

WIS
PROJECT ID:
WITH: N/A

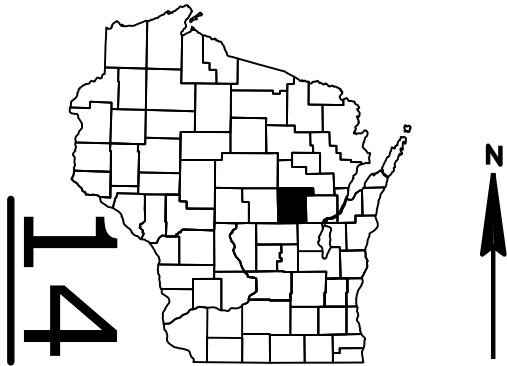
1140-00-78

COUNTY:
WAUPACA

SEPTEMBER 2026
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 = 148



DESIGN DESIGNATION

A.A.D.T.	(2026)	=	9,350
A.A.D.T.	(2046)	=	10,070
D.H.V.		=	
D.D.		=	
T.		=	16.7 %
DESIGN SPEED		=	60 MPH
ESALS		=	3,400,000

CONVENTIONAL SYMBOLS

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

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

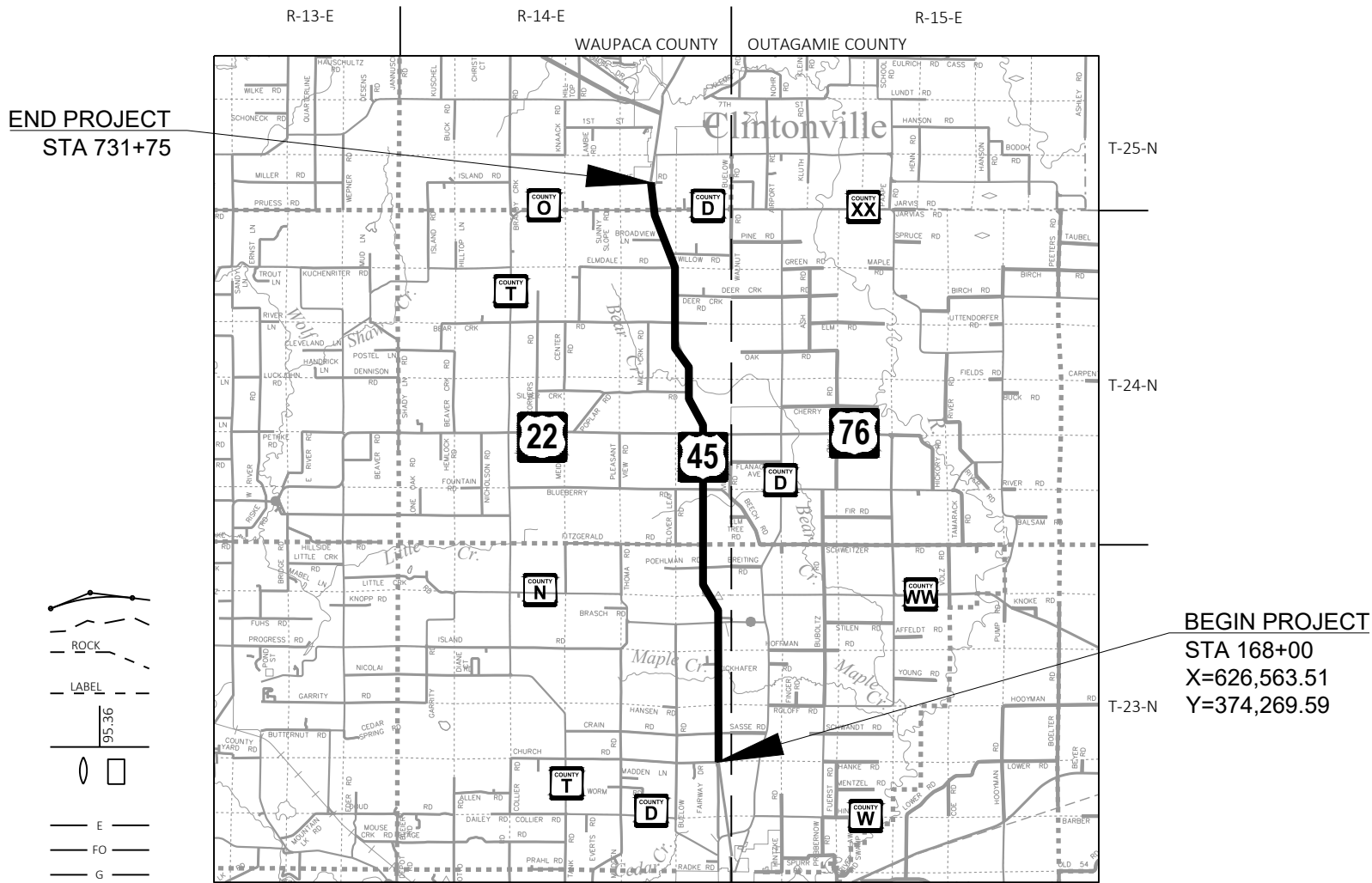
NEW LONDON - CLINTONVILLE

CHURCH ROAD TO REINKE ROAD

USH 45

WAUPACA COUNTY

STATE PROJECT NUMBER
1140-00-78



BEGIN PROJECT
STA 168+00
X=626,563.51
Y=374,269.59

LAYOUT
SCALE 0 3 MI
TOTAL NET LENGTH OF CENTERLINE = 10.677 MI

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

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

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
1140-00-78	WISC 2026421	1

ORIGINAL PLANS PREPARED BY



4/29/2026
(DATE) *Greg Bubolz*
(SIGNATURE)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY	
Surveyor	DAAR ENGINEERING, INC.
Designer	DAAR ENGINEERING, INC.
Project Manager	KOREY BOEHM, P.E.
Regional Examiner	FRED SCHUNKE, P.E.
Regional Supervisor	ELIZABETH NEMEC, P.E.

APPROVED FOR THE DEPARTMENT
DATE: 4/29/2026 *Korey Boehm*
(Signature)

E

GENERAL NOTES

- 1
- THE LOCATIONS OF EXISTING AND PROPOSED UTILITY INSTALLATIONS AS SHOWN ON THE PLAN ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT AREA WHICH ARE NOT SHOWN.
- 2
- DIMENSIONS GIVEN FOR EXISTING FEATURES SHALL BE CONSIDERED AS APPROXIMATE AND MEASURED IN FIELD FOR MATCHING PURPOSES.
- 3
- EXISTING ALIGNMENT FROM SURVEY DATA AND AS-BUILT.
- 4
- HMA PAVEMENT WEIGHT CALCULATIONS BASED ON 112 LB/SY/IN

AS-BUILTS USED FOR PLAN DEVELOPMENT

PROJECT NO: 1140-06-72, CONSTRUCTION YEAR: 1984
PROJECT NO: 0068-13-42, CONSTRUCTION YEAR: 1991
PROJECT NO: 1140-00-71, CONSTRUCTION YEAR: 2006

ORDER OF DETAIL SHEETS

- GENERAL NOTES
- PROJECT OVERVIEW
- TYPICAL SECTIONS
- CONSTRUCTION DETAILS
- EROSION CONTROL
- TRAFFIC CONTROL

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 .22	.16 .30	.22 .38	.12 .26	.20 .34	.27 .44	.15 .30	.24 .37	.33 .50	.19 .34	.28 .41	.38 .56
MEDIAN STRIP- TURF	.19 .24	.20 .26	.24 .30	.19 .25	.22 .28	.26 .33	.20 .26	.23 .30	.30 .37	.20 .27	.25 .32	.30 .40
SIDE SLOPE- TURF			.25 .32			.27 .34			.28 .36			.30 .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 = 63.37 ACRES
TOTAL AREA EXPECTED TO BE DISTURBED BY CONSTRUCTION ACTIVITIES = 1.04 ACRES

USH 45 SUPERELEVATION TABLE

PI STATION	NC	FLAT	RC	FULL SUPER	SE (%)	FULL SUPER	RC	FLAT	NC
308+14	303+37	303+88	304+39	305+41	6.0	310+71	311+73	312+24	312+75
333+73	329+00	329+51	330+02	331+04	6.0	336+27	337+29	337+80	338+31
488+52	483+92	484+43	484+94	485+96	6.0	490+96	491+98	492+49	493+00
515+76	511+27	511+78	512+29	513+31	6.0	518+09	519+11	519+62	520+13
545+41	540+75	541+28	541+81	542+88	6.0	547+83	548+90	549+43	549+96
577+79	573+36	573+87	574+38	575+40	5.7	580+13	581+15	581+66	582+17
644+38	639+73	640+24	640+75	641+77	5.7	646+91	647+93	648+44	648+95
697+94	694+92	695+43	695+94	696+96	6.0	698+90	699+92	700+43	700+94

USH 45 SECTION CORNER TIE-OUT TABLE

S1 T23N R14E		
	STA	OFFSET
TIE 1	351+00.04	102.78
TIE 2	350+92.24	-99.29
TIE 3	351+65.57	97.78
TIE 4	351+57.33	-101.87

S36 T24N R14E		
	STA	OFFSET
TIE 1	373+21.86	48.49
TIE 2	373+01.47	-34.59
TIE 3	373+37.60	50.75
TIE 4	373+70.29	-37.06

S36 T24N R14E		
	STA	OFFSET
TIE 1	399+70.56	151.49
TIE 2	399+48.49	-59.97
TIE 3	400+19.46	152.30
TIE 4	400+65.64	-61.77

S25 T24N R14E		
	STA	OFFSET
TIE 1	426+07.95	49.40
TIE 2	426+20.88	-47.83
TIE 3	426+63.99	40.94
TIE 4	426+95.73	-46.00

S25 T24N R14E		
	STA	OFFSET
TIE 1	452+64.24	35.99
TIE 2	452+69.96	-62.73
TIE 3	453+34.51	39.76
TIE 4	453+43.14	-64.76

S24 T24N R14E		
	STA	OFFSET
TIE 1	479+22.16	57.35
TIE 2	479+20.95	-45.98
TIE 3	480+10.58	57.95
TIE 4	480+27.44	-52.64

S11 T24N R14E		
	STA	OFFSET
TIE 1	591+49.15	133.07
TIE 2	591+30.52	-58.78
TIE 3	592+37.01	78.14
TIE 4	592+17.09	-147.98

S11 T24N R14E		
	STA	OFFSET
TIE 1	617+85.18	33.95
TIE 2	617+86.15	-33.32
TIE 3	618+85.11	49.94
TIE 4	618+52.76	-35.90

S2 T24N R14E		
	STA	OFFSET
TIE 1	644+29.69	70.11
TIE 2	644+52.61	72.03
TIE 3	644+74.95	72.61
TIE 4	645+00.22	69.38

WDNR CONTACT

MARTY DILLENBURG
WISCONSIN DEPARTMENT OF NATURAL RESOURCES
625 E COUNTY ROAD Y, STE 700
OSHKOSH, WI 54901
(920) 410-7428
marty.dillenburg@wisconsin.gov

UTILITY CONTACTS

ANR PIPELINE CO - GAS/PETROLEUM
DEVON SHUMAKER
N4956 OAKCREST DRIVE
BONDUEL, WI 54107
(262) 286-3502
Devon_shumaker@tcenergy.com

WIN TECHNOLOGY - COMMUNICATION LINE
ERIC BECKER
4955 BULLIS FARM ROAD
EAU CLAIRE, WI 54701
(715) 797-2724
eric.becker@wintechnology.com

SPECTRUM - COMMUNICATION LINE
BILL PARMENTER
853 MCINTOSH STREET
WAUSAU, WI 54401
(608) 301-6189
bill.parmenter@charter.com

CLINTONVILLE WATER AND ELECTIRC UTY - SEWER
DAVID TICHINEL
50 10TH STREET
CLINTONVILLE, WI 54929
(715) 250-0358
dtichinel@clintonvillewi.gov

CLINTONVILLE WATER AND ELECTIRC UTY - WATER
DAVID TICHINEL
50 10TH STREET
CLINTONVILLE, WI 54929
(715) 250-0358
dtichinel@clintonvillewi.gov

AT&T WISCONSIN - COMMUNICATION LINE
KYLE WEBER
221 W WASHINGTON STREET
APPLETON, WI 54911
(920) 221-5969
kw715w@att.com

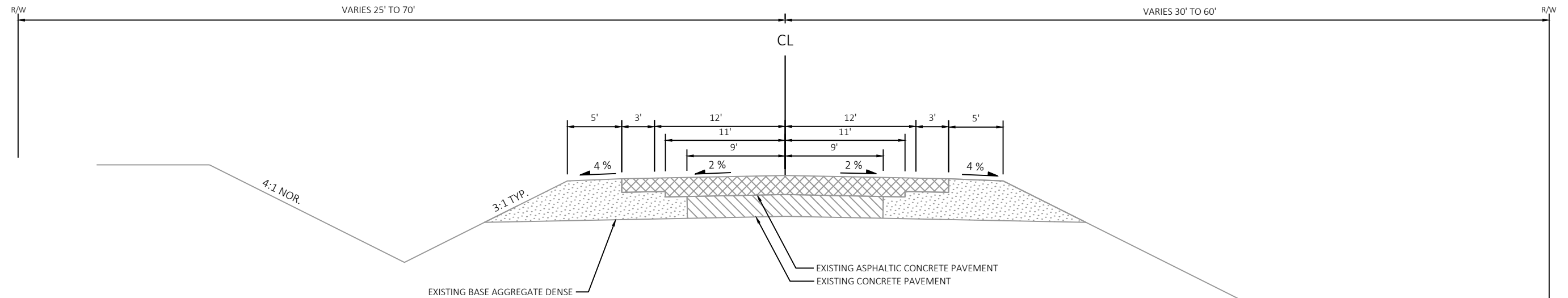
FRONTIER COMMUNICATIONS OF WI LLC - COMMUNICATION LINE
BIMAL KOHLI
1222 VINE STREET, STE 30
PASO ROBLES, CA 93446
(763) 317-8414
bkohli@pearce-services.com

WE ENERGIES - GAS/PETROLEUM
CODY BECKMAN
800 S LYNNDALE DRIVE
APPLETON, WI 54914
(920) 280-3422
Cody.Beckman@wecenergygroup.com

WE ENERGIES - ELECTRICITY
RILEY CALAWAY
800 S LYNNDALE DRIVE
APPLETON, WI 54914
(920) 380-3351
Riley.Calaway@We-energies.com

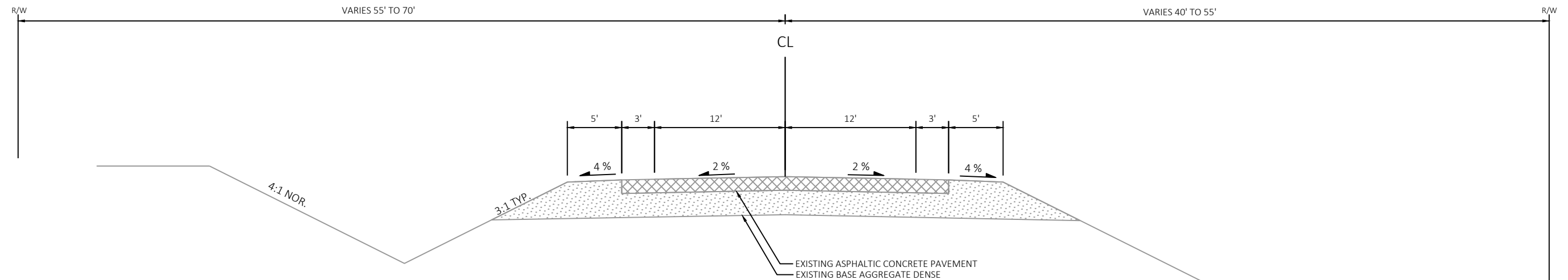


Dial 811 or (800)242-8511
www.DiggersHotline.com



EXISTING TYPICAL SECTION (USH 45)

STA. 168+00 - STA. 170+32
STA. 288+00 - STA. 339+05
STA. 372+05 - STA. 386+92
STA. 495+47 - STA. 519+27
STA. 538+27 - STA. 539+00
STA. 550+20 - STA. 571+50
STA. 613+47 - STA. 633+47

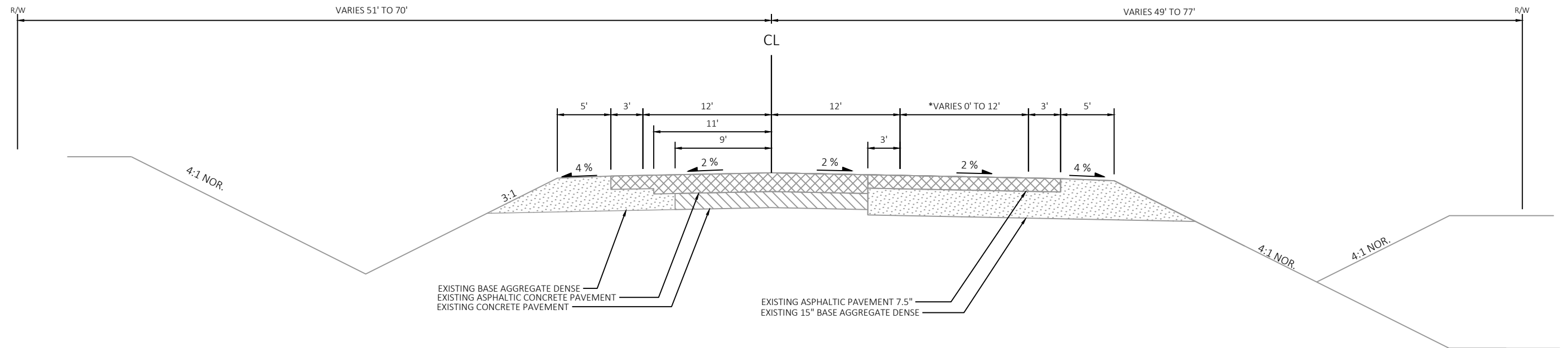


EXISTING TYPICAL SECTION (USH 45)

STA. 265+87 - STA. 288+00
STA. 339+05 - STA. 372+05
STA. 519+27 - STA. 538+27
STA. 571+50 - STA. 613+47
STA. 633+47 - STA. 641+94

2

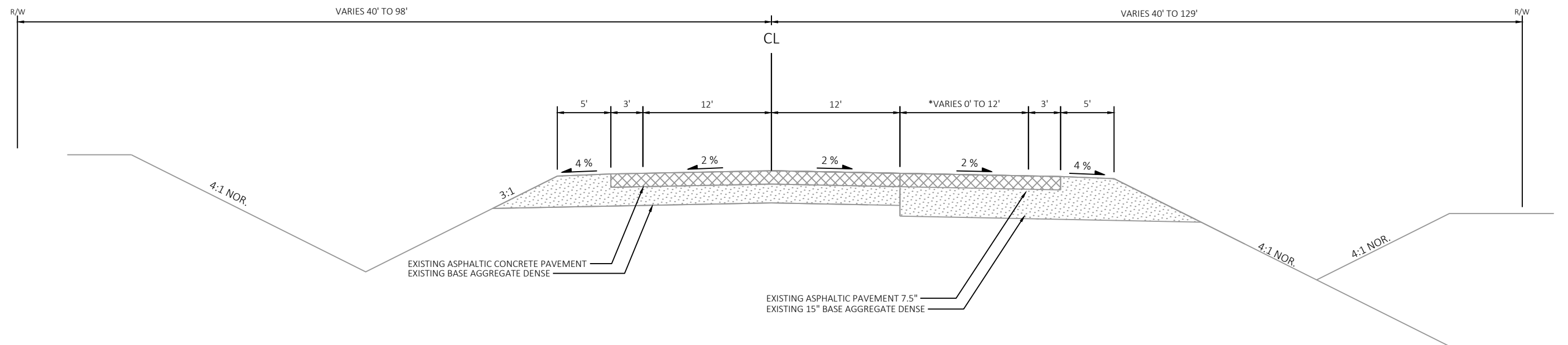
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EXISTING TYPICAL SECTION NORTHBOUND PASSING LANE (USH 45)

STA. 170+32 - STA. 191+00

*VARIES FROM 0' AT STA. 170+32 TO 12' AT STA. 176+86



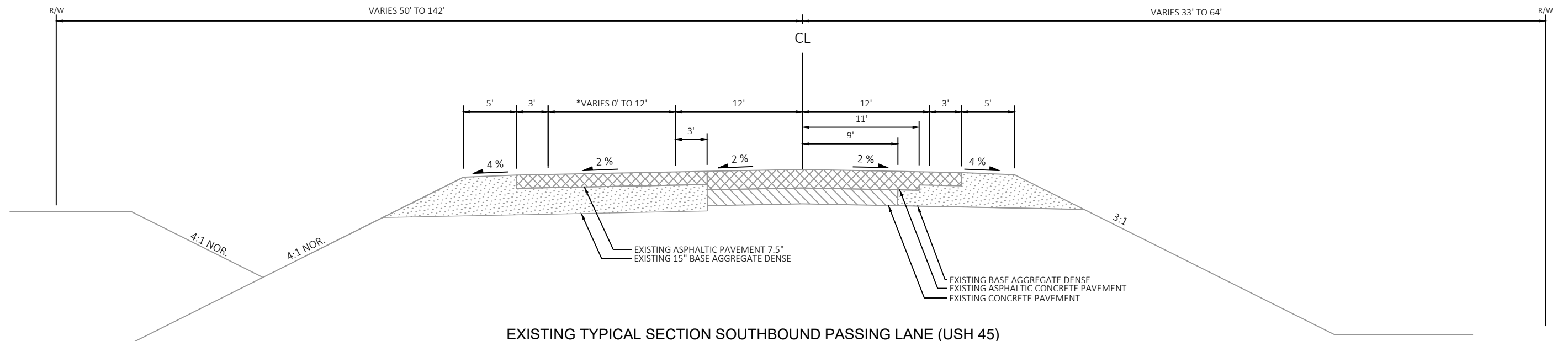
EXISTING TYPICAL SECTION NORTHBOUND PASSING LANE (USH 45)

STA. 191+00 - STA. 265+87

STA. 641+94 - STA. 653+90

*VARIES FROM 12' AT STA. 259+67 TO 0' AT STA. 265+87

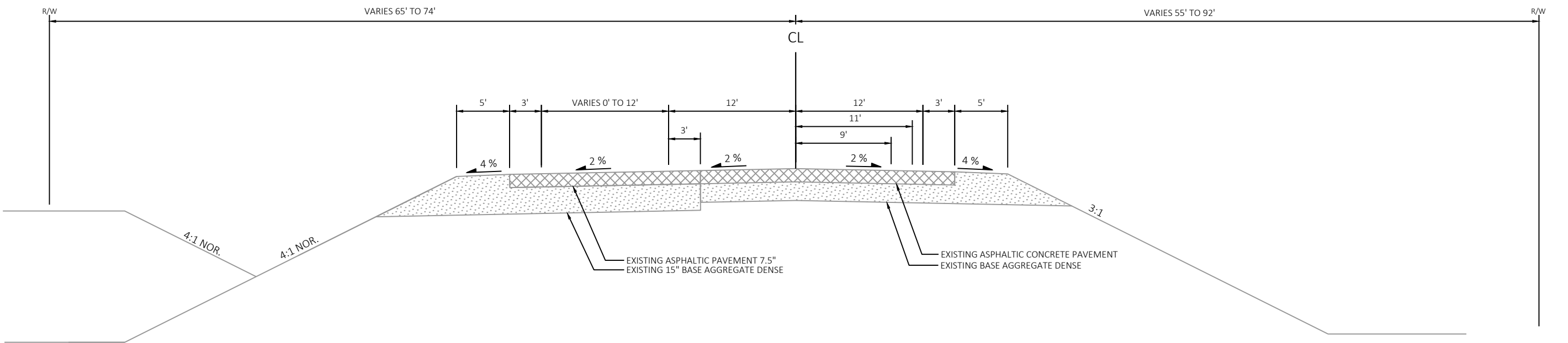
*VARIES FROM 0' AT STA. 641+94 TO 12' AT STA. 643+50



EXISTING TYPICAL SECTION SOUTHBOUND PASSING LANE (USH 45)

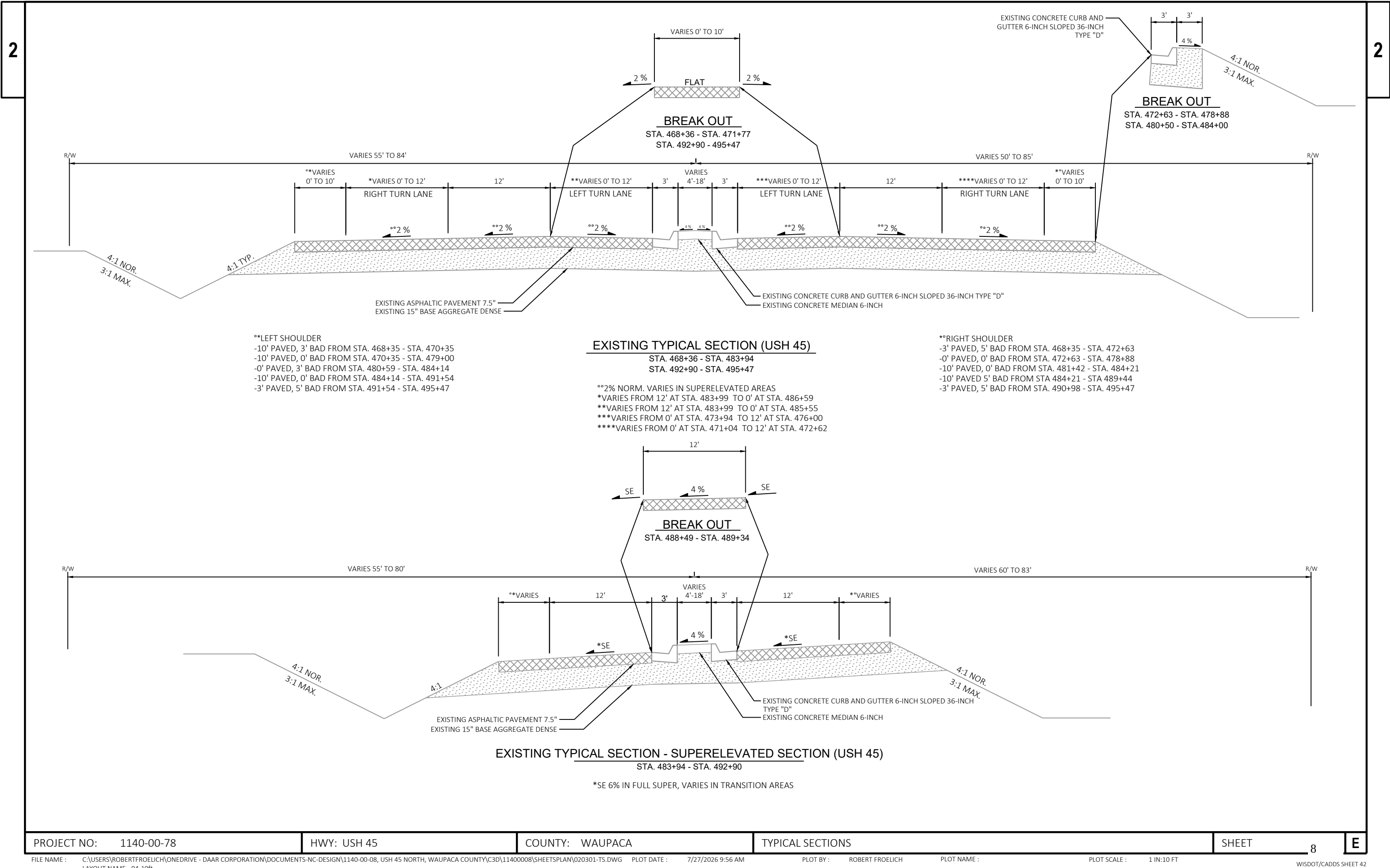
STA. 386+92 - STA. 394+05
STA. 420+05 - STA. 468+36

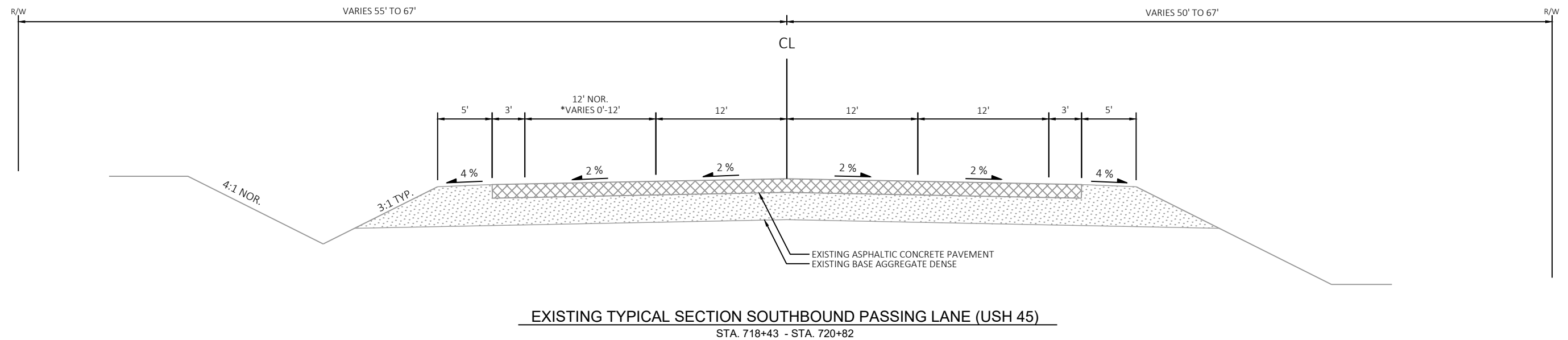
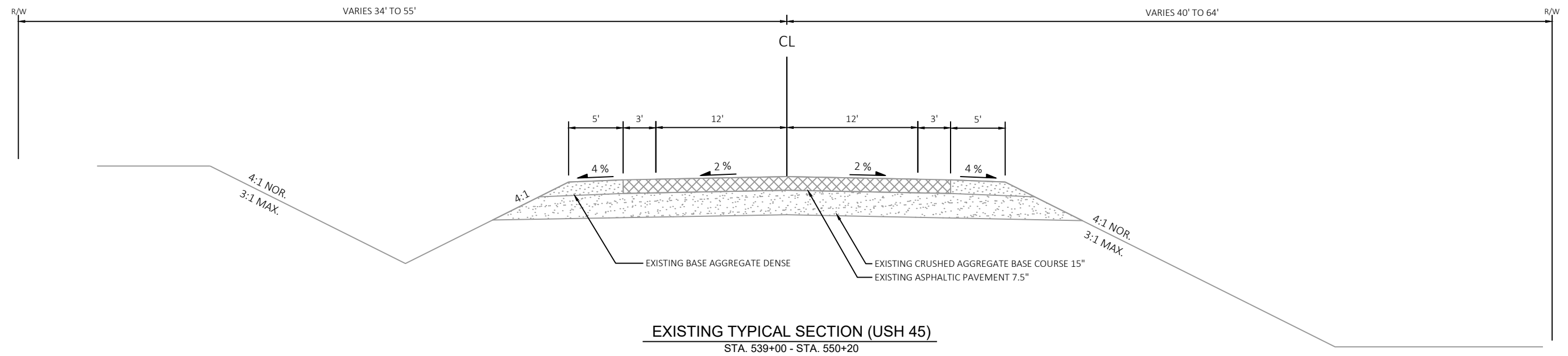
*VARIES FROM 0' AT STA. 386+92 TO 12' AT STA. 394+00
*VARIES FROM 12' AT STA. 463+13 TO 0' AT STA. 468+36

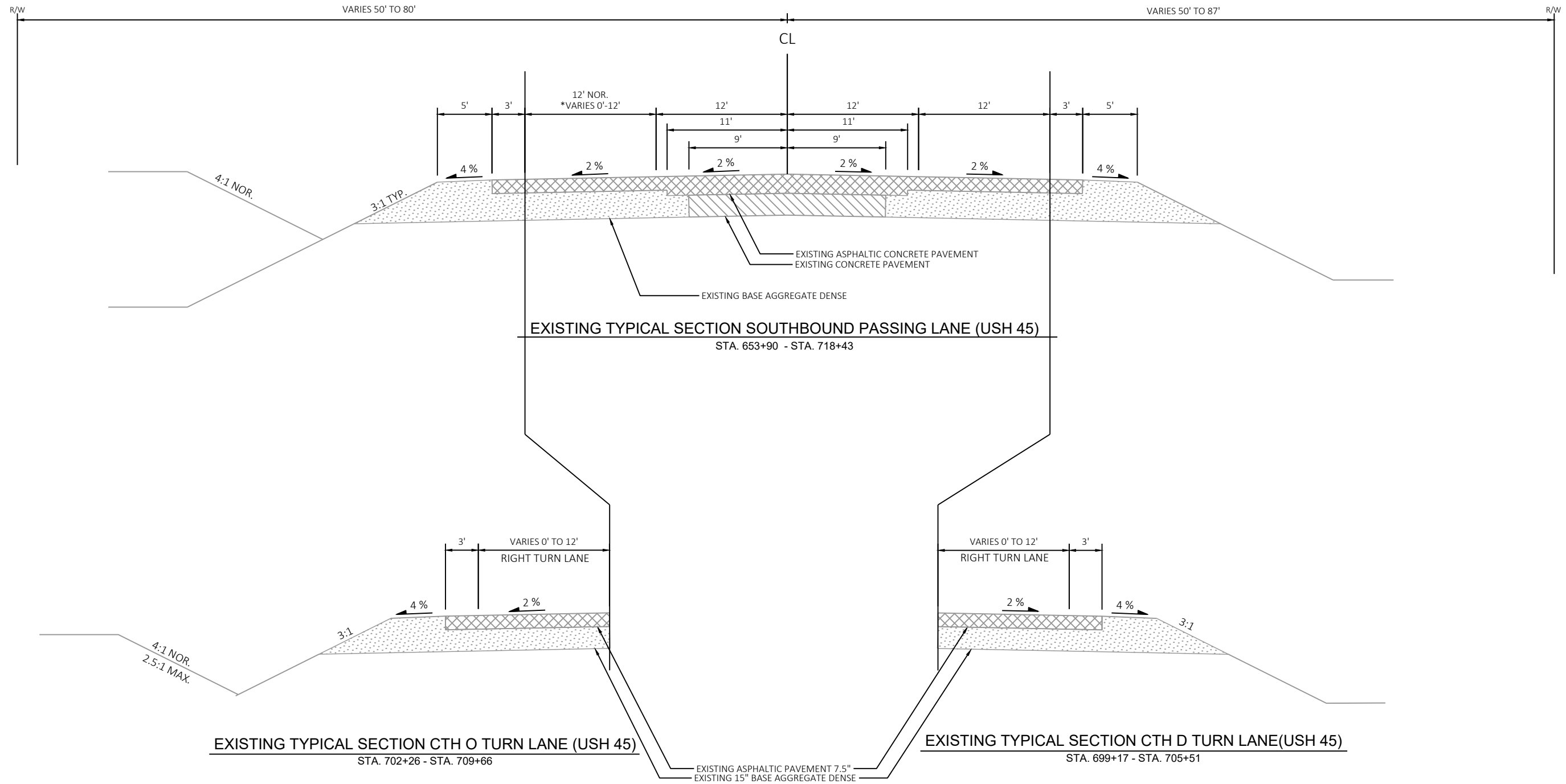


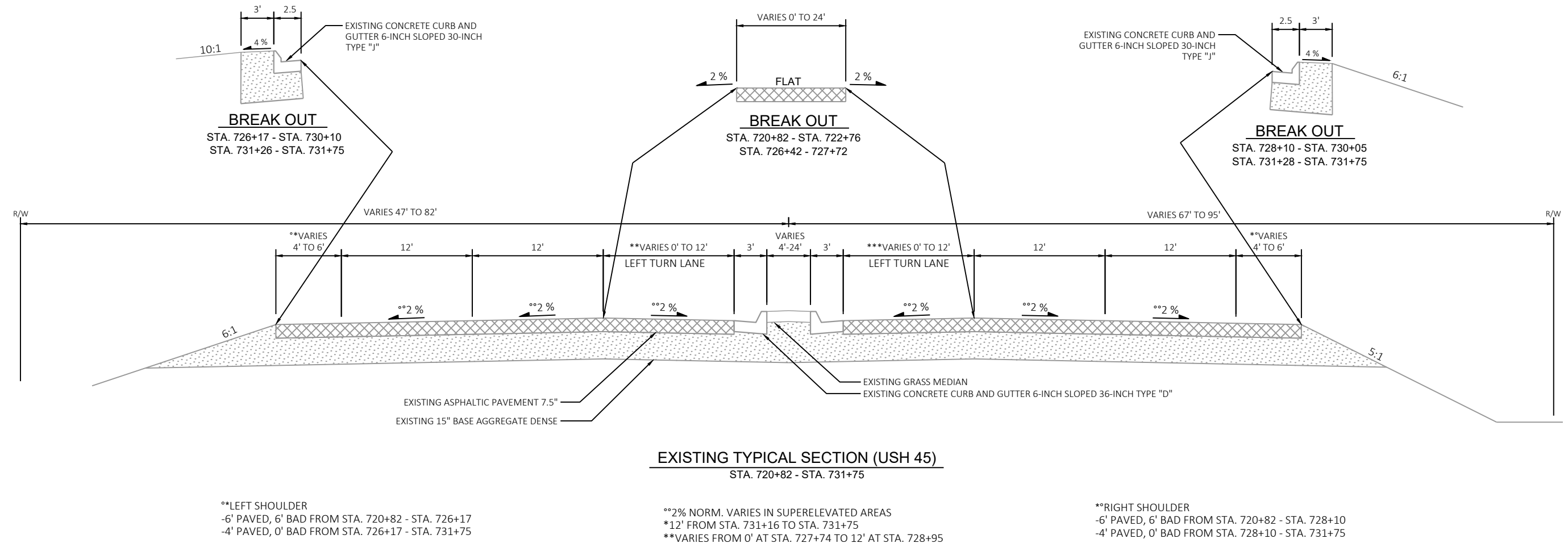
EXISTING TYPICAL SECTION SOUTHBOUND PASSING LANE (USH 45)

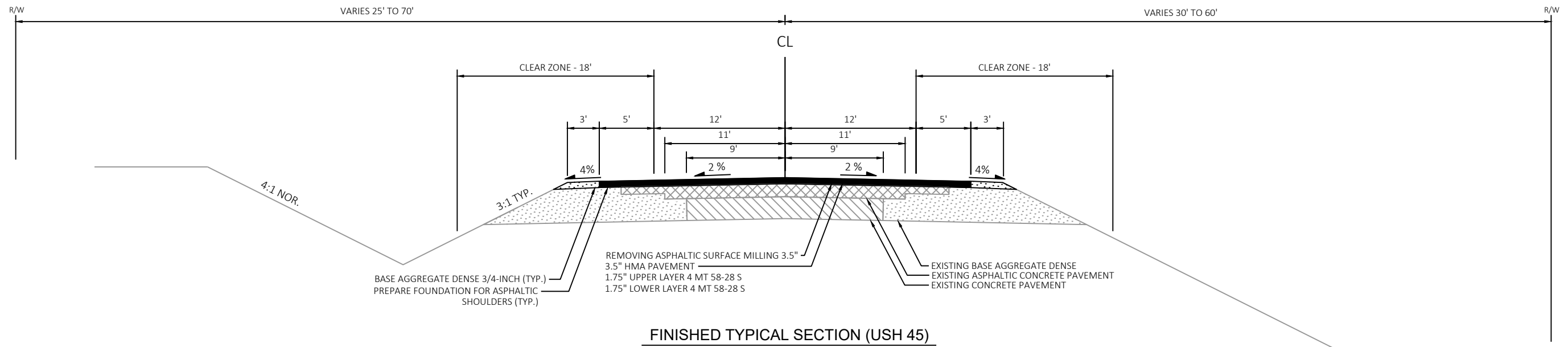
STA. 394+05 - STA. 420+05



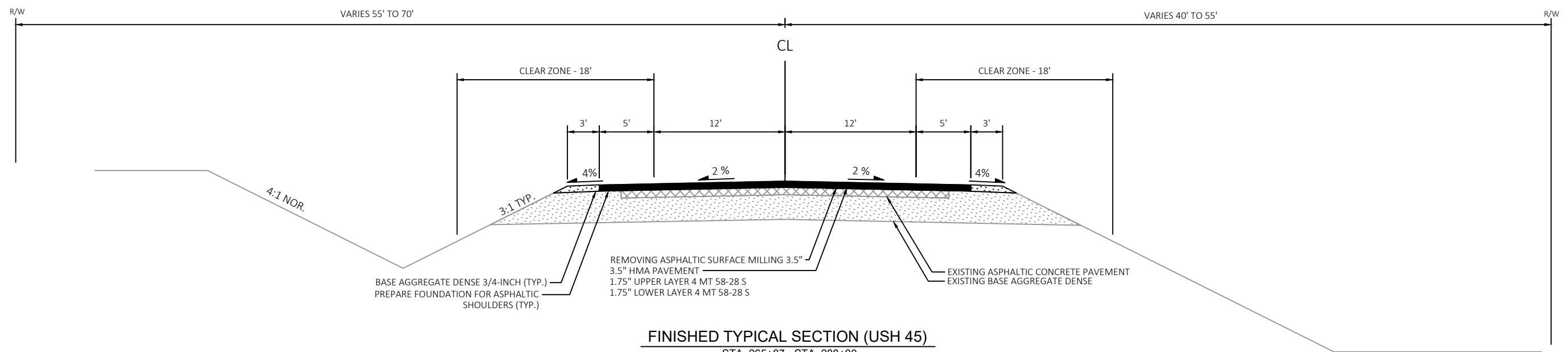




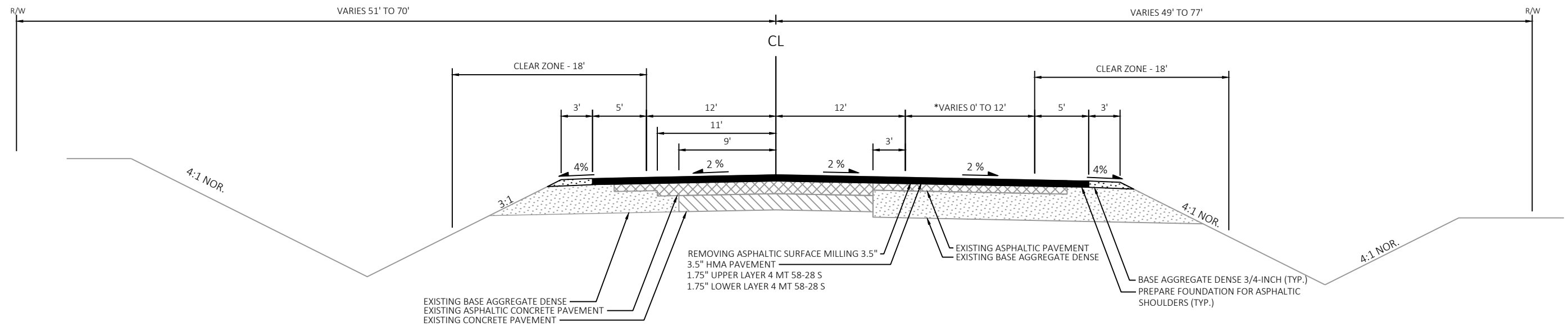


**FINISHED TYPICAL SECTION (USH 45)**

STA. 168+00 - STA. 175+13
STA. 288+00 - STA. 339+05
STA. 372+05 - STA. 386+92
STA. 495+47 - STA. 519+27
STA. 538+27 - STA. 539+00
STA. 550+20 - STA. 571+50
STA. 613+47 - STA. 633+47

**FINISHED TYPICAL SECTION (USH 45)**

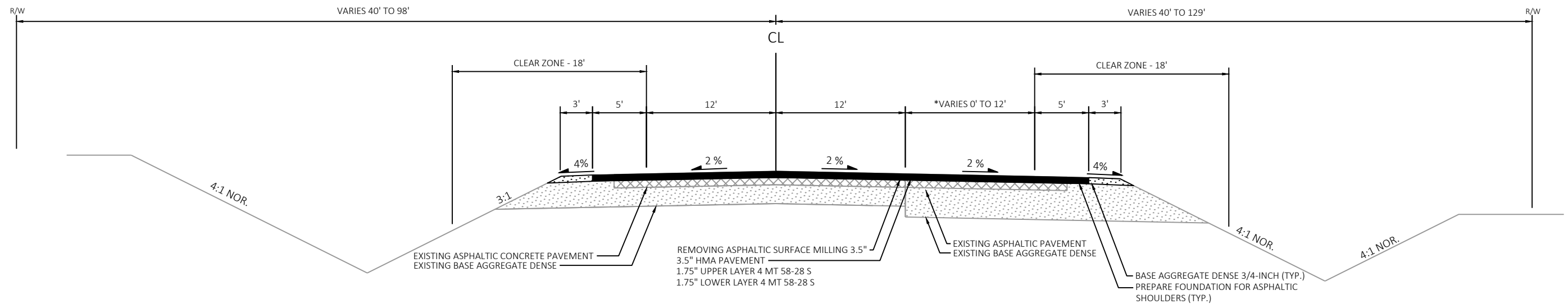
STA. 265+87 - STA. 288+00
STA. 339+05 - STA. 372+05
STA. 519+27 - STA. 538+27
STA. 571+50 - STA. 613+47
STA. 633+47 - STA. 641+94



FINISHED TYPICAL SECTION NORTHBOUND PASSING LANE (USH 45)

STA. 175+13 - STA. 191+00

*VARIES FROM 0' AT STA. 175+13 TO 12' AT STA. 182+13



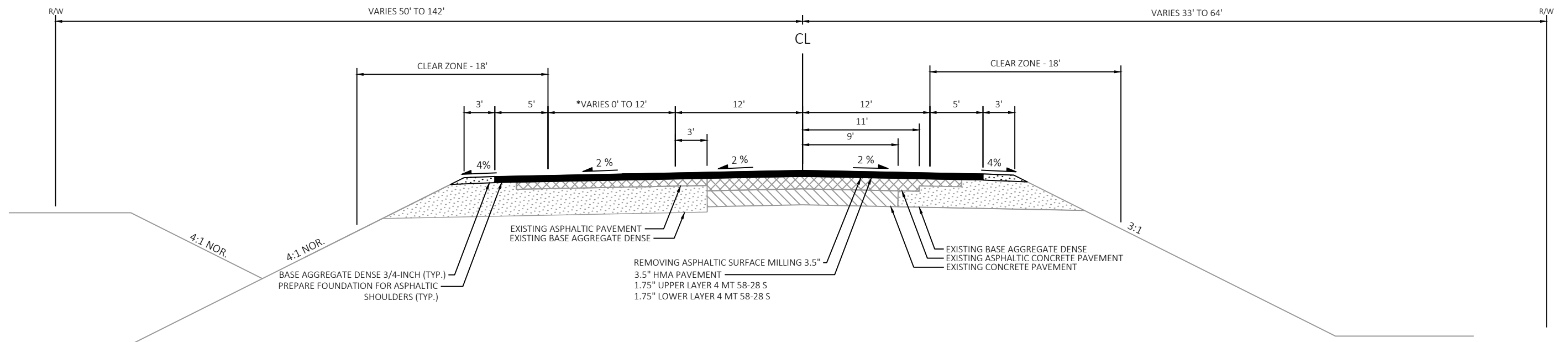
FINISHED TYPICAL SECTION NORTHBOUND PASSING LANE (USH 45)

STA. 191+00 - STA. 265+87

STA. 641+94 - STA. 653+90

*VARIES FROM 12' AT STA. 259+67 TO 0' AT STA. 265+87

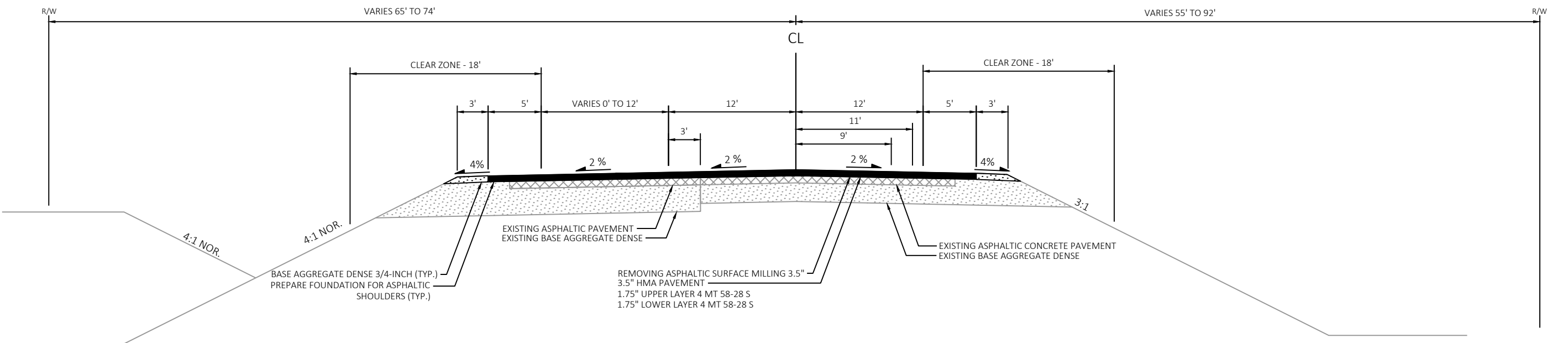
*VARIES FROM 0' AT STA. 641+94 TO 12' AT STA. 643+50



FINISHED TYPICAL SECTION SOUTHBOUND PASSING LANE (USH 45)

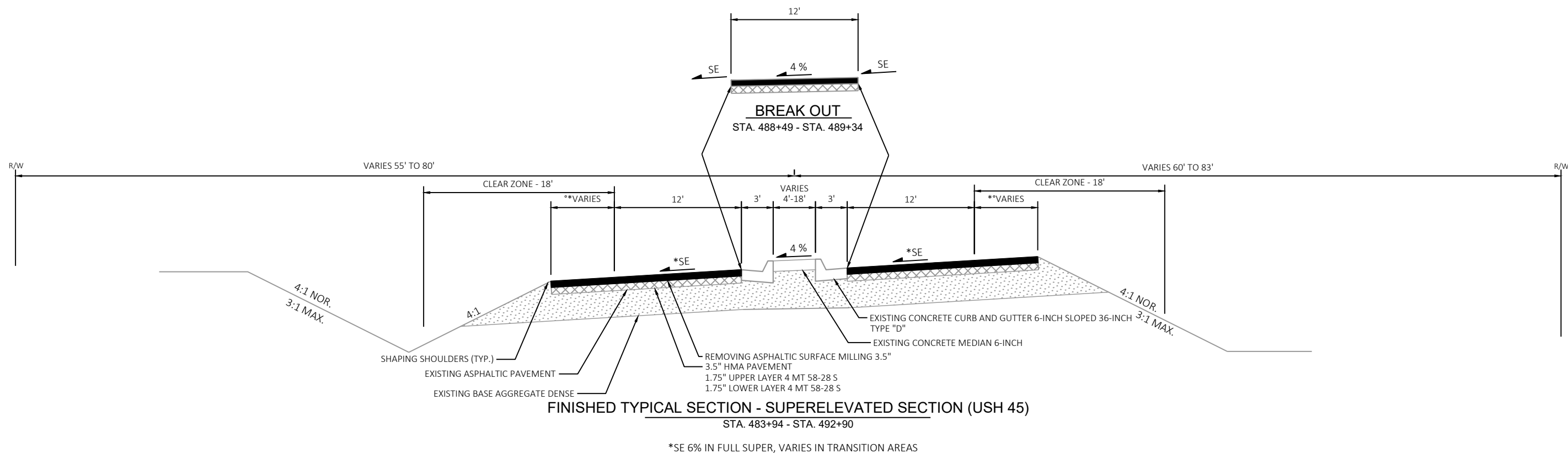
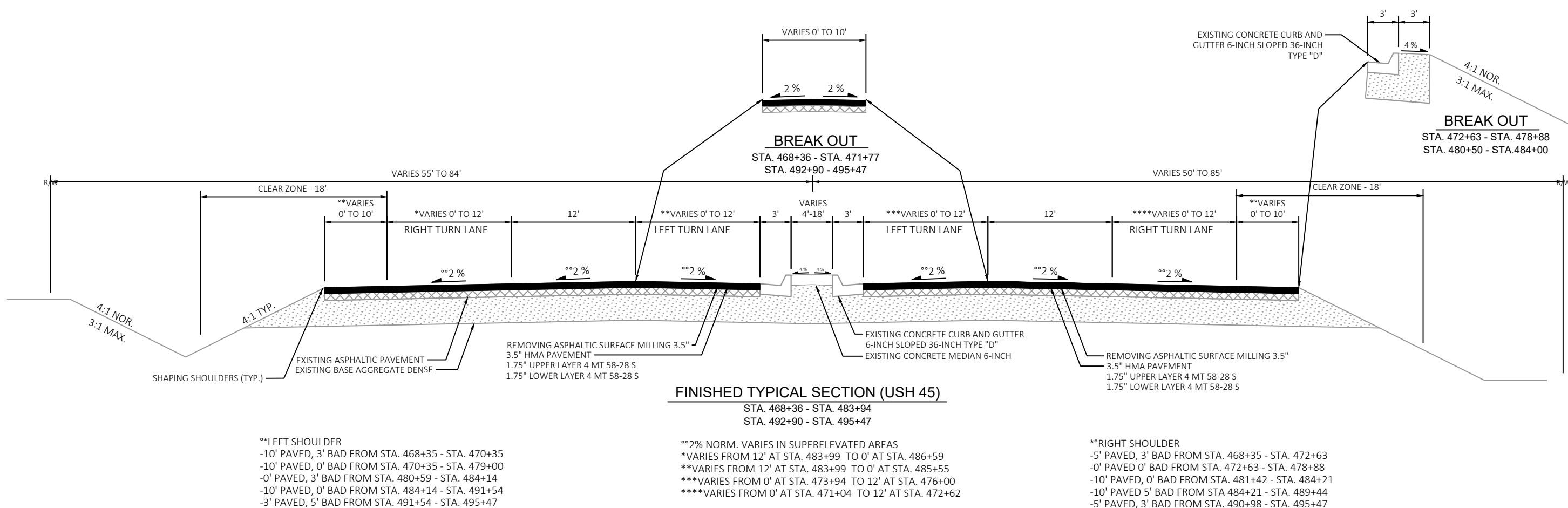
STA. 386+92 - STA. 394+05
STA. 420+05 - STA. 468+36

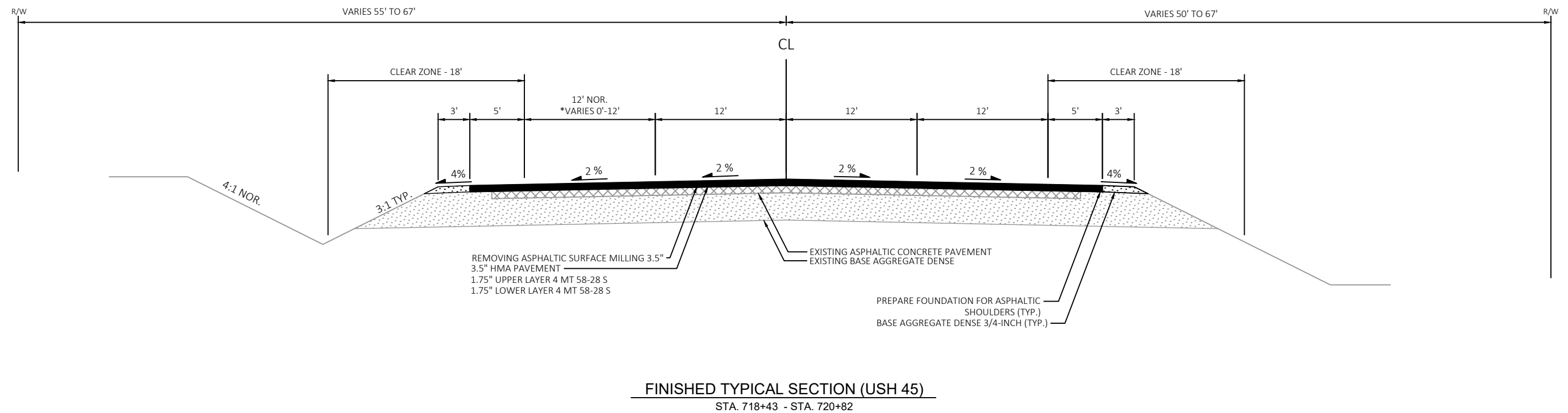
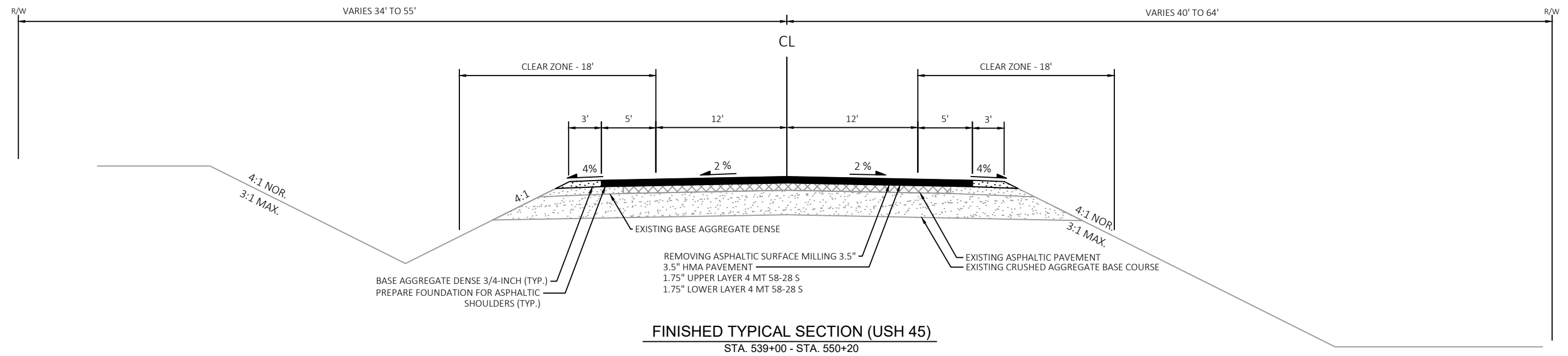
*VARIES FROM 0' AT STA. 386+92 TO 12' AT STA. 394+00
*VARIES FROM 12' AT STA. 463+13 TO 0' AT STA. 468+36



FINISHED TYPICAL SECTION SOUTHBOUND PASSING LANE (USH 45)

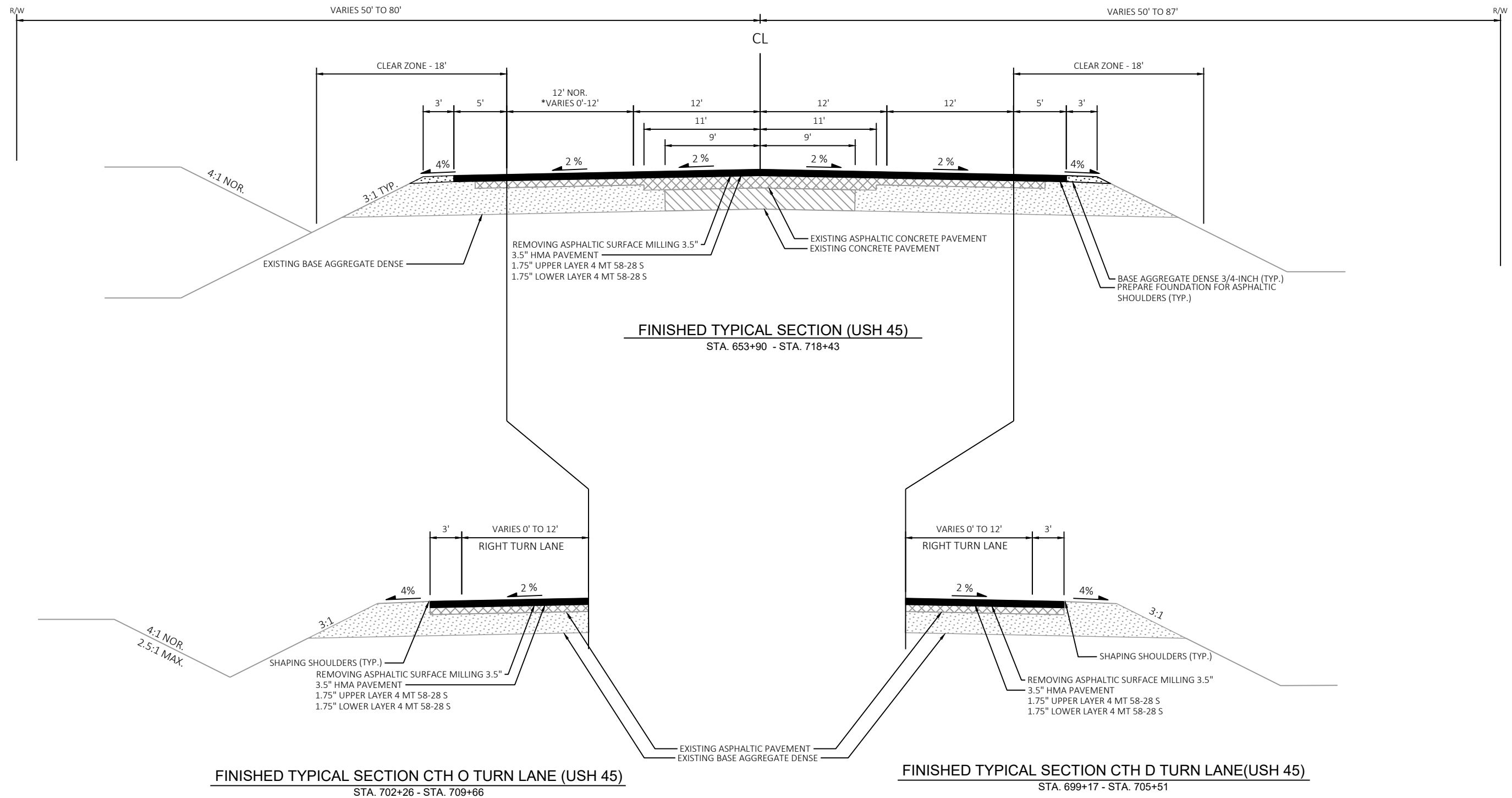
STA. 394+05 - STA. 420+05





2

2 |



PROJECT NO:	1140-00-78
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HWY: USH 45

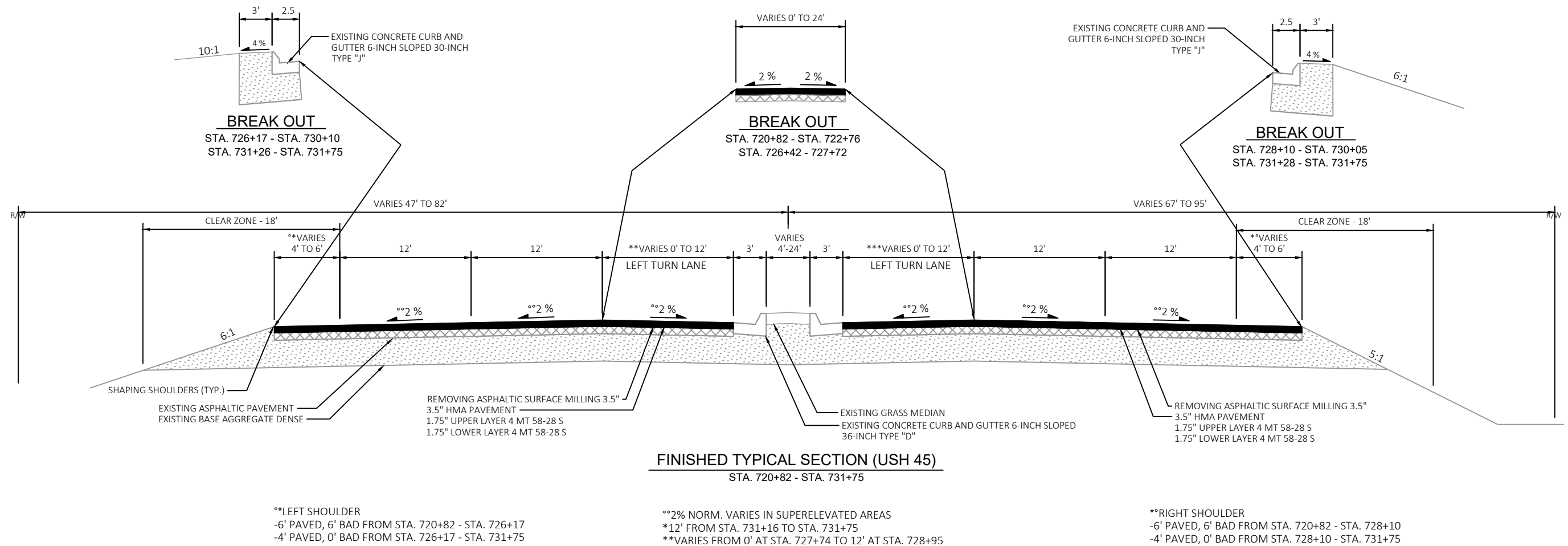
COUNTY: WAUPACA

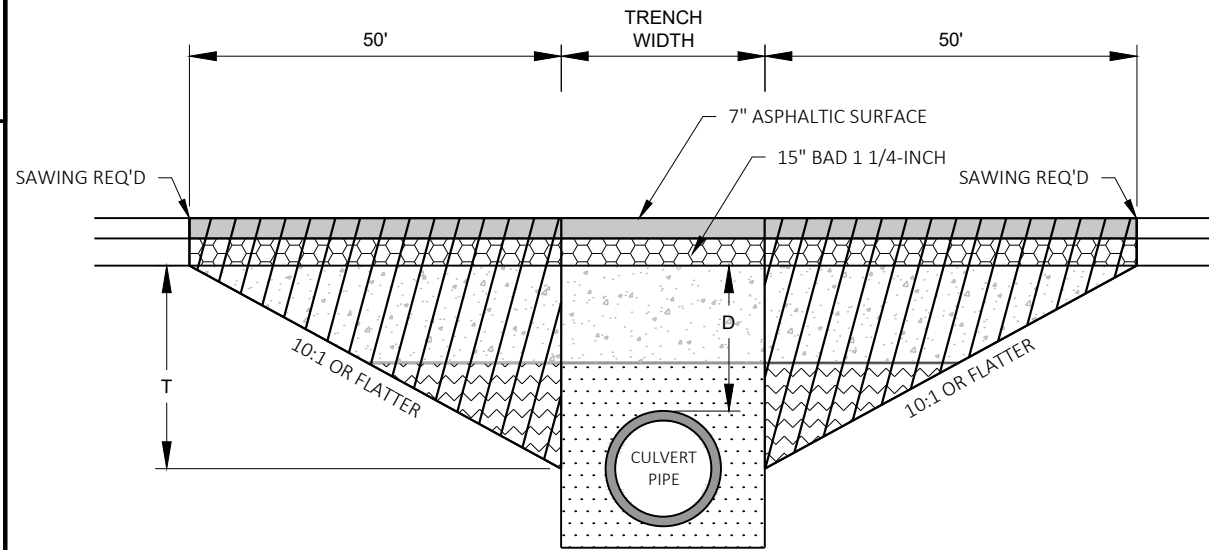
TYPICAL SECTIONS

SHEET

7

I





KEY

PROPOSED SURFACE

PROPOSED BASE

TRENCH BACKFILL

TRENCH OR FOUNDATION BACKFILL

FOUNDATION BACKFILL

TRANSITION CUT

DEPTH D < 6 FT

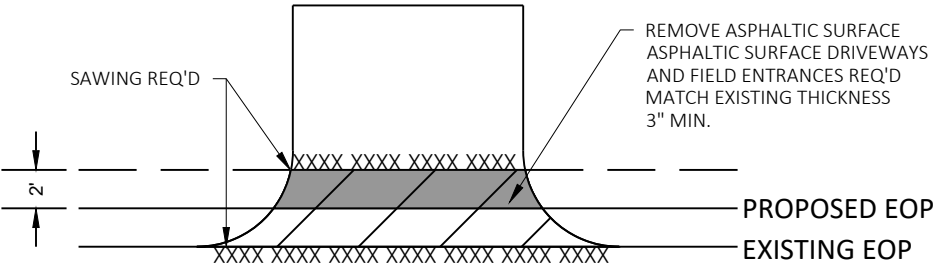
NOTES

TRANSITION CUT IS PAID AS EXCAVATION COMMON.
TRANSITION CUT WIDTH IS FROM SUBGRADE SHOULDER POINT TO SUBGRADE SHOULDER POINT.
BACKFILL THE TRANSITION CUT AREAS WITH FOUNDATION AND TRENCH BACKFILL AS SPECIFIED IN STANDARD SPEC 520.
PERFORM CULVERT PIPE INSTALLATION BEFORE BEFORE MILLING AND PAVING

CULVERT PIPE TRANSITION

ROUTE	STA (CL)	DEPTH D (FT)	PIPE DIA (IN)	PIPE #	REMARKS
USH 45	170+53	2.1	34 X 53	68045006437	
USH 45	170+64	2.2	34 X 53	68045006438	
USH 45	198+33	3.9	24	68045006440	
USH 45	257+68	3.0	29 X 45	68045006441	
USH 45	316+40	2.6	24 X 38	68045006445	
USH 45	324+62	2.2	34 X 53	68045006446	SKEWED
USH 45	336+24	2.7	24 X 38	68045006447	
USH 45	454+16	2.4	34 X 53	68045006451	SKEWED
USH 45	511+63	2.8	43 X 68	68045006456	
USH 45	607+85	2.9	30	68045006460	
USH 45	659+06	2.6	43 X 68	68045006461	SKEWED
USH 45	693+55	2.7	38 X 60	68045006463	
USH 45	704+94	2.2	38 X 60	68045006464	

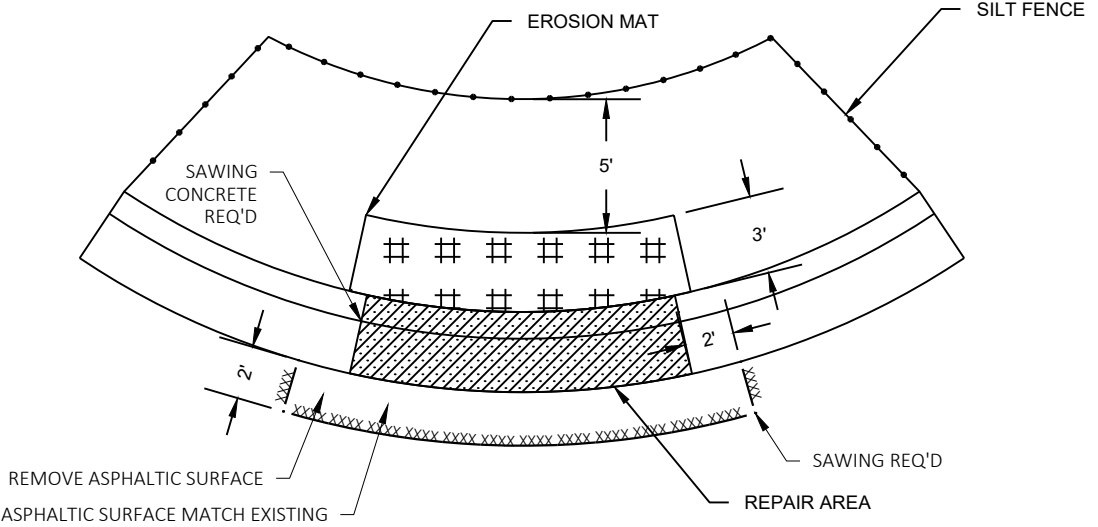
*DEPTH MEASURED AT CENTERLINE



ASPHALTIC SURFACE DRIVEWAYS AND FIELD ENTRANCES

REMOVE ASPHALTIC SURFACE

DRIVEWAY DETAIL



SPOT CURB & GUTTER DETAIL

2

USH 45

EOP

10' BUTT JOINT

REMOVING ASPHALTIC SURFACE MILLING 1.75"

REMOVING ASPHALTIC SURFACE BUTT JOINTS
SEE BUTT JOINT DETAIL

NOTE: WHEN MATCHING TO AN UNPAVED SURFACE
BUTT JOINT IS NOT REQUIRED

SIDE ROADS

WITH CURB AND GUTTER

CRAIN RD
SASSE RD
BECKERT RD
HOFFMAN RD
CTH N
CTH WW
DAVIS RD
POEHLMAN RD
BRETING RD

FITZGERALD RD
ELM TREE RD
BLUEBERRY RD
STH 22
STH 76
SILVER CREEK RD
BEAR CREEK RD
DEER CREEK RD
ELMADALE RD

WILLOW RD
BROADVIEW LN
CTH D
CTH O
REINKE RD

USH 45

EOP

10' BUTT JOINT

REMOVING ASPHALTIC SURFACE MILLING 1.75"

REMOVING ASPHALTIC SURFACE BUTT JOINTS
SEE BUTT JOINT DETAIL

NOTE: WHEN MATCHING TO AN UNPAVED SURFACE
BUTT JOINT IS NOT REQUIRED

SIDE ROADS

WITHOUT CURB AND GUTTER

GIELOW RD
ALLTERRAIN LN

10'

BUTT JOINT

1.75"

EXISTING ASPHALTIC PAVEMENT

HMA PAVEMENT

REMOVING ASPHALTIC SURFACE MILLING

REMOVING ASPHALTIC SURFACE BUTT JOINTS

BUTT JOINT

MAINLINE

ROAD SIDE

SILT FENCE

OPENING
12" MIN -
18" MAX

30" MIN -
36" MAX

20'

PLAN VIEW

TEMPORARY SMALL ANIMAL TURN-AROUND

10'

BUTT JOINT

1.75"

EXISTING ASPHALTIC PAVEMENT

HMA PAVEMENT

REMOVING ASPHALTIC SURFACE MILLING

REMOVING ASPHALTIC SURFACE BUTT JOINTS

BUTT JOINT

SIDEROADS

PROJECT NO: 1140-00-78

HWY: USH 45

COUNTY: WAUPACA

CONSTRUCTION DETAILS

SHEET 20

E

FILE NAME : C:\USERS\ROBERTFROELICH\ONEDRIVE - DAAR CORPORATION\DOCUMENTS-NC-DESIGN\1140-00-08, USH 45 NORTH, WAUPACA COUNTY\C3D\11400008\SHEETSPLAN\021001- CD.DWG

LAYOUT NAME - 02

PLOT DATE : 7/27/2026 10:19 AM

PLOT BY : ROBERT FROELICH

PLOT NAME :

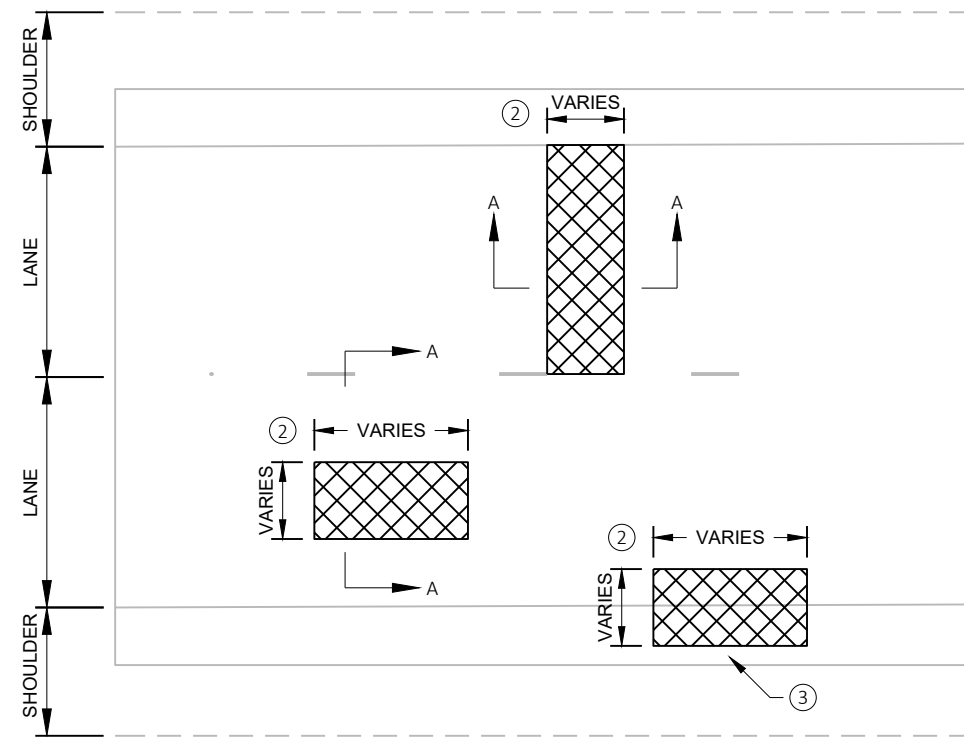
PLOT SCALE : 1:10

WISDOT/CADDs SHEET 42

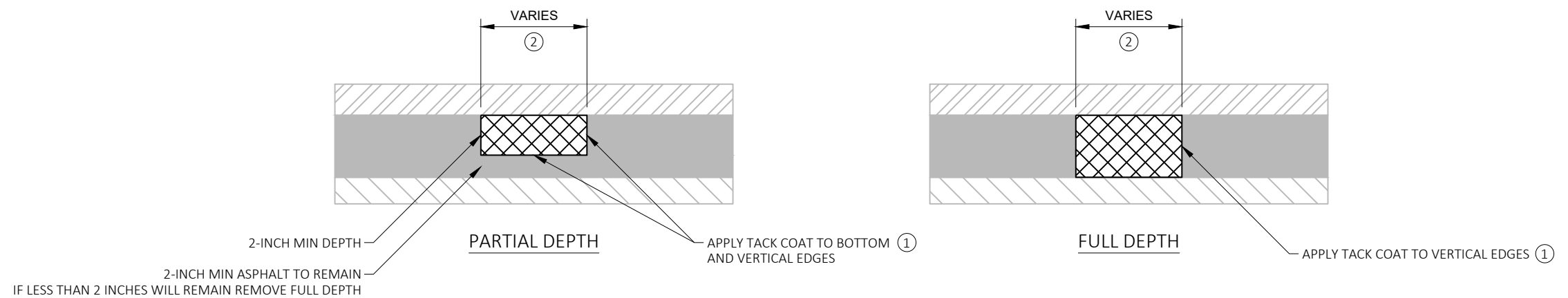
NOTES:

PERFORM REMOVING ASPHALTIC SURFACE MILLING PRIOR TO REMOVING DISTRESSED ASPHALTIC SURFACE MILLING

- ① MILLED VERTICAL EDGES ARE ACCEPTABLE, SAW CUTS ARE NOT REQUIRED.
- ② THE SMALLEST DIMENSION OF REMOVING DISTRESSED ASPHALTIC SURFACE MILLING IS 4 FEET IN ANY DIRECTION.
- ③ WHEN THE DISTANCE FROM THE EDGE OF PAVEMENT TO EDGE OF REMOVING DISTRESSED ASPHALTIC SURFACE MILLING IS LESS THAN 1-FOOT, EXTEND THE REMOVING DISTRESSED ASPHALTIC SURFACE MILLING TO THE EDGE OF PAVEMENT.



