

WIS

PROJECT ID:  
WITH:

1160-00-80, 1430-00-80/82

COUNTY:

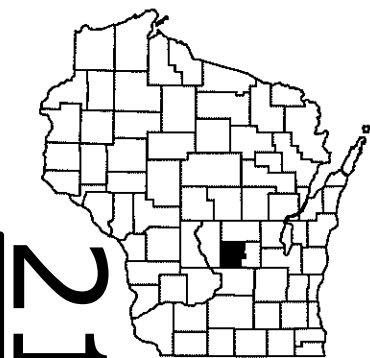
MARQUETTE

DECEMBER 2018

ORDER OF SHEETS

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

TOTAL SHEETS = 82



DESIGN DESIGNATION	1430-00-80	DESIGN DESIGNATION	1160-00-80, 1430-00-82
A.A.D.T.	2019 = 3900	A.A.D.T.	2019 = 5400
A.A.D.T.	2039 = 4720	A.A.D.T.	2039 = 6460
D.H.V.	= 11.2%	D.H.V.	= 13.4%
D.D.	= 60/40	D.D.	= 61/39
T.	= 14.0%	T.	= 21.2%
DESIGN SPEED	= 55	DESIGN SPEED	= 55
ESALS	=	ESALS	=

CONVENTIONAL SYMBOLS

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



MAUSTON - I-39

ADAMS COUNTY LINE TO I-39

STH 82

MARQUETTE

STATE PROJECT NUMBER
1430-00-80

ENDEAVOR-PRINCETON

I-39 SB RAMPS TO NB RAMPS

STH 23

MARQUETTE

STATE PROJECT NUMBER
1160-00-80

ENDEAVOR-PRINCETON

I-39 TO 8TH COURT

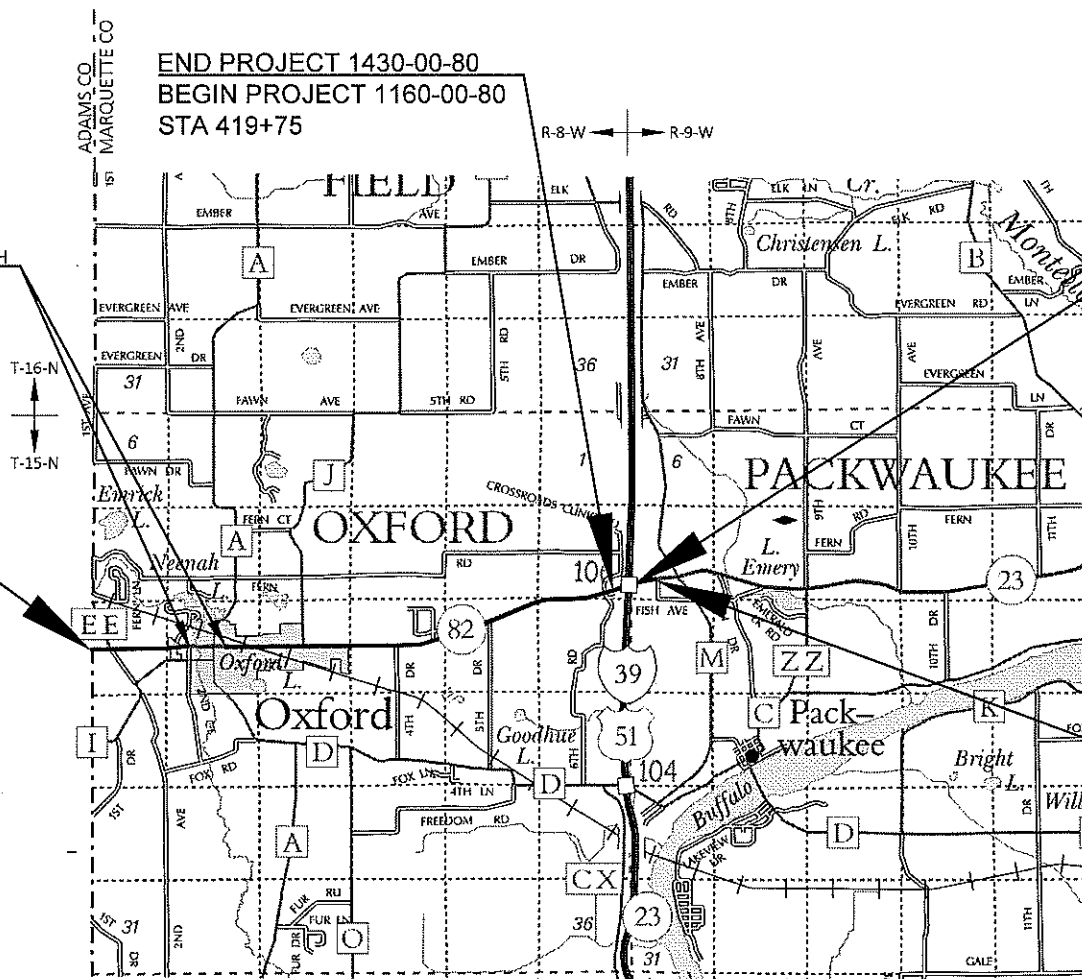
STH 23

MARQUETTE

STATE PROJECT NUMBER
1430-00-82

NET EXCEPTION TO CL LENGTH  
STA 168+93 - STA 198+95

BEGIN PROJECT 1430-00-80  
STA 113+86  
Y = 250,548.775  
X = 400,702.397



LAYOUT  
SCALE 0 2 MI

TOTAL NET LENGTH OF CENTERLINE 1430-00-80 = 5.558 MI  
TOTAL NET LENGTH OF CENTERLINE 1160-00-80 = 0.169 MI  
TOTAL NET LENGTH OF CENTERLINE 1430-00-82 = 0.241 MI

HORIZONTAL POSITIONS SHOWN ON THIS PLAN ARE WISCONSIN COUNTY COORDINATES, MARQUETTE COUNTY, NAD83 (2011), IN U.S. SURVEY FEET. VALUES ARE GRID COORDINATES, GRID BEARINGS, AND GRID DISTANCES. GRID DISTANCES MAY BE USED AS GROUND DISTANCES. ELEVATIONS SHOWN ON THIS PLAN ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 NAVD 88 (2012)

END PROJECT 1160-00-80  
BEGIN PROJECT 1430-00-82  
STA 429+15

END PROJECT 1430-00-82  
STA 441+90

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

PREPARED BY	WISDOT NC REGION
Surveyor	DANIEL SCHAVE & PHILIP SAEGER
Designer	TIM HANLEY
Project Manager	CHERYL SIMON
Regional Examiner	NICHOLE LYSNE
Regional Supervisor	

APPROVED FOR THE DEPARTMENT  
DATE: 7-23-18  
[Signature]

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GENERAL NOTES

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

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

PURSUANT TO CHAPTER 59 OF THE WISCONSIN STATUTES, THE CONTRACTOR SHALL CAREFULLY MAKE A SEARCH FOR EVIDENCE OF A LANDMARK IN ALL AREAS WHERE SUCH A LANDMARK MAY EXIST.

THE CONTRACTOR IS TO WORK WITH UTMOST CARE AND PROTECT ALL SURVEY MARKERS. REMOVAL OF ANY SURVEY MARKER IS TO BE WITH THE APPROVAL OF THE ENGINEER.

Runoff Coefficient Table

	Hydrologic Soil Group											
	A			B			C			D		
	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	0.08	0.16	0.22	0.12	0.20	0.27	0.15	0.24	0.33	0.19	0.28	0.38
	0.22	0.30	0.38	0.26	0.34	0.44	0.30	0.37	0.50	0.34	0.41	0.56
Median Strip-Turf	0.19	0.20	0.24	0.19	0.22	0.26	0.20	0.23	0.30	0.20	0.25	0.30
	0.24	0.26	0.30	0.25	0.28	0.33	0.26	0.30	0.37	0.27	0.32	0.40
Side Slope Turf			0.25			0.27			0.28			0.30
			0.32			0.34			0.36			0.38
Pavement												
Asphalt	0.70 - 0.95											
Concrete	0.80 - 0.95											
Brick	0.70 - 0.80											
Drives, Sidewalks	0.75 - 0.85											
Roofs	0.75 - 0.95											
Gravel Roads, Shoulders	0.40 - 0.60											

Total Project Area = 50 Acres  
Total Area Expected To Be Disturbed By Construction Activities = 0.6 Acres

UTILITIES

ATC - ELECTRICITY

DOUG VOSBERG  
5303 FEN OAK DRIVE  
MADISON, WI 53718  
PHONE: (608) 877-7650 WORK  
E-MAIL: DVOSBERG@ATCLLC.COM

ENBRIDGE ENERGY - GAS/PETROLEUM

DAN KLEINHANS  
4898 YOUNG ROAD  
VESPER, WI 54489  
PHONE: (920)-988-7931 WORK  
E-MAIL: DAN.KLEINHANS@ENBRIDGE.COM

WE ENERGIES - GAS/PETROLEUM

JACOB HULBERT  
1921 8TH STREET SOUTH  
WISCONSIN RAPIDS, WI 54494  
PHONE: (715) 421-7277 WORK  
E-MAIL: JACOB.HULBERT@WE-ENERGIES.COM

ADAMS COLUMBIA ELECTRIC COOPERATIVE - ELECTRICITY

SHAWN PIETRZAK  
401 E. LAKE STREET  
FRIENDSHIP, WI 53934  
PHONE: (800) 831-8629 EXT 323 WORK  
E-MAIL: SPIETRZAK@ACECWI.COM

MARQUETTE ADAMS TELEPHONE - COMMUNICATION LINE

JASON SENGBUSCH  
113 N. OXFORD STREET  
OXFORD, WI 53952  
PHONE: (608) 586-7070 WORK  
E-MAIL: jsengbusch@maadtelco.com

ALLIANT ENERGY WP&L - ELECTRICITY

MATT JOHNSON  
2777 COLUMBIA DRIVE  
PORTAGE, WI 53901  
PHONE: (608) 742-0801 WORK  
E-MAIL: MATTHEW.JOHNSON@ALLIANTENERGY.COM

ENVIRONMENTAL CONTACTS

WI. Dept. of Natural Resources  
473 GRIFFITH DRIVE  
WISCONSIN RAPIDS, WI 54494  
ATTN: BRAD BETTHAUSER  
PHONE: (715) 421-7851  
E-MAIL: BRADLEY.BETTHAUSER@WISCONSIN.GOV

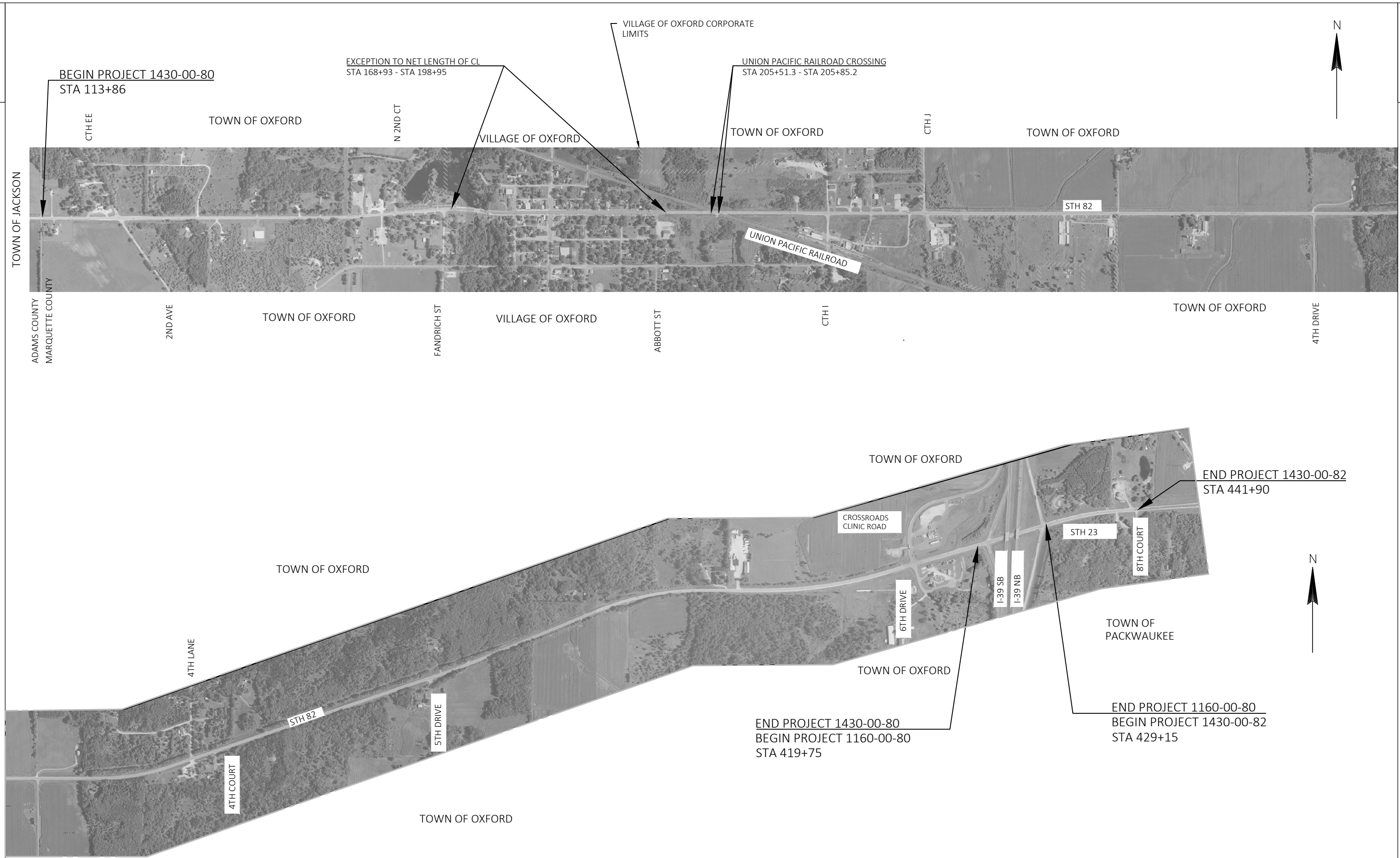
DIGGERSHOTLINE

Dial 811 or (800)242-8511

www.DiggersHotline.com

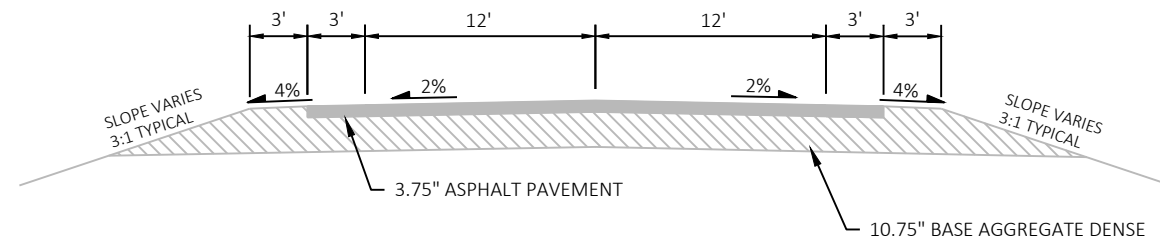
PAVEMENT FIELD CORE LOG

Core Number	C/L Offset (ft.)	Pavement Thickness (in.)	Comments
1	9.0 RT	3.75	STH 82 - See Plan Sheets for Location
2	9.0 LT	10	STH 82 - See Plan Sheets for Location
3	9.5 RT	8.75	STH 82 - See Plan Sheets for Location
4	3.0 LT	12.5	STH 82 - See Plan Sheets for Location
5	7.5 RT	8.75	STH 82 - See Plan Sheets for Location
6	11.0 LT	7.25	STH 82 - See Plan Sheets for Location
7	11.5 RT	11.75	STH 82 - See Plan Sheets for Location
8	4.0 LT	14	STH 82 - See Plan Sheets for Location
9	3.0 RT	8.5	STH 82 - See Plan Sheets for Location
10	8.5 LT	10.5	STH 82 - See Plan Sheets for Location
11	5.0 RT	8.25	STH 82 - See Plan Sheets for Location
12	8.0 LT	7.5	STH 82 - See Plan Sheets for Location
13	6.5 RT	7.5	STH 82 - See Plan Sheets for Location
14	9.5 LT	7.5	STH 82 - See Plan Sheets for Location
15	8.5 RT	10	STH 82 - See Plan Sheets for Location
16	10.0 LT	11	STH 82 - See Plan Sheets for Location
17	5.0 RT	7.75	STH 82 - See Plan Sheets for Location
18	3.5 LT	8.25	STH 82 - See Plan Sheets for Location
19	8.0 RT	3.5	IH 39 NB RAMP - See Plan Sheets for Location
20	7.0 LT	3.5	IH 39 NB RAMP - See Plan Sheets for Location
21	10.0 RT	7.25	STH 23 - See Plan Sheets for Location
22	7.5 LT	7	STH 23 - See Plan Sheets for Location

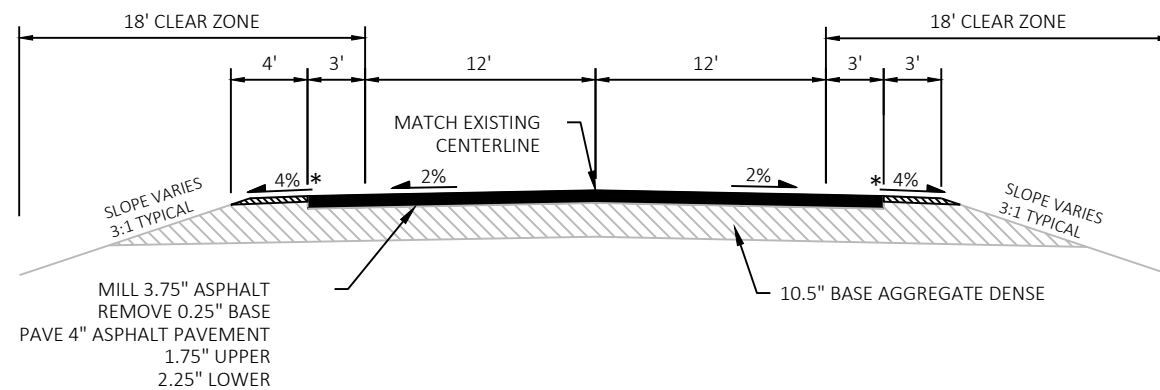


PROJECT NO: 1160-00-80/1430-00-80/82	HWY: STH 82/ STH 23	COUNTY: MARQUETTE	PLAN OVERVIEW	SHEET	E
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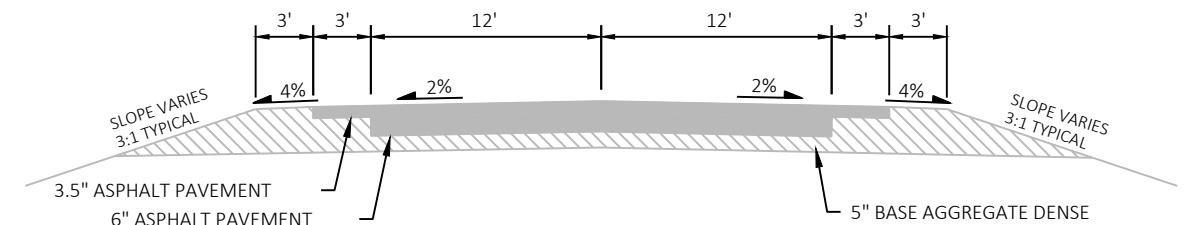
PROJECT 1430-00-80  
EXISTING TYPICAL SECTION STH 82  
STA 113+86 TO STA 117+36



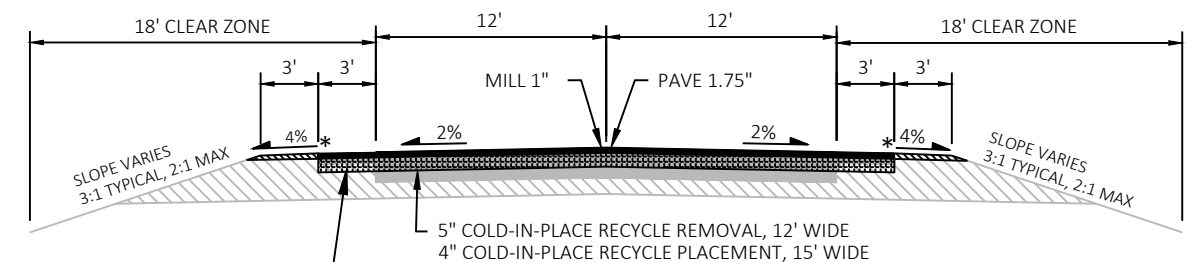
PROJECT 1430-00-80  
PROPOSED TYPICAL SECTION STH 82  
STA 113+86 TO STA 117+36

#### LEGEND

- EXISTING ASPHALT PAVEMENT
- EXISTING BASE AGGREGATE DENSE
- PROPOSED HMA PAVEMENT TYPE 4LT58-28S
- PROPOSED COLD-IN-PLACE RECYCLE
- PROPOSED BASE AGGREGATE DENSE 3/4-INCH
- \* SEE SAFETY EDGE SDD



PROJECT 1430-00-80  
EXISTING TYPICAL SECTION STH 82  
STA 117+36 TO STA 161+60



ITEM 211.040 - PREPARE FOUNDATION FOR ASPHALT SHOULDER  
REMOVE BASE MATERIAL TO BOTTOM OF CIR LAYER LT/RT SHOULDERS.  
DO NOT DISPOSE OF EXCESS SHOULDER MATERIAL ON PROJECT.  
HAULING EXCESS MATERIAL IS INCIDENTAL TO ITEM 211.0400

PROJECT 1430-00-80  
PROPOSED TYPICAL SECTION STH 82  
STA 117+36 TO STA 161+60

NOTE OPERATION CHANGE AT TURN LANES  
2ND AVE (STA 120+41 RT - 126+15 RT)  
CTH EE (STA 122+42 LT - 127+81 LT)

MAINLINE: CHANGE MILL DEPTH TO 1.75" AND CIR OPERATION  
TO 4" REMOVAL AND 4" PLACEMENT AT 12' WIDE

TURN LANE: 1.75" MILL, NO CIR

PROJECT 1430-00-80  
EXISTING TYPICAL SECTION STH 82  
STA 161+60 TO STA 168+93

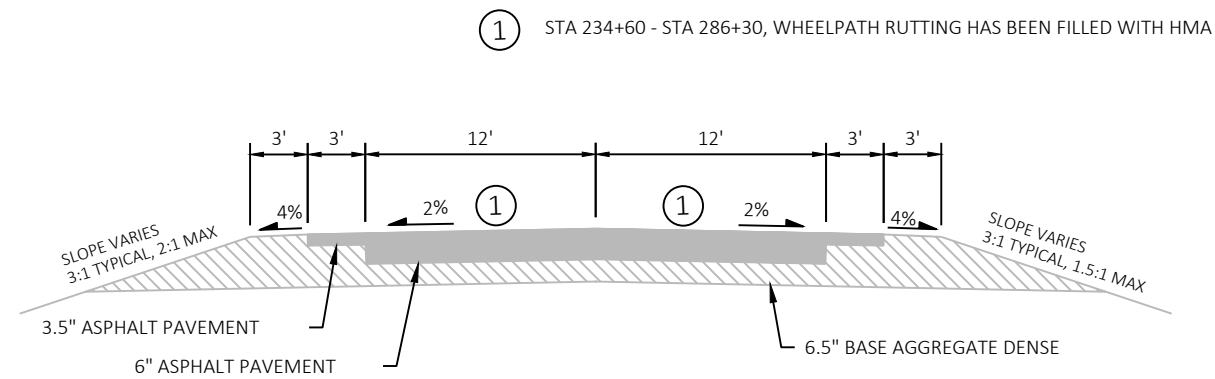
PROJECT 1430-00-80  
PROPOSED TYPICAL SECTION STH 82  
STA 161+60 TO STA 168+93

TURN LANE: 1.75" MILL, NO CIR

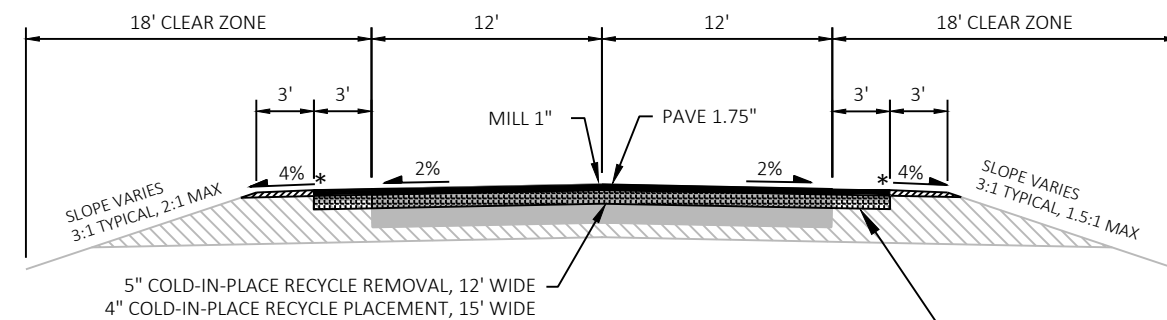
PROJECT 1430-00-80  
EXISTING TYPICAL SECTION STH 82  
STA 198+95 TO STA 210+45

PROJECT 1430-00-80  
PROPOSED TYPICAL SECTION STH 82  
STA 198+95 TO STA 210+45

DO NOT DISPOSE OF EXCESS SHOULDER MATERIAL ON PROJECT. HAULING EXCESS MATERIAL IS INCIDENTAL TO ITEM 211.0400, PREPARE FOUNDATION FOR ASPHALT SHOULDERS



PROJECT 1430-00-80  
EXISTING TYPICAL SECTION STH 82  
STA 210+45 TO STA 384+95



PROJECT 1430-00-80  
PROPOSED TYPICAL SECTION STH 82  
STA 210+45 TO STA 384+95

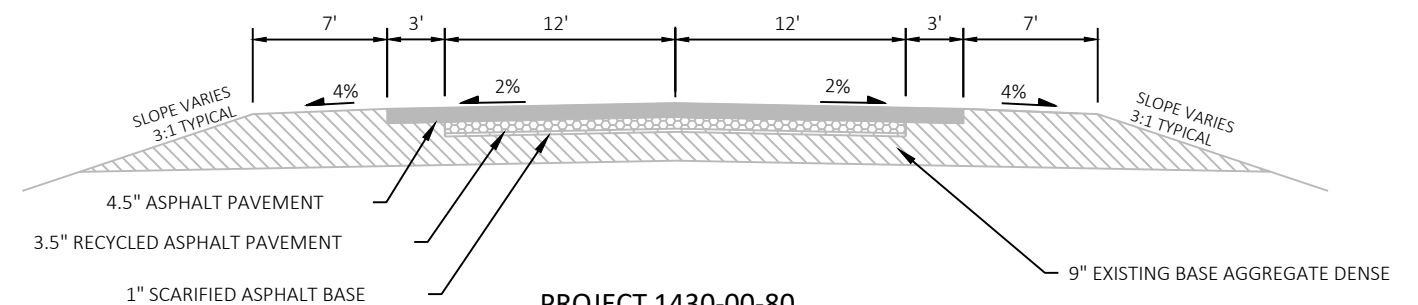
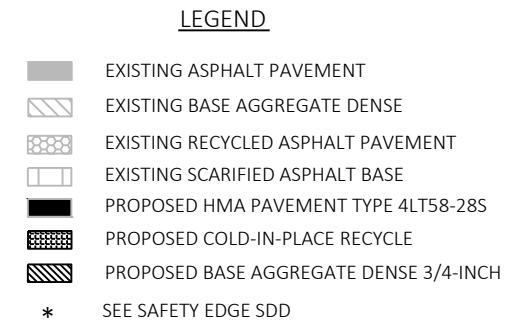
NOTE OPERATION CHANGE AT TURN LANES  
CTH I (STA 216+35 RT - 222+35 RT)  
CTH J (STA 232+23 LT - 237+89 LT)

MAINLINE: CHANGE MILL DEPTH TO 1.75" AND CIR OPERATION  
TO 4" REMOVAL AND 4" PLACEMENT AT 12' WIDE

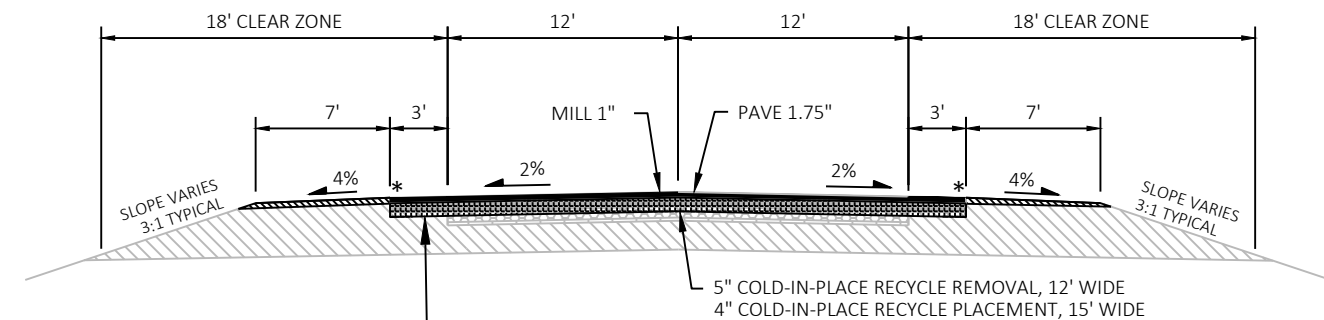
TURN LANE: 1.75" MILL, NO CIR

ITEM 211.040 - PREPARE FOUNDATION FOR ASPHALT SHOULDER

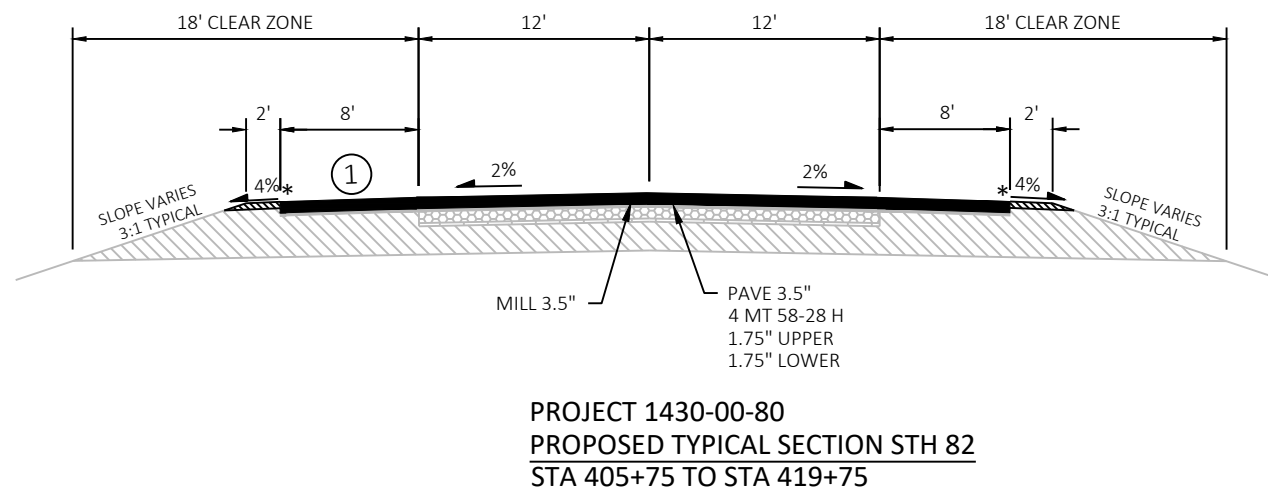
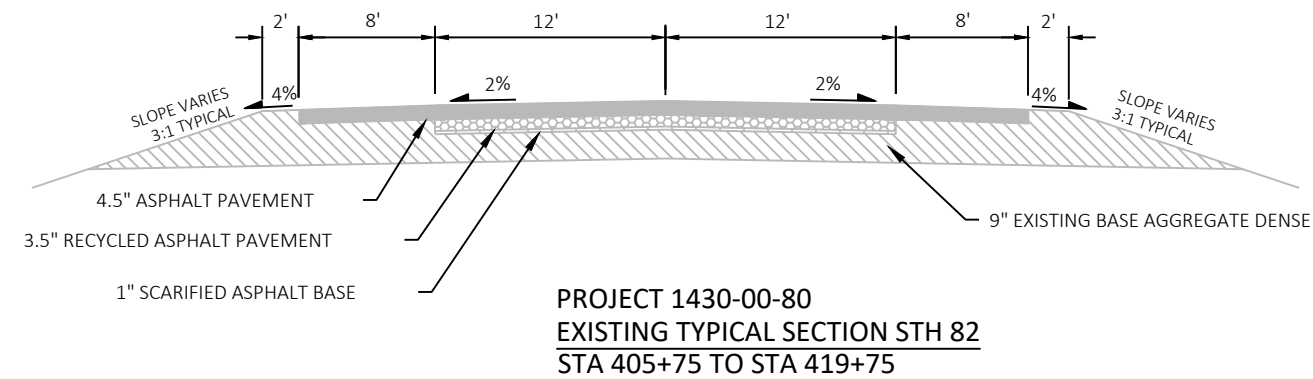
REMOVE BASE MATERIAL TO BOTTOM OF CIR LAYER LT/RT SHOULDERS.  
DO NOT DISPOSE OF EXCESS SHOULDER MATERIAL ON PROJECT.  
HAULING EXCESS MATERIAL IS INCIDENTAL TO ITEM 211.0400



PROJECT 1430-00-80  
EXISTING TYPICAL SECTION STH 82  
STA 384+95 TO STA 405+75

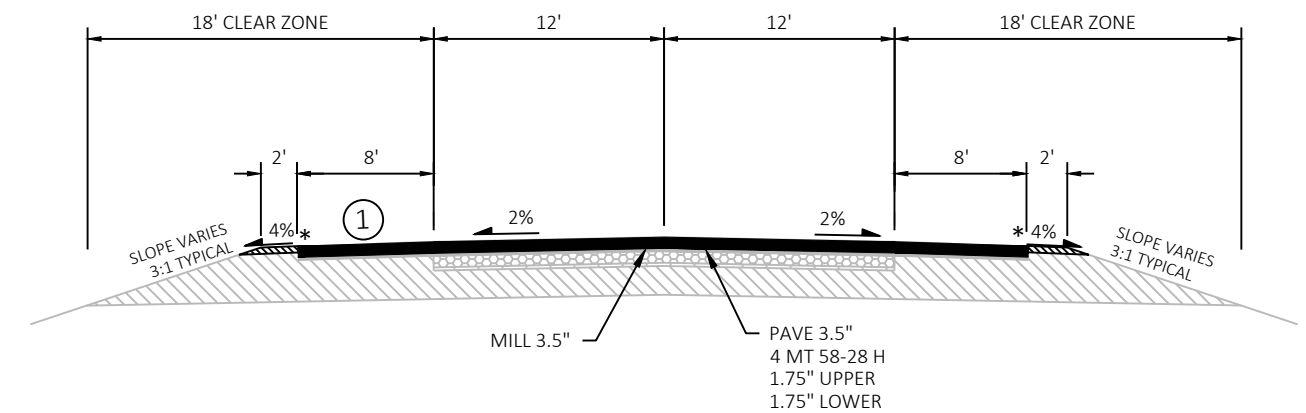
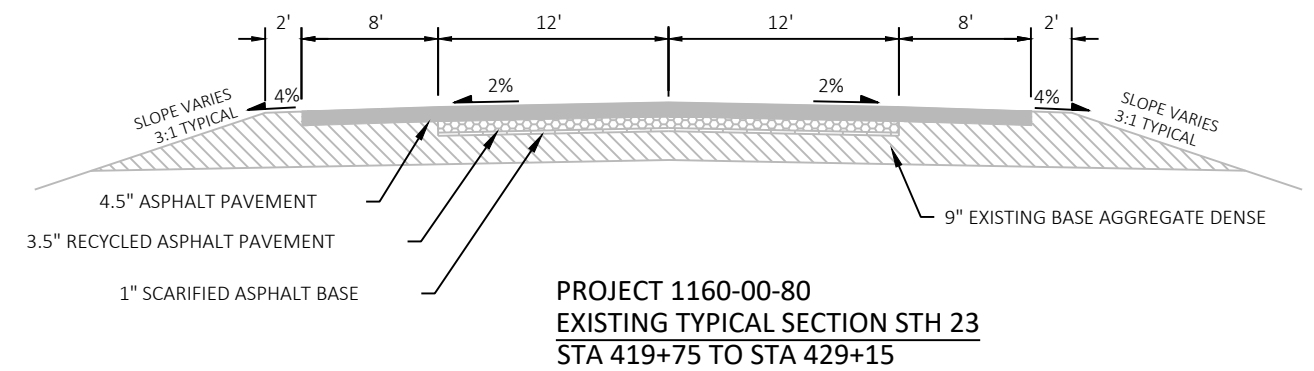


PROJECT 1430-00-80  
PROPOSED TYPICAL SECTION STH 82  
STA 384+95 TO STA 405+75









① DO NOT MILL/ PAVE LT SHOULDER STA 418+30 STA 421+52

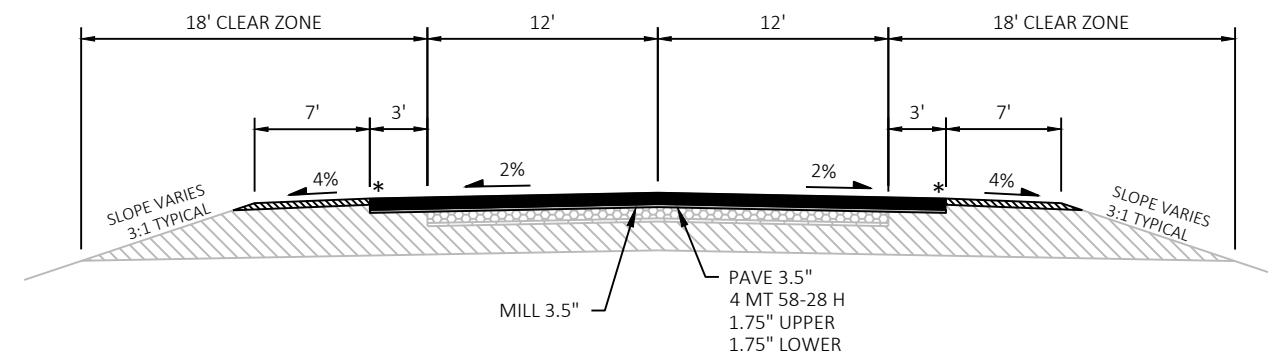
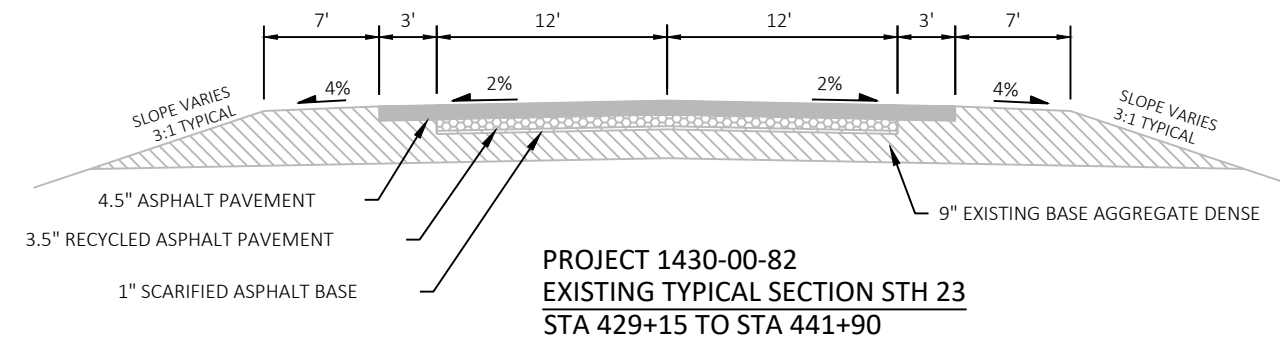
- LEGEND**
- EXISTING ASPHALT PAVEMENT
  - EXISTING BASE AGGREGATE DENSE
  - EXISTING RECYCLED ASPHALT PAVEMENT
  - EXISTING SCARIFIED ASPHALT BASE
  - PROPOSED HMA PAVEMENT TYPE 4 MT 58-28 H
  - PROPOSED BASE AGGREGATE DENSE 3/4-INCH
  - \* SEE SAFETY EDGE SDD

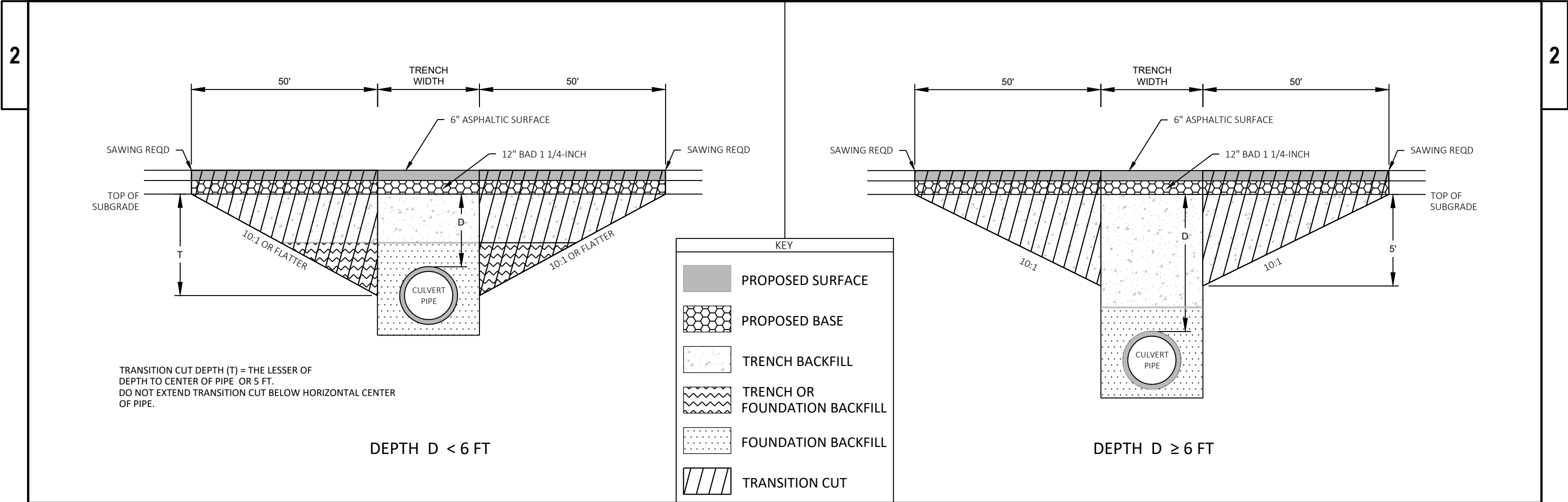


① DO NOT MILL/ PAVE LT SHOULDER STA 418+30 STA 421+52

LEGEND

-  EXISTING ASPHALT PAVEMENT
-  EXISTING BASE AGGREGATE DENSE
-  EXISTING RECYCLED ASPHALT PAVEMENT
-  EXISTING SCARIFIED ASPHALT BASE
-  PROPOSED HMA PAVEMENT TYPE 4 MT 58-28 H
-  PROPOSED BASE AGGREGATE DENSE 3/4-INCH
- \* SEE SAFETY EDGE SDD





**NOTES**

TRANSITION CUT IS PAID AS EXCAVATION COMMON.

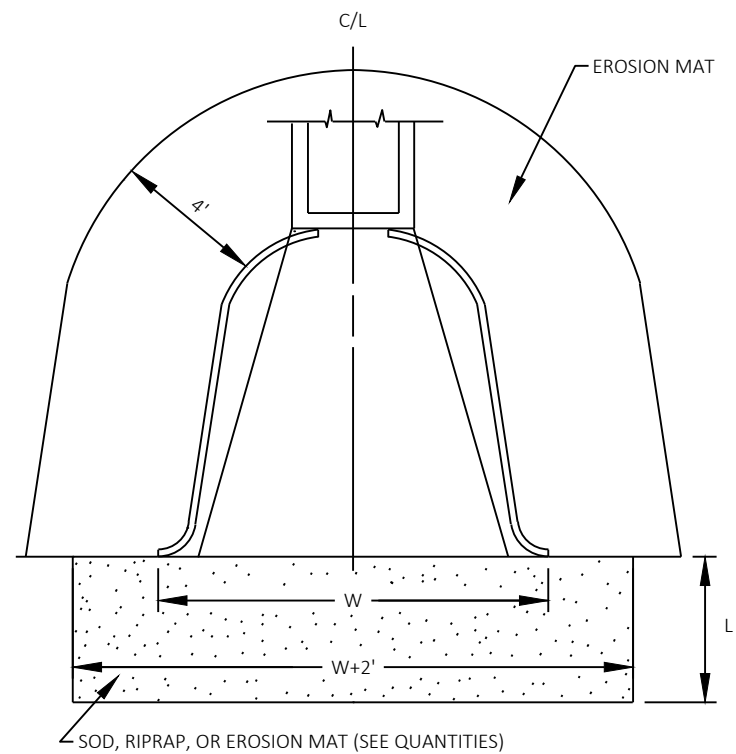
TRANSITION CUT WIDTH IS FROM SUBGRADE SHOULDER POINT TO SUBGRADE SHOULDER POINT.

