

WIS
PROJECT ID: 6610-00-71
WITH:

COUNTY: MARATHON

AUGUST 2026
ORDER OF SHEETS

Section No.	1	Title
Section No.	2	Typical Sections and Details (Includes Erosion Control Plan)
Section No.	3	Estimate of Quantities
Section No.	3	Miscellaneous Quantities
Section No.	4	Right of Way Plat
Section No.	5	Plan and Profile (Includes Erosion Control Plan)
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 = 198

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

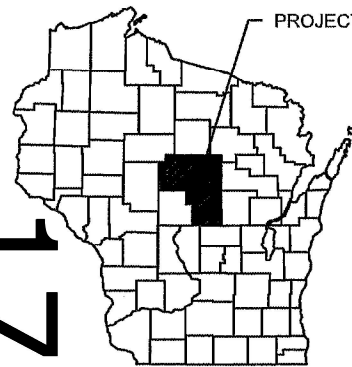
RUDOLPH - KNOWLTON

OAK HILL ROAD TO CTH DB

STH 34

MARATHON COUNTY

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
6610-00-71		



PROJECT LOCATION

NET EXCEPTION TO CENTERLINE LENGTH
STA 436+57.69 - STA 442+11.03
(STRUCTURE B-37-0187)

STATE PROJECT NUMBER
6610-00-71

END PROJECT
STA 521+96.54

NET EXCEPTION TO CENTERLINE LENGTH
STA 304+00.08 - STA 308+01.50
(STRUCTURE B-49-0092)

DESIGN DESIGNATION

A.A.D.T.	2027	=	4,100 - 6,400
A.A.D.T.	2047	=	4,700 - 6,800
D.H.V.		=	500 - 775
D.D.		=	60/40
T.		=	28.3% - 30.6%
DESIGN SPEED		=	55 MPH
ESALS		=	2,700,000 - 4,500,000

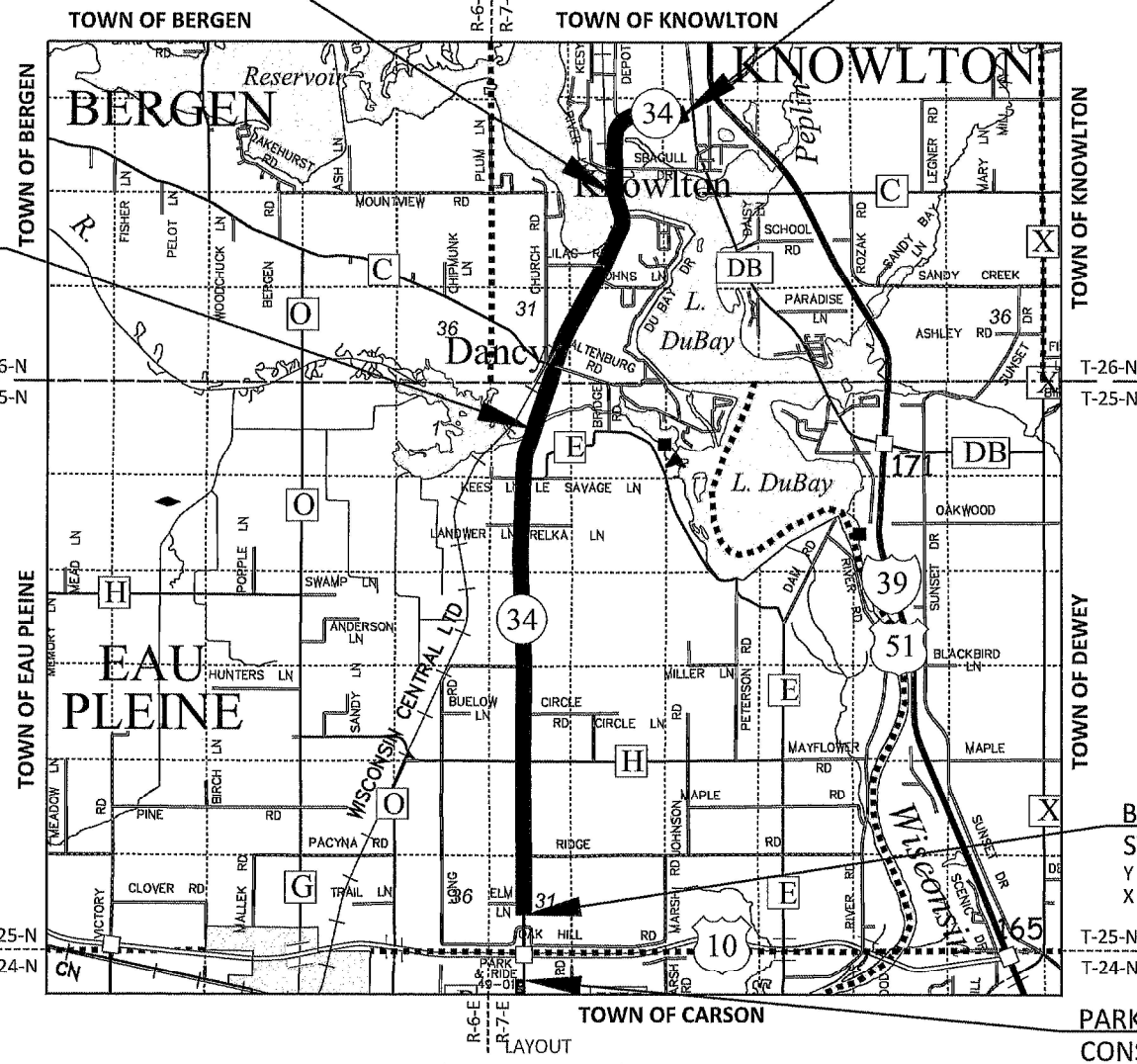
CONVENTIONAL SYMBOLS

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	



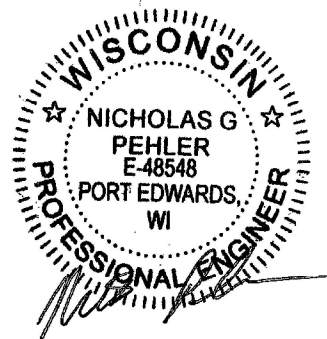
SCALE 0 2 MI
TOTAL NET LENGTH OF CENTERLINE = 9.047 MILES

HORIZONTAL POSITIONS SHOWN ON THIS PLAN ARE WISCONSIN COORDINATE REFERENCE SYSTEM (WISCRS), PORTAGE 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 (2011). GPS DERIVED ELEVATIONS ARE BASED ON GEOID 18.

ORIGINAL PLANS PREPARED BY

JEWELL
associates engineers, inc
Engineers - Architects - Surveyors



6/24/26
(Date) (Signature)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY	
Surveyor	WISCONSIN DOT / JEWELL
Designer	JEWELL ASSOCIATES ENGINEERS, INC.
Project Manager	ELIZABETH MILLER, P.E.
Regional Examiner	FRED SCHUNKE, P.E.
Regional Supervisor	NICHOLE LYSNE, P.E.

APPROVED FOR THE DEPARTMENT
DATE: 6-24-26 (Signature)

GENERAL NOTES

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

APPLY TACK COAT AT A RATE OF 0.07 GAL/SY TO THE MILLED SURFACE. APPLY TACK COAT AT A RATE OF 0.05 GAL/SY BETWEEN LAYERS OF PROPOSED ASPHALT LAYERS.

CURB & GUTTER ELEVATIONS ARE ALONG THE FLANGE LINE UNLESS OTHERWISE NOTED.

CURVE DATA IS BASED ON THE ARC DEFINITION.

CONTACTS

WDNR LIAISON:
STATE OF WISCONSIN
DNR NORTHEAST REGIONAL HEADQUARTERS
2984 SHAWANO AVE.
GREEN BAY, WI 54313
ATTN: JAY SCHIEFELBEIN
PH: (920) 360-3784
EMAIL: jeremiah.schiefelbein@wisconsin.gov

DESIGN CONSULTANT:
JEWELL ASSOCIATES ENGINEERS, INC.
1210 PARKWOOD DRIVE
SUITE 100
WISCONSIN RAPIDS, WI 54494
ATTN: NICK PEHLER, P.E.
PH: (715) 318-8565
EMAIL: nick.pehler@jewellassoc.com

WISCONSIN DEPARTMENT OF TRANSPORTATION:
WISDOT PROJECT MANAGER
1681 2ND AVE SOUTH
WISCONSIN RAPIDS, WI 54495
ATTN:ELIZABETH MILLER
PH: (715) 315-9237
EMAIL: elizabeth.miller@dot.wi.gov

UTILITIES

ELECTRICITY
ATC MANAGEMENT, INC.
ATTN: TRANS 220 MAILBOX
801 O'KEEFE ROAD
DE PERE, WI 54115
PH: (920) 338-6582
EMAIL: dl-ATCDOTNotifications@atclc.com

COMMUNICATION LINE
TDS TELECOM
ATTN: RICKY SCHMIT
7208 SYNERGY CT STE B
WESTON, WI 54476
PH: (715) 660-1604
EMAIL: ricky.schmit@tdstelecom.com

WISCONSIN PUBLIC SERVICE CORPORATION
ATTN: WENDY CHRIST
P.O. BOX 19001
GREEN BAY, WI 53407
PH: (920) 617-5173
EMAIL: utilitiesrelocation@wisconsinpublicservice.com

GAS/PETROLEUM
ANR PIPELINE CO
ATTN: TODD BRISTER
W3925 Pipeline Lane
EDEN, WI 53019
PH: (920) 477-2235
EMAIL: todd_brister@tcenergy.com

WISCONSIN PUBLIC SERVICE CORPORATION
ATTN: WENDY CHRIST
P.O. BOX 19001
GREEN BAY, WI 53407
PH: (920) 617-5173
EMAIL: utilitiesrelocation@wisconsinpublicservice.com



LIST OF STANDARD ABBREVIATIONS

ABUT	Abutment	INV	Invert	RDWY	Roadway
AC	Acre	IP	Iron Pipe or Pin	SALV	Salvaged
AGG	Aggregate	IRS	Iron Rod Set	SAN S	Sanitary Sewer
AH	Ahead	JT	Joint	SEC	Section
<	Angle	LHF	Junction	SHLDR	Shoulder
ASPH	Asphaltic	L	Left-Hand Forward	SHR	Shrinkage
AVG	Average	LIN FT	Length of Curve	SW	Sidewalk
ADT	Average Daily Traffic	or LF	Linear Foot	S	South
BAD	Base Aggregate Dense	LC	Long Chord of Curve	SQ	Square
BK	Back	MH	Manhole	SF or SQ FT	Square Feet
BF	Back Face	MB	Mailbox	SV or SQ YD	Square Yard
BM	Bench Mark	ML or M/L	Match Line	STD	Standard
BR	Bridge	N	North	SDD	Standard Detail Drawings
C or C/L	Center Line	Y	North Grid Coordinate	STH	State Trunk Highways
CC	Center to Center	OD	Outside Diameter	STA	Station
C.E.	Commercial Entrance	PLE	Permanent Limited Easement	SS	Storm Sewer
CTH	County Trunk Highway	PT	Point	SG	Subgrade
CR	Creek	PC	Point of Curvature	SE	Superelevation
CR	Crushed	PI	Point of Intersection	SL or S/L	Survey Line
CY or CU YD	Cubic Yard	PRC	Point of Reverse Curvature	SV	Septic Vent
CP	Culvert Pipe	PT	Point of Tangency	T	Tangent
C & G	Curb and Gutter	POC	Point On Curve	TEL	Telephone
D	Degree of Curve	POT	Point on Tangent	TEMP	Temporary
DHV	Design Hour Volume	PVC	Polyvinyl Chloride	TI	Temporary Interest
DIA	Diameter	PCC	Portland Cement Concrete	TLE	Temporary Limited Easement
E	East	LB	Pound	t	Ton
X	East Grid Coordinate	PSI	Pounds Per Square Inch	T or TN	Town
ELEC	Electric (al)	P.E.	Private Entrance	TRANS	Transition
EL or ELEV	Elevation	R	Radius	TL or T/L	Transit Line
ESALS	Equivalent Single Axle Loads	RR	Railroad	T	Trucks (percent of)
EBS	Excavation Below Subgrade	R	Range	TYP	Typical
FF	Face to Face	RL or R/L	Reference Line	UNCL	Unclassified
F.E.	Field Entrance	RP	Reference Point	UG	Underground Cable
F	Fill	RCCP	Reinforced Concrete Culvert Pipe	USH	United States Highway
FG	Finished Grade	REQD	Required	VAR	Variable
FL or F/L	Flow Line	RES	Residence or Residential	V	Velocity or Design Speed
FT	Foot	RW	Retaining Wall	VERT	Vertical
FTG	Footing	RT	Right	VC	Vertical Curve
GN	Grid North	RHF	Right-Hand Forward	VOL	Volume
HT	Height	R/W	Right-of-Way	WM	Water Main
CWT	Hundredweight	RD	Road	WV	Water Valve
HYD	Hydrant	R	River	W	West
INL	Inlet			WB	Westbound
ID	Inside Diameter			YD	Yard

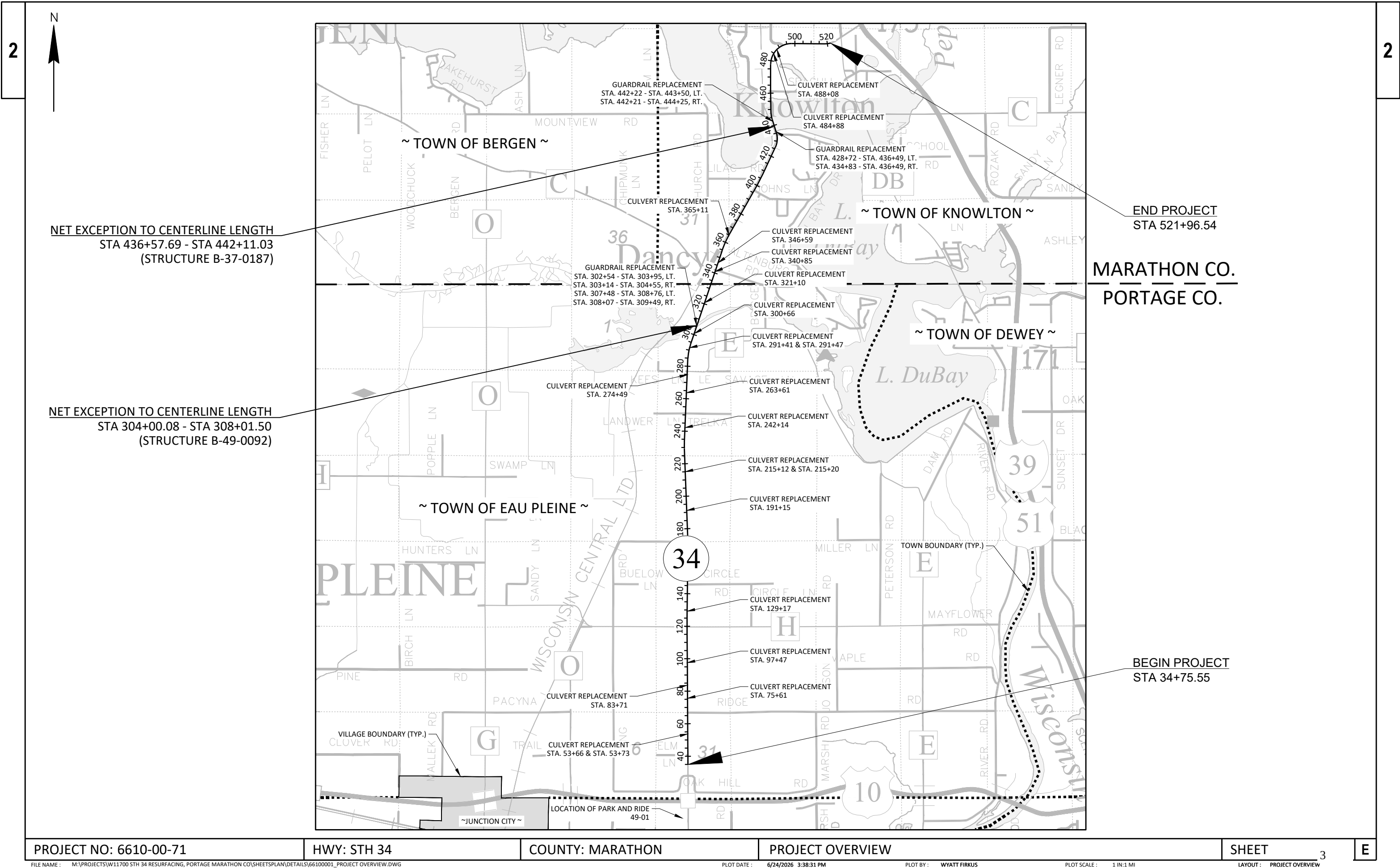
ORDER OF SECTION 2 SHEETS:

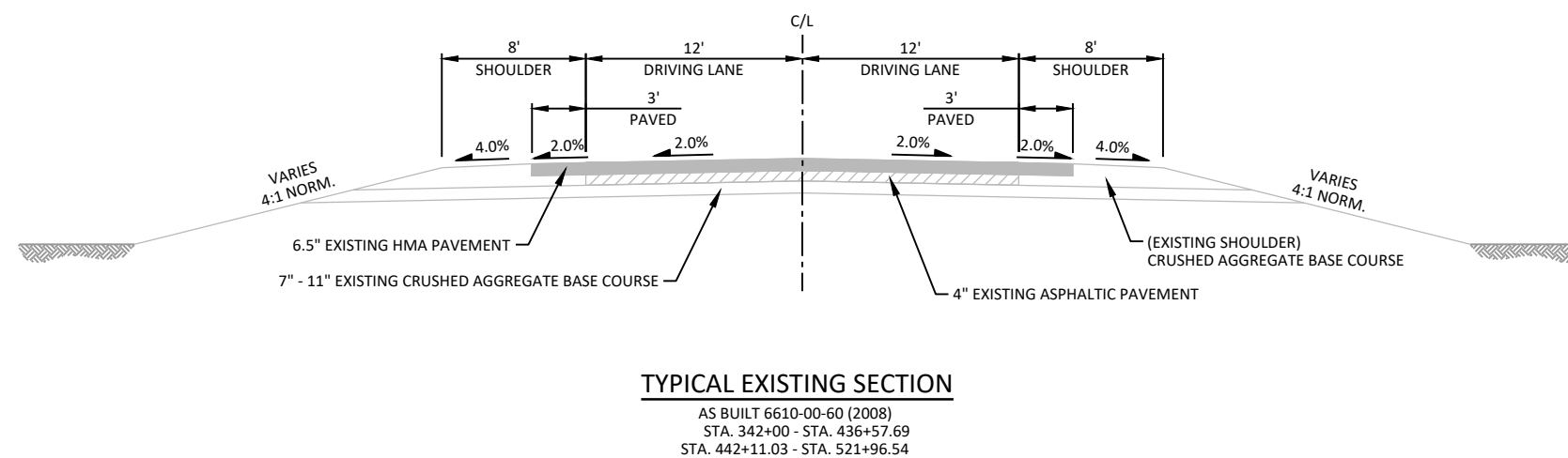
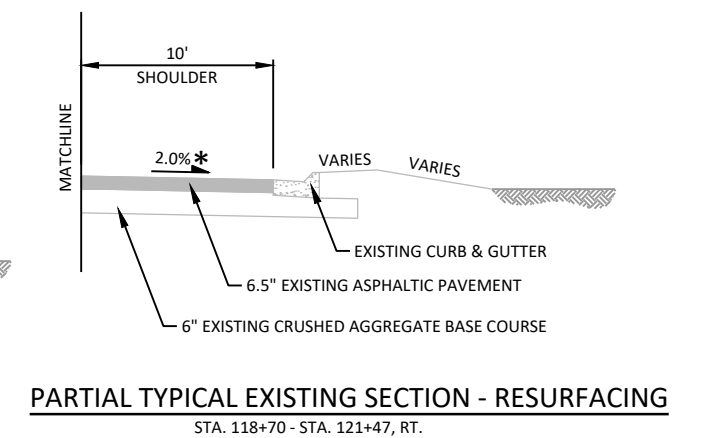
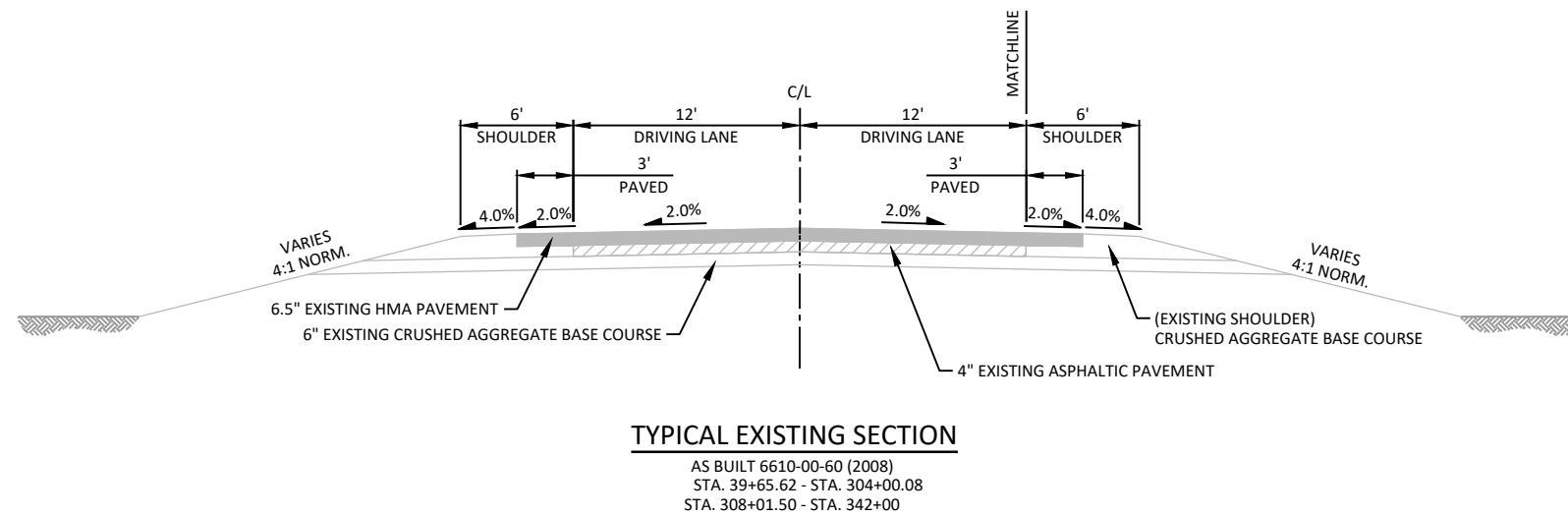
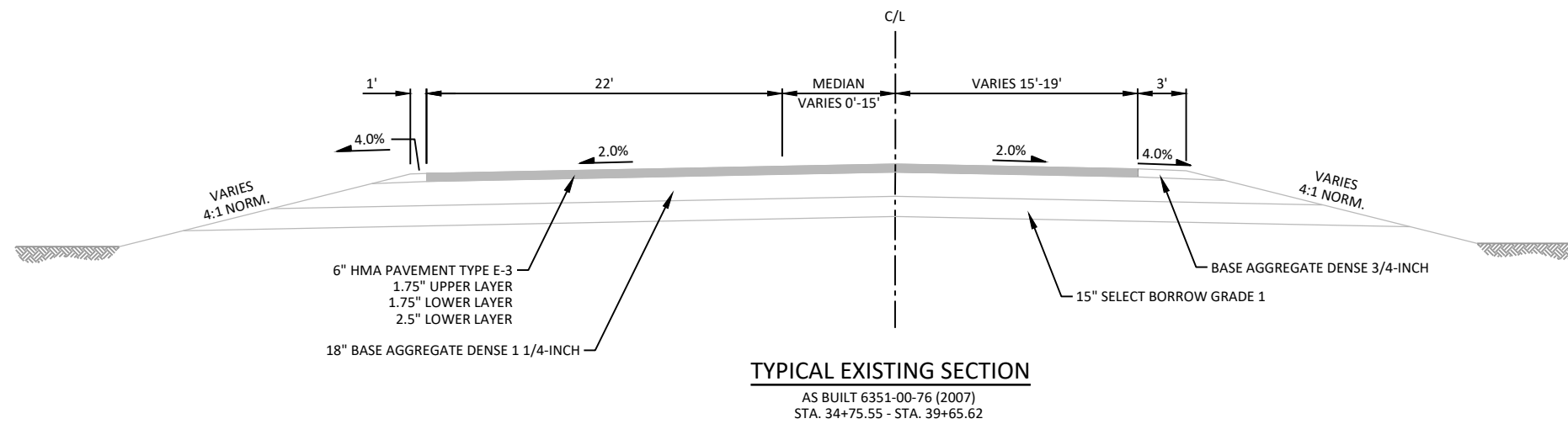
- GENERAL NOTES
- PROJECT OVERVIEW
- TYPICAL SECTIONS
- CONSTRUCTION DETAILS (INCLUDES EROSION CONTROL)
- TRAFFIC CONTROL
- DETOUR PLAN
- PAVEMENT MARKING & PERMANENT SIGNING

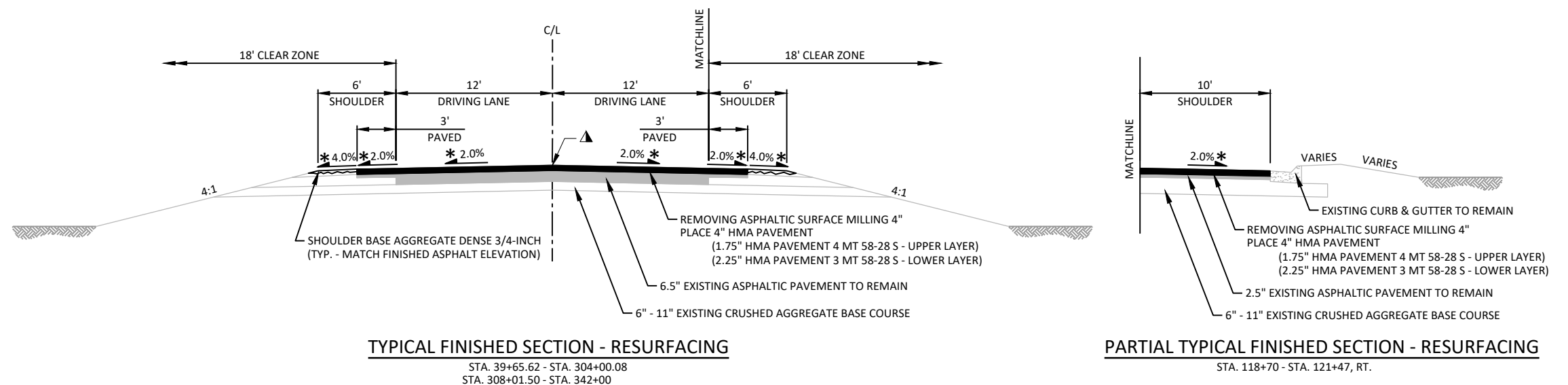
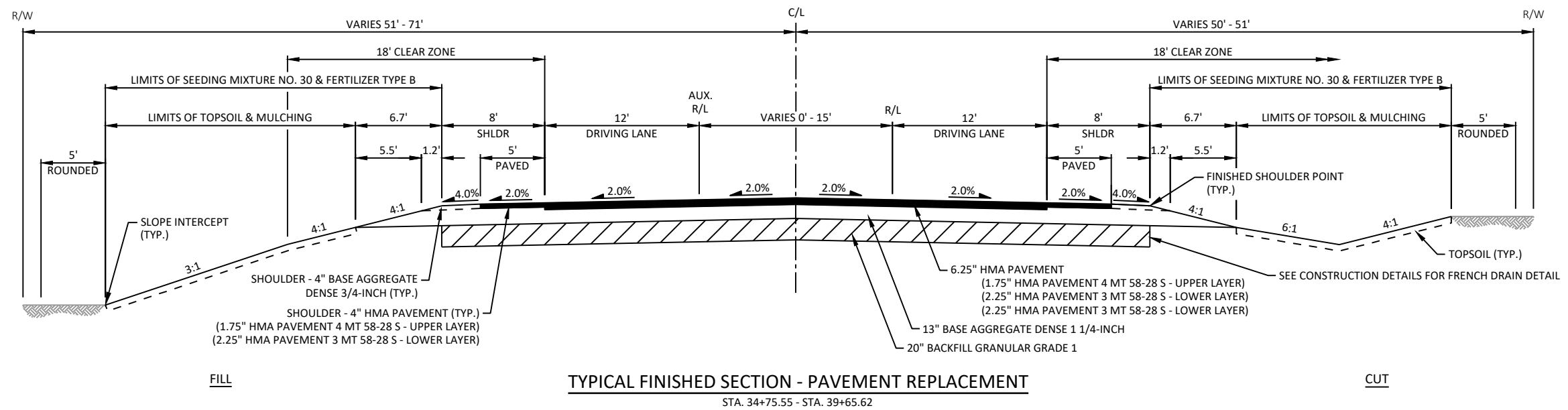
RUNOFF COEFFICIENT TABLE

	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= 132.0 ACRES
TOTAL AREA EXPECTED TO BE DISTURBED BY CONSTRUCTION ACTIVITIES = 2.2 ACRES



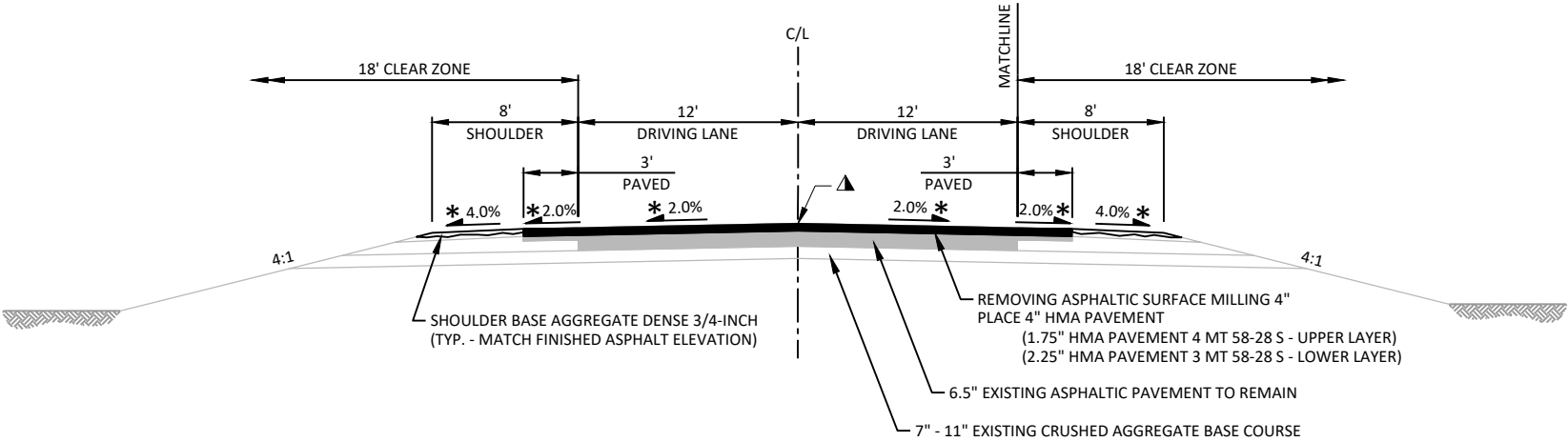




- * IN AREAS OF SUPERELEVATION, MATCH EXISTING SLOPE
- ▲ ASPHALTIC RUMBLE STRIPS, CENTERLINE REQ'D. SEE MISCELLANEOUS QUANTITIES AND STANDARD DETAIL DRAWINGS FOR DETAILS.

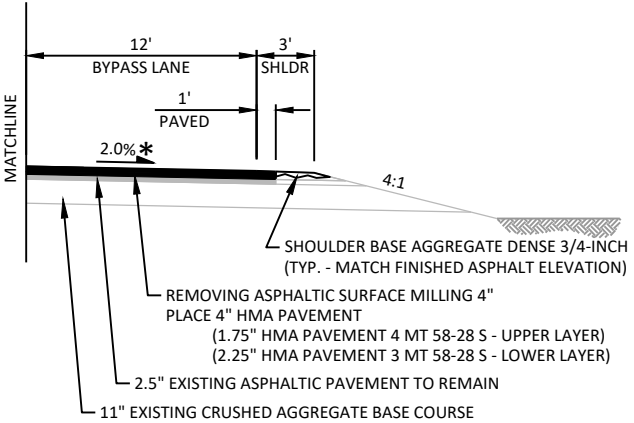
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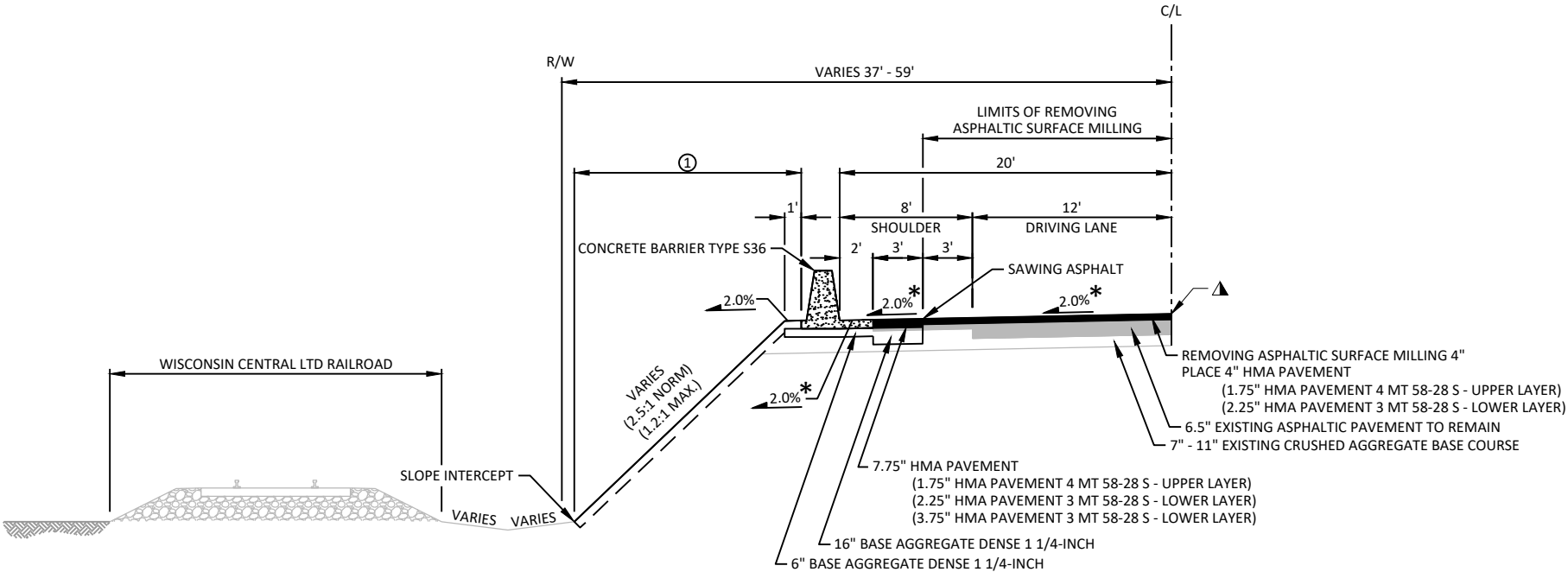
TYPICAL FINISHED SECTION - RESURFACING

STA. 342+00 - STA. 436+57.69
STA. 442+11.03 - STA. 521+96.54



PARTIAL TYPICAL FINISHED SECTION - RESURFACING

STA. 504+08 - STA. 512+00, RT.



TYPICAL FINISHED HALF SECTION - CONCRETE BARRIE

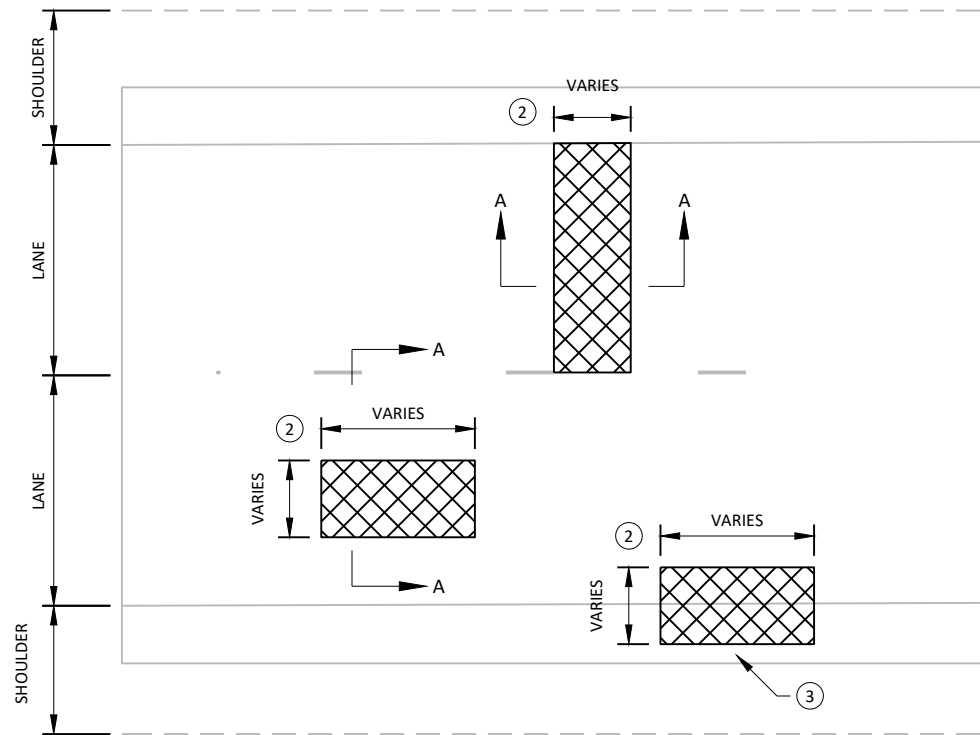
STA. 430+00 - STA. 436+44, LT.

- EXCEPTION TO NET CENTERLINE:

STA. 436+57.69 - STA. 442+11.03 (553 FT.) (STRUCTURE B-37-0187)

STA. 304+00.08 - STA. 308+01.50 (401 FT.) (STRUCTURE B-49-0092)

- * IN AREAS OF SUPERELEVATION, MATCH EXISTING SLOPE
- ▲ ASPHALTIC RUMBLE STRIPS, CENTERLINE REQ'D. SEE MISCELLANEOUS QUANTITIES AND STANDARD DETAIL DRAWINGS FOR DETAILS.
- ① STA. 430+00 - 433+62
SLOPE PAVING CRUSHED AGGREGATE
- STA. 433+62 - STA. 436+57.69
TOPSOIL, SEEDING MIXTURE NO. 30, FERTILIZER
TYPE B, & EROSION MAT URBAN CLASS I TYPE B

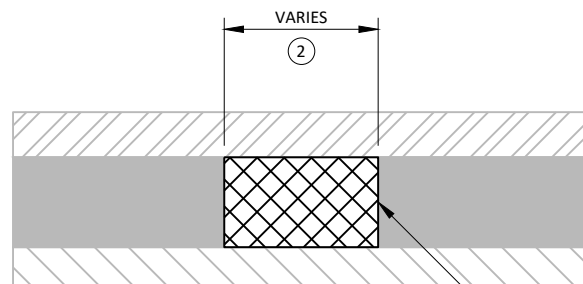


PLAN VIEW

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.



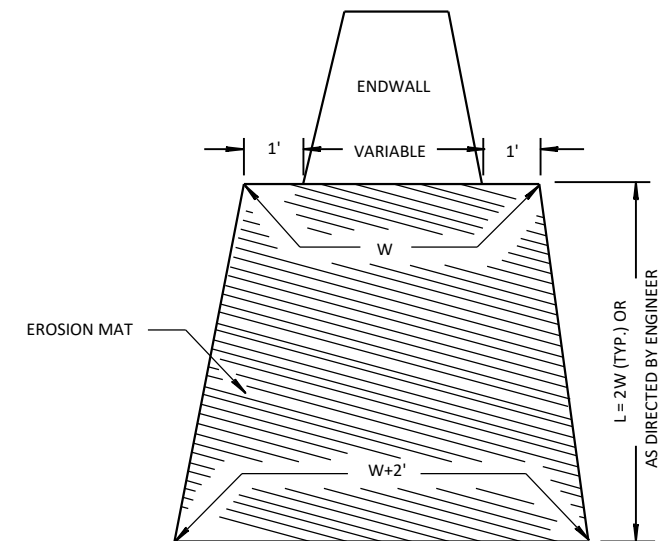
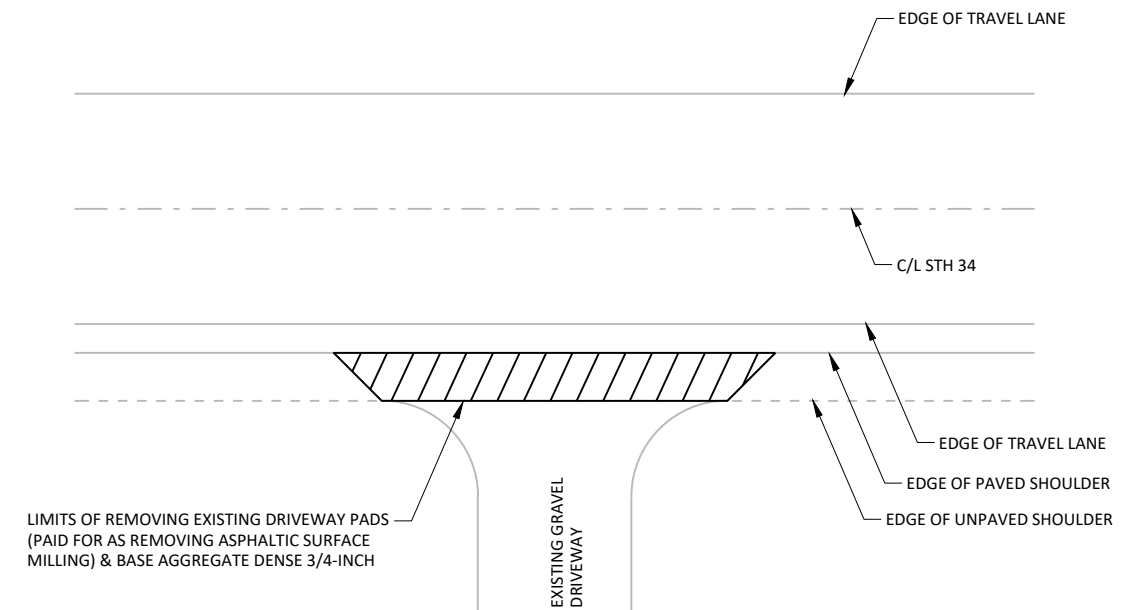
FULL DEPTH

SECTION A-A

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

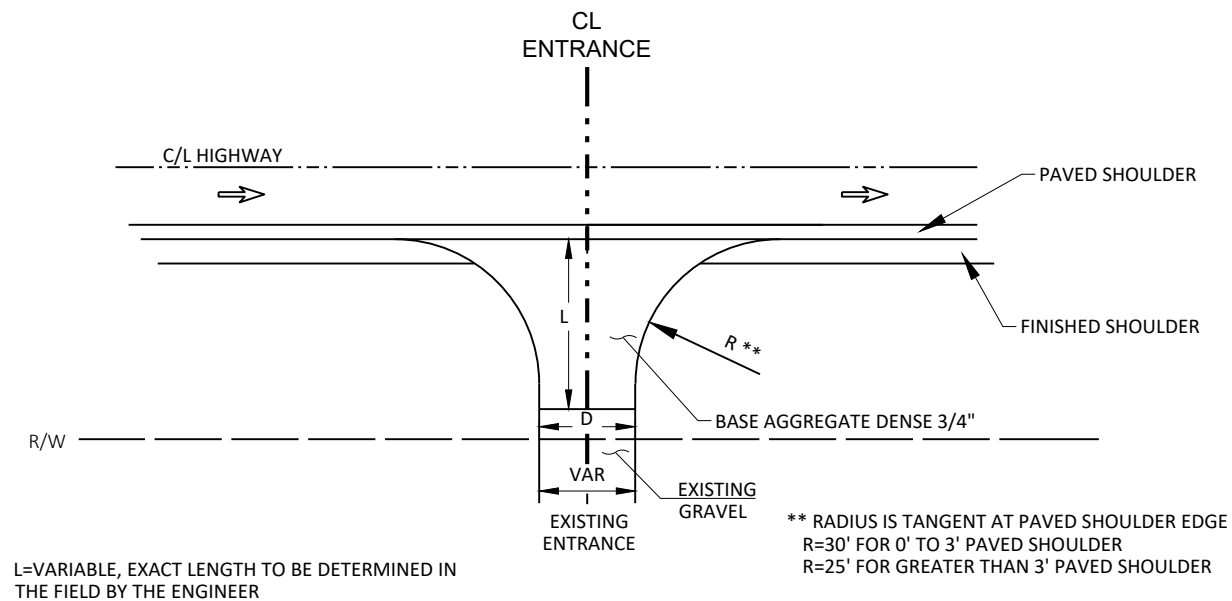
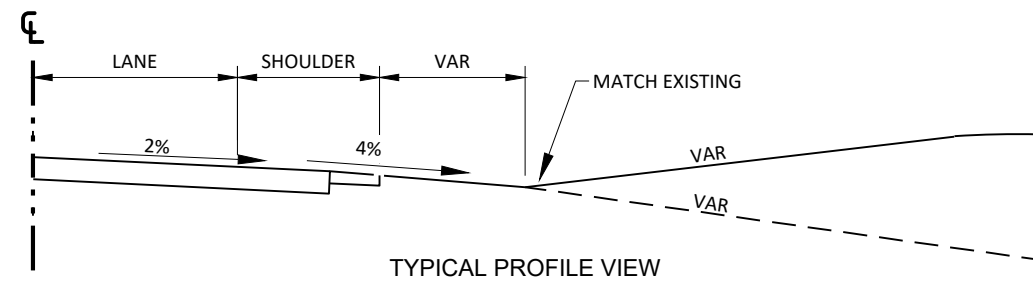
REMOVING DISTRESSED ASPHALTIC SURFACE MILLING

LOCATIONS AND LIMITS DETERMINED BY THE ENGINEER IN THE FIELD

EROSION MAT TREATMENT AT CULVERTS
(OUTLET OF CULVERTS)

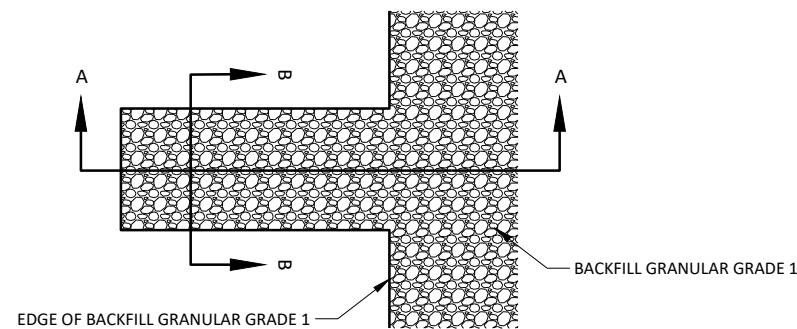
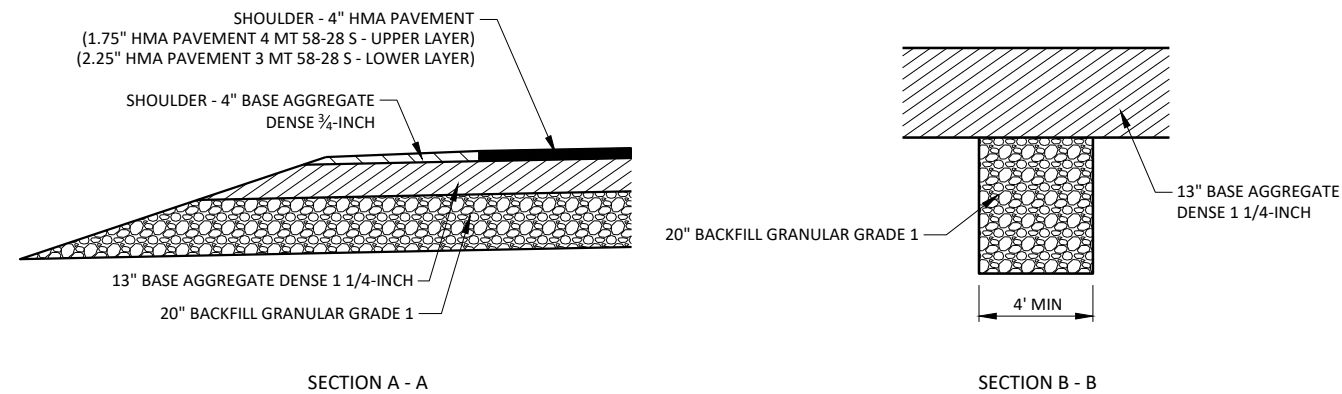
LIMITS OF REMOVING EXISTING DRIVEWAY PADS
(PAID FOR AS REMOVING ASPHALTIC SURFACE
MILLING) & BASE AGGREGATE DENSE 3/4-INCH

TYPICAL RURAL DRIVEWAY PAD REMOVAL DETAIL



RURAL DRIVEWAY INTERSECTION (PE, FE & CE)

STA. 309+35, LT. & STA. 444+27, LT.

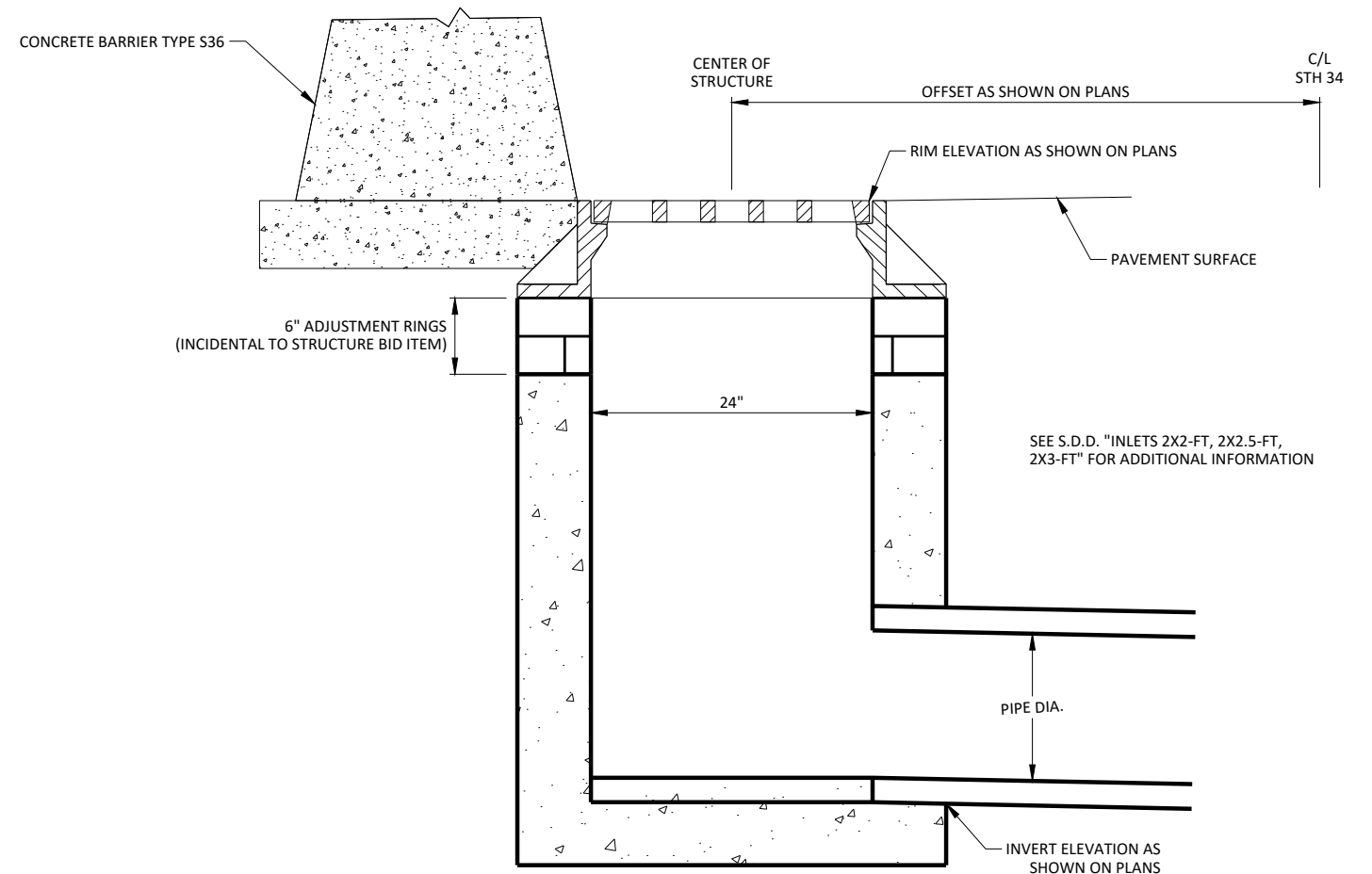


DETAIL FOR FRENCH DRAINS

STA. 39+50, RT.

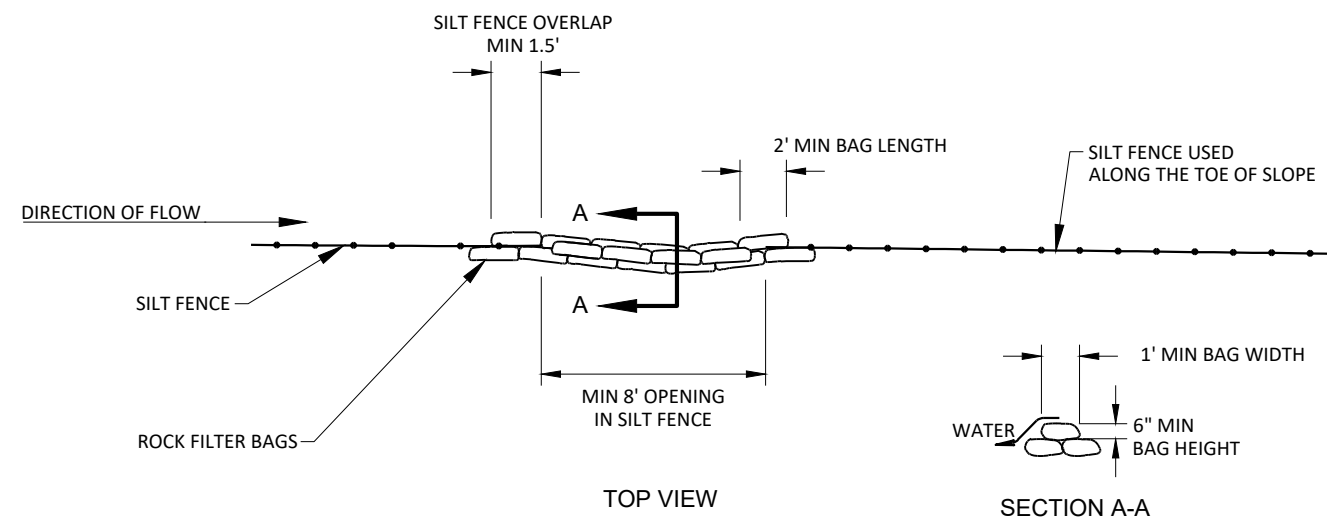
LOCATIONS TO BE VERIFIED IN THE FIELD BY THE ENGINEER

EXCAVATION REQUIRED TO CONSTRUCT FRENCH DRAINS SHALL
BE CONSIDERED INCIDENTAL TO THE ITEM BACKFILL GRANULAR
GRADE 1

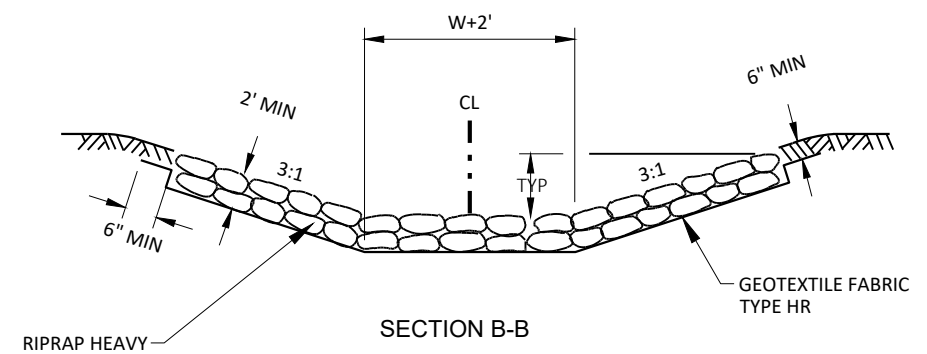
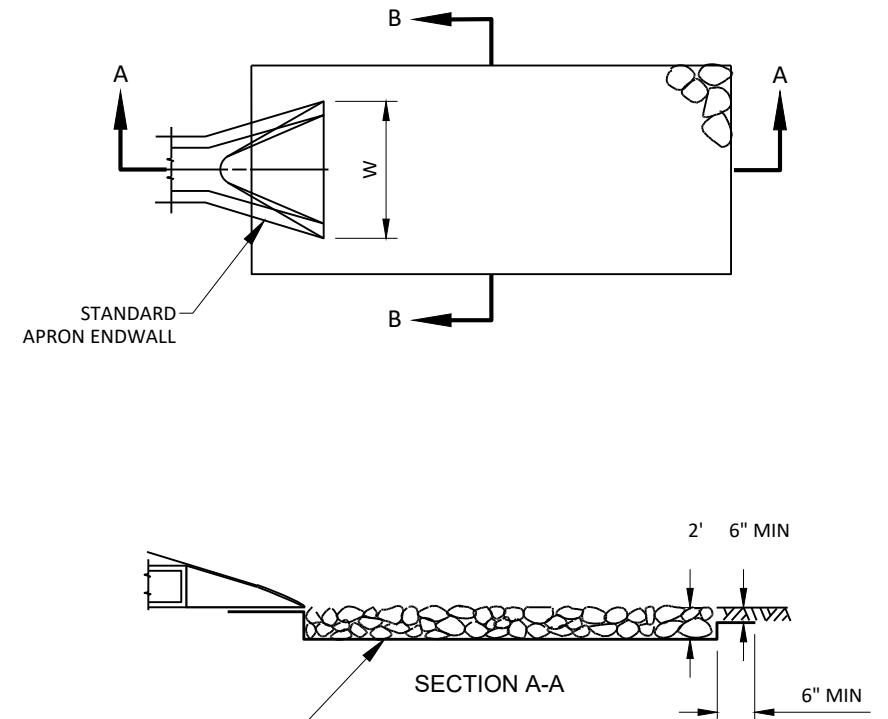


STORM SEWER MEASUREMENT DETAIL

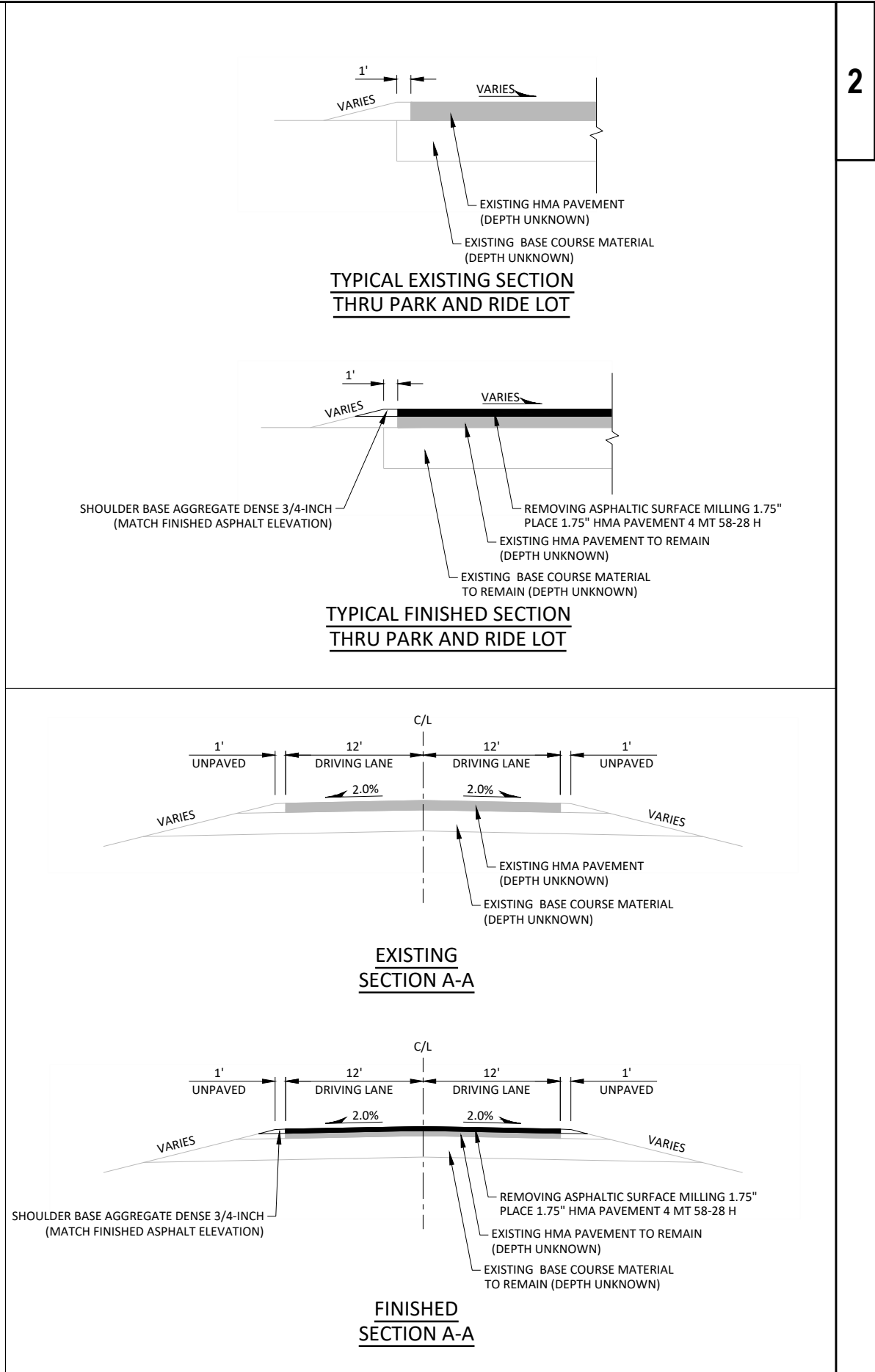
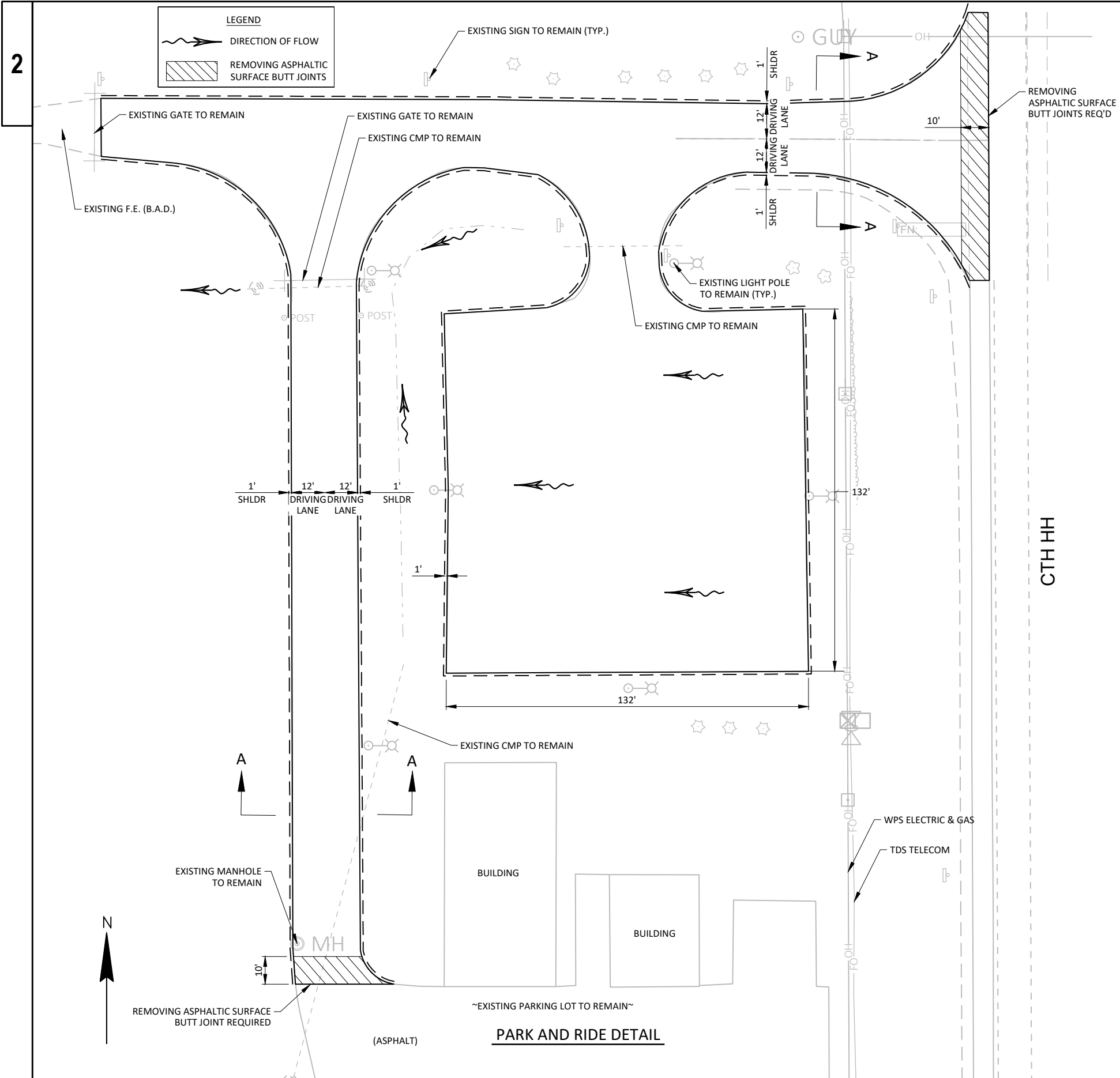
INLETS 2X2.5 - BW SHOWN

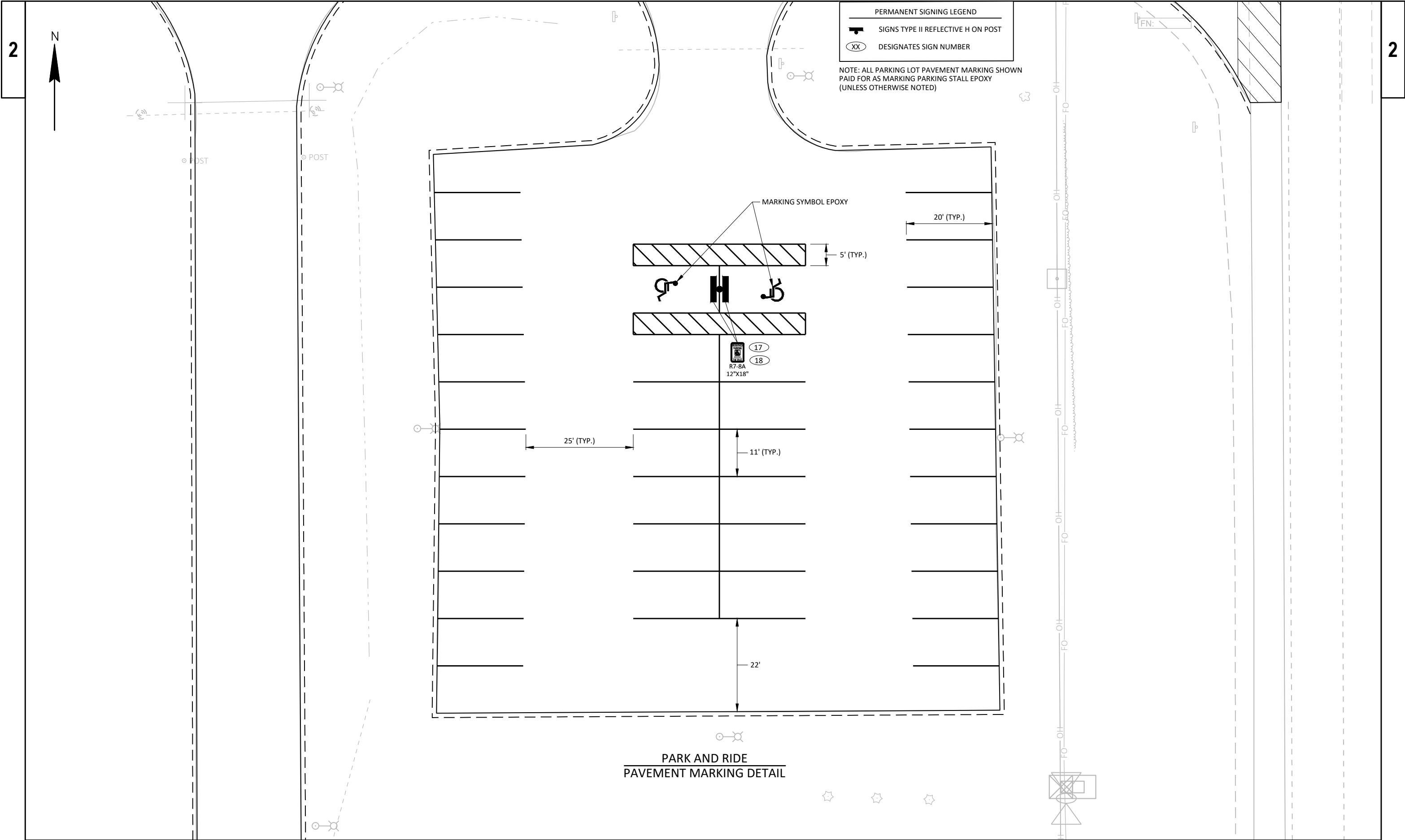


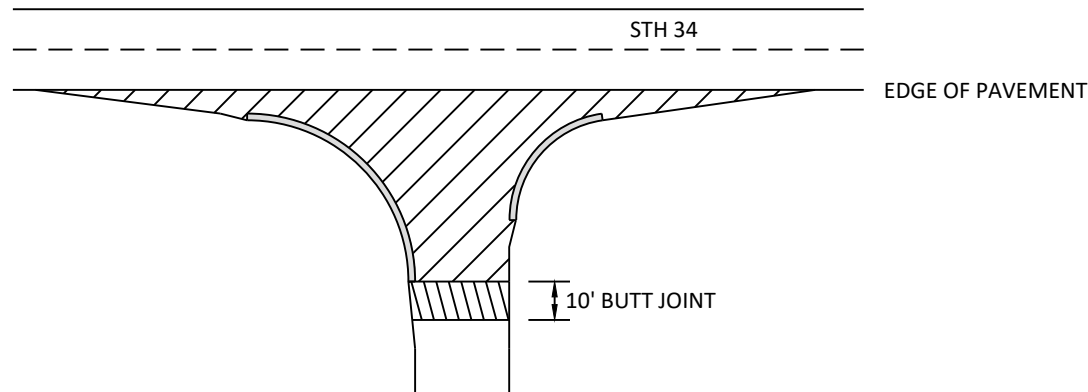
ROCK BAGS USED FOR SILT FENCE RELIEF



RIP RAP AND GEOTEXTILE





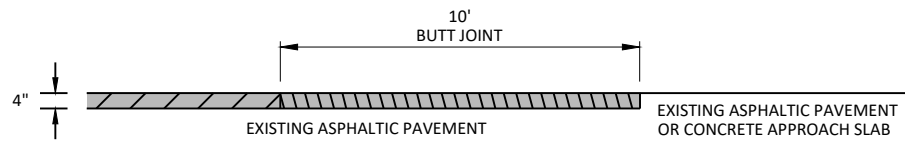


- REMOVING ASPHALTIC SURFACE MILLING
- REMOVING ASPHALTIC SURFACE BUTT JOINTS
SEE BUTT JOINT DETAIL

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

TYPICAL RURAL SIDEROAD DETAIL WITH CURB & GUTTER

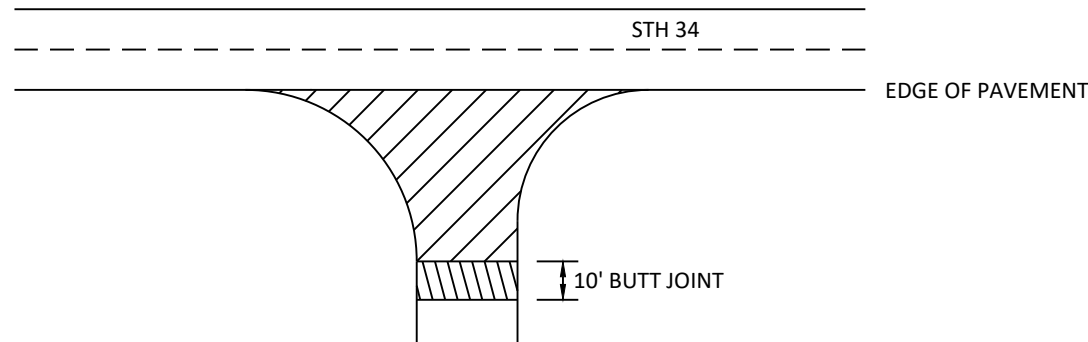
- | | |
|-----------------------------|-----------------------|
| CTH H (EAST) | ALTENBURG ROAD (WEST) |
| CTH H (WEST) | JOHNS LANE |
| CTH E | DUBAY DRIVE |
| CTH C/ALTENBURG ROAD (WEST) | SEAGULL DRIVE (EAST) |
| | DEPOT ROAD |



- HMA PAVEMENT
- REMOVING ASPHALTIC SURFACE MILLING
- REMOVING ASPHALTIC SURFACE BUTT JOINTS

BUTT JOINT - MAINLINE

- STA. 304+00.08
- STA. 308+01.50
- STA. 436+57.69
- STA. 442+11.03
- STA. 521+96.54

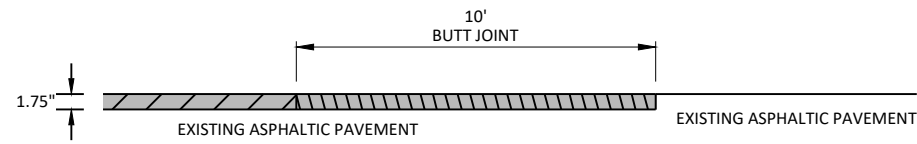


- REMOVING ASPHALTIC SURFACE MILLING
- REMOVING ASPHALTIC SURFACE BUTT JOINTS
SEE BUTT JOINT DETAIL

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

TYPICAL RURAL SIDEROAD DETAIL WITHOUT CURB & GUTTER

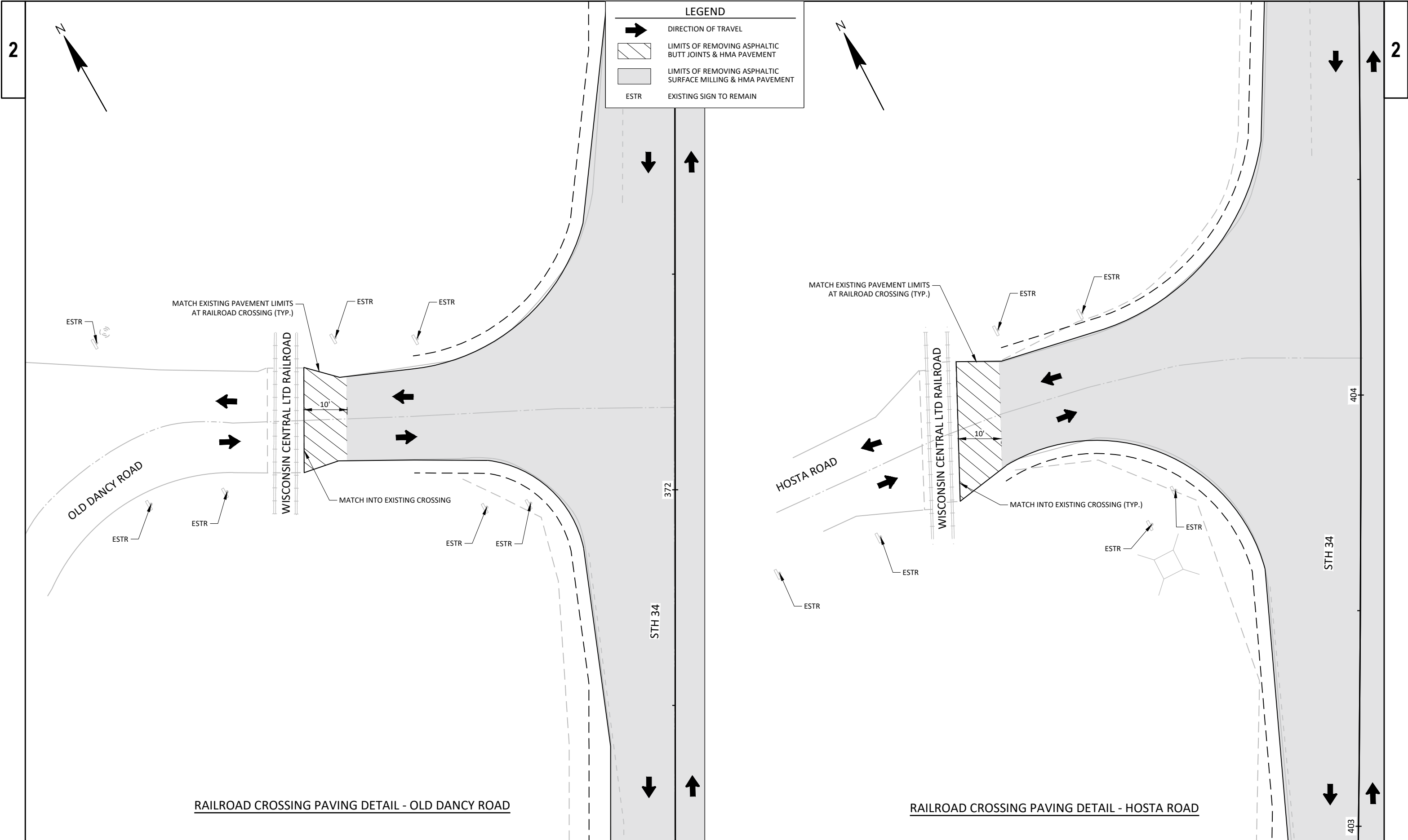
- | | |
|--------------|----------------------|
| ELM LANE | KEES LANE |
| RIDGE ROAD | BROOKS ROAD |
| CIRCLE ROAD | OLD DANCY ROAD |
| LONG ROAD | HOSTA ROAD |
| SHORT LANE | GRAHAM LANE |
| LANDWER LANE | SEAGULL DRIVE (WEST) |
| TRELKA LANE | |

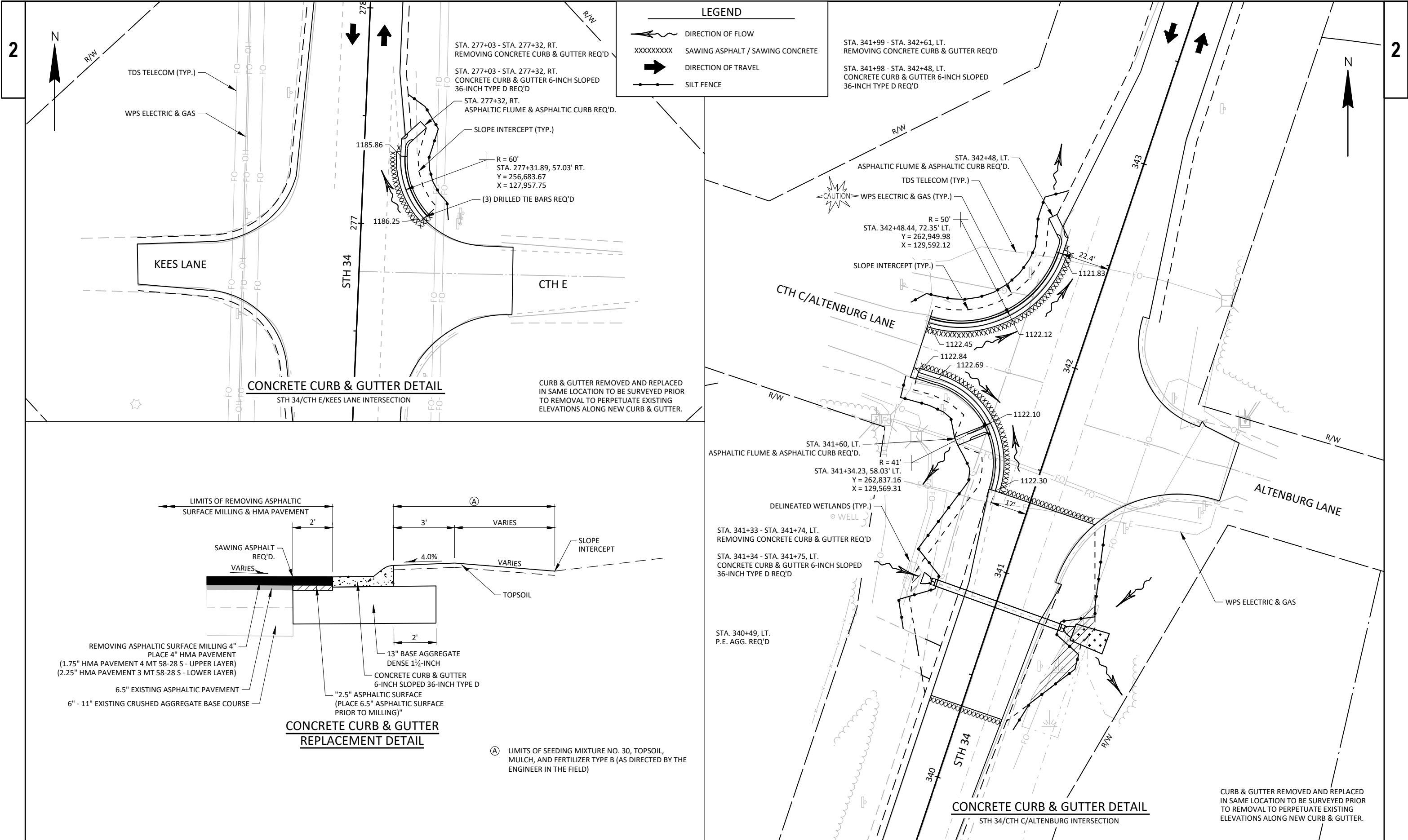


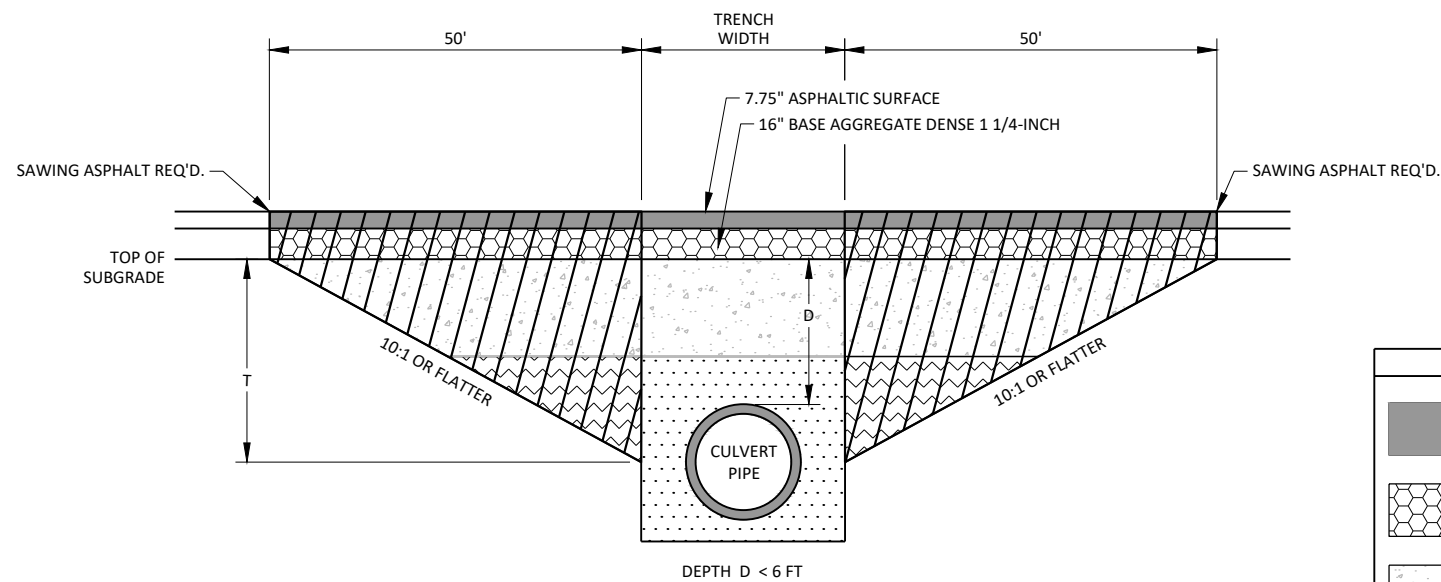
- HMA PAVEMENT
- REMOVING ASPHALTIC SURFACE MILLING
- REMOVING ASPHALTIC SURFACE BUTT JOINTS

BUTT JOINT - SIDEROADS

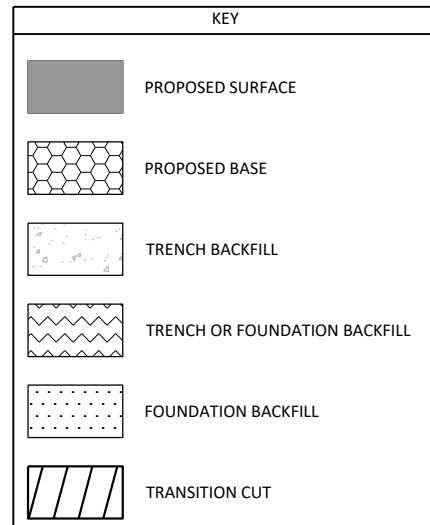
- | | |
|-----------------------|----------------------|
| PARK & RIDE | OLD DANCY ROAD |
| CTH H (EAST) | JOHNS LANE |
| CTH H (WEST) | HOSTA ROAD |
| SHORT LANE | GRAHAM LANE |
| CTH E | DUBAY DRIVE |
| ALTENBURG ROAD (EAST) | SEAGULL DRIVE (EAST) |
| ALTENBURG ROAD (WEST) | SEAGULL DRIVE (WEST) |
| BROOKS ROAD | DEPOT ROAD |







TRANSITION CUT DEPTH (T) = THE LESSER OF DEPTH TO CENTER OF PIPE OR 5 FT.
DO NOT EXTEND TRANSITION CUT BELOW HORIZONTAL CENTER OF PIPE.



NOTES

TRANSITION CUT IS PAID AS EXCAVATION COMMON.

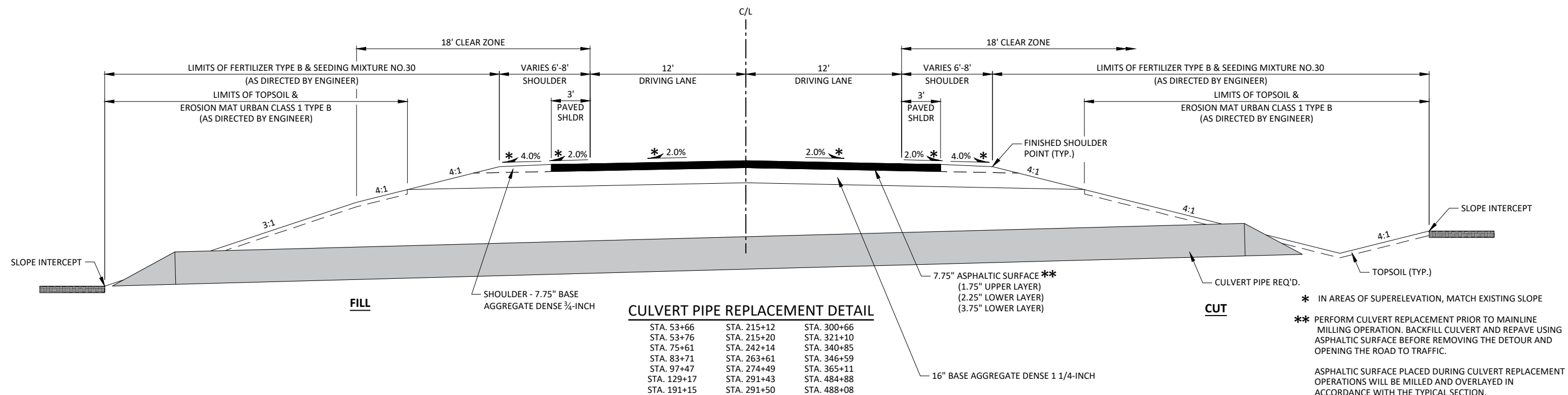
TRANSITION CUT WIDTH IS FROM SUBGRADE SHOULDER POINT TO SUBGRADE SHOULDER POINT.

BACKFILL THE TRANSITION CUT AREAS WITH FOUNDATION AND TRENCH BACKFILL AS SPECIFIED IN STANDARD SPEC 520.

PERFORM CULVERT PIPE INSTALLATION BEFORE MILLING AND PAVING.

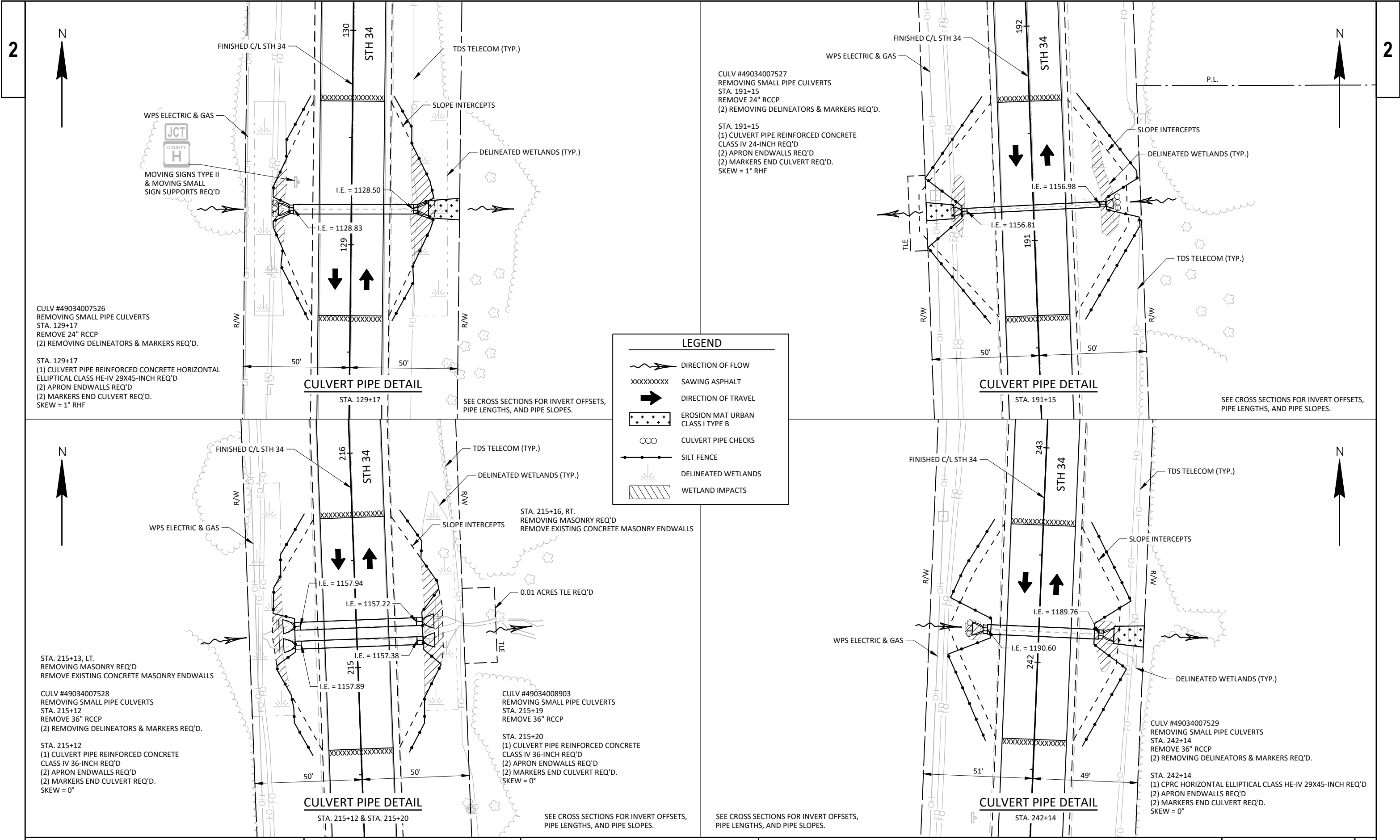
CULVERT PIPE TRANSITION

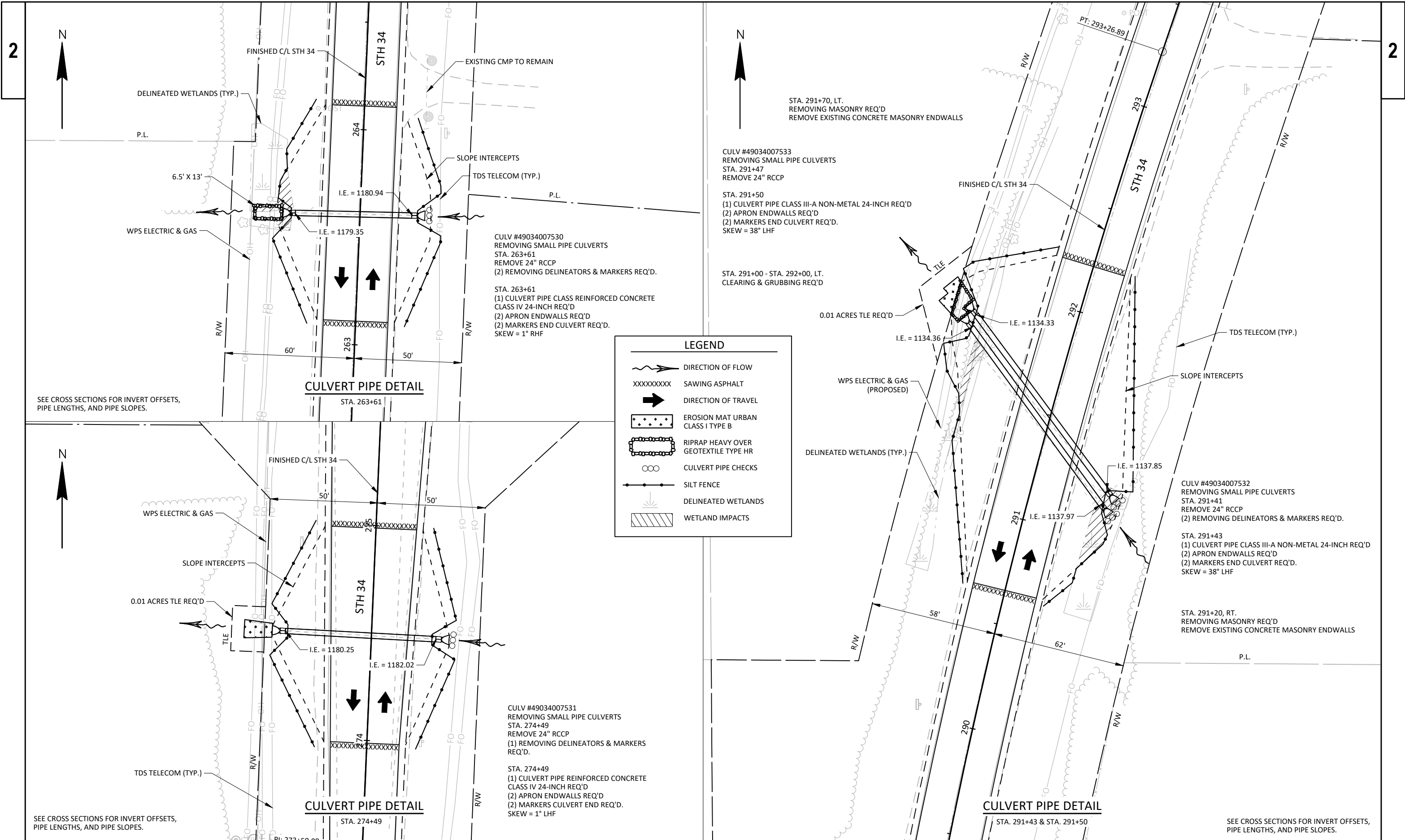
ROUTE	STA (CL)	DEPTH D (FT)	PIPE DIA (IN)	REMARKS
STH 34	53+66	1.3	48X76	CULVERT #49034005654
STH 34	53+76	1.2	48X76	CPRC HORIZONTAL ELLIPTICAL CLASS HE-III
STH 34	75+61	0.8	24	CULVERT #49034005655
STH 34	83+71	0.1	24	CPRC HORIZONTAL ELLIPTICAL CLASS HE-III
STH 34	97+47	0.9	24x38	CULVERT #49034005656
STH 34	129+17	0.6	29x45	CULVERT #49034005657
STH 34	191+15	1.5	24	CULVERT #49034005658
STH 34	215+12	0.9	36	CPRC HORIZONTAL ELLIPTICAL CLASS HE-IV
STH 34	215+20	0.9	36	CULVERT #49034007526
STH 34	242+14	0.1	29X45	CPRC HORIZONTAL ELLIPTICAL CLASS HE-IV
STH 34	263+61	0.7	24	CULVERT #49034007527
STH 34	274+49	2.4	24	CULVERT #49034007528
STH 34	291+43	4.0	24	CULVERT #49034007529
STH 34	291+50	4.0	24	CULVERT #49034007530
STH 34	300+66	2.4	36	CULVERT #49034007531
STH 34	321+10	3.4	30	CULVERT #49034007532
STH 34	340+85	0.1	30	CULVERT #49034007533
STH 34	346+59	1.3	30	CULVERT #49034007534
STH 34	365+11	1.0	36	CULVERT #49034007535
STH 34	484+88	2.0	36	CULVERT #37034002392
STH 34	488+08	3.0	42	CULVERT #37034002393
				CULVERT #37034002394
				CULVERT #37034002396
				CULVERT #37034002397

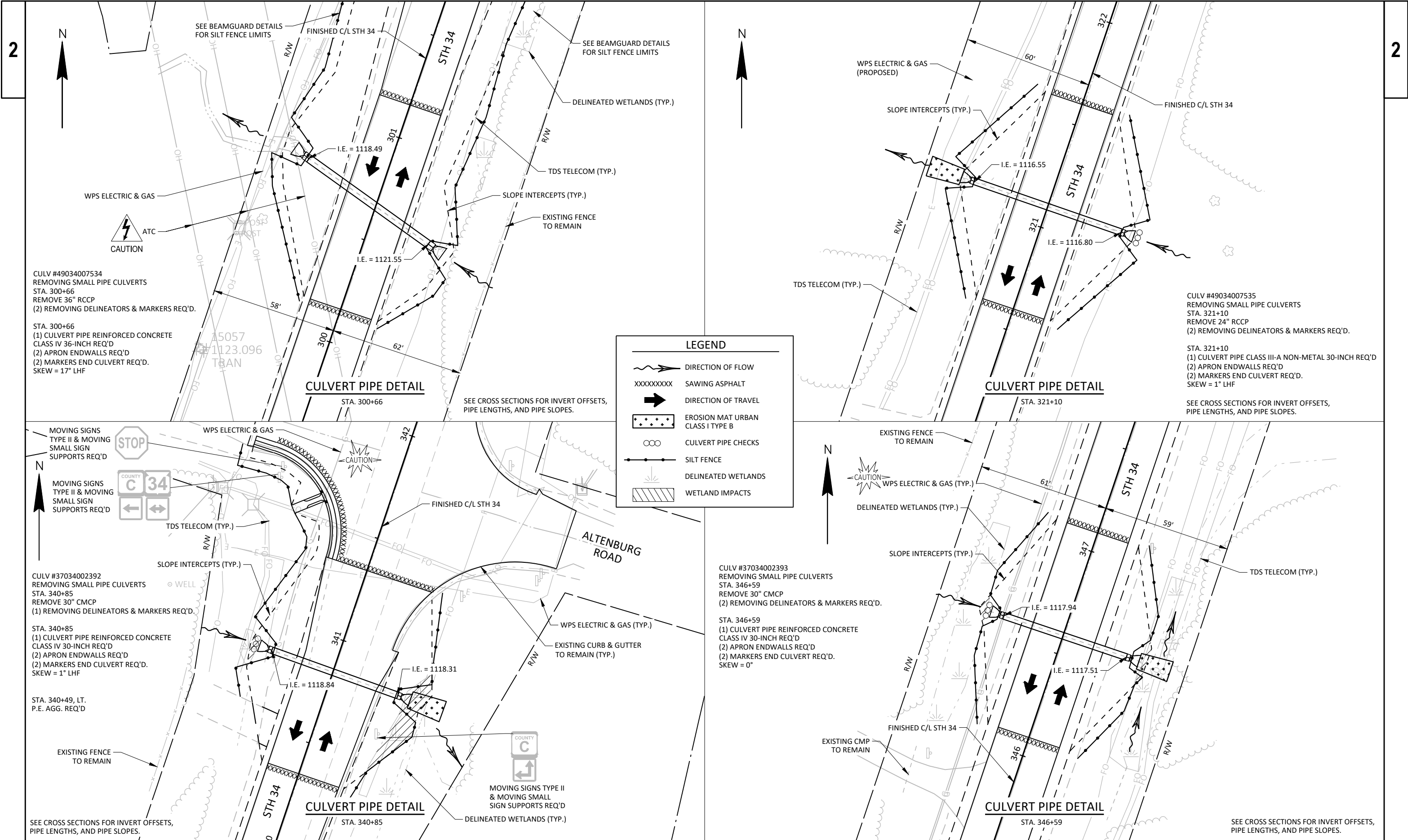


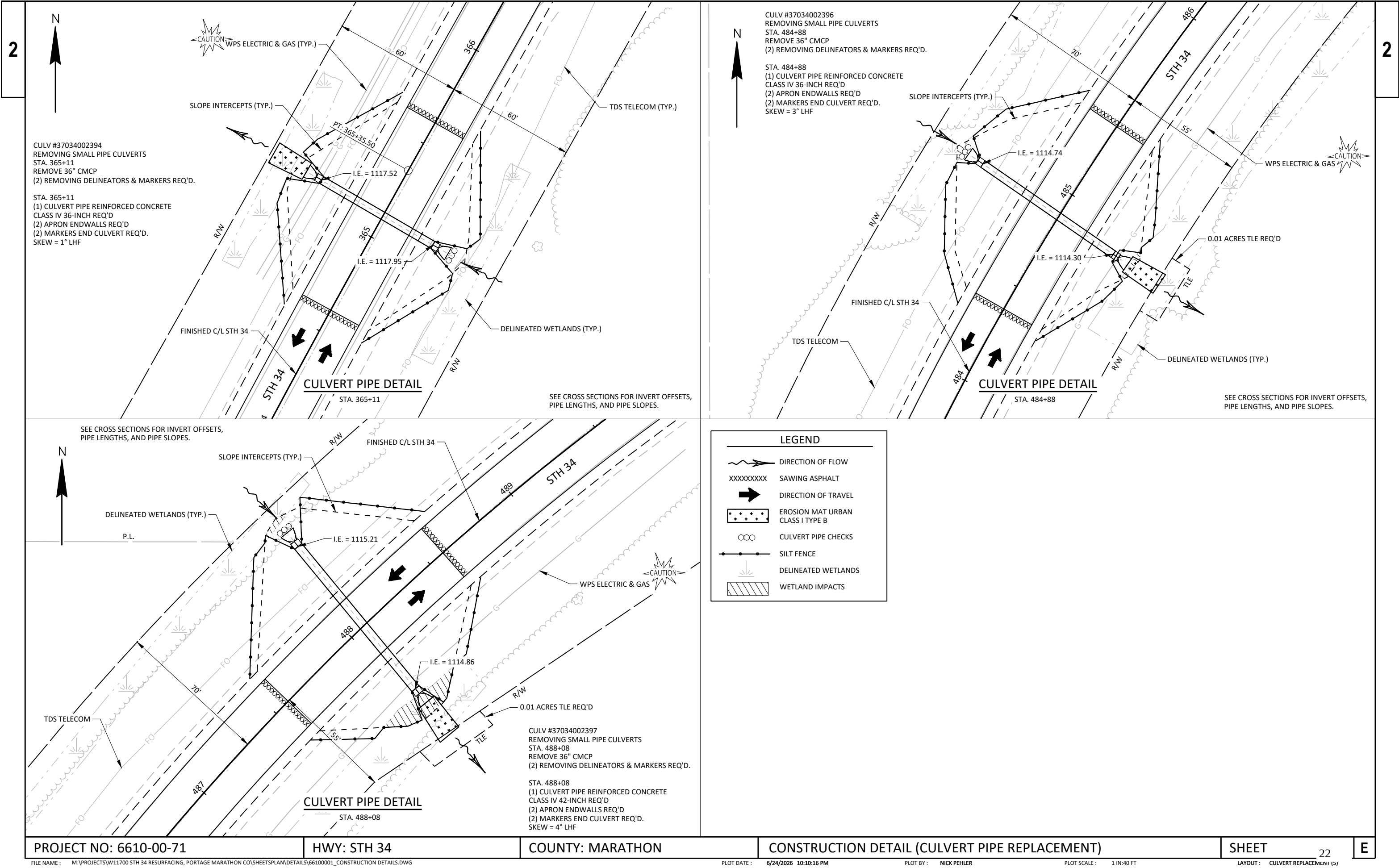
CULVERT PIPE REPLACEMENT LAYOUT TABLE

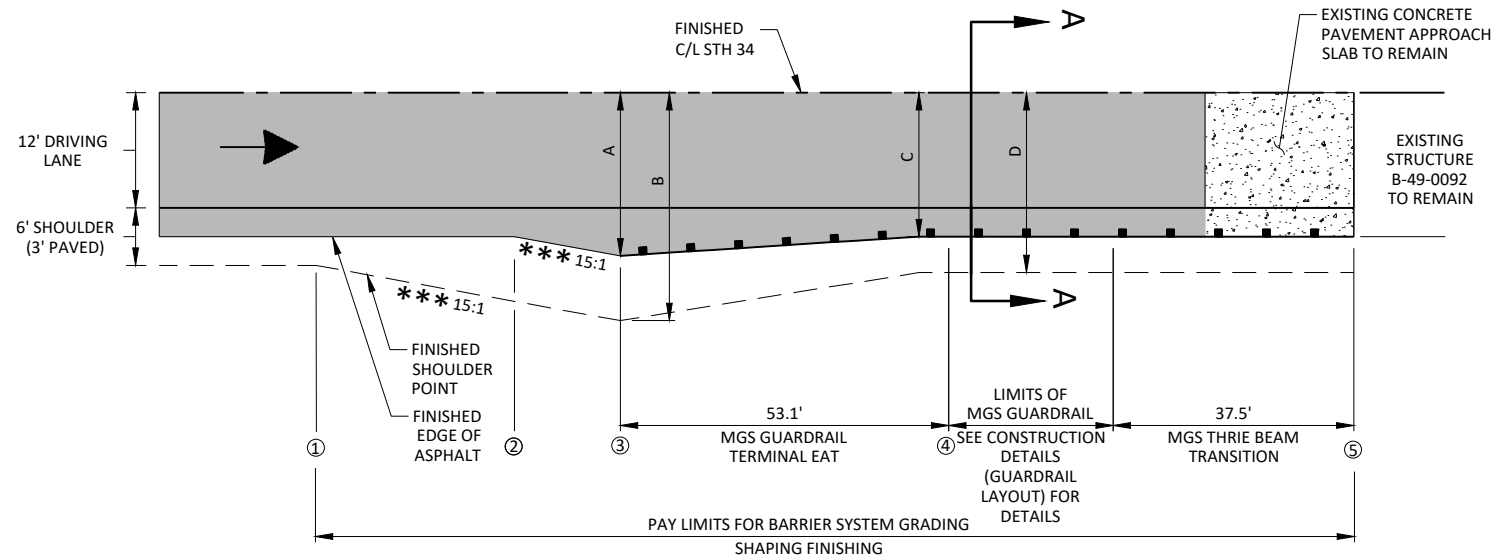
STATION	LOCATION	DIAMETER (IN.)	SKEW ANGLE	LT					RT				
				STATION	OFFSET	Y	X	Z	STATION	OFFSET	Y	X	Z
53+66	MAINLINE	48X76	0.7° RHF	53+65.43	28.00'	234,328.01	127,895.87	1,116.81	53+65.84	30.00'	234,328.74	127,953.86	1,116.58
53+76	MAINLINE	48X76	0.3° RHF	53+75.43	28.00'	234,337.96	127,895.81	1,116.81	53+75.74	30.00'	234,338.63	127,953.81	1,116.58
75+61	MAINLINE	24	1.3° RHF	75+59.98	28.99'	236,622.51	127,882.33	1,134.79	75+61.28	26.99'	236,524.13	127,938.31	1,135.45
83+71	MAINLINE	24	1.6° LHF	83+71.95	24.99'	237,334.50	127,881.69	1,138.76	83+70.59	22.99'	237,333.41	127,929.68	1,139.28
97+47	MAINLINE	24X38	0.7° LHF	97+47.26	30.00'	238,709.79	127,868.97	1,138.12	97+46.59	28.00'	238,709.38	127,926.97	1,138.51
129+17	MAINLINE	29X45	0.7° RHF	129+16.28	27.00'	241,879.17	127,865.83	1,128.83	129+16.93	29.00'	241,879.21	127,921.83	1,128.50
191+15	MAINLINE	24	0.7° RHF	191+14.94	31.00'	248,074.71	127,832.51	1,156.81	191+15.70	31.00'	248,077.85	127,894.43	1,156.98
215+12	MAINLINE	36	NO SKEW	215+11.51	26.00'	250,469.70	127,745.47	1,157.89	215+11.51	28.00'	250,471.78	127,799.43	1,157.38
215+20	MAINLINE	36	NO SKEW	215+20.33	26.00'	250,478.52	127,745.13	1,157.94	215+20.33	28.00'	250,480.59	127,799.09	1,157.22
242+14	MAINLINE	36	NO SKEW	242+14.32	24.00'	253,172.59	127,730.46	1,190.60	242+14.18	28.00'	253,170.29	127,782.41	1,189.76
263+61	MAINLINE	24	1.1° RHF	263+60.08	30.00'	255,316.75	127,813.41	1,179.35	263+61.10	24.00'	255,315.54	127,867.40	1,180.94
274+49	MAINLINE	24	0.7° LHF	274+49.23	40.00'	256,405.43	127,848.70	1,180.25	274+48.38	30.00'	256,401.59	127,918.60	1,182.02
291+43	MAINLINE	24	38.7° LHF	291+79.39	46.30'	258,134.95	128,000.77	1,134.36	291+15.95	33.46'	258,052.53	128,060.87	1,137.97
291+50	MAINLINE	24	38.7° LHF	291+85.40	45.88'	258,140.70	128,002.86	1,134.33	291+22.74	34.52'	258,058.75	128,063.61	1,137.85
300+66	MAINLINE	36	16.9° LHF	300+77.39	36.36'	258,985.28	128,296.35	1,118.49	300+57.63	28.70'	258,945.64	128,351.60	1,121.55
321+10	MAINLINE	30	0.5° LHF	321+10.38	36.00'	260,911.76	128,945.39	1,116.55	321+09.70	36.00'	260,888.18	129,013.42	1,116.80
340+85	MAINLINE	30	1.2° LHF	340+85.20	30.00'	262,781.76	129,580.26	1,118.84	340+83.91	32.00'	262,760.78	129,638.61	1,118.31
346+59	MAINLINE	30	NO SKEW	346+58.74	29.00'	263,325.08	129,763.93	1,117.94	346+58.74	31.00'	263,305.98	129,820.81	1,117.51
365+11	MAINLINE	36	1.1° LHF	365+11.92	33.00'	265,051.05	130,445.33	1,117.52	365+10.80	27.00'	265,020.81	130,497.15	1,117.95
484+88	MAINLINE	36	2.9° LHF	484+90.25	42.95'	276,225.55	133,183.39	1,114.74	484+86.52	31.00'	276,183.41	133,244.23	1,114.30
488+08	MAINLINE	42	4.4° LHF	488+11.32	47.86'	276,485.97	133,388.75	1,115.21	488+04.78	37.89'	276,419.57	133,443.40	1,114.86









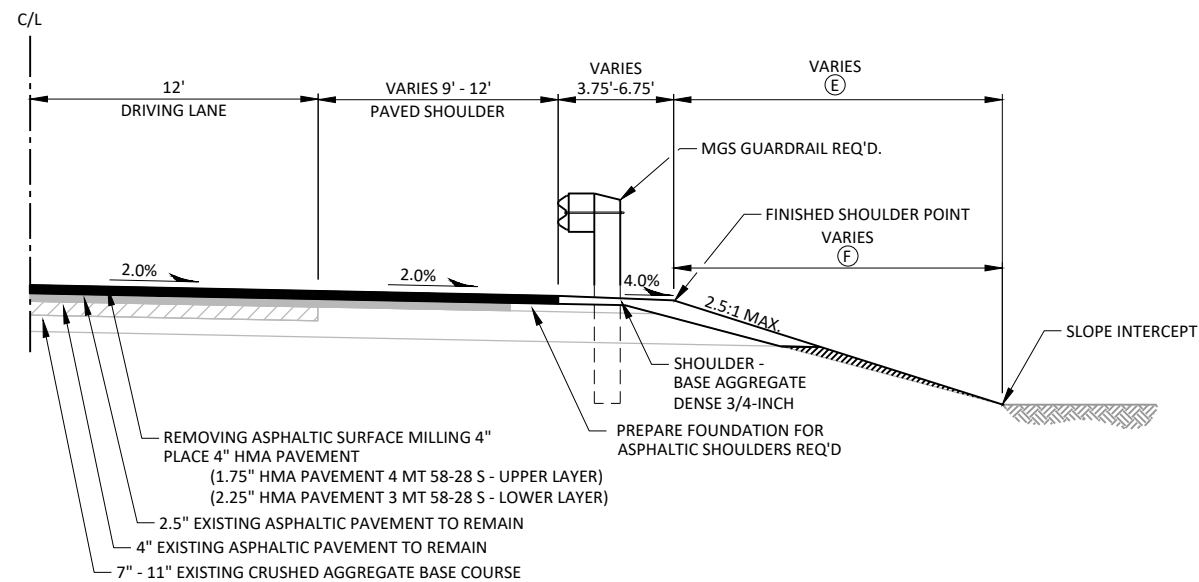


*** 15:1 TAPER UNLESS OTHERWISE NOTED

GUARDRAIL LAYOUT DETAIL

GUARDRAIL LAYOUT TABLE

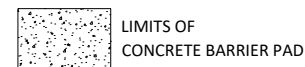
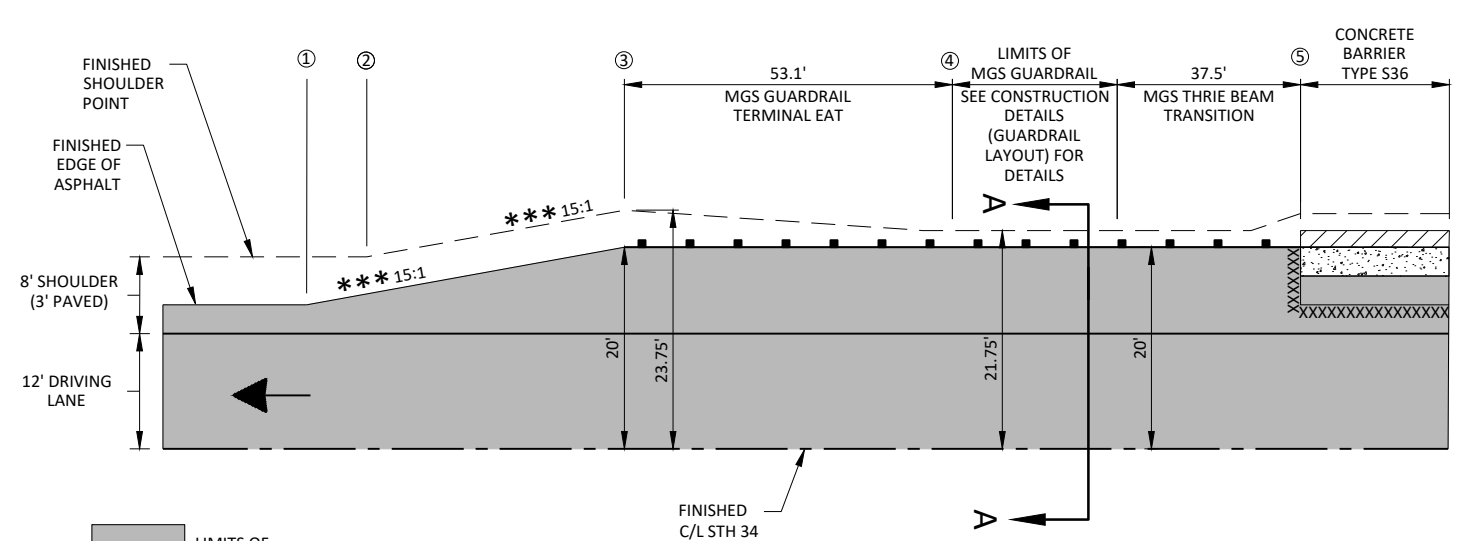
STATION-STATION	LOCATION	STATION					WIDTHS			
		①	②	③	④	⑤	A	B	C	D
300+63 - 303+95	MAINLINE, LT.	300+63	301+19	302+54	303+07	303+95	24'	30.75'	22'	25.75'
301+37 - 304+54	MAINLINE, RT.	301+37	301+94	303+14	303+67	304+54	23'	29.75'	21'	24.75'
307+48 - 310+67	MAINLINE, LT.	310+67	310+11	308+76	308+23	307+48	24'	30.75'	22'	25.75'
308+07 - 311+39	MAINLINE, RT.	311+39	310+83	309+48	308+95	308+07	24'	30.75'	22'	25.75'



BORROW MATERIAL (PAID FOR UNDER BARRIER SYSTEM GRADING SHAPING FINISHING)

SECTION A-A

- (E) LIMITS OF FERTILIZER TYPE B & SEEDING MIXTURE NO. 30 (AS DIRECTED BY THE ENGINEER). PAID FOR UNDER BARRIER SYSTEM GRADING SHAPING FINISHING BID ITEM.
- (F) LIMITS OF TOPSOIL & EROSION MAT CLASS I TYPE A (AS DIRECTED BY THE ENGINEER). PAID FOR UNDER BARRIER SYSTEM GRADING SHAPING FINISHING BID ITEM.



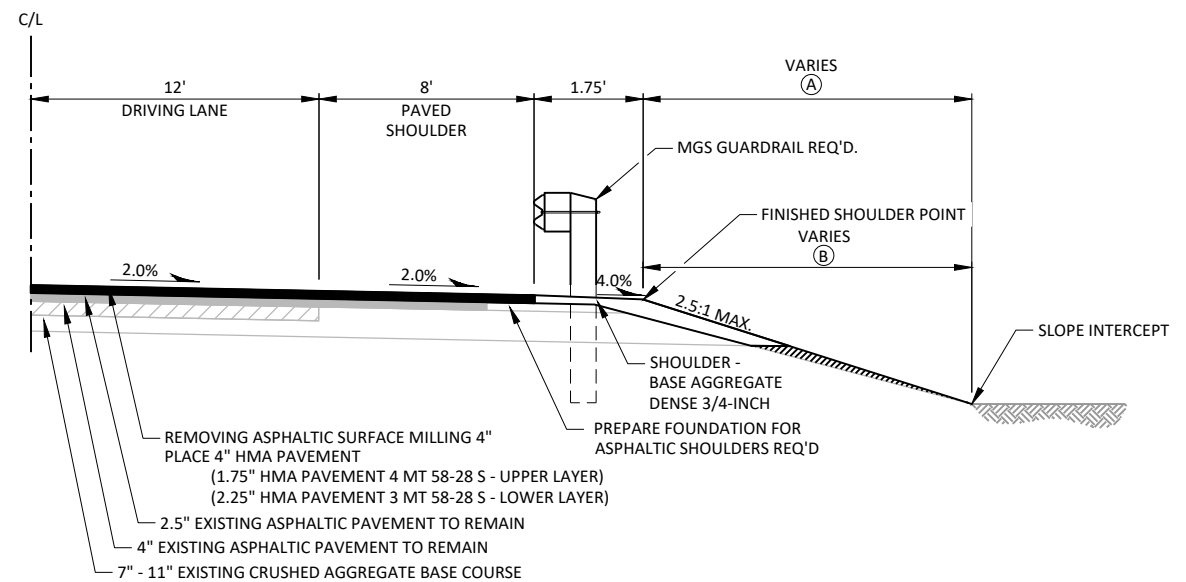
*** 15:1 TAPER UNLESS OTHERWISE NOTED

XXXXXXX SAWING ASPHALT

GUARDRAIL LAYOUT DETAIL

GUARDRAIL LAYOUT TABLE

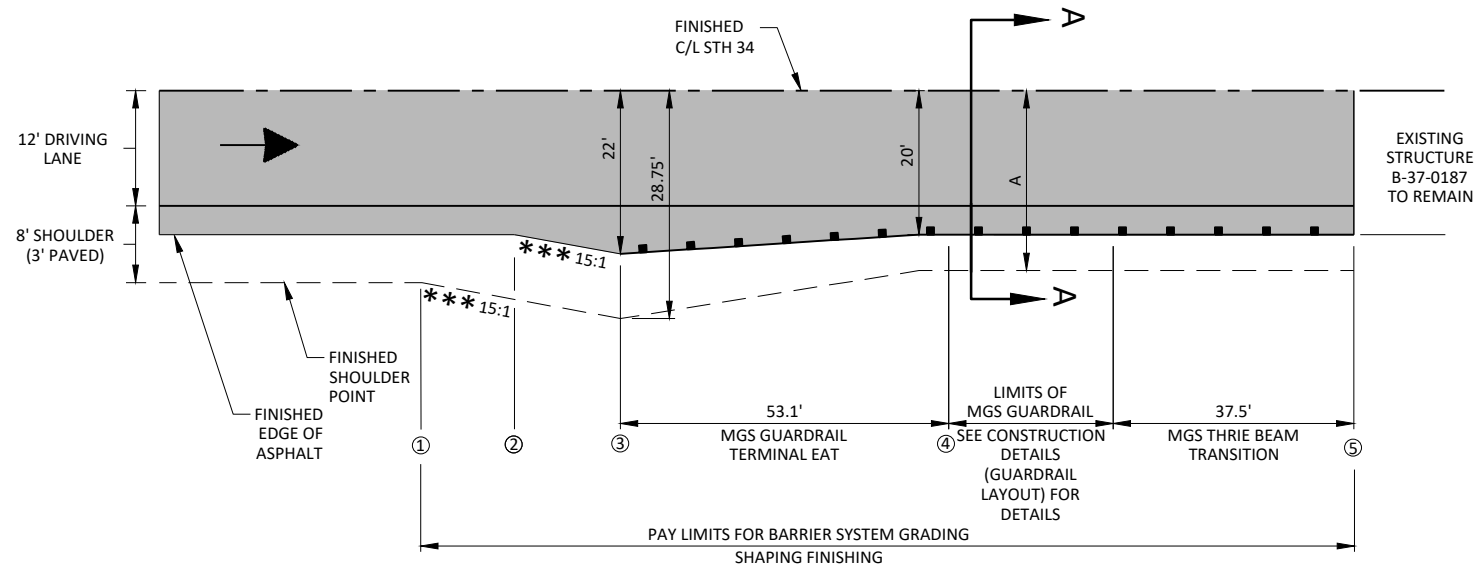
STATION-STATION	LOCATION	STATION				
		①	②	③	④	⑤
427+94 - 430+00	MAINLINE, LT.	427+94	428+13	428+70	429+24	430+00



BORROW MATERIAL (PAID FOR UNDER BARRIER SYSTEM GRADING SHAPING FINISHING)

SECTION A-A

- (A) LIMITS OF FERTILIZER TYPE B & SEEDING MIXTURE NO. 30 (AS DIRECTED BY THE ENGINEER). PAID FOR UNDER BARRIER SYSTEM GRADING SHAPING FINISHING BID ITEM.
- (B) LIMITS OF TOPSOIL & EROSION MAT CLASS I TYPE A (AS DIRECTED BY THE ENGINEER). PAID FOR UNDER BARRIER SYSTEM GRADING SHAPING FINISHING BID ITEM.



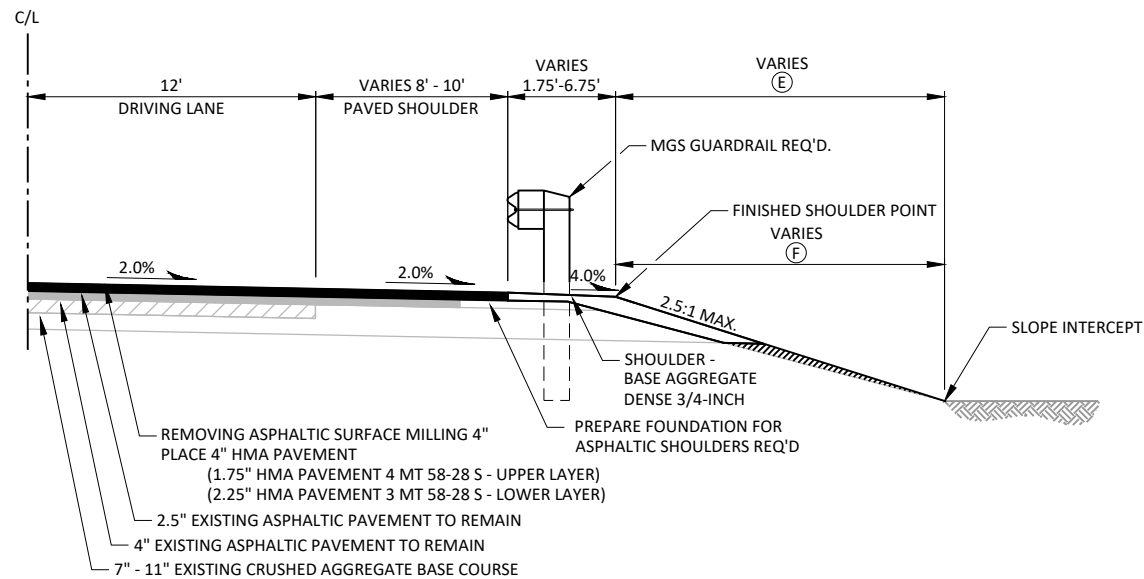
LIMITS OF HMA PAVEMENT

*** 15:1 TAPER UNLESS OTHERWISE NOTED

GUARDRAIL LAYOUT DETAIL

GUARDRAIL LAYOUT TABLE

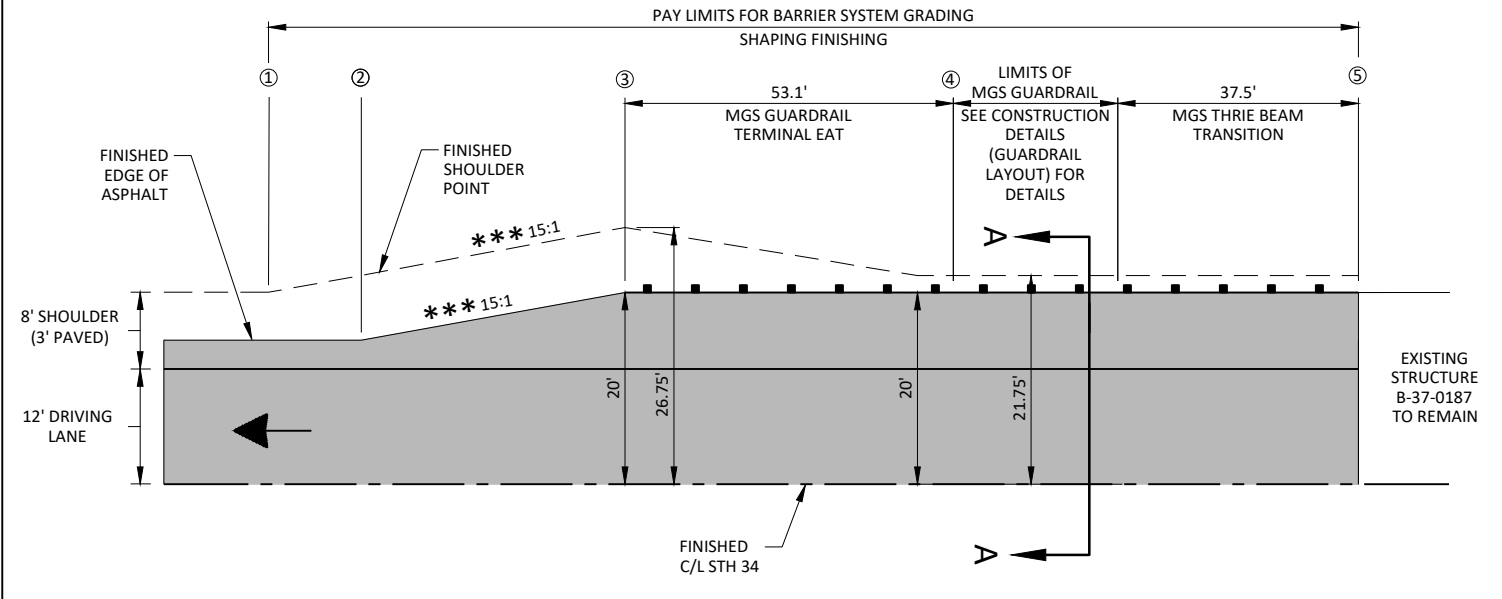
STATION-STATION	LOCATION	STATION					WIDTH A
		①	②	③	④	⑤	
434+43 - 436+38	MAINLINE, RT.	434+43	434+43	434+83	435+36	436+38	21.75'
442+22 - 444+80	MAINLINE, LT.	444+80	444+54	443+50	442+97	442+22	23.75'



BORROW MATERIAL (PAID FOR UNDER BARRIER SYSTEM GRADING SHAPING FINISHING)

SECTION A-A

- (E) LIMITS OF FERTILIZER TYPE B & SEEDING MIXTURE NO. 30 (AS DIRECTED BY THE ENGINEER). PAID FOR UNDER BARRIER SYSTEM GRADING SHAPING FINISHING BID ITEM.
- (F) LIMITS OF TOPSOIL & EROSION MAT CLASS I TYPE A (AS DIRECTED BY THE ENGINEER). PAID FOR UNDER BARRIER SYSTEM GRADING SHAPING FINISHING BID ITEM.



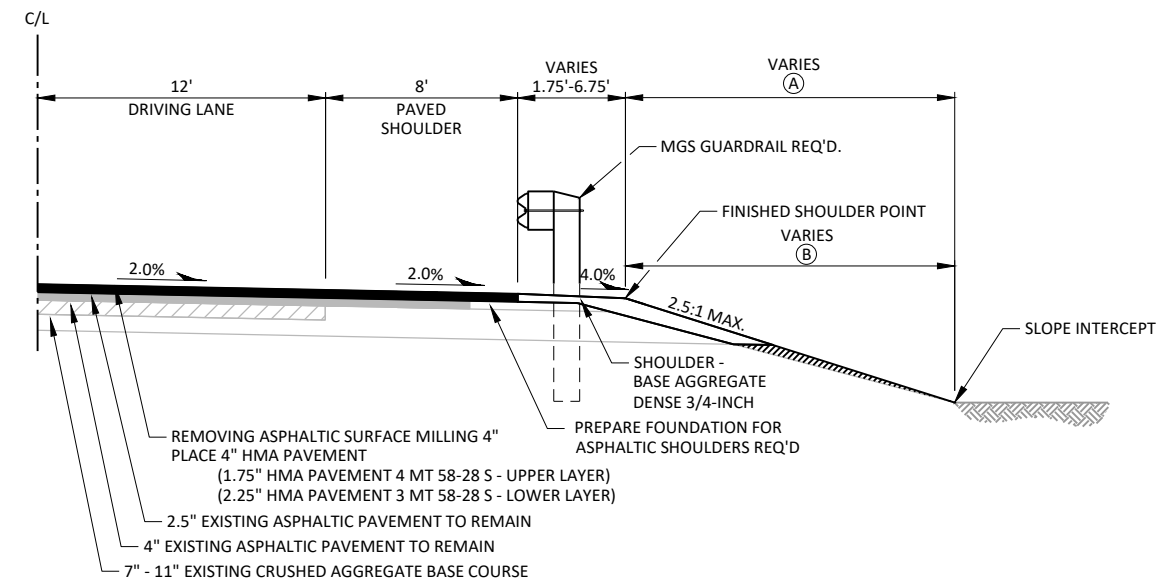
LIMITS OF HMA PAVEMENT

*** 15:1 TAPER UNLESS OTHERWISE NOTED

GUARDRAIL LAYOUT DETAIL

GUARDRAIL LAYOUT TABLE

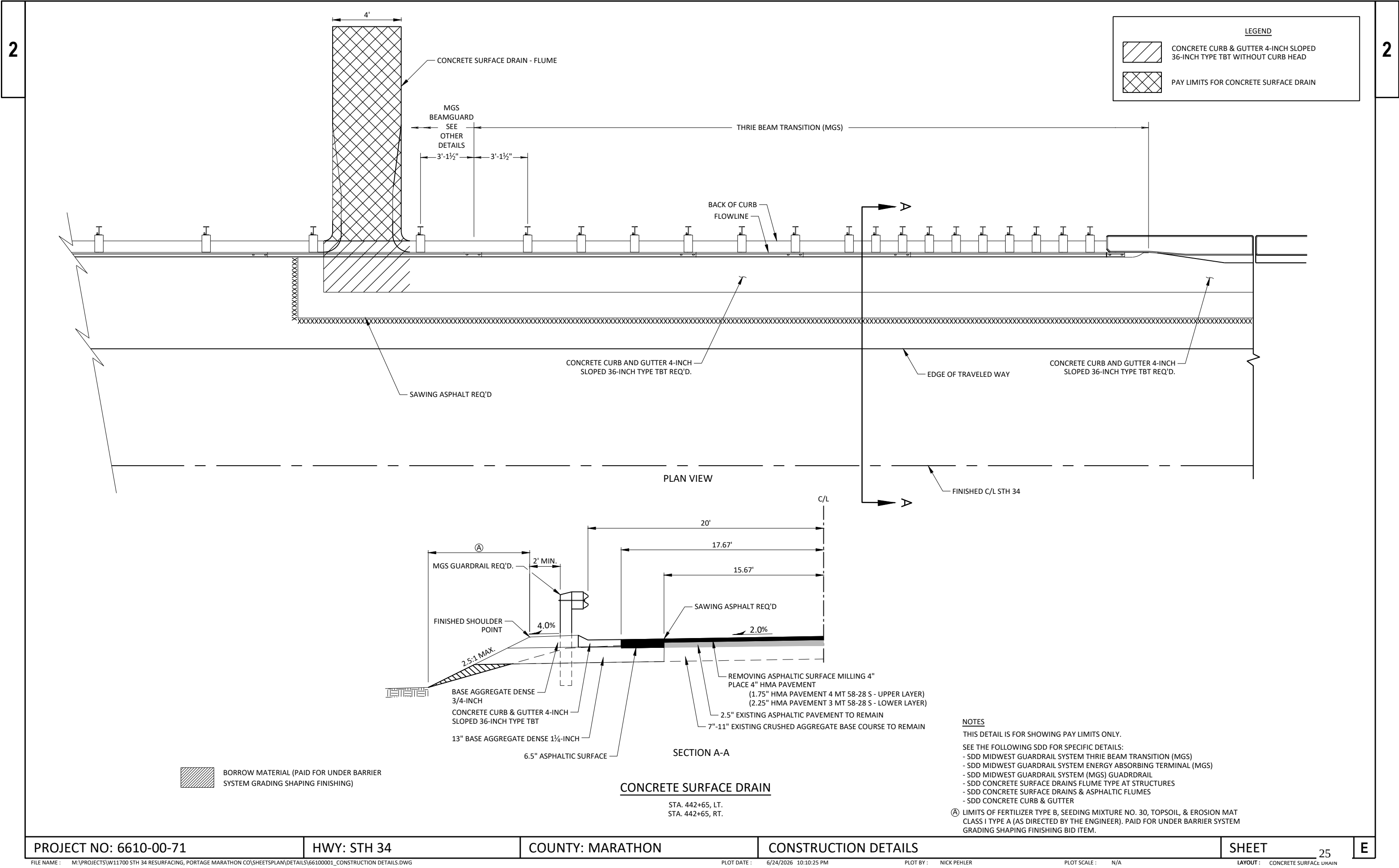
STATION-STATION	LOCATION	STATION				
		①	②	③	④	⑤
442+21 - 445+26	MAINLINE, RT.	445+26	445+00	444+25	443+71	442+21



BORROW MATERIAL (PAID FOR UNDER BARRIER SYSTEM GRADING SHAPING FINISHING)

SECTION A-A

- (A) LIMITS OF FERTILIZER TYPE B & SEEDING MIXTURE NO. 30 (AS DIRECTED BY THE ENGINEER). PAID FOR UNDER BARRIER SYSTEM GRADING SHAPING FINISHING BID ITEM.
- (B) LIMITS OF TOPSOIL & EROSION MAT CLASS I TYPE A (AS DIRECTED BY THE ENGINEER). PAID FOR UNDER BARRIER SYSTEM GRADING SHAPING FINISHING BID ITEM.



