

MAD WITH: N/A PROJECT ID: 5310-02-63 COUNTY: DANE

APRIL 2020

ORDER OF SHEETS

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
PLAN OF PROPOSED IMPROVEMENT
SPRING GREEN - MADISON
WESTVIEW COURT TO PINEHURST DRIVE
USH 14
DANE COUNTY

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
5310-02-63	WISC 2019799	1



34

DESIGN DESIGNATION

A.A.D.T. (2020)	=	13,560
A.A.D.T. (2040)	=	15,250
D.H.V. (2040)	=	1373
D.D.	=	60/40
T.	=	5.2%
DESIGN SPEED	=	55 MPH (STA. 68+30.60 - STA. 332+25)
ESALS	=	45 MPH (STA. 332+25 - STA. 356+76.17)
	=	45 MPH (STA. 350+A+19.92 - STA. 360+A+47.86)

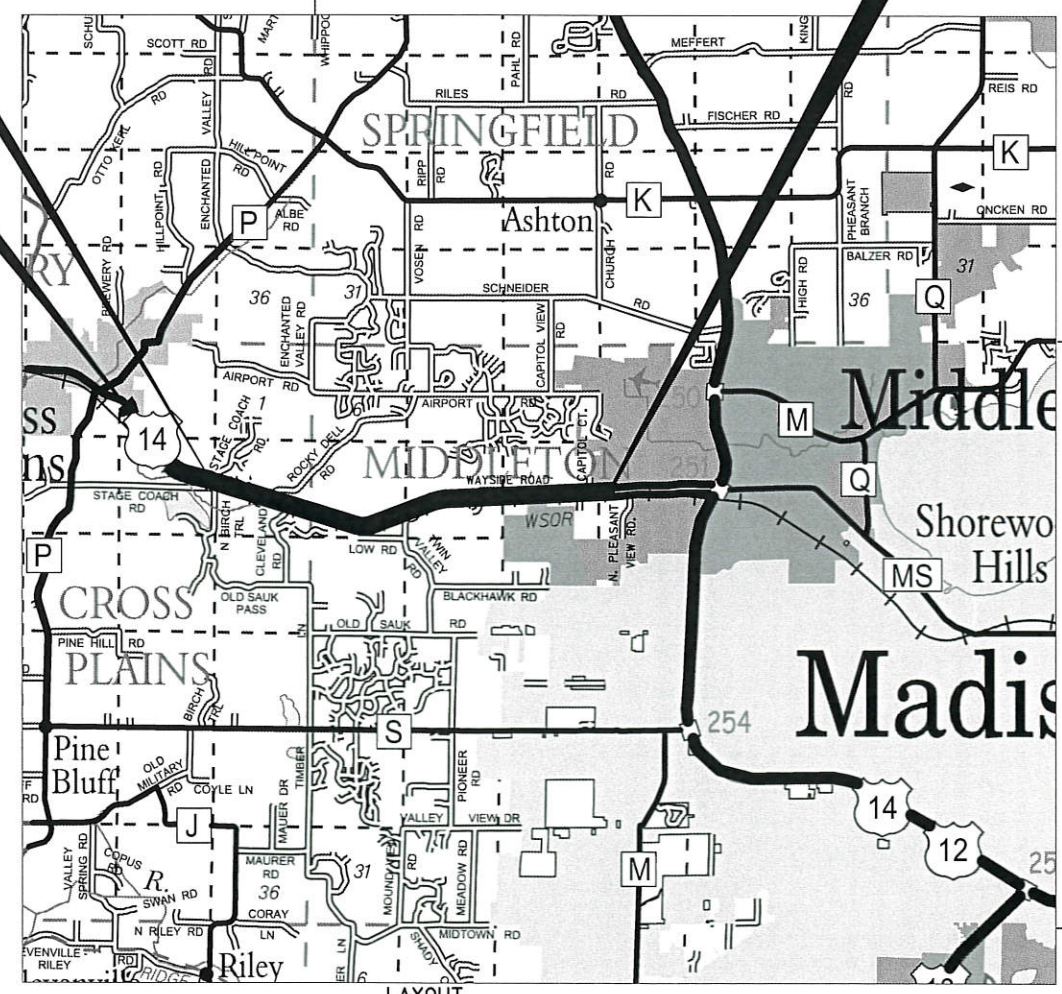
CONVENTIONAL SYMBOLS	
PLAN	
CORPORATE LIMITS	
PROPERTY LINE	
LOT LINE	
LIMITED HIGHWAY EASEMENT	
EXISTING RIGHT OF WAY	
PROPOSED OR NEW R/W LINE	
SLOPE INTERCEPT	
REFERENCE LINE	
EXISTING CULVERT	
PROPOSED CULVERT (Box or Pipe)	
COMBUSTIBLE FLUIDS	
MARSH AREA	
WOODED OR SHRUB AREA	
PROFILE	
GRADE LINE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

EXCEPTION TO NET C/L LENGTH
STA. 119+99.81-
STA. 145+53.82

BEGIN PROJECT
STA. 68+30.60
Y = 494,976.24
X = 753,381.31

STATE PROJECT NUMBER
5310-02-63

END PROJECT
STA. 356+76.17



LAYOUT
SCALE 0 2 MILE
TOTAL NET LENGTH OF CENTERLINE = 4.979 MILES

HORIZONTAL POSITIONS SHOWN ON THIS PLAN ARE WISCONSIN COUNTY COORDINATES, DANE COUNTY, NAD83 (2011), IN U.S. SURVEY FEET. VALUES ARE GRID COORDINATES, GRID BEARINGS, AND GRID DISTANCES. GRID STANCE MAY BE USED AS GROUND DISTANCES.

ELEVATIONS ON THIS PLAN ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988, NAVD (2012)

ORIGINAL PLANS PREPARED BY

JEWELL
associates engineers, inc.
Engineers - Architects - Surveyors

WISCONSIN
ELLERY A. SCHAFER
E-41742-6
SPRING GREEN, WI
PROFESSIONAL ENGINEER

7/19/2019
(Date) (Signature)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY

Surveyor	JEWELL ASSOCIATES ENGINEERS, INC.
Designer	JEWELL ASSOCIATES ENGINEERS, INC.
Project Manager	GREG BRECKA, P.E.
Regional Examiner	SW REGION
Regional Supervisor	BRENDA SCHOENFELD, P.E.

APPROVED FOR THE DEPARTMENT

DATE: 7/22/2019 (Signature)

E

GENERAL NOTES

NO TREES OR SHRUBS ARE TO BE REMOVED UNLESS SUCH TREES OR SHRUBS HAVE FIRST BEEN INDICATED FOR REMOVAL BY THE ENGINEER IN THE FIELD.

EROSION CONTROL ITEMS IN THE MISC. QUAN. ARE SUGGESTED. EXACT LOCATIONS WILL BE DETERMINED BY THE ENGINEER IN THE FIELD. MAINTAIN EROSION CONTROL ITEMS UNTIL SUCH TIME AS THE ENGINEER DETERMINES THE MEASURE IS NO LONGER NECESSARY. PROTECT WETLANDS AND OTHER WATERWAYS THAT ARE PRESENT WITHIN THE PROJECT LIMITS.

DISTURBED AREAS SHOWN WITHIN THE RIGHT-OF-WAY, EXCEPT THE AREAS WITHIN THE FINISHED SHOULDER POINTS ARE TO BE FERTILIZED (TYPE B), SEEDED (USE SEEDING TEMPORARY, & SEED MIX NO. 20), AND EROSION MAT URBAN CLASS I TYPE B AS DIRECTED BY THE ENGINEER. FERTILIZER (TYPE B) & SEEDING (SEEDING TEMPORARY, & SEEDING MIX NO. 20) ARE PAID FOR UNDER THE BID ITEM BARRIER SYSTEM GRADING SHAPING FINISHING.

PRIOR TO THE PLACEMENT OF GUARDRAIL, THE SHOULDERS SHALL BE PLACED, SHAPED, AND COMPACTED.

EXISTING SHOULDER AGGREGATE SHALL BE INCORPORATED INTO THE NEW SHOULDERS UNLESS OTHERWISE DIRECTED BY THE ENGINEER IN THE FIELD.

WHEN THE QUANTITY OF THE ITEM OF BASE AGGREGATE DENSE OR HMA PAVEMENT IS MEASURED FOR PAYMENT BY THE TON, THE DEPTH OR THICKNESS OF THE COURSE SHOWN ON THE PLANS IS APPROXIMATE, AND THE ACTUAL THICKNESS WILL DEPEND ON THE DISTRIBUTION OF THE MATERIAL AS DIRECTED BY THE ENGINEER IN THE FIELD.

REMOVAL OF ASPHALTIC SURFACES WHERE AN ABUTTING ASPHALTIC SURFACE IS TO REMAIN IN PLACE SHALL REQUIRE A VERTICAL EDGE MEETING THE APPROVAL OF THE ENGINEER IN THE FIELD.

HMA PAVEMENT QUANTITIES WERE CALCULATED USING 112 LB/SY/IN.

4-INCHES OF HMA PAVEMENT SHALL BE CONSTRUCTED WITH A 2 ¼-INCH LOWER LAYER AND A 1 ¾-INCH UPPER LAYER OF HMA PAVEMENT 4 MT 58-28 S.

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

THE EXACT LOCATIONS AND LIMITS OF PRIVATE ENTRANCES, COMMERCIAL, AND FIELD ENTRANCES SHALL BE DETERMINED BY THE ENGINEER IN THE FIELD.

APPLY TACK COAT TO EXISTING SURFACE PRIOR TO PLACEMENT OF HMA PAVEMENT AT A RATE OF 0.05 GAL/SY. APPLY TACK COAT AT A RATE OF 0.05 GAL/SY BETWEEN LAYERS OF HMA PAVEMENT.

THE CONTRACTOR'S PAVING OPERATIONS SHALL BE CONSISTENT WITH THE PLAN TYPICAL SECTIONS AND CONSTRUCTED TO PREVENT HMA LONGITUDINAL JOINTS FROM BEING LOCATED WITHIN A DRIVING, TURNING, OR PASSING LANE.

THE LOW SIDE SHOULDER SLOPE ON SUPERELEVATED SECTIONS EQUALS THE SUPERELEVATION WHEN THE SUPERELEVATION IS GREATER THAN 0.04 FT./FT. IF THE SUPERELEVATION IS LESS THAN OR EQUALS 0.04 FT./FT., THEN THE LOW SIDE SHOULDER SLOPE IS 0.04 FT./FT. THE HIGH SIDE SHOULDER SLOPE ON THE SUPERELEVATED SECTION EQUALS THE SUPERELEVATION.

FILL EXPANSION IS VARIABLE AND IS ESTIMATED AT 25%.

ADJUST DITCH GRADING AS NECESSARY TO FIELD CONDITIONS AND AS DIRECTED BY THE ENGINEER IN THE FIELD.

CURVE DATA IS BASED ON THE ARC DEFINITION.

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, ALL SIGNS RELATING TO THIS OPERATION SHALL BE COVERED OR REMOVED AND FACILITY RESTORED TO NORMAL OPERATIONS.

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. THE CONTRACTOR SHALL COORDINATE HIS CONSTRUCTION ACTIVITIES WITH A CALL TO "DIGGERS HOTLINE" AND/OR A DIRECT CALL TO THE UTILITIES THAT HAVE FACILITIES IN THE AREA. NOT ALL UTILITIES ARE MEMBERS OF DIGGERS HOTLINE.

IF THERE ARE CONFLICTS WITH SIGNS OR OTHER WORK UNDER THIS PROJECT, THE CONTRACTOR WILL WORK AROUND THE UTILITY FACILITIES.

CONTRACTOR TO PROTECT HEIGHT MODERNIZATION MONUMENT (HMOD) B 108 GPS AND KEEP CONSTRUCTION EQUIPMENT AT LEAST 10 FEET AWAY FROM B 108 GPS.

ENSURE THAT HEIGHT MODERNIZATION MONUMENT (HMOD) B 108 GPS IS/ARE NOT DISTURBED, BUMPED, OR MOVED DURING THE DURATION OF THE PROJECT. NOTIFY JACOB ROCKWEILER IMMEDIATELY IF B 108 GPS IS/ARE DISTURBED, BUMPED OR MOVED DURING CONSTRUCTION OPERATIONS.