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

PERFORM CULVERT PIPE REPLACEMENT PRIOR TO MILLING

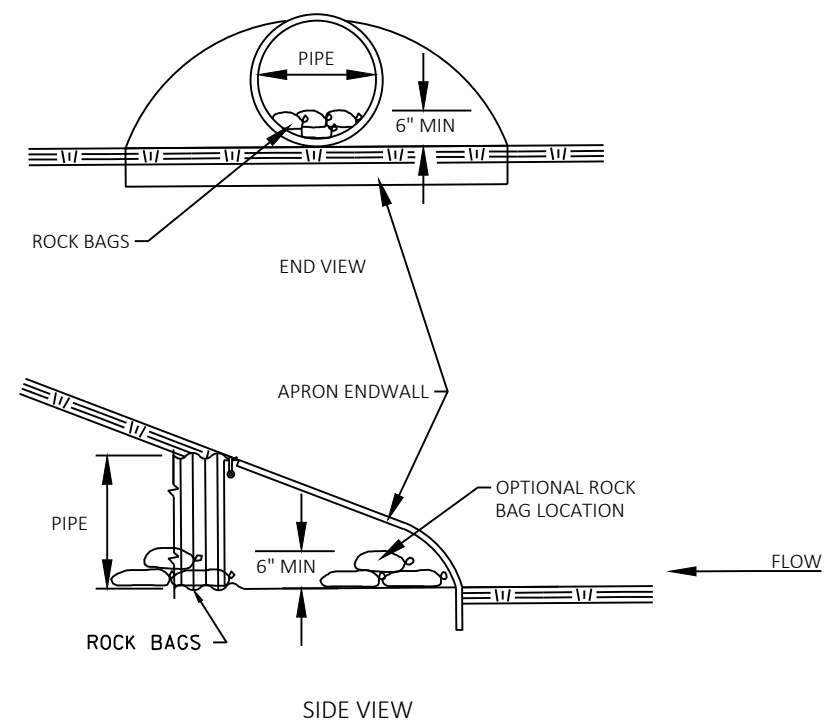
PLACE ASPHALT SURFACE AFTER PIPE INSTALLATION AND BEFORE MILLING

CULVERT PIPE TRANSITION				
ROUTE	STA (CL)	DEPTH D (FT)	PIPE DIA (IN)	REMARKS
STH 82	201+85	8.9	30	390820130
STH 82	209+90	12.2	30	390820150
STH 82	362+45	2.7	30	390820250



### EROSION CONTROL AT PIPE ENDS

L = 3 TIMES DIAMETER OR 10' MIN.  
INCREASE IF WARRANTED



### CULVERT PIPE CHECK

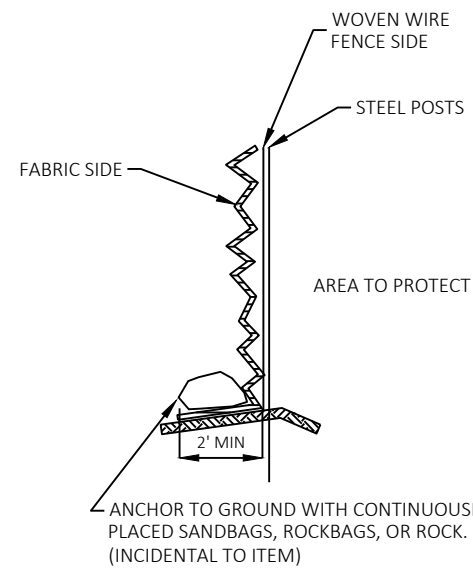
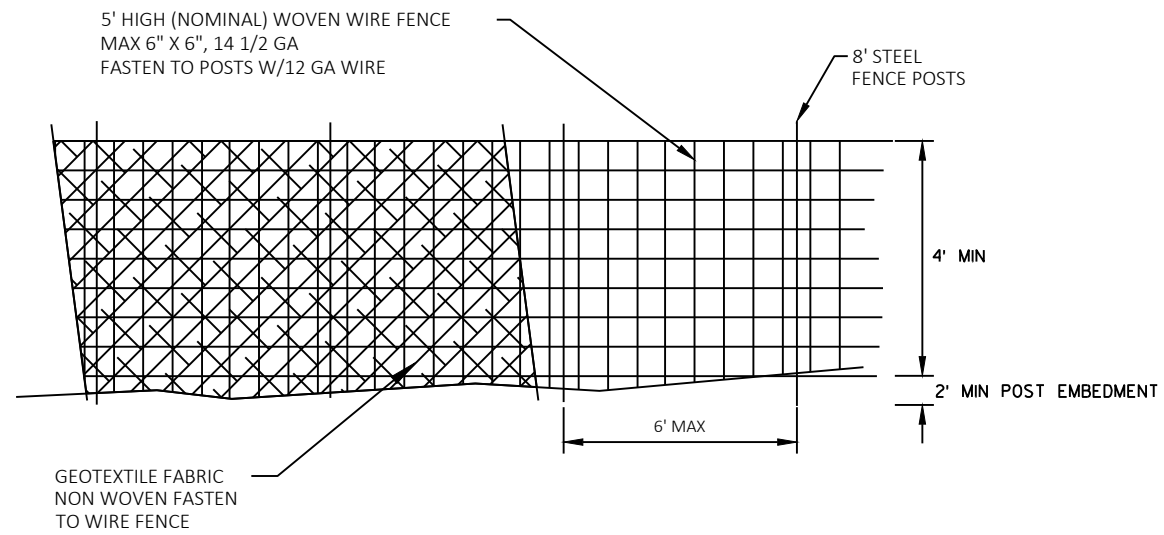
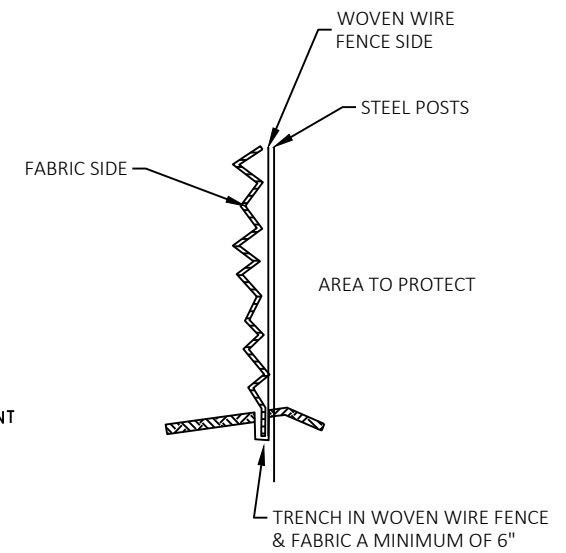
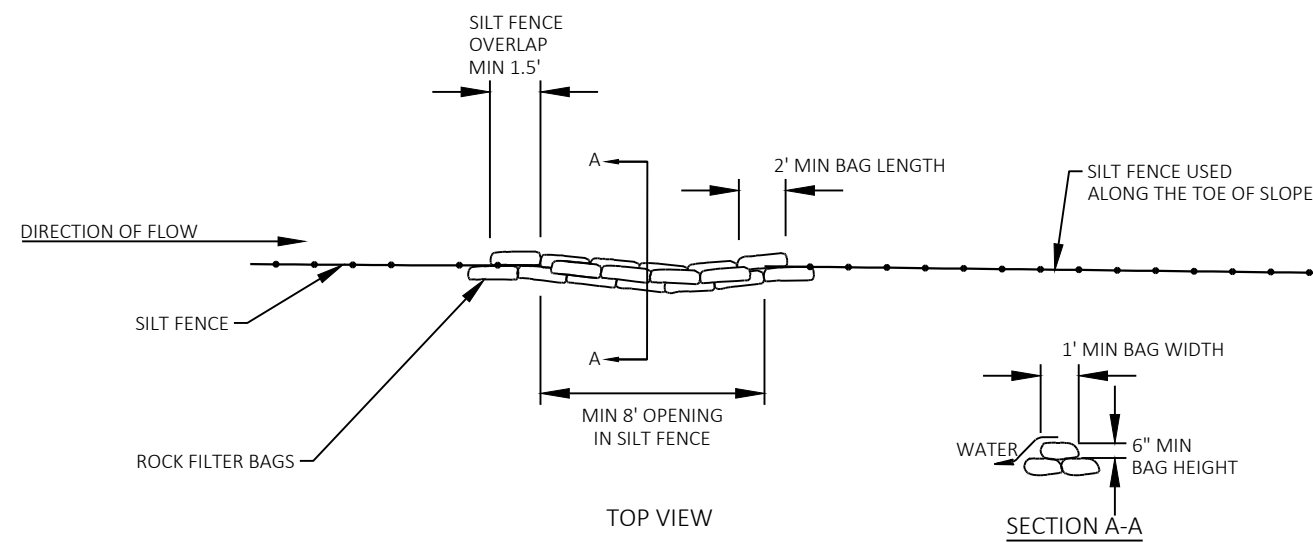
(INSTALL ON INLET END ONLY)

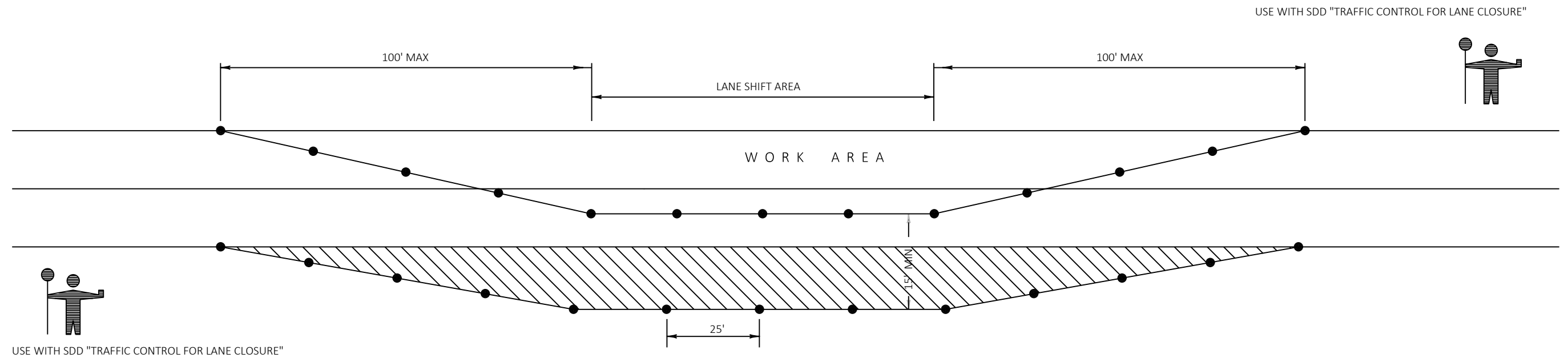


## GENERAL NOTES

TIE FABRIC TO WOVEN WIRE FENCE EVERY 2'

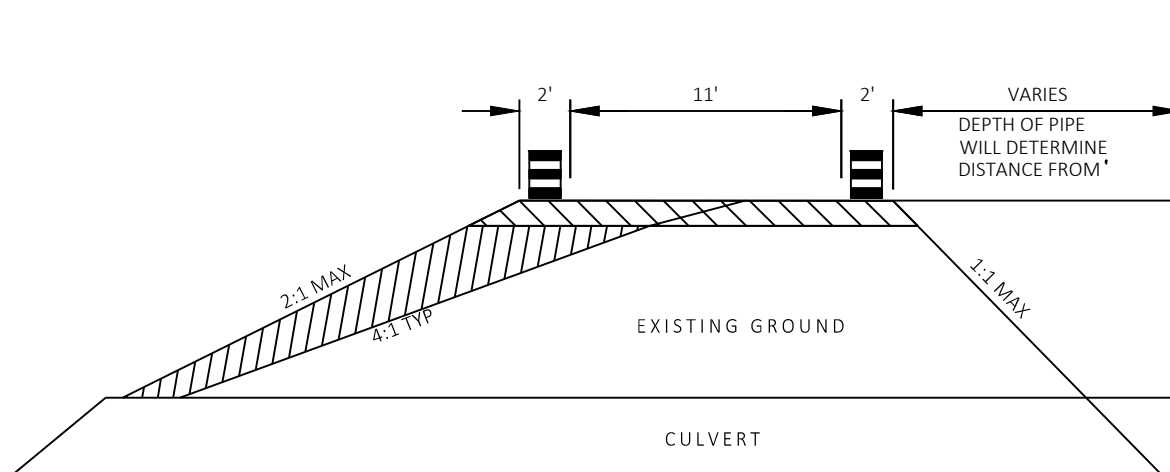
ADJUST POST EMBEDMENT AND/OR SPACING BASED ON EXISTING SOILS

ANCHORED INSTALLATION FOR WET CONDITIONHEAVY DUTY SILT FENCETRENCH INSTALLATION FOR DRY CONDITIONROCK BAGS USED FOR SILT FENCE RELIEF



## NOTES

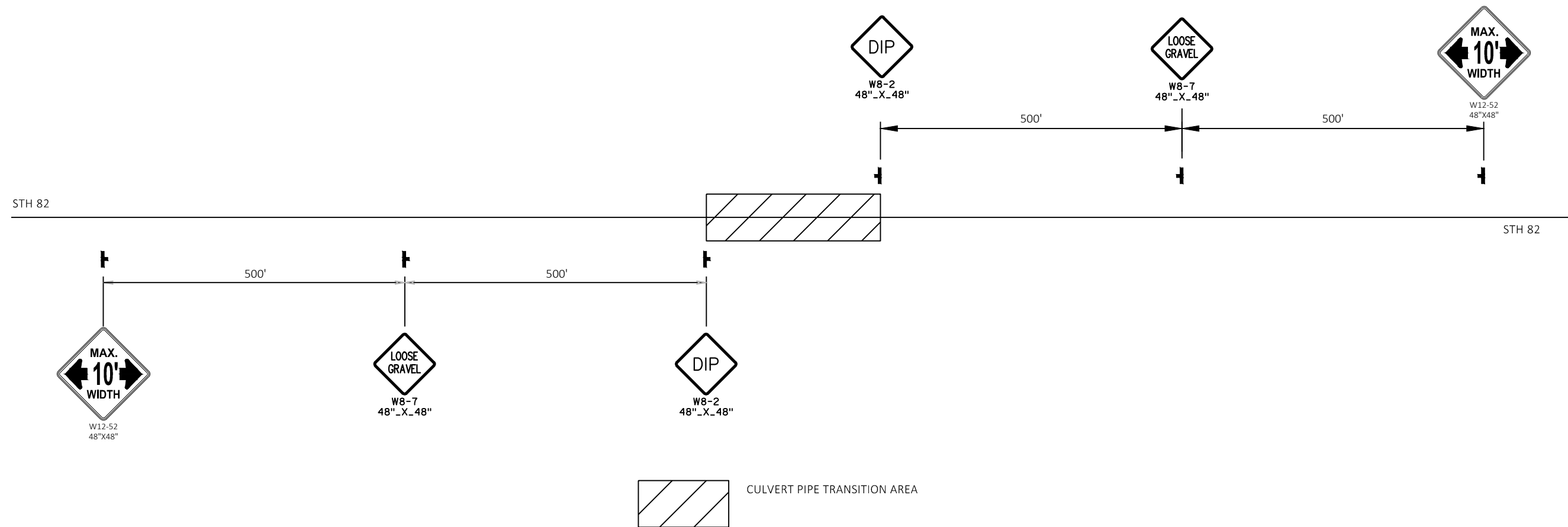
1. THE TAPER SHOULD EXTEND ACROSS THE SHOULDER UNLESS DOING SO WOULD GREATLY CONFLICT WITH THE WORK OPERATION
2. ALL LANE CLOSURE SIGNS SHALL BE REMOVED OR COVERED AND ALL DEVICES REMOVED BEYOND THE SHOULDER WHEN WORK IS NOT IN PROGRESS AND THE LANE IS RESTORED TO A SAFE OPERATING CONDITION
3. CHANNELIZING DEVICES PLACED ADJACENT TO WORK AREA SHALL BE PULLED BACK FROM TRAVEL LANE WHEN WORK IS NOT IN PROGRESS
4. USE WITH SDD "TRAFFIC CONTROL FOR LANE CLOSURE"



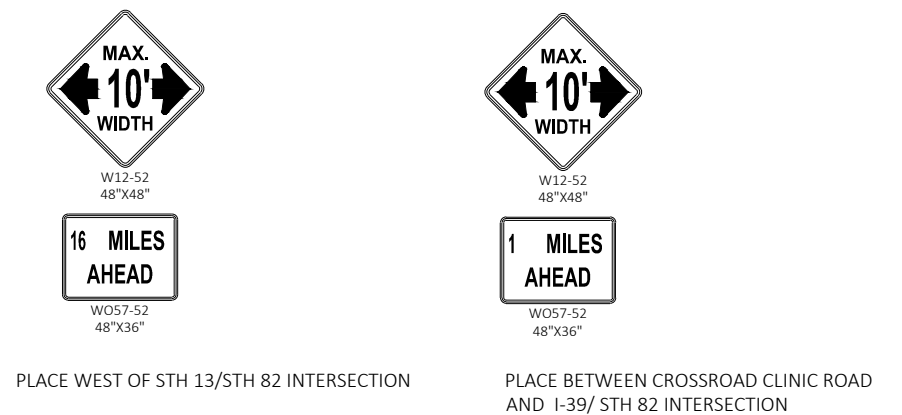
## LANE SHIFT DETAIL

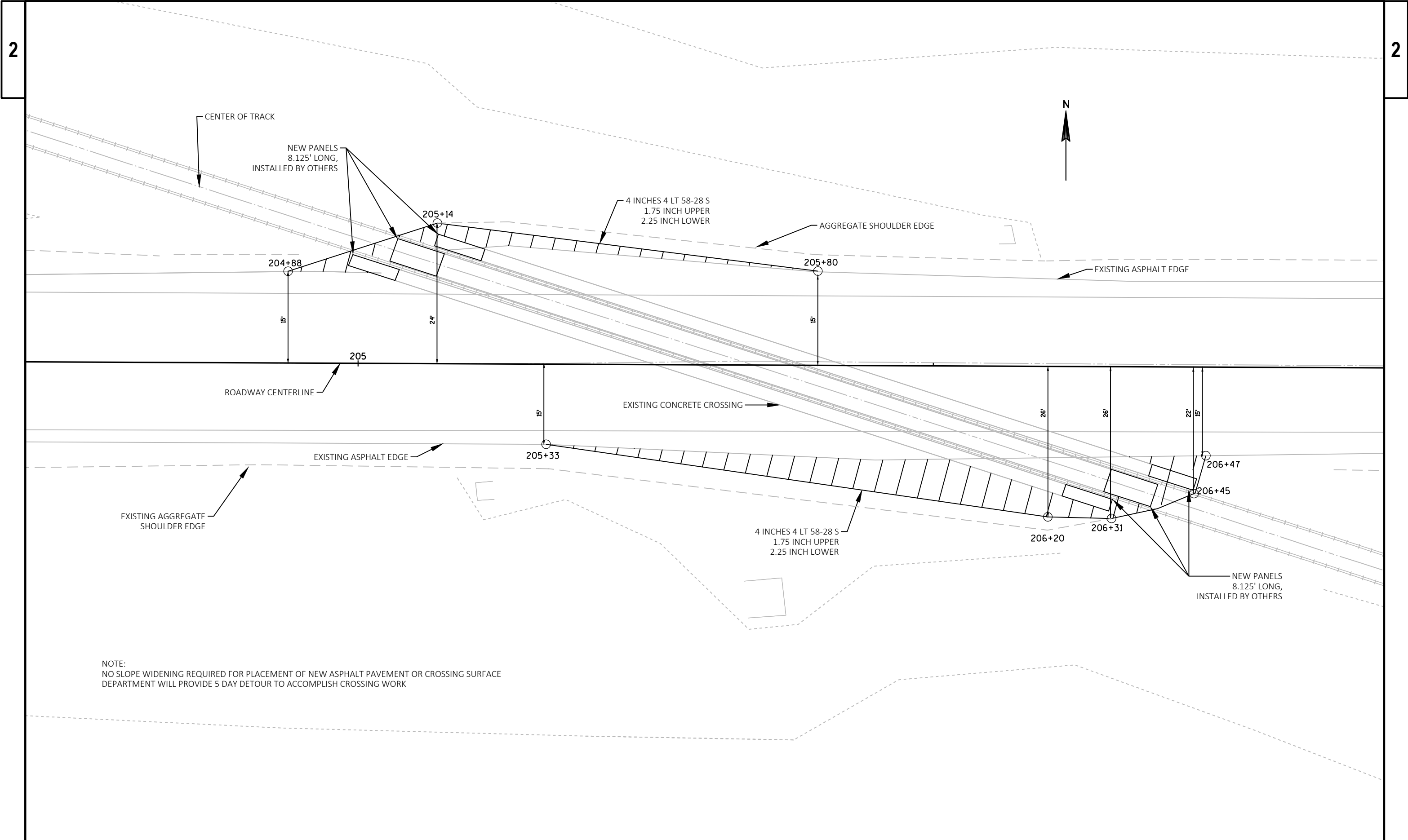
## KEY

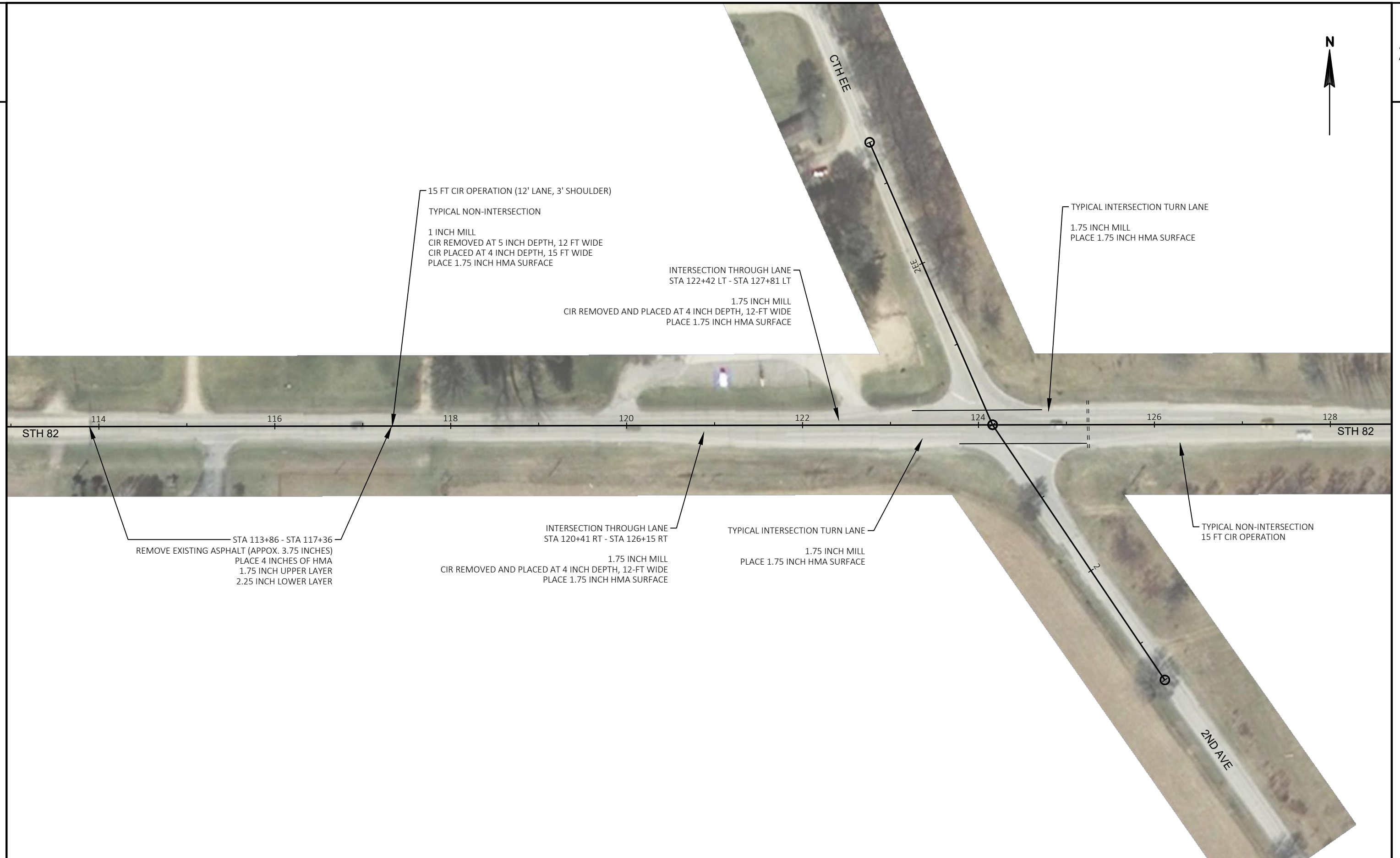
- DRUM WITHOUT WARNING LIGHT
- 6" BASE AGGREGATE DENSE 1 1/4 INCH  
- INCIDENTAL TO LANE SHIFT ITEM
- FILL  
- INCIDENTAL TO LANE SHIFT ITEM

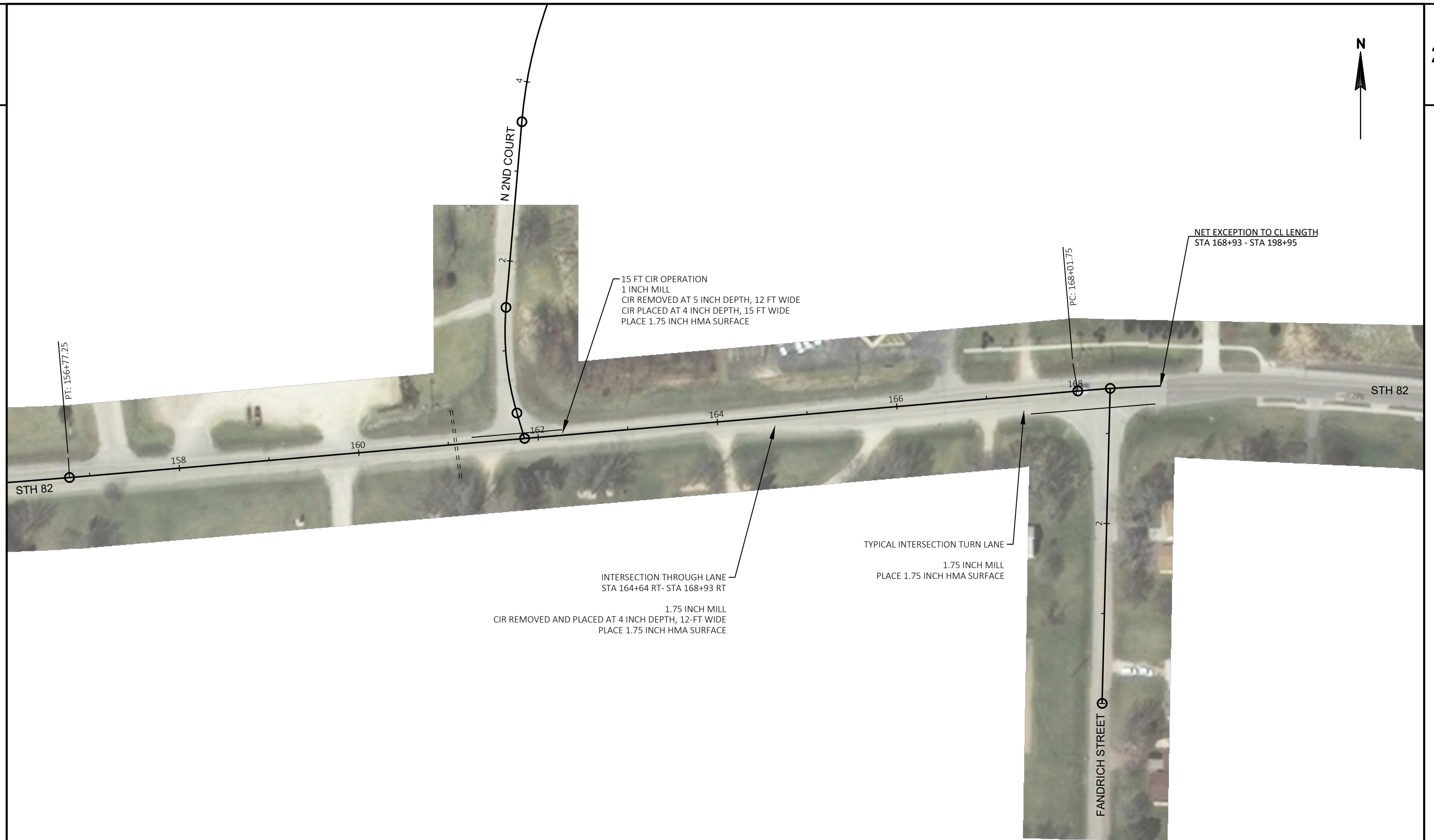


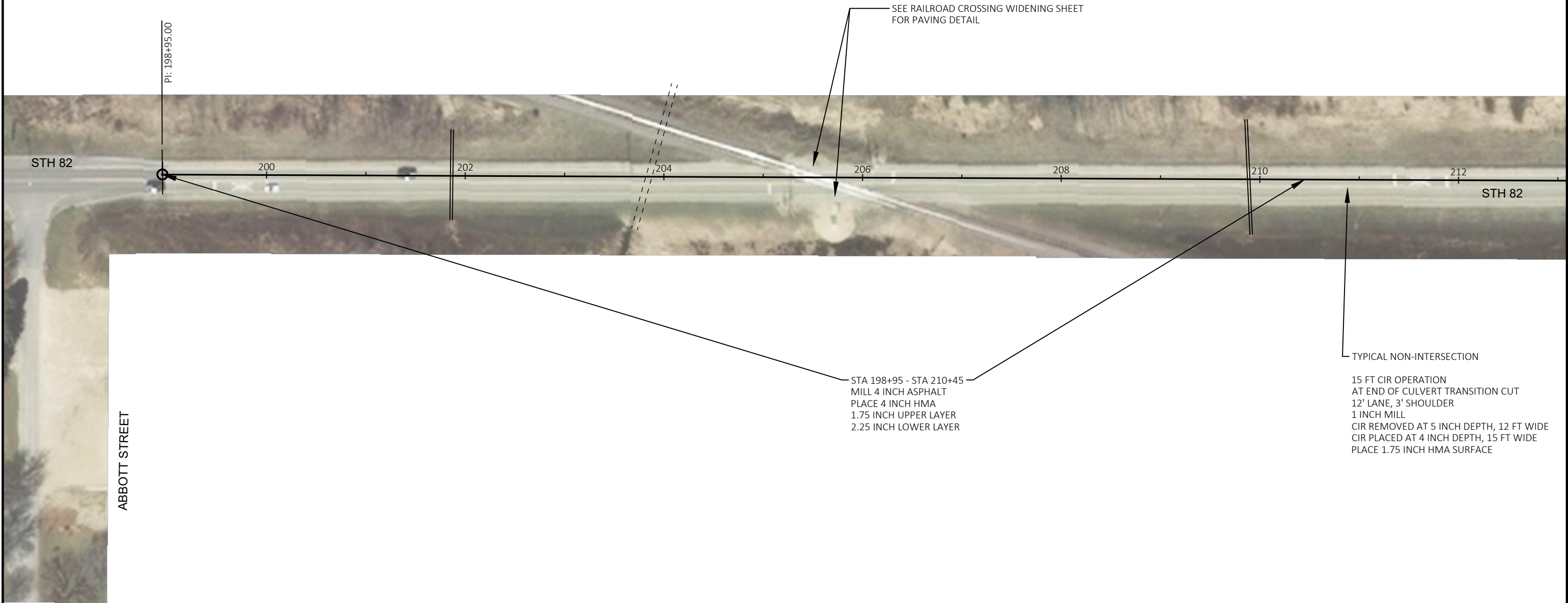
TEMPORARY SIGNING AT CULVERT PIPE REPLACEMENT - STA 362+45











PROJECT NO: 1160-00-80/1430-00-80/82	HWY: STH 82/ STH 23	COUNTY: MARQUETTE	PLAN DETAIL	SHEET	E
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PROJECT NO: 1160-00-80/1430-00-80/82

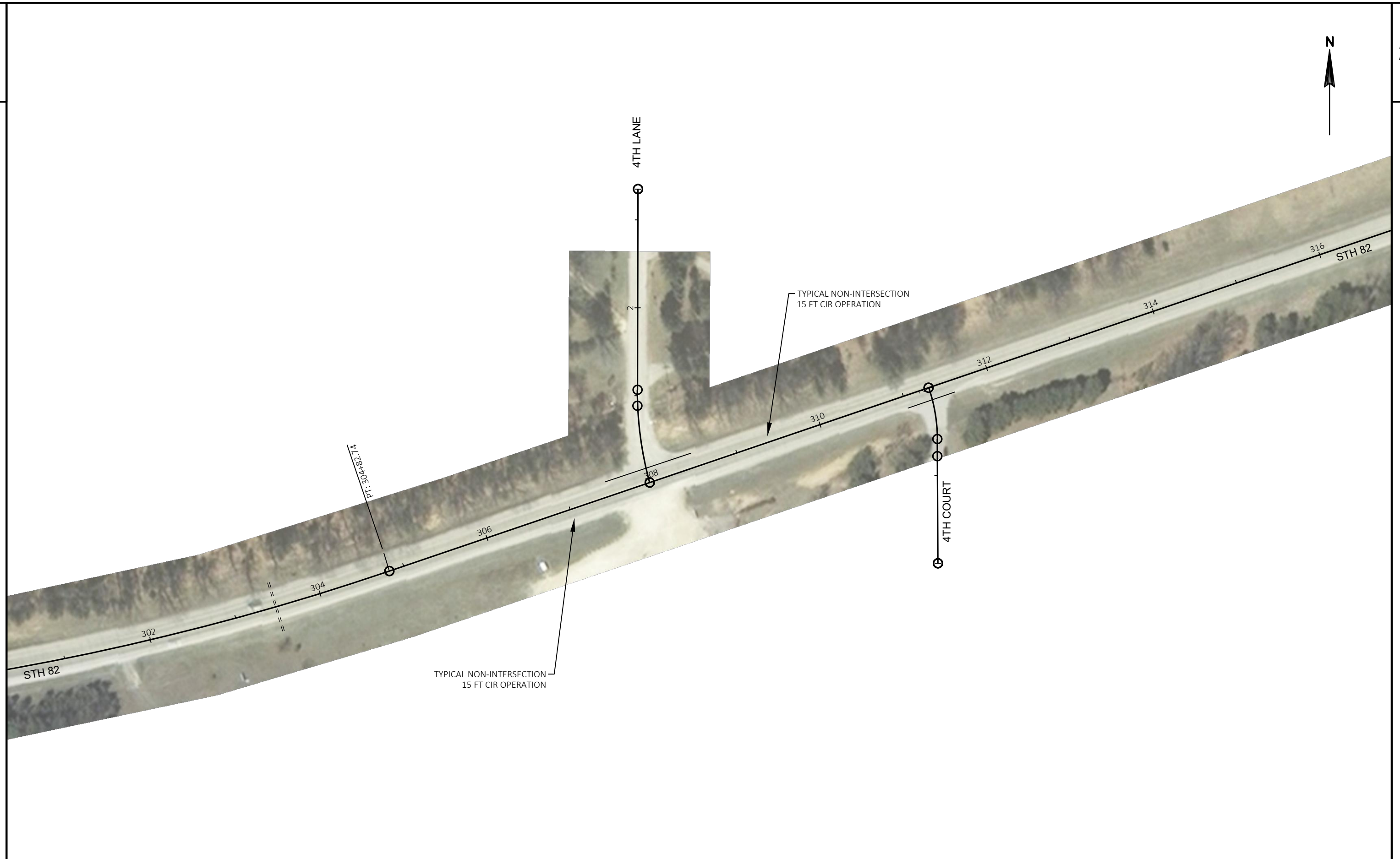
HWY: STH 82/ STH 23

COUNTY: MARQUETTE

PLAN DETAIL

SHEET

E

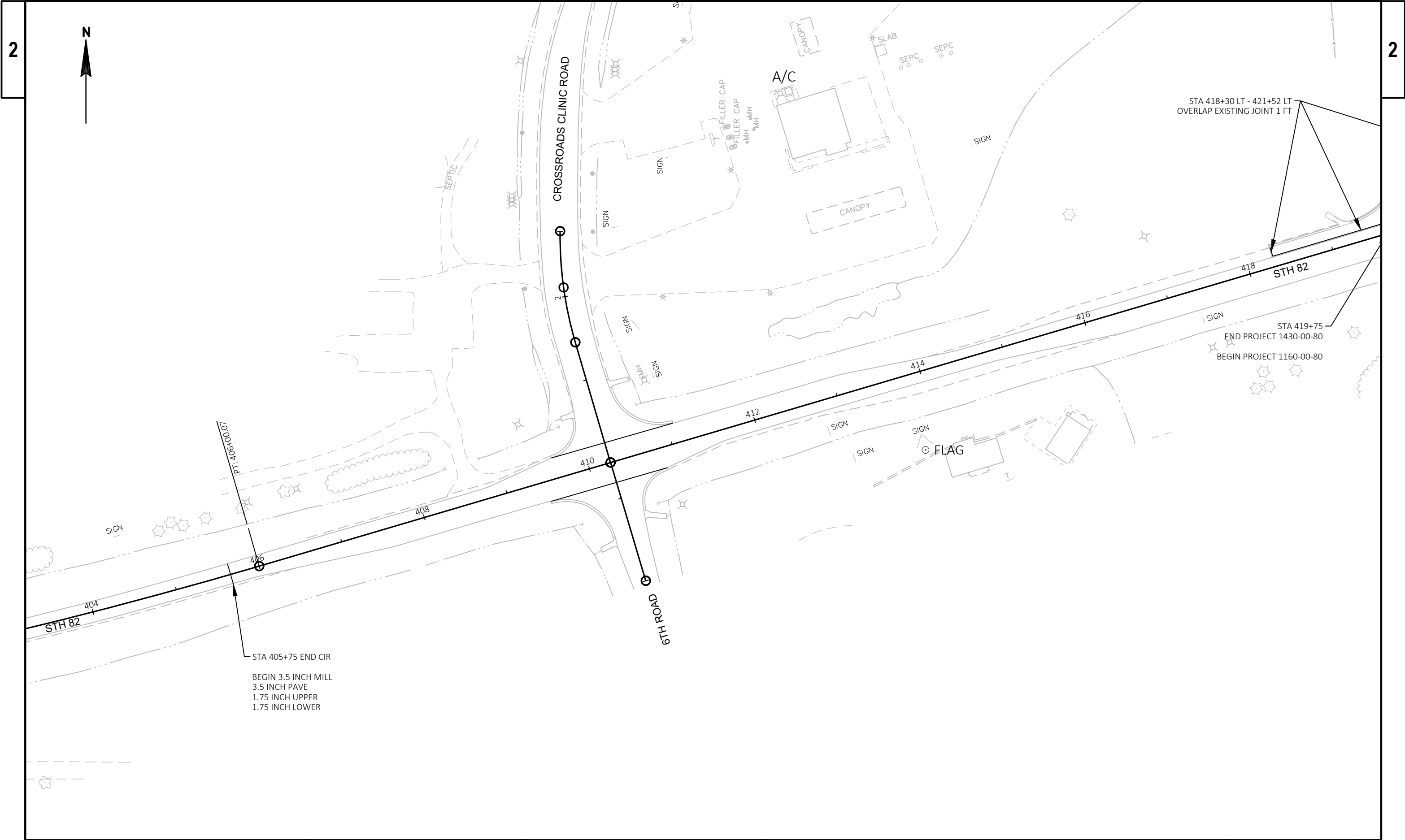


PROJECT NO: 1160-00-80/1430-00-80/82	HWY: STH 82/ STH 23	COUNTY: MARQUETTE	PLAN DETAIL	SHEET	E
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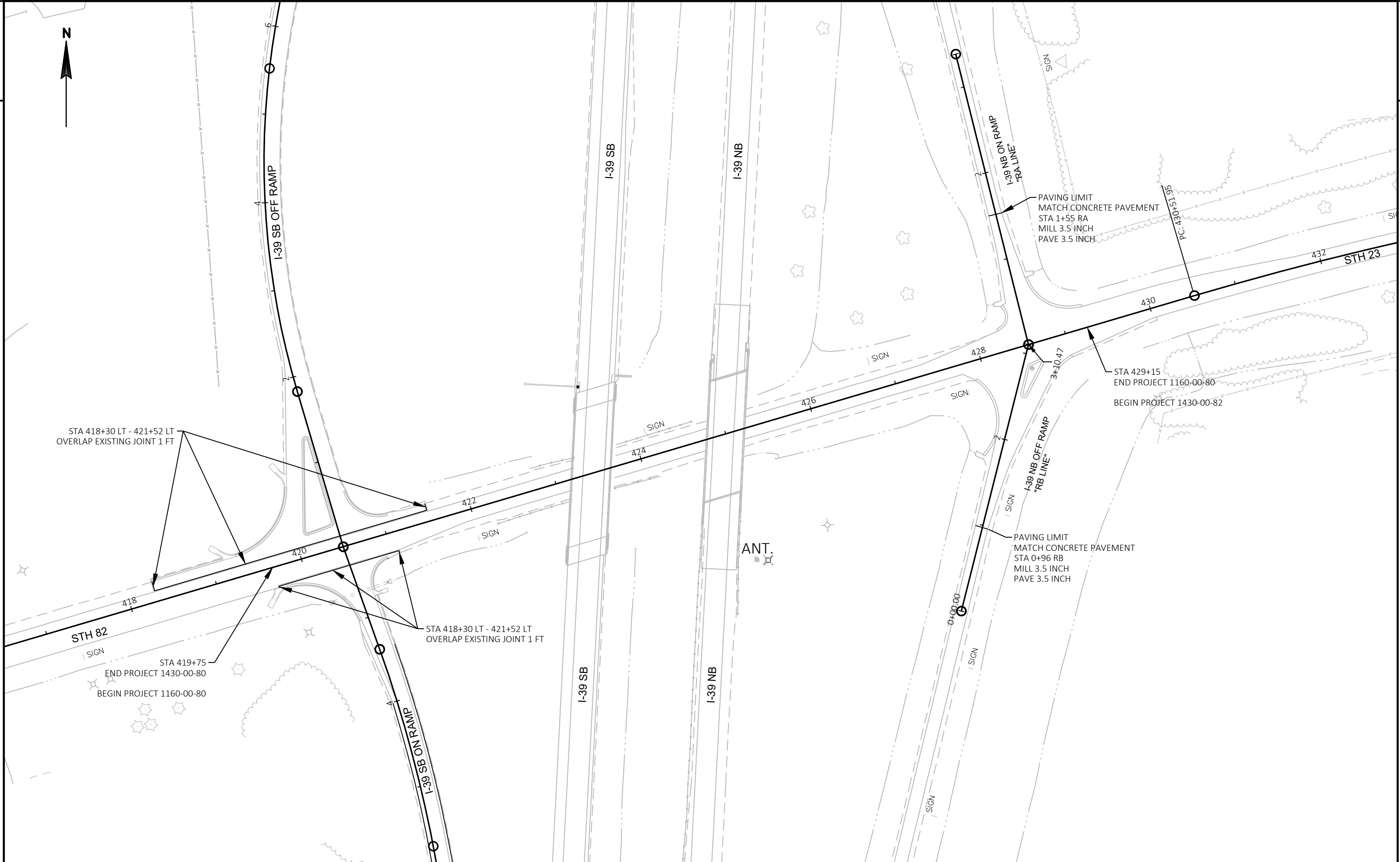




