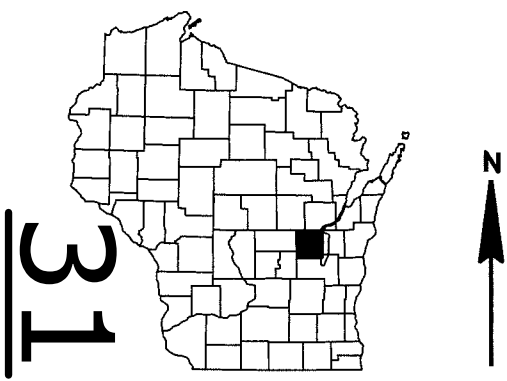


GRE PROJECT ID: 6540-08-71 WITH: N/A COUNTY: WINNEBAGO

MARCH 2025
ORDER OF SHEETS

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

TOTAL SHEETS = 140



DESIGN DESIGNATION

A.A.D.T.	2025	=	4710
A.A.D.T.	2045	=	5410
D.H.V.		=	476
D.D.		=	62/38
T.		=	11.0%
DESIGN SPEED		=	55 MPH
ESALS		=	1,200,000 HMA

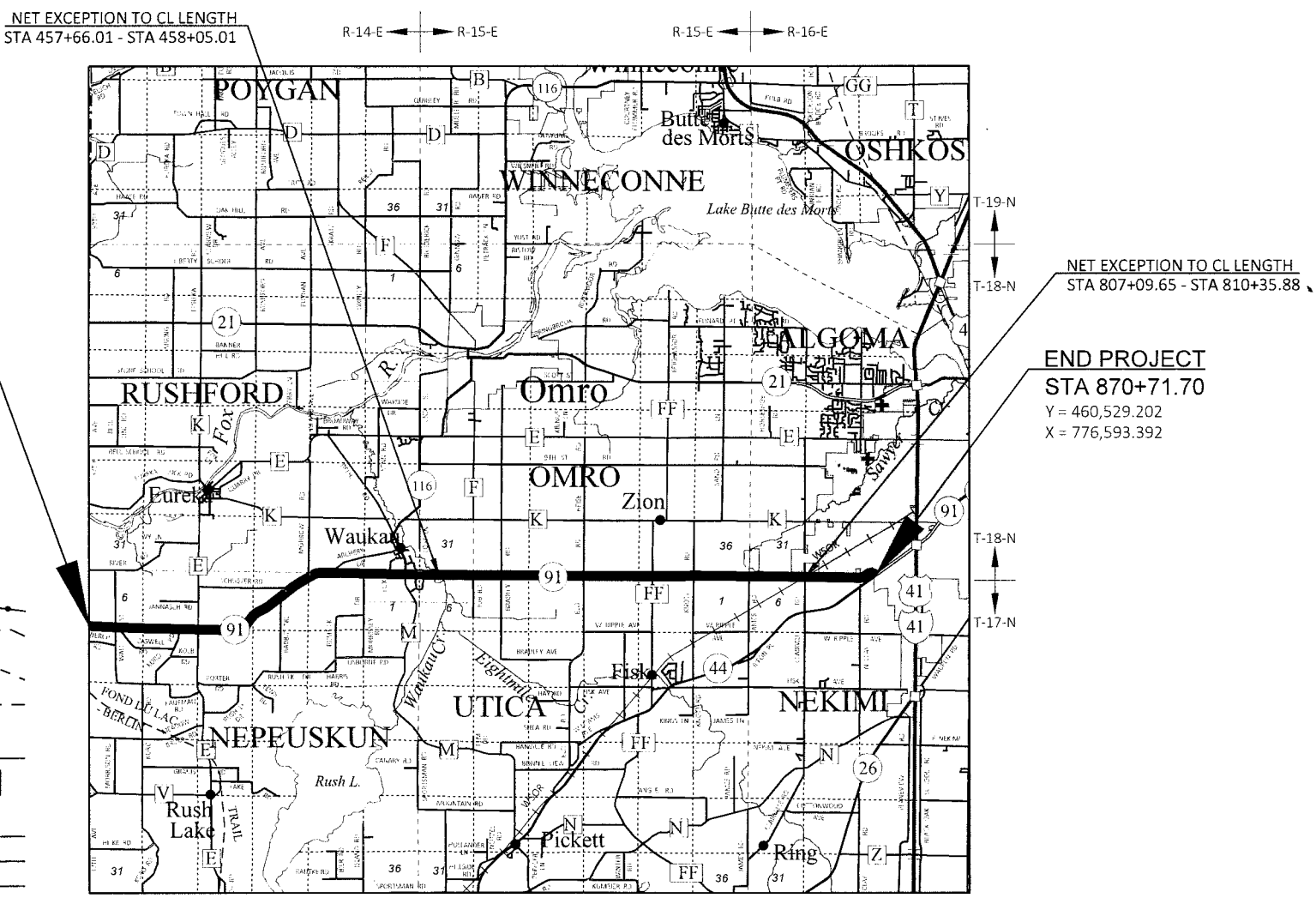
CONVENTIONAL SYMBOLS

PLAN	
CORPORATE LIMITS	
PROPERTY LINE	
LOT LINE	
LIMITED HIGHWAY EASEMENT	
EXISTING RIGHT OF WAY	
PROPOSED OR NEW R/W LINE	
SLOPE INTERCEPT	
REFERENCE LINE	
EXISTING CULVERT	
PROPOSED CULVERT (Box or Pipe)	
COMBUSTIBLE FLUIDS	
MARSH AREA	
WOODED OR SHRUB AREA	

PROFILE	
GRADE LINE	
ORIGINAL GROUND	
MARSH OR ROCK PROFILE (To be noted as such)	
SPECIAL DITCH	
GRADE ELEVATION	
CULVERT (Profile View)	
UTILITIES	
ELECTRIC	
FIBER OPTIC	
GAS	
SANITARY SEWER	
STORM SEWER	
TELEPHONE	
WATER	
UTILITY PEDESTAL	
POWER POLE	
TELEPHONE POLE	

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
PLAN OF PROPOSED IMPROVEMENT
BERLIN-OSHKOSH
WCL-STH 44
STH 91
WINNEBAGO COUNTY

STATE PROJECT NUMBER
6540-08-71



LAYOUT
SCALE 0 3 MI

TOTAL NET LENGTH OF CENTERLINE = 14.545 MI

HORIZONTAL POSITIONS SHOWN ON THIS PLAN ARE WISCONSIN COORDINATE REFERENCE SYSTEM (WISCRS), WINNEBAGO COUNTY, NAD83 (2011), IN U.S. SURVEY FEET. POSITIONS SHOWN ARE GRID COORDINATES, GRID BEARINGS, AND GRID DISTANCES. GRID DISTANCES ARE THE SAME AS GROUND DISTANCES. ELEVATIONS ARE REFERENCED TO NAVD 88 (2012). GPS DERIVED ELEVATIONS ARE BASED ON GEOID 18.

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
6540-08-71		

ORIGINAL PLANS PREPARED BY

GREMMER & ASSOCIATES, INC.
CONSULTING ENGINEERS
Stevens Point • Fond du Lac
93 South Pioneer Road, Suite 300
Fond du Lac, WI 54935
(920) 924-5720

WISCONSIN PROFESSIONAL ENGINEER
JEFFREY A. CHVOSTA
E-39047
SLINGER, WI

DATE: 10/16/24
JEFFREY A. CHVOSTA, PE

STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
PREPARED BY	
Surveyor	GREMMER & ASSOCIATES, INC.
Designer	GREMMER & ASSOCIATES, INC.
Project Manager	W. BERTRAND
Regional Examiner	
Regional Supervisor	T. RABE
APPROVED FOR THE DEPARTMENT	
DATE: 10/17/24	Bill Bertrand, P.E. (Signature)

GENERAL NOTES

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

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

PAVEMENT LIMITS AT INTERSECTIONS ARE TO BE DETERMINED BY THE ENGINEER IN THE FIELD.

THE EXACT CONSTRUCTION LIMITS AND LOCATIONS OF ALL ENTRANCES SHALL BE DETERMINED BY THE ENGINEER IN THE FIELD.

ALIGNMENT SHOWN IN PLAN IS FOR REFERENCE ONLY. THE CENTERLINE OF ROADWAY TO BE DETERMINED IN THE FIELD BASED ON THE EXISTING ROADWAY.

RIGHT-OF-WAY SHOWN FROM WINNEBAGO COUNTY GIS FOR REFERENCE ONLY.

NO WORK SHALL BE DONE OUTSIDE OF THE SLOPE INTERCEPTS WITHIN WETLAND AREAS.

BASE AGGREGATE DENSE ¾-INCH WEIGHT CALCULATIONS ARE BASED ON 2.1 TONS/CY.
BASE AGGREGATE DENSE 1½-INCH WEIGHT CALCULATIONS ARE BASED ON 2.0 TONS/CY.

HMA PAVEMENT WEIGHT CALCULATIONS BASED ON 112 LBS/SY/INCH.

TACK COAT HAS BEEN ESTIMATED AT AN APPLICATION RATE OF 0.05 GAL/SY FOR FULL DEPTH HMA PAVEMENT SECTIONS (SHALL BE APPLIED BETWEEN ALL LAYERS OF ASPHALTIC PAVEMENT). 0.07 GAL/SY USED TO ESTIMATE HMA LAYERS OVER EXISTING PAVEMENTS.

SUPERELEVATIONS SHOWN ON PLAN SHEETS ARE BASED ON PREVIOUS PLANS. THE CONTRACTOR SHALL VERIFY SLOPES AND MATCH EXISTING SUPERELEVATIONS AND TRANSITIONS THROUGHOUT THE PROJECT.

ABBREVIATIONS

AGG	AGGREGATE
AH	AHEAD
ASPH	ASPHALT
BK	BACK
BAD	BASE AGGREGATE DENSE
BM	BENCH MARK
CC	CENTER OF CURVATURE
CE	COMMERCIAL ENTRANCE
C&G	CURB AND GUTTER
C/L	CENTER OR CONSTRUCTION LINE
CONC	CONCRETE
CY	CUBIC YARD
D	DEGREE OF CURVE
Δ	DELTA
E	EXTERNAL DISTANCE FROM MIDPOINT OF CIRCULAR CURVE FROM ANGLE INTERSECTION
ELEV	ELEVATION
FE	FIELD ENTRANCE
GRAV	GRAVEL
HMA	HOT MIX ASPHALT
L	LENGTH OF CURVE
LT	LEFT
MAX	MAXIMUM
MIN	MINIMUM
M/L	MATCHLINE
PAVT	PAVEMENT
PC	POINT OF CURVE
PCC	POINT OF COMPOUND CURVE
PE	PRIVATE ENTRANCE
PI	POINT OF INTERSECTION
PT	POINT OF TANGENT
R	RADIUS OF CURVE
R/L	REFERENCE LINE
REQ'D	REQUIRED
RO	RUN OFF LENGTH
RT	RIGHT
SALV	SALVAGED
SDD	STANDARD DETAIL DRAWING
SE	SUPER ELEVATION
SEG	SEGMENT
SF	SQUARE FOOT
STA	STATION
SY	SQUARE YARD
T	TANGENT LENGTH
TYP	TYPICAL
V	VELOCITY OR DESIGN SPEED

ORDER OF SECTION 2 SHEETS

- GENERAL NOTES
- PROJECT OVERVIEW
- TYPICAL SECTIONS
- CONSTRUCTION DETAILS
- PLAN DETAILS
- EROSION CONTROL
- STORM SEWER
- TRAFFIC CONTROL
- DETOUR
- SURVEY CONTROL

UTILITIES

ELECTRIC

ALLIANT ENERGY
880 NORTH WISCONSIN STREET
BERLIN, WI 54923
ATTN: ALLYSA DUCAT
PHONE: (920) 946-6498
EMAIL: allysaducat@alliantenergy.com

GAS

ALLIANT ENERGY
880 NORTH WISCONSIN STREET
BERLIN, WI 54923
ATTN: ALLYSA DUCAT
PHONE: (920) 946-6498
EMAIL: allysaducat@alliantenergy.com

COMMUNICATIONS

AT&T WISCONSIN
70 E. DIVISION STREET
FOND DU LAC, WI 54935
ATTN: CHARLES BARTELT
PHONE: (920) 410-5104
EMAIL: cb1461@att.com

COMMUNICATIONS

ATC MANAGEMENT INC
W234 N2000 RIDGEVIEW PARKWAY COURT
WAUKESHA, WI 53187-0047
ATTN: CHRIS DAILEY
PHONE: (262) 506-6884
EMAIL: cdailey@atcllc.com

ELECTRIC TRANSMISSION

ATC MANAGEMENT INC
W234 N2000 RIDGEVIEW PARKWAY COURT
WAUKESHA, WI 53187-0047
ATTN: CHRIS DAILEY
PHONE: (262) 506-6884
EMAIL: cdailey@atcllc.com

COMMUNICATIONS

BRIGHTSPEED OF CENTRAL WISCONSIN, LLC
144 N. PEARL STREET
BERLIN, WI 54923
ATTN: SCOTT HEINZELMAN
PHONE: (608) 757-4802
EMAIL: scott.heinzelman@lumen.com

SEWER

CITY OF OSHKOSH
215 CHURCH AVENUE
P.O. BOX 1130
OSHKOSH, WI 54903-1130
ATTN: JUSTIN GIERACH
PHONE: (920) 236-5065
EMAIL: jgierach@ci.oshkosh.wi.us

WATER

CITY OF OSHKOSH
215 CHURCH AVENUE
P.O. BOX 1130
OSHKOSH, WI 54903-1130
ATTN: JUSTIN GIERACH
PHONE: (920) 236-5065
EMAIL: jgierach@ci.oshkosh.wi.us

WATER

FOX RIVER VALLEY ETHANOL, LLC
4995 STATE ROAD 91
OSHKOSH, WI 54904
ATTN: JANELL TATRO
PHONE: (920) 230-7488
EMAIL: jtatro@frvethanol.com

COMMUNICATIONS

SPECTRUM
3520 EAST DESTINATION DRIVE
APPLETON, WI 54915
ATTN: VINCE ALBIN
PHONE: (920) 831-9249
EMAIL: vince.albin@charter.com

GAS

UNITED COOPERATIVE
N7160 RACEWAY ROAD
BEAVER DAM, WI 53916
ATTN: KARL BETH
PHONE: (920) 887-1756
EMAIL: karlb@unitedcooperative.com

ELECTRIC

WISCONSIN PUBLIC SERVICE CORPORATION
3300 N. MAIN STREET
OSHKOSH, WI 54901
ATTN: LINDA TREBIATOWSKI
PHONE: (920) 660-3266
EMAIL: linda.trebiatowski@wisconsinpublicservice.com

GAS

WISCONSIN PUBLIC SERVICE CORPORATION
3300 N. MAIN STREET
OSHKOSH, WI 54901
ATTN: ADAM VANDENHOUTEN
PHONE: (920) 617-2736
EMAIL: adam.vandenhouten@wisconsinpublicservice.com

RUNOFF COEFFICIENT TABLE

	HYDROLOGIC SOIL GROUP											
	A			B			C			D		
	SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)		
LAND USE:	0-2	2-6	6 & OVER	0-2	2-6	6 & OVER	0-2	2-6	6 & OVER	0-2	2-6	6 & OVER
ROW CROPS	.08	.16	.22	.12	.20	.27	.15	.24	.33	.19	.28	.38
	.22	.30	.38	.26	.34	.44	.30	.37	.50	.34	.41	.56
MEDIAN STRIP- TURF	.19	.20	.24	.19	.22	.26	.20	.23	.30	.20	.25	.30
	.24	.26	.30	.25	.28	.33	.26	.30	.37	.227	.32	.40
SIDE SLOPE- TURF			.25			.27			.28			.25
			.32			.34			.36			.38
PAVEMENT:												
ASPHALT				.70 - .95								
CONCRETE				.80 - .95								
BRICK				.70 - .80								
DRIVES, WALKS				.75 - .85								
ROOFS				.75 - .95								
GRAVEL ROADS SHOULDERS				.40 - .60								

TOTAL PROJECT AREA = 189.406 ACRES

TOTAL AREA EXPECTED TO BE DISTURBED BY CONSTRUCTION ACTIVITIES = 4.406 ACRES

NE REGION SURVEY COORDINATOR

MICHAEL ANDRASCHKO
WISCONSIN DEPARTMENT OF TRANSPORTATION
944 VANDERPERREN WAY
GREEN BAY, WI 54304
PHONE: (920) 492-4166
EMAIL: michael.andraschko@dot.wi.gov

NE REGION PROJECT MANAGER

WILLIAM BERTRAND, PE
WISCONSIN DEPARTMENT OF TRANSPORTATION
944 VANDERPERREN WAY
GREEN BAY, WI 54304
PHONE: (920) 360-3124
EMAIL: william.bertrand@dot.wi.gov

DNR AREA LIAISON

JAY SCHIEFELBEIN
WISCONSIN DEPT. OF NATURAL RESOURCES
WDNR NORTHEAST REGIONAL HQ
2984 SHAWANO AVENUE
GREEN BAY, WI 54313
PHONE: (920) 360-3784
EMAIL: jeremiah.schiefelbein@wiscosnsin.gov

WINNEBAGO COUNTY CONTACT

ROBERT DOEMEL
HIGHWAY COMMISSIONER
901 W COUNTY ROAD Y
OSHKOSH, WI 54901
PHONE: (920) 232-1700
EMAIL: rdoemel@co.winnebago.wi.us

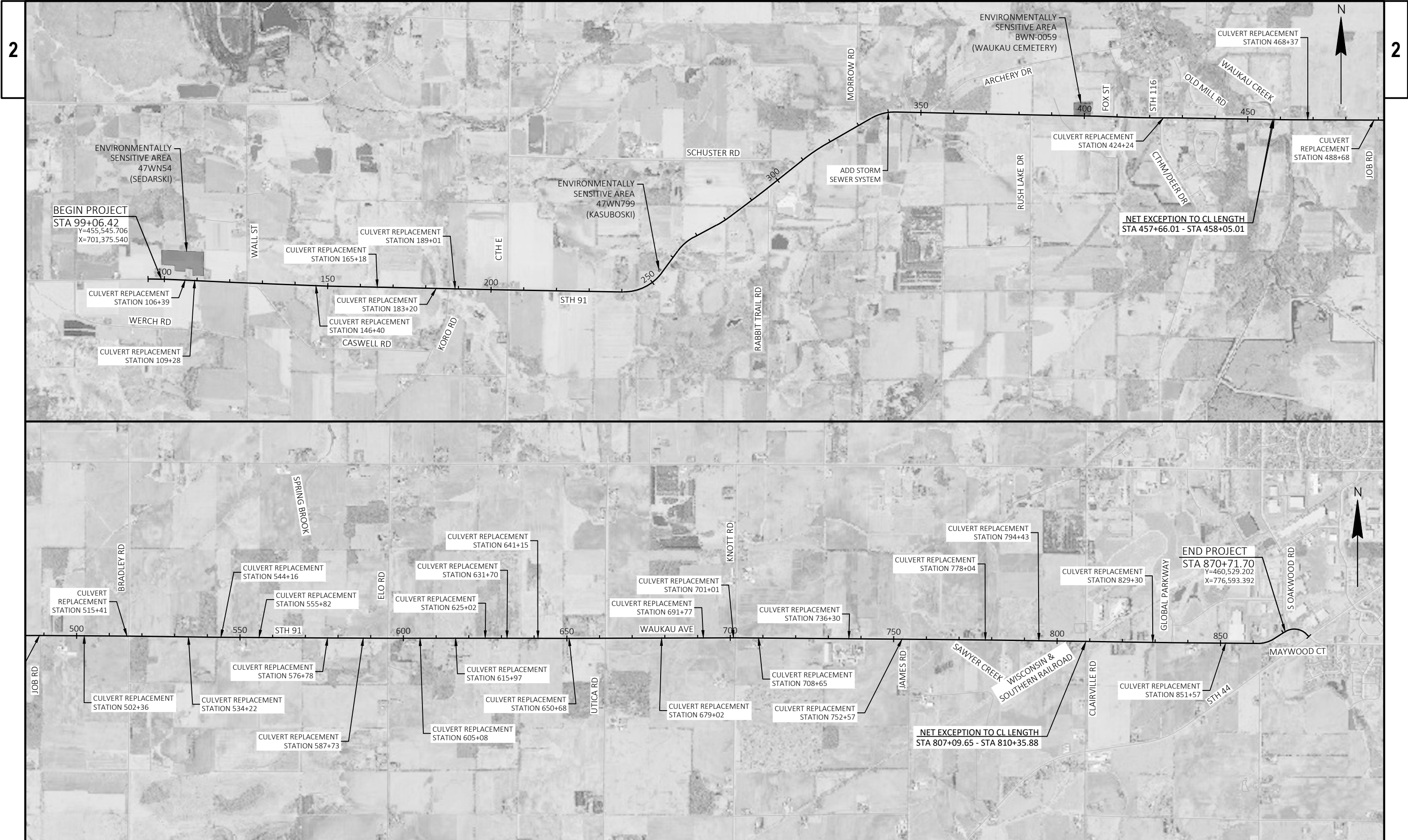
DESIGN CONTACT

JEFFREY A. CHVOSTA, PE
GREMMER & ASSOCIATES, INC.
93 SOUTH PIONEER ROAD, SUITE 300
FOND DU LAC, WI 54935
PHONE: (920) 924-5720
EMAIL: j.chvosta@gremmerassociates.com

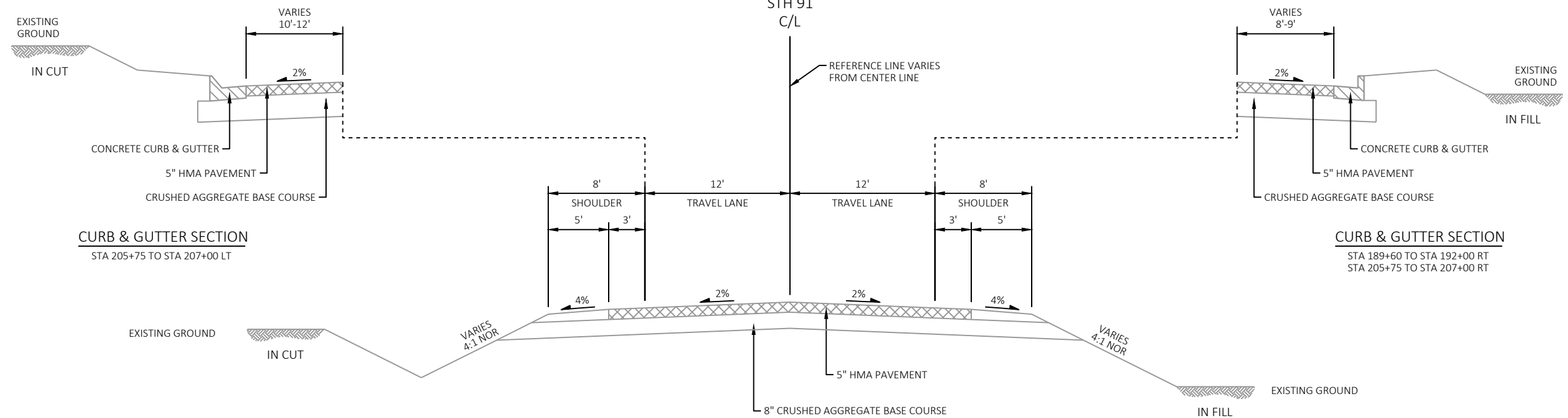
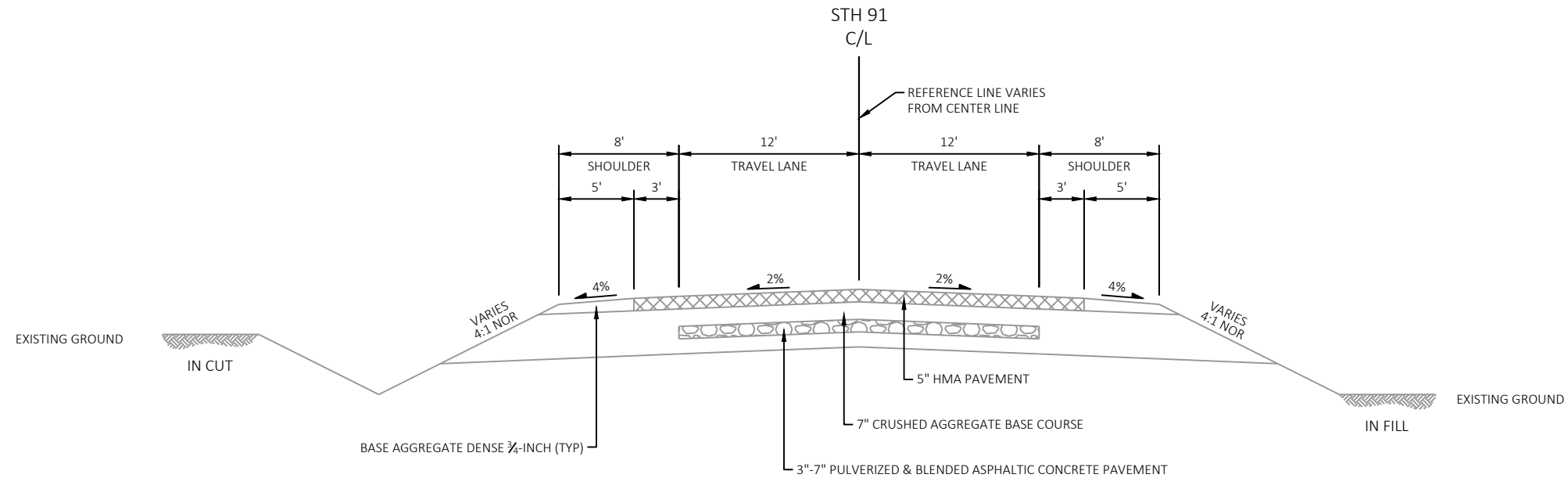
DIGGERSHOTLINE

Dial 811 or (800)242-8511

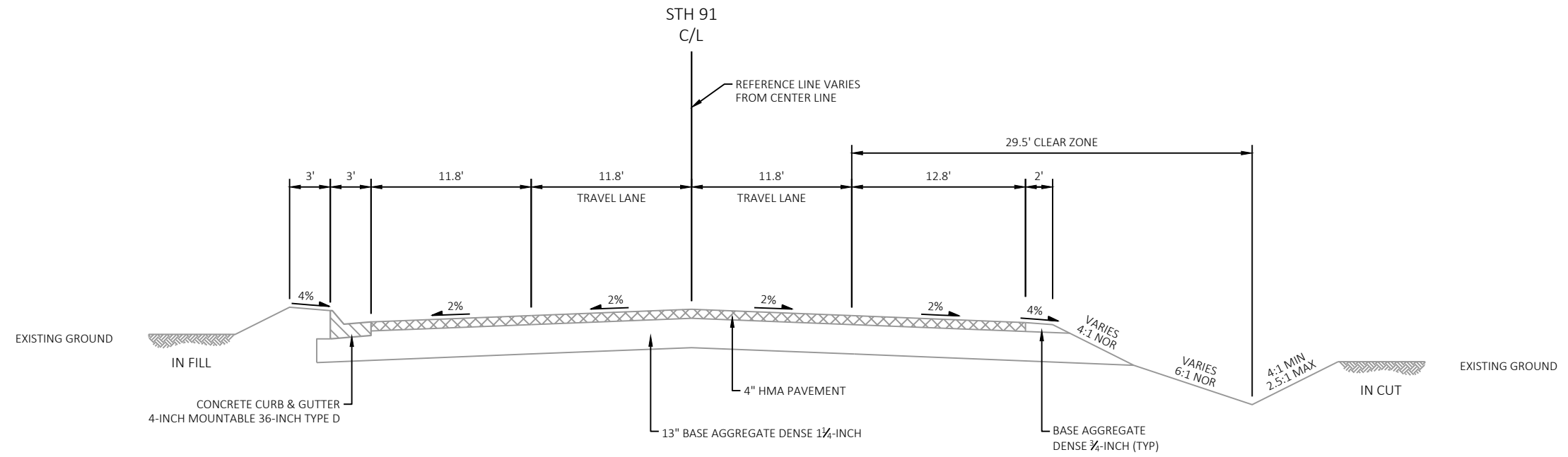
www.DiggersHotline.com



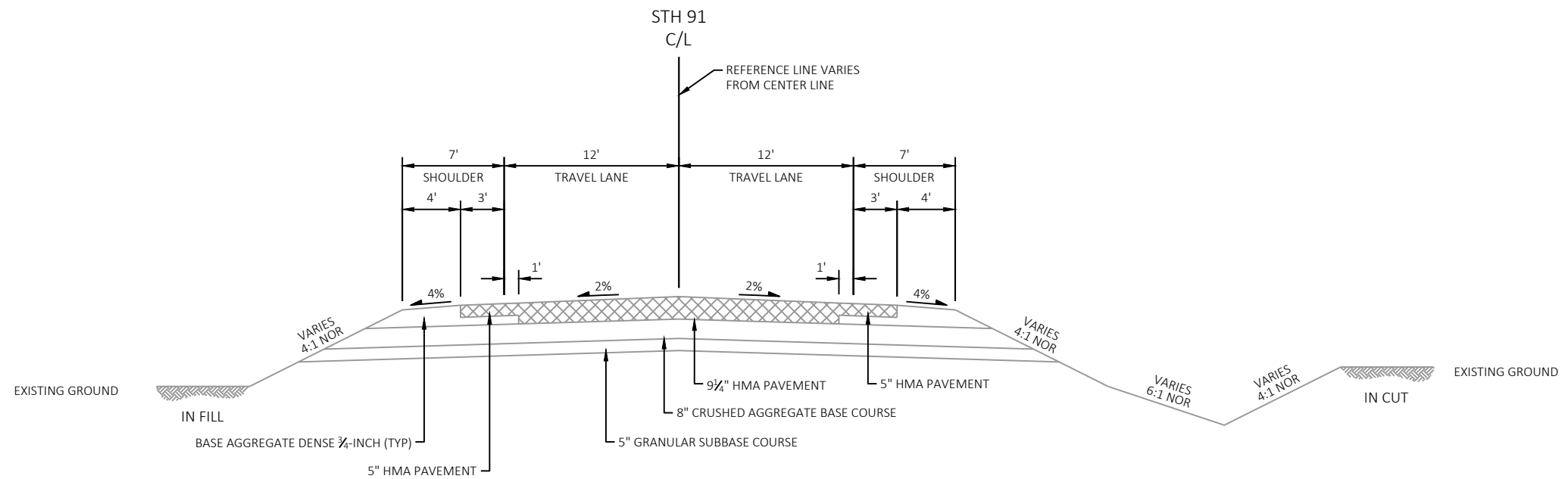
PROJECT NO:	6540-08-71	HWY: STH 91	COUNTY: WINNEBAGO	PROJECT OVERVIEW	SHEET	E
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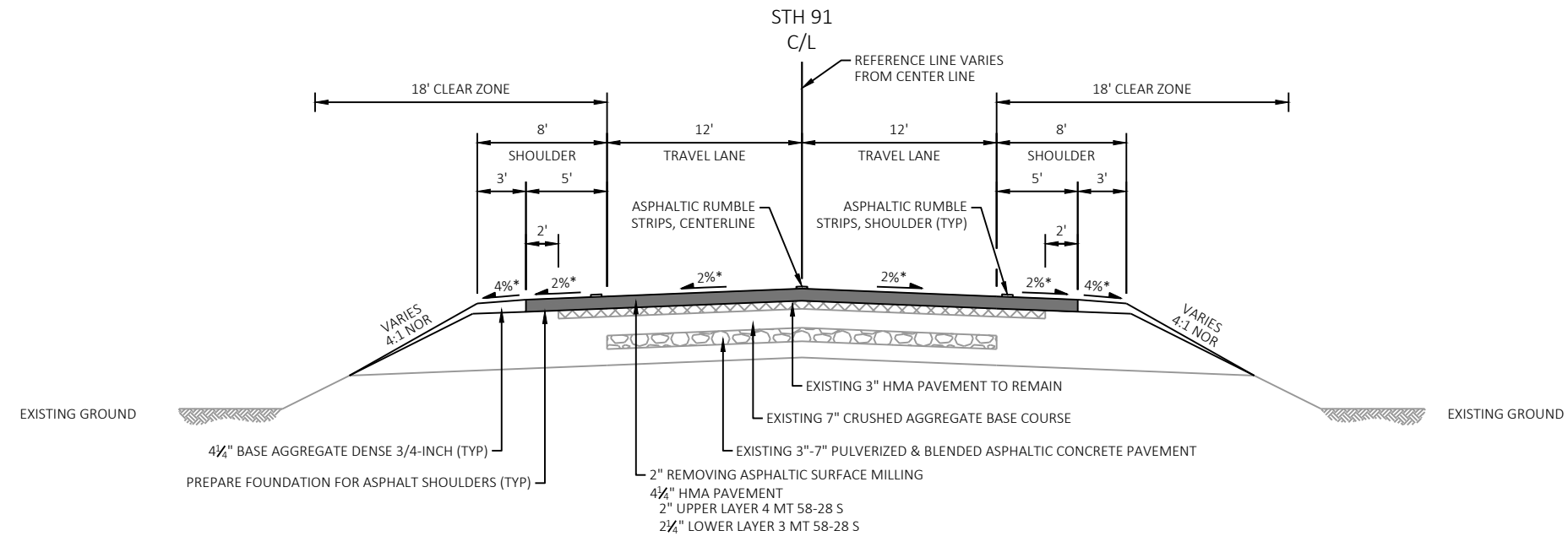




EXISTING TYPICAL SECTION STH 91
STA 424+12 TO STA 428+50



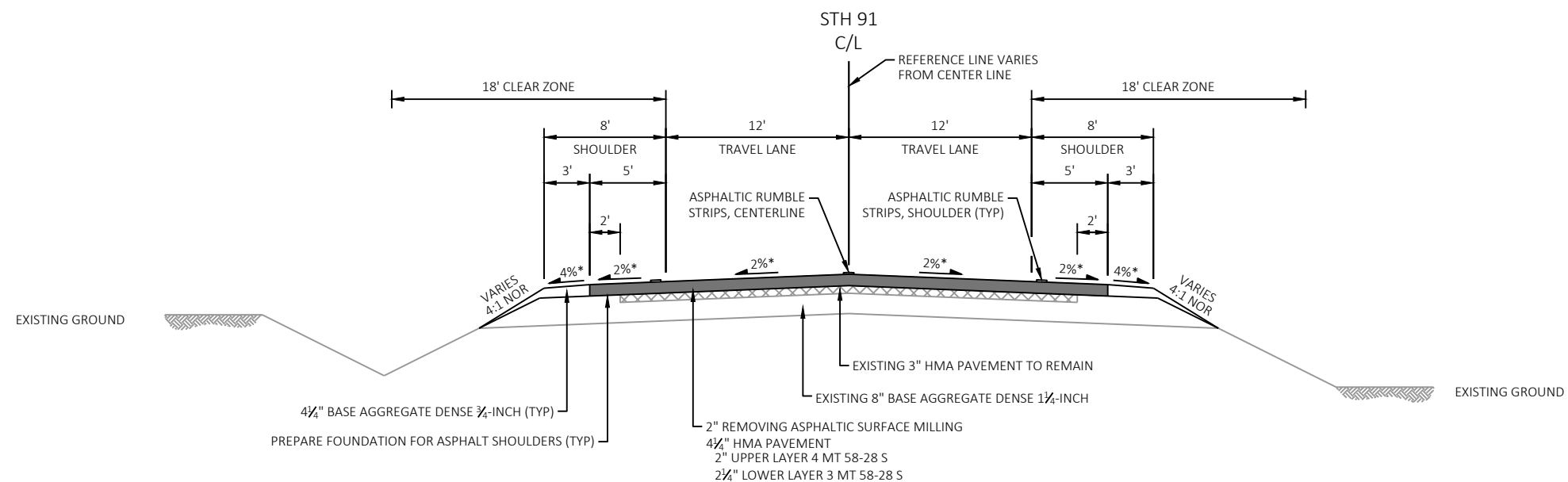
EXISTING TYPICAL SECTION STH 91
STA 428+50 TO STA 870+72



FINISHED TYPICAL SECTION STH 91

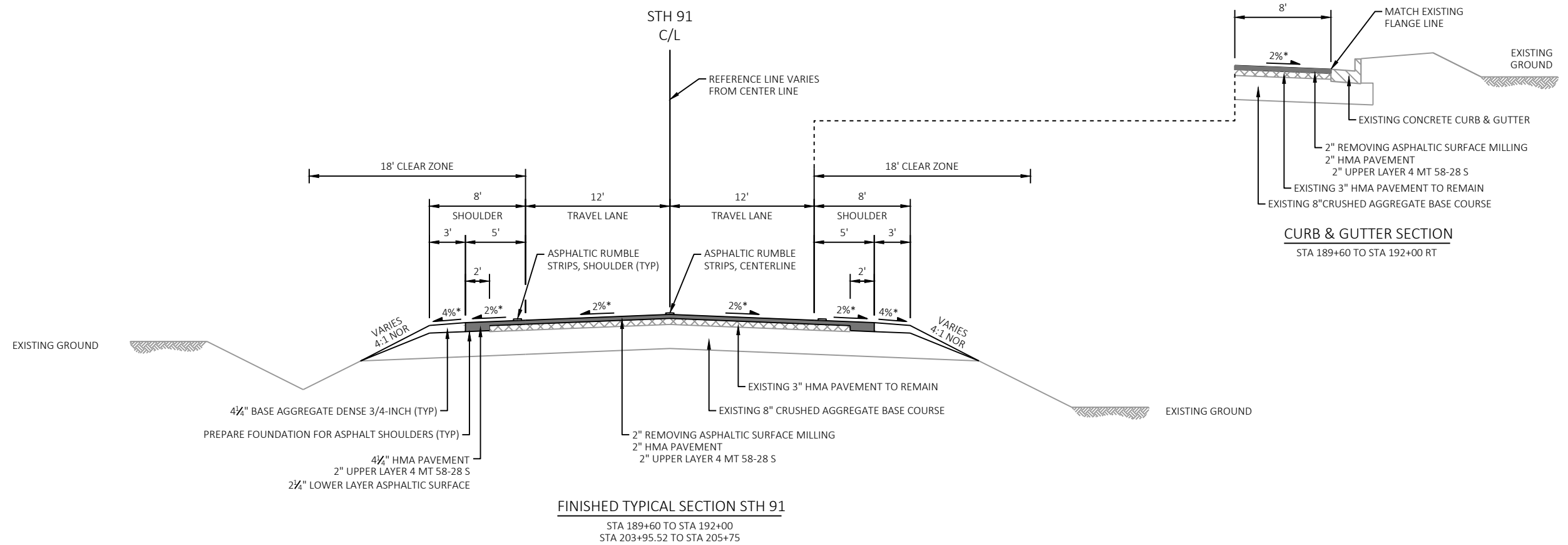
STA 99+06 TO STA 123+00
STA 127+00 TO STA 185+00
STA 192+00 TO STA 203+95.52

* CROSS SLOPE VARIES DUE TO SUPERELEVATION

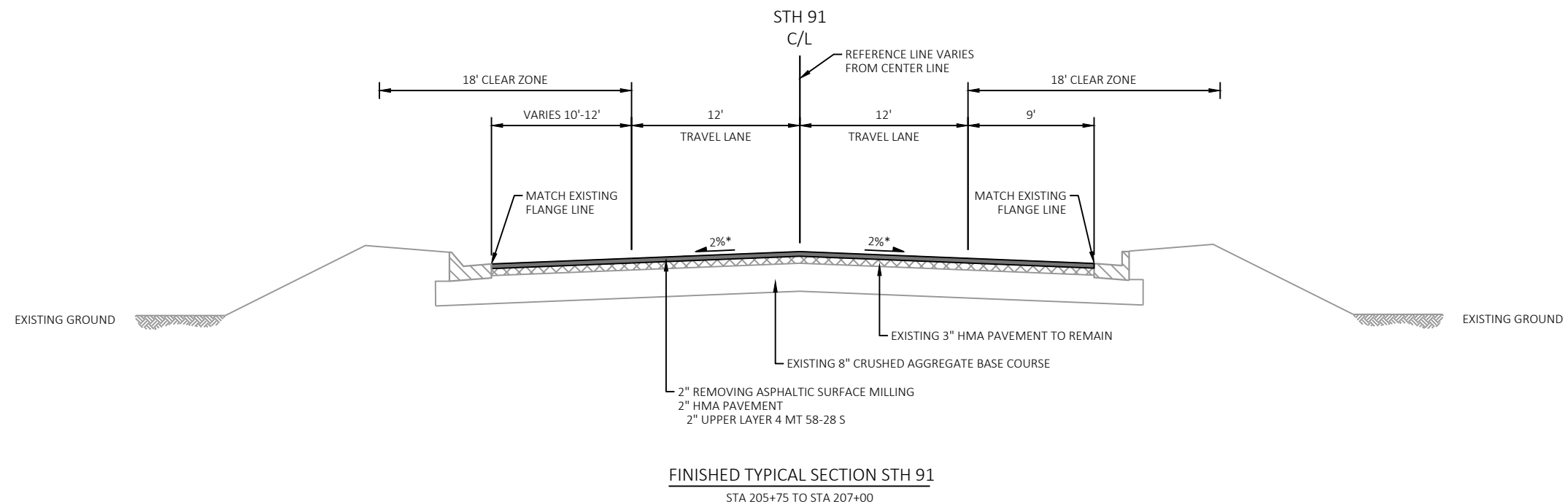


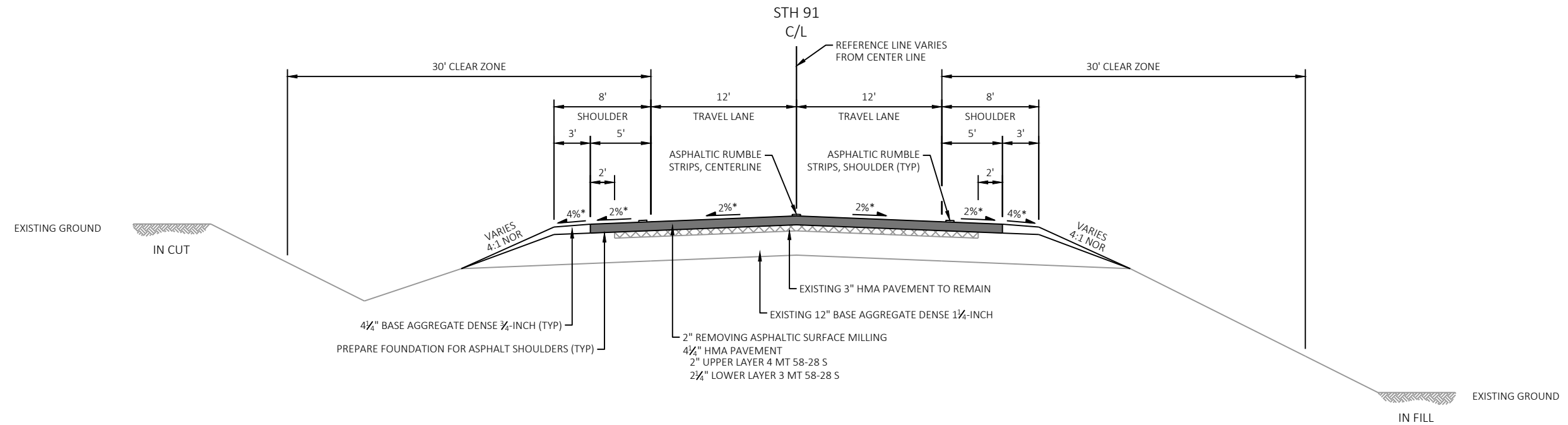
FINISHED TYPICAL SECTION STH 91

STA 123+00 TO STA 127+00
STA 185+00 TO STA 189+60



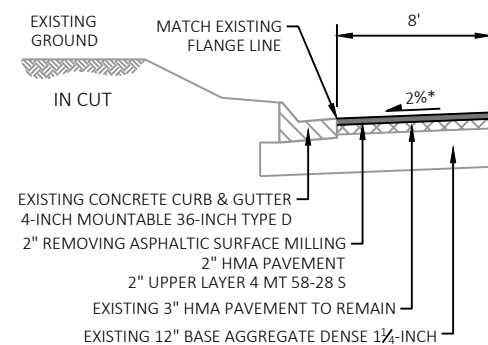
* CROSS SLOPE VARIES DUE TO SUPERELEVATION



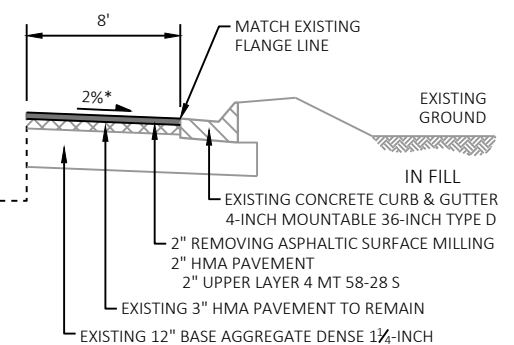
**FINISHED TYPICAL SECTION STH 91**

STA 207+50 TO STA 289+00
STA 293+00 TO STA 319+00
STA 344+00 TO STA 396+75

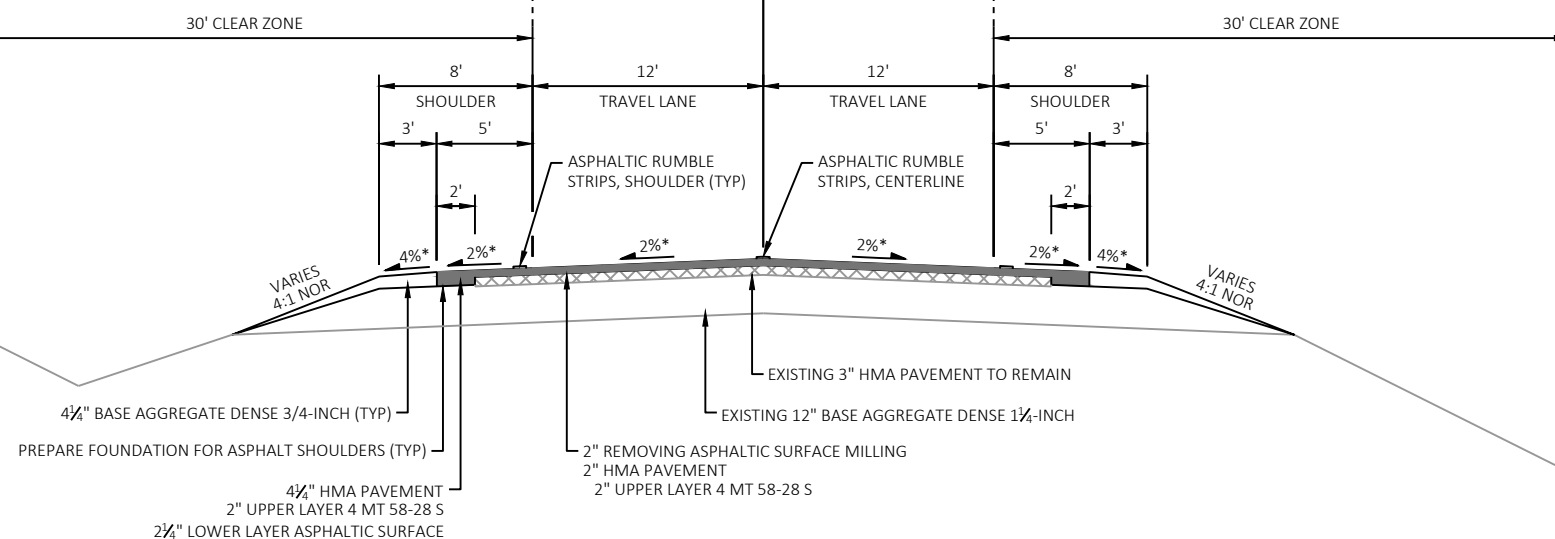
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**CURB & GUTTER SECTION**

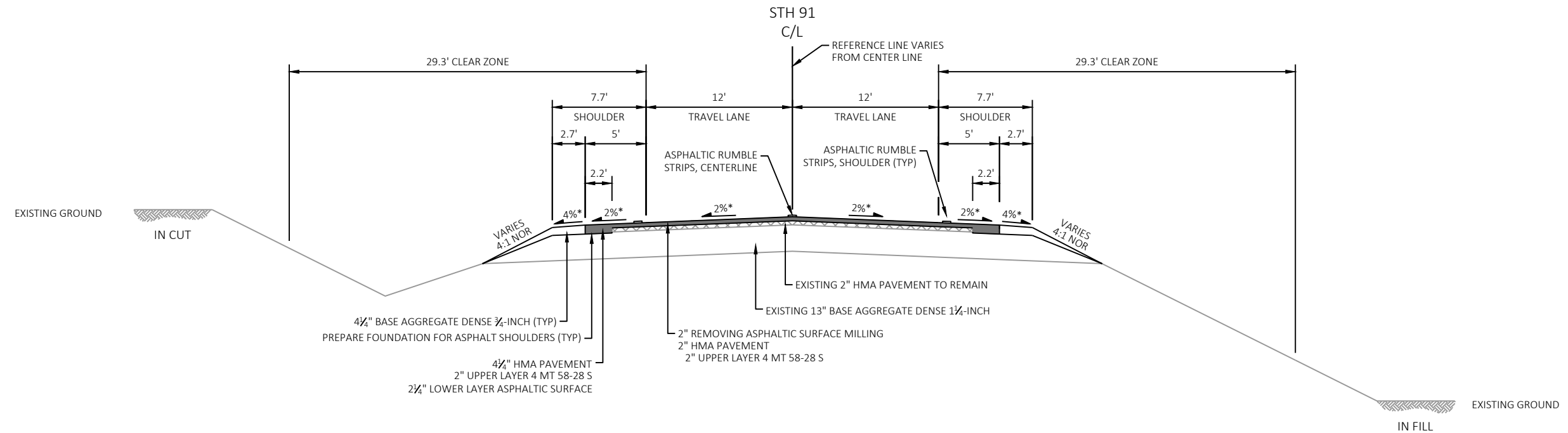
STA 289+50 TO STA 292+50 LT
STA 342+00 TO STA 344+00 LT
STA 396+75 TO STA 401+90 LT
STA 414+00 TO STA 415+40 LT

**CURB & GUTTER SECTION**

STA 319+00 TO STA 322+00 RT
STA 333+75 TO STA 338+00 RT
STA 406+00 TO STA 409+00 RT

**FINISHED TYPICAL SECTION STH 91**

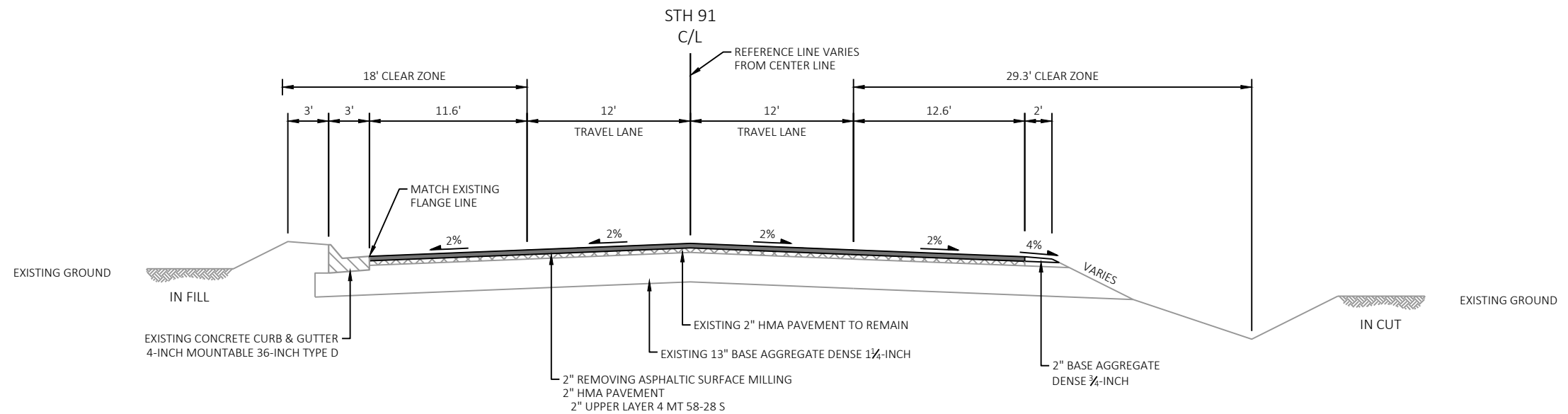
STA 207+00 TO STA 207+50
STA 289+00 TO STA 293+00
STA 319+00 TO STA 344+00
STA 396+75 TO STA 416+00



FINISHED TYPICAL SECTION STH 91

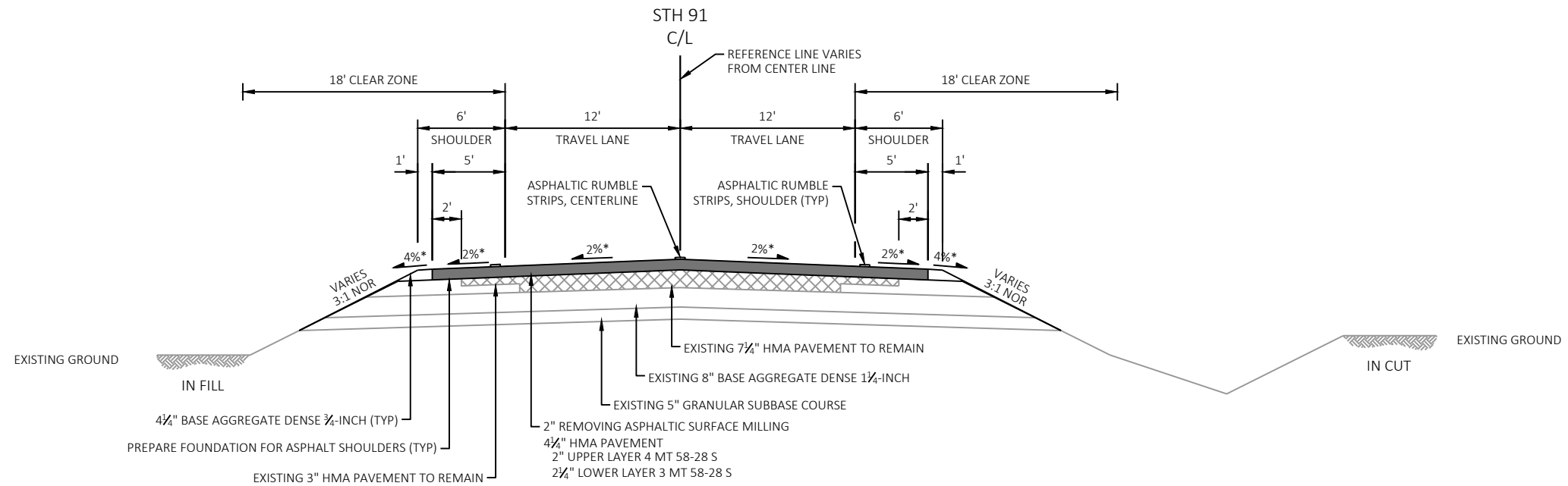
STA 416+00 TO STA 424+12

* CROSS SLOPE VARIES DUE TO SUPERELEVATION



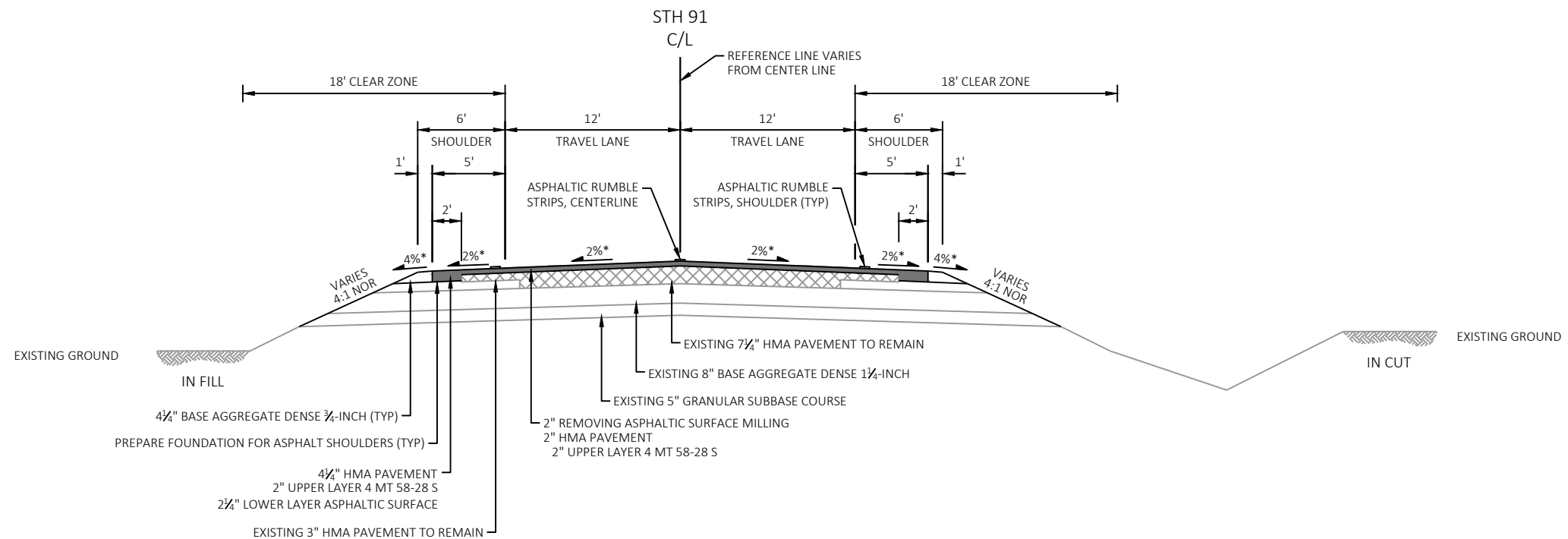
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STA 424+12 TO STA 427+35

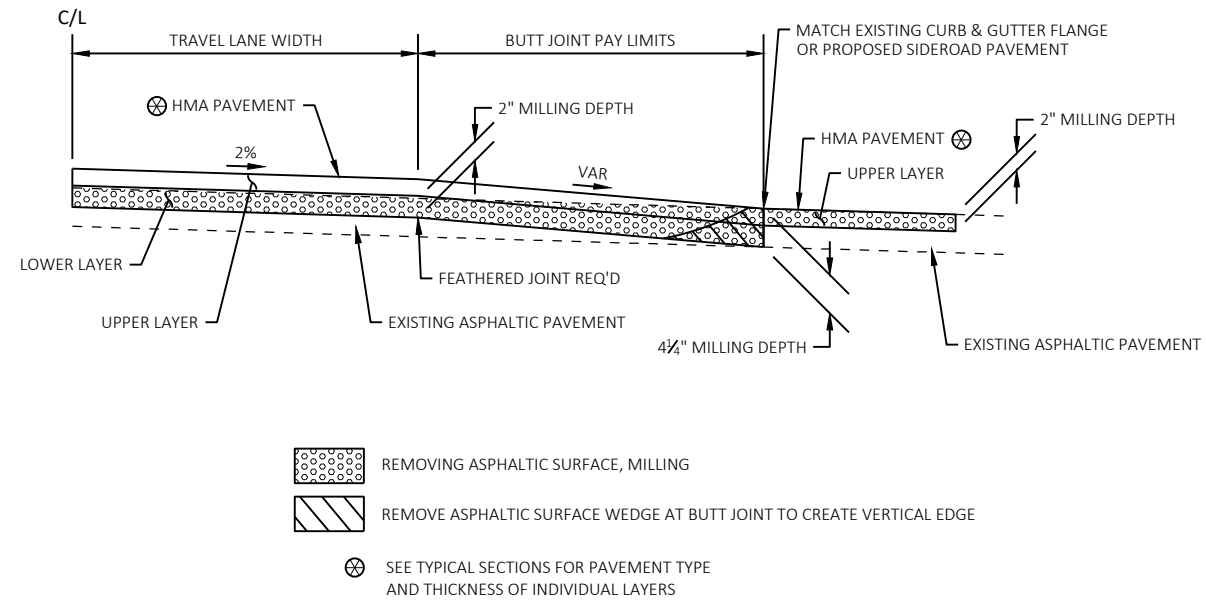
**FINISHED TYPICAL SECTION STH 91**

STA 427+35 TO STA 455+76
STA 459+95 TO STA 807+10
STA 810+36 TO STA 870+72

* CROSS SLOPE VARIES DUE TO SUPERELEVATION

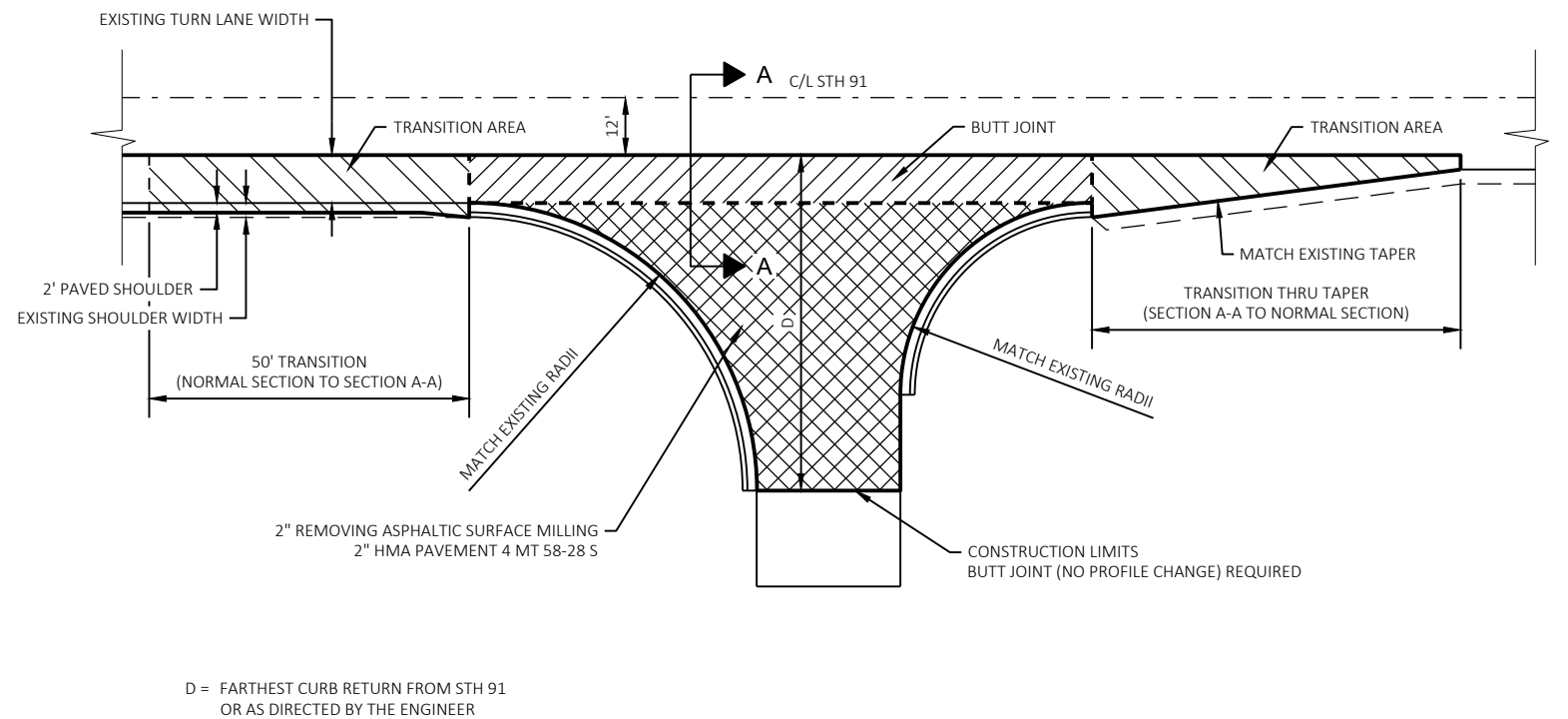
**FINISHED TYPICAL SECTION STH 91**

STA 455+76 TO STA 457+66
STA 458+05 TO STA 459+95

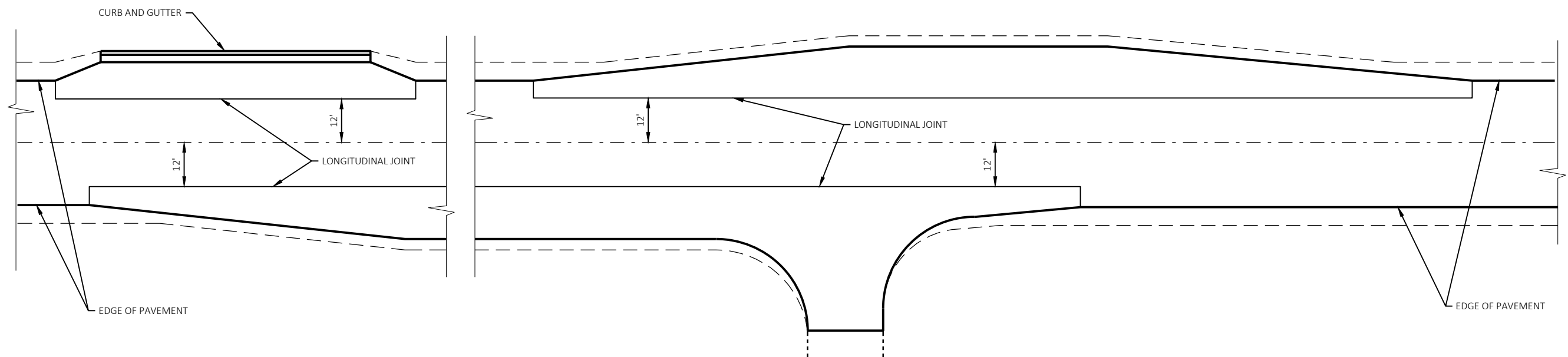


SECTION A-A

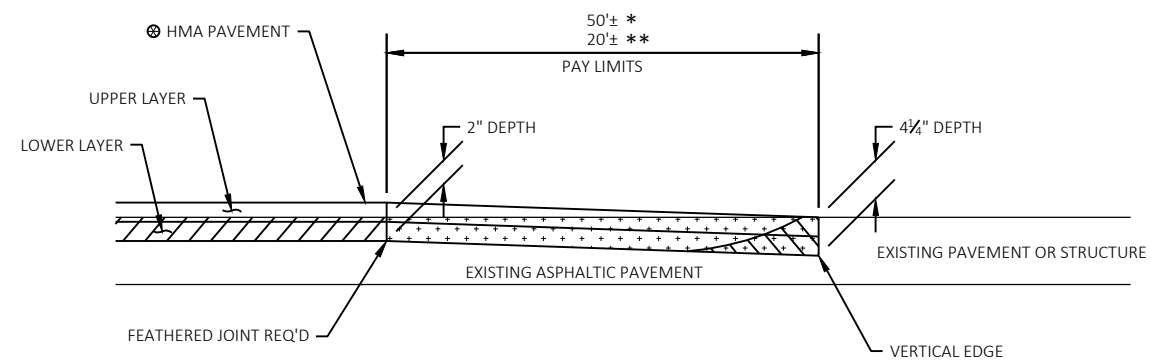
TYPICAL SIDE ROAD DETAIL



PLAN VIEW



HMA LONGITUDINAL JOINT DETAIL

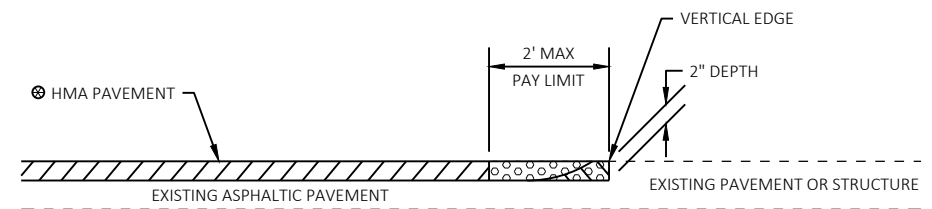


⊕ SEE TYPICAL CROSS SECTION FOR PAVEMENT TYPE AND THICKNESS OF INDIVIDUAL LAYERS

-  REMOVING ASPHALTIC SURFACE, MILLING
-  REMOVING ASPHALTIC SURFACE, BUTT JOINT
-  REMOVE ASPHALTIC SURFACE WEDGE AT BUTT JOINT TO CREATE VERTICAL EDGE

BUTT JOINT DETAIL FOR MILLED ASPHALTIC PAVEMENTS (PROFILE CHANGE)

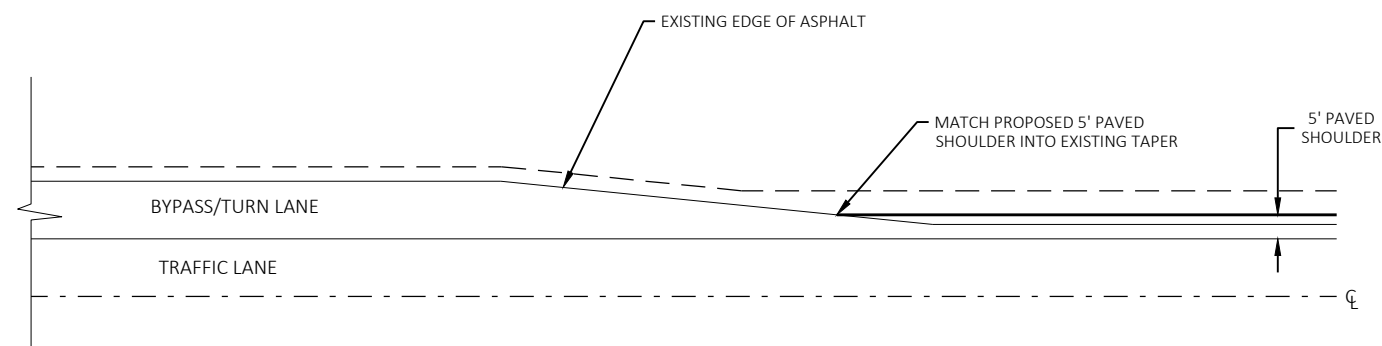
* MAINLINE
** SIDEROADS



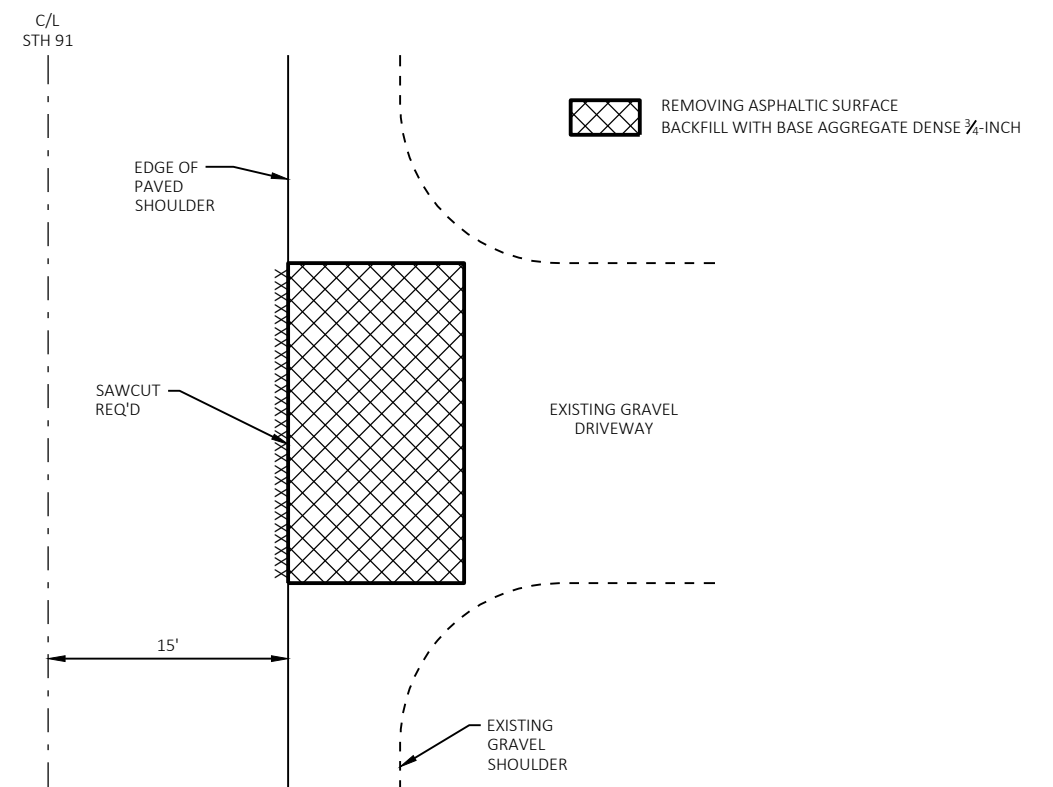
⊕ SEE TYPICAL CROSS SECTION FOR PAVEMENT TYPE AND THICKNESS OF INDIVIDUAL LAYERS

-  REMOVING ASPHALTIC SURFACE, MILLING
-  REMOVING ASPHALTIC SURFACE, BUTT JOINTS
-  REMOVE ASPHALTIC SURFACE WEDGE AT BUTT JOINT TO CREATE VERTICAL EDGE

BUTT JOINT DETAIL FOR ASPHALTIC PAVEMENTS (NO PROFILE CHANGE)



DETAIL FOR ASPHALTIC SHOULDER AT BYPASS/TURN LANES



ASPHALT DRIVEWAY STUB REMOVAL DETAIL

PROJECT NO: 6540-08-71

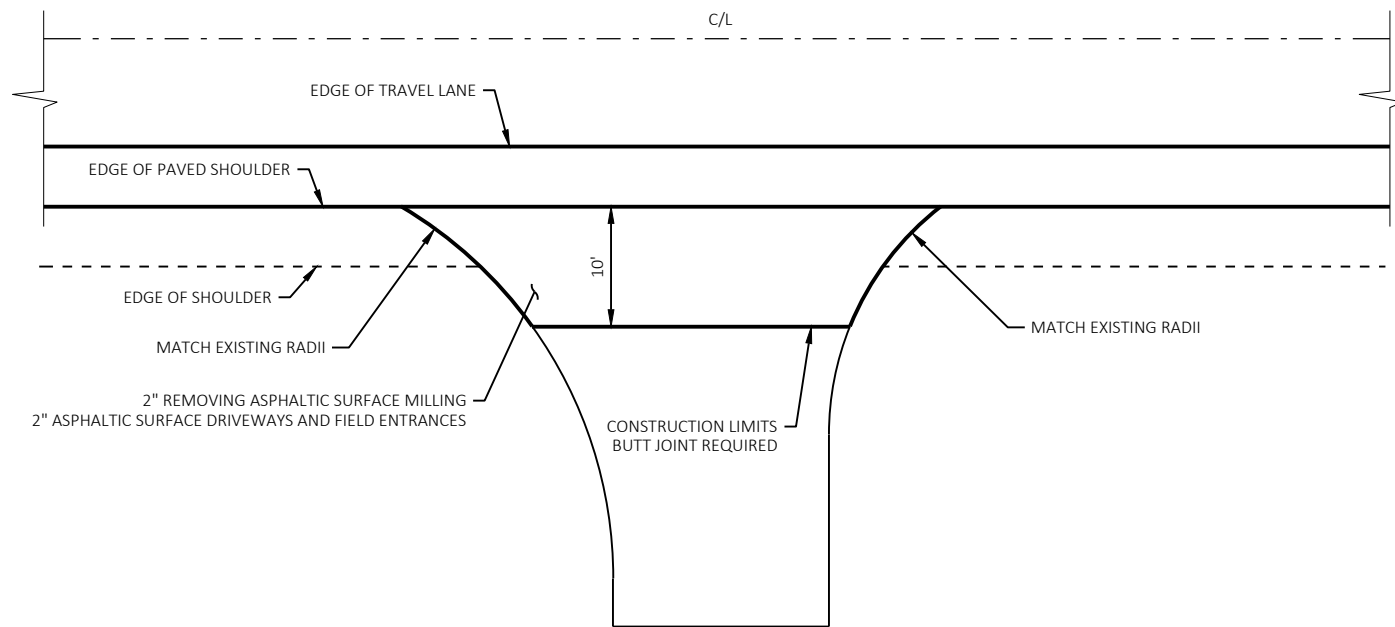
HWY: STH 91

COUNTY: WINNEBAGO

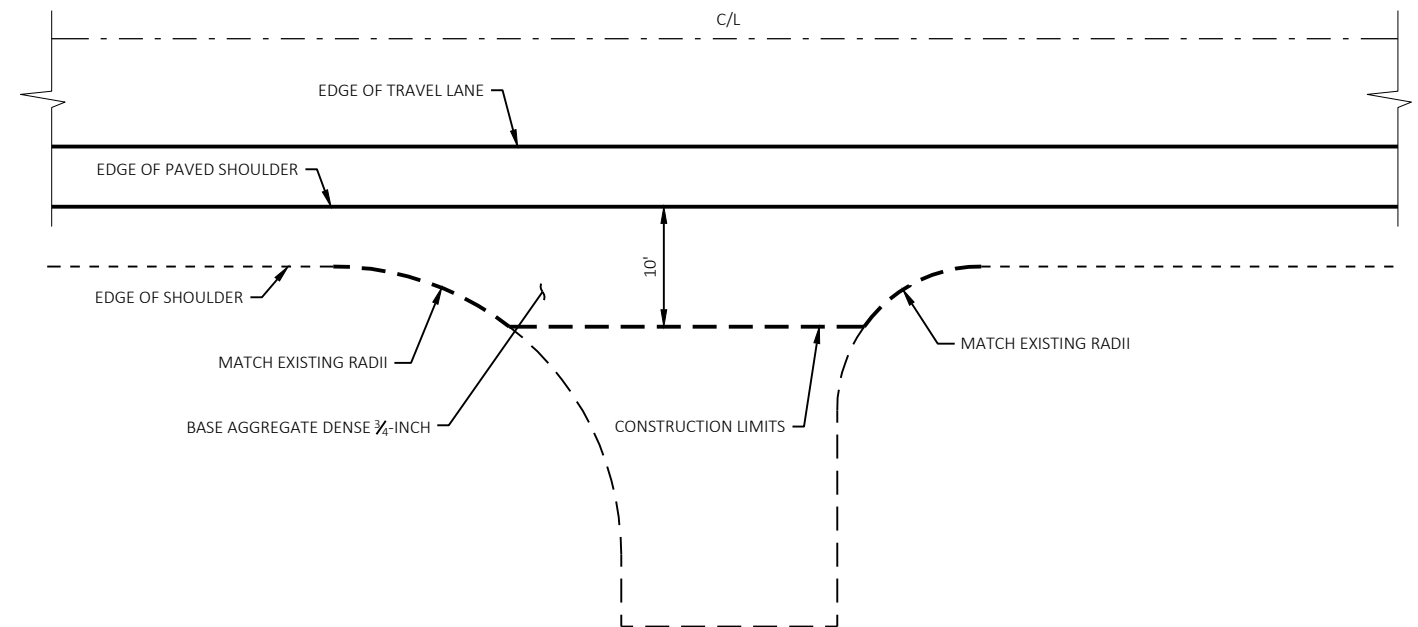
CONSTRUCTION DETAILS

SHEET

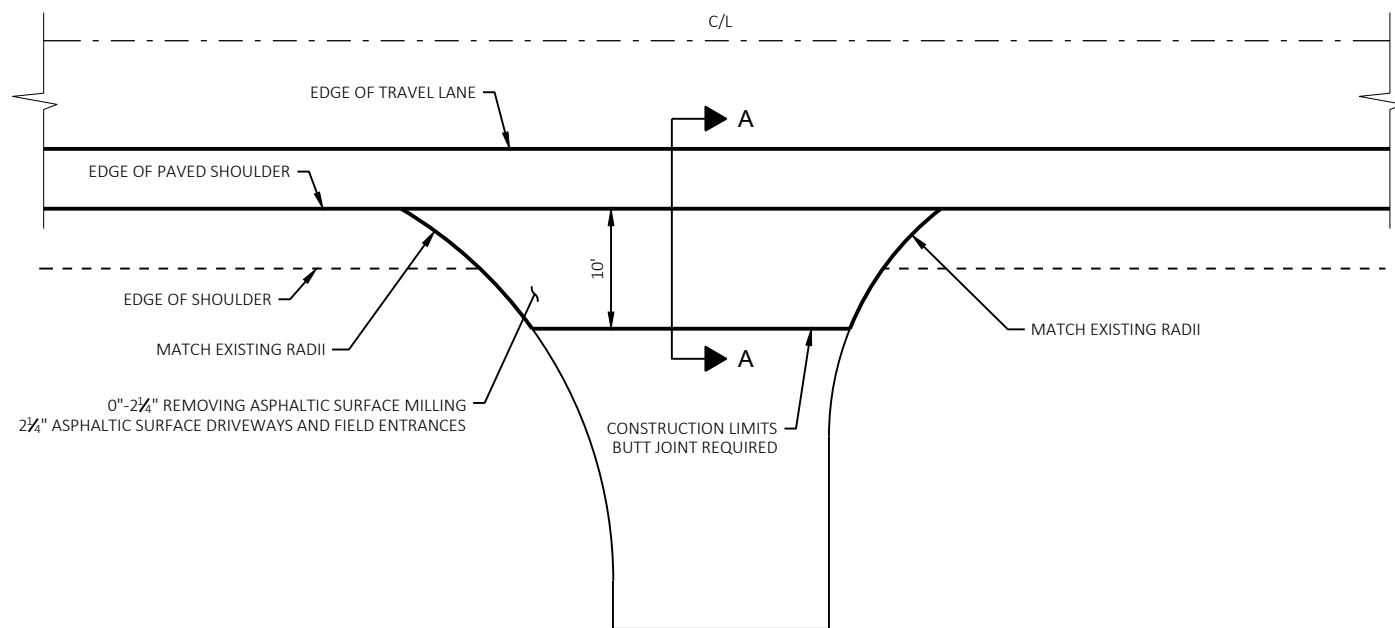
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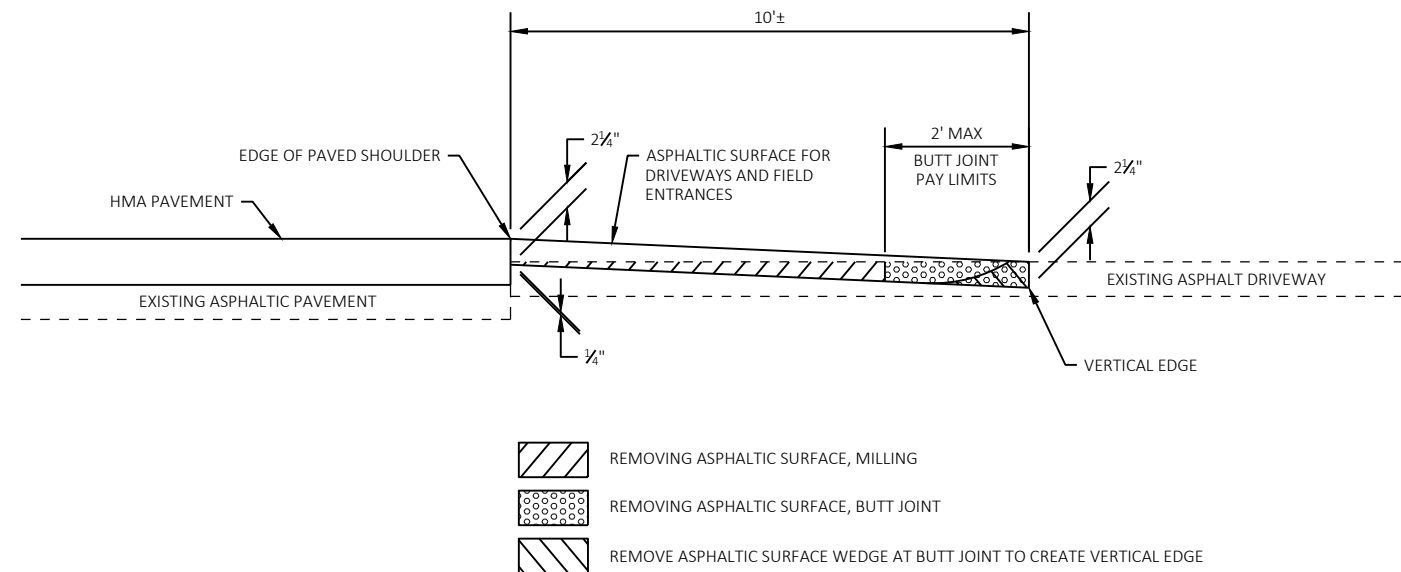
TYPICAL ASPHALT DRIVEWAY DETAIL (NO PROFILE CHANGE)



TYPICAL GRAVEL DRIVEWAY DETAIL



PLAN VIEW



SECTION A-A

TYPICAL ASPHALT DRIVEWAY DETAIL (PROFILE CHANGE)

PROJECT NO: 6540-08-71

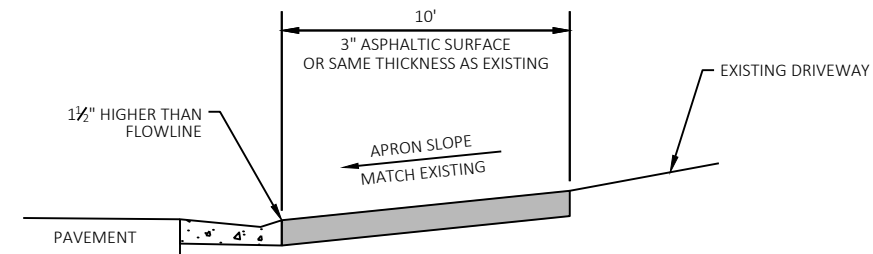
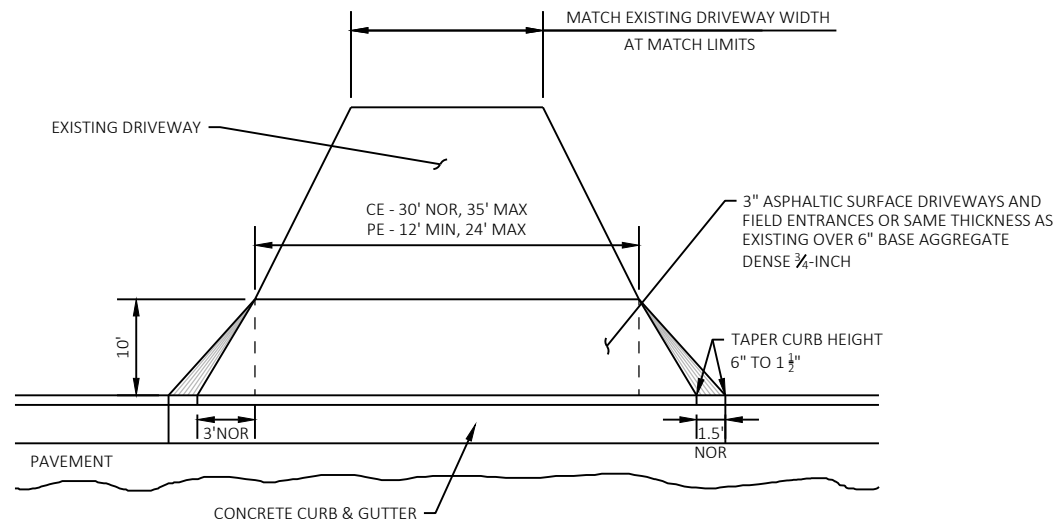
HWY: STH 91

COUNTY: WINNEBAGO

CONSTRUCTION DETAILS

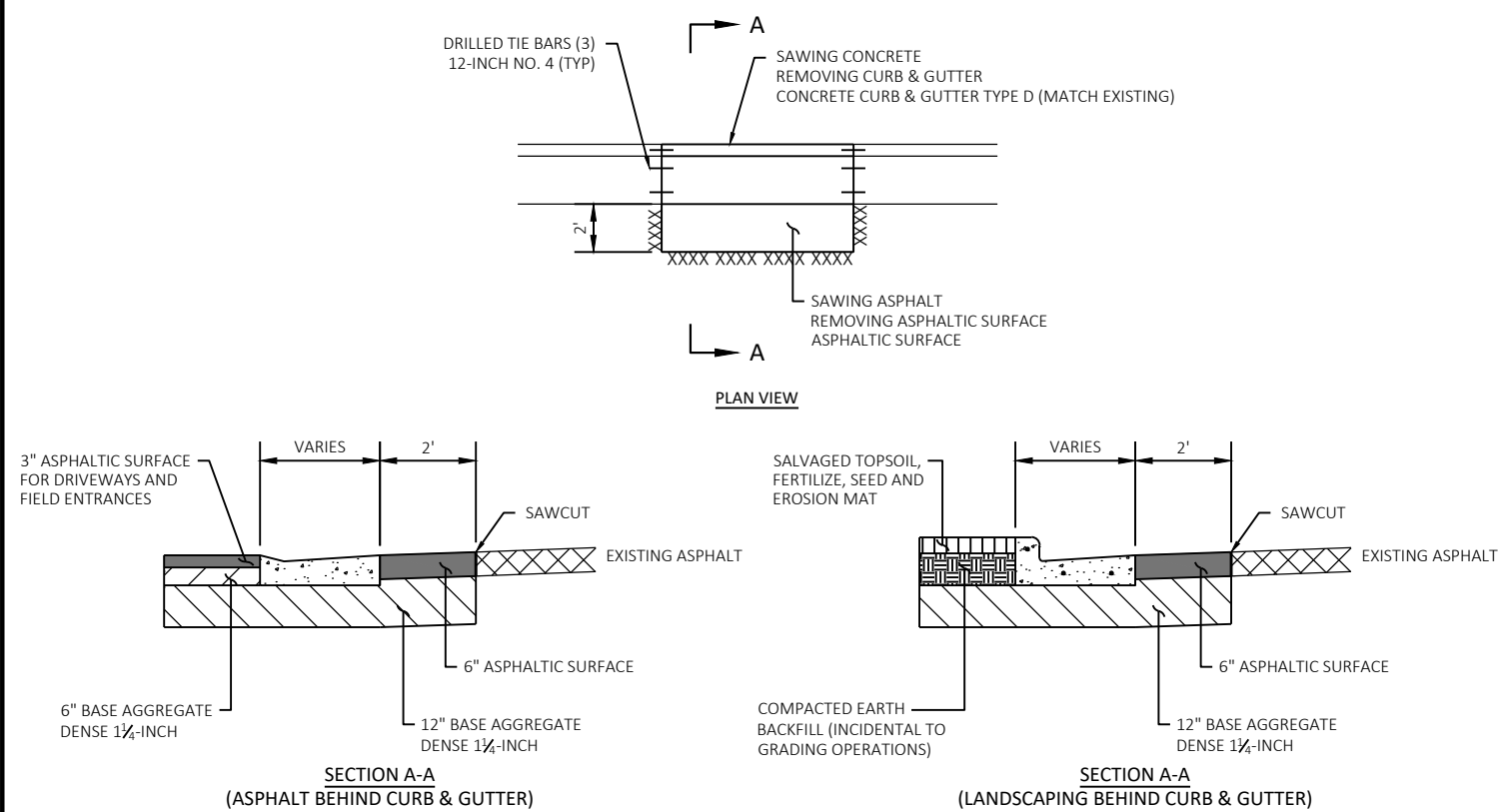
SHEET

E

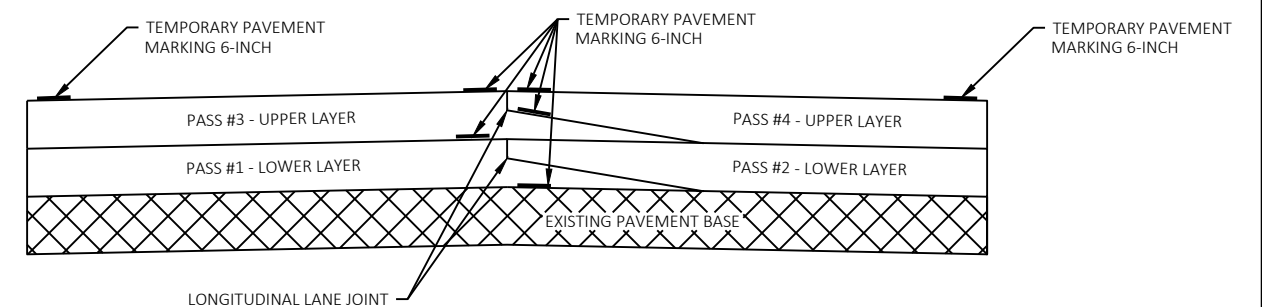


TYPICAL SECTION

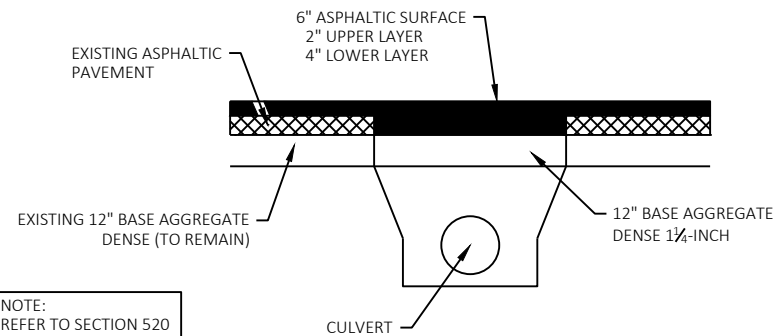
RURAL ENTRANCE DETAIL WITH CURB & GUTTER - STATION 336+70; RT



DETAIL FOR CURB AND GUTTER REMOVAL/REPLACEMENT

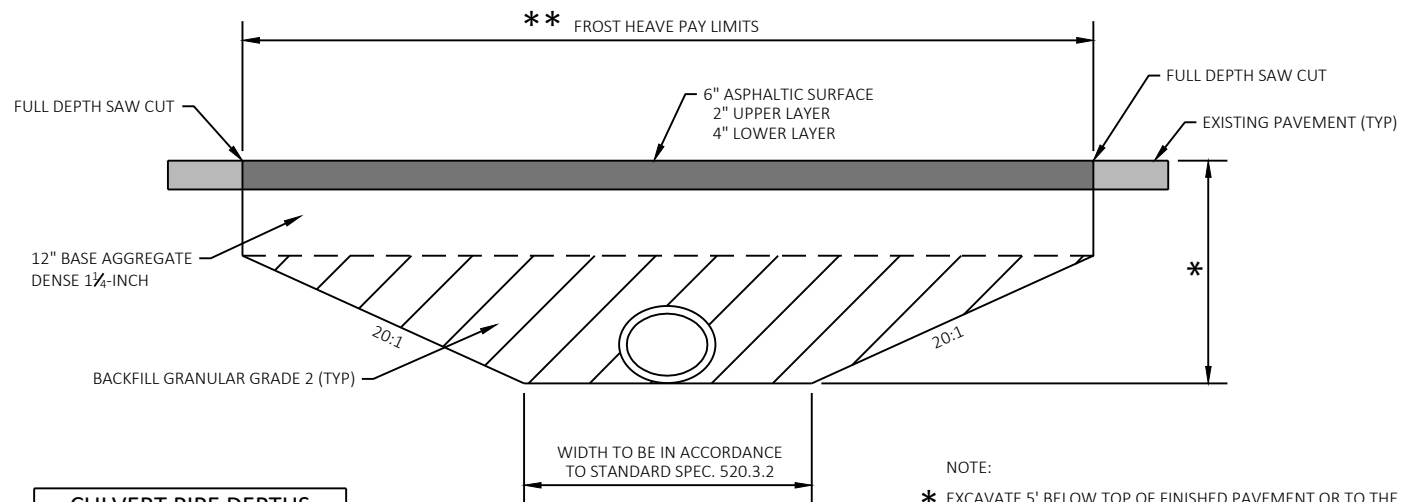


PAVEMENT MARKING DETAIL FOR TAPERED OVERLAPPING JOINTS IN HMA PAVEMENTS



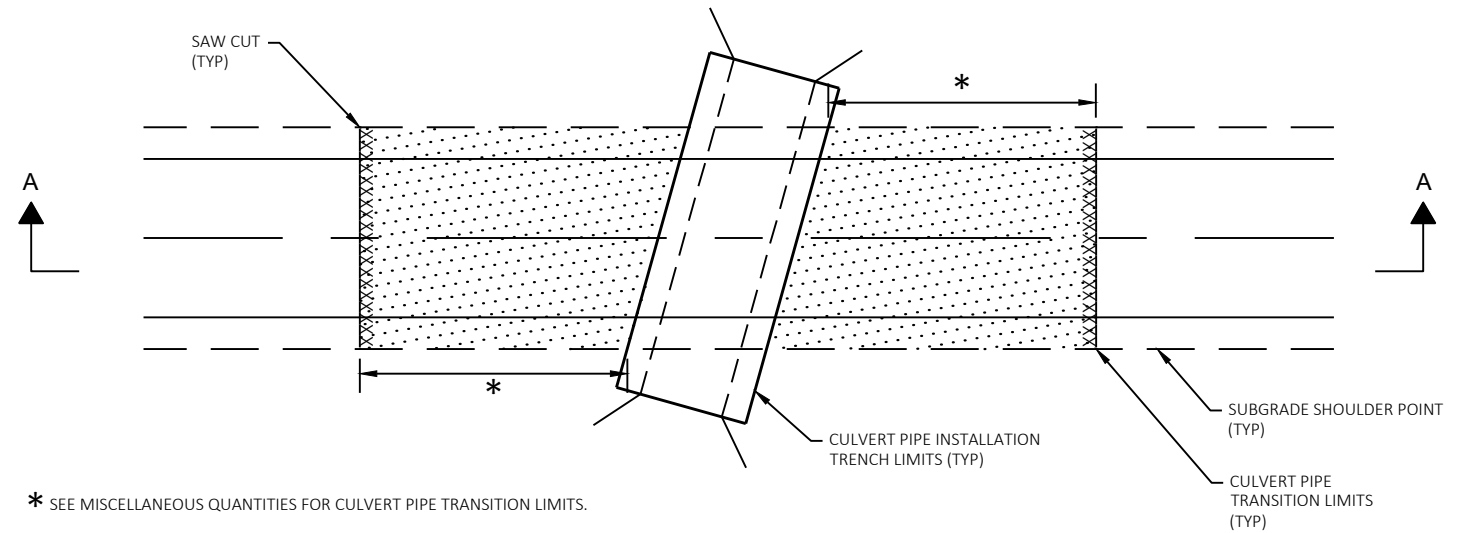
CULVERT PIPE DEPTHS	
STATION	APPROX. DEPTH C/L TO TOP OF PIPE
146+40	8.6
165+18	7.4
183+21	7.2
468+37	7.7
534+22	5.0
544+16	4.3
555+83	4.7
576+79	5.3
587+74	4.9
605+08	4.4
631+70	5.1

PAVEMENT AT CULVERT REPLACEMENTS

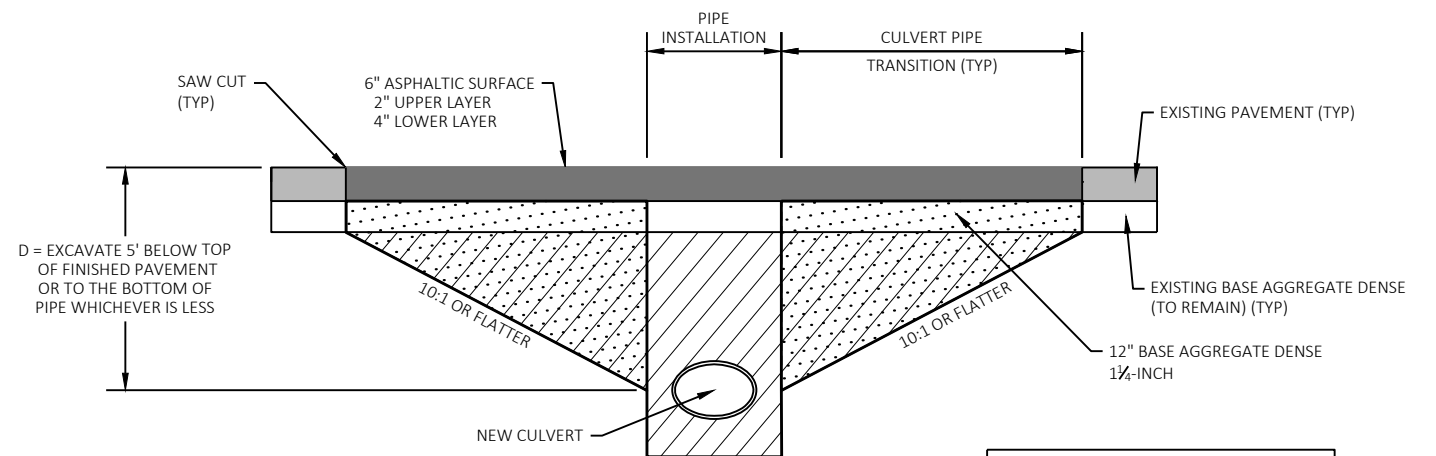


CULVERT PIPE DEPTHS	
STATION	APPROX. DEPTH C/L TO TOP OF PIPE
736+24	2.6 FT
829+30	4.4 FT

LONGITUDINAL DETAIL FOR FROST HEAVE REPAIR AREA WITH PIPE

STA 736+24
STA 829+30

* SEE MISCELLANEOUS QUANTITIES FOR CULVERT PIPE TRANSITION LIMITS.