JACOB ROCKWEILER, P.E., WISCONSIN HEIGHT MODERNIZATION PROGRAM MANAGER WITH THE WISCONSIN DEPARTMENT OF TRANSPORTATION WHOSE PHONE NUMBER IS (608) 516-6362 AND EMAIL IS JACOB.ROCKWEILER@DOT.WI.GOV.

CONTACTS

WISCONSIN DEPARTMENT OF TRANSPORTATION:
WisDOT PROJECT MANAGER
2101 WRIGHT STREET
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CELL: (608) 516-6524
EMAIL: Gregory.Brecka@dot.wi.gov

DESIGN CONSULTANT:
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560 SUNRISE DRIVE
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ATTN: ELLERY SCHAFFER, P.E.
PH: (608) 459-6027
CELL: (608) 341-8159
EMAIL: ellery.schaffer@jewellassoc.com

WDNR LIAISON:
STATE OF WISCONSIN
DNR SOUTH CENTRAL REGION HQ
3911 FISH HATCHERY ROAD
FITCHBURG, WI 53711
ATTN: ERIC HEGGELUND
PH: (608) 228-7927
EMAIL: eric.heggelund@wisconsin.gov

UTILITIES

COMMUNICATION LINE
CHARTER COMMUNICATIONS
ATTN: MARK GAUGER
2701 DANIELS STREET
MADISON, WI 53718
OFFICE: (608) 575-6415
EMAIL: mark.gauger@charter.com

ELECTRICITY - TRANSMISSION
ATC MANAGEMENT, INC.
ATTN: TONY MARCINIAK
W 234 N 2000 RIDGEVIEW PARKWAY CT.
P.O. BOX 47
WAUKESHA, WI 53187
OFFICE: (262) 506-6814
EMAIL: amarciniak@atcinc.com

COMMUNICATION LINE
TDS TELECOM
ATTN: JERRY MYERS
525 JUNCTION ROAD
MADISON, WI 53717
OFFICE: (608) 664-4404
EMAIL: jerry.myers@tdstelecom.com

ELECTRICITY
ALLIANT ENERGY
ATTN: MICHAEL BROLIN
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MADISON, WI 53713
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GAS/PETROLEUM
MADISON GAS AND ELECTRIC COMPANY
ATTN: JANE ROSSING
P.O. BOX 1231
MADISON, WI 53701
OFFICE: (608) 252-7099
EMAIL: workplans@mge.com
grossing@mge.com

ELECTRICITY
MADISON GAS AND ELECTRIC COMPANY
ATTN: JANE ROSSING
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MADISON, WI 53701
OFFICE: (608) 252-7099
EMAIL: workplans@mge.com
grossing@mge.com

WATER
MIDDLETON MUNICIPAL WATER UTILITY
ATTN: SHAWN STAUSKE
7426 HUBBARD AVE.
MIDDLETON, WI 53562-3118
OFFICE: (608) 821-8381
EMAIL: sstauske@ci.middletown.wi.us

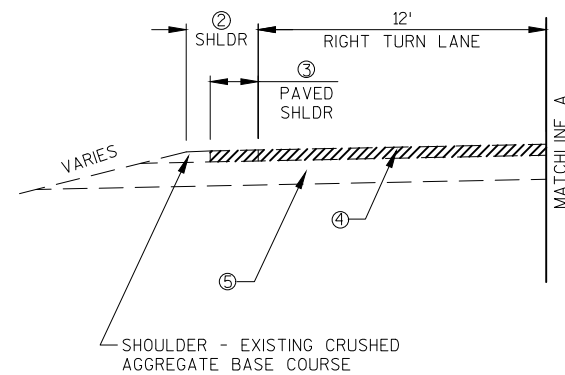


LIST OF STANDARD ABBREVIATIONS

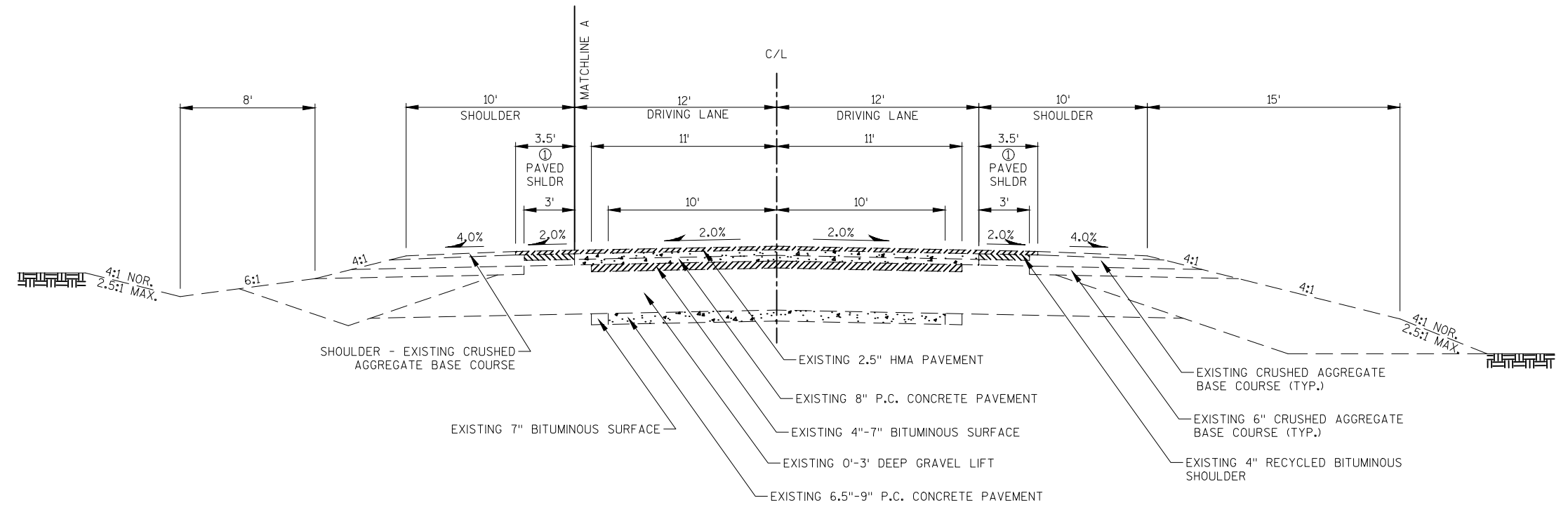
ABUT	Abutment	INV	Invert	RDWY	Roadway
AC	Acre	IP	Iron Pipe or Pin	SALV	Salvaged
AGG	Aggregate	IRS	Iron Rod Set	SAN S	Sanitary Sewer
AH	Ahead	JT	Joint	SEC	Section
<	Angle	JCT	Junction	SHLDR	Shoulder
ASPH	Asphaltic	LHF	Left-Hand Forward	SHR	Shrinkage
AVG	Average	L	Length of Curve	SW	Sidewalk
ADT	Average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

ORDER OF SECTION 2 SHEETS:

- WRITTEN MATERIAL
- PROJECT OVERVIEW
- TYPICAL SECTIONS
- CONSTRUCTION DETAILS (INCLUDES EROSION CONTROL PLAN)
- PLAN DETAILS

**PARTIAL TYPICAL EXISTING SECTION**

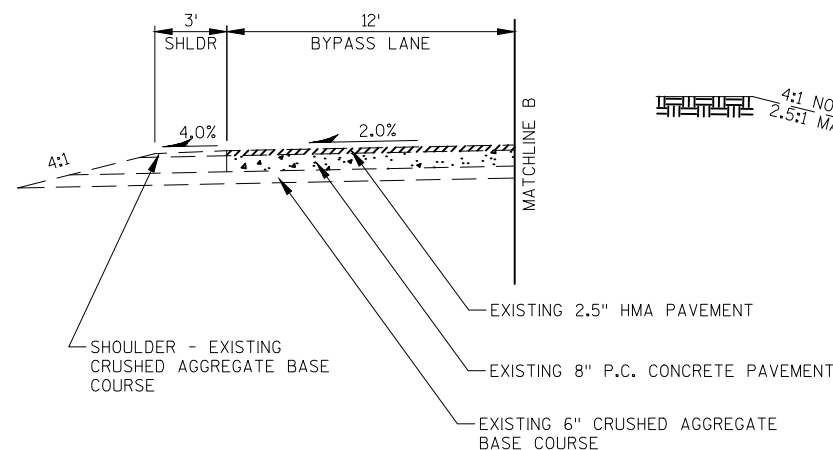
STATION - STATION	SHOULDER WIDTH ② (FT)	PAVED SHOULDER ③ (FT)	EXISTING PAVEMENT STRUCTURE TO REMAIN	
			④ (IN)	⑤ (IN)
STA. 235+62 - STA. 246+79, RT.	3	2	5.5	12
STA. 237+33 - STA. 241+23, LT.	3	2	DEPTH UNKNOWN	DEPTH UNKNOWN
STA. 278+11 - STA. 284+56, LT.	3	0	DEPTH UNKNOWN	DEPTH UNKNOWN

**TYPICAL EXISTING SECTION**

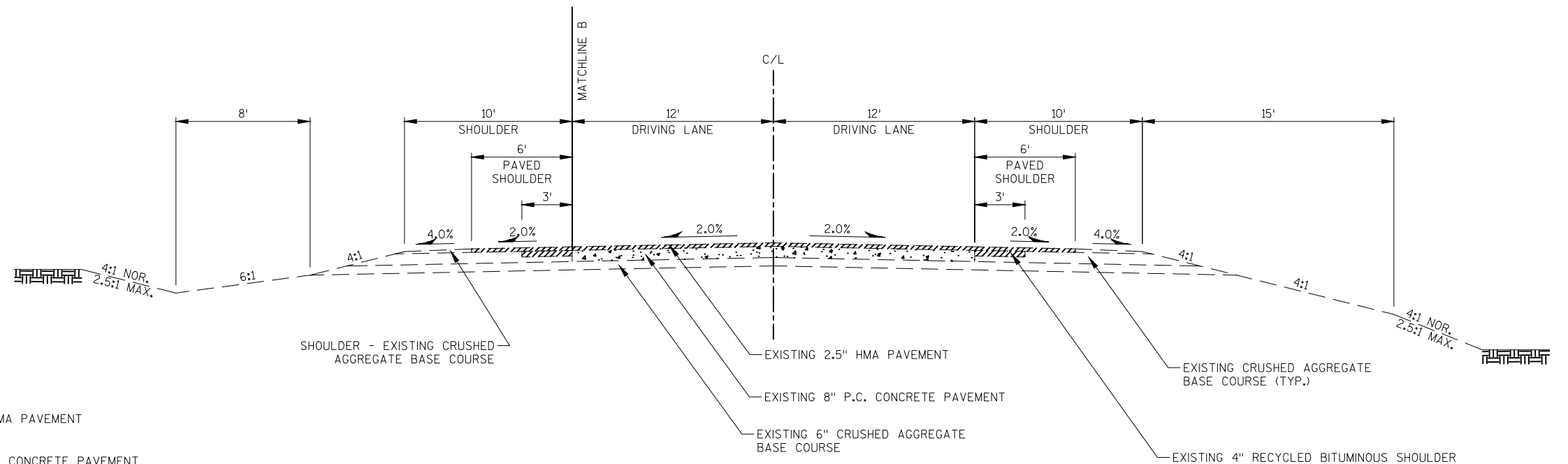
STA. 68+30.60 - STA. 79+45
STA. 88+18 - STA. 97+75
STA. 112+85 - STA. 119+99.81
STA. 180+00 - STA. 190+00
STA. 228+00 - STA. 251+89
STA. 268+14 - STA. 350+19.92

① 6' PAVED SHOULDER -
STA. 180+00 - STA. 190+00
STA. 228+00 - STA. 251+89

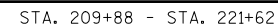
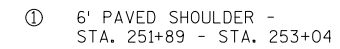
9' PAVED SHOULDER -
STA. 337+14 - STA. 350+02, LT.