PROJECT NO: 1160-00-80/1430-00-80/82	HWY: STH 82/ STH 23	COUNTY: MARQUETTE	PLAN DETAIL	SHEET	E
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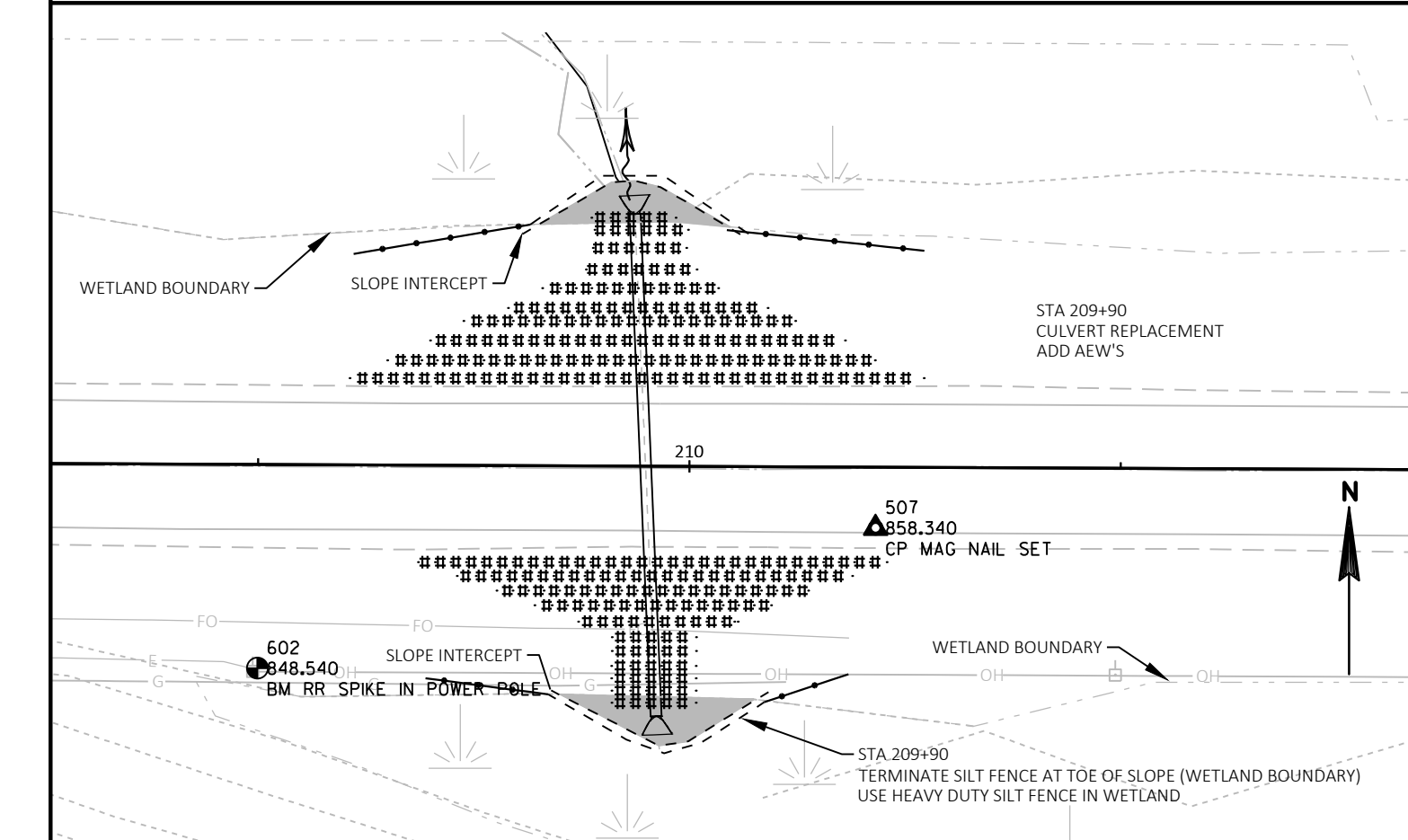
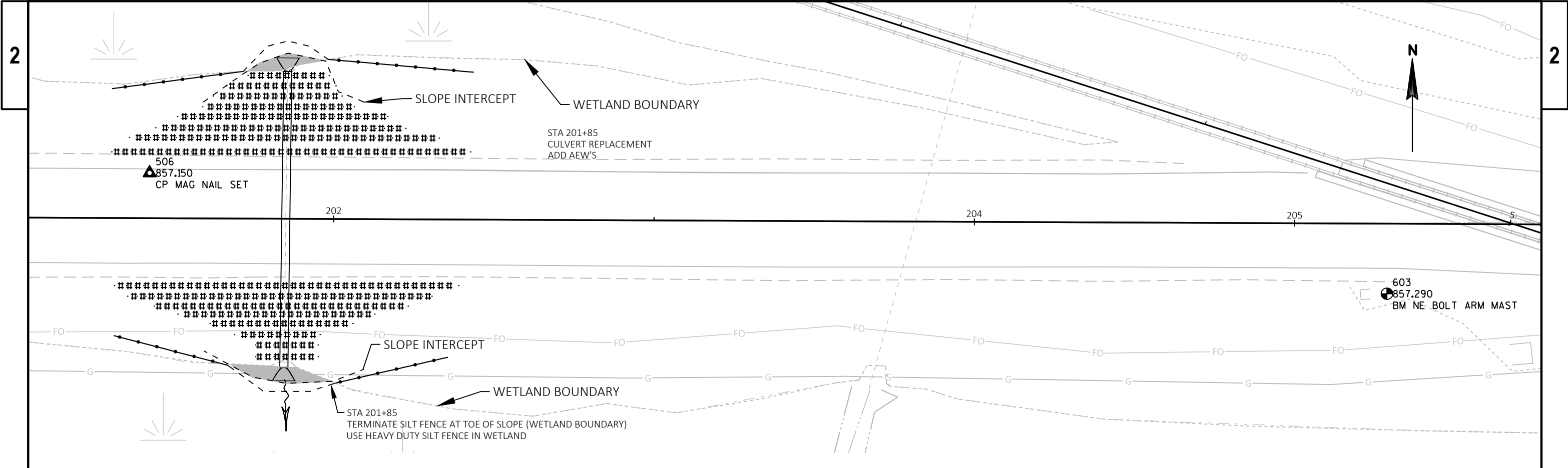


PROJECT NO: 1160-00-80/1430-00-80/82	HWY: STH 82/ STH 23	COUNTY: MARQUETTE	PLAN DETAIL	SHEET	E
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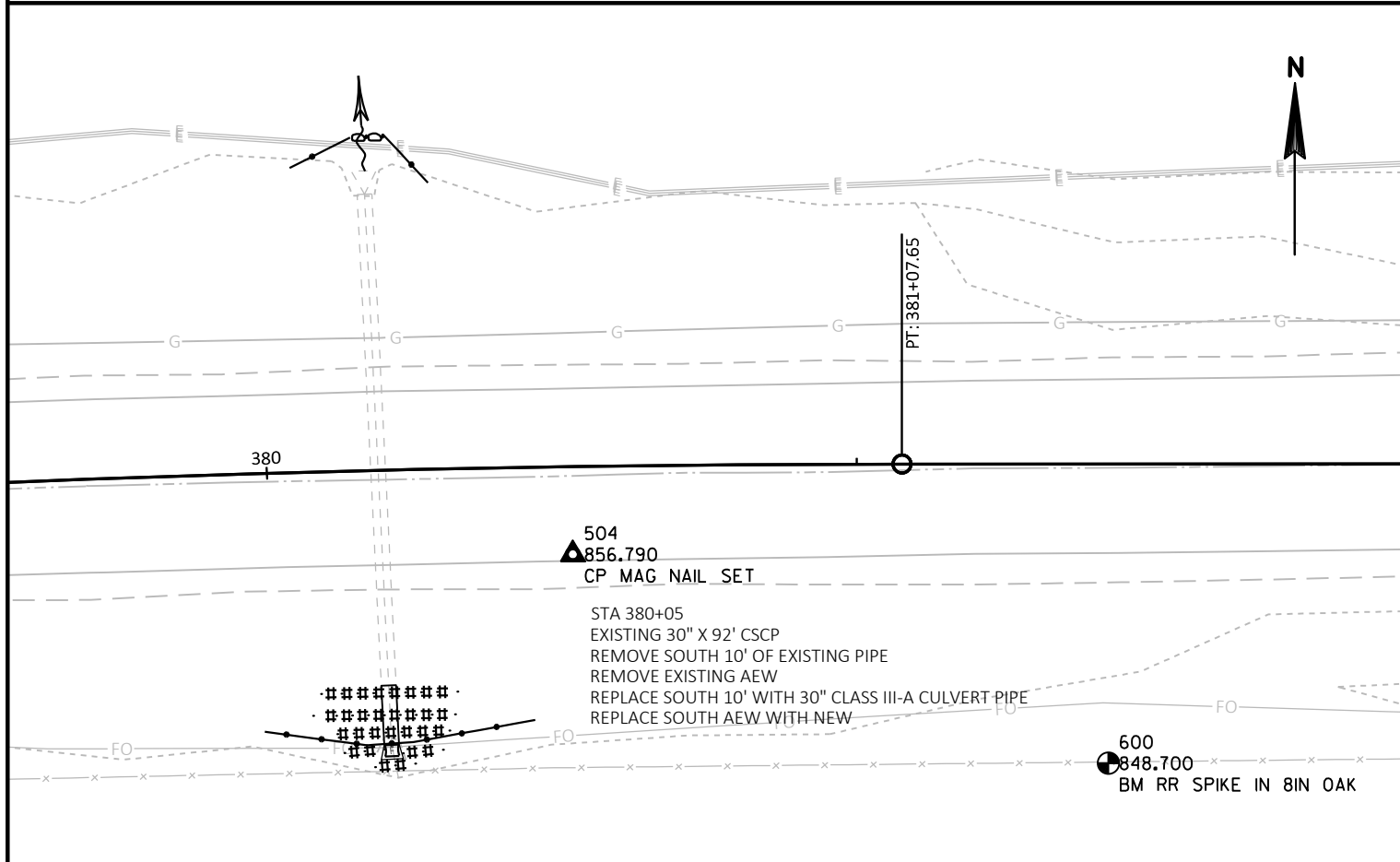
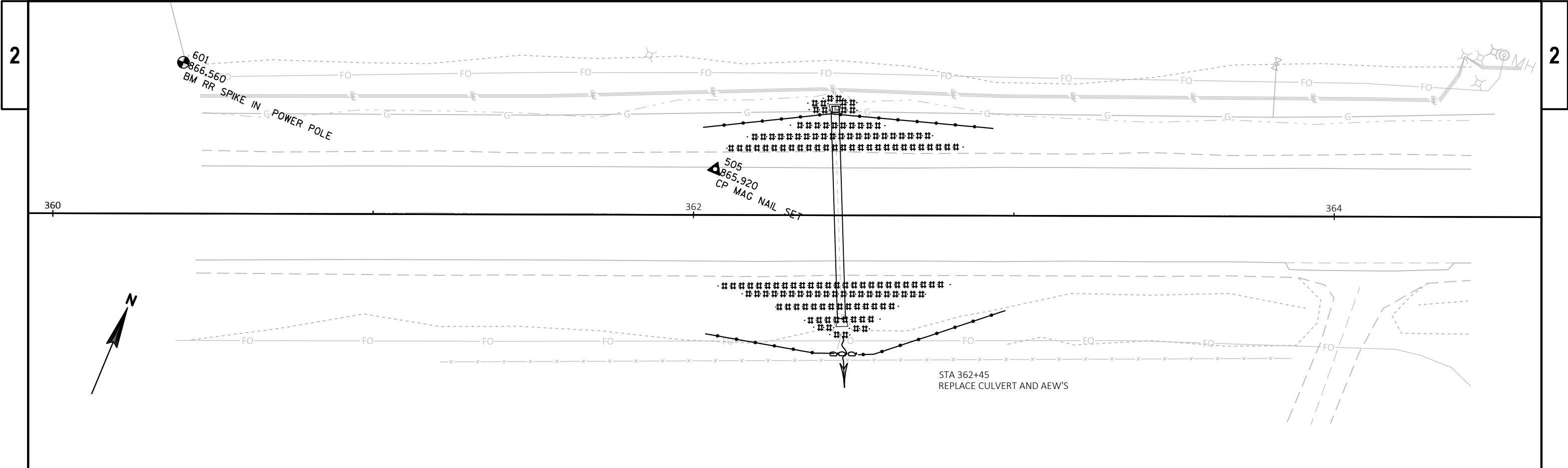






NO.	STATION	DESCRIPTION	Y	X	ELEV.
603	205+29.10	21.86 FT. RT	250604.03	409793.19	857.29
602	209+00	47.16 FT. RT	250609.51	410307.90	848.54

- LEGEND
- WATER FLOW
  - SILT FENCE
  - HEAVY DUTY SILT FENCE
  - CULVERT PIPE
  - PERMITTED WETLAND IMPACTS
  - EROSION MAT CLASS 1 URBAN TYPE B, SEED, FERTILIZER, TOPSOIL
  - SILT FENCE RELIEF
  - CULVERT PIPE CHECK (SEE CONSTRUCTION DETAIL)

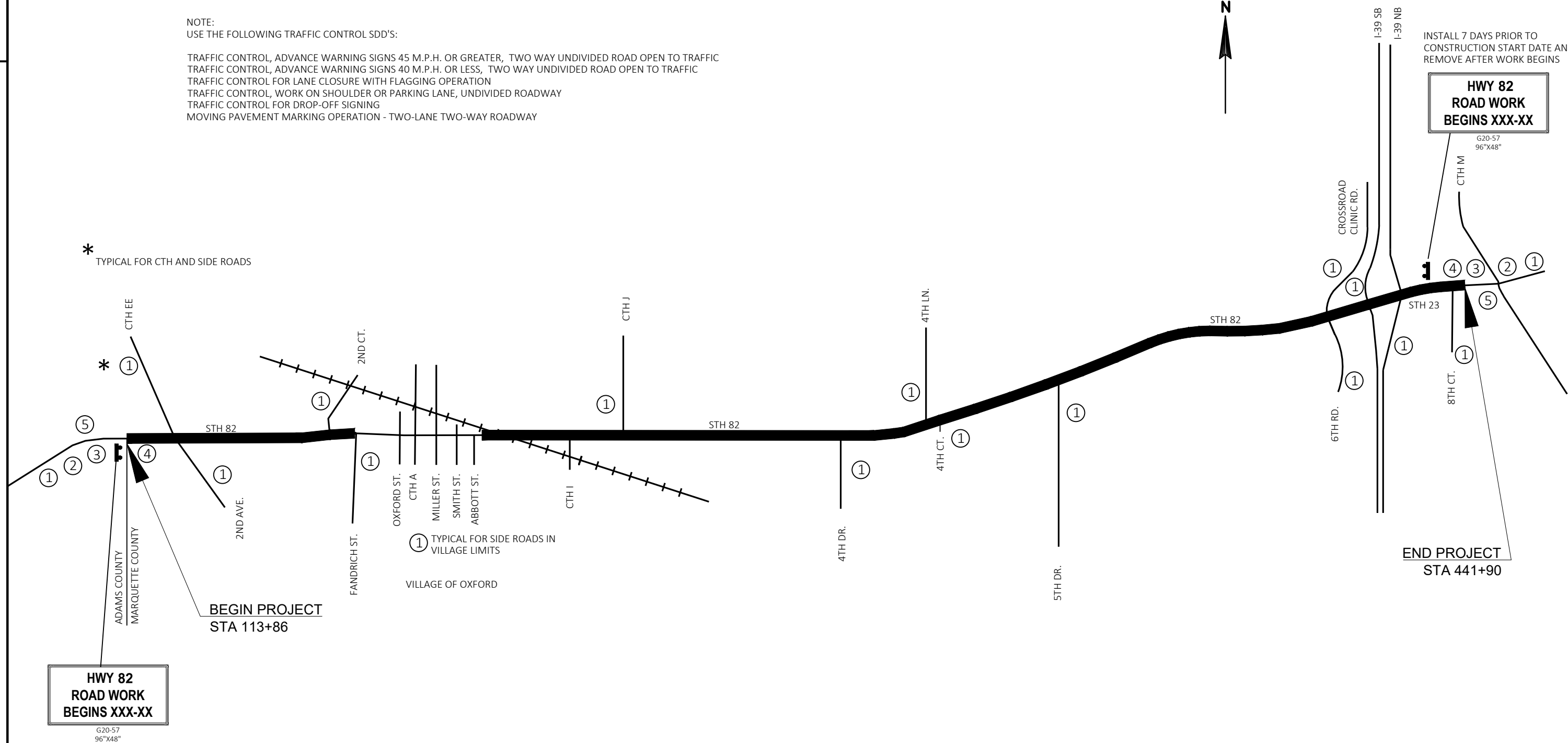


NO.	STATION	DESCRIPTION	Y	X	ELEV.
601	360+40.69	47.21 FT. LT	25699.01	424940.91	866.56
600	381+42+.71	50.77 FT. RT	253115.01	426979.00	848.70

- LEGEND
- WATER FLOW
  - SILT FENCE
  - CULVERT PIPE
  - SILT FENCE RELIEF
  - EROSION MAT CLASS 1 URBAN TYPE B, SEED, FERTILIZER, TOPSOIL
  - CULVERT PIPE CHECK (SEE CONSTRUCTION DETAIL)

NOTE:  
USE THE FOLLOWING TRAFFIC CONTROL SDD'S:

- TRAFFIC CONTROL, ADVANCE WARNING SIGNS 45 M.P.H. OR GREATER, TWO WAY UNDIVIDED ROAD OPEN TO TRAFFIC
- TRAFFIC CONTROL, ADVANCE WARNING SIGNS 40 M.P.H. OR LESS, TWO WAY UNDIVIDED ROAD OPEN TO TRAFFIC
- TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATION
- TRAFFIC CONTROL, WORK ON SHOULDER OR PARKING LANE, UNDIVIDED ROADWAY
- TRAFFIC CONTROL FOR DROP-OFF SIGNING
- MOVING PAVEMENT MARKING OPERATION - TWO-LANE TWO-WAY ROADWAY



**HWY 82  
ROAD WORK  
BEGINS XXX-XX**

G20-57  
96"X48"

INSTALL 7 DAYS PRIOR TO  
CONSTRUCTION START DATE AND  
REMOVE AFTER WORK BEGINS  
INSTALL AT COUNTY LINE



①



②



③

**ROAD WORK  
NEXT 6 MILES**

G20-1  
60"X24"

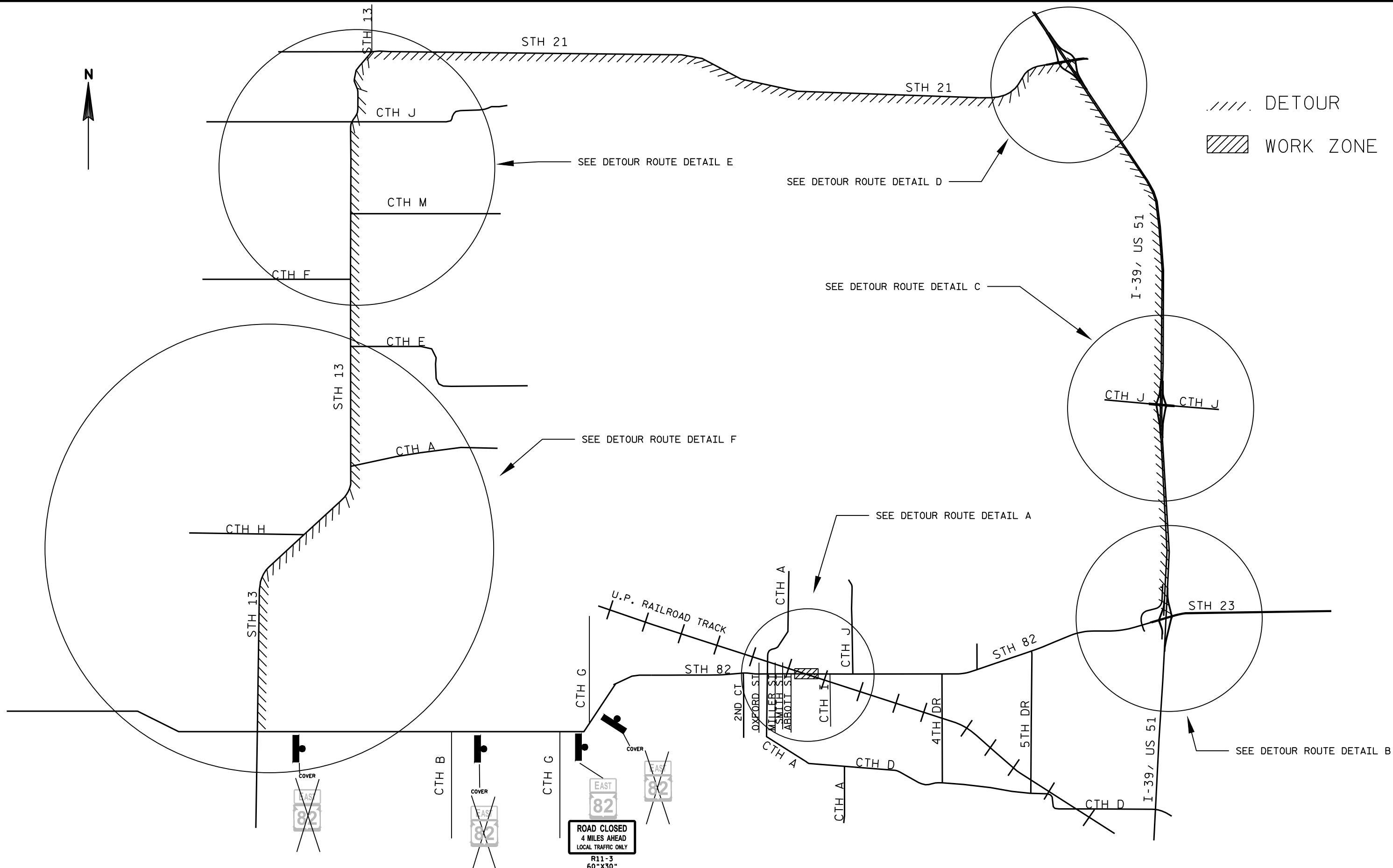
④

**END  
ROAD WORK**

G20-2A  
48"X24"

⑤

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



	SETUP PCMS 7 DAYS PRIOR TO DETOUR	
SITE NO. LOCATION	PHASE 1 (3 SEC)	PHASE 2 (3 SEC)
SITE 1 ABBOTT STREET	HWY 82 TO CLOSE X/X-X/X	FOLLOW DETOUR
SITE 2 CTH I	HWY 82 TO CLOSE X/X-X/X	FOLLOW DETOUR



LEGEND

①



②



③



MB

PORTABLE CHANGEABLE MESSAGE SIGN (PCMS)

MB

③

STH 82

②

①

SEE SDD "BARRICADES AND SIGNS FOR MAINLINE CLOSURES"  
SEE SDD "DETOUR SIGNING FOR MAINLINE CLOSURES"

①

STH 82

②

OXFORD ST

③

MILLER ST

SMITH ST

ABBOTT ST

MB

2ND CT

CTH A

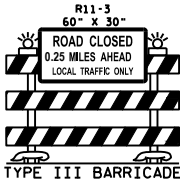
CTH A

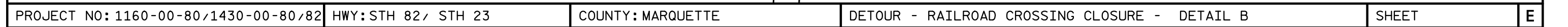
CTH J

CTH I

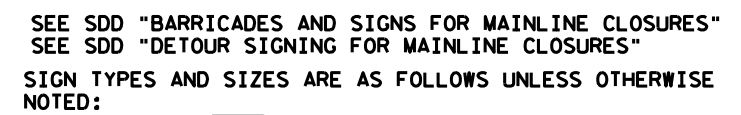
UNION PACIFIC RAILROAD

UNION PACIFIC RAILROAD

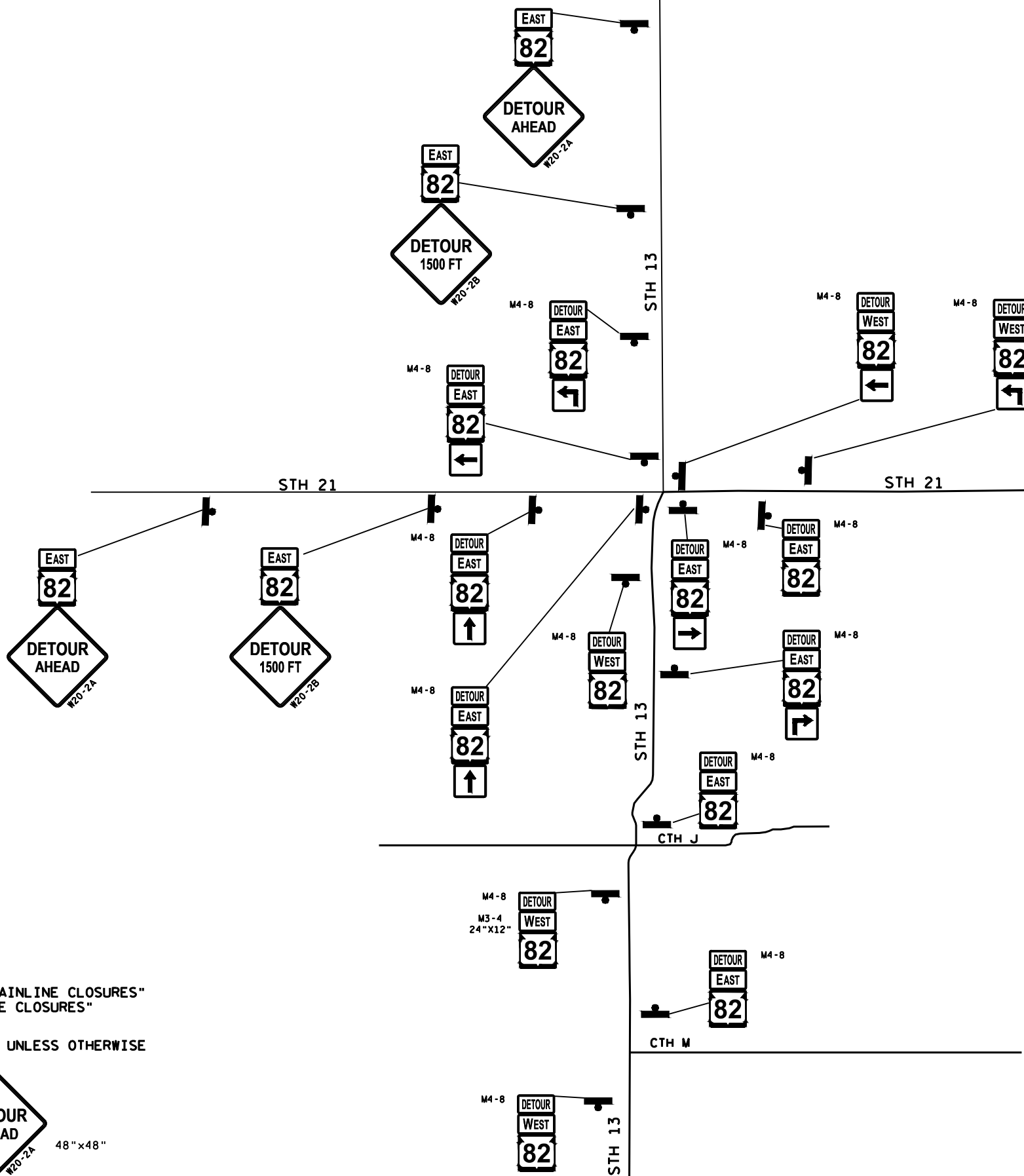






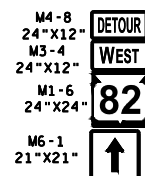






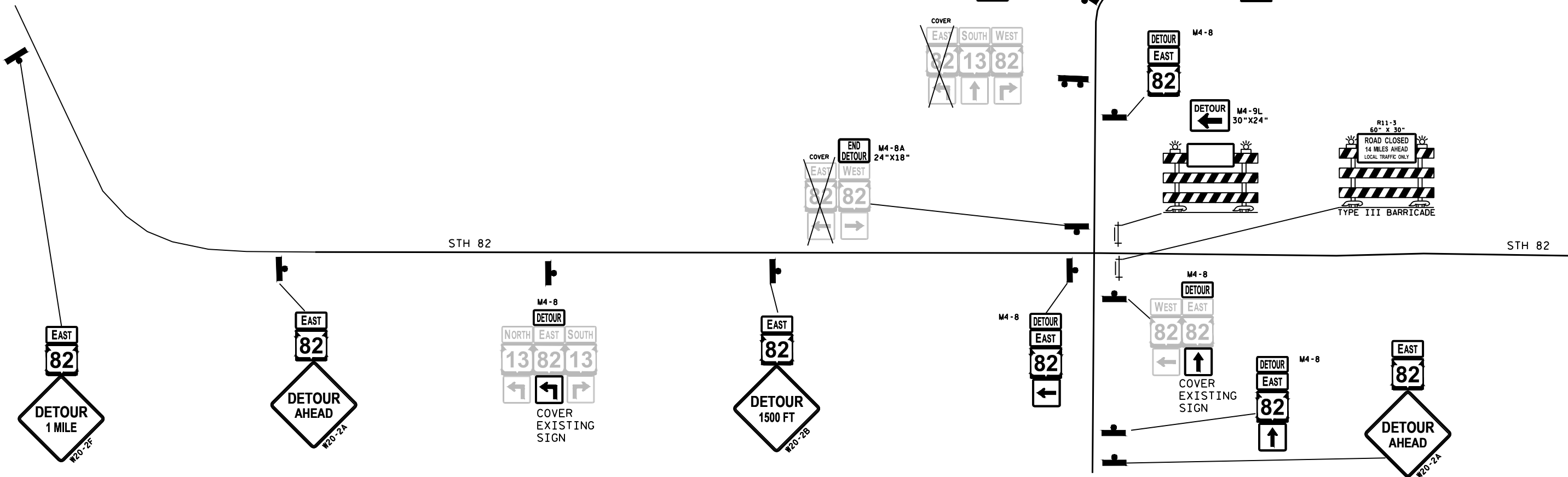
SEE SDD "BARRICADES AND SIGNS FOR MAINLINE CLOSURES"  
SEE SDD "DETOUR SIGNING FOR MAINLINE CLOSURES"

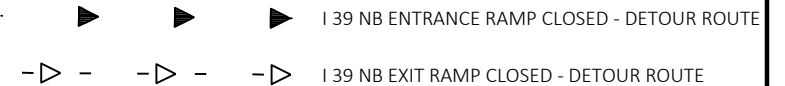
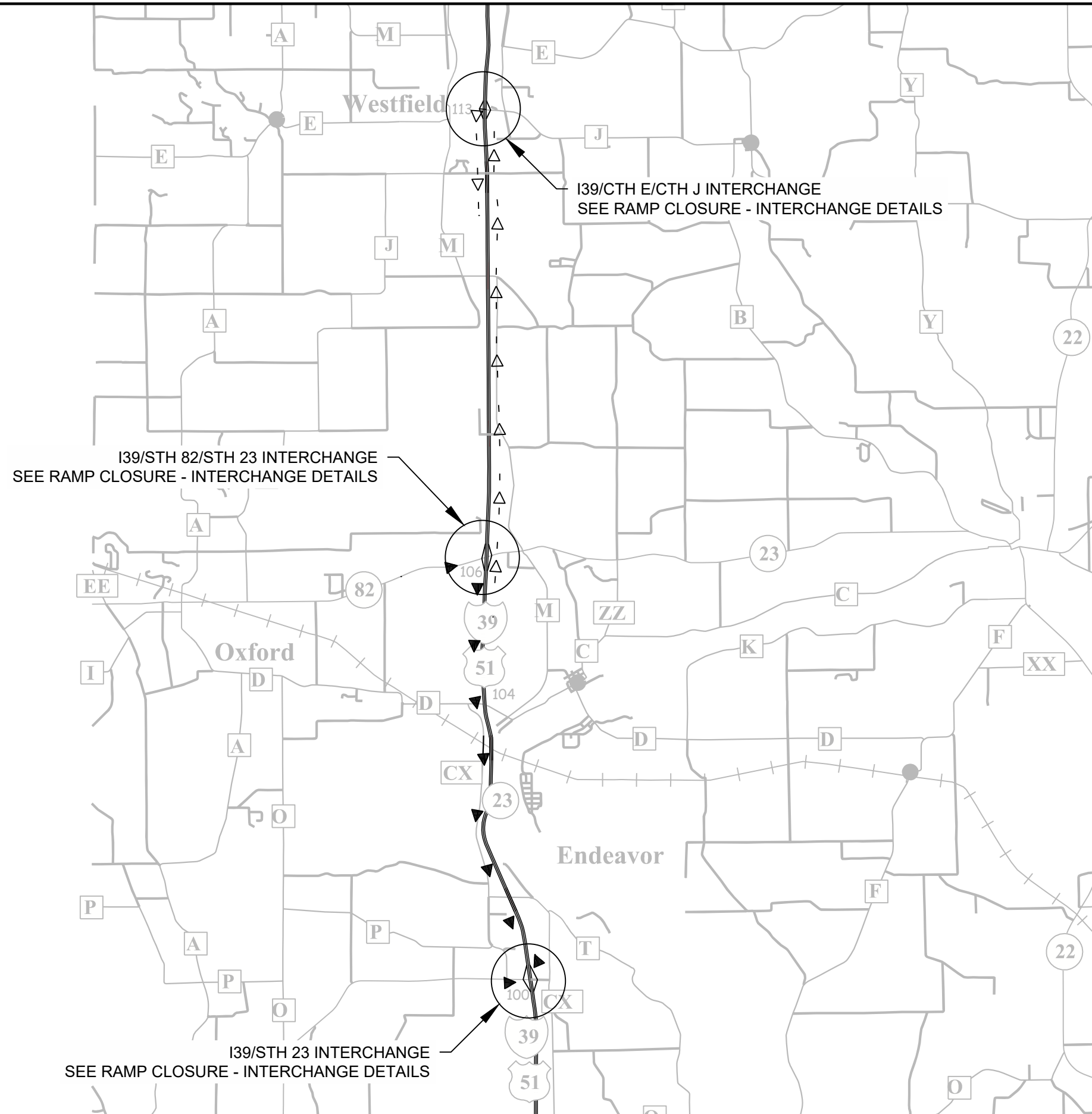
SIGN TYPES AND SIZES ARE AS FOLLOWS UNLESS OTHERWISE NOTED:

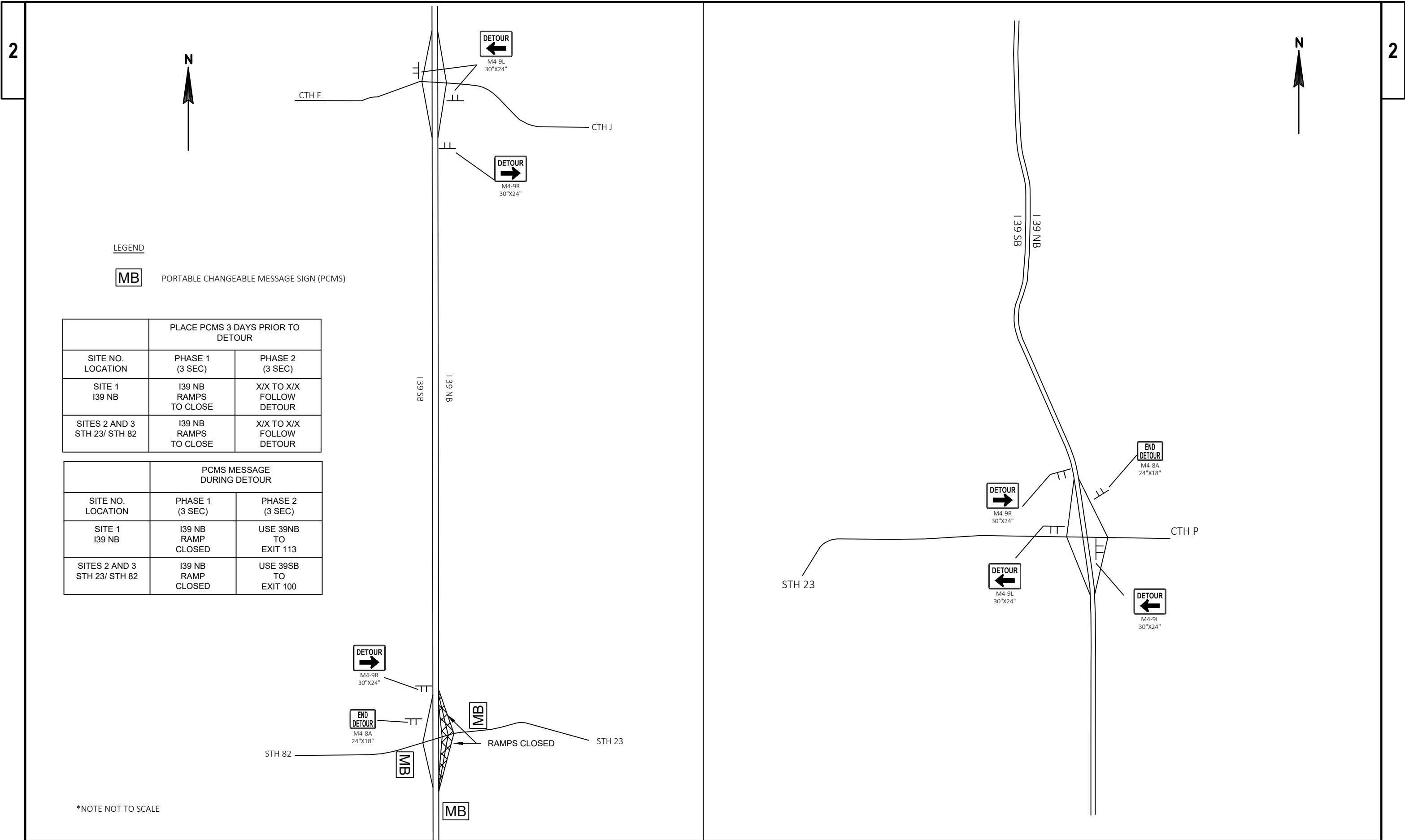


SEE SDD "BARRICADES AND SIGNS FOR MAINLINE CLOSURES"  
SEE SDD "DETOUR SIGNING FOR MAINLINE CLOSURES"

SIGN TYPES AND SIZES ARE AS FOLLOWS UNLESS OTHERWISE NOTED:







Estimate Of Quantities

					1160-00-80	1430-00-80	1430-00-82
Line	Item	Item Description	Unit	Total	Qty	Qty	Qty
0002	203.0100	Removing Small Pipe Culverts	EACH	4.000		4.000	
0004	204.0110	Removing Asphaltic Surface	SY	1,100.000		1,100.000	
0006	204.0125	Removing Asphaltic Surface Milling	TON	11,970.000	1,030.000	10,050.000	890.000
0008	204.0180	Removing Delineators and Markers	EACH	8.000		8.000	
0010	205.0100	Excavation Common	CY	1,340.000		1,340.000	
0012	209.2100	Backfill Granular Grade 2	CY	200.000		200.000	
0014	211.0100	Prepare Foundation for Asphaltic Paving (project) 01. 1430-00-80	LS	1.000		1.000	
0016	211.0400	Prepare Foundation for Asphaltic Shoulders	STA	484.000		484.000	
0018	213.0100	Finishing Roadway (project) 01. 1430-00-80	EACH	1.000		1.000	
0020	213.0100	Finishing Roadway (project) 02. 1160-00-80	EACH	1.000	1.000		
0022	213.0100	Finishing Roadway (project) 03. 1430-00-82	EACH	1.000			1.000
0024	305.0110	Base Aggregate Dense 3/4-Inch	TON	3,600.000	100.000	3,100.000	400.000
0026	305.0120	Base Aggregate Dense 1 1/4-Inch	TON	900.000		900.000	
0028	305.0500	Shaping Shoulders	STA	24.300			24.300
0030	455.0605	Tack Coat	GAL	9,140.000	790.000	7,750.000	600.000
0032	460.2000	Incentive Density HMA Pavement	DOL	8,290.000	710.000	7,040.000	540.000
0034	460.4110.S	Reheating HMA Pavement Longitudinal Joints	LF	29,802.000	940.000	27,587.000	1,275.000
0036	460.5224	HMA Pavement 4 LT 58-28 S	TON	9,550.000		9,550.000	
0038	460.6424	HMA Pavement 4 MT 58-28 H	TON	3,380.000	1,100.000	1,440.000	840.000
0040	465.0105	Asphaltic Surface	TON	780.000		780.000	
0042	465.0110	Asphaltic Surface Patching	TON	100.000	80.000	20.000	
0044	465.0120	Asphaltic Surface Driveways and Field Entrances	TON	221.000		209.000	12.000
0046	465.0475	Asphalt Centerline Rumble Strips 2-Lane Rural	LF	16,714.000		16,714.000	
0048	520.1030	Apron Endwalls for Culvert Pipe 30-Inch	EACH	6.000		6.000	
0050	520.3330	Culvert Pipe Class III-A 30-Inch	LF	66.000		66.000	
0052	520.3530	Culvert Pipe Class III-B 30-Inch	LF	92.000		92.000	
0054	520.4130	Culvert Pipe Class IV 30-Inch	LF	116.000		116.000	
0056	521.1030	Apron Endwalls for Culvert Pipe Steel 30-Inch	EACH	1.000		1.000	
0058	521.3130	Culvert Pipe Corrugated Steel 30-Inch	LF	10.000		10.000	
0060	619.1000	Mobilization	EACH	1.000	0.100	0.800	0.100
0062	624.0100	Water	MGAL	43.000	1.000	38.000	4.000
0064	625.0100	Topsoil	SY	690.000		690.000	
0066	628.1504	Silt Fence	LF	960.000		960.000	
0068	628.1520	Silt Fence Maintenance	LF	960.000		960.000	
0070	628.1905	Mobilizations Erosion Control	EACH	4.000		4.000	
0072	628.1910	Mobilizations Emergency Erosion Control	EACH	2.000		2.000	
0074	628.2008	Erosion Mat Urban Class I Type B	SY	690.000		690.000	
0076	628.7555	Culvert Pipe Checks	EACH	12.000		12.000	
0078	628.7570	Rock Bags	EACH	90.000		90.000	

Estimate Of Quantities

					1160-00-80	1430-00-80	1430-00-82
Line	Item	Item Description	Unit	Total	Qty	Qty	Qty
0080	629.0210	Fertilizer Type B	CWT	0.400		0.400	
0082	630.0130	Seeding Mixture No. 30	LB	8.000		8.000	
0084	633.5200	Markers Culvert End	EACH	8.000		8.000	
0086	642.5001	Field Office Type B	EACH	1.000	0.100	0.800	0.100
0088	643.0300	Traffic Control Drums	DAY	166.000	36.000	130.000	
0090	643.0310.S	Temporary Portable Rumble Strips	LS	1.000		1.000	
0092	643.0420	Traffic Control Barricades Type III	DAY	90.000		90.000	
0094	643.0705	Traffic Control Warning Lights Type A	DAY	140.000		140.000	
0096	643.0900	Traffic Control Signs	DAY	4,900.000	9.000	4,879.000	12.000
0098	643.0910	Traffic Control Covering Signs Type I	EACH	4.000		4.000	
0100	643.0920	Traffic Control Covering Signs Type II	EACH	12.000		12.000	
0102	643.1000	Traffic Control Signs Fixed Message	SF	64.000		64.000	
0104	643.1050	Traffic Control Signs PCMS	DAY	26.000	12.000	14.000	
0106	643.5000	Traffic Control	EACH	1.000	0.100	0.800	0.100
0108	646.1020	Marking Line Epoxy 4-Inch	LF	23,214.500		23,214.500	
0110	646.1040	Marking Line Grooved Wet Ref Epoxy 4-Inch	LF	59,557.000	2,990.000	54,017.000	2,550.000
0112	646.3020	Marking Line Epoxy 8-Inch	LF	2,020.000	160.000	1,860.000	
0114	646.4520	Marking Line Same Day Epoxy 4-Inch	LF	35,806.000	1,880.000	32,013.500	1,912.500
0116	646.5320	Marking Railroad Crossings Epoxy	EACH	2.000		2.000	
0118	646.6120	Marking Stop Line Epoxy 18-Inch	LF	65.000	65.000		
0120	649.0105	Temporary Marking Line Paint 4-Inch	LF	73,440.000	3,760.000	66,100.000	3,580.000
0122	650.6000	Construction Staking Pipe Culverts	EACH	4.000		4.000	
0124	650.8000	Construction Staking Resurfacing Reference	LF	29,802.000	940.000	27,587.000	1,275.000
0126	650.9910	Construction Staking Supplemental Control (project) 01. 1430-00-80	LS	1.000		1.000	
0128	650.9910	Construction Staking Supplemental Control (project) 02. 1160-00-80	LS	1.000	1.000		
0130	650.9910	Construction Staking Supplemental Control (project) 03. 1430-00-82	LS	1.000			1.000
0132	690.0150	Sawing Asphalt	LF	400.000		370.000	30.000
0134	740.0440	Incentive IRI Ride	DOL	23,872.000	676.000	22,232.000	964.000
0136	ASP.1T0A	On-the-Job Training Apprentice at \$5.00/HR	HRS	1,260.000	1,260.000		
0138	ASP.1T0G	On-the-Job Training Graduate at \$5.00/HR	HRS	2,000.000	2,000.000		
0140	SPV.0035	Special 01. Base Repair for CIR Pavement	CY	1,100.000		1,100.000	
0142	SPV.0060	Special 01. Lane Shift	EACH	1.000		1.000	
0144	SPV.0090	Special 01. Silt Fence Heavy Duty	LF	170.000		170.000	
0146	SPV.0105	Special 01. Prepare Foundation for CIR Pavement	LS	1.000		1.000	
0148	SPV.0105	Special 02. Prepare Foundation for HMA Upper	LS	1.000		1.000	
0150	SPV.0180	Special 01. Cold In Place Recycling (CIR) Pavement Partial Depth.	SY	81,500.000		81,500.000	
0152	SPV.0195	Special 01. Asphalt Stabilizing Agent	TON	538.000		538.000	



Estimate Of Quantities

1160-00-801430-00-801430-00-82

REMOVING SMALL PIPE CULVERTS

203.0100					
STATION	LOCATION	EACH	SIZE	TYPE	REMARKS
201+85	CL	1	30" x 92'	CSCP	1430-00-80
209+90	CL	1	30" x 115'	CSCP	1430-00-80
362+45	CL	1	30" x 65'	CSCP	1430-00-80
380+05	RT	1	30" x 10'	CSCP	1430-00-80
TOTAL		4			

REMOVING ASPHALTIC SURFACE

204.0110			
STATION - STATION	SY	LOCATION	REMARKS
198+95	367	1430-00-80	CULVERT REPLACEMENT
209+90	367	1430-00-80	CULVERT REPLACEMENT
362+45	367	1430-00-80	CULVERT REPLACEMENT
TOTAL	1,100		