2

2

PROJECT NO: 6610-00-71

HWY: STH 34

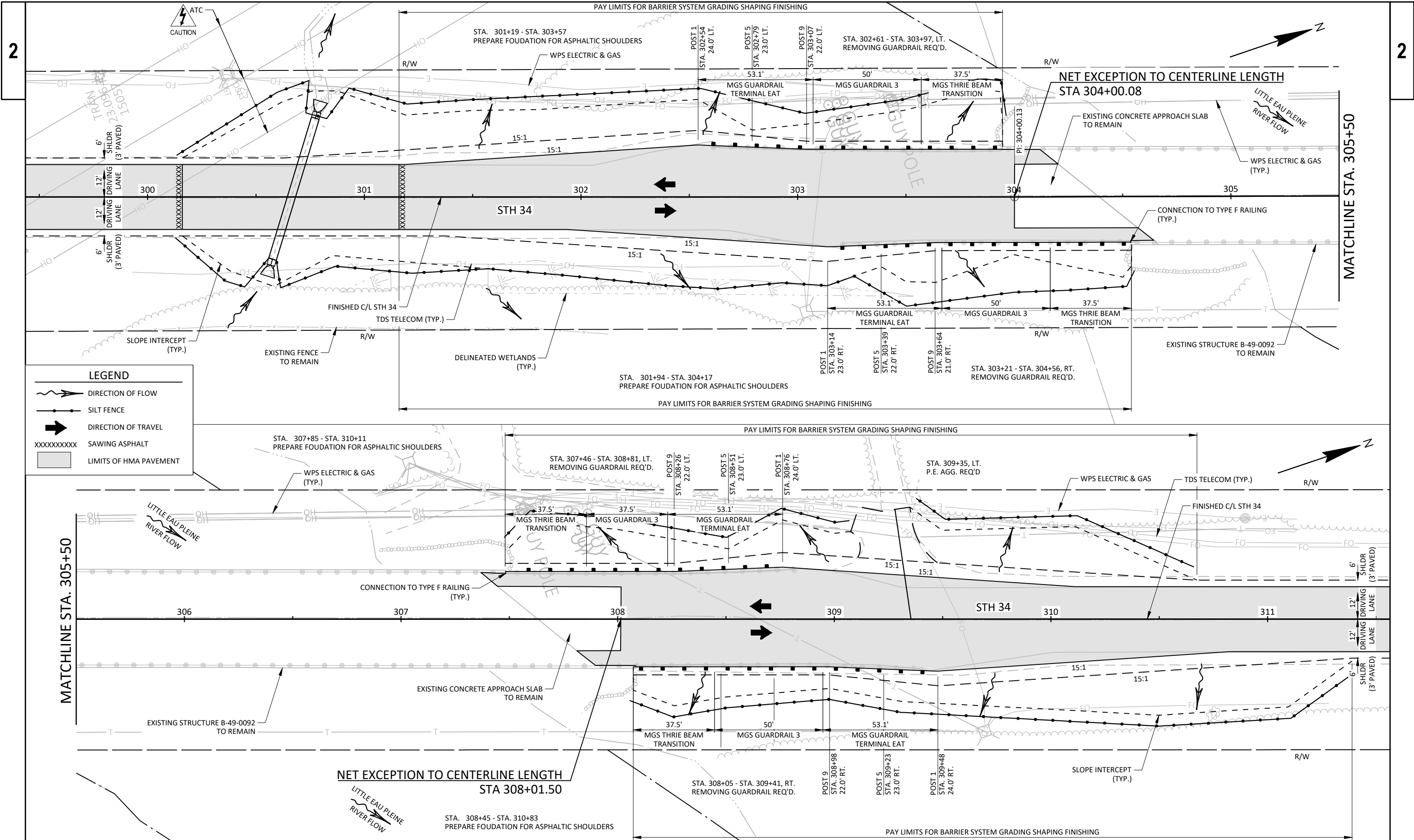
COUNTY: MARATHON

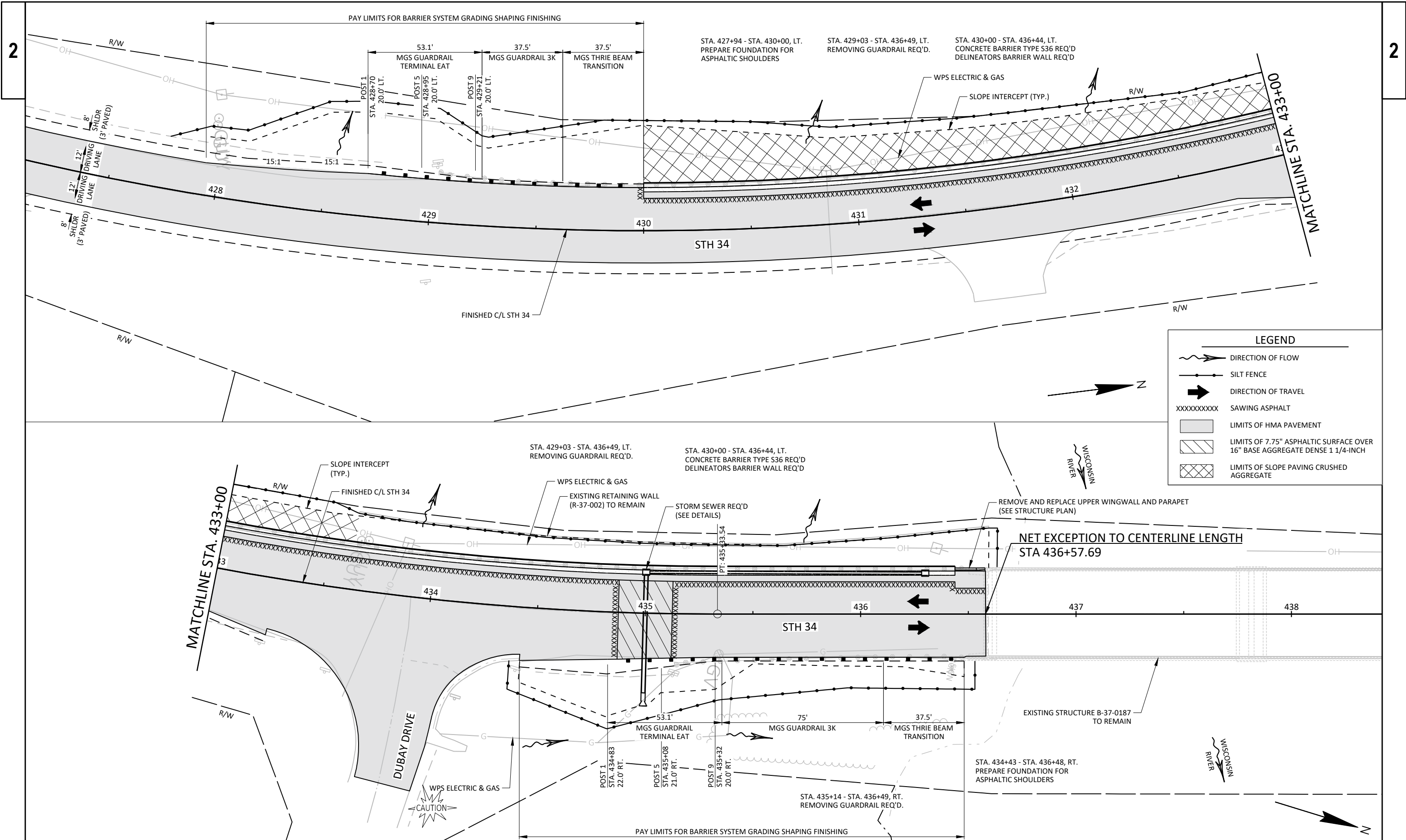
CONSTRUCTION DETAILS

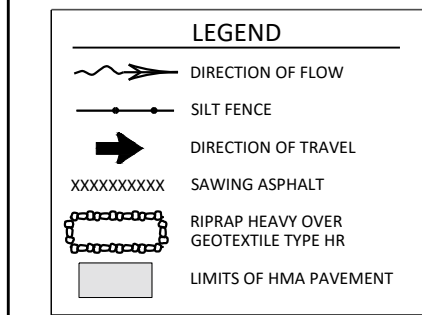
SHEET

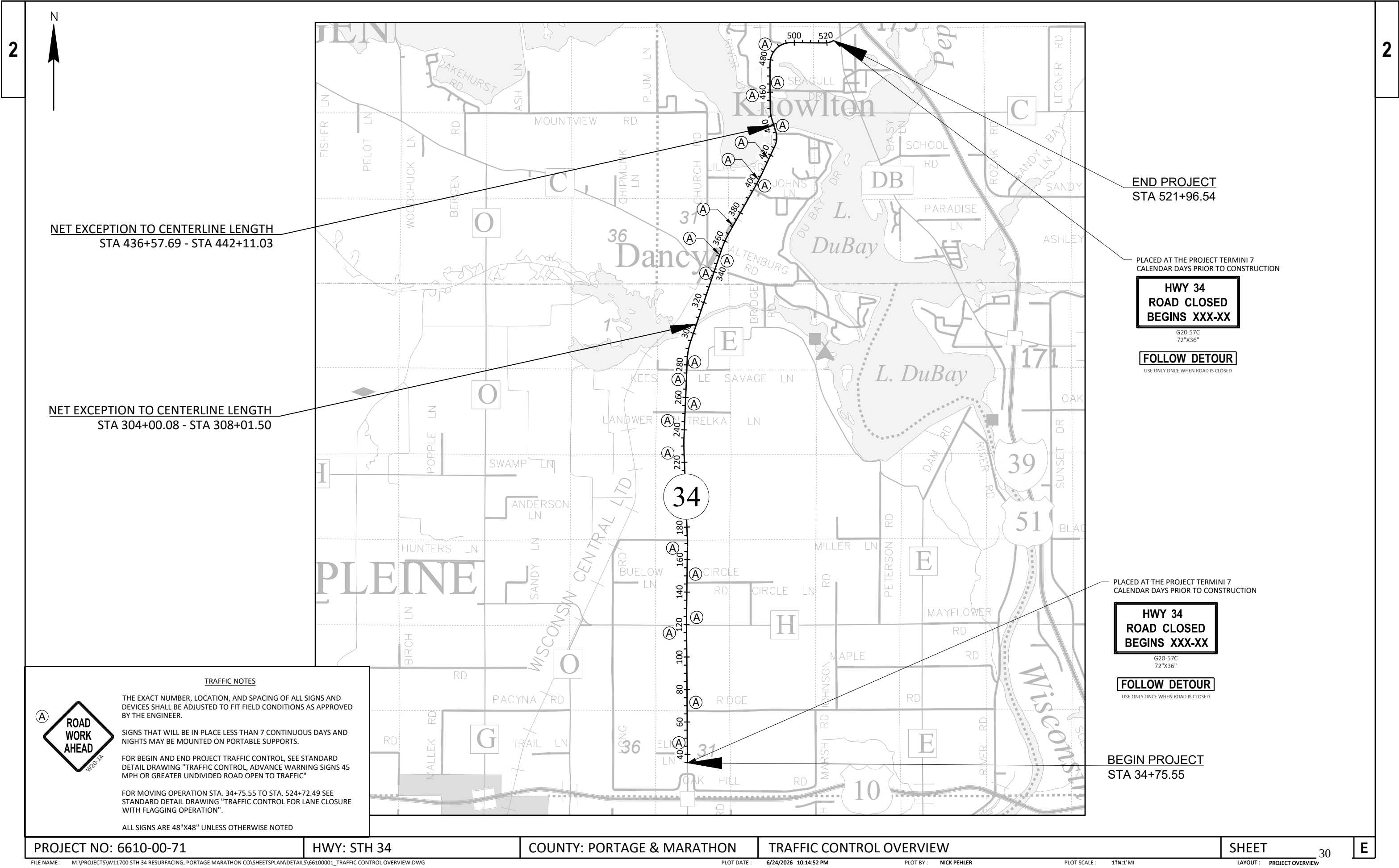
25

E









NET EXCEPTION TO CENTERLINE LENGTH
STA 436+57.69 - STA 442+11.03

NET EXCEPTION TO CENTERLINE LENGTH
STA 304+00.08 - STA 308+01.50

END PROJECT
STA 521+96.54

PLACED AT THE PROJECT TERMINI 7
CALENDAR DAYS PRIOR TO CONSTRUCTION

**HWY 34
ROAD CLOSED
BEGINS XXX-XX**

G20-57C
72"x36"

FOLLOW DETOUR

USE ONLY ONCE WHEN ROAD IS CLOSED

PLACED AT THE PROJECT TERMINI 7
CALENDAR DAYS PRIOR TO CONSTRUCTION

**HWY 34
ROAD CLOSED
BEGINS XXX-XX**

G20-57C
72"x36"

FOLLOW DETOUR

USE ONLY ONCE WHEN ROAD IS CLOSED

BEGIN PROJECT
STA 34+75.55



TRAFFIC NOTES

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

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

FOR BEGIN AND END PROJECT TRAFFIC CONTROL, SEE STANDARD DETAIL DRAWING "TRAFFIC CONTROL, ADVANCE WARNING SIGNS 45 MPH OR GREATER UNDIVIDED ROAD OPEN TO TRAFFIC"

FOR MOVING OPERATION STA. 34+75.55 TO STA. 524+72.49 SEE STANDARD DETAIL DRAWING "TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATION".

ALL SIGNS ARE 48"x48" UNLESS OTHERWISE NOTED

PROJECT NO: 6610-00-71

HWY: STH 34

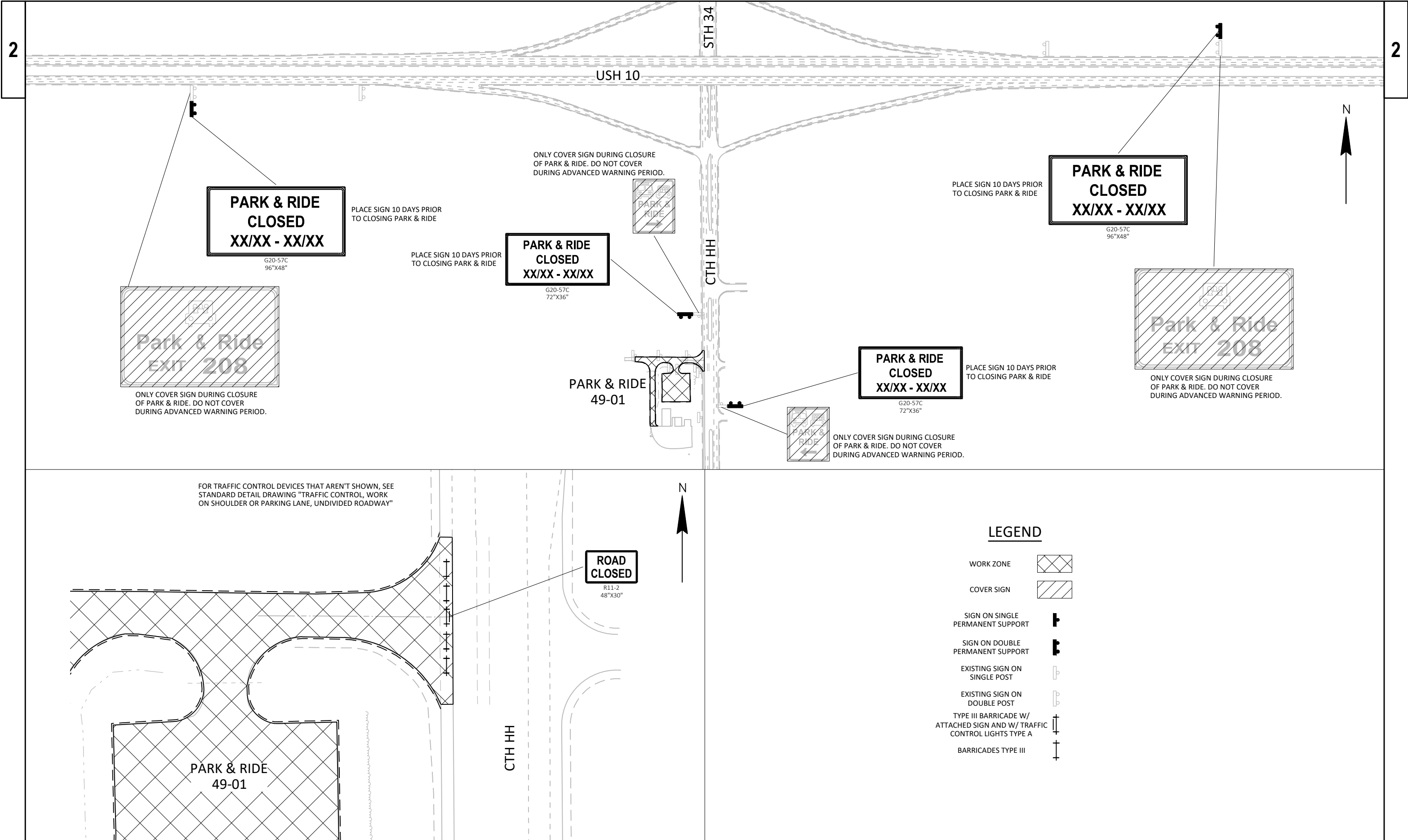
COUNTY: PORTAGE & MARATHON

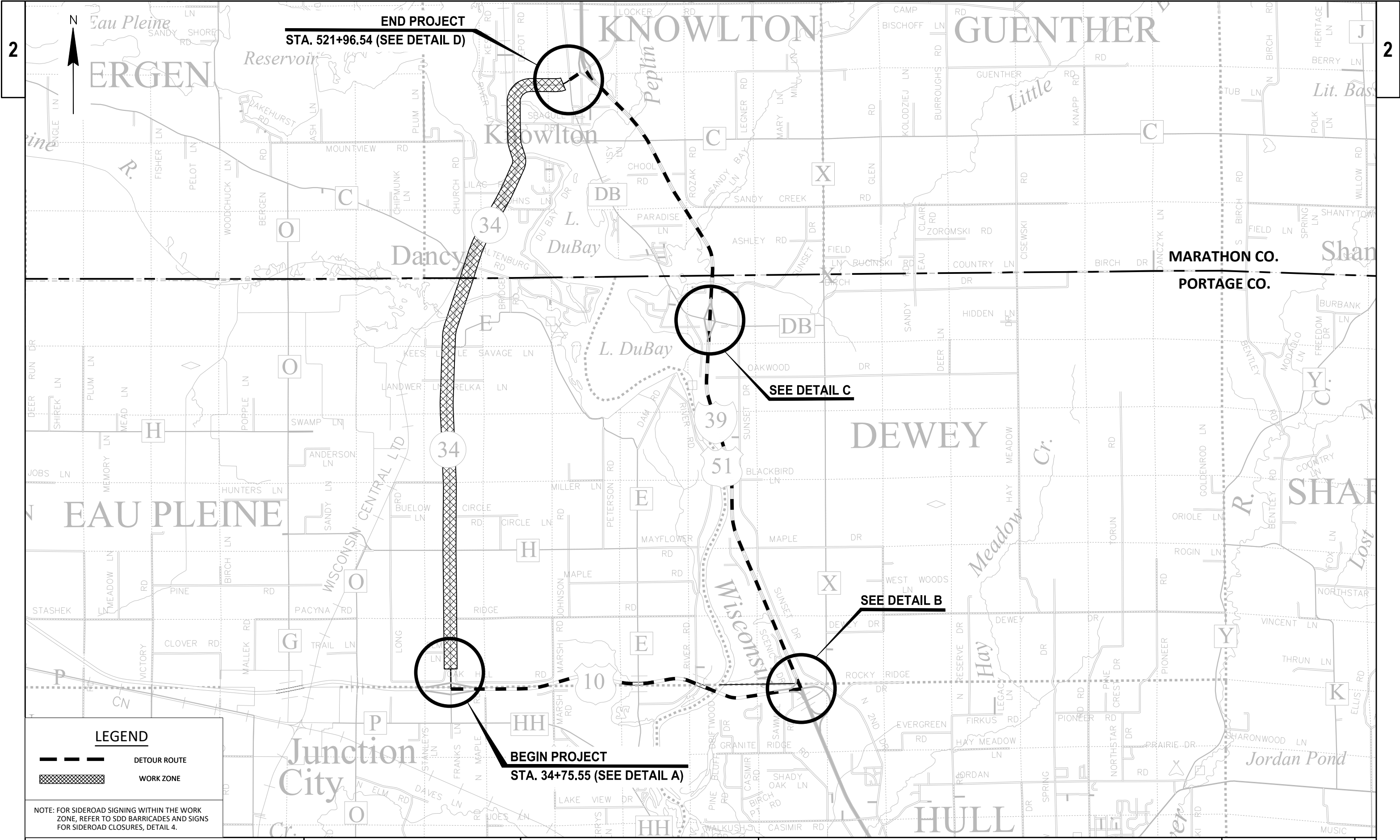
TRAFFIC CONTROL OVERVIEW

SHEET

30

E





LEGEND

DETOUR ROUTE

WORK ZONE

NOTE: FOR SIDEROAD SIGNING WITHIN THE WORK ZONE, REFER TO SDD BARRICADES AND SIGNS FOR SIDEROAD CLOSURES, DETAIL 4.

LEGEND

WORK ZONE
COVER SIGN
DETOUR ROUTE

SIGN ON PERMANENT SUPPORT
EXISTING SIGN ON SINGLE POST
EXISTING SIGN ON DOUBLE POST
TYPE III BARRICADE W/ ATTACHED SIGN AND W/ TRAFFIC CONTROL LIGHTS TYPE A
BARRICADES TYPE III
* SIGN READS "DETOUR NEXT 17 MILES"
** SIGN READS "DETOUR NEXT 16 MILES"

GENERAL NOTES:

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

ALL SIGNS INAPPROPRIATE TO THE STATUS OF THE CONTROL ZONE, INCLUDING PRE-EXISTING SIGNING IN THE VICINITY, SHALL BE COVERED OR REMOVED AS SPECIFIED IN THE PLANS AND/OR THE SPECIAL PROVISIONS OR AS DIRECTED BY THE ENGINEER.

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

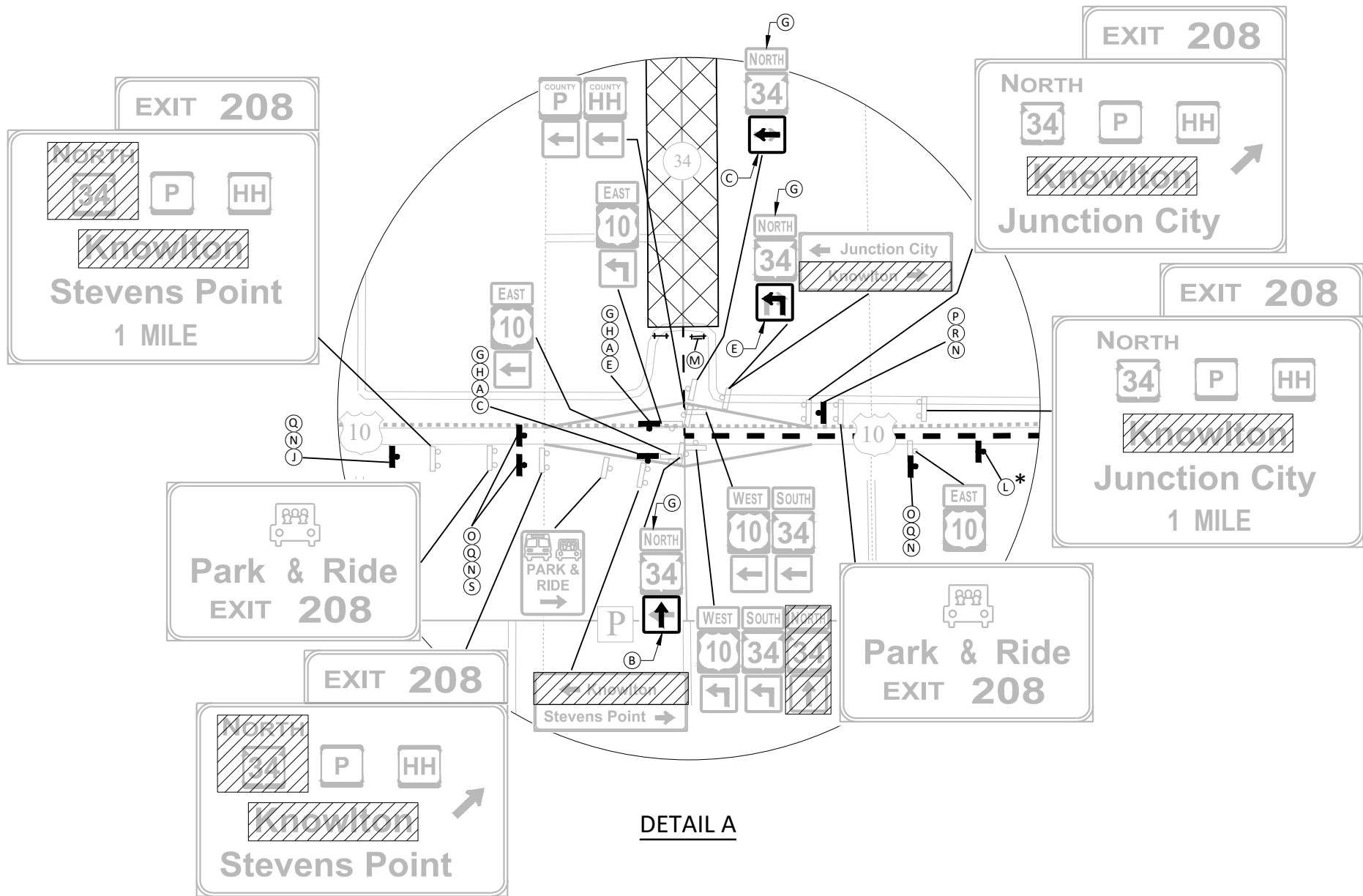
ANY STOP SIGNS WHICH ARE REMOVED FOR A CONSTRUCTION OPERATION SHALL BE IMMEDIATELY RE-ESTABLISHED.

ALL SIGNS ARE 48"x48" UNLESS OTHERWISE NOTED.

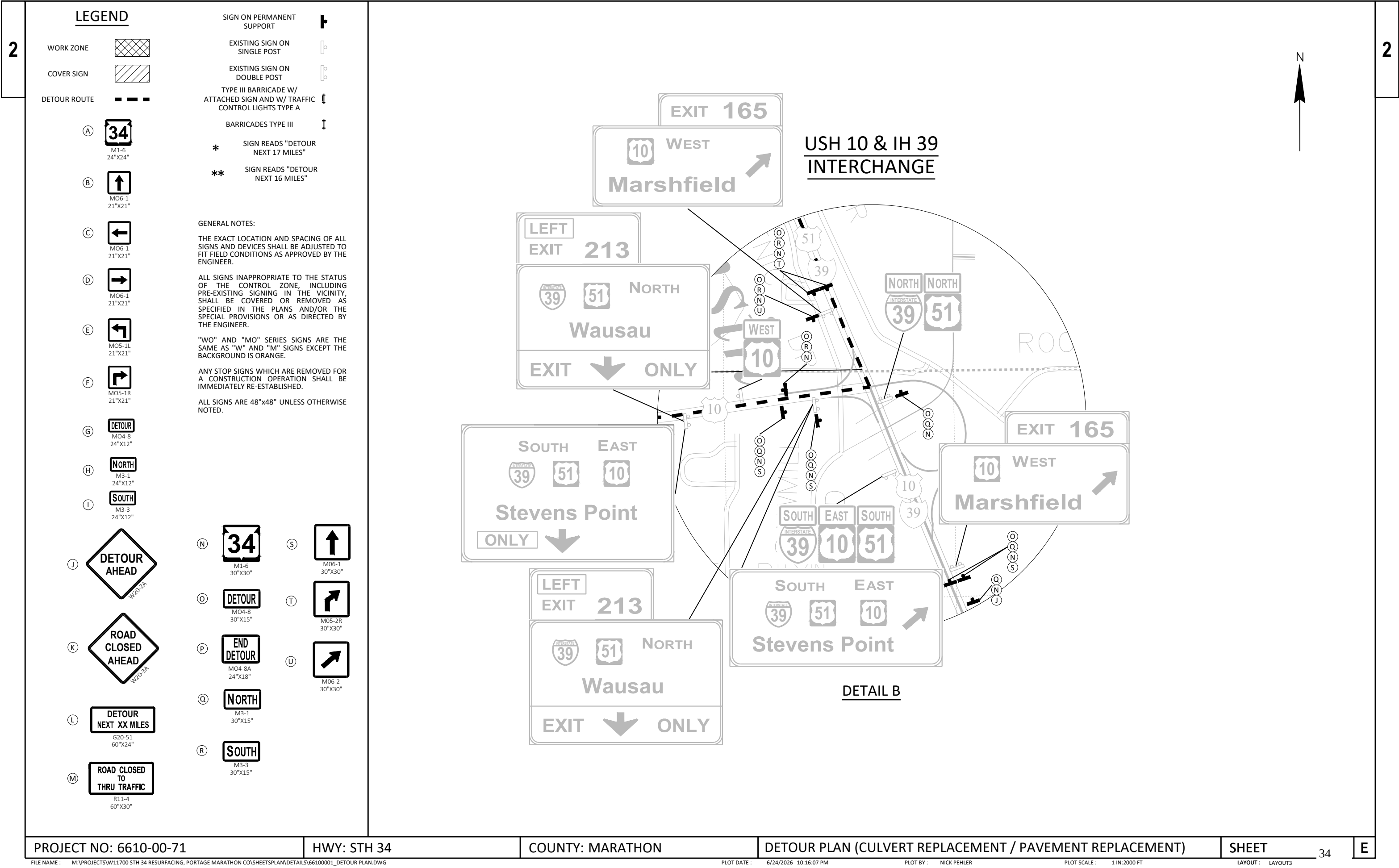
- A 34 M1-6 24"x24"
- B ↑ M06-1 21"x21"
- C ← M06-1 21"x21"
- D → M06-1 21"x21"
- E ↙ M05-1L 21"x21"
- F ↘ M05-1R 21"x21"
- G DETOUR M04-8 24"x12"
- H NORTH M3-1 24"x12"
- I SOUTH M3-3 24"x12"
- J DETOUR AHEAD W20-2A
- K ROAD CLOSED AHEAD W20-3A
- L DETOUR NEXT XX MILES G20-51 60"x24"
- M ROAD CLOSED TO THRU TRAFFIC R11-4 60"x30"
- N 34 M1-6 30"x30"
- O DETOUR M04-8 30"x15"
- P END DETOUR M04-8A 24"x18"
- Q NORTH M3-1 30"x15"
- R SOUTH M3-3 30"x15"
- S ↑ M06-1 30"x30"
- T ↗ M05-2R 30"x30"
- U ↘ M06-2 30"x30"

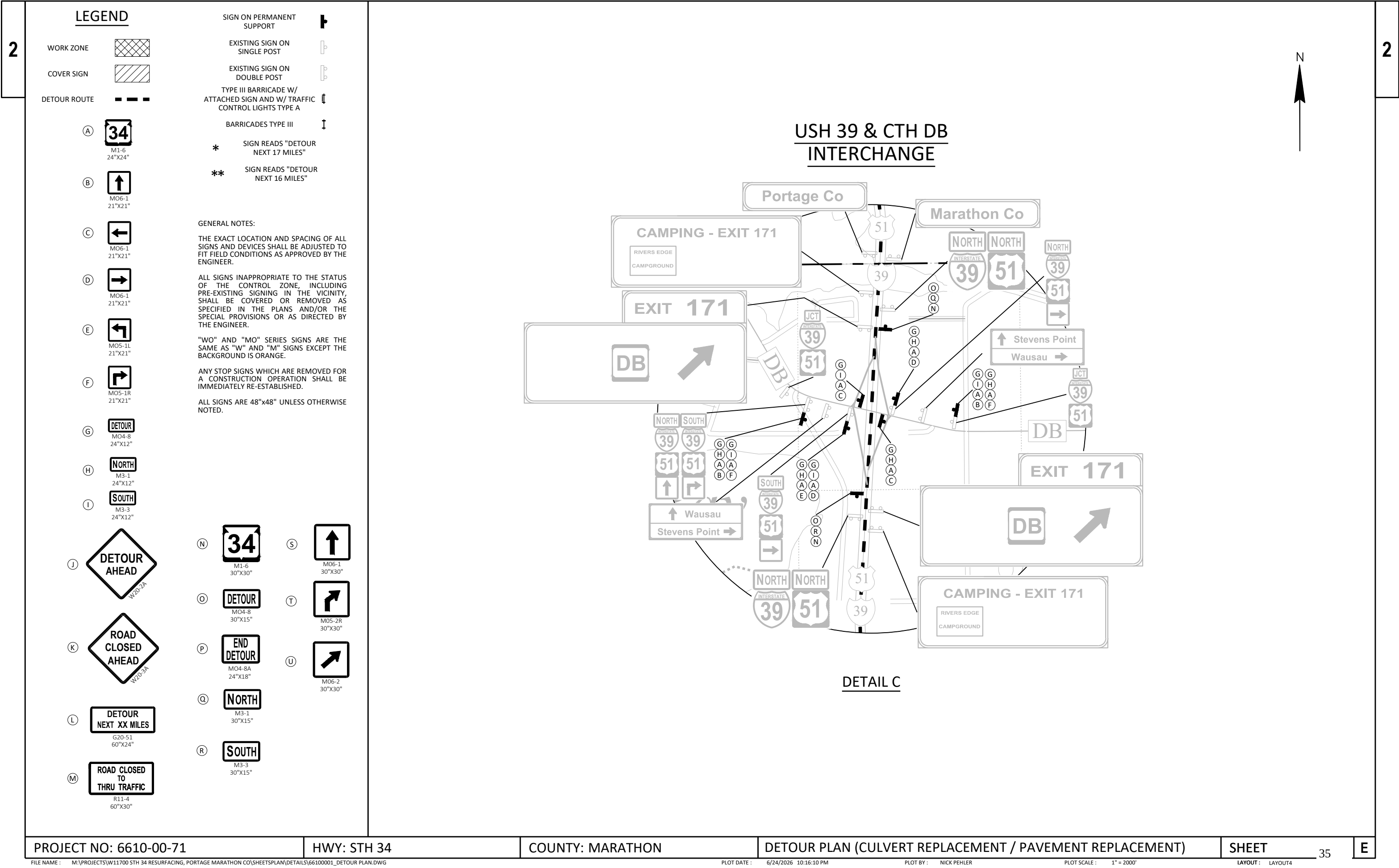


BEGIN PROJECT



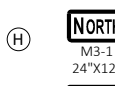
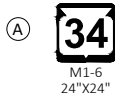
DETAIL A





LEGEND

WORK ZONE
COVER SIGN
DETOUR ROUTE



SIGN ON PERMANENT SUPPORT
EXISTING SIGN ON SINGLE POST
EXISTING SIGN ON DOUBLE POST
TYPE III BARRICADE W/ ATTACHED SIGN AND W/ TRAFFIC CONTROL LIGHTS TYPE A
BARRICADES TYPE III

* SIGN READS "DETOUR NEXT 17 MILES"
** SIGN READS "DETOUR NEXT 16 MILES"

GENERAL NOTES:

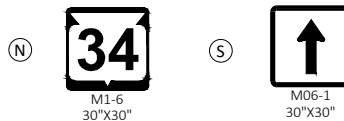
THE EXACT LOCATION AND SPACING OF ALL SIGNS AND DEVICES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS APPROVED BY THE ENGINEER.

ALL SIGNS INAPPROPRIATE TO THE STATUS OF THE CONTROL ZONE, INCLUDING PRE-EXISTING SIGNING IN THE VICINITY, SHALL BE COVERED OR REMOVED AS SPECIFIED IN THE PLANS AND/OR THE SPECIAL PROVISIONS OR AS DIRECTED BY THE ENGINEER.

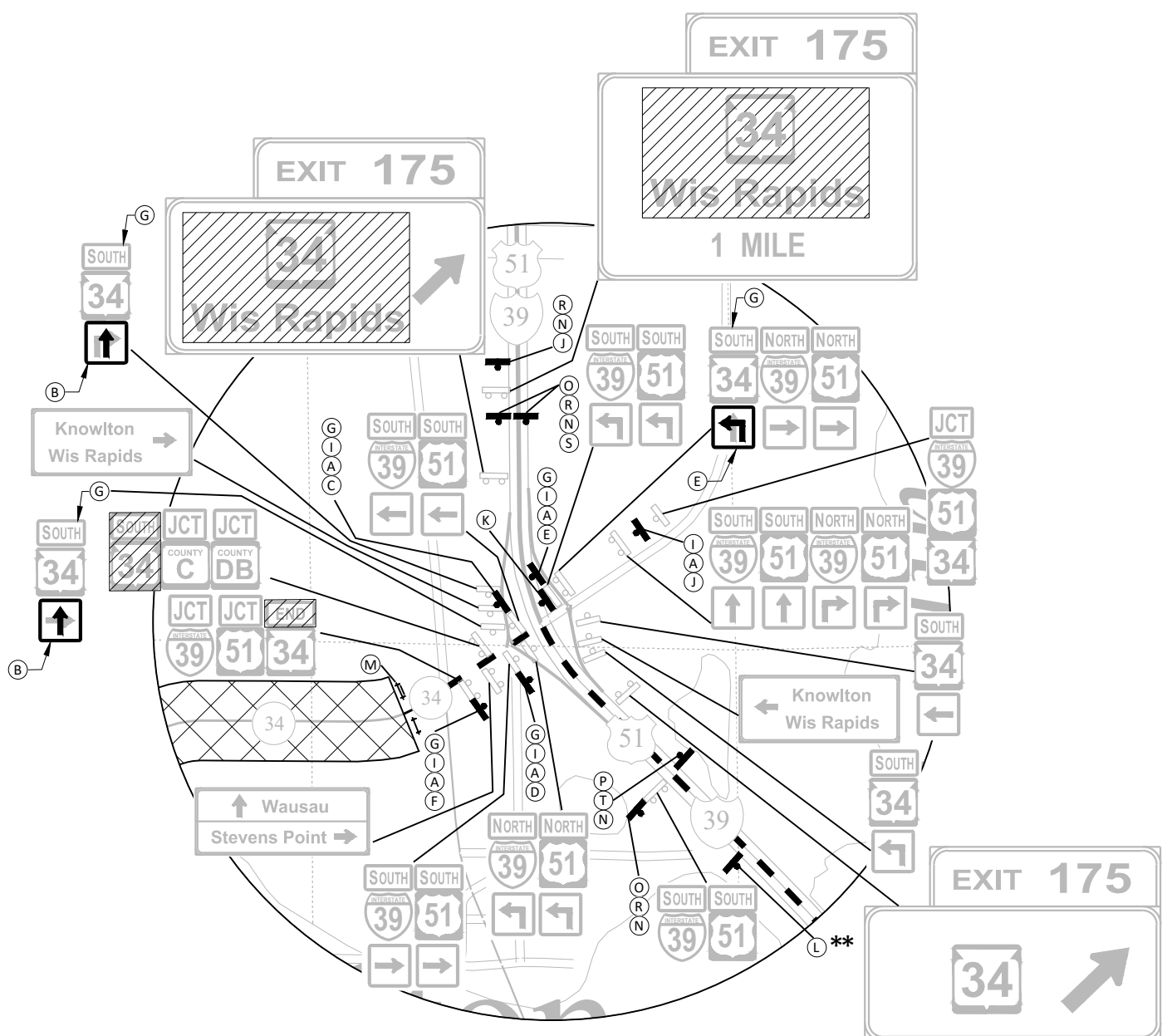
"WO" AND "MO" SERIES SIGNS ARE THE SAME AS "W" AND "M" SIGNS EXCEPT THE BACKGROUND IS ORANGE.

ANY STOP SIGNS WHICH ARE REMOVED FOR A CONSTRUCTION OPERATION SHALL BE IMMEDIATELY RE-ESTABLISHED.

ALL SIGNS ARE 48"x48" UNLESS OTHERWISE NOTED.

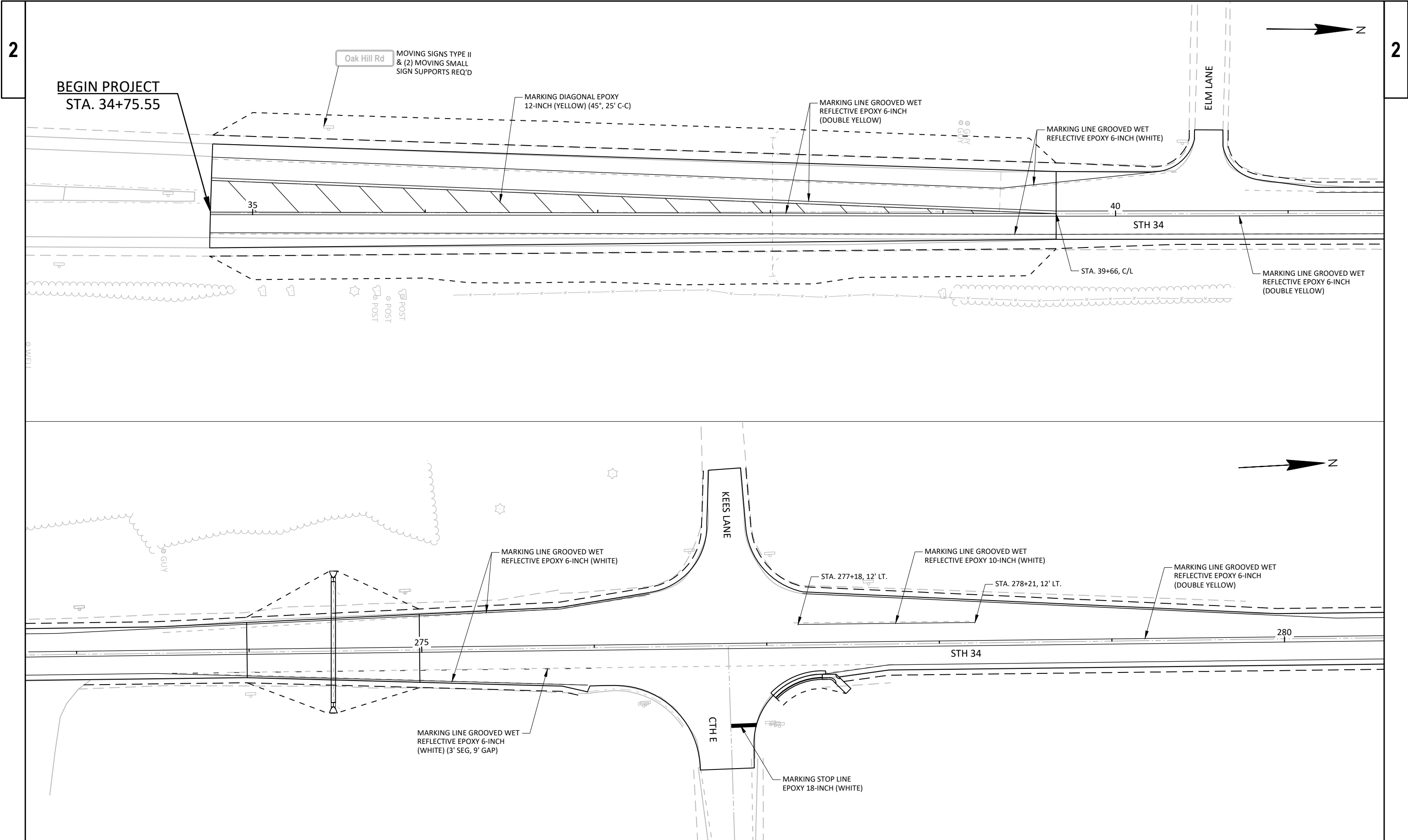


END PROJECT &
IH 39 & USH 34 INTERCHANGE



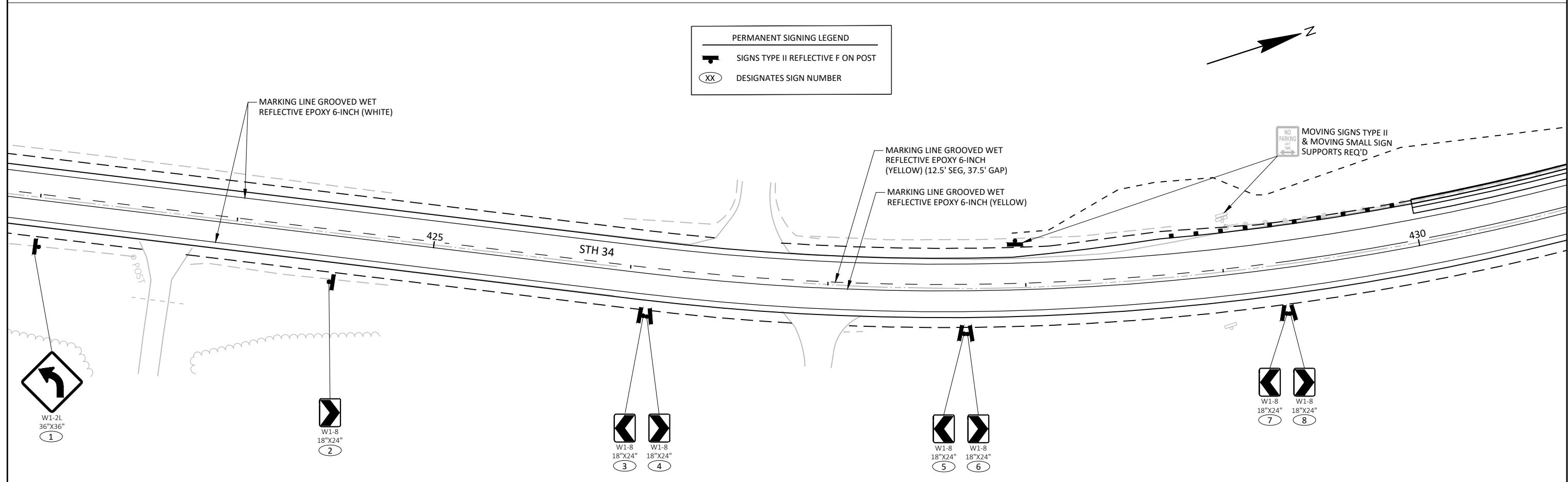
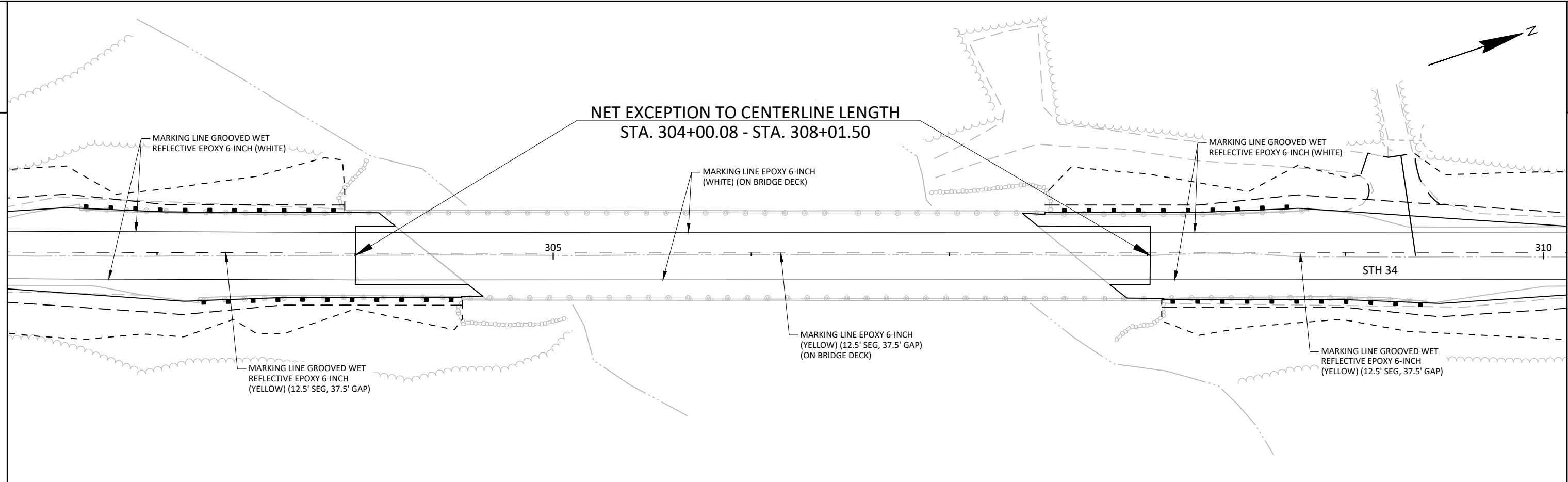
DETAIL D

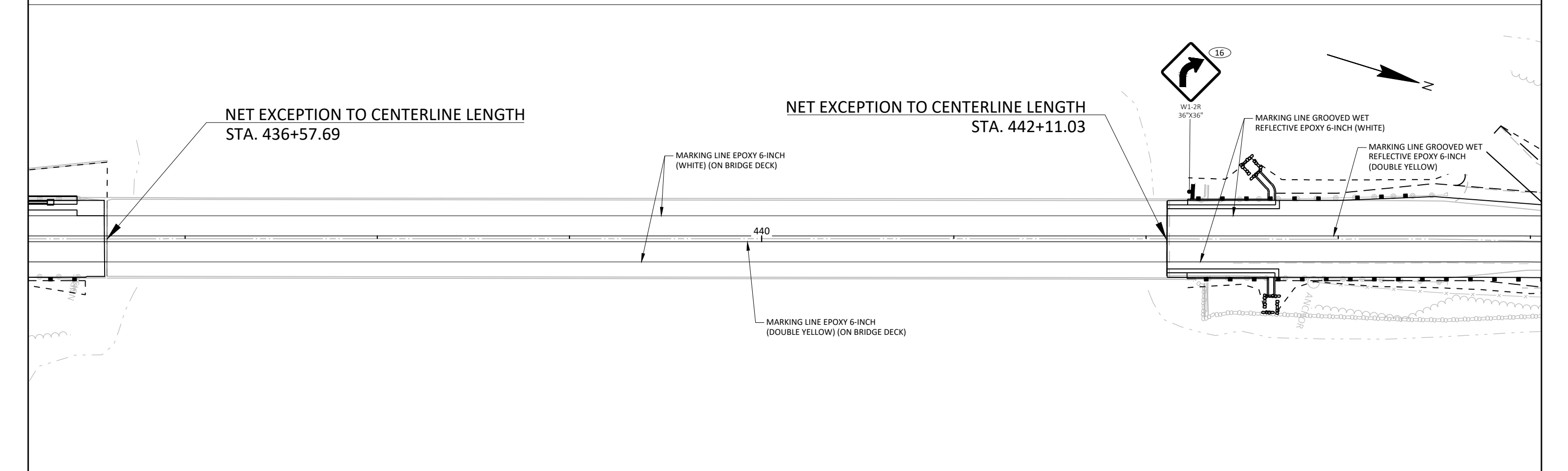
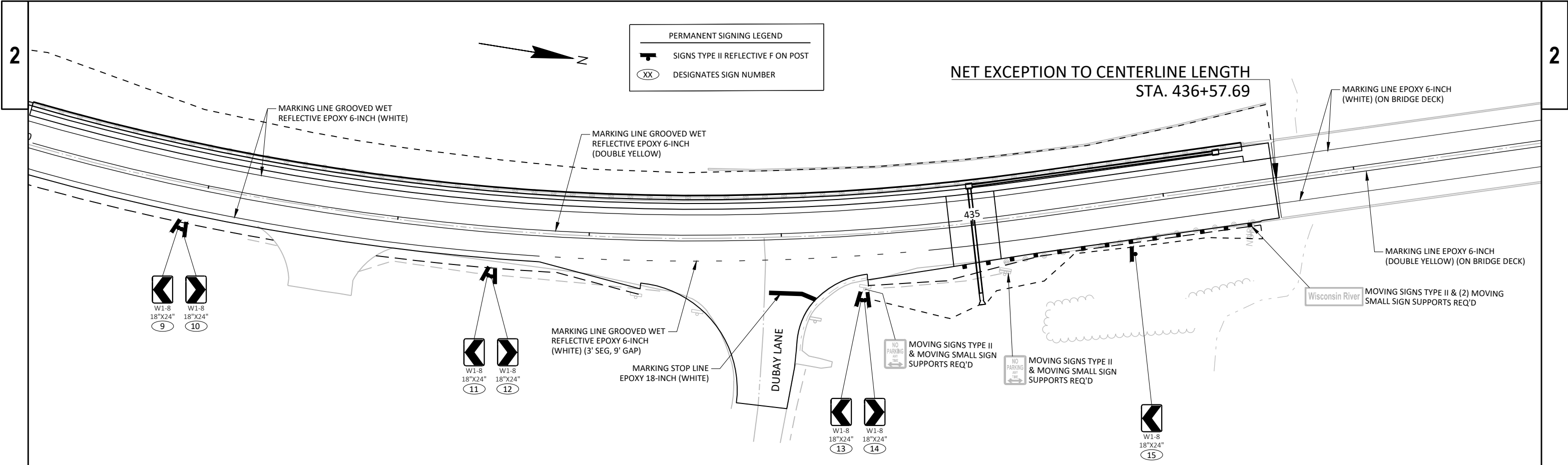


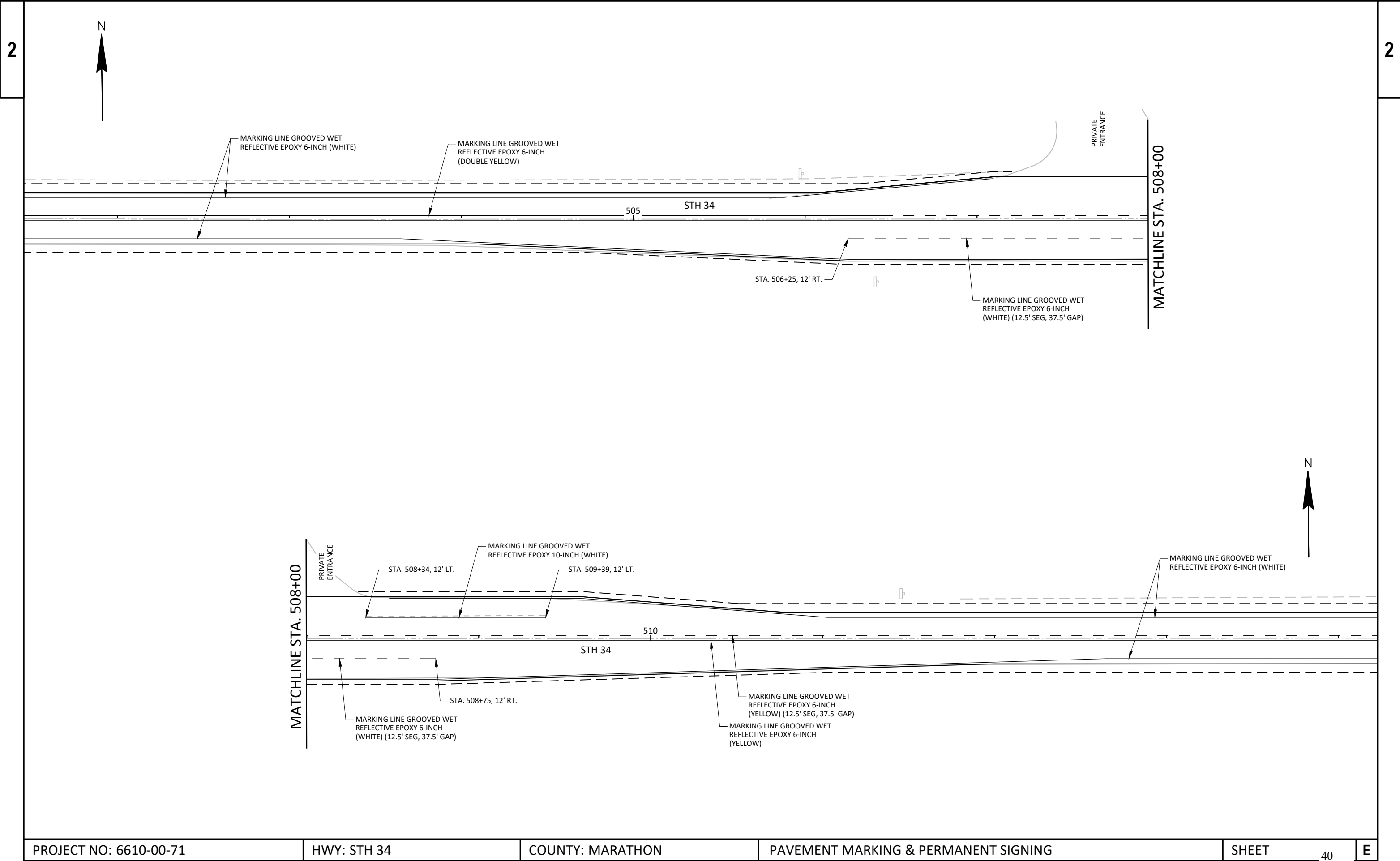


2

2







Estimate Of Quantities

6610-00-71

Line	Item	Item Description	Unit	Total	Qty
0002	201.0105	Clearing	STA	2.000	2.000
0004	201.0205	Grubbing	STA	2.000	2.000
0006	203.0100	Removing Small Pipe Culverts	EACH	21.000	21.000
0008	203.0220	Removing Structure (structure) 01. B-37-187	EACH	1.000	1.000
0010	204.0115	Removing Asphaltic Surface Butt Joints	SY	940.000	940.000
0012	204.0120	Removing Asphaltic Surface Milling	SY	171,300.000	171,300.000
0014	204.0150	Removing Curb & Gutter	LF	192.000	192.000
0016	204.0165	Removing Guardrail	LF	1,688.000	1,688.000
0018	204.0180	Removing Delineators and Markers	EACH	34.000	34.000
0020	204.0185	Removing Masonry	CY	14.000	14.000
0022	204.0190	Removing Surface Drains	EACH	2.000	2.000
0024	205.0100	Excavation Common	CY	16,200.000	16,200.000
0026	206.1001	Excavation for Structures Bridges (structure) 01. B-37-187	EACH	1.000	1.000
0028	209.1100	Backfill Granular Grade 1	CY	1,900.000	1,900.000
0030	210.1500	Backfill Structure Type A	TON	80.000	80.000
0032	211.0101	Prepare Foundation for Asphaltic Paving (project) 01. 6610-00-71	EACH	1.000	1.000
0034	211.0400	Prepare Foundation for Asphaltic Shoulders 01. 6610-00-71	STA	23.000	23.000
0036	305.0110	Base Aggregate Dense 3/4-Inch	TON	5,880.000	5,880.000
0038	305.0120	Base Aggregate Dense 1 1/4-Inch	TON	13,950.000	13,950.000
0040	416.0610	Drilled Tie Bars	EACH	3.000	3.000
0042	455.0605	Tack Coat	GAL	22,090.000	22,090.000
0044	460.0105.S	HMA Percent Within Limits (PWL) Test Strip Volumetrics	EACH	2.000	2.000
0046	460.0110.S	HMA Percent Within Limits (PWL) Test Strip Density	EACH	2.000	2.000
0048	460.2000	Incentive Density HMA Pavement	DOL	859.000	859.000
0050	460.2005	Incentive Density PWL HMA Pavement	DOL	37,531.000	37,531.000
0052	460.2007	Incentive Density HMA Pavement Longitudinal Joints	DOL	9,560.000	9,560.000
0054	460.2010	Incentive Air Voids HMA Pavement	DOL	39,521.000	39,521.000
0056	460.6223	HMA Pavement 3 MT 58-28 S	TON	22,680.000	22,680.000
0058	460.6224	HMA Pavement 4 MT 58-28 S	TON	17,290.000	17,290.000
0060	460.6424	HMA Pavement 4 MT 58-28 H	TON	410.000	410.000
0062	465.0105	Asphaltic Surface	TON	3,020.000	3,020.000
0064	465.0110	Asphaltic Surface Patching	TON	100.000	100.000
0066	465.0310	Asphaltic Curb	LF	44.000	44.000
0068	465.0315	Asphaltic Flumes	SY	23.000	23.000
0070	465.0560	Asphaltic Rumble Strips, Centerline	LF	40,030.000	40,030.000
0072	502.0100	Concrete Masonry Bridges	CY	7.000	7.000
0074	502.3210	Pigmented Surface Sealer	SY	7.000	7.000
0076	502.4204	Adhesive Anchors No. 4 Bar	EACH	4.000	4.000
0078	502.4206	Adhesive Anchors No. 6 Bar	EACH	19.000	19.000
0080	505.0600	Bar Steel Reinforcement HS Coated Structures	LB	1,020.000	1,020.000
0082	516.0500	Rubberized Membrane Waterproofing	SY	3.000	3.000
0084	520.1024	Apron Endwalls for Culvert Pipe 24-Inch	EACH	4.000	4.000
0086	520.1030	Apron Endwalls for Culvert Pipe 30-Inch	EACH	2.000	2.000
0088	520.3424	Culvert Pipe Class III-A Non-metal 24-Inch	LF	204.000	204.000
0090	520.3430	Culvert Pipe Class III-A Non-metal 30-Inch	LF	72.000	72.000
0092	520.8700	Cleaning Culvert Pipes	EACH	2.000	2.000
0094	522.0424	Culvert Pipe Reinforced Concrete Class IV 24-Inch	LF	290.000	290.000
0096	522.0430	Culvert Pipe Reinforced Concrete Class IV 30-Inch	LF	122.000	122.000
0098	522.0436	Culvert Pipe Reinforced Concrete Class IV 36-Inch	LF	310.000	310.000

Estimate Of Quantities

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Line	Item	Item Description	Unit	Total	Qty
0100	522.0442	Culvert Pipe Reinforced Concrete Class IV 42-Inch	LF	86.000	86.000
0102	522.1018	Apron Endwalls for Culvert Pipe Reinforced Concrete 18-Inch	EACH	1.000	1.000
0104	522.1024	Apron Endwalls for Culvert Pipe Reinforced Concrete 24-Inch	EACH	10.000	10.000
0106	522.1030	Apron Endwalls for Culvert Pipe Reinforced Concrete 30-Inch	EACH	4.000	4.000
0108	522.1036	Apron Endwalls for Culvert Pipe Reinforced Concrete 36-Inch	EACH	10.000	10.000
0110	522.1042	Apron Endwalls for Culvert Pipe Reinforced Concrete 42-Inch	EACH	2.000	2.000
0112	522.2348	Culvert Pipe Reinforced Concrete Horizontal Elliptical Class HE-III 48x76-Inch	LF	116.000	116.000
0114	522.2424	Culvert Pipe Reinforced Concrete Horizontal Elliptical Class HE-IV 24x38-Inch	LF	58.000	58.000
0116	522.2429	Culvert Pipe Reinforced Concrete Horizontal Elliptical Class HE-IV 29x45-Inch	LF	108.000	108.000
0118	522.2624	Apron Endwalls for Culvert Pipe Reinforced Concrete Horizontal Elliptical 24x38-Inch	EACH	2.000	2.000
0120	522.2629	Apron Endwalls for Culvert Pipe Reinforced Concrete Horizontal Elliptical 29x45-Inch	EACH	4.000	4.000
0122	522.2648	Apron Endwalls for Culvert Pipe Reinforced Concrete Horizontal Elliptical 48x76-Inch	EACH	4.000	4.000
0124	601.0557	Concrete Curb & Gutter 6-Inch Sloped 36-Inch Type D	LF	176.000	176.000
0126	601.0588	Concrete Curb & Gutter 4-Inch Sloped 36-Inch Type TBT	LF	112.000	112.000
0128	602.3010	Concrete Surface Drains	CY	2.000	2.000
0130	603.1136	Concrete Barrier Type S36	LF	635.000	635.000
0132	604.0500	Slope Paving Crushed Aggregate	SY	655.000	655.000
0134	606.0300	Riprap Heavy	CY	21.000	21.000
0136	608.0312	Storm Sewer Pipe Reinforced Concrete Class III 12-Inch	LF	129.000	129.000
0138	608.0418	Storm Sewer Pipe Reinforced Concrete Class IV 18-Inch	LF	56.000	56.000
0140	611.0610	Inlet Covers Type BW	EACH	2.000	2.000
0142	611.3225	Inlets 2x2.5-FT	EACH	2.000	2.000
0144	614.0010	Barrier System Grading Shaping Finishing	EACH	8.000	8.000
0146	614.2300	MGS Guardrail 3	LF	225.000	225.000
0148	614.2330	MGS Guardrail 3 K	LF	150.000	150.000
0150	614.2500	MGS Thrie Beam Transition	LF	300.000	300.000
0152	614.2610	MGS Guardrail Terminal EAT	EACH	8.000	8.000
0154	618.0100	Maintenance and Repair of Haul Roads (project) 01. 6610-00-71	EACH	1.000	1.000
0156	619.1000	Mobilization	EACH	1.000	1.000
0158	624.0100	Water	MGAL	290.000	290.000
0160	625.0100	Topsoil	SY	5,440.000	5,440.000
0162	627.0200	Mulching	SY	1,230.000	1,230.000
0164	628.1504	Silt Fence	LF	10,910.000	10,910.000
0166	628.1520	Silt Fence Maintenance	LF	21,820.000	21,820.000
0168	628.1905	Mobilizations Erosion Control	EACH	12.000	12.000
0170	628.1910	Mobilizations Emergency Erosion Control	EACH	6.000	6.000
0172	628.2008	Erosion Mat Urban Class I Type B	SY	4,460.000	4,460.000
0174	628.7005	Inlet Protection Type A	EACH	2.000	2.000
0176	628.7015	Inlet Protection Type C	EACH	2.000	2.000
0178	628.7555	Culvert Pipe Checks	EACH	86.000	86.000
0180	628.7570	Rock Bags	EACH	90.000	90.000
0182	629.0210	Fertilizer Type B	CWT	7.000	7.000
0184	630.0130	Seeding Mixture No. 30	LB	450.000	450.000
0186	630.0500	Seed Water	MGAL	230.000	230.000
0188	633.1000	Delineators Barrier Wall	EACH	7.000	7.000
0190	633.5200	Markers Culvert End	EACH	43.000	43.000
0192	634.0616	Posts Wood 4x6-Inch X 16-FT	EACH	16.000	16.000
0194	634.0812	Posts Tubular Steel 2x2-Inch X 12-FT	EACH	1.000	1.000
0196	637.2210	Signs Type II Reflective H	SF	3.000	3.000

Estimate Of Quantities

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Line	Item	Item Description	Unit	Total	Qty
0198	637.2230	Signs Type II Reflective F	SF	60.000	60.000
0200	638.2102	Moving Signs Type II	EACH	9.000	9.000
0202	638.4000	Moving Small Sign Supports	EACH	11.000	11.000
0204	642.5001	Field Office Type B	EACH	1.000	1.000
0206	643.0300	Traffic Control Drums	DAY	2,900.000	2,900.000
0208	643.0420	Traffic Control Barricades Type III	DAY	5,065.000	5,065.000
0210	643.0705	Traffic Control Warning Lights Type A	DAY	9,150.000	9,150.000
0212	643.0900	Traffic Control Signs	DAY	16,710.000	16,710.000
0214	643.0910	Traffic Control Covering Signs Type I	EACH	10.000	10.000
0216	643.0920	Traffic Control Covering Signs Type II	EACH	7.000	7.000
0218	643.1000	Traffic Control Signs Fixed Message	SF	136.000	136.000
0220	643.3165	Temporary Marking Line Paint 6-Inch	LF	111,627.000	111,627.000
0222	643.5000	Traffic Control	EACH	1.000	1.000
0224	645.0120	Geotextile Type HR	SY	62.000	62.000
0226	646.2020	Marking Line Epoxy 6-Inch	LF	3,110.000	3,110.000
0228	646.2040	Marking Line Grooved Wet Ref Epoxy 6-Inch	LF	132,470.000	132,470.000
0230	646.4040	Marking Line Grooved Wet Ref Epoxy 10-Inch	LF	208.000	208.000
0232	646.5220	Marking Symbol Epoxy	EACH	2.000	2.000
0234	646.6120	Marking Stop Line Epoxy 18-Inch	LF	93.000	93.000
0236	646.7120	Marking Diagonal Epoxy 12-Inch	LF	245.000	245.000
0238	646.8320	Marking Parking Stall Epoxy	LF	1,072.000	1,072.000
0240	650.4000	Construction Staking Storm Sewer	EACH	3.000	3.000
0242	650.4500	Construction Staking Subgrade	LF	490.000	490.000
0244	650.5000	Construction Staking Base	LF	490.000	490.000
0246	650.5500	Construction Staking Curb Gutter and Curb & Gutter	LF	288.000	288.000
0248	650.6000	Construction Staking Pipe Culverts	EACH	21.000	21.000
0250	650.7500	Construction Staking Concrete Barrier	LF	635.000	635.000
0252	650.8000	Construction Staking Resurfacing Reference	LF	47,277.000	47,277.000
0254	650.9911	Construction Staking Supplemental Control (project) 01. 6610-00-71	EACH	1.000	1.000
0256	650.9920	Construction Staking Slope Stakes	LF	490.000	490.000
0258	680.0100	Public Land Survey Monument Verify and Reset	EACH	7.000	7.000
0260	690.0150	Sawing Asphalt	LF	2,233.000	2,233.000
0262	690.0250	Sawing Concrete	LF	50.000	50.000
0264	715.0502	Incentive Strength Concrete Structures	DOL	500.000	500.000
0266	740.0440	Incentive IRI Ride	DOL	36,187.000	36,187.000
0268	SPV.0060	Special 01. Temporary Water Diversion - Sta. 53+70	EACH	1.000	1.000
0270	SPV.0060	Special 02. Temporary Water Diversion - Sta. 125+43	EACH	1.000	1.000
0272	SPV.0060	Special 03. Temporary Water Diversion - Sta. 215+16	EACH	1.000	1.000
0274	SPV.0060	Special 04. Temporary Water Diversion - Sta. 300+66	EACH	1.000	1.000
0276	SPV.0180	Special 01. Removing Distressed Asphaltic Surface Milling	SY	1,000.000	1,000.000

REMOVING SMALL PIPE CULVERTS

STATION	LOCATION	DESCRIPTION	203.0100	204.0180
			REMOVING SMALL PIPE CULVERTS (EACH)	REMOVING DELINEATORS AND MARKERS (EACH)
53+66	MAINLINE	42" RCCP	1	2
53+73	MAINLINE	42" RCCP	1	-
75+61	MAINLINE	24" RCCP	1	2
83+71	MAINLINE	24" RCCP	1	2
97+47	MAINLINE	24" RCCP	1	2
129+17	MAINLINE	30" RCCP; LINED WITH 18" CPCP	1	2
191+15	MAINLINE	24" RCCP	1	2
215+13	MAINLINE	36" RCCP	1	2
215+19	MAINLINE	36" RCCP	1	-
242+14	MAINLINE	36" RCCP; LINED WITH 18" CPCP	1	2
263+61	MAINLINE	24" RCCP	1	2
274+49	MAINLINE	24" RCCP	1	1
291+41	MAINLINE	24" RCCP	1	2
291+47	MAINLINE	24" RCCP	1	-
300+66	MAINLINE	36" RCCP; LINED WITH 30" CPCP	1	2
321+10	MAINLINE	24" RCCP	1	2
340+85	MAINLINE	30" CMCP	1	1
346+59	MAINLINE	30" CMCP; LINED WITH 24" CPCP	1	2
365+11	MAINLINE	36" CMCP	1	2
484+88	MAINLINE	36" CMCP	1	2
488+08	MAINLINE	36" CMCP	1	2
TOTALS =			21	34

REMOVING ASPHALTIC SURFACE BUTT JOINTS

LOCATION	STATION	204.0115 (SY)
CTH H (EAST)	119+46	33
CTH H (WEST)	119+46	35
SHORT LANE	224+61	22
CTH E	276+76	35
MAINLINE	304+00	104
MAINLINE	308+02	103
ALTENBURG ROAD (EAST)	341+82	32
ALTENBURG ROAD (WEST)	341+82	29
BROOKS ROAD	353+54	23
OLD DANCY ROAD	372+18	24
JOHNS LANE	396+39	34
HOSTA ROAD	403+96	32
GRAHAM LANE	414+47	20
DUBAY DRIVE	433+88	29
MAINLINE	436+58	35
MAINLINE	442+11	44
SEAGULL DRIVE (EAST)	461+17	26
SEAGULL DRIVE (WEST)	461+17	25
DEPOT ROAD	491+92	27
MAINLINE	521+97	33
PARK & RIDE	-	195
TOTAL =		940

CLEARING & GRUBBING

STATION	LOCATION	201.0105 CLEARING (STA)	201.0205 GRUBBING (STA)
53+00 - 54+00	MAINLINE, RT.	1	1
291+00 - 292+00	MAINLINE, LT.	1	1
TOTALS =		2	2

REMOVING CURB AND GUTTER

STATION-STATION	LOCATION	204.0150 (LF)
277+03 - 277+32	MAINLINE, RT.	32
341+33 - 341+74	MAINLINE, LT.	73
341+99 - 342+61	MAINLINE, LT.	87
TOTAL =		192

REMOVING GUARDRAIL

STATION - STATION	LOCATION	204.0165 (LF)
302+61 - 303+97	MAINLINE, LT.	136
303+21 - 304+56	MAINLINE, RT.	136
307+46 - 308+81	MAINLINE, LT.	136
308+05 - 309+41	MAINLINE, RT.	136
429+03 - 436+49	MAINLINE, LT.	736
435+14 - 436+49	MAINLINE, RT.	136
442+22 - 443+50	MAINLINE, LT.	136
442+21 - 444+24	MAINLINE, RT.	136
TOTAL =		1,688

MILLING

STATION - STATION	LOCATION	204.0120 REMOVING ASPHALTIC SURFACE MILLING (SY)	SPV.0180.01 REMOVING DISTRESSED ASPHALTIC SURFACE MILLING (SY)
39+66 - 304+00	MAINLINE	92,180	-
308+02 - 436+59	MAINLINE	46,470	-
442+10 - 521+97	MAINLINE	28,800	-
-	PARK & RIDE	3,850	-
UNDISTRIBUTED	PROJECT	-	1,000
TOTALS =		171,300	1,000

REMOVING MASONRY

STATION - STATION	LOCATION	204.0185 (CY)
215+16	MAINLINE, LT.	3.5
215+16	MAINLINE, RT.	3.5
291+20	MAINLINE, RT.	3.5
291+70	MAINLINE, LT.	3.5
TOTAL =		14

REMOVING SURFACE DRAINS

STATION - STATION	LOCATION	204.0190 (EACH)
442+31	MAINLINE, RT.	1
442+32	MAINLINE, LT.	1
TOTAL =		2

PREPARE FOUNDATION FOR ASPHALTIC SHOULDERS

STATION - STATION	LOCATION	211.0400 (STA)
301+19 - 303+95	MAINLINE, LT.	3
301+94 - 304+54	MAINLINE, RT.	3
307+48 - 310+11	MAINLINE, LT.	3
308+07 - 310+83	MAINLINE, RT.	3
427+94 - 430+00	MAINLINE, LT.	2
434+43 - 436+48	MAINLINE, RT.	3
442+22 - 444+54	MAINLINE, LT.	3
442+21 - 445+00	MAINLINE, RT.	3
TOTAL =		23

EARTHWORK SUMMARY

		205.0100 EXCAVATION COMMON CUT (1) (CY)	209.1100 BACKFILL GRANULAR GRADE 1 (CY)	UNEXPANDED FILL (CY)	EXPANDED FILL (CY) FACTOR 1.25 (2)	MASS ORDINATE +/- (CY) (3)	WASTE (CY)
STATION - STATION	LOCATION						
34+76 - 39+66	MAINLINE	3900	1900	106	133	3767	3767
53+70	CULVERT	710	0	0	0	710	710
75+61	CULVERT	560	0	0	0	560	560
83+71	CULVERT	500	0	0	0	500	500
97+47	CULVERT	570	0	0	0	570	570
129+17	CULVERT	570	0	0	0	570	570
191+15	CULVERT	640	0	0	0	640	640
215+15	CULVERT	630	0	0	0	630	630
242+14	CULVERT	520	0	0	0	520	520
263+61	CULVERT	560	0	0	0	560	560
274+49	CULVERT	720	0	0	0	720	720
291+45	CULVERT	880	0	0	0	880	880
300+66	CULVERT	770	0	0	0	770	770
321+10	CULVERT	840	0	0	0	840	840
340+85	CULVERT	520	0	0	0	520	520
346+59	CULVERT	680	0	0	0	680	680
365+11	CULVERT	680	0	0	0	680	680
430+00 - 436+59	MAINLINE	260	0	92	117	143	143
484+88	CULVERT	780	0	0	0	780	780
488+08	CULVERT	910	0	0	0	910	910

TOTALS = 16,200 1,900 198 250 15,950 15,950

NOTES:
1.) SALVAGED/UNUSABLE PAVEMENT MATERIAL IS INCLUDED IN CUT
2.) FILL EXPANSION IS VARIABLE AND IS ESTIMATED AT 25%. EXPANDED FILL FACTOR 1.25: EXPANDED FILL = (UNEXPANDED FILL)*1.25
3.) THE MASS ORDINATE+ OR - QTY CALCULATED FOR THE DIVISION. PLUS QUANTITY INDICATES AN EXCESS OF MATERIAL WITHIN THE CATEGORY.
MINUS INDICATES A SHORTAGE OF MATERIAL WITHIN THE CATEGORY.

BASE AGGREGATE DENSE

STATION - STATION	LOCATION	305.0110 BASE AGGREGATE DENSE 3/4-INCH (TON)	305.0120 BASE AGGREGATE DENSE 1 1/4-INCH (TON)	NOTES
34+76 - 39+66	MAINLINE	151	3,668	-
39+66 - 304+00	MAINLINE	2,318	-	2-INCHES; SHLDR
308+02 - 342+00	MAINLINE	322	-	2-INCHES; SHLDR
342+00 - 430+00	MAINLINE	1,244	-	2-INCHES; SHLDR
430+00 - 436+59	MAINLINE	25	462	-
442+11 - 442+69	MAINLINE	-	70	-
442+67 - 521+97	MAINLINE	843	-	2-INCHES; SHLDR
-	PARK & RIDE	30	-	2-INCHES; SHLDR
-	CULVERT REPLACEMENTS	924	9,380	-
-	CURB & GUTTER REPLACEMENT	-	106	-
53+70	TEMPORARY DIVERSION DISTURBANCE	14	171	-
215+16	TEMPORARY DIVERSION DISTURBANCE	9	93	-
TOTALS =		5,880	13,950	

ASPHALTIC FLUMES

STATION	LOCATION	465.0310 ASPHALTIC CURB (LF)	465.0315 ASPHALTIC FLUMES (SY)
277+32	MAINLINE, RT.	13	8
341+60	MAINLINE, LT.	18	7
342+48	MAINLINE, LT.	13	8
TOTAL =		44	23

ASPHALTIC RUMBLE STRIPS,
CENTERLINE

STATION - STATION	LOCATION	465.0560 (LF)
42+54 - 64+82	MAINLINE	2,228
68+82 - 117+47	MAINLINE	4,865
121+46 - 143+62	MAINLINE	2,216
147+62 - 169+82	MAINLINE	2,220
173+82 - 222+62	MAINLINE	4,880
226+61 - 248+85	MAINLINE	2,224
252+85 - 274+77	MAINLINE	2,192
278+77 - 303+75	MAINLINE	2,498
308+26 - 339+77	MAINLINE	3,151
343+85 - 351+81	MAINLINE	796
355+81 - 370+18	MAINLINE	1,437
374+18 - 394+39	MAINLINE	2,021
398+39 - 402+19	MAINLINE	380
406+19 - 412+47	MAINLINE	628
416+47 - 431+87	MAINLINE	1,540
442+36 - 459+13	MAINLINE	1,677
463+19 - 490+19	MAINLINE	2,700
494+20 - 505+77	MAINLINE	1,157
509+77 - 521+97	MAINLINE	1,220
TOTAL =		40,030

ASPHALT ITEMS

STATION - STATION	LOCATION	211.0101 PREPARE FOUNDATION FOR ASPHALTIC PAVING (01. 6610-00-71) (EACH)	455.0605 TACK COAT (GAL)	460.6223 HMA PAVEMENT 3 MT 58-28 S (TON)	460.6224 HMA PAVEMENT 4 MT 58-28 S (TON)	460.6424 HMA PAVEMENT 4 MT 58-28 H (TON)	465.0105 ASPHALTIC SURFACE (TON)	465.0110 ASPHALTIC SURFACE PATCHING (TON)	740.0440 INCENTIVE IRI RIDE (DOL)
34+75.55 - 39+65.62	MAINLINE	-	279	703	273	-	-	-	-
39+65.62 - 304+00.08	MAINLINE	-	11,421	11,989	9,325	-	-	-	-
308+01.50 - 436+57.69	MAINLINE	-	5,787	6,077	4,726	-	-	-	-
430+00 - 436+57.69	MAINLINE, LT.	-	46	156	45	-	-	-	-
442+11.03 - 521+96.54	MAINLINE	-	3,576	3,755	2,921	-	-	-	-
442+11 - 442+69	MAINLINE	-	-	-	-	-	10	-	-
-	CULVERT REPLACEMENTS	-	670	-	-	-	2,912	-	-
-	PARK & RIDE	-	291	-	-	410	-	-	-
-	CURB & GUTTER REPLACEMENT	-	-	-	-	-	15	-	-
53+70	TEMPORARY DIVERSION DISTURBANCE	-	13	-	-	-	53	-	-
215+16	TEMPORARY DIVERSION DISTURBANCE	-	7	-	-	-	30	-	-
-	PROJECT	1	-	-	-	-	-	100	36,187
TOTALS =		1	22,090	22,680	17,290	410	3,020	100	36,187

PWL MIXTURE USE TABLE

The following acceptance criteria are applicable for this project:

LOCATION	STATION	MIXTURE USE	UNDERLYING SURFACE	BID ITEM	TONS	THICKNESS	QUALITY MANAGEMENT PROGRAM TO BE USED FOR:	
							MIXTURE ACCEPTANCE	DENSITY ACCEPTANCE
12 foot Driving Lanes & 5 foot shoulders	34+75.55 - 39+65.62	Upper Layer	3 MT 58-28 S	4 MT 58-28 S	273	1.75"	PWL Incentive Air Voids HMA Pavement 460.2010	Incentive Density PWL HMA Pavement 460.2005
12 foot Driving Lanes & 5 foot shoulders	34+75.55 - 39+65.62	Lower Layer	3 MT 58-28 S	3 MT 58-28 S	352	2.25"	PWL Incentive Air Voids HMA Pavement 460.2010	Incentive Density PWL HMA Pavement 460.2005
12 foot Driving Lanes & 5 foot shoulders	34+75.55 - 39+65.62	Lower Layer	Base Aggregate	3 MT 58-28 S	351	2.25"	Standard Specification 460	Incentive Density HMA Pavement 460.2000
12 foot Driving Lanes & 3 foot shoulders	39+65.62 - 304+00.08, 308+01.50 - 436+57.69, 442+11.03 - 521+96.54	Upper Layer	3 MT 58-28 S	4 MT 58-28 S	16,102	1.75"	PWL Incentive Air Voids HMA Pavement 460.2010	Incentive Density PWL HMA Pavement 460.2005
12 foot Driving Lanes & 3 foot shoulders	39+65.62 - 304+00.08, 308+01.50 - 436+57.69, 442+11.03 - 521+96.54	Lower Layer	Milled Surface	3 MT 58-28 S	20,701	2.25"	PWL Incentive Air Voids HMA Pavement 460.2010	Incentive Density PWL HMA Pavement 460.2005
3 foot shoulder pavement replacement	430+00 - 436+57.69, LT.	Upper Layer	3 MT 58-28 S	4 MT 58-28 S	45	1.75"	PWL Incentive Air Voids HMA Pavement 460.2010	Incentive Density PWL HMA Pavement 460.2005
3 foot shoulder pavement replacement	430+00 - 436+57.69, LT.	Lower Layer	3 MT 58-28 S	3 MT 58-28 S	58	2.25"	PWL Incentive Air Voids HMA Pavement 460.2010	Incentive Density PWL HMA Pavement 460.2005
3 foot shoulder pavement replacement	430+00 - 436+57.69, LT.	Lower Layer	Base Aggregate	3 MT 58-28 S	98	3.75"	Standard Specification 460	Incentive Density HMA Pavement 460.2000
Intersection Tapers, Turn Lanes, Bypass Lanes & Side Roads	39+65.62 - 304+00.08, 308+01.50 - 436+57.69, 442+11.03 - 521+96.54	Upper Layer	3 MT 58-28 S	4 MT 58-28 S	870	1.75"	PWL Incentive Air Voids HMA Pavement 460.2010	Acceptance testing by the department; Not eligible for the incentive
Intersection Tapers, Turn Lanes, Bypass Lanes & Side Roads	39+65.62 - 304+00.08, 308+01.50 - 436+57.69, 442+11.03 - 521+96.54	Lower Layer	Milled Surface	3 MT 58-28 S	1,120	2.25"	PWL Incentive Air Voids HMA Pavement 460.2010	Acceptance testing by the department; Not eligible for the incentive
Park & Ride	-	Upper Layer	Milled Surface	4 MT 58-28 H	410	1.75"	Standard Specification 460	Incentive Density HMA Pavement 460.2000

CLEANING CULVERT PIPES

STATION	LOCATION	520.8700 (EACH)
125+35	MAINLINE	1
125+51	MAINLINE	1
TOTAL =		2

CULVERT PIPE

STATION	LOCATION	520.1024	520.1030	520.3424	520.3430	522.0424	522.0430	522.0436	522.0442	522.1024	522.1030	522.1036	522.1042	522.2348	522.2424	522.2429	522.2624	522.2629	522.2648	*633.5200 MARKERS	650.6000 CONSTRUCTION STAKING PIPE
		APRON ENDWALLS	APRON ENDWALLS	CULVERT PIPE CLASS III-A	CULVERT PIPE CLASS III-A	CULVERT PIPE REINFORCED CONCRETE	CULVERT PIPE REINFORCED CONCRETE	CULVERT PIPE REINFORCED CONCRETE	CULVERT PIPE REINFORCED CONCRETE	APRON ENDWALLS FOR CULVERT PIPE	APRON ENDWALLS FOR CULVERT PIPE	APRON ENDWALLS FOR CULVERT PIPE	APRON ENDWALLS FOR CULVERT PIPE	CULVERT PIPE REINFORCED CONCRETE	CULVERT PIPE REINFORCED CONCRETE	CULVERT PIPE REINFORCED CONCRETE	APRON ENDWALLS FOR CULVERT PIPE	APRON ENDWALLS FOR CULVERT PIPE	APRON ENDWALLS FOR CULVERT PIPE		
		PIPE 24-INCH	PIPE 30-INCH	NON-METAL 24-INCH	NON-METAL 30-INCH	CLASS IV 24-INCH	CLASS IV 30-INCH	CLASS IV 36-INCH	CLASS IV 42-INCH	CONCRETE 24-INCH	CONCRETE 30-INCH	CONCRETE 36-INCH	CONCRETE 42-INCH	HORIZONTAL ELLIPTICAL CLASS HE-III 48X76-INCH	HORIZONTAL ELLIPTICAL CLASS HE-IV 24X38-INCH	HORIZONTAL ELLIPTICAL CLASS HE-IV 29X45-INCH	REINFORCED CONCRETE HORIZONTAL ELLIPTICAL 24X38-INCH	REINFORCED CONCRETE HORIZONTAL ELLIPTICAL 29X45-INCH	REINFORCED CONCRETE HORIZONTAL ELLIPTICAL 48X76-INCH		
		(EACH)	(EACH)	(LF)	(LF)	(LF)	(LF)	(LF)	(LF)	(EACH)	(EACH)	(EACH)	(EACH)	(LF)	(LF)	(LF)	(EACH)	(EACH)	(EACH)	(EACH)	(EACH)
53+66**	MAINLINE	-	-	-	-	-	-	-	-	-	-	-	-	58	-	-	-	-	2	2	1
53+76**	MAINLINE	-	-	-	-	-	-	-	-	-	-	-	-	58	-	-	-	-	2	2	1
75+61	MAINLINE	-	-	-	-	56	-	-	-	2	-	-	-	-	-	-	-	-	-	2	1
83+71**	MAINLINE	-	-	-	-	48	-	-	-	2	-	-	-	-	-	-	-	-	-	2	1
97+47**	MAINLINE	-	-	-	-	-	-	-	-	-	-	-	-	-	58	-	2	-	-	2	1
129+17**	MAINLINE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	56	-	2	-	2	1
191+15**	MAINLINE	-	-	-	-	62	-	-	-	2	-	-	-	-	-	-	-	-	-	2	1
215+12**	MAINLINE	-	-	-	-	-	-	54	-	-	-	2	-	-	-	-	-	-	-	2	1
215+20**	MAINLINE	-	-	-	-	-	-	54	-	-	-	2	-	-	-	-	-	-	-	2	1
242+14**	MAINLINE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	52	-	2	-	2	1
263+61**	MAINLINE	-	-	-	-	54	-	-	-	2	-	-	-	-	-	-	-	-	-	2	1
274+49	MAINLINE	-	-	-	-	70	-	-	-	2	-	-	-	-	-	-	-	-	-	2	1
291+43	MAINLINE	2	-	102	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	1
291+47	MAINLINE	2	-	102	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	1
300+66**	MAINLINE	-	-	-	-	-	-	68	-	-	-	2	-	-	-	-	-	-	-	2	1
321+10	MAINLINE	-	2	-	72	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	1
340+85**	MAINLINE	-	-	-	-	-	62	-	-	-	2	-	-	-	-	-	-	-	-	2	1
346+59**	MAINLINE	-	-	-	-	-	60	-	-	-	2	-	-	-	-	-	-	-	-	2	1
365+11**	MAINLINE	-	-	-	-	-	-	60	-	-	-	2	-	-	-	-	-	-	-	2	1
484+88**	MAINLINE	-	-	-	-	-	-	74	-	-	-	2	-	-	-	-	-	-	-	2	1
488+08	MAINLINE	-	-	-	-	-	-	-	86	-	-	-	2	-	-	-	-	-	-	2	1
TOTALS =		4	2	204	72	290	122	310	86	10	4	10	2	116	58	108	2	4	4	42	21

*MORE LISTED ELSEWHERE

** CAUTION. SUBGRADE COVER OVER PIPE IS LESS THAN 1 FT.

3

CONCRETE CURB & GUTTER					
STATION-STATION	LOCATION	416.0610	601.0557	601.0588	650.5500
		DRILLED TIE BARS (EACH)	6-INCH SLOPED 36-INCH TYPE D (LF)	4-INCH SLOPED 36-INCH TYPE TBT (LF)	CONSTRUCTION STAKING CURB GUTTER AND CURB & GUTTER (LF)
277+03 - 277+32	MAINLINE, RT.	3	30	-	30
341+34 - 341+75	MAINLINE, LT.	-	72	-	72
341+98 - 342+48	MAINLINE, LT.	-	74	-	74
442+11 - 442+67	MAINLINE, LT.	-	-	56	56
442+11 - 442+67	MAINLINE, RT.	-	-	56	56
TOTALS =		3	176	112	288

STORM SEWER STRUCTURES							
STRUCTURE	STATION	LOCATION	RIM ELEVATION (FT.)	522.1018	611.0610	611.3225	*633.5200
				APRON ENDWALLS FOR CULVERT PIPE REINFORCED CONCRETE	INLET COVERS TYPE BW (EACH)	INLETS 2X2.5-FT (EACH)	MARKERS CULVERT END (EACH)
1.0	435+00	37.0' RT.	-	1	-	-	1
1.1	435+00	19.0' LT.	1131.89	-	1	1	-
1.2	436+30	19.0' LT.	1131.19	-	1	1	-
TOTALS =				1	2	2	1
*MORE LISTED ELSEWHERE							

CONCRETE SURFACE DRAINS		
STATION	LOCATION	602.3010 (CY)
442+65	MAINLINE, RT.	1
442+65	MAINLINE, LT.	1
TOTAL =		2

3

CONCRETE BARRIER				
STATION-STATION	LOCATION	603.1136	633.1000	650.7500
		CONCRETE BARRIER TYPE S36 (LF)	DELINEATORS BARRIER WALL (EACH)	CONSTRUCTION STAKING CONCRETE BARRIER (LF)
430+00 - 436+44	MAINLINE, LT.	635	7	635
TOTALS =		635	7	635

SLOPE PAVING CRUSHED AGGREGATE		
STATION - STATION	LOCATION	604.0500 (SY)
430+00 - 433+62	MAINLINE, LT.	655
TOTAL =		655

RIPRAP HEAVY			
STATION	LOCATION	606.0300 RIPRAP HEAVY (CY)	645.0120 GEOTEXTILE TYPE HR (SY)
263+61	MAINLINE, LT.	6	18
291+50	MAINLINE, LT.	7	20
442+58	MAINLINE, LT.	4	12
442+65	MAINLINE, RT.	4	12
TOTALS =		21	62

STORM SEWER PIPE									
PIPE NUMBER	STRUCTURE 1	STRUCTURE 2	ELEVATION 1	ELEVATION 2	SLOPE (%)	LOCATION	608.0312	608.0418	
							STORM SEWER PIPE REINFORCED CONCRETE CLASS III 12-INCH (LF)	STORM SEWER PIPE REINFORCED CONCRETE CLASS IV 18-INCH (LF)	
P - 1.1	1.1	1.0	1127.36	1127.20	0.30%	MAINLINE	-	56	
P - 1.2	1.2	1.1	1127.91	1127.41	0.40%	MAINLINE, LT.	129	-	
TOTALS =							129	56	

GUARDRAIL				
STATION - STATION	LOCATION	614.2300	614.2330	614.2500
		MGS GUARDRAIL 3 (LF)	MGS GUARDRAIL 3K (LF)	MGS THRIE BEAM TRANSITION (LF)
300+63 - 303+95	MAINLINE, LT.	50	-	37.5
301+37 - 304+54	MAINLINE, RT.	50	-	37.5
307+48 - 310+67	MAINLINE, LT.	37.5	-	37.5
308+07 - 311+39	MAINLINE, RT.	50	-	37.5
427+94 - 430+00	MAINLINE, LT.	-	37.5	37.5
434+43 - 436+38	MAINLINE, RT.	-	75	37.5
442+22 - 444+80	MAINLINE, LT.	37.5	-	37.5
442+21 - 445+26	MAINLINE, RT.	-	37.5	37.5
TOTALS =		225	150	300

BARRIER SYSTEM GRADING SHAPING FINISHING										
STA. - STA.	LOCATION	614.0010	FOR INFORMATIONAL PURPOSES ONLY							
		BARRIER SYSTEM GRADING SHAPING FINISHING (EACH)	EXCAVATION COMMON (CY)	*BORROW (CY)	TOPSOIL (SY)	EROSION MAT URBAN CLASS I TYPE A (SY)	FERTILIZER TYPE B (CWT)	SEEDING MIXTURE NO. 30 (LB)	SEED WATER (MGAL)	CONSTRUCTION STAKING SLOPE STAKES (LF)
301+16 - 303+95	MAINLINE, LT.	1	9	98	423	423	0.3	19	10	332
301+16 - 304+54	MAINLINE, RT.	1	31	4	441	441	0.3	20	10	317
307+48 - 310+67	MAINLINE, LT.	1	20	82	438	438	0.3	20	10	319
308+07 - 311+39	MAINLINE, RT.	1	8	98	475	475	0.3	21	11	332
427+94 - 430+00	MAINLINE, LT.	1	22	39	439	439	0.3	20	10	206
434+43 - 436+38	MAINLINE, RT.	1	18	25	189	189	0.1	9	4	195
442+22 - 444+80	MAINLINE, LT.	1	12	0	183	183	0.1	8	4	258
442+21 - 445+26	MAINLINE, RT.	1	22	0	122	122	0.1	6	3	305
TOTALS =		8	142	346	2,710	2,710	1.8	123	62	2,264
* NEGATIVE QUANTITY INDICATES EXCESS MATERIAL (WASTE)										

CULVERT PIPE CHECKS		
STATION	LOCATION	628.7555 (EACH)
75+61	MAINLINE	3
83+71	MAINLINE	3
97+47	MAINLINE	8
129+17	MAINLINE	10
191+15	MAINLINE	3
242+14	MAINLINE	10
263+61	MAINLINE	3
274+49	MAINLINE	3
291+43	MAINLINE	3
291+50	MAINLINE	3
321+10	MAINLINE	5
340+85	MAINLINE	5
346+59	MAINLINE	5
365+11	MAINLINE	7
484+88	MAINLINE	7
488+08	MAINLINE	8
TOTAL =		86

3

WATER		MOBILIZATIONS EROSION CONTROL		INLET PROTECTION				ROCK BAGS			
624.0100 (MGAL)		628.1905 MOBILIZATIONS EROSION CONTROL (EACH)		628.1910 MOBILIZATIONS EMERGENCY EROSION CONTROL (EACH)		628.7005 INLET PROTECTION TYPE A (EACH)		628.7015 INLET PROTECTION TYPE C (EACH)		628.7570 (EACH)	
LOCATION						STATION	LOCATION			STATION	LOCATION
PROJECT	300					435+00	MAINLINE, LT.	1	1	UNDISTRIBUTED	SILT FENCE RELIEF
						436+30	MAINLINE, LT.	1	1		
TOTAL =	300									TOTAL =	
		PROJECT									
		6610-00-71	12	6							90
		TOTAL =	12	6							

3

SILT FENCE				EROSION MAT				FINISHING ITEMS						
		628.1504 SILT FENCE (LF)	628.1520 SILT FENCE MAINTENANCE (LF)			628.2008 URBAN CLASS I TYPE B (SY)				625.0100 TOPSOIL (SY)	627.0200 MULCHING (SY)	629.0210 FERTILIZER TYPE B (CWT)	630.0130 SEEDING MIXTURE NO. 30 (LB)	630.0500 SEED WATER (MGAL)
STATION - STATION	LOCATION			STATION - STATION	LOCATION			STATION - STATION	LOCATION					
34+76 - 39+66	MAINLINE, RT.	530	1,060	53+12 - 54+26	MAINLINE, LT.	86		34+76 - 39+66	MAINLINE, LT.	379	379	0.5	33	17
53+12 - 54+26	MAINLINE, LT.	145	290	53+12 - 54+26	MAINLINE, RT.	76		34+76 - 39+66	MAINLINE, RT.	493	493	0.5	38	19
53+12 - 54+26	MAINLINE, RT.	145	290	75+07 - 76+12	MAINLINE, LT.	65		53+12 - 54+26	MAINLINE, LT.	86	-	0.1	8	4
75+07 - 76+12	MAINLINE, LT.	120	240	75+07 - 76+12	MAINLINE, RT.	42		53+12 - 54+26	MAINLINE, RT.	76	-	0.1	7	3
75+07 - 76+12	MAINLINE, RT.	120	240	83+19 - 84+23	MAINLINE, LT.	36		75+07 - 76+12	MAINLINE, LT.	53	-	0.1	6	3
83+19 - 84+23	MAINLINE, LT.	115	230	83+19 - 84+23	MAINLINE, RT.	20		75+07 - 76+12	MAINLINE, RT.	42	-	0.1	5	3
83+19 - 84+23	MAINLINE, RT.	115	230	96+95 - 98+00	MAINLINE, LT.	62		83+19 - 84+23	MAINLINE, LT.	25	-	0.1	4	2
96+95 - 98+00	MAINLINE, LT.	120	240	96+95 - 98+00	MAINLINE, RT.	42		83+19 - 84+23	MAINLINE, RT.	20	-	0.1	4	2
96+95 - 98+00	MAINLINE, RT.	120	240	96+95 - 98+00	MAINLINE, LT.	46		96+95 - 98+00	MAINLINE, LT.	47	-	0.1	6	3
128+65 - 129+70	MAINLINE, LT.	125	250	128+65 - 129+70	MAINLINE, RT.	68		96+95 - 98+00	MAINLINE, RT.	42	-	0.1	5	3
128+65 - 129+70	MAINLINE, RT.	125	250	190+62 - 191+68	MAINLINE, LT.	146		128+65 - 129+70	MAINLINE, LT.	46	-	0.1	5	3
190+62 - 191+68	MAINLINE, LT.	140	280	190+62 - 191+68	MAINLINE, RT.	96		128+65 - 129+70	MAINLINE, RT.	53	-	0.1	6	3
190+62 - 191+68	MAINLINE, RT.	140	280	214+60 - 215+73	MAINLINE, LT.	78		190+62 - 191+68	MAINLINE, LT.	135	-	0.1	10	5
214+60 - 215+73	MAINLINE, LT.	135	270	214+60 - 215+73	MAINLINE, RT.	87		190+62 - 191+68	MAINLINE, RT.	96	-	0.1	8	4
214+60 - 215+73	MAINLINE, RT.	130	260	241+62 - 242+67	MAINLINE, LT.	62		214+60 - 215+73	MAINLINE, LT.	78	-	0.1	7	4
241+62 - 242+67	MAINLINE, LT.	140	280	241+62 - 242+67	MAINLINE, RT.	73		214+60 - 215+73	MAINLINE, RT.	87	-	0.1	8	4
241+62 - 242+67	MAINLINE, RT.	130	260	263+09 - 264+07	MAINLINE, LT.	54		241+62 - 242+67	MAINLINE, LT.	62	-	0.1	6	3
263+09 - 264+07	MAINLINE, LT.	120	240	263+09 - 264+07	MAINLINE, RT.	28		241+62 - 242+67	MAINLINE, RT.	59	-	0.1	6	3
263+09 - 264+07	MAINLINE, RT.	115	230	263+09 - 264+07	MAINLINE, LT.	75		263+09 - 264+07	MAINLINE, LT.	54	-	0.1	6	3
273+97 - 275+00	MAINLINE, LT.	120	240	273+97 - 275+00	MAINLINE, RT.	25		263+09 - 264+07	MAINLINE, RT.	28	-	0.1	5	2
273+97 - 275+00	MAINLINE, RT.	120	240	290+63 - 292+23	MAINLINE, LT.	236		273+97 - 275+00	MAINLINE, LT.	64	-	0.1	6	3
277+03 - 277+45	MAINLINE, RT.	70	140	290+63 - 292+23	MAINLINE, RT.	111		273+97 - 275+00	MAINLINE, RT.	25	-	0.1	4	2
290+63 - 292+23	MAINLINE, LT.	200	400	300+13 - 301+16	MAINLINE, LT.	136		277+03 - 277+45	MAINLINE, RT.	22	22	0.1	1	0
290+63 - 292+23	MAINLINE, RT.	180	360	300+13 - 301+16	MAINLINE, RT.	61		290+63 - 292+23	MAINLINE, LT.	227	-	0.2	16	8
300+13 - 303+96	MAINLINE, LT.	435	870	320+58 - 321+63	MAINLINE, LT.	79		290+63 - 292+23	MAINLINE, RT.	111	-	0.1	10	5
300+13 - 304+55	MAINLINE, RT.	480	960	320+58 - 321+63	MAINLINE, RT.	64		300+13 - 301+16	MAINLINE, LT.	136	-	0.1	10	5
307+48 - 310+66	MAINLINE, LT.	310	620	340+35 - 341+33	MAINLINE, LT.	64		300+13 - 301+16	MAINLINE, RT.	61	-	0.1	7	3
308+05 - 311+40	MAINLINE, RT.	345	690	340+35 - 341+33	MAINLINE, RT.	85		320+58 - 321+63	MAINLINE, LT.	64	-	0.1	6	3
320+58 - 321+63	MAINLINE, LT.	135	270	346+07 - 374+11	MAINLINE, LT.	40		320+58 - 321+63	MAINLINE, RT.	64	-	0.1	6	3
320+58 - 321+63	MAINLINE, RT.	130	260	346+07 - 374+11	MAINLINE, RT.	71		340+35 - 341+34	MAINLINE, LT.	64	-	0.1	6	3
340+60 - 341+72	MAINLINE, LT.	155	310	364+54 - 365+68	MAINLINE, LT.	101		340+35 - 341+34	MAINLINE, RT.	69	-	0.1	6	3
340+32 - 341+36	MAINLINE, RT.	130	260	364+54 - 365+68	MAINLINE, RT.	64		341+34 - 341+72	MAINLINE, LT.	44	44	0.1	2	1
342+05 - 342+61	MAINLINE, LT.	105	210	433+62 - 436+59	MAINLINE, LT.	389		342+05 - 342+61	MAINLINE, LT.	46	46	0.1	2	1
346+07 - 374+11	MAINLINE, LT.	115	230	484+32 - 485+45	MAINLINE, LT.	153		346+07 - 374+11	MAINLINE, LT.	40	-	0.1	5	3
346+07 - 374+11	MAINLINE, RT.	120	240	484+32 - 485+45	MAINLINE, RT.	77		346+07 - 374+11	MAINLINE, RT.	56	-	0.1	6	3
364+54 - 365+68	MAINLINE, LT.	150	300	487+52 - 488+64	MAINLINE, LT.	198		364+54 - 365+68	MAINLINE, LT.	82	-	0.1	7	4
364+54 - 365+68	MAINLINE, RT.	150	300	487+52 - 488+64	MAINLINE, RT.	144		364+54 - 365+68	MAINLINE, RT.	64	-	0.1	6	3
427+75 - 436+59	MAINLINE, LT.	900	1,800	53+70	TEMPORARY DIVERSION DISTURBANCE	133		433+62 - 436+59	MAINLINE, LT.	389	-	0.2	18	9
434+39 - 436+53	MAINLINE, RT.	250	500	215+16	TEMPORARY DIVERSION DISTURBANCE	98		484+32 - 485+45	MAINLINE, LT.	153	-	0.1	11	5
442+22 - 443+59	MAINLINE, LT.	140	280	-	UNDISTRIBUTED	889		484+32 - 485+45	MAINLINE, RT.	58	-	0.1	6	3
442+22 - 445+39	MAINLINE, RT.	325	650					487+52 - 488+64	MAINLINE, LT.	198	-	0.2	13	6
443+87 - 444+81	MAINLINE, LT.	105	210					487+52 - 488+64	MAINLINE, RT.	123	-	0.1	9	5
484+32 - 485+45	MAINLINE, LT.	150	300					53+70	TEMPORARY DIVERSION DISTURBANCE	133	-	0.1	7	3
484+32 - 485+45	MAINLINE, RT.	130	260					215+16	TEMPORARY DIVERSION DISTURBANCE	98	-	0.1	4	2
487+52 - 488+64	MAINLINE, LT.	170	340					-	UNDISTRIBUTED	1,088	246	1.5	93	51
487+52 - 488+64	MAINLINE, RT.	150	300											
53+70	TEMPORARY DIVERSION DISTURBANCE	80	160											
215+16	TEMPORARY DIVERSION DISTURBANCE	50	100											
-	UNDISTRIBUTED	2,180	4,360											
TOTALS =		10,910	21,820	TOTALS =		4,460								

SAWING ITEMS

STATION - STATION	LOCATION	690.0150	690.0250
		SAWING ASPHALT (LF)	SAWING CONCRETE (LF)
34+75.55	MAINLINE	13	47
39+65.62	MAINLINE	39	-
53+15	MAINLINE	30	-
54+23	MAINLINE	30	-
75+10	MAINLINE	30	-
76+10	MAINLINE	30	-
83+21	MAINLINE	30	-
84+21	MAINLINE	30	-
96+97	MAINLINE	30	-
97+97	MAINLINE	30	-
128+67	MAINLINE	30	-
129+67	MAINLINE	30	-
190+65	MAINLINE	30	-
191+65	MAINLINE	30	-
214+62	MAINLINE	30	-
215+70	MAINLINE	30	-
241+64	MAINLINE	30	-
242+64	MAINLINE	30	-
263+11	MAINLINE	30	-
264+11	MAINLINE	30	-
273+98	MAINLINE	33	-
274+98	MAINLINE	40	-
277+02 - 277+34	MAINLINE, RT.	47	3
290+66	MAINLINE	30	-
292+22	MAINLINE	30	-
300+16	MAINLINE	30	-
301+16	MAINLINE	30	-
320+60	MAINLINE	30	-
321+60	MAINLINE	30	-
340+35	MAINLINE	36	-
341+35	MAINLINE	49	-
341+35 - 341+77	MAINLINE, LT.	83	-
341+97 - 342+51	MAINLINE, LT.	101	-
346+09	MAINLINE	30	-
347+09	MAINLINE	30	-
364+61	MAINLINE	30	-
365+61	MAINLINE	30	-
430+00 - 436+59	MAINLINE	707	-
442+11 - 442+69	MAINLINE	125	-
484+38	MAINLINE	30	-
485+38	MAINLINE	30	-
487+58	MAINLINE	30	-
488+58	MAINLINE	30	-
TOTALS=		2,233	50

PERMANENT SIGNING

SIGN NUMBER	STATION	LOCATION	SIGN CODE	SIGN DESCRIPTION	ORDER LINES	SIGN SIZE (IN)	634.0616	634.0812	637.2210	637.2230	638.2102	638.4000
							POSTS WOOD 4X6-INCH 16-FT (EACH)	POSTS TUBULAR STEEL 2X2-INCH X 12-FT (EACH)	SIGNS TYPE II REFLECTIVE H (SF)	SIGNS TYPE II REFLECTIVE F (SF)	SIGNS TYPE II (EACH)	SIGNS SUPPORTS (EACH)
-	35+44	MAINLINE, LT	M1-94	CROSSROAD NAME	OAK HILL RD	-	-	-	-	-	1	2
-	129+30	MAINLINE, LT	J1-1	ROUTE ASSEMBLY	JCT; COUNTY H	-	-	-	-	-	1	1
-	340+60	MAINLINE, RT	J12-1	ROUTE ASSEMBLY	COUNTY C	-	-	-	-	-	1	1
-	341+55	MAINLINE, LT	J12-2	ROUTE ASSEMBLY	COUNTY C; 34	-	-	-	-	-	1	1
-	341+60	MAINLINE, LT	R1-1	STOP SIGN	-	-	-	-	-	-	1	1
1	423+00	MAINLINE, RT	W1-2L	LEFT CURVE	-	36"X36"	1	-	-	9	-	-
2	424+50	MAINLINE, RT	W1-8	CHEVRON	-	18"X24"	1	-	-	3	-	-
3	426+10	MAINLINE, RT	W1-8	CHEVRON	-	18"X24"	1	-	-	3	-	-
4	426+10	MAINLINE, RT	W1-8	CHEVRON	-	18"X24"	1	-	-	3	-	-
5	427+70	MAINLINE, RT	W1-8	CHEVRON	-	18"X24"	1	-	-	3	-	-
6	427+70	MAINLINE, RT	W1-8	CHEVRON	-	18"X24"	1	-	-	3	-	-
-	429+03	MAINLINE, LT	R7-1D	NO PARKING ANYTIME	-	-	-	-	-	-	1	1
7	429+30	MAINLINE, RT	W1-8	CHEVRON	-	18"X24"	1	-	-	3	-	-
8	429+30	MAINLINE, RT	W1-8	CHEVRON	-	18"X24"	1	-	-	3	-	-
9	430+90	MAINLINE, RT	W1-8	CHEVRON	-	18"X24"	1	-	-	3	-	-
10	430+90	MAINLINE, RT	W1-8	CHEVRON	-	18"X24"	1	-	-	3	-	-
11	432+50	MAINLINE, RT	W1-8	CHEVRON	-	18"X24"	1	-	-	3	-	-
12	432+50	MAINLINE, RT	W1-8	CHEVRON	-	18"X24"	1	-	-	3	-	-
13	434+40	MAINLINE, RT	W1-8	CHEVRON	-	18"X24"	1	-	-	3	-	-
14	434+40	MAINLINE, RT	W1-8	CHEVRON	-	18"X24"	1	-	-	3	-	-
-	434+41	MAINLINE, RT	R7-1D	NO PARKING ANYTIME	-	-	-	-	-	-	1	1
-	435+13	MAINLINE, RT	R7-1D	NO PARKING ANYTIME	-	-	-	-	-	-	1	1
15	435+80	MAINLINE, RT	W1-8	CHEVRON	-	18"X24"	1	-	-	3	-	-
-	436+44	MAINLINE, RT	I3-1	RIVER NAME	WISCONSIN RIVER	-	-	-	-	-	1	2
16	442+22	MAINLINE, LT	W1-2R	RIGHT CURVE	-	36"X36"	1	-	-	9	-	-
17	-	PARK & RIDE	R7-8A	HANDICAPPED PARKING	-	12"X18"	-	1	1.5	-	-	-
18	-	PARK & RIDE	R7-8A	HANDICAPPED PARKING	-	12"X18"	-	-	1.5	-	-	-
TOTALS =							16	1	3.00	60.00	9	11

TRAFFIC CONTROL

STAGE	CALENDAR DAY	643.0300 DRUMS (DAY)	643.0420 BARRICADES TYPE III (DAY)	643.0705 WARNING LIGHTS TYPE A (DAY)	643.0900 SIGNS (DAY)	643.0910 COVERING TYPE I (EACH)	643.0920 COVERING TYPE II (EACH)	643.1000 FIXED MESSAGE (SF)
NON-DETOUR WORK	80	1,000	-	-	2,400	-	-	36
DETOUR WORK	60	1,800	5,040	9,120	14,280	8	5	-
PARK & RIDE WORK	5	100	25	30	30	2	2	100
TOTALS =		2,900	5,065	9,150	16,710	10	7	136

PUBLIC LAND SURVEY MONUMENT
VERIFY AND RESET

STATION	LOCATION	680.0100 (EACH)
40+50	MAINLINE	1
66+83	MAINLINE	1
119+54	MAINLINE	1
171+78	MAINLINE	1
224+54	MAINLINE	1
277+10	MAINLINE	1
447+28	MAINLINE	1
TOTAL =		7

CONSTRUCTION STAKING

STATION - STATION	LOCATION	650.4500	650.5000	650.8000	650.9911	650.9920
		SUBGRADE (LF)	BASE (LF)	RESURFACING REFERENCE (LF)	SUPPLEMENTAL CONTROL (01. 6610-00-71) (EACH)	SLOPE STAKES (LF)
34+75.55 - 39+65.62	MAINLINE	490	490	-	-	490
39+65.62 - 304+00.08	MAINLINE	-	-	26,435	-	-
308+01.50 - 436+57.69	MAINLINE	-	-	12,856	-	-
442+11.03 - 521+96.54	MAINLINE	-	-	7,986	-	-
-	PROJECT	-	-	-	1	-
TOTALS =		490	490	47,277	1	490

TEMPORARY WATER DIVERSION

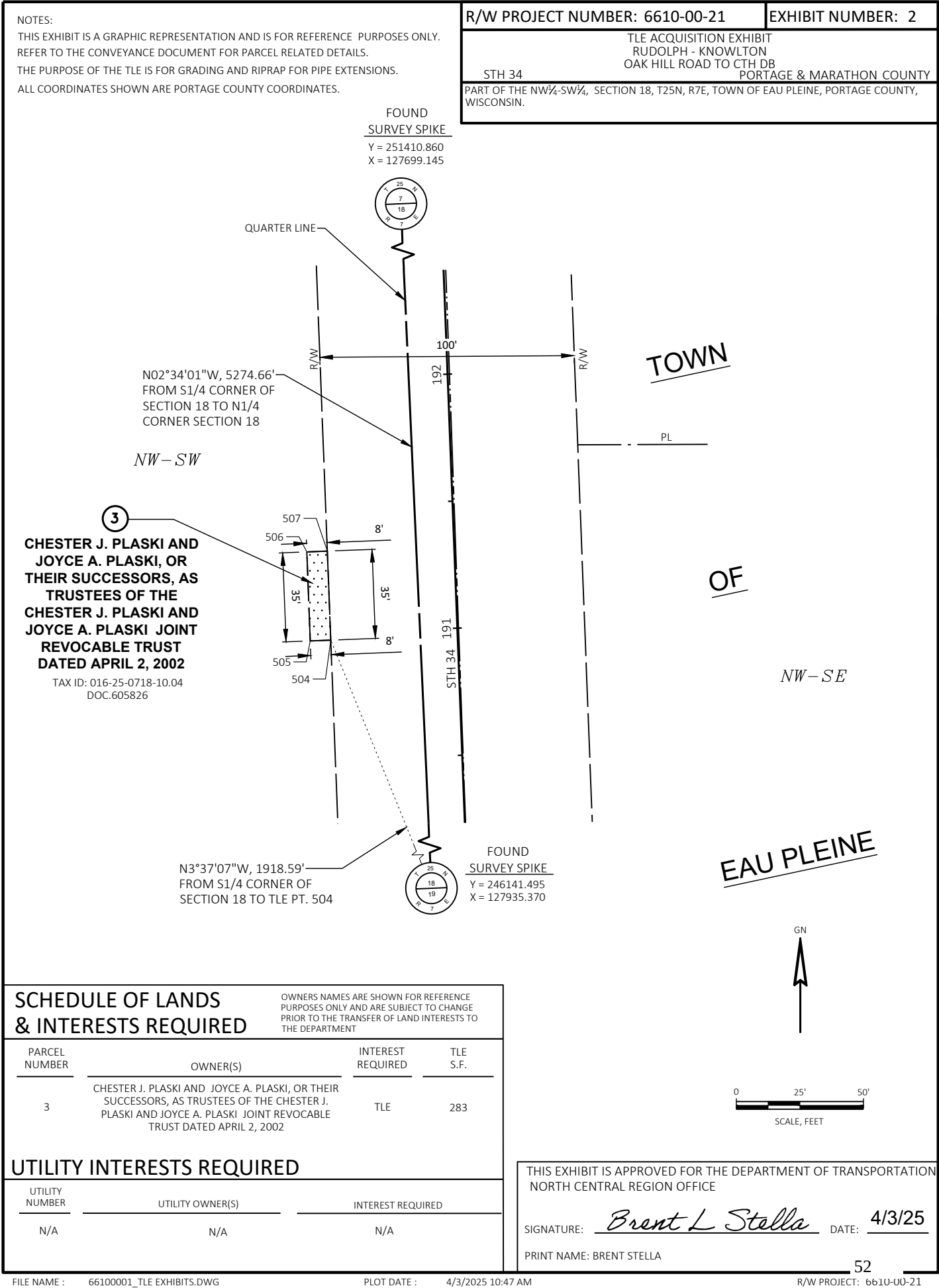
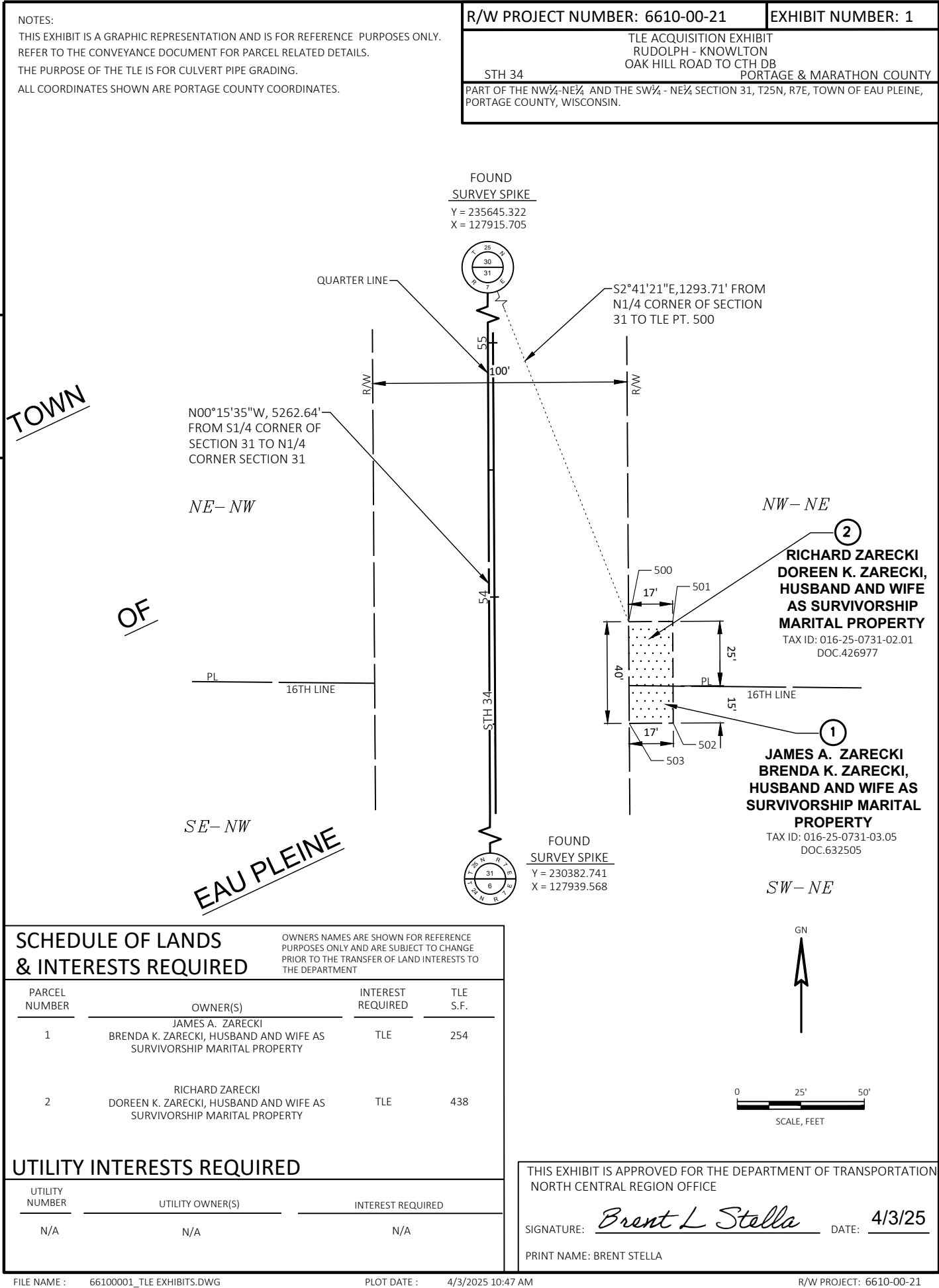
STATION	LOCATION	SPV.0060 01. STA. 53+70 (EACH)	SPV.0060 02. STA. 125+43 (EACH)	SPV.0060 03. STA. 215+16 (EACH)	SPV.0060 04. STA. 300+66 (EACH)
		(EACH)	(EACH)	(EACH)	(EACH)
53+70	MAINLINE	1	-	-	-
125+43	MAINLINE	-	1	-	-
215+16	MAINLINE	-	-	1	-
300+66	MAINLINE	-	-	-	1
TOTALS=		1	1	1	1

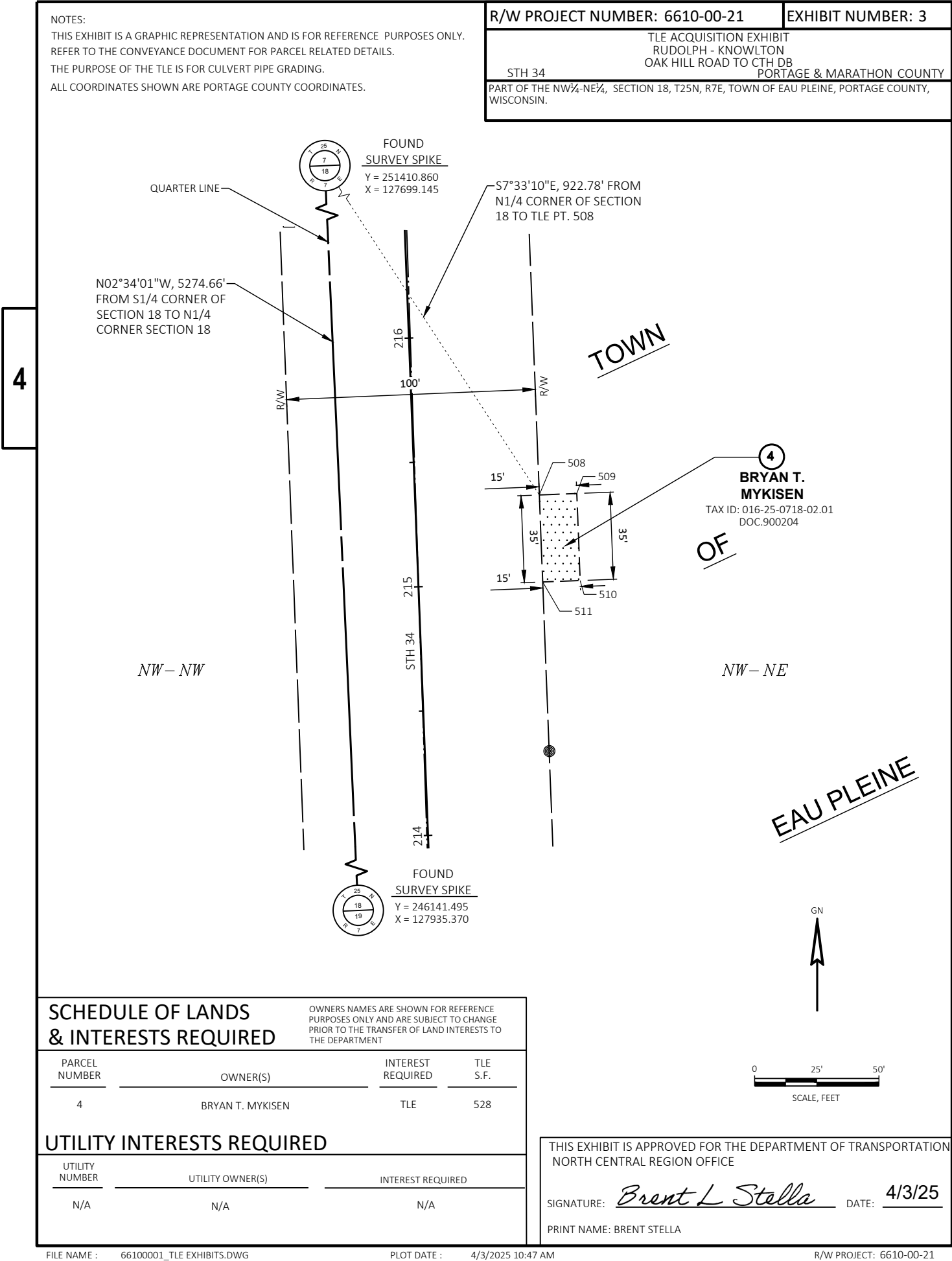
PAVEMENT MARKING

			643.3165																
			TEMPORARY MARKING LINE PAINT 6-INCH			646.2020		646.2040		646.4040		646.5220		646.6120		646.7120		646.8320	
			MILLED	ASPHALT	UPPER	MARKING LINE		MARKING LINE		MARKING LINE		MARKING SYMBOL		MARKING STOP LINE		MARKING DIAGONAL		MARKING	
STATION - STATION	LOCATION	DESCRIPTION	SURFACE (LF)	LAYER (LF)	LAYER (LF)	EPOXY 6-INCH (LF)	EPOXY 6-INCH (LF)	EPOXY 10-INCH (LF)	EPOXY 10-INCH (LF)	EPOXY 10-INCH (LF)	EPOXY (EACH)	EPOXY 18-INCH (LF)	EPOXY 18-INCH (LF)	EPOXY 12-INCH (LF)	EPOXY 12-INCH (LF)	EPOXY (LF)	EPOXY (LF)	EPOXY (LF)	EPOXY (LF)
34+75.55 - 39+66	MAINLINE, LT	YELLOW	-	-	-	-	1,960	-	-	-	-	-	-	245	-	-	-	-	-
34+75.55 - 40+24	MAINLINE, LT	WHITE EDGELINE	-	-	-	-	548	-	-	-	-	-	-	-	-	-	-	-	-
34+75.55 - 66+40	MAINLINE, RT	WHITE EDGELINE	-	-	-	-	3,165	-	-	-	-	-	-	-	-	-	-	-	-
39+66 - 55+93	MAINLINE	DOUBLE YELLOW	3,255	3,255	3,255	-	3,255	-	-	-	-	-	-	-	-	-	-	-	-
40+78 - 118+90	MAINLINE, LT	WHITE EDGELINE	-	-	-	-	7,815	-	-	-	-	-	-	-	-	-	-	-	-
55+93 - 241+25	MAINLINE	TWO WAY YELLOW PASSING	4,633	4,633	4,633	-	4,633	-	-	-	-	-	-	-	-	-	-	-	-
67+14 - 118+70	MAINLINE, RT	WHITE EDGELINE	-	-	-	-	5,159	-	-	-	-	-	-	-	-	-	-	-	-
119+30 - 119+47	CTH H (WEST)	STOP BAR	-	-	-	-	-	-	-	-	-	18	-	-	-	-	-	-	-
119+45 - 119+62	CTH H (EAST)	STOP BAR	-	-	-	-	-	-	-	-	-	18	-	-	-	-	-	-	-
120+21 - 171+53	MAINLINE, LT	WHITE EDGELINE	-	-	-	-	5,133	-	-	-	-	-	-	-	-	-	-	-	-
121+47 - 145+38	MAINLINE, RT	WHITE EDGELINE	-	-	-	-	2,392	-	-	-	-	-	-	-	-	-	-	-	-
145+87 - 250+54	MAINLINE, RT	WHITE EDGELINE	-	-	-	-	10,468	-	-	-	-	-	-	-	-	-	-	-	-
172+25 - 224+25	MAINLINE, LT	WHITE EDGELINE	-	-	-	-	5,201	-	-	-	-	-	-	-	-	-	-	-	-
224+99 - 250+46	MAINLINE, LT	WHITE EDGELINE	-	-	-	-	2,549	-	-	-	-	-	-	-	-	-	-	-	-
241+25 - 251+08	MAINLINE	NB SOLID YELLOW / SB YELLOW PASSING	1,229	1,229	1,229	-	1,229	-	-	-	-	-	-	-	-	-	-	-	-
251+08 - 252+16	MAINLINE	TWO WAY YELLOW PASSING	27	27	27	-	27	-	-	-	-	-	-	-	-	-	-	-	-
251+14 - 276+32	MAINLINE, LT	WHITE EDGELINE	-	-	-	-	2,519	-	-	-	-	-	-	-	-	-	-	-	-
251+15 - 275+96	MAINLINE, RT	WHITE EDGELINE	-	-	-	-	2,481	-	-	-	-	-	-	-	-	-	-	-	-
252+16 - 261+72	MAINLINE	NB YELLOW PASSING / SB SOLID YELLOW	1,195	1,195	1,195	-	1,195	-	-	-	-	-	-	-	-	-	-	-	-
261+72 - 262+35	MAINLINE	DOUBLE YELLOW	126	126	126	-	126	-	-	-	-	-	-	-	-	-	-	-	-
262+35 - 272+77	MAINLINE	NB SOLID YELLOW / SB YELLOW PASSING	1,303	1,303	1,303	-	1,303	-	-	-	-	-	-	-	-	-	-	-	-
272+77 - 288+88	MAINLINE	DOUBLE YELLOW	3,222	3,222	3,222	-	3,222	-	-	-	-	-	-	-	-	-	-	-	-
273+46 - 277+71	MAINLINE, RT	WHITE DASHED	-	-	-	-	106	-	-	-	-	-	-	-	-	-	-	-	-
276+79 - 276+93	CTH E	STOP BAR	-	-	-	-	-	-	-	-	-	15	-	-	-	-	-	-	-
277+18 - 278+21	MAINLINE, LT	WHITE CHANNELIZING LINE	-	-	-	-	-	103	-	-	-	-	-	-	-	-	-	-	-
277+21 - 304+00	MAINLINE, LT	WHITE EDGELINE	-	-	-	-	2,683	-	-	-	-	-	-	-	-	-	-	-	-
277+32 - 304+00	MAINLINE, RT	WHITE EDGELINE	-	-	-	-	2,665	-	-	-	-	-	-	-	-	-	-	-	-
288+88 - 299+45	MAINLINE	NB YELLOW PASSING / SB SOLID YELLOW	1,322	1,322	1,322	-	1,322	-	-	-	-	-	-	-	-	-	-	-	-
299+45 - 304+00	MAINLINE	TWO WAY YELLOW PASSING	114	114	114	-	114	-	-	-	-	-	-	-	-	-	-	-	-
304+00 - 308+02	MAINLINE	TWO WAY YELLOW PASSING	-	-	-	101	-	-	-	-	-	-	-	-	-	-	-	-	-
304+00 - 308+02	MAINLINE, LT & RT	WHITE EDGELINE	-	-	-	803	-	-	-	-	-	-	-	-	-	-	-	-	-
308+02 - 322+26	MAINLINE	TWO WAY YELLOW PASSING	356	356	356	-	356	-	-	-	-	-	-	-	-	-	-	-	-
308+02 - 341+34	MAINLINE, LT	WHITE EDGELINE	-	-	-	-	3,333	-	-	-	-	-	-	-	-	-	-	-	-
308+02 - 341+03	MAINLINE, RT	WHITE EDGELINE	-	-	-	-	3,302	-	-	-	-	-	-	-	-	-	-	-	-
322+26 - 332+45	MAINLINE	NB SOLID YELLOW / SB YELLOW PASSING	1,274	1,274	1,274	-	1,274	-	-	-	-	-	-	-	-	-	-	-	-
COLUMN SUBTOTALS =			18,056	18,056	18,056	904	79,535	103	0	51	245	0							

PAVEMENT MARKING (CONTINUED)

			643.3165 TEMPORARY MARKING LINE PAINT 6-INCH			646.2020 MARKING LINE EPOXY 6-INCH (LF)	646.2040 MARKING LINE GROOVED WET REF EPOXY 6-INCH (LF)	646.4040 MARKING LINE GROOVED WET REF EPOXY 10-INCH (LF)	646.5220 MARKING SYMBOL EPOXY (EACH)	646.6120 MARKING STOP LINE EPOXY 18-INCH (LF)	646.7120 MARKING DIAGONAL EPOXY 12-INCH (LF)	646.8320 MARKING PARKING STALL EPOXY (LF)
STATION - STATION	LOCATION	DESCRIPTION	MILLED SURFACE (LF)	LOWER ASPHALT LAYER (LF)	UPPER ASPHALT LAYER (LF)							
332+45 - 333+40	MAINLINE	TWO WAY YELLOW PASSING	24	24	24	-	24	-	-	-	-	-
333+40 - 343+41	MAINLINE	NB YELLOW PASSING / SB SOLID YELLOW	1,251	1,251	1,251	-	1,251	-	-	-	-	-
342+33 - 395+65	MAINLINE, RT	WHITE EDGELINE	-	-	-	-	5,332	-	-	-	-	-
342+70 - 353+25	MAINLINE, LT	WHITE EDGELINE	-	-	-	-	1,056	-	-	-	-	-
343+41 - 348+25	MAINLINE	TWO WAY YELLOW PASSING	121	121	121	-	121	-	-	-	-	-
348+25 - 358+87	MAINLINE	NB SOLID YELLOW / SB YELLOW PASSING	1,328	1,328	1,328	-	1,328	-	-	-	-	-
354+16 - 371+86	MAINLINE, LT	WHITE EDGELINE	-	-	-	-	1,773	-	-	-	-	-
358+87 - 359+57	MAINLINE	TWO WAY YELLOW PASSING	18	18	18	-	18	-	-	-	-	-
359+57 - 370+00	MAINLINE	NB YELLOW PASSING / SB SOLID YELLOW	1,304	1,304	1,304	-	1,304	-	-	-	-	-
370+00 - 418+22	MAINLINE	TWO WAY YELLOW PASSING	1,206	1,206	1,206	-	1,206	-	-	-	-	-
372+68 - 403+60	MAINLINE, LT	WHITE EDGELINE	-	-	-	-	3,092	-	-	-	-	-
396+95 - 433+33	MAINLINE, RT	WHITE EDGELINE	-	-	-	-	3,647	-	-	-	-	-
404+59 - 414+15	MAINLINE, LT	WHITE EDGELINE	-	-	-	-	957	-	-	-	-	-
414+91 - 436+59	MAINLINE, LT	WHITE EDGELINE	-	-	-	-	2,160	-	-	-	-	-
418+22 - 429+34	MAINLINE	NB SOLID YELLOW / SB YELLOW PASSING	1,390	1,390	1,390	-	1,390	-	-	-	-	-
429+34 - 436+59	MAINLINE	DOUBLE YELLOW	1,450	1,450	1,450	-	1,450	-	-	-	-	-
433+33 - 434+76	MAINLINE, RT	WHITE DASHED	-	-	-	-	36	-	-	-	-	-
433+93 - 434+16	DUBAY DRIVE	STOP BAR	-	-	-	-	-	-	25	-	-	-
434+76 - 436+59	MAINLINE, RT	WHITE EDGELINE	-	-	-	-	184	-	-	-	-	-
436+58 - 442+11	MAINLINE, LT & RT	WHITE EDGELINE	-	-	-	1,102	-	-	-	-	-	-
436+58 - 442+11	MAINLINE	DOUBLE YELLOW	-	-	-	1,104	-	-	-	-	-	-
442+11 - 460+87	MAINLINE, LT	WHITE EDGELINE	-	-	-	-	1,880	-	-	-	-	-
442+11 - 460+41	MAINLINE, RT	WHITE EDGELINE	-	-	-	-	1,827	-	-	-	-	-
442+11 - 446+06	MAINLINE	DOUBLE YELLOW	790	790	790	-	790	-	-	-	-	-
446+06 - 457+17	MAINLINE	NB YELLOW PASSING / SB SOLID YELLOW	1,389	1,389	1,389	-	1,389	-	-	-	-	-
457+17 - 469+42	MAINLINE	TWO WAY YELLOW PASSING	306	306	306	-	306	-	-	-	-	-
461+55 - 521+96.54	MAINLINE, RT	WHITE EDGELINE	-	-	-	-	6,027	-	-	-	-	-
461+65 - 490+55	MAINLINE, LT	WHITE EDGELINE	-	-	-	-	2,903	-	-	-	-	-
469+42 - 480+52	MAINLINE	NB SOLID YELLOW / SB YELLOW PASSING	1,388	1,388	1,388	-	1,388	-	-	-	-	-
480+52 - 506+45	MAINLINE	DOUBLE YELLOW	5,186	5,186	5,186	-	5,186	-	-	-	-	-
490+55 - 492+70	MAINLINE, LT	WHITE DASHED	-	-	-	-	54	-	-	-	-	-
491+83 - 491+99	DEPOT ROAD	STOP BAR	-	-	-	-	-	-	17	-	-	-
492+70 - 507+10	MAINLINE, LT	WHITE EDGELINE	-	-	-	-	1,445	-	-	-	-	-
506+45 - 521+13	MAINLINE	NB SOLID YELLOW / SB YELLOW PASSING	1,835	1,835	1,835	-	1,835	-	-	-	-	-
506+25 - 508+75	MAINLINE, RT	WHITE DASHED	-	-	-	-	63	-	-	-	-	-
508+34 - 509+39	MAINLINE	WHITE CHANNELIZING LINE	-	-	-	-	-	105	-	-	-	-
508+48 - 521+96.54	MAINLINE, LT	WHITE EDGELINE	-	-	-	-	1,346	-	-	-	-	-
521+13 - 521+96.54	MAINLINE	DOUBLE YELLOW	167	167	167	-	167	-	-	-	-	-
-	PARK & RIDE LOT	-	-	-	-	-	-	-	2	-	-	1,072
COLUMN SUBTOTALS =			19,153	19,153	19,153	2,206	52,935	105	2	42	0	1,072
PROJECT TOTALS=			111,627			3,110	132,470	208	2	93	245	1,072





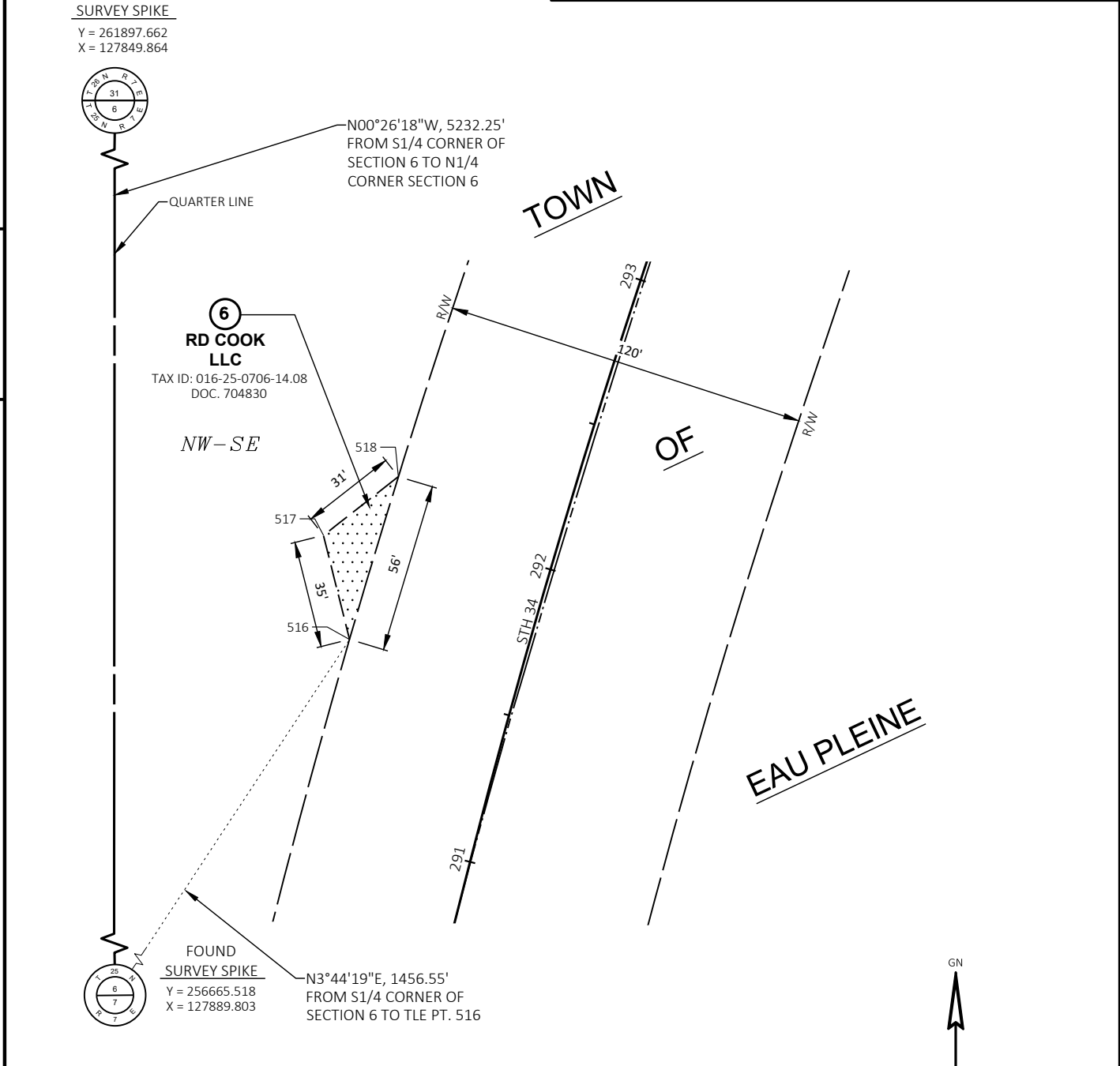
NOTES:
THIS EXHIBIT IS A GRAPHIC REPRESENTATION AND IS FOR REFERENCE PURPOSES ONLY.
REFER TO THE CONVEYANCE DOCUMENT FOR PARCEL RELATED DETAILS.
THE PURPOSE OF THE TLE IS FOR CULVERT PIPE GRADING.
ALL COORDINATES SHOWN ARE PORTAGE COUNTY COORDINATES.

