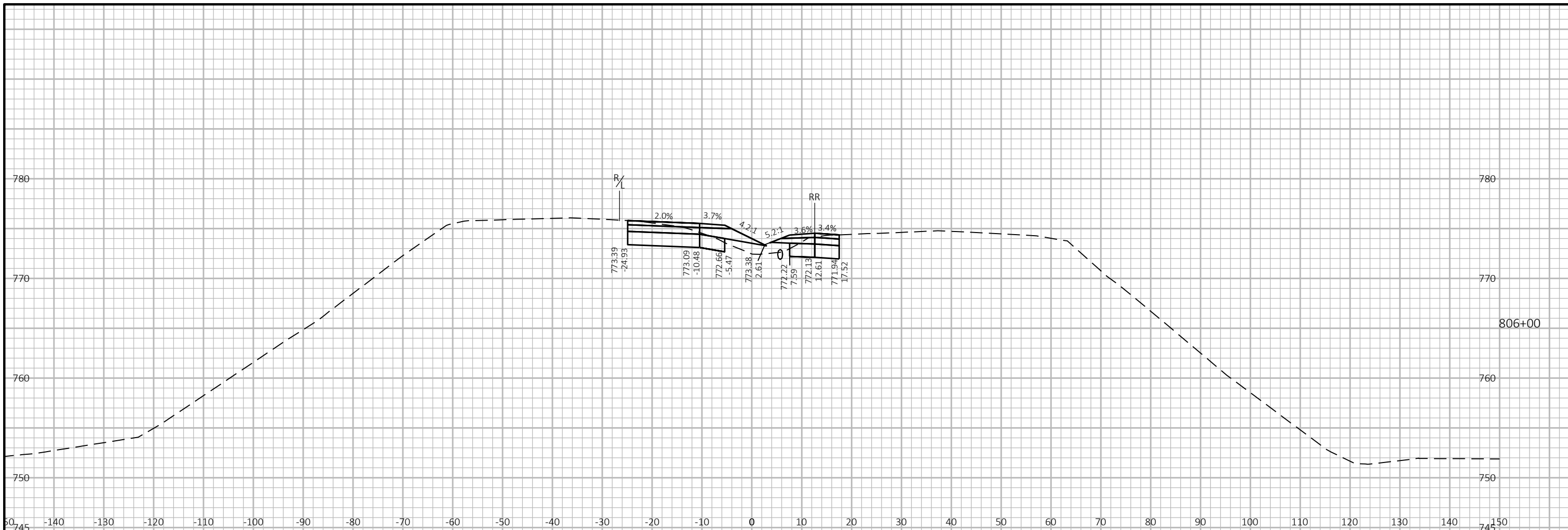
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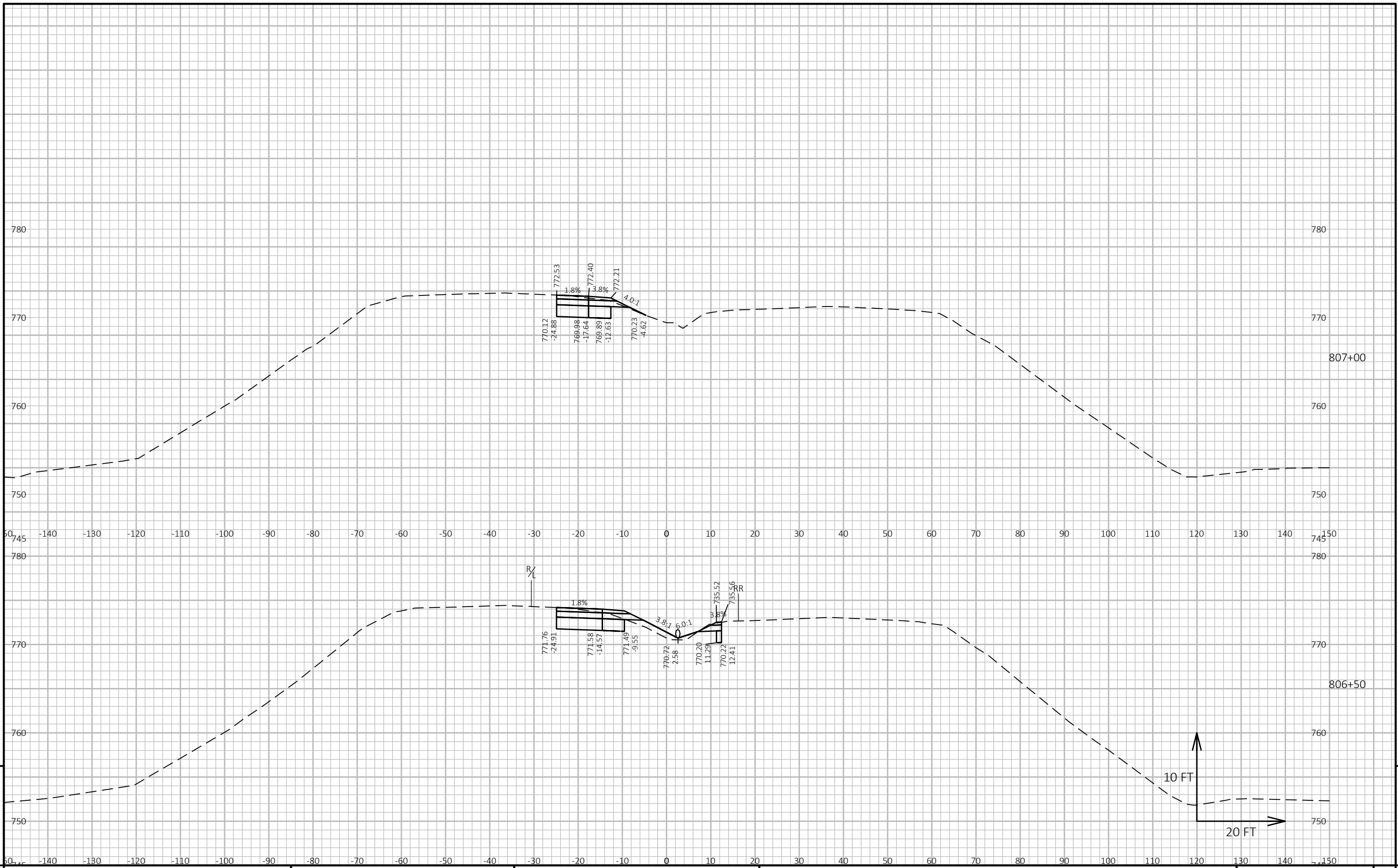
PROJECT NO: 1310-14-70      HWY: STH 50      COUNTY: KENOSHA      CROSS SECTIONS: EAST CROSSOVER      SHEET      E

FILE NAME: X:\ML\2020\2020068\DESIGN\TRANSPORTATION\SHEETSPLAN\090202\_CROSSOVER\_XS.DWG      PLOT DATE: 1/31/2023 1:26 PM      PLOT BY: STRASSER, JEFFREY      PLOT NAME:      PLOT SCALE: 1 IN:20 FT HORZ. / 1 IN:10 FT VERT.      WISDOT/CADD SHEET 49

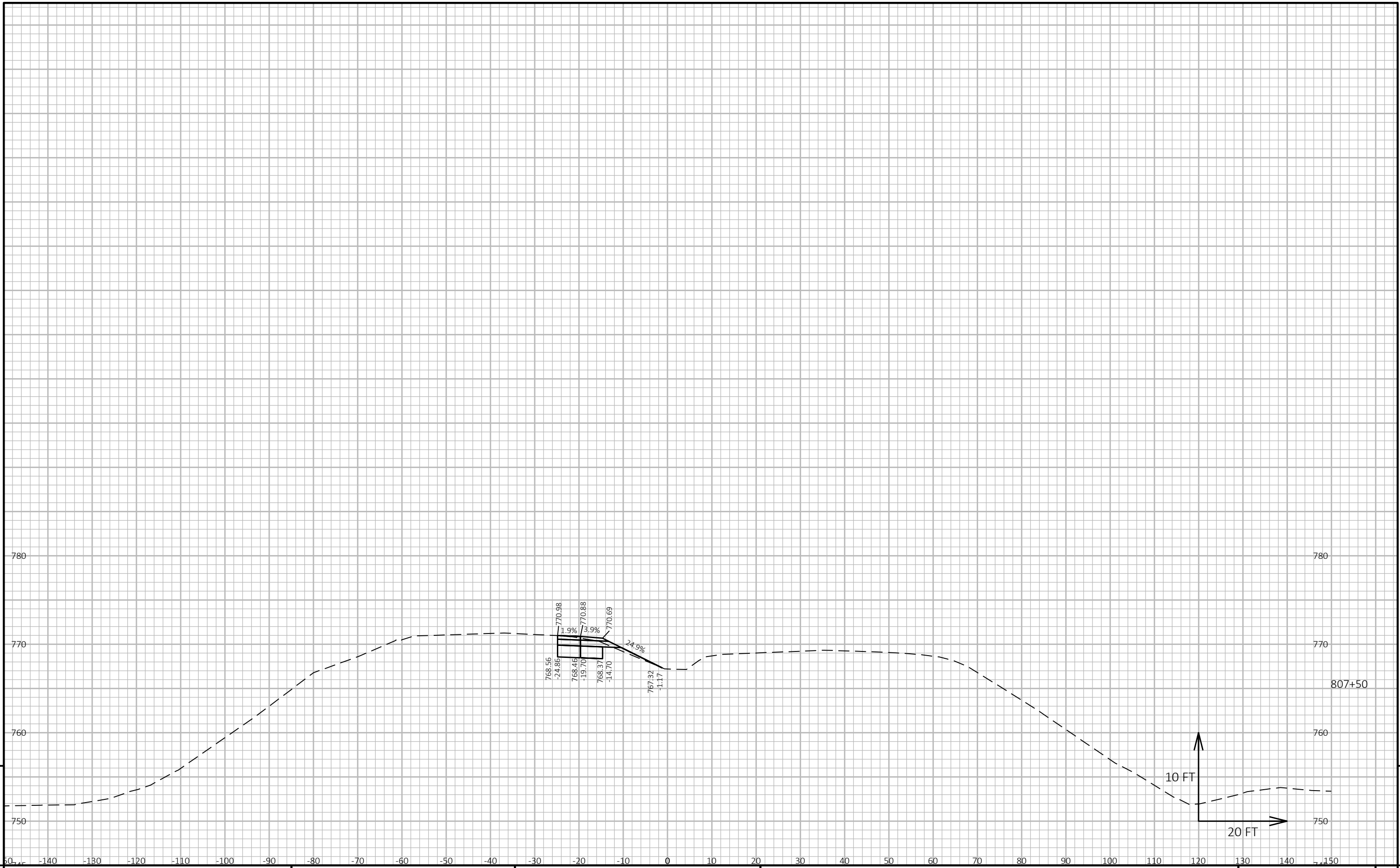




PROJECT NO: 1310-14-70      HWY: STH 50      COUNTY: KENOSHA      CROSS SECTIONS: EAST CROSSOVER      SHEET      E



PROJECT NO: 1310-14-70	HWY: STH 50	COUNTY: KENOSHA	CROSS SECTIONS: EAST CROSSOVER	SHEET	<b>9</b>
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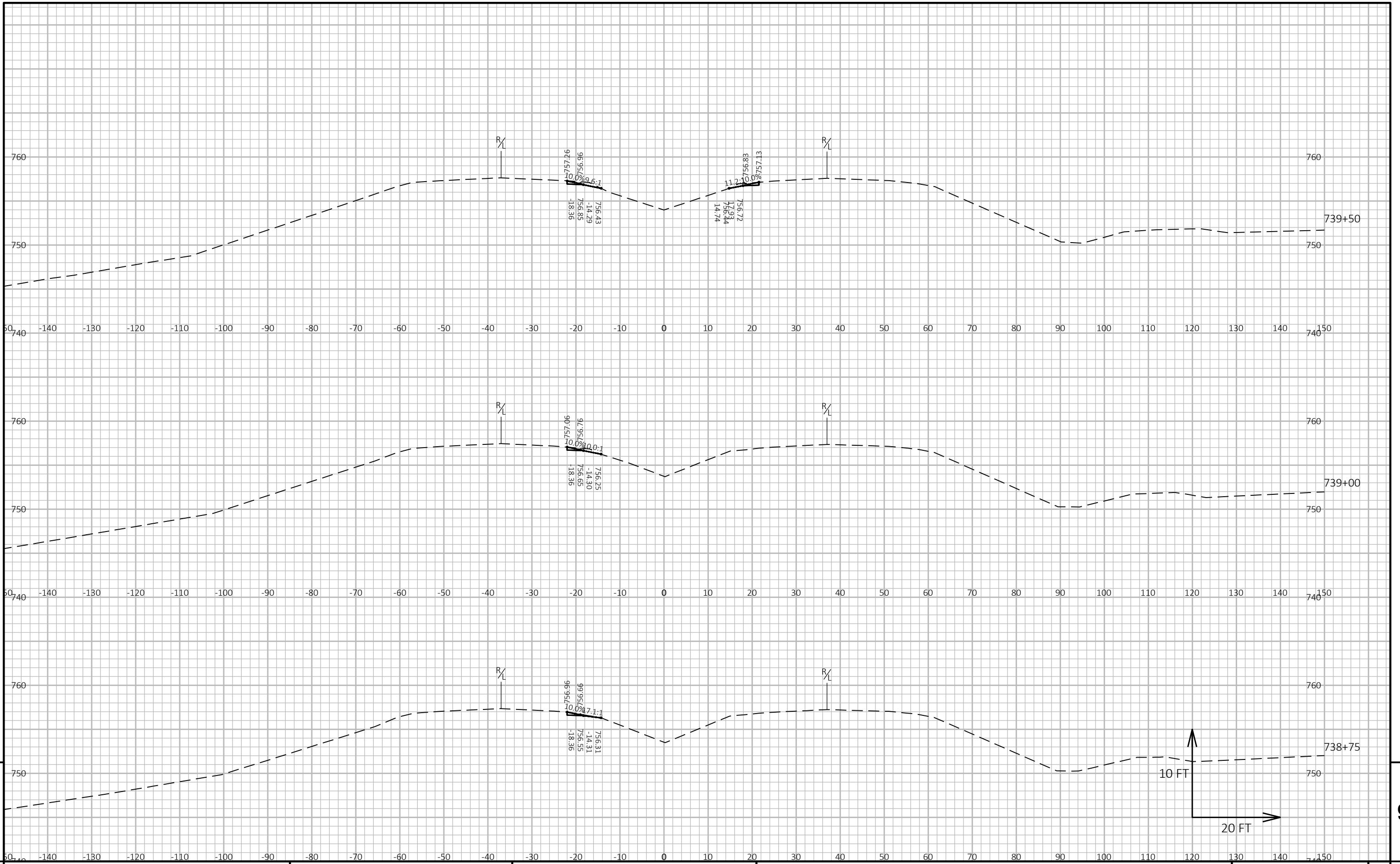


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PROJECT NO: 1310-14-70	HWY: STH 50	COUNTY: KENOSHA	CROSS SECTIONS: EAST CROSSOVER	SHEET	E
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FILE NAME : X:\ML\2020\2020068\DESIGN\TRANSPORTATION\SHEETSPLAN\090202\_CROSSOVER\_XS.DWG  
 LAYOUT NAME - 090216\_xs  
 PLOT DATE : 1/31/2023 1:26 PM  
 PLOT BY : STRASSER, JEFFREY  
 PLOT NAME :  
 PLOT SCALE : 1 IN:20 FT HORZ. / 1 IN:10 FT VERT.  
 WISDOT/CADD SHEET 49



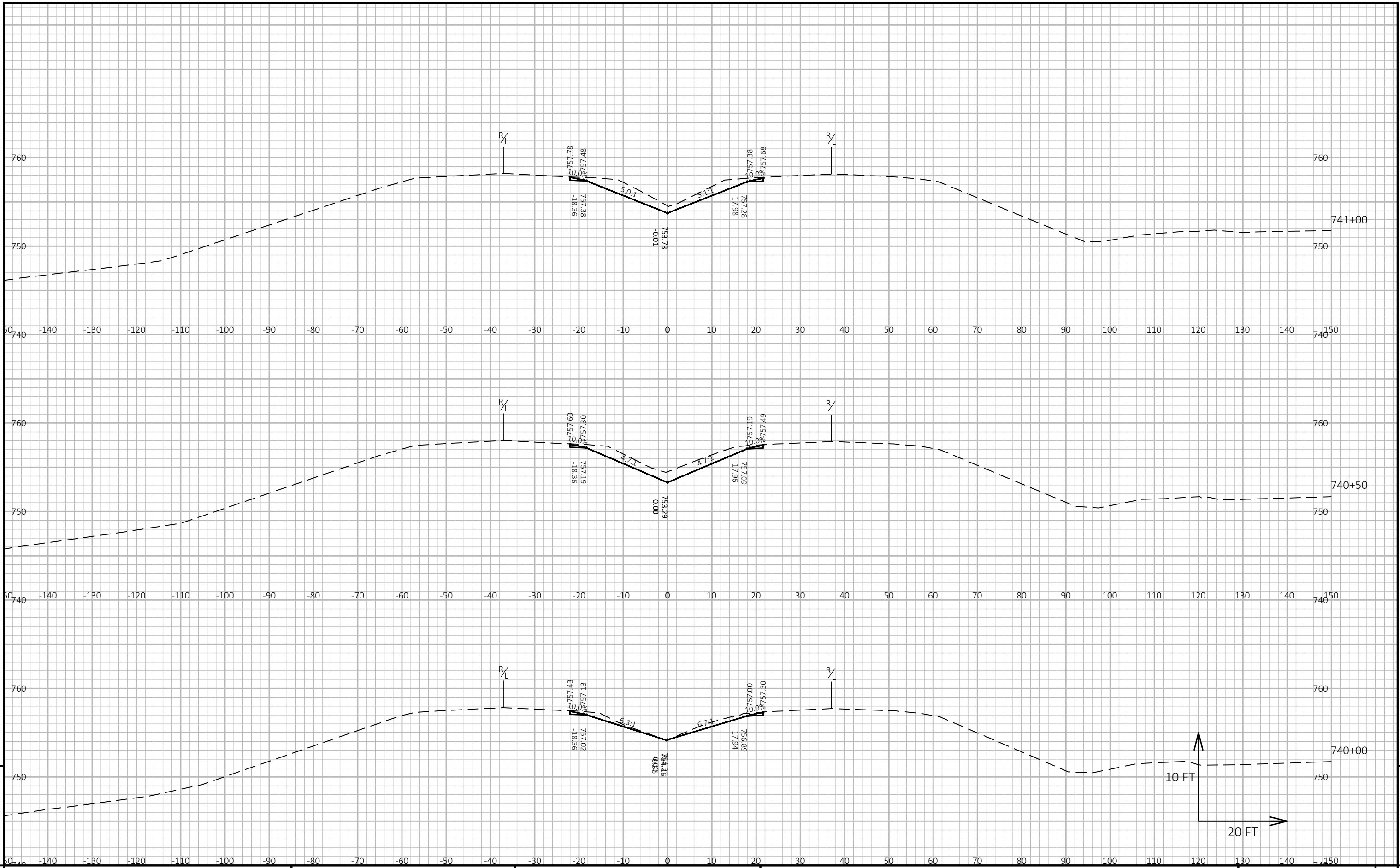
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PROJECT NO: 1310-14-70      HWY: STH 50      COUNTY: KENOSHA      CROSS SECTIONS: WEST CROSSOVER REMOVAL      SHEET      E

FILE NAME : X:\ML\2020\20200068\DESIGN\TRANSPORTATION\SHEETSPLAN\090203\_BEAMGUARD\_XS.DWG      PLOT DATE : 1/31/2023 1:27 PM      PLOT BY : STRASSER, JEFFREY      PLOT NAME :      PLOT SCALE : 1 IN:20 FT HORZ. / 1 IN:10 FT VERT.      WISDOT/CADD SHEET 49

LAYOUT NAME - 1\_West



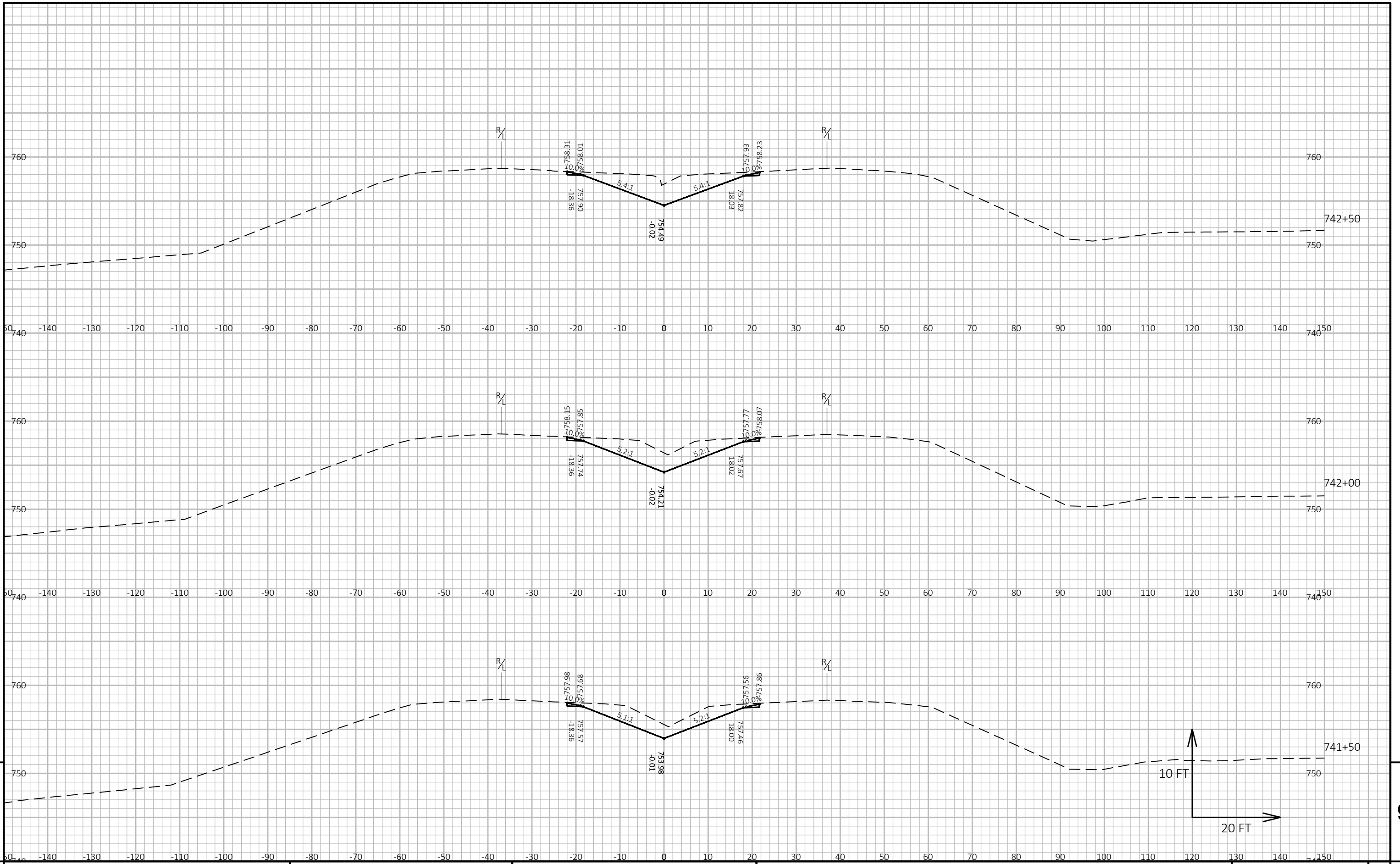
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PROJECT NO: 1310-14-70      HWY: STH 50      COUNTY: KENOSHA      CROSS SECTIONS: WEST CROSSOVER REMOVAL      SHEET      E

FILE NAME : X:\ML\2020\2020068\DESIGN\TRANSPORTATION\SHEETSPLAN\090203\_BEAMGUARD\_XS.DWG      PLOT DATE : 1/31/2023 1:27 PM      PLOT BY : STRASSER, JEFFREY      PLOT NAME :      PLOT SCALE : 1 IN:20 FT HORZ. / 1 IN:10 FT VERT.      WISDOT/CADD SHEET 49