REMOVING ASPHALTIC SURFACE MILLING

204.0125			
STATION - STATION	LOCATION	TON	REMARKS
113+86 - 419+75 DRIVEWAYS	CL	9,940	1430-00-80
	LT/RT	110	1430-00-80
	SUBTOTAL	10,050	1430-00-80
419+75 - 429+15	CL	1,030	1160-00-80
429+15 - 441+90	CL	890	1430-00-82
TOTAL		11,970	

REMOVING DELINEATORS AND MARKERS

204.0180			
STATION	LOCATION	EACH	REMARKS
198+95	RT/LT	2	1430-00-80
209+90	RT/LT	2	1430-00-80
362+45	RT/LT	2	1430-00-80
380+05	RT/LT	2	1430-00-80
TOTAL		8	

PREPARE FOUNDATION FOR ASPHALT SHOULDERS

211.0400			
STATION - STATION	LOCATION	STA	REMARKS
117+36 - 168+93	LT	44.80	REMOVE BASE AGG AFTER MILLING SHOULDER
117+36 - 168+93	RT	41.10	REMOVE BASE AGG AFTER MILLING SHOULDER
198+95 - 210+45	LT	11.20	PAVE SHOULDERS/ RAILROAD WIDENING
198+95 - 210+45	RT	11.20	PAVE SHOULDERS/ RAILROAD WIDENING
210+45 - 405+75	LT	188.80	REMOVE BASE AGG AFTER MILLING SHOULDER
210+45 - 405+75	RT	186.40	REMOVE BASE AGG AFTER MILLING SHOULDER
TOTAL		484	1430-00-80

EXCAVATION COMMON & BACKFILL GRANULAR

LOCATION	EXCAVATION COMMON	BACKFILL GRANULAR	REMARKS
	205.0100	209.2100	
	CY	CY	
201+85	470		CULVERT REPLACEMENT (CABC + TRANSITION CUT)
209+90	470		CULVERT REPLACEMENT (CABC + TRANSITION CUT)
362+45	400		CULVERT REPLACEMENT (CABC + TRANSITION CUT)
UNDISTRIBUTED		200	FOR USE IF POOR IN-SITU MATERIAL
TOTAL	1,340	200	1430-00-80

BASE AGGREGATE DENSE

		305.0110	305.0120		
		3/4-INCH	1-1/4-INCH		
STATION	LOCATION	TONS	TONS	LOCATION	
MAINLINE	RT/LT	3,000	---	SHOULDERS	
SIDEROADS	RT/LT	100	---	SHOULDERS	
MAINLINE	RT/LT	---	900	CULVERT REPLACEMENTS	
SUBTOTAL		3,100	900	1430-00-80	
MAINLINE	RT/LT	100	---	1160-00-80, SHOULDERS	
MAINLINE	RT/LT	400	---	1430-00-82, SHOULDERS	
TOTAL		3,600	900		

HMA PAVEMENT

		455.0605	460.5224	460.6424	REMARKS
		TACK COAT	4LT 58-28 S	4MT 58-28 H	
STATION - STATION	LOCATION	GAL	TON	TON	
113+86 (BEGIN) - 117+36	CL	170	270	---	2 LAYERS
117+36 - 168+93	CL	1,210	1,690	---	
198+95 - 210+45	CL	540	860	---	2 LAYERS
210+45 - 405+75	CL	4,560	6,380	---	
405+75 - 419+75	CL	830	---	1,160	2 LAYERS
CTH EE	LT	50	70	---	
2ND AVE	RT	50	70	---	
FANDRICH STREET	RT	40	60	---	
CTH I	RT	50	80	---	
CTH J	LT	50	70	---	
6TH ROAD	RT	100	---	140	2 LAYERS
CROSSROADS CLINIC ROAD	LT	100	---	140	2 LAYERS
SUB TOTAL		7,750	9,550	1,440	1430-00-80
IH 39 NB OFF RAMP	RT	120	---	170	2 LAYERS
IH 39 NB ON RAMP	LT	80	---	110	2 LAYERS
419+75 - 429+15	CL	590	---	820	2 LAYERS
SUB TOTAL		790	---	1,100	1160-00-80
429+15 - 441+90	CL	600	---	840	1430-00-82, 2 LAYERS
TOTAL		9,140	9,550	3,380	

ASPHALTIC SURFACE DRIVEWAYS AND FIELD ENTRANCES

		465.0120		REMARKS
STATION	LOCATION	TYPE	TON	
115+35	RT	PE, ASPHALT	4	
120+00	LT	CE, ASPHALT	5	
122+63	LT	CE, ASPHALT	4	
143+00	RT	CE, ASPHALT	7	
157+31	LT	CE, ASPHALT	5	
158+13	LT	CE, ASPHALT	6	
159+86	LT	CE, ASPHALT	6	
166+60	LT	CE, ASPHALT	7	
220+85	LT	CE, ASPHALT	4	
221+73	LT	CE, ASPHALT	4	
226+73	LT	PE, ASPHALT	5	
228+39	LT	PE, ASPHALT	5	
230+54	LT	CE, ASPHALT	5	
231+52	LT	CE, ASPHALT	6	
233+90	RT	PE, ASPHALT	7	
322+02	LT	PE, ASPHALT	5	
LT/RT		GRAVEL	124	3' APRONS
SUBTOTAL			209	1430-00-80
440+28	LT	CE, ASPHALT	12	
SUBTOTAL			12	1430-00-82
TOTAL			221	

\*\*DRIVEWAY QUANTITY CALCULATED WITH ASSUMED 10' CUT BACK ON ASPHALT DRIVEWAYS\*\*

REHEATING HMA LONGITUDINAL JOINT

460.4110.S REHEATING HMA LONGITUDINAL JOINT		
STATION - STATION	LF	PROJECT
113+86 - 168+93	5,507	1430-00-80
198+95 - 419+75	22,080	1430-00-80
SUBTOTAL	27,587	1430-00-80
419+75 - 429+15	940	1160-00-80
429+15 - 441+90	1,275	1430-00-82
TOTAL	29,802	

ASPHALTIC SURFACE & ASPHALTIC SURFACE PATCHING

465.0105 ASPHALTIC SURFACE 465.0110 ASPHALTIC SURFACE PATCHING					
STATION	LOCATION	TON	TON	REMARKS	
201+85	RT/LT	110	---	CULVERT REPLACEMENT	
209+90	RT/LT	110	---	CULVERT REPLACEMENT	
362+45	RT/LT	110	---	CULVERT REPLACEMENT	
UNDISTRIBUTED	RT/LT	---	20	FOR REPAIRS IF NECESSARY ON TURN LANES	
UNDISTRIBUTED	CL	450	---	YIELDING AREAS AFTER CIR	
SUBTOTAL		780	20	1430-00-80	
UNDISTRIBUTED	CL	---	80	FOR PAVEMENT REPAIRS IF NECESSARY ON RAMPS	
TOTAL		780	100	1160-00-80	

ASPHALTIC RUMBLE STRIPS

465.0475 ASPHALTIC CL RUMBLE STRIP 2-LANE RURAL		
STATION - STATION	LF	PROJECT
115+80 - 119+10	330	1430-00-80
127+16 - 143+00	1,584	1430-00-80
235+90 - 252+40	1,650	1430-00-80
260+90- 284+75	2,385	1430-00-80
288+75 - 307+10	1,835	1430-00-80
313+30 - 340+00	2,670	1430-00-80
344+00 - 385+10	4,110	1430-00-80
386+75 - 408+25	2,150	1430-00-80
TOTAL	16,714	

CULVERT PIPES

			CULVERT PIPE CLASS III-A	CULVERT PIPE CLASS III-B	CULVERT PIPE CLASS IV	CULVERT PIPE CORRUGATED STEEL	APRON ENDWALLS FOR CULVERT PIPE			**	MIN.	BOP	EOP	SLOPE	REMARKS	PROJECT
STATION	PIPE NO.	LOCATION	520.3330 30-INCH LF	520.3530 30-INCH LF	520.4130 30-INCH LF	521.3130 30-INCH LF	520.1030 30-INCH EACH	521.1030 STEEL 30-INCH EACH	JOINT TIES EACH	THICKNESS IN.	INVERT ELEV	INVERT ELEV	INVERT ELEV			
201+85	390820130	STH 82 CL	---	92	---	---	2	---	26	0.079	844.49	844.40	844.40	0.10%		1430-00-80
209+90	390820150	STH 82 CL	---	---	116	---	2	---	32	0.079	842.06	842.00	842.00	0.05%		1430-00-80
362+45	390820250	STH 82 CL	66	---	---	---	2	---	20	0.079	860.26	858.96	858.96	1.97%	MATCH EXISTING FORESLOPE	1430-00-80
380+05	390820270	STH 82 RT	---	---	---	10	---	1		0.079	845.41	841.59	841.59		REMOVE DAMAGED END 10' RT, FASTEN NEW 10'	1430-00-80
TOTALS			66	92	116	10	6	1								

\*\* IF RCCP PIPE CHOSEN, ALL JOINTS MUST BE TIED. FOR INFORMATION PURPOSES ONLY. NOT A BID ITEM.

SILT FENCE & SILT FENCE HEAVY DUTY

STATION - STATION		LOCATION	628.1504 SILT FENCE LF	628.1520 SILT FENCE MAINTENANCE LF	SPV.0090.01 SILT FENCE HEAVY DUTY LF	REMARKS	PROJECT
201+85		RT/LT	250	250	60	CULVERT	1430-00-80
209+90		RT/LT	250	250	100	CULVERT	1430-00-80
362+45		RT/LT	100	100	---	CULVERT	1430-00-80
370+85 - 373+05		LT	220	220	---	PLACE AT TOE OF SLOPE	1430-00-80
380+05		RT	60	60	---	CULVERT	1430-00-80
UNDISTRIBUTED			80	80	10		1430-00-80
TOTALS			960	960	170		

MOBILIZATIONS EROSION CONTROL

LOCATION		628.1905 MOBILIZATIONS EROSION CONTROL EACH	628.1910 MOBILIZATIONS EMERGENCY EROSION CONTROL EACH	REMARKS
PROJECT		3	1	1430-00-80
UNDISTRIBUTED		1	1	1430-00-80
TOTALS		4	2	

WATER

LOCATION	624.0100 MGAL	REMARKS
1430-00-80	38	BASE AGGREGATE DENSE
1160-00-80	1	BASE AGGREGATE DENSE
1430-00-82	4	BASE AGGREGATE DENSE
TOTAL	43	

GRADING, SHAPING AND FINISHING

STATION - STATION		LOCATION	625.0100 TOPSOIL SY	628.2008 URBAN CLASS I TYPE B SY	629.0210 FERTILIZER TYPE B CWT	630.0130 SEEDING MIXTURE NO. 30 LB	REMARKS
198+95		LT/RT	170	170	0.11	3.10	1430-00-80
209+90		LT/RT	210	210	0.13	3.82	1430-00-80
362+45		LT/RT	160	160	0.03	0.82	1430-00-80
380+05		RT	10	10	0.01	0.18	1430-00-80
UNDISTRIBUTED			140	140	0.09	0.04	1430-00-80
TOTALS			690	690	0.4	8	

CULVERT PIPE CHECKS AND ROCK BAGS

STATION	628.7555 CULVERT PIPE CHECKS EACH	628.7570 ROCK BAGS EACH	REMARKS
362+45	4	34	1430-00-80
380+05	4	34	1430-00-80
UNDISTRIBUTED	4	22	1430-00-80
TOTAL	12	90	

MARKERS CULVERT END

STATION	LOCATION	633.5200 EACH	REMARKS
201+85	RT/LT	2	1430-00-80
209+90	RT/LT	2	1430-00-80
362+45	RT/LT	2	1430-00-80
380+05	RT/LT	2	1430-00-80
TOTAL		8	

TRAFFIC CONTROL SIGNS

643.0900				
NUMBER REQUIRED	DAYS NEEDED	SIGN DAYS	REMARKS	PROJECT
1	5	5	DETOUR ROUTE OVERVIEW	1430-00-80
12	5	60	DETOUR PLAN - DETAIL A	1430-00-80
44	5	220	DETOUR PLAN - DETAIL B	1430-00-80
36	5	180	DETOUR PLAN - DETAIL C	1430-00-80
54	5	270	DETOUR PLAN - DETAIL D	1430-00-80
62	5	310	DETOUR PLAN - DETAIL E	1430-00-80
60	5	300	DETOUR PLAN - DETAIL F	1430-00-80
34	92	3,128	TRAFFIC CONTROL OVERVIEW	1430-00-80
6	1	6	362+45 TRAFFIC SHIFT	1430-00-80
		400	UNDISTRIBUTED	1430-00-80
SUBTOTAL		4,879		1430-00-80
9	1	9	DETOUR ROUTE - RAMP CLOSURE	1160-00-80
6	2	12	TRAFFIC CONTROL OVERVIEW	1430-00-82
TOTAL		4,900		

TEMPORARY PAVEMENT MARKING

649.0105 YELLOW 4-INCH			
STATION - STATION	LOCATION	LF	REMARKS
113+86 - 429+15	CL	33,050	POST ASPHALTIC SURFACE MILLING
113+86 - 429+15	CL	33,050	POST COLD IN-PLACE RECYCLE
SUBTOTAL		66,100	1430-00-80
419+75 - 429+15	CL	1,880	POST ASPHALTIC SURFACE MILLING
419+75 - 429+15	CL	1,880	POST COLD IN-PLACE RECYCLE
SUBTOTAL		3,760	1160-00-80
429+15 - 441+90	CL	1,790	POST ASPHALTIC SURFACE MILLING
429+15 - 441+90	CL	1,790	POST COLD IN-PLACE RECYCLE
SUBTOTAL		3,580	1430-00-82
TOTAL		73,440	

MARKING LINE EPOXY

		#		646.1040		646.4520 4-INCH		646.5320	646.6120
		646.1020 4-INCH		GROOVED	WET REF	SAME DAY		MARKING	18-INCH
		DASHED	SOLID	4-INCH	8-INCH	DASHED	SOLID	RAILROAD	STOP LINE
		YELLOW	YELLOW	WHITE	(WHITE)	YELLOW	YELLOW	CROSSING	(WHITE)
STATION - STATION	LOCATION	LF	LF	LF	LF	LF	LF	EPOXY	LF
PROJECT ID 1430-00-80									
113+86 - 115+44	STH 82	---	---	316	---	37.5	158	---	---
115+44 - 123+36	STH 82	75.0	---	1,637	---	200.0	---	---	---
123+36 - 131+28	STH 82	100.0	412	1,268	---	200.0	792	---	---
131+28 - 134+45	STH 82	317.0	---	634	---	317.0	---	---	---
134+45 - 140+26	STH 82	150.0	581	1,162	---	150.0	581	---	---
140+26 - 141+84	STH 82	---	316	316	---	---	316	---	---
141+84 - 150+82	STH 82	25.0	---	1,796	---	225.0	792	---	---
150+82 - 160+32	STH 82	---	---	1,900	---	237.5	950	---	---
160+32 - 162+96	STH 82	---	---	528	---	62.5	---	---	---
162+96 - 168+93	STH 82	---	---	1,109	---	150.0	597	---	---
198+95 - 205+29	STH 82	---	----	1,268	---	---	1,268	1	---
205+29 - 210+57	STH 82	---	---	1,056	---	137.5	528	1	---
210+57 - 261+79	STH 82	425.0	---	10,033	---	1,275.0	---	---	---
261+79 - 267+60	STH 82	150.0	581	1,162	---	150.0	581	---	---
267+60 - 272+88	STH 82	137.5	---	1,056	---	137.5	---	---	---
272+88 - 278+69	STH 82	150.0	581	1,162	---	150.0	581	---	---
278+69 - 288+19	STH 82	150.0	---	1,795	---	237.5	---	---	---
288+19 - 298+75	STH 82	250.0	1,000	2,112	---	262.5	1,056	---	---
298+75 - 321+45	STH 82	---	3,300	4,488	---	---	4,540	---	---
321+45 - 330+95	STH 82	237.5	950	1,900	---	237.5	950	---	---
330+95 - 332+53	STH 82	---	316	316	---	---	316	---	---
332+53 - 351+01	STH 82	362.5	1,448	3,591	---	462.5	1,848	---	---
351+01 - 358+93	STH 82	200.0	---	1,584	---	200.0	---	---	---
358+93 - 370+02	STH 82	275.0	1,109	2,218	---	275.0	1,109	---	---
370+02 - 419+75	STH 82	---	9,616	9,610	---	---	9,946	---	---
CTH E		---	---	---	200	---	---	---	---
2ND AVE		---	---	---	200	---	---	---	---
FANDRICH ST		---	---	---	200	---	---	---	---
CTH I		---	---	---	200	---	---	---	---
CTH J		---	---	---	200	---	---	---	---
6TH RD		---	---	---	200	---	---	---	---
CROSSROAD CLINIC RD		---	---	---	200	---	---	---	---
TURN LANE TO SB IH 39		---	---	---	350	---	---	---	---
TURN LANE TO NB IH 39		---	---	---	110	---	---	---	---
PROJECT TOTALS		3,004.5	20,210	54,017	1,860	5,104.5	26,909	2	0
PROJECT ID 1160-00-80									
419+75 - 429+15	STH 23	---	---	2,990	160	---	1,880	---	65
PROJECT ID 1430-00-82									
429+15 - 441+90	STH 23	---	---	2,550	---	212.5	1,700	---	---
SUB TOTALS		3,004.5	20,210	59,557	2,020	5,317	30,489	2	65
GRAND TOTALS		23,214.5		59,557	2,020	35,806		2	65

TRAFFIC CONTROL

(SEE TRAFFIC CONTROL SCHEDULE SHEETS FOR LOCATION AND QUANTITY BREAKDOWN)

STATION	APPROX DURATION DAYS	643.0300 TRAFFIC CONTROL DRUMS		643.0420 BARRICADES TYPE III		643.0705 WARNING LIGHTS TYPE A		643.1000 FIXED MESSAGE SIGN SF	643.1050 PORTABLE CHANGEABLE MESSAGE SIGNS		643.0310.S TEMPORARY PORTABLE RUMBLE STRIPS LS	REMARKS	PROJECT
		NO.	DAY	NO.	DAYS	NO.	DAYS		NO.	DAYS			
STH 82	7			---	---	---	---	64	---	---	1	TRAFFIC CONTROL OVERVIEW	1430-00-80
STH 82	5	---	---	---	---	---	---	---	---	---	---	DETOUR ROUTE OVERVIEW	1430-00-80
STH 82	5	6	30	14	70	20	100	---	2	14	---	DETOUR ROUTE DETAIL A	1430-00-80
PROJECT	5	---	---	2	10	4	20	---	---	---	---	DETOUR ROUTE DETAIL B	1430-00-80
PROJECT	5	---	---	2	10	4	20	---	---	---	---	DETOUR ROUTE DETAIL F	1430-00-80
362+45	1	30	30	---	---	---	---	---	---	---	---		1430-00-80
UNDISTRIBUTED		---	70	---	---	---	---	---	---	---	---		1430-00-80
SUBTOTAL			130		90		140	64	2	14	1		
PROJECT	4	9	36	---	---	---	---	---	3	12	---	DETOUR ROUTE - RAMP CLOSURE	1160-00-80
TOTALS			166		90		140	64		26	1		

TRAFFIC CONTROL COVERING SIGNS

LOCATION	DESCRIPTION	NUMBER OF CYCLES		643.0910 TYPE I EACH	643.0920 TYPE II EACH	REMARKS
		EACH	EACH			
STH 82	EAST, 82	1	2	---	3	RR DETOUR OVERVIEW
STH 23	82	1	1	---	1	DETOUR DETAIL B
STH 23	WEST, 82, ARROW AHEAD	1	3	---	1	DETOUR DETAIL B
STH 23	OXFORD	1	1	---	1	DETOUR DETAIL B
I 39 SB	WEST, 82, OXFORD	1	3	1	---	DETOUR DETAIL B
I 39 SB	WEST, 82, OXFORD	1	3	1	---	DETOUR DETAIL B
I 39 SB OFF RAMP	OXFORD	1	1	---	1	DETOUR DETAIL B
I 39 SB OFF RAMP	WEST, 82, ARROW RIGHT	1	3	---	1	DETOUR DETAIL B
I 39 NB	WEST, 82, OXFORD	1	3	1	---	DETOUR DETAIL B
I 39 NB	WEST, 82, OXFORD	1	3	1	---	DETOUR DETAIL B
I 39 NB OFF RAMP	OXFORD	1	1	---	1	DETOUR DETAIL B
I 39 NB OFF RAMP	WEST, 82, ARROW LEFT	1	3	---	1	DETOUR DETAIL B
STH 13	EAST, 82, ARROW LEFT	1	3	---	2	DETOUR DETAIL F
TOTALS				4	12	1430-00-80

CONSTRUCTION STAKING

STATION - STATION	650.6000 PIPE CULVERTS		650.8000 RESURFACING REFERENCE LF	REMARKS
	EACH			
113+86 - 168+93	---		5,507	1430-00-80
198+95 - 419+75	---		22,080	1430-00-80
STA 201+85	1		---	1430-00-80
STA 209+90	1		---	1430-00-80
STA 362+45	1		---	1430-00-80
STA 380+05	1		---	1430-00-80
SUBTOTAL	4		27,587	1430-00-80
419+75 - 429+15	---		940	1160-00-80
429+15 - 441+90	---		1,275	1430-00-82
TOTALS	4		29,802	

3

CIR PARTIAL DEPTH

SPV.0180.01			
STATION - STATION	LOCATION	SY	REMARKS
117+36 - 168+93	CL	16,700	1430-00-80
210+45 - 405+75	CL	64,800	1430-00-80
TOTAL		81,500	

ASPHALT STABILIZING AGENT

SPV.0195.01			
STATION - STATION	LOCATION	TON	REMARKS
117+36 - 168+93	CL	110	1430-00-80
210+45 - 405+75	CL	428	1430-00-80
TOTALS		538	

3

BASE REPAIR FOR CIR PAVEMENT

SPV.0035.01			
LOCATION	CY	REMARKS	PROJECT
UNDISTRIBUTED	1,100	YIELDING BASE	1430-00-80
TOTAL		1,100	

SAWING ASPHALT

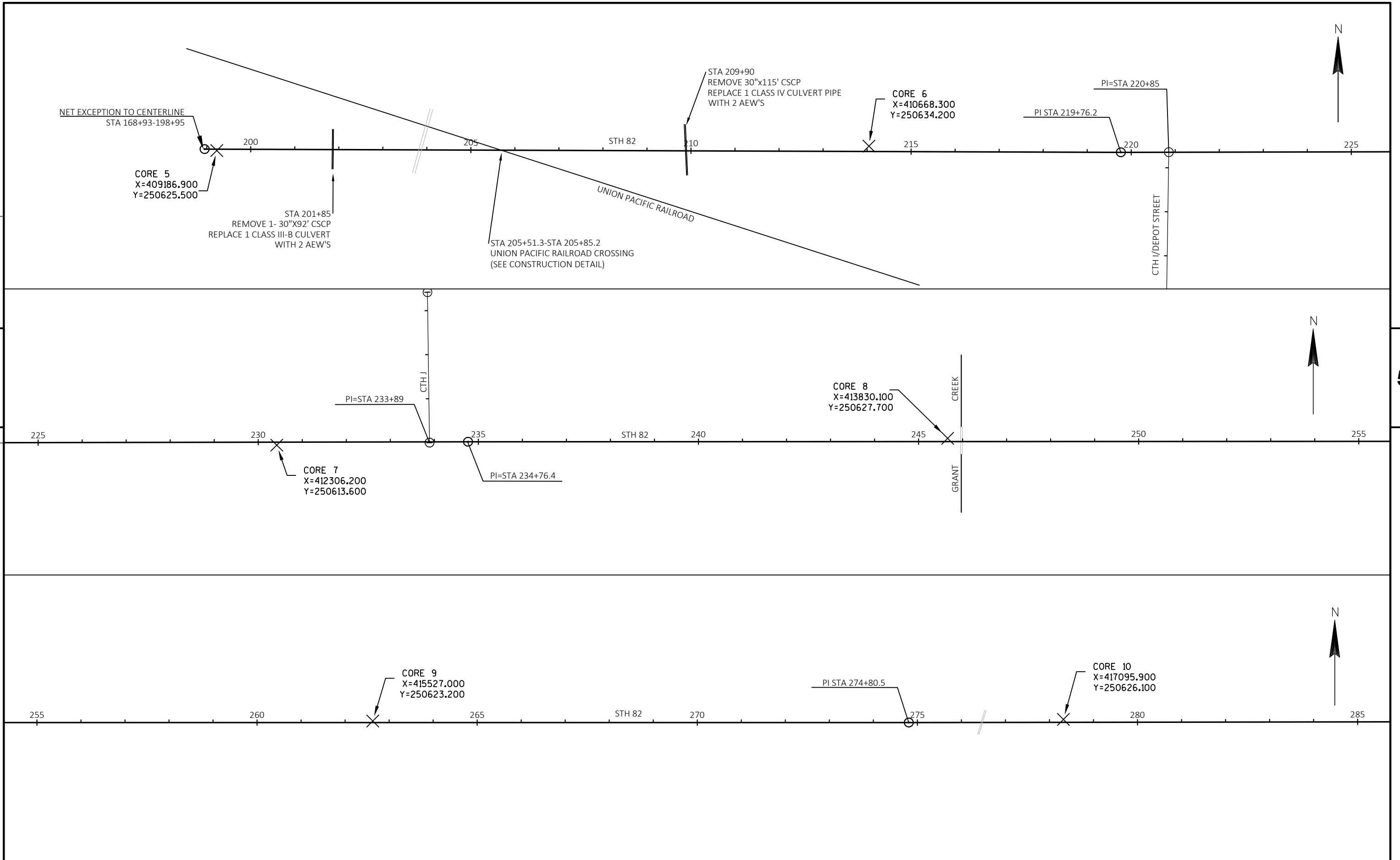
690.0150			
STATION - STATION	LOCATION	LF	REMARKS
117+36	RT/LT	30	STH 82
168+93	RT/LT	30	STH 82
198+95	RT/LT	30	STH 82
201+85	RT/LT	60	CULVERT REPLACEMENT
209+90	RT/LT	60	CULVERT REPLACEMENT
362+45	RT/LT	160	CULVERT REPLACEMENT
SUBTOTAL		370	1430-00-80
441+90	RT/LT	30	1430-00-82
TOTAL		400	

LANE SHIFT

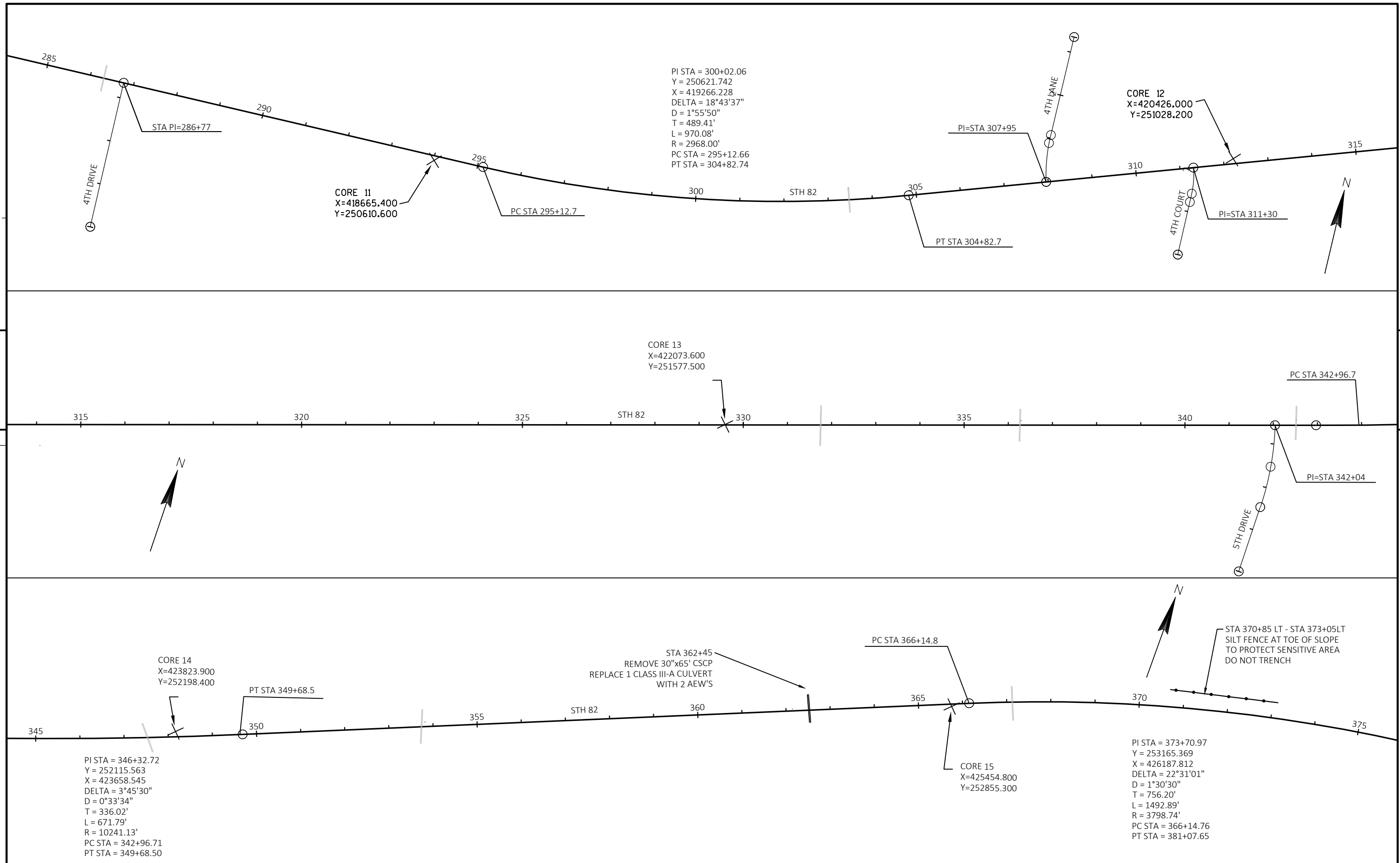
SPV.0060.01			
STATION	EACH	REMARKS	PROJECT
362+45	1	CULVERT REPLACEMENT	1430-00-80
TOTAL		1	

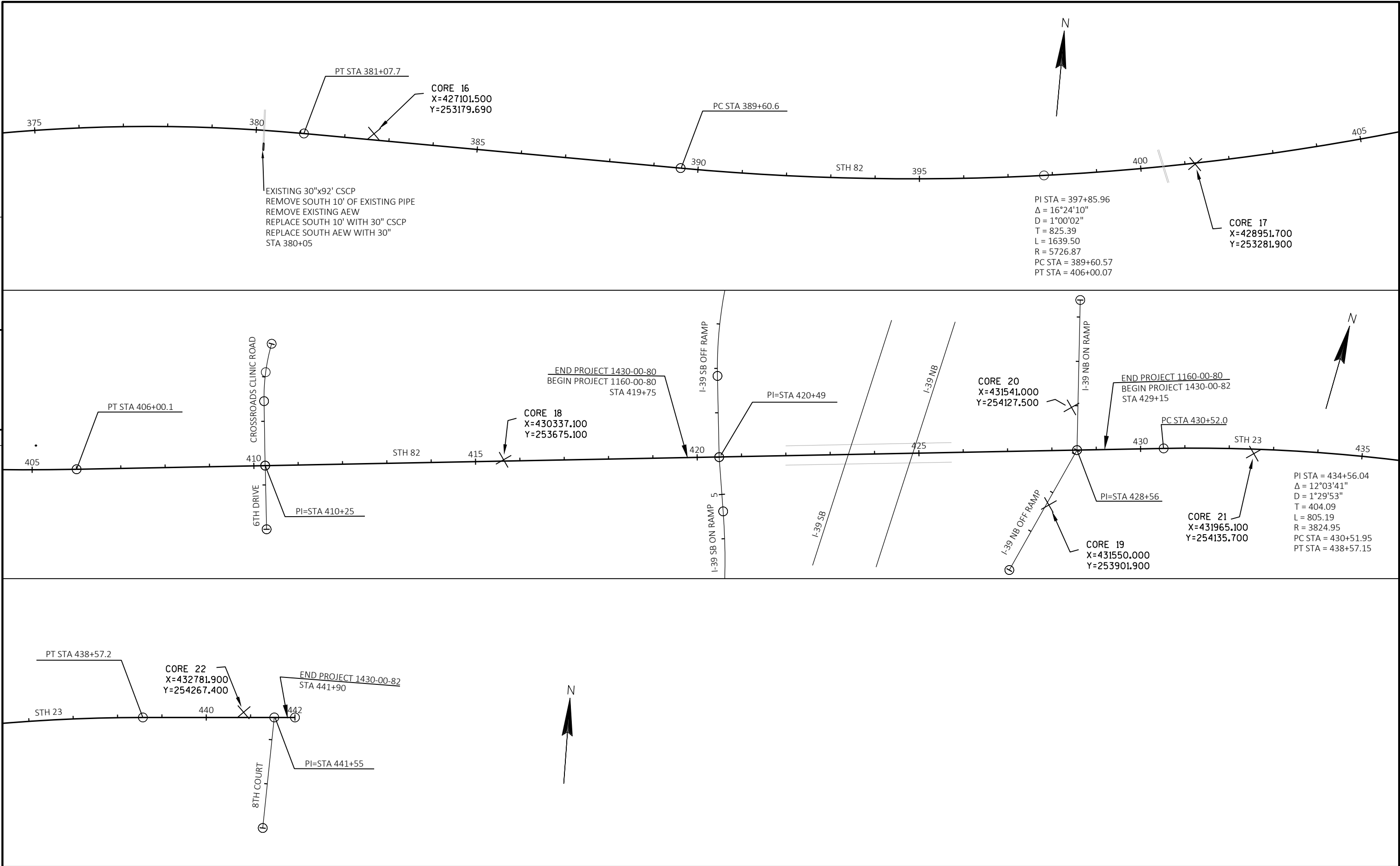






PROJECT NO: 1160-00-80/1430-00-80/82	HWY: STH 82/ STH 23	COUNTY: MARQUETTE	PLAN SHEET	SHEET	E
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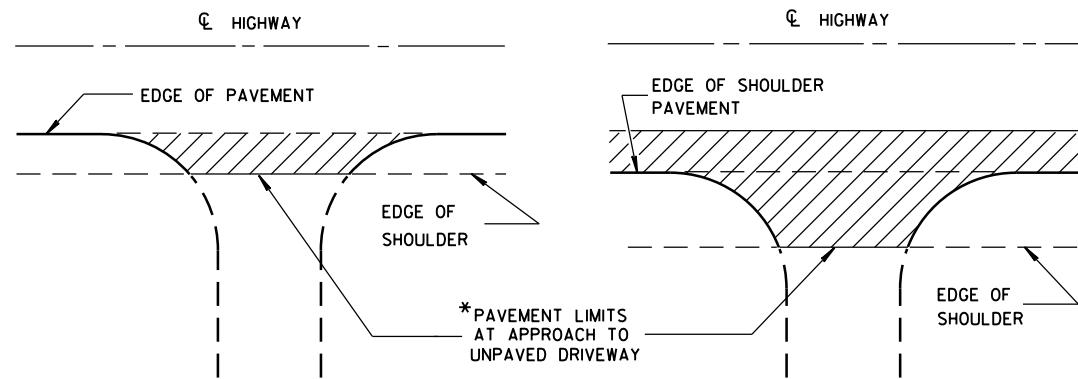




PROJECT NO: 1160-00-80/1430-00-80/82	HWY: STH 82/ STH 23	COUNTY: MARQUETTE	PLAN SHEET	SHEET	E
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Standard Detail Drawing List

08D21-01	DRIVEWAYS WITHOUT CURB & GUTTER
08E09-06	SILT FENCE
08F01-11	APRON ENDWALLS FOR CULVERT PIPE
08F04-07	JOINT TIES FOR CONCRETE PIPE AND CONCRETE COLLAR DETAIL
13A11-03A	2-LANE RURAL CENTER LINE RUMBLE STRIP, MILLING
13A11-03B	2-LANE RURAL CENTER LINE RUMBLE STRIP, MILLING
13B01-10	PAVEMENT DETAILS FOR RAILROAD APPROACH
15A03-02A	FLEXIBLE MARKER POST FOR CULVERT END
15A03-02B	FLEXIBLE MARKER POST FOR CULVERT END
15C02-06A	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-06B	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-06C	DETOUR SIGNING FOR MAINLINE CLOSURES
15C04-05	TRAFFIC CONTROL, ADVANCE WARNING SIGNS 45 M. P. H. OR GREATER TWO-WAY UNDIVIDED ROAD OPEN TO TRAFFIC
15C05-05	TRAFFIC CONTROL, ADVANCE WARNING SIGNS 40 M. P. H. OR LESS
15C08-19A	LONGITUDINAL MARKING (MAINLINE)
15C09-11A	SIGNING AND PAVEMENT MARKING DETAILS FOR RAILROAD-HIGHWAY GRADE CROSSINGS
15C12-06	TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATION
15C19-05A	MOVING PAVEMENT MARKING OPERATION TWO-LANE TWO-WAY ROADWAY
15C27-03A	DOUBLE ARROW WARNING SIGN PLACEMENT
15C27-03B	PAVEMENT MARKING (ISLANDS)
15C33-03	STOP LINE AND CROSSWALK PAVEMENT MARKING
15C35-03A	PAVEMENT MARKING (INTERSECTIONS)
15D28-03	TRAFFIC CONTROL, WORK ON SHOULDER OR PARKING LANE, UNDIVIDED ROADWAY
15D39-02	TRAFFIC CONTROL, DROP-OFF SIGNING

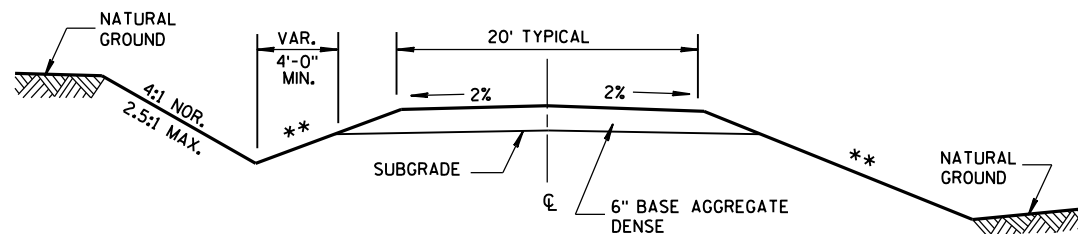


\*WHERE DRIVEWAY IS PAVED, APPROACH PAVEMENT SHOULD BE EXTENDED TO MATCH DRIVEWAY PAVEMENT.

**PLAN VIEW**  
(UNPAVED SHOULDER ON HIGHWAY)

**PLAN VIEW**  
(PAVED SHOULDER ON HIGHWAY)

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



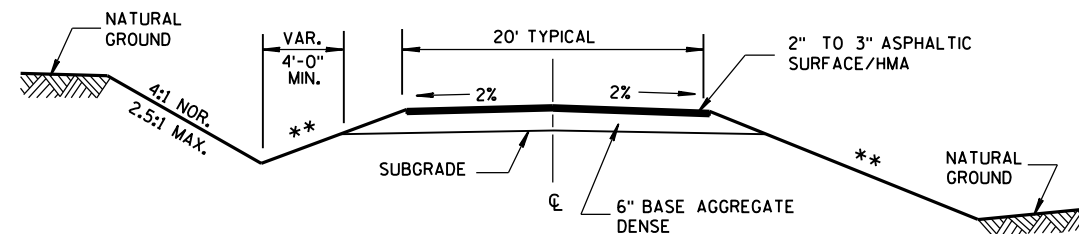
IN CUT

IN FILL

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

\*\* SLOPE CAN VARY WITH SPEED. SEE 11-45-2.6.2.