PLAN VIEW

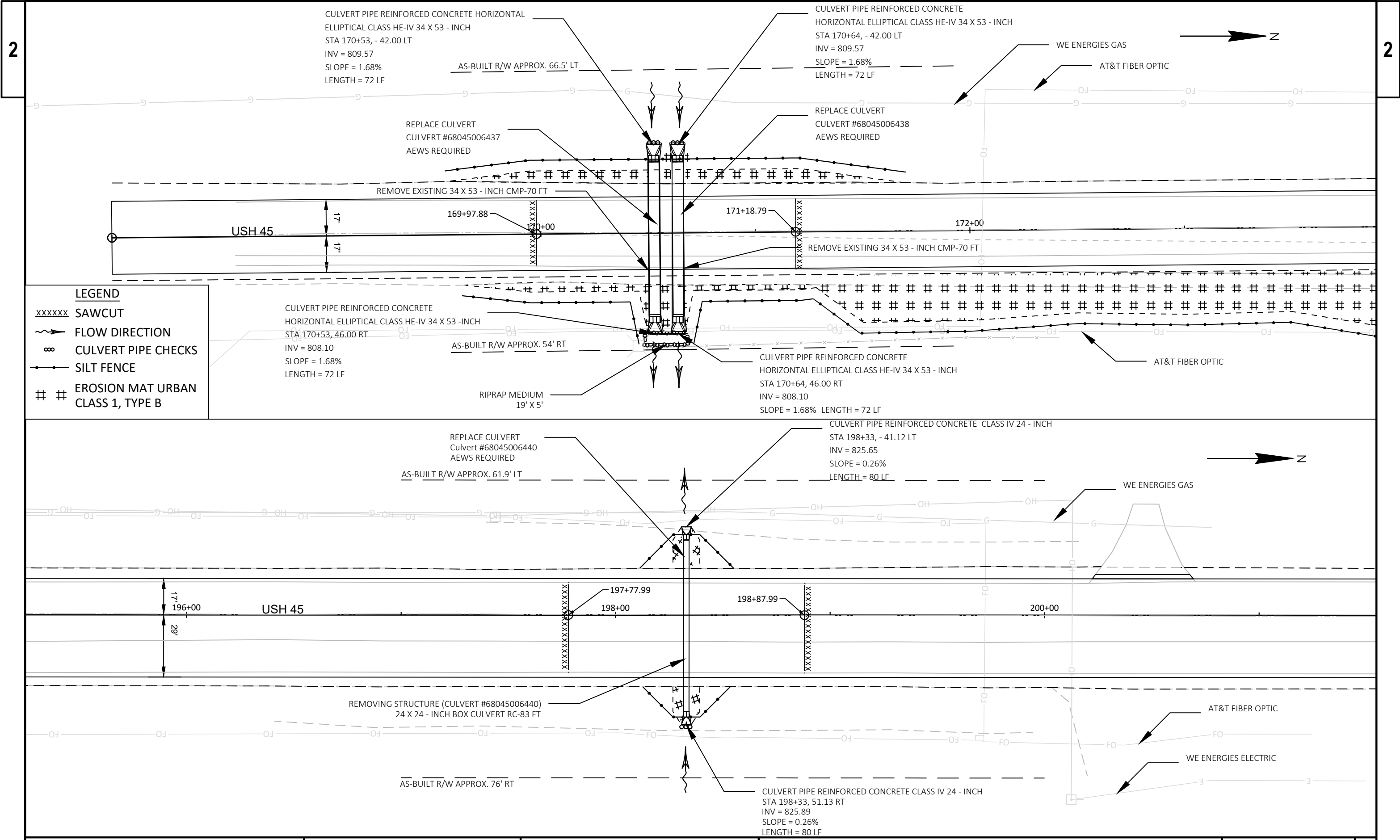


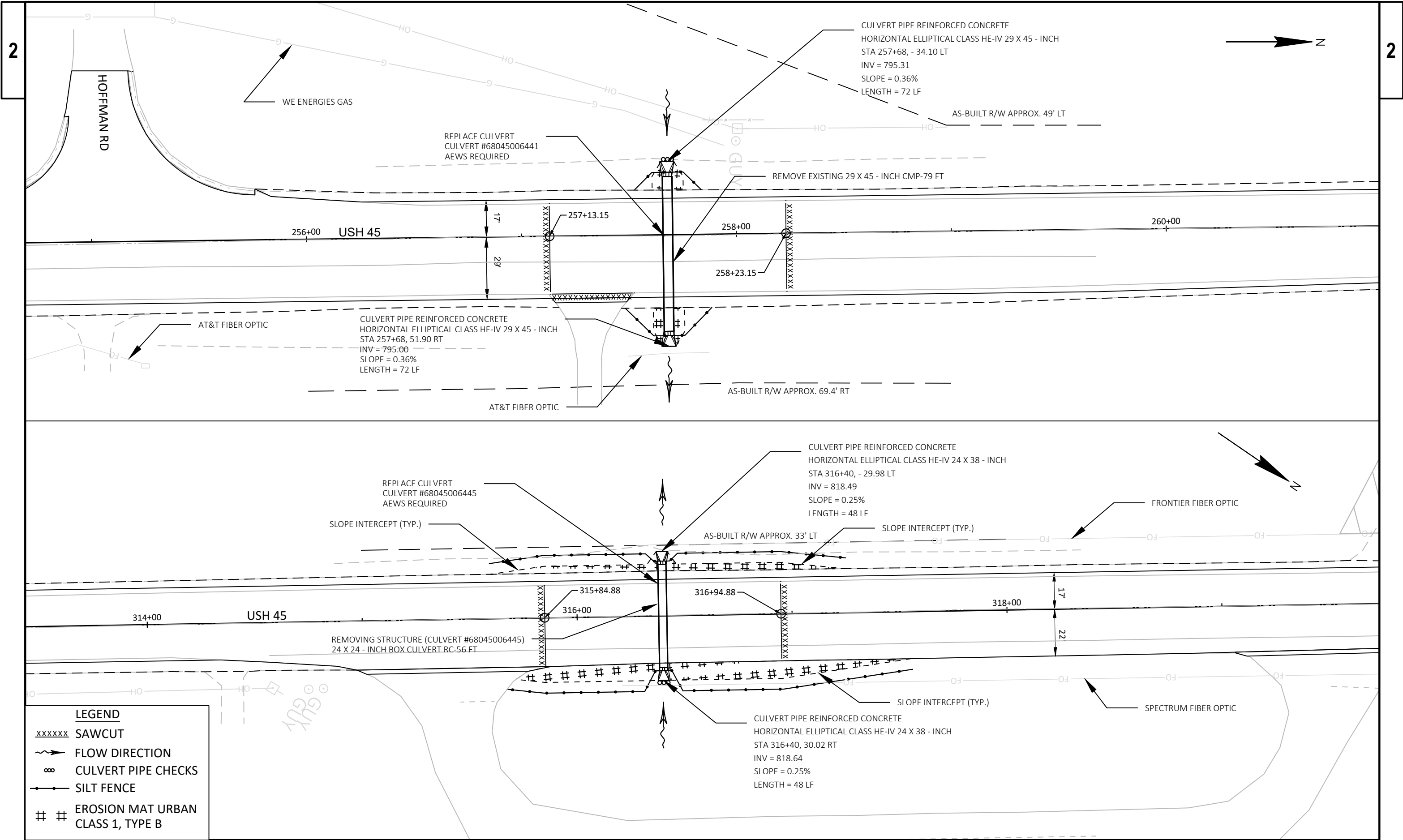
SECTION A-A

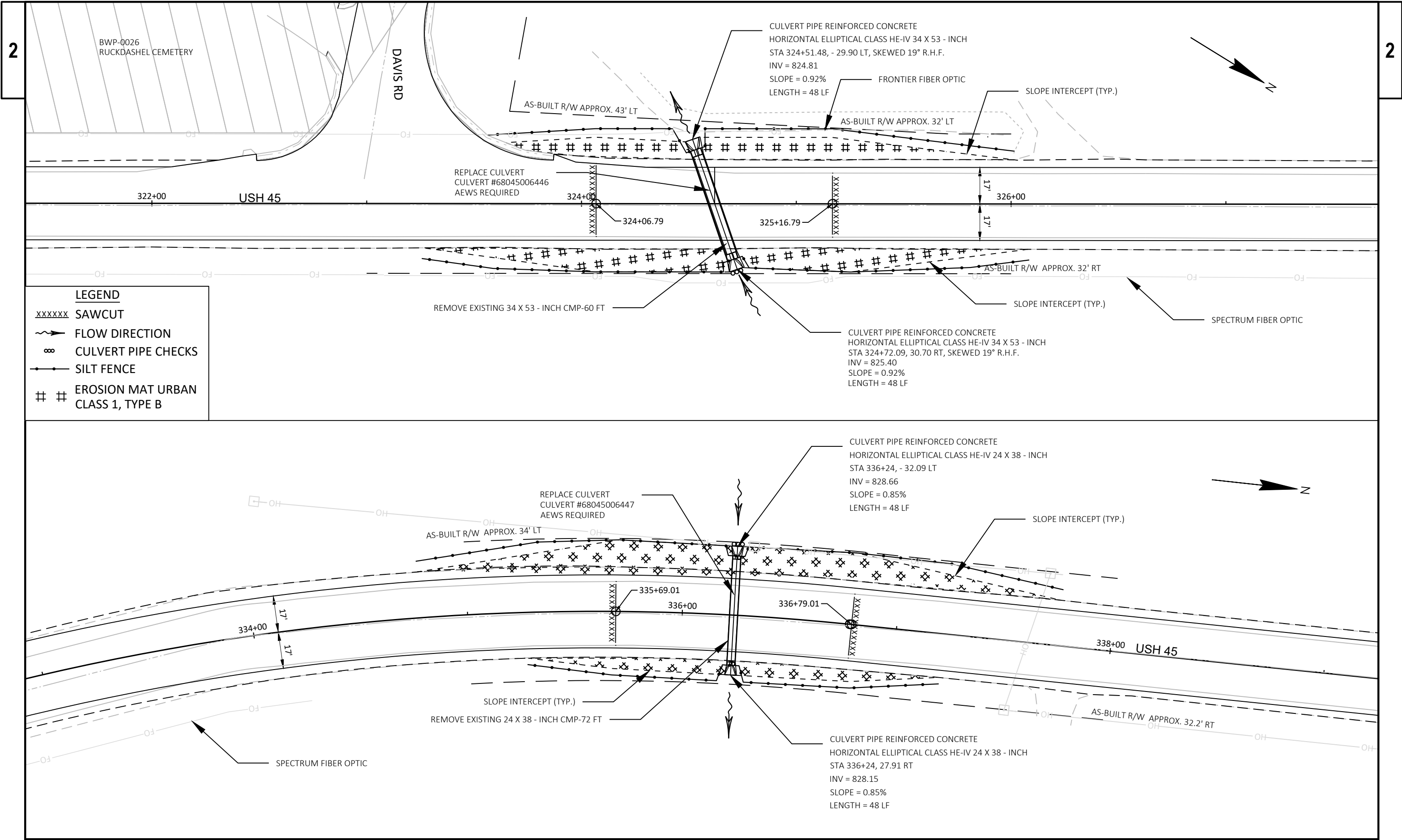
	REMOVING ASPHALTIC SURFACE MILLING
	REMOVING DISTRESSED ASPHALTIC SURFACE MILLING ASPHALTIC SURFACE PATCHING
	EXISTING ASPHALT
	EXISTING BASE COURSE

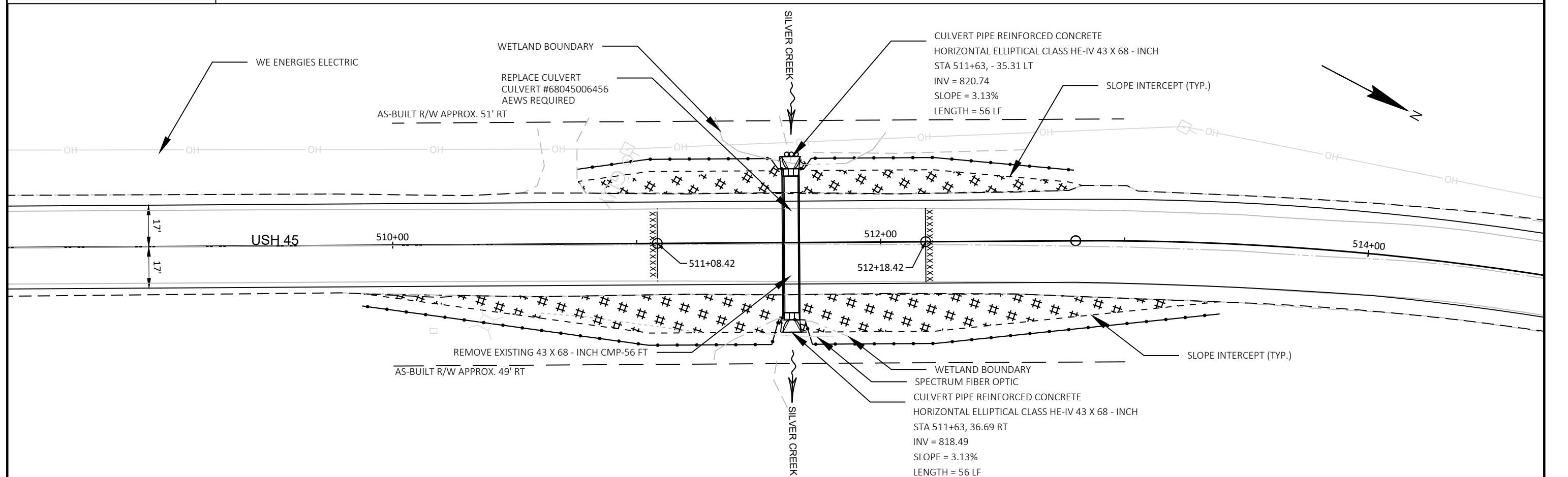
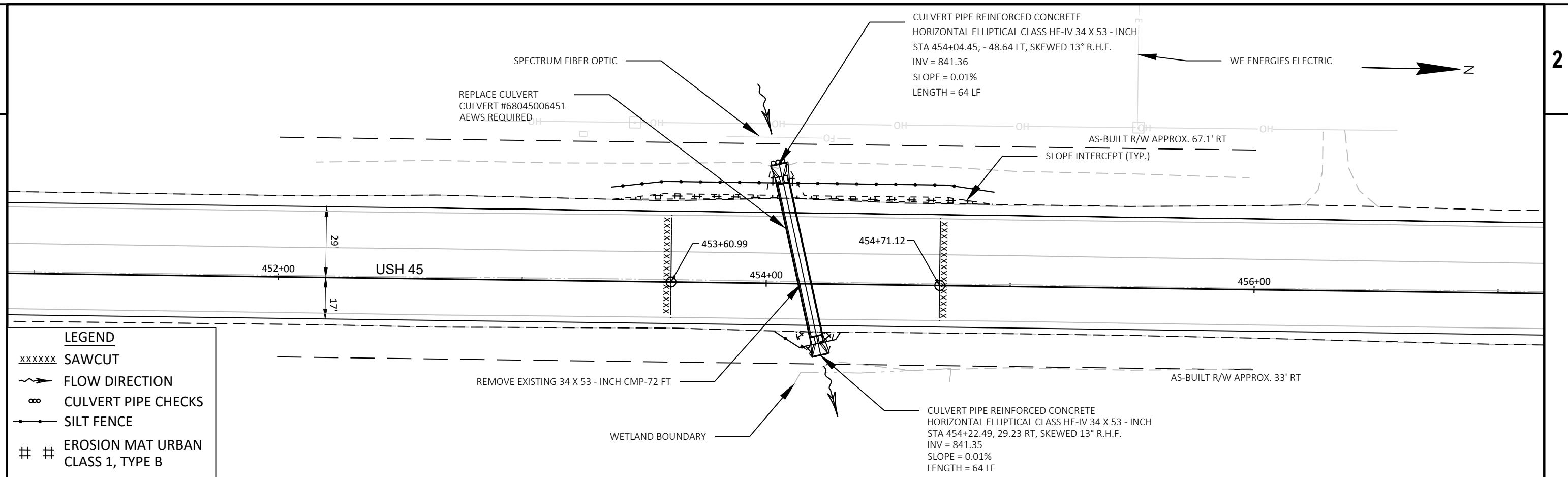
REMOVING DISTRESSED ASPHALTIC SURFACE MILLING

LOCATIONS AND LIMITS DETERMINED BY THE ENGINEER IN THE FIELD

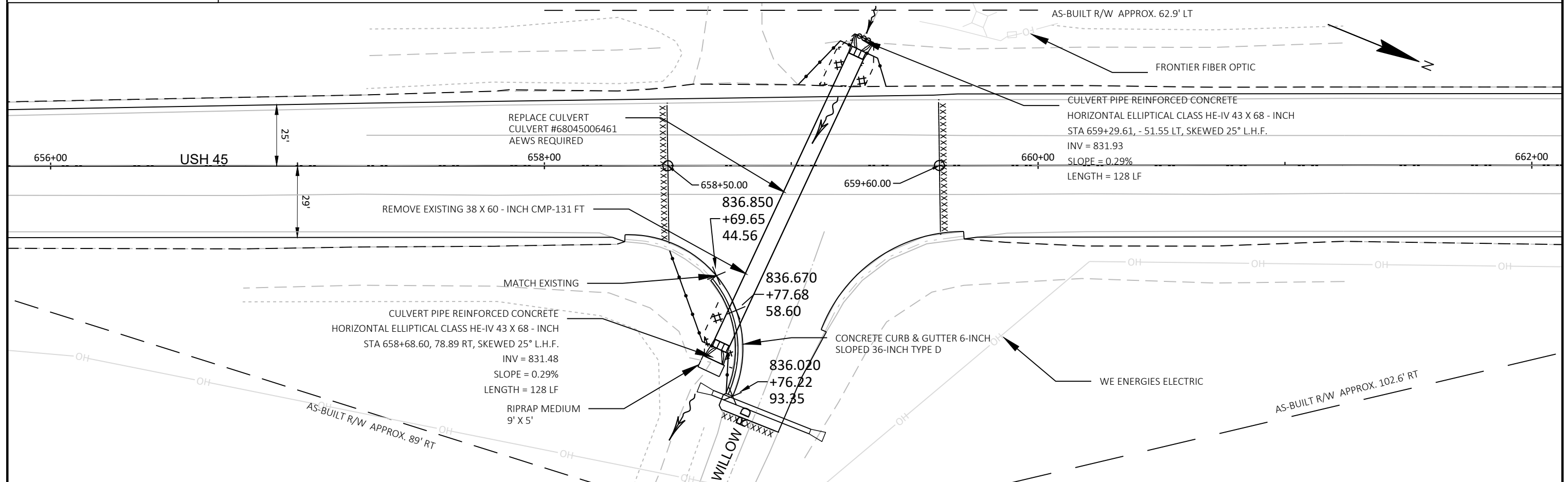


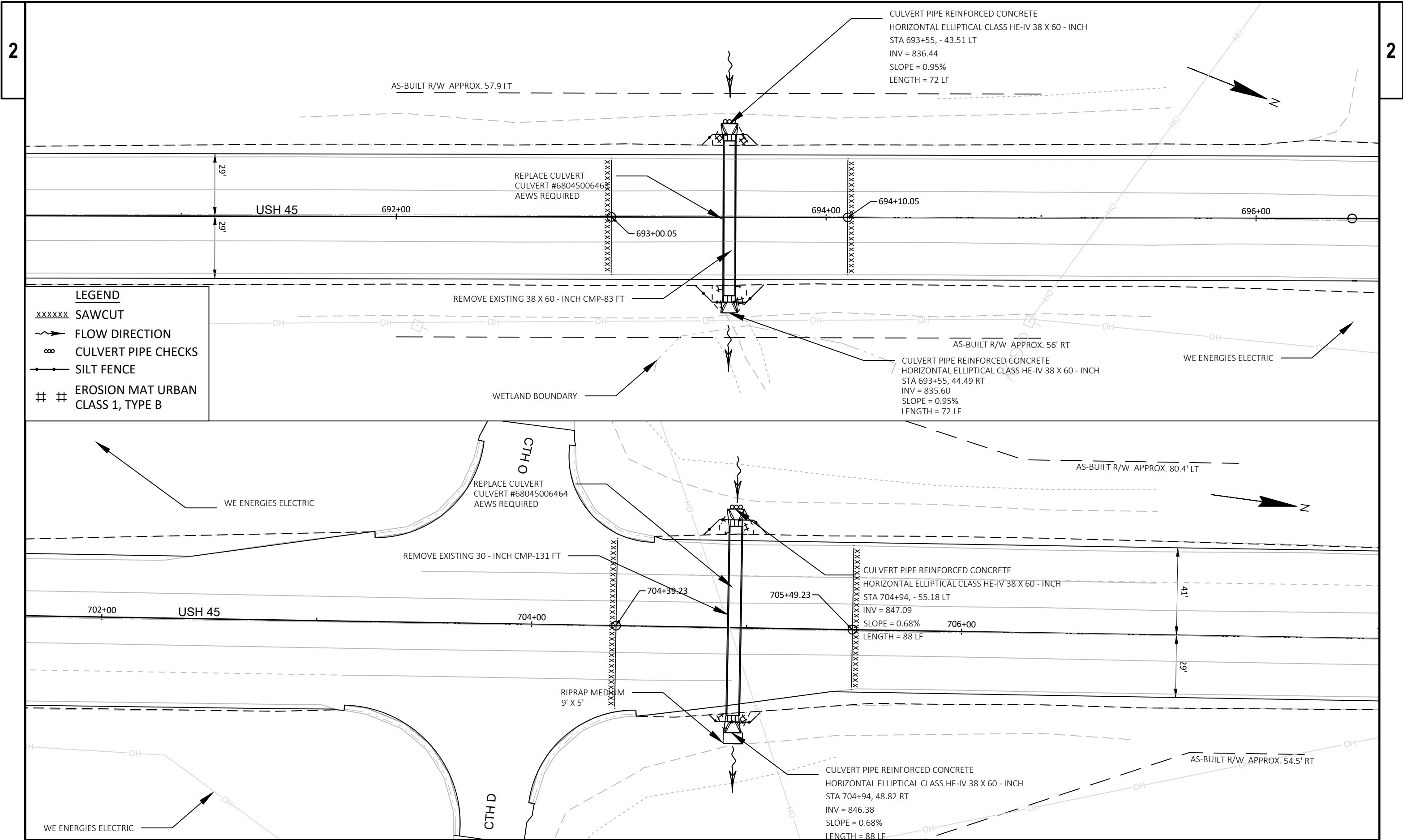






2





2

#

1

A diamond-shaped road sign with a black border and the text "ROAD WORK AHEAD" in bold, black, sans-serif capital letters. The sign is tilted slightly to the right. The code "W20-1A" is printed in the bottom right corner of the sign.

4

ROAD WORK
NEXT 11 MILES

G20-1
60"X24"

2

A diamond-shaped white sign with a black border. The text "ROAD WORK" is in large, bold, black capital letters, and "1000 FT" is in slightly smaller, bold, black capital letters below it. The sign is labeled "W20-1C" in the bottom right corner.

5

**HWY 45
ROAD WORK
BEGINS XXX-XX**

G20-57
72"X36"

3

A diamond-shaped warning sign with a black border. The text inside reads "ROAD WORK" on the first line and "500 FT" on the second line. The sign is labeled "W20-1D" in the bottom right corner.

6

**END
ROAD WORK**

G20-1
48"X24"

GENERAL NOTES:

DRAWINGS SHOW TRAFFIC CONTROL FOR A TYPICAL SITUATION.
ADDITIONAL TRAFFIC CONTROL DEVICES MAY BE REQUIRED AND/OR
LAYOUT DETAILS MODIFIED DEPENDING ON FIELD CONDITIONS AND
THE CONTRACTOR'S METHODS OF OPERATION.

MAP SHOWN IS NOT TO SCALE.

SEE SDD "TRAFFIC CONTROL, ADVANCE WARNING SIGNS 45 M.P.H. OR GREATER, TWO WAY UNDIVIDED ROAD OPEN TO TRAFFIC" FOR ADDITIONAL DETAILS.

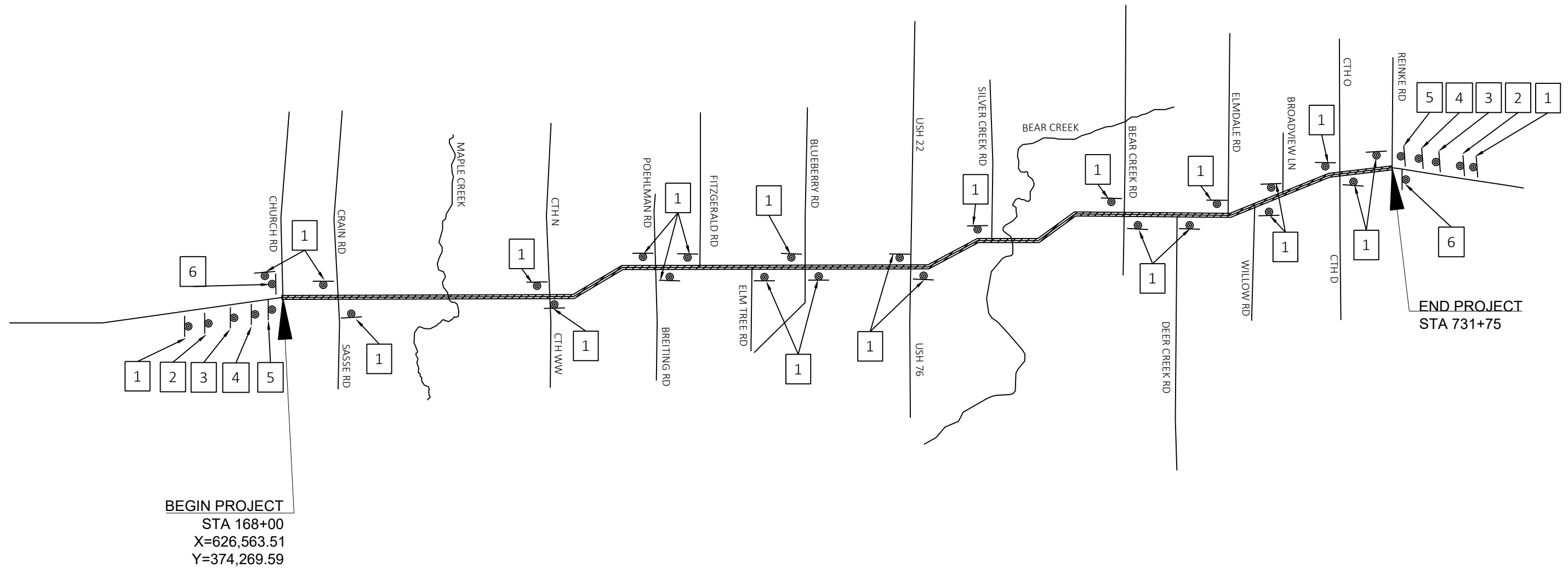
SEE SDD "TRAFFIC CONTROL FOR LANE CLOSURES WITH FLAGGING OPERATION" FOR ADDITIONAL DETAILS.

SEE SDD "TRAFFIC CONTROL, WORK ON SHOULDER OR PARKING LANE, UNDIVIDED ROADWAY"

ALL TRAFFIC CONTROL SIGNS ARE 48" X 48" UNLESS OTHERWISE STATED

PLACE SIGN G20-57 SEVEN DAYS PRIOR TO CONSTRUCTION, REMOVE AT THE START OF CONSTRUCTION.

A diagram showing a coordinate system. A horizontal line with an arrow pointing to the right is labeled 'z'. A vertical line with an arrow pointing upwards is labeled 'y'.



PROJECT NO:	1140-00-78
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HWY: USH 45

COUNTY: WAUPACA

TRAFFIC CONTROL

SHEET 28

E

FILE NAME : C:\USERS\FREDERICKKOTH\ONEDRIVE - DAAR CORPORATION\DOCUMENTS - NC DESIGN\1140-00-08, USH 45 NORTH, WAUPACA COUNTY\C3D\11400008\SHEETS\PLAN\025001-TC.DWG PLOT DATE : 4/24/2024 10:13 AM
LAYOUT NAME - 01

PLOT BY : FREDERICK KOTH

PLOT NAME :

PLOT SCALE : 1 IN:1 MI

WISDOT/CADDS SHEET 42

Estimate Of Quantities

1140-00-78

Line	Item	Item Description	Unit	Total	Qty
0002	203.0100	Removing Small Pipe Culverts	EACH	10.000	10.000
0004	203.0220	Removing Structure (structure) 01. STA. 198+33	EACH	1.000	1.000
0006	203.0220	Removing Structure (structure) 02. STA. 316+40	EACH	1.000	1.000
0008	203.0220	Removing Structure (structure) 03. STA. 607+85	EACH	1.000	1.000
0010	204.0110	Removing Asphaltic Surface	SY	658.000	658.000
0012	204.0115	Removing Asphaltic Surface Butt Joints	SY	1,042.000	1,042.000
0014	204.0120	Removing Asphaltic Surface Milling	SY	255,030.000	255,030.000
0016	204.0150	Removing Curb & Gutter	LF	627.000	627.000
0018	205.0100	Excavation Common	CY	8,811.000	8,811.000
0020	208.1500.S	Temporary Lane Shift During Culvert Work	EACH	13.000	13.000
0022	211.0400	Prepare Foundation for Asphaltic Shoulders	STA	1,062.000	1,062.000
0024	213.0100	Finishing Roadway (project) 01. 1140-00-78	EACH	1.000	1.000
0026	305.0110	Base Aggregate Dense 3/4-Inch	TON	5,640.000	5,640.000
0028	305.0120	Base Aggregate Dense 1 1/4-Inch	TON	6,710.000	6,710.000
0030	305.0500	Shaping Shoulders	STA	1,062.000	1,062.000
0032	455.0605	Tack Coat	GAL	39,330.000	39,330.000
0034	460.0105.S	HMA Percent Within Limits (PWL) Test Strip Volumetrics	EACH	1.000	1.000
0036	460.0110.S	HMA Percent Within Limits (PWL) Test Strip Density	EACH	2.000	2.000
0038	460.2005	Incentive Density PWL HMA Pavement	DOL	31,790.000	31,790.000
0040	460.2007	Incentive Density HMA Pavement Longitudinal Joints	DOL	11,280.000	11,280.000
0042	460.2010	Incentive Air Voids HMA Pavement	DOL	53,520.000	53,520.000
0044	460.6224	HMA Pavement 4 MT 58-28 S	TON	53,520.000	53,520.000
0046	465.0105	Asphaltic Surface	TON	2,588.000	2,588.000
0048	465.0110	Asphaltic Surface Patching	TON	860.000	860.000
0050	465.0120	Asphaltic Surface Driveways and Field Entrances	TON	50.000	50.000
0052	465.0315	Asphaltic Flumes	SY	28.000	28.000
0054	465.0520	Asphaltic Rumble Strips, Shoulder	LF	85,610.000	85,610.000
0056	465.0560	Asphaltic Rumble Strips, Centerline	LF	47,810.000	47,810.000
0058	522.0424	Culvert Pipe Reinforced Concrete Class IV 24-Inch	LF	80.000	80.000
0060	522.0430	Culvert Pipe Reinforced Concrete Class IV 30-Inch	LF	56.000	56.000
0062	522.1024	Apron Endwalls for Culvert Pipe Reinforced Concrete 24-Inch	EACH	2.000	2.000
0064	522.1030	Apron Endwalls for Culvert Pipe Reinforced Concrete 30-Inch	EACH	2.000	2.000
0066	522.2424	Culvert Pipe Reinforced Concrete Horizontal Elliptical Class HE-IV 24x38-Inch	LF	96.000	96.000
0068	522.2429	Culvert Pipe Reinforced Concrete Horizontal Elliptical Class HE-IV 29x45-Inch	LF	72.000	72.000
0070	522.2434	Culvert Pipe Reinforced Concrete Horizontal Elliptical Class HE-IV 34x53-Inch	LF	256.000	256.000
0072	522.2624	Apron Endwalls for Culvert Pipe Reinforced Concrete Horizontal Elliptical 24x38-Inch	EACH	4.000	4.000
0074	522.2629	Apron Endwalls for Culvert Pipe Reinforced Concrete Horizontal Elliptical 29x45-Inch	EACH	2.000	2.000
0076	522.2634	Apron Endwalls for Culvert Pipe Reinforced Concrete Horizontal Elliptical 34x53-Inch	EACH	8.000	8.000
0078	522.2638	Apron Endwalls for Culvert Pipe Reinforced Concrete Horizontal Elliptical 38x60-Inch	EACH	4.000	4.000
0080	522.2643	Apron Endwalls for Culvert Pipe Reinforced Concrete Horizontal Elliptical 43x68-Inch	EACH	4.000	4.000
0082	601.0557	Concrete Curb & Gutter 6-Inch Sloped 36-Inch Type D	LF	627.000	627.000
0084	606.0200	Riprap Medium	CY	15.000	15.000
0086	611.8115	Adjusting Inlet Covers	EACH	21.000	21.000
0088	618.0100	Maintenance and Repair of Haul Roads (project) 01. 1140-00-78	EACH	1.000	1.000
0090	619.1000	Mobilization	EACH	1.000	1.000
0092	624.0100	Water	MGAL	250.000	250.000
0094	625.0100	Topsoil	SY	5,386.000	5,386.000
0096	628.1504	Silt Fence	LF	5,514.000	5,514.000
0098	628.1520	Silt Fence Maintenance	LF	5,514.000	5,514.000

Estimate Of Quantities

1140-00-78

Line	Item	Item Description	Unit	Total	Qty
0100	628.1905	Mobilizations Erosion Control	EACH	5.000	5.000
0102	628.1910	Mobilizations Emergency Erosion Control	EACH	5.000	5.000
0104	628.2004	Erosion Mat Class I Type B	SY	420.000	420.000
0106	628.2008	Erosion Mat Urban Class I Type B	SY	4,926.000	4,926.000
0108	628.7504	Temporary Ditch Checks	LF	40.000	40.000
0110	628.7555	Culvert Pipe Checks	EACH	78.000	78.000
0112	628.7570	Rock Bags	EACH	150.000	150.000
0114	629.0210	Fertilizer Type B	CWT	4.900	4.900
0116	630.0130	Seeding Mixture No. 30	LB	111.000	111.000
0118	630.0500	Seed Water	MGAL	54.500	54.500
0120	633.5200	Markers Culvert End	EACH	26.000	26.000
0122	638.2102	Moving Signs Type II	EACH	13.000	13.000
0124	638.4000	Moving Small Sign Supports	EACH	13.000	13.000
0126	642.5201	Field Office Type C	EACH	1.000	1.000
0128	643.0300	Traffic Control Drums	DAY	1,720.000	1,720.000
0130	643.0420	Traffic Control Barricades Type III	DAY	100.000	100.000
0132	643.0705	Traffic Control Warning Lights Type A	DAY	200.000	200.000
0134	643.0715	Traffic Control Warning Lights Type C	DAY	140.000	140.000
0136	643.0810	Traffic Control Connected Arrow Boards	DAY	10.000	10.000
0138	643.0900	Traffic Control Signs	DAY	3,670.000	3,670.000
0140	643.1000	Traffic Control Signs Fixed Message	SF	36.000	36.000
0142	643.1220	Traffic Control Connected Work Zone Start and End Location Markers	DAY	10.000	10.000
0144	643.3165	Temporary Marking Line Paint 6-Inch	LF	128,802.000	128,802.000
0146	643.5000	Traffic Control	EACH	1.000	1.000
0148	645.0120	Geotextile Type HR	SY	26.000	26.000
0150	646.2040	Marking Line Grooved Wet Ref Epoxy 6-Inch	LF	192,980.000	192,980.000
0152	646.4040	Marking Line Grooved Wet Ref Epoxy 10-Inch	LF	2,330.000	2,330.000
0154	646.5020	Marking Arrow Epoxy	EACH	16.000	16.000
0156	646.5120	Marking Word Epoxy	EACH	14.000	14.000
0158	646.6120	Marking Stop Line Epoxy 18-Inch	LF	114.000	114.000
0160	646.7120	Marking Diagonal Epoxy 12-Inch	LF	185.000	185.000
0162	646.8120	Marking Curb Epoxy	LF	483.000	483.000
0164	646.8220	Marking Island Nose Epoxy	EACH	17.000	17.000
0166	648.0100	Locating No-Passing Zones	MI	10.680	10.680
0168	650.5500	Construction Staking Curb Gutter and Curb & Gutter	LF	627.000	627.000
0170	650.6000	Construction Staking Pipe Culverts	EACH	13.000	13.000
0172	650.8000	Construction Staking Resurfacing Reference	LF	56,375.000	56,375.000
0174	650.9911	Construction Staking Supplemental Control (project) 01. 1140-00-78	EACH	1.000	1.000
0176	650.9920	Construction Staking Slope Stakes	LF	3,525.000	3,525.000
0178	680.0100	Public Land Survey Monument Verify and Reset	EACH	9.000	9.000
0180	690.0150	Sawing Asphalt	LF	3,999.000	3,999.000
0182	690.0250	Sawing Concrete	LF	170.000	170.000
0184	740.0440	Incentive IRI Ride	DOL	44,000.000	44,000.000
0186	ASP.1T0A	On-the-Job Training Apprentice at \$5.00/HR	HRS	2,400.000	2,400.000
0188	ASP.1T0G	On-the-Job Training Graduate at \$5.00/HR	HRS	2,760.000	2,760.000
0190	SPV.0090	Special 01.Culvert Pipe Reinforced Concrete Horizontal Elliptical Class HE-IV 38X60-Inch	LF	160.000	160.000
0192	SPV.0090	Special 02.Culvert Pipe Reinforced Concrete Horizontal Elliptical Class HE-IV 43X68-Inch	LF	184.000	184.000

Estimate Of Quantities

					1140-00-78
0194	SPV.0180	Special 01. Removing Distressed Asphaltic Surface Milling	SY	7,651.000	7,651.000

REMOVALS

203.0100 203.0220
REMOVING REMOVING
SMALL STRUCTURE
PIPE (STRUCTURE)
CULVERTS

ROADWAY	SIDE	STA	EACH	EACH
USH 45	LT/RT	170+53	1	-
USH 45	LT/RT	170+64	1	-
USH 45	LT/RT	198+33	-	1
USH 45	LT/RT	257+68	1	-
USH 45	LT/RT	316+40	-	1
USH 45	LT/RT	324+62	1	-
USH 45	LT/RT	336+24	1	-
USH 45	LT/RT	454+16	1	-
USH 45	LT/RT	511+63	1	-
USH 45	LT/RT	607+85	-	1
USH 45	LT/RT	659+05	1	-
USH 45	LT/RT	693+55	1	-
USH 45	LT/RT	704+94	1	-
TOTAL			10	3

ASPHALTIC SURFACE MILLING

204.0110 204.0115 204.0120 SPV.0180.01
REMOVING REMOVING REMOVING REMOVING
ASPHALTIC ASPHALTIC ASPHALTIC DISTRESSED
SURFACE SURFACE BUTT SURFACE ASPHALTIC
 JOINTS MILLING SURFACE
 MILLING

ROADWAY	SIDE	STA	TO	STA	SY	SY	SY	SY	COMMENTS
USH 45	MAINLINE	168+00	-	731+75	6	34	244,300	-	
CRAIN RD	LT	188+54	-		6	29	450	-	
SASSE RD	RT	188+54	-		-	34	420	-	
BECKERT RD	RT	243+63	-		-	32	430	-	
HOFFMAN RD	LT	255+05	-		-	29	430	-	
BOARDWALK	RT	271+53	-		-	36	380	-	
CTH N	LT	295+00	-		6	32	370	-	
CTH WW	RT	295+00	-		6	33	370	-	
DAMS RD	LT	322+50	-		-	33	720	-	
GIELOWRD	RT	343+41	-		-	17	90	-	
POEHLMAN RD	LT	351+30	-		-	30	410	-	
BREITING RD	RT	351+30	-		-	30	460	-	
FITZGERALD RD	LT	373+24	-		6	32	370	-	
ELMTREE RD	RT	400+00	-		-	26	370	-	
BLUEBERRY RD	LT	426+47	-		4	33	470	-	
BLUEBERRY RD	RT	426+47	-		4	34	430	-	
STH 22	LT	479+73	-		-	48	-	-	
STH 76	RT	479+73	-		-	49	-	-	
ALTERRAIN LN	LT	489+00	-		-	22	110	-	
SILVER CREEK RD	LT	522+81	-		-	26	440	-	
BEAR CREEK RD	LT	591+79	-		-	26	440	-	
BEAR CREEK RD	RT	591+79	-		-	26	430	-	
DEER CREEK RD	RT	618+31	-		-	34	430	-	
ELMDALE RD	LT	645+00	-		6	26	410	-	
WILLOWRD	RT	659+06	-		-	26	380	-	
BROADMEWLN	LT	673+40	-		4	26	380	-	
CTH O	LT	703+87	-		-	45	500	-	
CTHD	RT	703+87	-		-	34	470	-	
REINKE RD	LT	730+68	-		-	42	290	-	
REINKE RD	RT	730+68	-		-	42	280	-	
USH 45	LT/RT	731+75	-		-	76	-	-	
USH 45	LT/RT	168+00	-	731+75	610	-	-	-	DRIVEWAYS
USH 45		PROJECT	-	UNDISTRIBUTED	-	-	-	7,651	
TOTAL					658	1,042	255,030	7,651	

DIVISION	FROM/TO STATION	LOCATION	205.0100 COMMON EXCAVATION (1)		SALVAGED/UNUSABLE PAVEMENT MATERIAL (4)	AVAILABLE MATERIAL (5)	UNEXPANDED FILL	EXPANDED FILL (13)	MASS ORDINATE +/- (14)	WASTE	208.0100 BORROW	COMMENT
			CUT (2)	EBS EXCAVATION (3)				FACTOR 1.25				
USH 45 MAINLINE	171+50 - 180+00	RT	1,041	0	44	997	0	0	997	0	0	REDITCHING
PROJECT TOTAL			1,041	0	44	997	0	0	997	0	0	

NOTES:
(1) COMMON EXCAVATION IS THE SUM OF THE CUT AND EBS EXCAVATION COLUMNS. ITEM NUMBER 205.0100
(2) SALVAGED/UNSUABLE PAVEMENT MATERIAL IS INCLUDED IN CUT.
(3) EBS EXCAVATION TO BE BACK FILLED WITH SELECT BORROW MATERIAL. NOTE: THIS IS DESIGNERS CHOICE, CAN BE BACK FILLED WITH BORROW, OR CUT AS WELL.
(4) SALVAGED/UNUSABLE PAVEMENT MATERIAL
(5) AVAILABLE MATERIAL = CUT - SALVAGED/UNUSUABLE PAVEMENT MATERIAL
(13) EXPANDED FILL FACTOR = 1.25
DEPENDING ON SELECTIONS: **EXPANDED FILL = (UNEXPANDED FILL - EXPANDED ROCK - REDUCED MARSH - REDUCED EBS) * FILL FACTOR**
 OR EXPANDED FILL = (UNEXPANDED FILL - EXPANDED ROCK - REDUCED EBS) * FILL FACTOR
 OR EXPANDED FILL = (UNEXPANDED FILL - EXPANDED ROCK - REDUCED MARSH) * FILL FACTOR
 OR EXPANDED FILL = (UNEXPANDED FILL - EXPANDED ROCK) * FILL FACTOR
(14) THE MASS ORDINATE + OR - QTY CALCULATED FOR THE DIVISION. PLUS QUANTITY INDICATES AN EXCESS OF MATERIAL WITHIN THE DIVISION. MINUS INDICATES A SHORTAGE OF MATERIAL WITHIN THE DIVISION.

EXCAVATION COMMON - PIPE TRANSITIONS

205.0100 EXCAVATION COMMON		
ROADWAY SIDE	STA	CY
USH 45	170+53	510
USH 45	198+33	710
USH 45	257+68	650
USH 45	316+40	470
USH 45	324+62	470
USH 45	336+24	470
USH 45	454+16	620
USH 45	511+63	550
USH 45	607+85	510
USH 45	659+05	1020
USH 45	693+55	830
USH 45	704+94	960
TOTAL		7,770

AGGREGATE ITEMS

		211.0400		305.0110		305.0120		305.0500		624.0100	
		PREPARE FOUNDATION FOR ASPHALTIC SHOULDERS		BASE AGGREGATE DENSE 3/4-INCH		BASE AGGREGATE DENSE 1 1/4-INCH		SHAPING SHOULDERS		WATER	
ROADWAY	STA	TO	STA	STA	TON	TON	TON	STA	MGAL	COMMENTS	
USH 45	168+00	-	170+32	6	30	-	-	6	-		
USH 45	170+02	-	171+22	-	80	490	-	-	-	CULVERT PIPE	
USH 45	170+32	-	191+00	40	190	-	-	40	-		
USH 45	191+00	-	265+87	150	670	-	-	150	-		
USH 45	197+78	-	198+88	-	70	560	-	-	-	CULVERT PIPE	
USH 45	257+13	-	258+23	-	70	560	-	-	-	CULVERT PIPE	
USH 45	265+87	-	386+92	242	1080	-	-	242	-		
USH 45	315+85	-	316+95	-	70	490	-	-	-	CULVERT PIPE	
USH 45	324+07	-	325+17	-	70	420	-	-	-	CULVERT PIPE	
USH 45	335+69	-	336+79	-	70	420	-	-	-	CULVERT PIPE	
USH 45	386+92	-	468+36	164	750	-	-	164	-		
USH 45	453+61	-	454+71	-	70	560	-	-	-	CULVERT PIPE	
USH 45	491+54	-	495+47	10	40	-	-	10	-		
USH 45	495+47	-	539+00	86	390	-	-	86	-		
USH 45	511+08	-	512+18	-	70	420	-	-	-	CULVERT PIPE	
USH 45	539+00	-	550+20	24	110	-	-	24	-		
USH 45	550+20	-	641+94	182	820	-	-	182	-		
USH 45	607+30	-	608+40	-	70	420	-	-	-	CULVERT PIPE	
USH 45	641+94	-	653+90	24	110	-	-	24	-		
USH 45	658+50	-	659+60	-	70	910	-	-	-	CULVERT PIPE	
USH 45	693+00	-	694+10	-	70	670	-	-	-	CULVERT PIPE	
USH 45	704+39	-	705+49	-	70	790	-	-	-	CULVERT PIPE	
USH 45	653+90	-	720+82	134	600	-	-	134	-		
PROJECT	168+00	-	731+35	-	-	-	-	-	250		
TOTAL				1,062	5,640	6,710		1,062	250		

ASPHALT ITEMS (1 OF 2)

		455.0605	460.6224	465.0105	465.0110	465.0120	465.0315	465.0520	465.0560				
		TACK COAT	HMA PAVEMENT 4 MT 58-28 S	ASPHALTIC SURFACE	ASPHALTIC SURFACE PATCHING	ASPHALTIC SURFACE DRIVEWAYS AND FIELD ENTRANCES	ASPHALTIC FLUMES	ASPHALTIC RUMBLE STRIPS, SHOULDER	ASPHALTIC RUMBLE STRIPS, CENTERLINE				
ROADWAY	SIDE	STA	TO STA	GAL	TON	TON	TON	SY	LF	LF			
USH 45	MAINLINE	168+00	- 731+75	37,500	52,490	-	-	-	85,610	47,810	PROJECT		
USH 45	LT/RT	170+53	-	30	-	170	-	-	-	-	CULVERT PIPE		
USH 45	LT	188+54	-	30	40	-	-	-	-	-	CRAIN RD		
USH 45	RT	188+54	-	30	40	-	-	5	-	-	SASSE RD		
USH 45	LT/RT	198+33	-	40	-	210	-	-	-	-	CULVERT PIPE		
USH 45	RT	243+63	-	30	40	-	-	-	-	-	BECKERT RD		
USH 45	LT	255+05	-	30	40	-	-	-	-	-	HOFFMAN RD		
USH 45	LT/RT	257+68	-	40	-	210	-	-	-	-	CULVERT PIPE		
USH 45	RT	271+53	-	30	40	-	-	-	-	-	BOARDWALK COMM.		
USH 45	LT	295+00	-	30	30	-	-	-	-	-	CTH N		
USH 45	RT	295+00	-	30	40	-	-	-	-	-	CTH WW		
USH 45	LT/RT	316+40	-	40	-	180	-	-	-	-	CULVERT PIPE		
USH 45	LT	322+50	-	50	70	-	-	-	-	-	DAVIS RD		
USH 45	LT/RT	324+62	-	30	-	150	-	-	-	-	CULVERT PIPE		
USH 45	LT/RT	336+24	-	30	-	150	-	-	-	-	CULVERT PIPE		
USH 45	RT	343+41	-	10	10	-	-	-	-	-	GIELOWRD		
USH 45	LT	351+30	-	30	40	-	-	-	-	-	POEHLMAN RD		
USH 45	RT	351+30	-	30	40	-	-	-	-	-	BREITING RD		
USH 45	LT	373+24	-	30	40	-	-	-	-	-	FITZGERALD RD		
USH 45	RT	400+00	-	30	40	-	-	-	-	-	ELM TREE RD		
USH 45	RT	400+20	-	-	-	-	-	5	-	-	ELM TREE RD		
USH 45	LT	426+47	-	30	40	-	-	-	-	-	BLUEBERRY RD		
USH 45	RT	426+47	-	30	40	-	-	-	-	-	BLUEBERRY RD		
USH 45	LT/RT	426+54	- 426+96	-	-	-	-	9	-	-	BLUEBERRY RD		
USH 45	LT/RT	454+16	-	40	-	210	-	-	-	-	CULVERT PIPE		
SUBTOTAL				38,200	53,080	1,280	--	--	19	85,610	47,810		

ASPHALT ITEMS (2 OF 2)													
		455.0605	460.6224	465.0105	465.0110	465.0120	465.0315	465.0520	465.0560				
		TACK COAT	HMA PAVEMENT 4 MT 58-28 S	ASPHALTIC SURFACE	ASPHALTIC SURFACE PATCHING	ASPHALTIC SURFACE DRIVEWAYS AND FIELD ENTRANCES	ASPHALTIC FLUMES	ASPHALTIC RUMBLE STRIPS, SHOULDER	ASPHALTIC RUMBLE STRIPS, CENTERLINE				
ROADWAY	SIDE	STA	TO	STA	GAL	TON	TON	TON	SY	LF	LF	COMMENTS	
USH 45	LT/RT	479+36	-		-	-	-	-	9	-	-	STH 76/STH 22	
USH 45	LT	489+00	-		10	10	-	-	-	-	-	ALLTERRAIN LN	
USH 45	LT/RT	511+63	-		30	-	150	-	-	-	-	CULVERT PIPE	
USH 45	LT	522+81	-		30	40	-	-	-	-	-	SILVER CREEK RD	
USH 45	LT	591+79	-		30	40	-	-	-	-	-	BEAR CREEK RD	
USH 45	RT	591+79	-		30	40	-	-	-	-	-	BEAR CREEK RD	
USH 45	LT/RT	607+85	-		30	-	150	-	-	-	-	CULVERT PIPE	
USH 45	RT	618+31	-		30	40	-	-	-	-	-	DEER CREEK RD	
USH 45	LT	654+00	-		40	50	-	-	-	-	-	ELMDALE RD	
USH 45	LT/RT	659+05	-		80	-	410	-	-	-	-	CULVERT PIPE	
USH 45	RT	659+06	-		30	40	-	-	-	-	-	WILLOW RD	
USH 45	LT	673+40	-		30	40	-	-	-	-	-	BROADVIEW LN	
USH 45	LT/RT	693+55	-		50	-	260	-	-	-	-	CULVERT PIPE	
USH 45	LT	703+87	-		30	40	-	-	-	-	-	CTH O	
USH 45	RT	703+87	-		30	40	-	-	-	-	-	CTH D	
USH 45	LT/RT	704+94	-		60	-	320	-	-	-	-	CULVERT PIPE	
USH 45	LT	730+68	-		30	30	-	-	-	-	-	REINKE RD	
USH 45	RT	730+68	-		20	30	-	-	-	-	-	REINKE RD	
USH 45	LT/RT	168+00	-	731+75	540	-	-	860	-	-	-	REMOVING DISTRESSED ASPHALTIC SURFACE MILLING	
USH 45	LT/RT	168+00	-	731+75	-	-	-	-	50	-	-	DRIVEWAYS	
USH 45	LT/RT	168+00	-	731+75	-	-	18	-	-	-	-	CURB & GUTTER	
SUBTOTAL					1,130	440	1,308	860	50	9	--	--	
TOTAL					39,330	53,520	2,588	860	50	28	85,610	47,810	

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LOCATION	ROADWAY	STATION	MIXTURE USE:	UNDERLYING SURFACE	BID ITEM	TONS	THICKNESS	QUALITY MANAGEMENT PROGRAM TO BE USED FOR:	
								MIXTURE ACCEPTANCE	DENSITY ACCEPTANCE
DRIVING LANES 12-FOOT	USH 45 NB/SB MAINLINE	168+00 to 731+75	LOWER LAYER	MILLED EXISTING HMA SURFACE	HMA PAVEMENT 4 MT 58-28 S	15895	1.75"	INCENTIVE AIR VOIDS HMA PAVEMENT, 460.2010	INCENTIVE DENSITY PVL HMA PAVEMENT, 460.2005
DRIVING LANES 12-FOOT	USH 45 NB/SB MAINLINE	168+00 to 731+75	UPPER LAYER	4 MT 58-28 S	HMA PAVEMENT 4 MT 58-28 S	15895	1.75"	INCENTIVE AIR VOIDS HMA PAVEMENT, 460.2010	INCENTIVE DENSITY PVL HMA PAVEMENT, 460.2005
PASSING LANES	USH 45 NB/SB MAINLINE	168+00 to 731+75	LOWER LAYER	MILLED EXISTING HMA SURFACE	HMA PAVEMENT 4 MT 58-28 S	4210	1.75"	INCENTIVE AIR VOIDS HMA PAVEMENT, 460.2010	NOT ELIGIBLE FOR INCENTIVE, DEPARTMENT ACCEPTANCE
PASSING LANES	USH 45 NB/SB MAINLINE	168+00 to 731+75	UPPER LAYER	4 MT 58-28 S	HMA PAVEMENT 4 MT 58-28 S	4210	1.75"	INCENTIVE AIR VOIDS HMA PAVEMENT, 460.2010	NOT ELIGIBLE FOR INCENTIVE, DEPARTMENT ACCEPTANCE
5-FOOT SHOULDERS	USH 45 NB/SB MAINLINE	168+00 to 731+75	LOWER LAYER	MILLED EXISTING HMA SURFACE	HMA PAVEMENT 4 MT 58-28 S	6140	1.75"	INCENTIVE AIR VOIDS HMA PAVEMENT, 460.2010	NOT ELIGIBLE FOR INCENTIVE, DEPARTMENT ACCEPTANCE
5-FOOT SHOULDERS	USH 45 NB/SB MAINLINE	168+00 to 731+75	UPPER LAYER	4 MT 58-28 S	HMA PAVEMENT 4 MT 58-28 S	6140	1.75"	INCENTIVE AIR VOIDS HMA PAVEMENT, 460.2010	NOT ELIGIBLE FOR INCENTIVE, DEPARTMENT ACCEPTANCE
INTERSECTIONS	USH 45 NB/SB MAINLINE	168+00 to 731+75	UPPER LAYER	MILLED EXISTING HMA SURFACE	HMA PAVEMENT 4 MT 58-28 S	1030	1.75"	INCENTIVE AIR VOIDS HMA PAVEMENT, 460.2010	NOT ELIGIBLE FOR INCENTIVE, DEPARTMENT ACCEPTANCE
CULVERT PIPES	USH 45 NB/SB MAINLINE	168+00 to 731+75	ASPHALTIC SURFACE	BASE AGGREGATE DENSE	ASPHALTIC SURFACE	2588	7"	NOT ELIGIBLE FOR INCENTIVE, DEPARTMENT ACCEPTANCE	NOT ELIGIBLE FOR INCENTIVE, DEPARTMENT ACCEPTANCE
DRIVEWAYS AND FIELD ENTRANCES	USH 45 NB/SB MAINLINE	168+00 to 731+75	ASPHALTIC SURFACE	BASE AGGREGATE DENSE	ASPHALTIC SURFACE DRIVEWAYS AND FIELD ENTRANCES	50	3"	NOT ELIGIBLE FOR INCENTIVE, DEPARTMENT ACCEPTANCE	NOT ELIGIBLE FOR INCENTIVE, DEPARTMENT ACCEPTANCE
DISTRESSED MILLING	USH 45 NB/SB MAINLINE	168+00 to 731+75	ASPHALTIC SURFACE	MILLED EXISTING HMA SURFACE	ASPHALTIC SURFACE PATCHING	860	2" MIN	NOT ELIGIBLE FOR INCENTIVE, DEPARTMENT ACCEPTANCE	NOT ELIGIBLE FOR INCENTIVE, DEPARTMENT ACCEPTANCE

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CULVERT PIPES (1 OF 2)

		208.1500.S		522.0424		522.0430		522.1024		522.1030		522.2424		522.2429	
		TEMPORARY LANE SHIFT DURING CULVERT WORK		CULVERT PIPE REINFORCED CONCRETE CLASS IV 24-INCH		CULVERT PIPE REINFORCED CONCRETE CLASS IV 30-INCH		APRON ENDWALLS FOR CULVERT PIPE REINFORCED CONCRETE 24-INCH		APRON ENDWALLS FOR CULVERT PIPE REINFORCED CONCRETE 30-INCH		CULVERT PIPE REINFORCED CONCRETE HORIZONTAL ELLIPTICAL CLASS HE-IV 24X38-INCH		CULVERT PIPE REINFORCED CONCRETE HORIZONTAL ELLIPTICAL CLASS HE-IV 29X45-INCH	
ROADWAY	STATION	TO	STATION	EACH	LF	LF	LF	EACH	EACH	EACH	EACH	LF	LF	LF	LF
USH 45	170+53	-		2	-	-	-	-	-	-	-	-	-	-	-
USH 45	170+64	-		-	-	-	-	-	-	-	-	-	-	-	-
USH 45	198+33	-		-	80	-	-	2	-	-	-	-	-	-	-
USH 45	257+68	-		-	-	-	-	-	-	-	-	-	-	72	-
USH 45	316+40	-		2	-	-	-	-	-	-	-	48	-	-	-
USH 45	324+52	-	324+73	2	-	-	-	-	-	-	-	-	-	-	-
USH 45	336+24	-		2	-	-	-	-	-	-	-	48	-	-	-
USH 45	454+05	-	454+23	1	-	-	-	-	-	-	-	-	-	-	-
USH 45	511+63	-		2	-	-	-	-	-	-	-	-	-	-	-
USH 45	607+85	-		2	-	56	-	-	2	-	-	-	-	-	-
USH 45	658+69	-	659+29	-	-	-	-	-	-	-	-	-	-	-	-
USH 45	693+55	-		-	-	-	-	-	-	-	-	-	-	-	-
USH 45	704+94	-		-	-	-	-	-	-	-	-	-	-	-	-
TOTAL				13	80	56		2		2		96		72	

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CULVERT PIPES (2 OF 2)

		522.2434		522.2624		522.2629		522.2634		522.2638		522.2643		SPV.0090.01		SPV.0090.02	
		CULVERT PIPE REINFORCED CONCRETE HORIZONTAL ELLIPTICAL CLASS HE-IV 34X53-INCH		APRON ENDWALL FOR CULVERT PIPE REINFORCED CONCRETE HORIZONTAL ELLIPTICAL 24X38-INCH		APRON ENDWALL FOR CULVERT PIPE REINFORCED CONCRETE HORIZONTAL ELLIPTICAL 29X45-INCH		APRON ENDWALL FOR CULVERT PIPE REINFORCED CONCRETE HORIZONTAL ELLIPTICAL 34X53-INCH		APRON ENDWALL FOR CULVERT PIPE REINFORCED CONCRETE HORIZONTAL ELLIPTICAL 38X60-INCH		APRON ENDWALL FOR CULVERT PIPE REINFORCED CONCRETE HORIZONTAL ELLIPTICAL 43X68-INCH		CULVERT PIPE REINFORCED CONCRETE HORIZONTAL ELLIPTICAL CLASS HE-IV 38X60-INCH		CULVERT PIPE REINFORCED CONCRETE HORIZONTAL ELLIPTICAL CLASS HE-IV 43X68-INCH	
ROADWAY	STATION	TO	STATION	LF	EACH	EACH		EACH		EACH		EACH		LF		LF	
USH 45	170+53	-		72	-	-		2	-	-		-		-		-	
USH 45	170+64	-		72	-	-		2	-	-		-		-		-	
USH 45	198+33	-		-	-	-		-	-	-		-		-		-	
USH 45	257+68	-		-	-	2		-	-	-		-		-		-	
USH 45	316+40	-		-	2	-		-	-	-		-		-		-	
USH 45	324+52	-	324+73	48	-	-		2	-	-		-		-		-	
USH 45	336+24	-		-	2	-		-	-	-		-		-		-	
USH 45	454+05	-	454+23	64	-	-		2	-	-		-		-		-	
USH 45	511+63	-		-	-	-		-	-	-		2		-		56	
USH 45	607+85	-		-	-	-		-	-	-		-		-		-	
USH 45	658+69	-	659+29	-	-	-		-	-	-		2		-		128	
USH 45	693+55	-		-	-	-		-	2	-		-		72		-	
USH 45	704+94	-		-	-	-		-	2	-		-		88		-	
TOTAL				256	4	2		8	4	4		4		160		184	

CURB AND GUTTER

				204.0150		601.0557	
				REMOVING CURB & GUTTER		CONCRETE CURB & GUTTER 6-INCH	
ROADWAY	SIDE	STATION	TO	STATION	LF	LF	LOCATION
USH 45	LT	187+75	-	189+25	20	20	CRAN RD
USH 45	LT	294+00	-	296+00	33	33	CTY N
USH 45	RT	294+00	-	296+00	32	32	CTY WW
USH 45	LT	372+75	-	374+25	31	31	FITZGERALD RD
USH 45	RT	399+00	-	401+00	10	10	ELM TREE RD
USH 45	LT	425+50	-	427+50	31	31	BLUEBERRY RD
USH 45	RT	425+50	-	427+50	40	40	BLUEBERRY RD
USH 45	LT	483+00	-	484+00	20	20	MAINLINE MEDIAN
USH 45	LT	522+00	-	524+00	40	40	SILVER CREEK RD
USH 45	LT	591+00	-	593+00	27	27	BEAR CREEK RD
USH 45	RT	591+00	-	593+00	33	33	BEAR CREEK RD
USH 45	LT	644+00	-	646+00	20	20	ELMDALE RD
USH 45	RT	658+25	-	660+00	60	60	WILLOW RD
USH 45	LT	672+75	-	674+25	41	41	BROADVIEW LN
USH 45	LT	168+00	-	731+75	189	189	ADJUSTING INLET COVERS
TOTAL					627	627	

ADJUSTING INLETS

		611.8115	
		ADJUSTING INLET COVERS	
ROADWAY	STATION	OFFSET	EACH
USH 45	474+49	38' RT	1
USH 45	474+49	6' RT	1
USH 45	474+49	-9' LT	1
USH 45	478+79	38' RT	1
USH 45	478+85	-2' LT	1
USH 45	478+89	38' RT	1
USH 45	478+94	-2 LT	1
USH 45	478+94	-10 LT	1
USH 45	483+80	2' RT	1
USH 45	483+91	2' RT	1
USH 45	483+92	10' RT	1
USH 45	485+00	2' RT	1
USH 45	485+10	1' RT	1
USH 45	485+25	-8 LT	1
USH 45	492+00	5" RT	1
USH 45	492+40	-4' LT	1
USH 45	492+40	4' RT	1
USH 45	723+05	-2 LT	1
USH 45	723+07	-16 LT	1
USH 45	728+00	-4 LT	1
USH 45	728+10	-27 LT	1
TOTAL			21

RIPRAP

					606.0200 RIPRAP MEDIUM	645.0120 GEOTEXTILE TYPE HR
ROADWAY	SIDE	STATION	TO	STATION	CY	SY
USH 45	RT	170+53	-	170+64	6	11
USH 45	RT	607+85	-		3	5
USH 45	RT	658+68	-		3	5
USH 45	RT	704+94	-		3	5
TOTAL					15	26

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EROSION CONTROL

					625.0100	628.1504	628.1520	628.1905	628.1910	628.2004	628.2008	628.7504	628.7555	628.7570	629.0210	630.0130	630.0500	633.5200		
					TOPSOIL	SILT FENCE	SILT FENCE MAINTENANCE	MOBILIZATIONS EROSION CONTROL	MOBILIZATIONS EMERGENCY EROSION CONTROL	EROSION MAT CLASS I TYPE B	EROSION MAT URBAN CLASS I TYPE B	TEMPORARY DITCH CHECKS	CULVERT PIPE CHECKS	ROCK BAGS	FERTILIZER TYPE B	SEEDING MIXTURE NO. 30	SEED WATER	MARKERS CULVERT END		
ROADWAY	SIDE	STATION	TO	STATION	SY	LF	LF	EACH	EACH	SY	SY	LF	EACH	EACH	CWT	LB	MGAL	EACH	COMMENTS	
USH 45	LT	169+55	-	171+71	120	220	220	-	-	-	120	-	12	-	0.1	3	1.3	2		
USH 45	RT	169+63	-	171+39	110	180	180	-	-	-	110	-	-	-	0.1	2	1.2	2		
USH 45	RT	171+12	-	180+37	2270	400	400	-	-	420	1850	30	-	-	1.5	41	25.5	-	PASSING LANE	
USH 45	LT	198+11	-	198+55	30	60	60	-	-	-	30	-	-	-	0.1	1	0.3	1		
USH 45	RT	196+13	-	198+54	30	60	60	-	-	-	30	-	6	-	0.1	1	0.3	1		
USH 45	LT	257+53	-	257+84	20	40	40	-	-	-	20	-	-	-	0.1	1	0.2	1		
USH 45	RT	257+50	-	257+88	30	60	60	-	-	-	30	-	-	-	0.1	1	0.3	1		
USH 45	LT	315+59	-	317+26	60	170	170	-	-	-	60	-	6	-	0.1	2	0.7	1		
USH 45	RT	315+67	-	317+56	140	210	210	-	-	-	140	-	6	-	0.1	3	1.6	1		
USH 45	LT	323+56	-	326+02	200	270	270	-	-	-	200	-	-	-	0.2	4	2.2	1		
USH 45	RT	323+26	-	326+09	240	300	300	-	-	-	240	-	6	-	0.2	5	2.7	1		
USH 45	LT	334+78	-	337+75	280	320	320	-	-	-	280	-	6	-	0.2	6	3.1	1		
USH 45	RT	335+28	-	337+22	100	210	210	-	-	-	100	-	-	-	0.1	2	1.1	1		
USH 45	LT	453+37	-	454+92	50	160	160	-	-	-	50	-	6	-	0.1	1	0.6	1		
USH 45	RT	454+03	-	454+31	20	40	40	-	-	-	20	-	-	-	0.1	1	0.2	1		
USH 45	LT	510+76	-	512+79	200	210	210	-	-	-	200	-	6	-	0.2	4	2.2	1		
USH 45	RT	509+87	-	513+40	410	370	370	-	-	-	410	-	-	-	0.3	8	4.6	1		
USH 45	LT	606+82	-	608+93	130	220	220	-	-	-	130	-	6	-	0.1	3	1.5	1		
USH 45	RT	606+74	-	608+99	150	240	240	-	-	-	150	-	-	-	0.1	3	1.7	1		
USH 45	LT	659+03	-	659+39	40	60	60	-	-	-	40	-	6	-	0.1	1	0.4	1		
USH 45	RT	658+51	-	658+74	30	70	70	-	-	-	30	-	-	-	0.1	1	0.3	1		
USH 45	LT	693+42	-	693+68	20	40	40	-	-	-	20	-	6	-	0.1	1	0.2	1		
USH 45	RT	693+39	-	693+71	30	40	40	-	-	-	30	-	-	-	0.1	1	0.3	1		
USH 45	LT	704+79	-	705+09	20	40	40	-	-	-	20	-	6	-	0.1	1	0.2	1		
USH 45	RT	704+83	-	705+08	20	30	30	-	-	-	20	-	-	-	0.1	1	0.2	1		
USH 45	LT/RT	187+75	-	674+25	146	984	984	-	-	-	146	-	-	-	0.1	3	1.6	-	CURB & GUTTER	
USH 45		PROJECT	-	UNDISTRIBUTED	490	510	510	5	5	-	450	10	-	150	0.3	10	-	-		
TOTAL					5,386	5,514	5,514	5	5	420	4,926	40	78	150	4.9	111	54.5	26		

MOVING SIGNS

638.2102638.4000

MOVING SIGNSMOVING SMALL SIGN

TYPE IISUPPORTS

ROADWAY	LOCATION	EACH	EACH	COMMENTS
USH 45	PROJECT	13	13	NO PASSING SIGNS
TOTAL		13	13	

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TRAFFIC CONTROL										
		643.0300	643.0420	643.0705	643.0715	643.0810	643.0900	643.1000	643.1220	
		TRAFFIC	TRAFFIC	TRAFFIC	TRAFFIC	TRAFFIC	TRAFFIC	TRAFFIC	TRAFFIC CONTROL	
		CONTROL	CONTROL	CONTROL	CONTROL	CONTROL	CONTROL	CONTROL	CONNECTED WORK	
		DRUMS	BARRICADES	WARNING	WARNING	CONNECTED	CONTROL	SIGNS FIXED	ZONE START AND END	
	EST.		TYPE III	LIGHTS TYPE A	LIGHTS TYPE C	ARROW	SIGNS	MESSAGE	LOCATION MARKERS	
	DURATION					BOARDS				
ROADWAY	DAYS	DAY	DAY	DAY	DAY	DAY	DAY	SF	DAY	COMMENTS
USH 45	85	-	-	-	-	-	2980	36	-	ADVANCED WARNING
USH 45	30	-	-	-	-	-	390	-	-	MAINLINE FLAGGING
USH 45	15	530	-	-	-	-	170	-	-	CULVERTS
USH 45	10	1190	100	200	140	10	130	-	10	PASSING LANE CLOSURES
TOTAL		1720	100	200	140	10	3670	36	10	

PAVEMENT MARKING ITEMS (1 OF 2)																		
					646.2040		646.4040		646.5020	646.5120	646.6120		646.7120	646.8120	646.8220	648.0100	643.3165	
					MARKING LINE			MARKING ARROW/EPOXY WHITE	MARKING WORD EPOXY	MARKING STOP LINE EPOXY 18-INCH		MARKING DIAGONAL EPOXY 12-INCH	MARKING CURB EPOXY	MARKING ISLAND NOSE EPOXY	LOCATING NO-PASSING ZONES	TEMPORARY MARKING LINE PAINT 6-INCH		
		GROOVED WET REF EPOXY 6-INCH	GROOVED WET REF EPOXY 10-INCH															
					YELLOW	WHITE											YELLOW	WHITE
ROADWAY	STATION	TO	STATION	DESCRIPTION	LF	LF	LF	EACH	EACH	LF	LF	LF	LF	LF	EACH	MI	LF	LF
USH 45	168+00	-	181+00	SOLID	2,600	2,600	-	-	-	-	-	-	-	-	-	-	5,200	-
USH 45	175+00	-	181+00	SKIPS	-	150	-	-	-	-	-	-	-	-	-	-	-	96
USH 45	181+00	-	196+00	SOLID	3,000	2,800	-	-	-	-	-	-	-	-	-	-	6,000	-
USH 45	181+00	-	196+00	SKIPS	-	375	-	-	-	-	-	-	-	-	-	-	-	240
USH 45	196+00		210+00	SOILD	-	2,800	-	-	-	-	-	-	-	-	-	-	-	-
USH 45	196+00	-	197+85	SOLID	370	-	-	-	-	-	-	-	-	-	-	-	740	-
USH 45	197+85	-	210+00	SB SKIPS/NB SOLID	1,520	-	-	-	-	-	-	-	-	-	-	-	2,626	-
USH 45	196+00	-	210+00	SKIPS	-	350	-	-	-	-	-	-	-	-	-	-	-	224
USH 45	210+00	-	224+00	SOLID	-	2,800	-	-	-	-	-	-	-	-	-	-	-	-
USH 45	210+00	-	224+00	SB SKIPS/NB SOLID	1,750	-	-	-	-	-	-	-	-	-	-	-	3,024	-
USH 45	210+00	-	224+00	SKIPS	-	350	-	-	-	-	-	-	-	-	-	-	-	224
USH 45	224+00	-	238+00	SOLID	-	2,800	-	-	-	-	-	-	-	-	-	-	-	-
USH 45	224+00	-	238+00	SB SKIPS/NB SOLID	1,750	-	-	-	-	-	-	-	-	-	-	-	3,024	-
USH 45	224+00	-	238+00	SKIPS	-	350	-	-	-	-	-	-	-	-	-	-	-	224
USH 45	238+00	-	252+00	SOLID	-	2,700	-	-	-	-	-	-	-	-	-	-	-	-
USH 45	238+00	-	252+00	SB SKIPS/NB SOLID	1,750	-	-	-	-	-	-	-	-	-	-	-	3,024	-
USH 45	238+00	-	252+00	SKIPS	-	350	-	-	-	-	-	-	-	-	-	-	-	224
USH 45	252+00	-	266+00	SOLID	-	2,700	-	-	-	-	-	-	-	-	-	-	-	-
USH 45	252+00	-	266+00	SB SKIPS/NB SOLID	1,750	-	-	-	-	-	-	-	-	-	-	-	3,024	-
USH 45	252+00	-	254+90	SKIPS	-	75	-	-	-	-	-	-	-	-	-	-	-	48
USH 45	266+00	-	280+00	SOLID	-	2700	-	-	-	-	-	-	-	-	-	-	-	-
USH 45	266+00	-	280+00	SKIPS	350	-	-	-	-	-	-	-	-	-	-	-	224	-
USH 45	280+00	-	294+00	SOLID	-	2,800	-	-	-	-	-	-	-	-	-	-	-	-
USH 45	280+00	-	294+00	SKIPS	350	-	-	-	-	-	-	-	-	-	-	-	224	-
USH 45	293+00	-	298+00	SOLID	-	-	150	-	-	-	-	-	-	-	-	-	-	-
CTH N	USH 45	-	85' WEST	SOLID	90	20	-	-	-	22	-	-	-	-	-	-	180	-
SUBTOTAL					15,280	26,720	150	--	--	22	--	--	--	--	--	--	27,290	1,280
					42,000													
																	28,570	

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PAVEMENT MARKING ITEMS (2 OF 2)																							
		646.2040		646.4040		646.5020		646.5120		646.6120		646.7120		646.8120		646.8220		648.0100		643.3165			
		MARKING LINE																					
		GROOVED WET REF EPOXY 6-INCH		GROOVED WET REF EPOXY 10-INCH		MARKING ARROW EPOXY		MARKING WORD EPOXY		MARKING STOP LINE EPOXY 18-INCH		MARKING DIAGONAL EPOXY 12-INCH		MARKING CURB EPOXY		MARKING ISLAND NOSE EPOXY		LOCATING NO-PASSING ZONES		TEMPORARY MARKING LINE PAINT 6-INCH			
		YELLOW		WHITE																YELLOW		WHITE	
ROADWAY	STATION	TO	STATION	DESCRIPTION	LF	LF	LF	EACH	EACH	LF	LF	LF	LF	LF	EACH	MI	LF	LF					
CTH WW	USH 45	-	86'EAST	SOLID	60	20	-	-	-	18	-	-	-	-	-	-	120	-					
USH 45	294+00	-	308+00	SOLID	-	2,600	-	-	-	-	-	-	-	-	-	-	-	-					
USH 45	294+00	-	307+00	SB SKIPS/NB SOLID	1,625	-	-	-	-	-	-	-	-	-	-	-	2,808	-					
USH 45	307+00	-	308+50	SOLID	300	-	-	-	-	-	-	-	-	-	-	-	600	-					
USH 45	308+00	-	322+00	SOLID	-	2,600	-	-	-	-	-	-	-	-	-	-	-	-					
USH 45	308+00	-	320+00	NB SKIPS/SB SOLID	1,500	-	-	-	-	-	-	-	-	-	-	-	2,592	-					
USH 45	320+00	-	322+00	SOLID	400	-	-	-	-	-	-	-	-	-	-	-	800	-					
USH 45	322+00	-	336+00	SOLID	-	2,080	-	-	-	-	-	-	-	-	-	-	-	-					
USH 45	322+00	-	333+10	SB SKIPS/NB SOLID	1,390	-	-	-	-	-	-	-	-	-	-	-	3,024	-					
USH 45	333+10	-	335+50	SOLID	480	480	-	-	-	-	-	-	-	-	-	-	-	-					
USH 45	333+50	-	348+80	NB SKIPS/SB SOLID	1,915	3,116	-	-	-	-	-	-	-	-	-	-	3,306	-					
USH 45	348+80	-	372+20	SKIPS	585	4,553	-	-	-	-	-	-	-	-	-	-	374	-					
USH 45	372+20	-	386+50	SKIPS	360	2,733	-	-	-	-	-	-	-	-	-	-	230	-					
USH 45	386+50	-	433+50	NB SKIPS/SB SOLID	5,875	9,013	-	-	-	-	-	-	-	-	-	-	10,152	-					
USH 45	394+00	-	468+41	SB SKIPS	-	1,865	-	-	-	-	-	-	-	-	-	-	-	1,192					
USH 45	433+50	-	445+00	SOLID	2,300	2,300	-	-	-	-	-	-	-	-	-	-	4,600	-					
USH 45	445+00	-	455+00	NB SKIPS/SB SOLID	1,250	2,000	-	-	-	-	-	-	-	-	-	-	2,160	-					
USH 45	455+50	-	470+46	SOLID	2,992	2,992	-	-	-	-	-	-	-	-	-	-	5,984	-					
USH 45	470+46	-	472+80	SOLID	504	257	-	-	-	-	39	-	-	-	-	-	-	-					
USH 45	472+80	-	493+50	SOLID	-	2,528	2000	10	10	-	-	153	8	-	-	-	-	-					
USH 45	USH 45	-	146'WEST	SOLID	-	-	84	1	1	28	-	20	2	-	-	-	-	-					
USH 45	USH 45	-	173'EAST	SOLID	-	-	96	1	1	26	-	70	2	-	-	-	-	-					
USH 45	493+50	-	495+50	SOLID	1,028	514	-	-	-	-	69	-	-	-	-	-	-	-					
USH 45	495+50	-	516+50	SOILD	4,200	4,200	-	-	-	-	-	-	-	-	-	-	8,400	-					
USH 45	516+50	-	529+27	NB SKIPS/SB SOLID	1,600	2,432	-	-	-	-	-	-	-	-	-	-	2,764	-					
USH 45	529+27	-	530+36	SOLID	220	-	-	-	-	-	-	-	-	-	-	-	440	-					
USH 45	530+36	-	542+50	SB SKIPS/NB SOLID	1,520	2,430	-	-	-	-	-	-	-	-	-	-	2,626	-					
USH 45	542+50	-	544+17	SOLID	340	340	-	-	-	-	-	-	-	-	-	-	680	-					
USH 45	544+17	-	557+64	NB SKIPS/SB SOLID	1,690	2,700	-	-	-	-	-	-	-	-	-	-	2,918	-					
USH 45	557+64	-	565+52	SKIPS	200	1,580	-	-	-	-	-	-	-	-	-	-	128	-					
USH 45	565+52	-	578+31	SB SKIPS/NB SOLID	1,600	2,560	-	-	-	-	-	-	-	-	-	-	2,764	-					
USH 45	578+31	-	579+03	SKIPS	20	144	-	-	-	-	-	-	-	-	-	-	12	-					
USH 45	579+03	-	592+21	NB SKIPS/SB SOLID	1,648	2,441	-	-	-	-	-	-	-	-	-	-	2,848	-					
USH 45	592+21	-	625+27	SKIPS	830	6,425	-	-	-	-	-	-	-	-	-	-	532	-					
USH 45	625+27	-	639+63	SB SKIPS/NB SOLID	1,796	7,180	-	-	-	-	-	-	-	-	-	-	3,102	-					
USH 45	639+63	-	720+82	SOLID	16,240	16094	-	-	-	-	-	-	-	-	-	-	32,480	-					
USH 45	641+95	-	659+59	SKIPS	-	445	-	-	-	-	-	-	-	-	-	-	-	284					
USH 45	659+59	-	731+75	SKIPS	-	3,610	-	-	-	-	-	-	-	-	-	-	-	2,312					
USH 45	720+82	-	722+92	SOLID	840	420	-	-	-	-	77	-	-	-	-	-	-	-					
USH 45	722+92	-	731+75	SOLID	1,487	1,533	-	4	2	20	-	240	5	-	-	-	-	-					
USH 45	168+00	-	731+75	-	-	-	-	-	-	-	-	-	-	-	-	10.68	-	-					
SUBTOTAL					56,795	94,185	2,180	16	14	92	185	483	17	10.68			96,444	3,788					
TOTAL					192,980	2,330		16	14	114	185	483	17	10.68			128,802						

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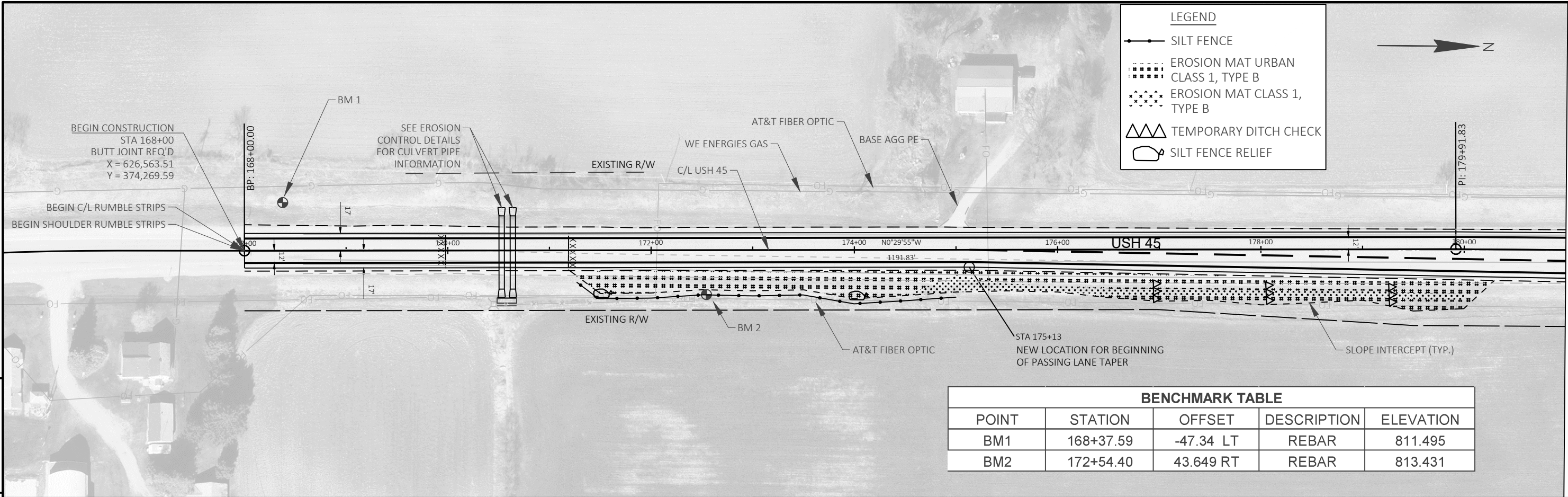
CONSTRUCTION STAKING						
		650.5500	650.6000	650.8000	650.9920	
		CONSTRUCTION STAKING CURB GUTTER AND CURB & GUTTER	CONSTRUCTION STAKING PIPE CULVERTS	CONSTRUCTION STAKING RESURFACING REFERENCE	CONSTRUCTION STAKING SLOPE STAKES	
ROADWAY	STATION TO STATION	LF	EACH	LF	LF	
USH 45	170+53 -	-	1	-	200	
USH 45	170+64 -	-	1	-	200	
USH 45	171+12 - 180+37	-	-	-	925	
USH 45	198+33 -	-	1	-	200	
USH 45	257+68 -	-	1	-	200	
USH 45	316+40 -	-	1	-	200	
USH 45	324+62 -	-	1	-	200	
USH 45	336+24 -	-	1	-	200	
USH 45	454+16 -	-	1	-	200	
USH 45	511+63 -	-	1	-	200	
USH 45	607+85 -	-	1	-	200	
USH 45	659+05 -	-	1	-	200	
USH 45	693+55 -	-	1	-	200	
USH 45	704+94 -	-	1	-	200	
USH 45	168+00 - 731+75	-	-	56,375	-	
USH 45	187+75 - 674+25	627	-	-	-	
TOTAL		627	13	56,375	3,525	

SAWCUTS

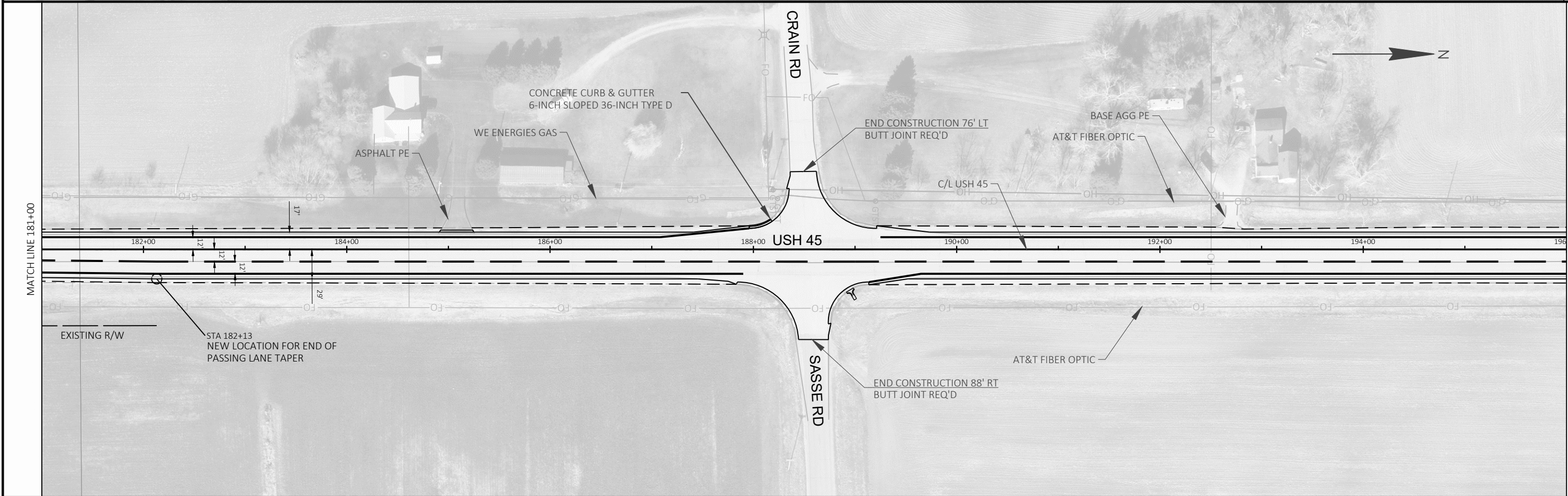
				690.0150	690.0250	
				SAWMG ASPHALT	SAWMG CONCRETE	
ROADWAY	STATION	TO	STATION	LF	LF	COMMENTS
USH 45	170+03	-	171+14	63	-	CULVERT PIPE
USH 45	197+83	-	198+83	84	-	CULVERT PIPE
USH 45	257+18	-	258+18	123	-	CULVERT PIPE
USH 45	315+90	-	316+90	74	-	CULVERT PIPE
USH 45	324+12	-	325+12	64	-	CULVERT PIPE
USH 45	335+74	-	336+74	60	-	CULVERT PIPE
USH 45	453+66	-	454+66	84	-	CULVERT PIPE
USH 45	511+13	-	512+13	60	-	CULVERT PIPE
USH 45	607+35	-	608+35	60	-	CULVERT PIPE
USH 45	658+55	-	659+55	139	-	CULVERT PIPE
USH 45	693+05	-	694+05	108	-	CULVERT PIPE
USH 45	704+44	-	705+44	148	-	CULVERT PIPE
USH 45	168+00	-	731+75	222	170	CURB & GUTTER
USH 45	168+00	-	731+75	2710	-	DRIVEWAYS
TOTAL				3999	170	

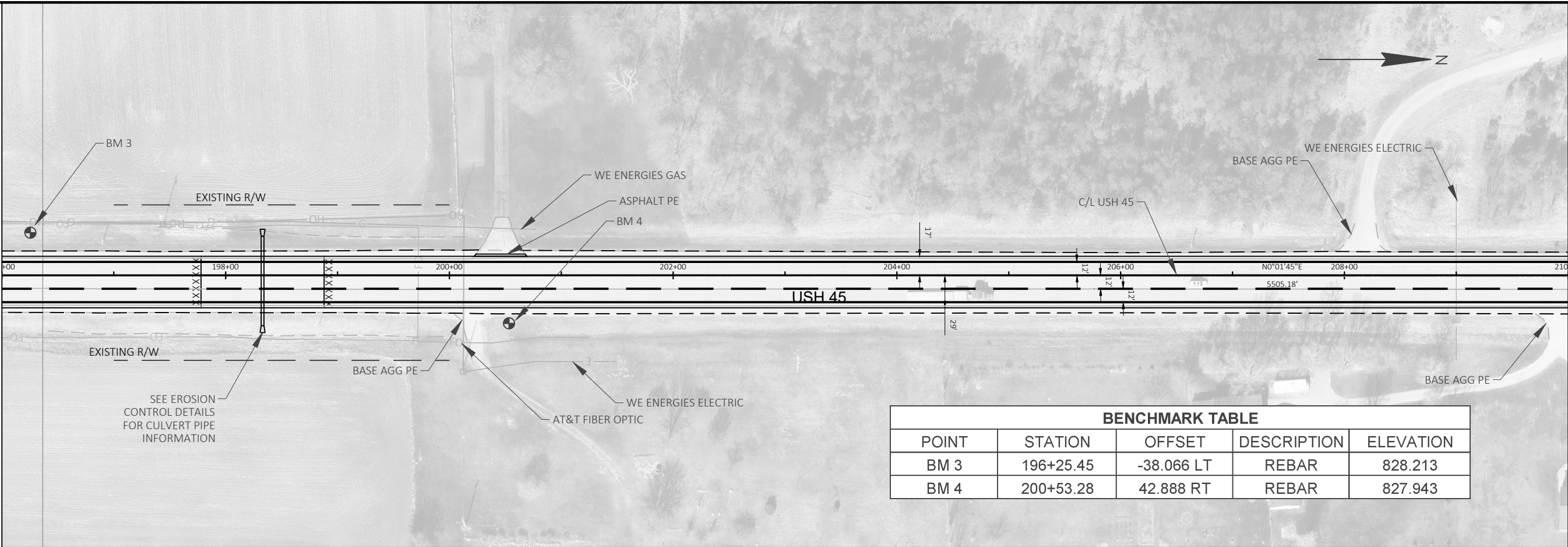
PUBLIC LAND REFERENCE MONUMENTS

							680.0100
							PUBLIC LAND REFERENCE MONUMENT VERIFY AND RESET
ROADWAY	SECTION	STATION	OFFSET	TOWNSHIP	RANGE	EACH	
USH 45	1	351+29	-0.6 LT	T23N	R14E	1	
USH 45	36	373+32	-0.24 LT	T24N	R14E	1	
USH 45	36	399+96	-0.39 LT	T24N	R14E	1	
USH 45	25	426+51	0'	T24N	R14E	1	
USH 45	25	453+02	-5.05 LT	T24N	R14E	1	
USH 45	24	479+72	-1.35 LT	T24N	R14E	1	
USH 45	11	591+80	5.55 RT	T24N	R14E	1	
USH 45	11	618+33	-5.18 LT	T24N	R14E	1	
USH 45	2	644+78	32.65 RT	T24N	R14E	1	
TOTAL						9	



BENCHMARK TABLE				
POINT	STATION	OFFSET	DESCRIPTION	ELEVATION
BM1	168+37.59	-47.34 LT	REBAR	811.495
BM2	172+54.40	43.649 RT	REBAR	813.431





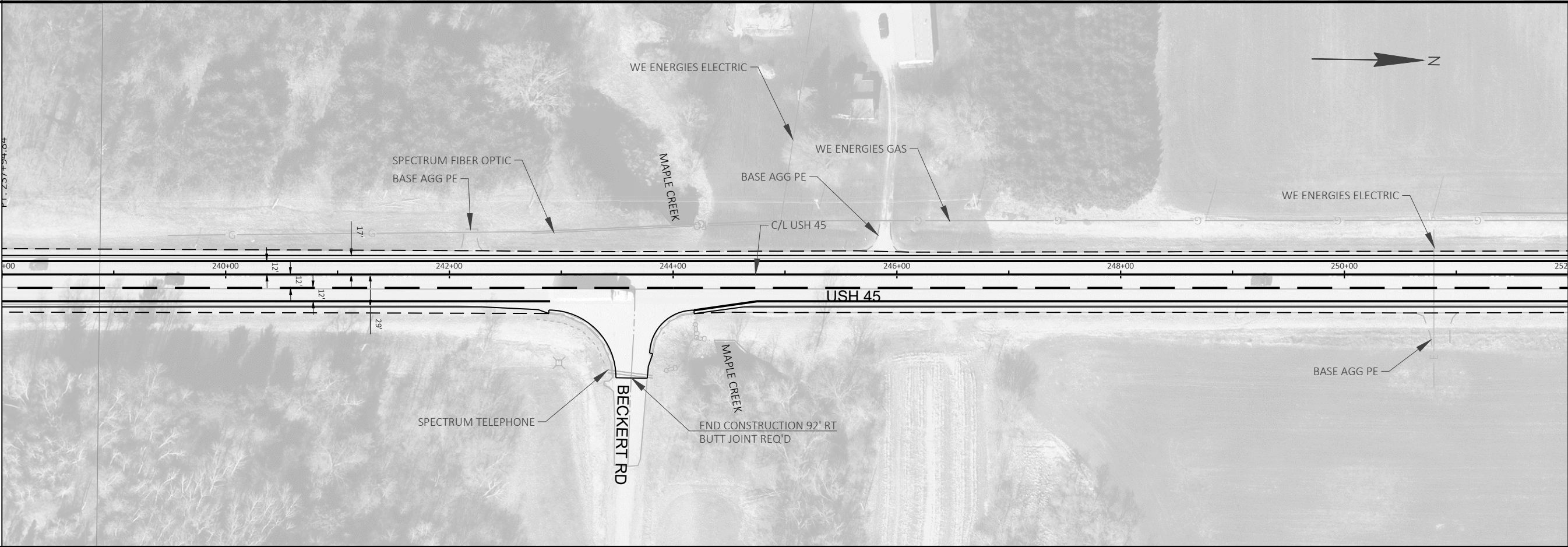
BENCHMARK TABLE				
POINT	STATION	OFFSET	DESCRIPTION	ELEVATION
BM 3	196+25.45	-38.066 LT	REBAR	828.213
BM 4	200+53.28	42.888 RT	REBAR	827.943



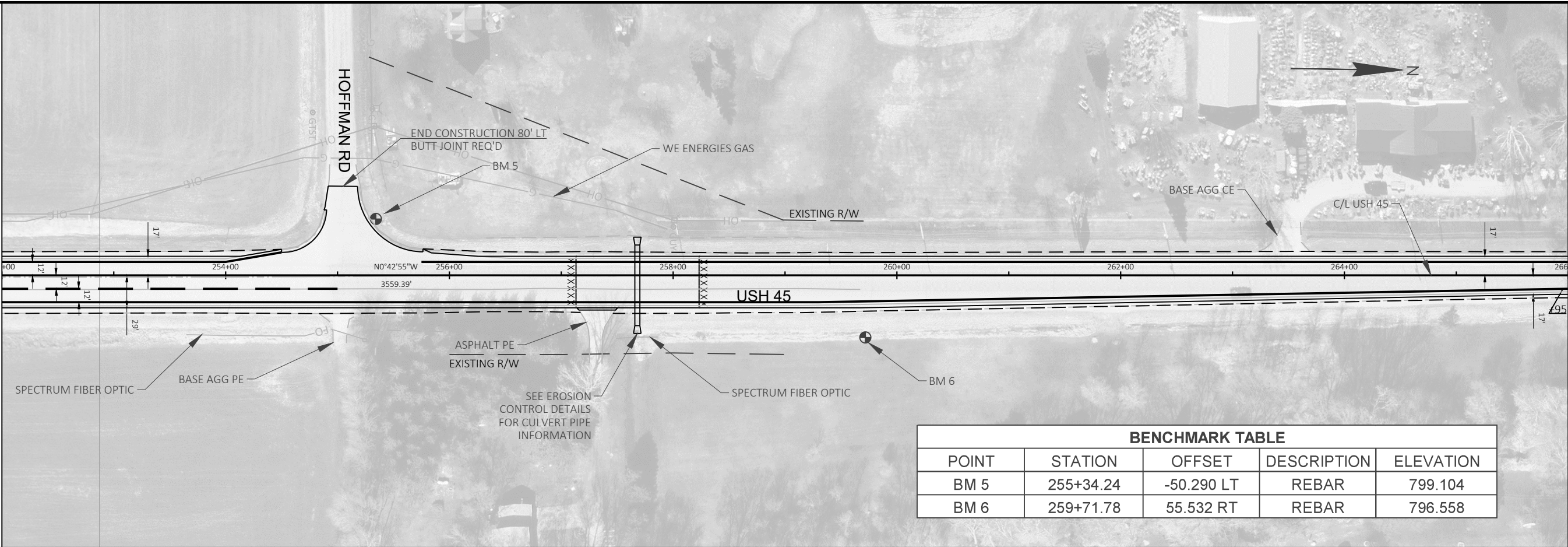
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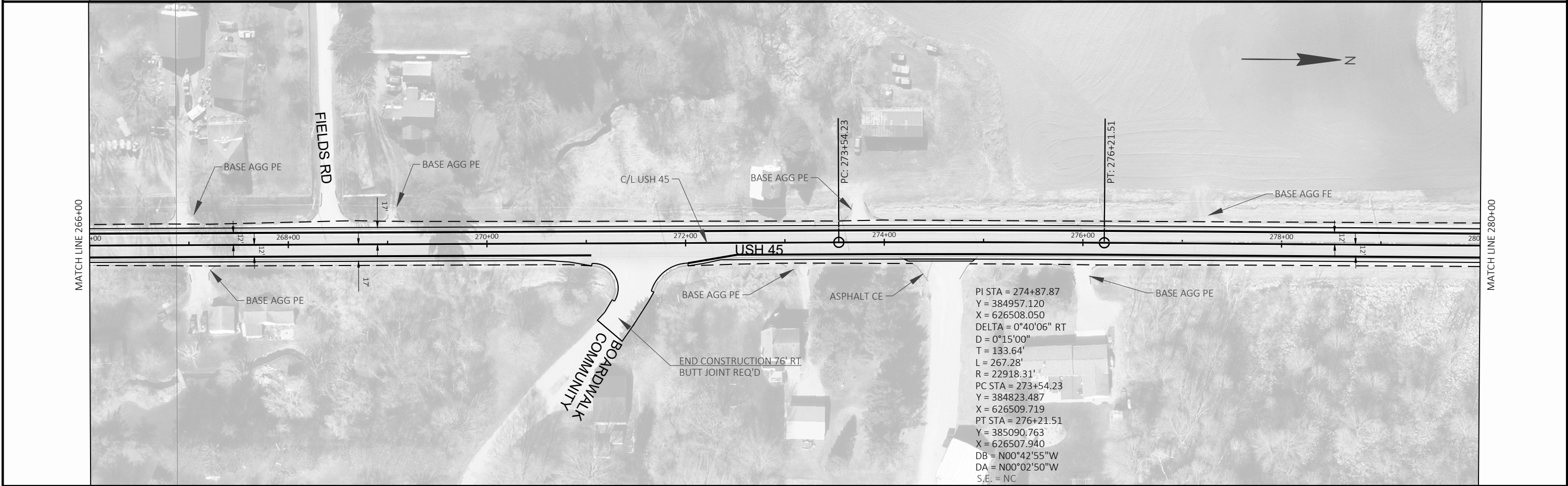