LAYOUT NAME - 2\_West



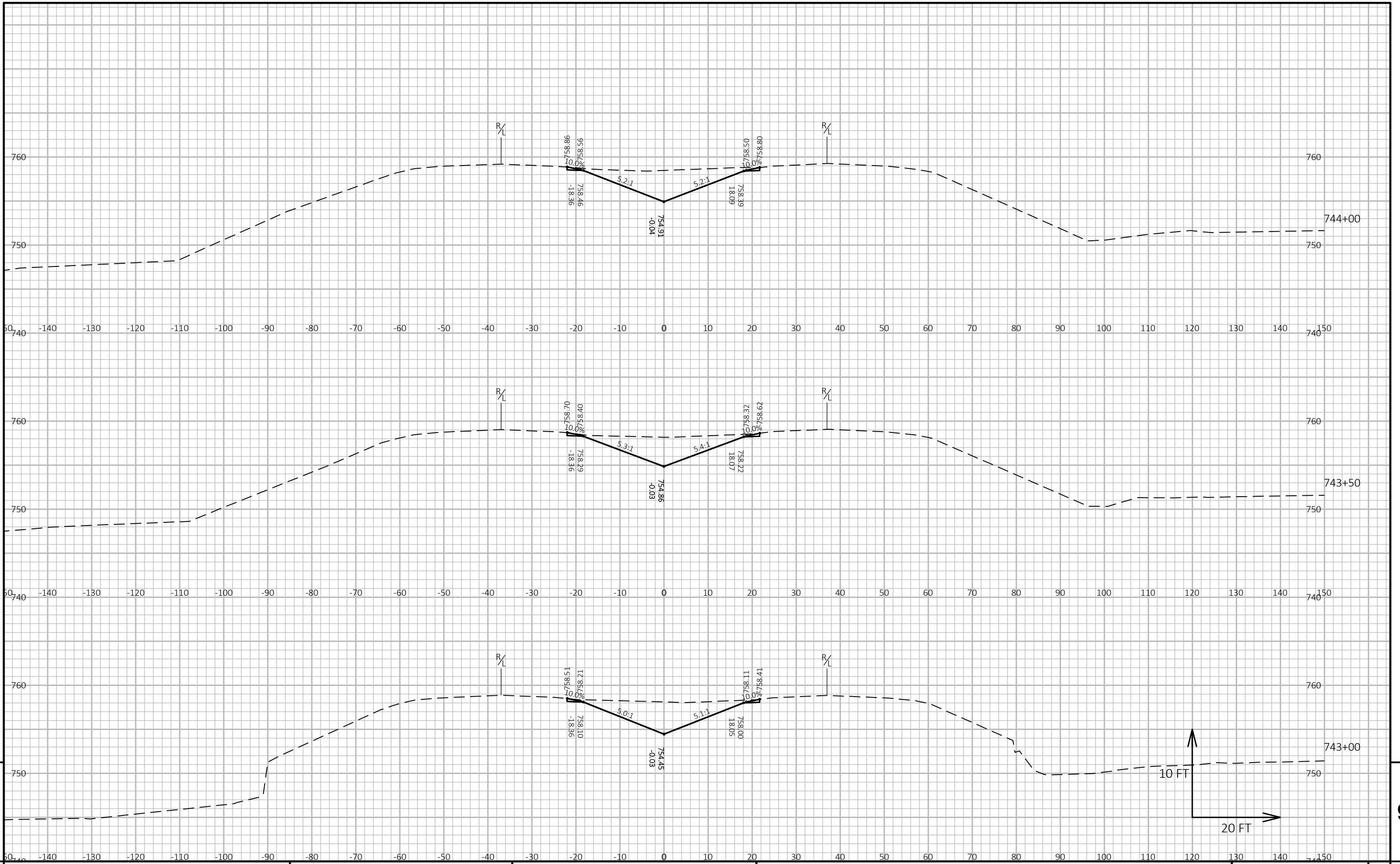
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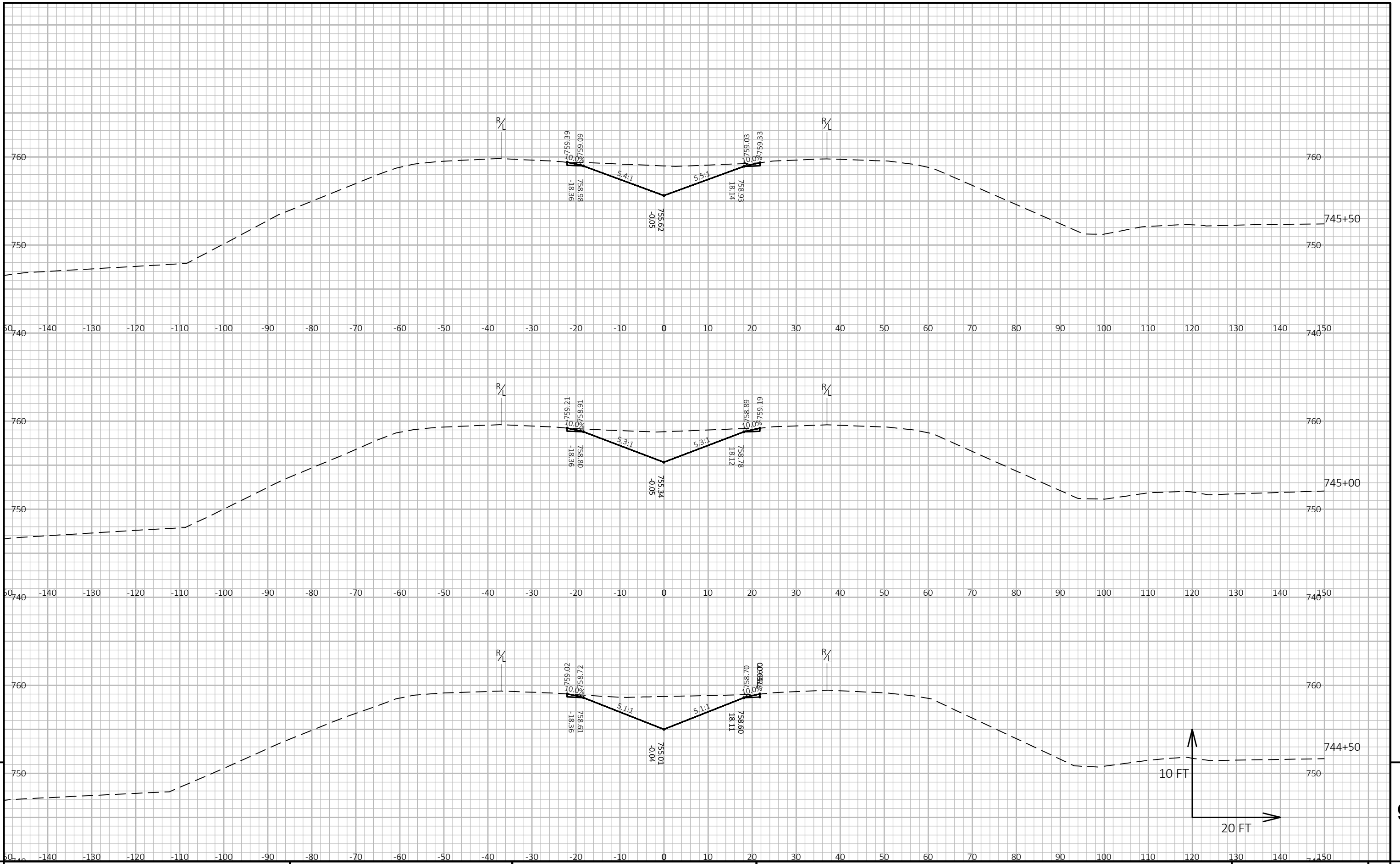
PROJECT NO: 1310-14-70      HWY: STH 50      COUNTY: KENOSHA      CROSS SECTIONS: WEST CROSSOVER REMOVAL      SHEET      E

FILE NAME : X:\ML\2020\2020068\DESIGN\TRANSPORTATION\SHEETSPLAN\090203\_BEAMGUARD\_XS.DWG      PLOT DATE : 1/31/2023 1:27 PM      PLOT BY : STRASSER, JEFFREY      PLOT NAME :      PLOT SCALE : 1 IN:20 FT HORZ. / 1 IN:10 FT VERT.      WISDOT/CADD SHEET 49

LAYOUT NAME - 3\_West

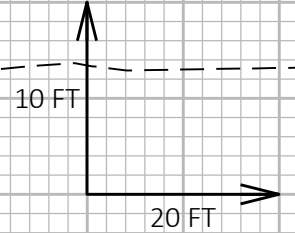


PROJECT NO: 1310-14-70      HWY: STH 50      COUNTY: KENOSHA      CROSS SECTIONS: WEST CROSSOVER REMOVAL      SHEET      E



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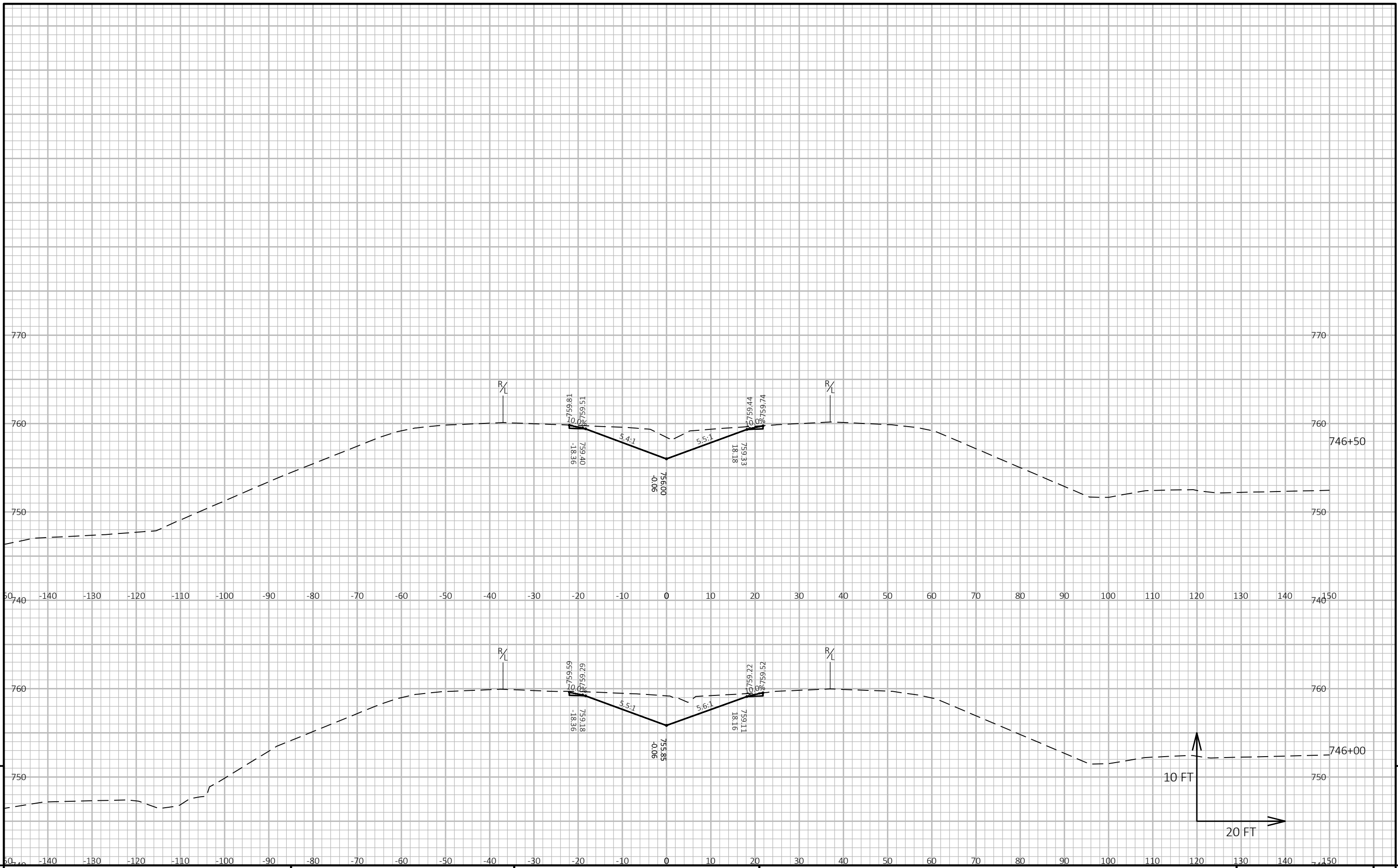


PROJECT NO: 1310-14-70      HWY: STH 50      COUNTY: KENOSHA      CROSS SECTIONS: WEST CROSSOVER REMOVAL      SHEET      E

FILE NAME : X:\ML\2020\2020068\DESIGN\TRANSPORTATION\SHEETSPLAN\090203\_BEAMGUARD\_XS.DWG      PLOT DATE : 1/31/2023 1:27 PM      PLOT BY : STRASSER, JEFFREY      PLOT NAME :      PLOT SCALE : 1 IN:20 FT HORZ. / 1 IN:10 FT VERT.      WISDOT/CADD SHEET 49

LAYOUT NAME - 5\_West





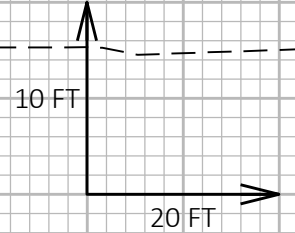
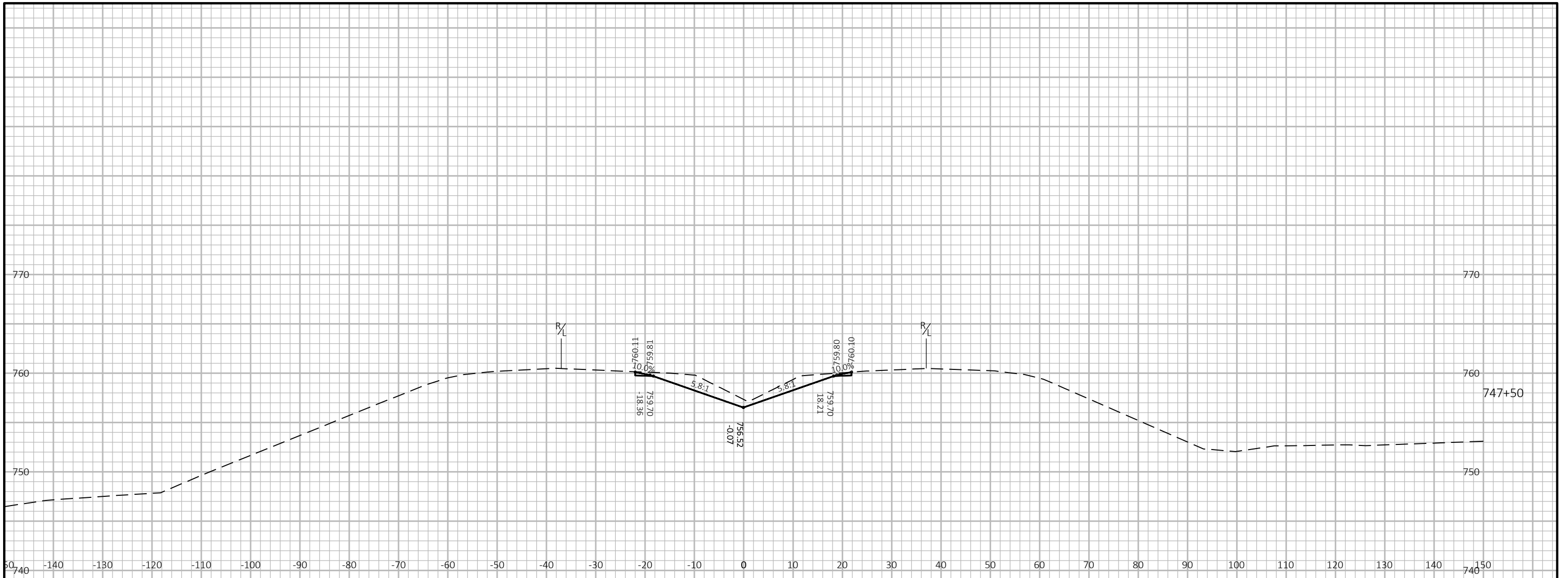
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PROJECT NO: 1310-14-70      HWY: STH 50      COUNTY: KENOSHA      CROSS SECTIONS: WEST CROSSOVER REMOVAL      SHEET      E

FILE NAME : X:\ML\2020\2020068\DESIGN\TRANSPORTATION\SHEETSPLAN\090203\_BEAMGUARD\_XS.DWG      PLOT DATE : 1/31/2023 1:27 PM      PLOT BY : STRASSER, JEFFREY      PLOT NAME :      PLOT SCALE : 1 IN:20 FT HORZ. / 1 IN:10 FT VERT.      WISDOT/CADD SHEET 49

LAYOUT NAME - 6\_West

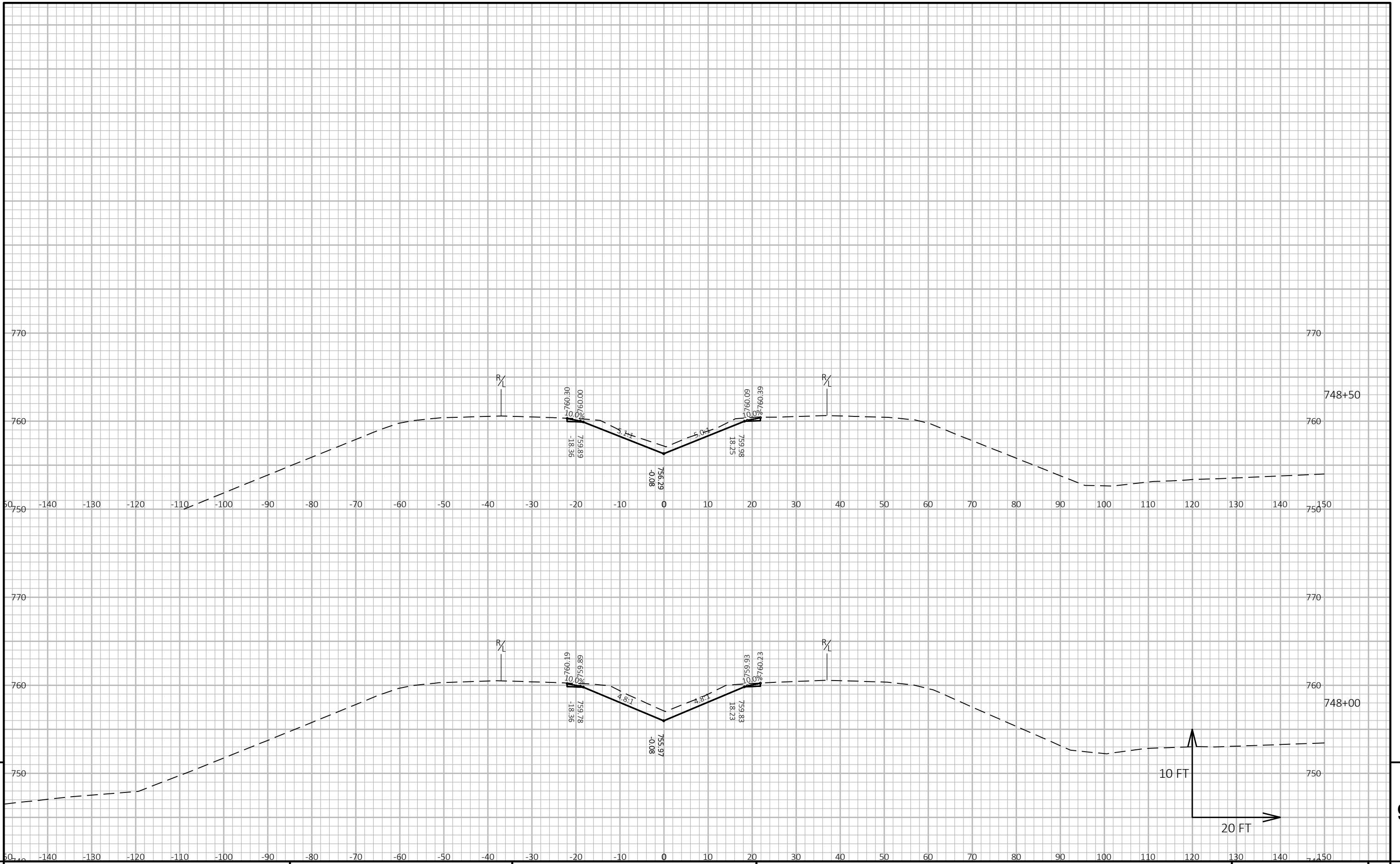


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760  
750  
740

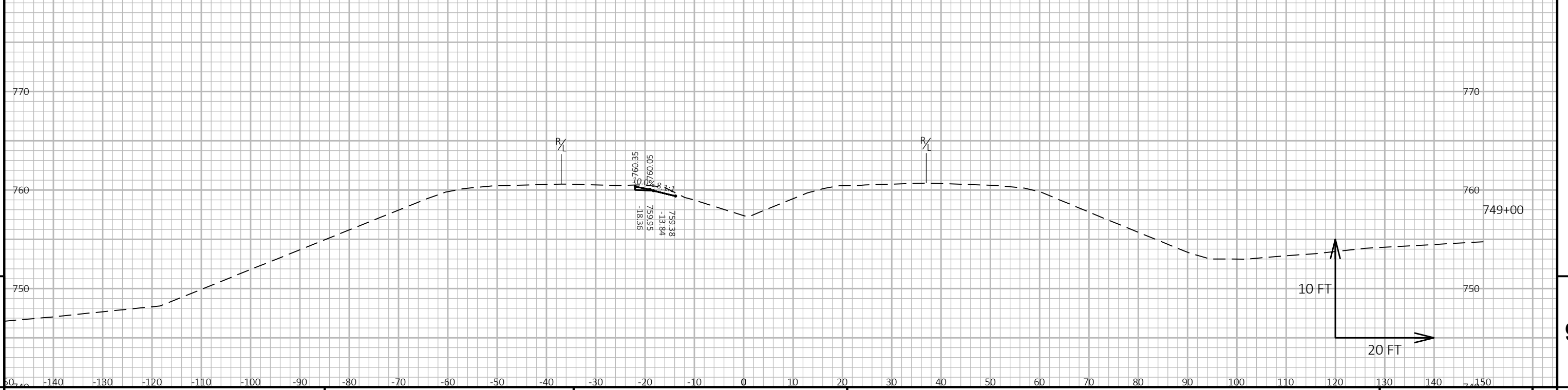
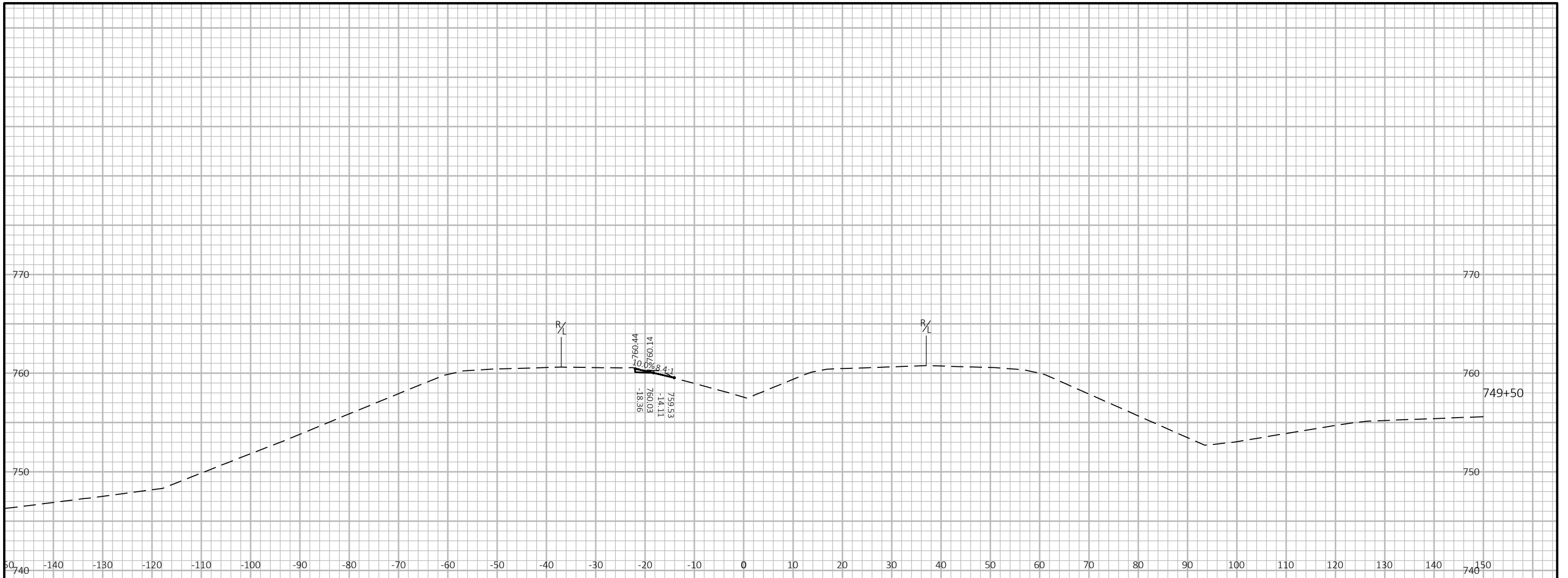
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770 747+00  
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PROJECT NO: 1310-14-70      HWY: STH 50      COUNTY: KENOSHA      CROSS SECTIONS: WEST CROSSOVER REMOVAL      SHEET      E