R/W PROJECT NUMBER: 6610-00-21

EXHIBIT NUMBER: 5

TLE ACQUISITION EXHIBIT
RUDOLPH - KNOWLTON
OAK HILL ROAD TO CTH DB
PORTAGE & MARATHON COUNTY

STH 34
PART OF THE NW¼-SE¼, SECTION 6, T25N, R7E, TOWN OF EAU PLEINE, PORTAGE COUNTY, WISCONSIN.



SCHEDULE OF LANDS & INTERESTS REQUIRED			
OWNERS NAMES ARE SHOWN FOR REFERENCE PURPOSES ONLY AND ARE SUBJECT TO CHANGE PRIOR TO THE TRANSFER OF LAND INTERESTS TO THE DEPARTMENT			
PARCEL NUMBER	OWNER(S)	INTEREST REQUIRED	TLE S.F.
6	RD COOK LLC	TLE	507
UTILITY INTERESTS REQUIRED			
UTILITY NUMBER	UTILITY OWNER(S)	INTEREST REQUIRED	
N/A	N/A	N/A	

THIS EXHIBIT IS APPROVED FOR THE DEPARTMENT OF TRANSPORTATION
NORTH CENTRAL REGION OFFICE

SIGNATURE: Brent L Stella DATE: 4/3/25

PRINT NAME: BRENT STELLA

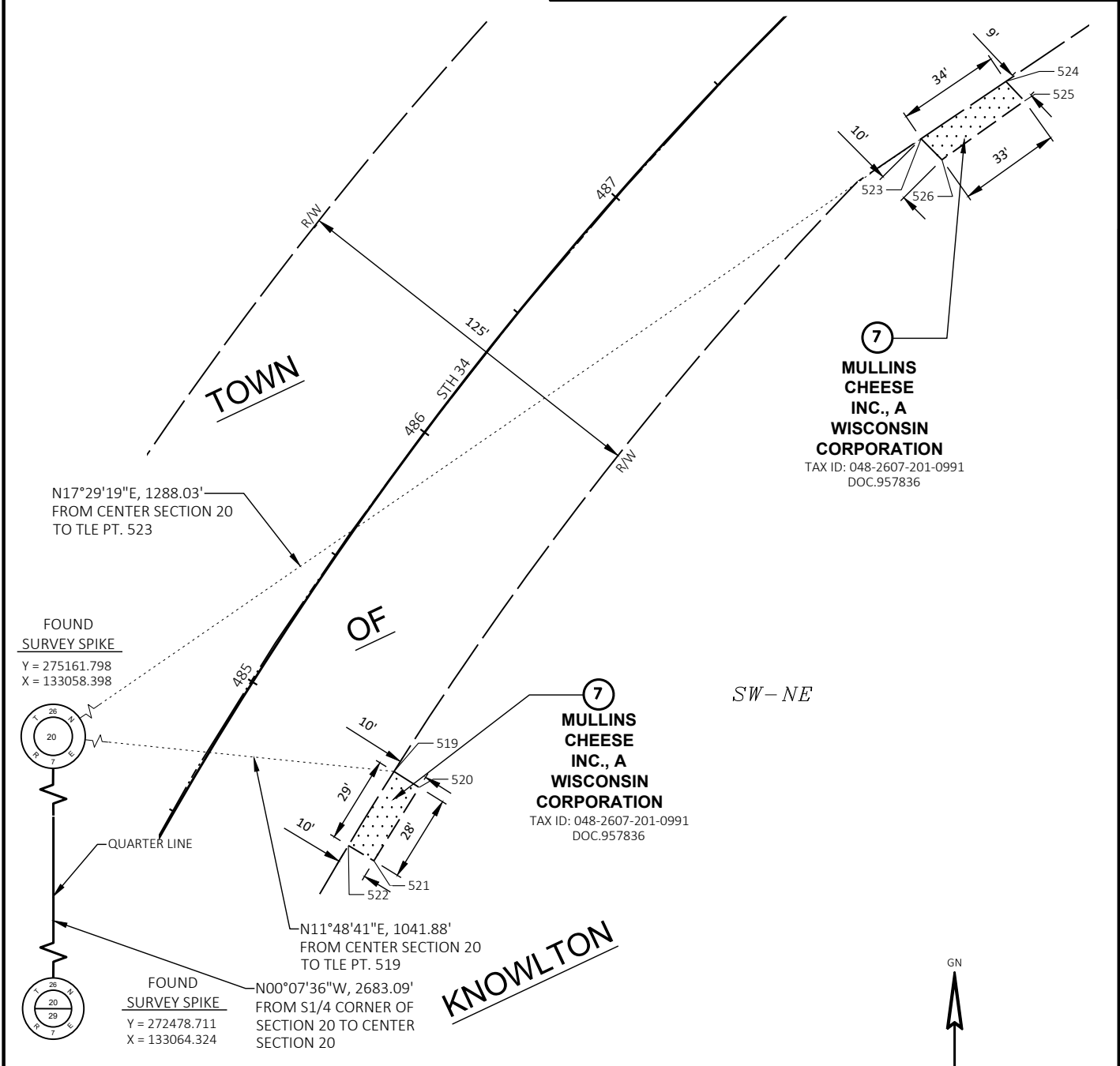
NOTES:
THIS EXHIBIT IS A GRAPHIC REPRESENTATION AND IS FOR REFERENCE PURPOSES ONLY.
REFER TO THE CONVEYANCE DOCUMENT FOR PARCEL RELATED DETAILS.
THE PURPOSE OF THE TLE IS FOR GRADING AND RIPRAP FOR PIPE EXTENSIONS.
ALL COORDINATES SHOWN ARE PORTAGE COUNTY COORDINATES.

R/W PROJECT NUMBER: 6610-00-21

EXHIBIT NUMBER: 6

TLE ACQUISITION EXHIBIT
RUDOLPH - KNOWLTON
OAK HILL ROAD TO CTH DB
PORTAGE & MARATHON COUNTY

STH 34
PART OF THE SW¼-NE¼, SECTION 20, T26N, R7E, TOWN OF KNOWLTON, MARATHON COUNTY, WISCONSIN.

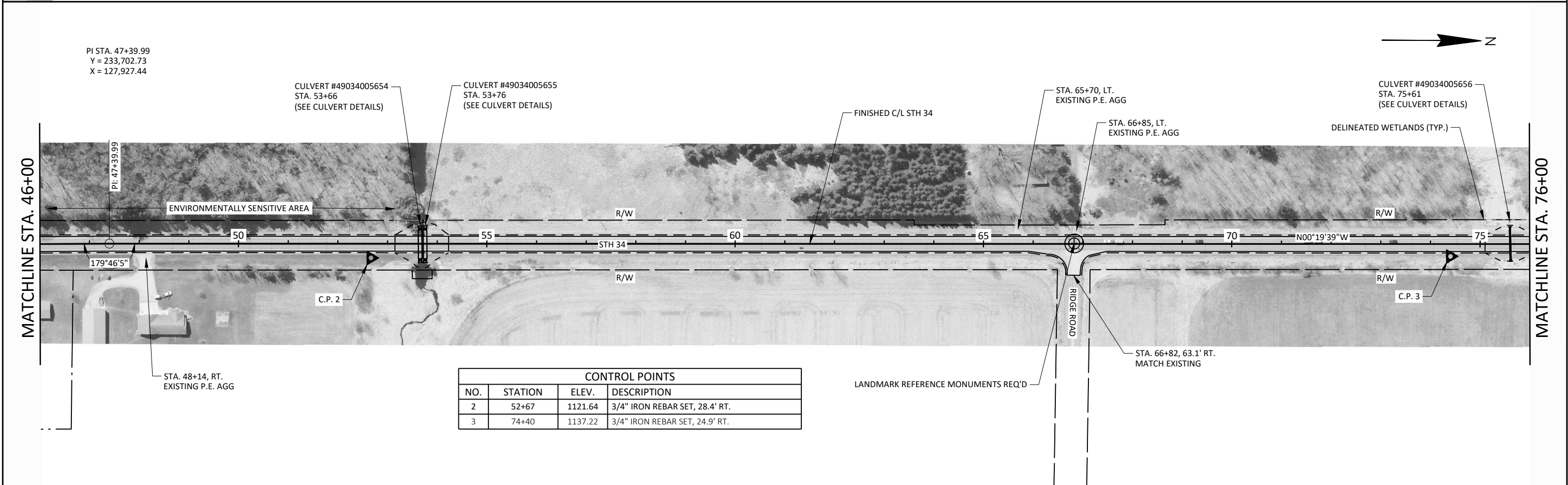
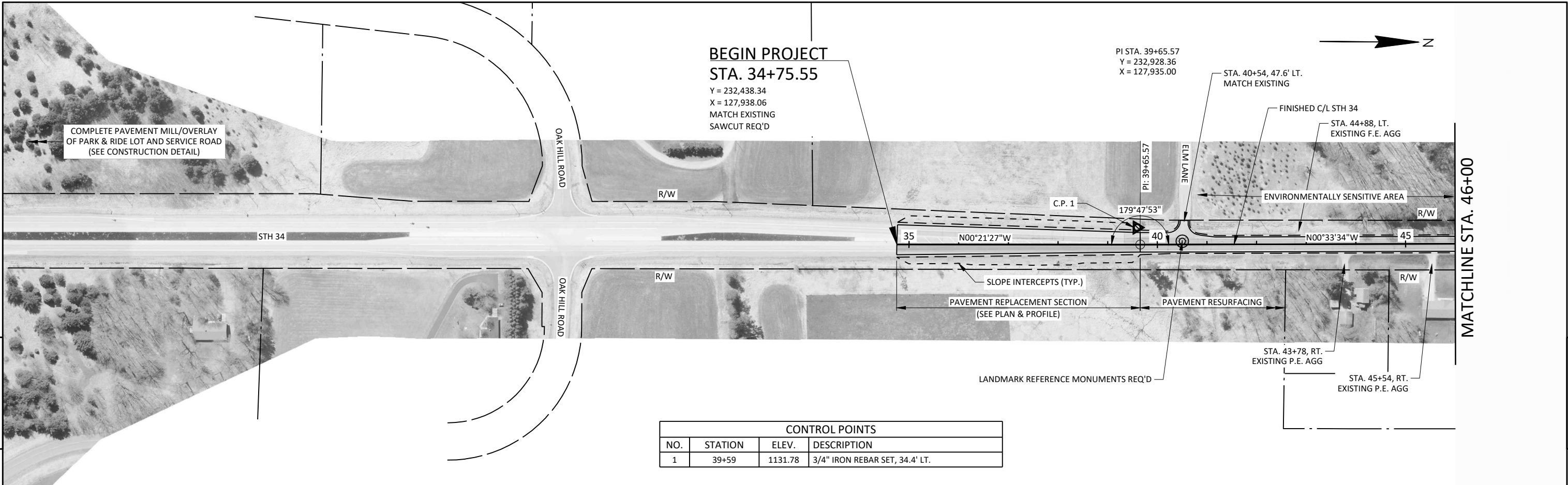


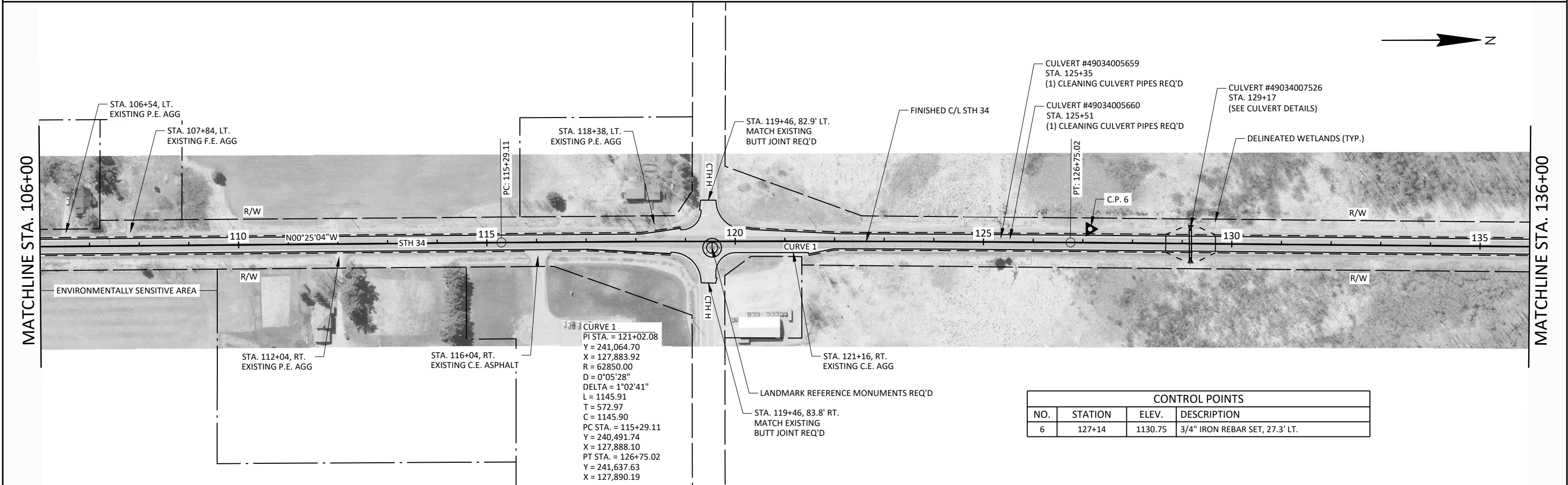
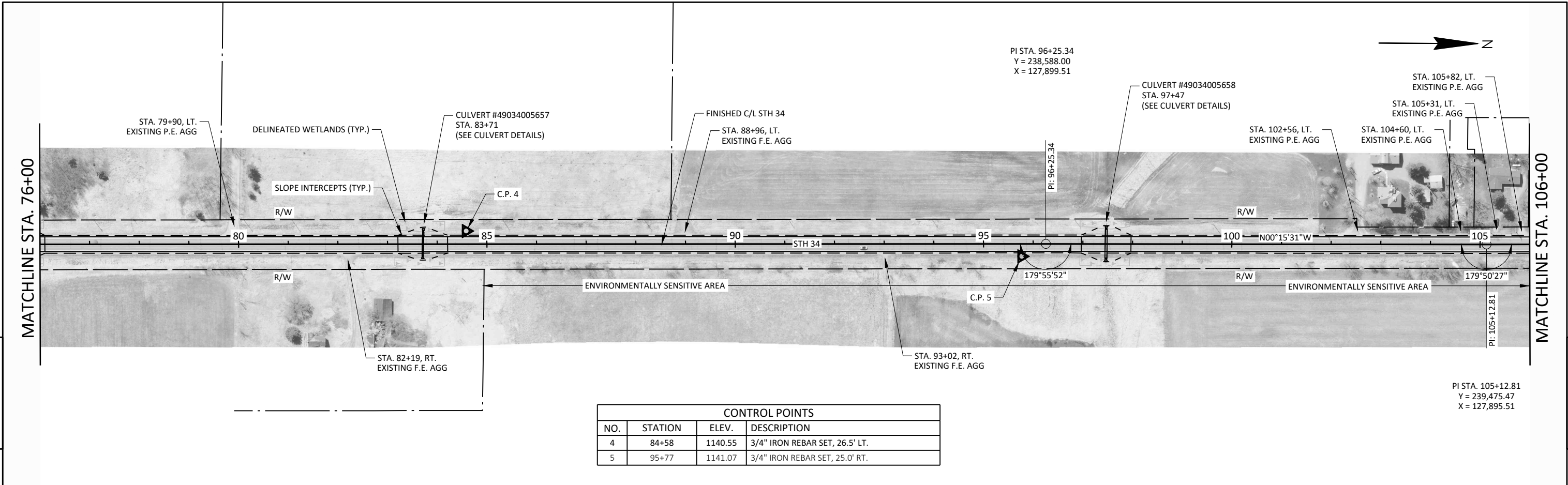
SCHEDULE OF LANDS & INTERESTS REQUIRED			
OWNERS NAMES ARE SHOWN FOR REFERENCE PURPOSES ONLY AND ARE SUBJECT TO CHANGE PRIOR TO THE TRANSFER OF LAND INTERESTS TO THE DEPARTMENT			
PARCEL NUMBER	OWNER(S)	INTEREST REQUIRED	TLE S.F.
7	MULLINS CHEESE INC., A WISCONSIN CORPORATION	TLE	590
UTILITY INTERESTS REQUIRED			
UTILITY NUMBER	UTILITY OWNER(S)	INTEREST REQUIRED	
N/A	N/A	N/A	

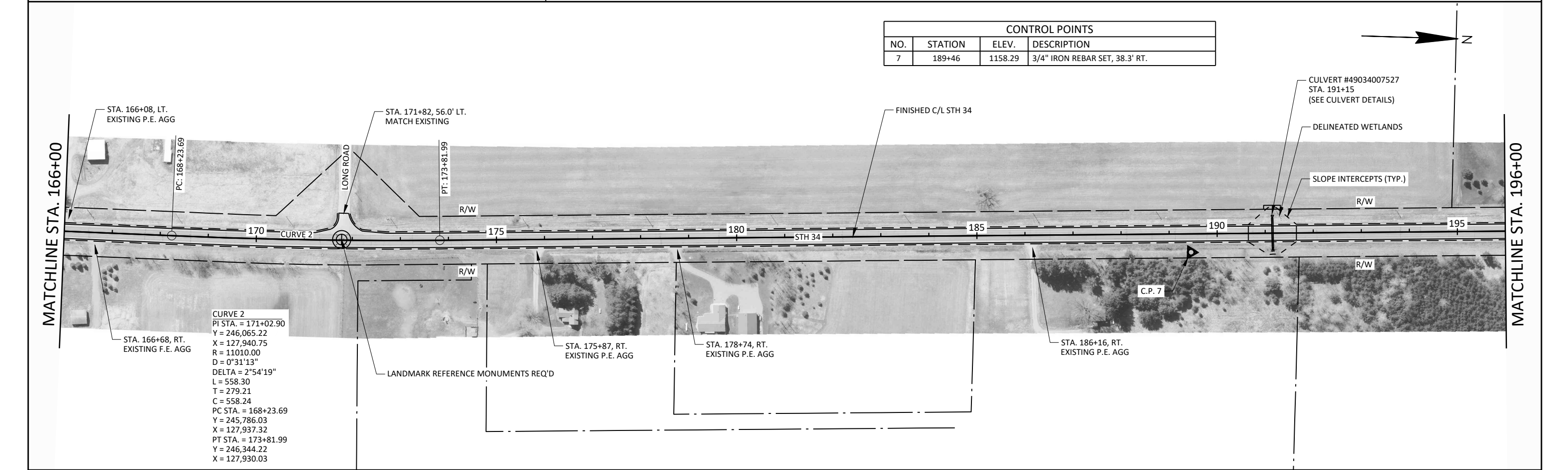
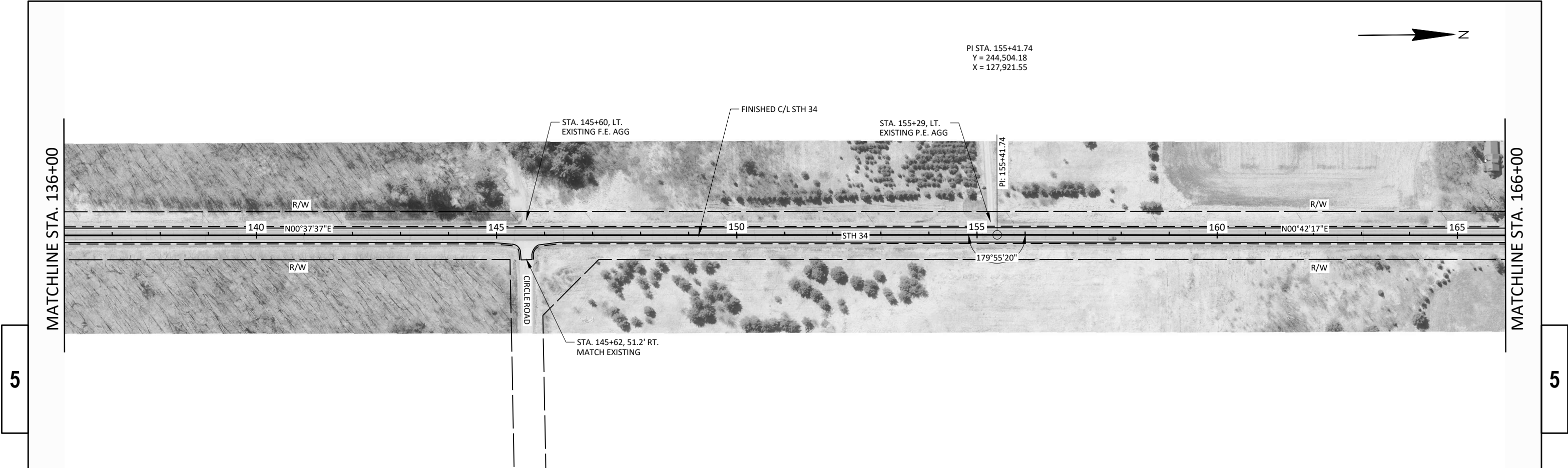
THIS EXHIBIT IS APPROVED FOR THE DEPARTMENT OF TRANSPORTATION
NORTH CENTRAL REGION OFFICE

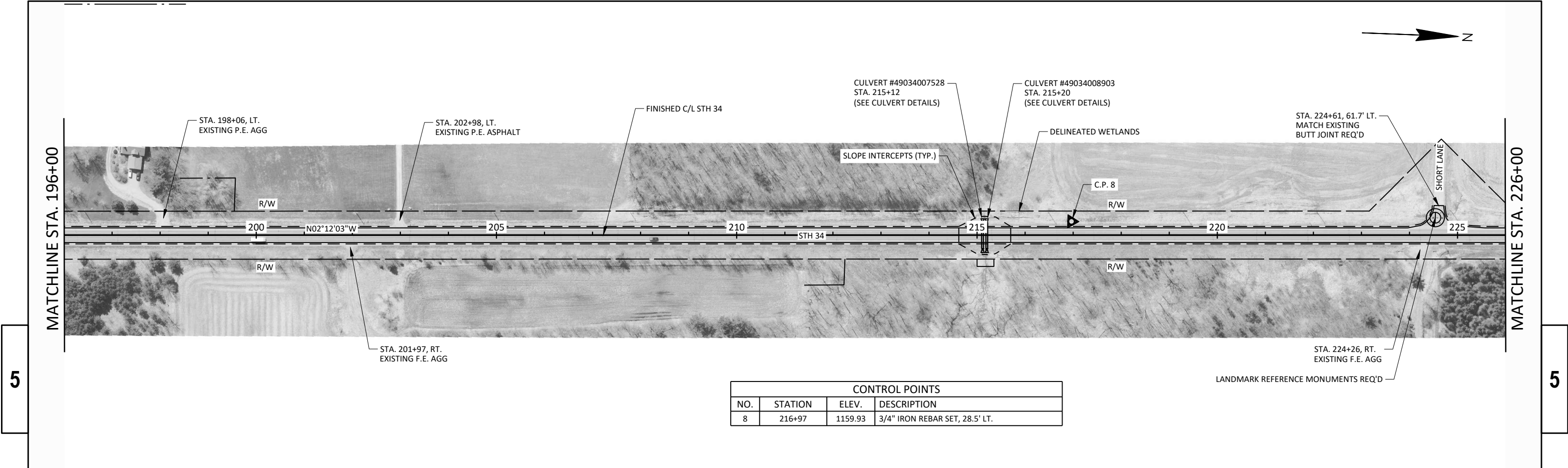
SIGNATURE: Brent L Stella DATE: 4/3/25

PRINT NAME: BRENT STELLA

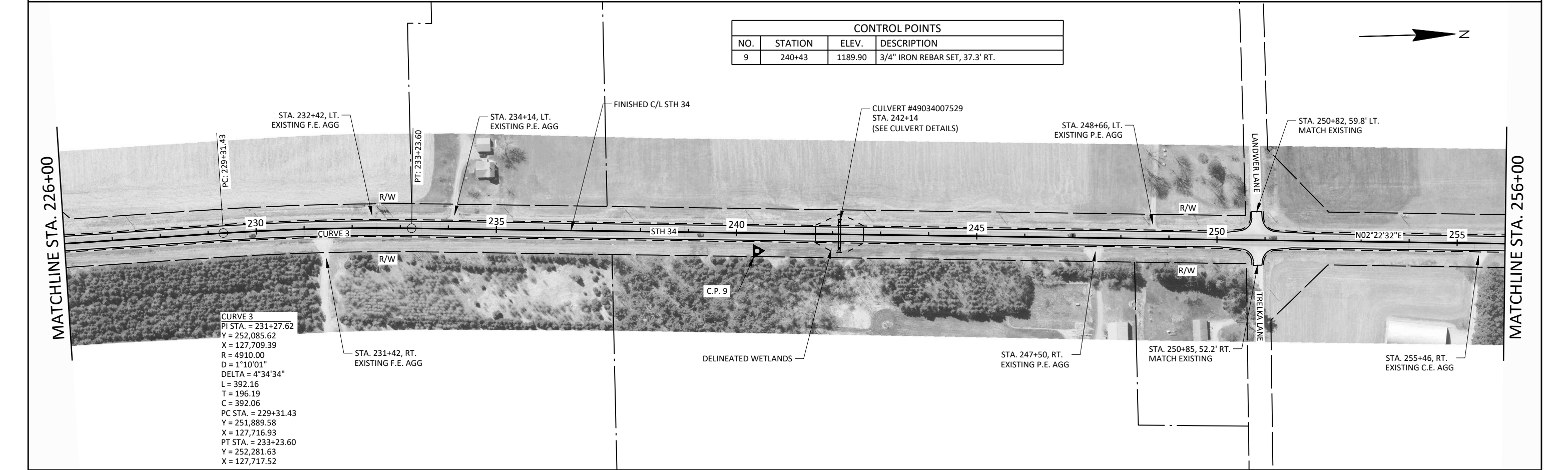








CONTROL POINTS			
NO.	STATION	ELEV.	DESCRIPTION
8	216+97	1159.93	3/4" IRON REBAR SET, 28.5' LT.



CONTROL POINTS			
NO.	STATION	ELEV.	DESCRIPTION
9	240+43	1189.90	3/4" IRON REBAR SET, 37.3' RT.

PROJECT NO: 6610-00-71

HWY: STH 34

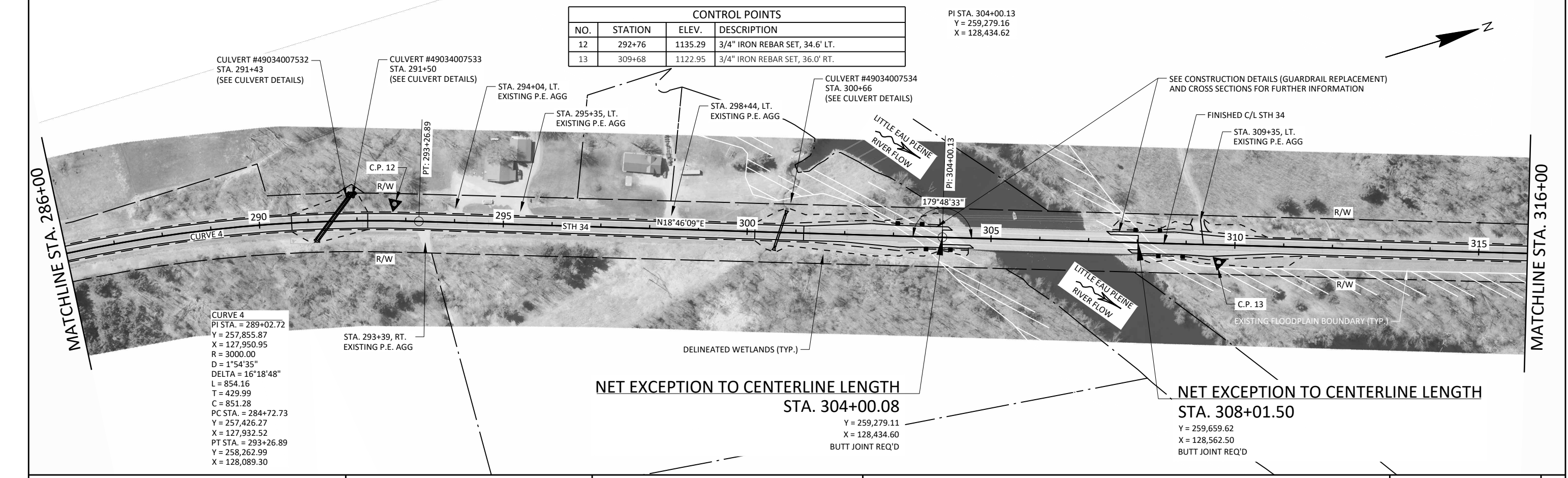
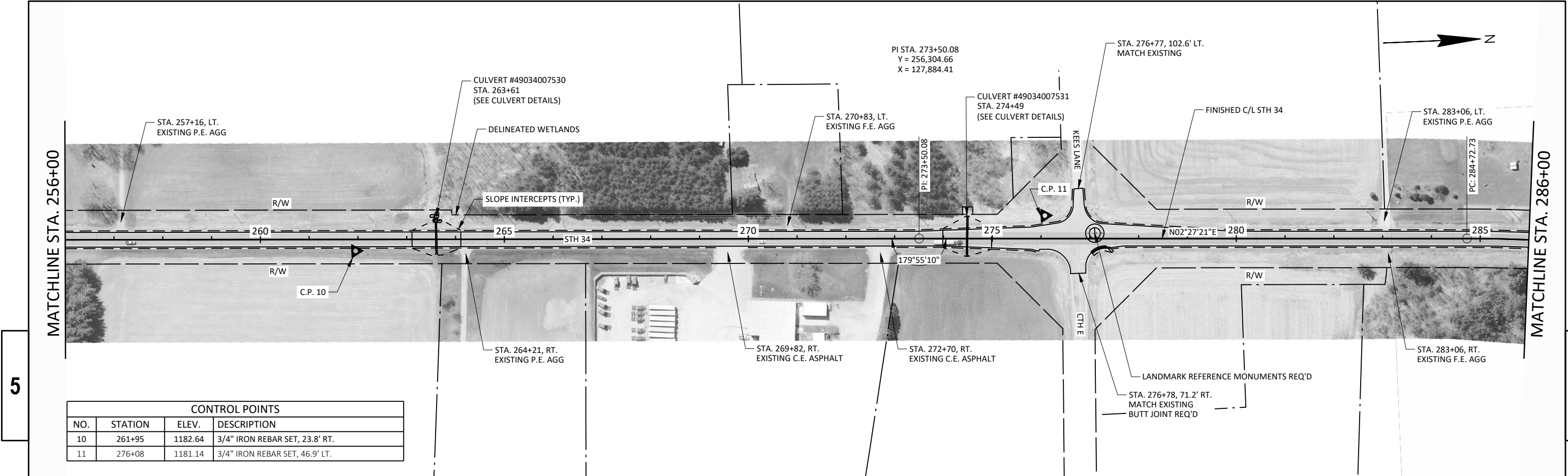
COUNTY: MARATHON

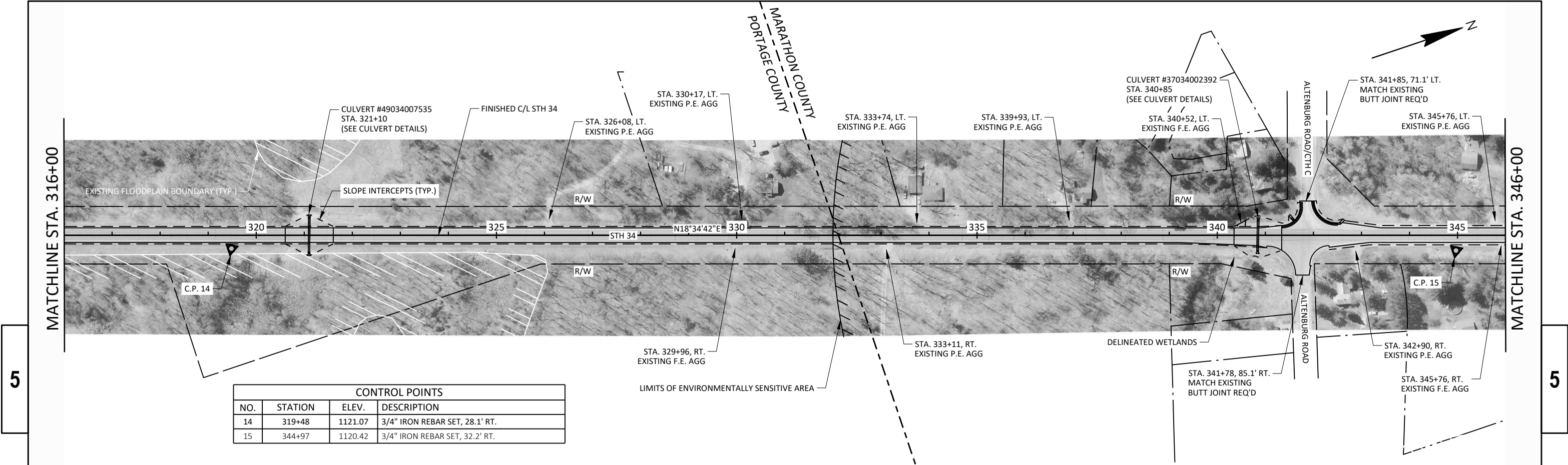
PLAN

SHEET

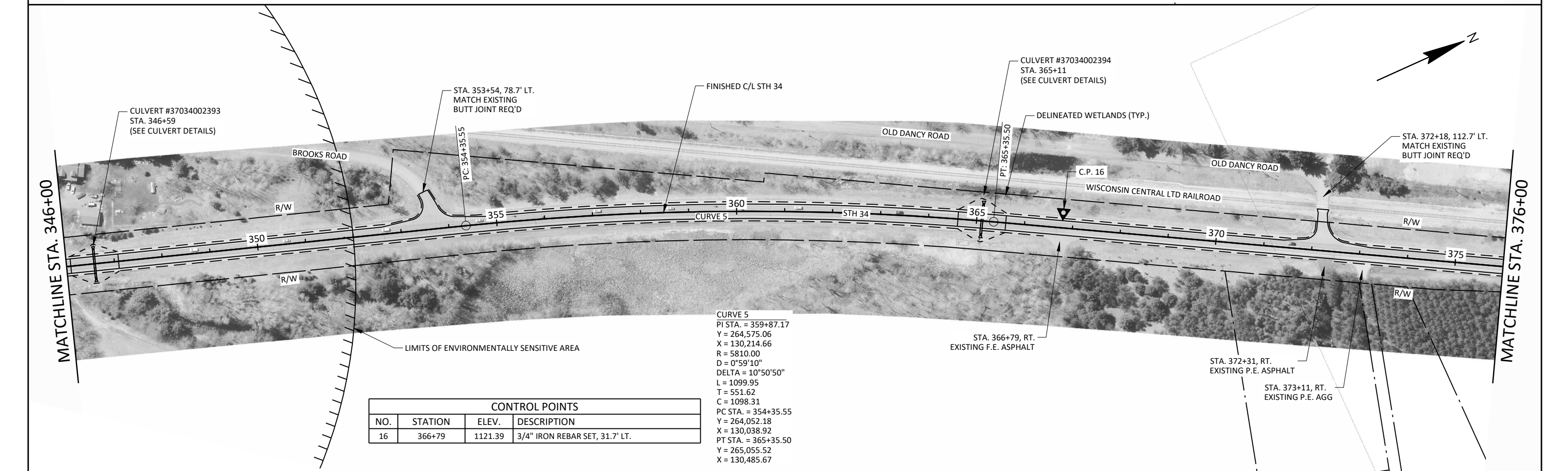
59

E





CONTROL POINTS			
NO.	STATION	ELEV.	DESCRIPTION
14	319+48	1121.07	3/4" IRON REBAR SET, 28.1' RT.
15	344+97	1120.42	3/4" IRON REBAR SET, 32.2' RT.



CONTROL POINTS			
NO.	STATION	ELEV.	DESCRIPTION
16	366+79	1121.39	3/4" IRON REBAR SET, 31.7' LT.

CURVE 5
PI STA. = 359+87.17
Y = 264,575.06
X = 130,214.66
R = 5810.00
D = 0°59'10"
DELTA = 10°50'50"
L = 1099.95
T = 551.62
C = 1098.31
PC STA. = 354+35.55
Y = 264,052.18
X = 130,038.92
PT STA. = 365+35.50
Y = 265,055.52
X = 130,485.67

PROJECT NO: 6610-00-71

HWY: STH 34

COUNTY: MARATHON

PLAN

SHEET

61

E

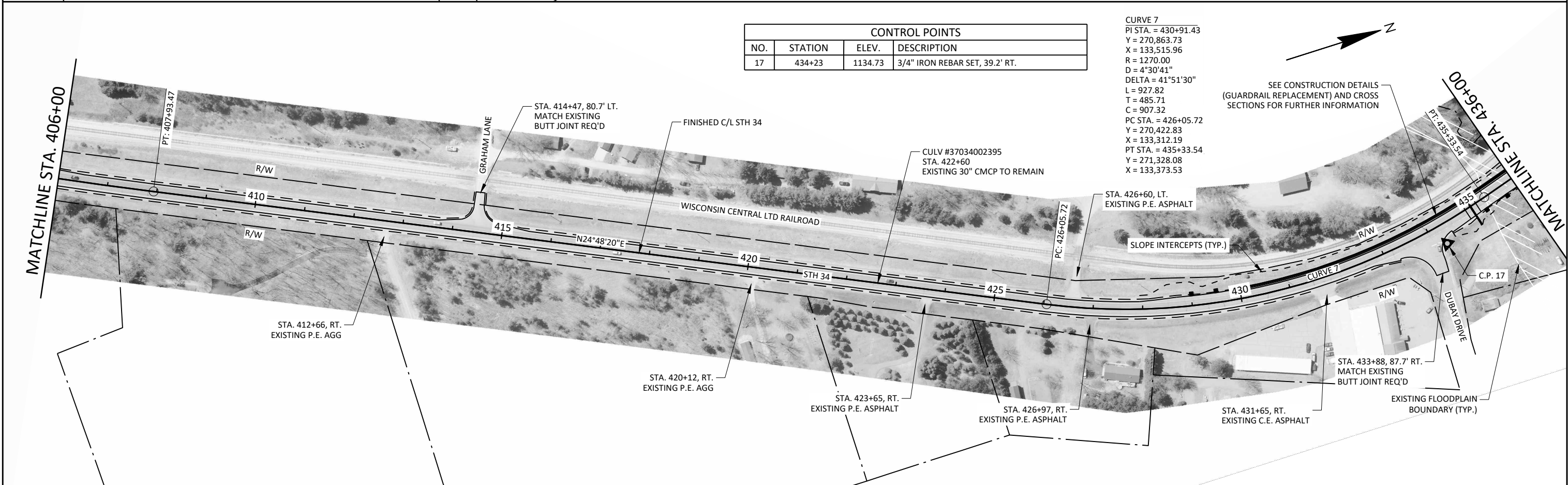
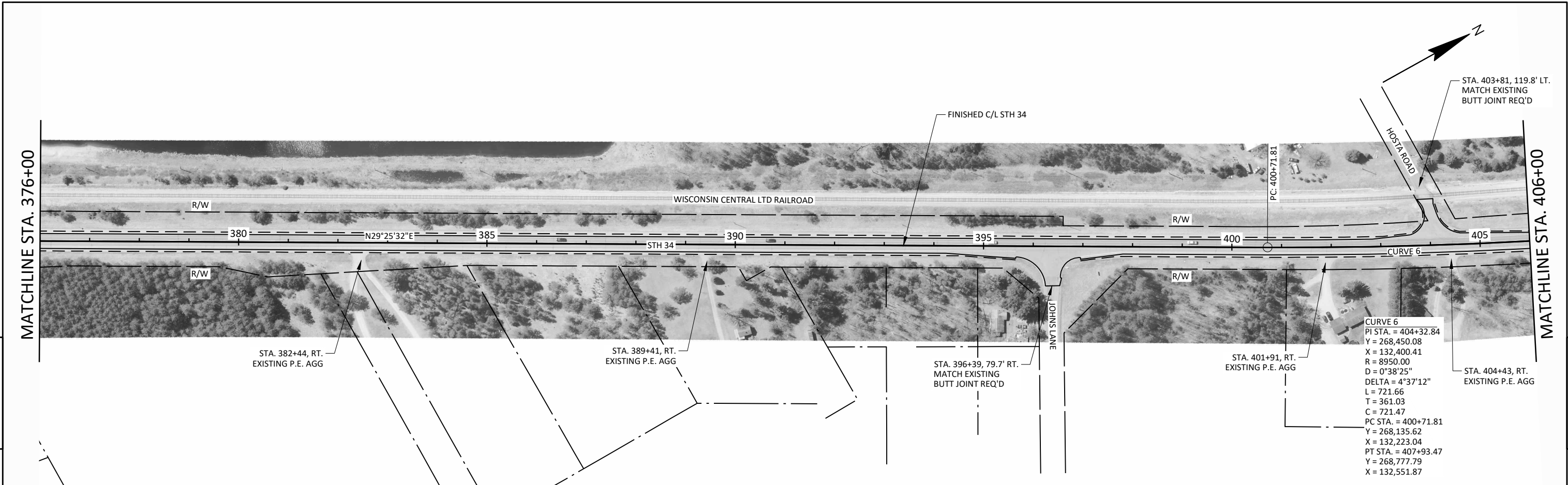
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PLOT DATE: 6/24/2026 10:25:29 PM

PLOT BY: NICK PEHLER

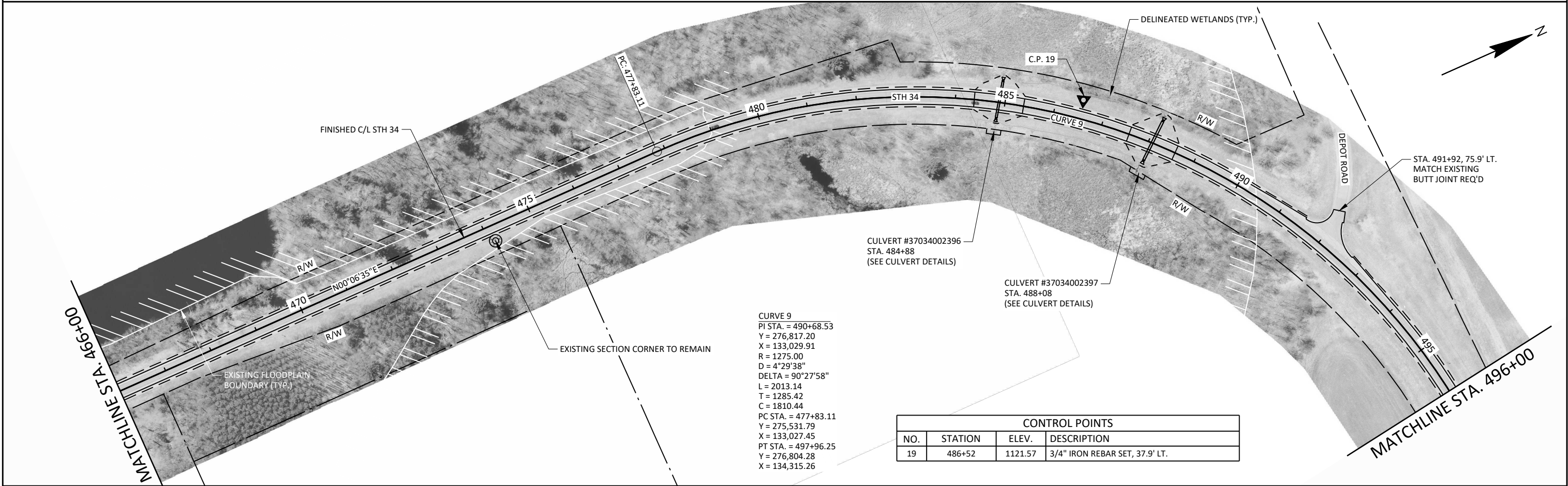
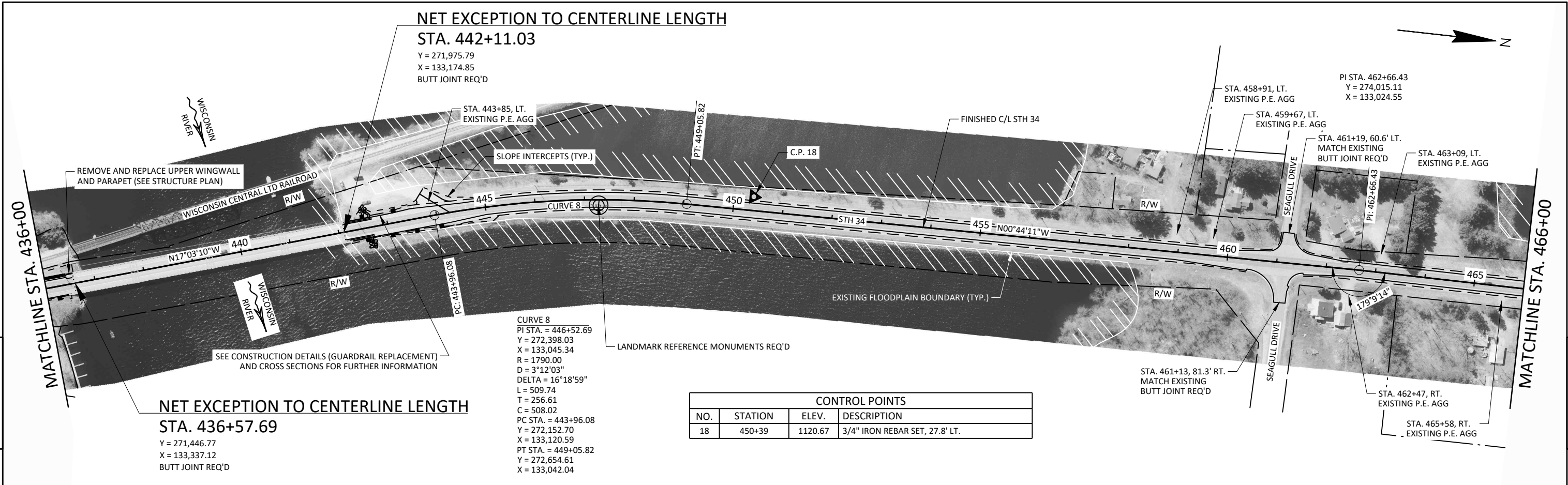
PLOT SCALE: 1 IN=200 FT

LAYOUT: PLAN - (6)

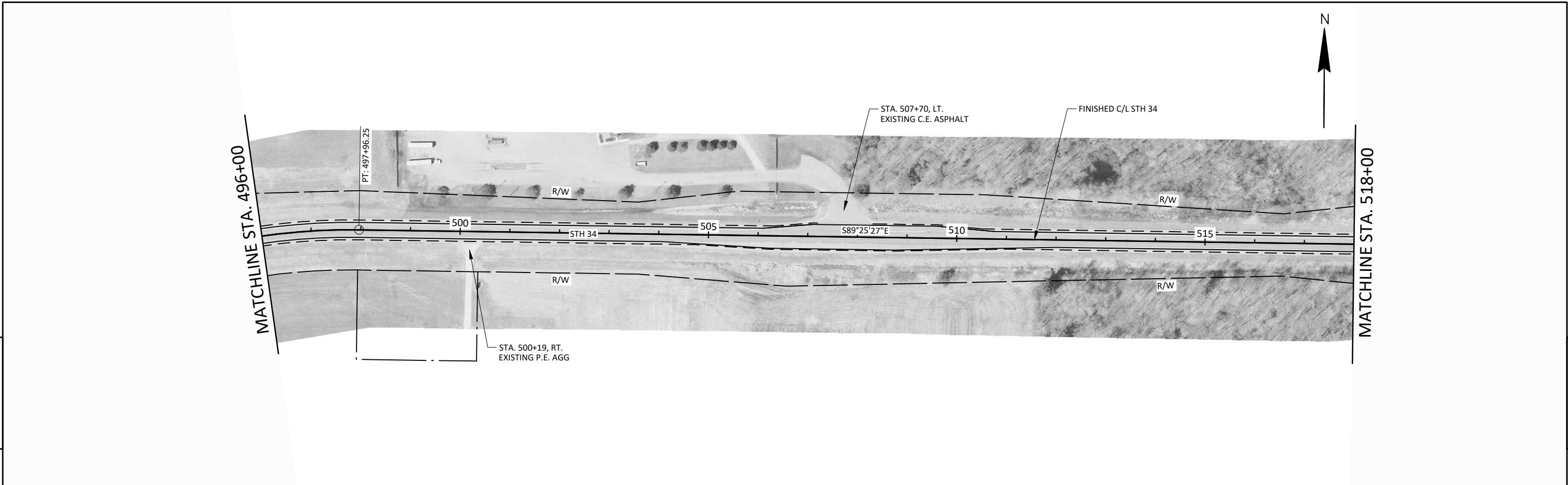


CONTROL POINTS			
NO.	STATION	ELEV.	DESCRIPTION
17	434+23	1134.73	3/4" IRON REBAR SET, 39.2' RT.

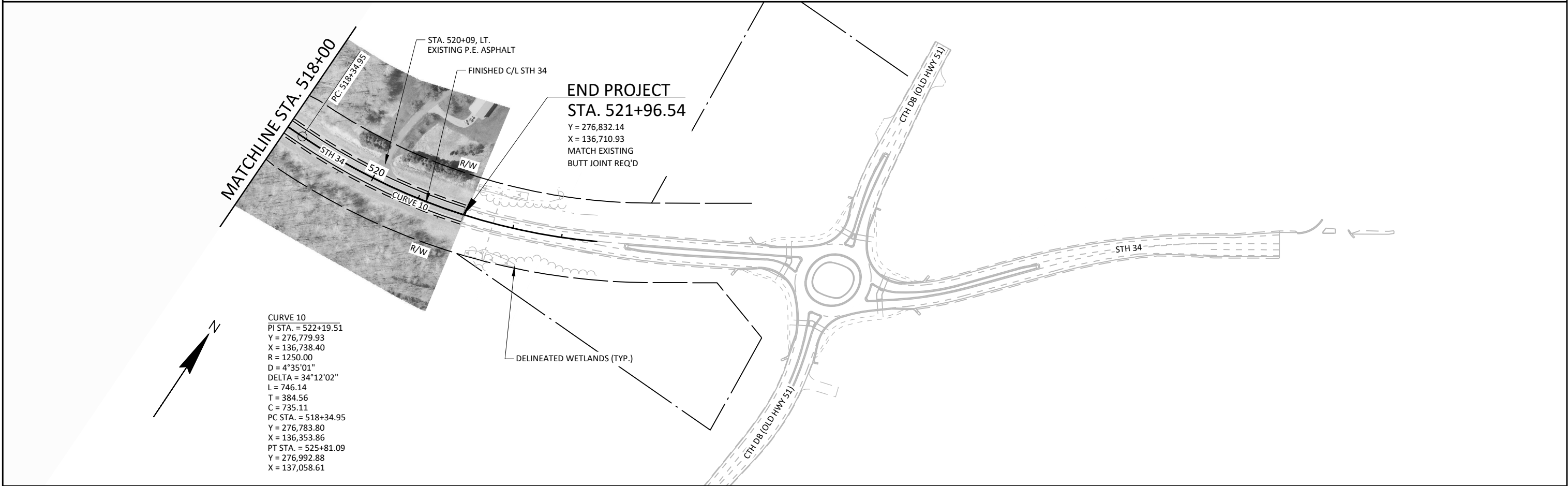
CURVE 7
PI STA. = 430+91.43
Y = 270,863.73
X = 133,515.96
R = 1270.00
D = 4°30'41"
DELTA = 41°51'30"
L = 927.82
T = 485.71
C = 907.32
PC STA. = 426+05.72
Y = 270,422.83
X = 133,312.19
PT STA. = 435+33.54
Y = 271,328.08
X = 133,373.53



5



5



Standard Detail Drawing List

08A05-22E	INLET COVER TYPE BW, MANHOLE COVERS, TYPE K, J, J-S, L & M
08C07-03	INLETS 2X2-FT, 2X2.5-FT, 2X3-FT, 2.5X3-FT & 2X3.5-FT
08D01-24A	CONCRETE CURB & GUTTER
08D01-24B	CONCRETE CURB, TIES AND CURB AND GUTTER APPLICATIONS
08D02-08A	CONCRETE SURFACE DRAINS FLUME TYPE AT STRUCTURES
08D02-08B	CONCRETE SURFACE DRAINS FLUME TYPE AT STRUCTURES
08D02-08C	CONCRETE SURFACE DRAINS FLUME TYPE AT STRUCTURES
08D04-07	CONCRETE SURFACE DRAINS & ASPHALTIC FLUMES
08E09-06	SILT FENCE
08E10-02	INLET PROTECTION TYPE A, B, C AND D
08E15-01	CULVERT PIPE CHECK
08F01-11	APRON ENDWALLS FOR CULVERT PIPE
08F02-01	APRON ENDWALLS FOR PIPE ARCH AND ELLIPTICAL PIPE
08F04-08	JOINT TIES FOR CONCRETE PIPE AND CONCRETE COLLAR DETAIL
13A11-04A	CENTERLINE RUMBLE STRIPS - ASPHALT
13A11-04D	CENTERLINE RUMBLE STRIPS - INTERSECTIONS, DRIVEWAYS, BRIDGES, RAILROADS
13C19-03	HMA LONGITUDINAL JOINTS
14B32-11A	CONCRETE BARRIER SINGLE SLOPE (CBSS)
14B32-11B	CONCRETE BARRIER SINGLE SLOPE (CBSS)
14B32-11C	CONCRETE BARRIER SINGLE SLOPE (CBSS)
14B32-11D	CONCRETE BARRIER SINGLE SLOPE (CBSS)
14B32-11E	CONCRETE BARRIER SINGLE SLOPE (CBSS)
14B32-11F	CONCRETE BARRIER SINGLE SLOPE (CBSS)
14B32-11G	CONCRETE BARRIER SINGLE SLOPE (CBSS)
14B32-11H	CONCRETE BARRIER SINGLE SLOPE (CBSS)
14B42-07A	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-07B	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-07C	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-07D	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B44-04A	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-04B	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-04C	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B45-05A	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05B	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05C	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05D	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05E	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05F	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05G	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05H	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05I	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05J	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05K	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05L	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
15A03-02A	FLEXIBLE MARKER POST FOR CULVERT END
15A03-02B	FLEXIBLE MARKER POST FOR CULVERT END
15A04-08B	BARRIER WALL DELINEATOR WITH REFLECTIVE SHEETING
15C02-10A	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-10B	BARRICADES AND SIGNS FOR VARIOUS CLOSURES
15C02-10C	DETOUR SIGNING FOR MAINLINE CLOSURES
15C02-10H	MODIFIED ROUTE ASSEMBLY FOR DETOUR SIGNING
15C03-05	BARRICADES AND SIGNS FOR SIDEROAD CLOSURES
15C04-05	TRAFFIC CONTROL, ADVANCE WARNING SIGNS 45 M.P.H. OR GREATER TWO-WAY UNDIVIDED ROAD OPEN TO TRAFFIC
15C07-16A	PAVEMENT MARKING SYMBOLS
15C08-24A	PERMANENT LONGITUDINAL PAVEMENT MARKINGS
15C08-24B	TEMPORARY LONGITUDINAL PAVEMENT MARKING
15C11-11B	CHANNELIZING DEVICES DRUMS, CONES, BARRICADES AND VERTICAL PANELS
15C12-09A	TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATION
15C12-09B	TRAFFIC CONTROL, LANE CLOSURE WITH AUTOMATED FLAGGER ASSISTANCE DEVICE
15C19-11A	MOVING PAVEMENT MARKING OPERATION TWO-LANE TWO-WAY ROADWAY
15C33-05	STOP LINE AND CROSSWALK PAVEMENT MARKING
15C35-06A	PAVEMENT MARKING (INTERSECTIONS)
15C36-01	PARKING STALL MARKING
15D28-05	TRAFFIC CONTROL, WORK ON SHOULDER OR PARKING LANE, UNDIVIDED ROADWAY
15D43-03	TRAFFIC CONTROL, SHORT DURATION MOBILE OPERATIONS
15D44-02	TRAFFIC CONTROL, SIGNING ON ROADWAYS WITH MILLED SURFACES

Standard Detail Drawing List

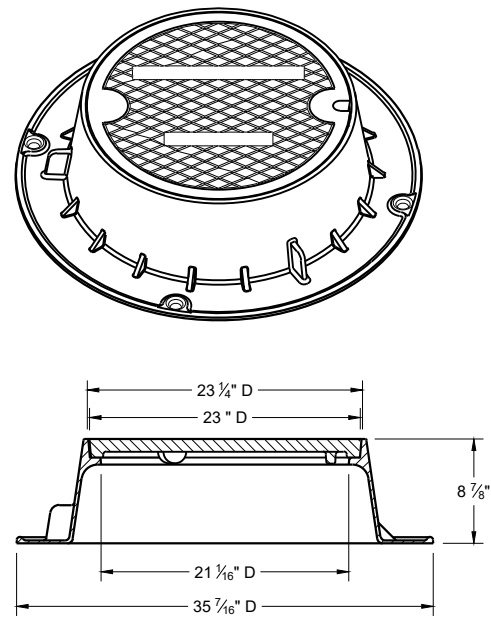
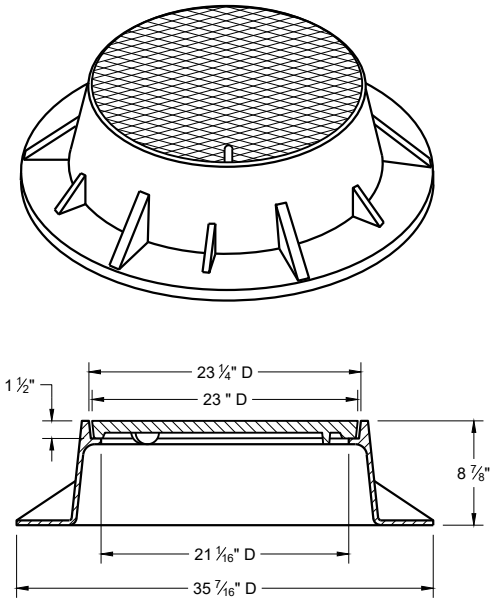
15D45-03	TRAFFIC CONTROL, SIGNING ON ROADWAYS WITH LOOSE GRAVEL
15D51-02	TRAFFIC CONTROL, MOBILE OPERATIONS ON AN UNDIVIDED ROADWAY

GENERAL NOTES

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

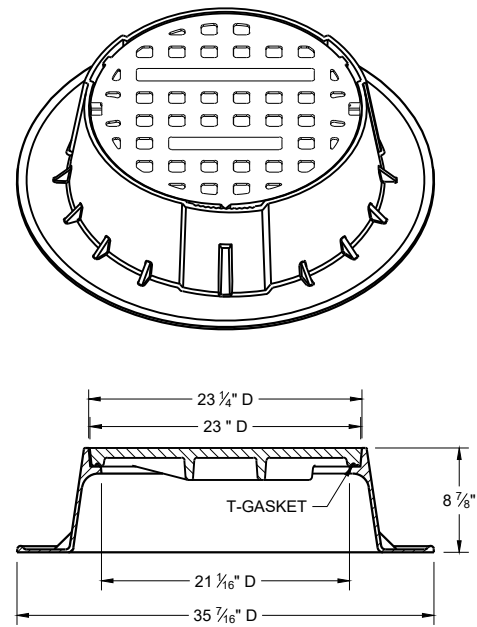
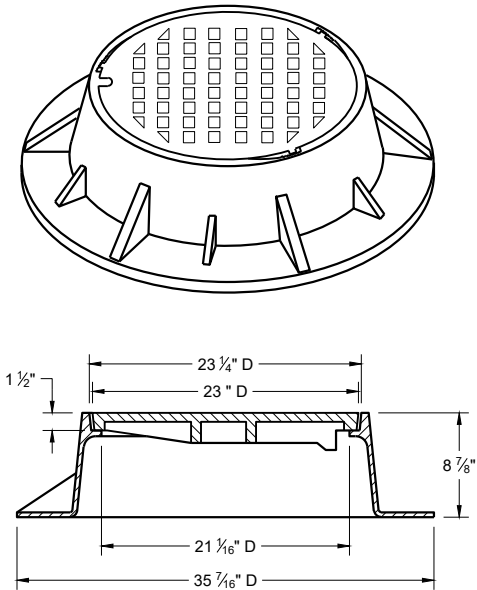
DETAIL DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR MANHOLE COVERS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PROVIDING THAT SUCH ALTERNATE DESIGNS MAKE PROVISION FOR EQUIVALENT CAPACITY AND STRENGTH.

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



TYPE "J"

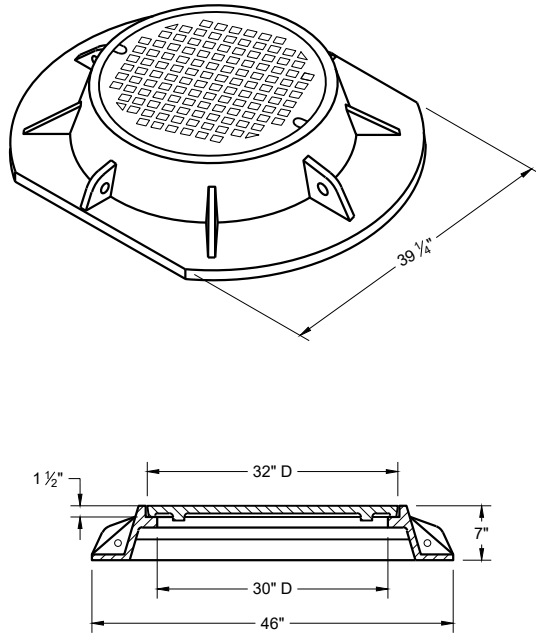
NOTE: EITHER CASTING IS ACCEPTABLE



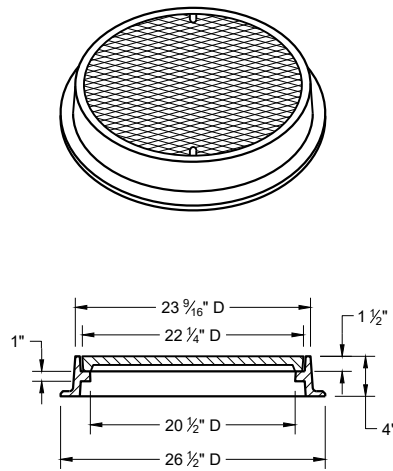
TYPE "J" SPECIAL

TYPE "B" NON-ROCKING SELF-SEAL LID
(NOTED AS TYPE J-S ON THE DRAINAGE TABLE)

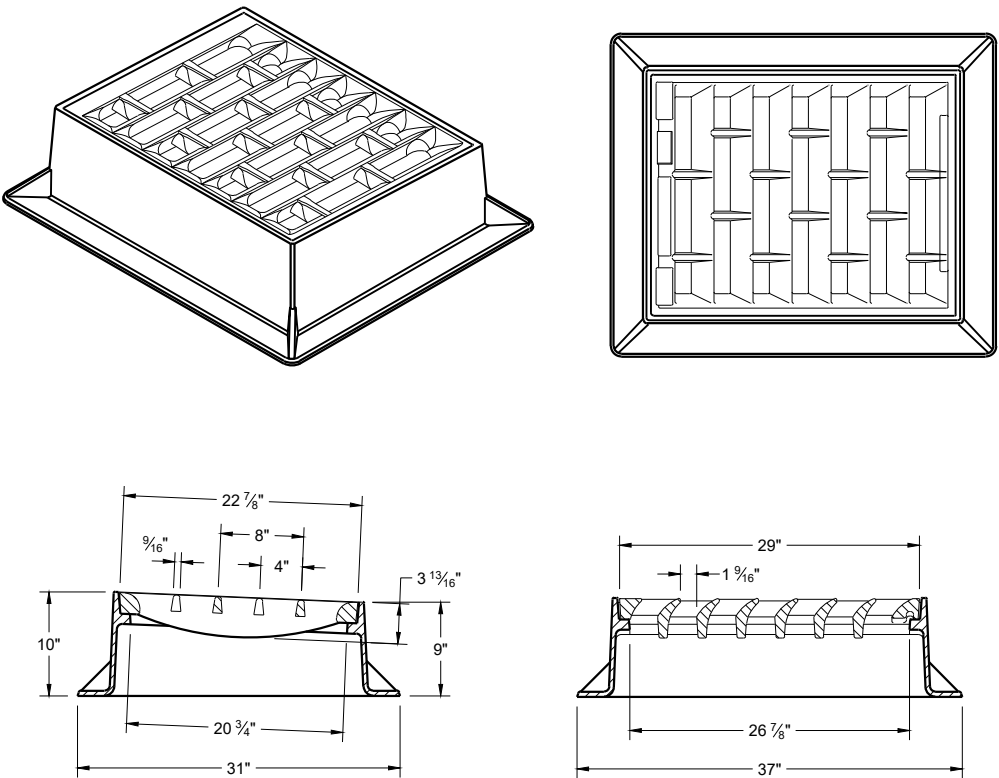
NOTE: EITHER CASTING IS ACCEPTABLE



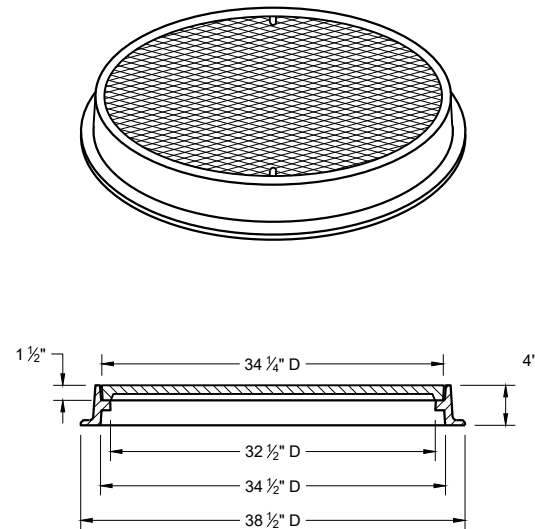
TYPE "K"



TYPE "L"



INLET COVER TYPE "BW"

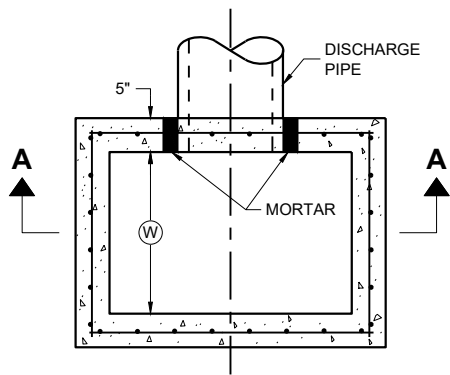


TYPE "M"

INLET COVERS TYPES BW
MANHOLE COVERS TYPES K,
J, J-S, L, AND M

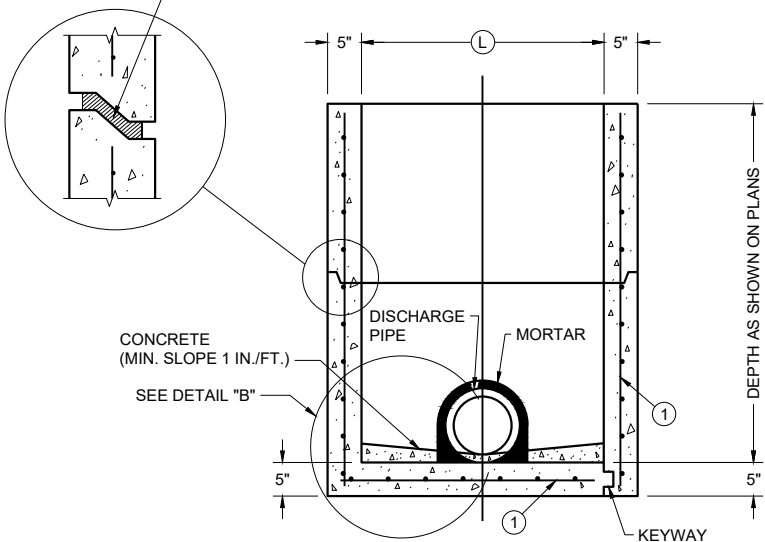
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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



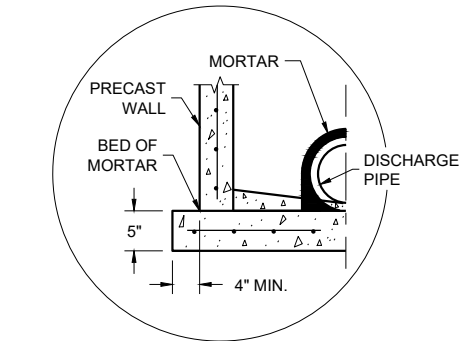
PLAN VIEW

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



PRECAST REINFORCED
CONCRETE WITH
MONOLITHIC BASE

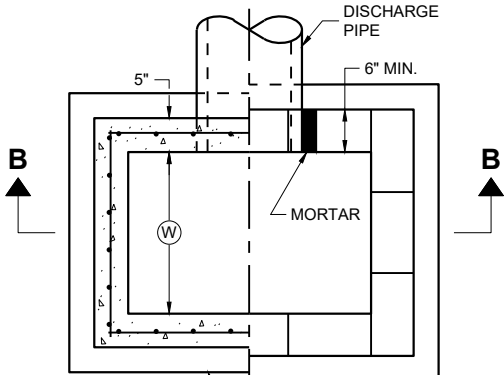
SECTION A - A



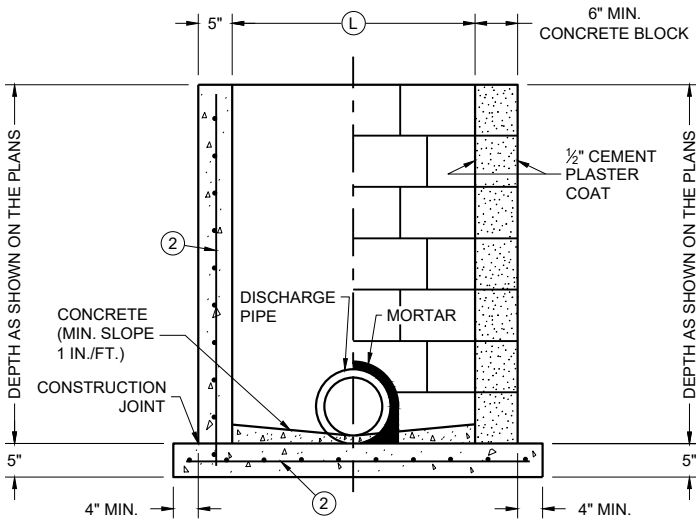
SEPARATE PRECAST REINFORCED
CONCRETE BASE OPTION

DETAIL "B"

INLETS 2 X 2-FT, 2 X 2.5-FT, 2 X 3-FT, 2.5 X 3-FT AND 2X3.5-FT



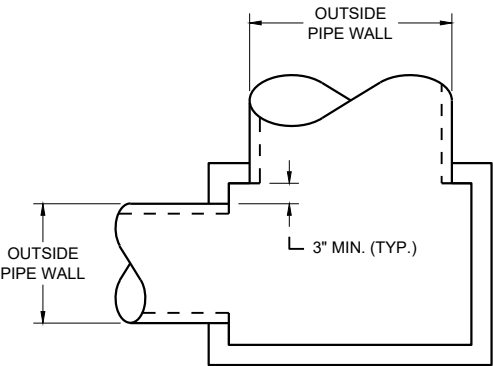
PLAN VIEW



CAST IN PLACE
REINFORCED
CONCRETE

SECTION B - B

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



DETAIL "A"

GENERAL NOTES

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

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

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

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

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

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

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

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

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

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

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

CATCH BASIN COVER MATRIX

INLET SIZE	WIDTH (W) (FT.)	LENGTH (L) (FT.)	INLET COVER TYPE									
			ALL A'S	ALL B'S	BW	F	ALL H'S	S	T	V	WM	V V-B
2 X 2-FT	2	2	X	X				X				
2 X 2.5-FT	2	2.5			X			X	X	X	X	
2 X 3-FT	2	3					X					
2.5 X 3-FT	2.5	3				X						
2 X 3.5-FT	2	3.5										X

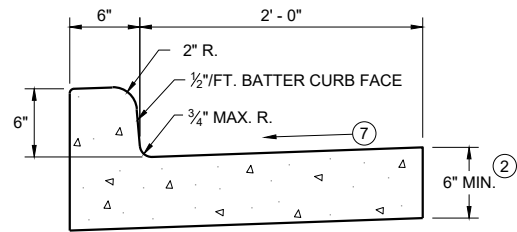
PIPE MATRIX

CATCH BASIN SIZE	MAXIMUM INSIDE PIPE DIAMETER FOR TWO PIPES	
	WIDTH (IN)	LENGTH (IN)
2 X 2-FT	12	12
2 X 2.5-FT	12	18
2 X 3-FT	12	24
2.5 X 3-FT	18	24
2 X 3.5-FT	12	30

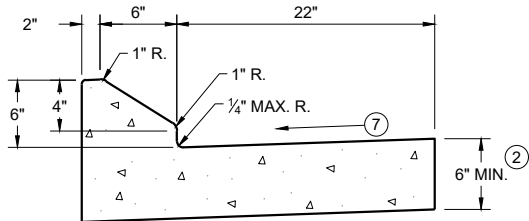
INLETS 2 X 2-FT, 2 X 2.5-FT,
2 X 3-FT, 2.5 X 3-FT
AND 2 X 3.5-FT

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

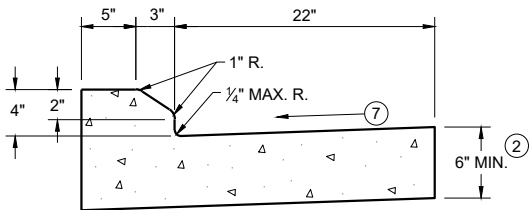
APPROVED
December 2023 /S/ Rodney Taylor
DATE ROADWAY STANDARDS DEVELOPMENT
FHWA UNIT SUPERVISOR



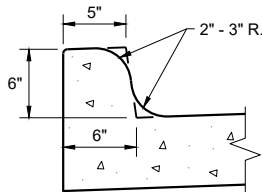
TYPES A^① & D



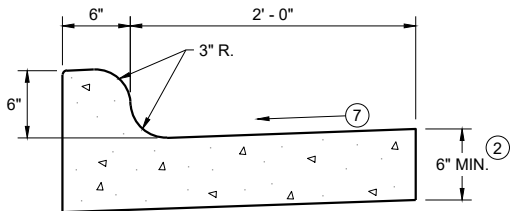
6" SLOPED CURB TYPES G^① & J



4" SLOPED CURB TYPES G^① & J

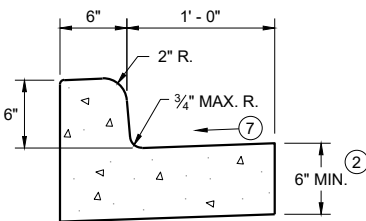


TYPES K^① & L
(OPTIONAL CURB SHAPE)



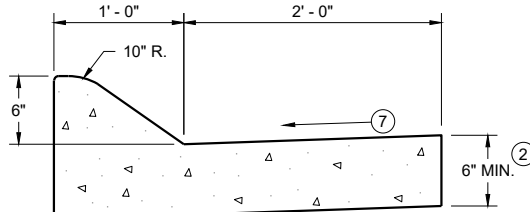
TYPES K^① & L

CONCRETE CURB AND GUTTER 30"

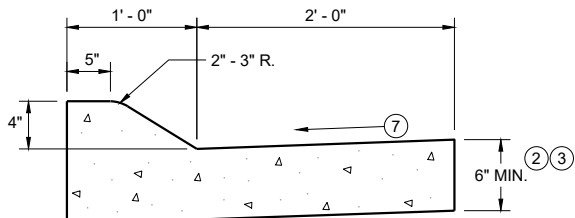


TYPES A^① & D

CONCRETE CURB AND GUTTER 18"

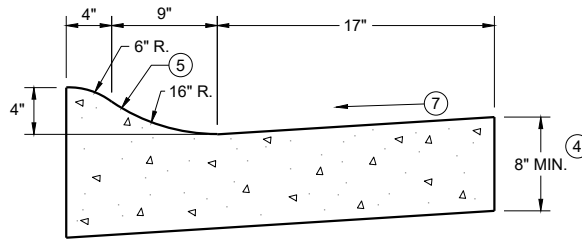


6" SLOPED CURB TYPES A^① & D



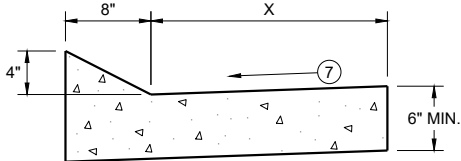
4" SLOPED CURB TYPES A^① & D

CONCRETE CURB AND GUTTER 36"



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

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

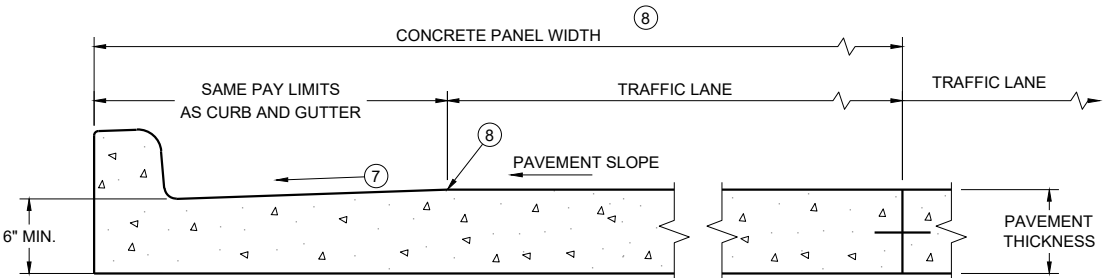


TYPES TBT & TBTT^①

CONCRETE CURB AND GUTTER

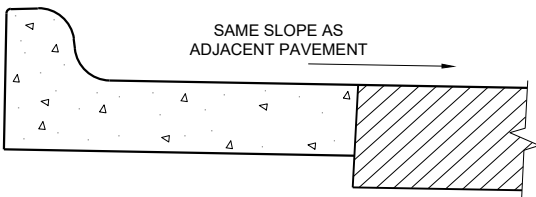
PAVEMENT THICKNESS
AND MAXIMUM CONCRETE
PANEL WIDTH TABLE

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

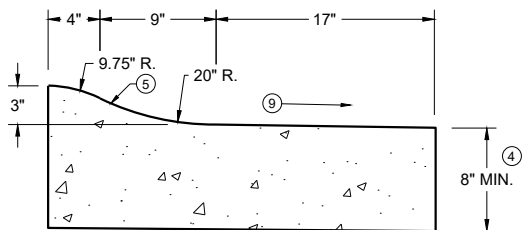


PARTIAL SECTION OF PAVEMENT
WITH INTEGRAL CURB AND GUTTER

* BIKE LANE IS NOT SHOWN



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



3" SLOPED CURB TYPES R^① & T

CONCRETE CURB AND GUTTER

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

GENERAL NOTES

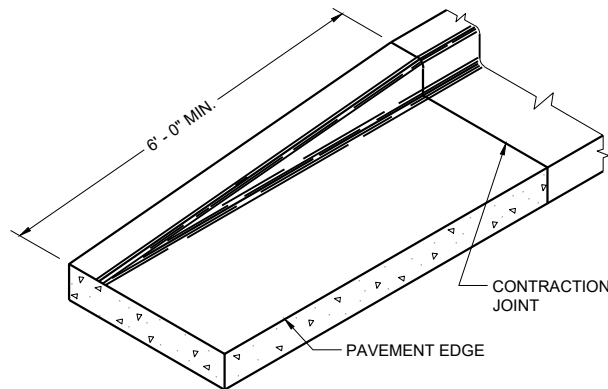
DETAILS OF CONSTRUCTION AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.

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

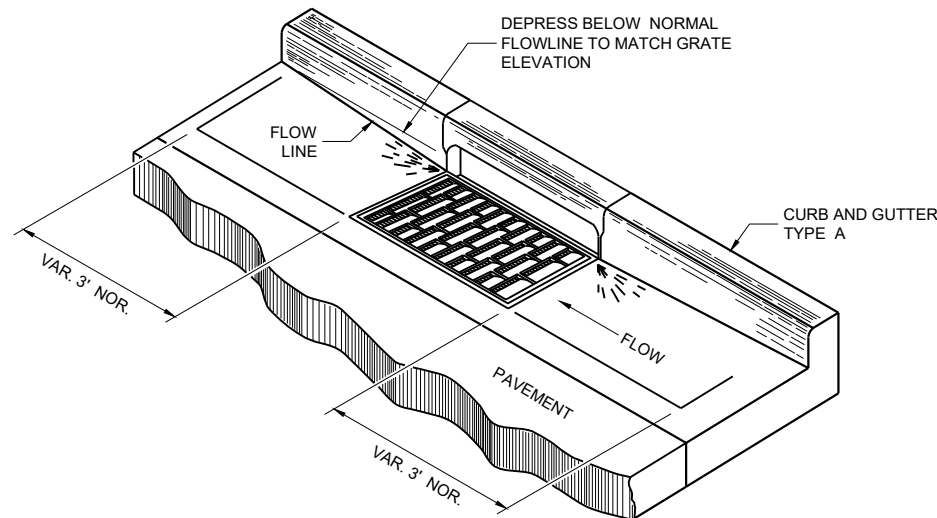
INTEGRAL CURB AND GUTTER SHALL CONFORM TO THE DETAILS SHOWN FOR CONCRETE CURB AND GUTTER INCLUDING THE TRANSVERSE GUTTER SLOPE.

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

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

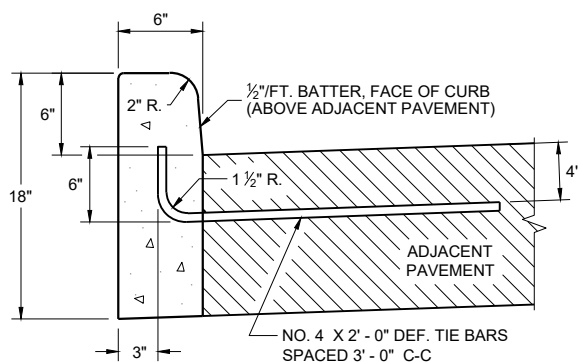


END SECTION CURB AND GUTTER

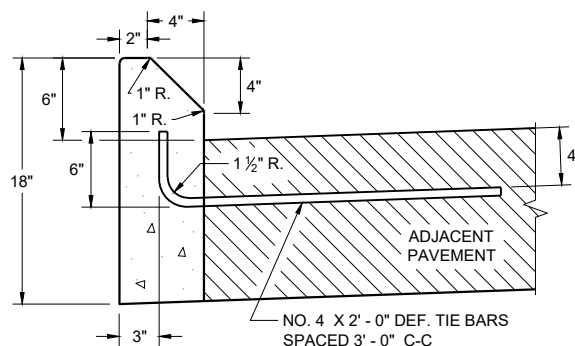


DETAIL OF CURB AND GUTTER AT INLETS

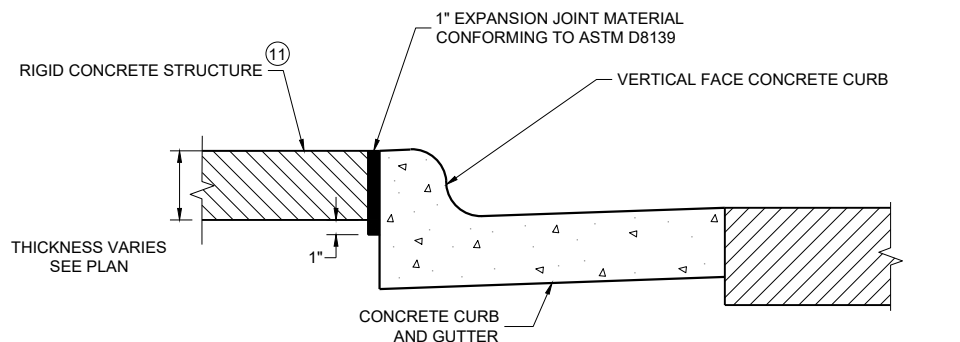
(TYPICAL H INLET COVER SHOWN)



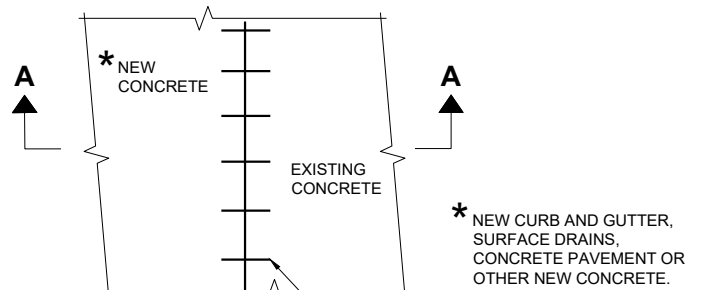
TYPES A^① & D



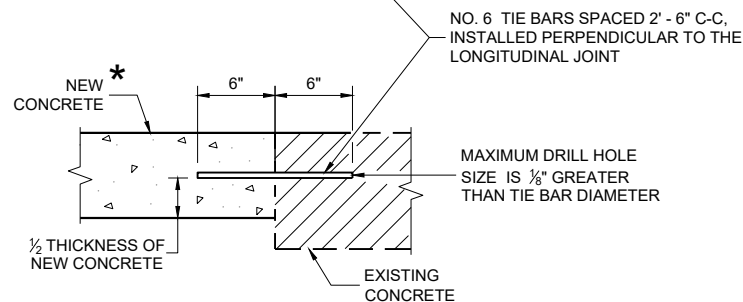
TYPES G^① & J
CONCRETE CURB



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



PLAN VIEW



SECTION A - A
TIE BARS DRILLED INTO EXISTING PAVEMENT

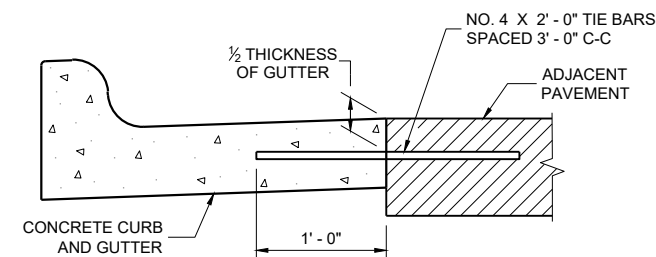
GENERAL NOTES

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

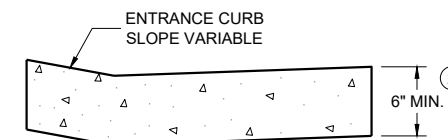
PAVEMENT TIES AND TIE BARS SHALL BE EPOXY COATED IN CONFORMANCE WITH SUBSECTION 505.2.6.2 OF THE STANDARD SPECIFICATIONS.

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

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



TYPICAL TIE BAR LOCATION^①



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

CONCRETE CURB, TIES
AND CURB AND GUTTER
APPLICATIONS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

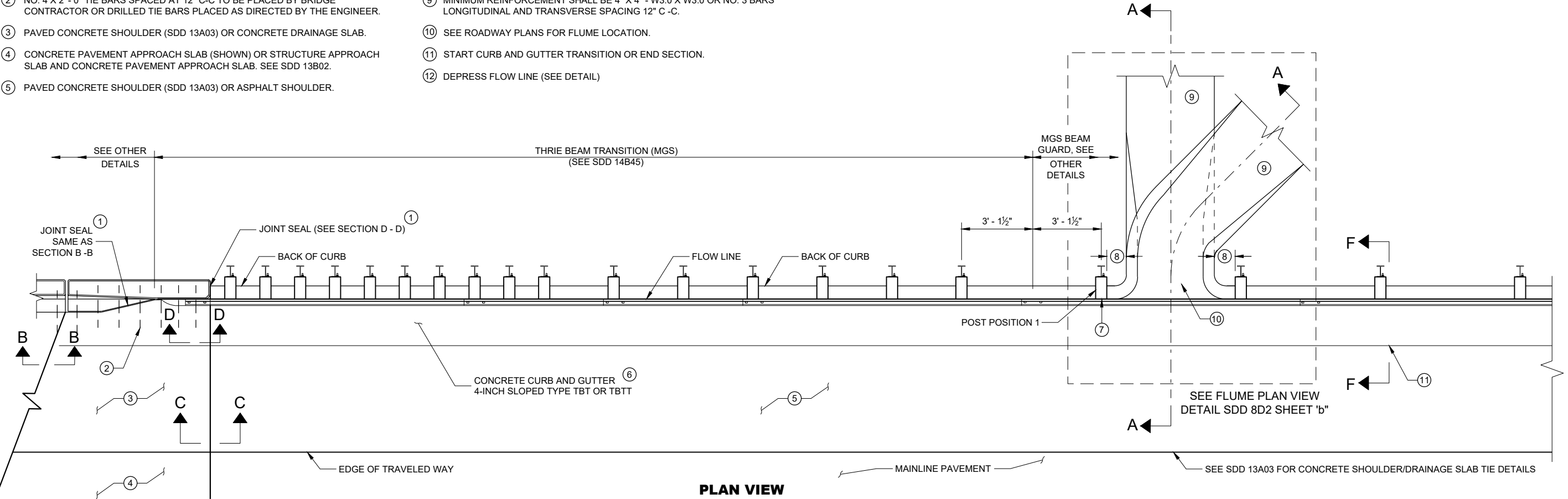
GENERAL NOTES

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

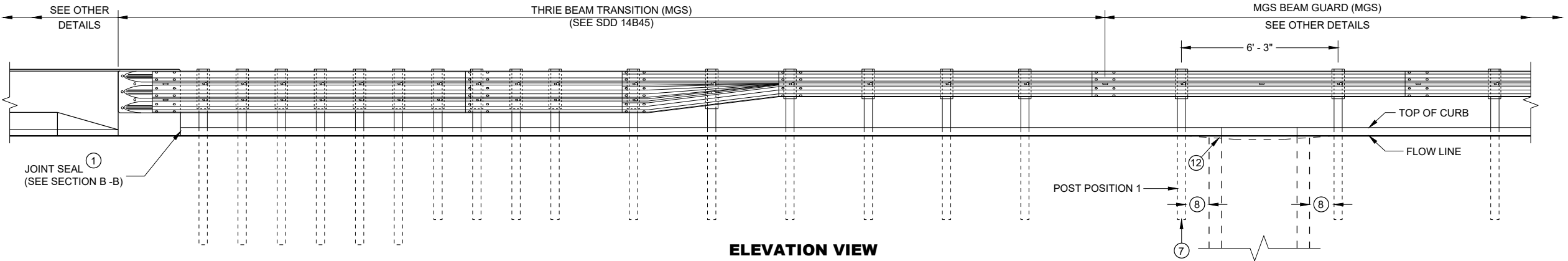
ALL STEEL REINFORCEMENT SHALL BE EMBEDDED 2 INCHES CLEAR UNLESS OTHERWISE SHOWN OR NOTED.

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

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



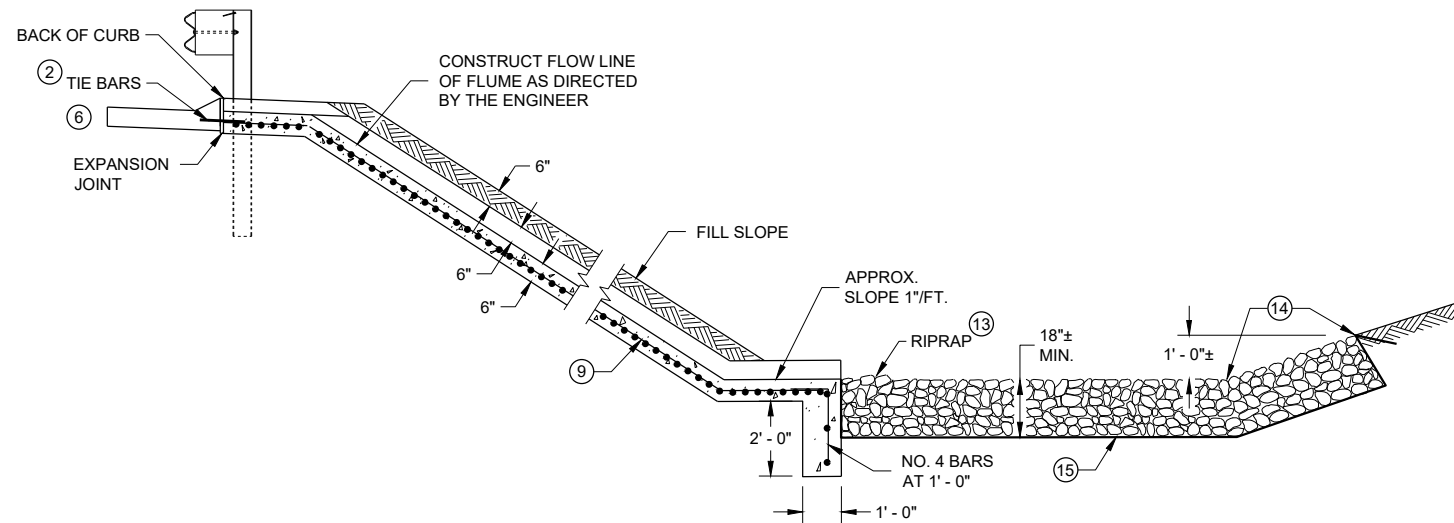
PLAN VIEW



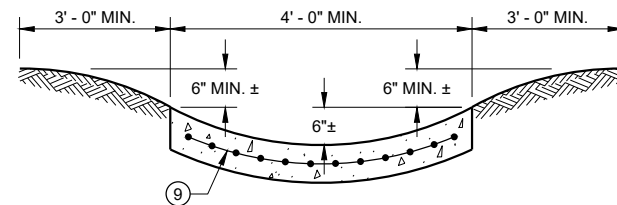
ELEVATION VIEW

CONCRETE SURFACE
DRAINS FLUME TYPE
AT STRUCTURES

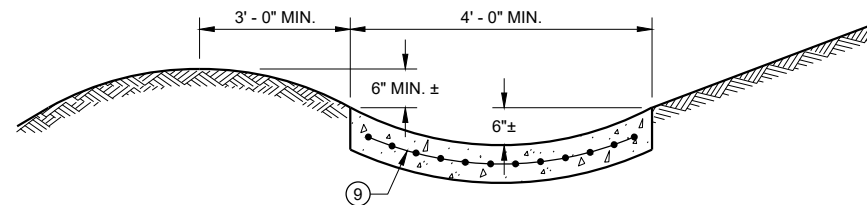
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



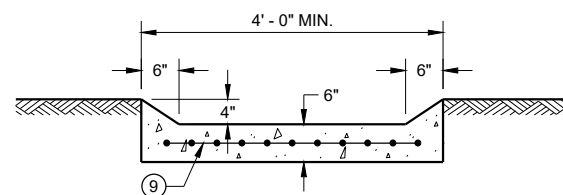
SECTION A - A



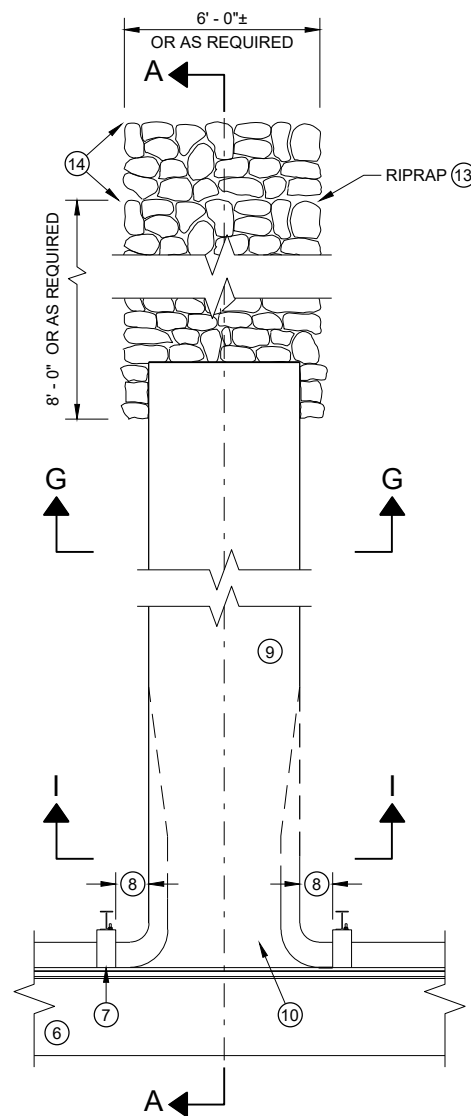
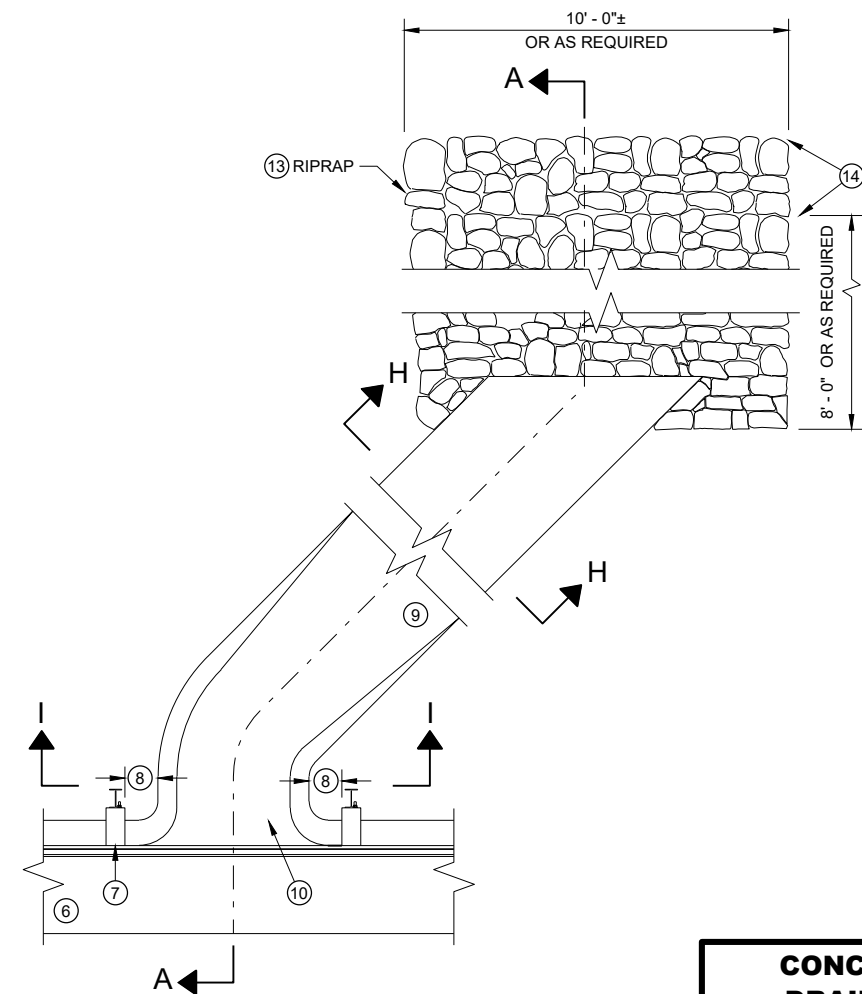
SECTION G - G



SECTION H - H



SECTION I - I

PLAN VIEW
PERPENDICULAR FLUMEPLAN VIEW
SKEWED FLUME

GENERAL NOTES

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

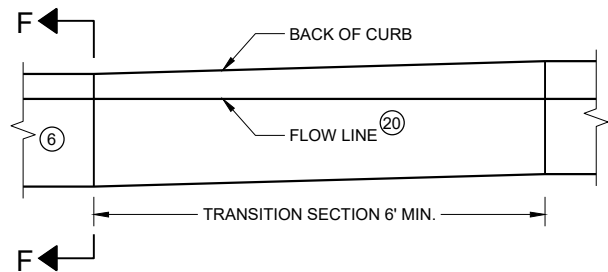
ALL STEEL REINFORCEMENT SHALL BE EMBEDDED 2 INCHES CLEAR UNLESS OTHERWISE SHOWN OR NOTED.

- ① USE A JOINT SEALANT CONFORMING TO STANDARD SPECIFICATION 415.2.6.
- ② NO. 4 X 2' - 0" TIE BARS SPACED AT 12" C-C TO BE PLACED BY BRIDGE CONTRACTOR OR DRILLED TIE BARS PLACED AS DIRECTED BY THE ENGINEER.
- ③ PAVED CONCRETE SHOULDER (SDD 13A03) OR CONCRETE DRAINAGE SLAB.
- ④ CONCRETE PAVEMENT APPROACH SLAB (SHOWN) OR STRUCTURE APPROACH SLAB AND CONCRETE PAVEMENT APPROACH SLAB. SEE SDD 13B02 AND STRUCTURE PLANS.
- ⑤ PAVED CONCRETE SHOULDER (SDD 13A03) OR ASPHALT SHOULDER.
- ⑥ CONCRETE CURB AND GUTTER 4-INCH SLOPED 36-INCH TYPE TBT OR TBT. USE TYPE TBT CURB WITH NO. 4 X 2' - 0" TIE BARS SPACED AT 3' - 0" C-C ONLY WHEN ADJACENT TO CONCRETE PAVEMENTS.

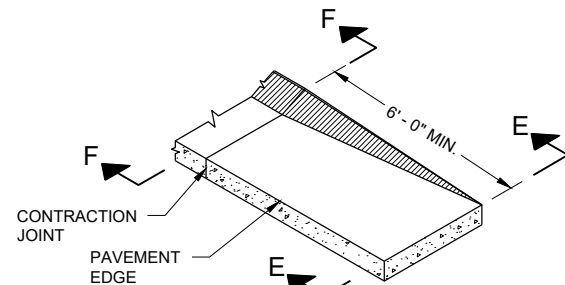
- ⑦ PLACE FLUME BEFORE MSG THRIE BEAM TRANSITION POST 1 (SEE SDD 14B45)
- ⑧ CENTER FLUME BETWEEN POSTS. 6-INCH MINIMUM SEPARATION FROM OUTSIDE EDGE OF FLUME TO POSTS.
- ⑨ MINIMUM REINFORCEMENT SHALL BE 4" X 4" - W3.0 X W3.0 OR NO. 3 BARS LONGITUDINAL AND TRANSVERSE SPACING 12" C - C.
- ⑩ SEE ROADWAY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

**CONCRETE SURFACE
DRAINS FLUME TYPE
AT STRUCTURES**

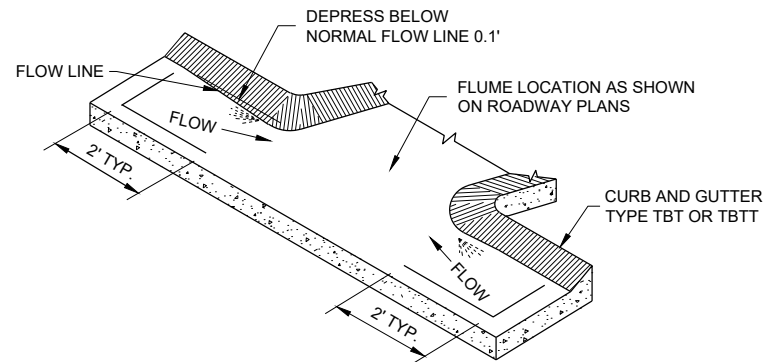
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION 72



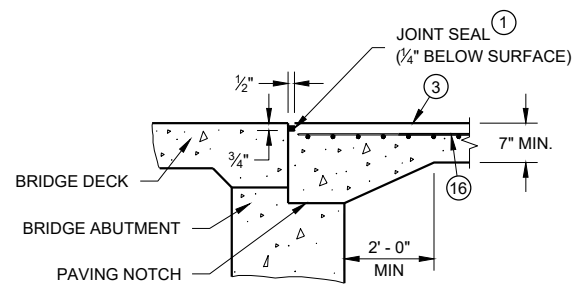
**CURB AND GUTTER TRANSITION SECTION
CONCRETE CURB AND GUTTER 4-INCH SLOPED
36 INCH TYPE TBT OR TBTT**



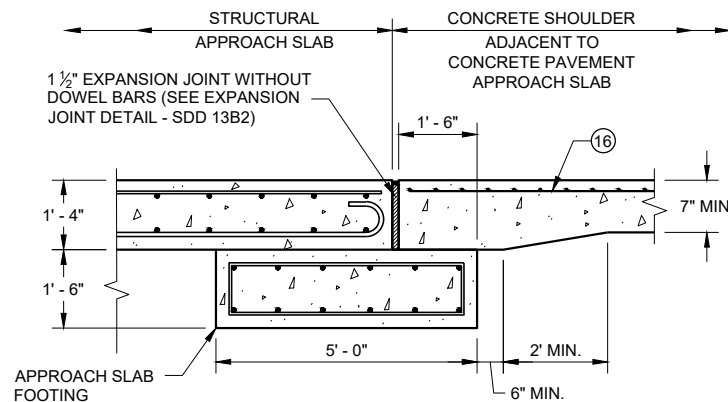
**CURB AND GUTTER END SECTION
CONCRETE CURB AND GUTTER 4-INCH SLOPED
36 INCH TYPE TBT OR TBTT**



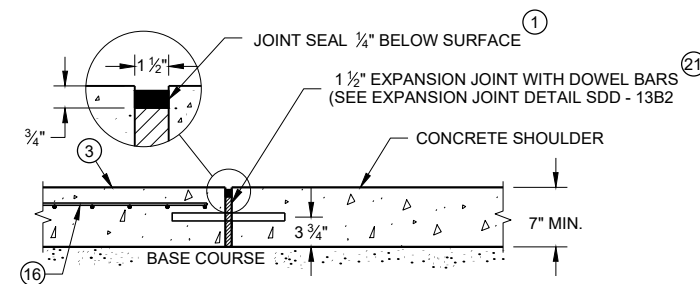
**CURB AND GUTTER FLOW LINE DEPRESSION
AT FLUMES CONCRETE CURB AND GUTTER
4-INCH SLOPED 36 INCH TYPE TBT OR TBTT**



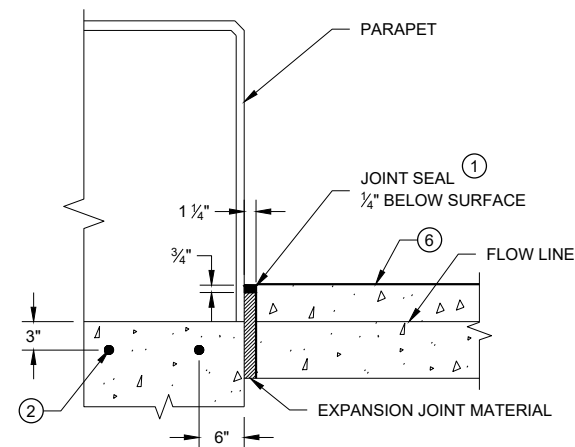
SECTION B-B



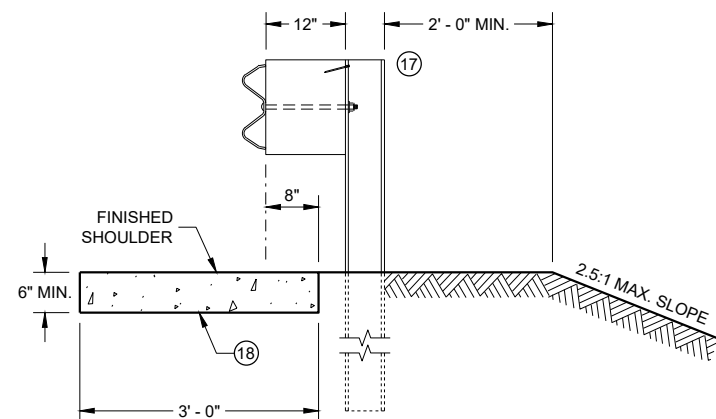
**SECTION C - C
JOINT DETAIL FOR BRIDGE WITH STRUCTURAL
APPROACH SLAB AND CONCRETE APPROACH SLAB**



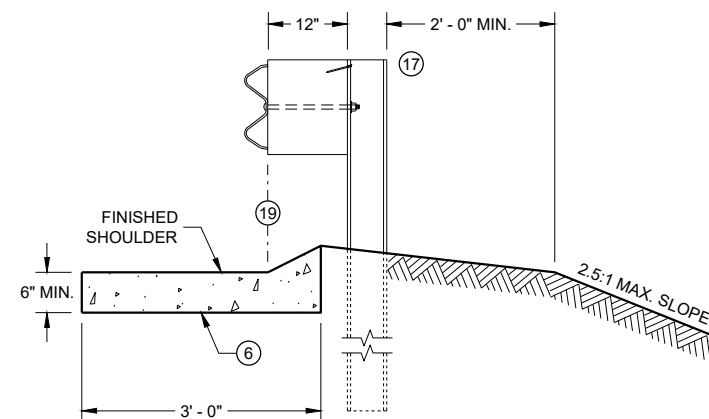
**SECTION C - C
JOINT DETAIL FOR BRIDGE APPROACH
WITH CONCRETE SHOULDERS**



SECTION D - D



SECTION E - E



SECTION F - F

GENERAL NOTES

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

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

- ① USE A JOINT SEALANT CONFORMING TO STANDARD SPECIFICATION 415.2.6.
- ② NO. 4 X 2' - 0" TIE BARS SPACED AT 12" C-C TO BE PLACED BY BRIDGE CONTRACTOR OR DRILLED TIE BARS PLACED AS DIRECTED BY THE ENGINEER.
- ③ PAVED CONCRETE SHOULDER (SDD 13A03) OR CONCRETE DRAINAGE SLAB.
- ④ CONCRETE PAVEMENT APPROACH SLAB (SHOWN) OR STRUCTURE APPROACH SLAB AND CONCRETE PAVEMENT APPROACH SLAB. SEE SDD 13B02 AND STRUCTURE PLANS.
- ⑤ PAVED CONCRETE SHOULDER (SDD 13A03) OR ASPHALT SHOULDER.
- ⑥ CONCRETE CURB AND GUTTER 4-INCH SLOPED 36-INCH TYPE TBT OR TBTT. USE TYPE TBTT CURB WITH NO. 4 X 2' - 0" TIE BARS SPACED AT 3' - 0" C-C ONLY WHEN ADJACENT TO CONCRETE PAVEMENTS.
- ⑦ PLACE FLUME BEFORE MSG THRIE BEAM TRANSITION POST 1 (SEE SDD 14B45)
- ⑧ CENTER FLUME BETWEEN POSTS. 6-INCH MINIMUM SEPARATION FROM OUTSIDE EDGE OF FLUME TO POSTS.
- ⑨ MINIMUM REINFORCEMENT SHALL BE 4" X 4" - W3.0 X W3.0 OR NO. 3 BARS LONGITUDINAL AND TRANSVERSE SPACING 12" C - C.
- ⑩ SEE ROADWAY PLANS FOR FLUME LOCATION.
- ⑪ START CURB AND GUTTER TRANSITION OR END SECTION.
- ⑫ DEPRESS FLOW LINE (SEE DETAIL)
- ⑬ MEDIUM RIPRAP UNLESS OTHERWISE SPECIFIED.
- ⑭ LIMITS OF ADDITIONAL RIPRAP WHEN SPECIAL DITCH IS REQUIRED.
- ⑮ GEOTEXTILE TYPE HR.
- ⑯ MINIMUM REINFORCEMENT SHALL BE 6" X 6" - W4.0 X W4.0 OR NO. 3 BARS LONGITUDINAL AND TRANSVERSE SPACING 12" C - C.
- ⑰ MSG THRIE BEAM TRANSITION POST 1. SEE SDD 14B45 FOR ADDITIONAL CONSTRUCTION DETAILS AND ACCEPTABLE MATERIALS.
- ⑱ MAINTAIN WIDTH, THICKNESS AND CROSS SLOPE OF ADJACENT TYPE TBT OR TBTT CURB. SEE NOTE 6 FOR TIE BAR SPACING.
- ⑲ ALIGN FACE OF POST BLOCK WITH FLOW LINE.
- ⑳ MAINTAIN FLOW LINE AT EDGE OF PAVEMENT/FACE OF BEAM GUARD AS APPLICABLE.
- ㉑ DO NOT CONSTRUCT AN EXPANSION JOINT OR INSTALL DOWEL BARS WHEN ABUTTING HMA PAVEMENTS.

CONCRETE SURFACE DRAINS FLUME TYPE AT STRUCTURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

May 2023

DATE

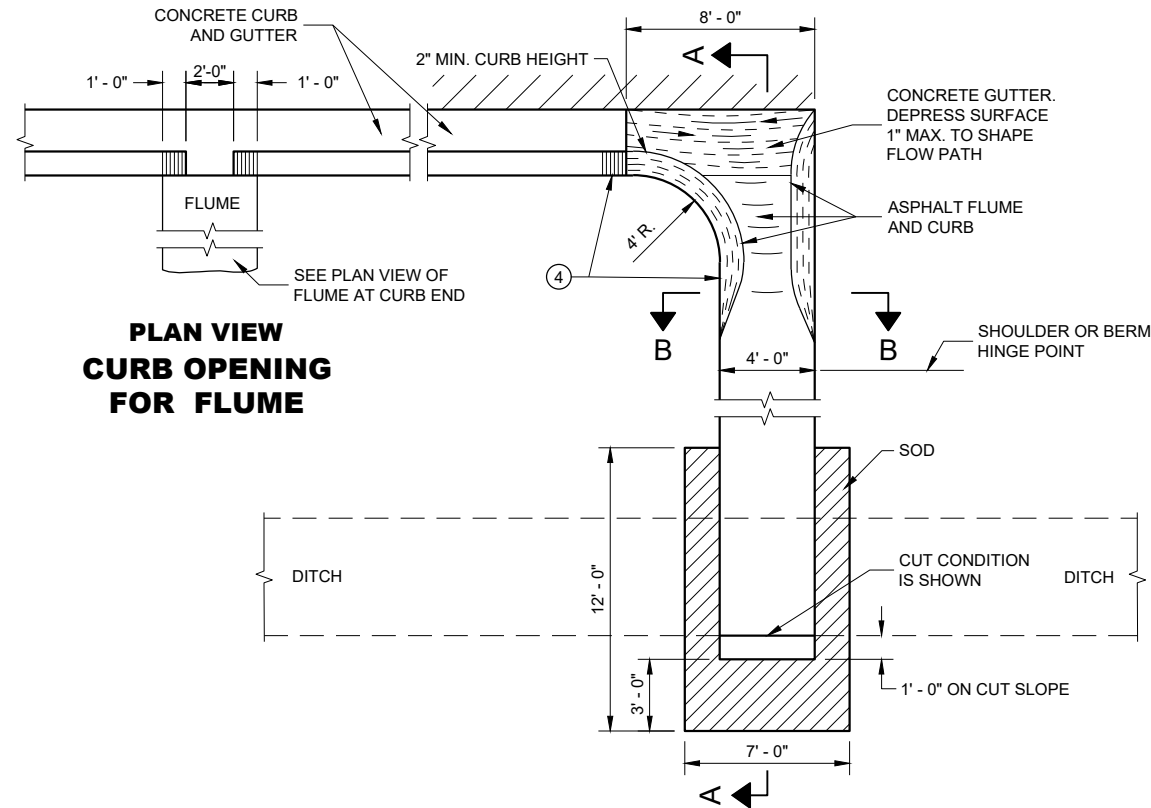
FHWA

/S/ Rodney Taylor
ROADWAY STANDARDS DEVELOPMENT
ENGINEER

73

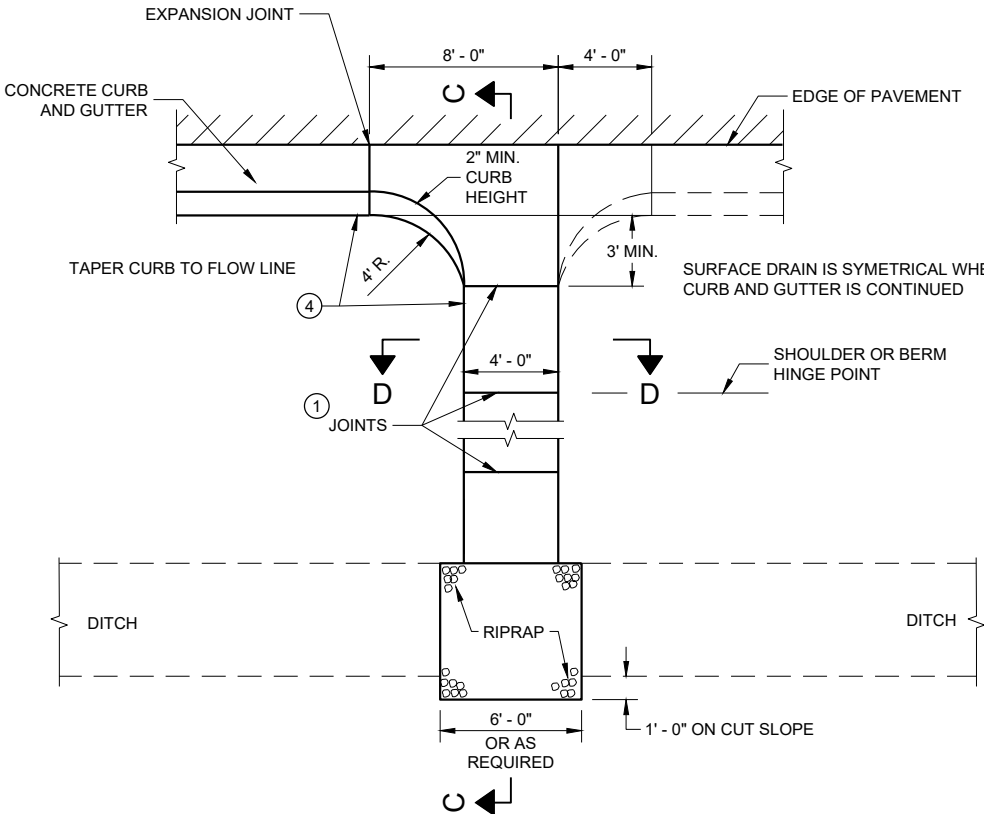
NOTE: TAPER CURB ENDS TO GUTTER IN 1' - 0"

ASPHALTIC FLUME



PLAN VIEW
CURB OPENING
FOR FLUME

PLAN VIEW
FLUME AT CURB END



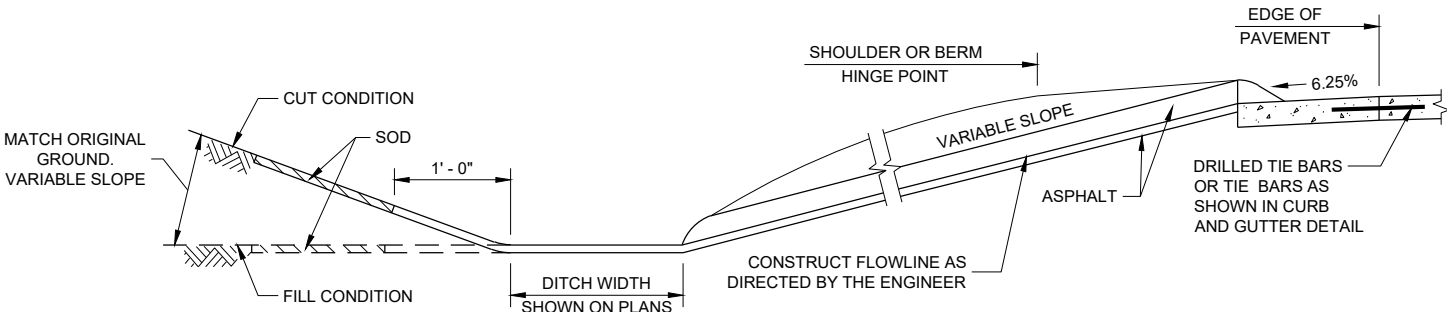
PLAN VIEW
CONCRETE SURFACE DRAIN

GENERAL NOTES

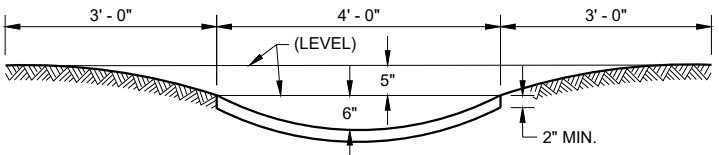
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

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

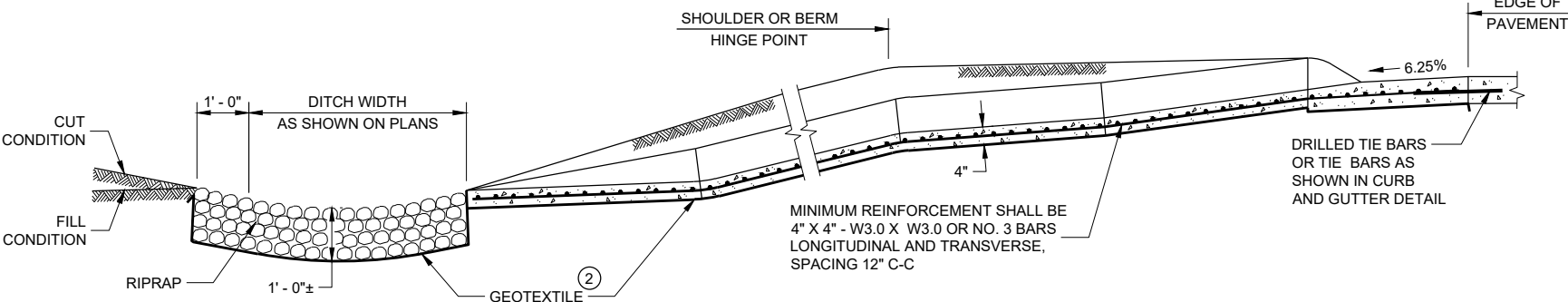
- ① JOINTS SHALL BE 1/8" TO 1/4" WIDE BY 1 1/2" DEEP AND SPACED AT UNIFORM INTERVALS OF APPROXIMATELY 4 FEET.
- ② GEOTEXTILE TYPE "R" SHALL UNDERLAY THE FULL LENGTH AND WIDTH OF THE CONCRETE SURFACE DRAIN AND RIPRAP.
- ③ CONCRETE SURFACE DRAIN WITHOUT CURB AND GUTTER MAY BE USED ON BACKSLOPES WHEN SPECIFIED.
- 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.



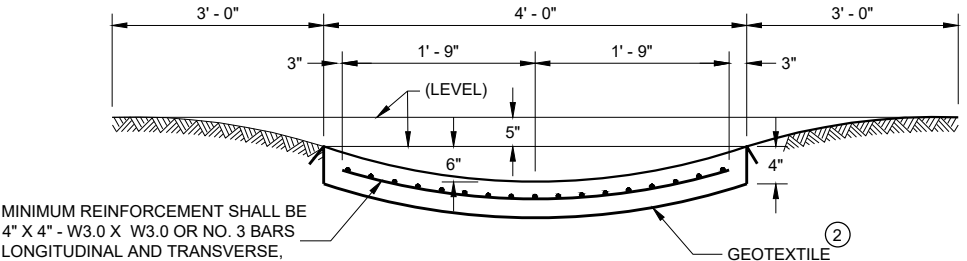
SECTION A - A



SECTION B - B



SECTION C - C



SECTION D - D

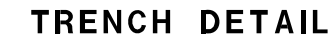
CONCRETE SURFACE
DRAINS AND
ASPHALTIC FLUMES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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



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

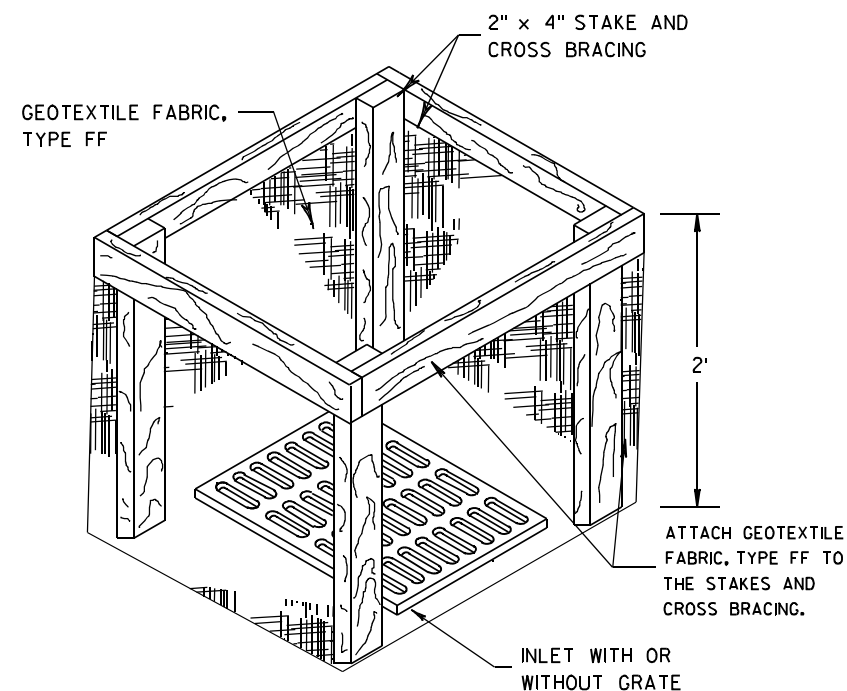
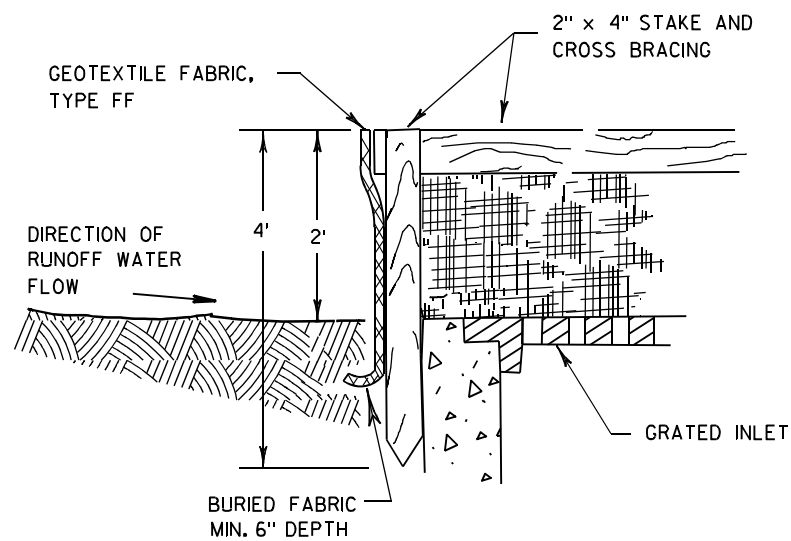


SILT FENCE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
4-29-05
DATE /S/ Beth Connolly
CHIEF ROADWAY DEVELOPMENT 75 INCHES

FHWA



INLET PROTECTION, TYPE A

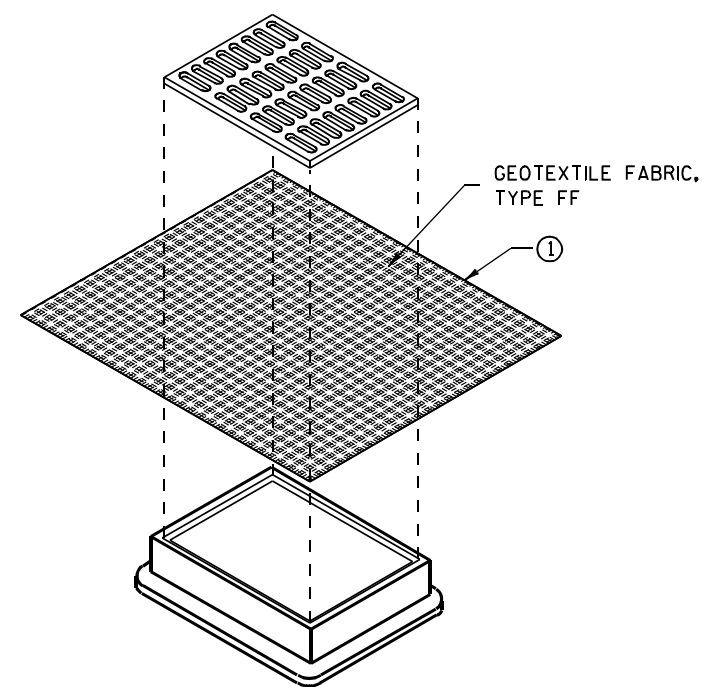
GENERAL NOTES

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

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

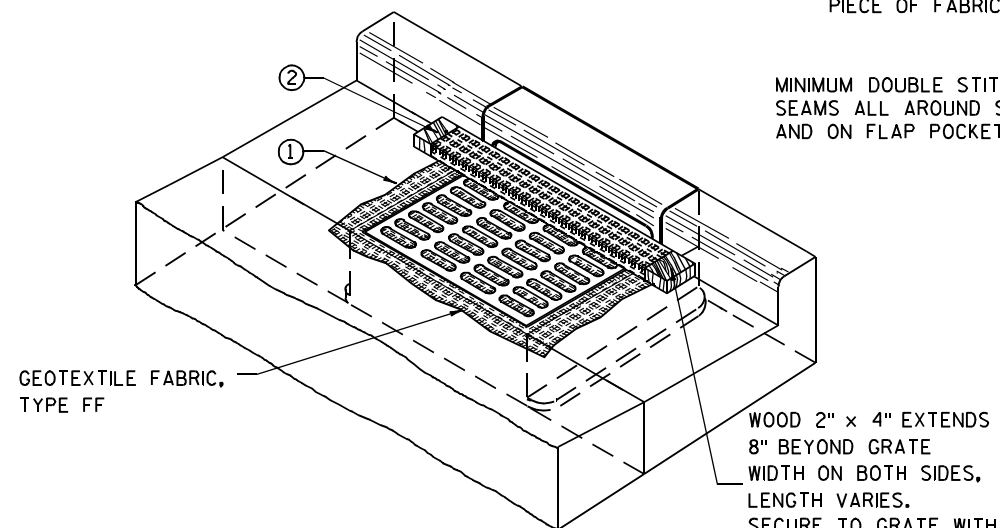
WHEN REMOVING OR MAINTAINING INLET PROTECTION, CARE SHALL BE TAKEN SO THAT THE SEDIMENT TRAPPED ON THE GEOTEXTILE FABRIC DOES NOT FALL INTO THE INLET. ANY MATERIAL FALLING INTO THE INLET SHALL BE REMOVED IMMEDIATELY.