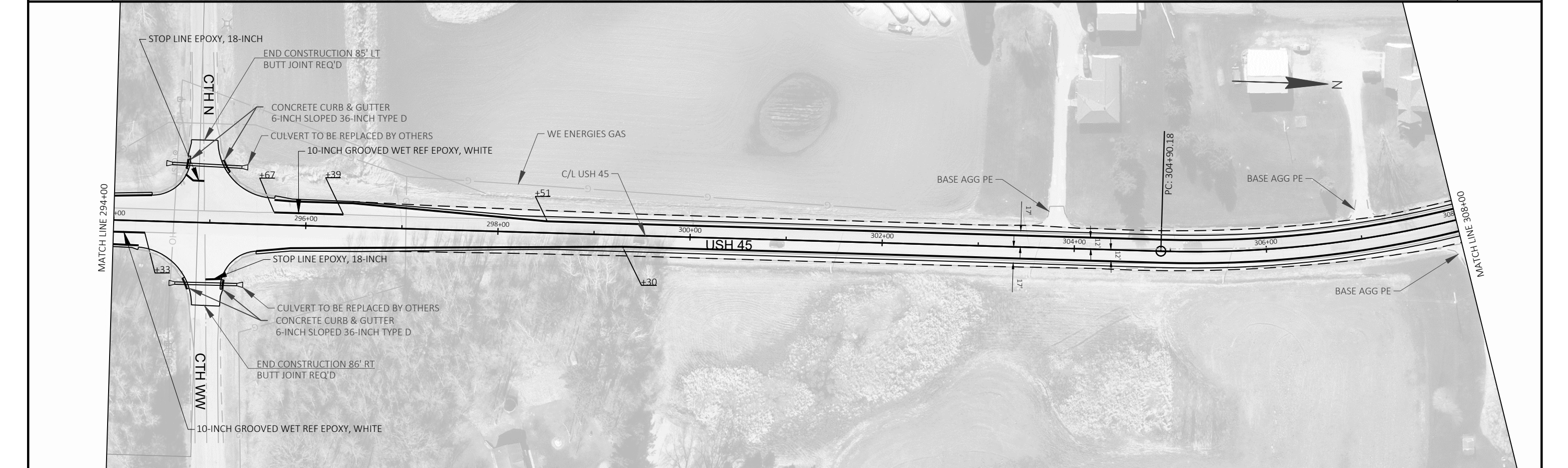
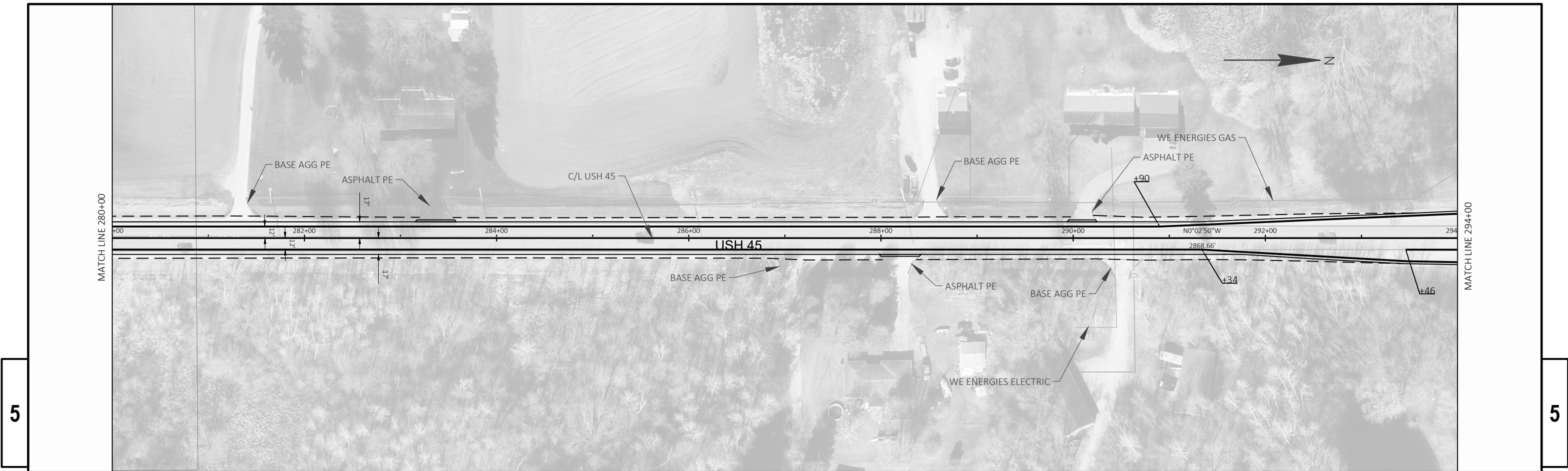
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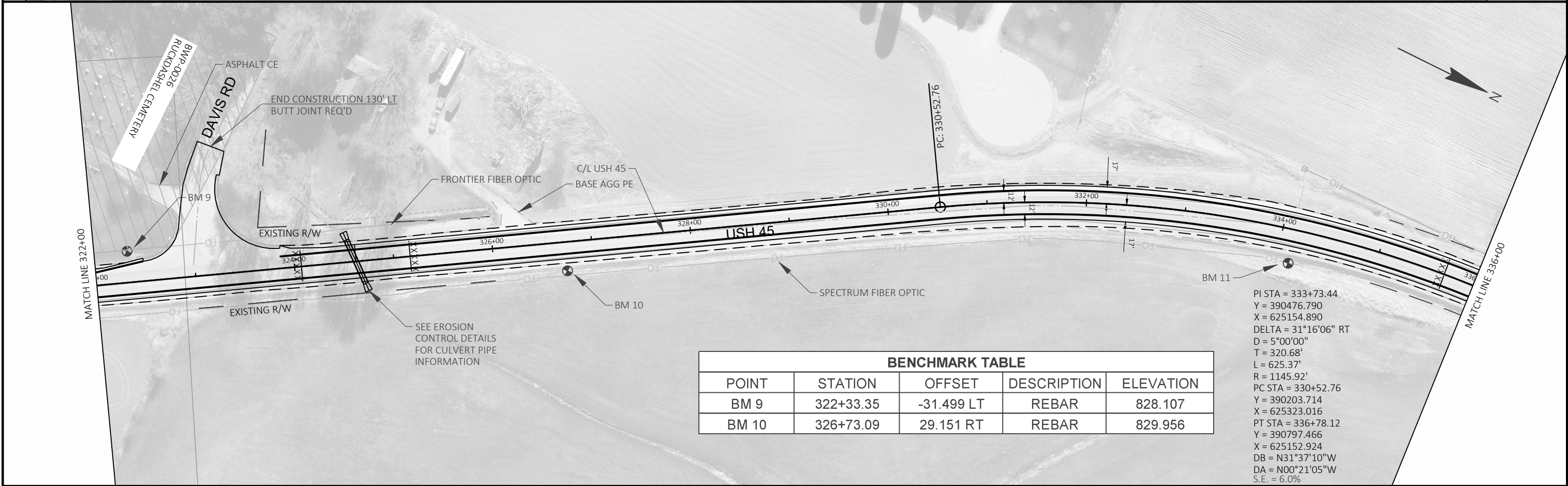
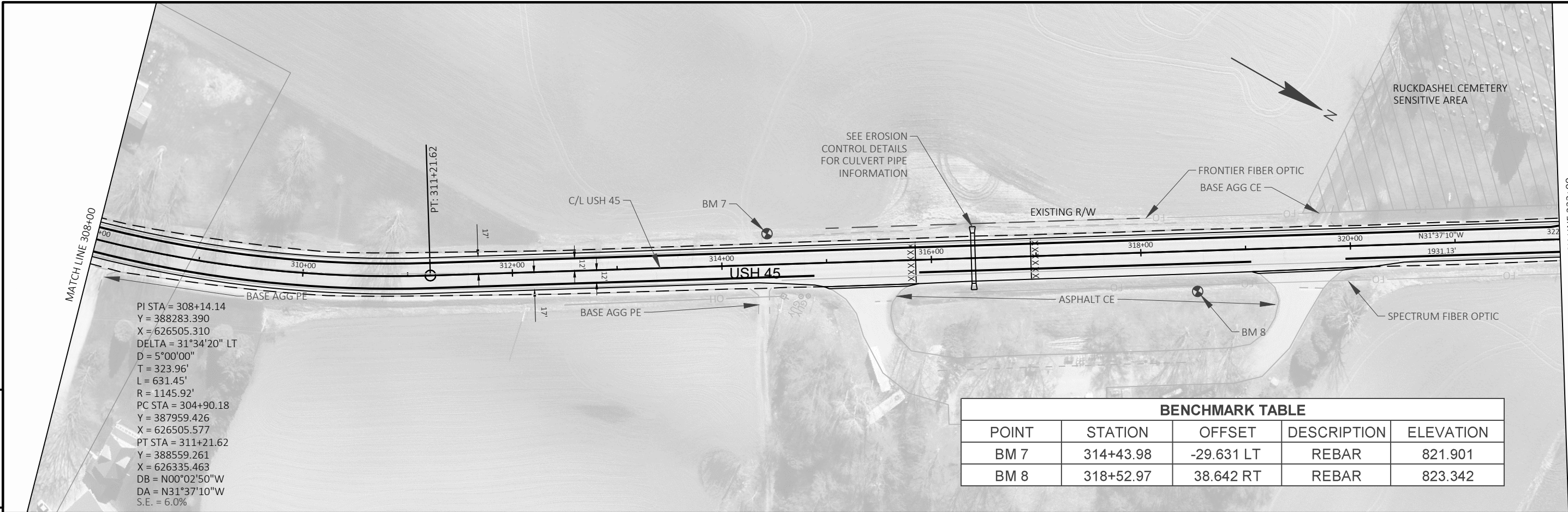


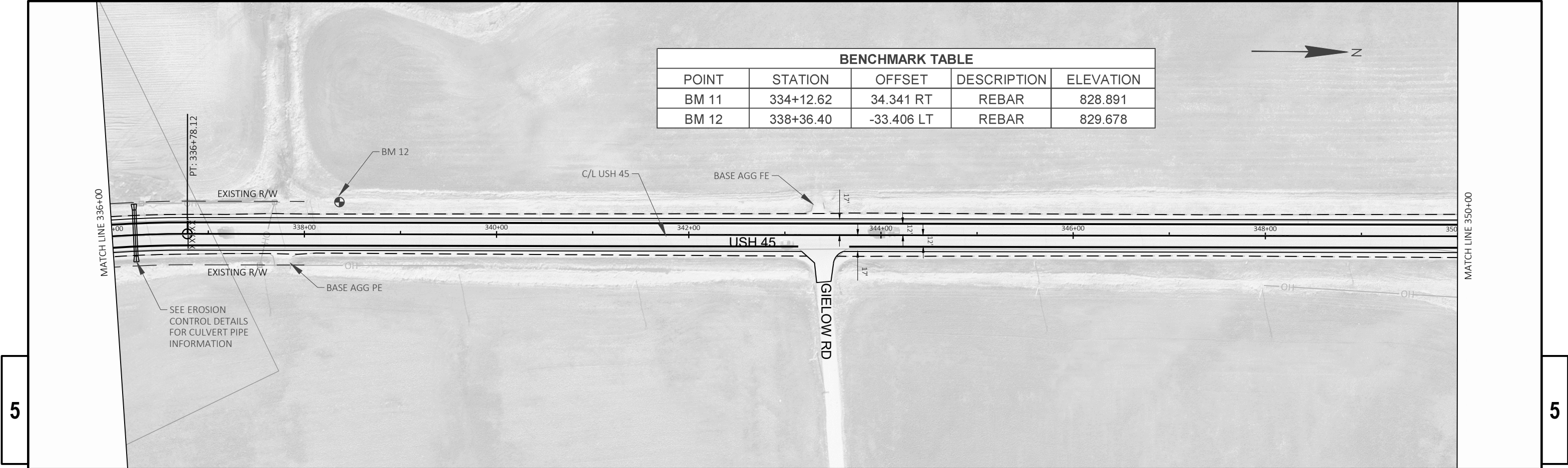
BENCHMARK TABLE				
POINT	STATION	OFFSET	DESCRIPTION	ELEVATION
BM 5	255+34.24	-50.290 LT	REBAR	799.104
BM 6	259+71.78	55.532 RT	REBAR	796.558

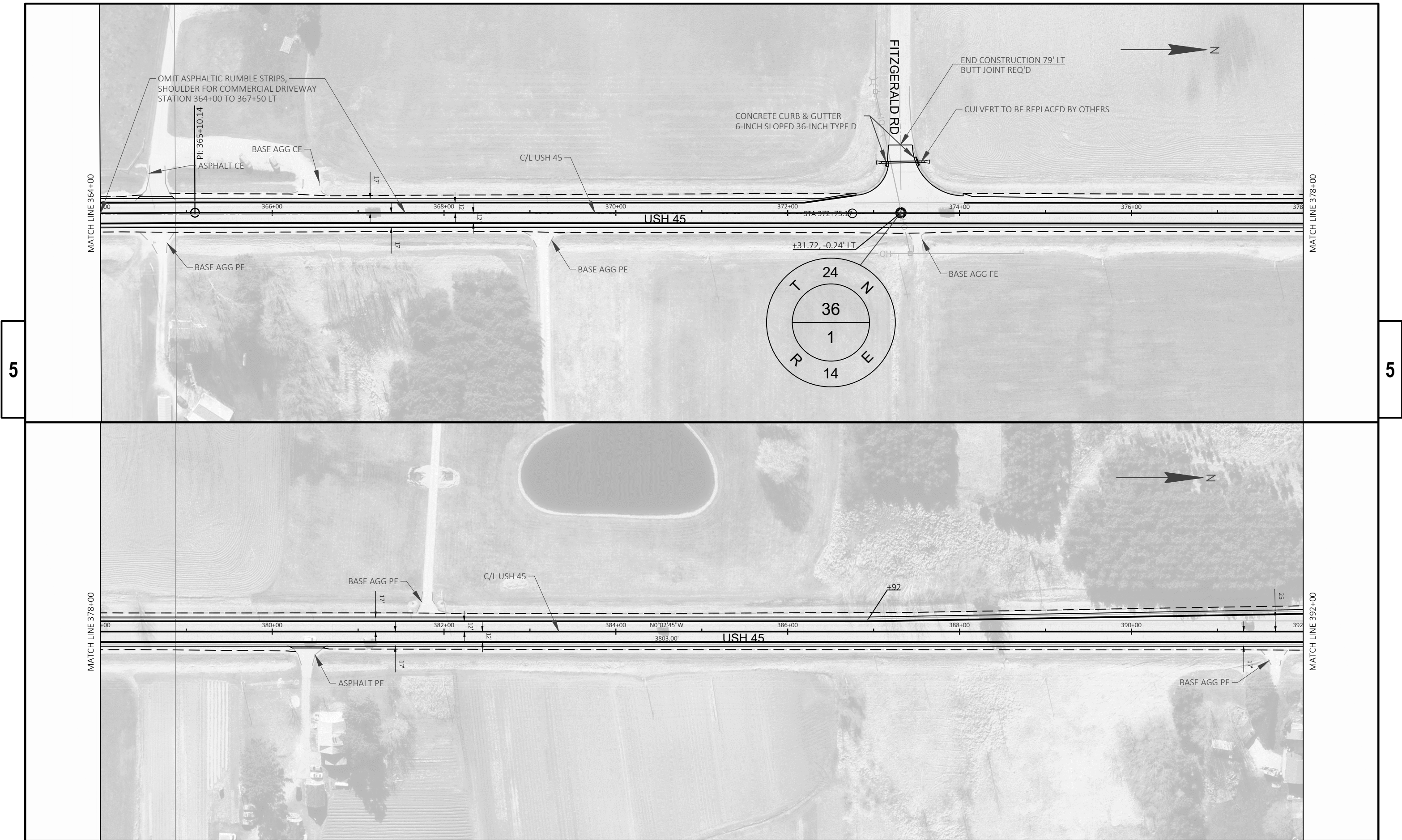
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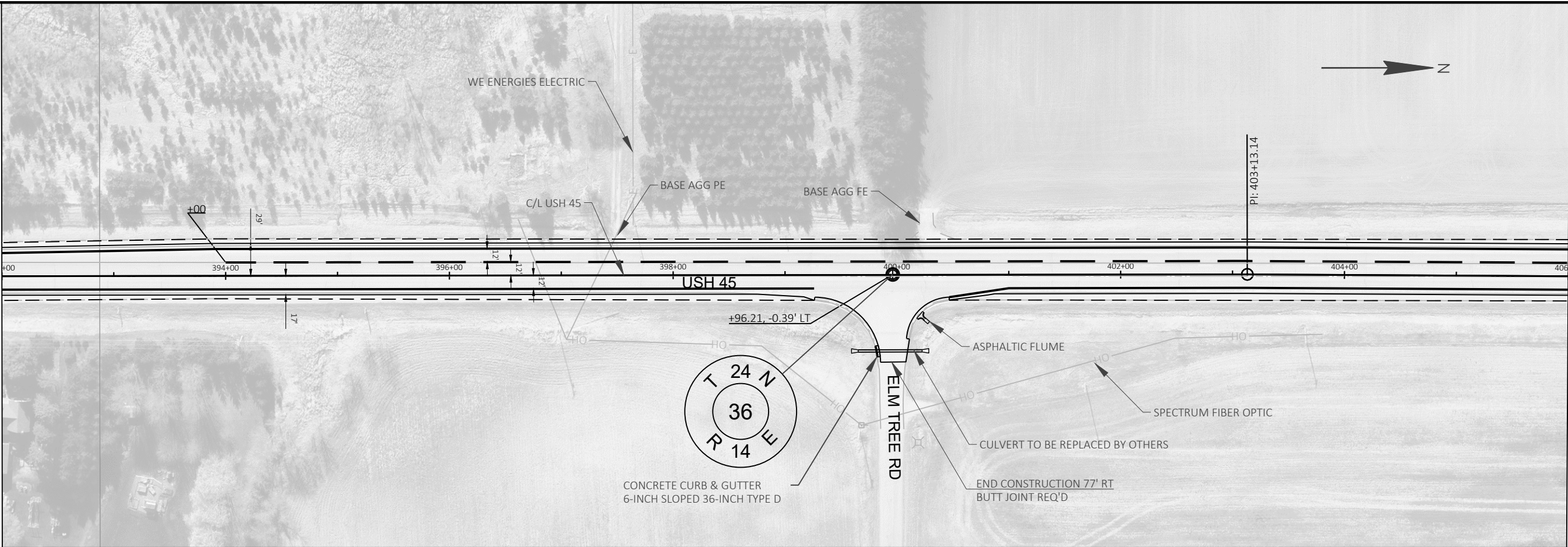








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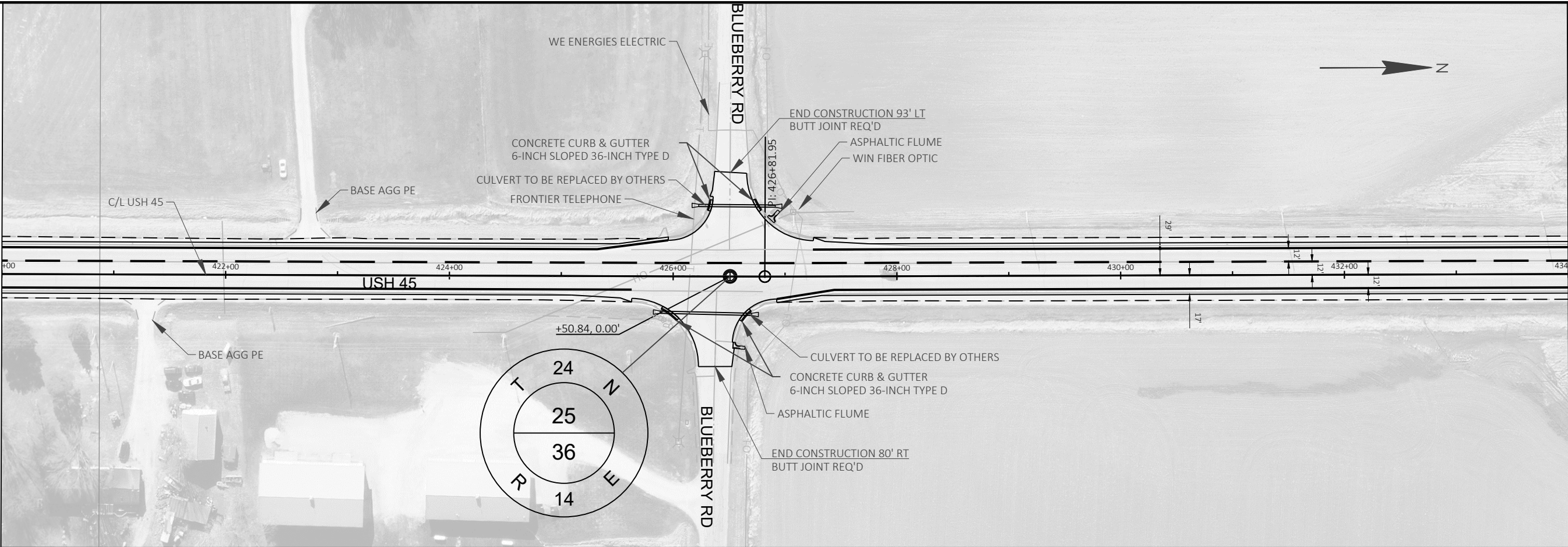


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PROJECT NO: 1140-00-78	HWY: USH 45	COUNTY: WAUPACA	PLAN	SHEET 50	E
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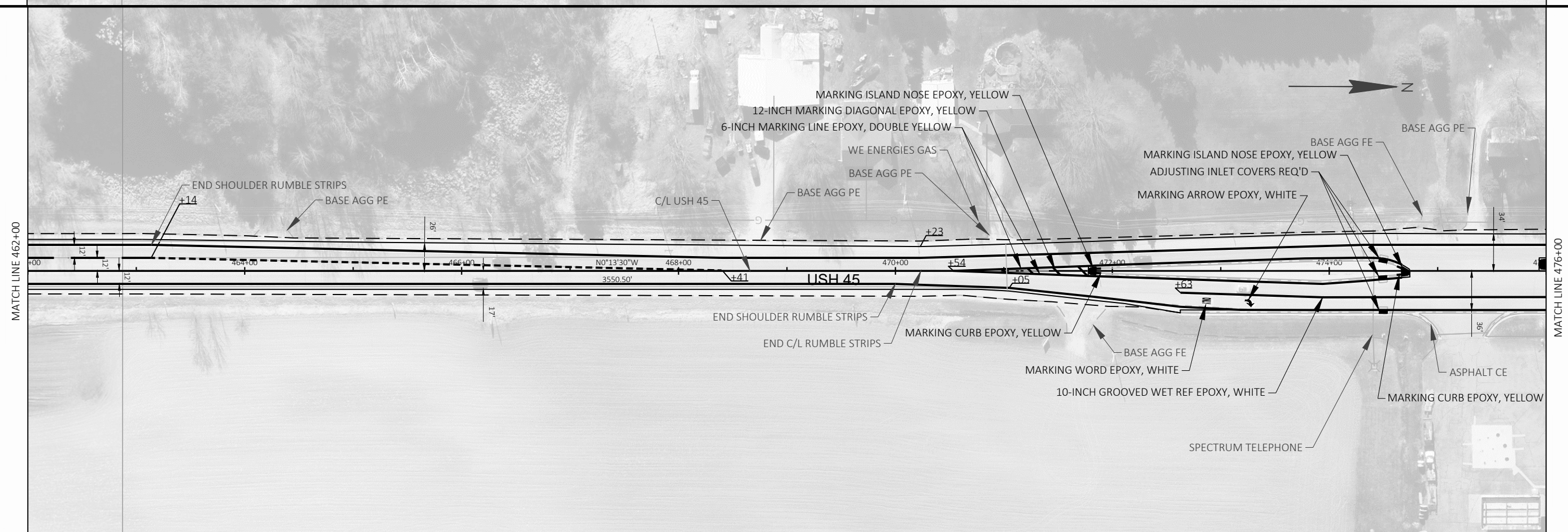
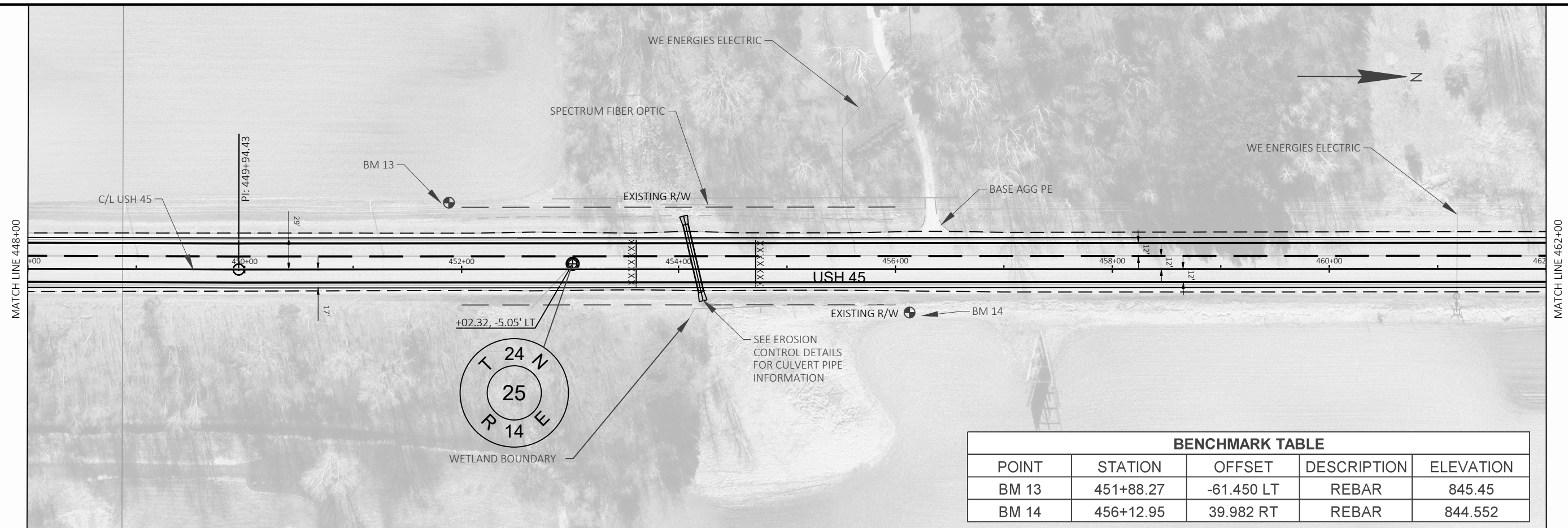
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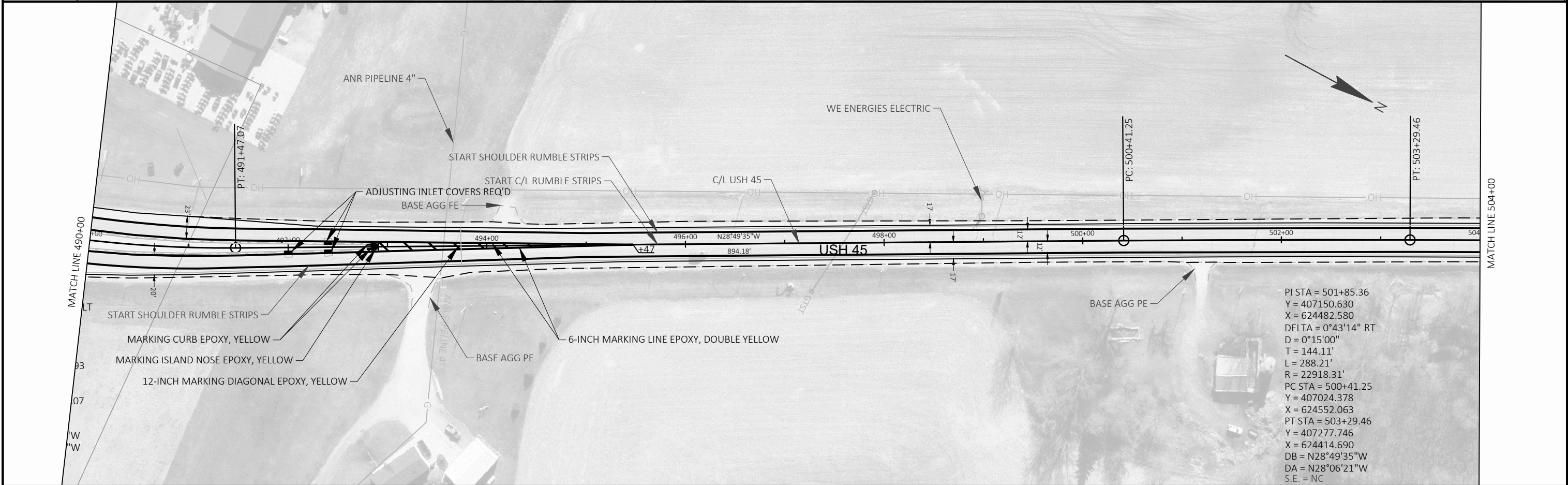
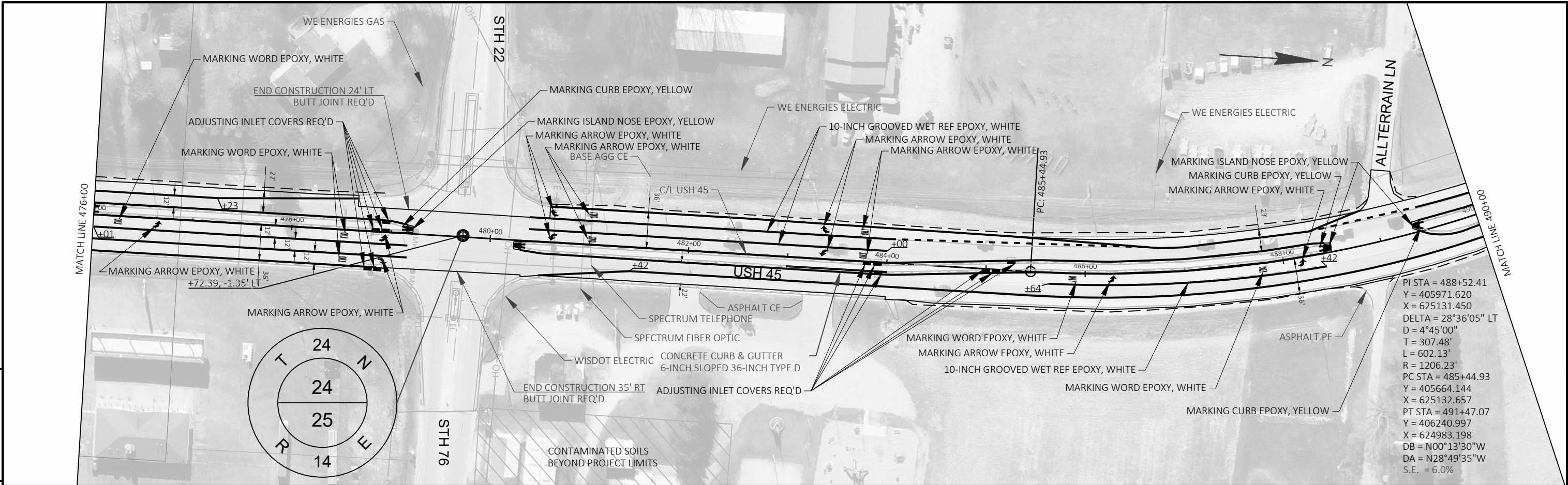


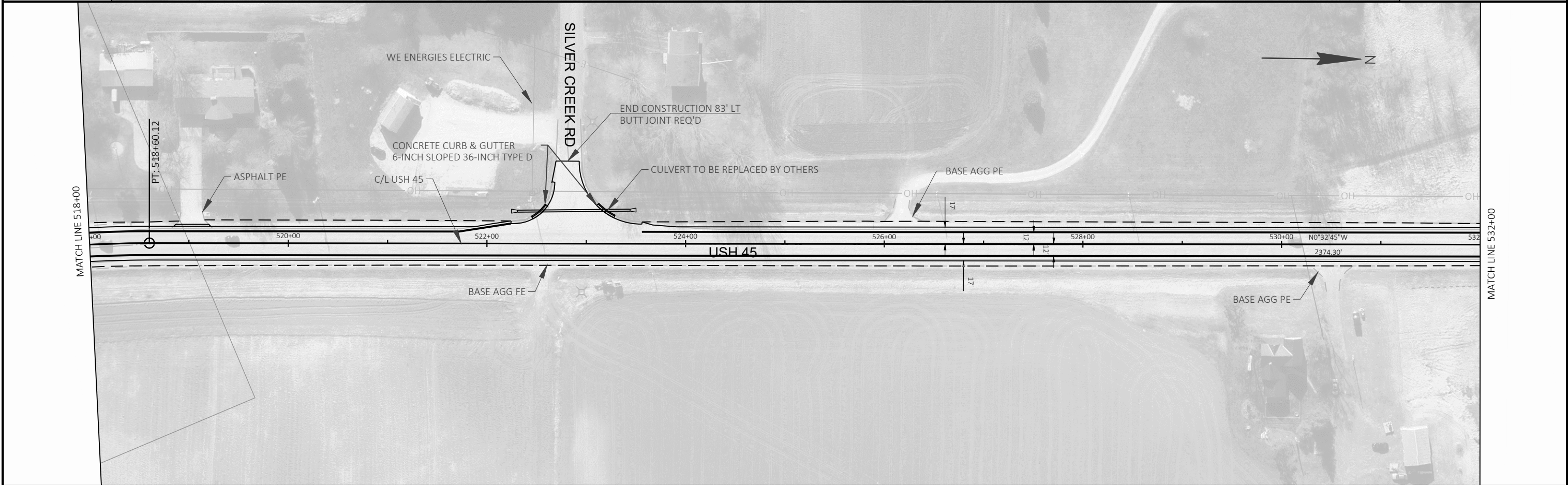
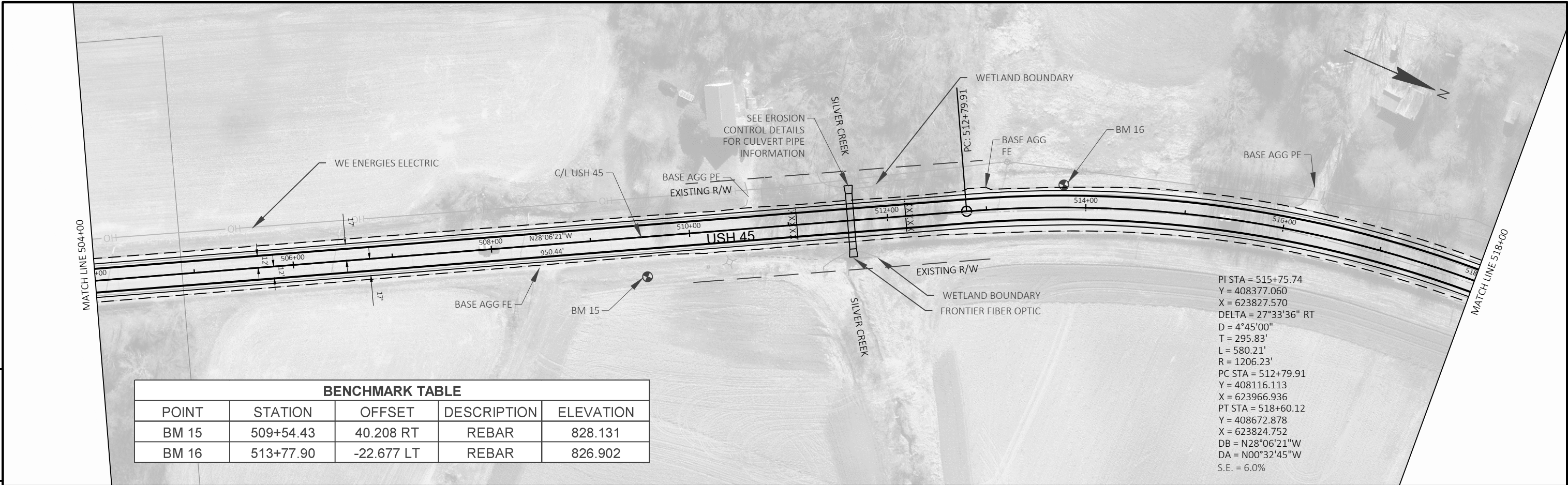
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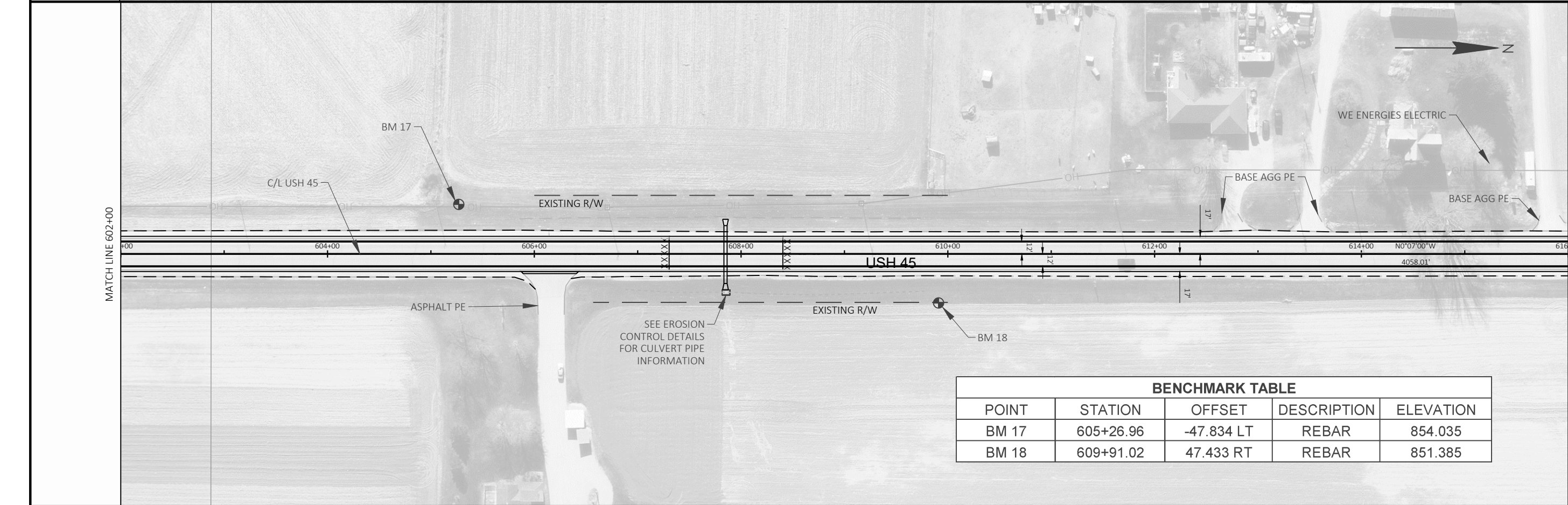
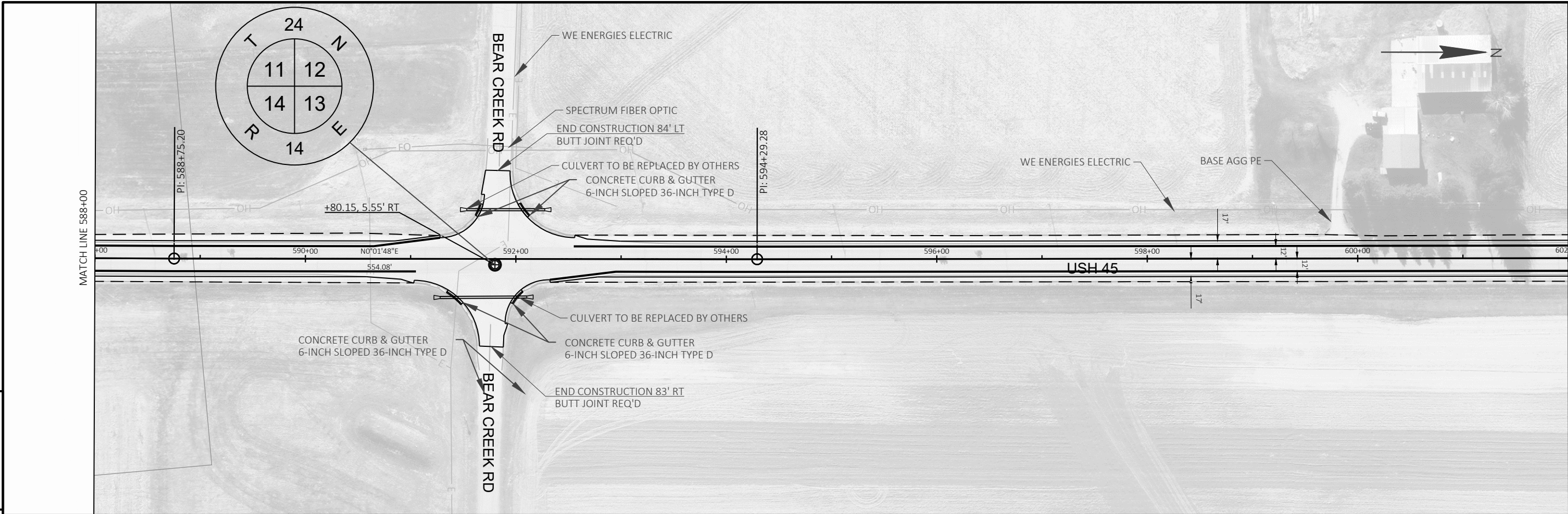
PROJECT NO: 1140-00-78	HWY: USH 45	COUNTY: WAUPACA	PLAN	SHEET 51	E
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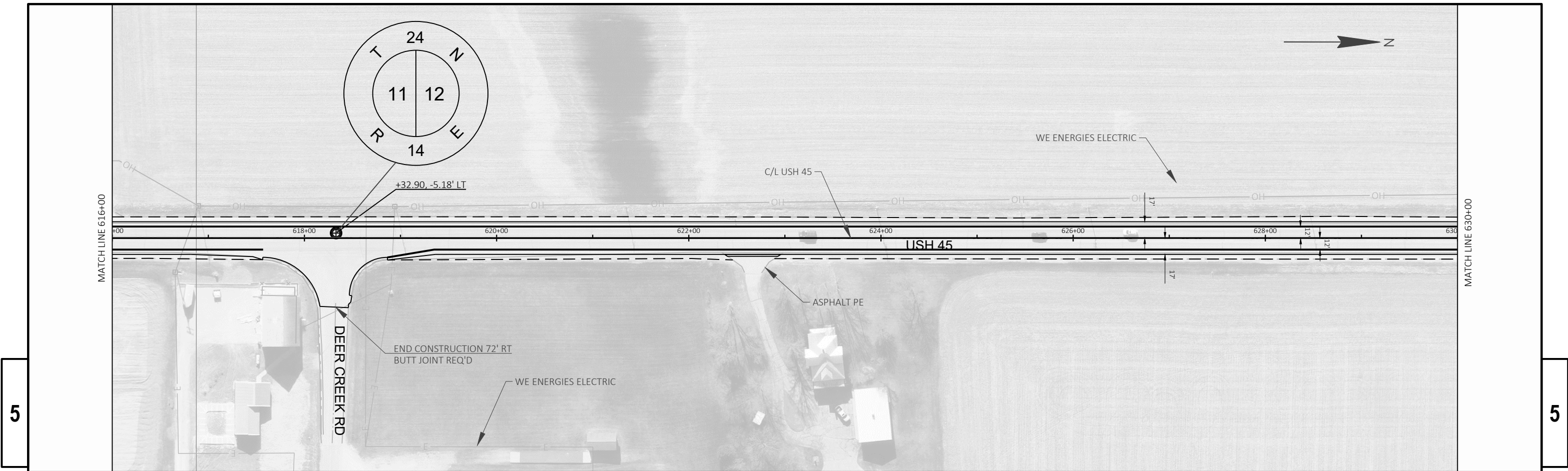








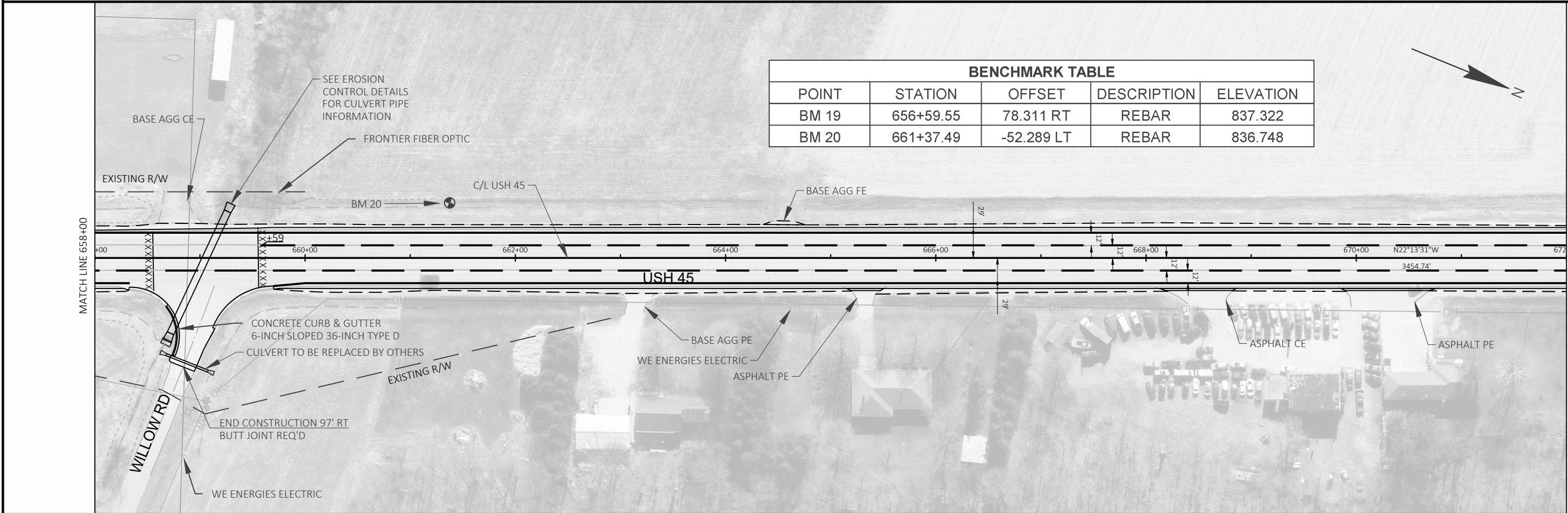
BENCHMARK TABLE				
POINT	STATION	OFFSET	DESCRIPTION	ELEVATION
BM 17	605+26.96	-47.834 LT	REBAR	854.035
BM 18	609+91.02	47.433 RT	REBAR	851.385

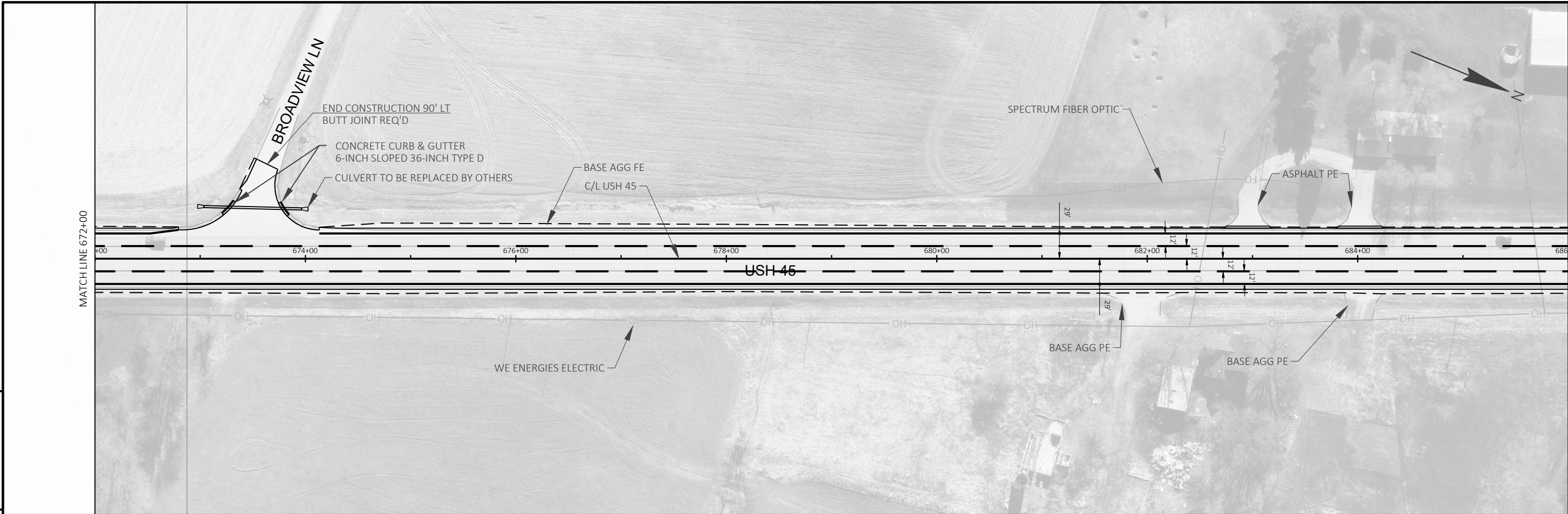


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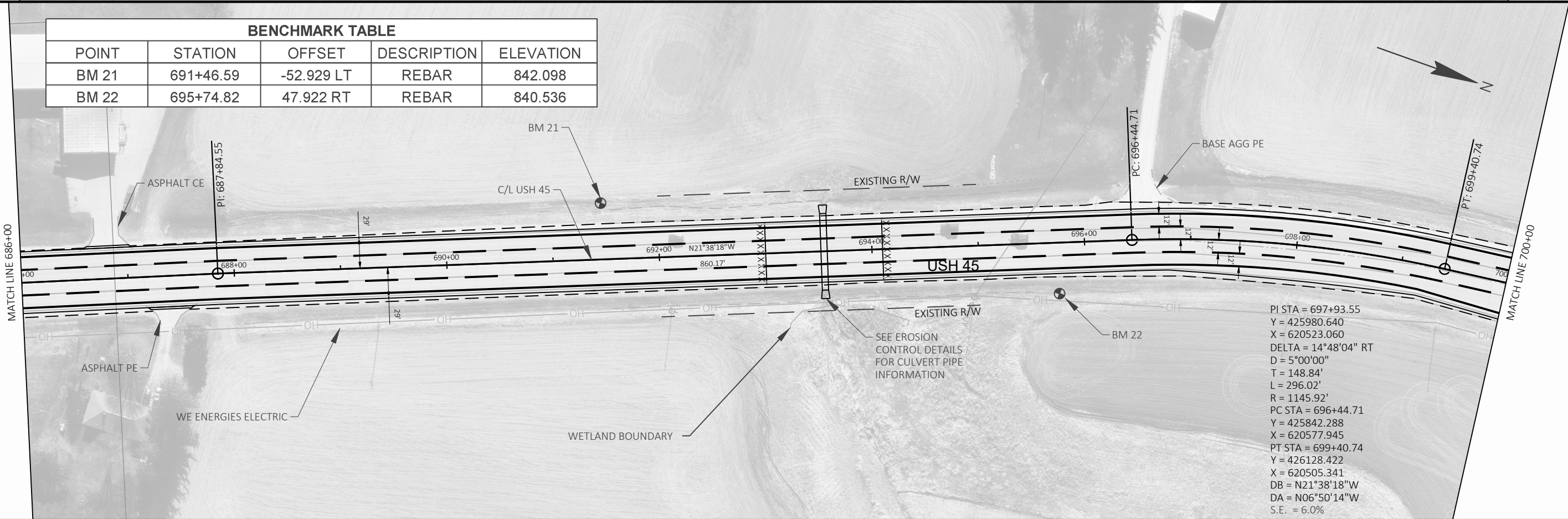


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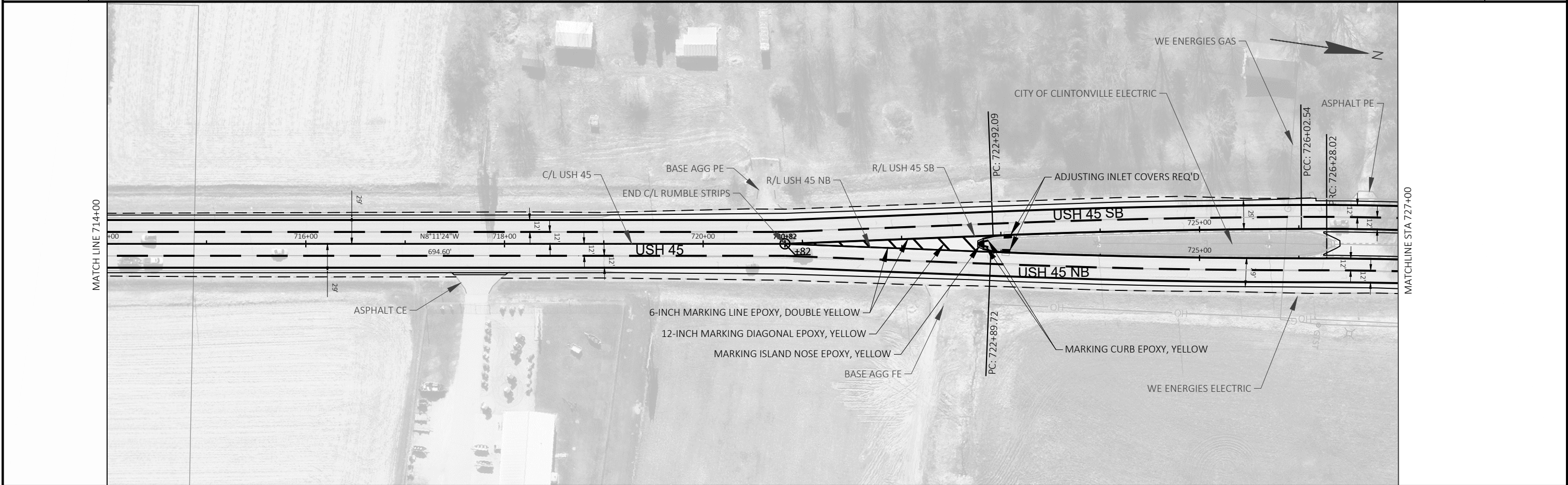
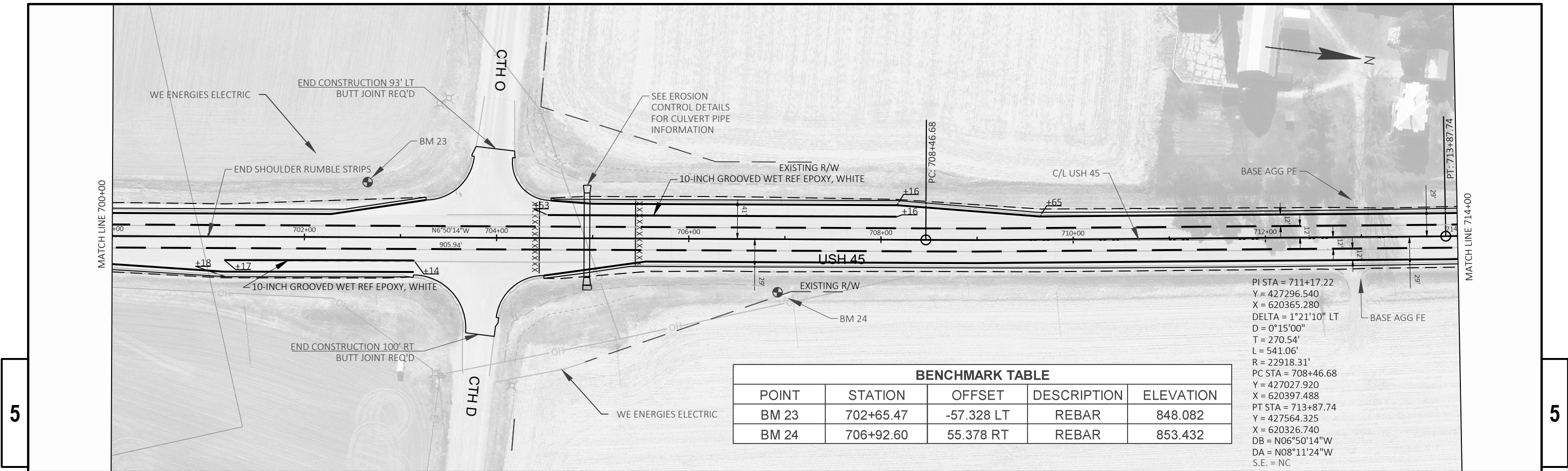




BENCHMARK TABLE				
POINT	STATION	OFFSET	DESCRIPTION	ELEVATION
BM 21	691+46.59	-52.929 LT	REBAR	842.098
BM 22	695+74.82	47.922 RT	REBAR	840.536

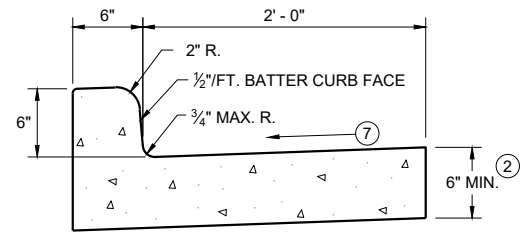


PI STA = 697+93.55
Y = 425980.640
X = 620523.060
DELTA = 14°48'04" RT
D = 5°00'00"
T = 148.84'
L = 296.02'
R = 1145.92'
PC STA = 696+44.71
Y = 425842.288
X = 620577.945
PT STA = 699+40.74
Y = 426128.422
X = 620505.341
DB = N21°38'18"W
DA = N06°50'14"W
S.E. = 6.0%

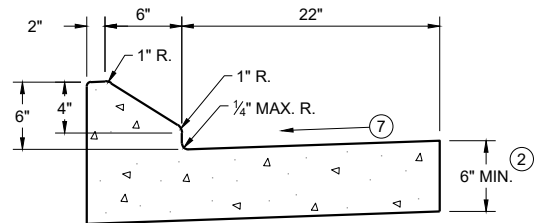


Standard Detail Drawing List

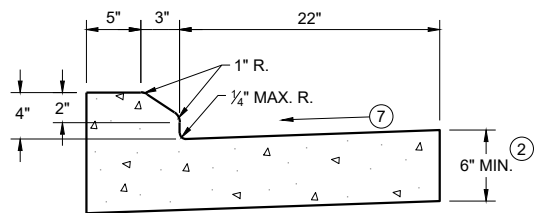
08D01-24A	CONCRETE CURB & GUTTER
08D01-24B	CONCRETE CURB, TIES AND CURB AND GUTTER APPLICATIONS
08D04-07	CONCRETE SURFACE DRAINS & ASPHALTIC FLUMES
08D16-11	CONCRETE GUTTER, CURB AND GUTTER AND PAVEMENT TIES
08E08-03	TYPICAL INSTALLATIONS OF EROSION BALES / TEMPORARY DITCH CHECKS
08E09-06	SILT FENCE
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
09A01-14A	AT-GRADE SIDE ROAD INTERSECTION, TYPES "B1", "B2", "C" AND D AND TEE INTERSECTION BYPASS LANE
09A01-14B	AT-GRADE SIDE ROAD INTERSECTION, TYPE "A1" & "A2"
09A15-01	DRIVEWAYS WITHOUT CURB AND GUTTER RESURFACING PROJECTS RURAL
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
14B29-01	SAFETY EDGE
15A03-02A	FLEXIBLE MARKER POST FOR CULVERT END
15A03-02B	FLEXIBLE MARKER POST FOR CULVERT END
15C04-05	TRAFFIC CONTROL, ADVANCE WARNING SIGNS 45 M.P.H. OR GREATER TWO-WAY UNDIVIDED ROAD OPEN TO TRAFFIC
15C07-16A	PAVEMENT MARKING SYMBOLS
15C07-16B	PAVEMENT MARKING WORDS
15C07-16C	PAVEMENT MARKING ARROWS
15C08-24A	PERMANENT LONGITUDINAL PAVEMENT MARKINGS
15C08-24B	TEMPORARY LONGITUDINAL PAVEMENT MARKING
15C08-24C	PAVEMENT MARKING (TURN LANES)
15C08-24D	PAVEMENT MARKING (TURN LANES)
15C11-11B	CHANNELIZING DEVICES DRUMS, CONES, BARRICADES AND VERTICAL PANELS
15C12-09A	TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATION
15C18-09A	MEDIAN ISLAND PAVEMENT MARKINGS
15C18-09B	PAVEMENT MARKINGS, MEDIAN ISLAND NOSE
15C19-11A	MOVING PAVEMENT MARKING OPERATION TWO-LANE TWO-WAY ROADWAY
15C19-11B	MOVING PAVEMENT MARKING OPERATION MULTI-LANE UNDIVIDED ROADWAY
15C33-05	STOP LINE AND CROSSWALK PAVEMENT MARKING
15C35-06A	PAVEMENT MARKING (INTERSECTIONS)
15D20-11A	TRAFFIC CONTROL, SINGLE LANE CLOSURE, DIVIDED NON-FREEWAY/EXPRESSWAY
15D20-11B	TRAFFIC CONTROL, SINGLE RIGHT LANE CLOSURE, UNDIVIDED NON-FREEWAY/EXPRESSWAY
15D20-11C	TRAFFIC CONTROL, SINGLE LEFT LANE CLOSURE, UNDIVIDED NON-FREEWAY/EXPRESSWAY
15D21-07A	TRAFFIC CONTROL, INTERSECTION WITHIN SINGLE LANE CLOSURE
15D21-07B	TRAFFIC CONTROL, INTERSECTION WITHIN SINGLE LANE CLOSURE
15D28-05	TRAFFIC CONTROL, WORK ON SHOULDER OR PARKING LANE, UNDIVIDED ROADWAY
15D39-03	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
15D48-01	TRAFFIC CONTROL, LANE SHIFT IN FLAGGING OPERATION
15D50-04A	TRAFFIC CONTROL, ADDED LANE CLOSURE WITHOUT LANE SHIFT
15D50-04B	TRAFFIC CONTROL, ADDED LANE CLOSURE WITH LANE SHIFT
15D51-02	TRAFFIC CONTROL, MOBILE OPERATIONS ON AN UNDIVIDED ROADWAY



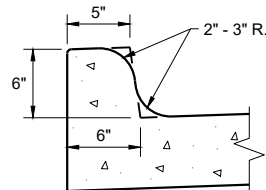
TYPES A^① & D



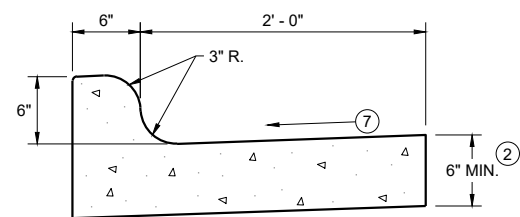
6" SLOPED CURB TYPES G^① & J



4" SLOPED CURB TYPES G^① & J

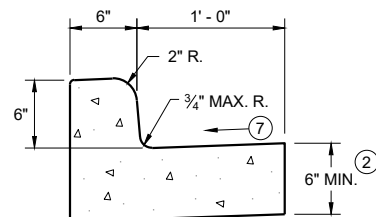


TYPES K^① & L
(OPTIONAL CURB SHAPE)



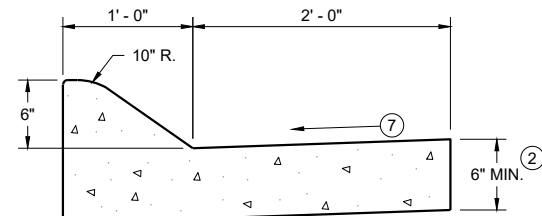
TYPES K^① & L

CONCRETE CURB AND GUTTER 30"

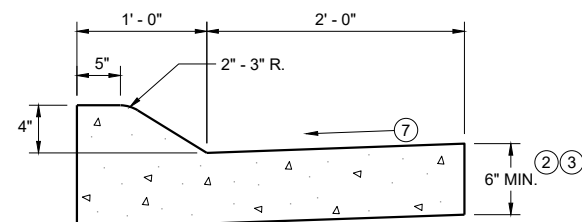


TYPES A^① & D

CONCRETE CURB AND GUTTER 18"

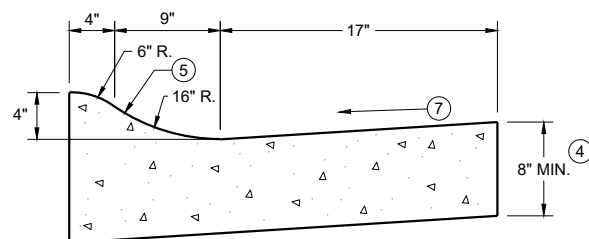


6" SLOPED CURB TYPES A^① & D



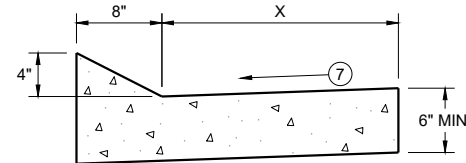
4" SLOPED CURB TYPES A^① & D

CONCRETE CURB AND GUTTER 36"



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

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

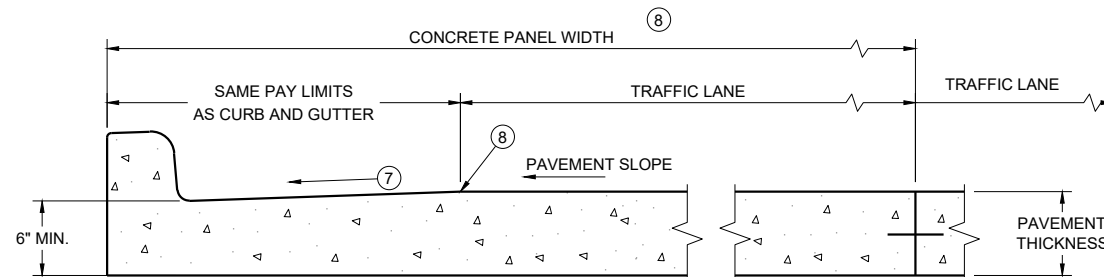


TYPES TBT & TBTT^①

CONCRETE CURB AND GUTTER

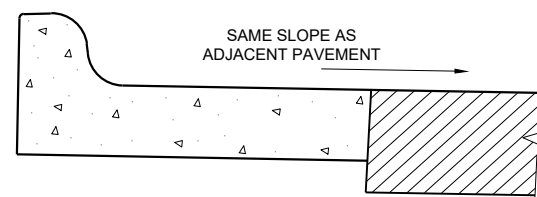
PAVEMENT THICKNESS
AND MAXIMUM CONCRETE
PANEL WIDTH TABLE

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

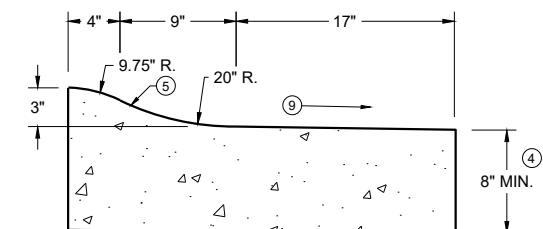


PARTIAL SECTION OF PAVEMENT
WITH INTEGRAL CURB AND GUTTER

* BIKE LANE IS NOT SHOWN



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



3" SLOPED CURB TYPES R^① & T

CONCRETE CURB AND GUTTER

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

GENERAL NOTES

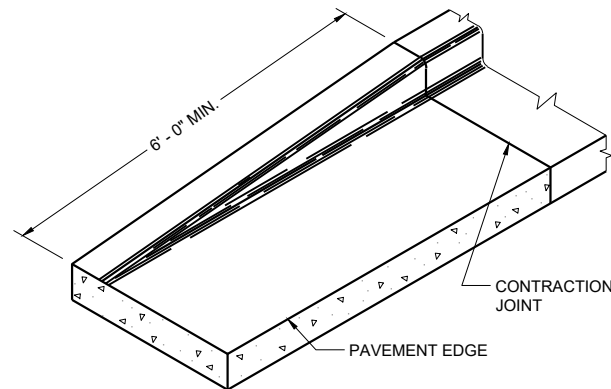
DETAILS OF CONSTRUCTION AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.

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

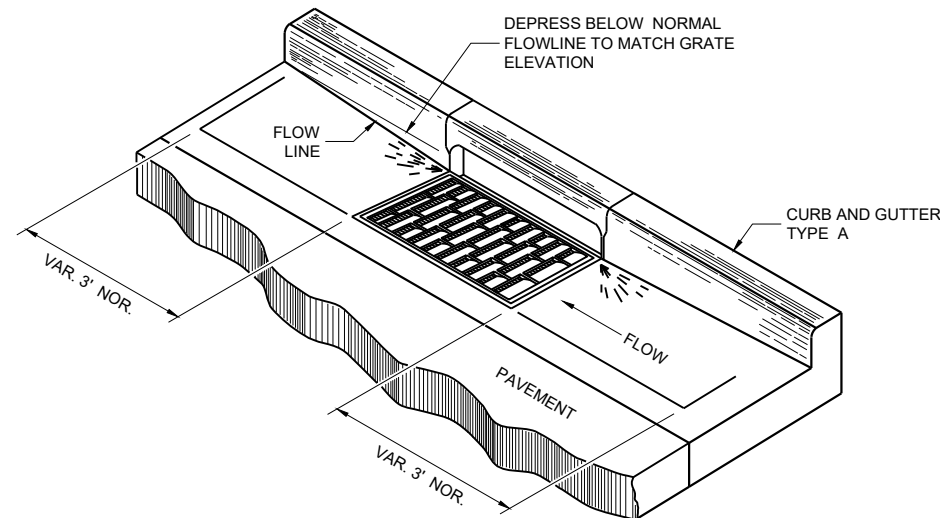
INTEGRAL CURB AND GUTTER SHALL CONFORM TO THE DETAILS SHOWN FOR CONCRETE CURB AND GUTTER INCLUDING THE TRANSVERSE GUTTER SLOPE.

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

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

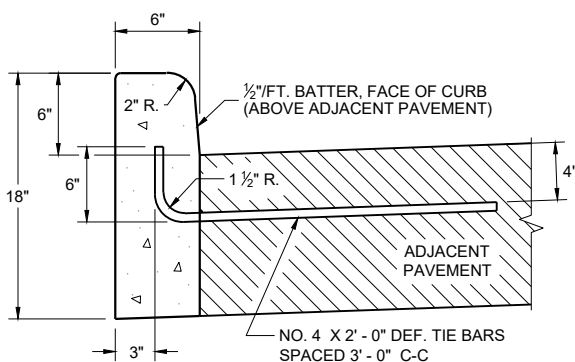


END SECTION CURB AND GUTTER

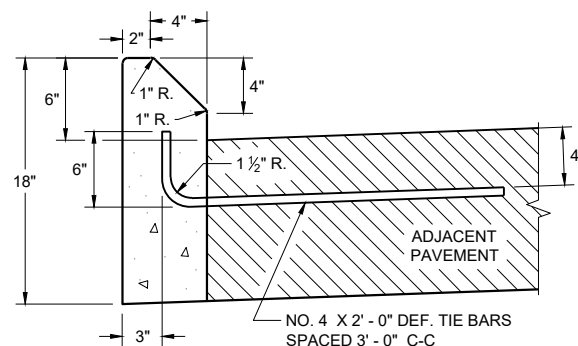


DETAIL OF CURB AND GUTTER AT INLETS

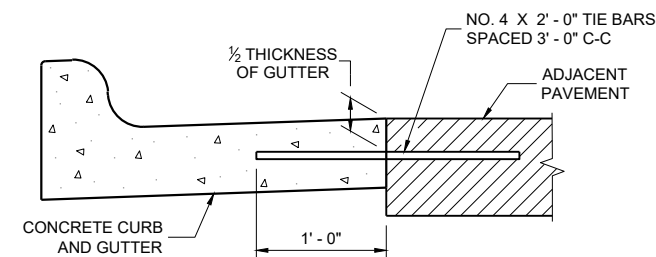
(TYPICAL H INLET COVER SHOWN)



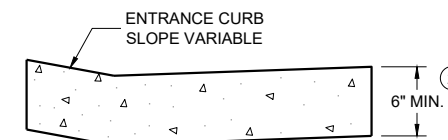
TYPES A^① & D



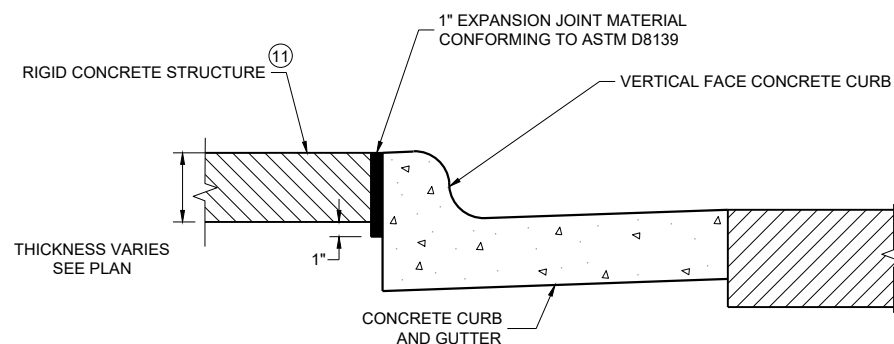
**TYPES G^① & J
CONCRETE CURB**



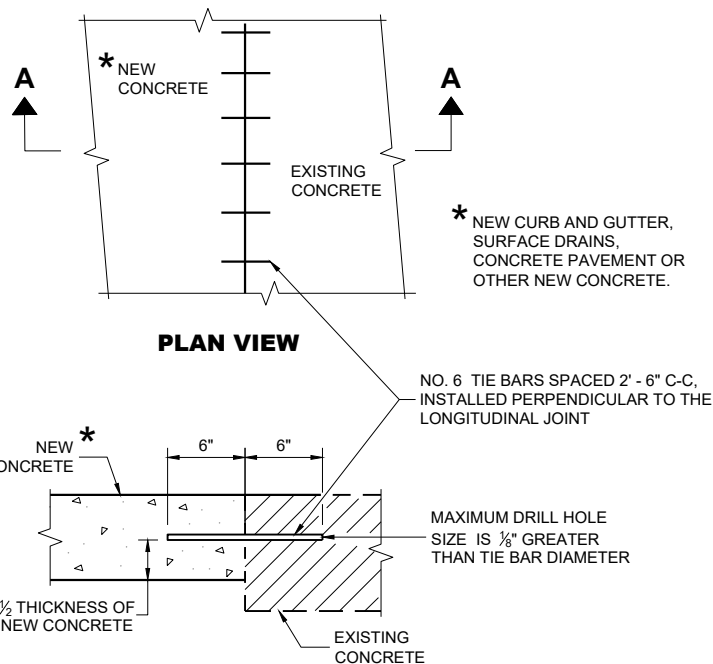
TYPICAL TIE BAR LOCATION^①



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



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.

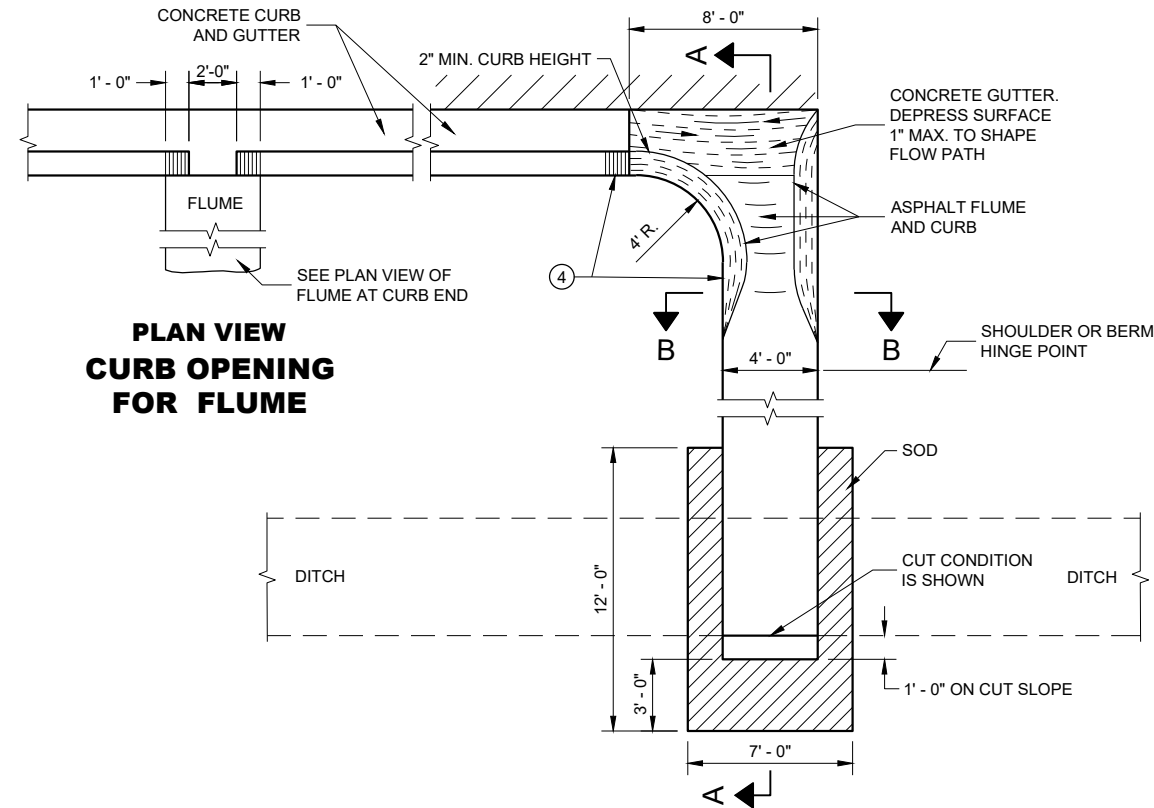
**CONCRETE CURB, TIES
AND CURB AND GUTTER
APPLICATIONS**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

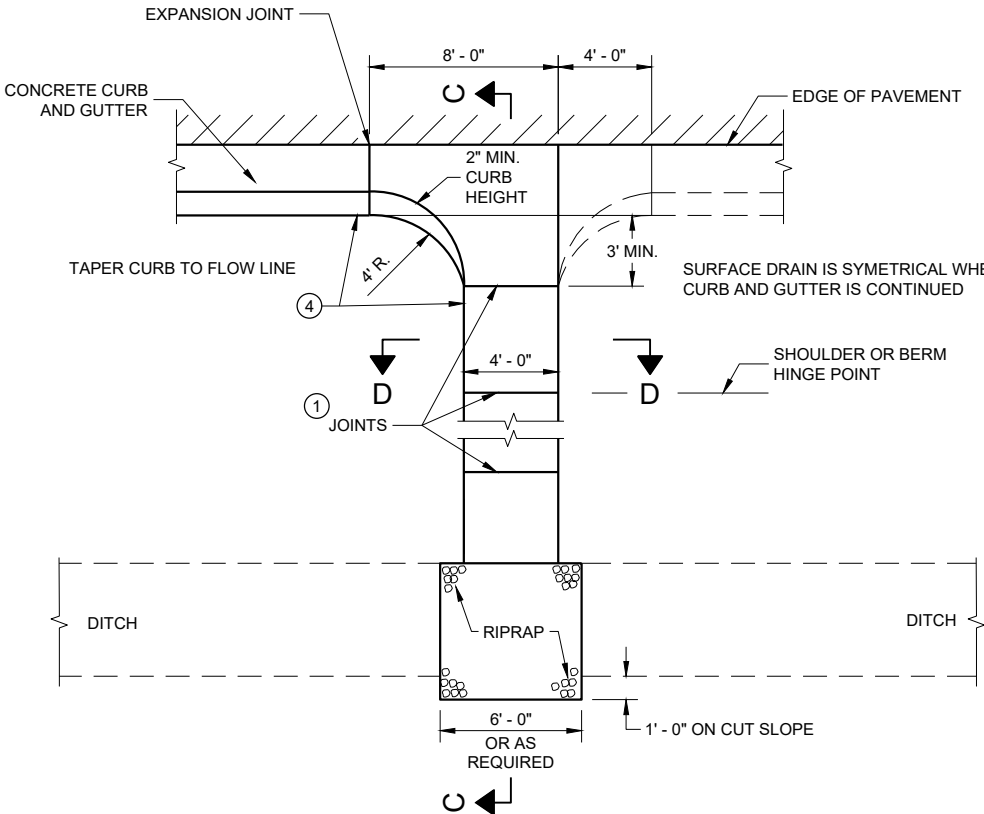
NOTE: TAPER CURB ENDS TO GUTTER IN 1' - 0"

ASPHALTIC FLUME



PLAN VIEW
CURB OPENING
FOR FLUME

PLAN VIEW
FLUME AT CURB END



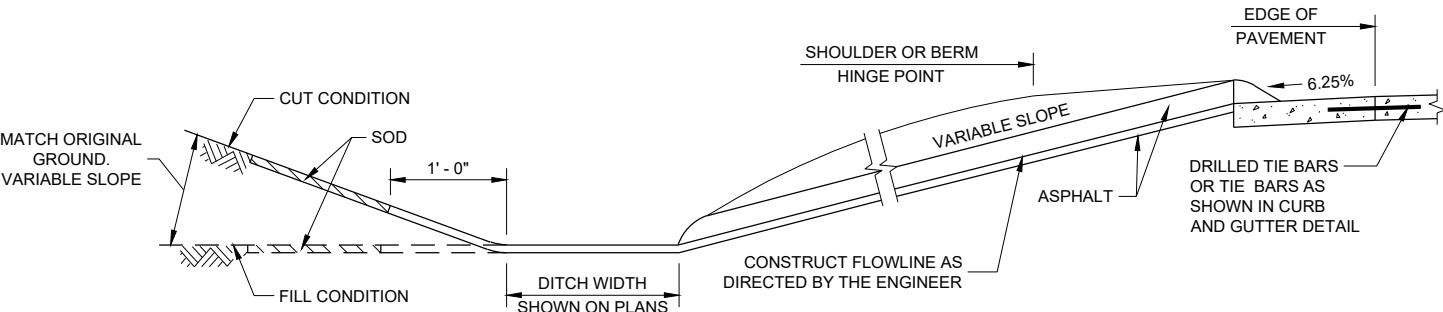
PLAN VIEW
CONCRETE SURFACE DRAIN

GENERAL NOTES

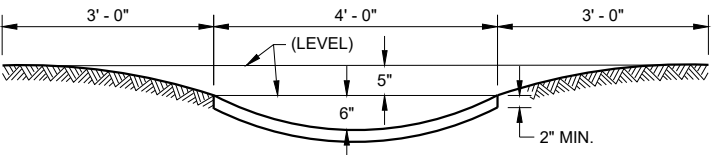
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

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

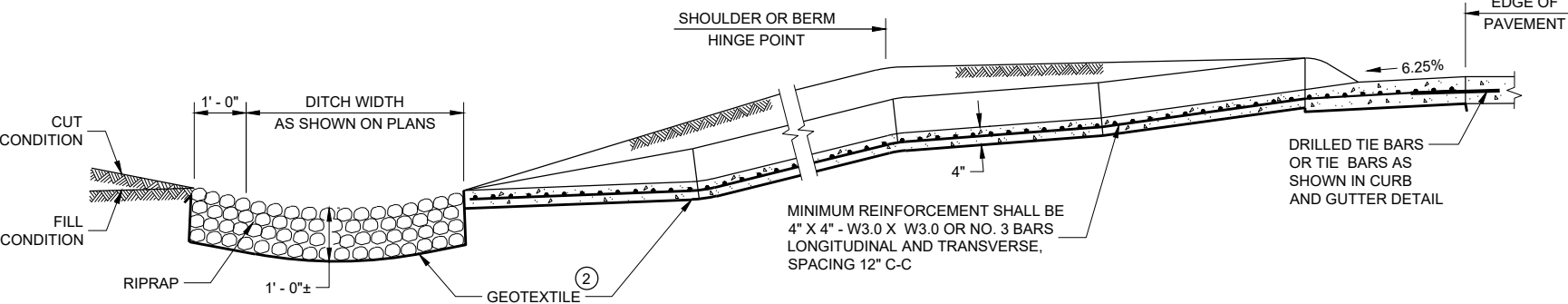
- ① JOINTS SHALL BE 1/8" TO 1/4" WIDE BY 1 1/2" DEEP AND SPACED AT UNIFORM INTERVALS OF APPROXIMATELY 4 FEET.
- ② GEOTEXTILE TYPE "R" SHALL UNDERLAY THE FULL LENGTH AND WIDTH OF THE CONCRETE SURFACE DRAIN AND RIPRAP.
- ③ CONCRETE SURFACE DRAIN WITHOUT CURB AND GUTTER MAY BE USED ON BACKSLOPES WHEN SPECIFIED.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



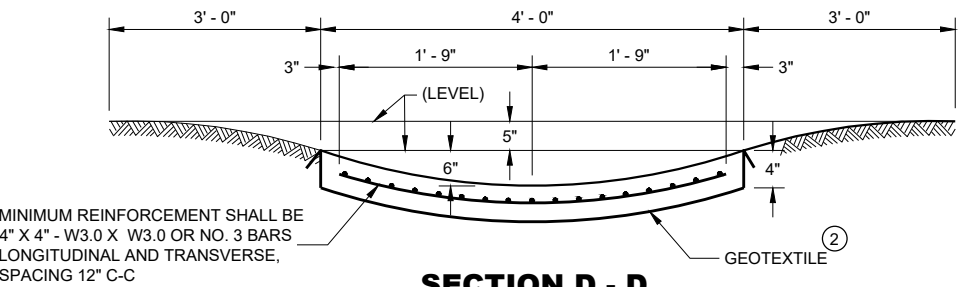
SECTION A - A



SECTION B - B



SECTION C - C



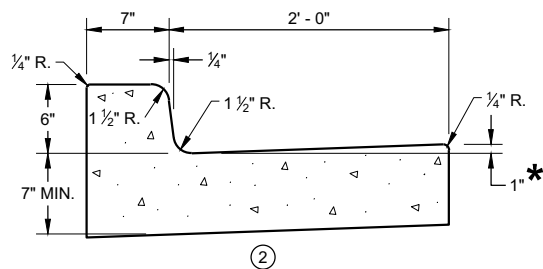
SECTION D - D

CONCRETE SURFACE
DRAINS AND
ASPHALTIC FLUMES

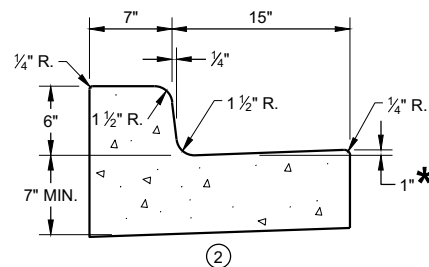
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May 2023
DATE
/S/ Rodney Taylor
ROADWAY STANDARDS DEVELOPMENT ENGINEER
66

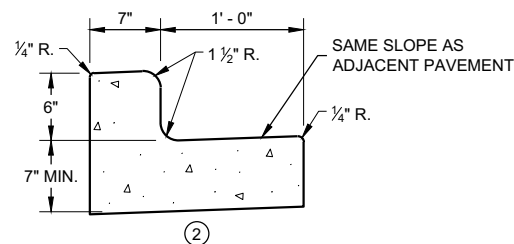
FHWA



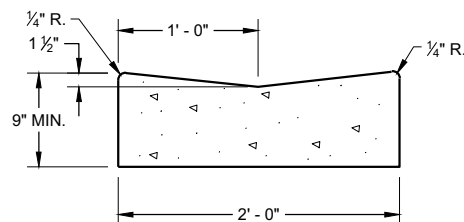
CONCRETE CURB AND GUTTER 31" ①



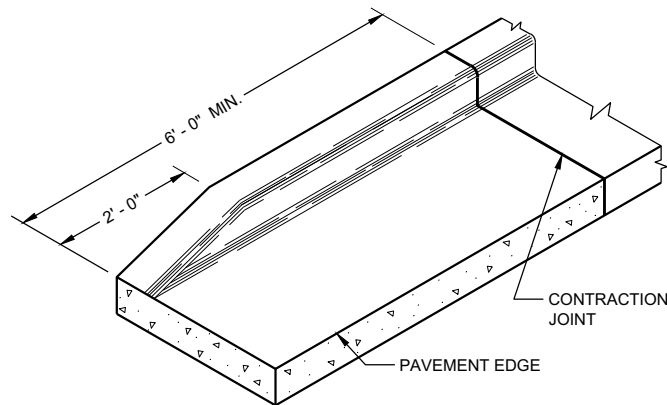
CONCRETE CURB AND GUTTER 22" ①



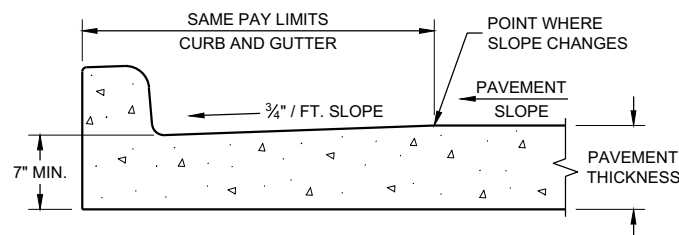
CONCRETE CURB AND GUTTER 19" ①



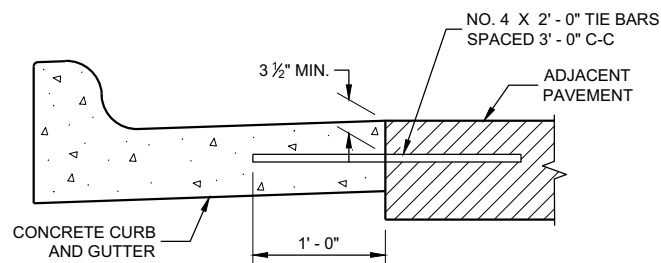
CONCRETE GUTTER 24" ①



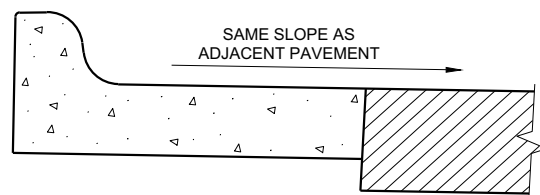
END SECTION CURB AND GUTTER



PARTIAL SECTION OF PAVEMENT WITH INTEGRAL CURB AND GUTTER



TYPICAL TIE BAR LOCATION ①



HIGH SIDE SECTION ③
(TYPICAL FOR ALL CURB & GUTTER TYPES)

GENERAL NOTES

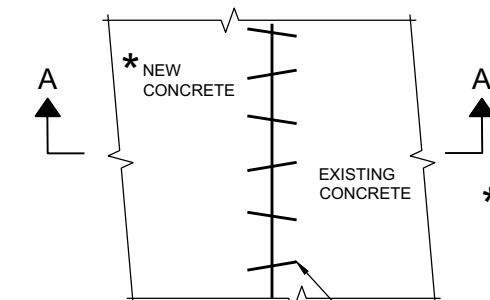
DETAILS OF CONSTRUCTION AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.