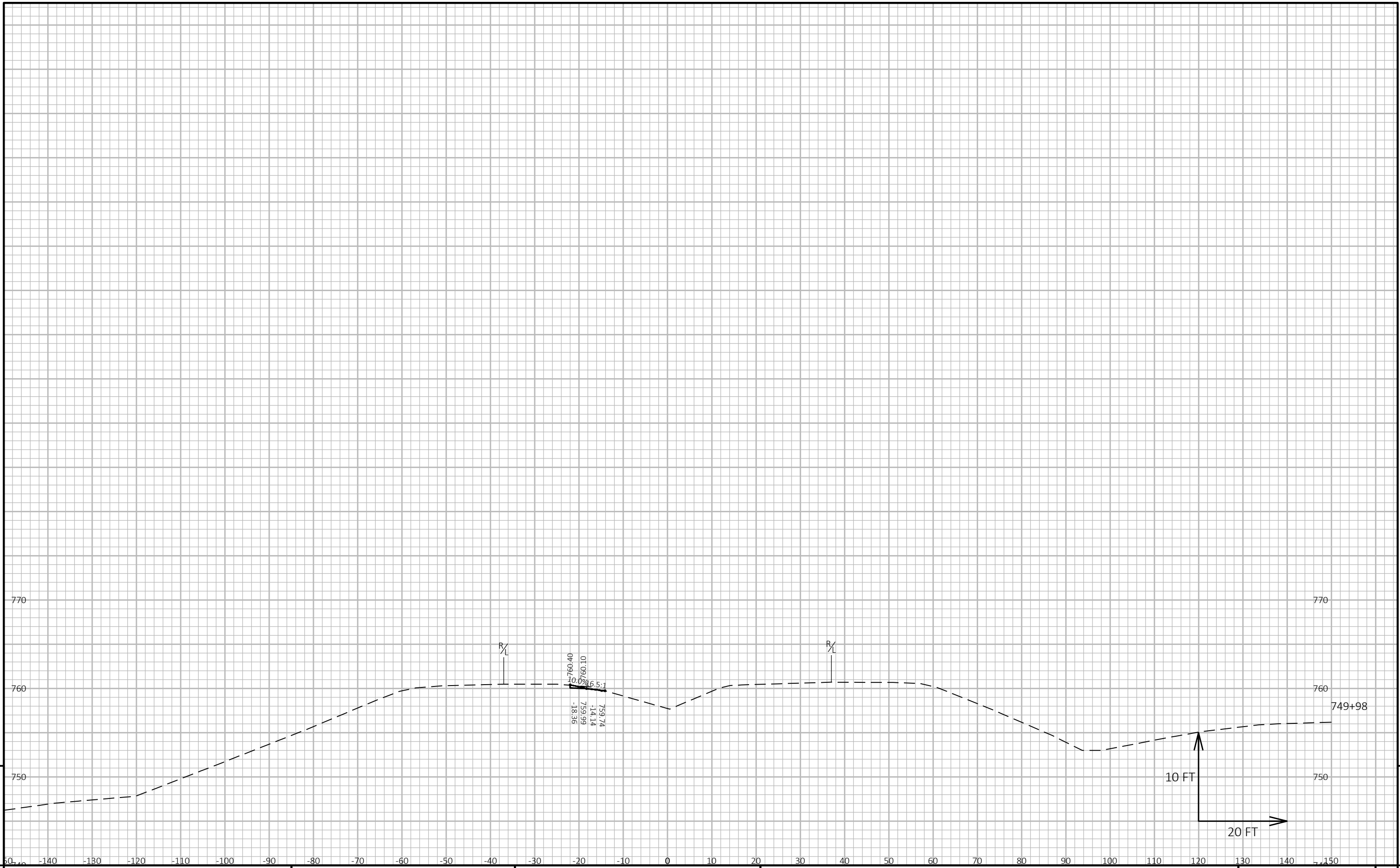
PROJECT NO: 1310-14-70      HWY: STH 50      COUNTY: KENOSHA      CROSS SECTIONS: WEST CROSSOVER REMOVAL      SHEET      **9**



PROJECT NO: 1310-14-70      HWY: STH 50      COUNTY: KENOSHA      CROSS SECTIONS: WEST CROSSOVER REMOVAL      SHEET      E

9

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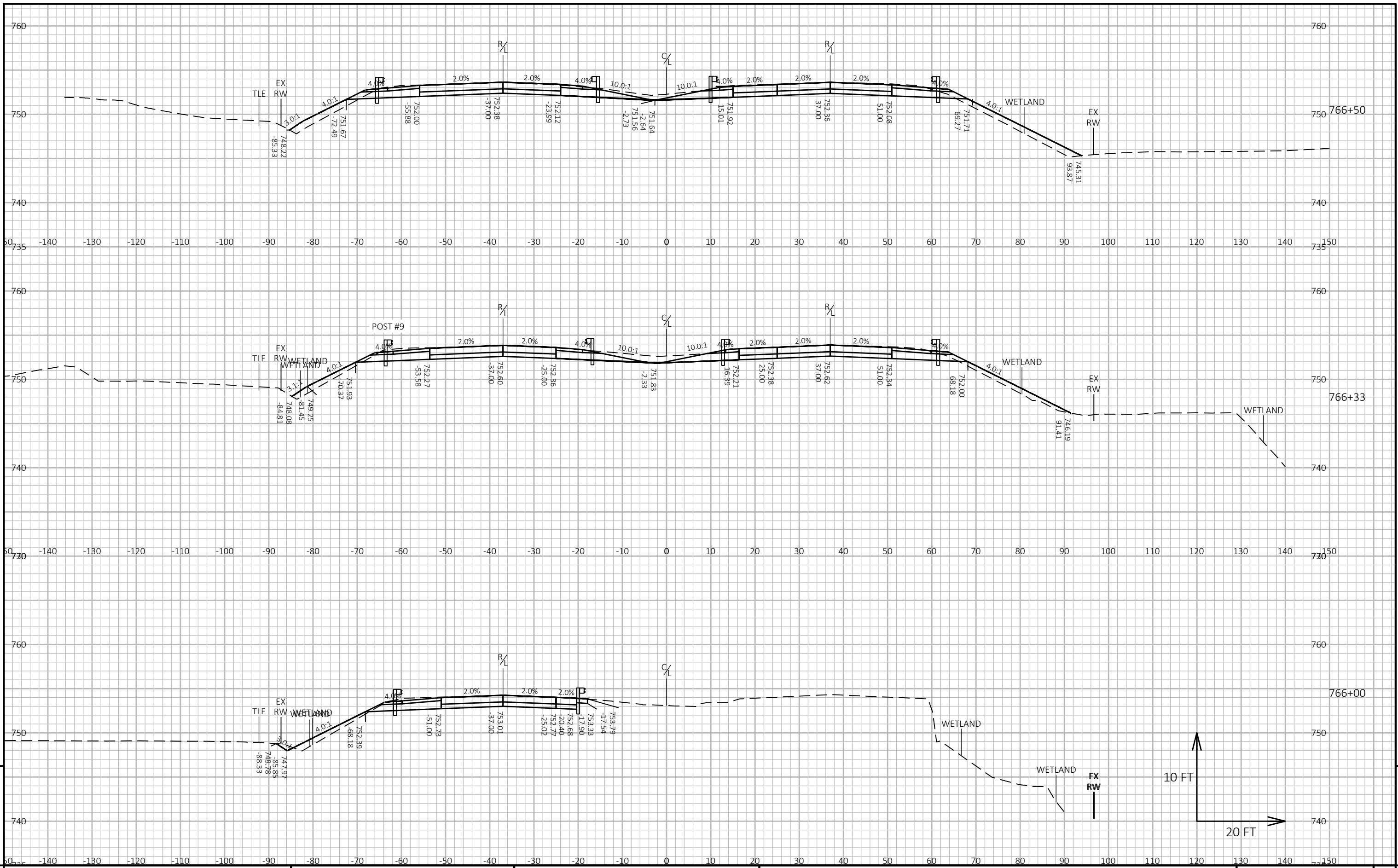
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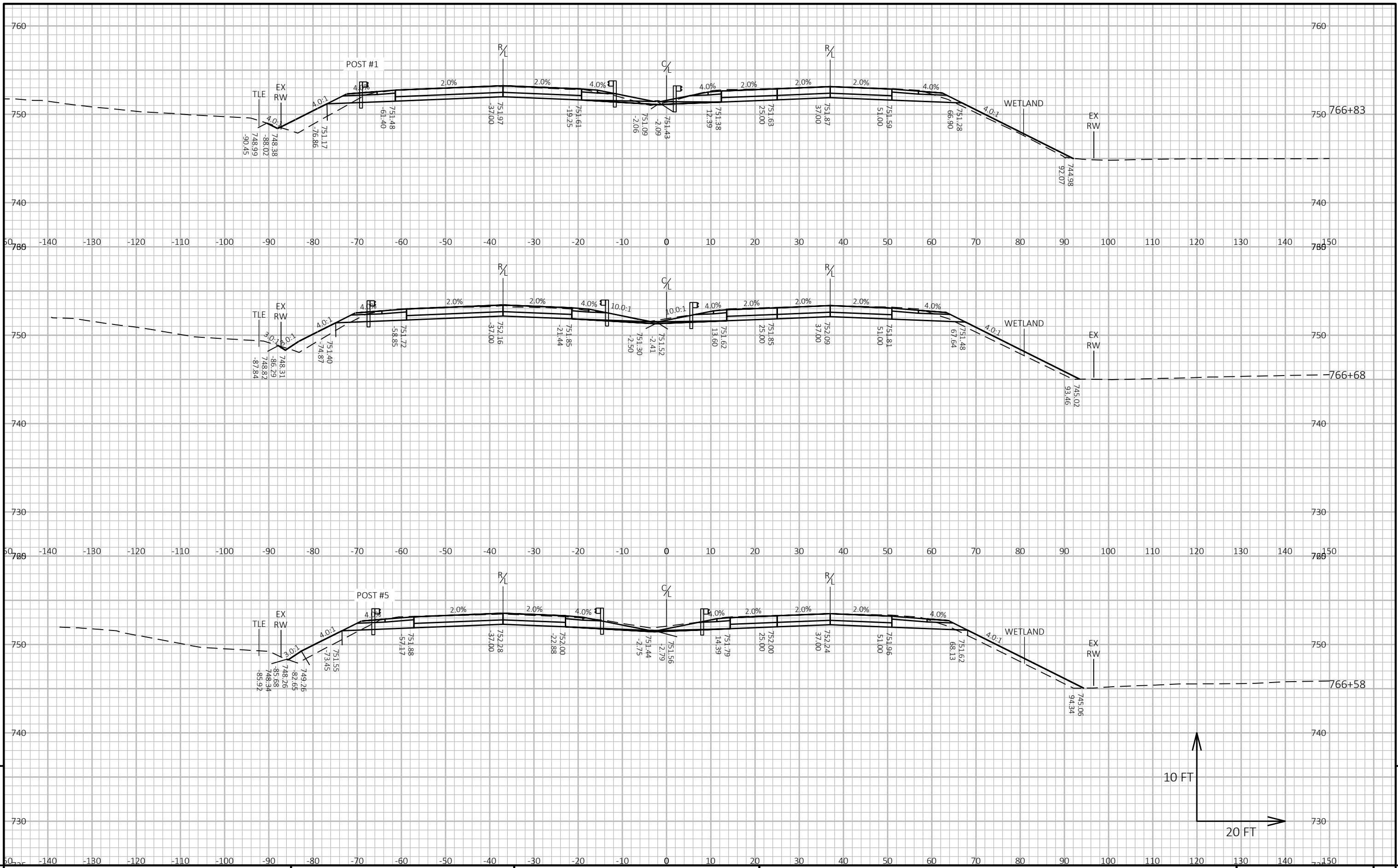
PROJECT NO: 1310-14-70      HWY: STH 50      COUNTY: KENOSHA      CROSS SECTIONS: WEST CROSSOVER REMOVAL      SHEET E

FILE NAME : X:\ML\2020\2020068\DESIGN\TRANSPORTATION\SHEETSPLAN\090203\_BEAMGUARD\_XS.DWG      PLOT DATE : 1/31/2023 1:27 PM      PLOT BY : STRASSER, JEFFREY      PLOT NAME :      PLOT SCALE : 1 IN:20 FT HORZ. / 1 IN:10 FT VERT.      WISDOT/CADD SHEET 49

LAYOUT NAME - 10\_West

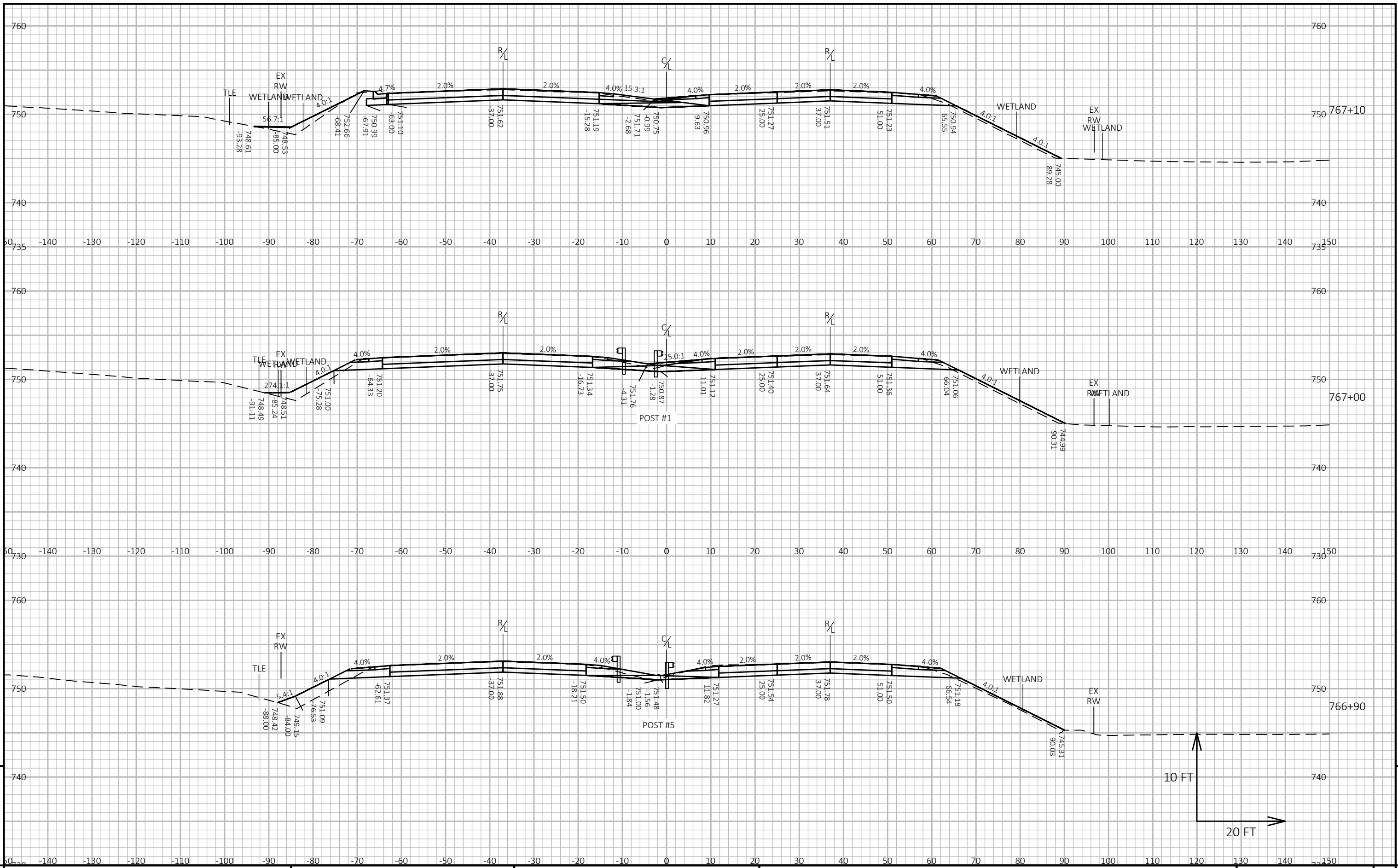


PROJECT NO: 1310-14-70      HWY: STH 50      COUNTY: KENOSHA      CROSS SECTIONS: STH 50      SHEET      E



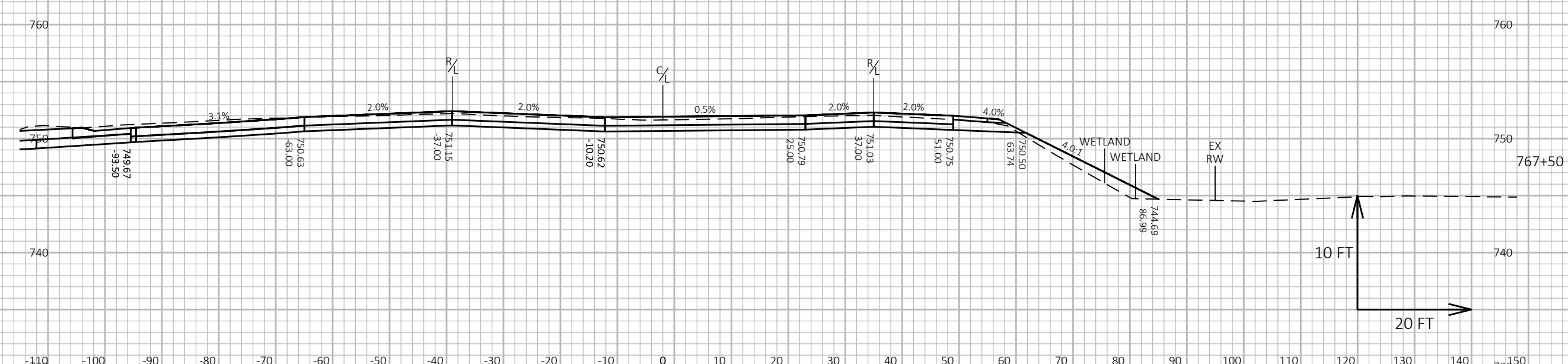
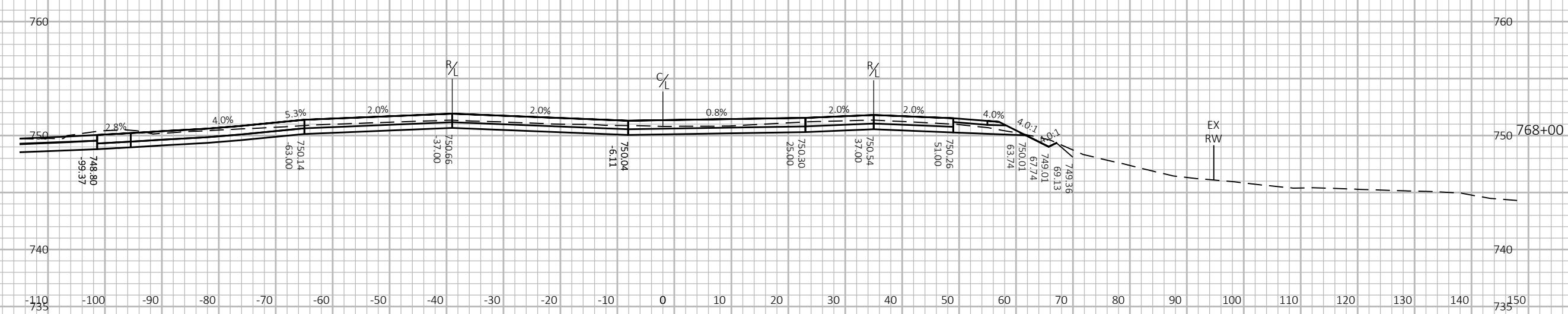
PROJECT NO: 1310-14-70      HWY: STH 50      COUNTY: KENOSHA      CROSS SECTIONS: STH 50      SHEET 9

FILE NAME : X:\ML\2020\2020068\DESIGN\TRANSPORTATION\SHEETSPLAN\090201\_XS.DWG      PLOT DATE : 1/31/2023 1:28 PM      PLOT BY : STRASSER, JEFFREY      PLOT NAME :      PLOT SCALE : 1 IN:20 FT HORZ. / 1 IN:10 FT VERT.      WISDOT/CADD SHEET 49



PROJECT NO: 1310-14-70      HWY: STH 50      COUNTY: KENOSHA      CROSS SECTIONS: STH 50      SHEET      E



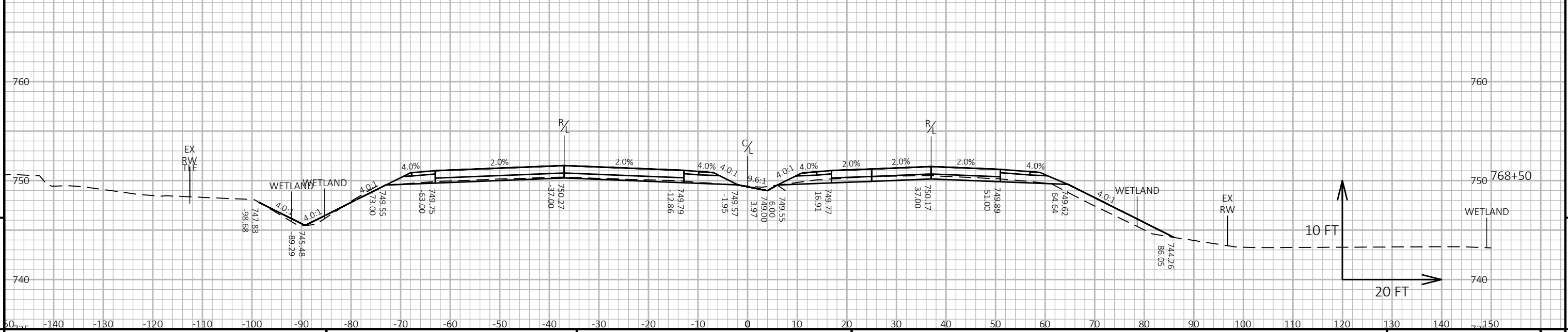
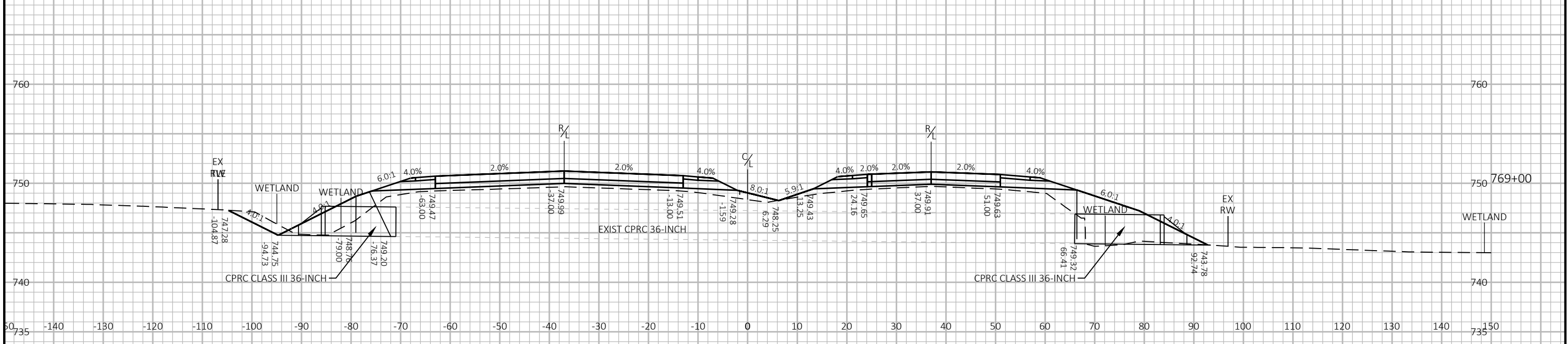
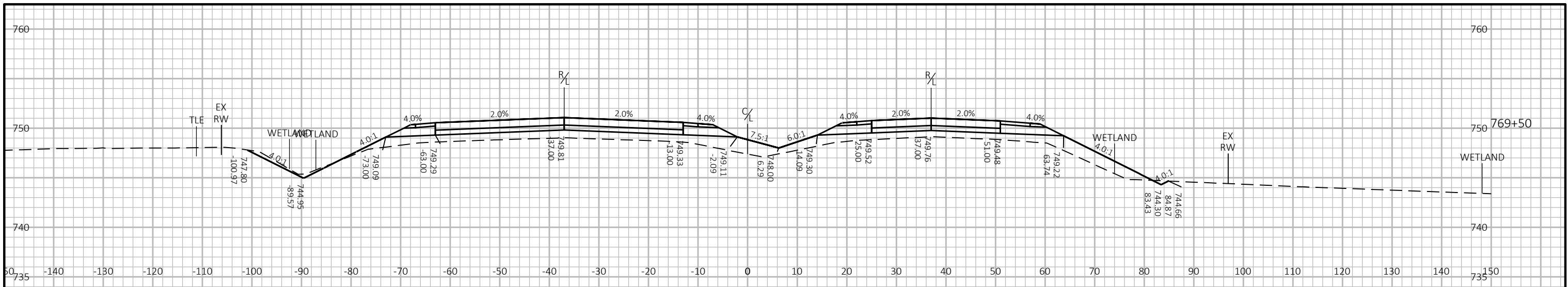