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



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

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



INLET PROTECTION, TYPE C (WITH CURB BOX)

INSTALLATION NOTES

TYPE B & C

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

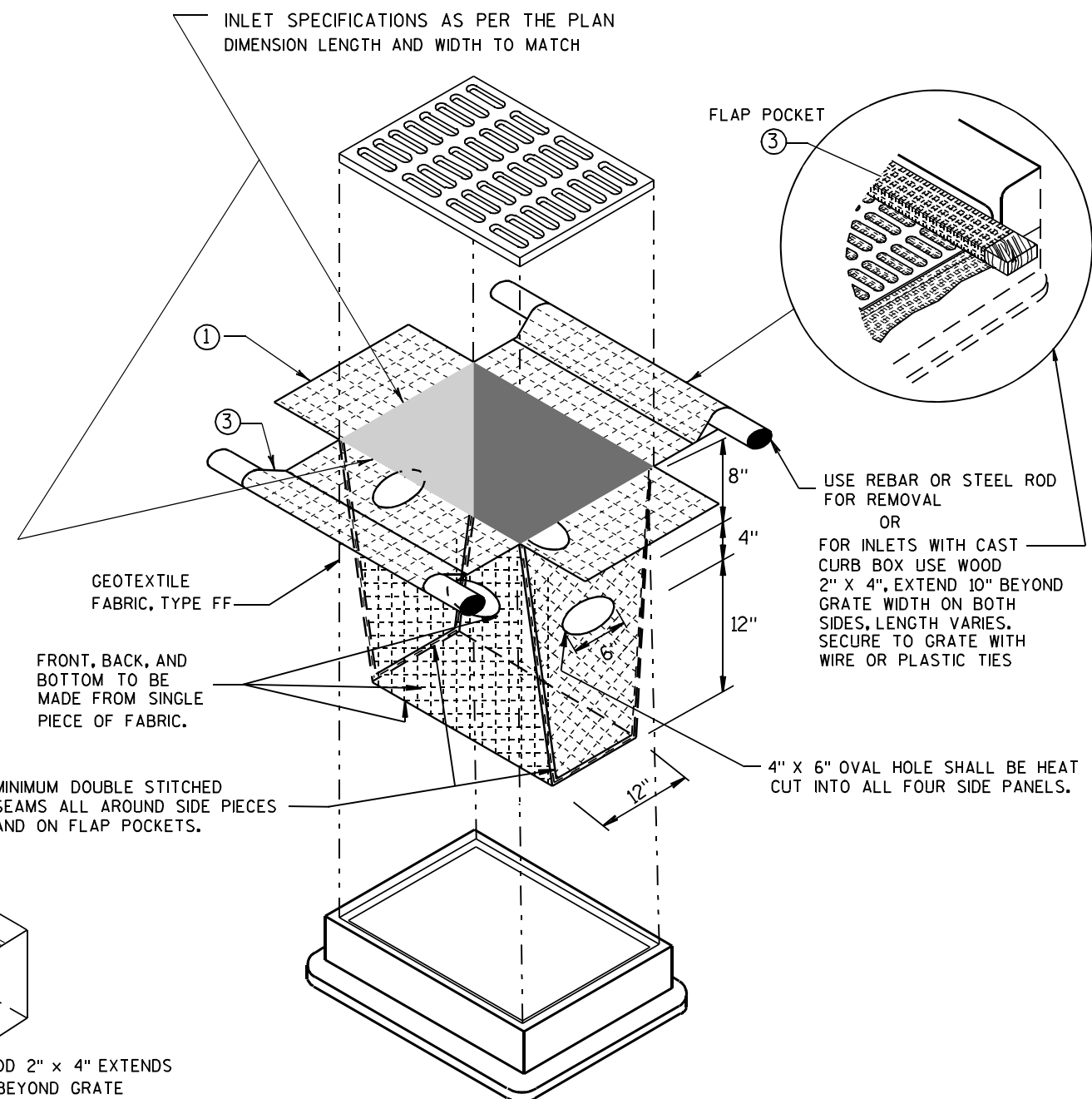
THE CONTRACTOR SHALL DEMONSTRATE A METHOD OF MAINTENANCE, USING A SEWN FLAP, HAND HOLDS OR OTHER METHOD TO PREVENT ACCUMULATED SEDIMENT FROM ENTERING THE INLET.

TYPE D

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

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

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



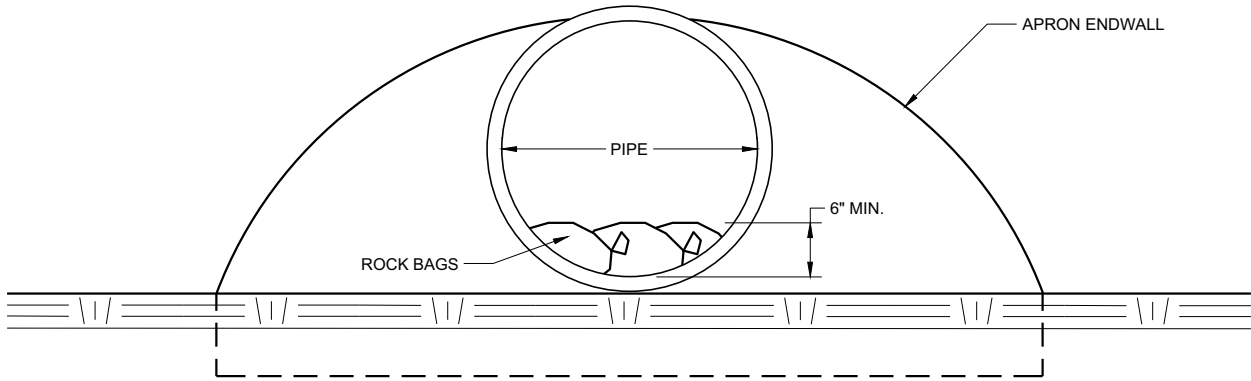
INLET PROTECTION, TYPE D

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

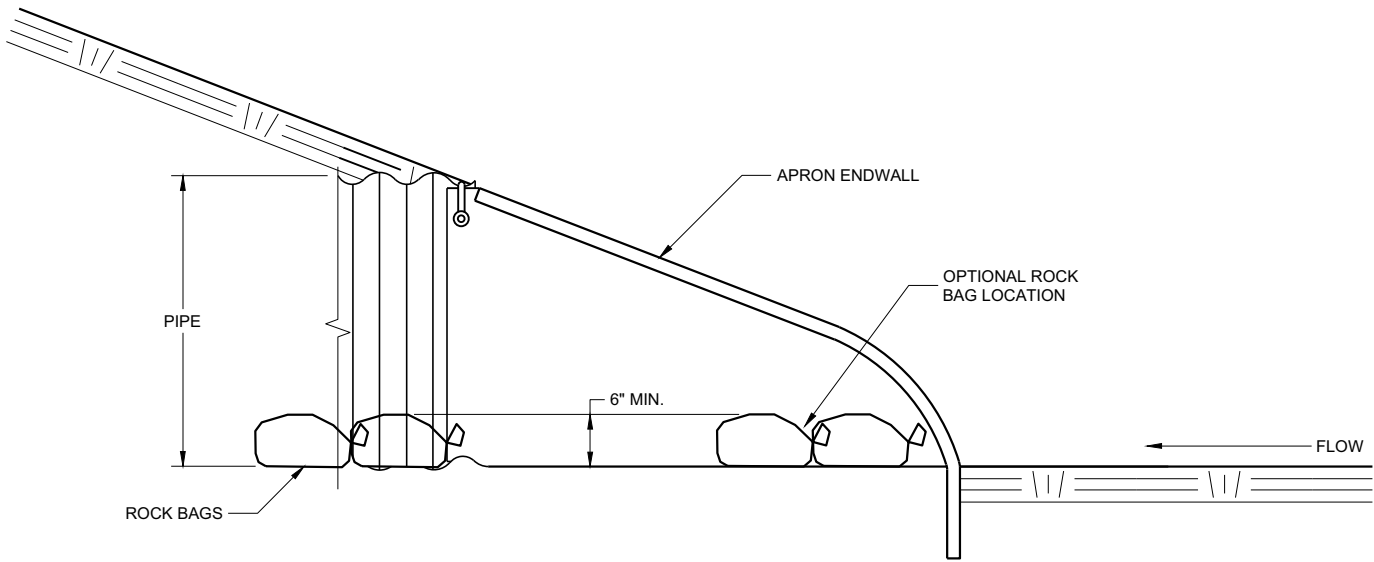
**INLET PROTECTION
TYPE A, B, C, AND D**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
10/16/02 /S/ Beth Connolly
DATE 76
FHWA CHIEF ROADWAY DEVELOPMENT ENGINEER



END VIEW



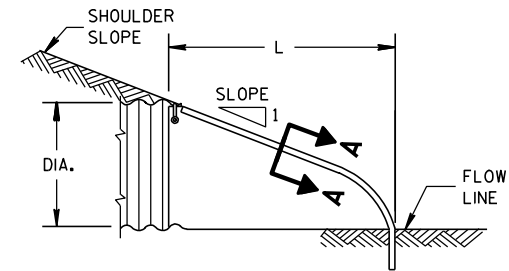
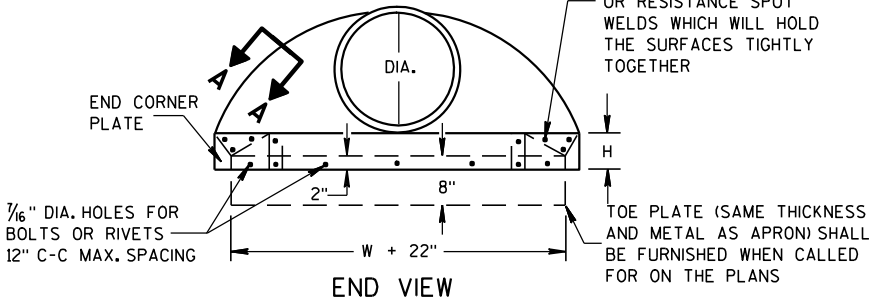
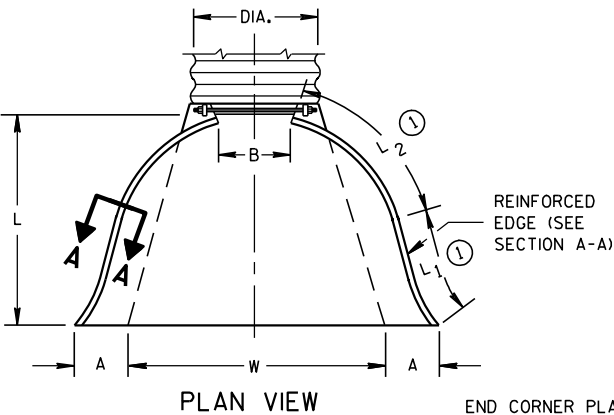
SIDE VIEW

CULVERT PIPE CHECK
(INSTALL ON INLET END ONLY)

CULVERT PIPE CHECK		
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION		
APPROVED May 2019 DATE	/S/ Daniel Schave	-
FHWA	EROSION CONTROL ENGI	77

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

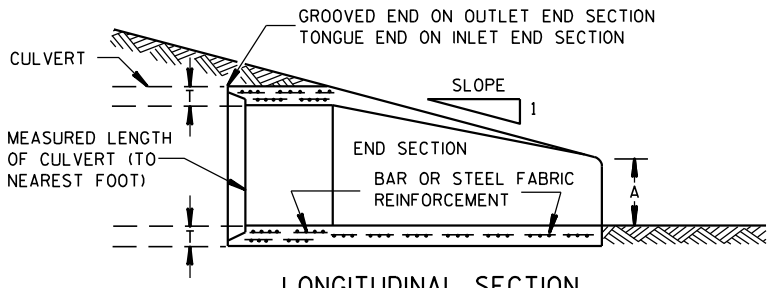
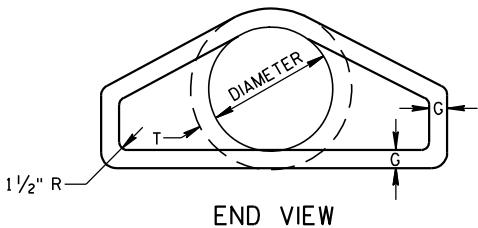
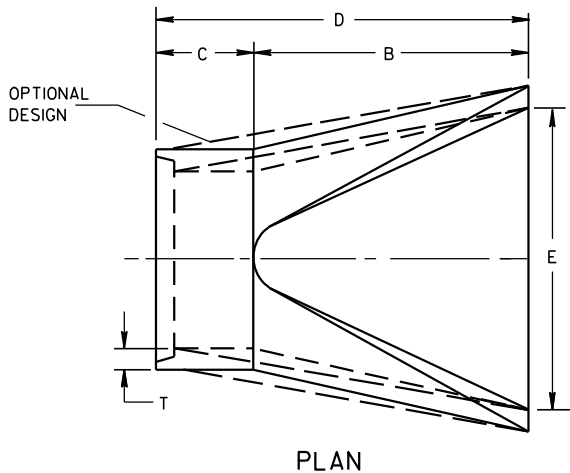
* EXCEPT CENTER PANEL
SEE GENERAL NOTES



METAL ENDWALLS

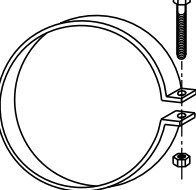
REINFORCED CONCRETE APRON ENDWALLS												
PIPE DIA. (IN.)	DIMENSIONS (Inches)							APPROX. SLOPE				
	T	A	B	C	D	E	G					
12	2	4	24	48 1/8	72 1/8	24	2	3 to 1				
15	2 1/4	6	27	46	73	30	2 1/4	3 to 1				
18	2 1/2	9	27	46	73	36	2 1/2	3 to 1				
21	2 3/4	9	36	37 1/2	73 1/2	42	2 3/4	3 to 1				
24	3	9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

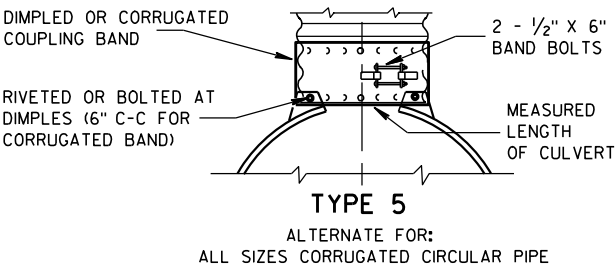
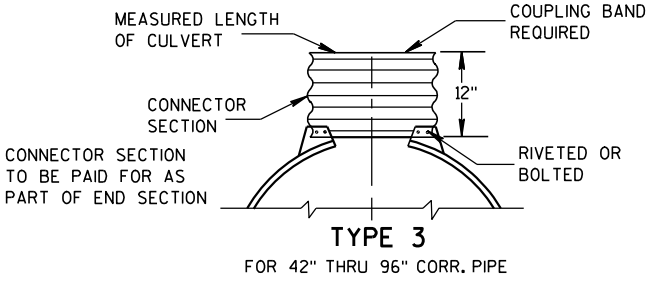
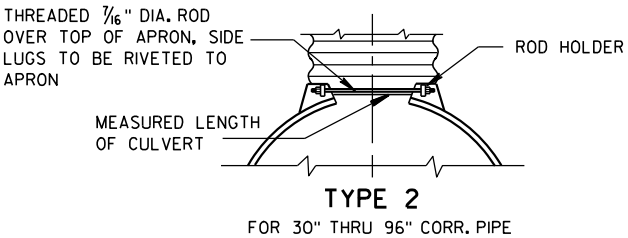
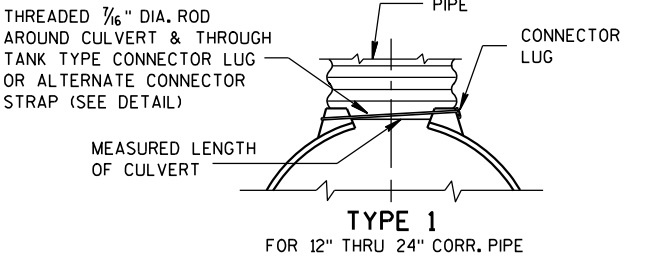


CONCRETE ENDWALLS

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



ALTERNATE FOR TYPE 1 CONNECTION
END SECTION CONNECTOR STRAP



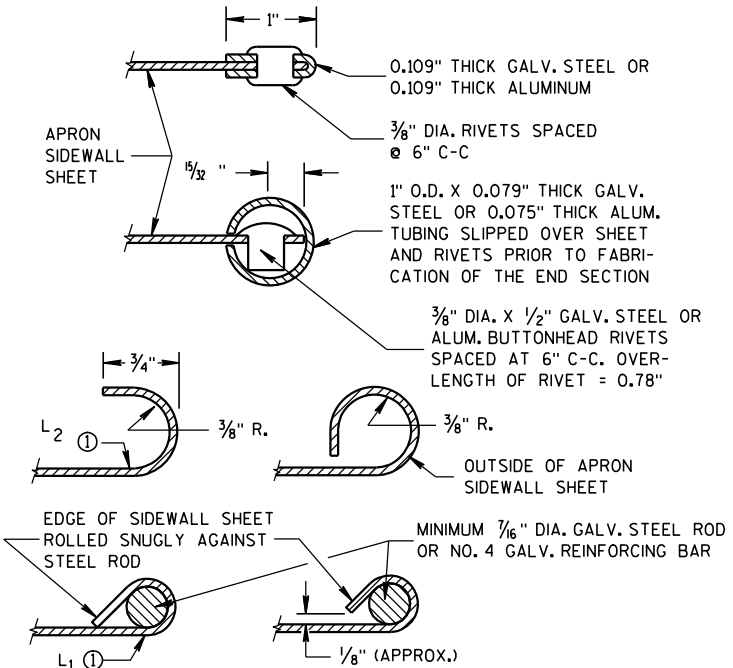
NOTE: DIMPLED BAND FITS OVER OUTSIDE OF ENDWALL, AND CORRUGATED BAND FITS INSIDE ENDWALL. DIMPLED BAND MAY BE USED WITH HELICALLY CORRUGATED PIPE.

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

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

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

CONNECTION DETAILS



SECTION A-A

GENERAL NOTES

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

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

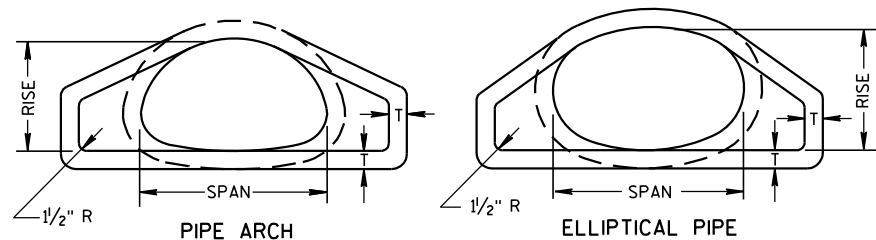
ALL THREE PIECE STEEL APRON ENDWALLS FOR 60" DIAMETER PIPE AND LARGER SHALL HAVE 0.109" SIDES AND 0.138" CENTER PANELS. ALL THREE PIECE ALUMINUM APRON ENDWALLS FOR 60" DIAMETER PIPE AND LARGER SHALL HAVE 0.105" SIDES AND 0.134" CENTER PANELS. THE WIDTH OF CENTER PANELS SHALL BE GREATER THAN 20 PERCENT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

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

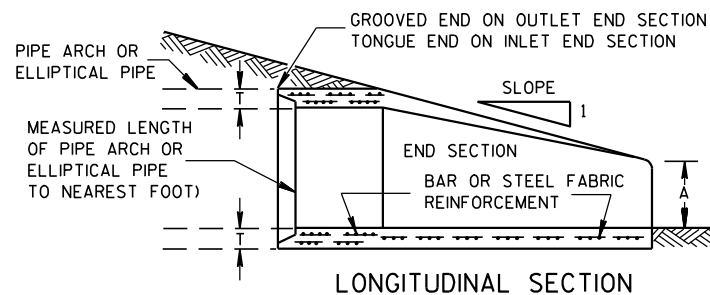
WHERE TWO OR MORE PIPES WITH APRON ENDWALLS ARE LAID ADJACENT TO EACH OTHER, THEY SHALL BE SEPARATED BY A DISTANCE SUFFICIENT TO PROVIDE A MINIMUM CLEARANCE OF 6 INCHES BETWEEN APRON ENDWALLS.

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

APRON ENDWALLS FOR CULVERT PIPE			
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
APPROVED 11/30/94 DATE	/S/ Rory L. Rhinehart CHIEF ROADWAY DEVELOP	78	NEER
FHWA			

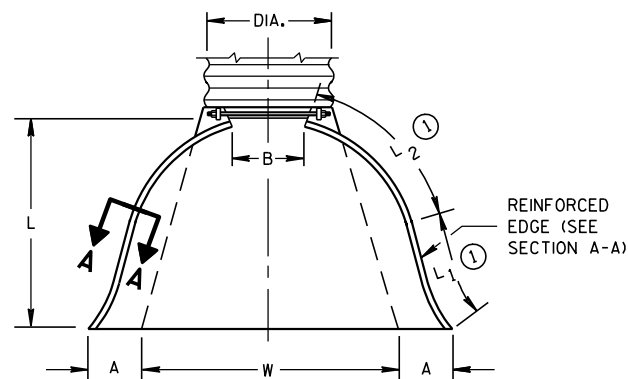


END VIEW



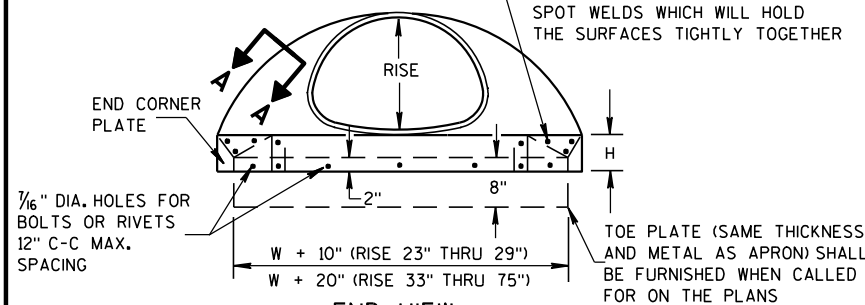
LONGITUDINAL SECTION

CONCRETE ENDWALLS

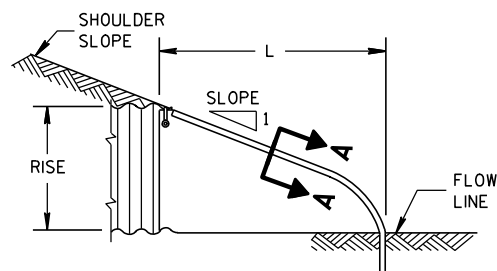
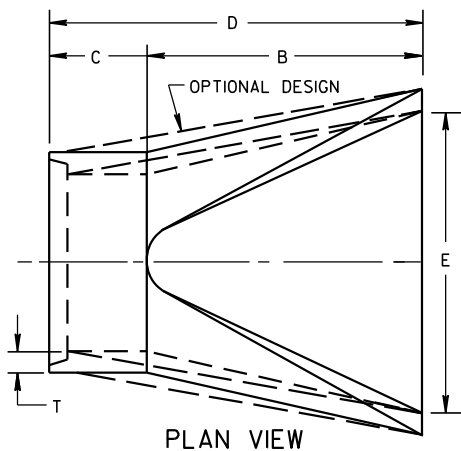


PLAN VIEW

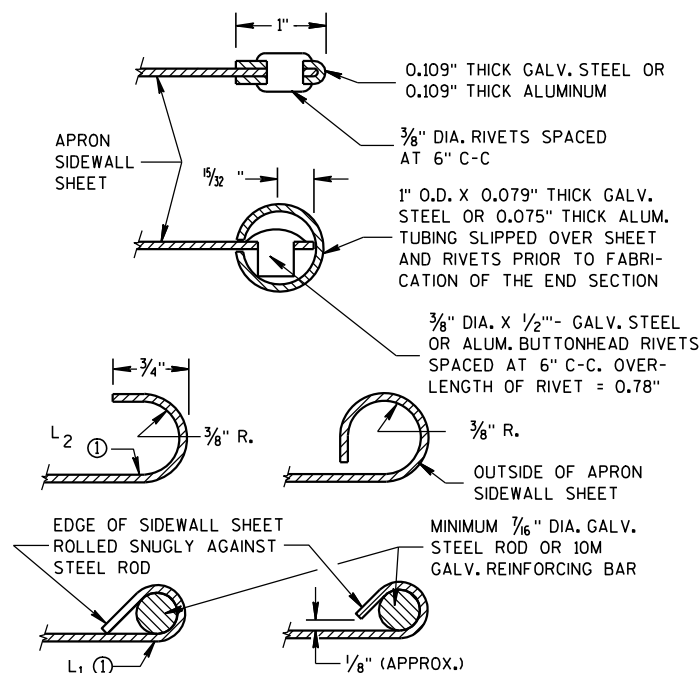
END CORNER PLATES MAY BE FASTENED TO APRON PROPER BY BOLTS, RIVETS, OR RESISTANCE SPOT WELDS WHICH WILL HOLD THE SURFACES TIGHTLY TOGETHER



END VIEW

SIDE ELEVATION
METAL ENDWALLS

PLAN VIEW



SECTION A-A

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

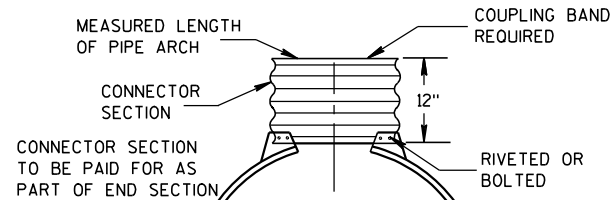
3" X 1" CORRUGATIONS													
EQUIV. DIA. (Inches)	(Inches)		MIN. THICK. (Inches)		DIMENSIONS (Inches)							APPROX. SLOPE	BODY
	SPAN	RISE	STEEL	ALUM.	A (±1")	B (MAX.)	H (±1")	L (±1 1/2")	L1 ①	L2 ①	W (±2")		
48	53	41	.109	.105	18	26	12	63	24	72 3/4	90	2 1/2 to 1	2 Pc.
54	60	46	.109	.105	18	30	12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

NOTE: ALL SPLICES TO BE LAP RIVETED OR BOLTED.

* EXCEPT CENTER PANEL
SEE GENERAL NOTES

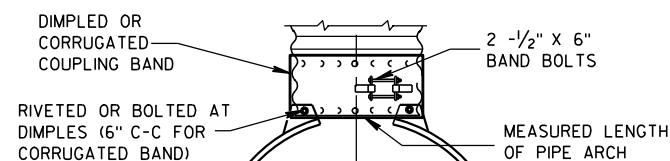
TYPE 2

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

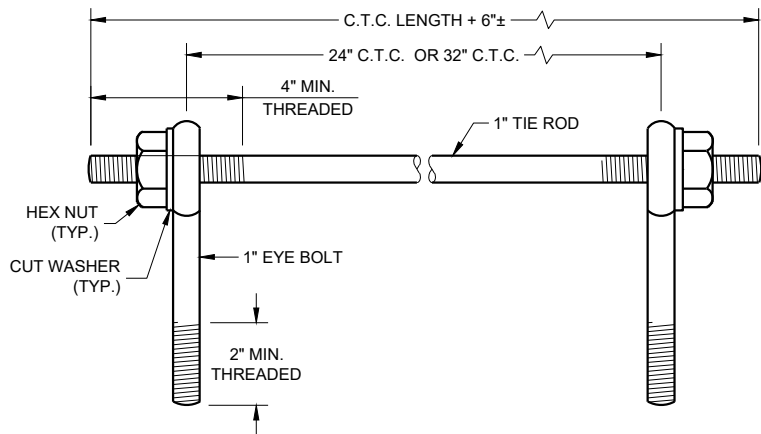
DATE

/S/ Rory L. Rhinehart

CHIEF ROADWAY DEVELOPER

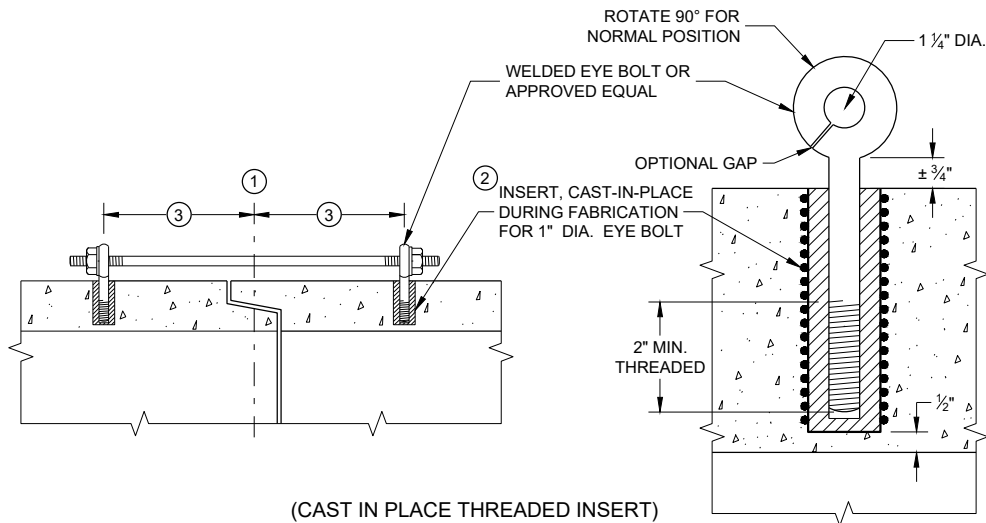
FHWA

ENGINEER



EYE BOLTS AND TIE ROD

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



(CAST IN PLACE THREADED INSERT)

LONGITUDINAL SECTIONS

GENERAL NOTES

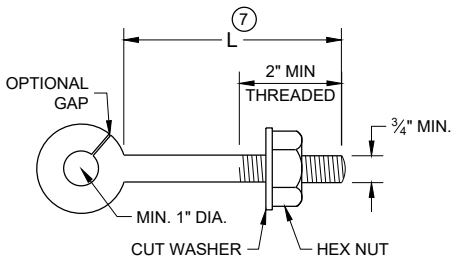
DETAILS OF CONSTRUCTION, MATERIALS, AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

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.

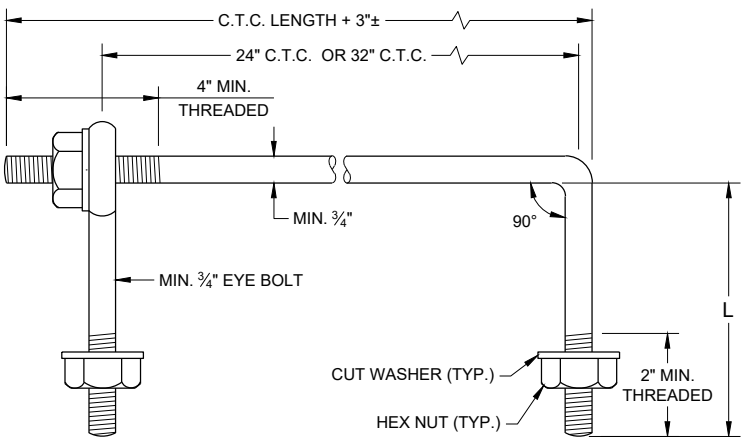
JOINT TIES TO BE HOT-DIP GALVANIZED PER ASTM A 153.

- 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.

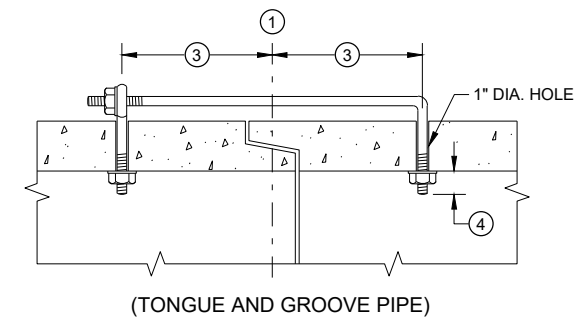


EYE BOLT 7

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

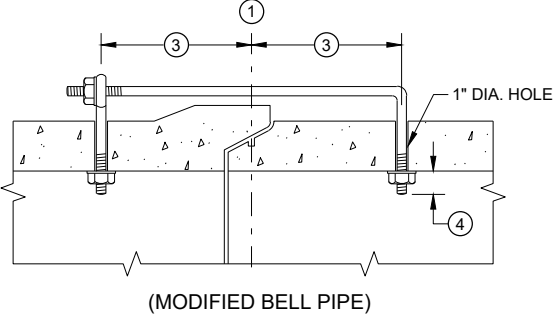


(TONGUE AND GROOVE PIPE)

LONGITUDINAL SECTION

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

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

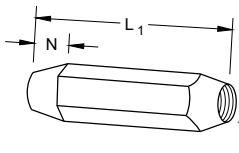


(MODIFIED BELL PIPE)

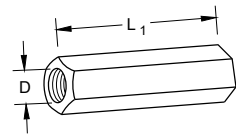
ADJUSTABLE TIE ROD TABLE

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

DIMENSIONS SHOWN ARE IN INCHES

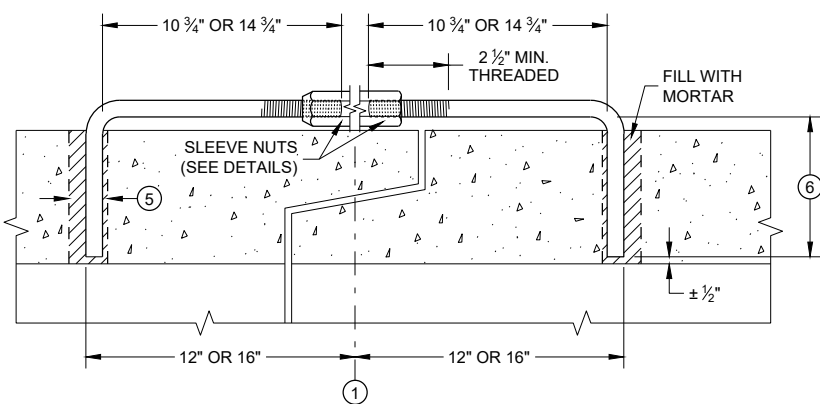


TAPERED



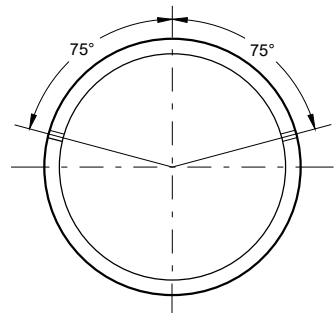
PLAIN

RIGHT AND LEFT THREADS
SLEEVE NUTS



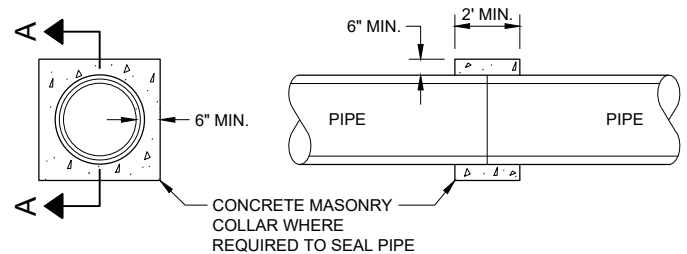
LONGITUDINAL SECTION

ADJUSTABLE TIE ROD (ALTERNATE NO. 3)



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

TRANSVERSE SECTION



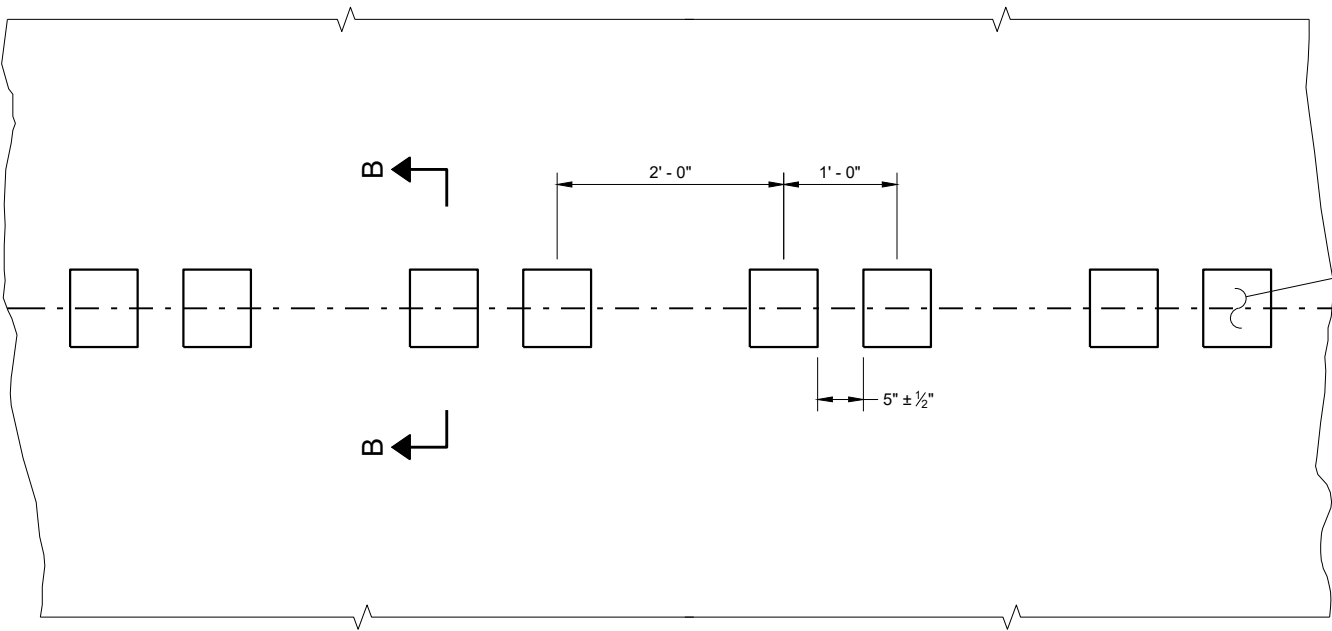
SECTION A - A

CONCRETE COLLAR DETAIL

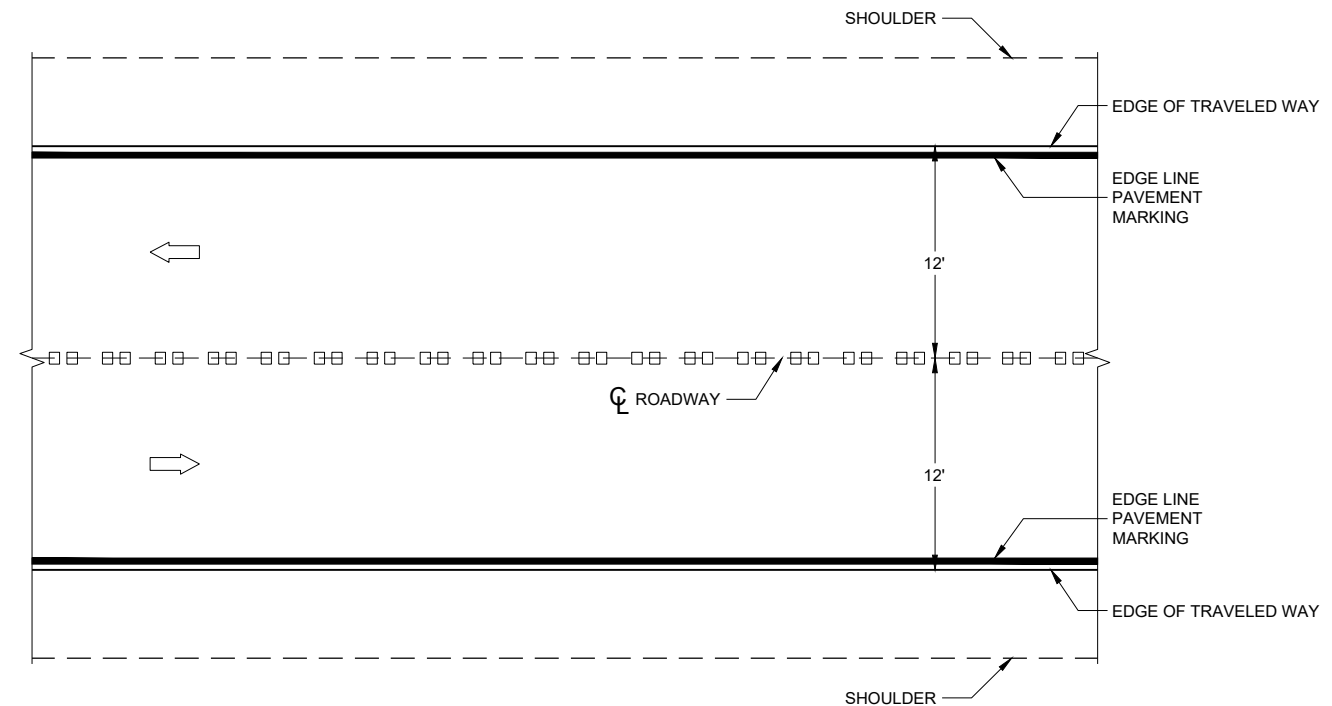
JOINT TIES FOR CONCRETE PIPE AND CONCRETE COLLAR DETAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
November 2021 /S/ Rodney Taylor
DATE ROADWAY STANDARDS DEVELOPMENT ENGINEER 80
FHWA

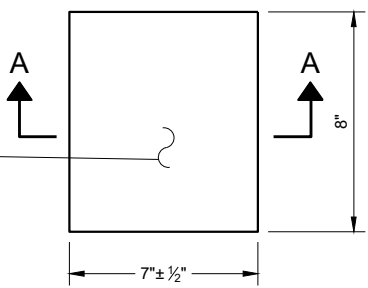


PLAN DETAIL VIEW

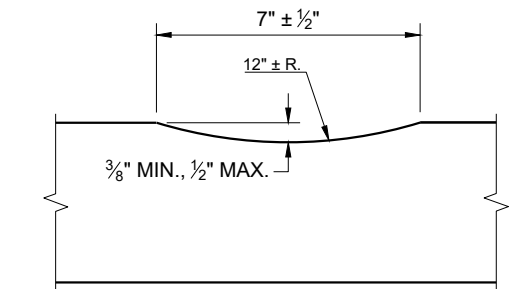


PLAN VIEW

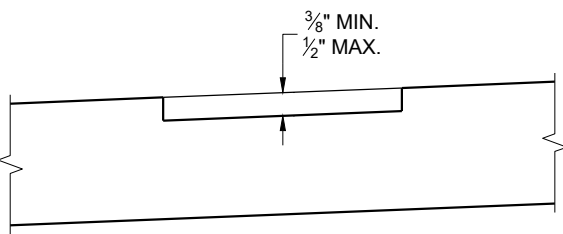
CENTERLINE RUMBLE STRIPS - ASPHALT



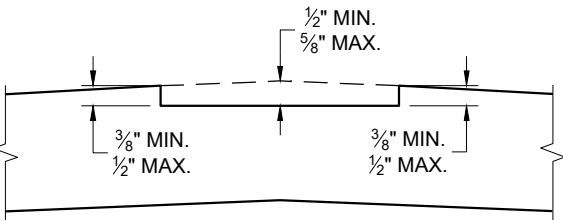
PLAN VIEW
(SINGLE GROOVE)



SECTION A - A



SECTION B - B
SUPERELEVATED ROADWAY

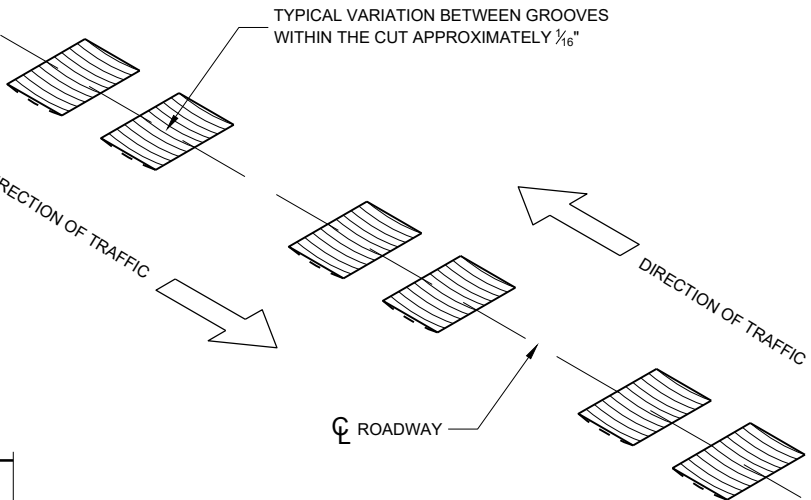


SECTION B - B
CROWNED ROADWAY

GENERAL NOTES

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

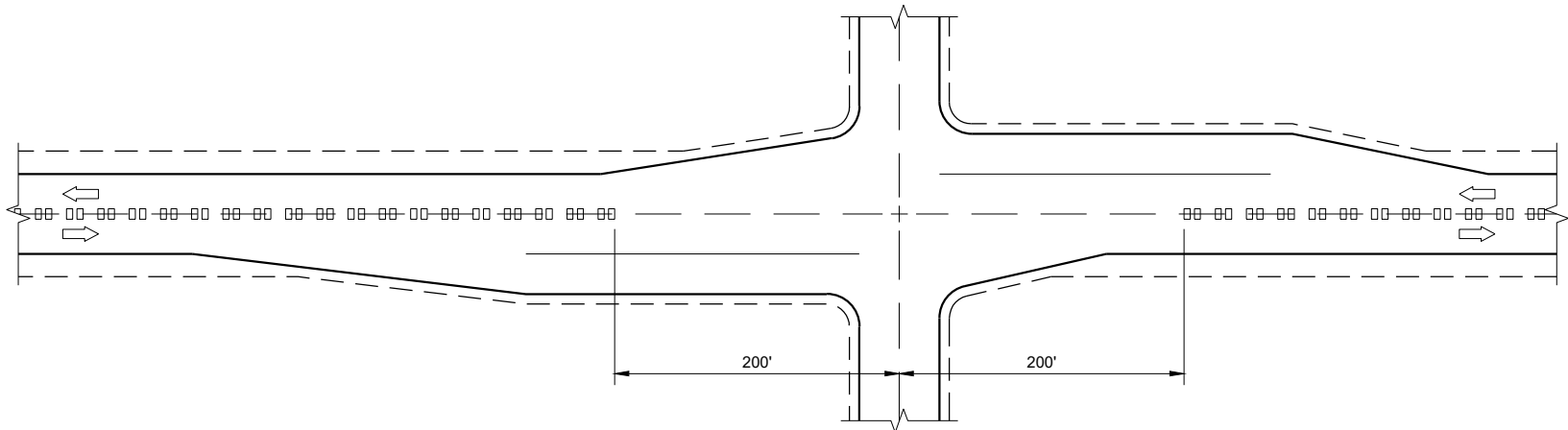
CENTERLINE GROOVES MAY BE OMITTED IN AREAS WITH HIGH CONCENTRATIONS OF DRIVEWAYS WHEN DIRECTED BY THE ENGINEER.



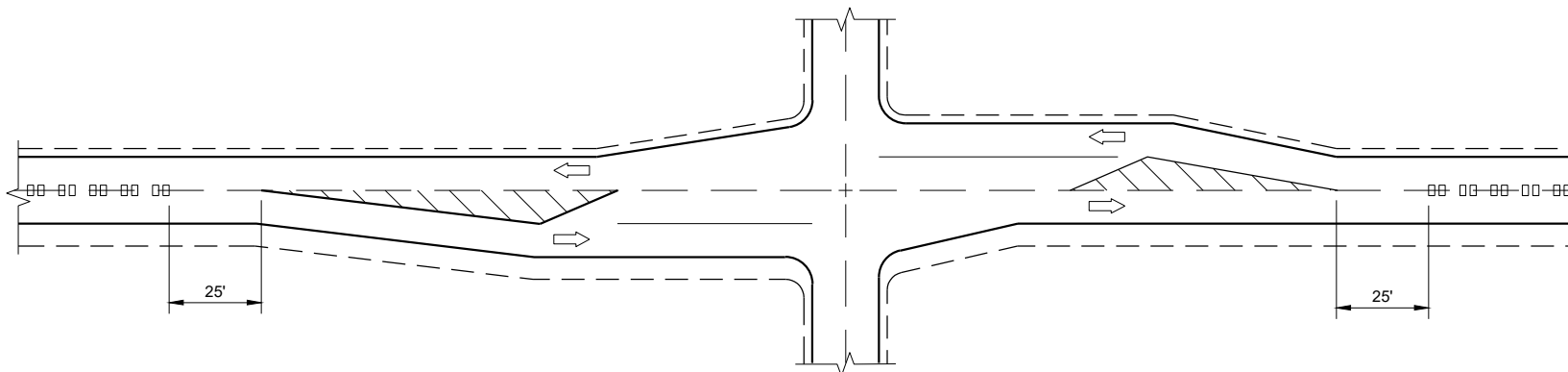
ISOMETRIC

CENTERLINE RUMBLE
STRIPS - ASPHALT

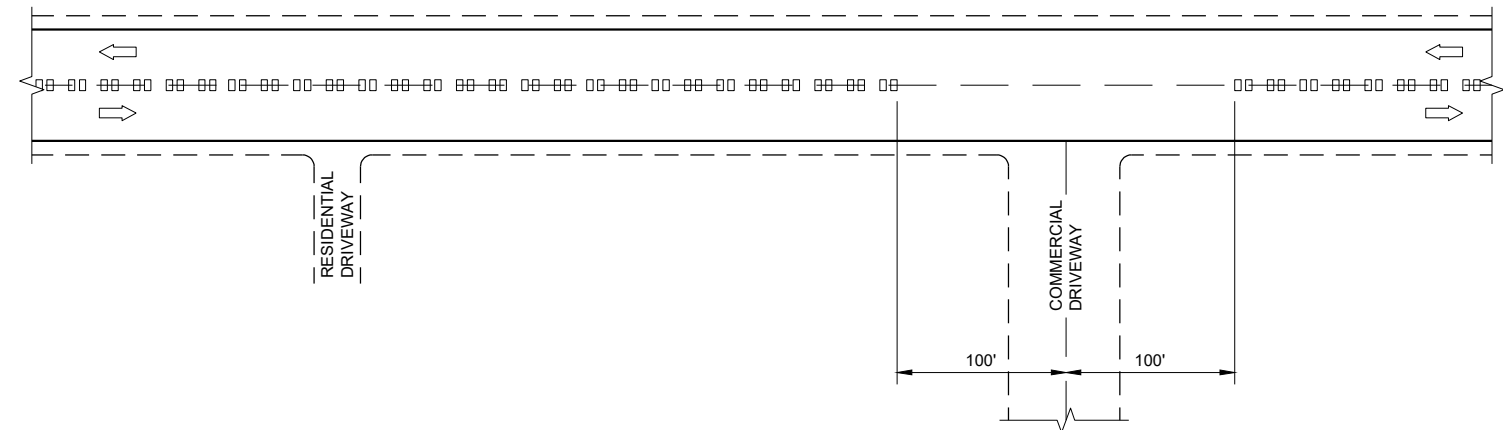
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



CENTERLINE GROOVES AT INTERSECTIONS



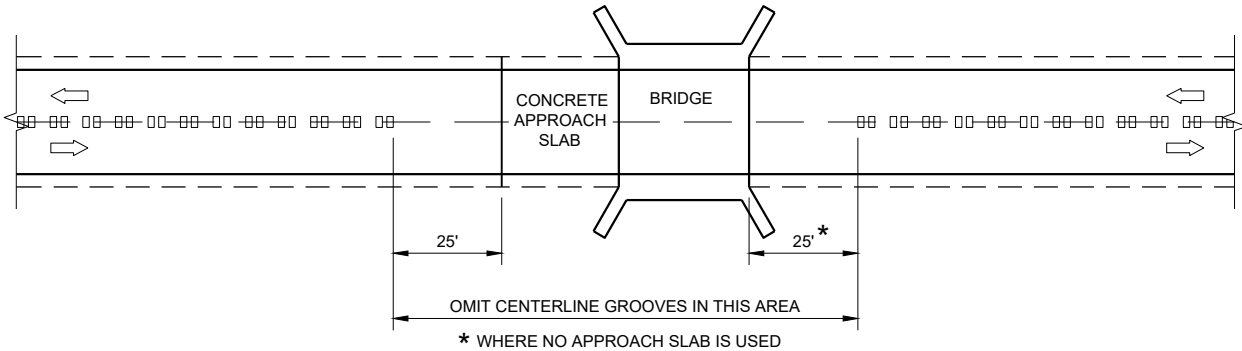
CENTERLINE GROOVES AT INTERSECTIONS
(WITH LEFT TURN LANES)



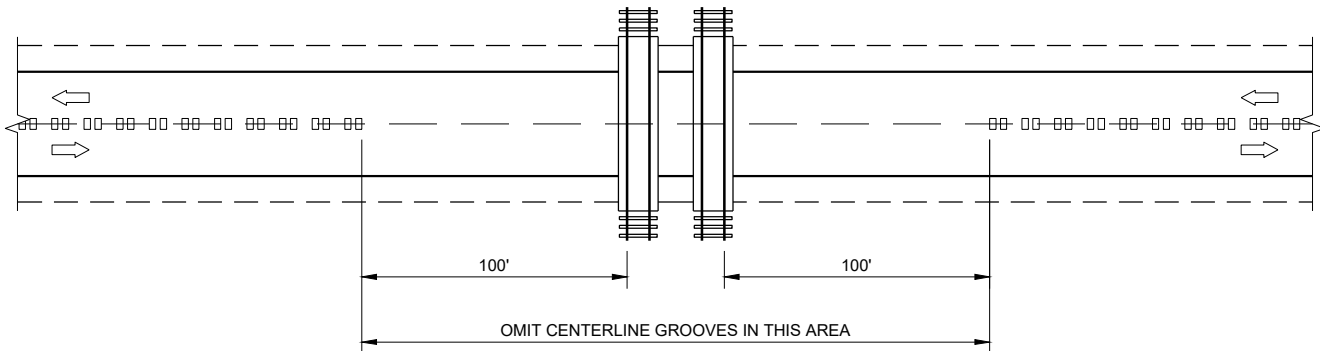
CENTERLINE GROOVES AT DRIVEWAYS^①

GENERAL NOTES

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



CENTERLINE GROOVES AT BRIDGES

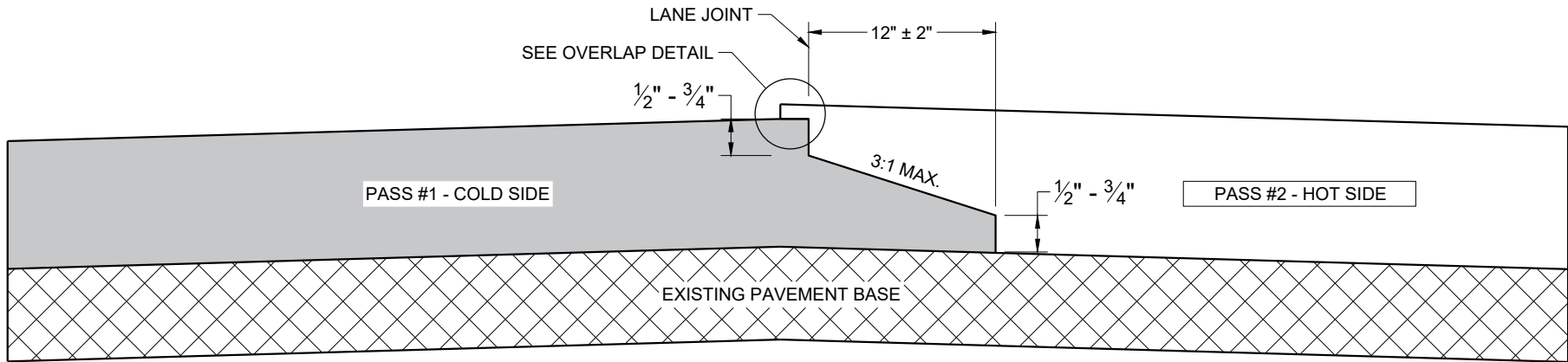


CENTERLINE GROOVES AT RAILROADS

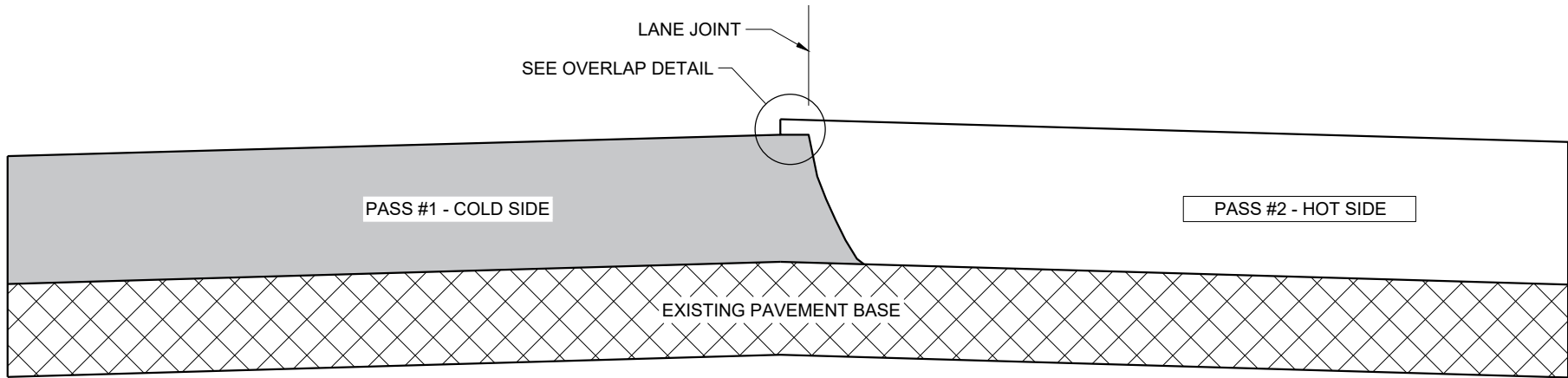
CENTER LINE
RUMBLE STRIPS -
INTERSECTIONS, DRIVEWAYS,
BRIDGES, RAIL ROADS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

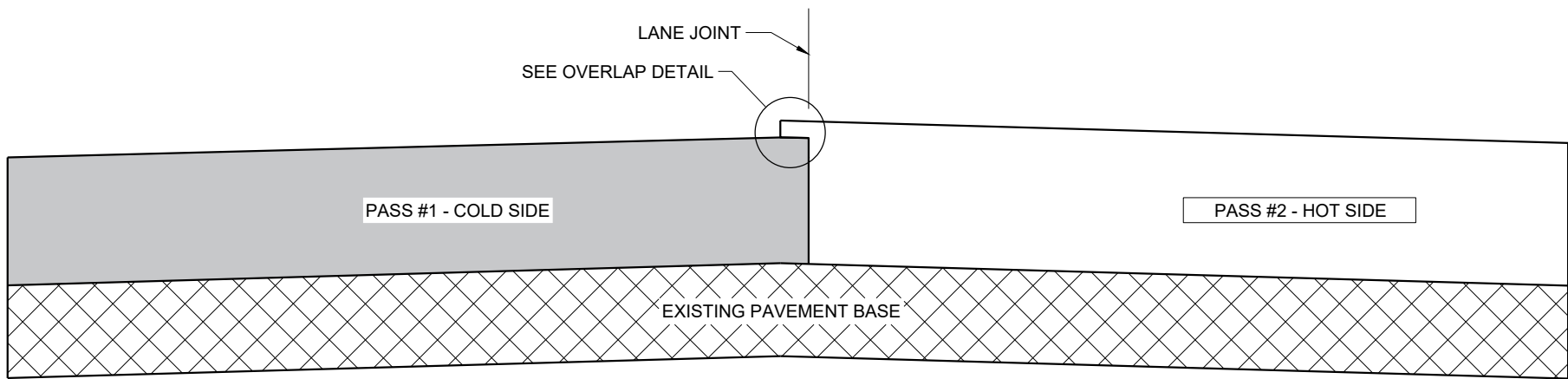
APPROVED
May 2023
DATE
/S/ John Jenkins
ROADWAY STANDARDS DEVELOPMENT ENGINEER
82
FHWA



**TYPICAL PAVEMENT CROSS SECTION
NOTCHED WEDGE JOINT**



**TYPICAL PAVEMENT CROSS SECTION
VERTICAL JOINT**



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

GENERAL NOTES

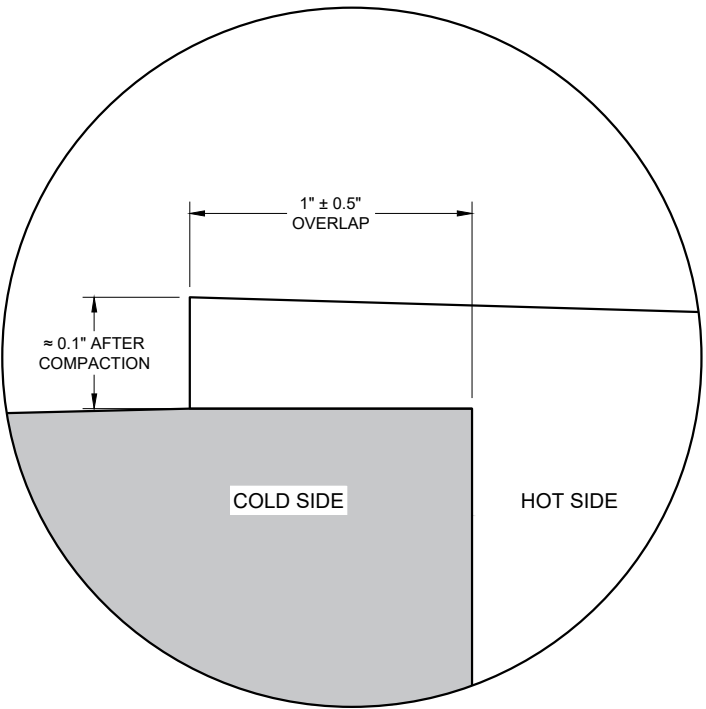
IN ADDITION TO THE DETAILS PROVIDED IN THIS DRAWING, CONFORM TO STANDARD SPECIFICATION 450.3.2.8 FOR WHEN A NOTCHED WEDGE JOINT IS REQUIRED AND FOR GENERAL JOINT CONSTRUCTION REQUIREMENTS.

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

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

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

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

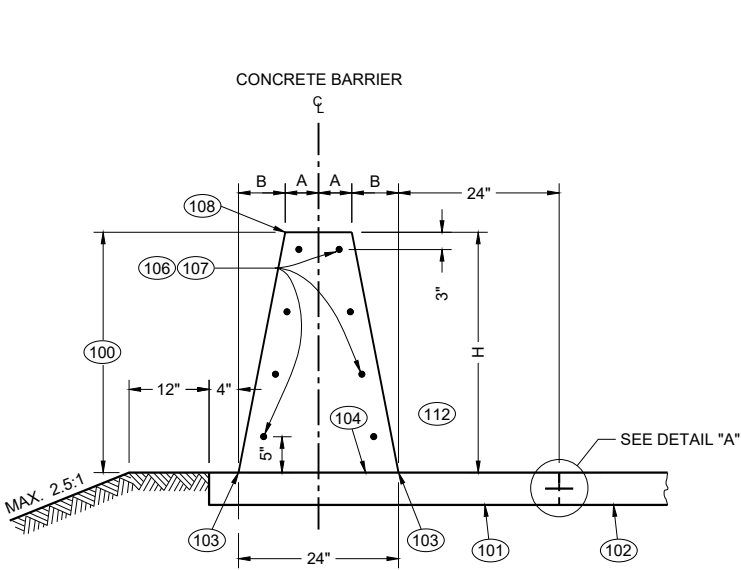


OVERLAP DETAIL (TYPICAL)

HMA LONGITUDINAL JOINTS

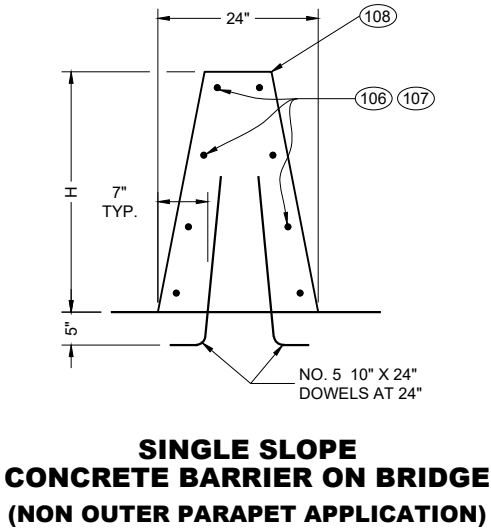
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
November 2020 /S/ Steven Hefel
DATE HMA PAVEMENT ENGIN 83
FHWA

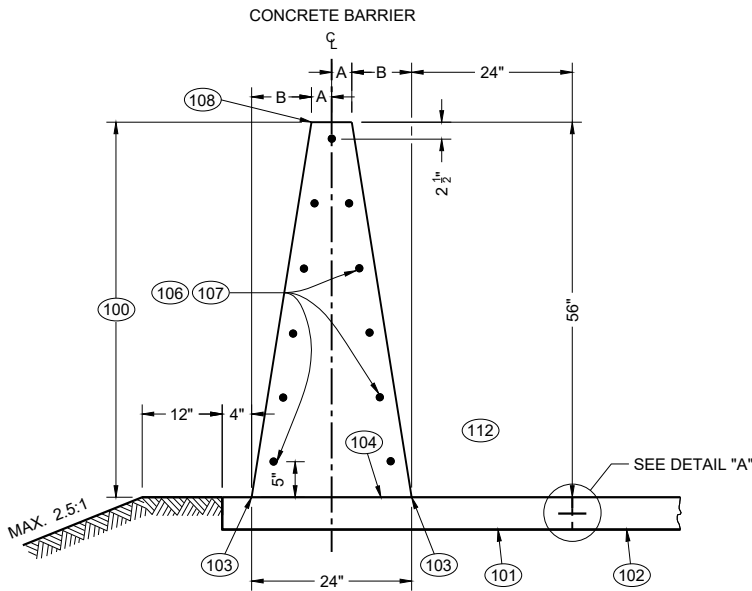


**32 - INCH, 36 - INCH OR 42 - INCH
SINGLE SLOPE CONCRETE BARRIER**
(TYPE S32, TYPE S36, TYPE S42)

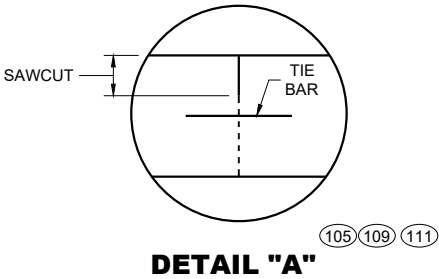
TABLE "A"			
BARRIER HEIGHT H INCHES	A INCHES	B INCHES	NUMBER OF NO. 5 BARS EACH
32	7	5	8
36	6 ¼	5 ¾	8
42	5 ¼	6 ¾	10
56	3	9	11



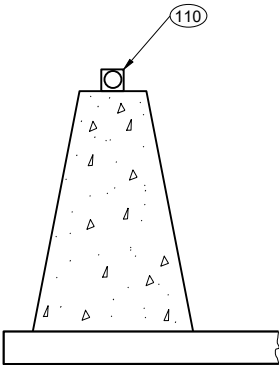
**SINGLE SLOPE
CONCRETE BARRIER ON BRIDGE**
(NON OUTER PARAPET APPLICATION)



**56 - INCH SINGLE
SLOPE CONCRETE BARRIER**
(TYPE S56)



DETAIL "A"



DELINEATION

GENERAL NOTES

WHERE THE CONCRETE BARRIER IS ADDED TO THE FACE OF EXISTING CONCRETE STRUCTURE, MATCH EXISTING WEEP HOLES.

LOCATE EXPANSION JOINTS IN CONCRETE BARRIER SHALL AT ALL DECK AND PRINCIPAL WALL JOINTS. FILL EXPANSION JOINT WITH EXPANSION JOINT MATERIAL. SEAL THE EXPANSION JOINT CONFORMING TO STANDARD SPECIFICATION 415.2.6.

PLACE BARRIER PERPENDICULAR TO SHOULDER GRADE, UNLESS INDICATED IN PLAN.

4000 PSI CONCRETE AIR ENTRAINMENT PER STANDARD SPECIFICATION 501.

2" CLEAR COVER TYPICAL

ANCHORS ARE REQUIRED AT CONCRETE BARRIER ENDS AND AT INTERRUPTIONS IN CONCRETE BARRIER. ANCHOR MAY BE AS SHOWN IN THIS SDD OR DETAIL SHOWN ON SDD 14B33. ANCHORS INCIDENTAL TO CBSS.

PROVIDE A 1" DEEP CONTRACTION JOINT IN BARRIER PAD AND BARRIER. JOINT IS TO MATCH ADJACENT CONCRETE JOINTS. NO DOWEL BARS ARE REQUIRED FOR BARRIER PAD. IF ADJACENT TO ASPHALT, CONTRACTION JOINT IS REQUIRED EVERY 15'.

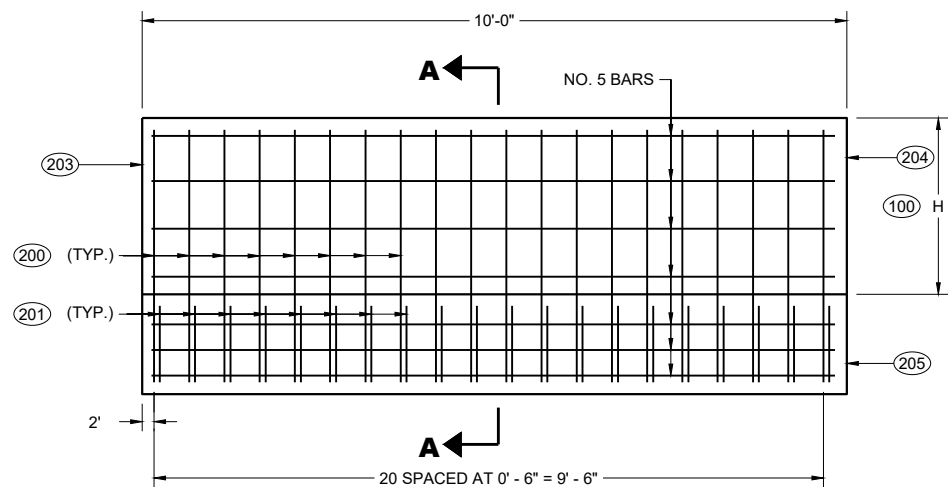
ALL REBAR SHALL BE EPOXY COATED M31 TYPE S. SEE STANDARD SPECIFICATION 505.

CONCRETE BARRIER, UPPER CONCRETE BARRIER, LOWER CONCRETE BARRIER, CONCRETE BARRIER PAD, AND FOOTINGS ARE TERMS USED TO DESCRIBE PARTS OF SINGLE SLOPE CONCRETE BARRIER BID ITEMS. THESE PARTS ARE INCIDENTAL TO THE SINGLE SLOPE CONCRETE BARRIER BID ITEMS.

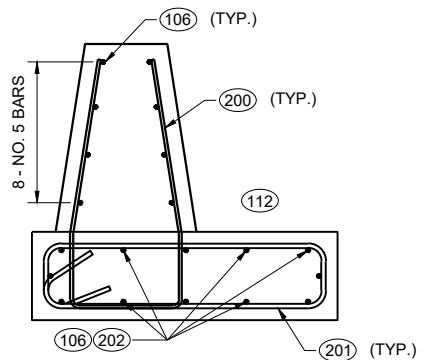
- (100) CONCRETE BARRIER
- (101) CONCRETE BARRIER PAD
- (102) PAVEMENT
- (103) WHERE VERTICAL ROADWAY OFFSET IS GREATER THAN 1 ½", USE TYPE A SINGLE SLOPE BARRIER.
- (104) OPTIONAL CONSTRUCTION JOINT.
- (105) CONSTRUCTION JOINTS MAY BE ELIMINATED WHEN CONCRETE SHOULDER IS LESS THAT 10'.
- (106) STAGGER LAPPING OF LONGITUDINAL STEEL. MINIMUM OVERLAP OF STEEL IS 2' BARS AT LAPS TO BE FIRMLY TIED OR CONNECTED.
- (107) NO. 5 CONTINUOUS BARS EVENLY SPACED (SEE TABLE "A").
- (108) USE ¾" BEVEL OR 1" RADIUS ON ALL EXPOSED SHARP EDGES UNLESS OTHERWISE NOTED.
- (109) CONCRETE BARRIER PAD UNDER CBSS MAY BE PLACED SEPARATELY OR PLACED WITH CONCRETE SHOULDER AND SAWED ½ DEPTH. CONCRETE BARRIER PAD AND SAWING OF CONCRETE SHOULDER IS INCIDENTAL TO CONCRETE BARRIER BID ITEM. CONCRETE BARRIER PAD MINIMUM DEPTH IS 6", OR EQUAL TO THE DEPTH OF THE CONCRETE SHOULDER.
- (110) SEE SDD 15A04 FOR DELINEATOR DETAILS AND SPACING.
- (111) SEE SDD 13C01 FOR DETAILS TYPING CONCRETE BARRIER TO ADJACENT CONCRETE
- (112) TRAFFIC SIDE

**CONCRETE BARRIER
SINGLE SLOPE (CBSS)**

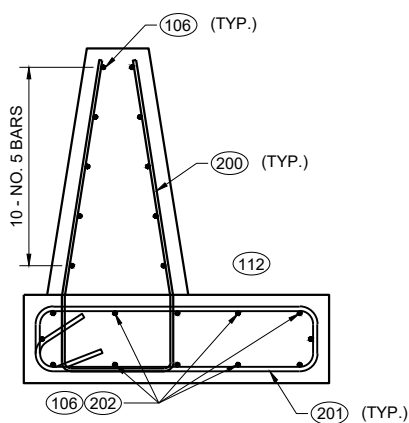
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



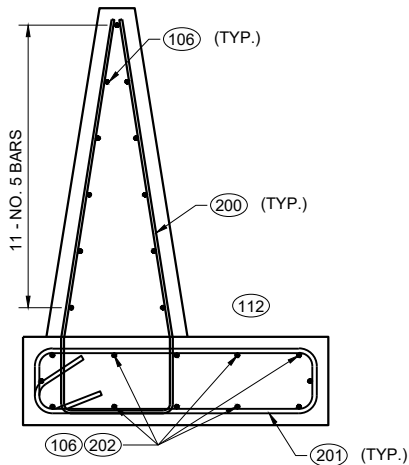
END ANCHOR SINGLE SLOPE CONCRETE BARRIER



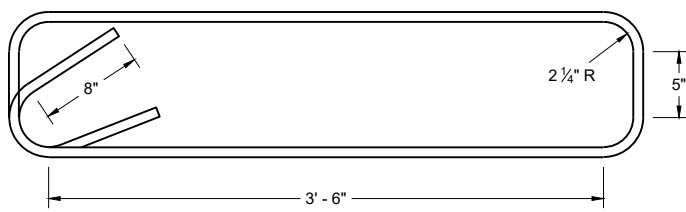
32" AND 36" CBSS



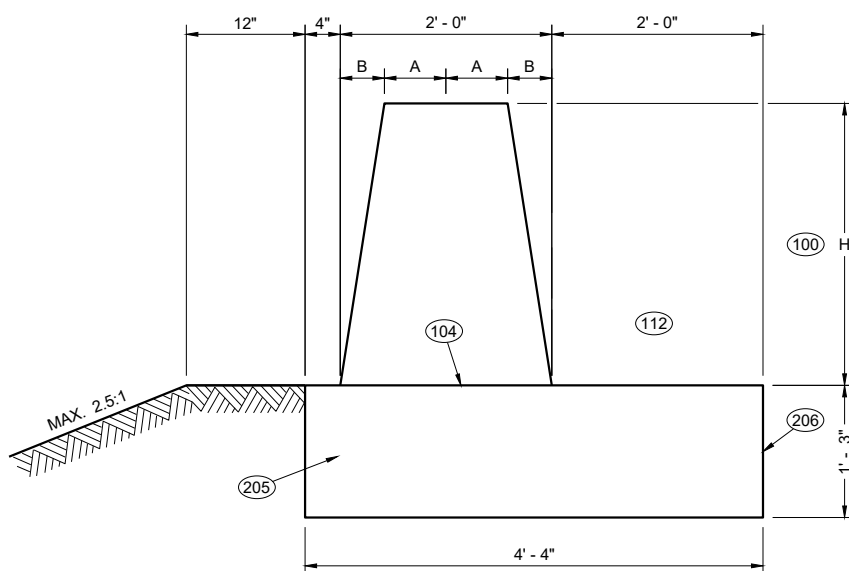
42" CBSS



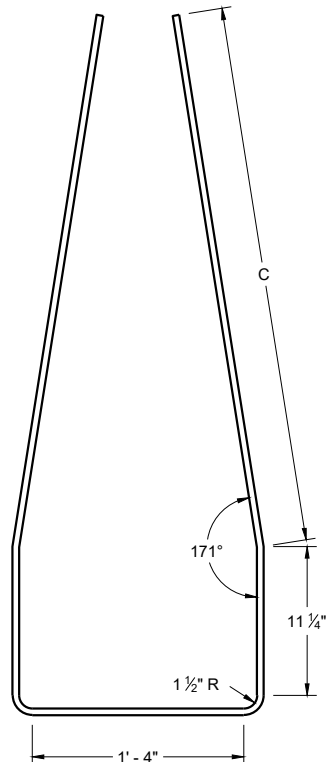
56" CBSS



STIRRUP BAR BENDING DETAIL



SECTION A - A



V1 BAR BENDING DETAIL

TABLE "B"

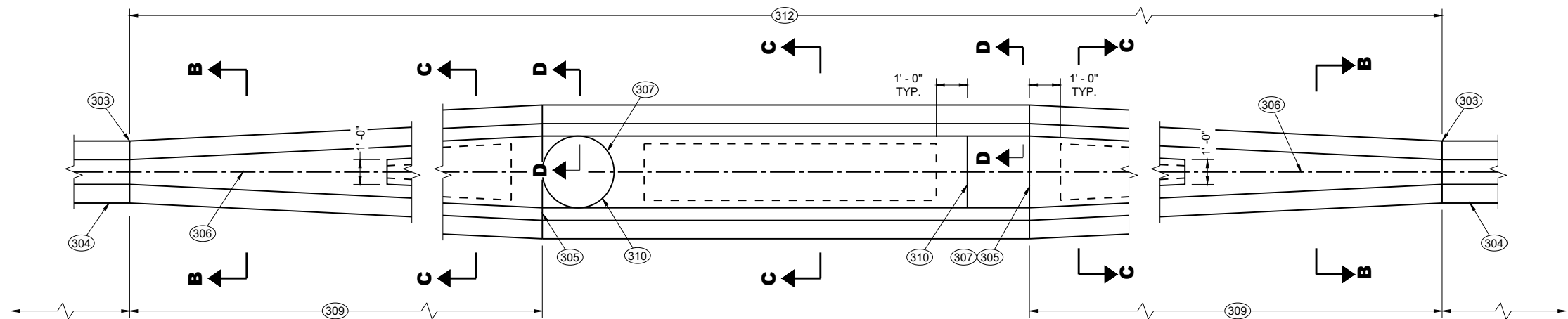
BARRIER HEIGHT H INCHES	C INCHES
32	2' - 6"
36	2' - 11"
42	3' - 4"
56	4' - 6 1/2"

GENERAL NOTES

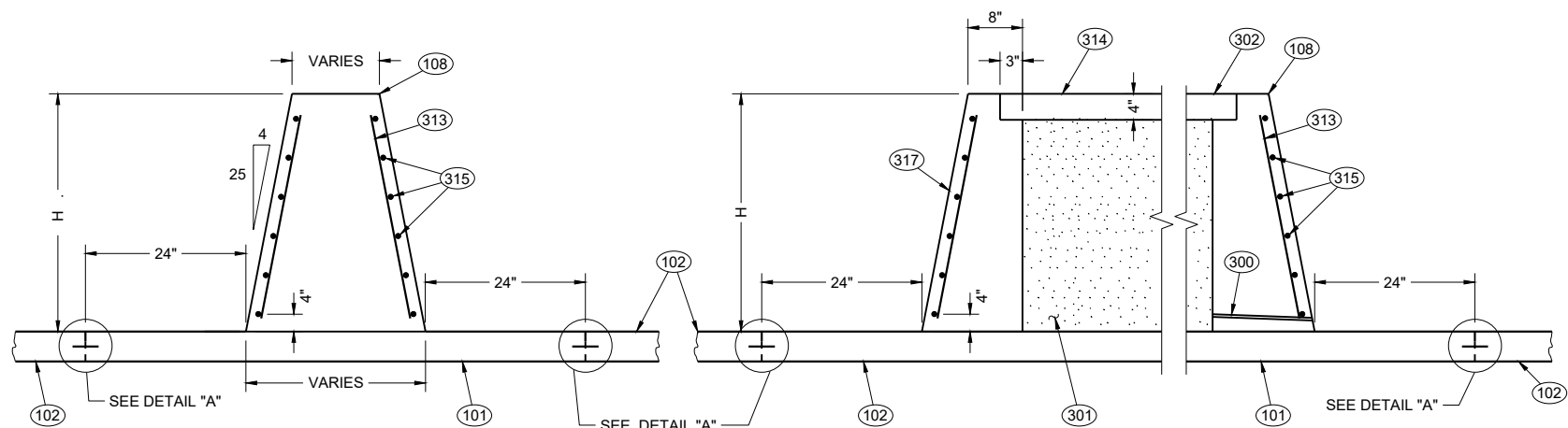
- (200) V1 BARS ARE NO. 5 BARS. (SEE BAR BENDING DETAIL)
- (201) STIRRUPS ARE NO. 6 BARS. (SEE BAR BENDING DETAIL)
- (202) TWELVE (12) NO. 5 BARS EVENLY SPACED
- (203) END OF INSTALLATION OR EXPANSION JOINT.
- (204) SEE COLD JOINT DETAIL TO CONNECT END ANCHOR SINGLE SLOPE CONCRETE BARRIER TO SINGLE SLOPE CONCRETE BARRIER.
- (205) FOOTING
- (206) DO NOT TIE TO FOOTING TO ADJACENT PAVEMENT.

CONCRETE BARRIER
SINGLE SLOPE (CBSS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

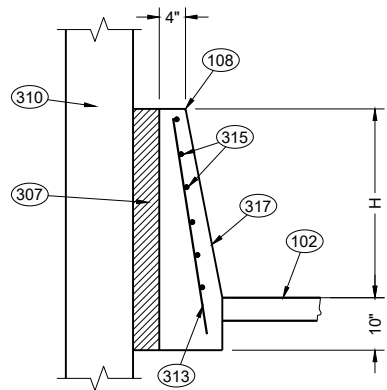


**LARGE FIXED OBJECTS PROTECTION
(TYPE S32, TYPE S36, TYPE S42, TYPE S56)**

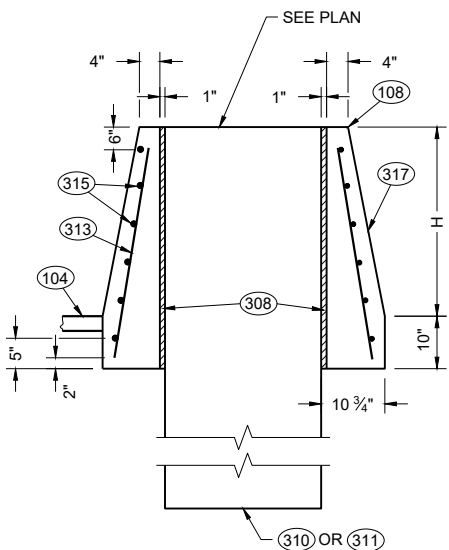


SECTION B - B

SECTION C - C



SECTION D - D



SECTION E - E

TABLE "C"

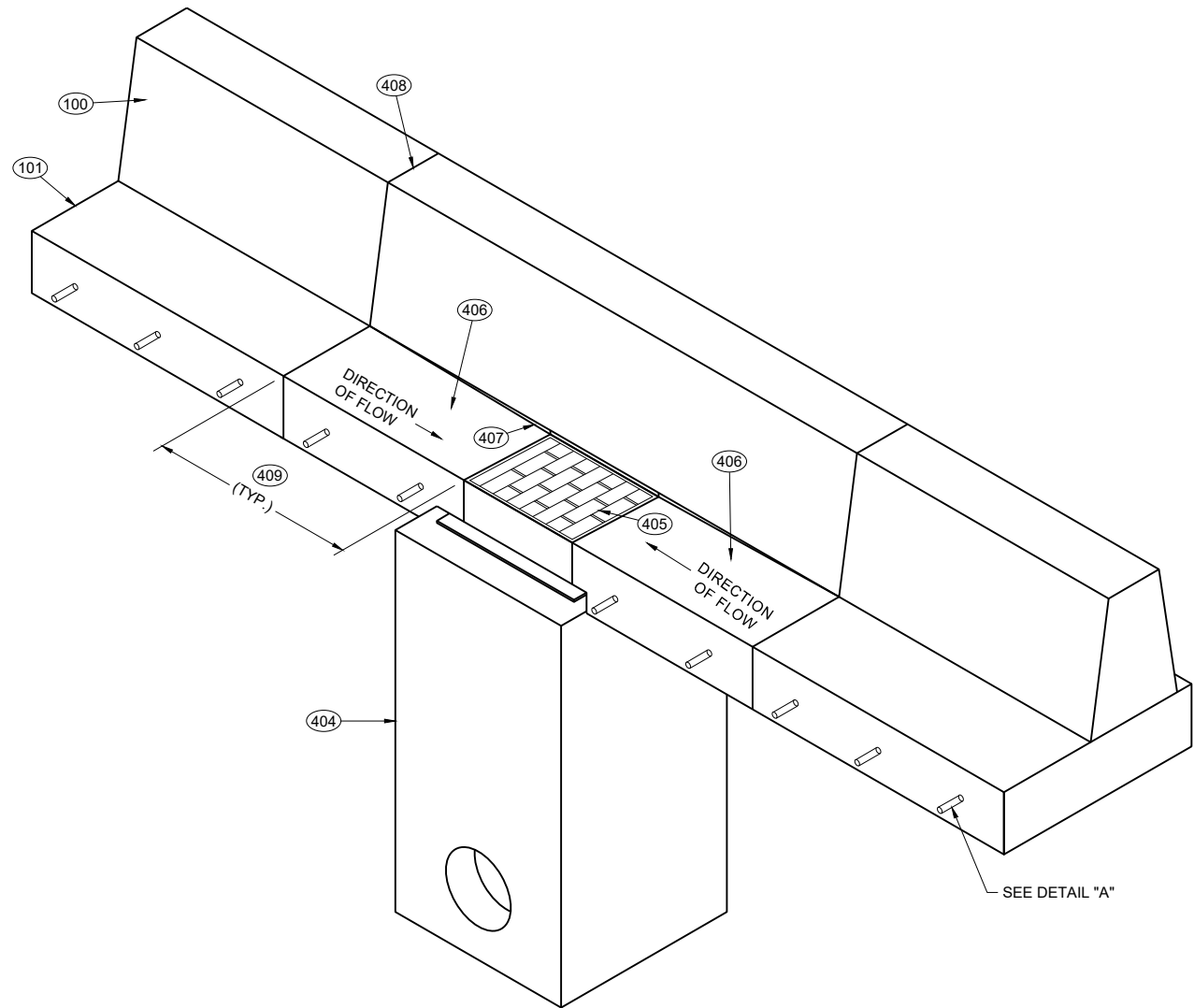
BARRIER HEIGHT H INCHES	BAR SIZE	NUMBER OF BARS EACH
32	4	6
36	4	6
42	5	6
56	5	6

GENERAL NOTES

- (300) INSTALL 1 INCH DIAMETER DRAIN PIPE EVERY 20 FEET OF CROSS SECTION B-B. MINIMUM ONE DRAIN CAVITY.
- (301) BETWEEN CONCRETE BARRIER WALLS FILL WITH FOUNDATION BACKFILL.
- (302) LEVEL THE TOP OF CONCRETE BARRIER CAP ACROSS TOP OF BARRIER. ADJUST HEIGHT OF CONCRETE BARRIER WALL ON LOW SIDE OF OFFSET OR SUPERELEVATED ROADWAYS TO PROVIDE LEVEL GRADE ACROSS TOP OF CONCRETE CAP.
- (303) USE COLD JOINTS BETWEEN FIXED OBJECT PROTECTION AND CONCRETE BARRIER ANCHOR.
- (304) INSTALL END ANCHOR SINGLE SLOPE CONCRETE BARRIER.
- (305) SEE COLD JOINT DETAIL
- (306) CENTERLINE OF CONCRETE BARRIER.
- (307) INSTALL 4" EXPANDED POLYSTYRENE BETWEEN COLUMN AND CONCRETE BARRIER.
- (308) INSTALL 1" EXPANDED POLYSTYRENE BETWEEN PEDESTAL AND CONCRETE BARRIER.
- (309) 20:1 MIN. TRANSITION.
- (310) COLUMN
- (311) PEDESTAL
- (312) LIMITS OF PAYMENT FOR LARGE FIXED OBJECT PROTECTION (SEE PLAN)
- (313) NO. 4 BARS SPACED 12" CENTER TO CENTER (TYP.)
- (314) USE NO. 3 BAR SPACED 12 INCHES CENTER TO CENTER (PLACED IN EACH DIRECTION) OR EQUIVALENT WIRE MESH.
- (315) SEE TABLE "C" FOR BAR INFORMATION
- (316) ELECTRICAL PULL BOX FOR SIGN FLUSH WITH TOP OF CONCRETE BARRIER.
- (317) VARIABLE SLOPE

**CONCRETE BARRIER
SINGLE SLOPE (CBSS)**

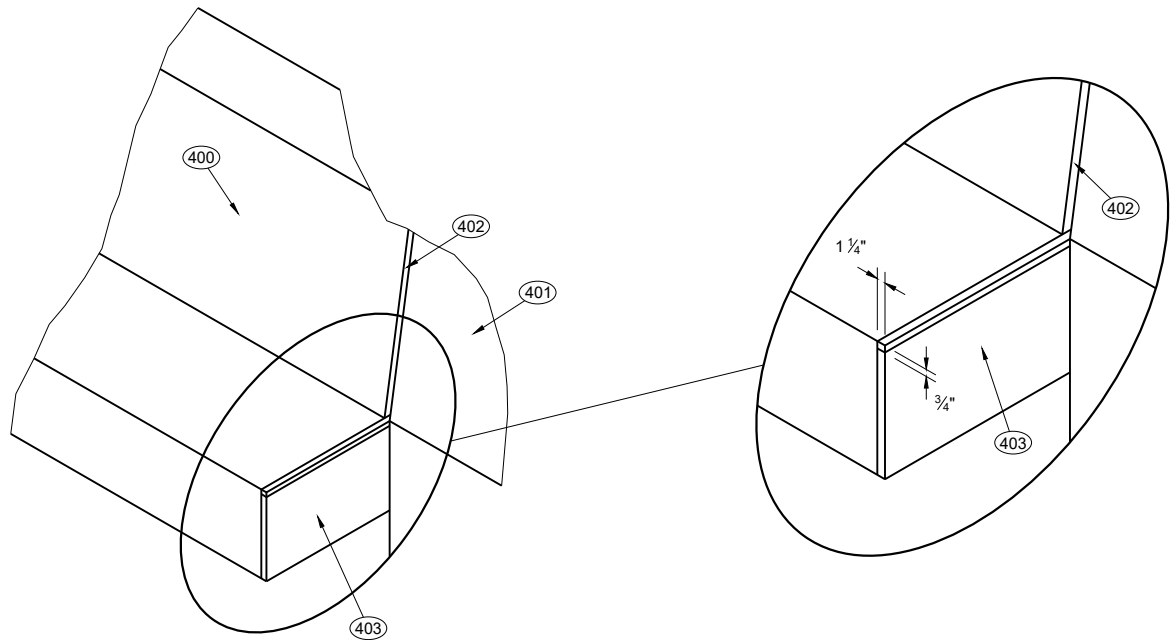
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



DRAINAGE DETAIL

GENERAL NOTES

- (400) END ANCHOR SINGLE SLOPE CONCRETE BARRIER.
- (401) PARAPET, SIGN BRIDGE BASE, LIGHT POLE BASE OR OTHER OBJECT SINGLE SLOPE CONCRETE BARRIER CANNOT TIE INTO.
- (402) JOINT SEAL CONFORMING TO STANDARD SPECIFICATION 415.2.6
- (403) EXPANSION JOINT MATERIAL.
- (404) INLET (SEE PLAN)
- (405) INLET COVER BW (SEE PLAN)
- (406) WARP PAN TO MATCH INLET COVER.
- (407) EXTEND BARRIER SLOPE TO INLET. SEE PLAN FOR THE LENGTH OF EXTENSION.
- (408) CONTRACTION JOINT.
- (409) WHEN ADJACENT TO CONCRETE PAVEMENT OR SHOULDER, JOINT SHOULD MATCH CONCRETE JOINTS. OTHERWISE, 3' (TYP.). SEE SDD 13C18 FOR MORE INFORMATION.



EXPANSION JOINT DETAIL

CONCRETE BARRIER
SINGLE SLOPE (CBSS)

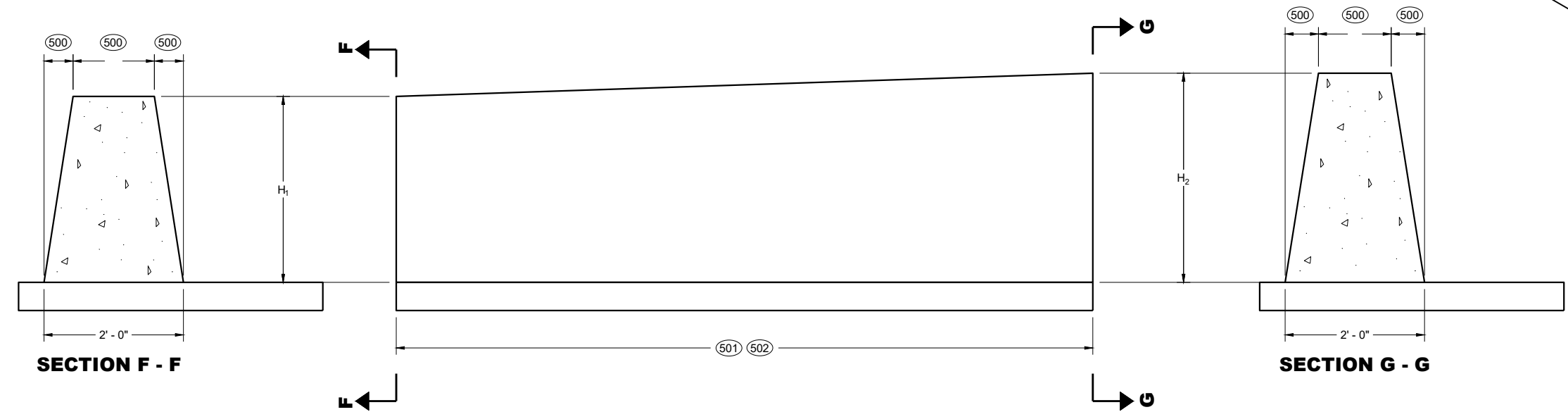
STATE OF WISCONSIN
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GENERAL NOTES

USE COLD JOINT TO CONNECT MULTIPLE HEIGHT TRANSITIONS.

- 500 SEE TABLE "A" FOR DIMENSIONS
- 501 SEE TABLE "D"
- 502 MULTIPLE HEIGHT TRANSITION MAY BE USED IN SEQUENCE TO GET APPROPRIATE HEIGHT.
- 503 COLD JOINT
- 504 BARRIER REBAR (SEE OTHER DETAILS FOR BAR SIZE, QUANTITY AND LOCATION). SINGLE SLOPE BARRIER SHOWN. SIMILAR DETAIL CAN BE USED FOR COLD JOINT IN

- 505 END ANCHORS AND TRANSITIONS.
- 506 NO. 5 REBAR FOR SPLICE. 3' OF SPLICE REBAR IS LAPPED AND TIED TO BARRIER REBAR. EXTEND 3' OF SPLICE REBAR BEYOND END OF POUR. ALL BARS ARE FIRMLY TIED OR CONNECTED. EVERY REBAR IN THE BARRIER SECTION REQUIRES A SPLICE BAR.
- 507 END OF POUR.
- 508 LAP AND TIE 3' OF NEXT POUR'S REBAR TO SPLICE REBAR.



COLD JOINT DETAIL

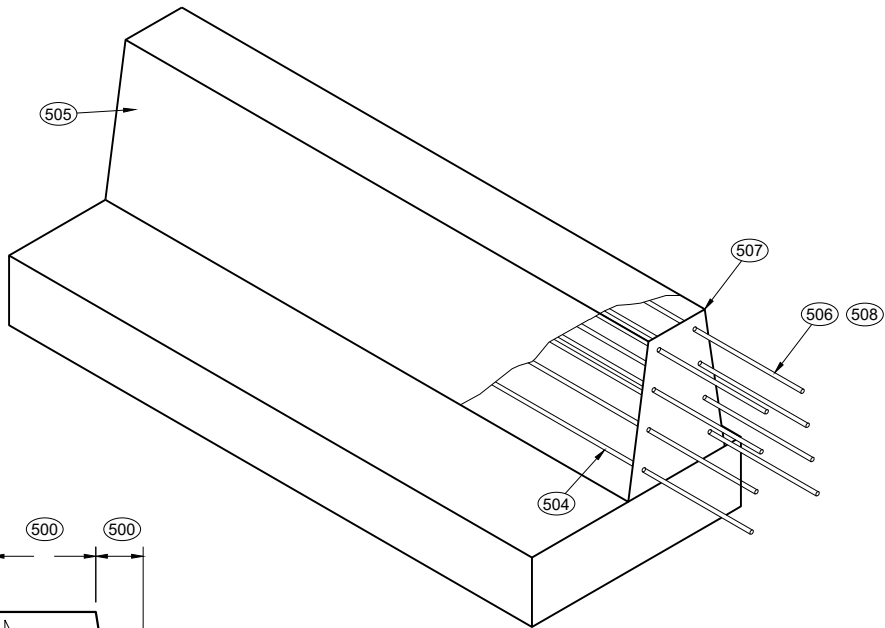
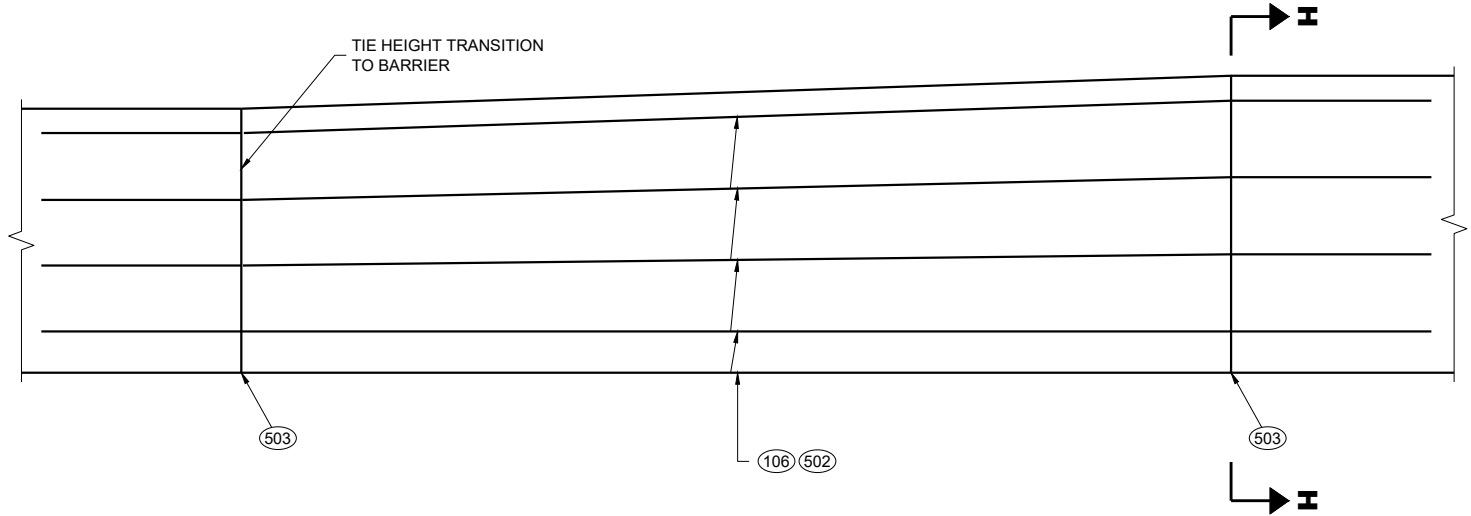


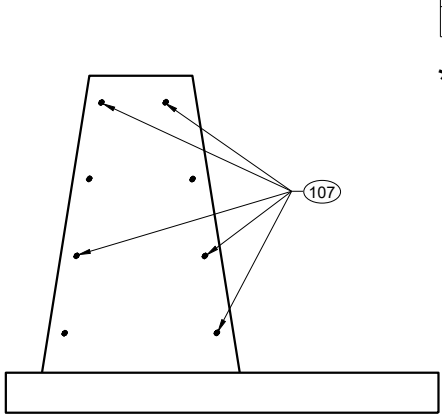
TABLE "D"

H ₁	H ₂	L *	NUMBER OF NO. 5 BARS
32"	36"	10' - 0"	8
36"	42"	10' - 6"	10
42"	56"	24' - 6"	11

* LENGTH OF DOUBLE COLD JOINT INCLUDED IN THE TOTAL LENGTH OF CBSS.



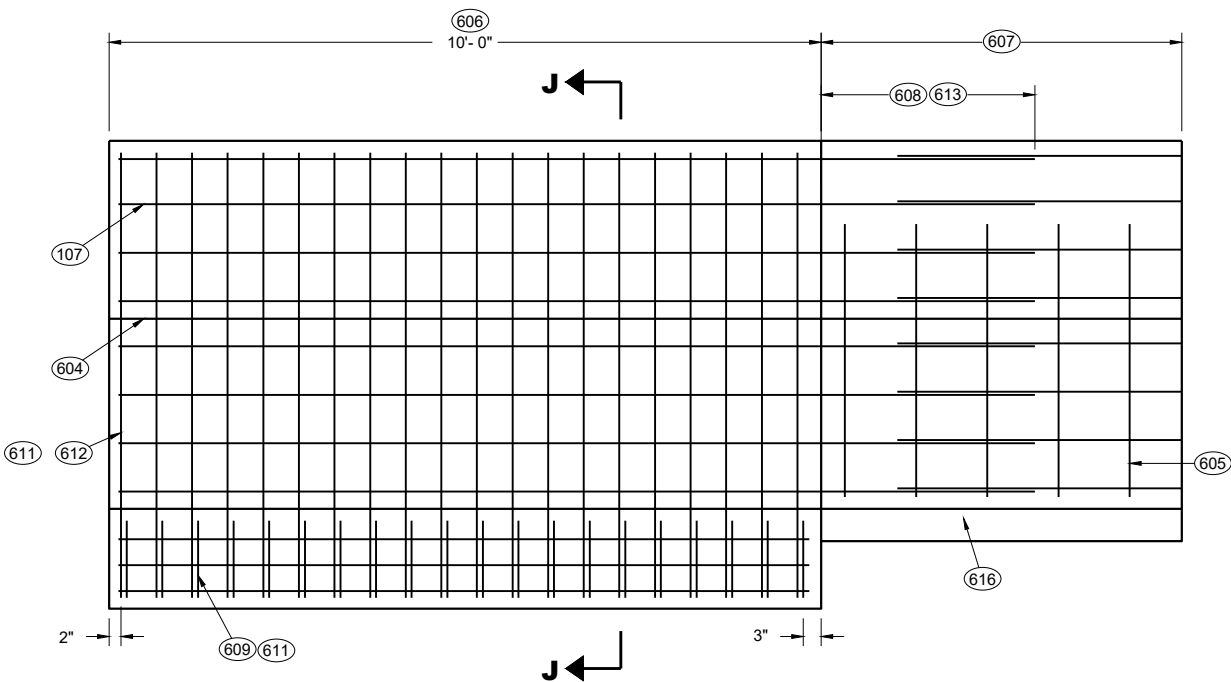
STEEL REINFORCEMENT DETAIL



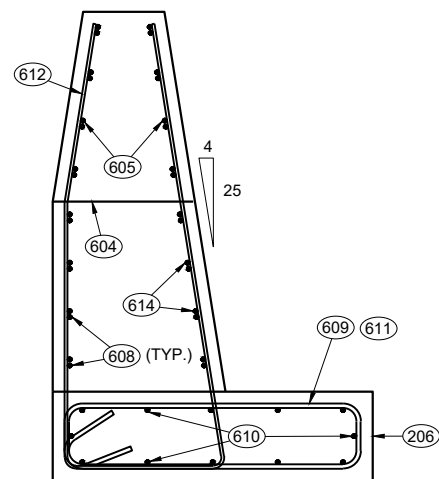
SECTION H - H

CONCRETE BARRIER
SINGLE SLOPE (CBSS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

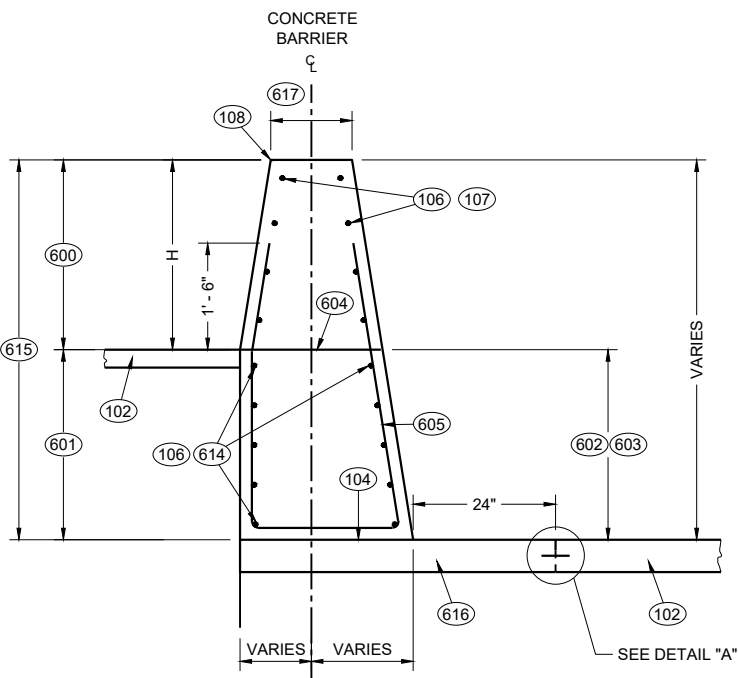


**END ANCHOR MEDIAN BARRIER
AND RETAINING WALL**

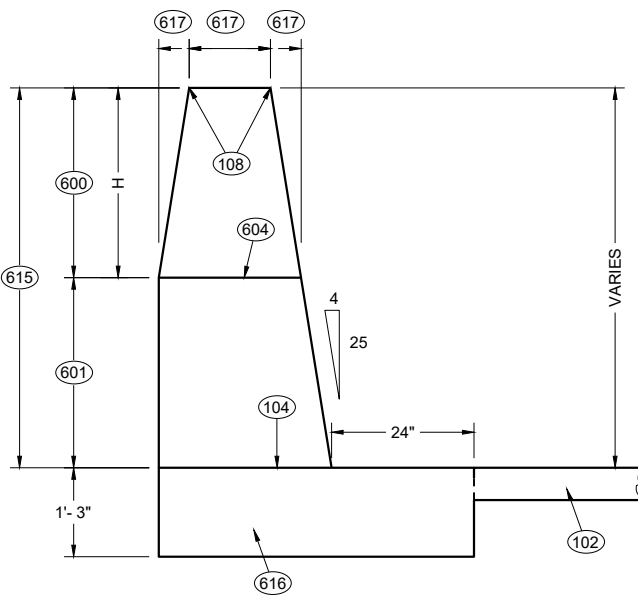


**SECTION J - J
END ANCHOR AND MEDIAN WALL END
ANCHOR REINFORCEMENT DETAIL**

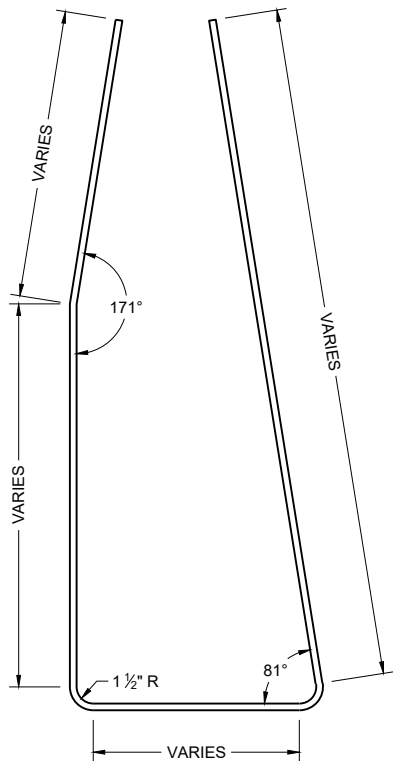
- GENERAL NOTES**
- (600) UPPER CONCRETE BARRIER
 - (601) LOWER CONCRETE BARRIER
 - (602) MAX HEIGHT 36".
 - (603) VERTICAL OFFSET FROM TOP ROADWAY SURFACES
 - (604) OPTIONAL CONSTRUCTION JOINT WHEN HEIGHT IS GREATER THAN 1 1/2".
 - (605) NO. 4 BARRIER LOOP BARS ARE NOT REQUIRED FOR ROADWAY OFFSETS ARE LESS THAN 1'-0", EXCEPT WHEN USED IN ANCHORS. BARRIER LOOP BARS ARE SPACED 12" CENTER TO CENTER OUTSIDE OF MEDIAN BARRIER AND RETAINING WALL END ANCHOR.
 - (606) SINGLE SLOPE CONCRETE BARRIER AND RETAINING WALL ANCHOR
 - (607) SINGLE SLOPE CONCRETE BARRIER AND RETAINING WALL (SEE OTHER DETAILS)
 - (608) NO. 5 REBAR 3' OF LAP OF LONGITUDINAL STEEL.
 - (609) NO. 6 REBAR END ANCHOR FOOTING LOOP
 - (610) TWELVE (12) NO. 5 BARS EVENLY SPACED.
 - (611) SS ANCHOR END LOOP AND END ANCHOR FOOTING LOOP ARE SPACED 6" CENTER TO CENTER.
 - (612) END ANCHOR LOOP BAR IS NO. 5 REBAR.
 - (613) SEE COLD JOINT DETAIL.
 - (614) SEE TABLE "E" FOR REQUIRED REBAR
 - (615) TOTAL BARRIER HEIGHT (SEE PLAN FOR HEIGHT)
 - (616) FOR SOME LOCATIONS, NO PAN IS NEEDED. SEE OTHER DETAILS.
 - (617) SEE TABLE "A" FOR DIMENSIONS



**SINGLE SLOPE CONCRETE
BARRIER AND RETAINING WALL
(TYPE S32A, TYPE S36A, TYPE S42A, TYPE S56A)
(BETWEEN ADJACENT ROADWAYS)**



**SECTION J - J
MEDIAN BARRIER AND RETAINING
WALL END ANCHOR DIMENSIONS**



**LOOP BAR
BENDING DETAIL**



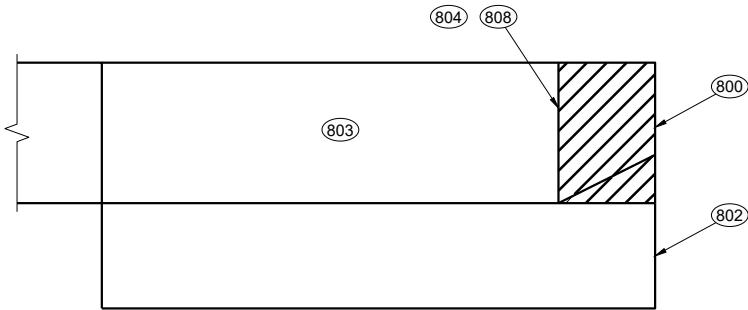
**END ANCHOR STIRRUP BAR
BENDING DETAIL**

TABLE "E"

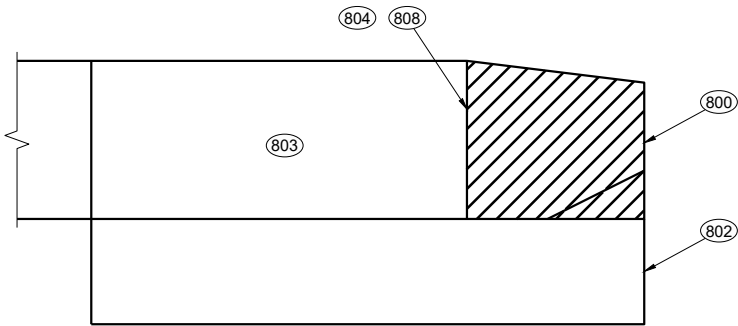
HEIGHT BETWEEN ROADWAY	QUANTITY OF NO. 6 BARS
0 TO 3"	0
GREATER THAN 3" TO 8"	2
GREATER THAN 8" TO 12"	4
GREATER THAN 12" TO 36"	8

**CONCRETE BARRIER
SINGLE SLOPE (CBSS)**

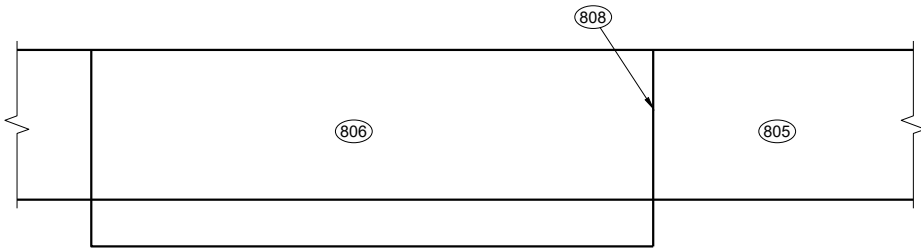
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



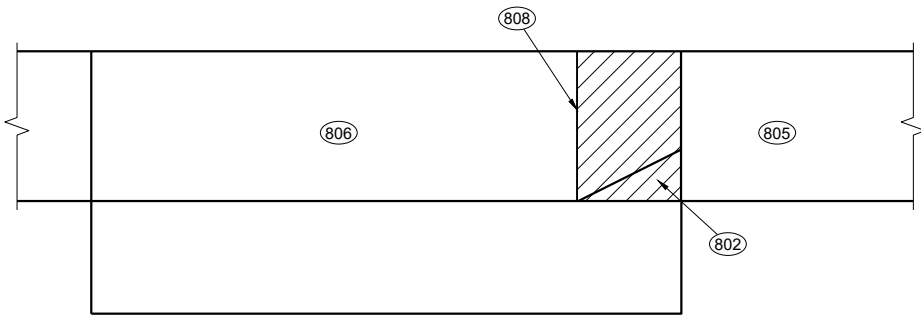
REMOVAL AREA OF
32" CONCRETE THRIE BEAM ANCHORAGE



REMOVAL AREA OF CONCRETE THRIE BEAM
ANCHORAGE WITH HEIGHT GREATER THAN 32"



CONCRETE BARRIER EXTENSION NEAR END ANCHORAGE



CONCRETE BARRIER EXTENSION NEAR THRIE BEAM TERMINAL

RETROFIT OR REPAIR SINGLE SLOPE CONCRETE BARRIER

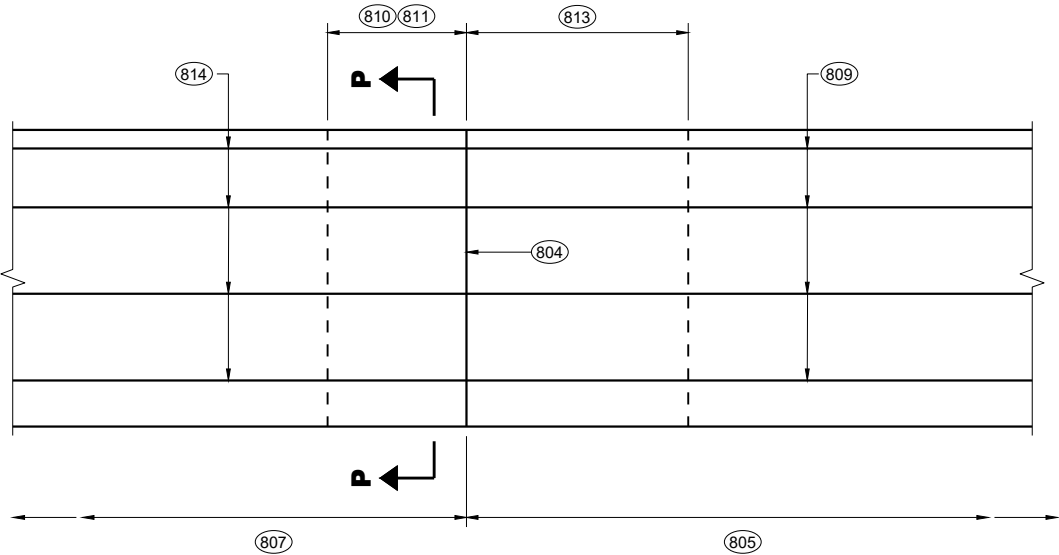
GENERAL NOTES

END ANCHORAGE MAY OR MAY NOT BE PRESENT ON EXISTING BARRIER.

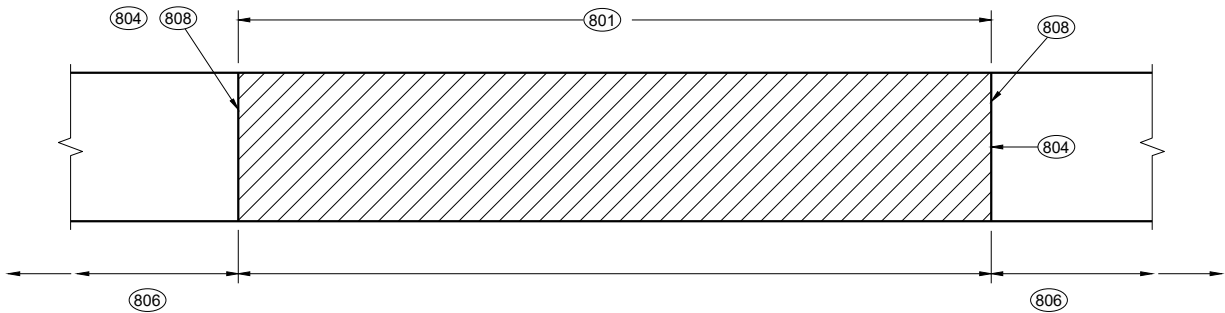
REMOVE THRIE BEAM ANCHORAGE AS SHOWN.

- 800 AREA OF BARRIER REMOVAL AN NEW CONCRETE AND STEEL IS INSTALLED.
- 801 MINIMUM LENGTH OF REMOVAL IS 15'
- 802 FOOTING BELOW GROUND MAY REMAIN IN PLACE.
- 803 CONCRETE BARRIER SINGLE SLOPE THRIE BEAM ANCHOR TO REMAIN.
- 804 SAW CUT
- 805 NEW SINGLE SLOPE CONCRETE BARRIER.
- 806 CONCRETE BARRIE SINGLE SLOPE TO REMAIN.

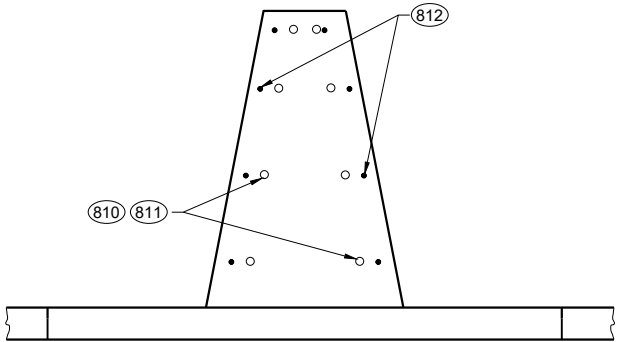
- 807 SINGLE SLOPE CONCRETE BARRIER OR CONCRETE BARRIER SINGLE SLOPE THRIE BEAM ANCHOR TO REMAIN.
- 808 SEE CONNECTION DETAIL.
- 809 NO. 5 CONTINUOUS BAR.
- 810 3' MIN. DRILL HOLES. USES NO. 5 ADHESIVE ANCHORS.
- 811 THE NUMBER OF DRILL HOLES IS EQUAL TO THE NUMBER OF HORIZONTAL REBAR IN BARRIER. DRILL HOLES ARE TO BE A MINIMUM OF 4" FROM EDGE OF CONCRETE.
- 812 EXISTING REBAR IN EXISTING BARRIER OR END ANCHOR.
- 813 3' BAR OVERLAP
- 814 EXISTING REINFORCEMENT



CONNECTION DETAIL
SINGLE SLOPE CONCRETE BARRIER TO
NEW SINGLE SLOPE CONCRETE BARRIER



BARRIER REMOVAL AND REPLACEMENT



SECTION P - P

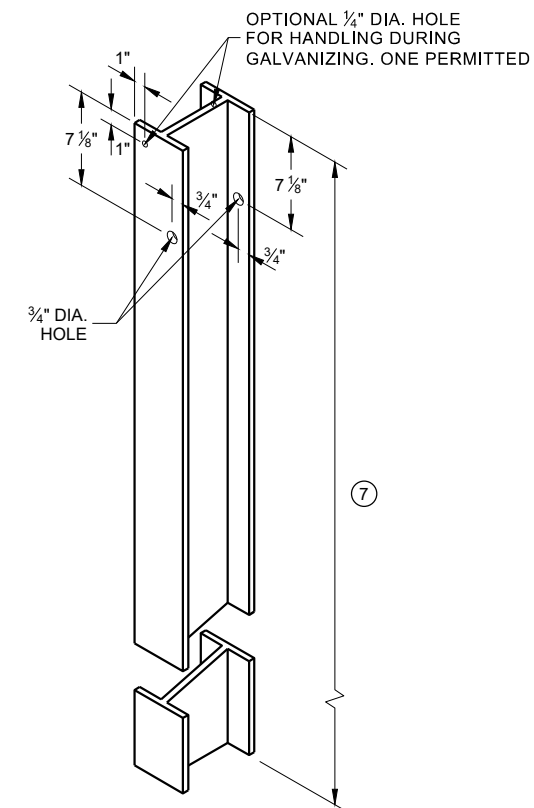
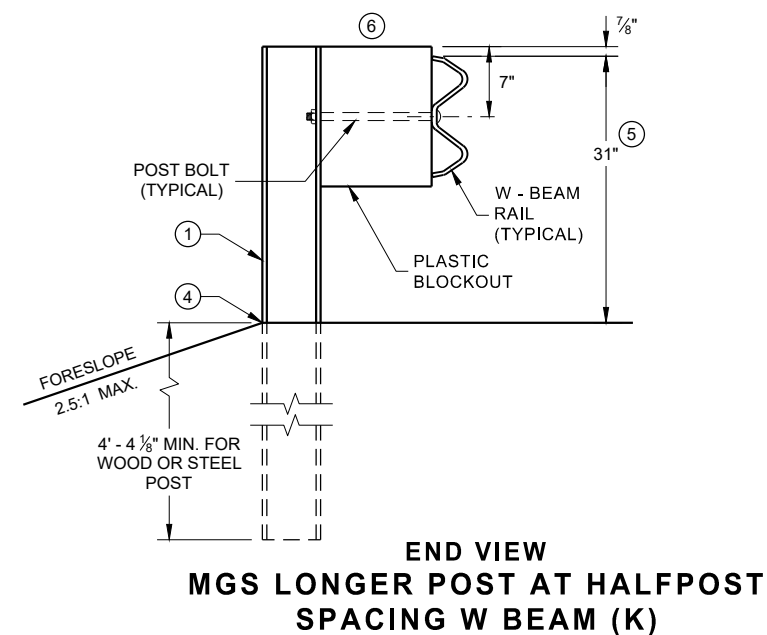
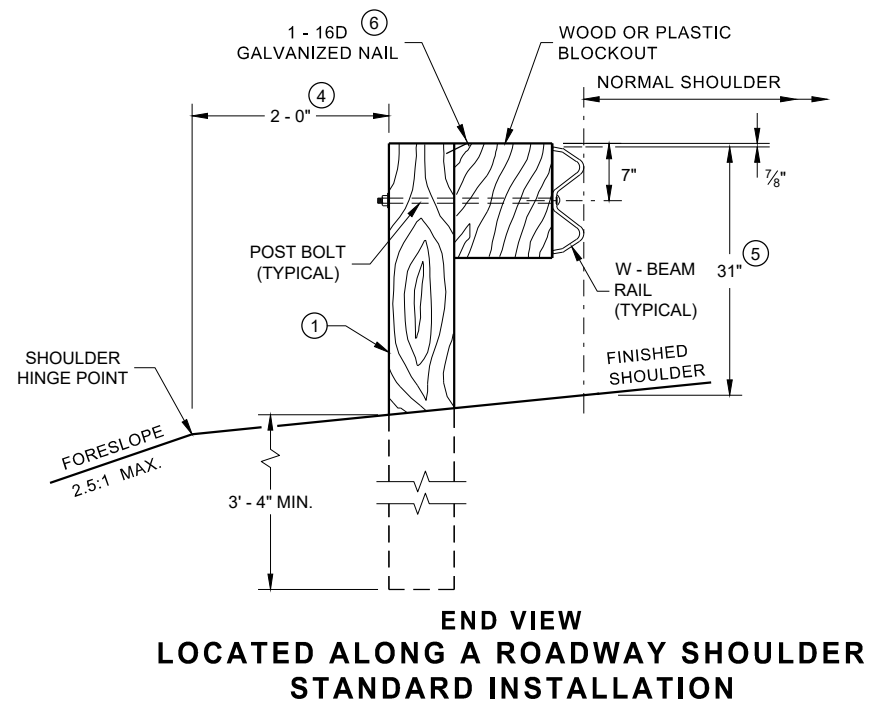
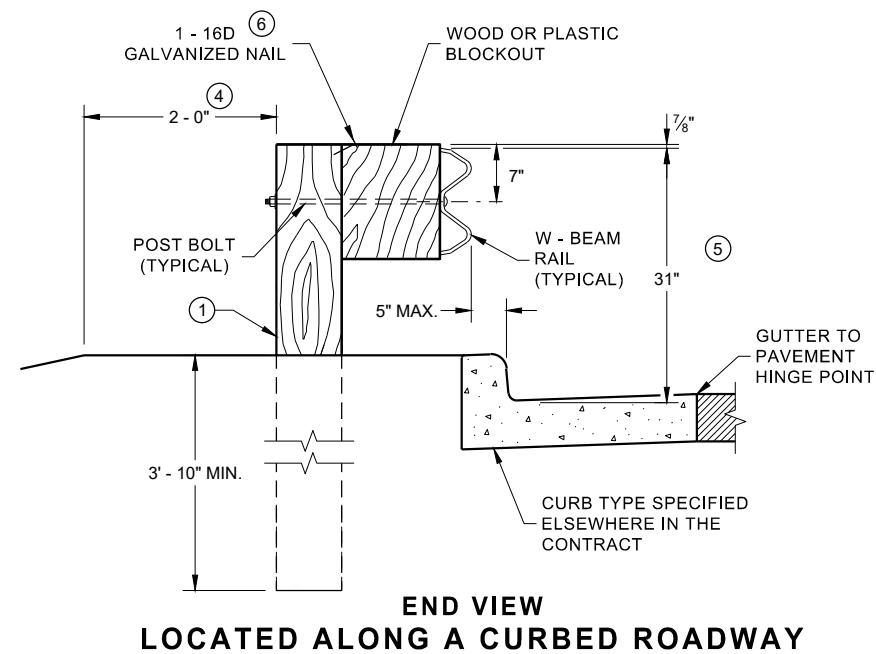
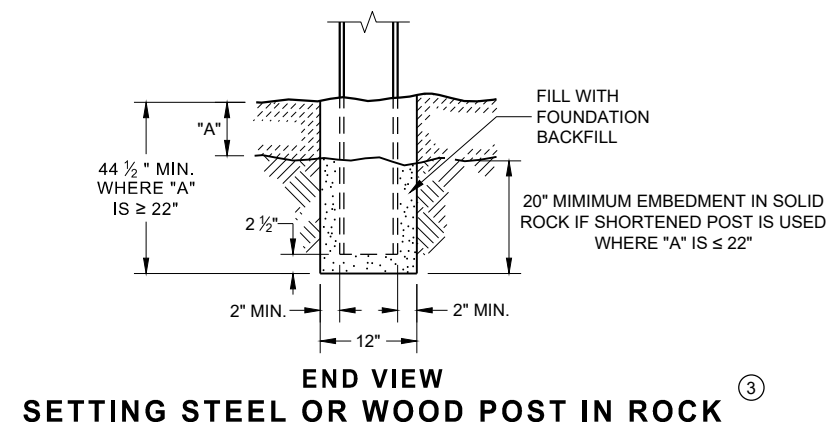
CONCRETE BARRIER
SINGLE SLOPE (CBSS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

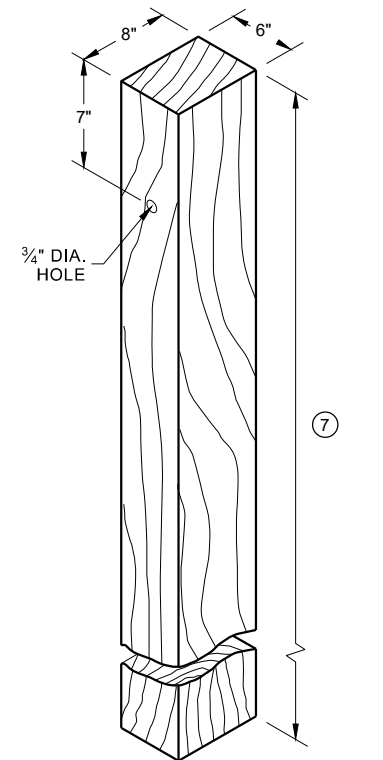
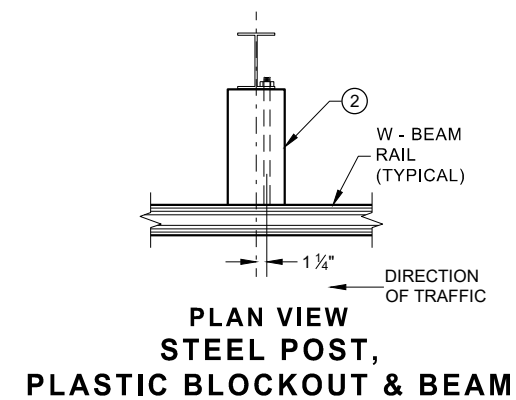
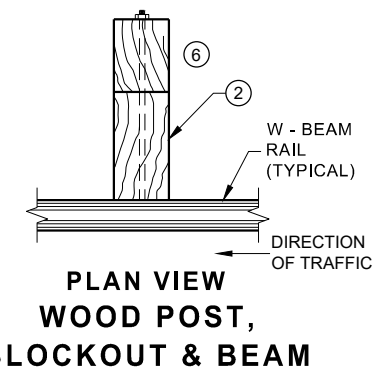
APPROVED
November 2024 /S/ Rodney Taylor
DATE ROADWAY STANDARDS DEVELOPMENT ENGINEER

FHWA

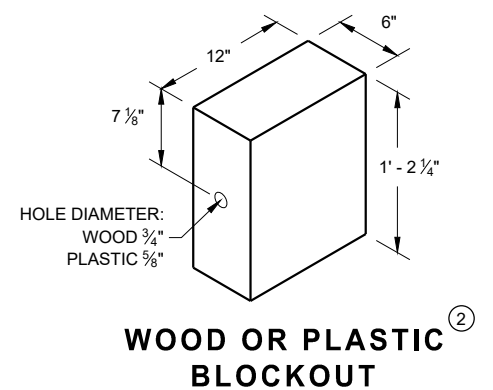
- ① WOOD OR STEEL POSTS (w6X9 OR w6X8.5) MAY BE USED. DO NOT INTERMIX WOOD AND STEEL POSTS. INSTALL STEEL POSTS WITH HOLES ON APPROACHING TRAFFIC SIDE.
- ② USE WOOD OR APPROVED PLASTIC BLOCKOUTS. WOOD BLOCKOUTS MAY BE CONSTRUCTED OUT OF TWO OR MORE WOOD BLOCKOUTS. SEE ALTERNATE WOOD BLOCKOUT DETAIL.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



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

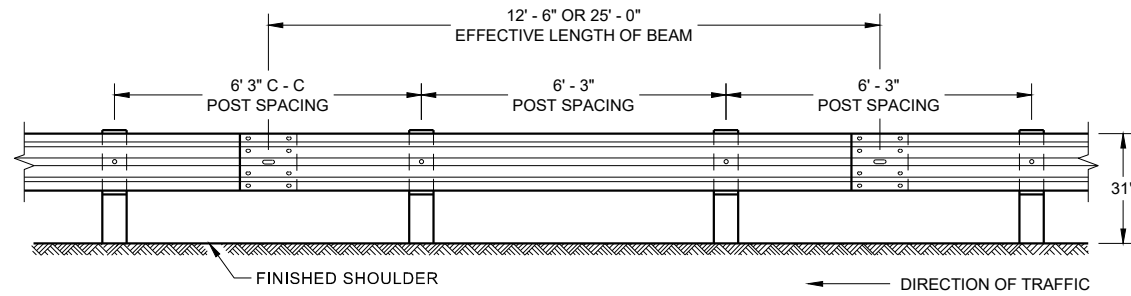


WOOD POST (6" X 8") NOMINAL ⁽¹⁾

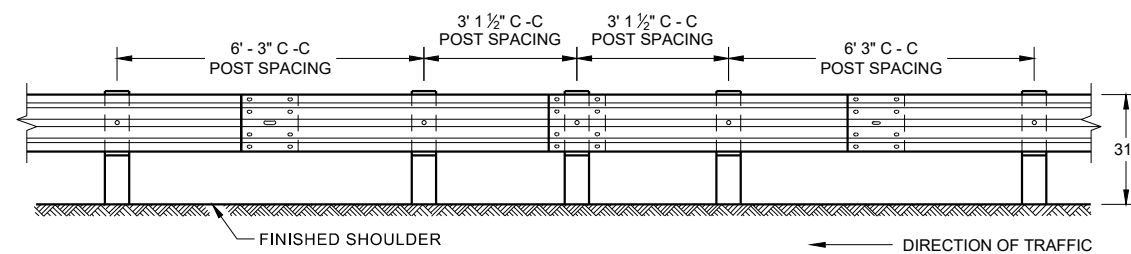


**MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL**

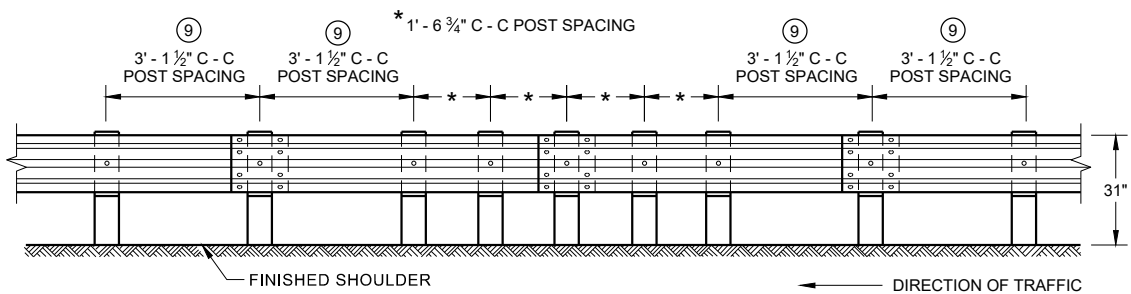
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION 92



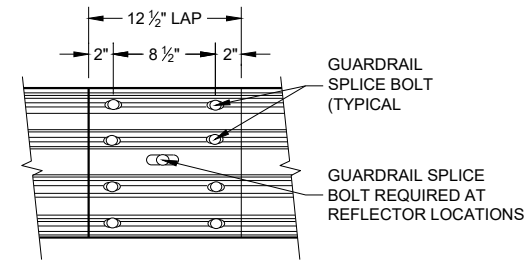
**FRONT VIEW
POST SPACING STANDARD INSTALLATION**



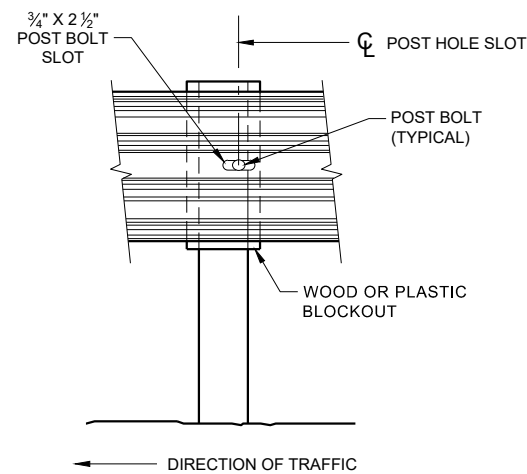
**FRONT VIEW
HALF POST SPACING (HS) AND
HALF POST SPACING WITH LONGER POSTS (K)**



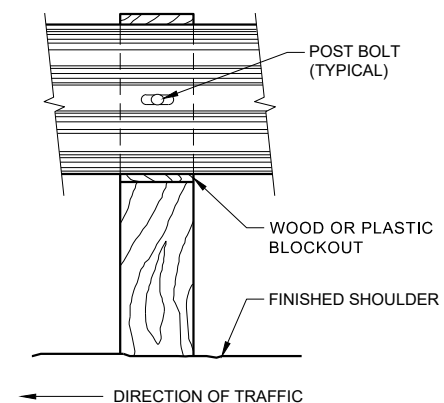
**FRONT VIEW
QUARTER POST SPACING (QS)**



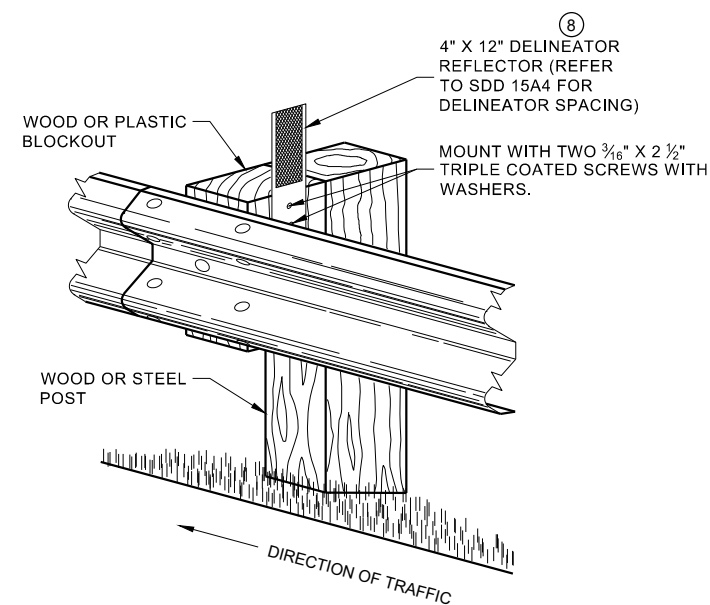
**FRONT VIEW
MID-SPAN BEAM SPLICE**



FRONT VIEW AT STEEL POST



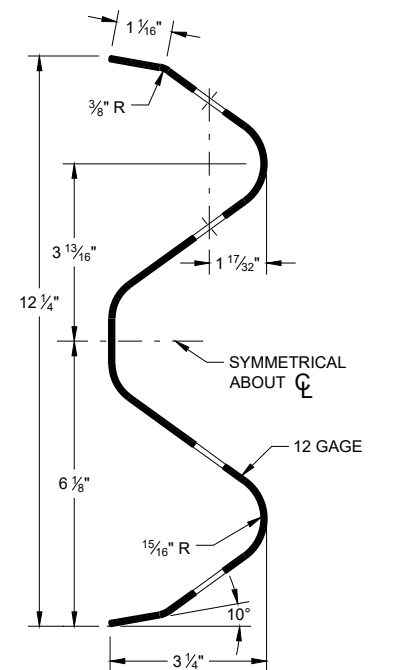
FRONT VIEW AT WOOD POST



**ONE SIDED REFLECTOR DETAIL
AND TYPICAL INSTALLATION**

GENERAL NOTES

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



SECTION THRU W-BEAM RAIL

**MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



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

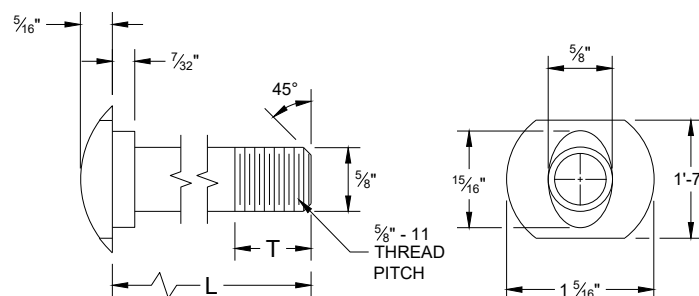


NOTES: UNDER SPECIAL CIRCUMSTANCES, SUCH AS AVOIDING OBSTACLES THAT ARE NOT RELOCATED, IT IS ACCEPTABLE TO INSTALL ADDITIONAL BLOCKOUTS TO OBTAIN UP TO 36" DEPTH FOR ONE OR TWO POSTS IN A SECTION OF GUARDRAIL.