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

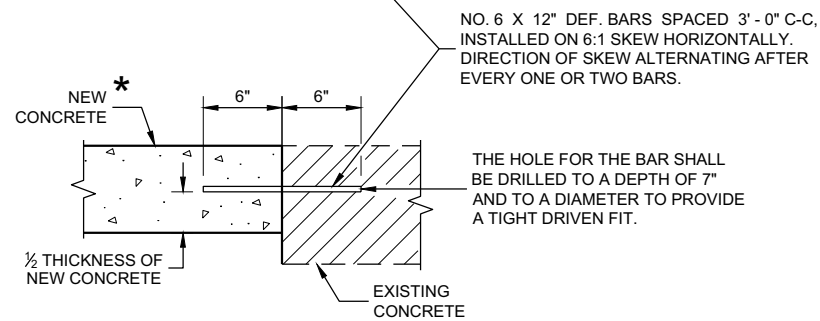
INTEGRAL CURB AND GUTTER SHALL CONFORM TO THE DETAILS SHOWN FOR CONCRETE CURB AND GUTTER INCLUDING THE TRANSVERSE GUTTER SLOPE. A LONGITUDINAL CONSTRUCTION JOINT IS NOT REQUIRED WITH INTEGRAL CURB AND GUTTER.

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

- ① WHEN PLACED ADJACENT TO NEW CONCRETE, TIE BARS ARE REQUIRED FOR CURB AND GUTTER 31", 22", 19" AND CONCRETE GUTTER 24".
- ② THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE COURSE PROVIDED A 7" MINIMUM GUTTER THICKNESS IS MAINTAINED.
- ③ WHEN HIGH SIDE CURB SECTION IS REQUIRED, THE LOCATION(S) WILL BE NOTED ON THE PLANS



PLAN VIEW

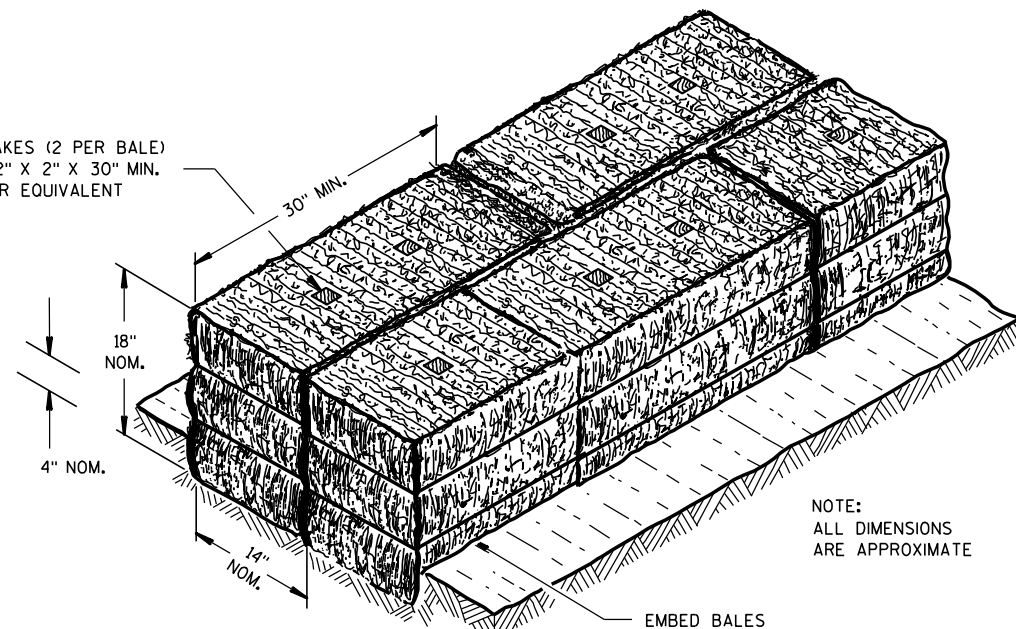


SECTION A - A

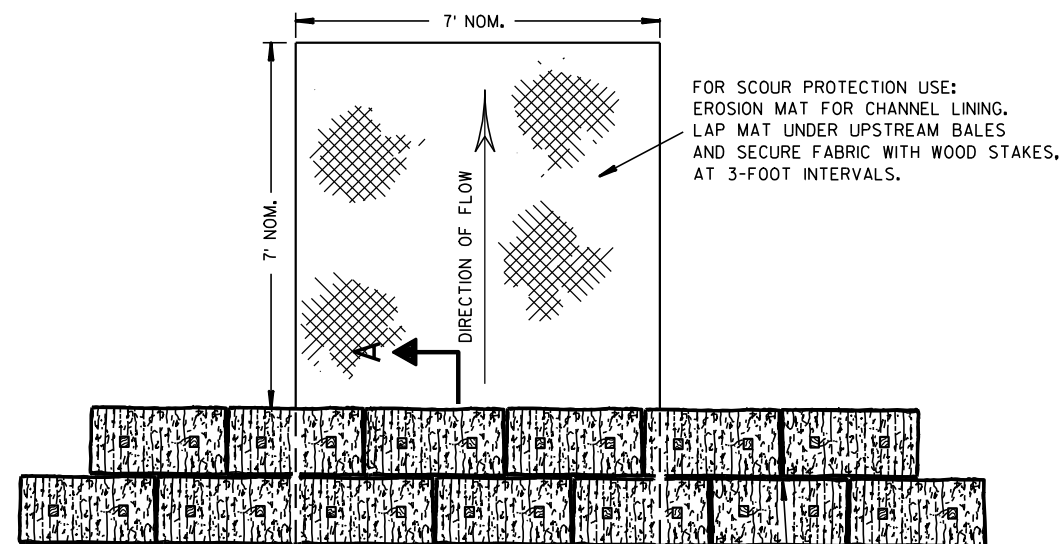
PAVEMENT TIES

CONCRETE GUTTER, CURB AND GUTTER AND PAVEMENT TIES (For Optional use in Milwaukee Co. Only)	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED February 2020 DATE	/S/ Rodney Taylor ROADWAY STANDARDS DEVELOPMENT ENGINEER
67	

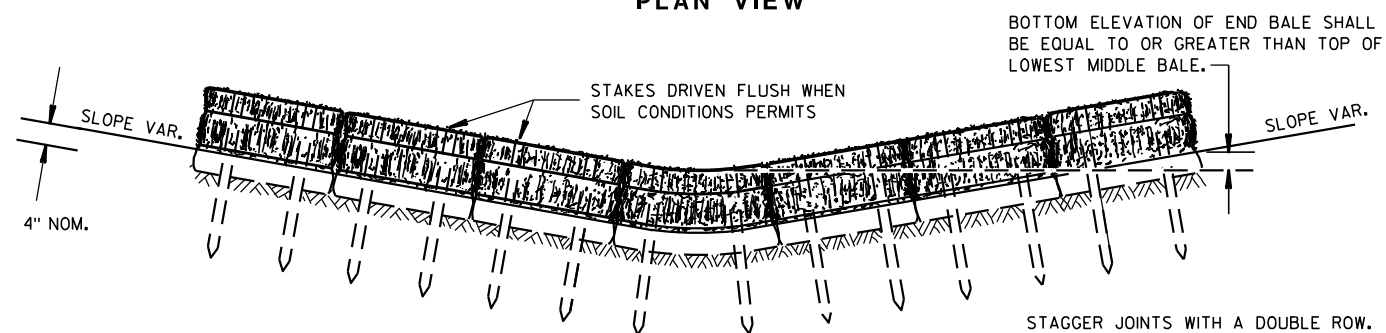
WOOD STAKES (2 PER BALE)
NOMINAL 2" X 2" X 30" MIN.
LENGTH OR EQUIVALENT



SECTION A-A



PLAN VIEW



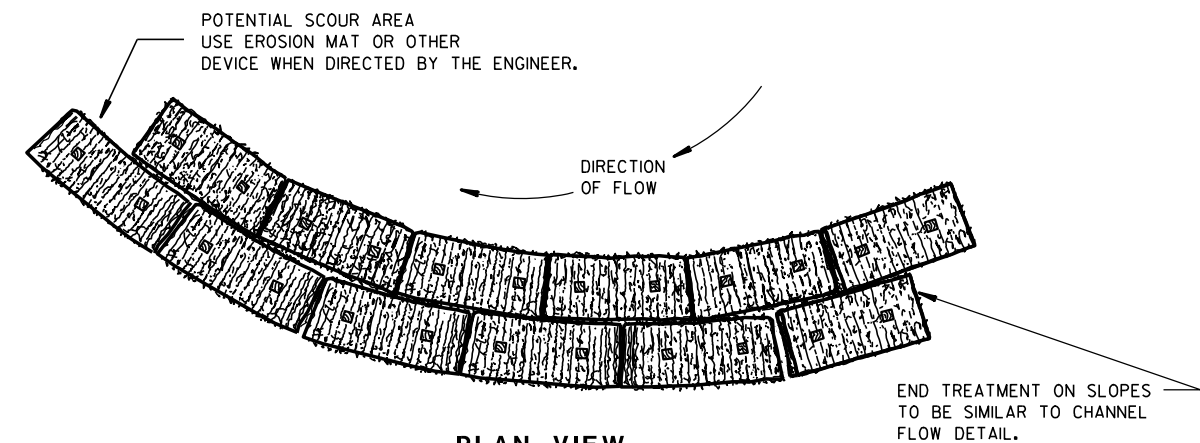
FRONT ELEVATION

TEMPORARY DITCH CHECK USING EROSION BALES ①

GENERAL NOTES

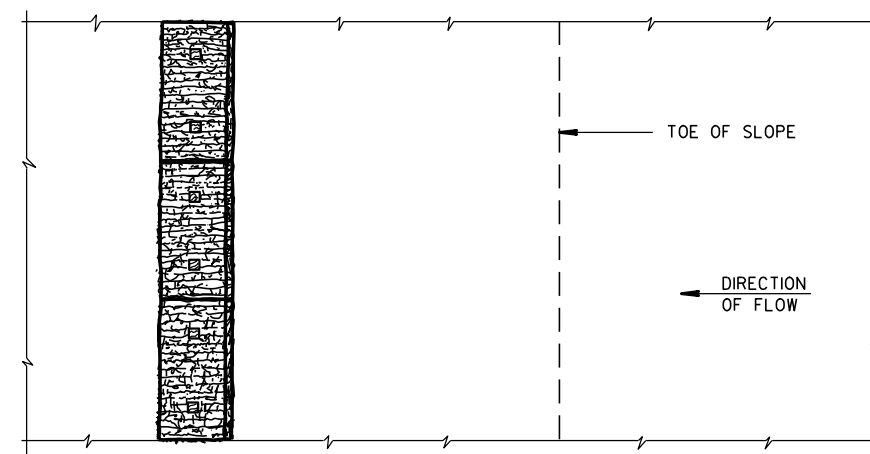
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

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

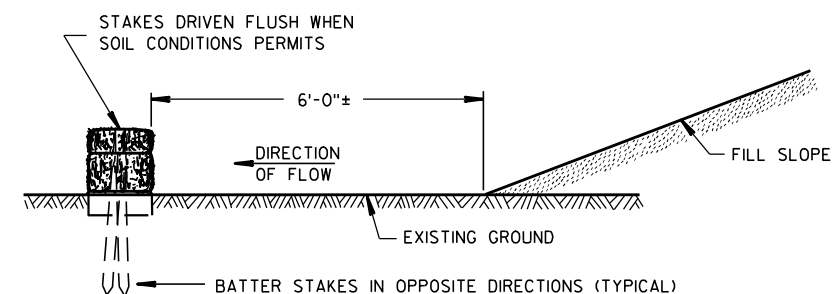


PLAN VIEW

WHEN ALTERING THE DIRECTION OF FLOW



PLAN VIEW



FRONT ELEVATION

WHEN EXISTING GROUND SLOPES AWAY FROM FILL SLOPE

EROSION BALES FOR SHEET FLOW

TYPICAL INSTALLATIONS OF
EROSION BALES / TEMPORARY
DITCH CHECKS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

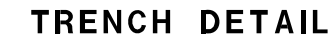
6/04/02
DATE/S/ Beth Conn
CHIEF ROADWAY DEVELOPER

ENGINEER

FHWA



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

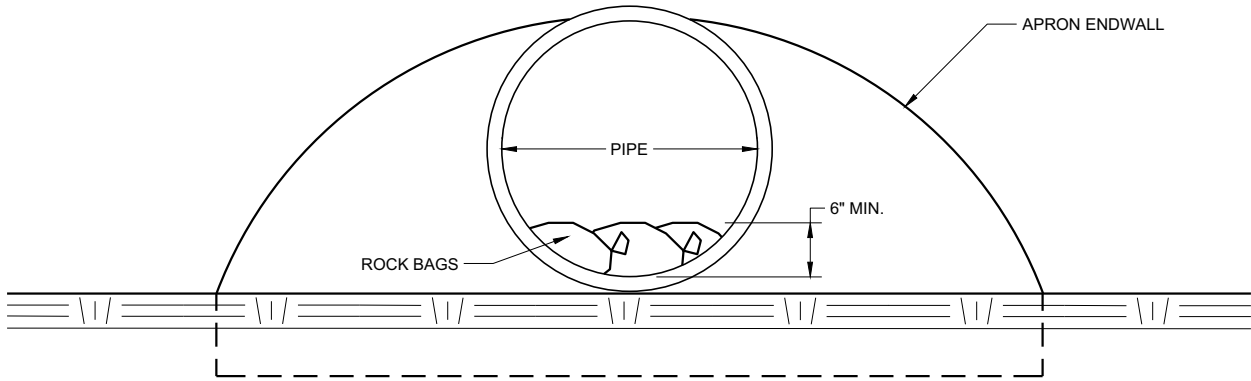


SILT FENCE

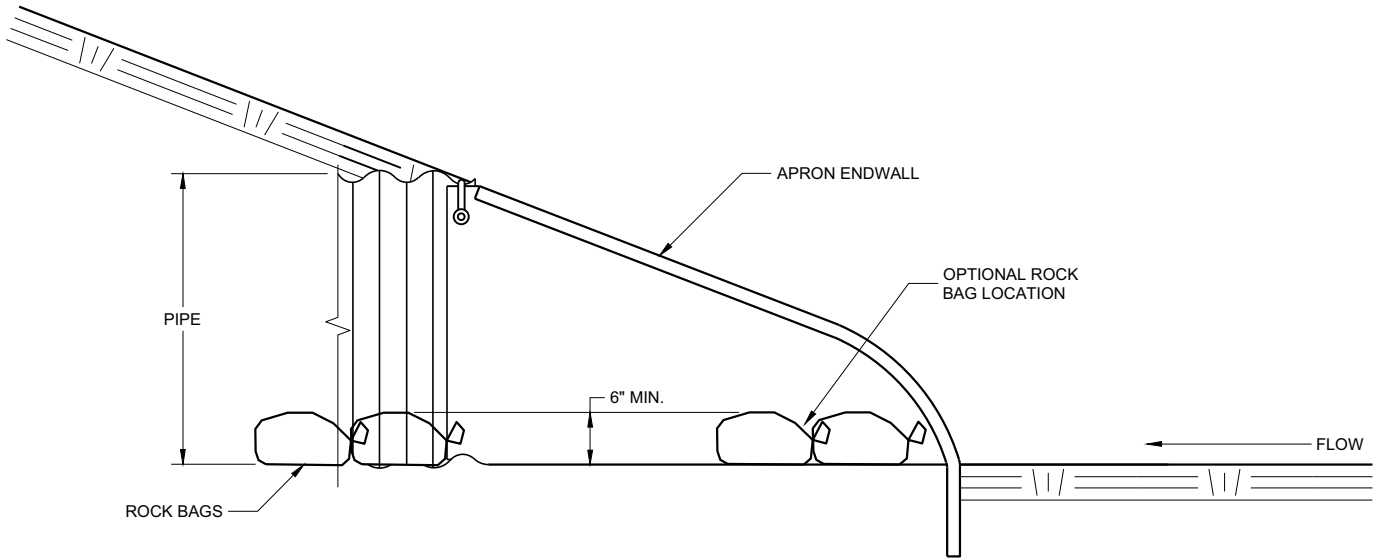
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
4-29-05 /S/ Beth Connolly
DATE CHIEF ROADWAY DEVELOPMENT 69 INCHES

FHWA



END VIEW



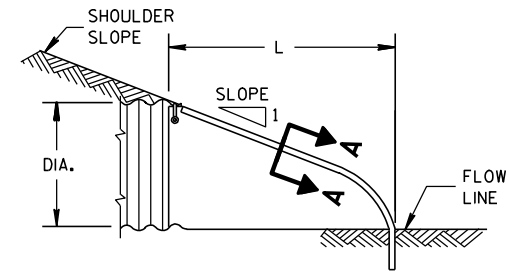
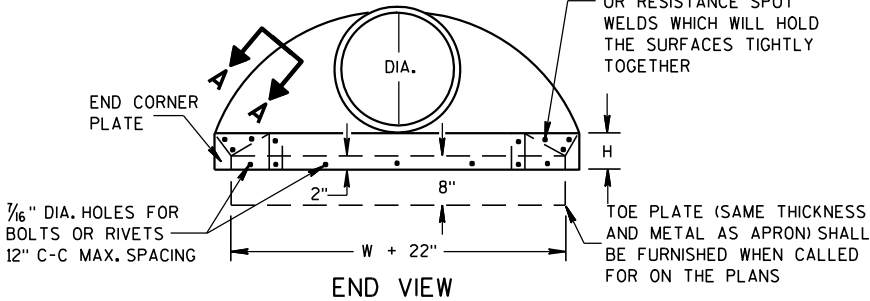
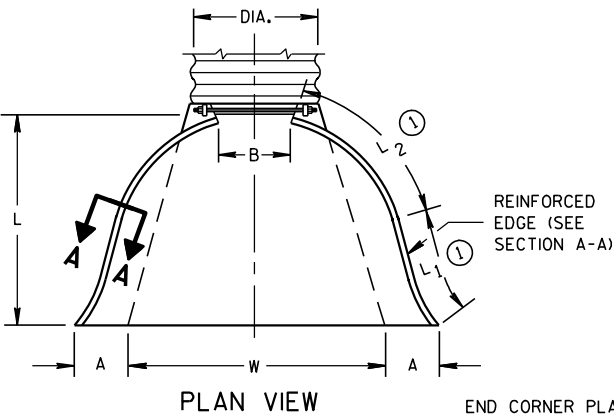
SIDE VIEW

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 ENGI 70
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.

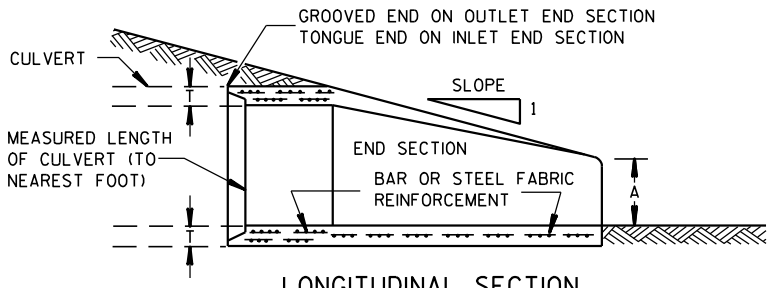
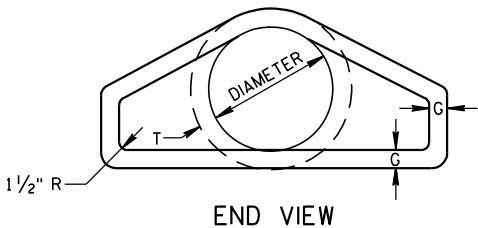
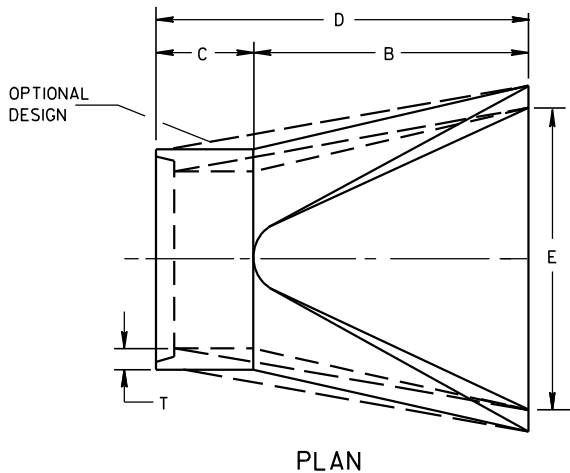
* EXCEPT CENTER PANEL
SEE GENERAL NOTES



SIDE ELEVATION
METAL ENDWALLS

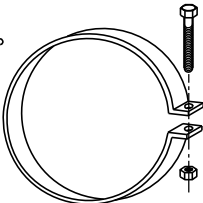
REINFORCED CONCRETE APRON ENDWALLS												
PIPE DIA. (IN.)	DIMENSIONS (Inches)							APPROX. SLOPE				
	T	A	B	C	D	E	G					
12	2	4	24	48 1/8	72 1/8	24	2	3 to 1				
15	2 1/4	6	27	46	73	30	2 1/4	3 to 1				
18	2 1/2	9	27	46	73	36	2 1/2	3 to 1				
21	2 3/4	9	36	37 1/2	73 1/2	42	2 3/4	3 to 1				
24	3	9 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 1/2 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

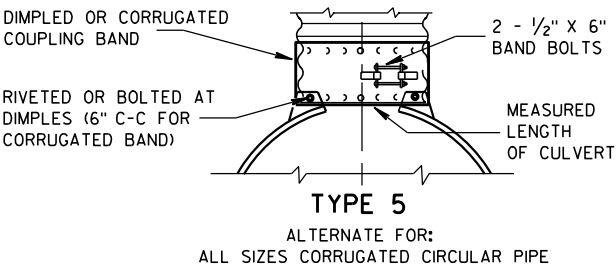
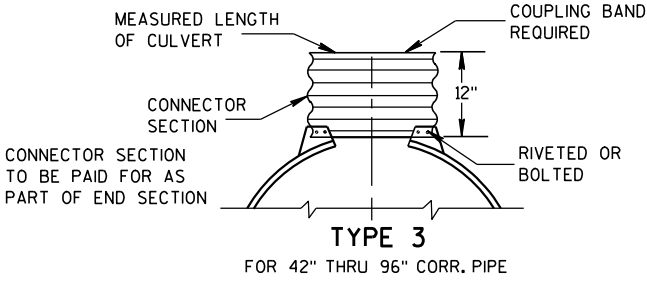
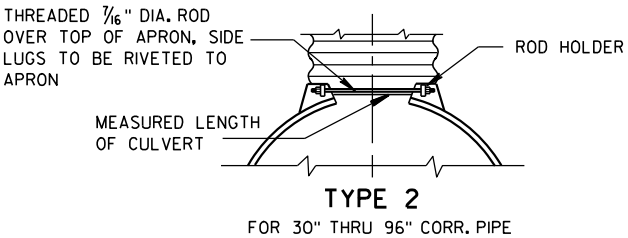
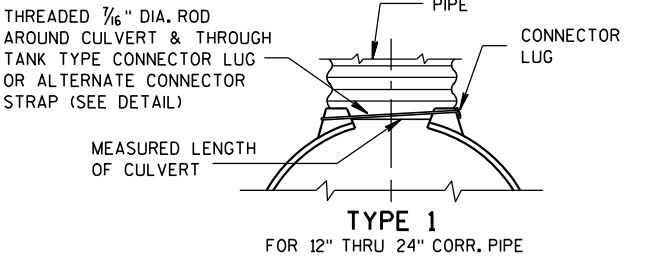


LONGITUDINAL SECTION
CONCRETE ENDWALLS

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



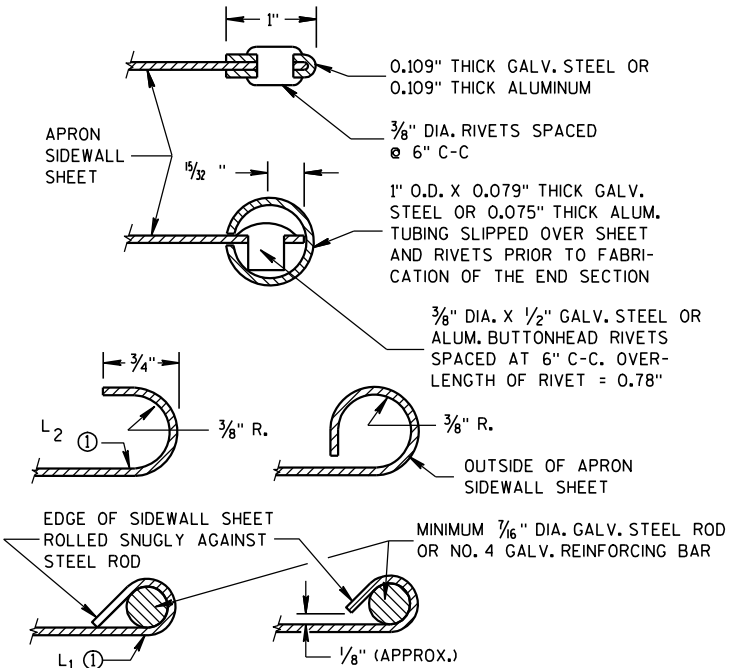
NOTE: DIMPLED BAND FITS OVER OUTSIDE OF ENDWALL, AND CORRUGATED BAND FITS INSIDE ENDWALL. DIMPLED BAND MAY BE USED WITH HELICALLY CORRUGATED PIPE.

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.

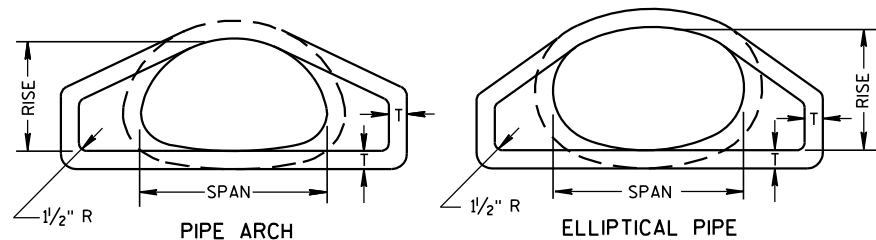
ALL THREE PIECE STEEL APRON ENDWALLS FOR 60" DIAMETER PIPE AND LARGER SHALL HAVE 0.109" SIDES AND 0.138" CENTER PANELS. ALL THREE PIECE ALUMINUM APRON ENDWALLS FOR 60" DIAMETER PIPE AND LARGER SHALL HAVE 0.105" SIDES AND 0.134" CENTER PANELS. THE WIDTH OF CENTER PANELS SHALL BE GREATER THAN 20 PERCENT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

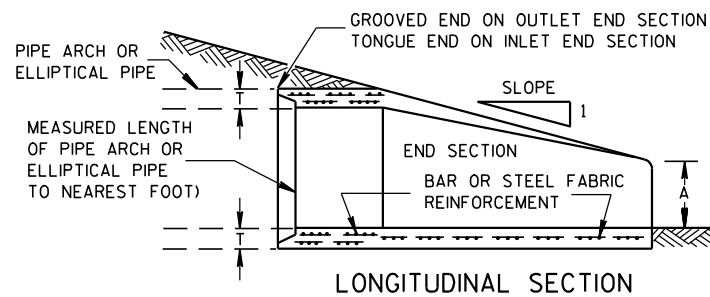
WHERE TWO OR MORE PIPES WITH APRON ENDWALLS ARE LAID ADJACENT TO EACH OTHER, THEY SHALL BE SEPARATED BY A DISTANCE SUFFICIENT TO PROVIDE A MINIMUM CLEARANCE OF 6 INCHES BETWEEN APRON ENDWALLS.

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. Rhinehart CHIEF ROADWAY DEVELOP	71	NEER
FHWA			

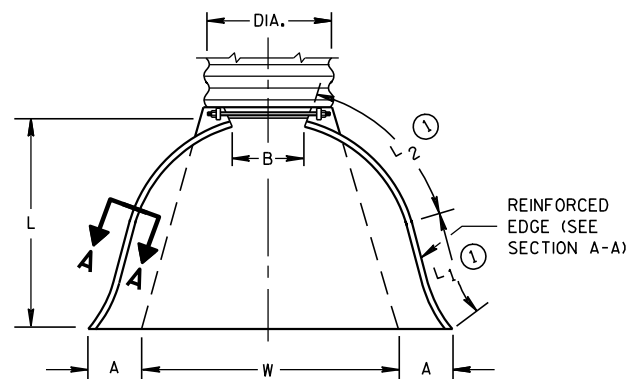


END VIEW



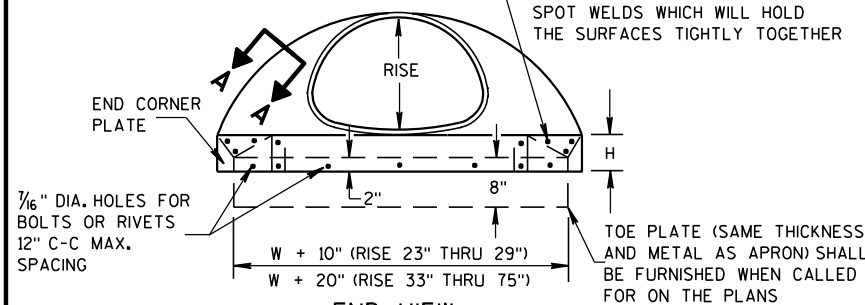
LONGITUDINAL SECTION

CONCRETE ENDWALLS

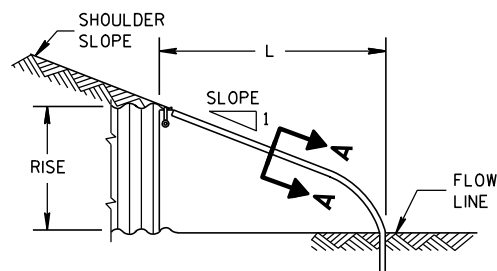
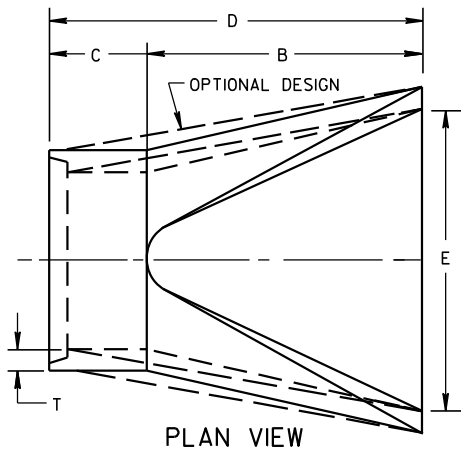


PLAN VIEW

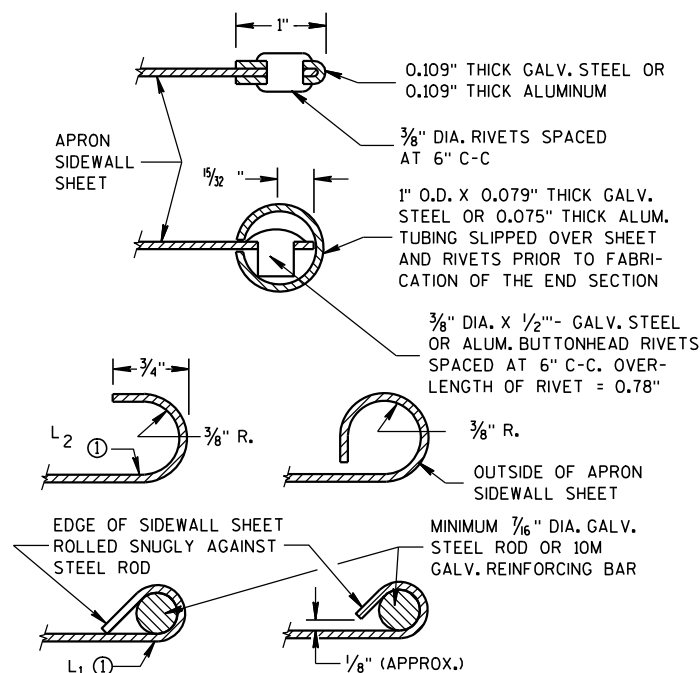
END CORNER PLATES MAY BE FASTENED TO APRON PROPER BY BOLTS, RIVETS, OR RESISTANCE SPOT WELDS WHICH WILL HOLD THE SURFACES TIGHTLY TOGETHER



END VIEW

SIDE ELEVATION
METAL ENDWALLS

PLAN VIEW

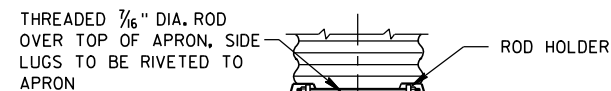


SECTION A-A

2- 2 ² / ₃ " x 1 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 ")	L ₁ ①	L ₂ 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.

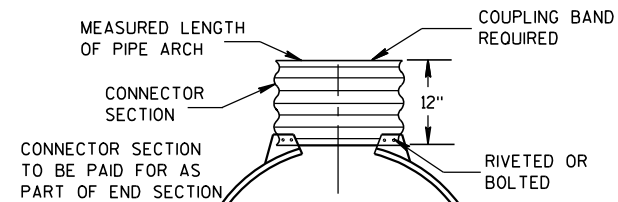
3" X 1" CORRUGATIONS													
EQUIV. DIA. (Inches)	(Inches)		MIN. THICK. (Inches)		DIMENSIONS (Inches)							APPROX. SLOPE	BODY
	SPAN	RISE	STEEL	ALUM.	A (±1")	B (MAX.)	H (±1")	L (±1 1/2")	L ₁ ⓪	L ₂ ⓪	W (±2")		
48	53	41	.109	.105	18	26	12	63	24	72¾	90	2½ to 1	2 Pc.
54	60	46	.109	.105	18	30	12	70	30	82¼	102	2 to 1	2 Pc.
60	66	51	.109*	.105*	18	33	12	77	—	—	114	1½ to 1	3 Pc.
66	73	55	.109*	.105*	18	36	12	77	—	—	126	1½ 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	1½ to 1	3 Pc.
84	95	67	.109*	.105*	22	34	12	77	—	—	162	1½ to 1	3 Pc.
90	103	71	.109*	.105*	22	38	12	77	—	—	174	1½ to 1	3 Pc.
96	112	75	.109*	.105*	24	40	12	77	—	—	174	1½ to 1	3 Pc.

NOTE: ALL SPLICES TO BE LAP RIVETED OR BOLTED.

* EXCEPT CENTER PANEL
SEE GENERAL NOTES

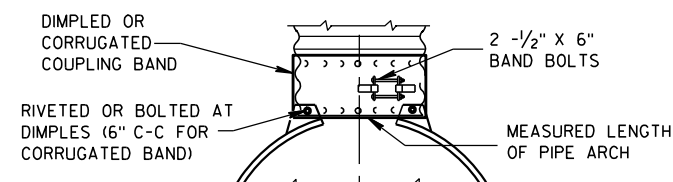
TYPE 2

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

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

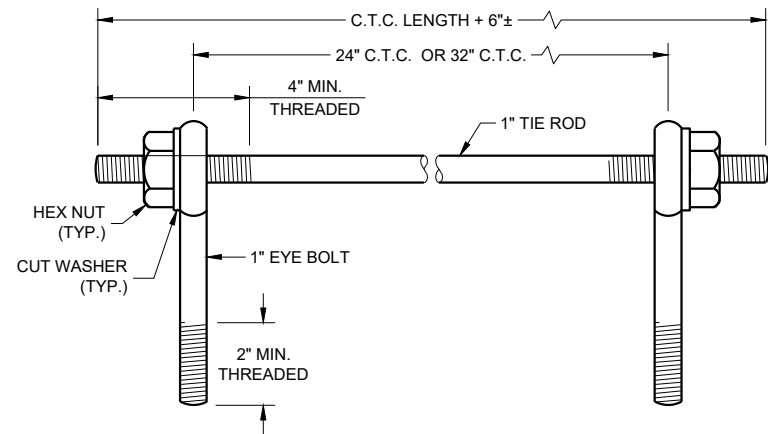
DATE

/S/ Rory L. Rhinehart

CHIEF ROADWAY DEVELOPER

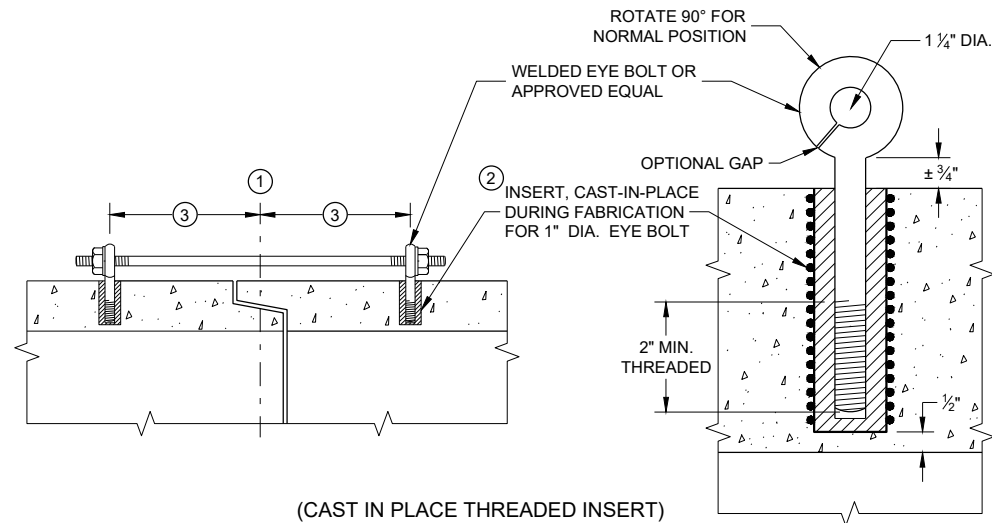
FHWA

ENGINEER



EYE BOLTS AND TIE ROD

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



(CAST IN PLACE THREADED INSERT)

LONGITUDINAL SECTIONS

GENERAL NOTES

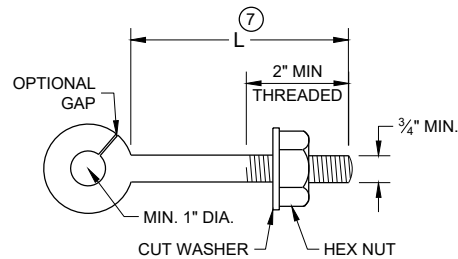
DETAILS OF CONSTRUCTION, MATERIALS, AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

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.

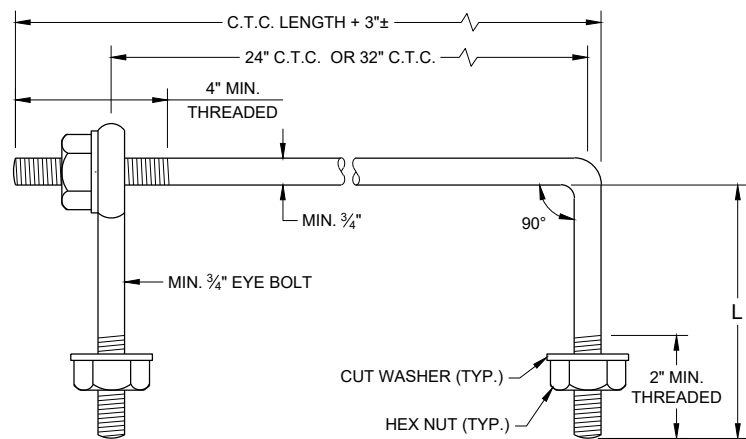
JOINT TIES TO BE HOT-DIP GALVANIZED PER ASTM A 153.

- 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.

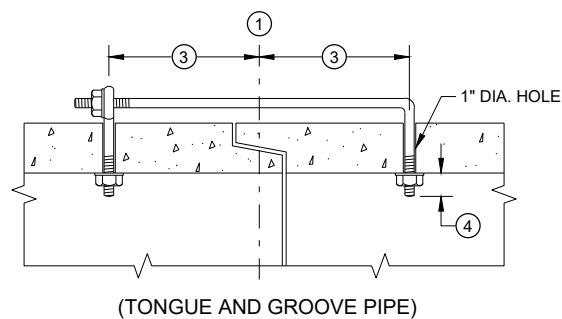


EYE BOLT 7

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

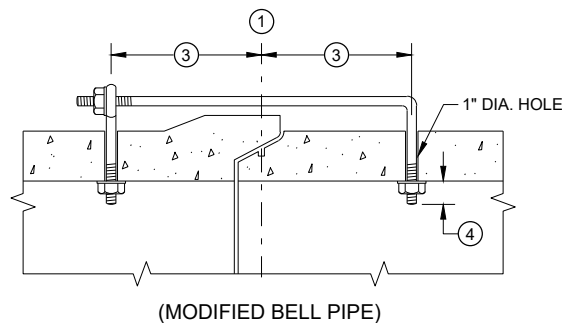


EYE BOLT AND TIE ROD



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

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

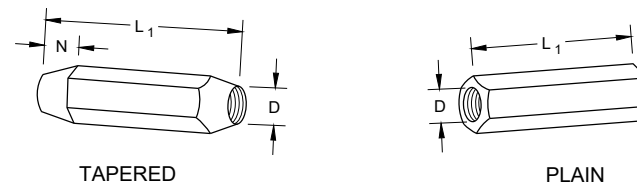


(MODIFIED BELL PIPE)

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

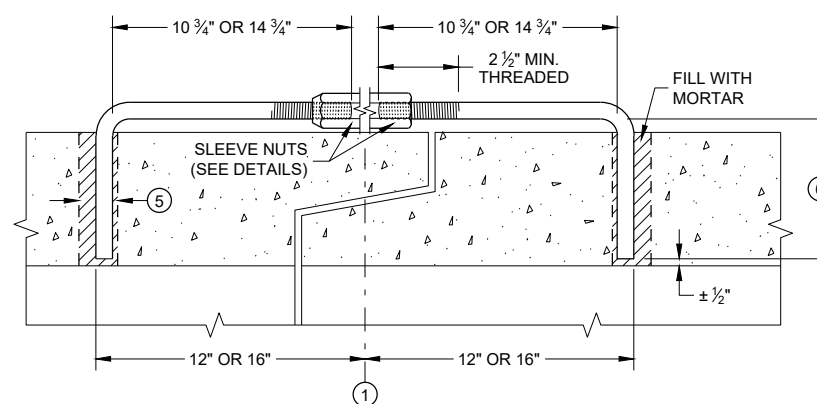
DIMENSIONS SHOWN ARE IN INCHES



TAPERED

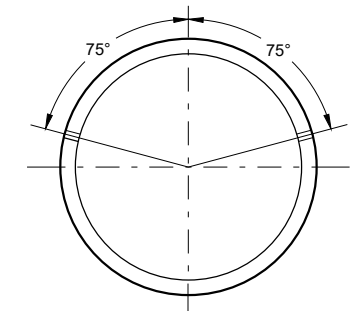
PLAIN

RIGHT AND LEFT THREADS
SLEEVE NUTS



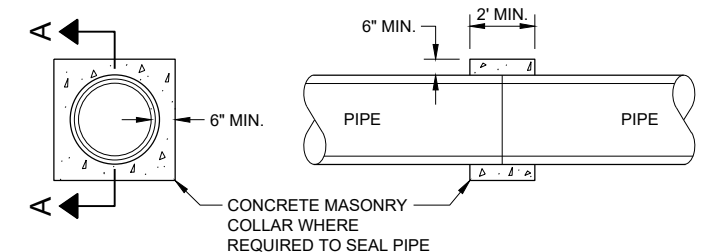
LONGITUDINAL SECTION

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

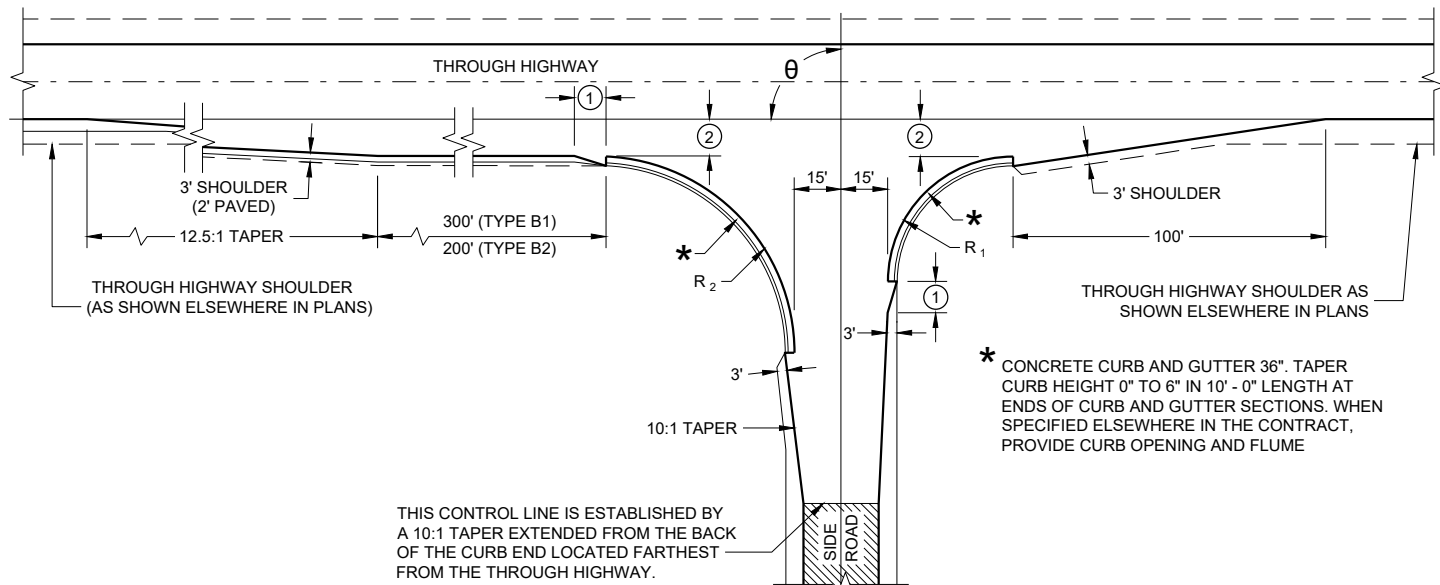


SECTION A - A
CONCRETE COLLAR DETAIL

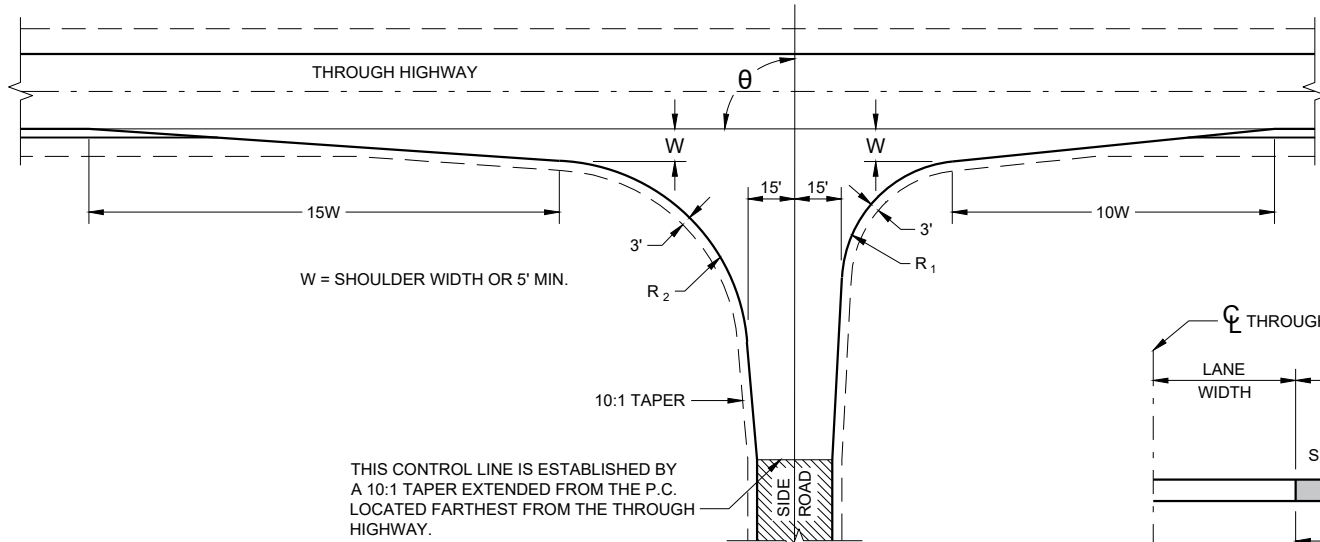
JOINT TIES FOR CONCRETE PIPE AND CONCRETE COLLAR DETAIL

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DEPARTMENT OF TRANSPORTATION

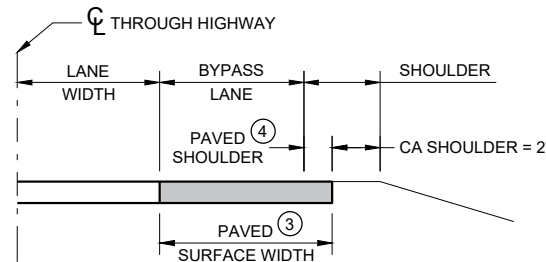
APPROVED
November 2021 DATE /S/ Rodney Taylor
ROADWAY STANDARDS DEVELOPMENT ENGINEER 73
FHWA



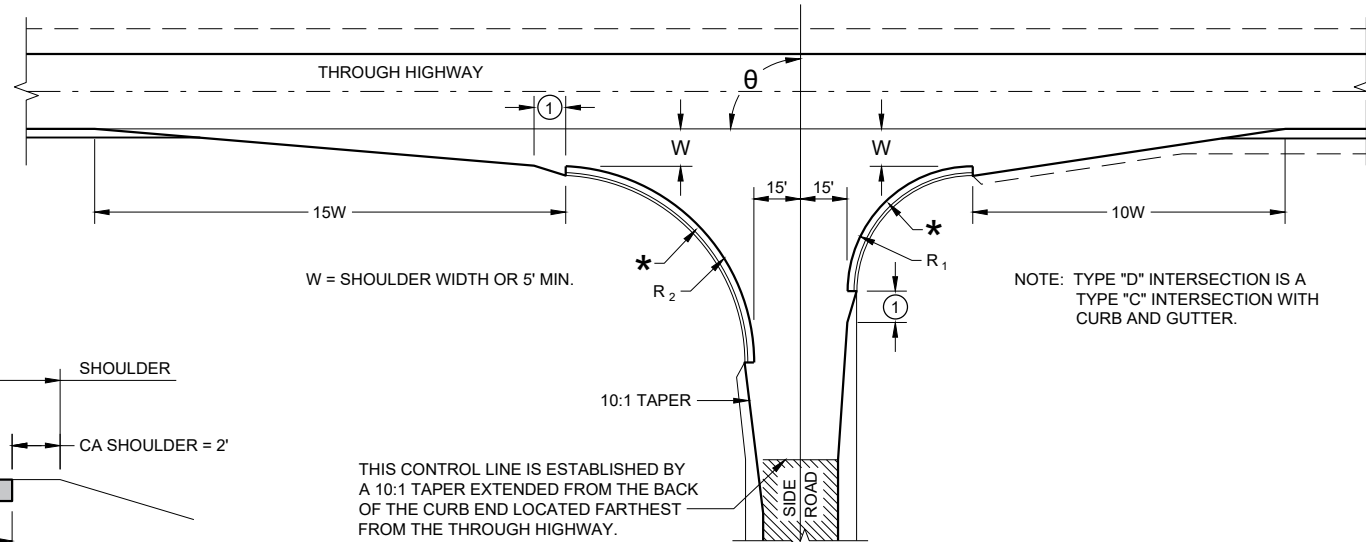
TYPE "B1" AND "B2"



TYPE "C"



SECTION A - A
(SHOWING BYPASS LANE AND SHOULDER)



TYPE "D"

RADII DIMENSIONS FOR TYPES "B1",
"B2", "C" AND "D" INTERSECTIONS

θ	R_1	R_2
65 - 70	35	70
71 - 80	40	70
81 - 90	40	60
91 - 100	50	55
101 - 110	60	45

GENERAL NOTES

DESIGNS MAY BE USED INTERCHANGEABLY IN COMBINATION OR SEPARATELY FOR ANY ONE COMPLETE INTERSECTION DEPENDING UPON INTERSECTION ANGLE AND SURFACING OF EACH APPROACH ROADWAY.

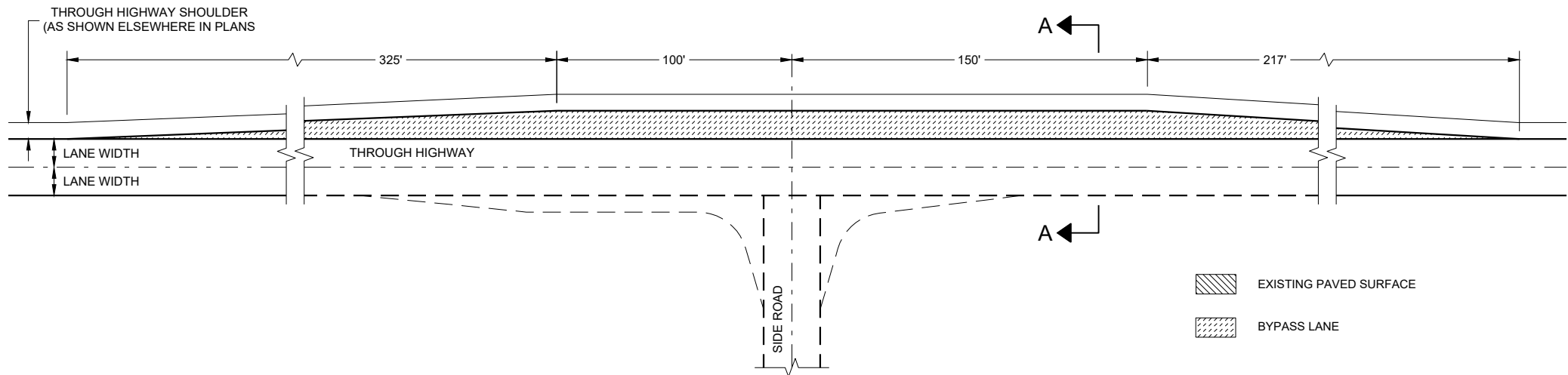
SIDE ROAD SURFACING NOTE

WHEN THE SIDE ROAD IS NOT PRESENTLY PAVED, PAVEMENT SHALL BE PLACED TO THE LIMITS SHOWN UNLESS OTHERWISE PROVIDED IN THE CONTRACT. WHERE THE CONSTRUCTION LIMITS ARE BEYOND THE PAVING LIMITS, CRUSHED AGGREGATE SURFACING SHALL BE PLACED BETWEEN THE PAVING LIMITS AND CONSTRUCTION LIMITS.

WHEN THE SIDE ROAD IS PRESENTLY PAVED, NEW PAVEMENT SHALL BE PLACED TO THE LIMITS OF DESIGN AS SHOWN AND BEYOND, IF NECESSARY, TO MEET EXISTING PAVEMENT.

WHEN THE SIDE ROAD IS THE CONSTRUCTION PROJECT, THE INTERSECTION SURFACING SHALL BE THE SAME AS FOR THE PROJECT.

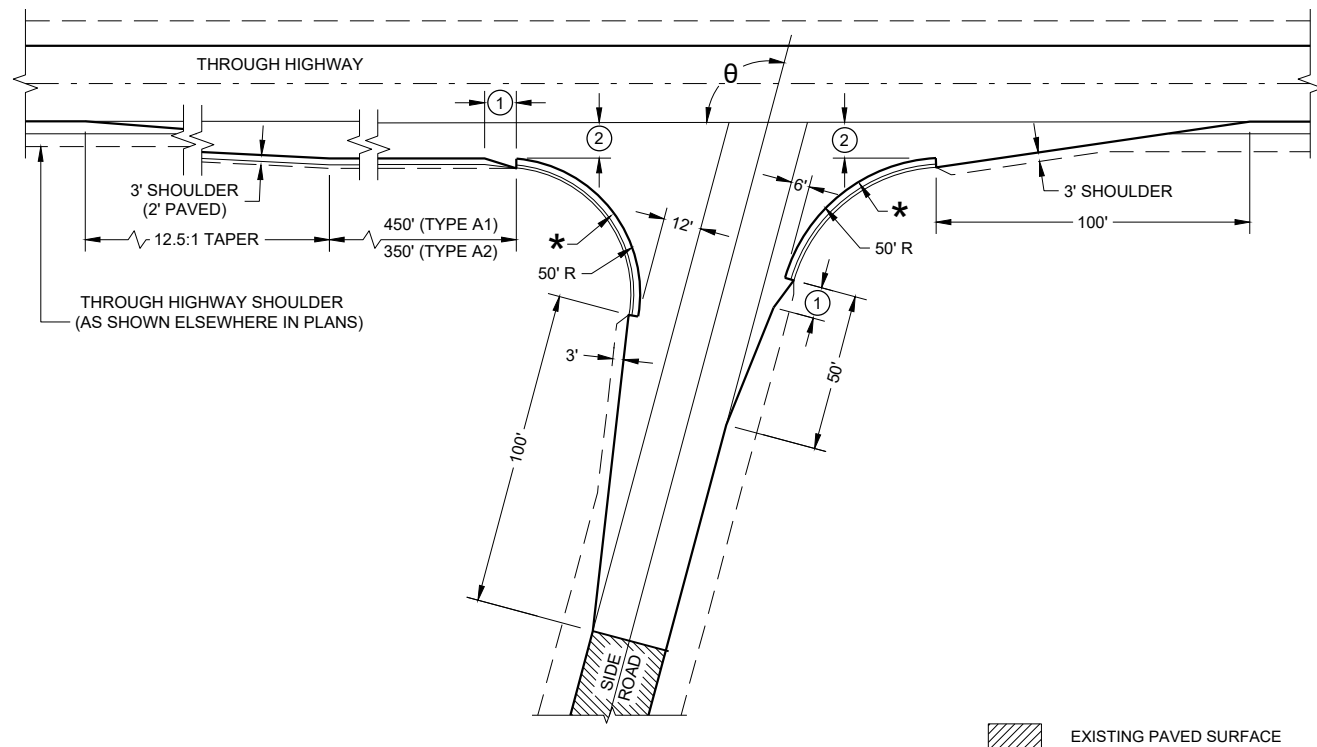
- ① 10-FT TYPICAL.
- ② 12-FT** PLUS ADDITIONAL WIDTH FOR BIKE LANE IF SHOWN ELSEWHERE IN THE PLAN.
** 10-FT MAY BE USED ON TYPE B2 ON RESURFACING PROJECTS IF SPECIFIED IN THE CONTRACT.
- ③ BYPASS LANE PAVED SURFACE WIDTH OUTSIDE OF TRAVEL LANE
- ASPHALT = 12-FT PLUS PAVED SHOULDER WIDTH
- PC CONCRETE = 13-FT PLUS PAVED SHOULDER WIDTH
- ④ BYPASS LANE PAVED SHOULDER WIDTH = THE GREATER OF 1-FT OR THE PAVED SHOULDER WIDTH OF THE THROUGH HIGHWAY.



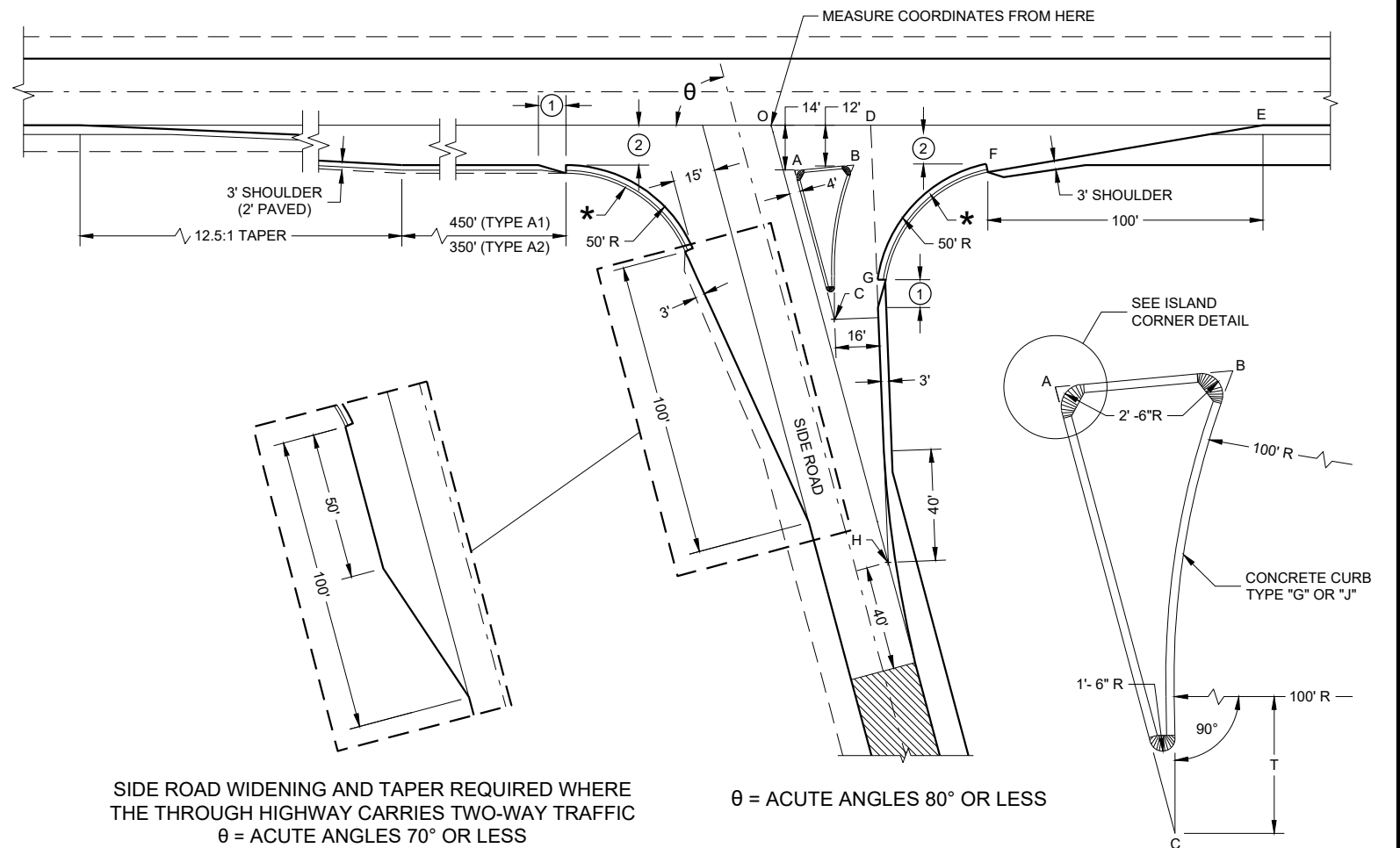
TEE INTERSECTION BYPASS LANE DETAIL

AT GRADE SIDE ROAD
INTERSECTION TYPES "B1",
"B2", "C", "D" AND TEE
INTERSECTION BYPASS LANE

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DEPARTMENT OF TRANSPORTATION 74

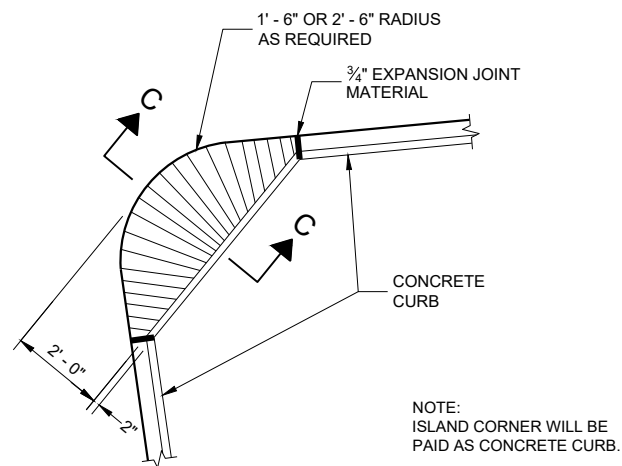


$\theta = \text{MORE THAN } 80^\circ$

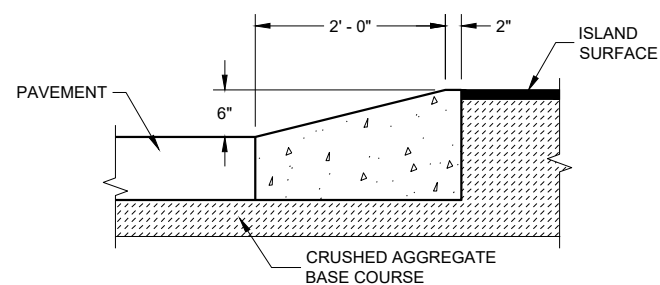


SIDE ROAD WIDENING AND TAPER REQUIRED WHERE THE THROUGH HIGHWAY CARRIES TWO-WAY TRAFFIC
 $\theta = \text{ACUTE ANGLES } 70^\circ \text{ OR LESS}$

$\theta = \text{ACUTE ANGLES } 80^\circ \text{ OR LESS}$



PLAN VIEW



SECTION C - C

ISLAND CORNER DETAIL
(TO BE CONSTRUCTED AT ALL ISLAND CORNERS)

TABLE OF DIMENSIONS FOR VARIABLE SIDE ROAD INTERSECTION ANGLES
(INTERPOLATE VALUES FOR ANGLES NOT SHOWN)

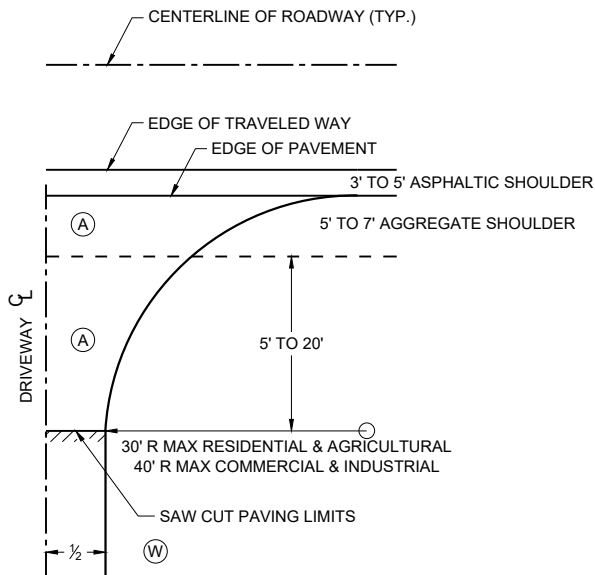
ANGLE θ DEGREES	COORDINATES IN FEET (MEASURED FROM POINT 'O')								LENGTH IN FEET				
	A	B	C	D	E	F	G	H	AB	AC	T	OJ	OH
60	12.7 -14.0	44.9 -12.0	46.4 -72.4	41.9 0.0	205.0 0.0	104.6 -12.0	64.0 -75.5	85.0 -147.1	32.3	67.4	4.9	85.9	169.9
65	10.9 -14.0	39.0 -12.0	37.8 -71.6	39.4 0.0	196.1 0.0	95.7 -12.0	54.1 -71.5	70.5 -151.3	28.2	63.6	8.5	80.9	166.9
70	9.4 -14.0	33.9 -12.0	29.8 -70.1	37.4 0.0	188.3 0.0	87.8 -12.0	45.6 -67.5	56.1 -154.2	24.6	59.7	11.5	76.1	164.1
75	7.9 -14.0	29.3 -12.0	22.3 -67.9	35.7 0.0	181.2 0.0	80.7 -12.0	38.2 -63.4	41.8 -155.9	21.5	55.8	13.8	71.4	161.4
80	6.5 -14.0	25.4 -12.0	15.6 -65.2	34.4 0.0	174.8 0.0	74.4 -12.0	31.8 -59.3	27.6 -156.5	18.9	52.0	15.6	66.9	158.9

TYPE 'A1" AND "A2" SIDE ROAD INTERSECTION DETAILS

AT GRADE SIDE ROAD
INTERSECTIONS
TYPES "A1" AND "A2"

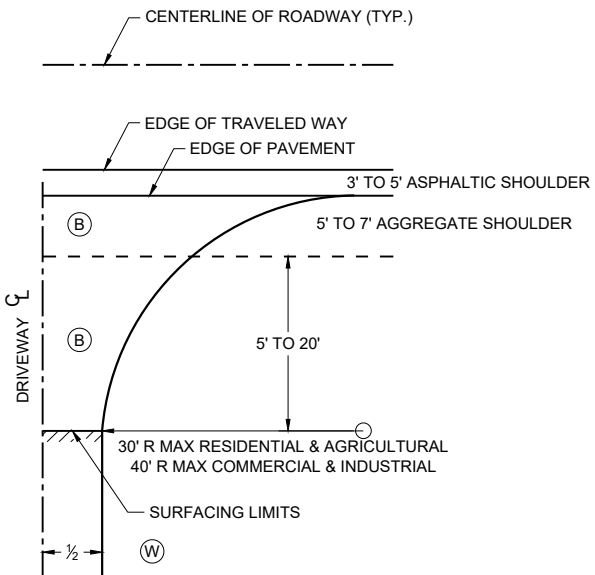
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
November 2022
DATE
/S/ John Jenkins
ROADWAY STANDARDS DEVELOPMENT ENGINEER
75
FHWA

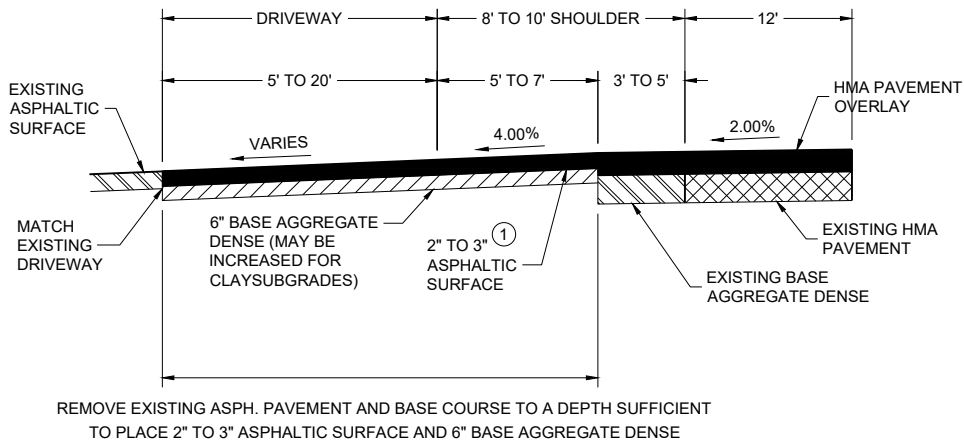


PLAN VIEW
HALF SECTION

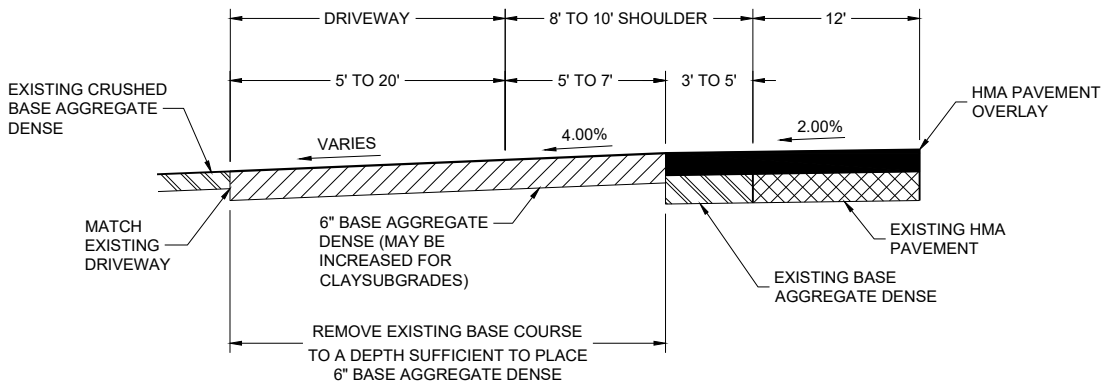
- (A) : PAID FOR AS ASPHALTIC SURFACE DRIVEWAYS
AND FIELD ENTRANCES. (TON)
- (B) : PAID FOR AS BASE AGGREGATE DENSE 1 1/4" (TON)
- (W) : DRIVEWAY WIDTHS (MEASURED AT ROW LINE)
~ COMMERCIAL & INDUSTRIAL 16' MIN. - 35' MAX.
~ RESIDENTIAL & AGRICULTURAL 16' MIN. - 24' MAX.
(NONCOMMERCIAL)



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

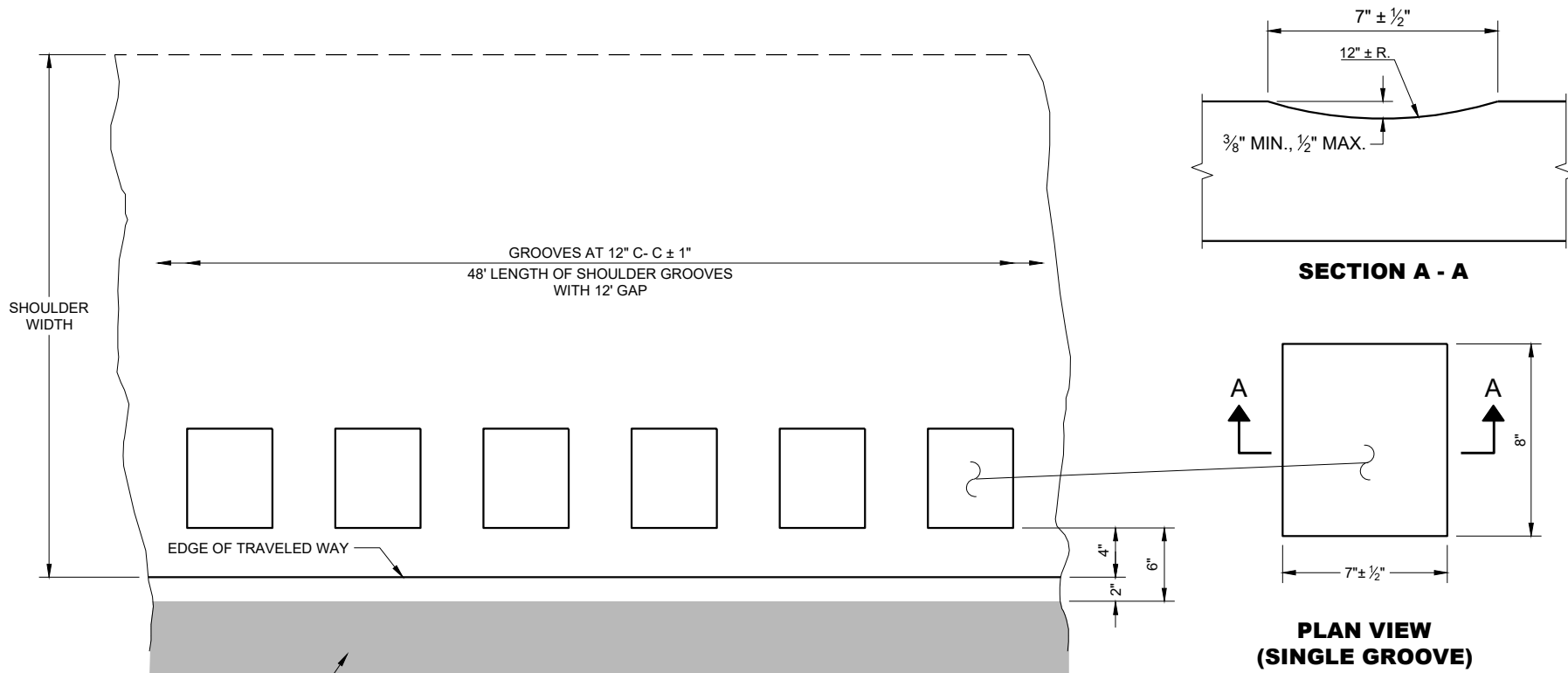
- ① DESIGN WILL DETERMINE FINAL DRIVEWAY ASPHALTIC THICKNESS
BASED ON TYPE OF USAGE AND LOADINGS.

DRIVEWAYS WITHOUT CURB
AND GUTTER RESURFACING
PROJECTS RURAL

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DEPARTMENT OF TRANSPORTATION

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

FHWA

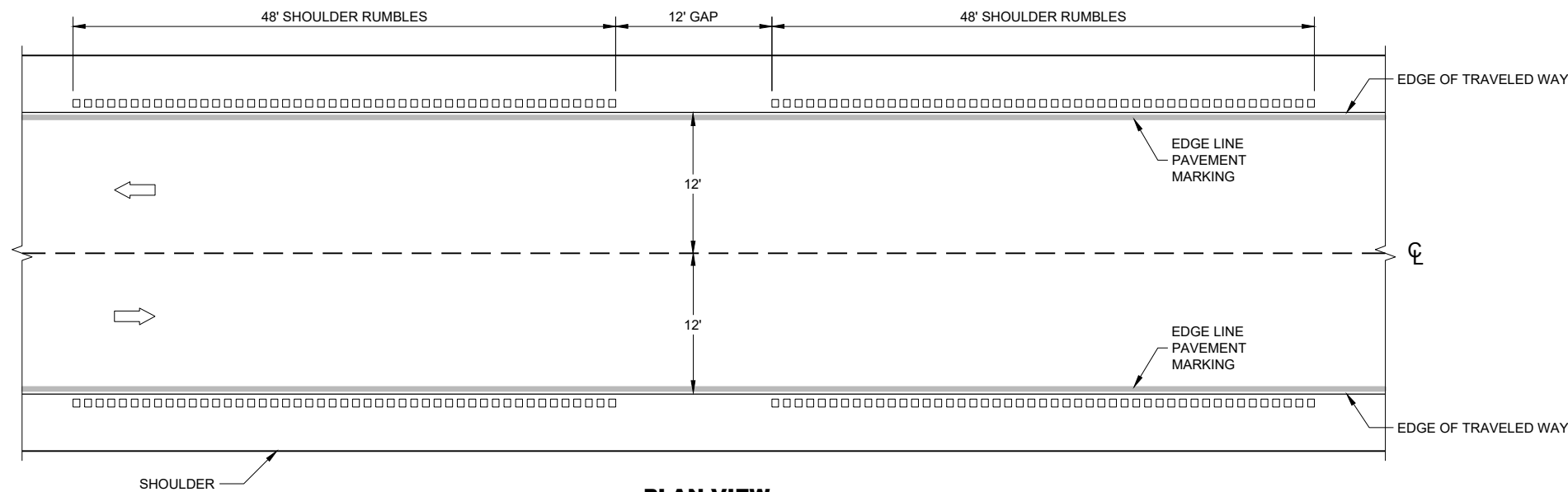
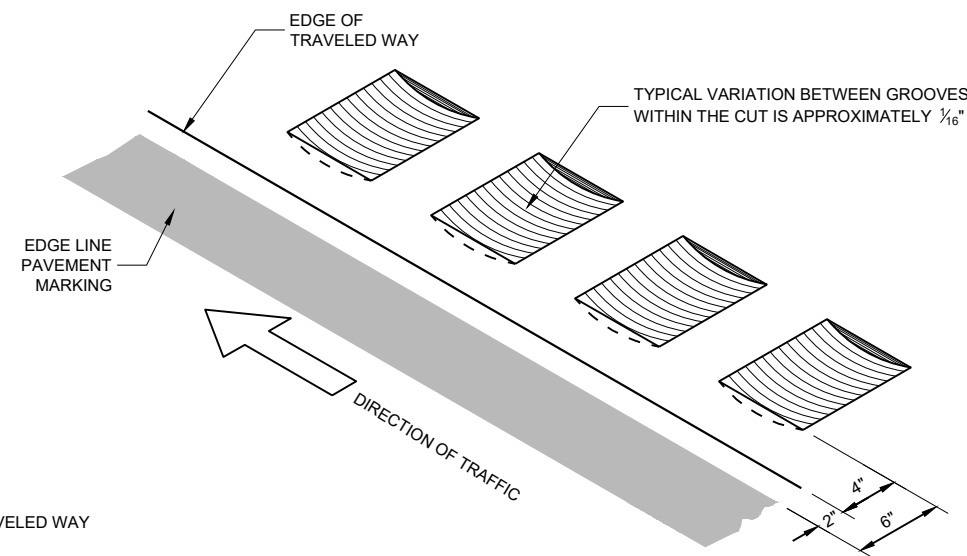


PLAN DETAIL VIEW
SHOULDER WITH GROOVES

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.