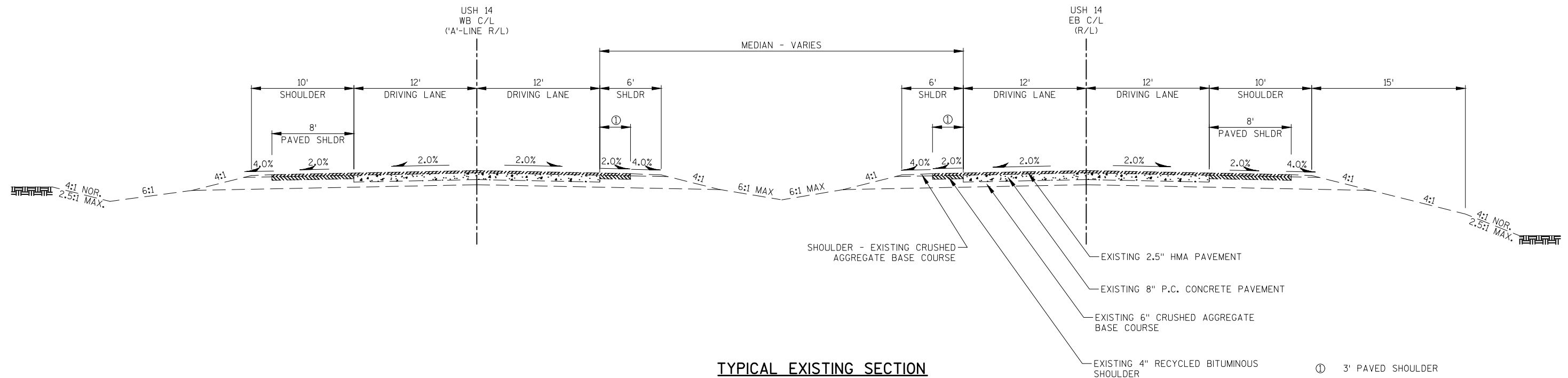
**PARTIAL TYPICAL EXISTING SECTION**

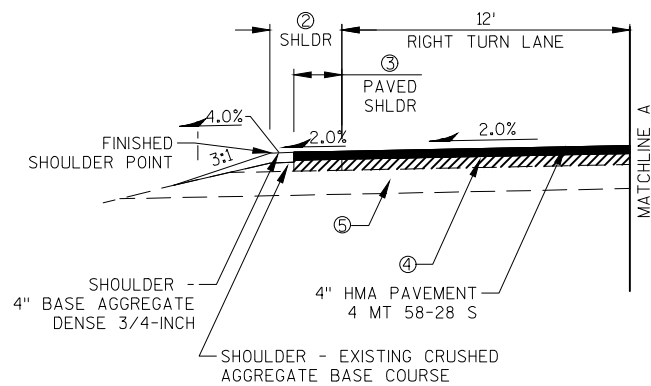
STA. 168+27 - STA. 176+19, LT.
STA. 338+92 - STA. 346+84, RT.
STA. 347+16 - STA. 355+08, LT.

**TYPICAL EXISTING SECTION**

STA. 145+53.82 - STA. 180+00
STA. 190+00 - STA. 209+88
STA. 221+62 - STA. 228+00

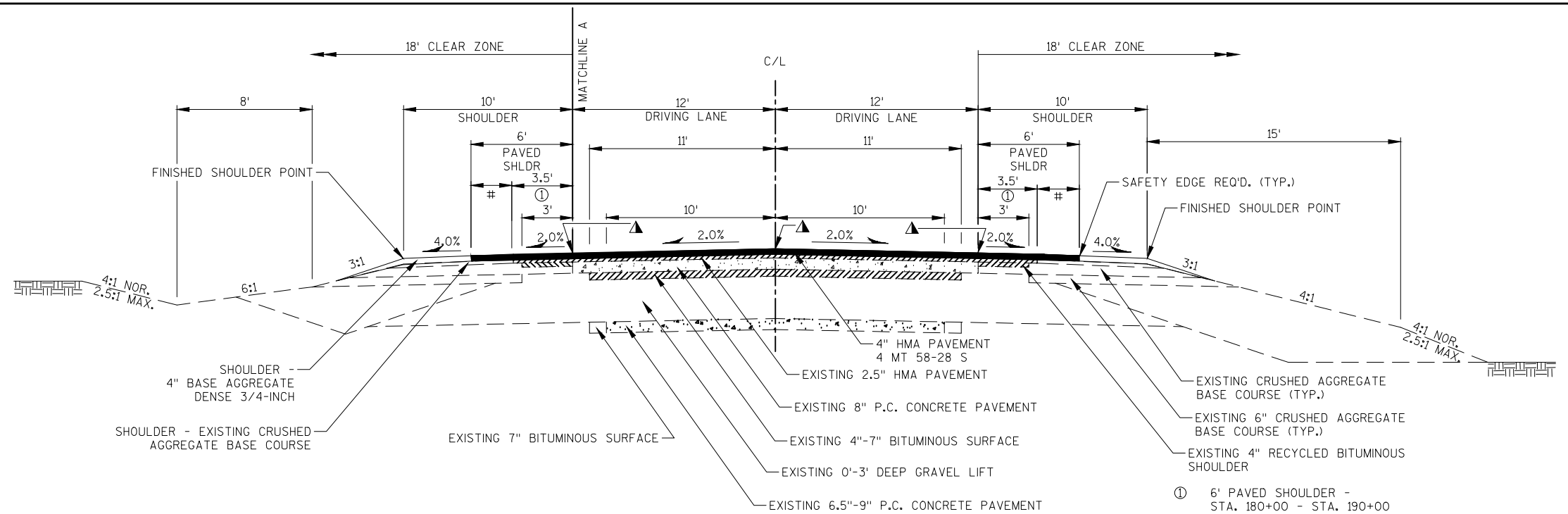






PARTIAL TYPICAL FINISHED SECTION

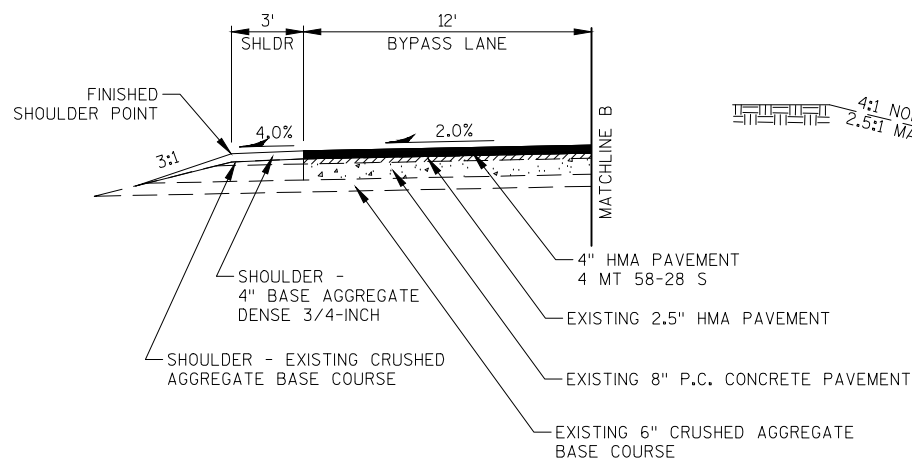
STATION - STATION	SHOULDER WIDTH ② (FT)	PAVED SHOULDER ③ (FT)	EXISTING PAVEMENT STRUCTURE TO REMAIN	
			④ (IN)	⑤ (IN)
STA. 235+62 - STA. 246+79, RT.	3	2	5.5	12
STA. 237+33 - STA. 241+23, LT.	3	2	DEPTH UNKNOWN	DEPTH UNKNOWN
STA. 278+11 - STA. 284+56, LT.	3	0	DEPTH UNKNOWN	DEPTH UNKNOWN



TYPICAL FINISHED SECTION

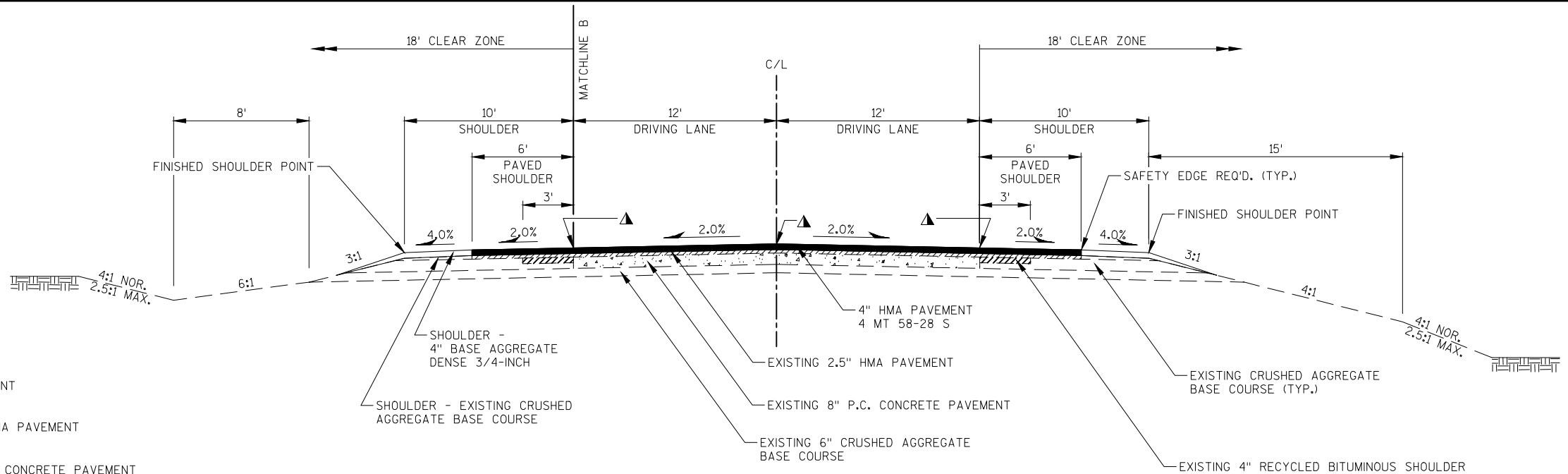
STA. 68+30.60 - STA. 79+45
STA. 88+18 - STA. 97+75
STA. 112+85 - STA. 119+99.81
STA. 180+00 - STA. 190+00
STA. 228+00 - STA. 251+89
STA. 268+14 - STA. 350+19.92

- ① 6' PAVED SHOULDER -
STA. 180+00 - STA. 190+00
STA. 228+00 - STA. 251+89
- 9' PAVED SHOULDER -
STA. 337+14 - STA. 350+02, LT.
- # PREPARE FOUNDATION FOR ASPHALTIC SHOULDERS
- ▲ ASPHALTIC SHOULDER RUMBLE STRIPS 2-LANE RURAL
AND ASPHALTIC CENTERLINE RUMBLE STRIPS 2-LANE
RURAL REQUIRED. SEE MISCELLANEOUS QUANTITIES AND
STANDARD DETAIL DRAWINGS FOR DETAILS.



PARTIAL TYPICAL FINISHED SECTION

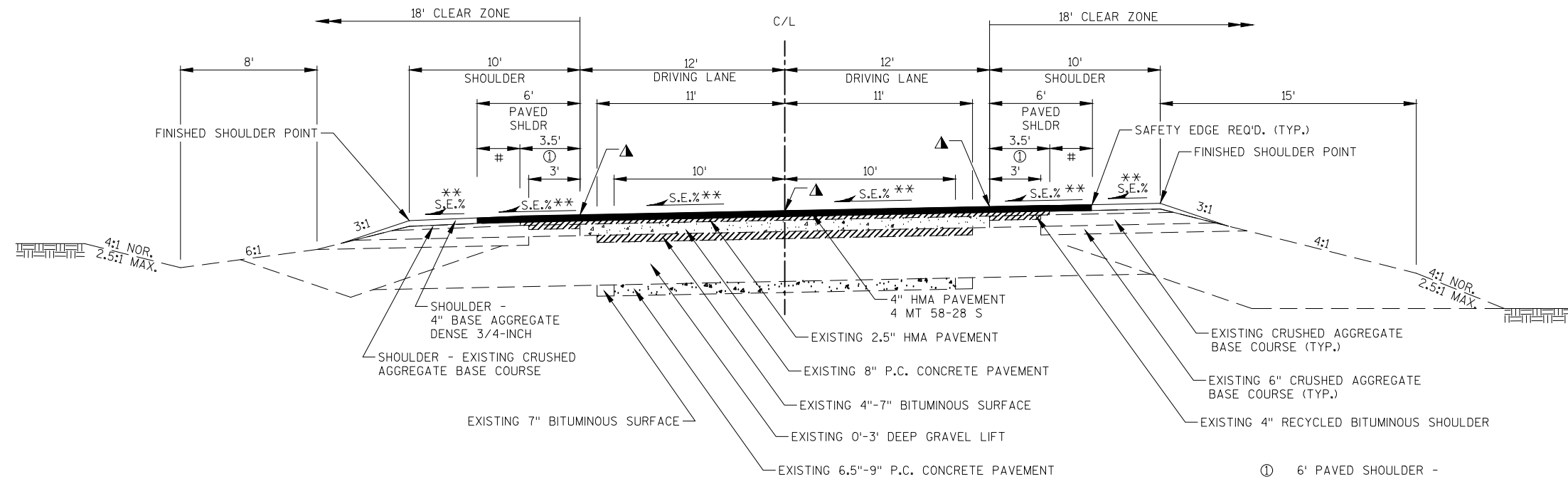
STA. 168+27 - STA. 176+19, LT.
STA. 241+80 - STA. 249+21, LT.
STA. 338+92 - STA. 346+84, RT.
STA. 347+16 - STA. 355+08, RT.