DO NOT USE 16" OR 36" BLOCKOUTS IF IT CAUSES THE POST TO BE DRIVEN BEYOND SHOULDER HINGE POINT OR CAUSES A FIXED OBJECT TO BE WITHIN THE DEFLECTION DISTANCE OF THE BARRIER.

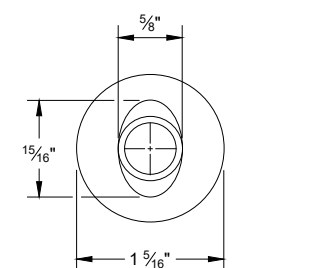
NOTE:

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

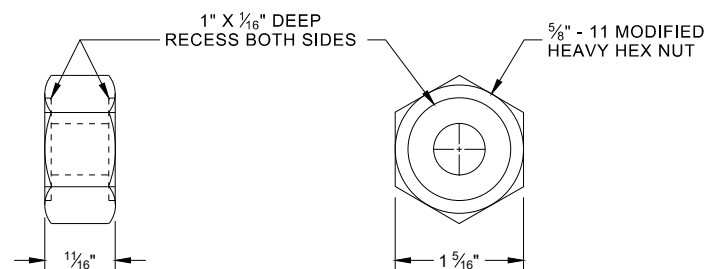


POST BOLT TABLE

L	T (MIN.)
1 ¼"	1 ½"
2"	1 ¾"
10"	4"
14"	4 ⅙"
18"	4"
21"	4 ⅙"
25"	4"

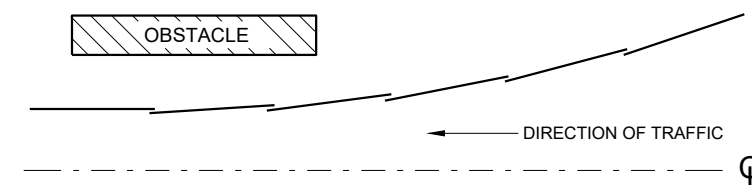


ALTERNATE BOLT HEAD

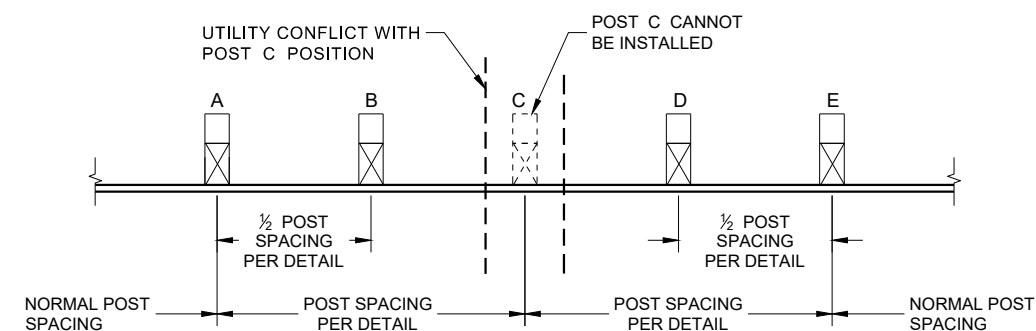


POST BOLT, SPLICE BOLT AND RECESS NUT

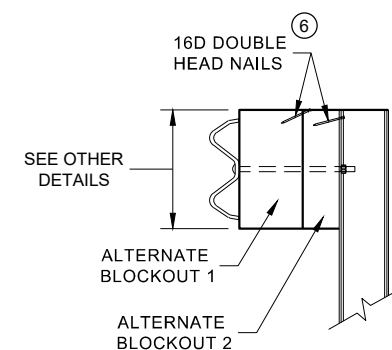
⑥ WHEN USING STEEL POST AD WOOD BLOCKOUTS, INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.



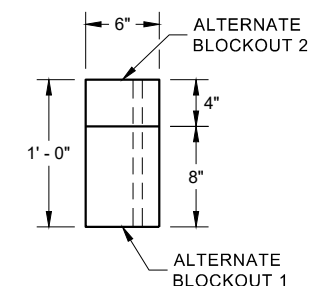
**PLAN VIEW
BEAM LAPPING DETAIL**



POST DRIVING FOR CONTINUOUS UNDERGROUND OBSTRUCTION



SIDE VIEW

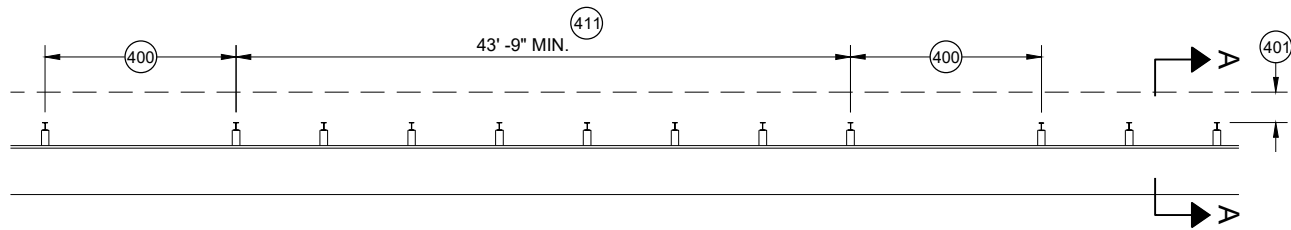


PLAN VIEW

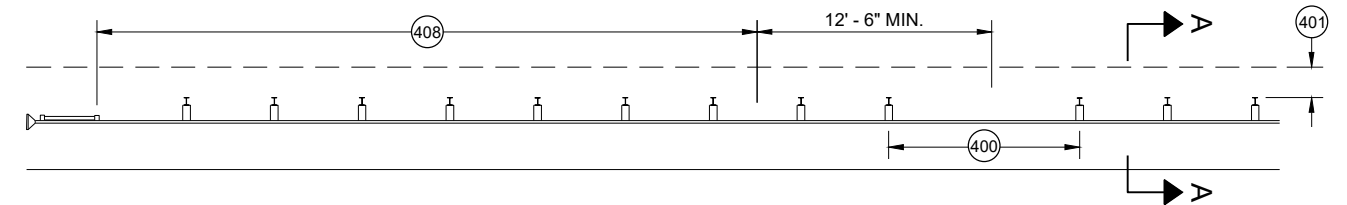
ALTERNATE WOOD BLOCKOUT DETAIL

MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL

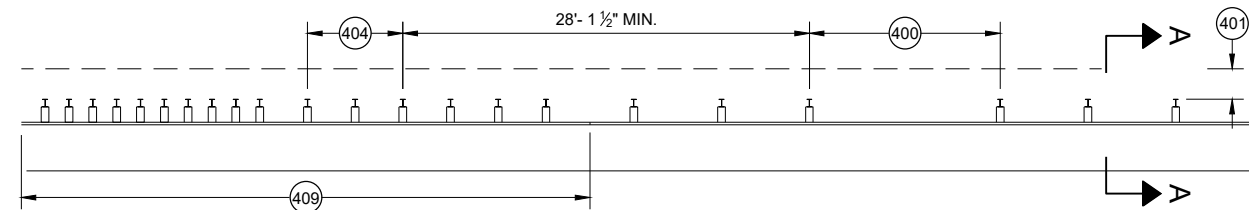
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION 94



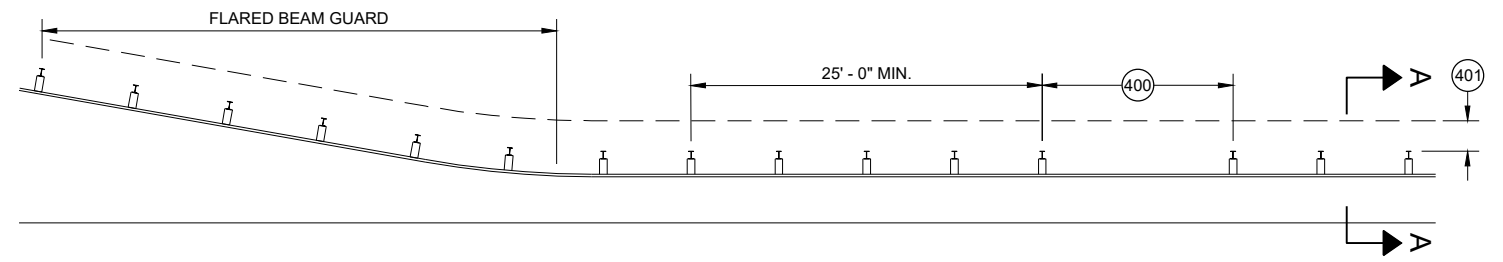
MISSING POST IN MGS GUARDRAIL



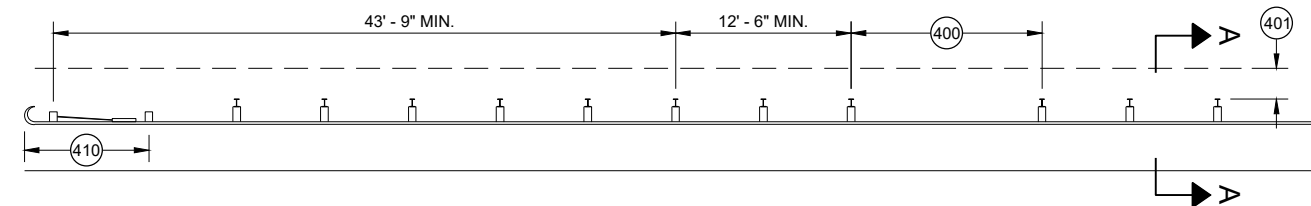
MISSING POST IN MGS GUARDRAIL NEAR EAT



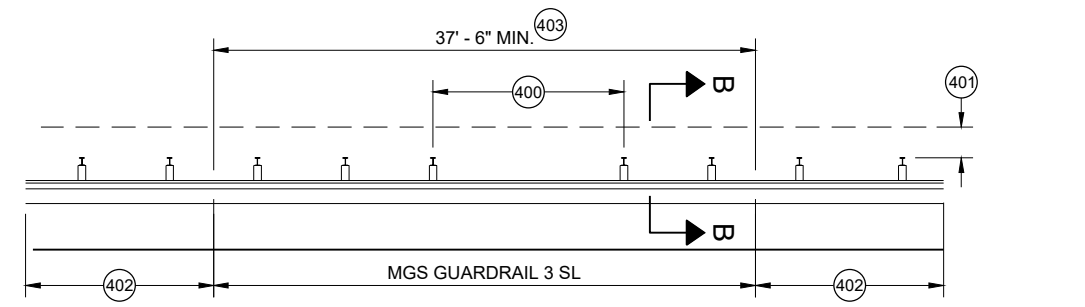
MISSING POST IN MGS GUARDRAIL NEAR AN APPROACH TRANSITION



MISSING POST IN MGS GUARDRAIL NEAR FLARED BEAM GUARD

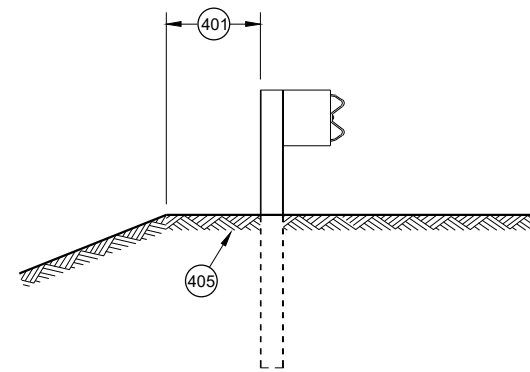


MISSING POST IN MGS GUARDRAIL NEAR A TYPE 2 END TERMINAL

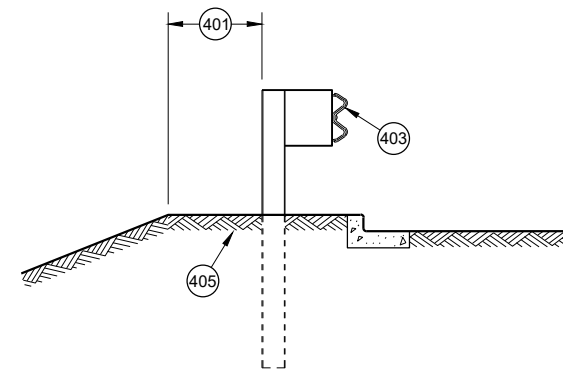


MISSING POST IN SHORT SPAN MGS GUARDRAIL NEAR CURB (SL)

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



SECTION A - A



SECTION B - B

**MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May 2021
DATE
/S/ Rodney Taylor
ROADWAY STANDARDS DEVELOPMENT
UNIT SUPERVISOR

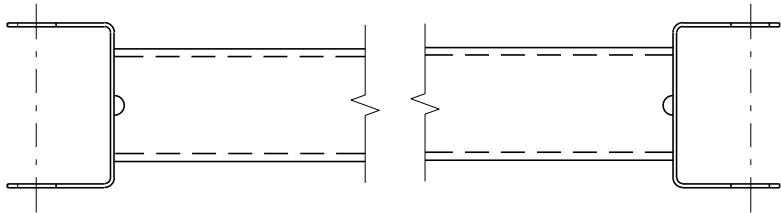
FHWA

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

DIMENSIONS MAY VARY, MANUFACTURER'S INFORMATION.

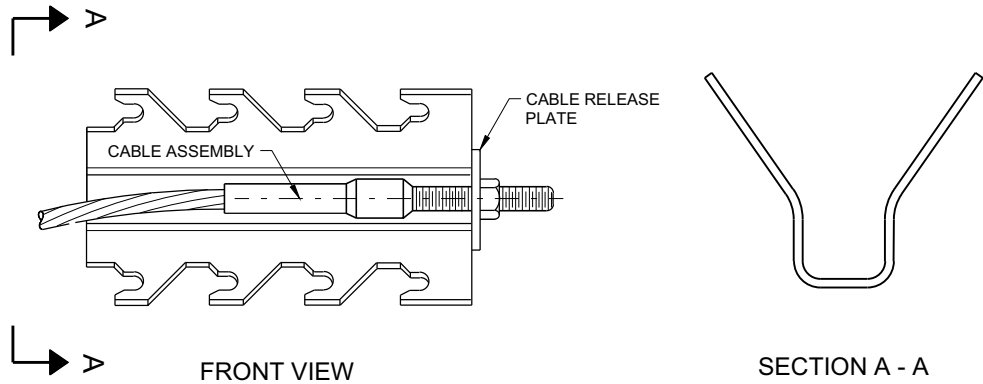
THE CENTER OF THE UPPER 3½" DIAMETER HOLE ON POST NUMBER 3 THROUGH POST 9 IS TO BE FLUSH WITH THE GROUND LINE UP TO A MAXIMUM OF 2" ABOVE GROUND LINE. WOOD BLOCKS ON POSTS NUMBERED 3 THROUGH 9 MAY BE ADJUSTED UP TO 3" ABOVE THE TOP OF POST.

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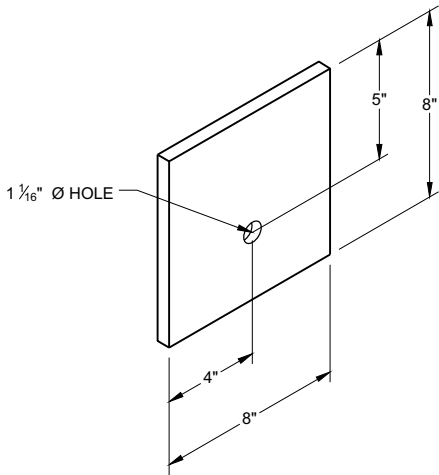


GENERIC GROUND STRUT⁹ ^E

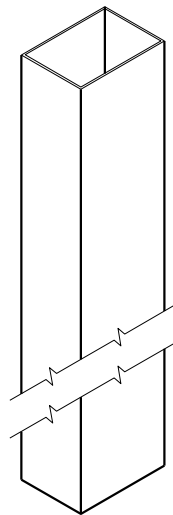
BILL OF MATERIALS	
PART NO.	DESCRIPTION MATERIALS PROVIDED BY MGS EAT MANUFACTURER. SEE MANUFACTURER'S DETAILS FOR MORE INFORMATION.
①	UPPER POST NO. 1 6" X 6" TUBE
②	LOWER POST NO. 1
③	WOOD CRT
④	WOOD BLOCKOUT
⑤	PIPE SLEEVE
⑥	BEARING PLATE
⑦	BCT CABLE ASSEMBLY
⑧	ANCHOR CABLE BOX
⑨	GROUND STRUT
⑩	PERFORATED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



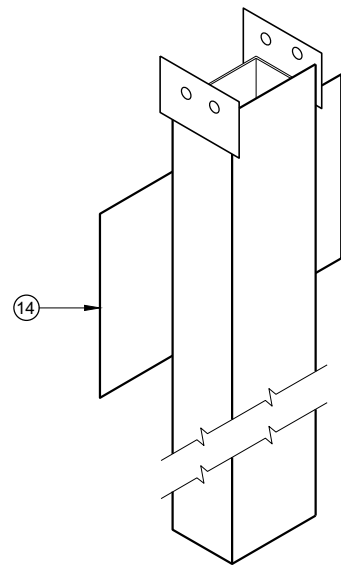
GENERIC ANCHOR CABLE BOX⁹ ^E



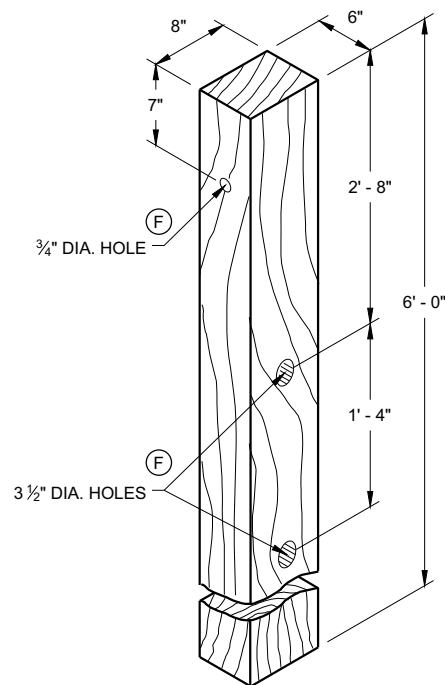
BEARING PLATE⁶ ^E



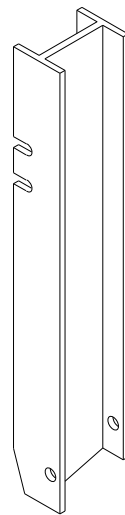
UPPER POST NO. 1 ⁽¹⁾ (E)



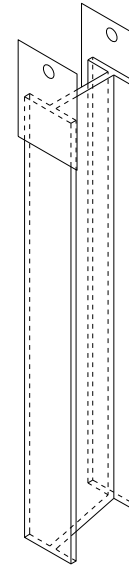
LOWER POST NO. 1 ⁽²⁾ (E)



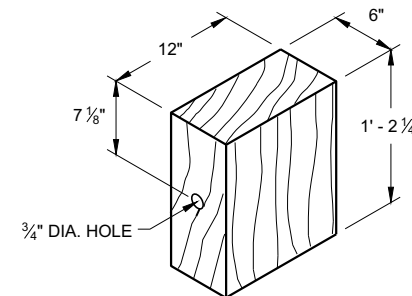
WOOD CRT POST ⁽³⁾ (E)
POSTS NUMBER 3-9



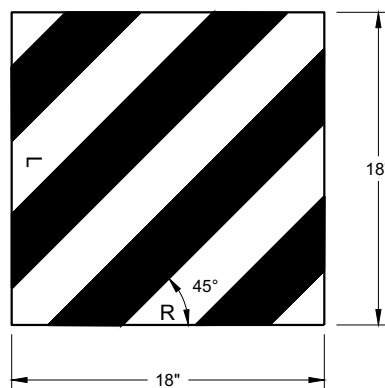
UPPER POST NO. 2 ⁽¹⁵⁾ (E)



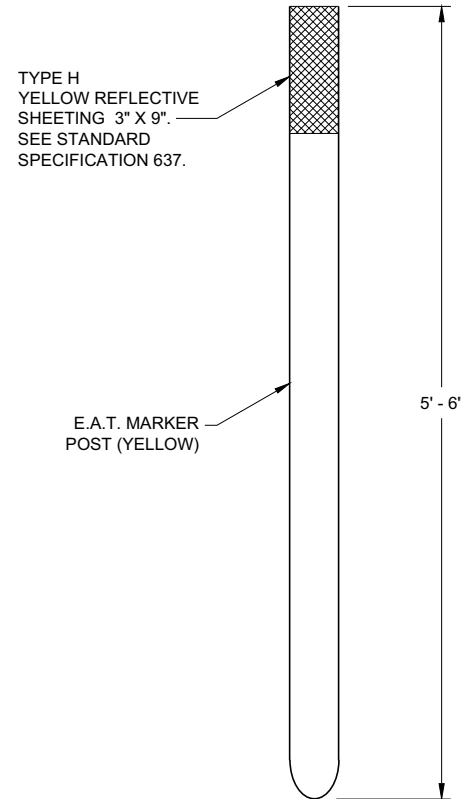
LOWER POST NO. 2 ⁽¹⁶⁾ (E)



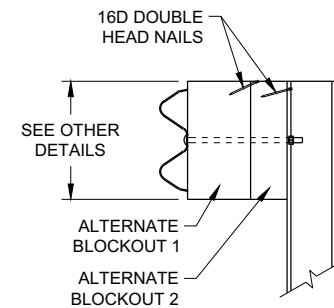
WOOD BLOCKOUT ⁽⁴⁾
REQ'D. AT ALL POSTS EXCEPT POST NO'S 1 & 2



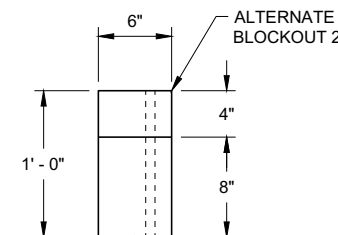
REFLECTIVE SHEETING DETAIL ^(E)



E.A.T. MARKER POST ⁽¹³⁾



SIDE VIEW



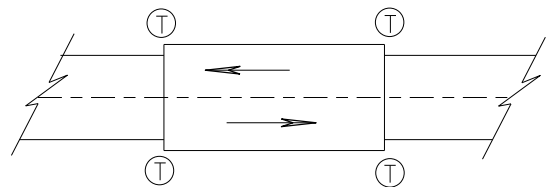
TOP VIEW

ALTERNATE WOOD
BLOCKOUT DETAIL

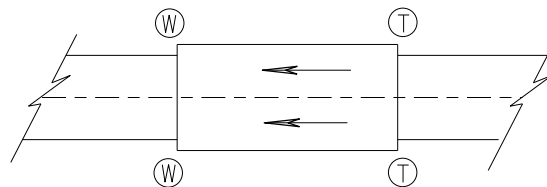
**MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL
(MGS)**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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



TWO WAY TRAFFIC



ONE WAY TRAFFIC

(T) THRIE BEAM CONNECTION

(W) W-BEAM CONNECTION WHEN REQUIRED

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

GENERAL NOTES

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

TRANSITION USES STEEL POSTS ONLY.

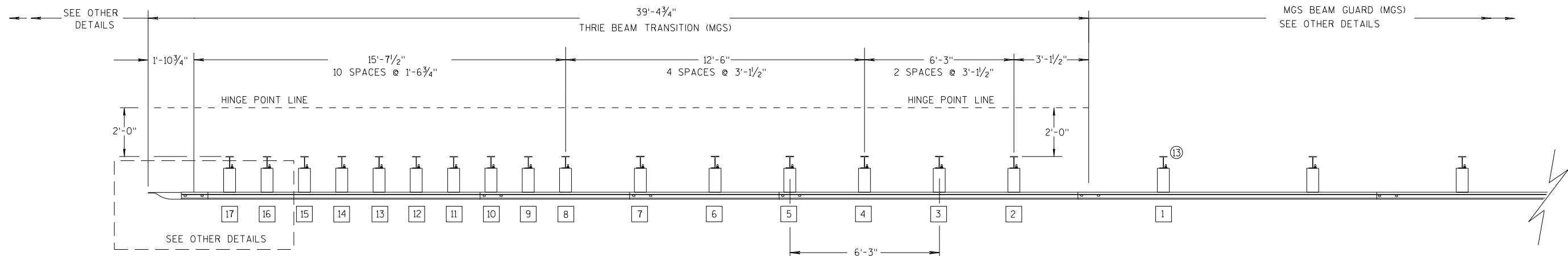
SEE STANDARD DETAIL DRAWING 14 B 42 FOR MORE INFORMATION.

POST 2 THROUGH 17 USES STEEL POST ONLY

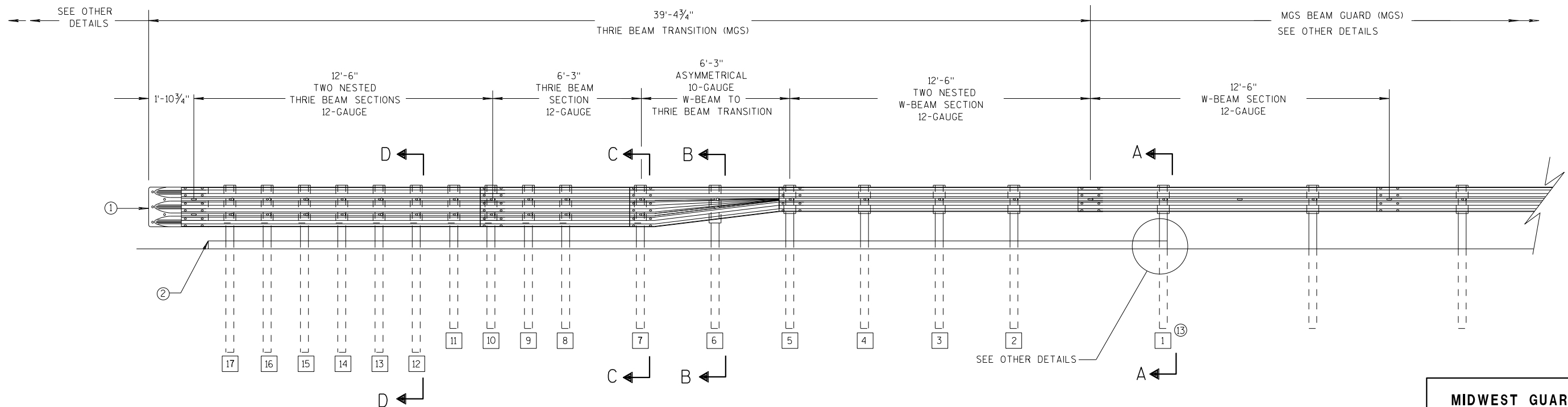
① BRIDGE RAILING TYPE "W" DOES NOT REQUIRE A TERMINAL CONNECTOR.

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

⑬ STEEL OR WOOD POST IS ACCEPTABLE AT POST 1. SEE SDD14B42



PLAN VIEW



ELEVATION VIEW

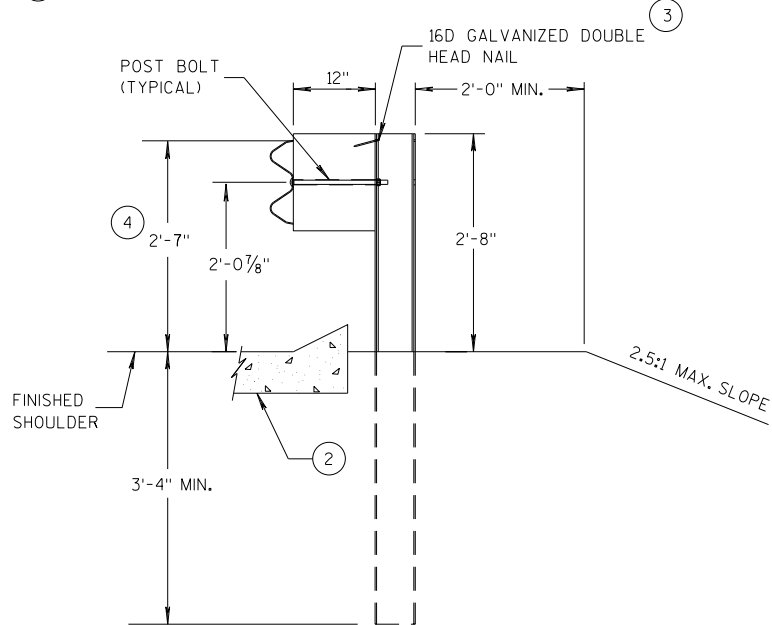
MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

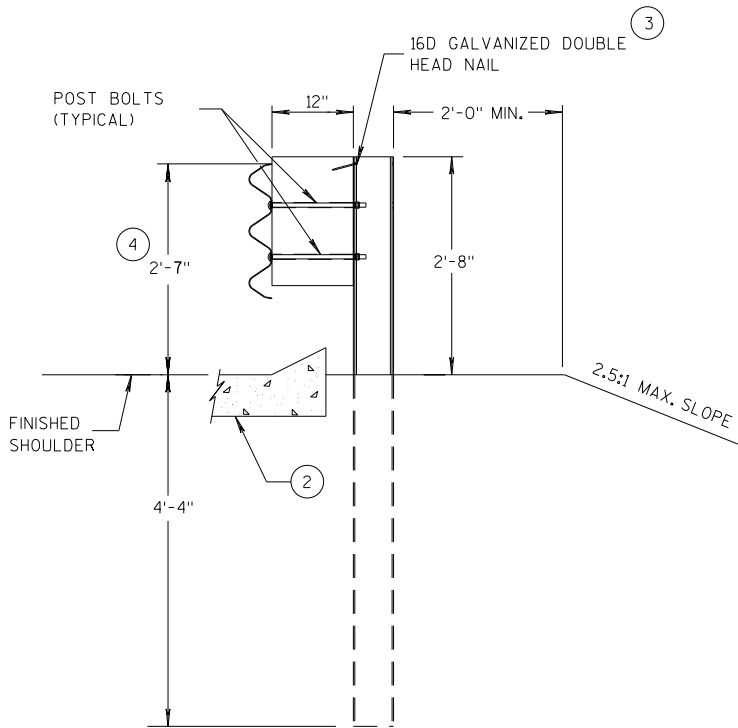
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

GENERAL NOTES

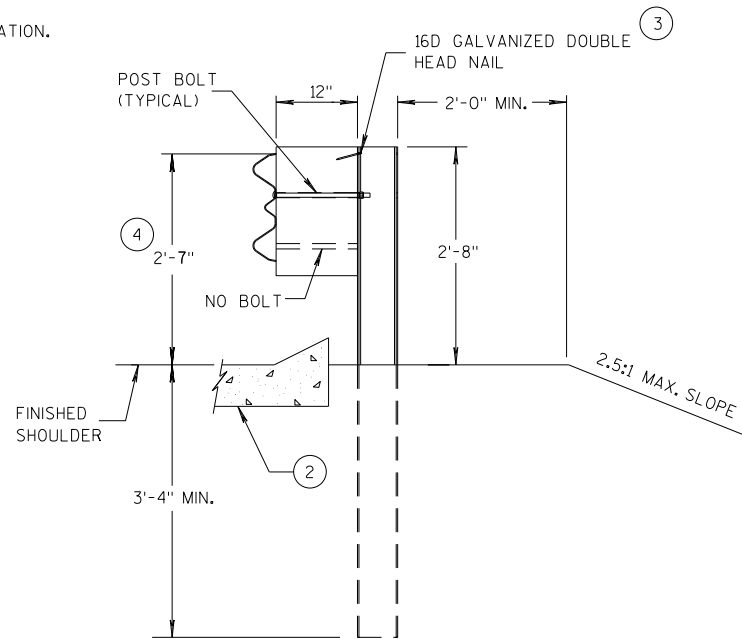
- 2 OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.
- 3 WHEN USING STEEL POSTS AND WOOD BLOCKOUTS INSTALL FOUR 10D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.
- 4 TOLERANCE FOR TOP OF W-BEAM RAIL IS $\pm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



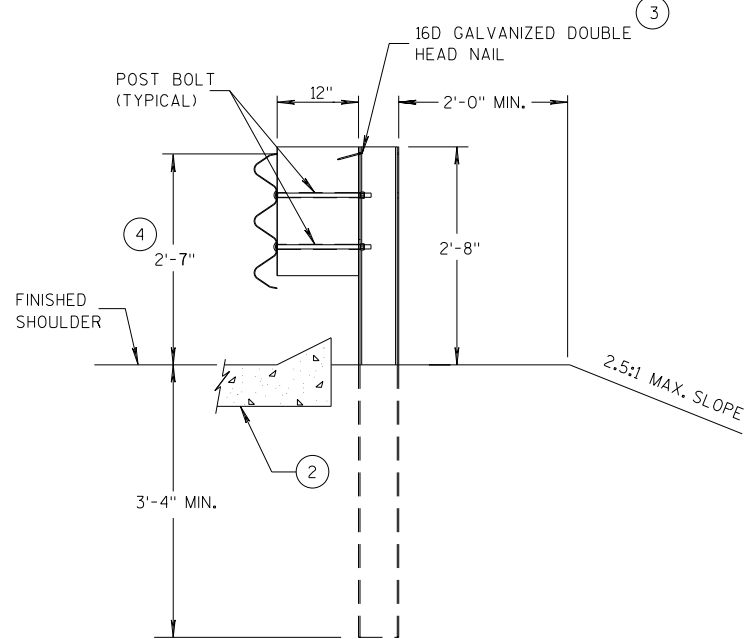
SECTION A-A
POSTS 1-5



SECTION D-D
POSTS 12-17



SECTION B-B
POST 6



SECTION C-C
POSTS 7-11

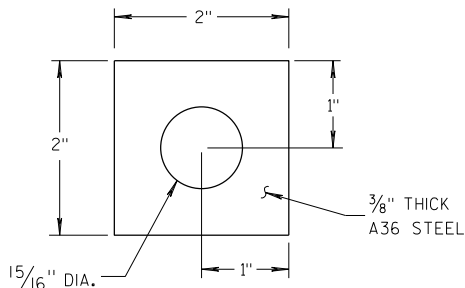
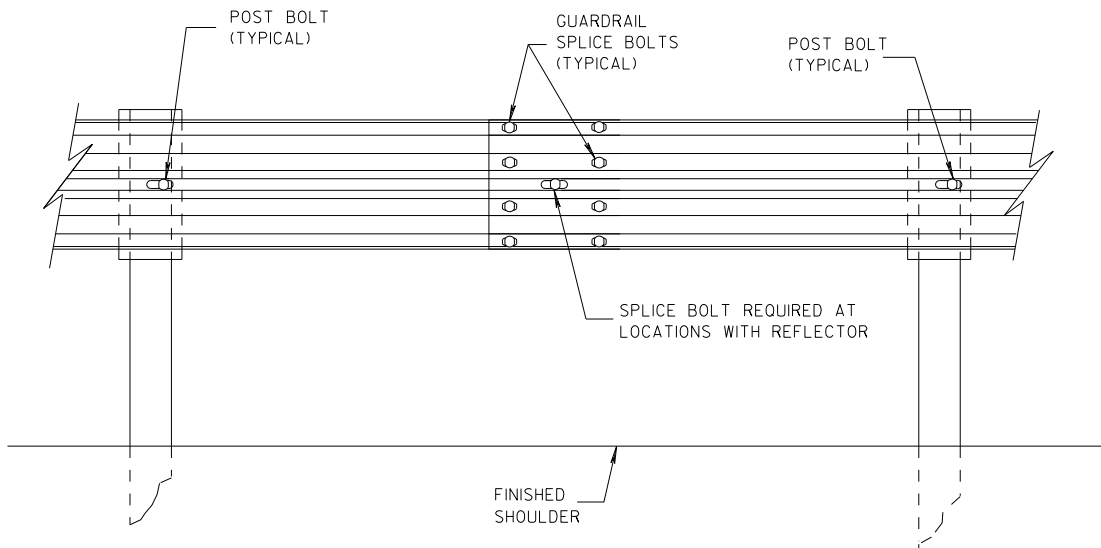
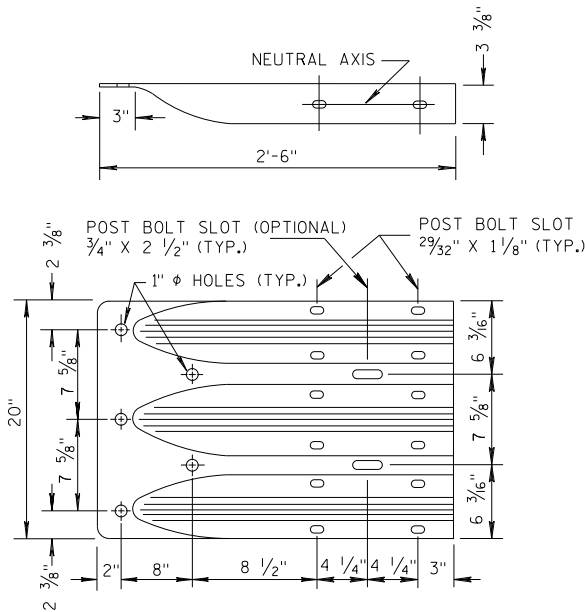


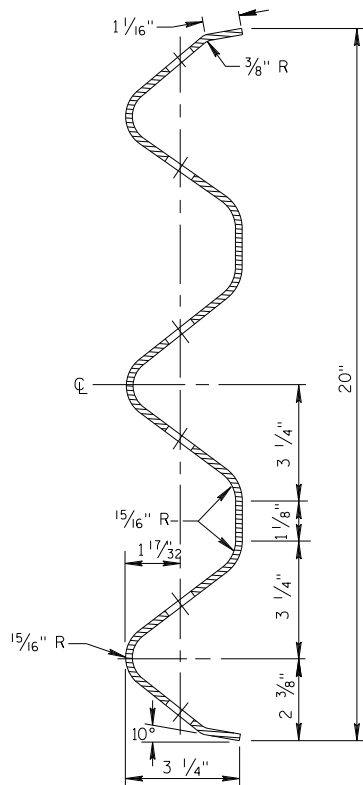
PLATE WASHER DETAIL



SPLICE DETAIL



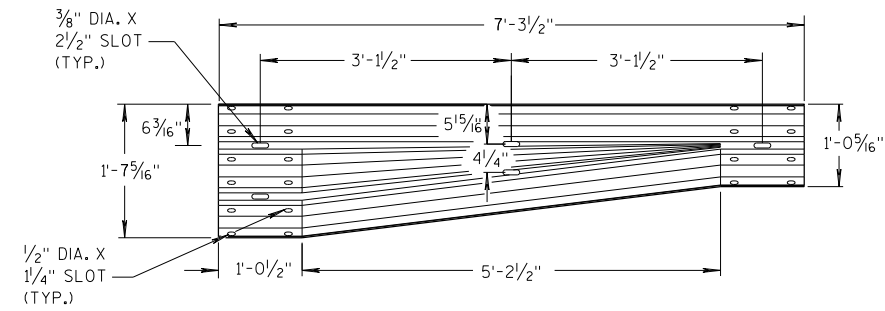
THRIE BEAM
TERMINAL CONNECTOR



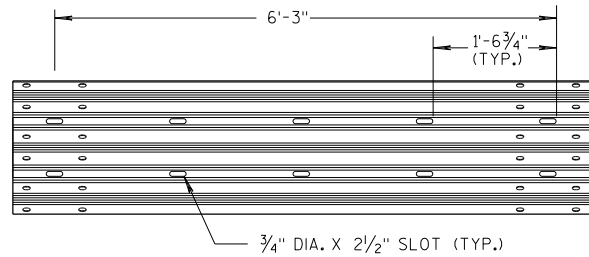
SECTION THRU THRIE
BEAM RAIL ELEMENT

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

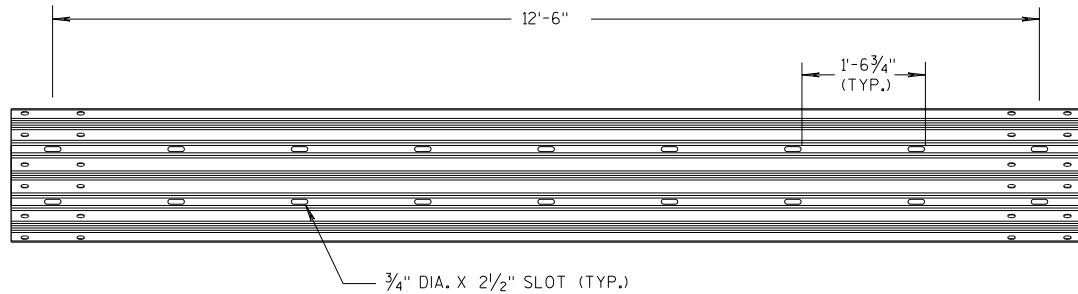
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



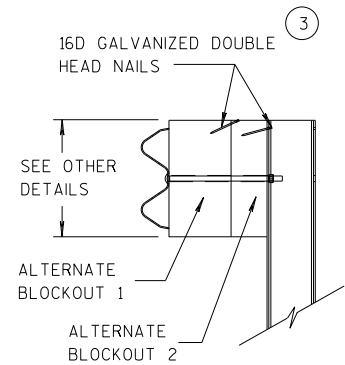
W-BEAM TO THRIE BEAM TRANSITION SECTION



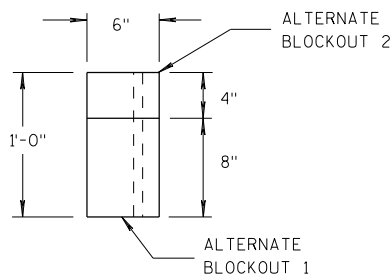
6'-3" THRIE BEAM SECTION



12'-6" THRIE BEAM SECTION

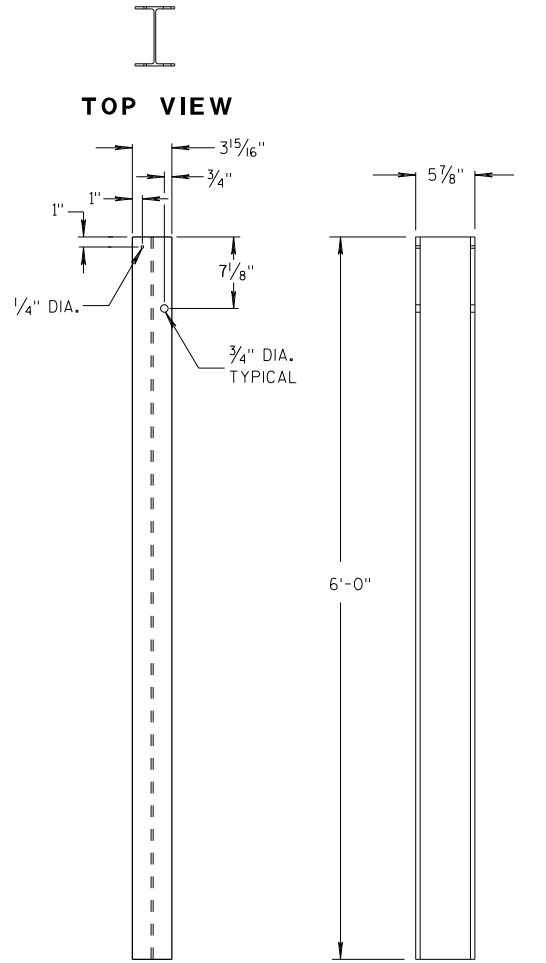


SIDE VIEW



TOP VIEW

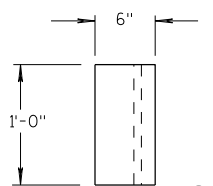
ALTERNATE WOOD BLOCKOUT DETAIL



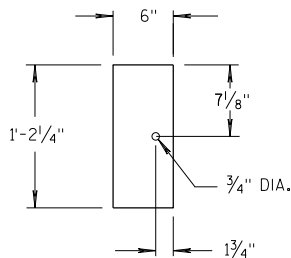
FRONT VIEW

SIDE VIEW

STEEL POSTS 1-5

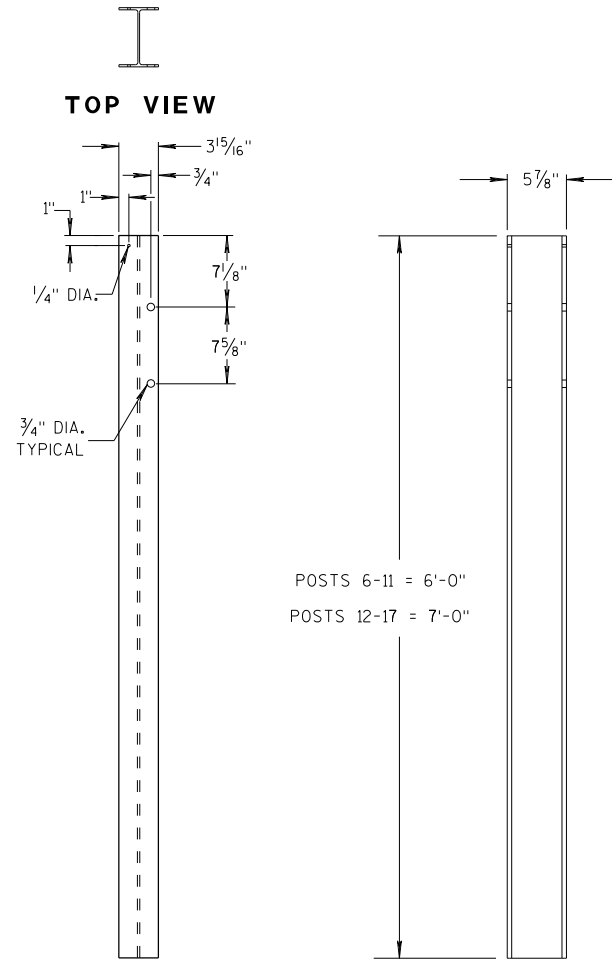


TOP VIEW



FRONT VIEW

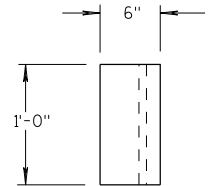
BLOCKOUT POSTS 1-5



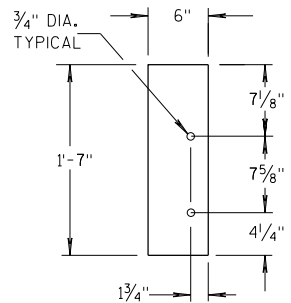
FRONT VIEW

SIDE VIEW

STEEL POSTS 6-17



TOP VIEW



FRONT VIEW

BLOCKOUT POSTS 6-17

GENERAL NOTES

STEEL POSTS ARE W6X9 OR W6X8.5.

BOLT HOLES FOR POST ARE ON FRONT AND OF SIDE OF POST.

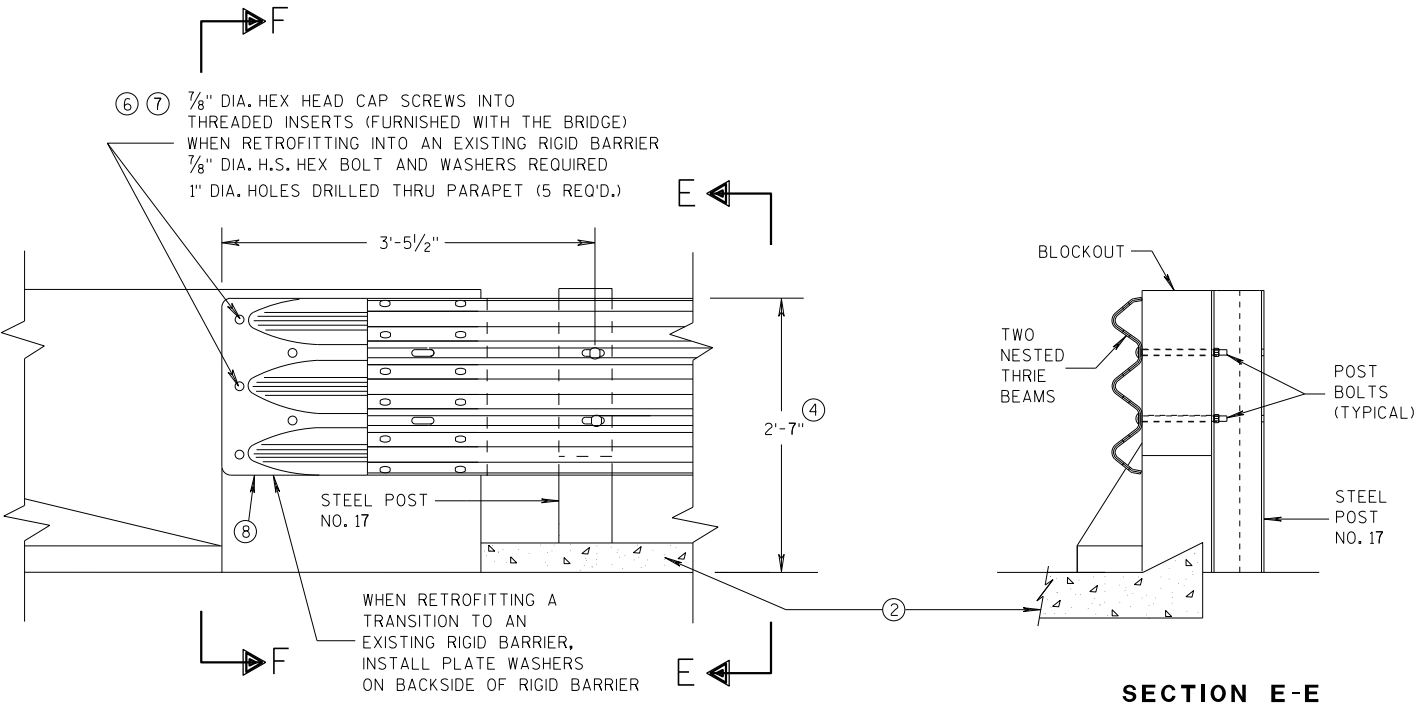
③ WHEN USING STEEL POSTS AND WOOD BLOCKOUTS INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.

⑤ WOOD BLOCKS MAY BE CONSTRUCTED OUT OF 2 WOOD BLOCKS. SEE ALTERNATE WOOD BLOCK DETAIL.

⑬ STEEL OR WOOD POST IS ACCEPTABLE AT POST 1. SEE SDD 14B42.

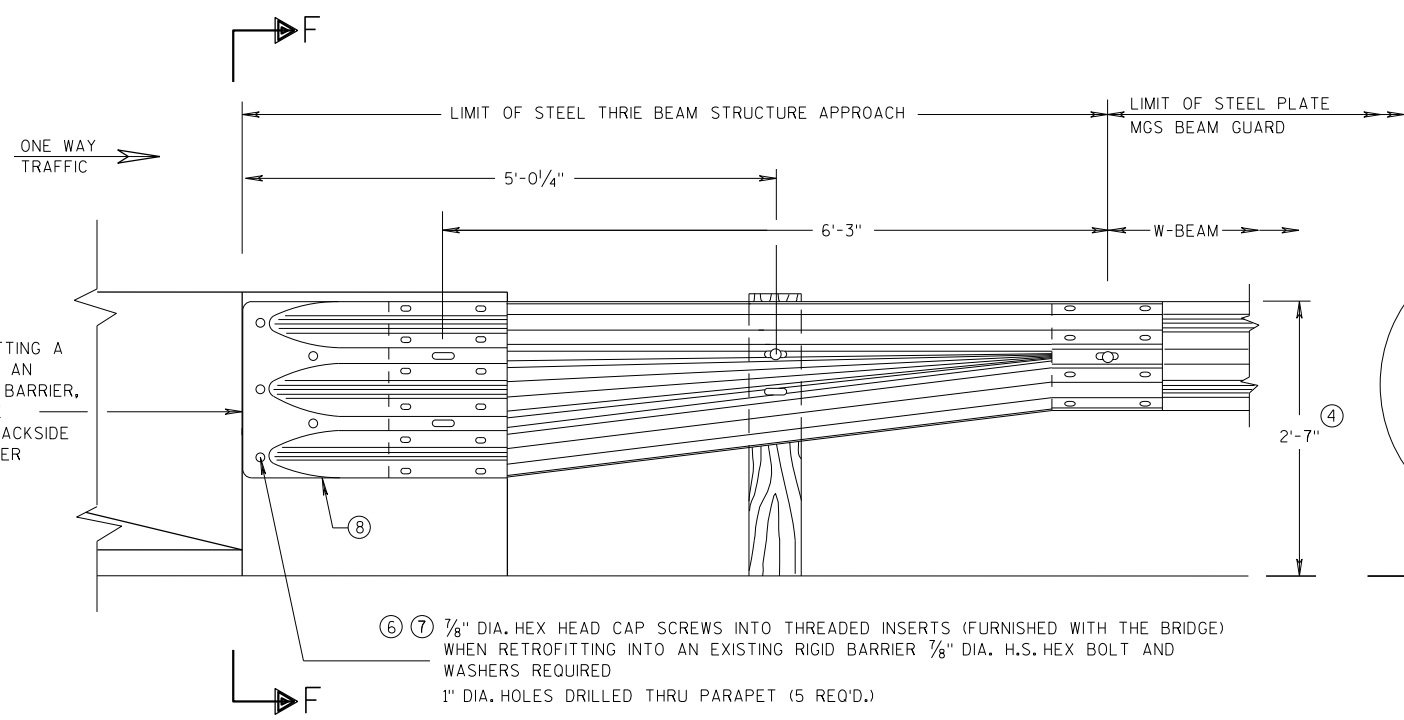
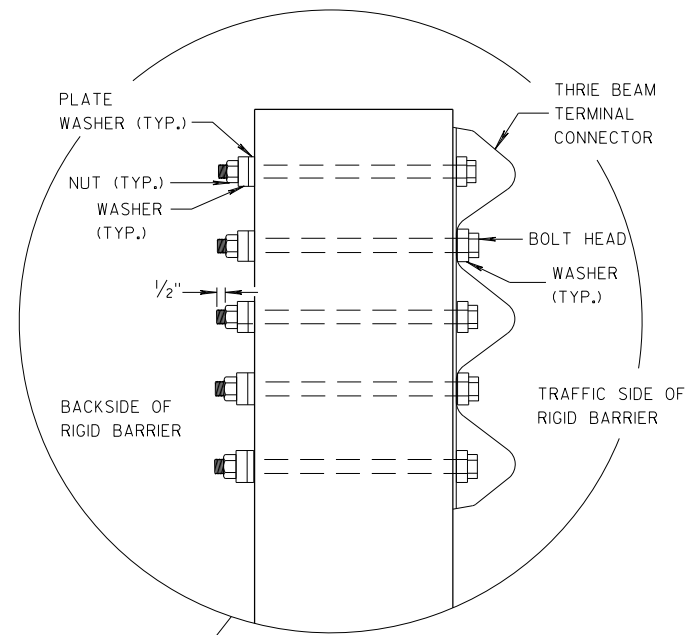
**MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION 101

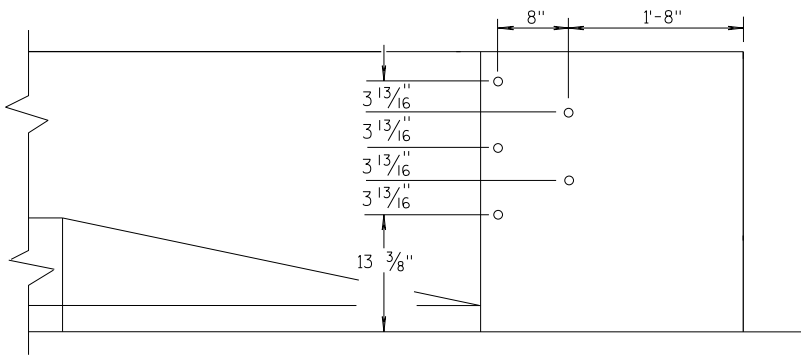


GENERAL NOTES

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



SECTION F-F



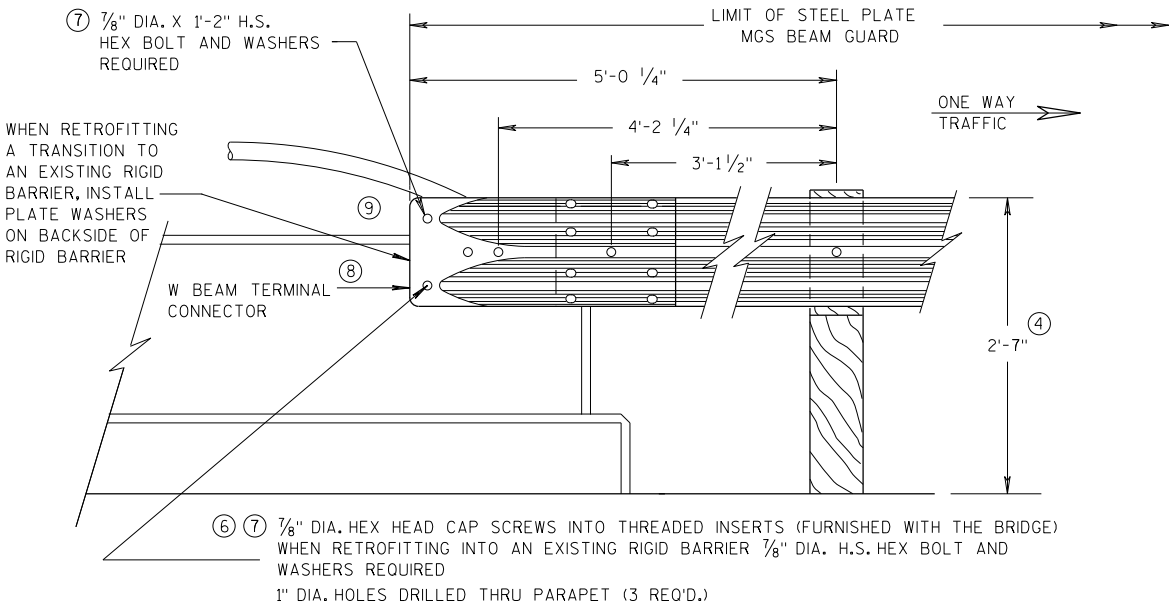
DRILL HOLE LOCATION

MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)			
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
APPROVED 07/2018	/S/ Rodney Taylor		
DATE	ROADWAY STANDARDS	102	NT
FHWA	UNIT SUPERVISOR		

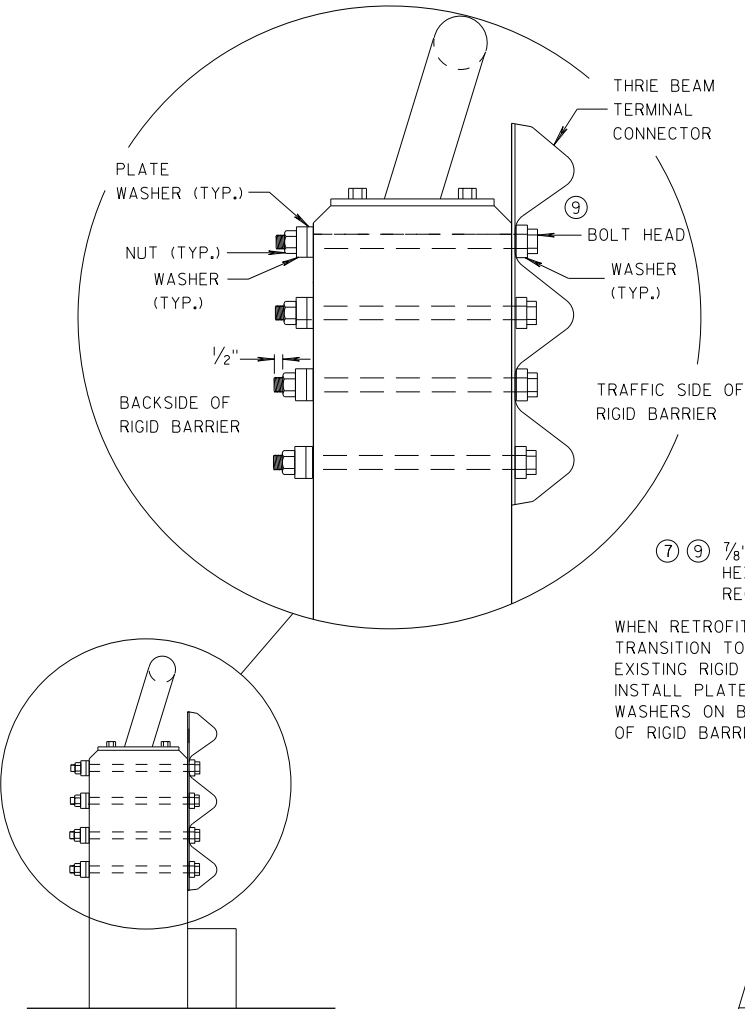
GENERAL NOTES

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

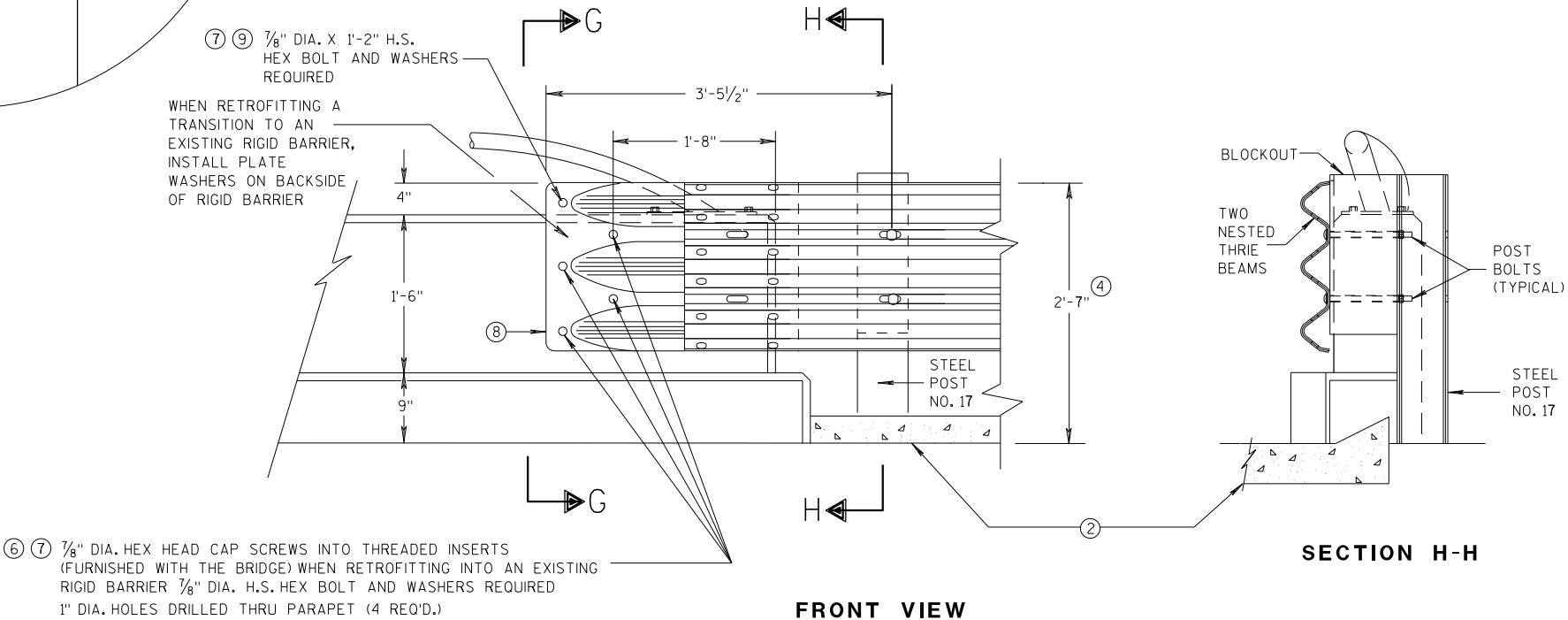
- ②
- OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.
- ④
- TOLERANCE FOR TOP OF BEAM IS ± 1".
- ⑥
- DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.
- ⑦
- BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH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



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

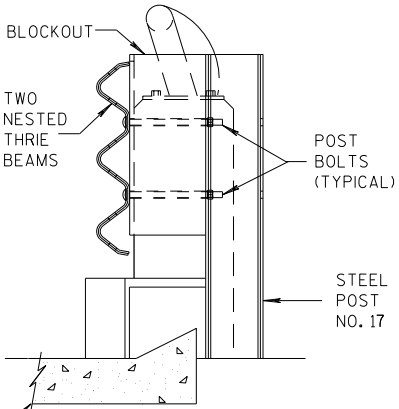


SECTION G-G



FRONT VIEW

THRIE BEAM CONNECTION TO VERTICAL FACED PARAPETS

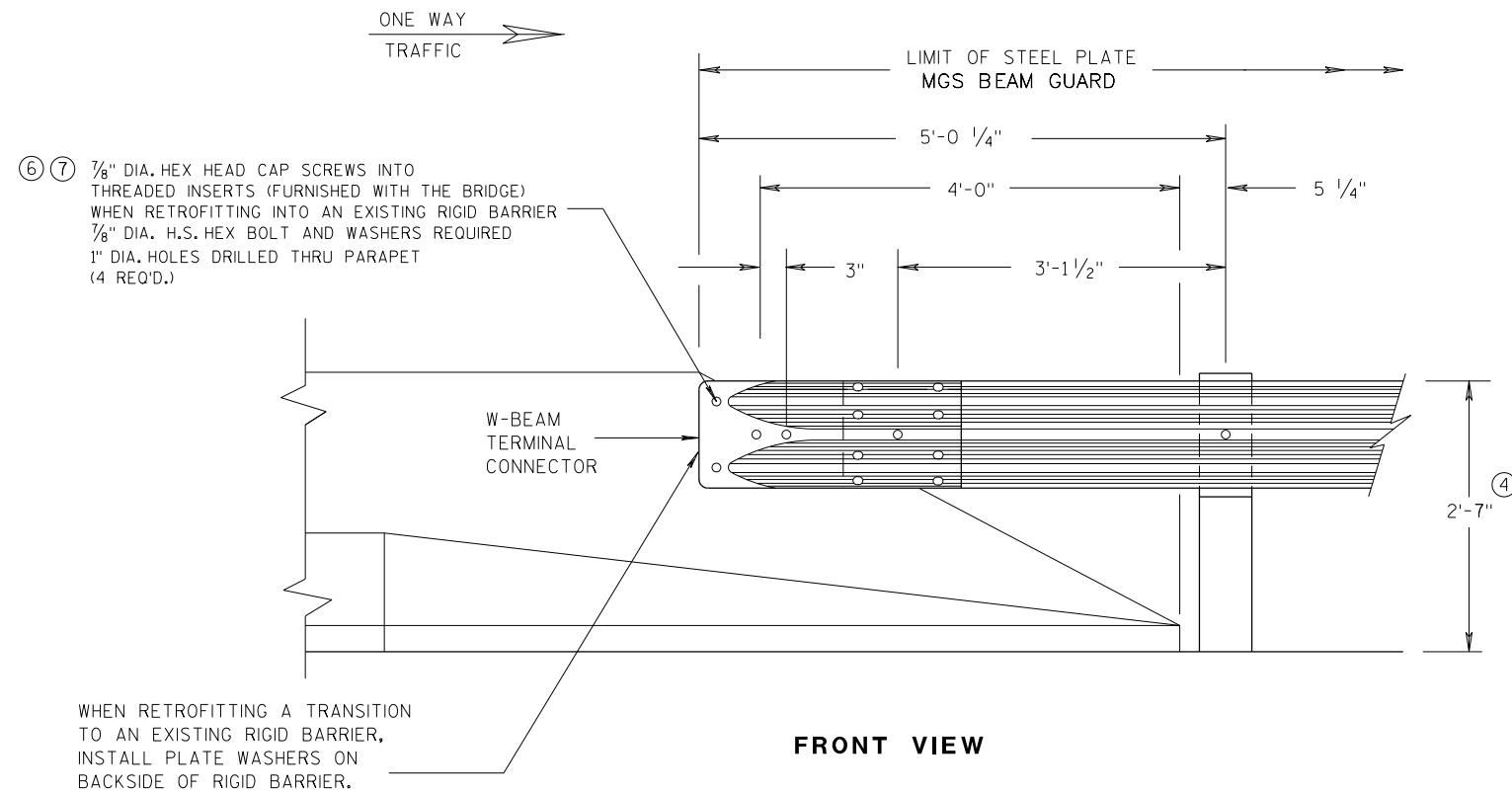


SECTION H-H

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

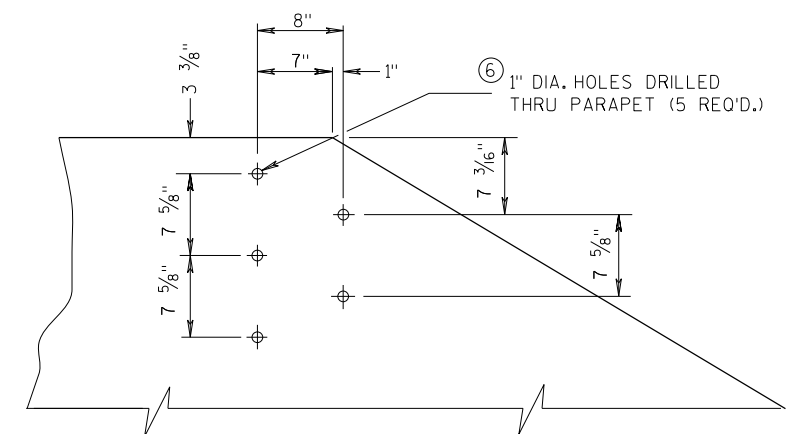
APPROVED
07/2018
DATE
/S/ Rodney Taylor
ROADWAY STANDARDS UNIT SUPERVISOR
103
FHWA



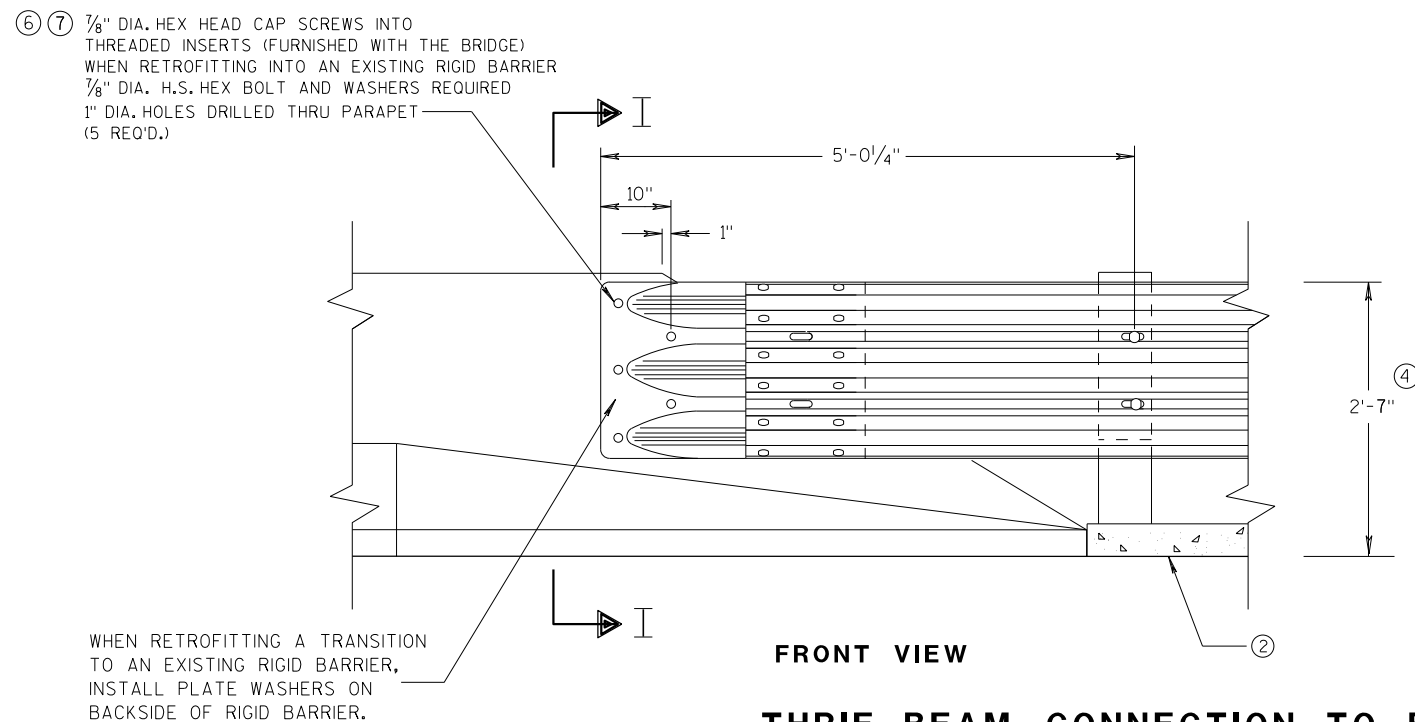
**W BEAM CONNECTION TO
PARAPETS WITH SLOPED ENDS**
(USE ONLY AT TRAFFIC EXIT END OF ONE WAY BRIDGE)

GENERAL NOTES

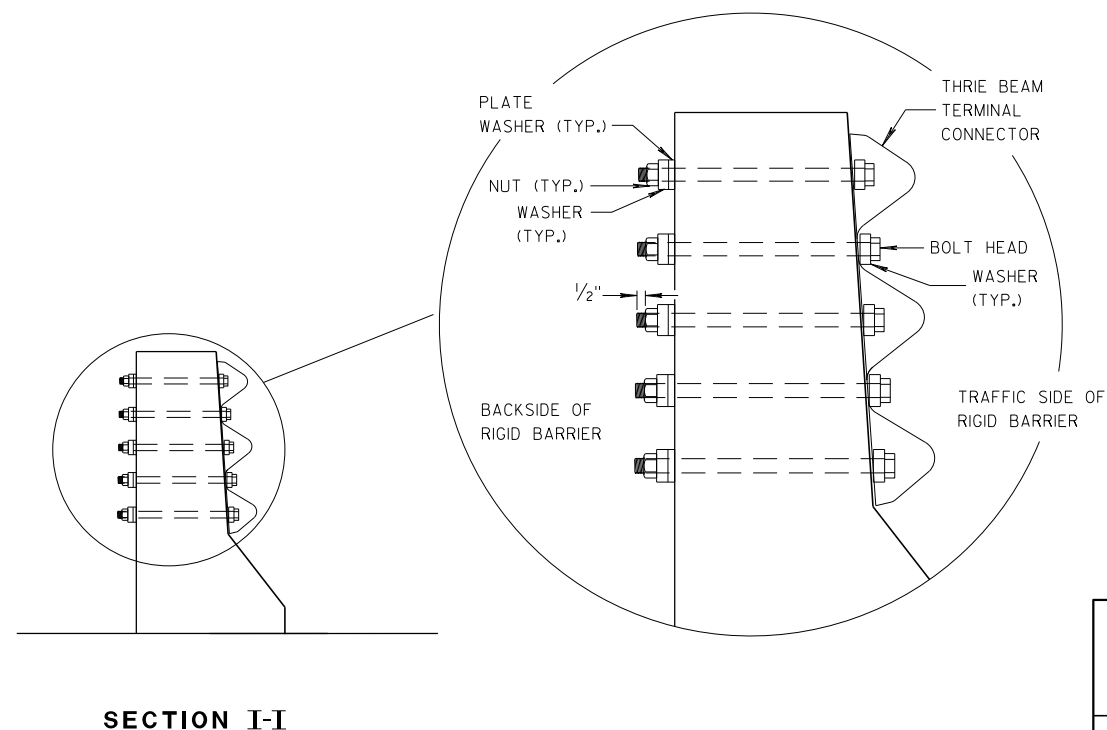
- ② OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.
- ④ TOLERANCE FOR TOP OF BEAM IS $\pm 1"$.
- ⑥ DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.
- ⑦ BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH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



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



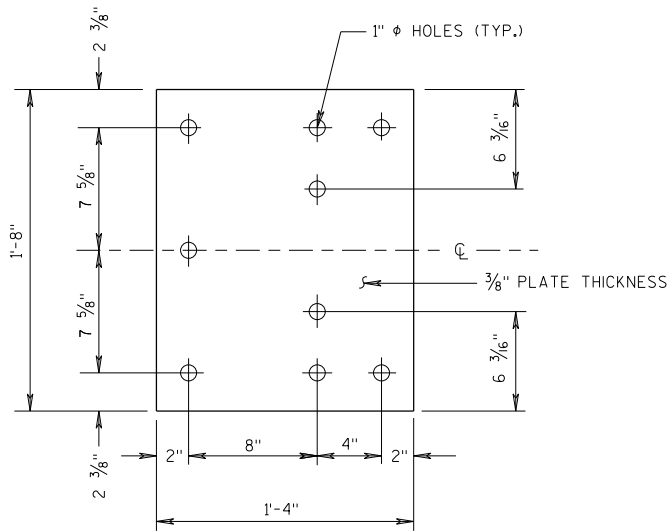
**THRIE BEAM CONNECTION TO BRIDGE
PARAPETS WITH SLOPED ENDS**



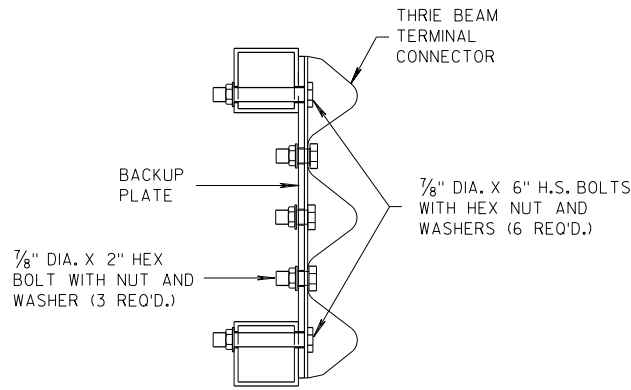
**MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

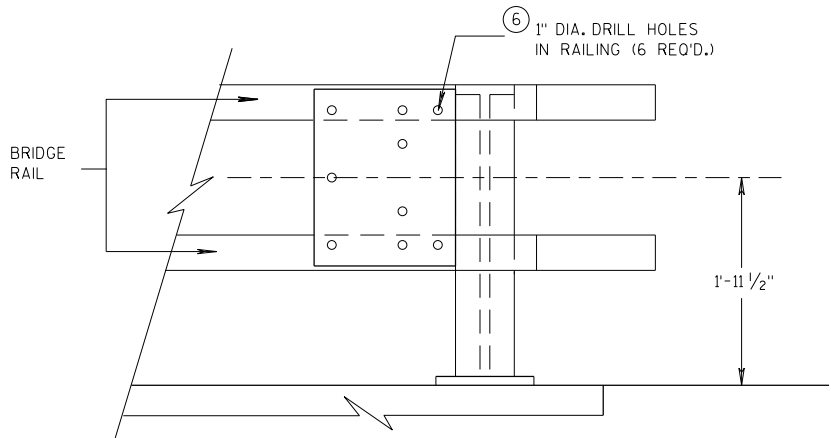
APPROVED
07/2018
DATE
/S/ Rodney Taylor
ROADWAY STANDARDS UNIT SUPERVISOR
104
FHWA



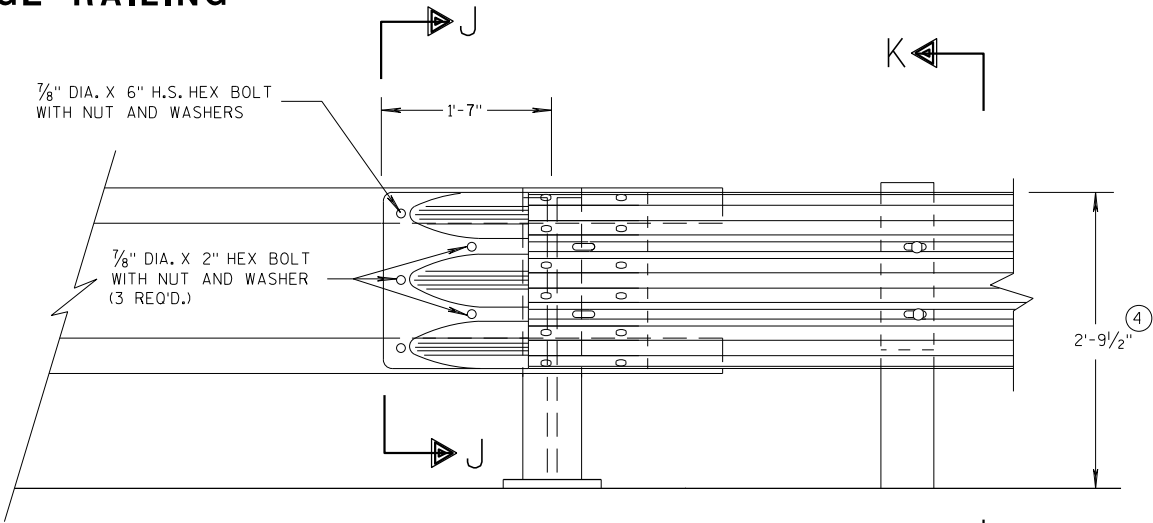
BACK-UP PLATE DETAIL



SECTION J-J

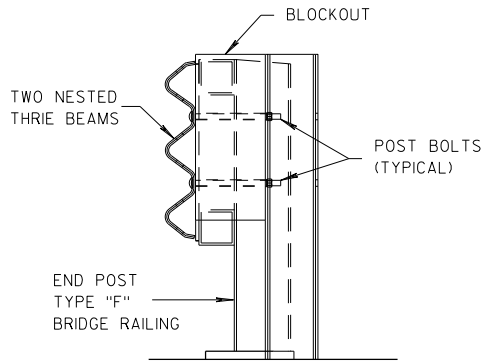


BACK-UP PLATE MOUNTING ONTO BRIDGE RAILING



FRONT VIEW

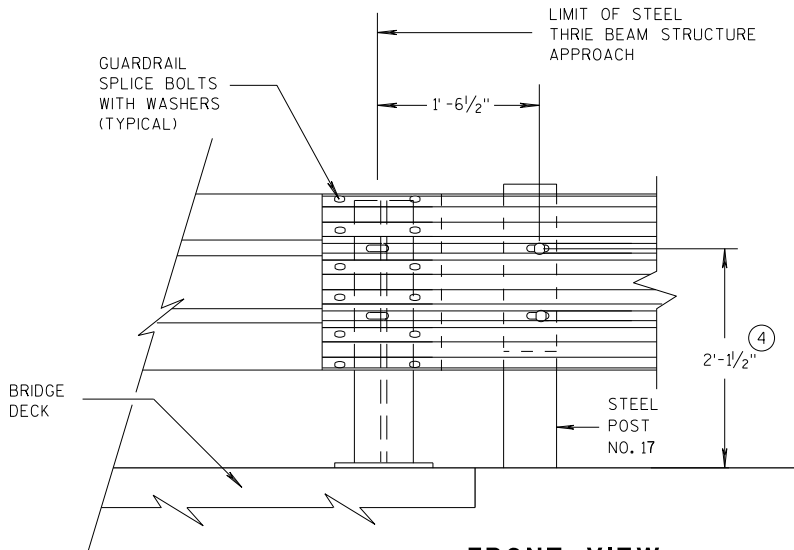
THRIE BEAM CONNECTION TO TUBULAR RAILING TYPE "F"



SECTION K-K

GENERAL NOTES

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



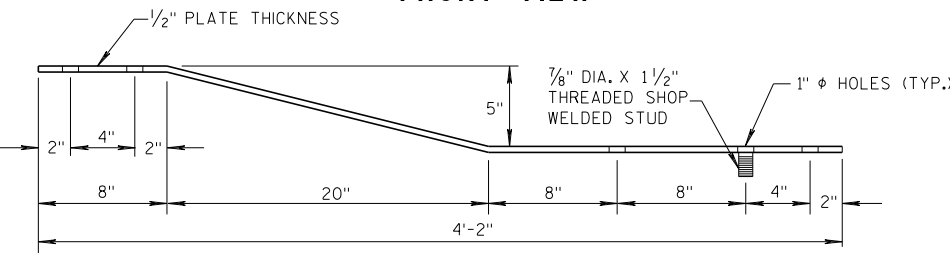
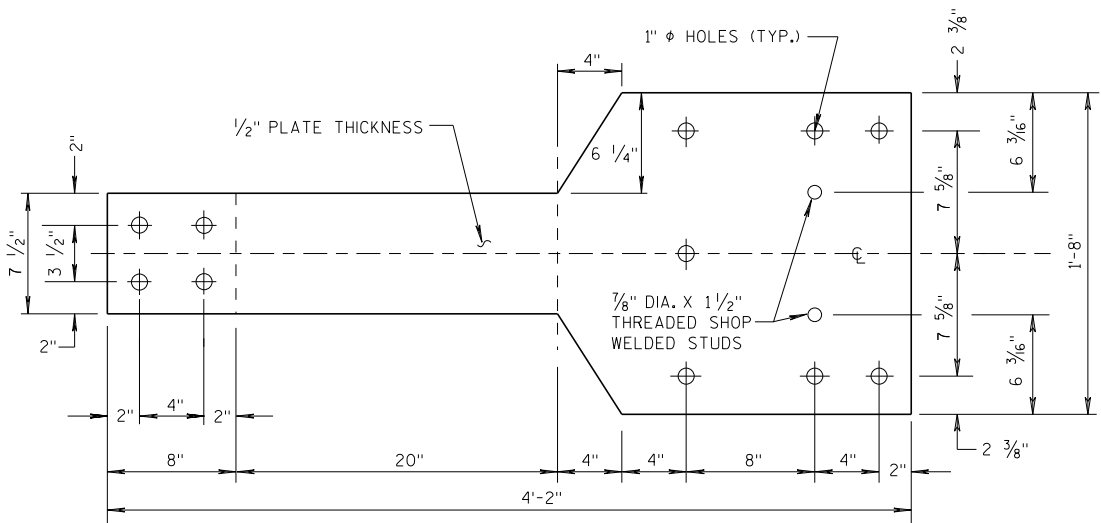
FRONT VIEW

THRIE BEAM CONNECTION TO STEEL RAILING TYPE "W"

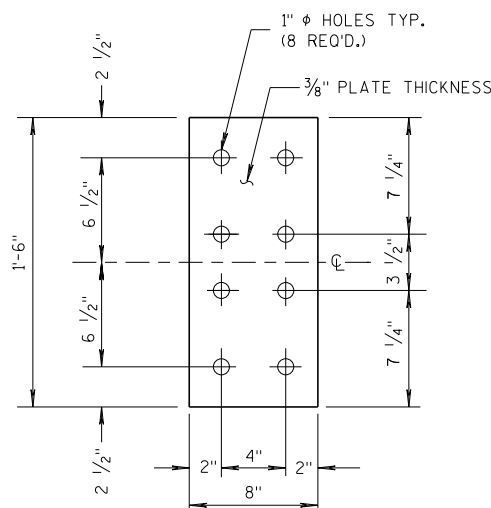
MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)		
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION		
APPROVED 07/2018	/S/ Rodney Taylor	105
DATE	ROADWAY STANDARDS DEVELOPMENT	UNIT SUPERVISOR
FHWA		

GENERAL NOTES

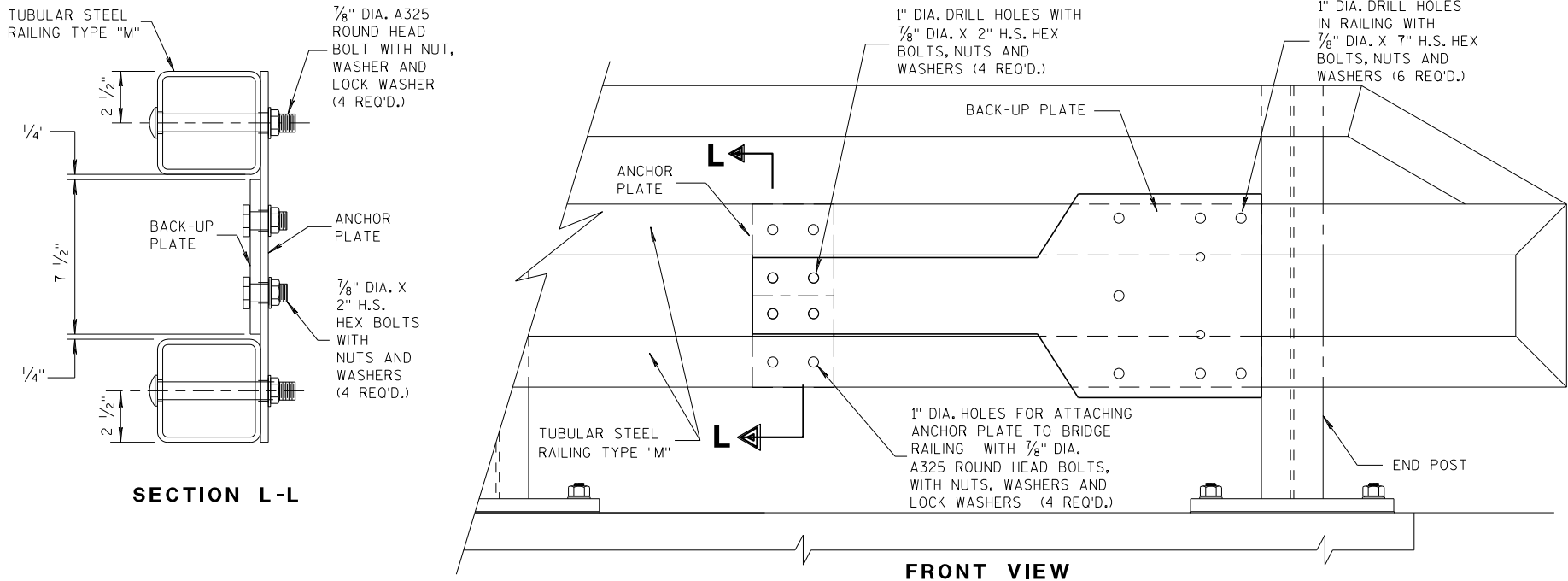
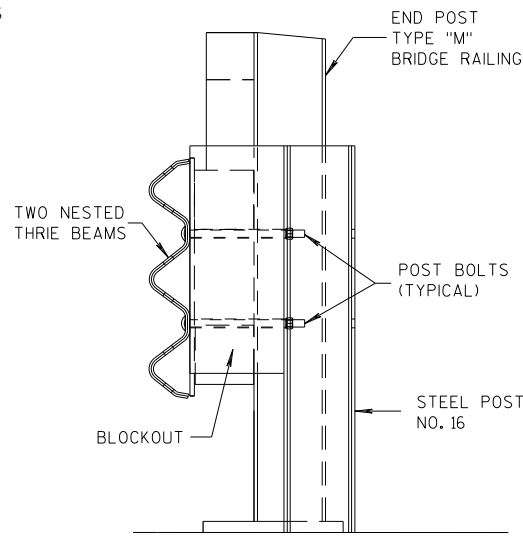
④ TOLERANCE FOR TOP OF W-BEAM RAIL IS $\pm 1"$.



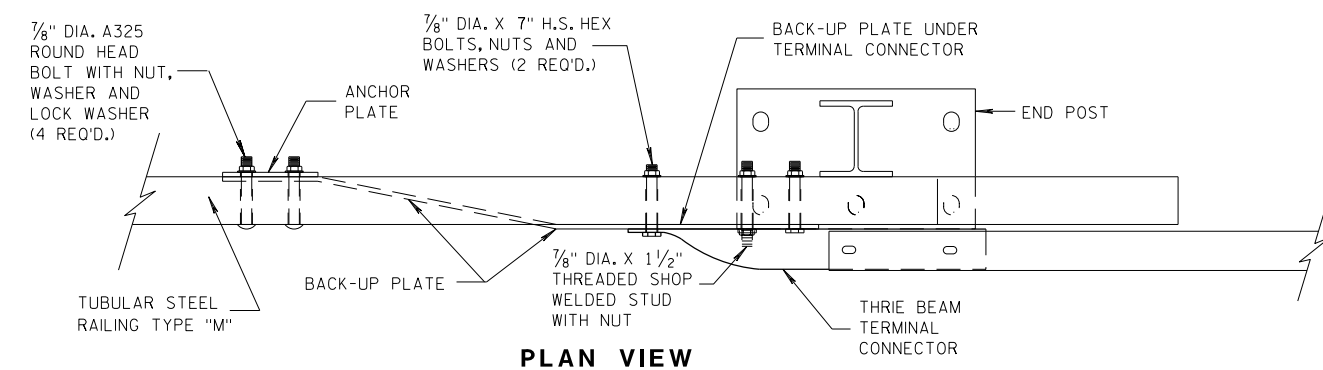
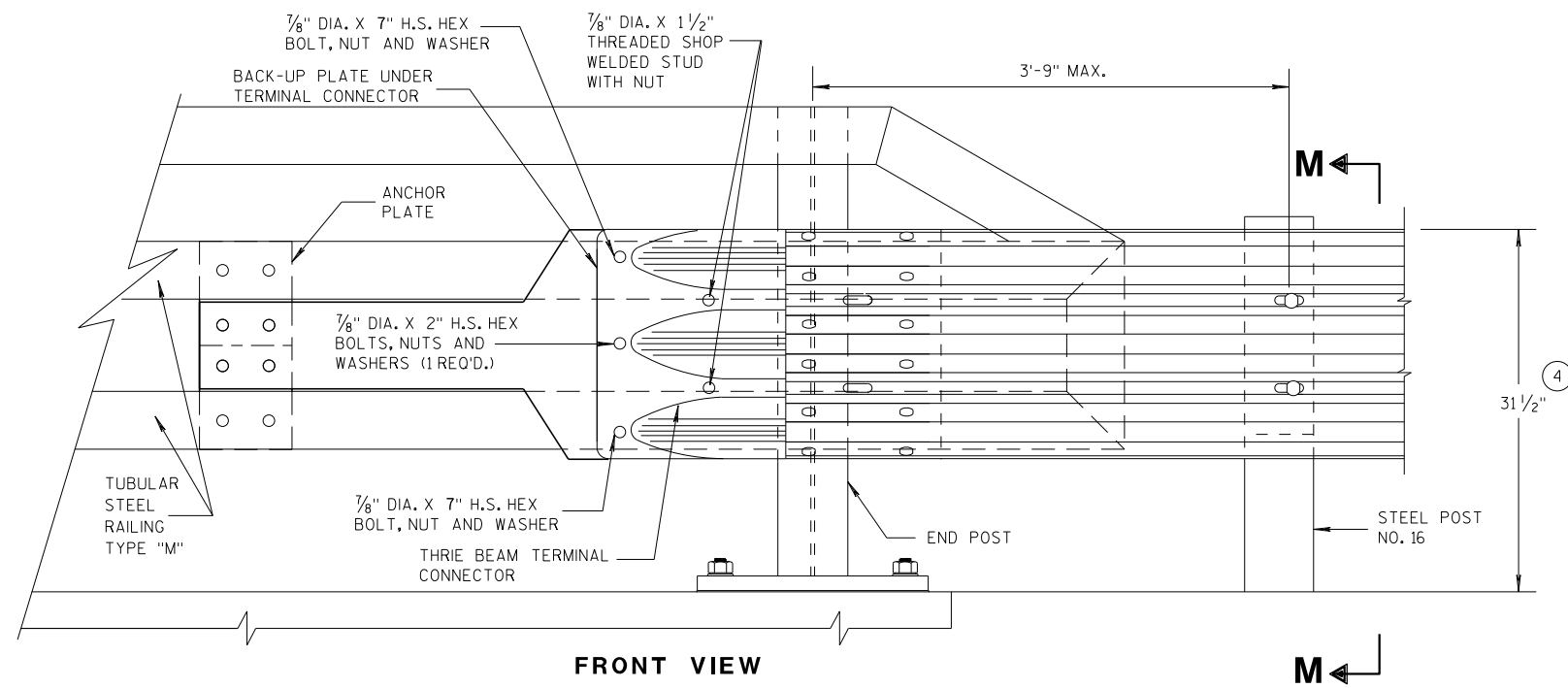
BACK-UP PLATE DETAIL, TYPE "M"



ANCHOR PLATE DETAIL, TYPE "M"

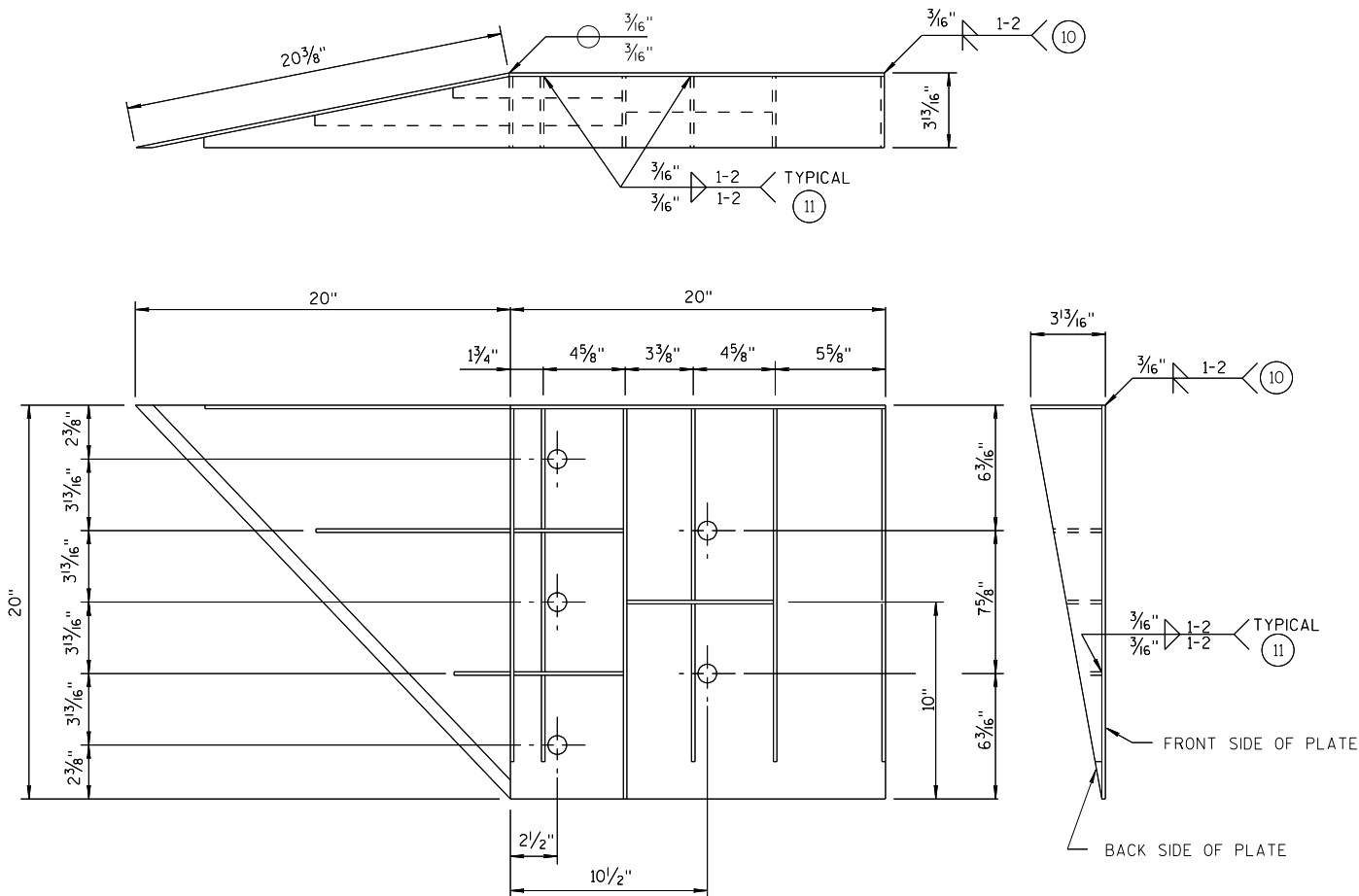


ANCHOR AND BACK-UP PLATE MOUNTING TO BRIDGE RAILING, TYPE "M"



THRIE BEAM CONNECTION TO TUBULAR RAILING, TYPE "M"

MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 07/2018 DATE	/S/ Rodney Taylor ROADWAY STANDARDS UNIT SUPERVISOR
FHWA 106 ENT	



WELDING INSTRUCTION

(VIEWED FROM BACK SIDE OF PLATE)

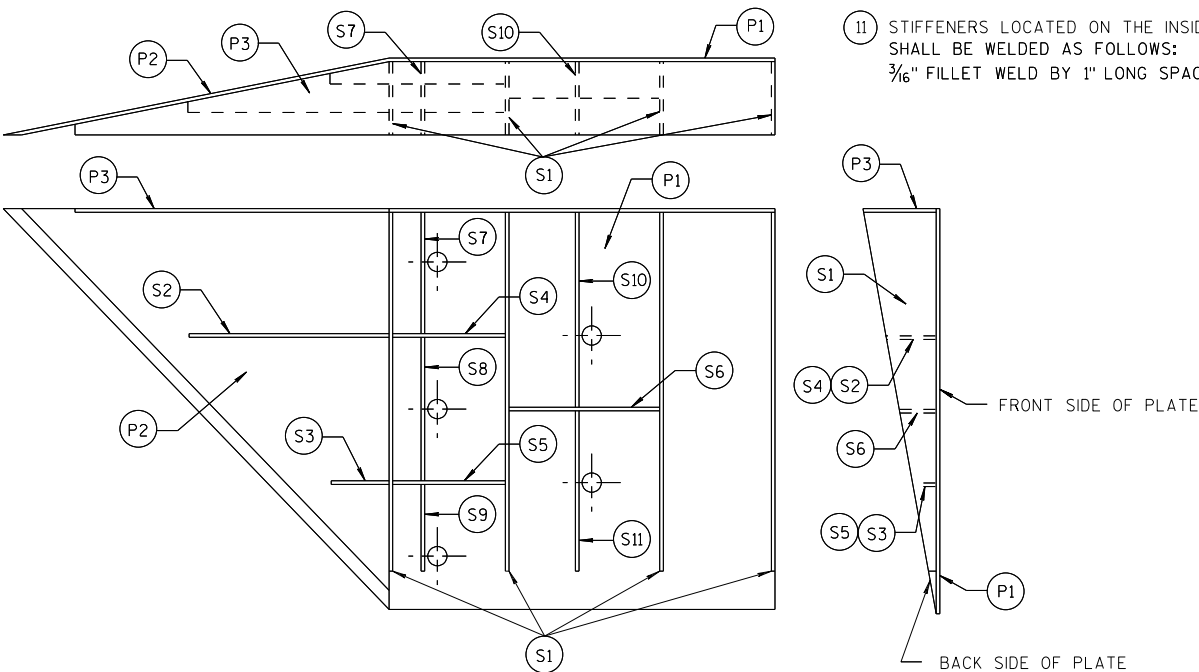


PLATE AND STIFFENER IDENTIFICATION

(VIEWED FROM BACK SIDE OF PLATE)

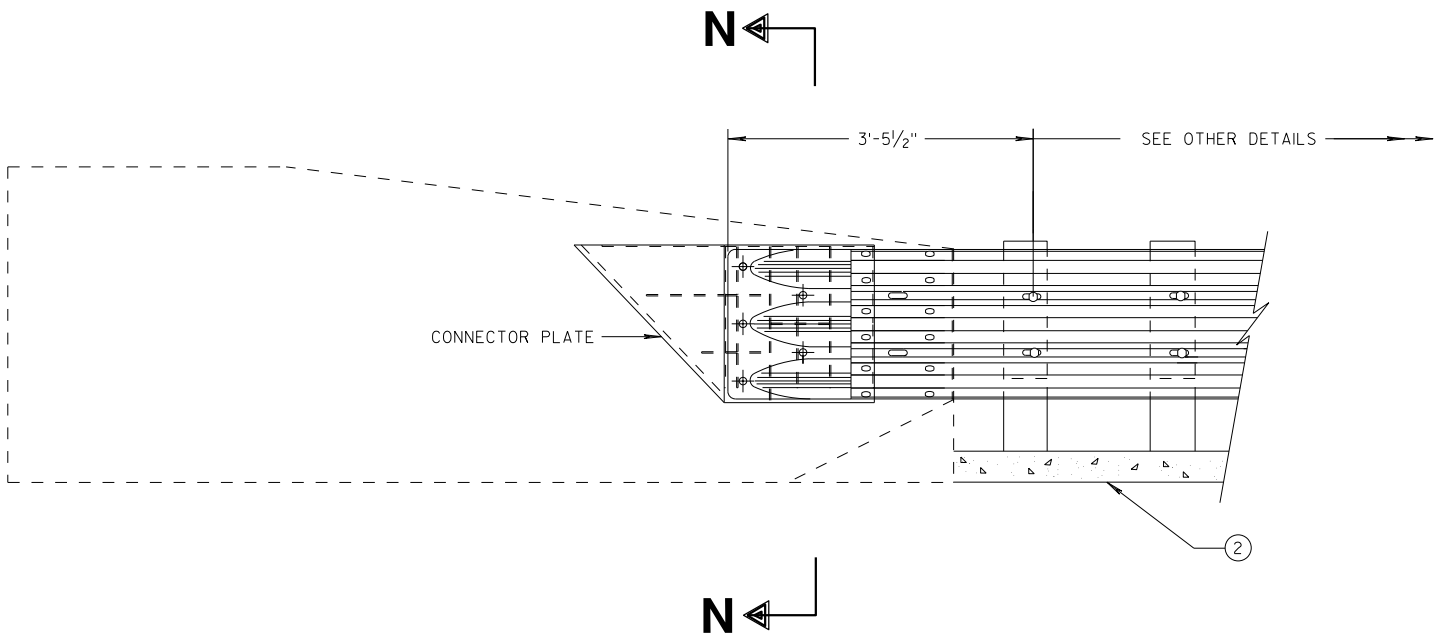
CONNECTOR PLATE DIMENSION (PER ASSEMBLY)				
PLATE	QUANTITY	SHAPE	SIZE (A x B x C x D)	THICKNESS
P1	1		20" x 20"	3/16"
P2	1		20" x 20" x 28 3/16"	3/16"
P3	1		39" x 3 5/8" x 20" x 19 5/16"	3/16"
S1	4		18 7/16" x 3 5/8" x 18 3/4"	1/4"
S2	1		10 1/4" x 2 1/16" x 10 3/8" x 1/2"	1/4"
S3	1		3" x 1 1/16" x 3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

SINGLE SLOPE CONNECTION PLATE

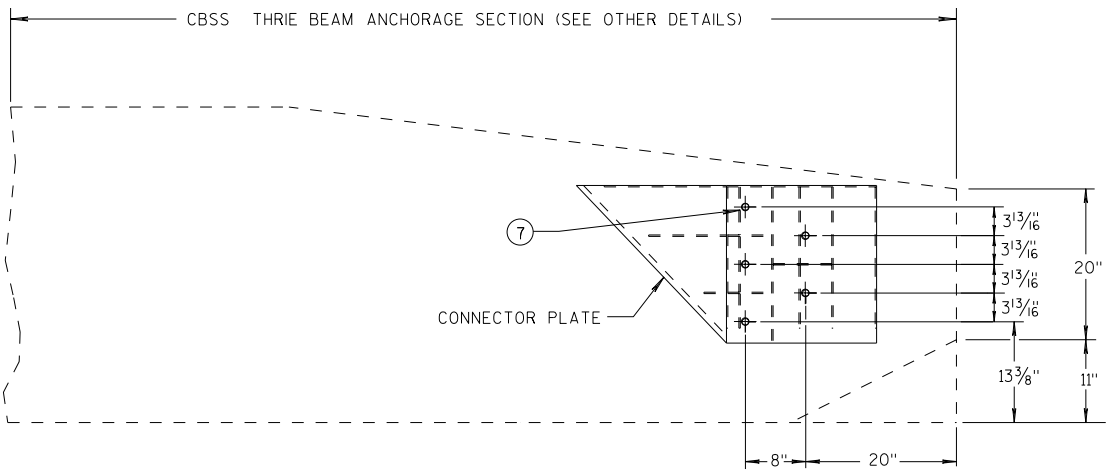
GENERAL NOTES

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

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



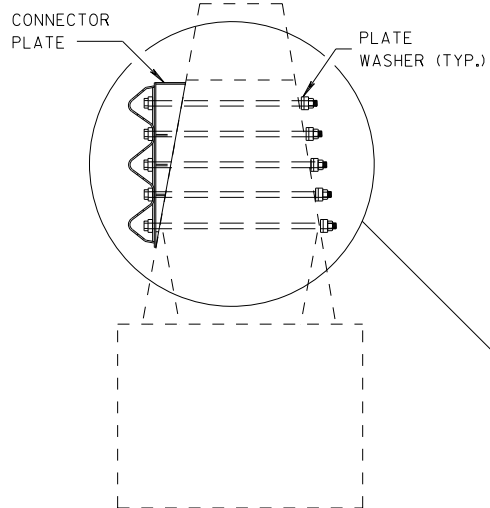
THRIE BEAM CONNECTION TO SINGLE SLOPE BARRIER



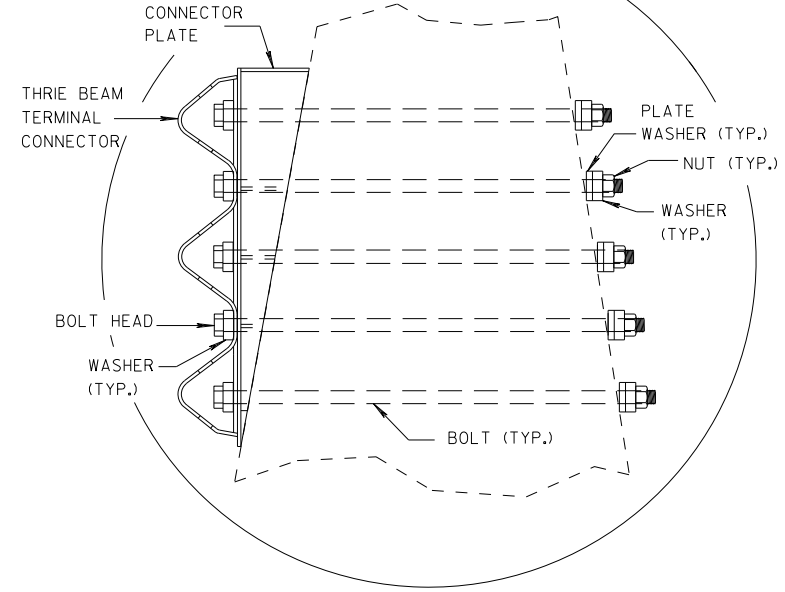
SINGLE SLOPE CONNECTION PLATE PLACEMENT

GENERAL NOTES

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



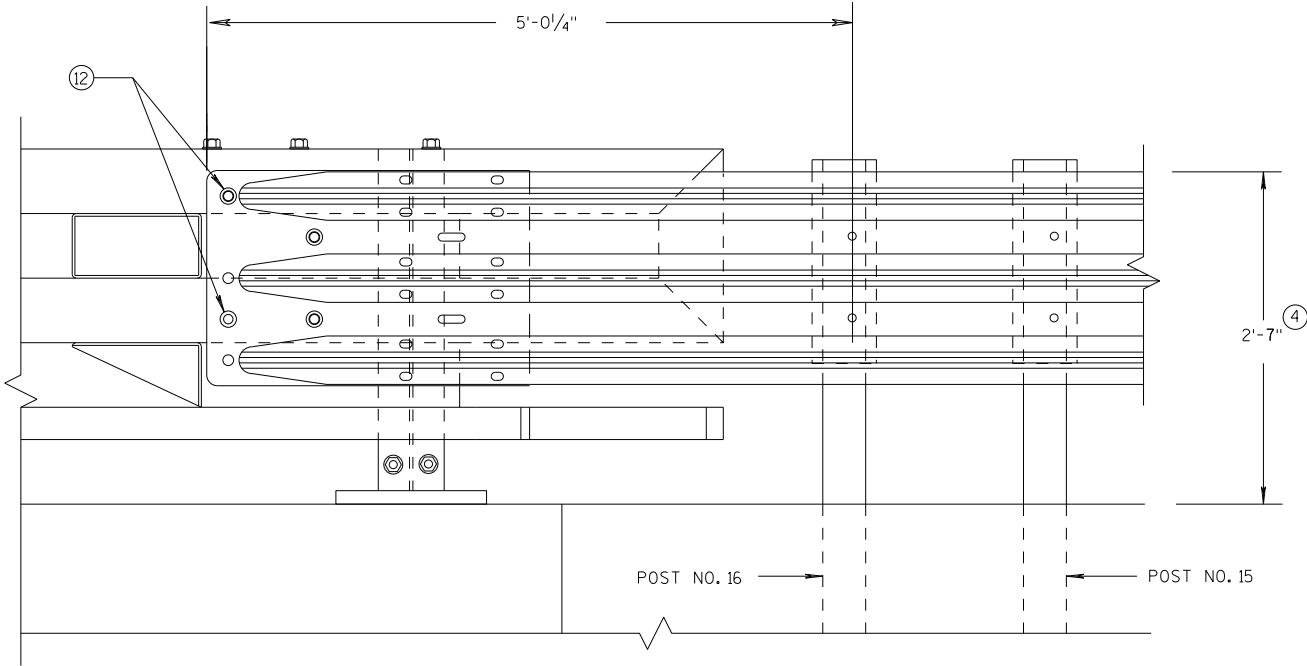
SECTION N-N



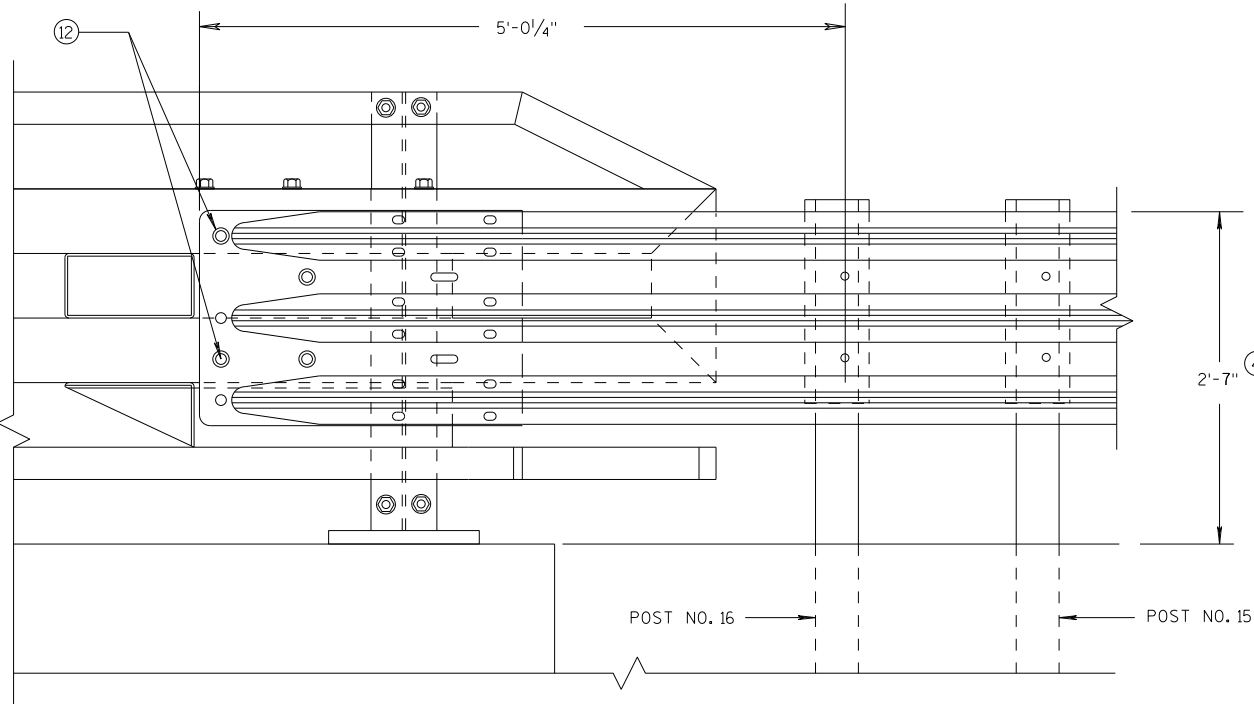
MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)			
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
APPROVED 7/2018 DATE	/S/ Rodney Taylor ROADWAY STANDARDS DISTRICT UNIT SUPERVISOR 108		
FHWA			

GENERAL NOTES

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



ELEVATION OF DETAIL AT NY3 END POST
THRIE BEAM RAIL ATTACHMENT

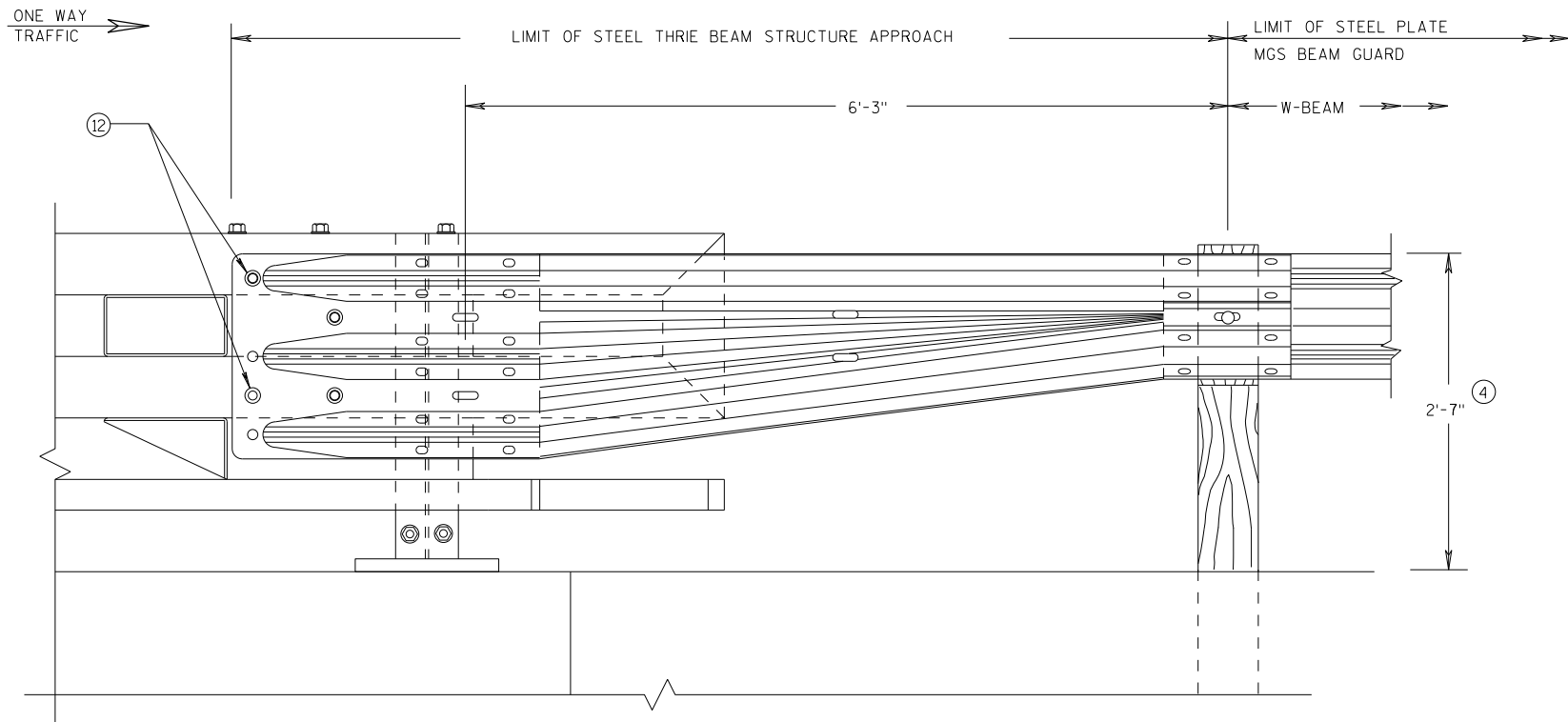


ELEVATION OF DETAIL AT NY4 END POST
THRIE BEAM RAIL ATTACHMENT

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
DATE 7/2018 /S/ Rodney Taylor
ROADWAY STANDARDS UNIT SUPERVISOR 109 NT
FHWA

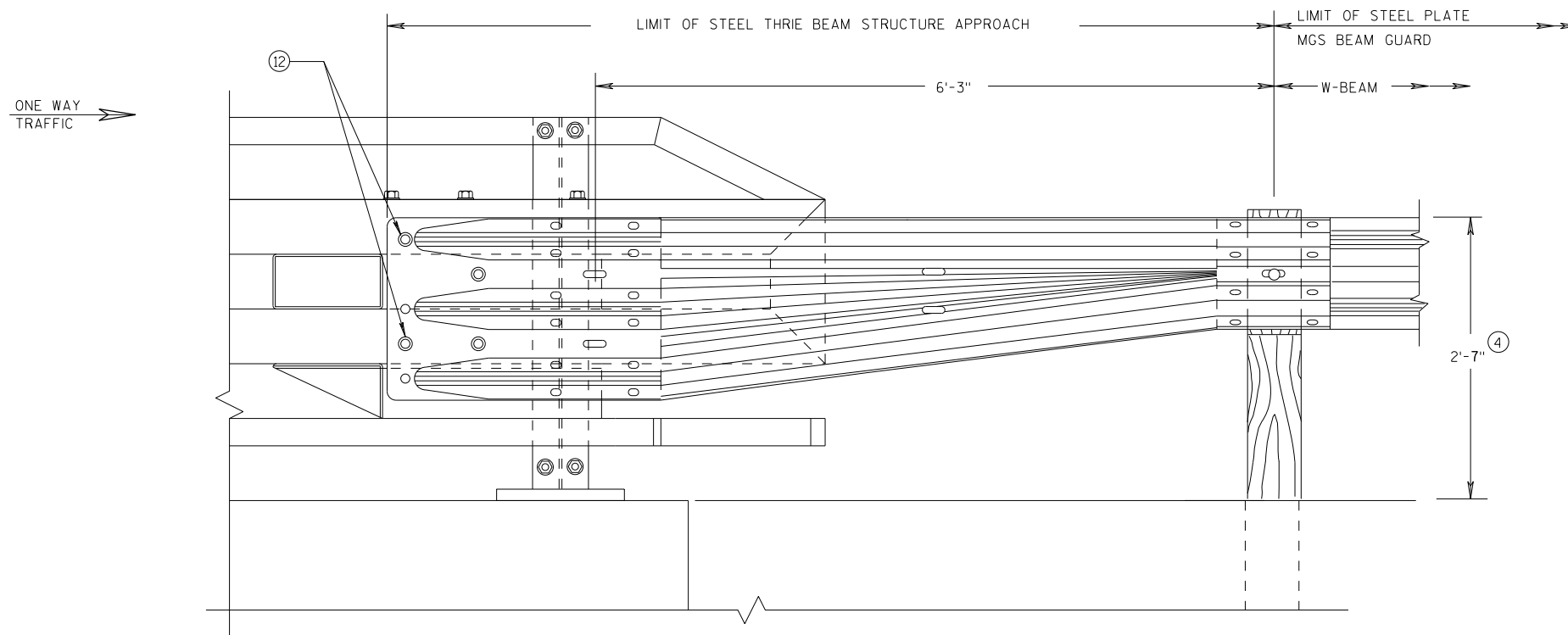


FRONT VIEW

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

GENERAL NOTES

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



FRONT VIEW

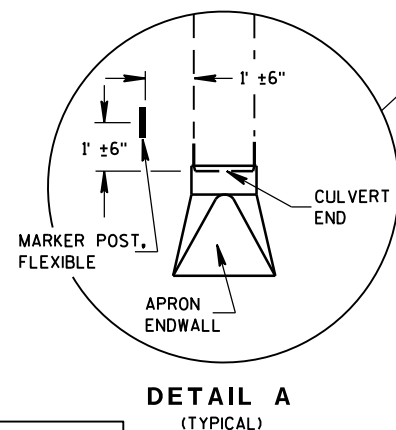
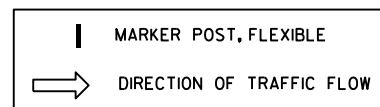
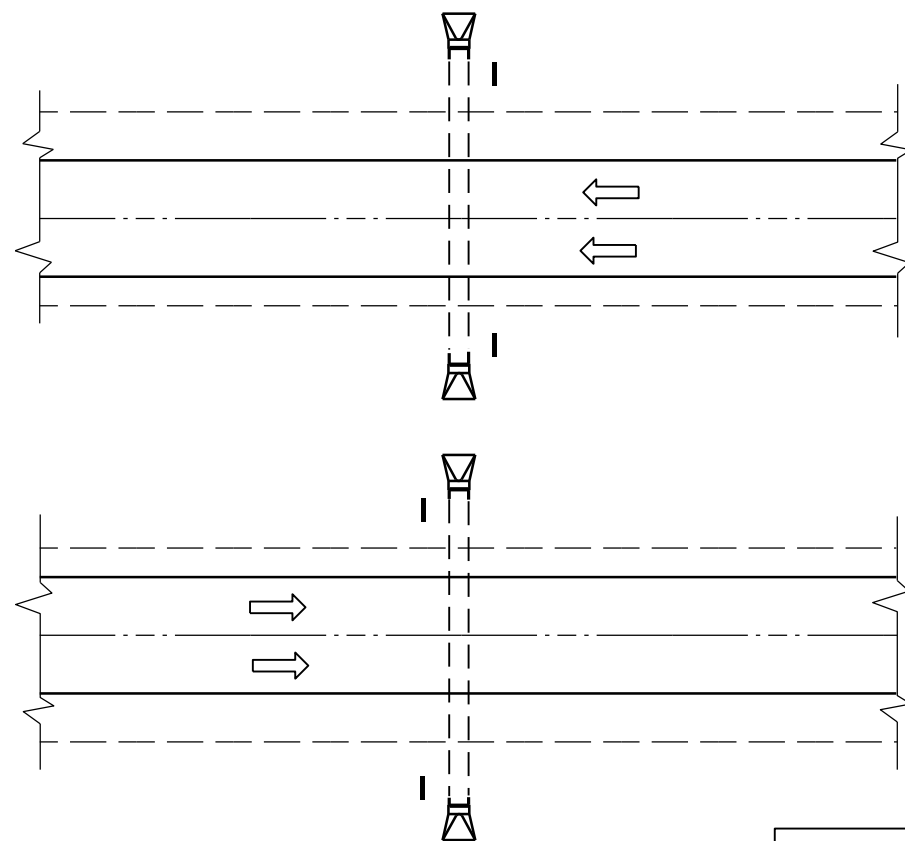
**W BEAM TRANSITION AND
CONNECTION TO BRIDGE RAILING TYPE "NY4"**
(USE ONLY ON THE TRAFFIC EXIT END OF ONE WAY BRIDGES)

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

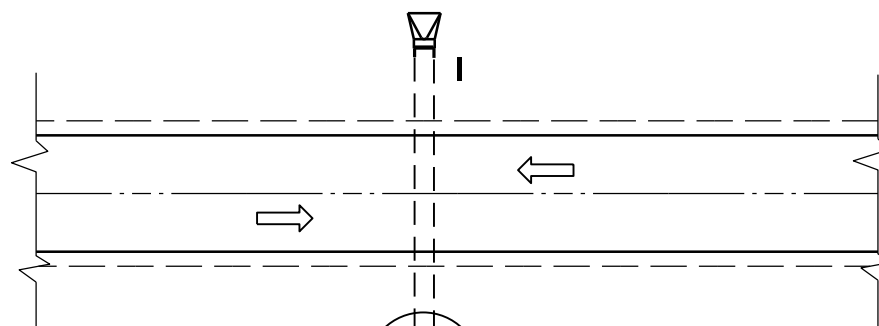
APPROVED		
DATE	7/2018	/S/ Rodney Taylor
FHWA	ROADWAY STANDARDS C 110	UNIT SUPERVISOR NT

PLAN VIEW
DIVIDED HIGHWAY



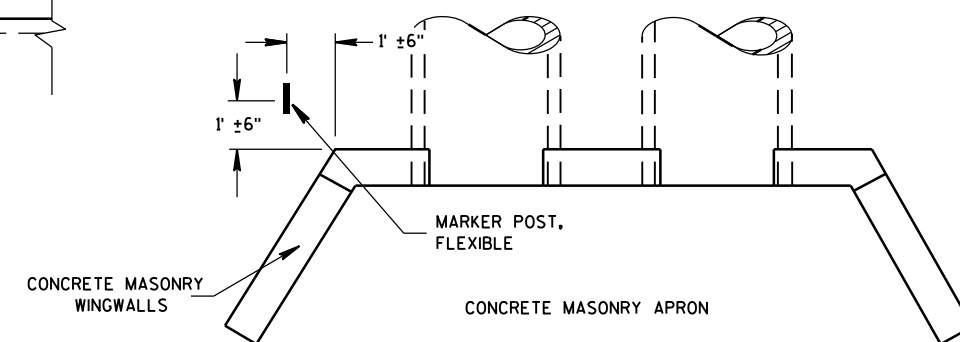
DETAIL A
(TYPICAL)