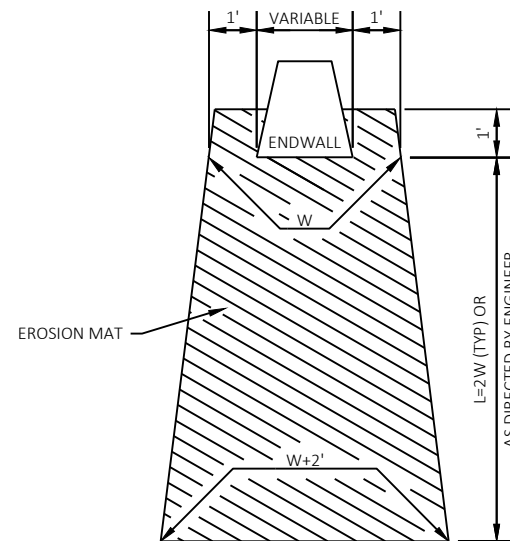
SECTION A-A

	COMMON EXCAVATION
	FOUNDATION BACKFILL

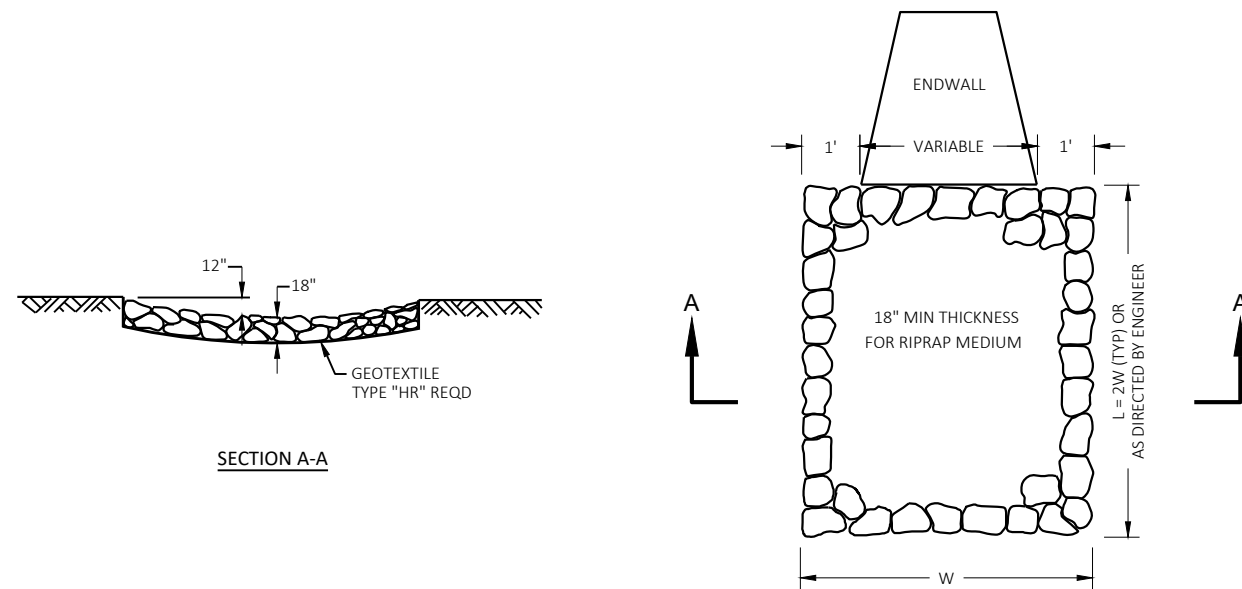
CULVERT PIPE DEPTHS	
STATION	APPROX. DEPTH C/L TO TOP OF PIPE
106+38	3.4
109+28	2.8
189+01	3.3
424+24	3.3
488+65	3.1
502+36	3.4
515+41	3.3
615+97	2.8
625+02	3.0
641+15	3.3
650+68	3.6
679+02	3.4
691+77	1.9
701+01	2.6
708+65	2.5
752+57	3.5
778+03	3.1
794+44	2.2
851+57	3.6

PIPE INSTALLATION AREA WILL FOLLOW
SECTION 520 FOR INSTALLATION,
WIDTHS AND PAYMENT.CONSTRUCT TRANSITION
PERPENDICULAR TO CULVERT PIPE.CULVERT PIPE TRANSITION AREAS WILL
BE PAID BY COMMON EXCAVATION &
SPV FOUNDATION BACKFILL.PAVEMENT SAW CUT TO BE
PERPENDICULAR TO ROADWAY ALIGNMENT.

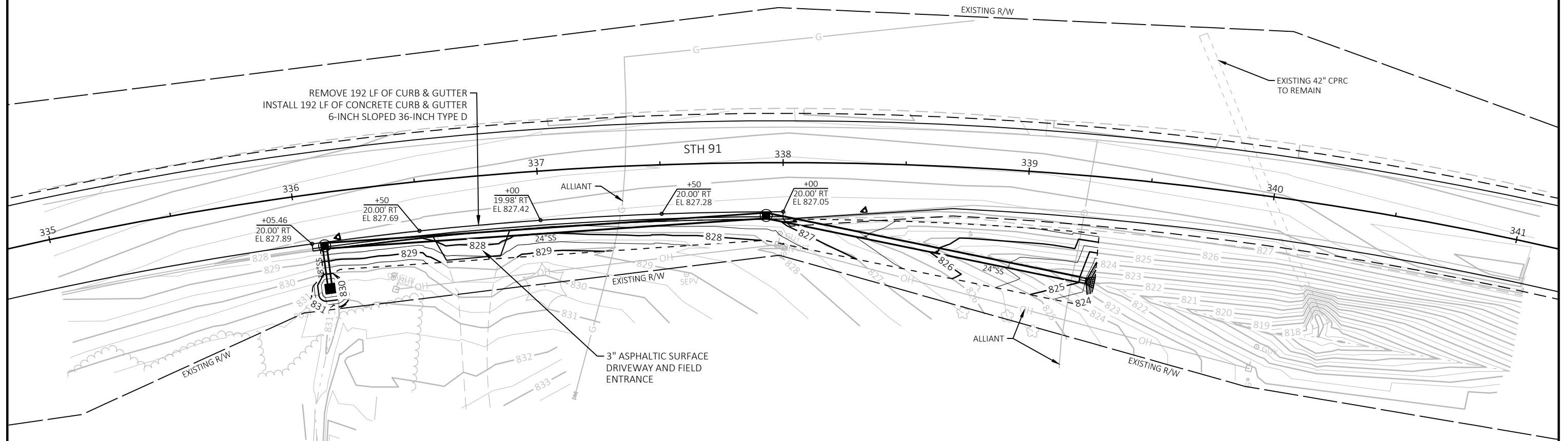
NEW CULVERT PIPES WITH TRANSITION



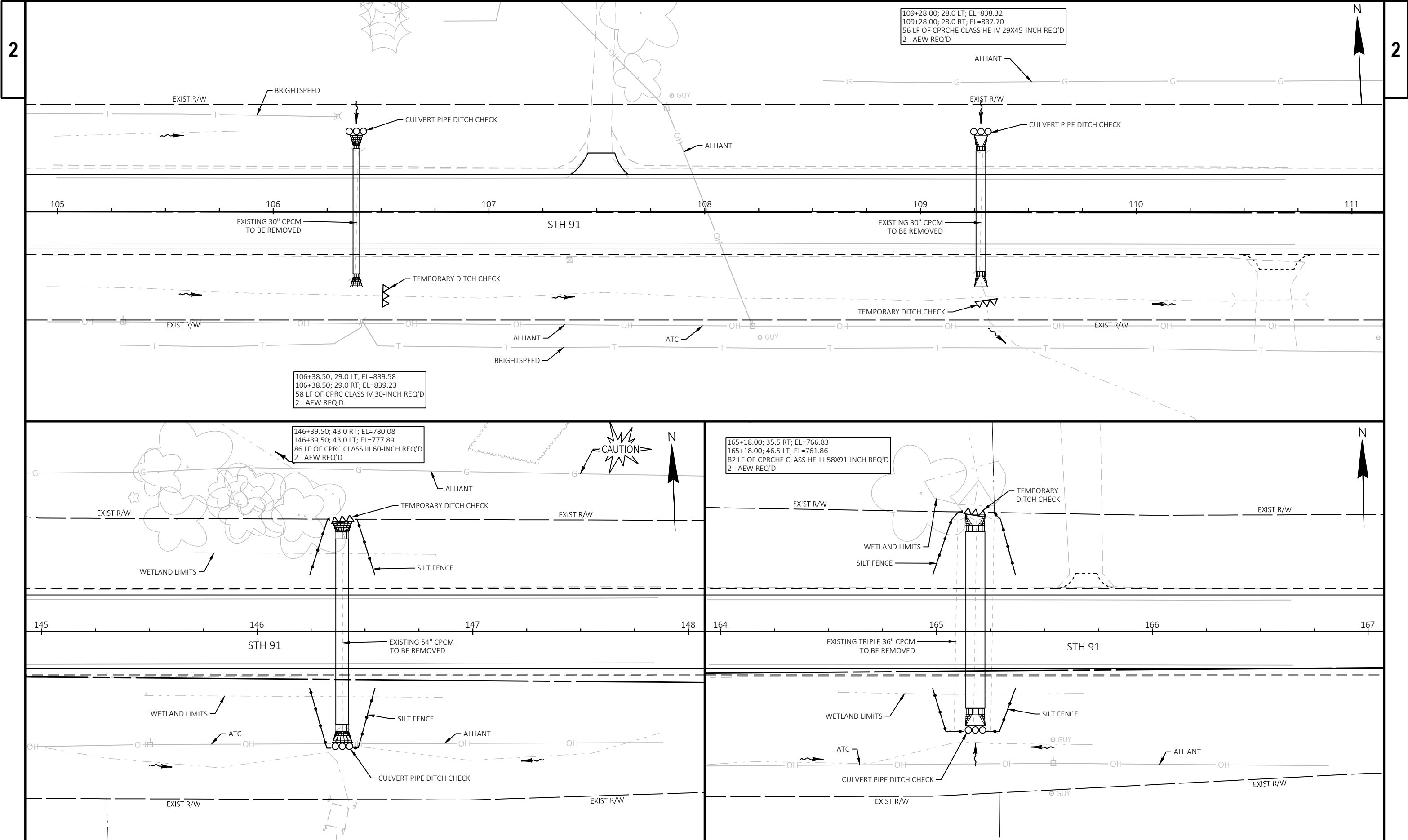
EROSION MAT TREATMENT AT CULVERTS

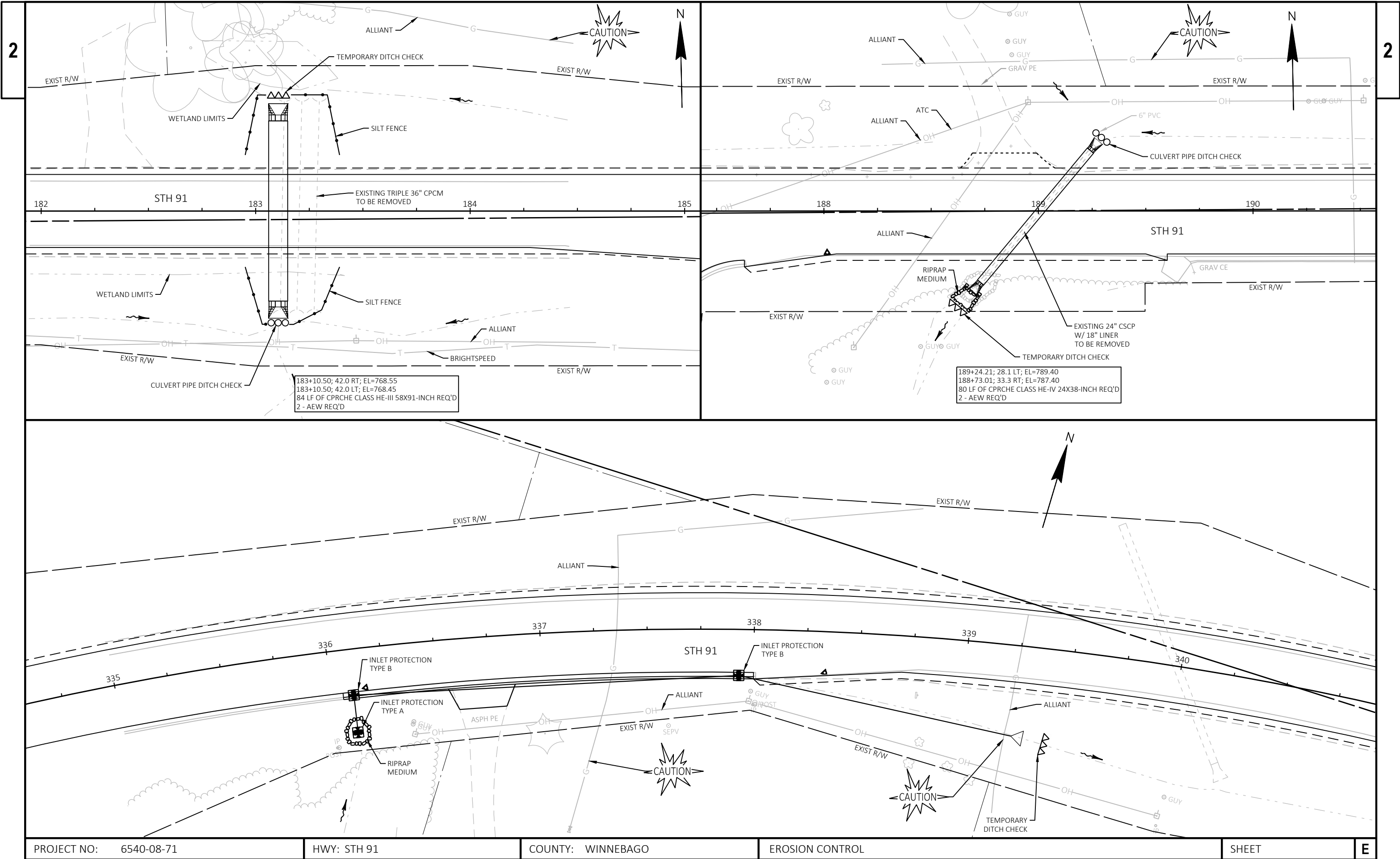


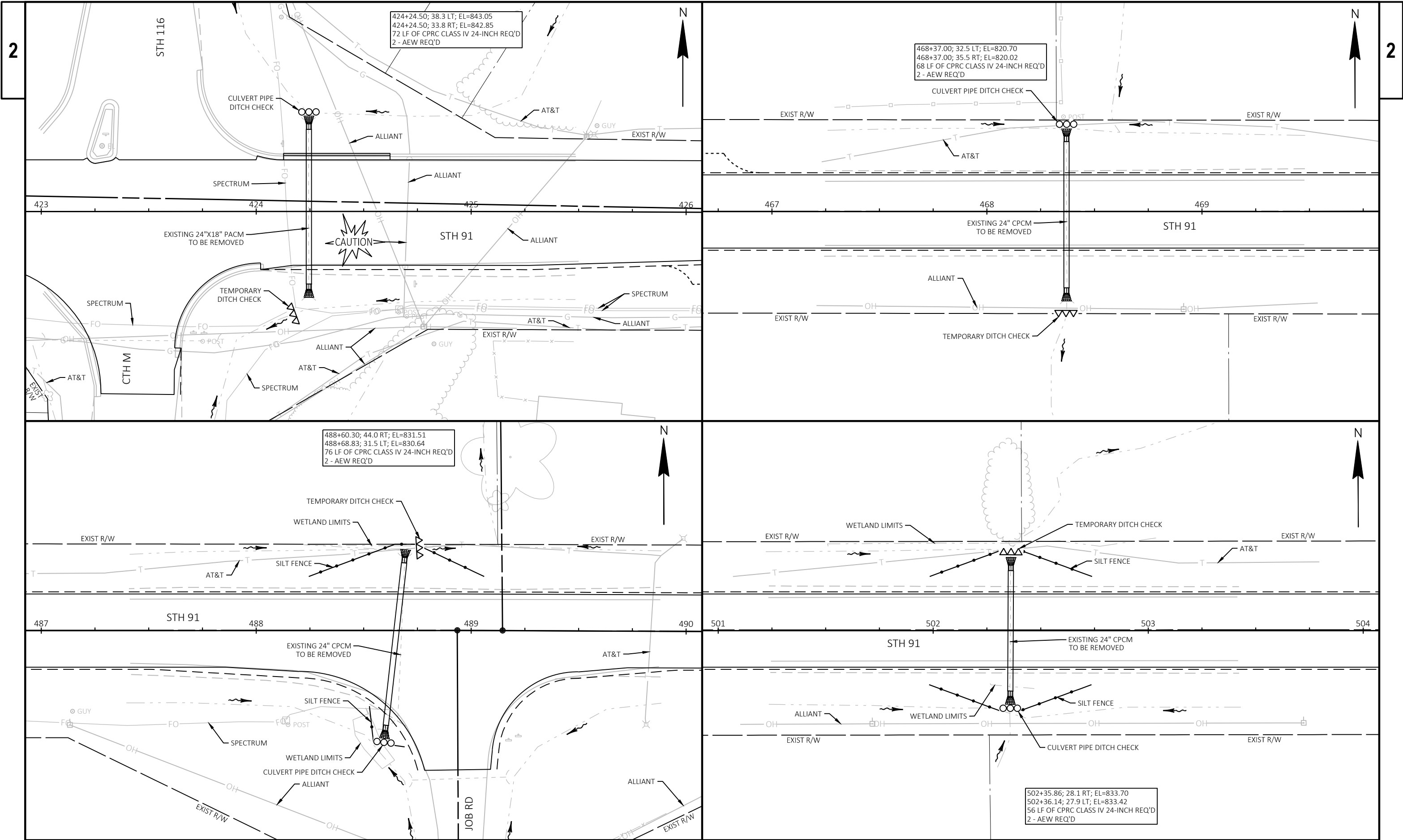
RIPRAP MEDIUM TREATMENT AT CULVERTS

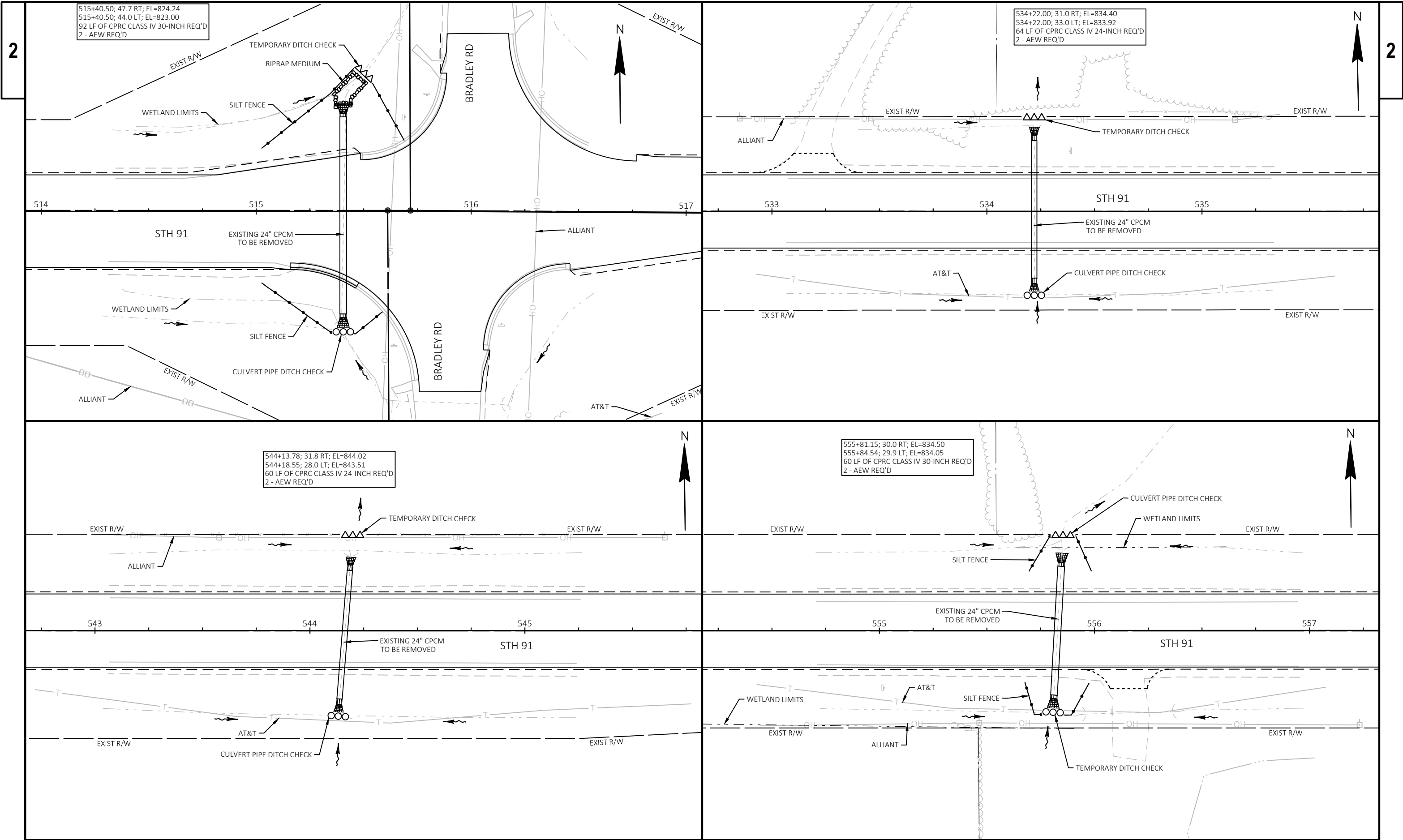


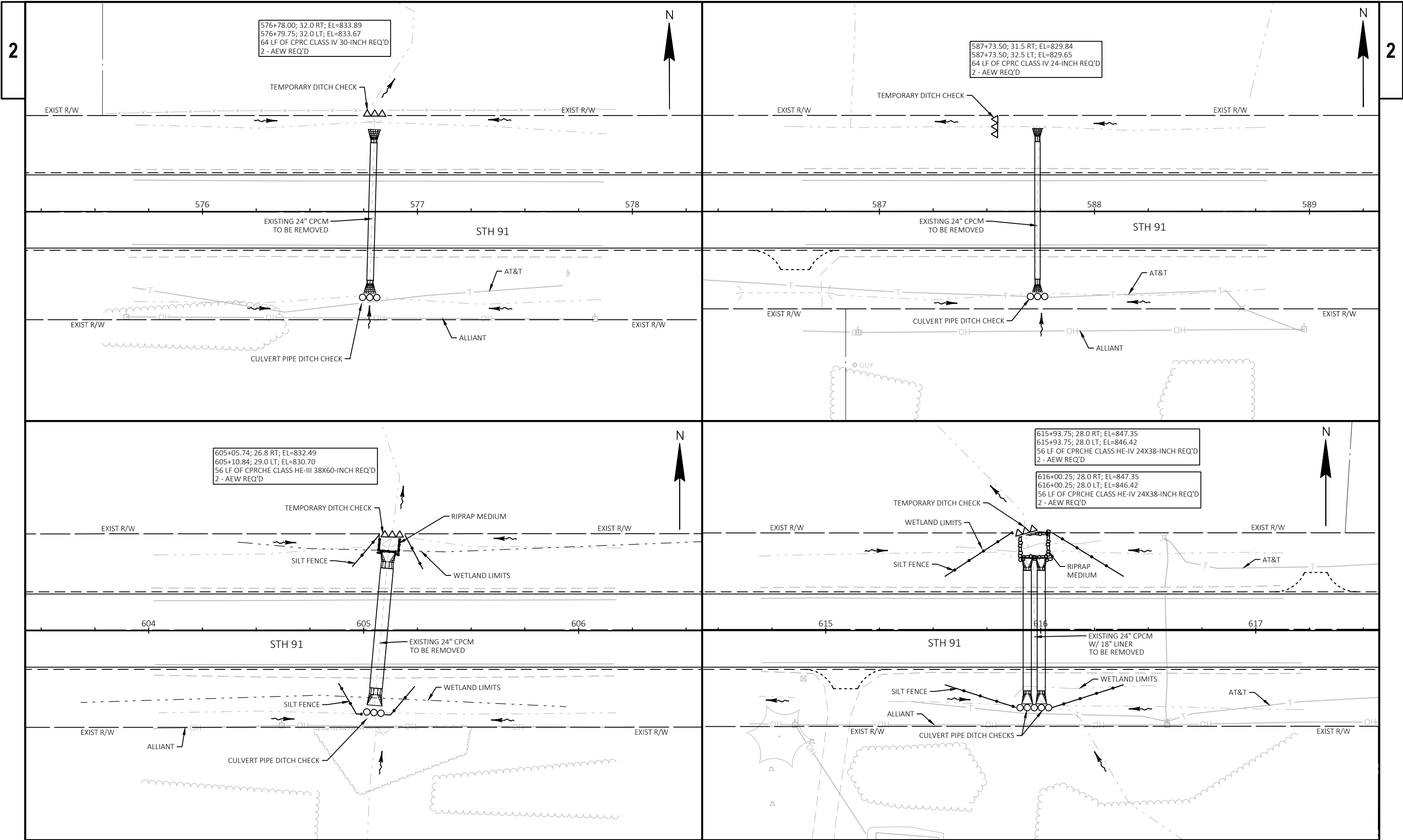
GRADING & SHAPING FOR STORM
SEWER SHALL BE INCIDENTAL TO
STORM SEWER BID ITEMS

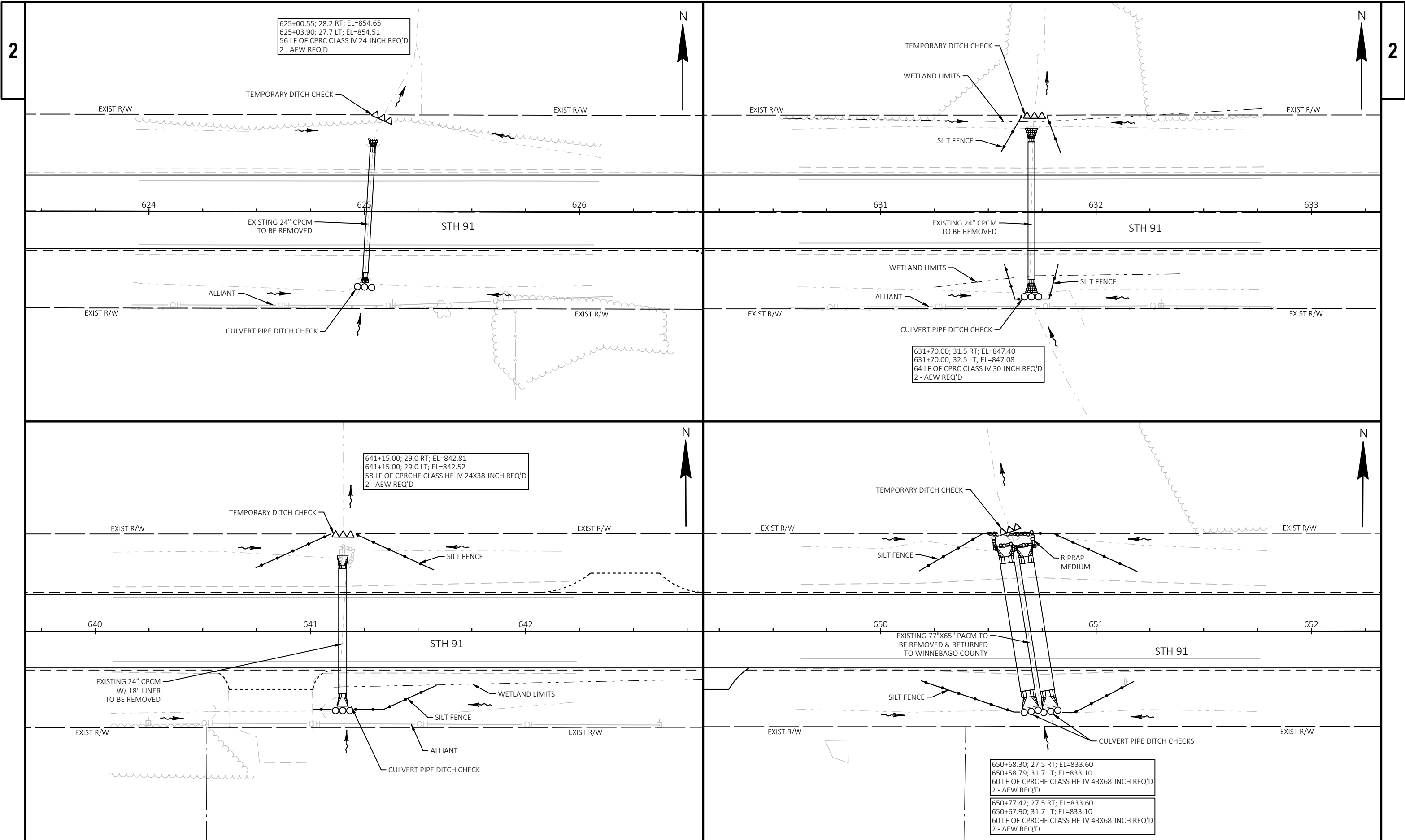


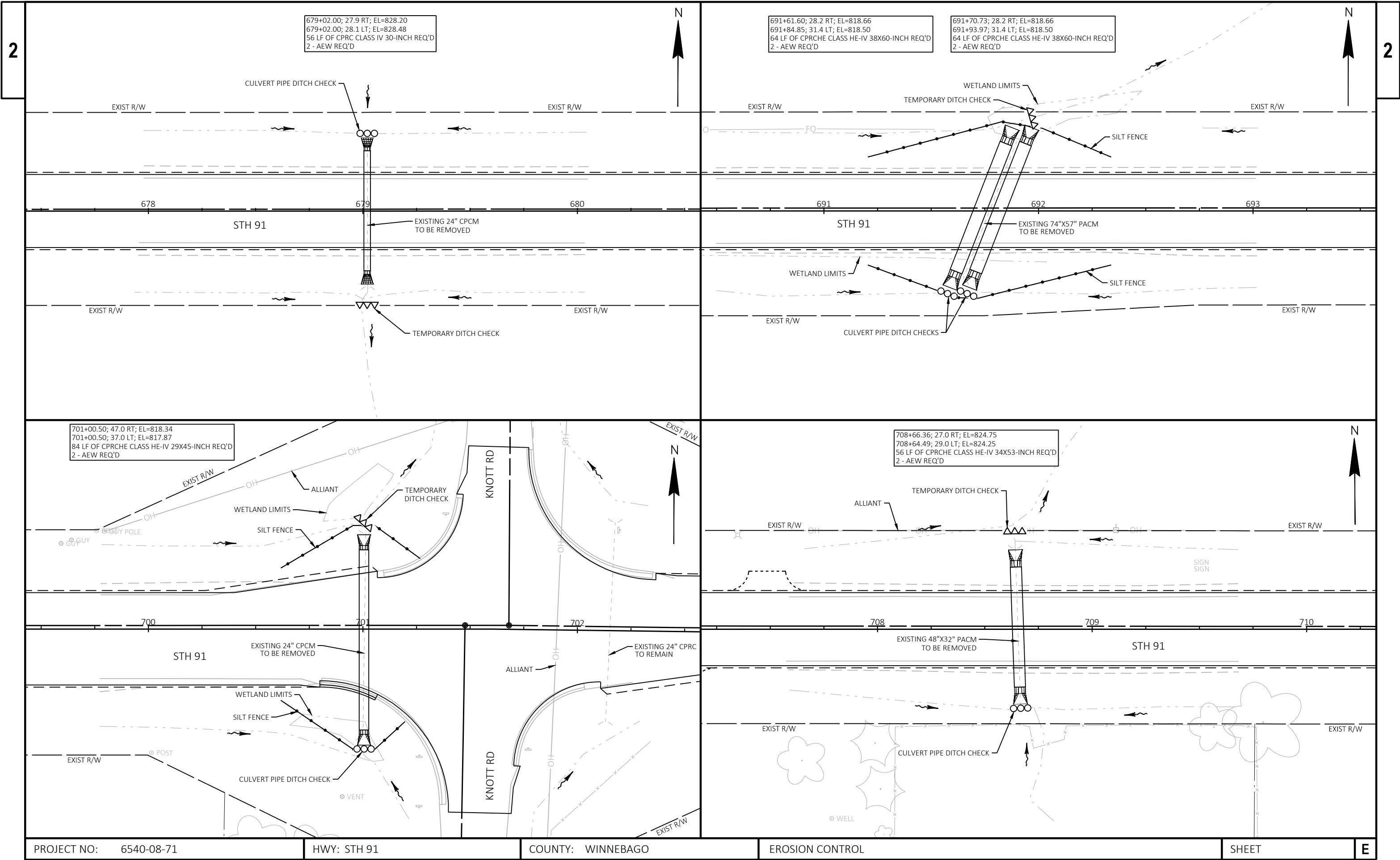


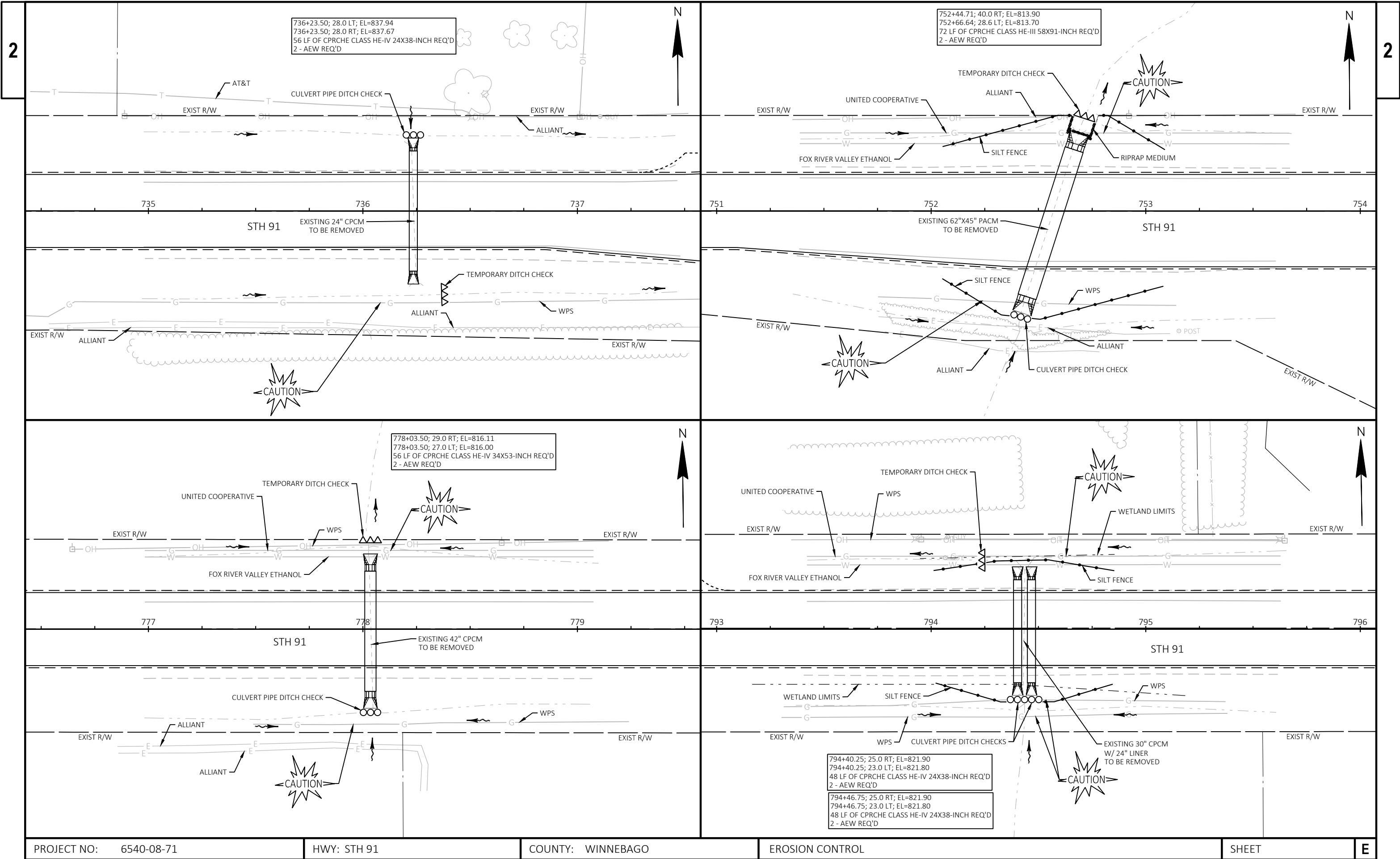


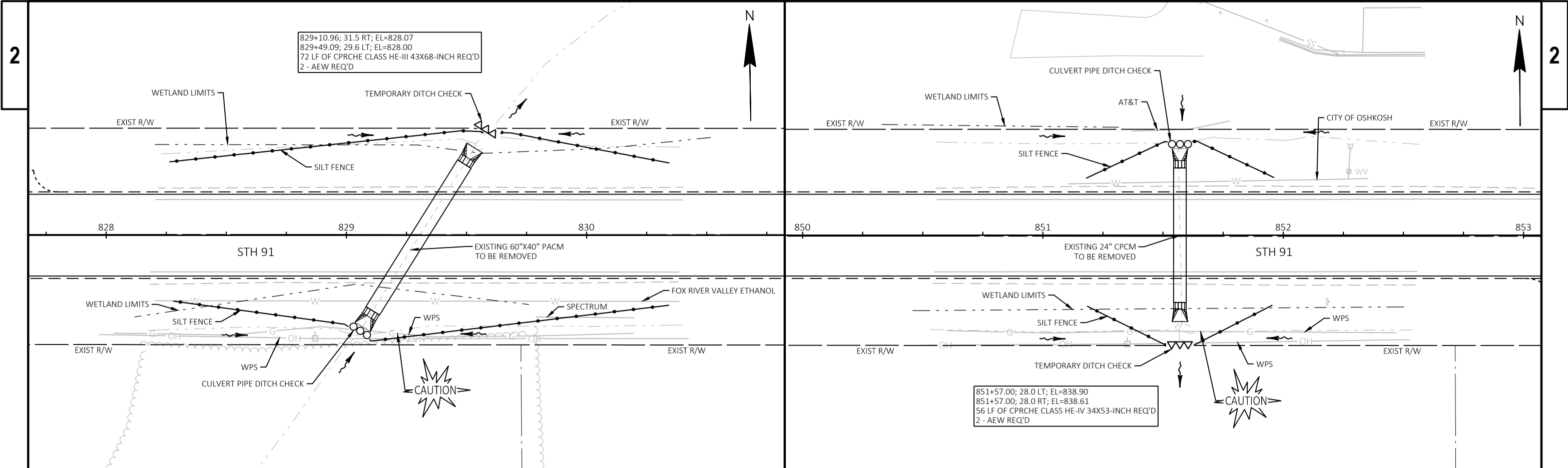


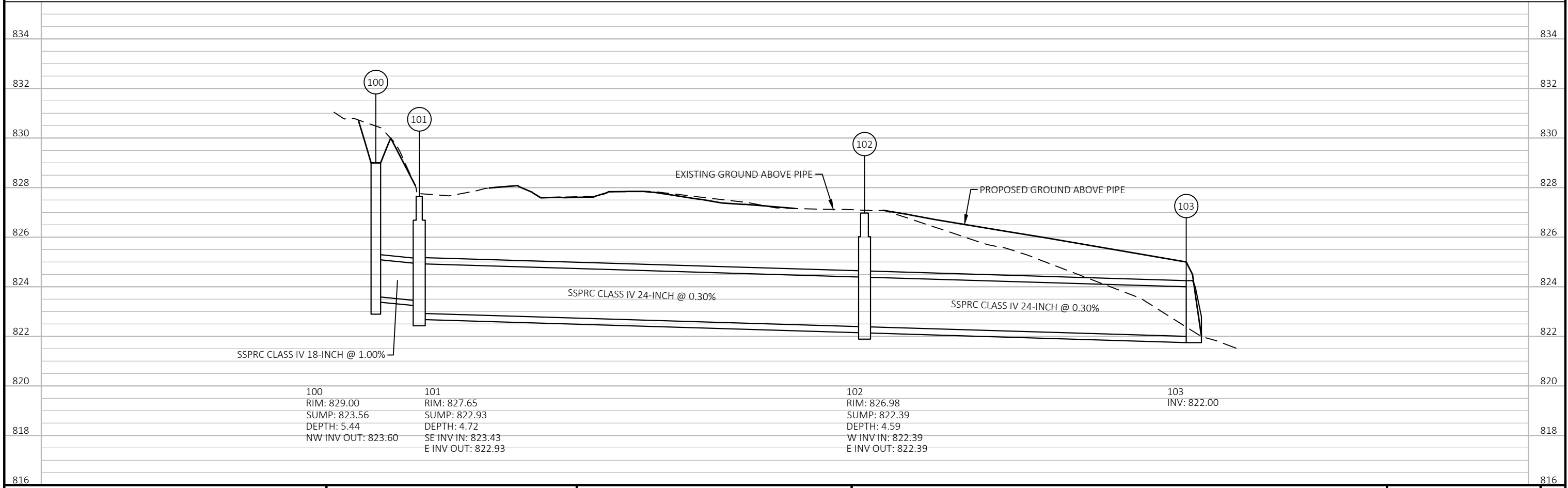
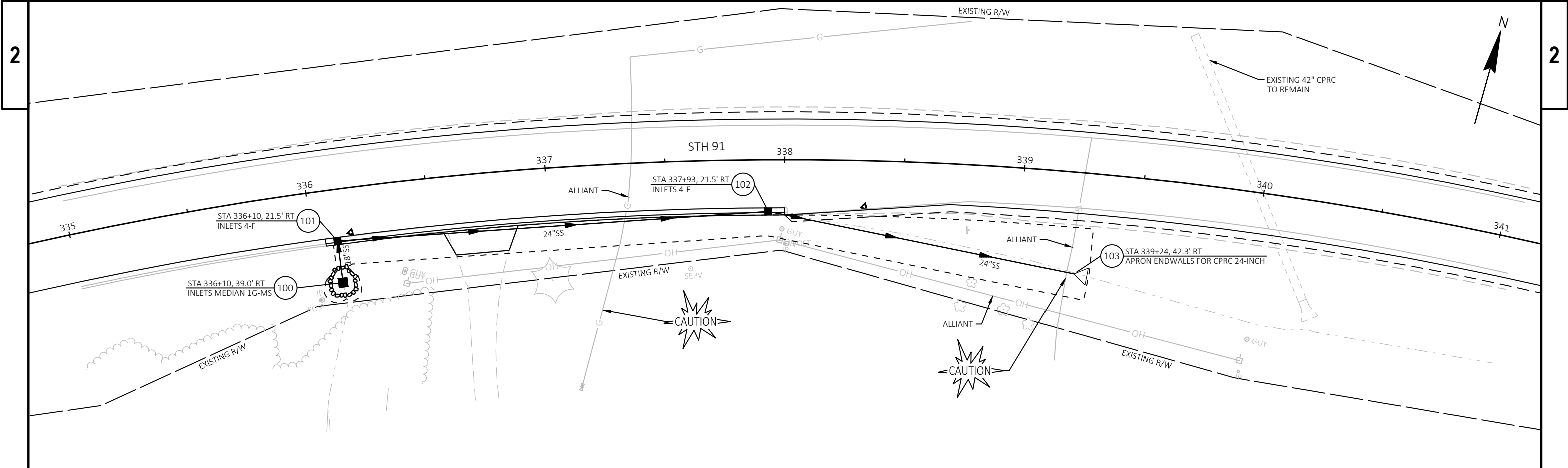


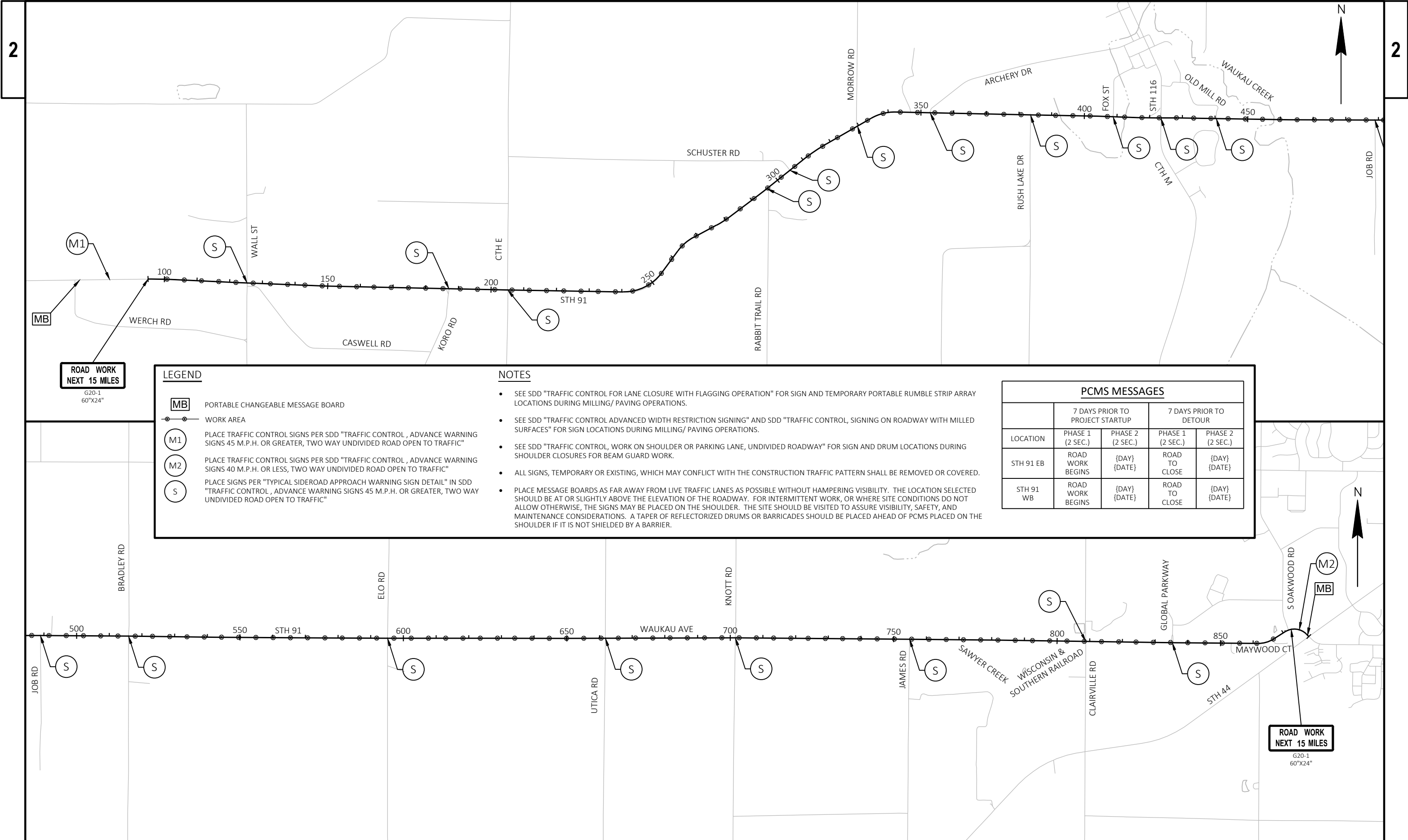












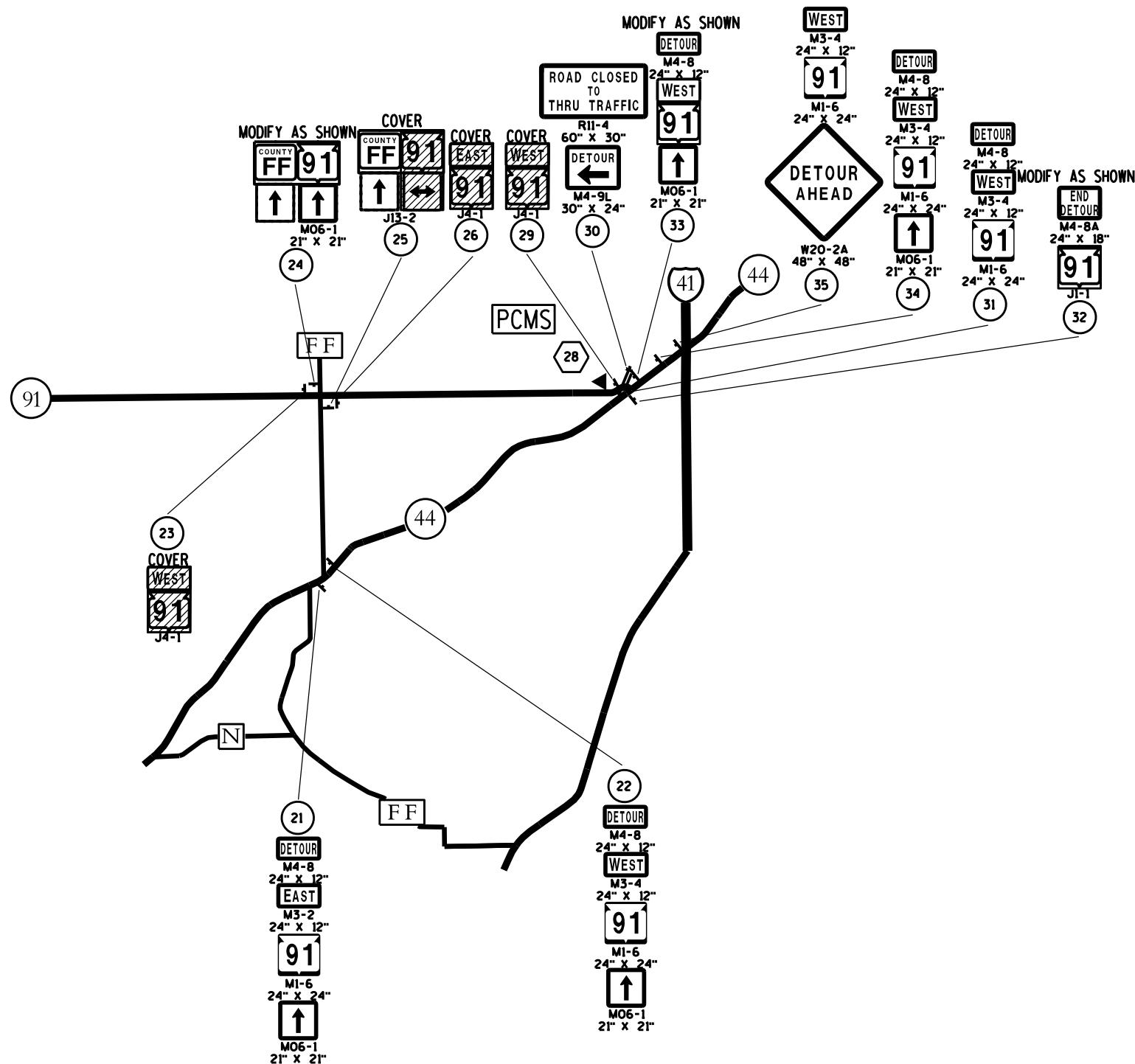


	SIGN NUMBER. REFER TO MISCELLANEOUS QUANTITY SHEET
	PORTABLE CHANGEABLE MESSAGE SIGN
	SIGN MOUNTED ON TYPE III BARRICADE
	POST MOUNTED SIGN

PLAN SHEET PRODUCED
BY WISDOT-NE REGION

LEGEND

- (X) SIGN NUMBER, REFER TO MISCELLANEOUS QUANTITY SHEET
- PCMS (X) PORTABLE CHANGEABLE MESSAGE SIGN
- SIGN MOUNTED ON TYPE III BARRICADE
- POST MOUNTED SIGN



SHEET 2 OF 2

PLAN SHEET PRODUCED
BY WISDOT-NE REGION



Estimate Of Quantities

6540-08-71

Line	Item	Item Description	Unit	Total	Qty
0002	203.0100	Removing Small Pipe Culverts	EACH	34.000	34.000
0004	203.0220	Removing Structure (structure) 01. STA 650+68	EACH	1.000	1.000
0006	203.0220	Removing Structure (structure) 02. STA 691+77	EACH	1.000	1.000
0008	204.0110	Removing Asphaltic Surface	SY	920.000	920.000
0010	204.0115	Removing Asphaltic Surface Butt Joints	SY	9,730.000	9,730.000
0012	204.0120	Removing Asphaltic Surface Milling	SY	281,000.000	281,000.000
0014	204.0150	Removing Curb & Gutter	LF	298.000	298.000
0016	205.0100	Excavation Common	CY	11,810.000	11,810.000
0018	209.2100	Backfill Granular Grade 2	CY	1,180.000	1,180.000
0020	211.0101	Prepare Foundation for Asphaltic Paving (project) 01. 6540-08-71	EACH	1.000	1.000
0022	211.0400	Prepare Foundation for Asphaltic Shoulders	STA	1,357.000	1,357.000
0024	213.0100	Finishing Roadway (project) 01. 6540-08-71	EACH	1.000	1.000
0026	305.0110	Base Aggregate Dense 3/4-Inch	TON	26,000.000	26,000.000
0028	305.0120	Base Aggregate Dense 1 1/4-Inch	TON	8,560.000	8,560.000
0030	416.0610	Drilled Tie Bars	EACH	15.000	15.000
0032	455.0605	Tack Coat	GAL	37,650.000	37,650.000
0034	460.0105.S	HMA Percent Within Limits (PWL) Test Strip Volumetrics	EACH	2.000	2.000
0036	460.0110.S	HMA Percent Within Limits (PWL) Test Strip Density	EACH	3.000	3.000
0038	460.2005	Incentive Density PWL HMA Pavement	DOL	46,650.000	46,650.000
0040	460.2007	Incentive Density HMA Pavement Longitudinal Joints	DOL	43,390.000	43,390.000
0042	460.2010	Incentive Air Voids HMA Pavement	DOL	73,010.000	73,010.000
0044	460.6223	HMA Pavement 3 MT 58-28 S	TON	36,410.000	36,410.000
0046	460.6224	HMA Pavement 4 MT 58-28 S	TON	36,600.000	36,600.000
0048	465.0105	Asphaltic Surface	TON	3,130.000	3,130.000
0050	465.0120	Asphaltic Surface Driveways and Field Entrances	TON	106.000	106.000
0052	465.0520	Asphaltic Rumble Strips, Shoulder	LF	127,700.000	127,700.000
0054	465.0560	Asphaltic Rumble Strips, Centerline	LF	66,600.000	66,600.000
0056	522.0160	Culvert Pipe Reinforced Concrete Class III 60-Inch	LF	86.000	86.000
0058	522.0424	Culvert Pipe Reinforced Concrete Class IV 24-Inch	LF	516.000	516.000
0060	522.0430	Culvert Pipe Reinforced Concrete Class IV 30-Inch	LF	394.000	394.000
0062	522.1024	Apron Endwalls for Culvert Pipe Reinforced Concrete 24-Inch	EACH	17.000	17.000
0064	522.1030	Apron Endwalls for Culvert Pipe Reinforced Concrete 30-Inch	EACH	12.000	12.000
0066	522.1060	Apron Endwalls for Culvert Pipe Reinforced Concrete 60-Inch	EACH	2.000	2.000
0068	522.2338	Culvert Pipe Reinforced Concrete Horizontal Elliptical Class HE-III 38x60-Inch	LF	56.000	56.000
0070	522.2343	Culvert Pipe Reinforced Concrete Horizontal Elliptical Class HE-III 43x68-Inch	LF	72.000	72.000
0072	522.2358	Culvert Pipe Reinforced Concrete Horizontal Elliptical Class HE-III 58x91-Inch	LF	238.000	238.000
0074	522.2424	Culvert Pipe Reinforced Concrete Horizontal Elliptical Class HE-IV 24x38-Inch	LF	402.000	402.000
0076	522.2429	Culvert Pipe Reinforced Concrete Horizontal Elliptical Class HE-IV 29x45-Inch	LF	140.000	140.000
0078	522.2434	Culvert Pipe Reinforced Concrete Horizontal Elliptical Class HE-IV 34x53-Inch	LF	168.000	168.000
0080	522.2624	Apron Endwalls for Culvert Pipe Reinforced Concrete Horizontal Elliptical 24x38-Inch	EACH	14.000	14.000
0082	522.2629	Apron Endwalls for Culvert Pipe Reinforced Concrete Horizontal Elliptical 29x45-Inch	EACH	4.000	4.000
0084	522.2634	Apron Endwalls for Culvert Pipe Reinforced Concrete Horizontal Elliptical 34x53-Inch	EACH	6.000	6.000
0086	522.2638	Apron Endwalls for Culvert Pipe Reinforced Concrete Horizontal Elliptical 38x60-Inch	EACH	6.000	6.000
0088	522.2643	Apron Endwalls for Culvert Pipe Reinforced Concrete Horizontal Elliptical 43x68-Inch	EACH	6.000	6.000
0090	522.2658	Apron Endwalls for Culvert Pipe Reinforced Concrete Horizontal Elliptical 58x91-Inch	EACH	6.000	6.000
0092	601.0557	Concrete Curb & Gutter 6-Inch Sloped 36-Inch Type D	LF	298.000	298.000
0094	606.0200	Riprap Medium	CY	50.000	50.000
0096	608.0418	Storm Sewer Pipe Reinforced Concrete Class IV 18-Inch	LF	18.000	18.000
0098	608.0424	Storm Sewer Pipe Reinforced Concrete Class IV 24-Inch	LF	310.000	310.000

Estimate Of Quantities

6540-08-71

Line	Item	Item Description	Unit	Total	Qty
0100	611.0615	Inlet Covers Type F	EACH	2.000	2.000
0102	611.0642	Inlet Covers Type MS	EACH	1.000	1.000
0104	611.3004	Inlets 4-FT Diameter	EACH	2.000	2.000
0106	611.3901	Inlets Median 1 Grate	EACH	1.000	1.000
0108	618.0100	Maintenance and Repair of Haul Roads (project) 01. 6540-08-71	EACH	1.000	1.000
0110	619.1000	Mobilization	EACH	1.000	1.000
0112	624.0100	Water	MGAL	480.000	480.000
0114	625.0500	Salvaged Topsoil	SY	5,750.000	5,750.000
0116	628.1504	Silt Fence	LF	3,890.000	3,890.000
0118	628.1520	Silt Fence Maintenance	LF	3,890.000	3,890.000
0120	628.1905	Mobilizations Erosion Control	EACH	5.000	5.000
0122	628.1910	Mobilizations Emergency Erosion Control	EACH	3.000	3.000
0124	628.2008	Erosion Mat Urban Class I Type B	SY	5,750.000	5,750.000
0126	628.7005	Inlet Protection Type A	EACH	1.000	1.000
0128	628.7010	Inlet Protection Type B	EACH	2.000	2.000
0130	628.7504	Temporary Ditch Checks	LF	495.000	495.000
0132	628.7555	Culvert Pipe Checks	EACH	385.000	385.000
0134	629.0210	Fertilizer Type B	CWT	5.700	5.700
0136	630.0130	Seeding Mixture No. 30	LB	164.000	164.000
0138	630.0500	Seed Water	MGAL	205.000	205.000
0140	633.5200	Markers Culvert End	EACH	66.000	66.000
0142	642.5001	Field Office Type B	EACH	1.000	1.000
0144	643.0420	Traffic Control Barricades Type III	DAY	1,200.000	1,200.000
0146	643.0705	Traffic Control Warning Lights Type A	DAY	1,760.000	1,760.000
0148	643.0900	Traffic Control Signs	DAY	7,916.000	7,916.000
0150	643.0920	Traffic Control Covering Signs Type II	EACH	7.000	7.000
0152	643.1050	Traffic Control Signs PCMS	DAY	28.000	28.000
0154	643.3165	Temporary Marking Line Paint 6-Inch	LF	325,695.000	325,695.000
0156	643.5000	Traffic Control	EACH	1.000	1.000
0158	645.0120	Geotextile Type HR	SY	165.000	165.000
0160	646.1020	Marking Line Epoxy 4-Inch	LF	162.000	162.000
0162	646.2040	Marking Line Grooved Wet Ref Epoxy 6-Inch	LF	219,770.000	219,770.000
0164	646.4040	Marking Line Grooved Wet Ref Epoxy 10-Inch	LF	4,595.000	4,595.000
0166	646.5320	Marking Railroad Crossing Epoxy	EACH	2.000	2.000
0168	650.4000	Construction Staking Storm Sewer	EACH	4.000	4.000
0170	650.5500	Construction Staking Curb Gutter and Curb & Gutter	LF	298.000	298.000
0172	650.6000	Construction Staking Pipe Culverts	EACH	36.000	36.000
0174	650.8000	Construction Staking Resurfacing Reference	LF	76,801.000	76,801.000
0176	650.9911	Construction Staking Supplemental Control (project) 01. 6540-08-71	EACH	1.000	1.000
0178	690.0150	Sawing Asphalt	LF	2,509.000	2,509.000
0180	690.0250	Sawing Concrete	LF	15.000	15.000
0182	740.0440	Incentive IRI Ride	DOL	116,920.000	116,920.000
0184	SPV.0035	Special 01. Foundation Backfill	CY	6,145.000	6,145.000
0186	SPV.0090	Special 01. Culvert Pipe Reinforced Concrete Horizontal Elliptical Class HE-IV 38x60-In	LF	128.000	128.000
0188	SPV.0090	Special 02. Culvert Pipe Reinforced Concrete Horizontal Elliptical Class HE-IV 43x68-In	LF	120.000	120.000

REMOVING SMALL PIPE CULVERTS

203.0100			
STATION	LOCATION	EACH	COMMENTS
CATEGORY CODE 0010			
106+39	LT & RT	1	REMOVE 59 LF OF CPCM 30-INCH
109+28	LT & RT	1	REMOVE 54 LF OF CPCM 30-INCH
146+40	LT & RT	1	REMOVE 92 LF OF CPCM 54-INCH
165+18	LT & RT	3	REMOVE (3) 97 LF OF CPCM 36-INCH
183+21	LT & RT	3	REMOVE (3) 97 LF OF CPCM 36-INCH
189+01	LT & RT	1	REMOVE 85 LF OF CPCS 24-INCH WITH 18-INCH LINER
424+24	LT & RT	1	REMOVE 82 LF OF PACM 24X18-INCH
468+37	LT & RT	1	REMOVE 79 LF OF CPCM 24-INCH
488+68	LT & RT	1	REMOVE 83 LF OF CPCM 24-INCH
502+36	LT & RT	1	REMOVE 71 LF OF CPCM 24-INCH
515+41	LT & RT	1	REMOVE 101 LF OF CPCM 24-INCH
534+22	LT & RT	1	REMOVE 75 LF OF CPCM 24-INCH
544+16	LT & RT	1	REMOVE 73 LF OF CPCM 24-INCH
555+83	LT & RT	1	REMOVE 73 LF OF CPCM 24-INCH
576+79	LT & RT	1	REMOVE 81 LF OF CPCM 24-INCH
587+74	LT & RT	1	REMOVE 75 LF OF CPCM 24-INCH
605+08	LT & RT	1	REMOVE 77 LF OF CPCM 24-INCH
615+97	LT & RT	1	REMOVE 62 LF OF CPCM 24-INCH WITH 18-INCH LINER
625+02	LT & RT	1	REMOVE 60 LF OF CPCM 24-INCH
631+70	LT & RT	1	REMOVE 75 LF OF CPCM 24-INCH
641+15	LT & RT	1	REMOVE 62 LF OF CPCM 24-INCH
679+02	LT & RT	1	REMOVE 70 LF OF CPCM 24-INCH
701+01	LT & RT	1	REMOVE 95 LF OF CPCM 24-INCH
708+65	LT & RT	1	REMOVE 73 LF OF PACM 50X31-INCH
736+24	LT & RT	1	REMOVE 65 LF OF CPCM 24-INCH
752+57	LT & RT	1	REMOVE 89 LF OF PACM 61X45-INCH
778+04	LT & RT	1	REMOVE 70 LF OF CPCM 42-INCH
794+43	LT & RT	1	REMOVE 57 LF OF CPCM 30-INCH
829+31	LT & RT	1	REMOVE 87 LF OF PACM 65X40-INCH
851+57	LT & RT	1	REMOVE 73 LF OF CPCM 24-INCH
TOTAL		34	

REMOVING STRUCTURE

203.0220		
STATION	EACH	COMMENTS
CATEGORY CODE 0010		
01. STA 650+68	1	REMOVE 77 LF OF 60" CPCM
02. STA 691+77	1	REMOVE 69 LF OF 74"X57" PACM
TOTAL		2

PREPARE FOUNDATION FOR ASPHALTIC PAVING

211.0101		
PROJECT	LOCATION	EACH
CATEGORY CODE 0010		
01. 6540-08-71		1
	99+06 - 457+66	
	458+05 - 807+10	
	810+36 - 870+72	
TOTAL		1

PREPARE FOUNDATION FOR ASPHALTIC SHOULDERS

211.0400		
STATION - STATION	LOCATION	STA
CATEGORY CODE 0010		
99+06 - 457+66	LT & RT	622
458+05 - 807+10	LT & RT	638
810+36 - 868+80	LT & RT	97
TOTAL		1,357

REMOVING ITEMS

		204.0110	204.0115	204.0120	204.0150
		REMOVING ASPHALTIC SURFACE	REMOVING ASPHALTIC SURFACE BUTT JOINTS	REMOVING ASPHALTIC SURFACE MILLING	REMOVING CURB & GUTTER
STATION - STATION	LOCATION	SY	SY	SY	LF
CATEGORY CODE 0010					
99+06 - 457+66	LT & RT	--	4,915	132,090	--
146+40	LT & RT	100	--	--	--
165+18	LT & RT	130	--	--	--
183+21	LT & RT	140	--	--	--
336+05 - 338+00	RT	45	--	--	192
424+12 - 424+62	LT	--	--	--	50
458+05 - 807+10	LT & RT	--	3,770	125,835	--
468+37	LT & RT	80	--	--	--
515+20 - 515+47	RT	--	--	--	29
534+22	LT & RT	55	--	--	--
544+16	LT & RT	60	--	--	--
555+83	LT & RT	60	--	--	--
576+79	LT & RT	65	--	--	--
587+74	LT & RT	55	--	--	--
605+08	LT & RT	75	--	--	--
631+70	LT & RT	55	--	--	--
700+81 - 701+06	RT	--	--	--	27
810+36 - 870+72	LT & RT	--	1,045	23,075	--
TOTALS		920	9,730	281,000	298

EARTHWORK AND BACKFILL ITEMS

		205.0100	209.2100	SPV.0035.01
		EXCAVATION COMMON	BACKFILL GRANULAR	FOUNDATION BACKFILL
			GRADE 2	
STATION	CY	CY	CY	COMMENTS
CATEGORY CODE 0010				
106+00 - 106+77	450	--	280	CULVERT REPLACEMENT
108+89 - 109+67	450	--	275	CULVERT REPLACEMENT
188+26 - 189+72	950	--	570	CULVERT REPLACEMENT
423+87 - 424+62	490	--	290	CULVERT REPLACEMENT
488+24 - 489+06	690	--	405	CULVERT REPLACEMENT
501+98 - 502+74	440	--	265	CULVERT REPLACEMENT
515+02 - 515+79	570	--	345	CULVERT REPLACEMENT
615+56 - 616+38	440	--	275	CULVERT REPLACEMENT
624+63 - 625+42	460	--	275	CULVERT REPLACEMENT
640+77 - 641+53	440	--	270	CULVERT REPLACEMENT
650+19 - 651+17	490	--	365	CULVERT REPLACEMENT
678+64 - 679+40	440	--	270	CULVERT REPLACEMENT
691+20 - 692+34	590	--	410	CULVERT REPLACEMENT
700+62 - 701+39	550	--	330	CULVERT REPLACEMENT
708+25 - 709+05	450	--	275	CULVERT REPLACEMENT
735+58 - 736+89	730	400	--	CULVERT REPLACEMENT & FROST HEAVE
752+05 - 753+09	680	--	450	CULVERT REPLACEMENT
777+64 - 778+43	440	--	275	CULVERT REPLACEMENT
794+02 - 794+85	400	--	235	CULVERT REPLACEMENT
828+27 - 830+35	1,220	780	--	CULVERT REPLACEMENT & FROST HEAVE
851+18 - 851+96	440	--	285	CULVERT REPLACEMENT
TOTALS		11,810	1,180	6,145

BASE AGGREGATE DENSE AND WATER ITEMS

		305.0110	305.0120	624.0100	COMMENTS
		BASE AGGREGATE	BASE AGGREGATE	WATER	
		DENSE	DENSE		
		3/4-INCH	1 1/4-INCH		
STATION - STATION	LOCATION	TON	TON	MGAL	
CATEGORY CODE 0010					
99+06 - 457+66	LT & RT	11,329	--	158	MAINLINE
106+00 - 106+77	LT & RT	33	284	4	CULVERT REPLACEMENT
108+89 - 109+67	LT & RT	33	289	4	CULVERT REPLACEMENT
146+40	LT & RT	13	112	2	CULVERT REPLACEMENT
165+18	LT & RT	17	143	2	CULVERT REPLACEMENT
183+10	LT & RT	19	164	3	CULVERT REPLACEMENT
188+26 - 189+72	LT & RT	60	592	9	CULVERT REPLACEMENT
336+05 - 338+00	RT	--	115	2	CURB & GUTTER REPLACEMENT
423+87 - 424+62	LT & RT	13	370	5	CULVERT REPLACEMENT
458+05 - 807+10	LT & RT	11,849	--	165	MAINLINE
468+37	LT & RT	8	86	1	CULVERT REPLACEMENT
488+24 - 489+06	LT & RT	23	329	5	CULVERT REPLACEMENT
501+98 - 502+74	LT & RT	27	270	4	CULVERT REPLACEMENT
515+02 - 515+79	LT & RT	12	341	5	CULVERT REPLACEMENT
534+22	LT & RT	6	58	1	CULVERT REPLACEMENT
544+16	LT & RT	6	64	1	CULVERT REPLACEMENT
555+83	LT & RT	6	66	1	CULVERT REPLACEMENT
576+79	LT & RT	7	67	1	CULVERT REPLACEMENT
587+74	LT & RT	5	56	1	CULVERT REPLACEMENT
605+08	LT & RT	8	80	1	CULVERT REPLACEMENT
624+63 - 625+42	LT & RT	28	281	4	CULVERT REPLACEMENT
615+55 - 616+39	LT & RT	30	298	5	CULVERT REPLACEMENT
631+70	LT & RT	6	61	1	CULVERT REPLACEMENT
640+77 - 641+53	LT & RT	28	275	4	CULVERT REPLACEMENT
650+19 - 651+17	LT & RT	36	351	5	CULVERT REPLACEMENT
678+64 - 679+40	LT & RT	27	272	4	CULVERT REPLACEMENT
691+20 - 692+34	LT & RT	41	406	6	CULVERT REPLACEMENT
700+62 - 701+39	LT & RT	13	331	5	CULVERT REPLACEMENT
708+25 - 709+05	LT & RT	29	287	4	CULVERT REPLACEMENT
735+58 - 736+89	LT & RT	48	471	7	CULVERT REPLACEMENT
752+05 - 753+09	LT & RT	38	442	7	CULVERT REPLACEMENT
777+64 - 778+43	LT & RT	28	280	4	CULVERT REPLACEMENT
794+02 - 794+85	LT & RT	30	296	5	CULVERT REPLACEMENT
810+36 - 870+72	LT & RT	2,040	--	29	MAINLINE
828+27 - 830+35	LT & RT	76	743	11	CULVERT REPLACEMENT
851+18 - 851+96	LT & RT	28	280	4	CULVERT REPLACEMENT
TOTALS		26,000	8,560	480	

RUMBLE STRIP ITEMS

		465.0520	465.0560	COMMENTS
		ASPHALTIC	ASPHALTIC	
		RUMBLE	RUMBLE	
		STRIPS	STRIPS	
STATION - STATION	LOCATION	SHOULDER	CENTERLINE	
CATEGORY CODE 0010				
99+06 - 125+33	LT & RT	4,660	2,430	WEST LIMITS TO WALL ST
125+33 - 205+14	LT & RT	13,900	6,735	WALL ST TO CTH E
205+14 - 423+46	LT & RT	36,560	18,445	CTH E TO STH 116
423+46 - 515+91	LT & RT	15,000	7,960	STH 116 TO BRADLEY RD
515+91 - 595+14	LT & RT	13,960	7,515	BRADLEY RD TO ELO RD
595+14 - 661+81	LT & RT	11,140	6,270	ELO RD TO CTH FF
661+81 - 701+60	LT & RT	6,480	3,575	CTH FF TO KNOTT RD
701+60 - 808+79	LT & RT	17,460	9,200	KNOTT RD TO CLAIRVILLE RD
808+79 - 861+44	LT & RT	8,540	4,470	CLAIRVILLE RD TO 35 MPH SPEED ZONE
TOTALS		127,700	66,600	

ASPHALTIC ITEMS									
		455.0605	460.0105.S	460.0110.S	460.6223	460.6224	465.0105	465.0120	
		TACK	HMA PERCENT	HMA PERCENT	HMA	HMA	ASPHALTIC	ASPHALTIC SURFACE	
		COAT	WITHIN LIMITS	WITHIN LIMITS	PAVEMENT	PAVEMENT	SURFACE	DRIVEWAYS	
			(PWL) TEST STRIP	(PWL) TEST STRIP	3 MT 58-28 S	4 MT 58-28 S		AND FIELD	
			VOLUMETRICS	DENSITY				ENTRANCES	
STATION - STATION	LOCATION	GAL	EACH	EACH	TON	TON	TON	TON	COMMENTS
CATEGORY CODE 0010									
99+06 - 457+66	LT & RT	16,670	2	3	15,076	17,165	230	28	MAINLINE
106+00 - 106+77	LT & RT	13	--	--	--	--	90	--	CULVERT REPLACEMENT
108+89 - 109+67	LT & RT	13	--	--	--	--	91	--	CULVERT REPLACEMENT
146+40	LT & RT	5	--	--	--	--	36	--	CULVERT REPLACEMENT
165+18	LT & RT	7	--	--	--	--	45	--	CULVERT REPLACEMENT
183+10	LT & RT	8	--	--	--	--	52	--	CULVERT REPLACEMENT
188+26 - 189+72	LT & RT	30	--	--	--	--	201	--	CULVERT REPLACEMENT
336+05 - 338+00	RT	2	--	--	--	--	15	5	C & G REPLACEMENT
423+87 - 424+62	LT & RT	23	--	--	--	--	156	--	CULVERT REPLACEMENT
458+05 - 807+10	LT & RT	17,430	--	--	18,082	16,500	--	34	MAINLINE
468+37	LT & RT	4	--	--	--	--	28	--	CULVERT REPLACEMENT
488+24 - 489+06	LT & RT	19	--	--	--	--	125	--	CULVERT REPLACEMENT
501+98 - 502+74	LT & RT	13	--	--	--	--	89	--	CULVERT REPLACEMENT
515+02 - 515+79	LT & RT	22	--	--	--	--	146	--	CULVERT REPLACEMENT
534+22	LT & RT	3	--	--	--	--	19	--	CULVERT REPLACEMENT
544+16	LT & RT	3	--	--	--	--	--	--	CULVERT REPLACEMENT
555+83	LT & RT	3	--	--	--	--	22	--	CULVERT REPLACEMENT
576+79	LT & RT	3	--	--	--	--	22	--	CULVERT REPLACEMENT
587+74	LT & RT	3	--	--	--	--	19	--	CULVERT REPLACEMENT
605+08	LT & RT	4	--	--	--	--	26	--	CULVERT REPLACEMENT
615+55 - 616+39	LT & RT	15	--	--	--	--	98	--	CULVERT REPLACEMENT
624+63 - 625+42	LT & RT	14	--	--	--	--	93	--	CULVERT REPLACEMENT
631+70	LT & RT	3	--	--	--	--	20	--	CULVERT REPLACEMENT
640+77 - 641+53	LT & RT	13	--	--	--	--	90	--	CULVERT REPLACEMENT
650+19 - 651+17	LT & RT	17	--	--	--	--	115	--	CULVERT REPLACEMENT
678+64 - 679+40	LT & RT	13	--	--	--	--	90	--	CULVERT REPLACEMENT
691+20 - 692+34	LT & RT	20	--	--	--	--	133	--	CULVERT REPLACEMENT
700+62 - 701+39	LT & RT	22	--	--	--	--	146	--	CULVERT REPLACEMENT
708+25 - 709+05	LT & RT	14	--	--	--	--	94	--	CULVERT REPLACEMENT
735+58 - 737+02	LT & RT	23	--	--	--	--	155	--	CULVERT REPLACEMENT
752+05 - 753+09	LT & RT	23	--	--	--	--	158	--	CULVERT REPLACEMENT
777+64 - 778+43	LT & RT	14	--	--	--	--	92	--	CULVERT REPLACEMENT
794+02 - 794+85	LT & RT	14	--	--	--	--	97	--	CULVERT REPLACEMENT
810+36 - 870+72	LT & RT	3,117	--	--	3,252	2,935	--	39	MAINLINE
828+27 - 830+35	LT & RT	36	--	--	--	--	245	--	CULVERT REPLACEMENT
851+18 - 851+96	LT & RT	14	--	--	--	--	92	--	CULVERT REPLACEMENT
TOTALS		37,650	2	3	36,410	36,600	3,130	106	

PWL MIXTURE TABLE

THE FOLLOWING ACCEPTANCE CRITERIA ARE APPLICAPLE FOR THIS PROJECT:

LOCATION	STATION	MIXTURE USE	UNDERLYING SURFACE	BID ITEM	TONS	THICKNESS	FOR:	
							MIXTURE ACCEPTANCE	DENSITY ACCEPTANCE
12' Driving Lane	99+06 - 189+60 192+00 - 204+46 207+00 - 289+50 292+50 - 319+00 344+00 - 396+75 427+35 - 455+76 459+95 - 807+10 810+36 - 870+72	Upper Layer		4 MT 58-28 H	20,930	2"	PWL Incentive Air Voids HMA Pavement 460.2010	Incentive Density PWL HMA Pavement 460.2005
12' Driving Lane	99+06 - 189+60 192+00 - 204+46 207+00 - 289+50 292+50 - 319+00 344+00 - 396+75 427+35 - 455+76 459+95 - 807+10 810+36 - 870+72	Lower Layer	Milled Existing HMA Surface	3 MT 58-28 H	23,710	2 1/4"	PWL Incentive Air Voids HMA Pavement 460.2010	Incentive Density PWL HMA Pavement 460.2005
5' Shoulder / Side Roads	99+06 - 189+60 192+00 - 204+46 207+00 - 289+50 292+50 - 319+00 344+00 - 396+75 427+35 - 455+76 459+95 - 807+10 810+36 - 870+72	Upper Layer		4 MT 58-28 H	12,120	2"	PWL Incentive Air Voids HMA Pavement 460.2010	Acceptance testing by the department, not eligible for incentive
5' Shoulder / Side Roads	99+06 - 189+60 192+00 - 204+46 207+00 - 289+50 292+50 - 319+00 344+00 - 396+75 427+35 - 455+76 459+95 - 807+10 810+36 - 870+72	Lower Layer	Milled Existing HMA Surface	3 MT 58-28 H	12,700	2 1/4"	PWL Incentive Air Voids HMA Pavement 460.2010	Acceptance testing by the department, not eligible for incentive
12' Driving Lane	189+60 - 192+00 204+46 - 207+00 289+50 - 292+50 319+00 - 344+00 396+75 - 427+35 455+76 - 457+66 458+05 - 459+95	Upper Layer	Milled Existing HMA Surface	4 MT 58-28 H	2,010	2"	PWL Incentive Air Voids HMA Pavement 460.2010	Incentive Density PWL HMA Pavement 460.2005
5' Shoulder / Side Roads	189+60 - 192+00 204+46 - 207+00 289+50 - 292+50 319+00 - 344+00 396+75 - 427+35 455+76 - 457+66 458+05 - 459+95	Upper Layer	Milled Existing HMA Surface	4 MT 58-28 H	1,540	2"	PWL Incentive Air Voids HMA Pavement 460.2010	Acceptance testing by the department, not eligible for incentive
5' Shoulder / Side Roads	189+60 - 192+00 204+46 - 207+00 289+50 - 292+50 319+00 - 344+00 396+75 - 427+35 455+76 - 457+66 458+05 - 459+95	Lower Layer	Base Aggregate	Asphaltic Surface	230	2 1/4"	QMP as per SS 465	Acceptance by ordinary compaction
Various		Culvert Patches	Base Aggregate	Asphaltic Surface	2,900	6" Total	QMP as per SS 465	Acceptance by ordinary compaction