PROJECT NO: 1310-14-70      HWY: STH 50      COUNTY: KENOSHA      CROSS SECTIONS: STH 50      SHEET      E

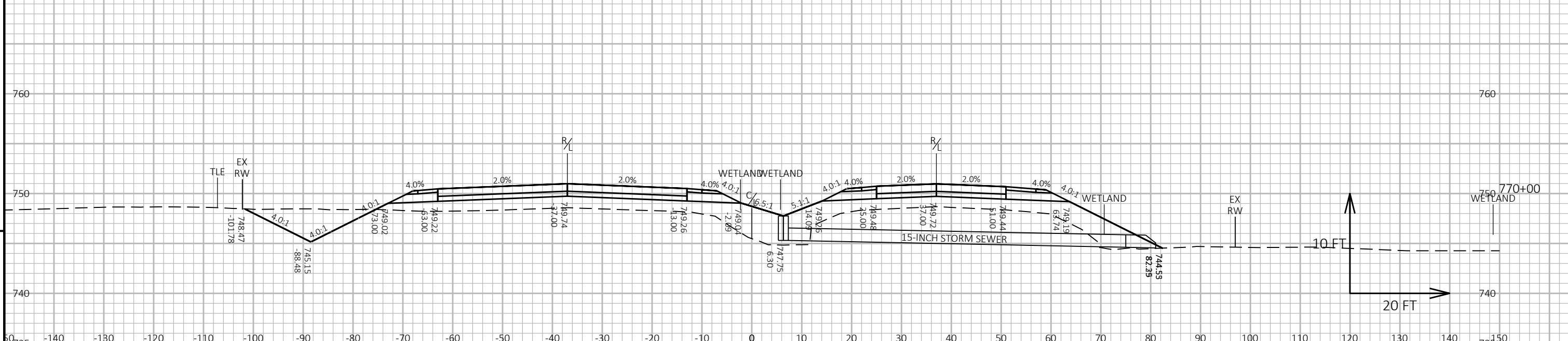
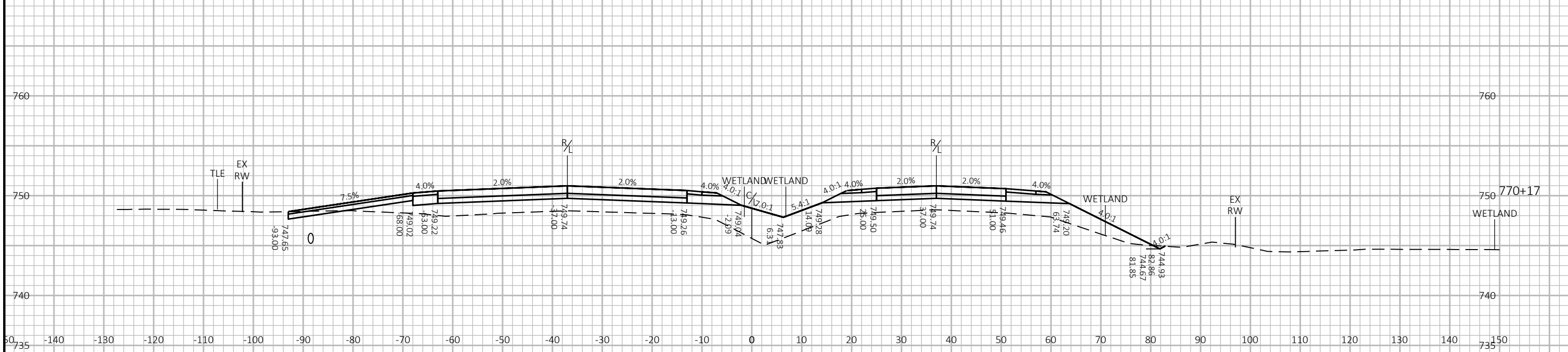
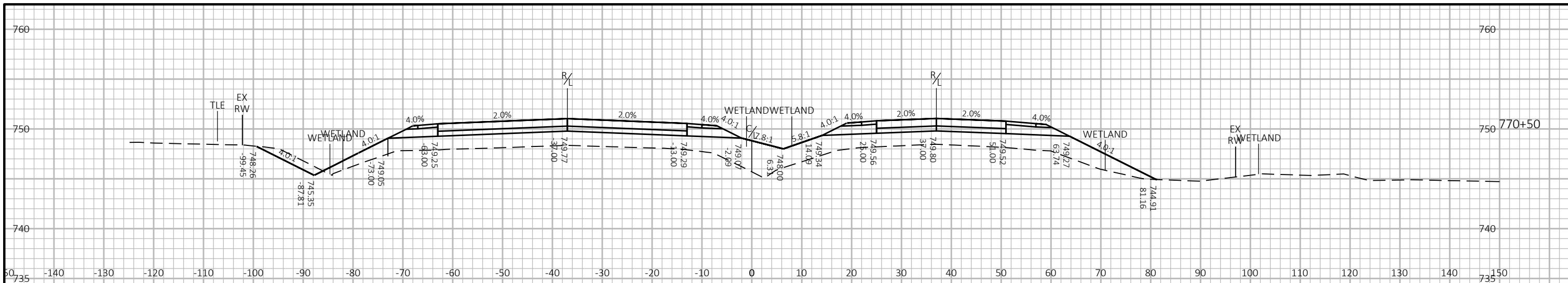
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9

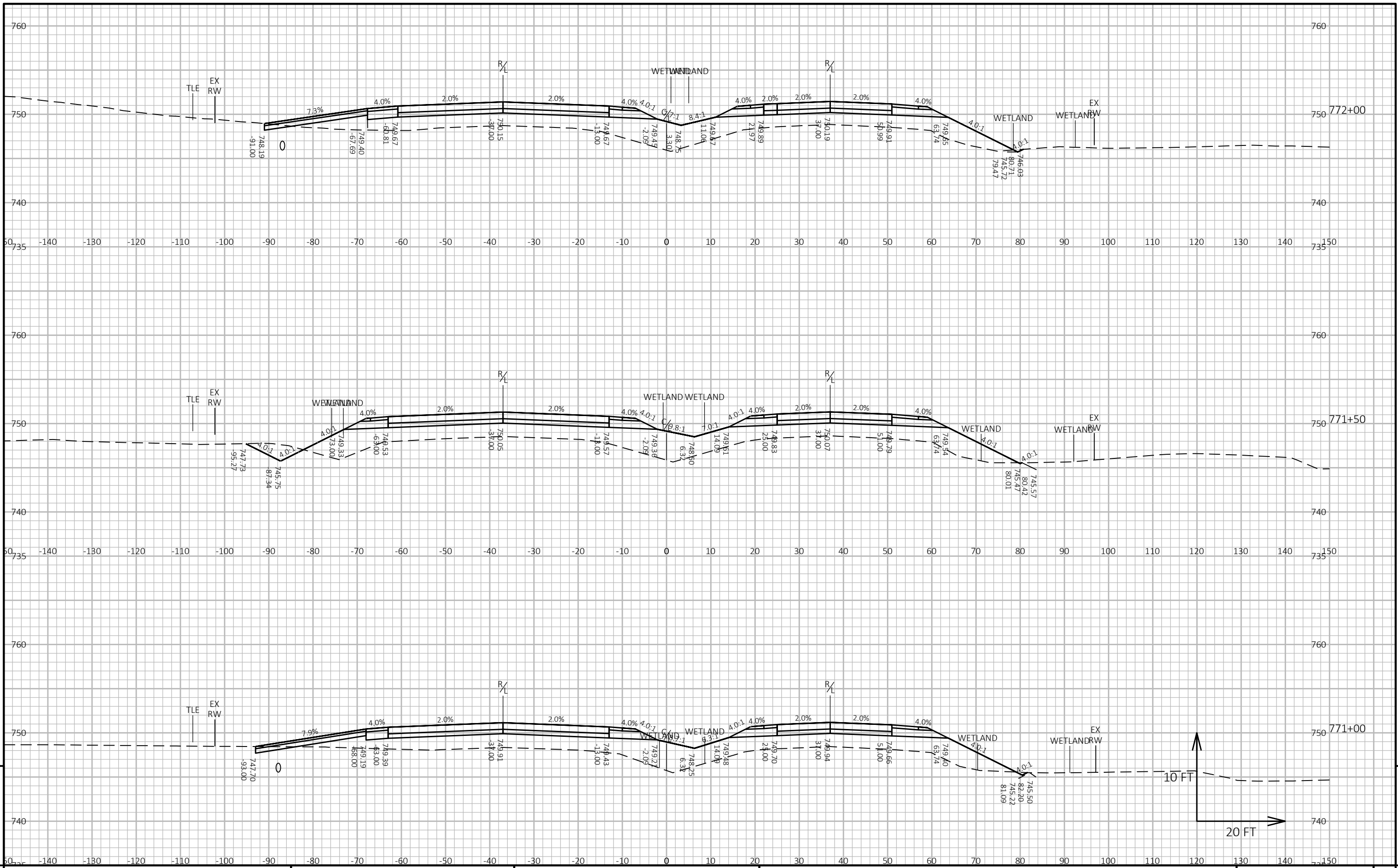
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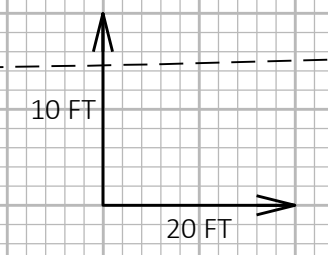
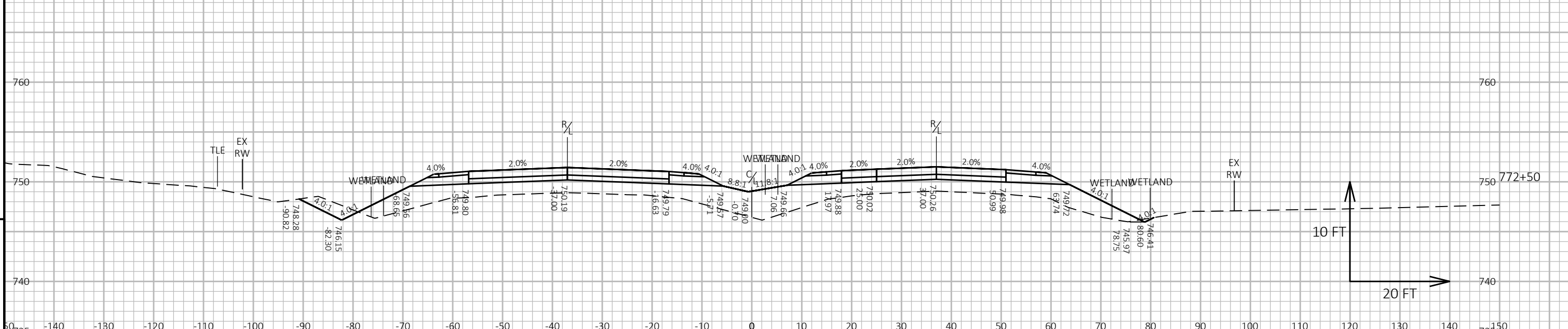
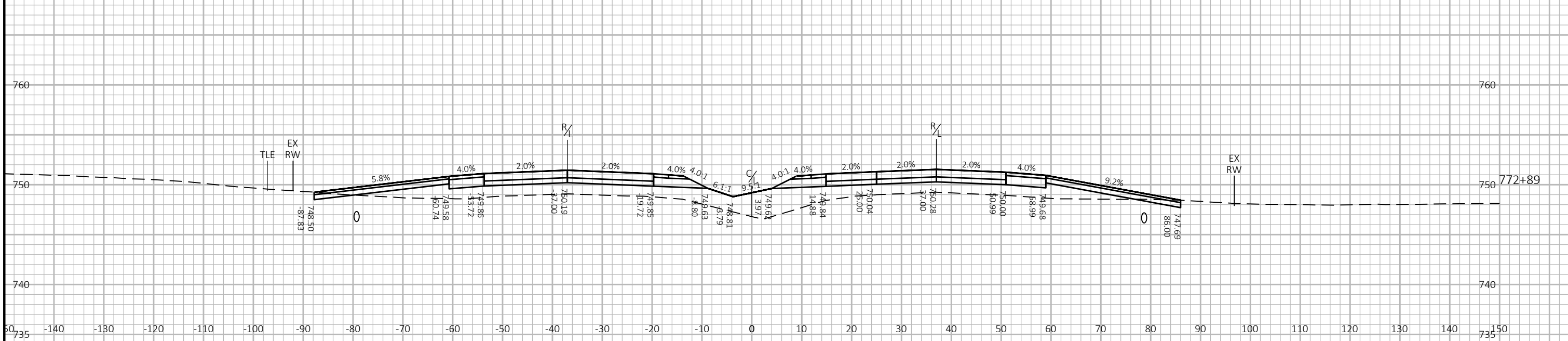
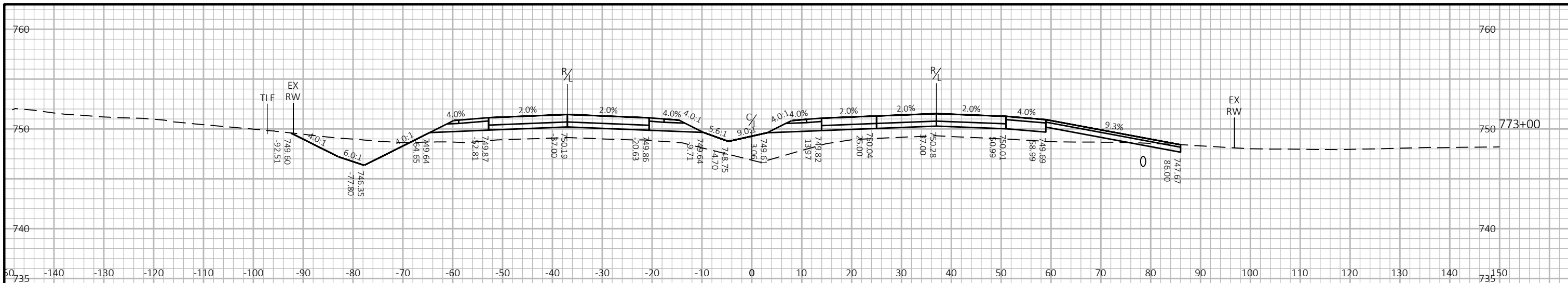
PROJECT NO: 1310-14-70      HWY: STH 50      COUNTY: KENOSHA      CROSS SECTIONS: STH 50      SHEET      E



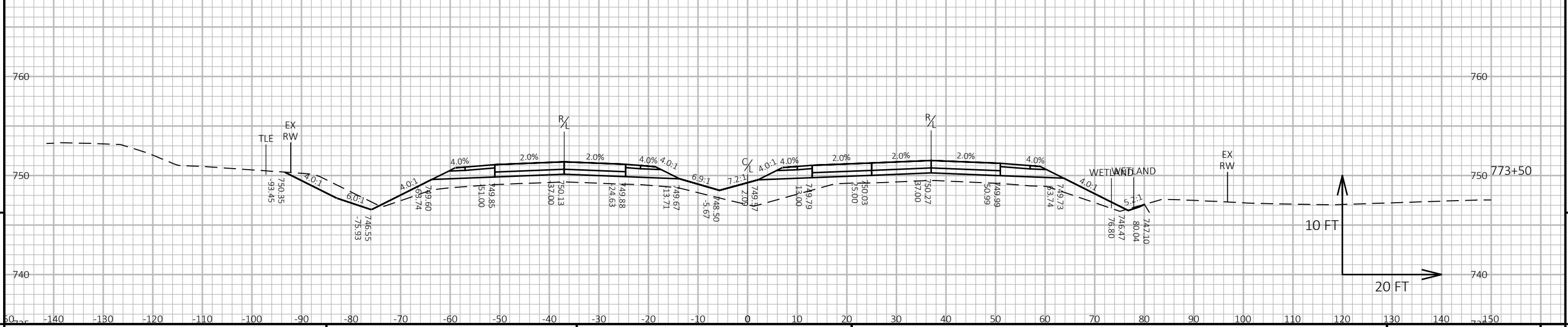
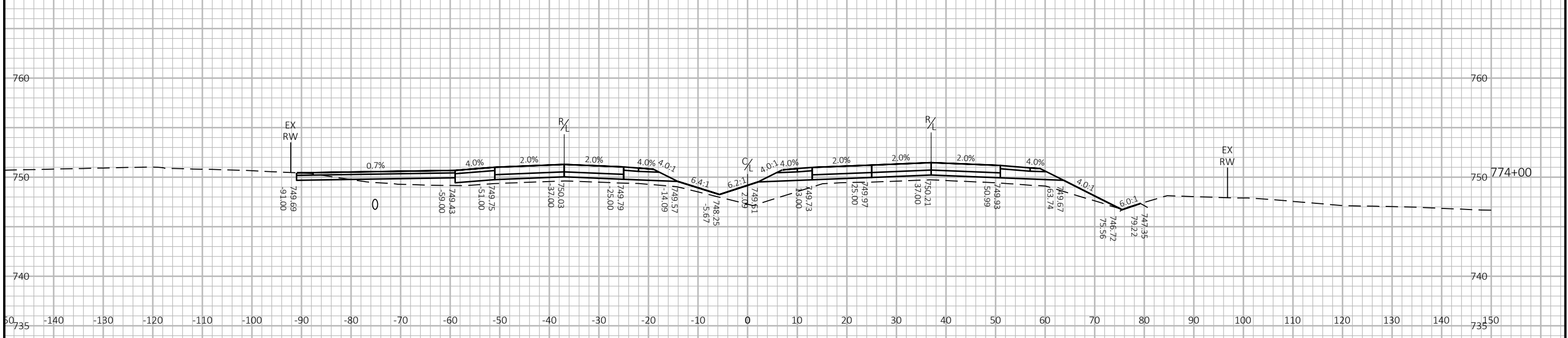
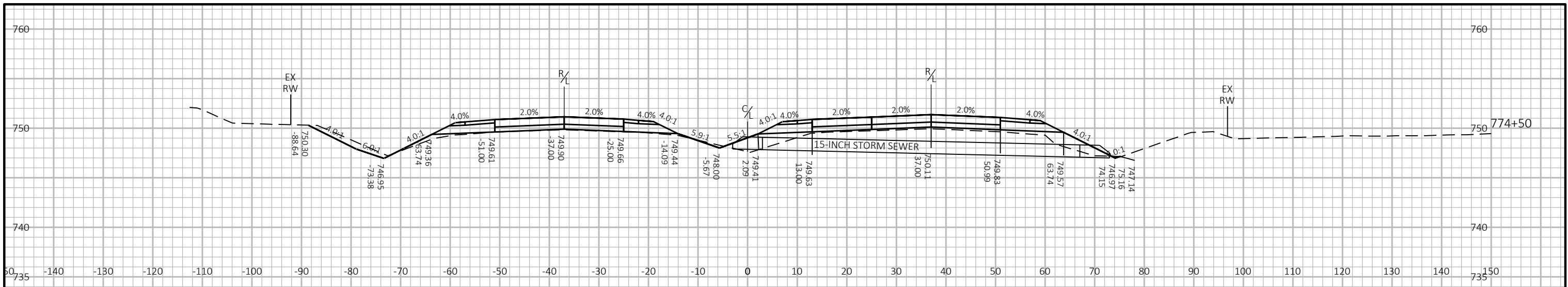
PROJECT NO: 1310-14-70      HWY: STH 50      COUNTY: KENOSHA      CROSS SECTIONS: STH 50      SHEET 9



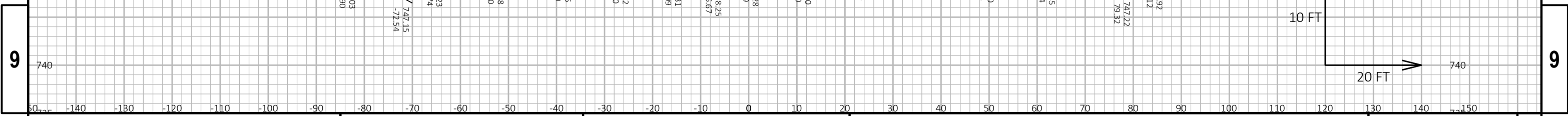
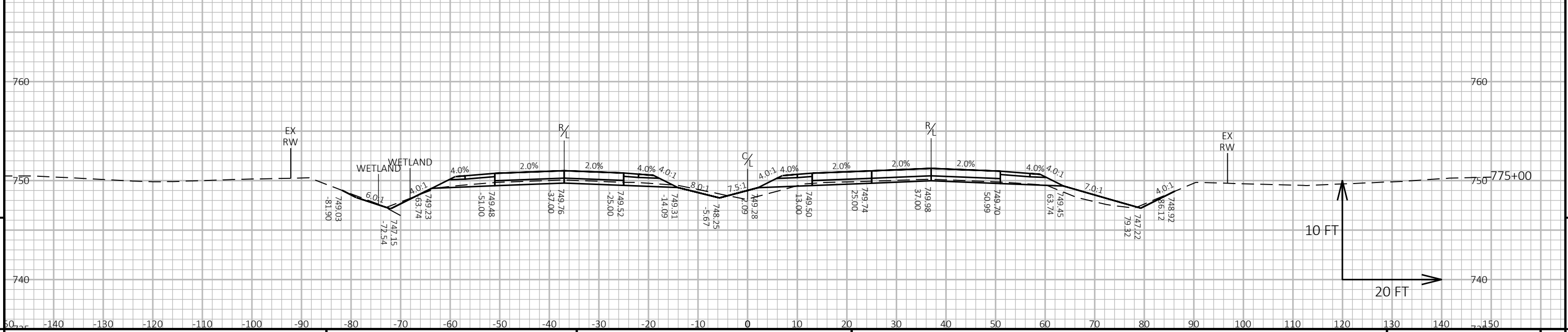
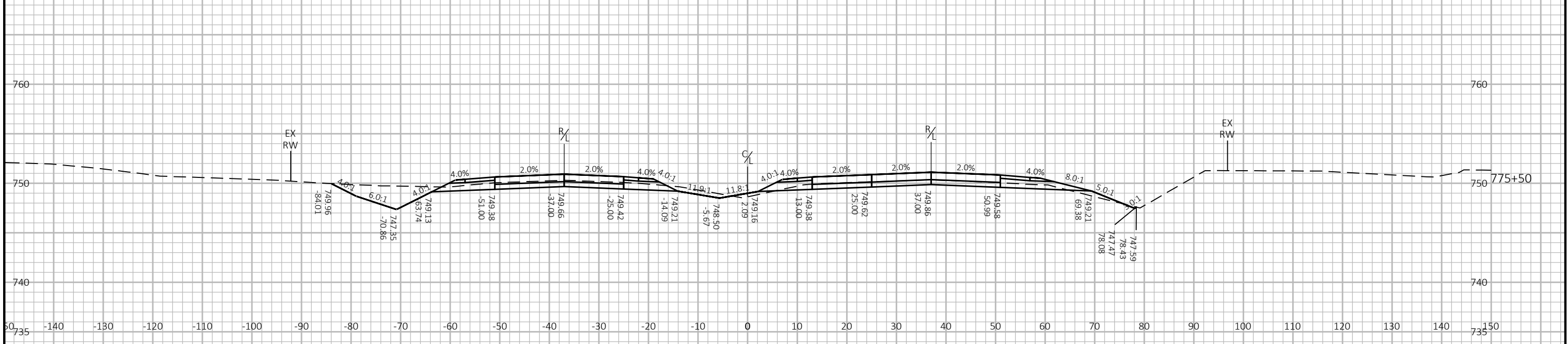
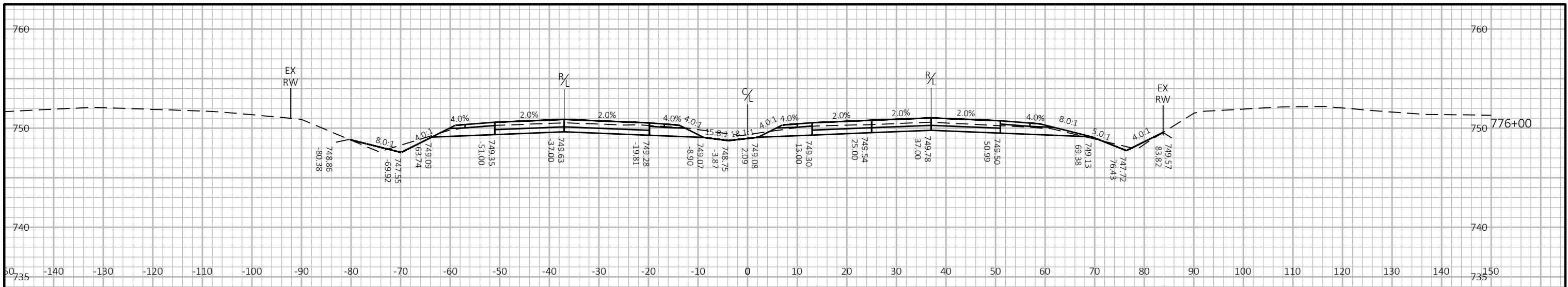
PROJECT NO: 1310-14-70      HWY: STH 50      COUNTY: KENOSHA      CROSS SECTIONS: STH 50      SHEET      E