TYPICAL FINISHED SECTION

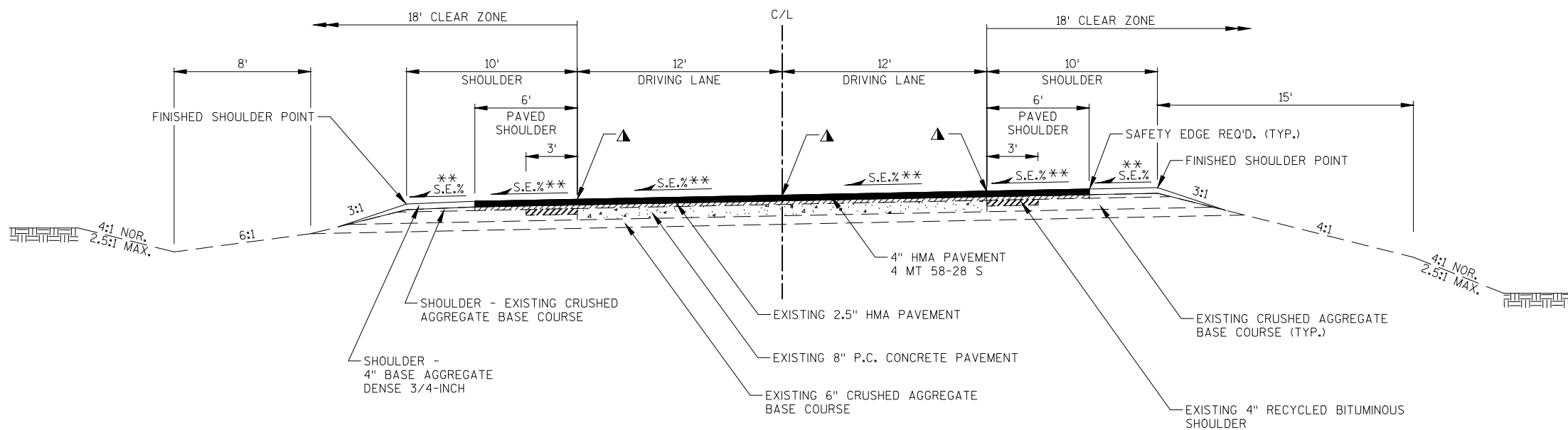
STA. 145+53.82 - STA. 180+00
STA. 190+00 - STA. 209+88
STA. 221+62 - STA. 228+00

- ▲ ASPHALTIC SHOULDER RUMBLE STRIPS 2-LANE RURAL
AND ASPHALTIC CENTERLINE RUMBLE STRIPS 2-LANE
RURAL REQUIRED. SEE MISCELLANEOUS QUANTITIES AND
STANDARD DETAIL DRAWINGS FOR DETAILS.

**TYPICAL FINISHED SUPERELEVATED SECTION**

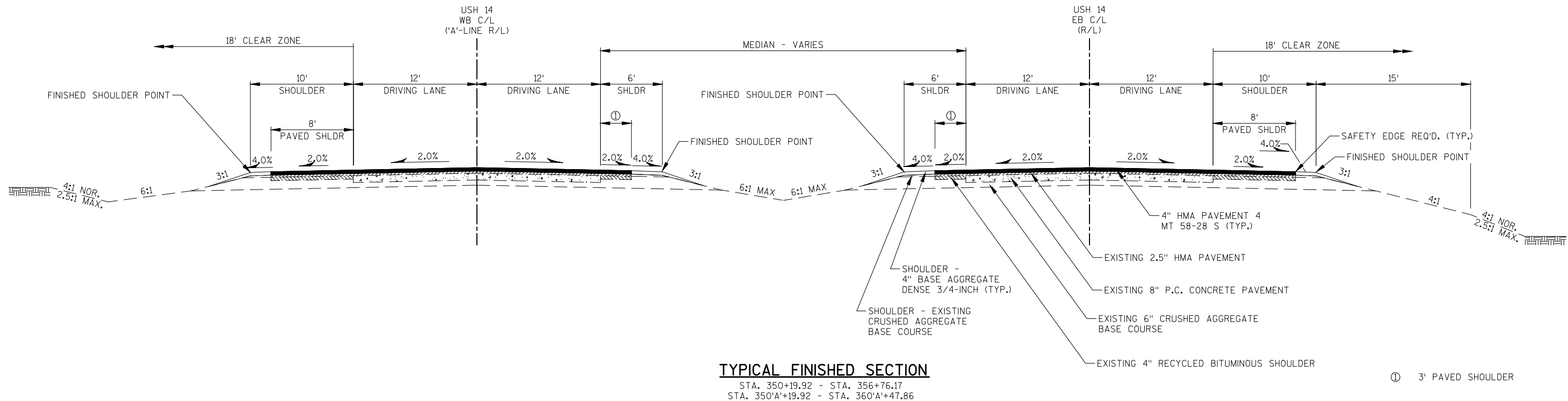
STA. 79+45 - STA. 88+18
STA. 97+75 - STA. 112+85
STA. 251+89 - STA. 268+14

- ① 6' PAVED SHOULDER - STA. 251+89 - STA. 253+04
- ** SEE SUPERELEVATION TABLE
- # PREPARE FOUNDATION FOR ASPHALTIC SHOULDERS
- ▲ ASPHALTIC SHOULDER RUMBLE STRIPS 2-LANE RURAL AND ASPHALTIC CENTERLINE RUMBLE STRIPS 2-LANE RURAL REQUIRED. SEE MISCELLANEOUS QUANTITIES AND STANDARD DETAIL DRAWINGS FOR DETAILS.

**TYPICAL FINISHED SUPERELEVATED SECTION**

STA. 209+88 - STA. 221+62

- ** SEE SUPERELEVATION TABLE
- ▲ ASPHALTIC SHOULDER RUMBLE STRIPS 2-LANE RURAL AND ASPHALTIC CENTERLINE RUMBLE STRIPS 2-LANE RURAL REQUIRED. SEE MISCELLANEOUS QUANTITIES AND STANDARD DETAIL DRAWINGS FOR DETAILS.

**SUPERELEVATION TABLE-CURVE 1**

STATION	LEFT(%)	RIGHT(%)
79+45	2.0	2.0
79+50	2.0	1.8
80+00	2.0	0.1
80+50	2.0	1.9
81+00	3.8	3.8
81+50	5.7	5.7
82+00	7.6	7.6
82+07	7.8	7.8
FULL SUPERELEVATION		
85+56	7.8	7.8
86+00	6.2	6.2
86+50	4.3	4.3
87+00	2.4	2.4
87+50	2.0	0.5
88+00	2.0	1.3
88+18	2.0	2.0

SUPERELEVATION TABLE-CURVE 2

STATION	LEFT(%)	RIGHT(%)
97+75	2.0	2.0
98+00	2.0	1.1
98+50	2.0	0.8
99+00	2.7	2.7
99+50	4.6	4.6
99+79	5.7	5.7
FULL SUPERELEVATION		
110+81	5.7	5.7
111+00	4.9	4.9
111+50	3.1	3.1
112+00	2.0	1.2
112+50	2.0	0.7
112+85	2.0	2.0

SUPERELEVATION TABLE-CURVE 3

MAINTAIN NORMAL CROWN THROUGH CURVE 3

SUPERELEVATION TABLE-CURVE 4

STATION	LEFT(%)	RIGHT(%)
209+88	2.0	2.0
210+00	2.0	1.6
210+50	2.0	0.3
211+00	2.1	2.1
211+50	4.1	4.1
212+00	5.8	5.8
212+50	7.7	7.7
212+55	8.0	8.0
FULL SUPERELEVATION		
218+95	8.0	8.0
219+00	7.8	7.8
219+50	6.0	6.0
220+00	4.1	4.1
220+50	2.2	2.2
221+00	2.0	0.3
221+50	2.0	1.5
221+62	2.0	2.0

SUPERELEVATION TABLE-CURVE 5

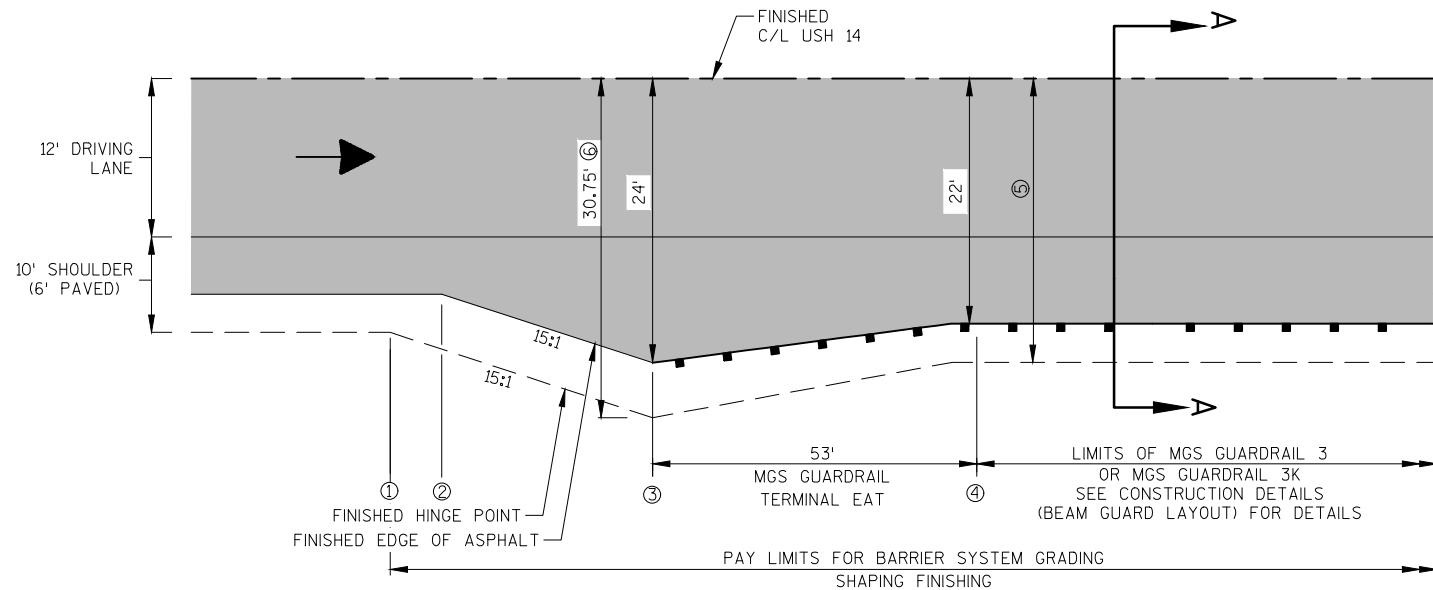
STATION	LEFT(%)	RIGHT(%)
251+89	2.0	2.0
252+00	1.6	2.0
252+50	0.3	2.0
253+00	2.1	2.1
253+39	3.6	3.6
FULL SUPERELEVATION		
266+64	3.6	3.6
267+00	2.3	2.3
267+50	0.4	2.0
268+00	1.5	2.0
268+14	2.0	2.0