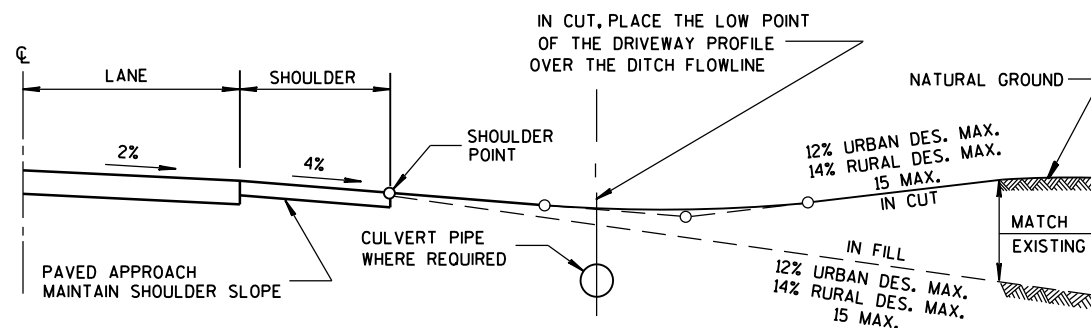
POSTED SPEED MPH	MAX. SLOPE
<35	4:1
≥35 TO <60	6:1
≥60	10:1



IN CUT

IN FILL

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

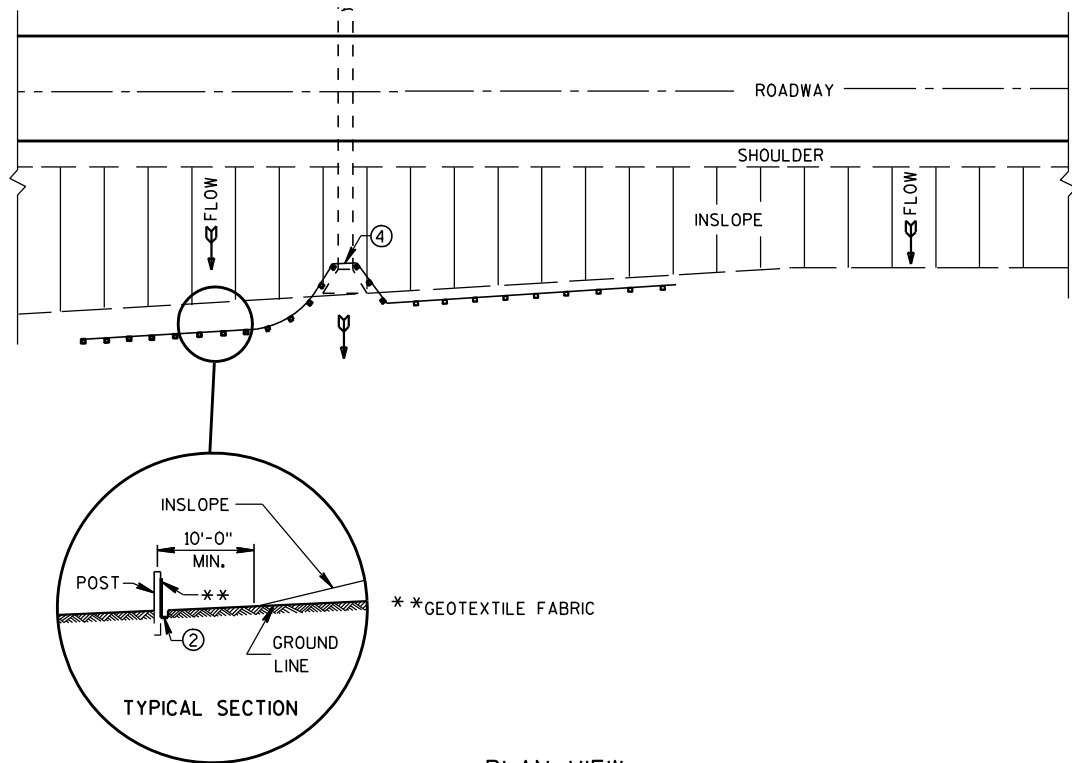


**TYPICAL DRIVEWAY PROFILES**

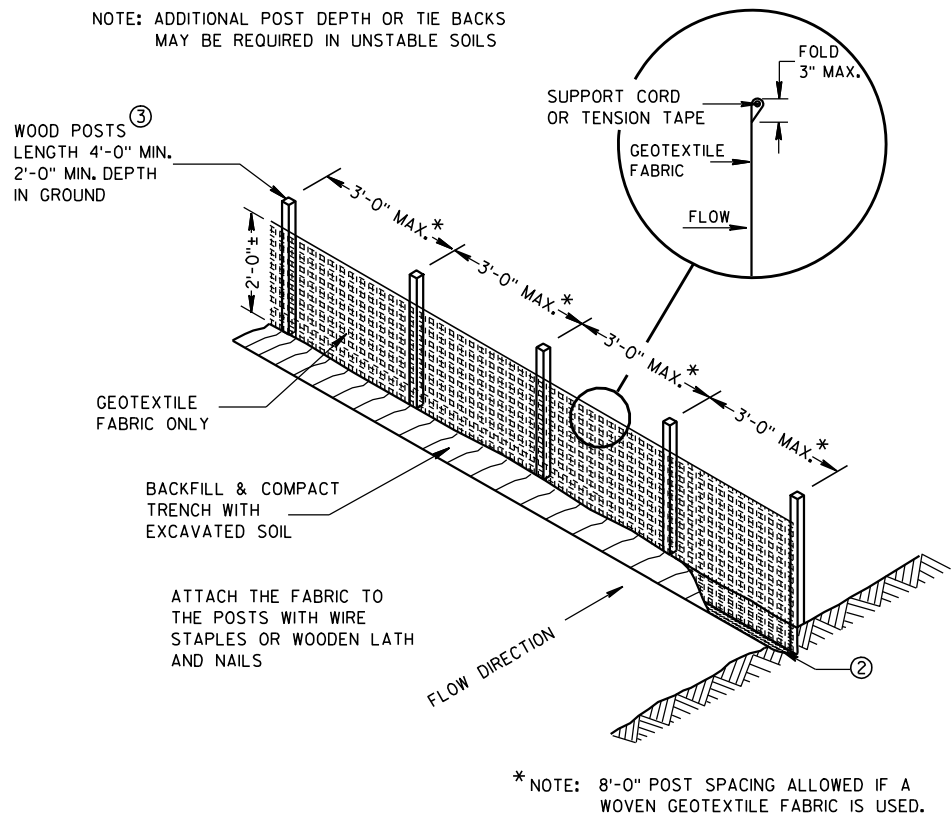
**DRIVEWAYS  
WITHOUT CURB & GUTTER**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

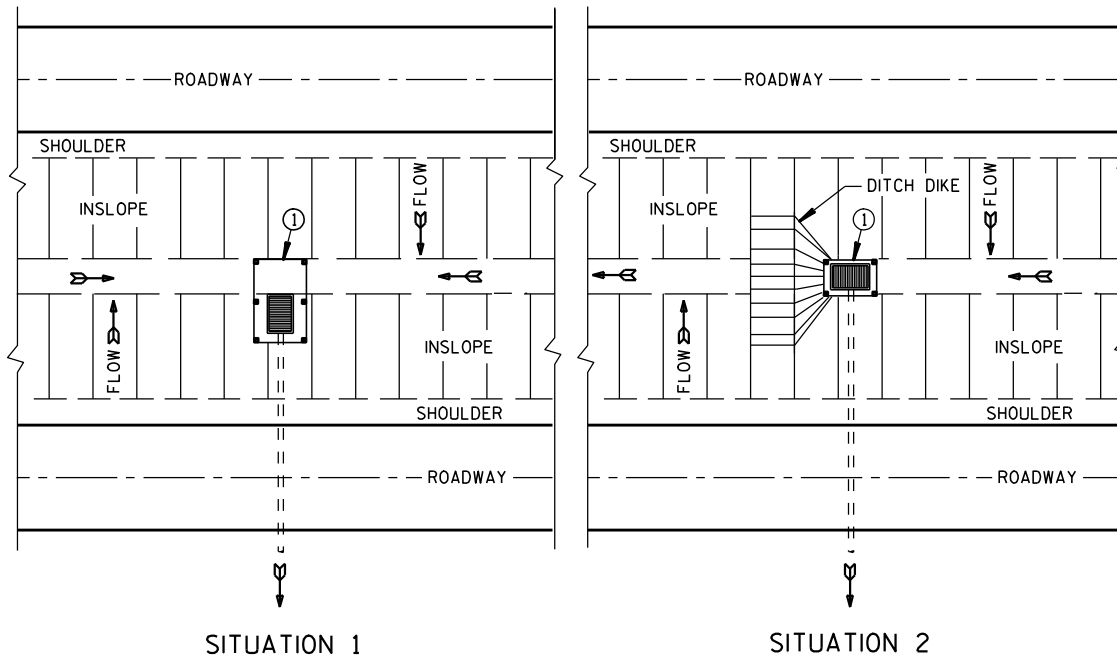
APPROVED  
December, 2016 /S/ Rodney Taylor  
DATE ROADWAY STANDARDS DEVELOPMENT  
FHWA UNIT SUPERVISOR



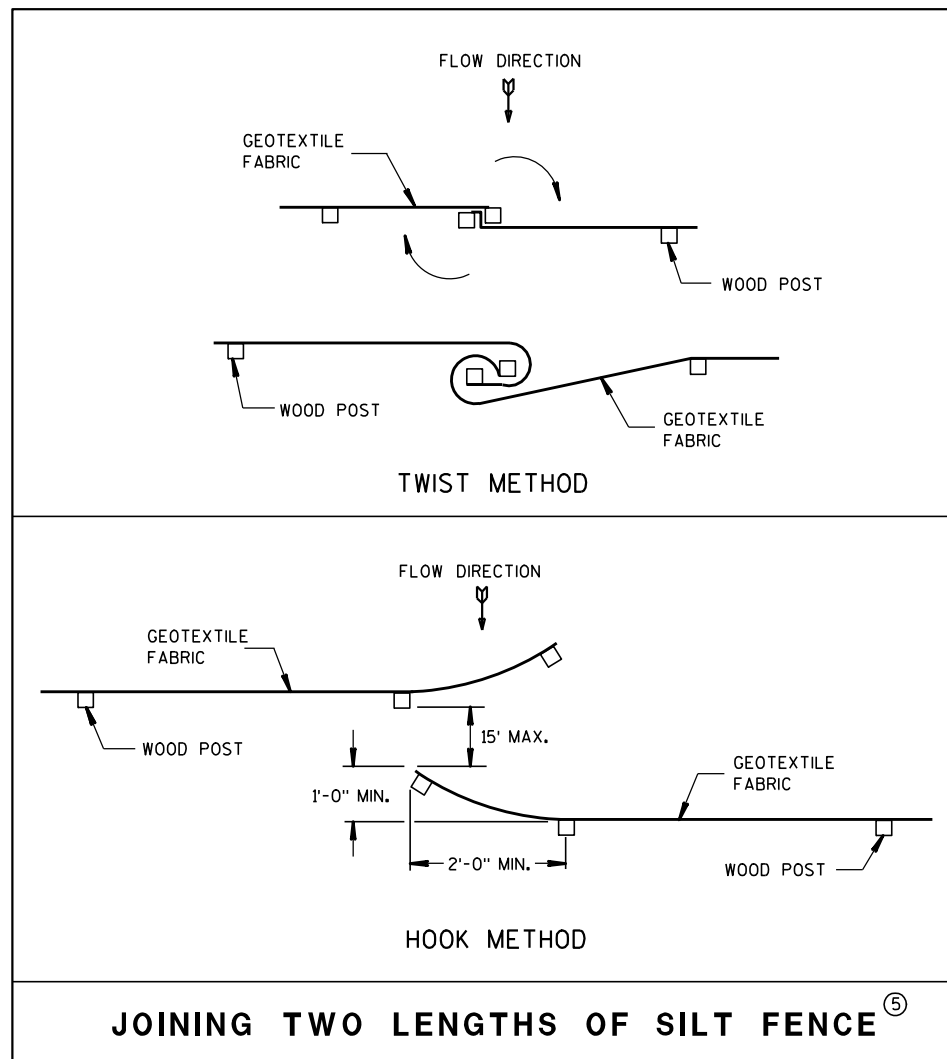
PLAN VIEW  
TYPICAL APPLICATION OF SILT FENCE



SILT FENCE



PLAN VIEW  
SILT FENCE AT MEDIAN SURFACE DRAINS

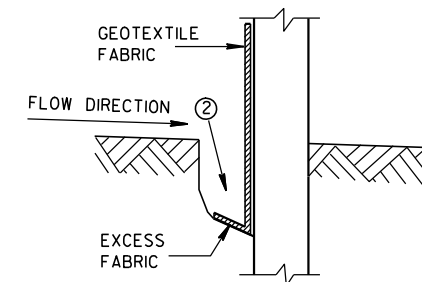


JOINING TWO LENGTHS OF SILT FENCE<sup>⑤</sup>

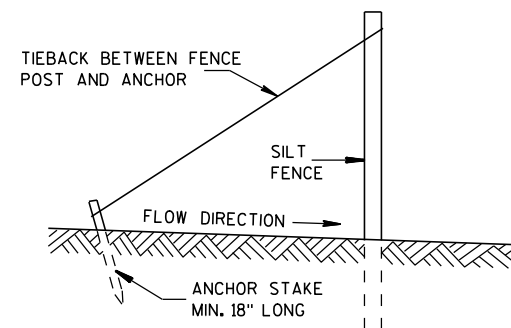
GENERAL NOTES

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

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



TRENCH DETAIL

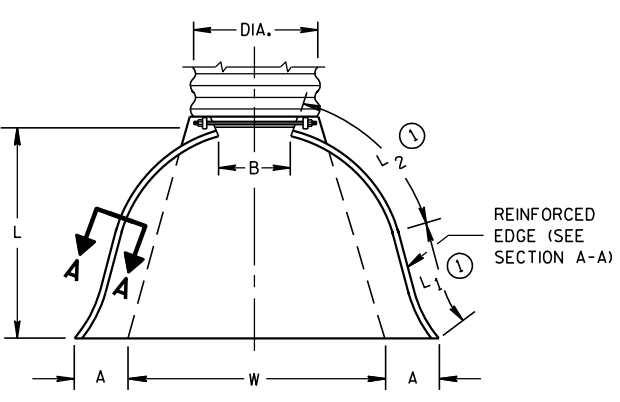


SILT FENCE TIE BACK  
(WHEN REQUIRED BY THE ENGINEER)

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

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

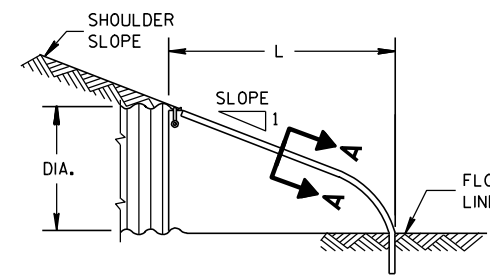
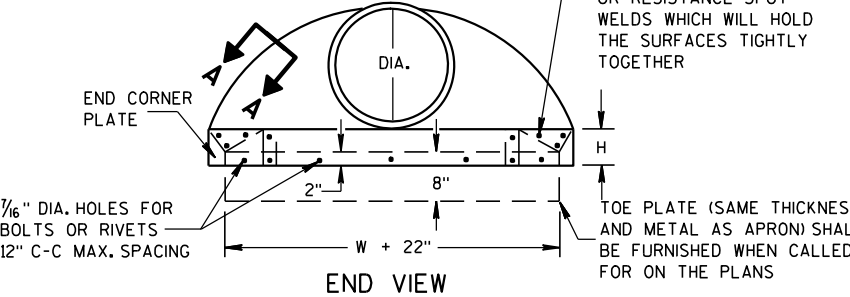
\* EXCEPT CENTER PANEL  
SEE GENERAL NOTES



REINFORCED  
EDGE (SEE  
SECTION A-A)

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

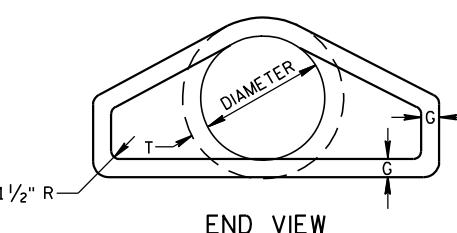
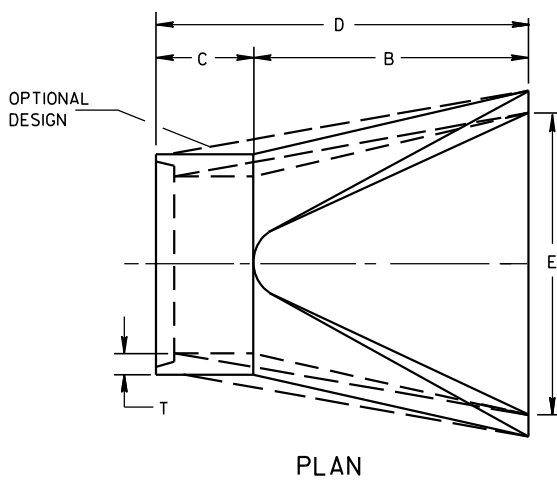
TOE PLATE (SAME THICKNESS  
AND METAL AS APRON) SHALL  
BE FURNISHED WHEN CALLED  
FOR ON THE PLANS



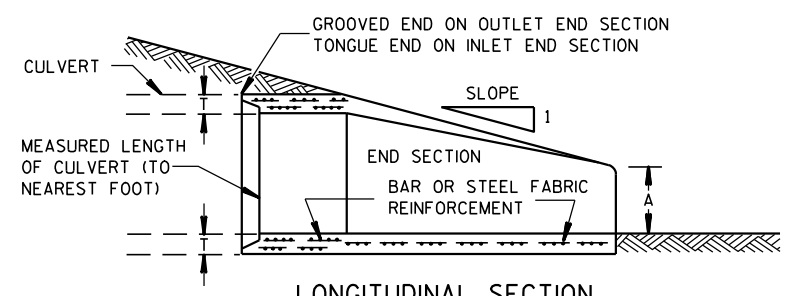
SIDE ELEVATION  
METAL ENDWALLS

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

\* MINIMUM  
\*\* MAXIMUM

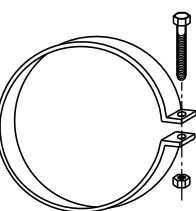


END VIEW

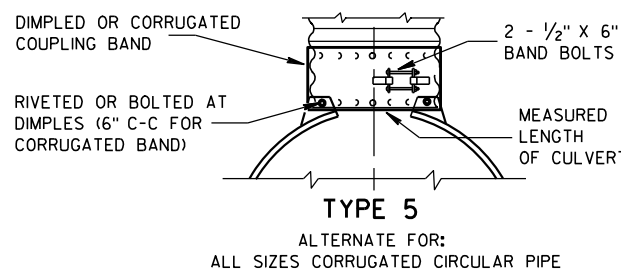
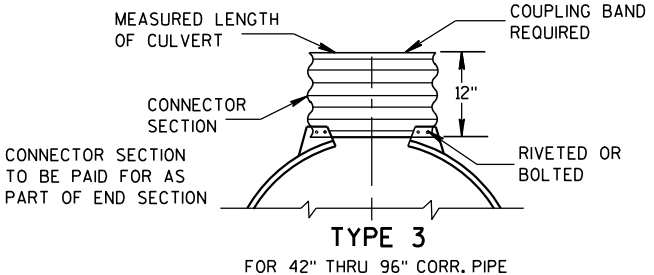
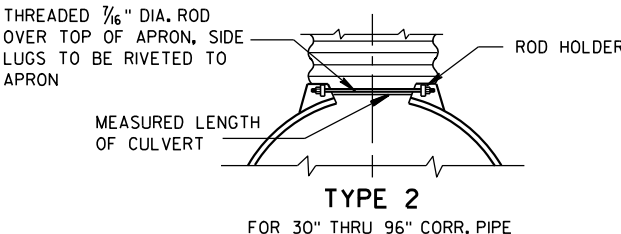
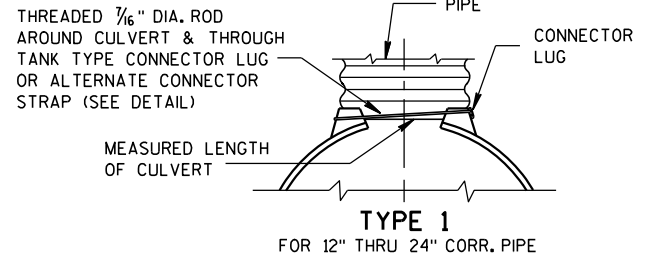


LONGITUDINAL SECTION  
CONCRETE ENDWALLS

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



ALTERNATE FOR TYPE 1 CONNECTION  
END SECTION CONNECTOR STRAP



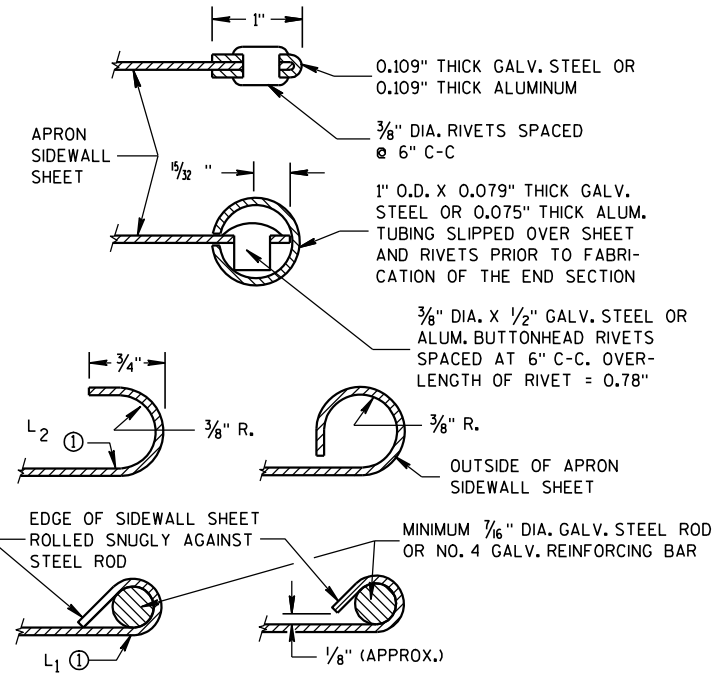
NOTE: DIMPLED BAND FITS OVER OUTSIDE OF ENDWALL,  
AND CORRUGATED BAND FITS INSIDE ENDWALL.  
DIMPLED BAND MAY BE USED WITH HELICALLY  
CORRUGATED PIPE.

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

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

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

CONNECTION DETAILS



SECTION A-A

### GENERAL NOTES

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

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

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

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

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

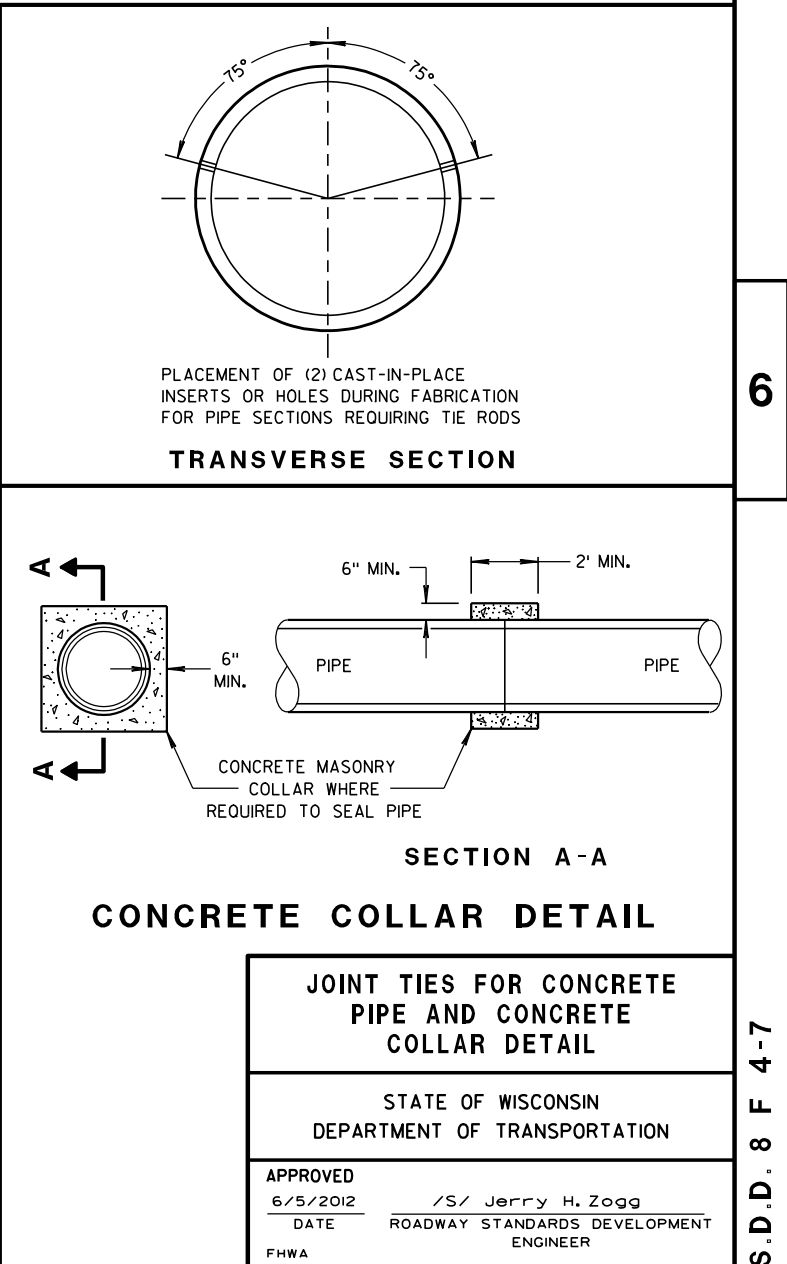
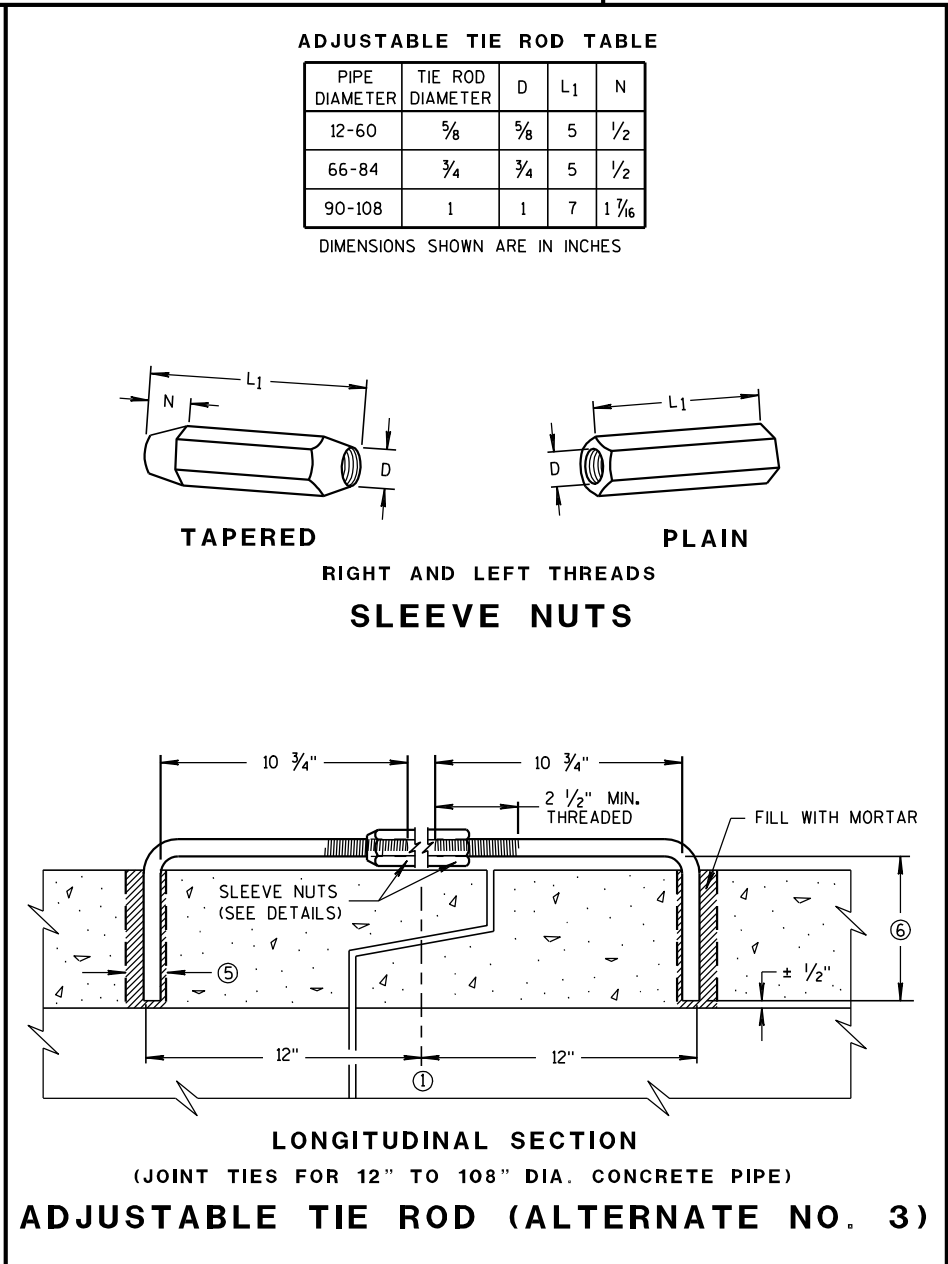
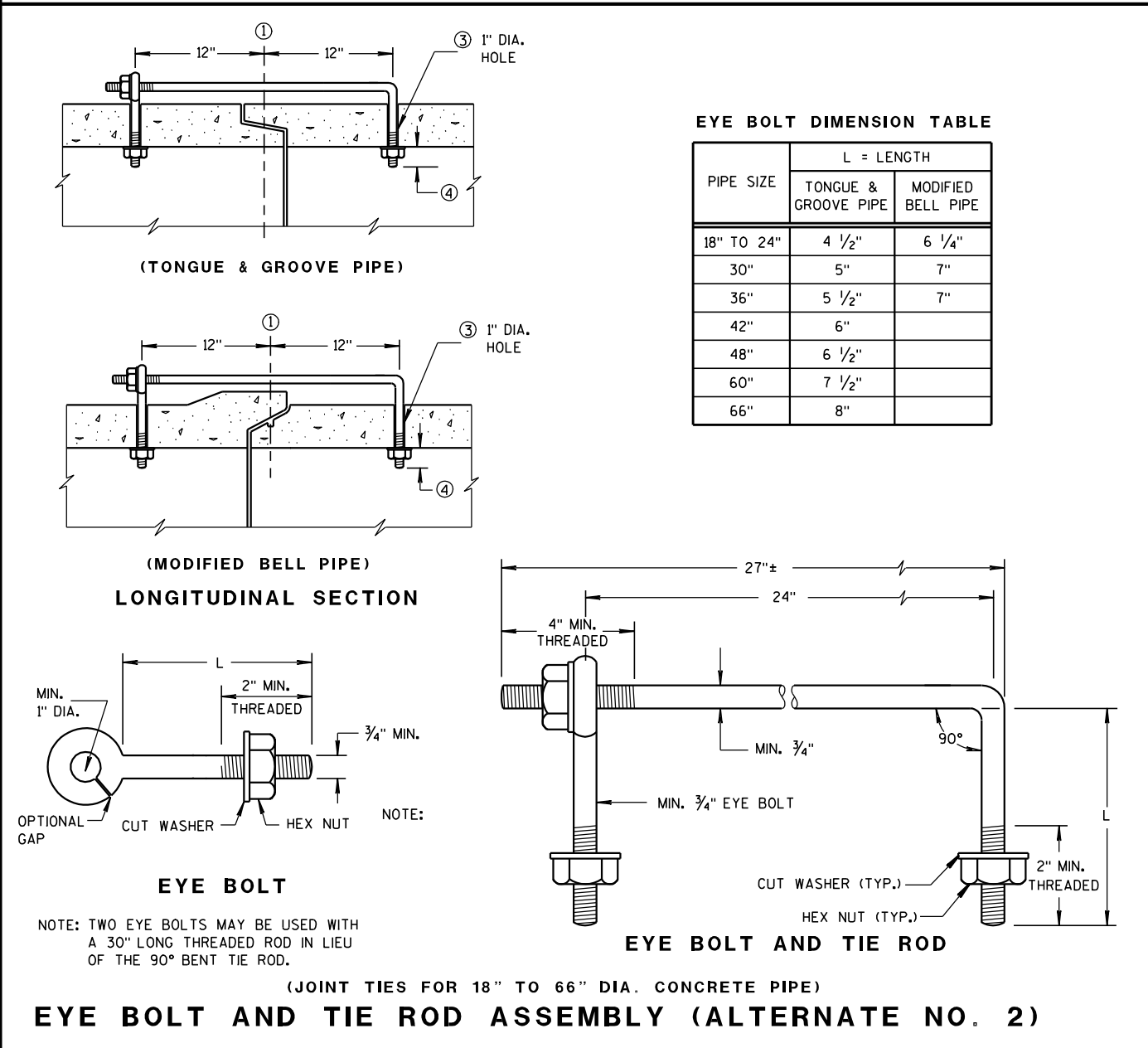
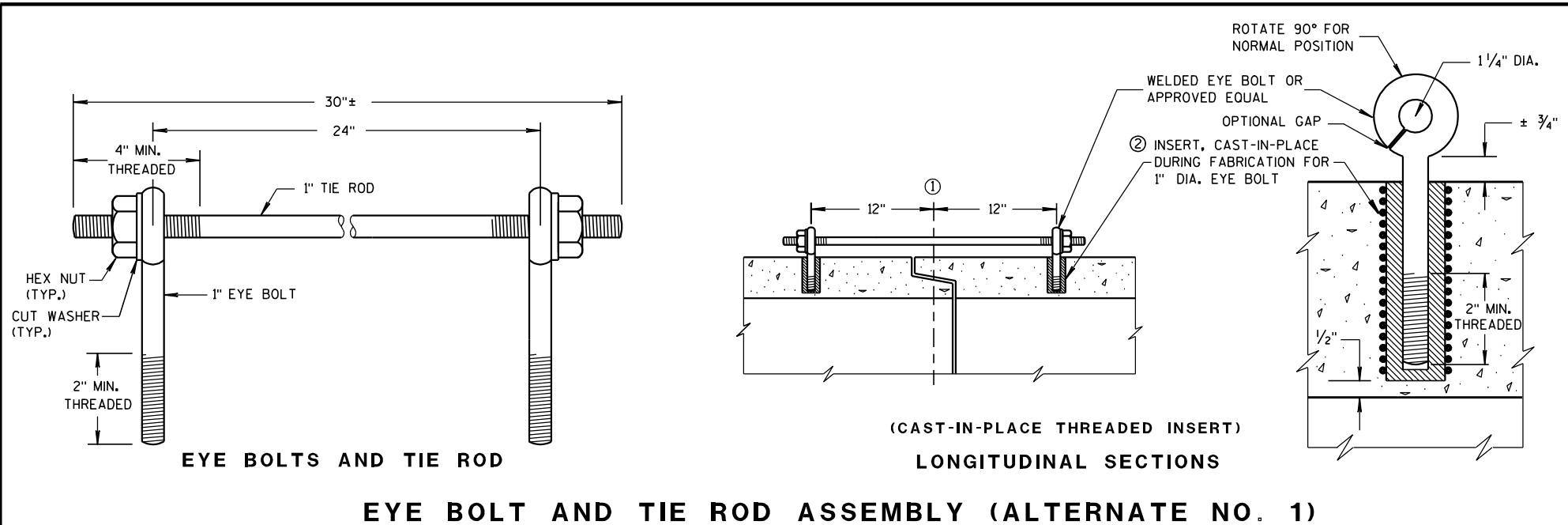
① FOR PIPE SIZES UP TO 60" DIAMETER, A 180° ROLLED EDGE MAY BE USED  
INSTEAD OF STEEL ROD REINFORCEMENT. SEE SECTION A-A.

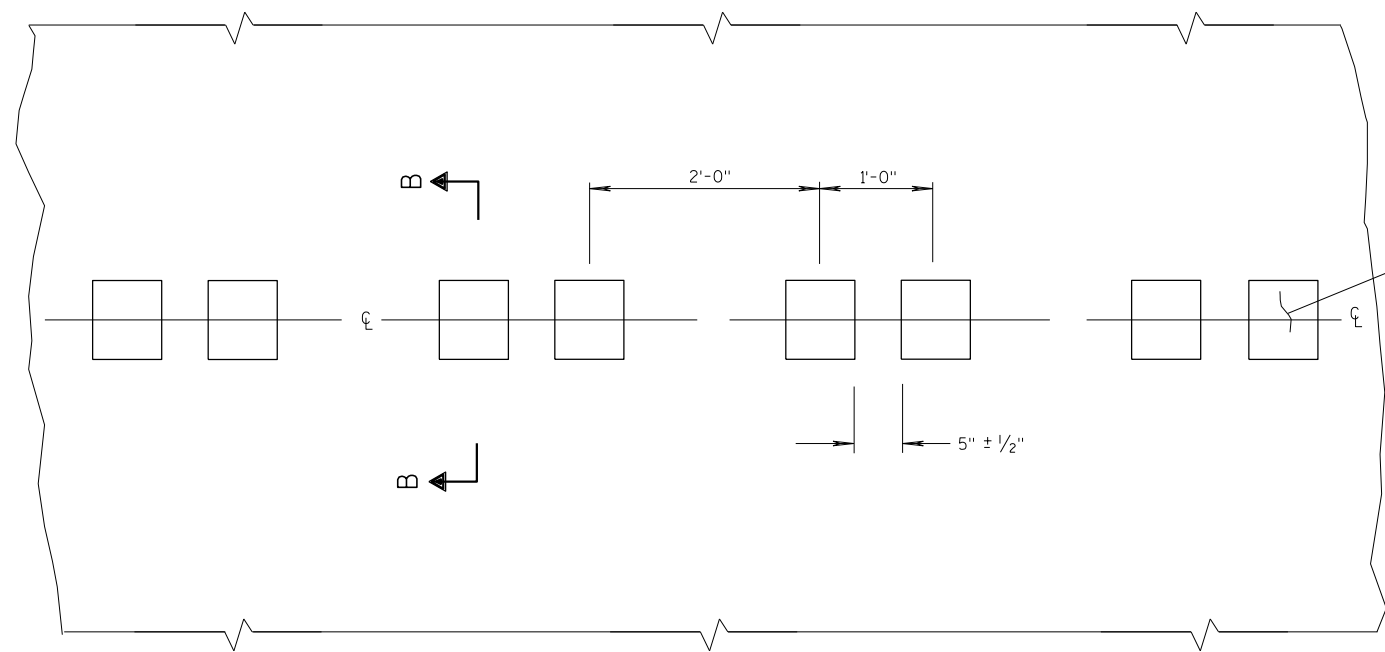
### APRON ENDWALLS FOR CULVERT PIPE

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

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

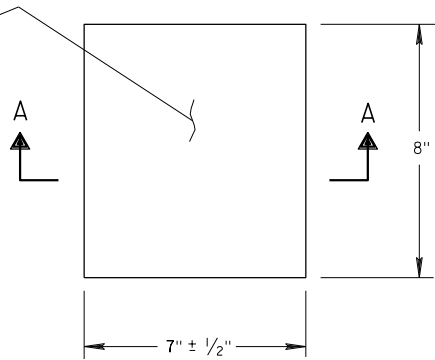






PLAN VIEW  
CENTER LINE WITH GROOVES

PLACEMENT DETAIL FOR MILLED RUMBLE STRIP



PLAN VIEW  
(SINGLE GROOVE)

GENERAL NOTES

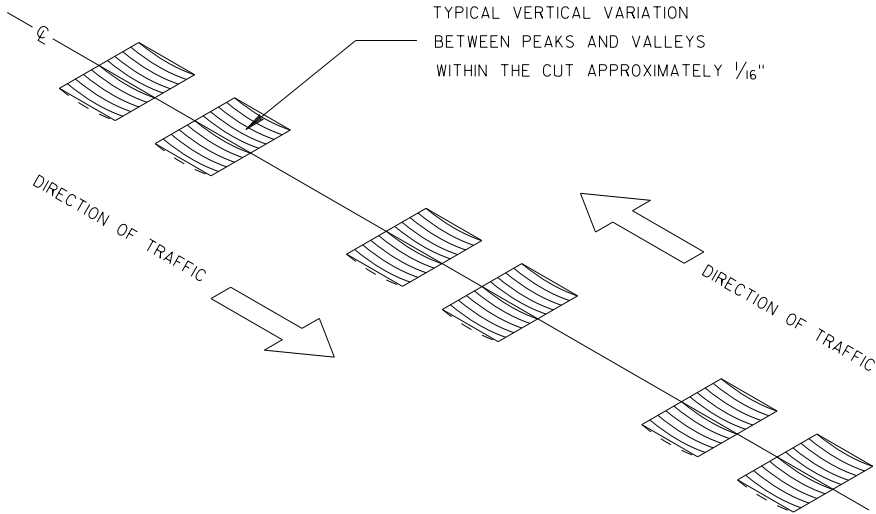
DETAILS OF CONSTRUCTION SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

DO NOT MILL CENTER LINE GROOVES THROUGH ANY INTERSECTION, MARKED CROSSWALK, NON-MOTORIZED PATH CROSSING, OR SNOWMOBILE CROSSING.

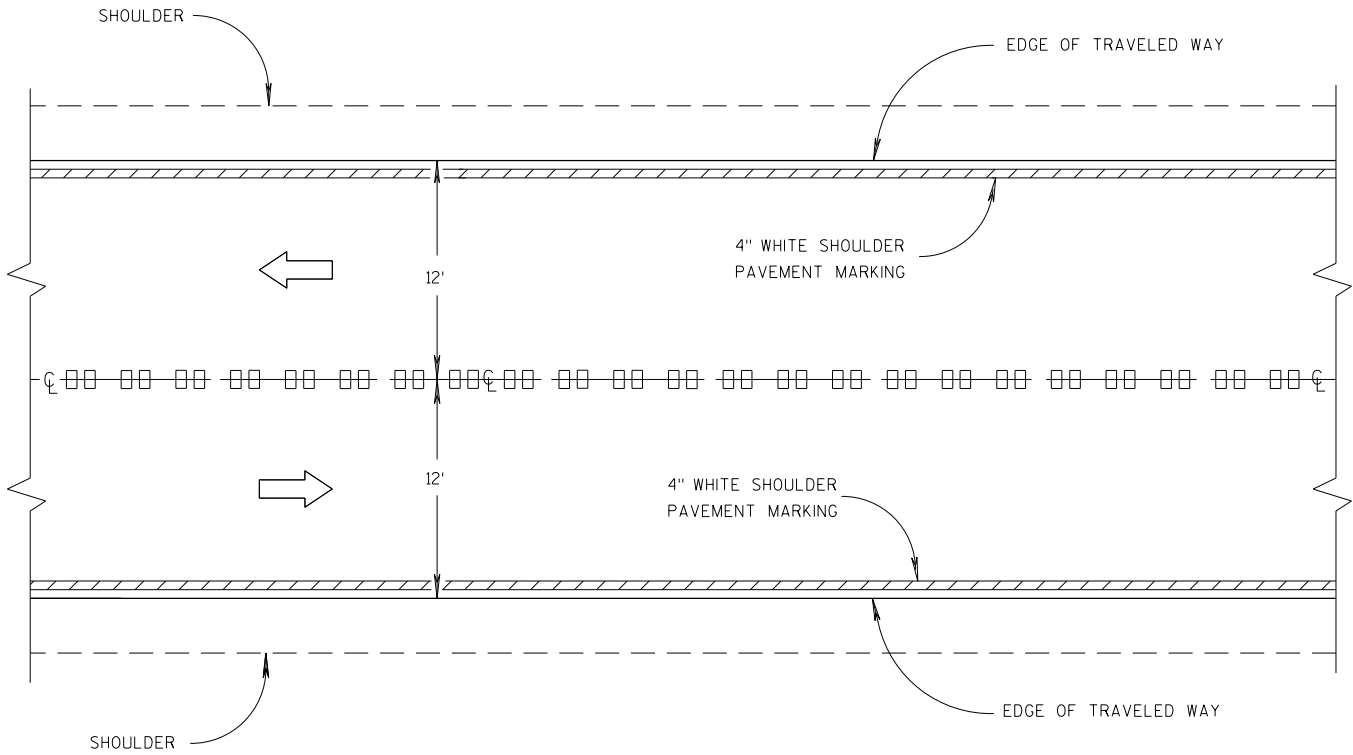
INSTALL PERMANENT MARKING EPOXY 4-INCH AFTER THE GROOVES ARE INSTALLED.

SEE SIGNING PLAN FOR SIGN REQUIREMENTS THAT MAY BE NEEDED.

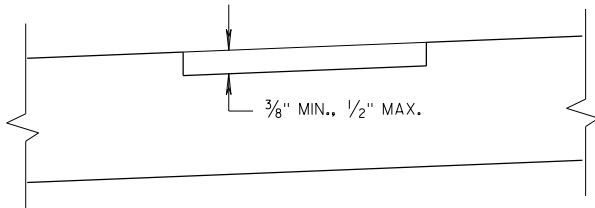
- ① CENTERLINE GROOVES MAY BE OMITTED IN AREAS WITH HIGH CONCENTRATIONS OF DRIVEWAYS, WHEN DIRECTED BY THE ENGINEER.