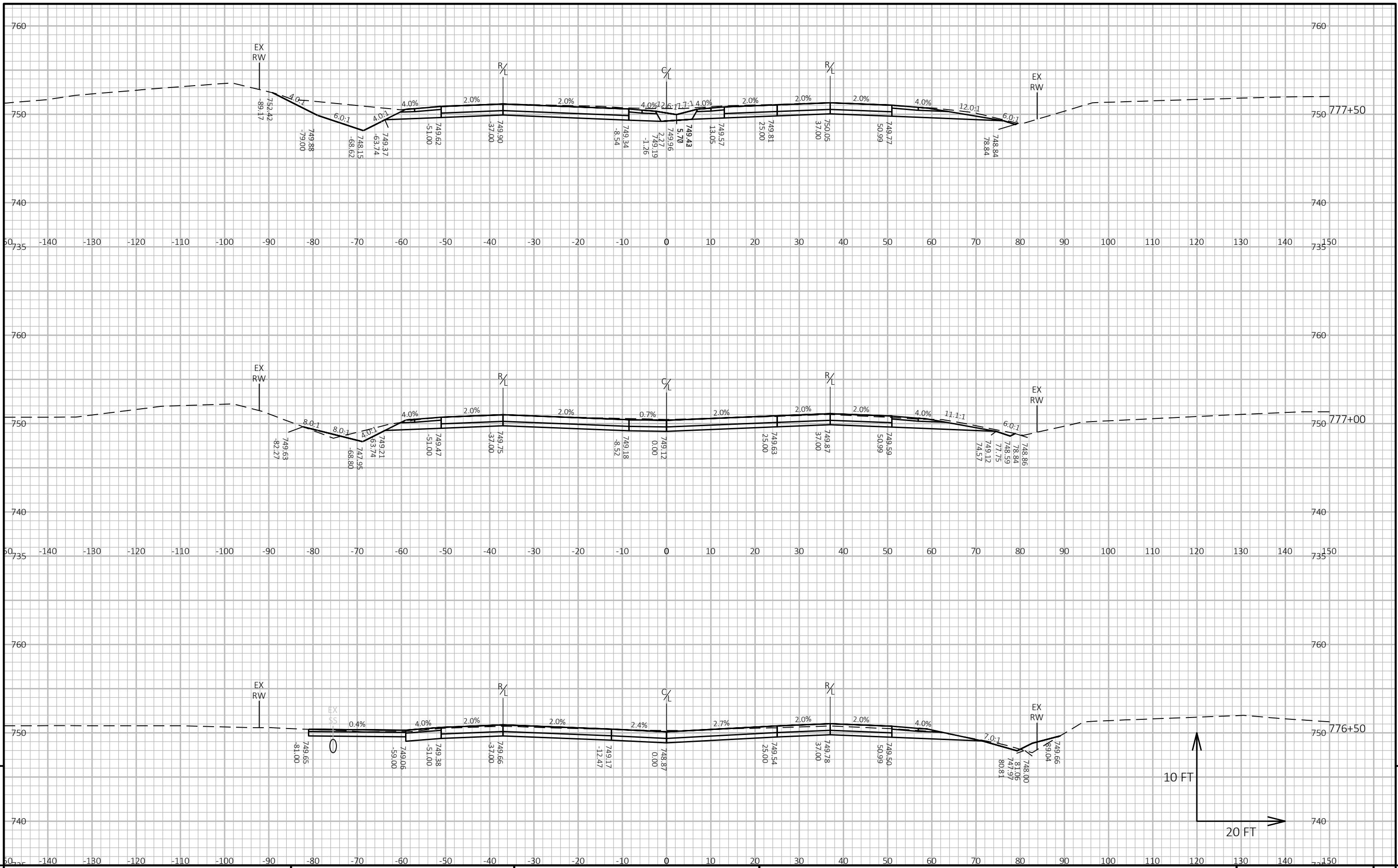
PROJECT NO: 1310-14-70      HWY: STH 50      COUNTY: KENOSHA      CROSS SECTIONS: STH 50      SHEET      E



PROJECT NO: 1310-14-70      HWY: STH 50      COUNTY: KENOSHA      CROSS SECTIONS: STH 50      SHEET      9



PROJECT NO: 1310-14-70      HWY: STH 50      COUNTY: KENOSHA      CROSS SECTIONS: STH 50      SHEET 9



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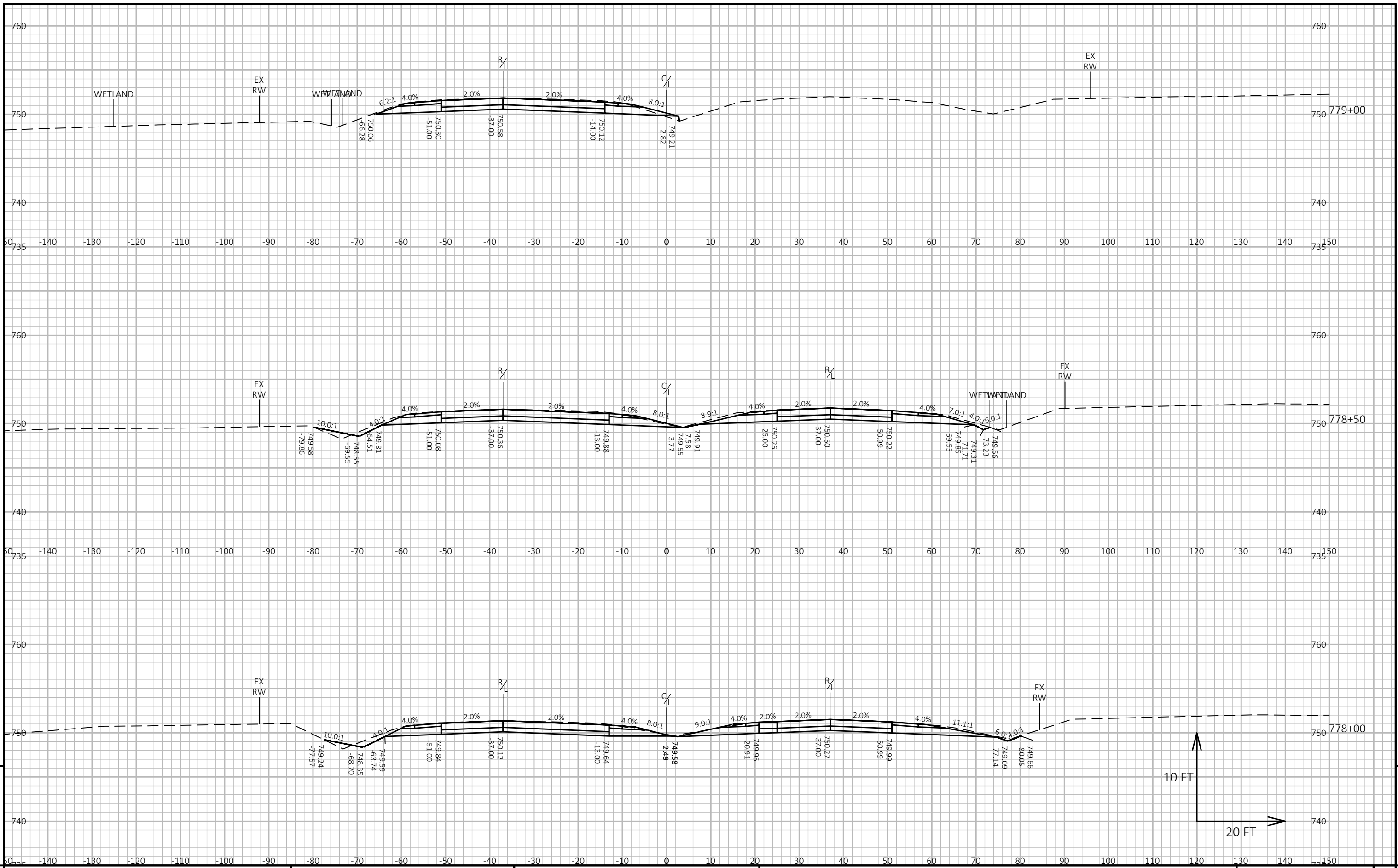
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PROJECT NO: 1310-14-70      HWY: STH 50      COUNTY: KENOSHA      CROSS SECTIONS: STH 50      SHEET      E

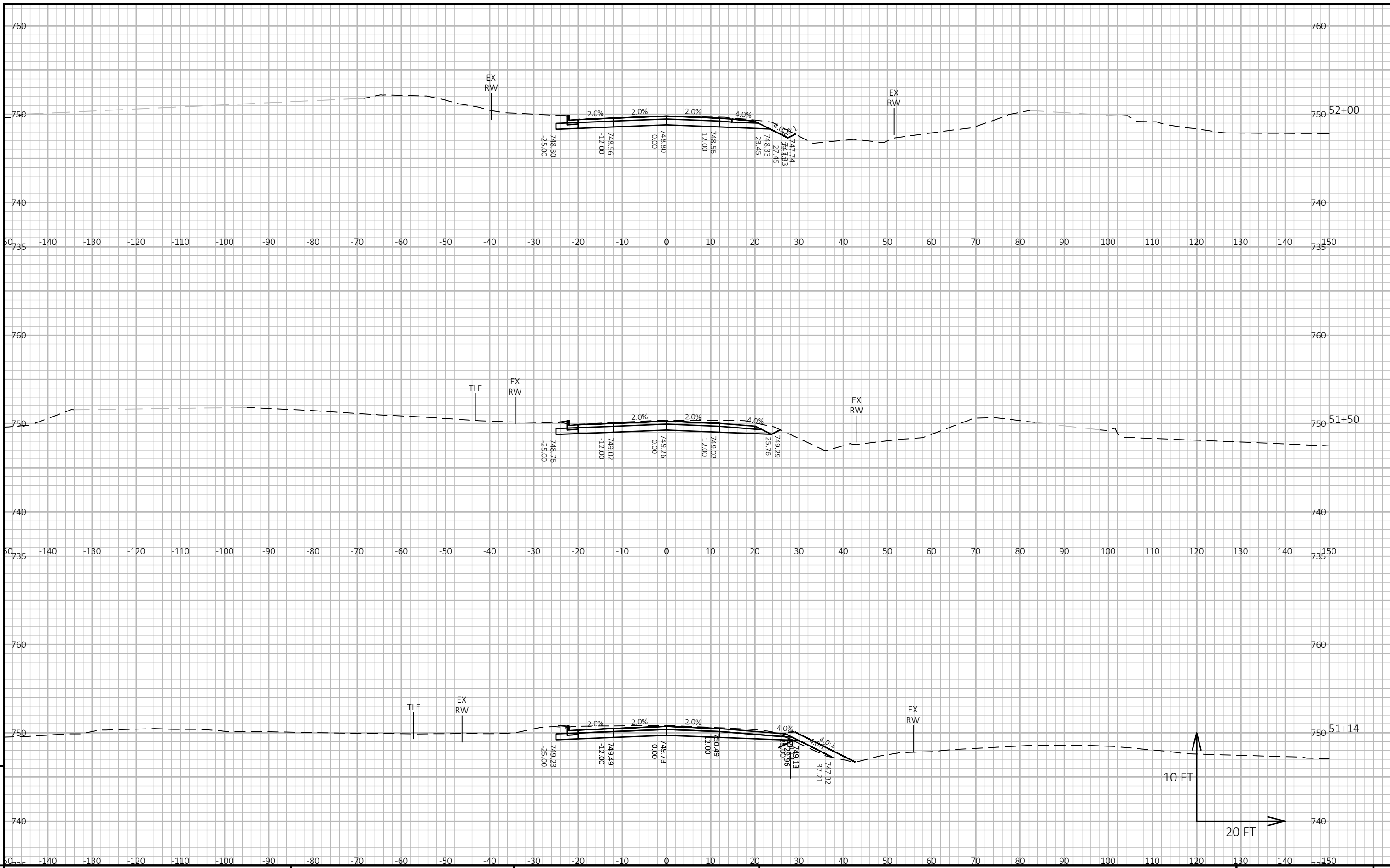
FILE NAME : X:\ML\2020\2020068\DESIGN\TRANSPORTATION\SHEETSPLAN\090201\_XS.DWG      PLOT DATE : 1/31/2023 1:29 PM      PLOT BY : STRASSER, JEFFREY      PLOT NAME :      PLOT SCALE : 1 IN:20 FT HORZ. / 1 IN:10 FT VERT.      WISDOT/CADD SHEET 49

LAYOUT NAME - 090211\_xs





PROJECT NO: 1310-14-70      HWY: STH 50      COUNTY: KENOSHA      CROSS SECTIONS: STH 50      SHEET      E



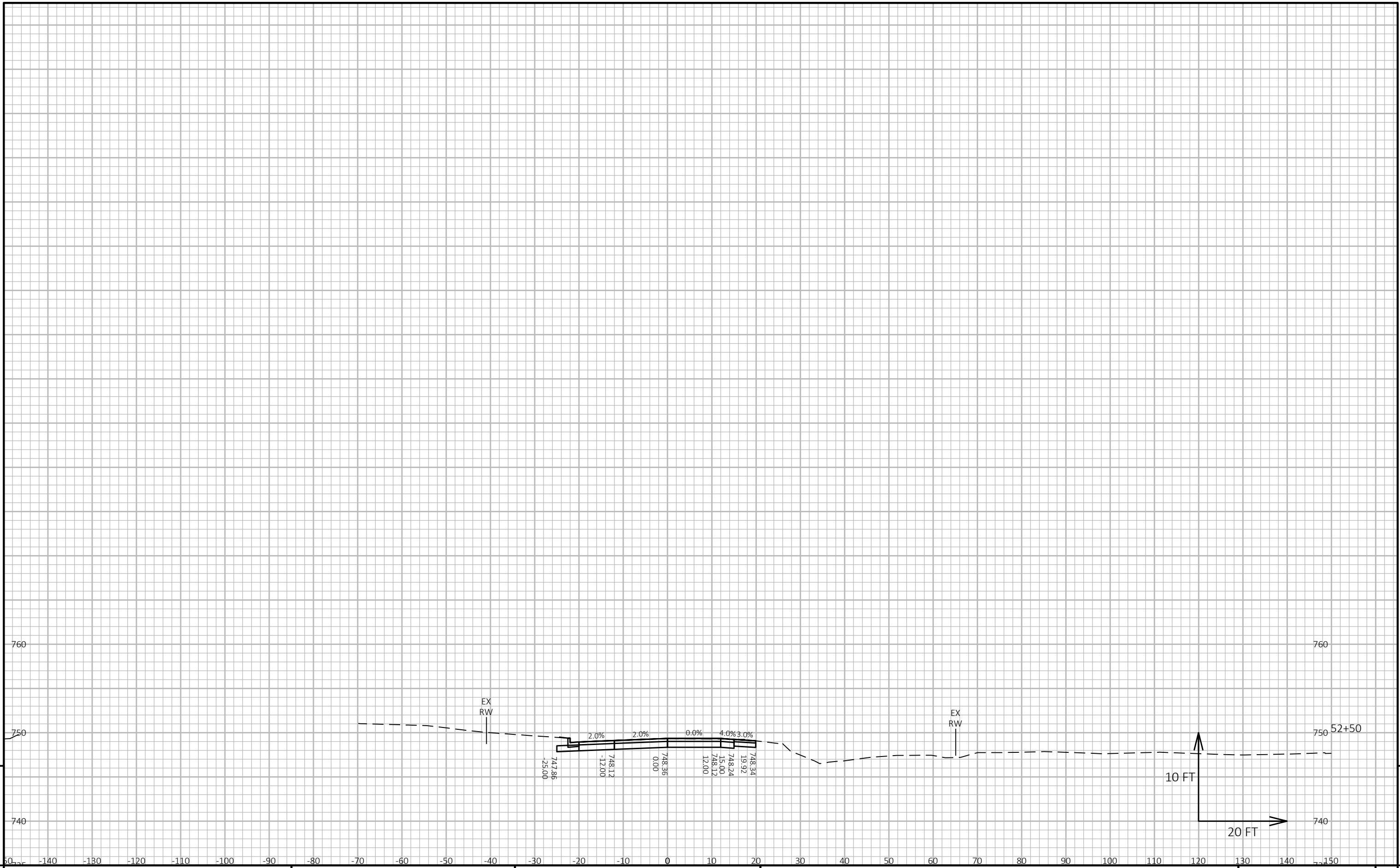
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PROJECT NO: 1310-14-70      HWY: STH 50      COUNTY: KENOSHA      CROSS SECTIONS: CTH W      SHEET      E

FILE NAME : X:\ML\2020\2020068\DESIGN\TRANSPORTATION\SHEETSPLAN\090201\_XS.DWG      PLOT DATE : 1/31/2023 1:29 PM      PLOT BY : STRASSER, JEFFREY      PLOT NAME :      PLOT SCALE : 1 IN:20 FT HORZ. / 1 IN:10 FT VERT.      WISDOT/CADD SHEET 49

LAYOUT NAME - 09028\_xs



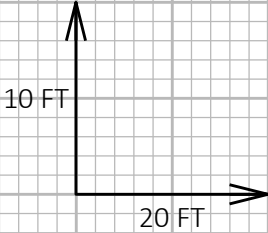
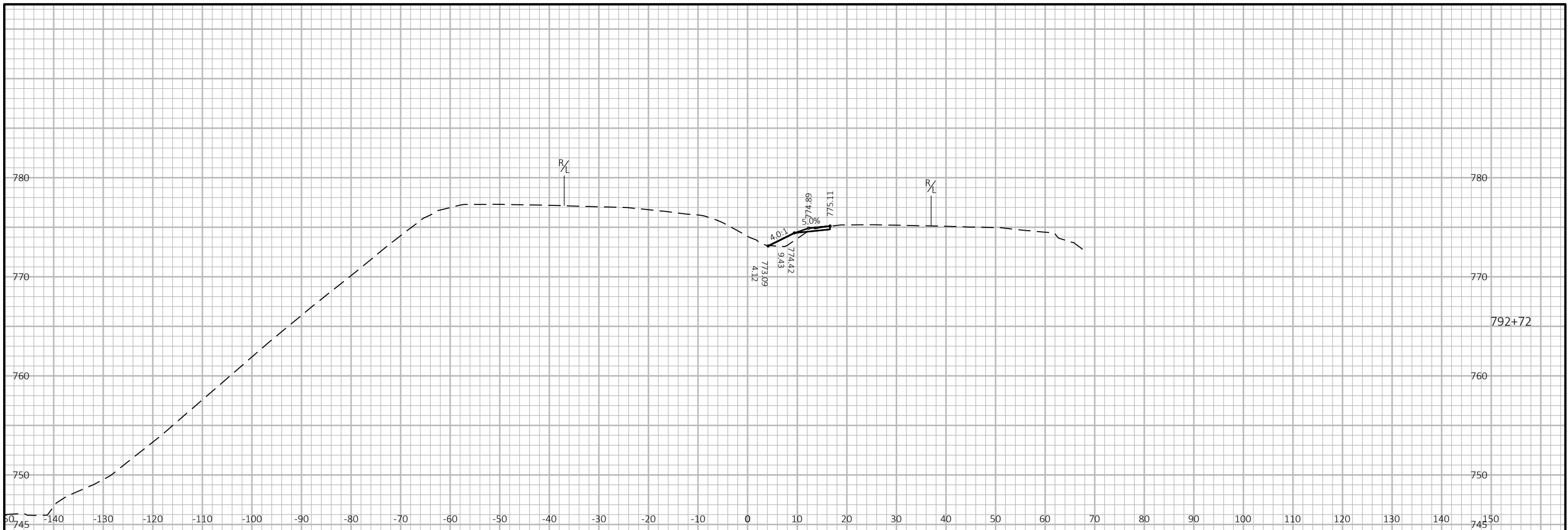
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PROJECT NO: 1310-14-70	HWY: STH 50	COUNTY: KENOSHA	CROSS SECTIONS: CTH W	SHEET	E
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FILE NAME : X:\ML\2020\2020068\DESIGN\TRANSPORTATION\SHEETSPLAN\090201\_XS.DWG PLOT DATE : 1/31/2023 1:30 PM PLOT BY : STRASSER, JEFFREY PLOT NAME : PLOT SCALE : 1 IN:20 FT HORZ. / 1 IN:10 FT VERT. WISDOT/CADD SHEET 49

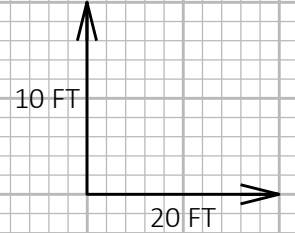
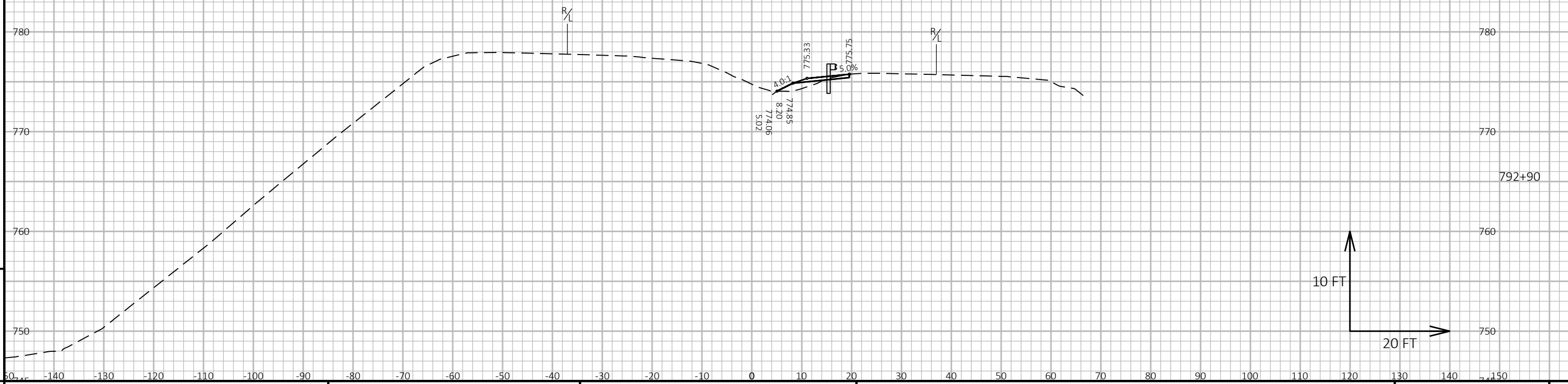
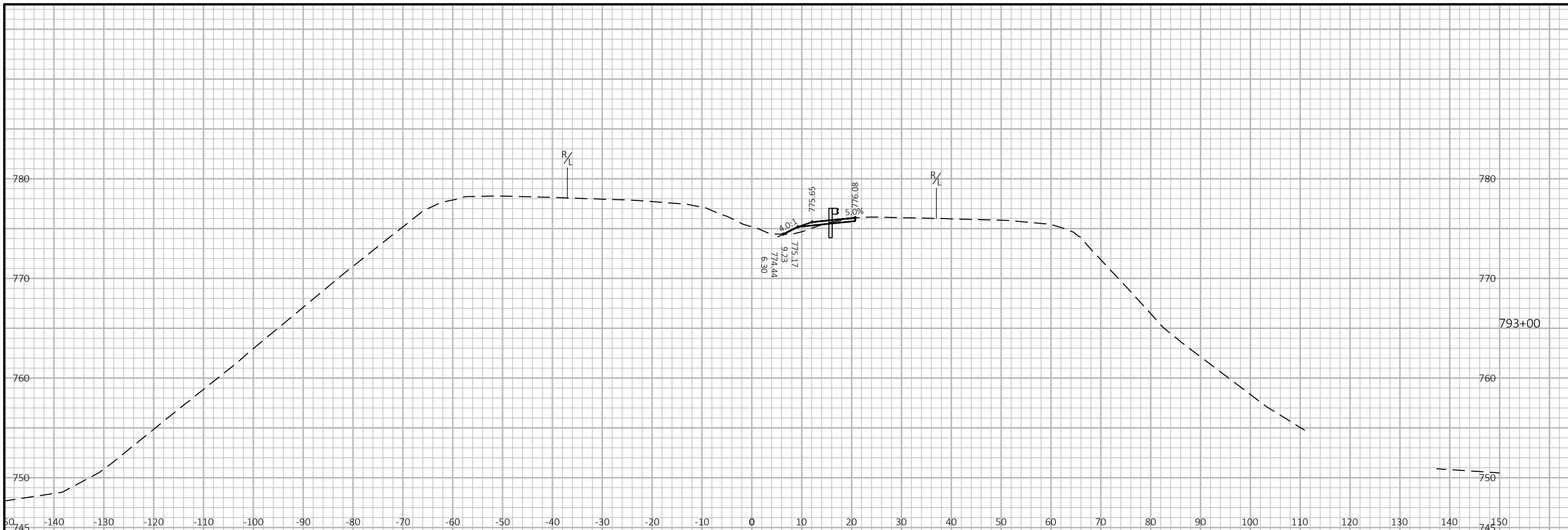
LAYOUT NAME - 09029\_xs