SUPERELEVATION TABLE-CURVE 6

MAINTAIN NORMAL CROWN THROUGH CURVE 6

SUPERELEVATION TABLE-CURVE 7

MAINTAIN NORMAL CROWN THROUGH CURVE 7



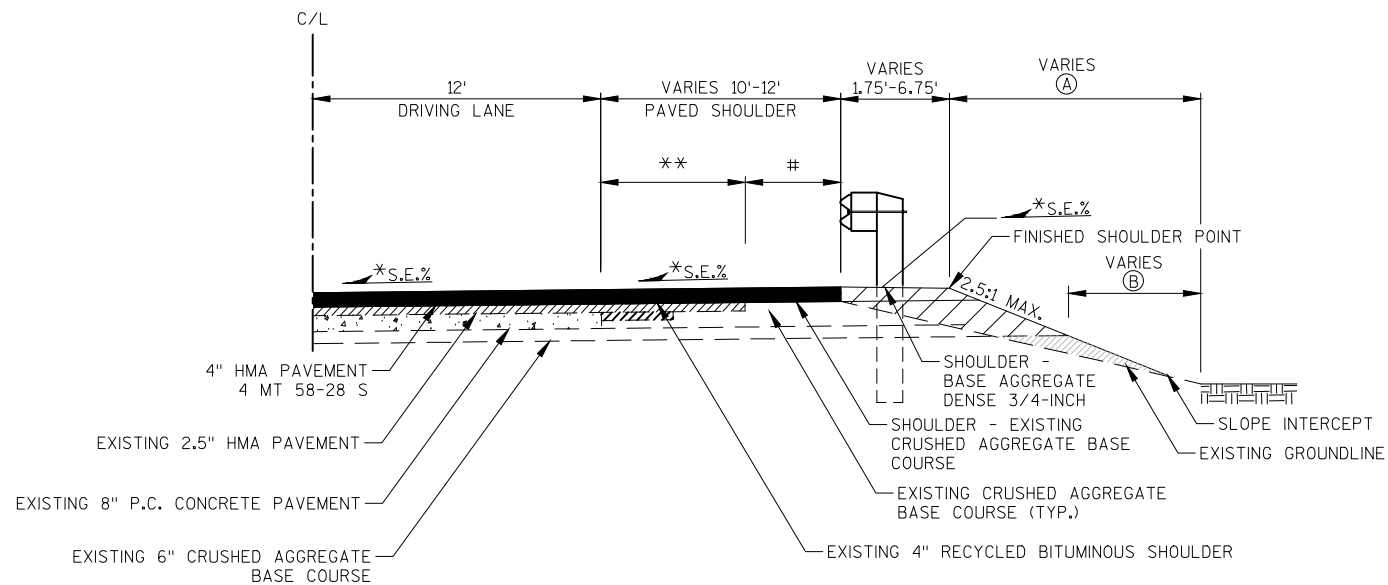
LIMITS OF
HMA PAVEMENT 4 MT 58-28 S

- ⑤ 23.75'-MGS GUARDRAIL 3K
25.75'-MGS GUARDRAIL 3
⑥ STA. 100+15, RT. - 27.75'
STA. 126+00, RT.

BEAMGUARD LAYOUT DETAIL

BEAMGUARD LAYOUT TABLE

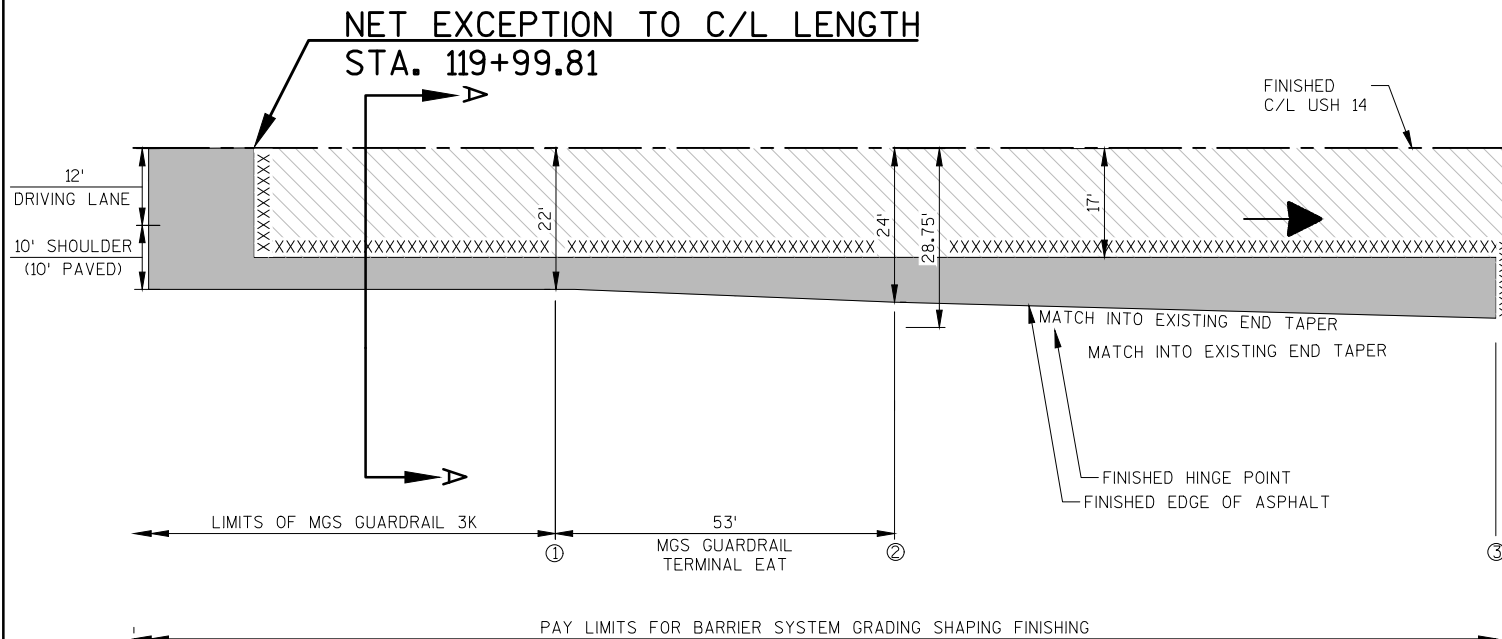
STATION-STATION	LOCATION	STATION			
		①	②	③	④
99+25 - 100+68	MAINLINE, RT.	99+29	99+25	100+15	100+68
198+17 - 200+01	MAINLINE, LT.	198+17	198+58	199+48	200+01
199+62 - 201+46	MAINLINE, RT.	199+62	200+03	200+93	201+46
209+76 - 211+60	MAINLINE, LT.	211+60	211+19	210+29	209+76
211+96 - 213+80	MAINLINE, RT.	213+80	213+39	212+49	211+96



- BASE AGGREGATE DENSE 3/4-INCH REQ'D.
BORROW MATERIAL (PAID FOR UNDER BARRIER SYSTEM GRADING SHAPING FINISHING)

SECTION A-A

- * SEE SUPERELEVATION TABLE
** EXISTING PAVED SHOULDER WIDTH VARIES
① LIMITS OF FERTILIZER TYPE B, SEEDING MIXTURE NO. 30, SEEDING TEMPORARY (AS DIRECTED BY THE ENGINEER). PAID FOR UNDER BARRIER SYSTEM GRADING SHAPING FINISHING BID ITEM. LIMITS OF EROSION MAT URBAN CLASS I TYPE B (AS DIRECTED BY THE ENGINEER).
② LIMITS OF SALVAGED TOPSOIL (AS DIRECTED BY THE ENGINEER). PAID FOR UNDER BARRIER SYSTEM GRADING SHAPING FINISHING BID ITEM.
PREPARE FOUNDATION FOR ASPHALTIC SHOULDER



EXISTING ASPHALTIC SURFACE TO REMAIN

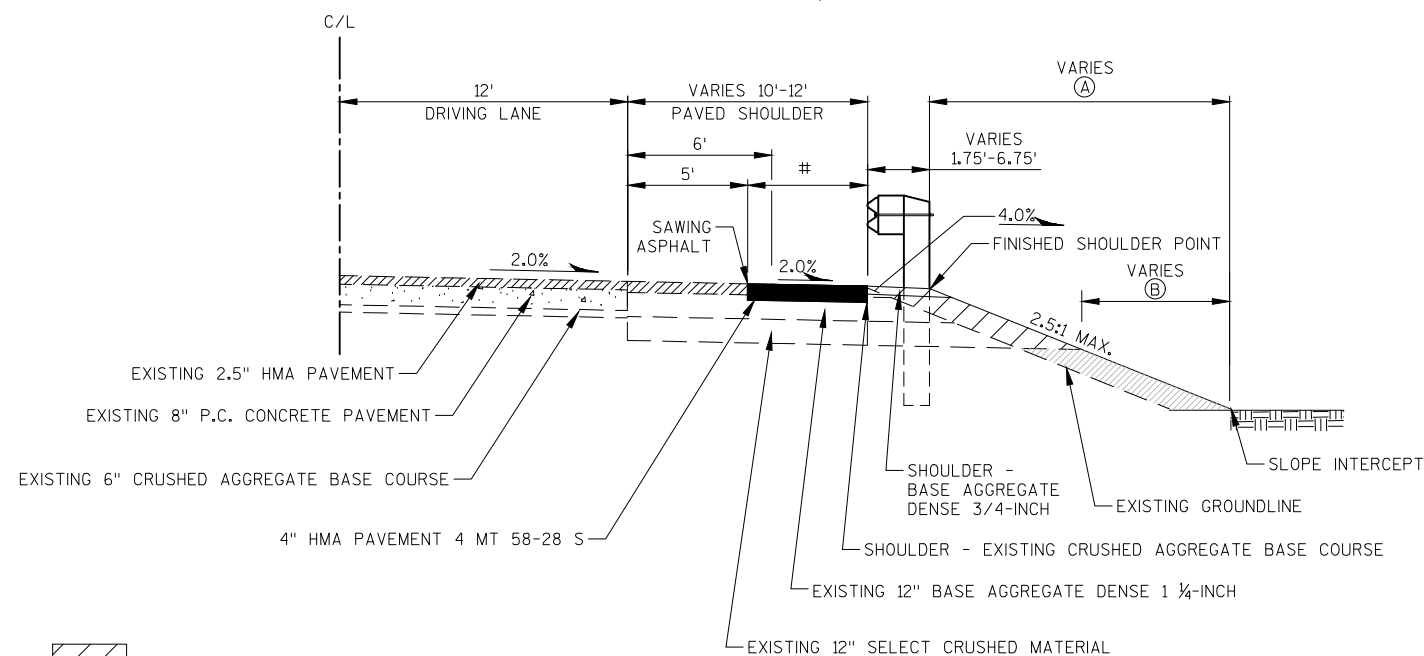
LIMITS OF
HMA PAVEMENT 4 MT 58-28 S

XXXXXX SAWING ASPHALT REQ'D.