CULVERT PIPE SUMMARY														
STATION	LOCATION	522.0160	522.0424	522.0430	522.2338	522.2343	522.2358	522.2424	522.2429	522.2434	650.6000	SPV.0090.01	SPV.0090.02	**
		CULVERT PIPE	CULVERT PIPE	CULVERT PIPE	CULVERT PIPE	CULVERT PIPE	CULVERT PIPE	CULVERT PIPE	CULVERT PIPE	CULVERT PIPE	CONSTRUCTION	CULVERT PIPE	CULVERT PIPE	JOINT
		REINFORCED	REINFORCED	REINFORCED	REINFORCED CONCRETE	REINFORCED CONCRETE	REINFORCED CONCRETE	REINFORCED CONCRETE	REINFORCED CONCRETE	REINFORCED CONCRETE	STAKING PIPE	REINFORCED CONCRETE	REINFORCED CONCRETE	TIES
		CONCRETE	CONCRETE	CONCRETE	HORIZONTAL ELLIPTICAL	HORIZONTAL ELLIPTICAL	HORIZONTAL ELLIPTICAL	HORIZONTAL ELLIPTICAL	HORIZONTAL ELLIPTICAL	HORIZONTAL ELLIPTICAL	CULVERTS	HORIZONTAL ELLIPTICAL	HORIZONTAL ELLIPTICAL	
		CLASS III	CLASS IV	CLASS IV	CLASS HE-III	CLASS HE-III	CLASS HE-III	CLASS HE-IV	CLASS HE-IV	CLASS HE-IV		CLASS HE-IV	CLASS HE-IV	
		60-INCH	24-INCH	30-INCH	38X60-INCH	43X68-INCH	58X91-INCH	24X38-INCH	29X45-INCH	34X53-INCH	EACH	38X60-INCH	43X68-INCH	EACH
CATEGORY CODE 0010														
106+38.50	STH 91	--	--	58	--	--	--	--	--	--	1	--	--	12
109+28.00	STH 91	--	--	--	--	--	--	--	56	--	1	--	--	12
146+39.50	STH 91	86	--	--	--	--	--	--	--	--	1	--	--	12
165+18.00	STH 91	--	--	--	--	--	82	--	--	--	1	--	--	12
183+10.50	STH 91	--	--	--	--	--	84	--	--	--	1	--	--	12
188+98.61	STH 91	--	--	--	--	--	--	80	--	--	1	--	--	12
424+24.50	STH 91	--	72	--	--	--	--	--	--	--	1	--	--	12
468+37.00	STH 91	--	68	--	--	--	--	--	--	--	1	--	--	12
488+64.56	STH 91	--	76	--	--	--	--	--	--	--	1	--	--	12
502+36.00	STH 91	--	56	--	--	--	--	--	--	--	1	--	--	12
515+40.50	STH 91	--	--	92	--	--	--	--	--	--	1	--	--	12
534+22.00	STH 91	--	64	--	--	--	--	--	--	--	1	--	--	12
544+16.17	STH 91	--	60	--	--	--	--	--	--	--	1	--	--	12
555+82.85	STH 91	--	--	60	--	--	--	--	--	--	1	--	--	12
576+78.87	STH 91	--	--	64	--	--	--	--	--	--	1	--	--	12
587+73.50	STH 91	--	64	--	--	--	--	--	--	--	1	--	--	12
605+08.29	STH 91	--	--	--	56	--	--	--	--	--	1	--	--	12
615+93.75	STH 91	--	--	--	--	--	--	56	--	--	1	--	--	12
616+00.25	STH 91	--	--	--	--	--	--	56	--	--	1	--	--	12
625+02.23	STH 91	--	56	--	--	--	--	--	--	--	1	--	--	12
631+70.00	STH 91	--	--	64	--	--	--	--	--	--	1	--	--	12
641+15.00	STH 91	--	--	--	--	--	--	58	--	--	1	--	--	12
650+63.54	STH 91	--	--	--	--	--	--	--	--	--	1	--	60	12
650+72.66	STH 91	--	--	--	--	--	--	--	--	--	1	--	60	12
679+02.00	STH 91	--	--	56	--	--	--	--	--	--	1	--	--	12
691+73.23	STH 91	--	--	--	--	--	--	--	--	--	1	64	--	12
691+82.35	STH 91	--	--	--	--	--	--	--	--	--	1	64	--	12
701+00.50	STH 91	--	--	--	--	--	--	--	84	--	1	--	--	12
708+65.43	STH 91	--	--	--	--	--	--	--	--	56	1	--	--	12
736+23.50	STH 91	--	--	--	--	--	--	56	--	--	1	--	--	12
752+55.68	STH 91	--	--	--	--	--	72	--	--	--	1	--	--	12
778+03.50	STH 91	--	--	--	--	--	--	--	--	56	1	--	--	12
794+40.25	STH 91	--	--	--	--	--	--	48	--	--	1	--	--	12
794+46.75	STH 91	--	--	--	--	--	--	48	--	--	1	--	--	12
829+30.02	STH 91	--	--	--	--	72	--	--	--	--	1	--	--	12
851+57.00	STH 91	--	--	--	--	--	--	--	--	56	1	--	--	12
TOTALS		86	516	394	56	72	238	402	140	168	36	128	120	

*ADDITIONAL QUANTITIES SHOWN ELSEWHERE IN PLANS
**NON-BID ITEM: FOR INFORMATION ONLY

ENDWALL SUMMARY												
STATION	LOCATION	522.1024*	522.1030	522.1060	522.2624	522.2629	522.2634	522.2638	522.2643	522.2658	633.5200*	
		APRON ENDWALLS	APRON ENDWALLS	APRON ENDWALLS	APRON ENDWALLS FOR	APRON ENDWALLS FOR	APRON ENDWALLS FOR	APRON ENDWALLS FOR	APRON ENDWALLS FOR	APRON ENDWALLS FOR	APRON ENDWALLS FOR	MARKERS
		FOR CULVERT PIPE	FOR CULVERT PIPE	FOR CULVERT PIPE	CULVERT PIPE	CULVERT PIPE	CULVERT PIPE	CULVERT PIPE	CULVERT PIPE	CULVERT PIPE	CULVERT PIPE	CULVERT
		REINFORCED	REINFORCED	REINFORCED	REINFORCED CONCRETE	REINFORCED CONCRETE	REINFORCED CONCRETE	REINFORCED CONCRETE	REINFORCED CONCRETE	REINFORCED CONCRETE	REINFORCED CONCRETE	END
		CONCRETE	CONCRETE	CONCRETE	HORIZONTAL ELLIPTICAL	HORIZONTAL ELLIPTICAL	HORIZONTAL ELLIPTICAL	HORIZONTAL ELLIPTICAL	HORIZONTAL ELLIPTICAL	HORIZONTAL ELLIPTICAL	HORIZONTAL ELLIPTICAL	
		24-INCH	30-INCH	60-INCH	24X38-INCH	29X45-INCH	34X53-INCH	38X60-INCH	43X68-INCH	58X91-INCH		
		EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	
CATEGORY CODE 0010												
106+38.50	STH 91	--	2	--	--	--	--	--	--	--	2	
109+28.00	STH 91	--	--	--	--	2	--	--	--	--	2	
146+39.50	STH 91	--	--	2	--	--	--	--	--	--	2	
165+18.00	STH 91	--	--	--	--	--	--	--	--	2	2	
183+10.50	STH 91	--	--	--	--	--	--	--	--	2	2	
188+98.61	STH 91	--	--	--	2	--	--	--	--	--	2	
424+24.50	STH 91	2	--	--	--	--	--	--	--	--	2	
468+37.00	STH 91	2	--	--	--	--	--	--	--	--	2	
488+64.56	STH 91	2	--	--	--	--	--	--	--	--	2	
502+36.00	STH 91	2	--	--	--	--	--	--	--	--	2	
515+40.50	STH 91	--	2	--	--	--	--	--	--	--	2	
534+22.00	STH 91	2	--	--	--	--	--	--	--	--	2	
544+16.17	STH 91	2	--	--	--	--	--	--	--	--	2	
555+82.85	STH 91	--	2	--	--	--	--	--	--	--	2	
576+78.87	STH 91	--	2	--	--	--	--	--	--	--	2	
587+73.50	STH 91	2	--	--	--	--	--	--	--	--	2	
605+08.29	STH 91	--	--	--	--	--	--	2	--	--	2	
615+93.75	STH 91	--	--	--	2	--	--	--	--	--	1	
616+00.25	STH 91	--	--	--	2	--	--	--	--	--	1	
625+02.23	STH 91	2	--	--	--	--	--	--	--	--	2	
631+70.00	STH 91	--	2	--	--	--	--	--	--	--	2	
641+15.00	STH 91	--	--	--	2	--	--	--	--	--	2	
650+63.54	STH 91	--	--	--	--	--	--	--	2	--	1	
650+72.66	STH 91	--	--	--	--	--	--	--	2	--	1	
679+02.00	STH 91	--	2	--	--	--	--	--	--	--	2	
691+73.23	STH 91	--	--	--	--	--	--	2	--	--	1	
691+82.35	STH 91	--	--	--	--	--	--	2	--	--	1	
701+00.50	STH 91	--	--	--	--	2	--	--	--	--	2	
708+65.43	STH 91	--	--	--	--	--	2	--	--	--	2	
736+23.50	STH 91	--	--	--	2	--	--	--	--	--	2	
752+55.68	STH 91	--	--	--	--	--	--	--	--	2	2	
778+03.50	STH 91	--	--	--	--	--	2	--	--	--	2	
794+40.25	STH 91	--	--	--	2	--	--	--	--	--	1	
794+46.75	STH 91	--	--	--	2	--	--	--	--	--	1	
829+30.02	STH 91	--	--	--	--	--	--	--	2	--	2	
851+57.00	STH 91	--	--	--	--	--	2	--	--	--	2	
TOTALS		16	12	2	14	4	6	6	6	6	64	
*ADDITIONAL QUANTITIES SHOWN ELSEWHERE IN PLANS												

RESTORATION ITEMS

		625.0500	628.2008	629.0210	630.0130	630.0500
		SALVAGED	EROSION MAT	FERTILIZER	SEED	SEED
		TOPSOIL	URBAN	TYPE B	MIX	WATER
			CLASS I		NO. 30	
			TYPE B			
STATION	LOCATION	SY	SY	CWT	LB	MGAL
CATEGORY CODE 0010						
106+39	LT & RT	106	106	0.1	4	5
109+28	LT & RT	106	106	0.1	4	5
146+40	LT & RT	130	130	0.1	3	4
165+18	LT & RT	165	165	0.1	4	5
183+10	LT & RT	202	202	0.2	5	6
189+01	LT & RT	151	151	0.2	7	9
336+05 - 339+31	RT	534	534	0.3	10	12
424+24	LT & RT	150	150	0.1	3	4
468+37	LT & RT	86	86	0.1	2	3
488+65	LT & RT	100	100	0.1	3	4
502+36	LT & RT	103	103	0.1	4	5
515+41	LT & RT	188	188	0.1	4	5
534+22	LT & RT	51	51	--	1	2
544+16	LT & RT	55	55	--	2	2
555+83	LT & RT	58	58	--	2	2
576+79	LT & RT	75	75	0.1	2	2
587+74	LT & RT	50	50	--	1	2
605+08	LT & RT	79	79	0.1	2	3
615+97	LT & RT	118	118	0.1	4	5
625+02	LT & RT	131	131	0.2	5	6
631+70	LT & RT	55	55	--	2	2
641+15	LT & RT	103	103	0.1	4	5
650+68	LT & RT	218	218	0.2	6	8
679+02	LT & RT	143	143	0.2	4	6
691+77	LT & RT	217	217	0.2	7	8
701+01	LT & RT	172	172	0.1	4	4
708+65	LT & RT	128	128	0.2	4	5
736+24	LT & RT	170	170	0.1	4	5
752+57	LT & RT	194	194	0.2	6	8
778+03	LT & RT	126	126	0.2	4	5
794+44	LT & RT	75	75	0.1	3	4
829+30	LT & RT	351	351	0.4	11	14
851+57	LT & RT	166	166	0.2	5	6
UNDISTRIBUTED		994	994	1.4	28	34
TOTALS		5,750	5,750	5.7	164	205

EROSION CONTROL ITEMS

		628.1504	628.1520	628.1905	628.1910	628.7005	628.7010	628.7504	628.7555		
		SILT	SILT	MOBILIZATIONS	MOBILIZATIONS	INLET	INLET	TEMPORARY	CULVERT		
		FENCE	FENCE	EROSION	EMERGENCY EROSION	PROTECTION	PROTECTION	DITCH	PIPE		
			MAINTENANCE	CONTROL	CONTROL	TYPE A	TYPE B	CHECKS	CHECKS		
STATION	LOCATION	LF	LF	EACH	EACH	EACH	EACH	LF	EACH	COMMENTS	
CATEGORY CODE 0010											
106+39	LT & RT	--	--	--	--	--	--	12	5	CULVERT REPLACEMENT	
109+28	LT & RT	--	--	--	--	--	--	12	10	CULVERT REPLACEMENT	
146+40	LT & RT	141	141	--	--	--	--	12	13	CULVERT REPLACEMENT	
165+18	LT & RT	147	147	--	--	--	--	12	19	CULVERT REPLACEMENT	
183+10	LT & RT	169	169	--	--	--	--	12	19	CULVERT REPLACEMENT	
189+01	LT & RT	--	--	--	--	--	--	12	7	CULVERT REPLACEMENT	
336+05 - 339+35	LT & RT	--	--	--	--	1	2	12	--	STORM SEWER	
424+24	LT & RT	--	--	--	--	--	--	12	3	CULVERT REPLACEMENT	
468+37	LT & RT	--	--	--	--	--	--	12	3	CULVERT REPLACEMENT	
488+65	LT & RT	119	119	--	--	--	--	12	3	CULVERT REPLACEMENT	
502+36	LT & RT	160	160	--	--	--	--	12	3	CULVERT REPLACEMENT	
515+41	LT & RT	167	167	--	--	--	--	12	5	CULVERT REPLACEMENT	
534+22	LT & RT	--	--	--	--	--	--	12	3	CULVERT REPLACEMENT	
544+16	LT & RT	--	--	--	--	--	--	12	3	CULVERT REPLACEMENT	
555+83	LT & RT	100	100	--	--	--	--	12	5	CULVERT REPLACEMENT	
576+79	LT & RT	--	--	--	--	--	--	12	5	CULVERT REPLACEMENT	
587+74	LT & RT	--	--	--	--	--	--	12	3	CULVERT REPLACEMENT	
605+08	LT & RT	100	100	--	--	--	--	12	13	CULVERT REPLACEMENT	
615+97	LT & RT	182	182	--	--	--	--	12	14	CULVERT REPLACEMENT	
625+02	LT & RT	--	--	--	--	--	--	12	3	CULVERT REPLACEMENT	
631+70	LT & RT	100	100	--	--	--	--	12	5	CULVERT REPLACEMENT	
641+15	LT & RT	150	150	--	--	--	--	12	7	CULVERT REPLACEMENT	
650+68	LT & RT	215	215	--	--	--	--	12	30	CULVERT REPLACEMENT	
679+02	LT & RT	--	--	--	--	--	--	12	5	CULVERT REPLACEMENT	
691+77	LT & RT	237	237	--	--	--	--	12	26	CULVERT REPLACEMENT	
701+01	LT & RT	145	145	--	--	--	--	12	10	CULVERT REPLACEMENT	
708+65	LT & RT	--	--	--	--	--	--	12	10	CULVERT REPLACEMENT	
736+24	LT & RT	--	--	--	--	--	--	12	7	CULVERT REPLACEMENT	
752+57	LT & RT	220	220	--	--	--	--	12	19	CULVERT REPLACEMENT	
778+03	LT & RT	--	--	--	--	--	--	12	10	CULVERT REPLACEMENT	
794+44	LT & RT	170	170	--	--	--	--	12	14	CULVERT REPLACEMENT	
829+30	LT & RT	420	420	--	--	--	--	12	15	CULVERT REPLACEMENT	
851+57	LT & RT	170	170	--	--	--	--	12	10	CULVERT REPLACEMENT	
UNDISTRIBUTED		778	778	5	3	--	--	99	78	--	
TOTALS		3,890	3,890	5	3	1	2	495	385		

TEMPORARY MARKING LINE PAINT 6-INCH

		643.3165		
STATION - STATION	LOCATION	WHITE	YELLOW	COMMENTS
		LF	LF	
CATEGORY CODE 0010				
99+06 - 870+02	LT & RT	--	58,755	ON MILLED SURFACE
99+06 - 870+02	LT & RT	--	58,755	ON LOWER LAYER
99+06 - 870+02	LT & RT	--	58,755	ON UPPER LAYER PRIOR TO CENTERLINE RUMBLE STRIPS
99+06 - 870+02	LT & RT	149,430	--	ON UPPER LAYER PRIOR TO GRAVEL SHOULDERS
		149,430	176,265	
TOTALS		325,695		

PAVEMENT MARKING ITEMS

		646.1020		646.2040		646.4040		646.5320	
STATION - STATION	LOCATION	MARKING		MARKING LINE		MARKING LINE		MARKING	
		LINE		GROOVED		GROOVED		RAILROAD	
		EPOXY		WET REF EPOXY		WET REF EPOXY		CROSSING	
		4-INCH		6-INCH		10-INCH		EPOXY	
CATEGORY CODE 0010		WHITE	YELLOW	WHITE	YELLOW	WHITE		WHITE	
		LF	LF	LF	LF	LF		EACH	
99+06 - 870+72	LT & RT	--	--	149,888	69,882	4,595		2	
CTH E SOUTH		16	32	--	--	--		--	
CTH E NORTH		16	32	--	--	--		--	
CTH M		22	44	--	--	--		--	
		54	108	149,888	69,882				
TOTALS		162		219,770		4,595		2	

CONSTRUCTION STAKING ITEMS

		650.8000
		CONSTRUCTION
		STAKING
		RESURFACING
		REFERENCE
LOCATION		LF
CATEGORY CODE 0010		
PROJECT 6540-08-71		76,801
TOTALS		76,801
STAKING ITEMS FOR STORM SEWER, CURB & GUTTER, AND PIPE CULVERTS SHOWN ELSEWHERE		

SAWING PAVEMENT ITEMS

		690.0150	690.0250	
		SAWING	SAWING	
		ASPHALT	CONCRETE	
STATION - STATION	LOCATION	LF	LF	COMMENTS
CATEGORY CODE 0010				
106+39	LT & RT	60	--	CULVERT REPLACEMENT
109+28	LT & RT	60	--	CULVERT REPLACEMENT
146+40	LT & RT	60	--	CULVERT REPLACEMENT
165+18	LT & RT	60	--	CULVERT REPLACEMENT
183+10	LT & RT	60	--	CULVERT REPLACEMENT
189+01	LT & RT	70	--	CULVERT REPLACEMENT
336+05 - 339+35	LT & RT	218	3	STORM SEWER
424+24	LT & RT	138	6	CULVERT REPLACEMENT
468+37	LT & RT	60	--	CULVERT REPLACEMENT
488+65	LT & RT	127	--	CULVERT REPLACEMENT
502+36	LT & RT	60	--	CULVERT REPLACEMENT
515+41	LT & RT	161	3	CULVERT REPLACEMENT
534+22	LT & RT	60	--	CULVERT REPLACEMENT
544+16	LT & RT	60	--	CULVERT REPLACEMENT
555+83	LT & RT	60	--	CULVERT REPLACEMENT
576+79	LT & RT	60	--	CULVERT REPLACEMENT
587+74	LT & RT	60	--	CULVERT REPLACEMENT
605+08	LT & RT	60	--	CULVERT REPLACEMENT
615+97	LT & RT	60	--	CULVERT REPLACEMENT
625+02	LT & RT	60	--	CULVERT REPLACEMENT
631+70	LT & RT	60	--	CULVERT REPLACEMENT
641+15	LT & RT	60	--	CULVERT REPLACEMENT
650+68	LT & RT	60	--	CULVERT REPLACEMENT
679+02	LT & RT	60	--	CULVERT REPLACEMENT
691+77	LT & RT	60	--	CULVERT REPLACEMENT
701+01	LT & RT	159	3	CULVERT REPLACEMENT
708+65	LT & RT	60	--	CULVERT REPLACEMENT
736+24	LT & RT	60	--	CULVERT REPLACEMENT
752+57	LT & RT	76	--	CULVERT REPLACEMENT
778+03	LT & RT	60	--	CULVERT REPLACEMENT
794+44	LT & RT	60	--	CULVERT REPLACEMENT
829+30	LT & RT	60	--	CULVERT REPLACEMENT
851+57	LT & RT	60	--	CULVERT REPLACEMENT
TOTALS		2,509	15	

TRAFFIC CONTROL DETOUR SIGN SUMMARY

SIGN NO.	LOCATION	SIGN CODE	SIZE W X H	NUMBER IN SERVICE	APPROX. SERVICE PERIOD 40 DAYS	643.0900* SIGNS DAYS	643.0420* BARRICADES TYPE III DAYS	643.0705* WARNING LIGHTS TYPE A DAYS	643.1050* SIGNS PORTABLE CHANGEABLE MESSAGE DAYS	NO OF CYCLES	643.0920 COVERING SIGNS TYPE II EACH	REMARKS
1	STH 91, W. OF STH 116, PLACE 1500' W. OF STH 116 INTERSECTION	M 1-6	24"x24"	1	40	40						91
	"	W 20-2A	48"x48"	1	40	40						
2	STH 91, W. OF STH 116, PLACE LEFT OF EXISTING J2-2 SIGN	MO 4-8	24"x12"	1	40	40						
	"	M 3-2	24"x12"	1	40	40						
	"	M 1-6	24"x24"	1	40	40						91
	"	MO 5-1R	21"x21"	1	40	40						
3	STH 91, W. OF STH 116, COVER EXISTING J2-2 SIGN AS SHOWN									1	1	COVER "EAST 91 AHEAD"
4	STH 91, W. OF STH 116, COVER EXISTING D1-3 SIGN AS SHOWN									1	1	COVER "OSHKOSH"
5	STH 91, AT STH 116 INTERSECTION, PLACE RIGHT OF EXISTING J13-2 SIGN	MO 4-8	24"x12"	1	40	40						
	"	M 3-2	24"x12"	1	40	40						
	"	M 1-6	24"x24"	1	40	40						91
	"	MO 6-1	21"x21"	1	40	40						RIGHT
6	STH 91, AT STH 116 INTERSECTION, PLACE ON RIGHT SHOULDER IN SE QUADRANT OF INTERSECTION	R 11-4	60"x30"	1	40	40	40	80				
	"	MO 4-9R	30"x24"	1	40	40						
7	CTH M, AT STH 91, MODIFY EXISTING J13-2 SIGN AS SHOWN	MO 6-1	21"x21"	1	40	40						LEFT
8	STH 91, E. OF STH 116, COVER EXISTING J4-1 SIGN AS SHOWN									1	1	COVER ENTIRE SIGN
9	STH 91, E. OF STH 116, PLACE ON RIGHT SHOULDER, FIELD LOCATION TO BE DETERMINED	PCMS		1					7			PLACE IN ADVANCE OF CLOSURE
10	VACANT											
11	STH 116, N. OF STH 91, COVER EXISTING D1-3 SIGN AS SHOWN									1	1	COVER "OSHKOSH"
12	STH 116, N. OF STH 91, MODIFY EXISTING J2-2 SIGN AS SHOWN	MO 6-1	21"x21"	1	40	40						AHEAD
13	CTH M, S. OF STH 91, PLACE RIGHT OF EXISTING M1-51A SIGN	MO 4-8	24"x12"	1	40	40						
	"	M 3-2	24"x12"	1	40	40						
	"	M 1-6	24"x24"	1	40	40						91
14	CTH M, S. OF STH 91, MODIFY EXISTING J1-1 SIGN AS SHOWN	M 4-8A	24"x18"	1	40	40						
15	CTH M, N. OF STH 44, PLACE 750' S. OF STH 44 INTERSECTION	MO 4-8	24"x12"	1	40	40						
	"	M 3-2	24"x12"	1	40	40						
	"	M 1-6	24"x24"	1	40	40						91
	"	MO 5-2R	21"x21"	1	40	40						
16	CTH M, N. OF STH 44, PLACE RIGHT OF EXISTING M1-51A SIGN	MO 4-8	24"x12"	1	40	40						
	"	M 3-4	24"x12"	1	40	40						
	"	M 1-6	24"x24"	1	40	40						91
17	CTH M, AT STH 44, PLACE RIGHT OF EXISTING J13-1 SIGN	MO 4-8	24"x12"	1	40	40						
	"	M 3-2	24"x12"	1	40	40						
	"	M 1-6	24"x24"	1	40	40						91
	"	MO 6-1	21"x21"	1	40	40						LEFT
18	STH 44, N. OF CTH M, PLACE RIGHT OF EXISTING J4-1 SIGN	MO 4-8	24"x12"	1	40	40						
	"	M 3-2	24"x12"	1	40	40						
	"	M 1-6	24"x24"	1	40	40						91
19	STH 44, N. OF CTH M, PLACE RIGHT OF EXISTING J13-1 SIGN	MO 4-8	24"x12"	1	40	40						
	"	M 3-4	24"x12"	1	40	40						
	"	M 1-6	24"x24"	1	40	40						91
	"	MO 6-1	21"x21"	1	40	40						RIGHT
20	STH 44, N. OF CTH M, PLACE 750' N. OF CTH M INTERSECTION	MO 4-8	24"x12"	1	40	40						
	"	M 3-4	24"x12"	1	40	40						
	"	M 1-6	24"x24"	1	40	40						91
	"	MO 5-1R	21"x21"	1	40	40						

PAGE SUBTOTALS

41

1,600

40

80

7

4

* ADDITIONAL QUANTITIES SHOWN ELSEWHERE IN PLANS

PLAN SHEET PRODUCED

BY WisDOT - NE REGION

TRAFFIC CONTROL DETOUR SIGN SUMMARY

SIGN NO.	LOCATION	SIGN CODE	SIZE W X H	NUMBER IN SERVICE	APPROX. SERVICE PERIOD 40 DAYS	643.0900* SIGNS DAYS	643.0420* BARRICADES TYPE III DAYS	643.0705* WARNING LIGHTS TYPE A DAYS	643.1050* SIGNS PORTABLE CHANGEABLE MESSAGE DAYS	NO OF CYCLES	643.0920 COVERING SIGNS TYPE II EACH	REMARKS
21	STH 44, S. OF CTH FF, PLACE 150' S. OF CTH FF INTERSECTION	MO 4-8	24"x12"	1	40	40						
	"	M 3-2	24"x12"	1	40	40						
	"	M 1-6	24"x24"	1	40	40						91
	"	MO 6-1	21"x21"	1	40	40						AHEAD
22	STH 44, N. OF CTH FF, PLACE 150' N. OF CTH FF INTERSECTION	MO 4-8	24"x12"	1	40	40						
	"	M 3-4	24"x12"	1	40	40						
	"	M 1-6	24"x24"	1	40	40						91
	"	MO 6-1	21"x21"	1	40	40						AHEAD
23	STH 91, W. OF CTH FF, COVER EXISTING J4-1 SIGN AS SHOWN									1	1	COVER ENTIRE SIGN
24	CTH FF, N. OF STH 91, MODIFY EXISTING J13-2 SIGN AS SHOWN	MO 6-1	21"x21"	1	40	40						AHEAD
25	CTH FF, AT STH 91 INTERSECTION, COVER EXISTING J13-2 SIGN AS SHOWN									1	1	COVER "91 LT-RT"
26	STH 91, E. OF CTH FF INTERSECTION, COVER EXISTING J4-1 SIGN AS SHOWN									1	1	COVER ENTIRE SIGN
27	VACANT											
28	STH 91, W. OF STH 44, PLACE ON RIGHT SHOULDER, FIELD DETERMINE LOCATION	PCMS		1					7			PLACE IN ADVANCE OF CLOSURE
29	STH 91, W. OF STH 44, COVER EXISTING J4-1 SIGN AS SHOWN											COVER ENTIRE SIGN
30	STH 91, AT STH 44, PLACE ON RIGHT SHOULDER IN NW QUADRANT OF INTERSECTION	R 11-4	60"x30"	1	40	40	40	80				
	"	M 4-9L	30"x24"	1	40	40						
31	STH 44, S. OF STH 91, PLACE RIGHT OF EXISTING J4-1 SIGN	M 4-8	24"x12"	1	40	40						
	"	M 3-4	24"x12"	1	40	40						
	"	M 1-6	24"x24"	1	40	40						91
32	STH 44, S. OF STH 91, MODIFY EXISTING J1-1 SIGN AS SHOWN	M 4-8A	24"x18"	1	40	40						
33	STH 44, N. OF STH 91, MODIFY EXISTING J3-1 SIGN AS SHOWN	M 4-8	24"x12"	1	40	40						
	"	MO 6-1	21"x21"	1	40	40						AHEAD
34	STH 44, N. OF STH 91, PLACE 1000' N. OF STH 91 INTERSECTION	M 4-8	24"x12"	1	40	40						
	"	M 3-4	24"x12"	1	40	40						
	"	M 1-6	24"x24"	1	40	40						91
	"	MO 6-1	21"x21"	1	40	40						AHEAD
35	STH 44, N. OF STH 91, PLACE 1500' N. OF STH 91 INTERSECTION	M 3-4	24"x12"	1	40	40						
	"	M 1-6	24"x24"	1	40	40						91
	"	W 20-2A	48"x48"	1	40	40						

PAGE SUBTOTALS

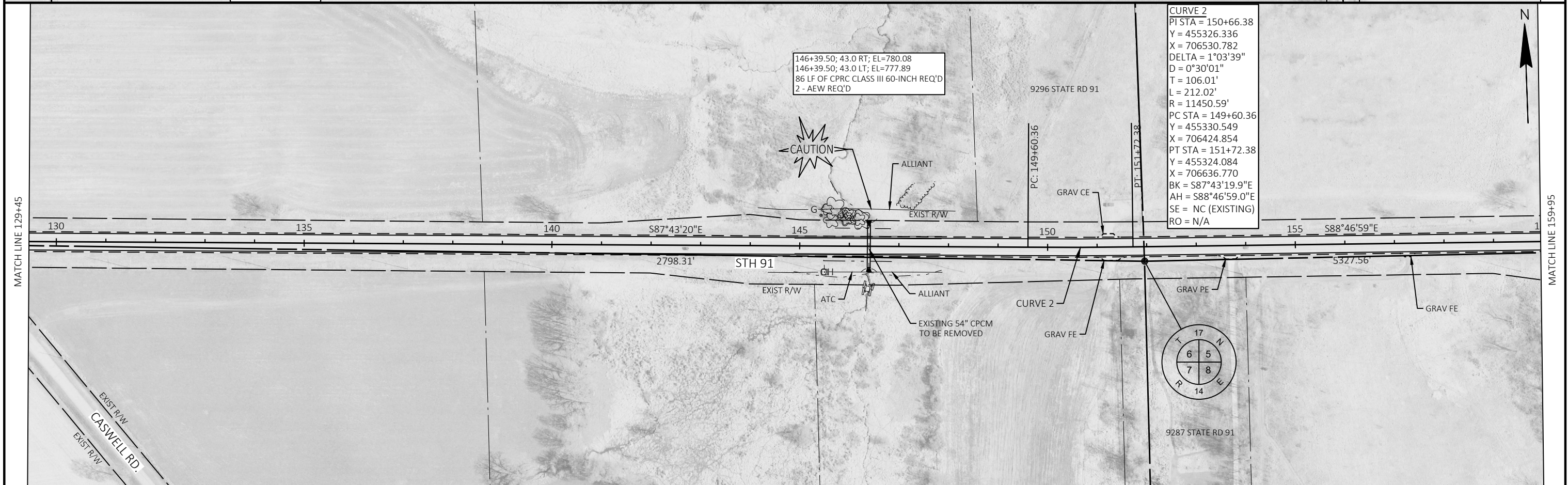
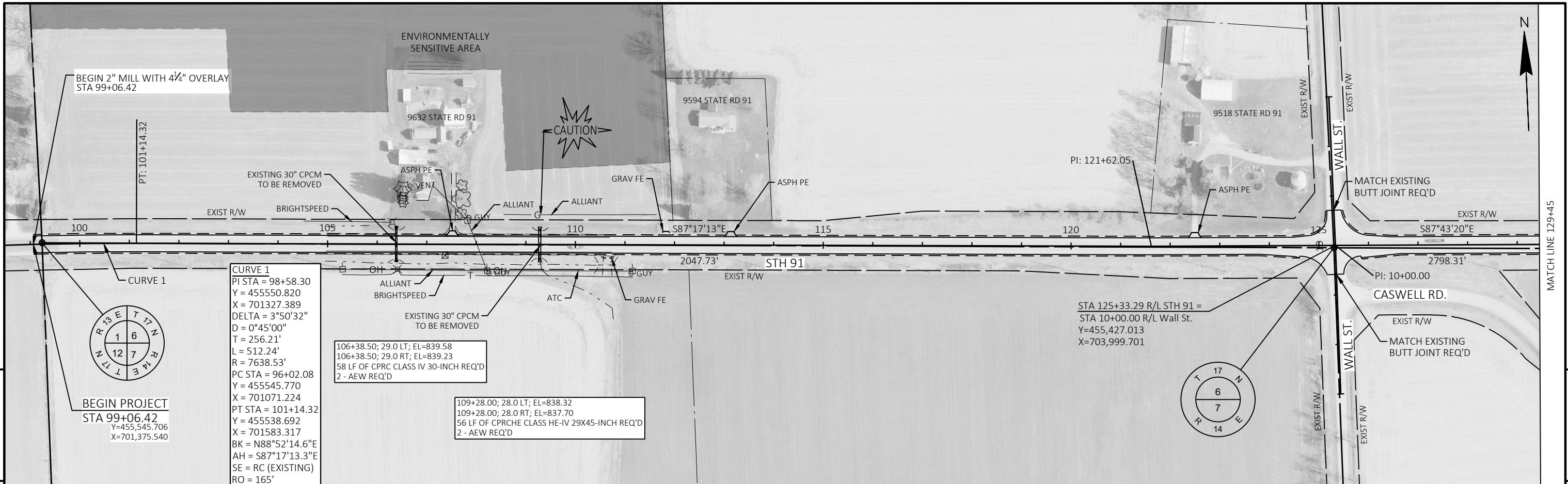
25 960 40 80 7 3

PROJECT TOTALS

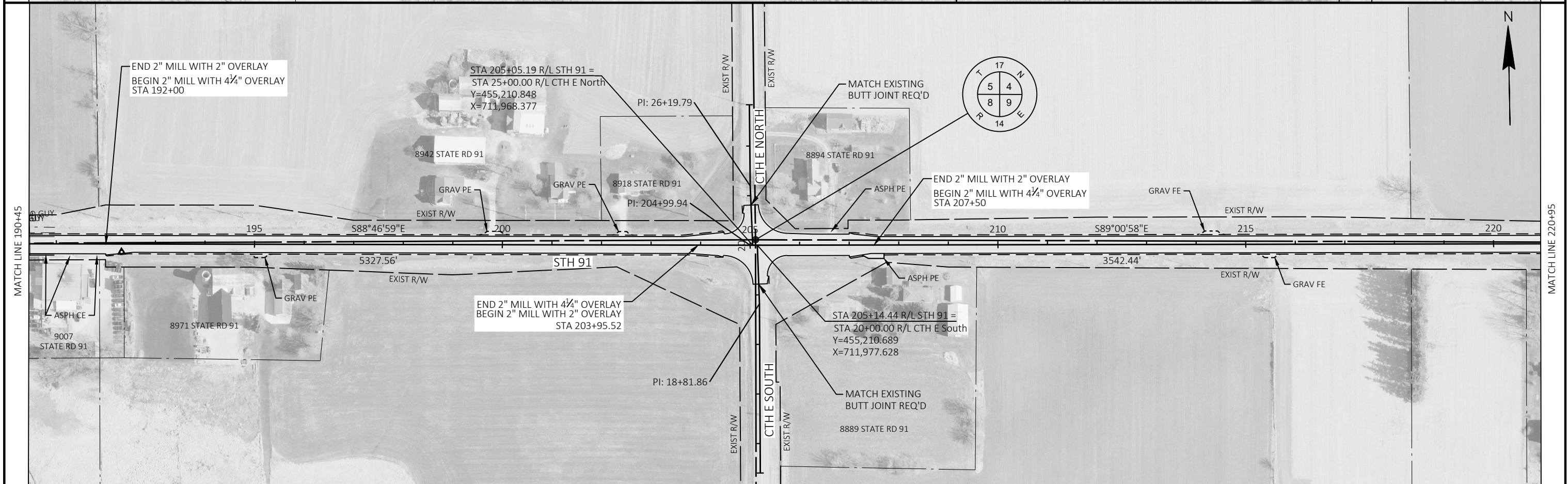
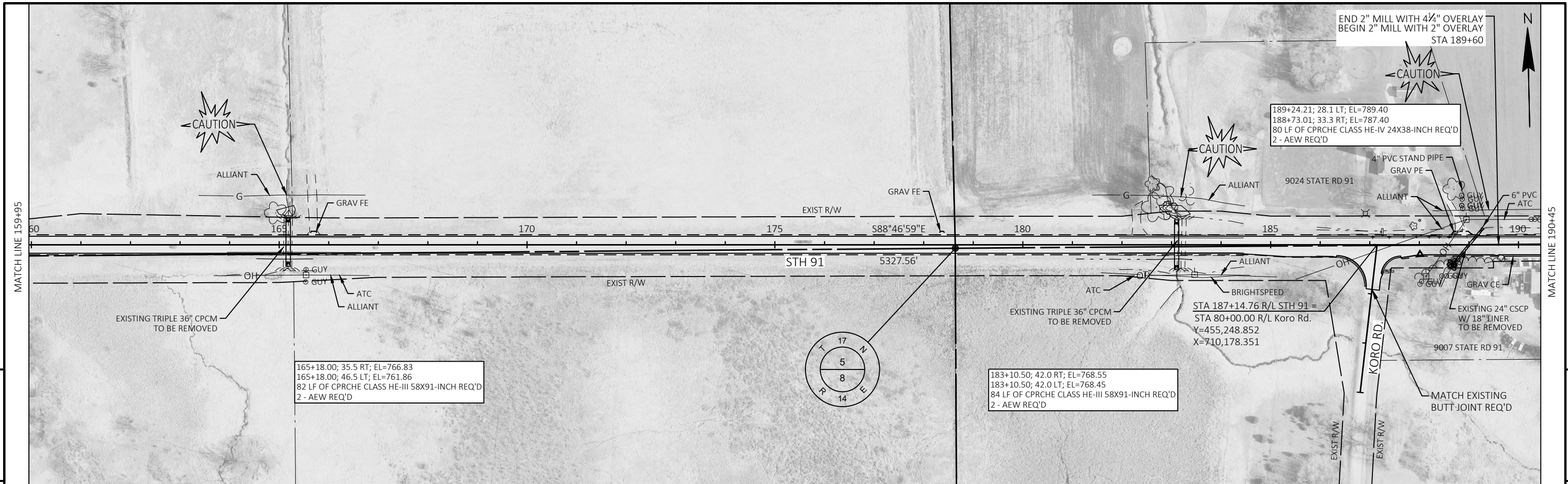
66 2,560 80 160 14 7

* ADDITIONAL QUANTITIES SHOWN ELSEWHERE IN PLANS

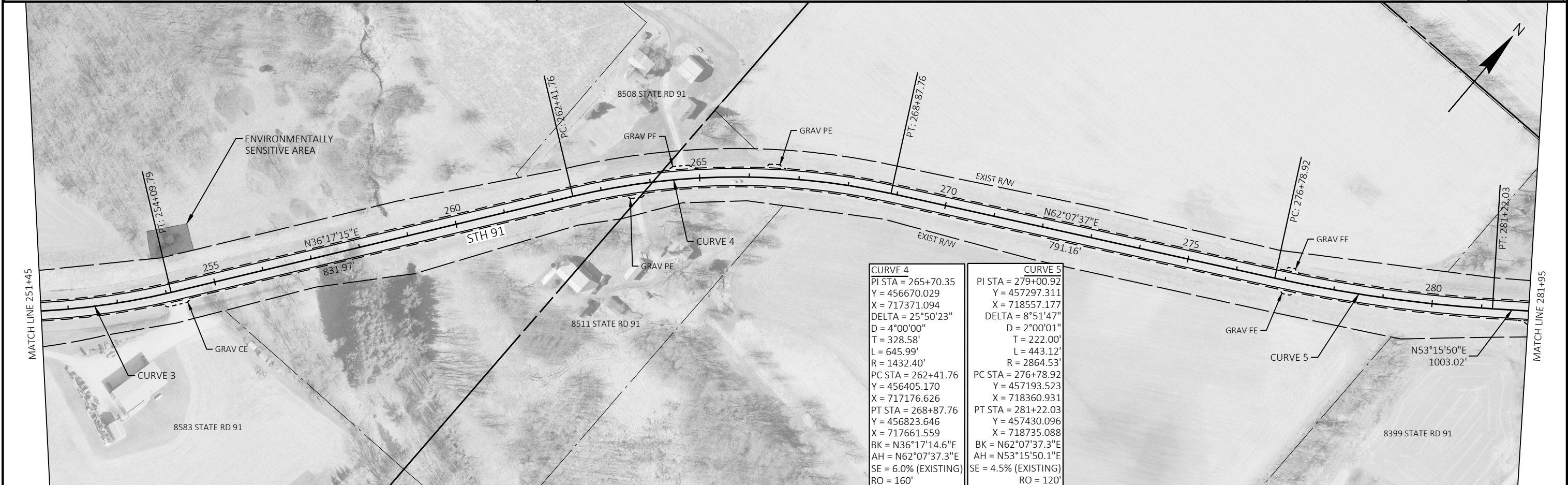
PLAN SHEET PRODUCED
BY WisDOT - NE REGION

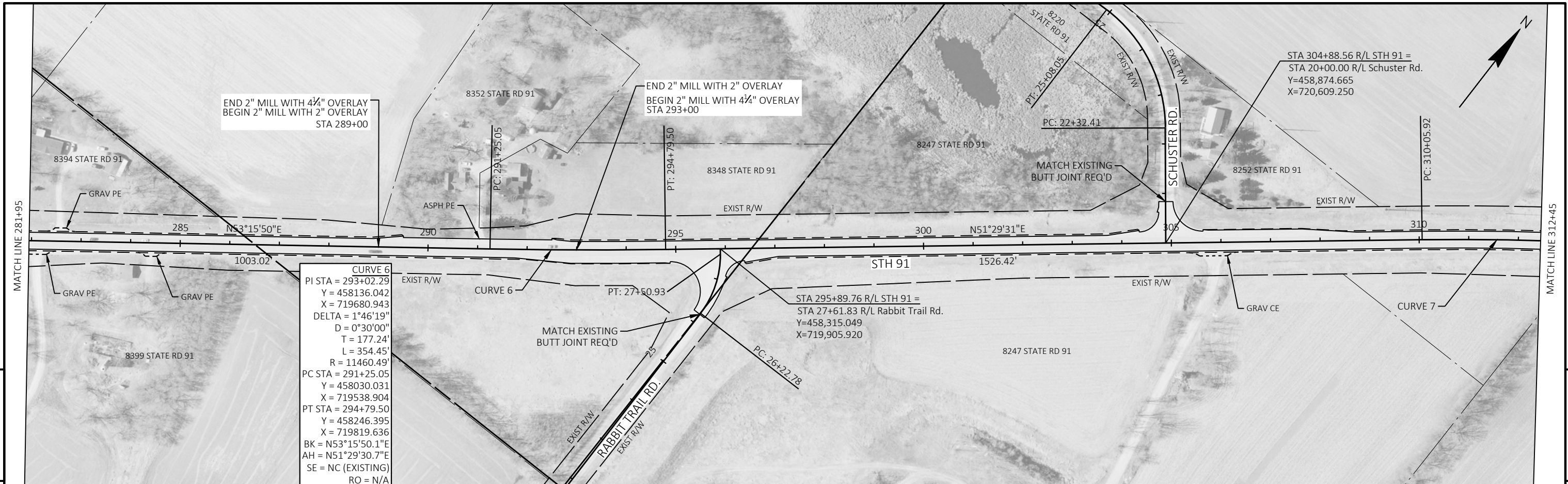


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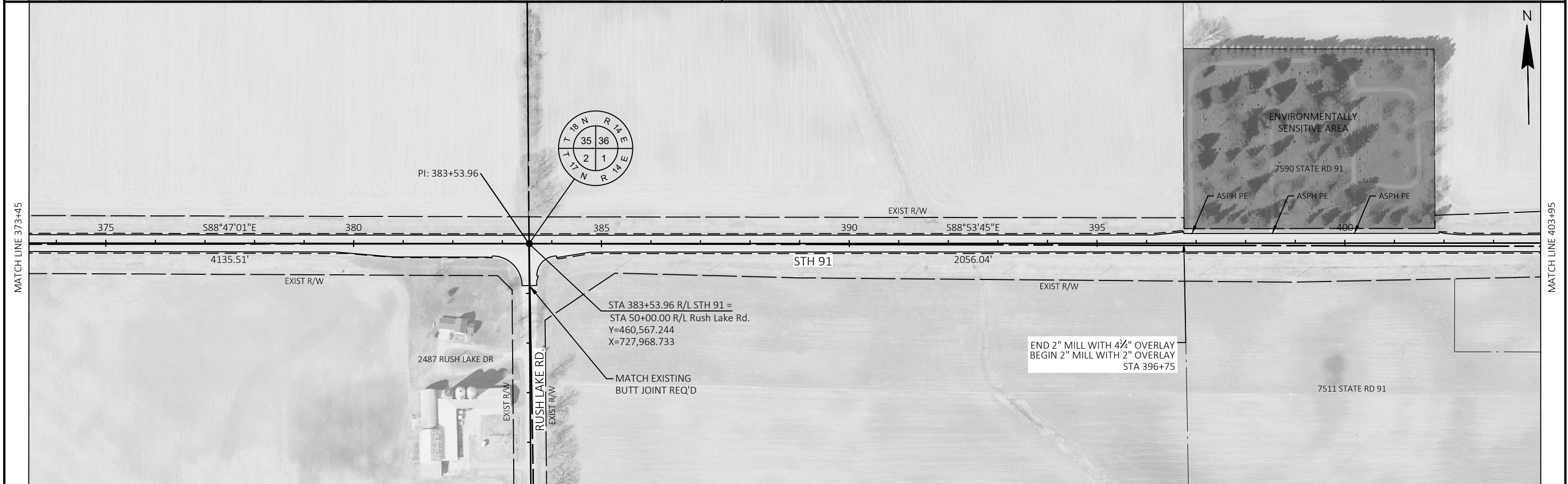
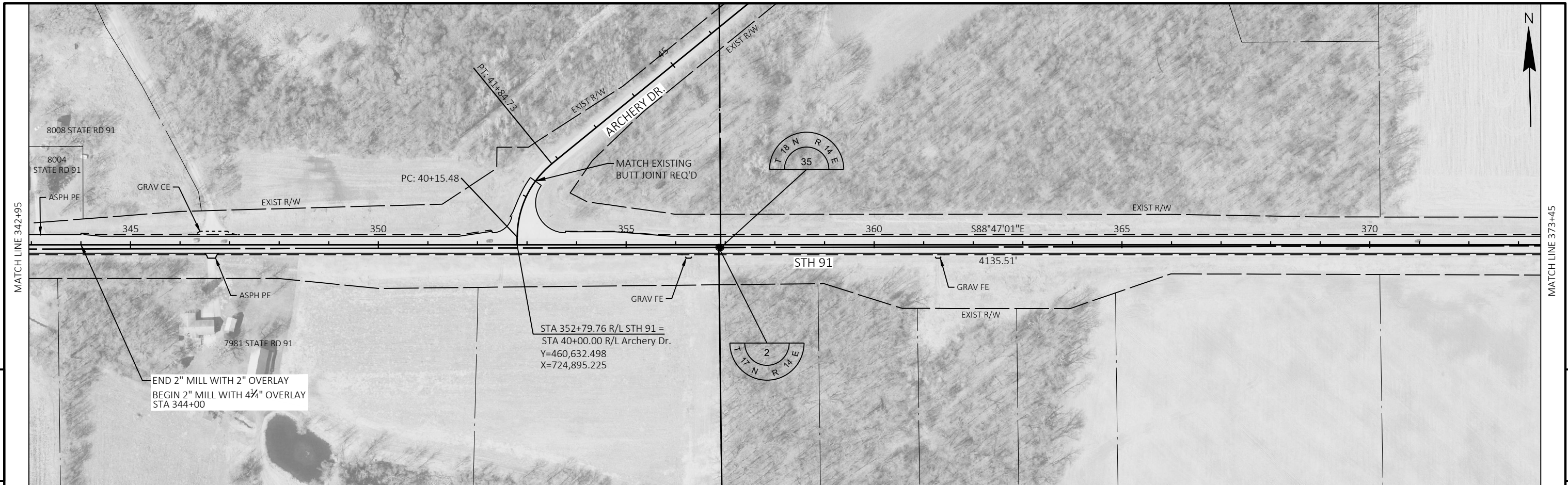


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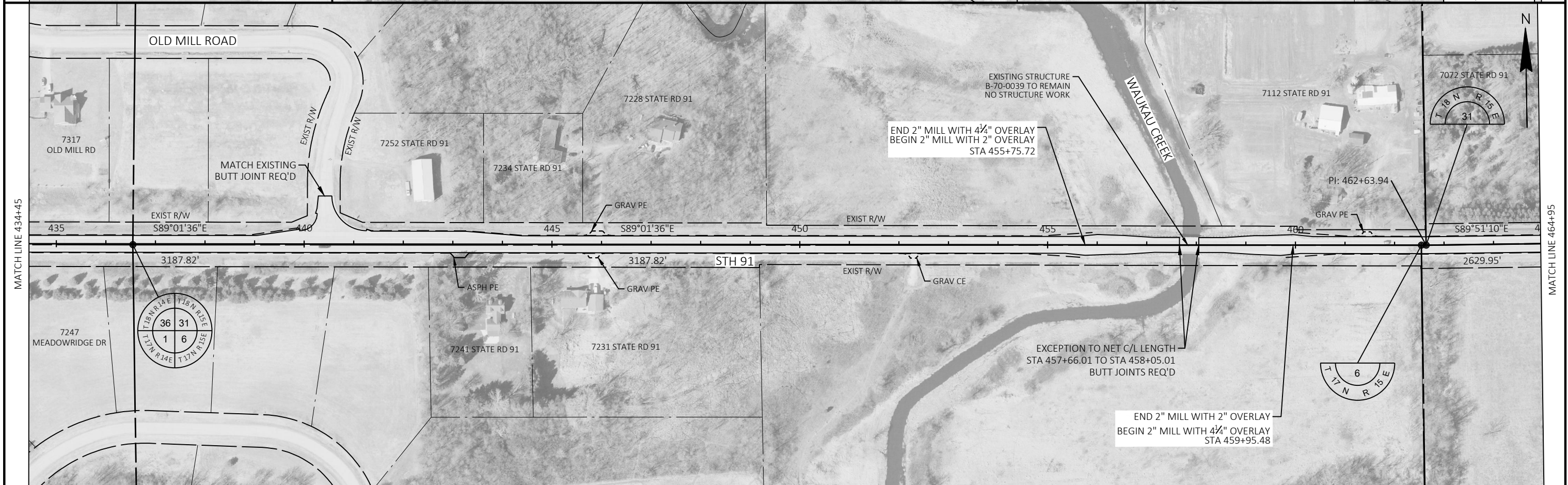
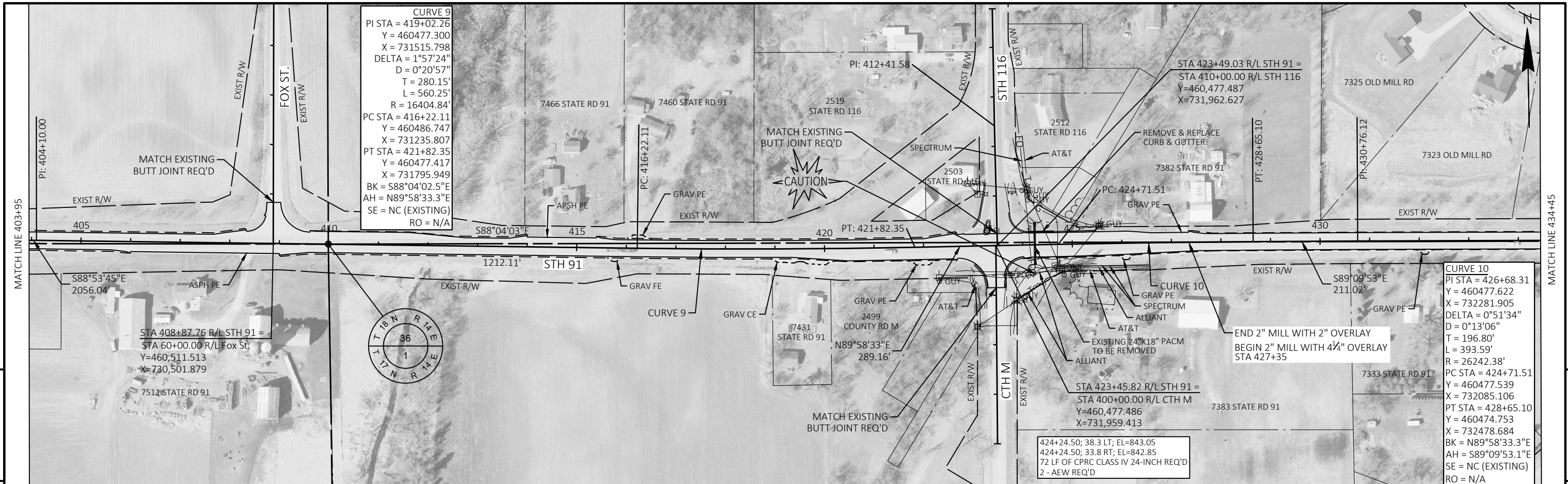




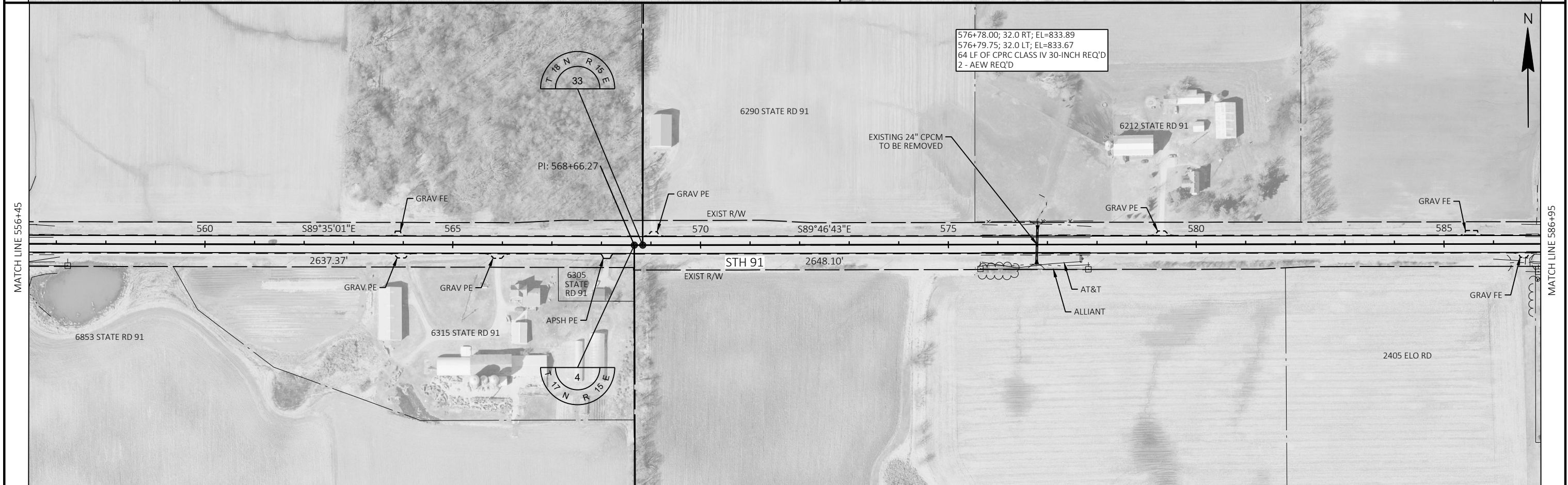
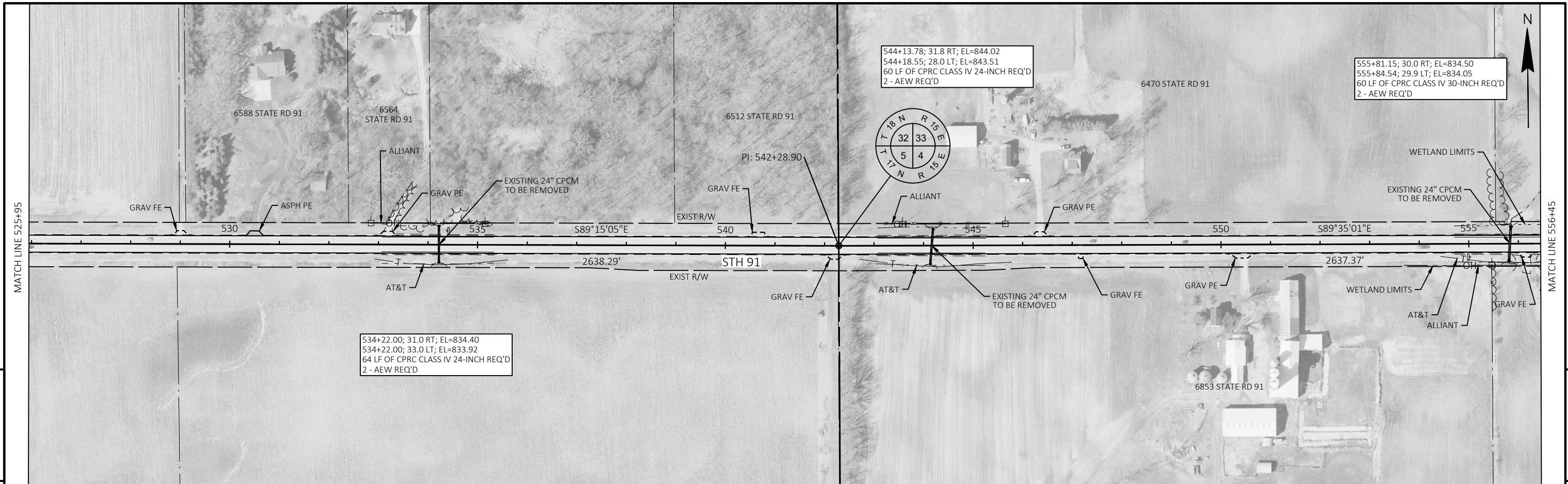
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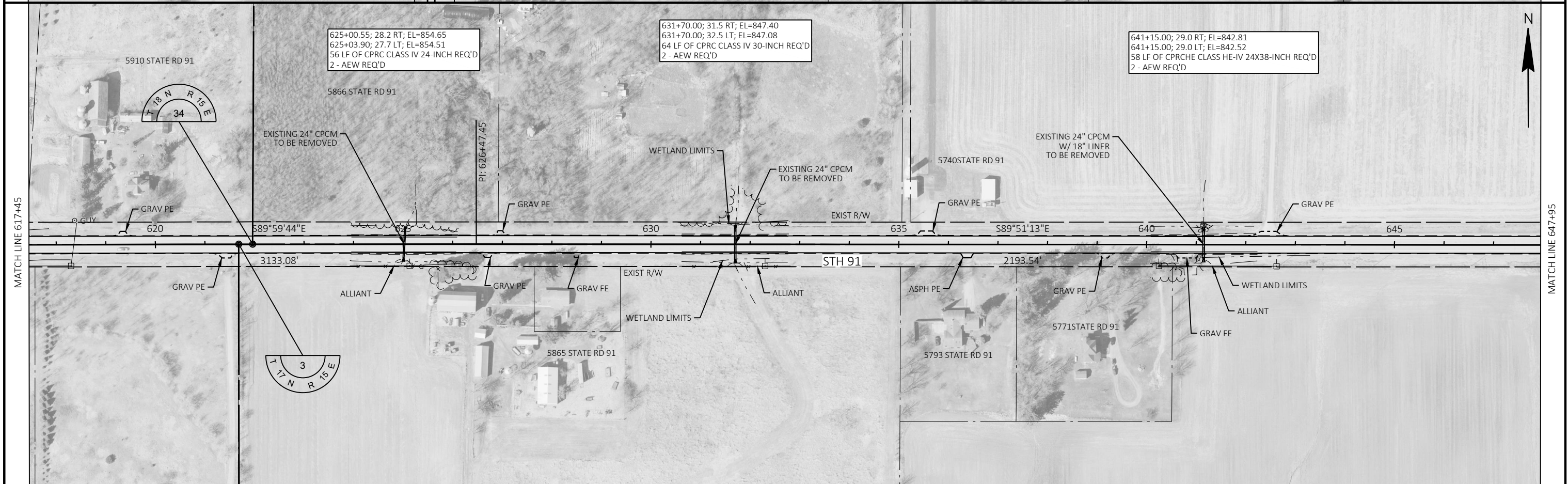
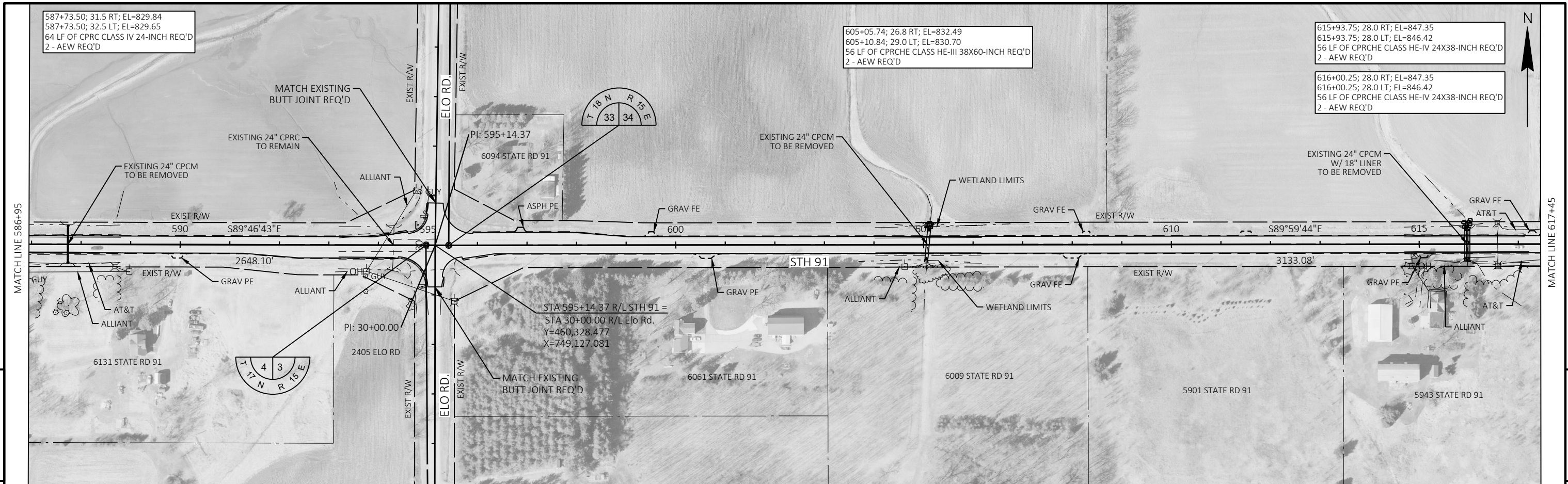
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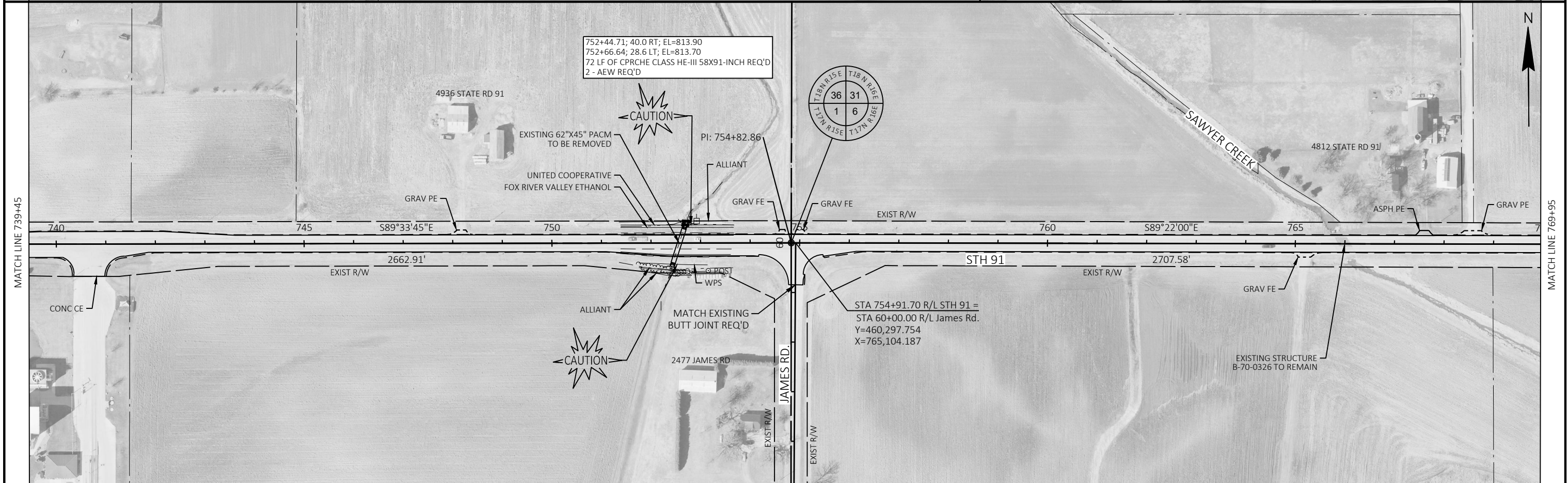
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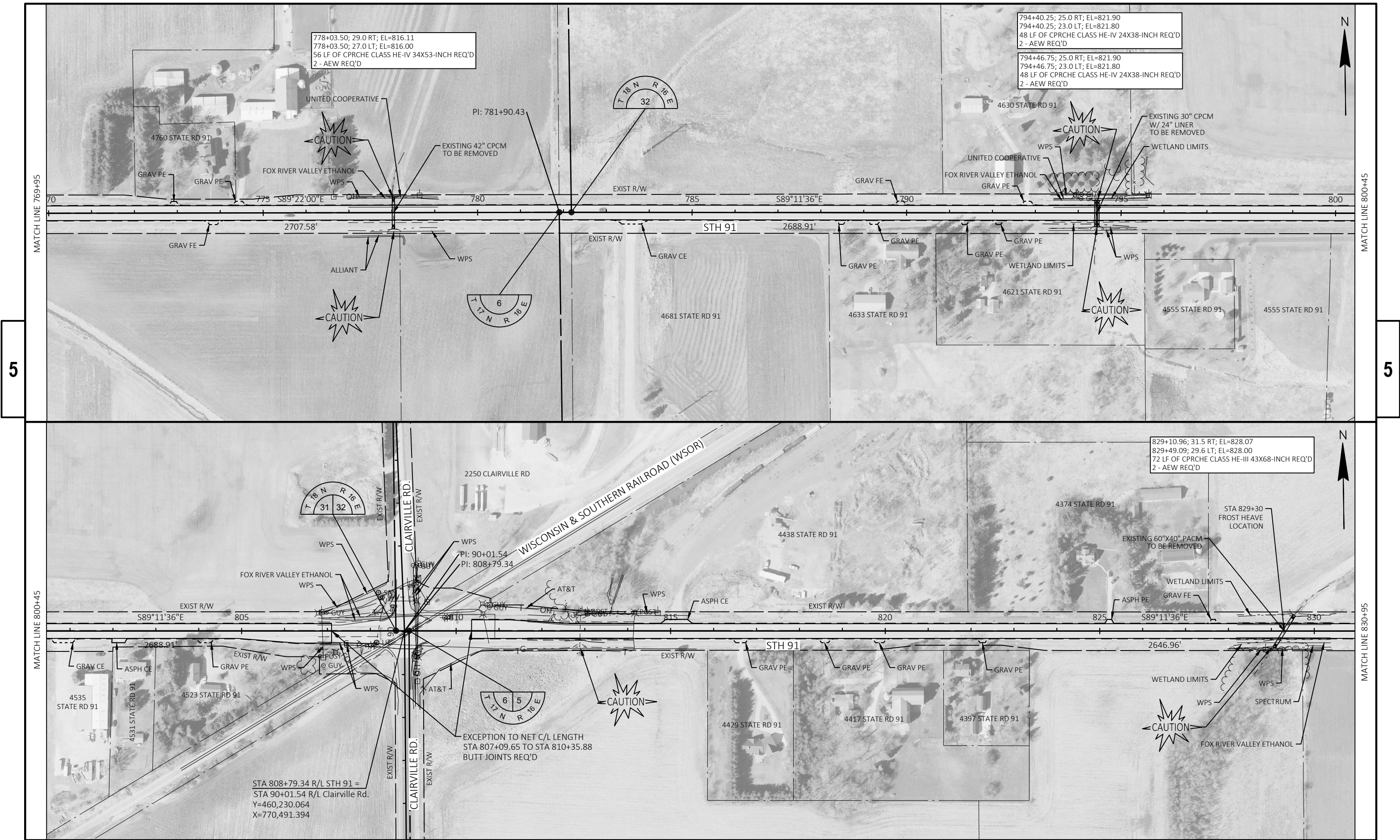
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PROJECT NO: 6540-08-71	HWY: STH 91	COUNTY: WINNEBAGO	PLAN - STH 91	SHEET	E
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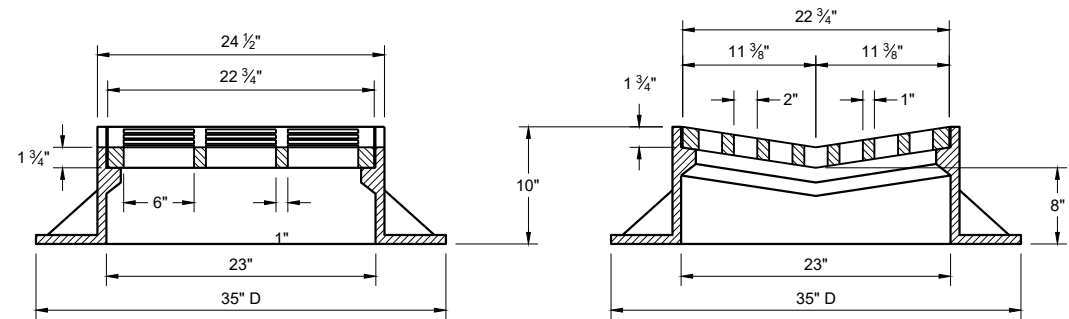
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PROJECT NO: 6540-08-71	HWY: STH 91	COUNTY: WINNEBAGO	PLAN - STH 91	SHEET 5
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Standard Detail Drawing List

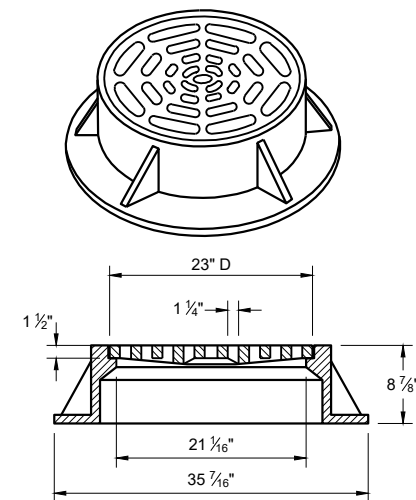
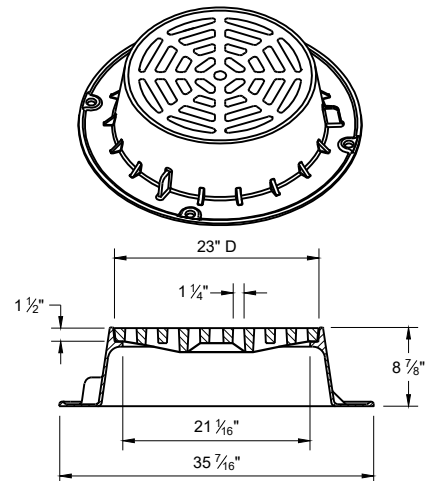
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08A05-21C	INLET COVERS TYPE F, HM, HM-S, S, T, HM-GJ & HM-GJ-S
08C06-03	INLETS 3-FT AND 4-FT DIAMETER
08C08-03	INLETS MEDIAN 1 AND 2 GRATE
08D01-23A	CONCRETE CURB & GUTTER
08D01-23B	CONCRETE CURB, TIES AND CURB AND GUTTER APPLICATIONS
08D22-01	DRIVEWAYS WITHOUT CURB & GUTTER RESURFACING PROJECTS RURAL
08E08-03	TYPICAL INSTALLATIONS OF EROSION BALES / TEMPORARY DITCH CHECKS
08E09-06	SILT FENCE
08E10-02	INLET PROTECTION TYPE A, B, C AND D
08E15-01	CULVERT PIPE CHECK
08F01-11	APRON ENDWALLS FOR CULVERT PIPE
08F02-01	APRON ENDWALLS FOR PIPE ARCH AND ELLIPTICAL PIPE
08F04-08	JOINT TIES FOR CONCRETE PIPE AND CONCRETE COLLAR DETAIL
13A10-03A	SHOULDER RUMBLE STRIPS - ASPHALT
13A10-03G	SHOULDER AND EDGE LINE RUMBLE STRIPS - CROSSINGS, INTERSECTIONS, BRIDGES, DRIVEWAYS
13A10-03H	SHOULDER AND EDGE LINE RUMBLE STRIPS - RAILROAD, PASSING, CLIMBING AND BYPASS LANES
13A11-04A	CENTERLINE RUMBLE STRIPS - ASPHALT
13A11-04D	CENTERLINE RUMBLE STRIPS - INTERSECTIONS, DRIVEWAYS, BRIDGES, RAILROADS
13C19-03	HMA LONGITUDINAL JOINTS
15A03-02A	FLEXIBLE MARKER POST FOR CULVERT END
15A03-02B	FLEXIBLE MARKER POST FOR CULVERT END
15C02-09A	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-09B	BARRICADES AND SIGNS FOR VARIOUS CLOSURES
15C02-09C	DETOUR SIGNING FOR MAINLINE CLOSURES
15C02-09H	MODIFIED ROUTE ASSEMBLY FOR DETOUR SIGNING
15C03-05	BARRICADES AND SIGNS FOR SIDEROAD CLOSURES
15C04-05	TRAFFIC CONTROL, ADVANCE WARNING SIGNS 45 M.P.H. OR GREATER TWO-WAY UNDIVIDED ROAD OPEN TO TRAFFIC
15C05-05	TRAFFIC CONTROL, ADVANCE WARNING SIGNS 40 M.P.H. OR LESS
15C08-23A	PERMANENT LONGITUDINAL PAVEMENT MARKINGS
15C08-23B	TEMPORARY LONGITUDINAL PAVEMENT MARKING
15C08-23C	PAVEMENT MARKING (TURN LANES)
15C08-23D	PAVEMENT MARKING (TURN LANES)
15C09-13A	SIGNING AND PAVEMENT MARKING DETAILS FOR RAILROAD-HIGHWAY GRADE CROSSINGS
15C11-10B	CHANNELIZING DEVICES DRUMS, CONES, BARRICADES AND VERTICAL PANELS
15C12-09A	TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATION
15C19-09A	MOVING PAVEMENT MARKING OPERATION TWO-LANE TWO-WAY ROADWAY
15C33-05	STOP LINE AND CROSSWALK PAVEMENT MARKING
15C35-06A	PAVEMENT MARKING (INTERSECTIONS)
15D28-04	TRAFFIC CONTROL, WORK ON SHOULDER OR PARKING LANE, UNDIVIDED ROADWAY
15D39-02	TRAFFIC CONTROL, DROP-OFF SIGNING
15D44-02	TRAFFIC CONTROL, SIGNING ON ROADWAYS WITH MILLED SURFACES
15D45-03	TRAFFIC CONTROL, SIGNING ON ROADWAYS WITH LOOSE GRAVEL
15D51-01	TRAFFIC CONTROL, MOBILE OPERATIONS ON AN UNDIVIDED ROADWAY



TYPE "B"

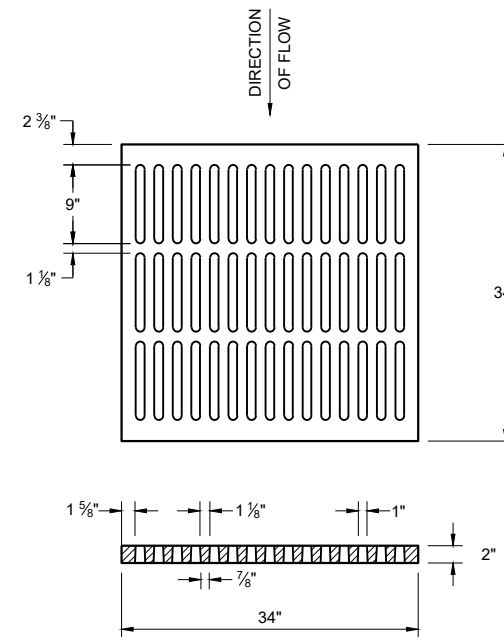
**ALTERNATIVE GRATE FOR
TYPE "B" COVER**

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



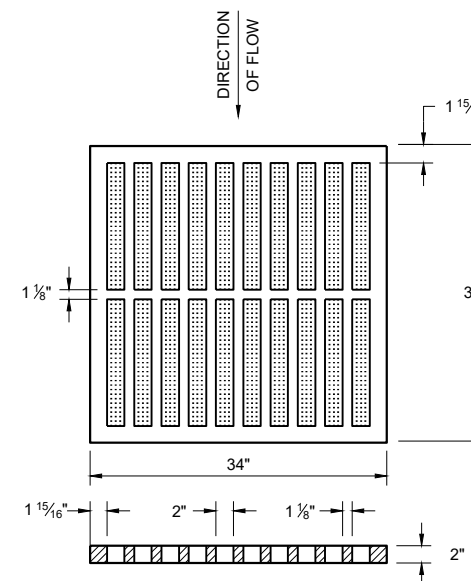
TYPE "C"

NOTE: EITHER CASTING IS ACCEPTABLE



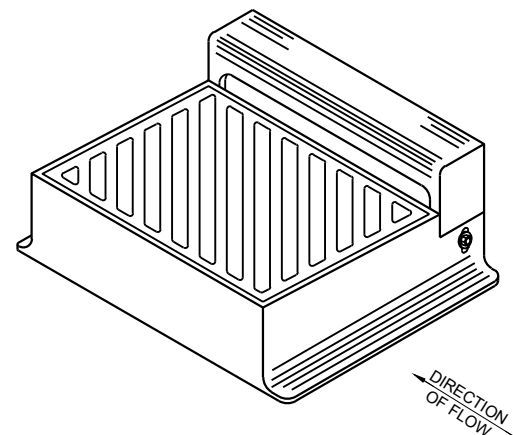
ALTERNATIVE TYPE "MS"

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

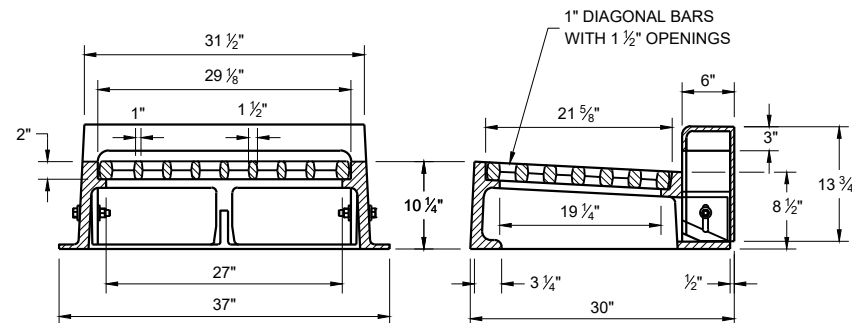


TYPE "MS"

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



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



TYPE "WM"

NOTE: CURB BOX HEIGHT ADJUSTABLE 6" - 9"

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

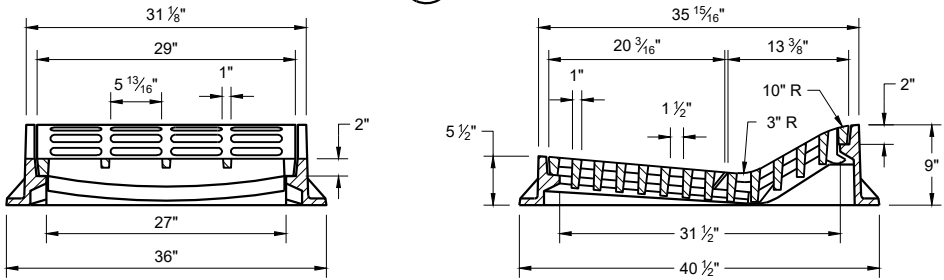
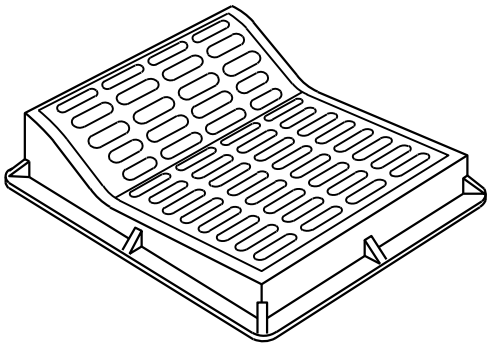
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

GENERAL NOTES

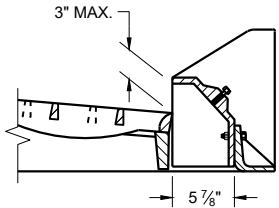
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

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.



TYPE "F"

USE WITH TYPES "A" AND "D" CONCRETE CURB AND GUTTER, 36"

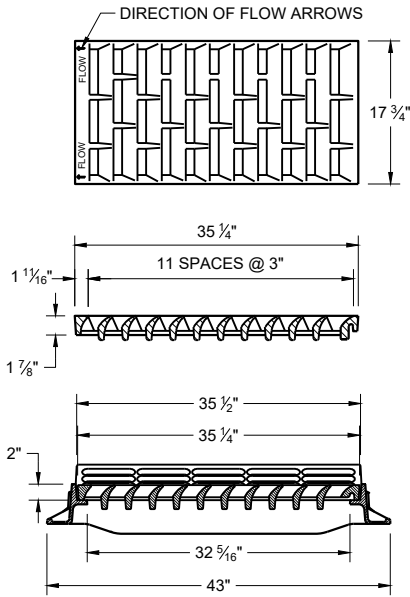


ALTERNATIVE CURB BOX
FOR TYPE "HM" COVER

USE WITH TYPES "G" AND "J" CONCRETE CURB AND GUTTER, 30 INCH
NOTED AS TYP "HM-GJ" ON DRAINAGE TABLE

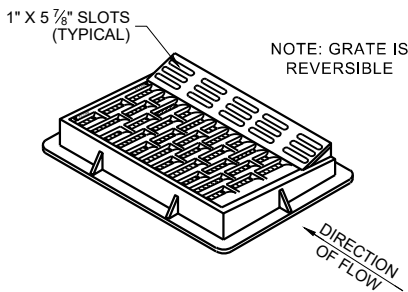
NOTE:
SPECIAL GRATE FOR THE TYPE "H" COVER MAY ALSO BE USED FOR THE TYPE "HM-GJ" COVER.

NOTED AS TYPE HM-GJ-S ON THE DRAINAGE TABLE.

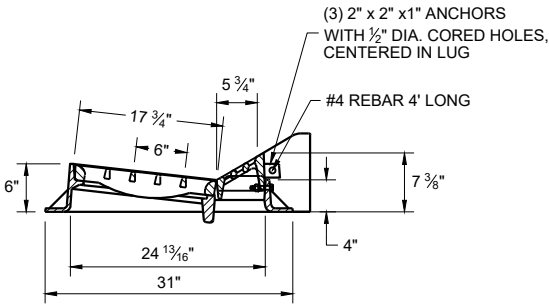


TYPE "HM"

USE WITH TYPES "A" AND "D" CONCRETE CURB AND GUTTER, 36"

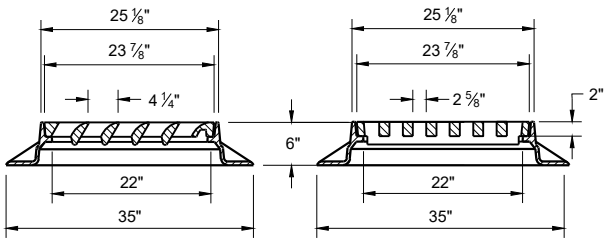
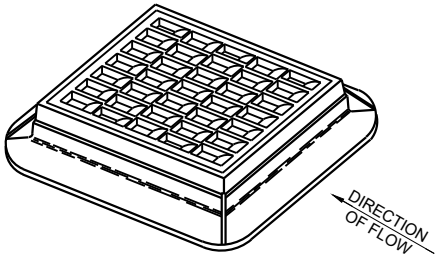


NOTE: GRATE IS REVERSIBLE

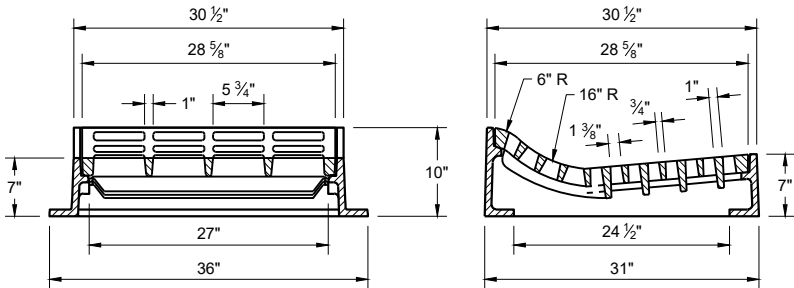
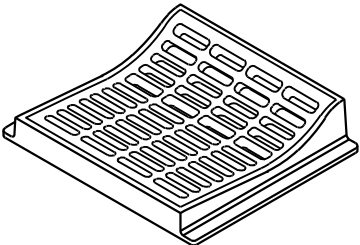


NOTE:
SPECIAL GRATE FOR THE TYPE "H" COVER MAY ALSO BE USED FOR THE TYPE "HM-GJ" COVER.

NOTED AS TYPE HM-GJ-S ON THE DRAINAGE TABLE.



TYPE "S"



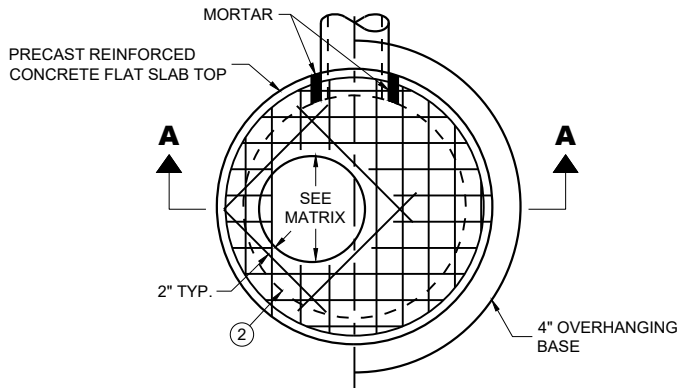
TYPE "T"

USE WITH TYPES "R" AND "T" CONCRETE CURB AND GUTTER, 36"

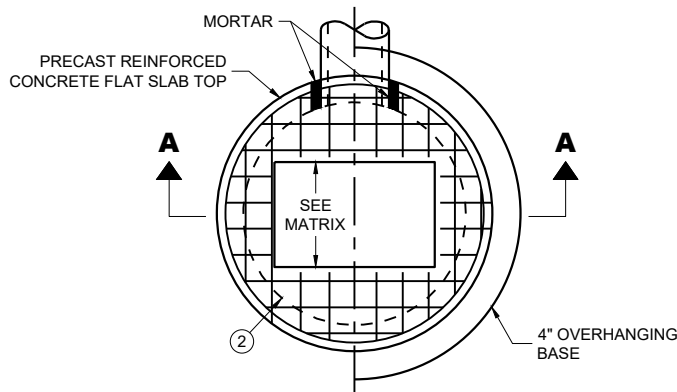
INLET COVERS
TYPES F, HM, HM-S, S, T,
HM-GJ AND HM-GJ-S

STATE OF WISCONSIN
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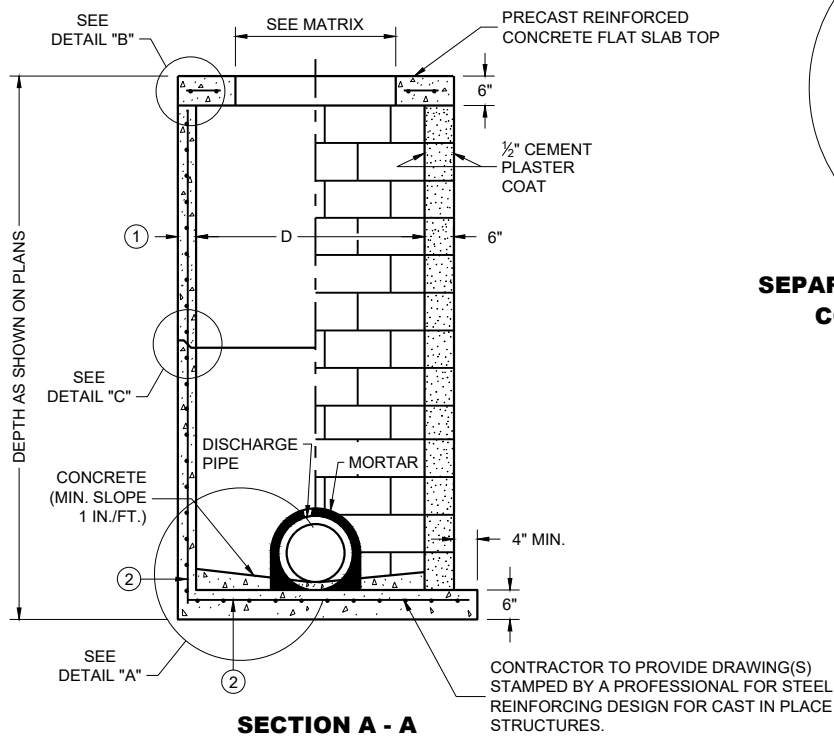
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December 2023 /S/ Rodney Taylor
DATE ROADWAY STANDARDS DEVELOPMENT
FHWA UNIT SUPERVISOR



PLAN VIEW CIRCULAR OPENING



PLAN VIEW RECTANGULAR OPENING



SECTION A - A

PRECAST REINFORCED CONCRETE WITH MONOLITHIC BASE

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

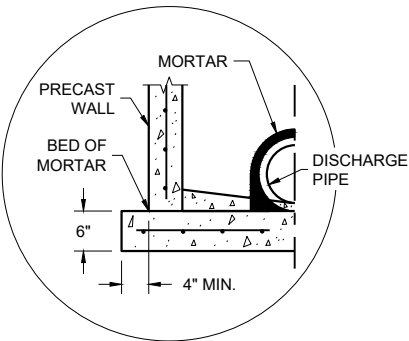
CIRCULAR INLETS WITH FLAT TOP

CATCH BASIN COVER OPENING MATRIX

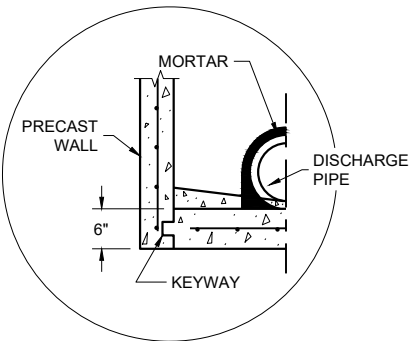
INLET SIZE	INLET COVER TYPE	ALL A'S	ALL B'S	BW	C	F	ALL H'S	S	T	V	WM	Z
	OPENING SIZE (FT.)											
3-FT	2 DIA.				X							X
	2 X 2	X	X					X		X		
4-FT	2 DIA.				X							X
	2 X 2	X	X					X		X		
	2 X 2.5			X				X	X	X	X	
	2 X 3						X					
	2.5 X 3					X						

PIPE MATRIX

INLET SIZE	MAXIMUM INSIDE PIPE DIAMETER FOR TWO PIPES	
	180° SEPARATION (IN)	90° SEPARATION (IN)
3-FT	15	12
4-FT	24	18

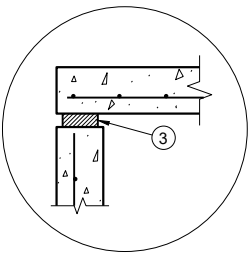


SEPARATE PRECAST REINFORCED CONCRETE BASE OPTION

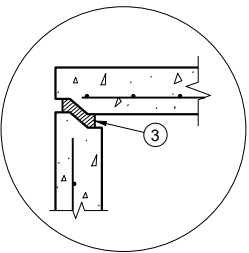


PRECAST REINFORCED CONCRETE WITH INTEGRAL BASE OPTION

DETAIL "A"

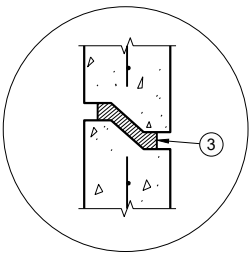


TOP WITH PLAIN END JOINT



TOP WITH TONGUE AND GROOVE JOINT

DETAIL "B"



RISER WITH TONGUE AND GROOVE JOINT

DETAIL "C"

INLETS 3-FT AND 4-FT DIAMETER

GENERAL NOTES

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

UNLESS OTHERWISE AUTHORIZED IN WRITING BY THE ENGINEER, THE CONTRACTOR SHALL NOT ORDER AND DELIVER PRECAST 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 DRAINAGE STRUCTURES ARE DESIGNATED ON THE PLANS AS "MANHOLES 3X3-L", "CATCH BASINS 4-B", "INLETS 2X3-H", ETC. THE FIRST NUMBERS DESIGNATE THE SIZE OF THE STRUCTURE, AND THE FOLLOWING LETTER DESIGNATES THE TYPE OF COVER TO BE USED TO COMPRISE THE COMPLETE UNIT.