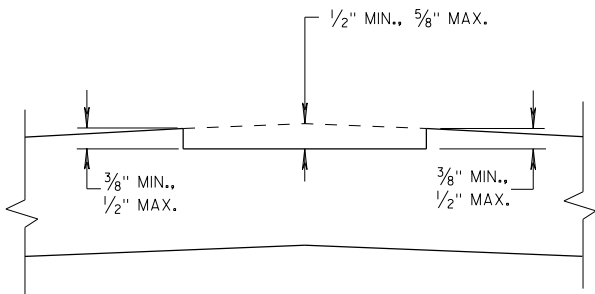
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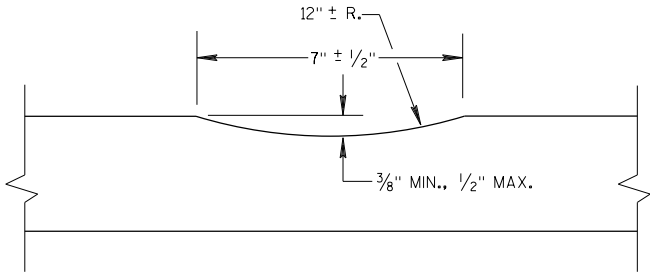
CENTER LINE GROOVES ON TWO-WAY ROADWAYS



SECTION B-B  
SUPERELEVATED ROADWAY



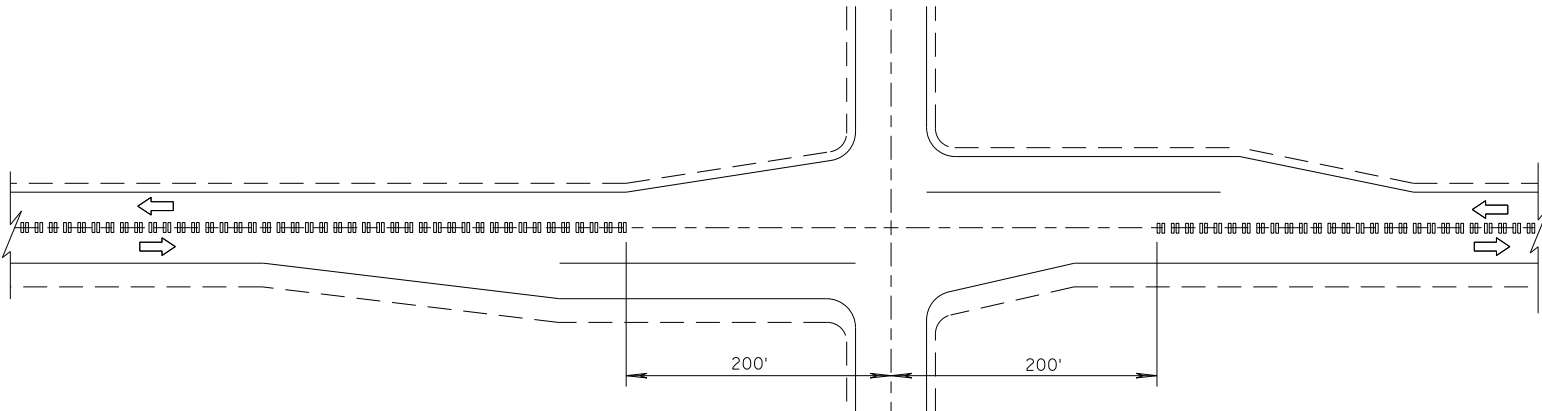
SECTION B-B  
CROWNED ROADWAY



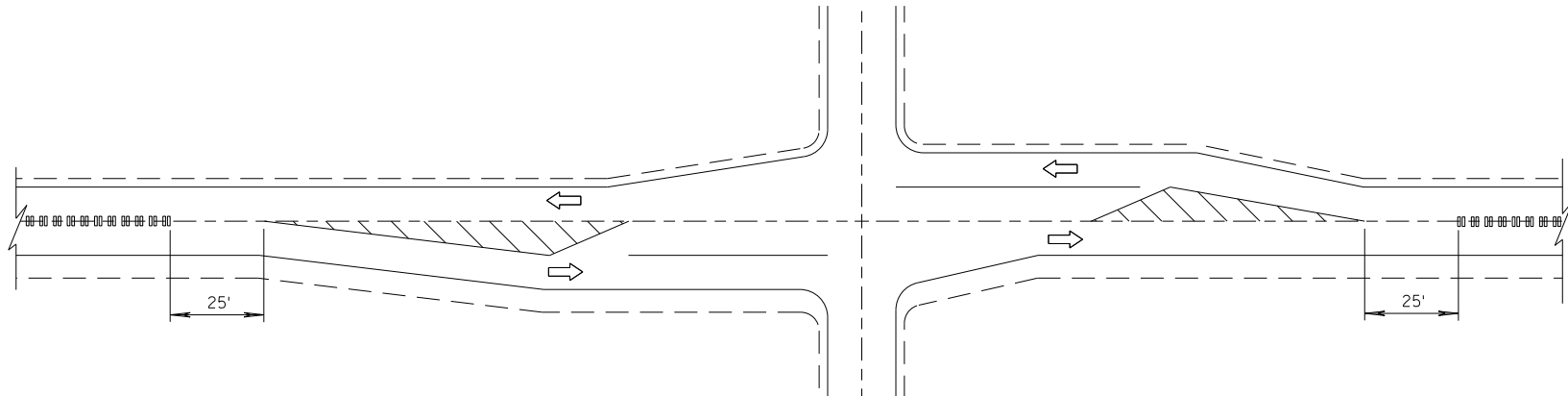
SECTION A-A

2-LANE RURAL  
CENTER LINE RUMBLE STRIP,  
MILLING

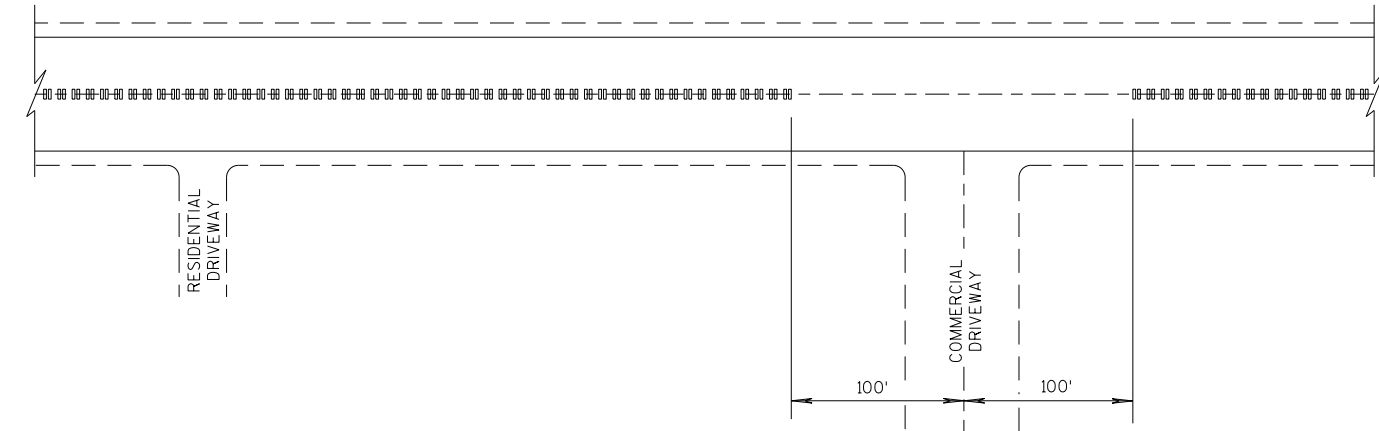
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



CENTER LINE GROOVES AT INTERSECTIONS

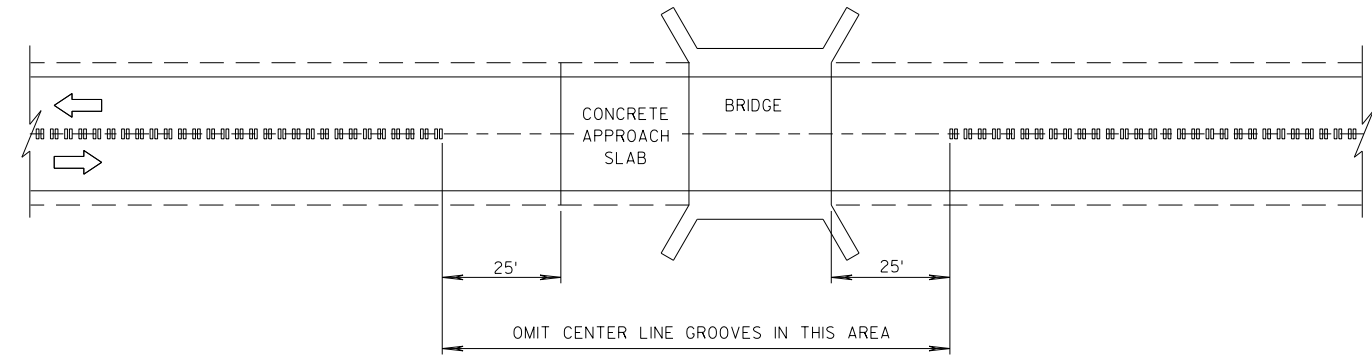


CENTER LINE GROOVES AT INTERSECTIONS  
(WITH LEFT TURN LANES)

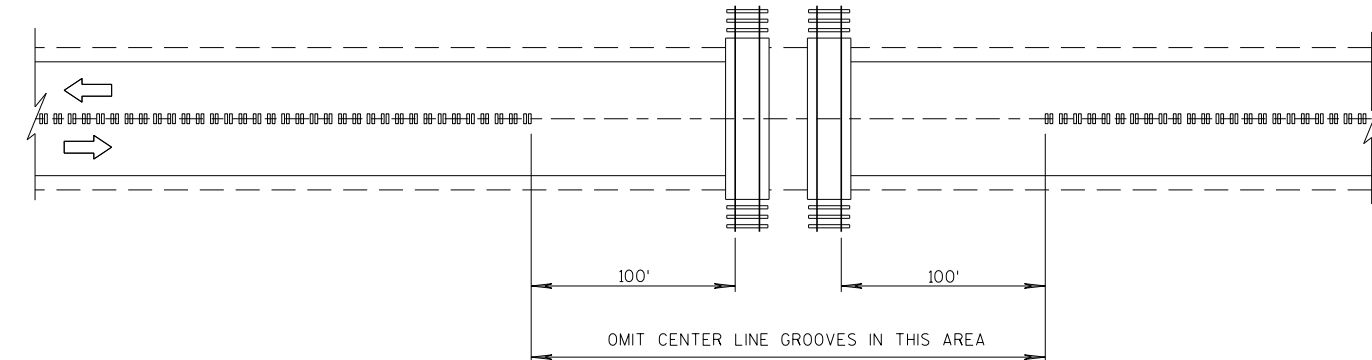


CENTER LINE GROOVES AT DRIVEWAYS<sup>1</sup>

<sup>1</sup> CENTERLINE GROOVES MAY BE OMITTED IN AREAS WITH HIGH CONCENTRATIONS OF DRIVEWAYS, WHEN DIRECTED BY THE ENGINEER.

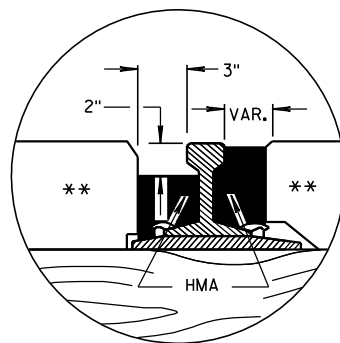
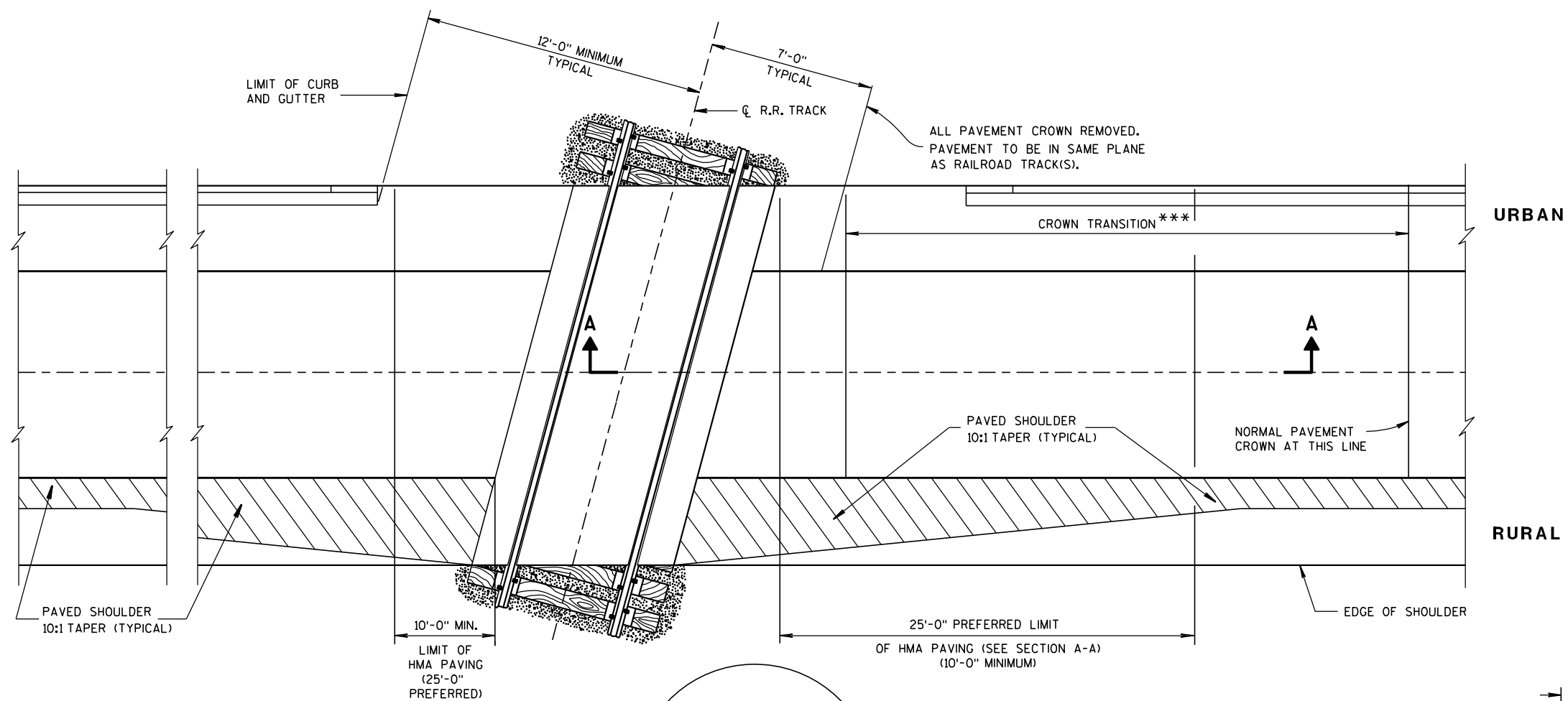


CENTER LINE GROOVES AT BRIDGES

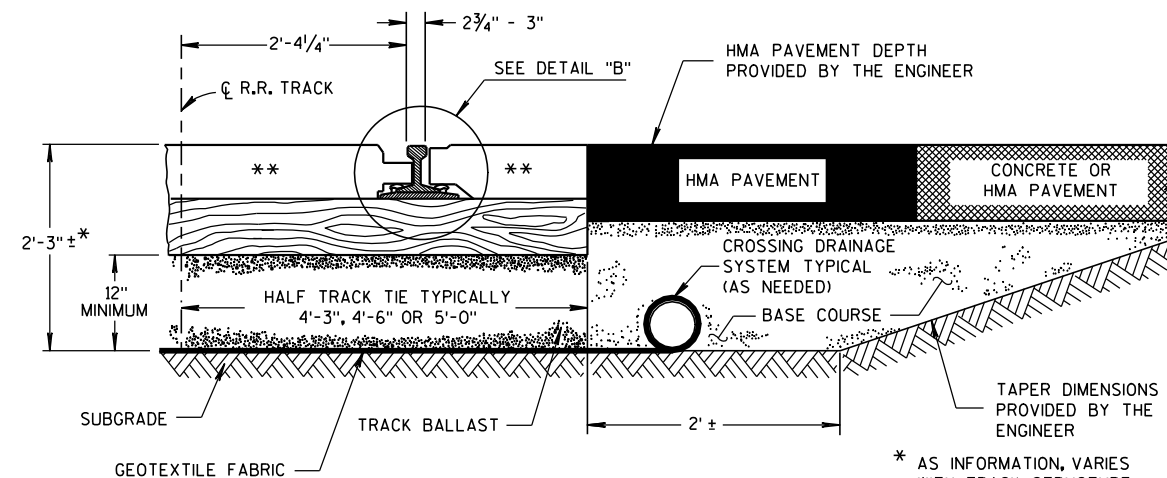


CENTER LINE GROOVES AT RAILROADS

2-LANE RURAL CENTER LINE RUMBLE STRIP, MILLING	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 7/2018 DATE	/S/ Rodney Taylor ROADWAY STANDARDS DEVELOPMENT UNIT SUPERVISOR
FHWA	

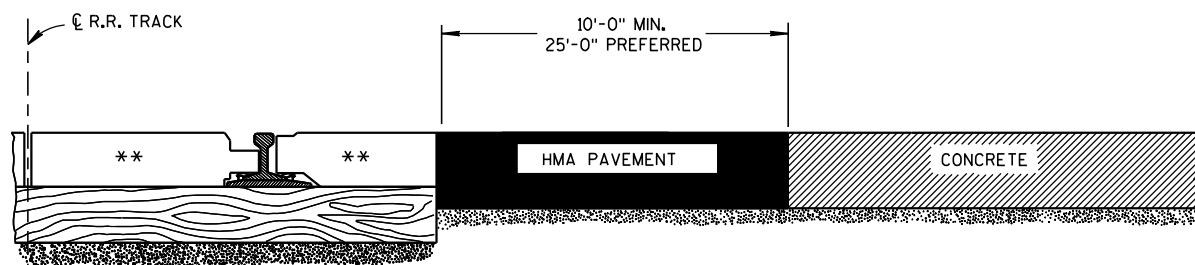


**DETAIL B**  
**HMA FLANGEWAY**  
**AND FIELD FILLERS**

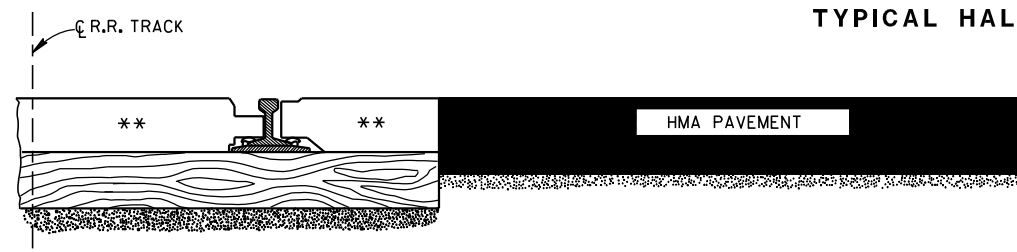


**TYPICAL HALF SECTION**

\* AS INFORMATION, VARIES WITH TRACK STRUCTURE AND SOIL CONDITIONS



**SECTION A-A**  
**CONCRETE PAVEMENT APPROACH**



**SECTION A-A**  
**HMA PAVEMENT APPROACH**

**EXAMPLES OF PAVEMENT APPROACHES**

## 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.

TIMBER, CONCRETE OR RUBBER CROSSING SURFACE MATERIAL, RAILS, TIES, BALLAST, GEOTEXTILE FABRIC AND CROSSING DRAINAGE SYSTEM BY OTHERS UNLESS OTHERWISE PROVIDED.

HMA PAVEMENT APPROACHES AND HMA PAVEMENT CROSSING SURFACES TO BE PLACED BY CONTRACTOR UNLESS OTHERWISE PROVIDED.

HMA FLANGEWAY AND FIELD FILLERS TO BE PLACED AND THOROUGHLY HAND COMPACTED BY THE CONTRACTOR WHEN NOT PROVIDED BY OTHERS. SEE DETAIL B. HMA FILLERS NOT REQUIRED WHEN RUBBER FILLERS ARE PROVIDED.

HMA PAVEMENT SHALL BE ROLLED PARALLEL TO THE TRACK.

\*\* CROSSING SURFACE MAY BE TIMBER, RUBBER, CONCRETE, HMA PAVEMENT OR A COMBINATION OF SUCH MATERIALS.

\*\*\* CROWN TRANSITION LENGTH SHOWN ELSEWHERE IN THE PLAN.

## PAVEMENT DETAILS FOR RAILROAD APPROACH

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED

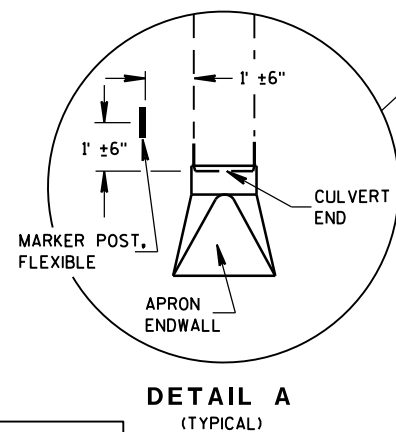
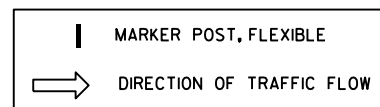
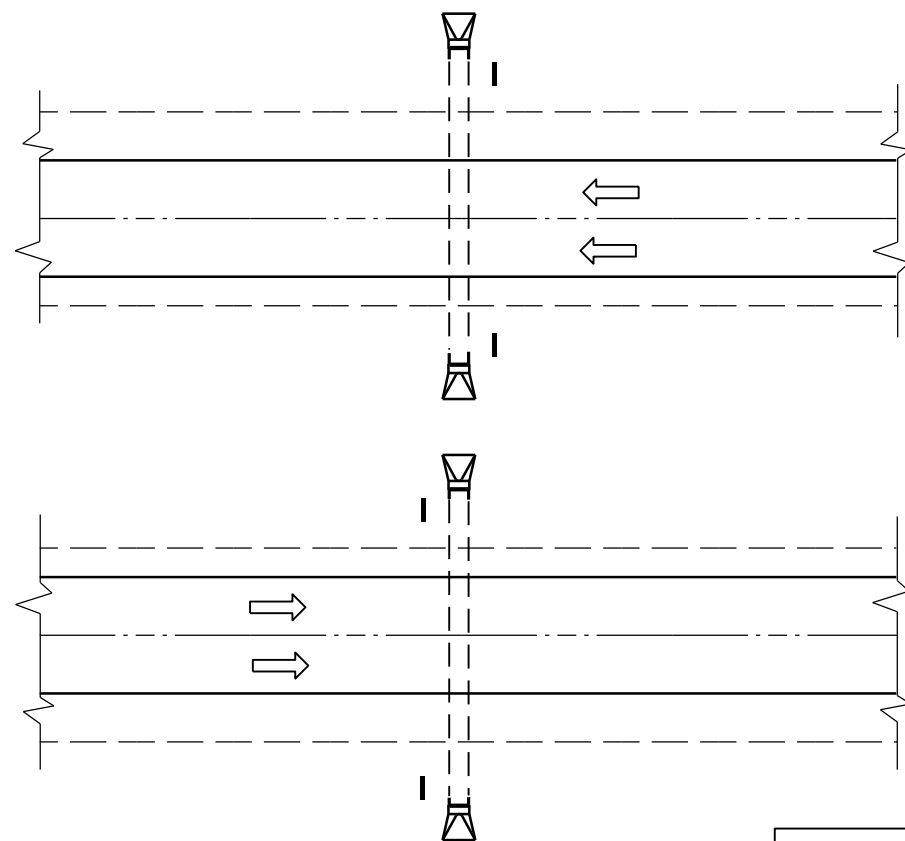
8-28-09

DATE

FHWA

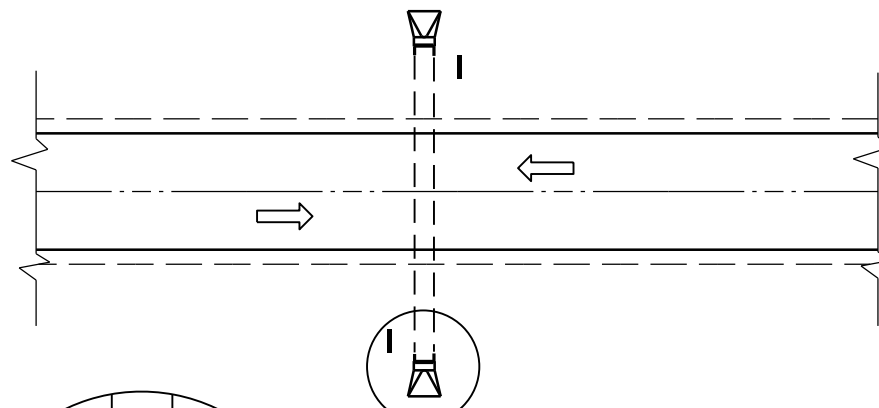
/S/ Ronald E. Adams  
CHIEF, RAILROADS & HARBORS SECTION

PLAN VIEW  
DIVIDED HIGHWAY

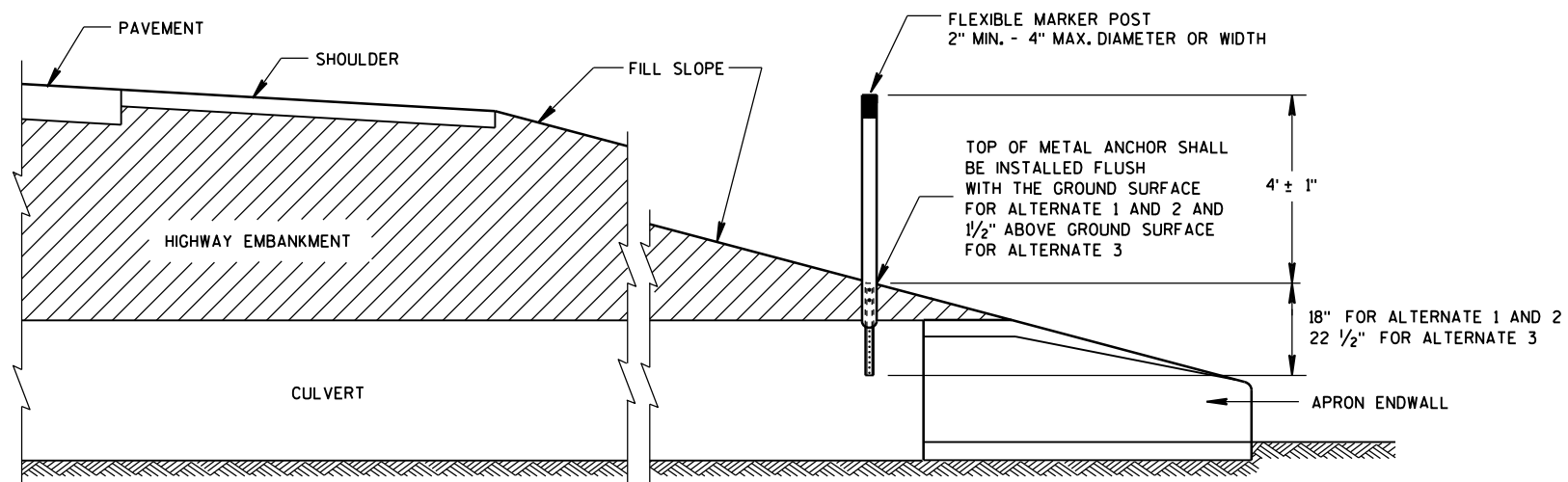


DETAIL A  
(TYPICAL)

PLAN VIEW  
UNDIVIDED HIGHWAY



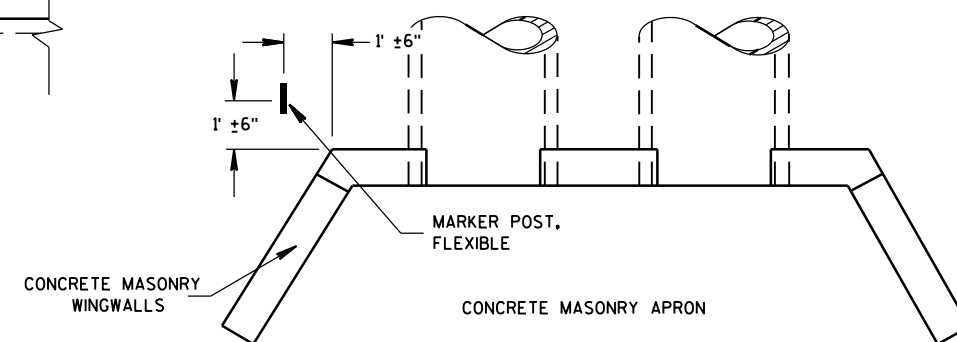
## FLEXIBLE MARKER POST LOCATION



CROSS SECTION  
FLEXIBLE MARKER POST

## GENERAL NOTES

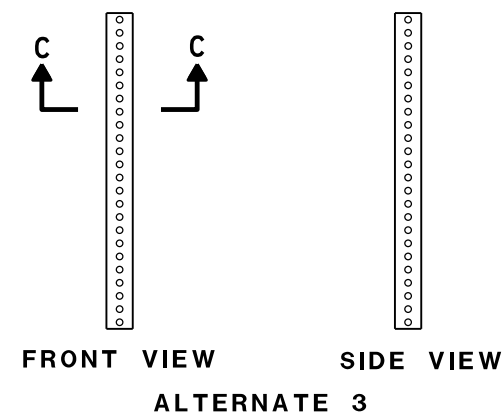
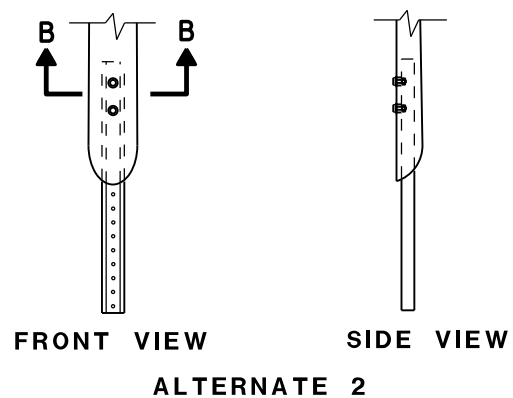
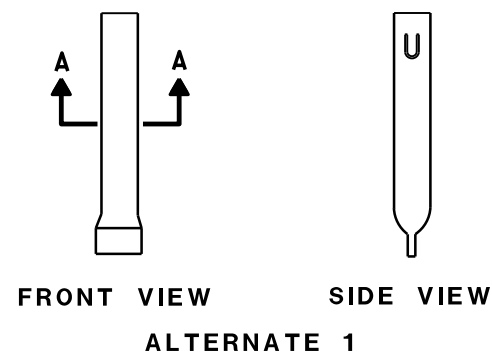
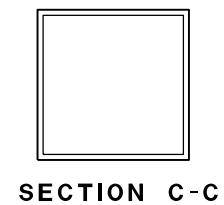
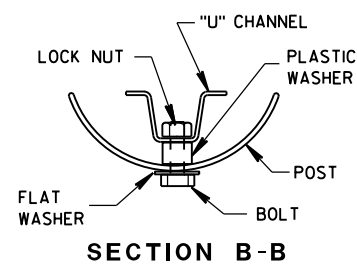
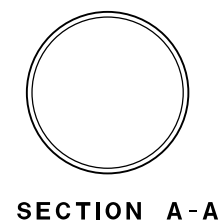
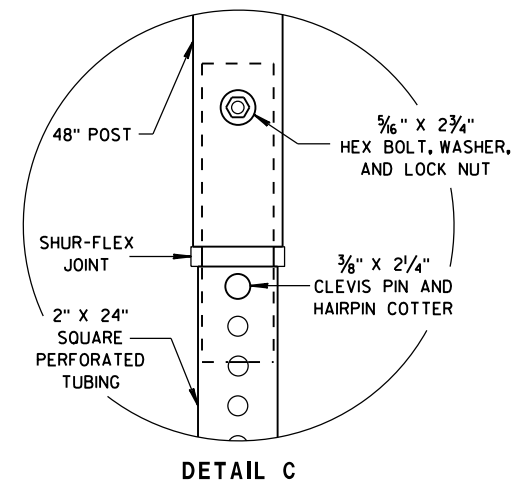
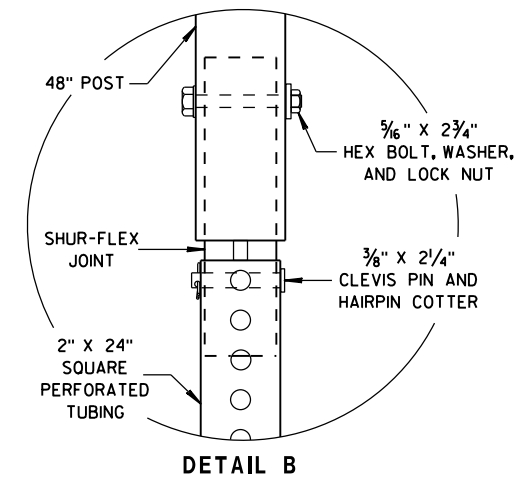
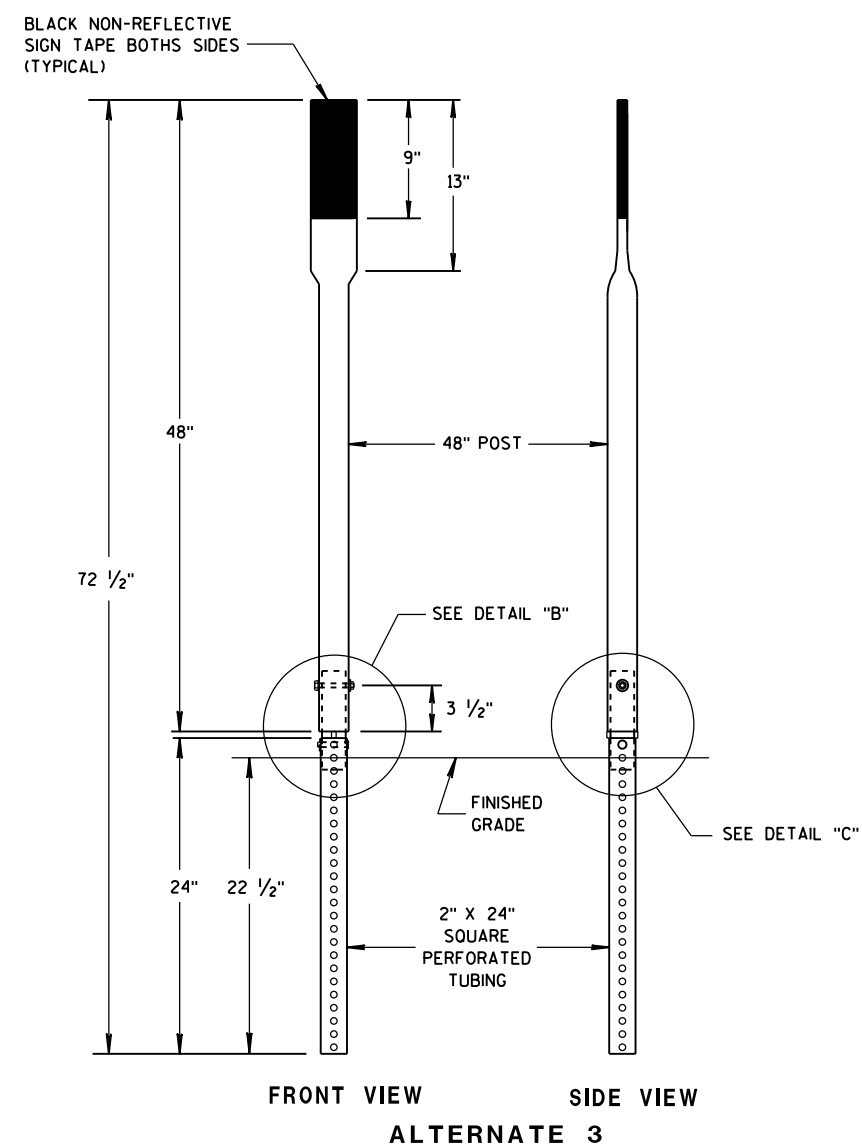
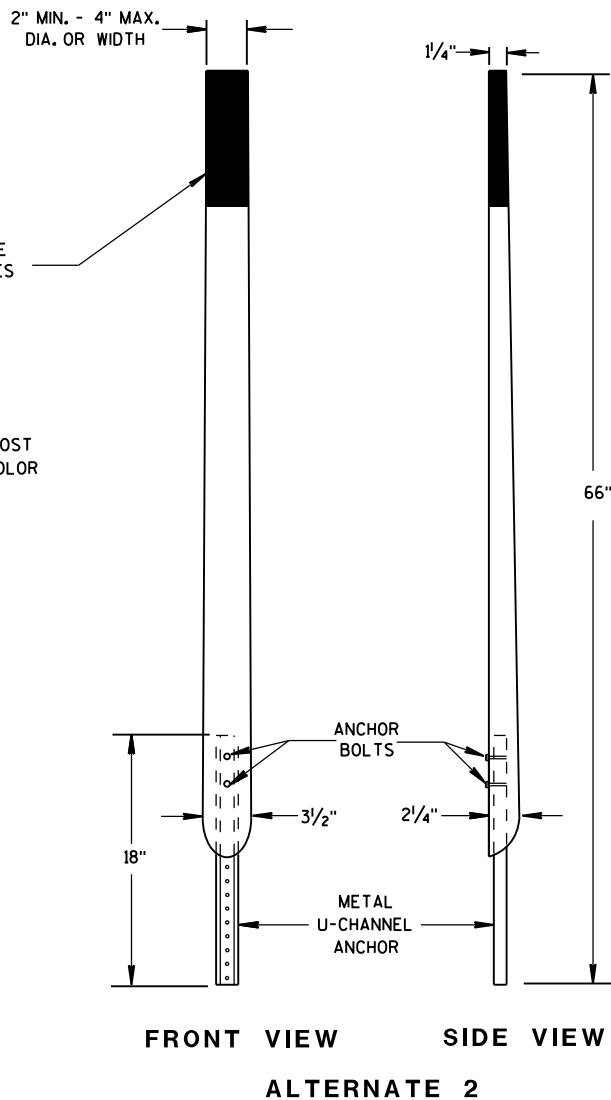
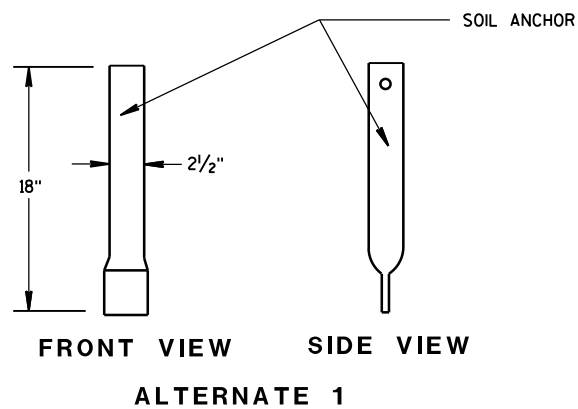
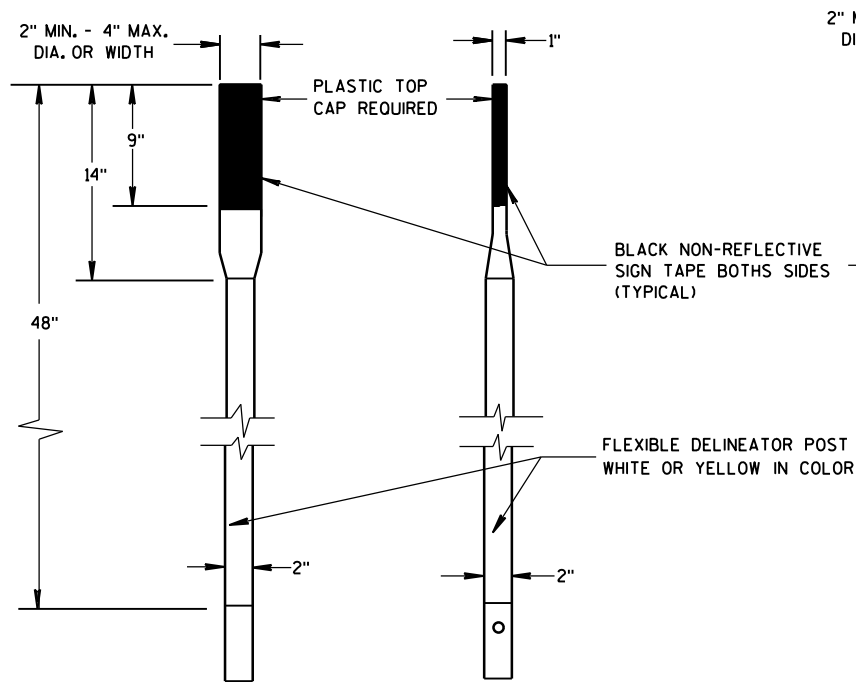
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.



PLAN VIEW  
CONCRETE MASONRY ENDWALLS FOR  
CULVERT PIPE AND PIPE ARCH

FLEXIBLE MARKER POST  
FOR CULVERT END

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

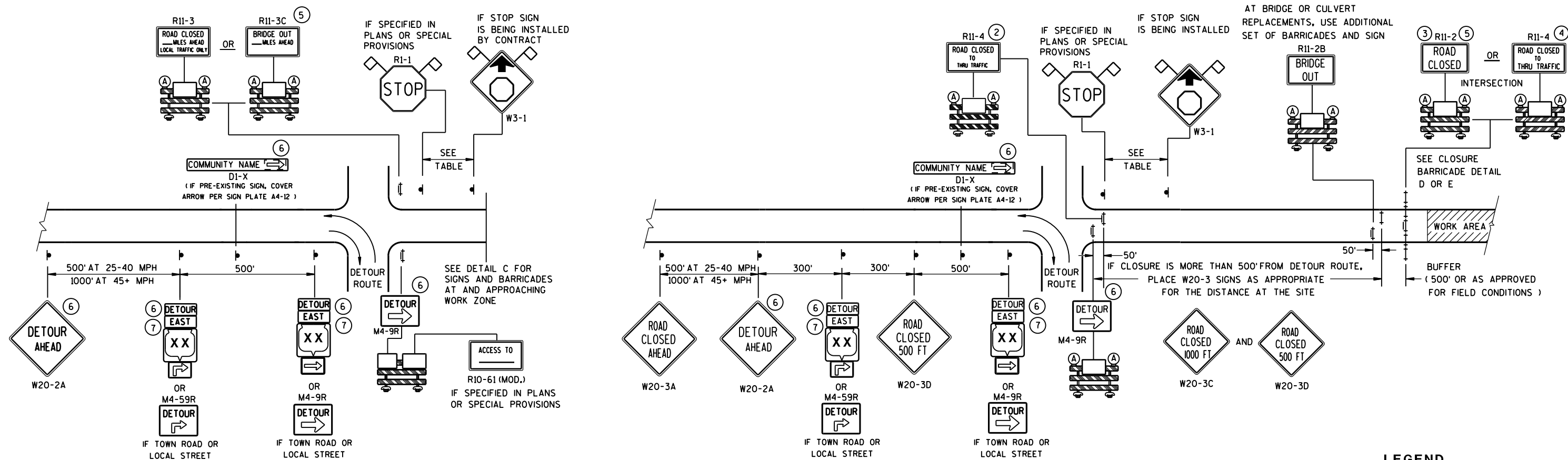


# FLEXIBLE MARKER POST FOR CULVERT END

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
10/1/2012  
DATE  
FHWA

/S/ Travis Feltes  
STATE TRAFFIC ENGINEER OF DESIGN

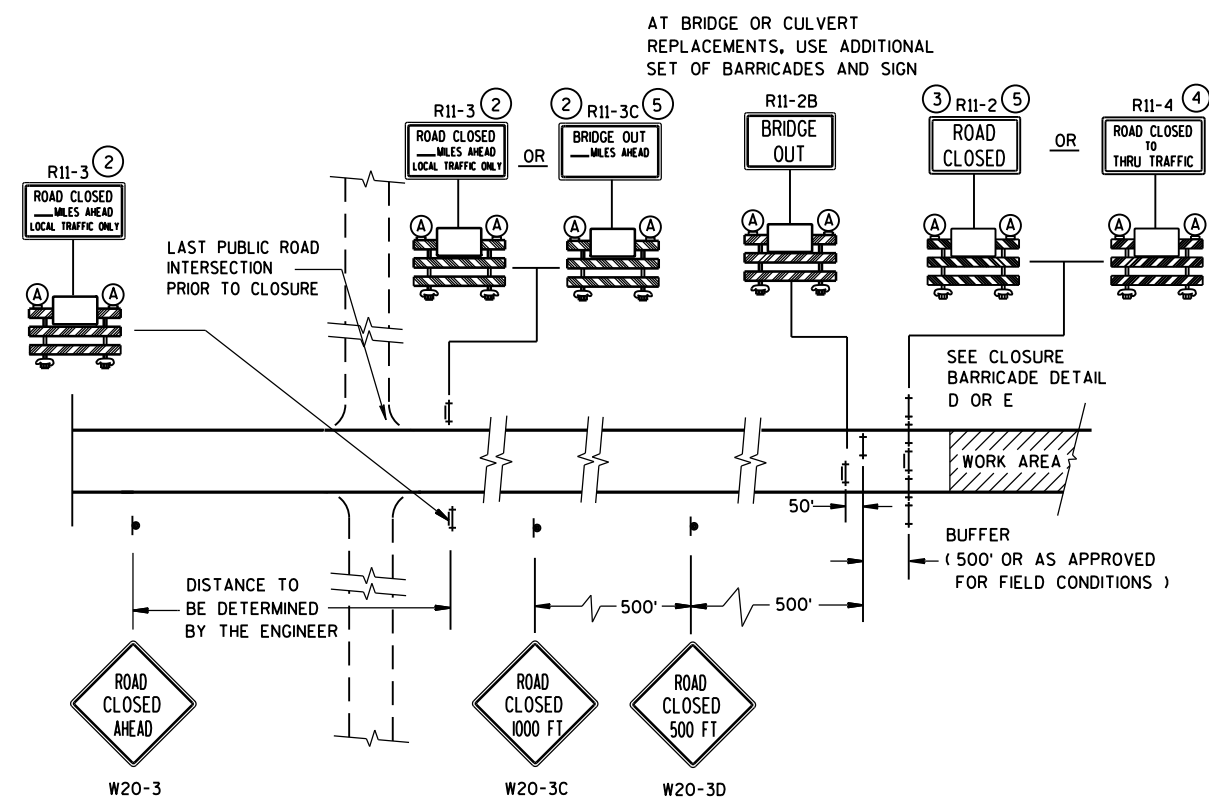


DETAIL A  
MAINLINE CLOSURE WITH POSTED DETOUR

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















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



DETAIL C  
MAINLINE CLOSURE, NO POSTED DETOUR

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

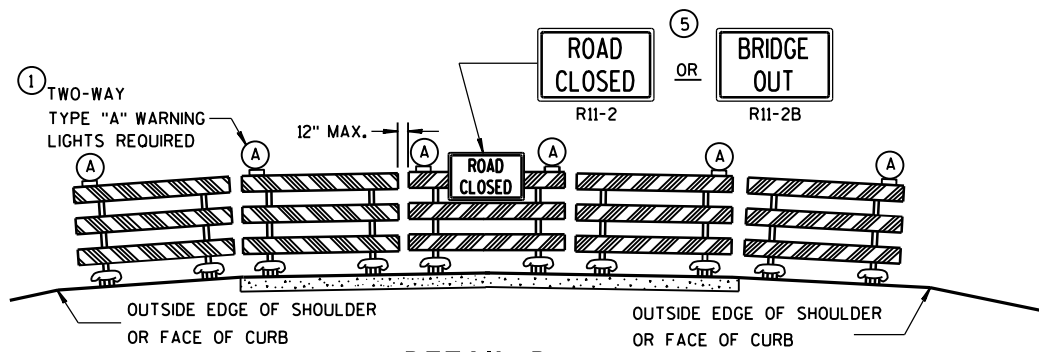
- # LEGEND
-  SIGN ON PERMANENT SUPPORT
-  TYPE III BARRICADE
-  TYPE III BARRICADE WITH ATTACHED SIGN
-  TYPE "A" WARNING LIGHT (FLASHING)
-  WORK AREA
-  M4-8
-  M3-X
-  M1-4
-  M1-5A
-  M1-6
-  M05-1
-  M06-1
- FLAGS, 16" X 16" MIN., (ORANGE)

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

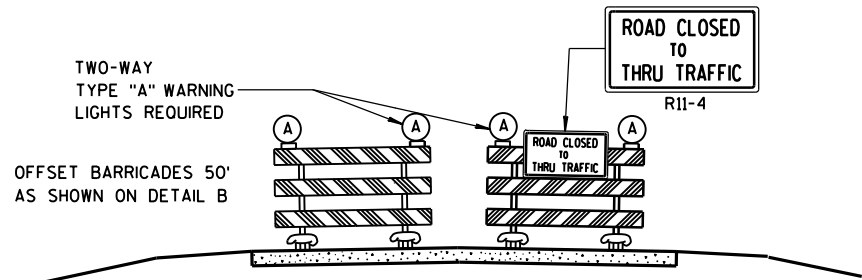
## BARRICADES AND SIGNS FOR MAINLINE CLOSURES

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

Sept. 2015	/S/ Peter Amakobe Atepe
DATE	STATEWIDE WORK ZONE TRAFFIC
FHWA	SAFETY ENGINEER



DETAIL D  
ROAD CLOSURE BARRICADE DETAIL  
APPROACH VIEW



DETAIL E  
LANE CLOSURE BARRICADE DETAIL  
APPROACH VIEW

SEE SDD 15C2-SHEET "a" FOR LEGEND

GENERAL NOTES

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

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

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

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

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

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

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

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

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

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

- R11-2 SHALL BE 48" X 30".
- R11-3, 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". (30" X 15" 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.)
- D1-X SHALL BE AS SHOWN ON SPECIFIC PROJECT SIGNING DETAIL SHEETS.
- R1-1 SHALL BE 36" X 36".