BEAMGUARD LAYOUT DETAIL

BEAMGUARD LAYOUT TABLE

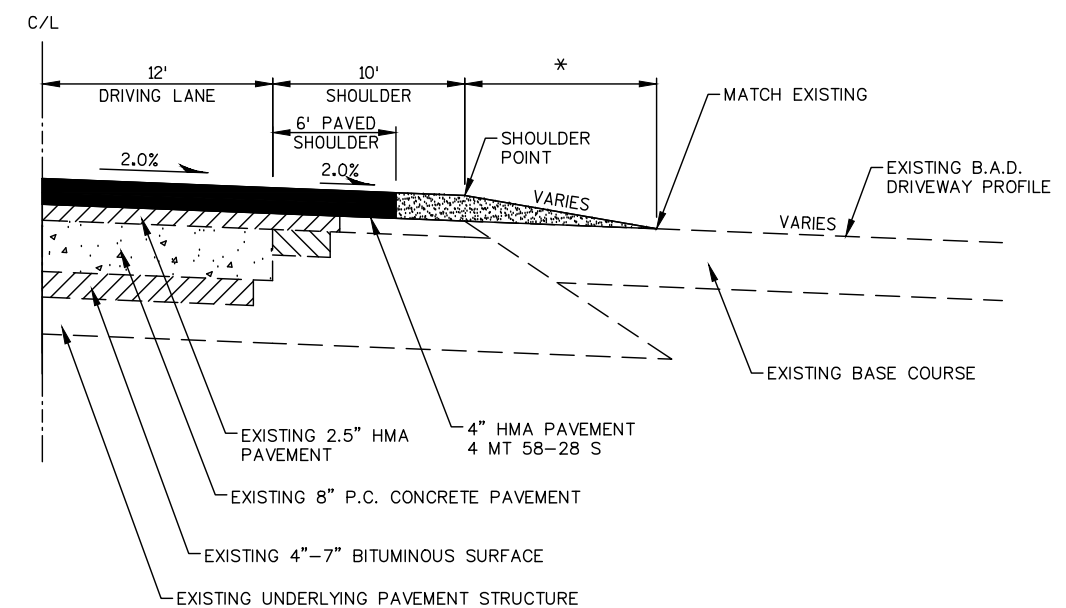
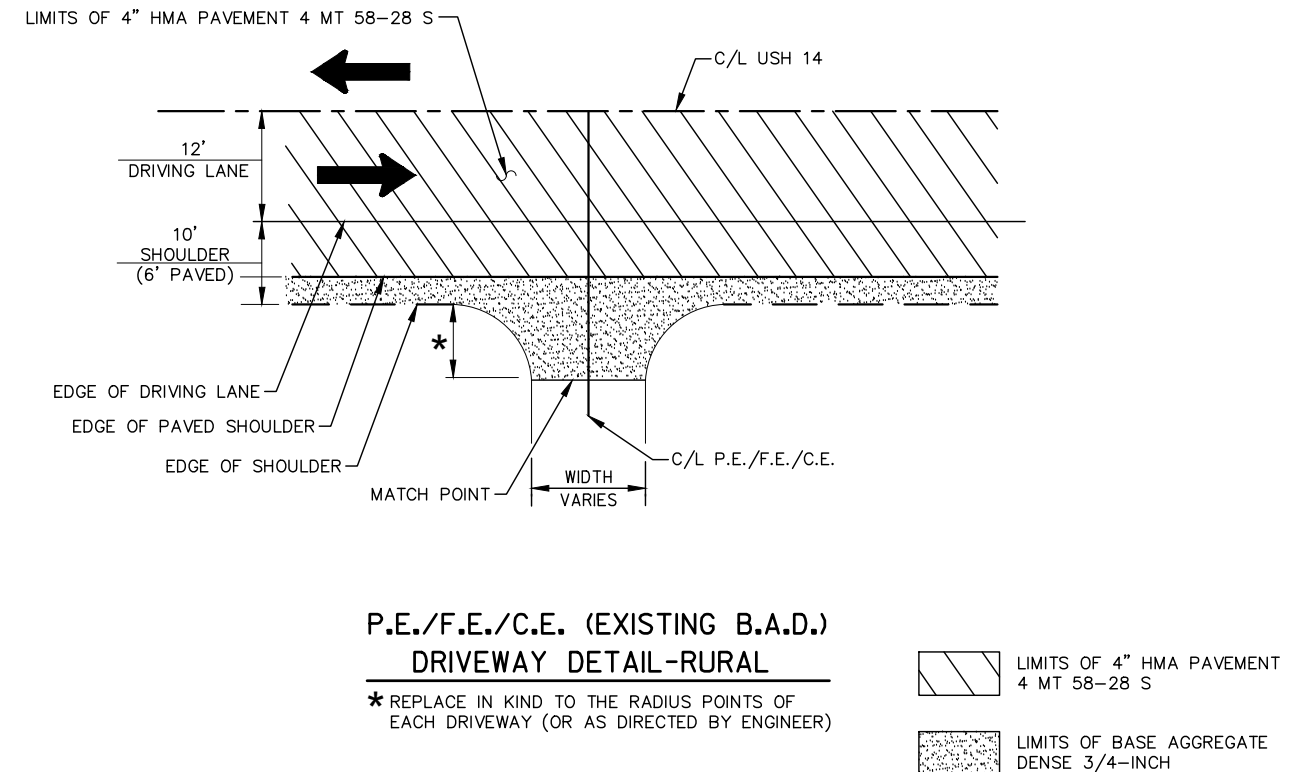
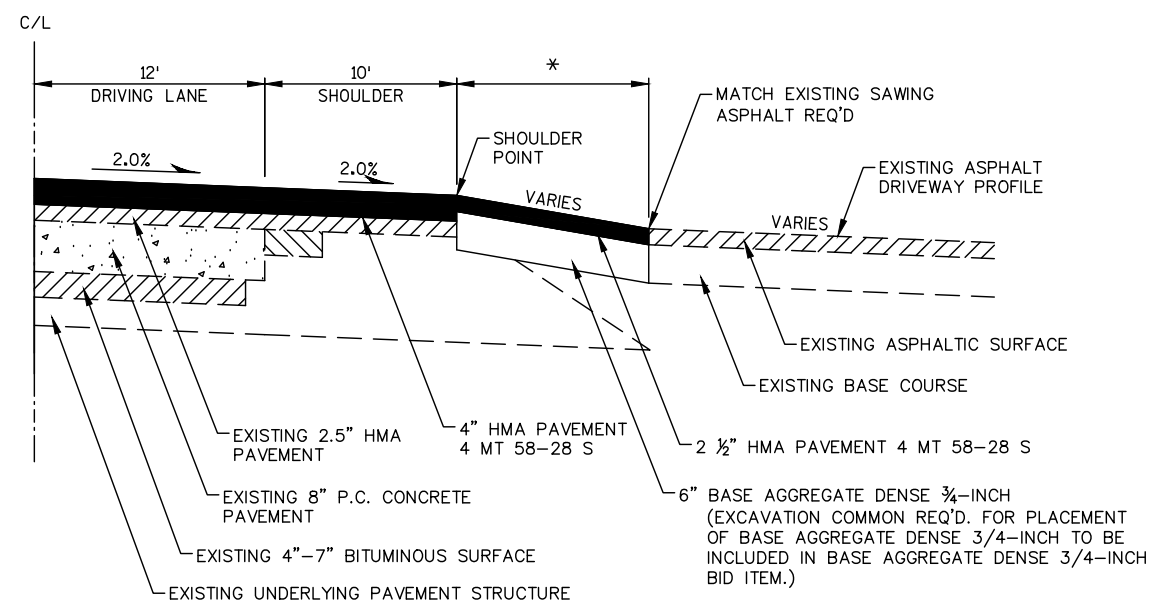
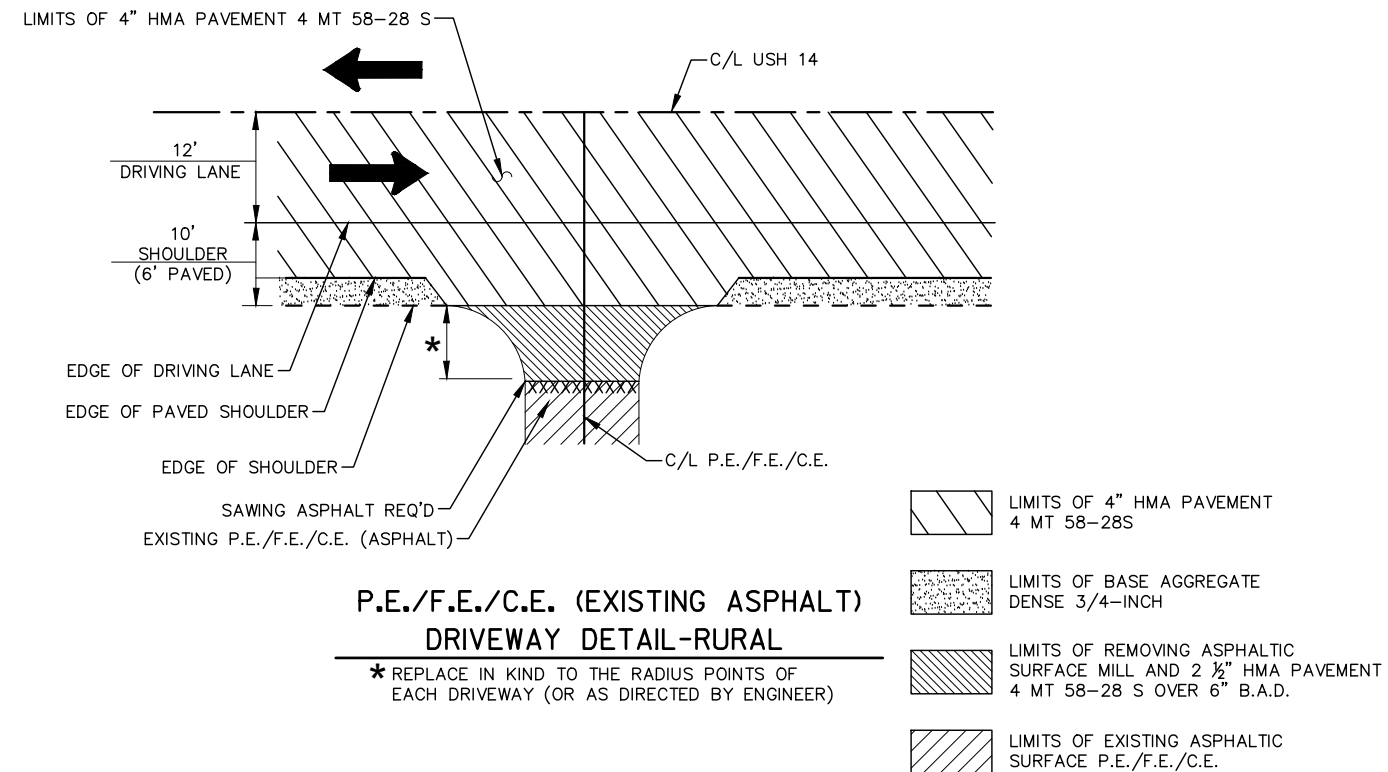
STATION-STATION	LOCATION	STATION		
		①	②	③
125+47 - 126+86	MAINLINE, RT.	125+47	126+00	126+86

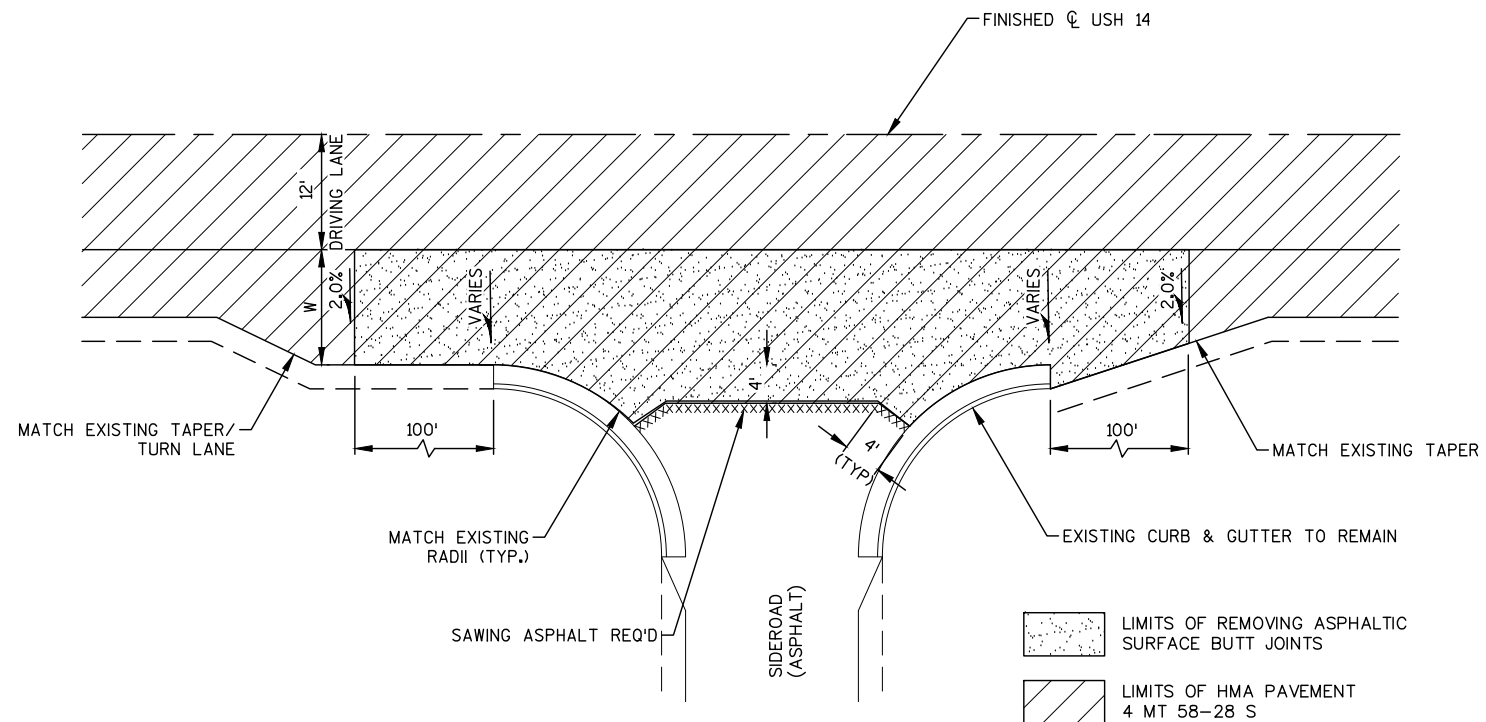


- BASE AGGREGATE DENSE 3/4-INCH REQ'D.
BORROW MATERIAL (PAID FOR UNDER BARRIER SYSTEM GRADING SHAPING FINISHING)