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

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

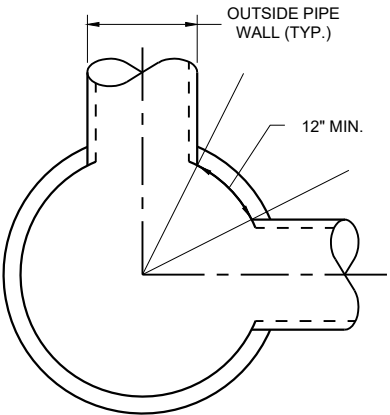
ALL PRECAST INLET UNITS SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF AASHTO DESIGNATION M199.

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

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

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

- ① MINIMUM WALL THICKNESS SHALL BE 4 INCHES FOR 3-FT DIAMETER AND 5 INCHES FOR 4-FT DIAMETER PRECAST INLETS.
- ② FOR PRECAST INLETS AND REINFORCED CONCRETE BASES PROVIDE REINFORCING STEEL IN ACCORDANCE TO AASHTO M199.
- ③ JOINTS TO BE SEALED WITH A BUTYL RUBBER SEAL PER SEALANT MANUFACTURERS RECOMMENDATIONS CONFORMING TO ASTM C 990 OR RUBBER GASKETS CONFORMING TO ASTM C443.

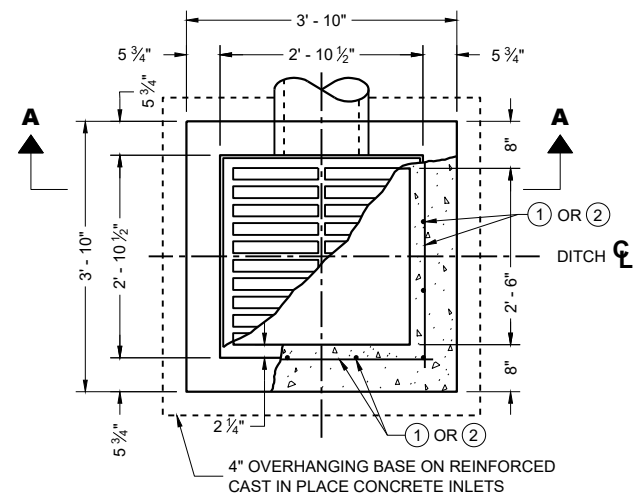


MINIMUM HORIZONTAL PIPE SEPARATION
DETAIL "D"

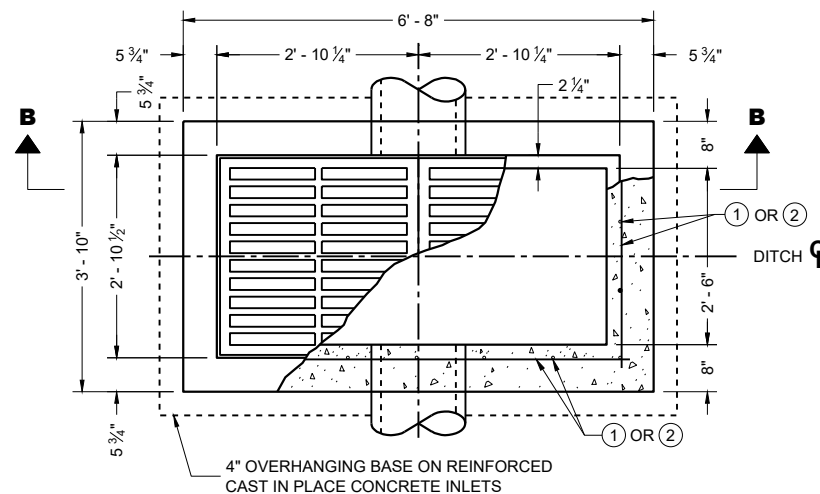
**INLETS 3-FT
AND 4-FT DIAMETER**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

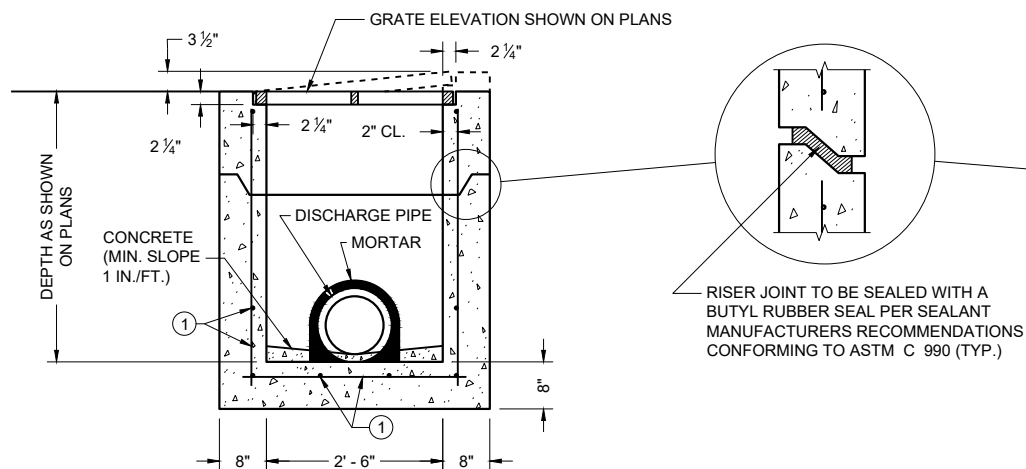
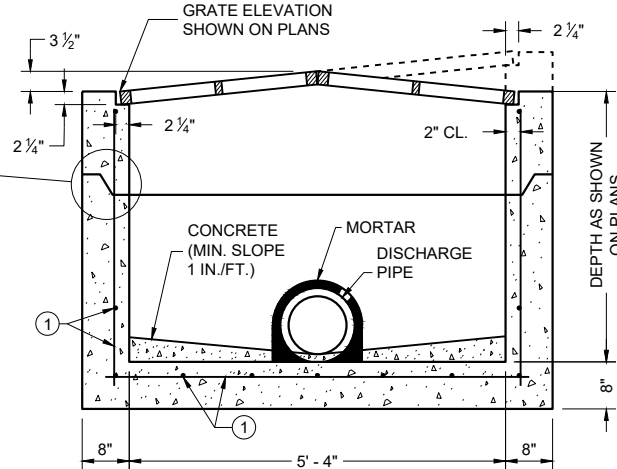
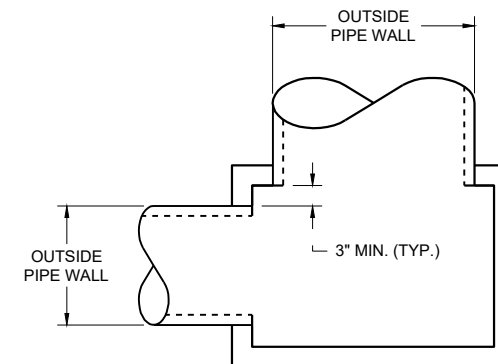
APPROVED
December 2023 /S/ Rodney Taylor
DATE ROADWAY STANDARDS DEVELOPMENT
FHWA UNIT SUPERVISOR



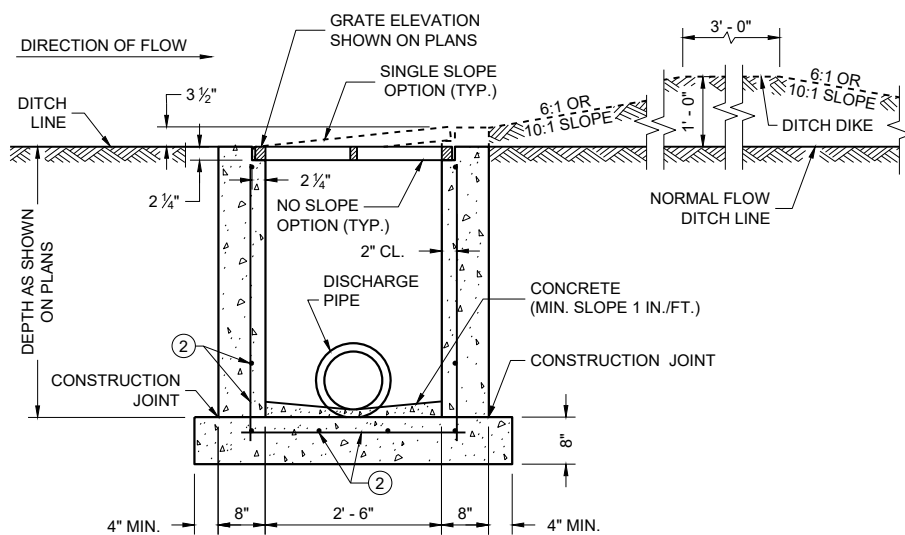
PLAN VIEW



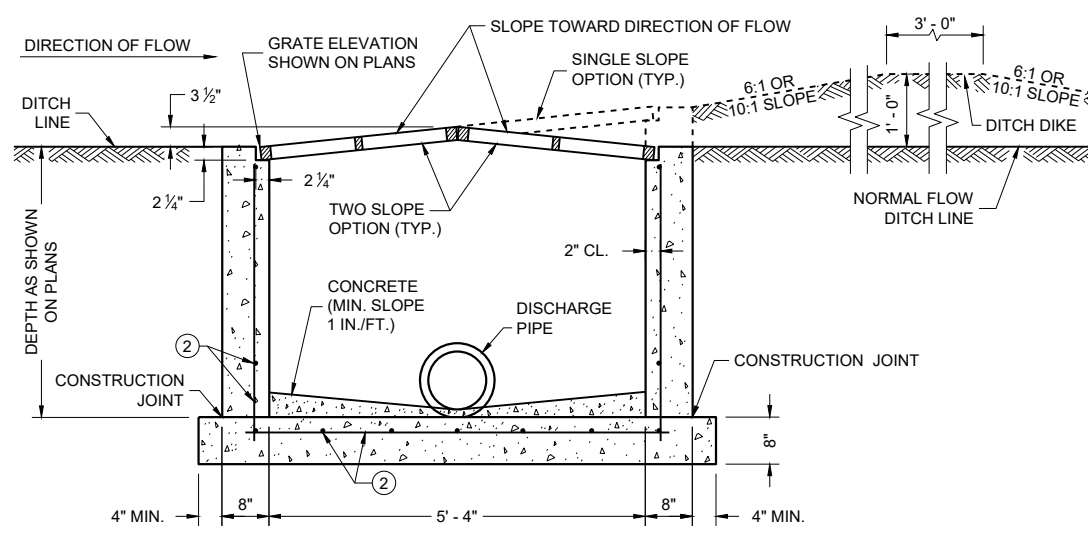
PLAN VIEW

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

DETAIL "A"

REINFORCED CAST IN PLACE CONCRETE
SECTION A - A

INLETS MEDIAN 1 GRATE

REINFORCED CAST IN PLACE CONCRETE
SECTION B - B

INLETS MEDIAN 2 GRATE

GENERAL NOTES

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

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

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

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

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

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

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

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

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

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

PIPE MATRIX

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

INLETS
MEDIAN 1 AND 2 GRATE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

December 2023
DATE

/S/ Rodney Taylor
ROADWAY STANDARDS DEVELOPMENT
UNIT SUPERVISOR

FHWA



CONCRETE CURB AND GUTTER 30"



CONCRETE CURB AND GUTTER 18"



CONCRETE CURB AND GUTTER 36"



TYPES TBT & TBTT ^①

CONCRETE CURB AND GUTTER

PAVEMENT THICKNESS AND MAXIMUM CONCRETE PANEL WIDTH TABLE

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

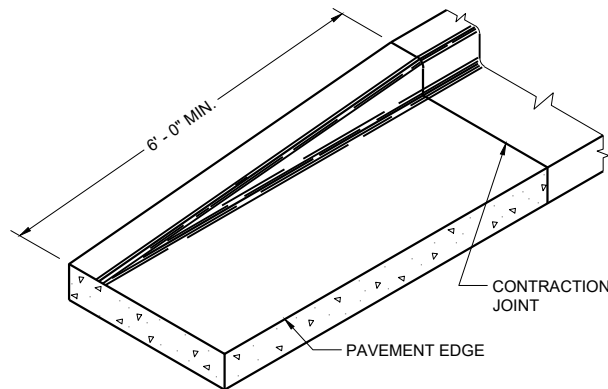


* BIKE LANE IS NOT SHOWN

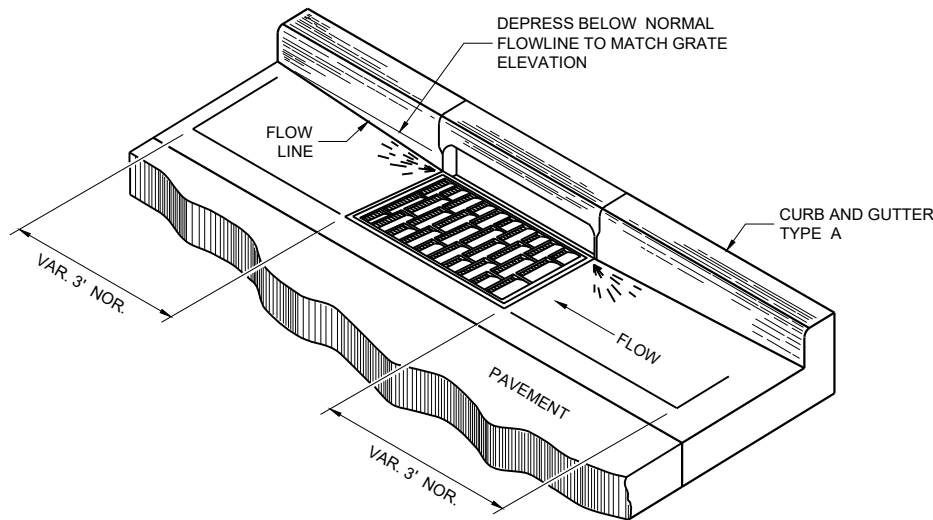


CONCRETE CURB AND GUTTER

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

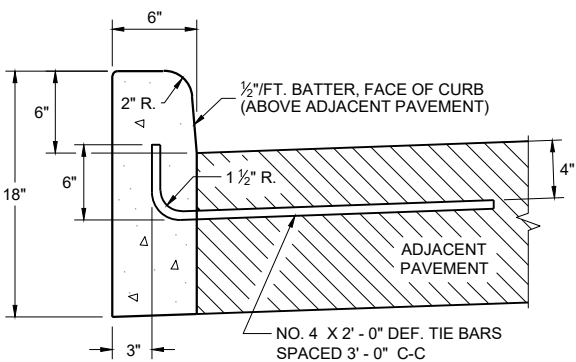


END SECTION CURB AND GUTTER

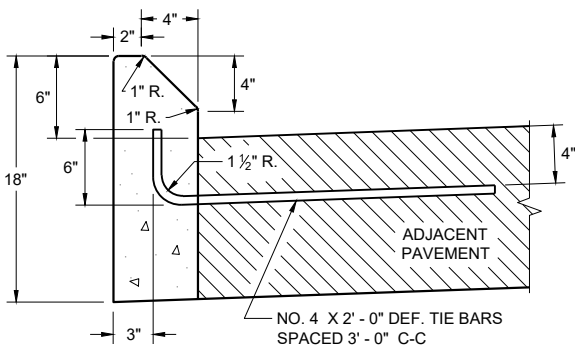


DETAIL OF CURB AND GUTTER AT INLETS

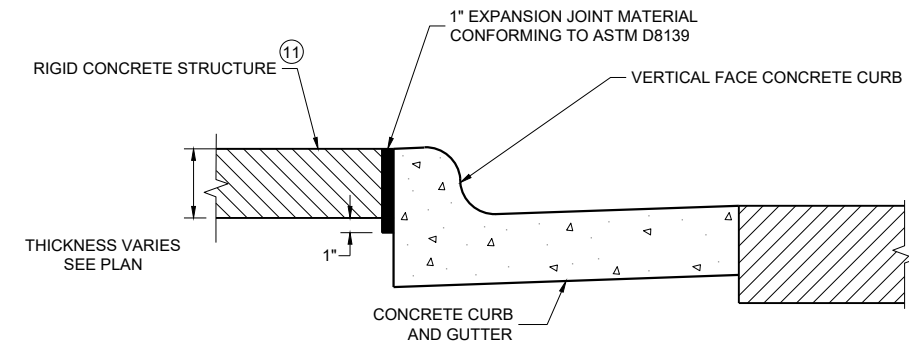
(TYPICAL H INLET COVER SHOWN)



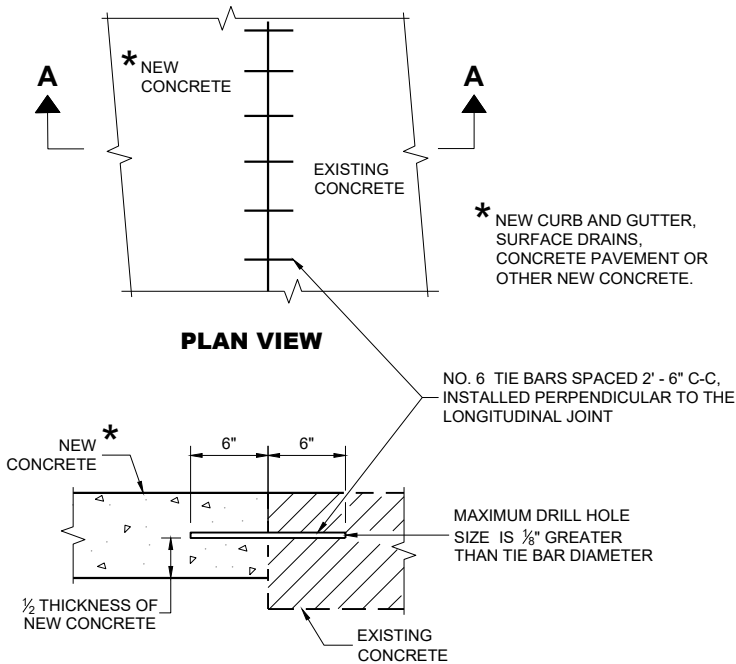
TYPES A^① & D



TYPES G^① & J
CONCRETE CURB



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



SECTION A - A
TIE BARS DRILLED INTO EXISTING PAVEMENT

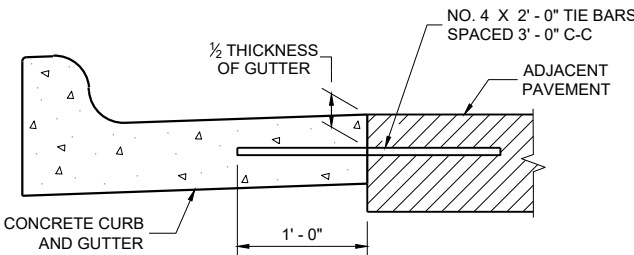
GENERAL NOTES

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

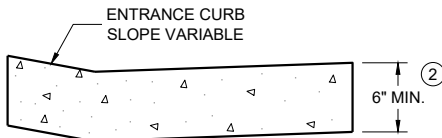
PAVEMENT TIES AND TIE BARS SHALL BE EPOXY COATED IN CONFORMANCE WITH SUBSECTION 505.2.6.2 OF THE STANDARD SPECIFICATIONS.

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

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



TYPICAL TIE BAR LOCATION^①

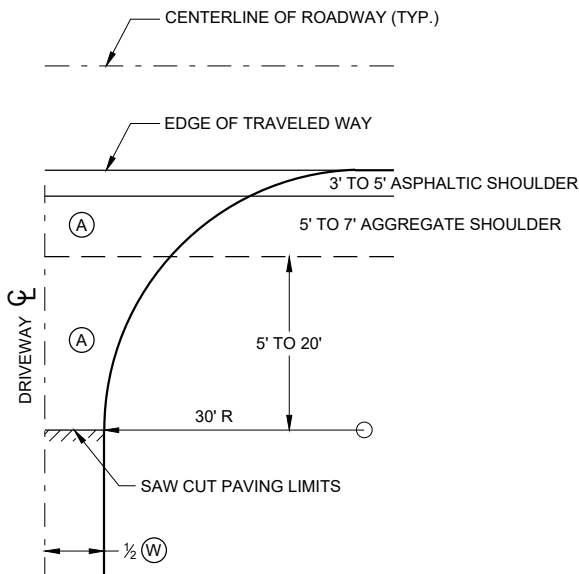


DRIVEWAY ENTRANCE CURB^⑩
(WHEN DIRECTED BY THE ENGINEER)

CONCRETE CURB, TIES
AND CURB AND GUTTER
APPLICATIONS

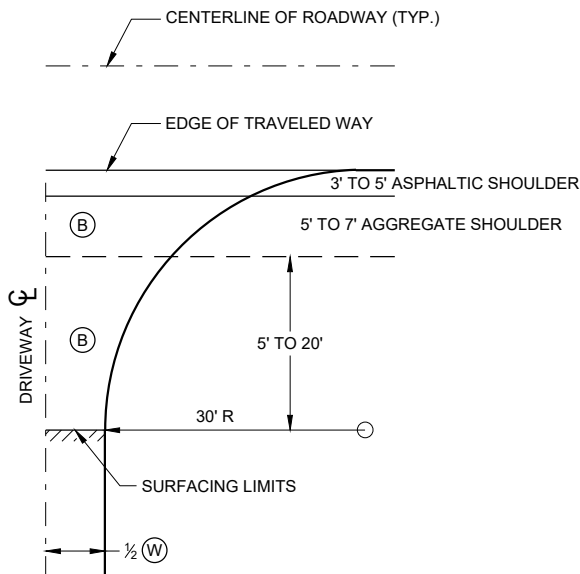
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

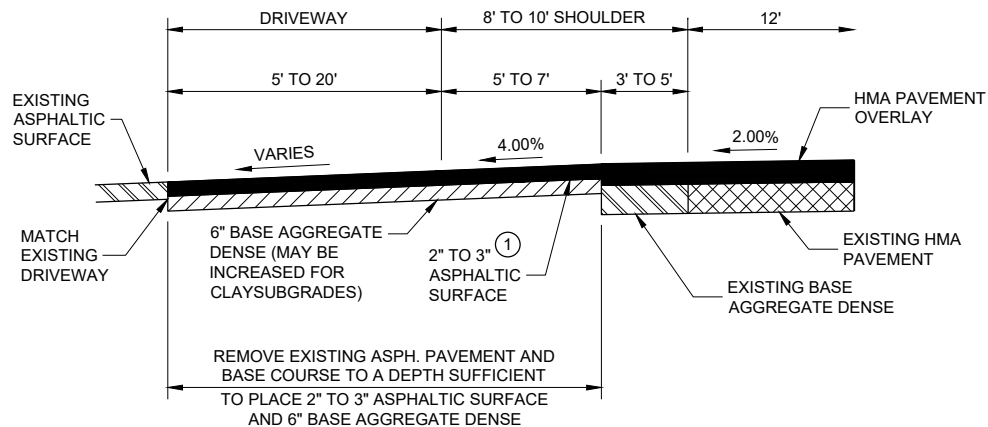


**PLAN VIEW
HALF SECTION**

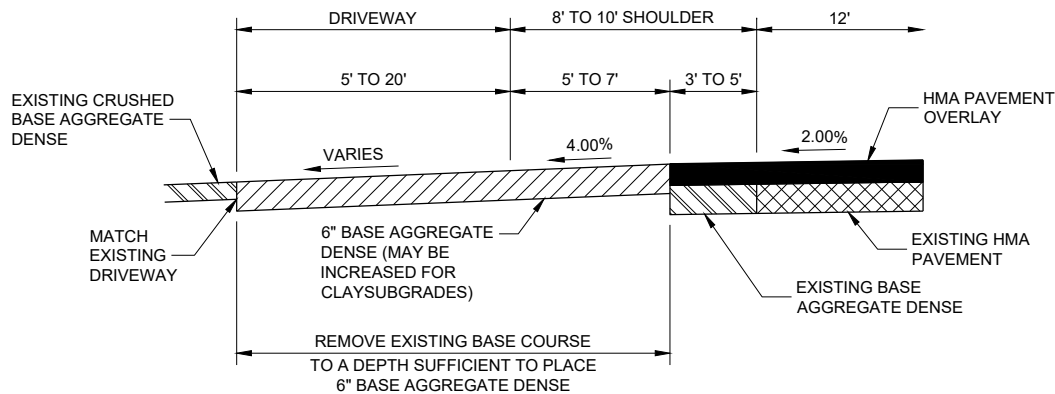
- (A) : PAID FOR AS ASPHALTIC SURFACE DRIVEWAYS
AND FIELD ENTRANCES. (TON)
- (B) : PAID FOR AS BASE AGGREGATE DENSE 1 1/4" (TON)
- (W) : DRIVEWAY WIDTH 16' MIN. - 24' MAX.



**PLAN VIEW
HALF SECTION**



**PROFILE VIEW
RURAL ENTRANCE
WITH ASPHALTIC SURFACE
RESURFACING PROJECTS**



**PROFILE VIEW
RURAL ENTRANCE
WITH AGGREGATE SURFACE
6" BASE AGGREGATE DENSE
RESURFACING PROJECTS**

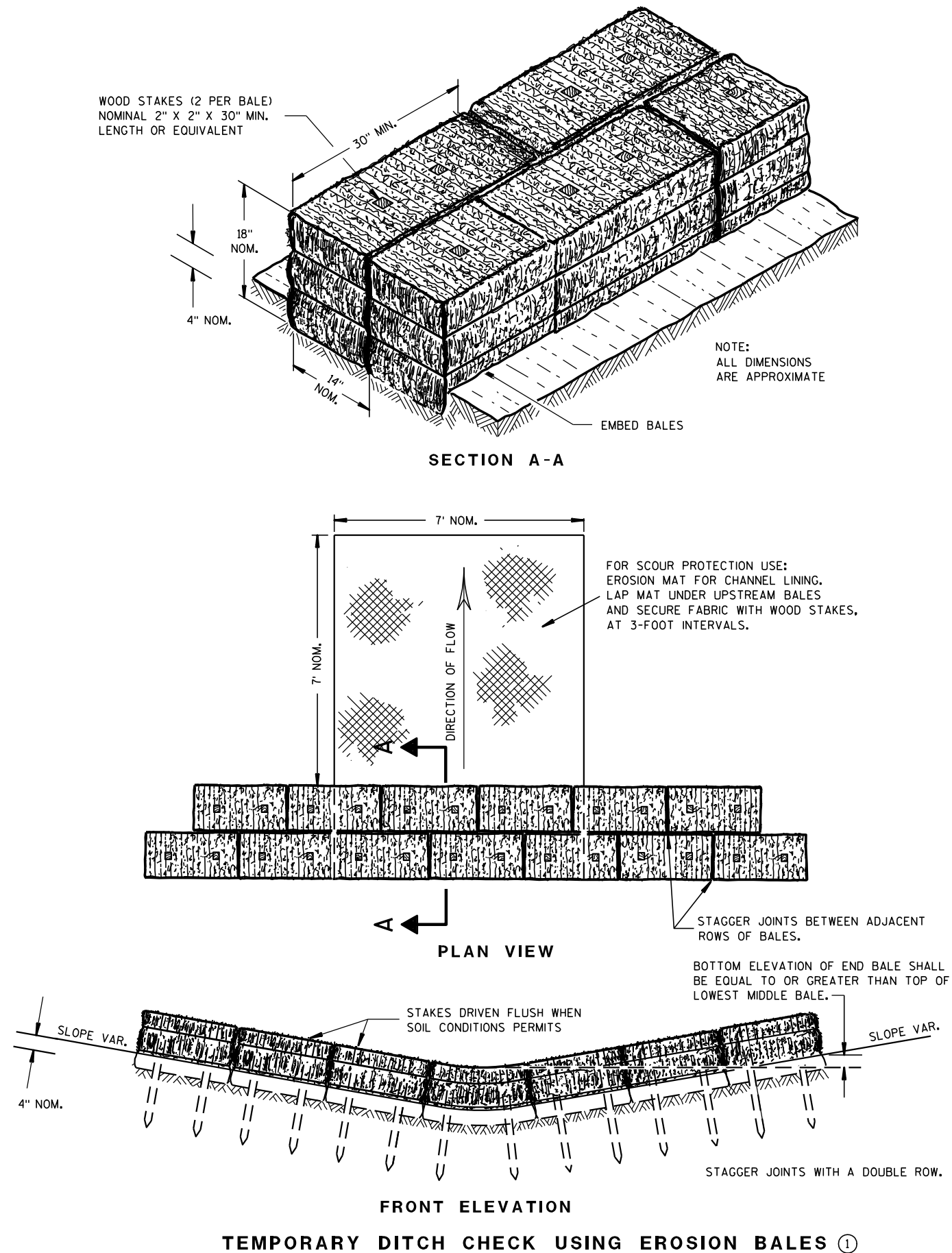
GENERAL NOTES

- ① DESIGN WILL DETERMINE FINAL DRIVEWAY ASPHALTIC THICKNESS
BASED ON TYPE OF USAGE AND LOADINGS.

**DRIVEWAYS WITHOUT CURB
AND GUTTER RESURFACING
PROJECTS RURAL**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

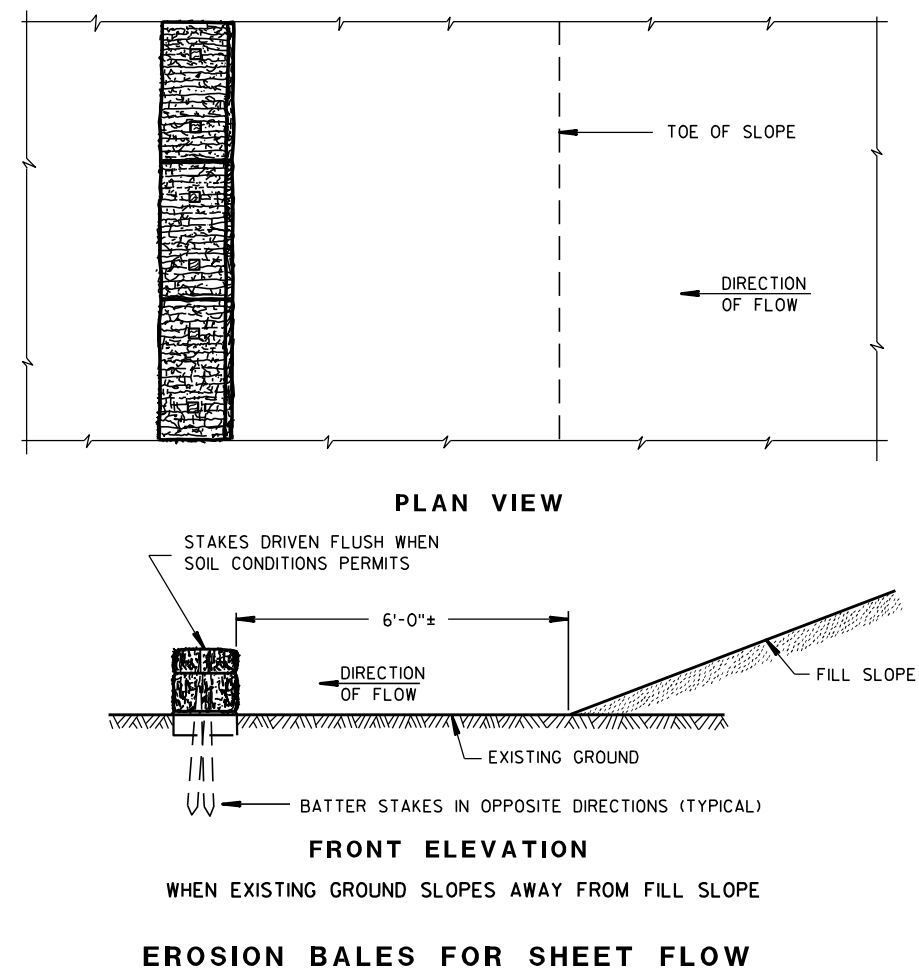
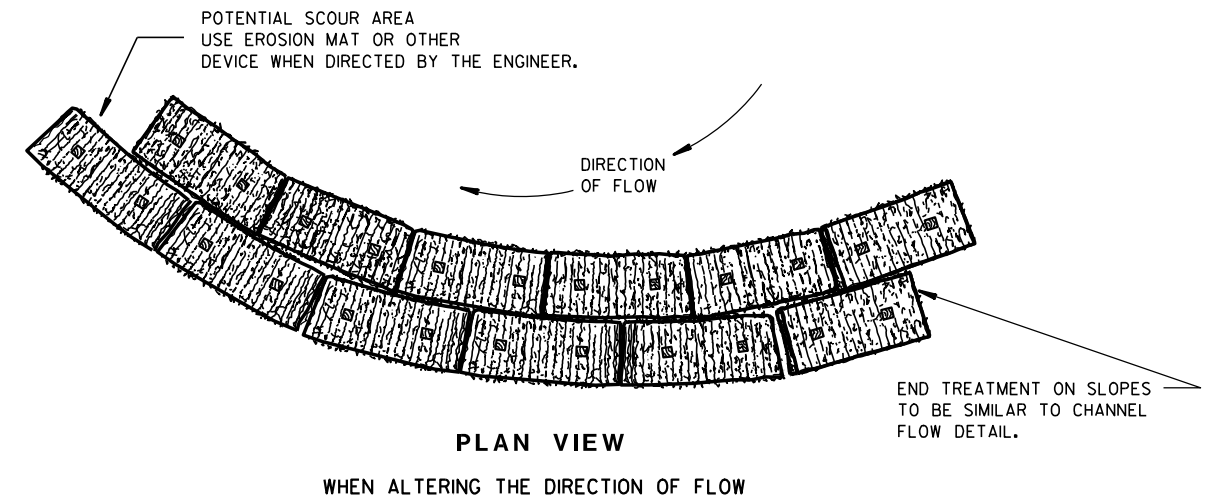
APPROVED
December 2016 /S/ Rodney Taylor
DATE ROADWAY STANDARDS DEVELOPMENT
FHWA ENGINEER



GENERAL NOTES

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

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

TYPICAL INSTALLATIONS OF
EROSION BALES / TEMPORARY
DITCH CHECKS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

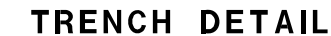
APPROVED

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

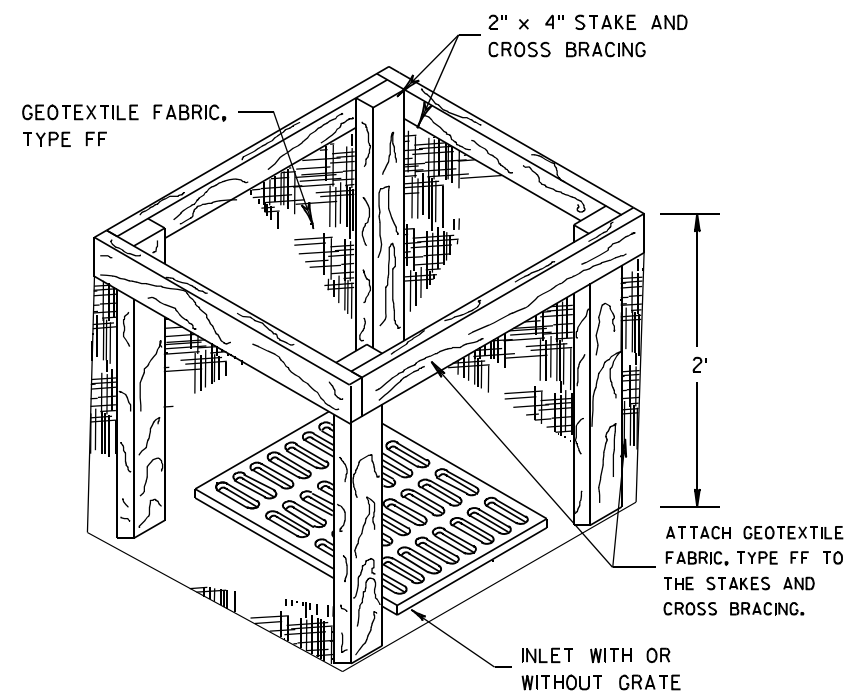
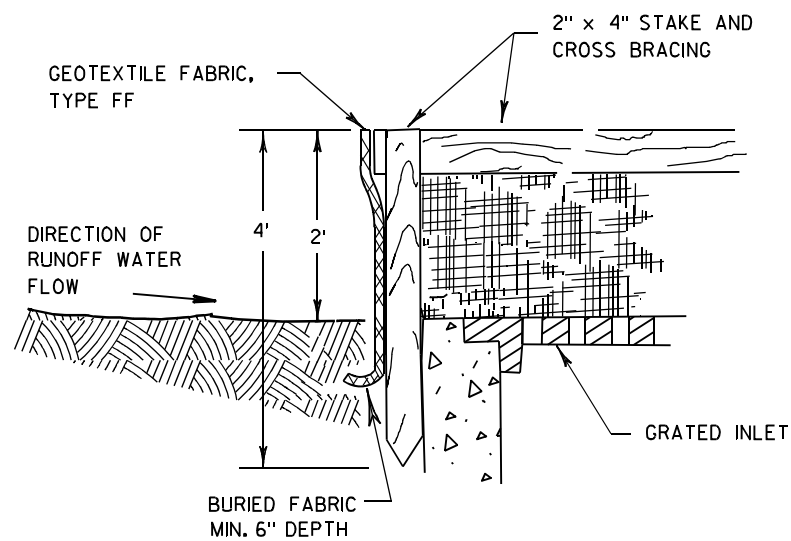
FHWA



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



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



INLET PROTECTION, TYPE A

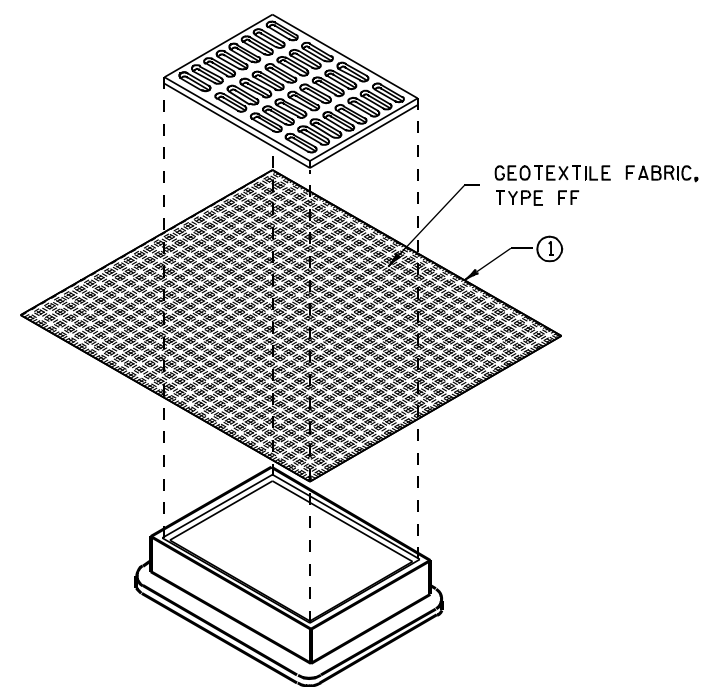
GENERAL NOTES

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

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

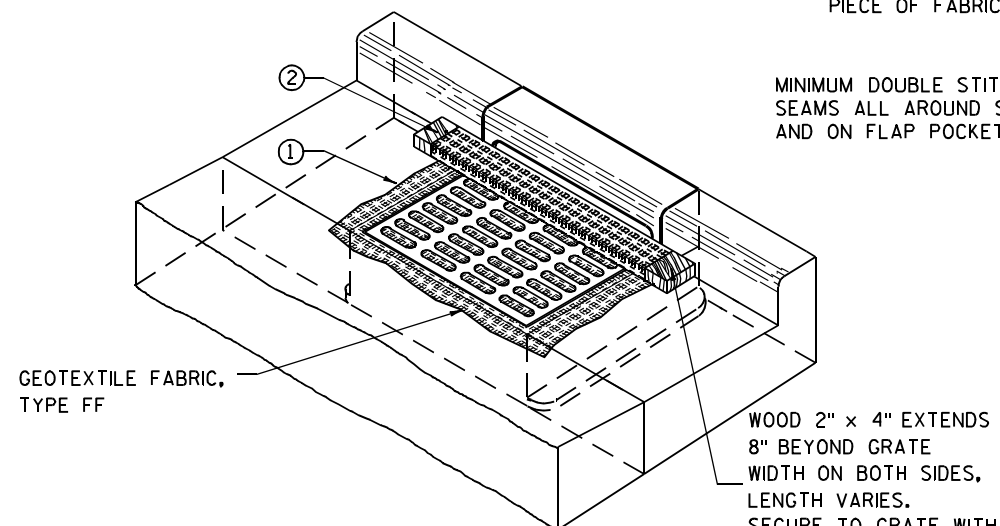
WHEN REMOVING OR MAINTAINING INLET PROTECTION, CARE SHALL BE TAKEN SO THAT THE SEDIMENT TRAPPED ON THE GEOTEXTILE FABRIC DOES NOT FALL INTO THE INLET. ANY MATERIAL FALLING INTO THE INLET SHALL BE REMOVED IMMEDIATELY.

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



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

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



INLET PROTECTION, TYPE C (WITH CURB BOX)

INSTALLATION NOTES

TYPE B & C

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

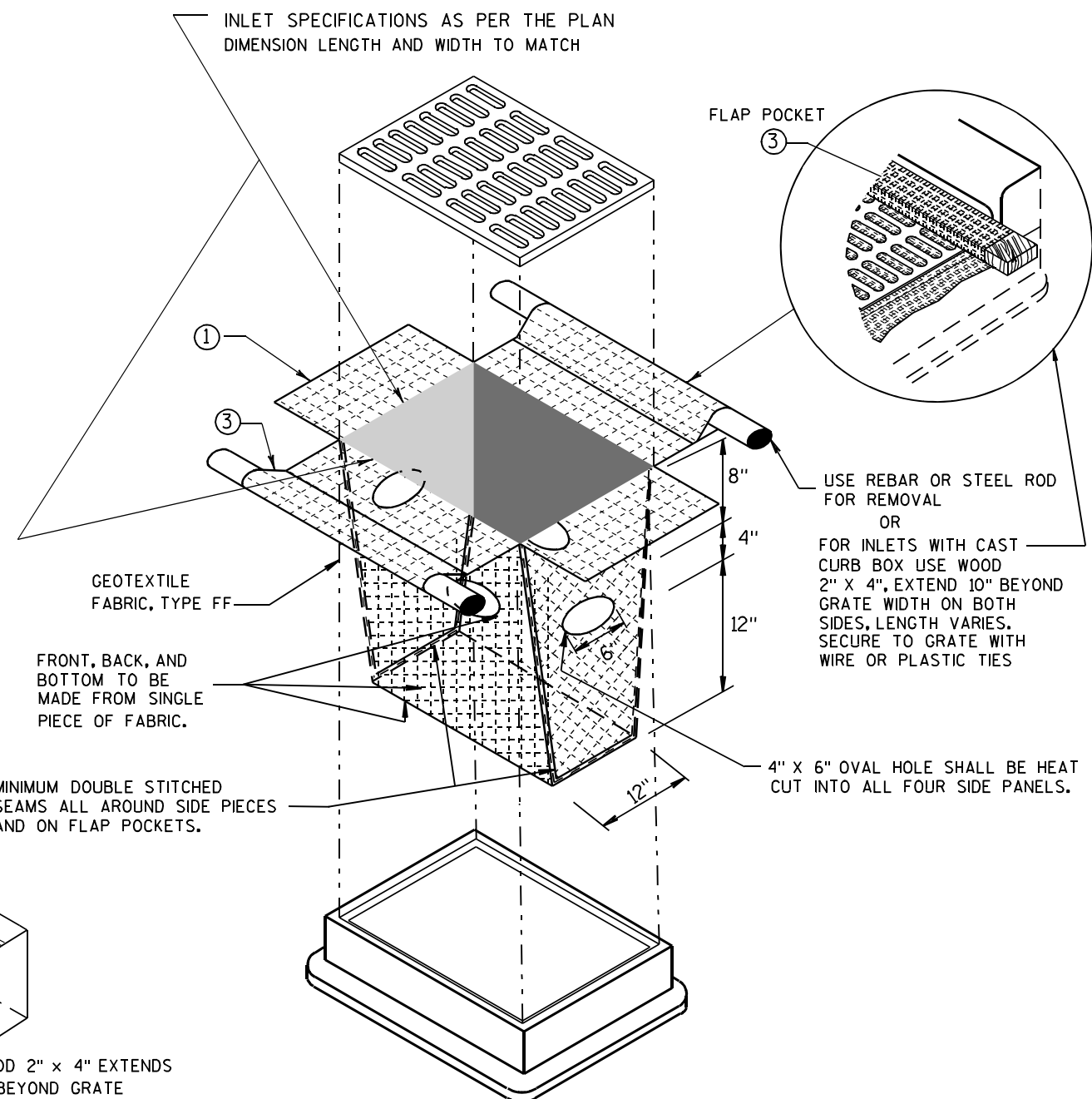
THE CONTRACTOR SHALL DEMONSTRATE A METHOD OF MAINTENANCE, USING A SEWN FLAP, HAND HOLDS OR OTHER METHOD TO PREVENT ACCUMULATED SEDIMENT FROM ENTERING THE INLET.

TYPE D

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

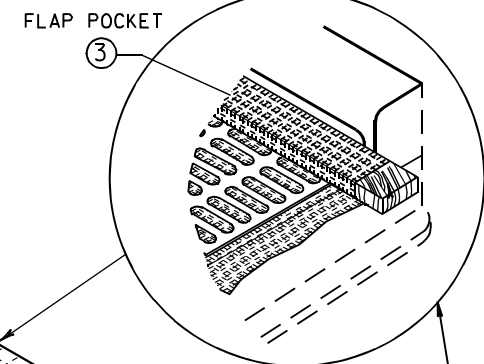
TRIM EXCESS FABRIC IN THE FLOW LINE TO WITHIN 3" OF THE GRATE.

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



INLET PROTECTION, TYPE D

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



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

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

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

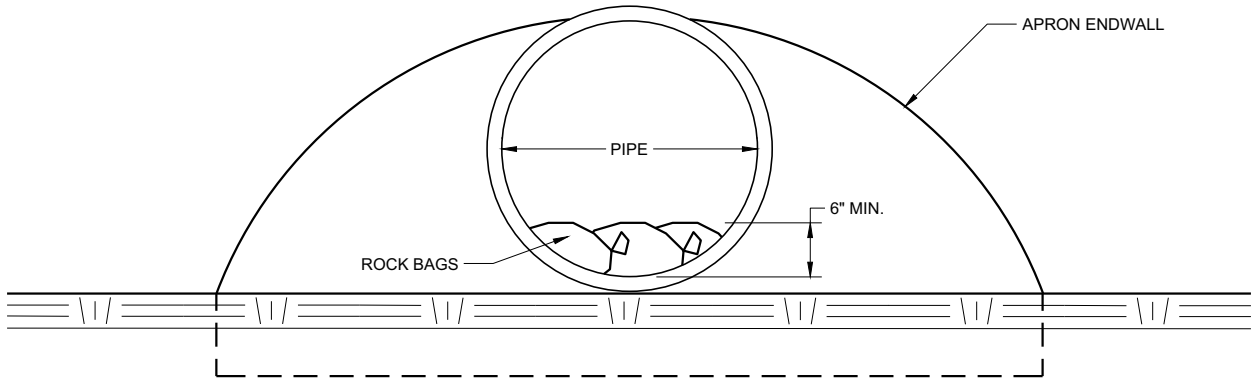
FRONT, BACK, AND BOTTOM TO BE MADE FROM SINGLE PIECE OF FABRIC.

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

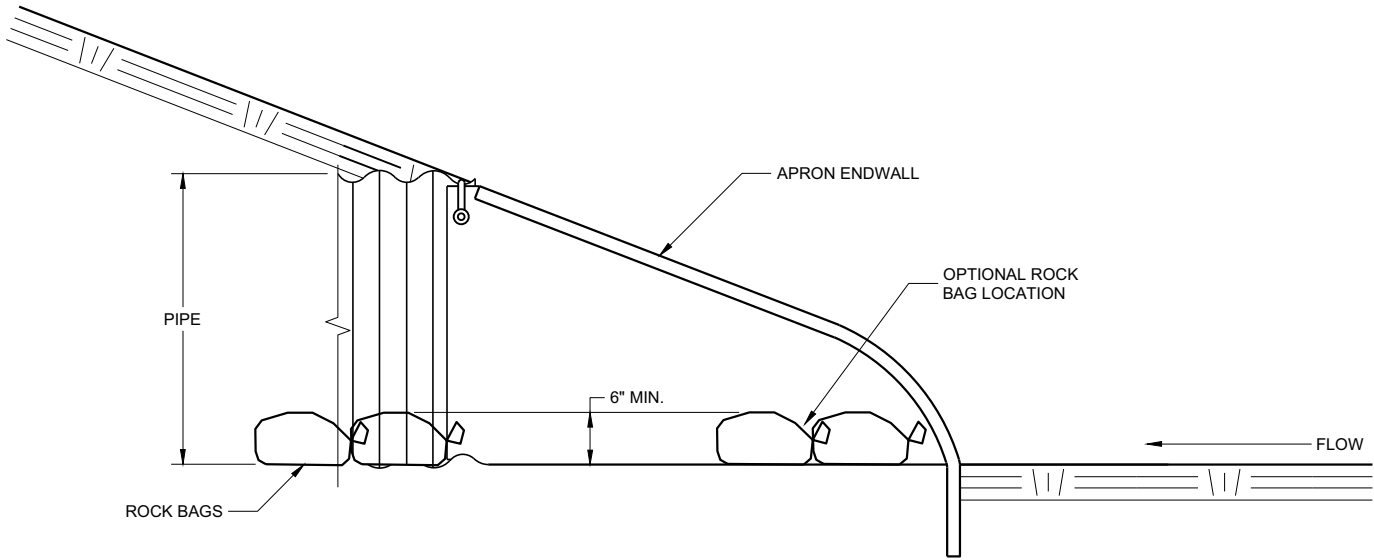
**INLET PROTECTION
TYPE A, B, C, AND D**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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



END VIEW



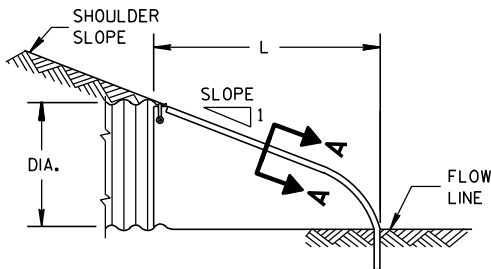
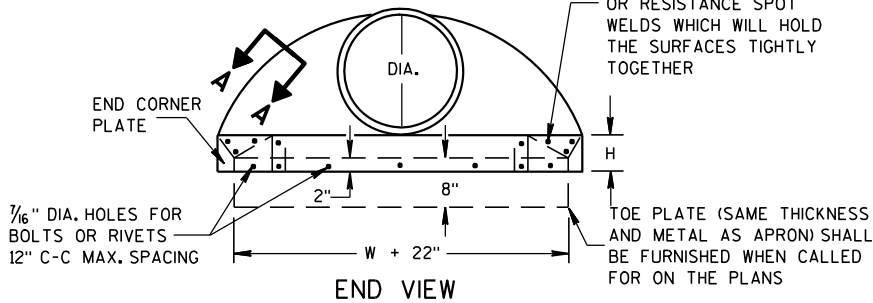
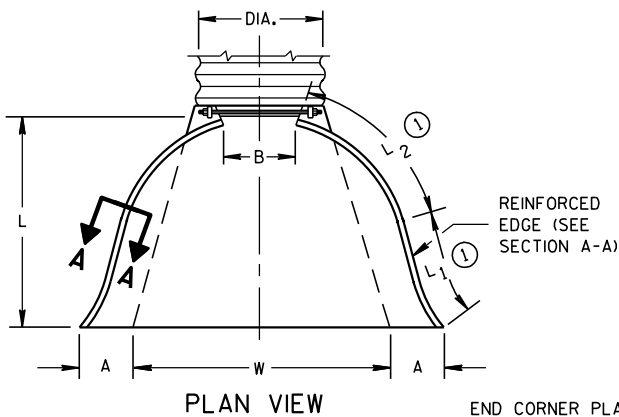
SIDE VIEW

CULVERT PIPE CHECK
(INSTALL ON INLET END ONLY)

CULVERT PIPE CHECK		
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION		
APPROVED May 2019 DATE	/S/ Daniel Schave	EROSION CONTROL ENGINEER
FHWA		

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

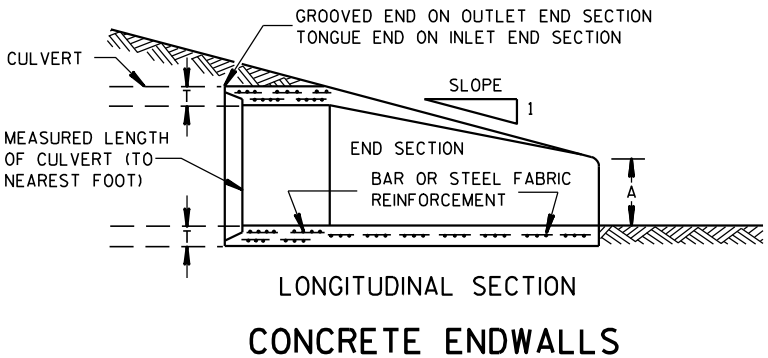
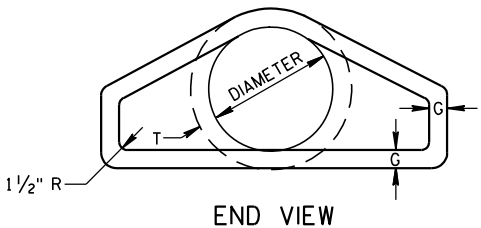
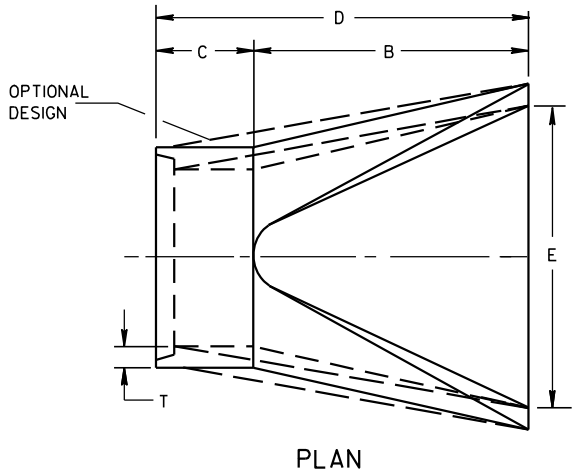
* EXCEPT CENTER PANEL
SEE GENERAL NOTES



SIDE ELEVATION
METAL ENDWALLS

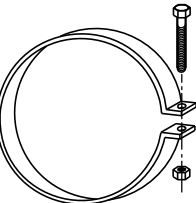
REINFORCED CONCRETE APRON ENDWALLS												
PIPE DIA. (IN.)	DIMENSIONS (Inches)							APPROX. SLOPE				
	T	A	B	C	D	E	G					
12	2	4	24	48 7/8	72 7/8	24	2	3 to 1				
15	2 1/4	6	27	46	73	30	2 1/4	3 to 1				
18	2 1/2	9	27	46	73	36	2 1/2	3 to 1				
21	2 3/4	9	36	37 1/2	73 1/2	42	2 3/4	3 to 1				
24	3	9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

* MINIMUM
** MAXIMUM

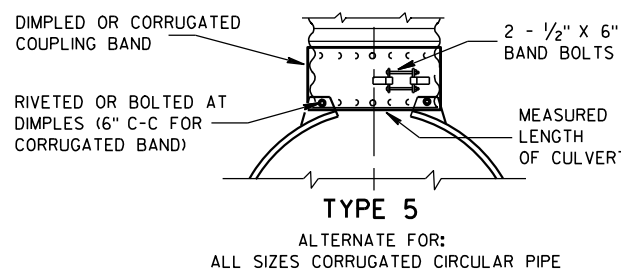
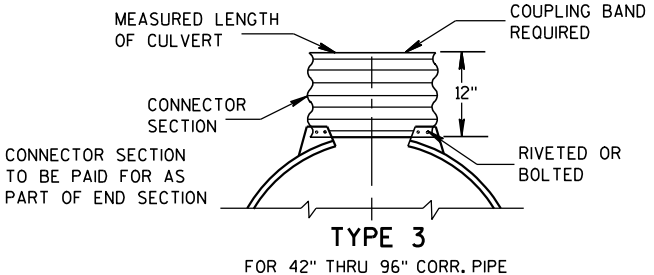
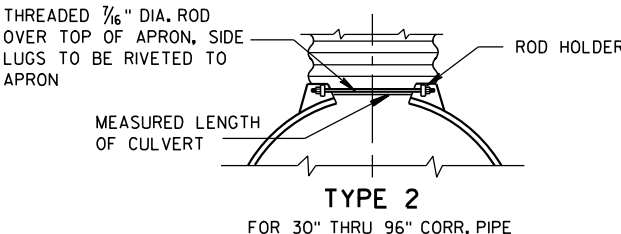
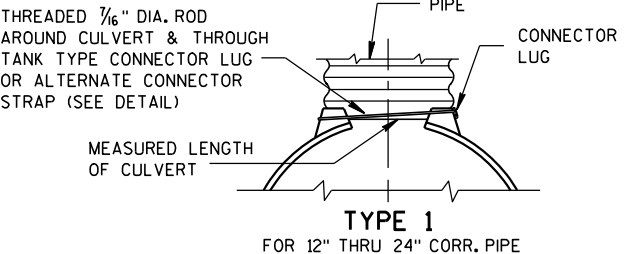


LONGITUDINAL SECTION
CONCRETE ENDWALLS

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



ALTERNATE FOR TYPE 1 CONNECTION
END SECTION CONNECTOR STRAP



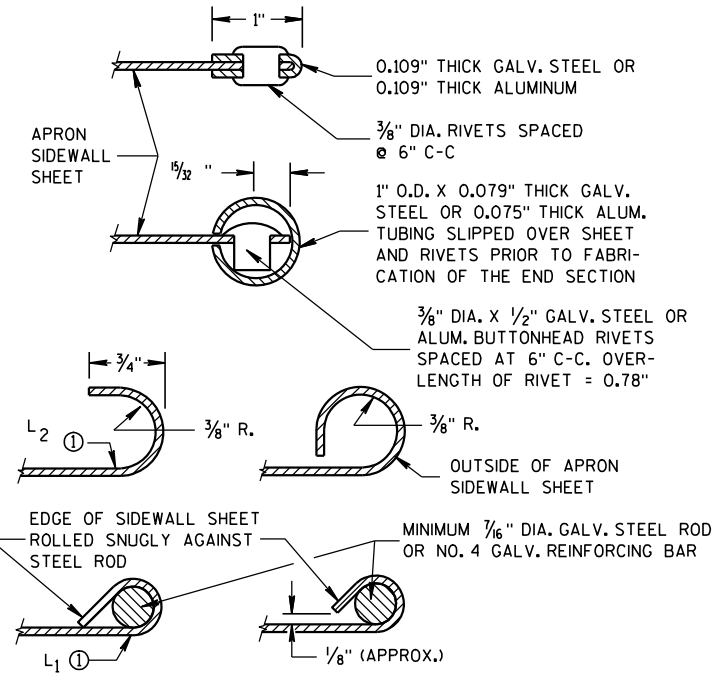
NOTE: DIMPLED BAND FITS OVER OUTSIDE OF ENDWALL, AND CORRUGATED BAND FITS INSIDE ENDWALL. DIMPLED BAND MAY BE USED WITH HELICALLY CORRUGATED PIPE.

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

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

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

CONNECTION DETAILS



GENERAL NOTES

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

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

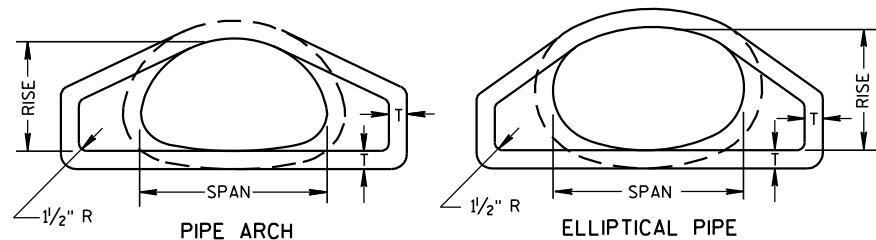
ALL THREE PIECE STEEL APRON ENDWALLS FOR 60" DIAMETER PIPE AND LARGER SHALL HAVE 0.109" SIDES AND 0.138" CENTER PANELS. ALL THREE PIECE ALUMINUM APRON ENDWALLS FOR 60" DIAMETER PIPE AND LARGER SHALL HAVE 0.105" SIDES AND 0.134" CENTER PANELS. THE WIDTH OF CENTER PANELS SHALL BE GREATER THAN 20 PERCENT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

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

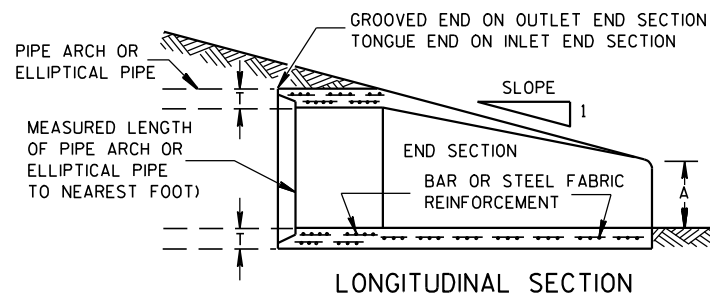
WHERE TWO OR MORE PIPES WITH APRON ENDWALLS ARE LAID ADJACENT TO EACH OTHER, THEY SHALL BE SEPARATED BY A DISTANCE SUFFICIENT TO PROVIDE A MINIMUM CLEARANCE OF 6 INCHES BETWEEN APRON ENDWALLS.

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

APRON ENDWALLS FOR CULVERT PIPE	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 11/30/94 DATE	/S/ Rory L. Rhinesmith CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA	

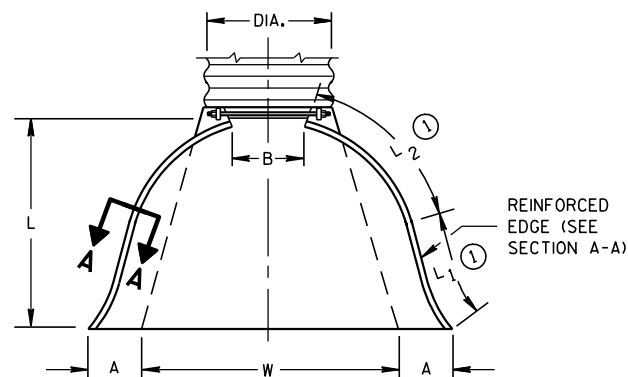


END VIEW



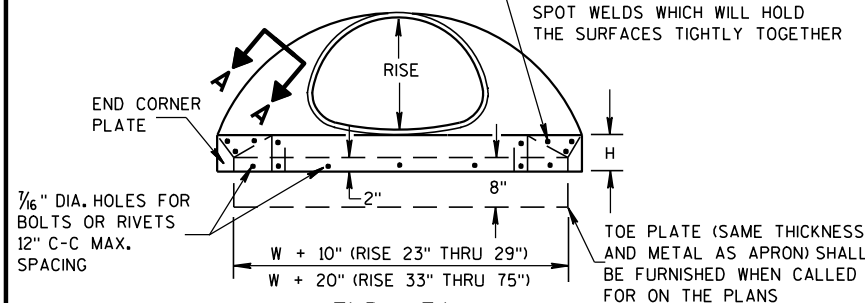
LONGITUDINAL SECTION

CONCRETE ENDWALLS

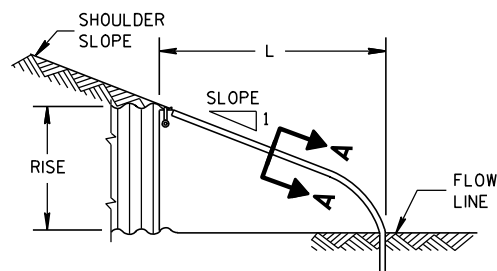
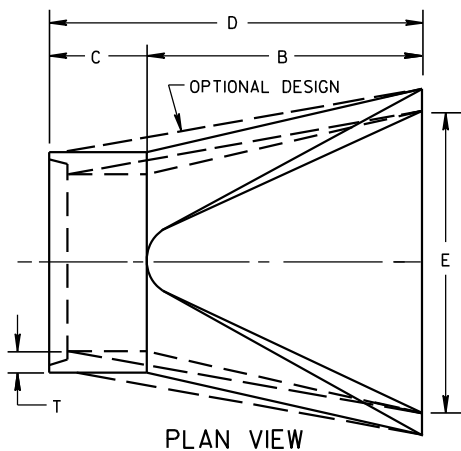


PLAN VIEW

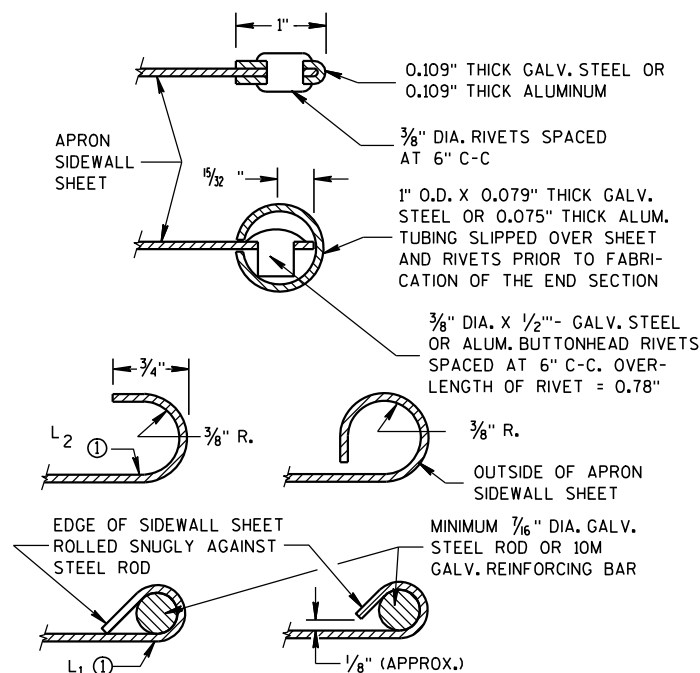
END CORNER PLATES MAY BE FASTENED TO APRON PROPER BY BOLTS, RIVETS, OR RESISTANCE SPOT WELDS WHICH WILL HOLD THE SURFACES TIGHTLY TOGETHER



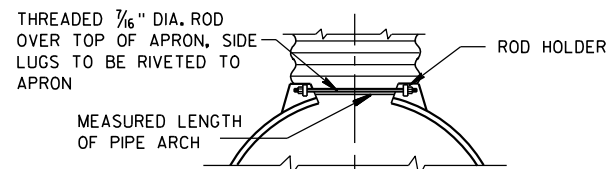
END VIEW

SIDE ELEVATION
METAL ENDWALLS

PLAN VIEW

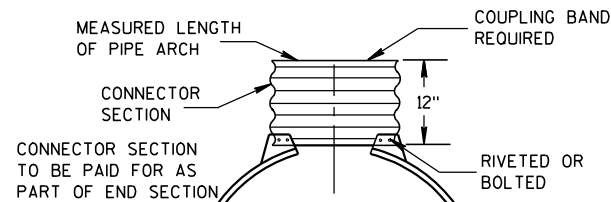


SECTION A-A



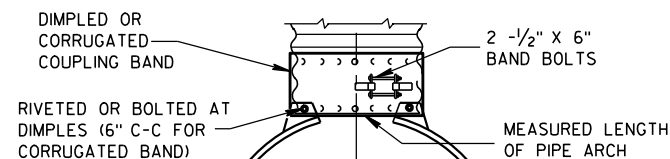
TYPE 2

FOR 17" X 13" THRU 112" X 75" PIPE ARCH



TYPE 3

FOR 64" X 43" THRU 112" X 75" PIPE ARCH



TYPE 5

ALTERNATE FOR:
ALL SIZES CORRUGATED PIPE ARCHESNOTE: DIMPLED BAND FITS OVER OUTSIDE OF ENDWALL,
AND CORRUGATED BAND FITS INSIDE ENDWALL.

CONNECTION DETAILS

2- 2 2/3" X 1/2" CORRUGATIONS

EQUIV. DIA. (Inches)	(Inches)		MIN. THICK. (Inches)		DIMENSIONS (Inches)							APPROX. SLOPE	BODY
	SPAN	RISE	STEEL	ALUM.	A (±1")	B (MAX.)	H (±1")	L (±1 1/2")	L1 ①	L2 ①	W (±2")		
15	17	13	.064	.060	7	9	6	19	14	16	30	2 1/2 to 1	1 Pc.
18	21	15	.064	.060	7	10	6	23	14	19 3/8	36	2 1/2 to 1	1 Pc.
21	24	18	.064	.060	8	12	6	28	18	21 3/4	42	2 1/2 to 1	1 Pc.
24	28	20	.064	.060	9	14	6	32	18	27 1/2	48	2 1/2 to 1	1 Pc.
30	35	24	.079	.075	10	16	6	39	18	37 5/8	60	2 1/2 to 1	1 Pc.
36	42	29	.079	.075	12	18	8	46	24	45 3/8	75	2 1/2 to 1	1 Pc.
42	49	33	.109	.105	13	21	9	53	24	54 3/4	85	2 1/2 to 1	2 Pc.
48	57	38	.109	.105	18	26	12	63	24	68	90	2 1/2 to 1	3 Pc.
54	64	43	.109	.105	18	30	12	70	24	72 3/4	102	2 1/4 to 1	3 Pc.
60	71	47	.109*	.105*	18	33	12	77	30	82 1/4	114	2 1/4 to 1	3 Pc.
66	77	52	.109*	.105*	18	36	12	77	—	—	126	2 to 1	3 Pc.
72	83	57	.109*	.105*	18	39	12	77	—	—	138	2 to 1	3 Pc.

3" X 1" CORRUGATIONS

EQUIV. DIA. (Inches)	(Inches)		MIN. THICK. (Inches)		DIMENSIONS (Inches)							APPROX. SLOPE	BODY
	SPAN	RISE	STEEL	ALUM.	A (±1")	B (MAX.)	H (±1")	L (±1 1/2")	L1 ①	L2 ①	W (±2")		
48	53	41	.109	.105	18	26	12	63	24	72 3/4	90	2 1/2 to 1	2 Pc.
54	60	46	.109	.105	18	30	12	70	30	82 1/4	102	2 to 1	2 Pc.
60	66	51	.109*	.105*	18	33	12	77	—	—	114	1 1/2 to 1	3 Pc.
66	73	55	.109*	.105*	18	36	12	77	—	—	126	1 1/2 to 1	3 Pc.
72	81	59	.109*	.105*	18	39	12	77	—	—	138	2 to 1	3 Pc.
78	87	63	.109*	.105*	22	38	12	77	—	—	148	1 1/2 to 1	3 Pc.
84	95	67	.109*	.105*	22	34	12	77	—	—	162	1 1/2 to 1	3 Pc.
90	103	71	.109*	.105*	22	38	12	77	—	—	174	1 1/2 to 1	3 Pc.
96	112	75	.109*	.105*	24	40	12	77	—	—	174	1 1/2 to 1	3 Pc.

NOTE: ALL SPLICES TO BE LAP RIVETED OR BOLTED.

* EXCEPT CENTER PANEL
SEE GENERAL NOTES

REINFORCED CONCRETE PIPE ARCH

EQUIV. DIA. (Inches)	DIMENSIONS (Inches)								APPROX. SLOPE
	** SPAN	** RISE	T	A	B	C	D	E	
24	29	18	3	8 1/2	39	33	72	48	3 to 1
30	36	22	3 1/2	9 1/2	50	46	96	60	3 to 1
36	44	27	4	11 1/8	60	36	96	72	3 to 1
42	51	31	4 1/2	15 1/8	60	36	96	78	3 to 1
48	58	36	5	21	60	36	96	84	3 to 1
54	65	40	5 1/2	25 1/2	60	36	96	90	3 to 1
60	73	45	6	31	60	36	96	96	3 to 1
72	88	54	7	31	60	39	99	120	2 to 1
84	102	62	8	28 1/2	83	19	102	144	2 to 1

REINFORCED CONCRETE ELLIPTICAL PIPE

EQUIV. DIA. (Inches)	DIMENSIONS (Inches)								APPROX. SLOPE
	** SPAN	** RISE	T	A	B	C	D	E	
24	30	19	3 1/4	8 1/2	39	33	72	48	3 to 1
30	38	24	3 3/4	9 1/2	54	18	72	60	3 to 1
36	45	29	4 1/2	11 1/8	60	24	84	72	2 1/2 to 1
42	53	34	5	15 1/4	60	36	96	78	2 1/2 to 1
48	60	38	5 1/2	21	60	36	96	84	2 1/2 to 1
54	68	43	6	25 1/2	60	36	96	90	2 1/2 to 1
60	76	48	6 1/2	30	60	36	96	96	2 1/2 to 1

**NOMINAL SIZE

GENERAL NOTES

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

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

ALL THREE PIECE STEEL APRON ENDWALLS FOR 66" X 51" PIPE ARCH AND LARGER SHALL HAVE 0.109" SIDES AND 0.138" CENTER PANELS. ALL THREE PIECE ALUMINUM APRON ENDWALLS FOR 66" X 51" PIPE ARCH AND LARGER SHALL HAVE 0.105" SIDES AND 0.134" CENTER PANELS. THE WIDTH OF CENTER PANELS SHALL BE GREATER THAN 20 PERCENT OF THE PIPE ARCH PERIMETER.

LAP SEAMS SHALL BE TIGHTLY JOINED BY GALVANIZED RIVETS OR BOLTS FOR STEEL UNITS AND ALUMINUM RIVETS AND BOLTS FOR ALUMINUM UNITS. FOR THE 77" X 52" THROUGH 112" X 75" APRON ENDWALL SIZES, THE REINFORCED EDGES AND CENTER PANEL SEAMS SHALL BE FURTHER REINFORCED WITH GALVANIZED STEEL OR ALUMINUM STIFFENER ANGLES. THE ANGLES SHALL BE ATTACHED BY GALVANIZED NUTS AND BOLTS FOR STEEL UNITS AND ALUMINUM NUTS AND BOLTS FOR ALUMINUM UNITS.

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

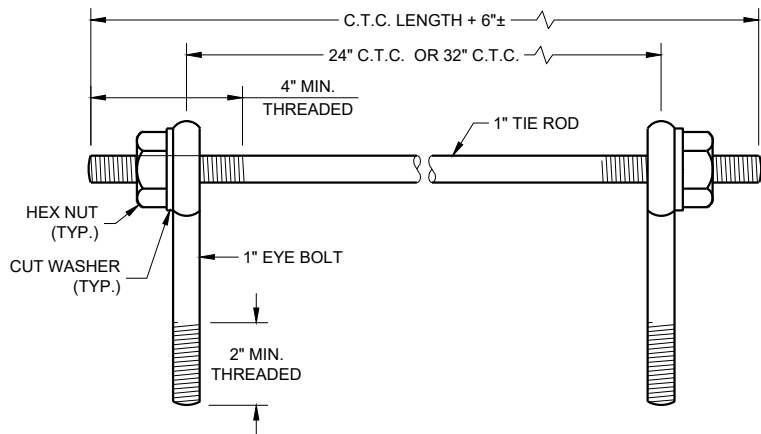
① FOR PIPE ARCH SIZES UP TO 73" X 55" A 180° ROLLED EDGE MAY BE USED INSTEAD OF STEEL ROD REINFORCEMENT. SEE SECTION A-A.

APRON ENDWALLS FOR
PIPE ARCH AND
ELLIPTICAL PIPESTATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

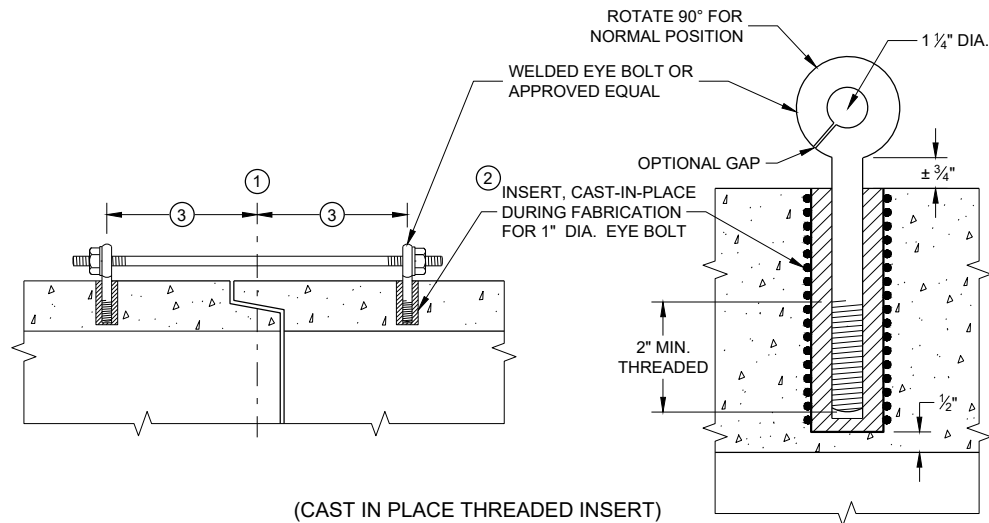
11/30/94
DATE/S/ Rory L. Rhinesmith
CHIEF ROADWAY DEVELOPMENT ENGINEER

FHWA



EYE BOLTS AND TIE ROD

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



(CAST IN PLACE THREADED INSERT)

LONGITUDINAL SECTIONS

GENERAL NOTES

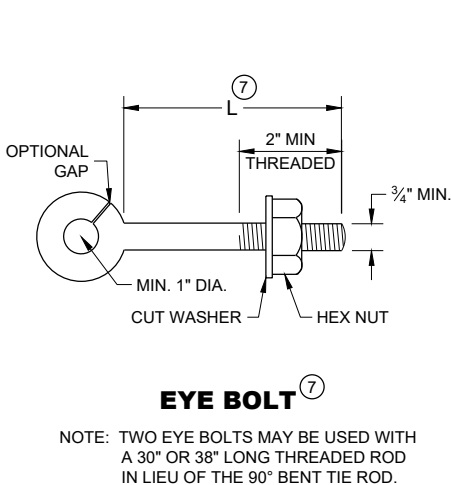
DETAILS OF CONSTRUCTION, MATERIALS, AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

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

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

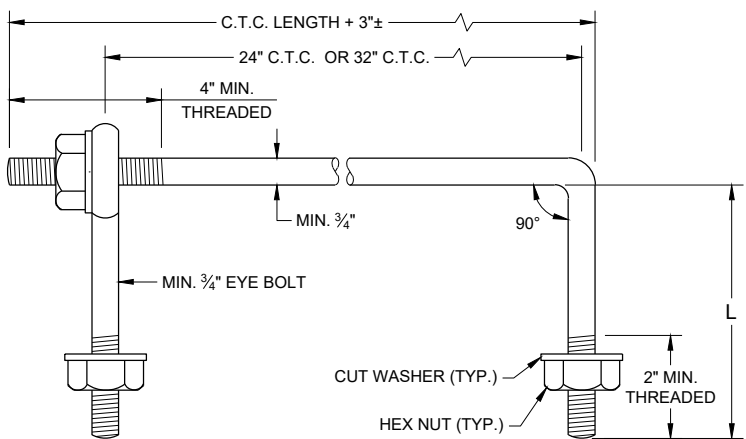
JOINT TIES TO BE HOT-DIP GALVANIZED PER ASTM A 153.

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

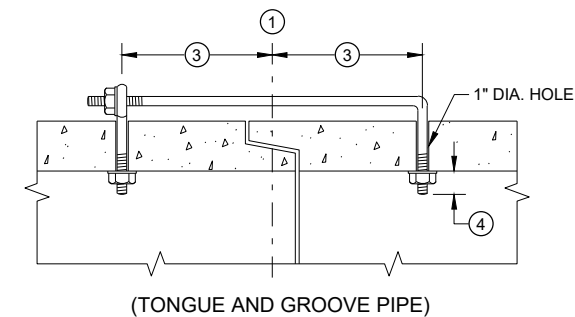


EYE BOLT 7

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



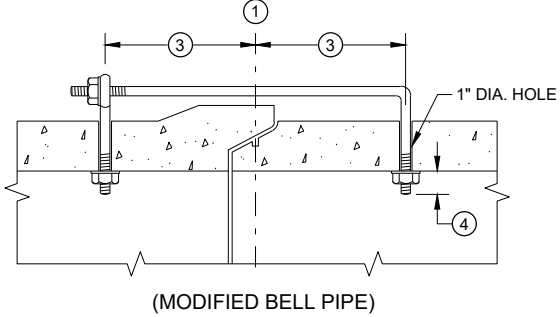
EYE BOLT AND TIE ROD



LONGITUDINAL SECTION

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

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

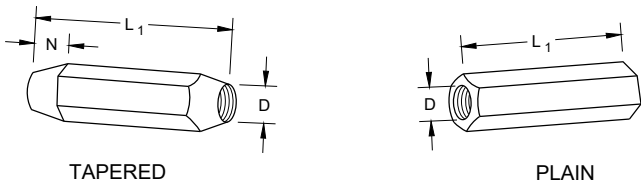


(MODIFIED BELL PIPE)

ADJUSTABLE TIE ROD TABLE

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

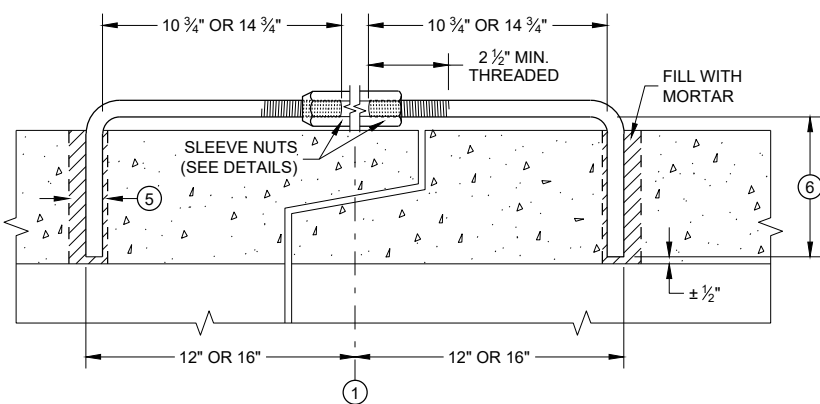
DIMENSIONS SHOWN ARE IN INCHES



TAPERED

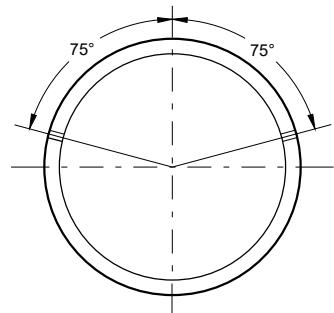
PLAIN

RIGHT AND LEFT THREADS
SLEEVE NUTS



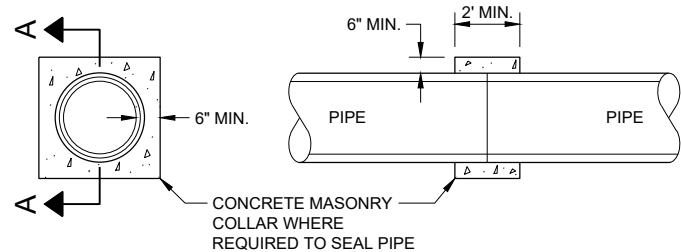
LONGITUDINAL SECTION

ADJUSTABLE TIE ROD (ALTERNATE NO. 3)



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

TRANSVERSE SECTION



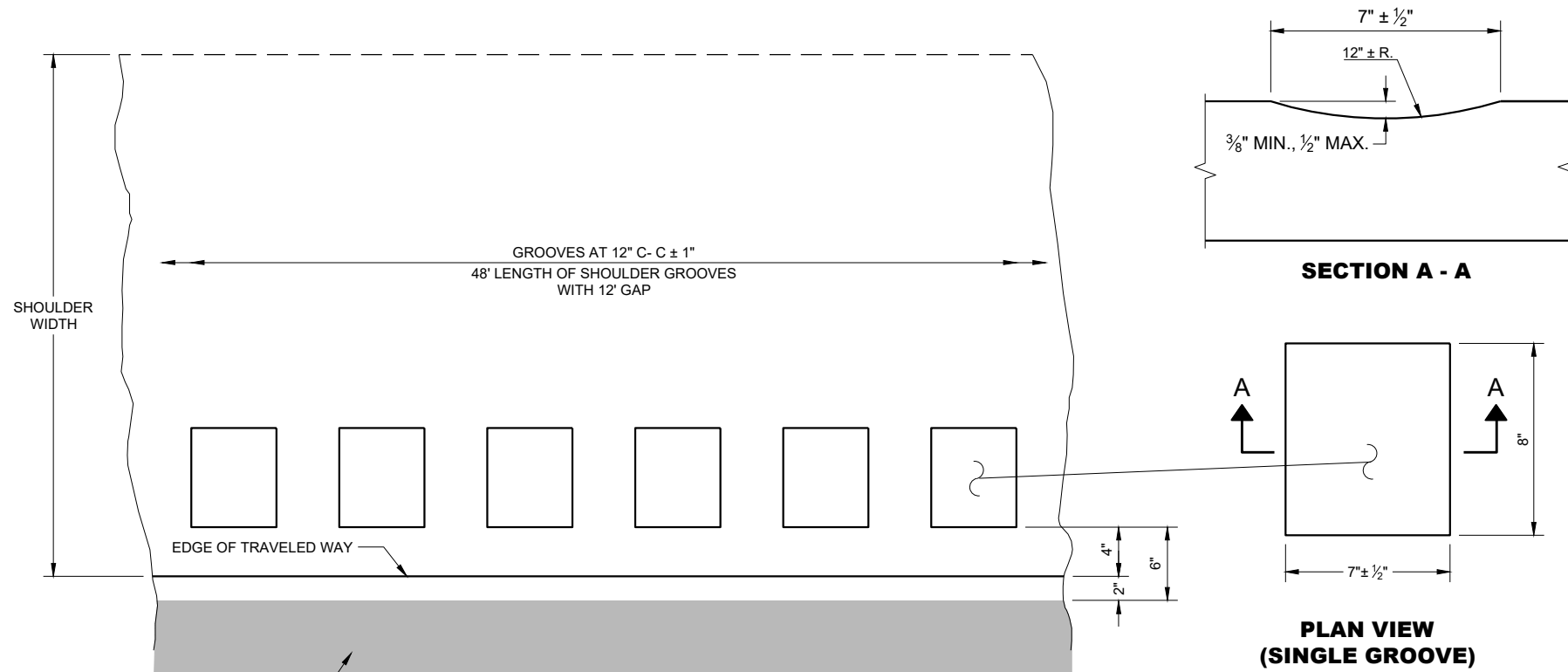
SECTION A - A

CONCRETE COLLAR DETAIL

JOINT TIES FOR CONCRETE PIPE AND CONCRETE COLLAR DETAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

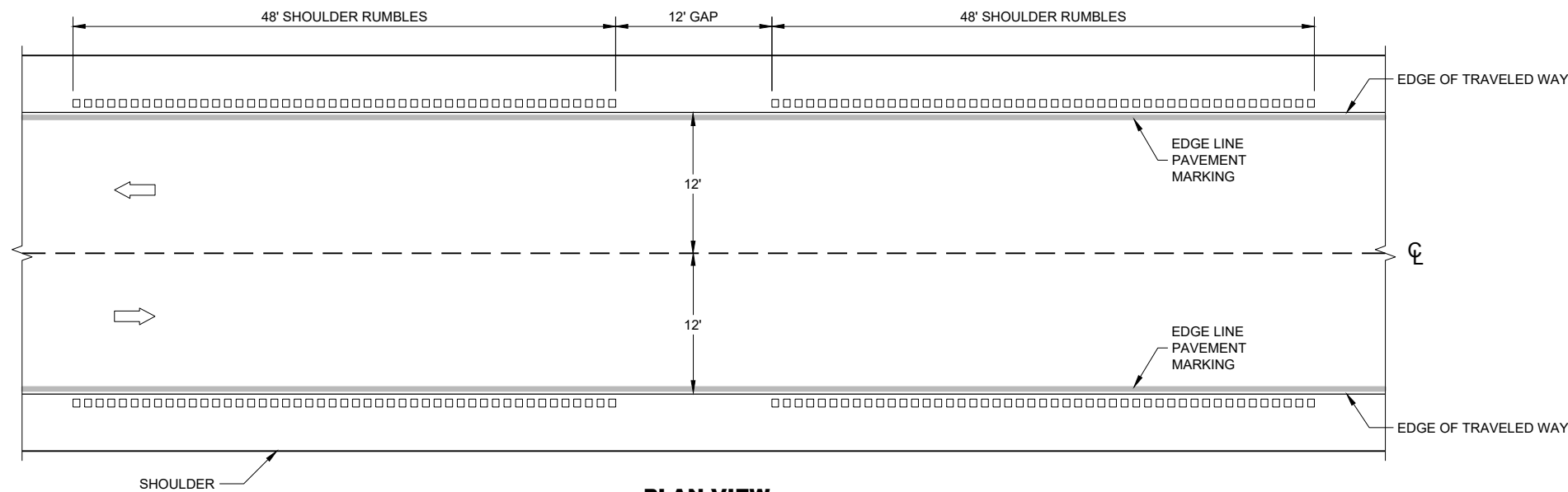
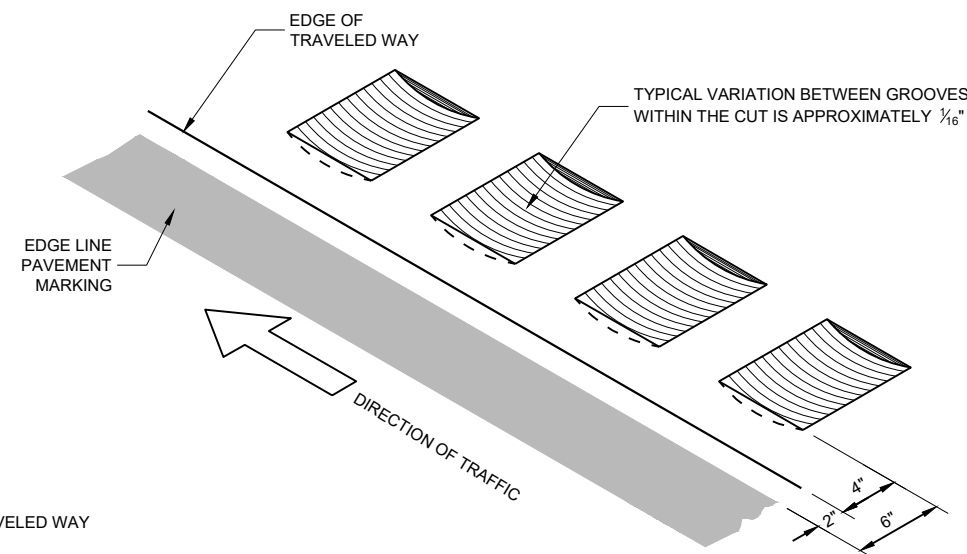


PLAN DETAIL VIEW
SHOULDER WITH GROOVES

GENERAL NOTES

DO NOT MILL SHOULDER GROOVES THROUGH INTERSECTIONS, MARKED CROSSWALKS, NON-MOTORIZED PATH CROSSINGS, ETC. REFER TO SDD 13A10 SHEETS "g" AND "h".