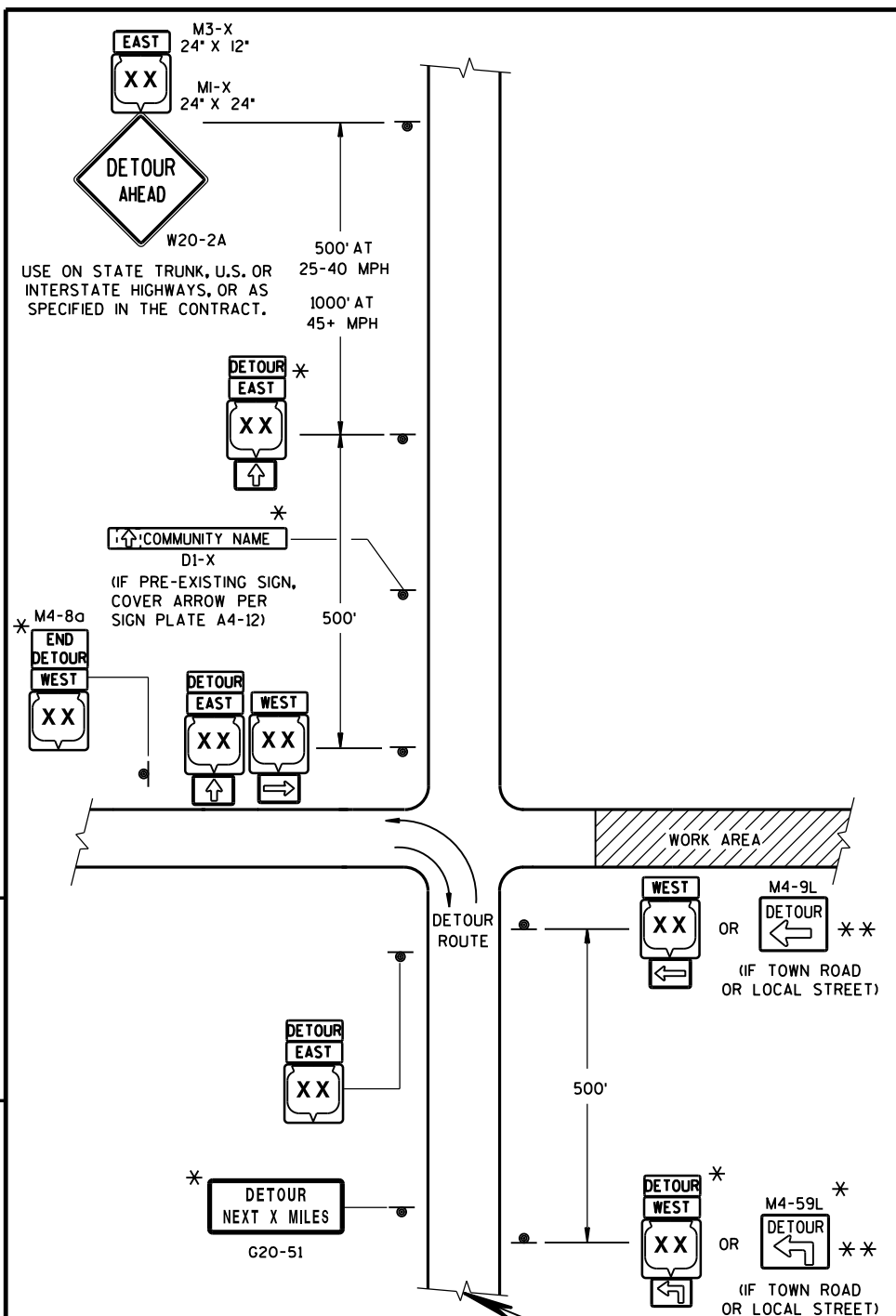
- 1 TWO WARNING LIGHTS SHALL BE PROVIDED ON THE CENTER BARRICADE AND A MINIMUM OF ONE WARNING LIGHT SHALL BE PROVIDED ON EACH OF THE OTHER BARRICADES WITHIN THE ROADWAY LIMITS. SPACING OF THE WARNING LIGHTS SHALL BE UNIFORM TO THE EDGE OF ROADWAY AS SHOWN (APPROX. 8-FOOT LIGHT SPACING).
- 2 THESE SIGNS AND BARRICADES ARE NOT REQUIRED IF ROAD CLOSURE BEGINS AT 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 LANE 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  
MAINLINE CLOSURES

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

Sept. 2015 /S/ Peter Amokobe Atepe  
DATE STATEWIDE WORK ZONE TRAFFIC  
FHWA SAFETY ENGINEER





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

MATCH POINT

DETAIL F  
DETOUR SIGNING

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.

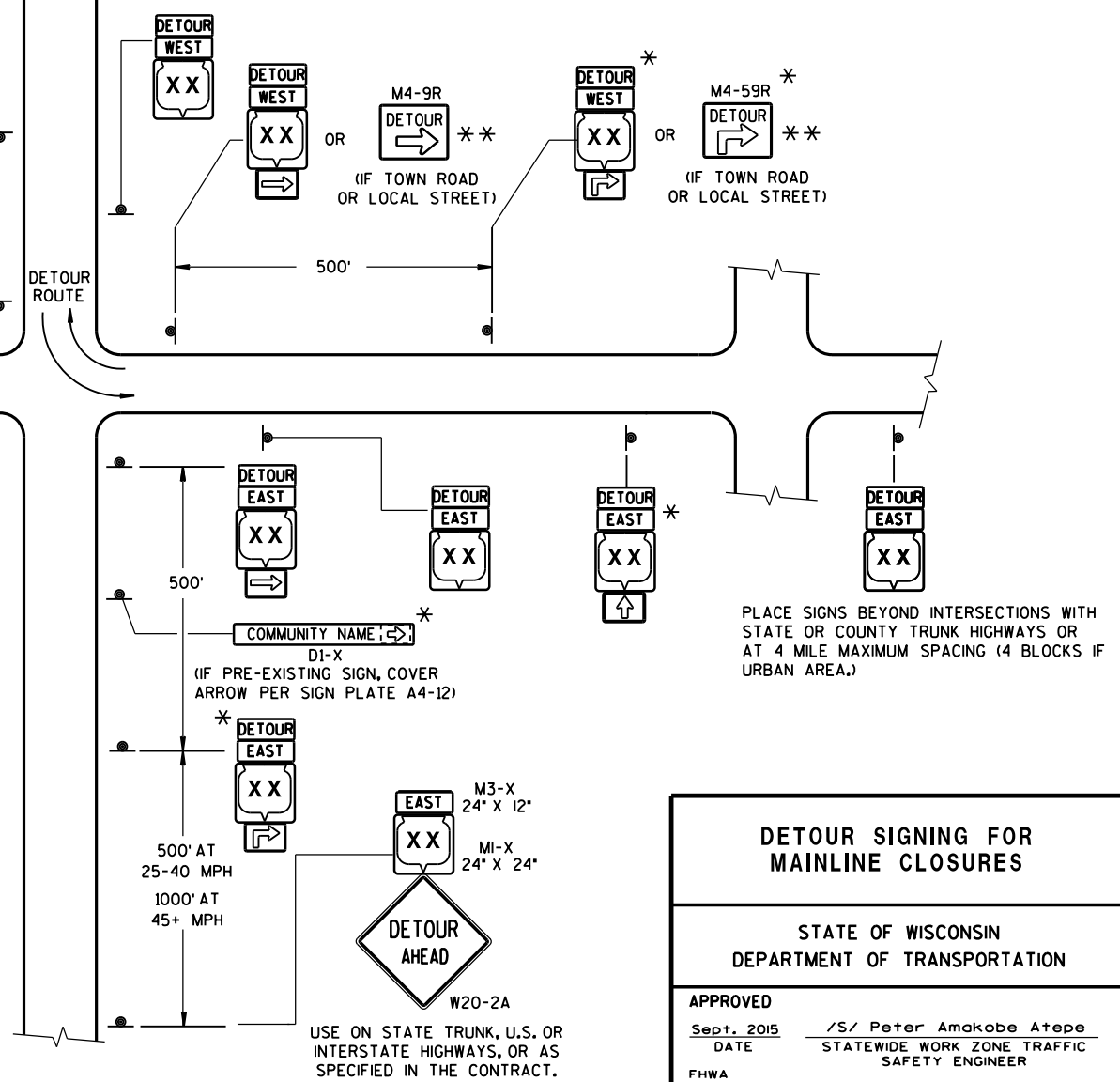
"MO" SIGNS ARE THE SAME AS "M" SIGNS EXCEPT THE BACKGROUND IS ORANGE.

SIGN SIZES SHALL BE AS FOLLOWS:

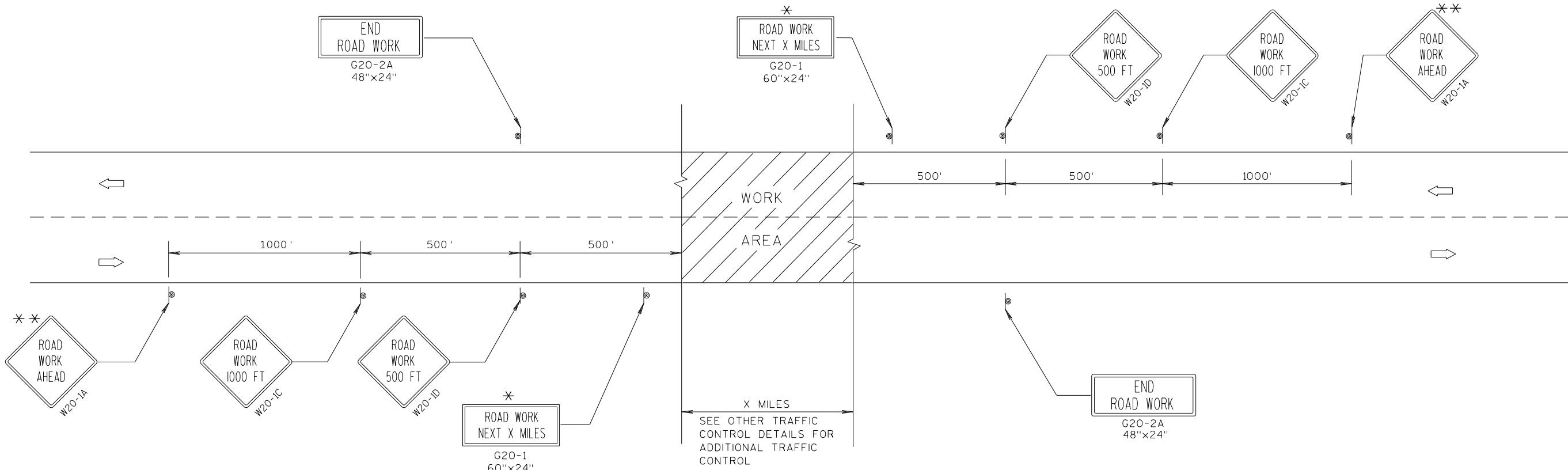
- M3-X SHALL BE 24" X 12". (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS.)
- M4-8 SHALL BE 24" X 12". (30" X 15" IF NEEDED TO MATCH EXISTING SIGNS.)
- M1-4, M1-5A, AND M1-6 SHALL BE 24" X 24". (36" X 36" IF NEEDED TO MATCH EXISTING SIGNS.)
- M05-1 AND M06-1 SHALL BE 21" X 21". (30" X 30" IF NEEDED TO MATCH EXISTING SIGNS.)
- M4-9 SHALL BE 30" X 24".
- M4-8a SHALL BE 24" X 18".
- G20-51 SHALL BE 60" X 24".
- W20-2 SHALL BE 48" X 48".
- D1-X SHALL BE AS SHOWN ON SPECIFIC PROJECT SIGNING DETAIL SHEETS.

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

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



DETOUR SIGNING FOR MAINLINE CLOSURES	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED DATE FWHA	/S/ Peter Amakobe Atepe STATEWIDE WORK ZONE TRAFFIC SAFETY ENGINEER



TYPICAL SIDEROAD APPROACH WARNING SIGN DETAIL

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.

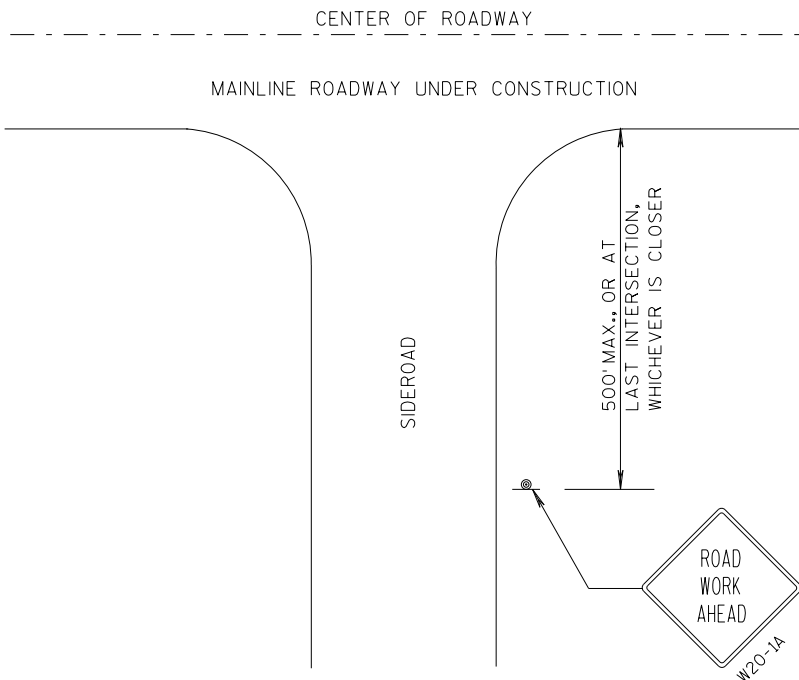
ALL SIGNS ARE 48"x48" UNLESS OTHERWISE NOTED.

SIGNS THAT WILL BE IN PLACE LESS THAN 7 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 RE-ESTABLISHED.

\* OMIT G20-1 SIGNS IF LENGTH OF WORK AREA IS 2 MILES OR LESS.

\* \* PLACE ADDITIONAL W20-1A "ROAD WORK AHEAD" SIGN IF WORK AREA WITHIN THE PROJECT IS SEPARATED BY MORE THAN 2 MILES FROM PREVIOUS WORK AREA.



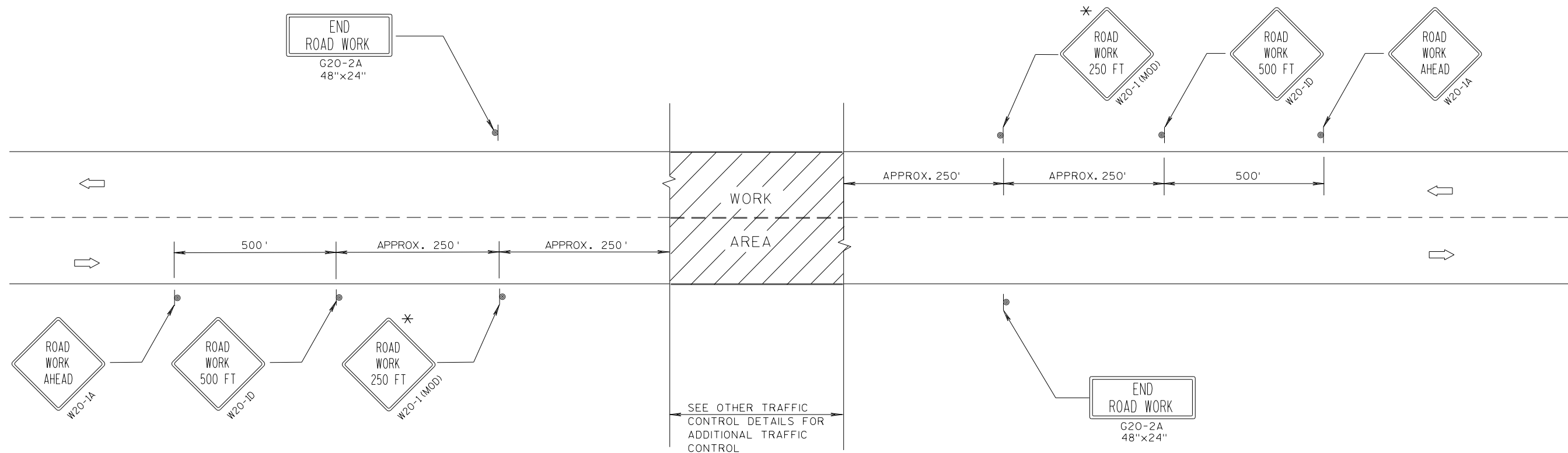
LEGEND

- ⊙ SIGN ON PERMANENT SUPPORT
- ➡ DIRECTION OF TRAFFIC
- ▨ WORK AREA

TRAFFIC CONTROL, ADVANCE  
WARNING SIGNS 45 M.P.H.  
OR GREATER TWO-WAY  
UNDIVIDED ROAD OPEN TO TRAFFIC

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
7/2018 /S/ Andrew Heidtke  
DATE WORK ZONE ENGINEER  
FHWA



TYPICAL SIDEROAD APPROACH WARNING SIGN DETAIL

GENERAL NOTES

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

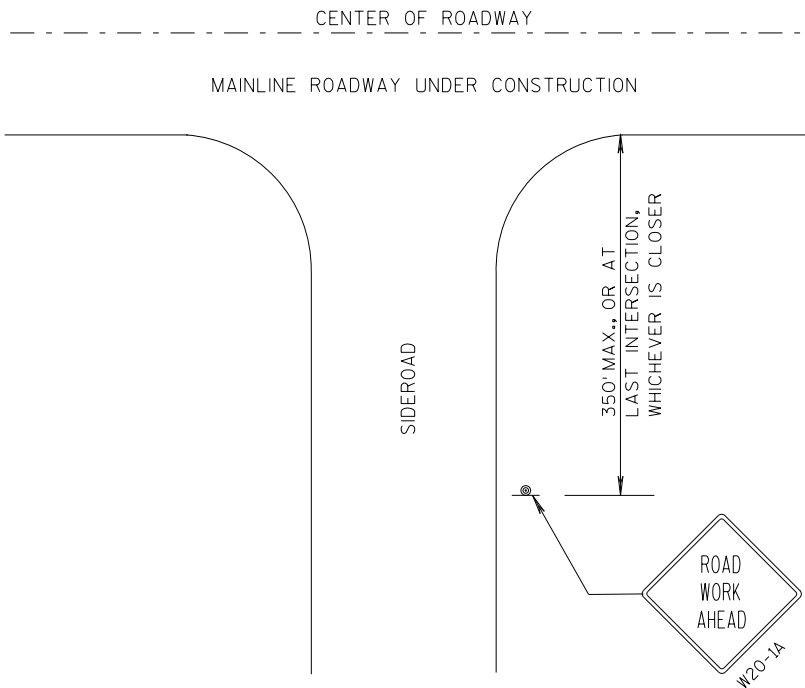
THE SPACING BETWEEN TRAFFIC CONTROL SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND SHOULD PROVIDE A DESIRABLE MINIMUM OF 200 FEET CLEARANCE TO EXISTING SIGNS THAT WILL REMAIN IN PLACE.

ALL SIGNS ARE 48"x48" UNLESS OTHERWISE NOTED. IF NECESSARY DUE TO SPACE CONSTRAINTS, 36"x36" SIGNS MAY BE USED INSTEAD OF 48"x48" SIGNS.

SIGNS THAT WILL BE IN PLACE LESS THAN 7 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 RE-ESTABLISHED.

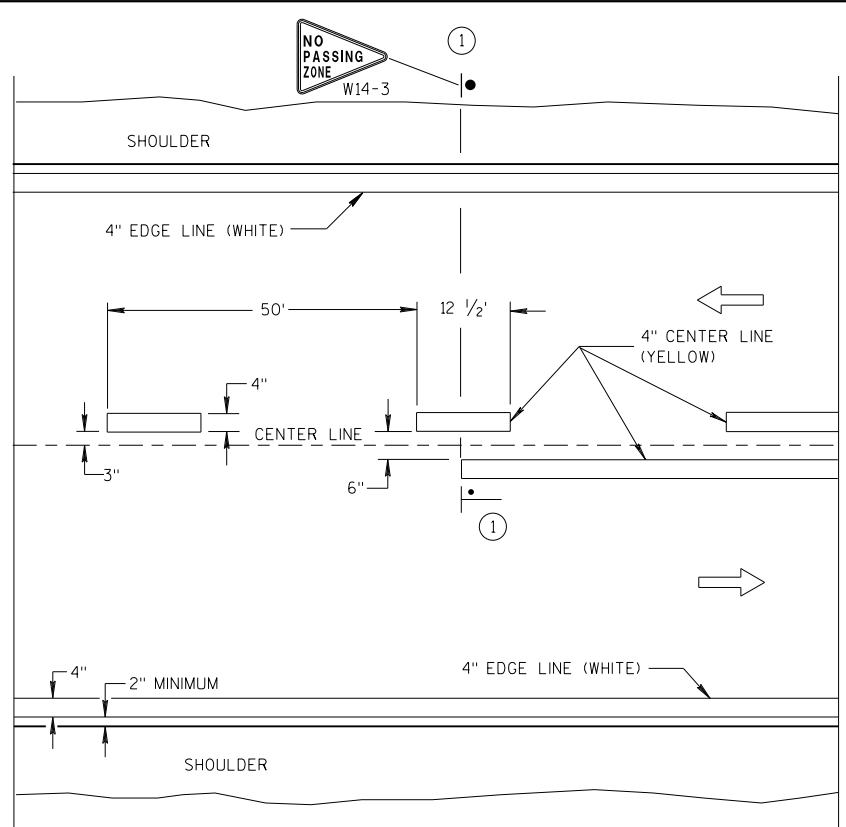
\* THE THIRD W20-1 SIGN IS REQUIRED ONLY IF THERE IS AN INTERSECTION BETWEEN THE "ROAD WORK 500 FT" SIGN AND THE WORK ZONE. ADJUST THE PLACEMENT OF THIS SIGN BASED ON INTERSECTION LOCATION AND OTHER FIELD CONDITIONS.



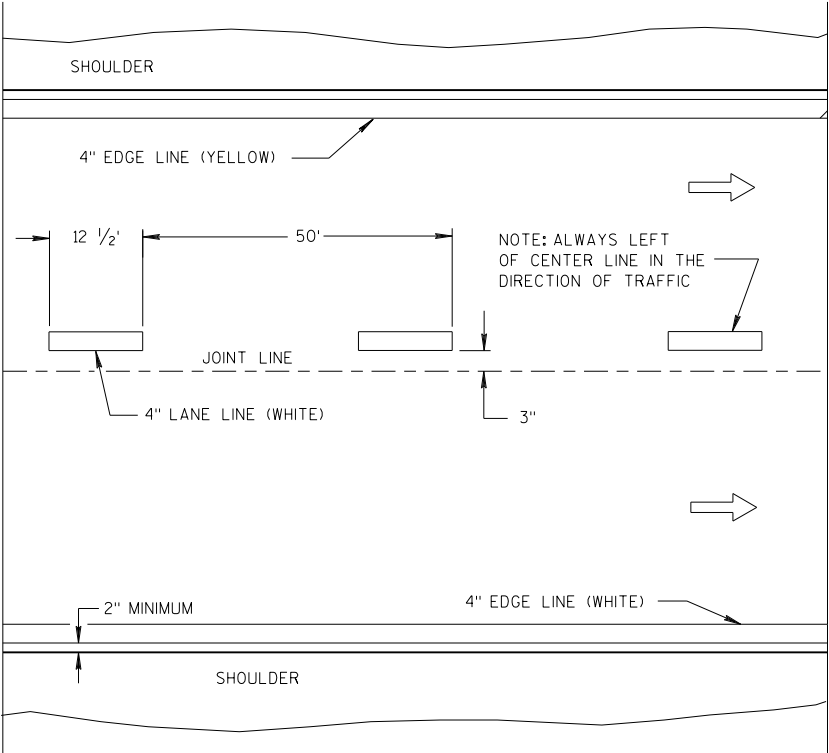
LEGEND

- ⊙ SIGN ON PERMANENT SUPPORT
- ➡ DIRECTION OF TRAFFIC
- ▨ WORK AREA

TRAFFIC CONTROL. ADVANCE WARNING SIGNS 40 M.P.H. OR LESS TWO-WAY UNDIVIDED ROAD OPEN TO TRAFFIC	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 7/2018 DATE	/S/ Andrew Heidtke WORK ZONE ENGINEER
FHWA	

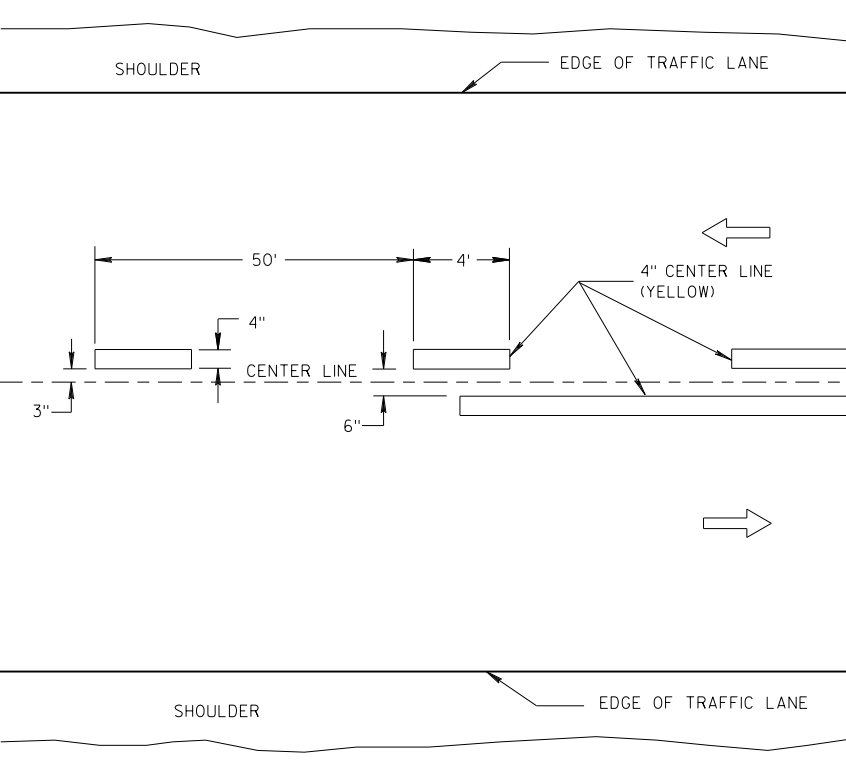


TWO WAY TRAFFIC

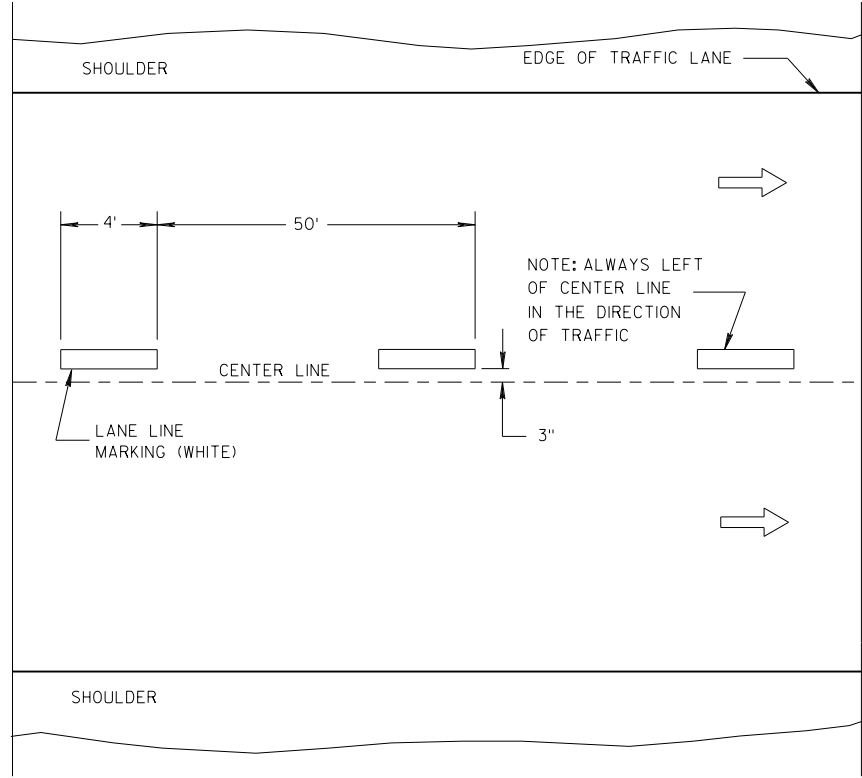


ONE WAY TRAFFIC

PERMANENT PAVEMENT MARKING



TWO WAY TRAFFIC



ONE WAY TRAFFIC

TEMPORARY PAVEMENT MARKING

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.

NOTE

ARROW SYMBOL (➡) SHOWS DIRECTION OF TRAVEL

LEGEND

- "T" MARKING
- POST MOUNTED SIGN

LONGITUDINAL MARKING (MAINLINE)

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
7/2018 /S/ Matthew R. Rauch  
DATE STATE SIGNING AND MARKING ENGINEER  
FHWA



## GENERAL NOTES

RETRACE EXISTING SYMBOL WHERE EXISTING SYMBOLS ARE PLACED.

- 
- 1'-0"

Posted Speed (M.P.H.)	Dimension Range (Feet)
25	150* - 250
30	200* - 300
35	250* - 450
40	300* - 500
45	400* - 650
50	550* - 800
55	750* - 1000
60	1000* - 1250
65	1000* - 1250

APPROVED

Sept., 2017 /S/ Matthew R. Rauch

DATE STATE SIGNING AND MARKING ENGINEER

FHWA

LEGEND

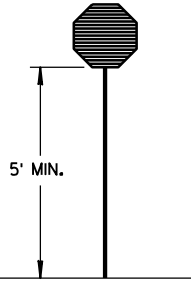
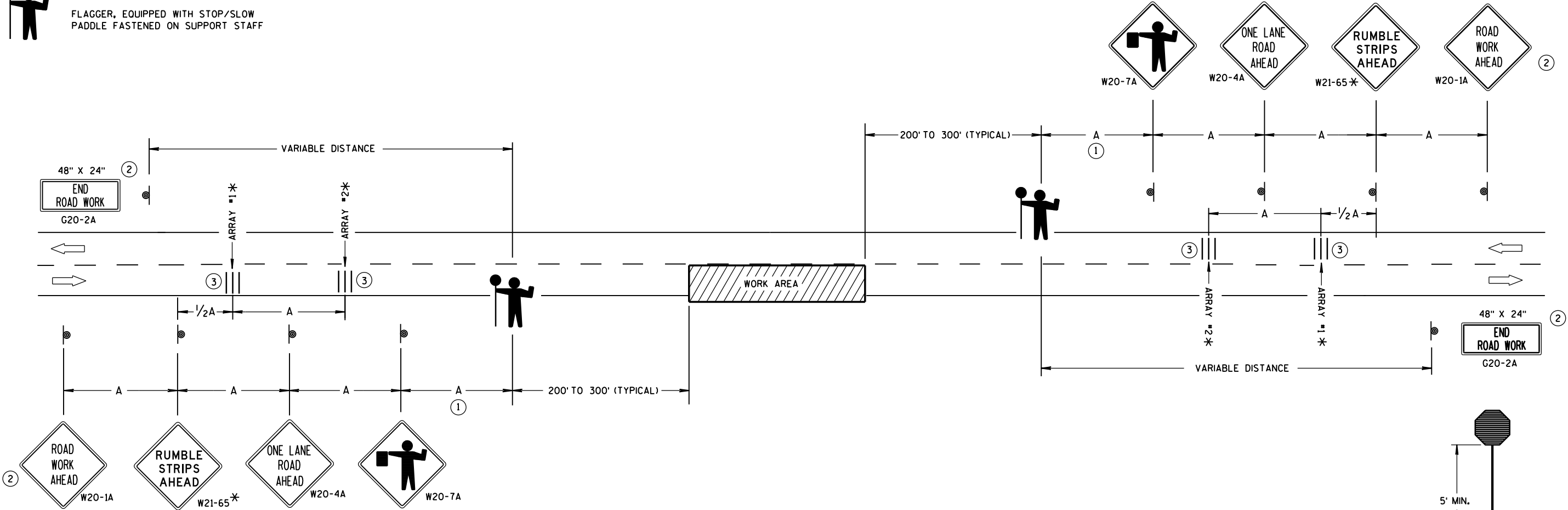
- SIGN ON PORTABLE OR PERMANENT SUPPORT
- DIRECTION OF TRAFFIC
- WORK AREA
- FLAGGER, EQUIPPED WITH STOP/SLOW PADDLE FASTENED ON SUPPORT STAFF

SIGN AND TEMPORARY RUMBLE STRIP ARRAY SPACING TABLE

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



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



STOP/SLOW PADDLE ON SUPPORT STAFF

TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATION

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.

THE EXACT NUMBER, LOCATION AND SPACING OF ALL SIGNS AND DEVICES (AND THE 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.

"W0" SIGNS ARE THE SAME AS "W" SIGNS EXCEPT THE BACKGROUND IS ORANGE.

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.

INSTALL TEMPORARY RUMBLE STRIPS PER MANUFACTURER'S RECOMMENDATIONS. PLACE ADVANCE SIGNING PRIOR TO INSTALLING TEMPORARY RUMBLE STRIPS.

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

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 RUMBLE STRIPS PRIOR TO COVERING OR REMOVING ALL ADVANCE SIGNING.

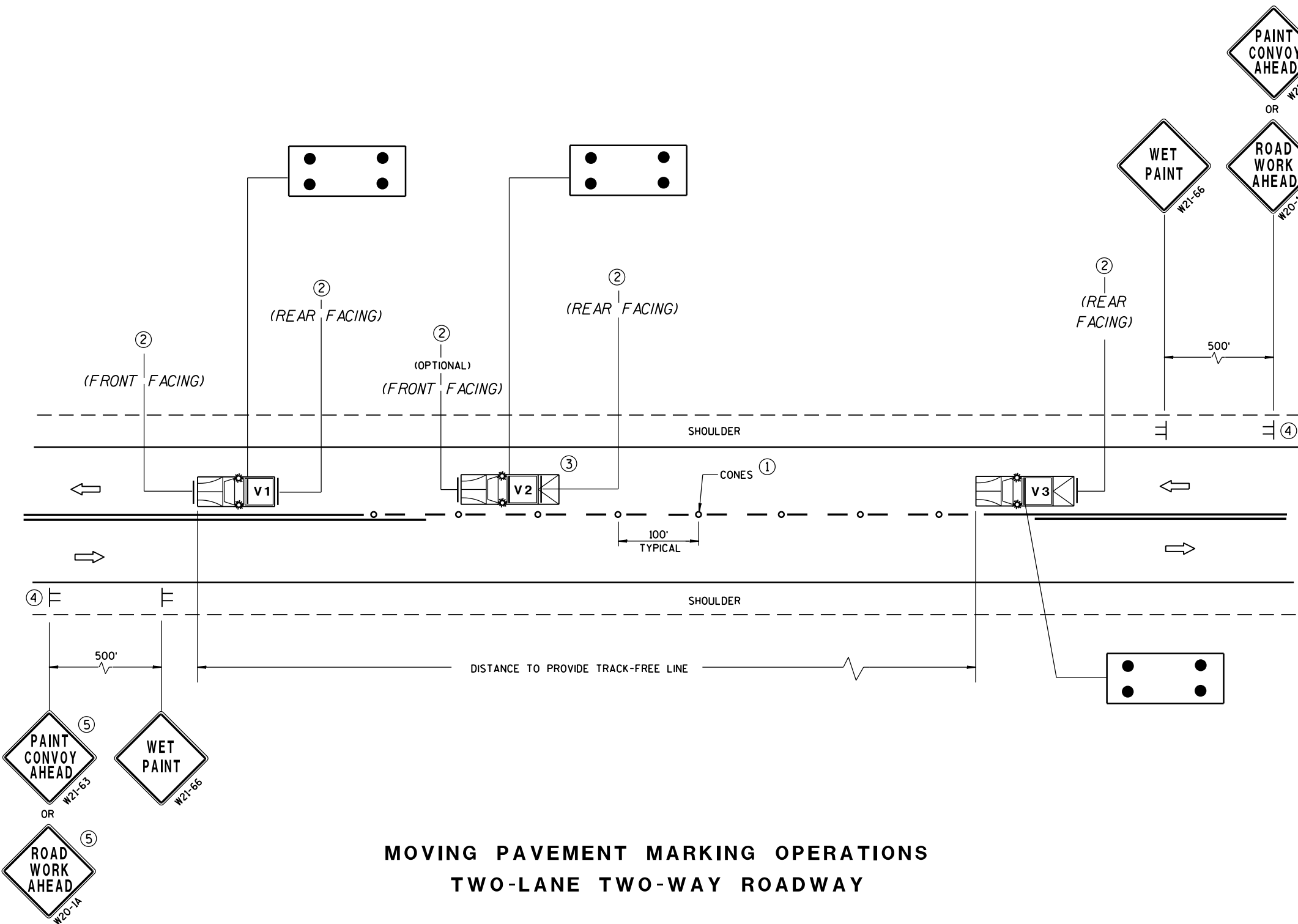
\* UTILIZE TEMPORARY RUMBLE STRIPS WHEN FLAGGING OPERATION IS ANTICIPATED TO BE STATIONARY IN EXCESS OF TWO HOURS.

- FOR A MOVING WORK OPERATION, SIGNING AND TEMPORARY RUMBLE STRIPS (IF USED) SHALL BE REESTABLISHED (AS SIMULTANEOUSLY AS PRACTICAL) AT APPROXIMATELY 3,500 FOOT INTERVALS IN THE MOVING WORK OPERATION OR AS APPROVED BY THE ENGINEER.
- SIGN NOT REQUIRED IF FLAGGING OPERATION OCCURS WITHIN A SIGNED ROAD WORK ZONE AREA.
- EACH TEMPORARY RUMBLE STRIP ARRAY CONSISTS OF THREE RUMBLE STRIPS SPACED ACCORDING TO MANUFACTURER'S RECOMMENDATION, PLACED TRANSVERSE ACROSS THE LANE AT LOCATIONS SHOWN.

TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATION

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

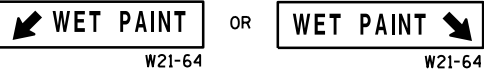
APPROVED  
June 2017 /S/ Andrew Heldtke  
DATE WORK ZONE ENGINEER  
FHWA



MOVING PAVEMENT MARKING OPERATIONS  
TWO-LANE TWO-WAY ROADWAY

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.
- 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.
- IF SPEED LIMIT IS 40 MPH OR LESS STATIONARY SIGNS MAY BE OMITTED IF CONES ARE USED.
- ALTERNATE SIGN MESSAGES, SUCH AS "PAINT CREW AHEAD" OR "ROAD PAINTING AHEAD" MAY BE USED.
- 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 OR HORIZONTAL CURVES THAT RESTRICT SIGHT DISTANCE.
- THE WORK AND SHADOW VEHICLES SHOULD PULL OVER PERIODICALLY TO ALLOW TRAFFIC TO PASS.
- THIS DRAWING SHALL BE USED FOR CENTERLINE OR EDGELINE MARKING.
- WHEN NO WORK ACTIVITY IS TAKING PLACE, REMOVE OR TURN THE STATIONARY WARNING SIGNS AWAY FROM TRAFFIC.
- ① CONES MAY BE OMITTED ON PAINTED LINE IF APPROVED BY THE ENGINEER. CONSIDER PAVEMENT MARKING DRY OR CURE TIMES AND TRAFFIC VOLUME.
- ② USE STANDARD SIGN W21-64 WITH APPROPRIATE ARROW.
- ③ OPTIONAL TRUCK-MOUNTED ATTENUATOR.
- ④ SIGNS SHALL BE REPEATED APPROXIMATELY EVERY THREE MILES.
- ⑤ IF CONSTRUCTION WORK ZONE SIGNS ARE IN PLACE, W20-1 OR W21-63 ARE NOT REQUIRED.



LEGEND

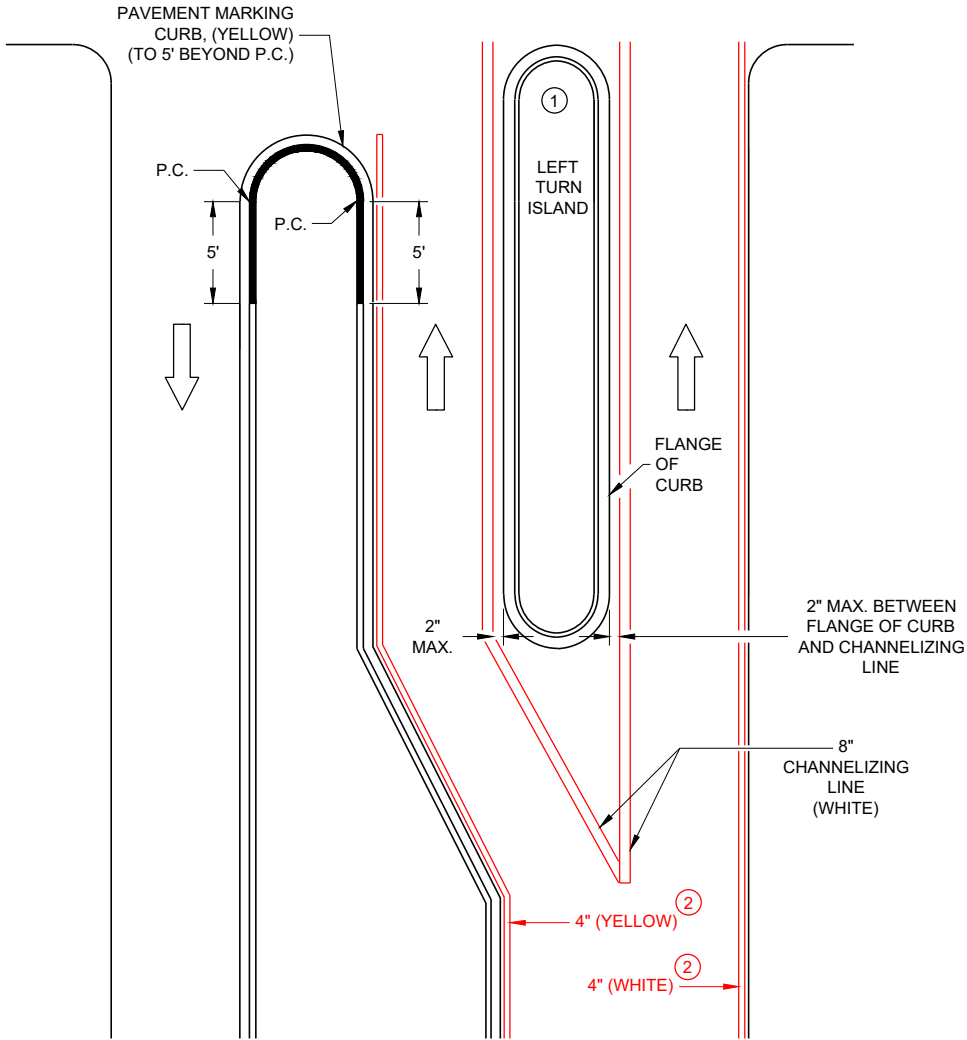
- V1** LEAD VEHICLE
- V2** SHADOW VEHICLE
- V3** TRAIL VEHICLE WITH TMA
- TMA** TRUCK-MOUNTED ATTENUATOR
- SIGN ON TEMPORARY SUPPORT
- DIRECTION OF TRAFFIC
- CONES
- FLASHING ARROW PANEL (CAUTION)

MOVING PAVEMENT MARKING  
OPERATION  
TWO-LANE TWO-WAY ROADWAY

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
DATE: Sept., 2017 /S/ Andrew Heidtke  
WORK ZONE ENGINEER  
FHWA

REQUIREMENTS FOR EDGE LINES		
POSTED SPEED	IS THERE CONTINUOUS LIGHTING?	
	YES	NO
≤ 30 MPH	NO	OPTIONAL
35 OR 40 MPH	OPTIONAL	RECOMMENDED
≥ 45 MPH	RECOMMENDED	REQUIRED



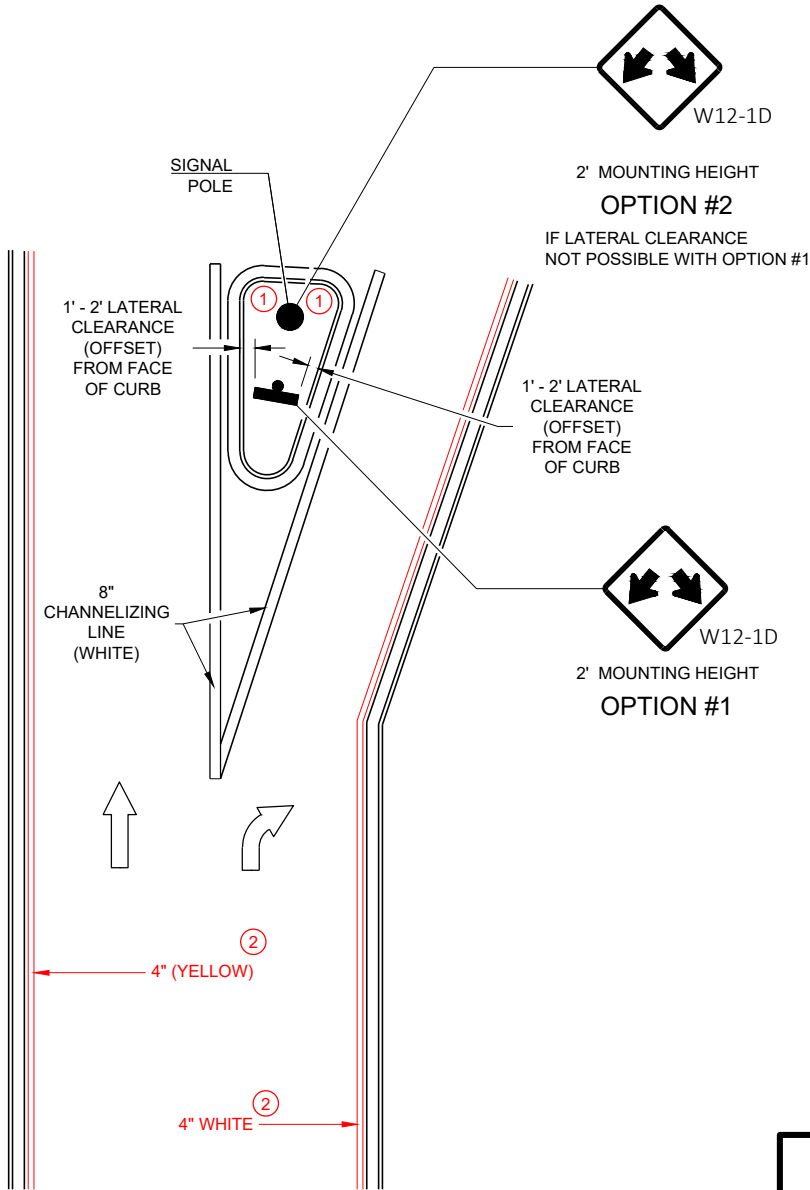
LEFT TURN & MEDIAN ISLAND

GENERAL NOTES

APPLIES TO ISLANDS AT LEFT TURNS AT ONE WAY ROADWAYS AS WELL.  
SEE MISCELLANEOUS QUANTITIES FOR SIGN SIZE.