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PROJECT NO: 1310-14-70	HWY: STH 50	COUNTY: KENOSHA	CROSS SECTIONS: GUARDRAIL AND EAST CROSSOVER REMOVAL	SHEET	E
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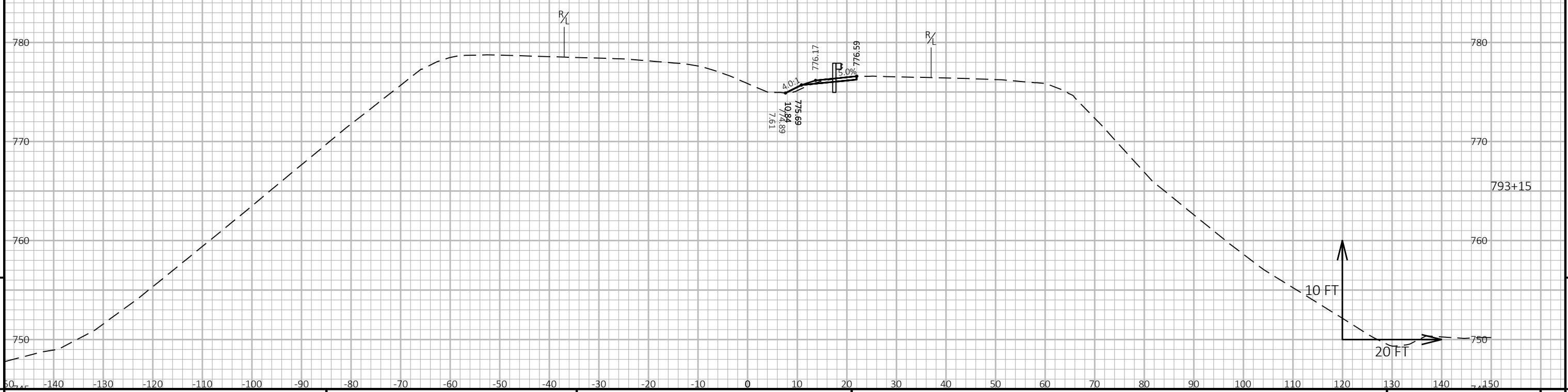
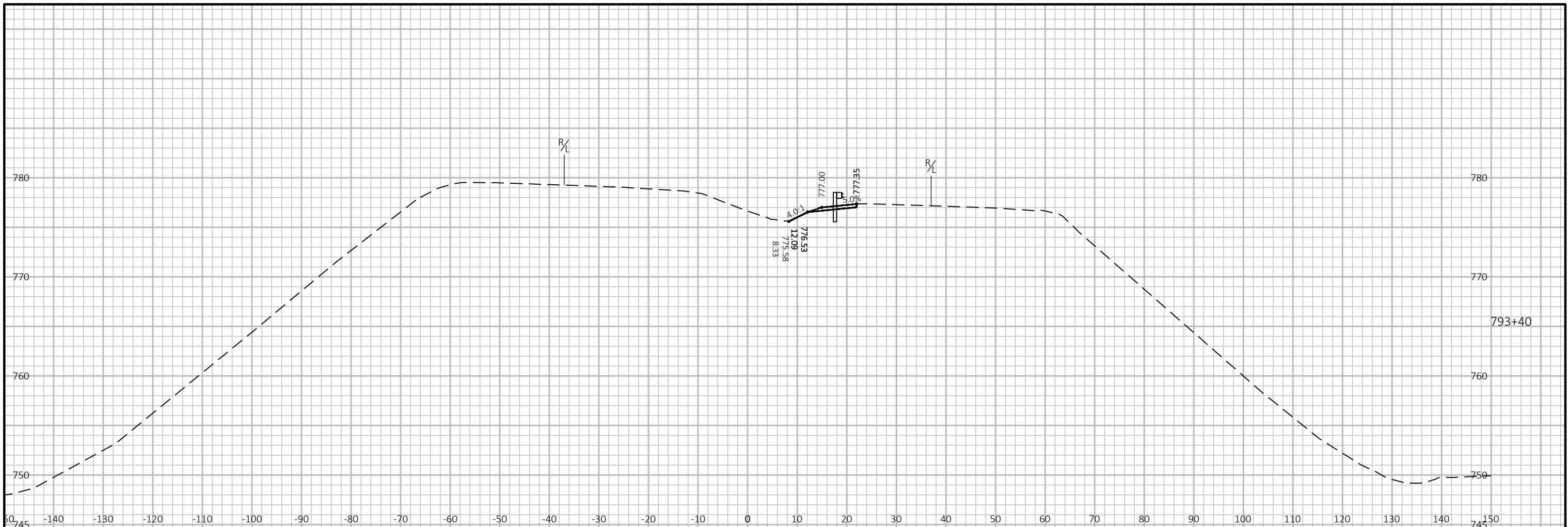
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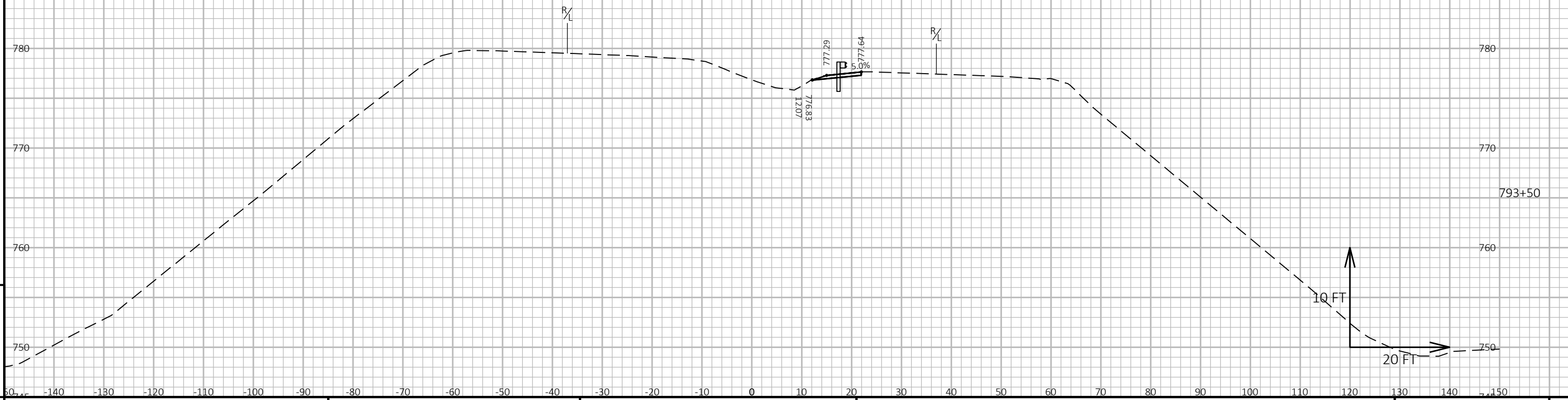
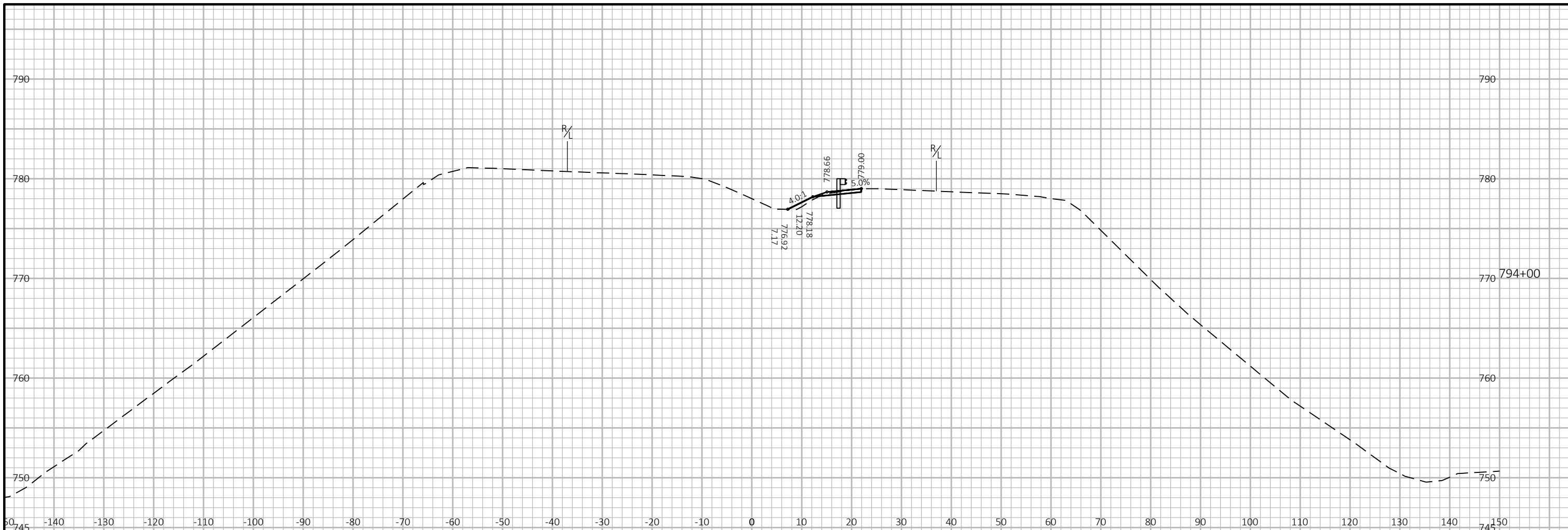
PROJECT NO: 1310-14-70	HWY: STH 50	COUNTY: KENOSHA	CROSS SECTIONS: GUARDRAIL AND EAST CROSSOVER REMOVAL	SHEET	E
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FILE NAME : X:\ML\2020\2020068\DESIGN\TRANSPORTATION\SHEETSPLAN\090203\_BEAMGUARD\_XS.DWG PLOT DATE : 1/31/2023 1:30 PM PLOT BY : STRASSER, JEFFREY PLOT NAME : PLOT SCALE : 1 IN:20 FT HORZ. / 1 IN:10 FT VERT. WISDOT/CADD SHEET 49

LAYOUT NAME - 02



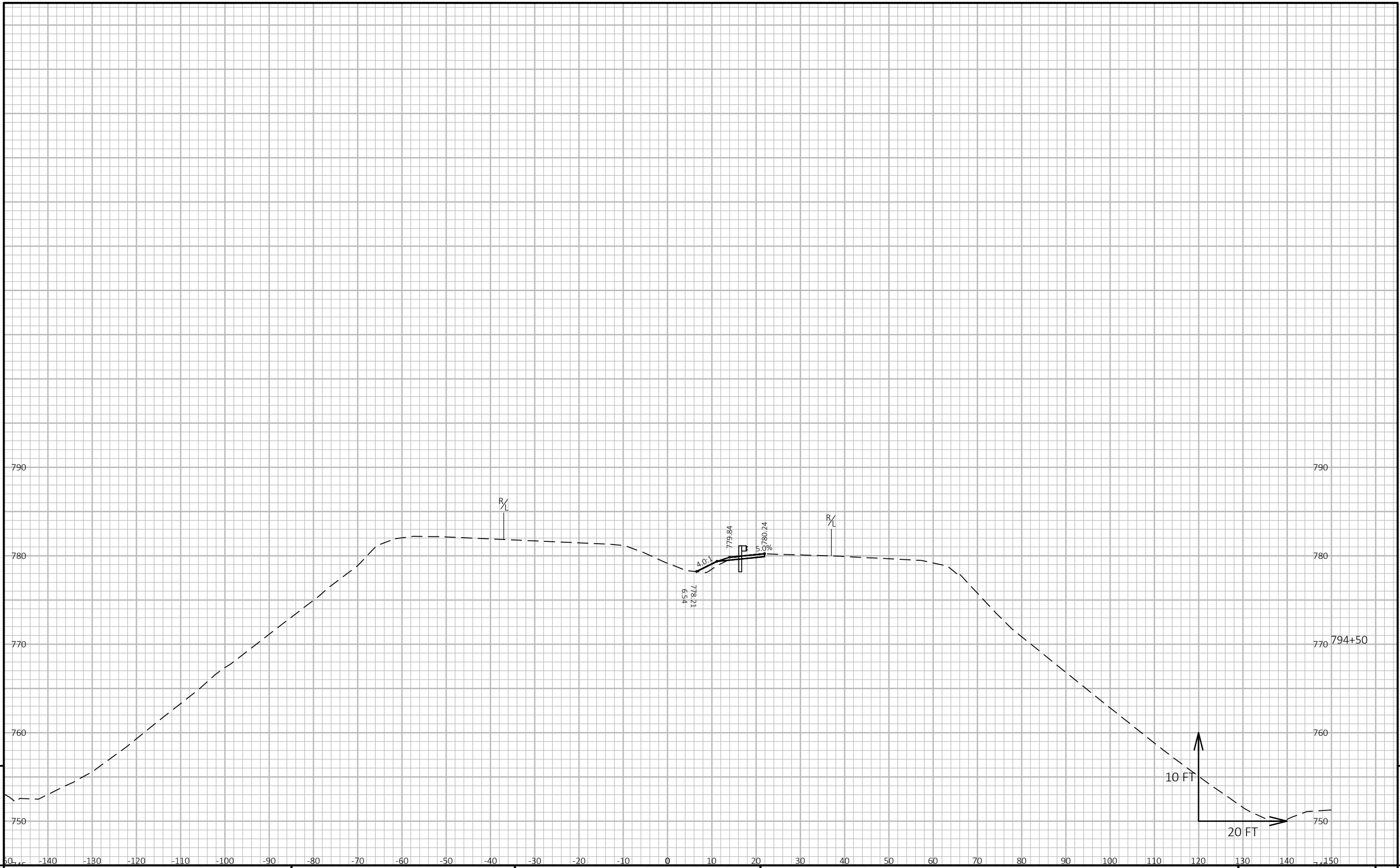
PROJECT NO: 1310-14-70	HWY: STH 50	COUNTY: KENOSHA	CROSS SECTIONS: GUARDRAIL AND EAST CROSSOVER REMOVAL	SHEET 9
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PROJECT NO: 1310-14-70	HWY: STH 50	COUNTY: KENOSHA	CROSS SECTIONS: GUARDRAIL AND EAST CROSSOVER REMOVAL
SHEET			<b>E</b>

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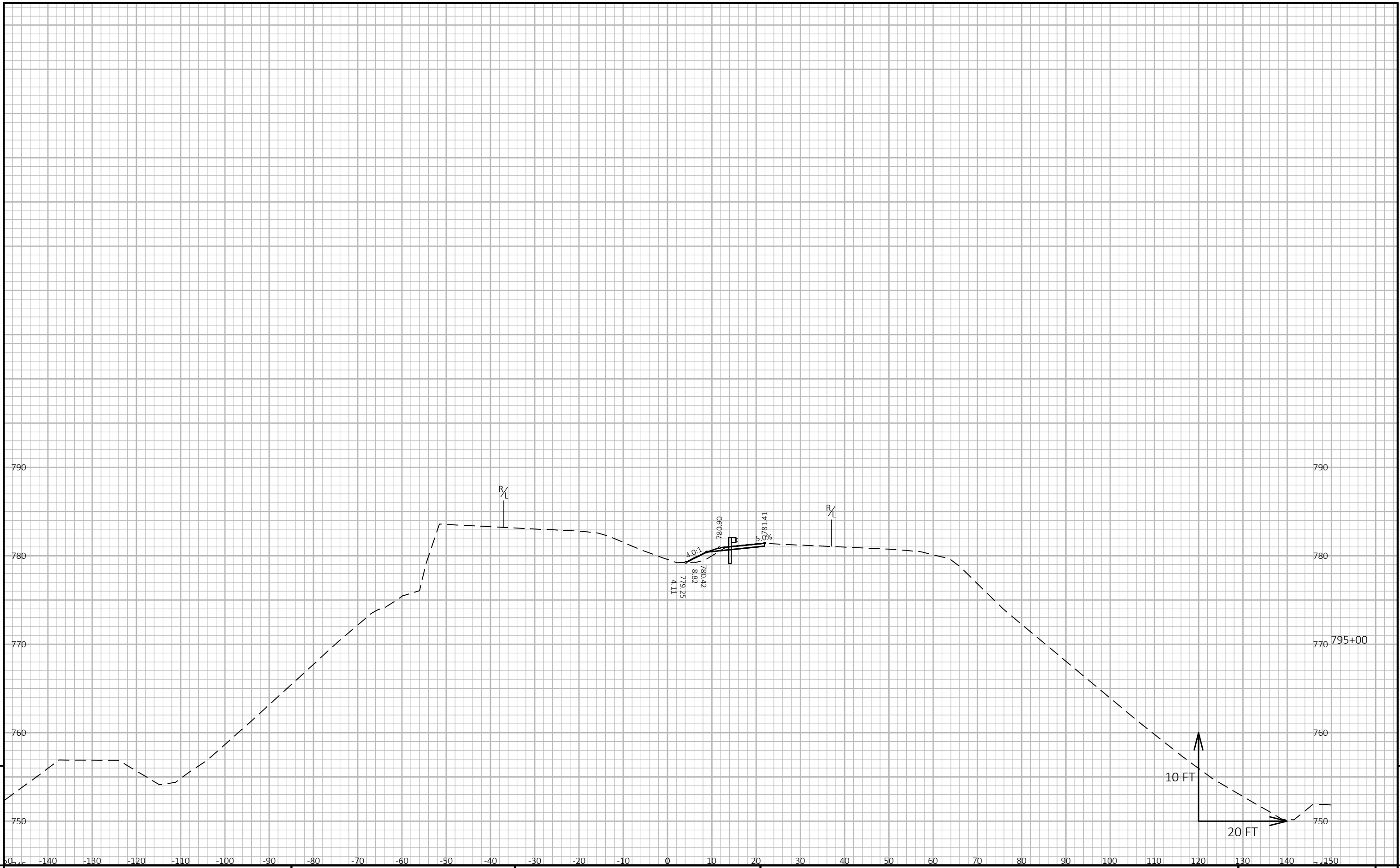
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PROJECT NO: 1310-14-70	HWY: STH 50	COUNTY: KENOSHA	CROSS SECTIONS: GUARDRAIL AND EAST CROSSOVER REMOVAL	SHEET	E
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FILE NAME : X:\ML\2020\2020068\DESIGN\TRANSPORTATION\SHEETSPLAN\090203\_BEAMGUARD\_XS.DWG PLOT DATE : 1/31/2023 1:31 PM PLOT BY : STRASSER, JEFFREY PLOT NAME : PLOT SCALE : 1 IN:20 FT HORZ. / 1 IN:10 FT VERT. WISDOT/CADD SHEET 49

LAYOUT NAME - 05





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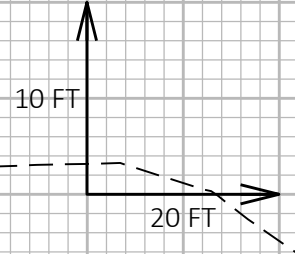
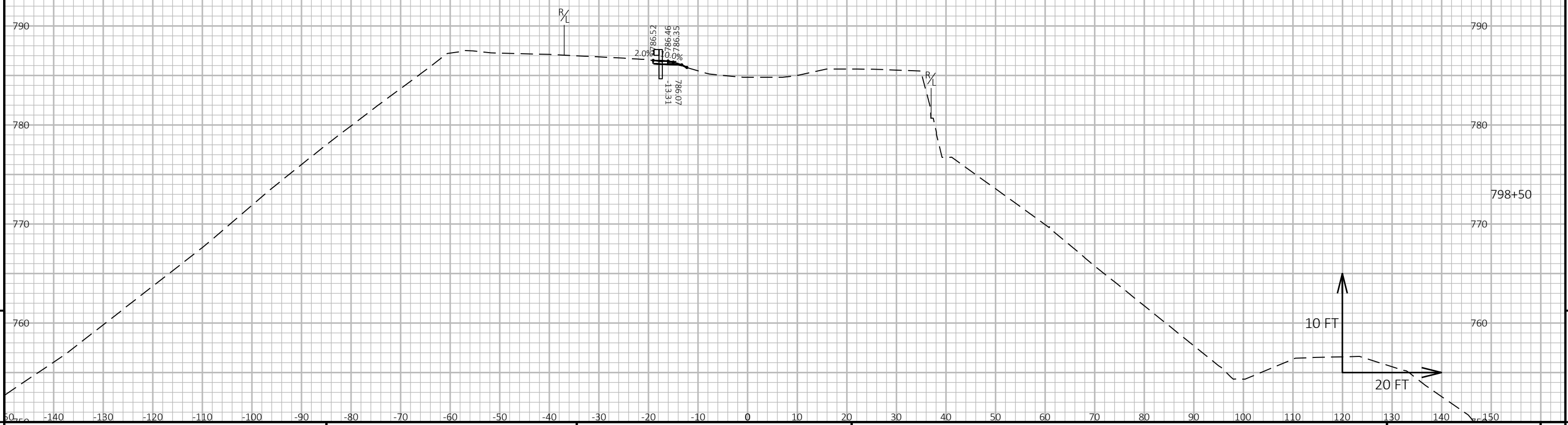
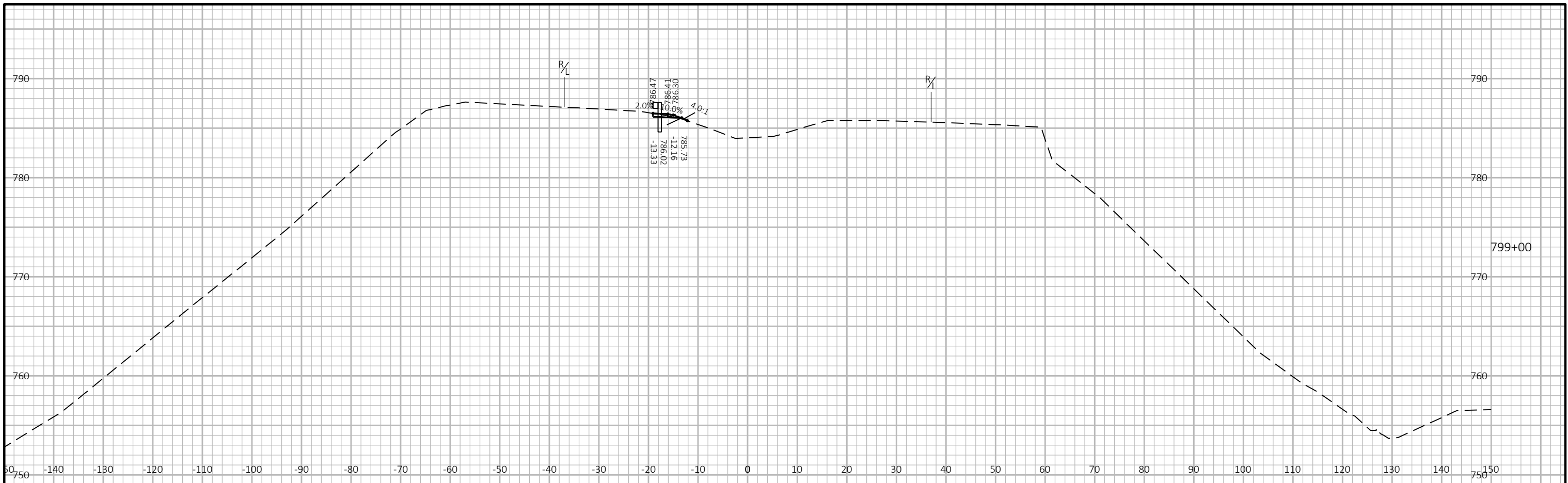
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PROJECT NO: 1310-14-70      HWY: STH 50      COUNTY: KENOSHA      CROSS SECTIONS: GUARDRAIL AND EAST CROSSOVER REMOVAL      SHEET      E

FILE NAME : X:\ML\2020\2020068\DESIGN\TRANSPORTATION\SHEETSPLAN\090203\_BEAMGUARD\_XS.DWG      PLOT DATE : 1/31/2023 1:31 PM      PLOT BY : STRASSER, JEFFREY      PLOT NAME :      PLOT SCALE : 1 IN:20 FT HORZ. / 1 IN:10 FT VERT.      WISDOT/CADD SHEET 49