PLAN VIEW
UNDIVIDED HIGHWAY



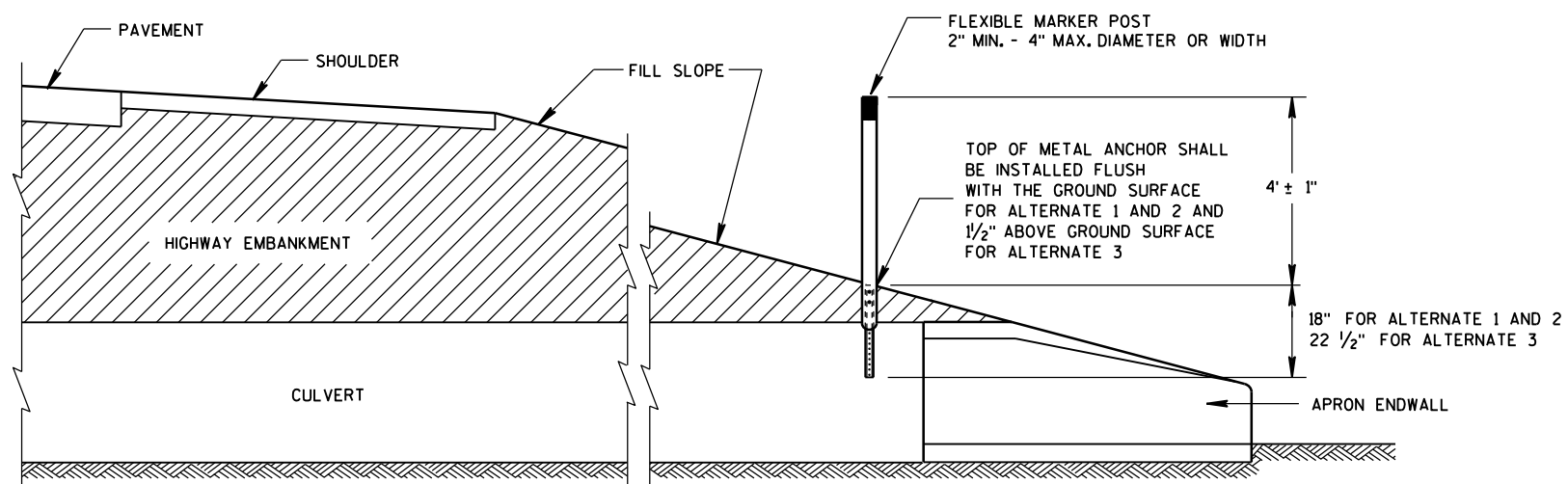
GENERAL NOTES

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

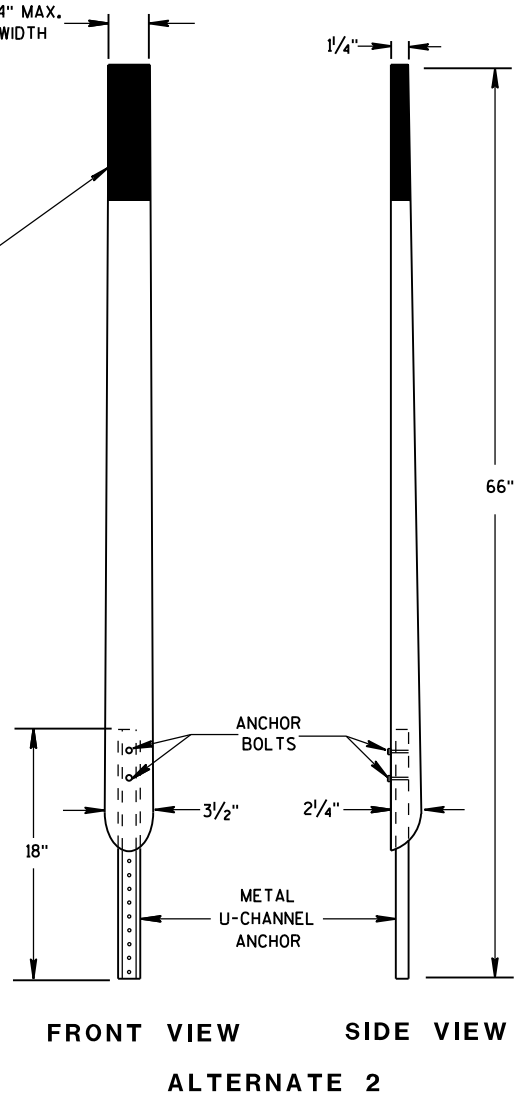
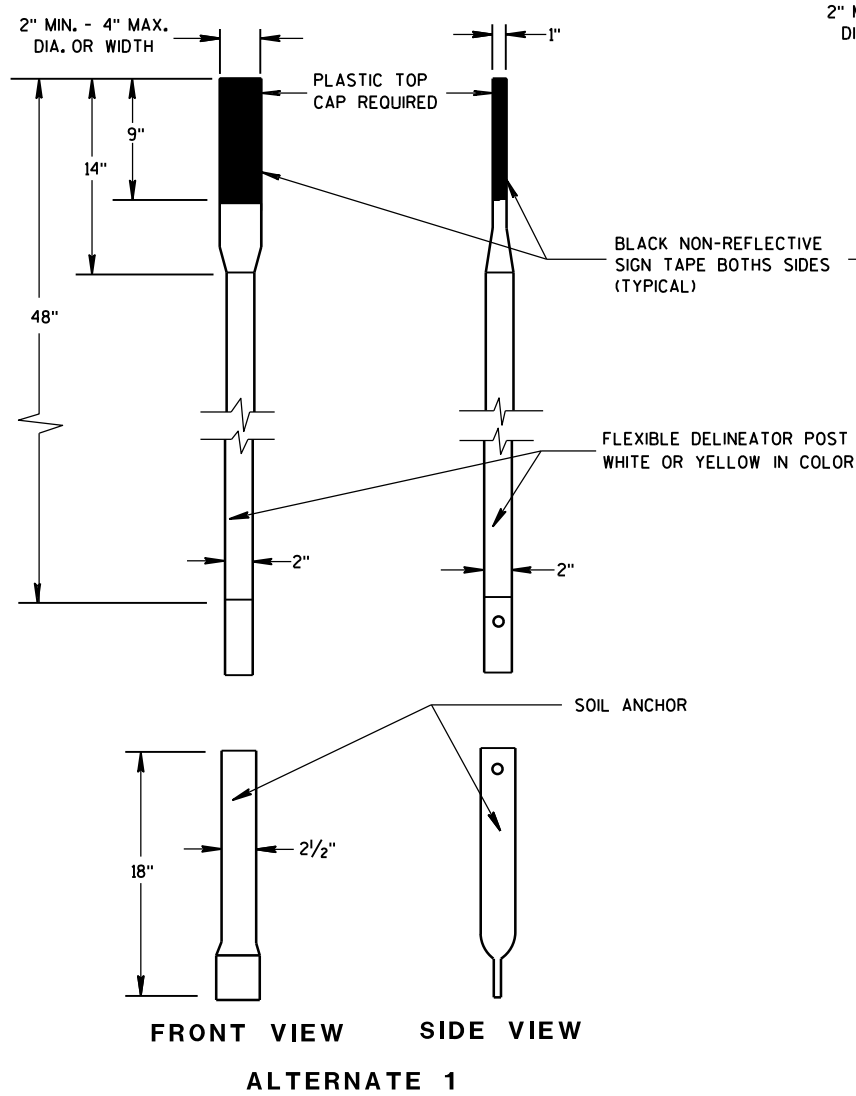
FLEXIBLE MARKER POST LOCATION



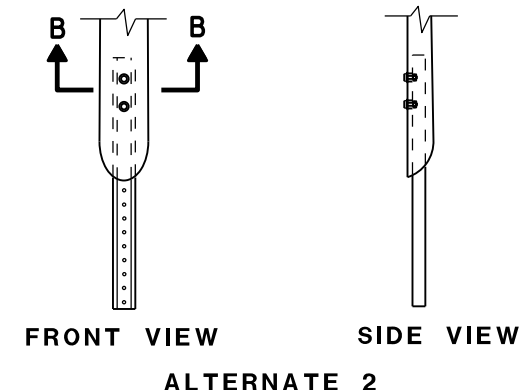
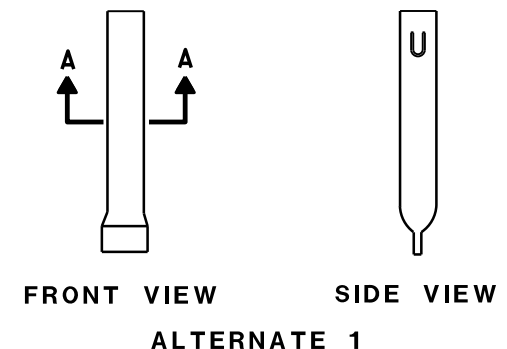
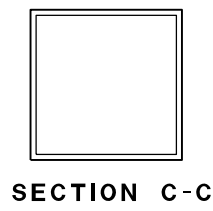
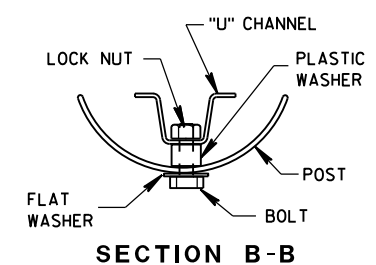
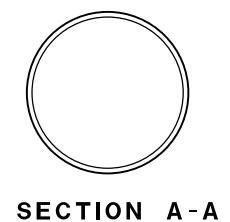
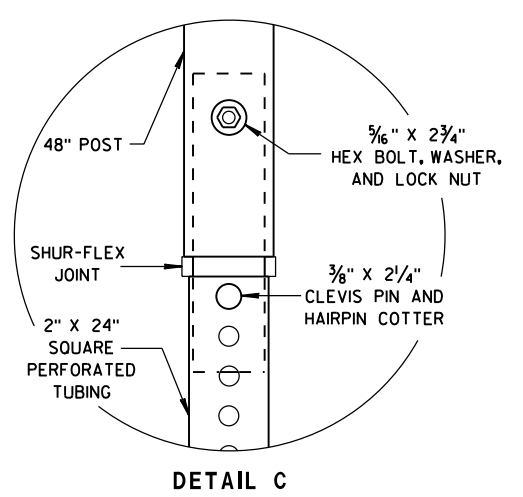
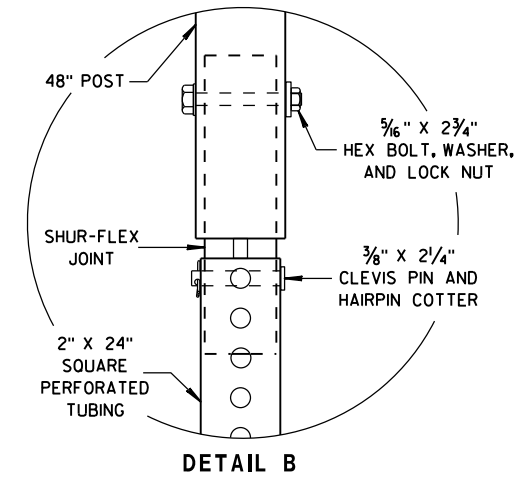
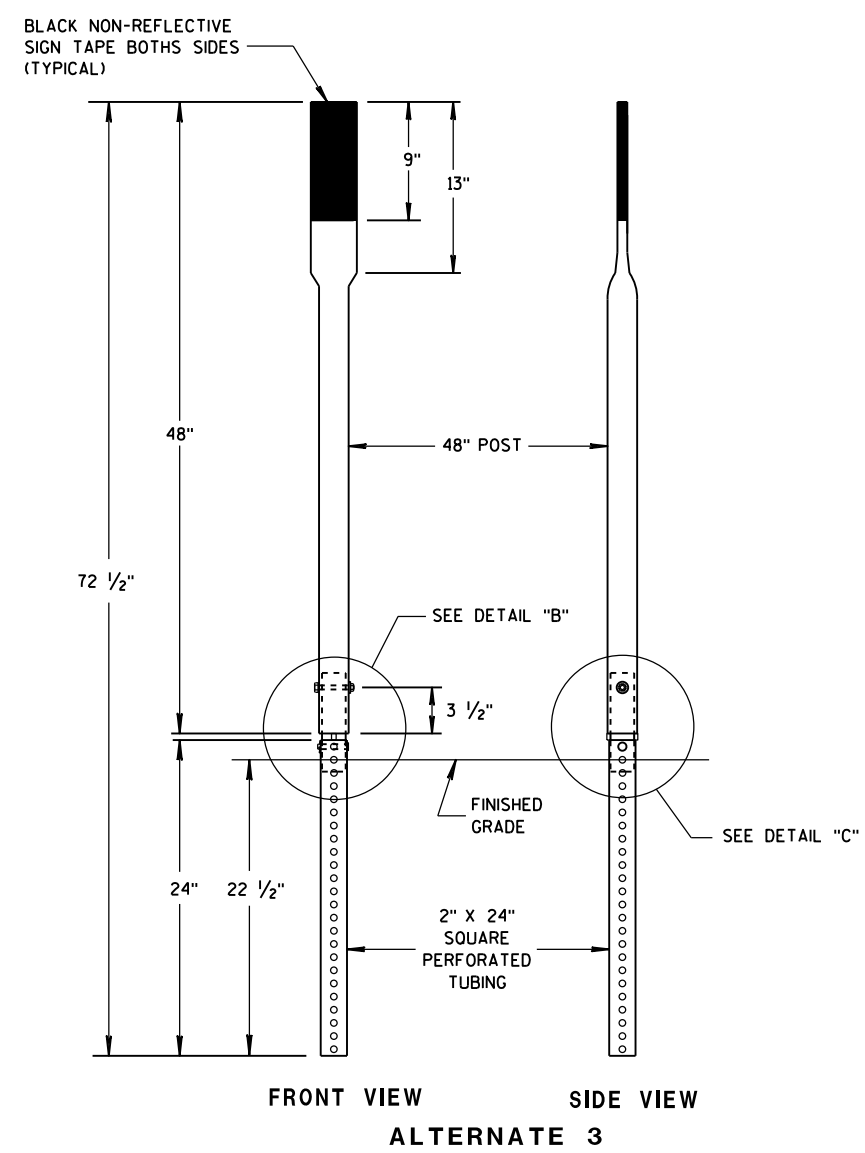
CROSS SECTION
FLEXIBLE MARKER POST

FLEXIBLE MARKER POST
FOR CULVERT END

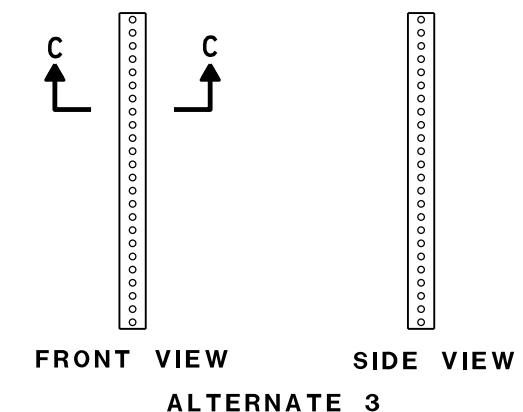
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION 111



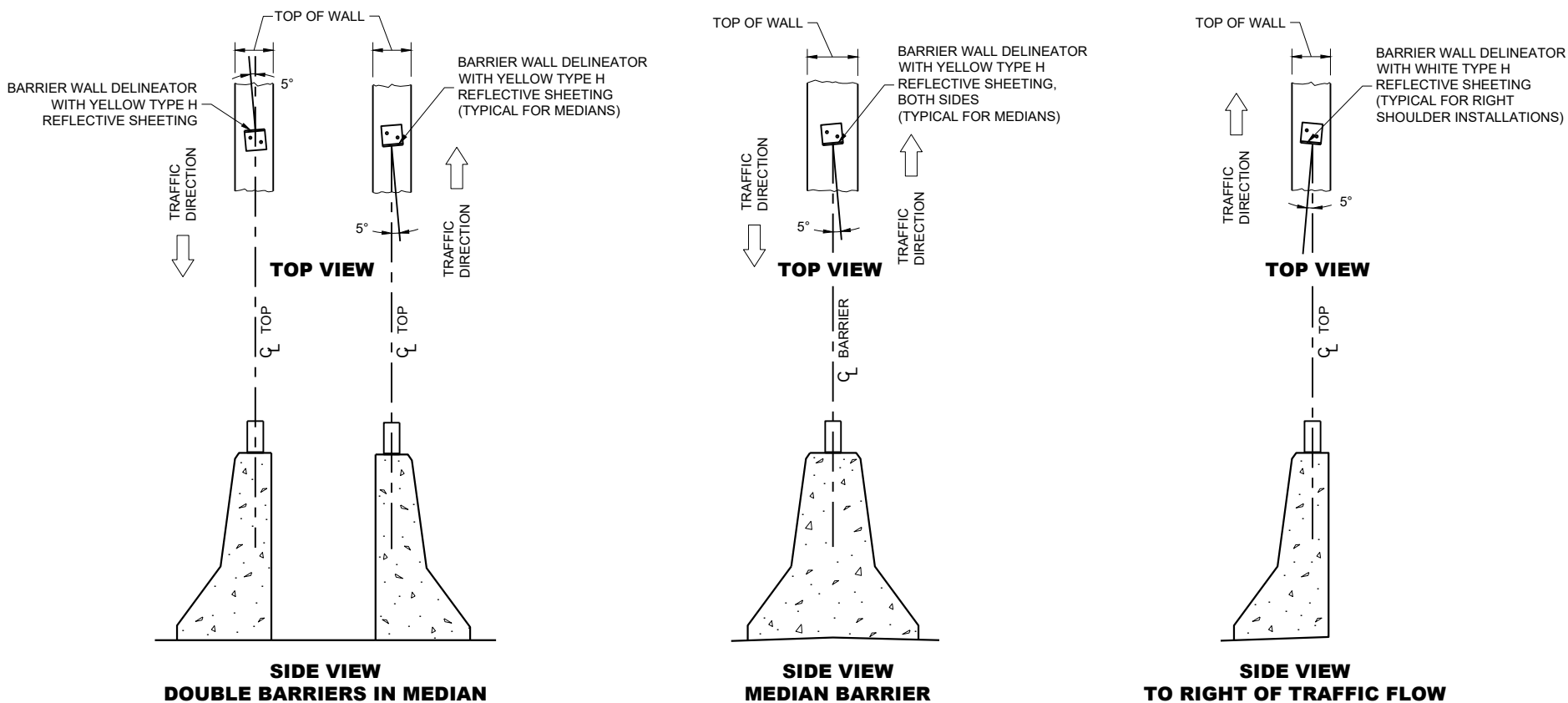
FLEXIBLE MARKER POSTS



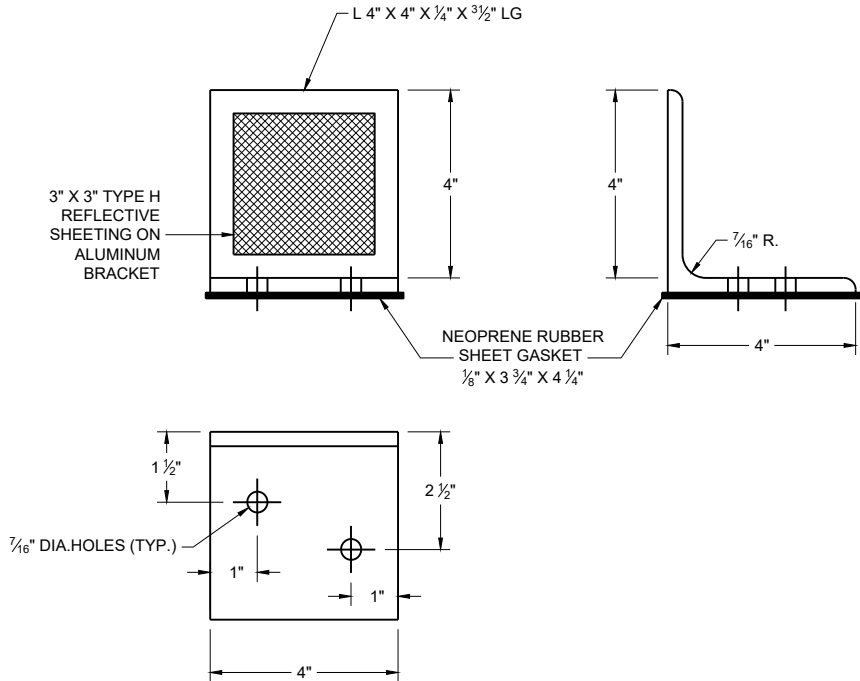
FLEXIBLE MARKER POST ANCHORS



FLEXIBLE MARKER POST FOR CULVERT END	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 10/1/2012 DATE	/S/ Travis Feltes STATE TRAFFIC ENGINEER 112 IGN
FHWA	



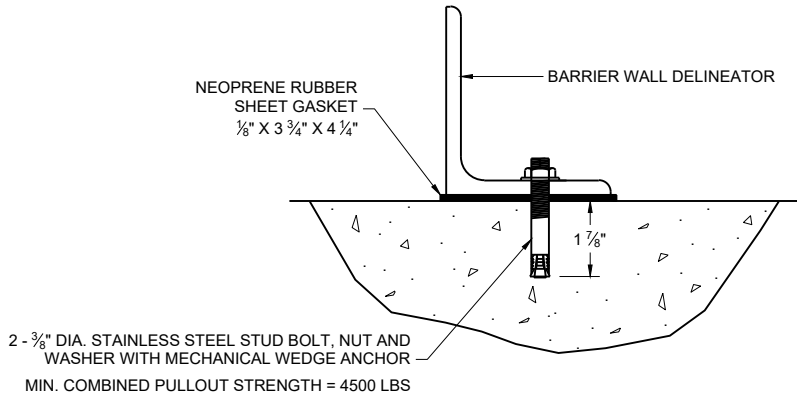
LOCATION AND AIMING DETAILS FOR BARRIER WALL DELINEATOR MOUNTED ON CONCRETE BARRIERS



BARRIER WALL DELINEATOR

REFLECTOR SPACING TABLE

REFLECTOR SPACING	MINIMUM NUMBER OF REFLECTORS
100' C-C	3

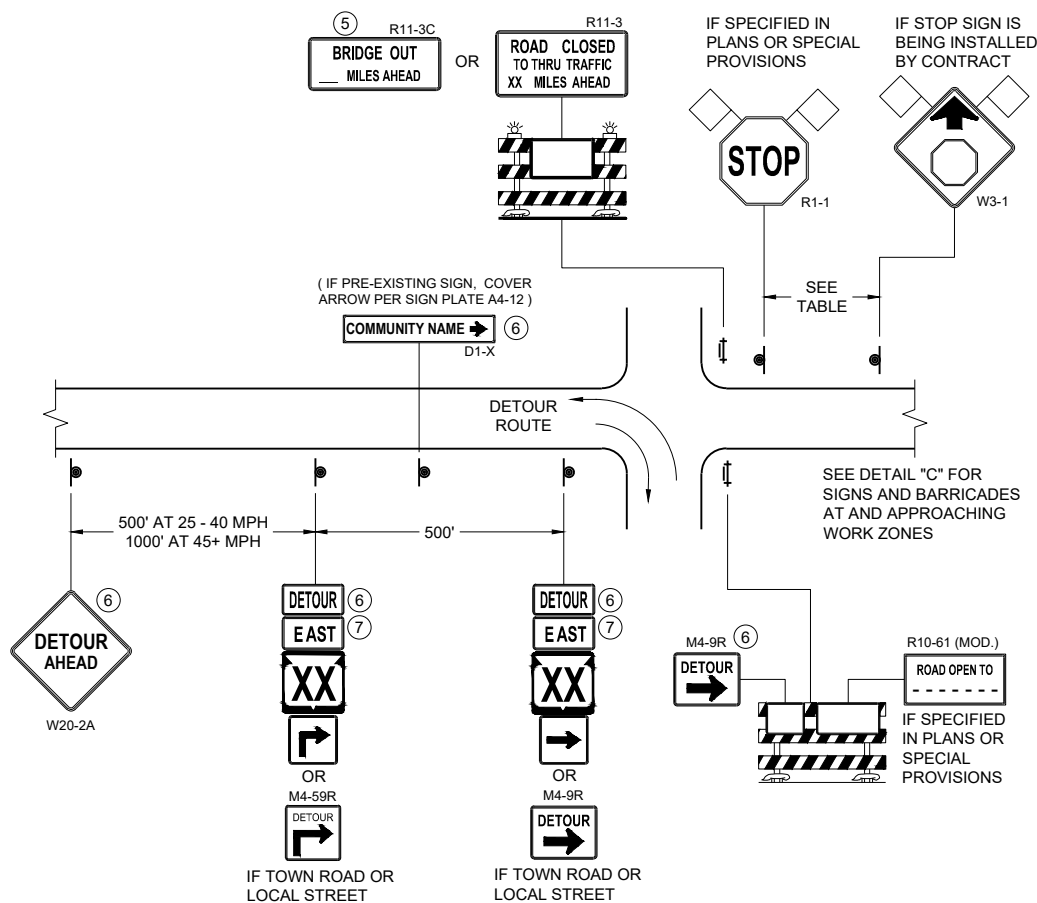


BARRIER WALL DELINEATOR MOUNTING DETAIL

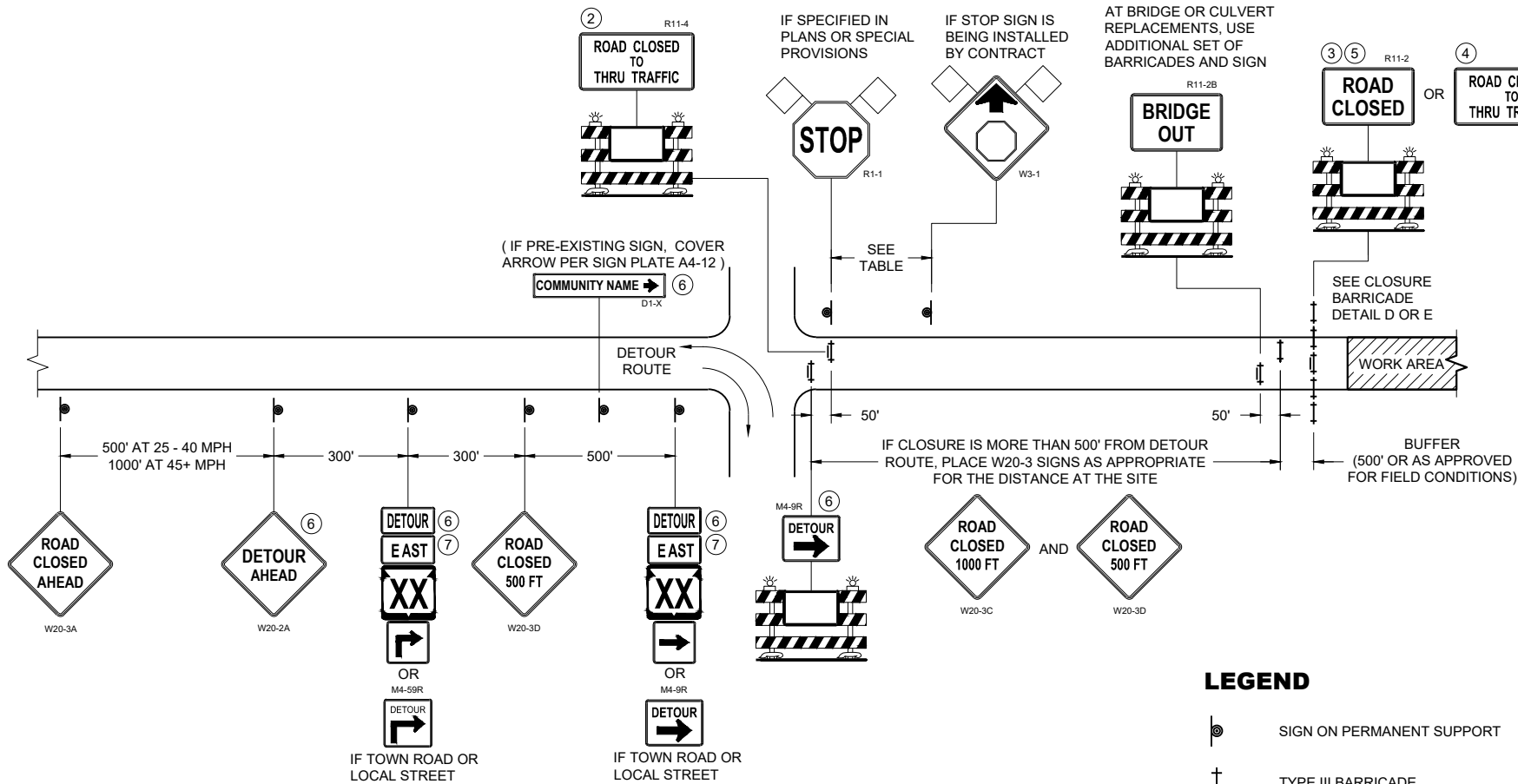
BARRIER WALL DELINEATOR WITH REFLECTIVE SHEETING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

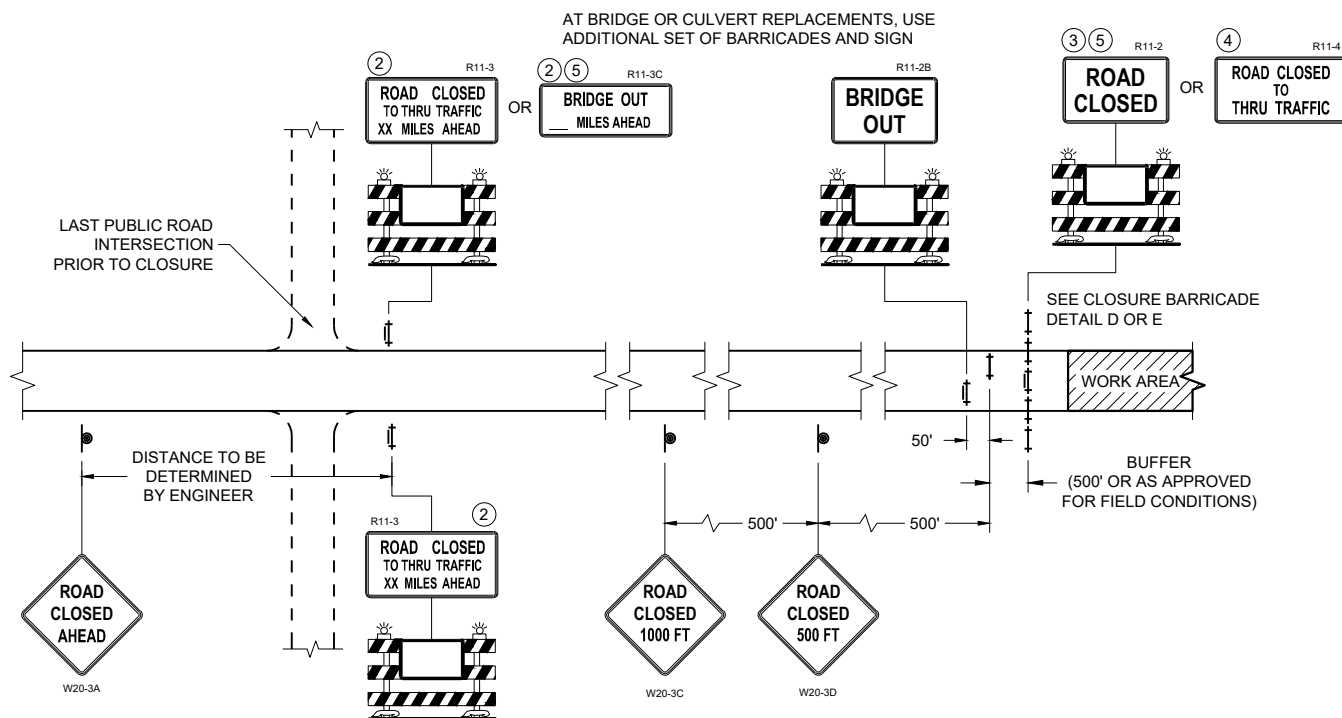
APPROVED
March 2024 /S/ Jeannie Silver
DATE
Statewide Pavement Marking Engineer
FHWA



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



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



DETAIL C
MAINLINE CLOSURE, NO POSTED DETOUR

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

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

LEGEND

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

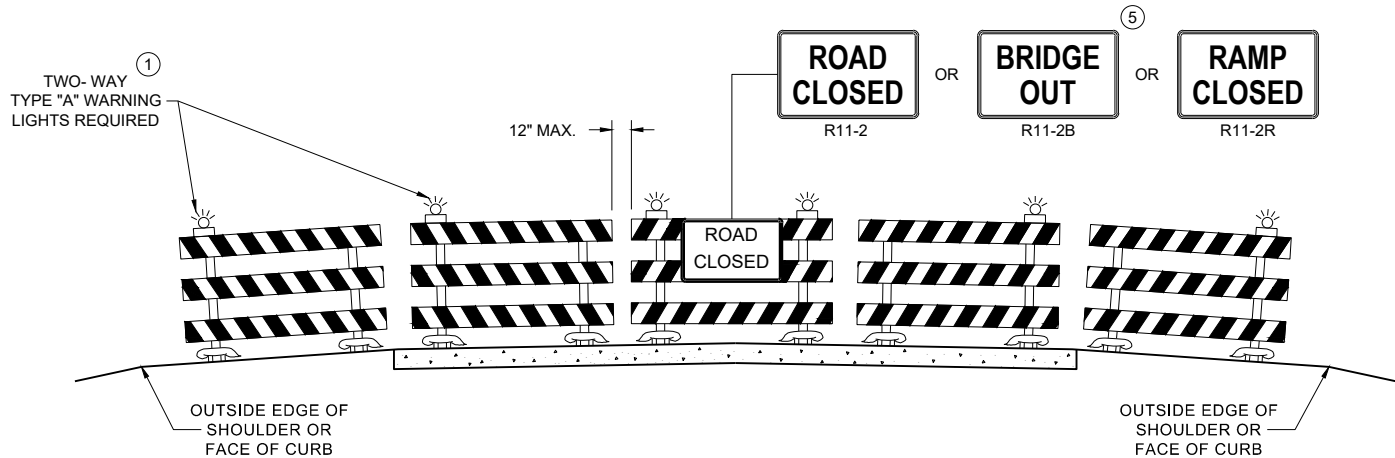
- DETOUR M4 - 8
- EAST M3 - X
- XX M1 - 4
- XX M1 - 6
- COUNTY X M1 - 5A
- M05 - 1
- M06 - 1

**BARRICADES AND SIGNS
FOR MAINLINE CLOSURES**

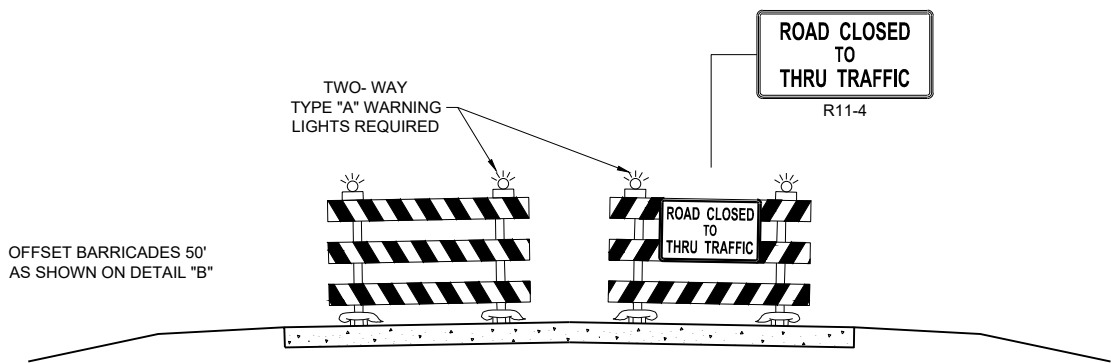
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

FHWA



DETAIL D
ROAD CLOSURE BARRICADE DETAIL
APPROACH VIEW



DETAIL E
LANE CLOSURE BARRICADE DETAIL
APPROACH VIEW

SEE SDD 15C2 - SHEET "a" FOR LEGEND

GENERAL NOTES

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

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

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

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

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

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

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

PARTIAL NUMBERS ON SIGNS SHALL BE DISPLAYED AS A WHOLE NUMBER(AS NEEDED) FOLLOWED BY A FRACTION. SIGNS SHALL NOT DISPLAY NUMBERS IN DECIMAL FORM.

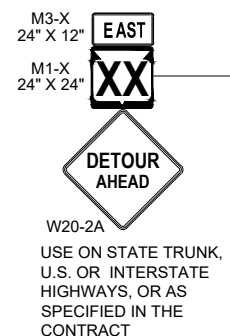
"WO" AND "MO" SIGNS ARE THE SAME AS "W" AND "M" SIGNS EXCEPT THE BACKGROUND IS ORANGE.

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

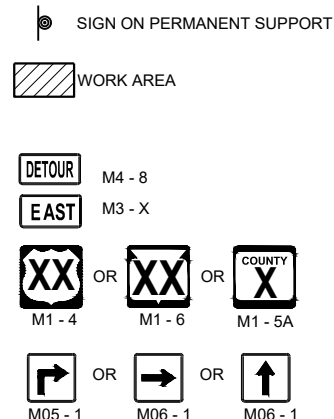
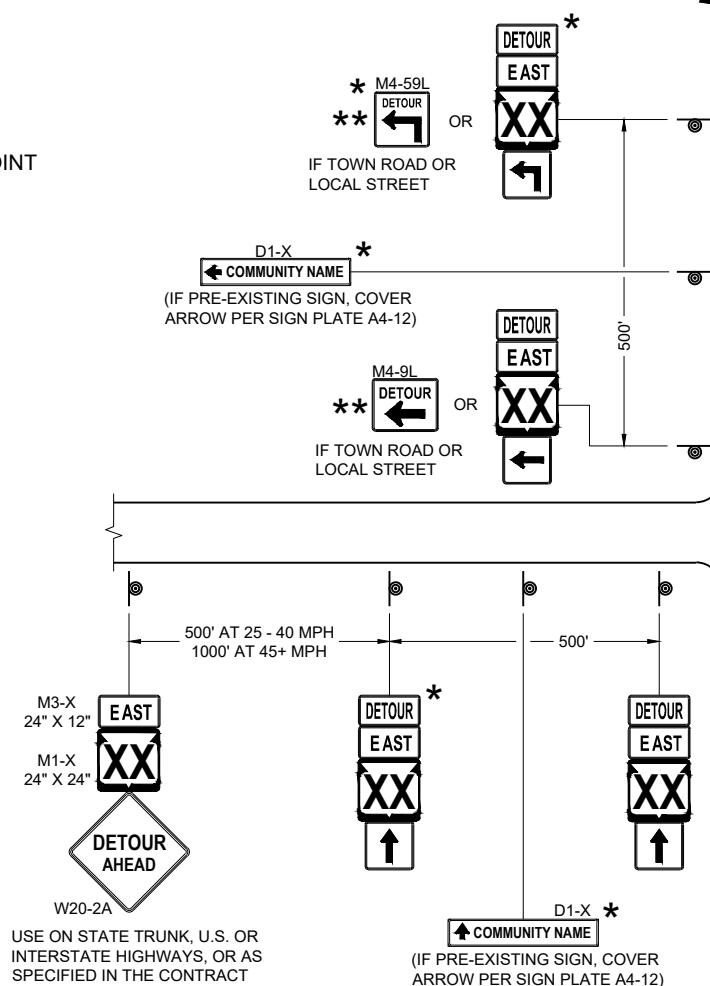
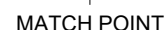
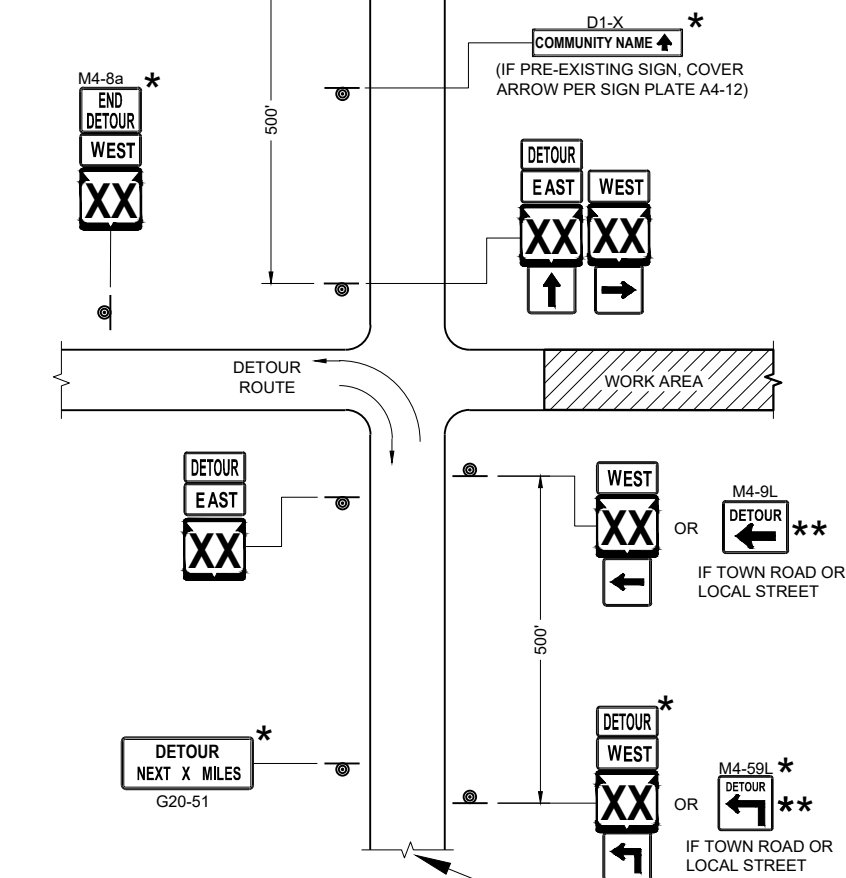
SIGNS PLACED ON TYPE III BARRICADES THAT ARE SIZES OTHER THAN 48"X30" SHALL HAVE A CORRUGATED POLYPROPYLENE OR POLYETHYLENE PLASTIC SIGN BASE.

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

BARRICADES AND SIGNS FOR VARIOUS CLOSURES	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED November 2025 DATE	/S/ Andrew Heidtke WORK ZONE ENGINEER
FHWA	



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



GENERAL NOTES

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

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

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

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

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

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

SIGN SIZES SHALL BE AS FOLLOWS:

M3-X SHALL BE 24" X 12" (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS)

M4-8 SHALL BE 24" X 12" (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS)

M1-4, M1-5A AND M1-6 SHALL BE 24" X 24" (36" X 36" IF NEEDED TO MATCH EXISTING SIGNS)

M05-1 AND M06-1 SHALL BE 21" X 21" (30" X 30" IF NEEDED TO MATCH EXISTING SIGNS)

M4-9 AND M4-59 SHALL BE 30" X 24"

M4-8a SHALL BE 24" X 18"

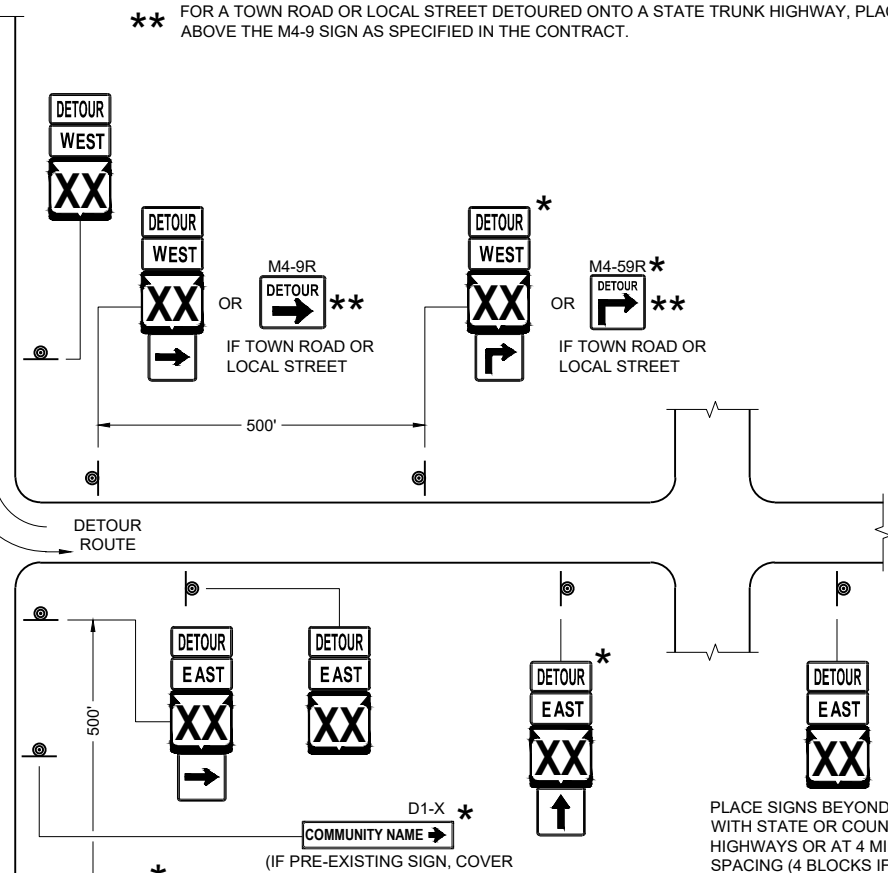
G20-51 SHALL BE 60" X 24"

W20-2A SHALL BE 48" X 48"

D1-X SHALL BE AS SHOWN ON SPECIFIC PROJECT SIGNING DETAIL SHEETS.

* OPTIONAL SIGNS. SEE SPECIFIC PROJECT DETOUR SIGNING DETAIL SHEETS.

**** FOR A TOWN ROAD OR LOCAL STREET DETOURED ONTO A STATE TRUNK HIGHWAY, PLACE A ROAD NAME PLAQUE ABOVE THE M4-9 SIGN AS SPECIFIED IN THE CONTRACT.**



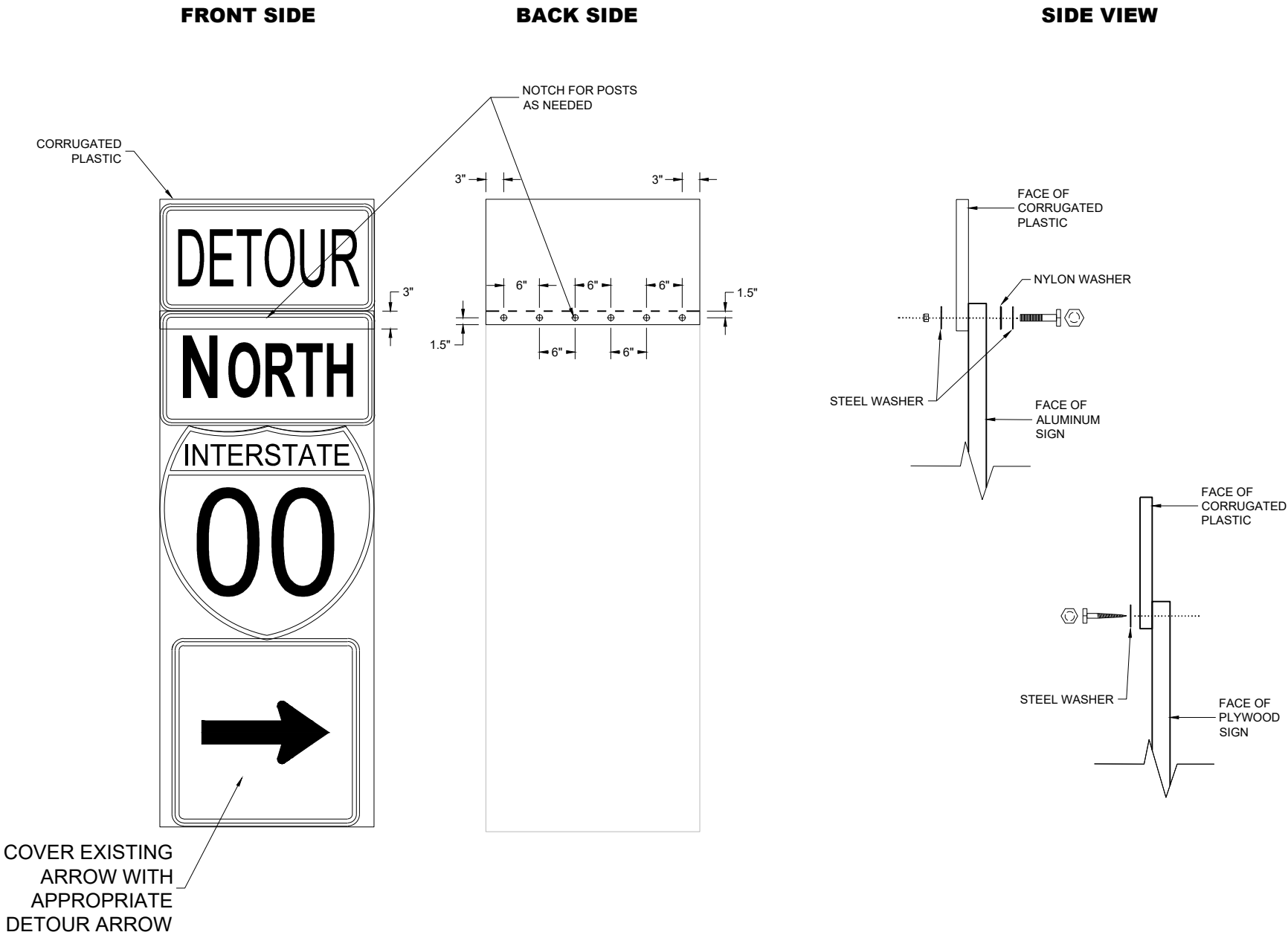
PLACE SIGNS BEYOND INTERSECTIONS
WITH STATE OR COUNTY TRUNK
HIGHWAYS OR AT 4 MILE MAXIMUM
SPACING (4 BLOCKS IF URBAN AREA)

DETOUR SIGNING FOR MAINLINE CLOSURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

FHWA

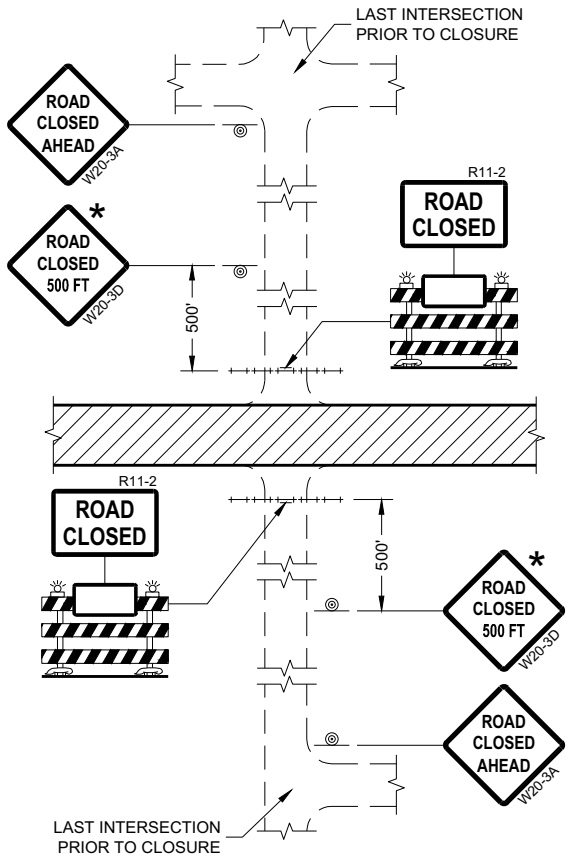


MODIFIED ROUTE ASSEMBLY FOR DETOUR SIGNING

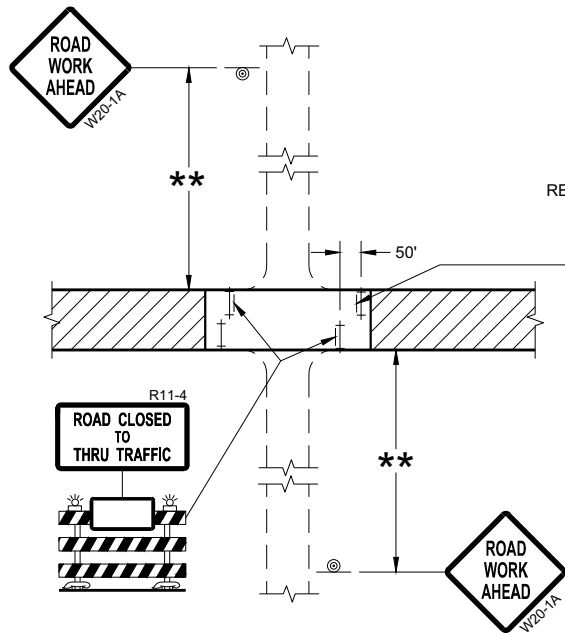
GENERAL NOTES

- CELLS OF CORRUGATED PLASTIC SHALL BE VERTICALLY ORIENTED.
- PROVIDE A 0.4-INCH THICK BASE CORRUGATED PLASTIC WITH A 0.035-INCH WALL THICKNESS AND 0.4-INCH CELL SIZE.
- FOR 36" WIDE SIGNS: USE 6 FASTENERS AS SHOWN.
- FOR 24" WIDE SIGNS: USE 4 FASTENERS WITH EDGE SPACING AS SHOWN AND 6" SPACING BETWEEN FASTENERS.
- METAL WASHERS, NUTS, BOLTS AND LAGS SHALL HAVE HEXAGONAL HEADS AND SHALL BE EITHER:
- A. HOT DIP GALVANIZED IN ACCORDANCE WITH ASTM DESIGNATION: A 153, CLASS D, OR SC 3.
 - B. ELECTRO-GALVANIZED IN ACCORDANCE WITH ASTM DESIGNATION: B 633, TYPE III, SC3
- THREADS ON BOLTS AND NUTS SHALL BE MANUFACTURED WITH SUFFICIENT ALLOWANCE FOR THE CADMIUM PLATE OR GALVANIZED COATING TO PERMIT THE NUTS TO RUN FREELY ON THE BOLTS.
- PLYWOOD SIGNS:
LAG SCREWS - 5/16" x 1"
- ALUMINUM SIGNS:
MACHINE BOLTS - 5/16" x 1-1/4" LENGTH W/NUTS
- WASHERS:
1-1/4" O.D. x 3/8" I.D. x 1/16" STEEL
1-1/4" O.D. x 3/8" I.D. x .080 NYLON

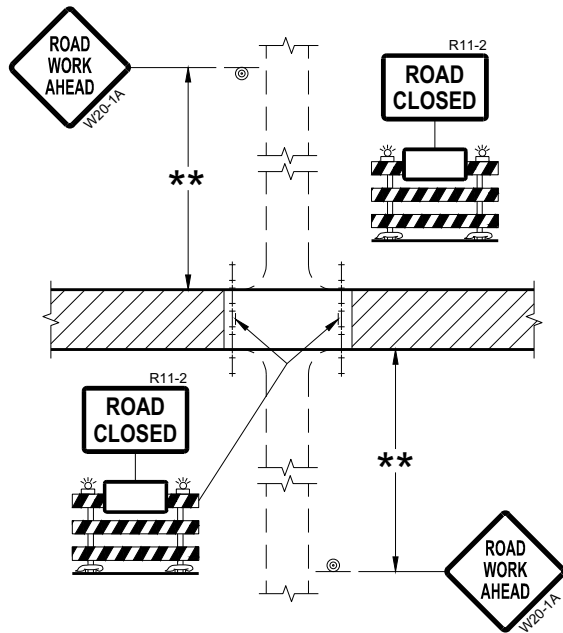
MODIFIED ROUTE ASSEMBLY FOR DETOUR SIGNING	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED November 2025 DATE	/S/ Andrew Heidtke WORK ZONE ENGINEER



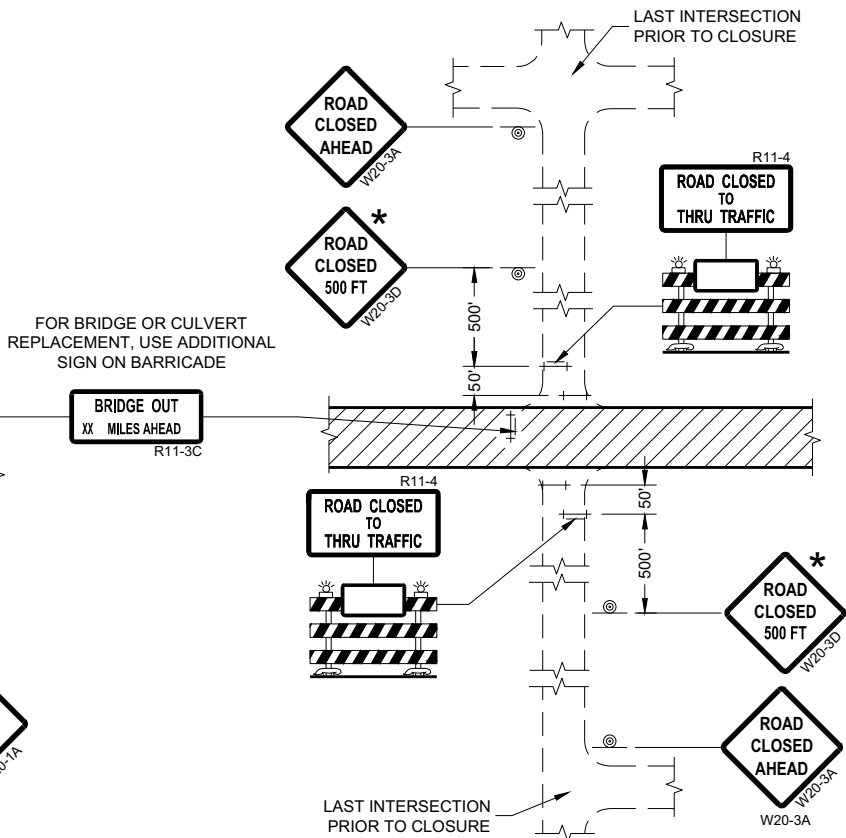
DETAIL 1
(NO ACCESS TO PROJECT)



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



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



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

GENERAL NOTES

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

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

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

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

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

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

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

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

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

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

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

LEGEND

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

**BARRICADES AND SIGNS
FOR
SIDEROAD CLOSURES**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
July 2018 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER 118

FHWA

GENERAL NOTES

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

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

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

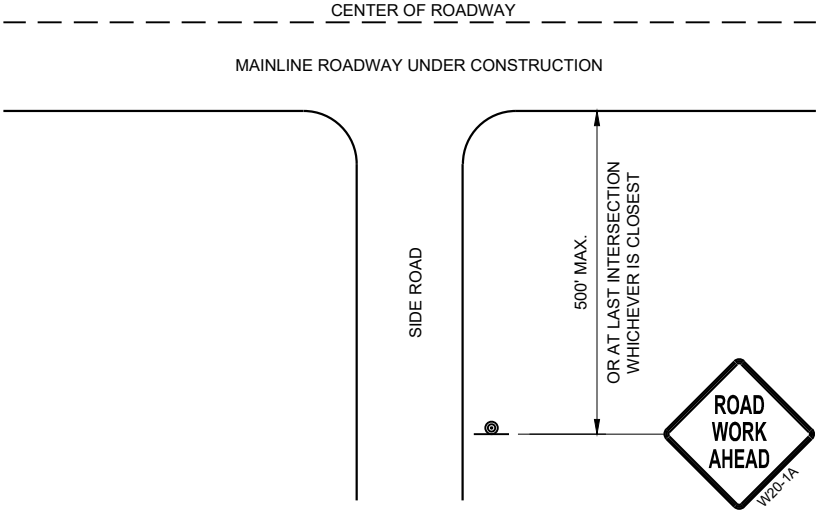
SIGNS THAT WILL BE IN PLACE LESS THAN SEVEN CONTINUOUS DAYS AND NIGHTS MAY BE MOUNTED ON PORTABLE SUPPORTS.

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

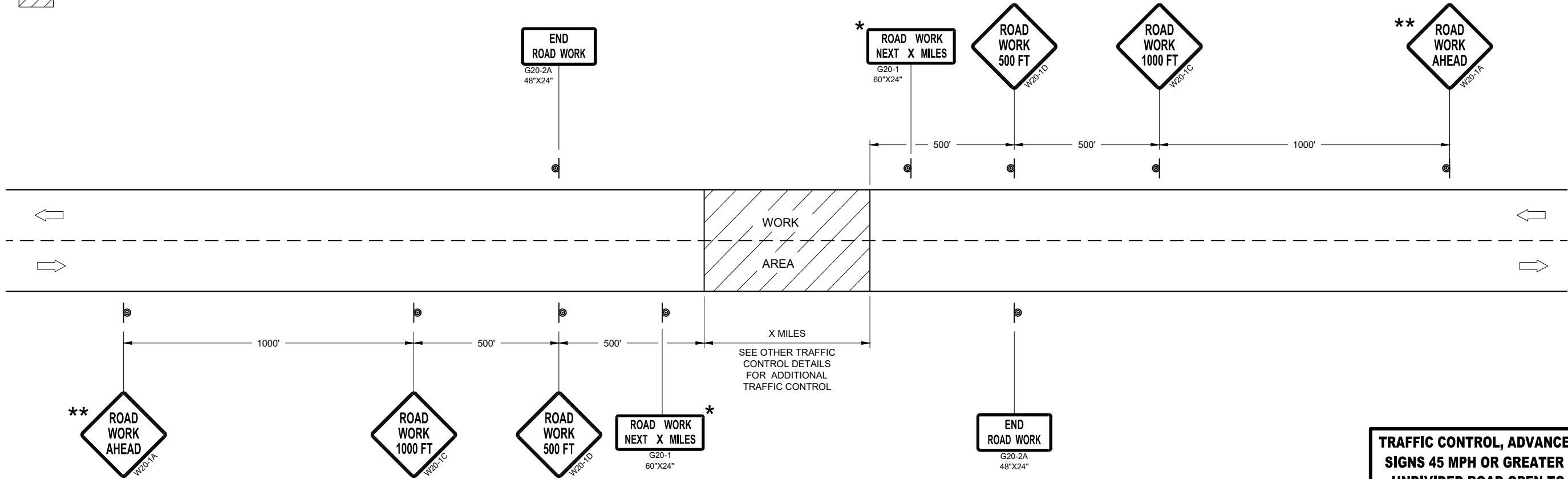
- * OMIT G20-1 SIGNS IF LENGTH OF WORK AREA IS 2 MILES OR LESS
- ** PLACE AN ADDITIONAL W20-1A "ROAD WORK AHEAD" SIGN IF WORK AREA WITHIN THE PROJECT IS SEPARATED BY MORE THAN 2 MILES FROM PREVIOUS WORK AREA.

LEGEND

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



TYPICAL SIDE ROAD APPROACH
WARNING SIGN DETAIL



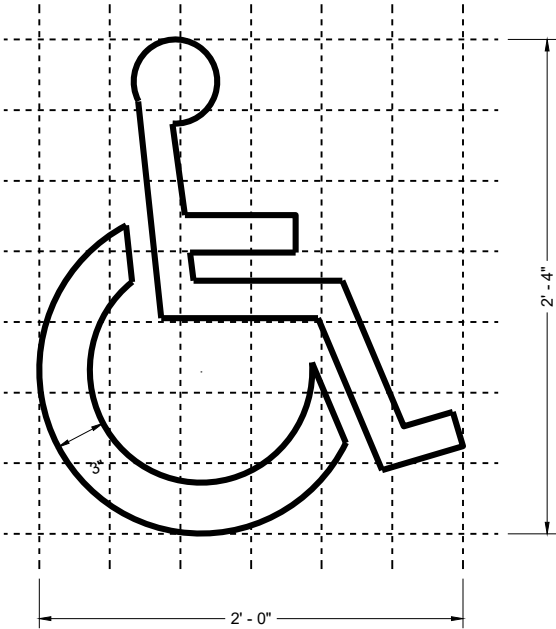
TRAFFIC CONTROL, ADVANCE WARNING SIGNS 45MPH OR GREATER

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

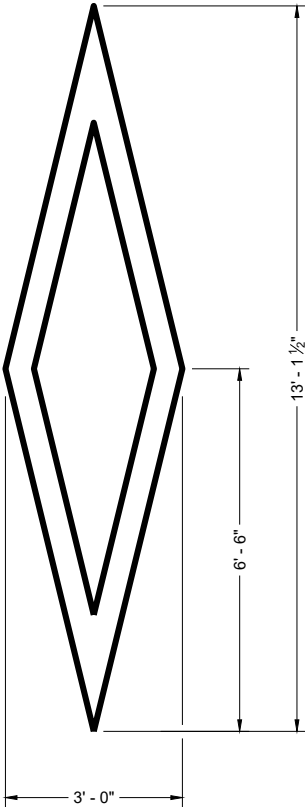
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
July 2018 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER 119

FHWA



HANDICAP SYMBOL

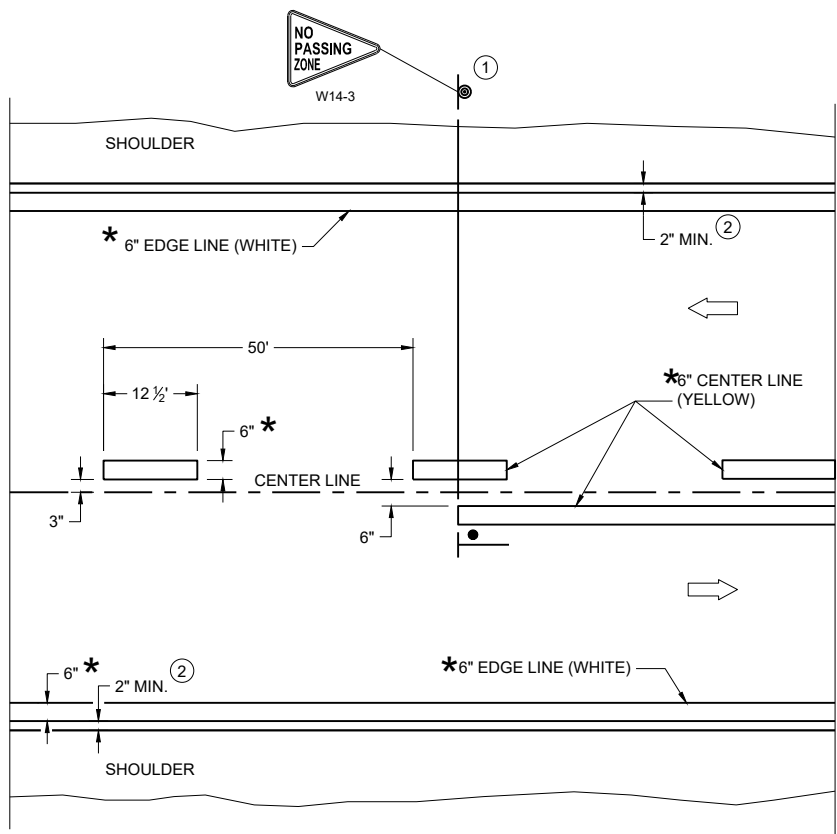


PREFERENTIAL
LANE SYMBOL

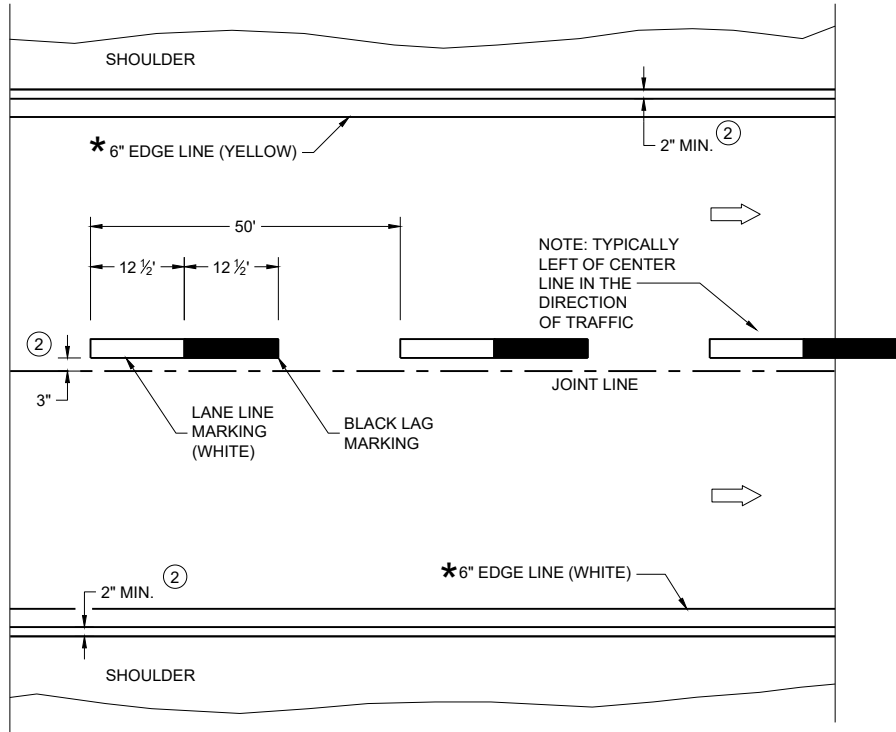
GENERAL NOTES

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	



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.

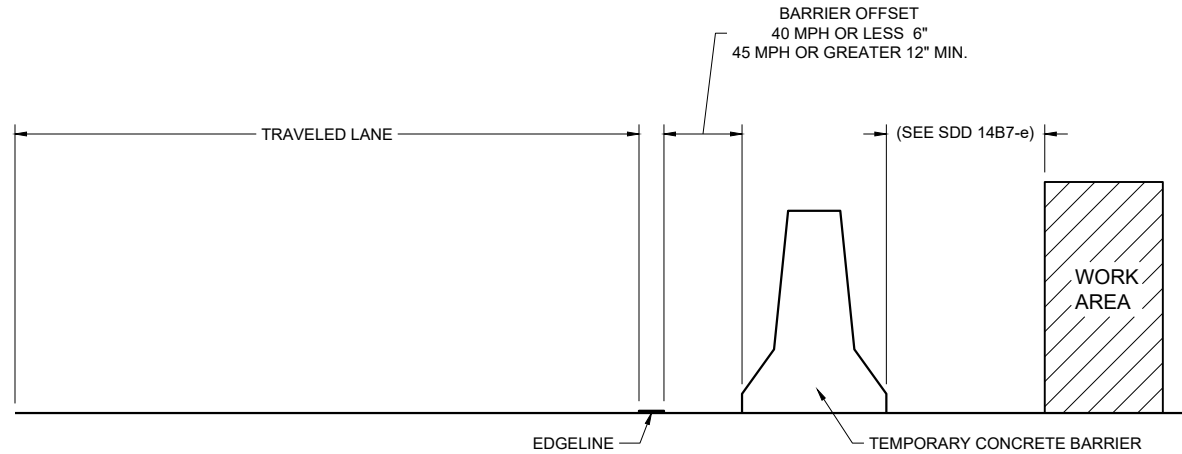
LEGEND

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

PERMANENT LONGITUDINAL PAVEMENT MARKINGS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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



TEMPORARY BARRIER OFFSET FROM EDGE LINE

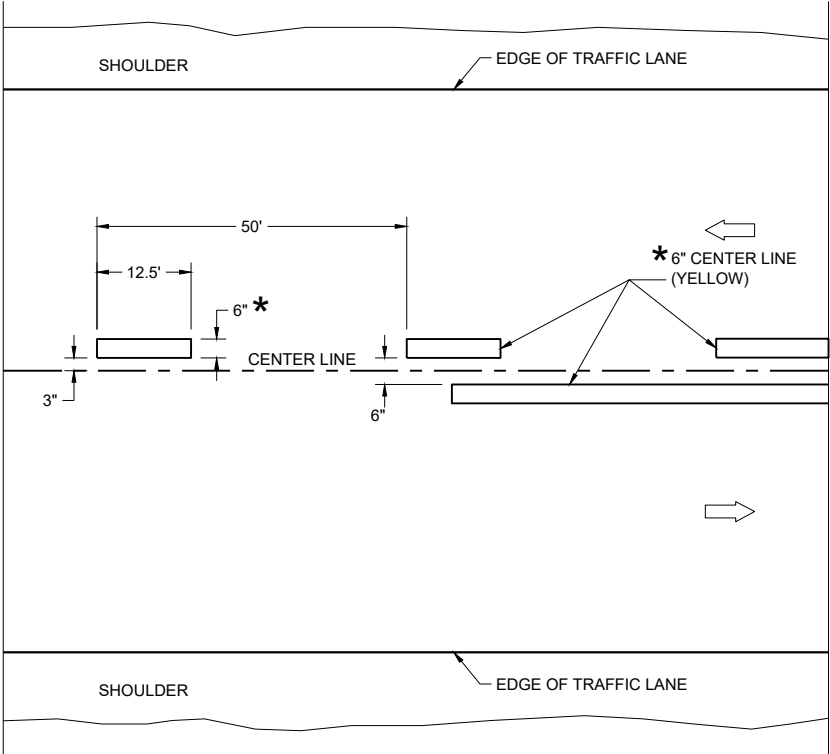
GENERAL NOTES

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

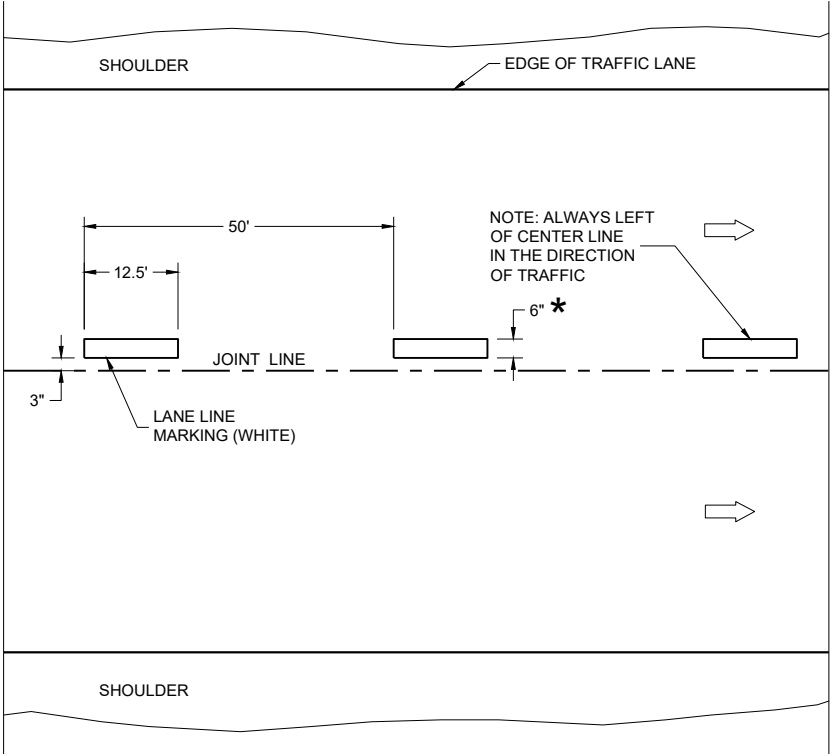
LEGEND

➡ DIRECTION OF TRAFFIC

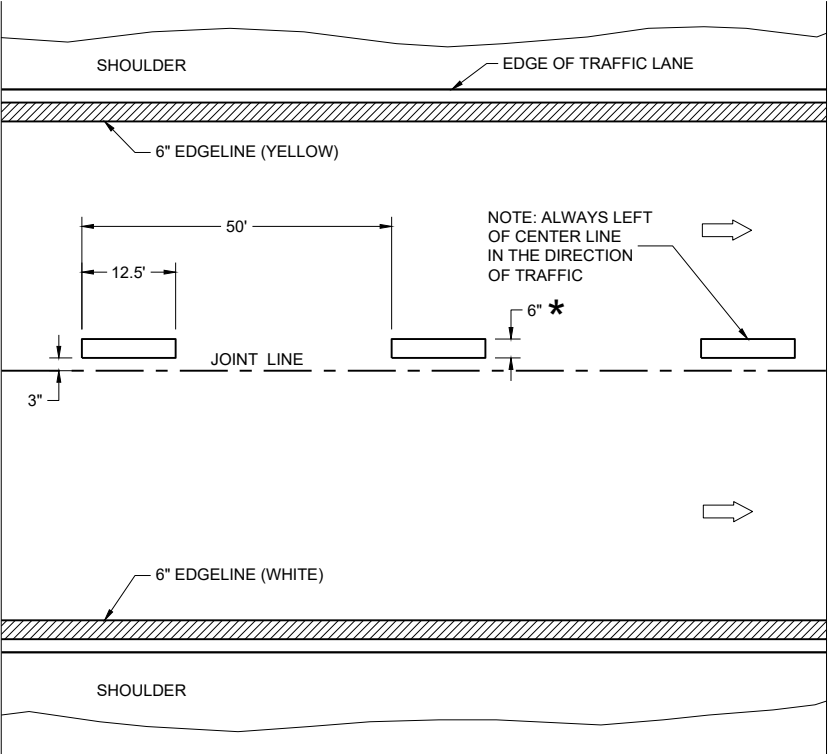
* CONFIRM MARKING LINE WIDTH WITH THE MISCELLANEOUS QUANTITIES



TWO WAY TRAFFIC



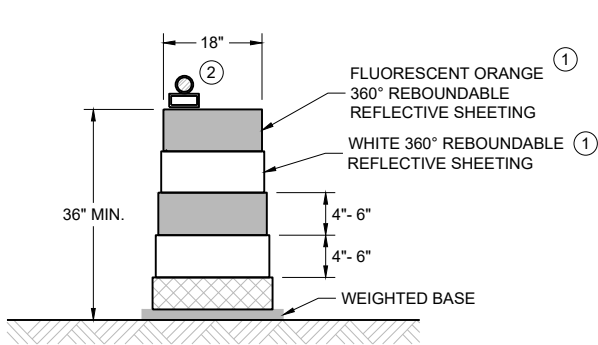
ONE WAY TRAFFIC



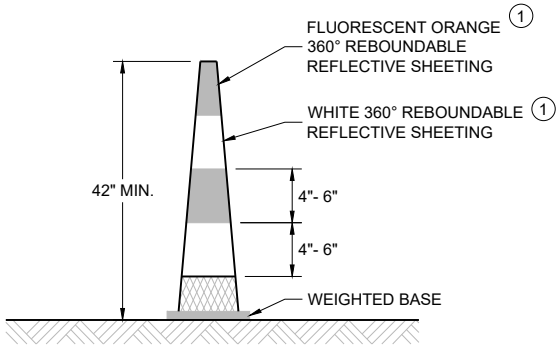
FREEWAYS AND EXPRESSWAYS

TEMPORARY PAVEMENT MARKING

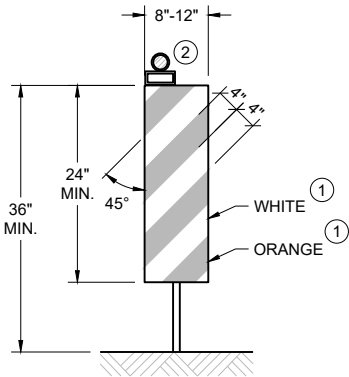
TEMPORARY LONGITUDINAL PAVEMENT MARKING	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED December 2024 DATE	/S/ Jeannie Silver Statewide Pavement Marking Engineer
FHWA	122



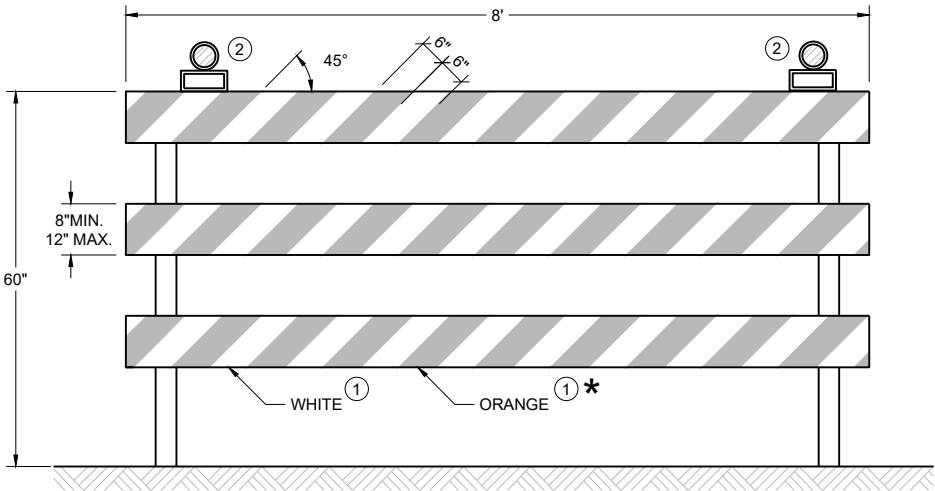
DRUM
BALLAST WIDTHS
RANGE FROM 24"-36"



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

	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

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.

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.

UTILIZE TEMPORARY PORTABLE RUMBLE STRIPS ON ALL FLAGGING OPERATIONS.

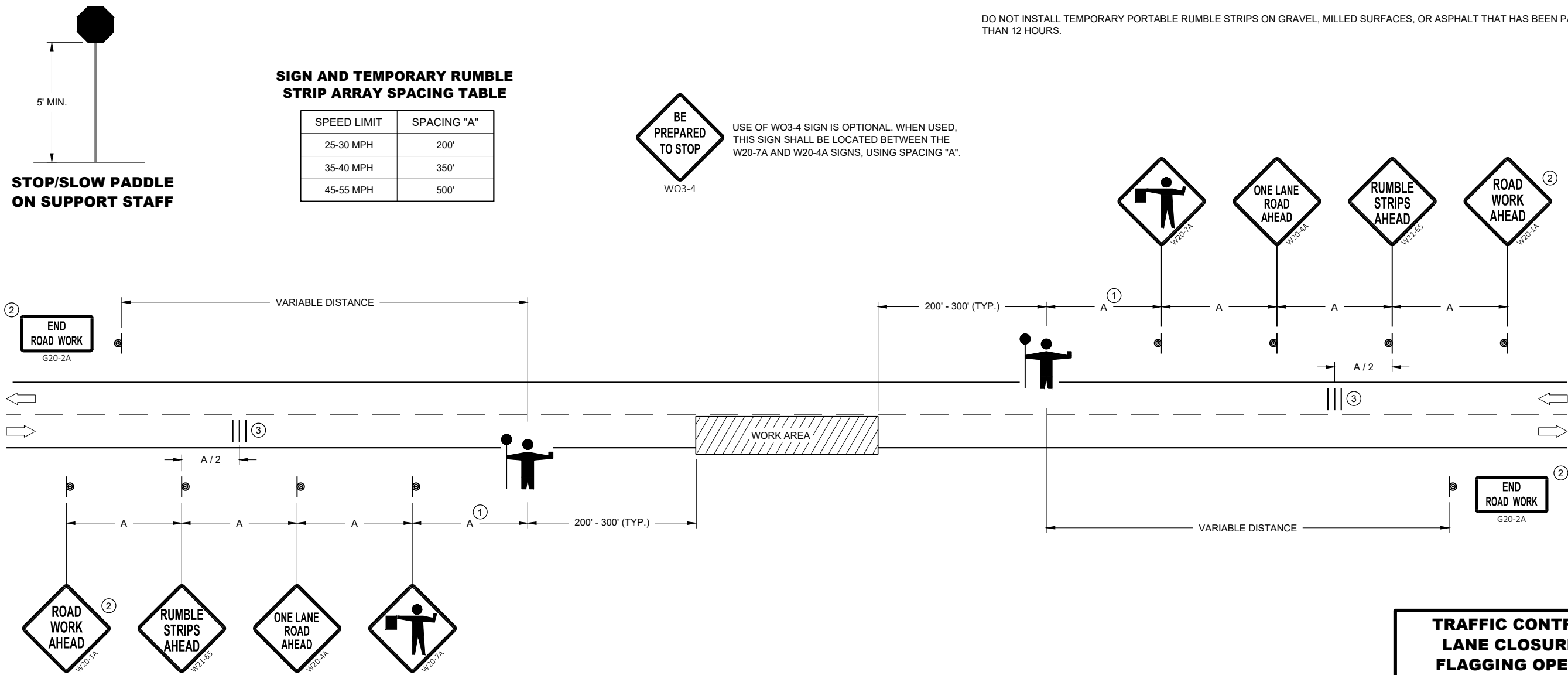
③ EACH TEMPORARY PORTABLE RUMBLE STRIP ARRAY CONSISTS OF THREE RUMBLE STRIPS PLACED TRANSVERSE ACROSS THE LANE AT THE LOCATIONS SHOWN. WITHIN EACH ARRAY, SPACING BETWEEN RUMBLE STRIPS SHALL BE 15 FEET ON CENTER

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.



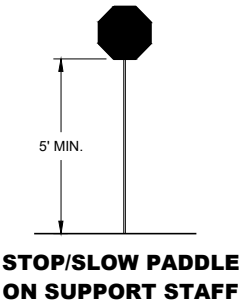
APPROVED
May 2022
DATE

/S/ Andrew Heidtke
WORK ZONE ENGINEER

124

FHWA

- **GENERAL NOTES**
SIGN ON PERMANENT SUPPORT
- 
TRAFFIC CONTROL CONE 42-INCH
- 
TRAFFIC CONTROL DRUM
- 
TEMPORARY PORTABLE RUMBLE STRIP ARRAY
- 
DIRECTION OF TRAFFIC
- 
WORK AREA
- 
AUTOMATED FLAGGER ASSISTANCE DEVICE (AFAD)



- 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.

SIGN AND TEMPORARY RUMBLE STRIP ARRAY SPACING TABLE

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

- FLAGGING**
IF THE AUTOMATED FLAGGER ASSISTANCE DEVICE (AFAD) STOPS WORKING, 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.

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.
- ① SIGN NOT REQUIRED IF FLAGGING OPERATION OCCURS WITHIN A SIGNED ROAD WORK ZONE AREA.

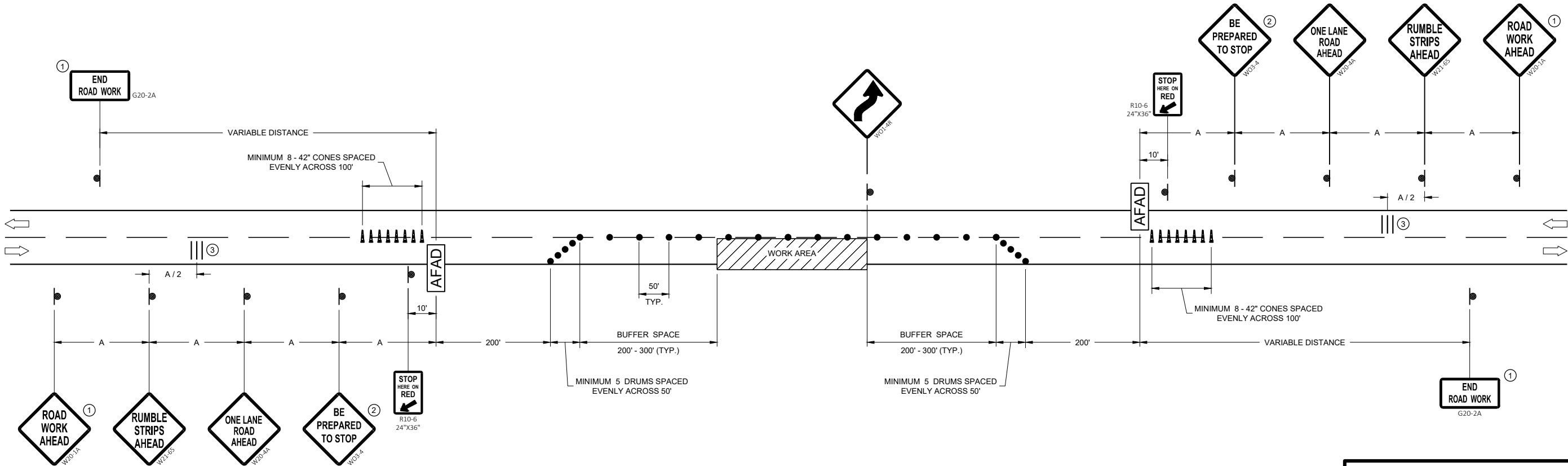
② IF FLAGGERS ARE PHYSICALLY NEEDED TO FLAG, REPLACE WO3-4 SIGNS WITH W20-7A SIGNS.
- TEMPORARY PORTABLE RUMBLE STRIPS**
UTILIZE TEMPORARY PORTABLE RUMBLE STRIPS ON ALL FLAGGING OPERATIONS.

ONLY USE TEMPORARY PORTABLE RUMBLE STRIPS FROM THE APPROVED PRODUCTS LIST.

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.

③ EACH TEMPORARY PORTABLE RUMBLE STRIP ARRAY CONSISTS OF THREE RUMBLE STRIPS PLACED TRANSVERSELY AT THE LOCATIONS SHOWN. WITHIN EACH ARRAY, SPACING BETWEEN RUMBLE STRIPS SHALL BE 15 FEET ON CENTER.



**TRAFFIC CONTROL, LANE
CLOSURE WITH AUTOMATED
FLAGGER ASSISTANCE DEVICE**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May 2022 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER 125
FHWA

LEGEND

- V1

LEAD VEHICLE
- V2

MARKING VEHICLE
- V3

SHADOW VEHICLE
- 

TRUCK MOUNTED ATTENUATOR (TMA)
- 

SIGN ON TEMPORARY SUPPORT
- 

DIRECTION OF TRAFFIC

GENERAL NOTES

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

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

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

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

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

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

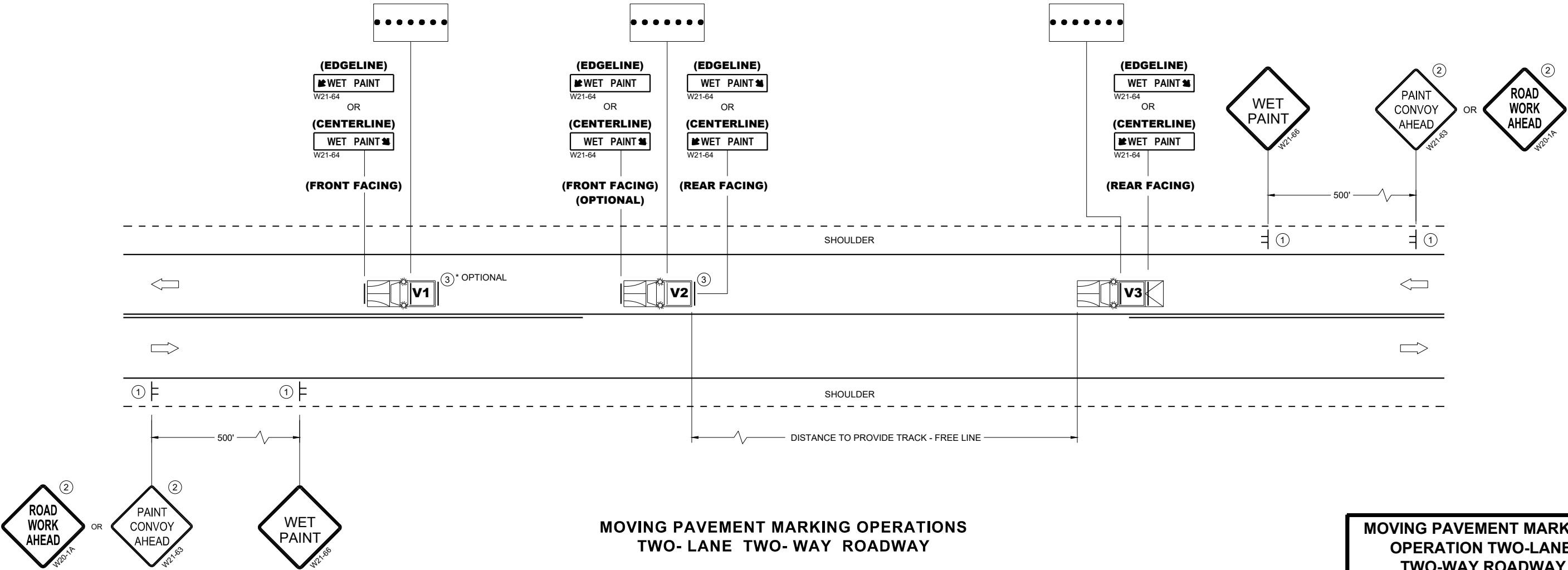
WORKERS SHALL NOT PERFORM WORK FROM ANY SHADOW OR PROTECTION VEHICLES.

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.

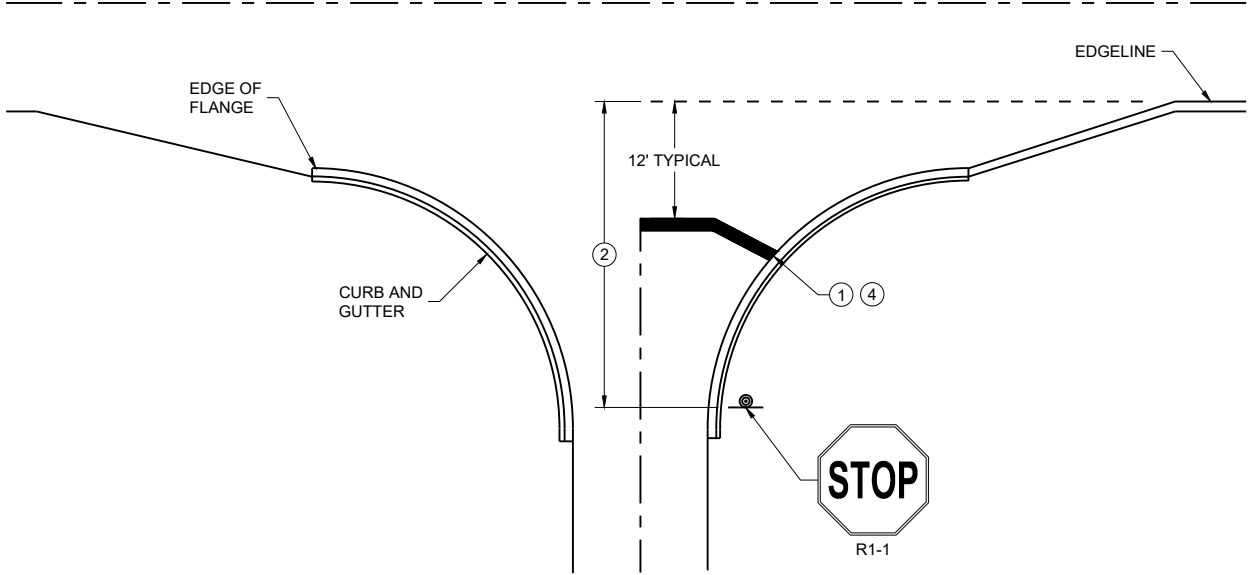


MOVING PAVEMENT MARKING
OPERATION TWO-LANE
TWO-WAY ROADWAY

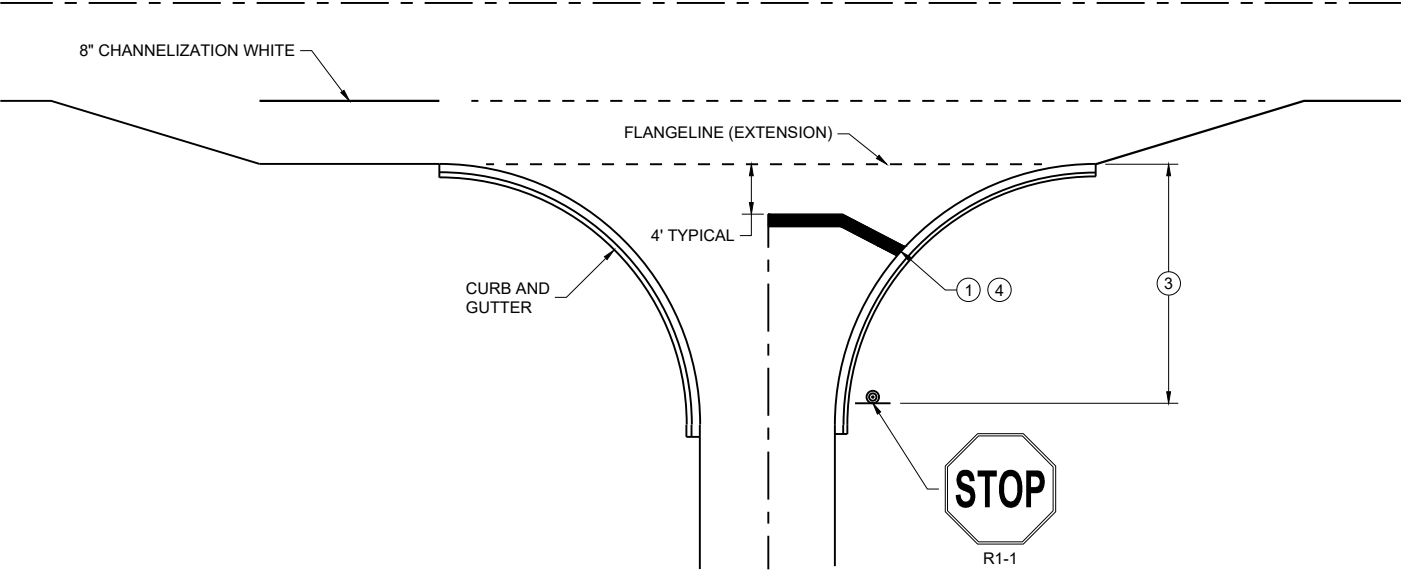
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

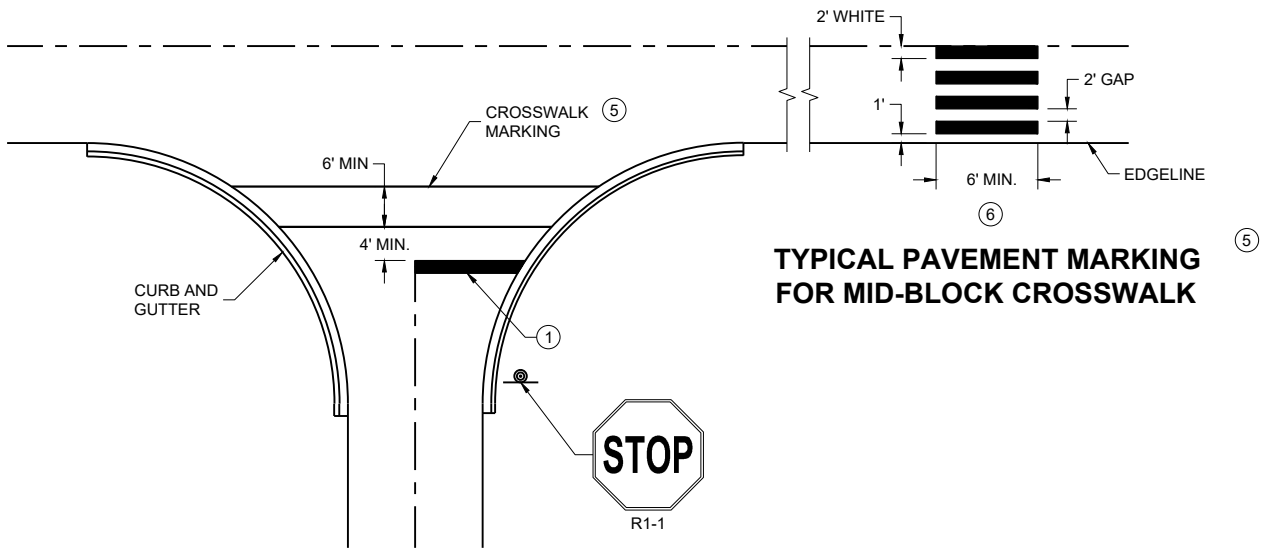
FHWA



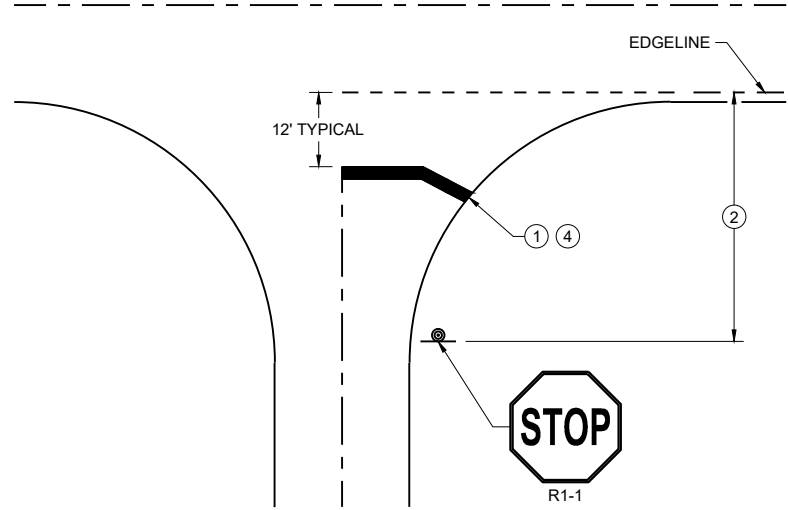
TYPICAL STOP LINE PAVEMENT MARKING WITH CURB AND GUTTER



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



TYPICAL STOP LINE PAVEMENT MARKING FOR SIDE ROADS WITH CROSSWALK MARKING



TYPICAL STOP LINE PAVEMENT MARKING WITHOUT CURB AND GUTTER

GENERAL NOTES

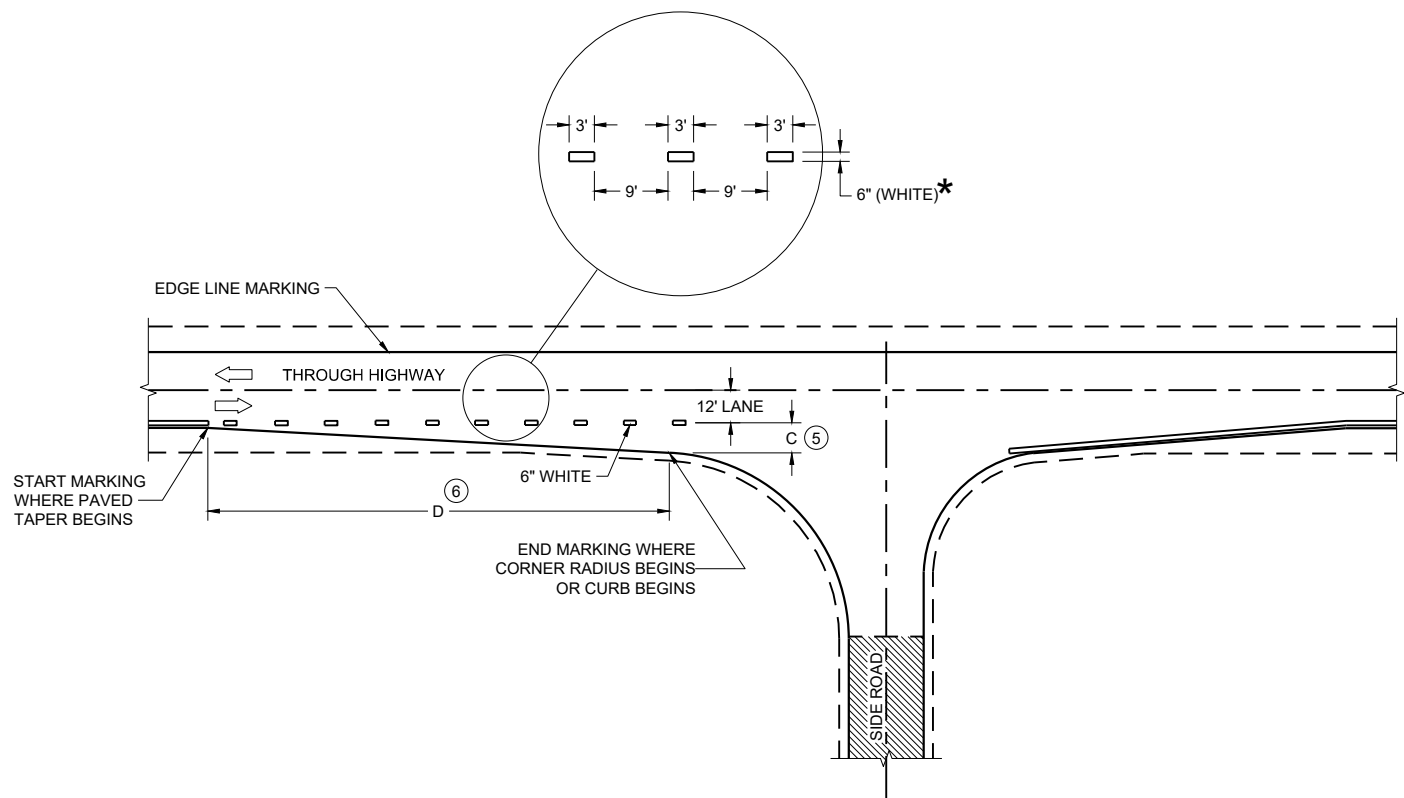
STOP SIGN SHALL BE PLACED A MINIMUM OF 6 FEET TO A MAXIMUM OF 50 FEET FROM THE EDGELINE LOCATION.

- ① 18-INCH STOP LINES MAY BE DELETED OR ADDED BY THE REGION MARKING ENGINEER BASED ON VISIBILITY AND SIGHT LINES.
- ② NO STOP LINE IS REQUIRED IF STOP SIGN IS LESS THAN OR EQUAL TO 40 FEET FROM THE EDGELINE.
- ③ NO STOP LINE IS REQUIRED IF STOP SIGN IS LESS THAN OR EQUAL TO 30 FEET FROM THE FLANGE LINE EXTENSION.
- ④ MOVE CLOSER TO THE EDGE OF TRAVEL LINE AS NEEDED FOR VISIBILITY AND SIGHT LINES (NO CLOSER THAN 4 FEET).
- ⑤ LADDER BAR CROSSWALKS SHOULD ONLY BE USED FOR MID BLOCK CROSSINGS. USE 2 - 6" TRANSVERSE LINES.
- ⑥ POSTED SPEED LIMITS OF 40 MPH OR GREATER USE A MINIMUM WIDTH OF 8' FOR MIDBLOCK CROSSWALKS

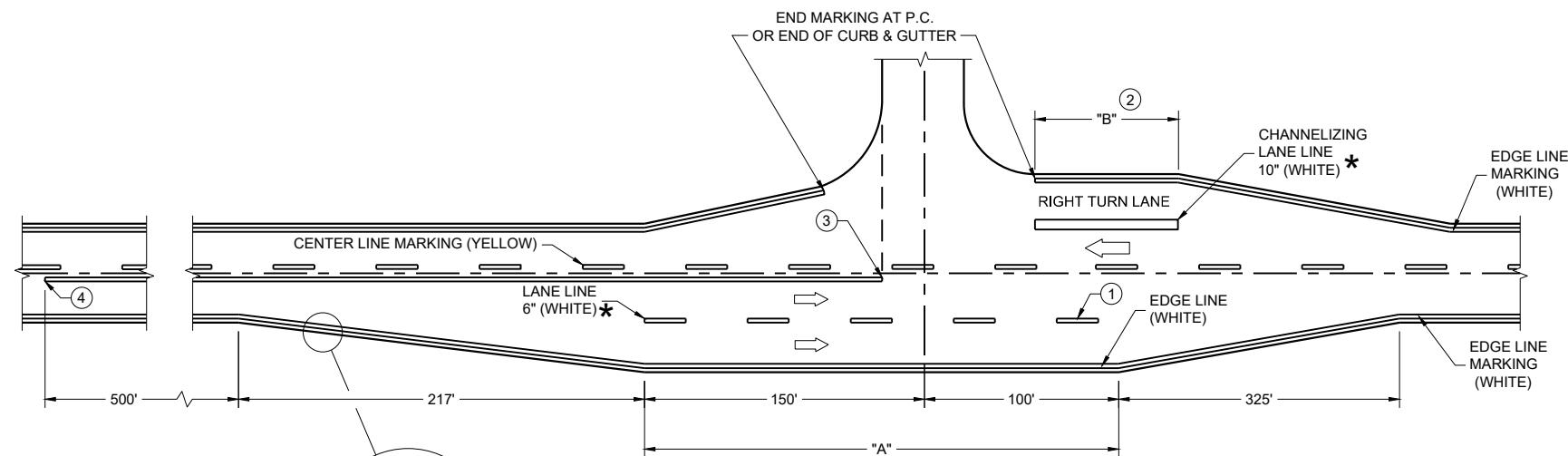
STOP LINE AND CROSSWALK PAVEMENT MARKING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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



MINOR INTERSECTION



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

*CONFIRM MARKING LINE WIDTH WITH THE MISCELLANEOUS QUANTITIES

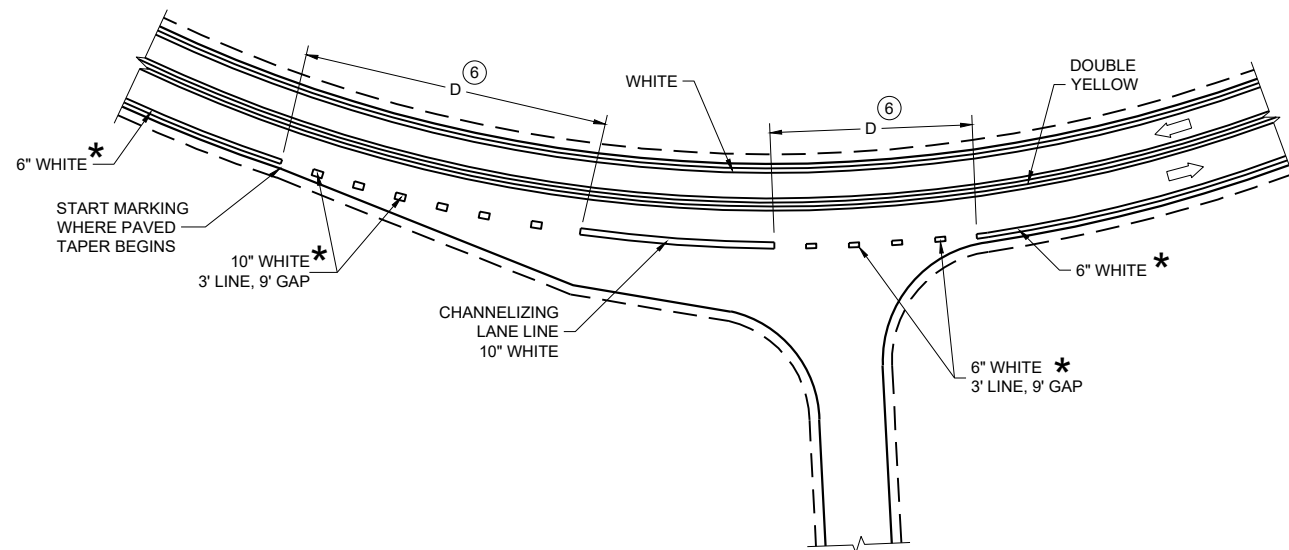
GENERAL NOTES

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

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

LEGEND

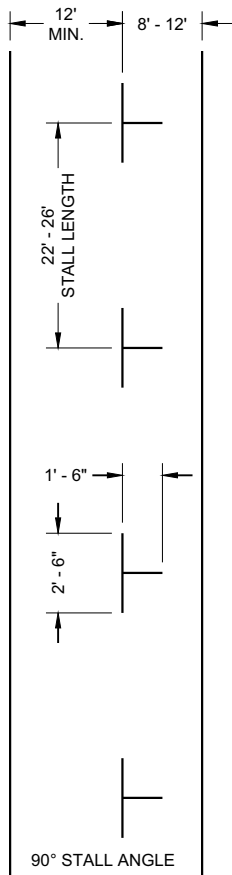
➡ DIRECTION OF TRAVEL



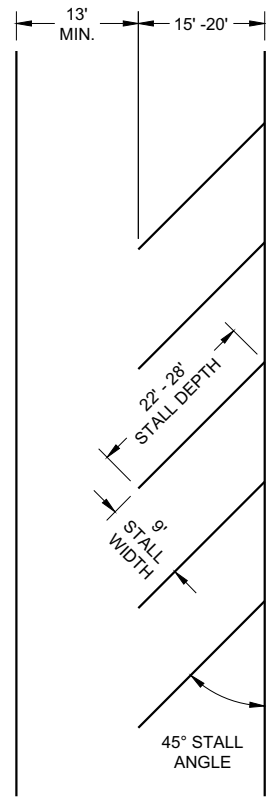
INTERSECTION ON OUTSIDE OF CURVE

PAVEMENT MARKING
(INTERSECTIONS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

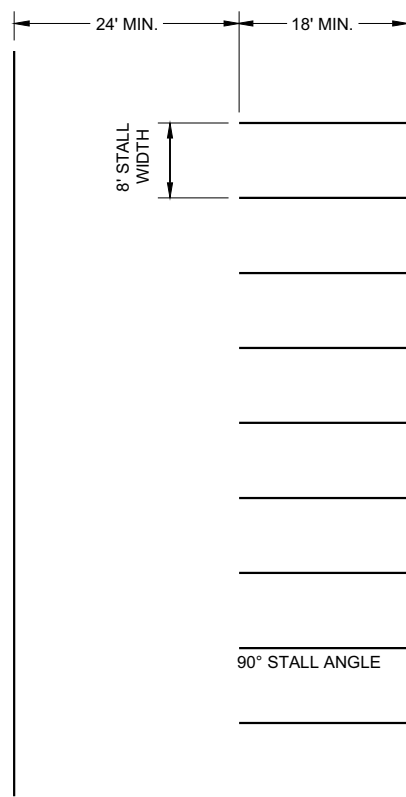
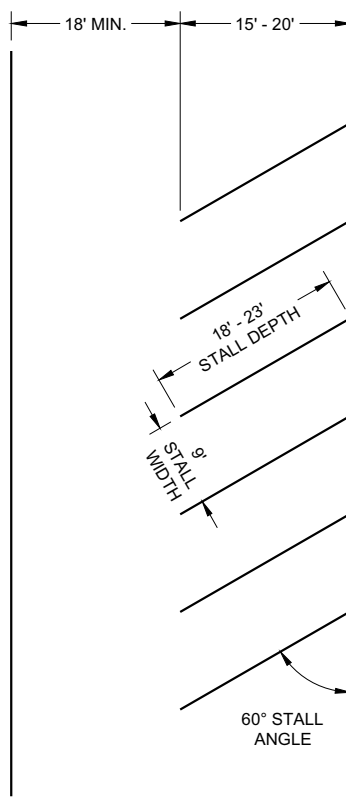


PARALLEL PARKING



ANGLED PARKING

(ANGLED PARKING IS NOT ALLOWED ON STATE HIGHWAYS UNLESS A DESIGN JUSTIFICATION HAS BEEN COMPLETED.)



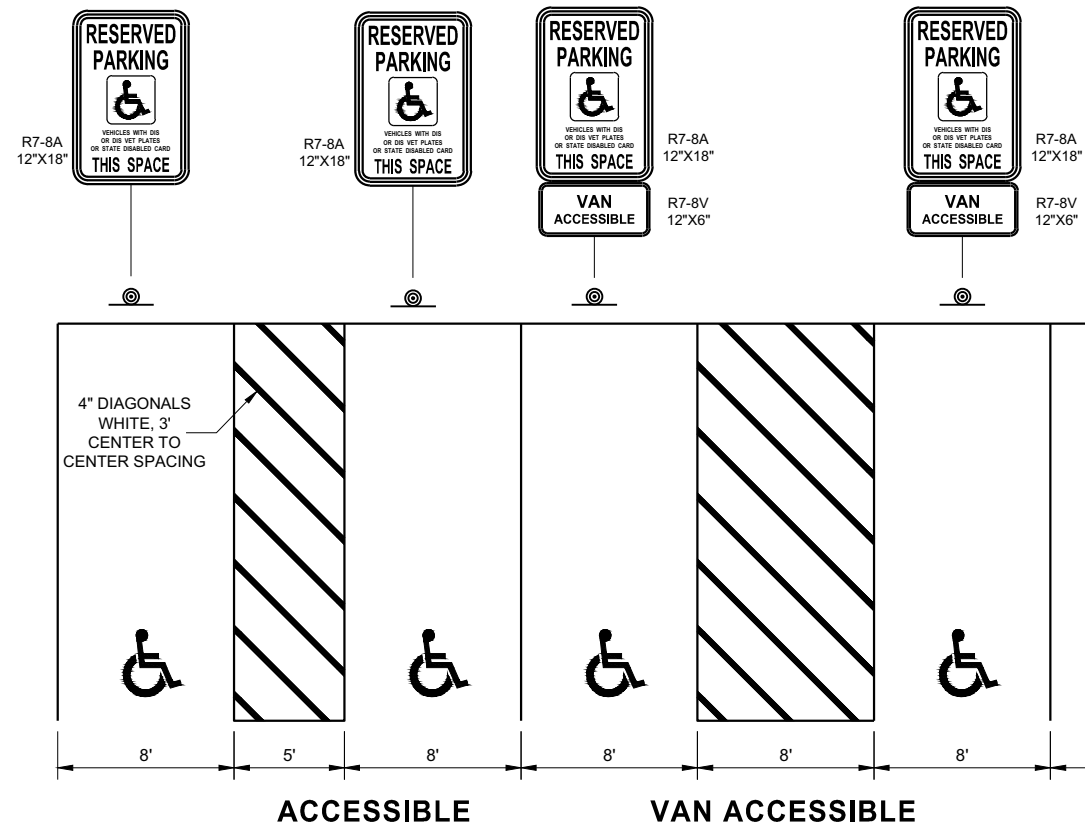
PARKING LOTS

GENERAL NOTES

ALL LINES 4" WHITE (UNLESS OTHERWISE NOTED)
LAST PARKING STALL IS A MINIMUM OF 15' FROM THE CROSSWALK.

LEGEND

⊙ SIGN ON PERMANENT SUPPORT



PARKING STALL MARKING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
August 2019 /S/ Matthew Rauch
DATE STATE SIGNING AND MAP ENGINEER 129
FHWA

LEGEND

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

GENERAL NOTES

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

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

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

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

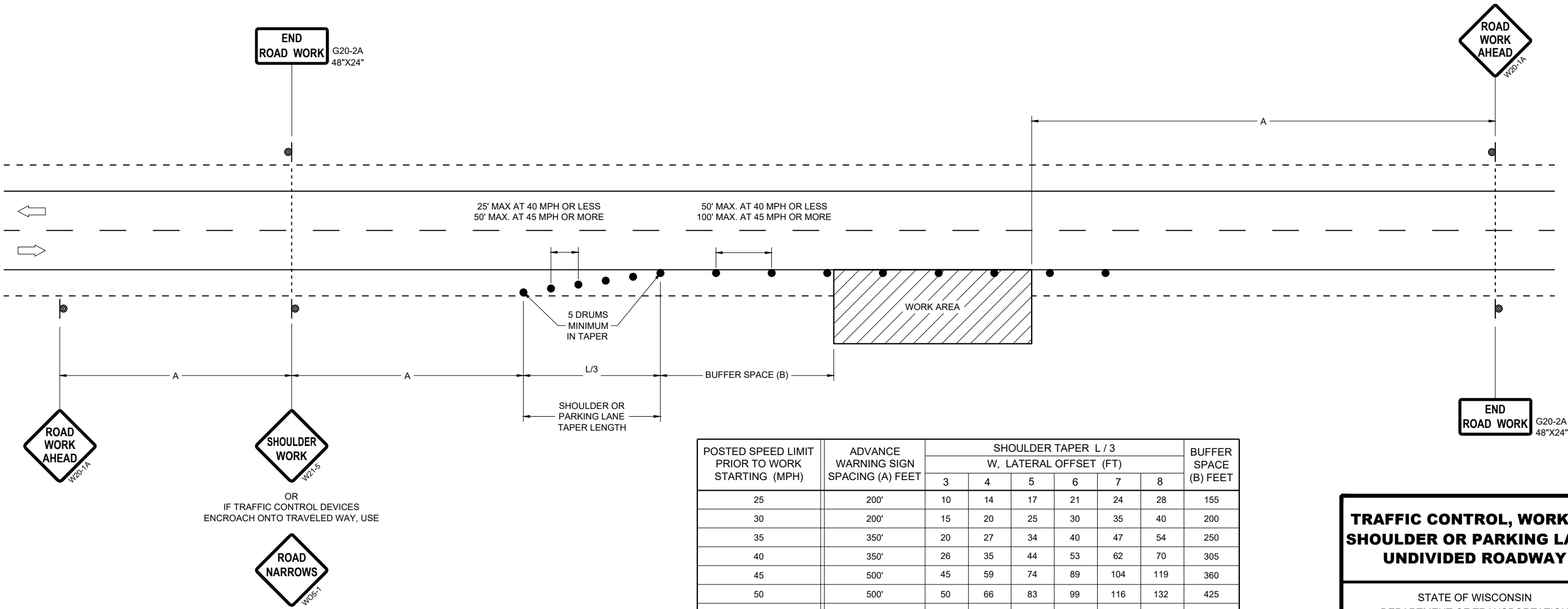
CHANNELIZING DEVICES PLACED ADJACENT TO WORK AREA SHALL BE PULLED BACK FROM THE TRAVEL LANE WHEN WORK IS NOT IN PROGRESS.

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

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

6

SDD 15D28-05



6

SDD 15D28-05

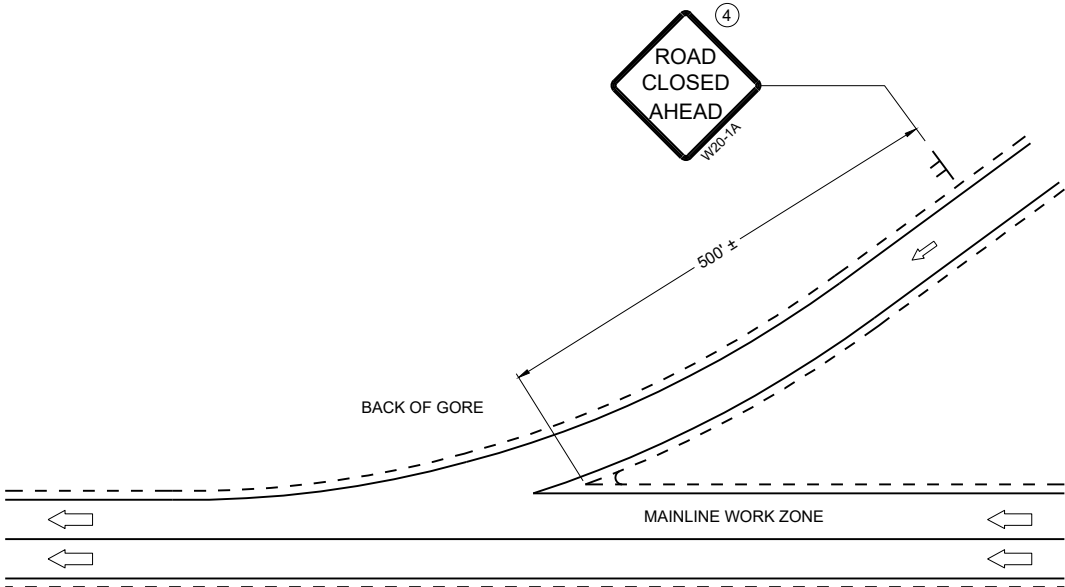
TRAFFIC CONTROL, WORK ON SHOULDER OR PARKING LANE, UNDIVIDED ROADWAY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
November 2025 /S/ ANDREW HEIDTKE
DATE STATEWIDE WORK ZONE TRAFFIC SAFETY ENGINEER
FHWA

LEGEND

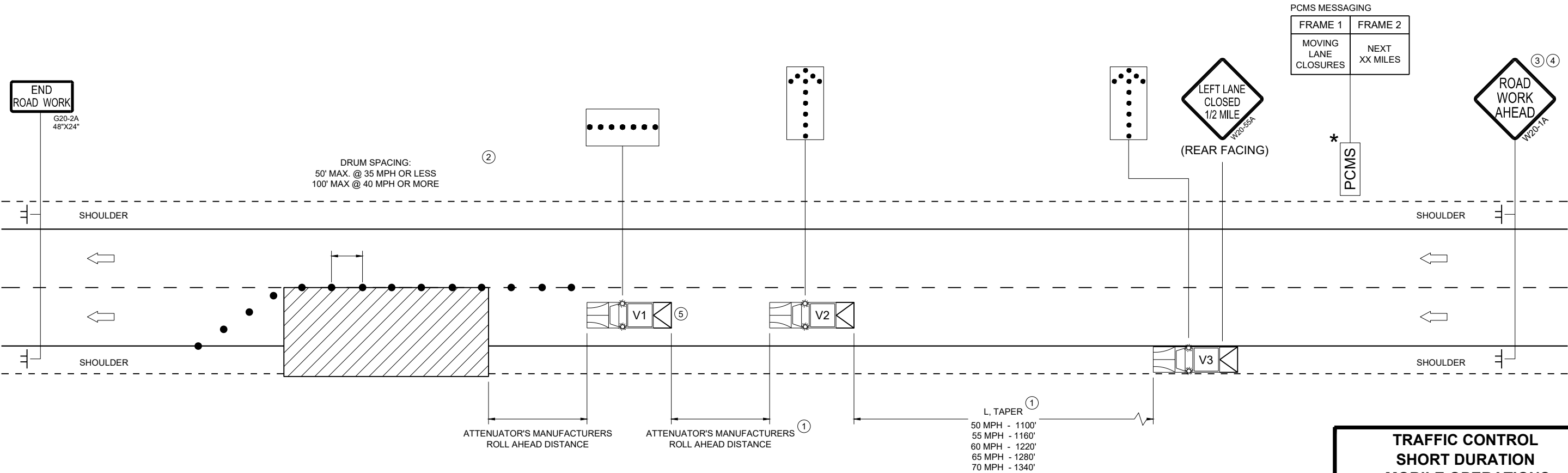
- V1 SHADOW VEHICLE 1
- V2 SHADOW VEHICLE 2
- V3 ADVANCE WARNING TRUCK
- TRAFFIC CONTROL DRUM
-  TRUCK MOUNTED ATTENUATOR (TMA)
-  SIGN ON TEMPORARY SUPPORT
-  DIRECTION OF TRAFFIC
-  FLASHING ARROW PANEL (MERGE)
-  FLASHING ARROW PANEL (CAUTION)
-  PORTABLE CHANGEABLE MESSAGE SIGN
-  WORK AREA



GENERAL NOTES

- SHORT DURATION IS WORK THAT OCCUPIES A LOCATION UP TO 1 HOUR.
- MOBILE IS WORK THAT MOVES INTERMITTENTLY OR CONTINUOUSLY.
- 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.
- WHEN WORK ACTIVITY BLOCKS THE RIGHT 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.
- USE DOUBLE ARROWS WHEN CONVOY IS IN CENTER LANE ONLY.
- 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
- WORKERS SHALL NOT PERFORM WORK FROM ANY SHADOW OR PROTECTION VEHICLES.

- ① DISTANCE BETWEEN VEHICLES MAY VARY ACCORDING TO 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 AND HORIZONTAL CURVES THAT RESTRICT SIGHT DISTANCE.
- ② DRUMS ARE TO BE USED FOR BRIDGE DECK SEALING AND OTHER PROJECTS THAT REQUIRE DELINEATION.
- ③ WITHIN 5 MILES, RELOCATE SIGNS AS WORK PROGRESSES AND NECESSARY OR AS DIRECTED BY THE ENGINEER.
- ④ SIGN NOT REQUIRED IF MOVING OPERATION OCCURS WITHIN A SIGNED ROAD WORK ZONE AREA.
- ⑤ SHADOW VEHICLE 1 (V1) IS OPTIONAL
- * PCMS OPTIONAL



TRAFFIC CONTROL
SHORT DURATION
MOBILE OPERATIONS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
November 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.

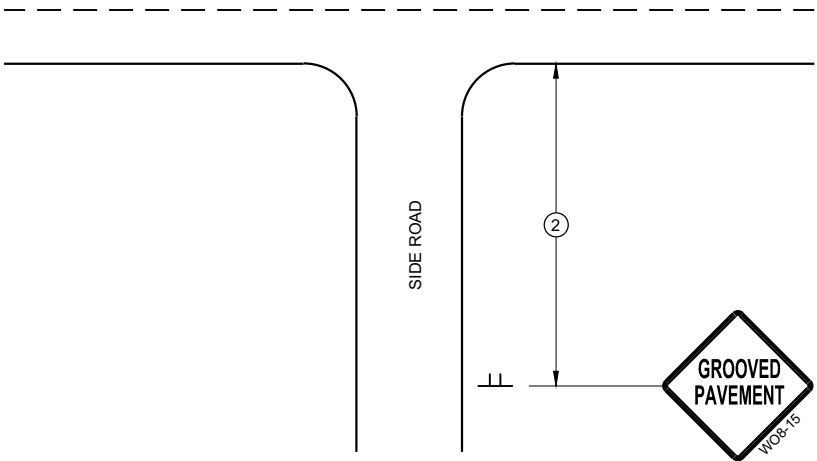
ALL SIGNS INAPPROPRIATE TO THE STATUS OF THE CONTROL ZONE, INCLUDING PRE-EXISTING SIGNS IN THE VICINITY, SHALL BE COVERED OR REMOVED AS DIRECTED BY THE ENGINEER.

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.

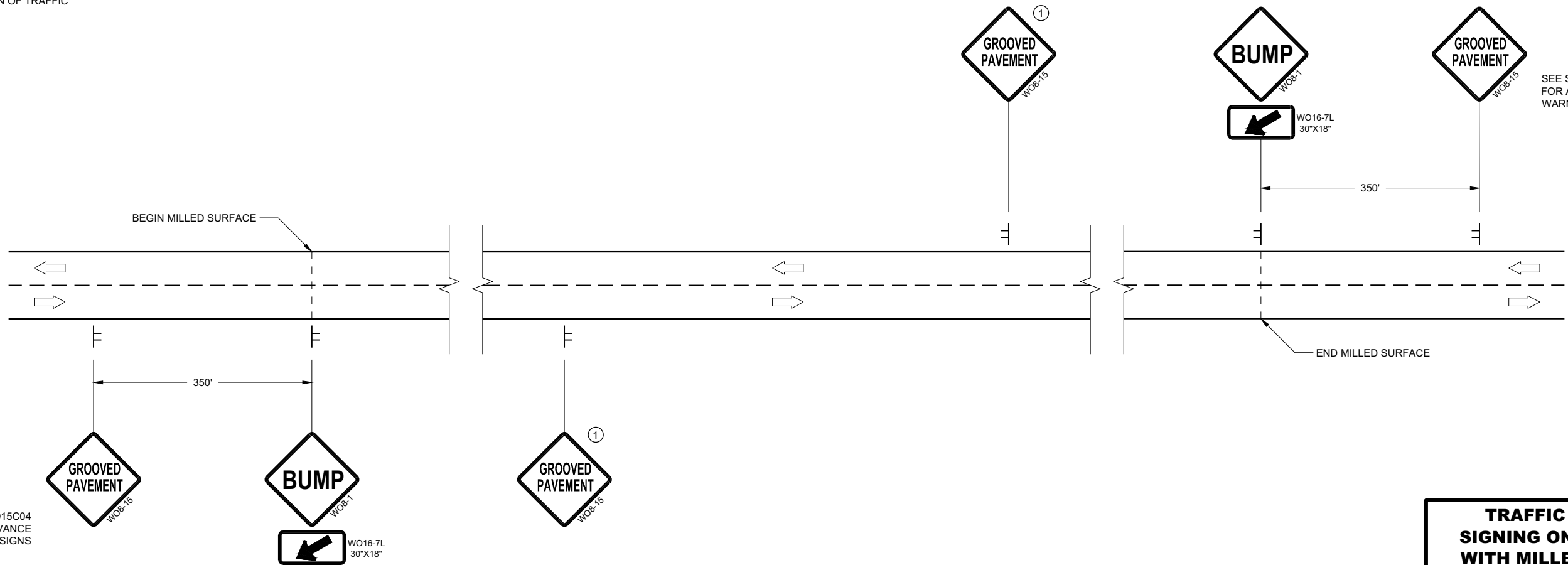
- 1 PLACE SIGNS 350' IN ADVANCE OF MILLED SURFACES AND AT 1 MILE INTERVALS, OR AS DIRECTED BY THE ENGINEER.
- 2 PLACE SIGN 200' MIN. FROM INTERSECTION AND 200' MIN. AFTER ADVANCE WARNING SIGN SHOWN IN SDD 15C04.

LEGEND

-  SIGN ON TEMPORARY SUPPORT
-  DIRECTION OF TRAFFIC



TYPICAL SIDE ROAD APPROACH
SIGN DETAIL



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 132

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.

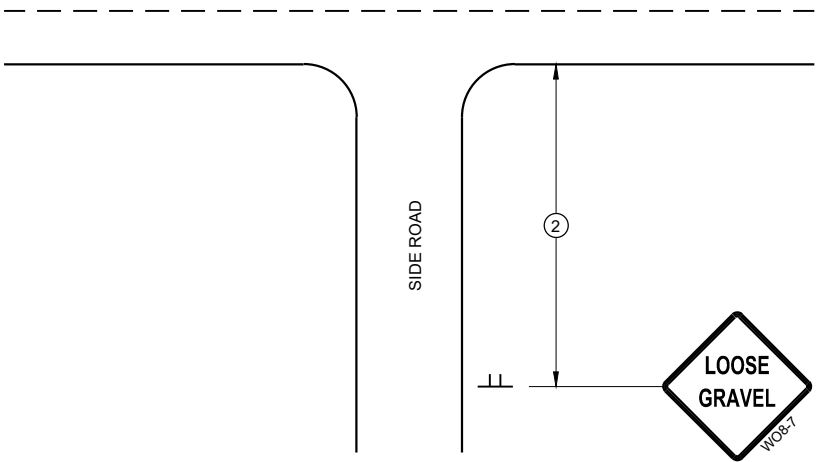
- ①
- PLACE SIGNS 350' IN ADVANCE OF CHIP SEALED OR LOOSE GRAVEL SURFACES AND AT 1 MILE INTERVALS, OR AS DIRECTED BY THE ENGINEER.
- ②
- PLACE SIGN 200' MIN. FROM INTERSECTION AND 200' MIN. AFTER ADVANCE WARNING SIGN SHOWN IN SDD 15C04.
- ③
- ADD WO8-1 OR WO8-2 SIGN WHEN THE CONDITION IS PRESENT.

LEGEND

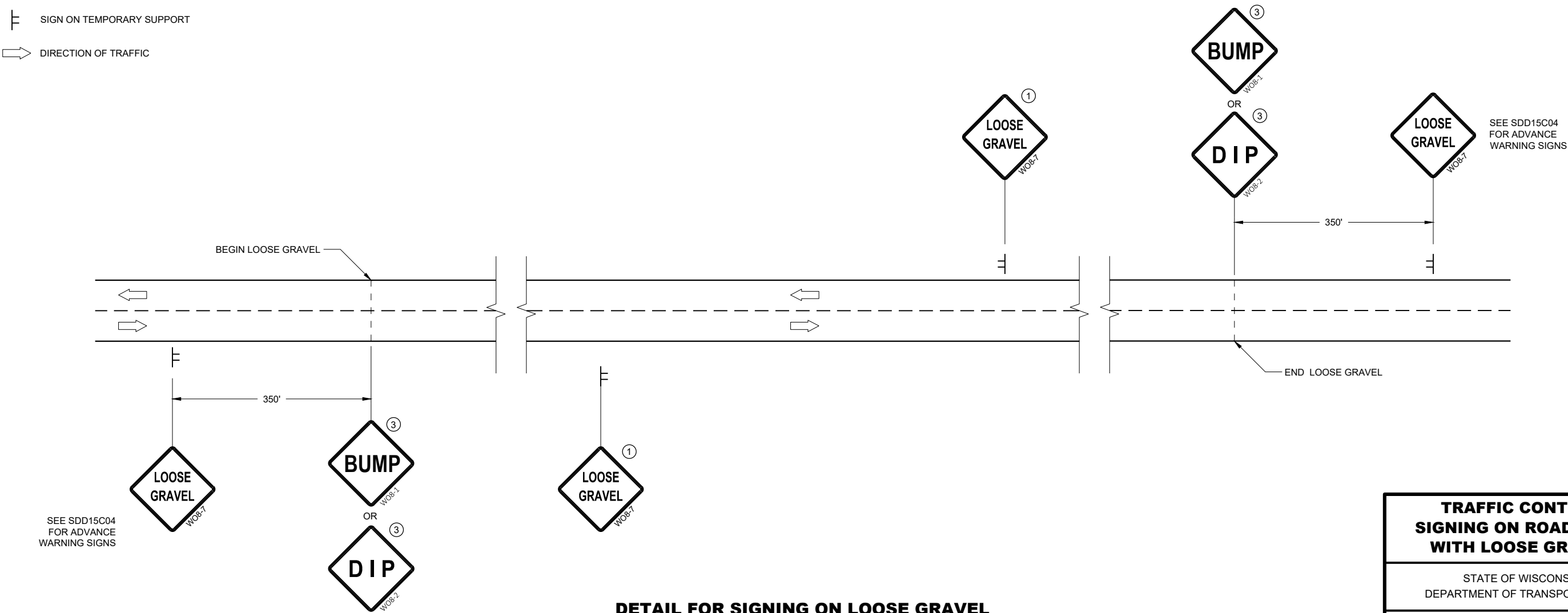
- ⌋

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 133

FHWA

LEGEND

- V1

WORK VEHICLE
- V2

SHADOW VEHICLE
- 

TRUCK MOUNTED ATTENUATOR (TMA)
- 

FLASHING ARROW PANEL (CAUTION)
- 

WORK AREA
- 

DIRECTION OF TRAFFIC

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

GENERAL NOTES

ALL SIGNS ARE 48"X48" UNLESS OTHERWISE NOTED.

MOBILE IS WORK THAT MOVES CONTINUOUSLY OR MOVES AT LEAST THE DECISION SIGHT DISTANCE EVERY 15 MINUTES.

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

ALL ARROW PANELS SHALL BE REAR FACING, TYPE "B" OR "C", AND DISPLAYING THE FLASHING CAUTION MODE. SIGNS PLACED ON VEHICLES MUST NOT OBSCURE THE ARROW PANEL.