- ① MARK CURB NOSES YELLOW.
- ② MARK ACCORDING TO TABLE.

➡ DIRECTION OF TRAVEL



RIGHT TURN ISLAND

DOUBLE ARROW  
WARNING SIGN PLACEMENT

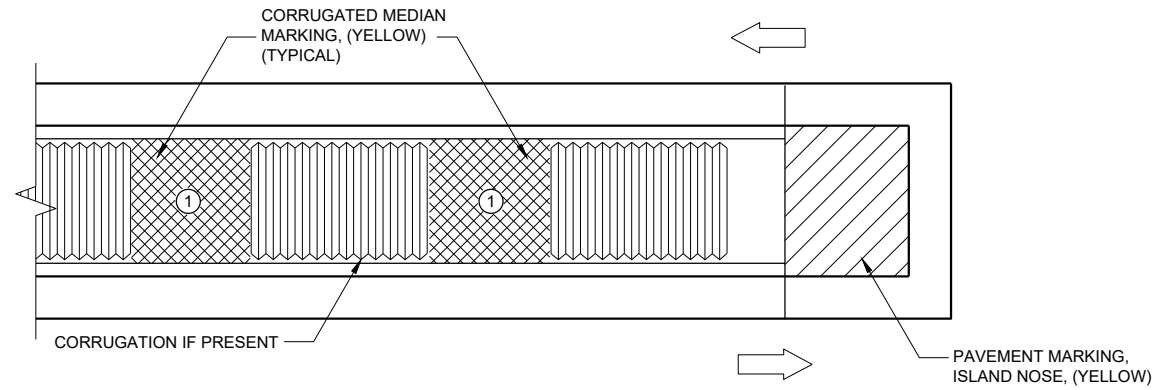
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
7/2018  
DATE

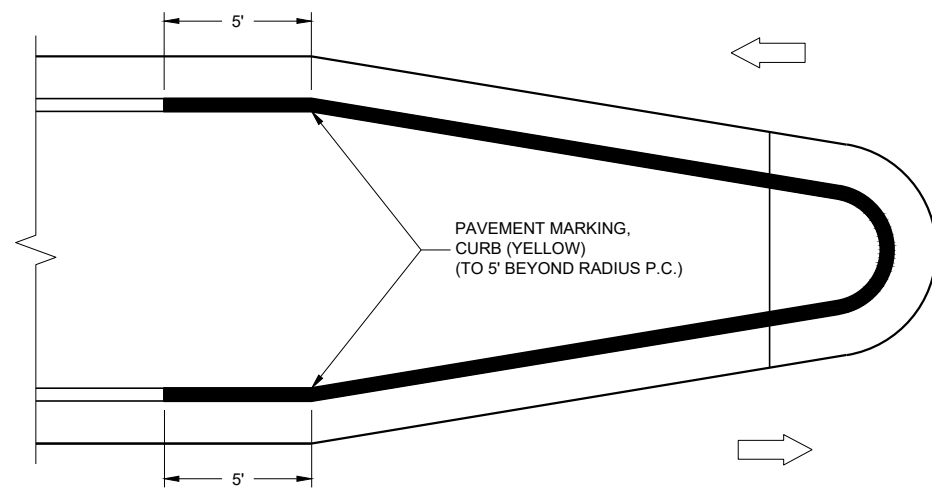
/S/ Matthew R. Rauch  
STATE SIGNING AND MARKING  
ENGINEER

FHWA

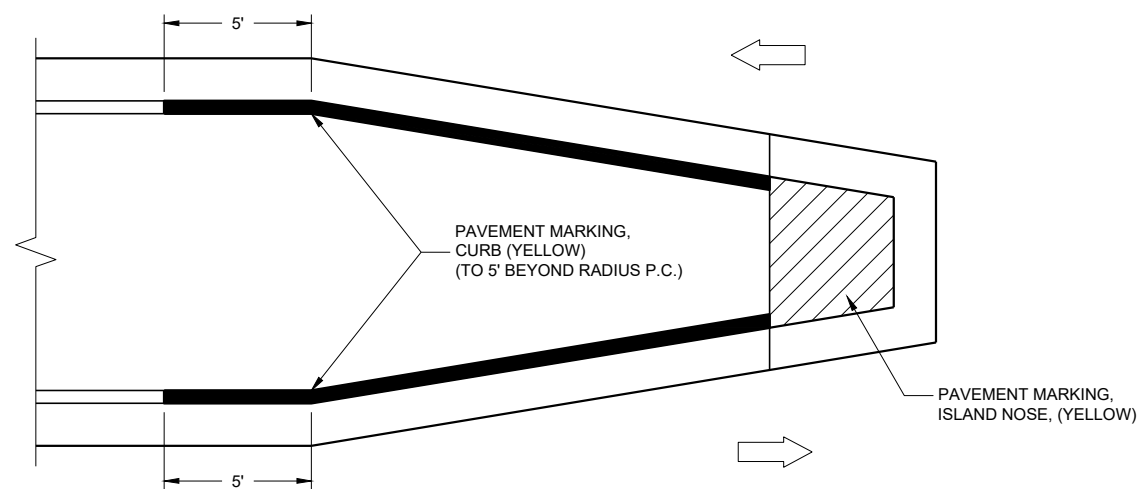




MEDIAN ISLAND WITH SQUARE BLUNT NOSE







MEDIAN ISLAND WITH ROUND BLUNT NOSE



TYPICAL PLACEMENT OF PAVEMENT MARKING ON MEDIAN ISLANDS

## GENERAL NOTES

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

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

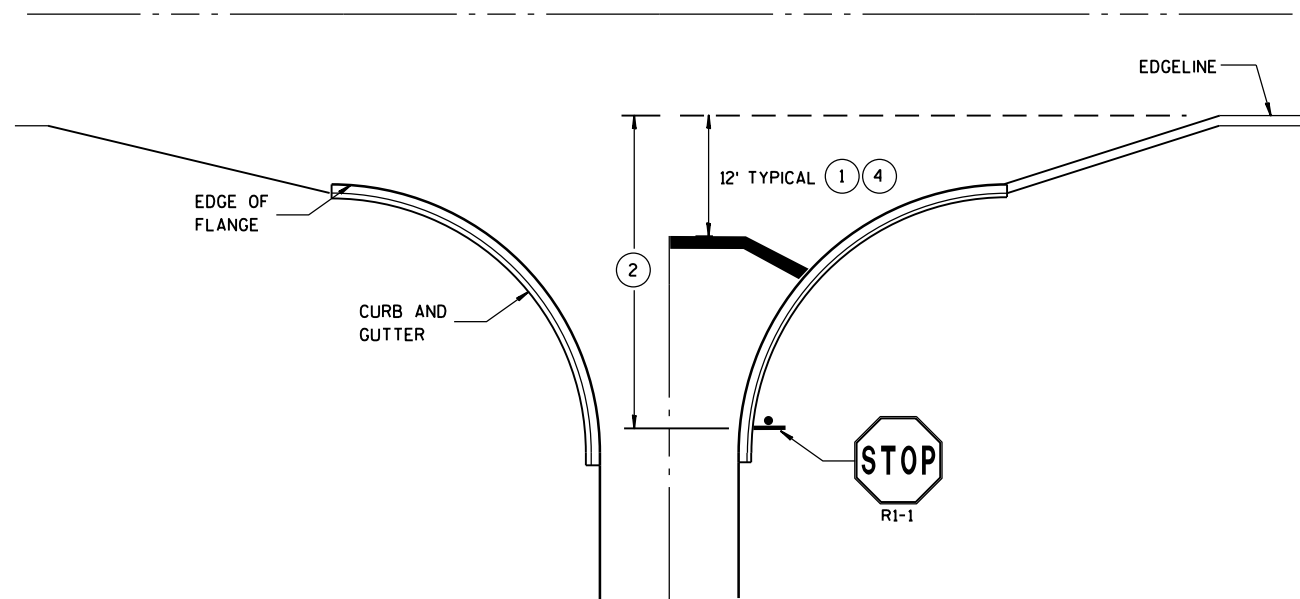
## PAVEMENT MARKINGS (ISLANDS)

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

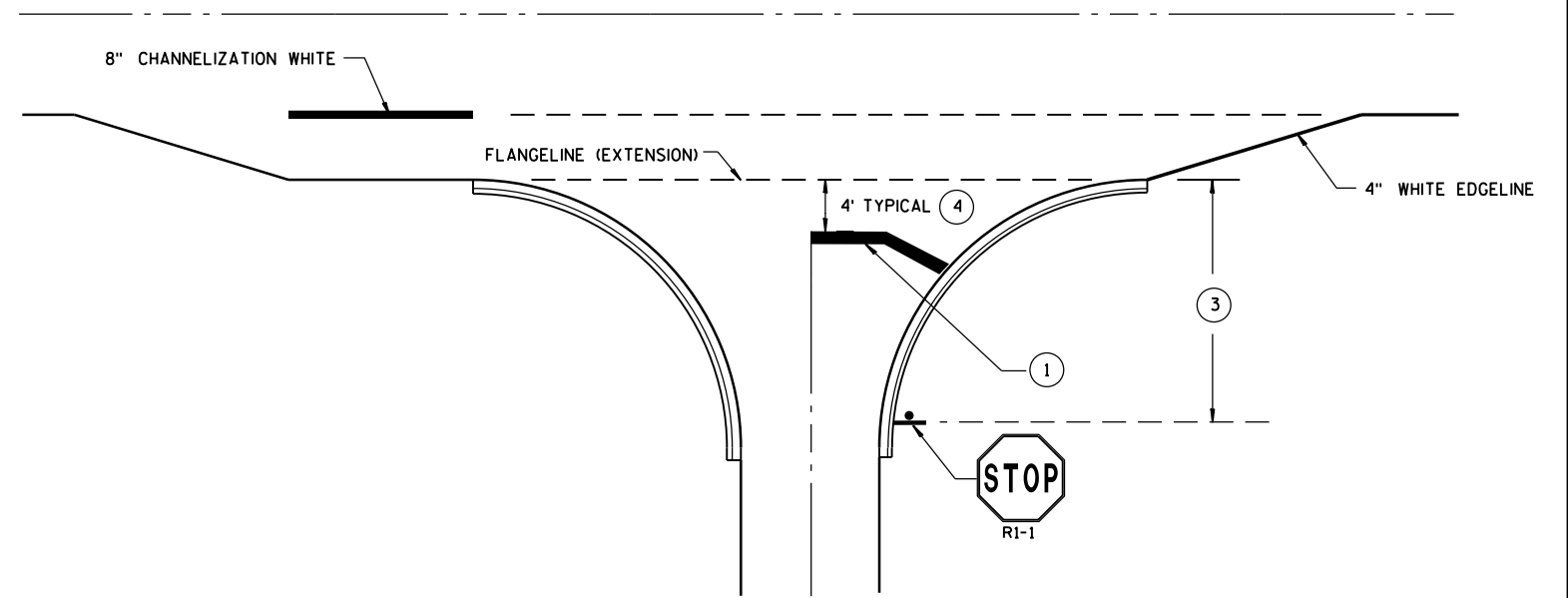
APPROVED  
7/2018  
DATE

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

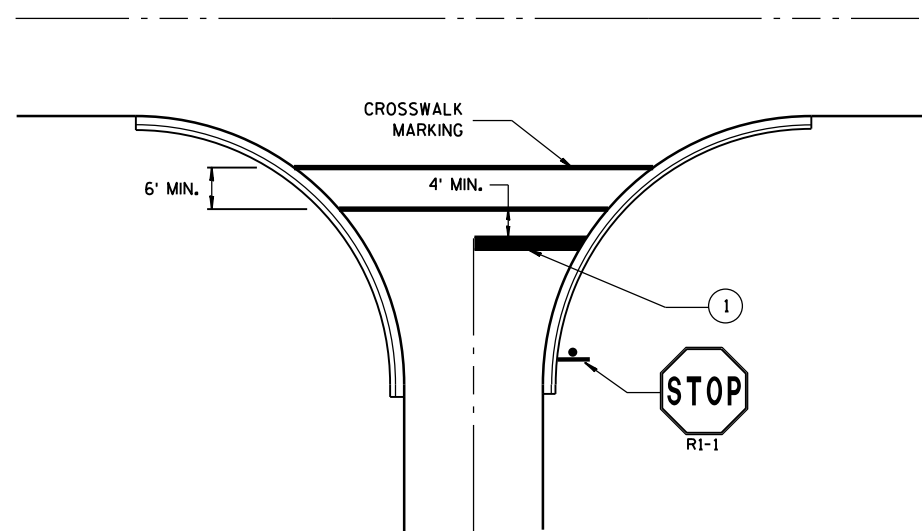
FHWA



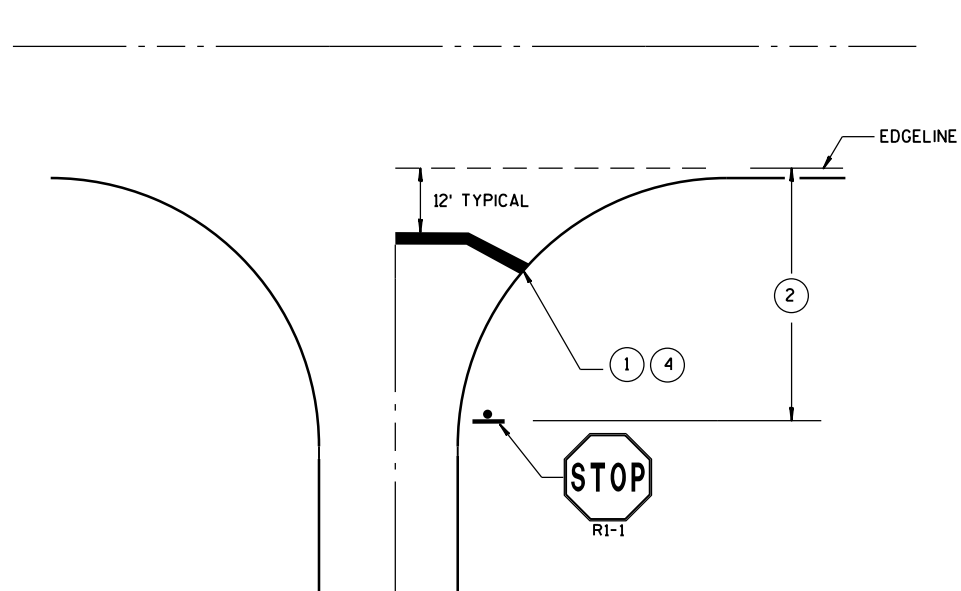
**TYPICAL STOP LINE PAVEMENT MARKING  
WITH CURB AND GUTTER**



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



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



**TYPICAL 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 EDGE LINE LOCATION.

- ① 18-INCH STOP LINES MAY BE DELETED OR ADDED BY THE PROJECT ENGINEER BASED ON VISIBILITY AND SIGHT LINES.
- ② IF STOP SIGN IS LESS THAN OR EQUAL TO 40 FEET FROM THE EDGE LINE THAN NO STOP LINE IS REQUIRED.
- ③ IF STOP SIGN IS LESS THAN OR EQUAL TO 30 FEET FROM THE FLANGELINE EXTENSION THAN NO STOP LINE IS REQUIRED.
- ④ MOVE CLOSER TO EDGE OF TRAVEL LANE AS NEEDED FOR VISIBILITY AND SIGHT LINES. (NO CLOSER THAN 4 FEET).

**STOP LINE AND CROSSWALK  
PAVEMENT MARKING**

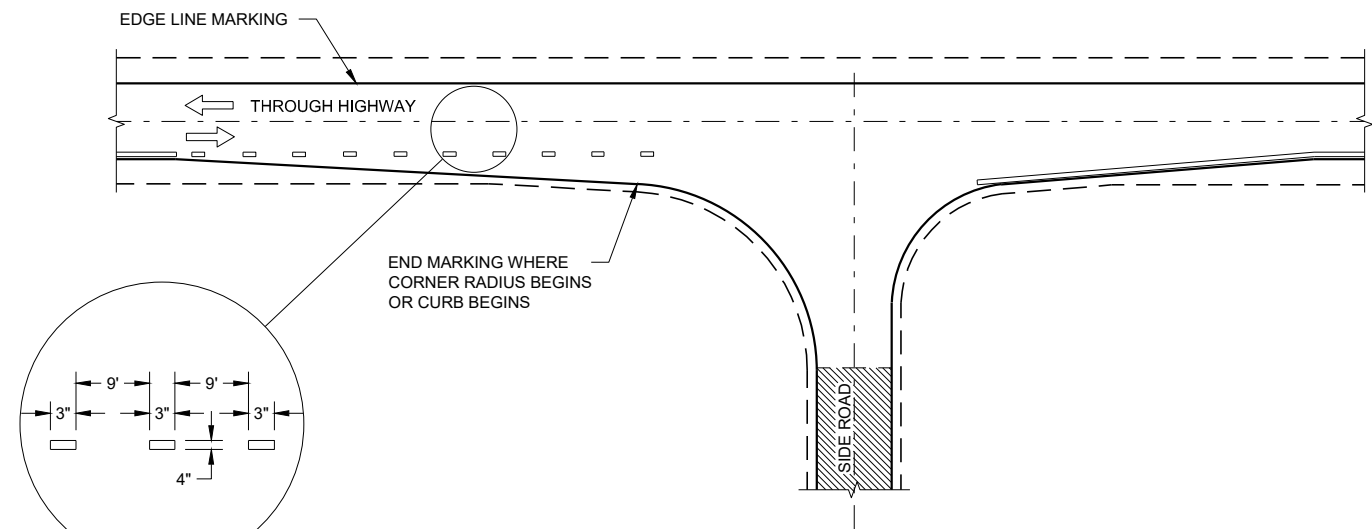
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED

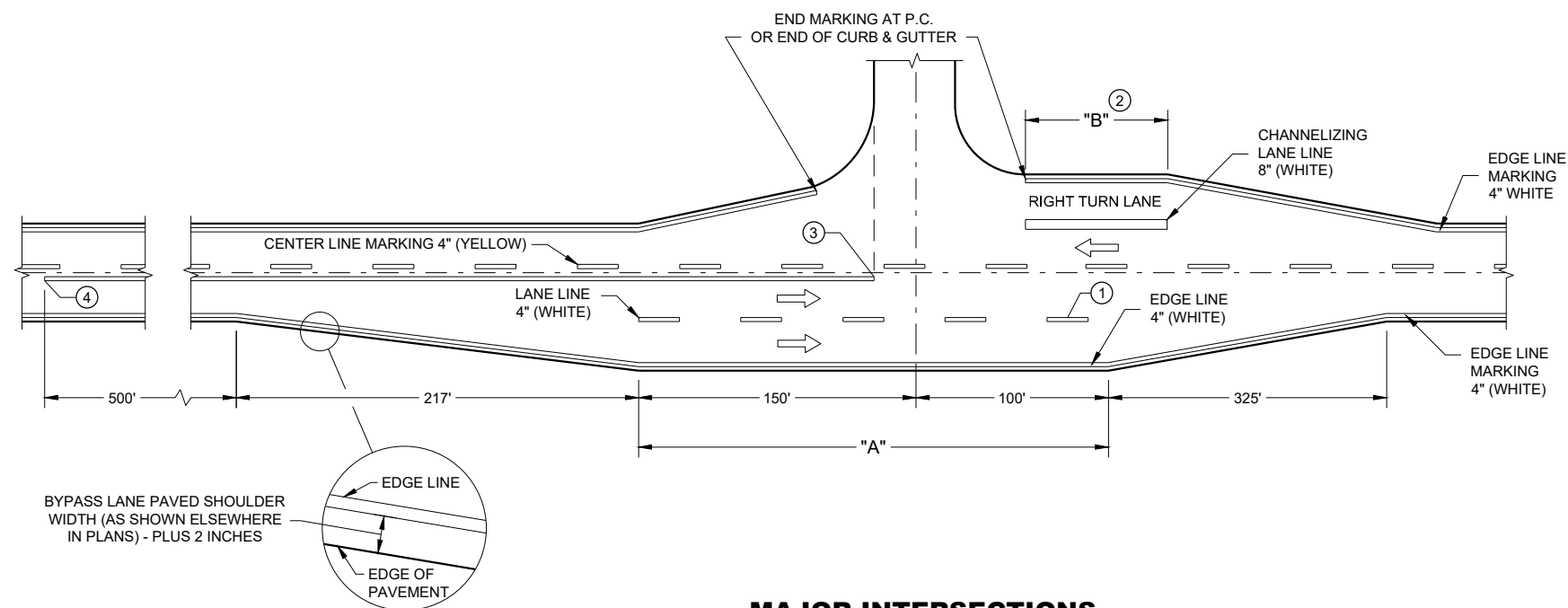
Sept., 2017  
DATE

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

FHWA



MINOR INTERSECTION



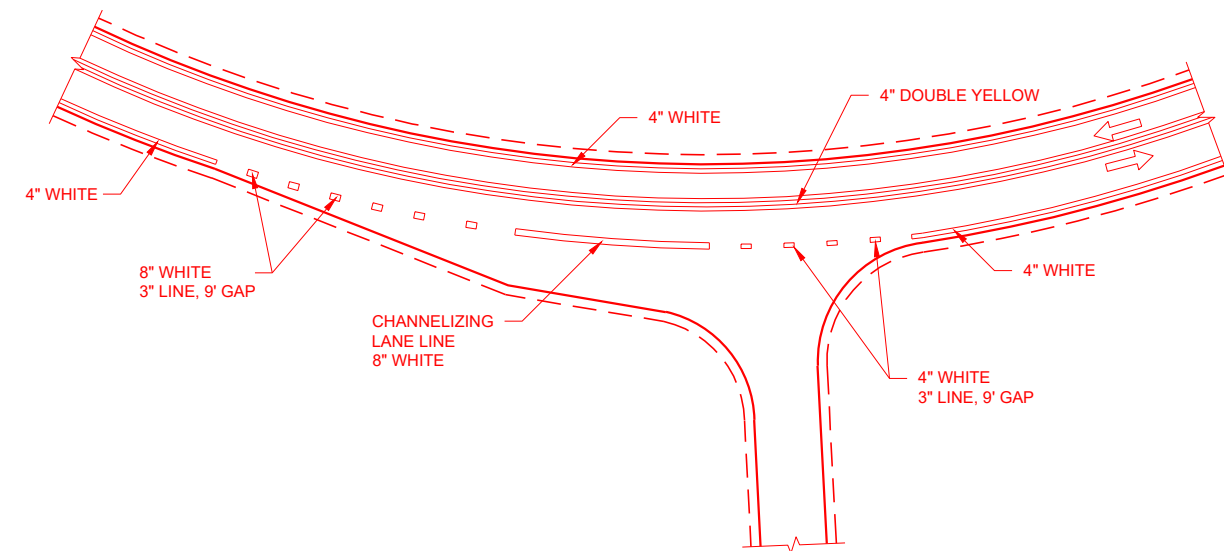
MAJOR INTERSECTIONS  
(INTERSECTION WITH FULL RIGHT TURN LANE OR BYPASS LANE)

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

ARROW SYMBOL ( ➞ ) SHOWS DIRECTION OF TRAVEL



INTERSECTION ON OUTSIDE OF CURVE

PAVEMENT MARKING  
(INTERSECTIONS)

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

GENERAL NOTES

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

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

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

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

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.

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.

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

TABLE A

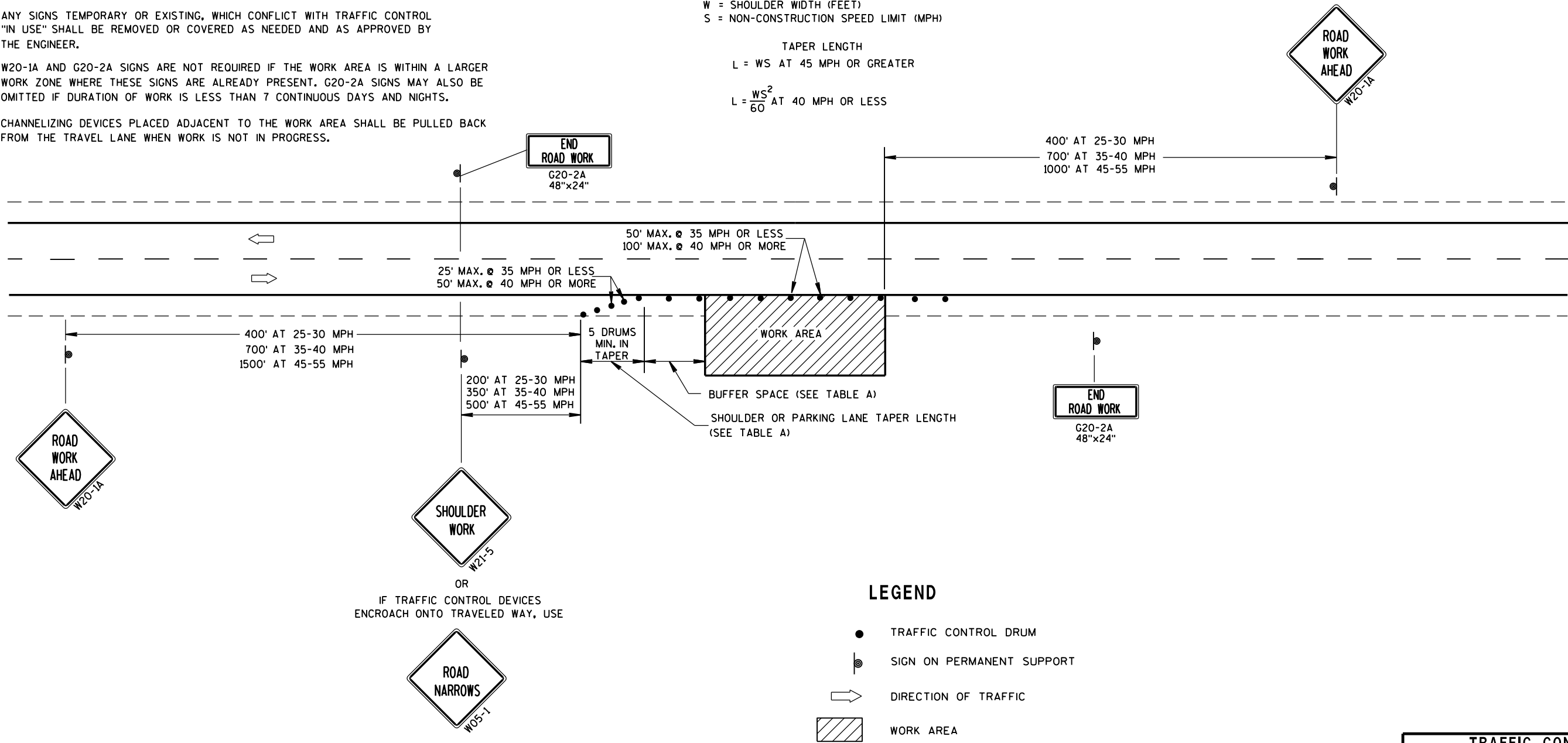
SHOULDER TAPER LENGTH (FEET)					BUFFER SPACE (FEET)
S \ W	4	6	8	10	
30	20	30	40	50	200
35	30	45	55	70	250
40	40	55	75	90	305
45	60	90	120	150	360
50	70	100	135	170	425
55	75	110	150	185	495

W = SHOULDER WIDTH (FEET)  
S = NON-CONSTRUCTION SPEED LIMIT (MPH)

TAPER LENGTH  
L = WS AT 45 MPH OR GREATER

$L = \frac{WS^2}{60}$  AT 40 MPH OR LESS

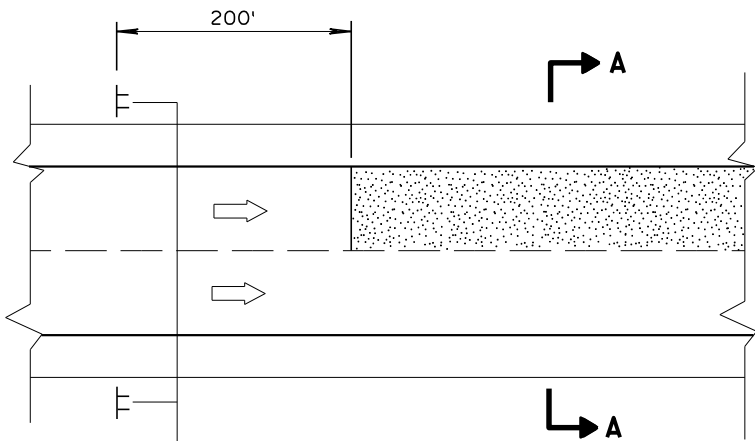
SHOULDER TAPER LENGTH =  $\frac{1}{3}L$



LEGEND

- TRAFFIC CONTROL DRUM
- ⦿ SIGN ON PERMANENT SUPPORT
- ➡ DIRECTION OF TRAFFIC
- ▨ WORK AREA

TRAFFIC CONTROL, WORK ON SHOULDER OR PARKING LANE, UNDIVIDED ROADWAY	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED July 14, 2015 DATE	/S/ Peter Amakobe Atepe STATEWIDE WORK ZONE TRAFFIC SAFETY ENGINEER
FHWA	

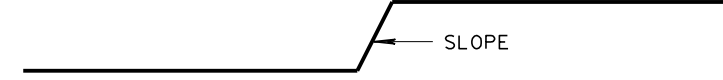


MULTI-LANE

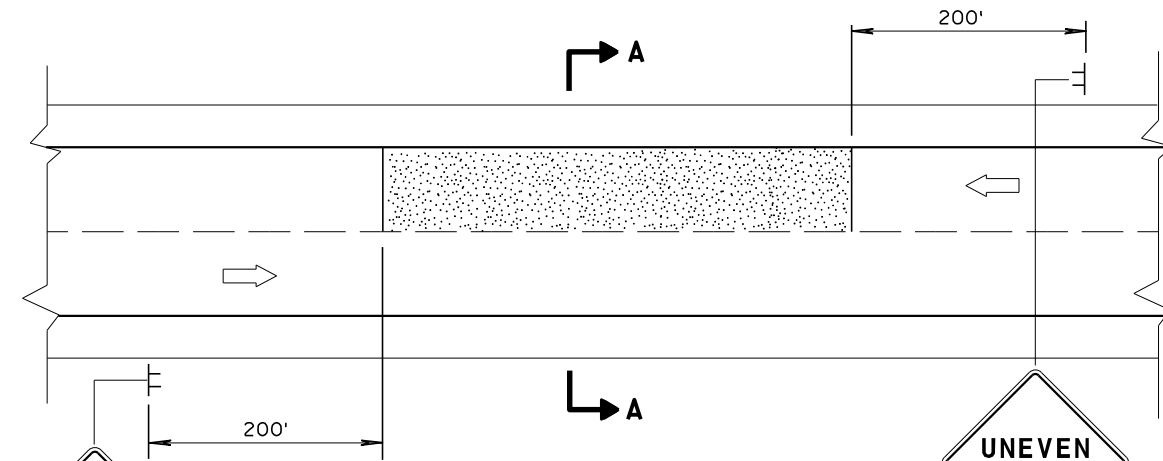


SECTION A-A

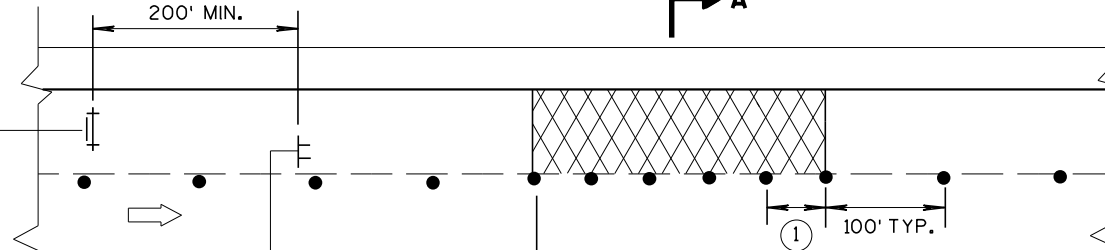
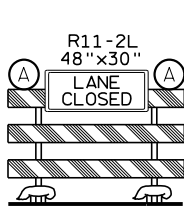
OR



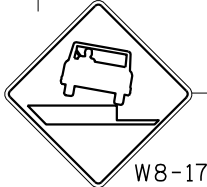
SECTION A-A



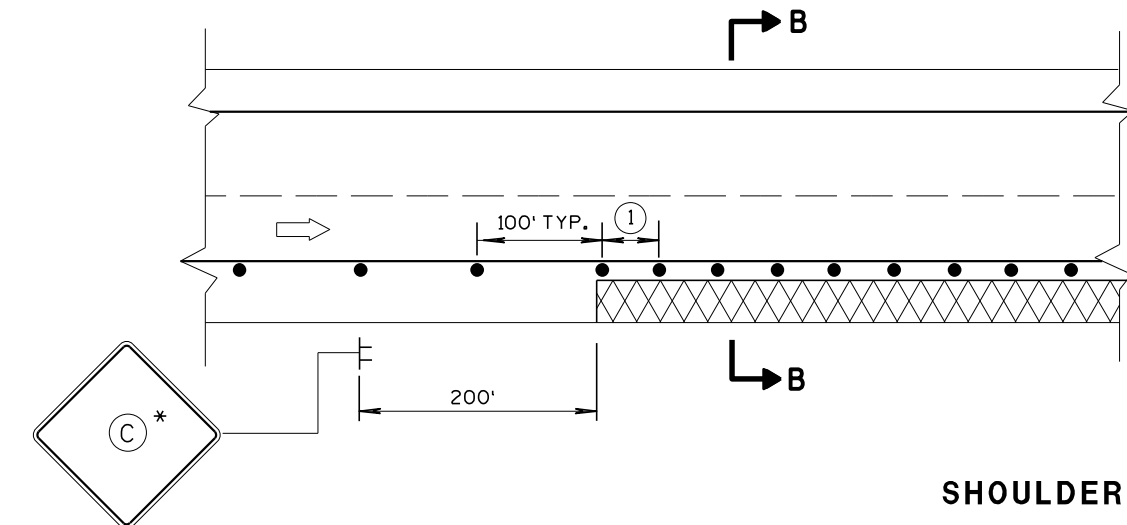
TWO-WAY TWO LANE



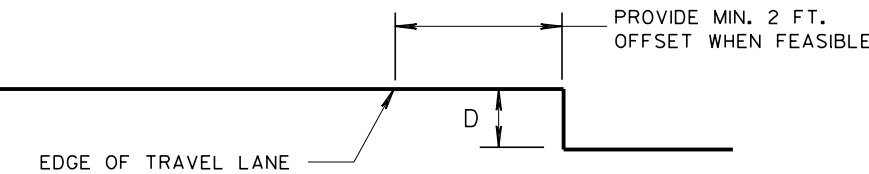
MULTI-LANE BASE PATCHING



ADJACENT LANE DROP-OFFS



SHOULDER DROP-OFFS



SECTION B-B

GENERAL NOTES

FOR SPOT LOCATIONS USE ENGINEERING JUDGEMENT WHEN PLACING ADDITIONAL SIGNS.

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

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

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

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

① USE CLOSER SPACING WHEN DELINEATING DROP-OFF.

LEGEND

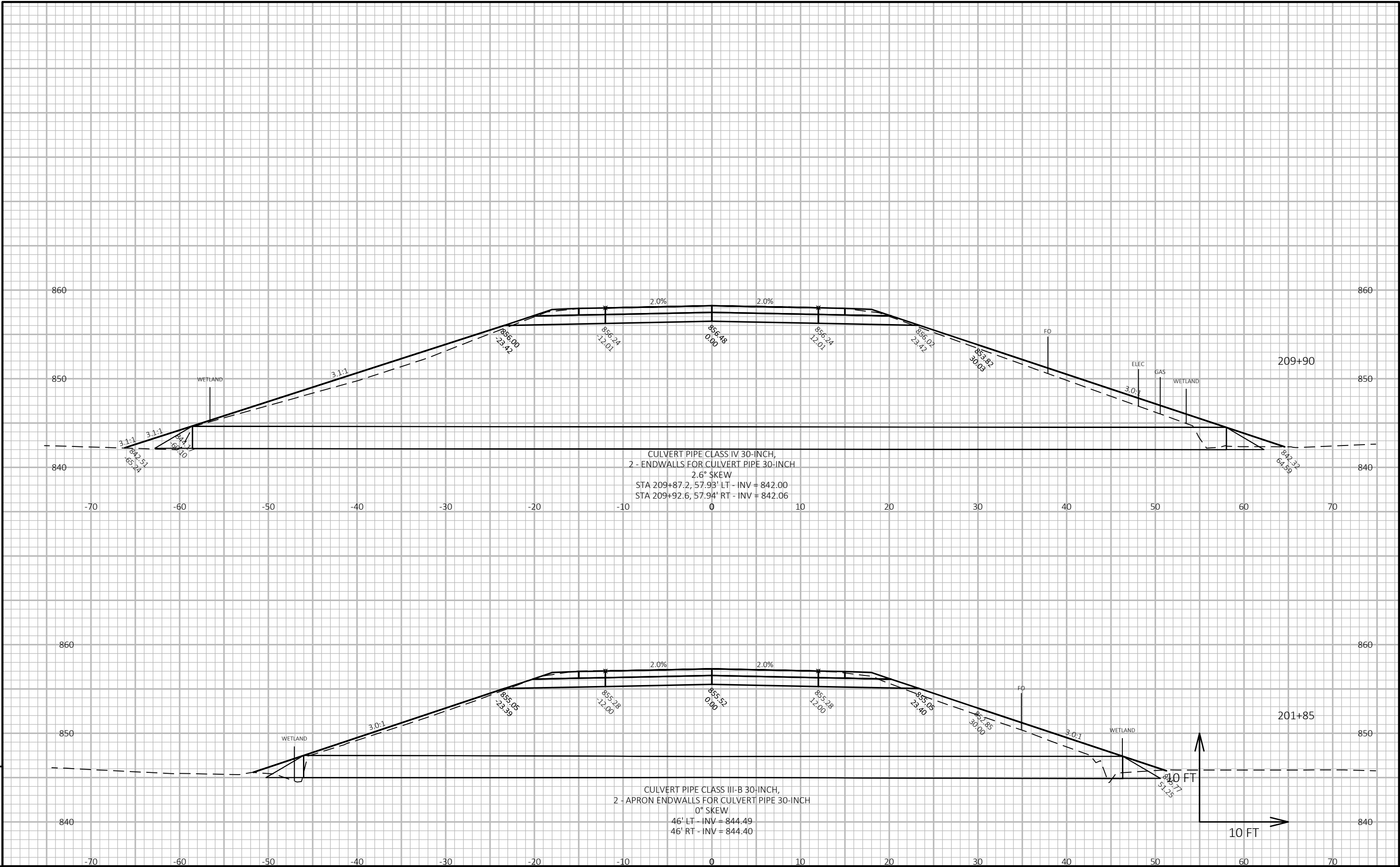
- TYPE III BARRICADE WITH ATTACHED SIGN
- SIGN ON TEMPORARY SUPPORT
- TRAFFIC CONTROL DRUM
- TYPE "A" WARNING LIGHT (FLASHING)
- DIRECTION OF TRAFFIC
- WORK AREA WITH DROP-OFF
- MILLED SURFACE

D	SIGN (C)
< 2" WITH A SLOPE STEEPER THAN 3:1	 W08-9
2" < 6" WITH A SLOPE STEEPER THAN 3:1	 W8-9A PROVIDE A 3:1 OR FLATTER SLOPE OF MATERIAL ADJACENT TO THE PAVEMENT

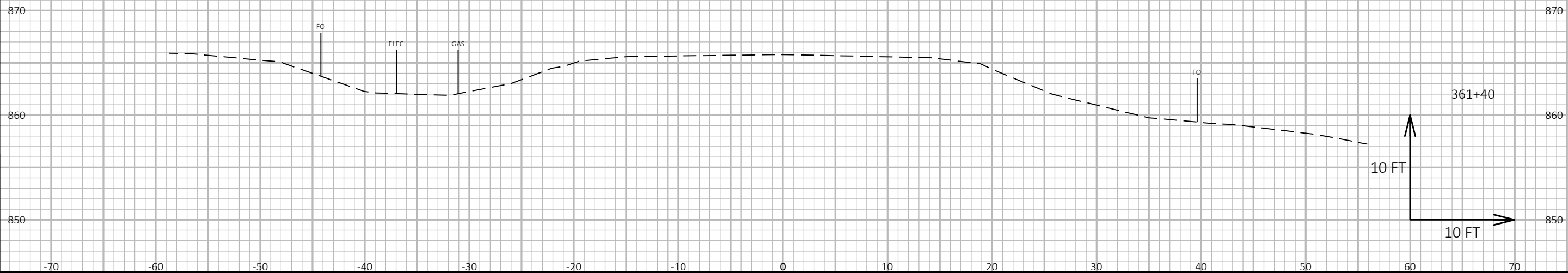
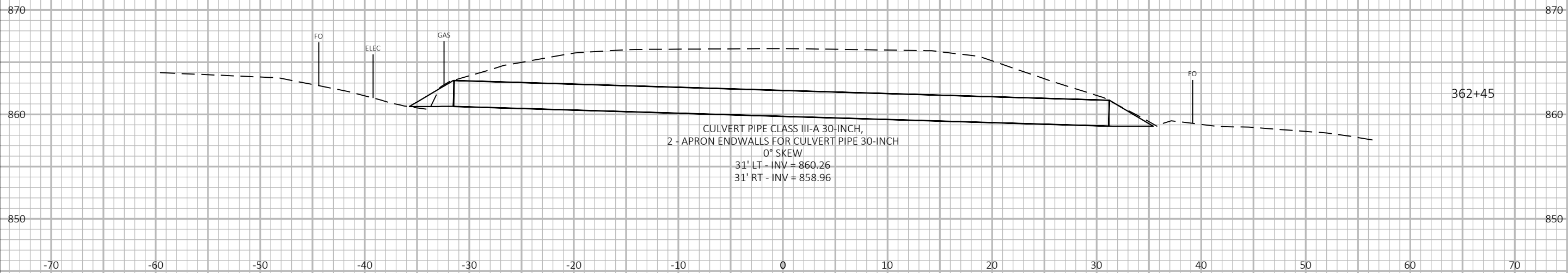
TRAFFIC CONTROL,  
DROP-OFF SIGNING

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

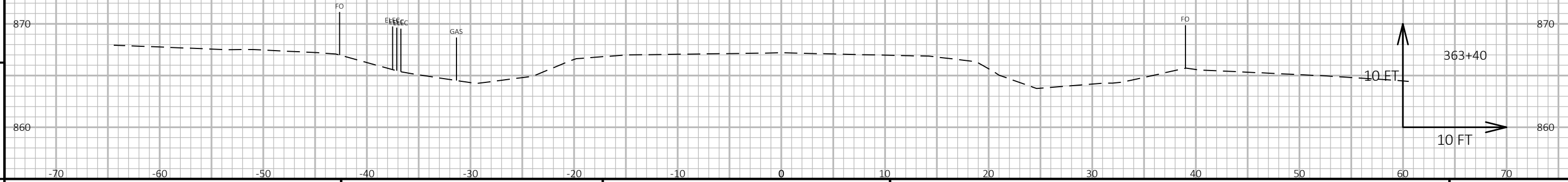
APPROVED  
March 2018 /S/ Andrew Heidtke  
DATE WORK ZONE ENGINEER  
FHWA



CROSS SECTIONS ARE FOR  
INFORMATION PURPOSES ONLY



CROSS SECTIONS ARE FOR  
INFORMATION PURPOSES ONLY



9

9

PROJECT NO: 1430-00-80	HWY: STH 82	COUNTY: MARQUETTE	CROSS SECTIONS: STH 82	SHEET E
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## Notes



## ***Wisconsin Department of Transportation***

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