SECTION A-A

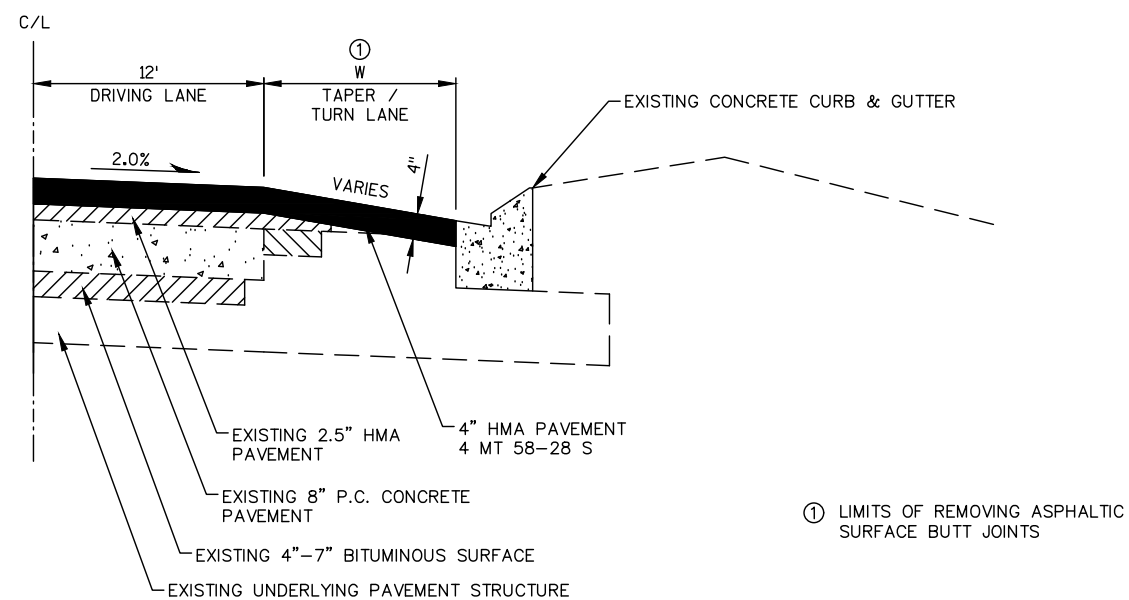
- ① LIMITS OF FERTILIZER TYPE B, SEEDING MIXTURE NO. 30, SEEDING TEMPORARY (AS DIRECTED BY THE ENGINEER). PAID FOR UNDER BARRIER SYSTEM GRADING SHAPING FINISHING BID ITEM. LIMITS OF EROSION MAT URBAN CLASS I TYPE B (AS DIRECTED BY THE ENGINEER).
② LIMITS OF SALVAGED TOPSOIL (AS DIRECTED BY THE ENGINEER). PAID FOR UNDER BARRIER SYSTEM GRADING SHAPING FINISHING BID ITEM.
PREPARE FOUNDATION FOR ASPHALTIC SHOULDER. REMOVING ASPHALTIC SURFACE QUANTITIES FROM STA. 119+99.81 - STA. 126+94 ARE INCLUDED IN THE EXCAVATION COMMON AND ARE PAID FOR UNDER THE BARRIER SYSTEM GRADING SHAPING AND FINISHING BID ITEM.





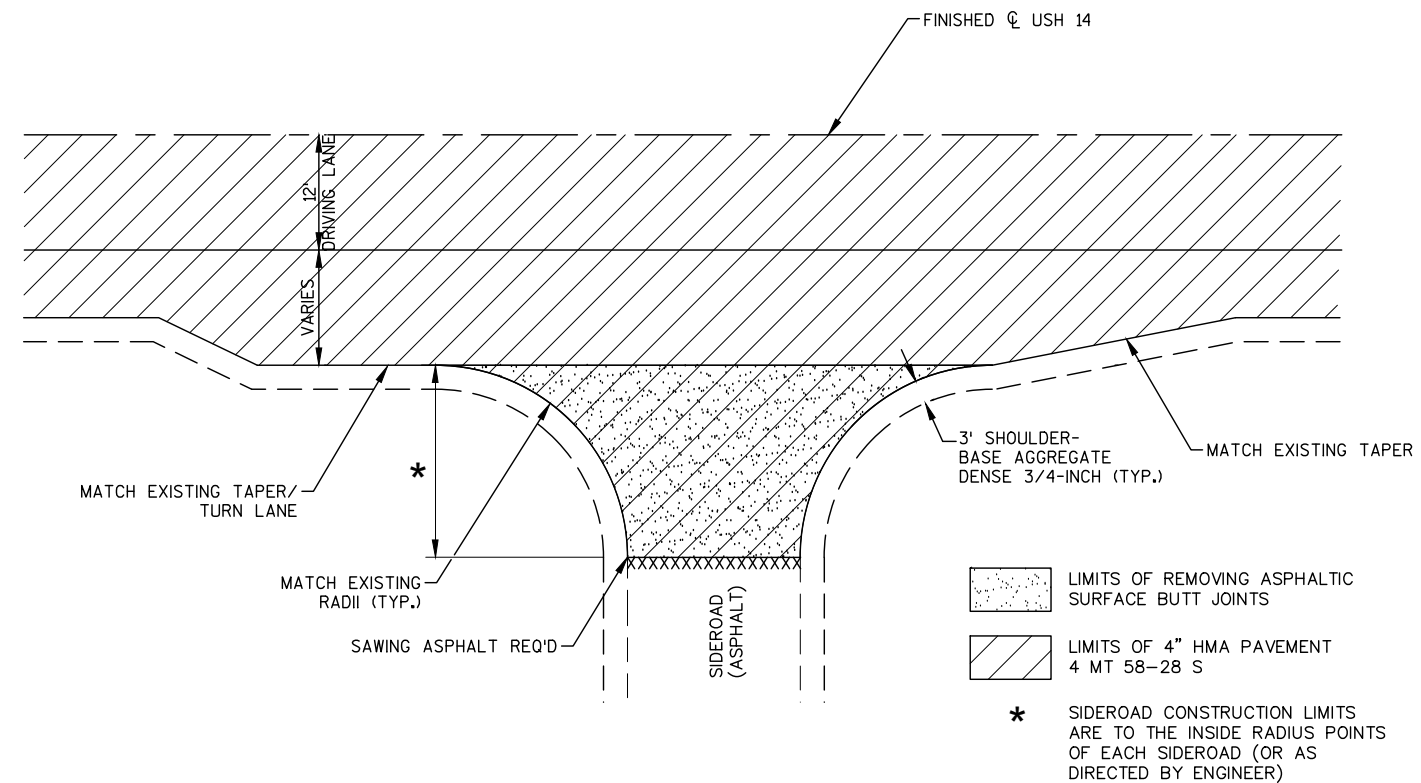
TYPICAL SIDEROAD DETAIL WITH CURB & GUTTER

CLEVELAND ROAD
CAPITOL COURT
PINEHURST DRIVE



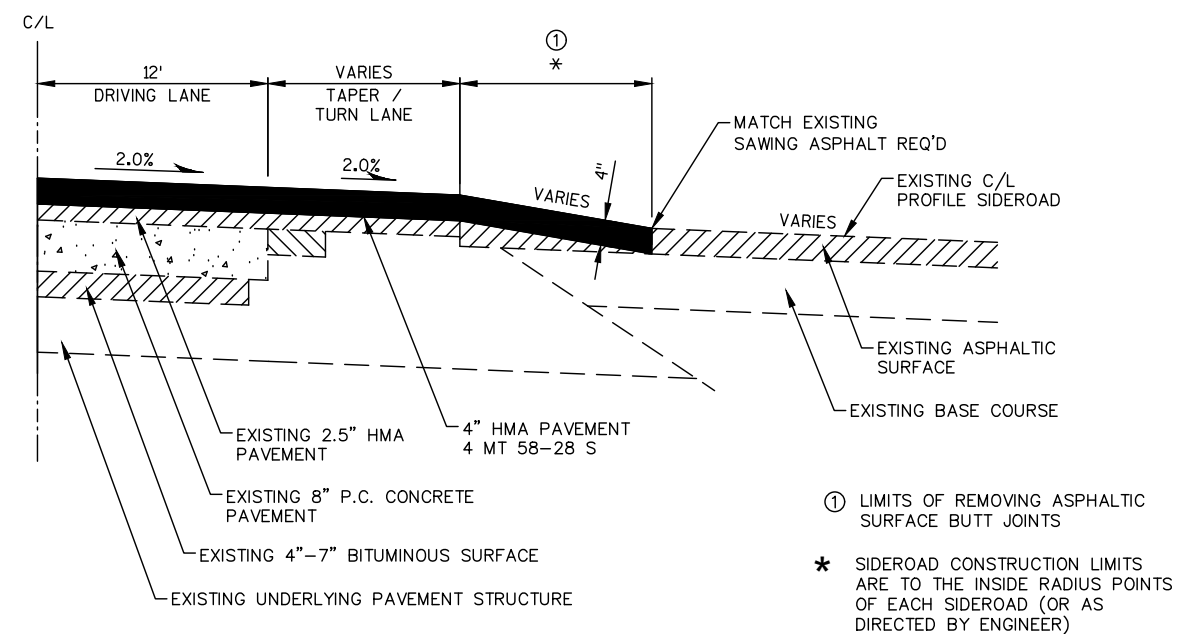
TYPICAL SIDEROAD PROFILE WITH CURB & GUTTER

	W (FT)
CLEVELAND ROAD	VARIES 9'-10'
CAPITOL COURT	10'
PINEHURST DRIVE	VARIES 11'-12'