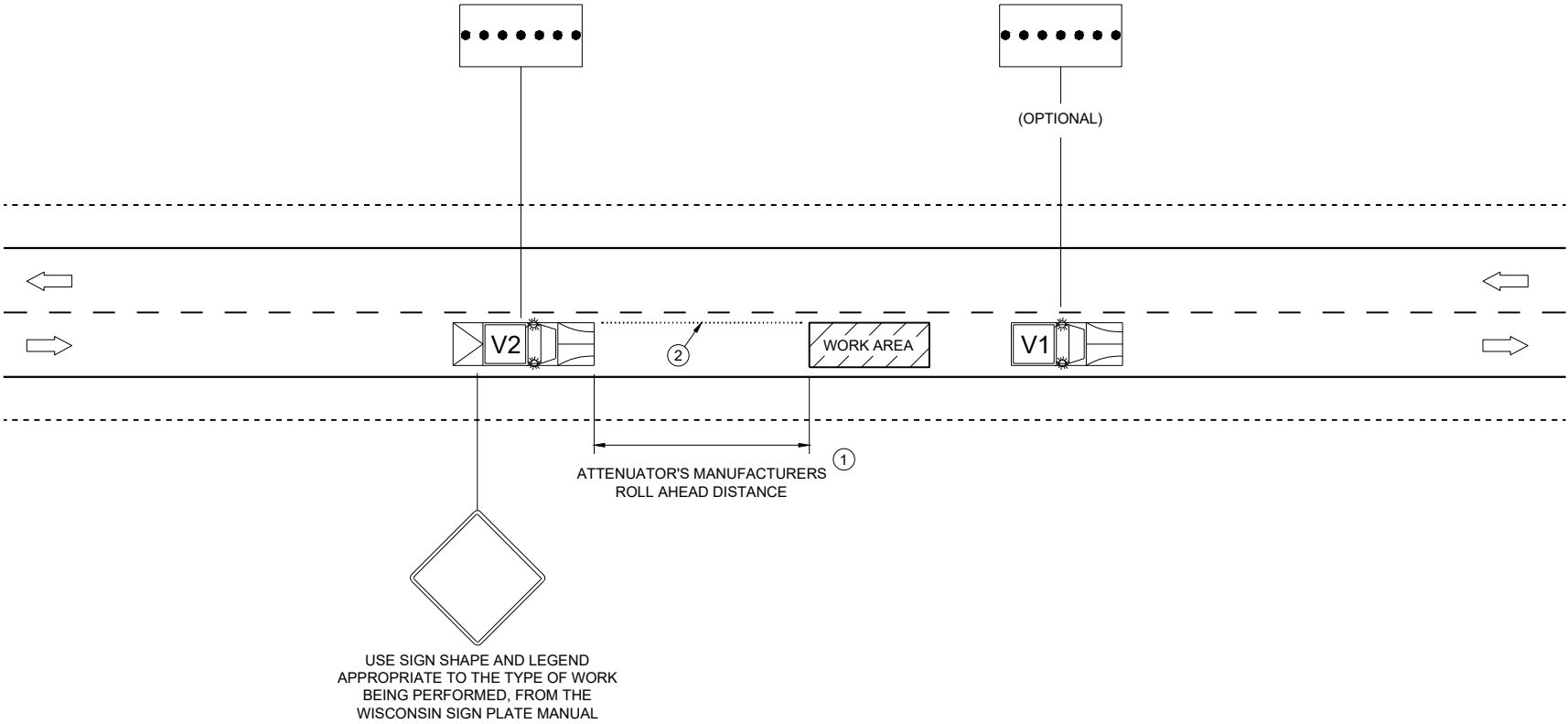
USE AN ATTENUATOR ON THE REARMOST VEHICLE THAT BLOCKS ALL OR PART OF THE TRAFFIC LANE.

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

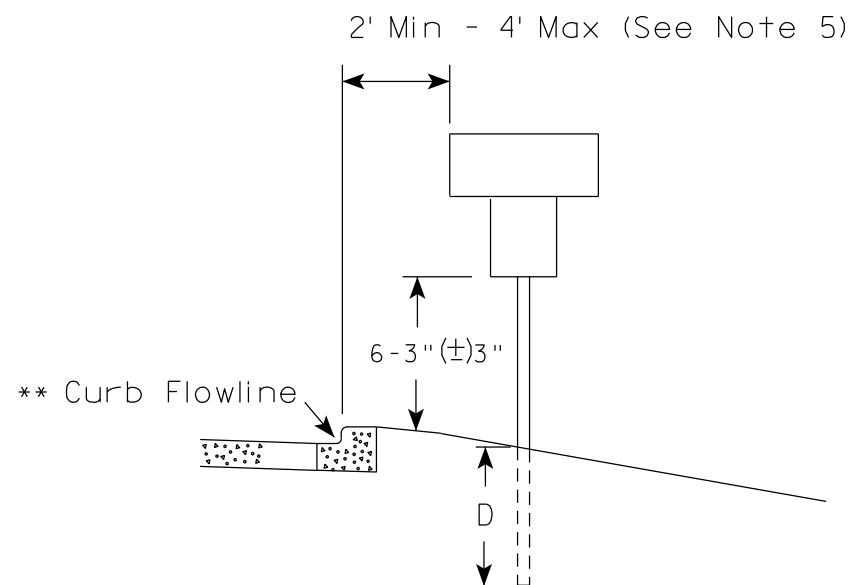
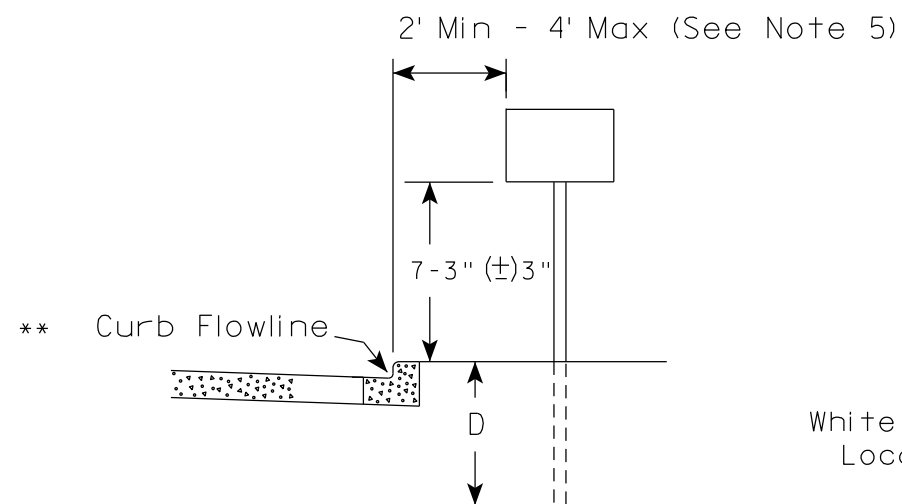
DATE

/S/ Andrew Heidtke

STATEWIDE WORK ZONE TRAFFIC SAFETY ENGINEER

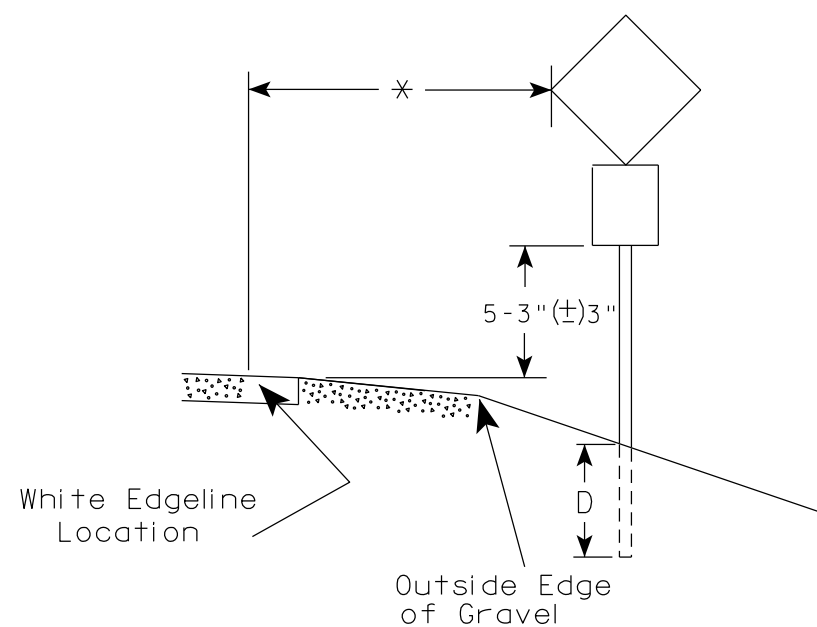
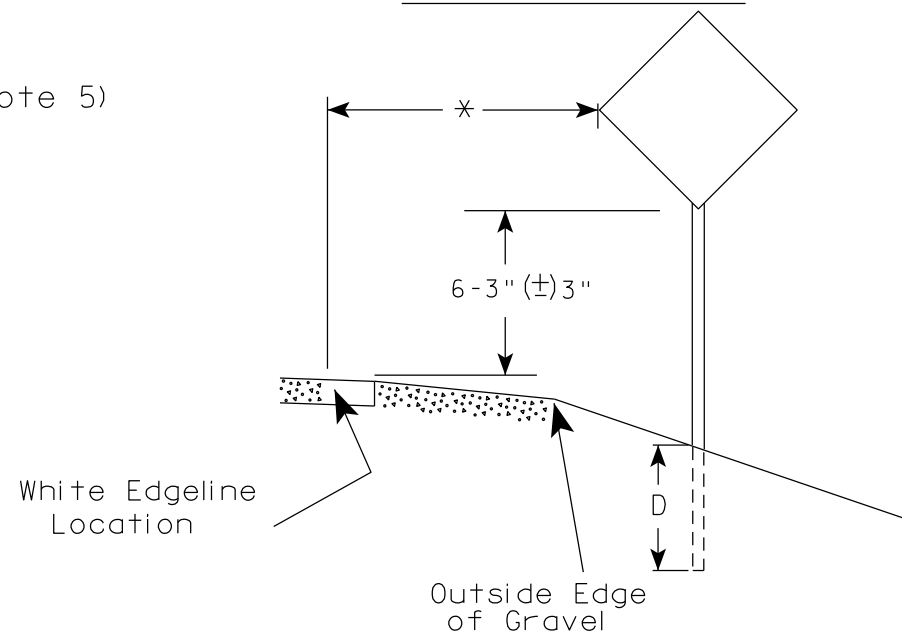
FHWA

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.

GENERAL NOTES

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

POST EMBEDMENT DEPTH

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

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

PROJECT NO:

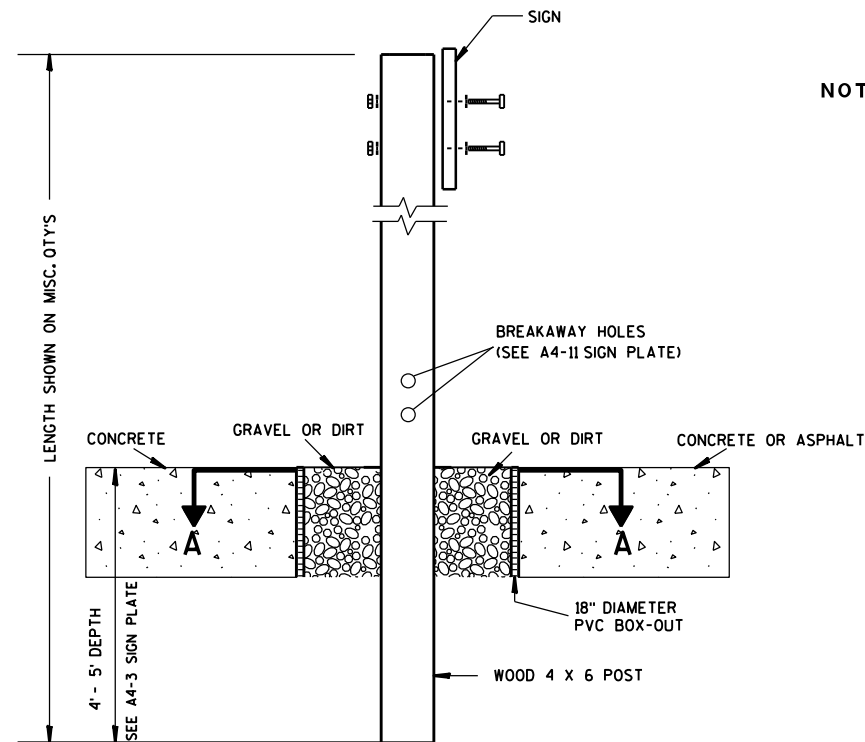
HWY:

COUNTY:

SHEET NO:

135

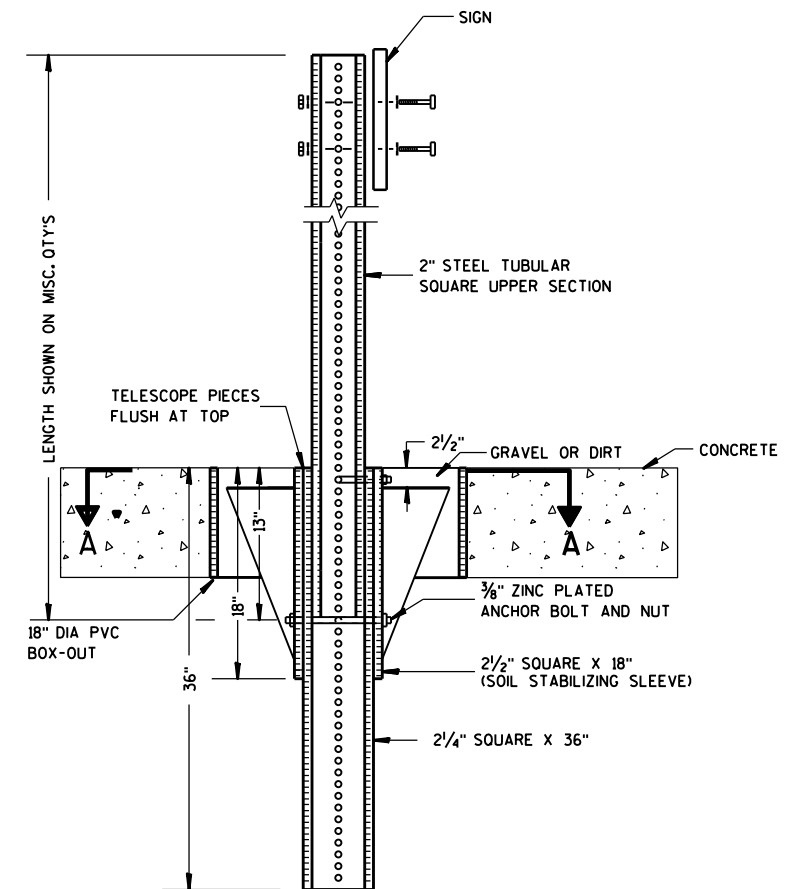
E



ELEVATION VIEW

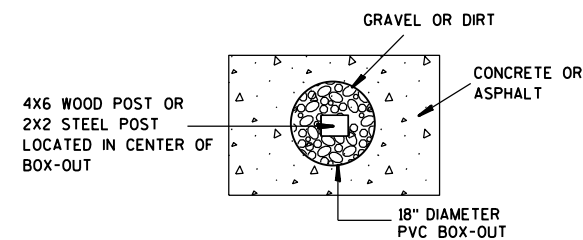
DETAIL OF WOOD 4 X 6 SIGN POST IN BOX-OUT

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



ELEVATION VIEW

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



PLAN VIEW

FOR NEW CONCRETE/ASPHALT INSTALLATIONS

SIGN POST
BOX-OUTS
A4-3B

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 1/27/14 PLAT 136 A4-3B.1

PROJECT NO:

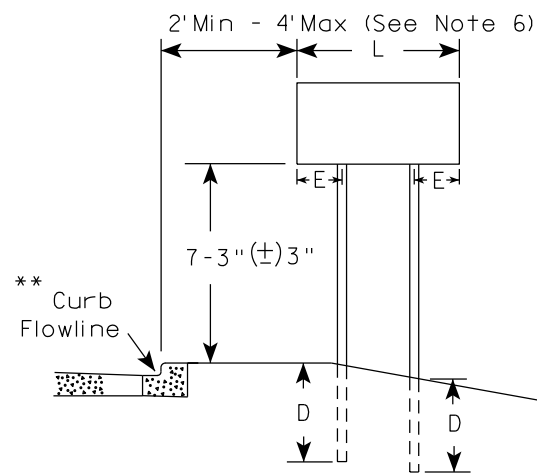
HWY:

COUNTY:

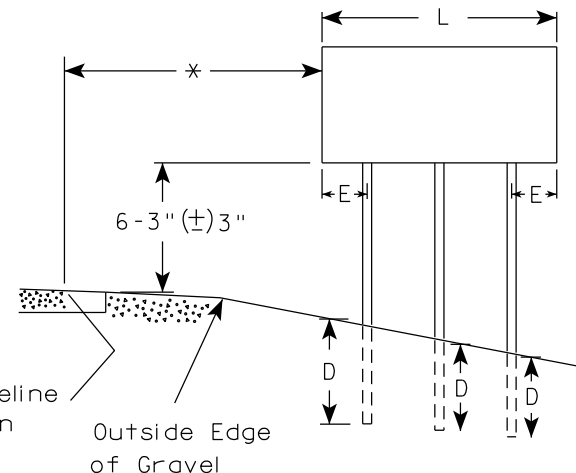
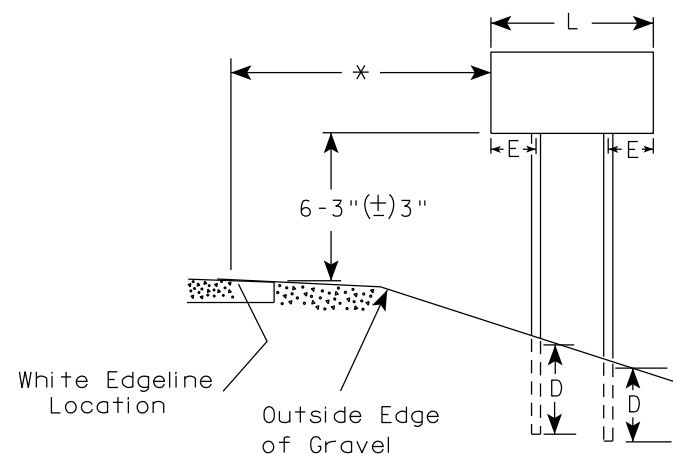
SHEET NO:

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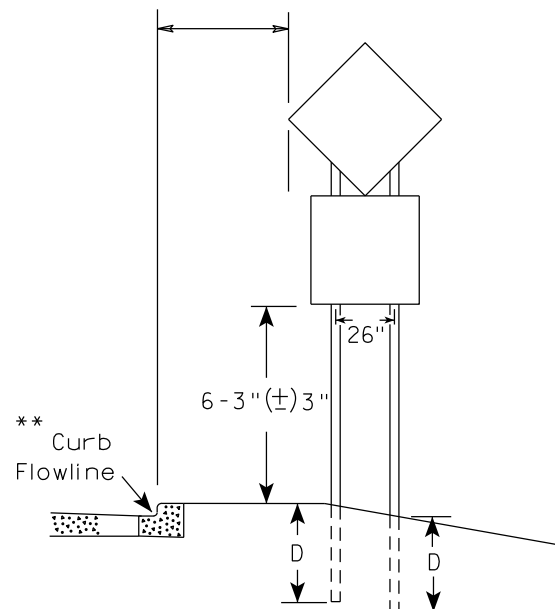
URBAN AREA



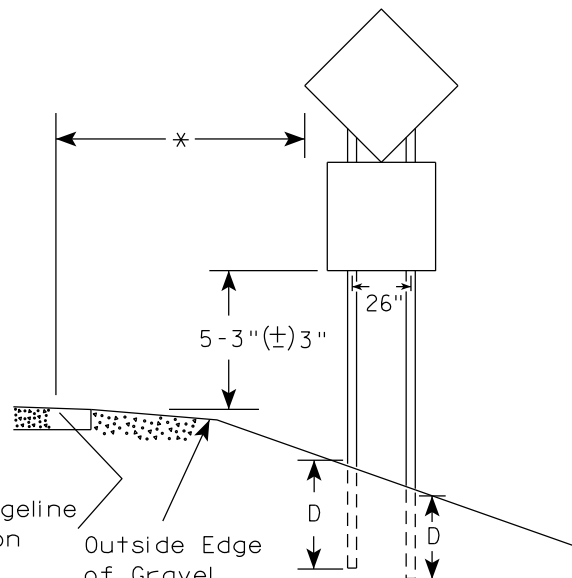
RURAL AREA (See Note 3)



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

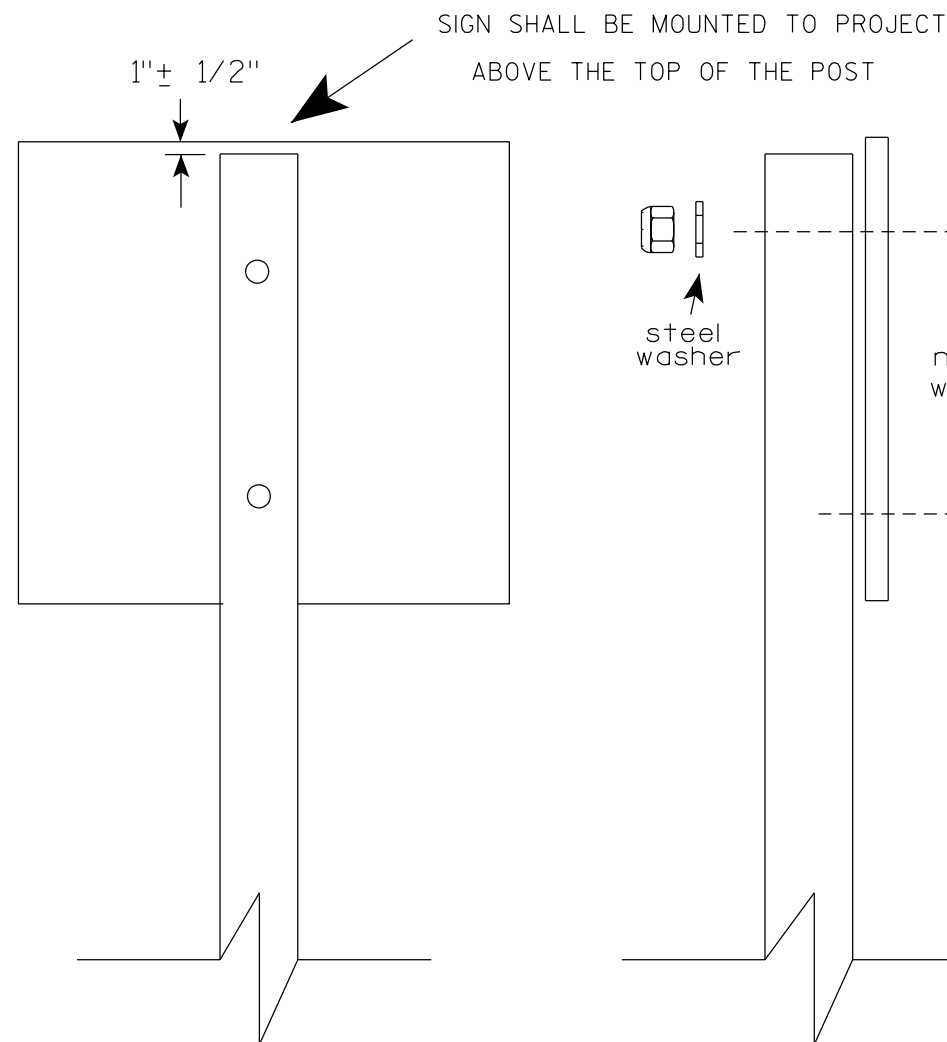
GENERAL NOTES

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

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

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

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



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

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

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

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

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

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

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

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

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

2 1/2" TELESAR TUBE

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

4"

2 1/2"

10"

3 1/2"

19"

LENGTH SHOWN ON MISC. QTY'S

TELESCOPE PIECES FLUSH AT TOP

18" DIA SCHEDULE 40 PVC BOX-OUT

36"

18"

13"

2"

2 1/2"

2 1/4" SQUARE X 36"

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

3/8" ZINC PLATED ANCHOR BOLT AND NUT

2 1/2" GRAVEL OR DIRT

3/8" ZINC PLATED ANCHOR BOLT AND NUT

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

2" STEEL TUBULAR SQUARE UPPER SECTION

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

SIGN

LENGTH SHOWN ON MISC. Q'TYS

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

1"

TELESCOPE PIECES FLUSH AT TOP

18"

12"

36"

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

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

2 1/4" SQUARE X 36"

A

A

Diagram illustrating the corner detail of the guardrail assembly, labeled **SECTION A-A**. The diagram shows a corner view of the guardrail structure, including the **3/8" ZINC PLATED CORNER ANCHOR BOLT AND NUT**. An arrow indicates the **DIRECTION OF TRAFFIC** flow.

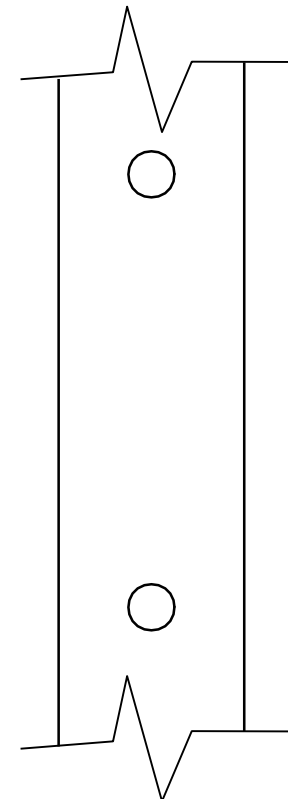
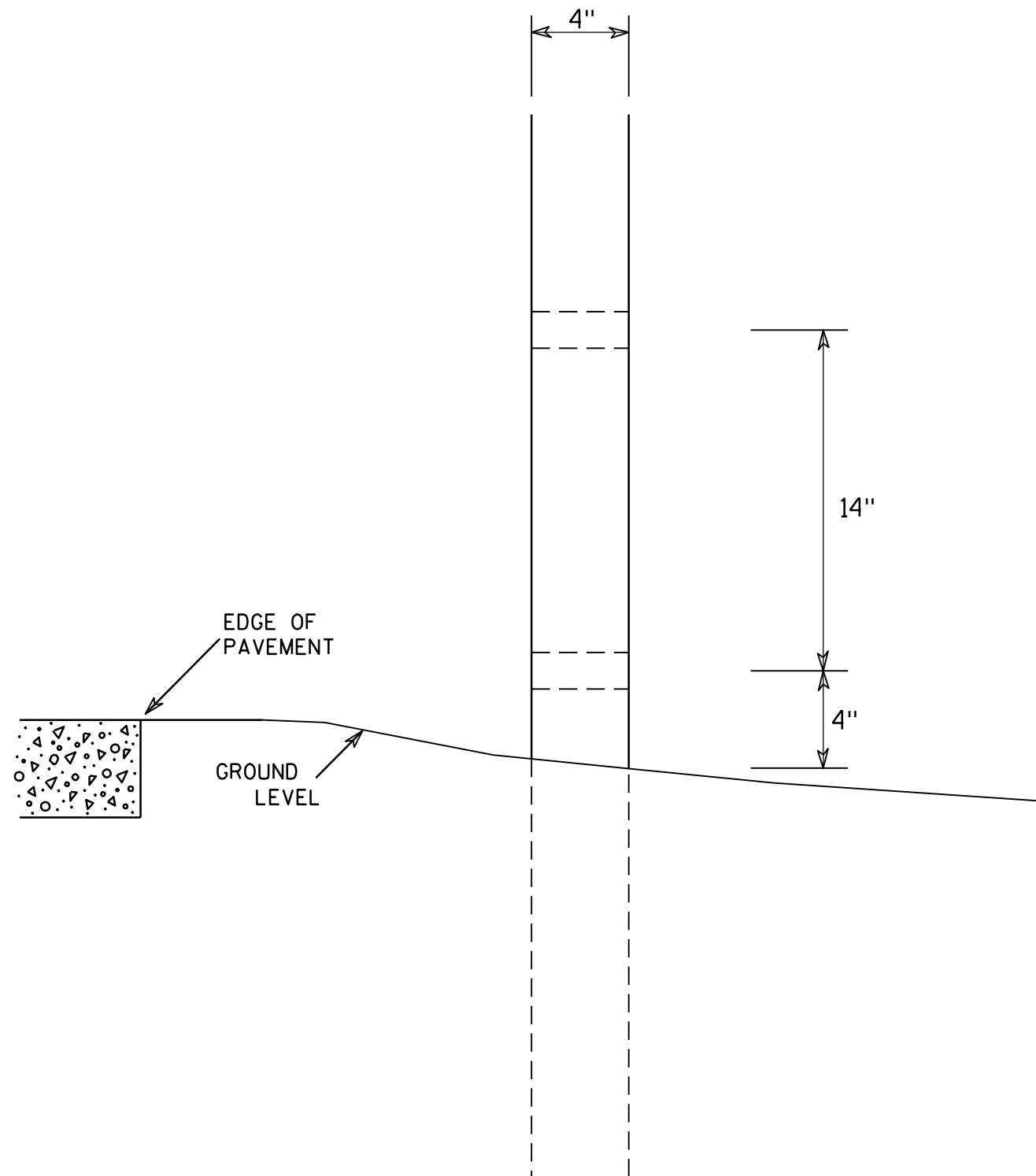
Area of Sign Installation (Sq. Ft.)	Number of Required Posts
9 or less	1
Greater than 9 less than or equal to 18	2
Greater than 18 less than or equal to 27	3

TUBULAR STEEL
SIGN POST
A4-9

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R. Rauch
for State Traffic Engineer

DATE 2/05/15 PLAT 139 14-9.9



SIDE VIEW

GENERAL NOTES

1. All 4 x 6 Wood Posts shall be modified by having two 1 1/2" diameter holes drilled perpendicular to the roadway centerline.

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:

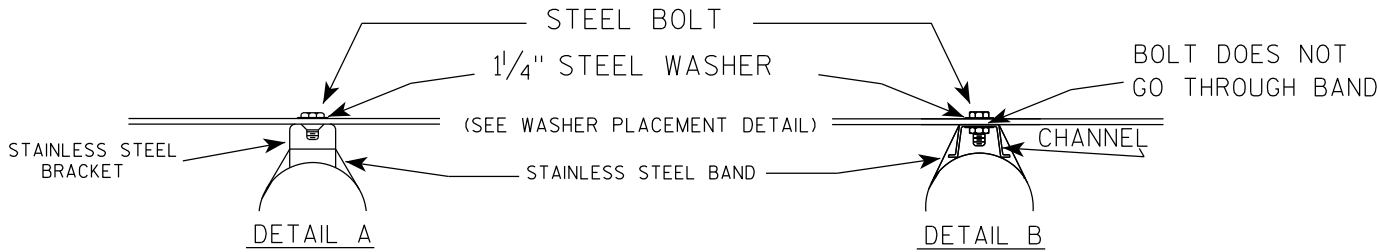
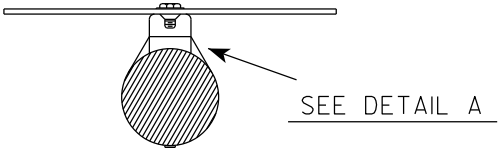
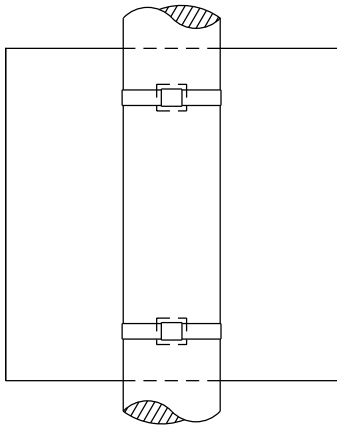
COUNTY:

SHEET NO: 140

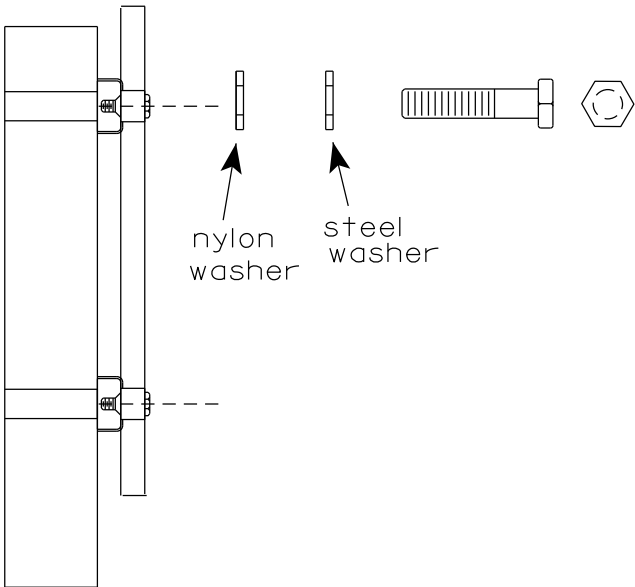
E

BANDING

SINGLE SIGN



WASHER PLACEMENT

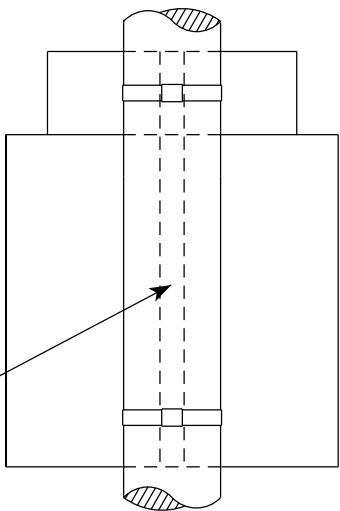


WASHERS (ALL POSTS) -
1-1/4" O.D. X 3/8" I.D. X 1/16" STEEL
1-1/4" O.D. X 3/8" I.D. X .080 NYLON
FOR ALL TYPE H SIGNS

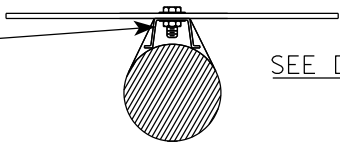
GENERAL NOTES

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



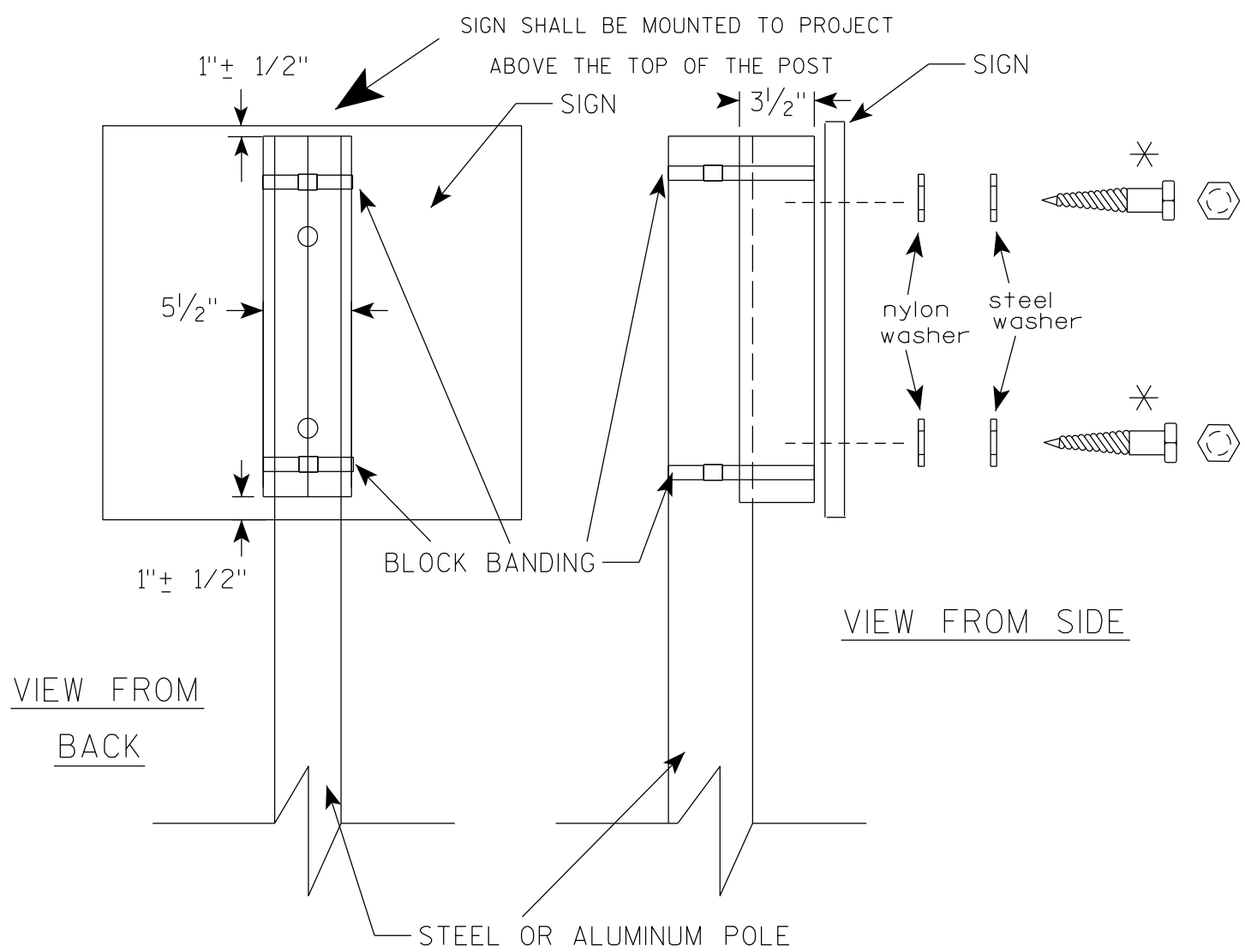
CHANNEL
SEE TYPICAL PANEL
INSTALLATION SHEET



STANDARD SIGN
SIGN BANDING DETAILS

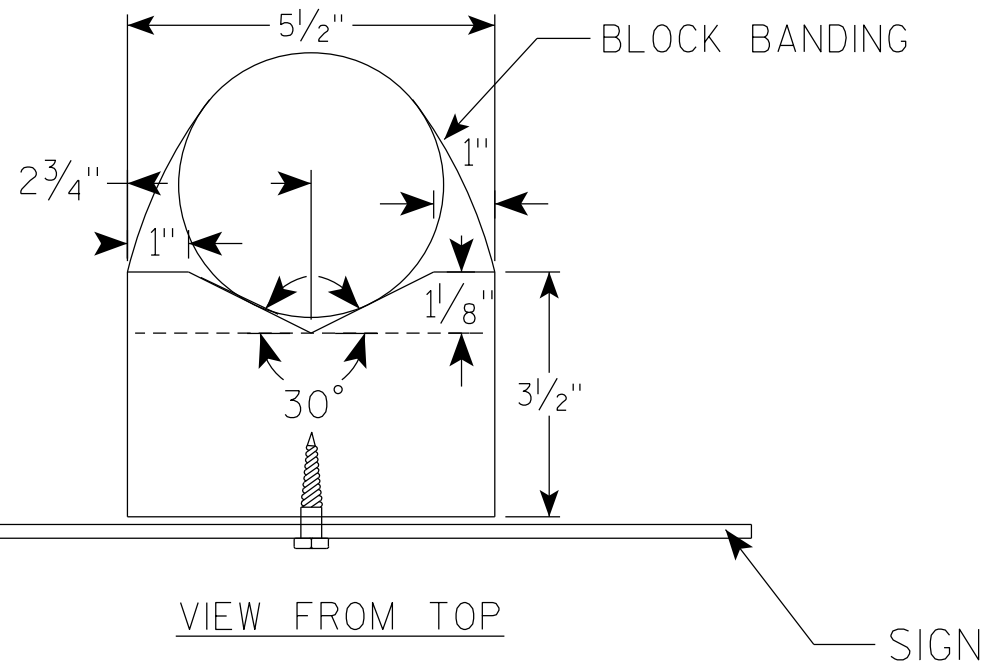
WISCONSIN DEPT OF TRANSPORTATION

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: 142

E

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																											

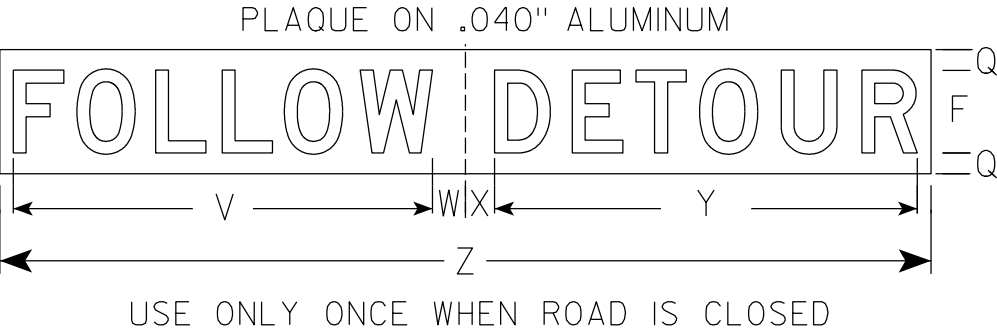
STANDARD SIGN
G20-57

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
For State Traffic Engineer

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

7



USE ONLY ONCE WHEN ROAD IS CLOSED

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.

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 1/8	5	2 7/8	29	2	30	1 3/4	3 1/4	28 3/8	40 1/2	2	2	29 3/4	66	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	6	4 1/8	38 3/8	2	39 7/8	2	4	37 7/8	29 3/4	3 1/8	2 7/8	40 7/8	90	32.0
5																											

STANDARD SIGN
G20-57C

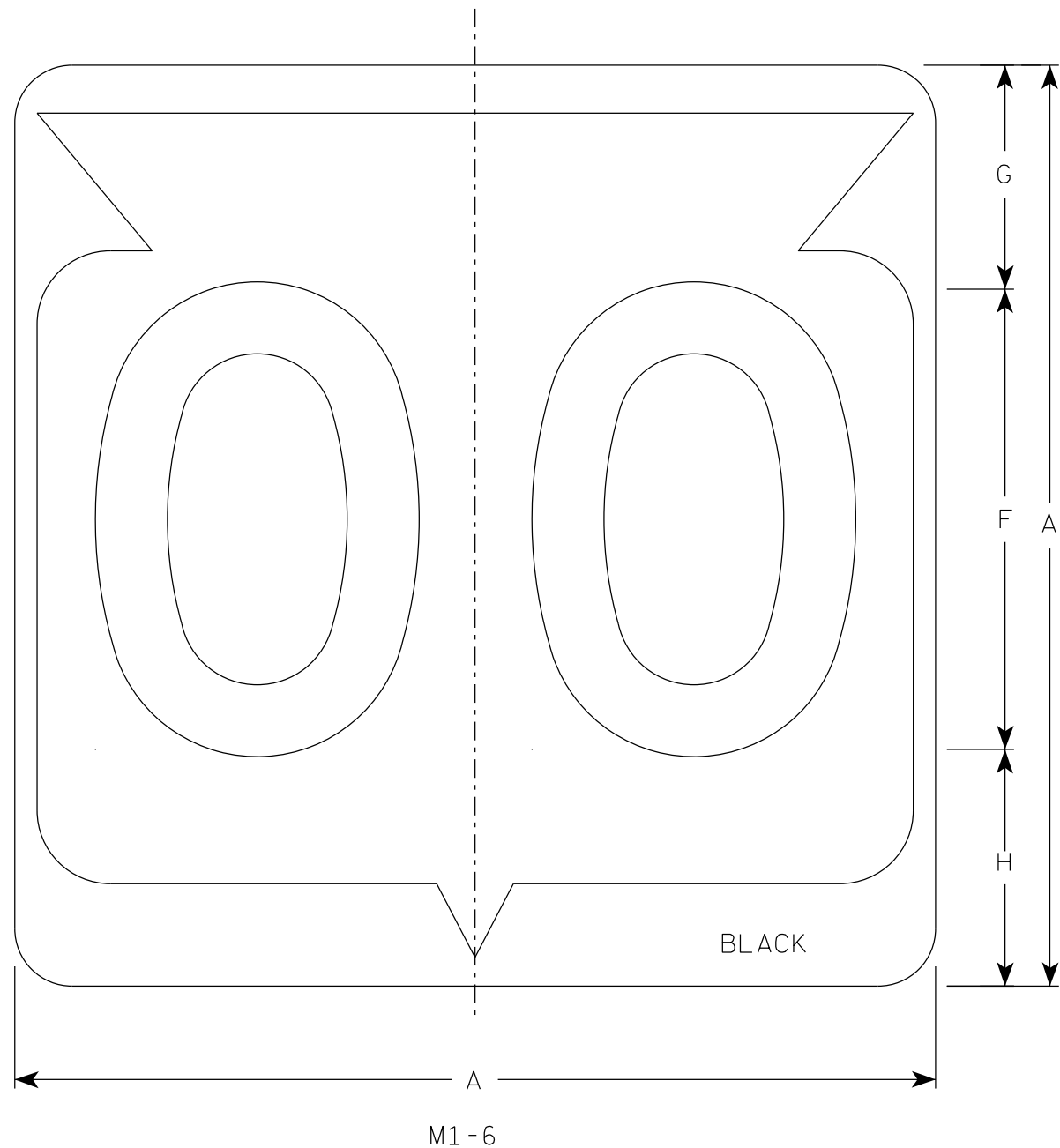
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 9/25/19 PLATE NO. G20-57C.1

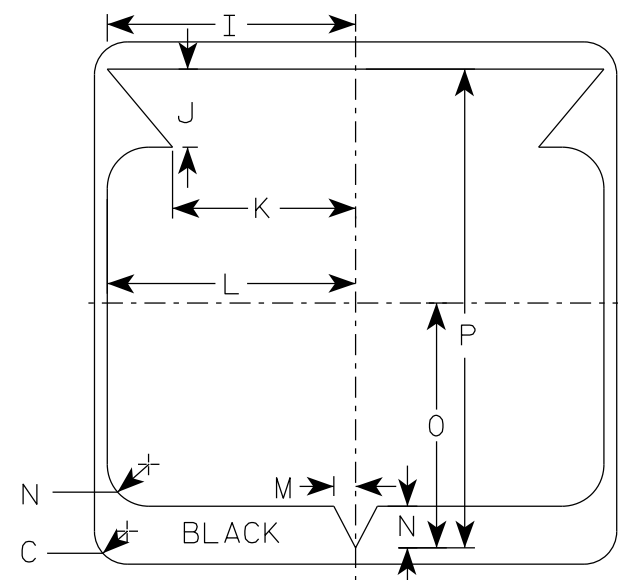
7

7



NOTES

1. Sign is Type II - Type H Reflective
2. Color:
Background - White
Message - Black
3. Message Series - D except 3 number signs Series C



SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2	24		1 1/2			12	5 1/2	6 1/2	10 1/4	2 1/2	8 7/8	11 1/2	1	1 7/8	11 1/4	21 7/8											4.0
2M	24		1 1/2			12	5 1/2	6 1/2	10 1/4	2 1/2	8 7/8	11 1/2	1	1 7/8	11 1/4	21 7/8											4.0
3	36		2 1/4			18	8 3/4	9 1/4	15 3/8	5 3/8	12 5/8	17 1/8	1 1/2	2 7/8	16 7/8	33											9.0
4	36		2 1/4			18	8 3/4	9 1/4	15 3/8	5 3/8	12 5/8	17 1/8	1 1/2	2 7/8	16 7/8	33											9.0
5	36		2 1/4			18	8 3/4	9 1/4	15 3/8	5 3/8	12 5/8	17 1/8	1 1/2	2 7/8	16 7/8	33											9.0

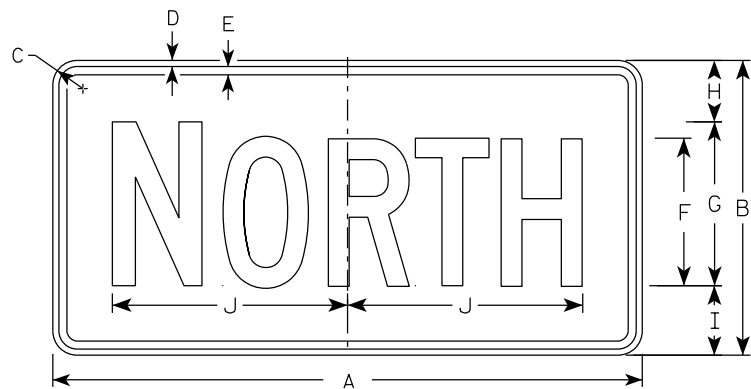
STATE ROUTE MARKER
M1-6 FOR ASSEMBLIES

WISCONSIN DEPT OF TRANSPORTATION

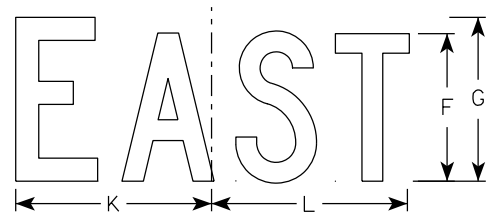
APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 11/8/2022 PLATE NO. M1-6.11

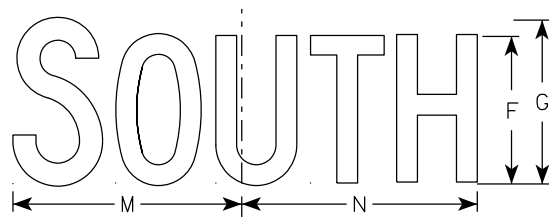
7



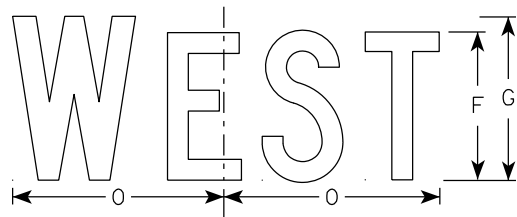
M3-1
MM3-1
MP3-1



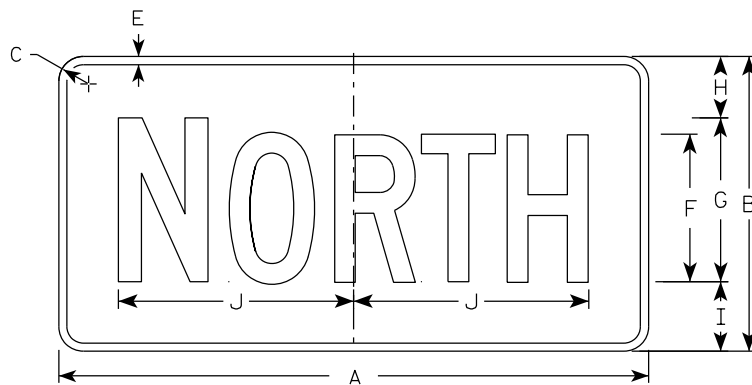
M3-2
MM3-2
MP3-2



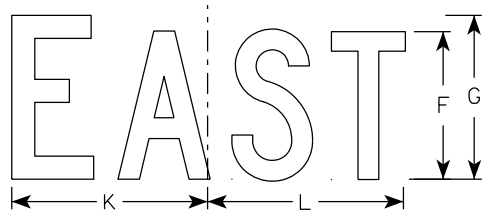
M3-3
MM3-3
MP3-3



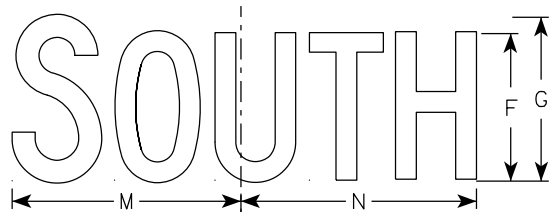
M3-4
MM3-4
MP3-4



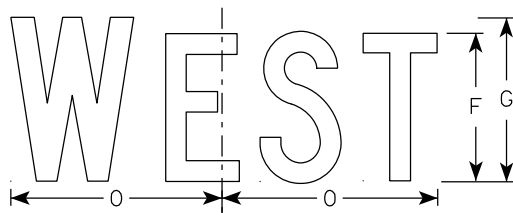
MB3-1
MK3-1
MN3-1



MB3-2
MK3-2
MN3-2



MB3-3
MK3-3
MN3-3



MB3-4
MK3-4
MN3-4

NOTES

- All Signs Type II - Type H Reflective
- Color:
 - Background - See note 5
 - Message - See note 5
- Message Series - C
- Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
- M3-1 thru M3-4 Background - White
Message - Black
MB3-1 thru MB3-4 Background - Blue
Message - White
MK3-1 thru MK3-4 Background - Green
Message - White
MM3-1 thru MM3-4 Background - White
Message - Green
MN3-1 thru MN3-4 Background - Brown
Message - White
MP3-1 thru MP3-4 Background - White
Message - Blue
- Note the first letter of each direction is larger than the remainder of the message.

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	24	12	1 1/2	3/8	3/8	6	7	2 1/4	2 3/4	10 1/4	7 7/8	8 3/8	10 1/4	9 3/4	8 3/4												2.00
2M	24	12	1 1/2	3/8	3/8	6	7	2 1/4	2 3/4	10 1/4	7 7/8	8 3/8	10 1/4	9 3/4	8 3/4												2.00
3	36	18	1 1/2	3/8	1/2	9	10	3 3/4	4 1/4	14 3/8	12	12 1/8	14	14 1/8	13												4.5
4	36	18	1 1/2	3/8	1/2	9	10	3 3/4	4 1/4	14 3/8	12	12 1/8	14	14 1/8	13												4.5
5	36	18	1 1/2	3/8	1/2	9	10	3 3/4	4 1/4	14 3/8	12	12 1/8	14	14 1/8	13												4.5

PROJECT NO:

HWY:

COUNTY:

SHEET NO: 146

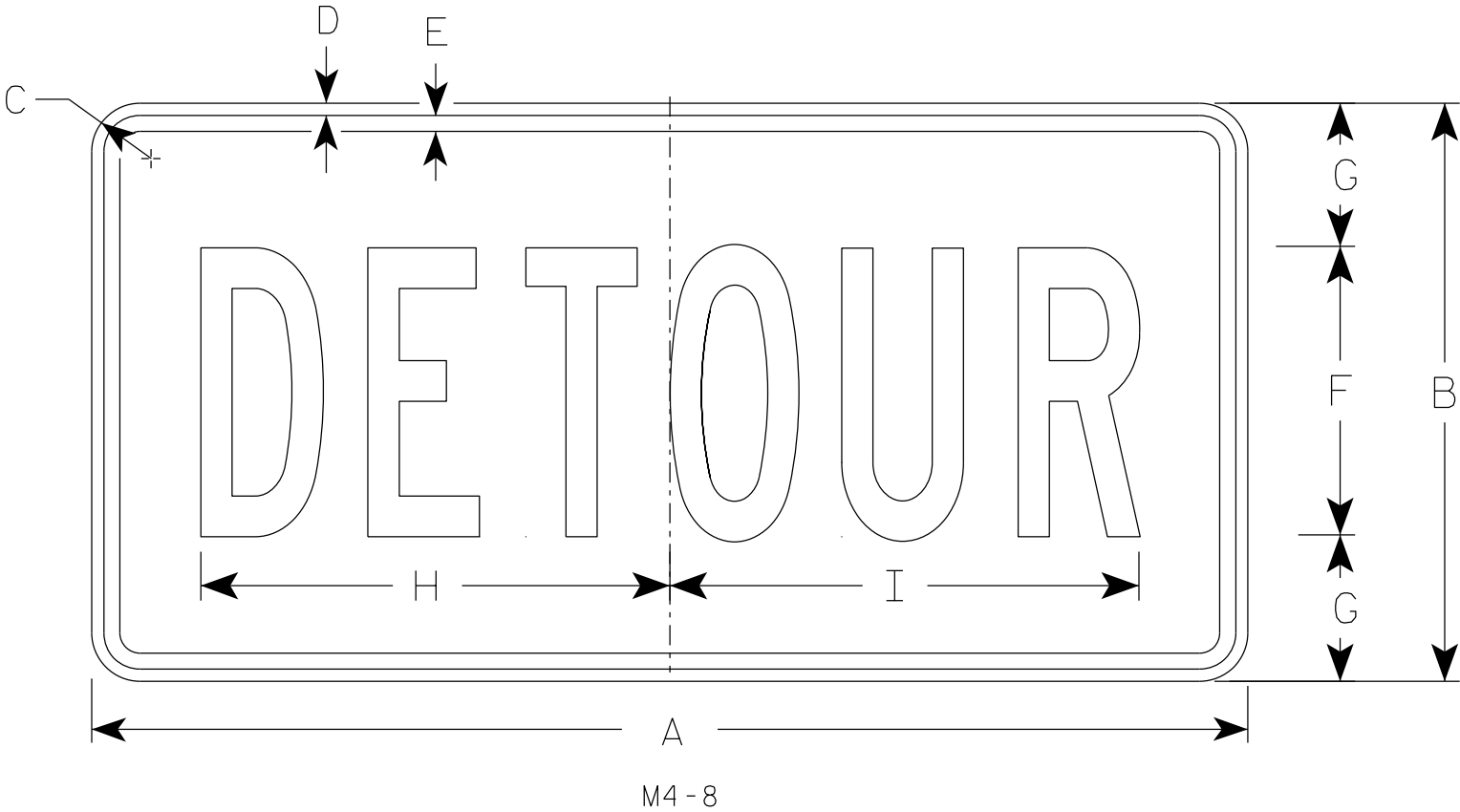
E

7

7

NOTES

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



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

STANDARD SIGN

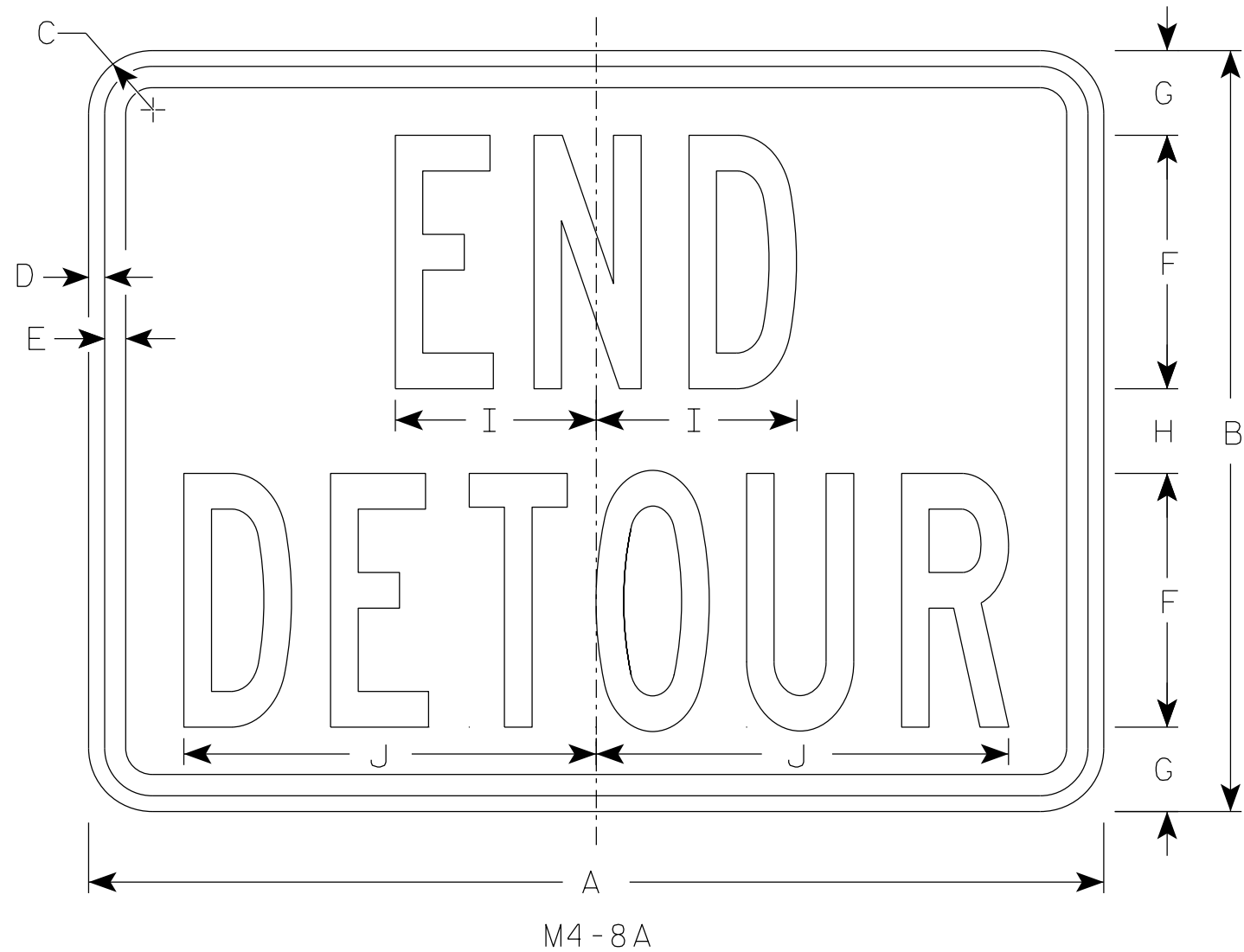
M4-8

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

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

7



NOTES

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

7

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

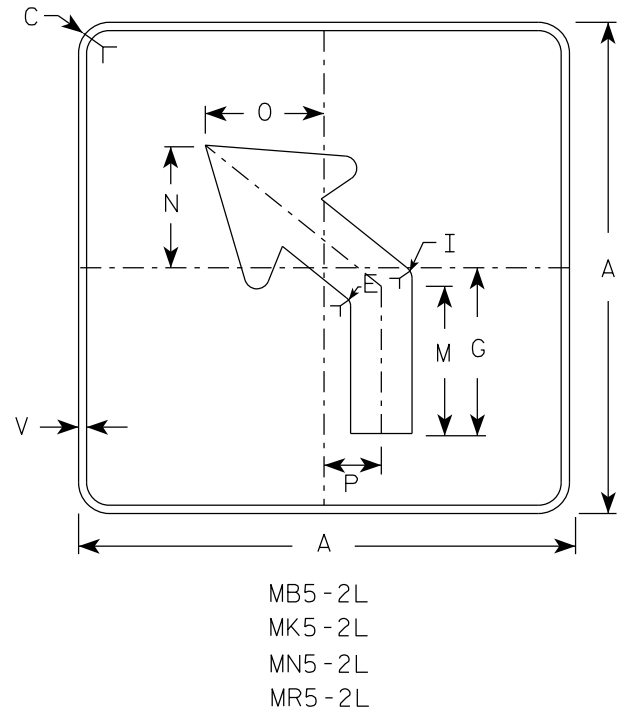
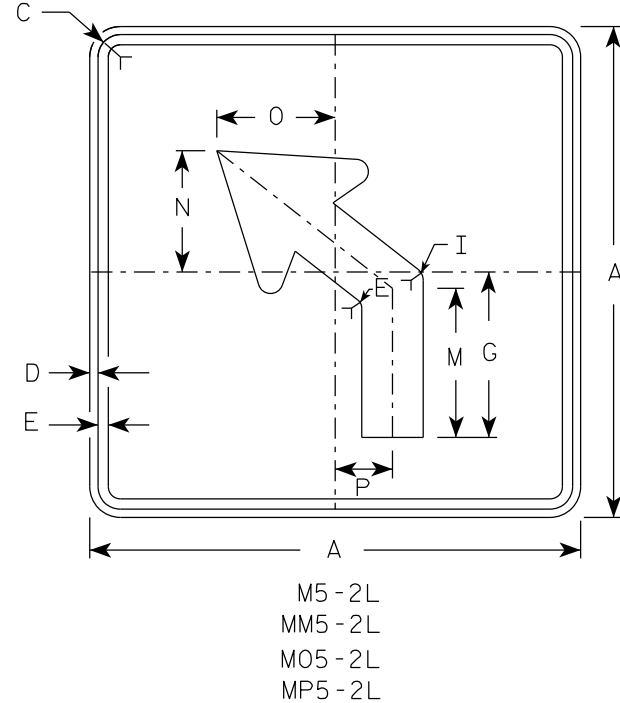
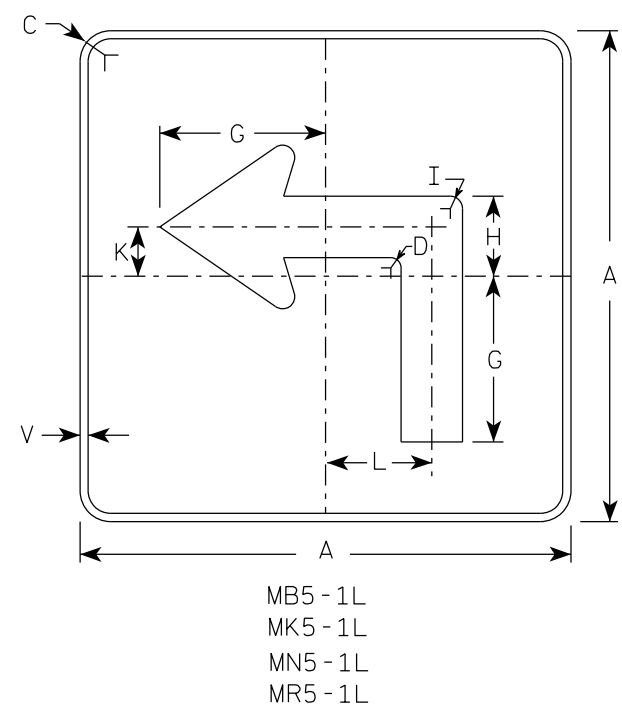
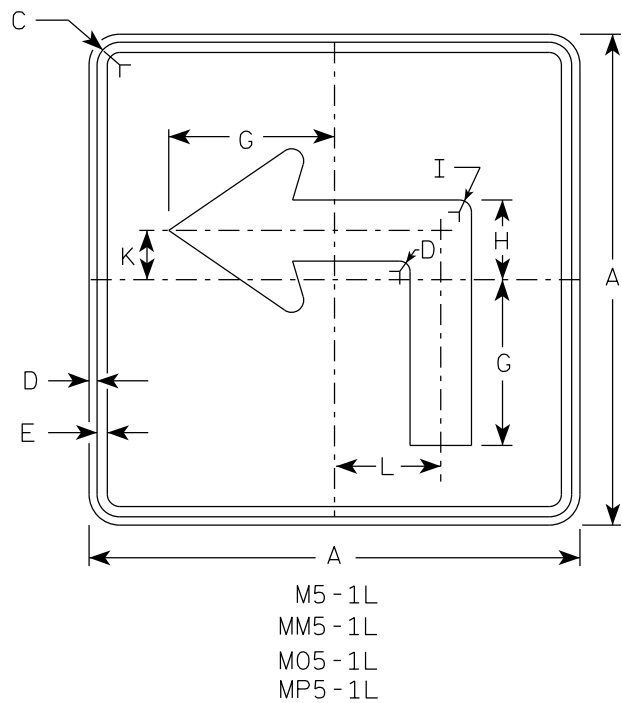
STANDARD SIGN

M4-8A

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
For State Traffic Engineer

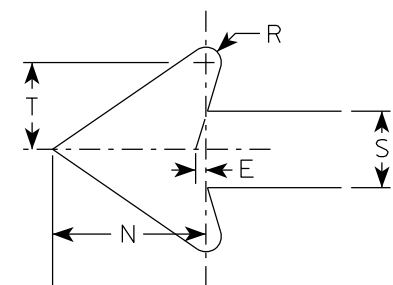
DATE 2/9/2023 PLATE NO. M4-8A.4



NOTES

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

ARROW DETAIL



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

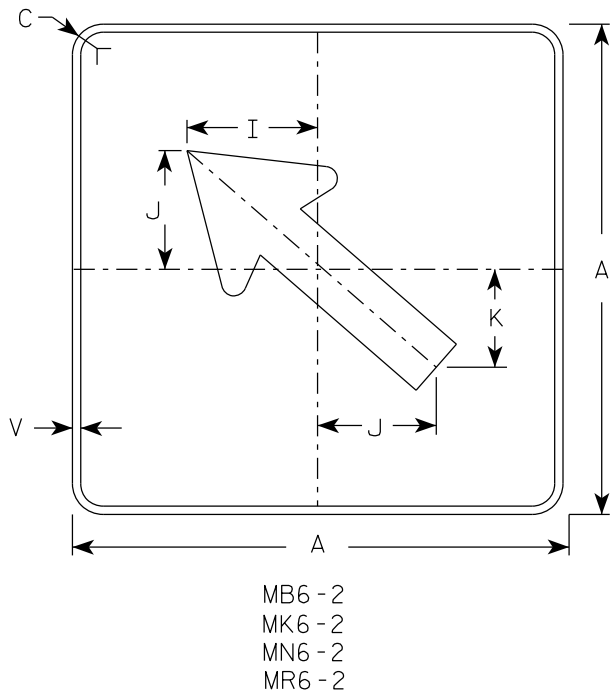
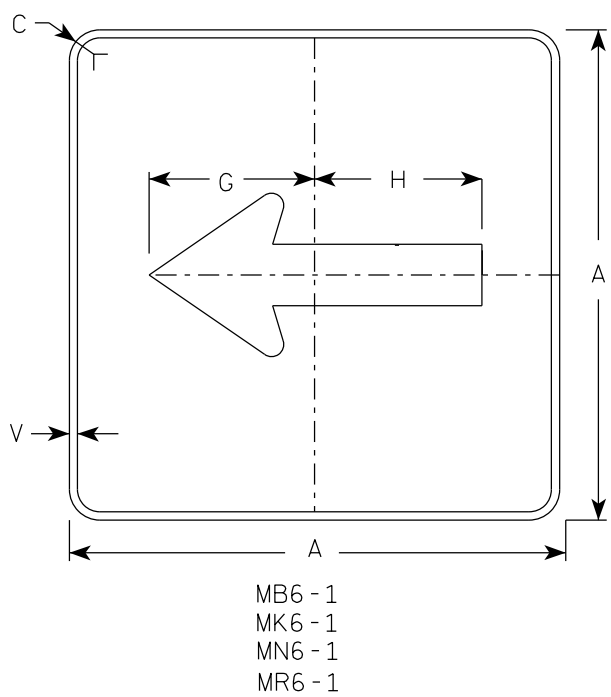
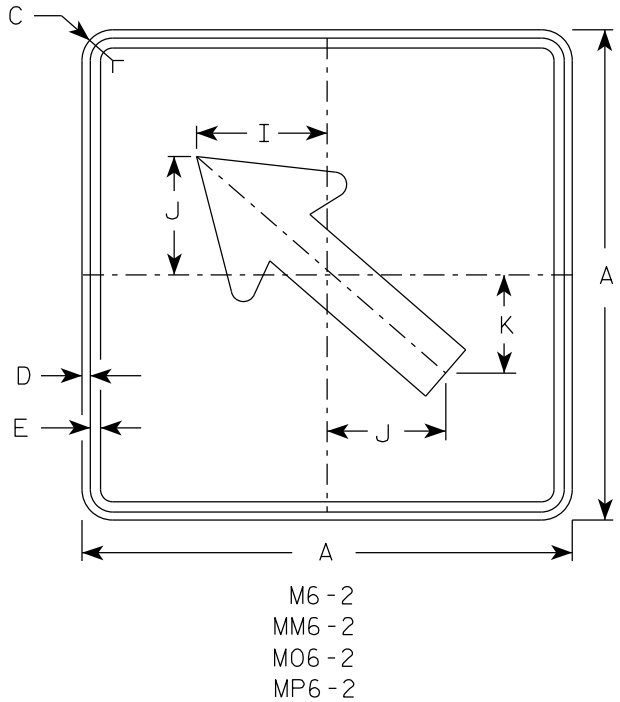
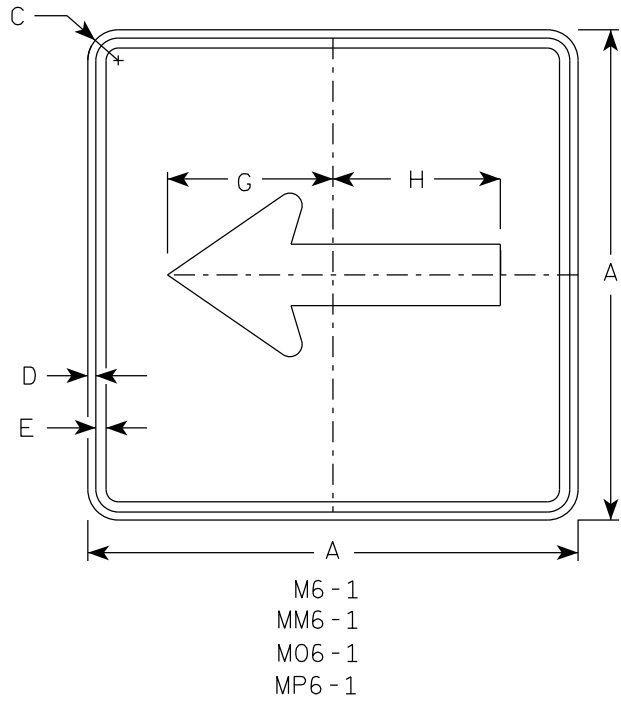
PROJECT NO:

HWY:

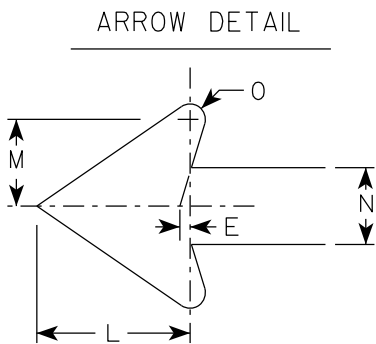
COUNTY:

SHEET NO: 149

E



- NOTES**
- Signs are Type II - Type H Reflective except as Shown
 - Color:
Background - See note 4
Message - See note 4
 - Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
 - M6-1 and M6-2 Background - White
Message - Black
MB6-1 and MB6-2 Background - Blue
Message - White
MK6-1 and MK6-2 Background - Green
Message - White
MM6-1 and MM6-2 Background - White
Message - Green
MN6-1 and MN6-2 Background - Brown
Message - White
M06-1 and M06-2 Background - Orange - Type F Reflective
Message - Black
MP6-1 and MP6-2 Background - White
Message - Blue
MR6-1 and MR6-2 Background - Brown
Message - Yellow



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

PROJECT NO:

HWY:

COUNTY:

SHEET NO: 150

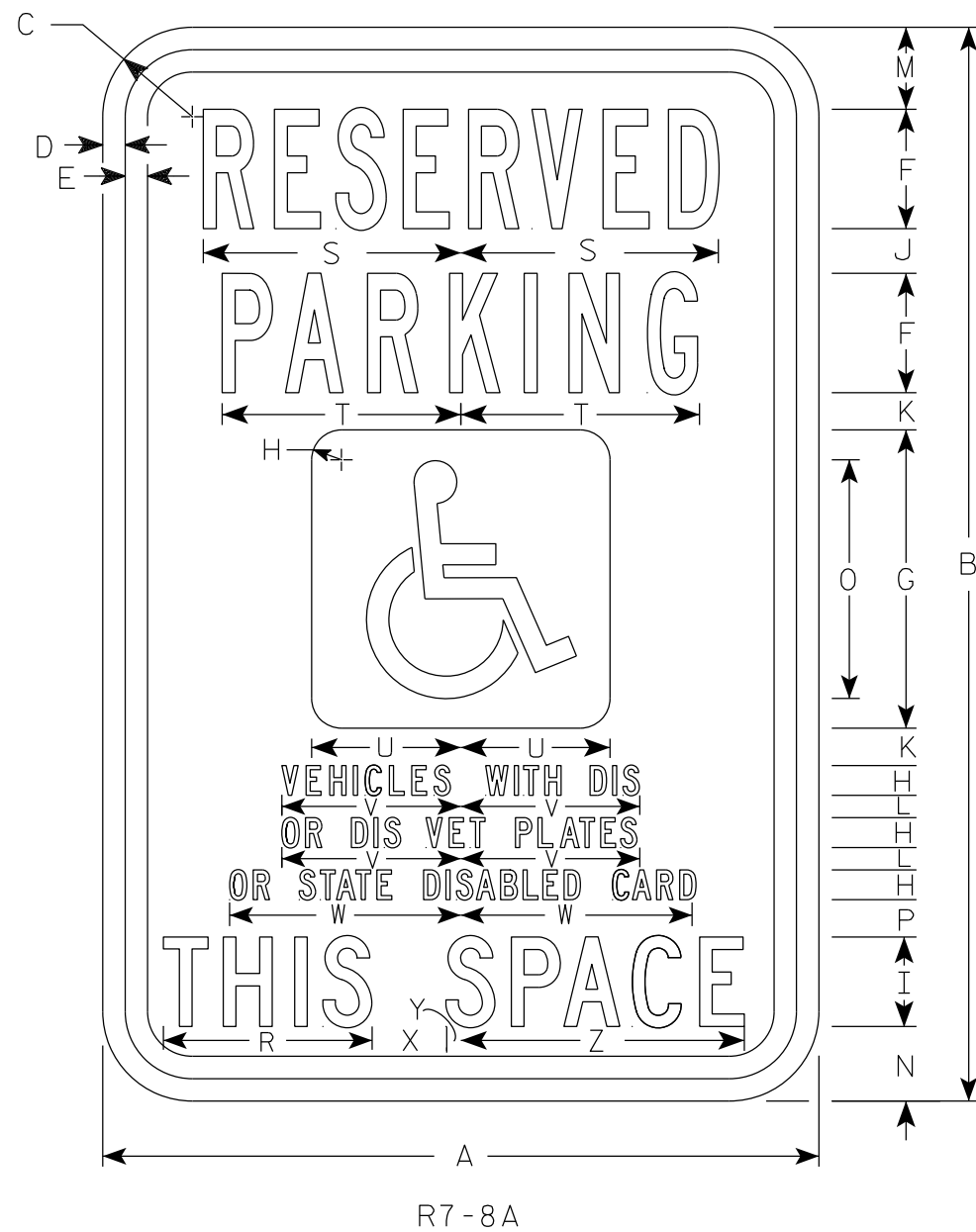
E

STANDARD SIGN
M6-1 & M6-2
SERIES

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
For State Traffic Engineer

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



R7-8A

NOTES

- 1. Sign is Type II - Type H Reflective
- 2. Color:
 - Background - Sign is white Type H Reflective; paraplegic background is blue.
 - Message - Legend and border are green; paraplegic symbol is white
- 3. Message Series - Lines 1 & 2 are Series B
Lines 3, 4, 5 & 6 are Series C

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	12	18	1 1/2	3/8	3/8	2	5	1/2	1 1/2	3/4	5/8	3/8	1 3/8	1 1/4	4	5/8		3 1/2	4 3/8	4	2 1/2	3	3 7/8	1 1/4	1/4	4 3/4	1.5
2M	18	24	1 1/2	3/8	1/2	3	6	3/4	2	7/8	5/8	1/2	1 7/8	2	5	3/4		4 5/8	6 1/2	5 3/8	3	4 1/2	5 7/8	1 1/2	1/4	6 3/8	3.0
3	18	24	1 1/2	3/8	1/2	3	6	3/4	2	7/8	5/8	1/2	1 7/8	2	5	3/4		4 5/8	6 1/2	5 3/8	3	4 1/2	5 7/8	1 1/2	1/4	6 3/8	3.0
4																											
5																											

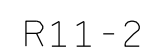
STANDARD SIGN

R7-8A

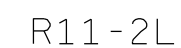
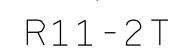
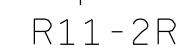
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 11/9/23 PLATE NO. R7-8A.7

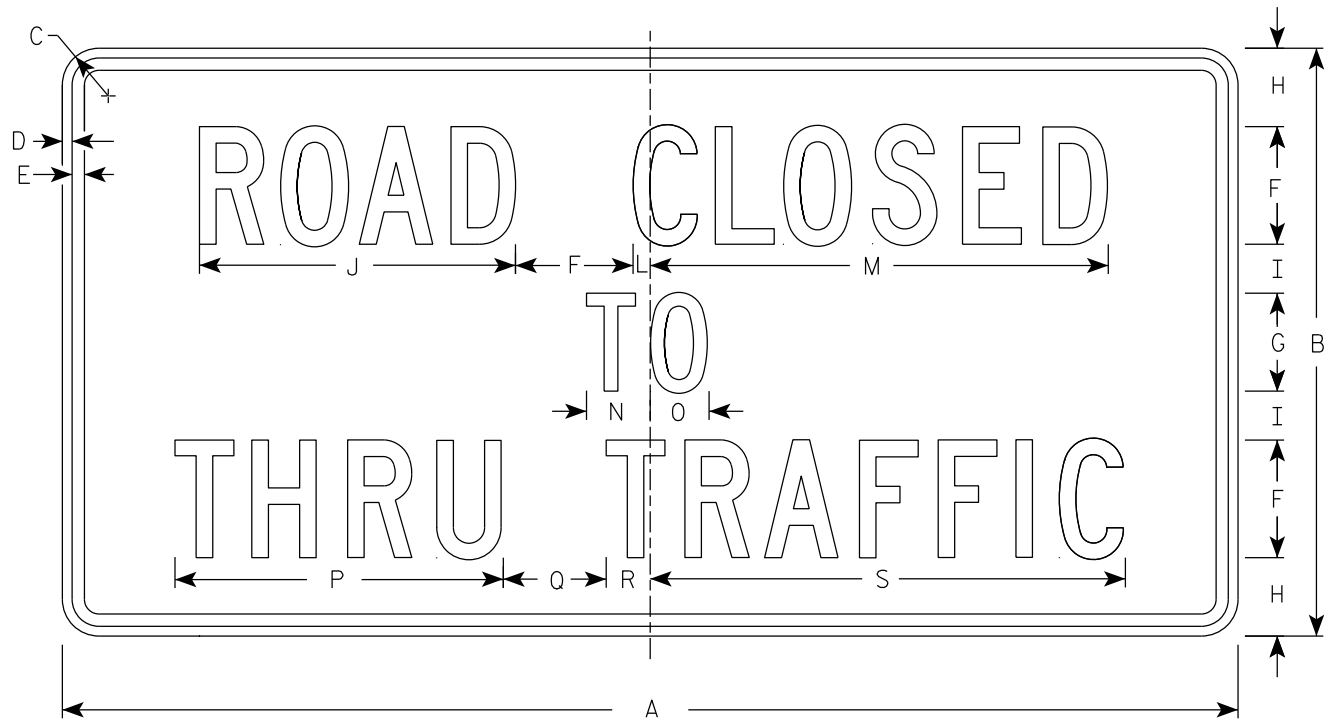


1. Sign is Type II - Type H Reflective
2. Color:
 - Background - White
 - Message - Black
3. Message Series - D
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. Modify the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



STANDARD SIGN	
R11-2	
WISCONSIN DEPT OF TRANSPORTATION	
APPROVED	<u>Matthew P Rauch</u> for State Traffic Engineer
DATE <u>2/5/24</u>	PLATE NO. <u>R11-2.12</u>

7



R11-4

NOTES

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

7

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

PROJECT NO:

HWY:

COUNTY:

SHEET NO: 153

E

STANDARD SIGN

R11 - 4

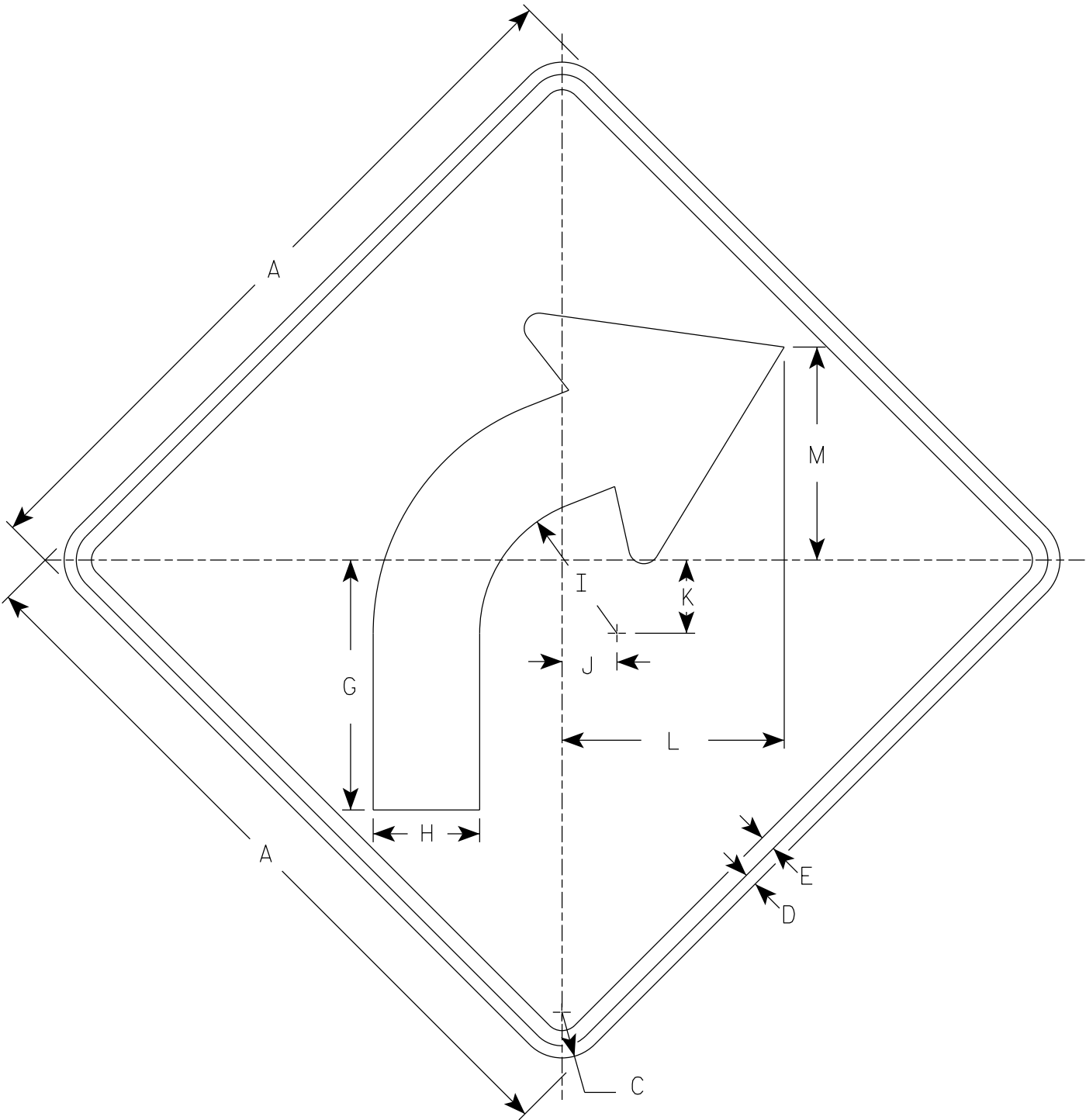
WISCONSIN DEPT OF TRANSPORTATION

APPROVED

Matthew R. Rauch
for State Traffic Engineer

DATE 2/5/24

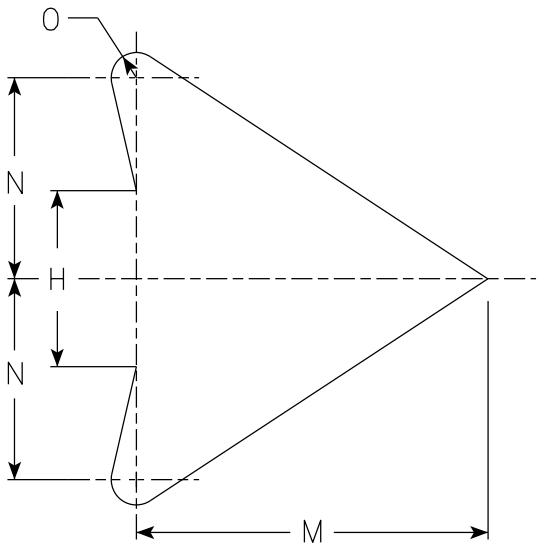
PLATE NO. R11-4.4



W1-2R

NOTES

- 1. Sign is Type II - Type F Reflective
- 2. Color:
Background - Yellow
Message - Black
- 3. W1-2L is the same as W1-2R except the arrow is reversed along the vertical centerline.



ARROW DETAIL

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	24		1 1/2	3/8	1/2		8 1/4	3 1/2	4 1/2	1 3/4	2 3/8	7 1/4	7	4	1/2												4.0
2S	30		1 7/8	1/2	5/8		10 1/4	4 3/8	5 5/8	2 1/4	3	9 1/8	8 3/4	5	5/8												6.25
2M	36		2 1/4	5/8	3/4		12 3/8	5 1/4	6 3/4	2 5/8	3 1/2	10 7/8	10 1/2	6	3/4												9.0
3	36		2 1/4	5/8	3/4		12 3/8	5 1/4	6 3/4	2 5/8	3 1/2	10 7/8	10 1/2	6	3/4												9.0
4	36		2 1/4	5/8	3/4		12 3/8	5 1/4	6 3/4	2 5/8	3 1/2	10 7/8	10 1/2	6	3/4												9.0
5	48		3	3/4	1		16 1/2	7	9	3 1/2	4 5/8	14 1/2	14	8	1												16.0

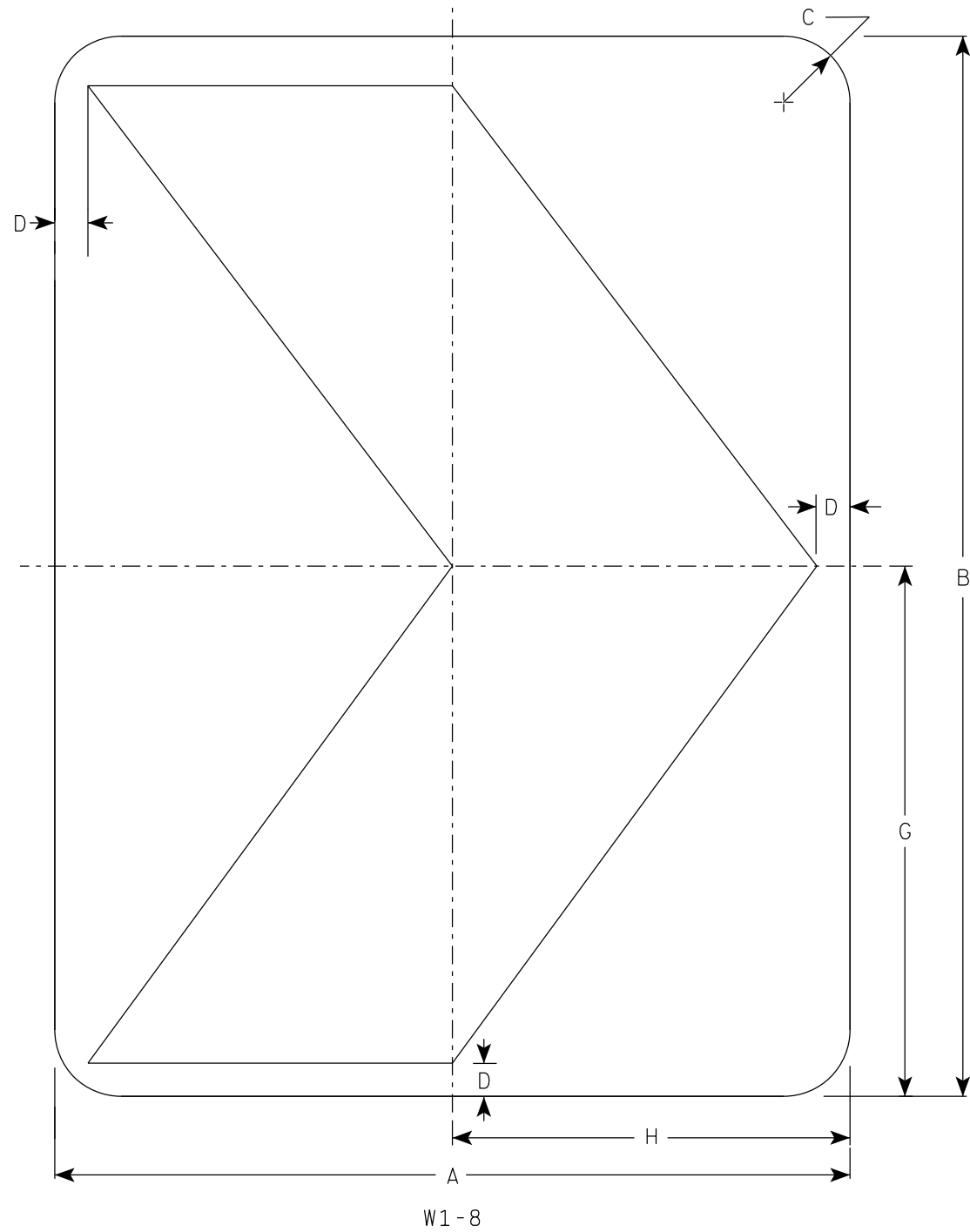
STANDARD SIGN
W1-2

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 3/23/2023 PLATE NO. W1-2.11

7



NOTES

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

7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	12	18	1 1/2	1/2			9	6																			1.5
2S	18	24	1 1/2	3/4			12	9																			3.0
2M	18	24	1 1/2	3/4			12	9																			3.0
3	24	30	1 1/2	1			15	12																			5.0
4	30	36	1 7/8	1 1/4			18	15																			7.5
5	36	48	1 7/8	1 1/2			24	18																			12.0

STANDARD SIGN

W1-8

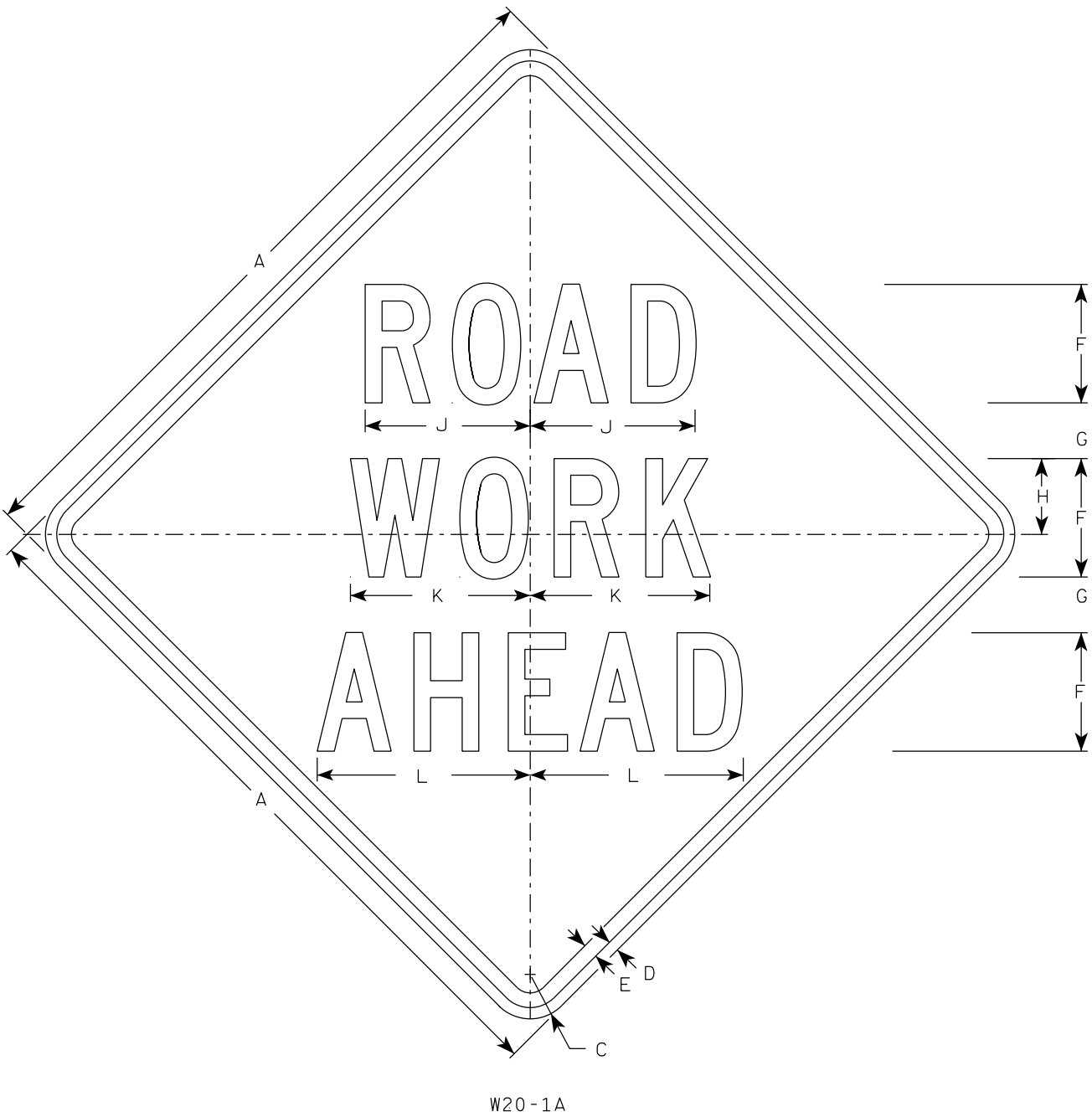
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

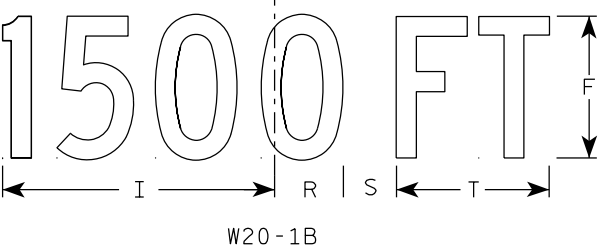
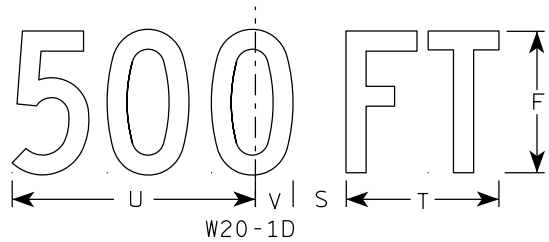
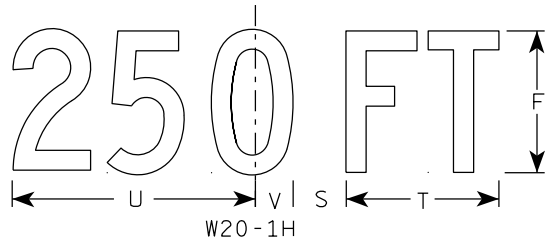
DATE 5/11/2023 PLATE NO. W1-8.7

SHEET NO: 155

E

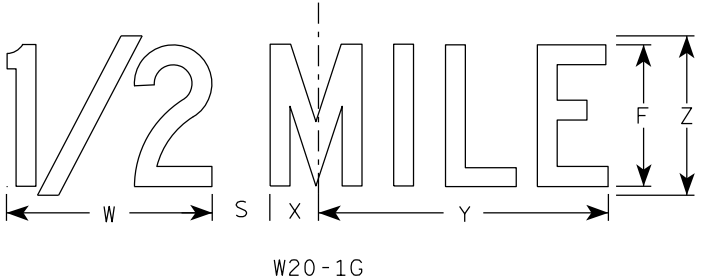


W20-1A

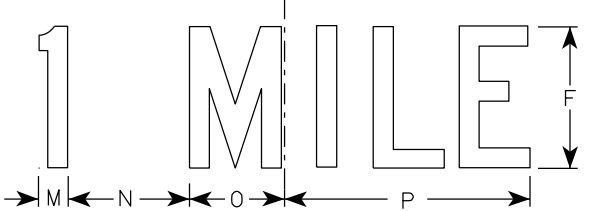


W20-1B

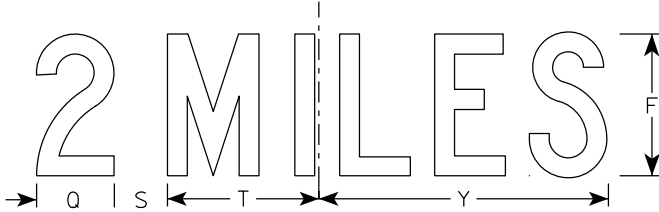
- NOTES
1. Sign is Type II - Type F Reflective
 2. Color:
Background - Orange
Message - Black
 3. Message Series - C
 4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.



W20-1G

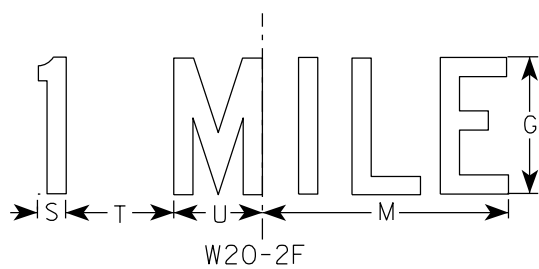
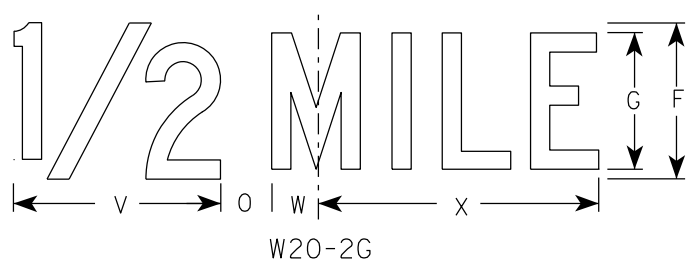
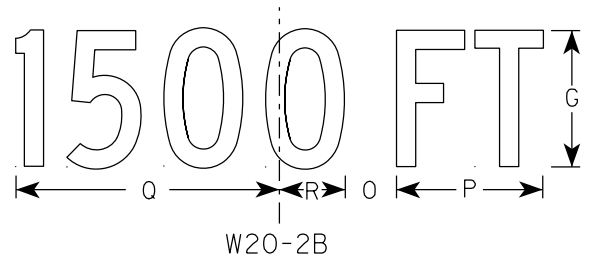
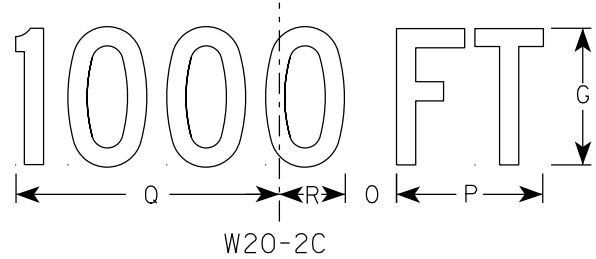
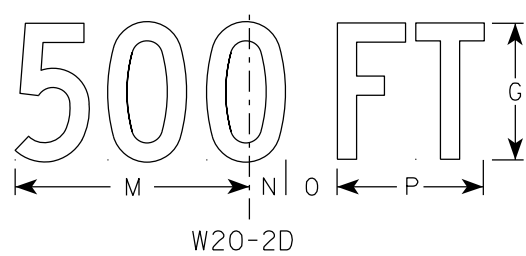
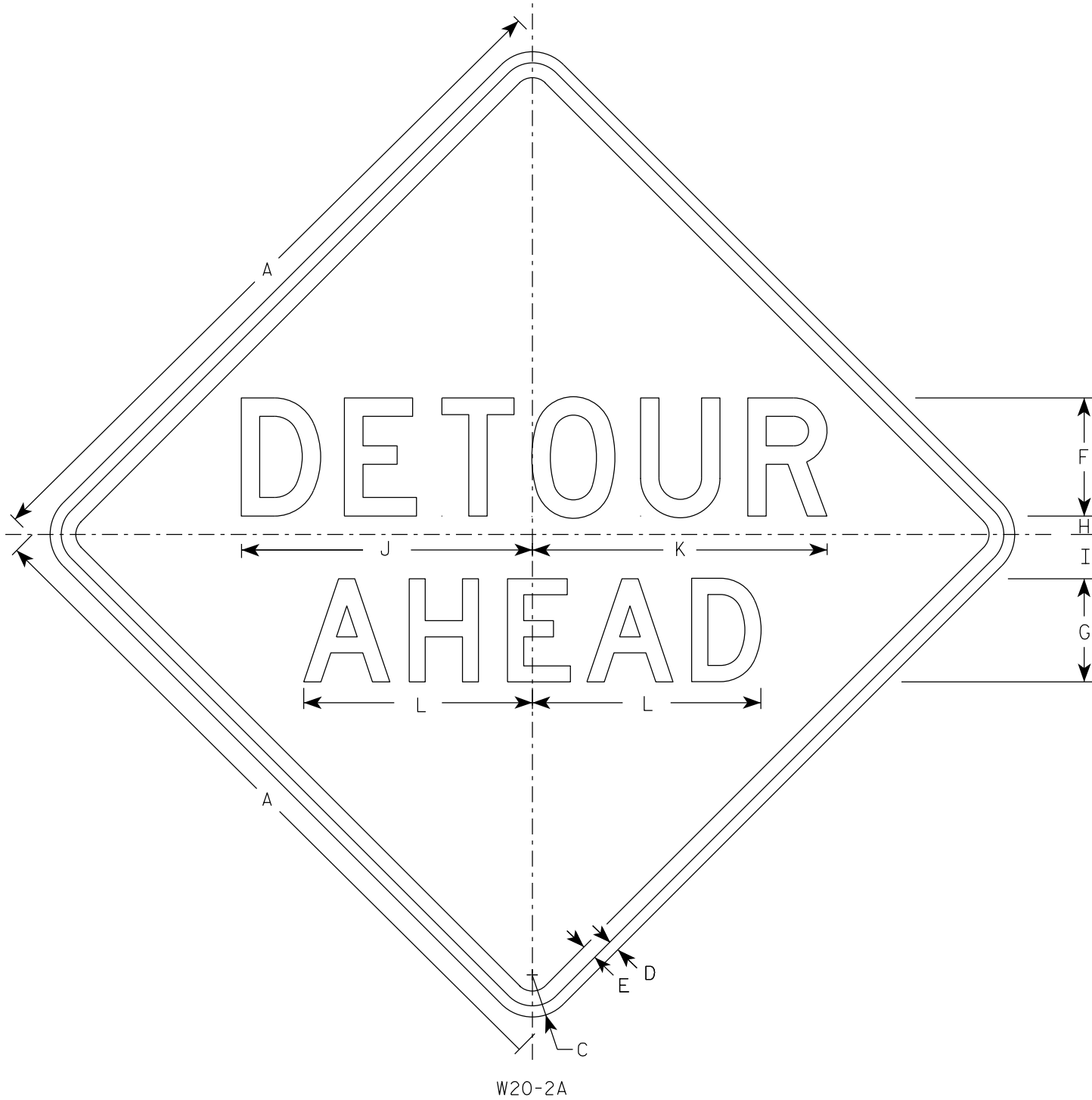


W20-1F



W20-1E

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



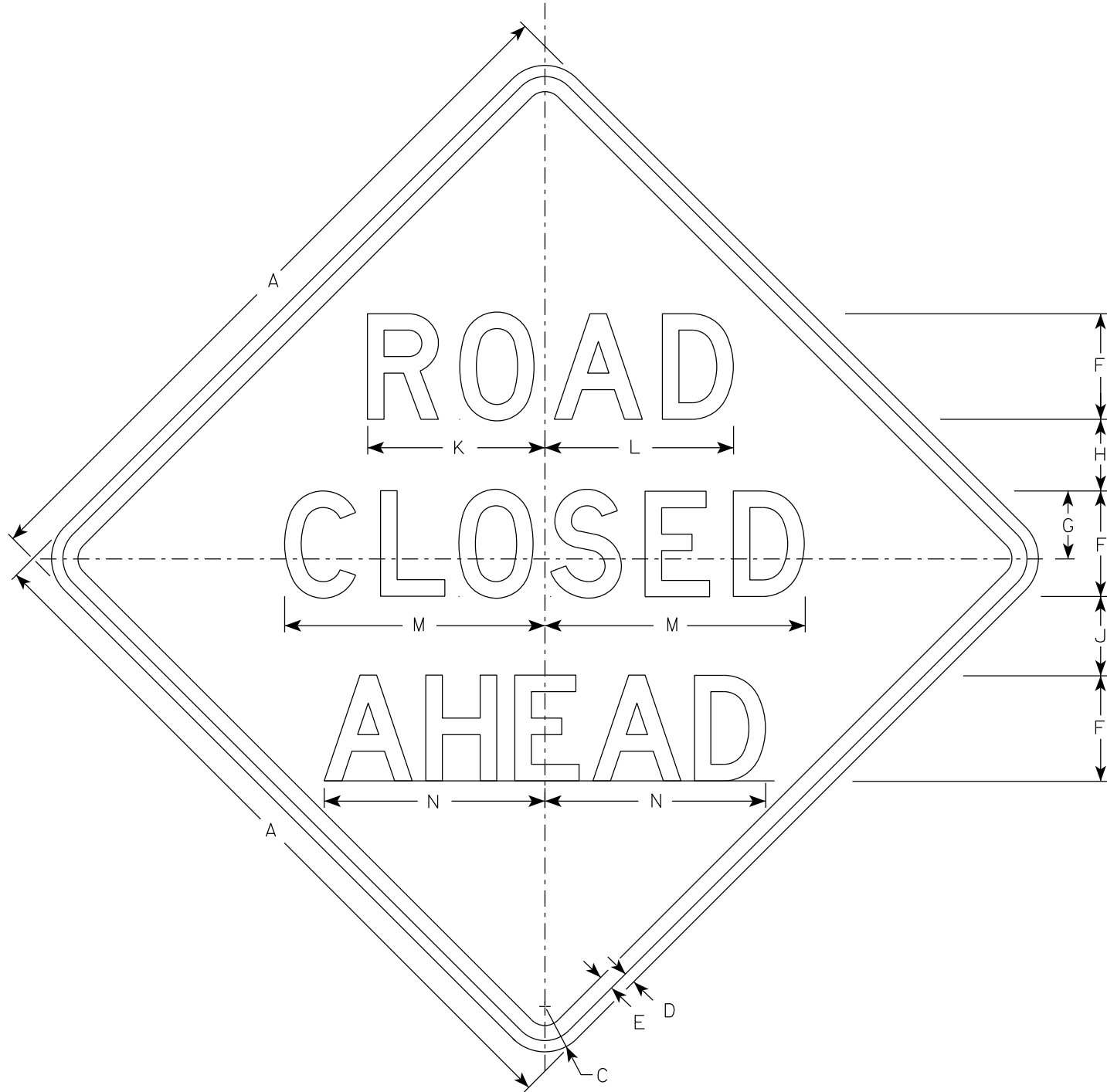
NOTES

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

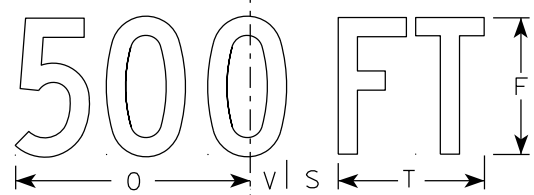
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	v	w	X	Y	Z	Area sq. ft.
1	36		2 1/4	5/8	3/4	6	5	1	2 1/4	14 3/4	15	11 5/8	9	1 3/8	1 7/8	5 5/8	10 1/8	2 1/2	1 1/8	4 1/2	3 1/2	8	1 3/4	10 3/4			9.0
2S	48		3	3/4	1	8	7	1 1/4	3	19 3/4	20	15 1/2	12	1 7/8	2 5/8	7 1/2	13 1/2	3 3/8	1 1/2	6	4 5/8	10 5/8	2 3/8	14 3/8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

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

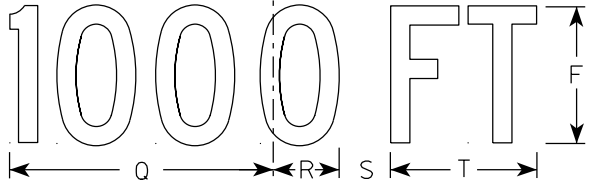
7



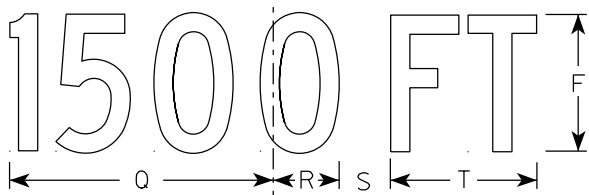
W20-3A



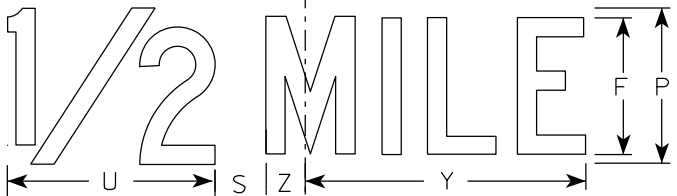
W20-3D



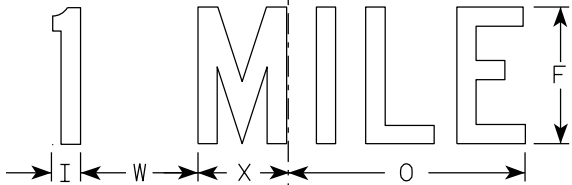
W20-3C



W20-3B



W20-3G



W20-3F

NOTES

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

7

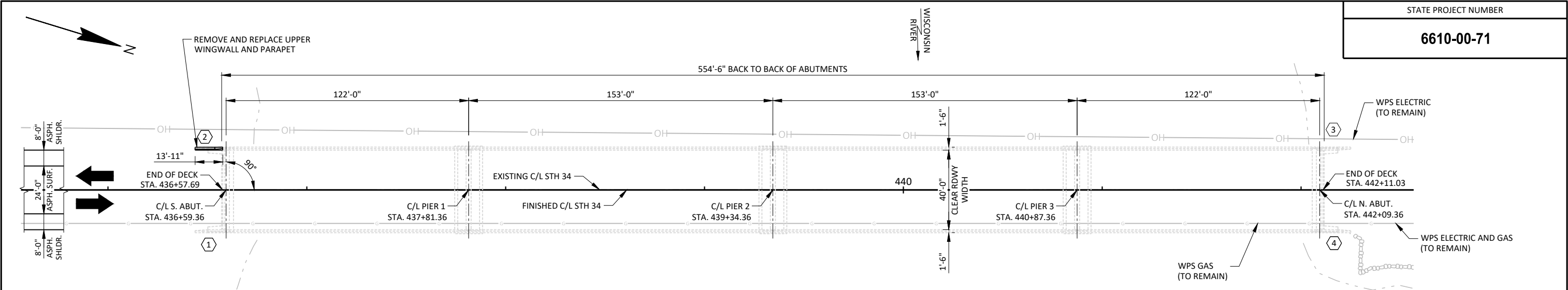
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	v	W	X	Y	Z	Area sq. ft.
1	36		2 1/4	5/8	3/4	5	3 3/8	3 1/2	1 1/8	4	8 3/8	8 7/8	12 1/2	11	9	6	10 1/8	2 1/2	1 7/8	5 5/8	8	1 3/8	4 1/2	3 1/2	10 3/4	1 3/4	9.0
2S	48		3	3/4	1	7	4 1/2	4 3/4	1 1/2	5 1/4	11 3/4	12 1/2	17 1/4	14 5/8	12	8	13 1/2	3 3/8	2 5/8	7 1/2	10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

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

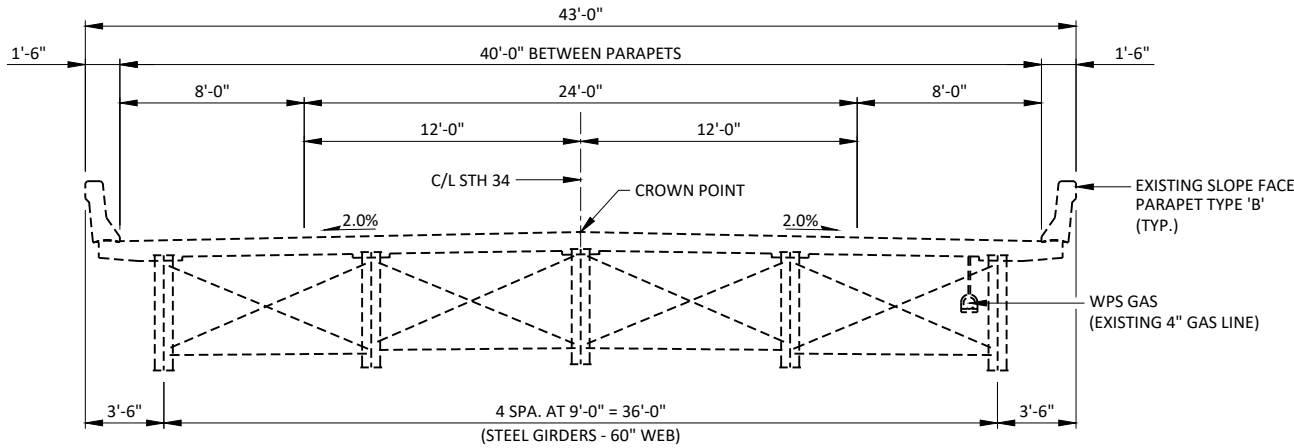
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

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



PLAN B-37-187
(FOUR-SPAN STEEL GIRDER STRUCTURE)
◻ INDICATES WING NUMBER



CROSS SECTION THROUGH ROADWAY
(LOOKING NORTH)

BENCH MARKS

NO.	STA.	DESCRIPTION	ELEV.
17	434+23	3/4" IRON REBAR SET, 39.2' RT.	1134.73
18	450+39	3/4" IRON REBAR SET, 27.8' LT.	1120.67

DESIGN DATA

LIVE LOAD:	
TAKEN FROM HSI: 2/13/26	
DESIGN RATING	HS-20
INVENTORY RATING	HS-21
OPERATING RATING	HS-36
WISCONSIN STANDARD PERMIT VEHICLE (WIS-SPV)	230 KIPS
MATERIAL PROPERTIES:	
CONCRETE MASONRY, PARAPET	f'c = 4,000 P.S.I.
ALL OTHER	f'c = 3,500 P.S.I.
HIGH-STRENGTH BAR STEEL REINFORCEMENT, GRADE 60	fy = 60,000 P.S.I.

TRAFFIC DATA

A.D.T. (2027)	6,800
A.D.T. (2047)	6,800
DESIGN SPEED	55 M.P.H.

LIST OF DRAWINGS

GENERAL PLAN	1.
WING DETAILS	2.
SINGLE SLOPE PARAPET 36SS	3.

SCOPE OF WORK

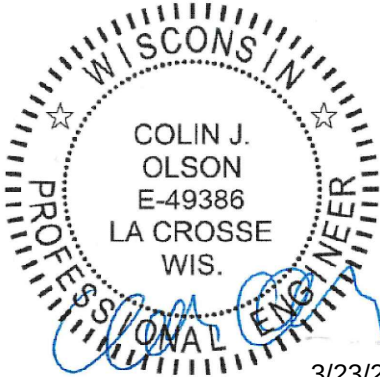
REPLACE ABUTMENT PARAPET

TOTAL ESTIMATED QUANTITIES

ITEM NUMBER	ITEM DESCRIPTION	UNIT	TOTALS
203.0220	REMOVING STRUCTURE B-37-187	EACH	1
206.1001	EXCAVATION FOR STRUCTURES BRIDGES B-37-187	EACH	1
210.1500	BACKFILL STRUCTURE TYPE A	TON	80
502.0100	CONCRETE MASONRY BRIDGES	CY	7
502.3210	PIGMENTED SURFACE SEALER	SY	7
502.4204	ADHESIVE ANCHORS NO. 4 BAR	EACH	4
502.4206	ADHESIVE ANCHORS NO. 6 BAR	EACH	19
505.0600	BAR STEEL REINFORCEMENT HS COATED STRUCTURES	LB	1,020
516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	3
NON-BID ITEMS			
	FILLER	SIZE	1/2"

GENERAL NOTES

- DRAWINGS SHALL NOT BE SCALED.
- ELEVATIONS SHOWN ON THE PLAN ARE REFERENCED TO THE NAVD 88 (2011 ADJUSTMENT).
- BAR STEEL REINFORCEMENT SHALL BE EMBEDDED 2" CLEAR UNLESS OTHERWISE SHOWN OR NOTED.
- JOINT FILLER SHALL CONFORM TO A.A.S.H.T.O. DESIGNATION MI53, TYPE I, II OR III OR A.A.S.H.T.O. DESIGNATION M213.
- AT THE BACK FACE OF THE WINGWALL, ALL VOLUME WHICH IS NOT OCCUPIED BY THE NEW STRUCTURE SHALL BE BACKFILLED WITH BACKFILL STRUCTURE TYPE A. SEE SHEET 2 FOR DETAIL.
- ALL STATIONS AND ELEVATIONS SHOWN ARE IN FEET.
- THE EXISTING GROUNDLINE SHALL BE THE UPPER LIMITS OF EXCAVATION FOR STRUCTURES.
- THE FIRST DIGIT OF A BAR MARK SIGNIFIES THE BAR SIZE.
- DIMENSIONS AND ELEVATIONS SHOWN ARE BASED ON THE ORIGINAL STRUCTURE PLANS.
- ALL CONCRETE REMOVAL SHALL BE DEFINED BY A 1-INCH DEEP SAW CUT.
- APPLY PIGMENTED SURFACE SEALER TO THE INSIDE, TOP, AND END FACES OF PARAPETS (CONCRETE MATERIAL ONLY).
- THE EXISTING STRUCTURE (B-37-187) CONSISTS OF FOUR SPAN STEEL DECK GIRDER STRUCTURE ON WALL TYPE REINFORCED CONCRETE PIERS, 42.5' OVERALL DECK WIDTH, 555'-4" OVERALL LENGTH.



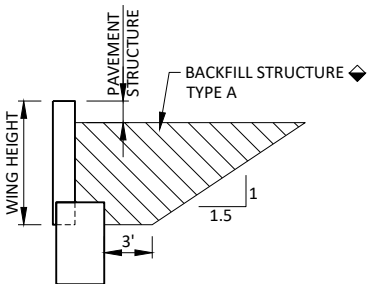
DESIGN CONSULTANT
COLIN OLSON, PE
(608) 390-2851

BRIDGE OFFICE CONTACT
AARON BONK, PE
(608) 261-0261

NO.	DATE	REVISION	BY
JEWELL			
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
ACCEPTED			05/11/26 DATE
STRUCTURE B-37-187			
STH 34 OVER WISCONSIN RIVER			
COUNTY	MARATHON	TOWN/CITY/VILLAGE	KNOWLTON
DESIGN SPEC. REHABILITATION			
DESIGNED BY	CJO	DESIGN CK'D.	PTB
DRAWN BY	CJO	PLANS CK'D.	PTB
GENERAL PLAN			SHEET 1 OF 3

NOTES

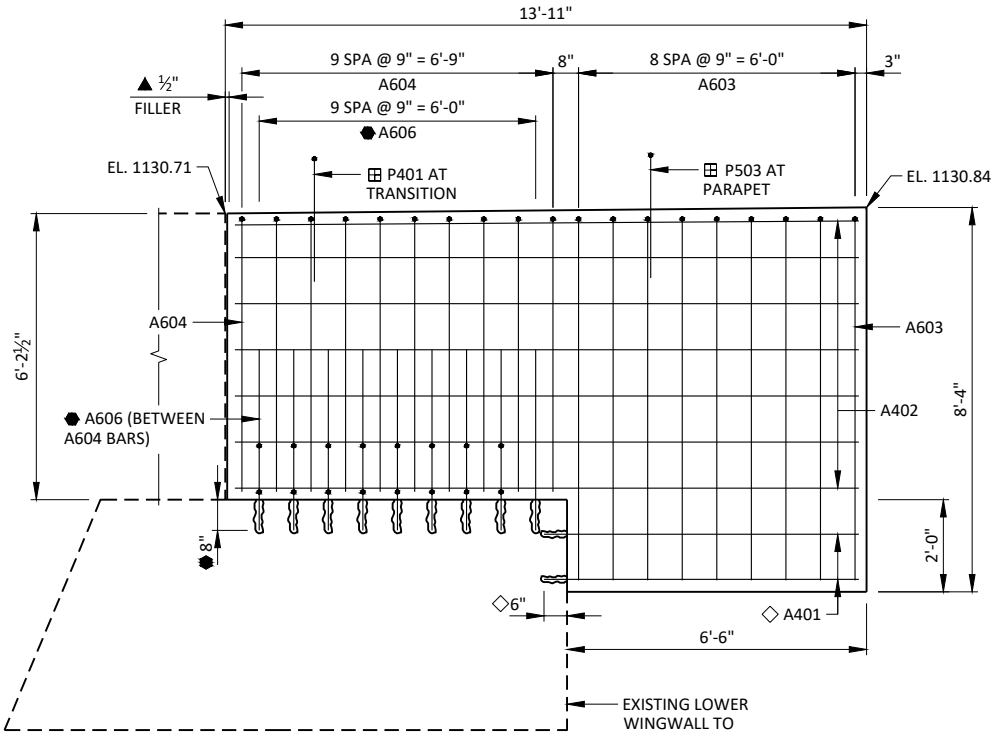
PROVIDE A606 BAR ANCHOR HOLES WITH 4" MINIMUM EDGE DISTANCE FROM FRONT FACE OF EXISTING LOWER WINGWALL. PLACE A606 BARS BETWEEN NO. 6 VERTICAL BARS AND TIE TO HORIZONTAL REINFORCEMENT.



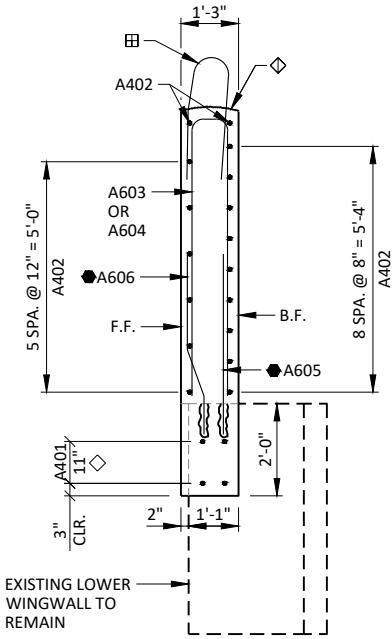
SECTION AT WING

STRUCTURE BACKFILL DIAGRAM

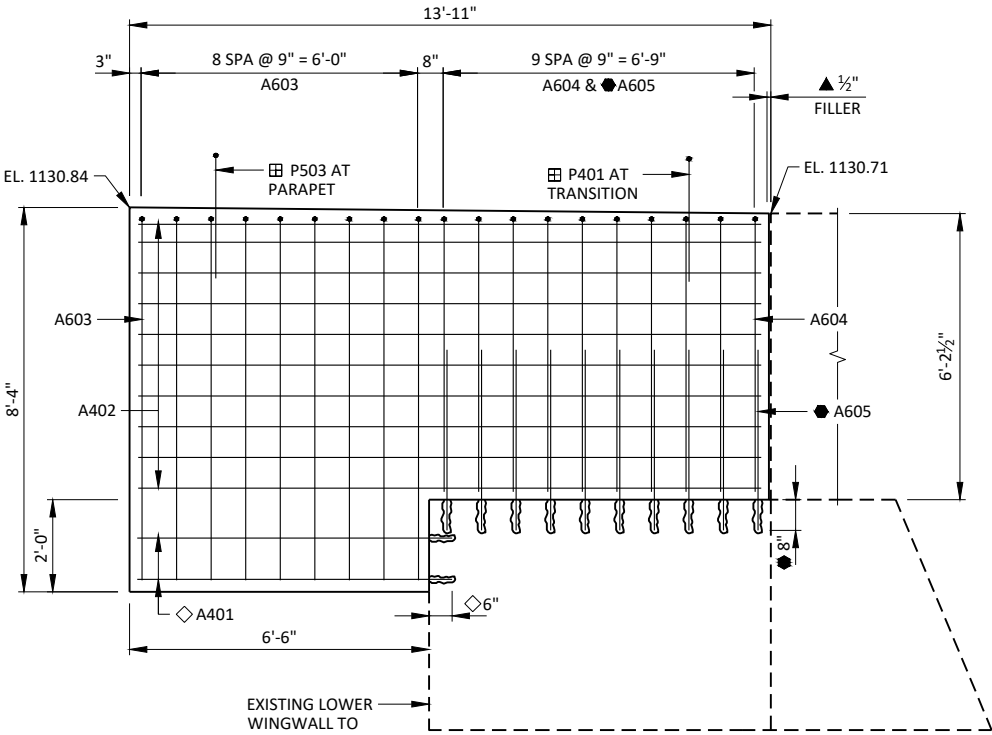
BACKFILL STRUCTURE TYPE A PAY LIMITS. BACKFILL BEYOND PAY LIMITS SHALL BE INCIDENTAL TO THE BID ITEM "EXCAVATION FOR STRUCTURES B-37-187". LIMITS OF EXCAVATION SHALL BE DETERMINED BY THE CONTRACTOR.



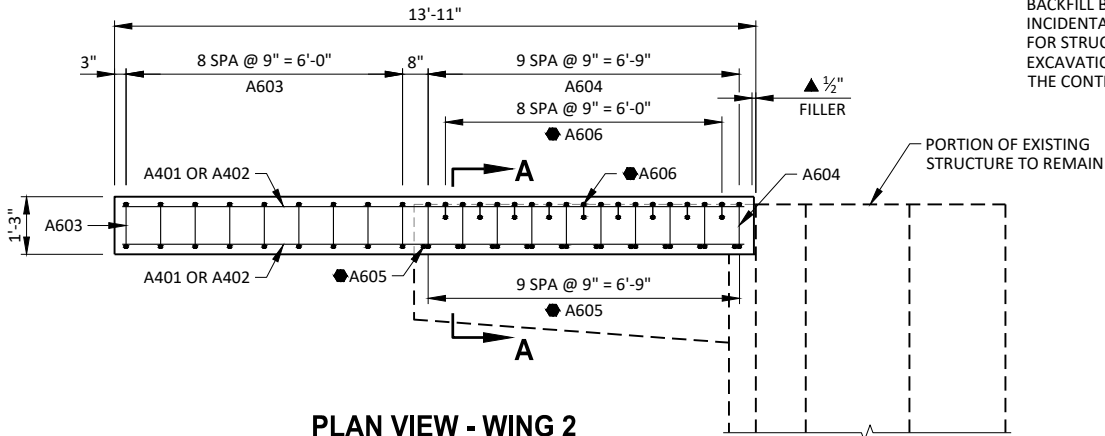
F.F. ELEVATION - WING 2



SECTION A-A



B.F. ELEVATION - WING 2



PLAN VIEW - WING 2

BILL OF BARS

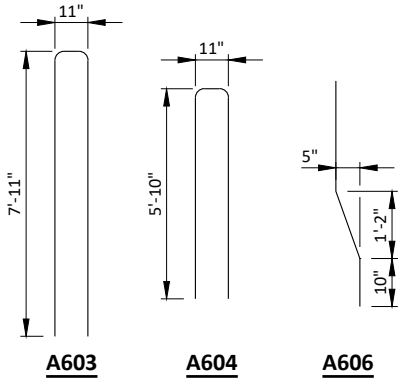
UPPER WING WALL

690 LB (COATED)

BAR MARK	NO. REQ'D.	LENGTH	BENT	COAT	LOCATION
A401	4	6-10		X	WING - HORIZ. - BOT.
A402	17	13-6		X	WING - HORIZ. - F.F. & B.F.
A603	9	16-5	X	X	WING - VERT. - END
A604	10	12-3	X	X	WING - VERT.
A605	10	3-11	X	X	WING - VERT. - DOWEL - B.F.
A606	9	4-0	X	X	WING - VERT. - DOWEL - F.F.

NOTES: THE FIRST DIGIT OF A BAR MARK SIGNIFIES THE BAR SIZE.

DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT OF BAR.



LEGEND

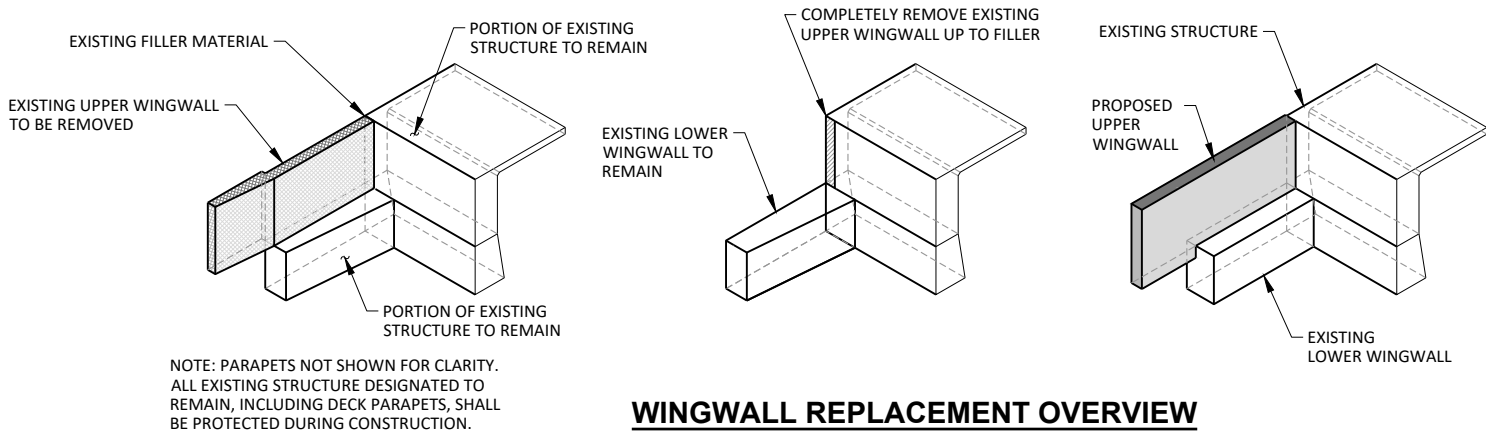
1/2" FILLER EXTEND AS SHOWN. SEAL ALL EXPOSED HORIZ. & VERT. SURFACES OF FILLER WITH NON-STAINING GRAY, NON-BITUMINUOUS JOINT SEALER. (1" DEEP & HOLD 1/8" BELOW SURFACE OF CONCRETE)

CONSTRUCTION JOINT. STRIKE OFF AND LEAVE ROUGH AS SHOWN IN PARAPET DETAILS.

P401 AND P503 BARS TO BE TIED TO WING STEEL BEFORE WING IS POURED. SEE SHEET 3 FOR PLACEMENT AND SPACING.

ADHESIVE ANCHORS NO. 4 BAR. EMBED ANCHOR 6" (MIN.) INTO EXISTING CONCRETE.

ADHESIVE ANCHORS NO. 6 BAR. EMBED ANCHOR 8" (MIN.) INTO EXISTING CONCRETE.



NOTE: PARAPETS NOT SHOWN FOR CLARITY. ALL EXISTING STRUCTURE DESIGNATED TO REMAIN, INCLUDING DECK PARAPETS, SHALL BE PROTECTED DURING CONSTRUCTION.

WINGWALL REPLACEMENT OVERVIEW

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-37-187			
DRAWN BY		CJO	PLANS CK'D. PTB
WING DETAILS		SHEET 2 OF 3	
		160	

NOTES

MATCH EXISTING SLOPE FACE PARAPET 'B' AT BRIDGE END OF NEW PARAPET. PROVIDE 4'-0" TRANSITION TO SINGLE SLOPE PARAPET 36SS. CONTINUE SINGLE SLOPE PARAPET 36SS TO END OF WING.

BILL OF BARS
PARAPET

330 LB (COATED)

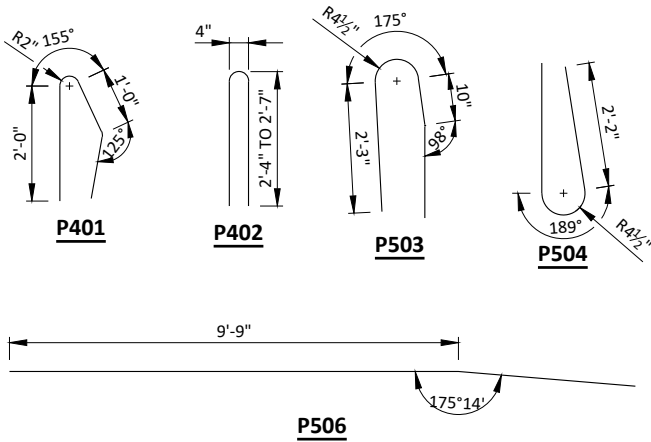
BAR MARK	NO. REQ'D.	LENGTH	BENT	COAT	BAR SERIES	LOCATION
P401	6	4-7	X	X		PARAPET - VERT. - DOWEL - AT TRANSITION
P402	6	5-1	X	X	*	PARAPET - VERT. - AT TRANSITION
P503	15	5-10	X	X		PARAPET - VERT. - DOWEL
P504	15	5-8	X	X		PARAPET - VERT.
P505	6	13-6		X		PARAPET - HORIZ.
P506	2	13-6	X	X		PARAPET - HORIZ. - TOP

NOTES: THE FIRST DIGIT OF A BAR MARK SIGNIFIES THE BAR SIZE.
DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT OF BAR.