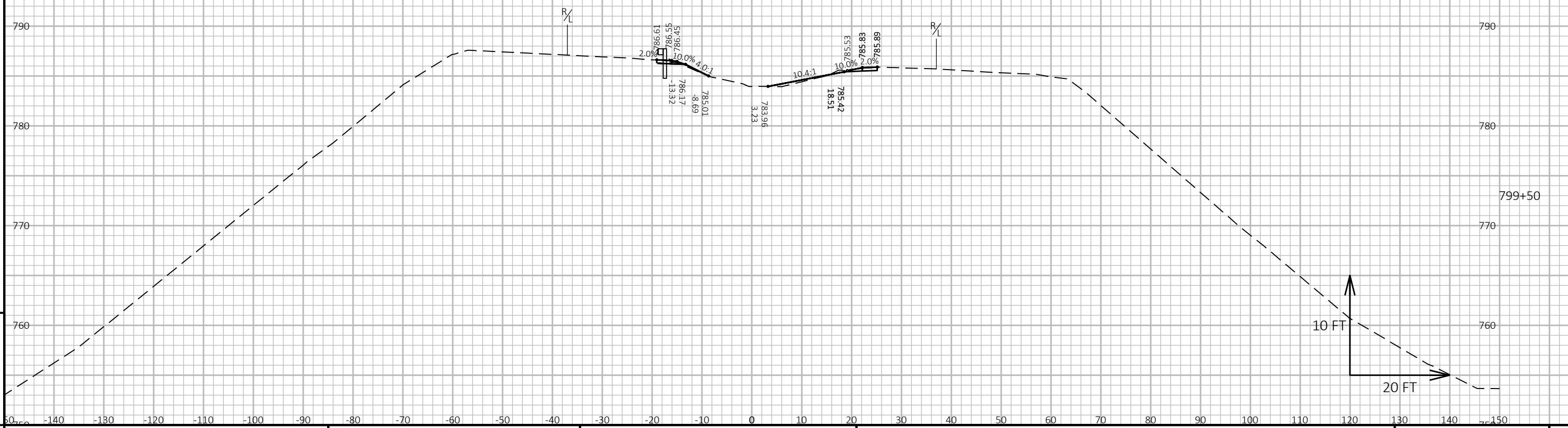
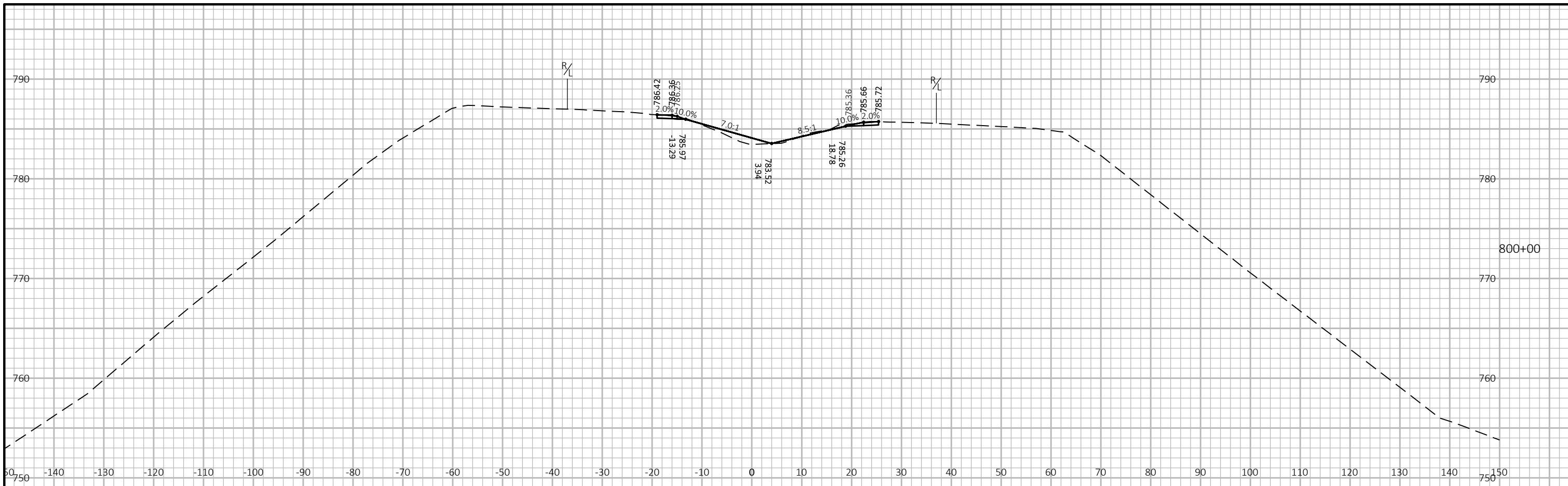
LAYOUT NAME - 06



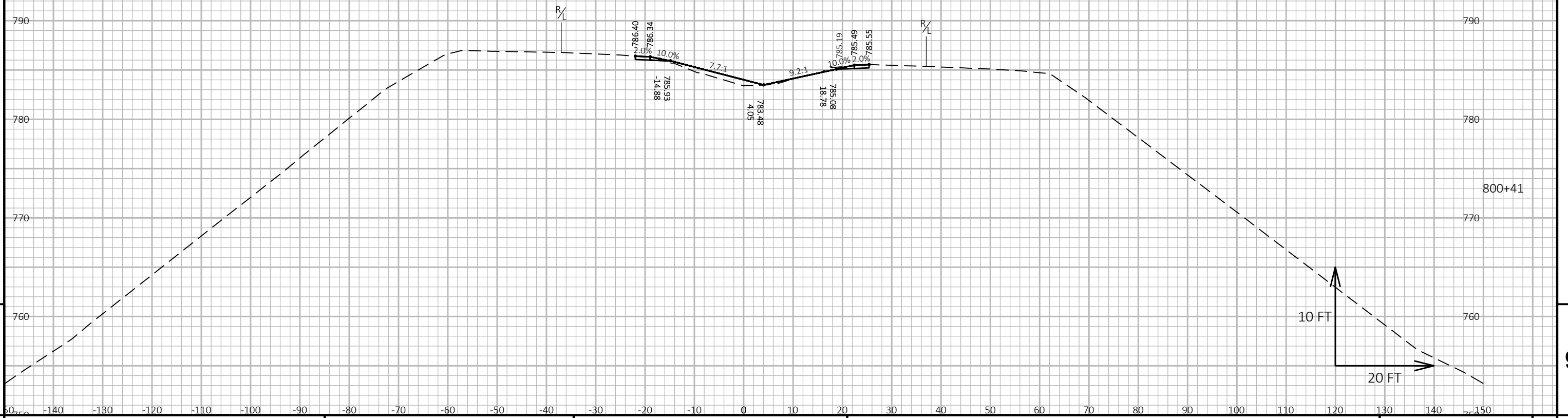
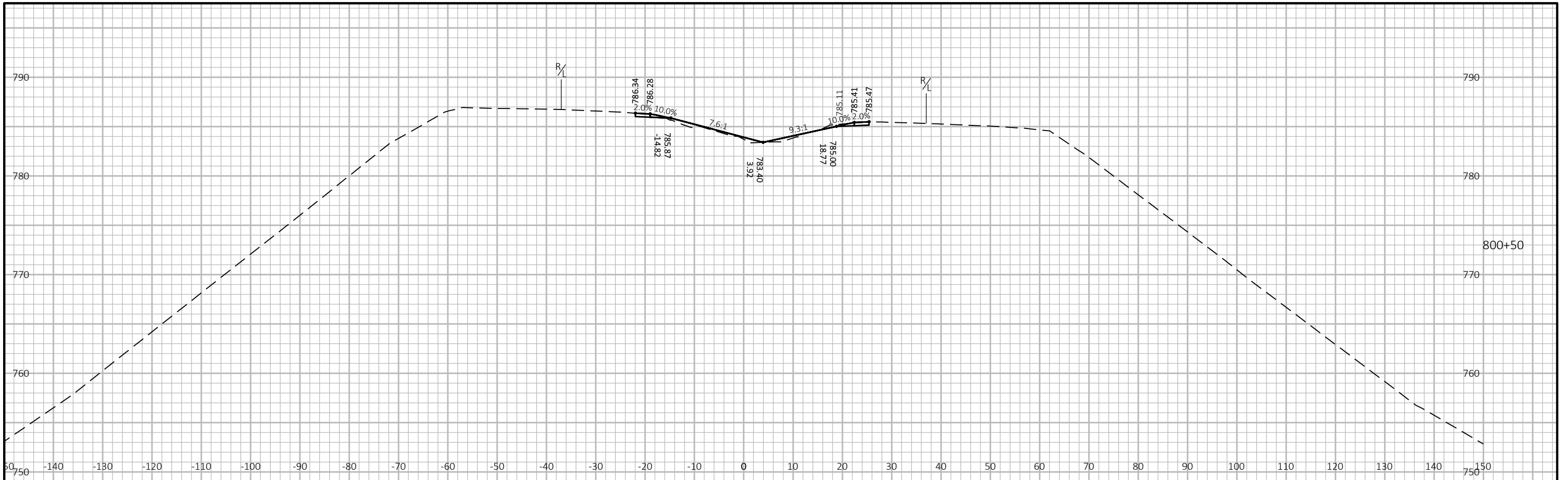


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PROJECT NO: 1310-14-70	HWY: STH 50	COUNTY: KENOSHA	CROSS SECTIONS: GUARDRAIL AND EAST CROSSOVER REMOVAL	SHEET	E
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PROJECT NO: 1310-14-70      HWY: STH 50      COUNTY: KENOSHA      CROSS SECTIONS: GUARDRAIL AND EAST CROSSOVER REMOVAL      SHEET 9



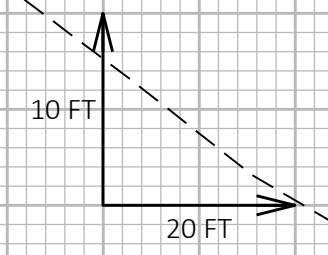
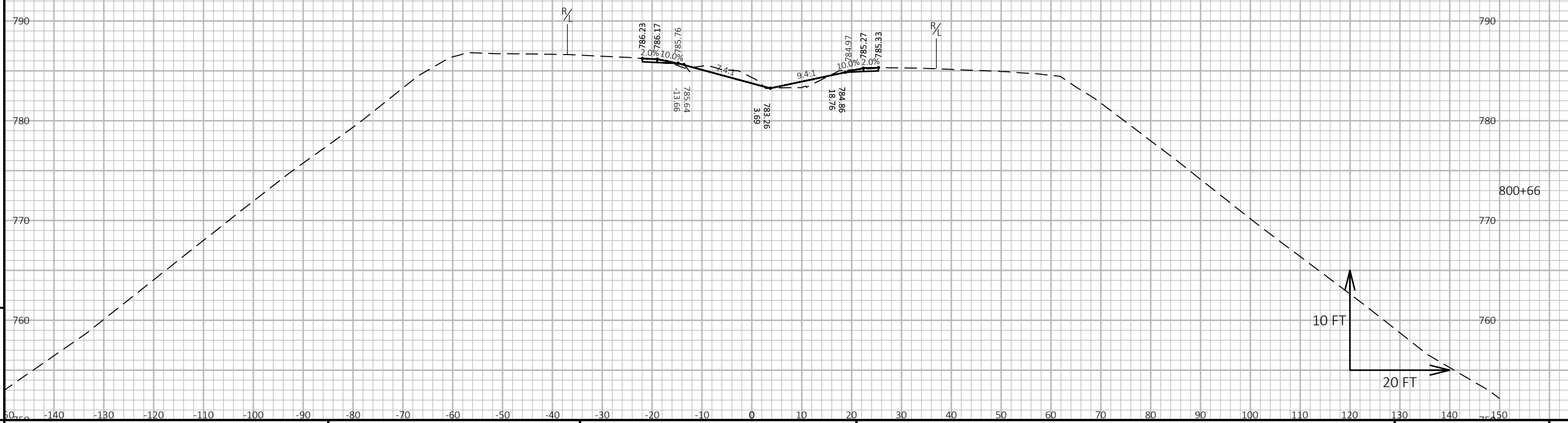
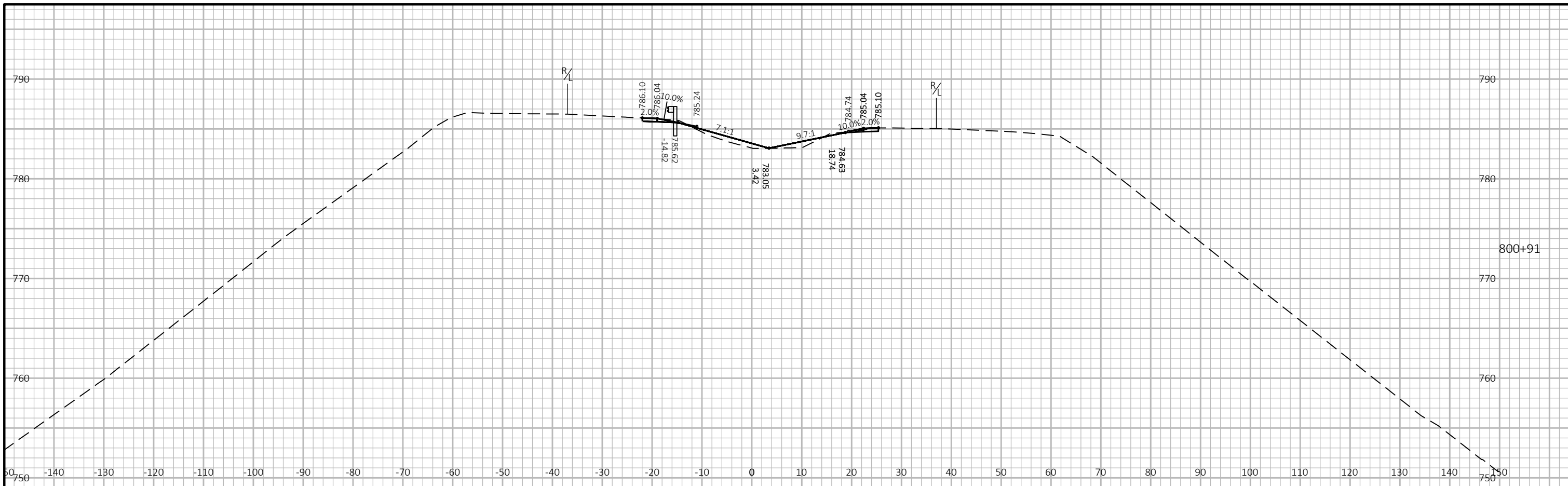
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PROJECT NO: 1310-14-70      HWY: STH 50      COUNTY: KENOSHA      CROSS SECTIONS: GUARDRAIL AND EAST CROSSOVER REMOVAL      SHEET E

FILE NAME : X:\ML\2020\20200068\DESIGN\TRANSPORTATION\SHEETSPLAN\090203\_BEAMGUARD\_XS.DWG      PLOT DATE : 1/31/2023 1:31 PM      PLOT BY : STRASSER, JEFFREY      PLOT NAME :      PLOT SCALE : 1 IN:20 FT HORZ. / 1 IN:10 FT VERT.      WISDOT/CADD SHEET 49

LAYOUT NAME - 10



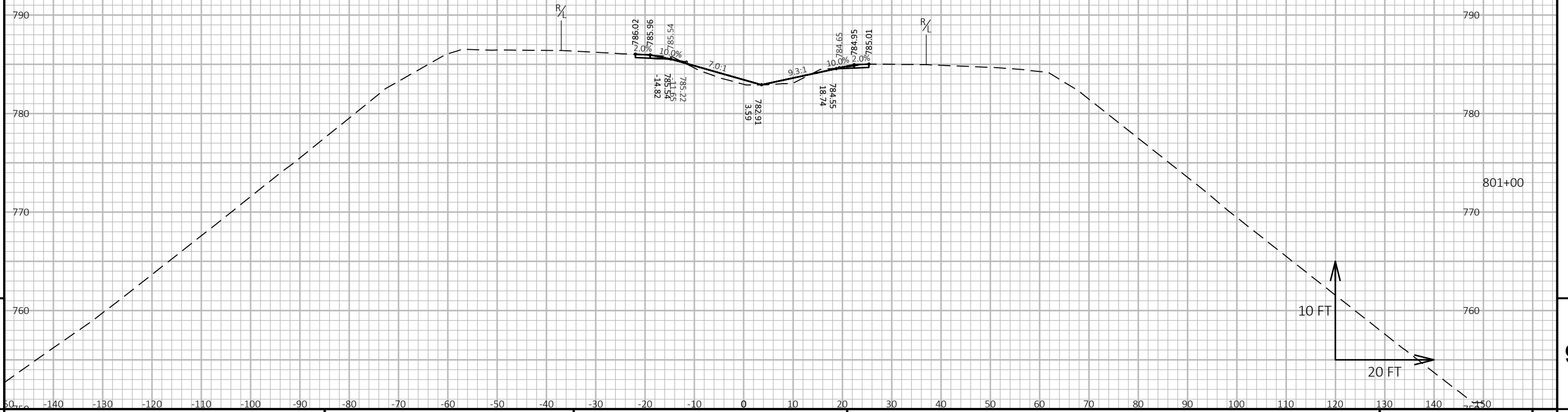
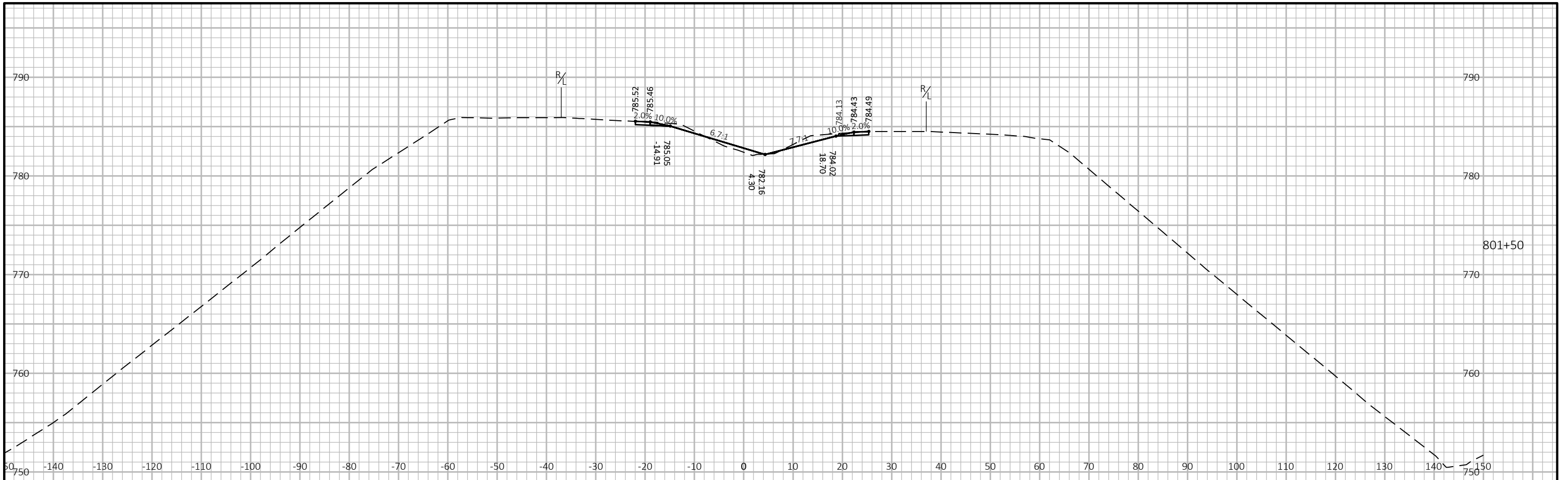
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PROJECT NO: 1310-14-70      HWY: STH 50      COUNTY: KENOSHA      CROSS SECTIONS: GUARDRAIL AND EAST CROSSOVER REMOVAL      SHEET E

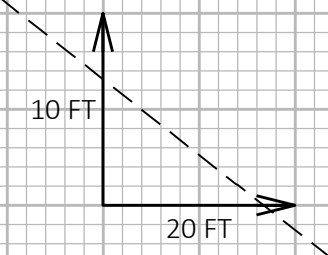
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LAYOUT NAME - 11

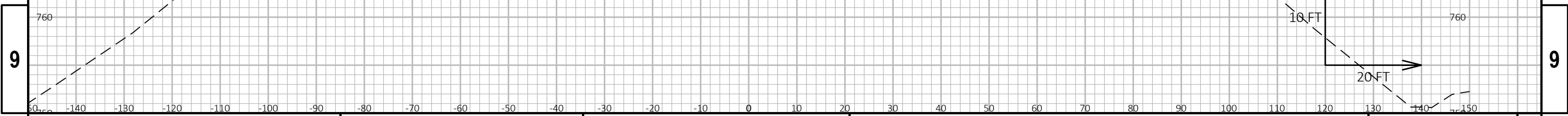
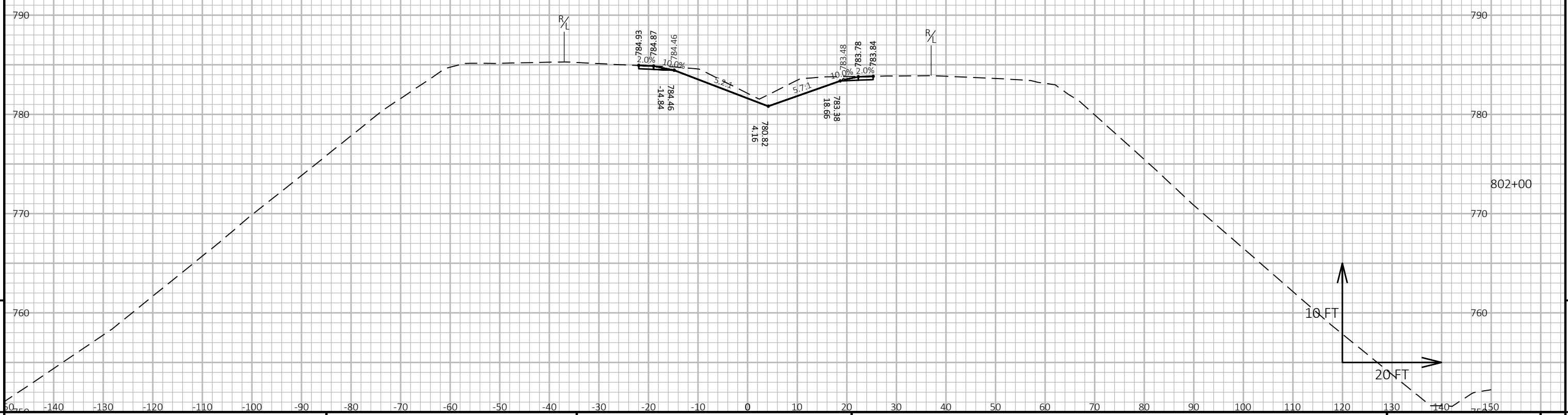
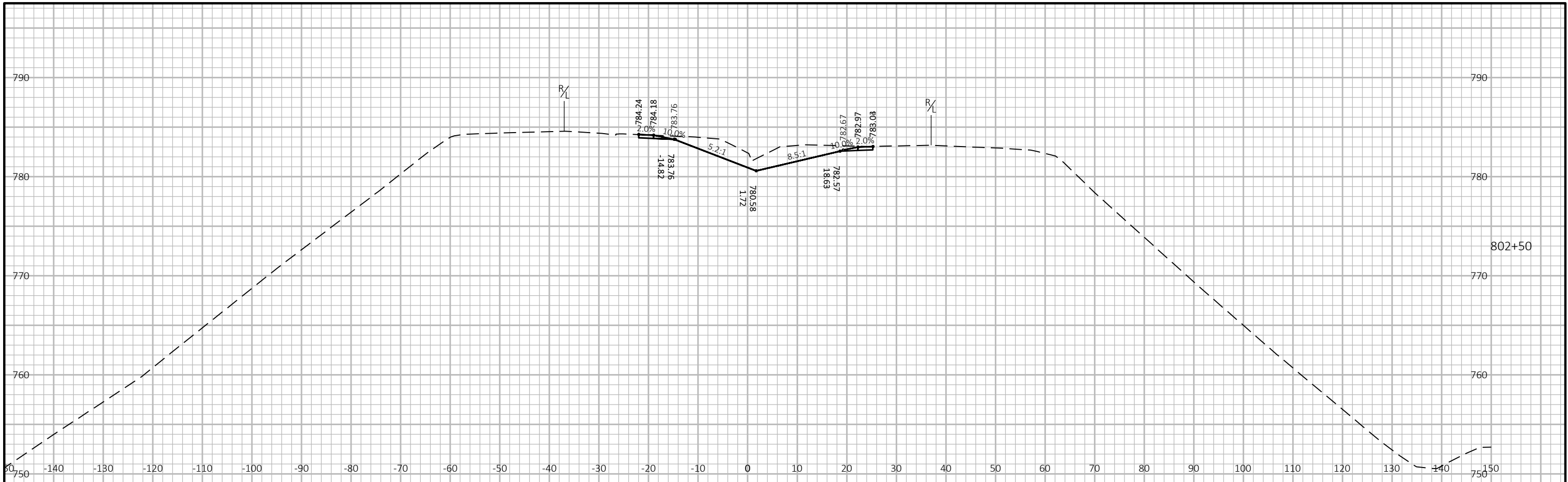