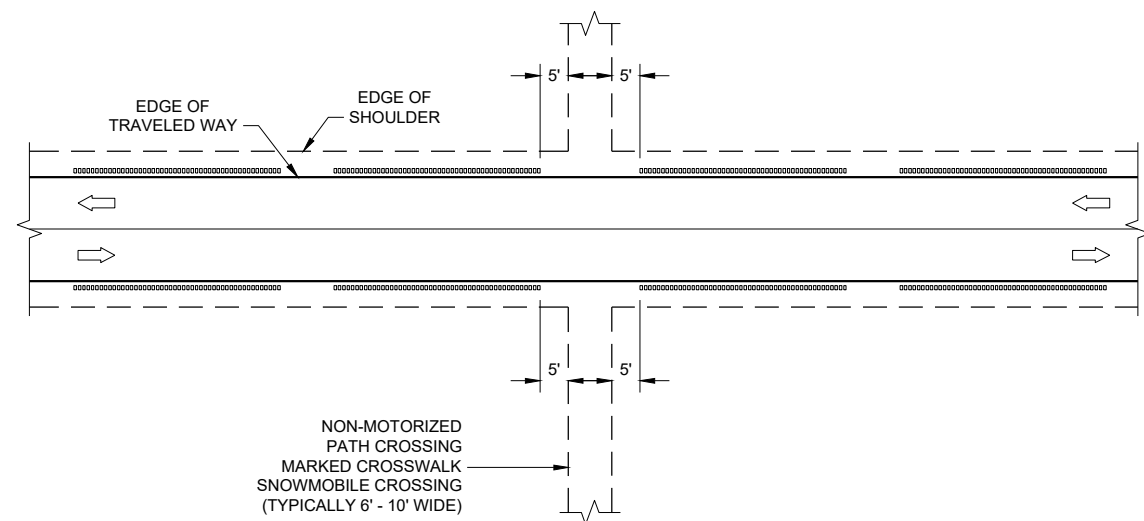


PLAN VIEW

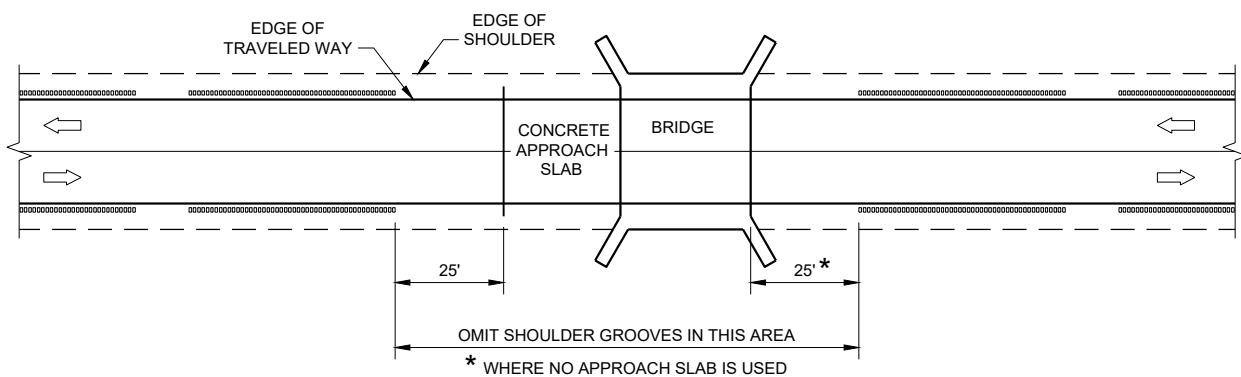
SHOULDER RUMBLE STRIPS - ASPHALT

SHOULDER RUMBLE
STRIPS ASPHALT

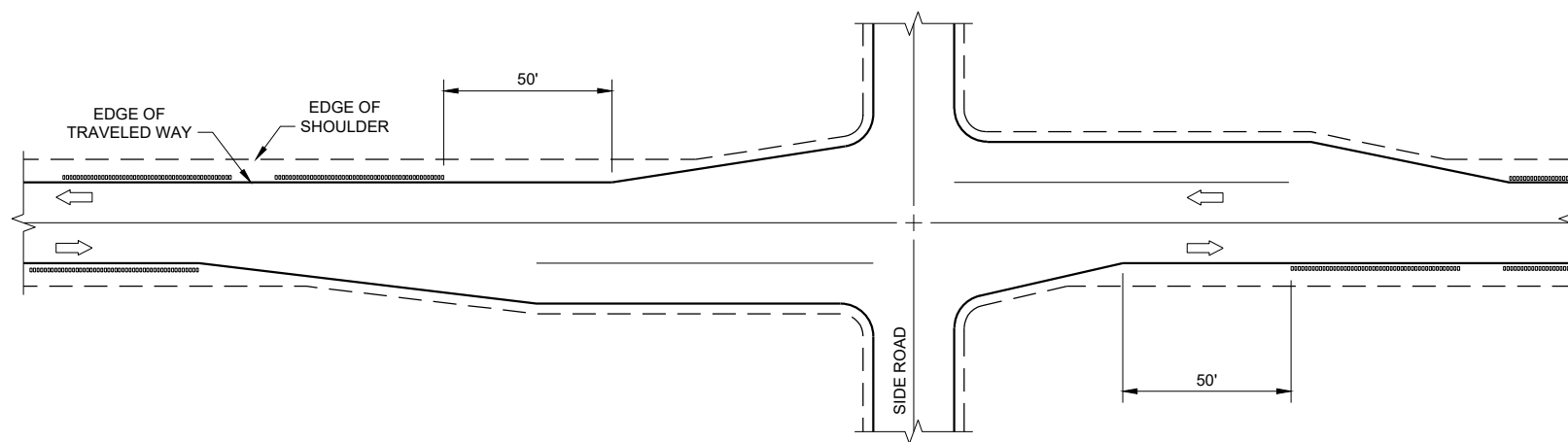
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION 77



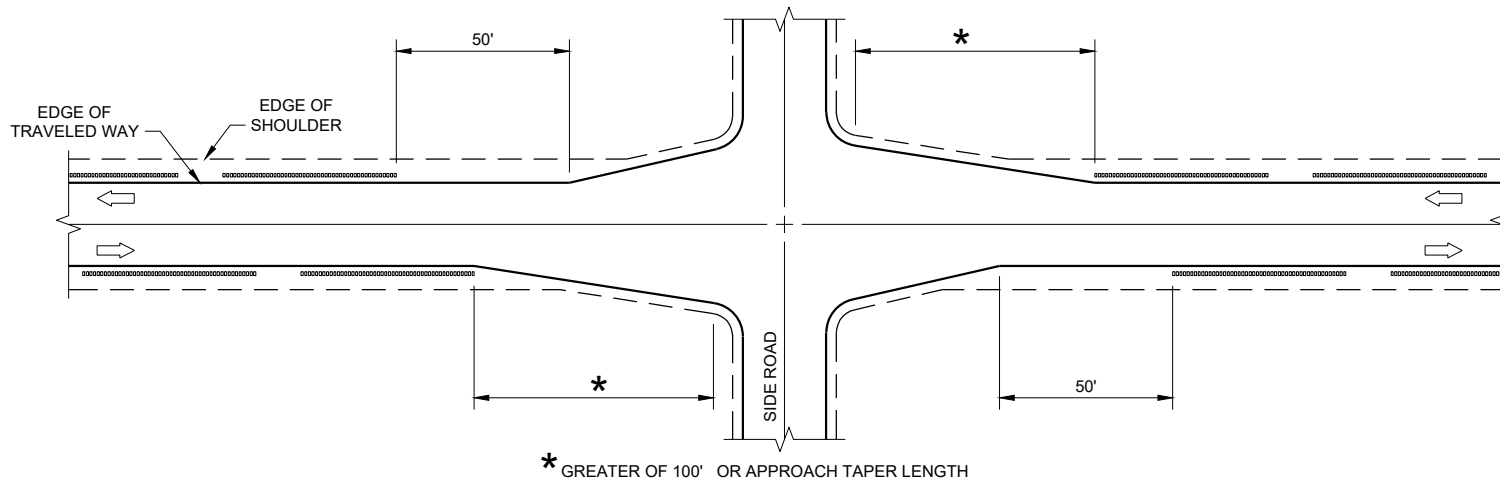
GROOVES AT MISCELLANEOUS CROSSINGS



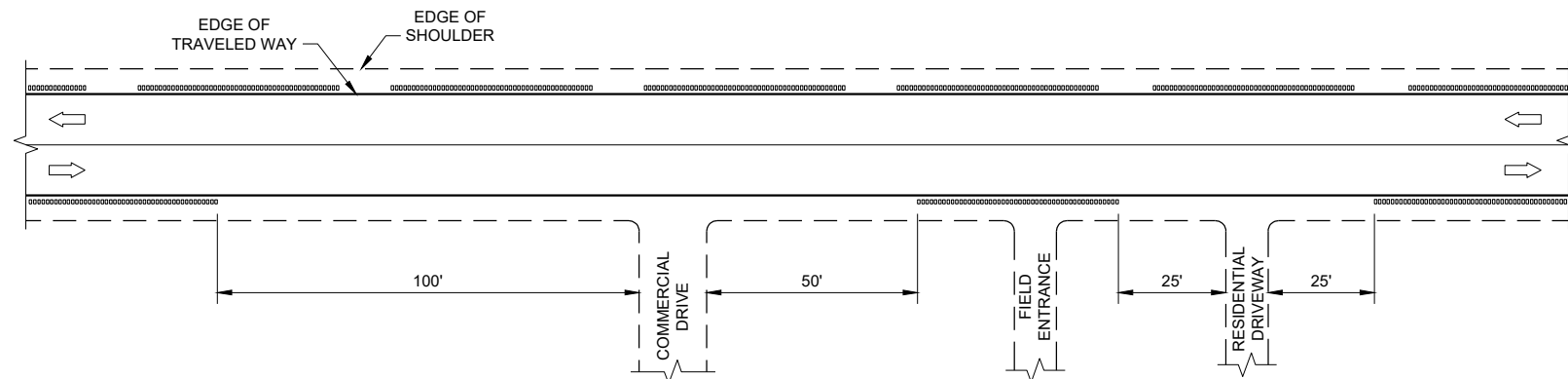
GROOVES AT BRIDGES



GROOVES AT RIGHT TURN LANE



GROOVES AT INTERSECTIONS WITH APPROACH TAPER



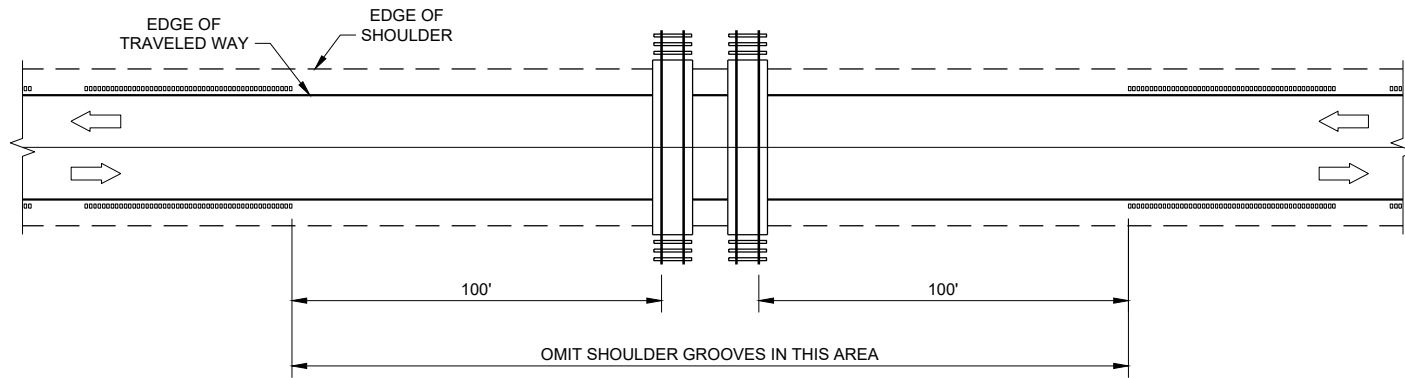
GROOVES AT DRIVEWAYS

GENERAL NOTES

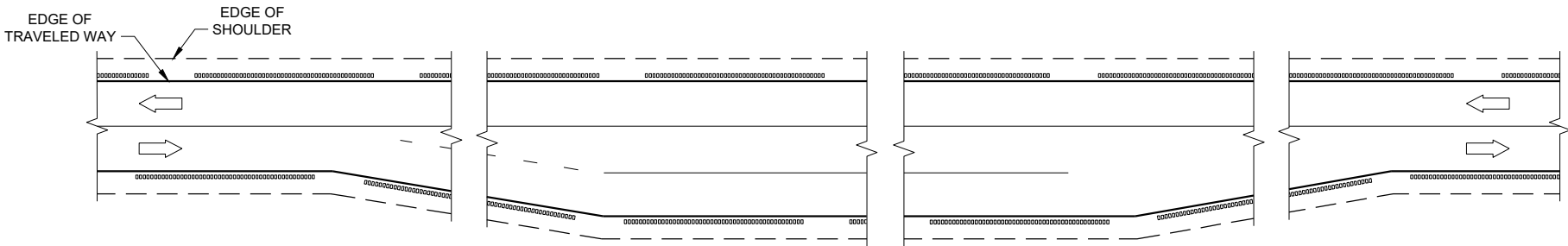
- ① SHOULDER GROOVES MAY BE OMITTED IN AREAS WITH HIGH CONCENTRATIONS OF DRIVEWAYS. WHEN DIRECTED BY THE ENGINEER.

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

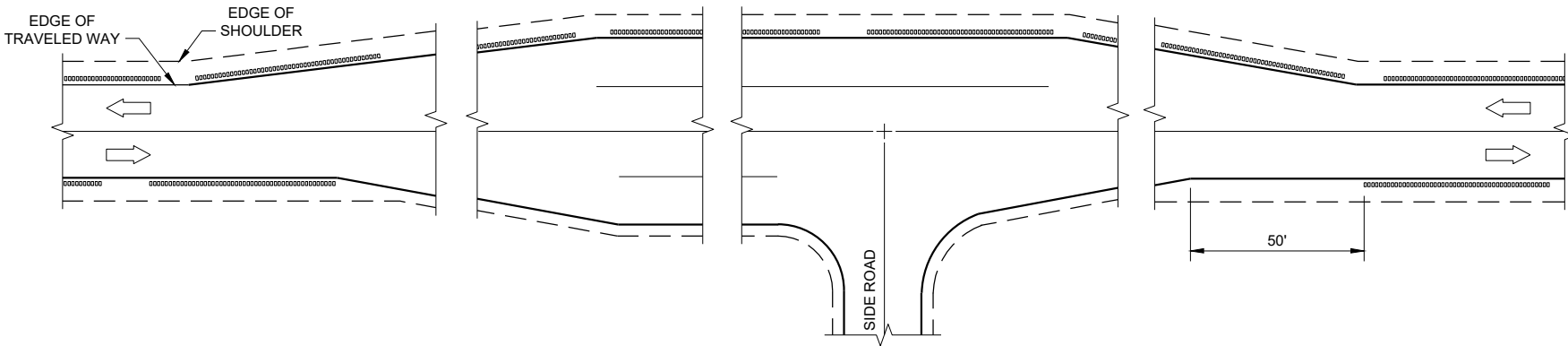
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION 78



GROOVES AT RAILROADS



GROOVES AT PASSING AND CLIMBING LANES



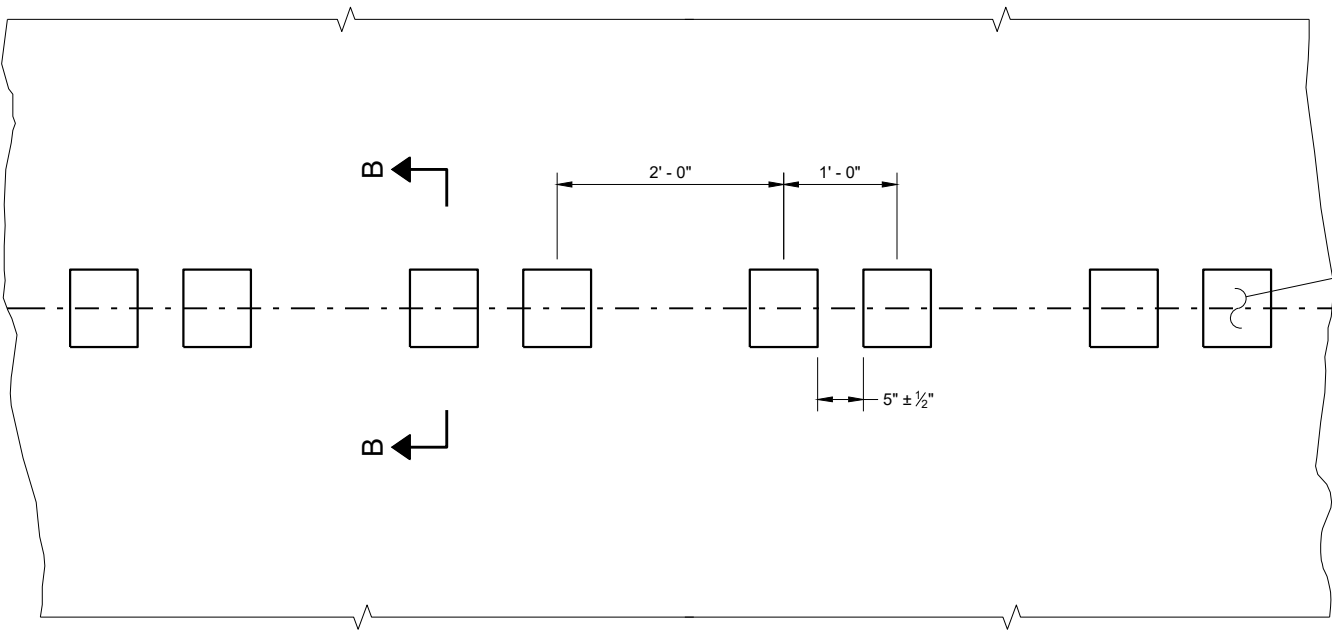
GROOVES AT BYPASS LANES

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

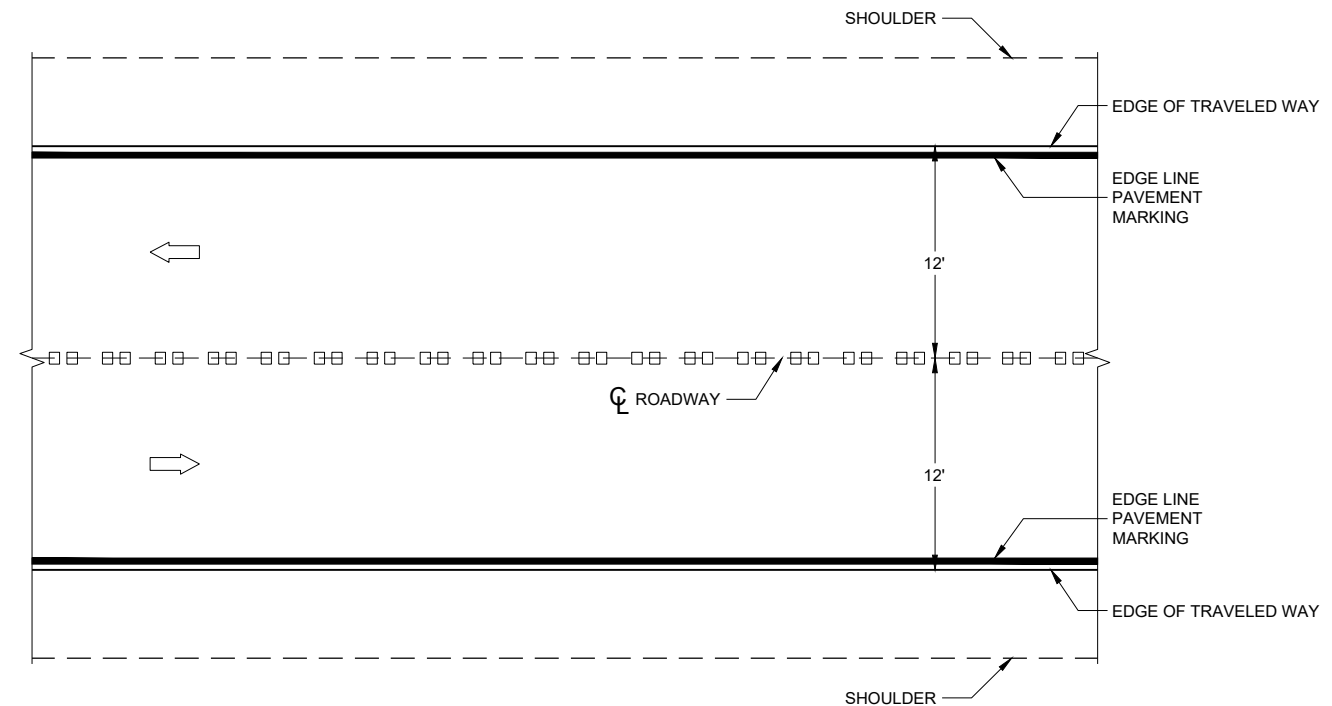
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED	/S/ John Jenkins
May 2023	ROADWAY STANDARDS DEVELOPMENT ENGINEER
DATE	79

FHWA

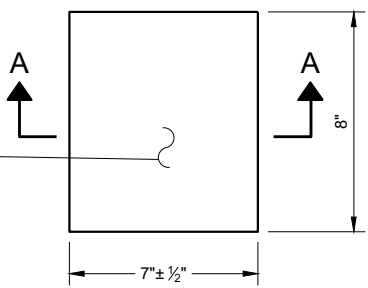


PLAN DETAIL VIEW

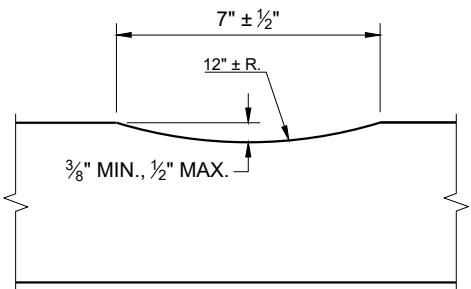


PLAN VIEW

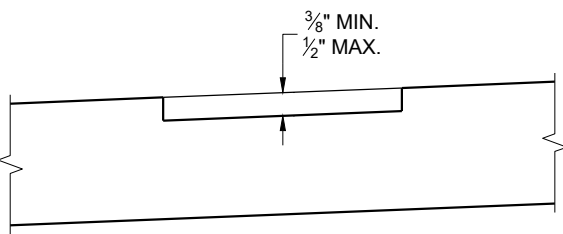
CENTERLINE RUMBLE STRIPS - ASPHALT



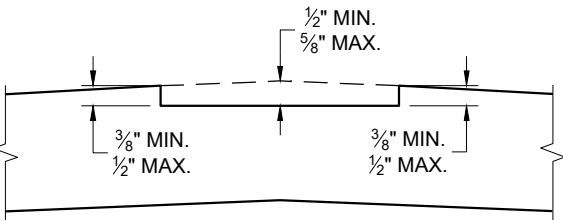
PLAN VIEW
(SINGLE GROOVE)



SECTION A - A



SECTION B - B
SUPERELEVATED ROADWAY

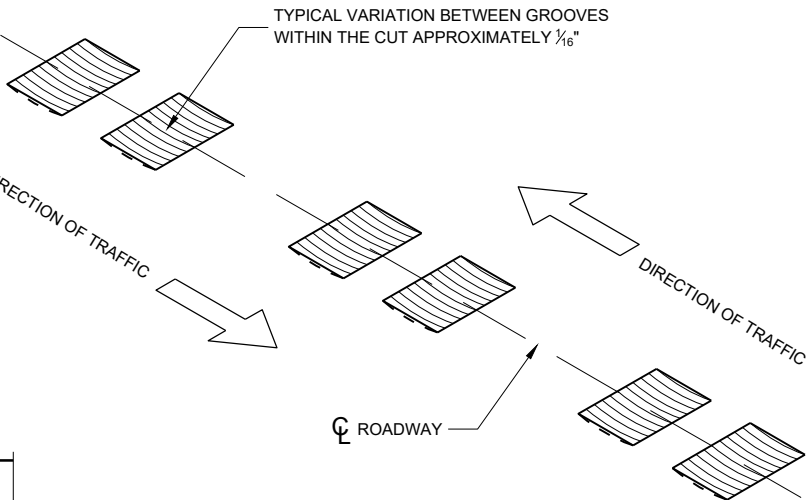


SECTION B - B
CROWNED ROADWAY

GENERAL NOTES

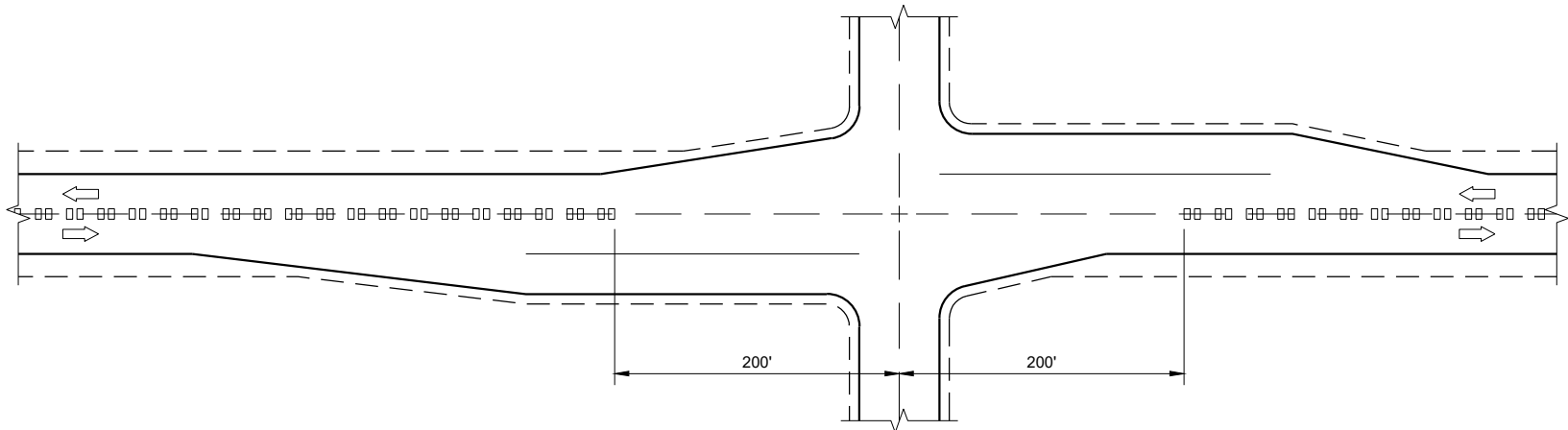
DO NOT MILL SHOULDER GROOVES THROUGH INTERSECTIONS, MARKED CROSSWALKS, NON-MOTORIZED PATH CROSSINGS, ETC. REFER TO SDD 13A11 SHEETS "d" AND "e".

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

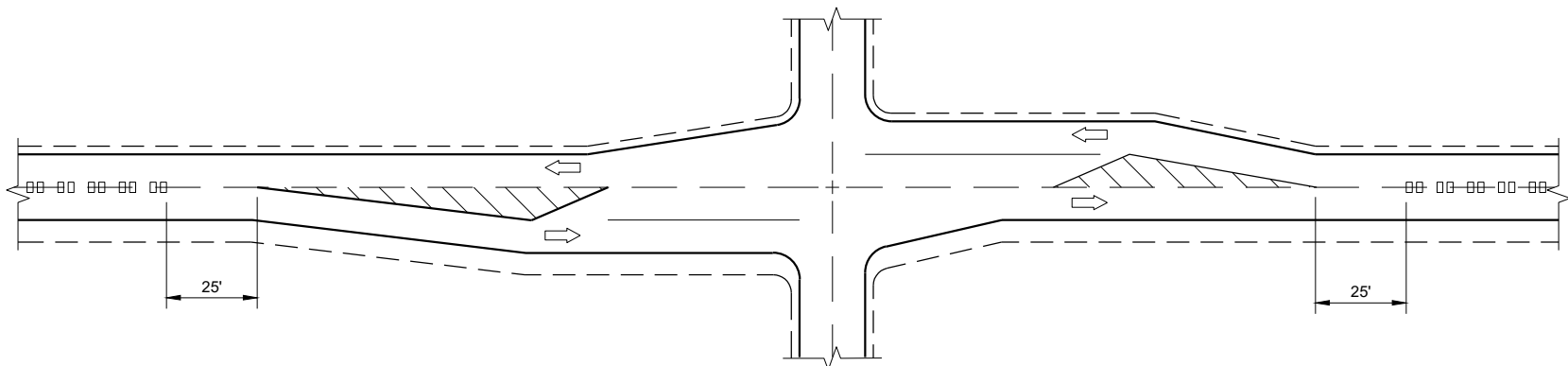


**CENTERLINE RUMBLE
STRIPS - ASPHALT**

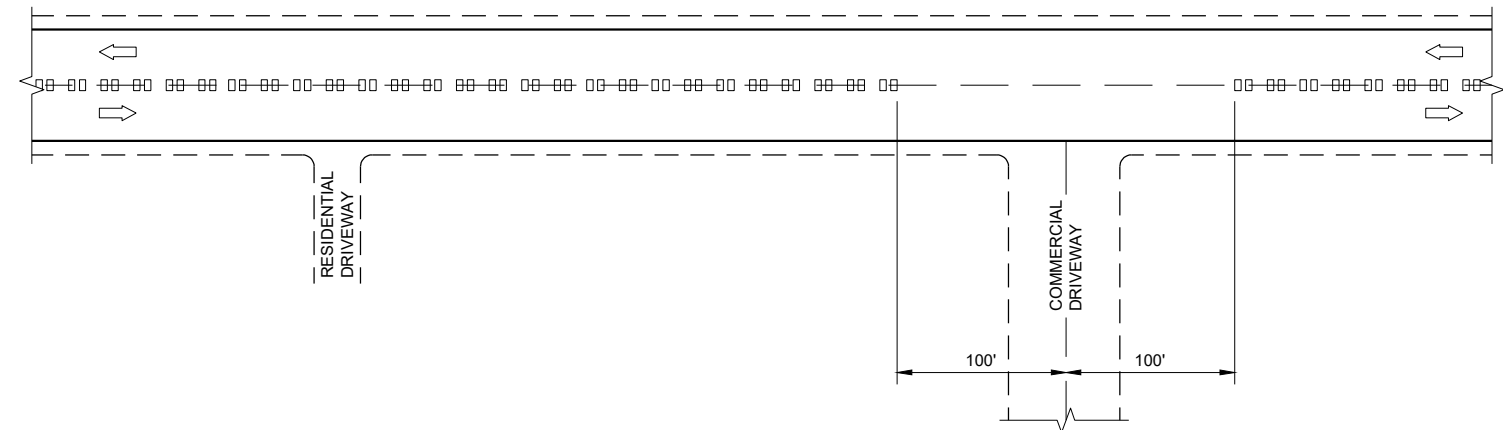
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



CENTERLINE GROOVES AT INTERSECTIONS



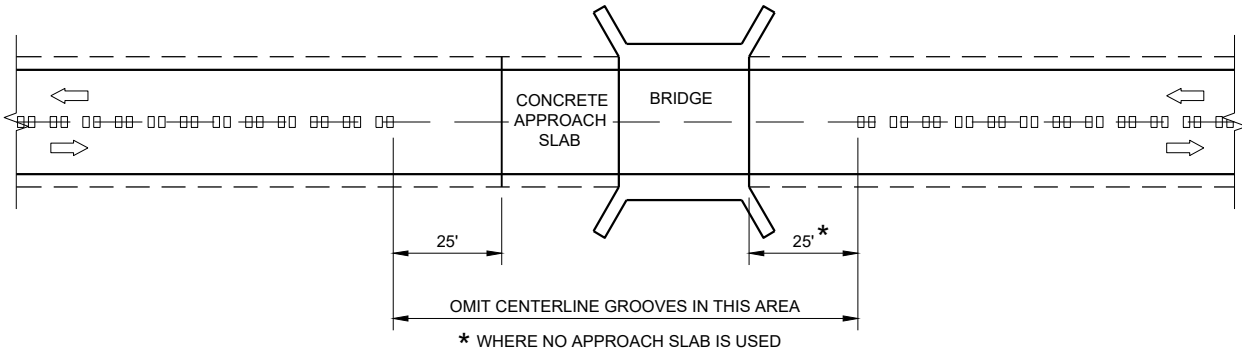
CENTERLINE GROOVES AT INTERSECTIONS
(WITH LEFT TURN LANES)



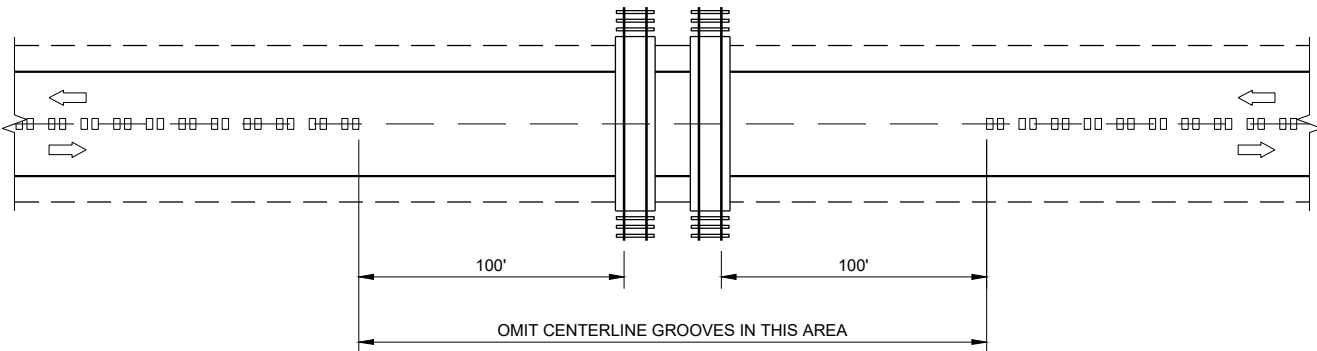
CENTERLINE GROOVES AT DRIVEWAYS^①

GENERAL NOTES

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



CENTERLINE GROOVES AT BRIDGES

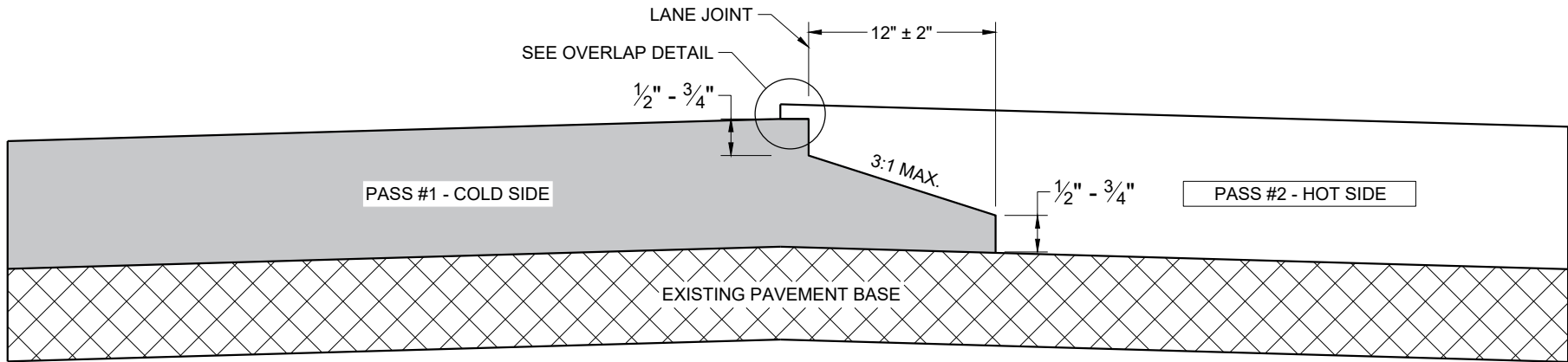


CENTERLINE GROOVES AT RAILROADS

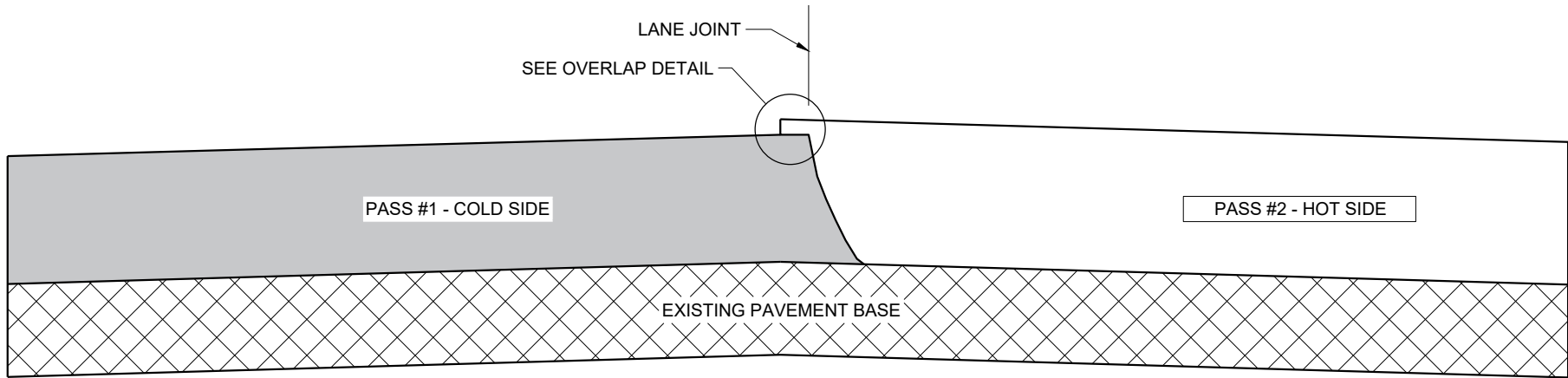
CENTER LINE
RUMBLE STRIPS -
INTERSECTIONS, DRIVEWAYS,
BRIDGES, RAIL ROADS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

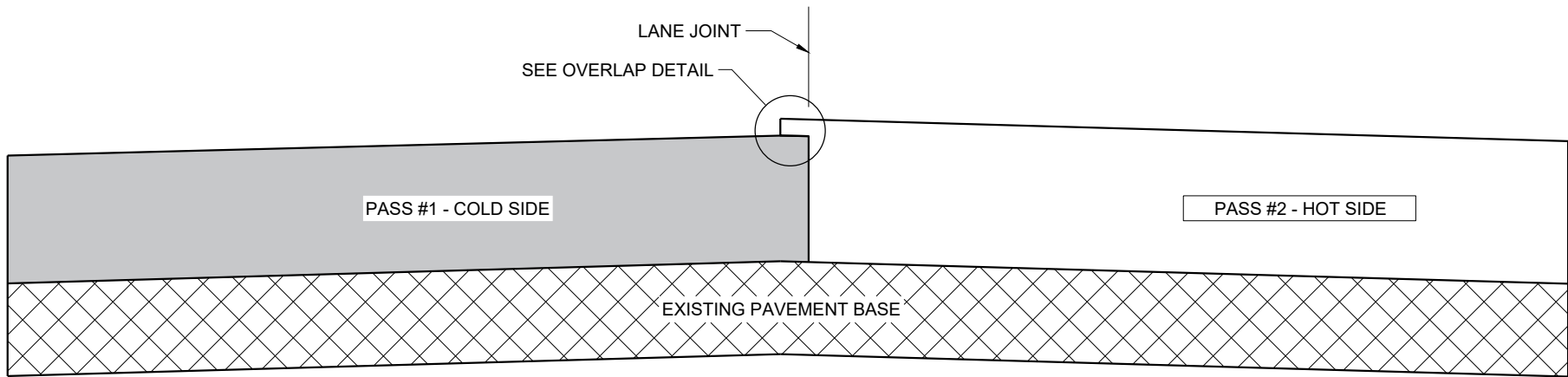
APPROVED
May 2023 /S/ John Jenkins
DATE ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA 81



TYPICAL PAVEMENT CROSS SECTION
NOTCHED WEDGE JOINT



TYPICAL PAVEMENT CROSS SECTION
VERTICAL JOINT



TYPICAL PAVEMENT CROSS SECTION
VERTICAL JOINT (MILLED)

GENERAL NOTES

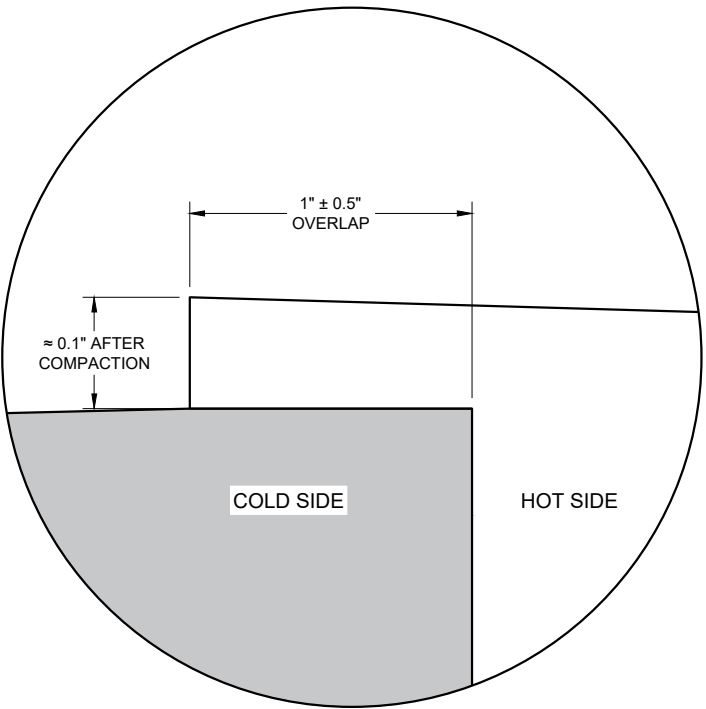
IN ADDITION TO THE DETAILS PROVIDED IN THIS DRAWING, CONFORM TO STANDARD SPECIFICATION 450.3.2.8 FOR WHEN A NOTCHED WEDGE JOINT IS REQUIRED AND FOR GENERAL JOINT CONSTRUCTION REQUIREMENTS.

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.

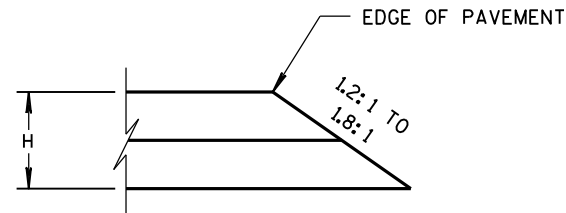


OVERLAP DETAIL (TYPICAL)

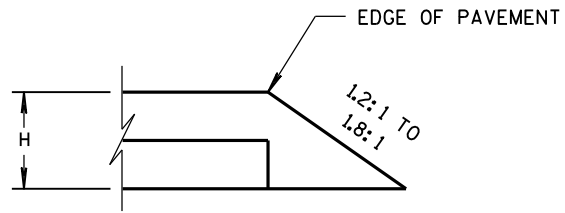
HMA LONGITUDINAL JOINTS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

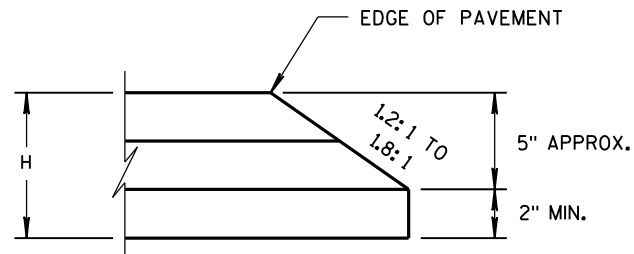
APPROVED
November 2020 /S/ Steven Hefel
DATE HMA PAVEMENT ENGIN 82
FHWA



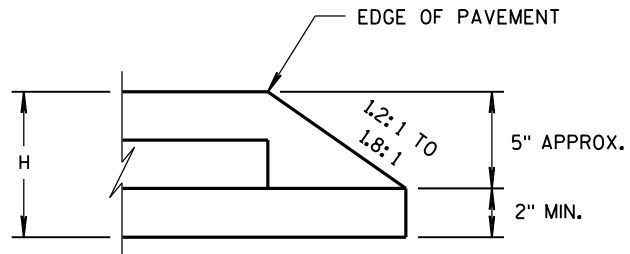
CONSTRUCTED WITH FINAL TWO LAYERS
FOR H 5" OR LESS



CONSTRUCTED WITH FINAL LAYER
FOR H 5" OR LESS

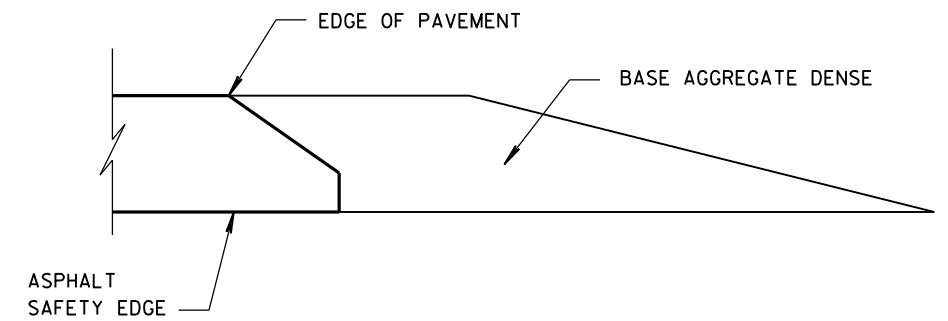


CONSTRUCTED WITH FINAL TWO LAYERS
FOR H GREATER THAN 5"



CONSTRUCTED WITH FINAL LAYER
FOR H GREATER THAN 5"

HMA PAVEMENT AND HMA OVERLAYS



FINISHED SHOULDER AGGREGATE PLACEMENT

SAFETY EDGE_{SM}

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

11/30/2012

DATE

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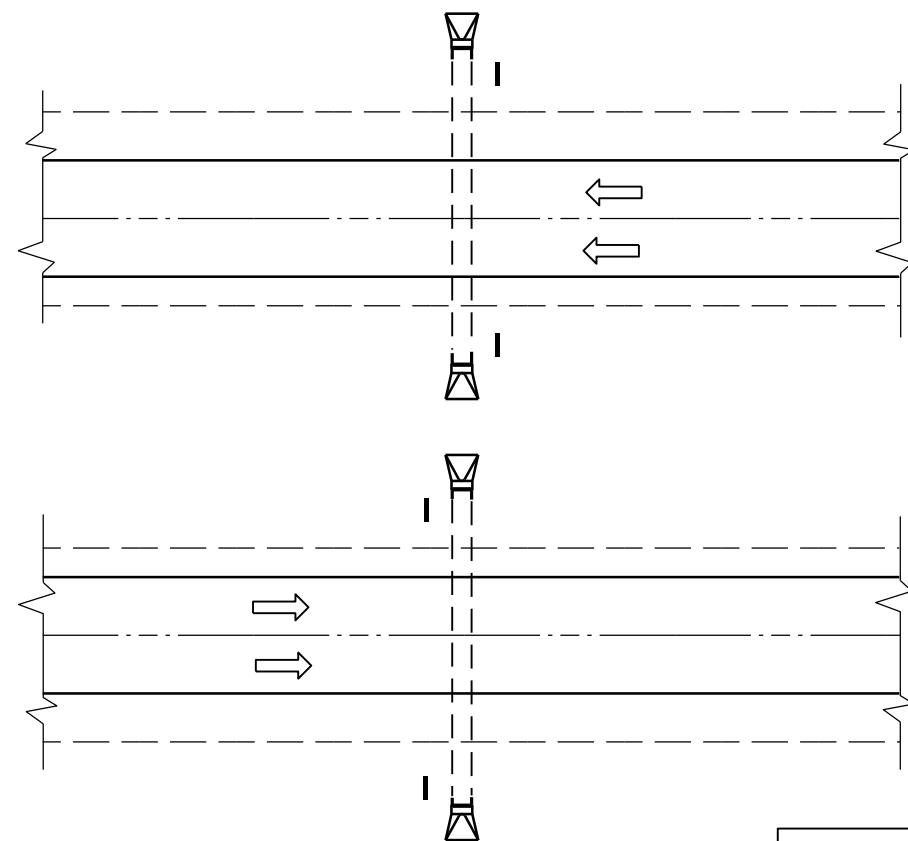
/s/ Jerry H. Zoaga

ROADWAY STANDARDS

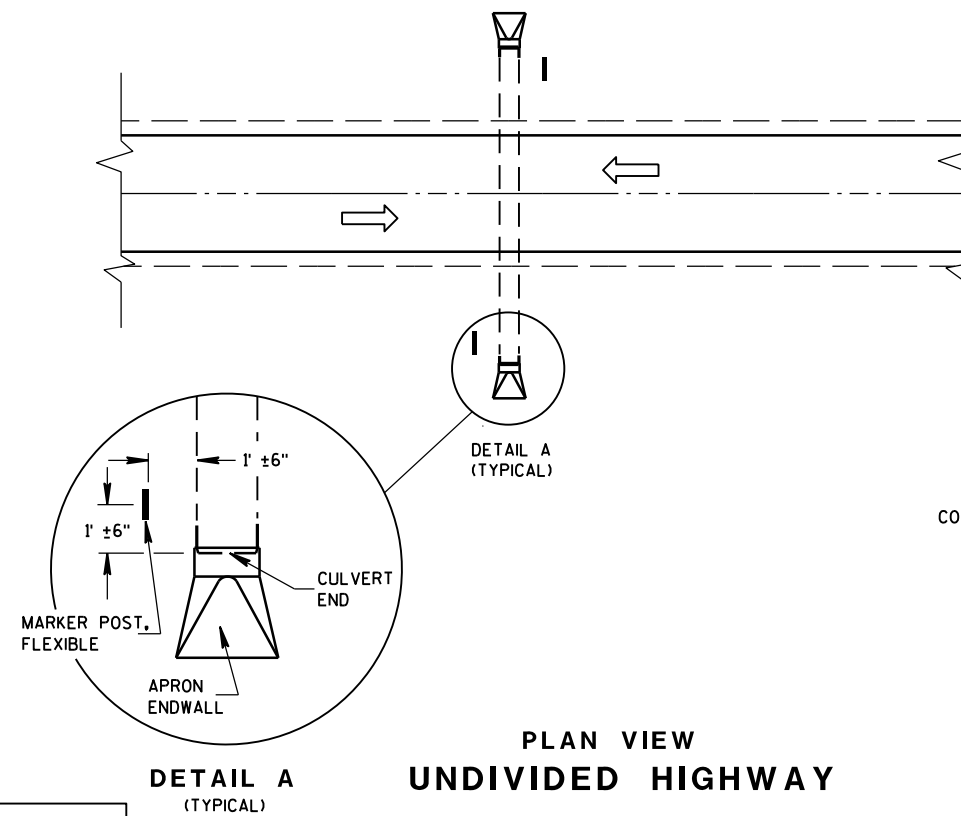
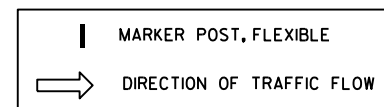
ENGINEER

83

INT



PLAN VIEW
DIVIDED HIGHWAY

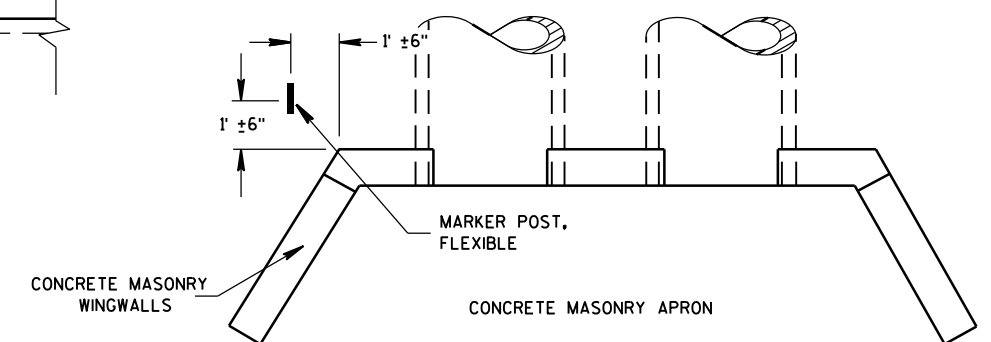


PLAN VIEW
UNDIVIDED HIGHWAY

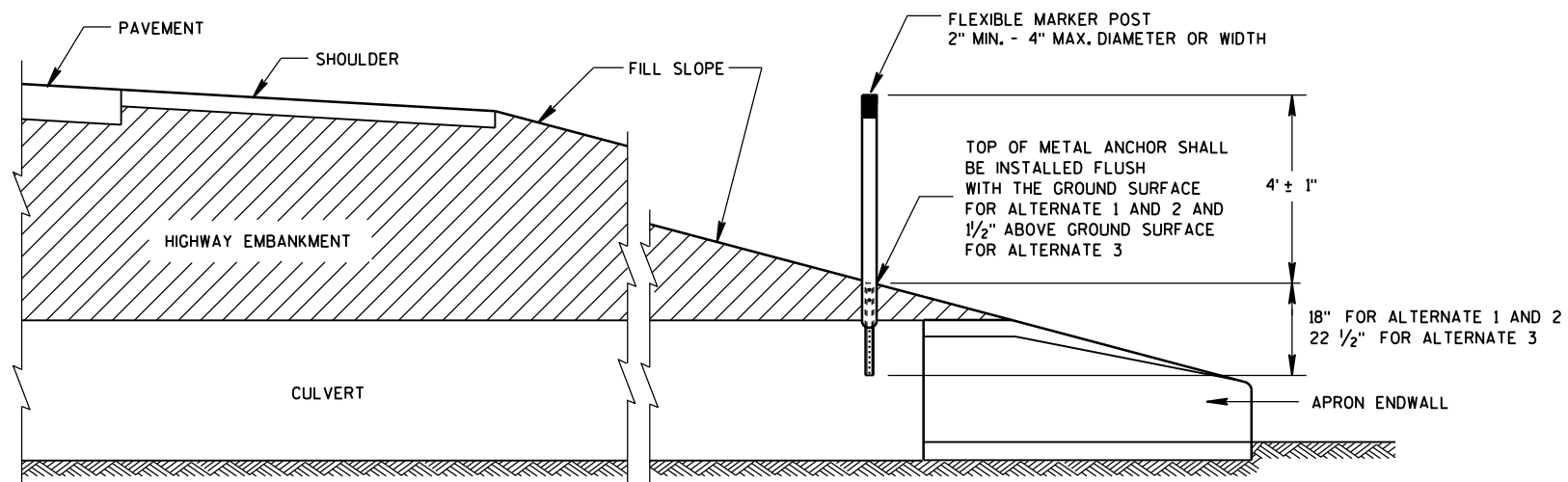
FLEXIBLE MARKER POST LOCATION

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.



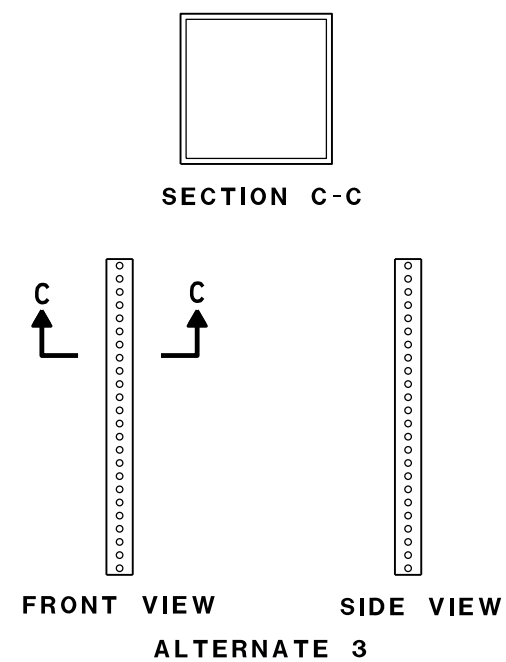
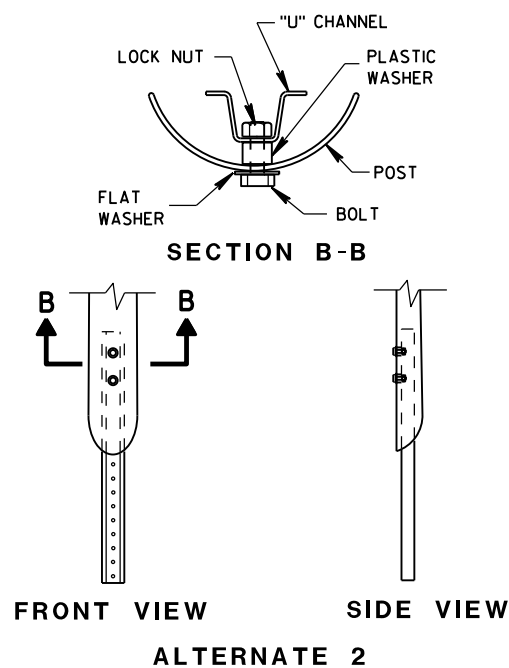
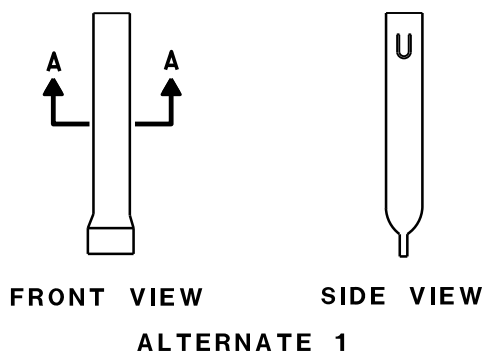
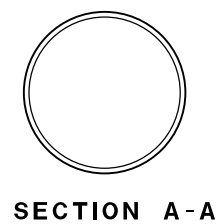
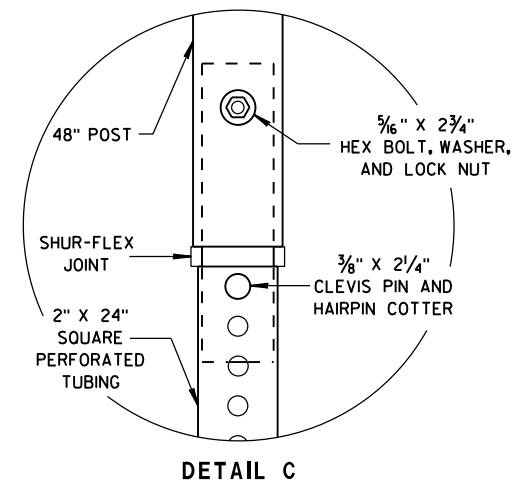
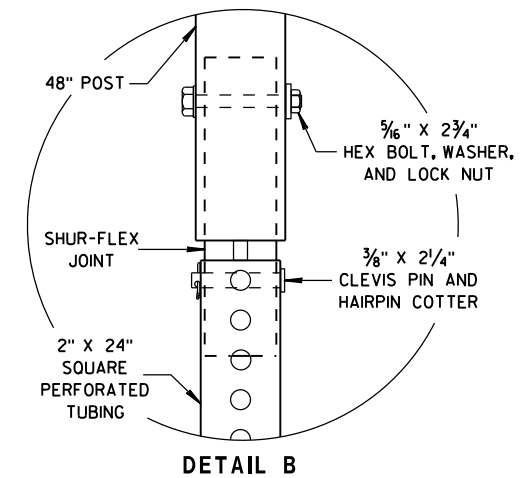
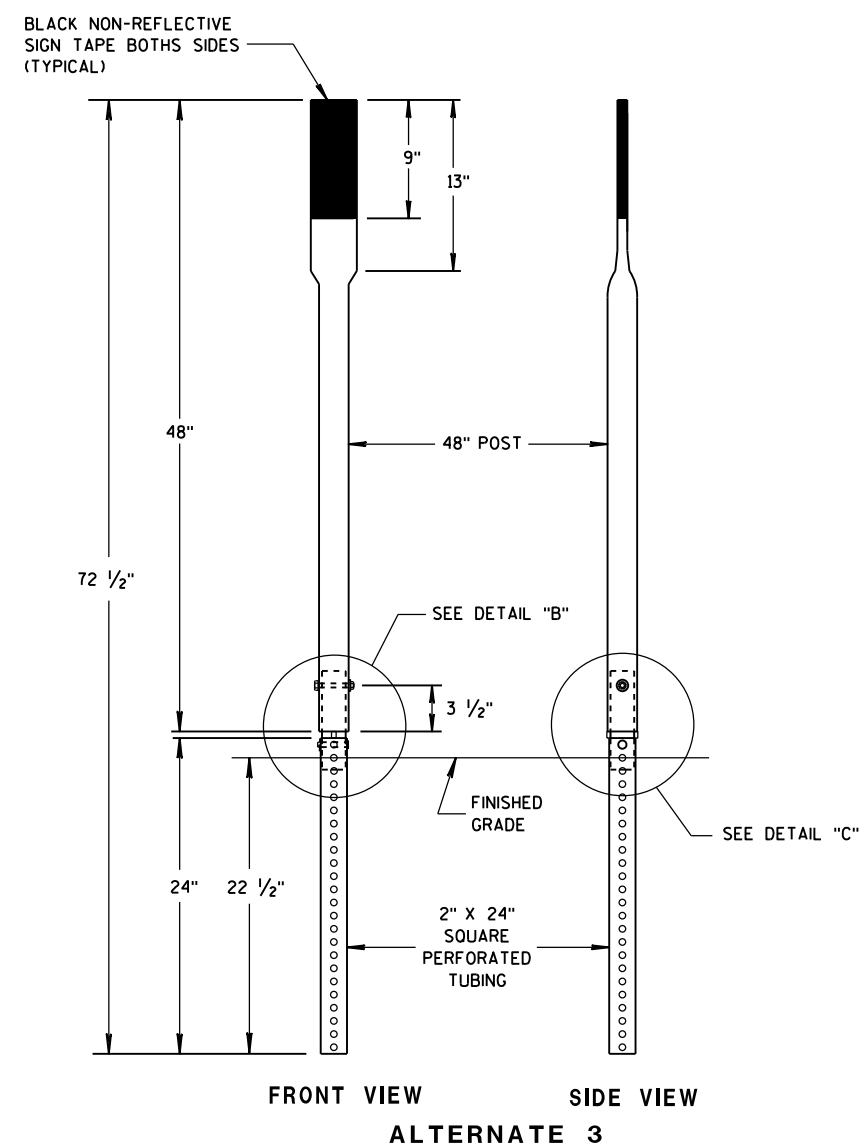
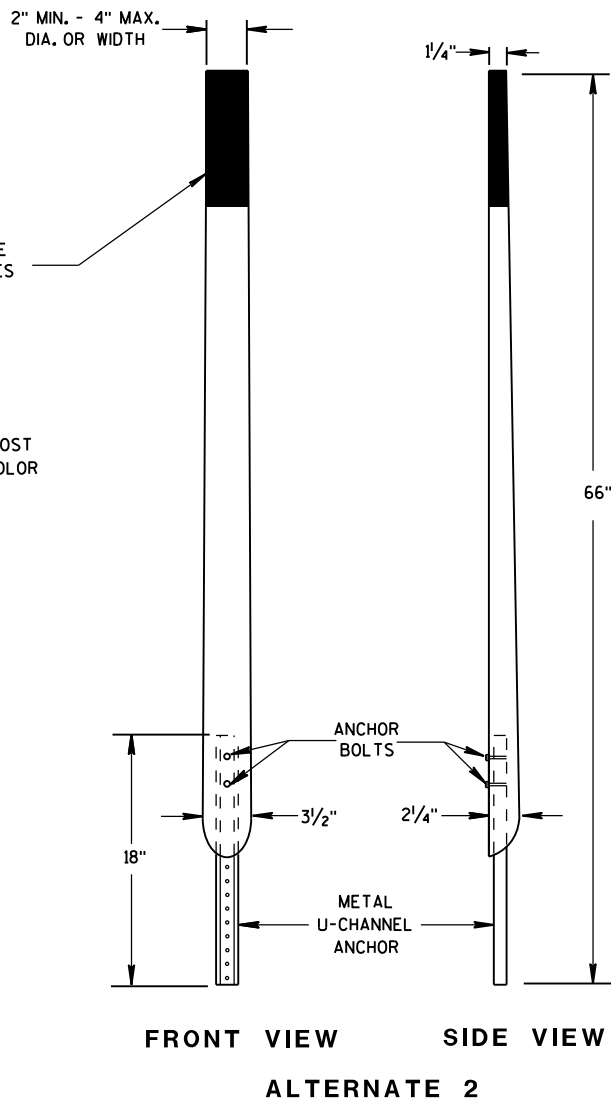
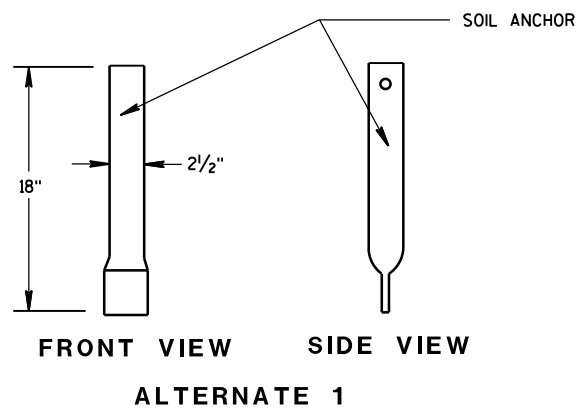
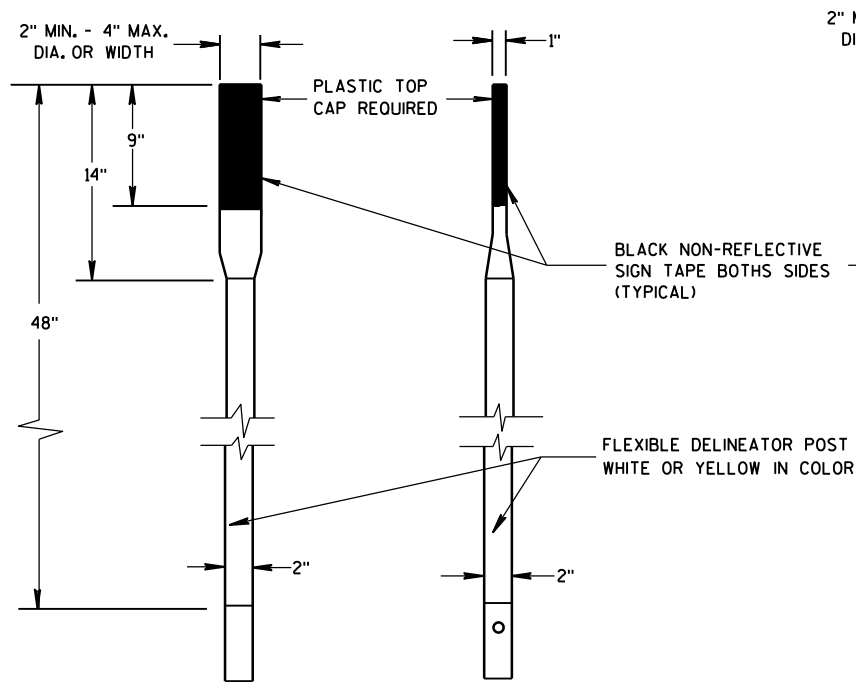
PLAN VIEW
CONCRETE MASONRY ENDWALLS FOR
CULVERT PIPE AND PIPE ARCH



CROSS SECTION
FLEXIBLE MARKER POST

FLEXIBLE MARKER POST
FOR CULVERT END

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



FLEXIBLE MARKER POST FOR CULVERT END

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

10/1/2012
DATE

FHWA

/S/ Travis Feltes
STATE TRAFFIC ENGINEER 85 IGN

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.

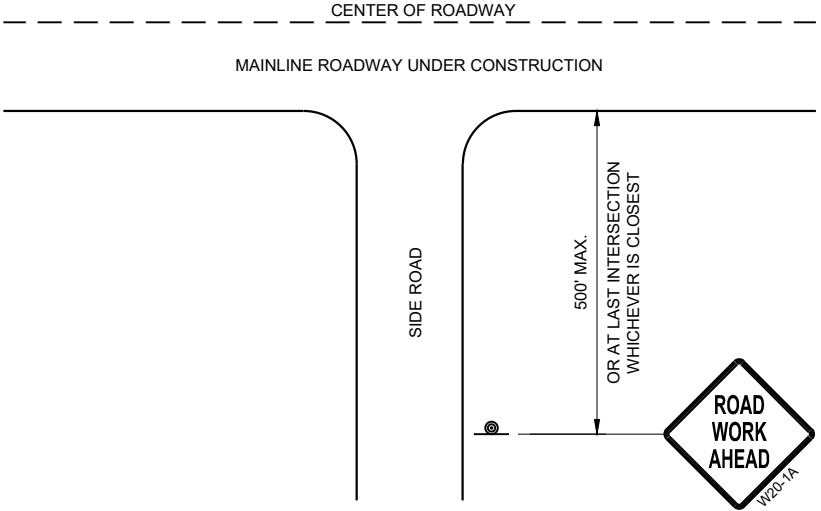
SIGNS THAT WILL BE IN PLACE LESS THAN SEVEN CONTINUOUS DAYS AND NIGHTS MAY BE MOUNTED ON PORTABLE SUPPORTS.

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.

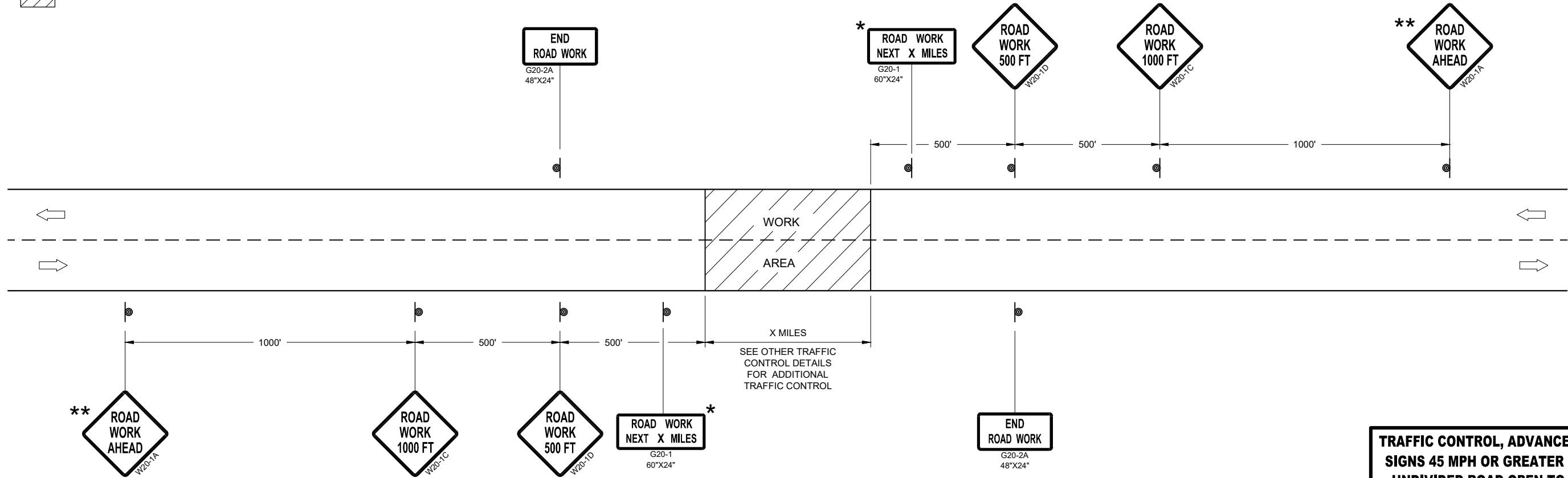
- * OMIT G20-1 SIGNS IF LENGTH OF WORK AREA IS 2 MILES OR LESS
- ** PLACE AN ADDITIONAL W20-1A "ROAD WORK AHEAD" SIGN IF WORK AREA WITHIN THE PROJECT IS SEPARATED BY MORE THAN 2 MILES FROM PREVIOUS WORK AREA.

LEGEND

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



TYPICAL SIDE ROAD APPROACH
WARNING SIGN DETAIL



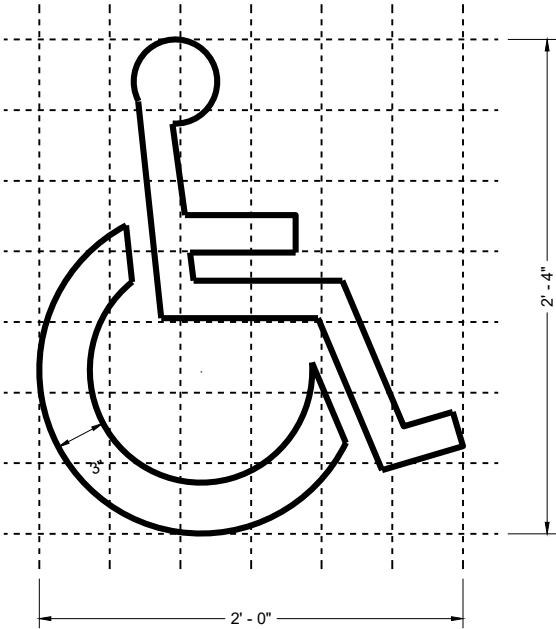
TRAFFIC CONTROL, ADVANCE WARNING SIGNS 45MPH OR GREATER

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

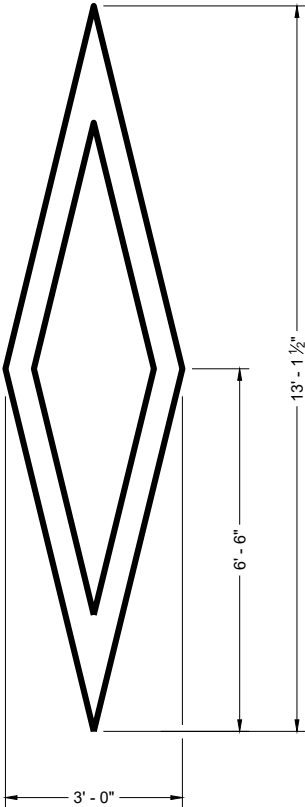
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
July 2018 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER 86

FHWA



HANDICAP SYMBOL

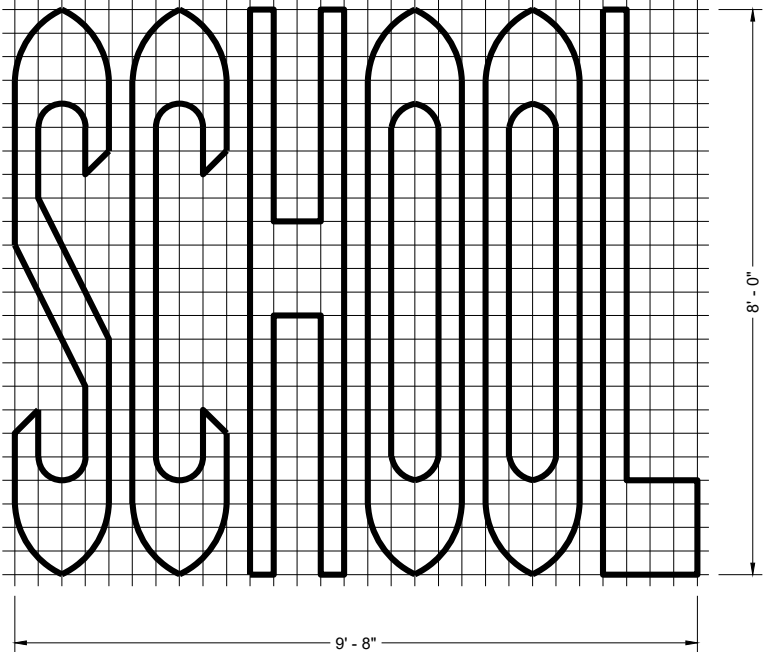
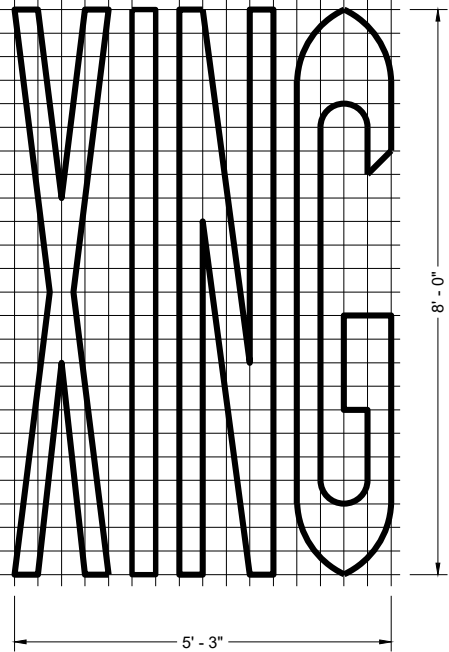
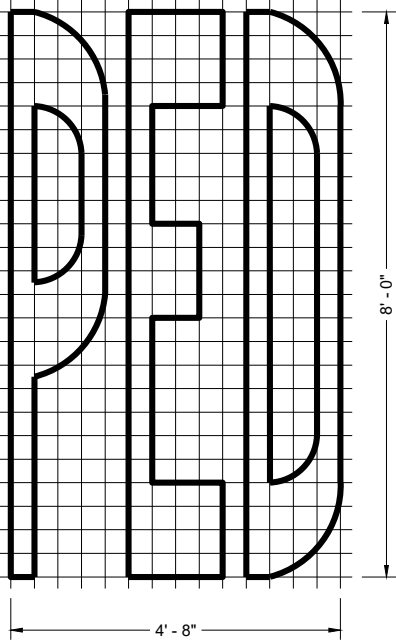
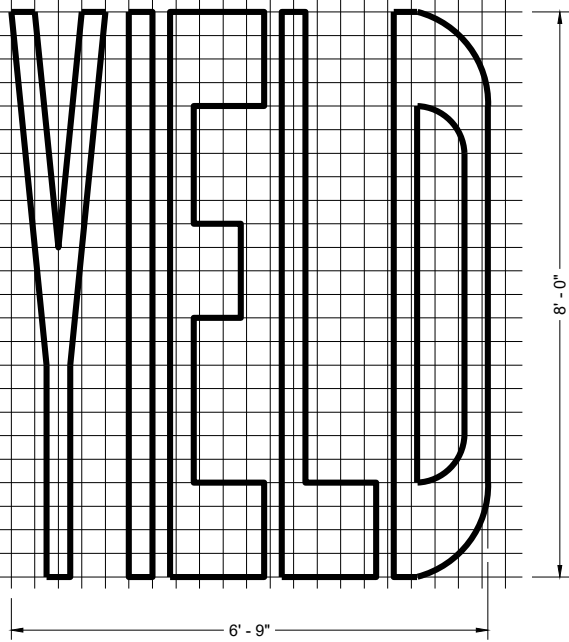
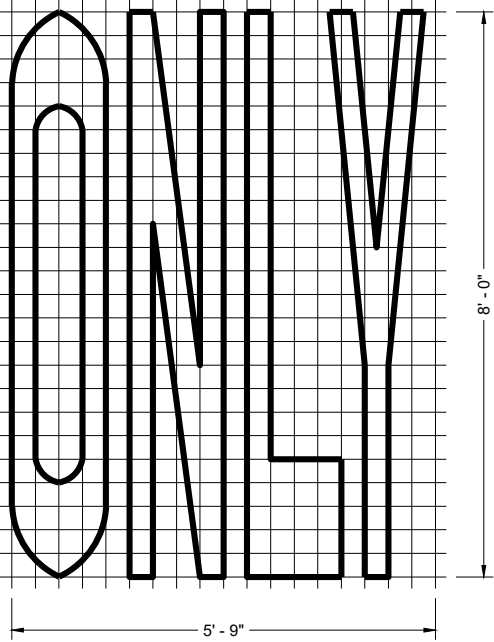
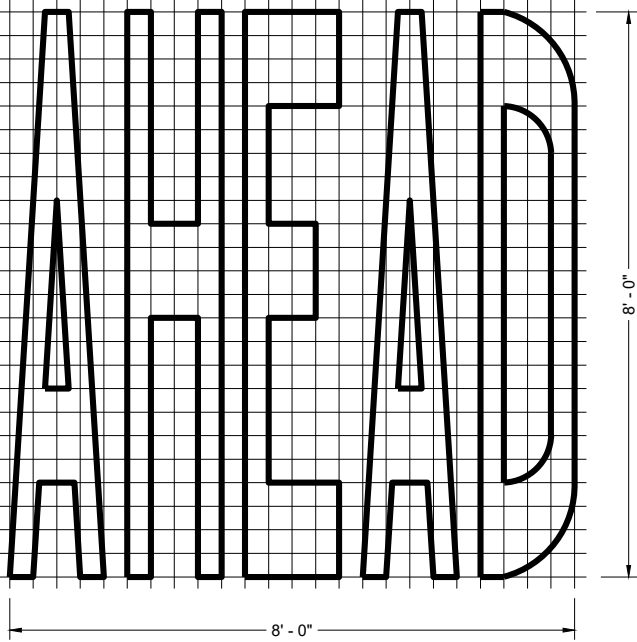
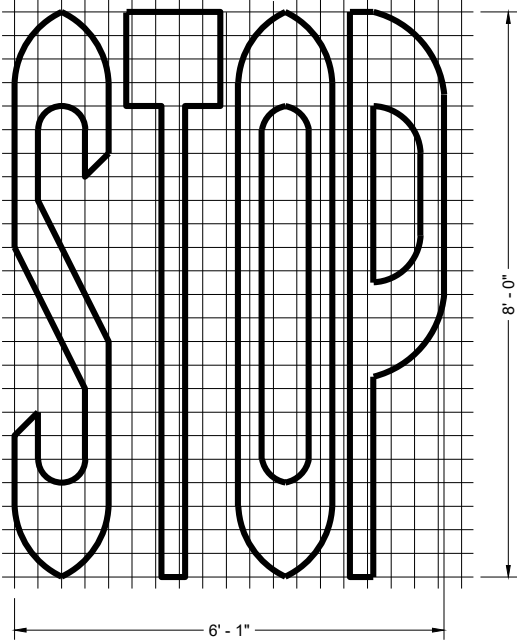


PREFERENTIAL
LANE SYMBOL

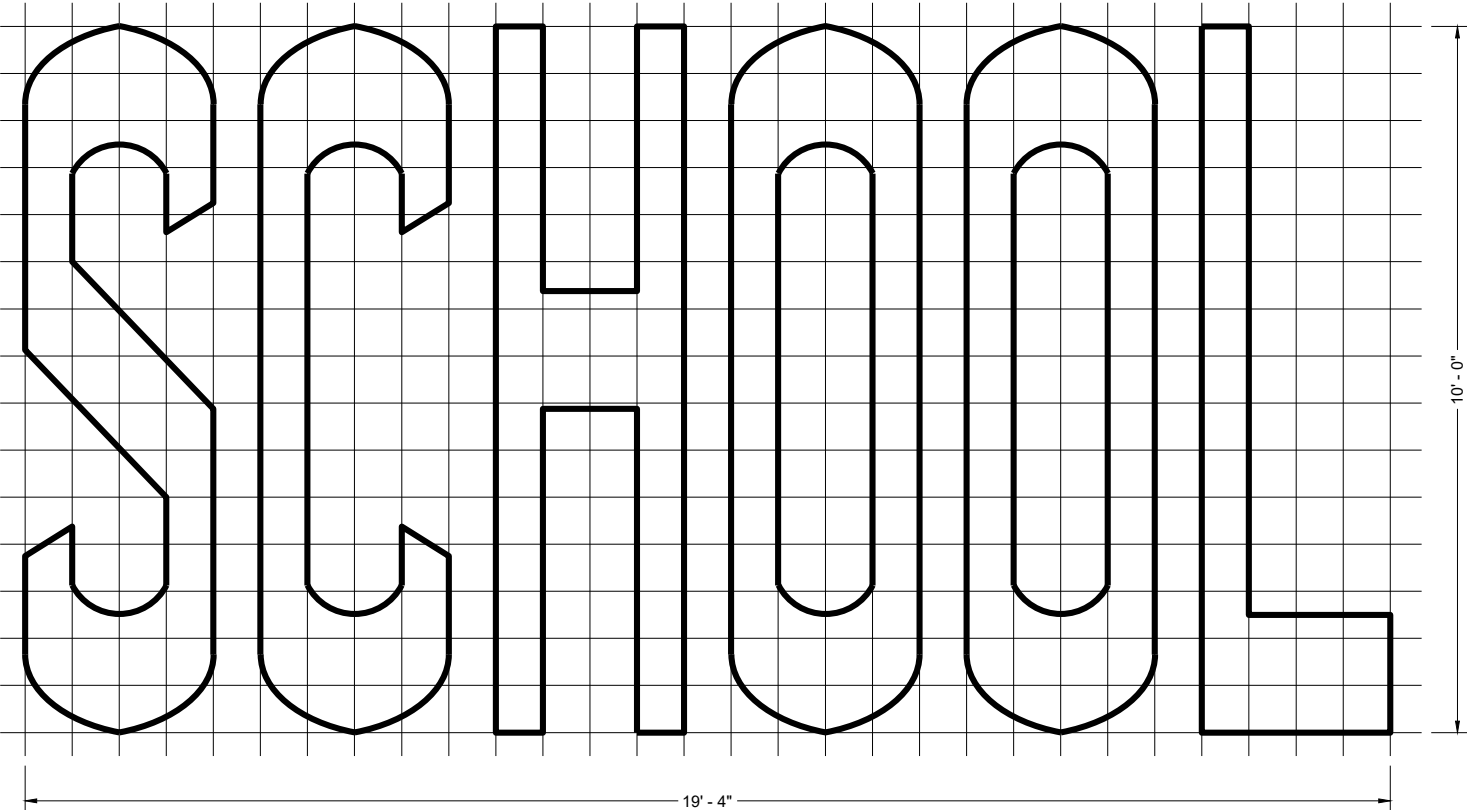
GENERAL NOTES

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

PAVEMENT MARKING SYMBOLS	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED November 2024 DATE	/S/ Jeannie Silver STATE SIGNING AND MARKING ENGINEER
FHWA	