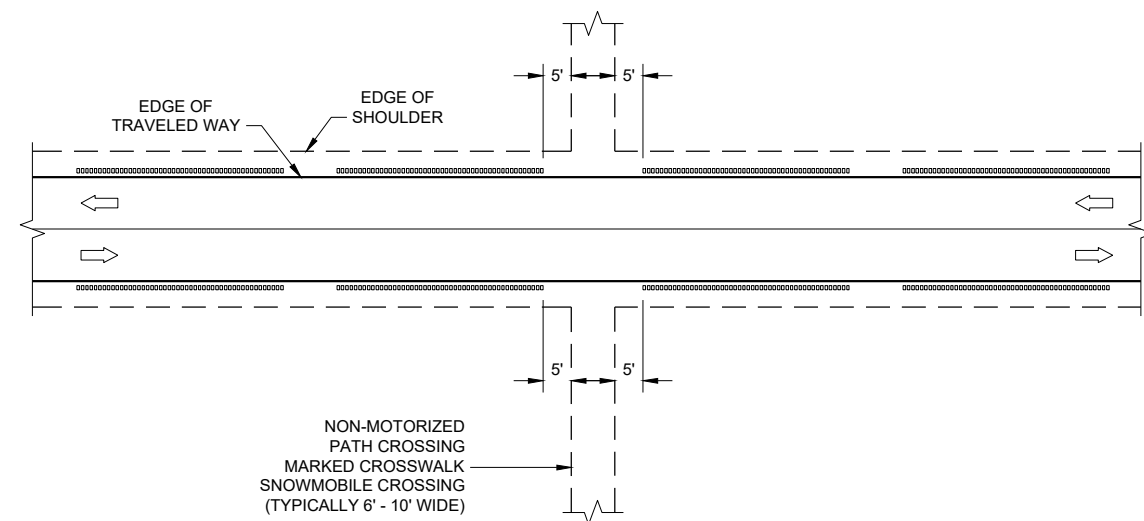
SHOULDER GROOVES MAY BE OMITTED IN AREAS WITH HIGH CONCENTRATIONS OF DRIVEWAYS WHEN DIRECTED BY THE ENGINEER.



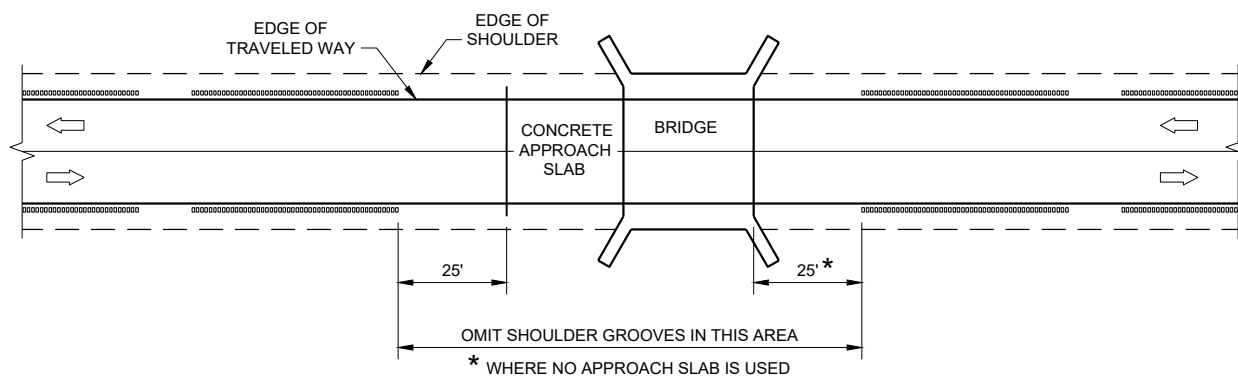
SHOULDER RUMBLE STRIPS - ASPHALT

**SHOULDER RUMBLE
STRIPS ASPHALT**

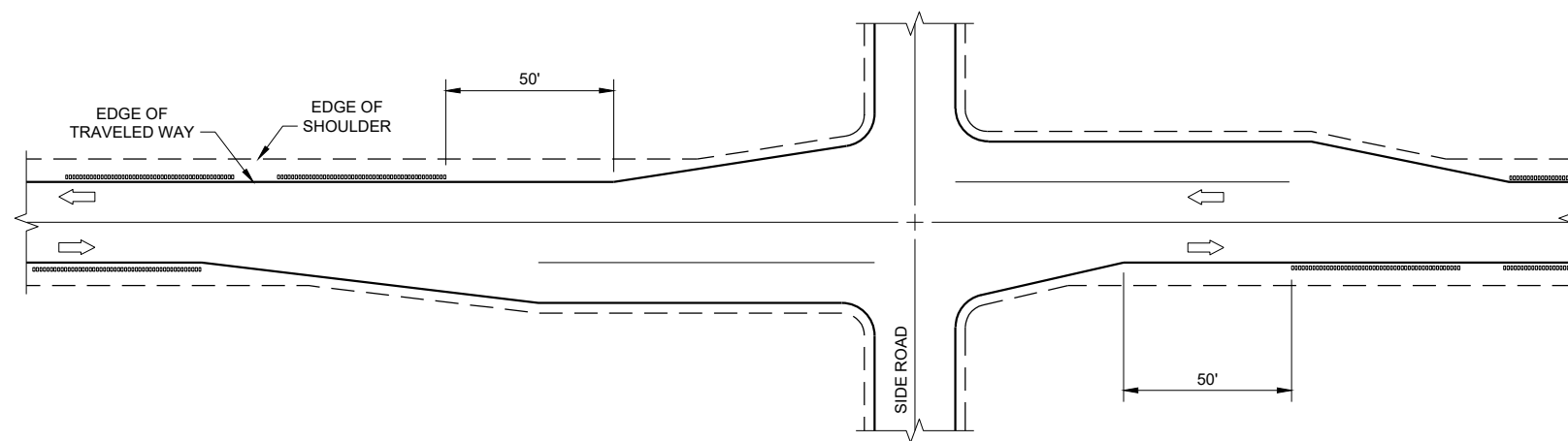
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



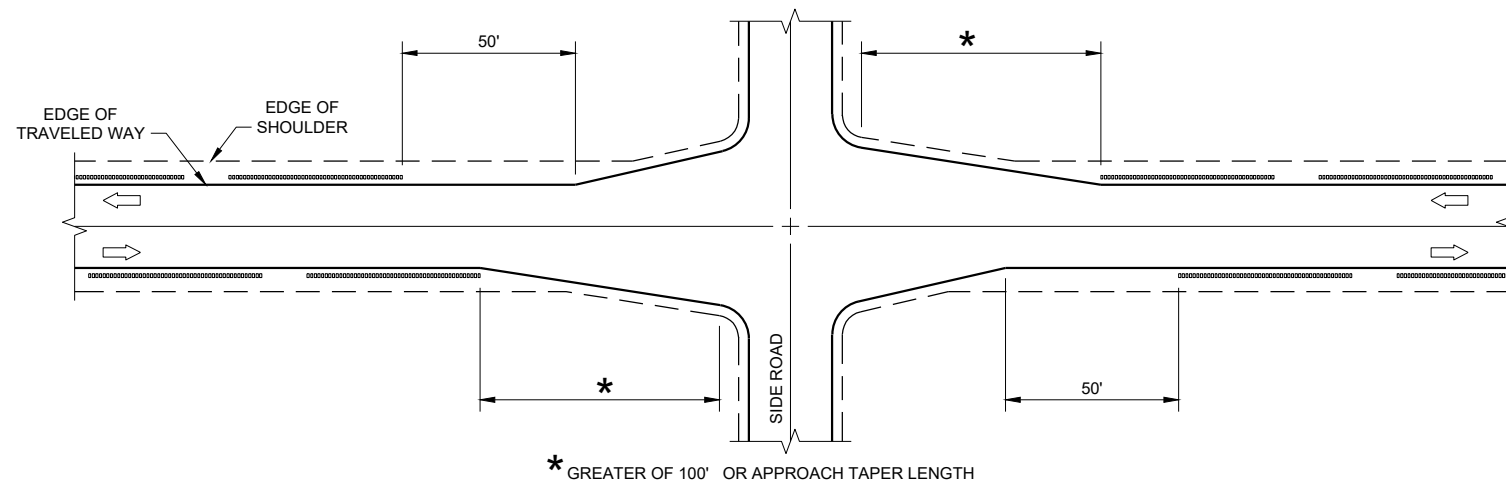
GROOVES AT MISCELLANEOUS CROSSINGS



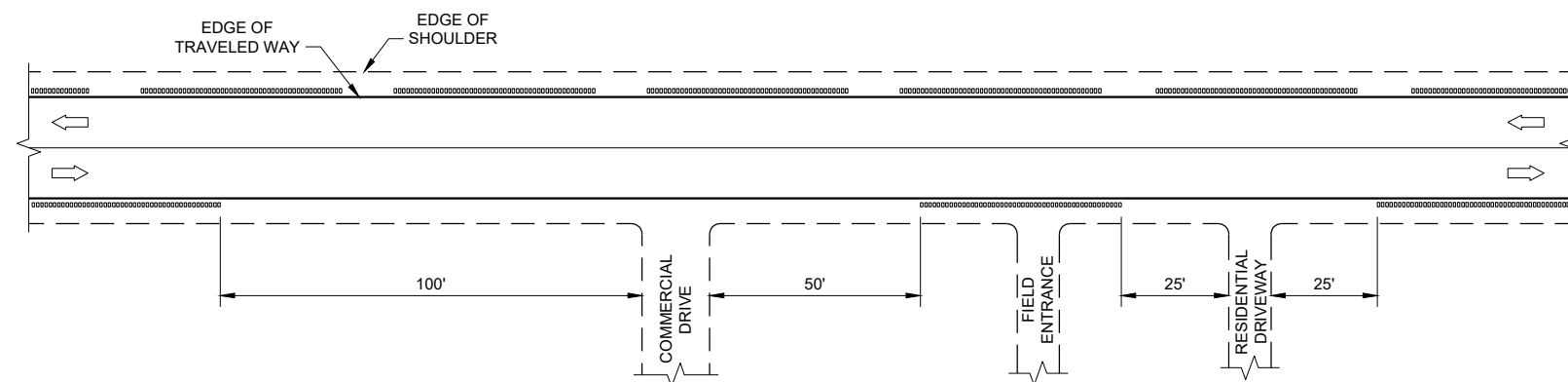
GROOVES AT BRIDGES



GROOVES AT RIGHT TURN LANE



GROOVES AT INTERSECTIONS WITH APPROACH TAPER



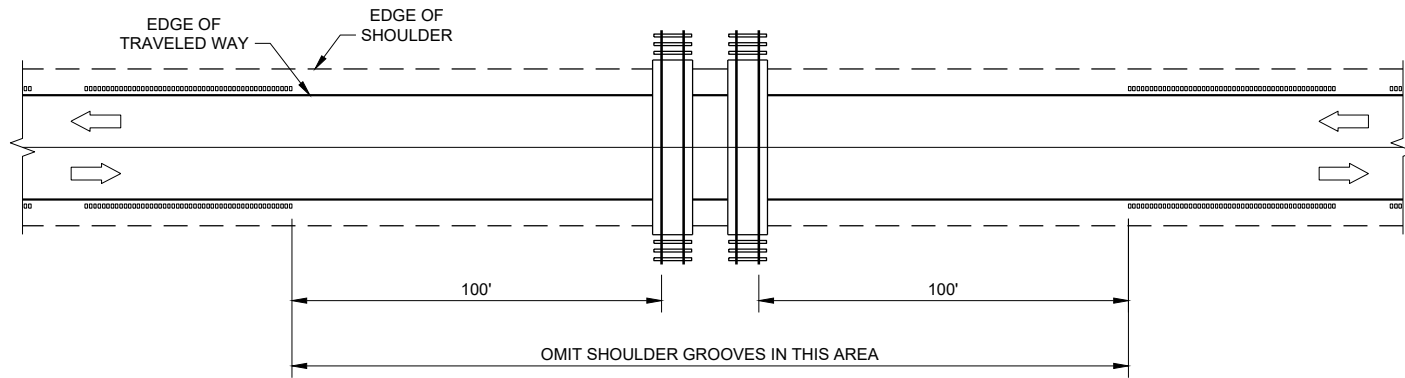
GROOVES AT DRIVEWAYS

GENERAL NOTES

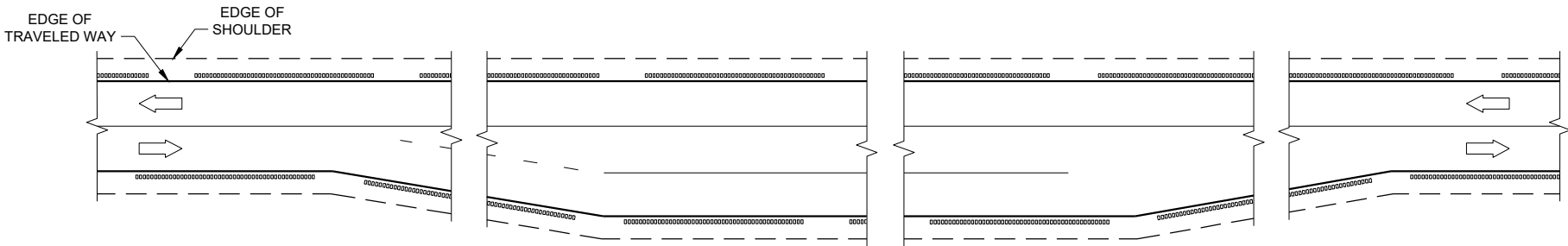
- ① SHOULDER GROOVES MAY BE OMITTED IN AREAS WITH HIGH CONCENTRATIONS OF DRIVEWAYS. WHEN DIRECTED BY THE ENGINEER.

**SHOULDER AND EDGE LINE
RUMBLE STRIPS
CROSSINGS, INTERSECTIONS,
BRIDGES, DRIVEWAYS**

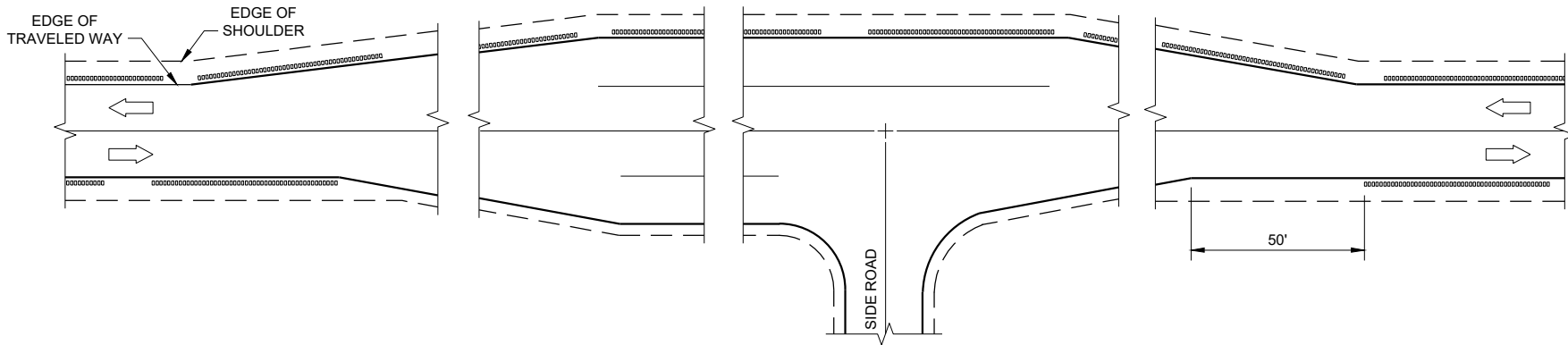
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



GROOVES AT RAILROADS



GROOVES AT PASSING AND CLIMBING LANES

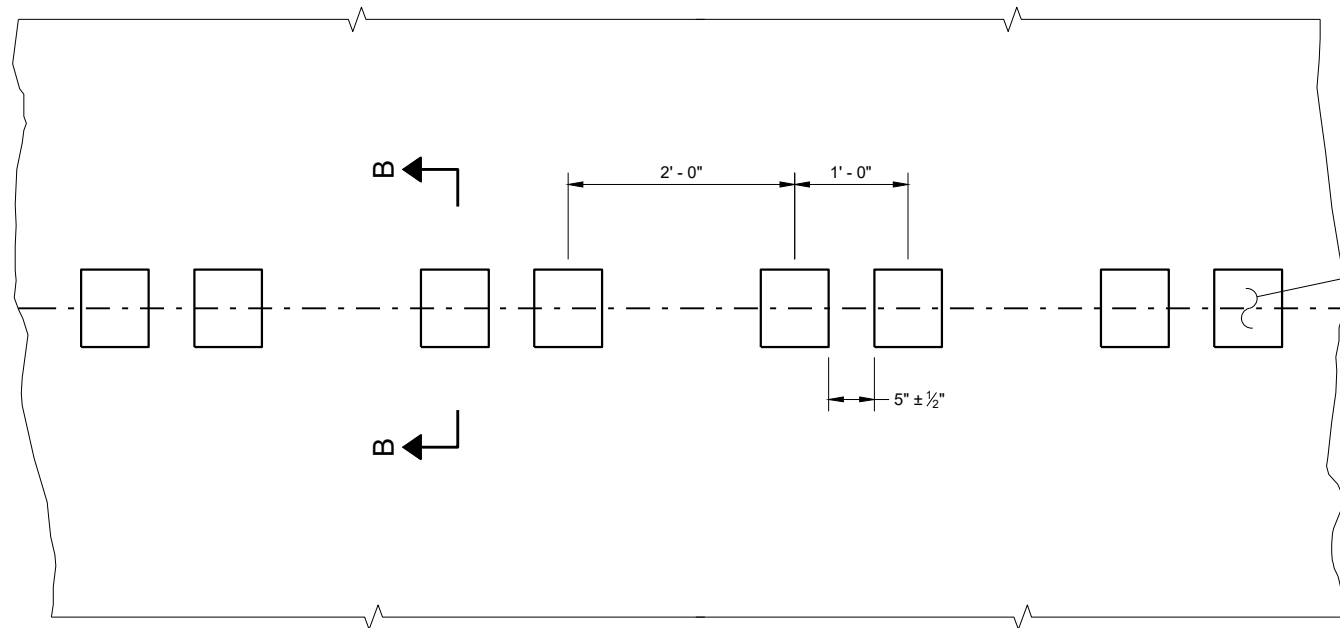


GROOVES AT BYPASS LANES

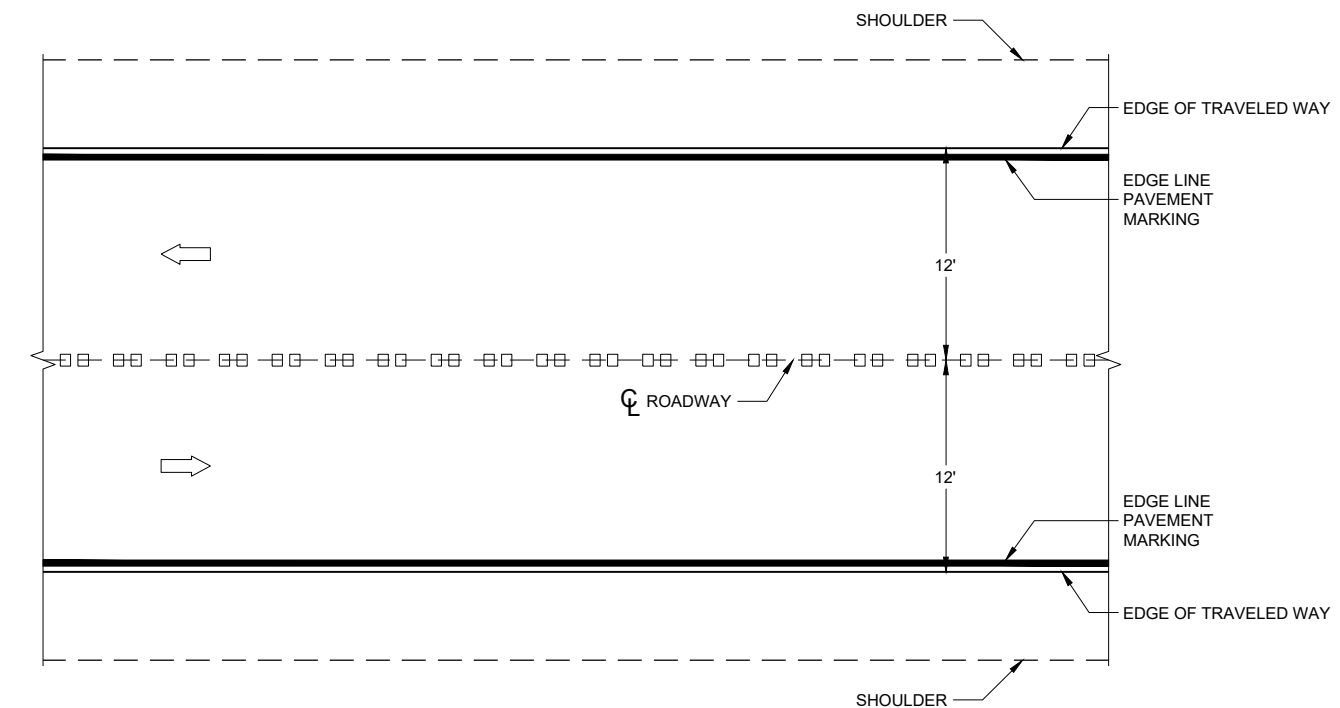
**SHOULDER AND EDGE LINE
RUMBLE STRIPS -
RAILROAD, PASSING,
CLIMBING AND BYPASS LANES**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May 2023 /S/ John Jenkins
DATE ROADWAY STANDARDS DEVELOPMENT
ENGINEER
FHWA

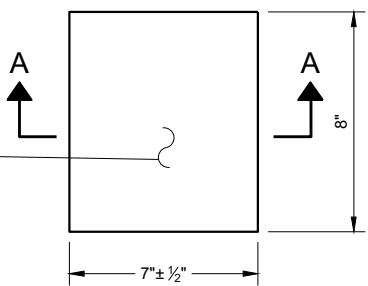


PLAN DETAIL VIEW

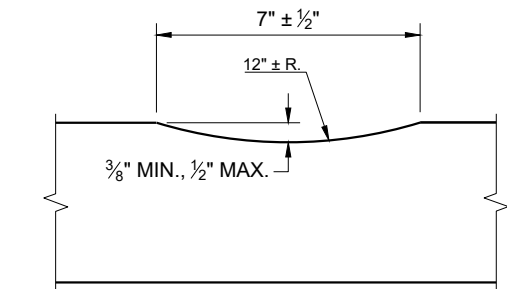


PLAN VIEW

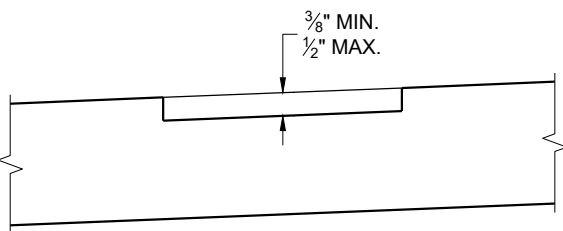
CENTERLINE RUMBLE STRIPS - ASPHALT



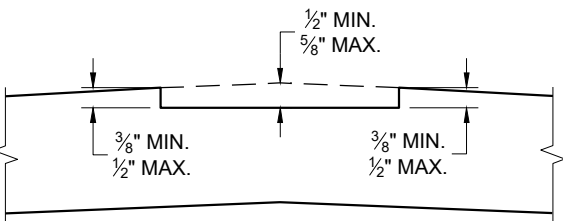
PLAN VIEW (SINGLE GROOVE)



SECTION A - A



SECTION B - B
SUPERELEVATED ROADWAY

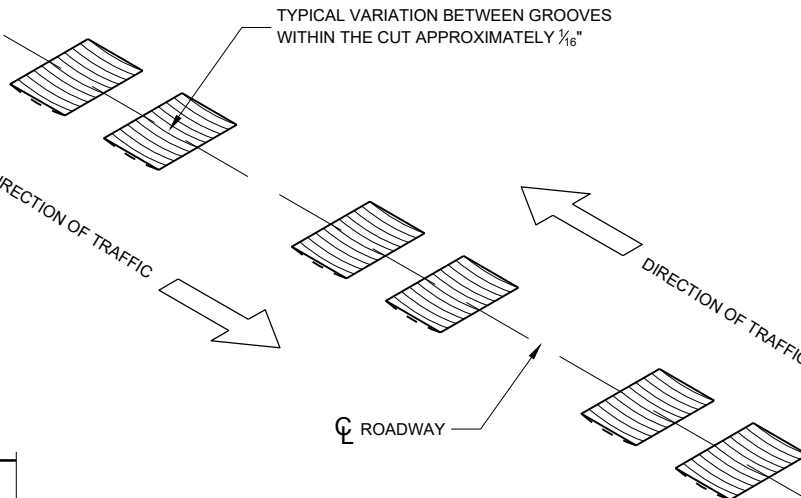


SECTION B - B
CROWNED ROADWAY

GENERAL NOTES

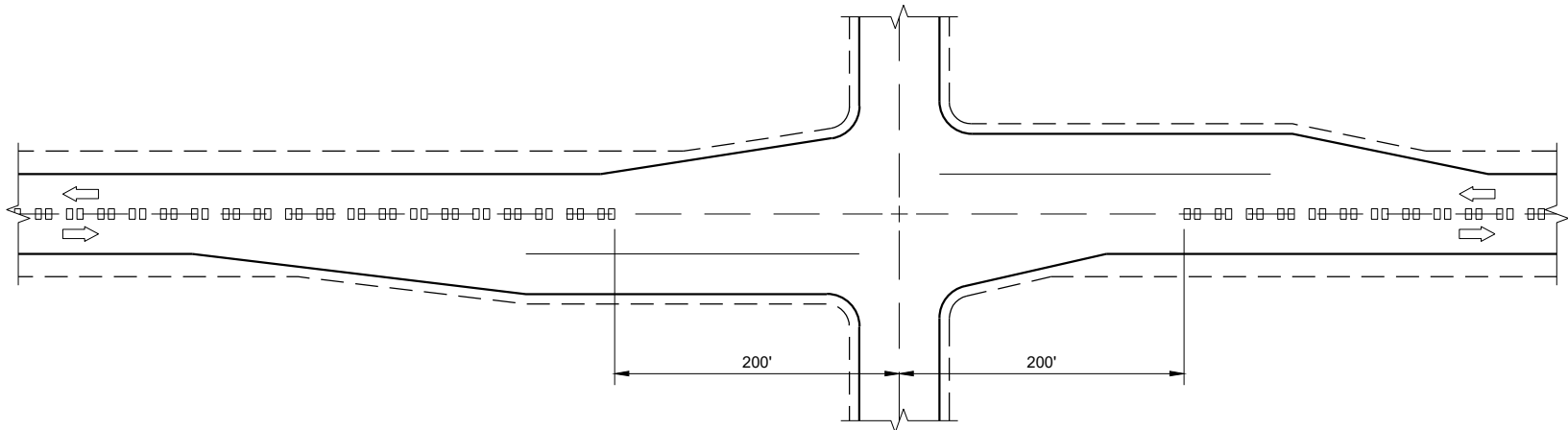
DO NOT MILL SHOULDER GROOVES THROUGH INTERSECTIONS, MARKED CROSSWALKS, NON-MOTORIZED PATH CROSSINGS, ETC. REFER TO SDD 13A11 SHEETS "d" AND "e".

CENTERLINE GROOVES MAY BE OMITTED IN AREAS WITH HIGH CONCENTRATIONS OF DRIVEWAYS WHEN DIRECTED BY THE ENGINEER.

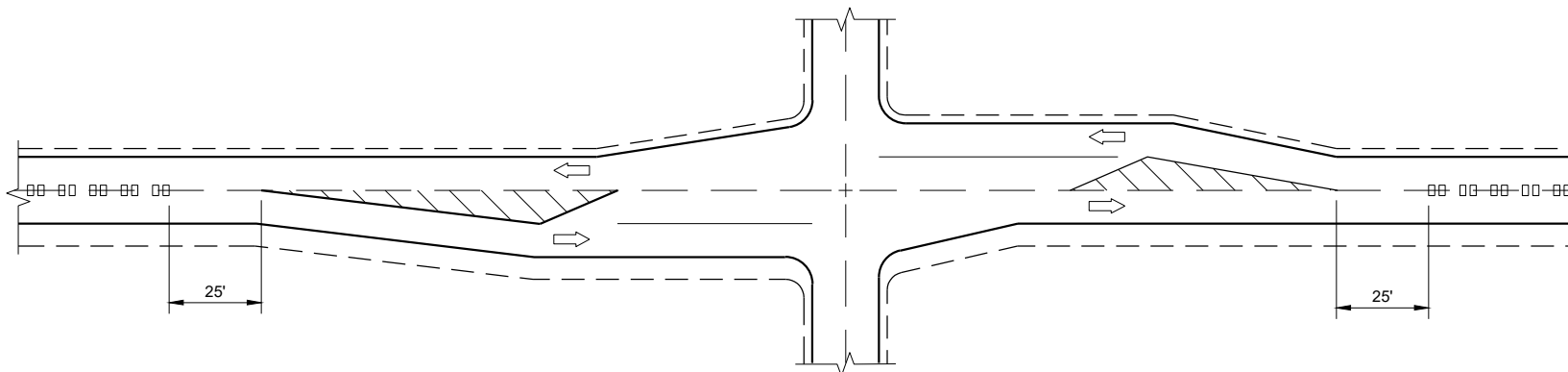


CENTERLINE RUMBLE STRIPS - ASPHALT

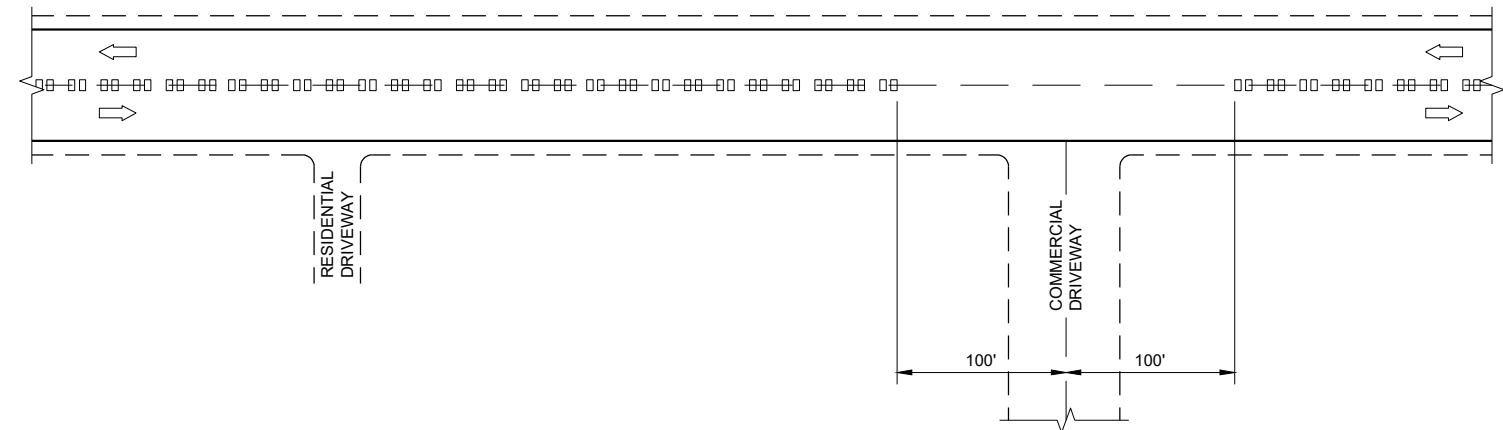
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



CENTERLINE GROOVES AT INTERSECTIONS



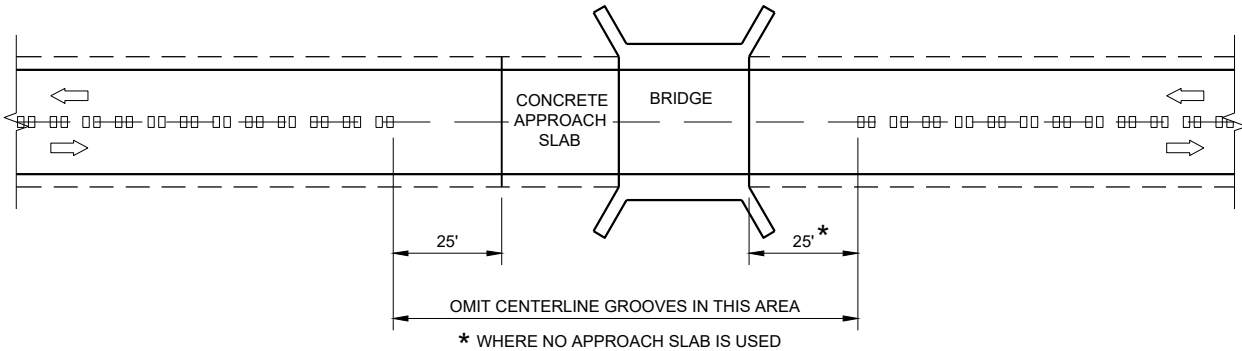
CENTERLINE GROOVES AT INTERSECTIONS
(WITH LEFT TURN LANES)



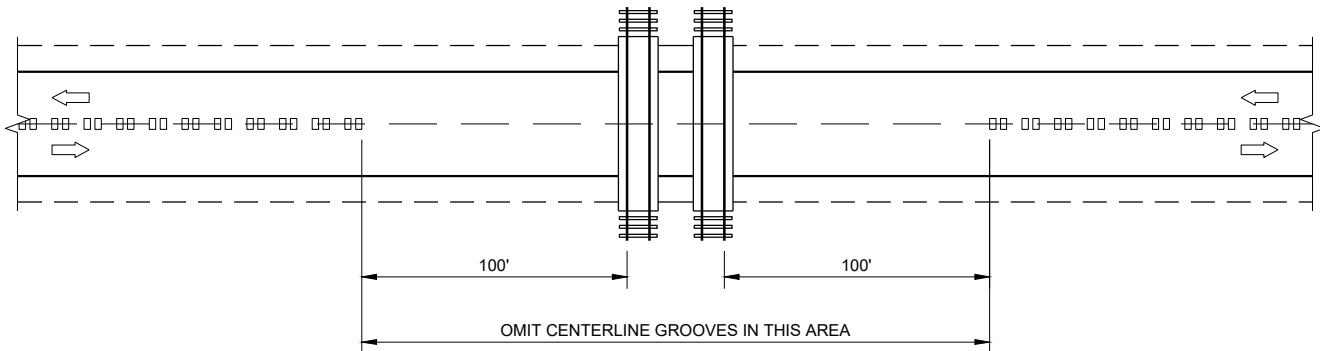
CENTERLINE GROOVES AT DRIVEWAYS^①

GENERAL NOTES

- ① CENTERLINE GROOVES MAY BE OMITTED IN AREAS WITH HIGH CONCENTRATIONS OF DRIVEWAYS WHEN DIRECTED BY THE ENGINEER.



CENTERLINE GROOVES AT BRIDGES

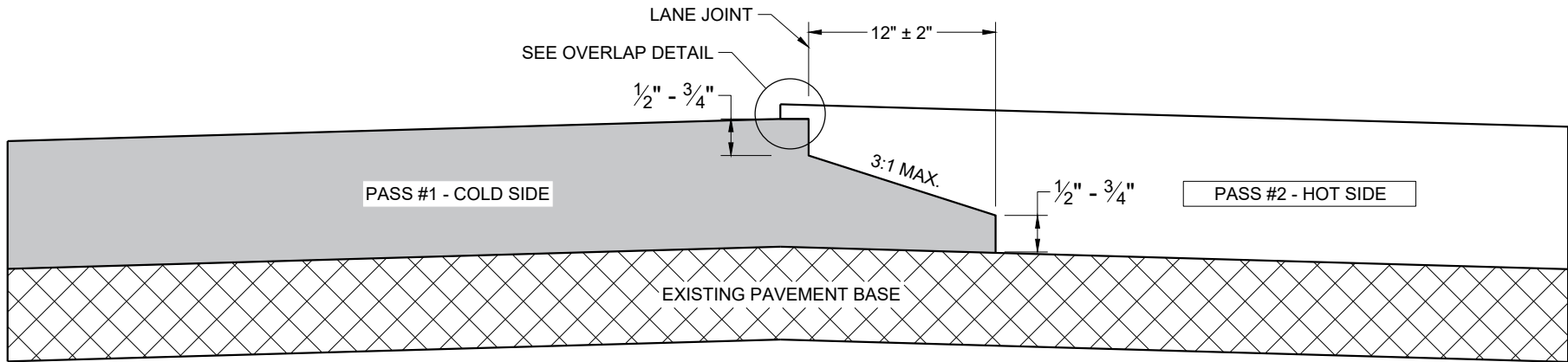


CENTERLINE GROOVES AT RAILROADS

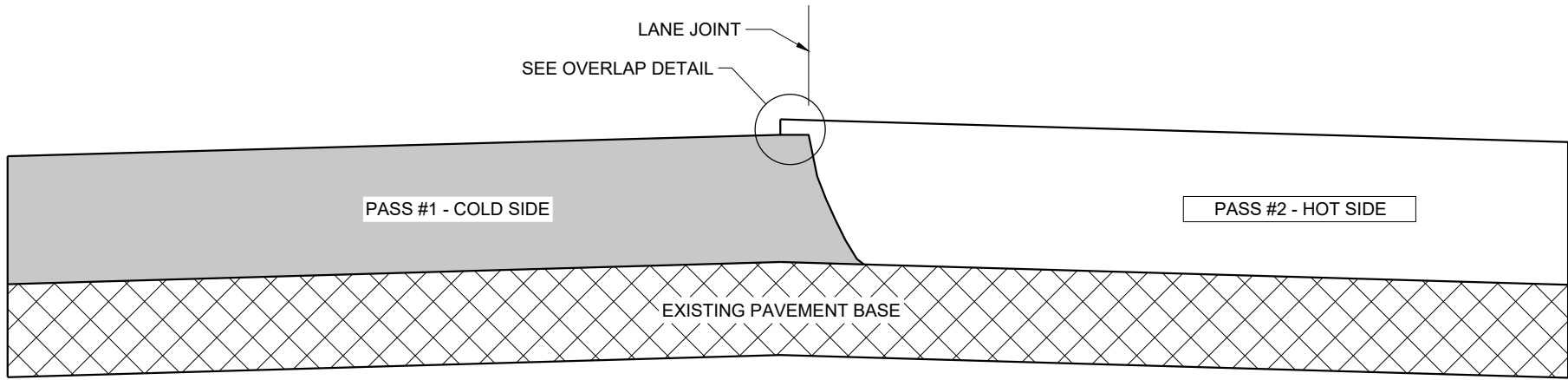
CENTER LINE
RUMBLE STRIPS -
INTERSECTIONS, DRIVEWAYS,
BRIDGES, RAIL ROADS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

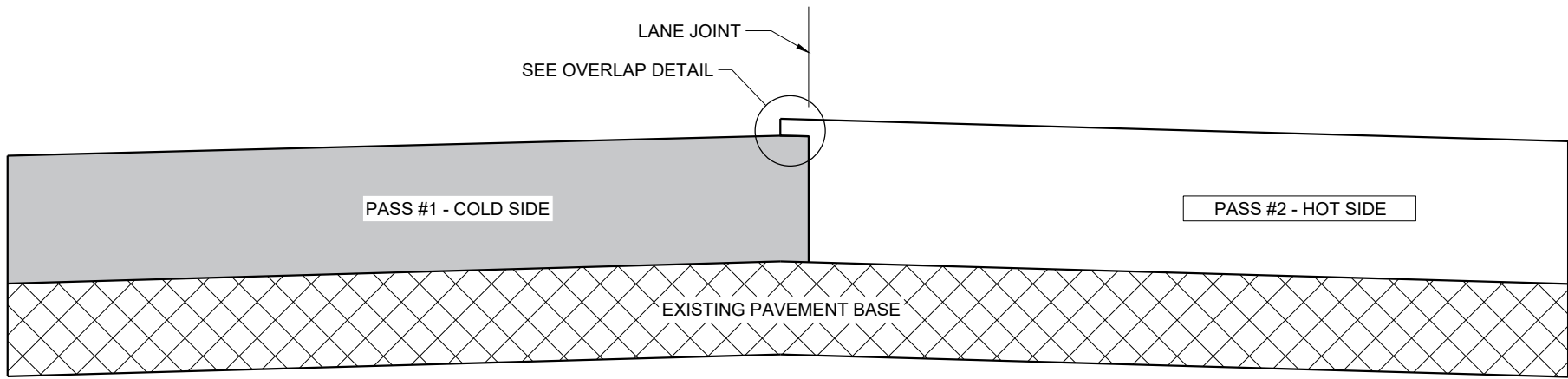
APPROVED
May 2023
DATE
/S/ John Jenkins
ROADWAY STANDARDS DEVELOPMENT
ENGINEER
FHWA



TYPICAL PAVEMENT CROSS SECTION
NOTCHED WEDGE JOINT



TYPICAL PAVEMENT CROSS SECTION
VERTICAL JOINT



TYPICAL PAVEMENT CROSS SECTION
VERTICAL JOINT (MILLED)

GENERAL NOTES

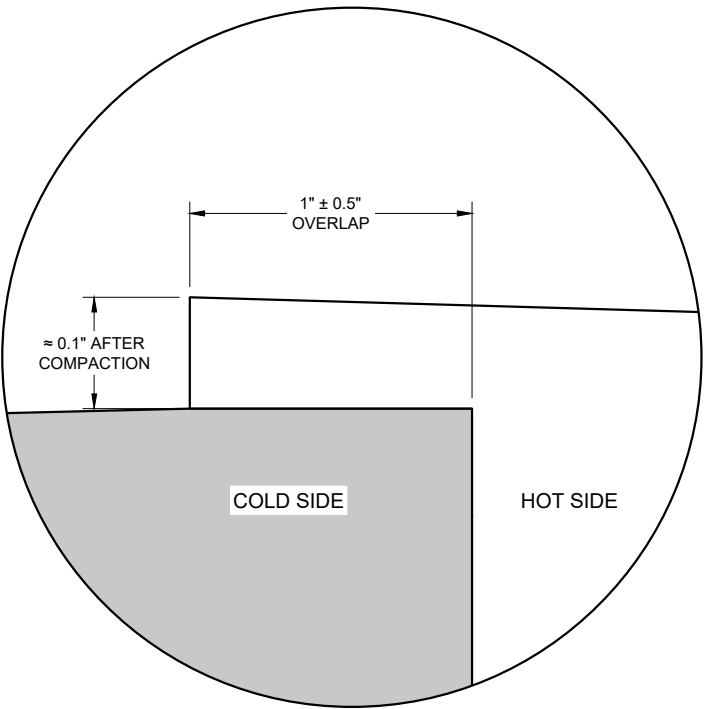
IN ADDITION TO THE DETAILS PROVIDED IN THIS DRAWING, CONFORM TO STANDARD SPECIFICATION 450.3.2.8 FOR WHEN A NOTCHED WEDGE JOINT IS REQUIRED AND FOR GENERAL JOINT CONSTRUCTION REQUIREMENTS.

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

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

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

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

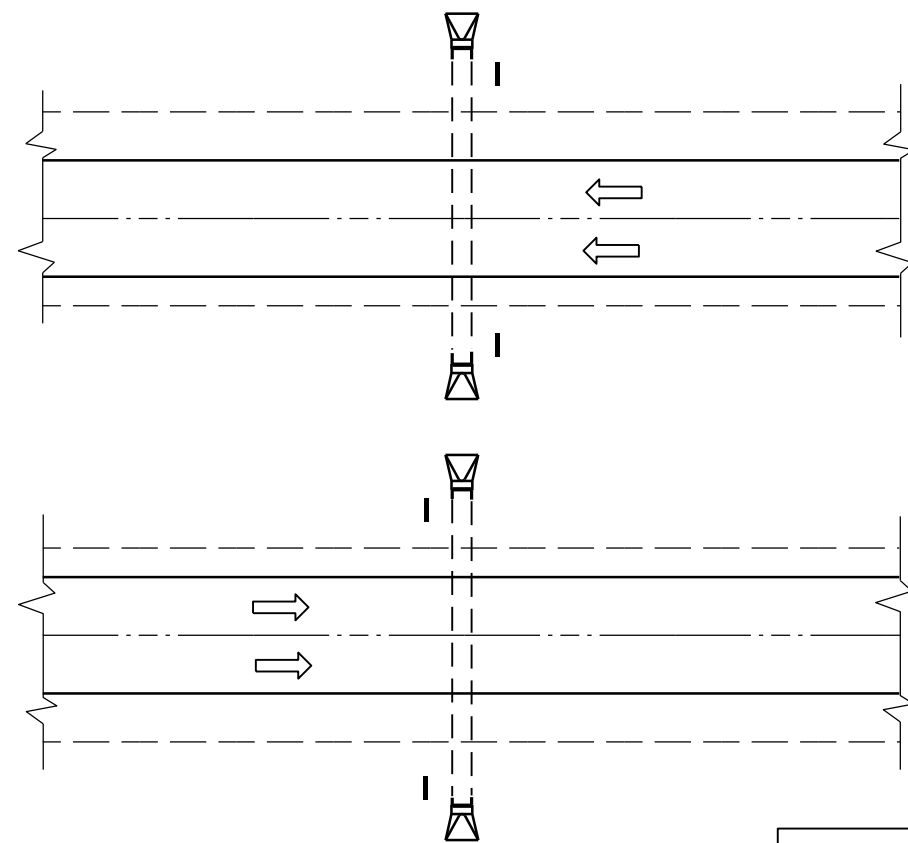


OVERLAP DETAIL (TYPICAL)

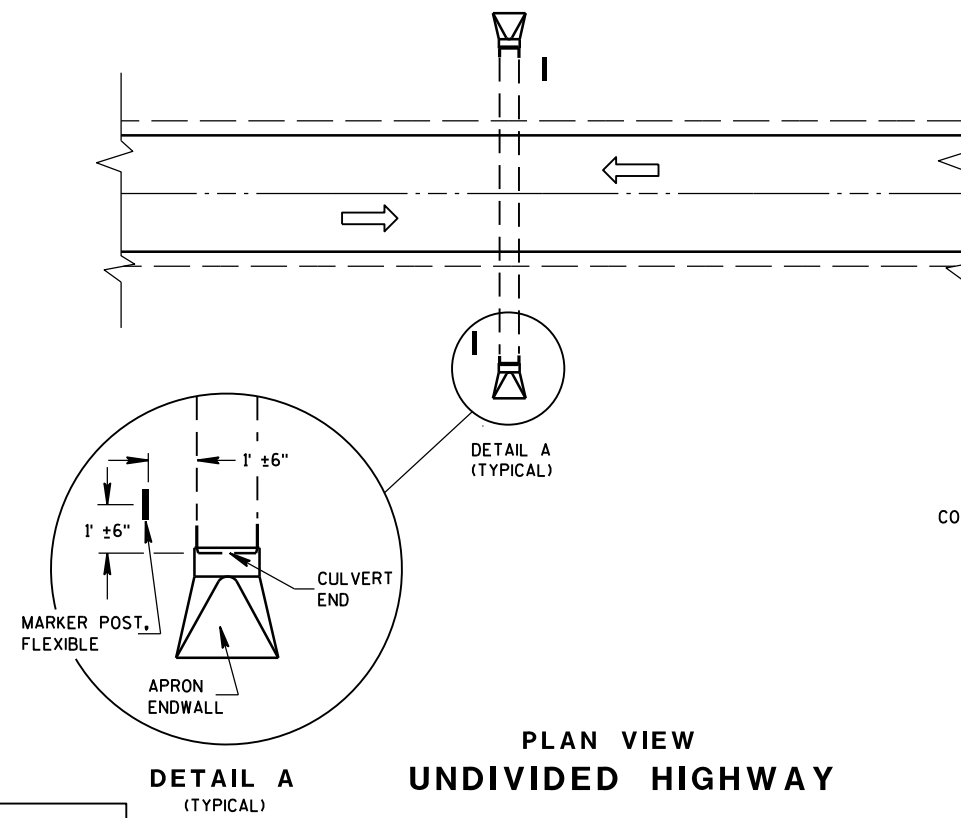
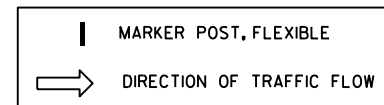
HMA LONGITUDINAL JOINTS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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



PLAN VIEW
DIVIDED HIGHWAY

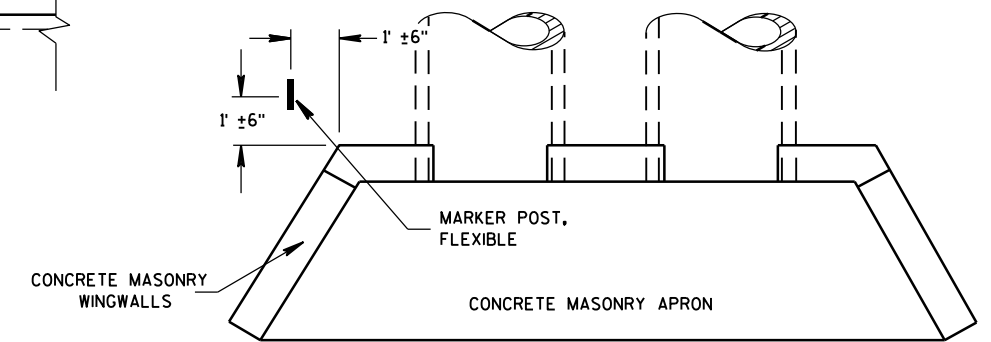


PLAN VIEW
UNDIVIDED HIGHWAY

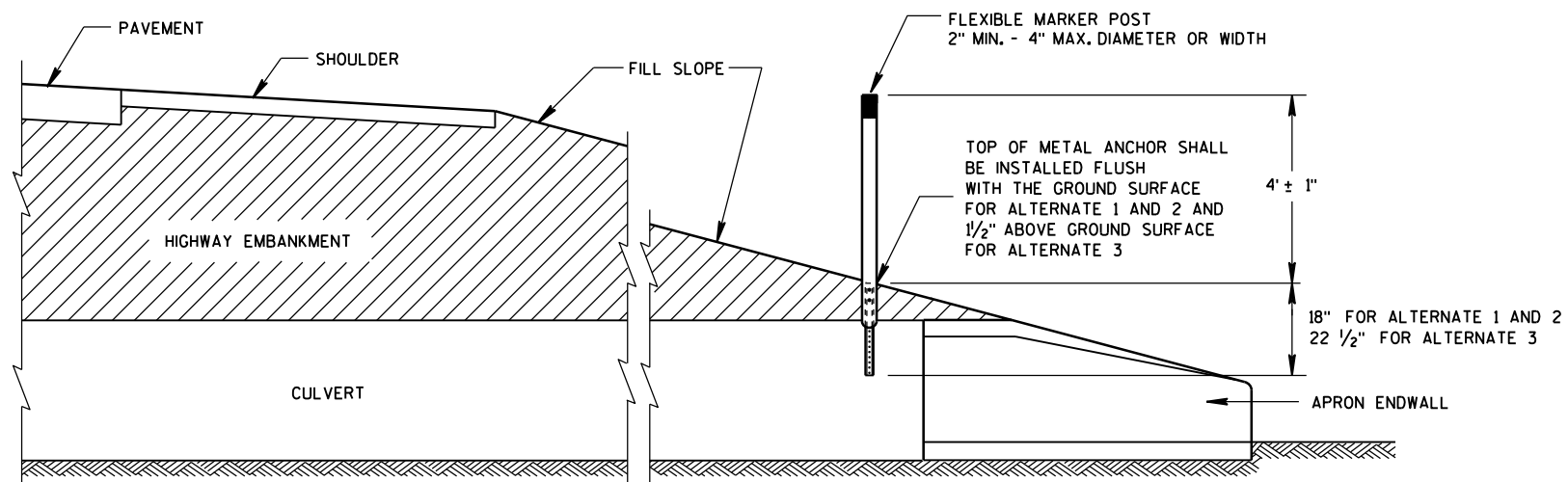
FLEXIBLE MARKER POST LOCATION

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.



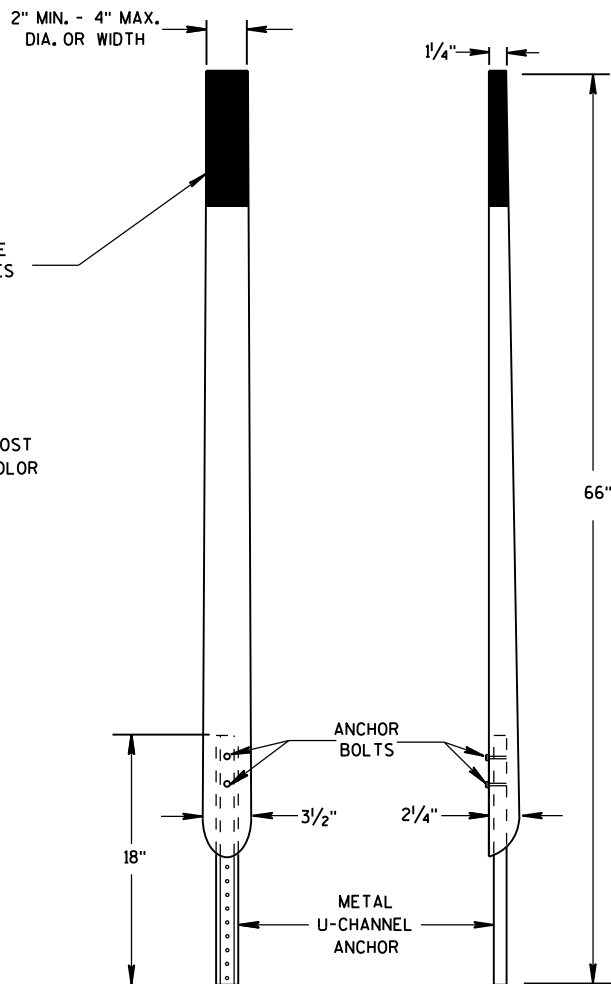
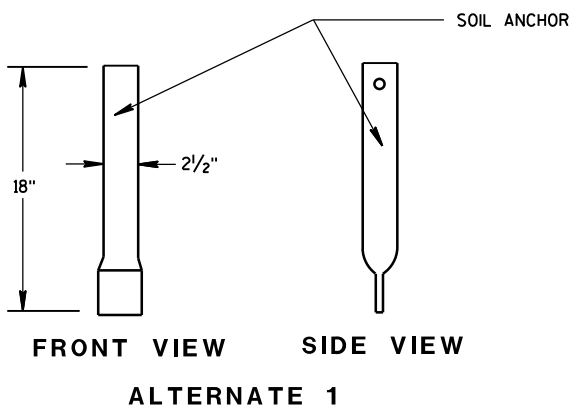
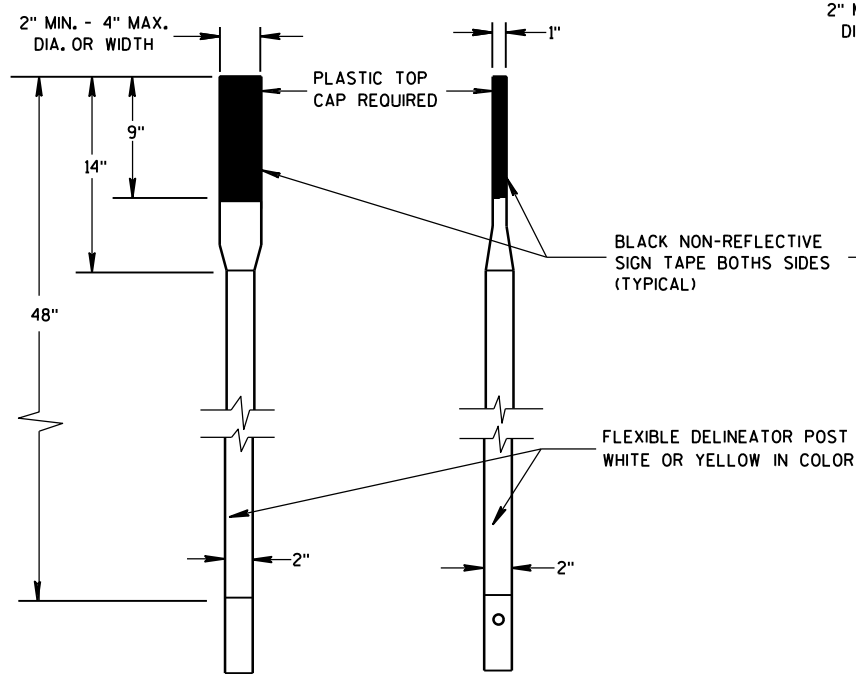
PLAN VIEW
CONCRETE MASONRY ENDWALLS FOR
CULVERT PIPE AND PIPE ARCH



CROSS SECTION
FLEXIBLE MARKER POST

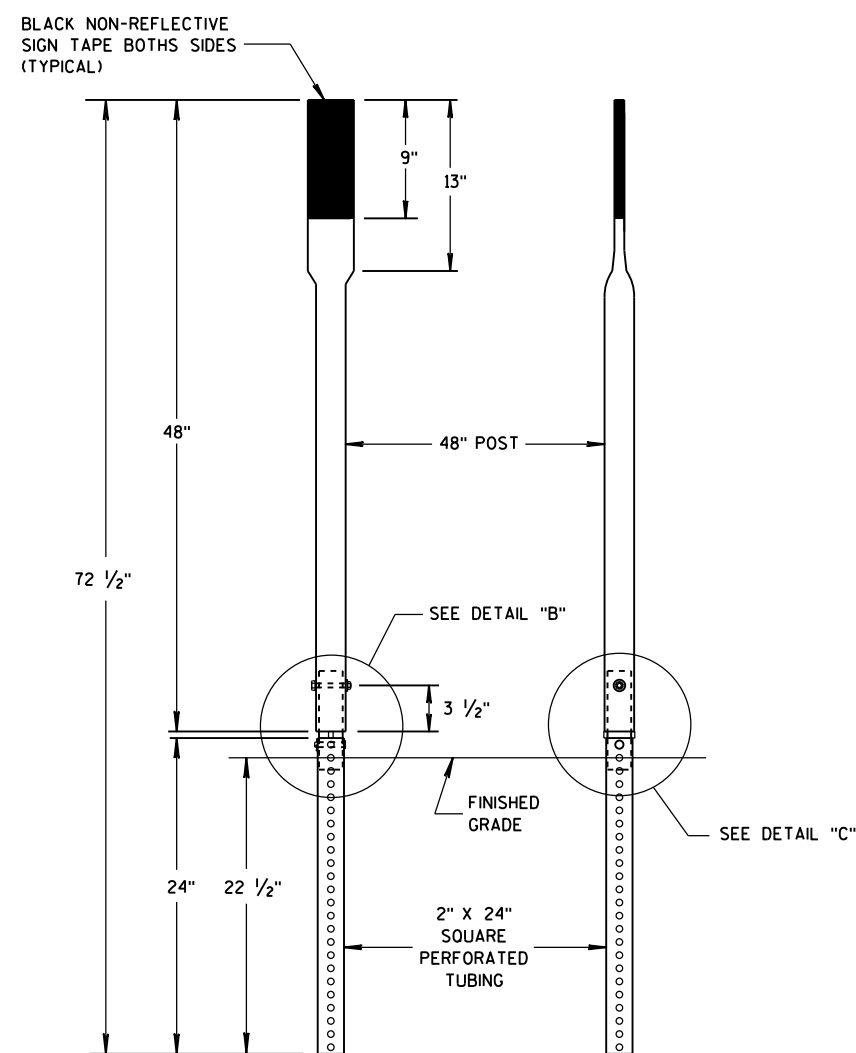
FLEXIBLE MARKER POST
FOR CULVERT END

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

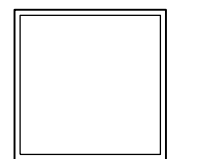


FRONT VIEW SIDE VIEW
ALTERNATE 2

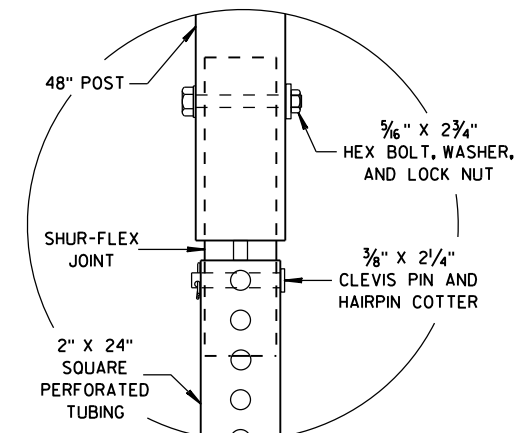
FLEXIBLE MARKER POSTS



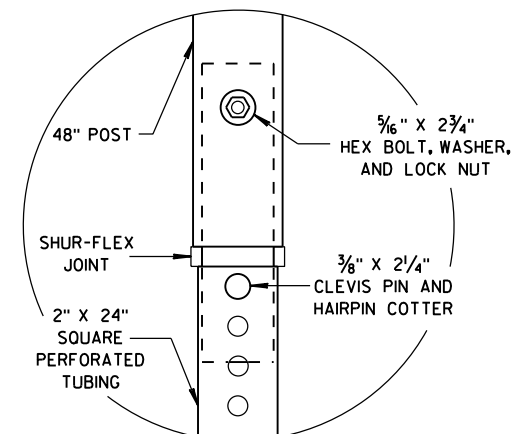
FRONT VIEW SIDE VIEW
ALTERNATE 3



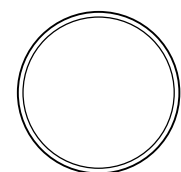
SECTION C-C



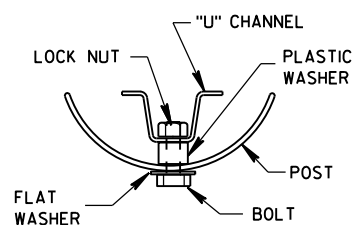
DETAIL B



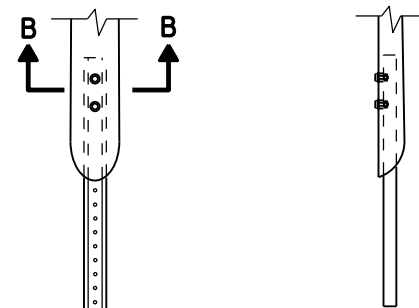
DETAIL C



SECTION A-A



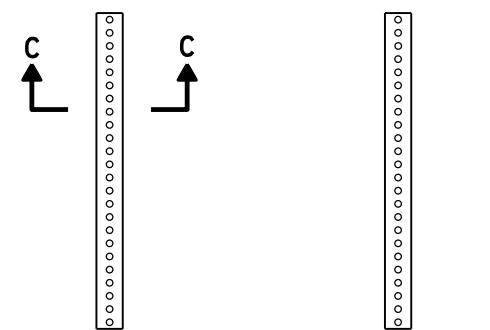
SECTION B-B



FRONT VIEW SIDE VIEW

ALTERNATE 2

FLEXIBLE MARKER POST ANCHORS



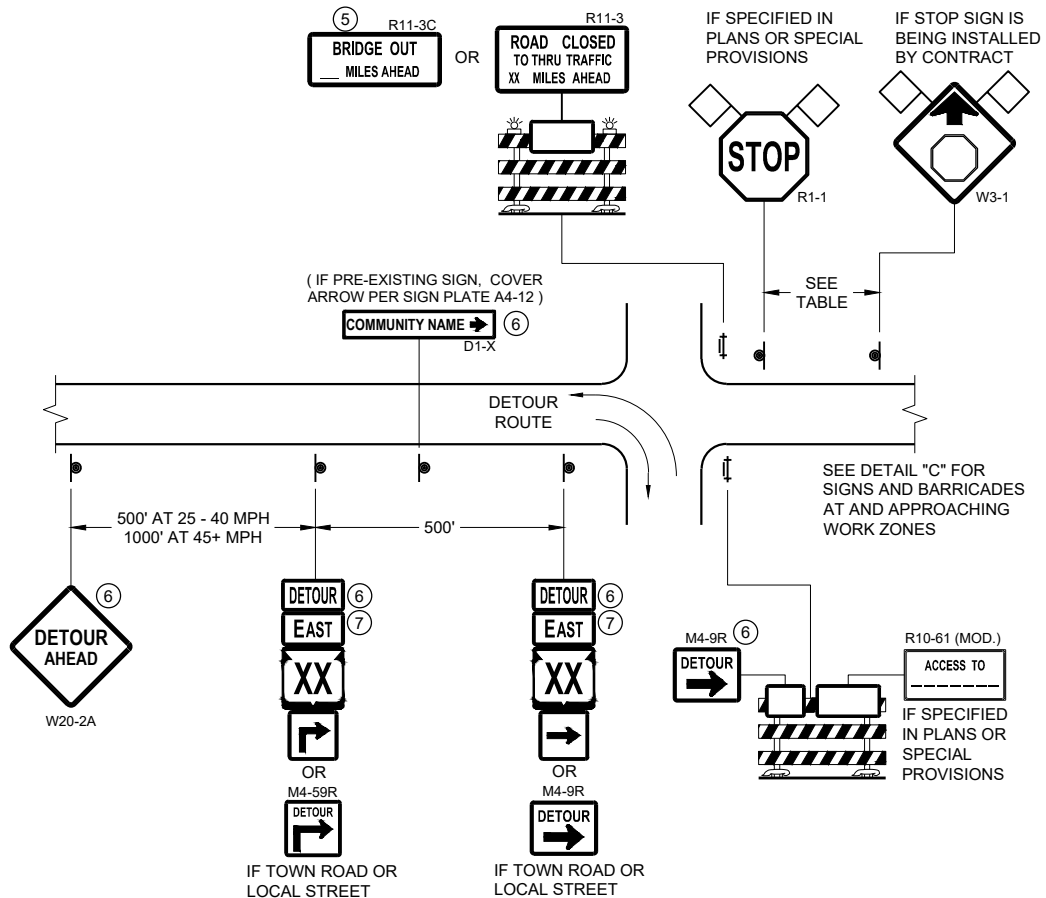
FRONT VIEW SIDE VIEW

ALTERNATE 3

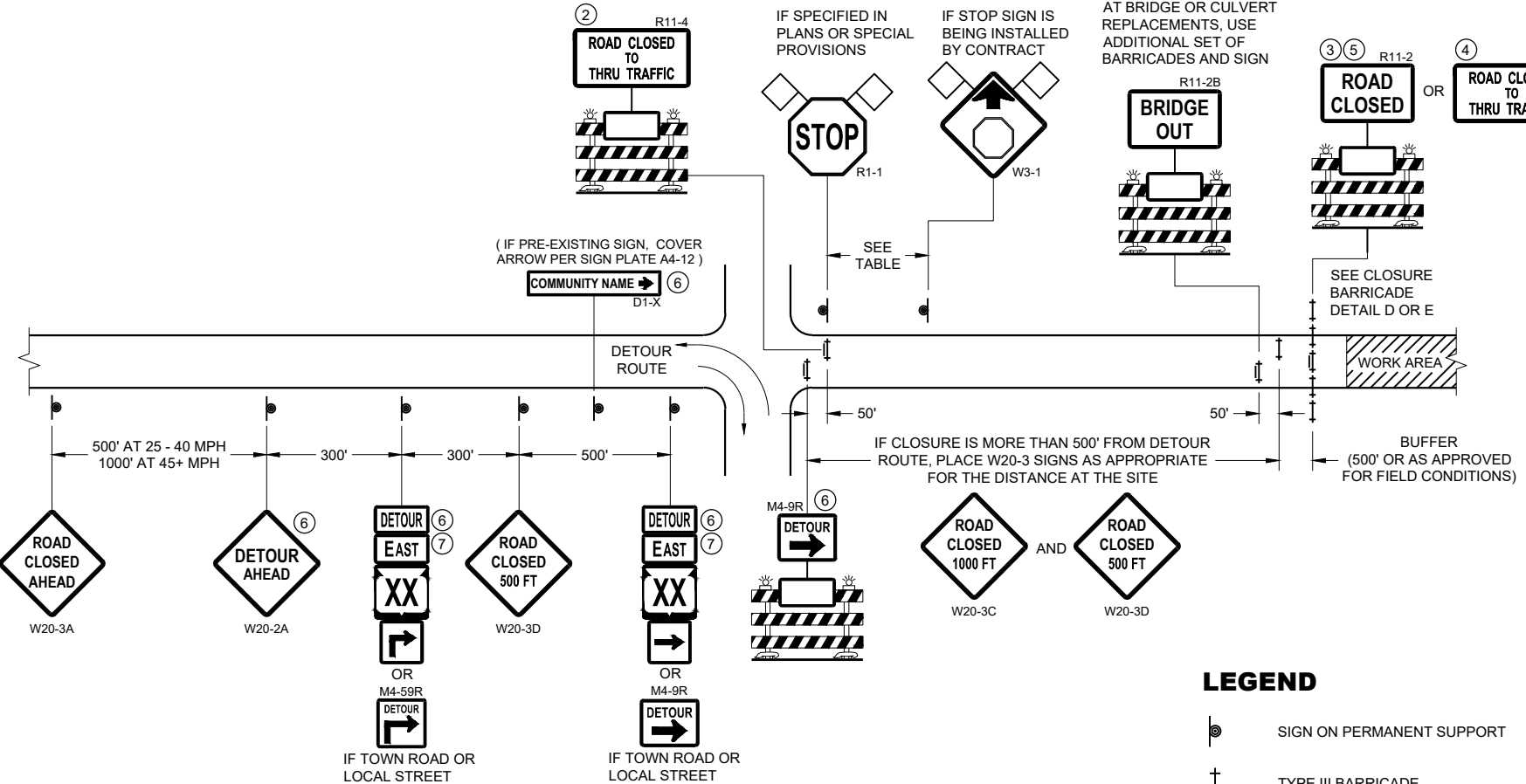
FLEXIBLE MARKER POST
FOR CULVERT END

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
10/1/2012 /S/ Travis Feltes
DATE STATE TRAFFIC ENGINEER OF DESIGN
FHWA



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



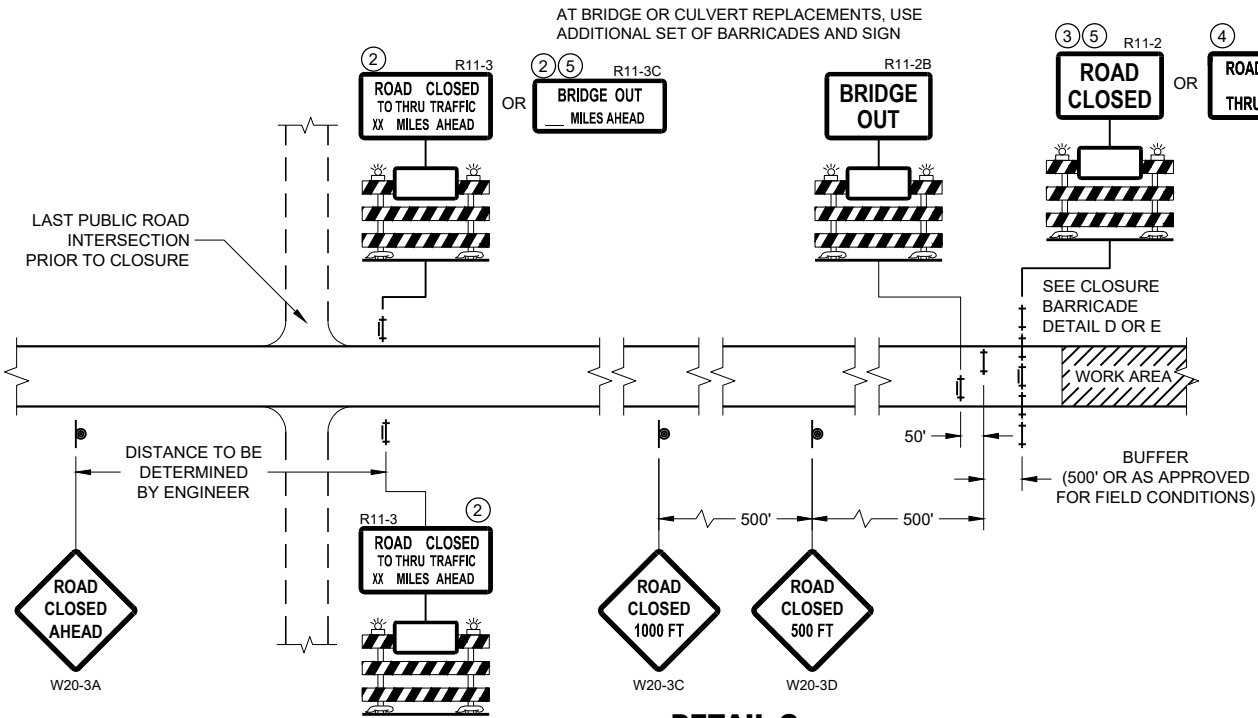
DETAIL B
MAINLINE CLOSURE WITH POSTED DETOUR
WORK ZONE LESS THAN ½ MILE FROM
DETOUR ROUTE (1000 FEET IF URBAN)

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

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

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

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

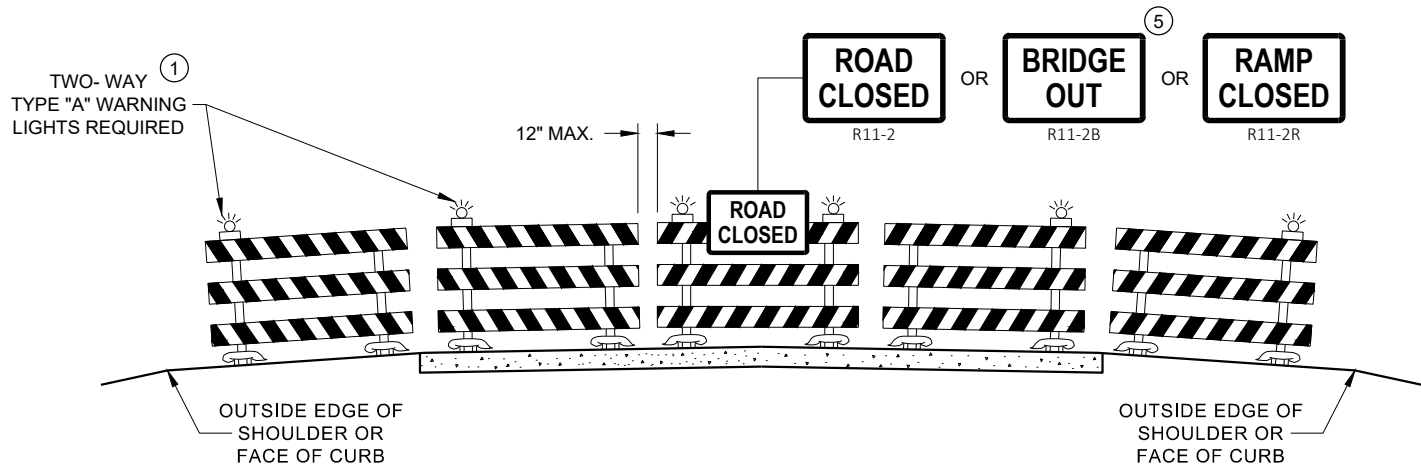


DETAIL C
MAINLINE CLOSURE, NO POSTED DETOUR

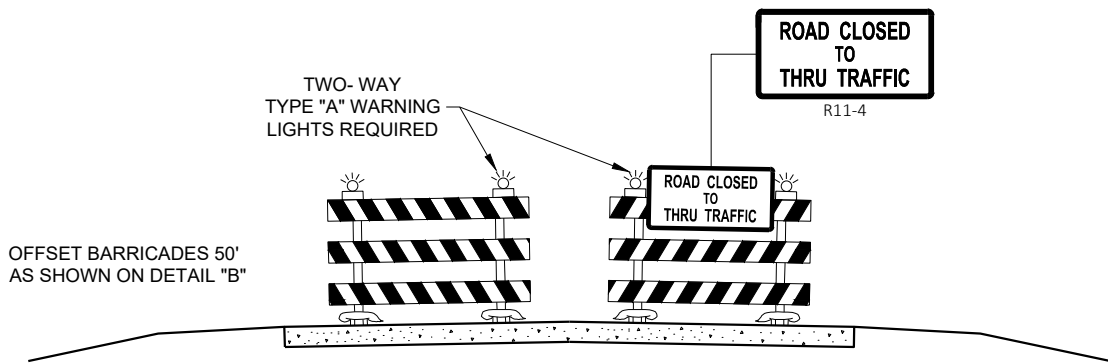
**BARRICADES AND SIGNS
FOR MAINLINE CLOSURES**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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



DETAIL D
ROAD CLOSURE BARRICADE DETAIL
APPROACH VIEW



DETAIL E
LANE CLOSURE BARRICADE DETAIL
APPROACH VIEW

SEE SDD 15C2 - SHEET "a" FOR LEGEND

GENERAL NOTES

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

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

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

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

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

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

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

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

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

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

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

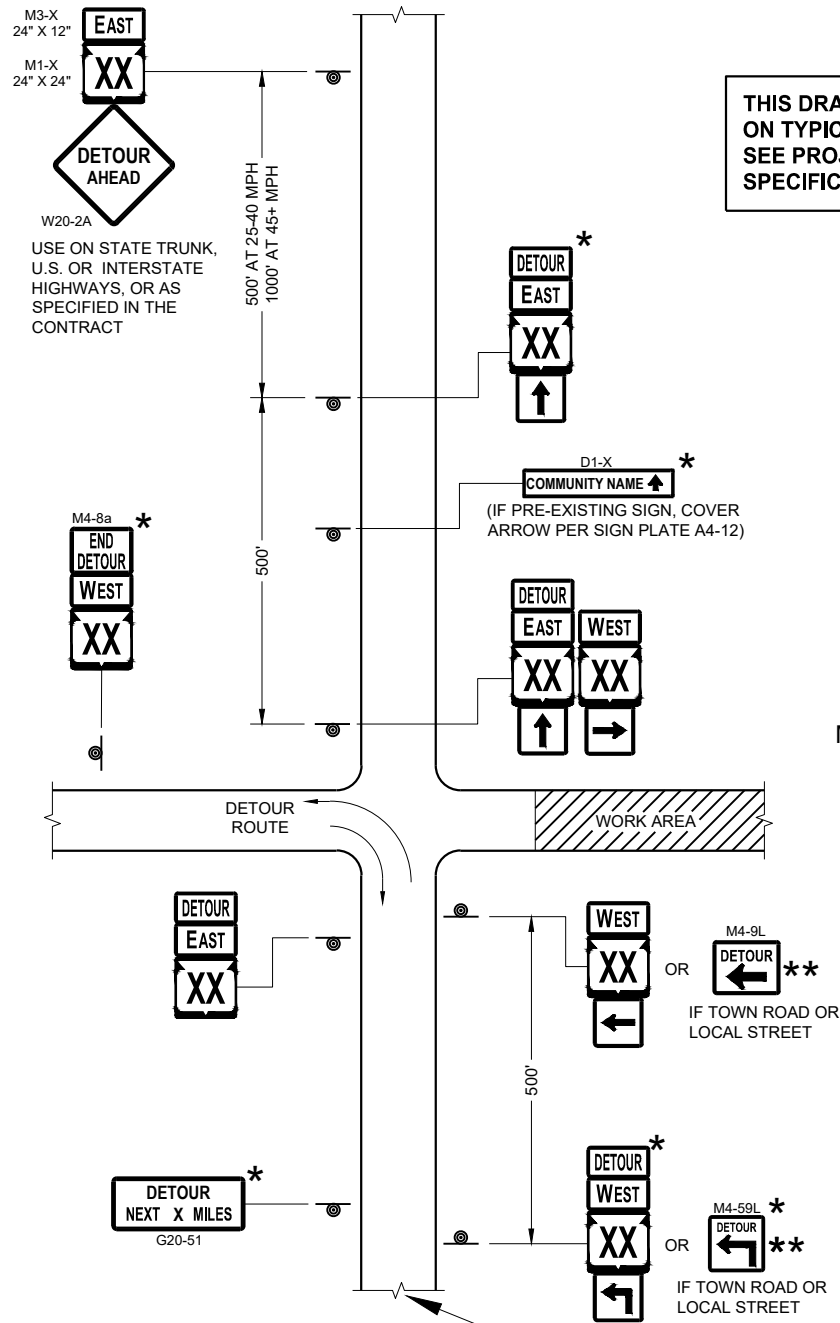
- 1 TWO WARNING LIGHTS SHALL BE PROVIDED ON THE CENTER BARRICADE AND A MINIMUM OF ONE WARNING LIGHT SHALL BE PROVIDED ON EACH OF THE OTHER BARRICADES WITHIN THE ROADWAY LIMITS. SPACING OF THE WARNING LIGHTS SHALL BE UNIFORM TO THE EDGE OF ROADWAY AS SHOWN (APPROX. 8 FOOT LIGHT SPACING).
- 2 THESE SIGNS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

BARRICADES AND SIGNS
FOR
VARIOUS CLOSURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

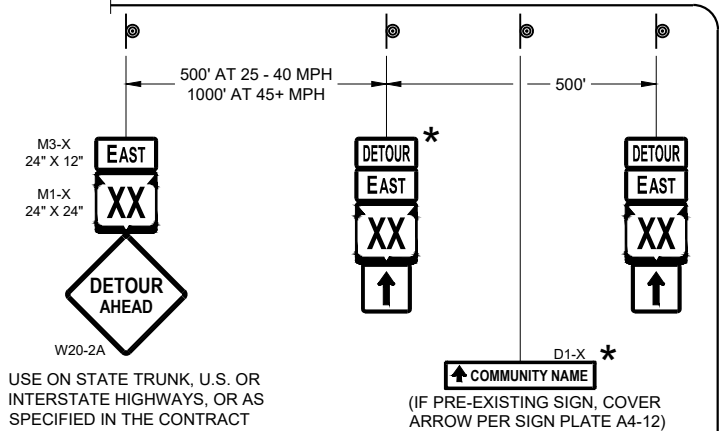
FHWA



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

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

MATCH POINT



DETAIL F
DETOUR SIGNING

LEGEND

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

GENERAL NOTES

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

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

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

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

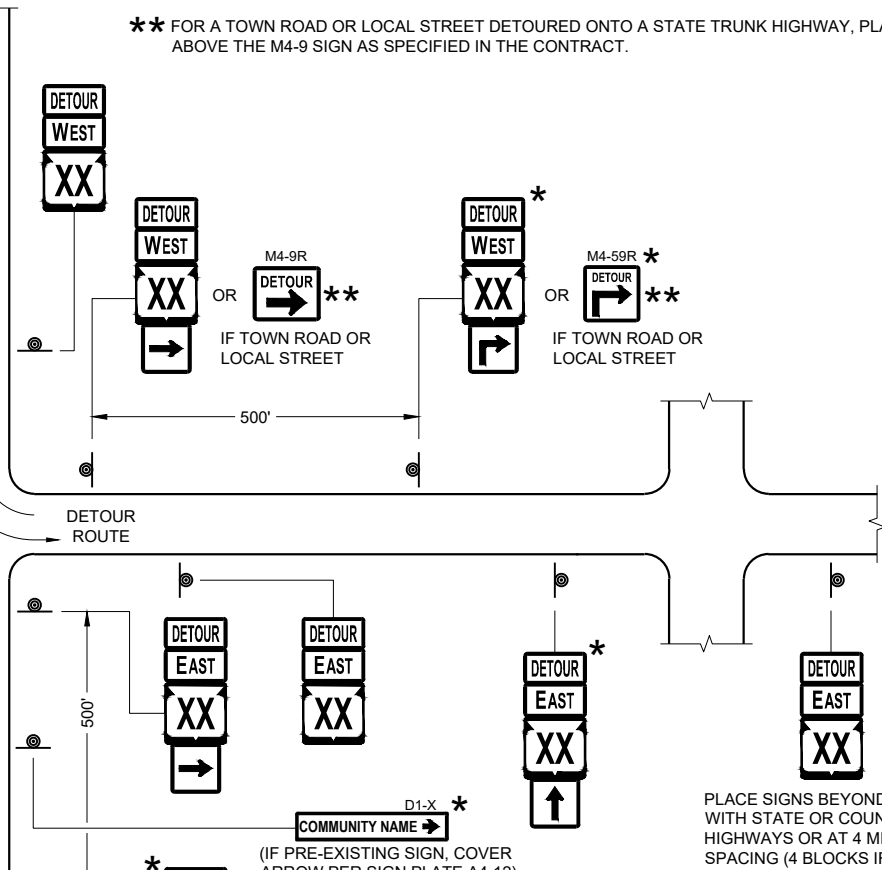
SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS MAY BE MOUNTED ON PORTABLE SUPPORTS.

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

SIGN SIZES SHALL BE AS FOLLOWS:

- M3-X SHALL BE 24" X 12" (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS)
- M4-8 SHALL BE 24" X 12" (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS)
- M1-4, M1-5A AND M1-6 SHALL BE 24" X 24" (36" X 36" IF NEEDED TO MATCH EXISTING SIGNS)
- M05-1 AND M06-1 SHALL BE 21" X 21" (30" X 30" IF NEEDED TO MATCH EXISTING SIGNS)
- M4-9 AND M4-59 SHALL BE 30" X 24"
- M4-8a SHALL BE 24" X 18"
- G20-51 SHALL BE 60" X 24"
- W20-2A SHALL BE 48" X 48"
- D1-X SHALL BE AS SHOWN ON SPECIFIC PROJECT SIGNING DETAIL SHEETS.