BAR SERIES TABLE

BAR MARK	NO. REQ'D.	LENGTH
P402	1 SERIES OF 6	5-4 TO 4-10

BUNDLE AND TAG EACH SERIES SEPARATELY



LEGEND

- CONSTRUCTION JOINT. STRIKE OFF AS SHOWN.
- ▣ P401 AND P503 BARS TO BE TIED TO WING STEEL BEFORE WING IS POURED.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-37-187			
DRAWN BY CJO		PLANS CK'D. PTB	
SINGLE SLOPE PARAPET 36SS		SHEET 3 OF 3 161	

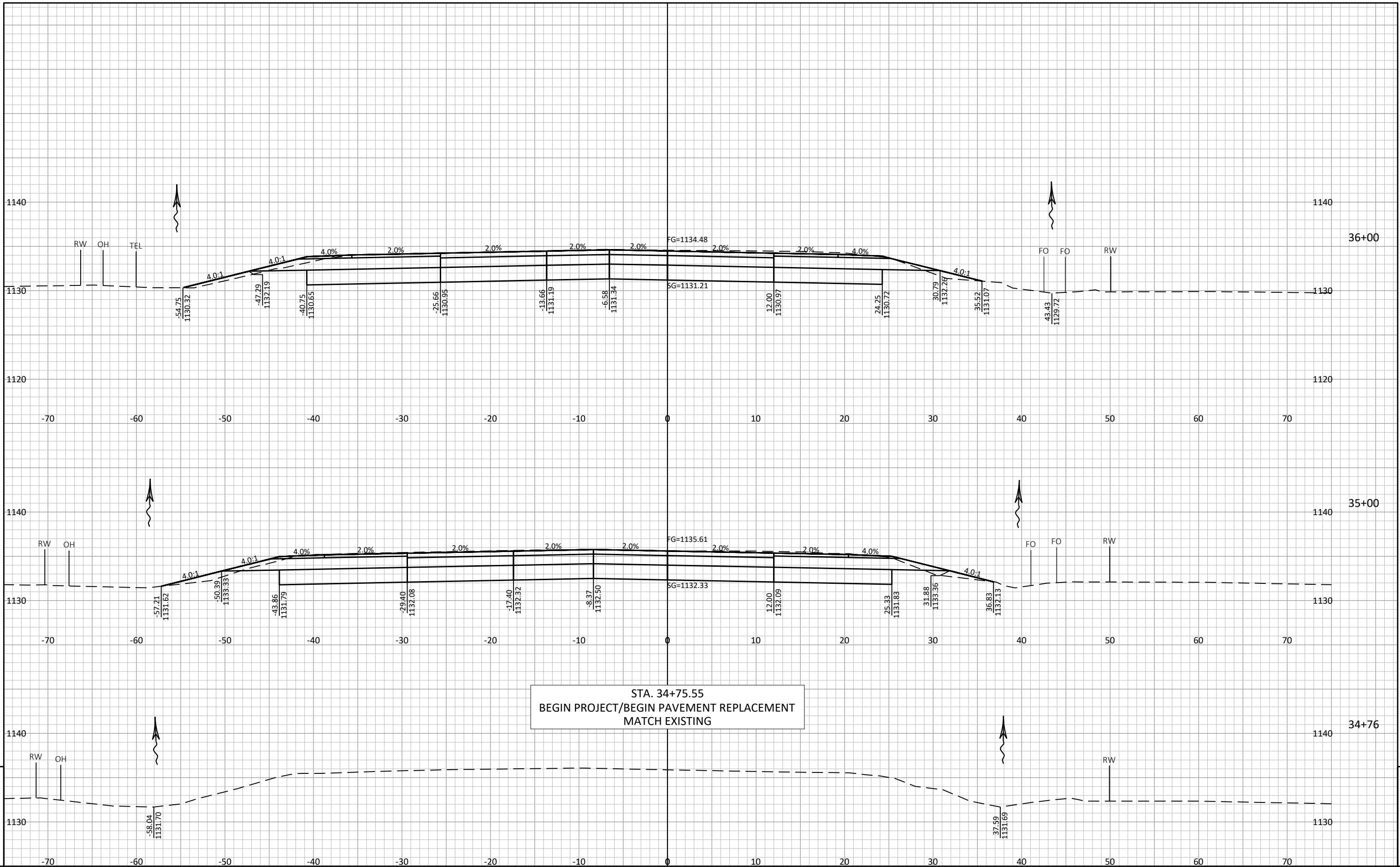
EARTHWORK - PAVEMENT REPLACEMENT

STATION	AREA (SF)		INCREMENTAL VOLUME (CY)			CUMULATIVE VOLUME (CY)			
			EXPANDED			EXPANDED			
	CUT	FILL	CUT NOTE 1	FILL NOTE 2	FILL (1.25) NOTE 3	CUT (1.0) NOTE 1	FILL NOTE 2	FILL (1.25) NOTE 3	MASS ORDINATE NOTE 4
34+76	220	4	0	0	0	0	0	0	0
35+00	250	6	213	5	6	213	5	6	207
36+00	235	5	898	20	25	1,111	25	31	1,080
37+00	220	5	843	19	24	1,954	44	55	1,899
38+00	199	8	776	23	29	2,730	67	84	2,646
39+00	190	4	720	22	28	3,450	89	112	3,338
39+66	180	10	450	17	21	3,900	106	133	3,767
MAINLINE COLUMN TOTALS =			3,900	106	133	3,900	106	133	3,767

EARTHWORK - CONCRETE BARRIER

STATION	AREA (SF)		INCREMENTAL VOLUME (CY)			CUMULATIVE VOLUME (CY)			
			EXPANDED			EXPANDED			
	CUT	FILL	CUT NOTE 1	FILL NOTE 2	FILL (1.25) NOTE 3	CUT (1.0) NOTE 1	FILL NOTE 2	FILL (1.25) NOTE 3	MASS ORDINATE NOTE 4
430+00	15	3	0	0	0	0	0	0	0
431+00	12	1	50	7	9	50	7	9	41
432+00	9	2	39	6	8	89	13	17	72
433+00	6	12	28	26	33	117	39	50	67
434+00	9	4	28	30	38	145	69	88	57
435+00	14	1	43	9	11	188	78	99	89
436+00	10	3	44	7	9	232	85	108	124
436+44	13	6	19	7	9	251	92	117	134
436+48	19	0	2	0	0	253	92	117	136
436+58	17	0	7	0	0	260	92	117	143
MAINLINE COLUMN TOTALS =			260	92	117	260	92	117	143

NOTES:	
1 - CUT	CUT INCLUDES SALVAGED/UNUSABLE MATERIAL
2 - FILL	DOES NOT INCLUDE UNUSABLE PAVEMENT EXCAVATION VOLUMES
3 - FILL (25%)	FILL 25% = (FILL)*1.25
4 - MASS ORDINATE	CUT - FILL (25%)



PROJECT NO: 6610-00-71

HWY: STH 34

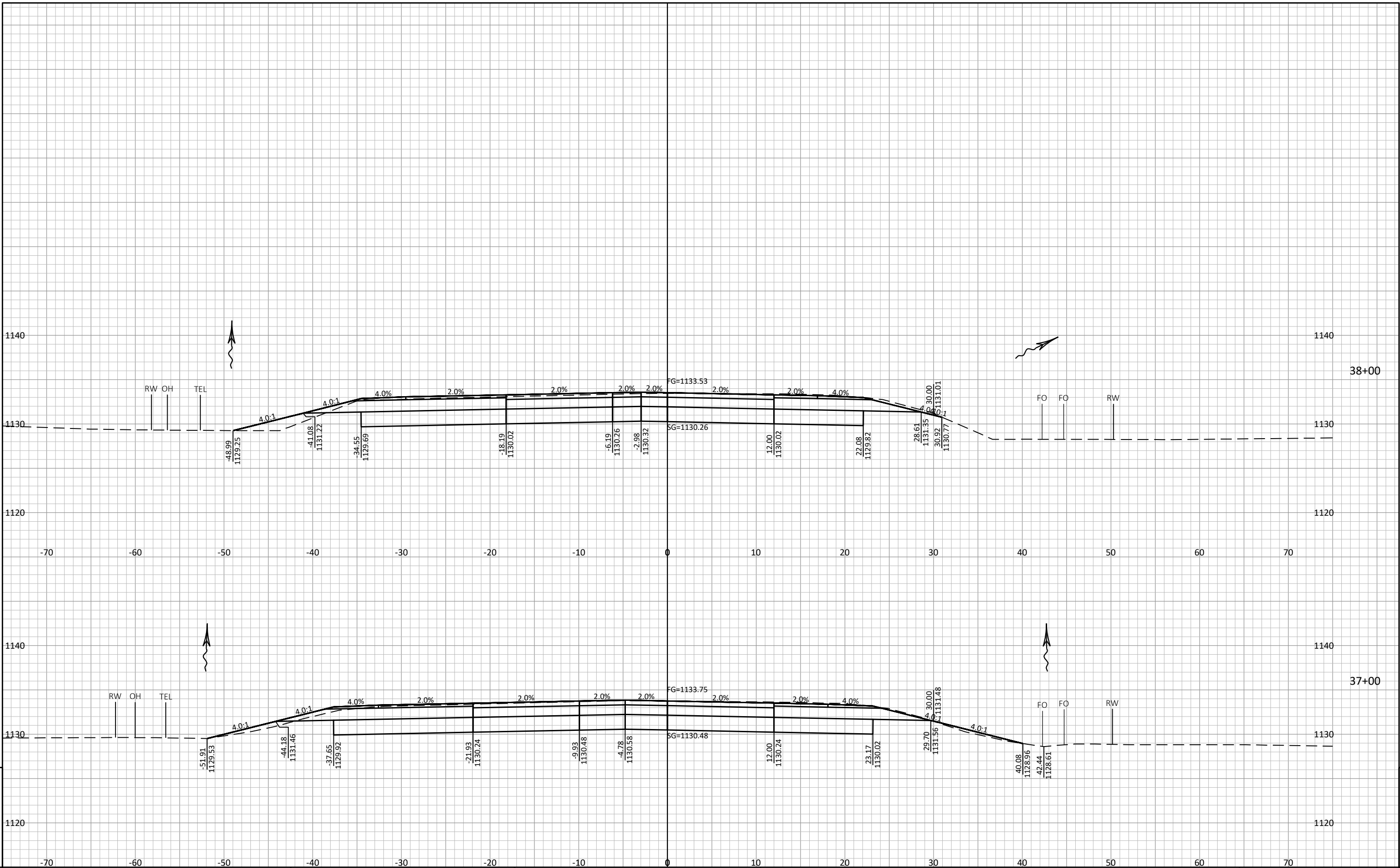
COUNTY: MARATHON

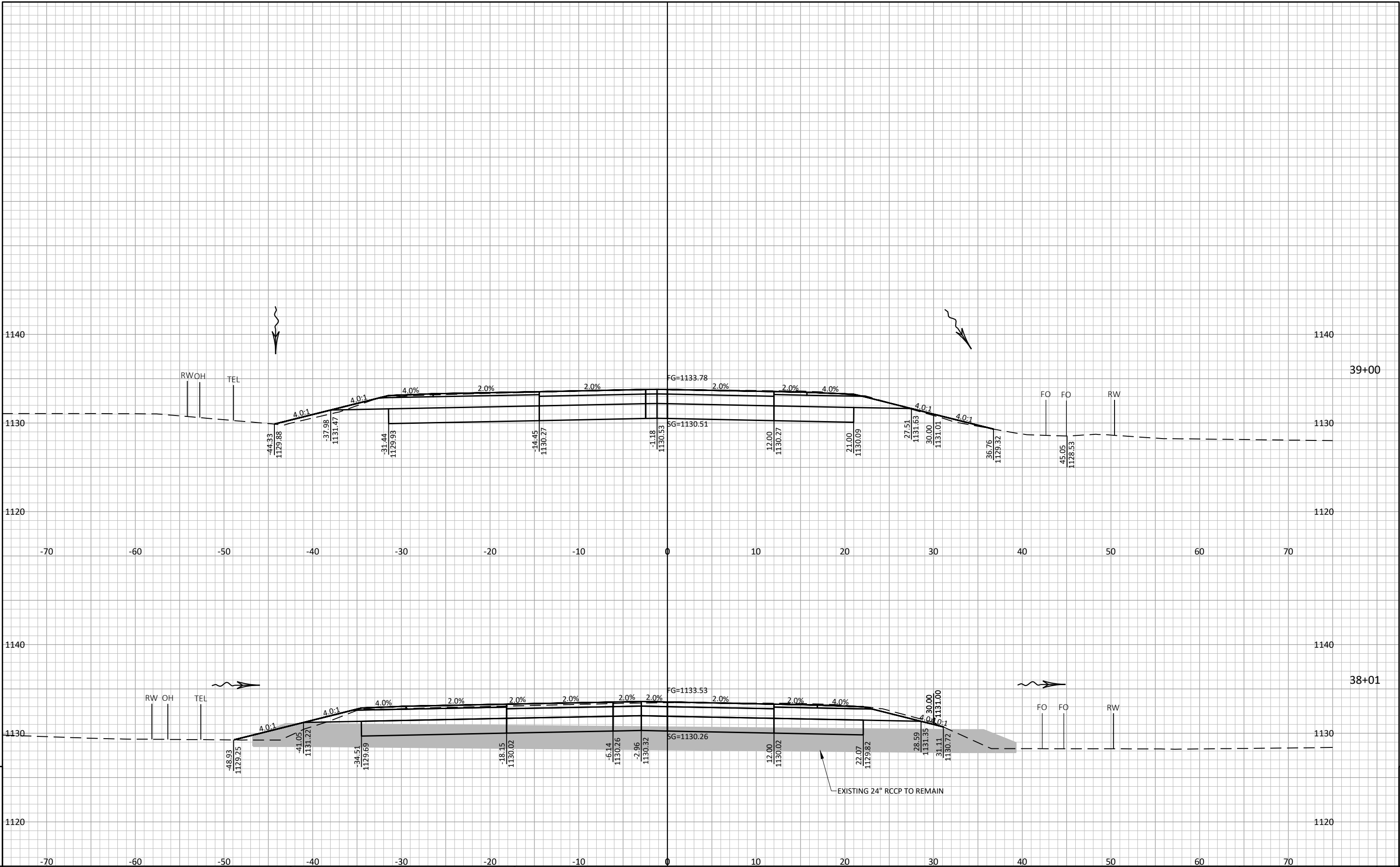
CROSS SECTIONS: PAVEMENT REPLACEMENT

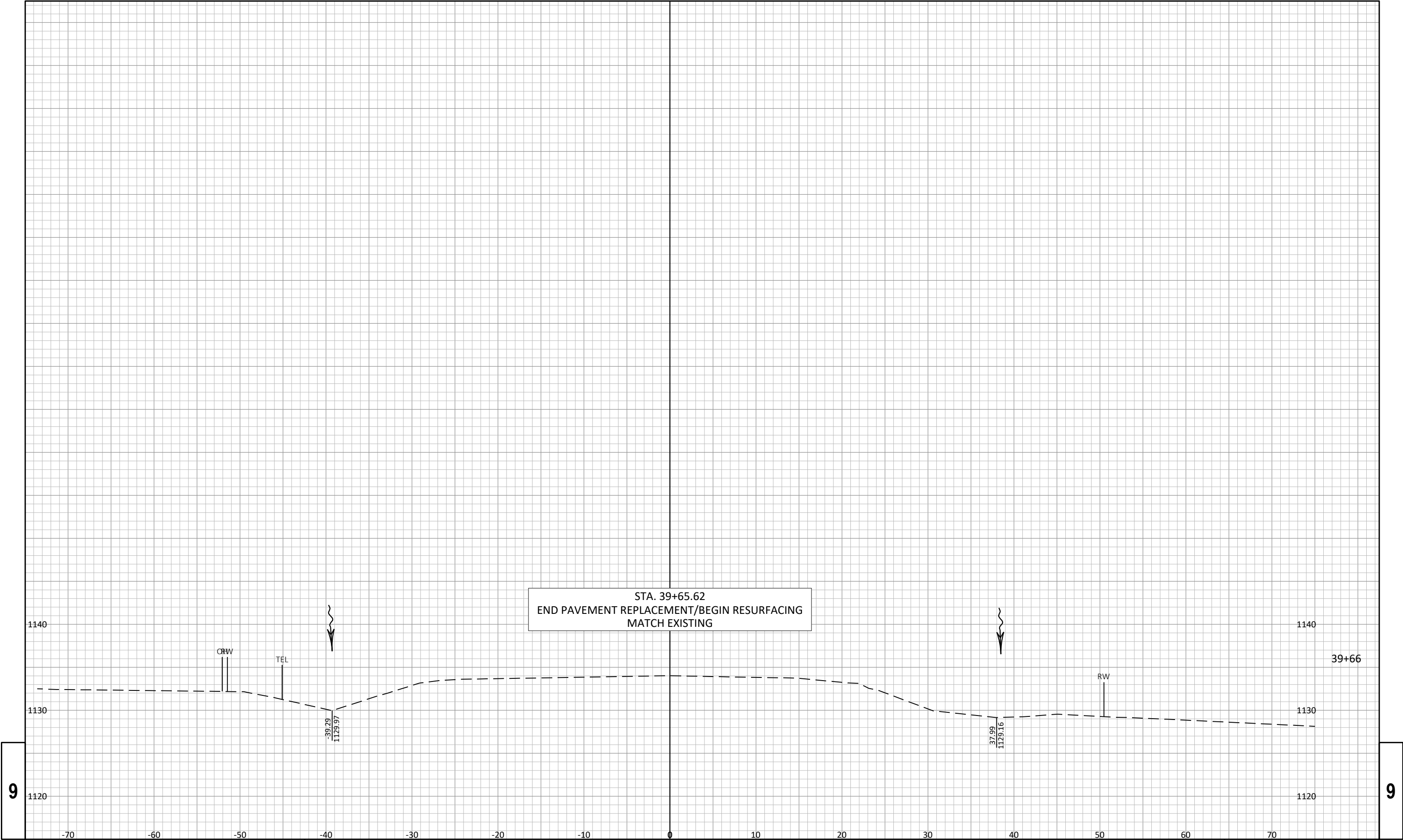
SHEET

163

E

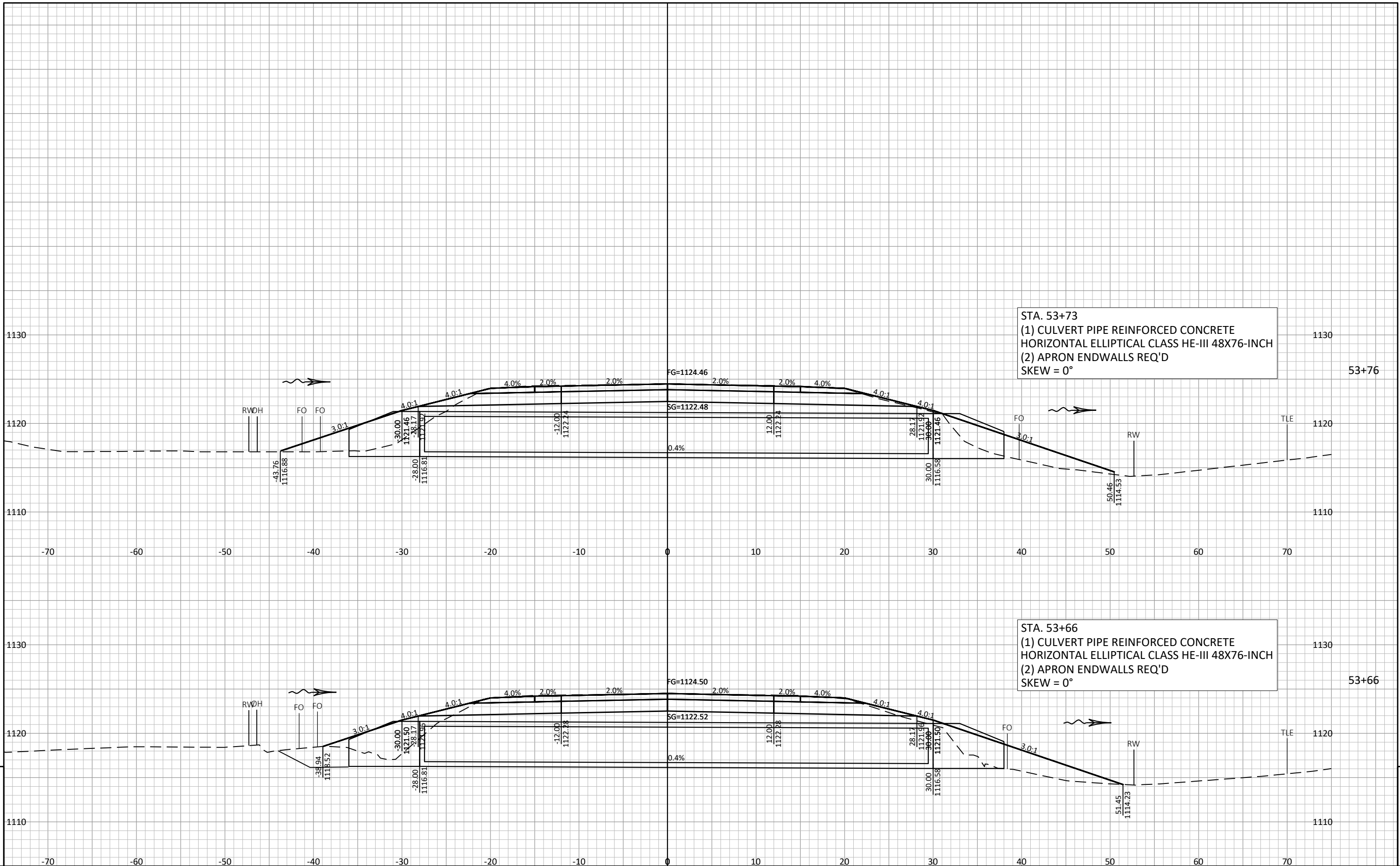






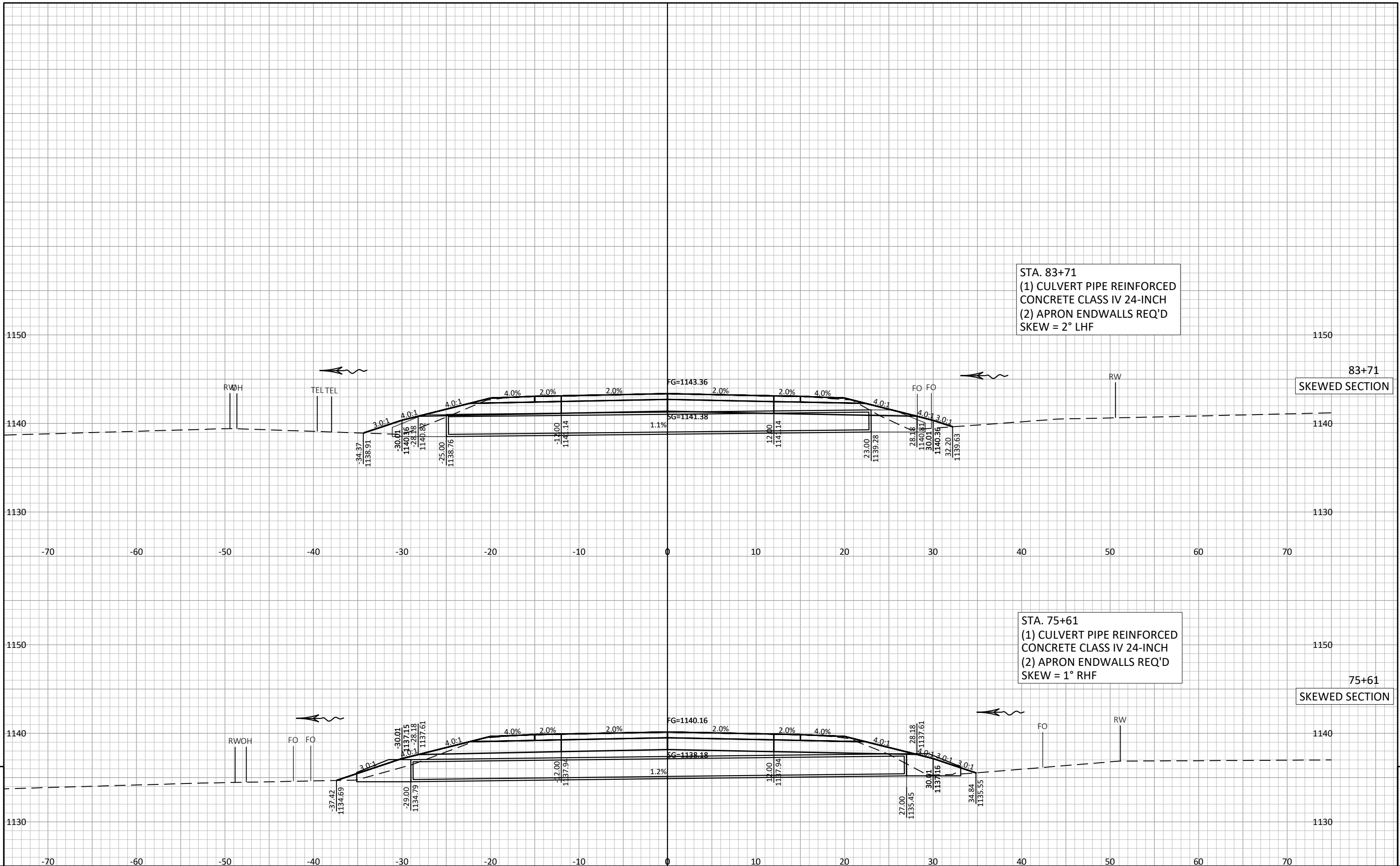
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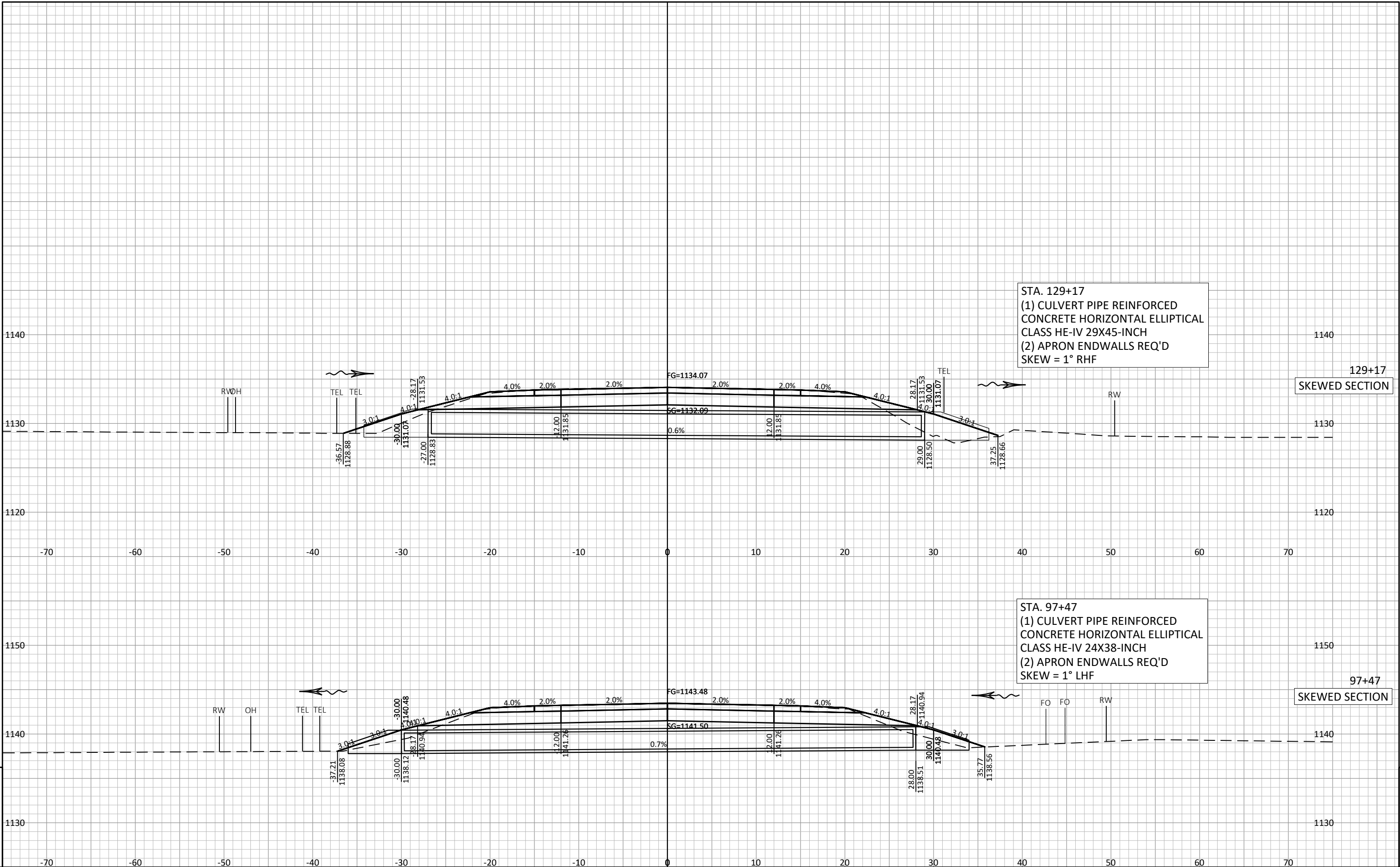
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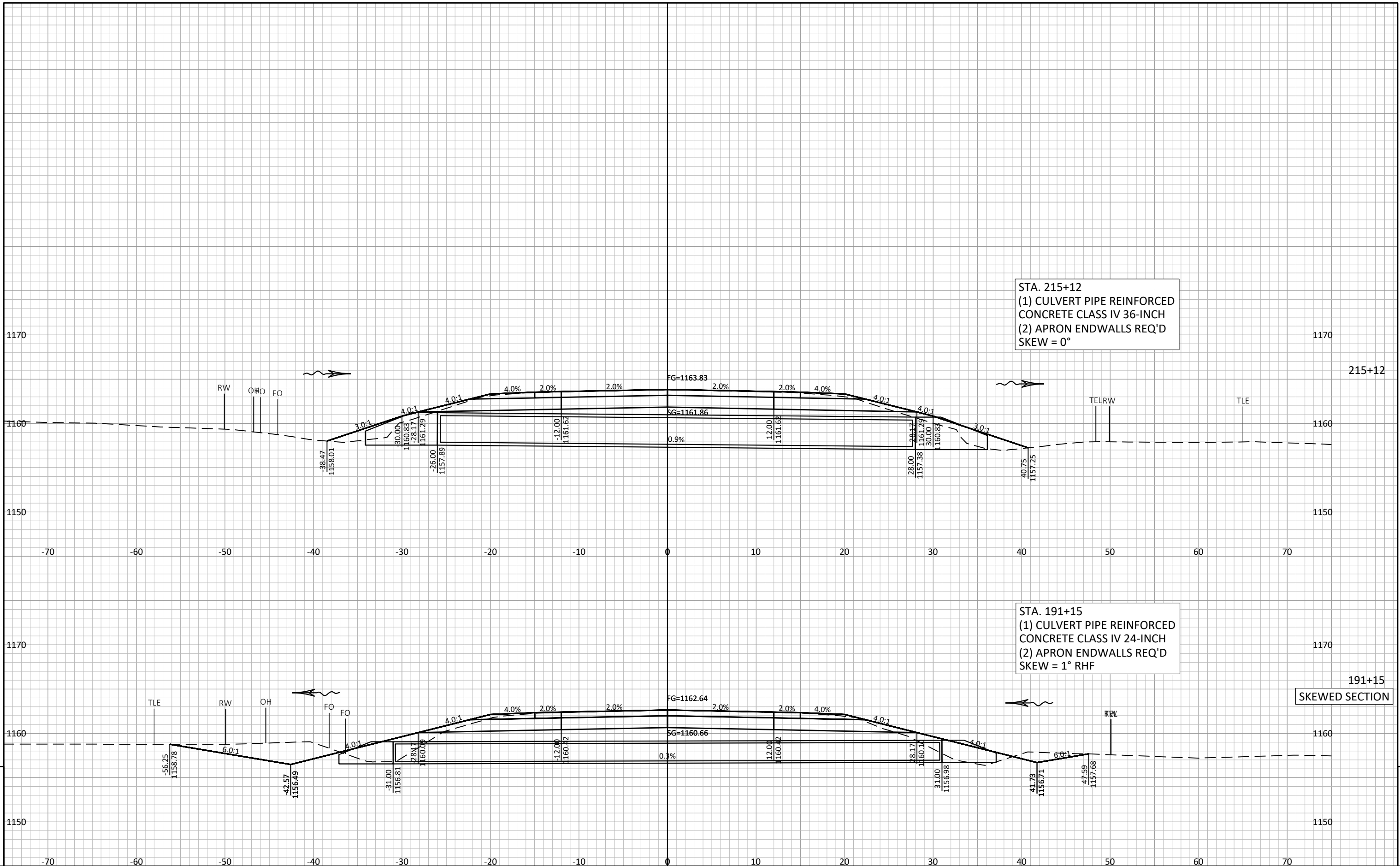


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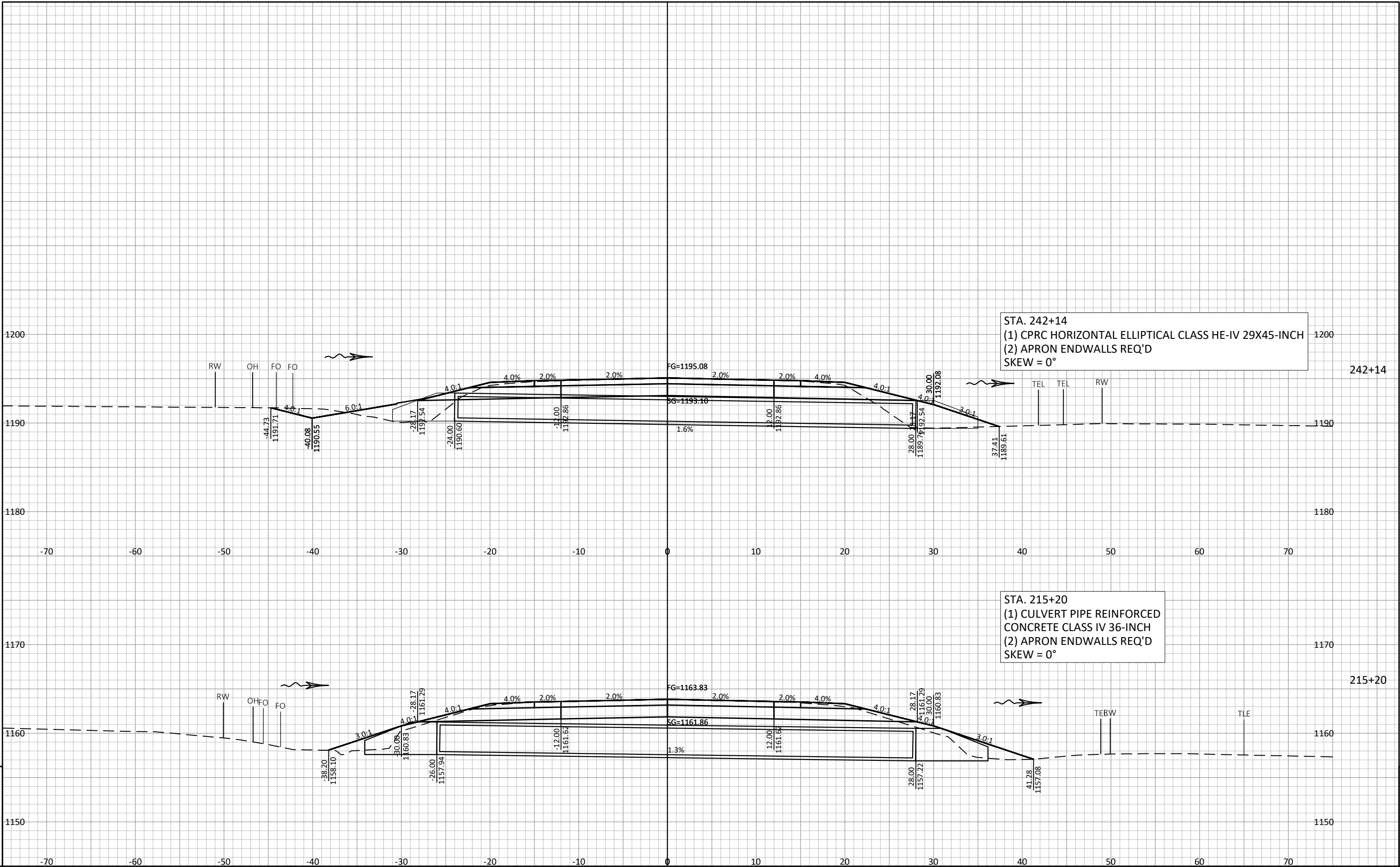




STA. 215+12
(1) CULVERT PIPE REINFORCED
CONCRETE CLASS IV 36-INCH
(2) APRON ENDWALLS REQ'D
SKEW = 0°

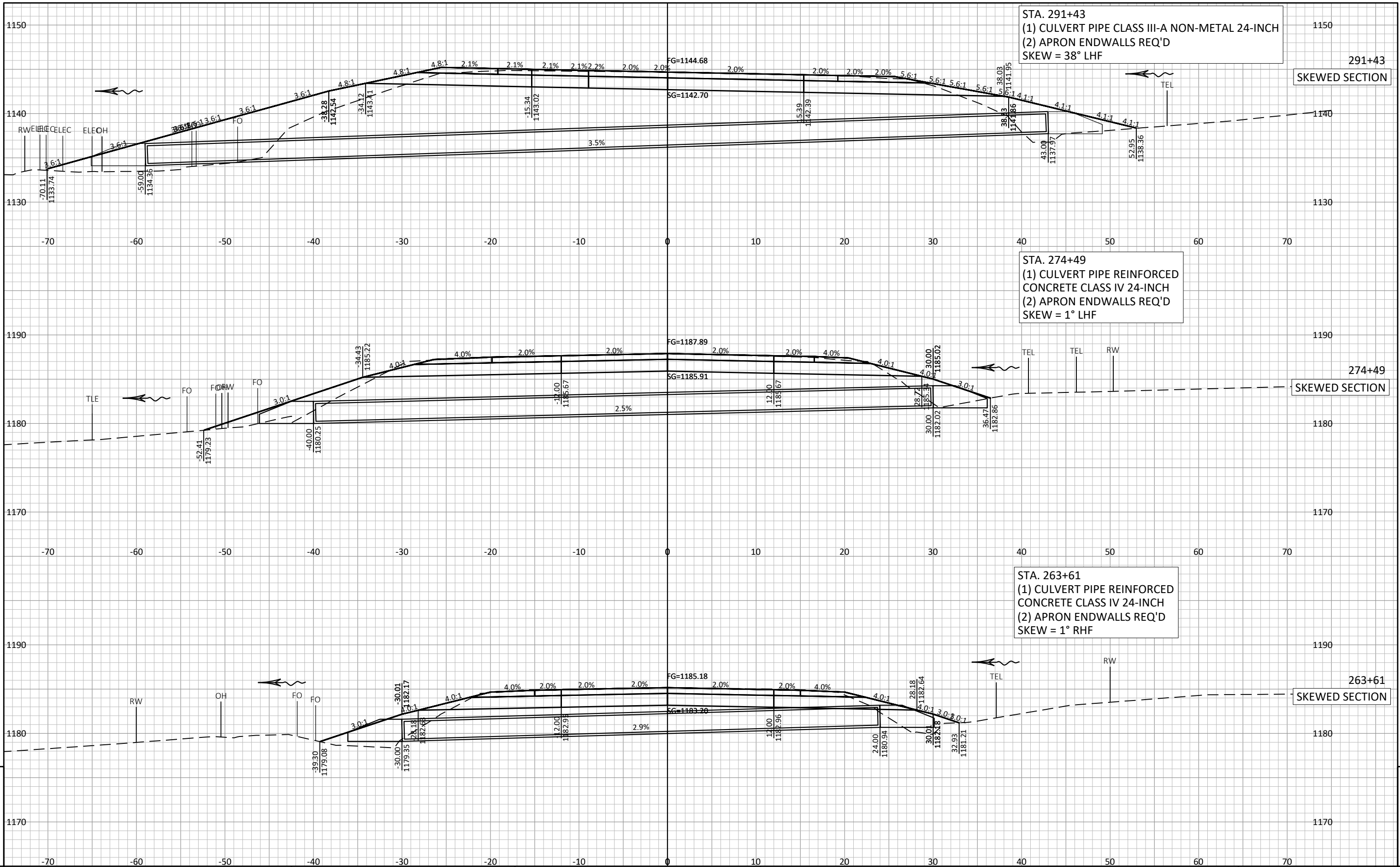
STA. 191+15
(1) CULVERT PIPE REINFORCED
CONCRETE CLASS IV 24-INCH
(2) APRON ENDWALLS REQ'D
SKEW = 1° RHF

191+15
SKEWED SECTION



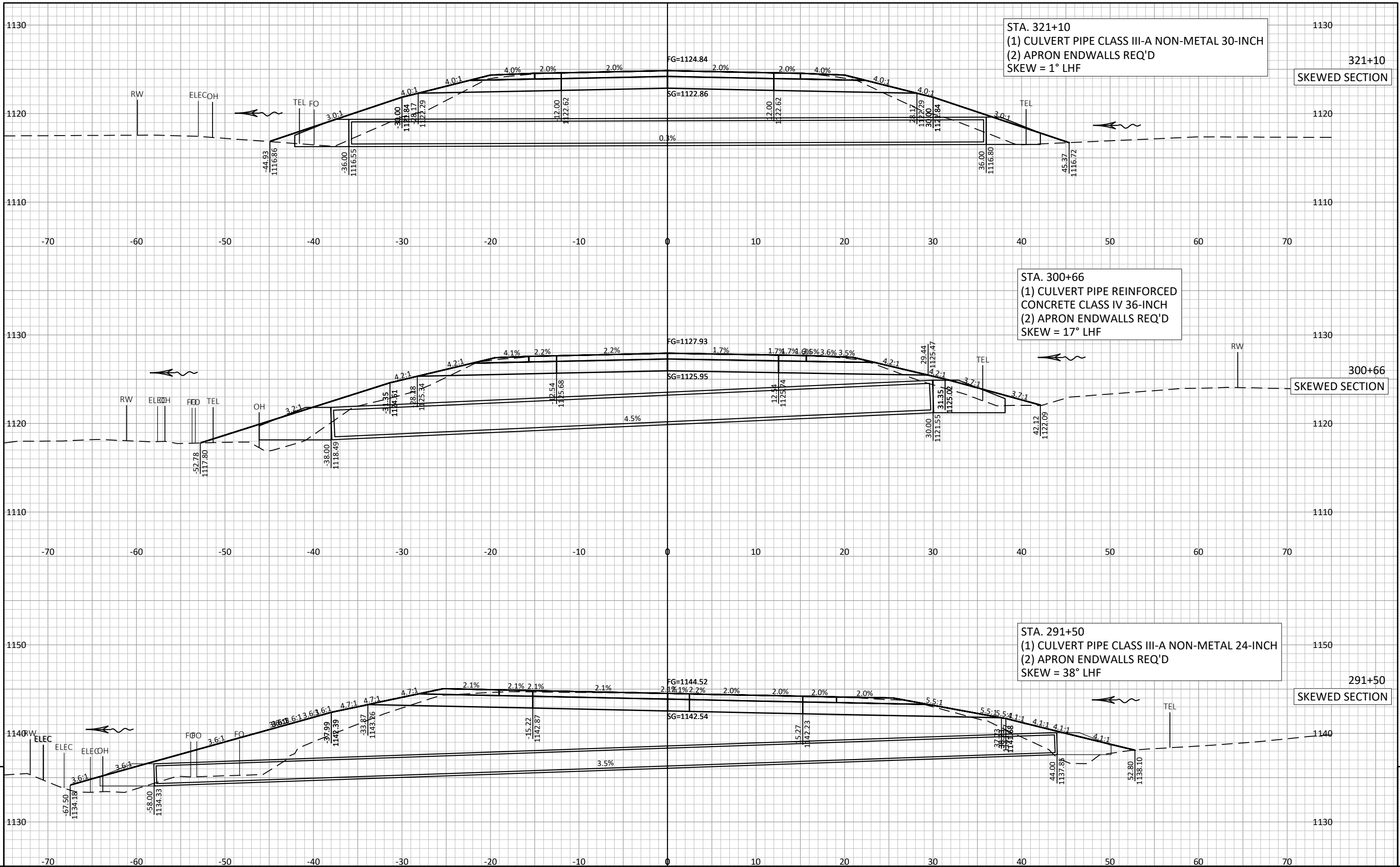
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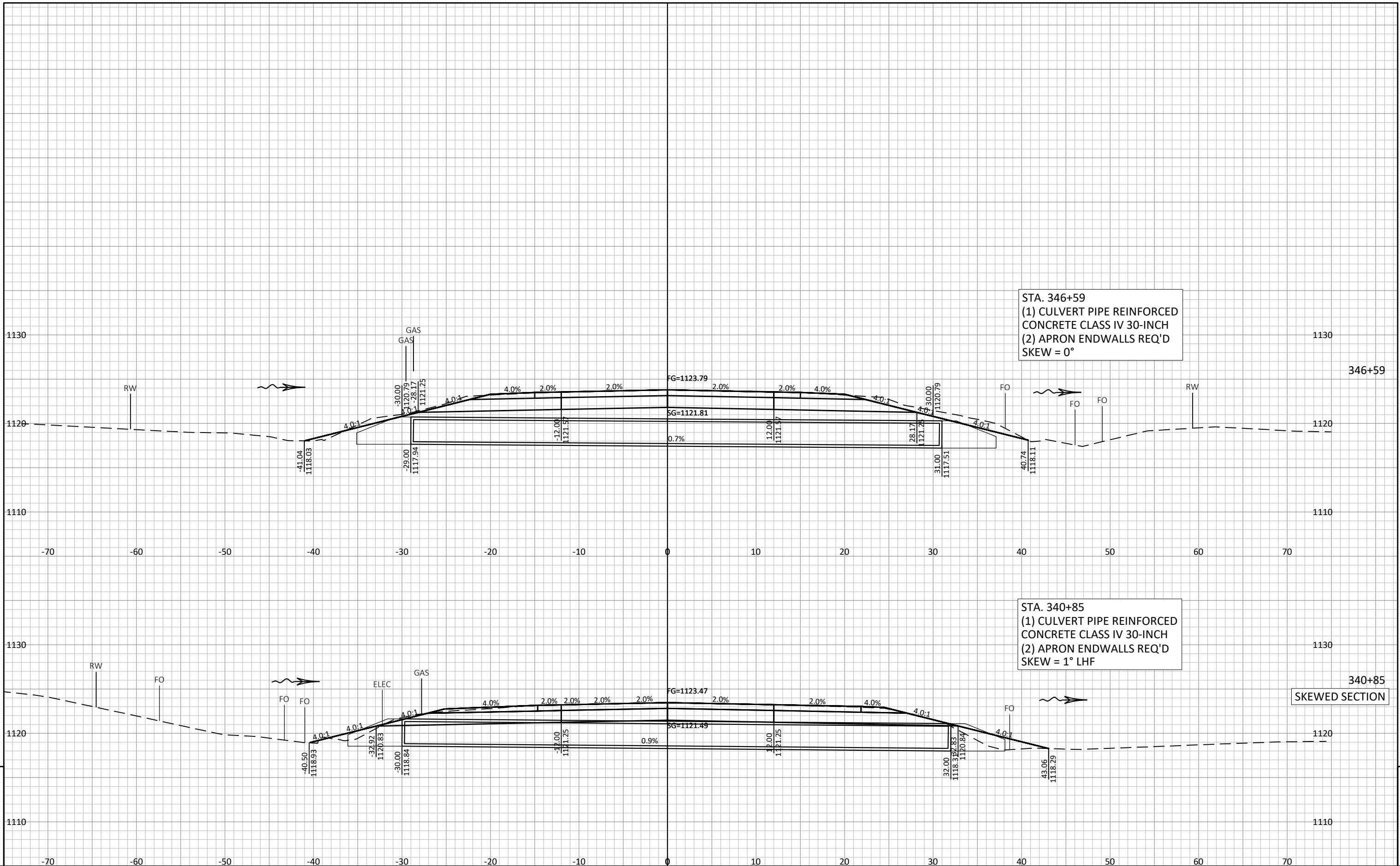
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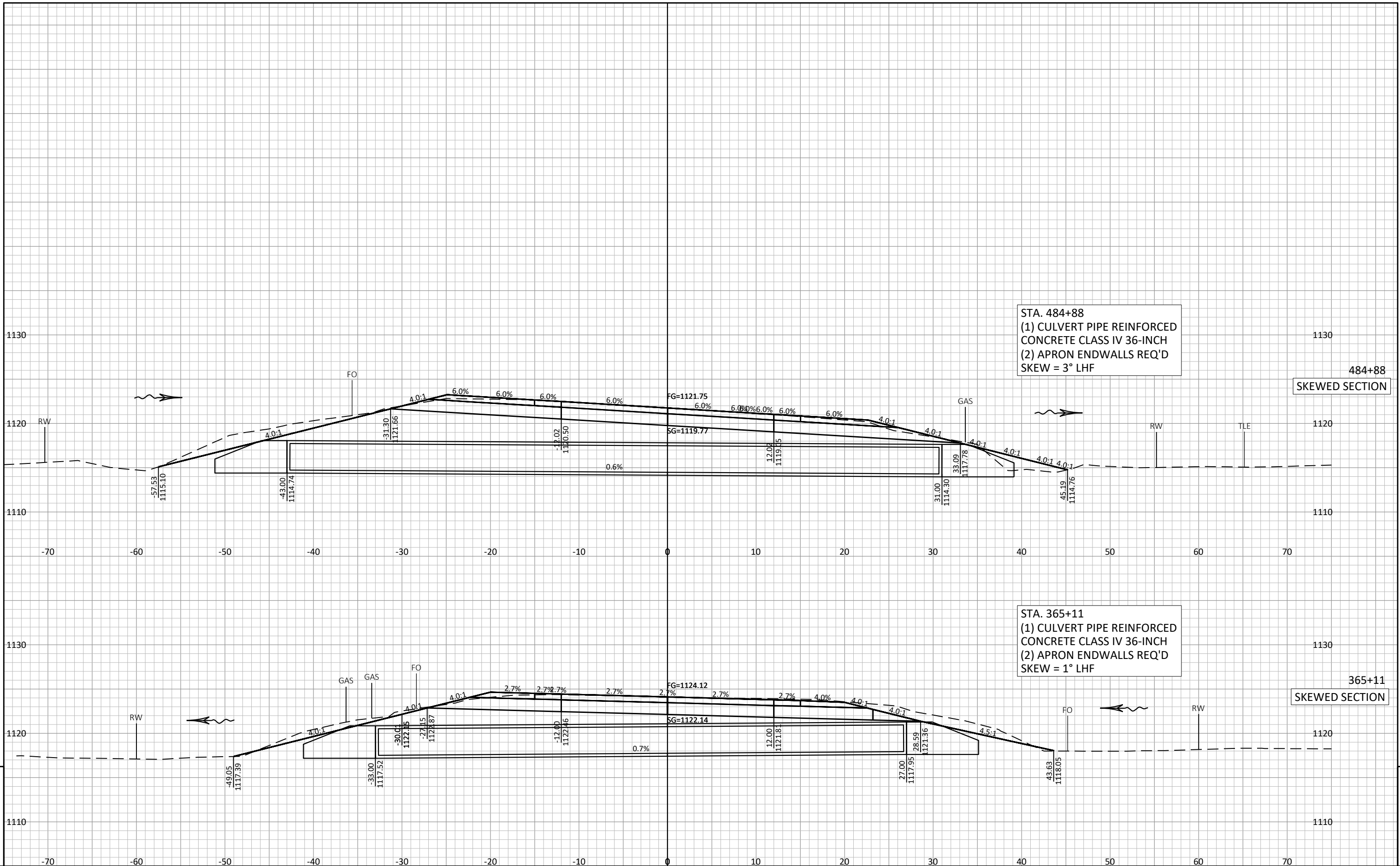


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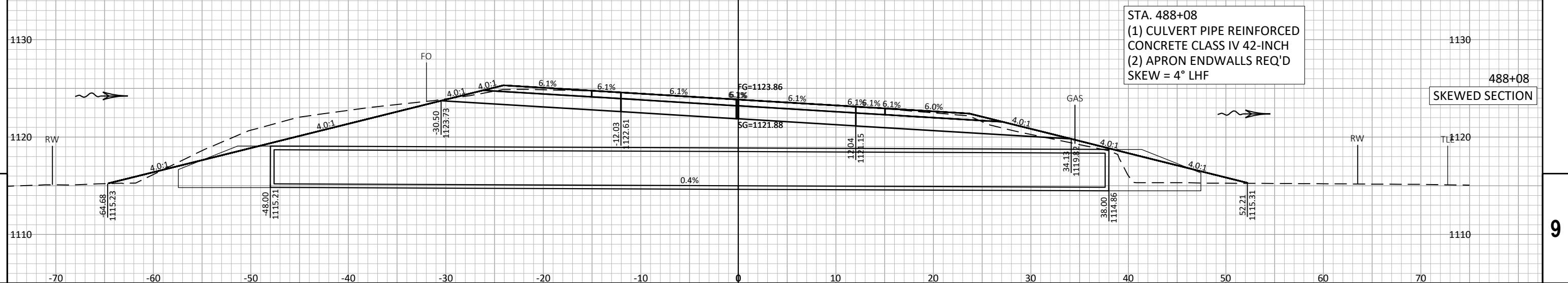
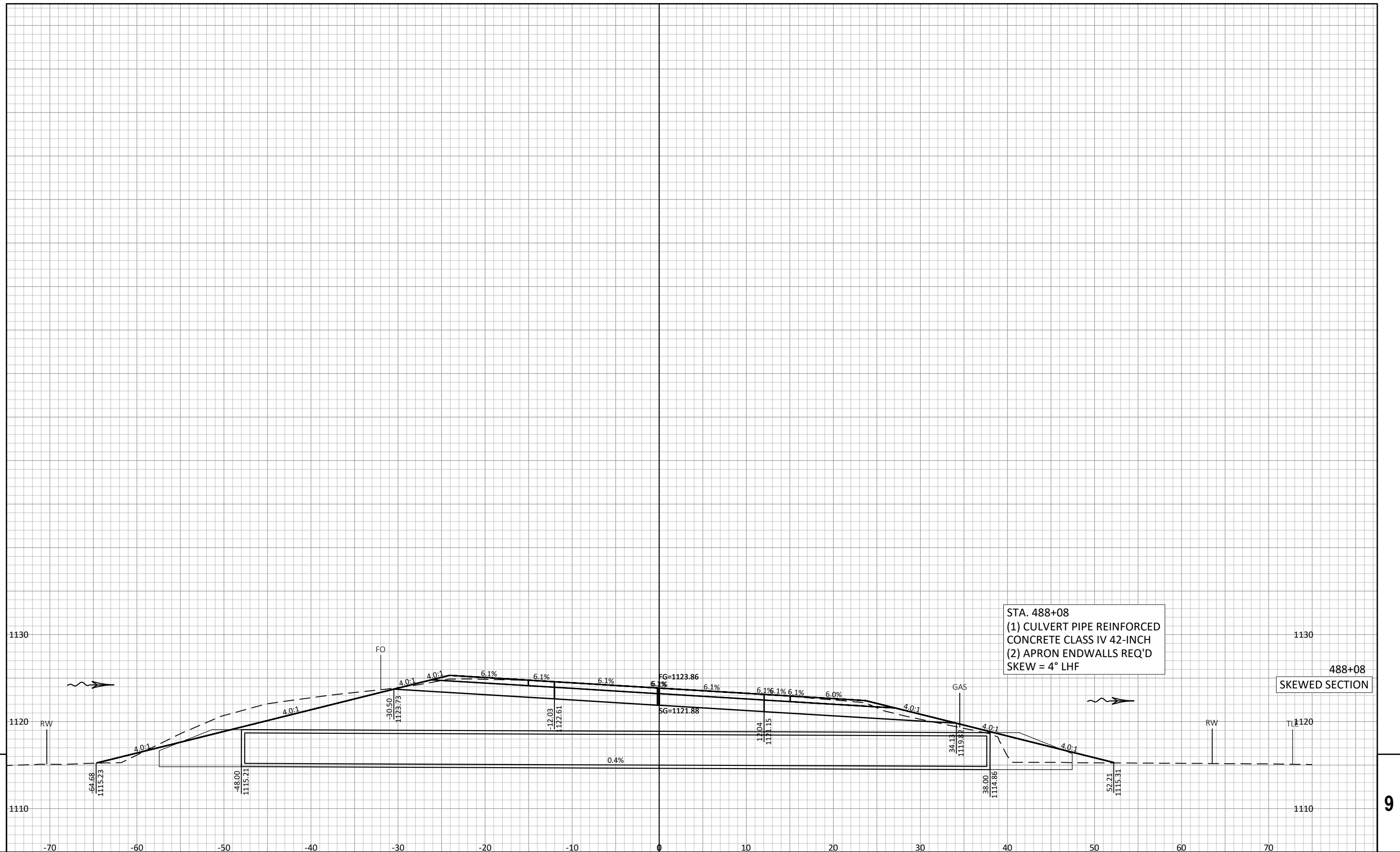






9

9



PROJECT NO: 6610-00-71		HWY: STH 34	COUNTY: MARATHON	CROSS SECTIONS: CULVERT REPLACEMENT			SHEET 176	E
FILE NAME : M:\PROJECTS\W1700 STH 34 RESURFACING, PORTAGE MARATHON CO\DESIGN\CORRIDORS\66100001_CORRIDOR.DWG			PLOT DATE :	6/24/2026 10:34:27 PM	PLOT BY :	NICK PEHLER	PLOT SCALE :	1" = 1'
							LAYOUT :	10

HWY: STH 34

COUNTY: MARATHON

CROSS SECTIONS: CULVERT REPLACEMENT

SHEET	176
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	E
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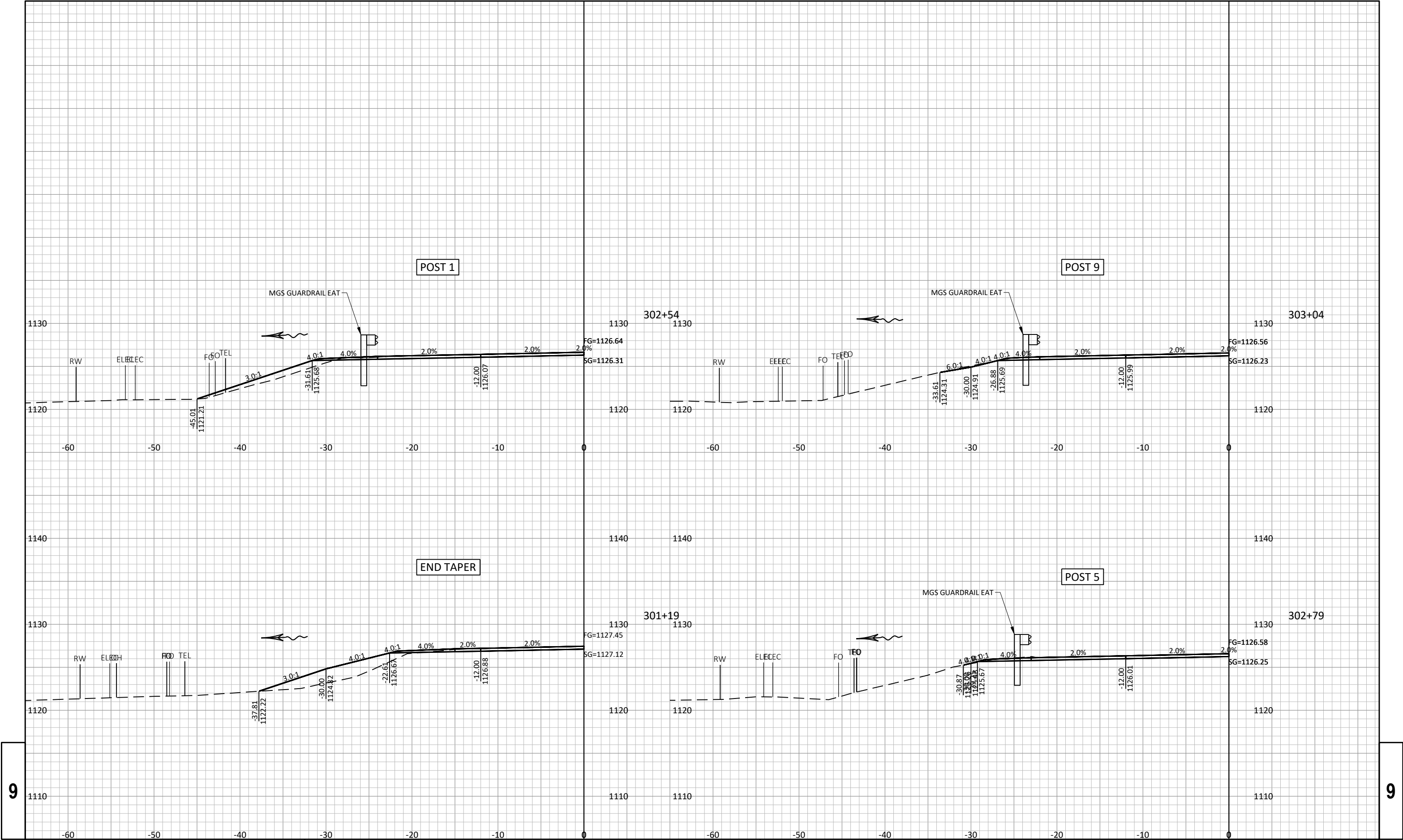
FILE NAME: M:\PROJECTS\W11700 STH 34 RESURFACING, PORTAGE MARATHON CO\DESIGN\CORRIDORS\66100001_CORRIDOR.DWG PLOT DATE: 6/24/2026 10:34:27 PM PLOT BY: NICK PEHLER PLOT SCALE: 1" = 1' LAYOUT: 10

PLOT DATE : 6/24/2026 10:34:27 PM PLOT BY : NICK PEHLER PLOT SCALE : 1" = 1' LAYOUT : 10

PLOT BY: NICK PEHLER PLOT SCALE: 1" = 1' LAYOUT: 10

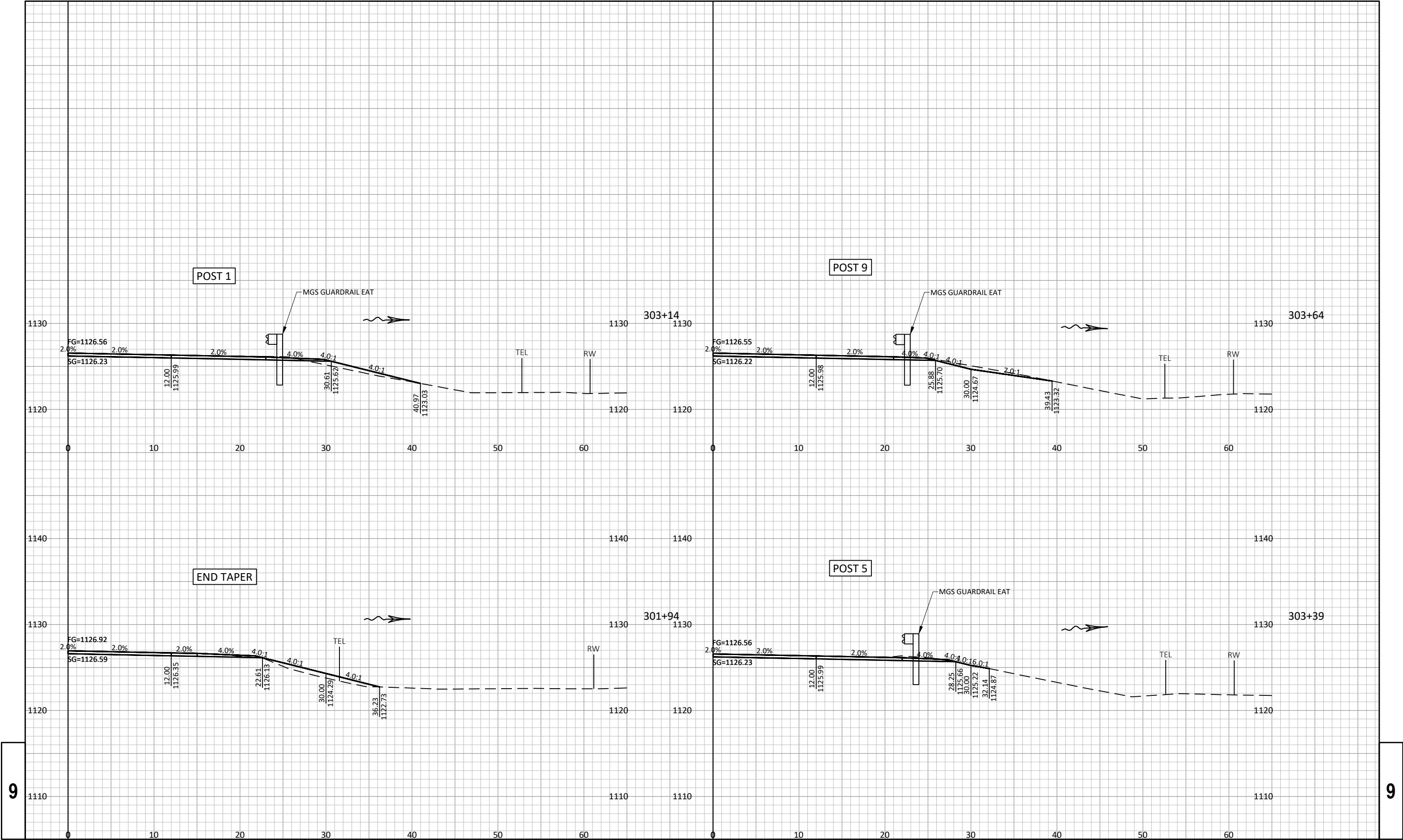
PLOT SCALE : 1" = 1' LAYOUT : 10

LAYOUT: 10



9

9



9

9

PROJECT NO: 6610-00-71

HWY: STH 34

COUNTY: MARATHON

CROSS SECTIONS: MAINLINE (MGS GUARDRAIL)

SHEET

178

E

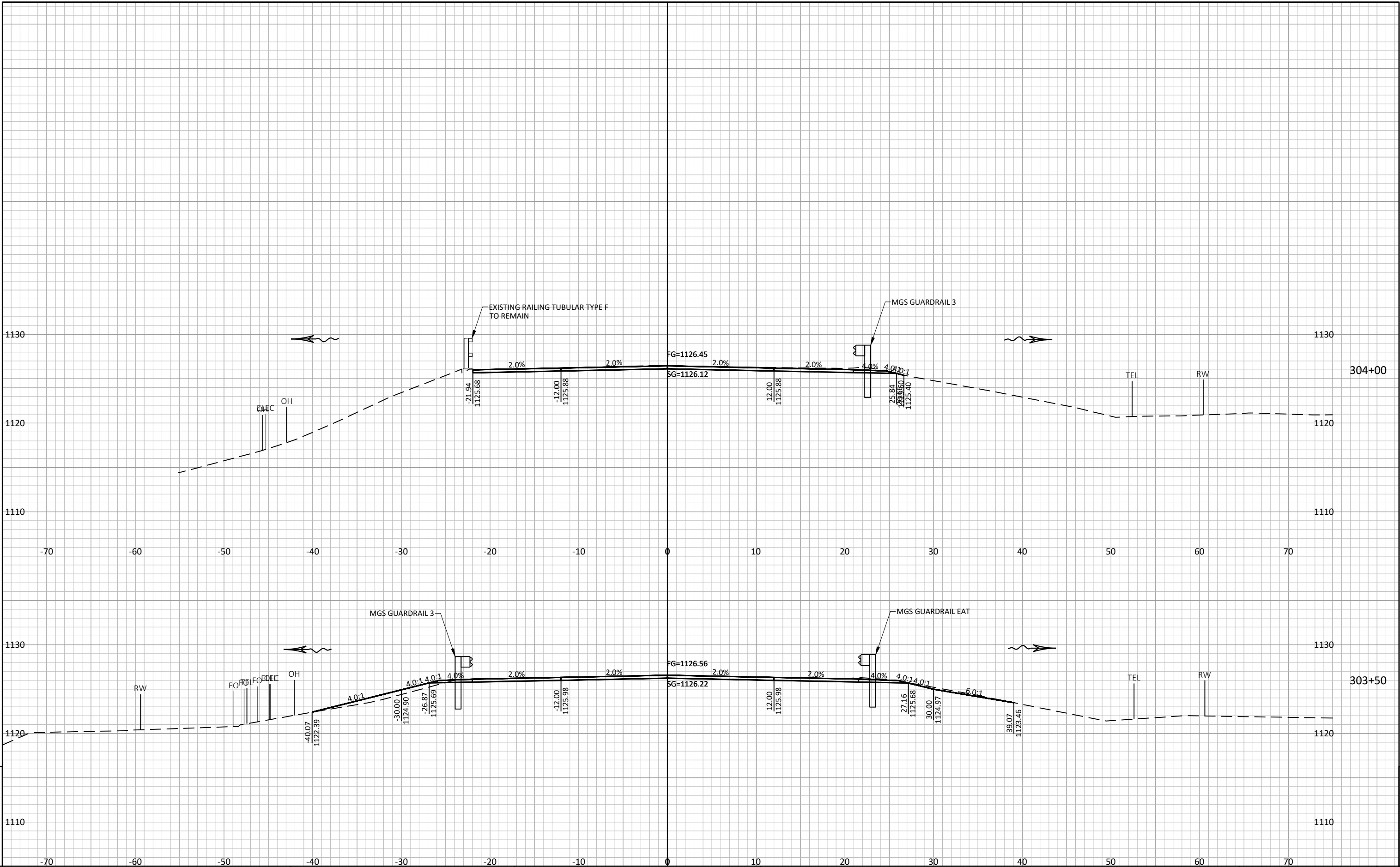
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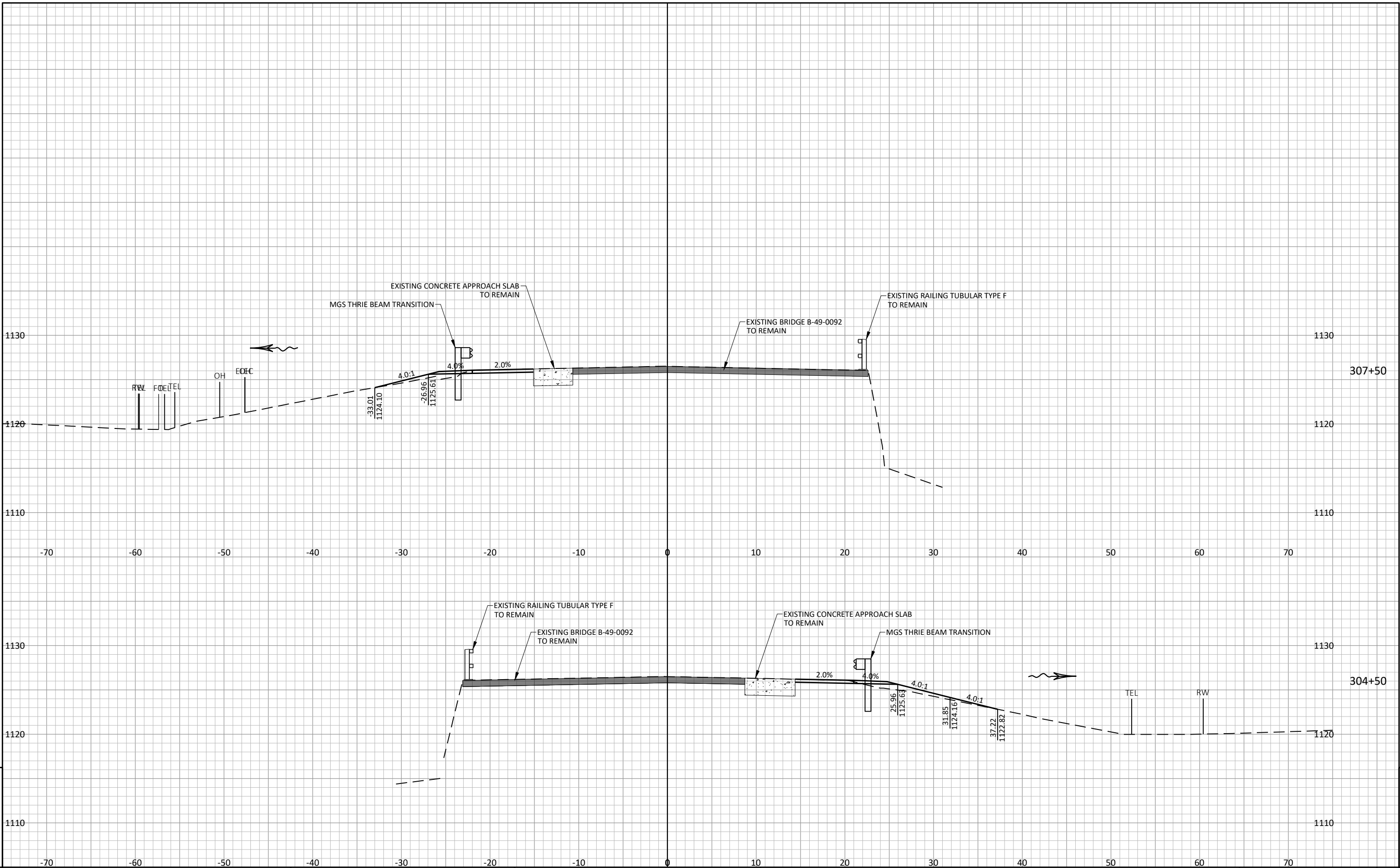
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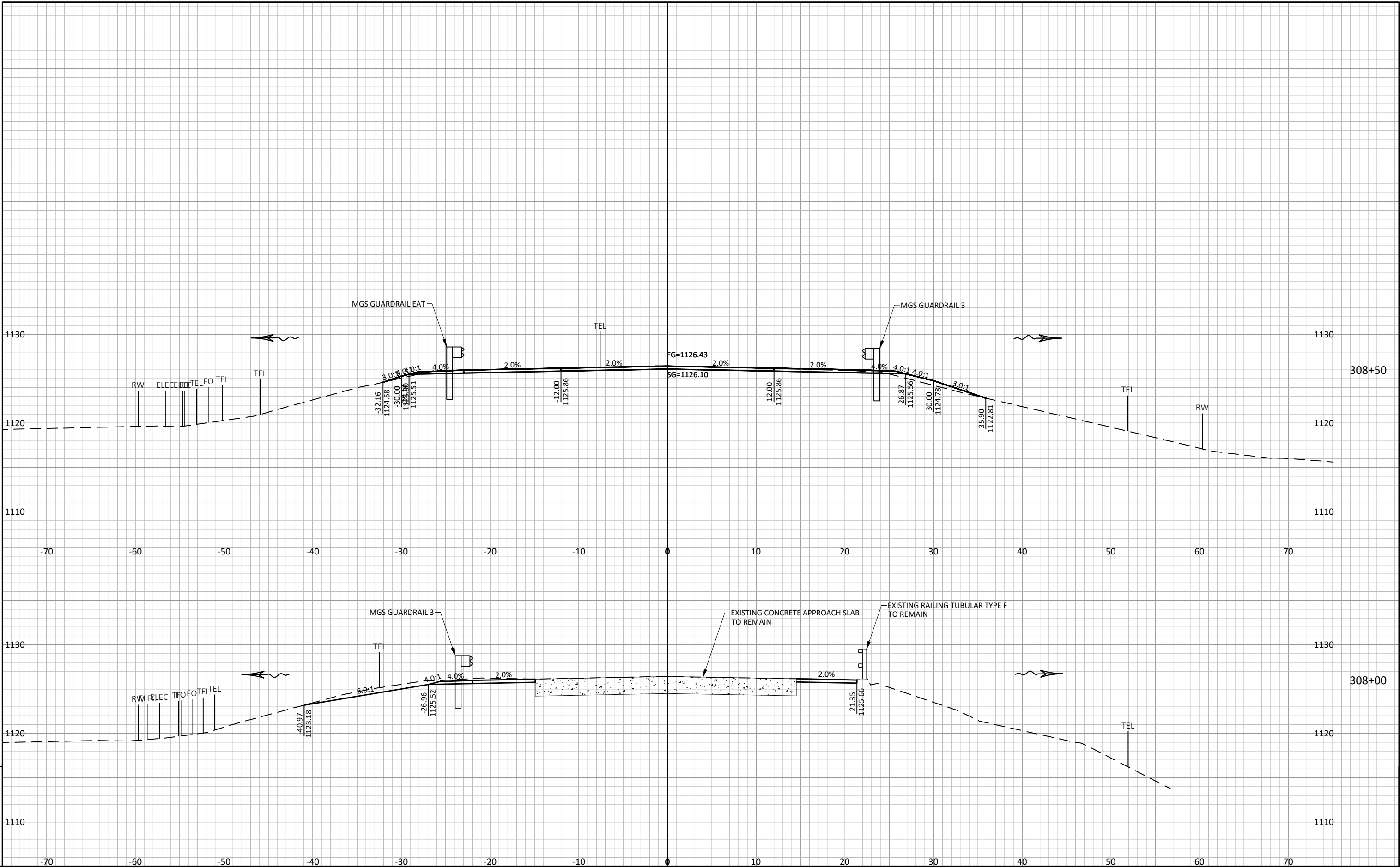
PLOT BY : NICK PEHLER

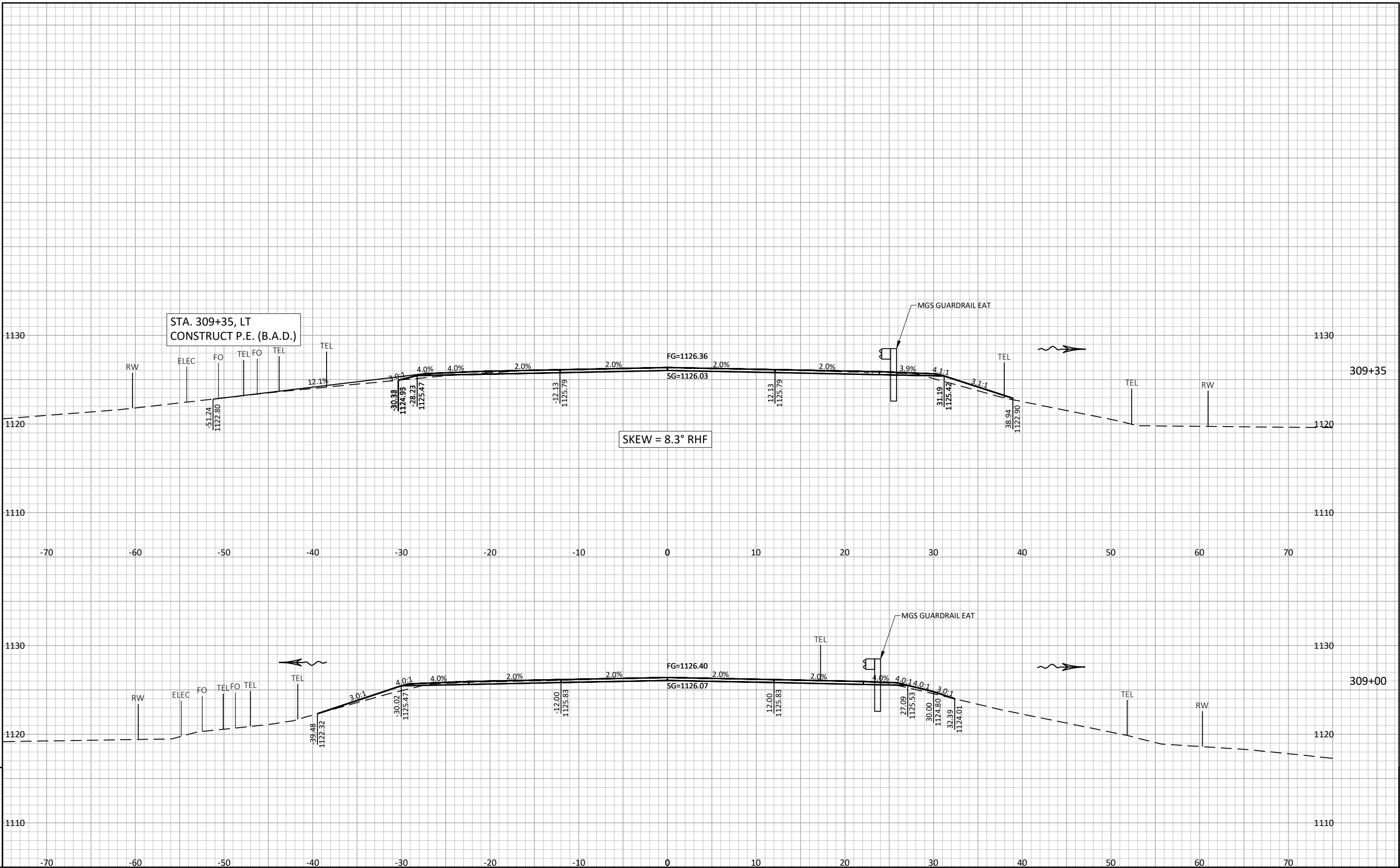
PLOT SCALE : 1" = 1'

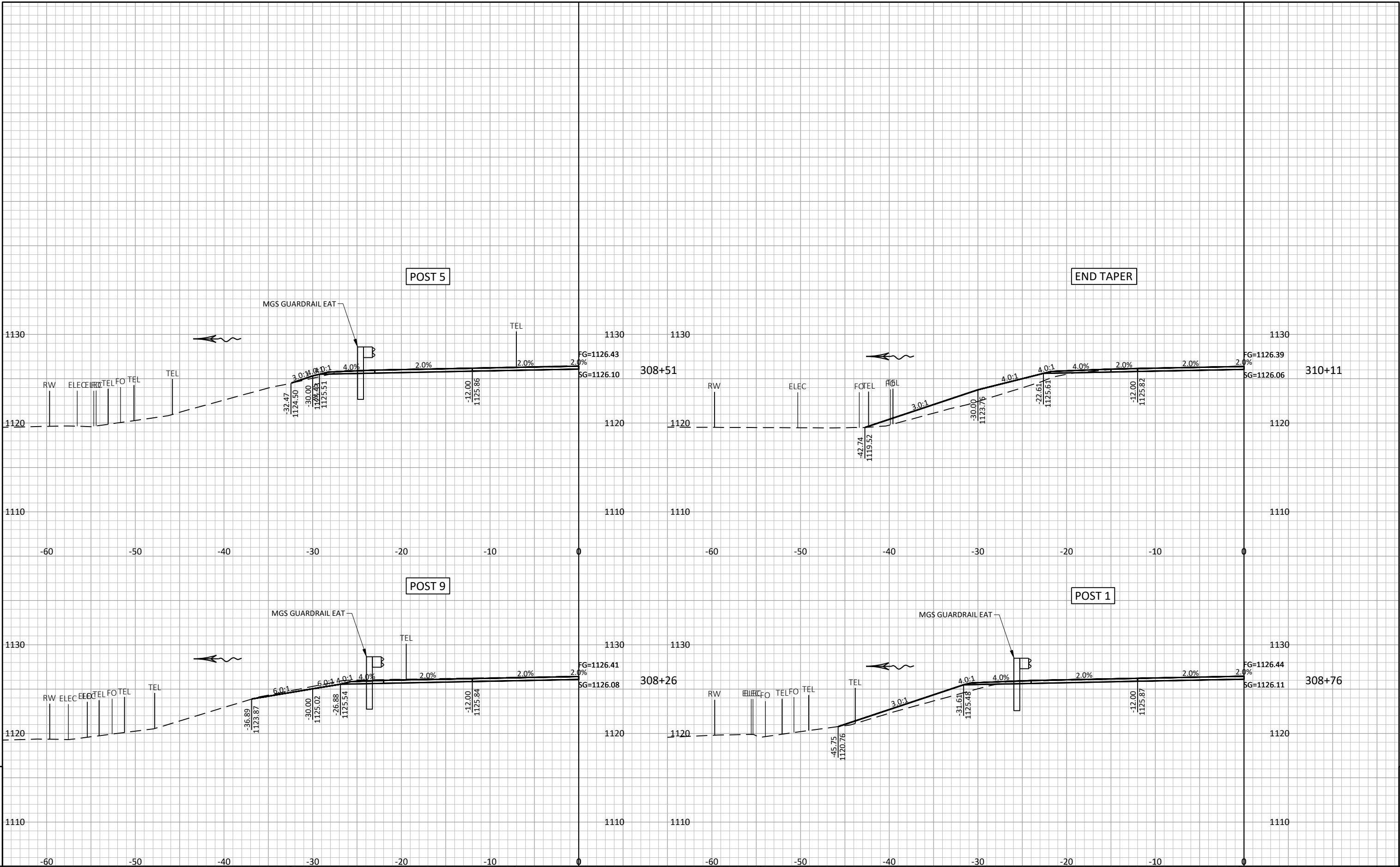
LAYOUT : RT EAT 1

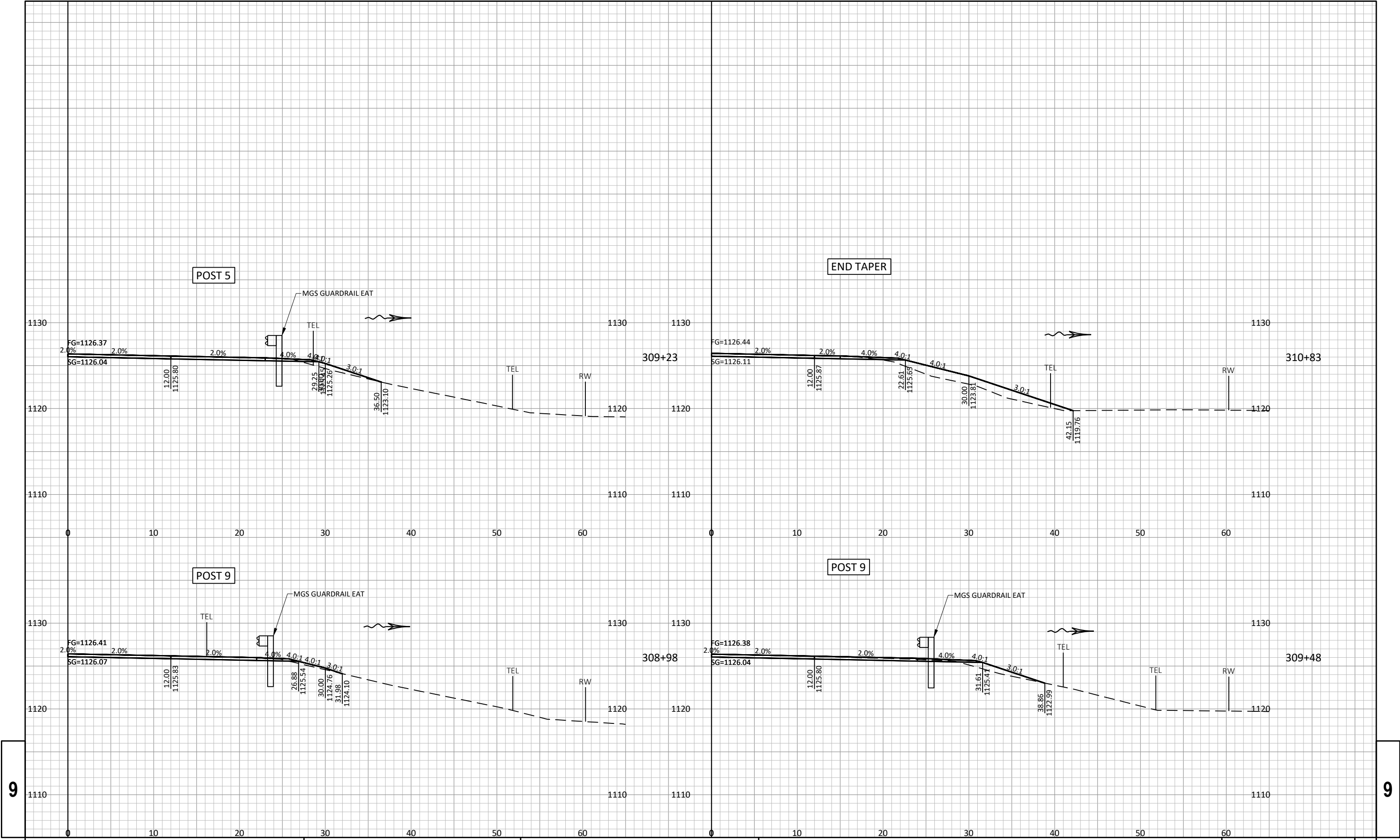






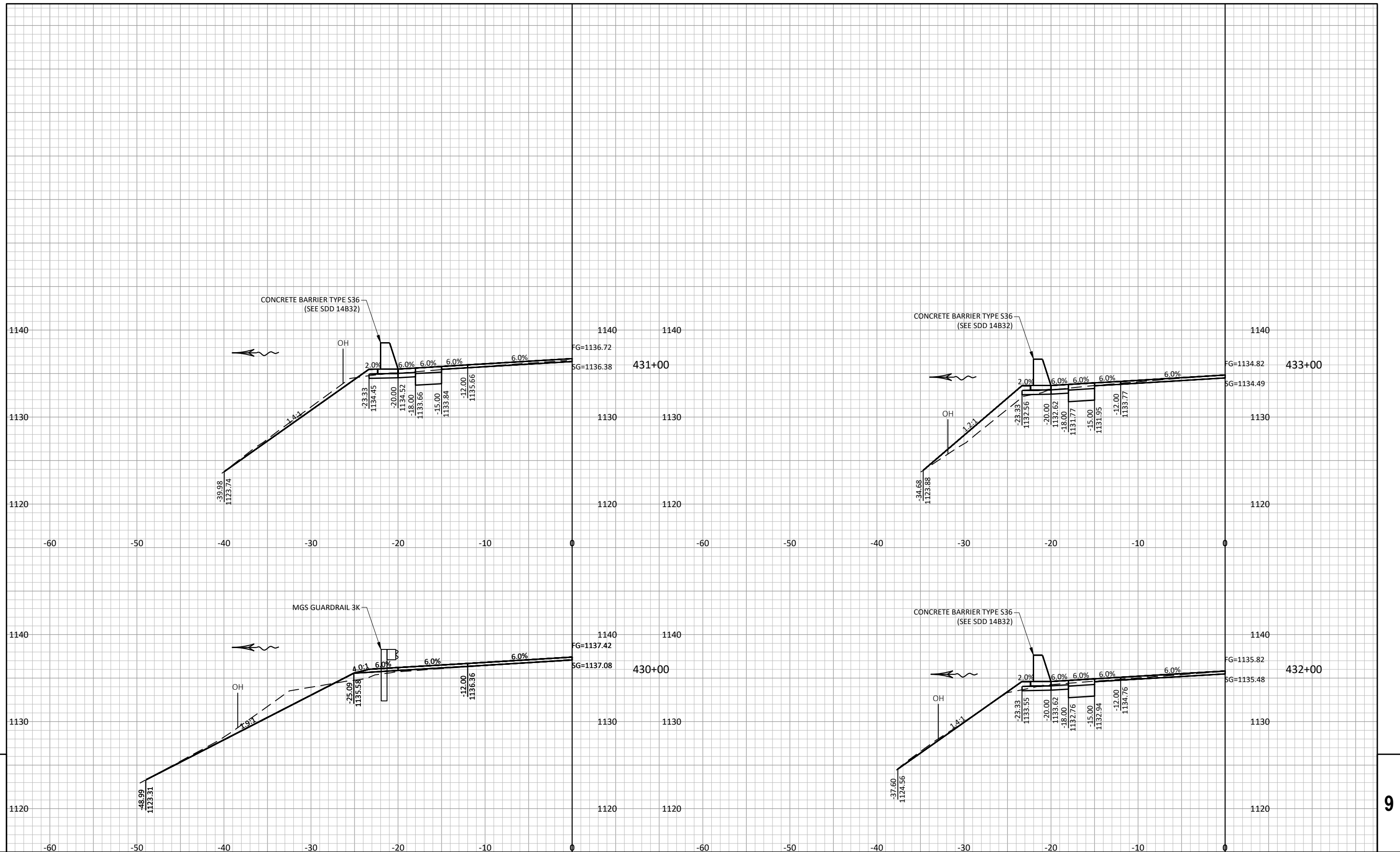


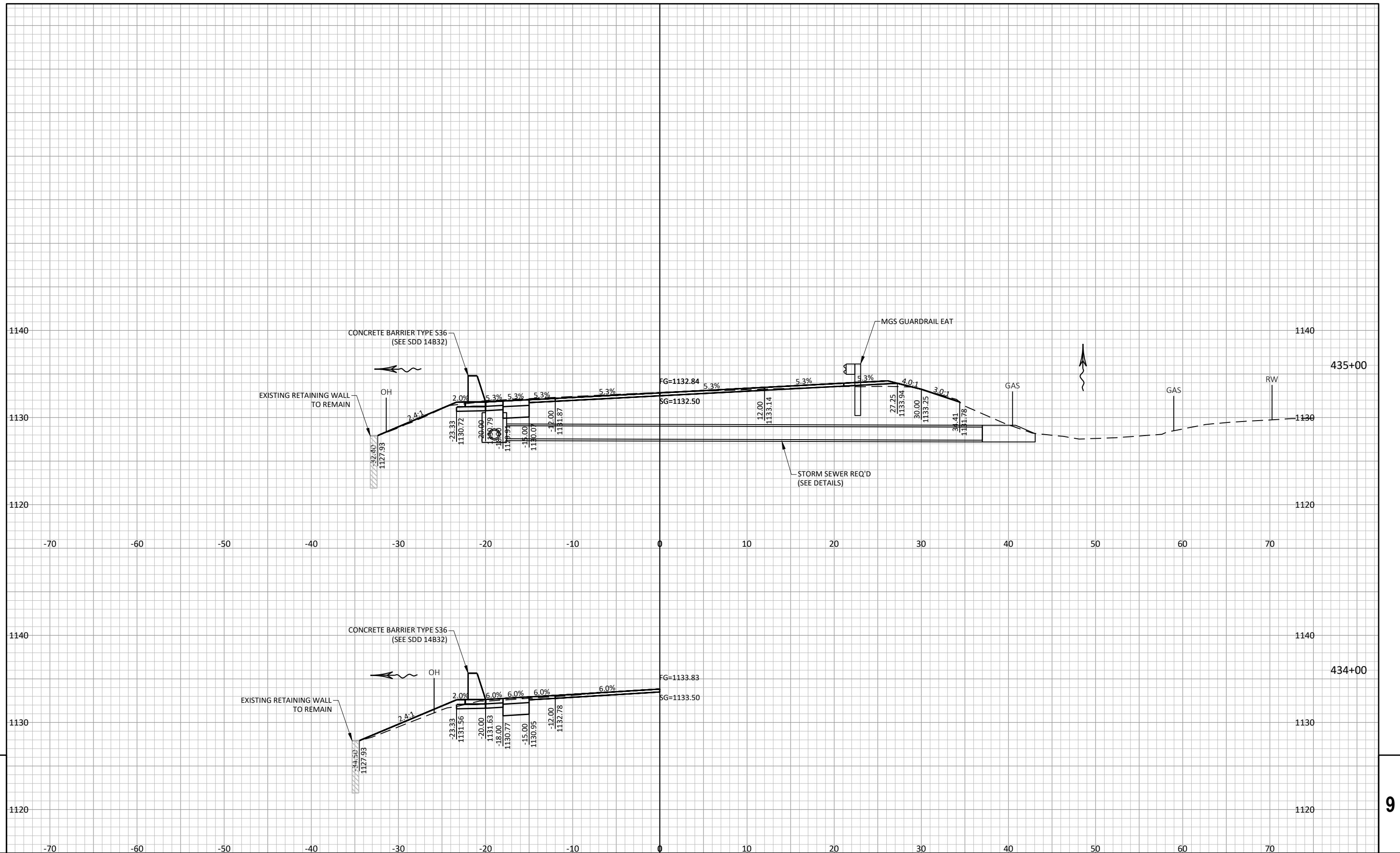
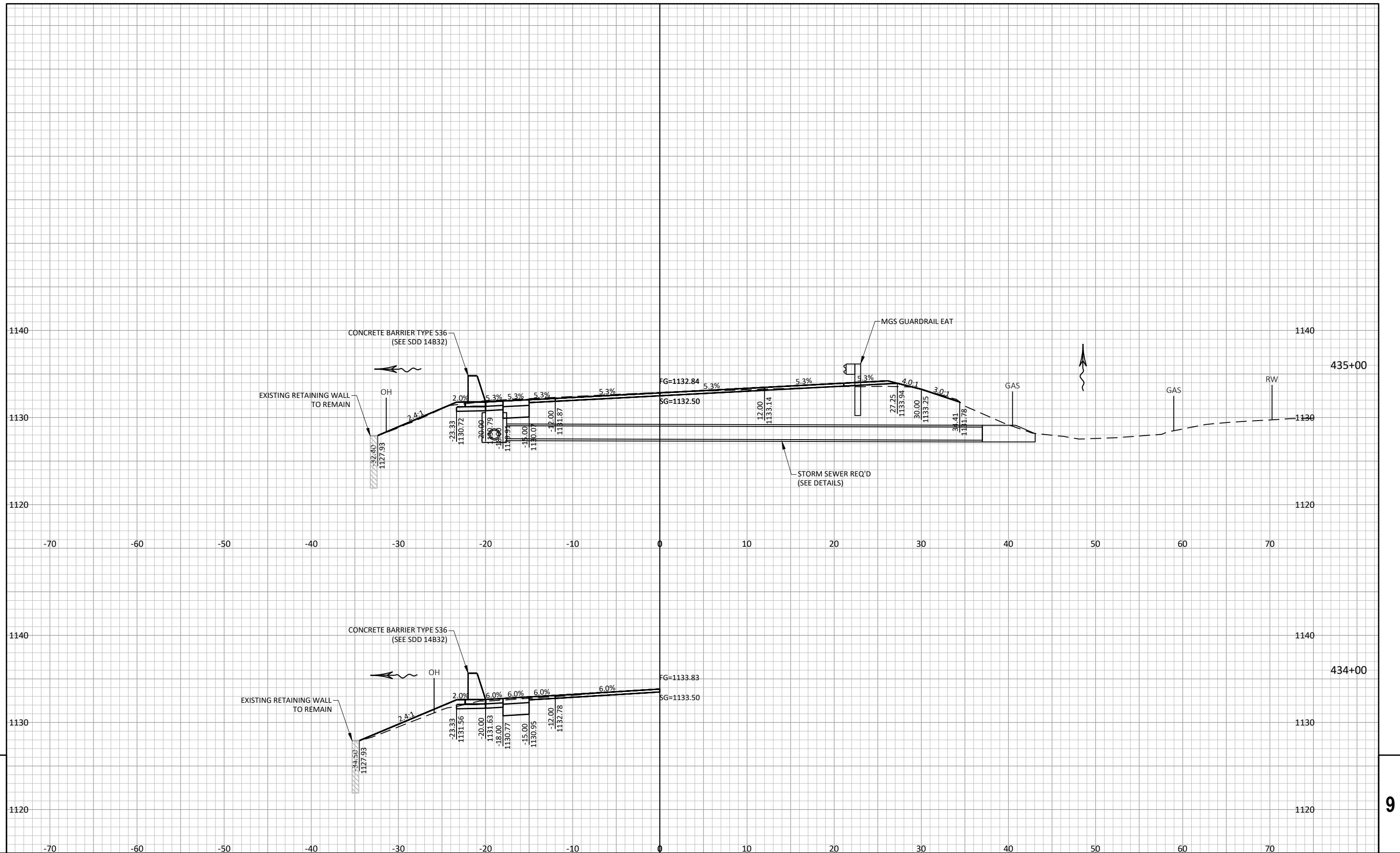


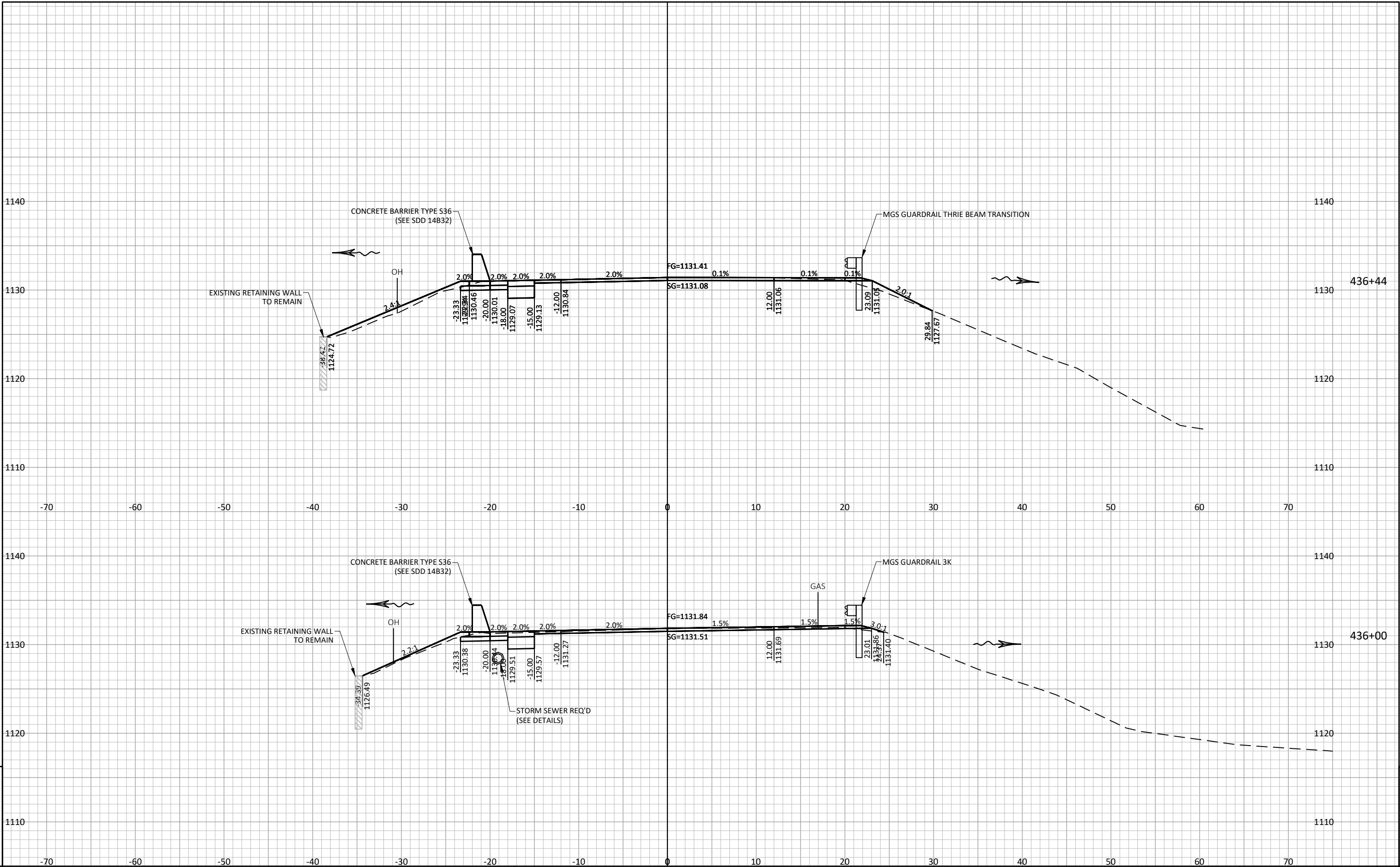


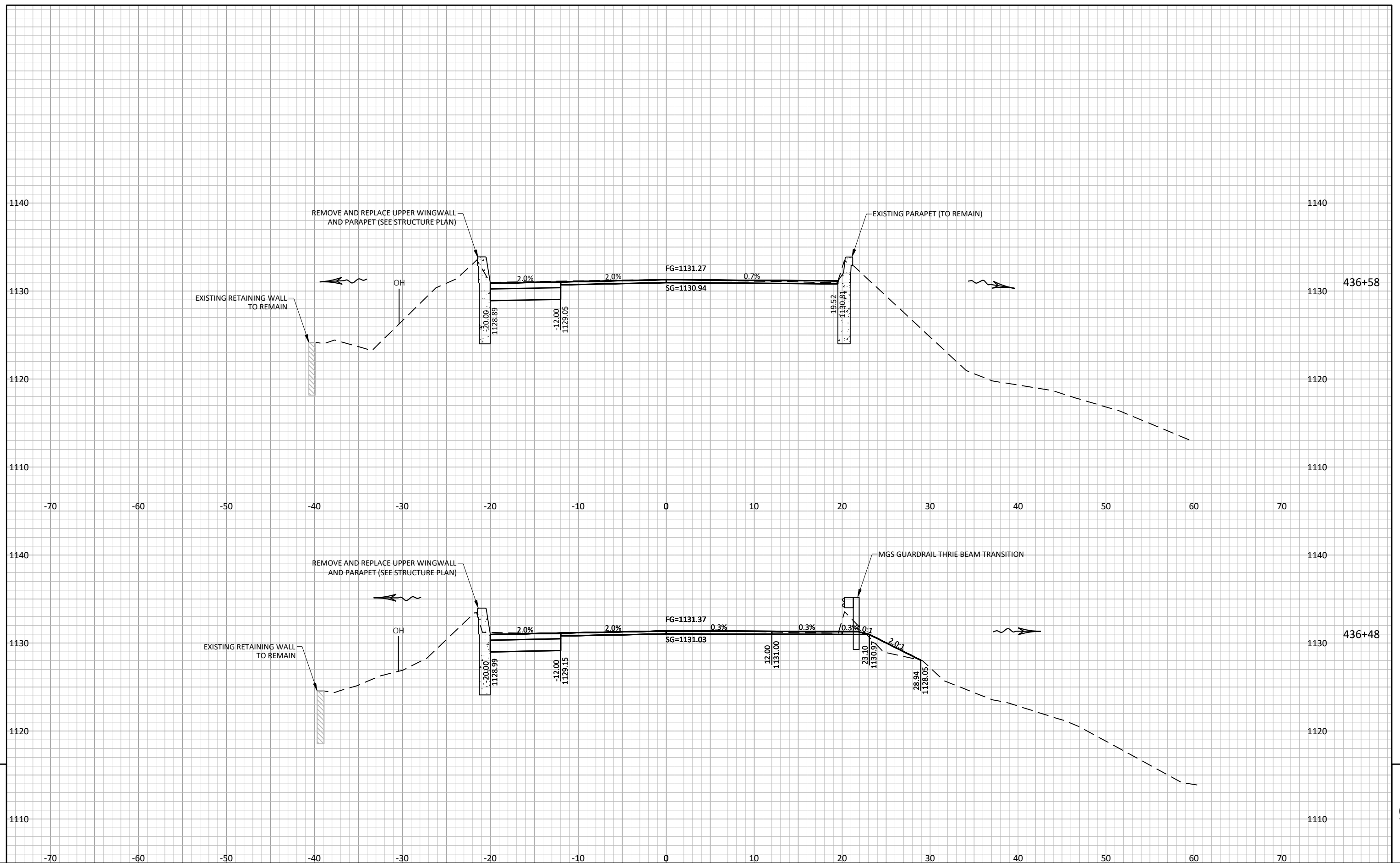
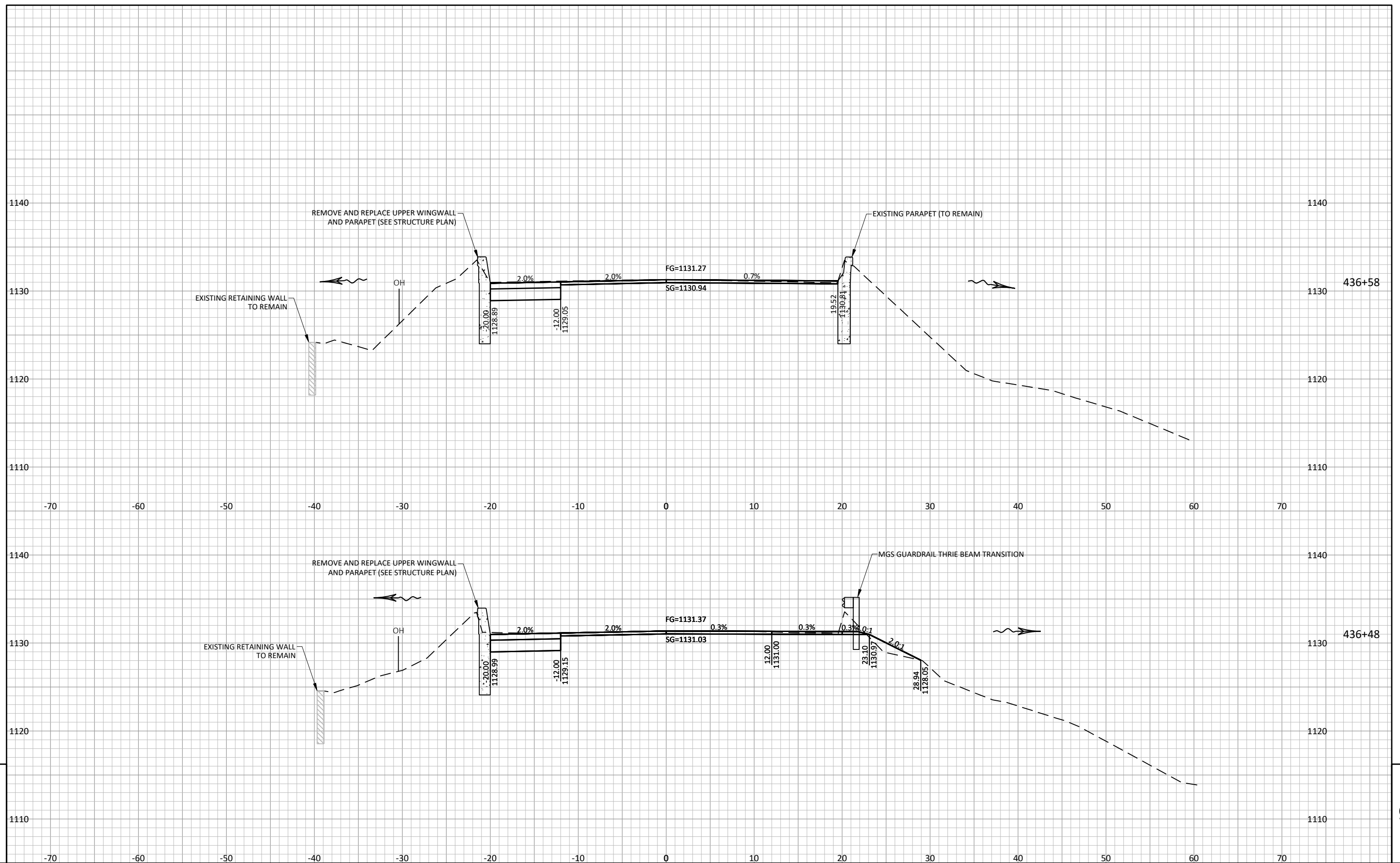
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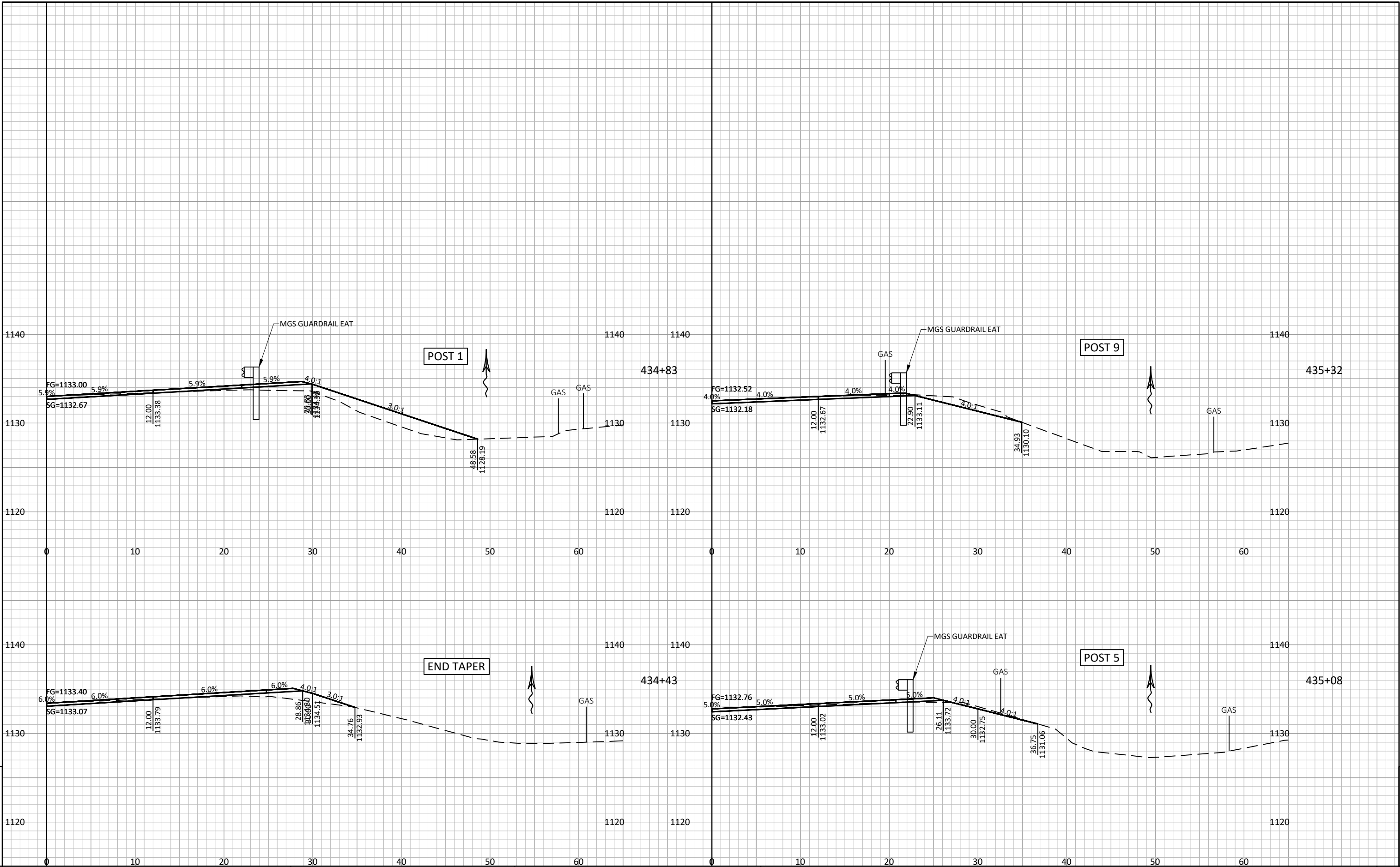
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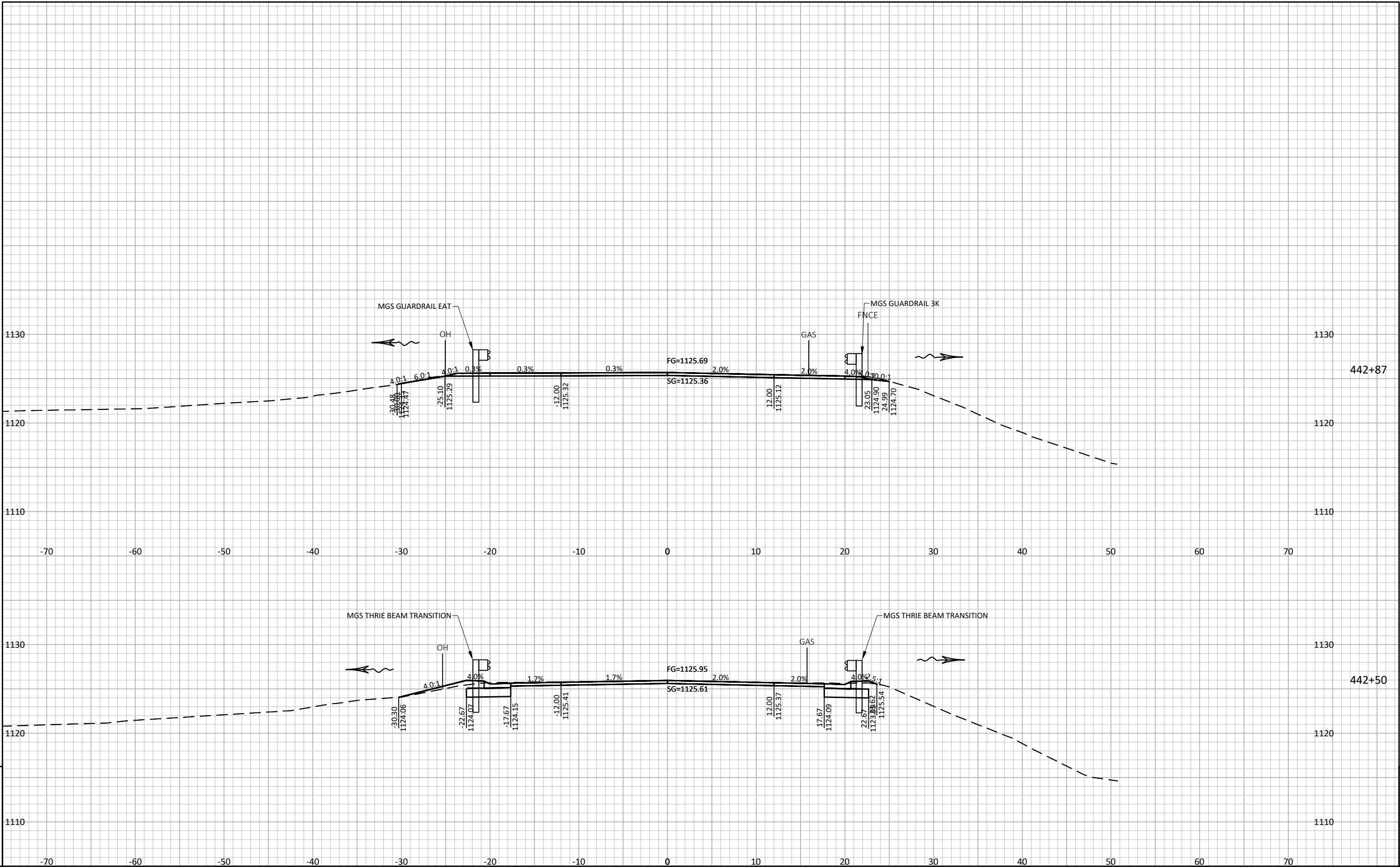


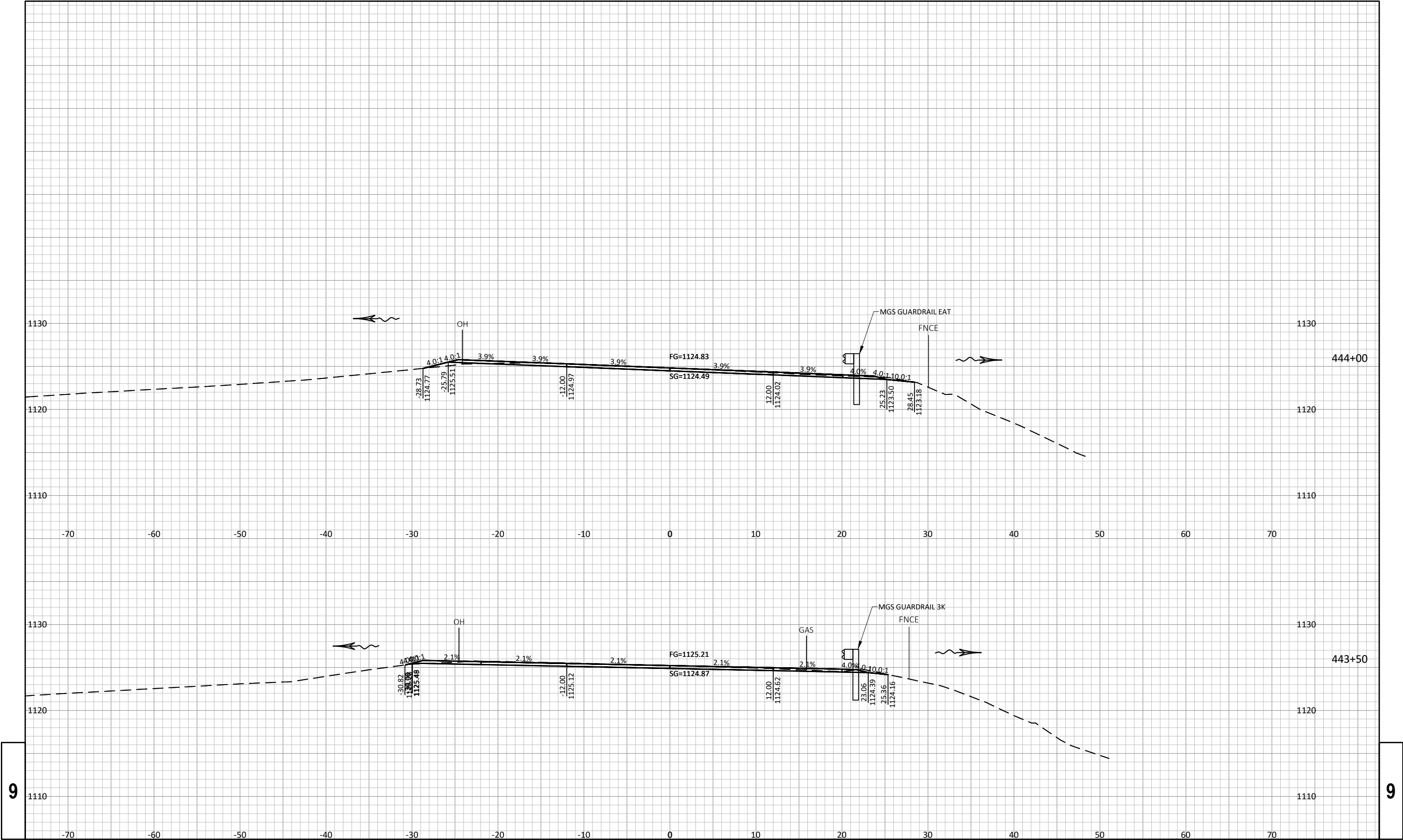






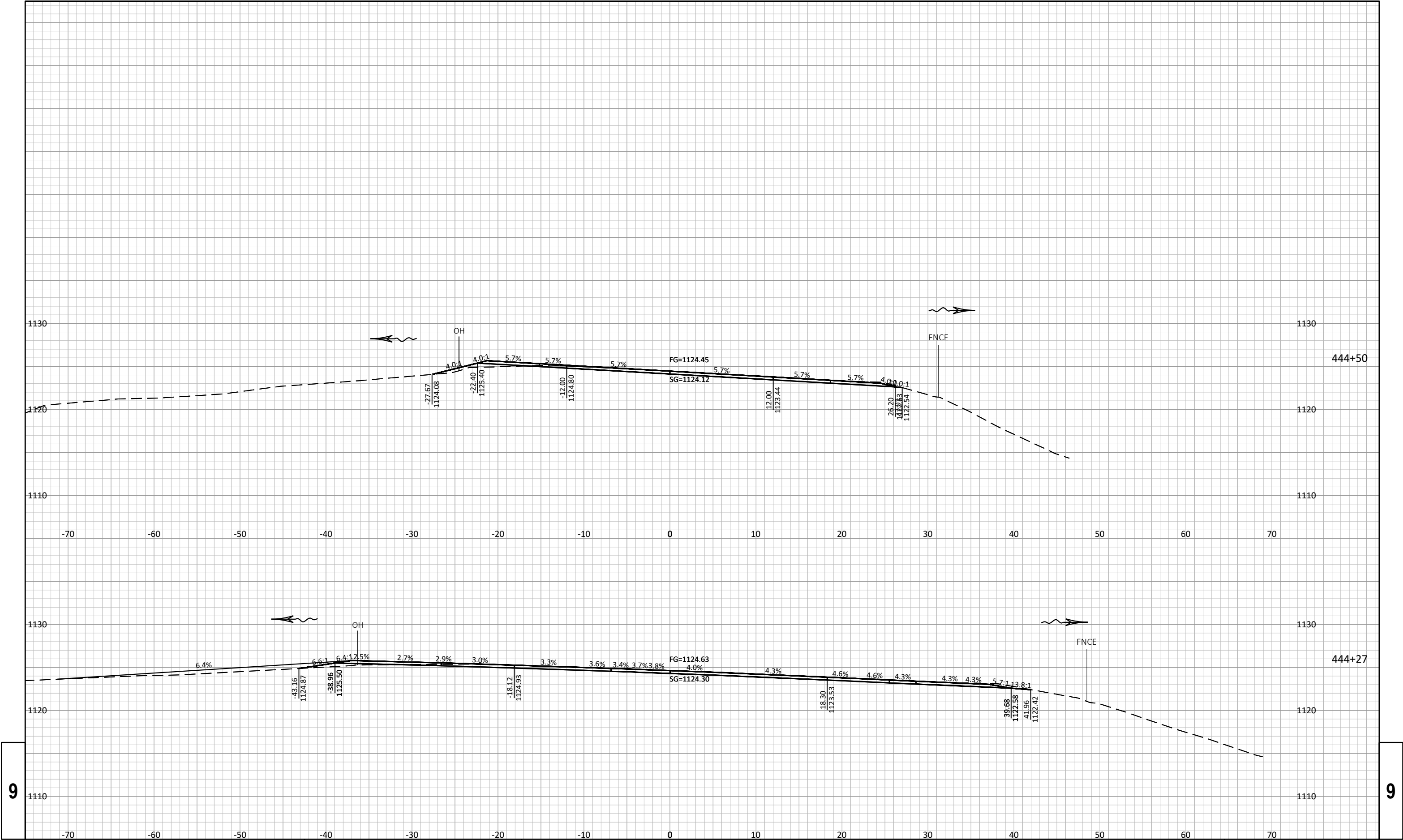






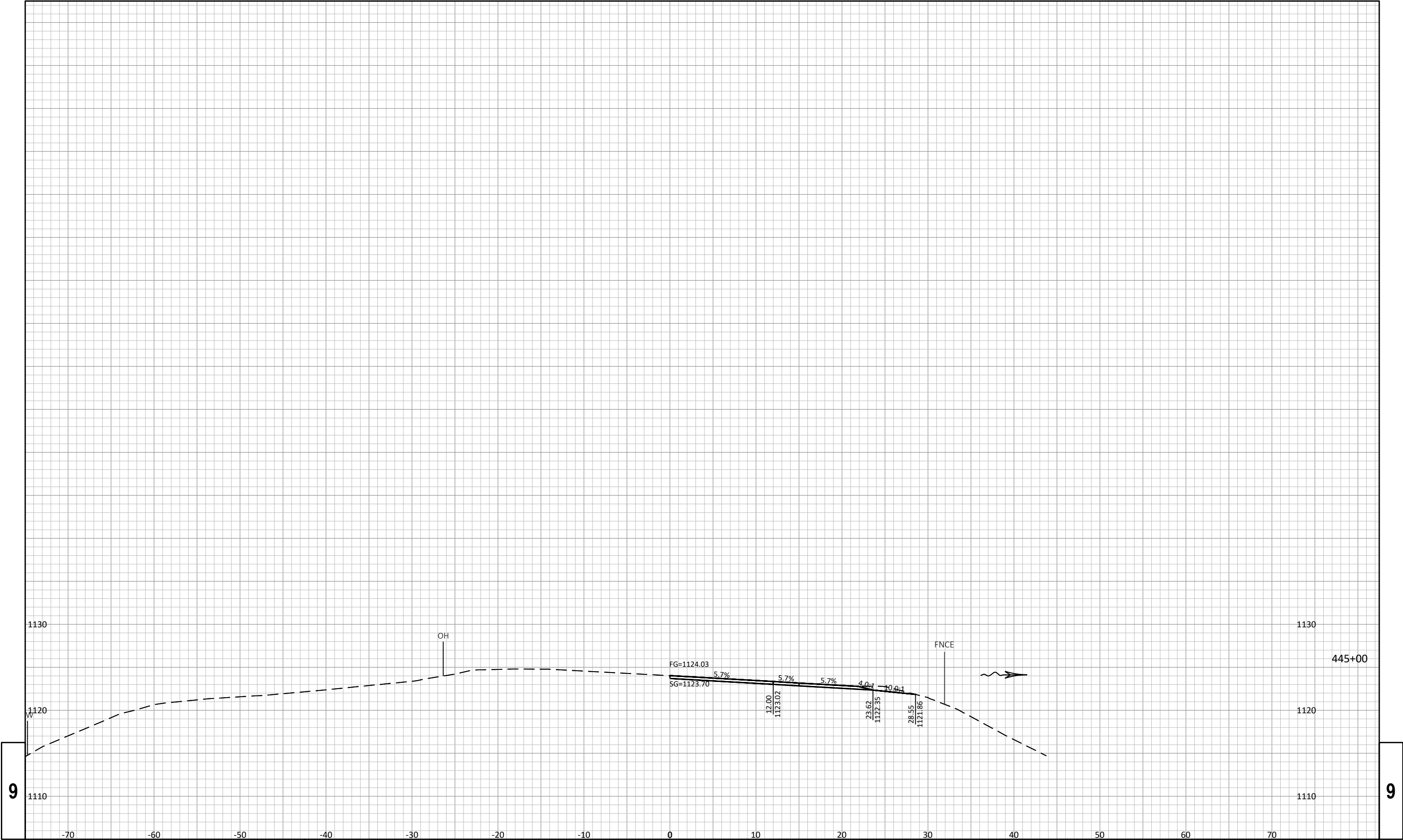
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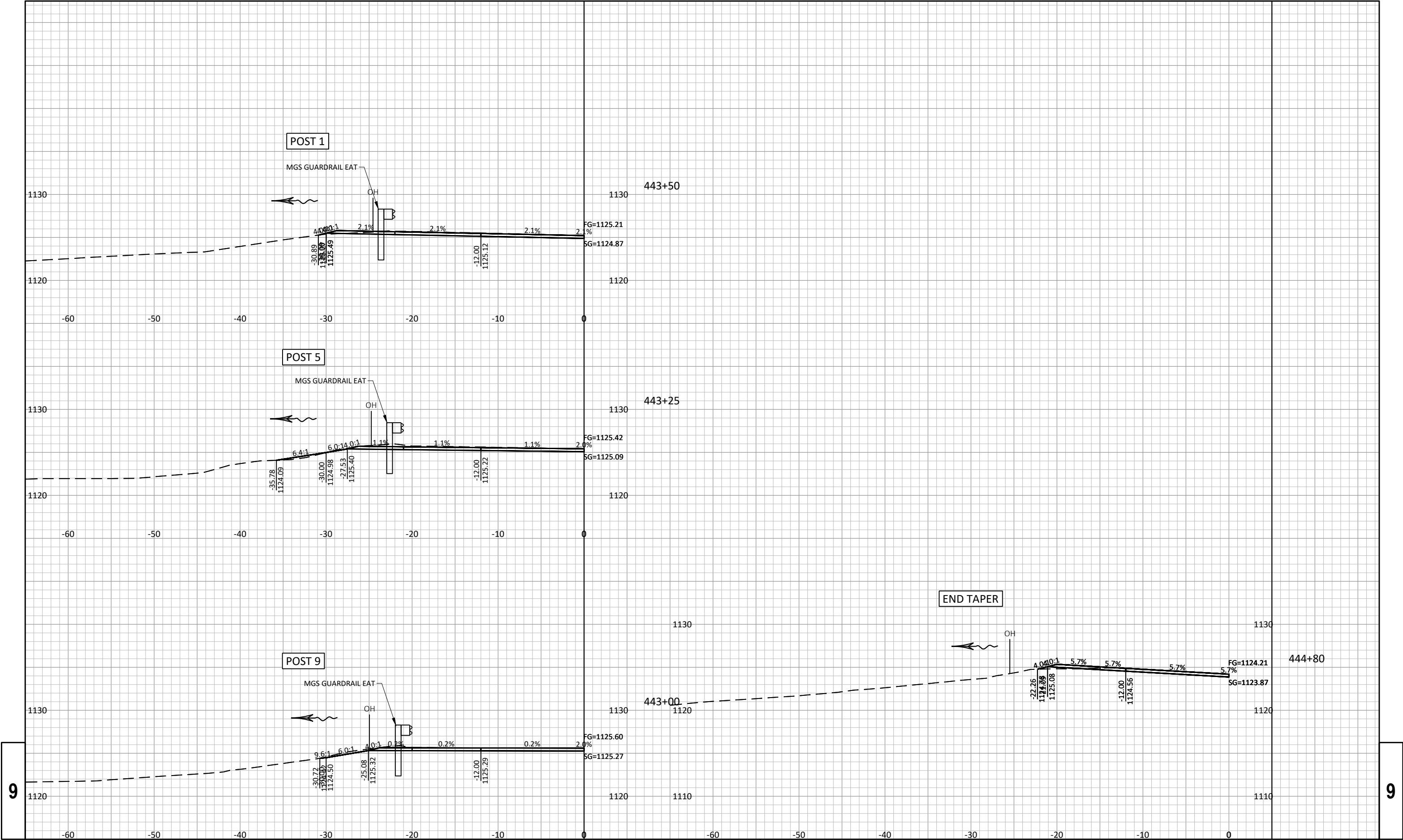
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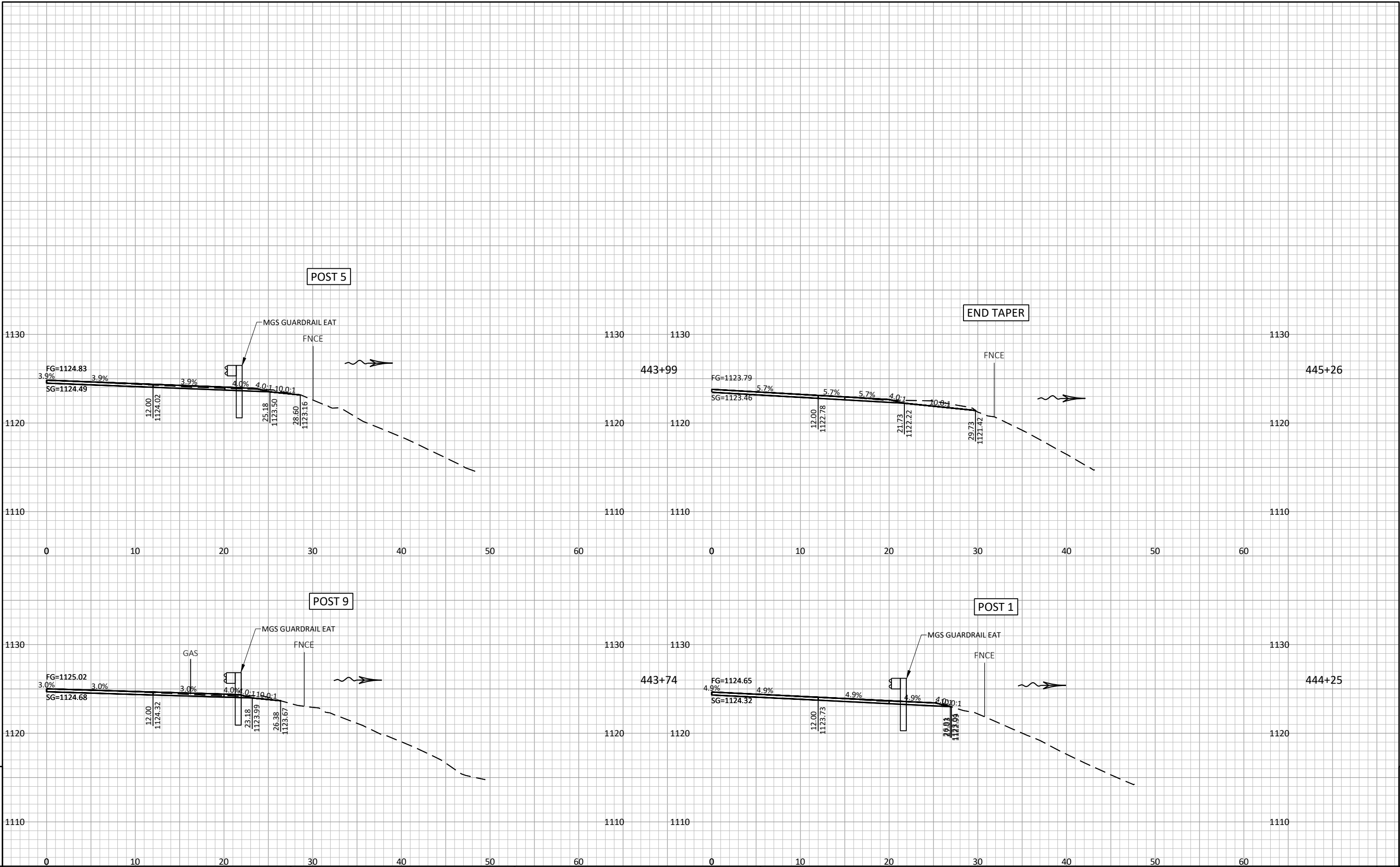
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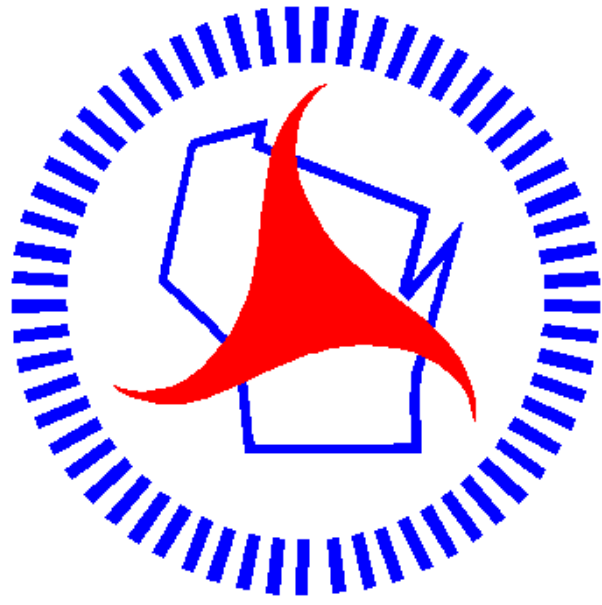


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Notes



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