SINGLE LANE

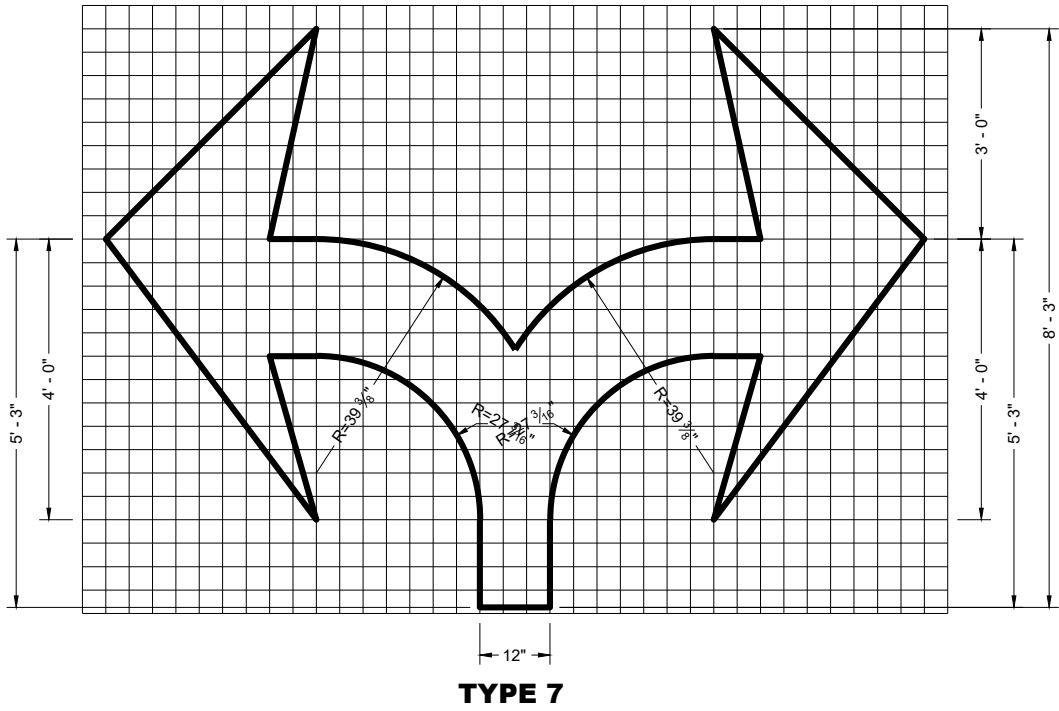
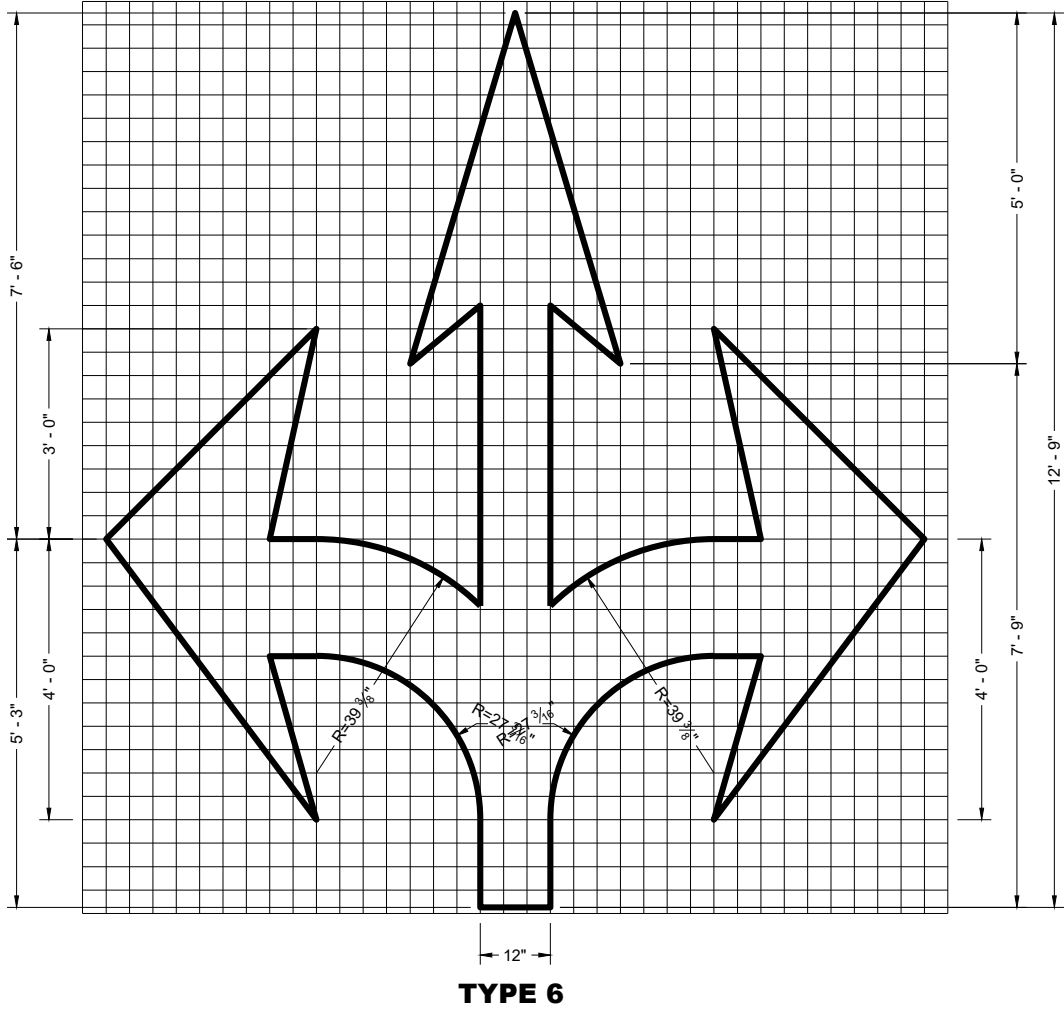
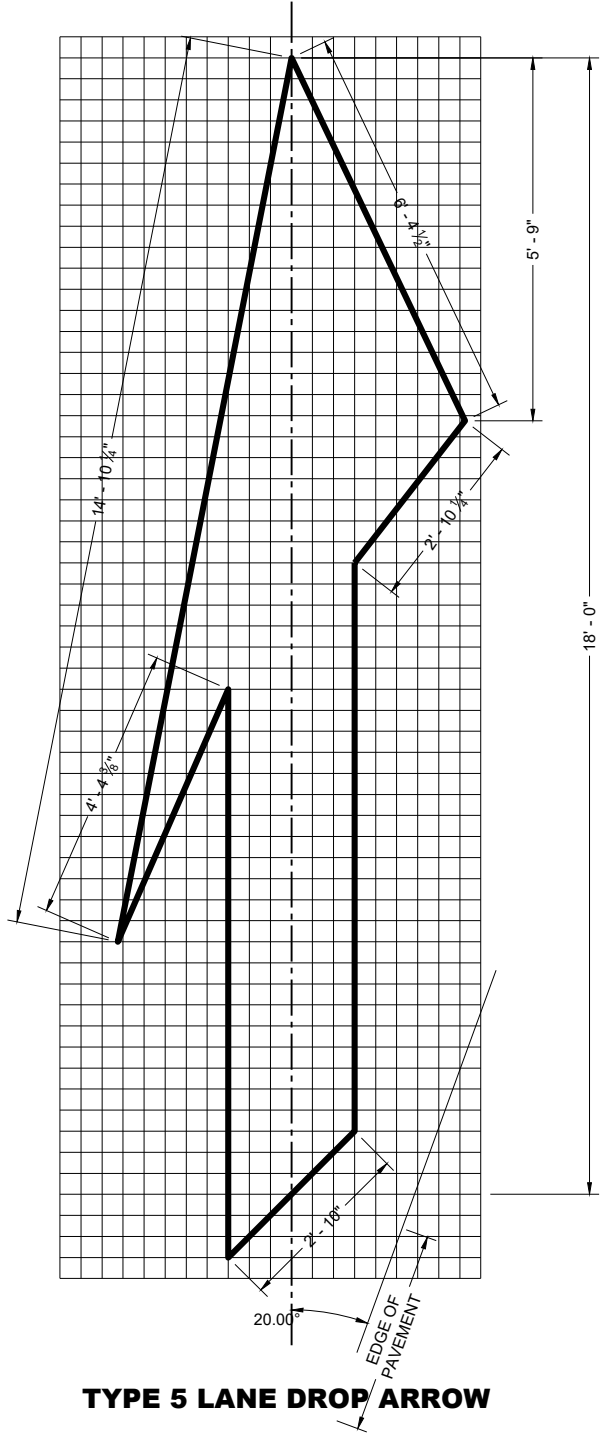
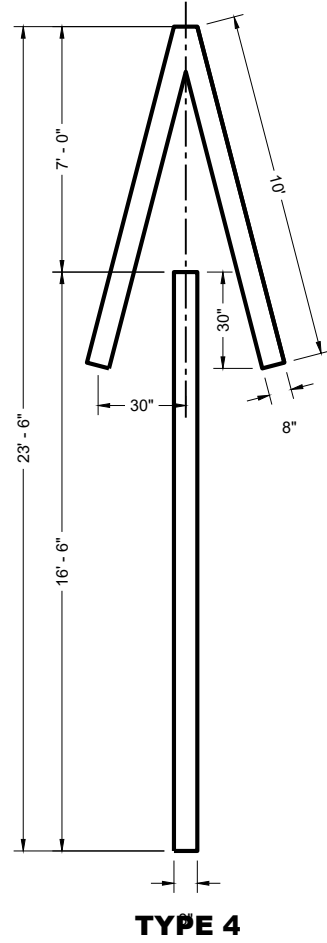
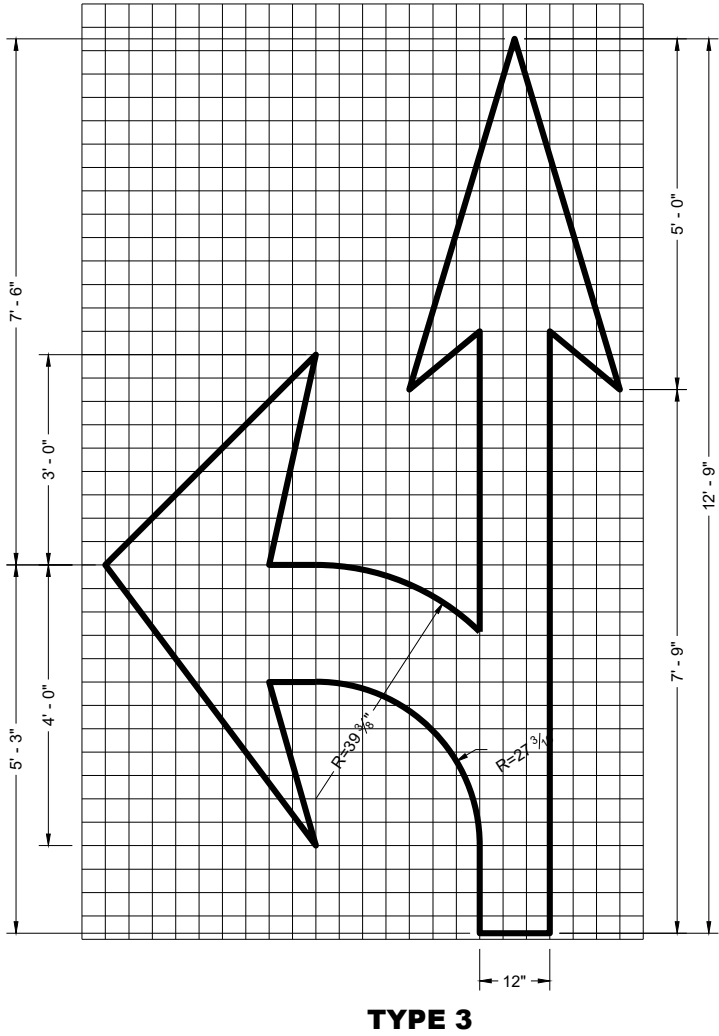
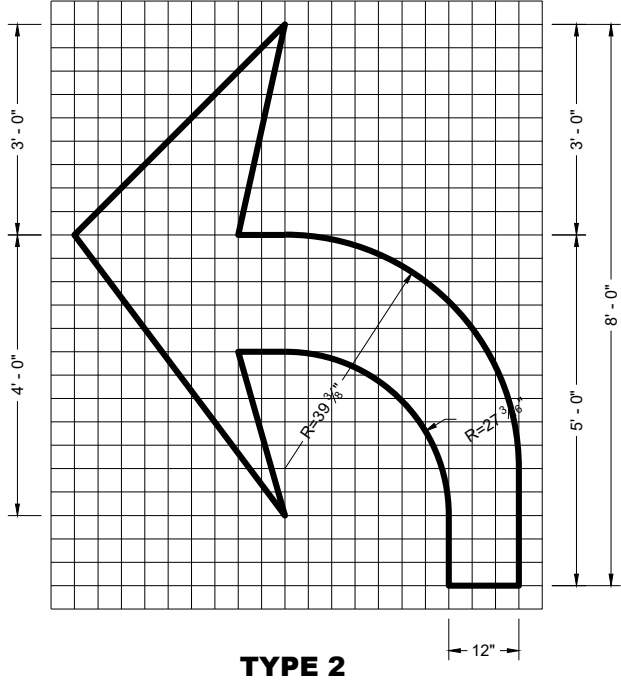
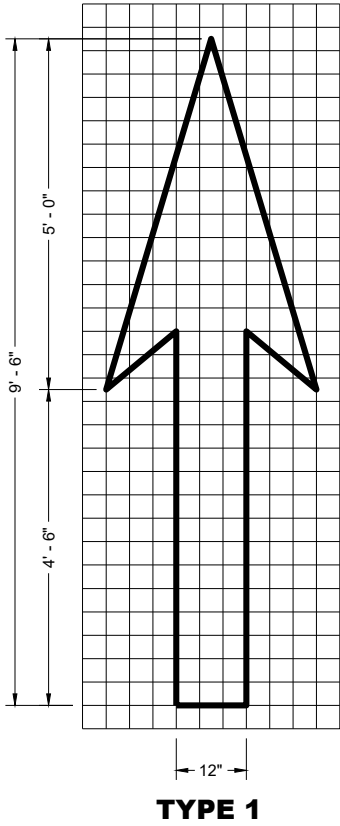


TWO - LANE

GENERAL NOTES

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

PAVEMENT MARKING WORDS	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED November 2024 DATE	/S/ Jeannie Silver STATE SIGNING AND MARKING ENGINEER
FHWA	88



GENERAL NOTES

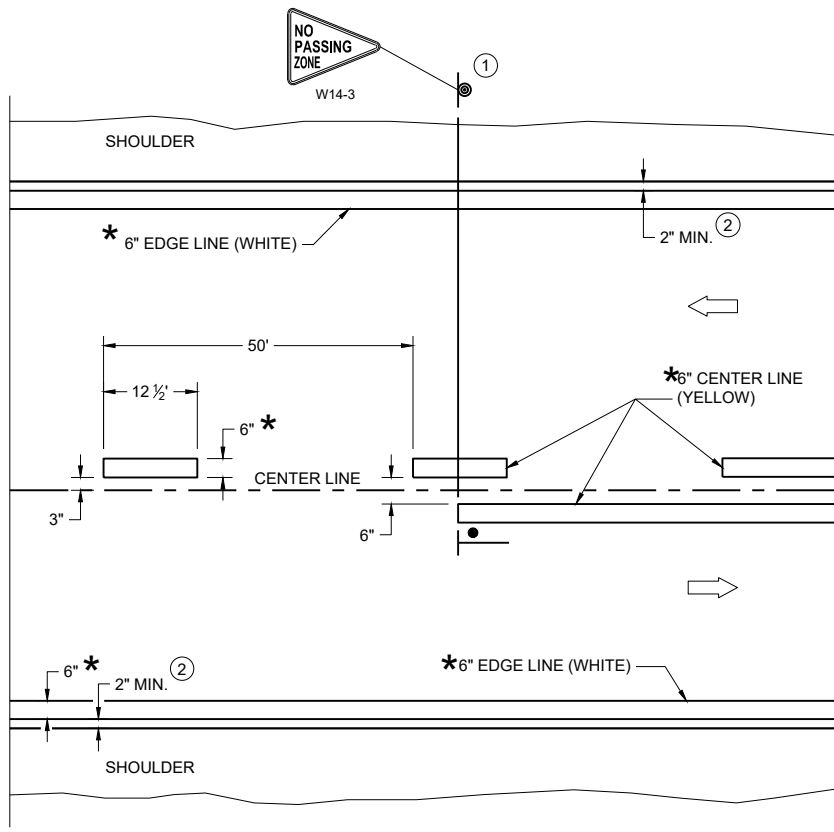
DETAILS OF INSTALLATION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

PAVEMENT MARKING ARROWS

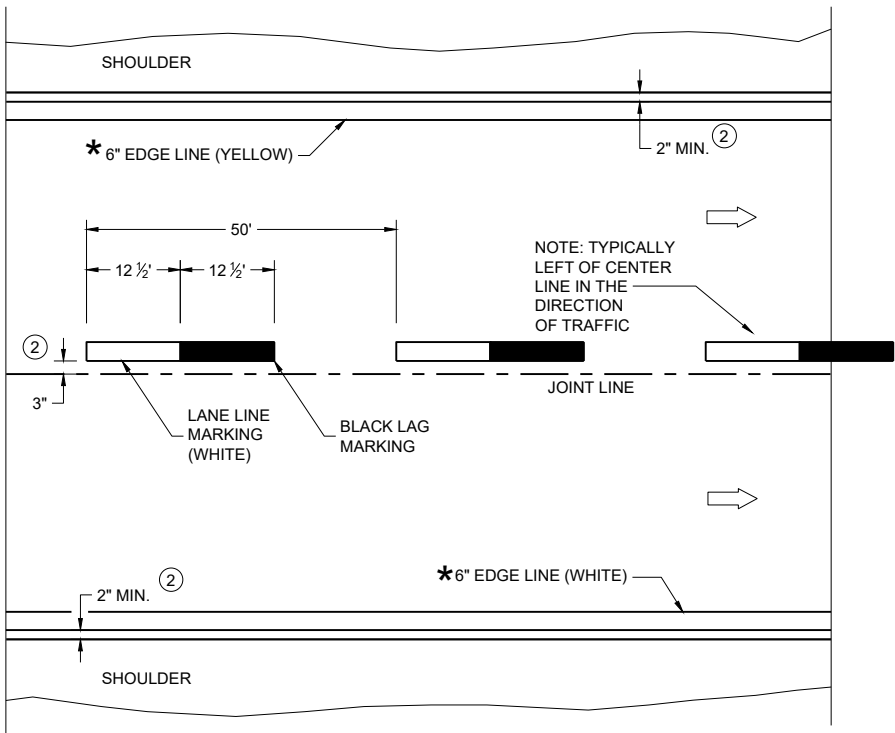
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
November 2024 /S/ Jeannie Silver
DATE STATE SIGNING AND MARKING ENGINEER

FHWA



TWO WAY TRAFFIC



ONE WAY TRAFFIC

PERMANENT PAVEMENT MARKING

* CONFIRM MARKING LINE WIDTH WITH THE MISCELLANEOUS QUANTITIES

GENERAL NOTES

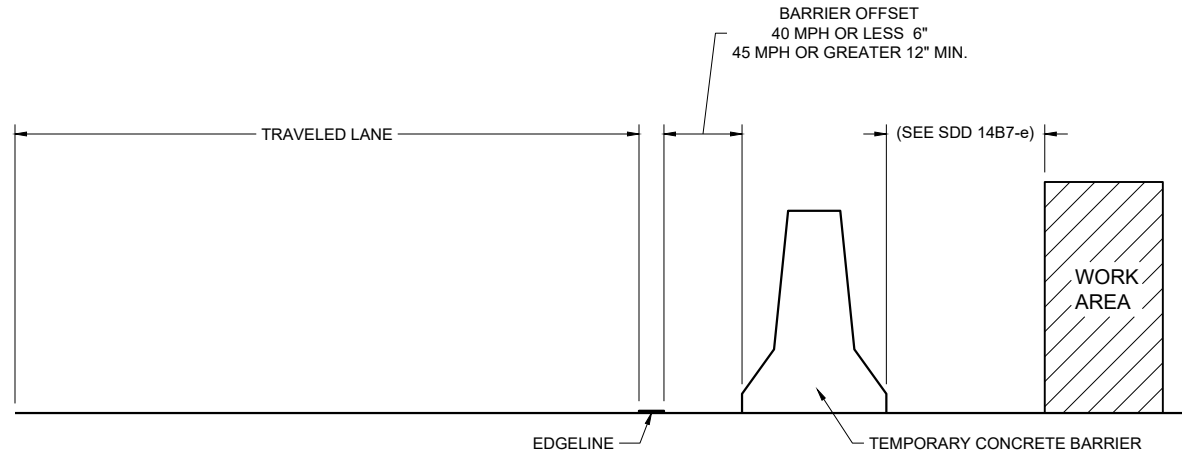
DETAILS OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO STANDARD SPECIFICATIONS AND SPECIAL PROVISIONS.

- 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 December 2024 DATE	/S/ Jeannie Silver Statewide Pavement Marking Engineer
FHWA 90	



TEMPORARY BARRIER OFFSET FROM EDGE LINE

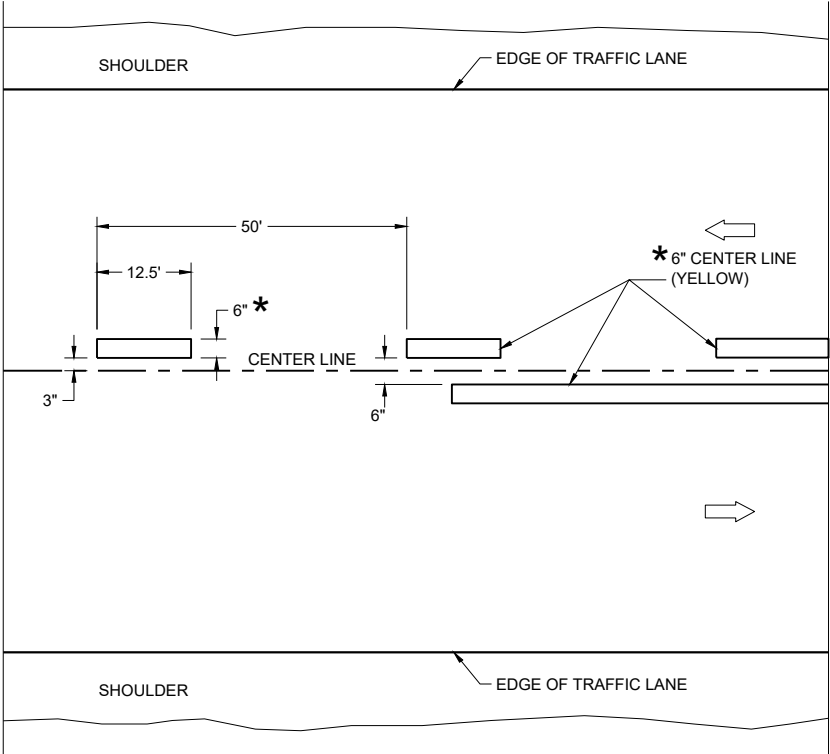
GENERAL NOTES

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

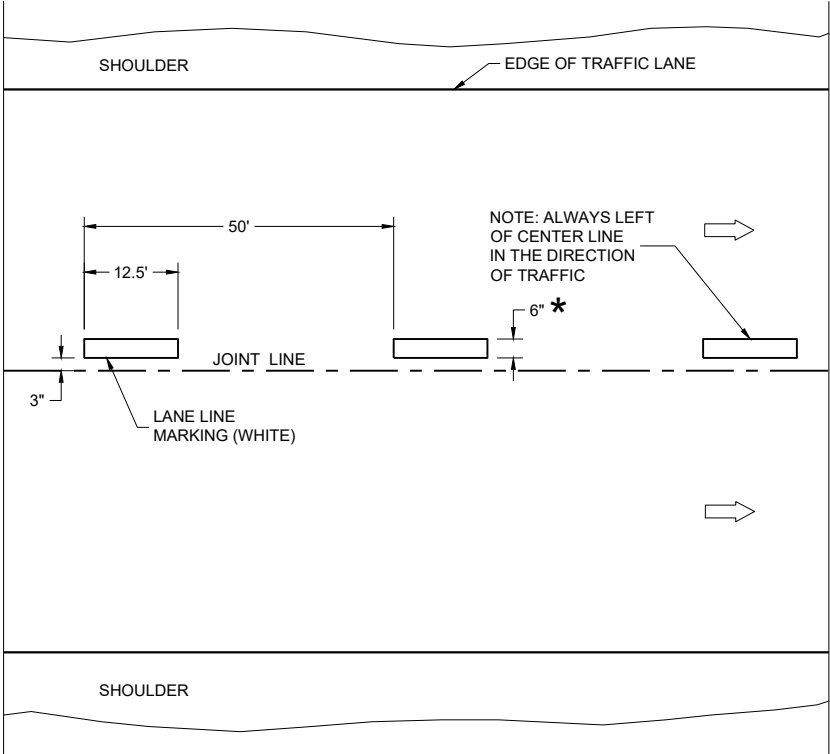
LEGEND

➡ DIRECTION OF TRAFFIC

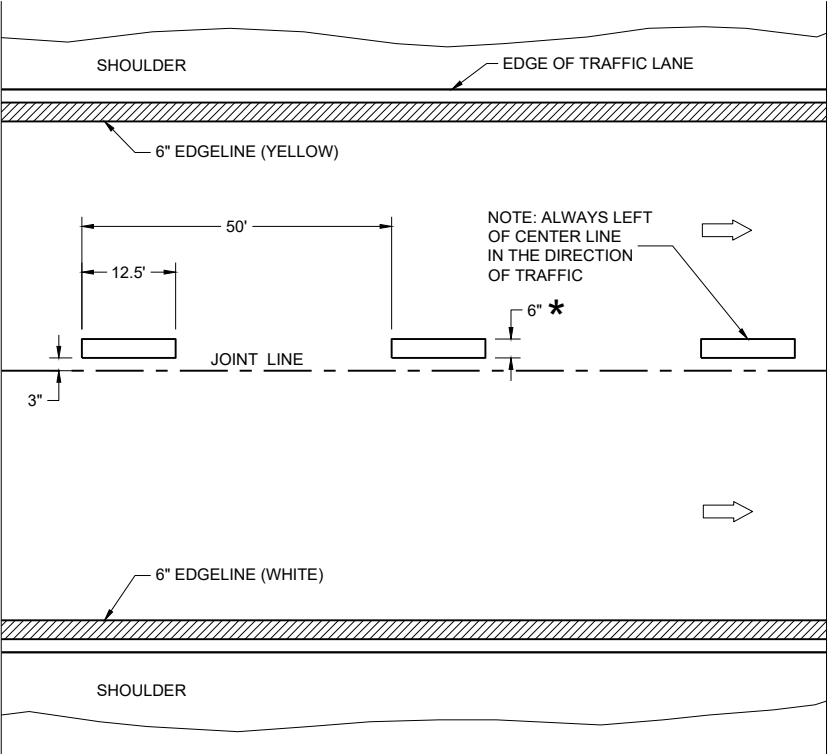
* CONFIRM MARKING LINE WIDTH WITH THE MISCELLANEOUS QUANTITIES



TWO WAY TRAFFIC



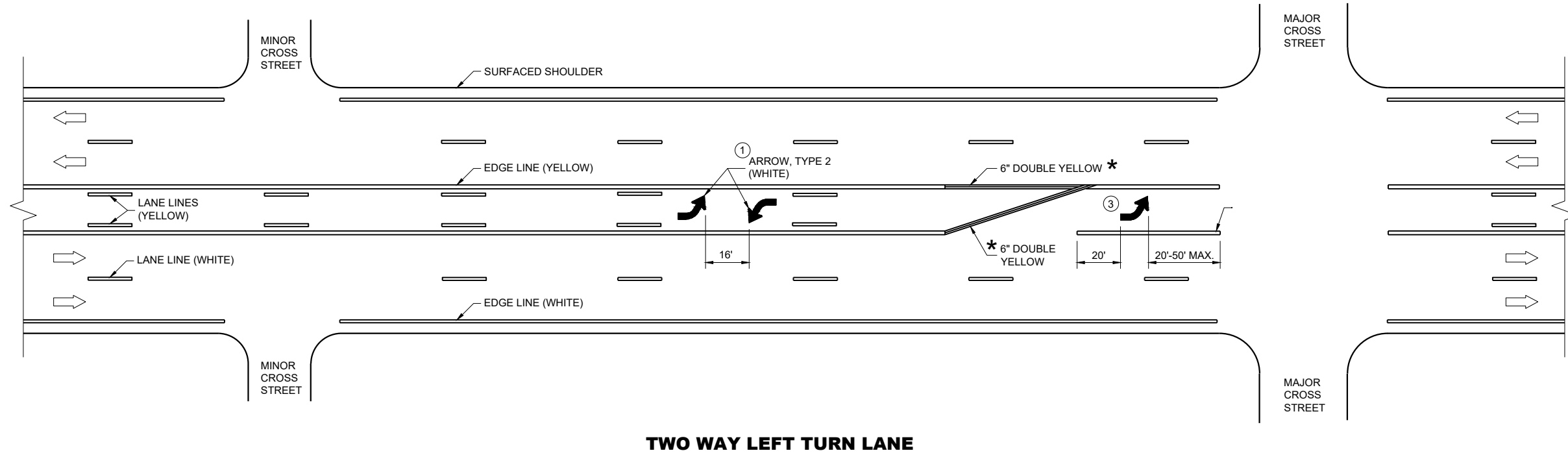
ONE WAY TRAFFIC



FREEWAYS AND EXPRESSWAYS

TEMPORARY PAVEMENT MARKING

TEMPORARY LONGITUDINAL PAVEMENT MARKING	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED December 2024 DATE	/S/ Jeannie Silver Statewide Pavement Marking Engineer
FHWA 91	



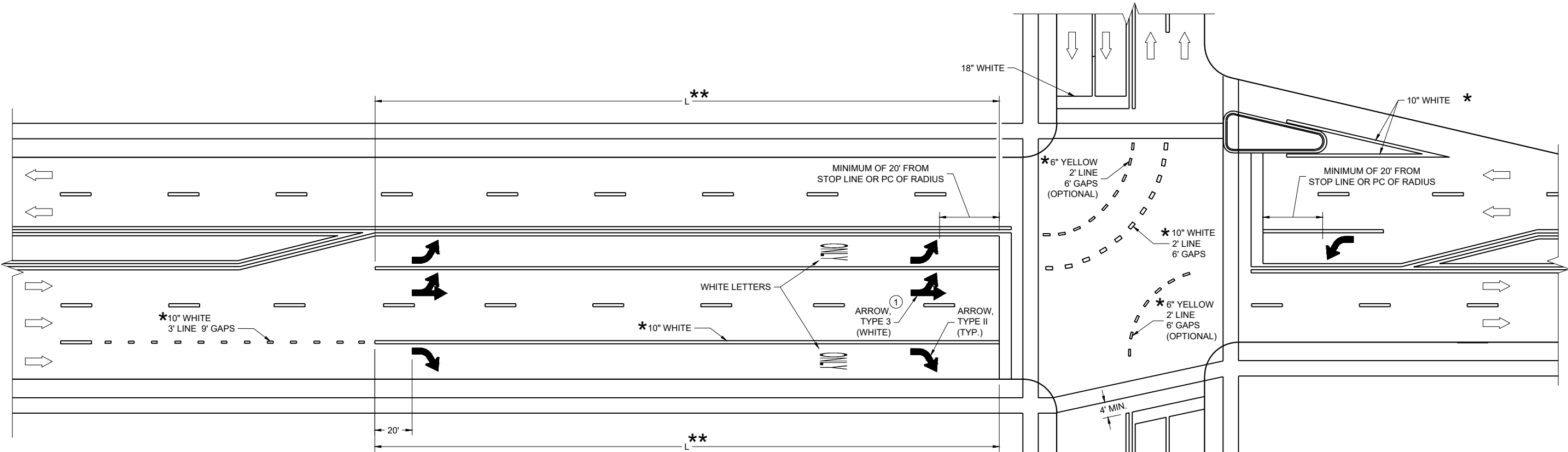
TWO WAY LEFT TURN LANE

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.

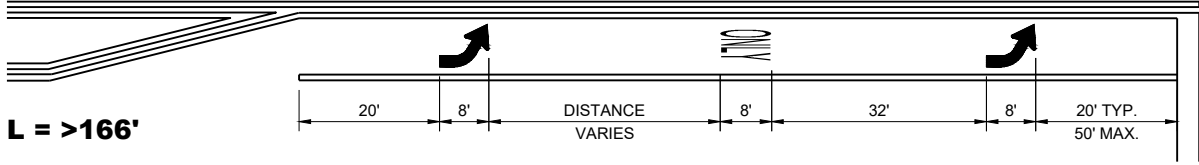
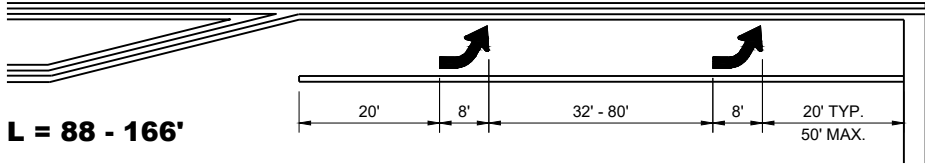
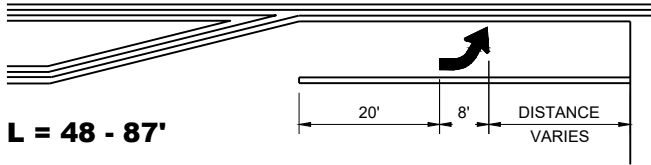
➡ DIRECTION OF TRAFFIC

*CONFIRM MARKING LINE WIDTH WITH THE MISCELLANEOUS QUANTITIES



TURN LANE OPTIONS

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



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

GENERAL NOTES

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

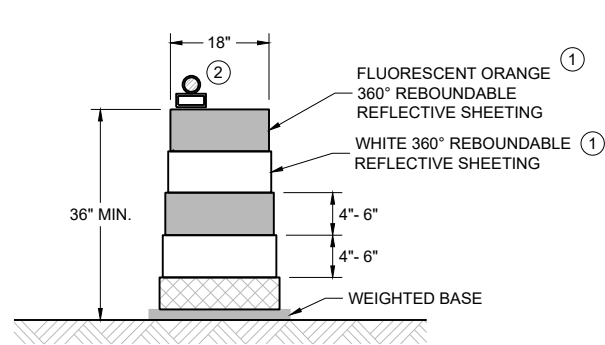
➡ DIRECTION OF TRAFFIC

L = LENGTH OF TURN BAY

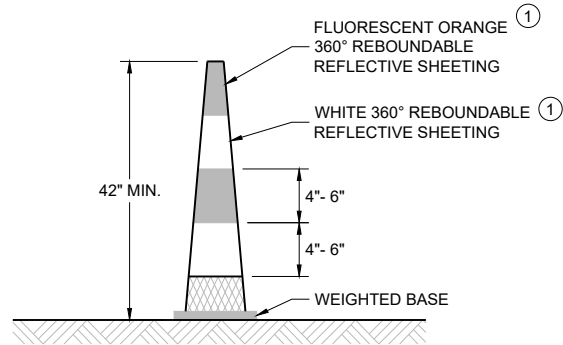
*CONFIRM MARKING LINE WIDTH WITH THE MISCELLANEOUS QUANTITIES

PAVEMENT MARKING
(TURN LANES)

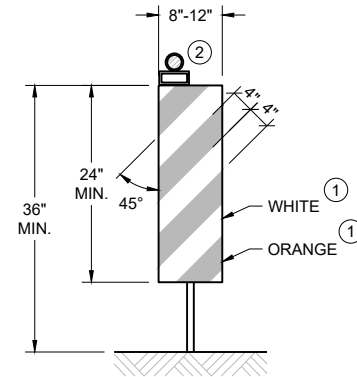
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



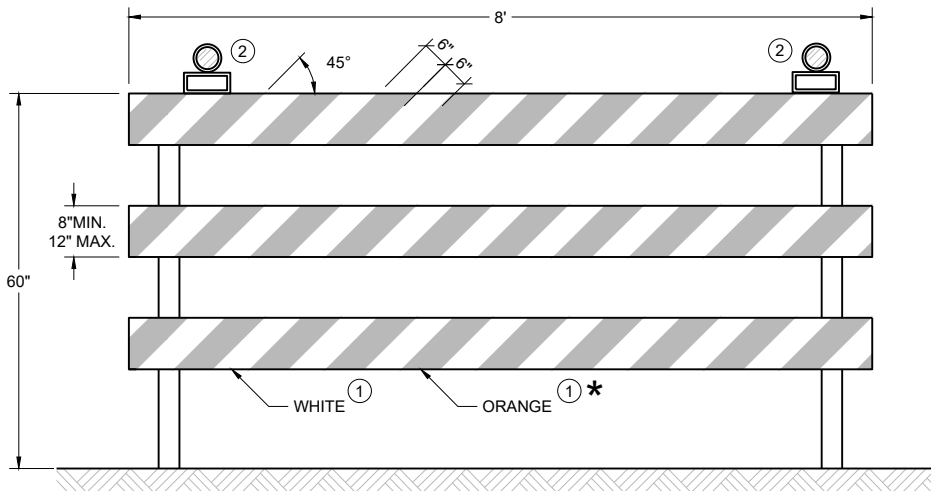
DRUM
BALLAST WIDTHS
RANGE FROM 24"-36"



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 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
February 2026 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER

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

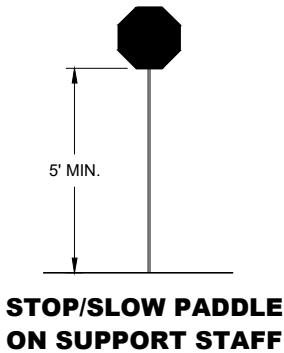
FLAGGERS SHALL BE IN SIGHT OF EACH OTHER OR IN DIRECT COMMUNICATION AT ALL TIMES. THEY SHALL BE EQUIPPED WITH STOP/SLOW PADDLES FASTENED ON SUPPORT STAFFS. WHEN THE FLAGGING OPERATION IS NOT IN EFFECT REMOVE TEMPORARY PORTABLE RUMBLE STRIPS PRIOR TO COVERING OR REMOVING ALL ADVANCE SIGNING.

- 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.

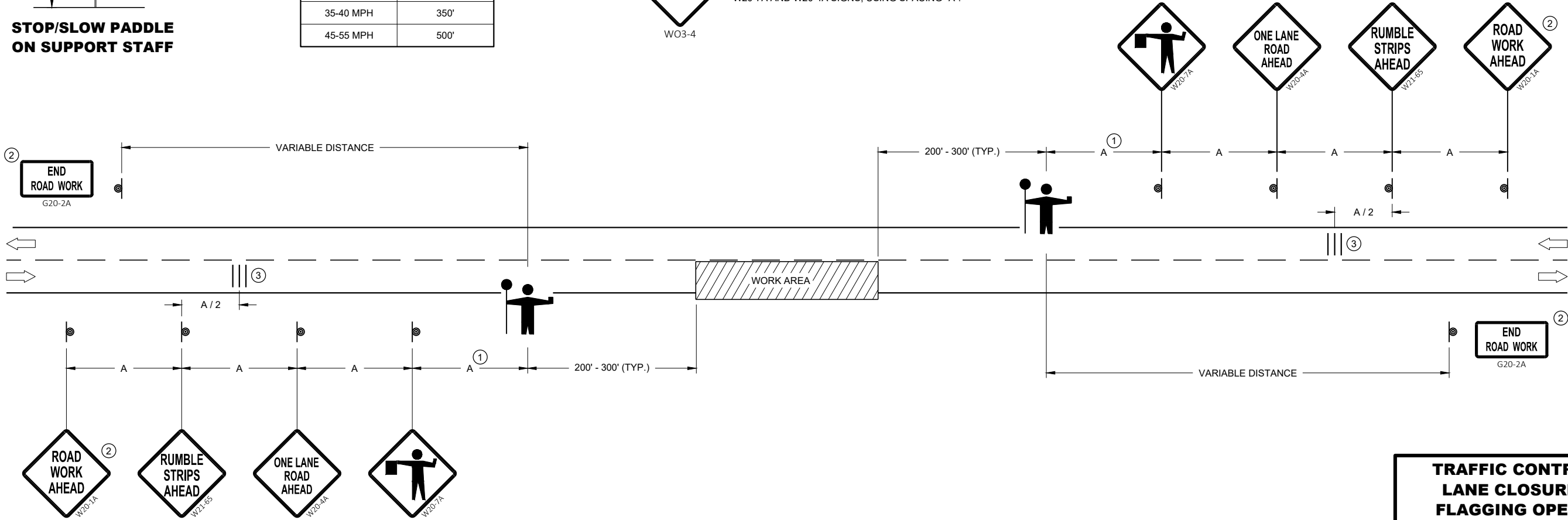


SIGN AND TEMPORARY RUMBLE STRIP ARRAY SPACING TABLE

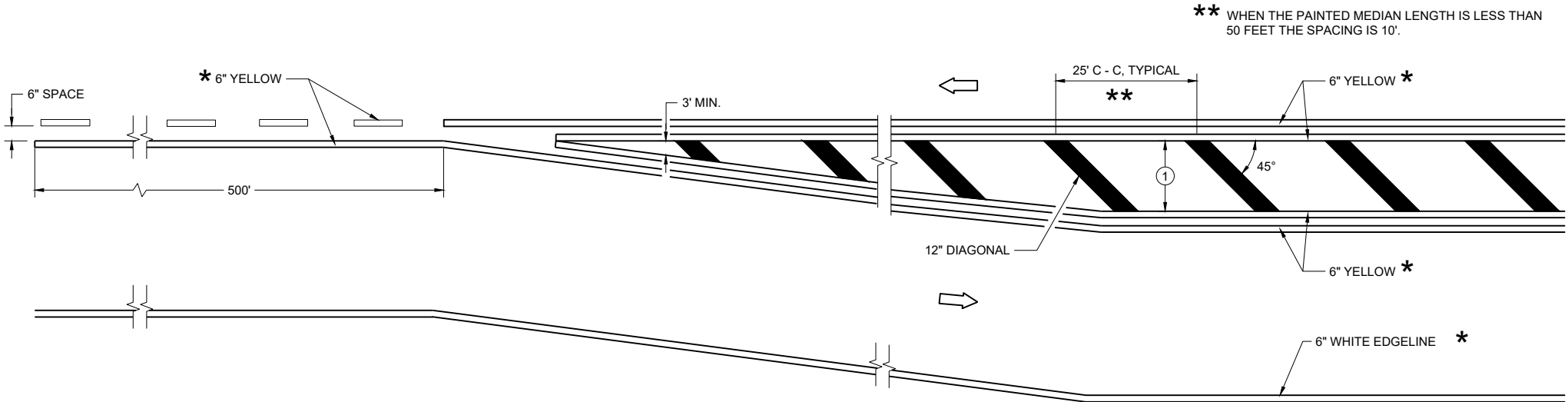
SPEED LIMIT	SPACING "A"
25-30 MPH	200'
35-40 MPH	350'
45-55 MPH	500'



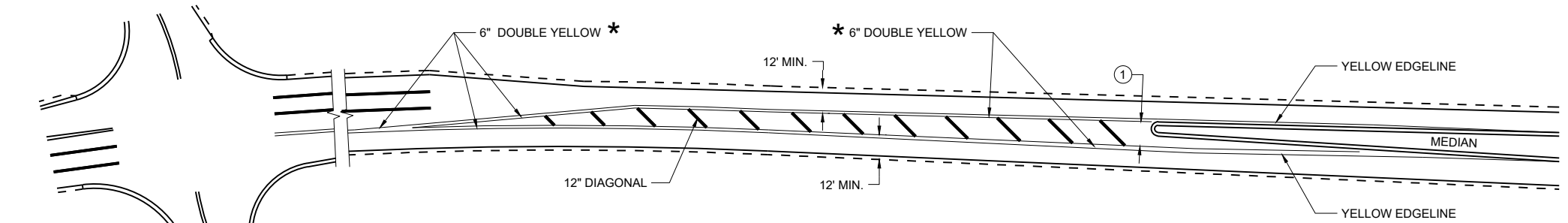
USE OF W03-4 SIGN IS OPTIONAL. WHEN USED, THIS SIGN SHALL BE LOCATED BETWEEN THE W20-7A AND W20-4A SIGNS, USING SPACING "A".



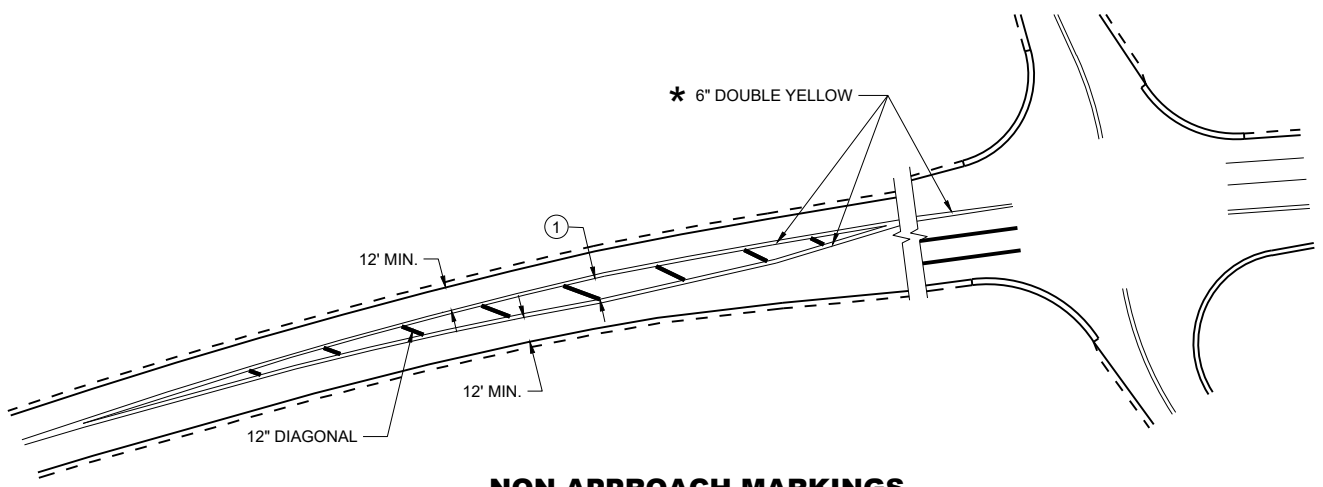
TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATION	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED May 2022 DATE	/S/ Andrew Heidtke WORK ZONE ENGINEER 95
FHWA	



MEDIAN ISLAND DETAIL



APPROACH MARKINGS FOR OTHER MEDIAN TYPES



NON-APPROACH MARKINGS

GENERAL NOTES

- ① DIAGONALS ARE OPTIONAL WHEN PAINTED ISLAND IS LESS THAN 6 FEET AT THE WIDEST POINT. OMIT DIAGONALS IF WIDTH IS LESS THAN 4 FEET.

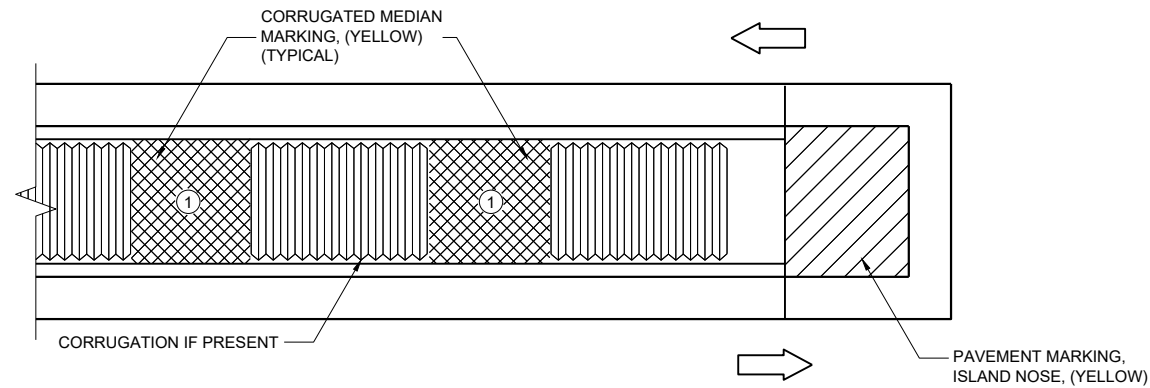
➡ DIRECTION OF TRAVEL

* CONFIRM MARKING LINE WIDTH WITH THE MISCELLANEOUS QUANTITIES

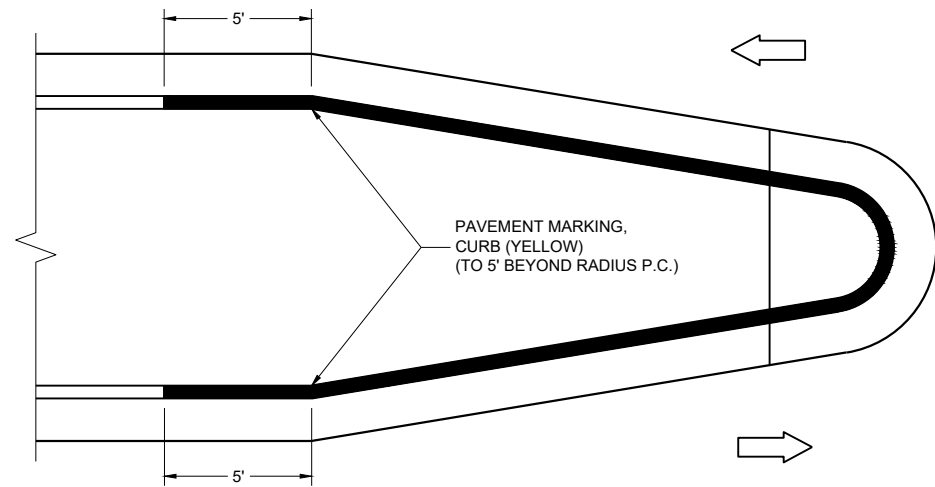
MEDIAN ISLAND PAVEMENT MARKINGS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

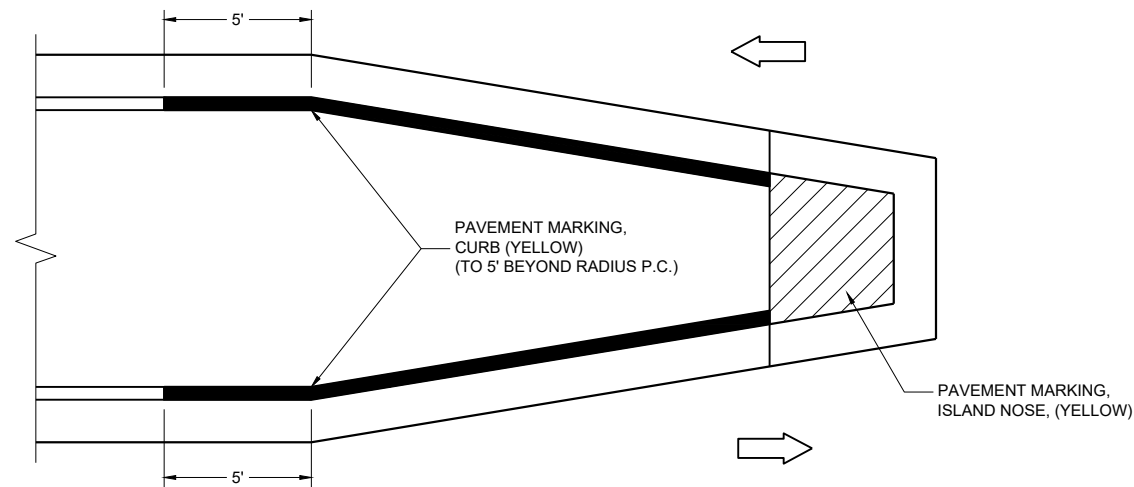
APPROVED
August 2024 /S/ Jeannie Silver
DATE Statewide Pavement Marking Engineer



MEDIAN ISLAND WITH SQUARE BLUNT NOSE



MEDIAN ISLAND WITH ROUND BLUNT NOSE



MEDIAN ISLAND WITH SLOPED NOSE

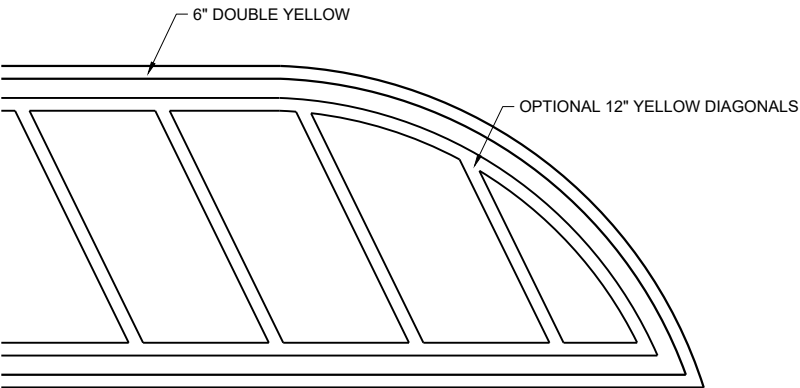
TYPICAL PLACEMENT OF PAVEMENT MARKING ON MEDIAN ISLANDS

GENERAL NOTES

WHEN CONCRETE CORRUGATED MEDIAN IS CONSTRUCTED TO SEPARATE TRAFFIC OPERATING IN THE OPPOSING DIRECTION, YELLOW PAVEMENT MARKING SHALL BE APPLIED TO THE FLAT PORTION OF THE CONCRETE CORRUGATED MEDIAN. THE ITEM OF PAVEMENT MARKING, CONCRETE CORRUGATED MEDIAN, WILL BE MEASURED IN PLACE AND ACCEPTED IN ACCORDANCE WITH THE CONTRACT AND PAID FOR AT THE CONTRACT UNIT PRICE PER SQUARE FOOT.

① APPLY PAVEMENT MARKING TO THE FLAT PORTION OF CORRUGATED MEDIAN.

- ISLAND NOSE MARKING
- CURB MARKING
- CORRUGATED MEDIAN MARKING
- DIRECTION OF TRAVEL



FLUSH MEDIAN ISLAND NOSE

PAVEMENT MARKINGS, MEDIAN ISLAND NOSE	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED August 2024 DATE	/S/ Jeannie Silver Statewide Pavement Marking Engineer
FHWA	97

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

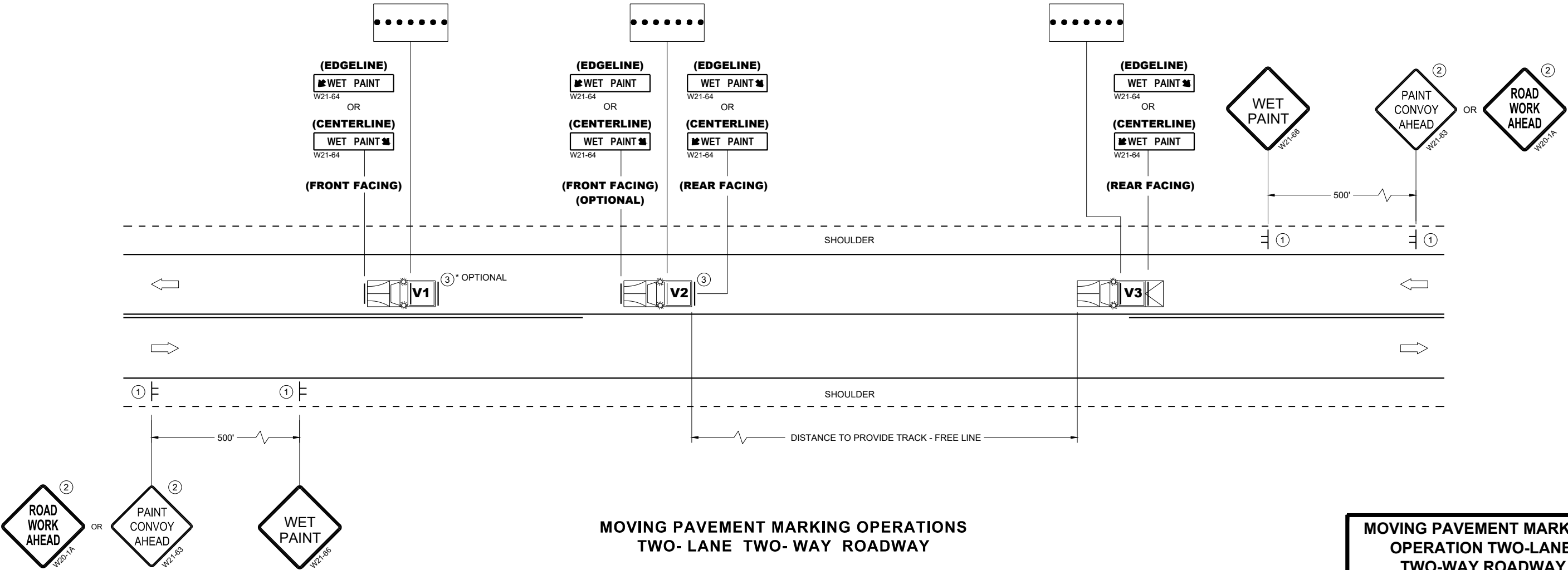
WORKERS SHALL NOT PERFORM WORK FROM ANY SHADOW OR PROTECTION VEHICLES.

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 OPERATION TWO-LANE TWO-WAY ROADWAY	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED November 2025 DATE	/S/ Andrew Heidtke STATE ELECTRICAL ENGINEER
FHWA 98	

LEGEND

- V1

LEAD VEHICLE
- V2

MARKING VEHICLE
- V3

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

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. 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.

WHEN WORK ACTIVITY BLOCKS THE LEFT LANE, REVERSE TRAFFIC CONTROL.

WHEN A RAMP INTERSECTS THE FACILITY ON WHICH THE WORK IS BEING PERFORMED, PROVIDE ADDITIONAL TRAFFIC CONTROLS AS SPECIFIED IN THE CONTRACT OR AS APPROVED BY THE ENGINEER.

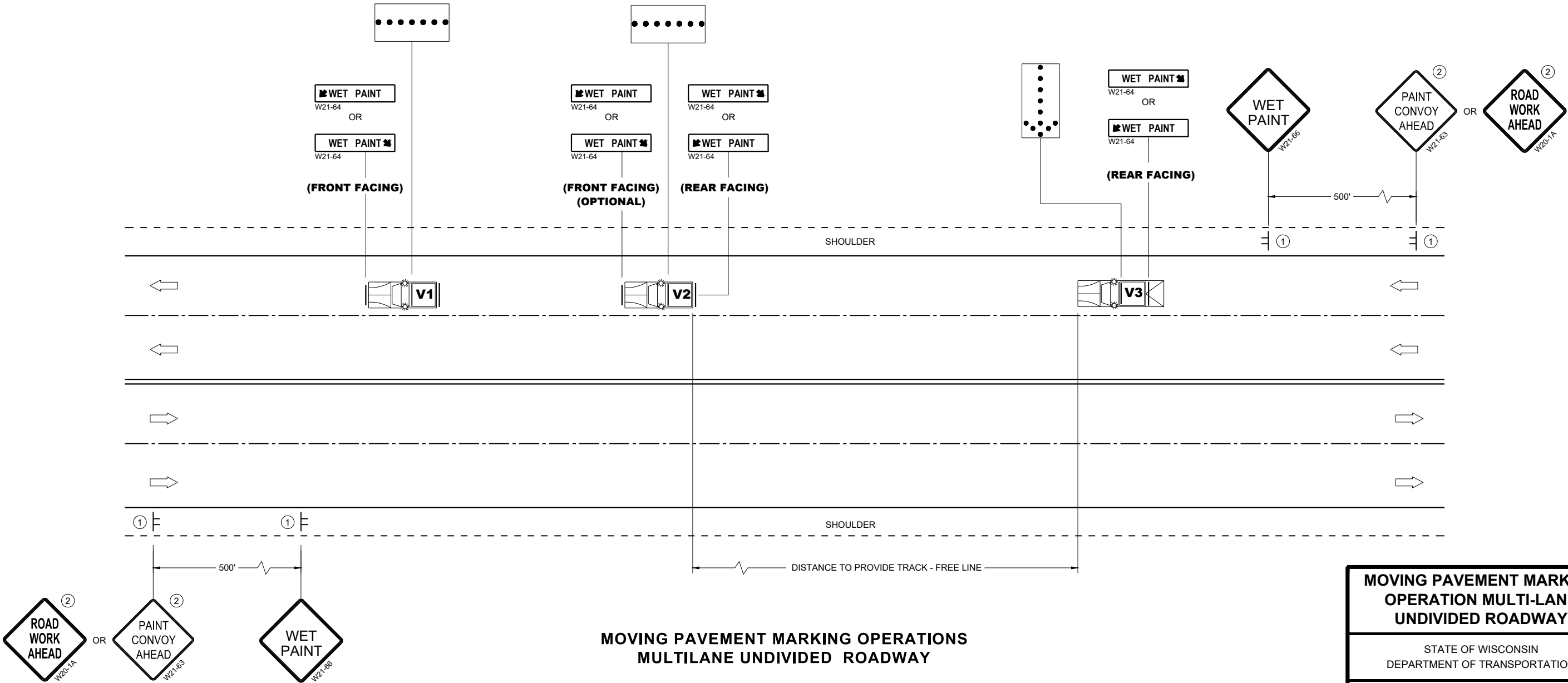
WORKERS SHALL NOT PERFORM WORK FROM ANY SHADOW OR PROTECTION VEHICLES.

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 VEHICLES 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 HAVE A MINIMUM HEIGHT OF 28" FOR WET PAVEMENT MARKINGS.

- 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.

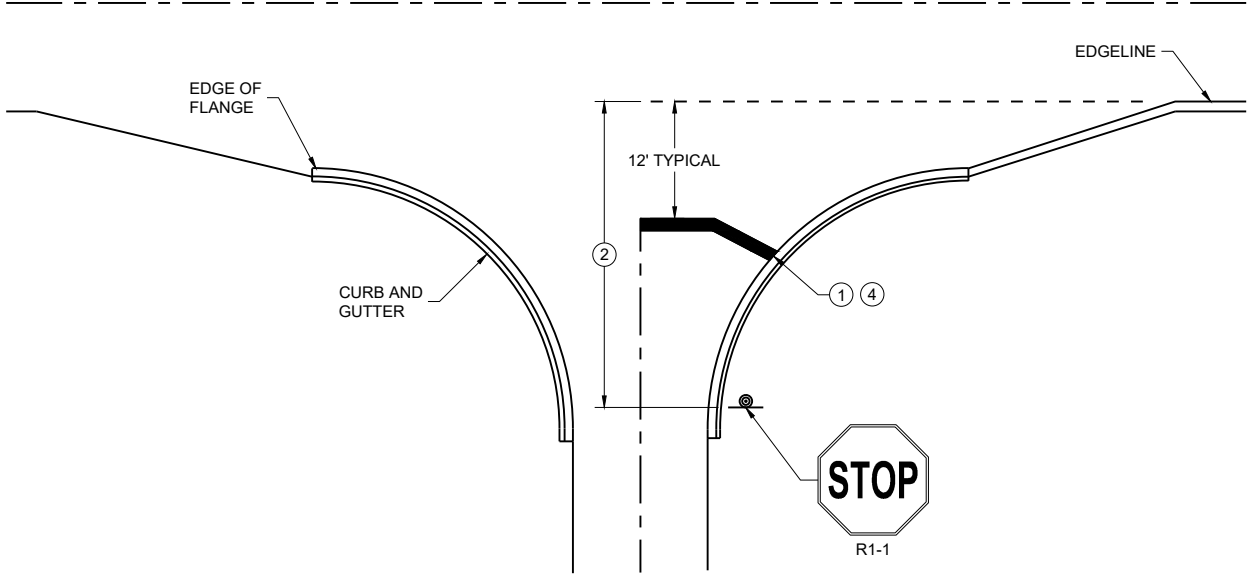


MOVING PAVEMENT MARKING
OPERATION MULTI-LANE
UNDIVIDED ROADWAY

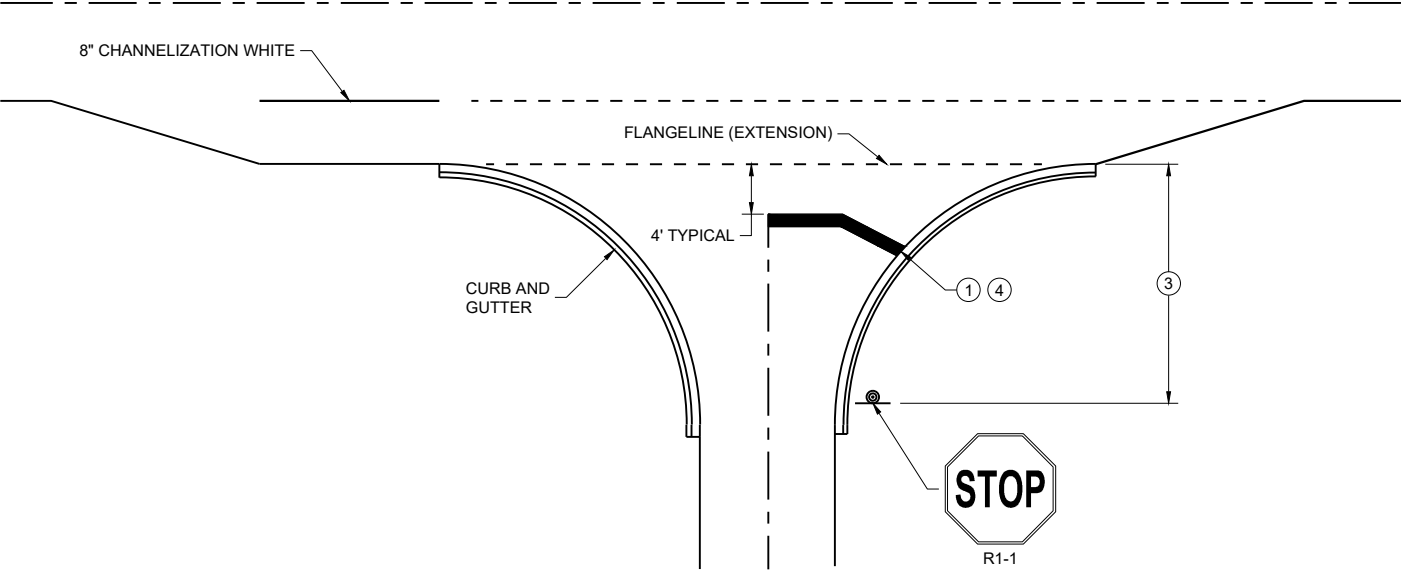
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
November 2025 /S/ Andrew Heidtke
DATE STATE ELECTRICAL ENGINEER
FHWA

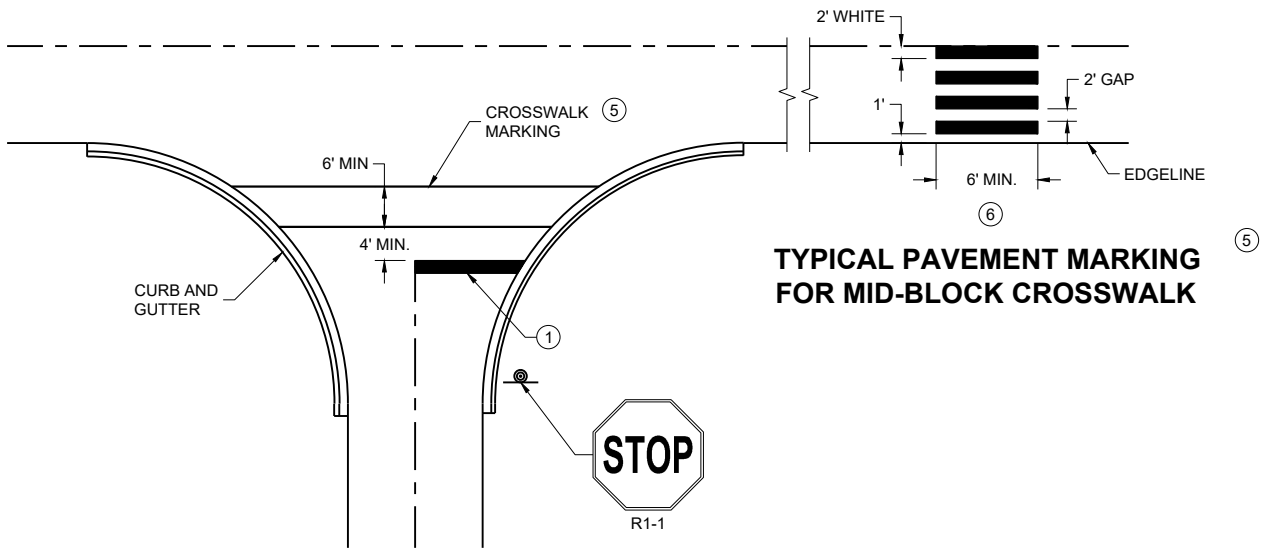
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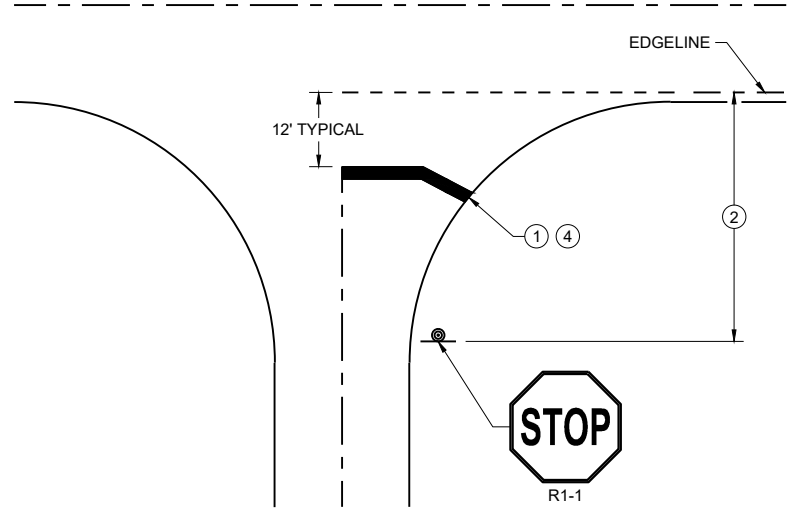
TYPICAL STOP LINE PAVEMENT MARKING
WITH CURB AND GUTTER



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.

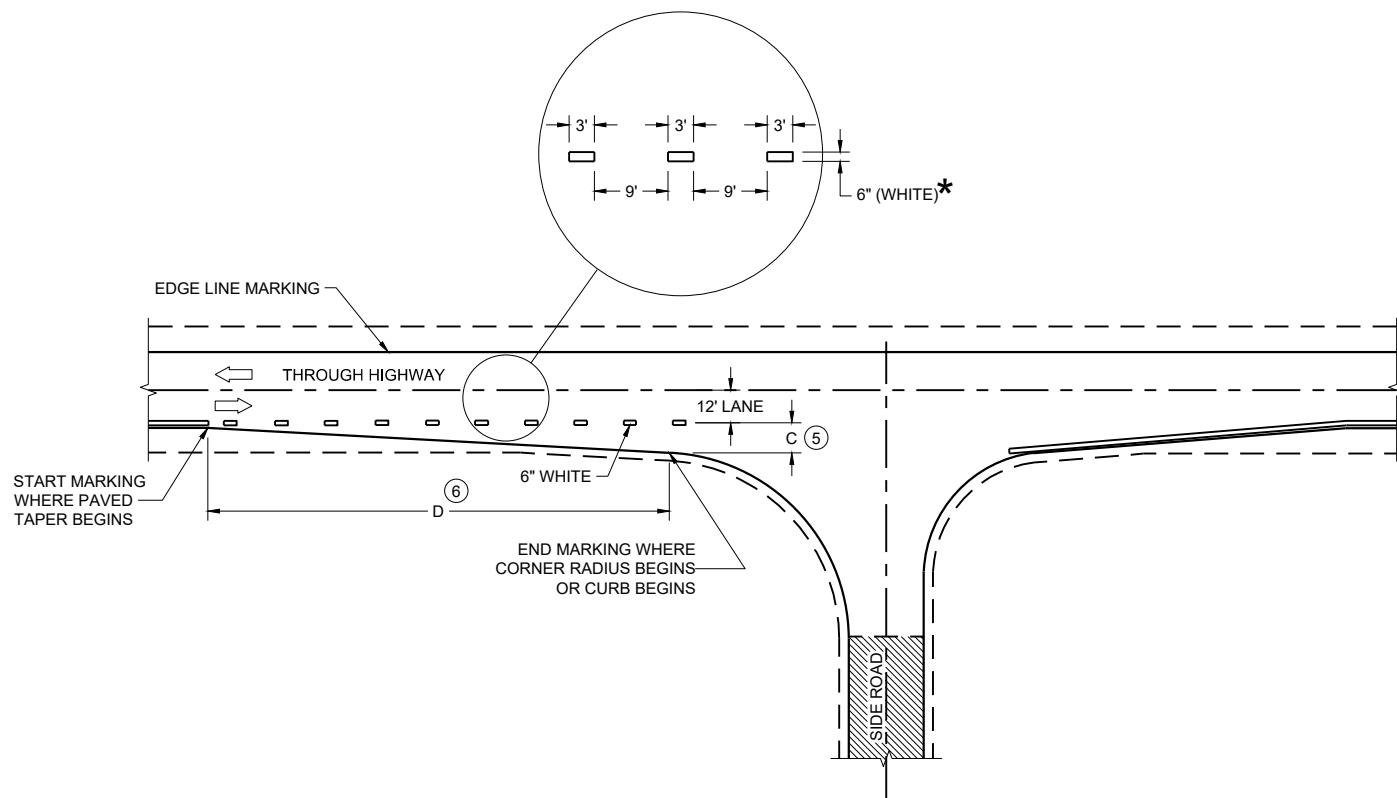
- ① 18-INCH STOP LINES MAY BE DELETED OR ADDED BY THE REGION MARKING ENGINEER BASED ON VISIBILITY AND SIGHT LINES.
- ② NO STOP LINE IS REQUIRED IF STOP SIGN IS LESS THAN OR EQUAL TO 40 FEET FROM THE EDGELINE.
- ③ NO STOP LINE IS REQUIRED IF STOP SIGN IS LESS THAN OR EQUAL TO 30 FEET FROM THE FLANGE LINE 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

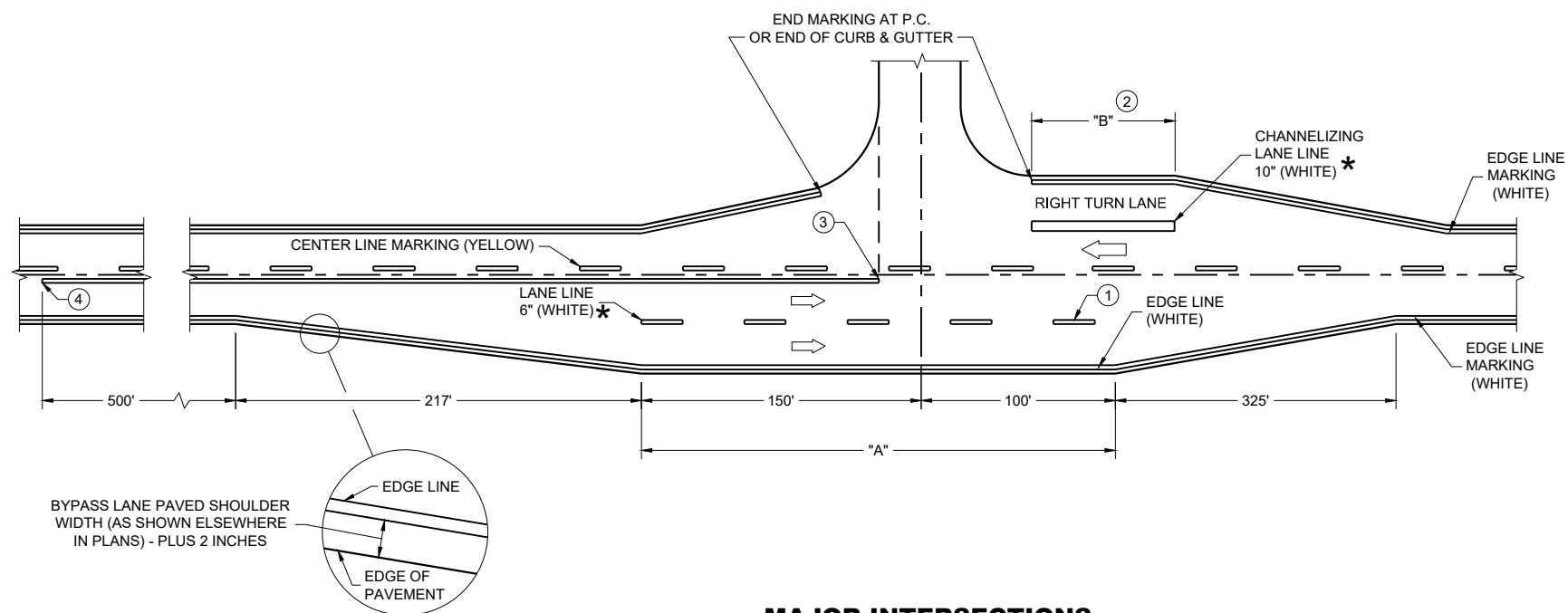
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

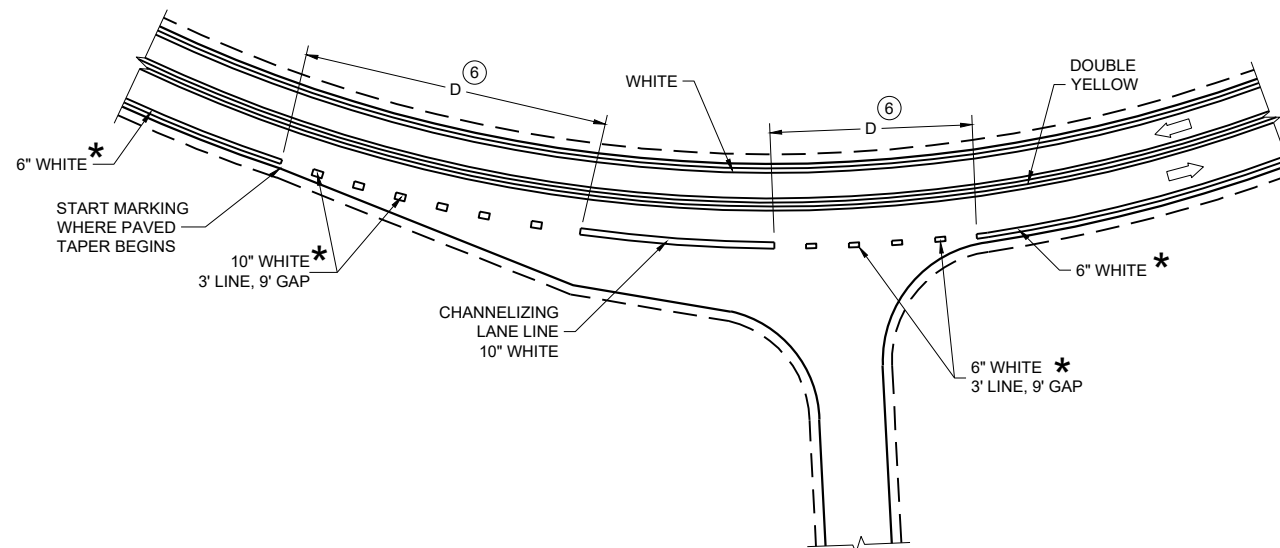
GENERAL NOTES

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

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

FOR WORK ON ROADWAYS WITH SPEEDS GREATER THAN 45MPH, USE SDD 15D12.

THIS LANE CLOSURE DETAIL IS TYPICAL FOR CLOSING THE LEFT LANE. FOR A RIGHT LANE CLOSURE, REVERSE THE TRAFFIC CONTROL.

THIS DETAIL MAY BE USED FOR ROADWAYS WITH EITHER TWO OR THREE LANES IN EACH DIRECTION.

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

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

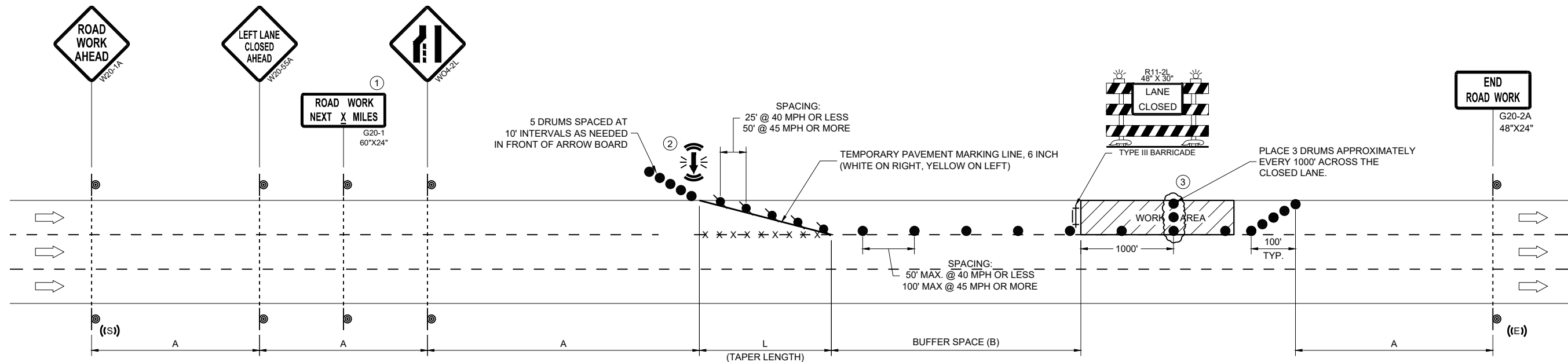
THE EXACT NUMBER, LOCATION, AND SPACING OF ALL SIGNS AND DEVICES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS APPROVED BY THE ENGINEER.

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

W20-1A, G20-1 AND G20-2A SIGNS ARE NOT REQUIRED IF THE LANE CLOSURE IS WITHIN A LARGER WORK ZONE WHERE THESE SIGNS ARE ALREADY PRESENT.

REMOVE PAVEMENT MARKINGS AND PLACE TEMPORARY PAVEMENT MARKING LINE IF LANE CLOSURE IS TO BE IN

- ① OMIT G20-1 SIGNS IF LENGTH OF WORK AREA IS 2 MILES OR LESS.
- ② WHERE THE SHOULDER OR TERRACE HAS INSUFFICIENT SPACE TO PLACE THE ARROW BOARD AS SHOWN, PLACE THE ARROW BOARD AT THE END OF THE TAPER.
- ③ DRUMS IN A CLOSED LANE THAT MUST BE MOVED FOR A WORK OPERATION SHALL BE IMMEDIATELY REESTABLISHED UPON COMPLETION OF THE OPERATION, OR FOR CONTINUING OPERATIONS, AT THE END OF EACH WORKING DAY.



POSTED SPEED LIMIT PRIOR TO WORK STARTING (MPH)	ADVANCE WARNING SIGN SPACING (A) FEET	TAPER LENGTH (12 FT. LANE) (L) FEET	BUFFER SPACE (B) FEET
25	200'	125'	155'
30	200'	180'	200'
35	350'	245'	250'
40	350'	320'	305'
45	500'	540'	360'

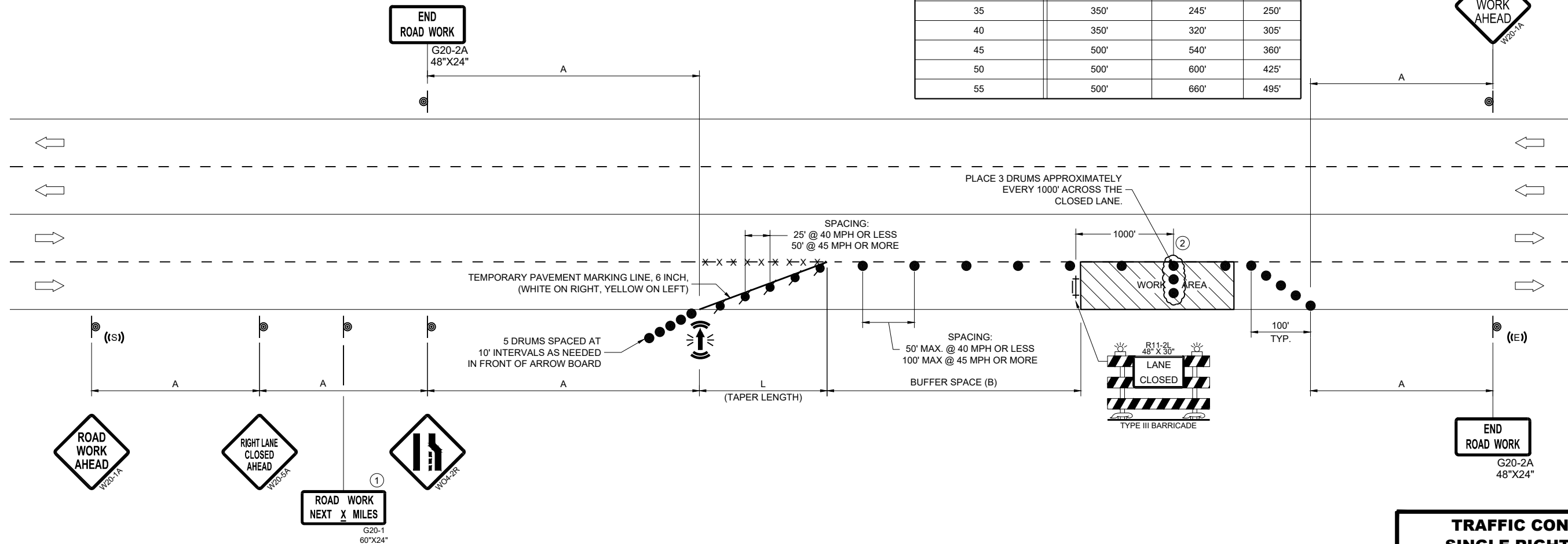
APPROVED	
<u>November 2025</u>	<u>/S/ Andrew Heidtke</u>
DATE	WORK ZONE ENGINEER

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

REMOVE PAVEMENT MARKINGS AND PLACE TEMPORARY PAVEMENT MARKING LINE IF LANE CLOSURE IS TO BE

② DRUMS IN A CLOSED LANE THAT MUST BE MOVED FOR A WORK OPERATION SHALL BE IMMEDIATELY REESTABLISHED UPON COMPLETION OF THE OPERATION, OR FOR CONTINUING OPERATIONS, AT THE END OF EACH WORKING DAY.

POSTED SPEED LIMIT PRIOR TO WORK STARTING (MPH)	ADVANCE WARNING SIGN SPACING (A) FEET	TAPER LENGTH (12 FT. LANE) (L) FEET	BUFFER SPACE (B) FEET
25	200'	125'	155'
30	200'	180'	200'
35	350'	245'	250'
40	350'	320'	305'
45	500'	540'	360'
50	500'	600'	425'
55	500'	660'	495'



**TRAFFIC CONTROL,
SINGLE RIGHT LANE
CLOSURE, UNDIVIDED
NON-FREEWAY/EXPRESSWAY**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
November 2025
DATE

/S/ Andrew Heidtke
WORK ZONE ENGINEER

LEGEND

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

GENERAL NOTES

THIS DETAIL MAY BE USED FOR ROADWAYS WITH EITHER TWO OR THREE LANES IN EACH DIRECTION.

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

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

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

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

W20-1A, G20-1 AND G20-2A SIGNS ARE NOT REQUIRED IF THE LANE CLOSURE IS WITHIN A LARGER WORK ZONE WHERE THESE SIGNS ARE ALREADY PRESENT.

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

CONSIDER GEOMETRICS WHEN LOCATING SIGNS AND ARROW BOARDS SO THE APPROACHING DRIVER HAS A CLEAR VIEW OF THE ARROW BOARDS AND LANE CLOSURE DRUMS FOR A MINIMUM 1500 FEET IN FRONT OF DRUMS.

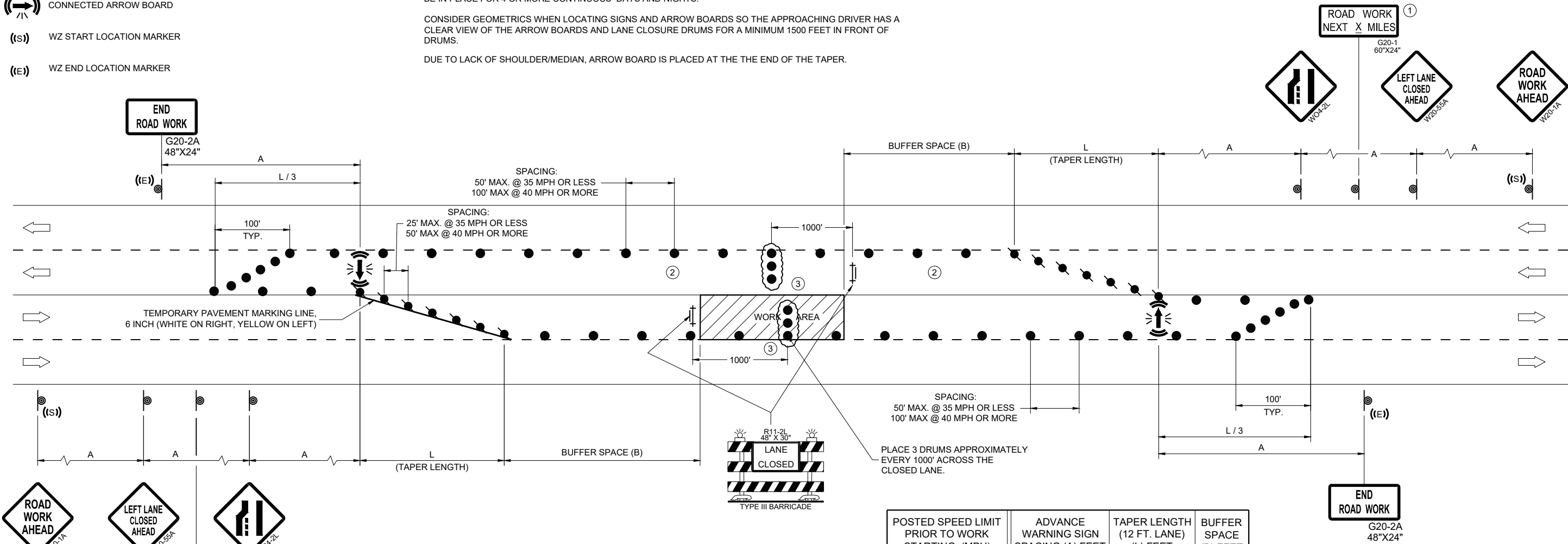
DUE TO LACK OF SHOULDER/MEDIAN, ARROW BOARD IS PLACED AT THE THE END OF THE TAPER.

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

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

- ① OMIT G20-1 SIGNS IF LENGTH OF WORK AREA IS 2 MILES OR LESS.
- ② LANE MAY BE OPENED WHEN WORKERS ARE NOT PRESENT IN THE WORK AREA.