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

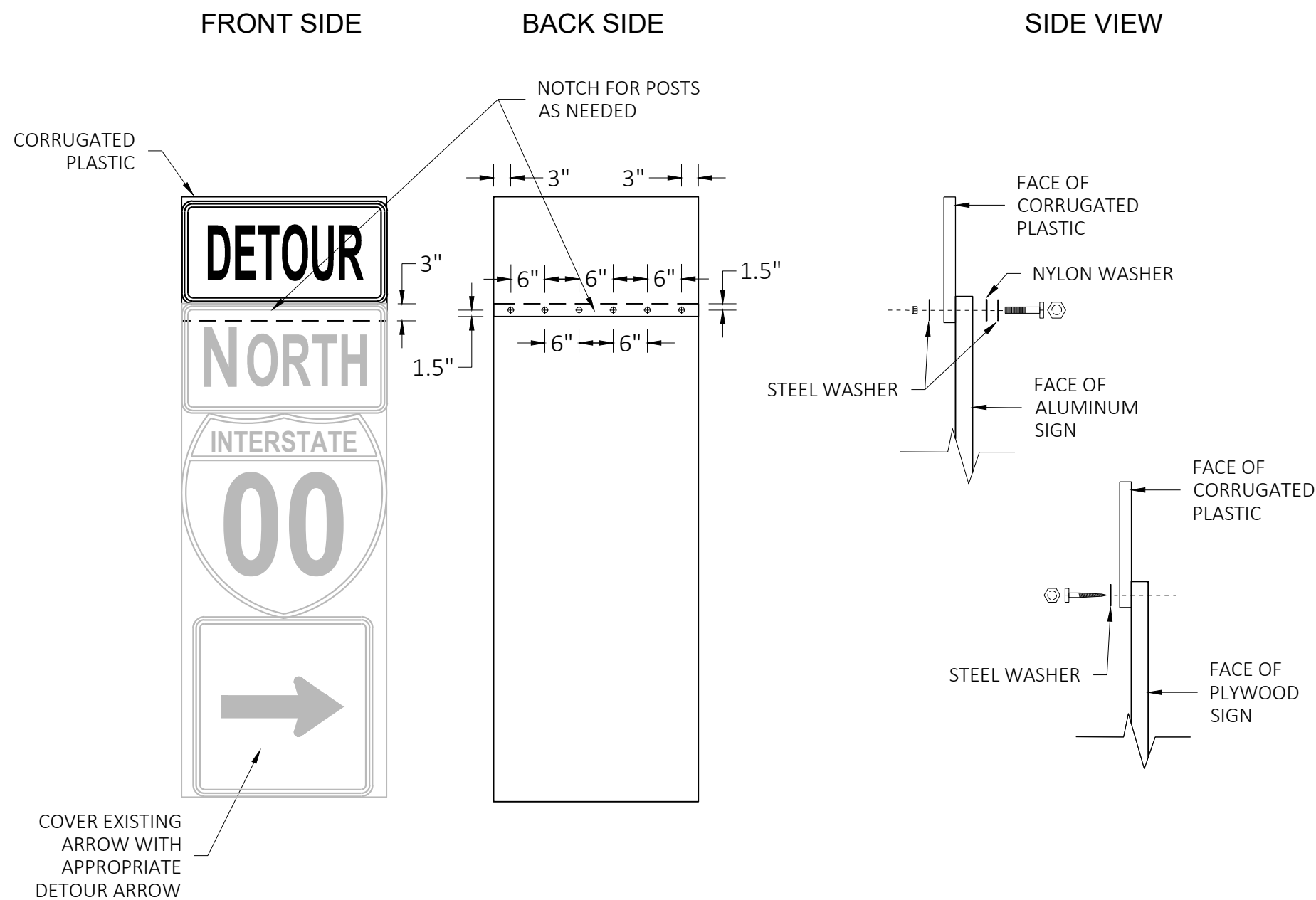


**DETOUR SIGNING
FOR MAINLINE CLOSURES**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

FHWA



GENERAL NOTES

CELLS OF CORRUGATED PLASTIC SHALL BE VERTICALLY ORIENTED.

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

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

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

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

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

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

PLYWOOD SIGNS:

LAG SCREWS - 5/16" x 1"

ALUMINUM SIGNS:

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

WASHERS:

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

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

MODIFIED ROUTE ASSEMBLY FOR DETOUR SIGNING

MODIFIED ROUTE ASSEMBLY FOR DETOUR SIGNING

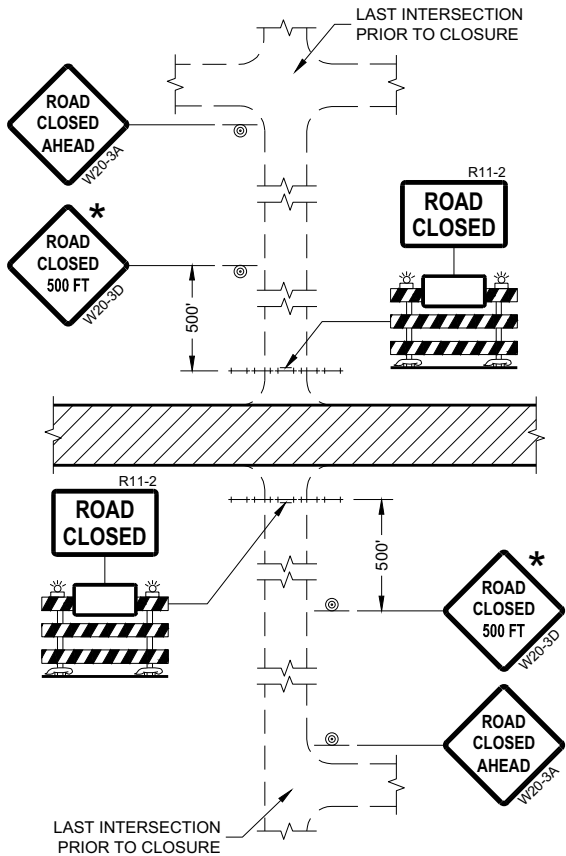
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

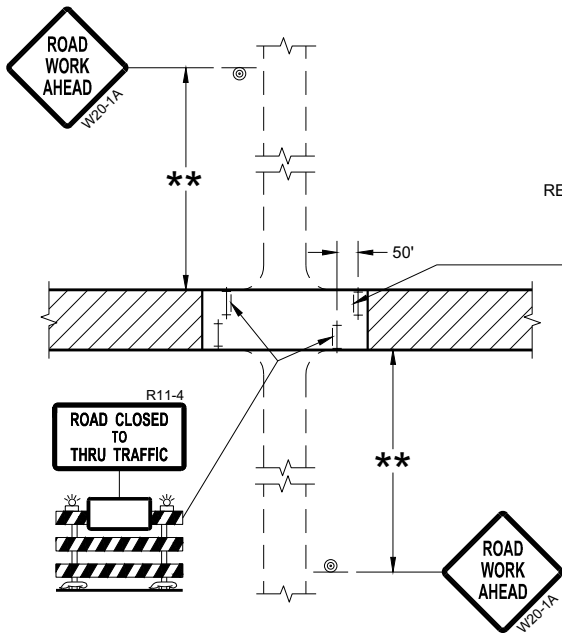
May 2023
DATE

FHWA

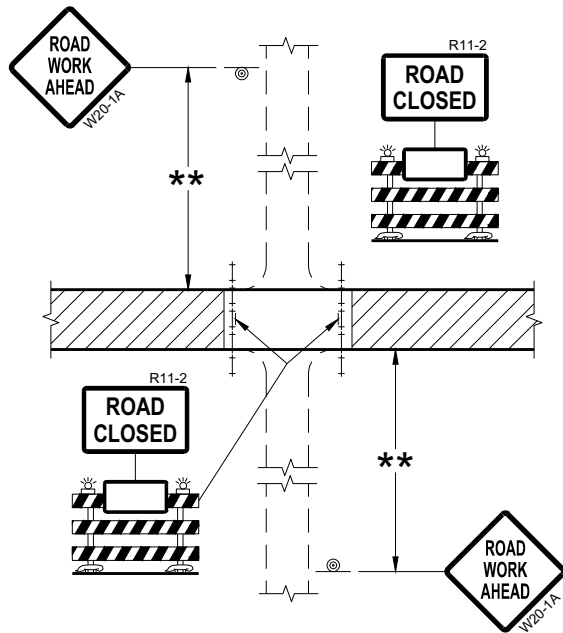
/S/ Andrew Heidtke
ROADWAY STANDARDS DEVELOPMENT
ENGINEER



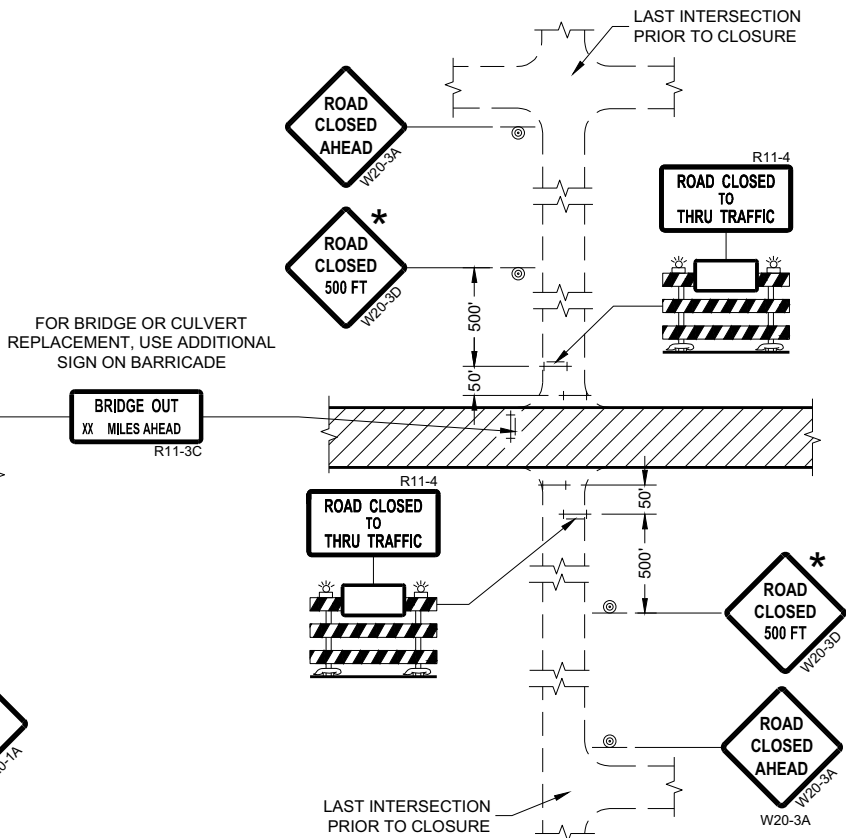
DETAIL 1
(NO ACCESS TO PROJECT)



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



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



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

GENERAL NOTES

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

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

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

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

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

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

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

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

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

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

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

LEGEND

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

BARRICADES AND SIGNS FOR SIDEROAD CLOSURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

FHWA

GENERAL NOTES

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

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

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

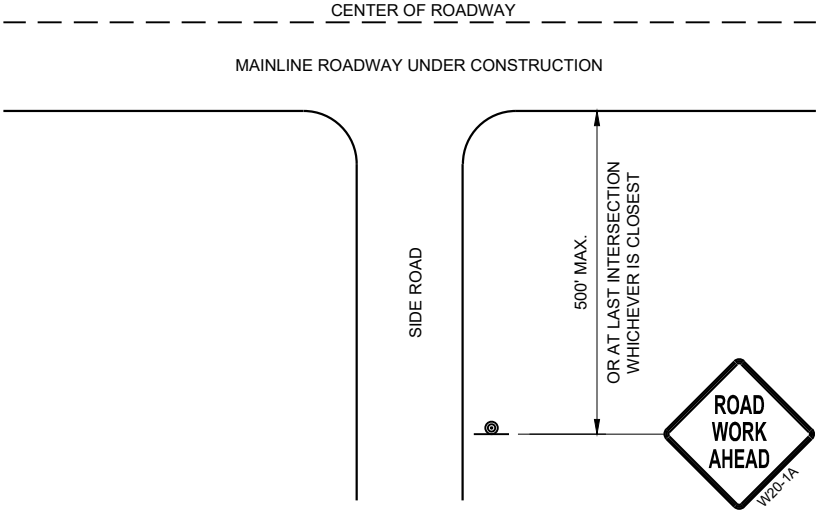
SIGNS THAT WILL BE IN PLACE LESS THAN SEVEN CONTINUOUS DAYS AND NIGHTS MAY BE MOUNTED ON PORTABLE SUPPORTS.

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

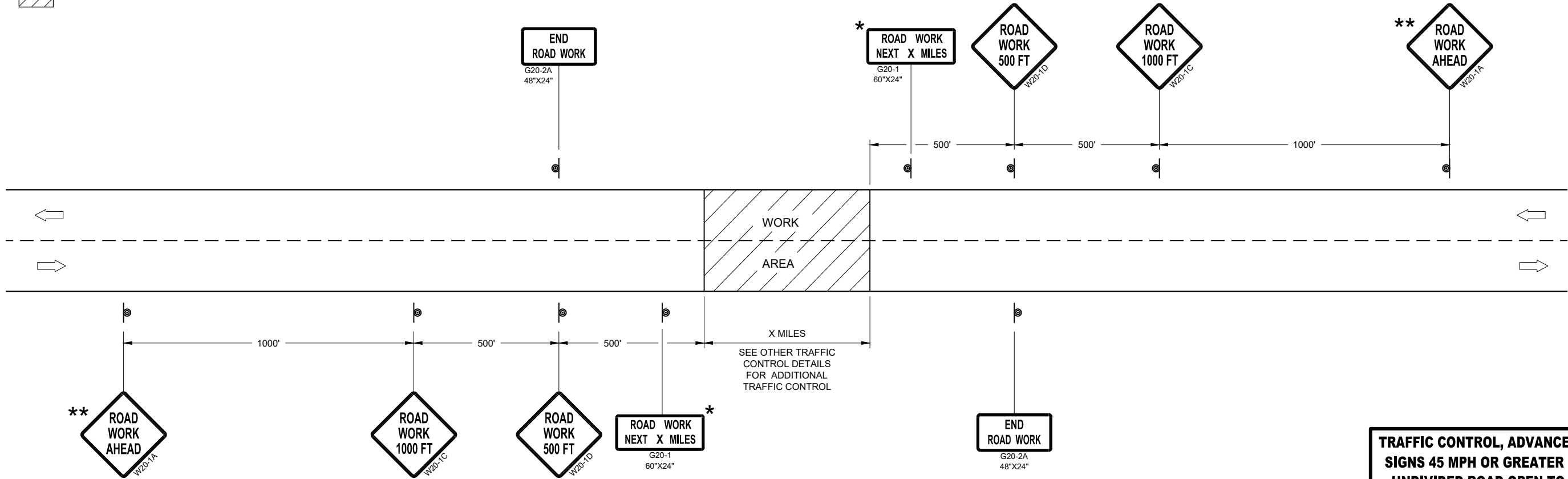
- * OMIT G20-1 SIGNS IF LENGTH OF WORK AREA IS 2 MILES OR LESS
- ** PLACE AN ADDITIONAL W20-1A "ROAD WORK AHEAD" SIGN IF WORK AREA WITHIN THE PROJECT IS SEPARATED BY MORE THAN 2 MILES FROM PREVIOUS WORK AREA.

LEGEND

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



TYPICAL SIDE ROAD APPROACH
WARNING SIGN DETAIL



TRAFFIC CONTROL, ADVANCE WARNING SIGNS 45MPH OR GREATER

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

GENERAL NOTES

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

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

ALL SIGNS ARE 48" X 48" UNLESS OTHERWISE NOTED. IF NECESSARY DUE TO SPACE CONSTRAINTS, 36"X36" SIGNS MAY BE USED INSTEAD OF 48" X 48" SIGNS.

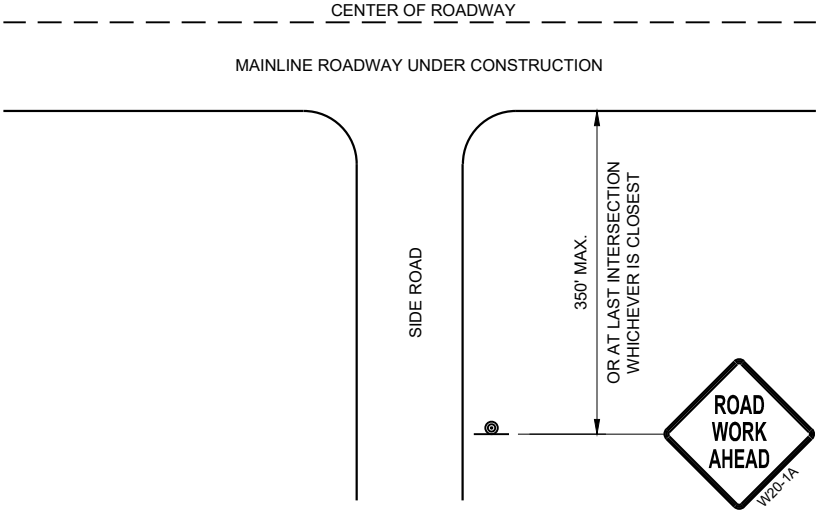
SIGNS THAT WILL BE IN PLACE LESS THAN SEVEN CONTINUOUS DAYS AND NIGHTS MAY BE MOUNTED ON PORTABLE SUPPORTS.

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

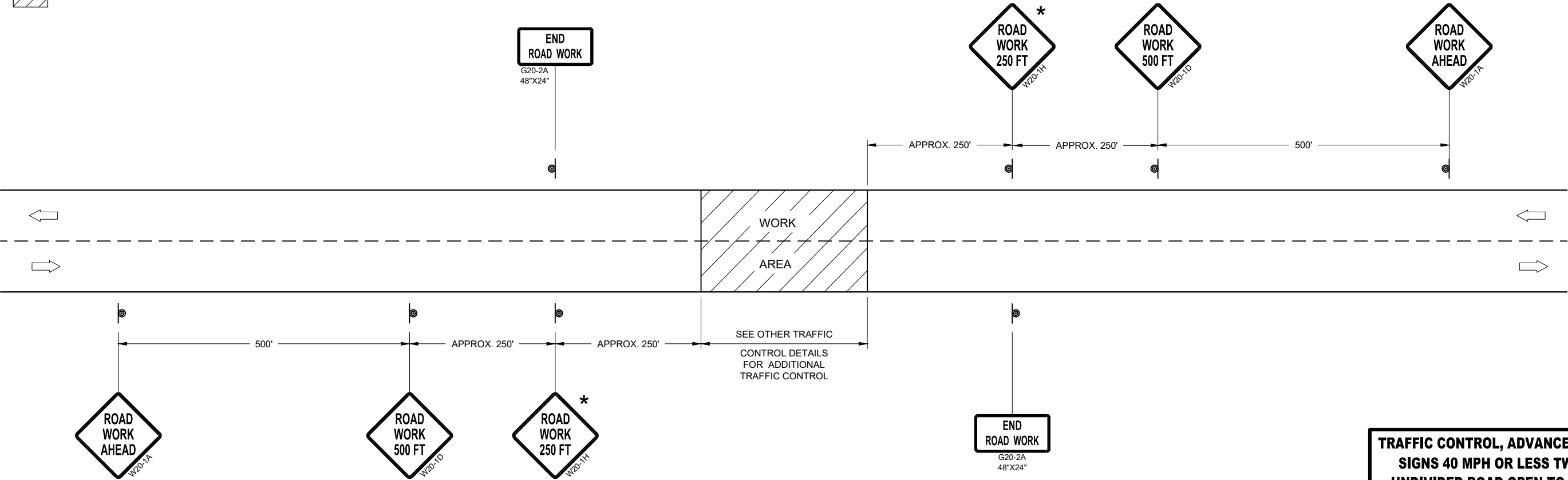
* THE THIRD W20-1 SIGN IS REQUIRED ONLY IF THERE IS AN INTERSECTION BETWEEN THE "ROAD WORK 500 FEET" SIGN AND THE WORK ZONE. ADJUST THE PLACEMENT OF THIS SIGN BASED ON INTERSECTION LOCATION AND OTHER FIELD CONDITIONS.

LEGEND

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



TYPICAL SIDE ROAD APPROACH
WARNING SIGN DETAIL

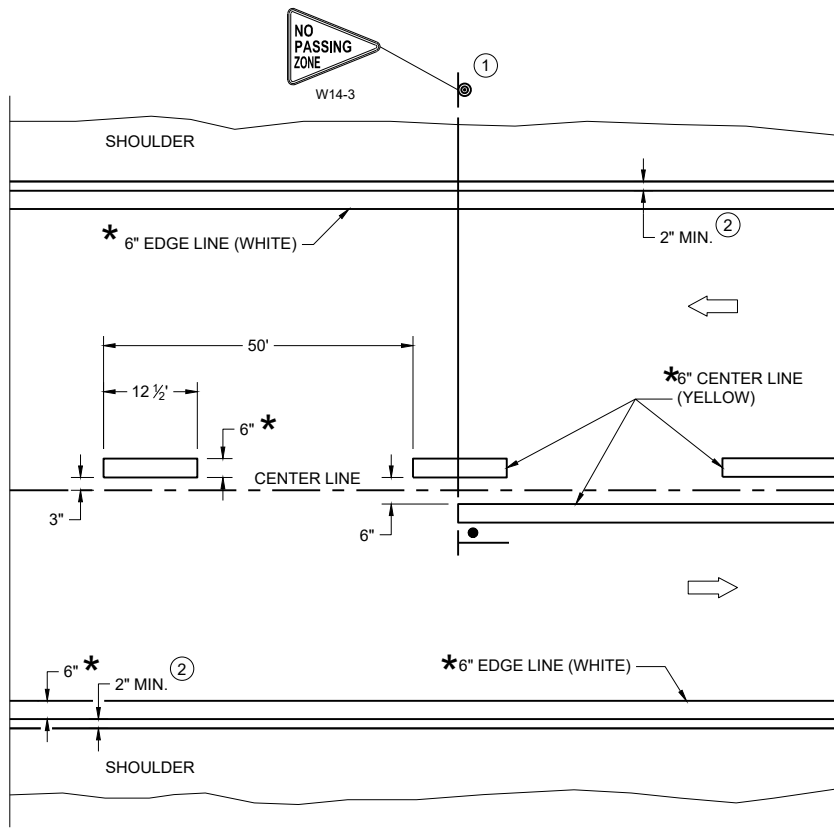


TRAFFIC CONTROL, ADVANCE WARNING SIGNS 40MPH OR LESS

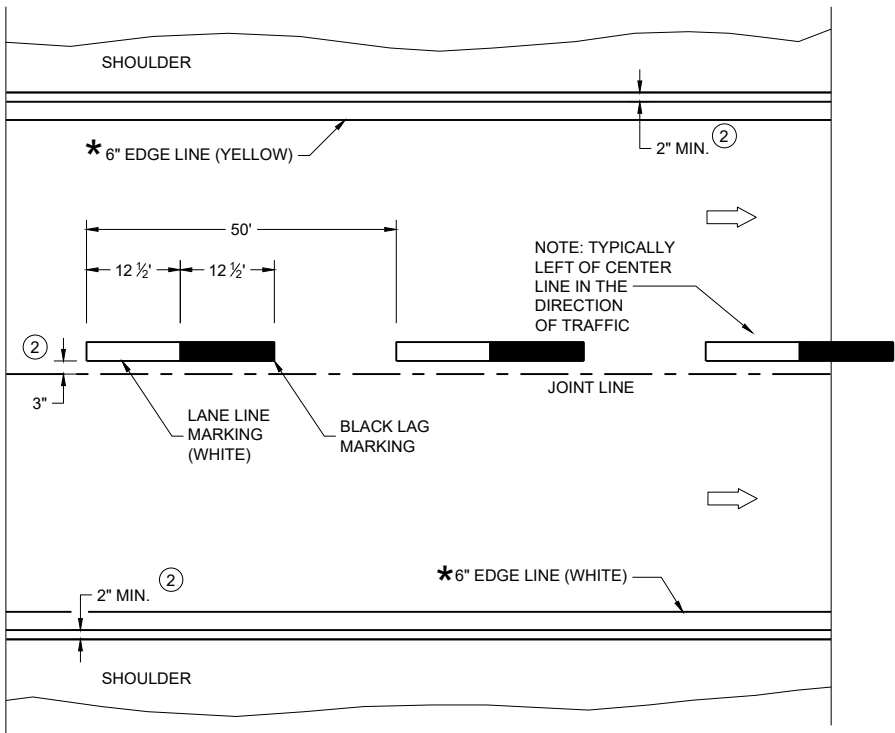
TRAFFIC CONTROL, ADVANCE WARNING
SIGNS 40 MPH OR LESS TWO-WAY
UNDIVIDED ROAD OPEN TO TRAFFIC

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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



TWO WAY TRAFFIC



ONE WAY TRAFFIC

PERMANENT PAVEMENT MARKING

* CONFIRM MARKING LINE WIDTH WITH THE MISCELLANEOUS QUANTITIES

GENERAL NOTES

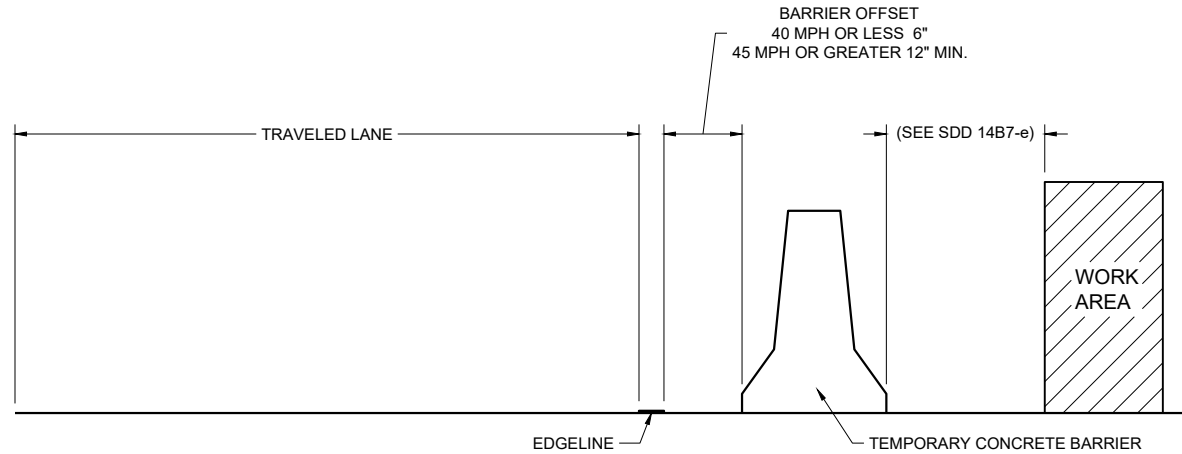
DETAILS OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO STANDARD SPECIFICATIONS AND SPECIAL PROVISIONS.

- 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

PERMANENT LONGITUDINAL PAVEMENT MARKINGS	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED May 2023 DATE	/S/ Jeannie Silver Statewide Pavement Marking Engineer
FHWA	



TEMPORARY BARRIER OFFSET FROM EDGE LINE

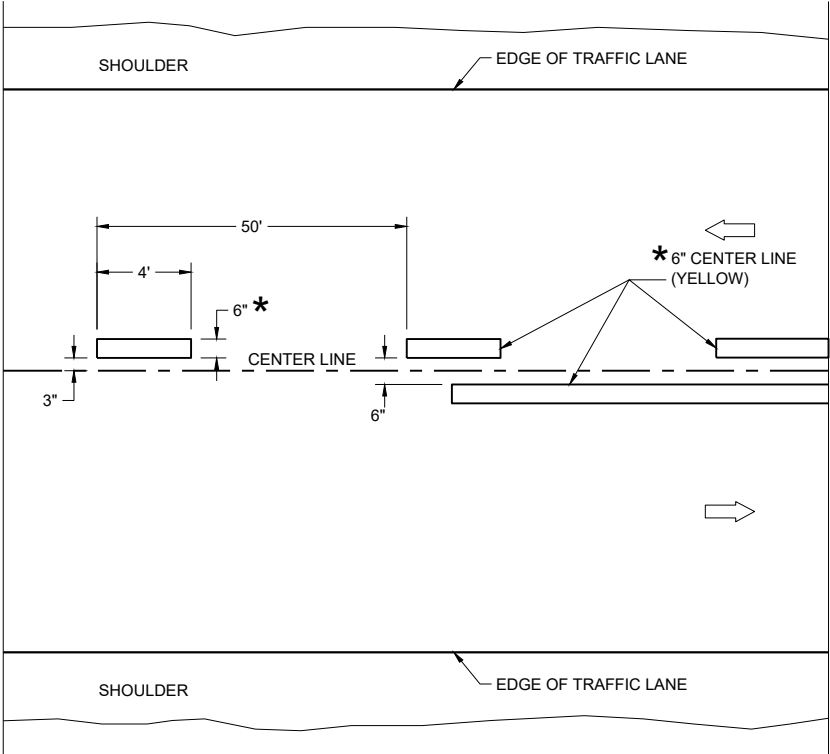
GENERAL NOTES

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

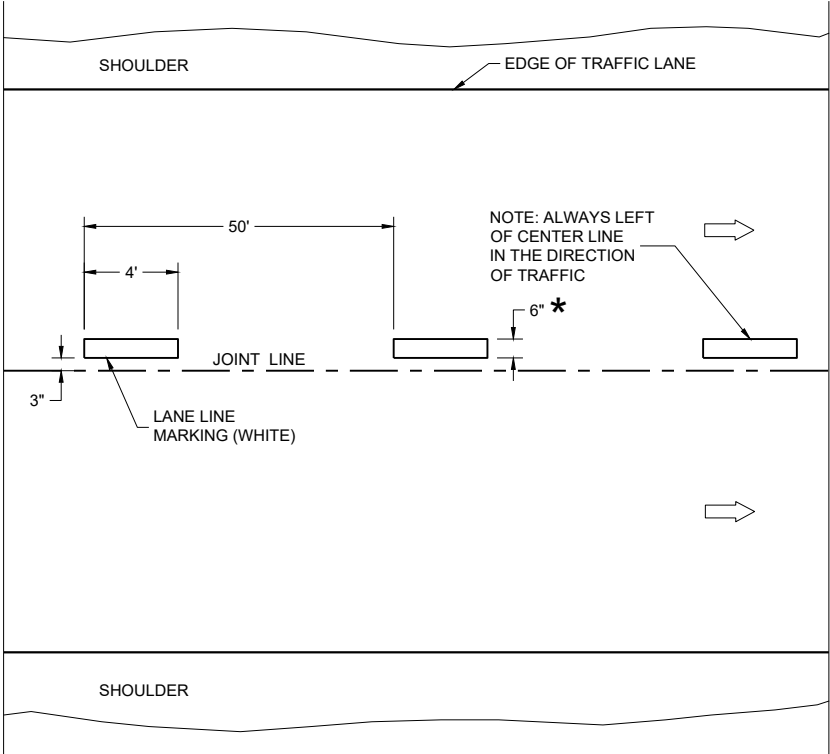
LEGEND

DIRECTION OF TRAFFIC

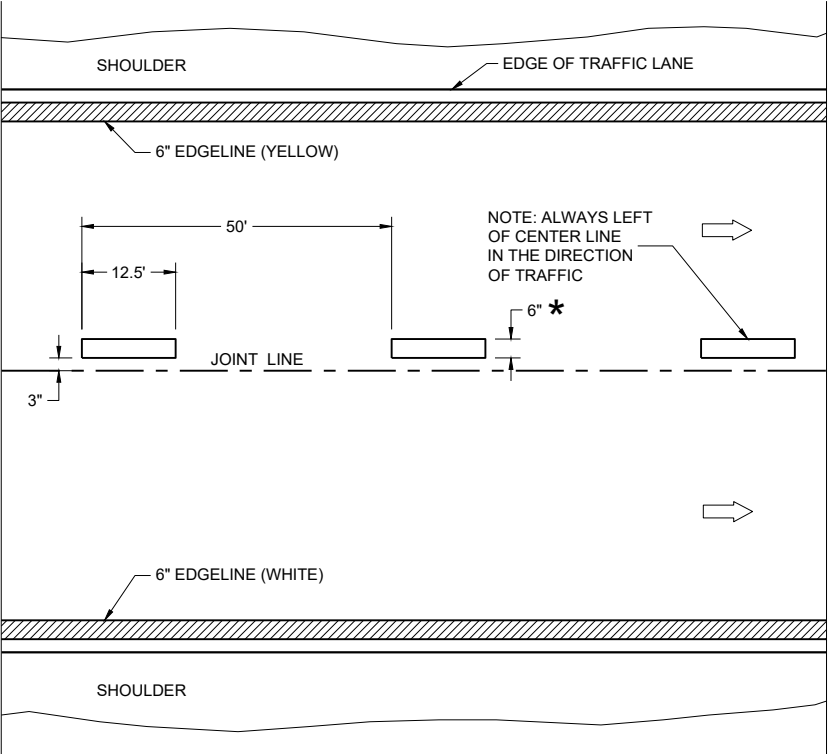
* CONFIRM MARKING LINE WIDTH WITH THE MISCELLANEOUS QUANTITIES



TWO WAY TRAFFIC



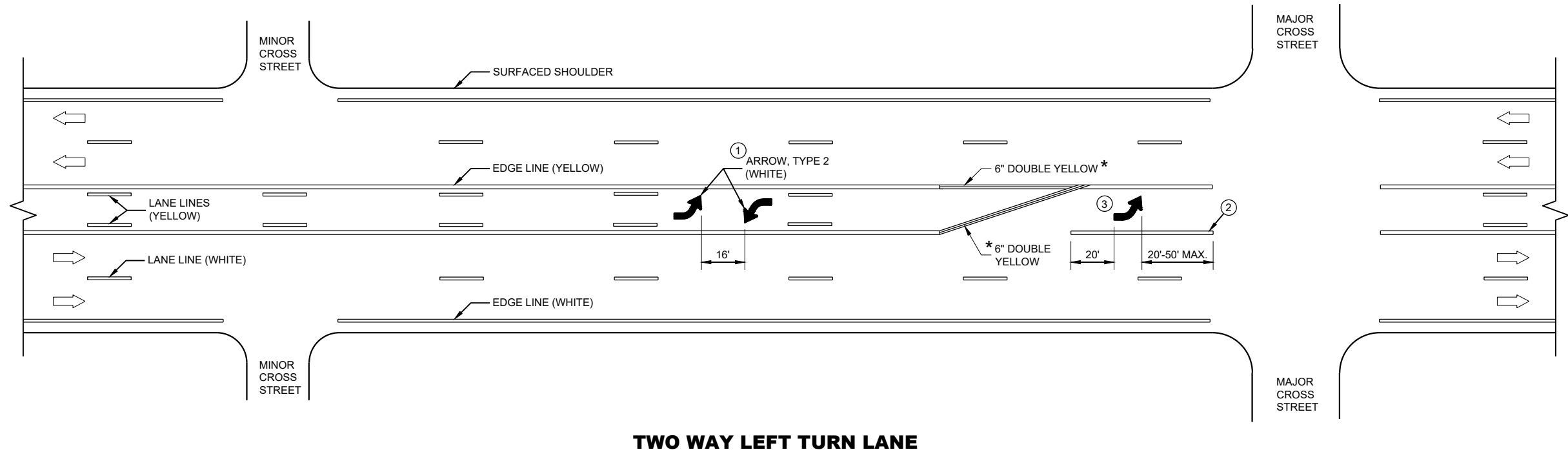
ONE WAY TRAFFIC



FREEWAYS AND EXPRESSWAYS

TEMPORARY PAVEMENT MARKING

TEMPORARY LONGITUDINAL PAVEMENT MARKING	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED May 2023 DATE	/S/ Jeannie Silver Statewide Pavement Marking Engineer
FHWA	



GENERAL NOTES

- ① A SET OF ARROWS IS REQUIRED EVERY 400 FEET OR NEAR INTERSECTIONS OR DRIVEWAYS WITH TURNING TRAFFIC.
- ② 10" WHITE
- ③ TURN BAY LENGTH OF LESS THAN 48' DOES NOT REQUIRE PAVEMENT ARROWS OR TEXT.

➡ DIRECTION OF TRAFFIC

* CONFIRM MARKING LINE WIDTH WITH THE MISCELLANEOUS QUANTITIES

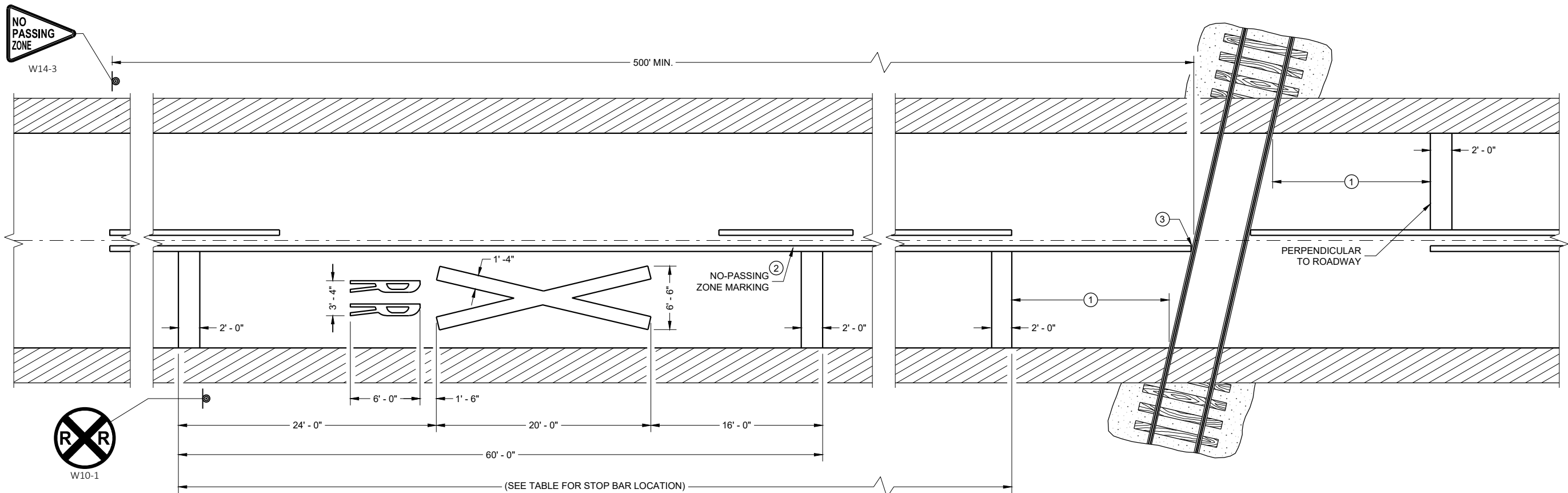
**PAVEMENT MARKING
(TURN LANES)**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



PAVEMENT MARKING

LEGEND

SIGN ON PERMANENT SUPPORT

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.

ON MULTI-LANE ROADS THE TRANSVERSE BANDS SHOULD EXTEND ACROSS ALL APPROACH LANES, AND INDIVIDUAL R X R SYMBOLS SHOULD BE USED IN EACH APPROACH LANE.

CENTER OR LANE LINES AND NO-PASSING ZONE MARKINGS SHOWN ON THIS DRAWING ARE REQUIRED AND PAID FOR UNDER OTHER ITEMS IN THE CONTRACT.

TRACE EXISTING SYMBOL WHERE EXISTING SYMBOLS ARE PLACED.

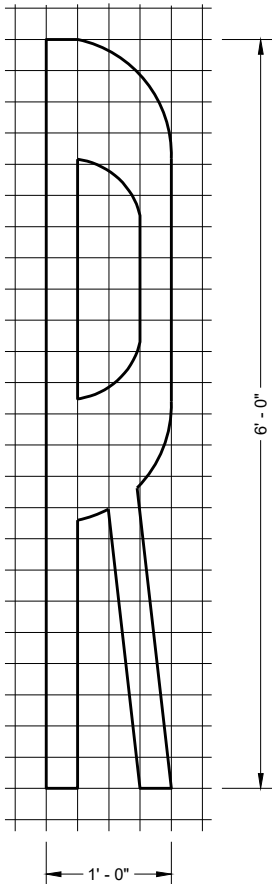
- ① PLACE STOP BAR APPROXIMATELY 8 FEET IN ADVANCE OF THE GATE (IF PRESENT), BUT NO CLOSER THAN 15 FEET IN ADVANCE OF THE NEAREST RAIL. FIELD-FIT STOP BAR TO MAXIMIZE VIEW OF APPROACHING TRAIN.
- ② 500' MINIMUM. MARKING LIMITS MAY BE EXTENDED AS DIRECTED BY THE ENGINEER TO MEET ADJACENT NO-PASSING ZONE MARKINGS.
- ③ FOR MULTIPLE TRACK CROSSINGS, THE BARRIER LINE SHALL EXTEND TO THE NEAR RAIL OF THE FURTHEST TRACK IN THE DIRECTION OF HIGHWAY TRAVEL.

DISTANCE TABLE

TABLE BASED UPON 2C-4 WISCONSIN SUPPLEMENT OF MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

POSTED SPEED (M.P.H.)	DIMENSION RANGE (FEET)
25	150* - 250'
30	200* - 300'
35	250* - 450'
40	300* - 500'
45	400* - 650'
50	550* - 800'
55	750* - 1000'
60	1000* - 1250'
65	1000* - 1250'

* THE MINIMUM DISTANCES IN THE TABLE ARE DESIRABLE AND SHOULD BE USED. THE DISTANCES MAY BE INCREASED UP TO THE MAXIMUM TO ALLOW FOR FIELD CONDITIONS SUCH AS THE CLOSED PROXIMITY OF DRIVEWAYS, BRIDGES, SIDE ROADS OR OTHER FEATURES THAT WOULD PROHIBIT THE MINIMUM DISTANCES FROM BEING USED.



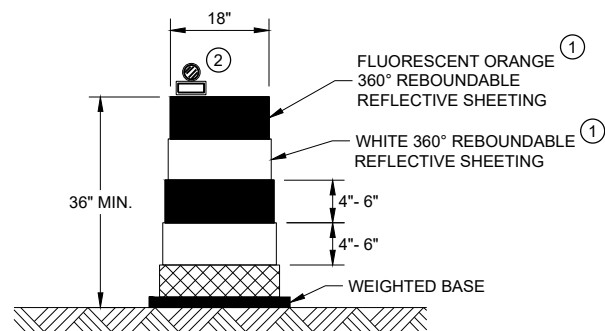
SIGNING AND PAVEMENT MARKING DETAILS FOR RAILROAD - HIGHWAY GRADE CROSSINGS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May 2023
DATE

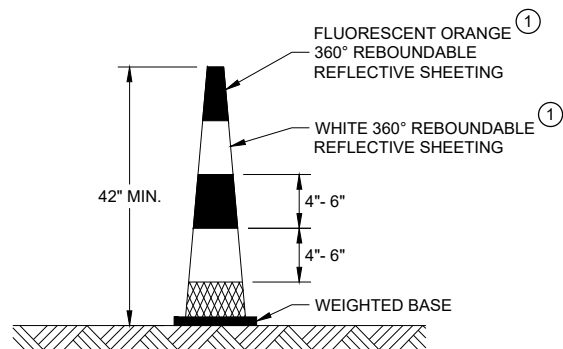
/S/ Matthew R. Rauch
STATE SIGNING AND MARKING
ENGINEER

FHWA



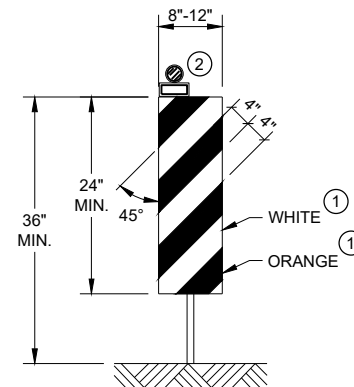
DRUM

BALLAST WIDTHS
RANGE FROM 24"-36"



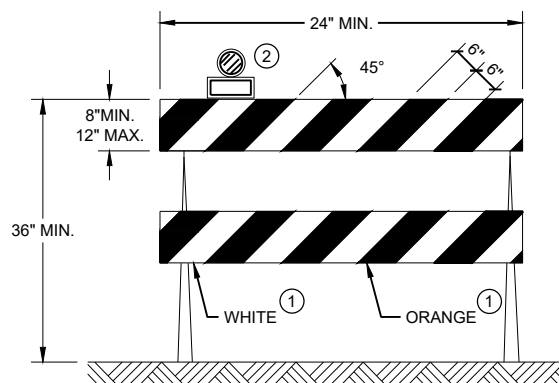
42" CONE

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



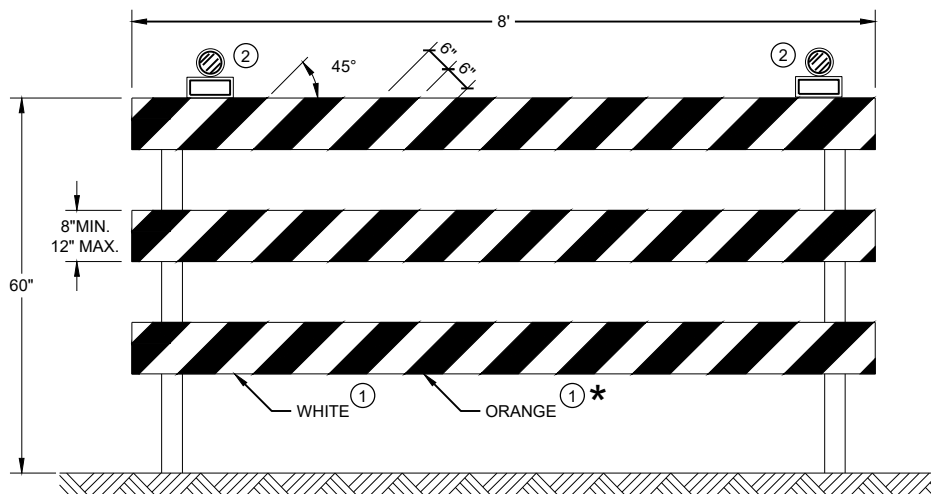
VERTICAL PANEL

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



TYPE II BARRICADE

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



TYPE III BARRICADE

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

* IF USED FOR A PERMANENT APPLICATION USE RED SHEETING.

GENERAL NOTES

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

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

FHWA

LEGEND

-  SIGN ON PORTABLE OR PERMANENT SUPPORT
-  TEMPORARY PORTABLE RUMBLE STRIP ARRAY
-  DIRECTION OF TRAFFIC
-  WORK AREA
-  FLAGGER, EQUIPPED WITH STOP/SLOW PADDLE FASTENED ON SUPPORT STAFF

GENERAL NOTES

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

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

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

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

THE FIRST ADVANCE WARNING SIGN SHOULD TYPICALLY BE LOCATED IN ADVANCE OF THE ANTICIPATED TRAFFIC BACKUP OR QUEUE.

WHEN A SIDE ROAD OR RAMP INTERSECTS THE FACILITY ON WHICH THE WORK IS BEING PERFORMED, ADDITIONAL TRAFFIC CONTROLS SHALL BE PROVIDED AS SPECIFIED IN THE PLANS AND/OR THE SPECIAL PROVISIONS OR AS APPROVED BY THE ENGINEER.

FLAGGING

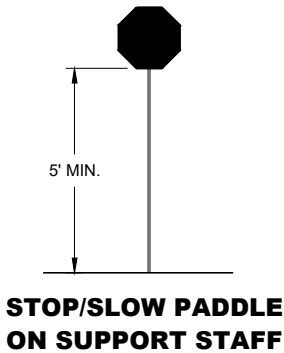
FLAGGERS SHALL BE IN SIGHT OF EACH OTHER OR IN DIRECT COMMUNICATION AT ALL TIMES. THEY SHALL BE EQUIPPED WITH STOP/SLOW PADDLES FASTENED ON SUPPORT STAFFS. WHEN THE FLAGGING OPERATION IS NOT IN EFFECT REMOVE TEMPORARY PORTABLE RUMBLE STRIPS PRIOR TO COVERING OR REMOVING ALL ADVANCE SIGNING.

- ① FOR MOVING WORK OPERATIONS, POST ADDITIONAL W20-7A FLAGGER SIGNS AT APPROXIMATELY 3,500' INTERVALS IN THE MOVING WORK OPERATION OR AS APPROVED BY THE ENGINEER.
- ② SIGN NOT REQUIRED IF FLAGGING OPERATION OCCURS WITHIN A SIGNED ROAD WORK ZONE AREA.

WHEN THE DISTANCE BETWEEN FLAGGERS EXCEEDS 2 MILES, A PILOT CAR IS REQUIRED. WHEN CURVES REDUCE SIGHT DISTANCE BELOW 400', A PILOT CAR IS REQUIRED.

TEMPORARY PORTABLE RUMBLE STRIPS

- UTILIZE TEMPORARY PORTABLE RUMBLE STRIPS ON ALL FLAGGING OPERATIONS.
- ③ EACH TEMPORARY PORTABLE RUMBLE STRIP ARRAY CONSISTS OF THREE RUMBLE STRIPS PLACED TRANSVERSE ACROSS THE LANE AT THE LOCATIONS SHOWN. WITHIN EACH ARRAY, SPACING BETWEEN RUMBLE STRIPS SHALL BE 15 FEET ON CENTER
- ONLY USE TEMPORARY PORTABLE RUMBLE STRIPS FROM THE APPROVED PRODUCTS LIST.
- INSTALL TEMPORARY RUMBLE STRIPS PER MANUFACTURER'S RECOMMENDATIONS.
- PLACE ADVANCE SIGNING PRIOR TO INSTALLING TEMPORARY RUMBLE STRIPS.
- DO NOT INSTALL TEMPORARY PORTABLE RUMBLE STRIPS ON GRAVEL, MILLED SURFACES, OR ASPHALT THAT HAS BEEN PAVED LESS THAN 12 HOURS.

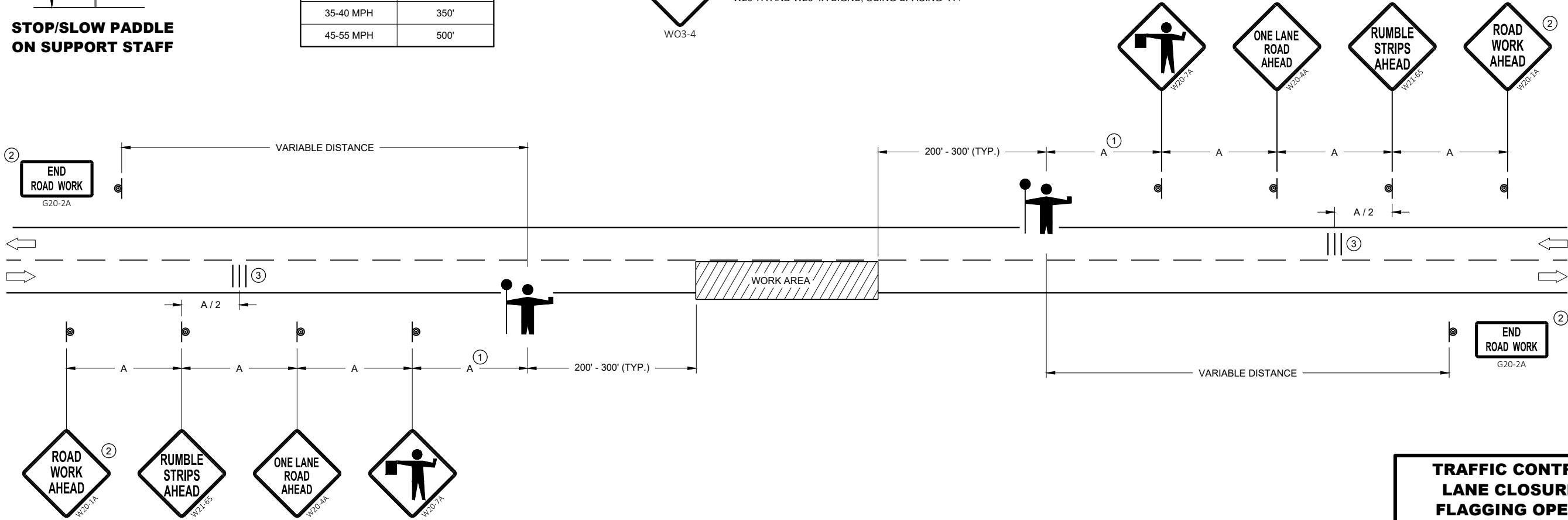


SIGN AND TEMPORARY RUMBLE STRIP ARRAY SPACING TABLE

SPEED LIMIT	SPACING "A"
25-30 MPH	200'
35-40 MPH	350'
45-55 MPH	500'



USE OF W03-4 SIGN IS OPTIONAL. WHEN USED, THIS SIGN SHALL BE LOCATED BETWEEN THE W20-7A AND W20-4A SIGNS, USING SPACING "A".



TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATION	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED May 2022 DATE	/S/ Andrew Heidtke WORK ZONE ENGINEER
FHWA	

LEGEND

- V1

LEAD VEHICLE
- V2

MARKING VEHICLE
- V3

SHADOW VEHICLE
- TRUCK MOUNTED ATTENUATOR (TMA)
- SIGN ON TEMPORARY SUPPORT
- DIRECTION OF TRAFFIC

GENERAL NOTES

ALL VEHICLES SHALL BE EQUIPPED WITH TWO 360 DEGREE HIGH INTENSITY YELLOW FLASHING LIGHTS OR STROBE LIGHTS AND OPERATED WITH HEADLIGHTS TURNED ON.

ALL VEHICLES SHALL BE EQUIPPED WITH REAR FACING TYPE B OR C FLASHING ARROW PANEL OPERATING IN CAUTION MODE. SIGNS PLACED ON VEHICLES MUST NOT OBSCURE THE ARROW PANEL.

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

DISTANCE BETWEEN VEHICLES MAY VARY ACCORDING TO TERRAIN, SIGHT DISTANCE, PAINT DRYING TIME, AND OTHER FACTORS. WHENEVER ADEQUATE STOPPING SIGHT DISTANCE EXISTS TO THE REAR, SHADOW VEHICLES SHOULD MAINTAIN THE MINIMUM DISTANCE FROM THE WORK VEHICLE AND PROCEED AT THE SAME SPEED AS THE WORK VEHICLE. SHADOW VEHICLES SHOULD SLOW DOWN IN ADVANCE OF VERTICAL AND HORIZONTAL CURVES THAT RESTRICT SIGHT DISTANCE.

THE WORK AND SHADOW VEHICLES SHOULD PULL OVER PERIODICALLY TO ALLOW TRAFFIC TO PASS.

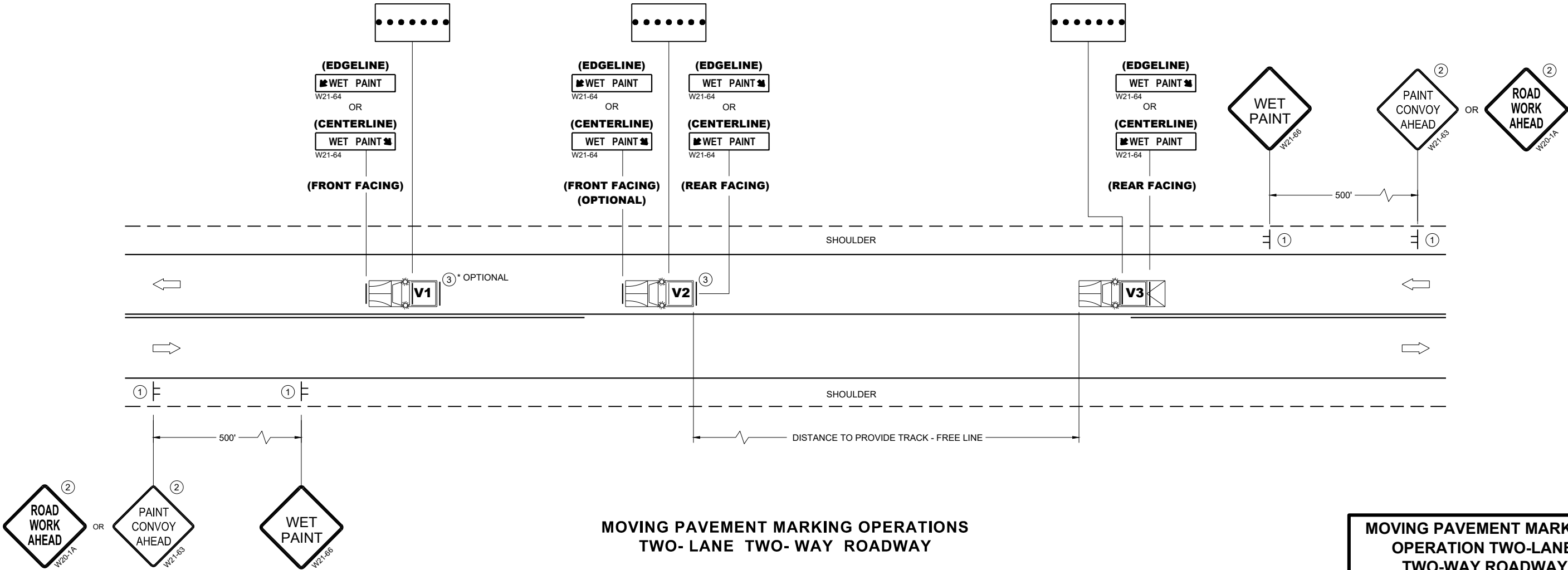
WHEN NO WORK ACTIVITY IS TAKING PLACE, REMOVE OR LAY STATIONARY SIGNS AND SUPPORTS FLAT ON THE GRADE WITH

UPRIGHTS ORIENTED PARALLEL TO AND DOWNSTREAM FROM TRAFFIC.

CONES SHOULD BE USED BETWEEN THE MARKING AND SHADOW VEHICLE AT 100 FOOT SPACING. CONES MAY BE OMITTED ON PAINTED LINE IF APPROVED BY THE ENGINEER. CONSIDER PAVEMENT MARKING DRY OR CURE TIMES AND TRAFFIC VOLUME.

CONES SHALL BE A MINIMUM OF 28" FOR WET PAVEMENT MARKING .

- ① SIGNS SHALL BE REPEATED APPROXIMATELY EVERY THREE MILES AND AFTER EVERY MAJOR INTERSECTION.
- ② IF CONSTRUCTION WORK ZONE SIGNS ARE IN PLACE, W20-1A OR W21-63 ARE NOT REQUIRED.
- ③ V1 AND V2 CAN BE SWITCHED SO THAT THE MARKER IS THE LEAD VEHICLE.



MOVING PAVEMENT MARKING OPERATIONS
TWO- LANE TWO- WAY ROADWAY

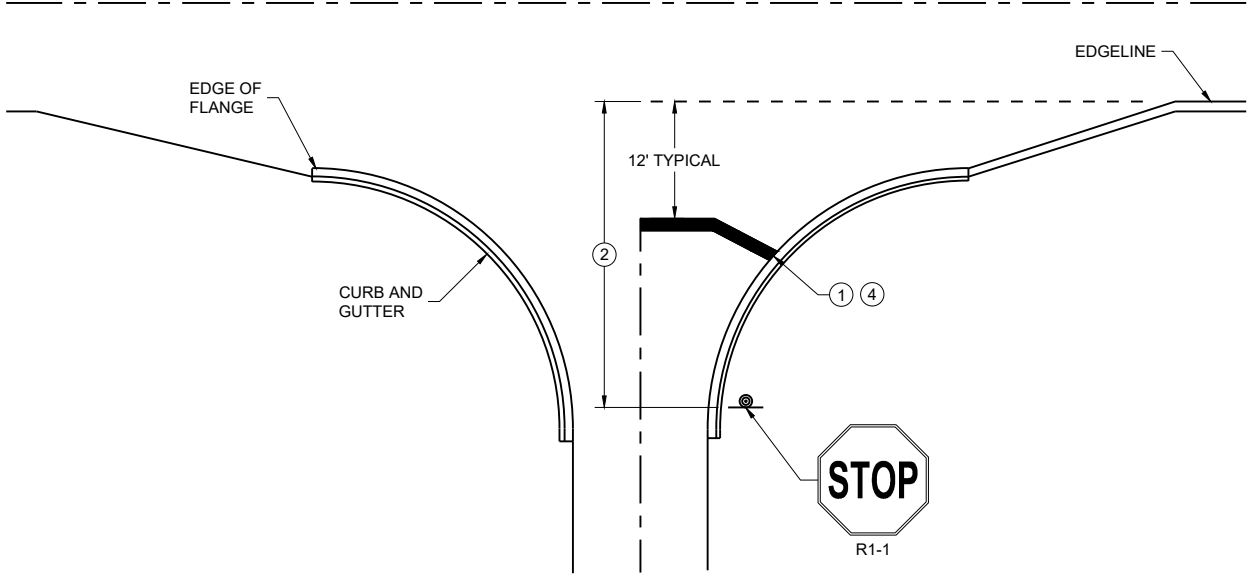
MOVING PAVEMENT MARKING
OPERATION TWO-LANE
TWO-WAY ROADWAY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

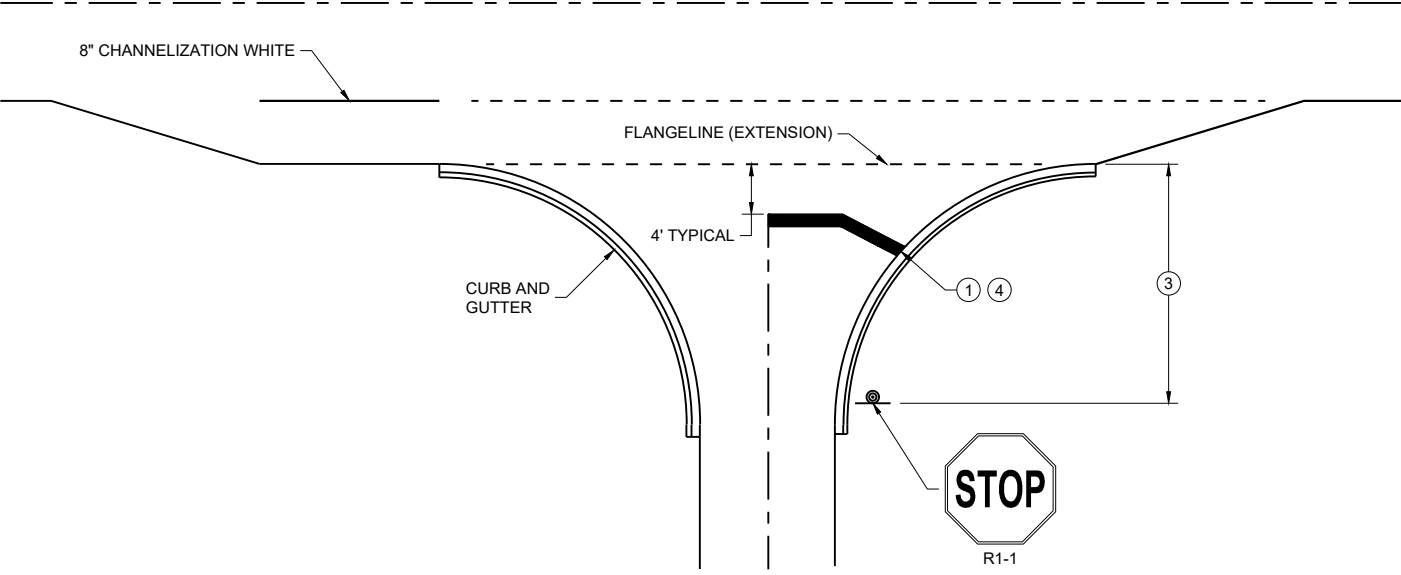
APPROVED
March 2024
DATE

/S/ Andrew Heidtke
WORK ZONE ENGINEER

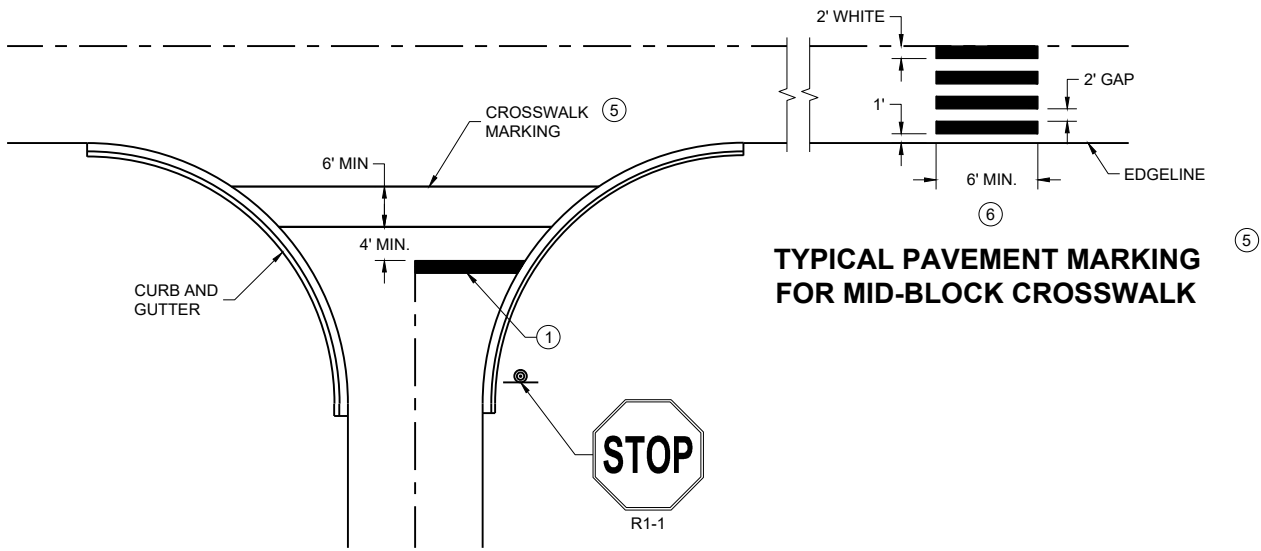
FHWA



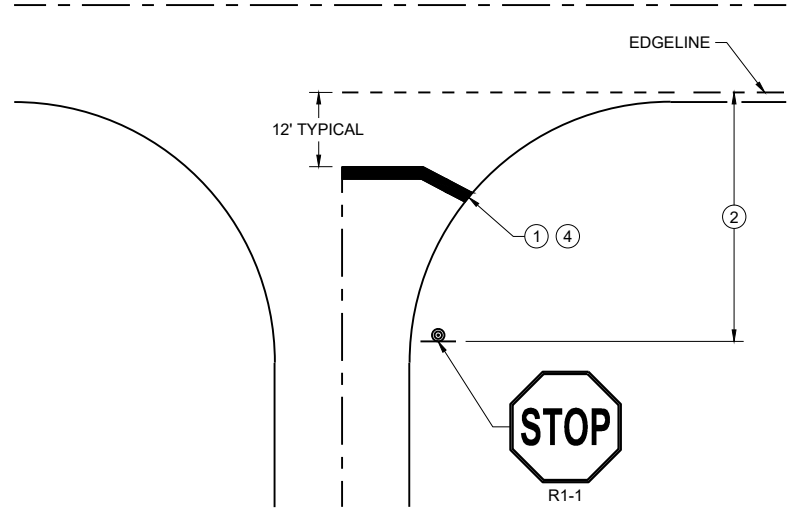
TYPICAL STOP LINE PAVEMENT MARKING
WITH CURB AND GUTTER



TYPICAL STOP LINE PAVEMENT MARKING
FOR SIDE ROADS WITH RIGHT TURN LANE



TYPICAL STOP LINE PAVEMENT MARKING FOR
SIDE ROADS WITH CROSSWALK MARKING



TYPICAL STOP LINE PAVEMENT MARKING
WITHOUT CURB AND GUTTER

GENERAL NOTES

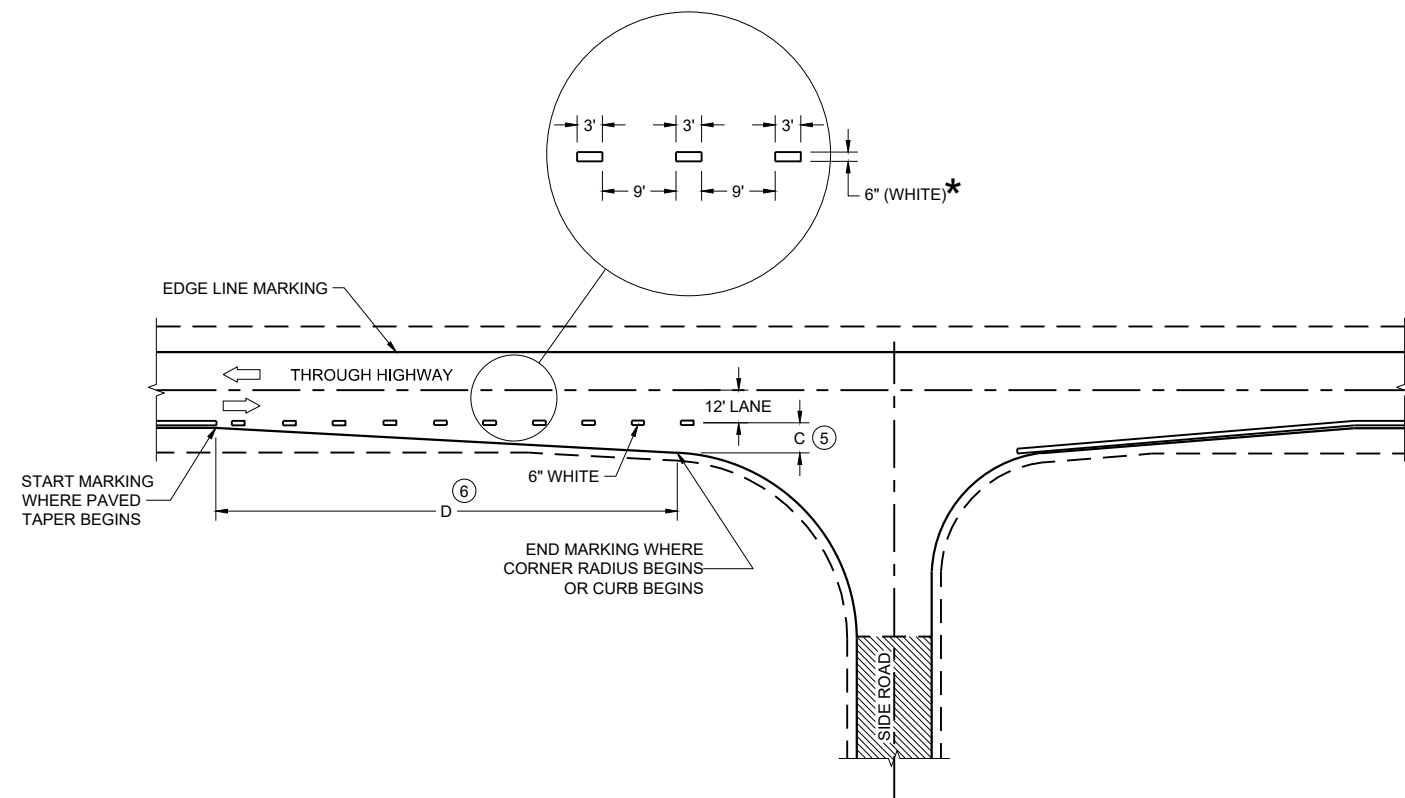
STOP SIGN SHALL BE PLACED A MINIMUM OF 6 FEET TO A MAXIMUM OF 50 FEET FROM THE EDGELINE LOCATION.

- 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 FLANGE LINE 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.
- 6 POSTED SPEED LIMITS OF 40 MPH OR GREATER USE A MINIMUM WIDTH OF 8' FOR MIDBLOCK CROSSWALKS

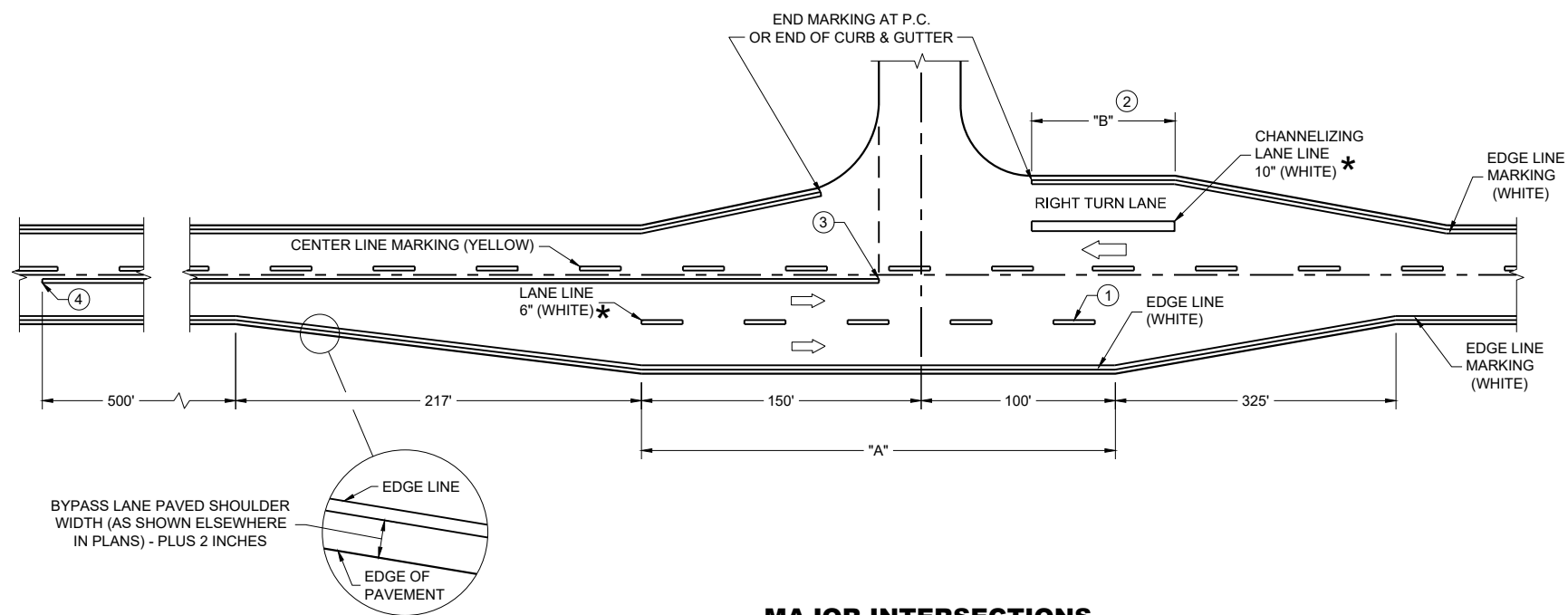
STOP LINE AND CROSSWALK
PAVEMENT MARKING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
March 2024 /S/ Matthew Rauch
DATE STATE SIGNING AND MARKING
ENGINEER
FHWA



MINOR INTERSECTION



MAJOR INTERSECTIONS
(INTERSECTION WITH FULL RIGHT TURN LANE OR BYPASS LANE)

*CONFIRM MARKING LINE WIDTH WITH THE MISCELLANEOUS QUANTITIES

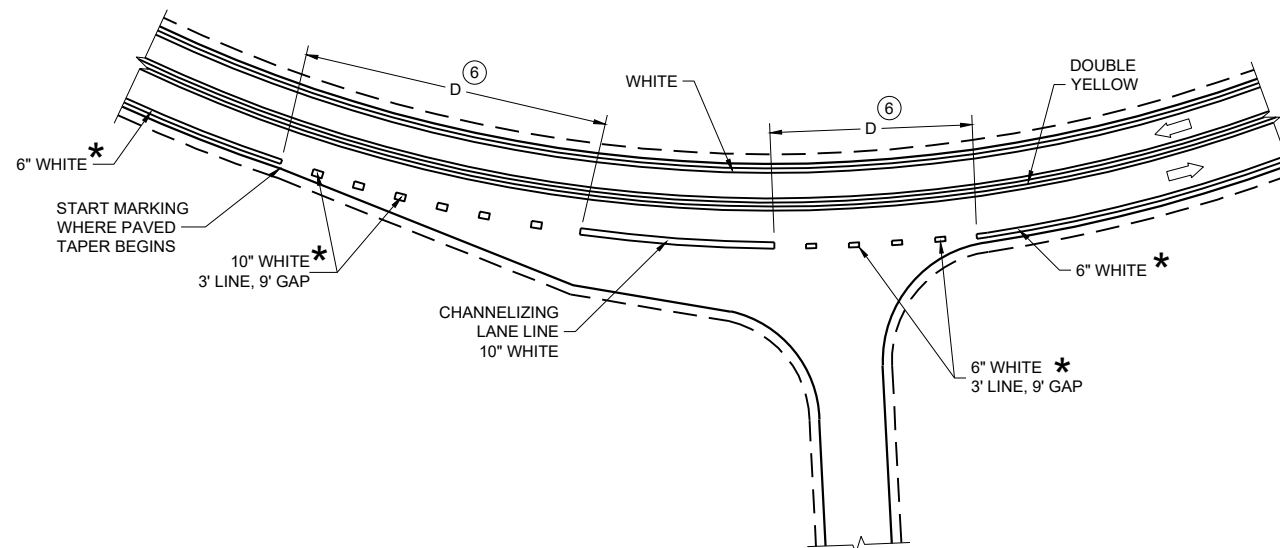
GENERAL NOTES

OMIT EDGE LINES THROUGH INTERSECTIONS. CONTINUE EDGE LINES THROUGH DRIVEWAYS.

- ① WHEN DISTANCE "A" IS LESS THAN 250 FEET, OMIT LANE LINE.
- ② WHEN DISTANCE "B" IS LESS THAN 100 FEET, OMIT CHANNELIZING LANE LINE.
- ③ BARRIER LINE ENDS AT SIDE ROAD PAVEMENT / SURFACE EDGE EXTENSION.
- ④ BARRIER LINE STARTS 500 FEET PRIOR TO THE BYPASS TAPER.
- ⑤ WHEN DISTANCE "C" IS LESS THAN 4 FEET, OMIT DOTTED EXTENSION.
- ⑥ WHEN DISTANCE "D" IS LESS THAN 50 FEET, OMIT DOTTED EXTENSION.

LEGEND

➡ DIRECTION OF TRAVEL



INTERSECTION ON OUTSIDE OF CURVE

PAVEMENT MARKING
(INTERSECTIONS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

LEGEND

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

GENERAL NOTES

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

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

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

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

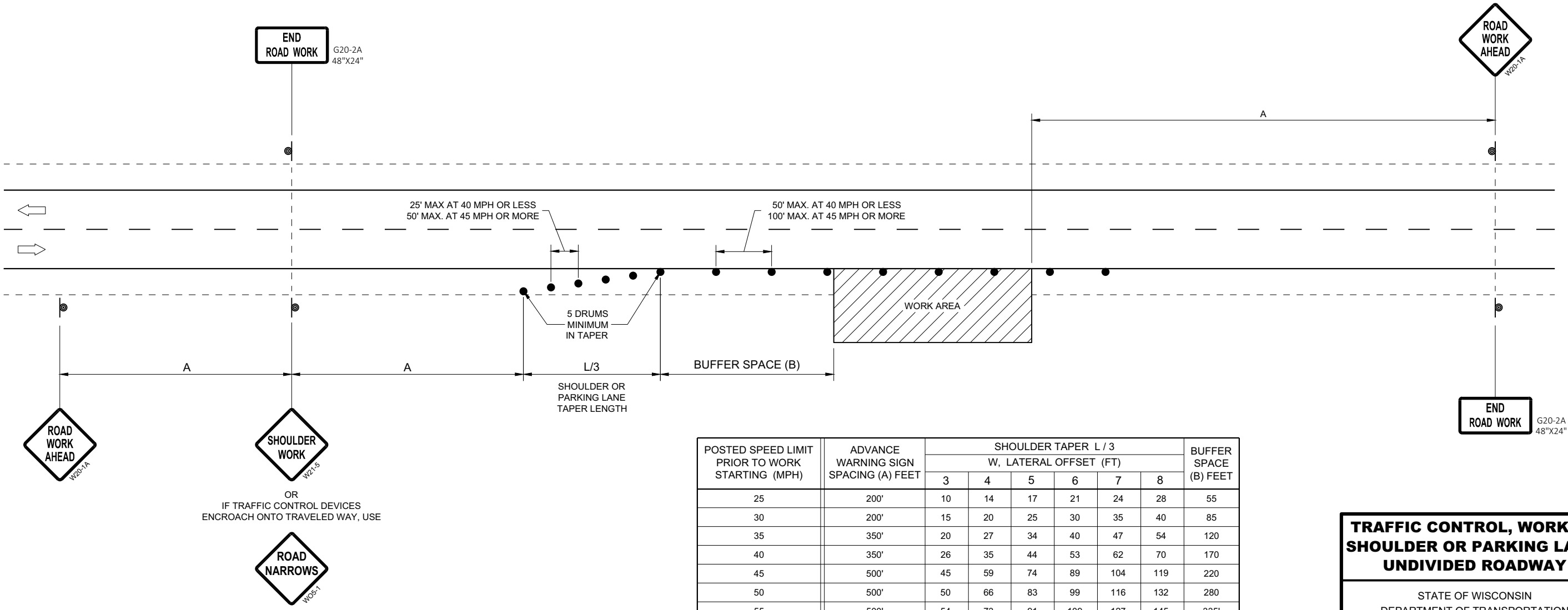
CHANNELIZING DEVICES PLACED ADJACENT TO WORK AREA SHALL BE PULLED BACK FROM THE TRAVEL LANE WHEN WORK IS NOT IN PROGRESS.

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

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

6

6



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

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

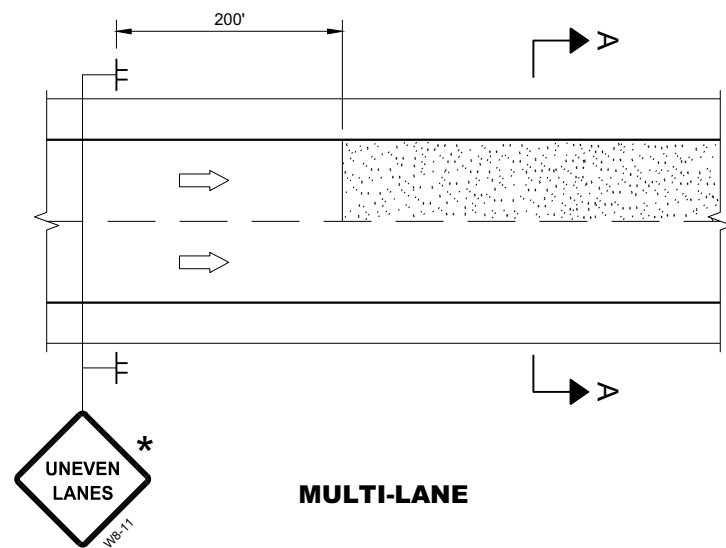
APPROVED
May 2020
DATE

/S/ Andrew Heidtke
STATEWIDE WORK ZONE TRAFFIC
SAFETY ENGINEER

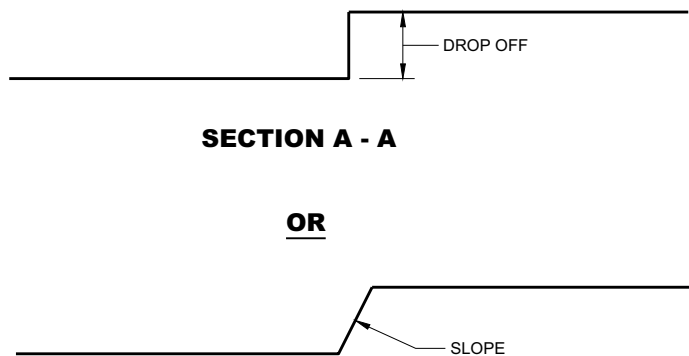
FHWA

SDD 15D28 - 04

SDD 15D28 - 04



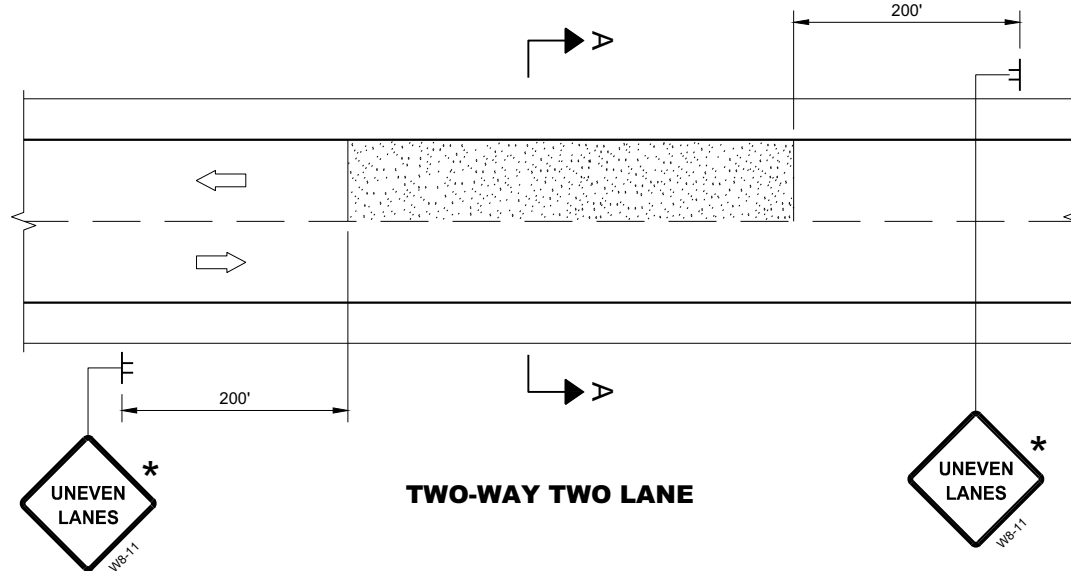
MULTI-LANE



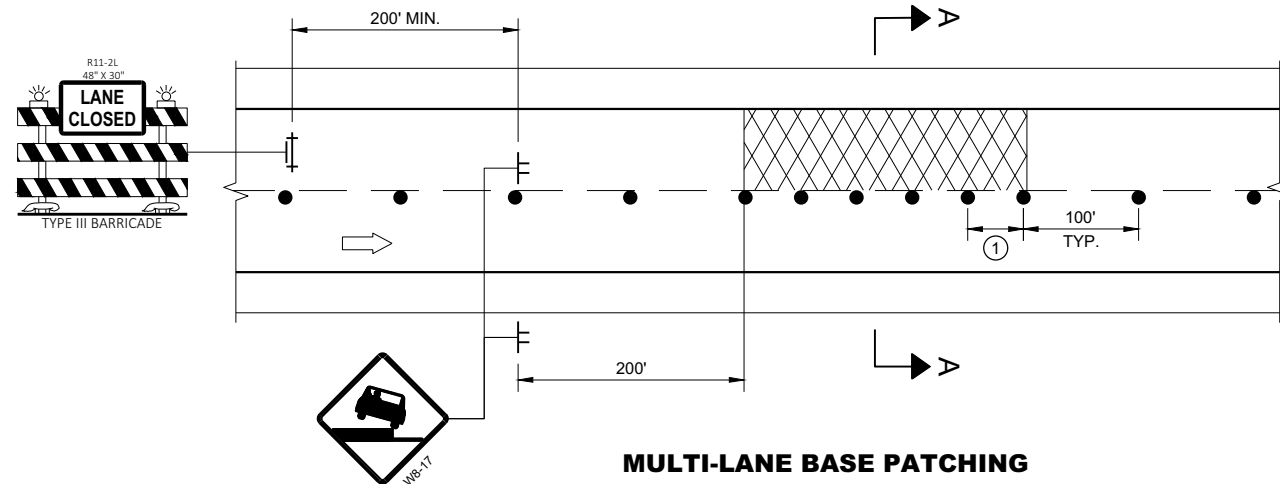
SECTION A - A

OR

SECTION A - A

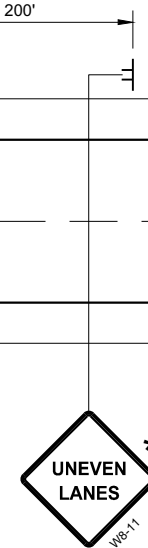


TWO-WAY TWO LANE



MULTI-LANE BASE PATCHING

ADJACENT LANE DROP-OFFS



UNEVEN LANES

GENERAL NOTES

FOR SPOT LOCATIONS USE ENGINEERING JUDGEMENT WHEN PLACING ADDITIONAL SIGNS.

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

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

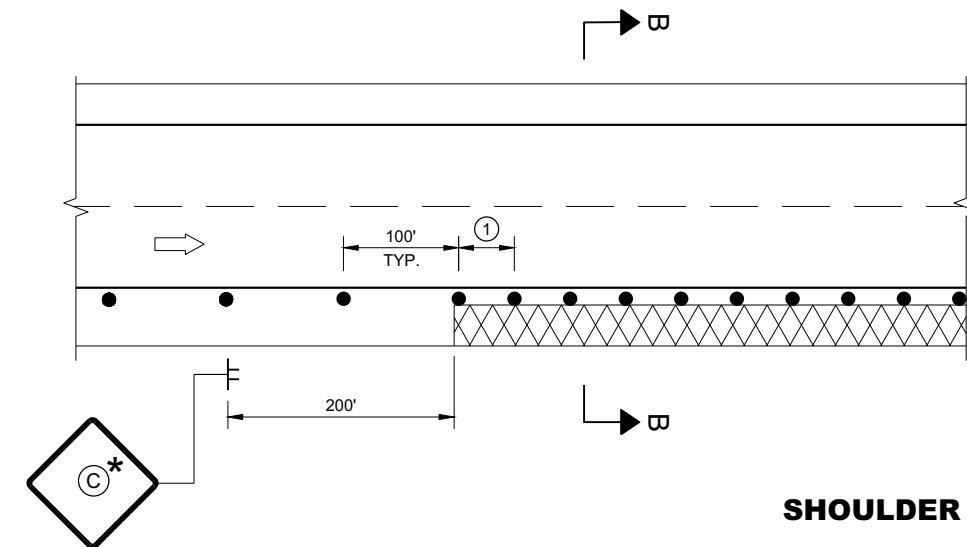
WARNING LIGHTS ARE NOT REQUIRED IF THE LANE CLOSURE IS A DAYTIME ONLY OPERATION.

* IF THE DROP-OFF IS CONTINUOUS ALONG THE PROJECT, PLACE ADDITIONAL SIGNS EVERY 1 MILE AND AFTER EVERY ENTRANCE RAMP.

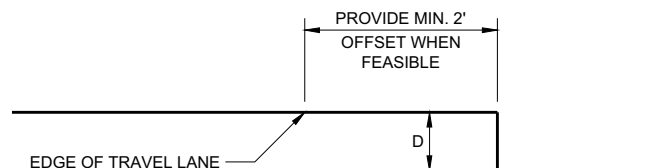
① USE CLOSER SPACING WHEN DELINEATING DROP-OFF.

LEGEND

- SIGN ON TEMPORARY SUPPORT
- TRAFFIC CONTROL DRUM
- TYPE III BARRICADE WITH ATTACHED SIGN
- TYPE "A" WARNING LIGHT (FLASHING)
- DIRECTION OF TRAFFIC
- WORK AREA WITH DROP-OFF
- MILLED SURFACE



SHOULDER DROP-OFFS



SECTION B - B

D	SIGN (C)
< 2" WITH A SLOPE STEEPER THAN 3:1	LOW SHOULDER WO8-9
2" < 6" WITH A SLOPE STEEPER THAN 3:1	SHOULDER DROP - OFF WB-9A PROVIDE A 3:1 OR FLATTER SLOPE OF MATERIAL ADJACENT TO THE PAVEMENT

TRAFFIC CONTROL, DROP-OFF SIGNING	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED March 2018 DATE	/S/ Andrew Heidtke WORK ZONE ENGINEER
FHWA	

GENERAL NOTES

DRAWING NOT TO SCALE. ALL SIGNS AND POSTS ON THIS SHEET SHALL BE PAID FOR WITH 'TRAFFIC CONTROL SIGNS' BID ITEM. ALL SIDE ROADS WHICH ARE UNDER CONSTRUCTION OF CURB AND GUTTER AND/OR GRADING SHALL BE ADEQUATELY SIGNED.

ALL SIGNS AND DEVICES SHALL BE IN CONFORMANCE WITH THE WISCONSIN MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (WMUTCD). SIGN LAYOUTS SHALL BE IN ACCORDANCE WITH THE WISDOT STANDARD SIGN PLATES.