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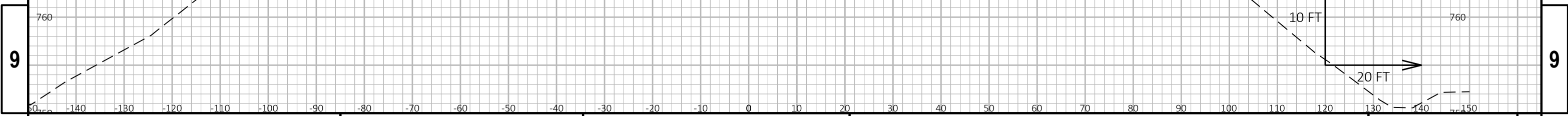
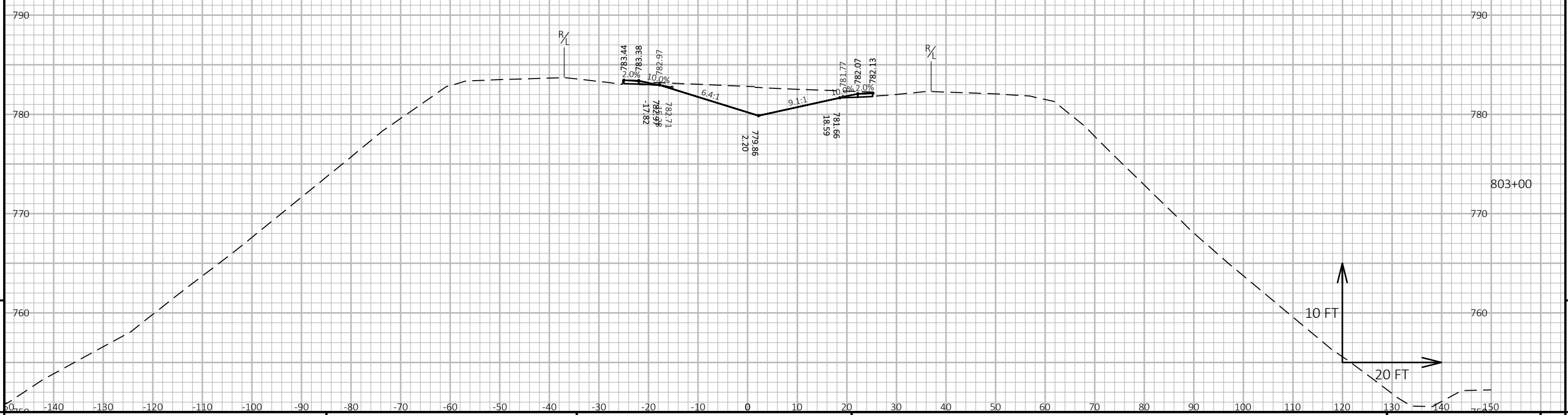
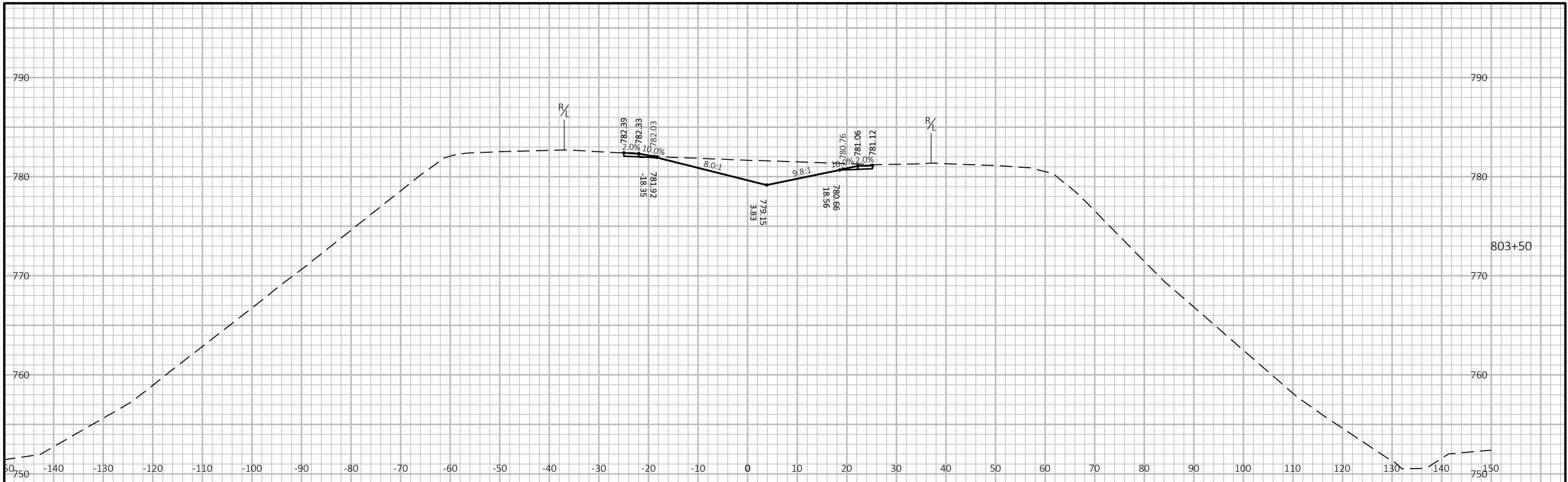


PROJECT NO: 1310-14-70	HWY: STH 50	COUNTY: KENOSHA	CROSS SECTIONS: GUARDRAIL AND EAST CROSSOVER REMOVAL	SHEET	E
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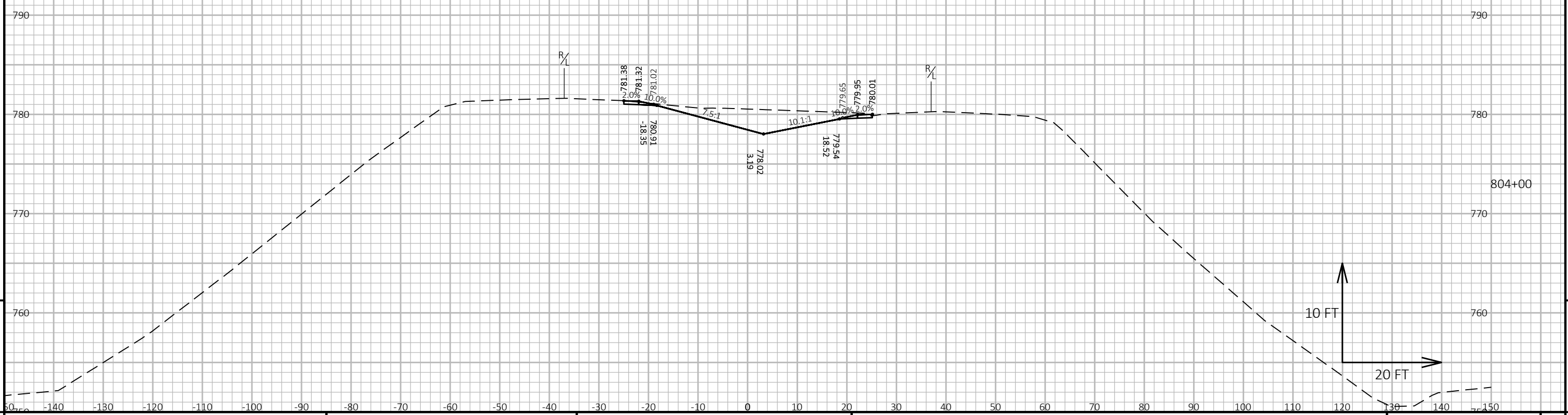
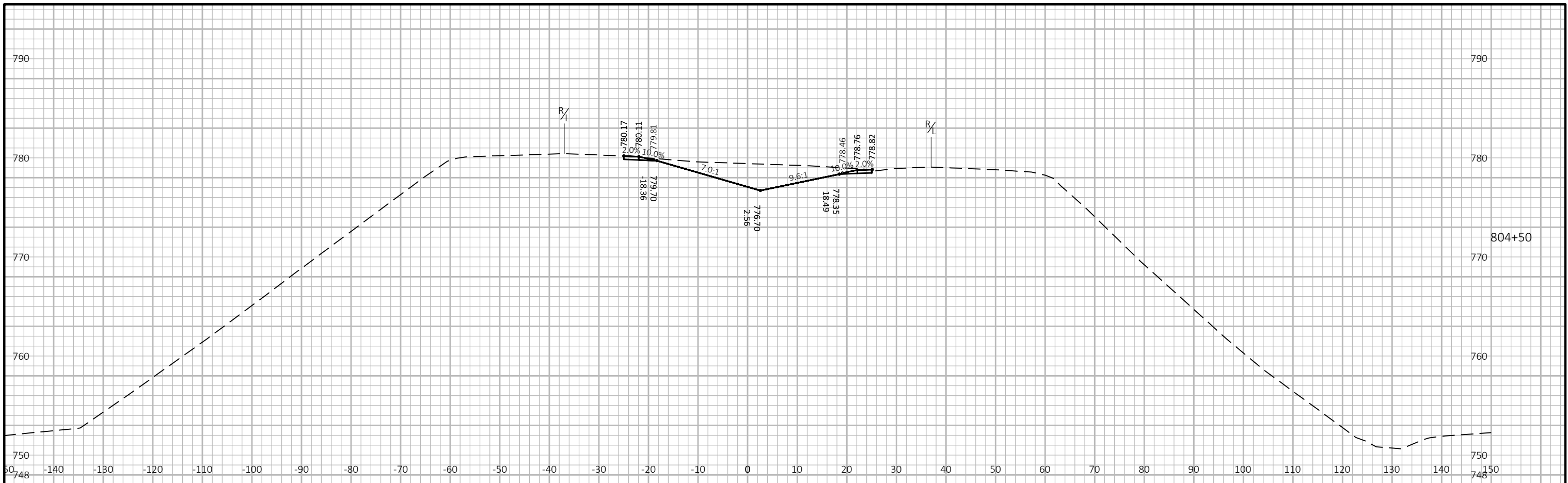


PROJECT NO: 1310-14-70      HWY: STH 50      COUNTY: KENOSHA      CROSS SECTIONS: GUARDRAIL AND EAST CROSSOVER REMOVAL      SHEET      E

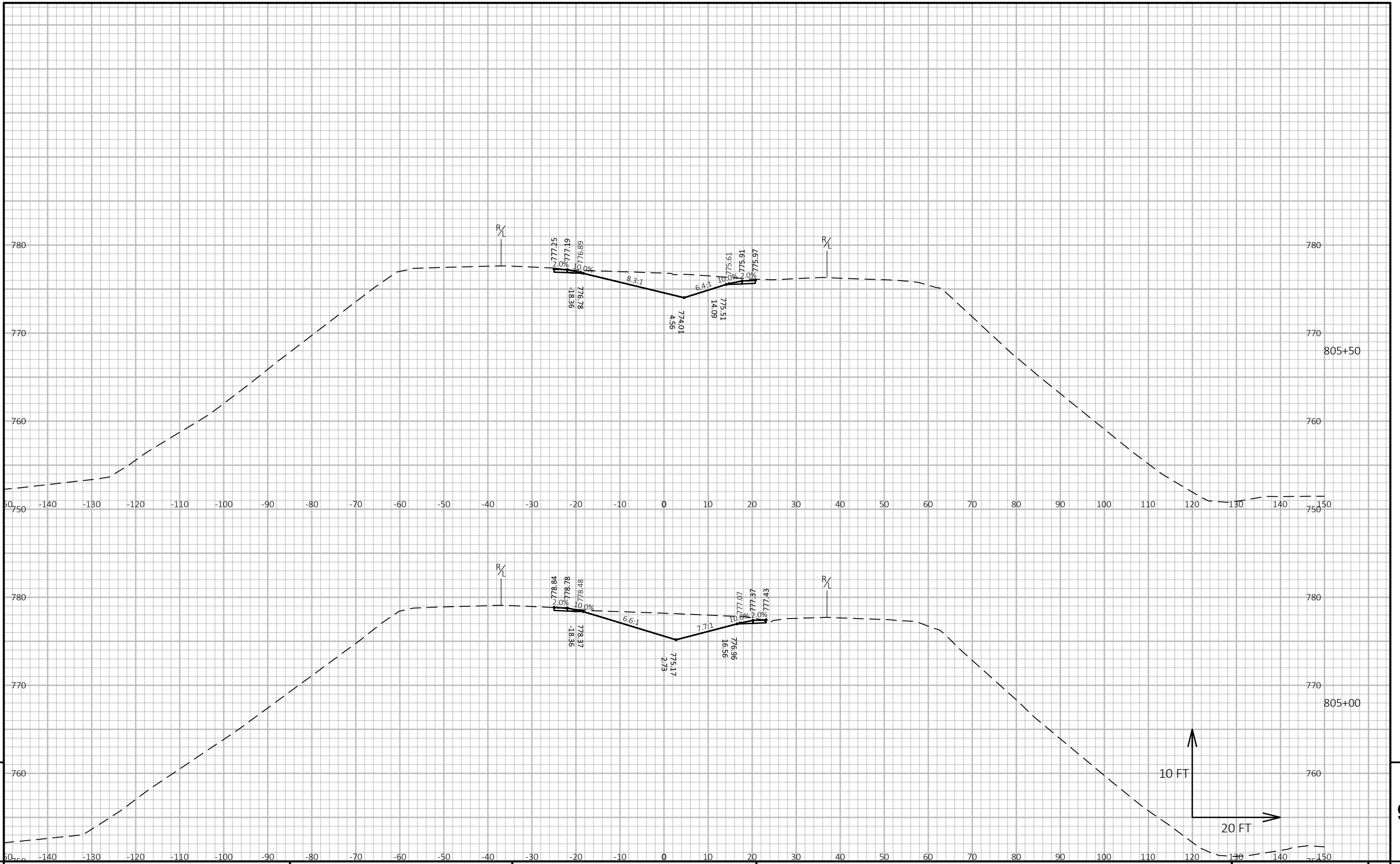




PROJECT NO: 1310-14-70      HWY: STH 50      COUNTY: KENOSHA      CROSS SECTIONS: GUARDRAIL AND EAST CROSSOVER REMOVAL      SHEET      E



PROJECT NO: 1310-14-70	HWY: STH 50	COUNTY: KENOSHA	CROSS SECTIONS: GUARDRAIL AND EAST CROSSOVER REMOVAL	SHEET 9
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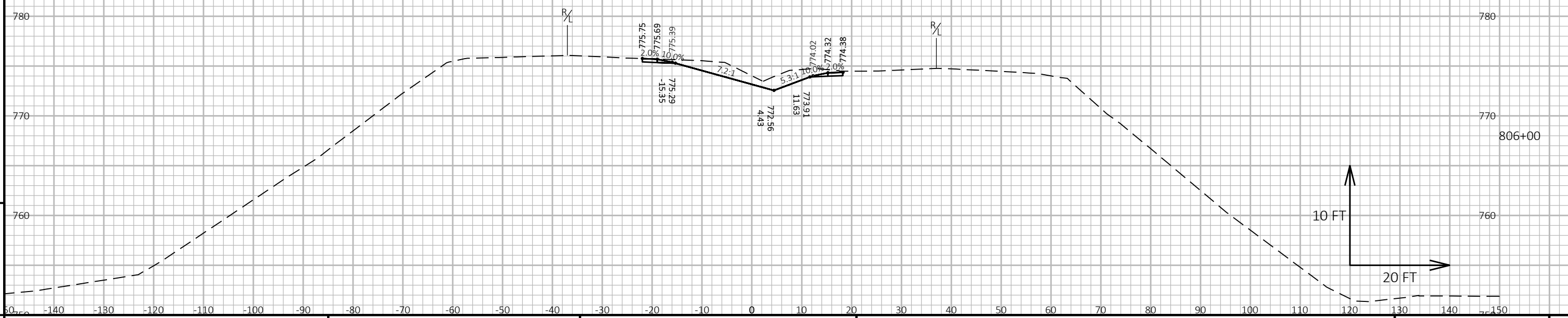
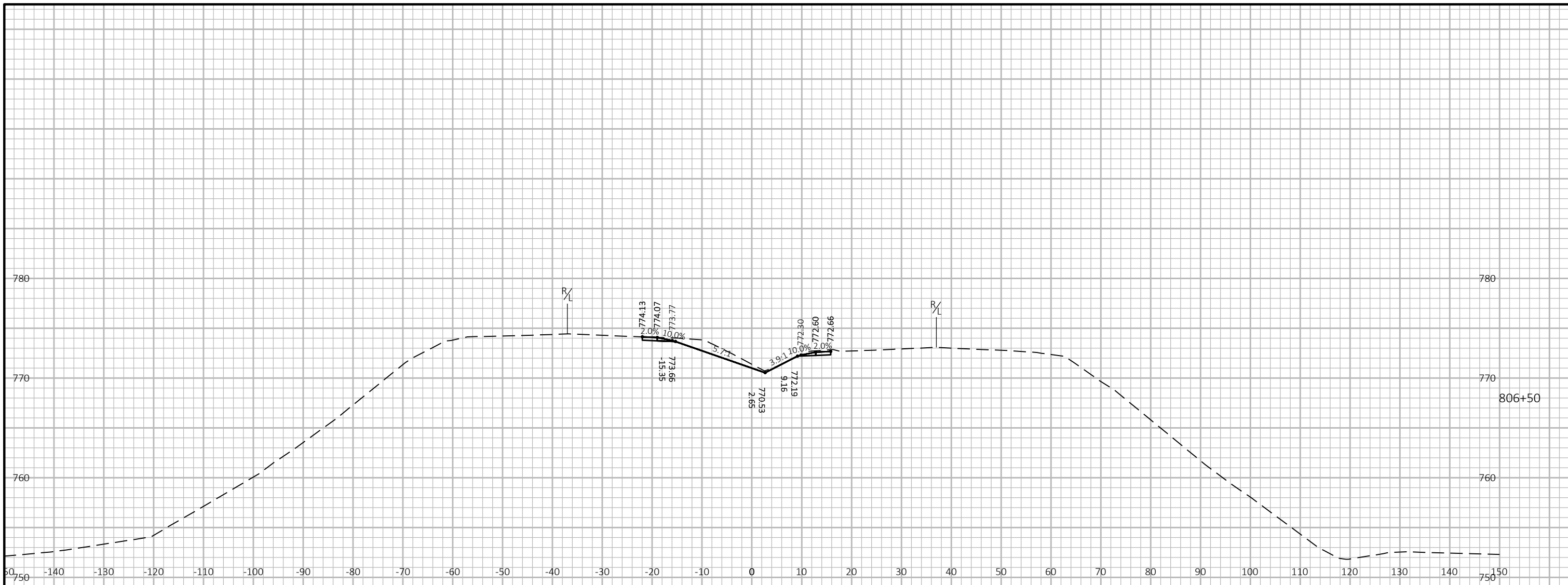
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PROJECT NO: 1310-14-70      HWY: STH 50      COUNTY: KENOSHA      CROSS SECTIONS: GUARDRAIL AND EAST CROSSOVER REMOVAL      SHEET      E

FILE NAME : X:\ML\2020\2020068\DESIGN\TRANSPORTATION\SHEETSPLAN\090203\_BEAMGUARD\_XS.DWG      PLOT DATE : 1/31/2023 1:31 PM      PLOT BY : STRASSER, JEFFREY      PLOT NAME :      PLOT SCALE : 1 IN:20 FT HORZ. / 1 IN:10 FT VERT.      WISDOT/CADD SHEET 49

LAYOUT NAME - 16



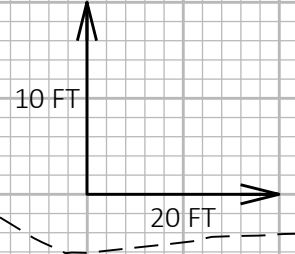
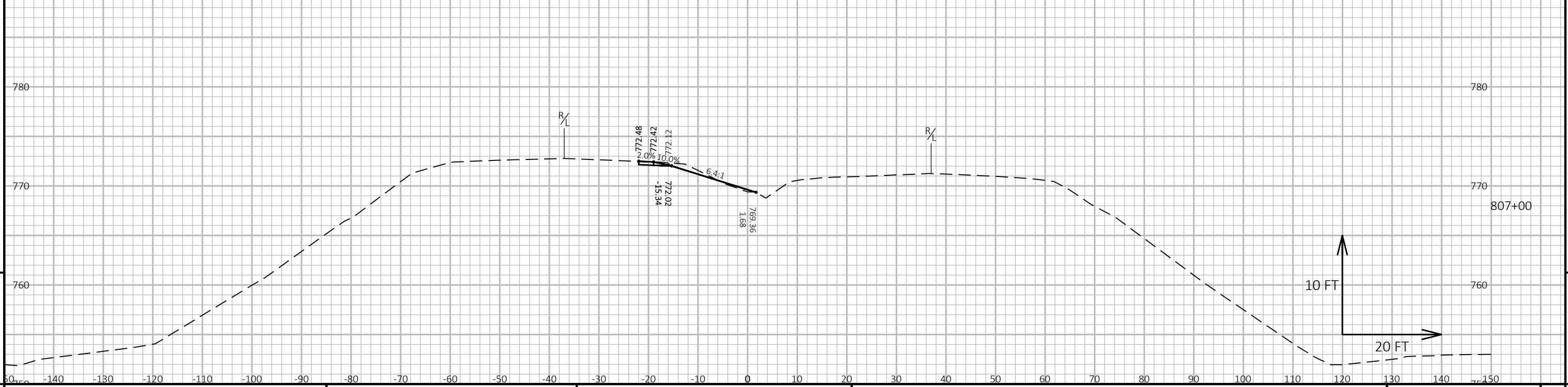
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PROJECT NO: 1310-14-70      HWY: STH 50      COUNTY: KENOSHA      CROSS SECTIONS: GUARDRAIL AND EAST CROSSOVER REMOVAL      SHEET E

FILE NAME : X:\ML\2020\2020068\DESIGN\TRANSPORTATION\SHEETSPLAN\090203\_BEAMGUARD\_XS.DWG      PLOT DATE : 1/31/2023 1:31 PM      PLOT BY : STRASSER, JEFFREY      PLOT NAME :      PLOT SCALE : 1 IN:20 FT HORZ. / 1 IN:10 FT VERT.      WISDOT/CADD SHEET 49

LAYOUT NAME - 17



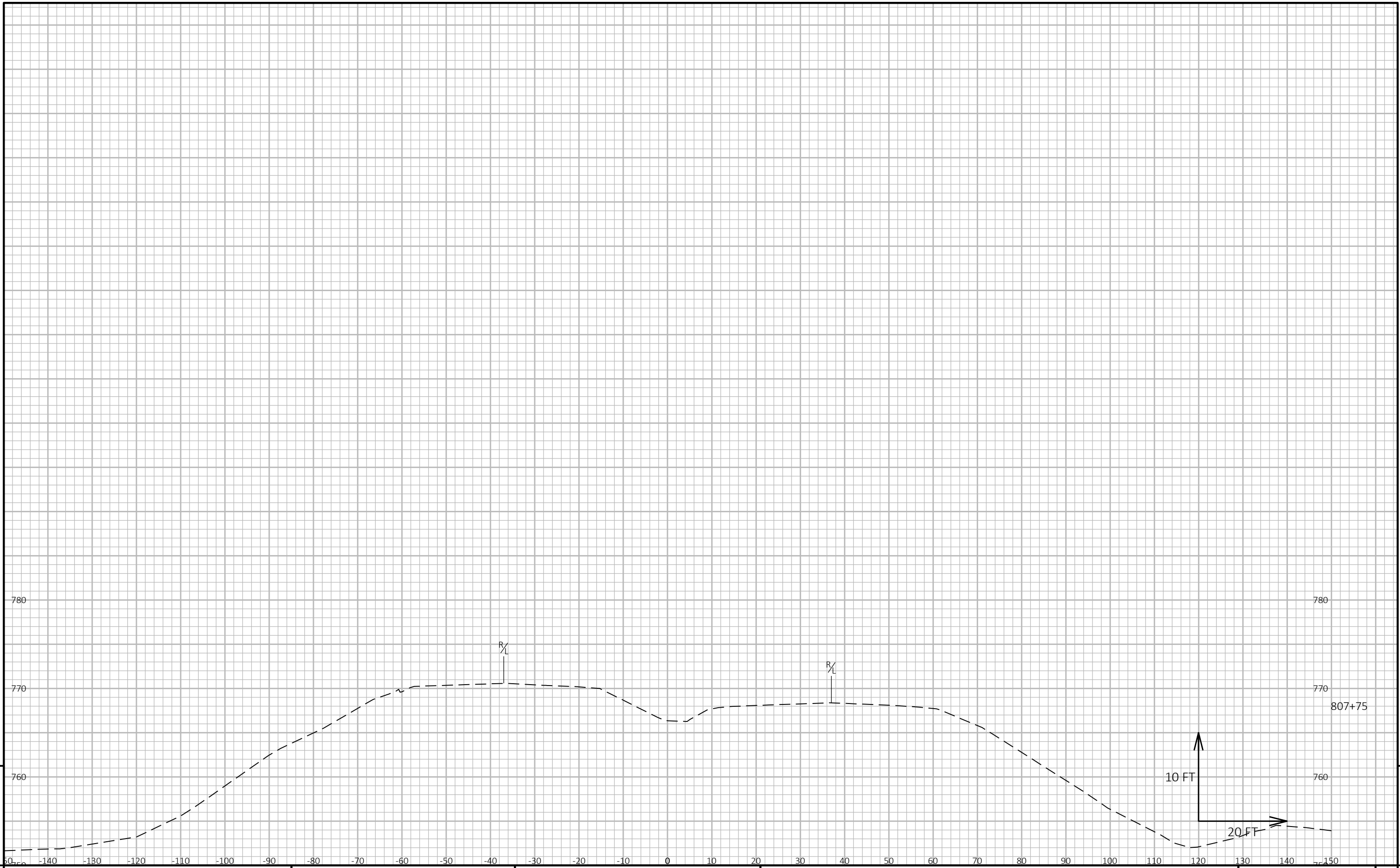
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PROJECT NO: 1310-14-70      HWY: STH 50      COUNTY: KENOSHA      CROSS SECTIONS: GUARDRAIL AND EAST CROSSOVER REMOVAL      SHEET E

FILE NAME : X:\ML\2020\2020068\DESIGN\TRANSPORTATION\SHEETSPLAN\090203\_BEAMGUARD\_XS.DWG      PLOT DATE : 1/31/2023 1:31 PM      PLOT BY : STRASSER, JEFFREY      PLOT NAME :      PLOT SCALE : 1 IN:20 FT HORZ. / 1 IN:10 FT VERT.      WISDOT/CADD SHEET 49

LAYOUT NAME - 18



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PROJECT NO: 1310-14-70	HWY: STH 50	COUNTY: KENOSHA	CROSS SECTIONS: GUARDRAIL AND EAST CROSSOVER REMOVAL	SHEET	E
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FILE NAME : X:\ML\2020\2020068\DESIGN\TRANSPORTATION\SHEETSPLAN\090203\_BEAMGUARD\_XS.DWG PLOT DATE : 1/31/2023 1:31 PM PLOT BY : STRASSER, JEFFREY PLOT NAME : PLOT SCALE : 1 IN:20 FT HORZ. / 1 IN:10 FT VERT. WISDOT/CADD SHEET 49

LAYOUT NAME - 19

Notes



## ***Wisconsin Department of Transportation***

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