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



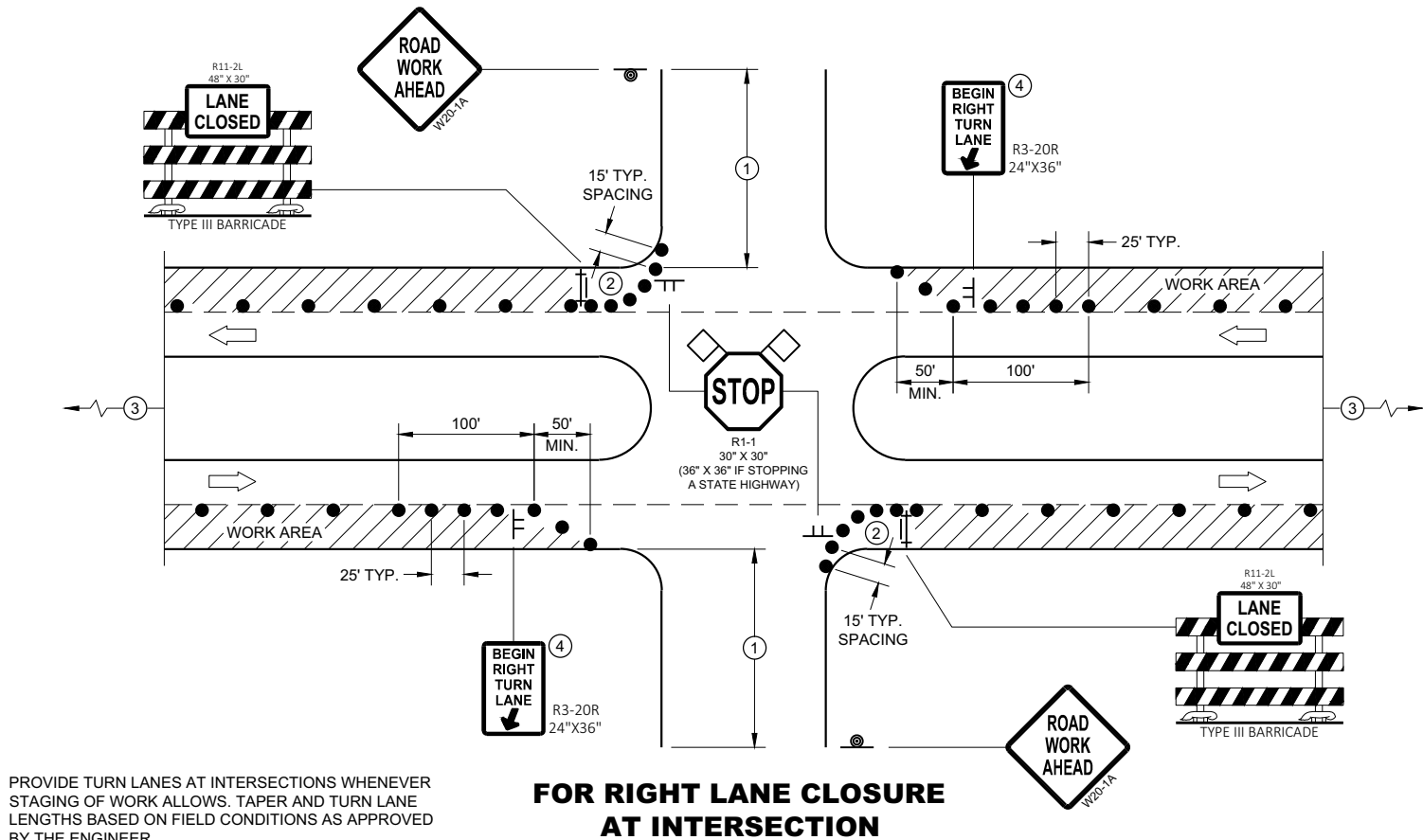
POSTED SPEED LIMIT PRIOR TO WORK STARTING (MPH)	ADVANCE WARNING SIGN SPACING (A) FEET	TAPER LENGTH (12 FT. LANE) (L) FEET	BUFFER SPACE (B) FEET
25	200'	125'	155'
30	200'	180'	200'
35	350'	245'	250'
40	350'	320'	305'
45	500'	540'	360'
50	500'	600'	425'
55	500'	660'	495'

**TRAFFIC CONTROL,
SINGLE LEFT LANE
CLOSURE, UNDIVIDED
NON-FREEWAY/EXPRESSWAY**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
November 2025 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER

FHWA



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

FOR RIGHT LANE CLOSURE AT INTERSECTION

GENERAL NOTES

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

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

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

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

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

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

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

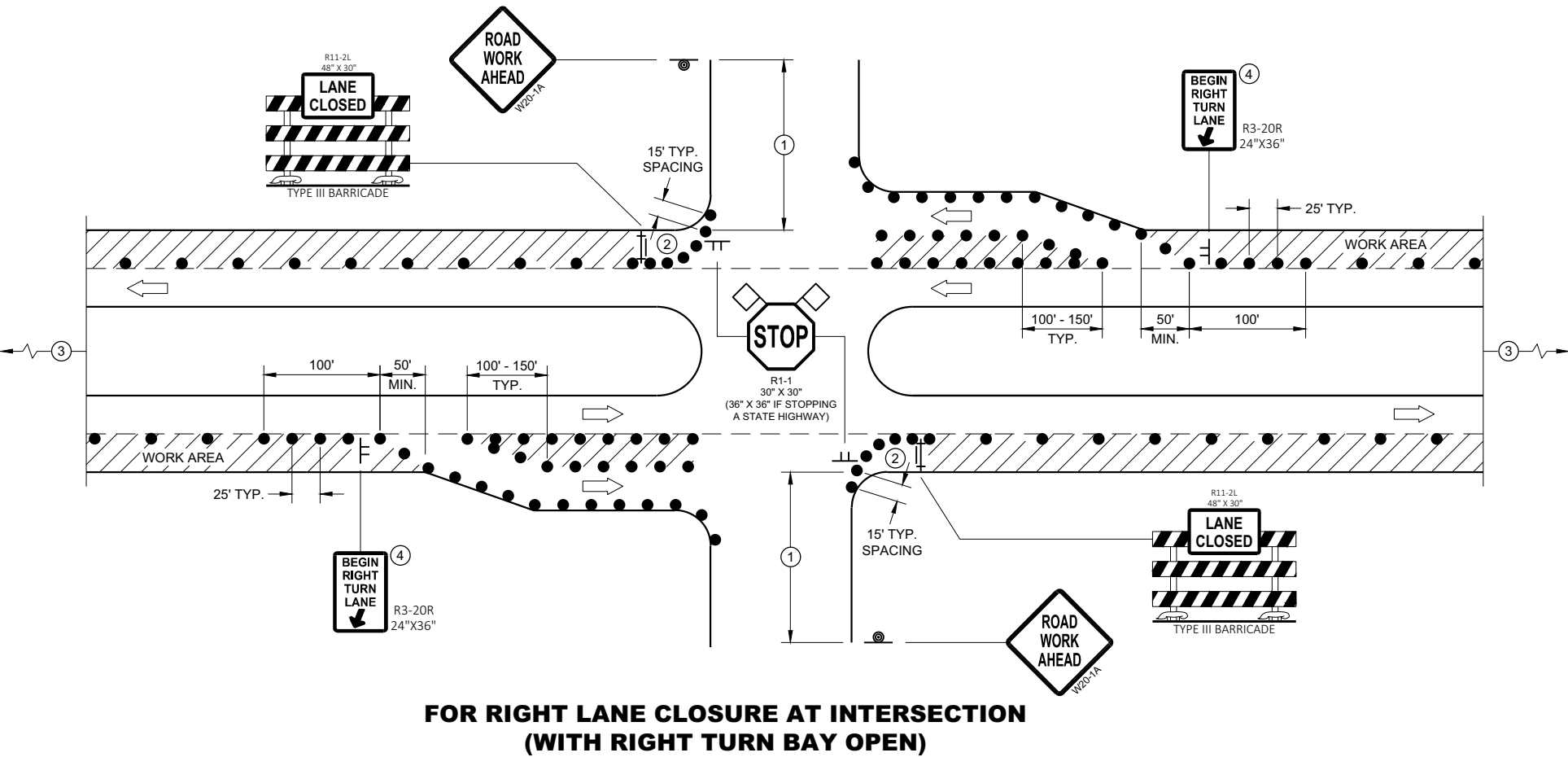
BARRICADES IN A CLOSED LANE THAT MUST BE MOVED FOR A WORK OPERATION SHALL BE IMMEDIATELY REESTABLISHED UPON COMPLETION OF THE OPERATION, OR FOR CONTINUING OPERATIONS, AT THE END OF EACH WORKING DAY.

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

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

LEGEND

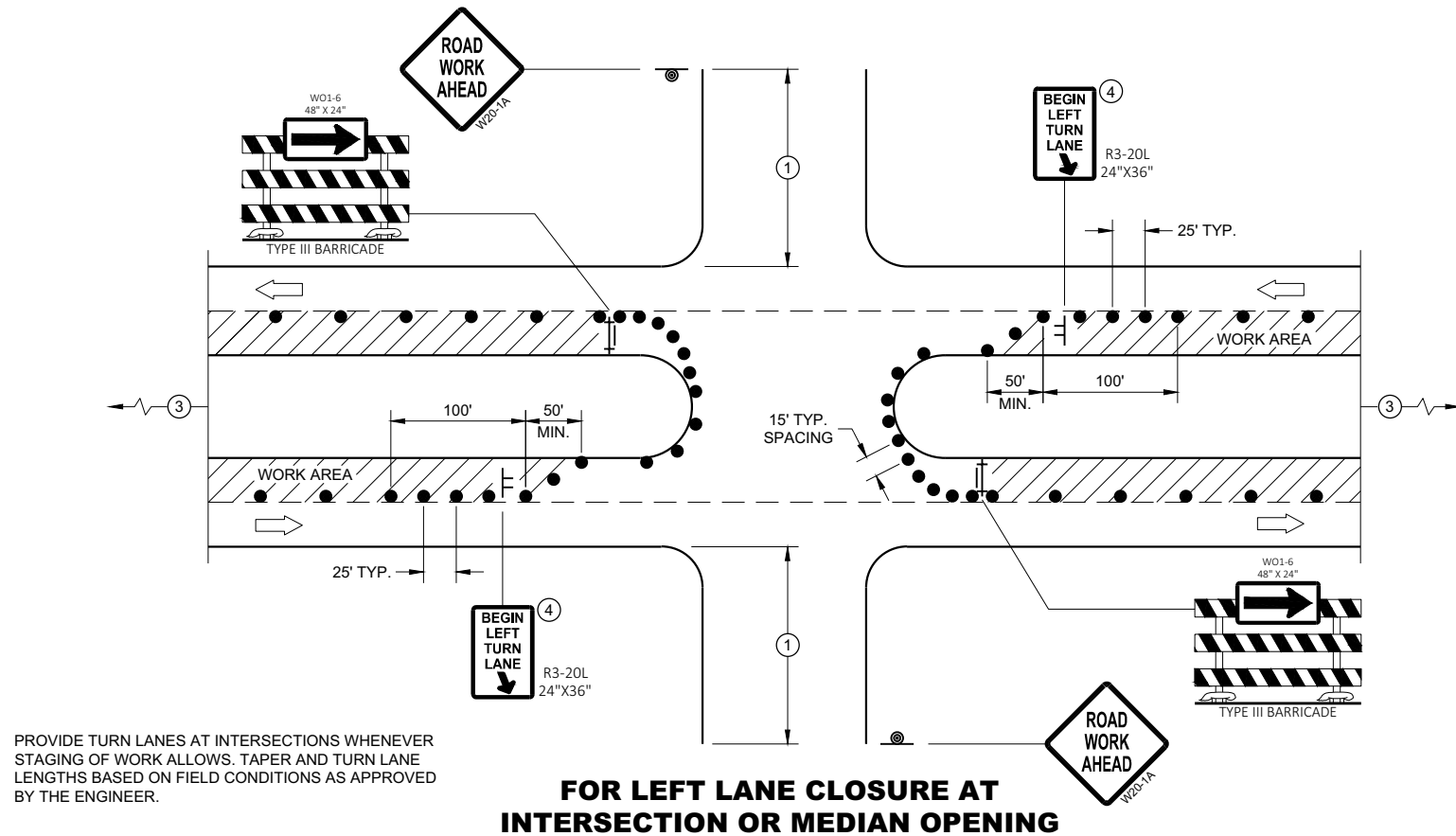
- SIGN ON TEMPORARY SUPPORT
- SIGN ON PERMANENT SUPPORT
- TRAFFIC CONTROL DRUM
- TYPE III BARRICADE WITH ATTACHED SIGN
- DIRECTION OF TRAFFIC
- ◇ ◇ FLAGS, 16" X 16" MIN., ORANGE
- ▨ WORK AREA



FOR RIGHT LANE CLOSURE AT INTERSECTION (WITH RIGHT TURN BAY OPEN)

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION 105

**GENERAL NOTES**

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

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

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

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

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

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

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

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

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

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

LEGEND

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

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

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
August 2020 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER 106
FHWA

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

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.

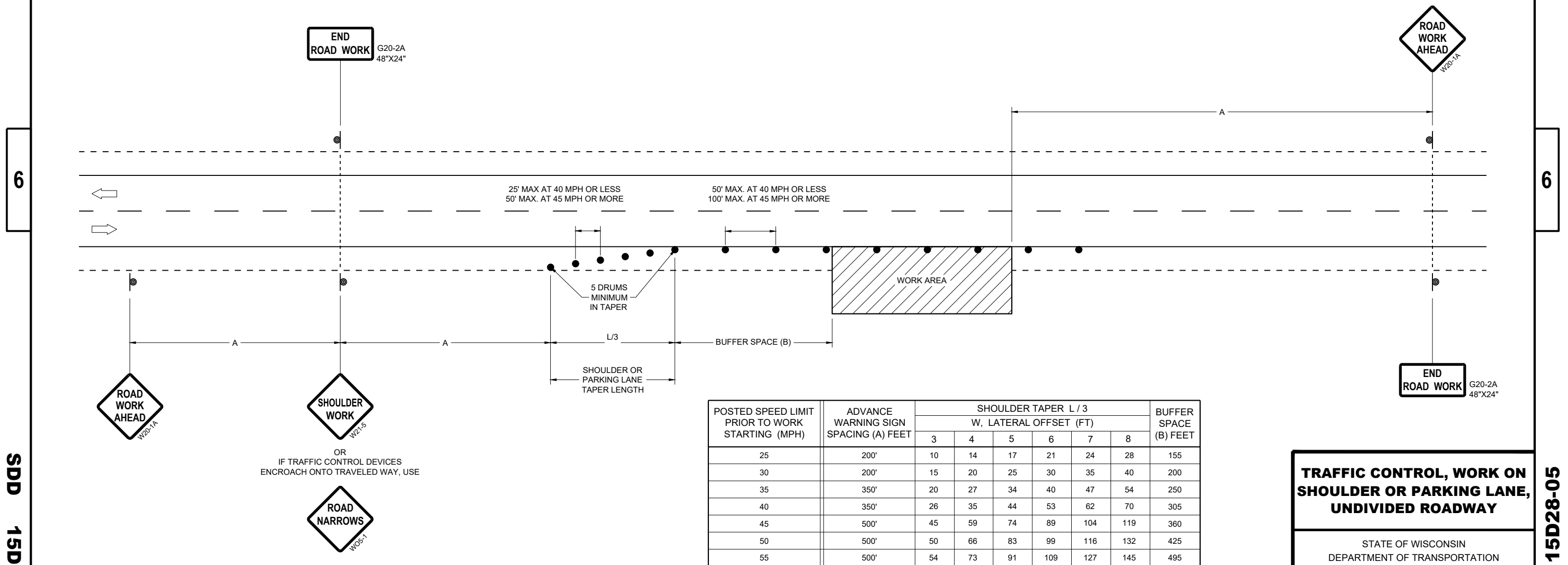
ANY SIGNS TEMPORARY OR EXISTING, WHICH CONFLICT WITH THE TRAFFIC CONTROL "IN USE" SHALL BE REMOVED OR COVERED AS NEEDED AND AS APPROVED BY THE ENGINEER.

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.

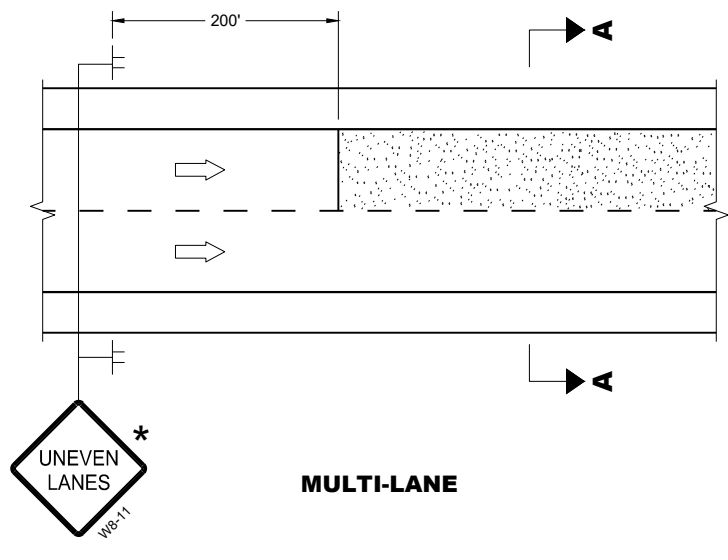
W20-1A AND G20-2A SIGNS ARE NOT REQUIRED IF THE WORK AREA IS WITHIN A LARGER WORK ZONE WHERE THESE SIGNS ARE ALREADY PRESENT. G20-2A SIGNS MAY ALSO BE OMITTED IF DURATION OF WORK IS LESS THAN 7 CONTINUOUS DAYS AND NIGHTS.



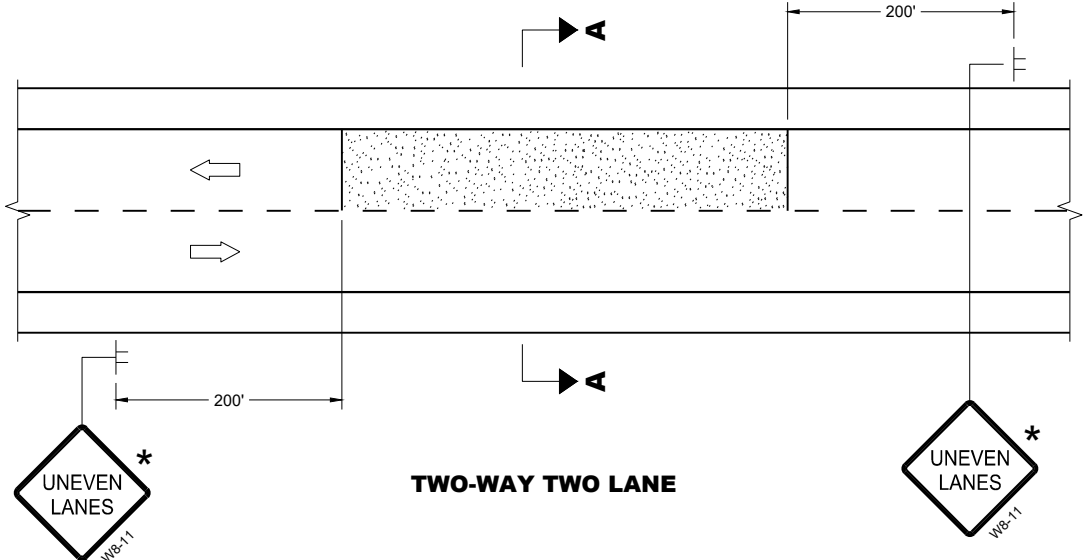
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
November 2025
DATE

/S/ ANDREW HEIDTKE
STATEWIDE WORK ZONE TRAFFIC
SAFETY ENGINEER



MULTI-LANE

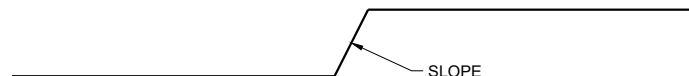


TWO-WAY TWO LANE

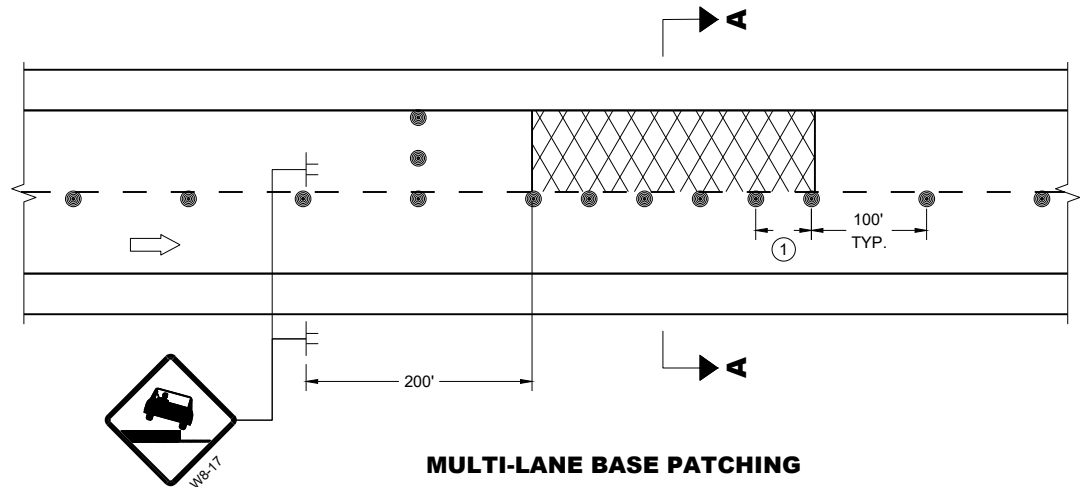


SECTION A - A

OR



SECTION A - A



MULTI-LANE BASE PATCHING

ADJACENT LANE DROP-OFFS

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.

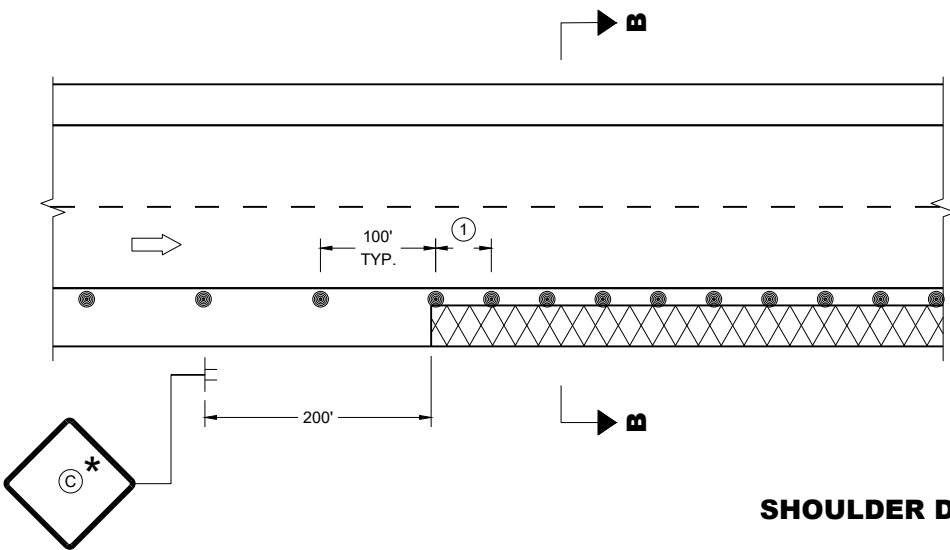
WARNING LIGHTS ARE NOT REQUIRED IF THE LANE CLOSURE IS A DAYTIME ONLY OPERATION.

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

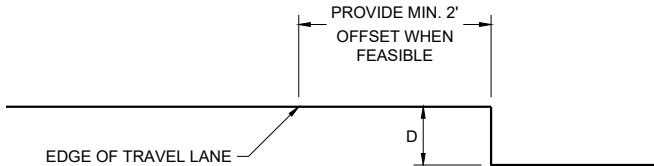
① USE CLOSER SPACING WHEN DELINEATING DROP-OFF.

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 ③
< 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
February 2025 /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.

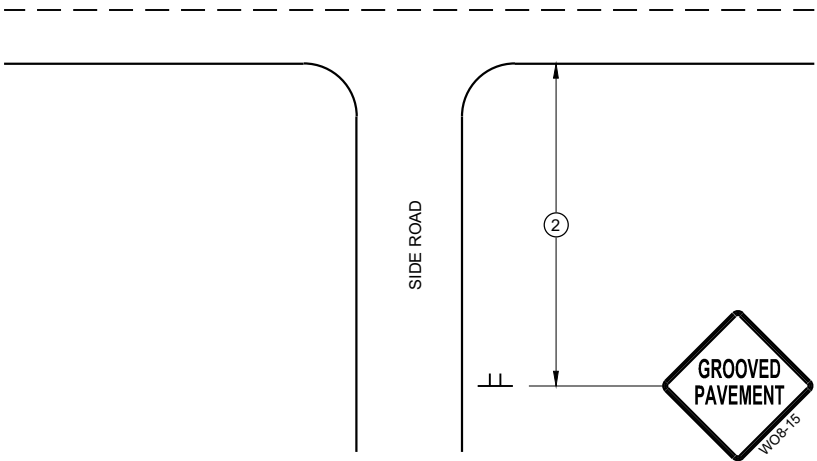
ALL SIGNS INAPPROPRIATE TO THE STATUS OF THE CONTROL ZONE, INCLUDING PRE-EXISTING SIGNS IN THE VICINITY, SHALL BE COVERED OR REMOVED AS DIRECTED BY THE ENGINEER.

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.

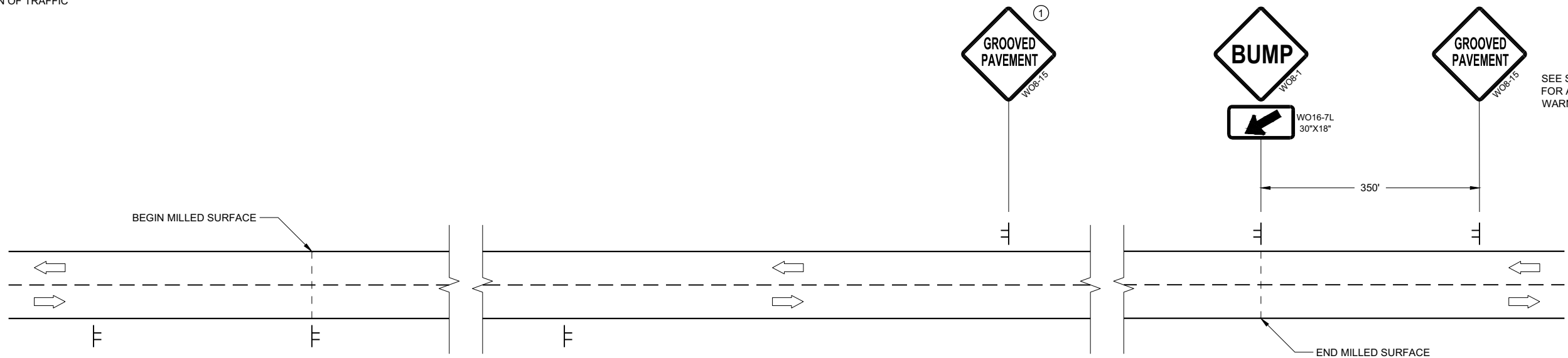
- 1 PLACE SIGNS 350' IN ADVANCE OF MILLED SURFACES AND AT 1 MILE INTERVALS, OR AS DIRECTED BY THE ENGINEER.
- 2 PLACE SIGN 200' MIN. FROM INTERSECTION AND 200' MIN. AFTER ADVANCE WARNING SIGN SHOWN IN SDD 15C04.

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 109

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

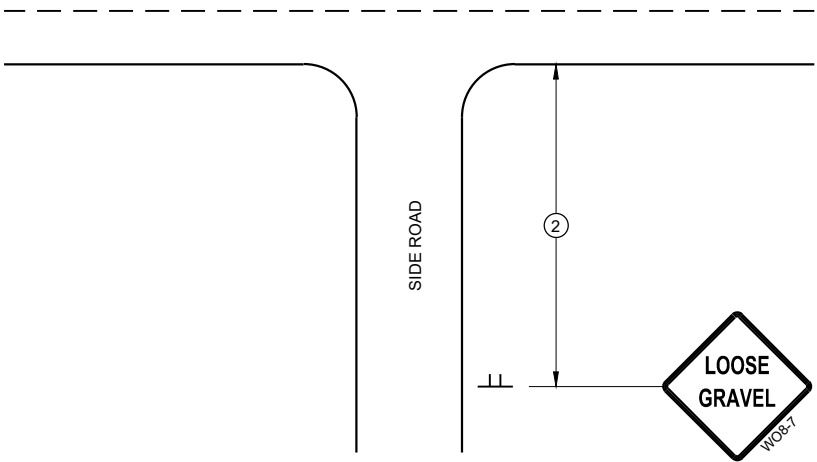
PLACE SIGNS 350' IN ADVANCE OF CHIP SEALED OR LOOSE GRAVEL SURFACES AND AT 1 MILE INTERVALS, OR AS DIRECTED BY THE ENGINEER.
- 2

PLACE SIGN 200' MIN. FROM INTERSECTION AND 200' MIN. AFTER ADVANCE WARNING SIGN SHOWN IN SDD 15C04.
- 3

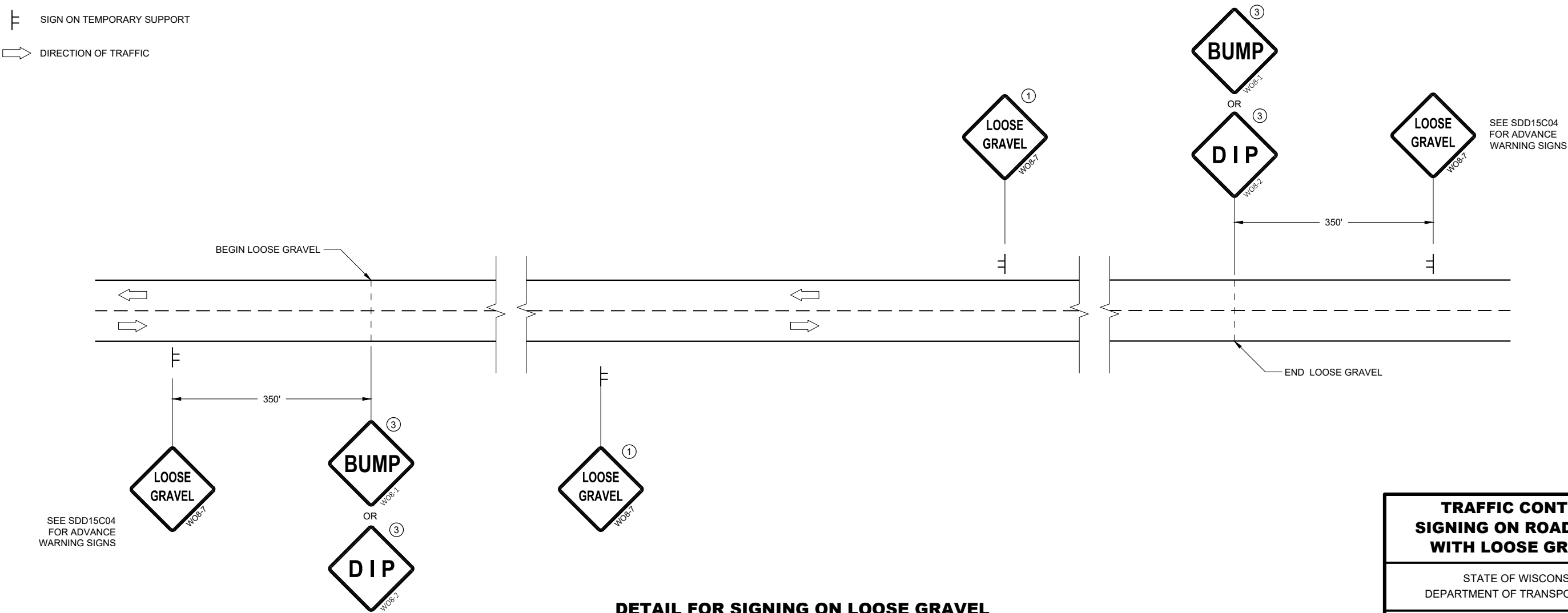
ADD WO8-1 OR WO8-2 SIGN WHEN THE CONDITION IS PRESENT.

LEGEND

- SIGN ON TEMPORARY SUPPORT
- DIRECTION OF TRAFFIC



TYPICAL SIDE ROAD APPROACH
SIGN DETAIL

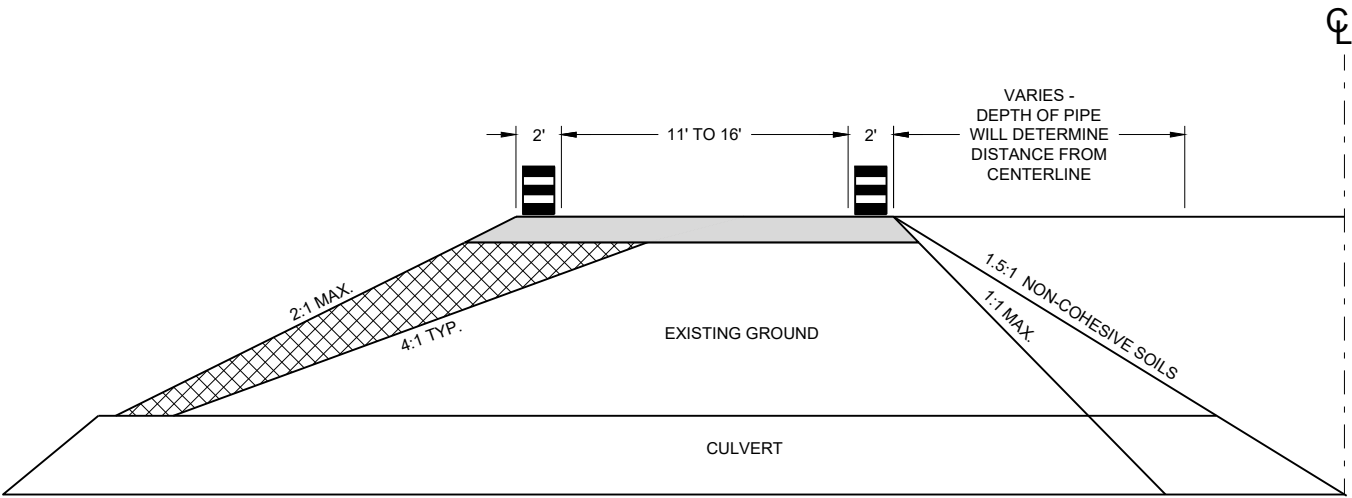


DETAIL FOR SIGNING ON LOOSE GRAVEL
OR CHIP SEALED SURFACES

TRAFFIC CONTROL
SIGNING ON ROADWAYS
WITH LOOSE GRAVEL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
February 2021 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER 110
FHWA



CROSS SECTION

GENERAL NOTES

USE 1:1 FOR COHESIVE CLAYS AND SILTS, LOAMS, SANDY CLAYS AND ANGULAR GRAVEL SOILS.
USE 1.5:1 FOR NON-COHESIVE SOILS.

THE TAPER SHOULD EXTEND ACROSS THE SHOULDER UNLESS DOING SO WOULD GREATLY CONFLICT WITH THE WORK OPERATION.

ALL LANE CLOSURE SIGNS SHALL BE REMOVED OR COVERED AND ALL DEVICES REMOVED BEYOND THE SHOULDER WHEN WORK IS NOT IN PROGRESS AND THE LANE IS RESTORED TO A SAFE OPERATING CONDITION.

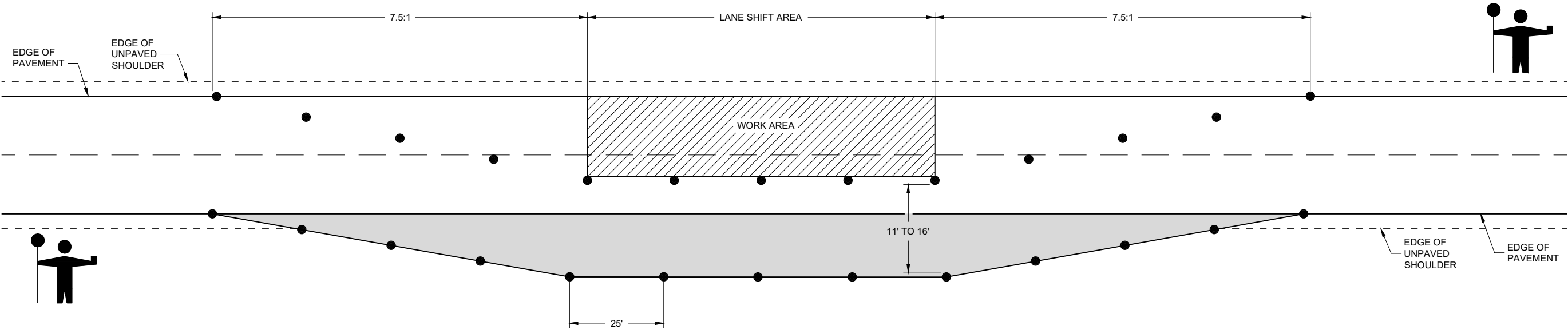
CHANNELIZING DEVICES PLACED ADJACENT TO WORK AREA SHALL BE PULLED BACK FROM TRAVEL LANE WHEN WORK IS NOT IN PROGRESS.

USE WITH SDD 15C12 "TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATIONS"

USE WITH SDD 15D45 "SIGNING ON ROADWAYS WITH LOOSE GRAVEL"

LEGEND

- DRUM WITHOUT WARNING LIGHT
- 6" BASE AGGREGATE DENSE 1 1/4" - INCIDENTAL TO LANE SHIFT ITEM
- FILL - INCIDENTAL TO LANE SHIFT ITEM
- WORK AREA
- FLAGGER, EQUIPPED WITH STOP/SLOW PADDLE FASTENED ON SUPPORT STAFF



LANE SHIFT IN FLAGGING OPERATION

**TRAFFIC CONTROL,
TEMPORARY LANE SHIFT
DURING CULVERT WORK**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
February 2021 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER 111

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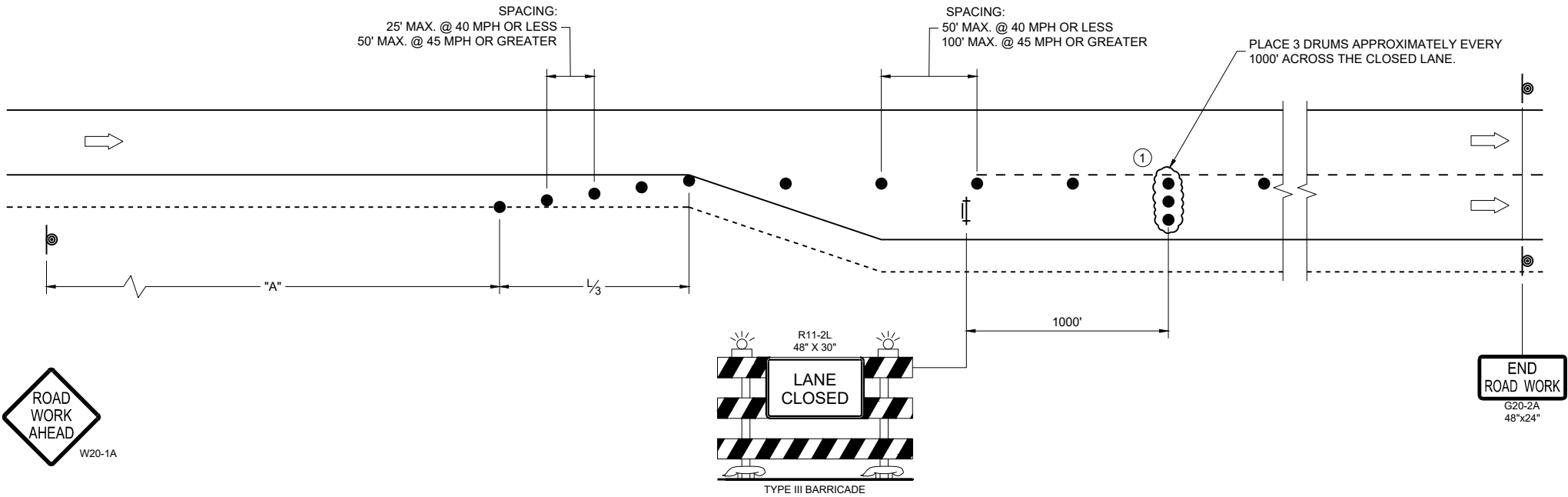
LEGEND

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

POSTED SPEED LIMIT PRIOR TO WORK STARTING (MPH)	ADVANCE WARNING SIGN SPACING (A) FEET	SHIFTING TAPER $L\frac{1}{2}$					
		W, LATERAL OFFSET (FT)					
25	200	10	14	17	21	24	28
30	200	15	20	25	30	35	40
35	350	20	27	34	40	47	54
40	350	26	35	44	53	62	70
45	500	45	59	74	89	104	119
50	500	50	66	83	99	116	132
55	500	54	73	91	109	127	145

GENERAL NOTES

- THE EXACT NUMBER, LOCATION, AND SPACING OF ALL SIGNS AND DEVICES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS APPROVED BY THE ENGINEER.
- ALL SIGNS ARE 48"x48" UNLESS OTHERWISE NOTED. IF NECESSARY DUE TO SPACE CONSTRAINTS IN URBAN AREAS, 36"x36" SIGNS MAY BE USED IF APPROVED BY THE REGIONAL TRAFFIC UNIT.
- "WO" IS THE SAME AS "W" EXCEPT THE BACKGROUND IS ORANGE.
- ANY SIGNS TEMPORARY OR EXISTING, WHICH CONFLICT WITH TRAFFIC CONTROL "IN USE" SHALL BE REMOVED OR COVERED AS NEEDED AND 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.
- W20-1 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 WORK IS LESS THAN SEVEN CONTINUOUS DAYS AND NIGHTS.
- ① DRUMS IN A CLOSED LANE THAT MUST BE MOVED FOR A WORK OPERATION SHALL BE IMMEDIATELY REESTABLISHED UPON COMPLETION OF THE OPERATION, OR FOR CONTINUING OPERATIONS, AT THE END OF EACH WORKING DAY.



TRAFFIC CONTROL
ADDED LANE CLOSURE
WITHOUT LANE SHIFT

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
February 2025 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER

FHWA

LEGEND



TYPE III BARRICADE WITH ATTACHED SIGN



SIGN ON PERMANENT SUPPORT



TRAFFIC CONTROL DRUM



TRAFFIC CONTROL DRUM WITH TYPE "C" STEADY BURN LIGHT



TYPE "A" WARNING LIGHT (FLASHING)



DIRECTION OF TRAFFIC



WORK AREA

POSTED SPEED LIMIT PRIOR TO WORK STARTING (MPH)	ADVANCE WARNING SIGN SPACING (A) FEET	SHIFTING TAPER (L/2) FEET
25	200	60
30	200	90
35	350	120
40	350	160
45	500	270
50	500	300
55	500	330

GENERAL NOTES

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

ALL SIGNS ARE 48"x48" UNLESS OTHERWISE NOTED. IF NECESSARY DUE TO SPACE CONSTRAINTS IN URBAN AREAS, 36"x36" SIGNS MAY BE USED IF APPROVED BY THE REGIONAL TRAFFIC UNIT.

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

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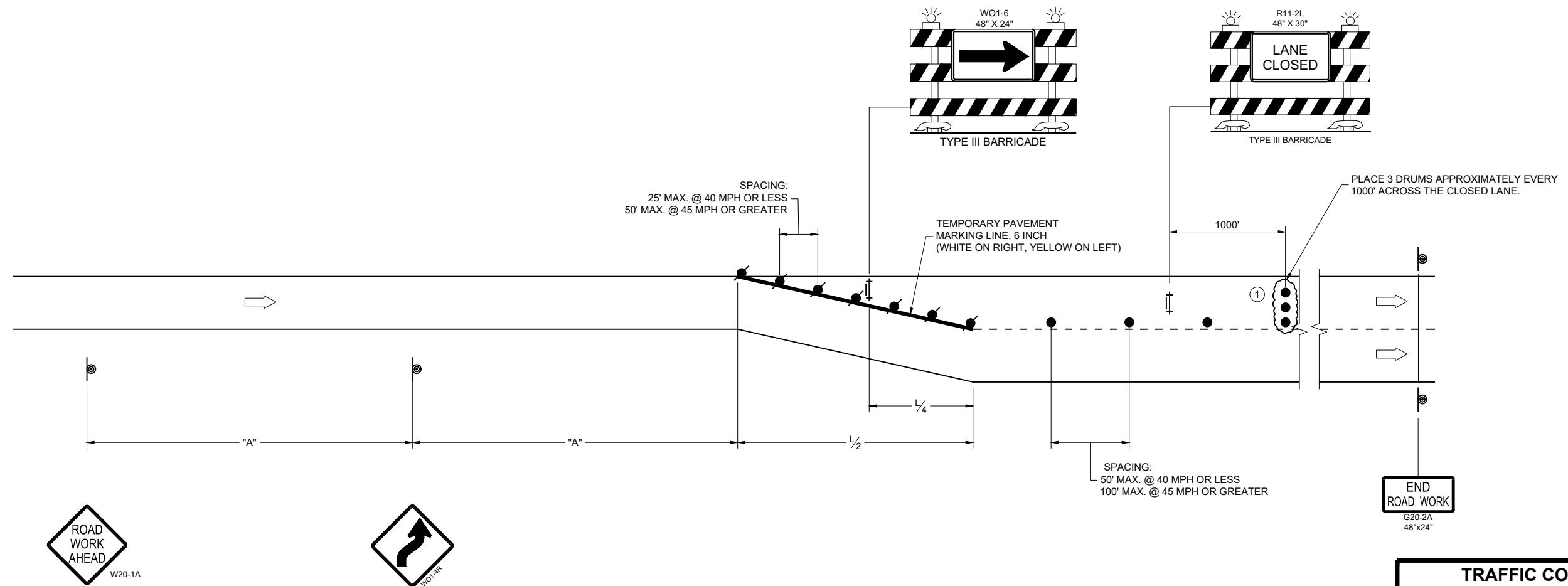
CHANNELIZING DEVICES PLACED ADJACENT TO WORK AREA SHALL BE PULLED BACK FROM THE TRAVEL LANE WHEN WORK IS NOT IN PROGRESS.

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

W20-1 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 WORK IS LESS THAN SEVEN CONTINUOUS DAYS AND NIGHTS.

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

① DRUMS IN A CLOSED LANE THAT MUST BE MOVED FOR A WORK OPERATION SHALL BE IMMEDIATELY REESTABLISHED UPON COMPLETION OF THE OPERATION, OR FOR CONTINUING OPERATIONS, AT THE END OF EACH WORKING DAY.



**TRAFFIC CONTROL,
ADDED LANE CLOSURE
WITH LANE SHIFT**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
February 2025
DATE

/S/ Andrew Heidtke
WORK ZONE ENGINEER

FHWA

— 113

6

SDD 15D50-04b

6 |

SDD 15D50-04b

Standard Detail Drawing List

08D01-24A	CONCRETE CURB & GUTTER
08D01-24B	CONCRETE CURB, TIES AND CURB AND GUTTER APPLICATIONS
08D04-07	CONCRETE SURFACE DRAINS & ASPHALTIC FLUMES
08D16-11	CONCRETE GUTTER, CURB AND GUTTER AND PAVEMENT TIES
08E08-03	TYPICAL INSTALLATIONS OF EROSION BALES / TEMPORARY DITCH CHECKS
08E09-06	SILT FENCE
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
09A01-14A	AT-GRADE SIDE ROAD INTERSECTION, TYPES "B1", "B2", "C" AND D AND TEE INTERSECTION BYPASS LANE
09A01-14B	AT-GRADE SIDE ROAD INTERSECTION, TYPE "A1" & "A2"
09A15-01	DRIVEWAYS WITHOUT CURB AND GUTTER RESURFACING PROJECTS RURAL
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
14B29-01	SAFETY EDGE
15A03-02A	FLEXIBLE MARKER POST FOR CULVERT END
15A03-02B	FLEXIBLE MARKER POST FOR CULVERT END
15C04-05	TRAFFIC CONTROL, ADVANCE WARNING SIGNS 45 M.P.H. OR GREATER TWO-WAY UNDIVIDED ROAD OPEN TO TRAFFIC
15C07-16A	PAVEMENT MARKING SYMBOLS
15C07-16B	PAVEMENT MARKING WORDS
15C07-16C	PAVEMENT MARKING ARROWS
15C08-24A	PERMANENT LONGITUDINAL PAVEMENT MARKINGS
15C08-24B	TEMPORARY LONGITUDINAL PAVEMENT MARKING
15C08-24C	PAVEMENT MARKING (TURN LANES)
15C08-24D	PAVEMENT MARKING (TURN LANES)
15C11-11B	CHANNELIZING DEVICES DRUMS, CONES, BARRICADES AND VERTICAL PANELS
15C12-09A	TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATION
15C18-09A	MEDIAN ISLAND PAVEMENT MARKINGS
15C18-09B	PAVEMENT MARKINGS, MEDIAN ISLAND NOSE
15C19-11A	MOVING PAVEMENT MARKING OPERATION TWO-LANE TWO-WAY ROADWAY
15C19-11B	MOVING PAVEMENT MARKING OPERATION MULTI-LANE UNDIVIDED ROADWAY
15C33-05	STOP LINE AND CROSSWALK PAVEMENT MARKING
15C35-06A	PAVEMENT MARKING (INTERSECTIONS)
15D20-11A	TRAFFIC CONTROL, SINGLE LANE CLOSURE, DIVIDED NON-FREEWAY/EXPRESSWAY
15D20-11B	TRAFFIC CONTROL, SINGLE RIGHT LANE CLOSURE, UNDIVIDED NON-FREEWAY/EXPRESSWAY
15D20-11C	TRAFFIC CONTROL, SINGLE LEFT LANE CLOSURE, UNDIVIDED NON-FREEWAY/EXPRESSWAY
15D21-07A	TRAFFIC CONTROL, INTERSECTION WITHIN SINGLE LANE CLOSURE
15D21-07B	TRAFFIC CONTROL, INTERSECTION WITHIN SINGLE LANE CLOSURE
15D28-05	TRAFFIC CONTROL, WORK ON SHOULDER OR PARKING LANE, UNDIVIDED ROADWAY
15D39-03	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
15D48-01	TRAFFIC CONTROL, LANE SHIFT IN FLAGGING OPERATION
15D50-04A	TRAFFIC CONTROL, ADDED LANE CLOSURE WITHOUT LANE SHIFT
15D50-04B	TRAFFIC CONTROL, ADDED LANE CLOSURE WITH LANE SHIFT
15D51-02	TRAFFIC CONTROL, MOBILE OPERATIONS ON AN UNDIVIDED ROADWAY

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.

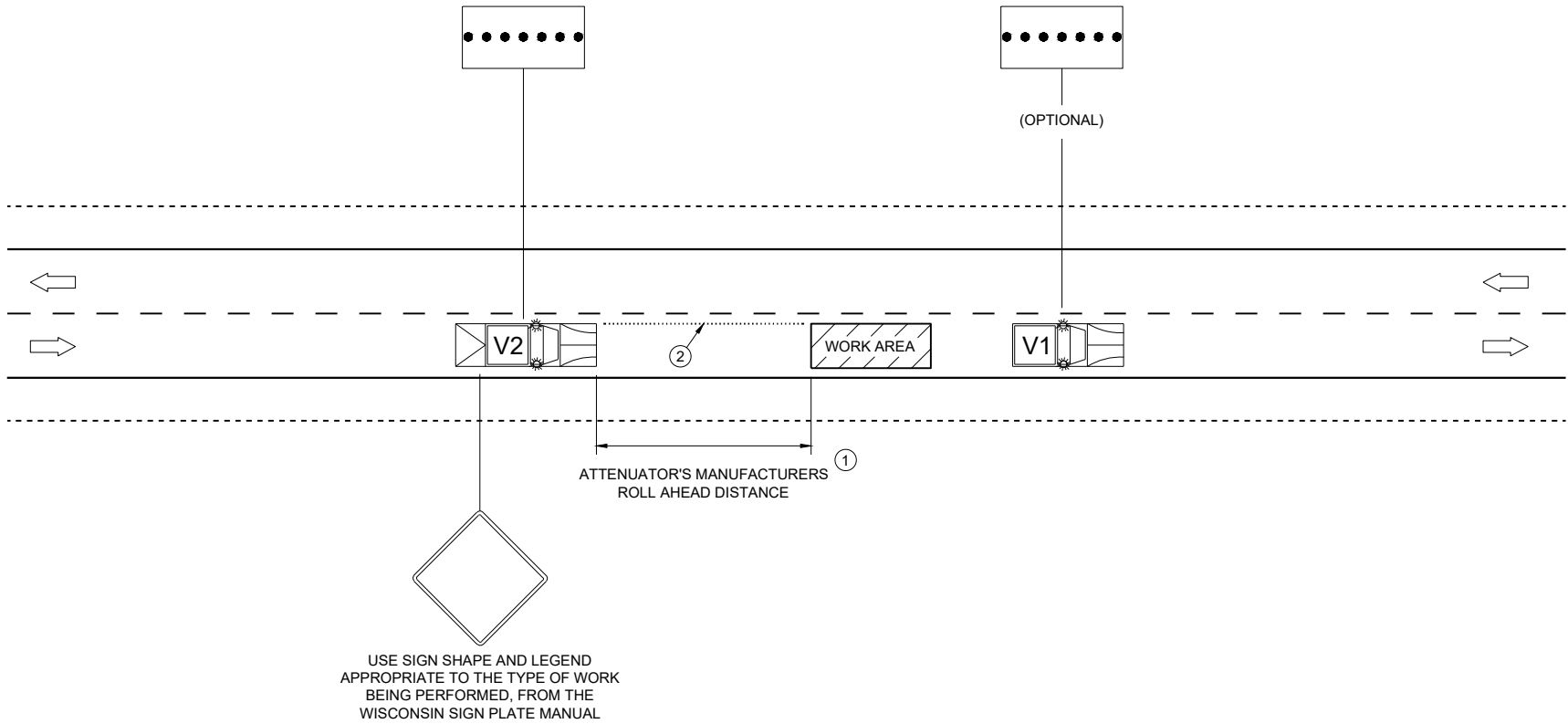
USE AN ATTENUATOR ON THE REARMOST VEHICLE THAT BLOCKS ALL OR PART OF THE TRAFFIC LANE.

WORKERS SHALL NOT PERFORM WORK FROM ANY SHADOW OR PROTECTION VEHICLES.

- 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

November 2025

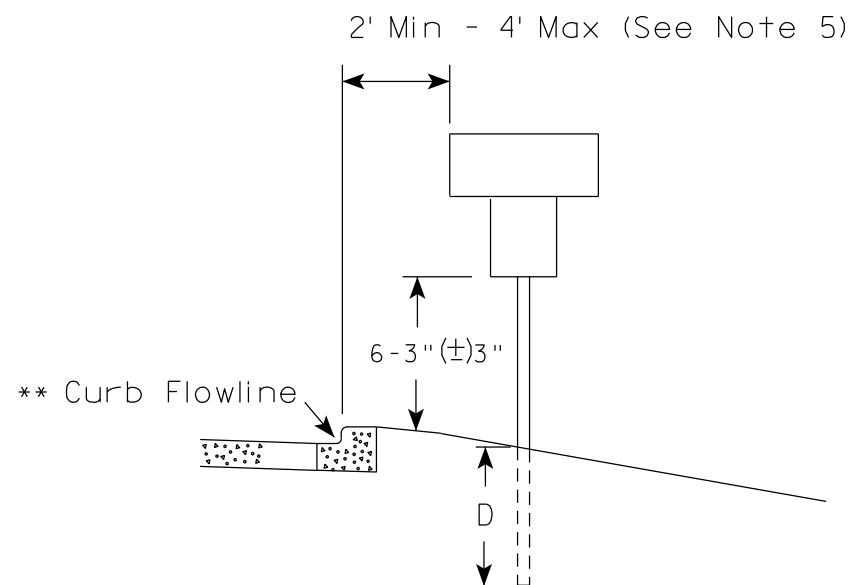
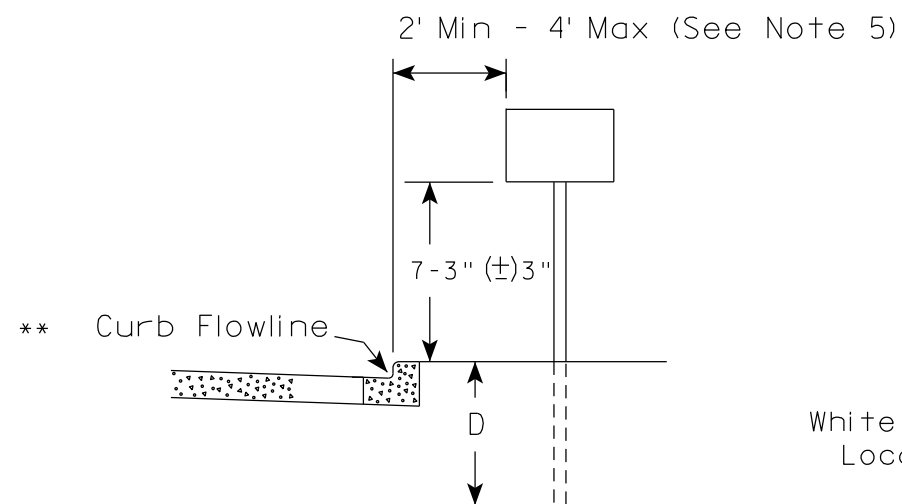
DATE

/S/ Andrew Heidtke

STATEWIDE WORK ZONE TRAFFIC SAFETY ENGINEER

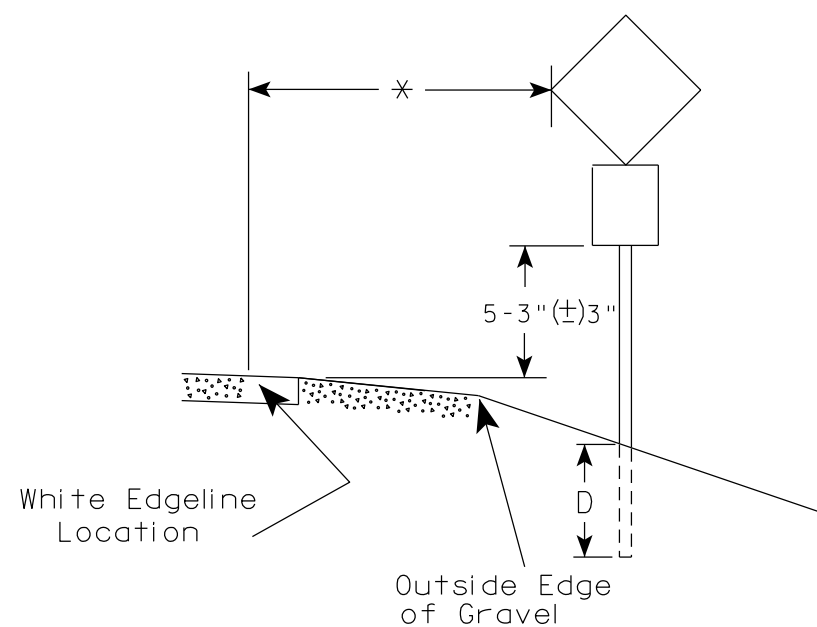
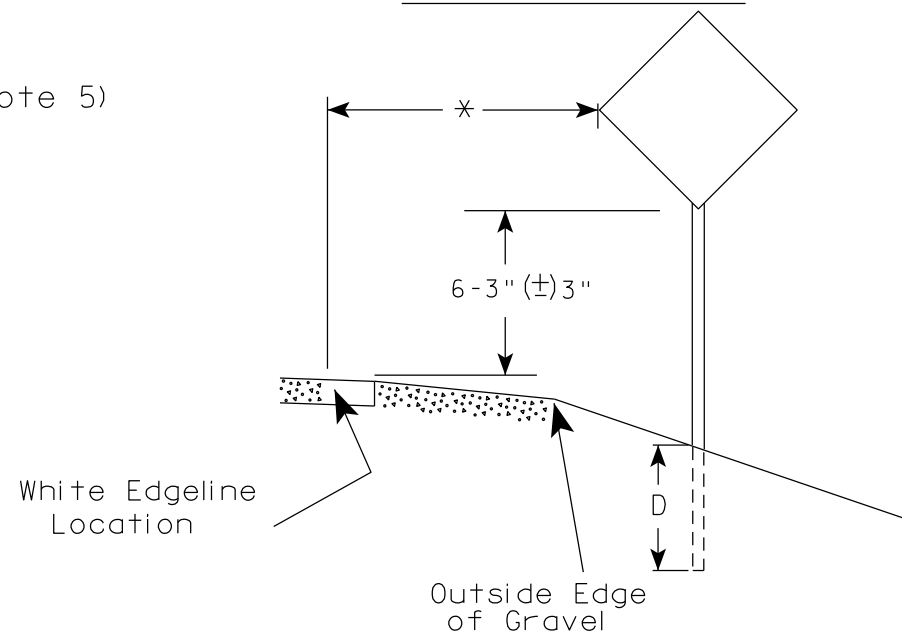
FHWA

URBAN AREA



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

RURAL AREA (See Note 2)



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

POST EMBEDMENT DEPTH

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

GENERAL NOTES

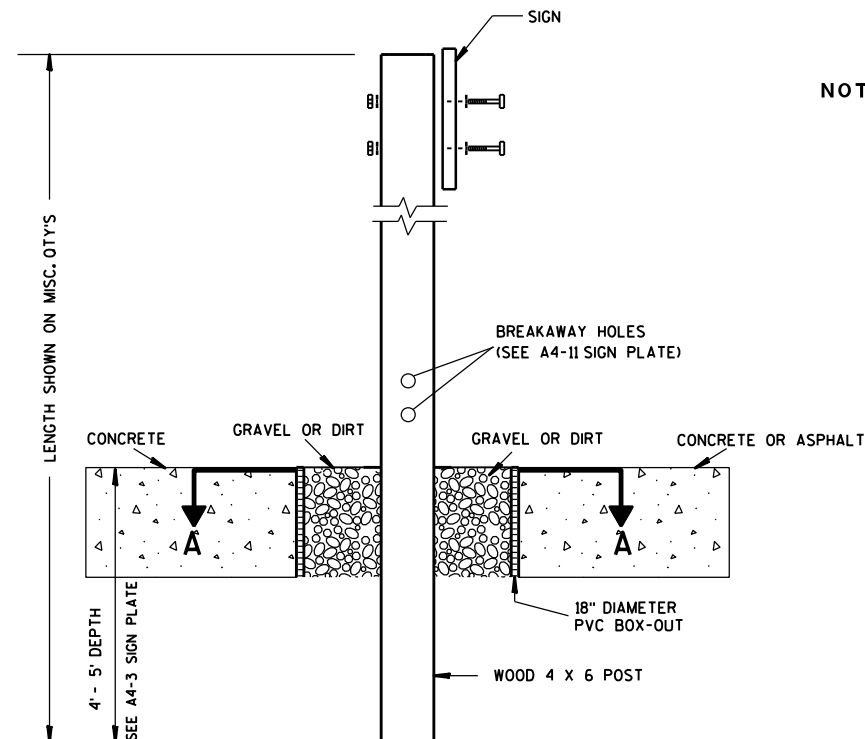
- Signs wider than 4 feet or 20 sq.ft or larger, shall be mounted on multiple posts. Refer to plate A4-4.
- If signs are mounted on or behind barrier wall, see A4-10 sign plate.
The Double Arrow sign (W12-1D) shall be mounted at a height of 2'-3" (±) 3". The Chevron sign (W1-8), Roundabout Chevron panel (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".
- For expressways and freeways, mounting height is 7'- 3" (±) 3" or 6'-3" (±) 3" depending upon existence of a sub-sign.
- Minimum mounting height for signs mounted on traffic signal poles is 5'- 3" (±) 3".
- 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.

TYPICAL INSTALLATION
OF PERMANENT TYPE II
SIGNS ON SINGLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

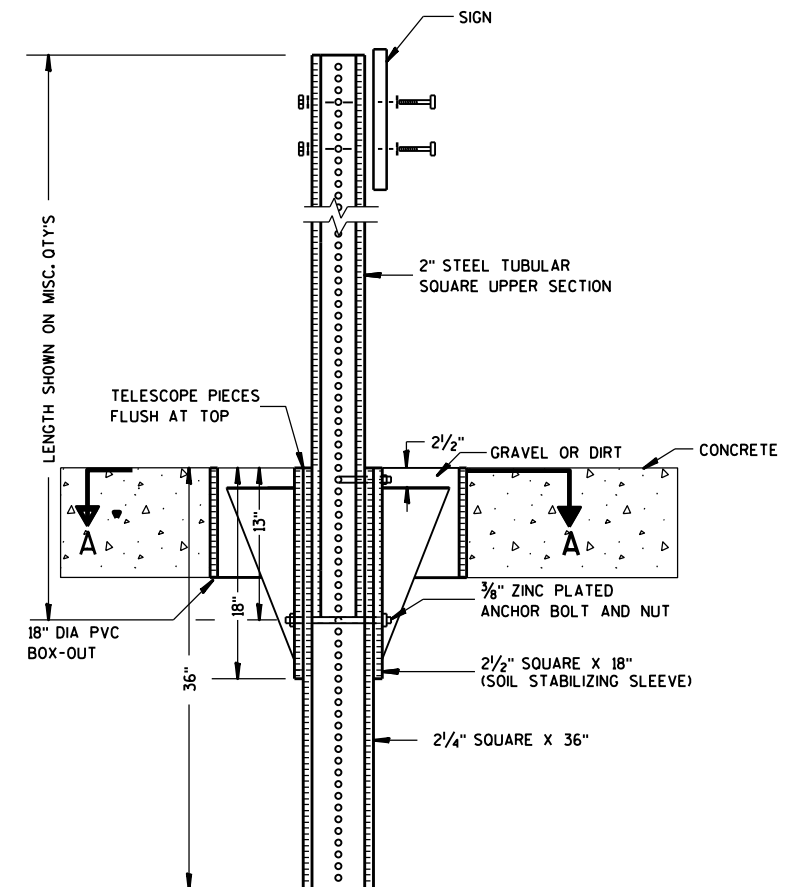
DATE 12/6/23 PLATE NO. A4-3.23



ELEVATION VIEW

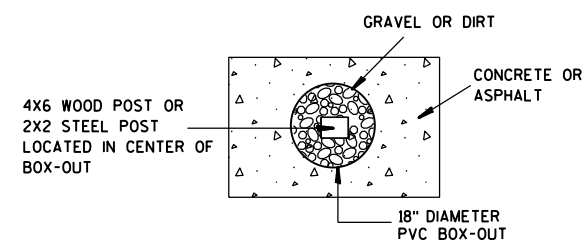
DETAIL OF WOOD 4 X 6 SIGN POST IN BOX-OUT

- 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

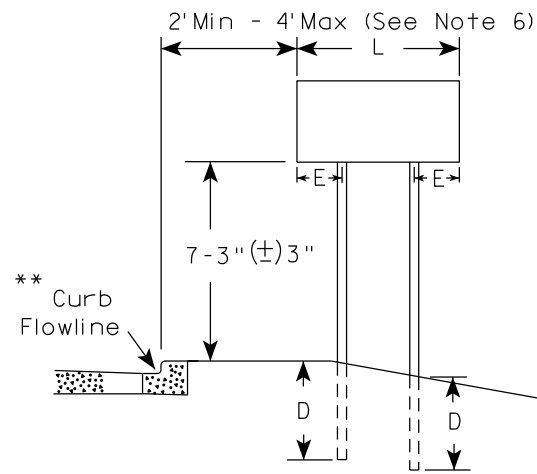
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

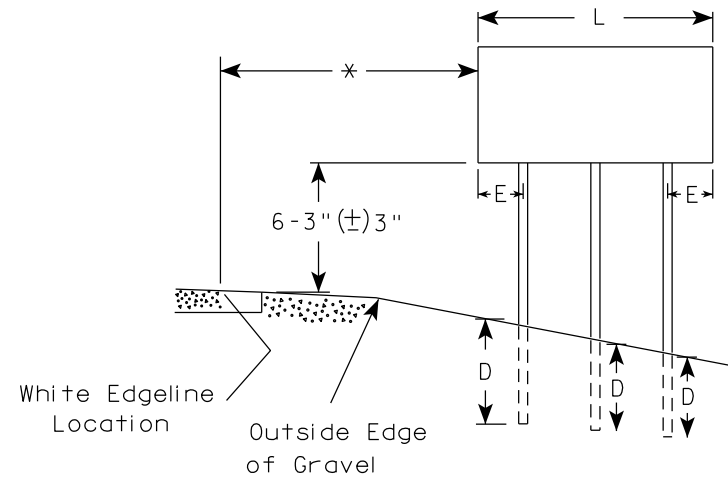
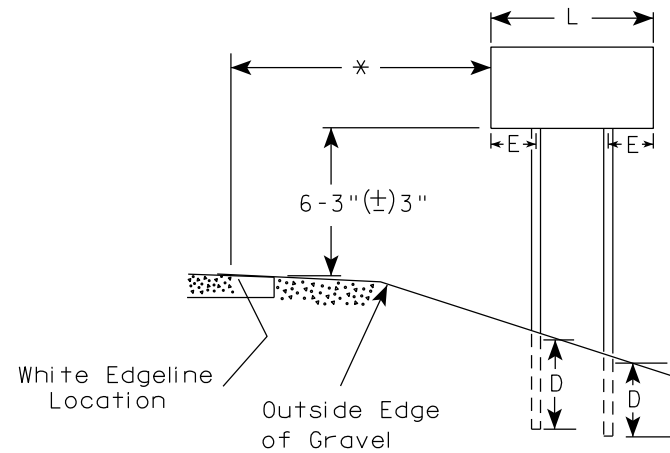
DATE 1/27/14 PLAT 117 A4-3B.1

PROJECT NO: HWY: COUNTY: SHEET NO: E

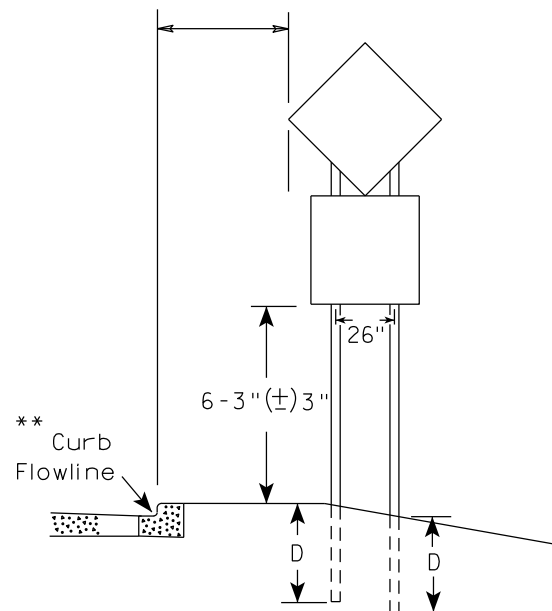
URBAN AREA



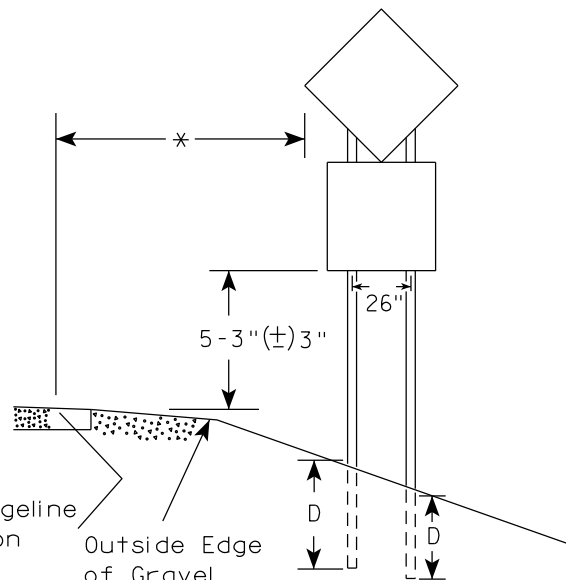
RURAL AREA (See Note 3)



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



48" DIAMOND WARNING SIGN



48" DIAMOND WARNING SIGN

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

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

POST EMBEDMENT DEPTH

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

TYPICAL INSTALLATION
OF TYPE II SIGNS
ON MULTIPLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

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

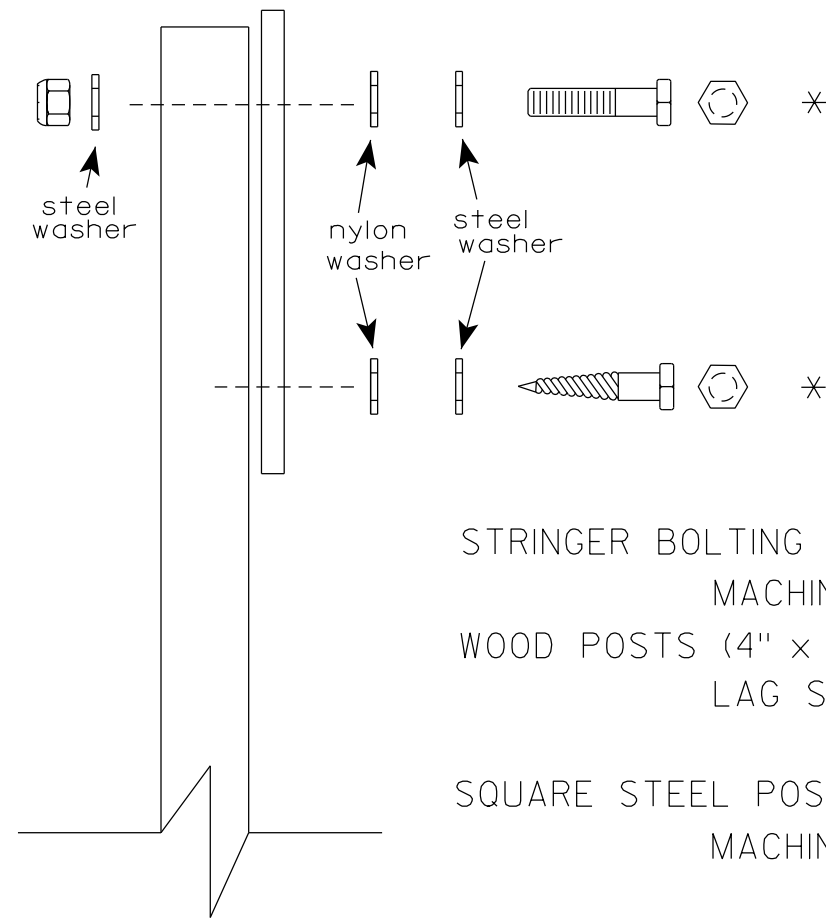
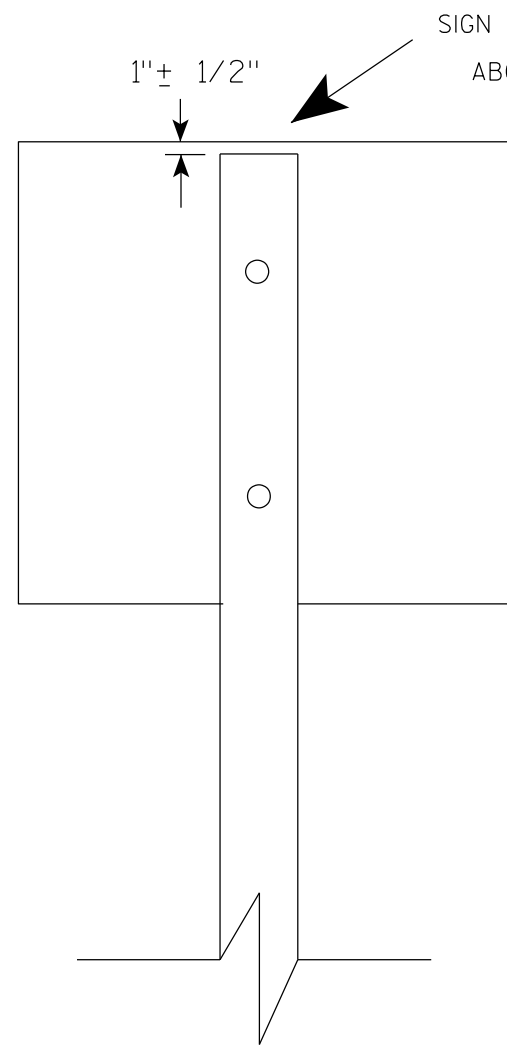
PROJECT NO:

HWY:

COUNTY:

SHEET NO: 118

E



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

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

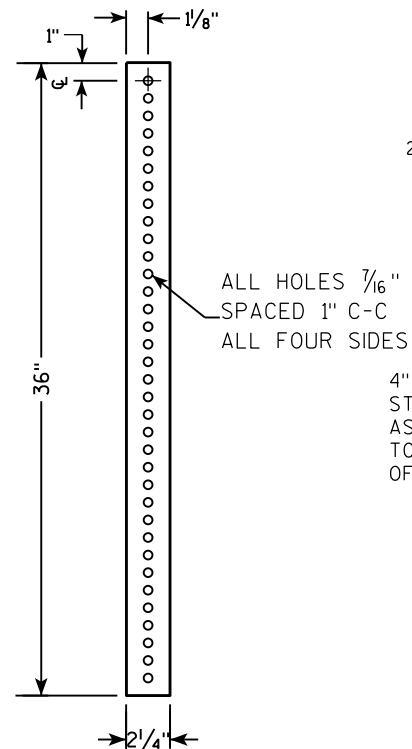
Threads on bolts and nuts shall be manufactured with sufficient allowance for the cadmium plate or galvanized coating to permit the nuts to run freely on the bolts.

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

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

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

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



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

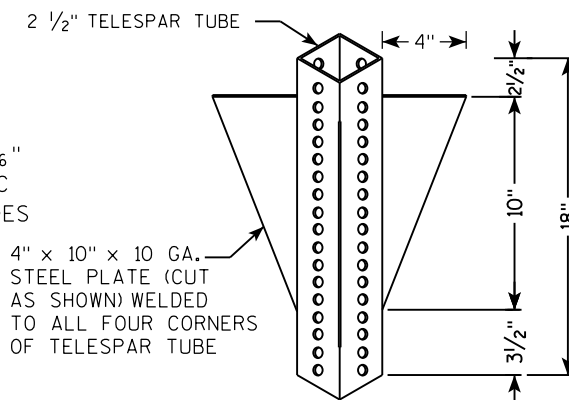


Diagram illustrating the assembly of a signpost, showing the vertical post, sign, and base components with dimensions and material specifications.

Sign Assembly:

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

Base Assembly:

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

LENGTH SHOWN ON MISC. QTY'S

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

1"

$\frac{3}{8}$ " ZINC PLATED ANCHOR BOLT AND NUT

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

2 1/4" SQUARE X 36"

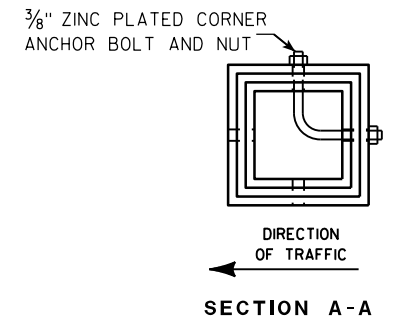
36"

18"

12"

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

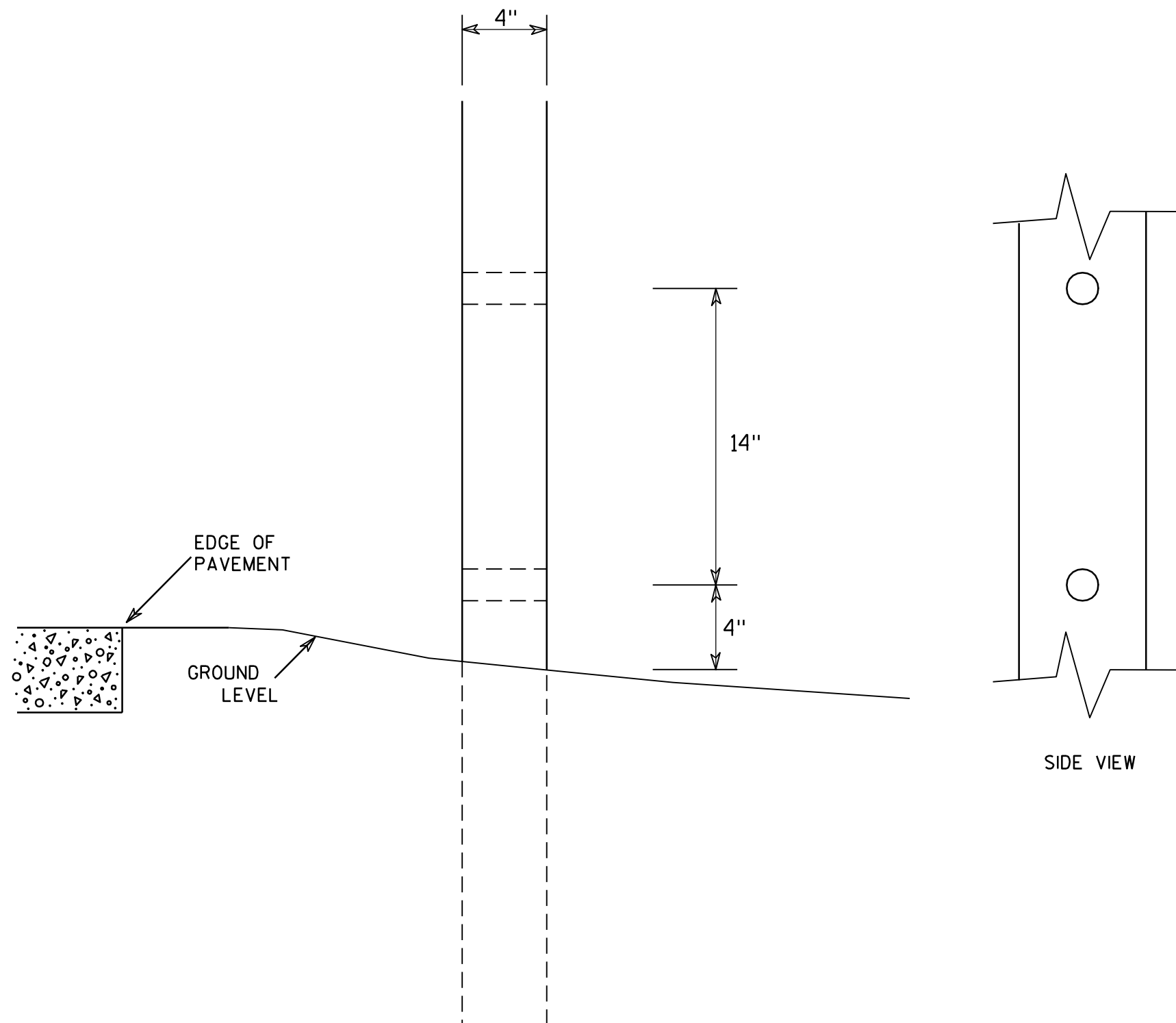
TUBULAR STEEL
SIGN POST
A4-9

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R. Rauch
For State Traffic Engineer

DATE 2/05/15 PLAT 120 14-9.9

7



GENERAL NOTES

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

7

4 X 6 WOOD POST MODIFICATIONS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED

Chester J. Spang
for State Traffic Engineer

DATE 3/27/97

PLATE NO. A4-11.2

PROJECT NO:

HWY:

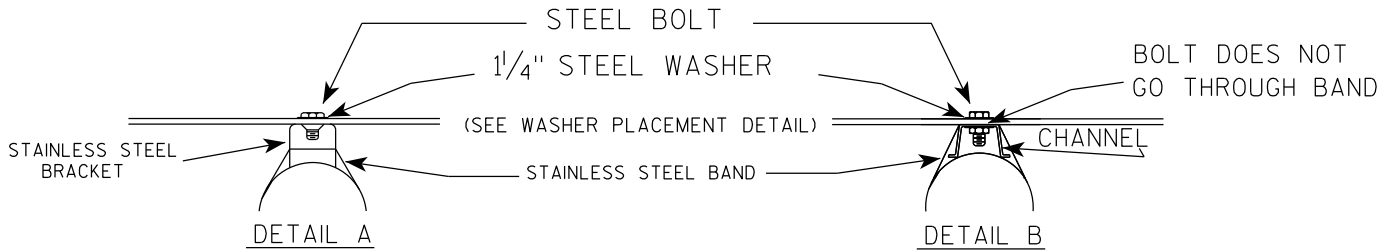
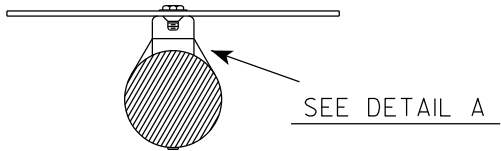
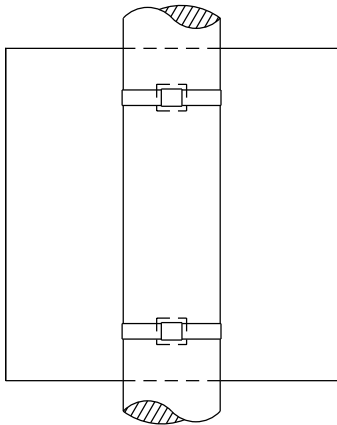
COUNTY:

SHEET NO: 121

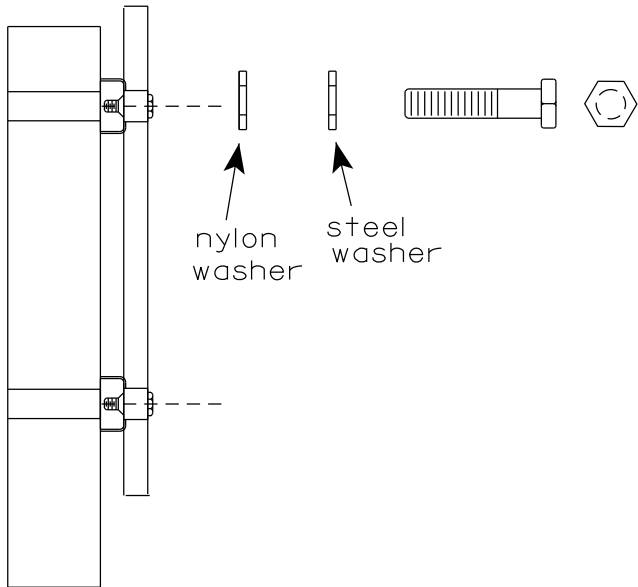
E

BANDING

SINGLE SIGN



WASHER PLACEMENT

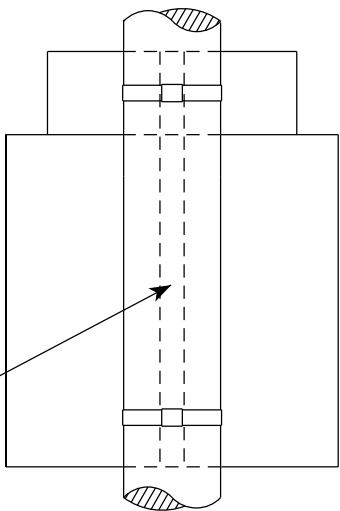


WASHERS (ALL POSTS) -
1-1/4" O.D. X 3/8" I.D. X 1/16" STEEL
1-1/4" O.D. X 3/8" I.D. X .080 NYLON
FOR ALL TYPE H SIGNS

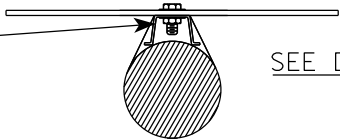
GENERAL NOTES

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



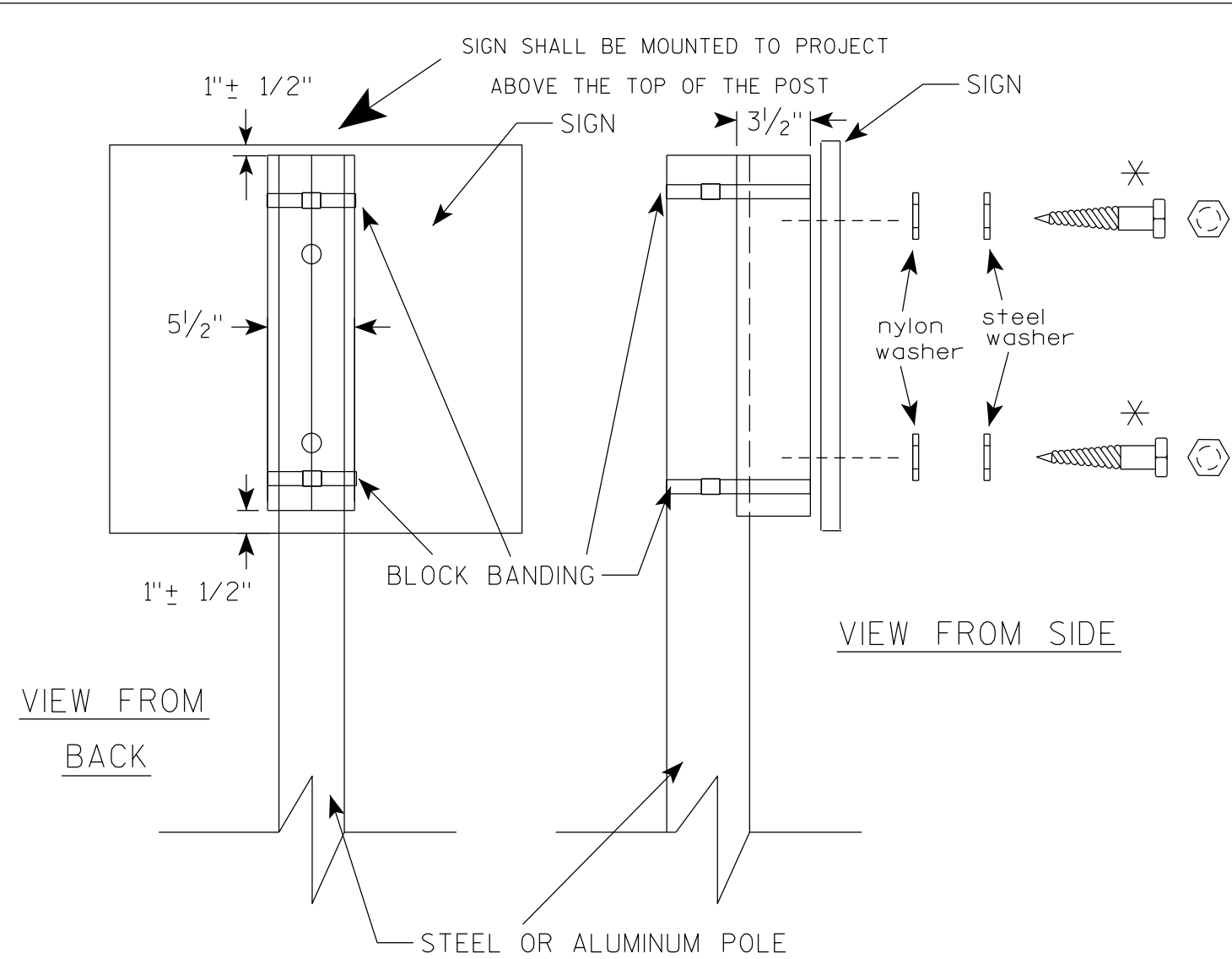
CHANNEL
SEE TYPICAL PANEL
INSTALLATION SHEET



STANDARD SIGN
SIGN BANDING DETAILS

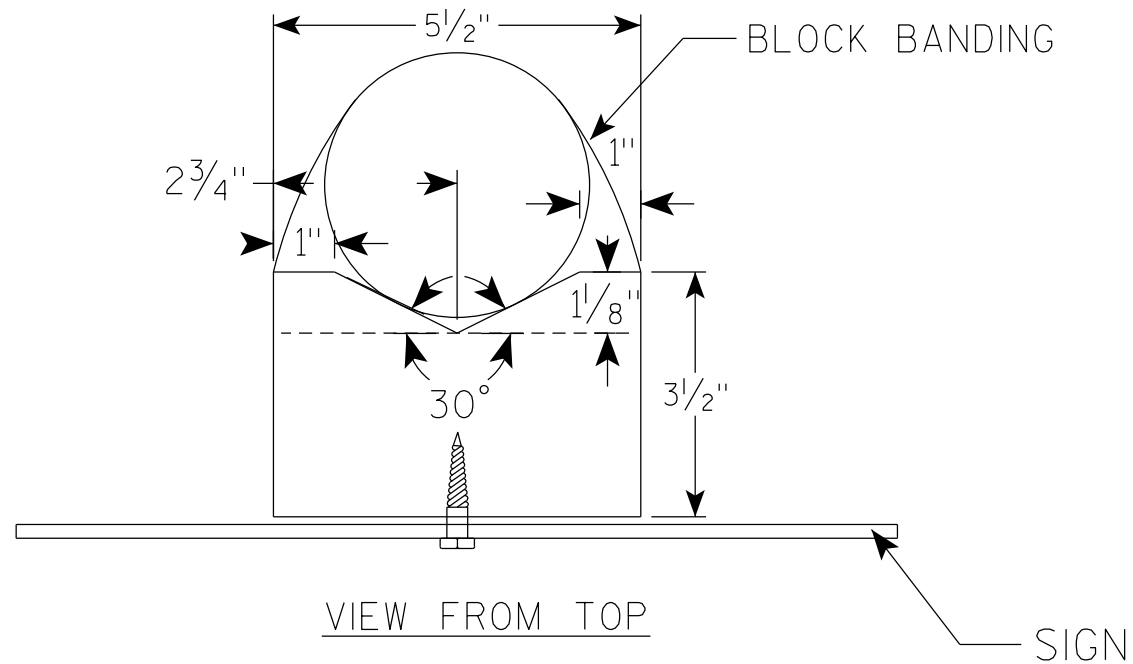
WISCONSIN DEPT OF TRANSPORTATION

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

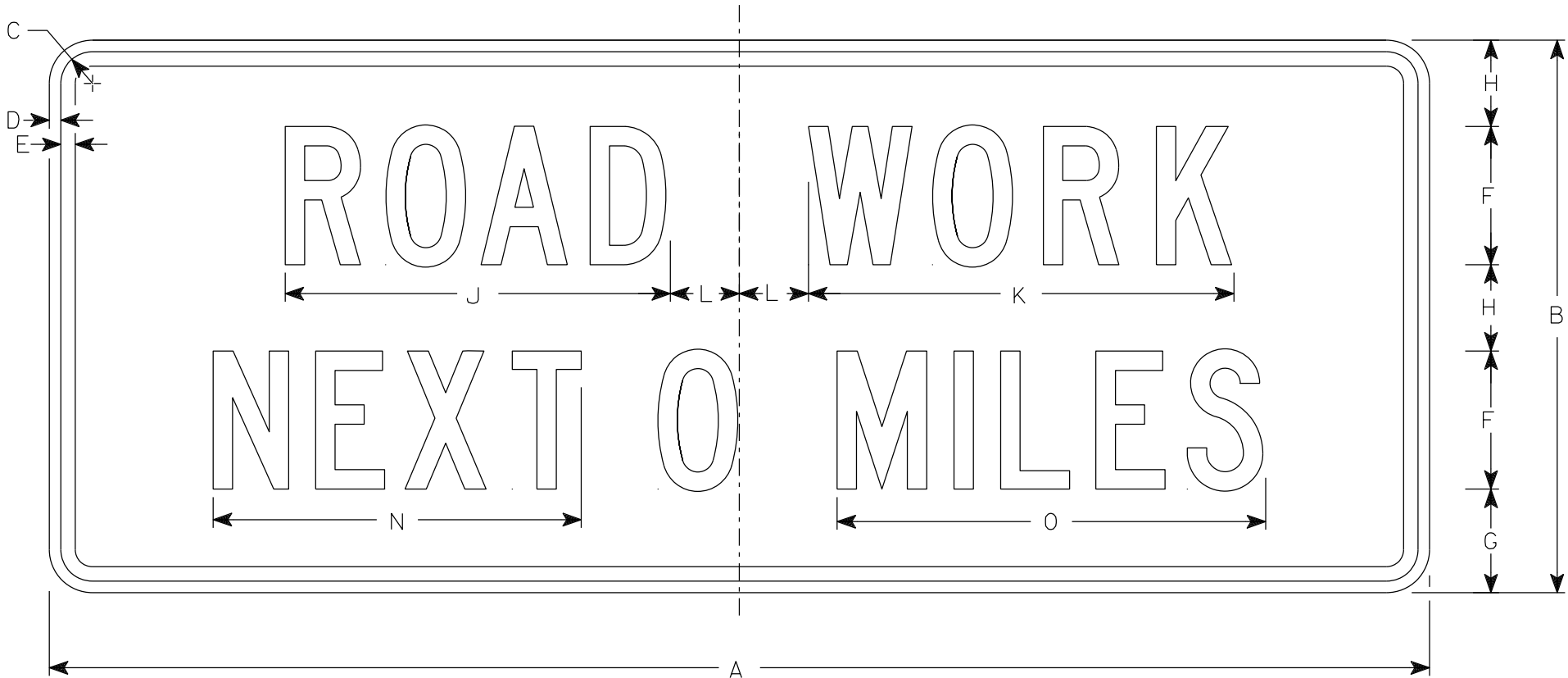
PROJECT NO:

SHEET NO: 123

E

7

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

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

NOTES

- 1. Sign is Type II - Type F Reflective
- 2. Color:
 - Background - Orange
 - Message - Black
- 3. Message Series - D
- 4. Substitute appropriate numeral and adjust spacing to achieve proper balance.