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

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

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

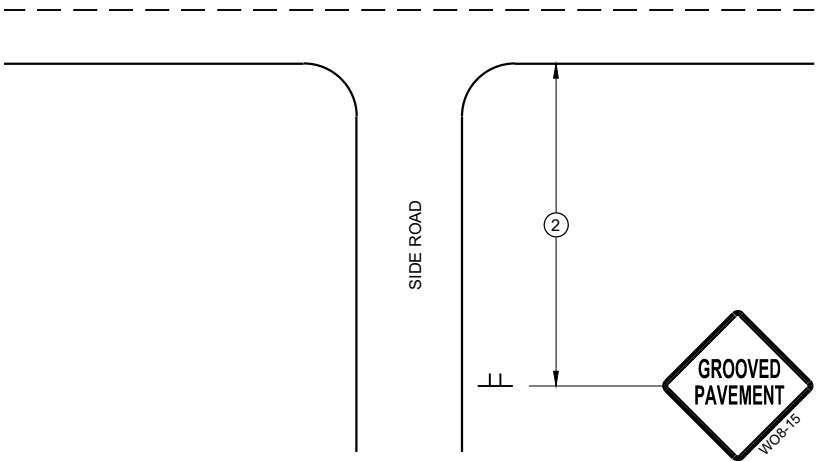
ALL SIGNS INAPPROPRIATE TO THE STATUS OF THE CONTROL ZONE, INCLUDING PRE-EXISTING SIGNS IN THE VICINITY, SHALL BE COVERED OR REMOVED AS DIRECTED BY THE ENGINEER.

SEE 15C34 FOR ADDITIONAL TRAFFIC CONTROL SIGNING WHEN CENTERLINE PAVEMENT MAKINGS ARE MISSING. 'DO NOT PASS' SIGNS MUST BE INSTALLED ON THE SAME DAY AS MILLING OPERATIONS.

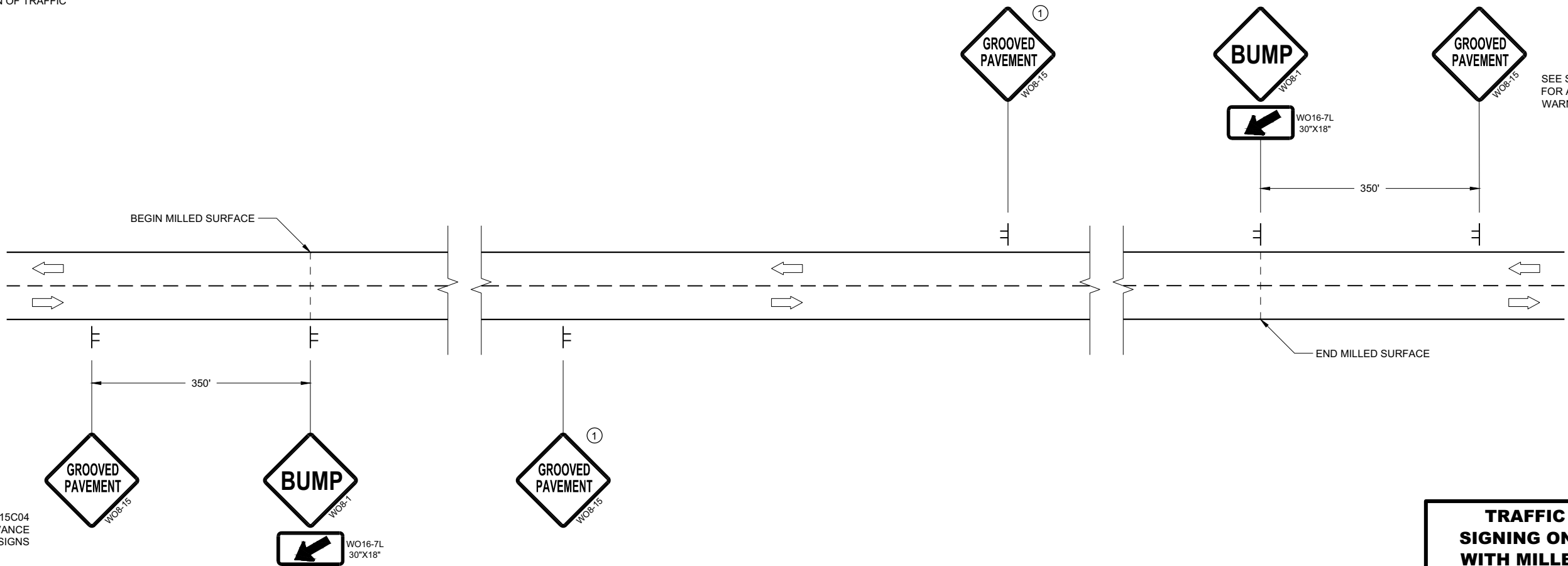
- ① PLACE SIGNS 350' IN ADVANCE OF MILLED SURFACES AND AT 1 MILE INTERVALS, OR AS DIRECTED BY THE ENGINEER.
- ② PLACE SIGN 200' MIN. FROM INTERSECTION AND 200' MIN. AFTER ADVANCE WARNING SIGN SHOWN IN SDD 15C04.

LEGEND

-  SIGN ON TEMPORARY SUPPORT
-  DIRECTION OF TRAFFIC



TYPICAL SIDE ROAD APPROACH
SIGN DETAIL



SEE SDD15C04
FOR ADVANCE
WARNING SIGNS

SEE SDD15C04
FOR ADVANCE
WARNING SIGNS

DETAIL FOR SIGNING ON MILLED SURFACES

TRAFFIC CONTROL,
SIGNING ON ROADWAYS
WITH MILLED SURFACES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

FHWA

GENERAL NOTES

DRAWING NOT TO SCALE. ALL SIGNS AND POSTS ON THIS SHEET SHALL BE PAID FOR WITH 'TRAFFIC CONTROL SIGNS' BID ITEM. ALL SIDE ROADS WHICH ARE UNDER CONSTRUCTION OF CURB AND GUTTER AND/OR GRADING SHALL BE ADEQUATELY SIGNED.

ALL SIGNS AND DEVICES SHALL BE IN CONFORMANCE WITH THE WISCONSIN MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (WMUTCD). SIGN LAYOUTS SHALL BE IN ACCORDANCE WITH THE WISDOT STANDARD SIGN PLATES.

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

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

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

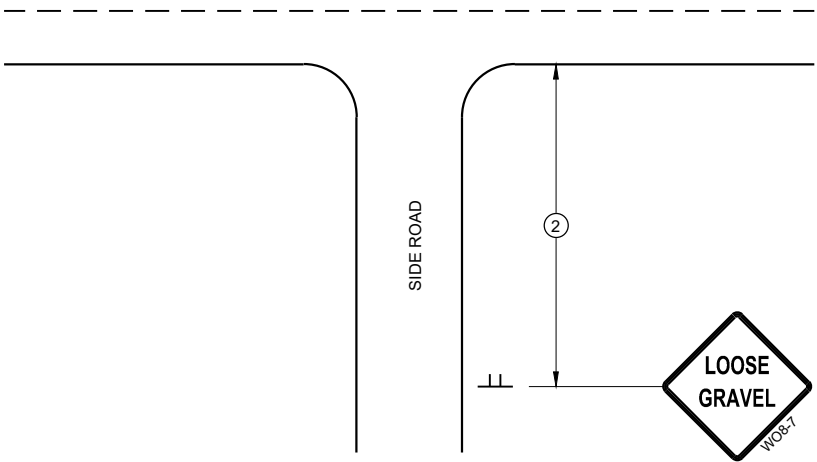
ALL SIGNS INAPPROPRIATE TO THE STATUS OF THE CONTROL ZONE, INCLUDING PRE-EXISTING SIGNS IN THE VICINITY, SHALL BE COVERED OR REMOVED AS DIRECTED BY THE ENGINEER.

SEE 15C34 FOR ADDITIONAL TRAFFIC CONTROL SIGNING WHEN CENTERLINE PAVEMENT MAKINGS ARE MISSING. 'DO NOT PASS' SIGNS MUST BE INSTALLED ON THE SAME DAY AS MILLING OPERATIONS.

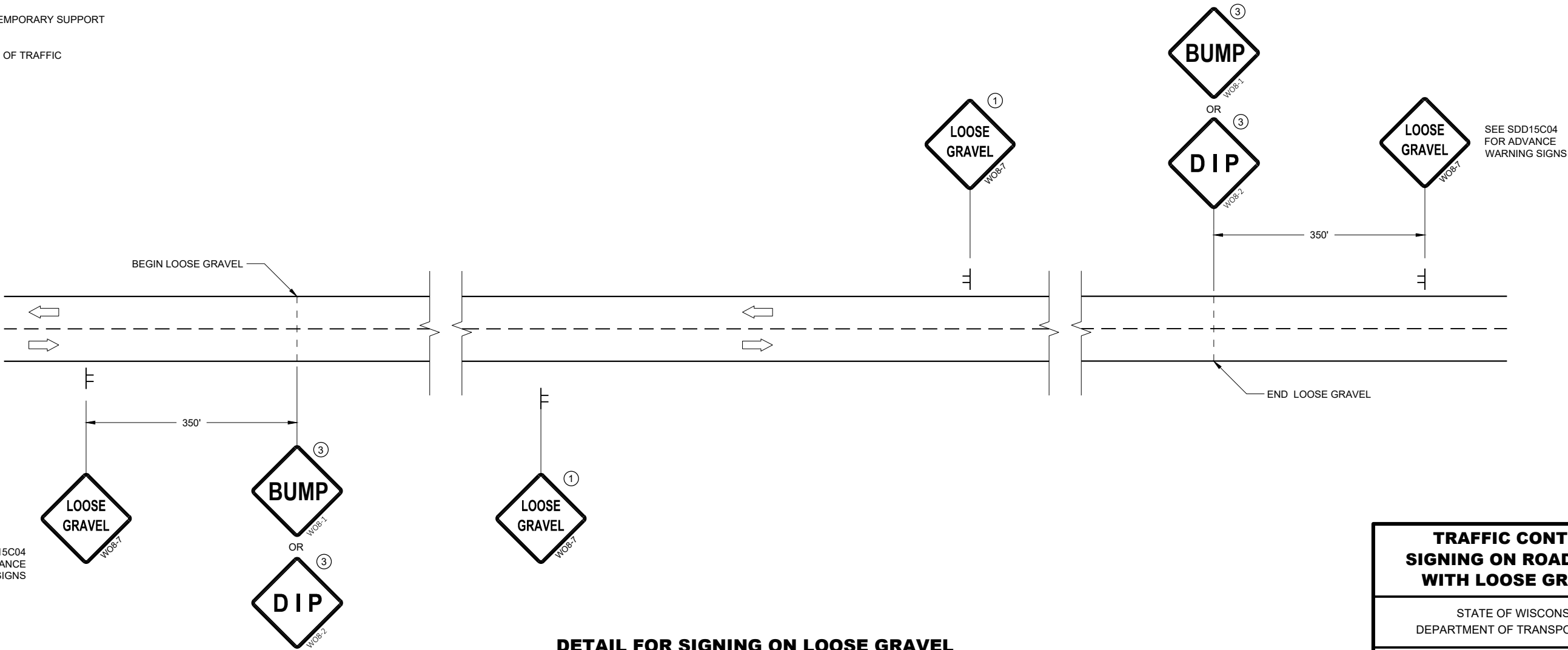
- 1 PLACE SIGNS 350' IN ADVANCE OF CHIP SEALED OR LOOSE GRAVEL SURFACES AND AT 1 MILE INTERVALS, OR AS DIRECTED BY THE ENGINEER.
- 2 PLACE SIGN 200' MIN. FROM INTERSECTION AND 200' MIN. AFTER ADVANCE WARNING SIGN SHOWN IN SDD 15C04.
- 3 ADD WO8-1 OR WO8-2 SIGN WHEN THE CONDITION IS PRESENT.

LEGEND

-  SIGN ON TEMPORARY SUPPORT
-  DIRECTION OF TRAFFIC



TYPICAL SIDE ROAD APPROACH
SIGN DETAIL



DETAIL FOR SIGNING ON LOOSE GRAVEL
OR CHIP SEALED SURFACES

TRAFFIC CONTROL
SIGNING ON ROADWAYS
WITH LOOSE GRAVEL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
February 2021 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER

FHWA

LEGEND

- V1

WORK VEHICLE
- V2

SHADOW VEHICLE
- 

TRUCK MOUNTED ATTENUATOR (TMA)
- 

FLASHING ARROW PANEL (CAUTION)
- 

WORK AREA
- 

DIRECTION OF TRAFFIC

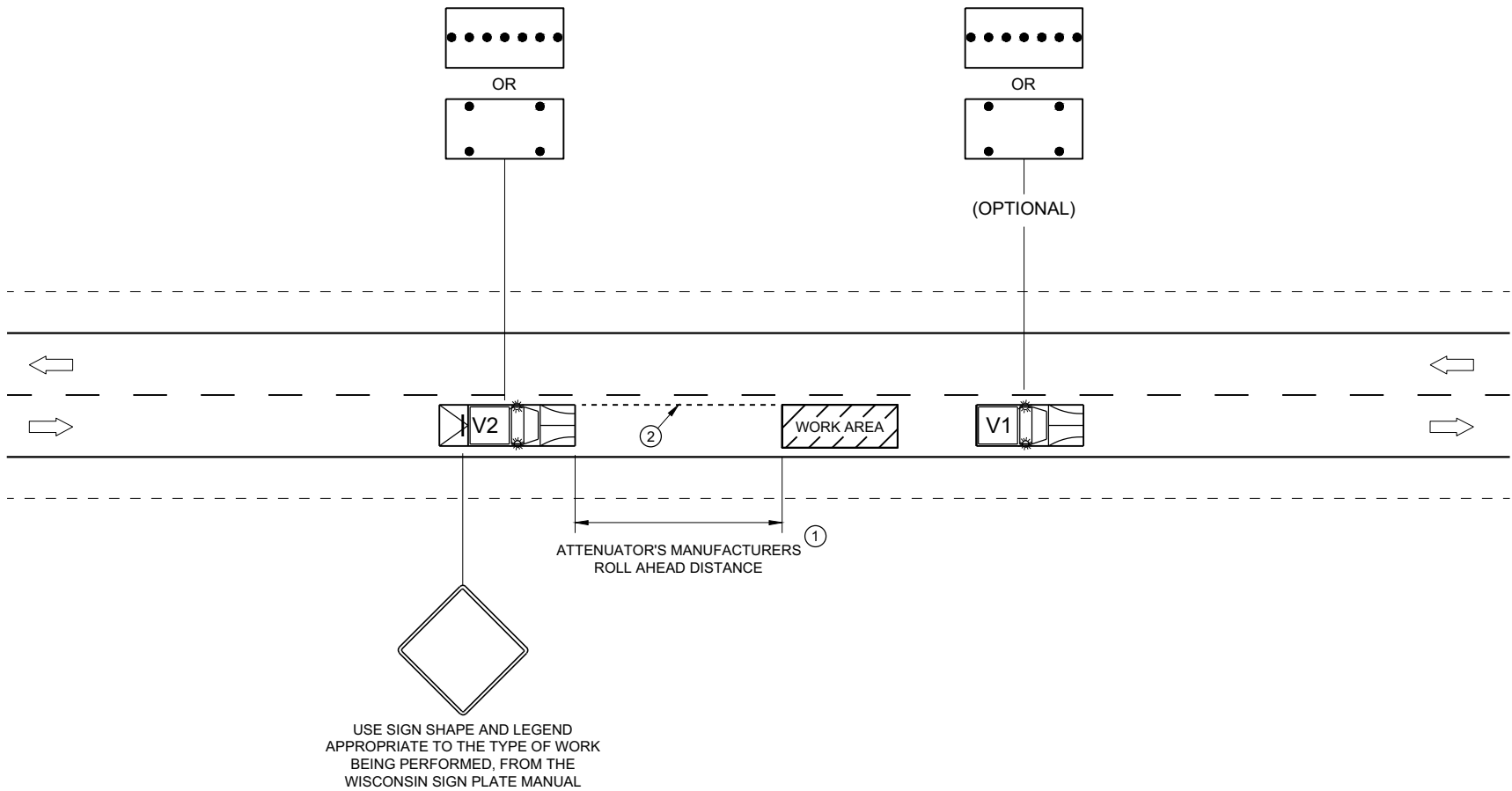
POSTED SPEED PRIOR TO WORK STARTING (MPH)	DECISION SIGHT DISTANCE (D)
0 - 25	550'
30	550'
35	700'
40	700'
45	900'
50	900'
55	1200'

GENERAL NOTES

- ALL SIGNS ARE 48"X48" UNLESS OTHERWISE NOTED.
- MOBILE IS WORK THAT MOVES CONTINUOUSLY OR MOVES AT LEAST THE DECISION SIGHT DISTANCE EVERY 15 MINUTES.
- ALL VEHICLES SHALL BE EQUIPPED WITH TWO 360 DEGREE HIGH INTENSITY YELLOW FLASHING LIGHTS OR STROBE LIGHTS AND OPERATED WITH HEADLIGHTS TURNED ON.
- ALL ARROW PANELS SHALL BE REAR FACING, TYPE "B" OR "C", AND DISPLAYING THE FLASHING CAUTION MODE. SIGNS PLACED ON VEHICLES MUST NOT OBSCURE THE ARROW PANEL.
- USE AN ATTENUATOR ON THE REARMOST VEHICLE THAT BLOCKS ALL OR PART OF THE TRAFFIC LANE.
- ①

DISTANCE BETWEEN VEHICLES MAY INCREASE FROM THE ATTENUATOR'S ROLL AHEAD BASED ON TERRAIN, SIGHT DISTANCE, AND OTHER FACTORS. WHENEVER ADEQUATE STOPPING SIGHT DISTANCE EXISTS TO THE REAR, SHADOW VEHICLES SHOULD MAINTAIN THE MINIMUM DISTANCE FROM THE WORK VEHICLE AND PROCEED AT THE SAME SPEED AS THE WORK VEHICLE. SHADOW VEHICLES SHOULD SLOW DOWN IN ADVANCE OF VERTICAL OR HORIZONTAL CURVES THAT RESTRICT SIGHT DISTANCE.
- ②

ALIGN LEFT SIDE OF SHADOW VEHICLE WITH EDGE OF WORK AREA.

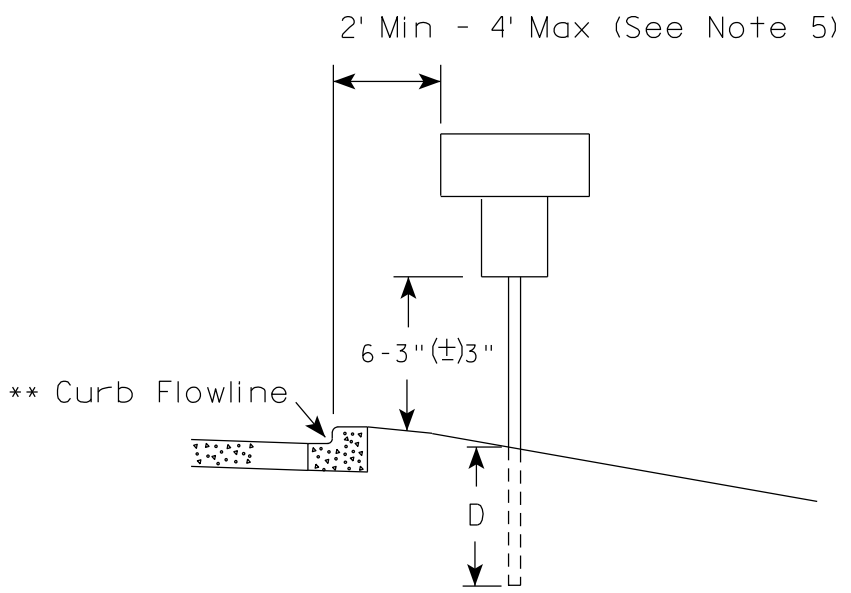
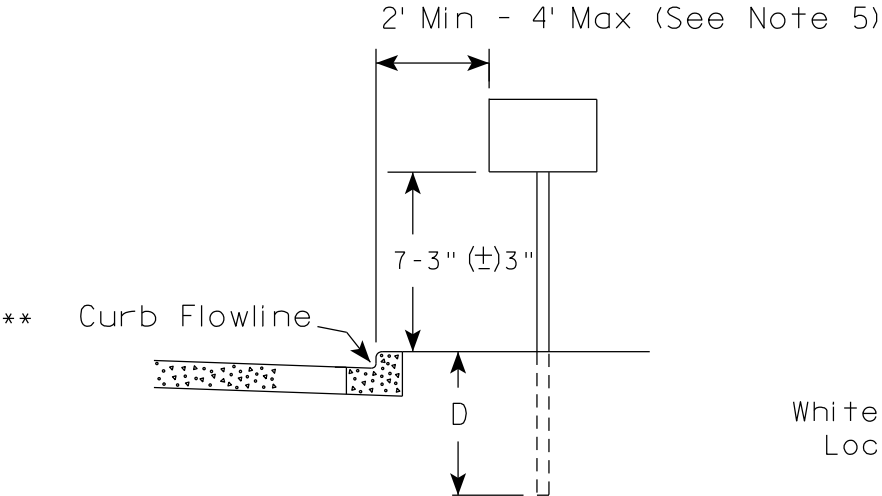


TRAFFIC CONTROL,
MOBILE OPERATIONS ON
AN UNDIVIDED ROADWAY

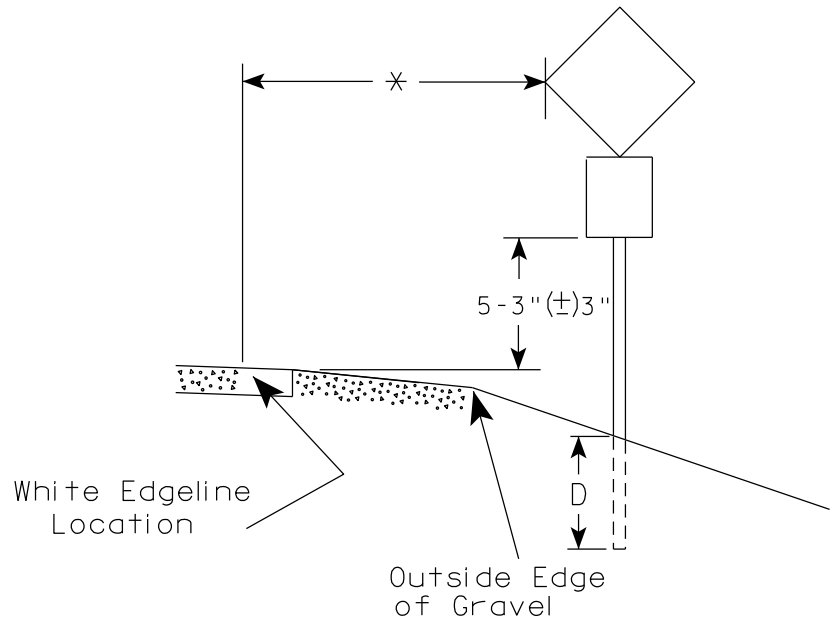
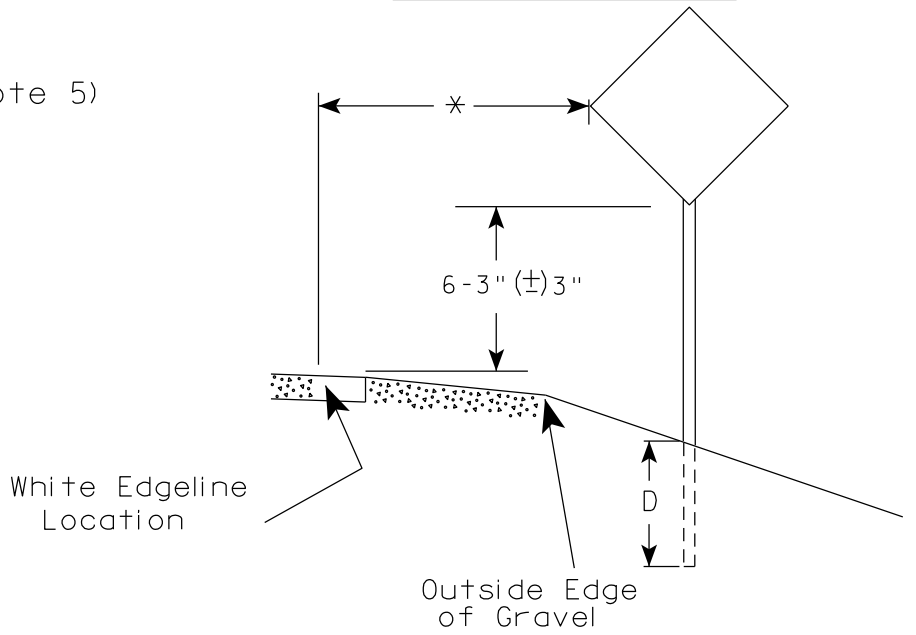
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
February 2021
DATE /S/ Andrew Heidtke
STATEWIDE WORK ZONE TRAFFIC
SAFETY ENGINEER
FHWA

URBAN AREA



RURAL AREA (See Note 2)



POST EMBEDMENT DEPTH

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

GENERAL NOTES

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

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

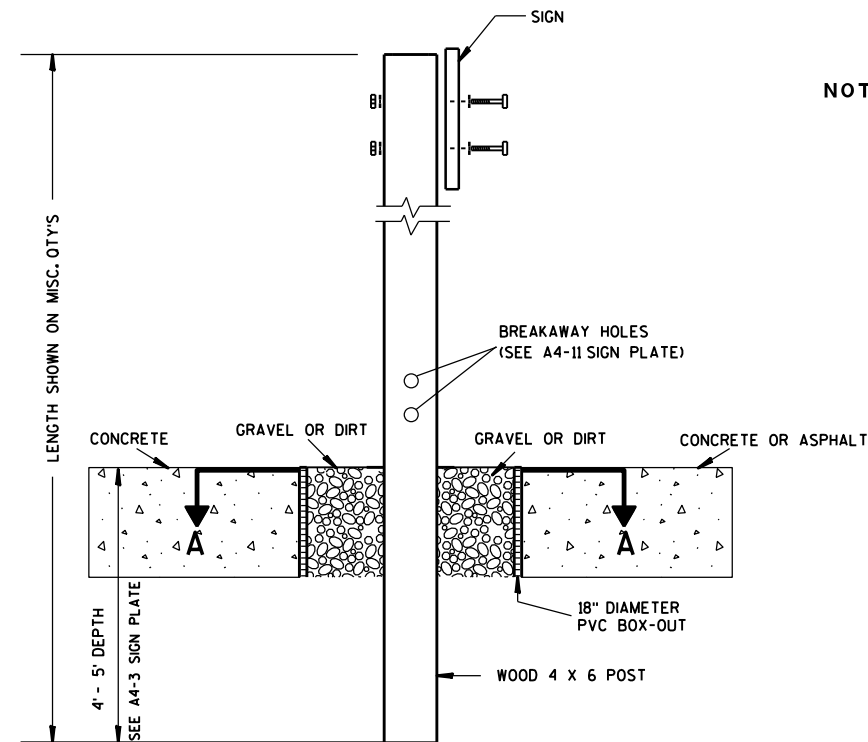
* 6 feet from edge of a paved shoulder or 12 feet from the edge of pavement (edge line location) or 2 feet from outside edge of gravel, whichever is greater unless directed by project engineer.

TYPICAL INSTALLATION
OF PERMANENT TYPE II
SIGNS ON SINGLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

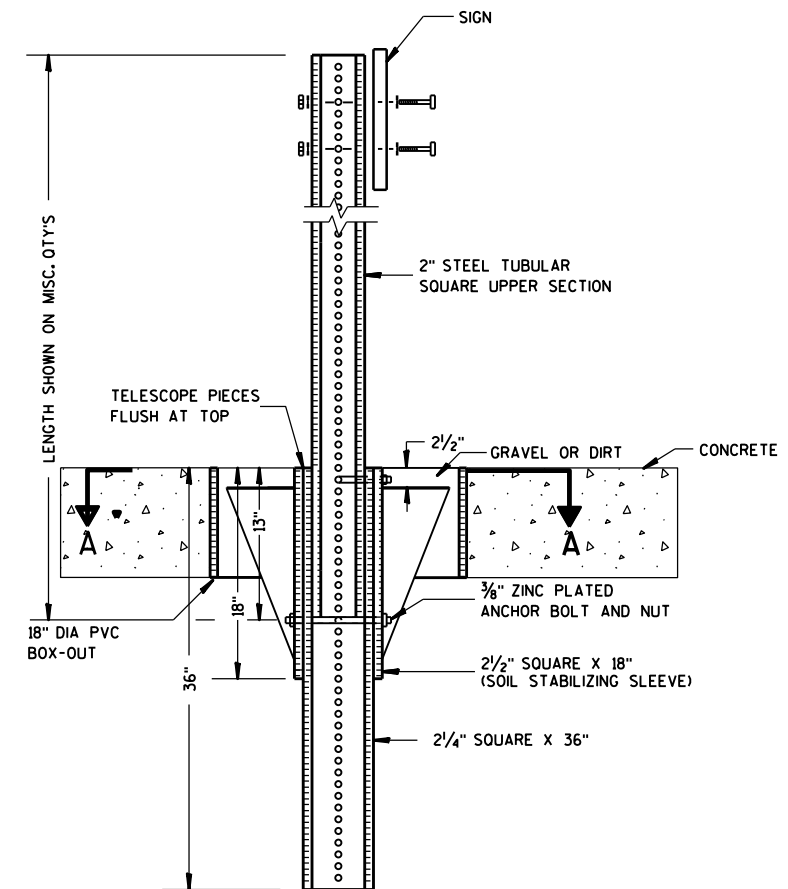
DATE 12/6/23 PLATE NO. A4-3.23



ELEVATION VIEW

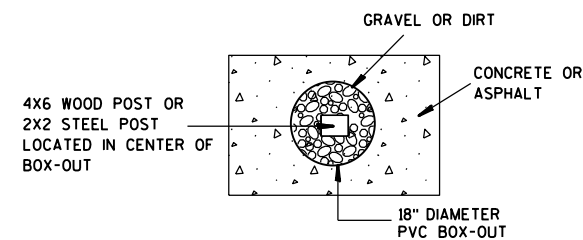
DETAIL OF WOOD 4 X 6 SIGN POST IN BOX-OUT

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



ELEVATION VIEW

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



PLAN VIEW

FOR NEW CONCRETE/ASPHALT INSTALLATIONS

SIGN POST
BOX-OUTS
A4-3B

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

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

PROJECT NO:

HWY:

COUNTY:

SHEET NO:

E

GENERAL NOTES

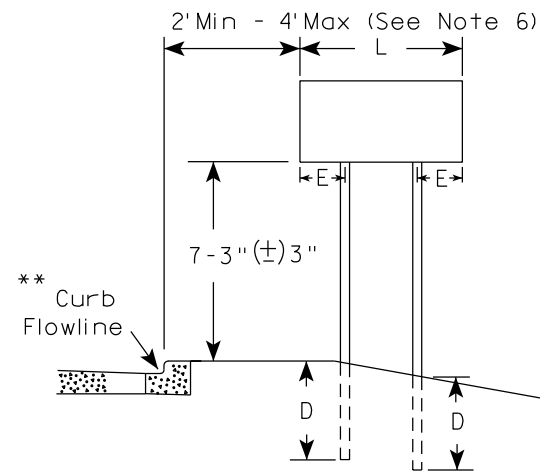
- For 3 or 4 post installations, individual post spacing shall be greater than 3'-6".
- See tables below for required number of posts.
- For expressways and freeways, mounting height is 7'-3" (±) 3" or 6'-3" (±) 3" depending upon existence of sub-sign.
- The (±) tolerance for mounting height is 3 inches.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

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

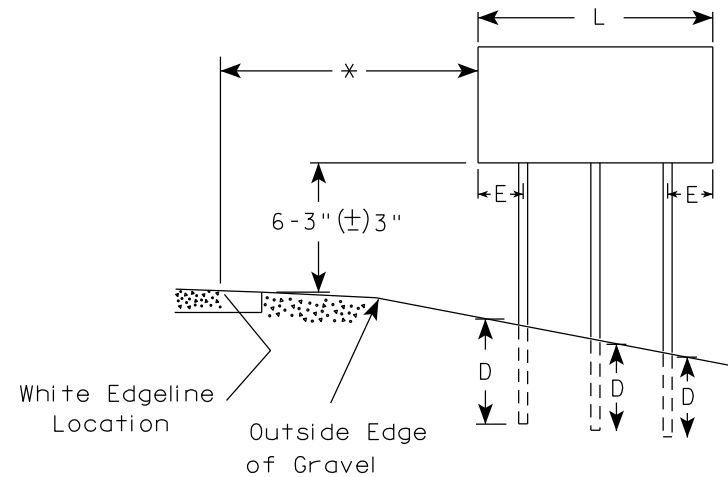
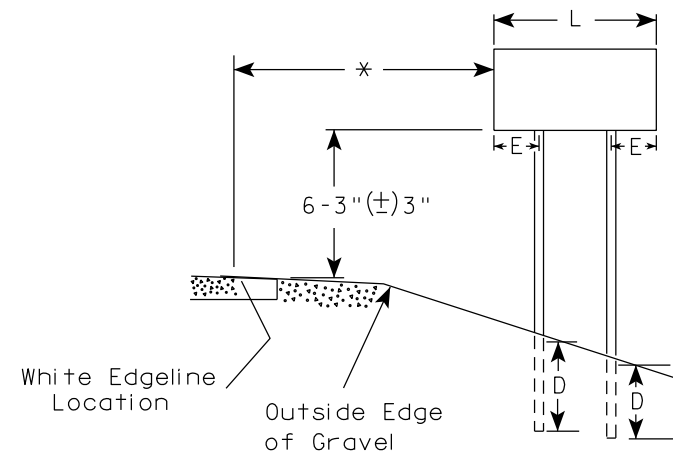
** The existence of curb and gutter does not in itself mandate the vertical clearance illustrated. That height is typically measured where there is sidewalk adjacent to the roadway or parking is permitted. In the absence of sidewalk vertical clearance is measured from the top of the curb. Offset of signs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

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

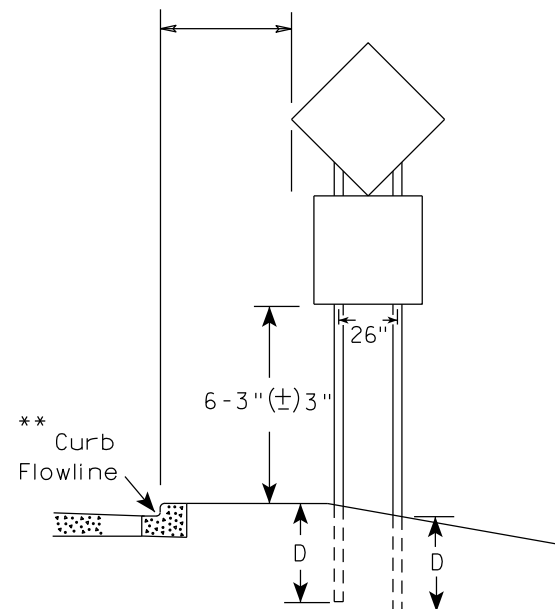
URBAN AREA



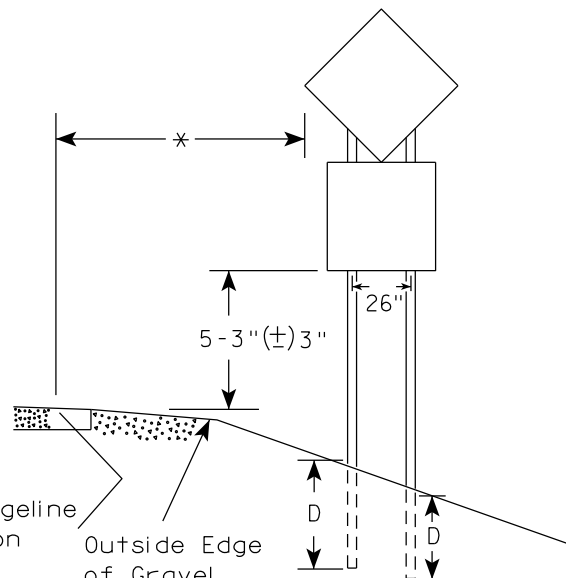
RURAL AREA (See Note 3)



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



48" DIAMOND WARNING SIGN



48" DIAMOND WARNING SIGN

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

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

POST EMBEDMENT DEPTH

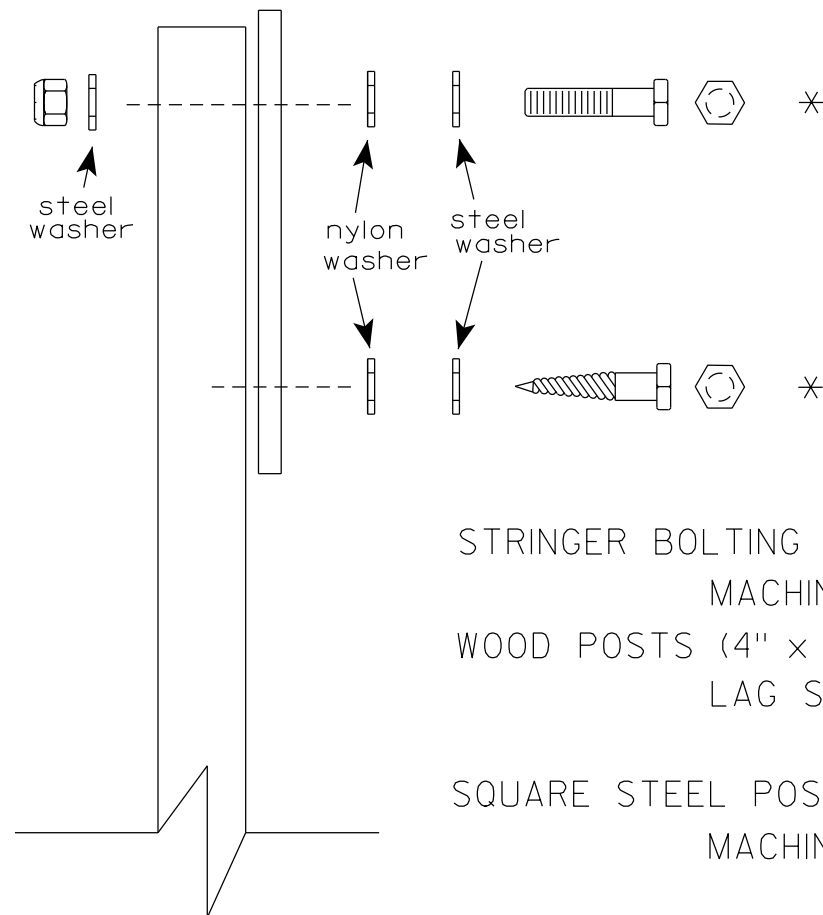
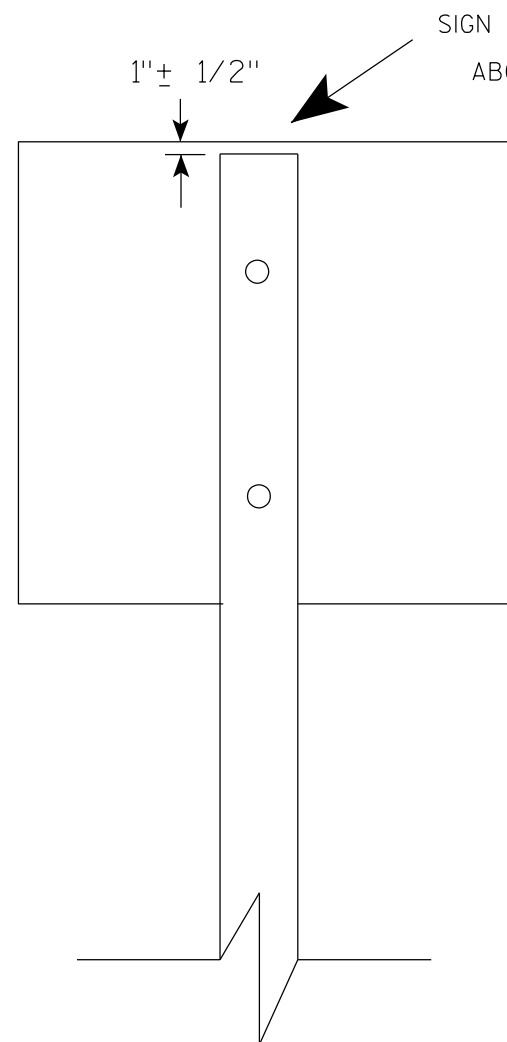
Area of Sign Installation (Sq.Ft.)	D (Min)
20 or Less	4'
Greater than 20	5'

TYPICAL INSTALLATION
OF TYPE II SIGNS
ON MULTIPLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 12/6/23 PLATE NO. A4-4.16



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

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

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

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

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

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

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

4" x 10" x 10 GA. ———→
STEEL PLATE (CUT
AS SHOWN) WELDED
TO ALL FOUR CORNERS
OF TELESPAR TUBE

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

2 1/2" TELES PAR TUBE

4" x 10" x 10 GA. STEEL PLATE (CUT AS SHOWN) WELDED TO ALL FOUR CORNERS OF TELES PAR TUBE

4"

2 1/2"

10"

3 1/2"

16"

LENGTH SHOWN ON MISC. QTY'S

TELESCOPE PIECES FLUSH AT TOP

18" DIA SCHEDULE 40 PVC BOX-OUT

36"

18"

13"

2 1/2"

2 1/4" SQUARE X 36"

2 1/2" SQUARE X 18" (SOIL STABILIZING SLEEVE)

3/8" ZINC PLATED ANCHOR BOLT AND NUT

2 1/2" GRAVEL OR DIRT

2" STEEL TUBULAR SQUARE UPPER SECTION

ALL HOLES 7/16" SPACED 1" C-C ALL FOUR SIDES

3/8" ZINC PLATED CORNER ANCHOR BOLT AND NUT

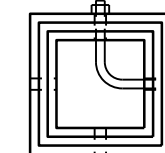
SEE SIGN PLATE A4-8 FOR BOLT WASHER, & NUT MATERIAL

SIGN

TECHNICAL DRAWING OF A SIGNPOST ASSEMBLY:

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

3/8" ZINC PLATED CORNER
ANCHOR BOLT AND NUT



DIRECTION
OF TRAFFIC

SECTION A-A

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

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

TUBULAR STEEL
SIGN POST
A4-9

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R. Rauch

for State Traffic Engineer

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

PROJECT NO:

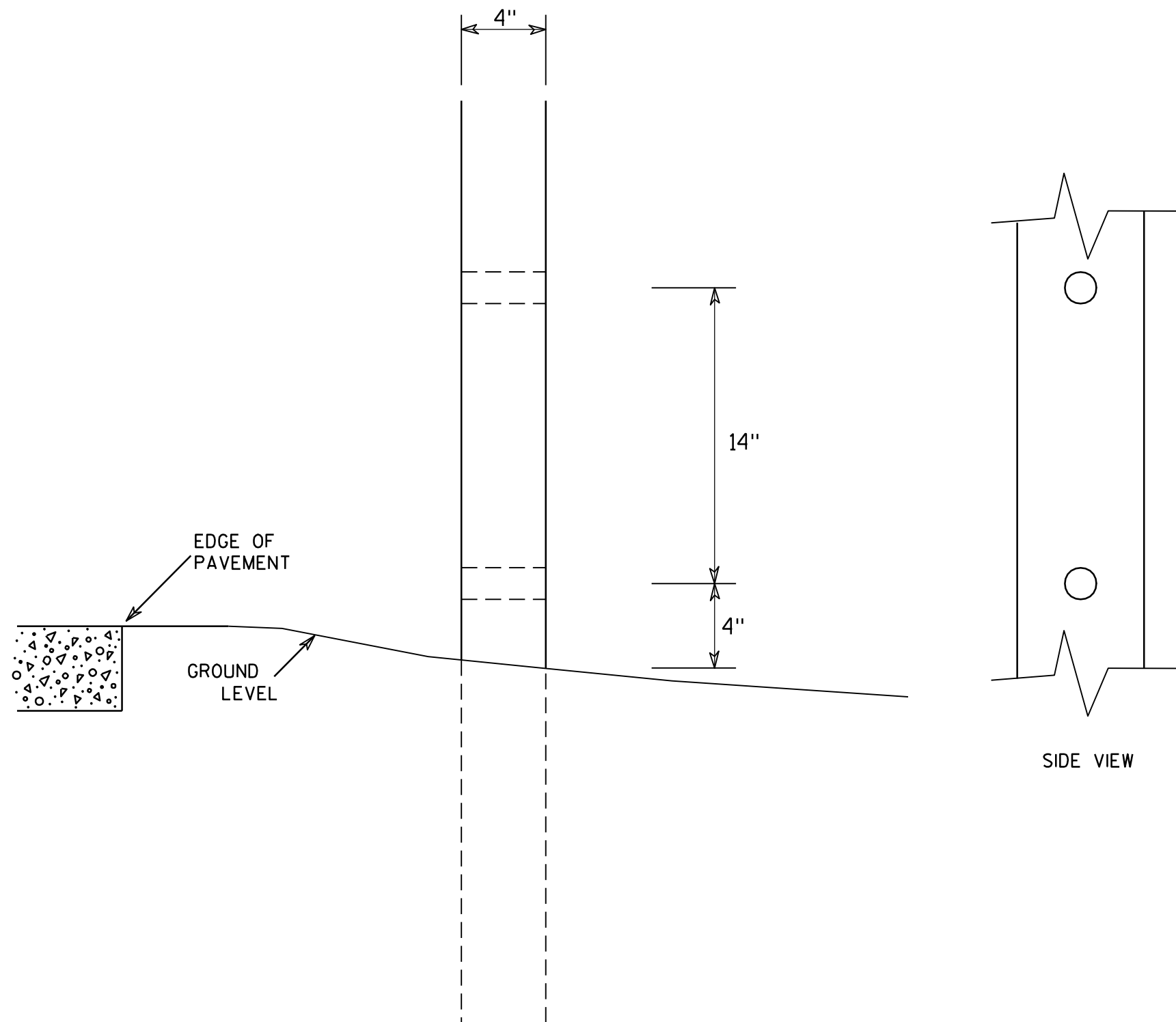
HWY:

COUNTY:

SHEET NO:

T

7



GENERAL NOTES

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

7

4 X 6 WOOD POST MODIFICATIONS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED

Chester J. Spang
for State Traffic Engineer

DATE 3/27/97

PLATE NO. A4-11.2

PROJECT NO:

HWY:

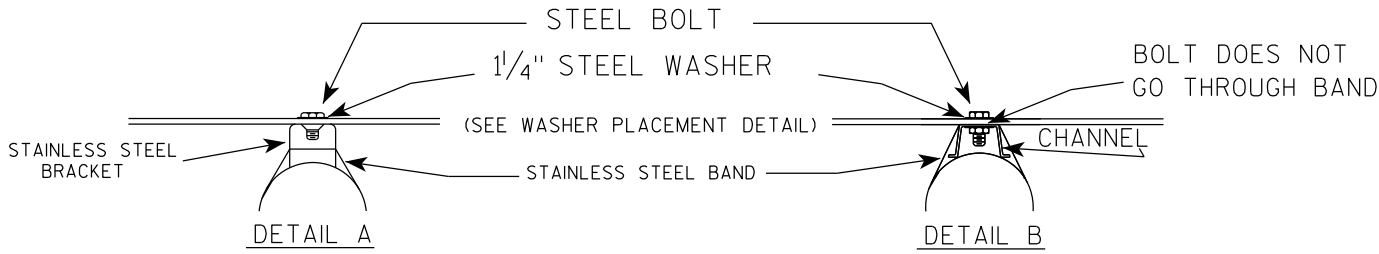
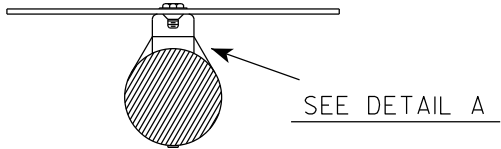
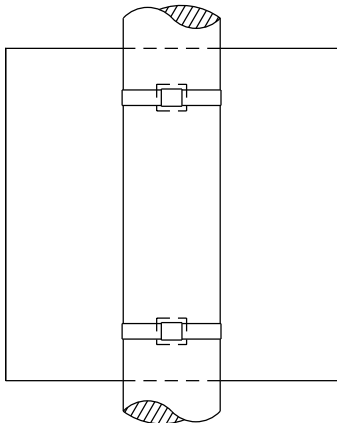
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SHEET NO:

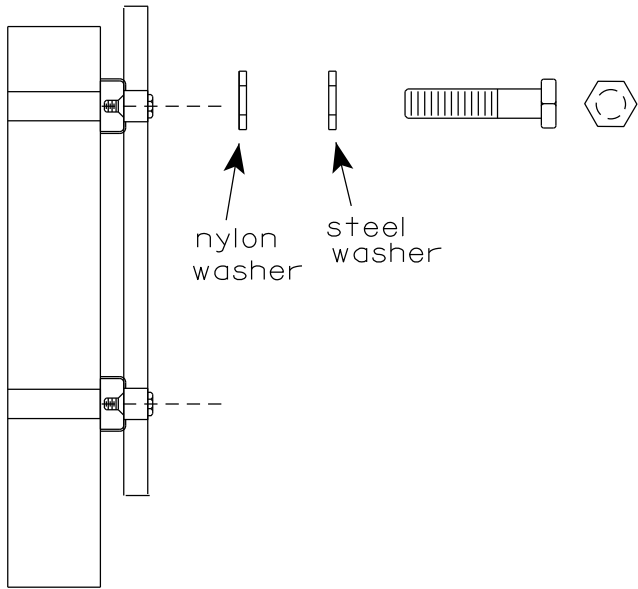
E

BANDING

SINGLE SIGN



WASHER PLACEMENT

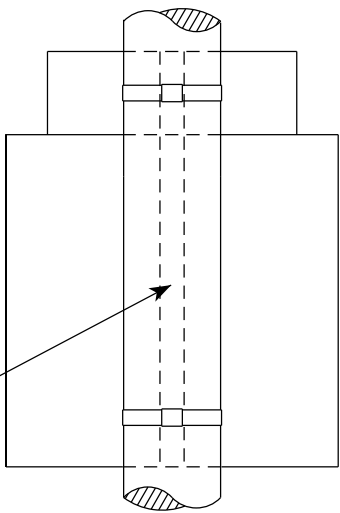


WASHERS (ALL POSTS) -
1-1/4" O.D. X 3/8" I.D. X 1/16" STEEL
1-1/4" O.D. X 3/8" I.D. X .080 NYLON
FOR ALL TYPE H SIGNS

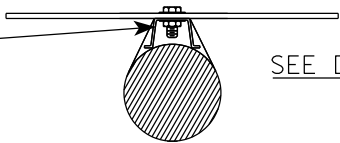
GENERAL NOTES

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

"J" ASSEMBLY



CHANNEL
SEE TYPICAL PANEL
INSTALLATION SHEET

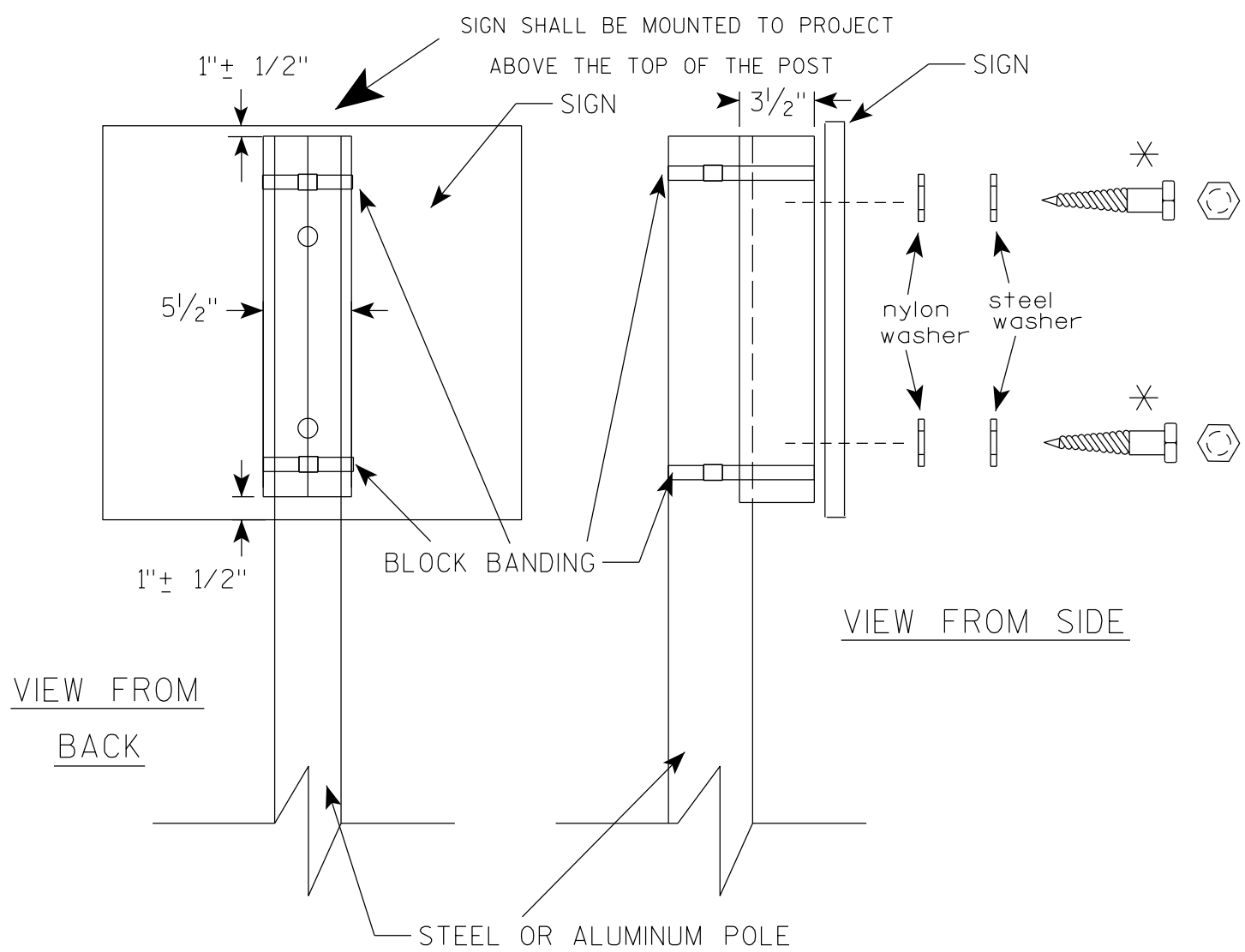


STANDARD SIGN
SIGN BANDING DETAILS

WISCONSIN DEPT OF TRANSPORTATION

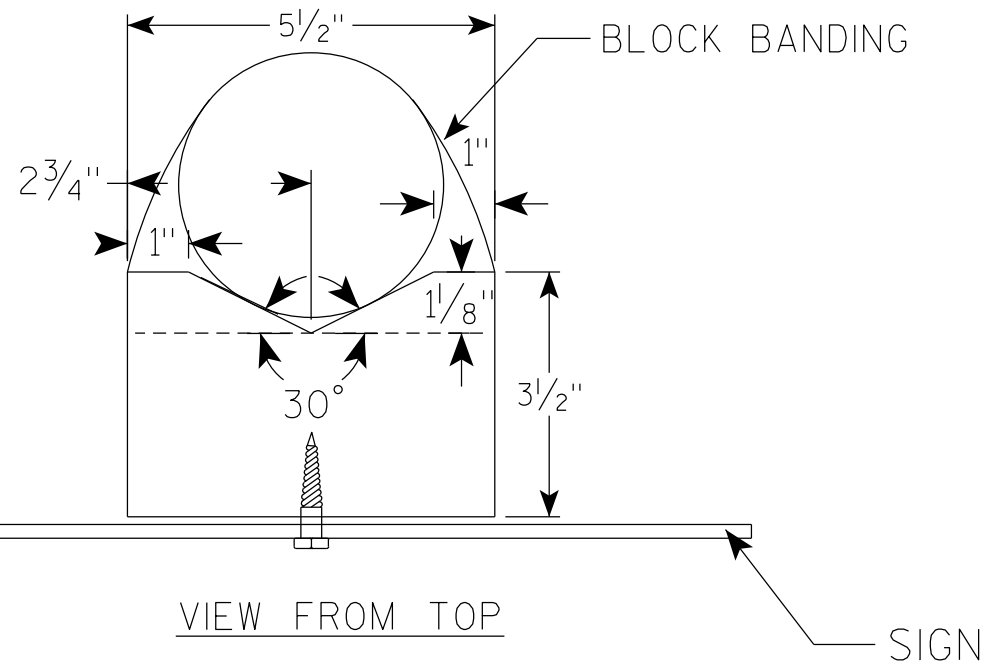
APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 6/10/19 PLATE NO. A5-9.4



VIEW FROM
BACK

VIEW FROM SIDE



VIEW FROM TOP

GENERAL NOTES

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

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

BLOCK BANDING DETAIL
(V-BLOCK OPTION)

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

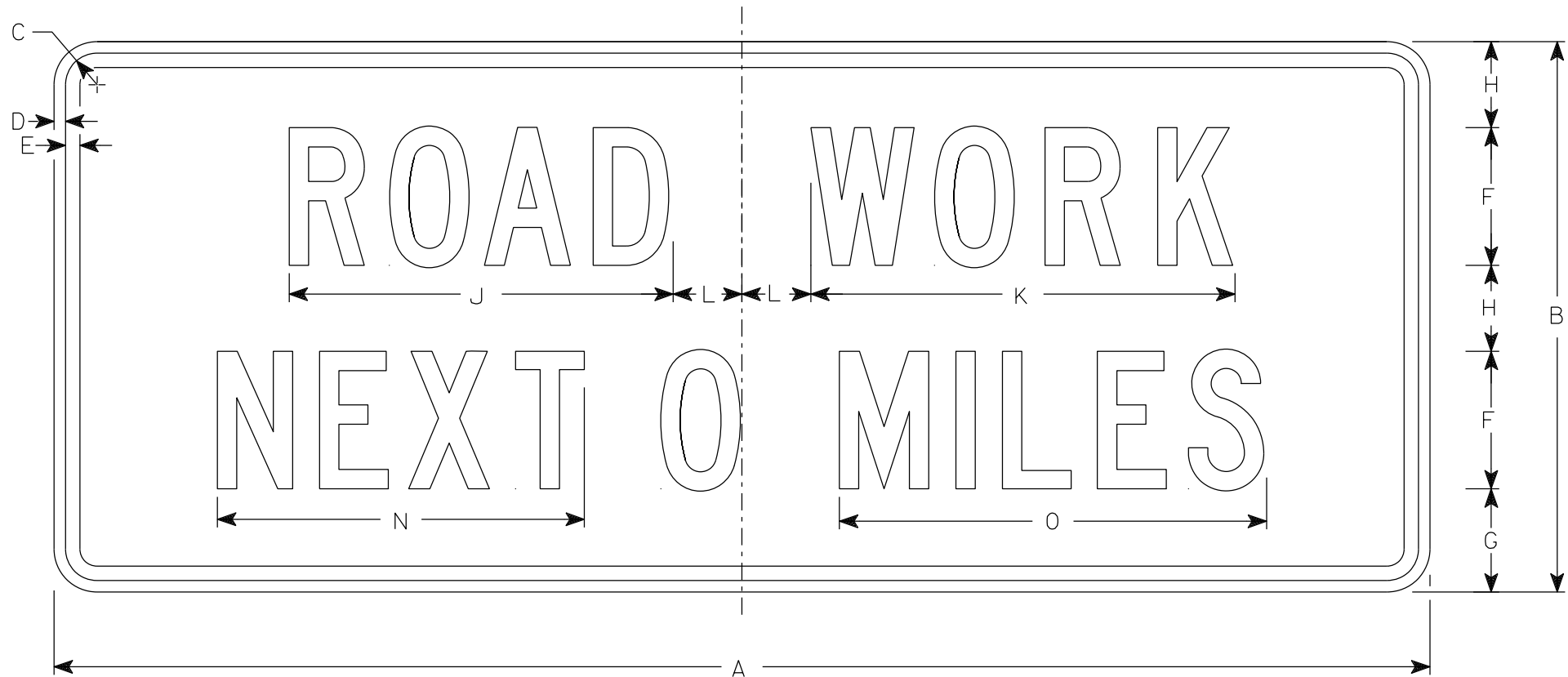
DATE 4/19/2022 PLATE NO. A5-10.3

PROJECT NO:

SHEET NO:

E

7



G20-1

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.
- 5. Round distance to nearest whole Mile and substitute appropriate numerals and optically adjust spacing to achieve proper balance

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	24	1 7⁄8	1⁄2	5⁄8	6	4 1⁄2	3 3⁄4		16 3⁄4	18 1⁄2	3		16	18 5⁄8												10.0
2M	60	24	1 7⁄8	1⁄2	5⁄8	6	4 1⁄2	3 3⁄4		16 3⁄4	18 1⁄2	3		16	18 5⁄8												10.0
3	60	24	1 7⁄8	1⁄2	5⁄8	6	4 1⁄2	3 3⁄4		16 3⁄4	18 1⁄2	3		16	18 5⁄8												10.0
4	60	24	1 7⁄8	1⁄2	5⁄8	6	4 1⁄2	3 3⁄4		16 3⁄4	18 1⁄2	3		16	18 5⁄8												10.0
5	60	24	1 7⁄8	1⁄2	5⁄8	6	4 1⁄2	3 3⁄4		16 3⁄4	18 1⁄2	3		16	18 5⁄8												10.0

STANDARD SIGN

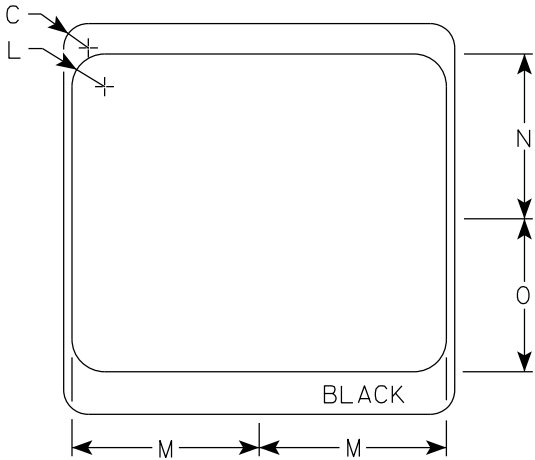
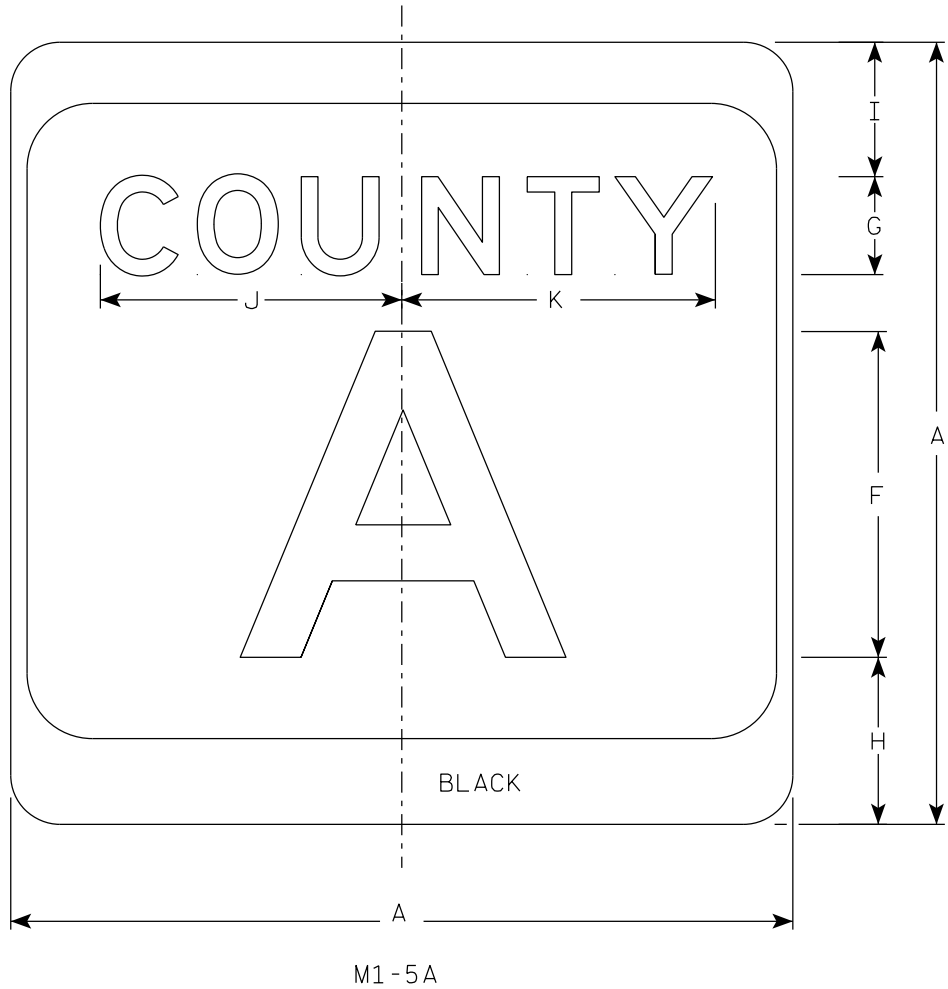
G20-1

WISCONSIN DEPT OF TRANSPORTATION

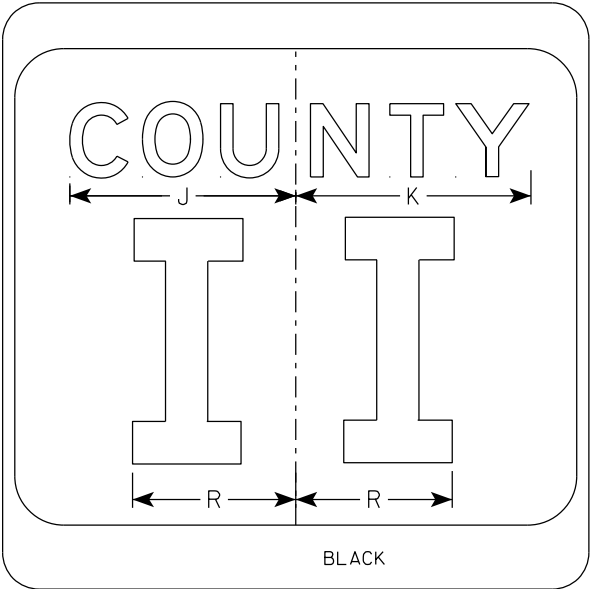
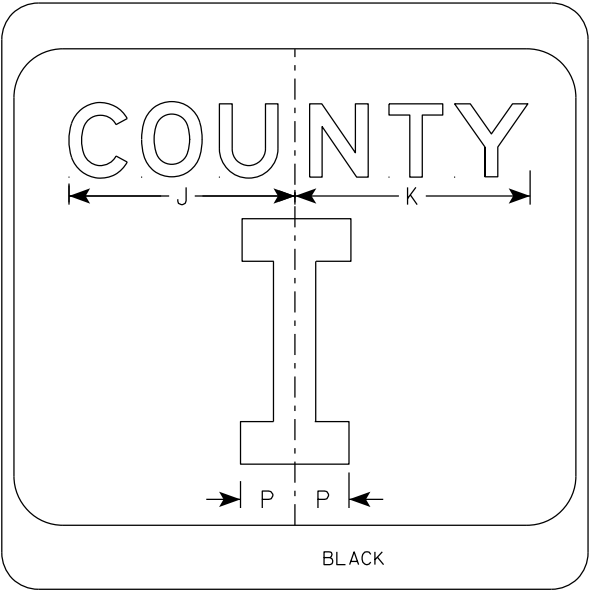
APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 1/26/2023 PLATE NO. G20-1.9

7



- NOTES
- Sign is Type II - Type H Reflective
 - Color:
Background - White & Black
Message - Black
 - Message Series - see Note 4
 - Message Series E for 1 letter.
Message Series D for 2 letters unless message is too big then Series C.
Message Series C for 3 letters unless message is too big then Series B.
 - Substitute appropriate letters & optically center to achieve proper balance.



SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2	24		1 1/2			10	3	5 1/8	4 1/8	9 1/4	9 5/8	2	11 1/2	10 1/8	9 3/8	2 1/4		6 5/8									4.0
2M	24		1 1/2			10	3	5 1/8	4 1/8	9 1/4	9 5/8	2	11 1/2	10 1/8	9 3/8	2 1/4		6 5/8									4.0
3	36		2 1/4			16	4	7 5/8	5 5/8	12 1/4	12 7/8	3	17 1/8	15 1/4	14	3 3/8		10									9.0
4	36		2 1/4			16	4	7 5/8	5 5/8	12 1/4	12 7/8	3	17 1/8	15 1/4	14	3 3/8		10									9.0
5	36		2 1/4			16	4	7 5/8	5 5/8	12 1/4	12 7/8	3	17 1/8	15 1/4	14	3 3/8		10									9.0

CTH MARKER

M1-5A FOR ASSEMBLIES

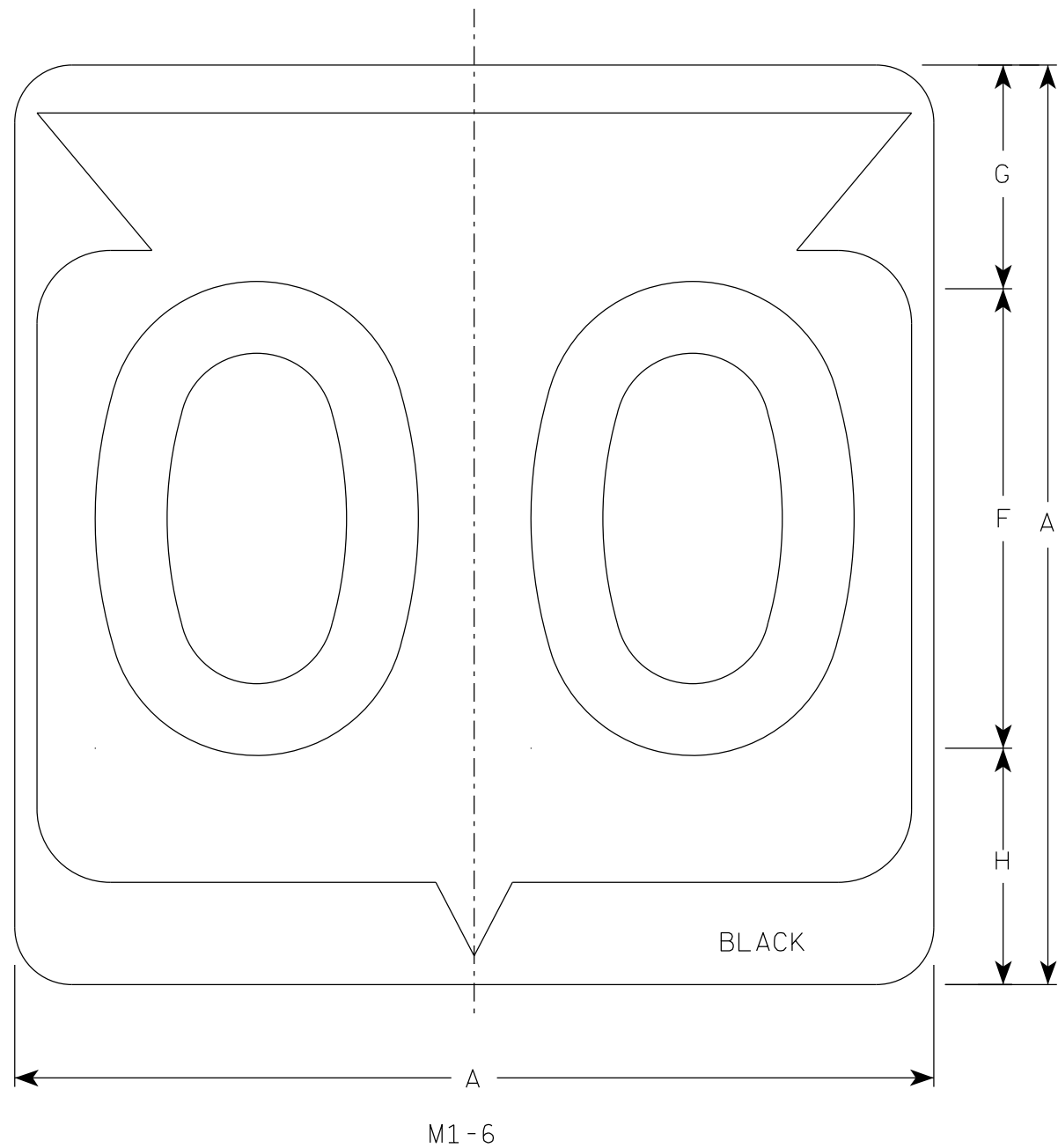
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 11/8/2022 PLATE NO. M1-5A.9

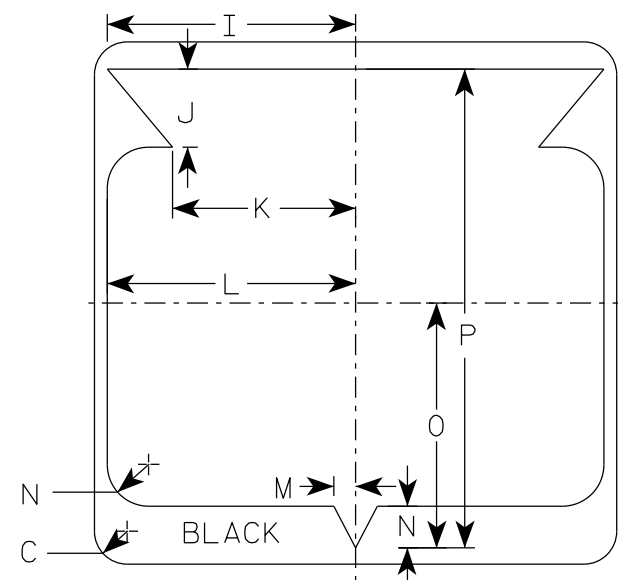
7

7



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



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
2M	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	<i>Matthew R. Rauch</i> for State Traffic Engineer
DATE 11/8/2022	PLATE NO. M1-6.11

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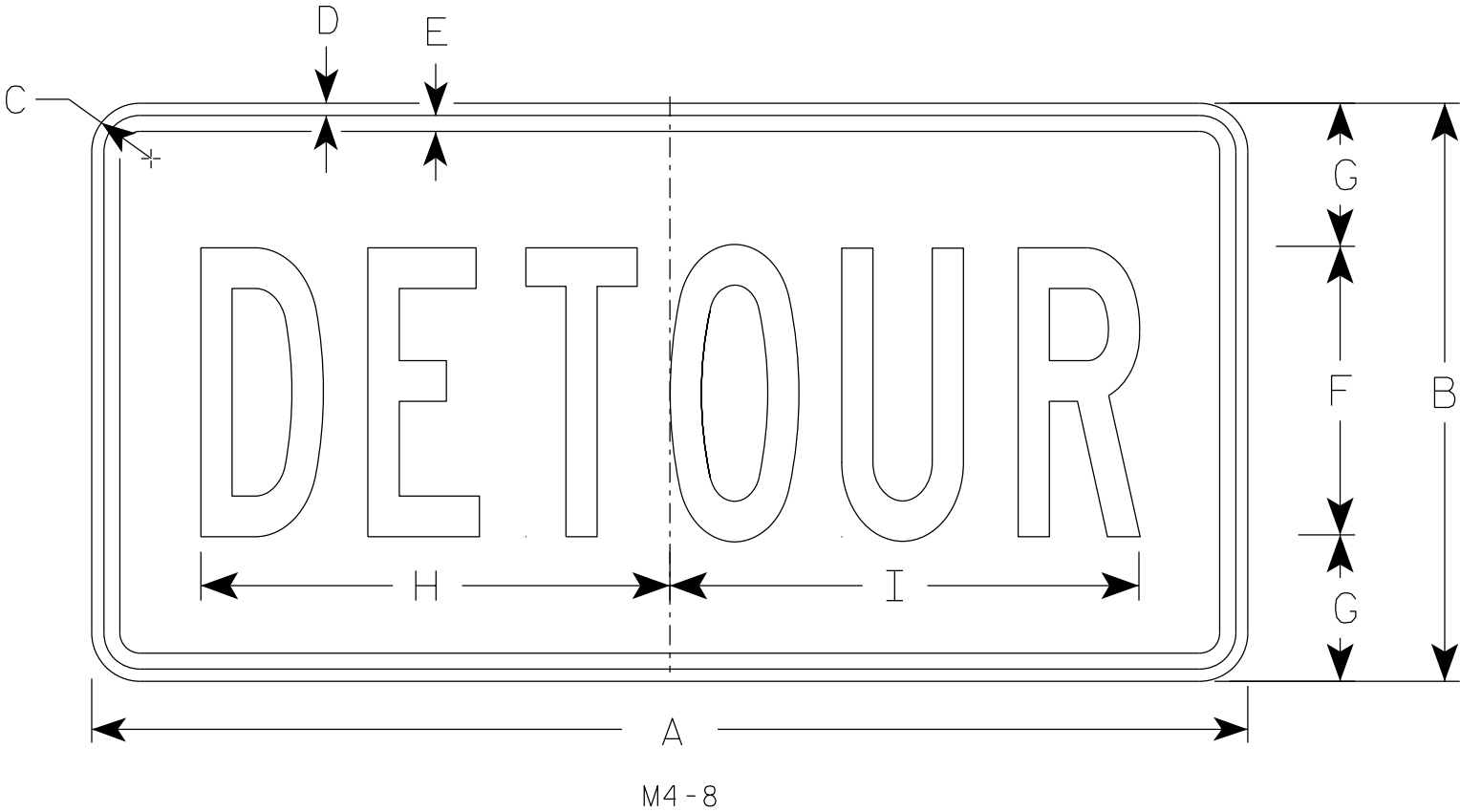
7

7

7

NOTES

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



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

STANDARD SIGN

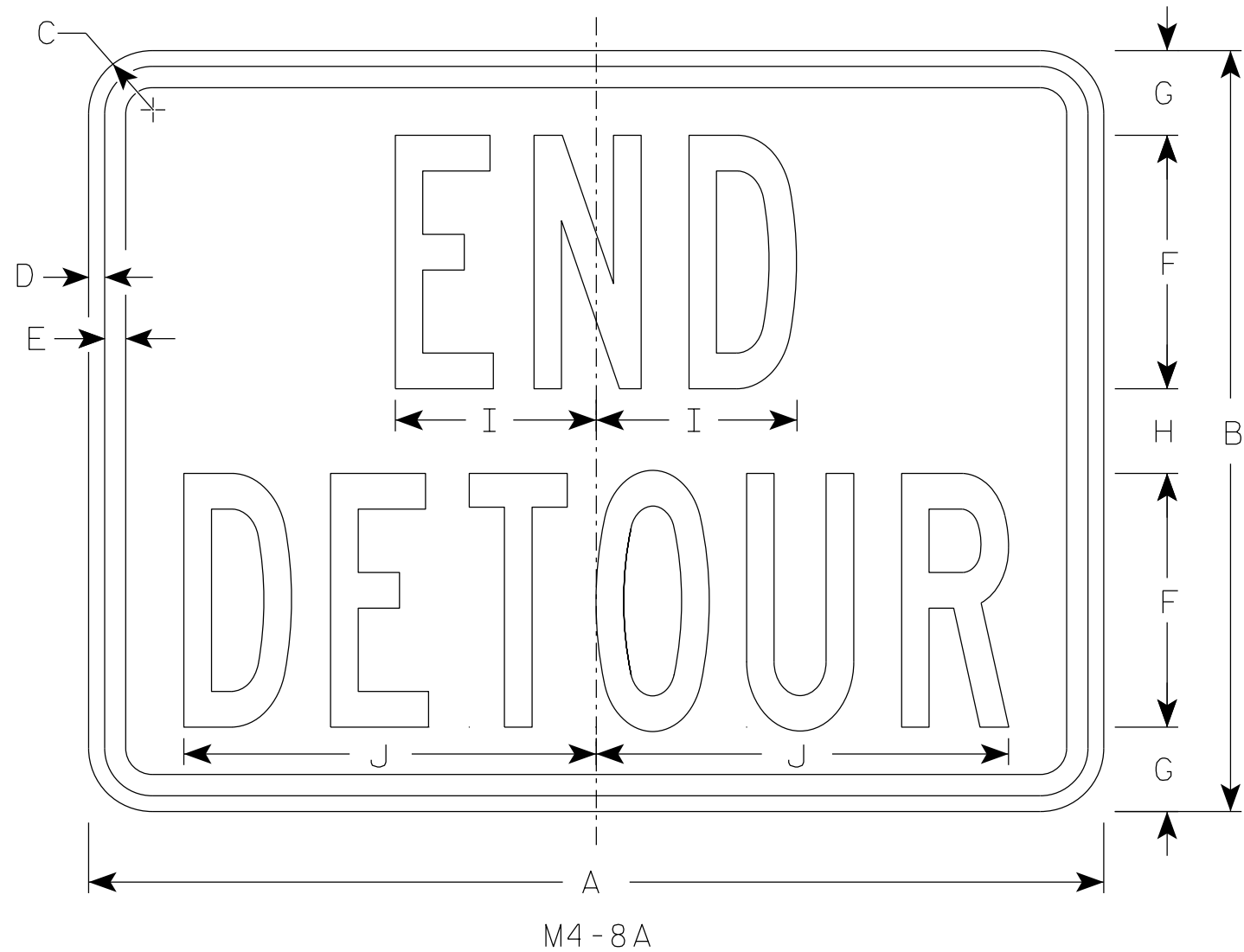
M4 - 8

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

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

7



NOTES

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

7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2	24	18	1 1/2	3/8	1/2	6	2	2	4 3/4	9 3/4																	3.0
2M	24	18	1 1/2	3/8	1/2	6	2	2	4 3/4	9 3/4																	3.0
3	30	24	1 1/2	3/8	1/2	8	2 1/2	3	6 3/4	13																	5.0
4	30	24	1 1/2	3/8	1/2	8	2 1/2	3	6 3/4	13																	5.0
5	30	24	1 1/2	3/8	1/2	8	2 1/2	3	6 3/4	13																	5.0

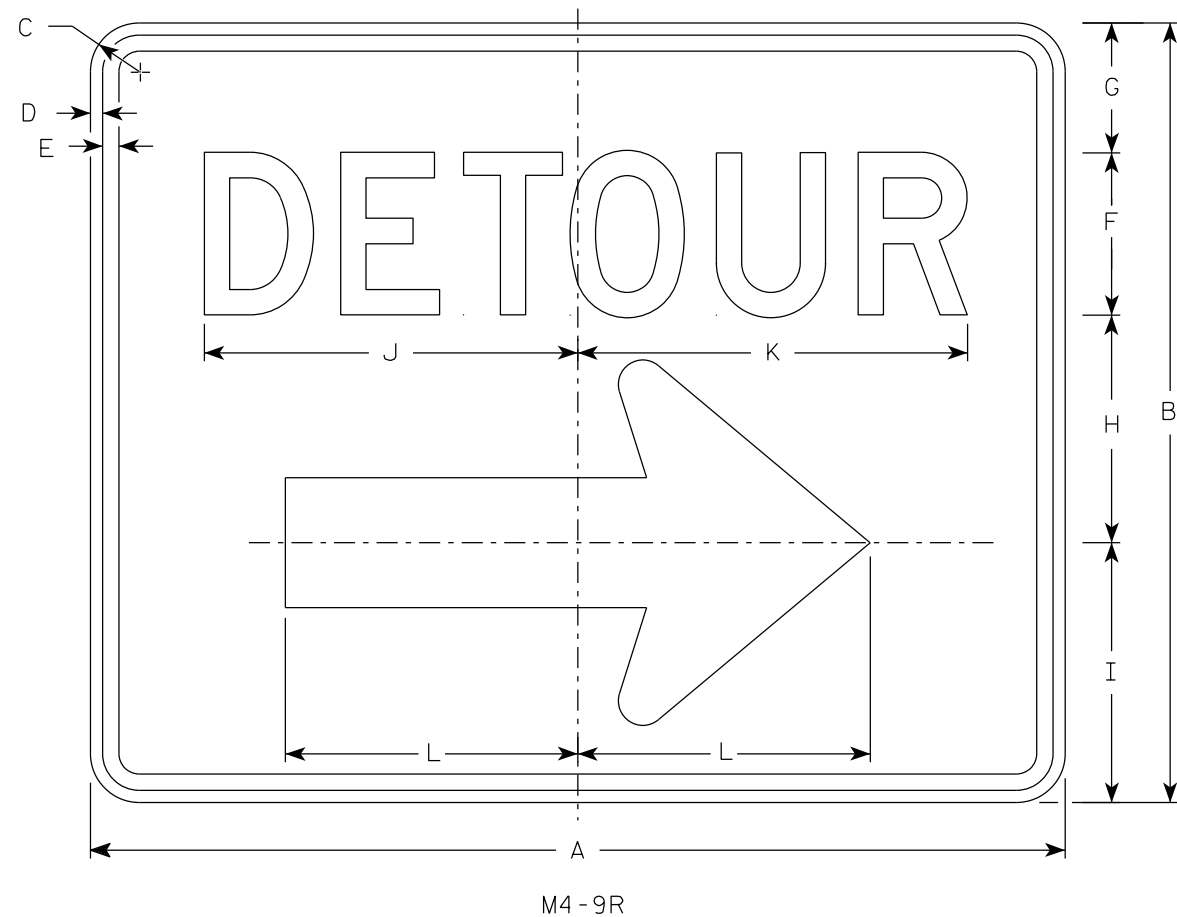
STANDARD SIGN

M4-8A

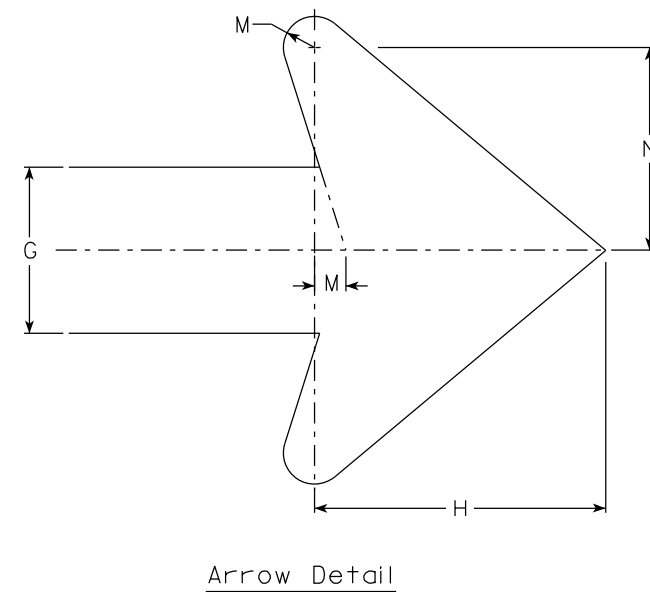
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
For State Traffic Engineer

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



- 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.
 4. M4-9L is the same as M4-9R except the arrow is reversed.



SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2	30	24	1 1/2	3/8	1/2	5	4	7	8	11 1/2	12	9	3/4	4 7/8													5.00
2M	30	24	1 1/2	3/8	1/2	5	4	7	8	11 1/2	12	9	3/4	4 7/8													5.00
3	30	24	1 1/2	3/8	1/2	5	4	7	8	11 1/2	12	9	3/4	4 7/8													5.00
4	48	36	1 7/8	1/2	5/8	8	6	10 1/2	11 5/8	20 5/8	20 1/2	13 1/4	1 1/8	6 7/8													12.0
5	48	36	1 7/8	1/2	5/8	8	6	10 1/2	11 5/8	20 5/8	20 1/2	13 1/4	1 1/8	6 7/8													12.0

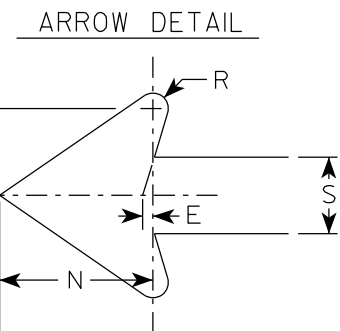
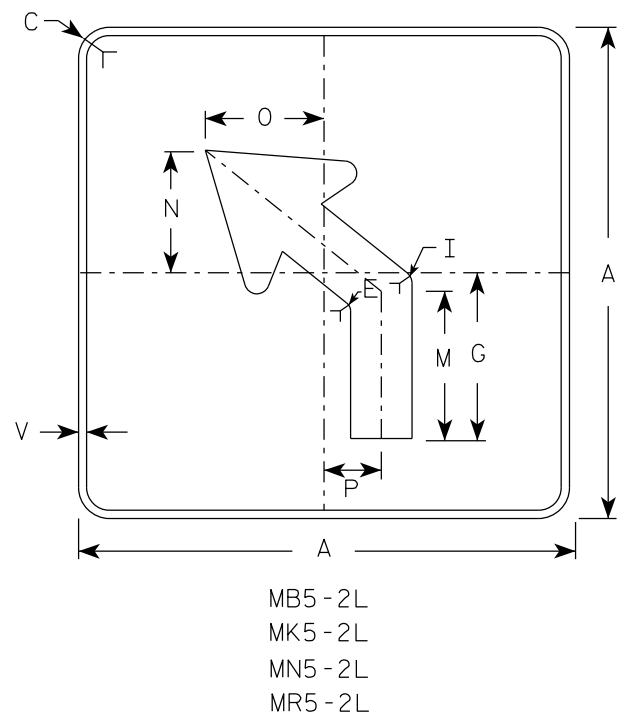
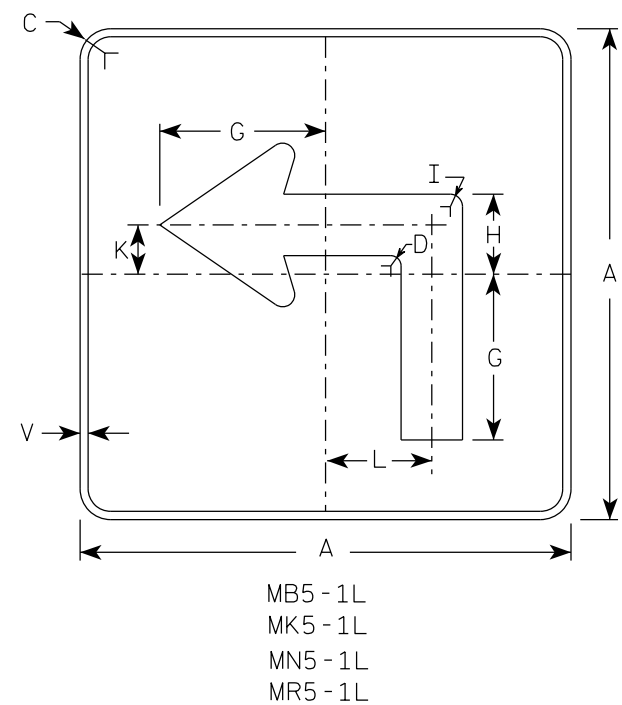
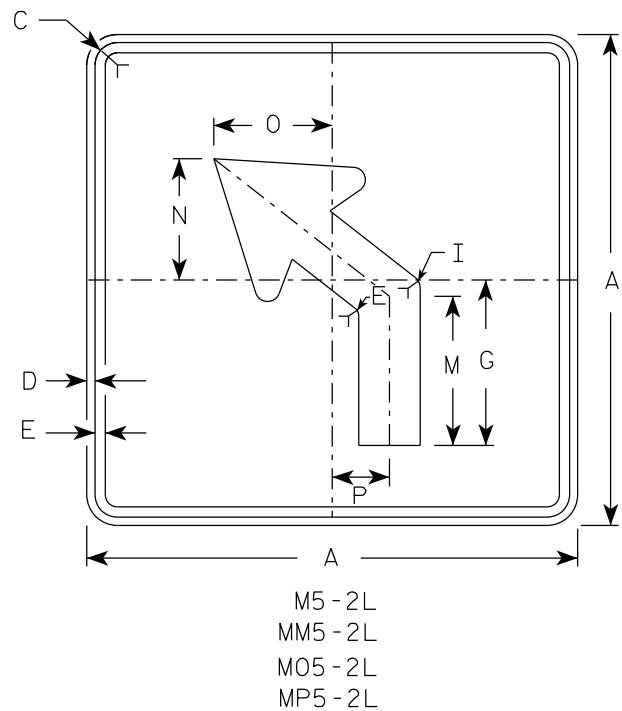
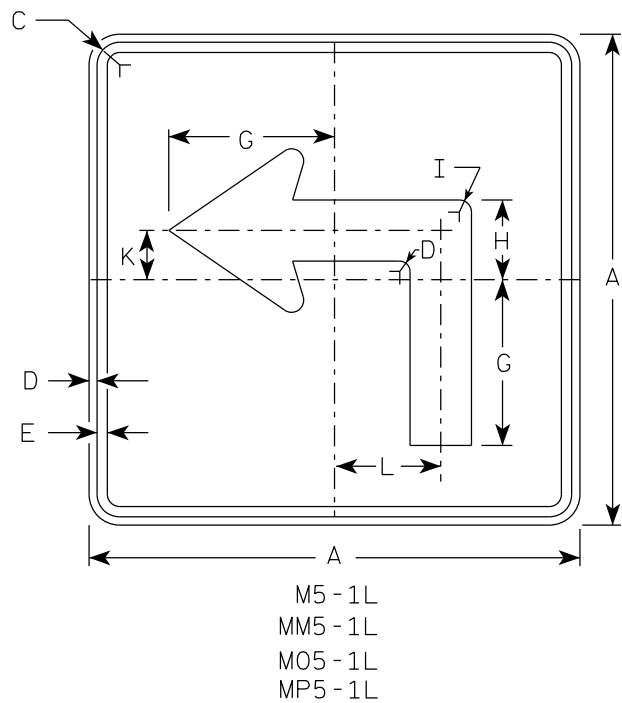
STANDARD SIGN
M4-9 R & L

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
For State Traffic Engineer

DATE 2/9/2023 PLATE NO. M4-9R.6

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

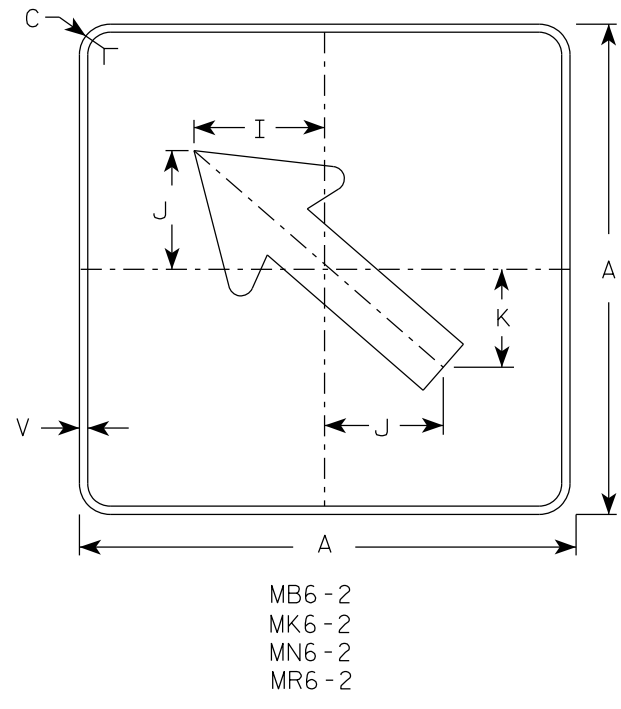
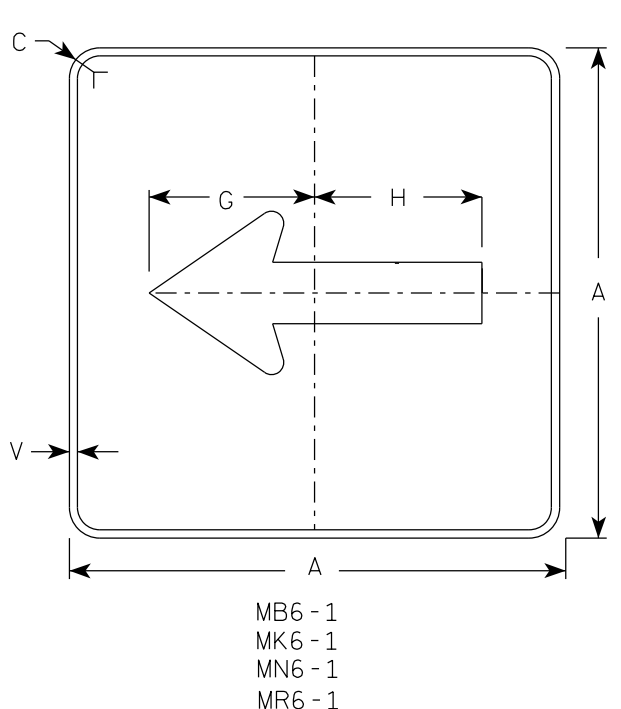
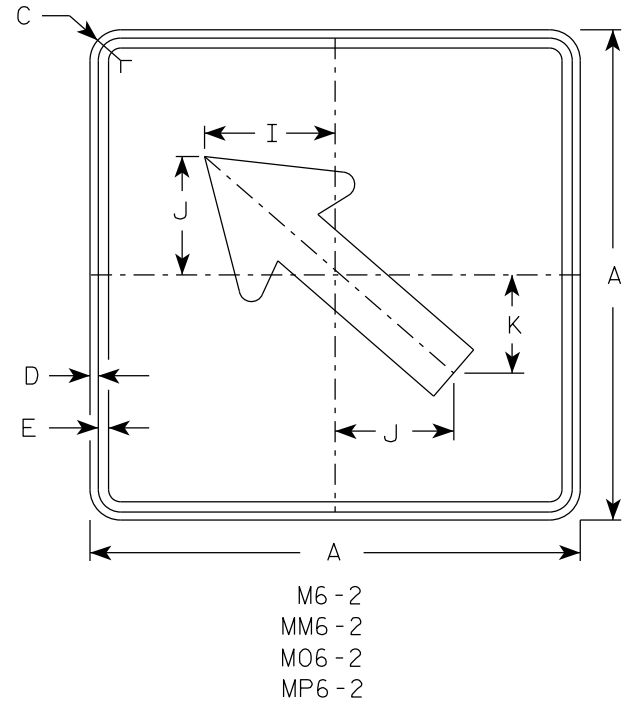
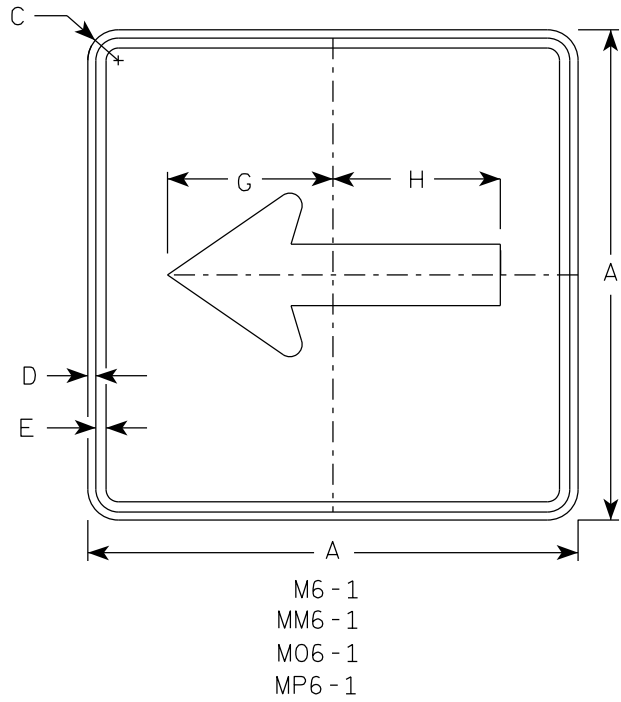


NOTES

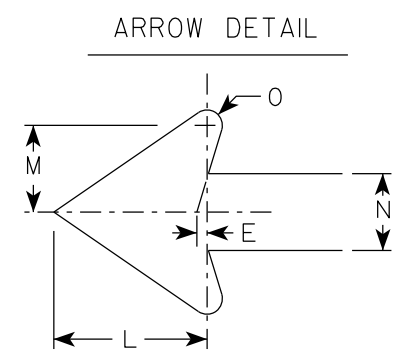
- Signs are Type II - Type H reflective except as shown
- Color:
Background - See note 4
Message - See note 4
- Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
- | | |
|-----------------|---|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

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

PROJECT NO:	HWY:	COUNTY:	SHEET NO:	E
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- NOTES
- Signs are Type II - Type H Reflective except as Shown
 - Color:
Background - See note 4
Message - See note 4
 - Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
 - M6-1 and M6-2 Background - White
Message - Black
MB6-1 and MB6-2 Background - Blue
Message - White
MK6-1 and MK6-2 Background - Green
Message - White
MM6-1 and MM6-2 Background - White
Message - Green
MN6-1 and MN6-2 Background - Brown
Message - White
M06-1 and M06-2 Background - Orange - Type F Reflective
Message - Black
MP6-1 and MP6-2 Background - White
Message - Blue
MR6-1 and MR6-2 Background - Brown
Message - Yellow



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

PROJECT NO:

HWY:

COUNTY:

SHEET NO:

E

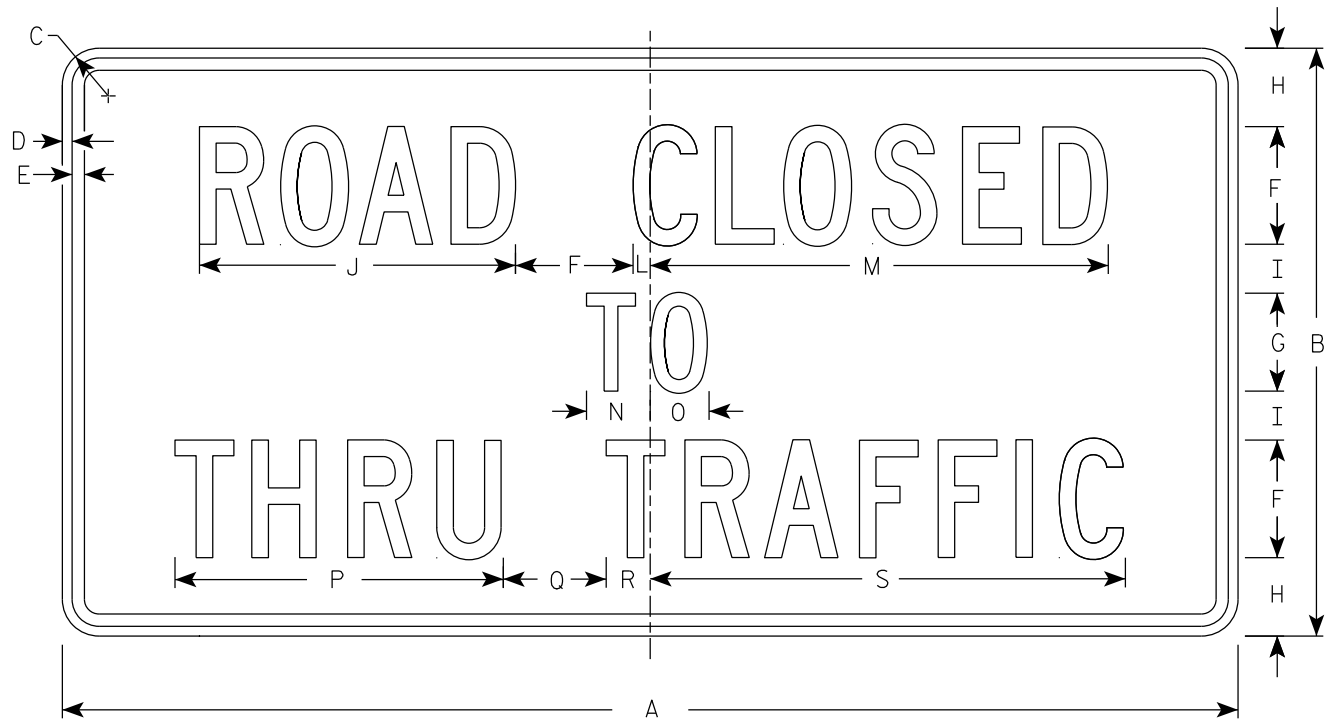
STANDARD SIGN
M6 - 1 & M6 - 2
SERIES

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

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

7



R11-4

NOTES

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

7

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

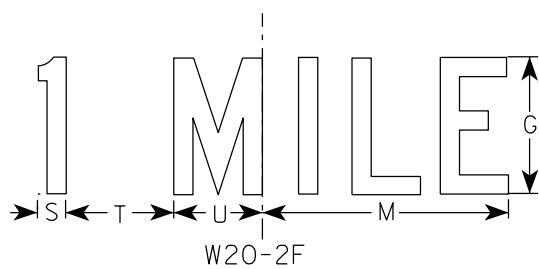
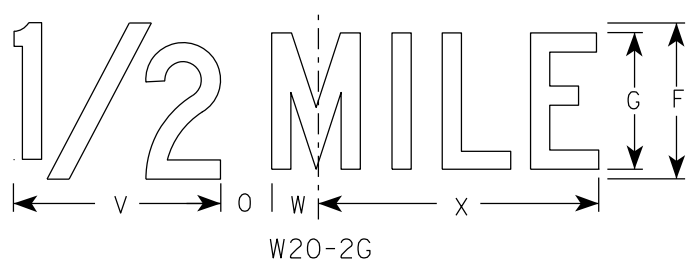
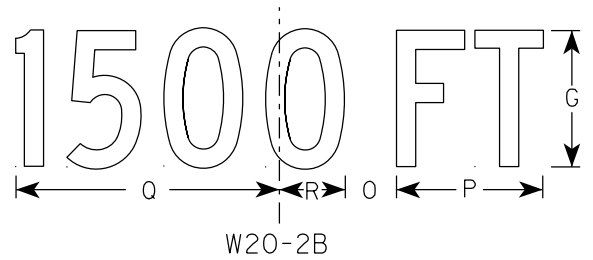
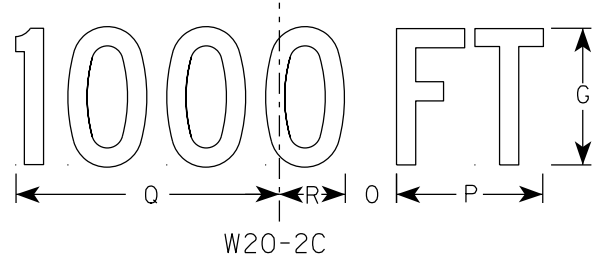
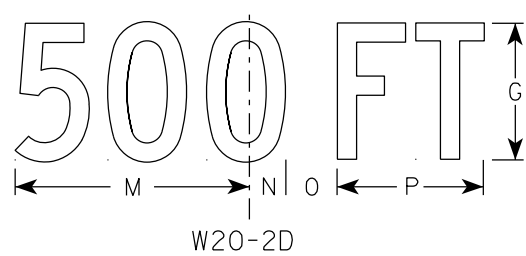
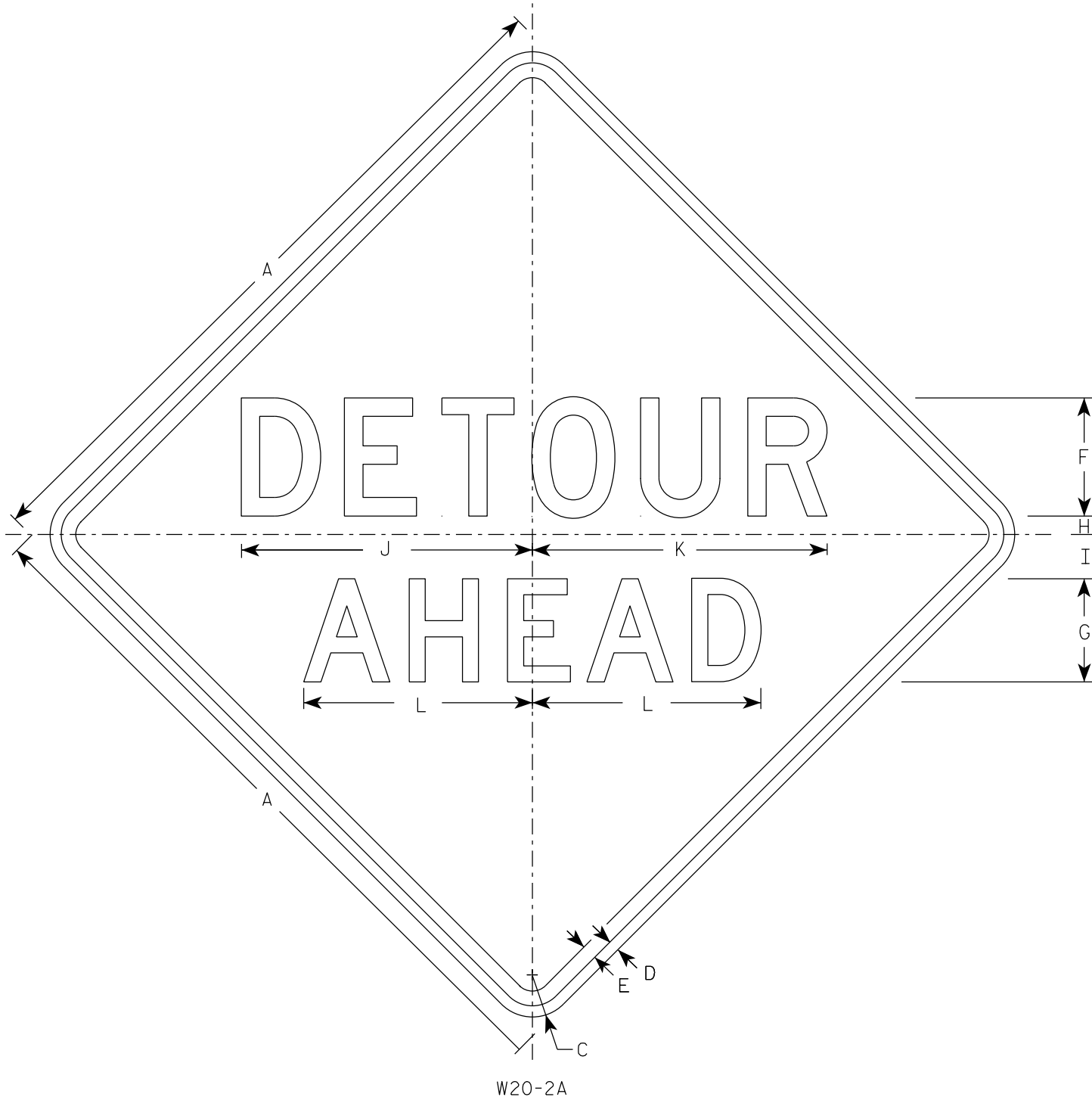
PROJECT NO:

HWY:

COUNTY:

SHEET NO:

E



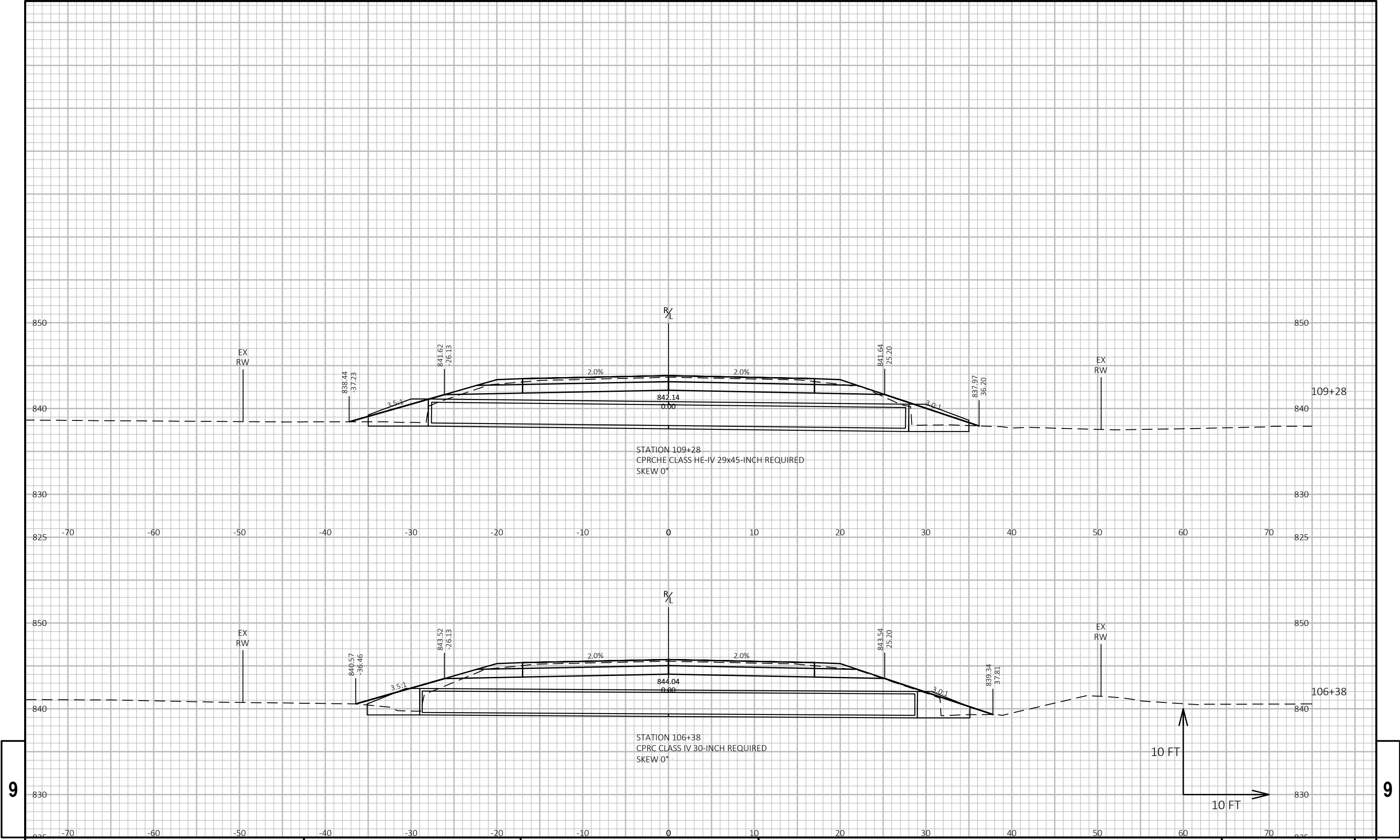
NOTES

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

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	v	w	x	Y	Z	Area sq. ft.
1	36		2 1/4	5/8	3/4	6	5	1	2 1/4	14 3/4	15	11 5/8	9	1 3/8	1 7/8	5 5/8	10 1/8	2 1/2	1 1/8	4 1/2	3 1/2	8	1 3/4	10 3/4			9.0
2S	48		3	3/4	1	8	7	1 1/4	3	19 3/4	20	15 1/2	12	1 7/8	2 5/8	7 1/2	13 1/2	3 3/8	1 1/2	6	4 5/8	10 5/8	2 3/8	14 3/8			16.0
2M	48		3	3/4	1	8	7	1 1/4	3	19 3/4	20	15 1/2	12	1 7/8	2 5/8	7 1/2	13 1/2	3 3/8	1 1/2	6	4 5/8	10 5/8	2 3/8	14 3/8			16.0
3	48		3	3/4	1	8	7	1 1/4	3	19 3/4	20	15 1/2	12	1 7/8	2 5/8	7 1/2	13 1/2	3 3/8	1 1/2	6	4 5/8	10 5/8	2 3/8	14 3/8			16.0
4	48		3	3/4	1	8	7	1 1/4	3	19 3/4	20	15 1/2	12	1 7/8	2 5/8	7 1/2	13 1/2	3 3/8	1 1/2	6	4 5/8	10 5/8	2 3/8	14 3/8			16.0
5	48		3	3/4	1	8	7	1 1/4	3	19 3/4	20	15 1/2	12	1 7/8	2 5/8	7 1/2	13 1/2	3 3/8	1 1/2	6	4 5/8	10 5/8	2 3/8	14 3/8			16.0

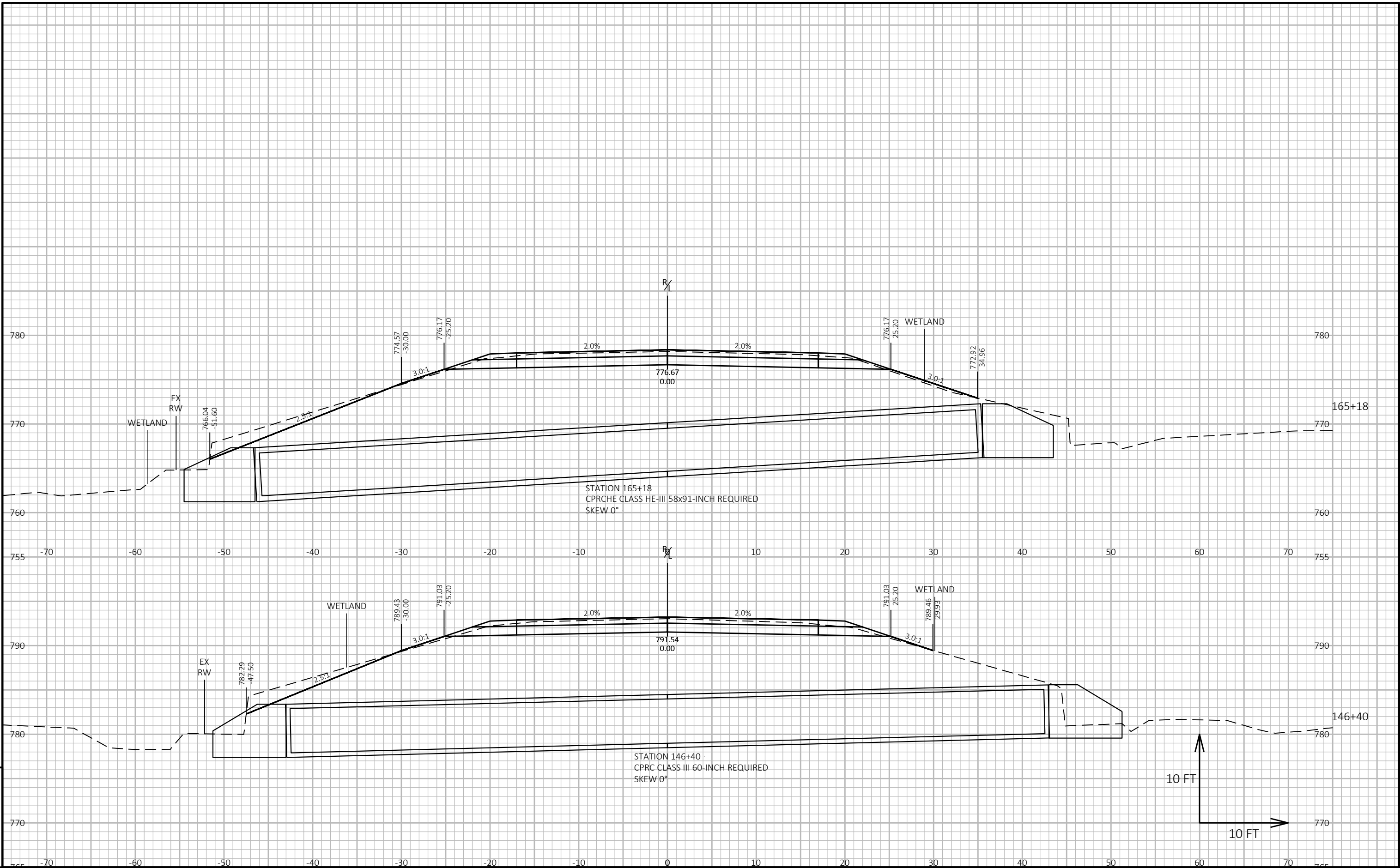
STANDARD SIGN W20-2A,B,C,D,F & G	
WISCONSIN DEPT OF TRANSPORTATION	
APPROVED	<i>Matthew R. Rauch</i> For State Traffic Engineer
DATE 1/10/2024	PLATE NO. W20-2.7

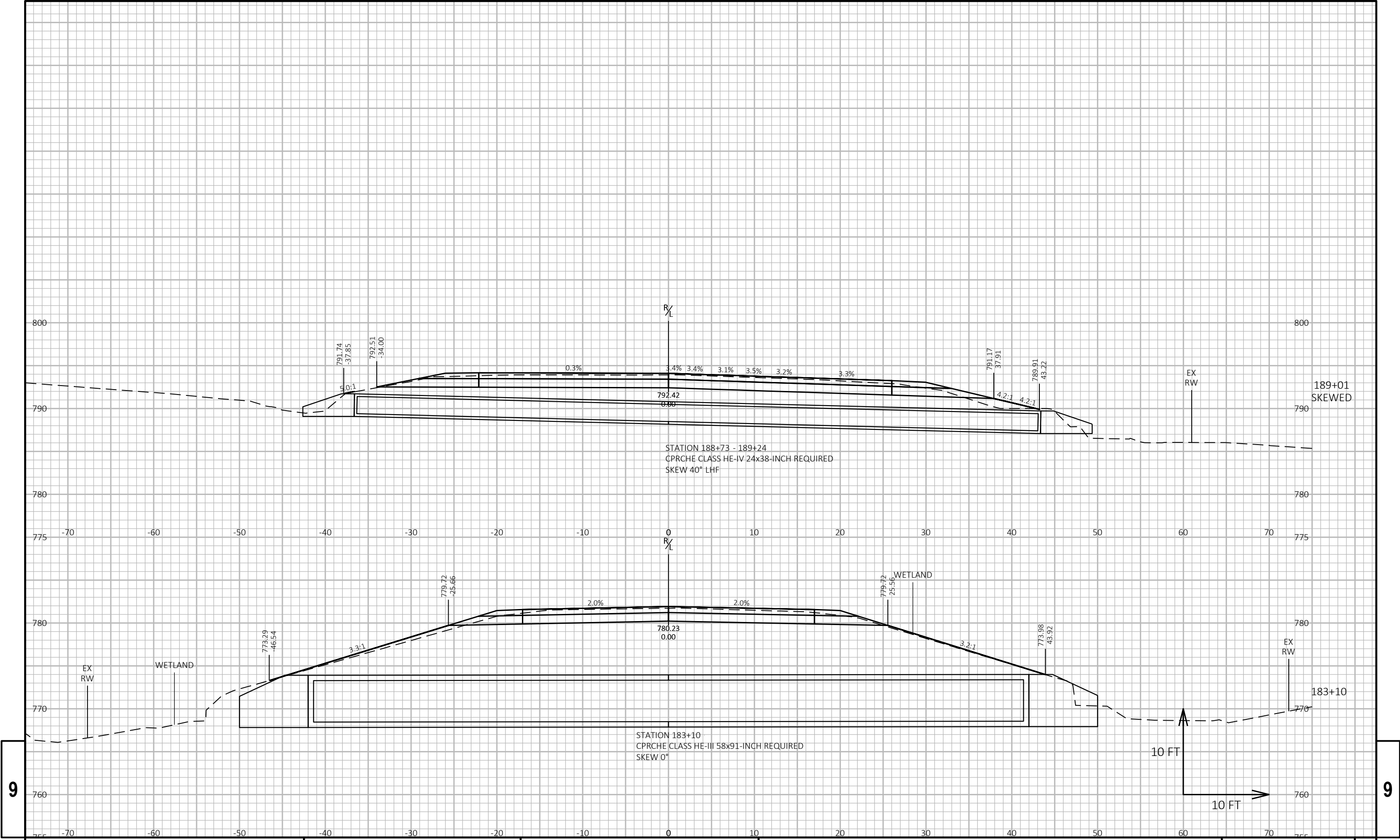
PROJECT NO:	HWY:	COUNTY:	SHEET NO:	E
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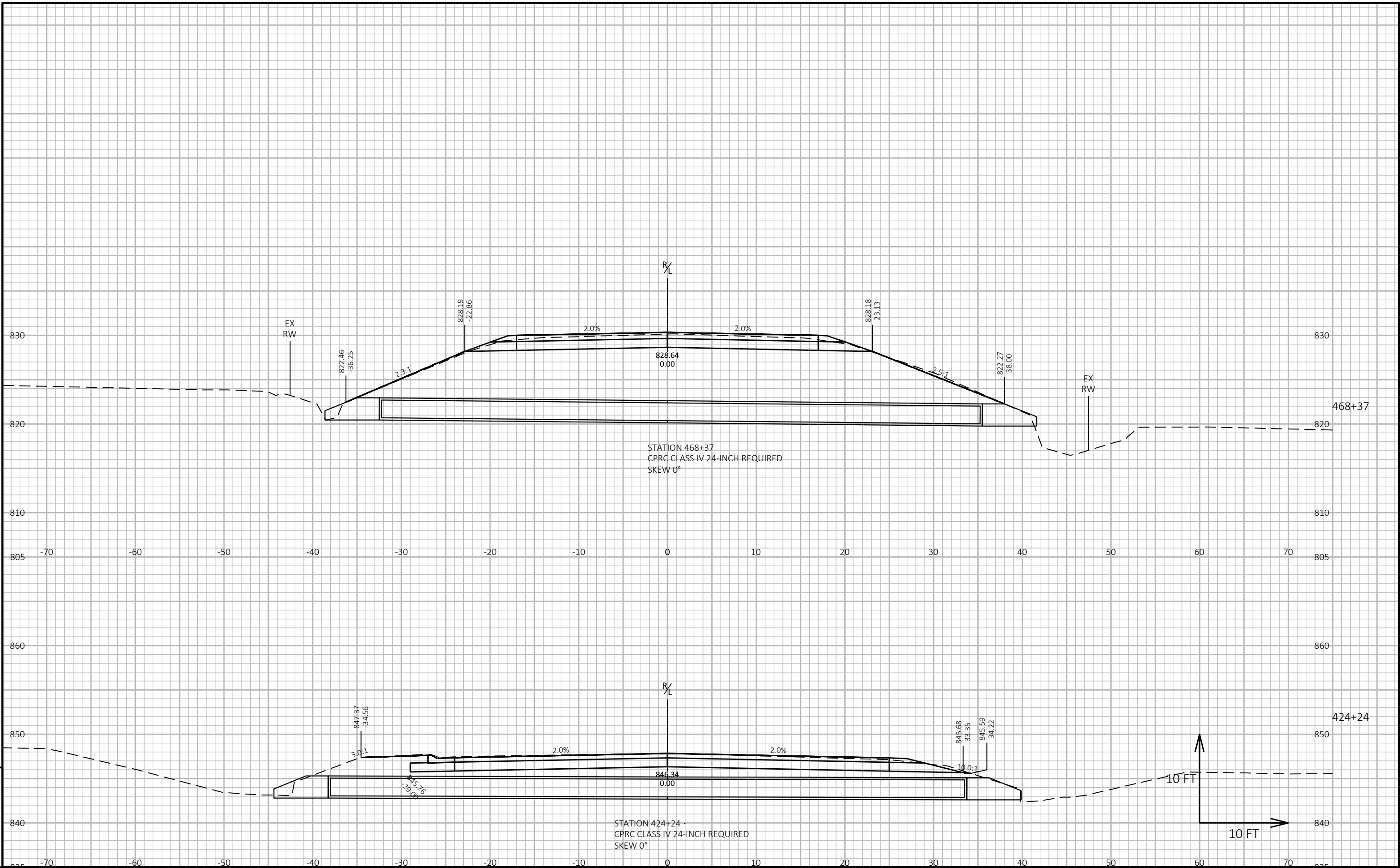


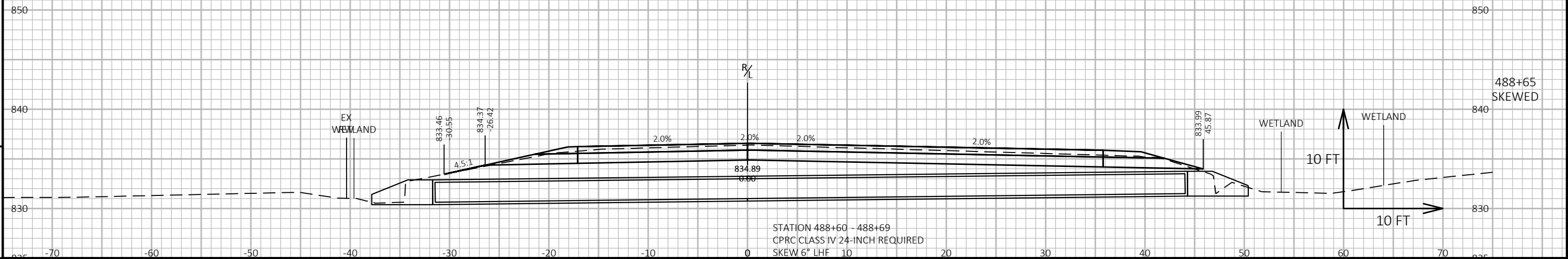
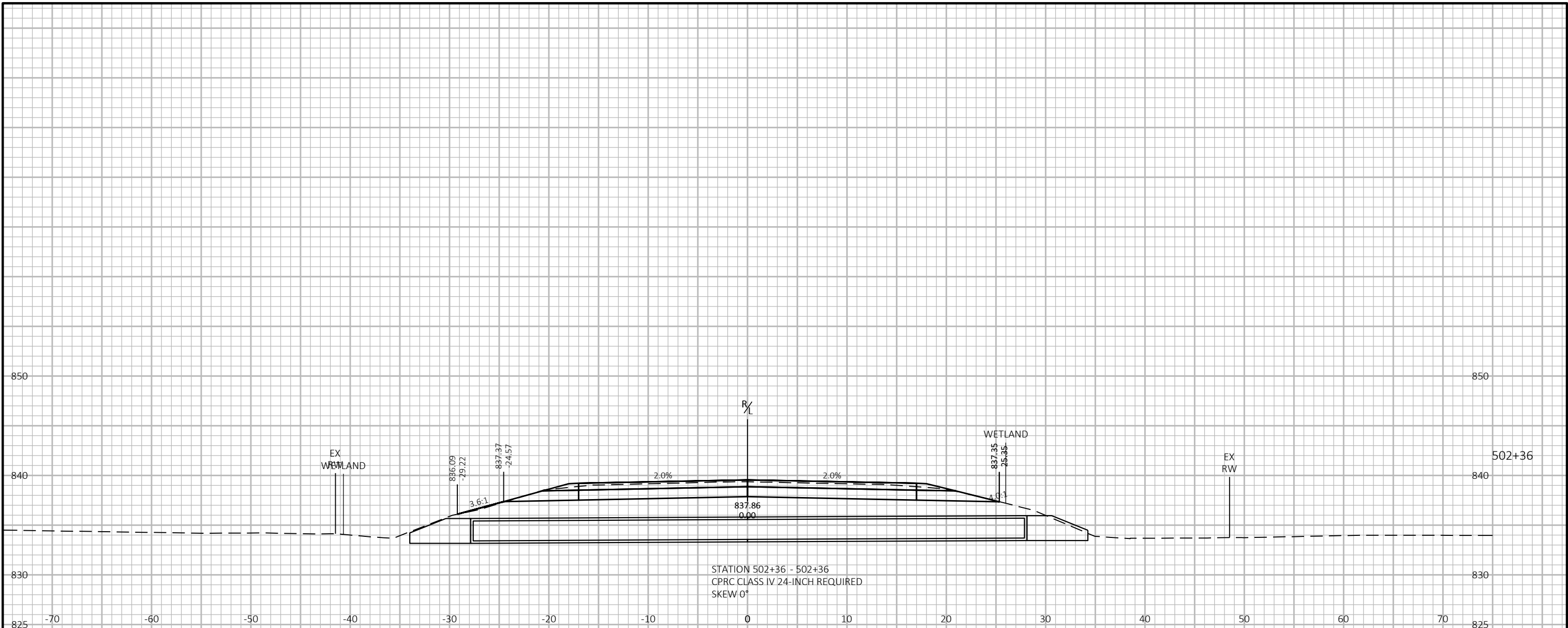
9

9

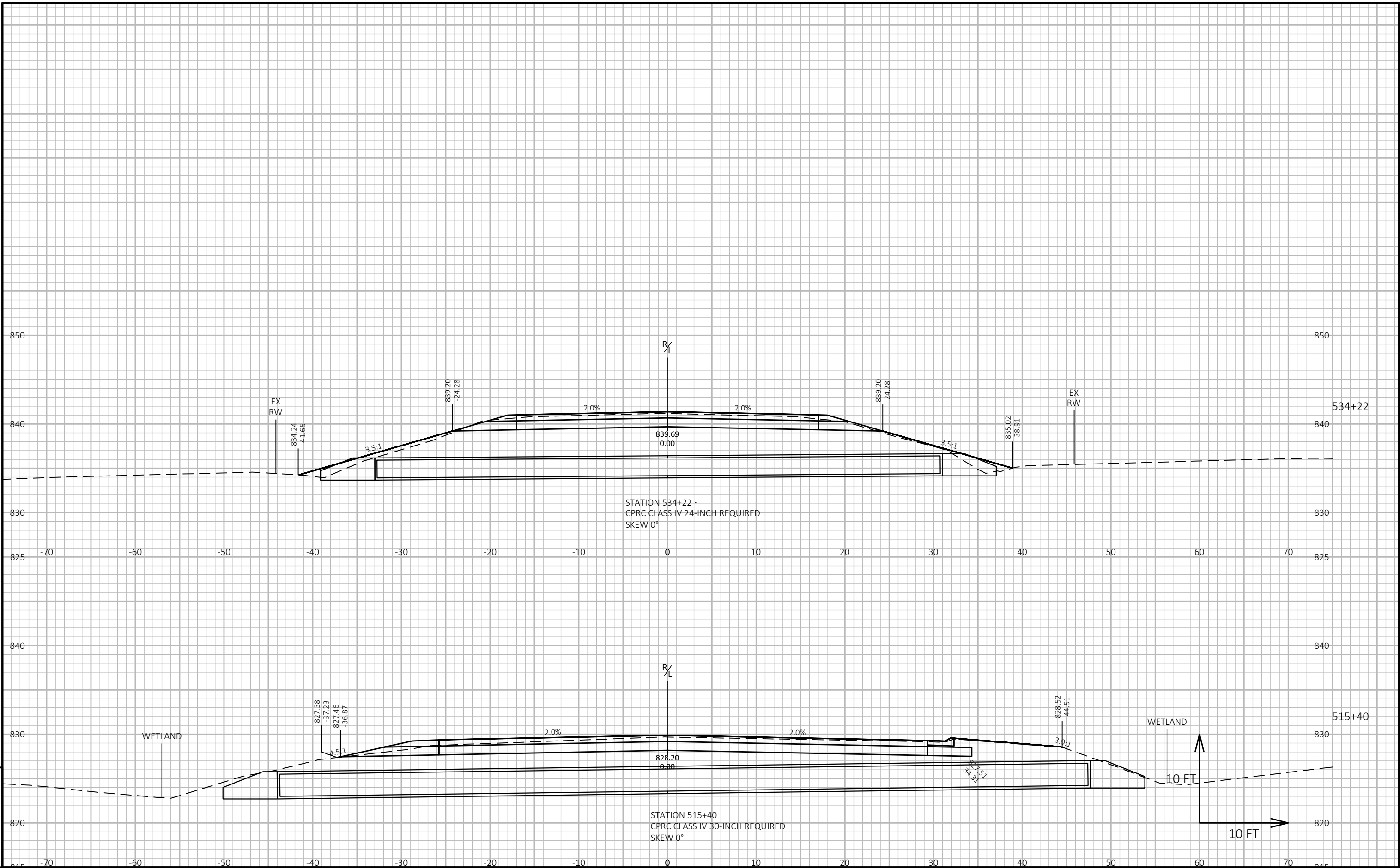


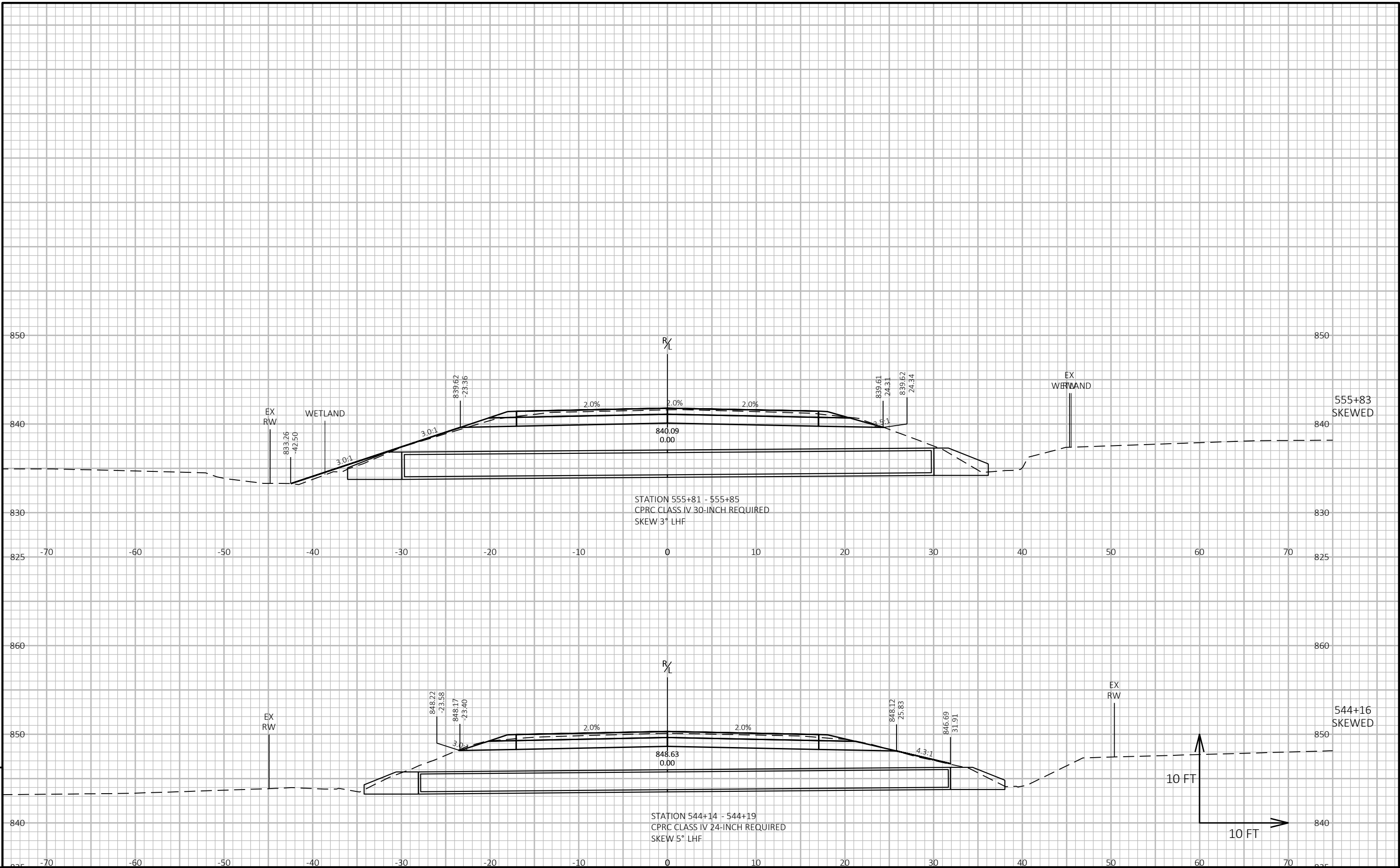


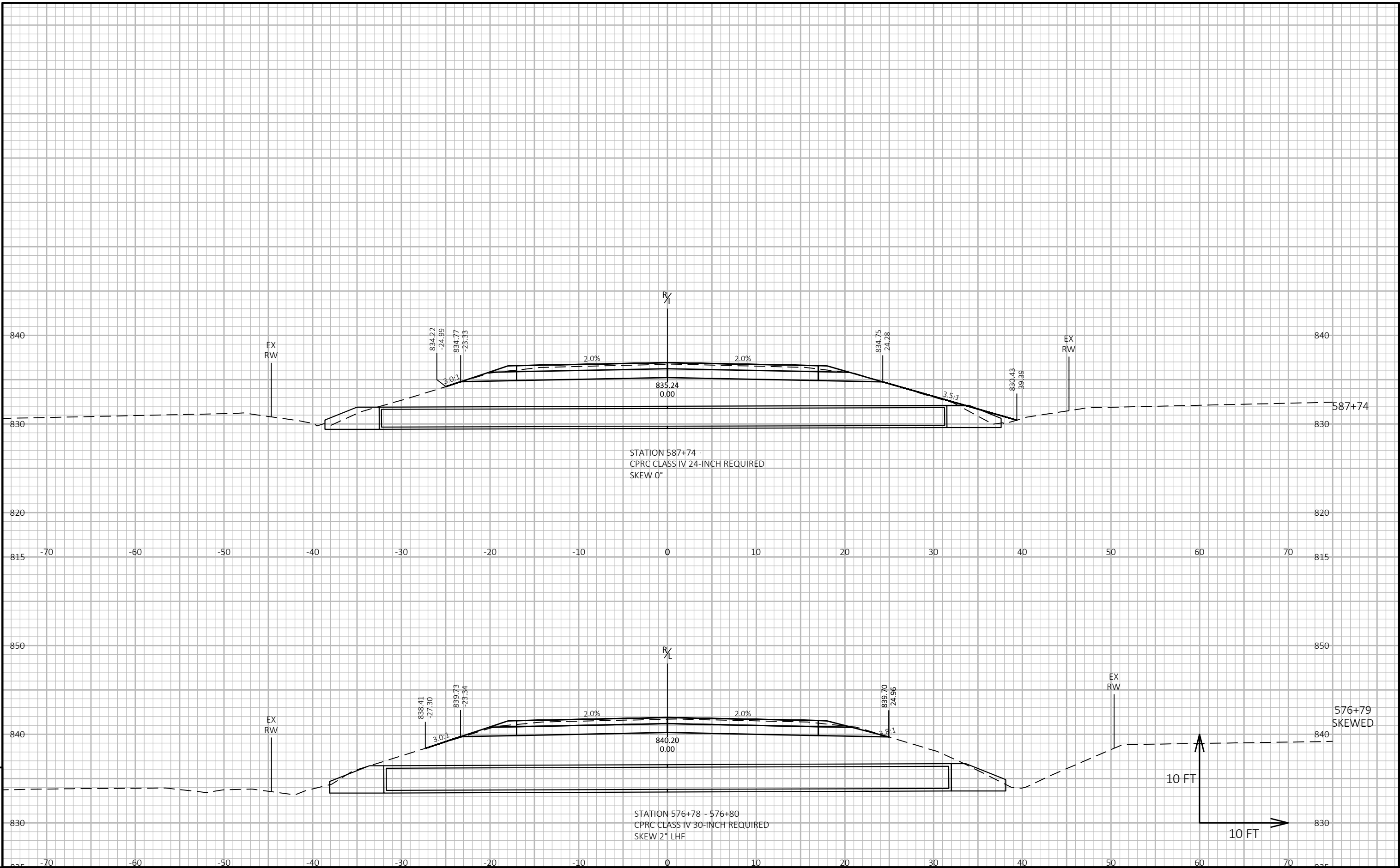


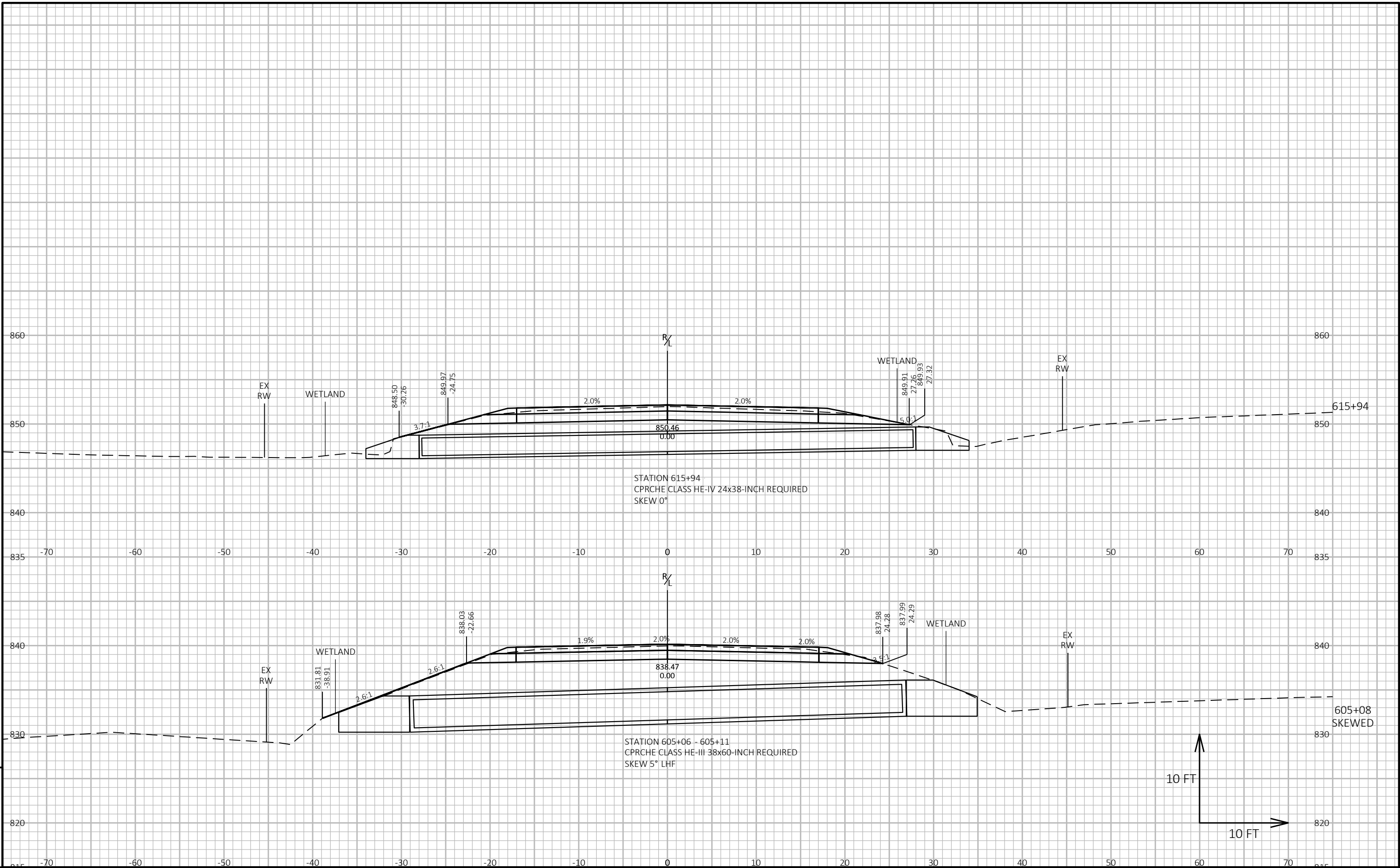


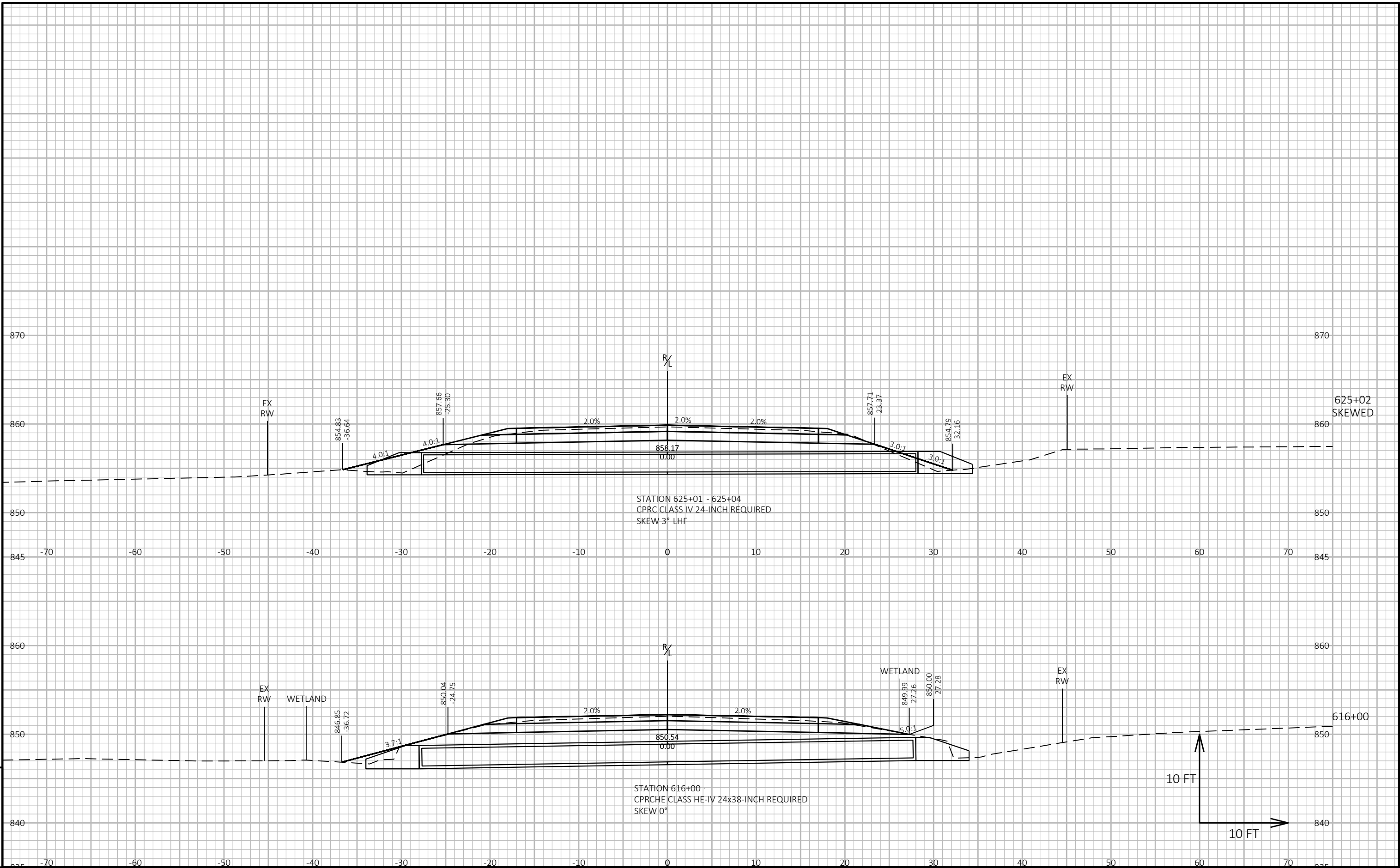
PROJECT NO: 6540-08-71	HWY: STH 91	COUNTY: WINNEBAGO	CROSS SECTIONS: STH 91	SHEET	E
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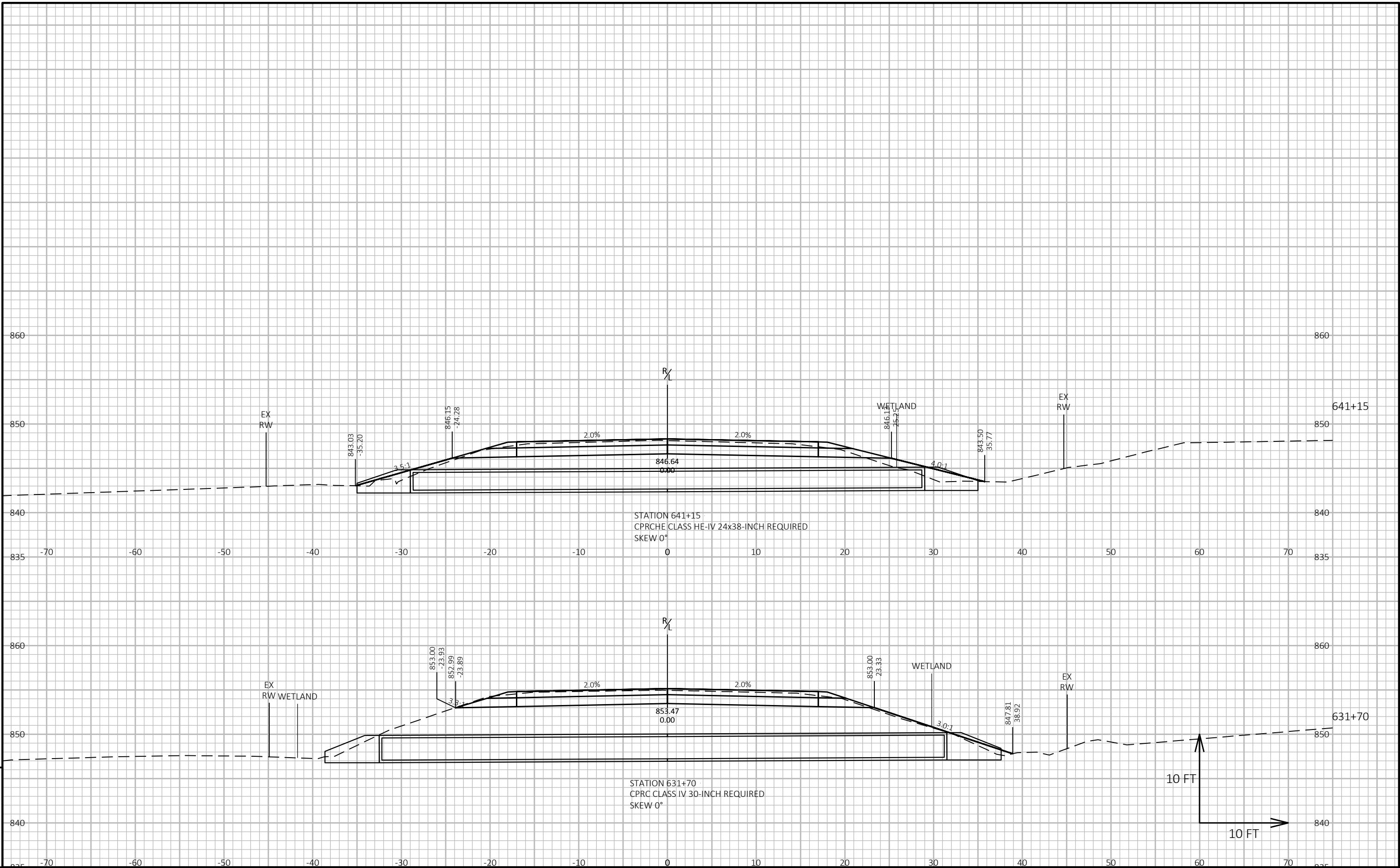


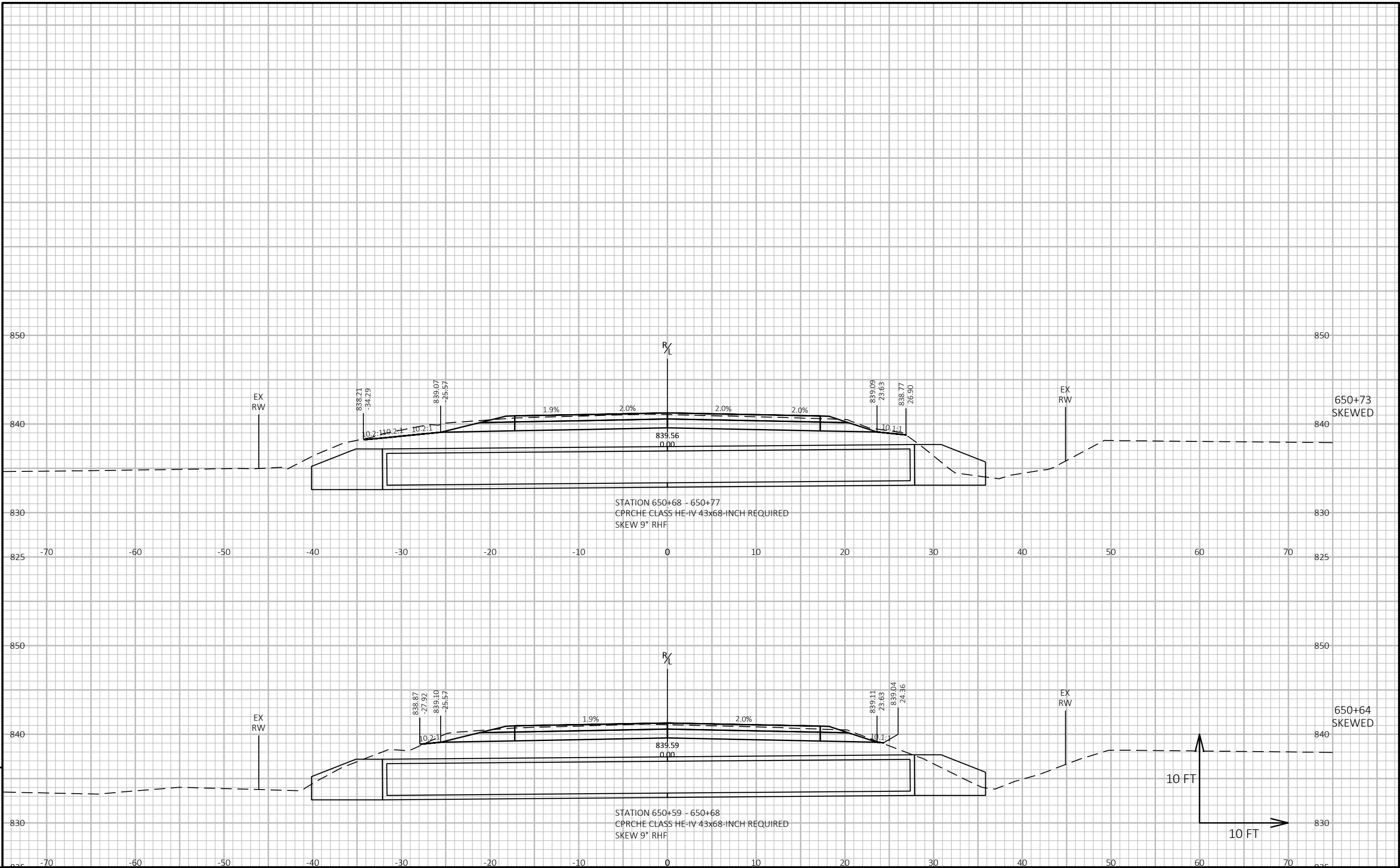


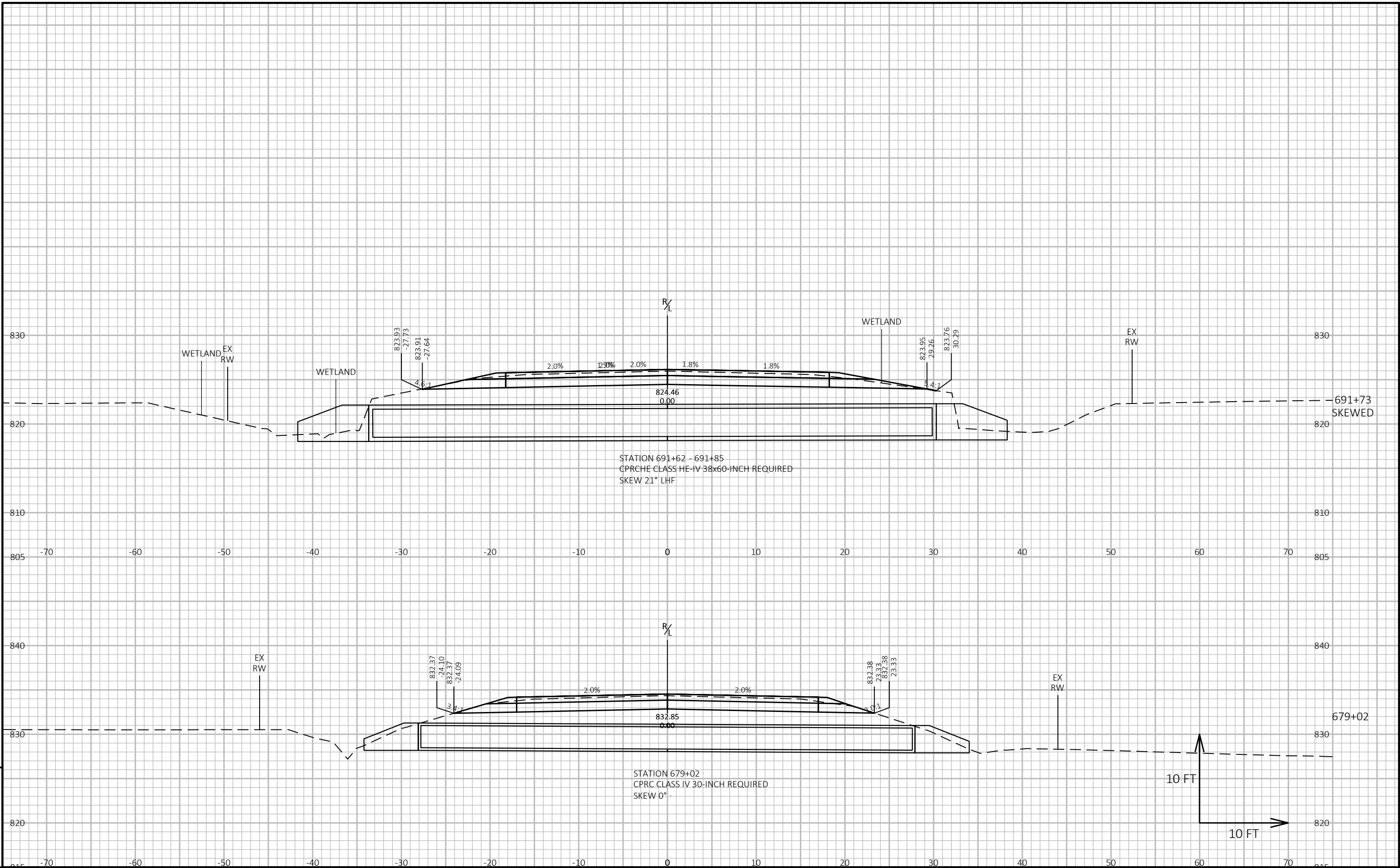


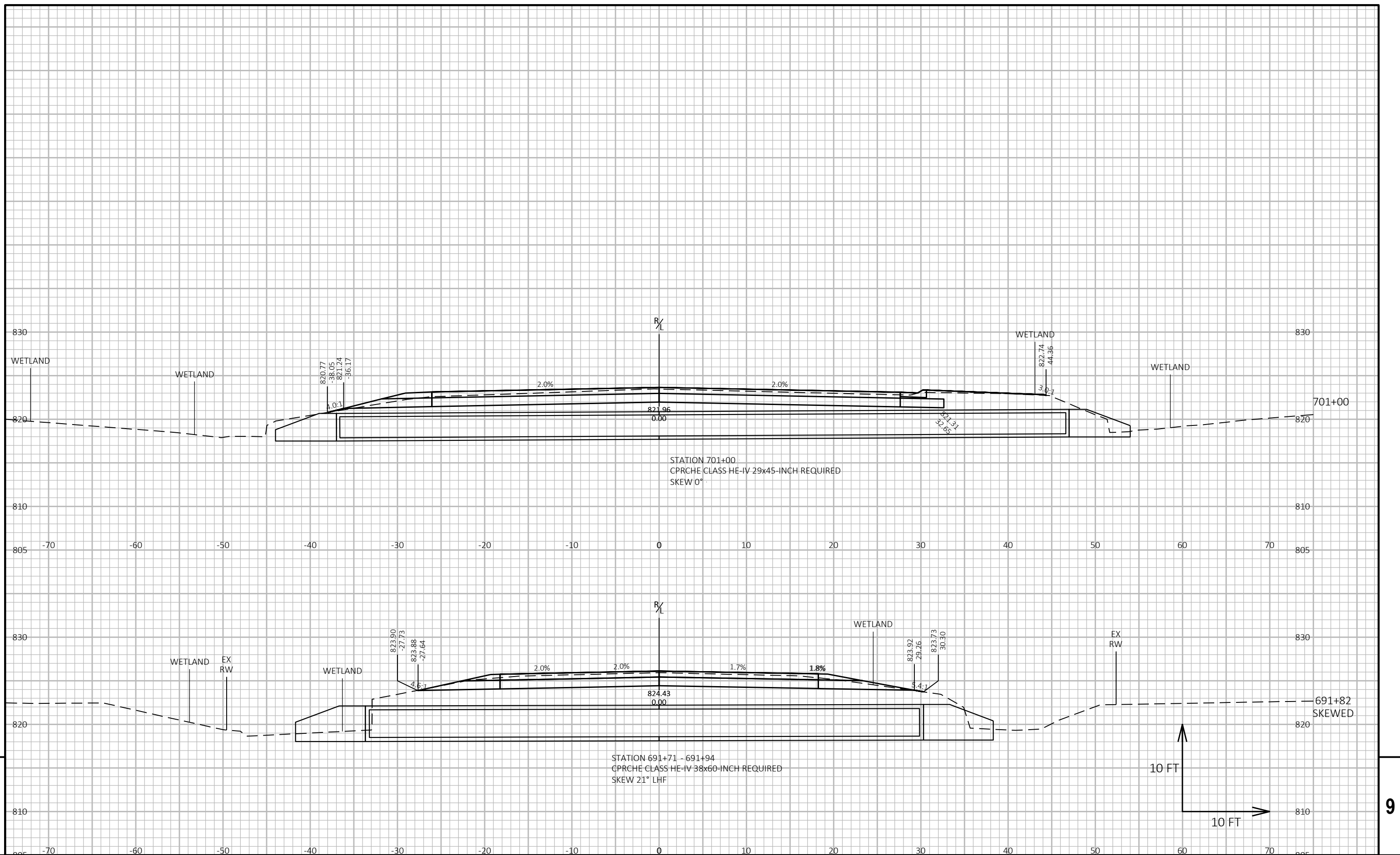












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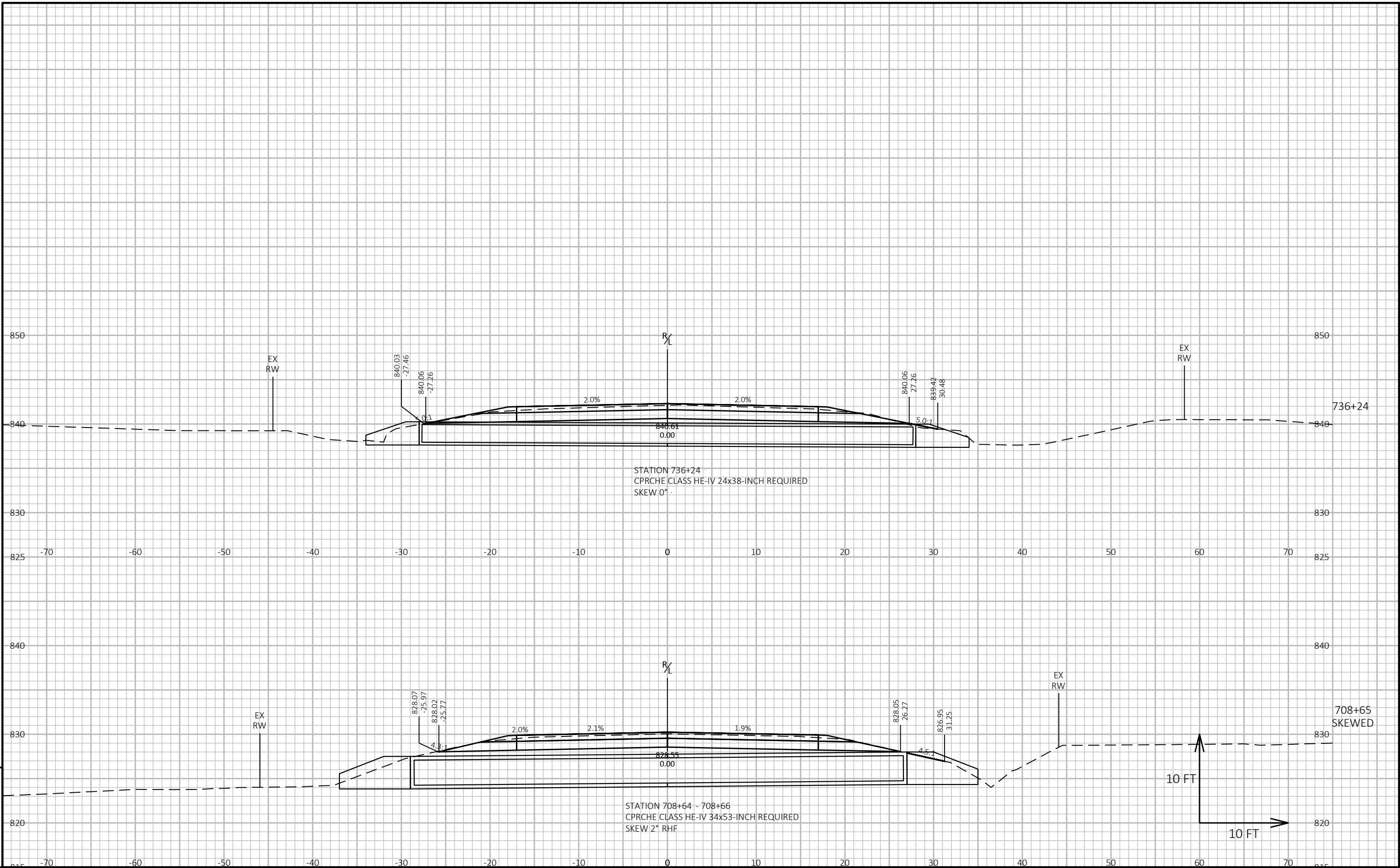
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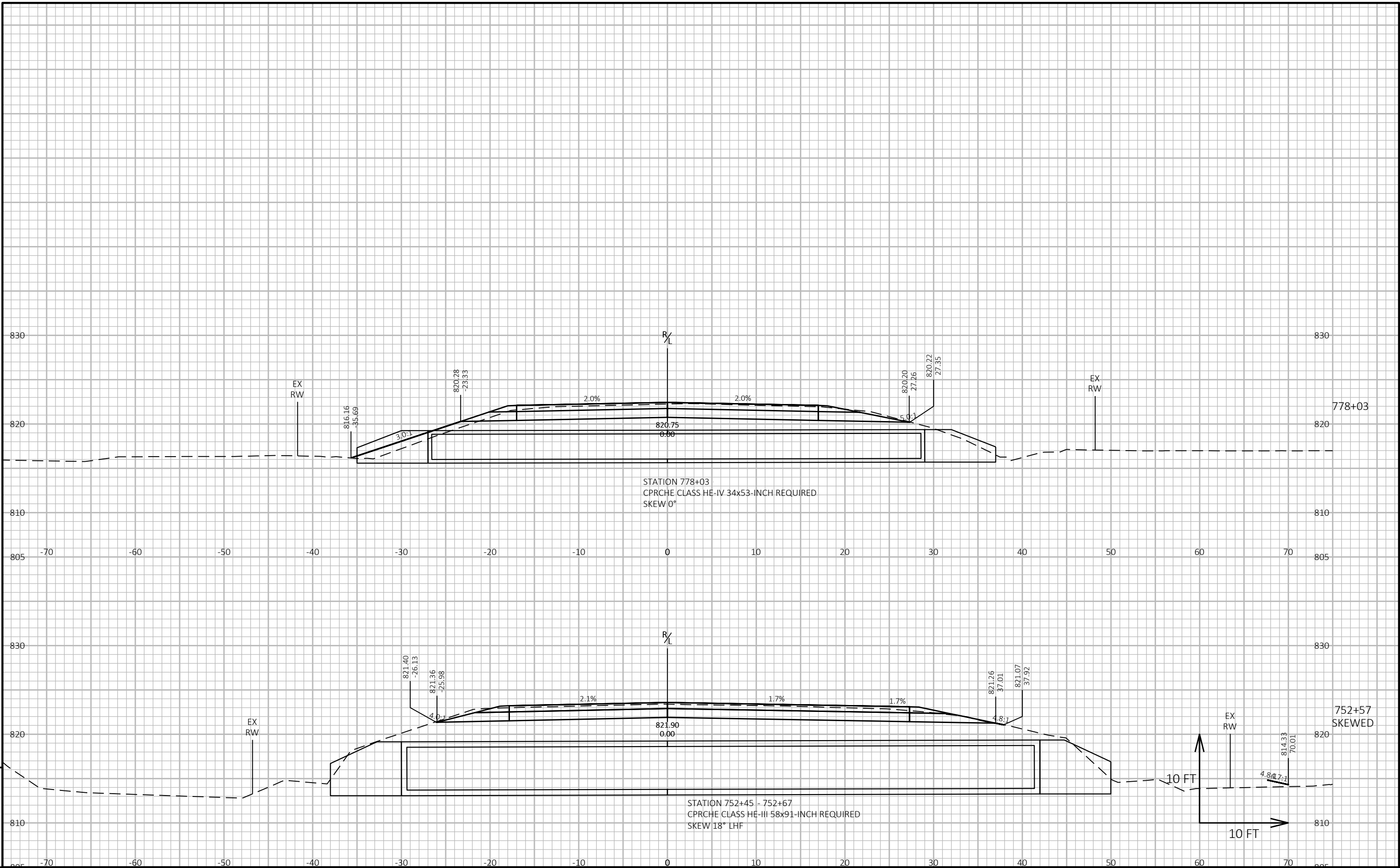
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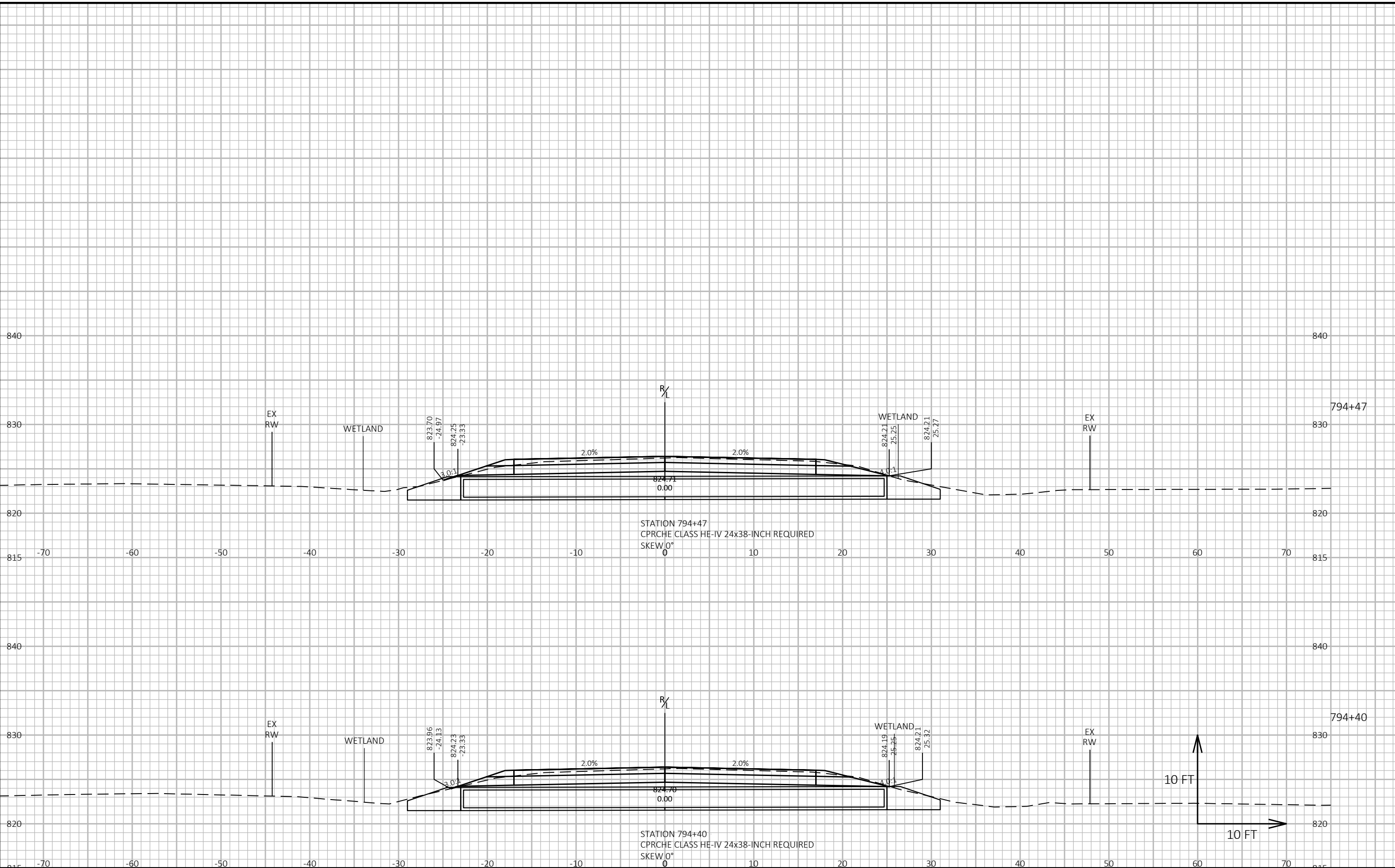
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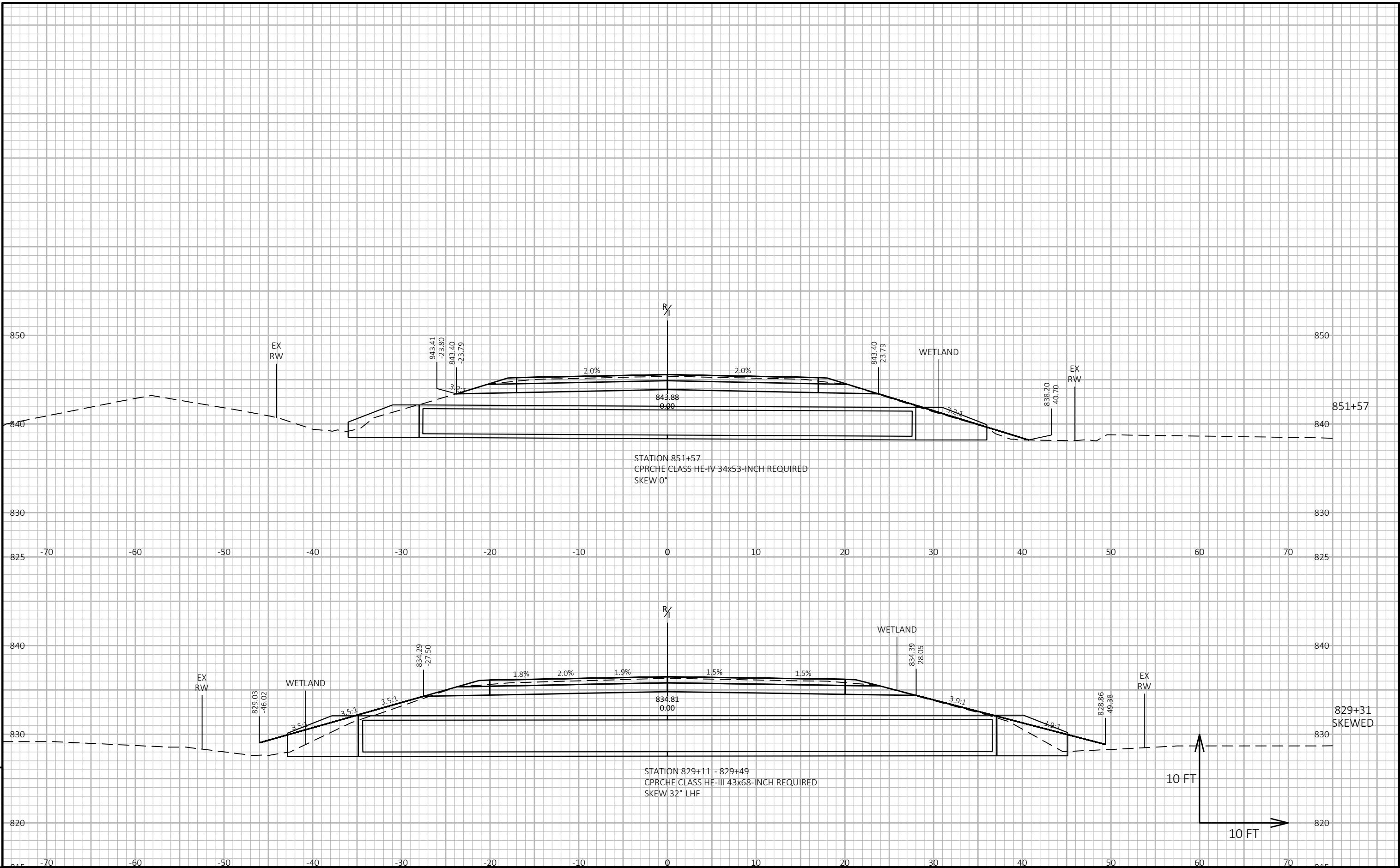
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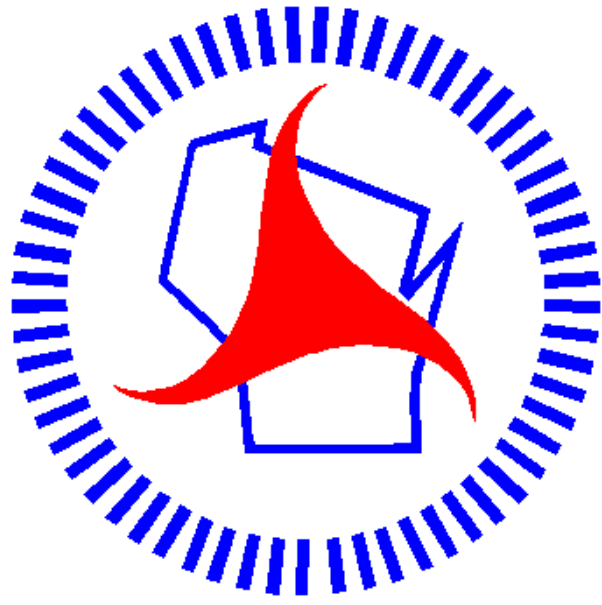
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