G20-57

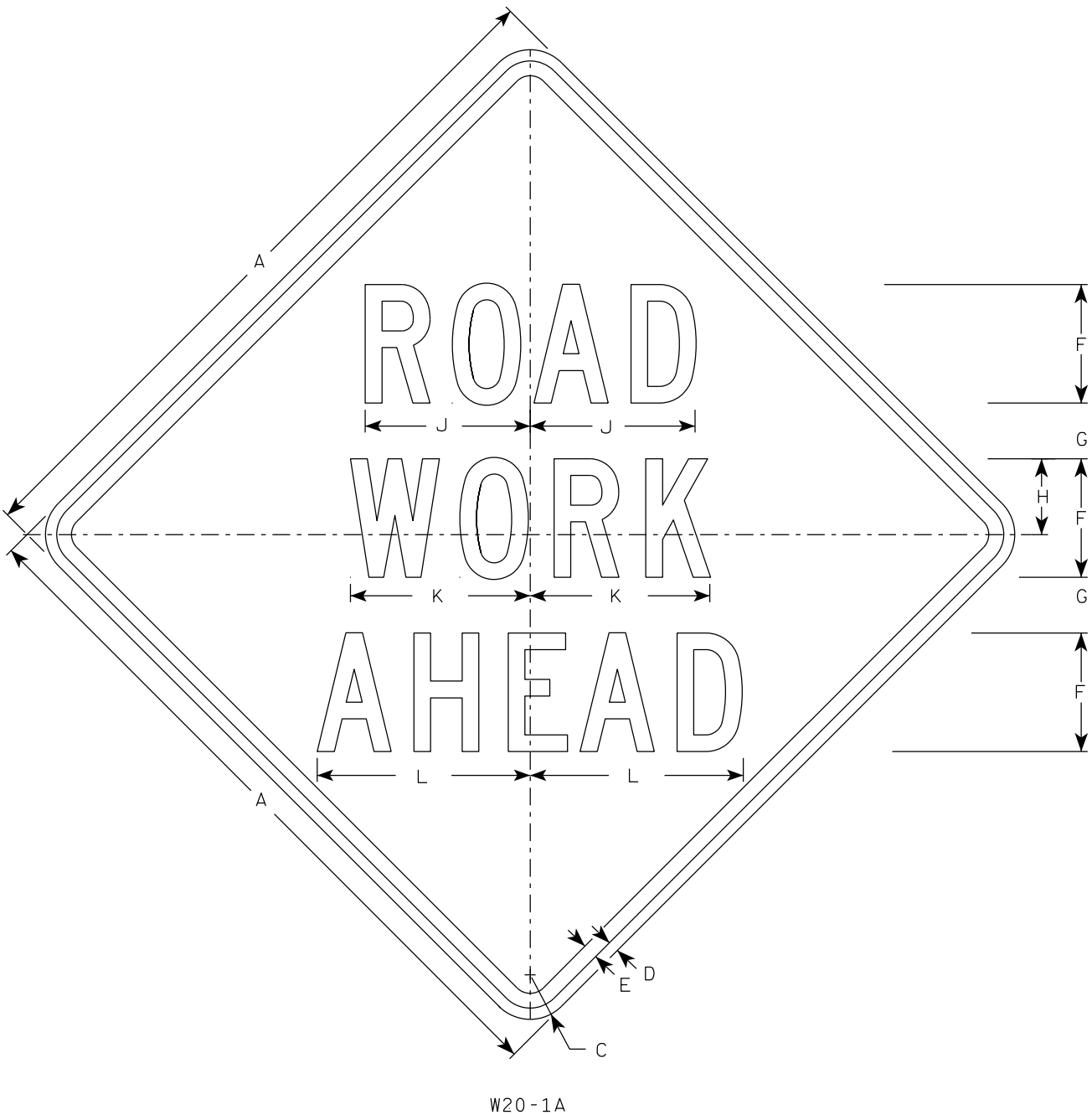
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2																											
3	72	36	1 1/8	1/2	5/8	6	5	4	15 5/8	1 5/8	5	9 1/4	21 1/4	3 1/2	1 1/2	23 1/4		29 7/8	1 3/4	3 1/4	28 1/2						18.0
4	96	48	2 1/4	3/4	1	8	6 1/2	5 1/2	20 5/8	2 1/4	6	12 1/4	28 1/4	4 3/8	1 5/8	31		39 1/4	2	4	37 7/8						32.0
5																											

STANDARD SIGN
G20-57

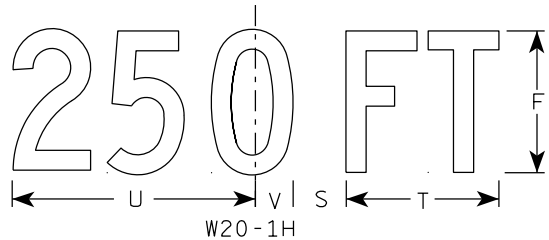
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
For State Traffic Engineer

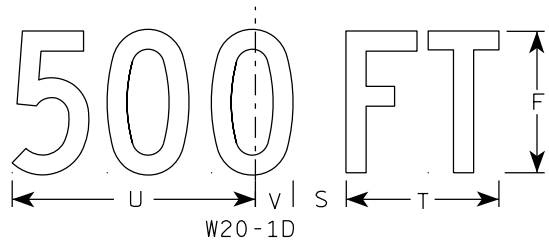
DATE 1/22/19 PLATE NO. G20-57.3



W20-1A



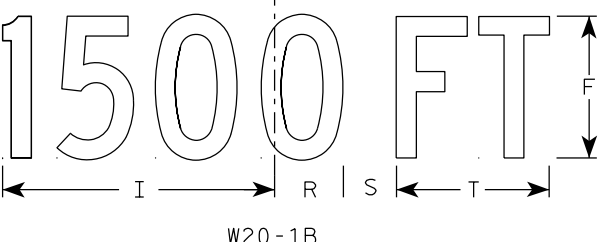
W20-1H



W20-1D

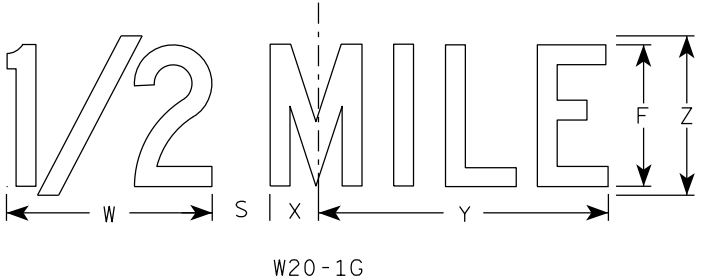


W20-1C

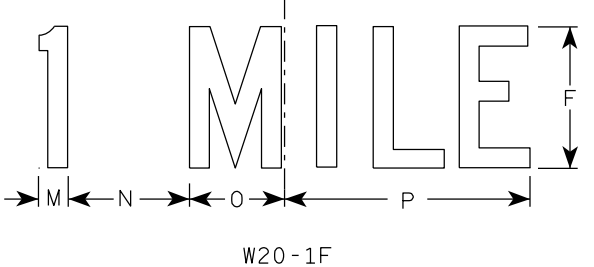


W20-1B

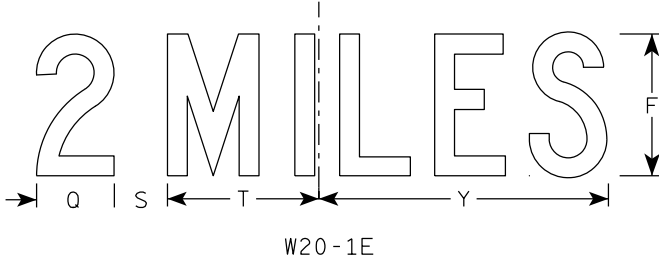
- NOTES
1. Sign is Type II - Type F Reflective
 2. Color:
Background - Orange
Message - Black
 3. Message Series - C
 4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.



W20-1G



W20-1F



W20-1E

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

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

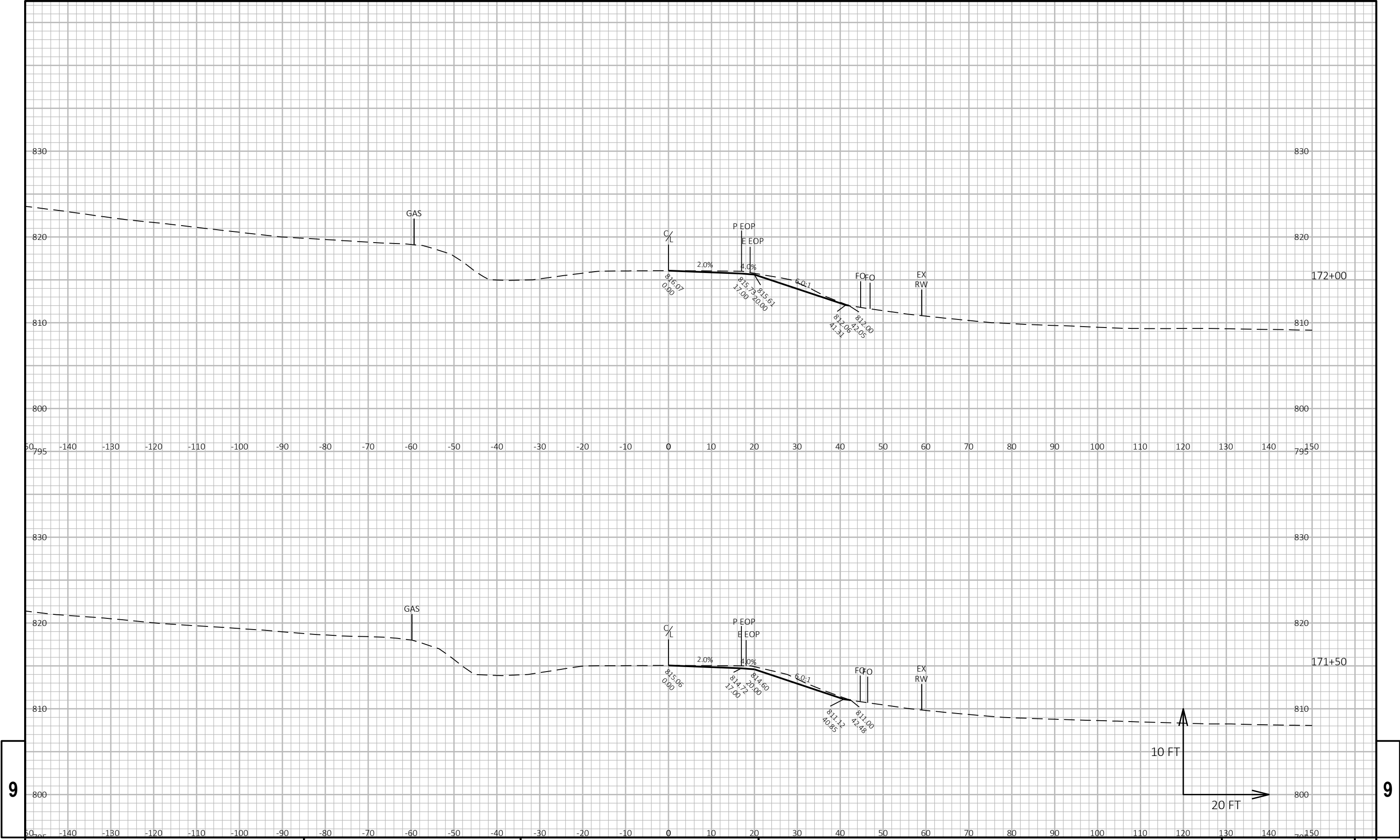
WISCONSIN DEPT OF TRANSPORTATION

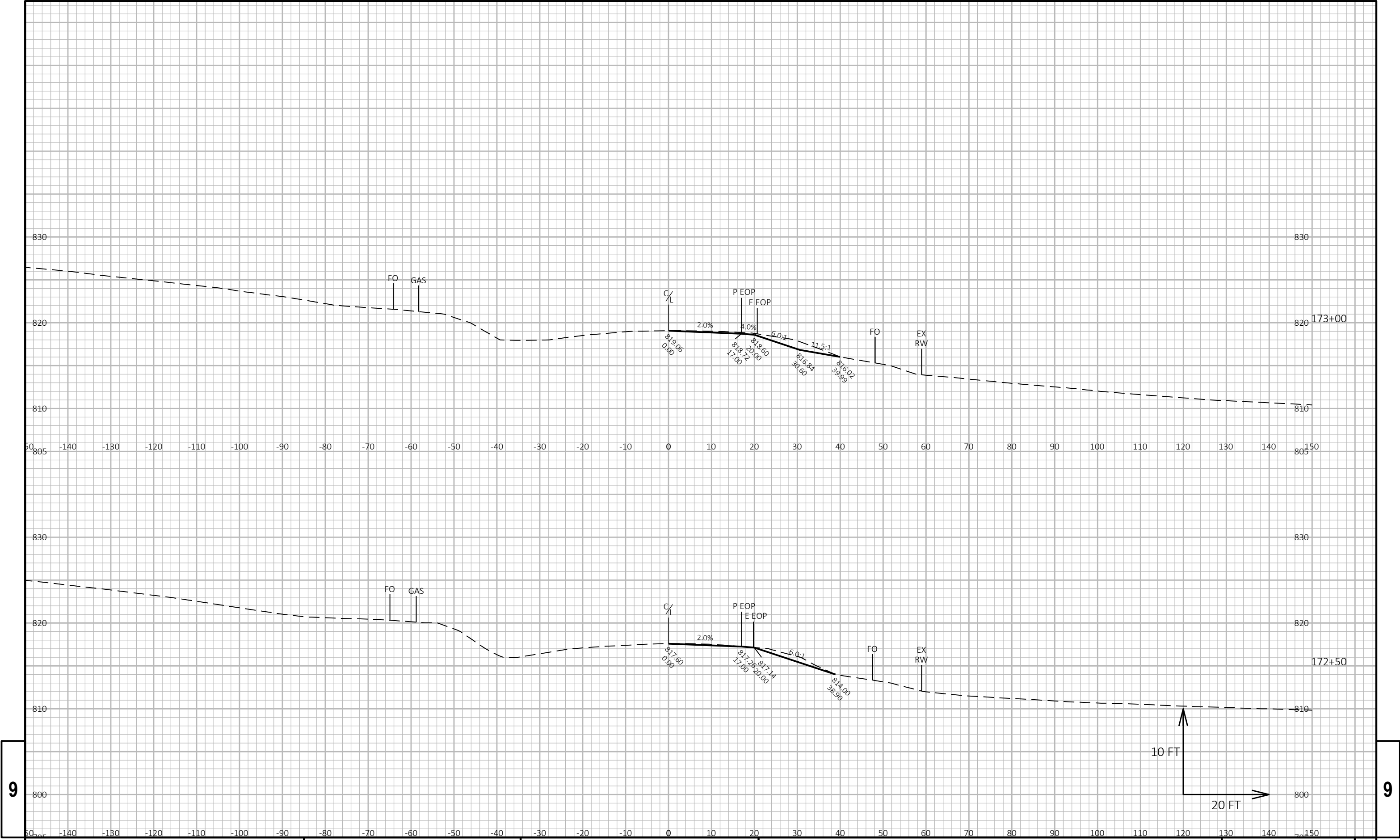
APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 1/10/2024 PLATE NO. W20-1.12

USH 45 MAINLINE PASSING LANE TAPER ADJUSTMENT

STATION	REAL STATION	DISTANCE	AREA (SF)						INCREMENTAL VOL (CY) (UNADJUSTED)						CUMULATIVE VOL (CY)							
			CUT	SALVAGED/UNUSABLE PAVEMENT MATERIAL	FILL	MARSH EXC	ROCK EXC	EBS	CUT	SALVAGED/UNUSABLE PAVEMENT MATERIAL	FILL	MARSH EXC	ROCK EXC	EBS	CUT	EXPANDED	EXPANDED MARSH	EXPANDED	EXPANDED EBS	REDUCED MARSH IN	REDUCED EBS IN	MASS ORDINATE
																FILL	BACKFILL	ROCK	BACKFILL	FILL	FILL	
																1.25	1.50	1.10	1.30	0.60	0.80	
NOTE 1	NOTE 2	NOTE 3	NOTE 1	NOTE 4	NOTE 5	NOTE 6	NOTE 7	NOTE 8														
171+50.00	17150	0	19.44	0.32	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
172+00.00	17200	50	19.99	0.59	0	0	0	0	37	1	0	0	0	0	37	0	0	0	0	0	37	
172+50.00	17250	50	14.08	0.81	0	0	0	0	32	1	0	0	0	0	69	0	0	0	0	0	69	
173+00.00	17300	50	23.17	1.07	0	0	0	0	34	2	0	0	0	0	103	0	0	0	0	0	103	
173+50.00	17350	50	16.15	1.34	0	0	0	0	36	2	0	0	0	0	139	0	0	0	0	0	139	
174+00.00	17400	50	31.95	1.60	0	0	0	0	45	3	0	0	0	0	184	0	0	0	0	0	184	
174+50.00	17450	50	21.01	1.87	0	0	0	0	49	3	0	0	0	0	233	0	0	0	0	0	233	
175+00.00	17500	50	25.28	2.14	0	0	0	0	43	4	0	0	0	0	276	0	0	0	0	0	276	
175+50.00	17550	50	31.36	2.14	0	0	0	0	52	4	0	0	0	0	328	0	0	0	0	0	328	
176+00.00	17600	50	28.93	2.06	0	0	0	0	56	4	0	0	0	0	384	0	0	0	0	0	384	
176+50.00	17650	50	36.75	1.98	0	0	0	0	61	4	0	0	0	0	445	0	0	0	0	0	445	
177+00.00	17700	50	45.73	1.86	0	0	0	0	76	4	0	0	0	0	521	0	0	0	0	0	521	
177+50.00	17750	50	44.47	1.63	0	0	0	0	84	3	0	0	0	0	605	0	0	0	0	0	605	
178+00.00	17800	50	60.71	1.40	0	0	0	0	97	3	0	0	0	0	702	0	0	0	0	0	702	
178+50.00	17850	50	36.28	1.17	0	0	0	0	90	2	0	0	0	0	792	0	0	0	0	0	792	
179+00.00	17900	50	31.51	0.94	0	0	0	0	63	2	0	0	0	0	855	0	0	0	0	0	855	
179+50.00	17950	50	62.53	0.66	0	0	0	0	87	1	0	0	0	0	942	0	0	0	0	0	942	
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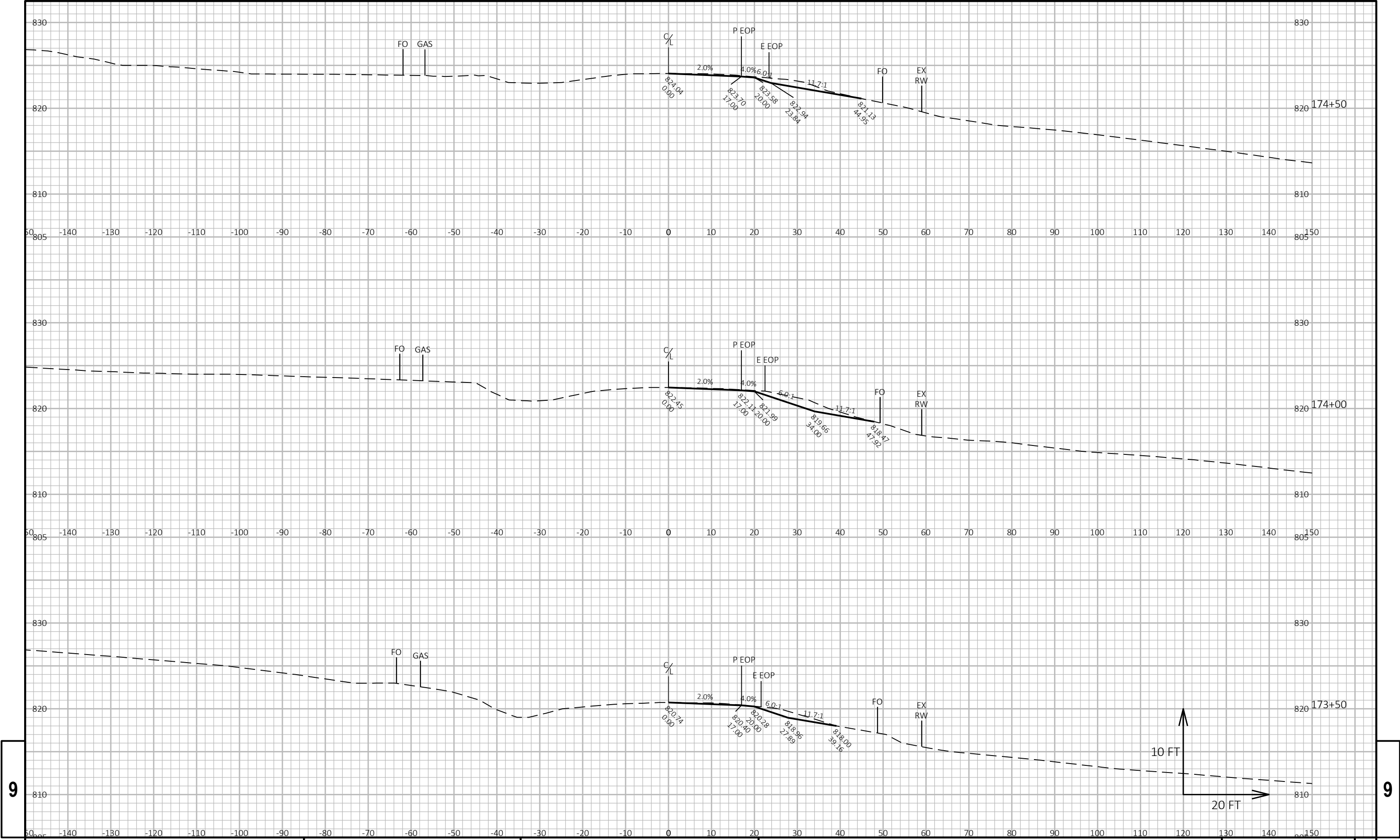




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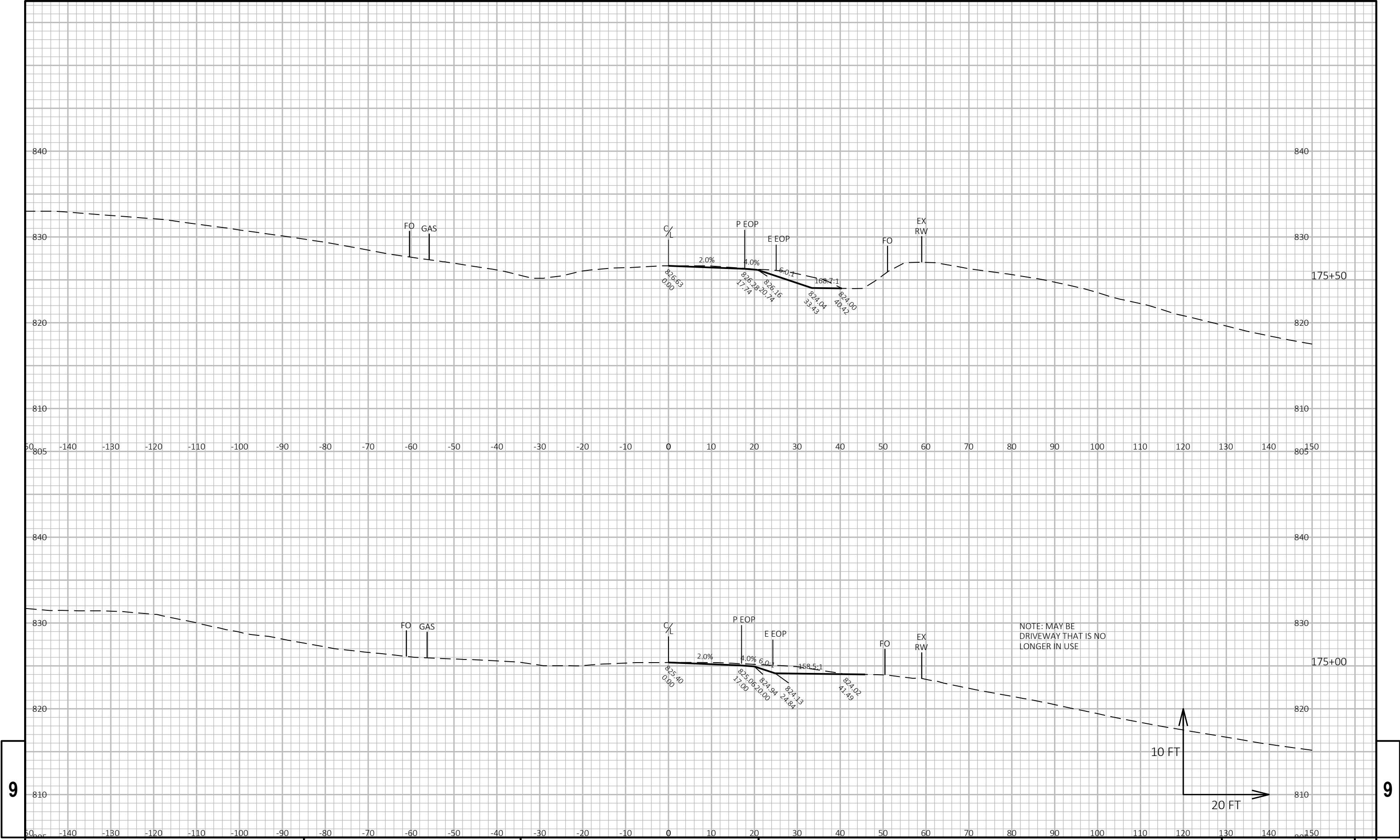
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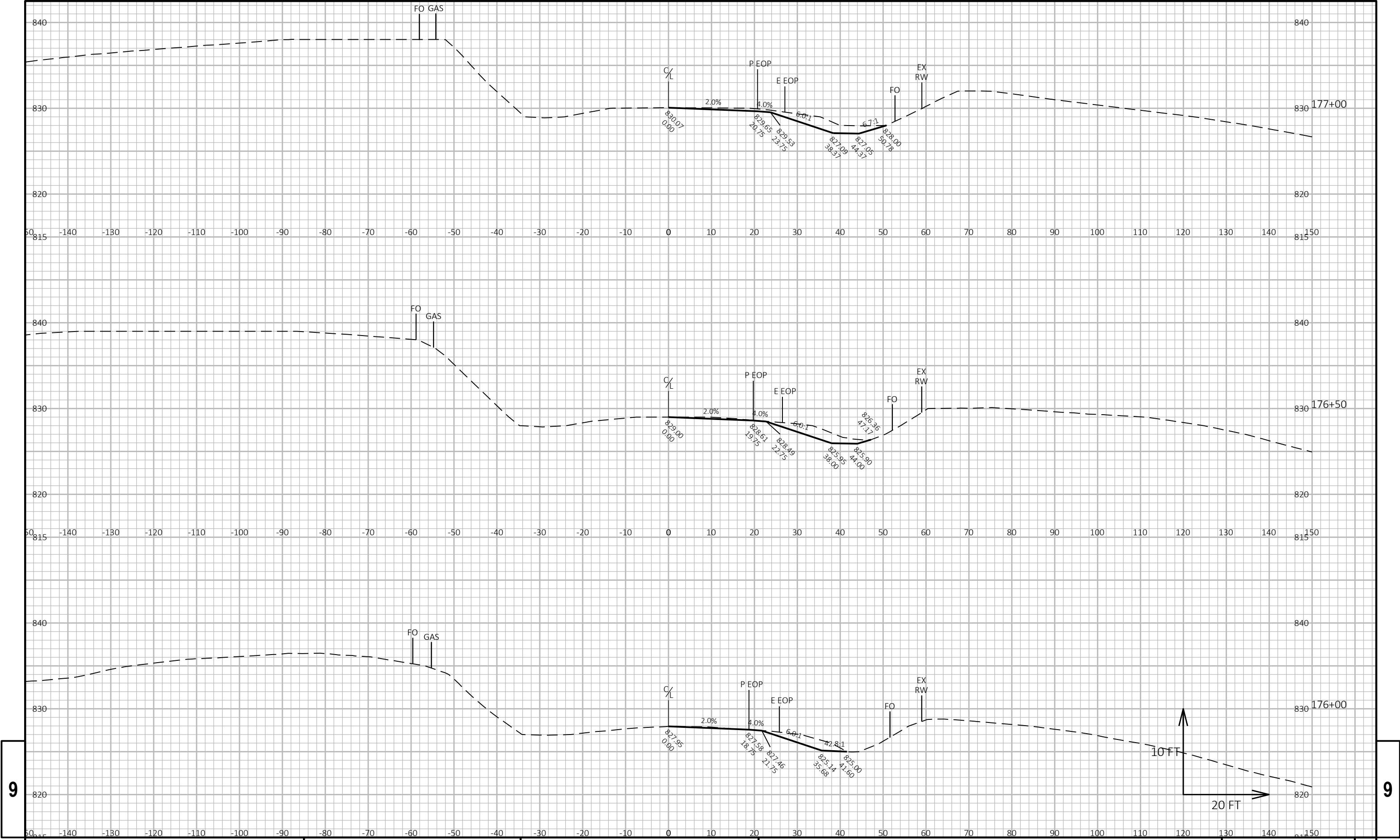


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PROJECT NO: 1140-00-78				HWY: USH 45				COUNTY: WAUPACA				CROSS SECTIONS: PASSING LANE TAPER				SHEET 130				E
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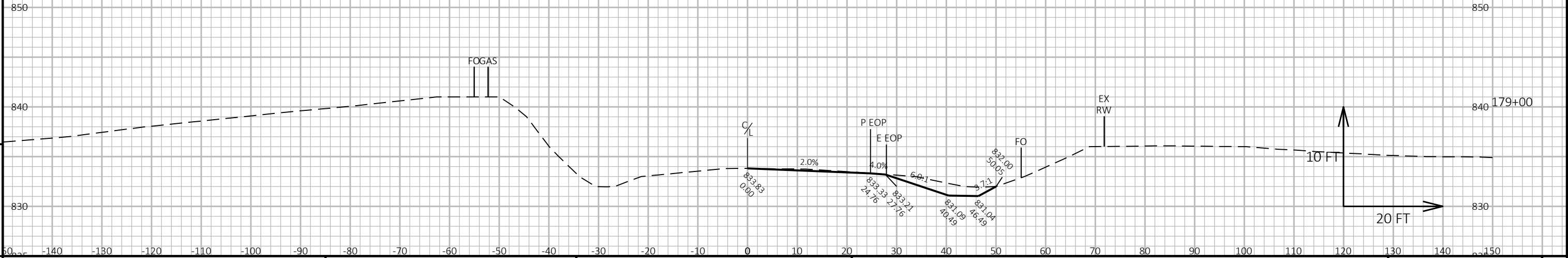
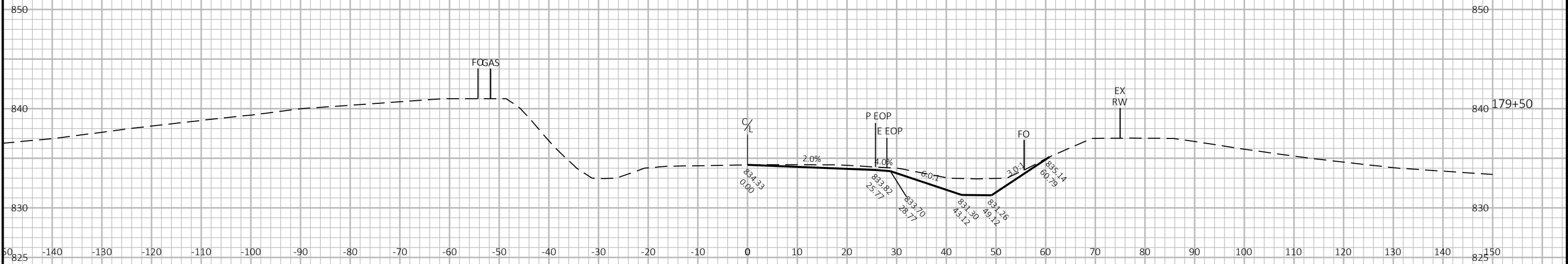
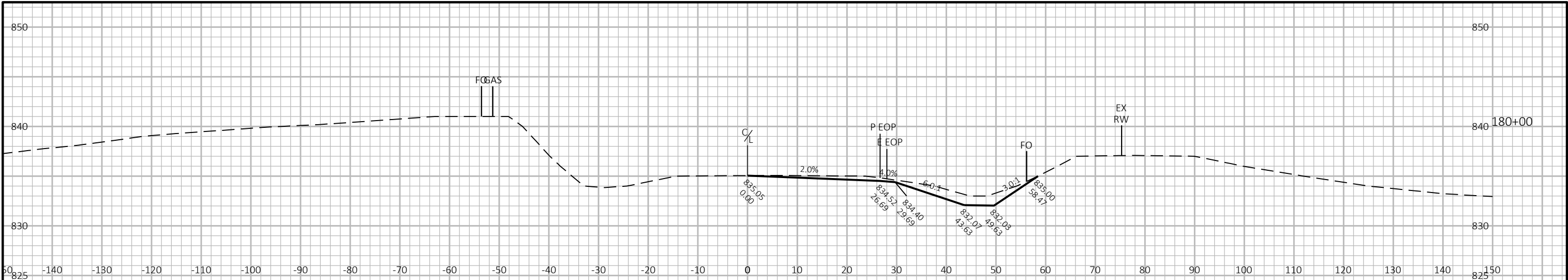


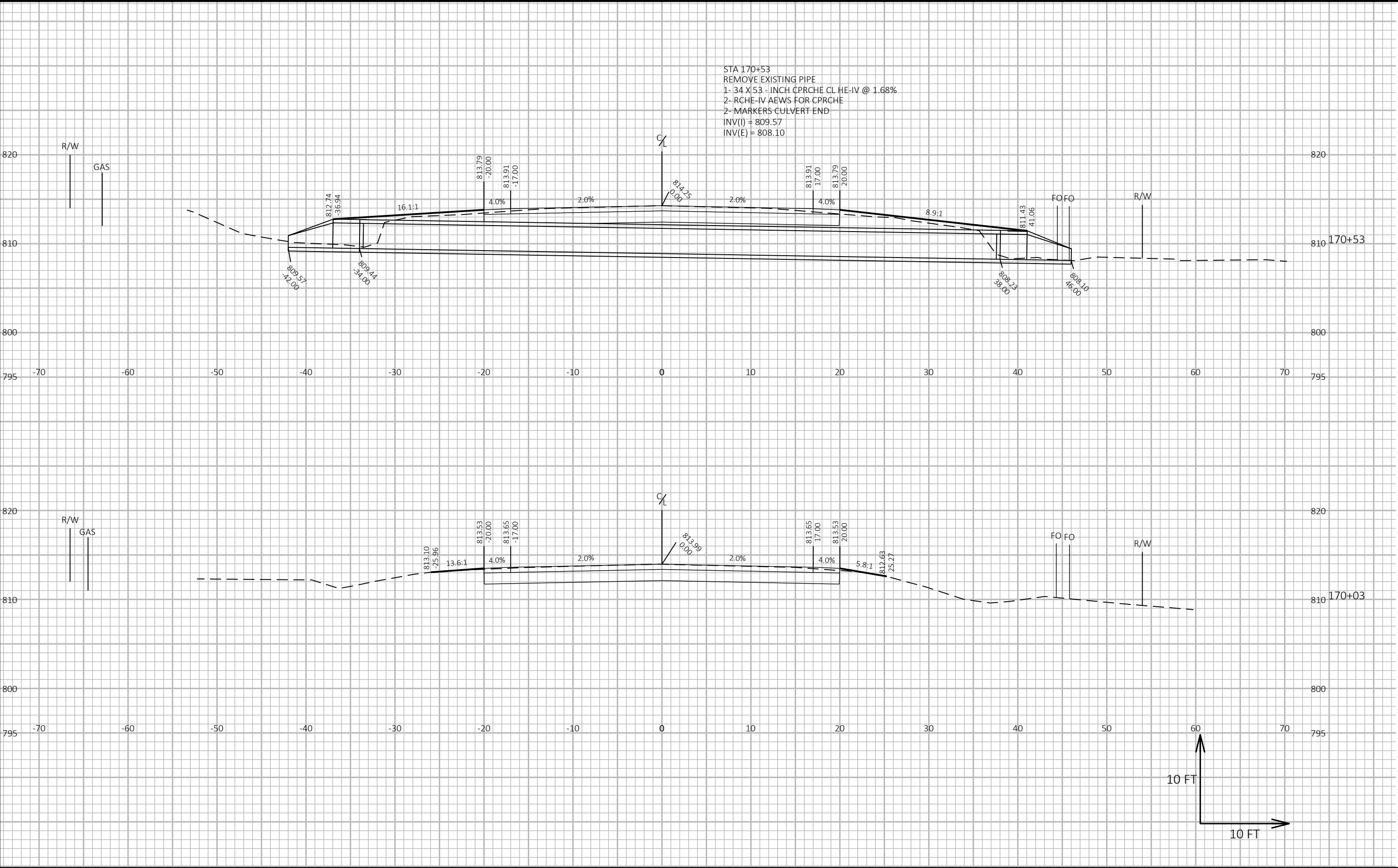


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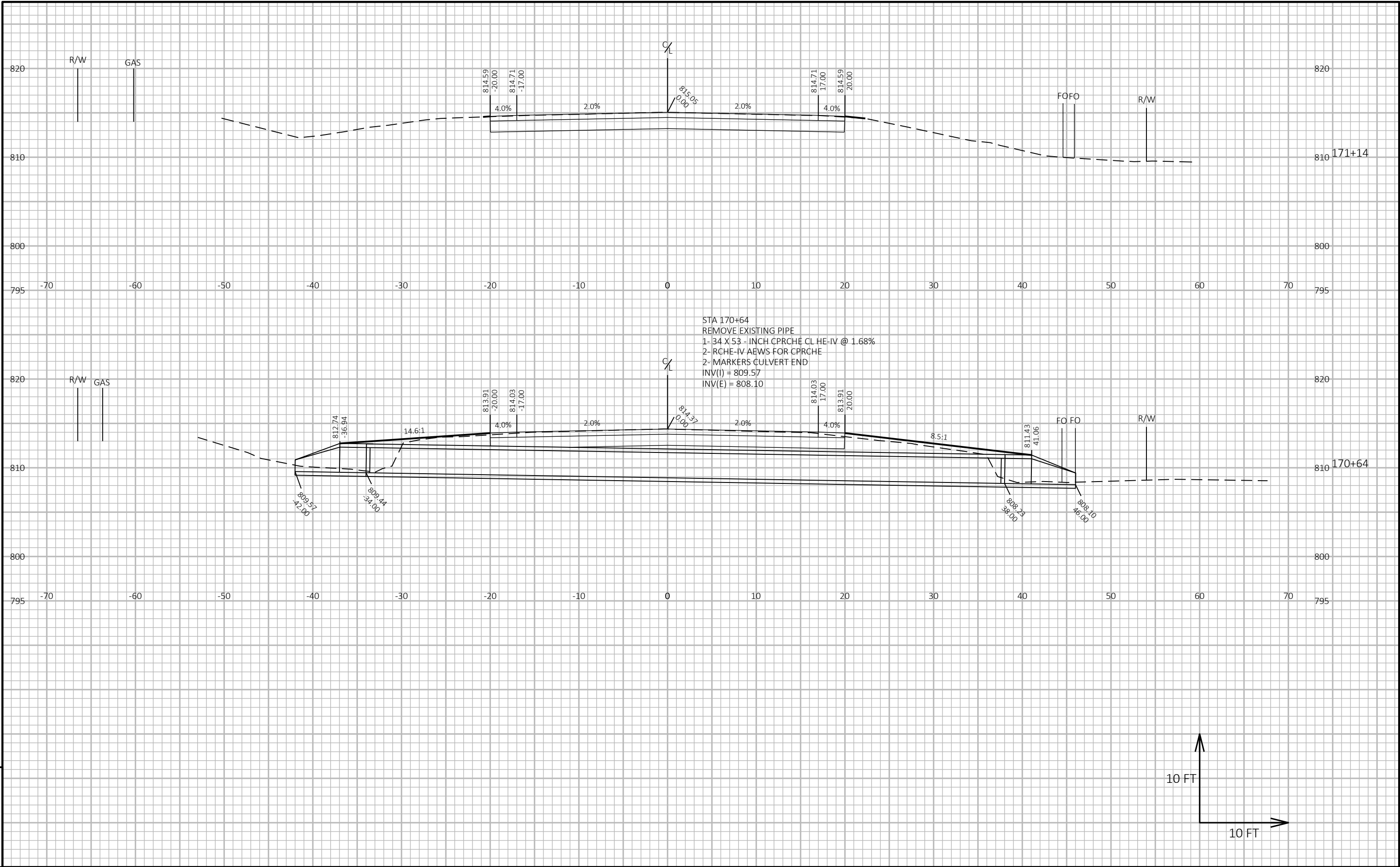
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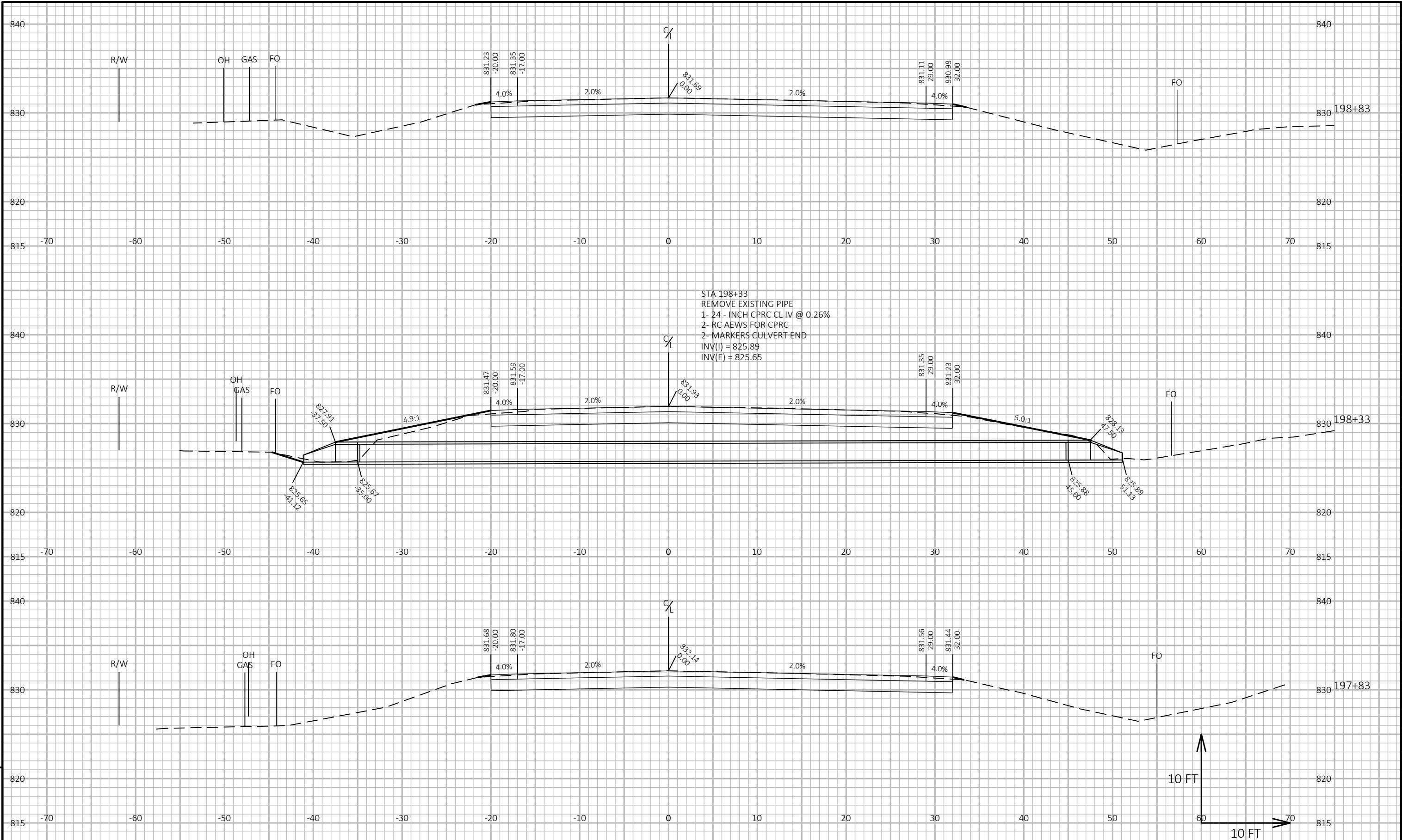


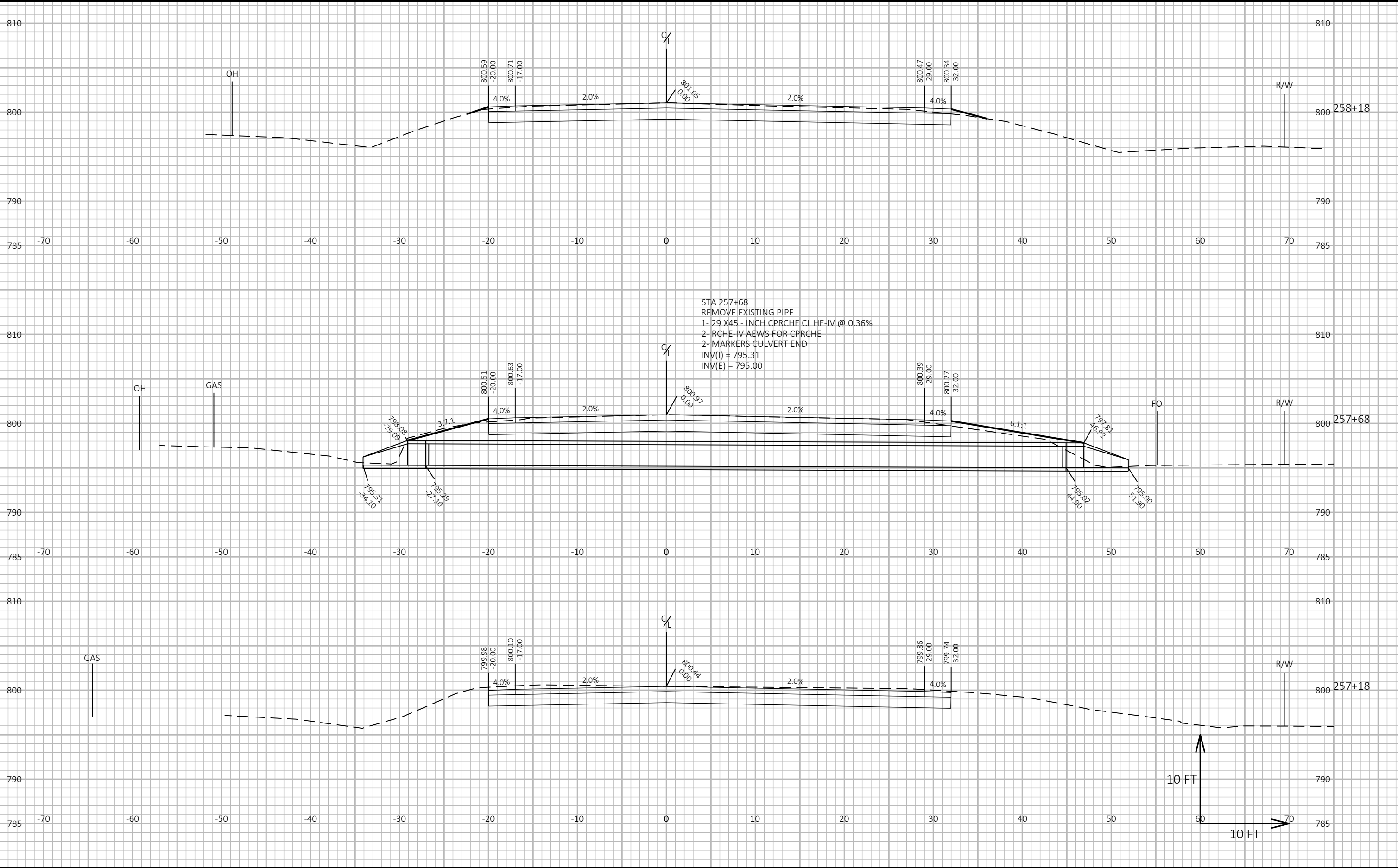


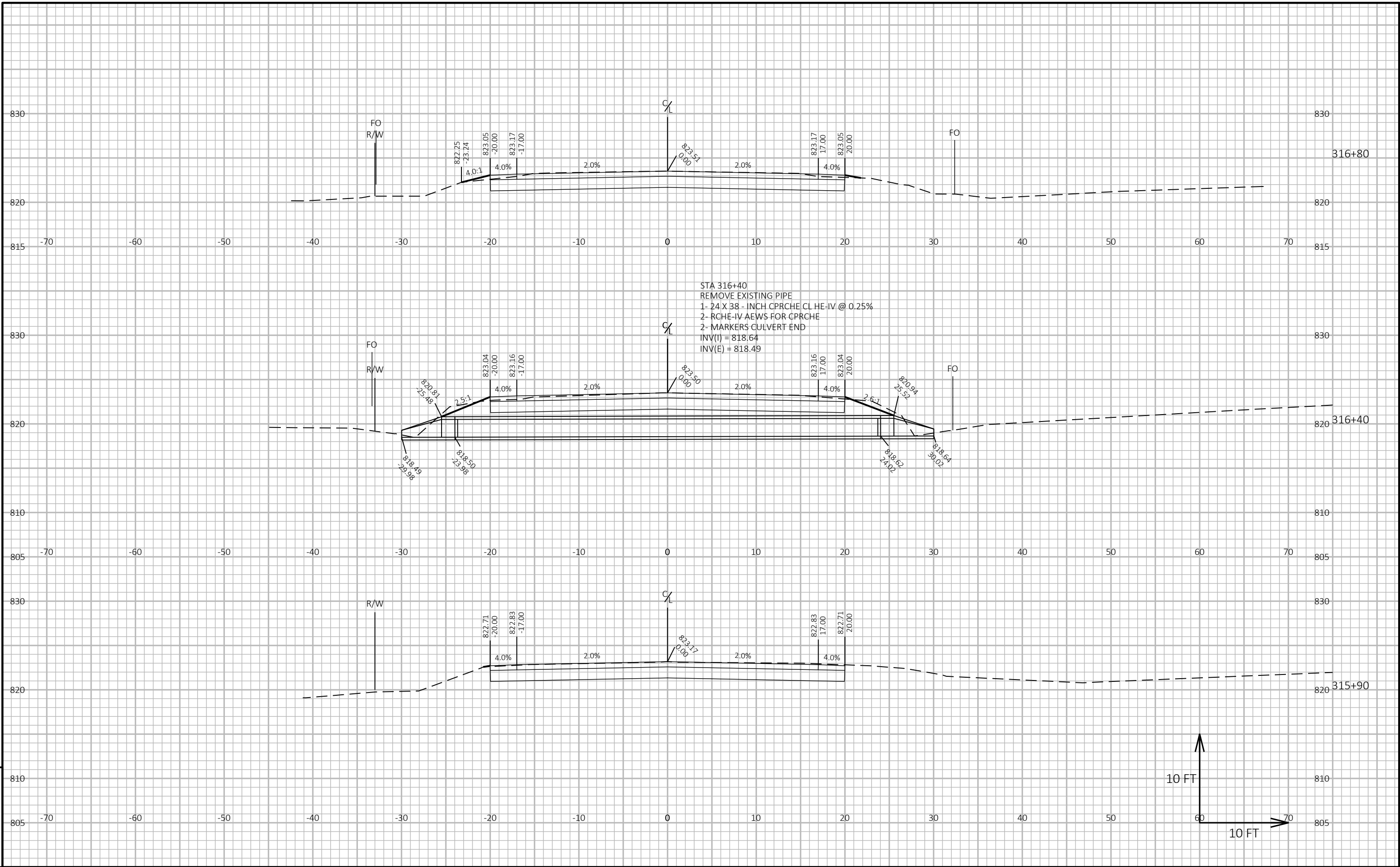
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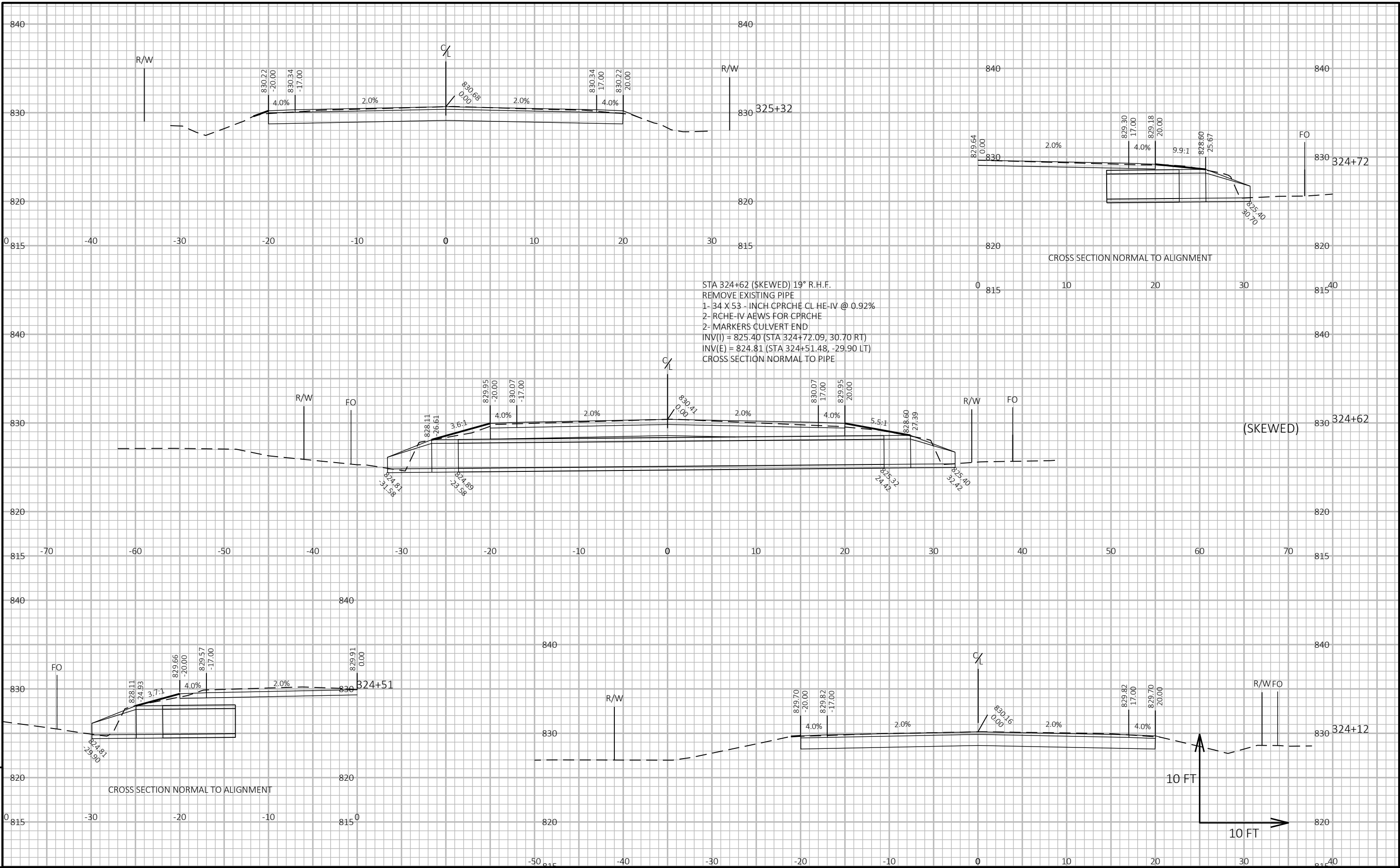
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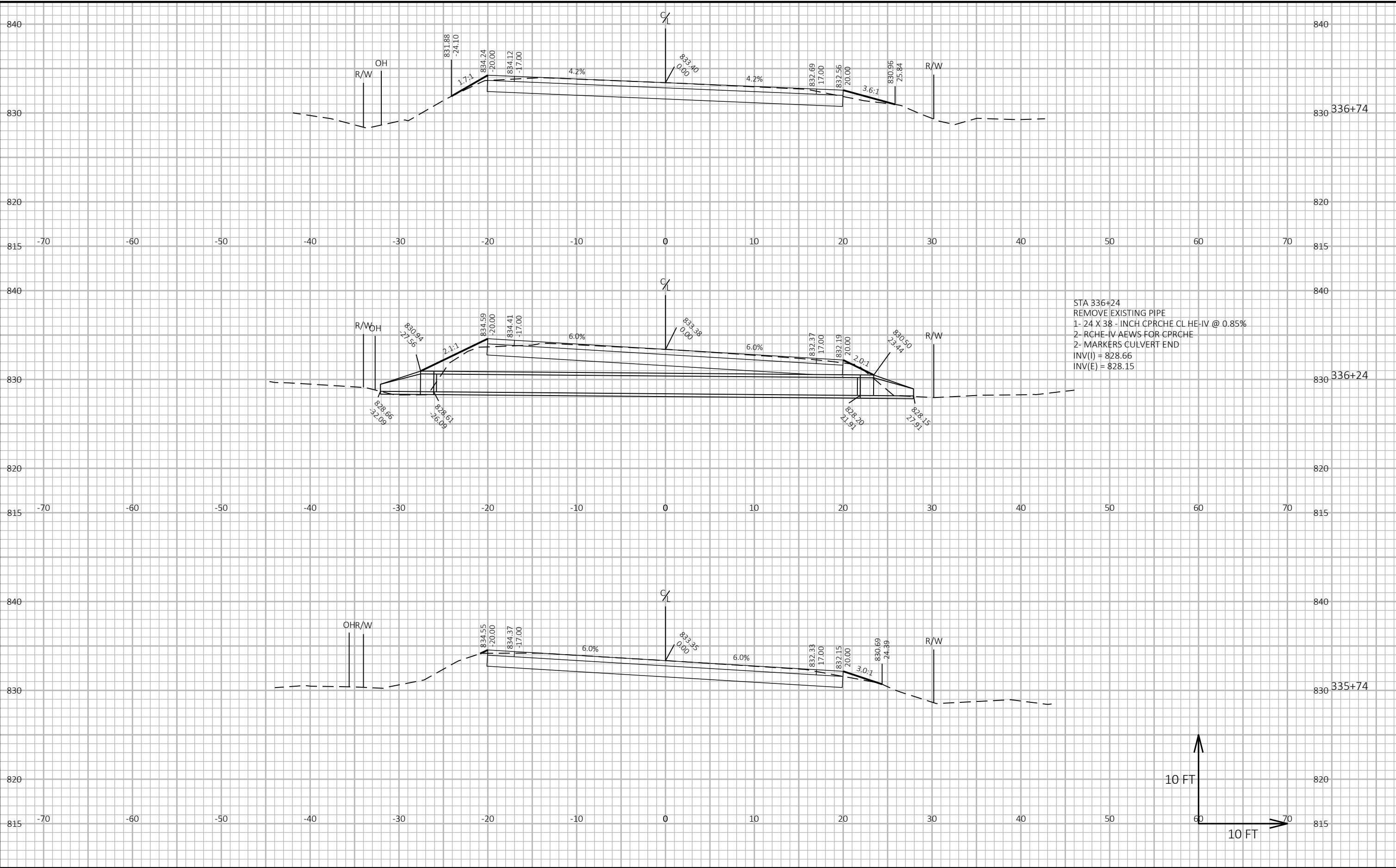


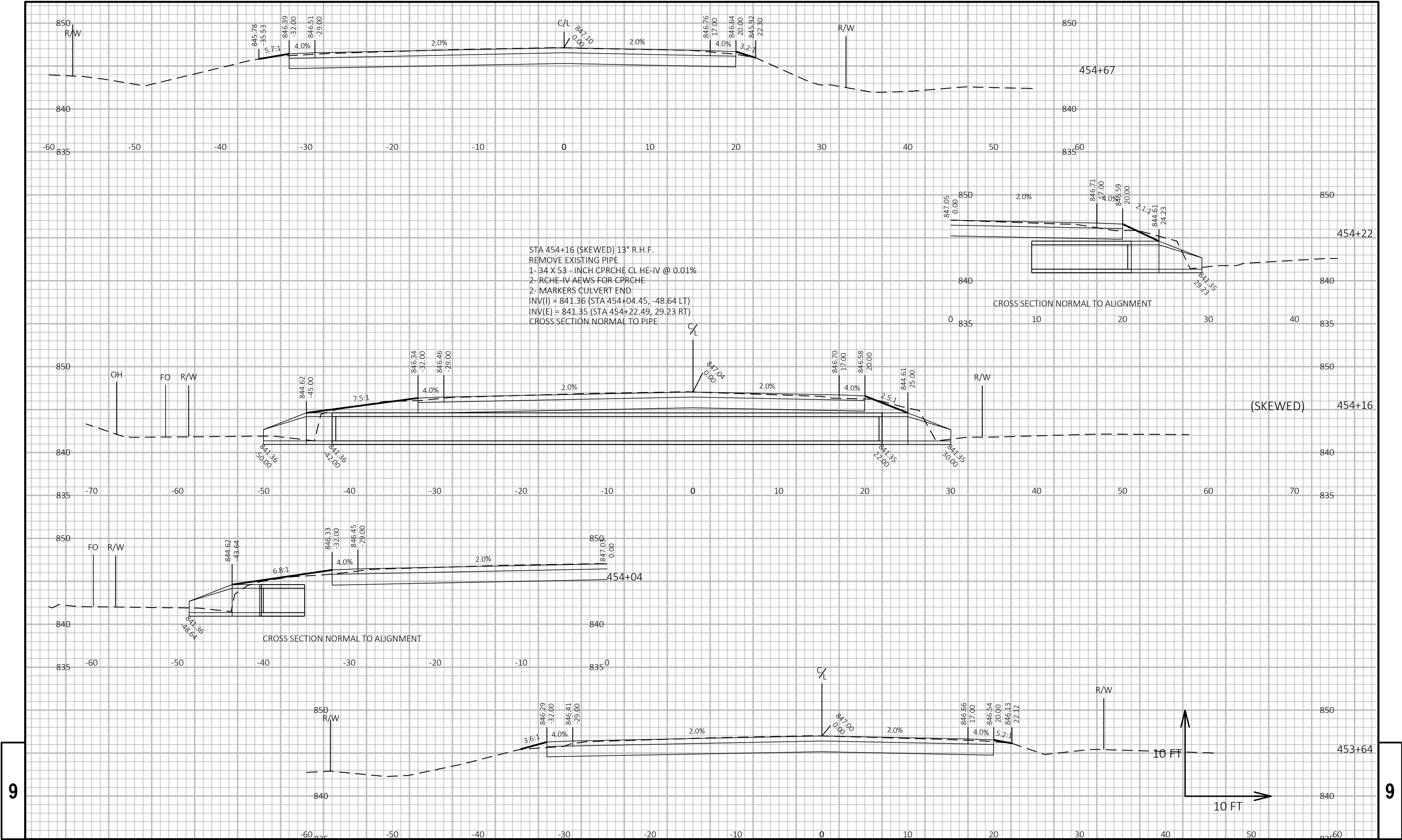


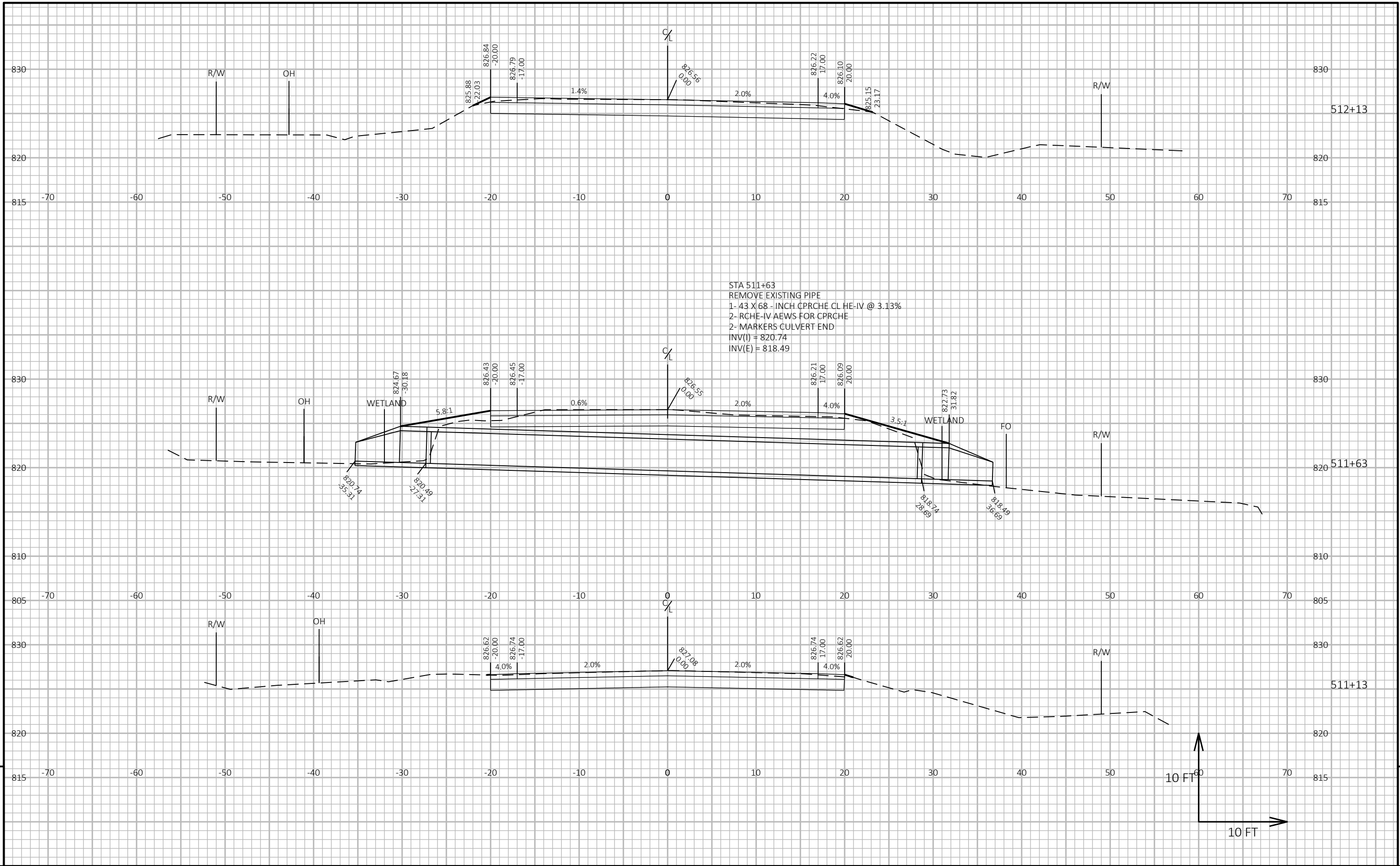


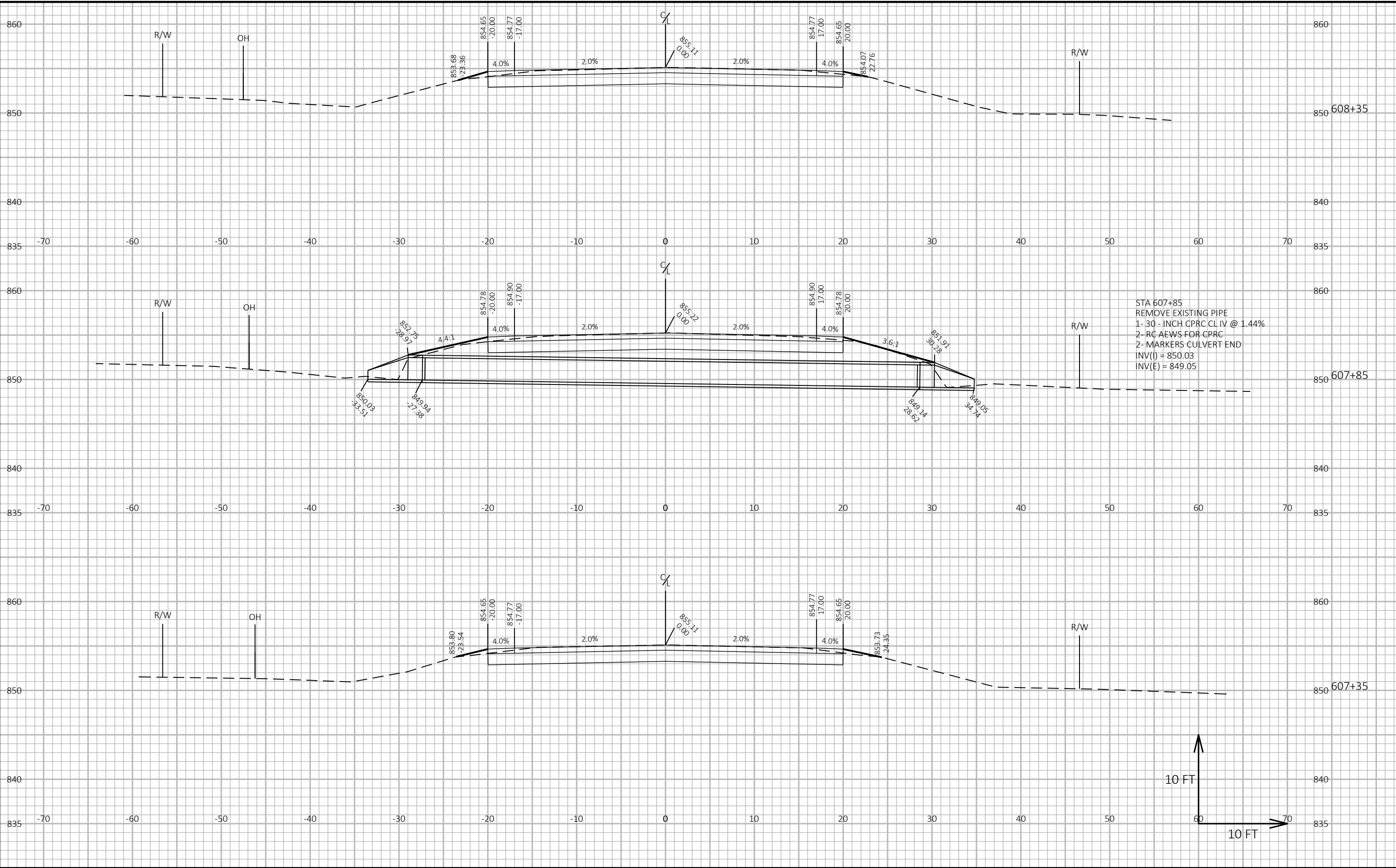


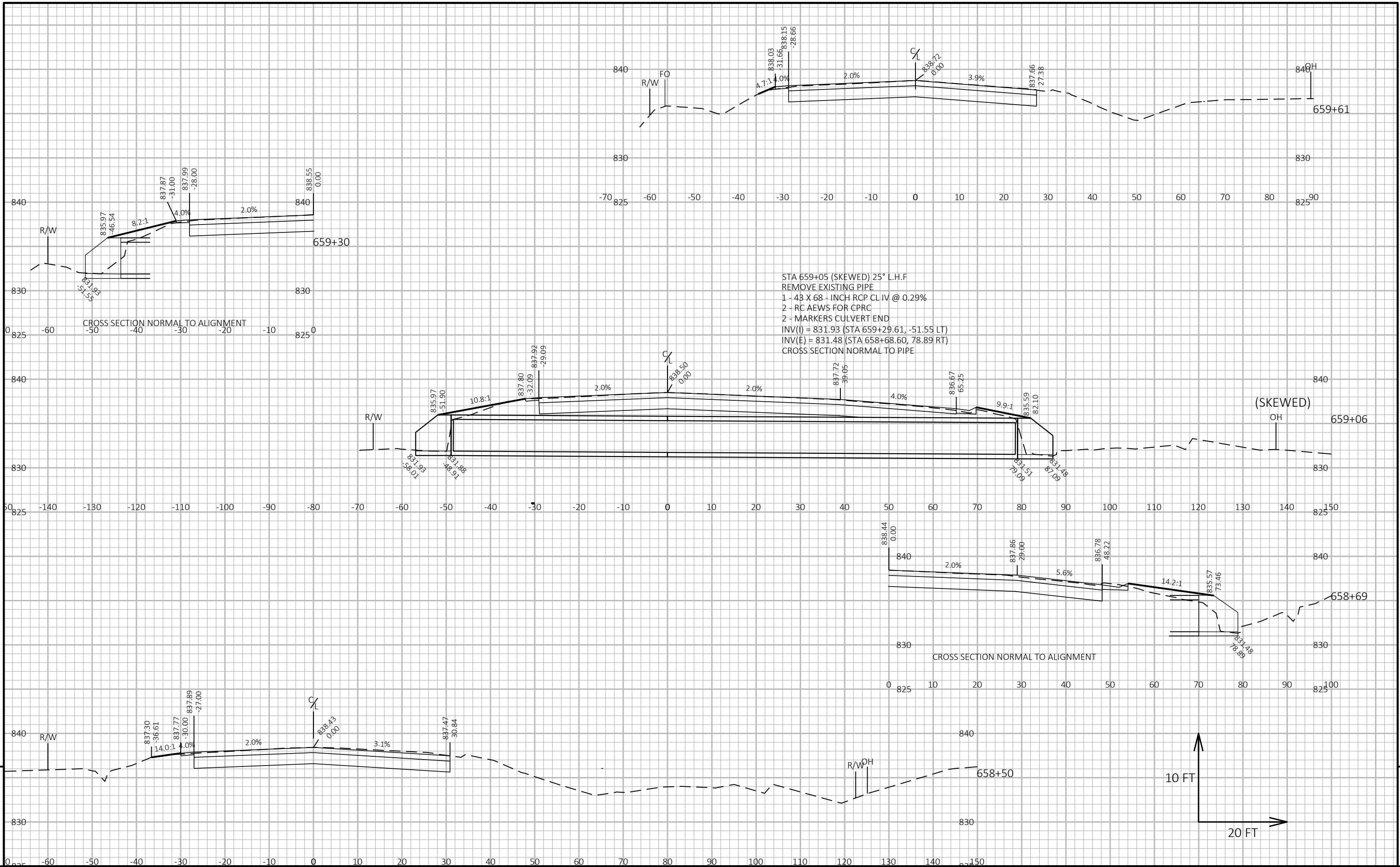


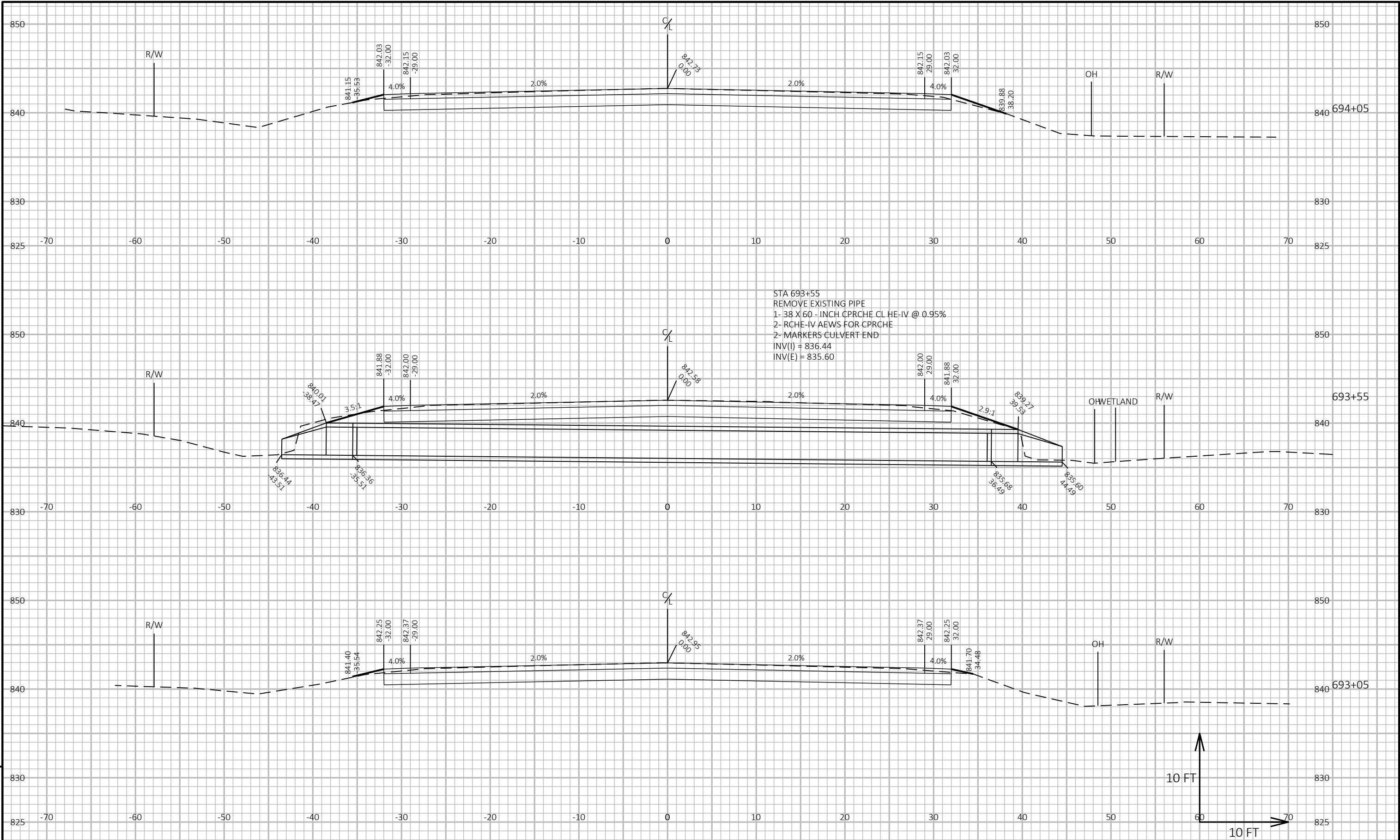


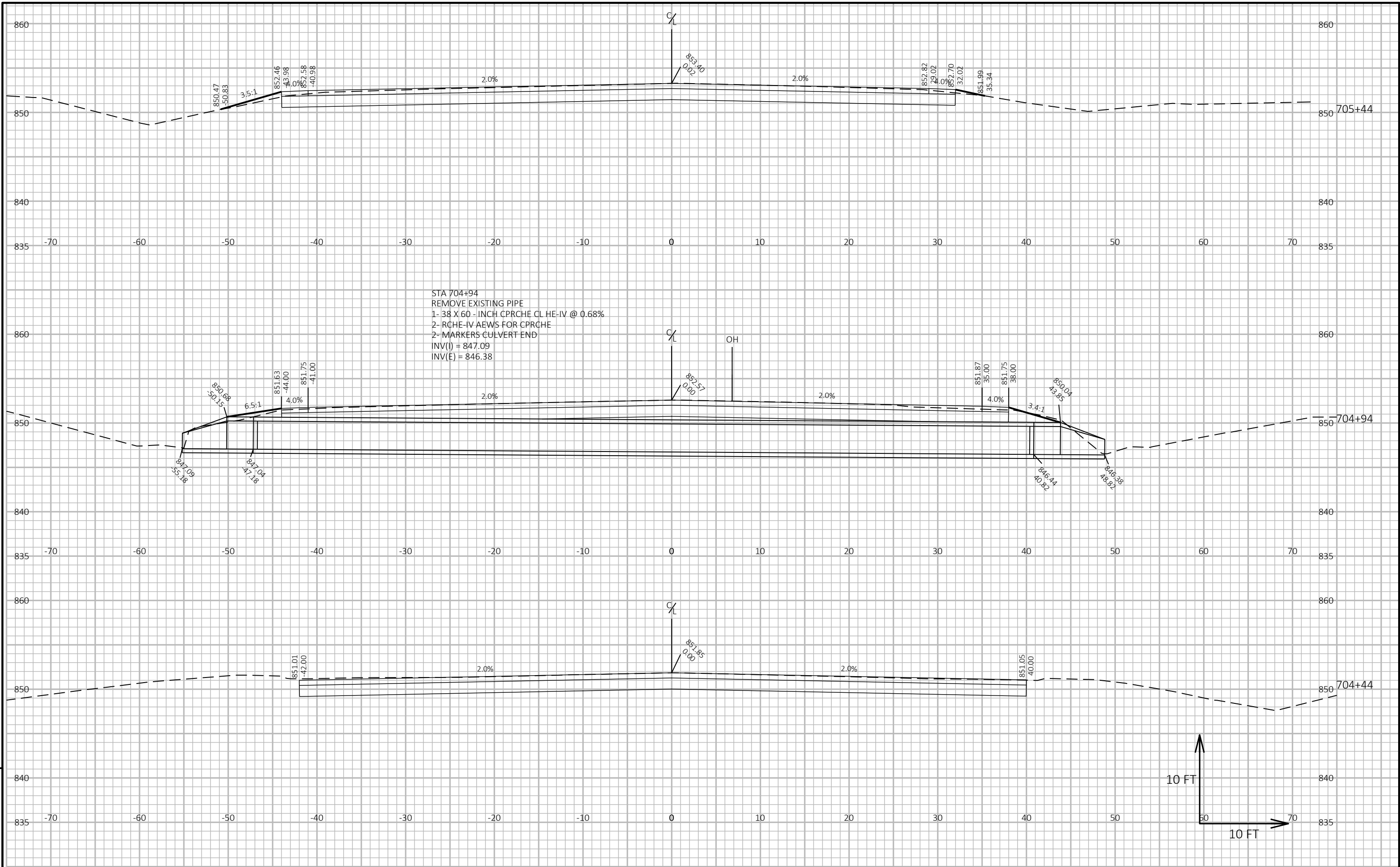


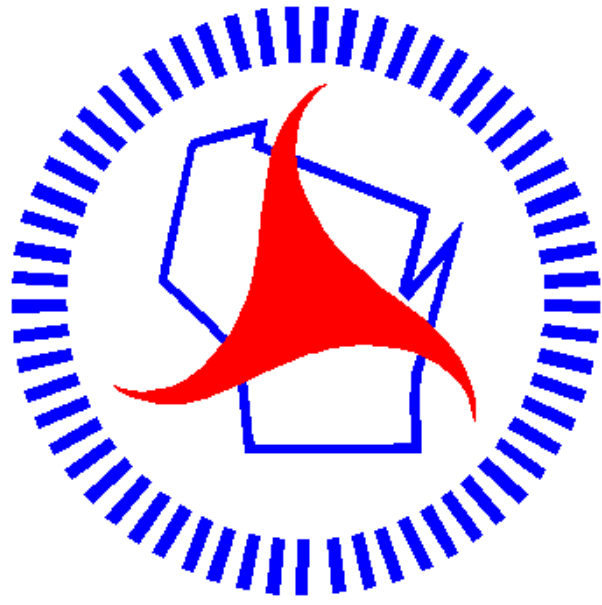












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