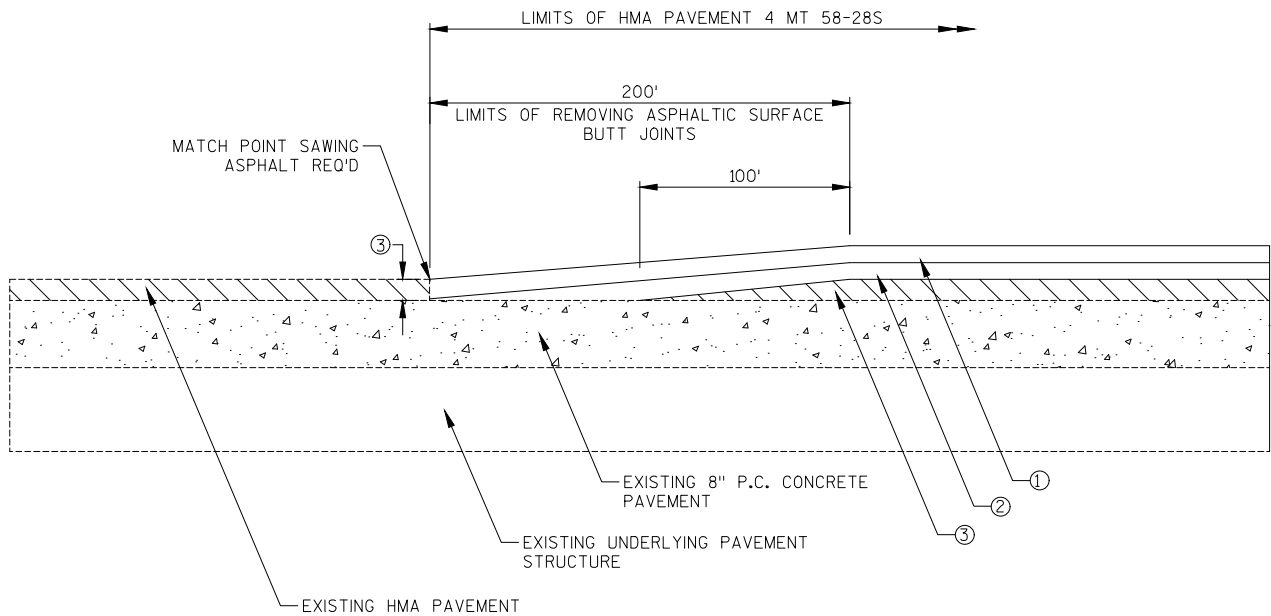


TYPICAL SIDEROAD DETAIL WITHOUT CURB & GUTTER

ROCKY DELL ROAD
TWIN VALLEY ROAD
WILLOW LANE
WAYSIDE LANE (WEST)
WAYSIDE LANE (EAST)
SCHWARTZ ROAD



TYPICAL SIDEROAD PROFILE WITHOUT CURB & GUTTER



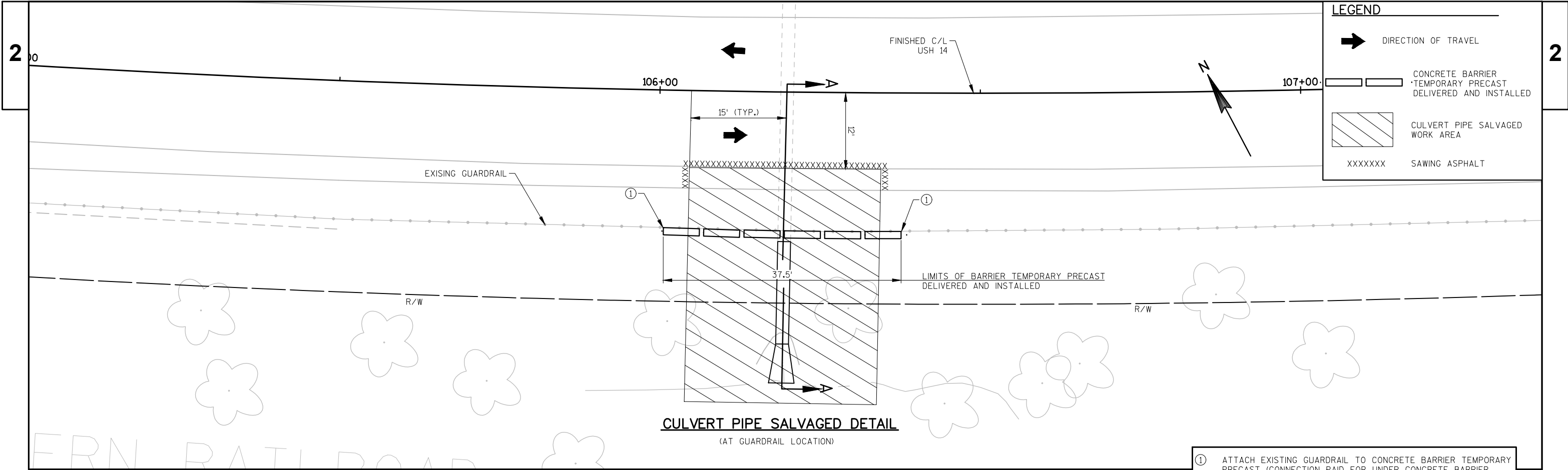
REMOVING ASPHALTIC SURFACE BUTT JOINTS – USH 14

	HMA PAVEMENT 4 MT 58-28 S THICKNESS (IN)		EXISTING HMA PAVEMENT THICKNESS (IN)
	①	②	③
STA. 68+30.60 - STA. 70+30.60	1.75	2.25	2.5
STA. 117+99.81 - STA. 119+99.81	1.75	2.25	1.75
STA. 145+53.82 - STA. 147+53.82	1.75	2.25	1.75
STA. 354+76.17 - STA. 356+76.17	1.75	2.25	2.5
STA. 358'A'+47.86 - STA. 360'A'+47.86	1.75	2.25	2.5

NOTE: REQ'D AT BEGIN/END PAVING LOCATIONS.

▲ CONTROL POINTS

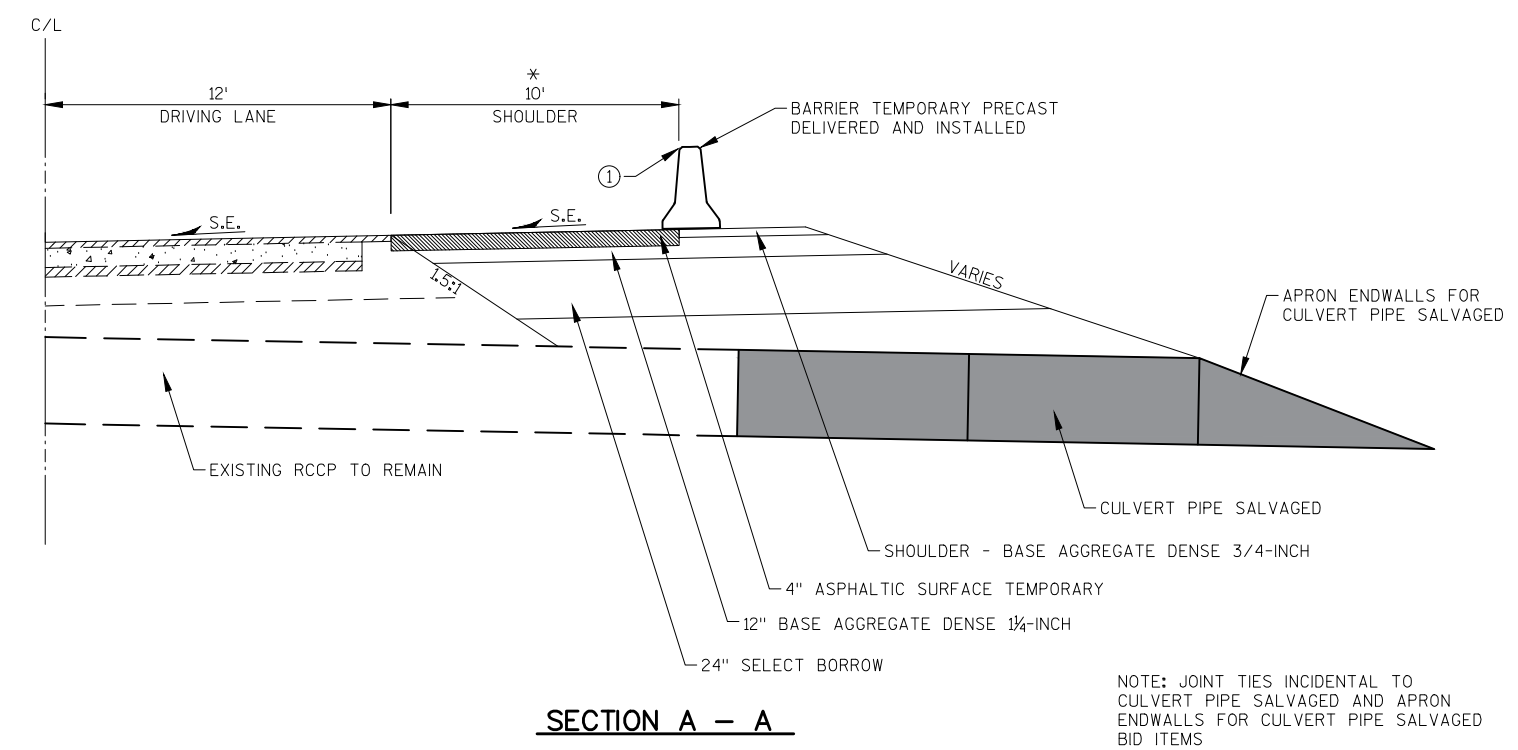
No.	STATION	DESCRIPTION	Y	X
1	68+86	¾" REBAR SET, 29.9' RT.	494,713.16	753,379.28
2	125+70	¾" REBAR SET, 28.7' RT.	491,258.09	757,582.55
3	172+71	¾" REBAR SET, 55.0' RT.	489,858.43	762,071.17
4	212+81	¾" REBAR SET, 27.3' RT.	488,767.99	765,932.33
5	281+69	¾" REBAR SET, 36.9' RT.	490,312.01	772,575.15
6	336+98	¾" REBAR SET, 29.5' RT.	490,589.30	778,097.62
7	360+42	¾" REBAR SET, 80.5' LT.	490,813.45	780,432.33

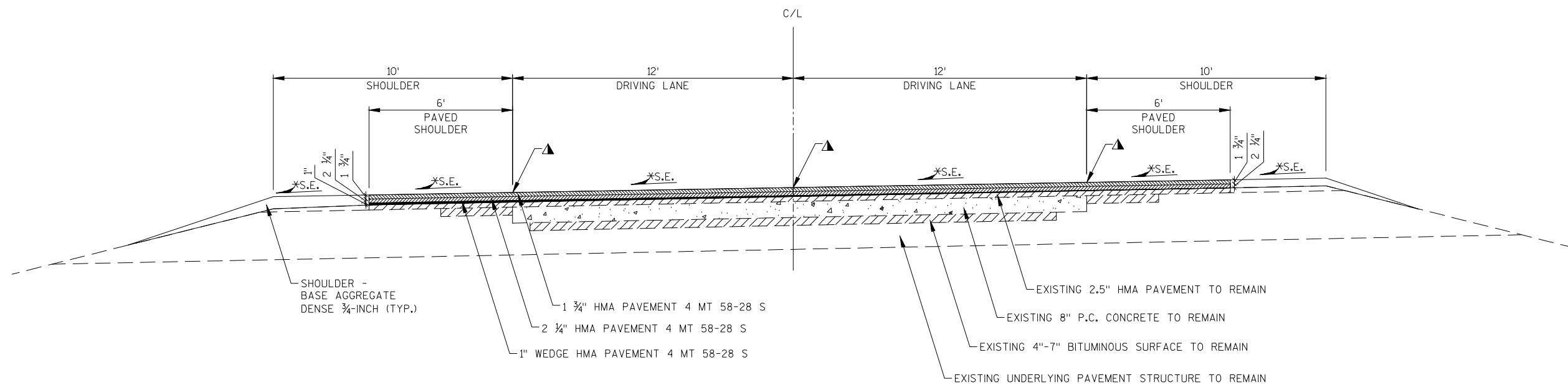


① ATTACH EXISTING GUARDRAIL TO CONCRETE BARRIER TEMPORARY PRECAST (CONNECTION PAID FOR UNDER CONCRETE BARRIER TEMPORARY PRECAST INSTALLED BID ITEM).

* LIMITS OF ASPHALTIC SURFACE TEMPORARY

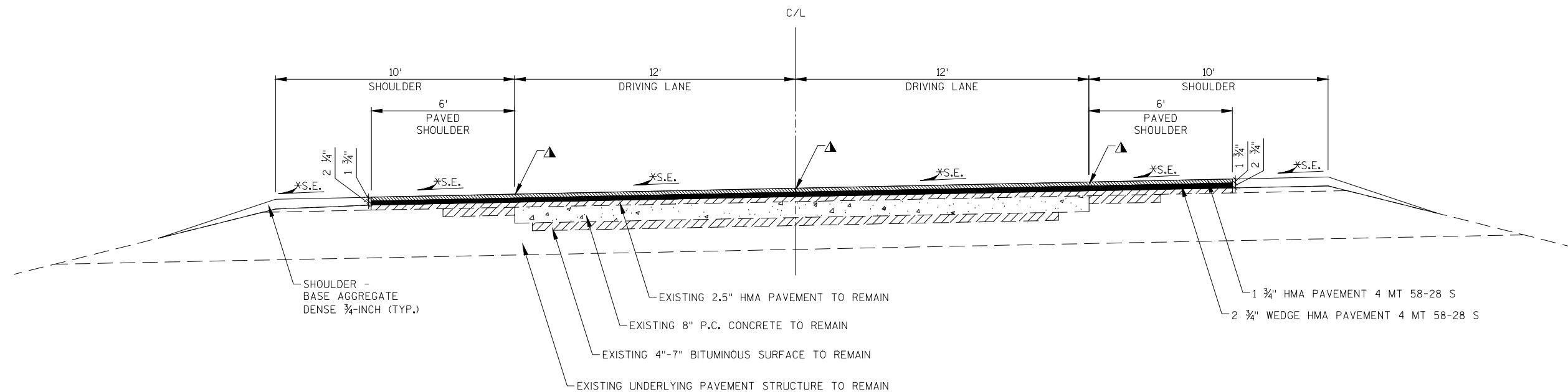
NOTE: OTHER CULVERT PIPE SALVAGED LOCATIONS LOCATED AT STA. 86+58, LT. & RT. AND STA. 106+20, LT. NOT SHOWN SIMILAR.



**SUPERELEVATION CORRECTION DETAIL**

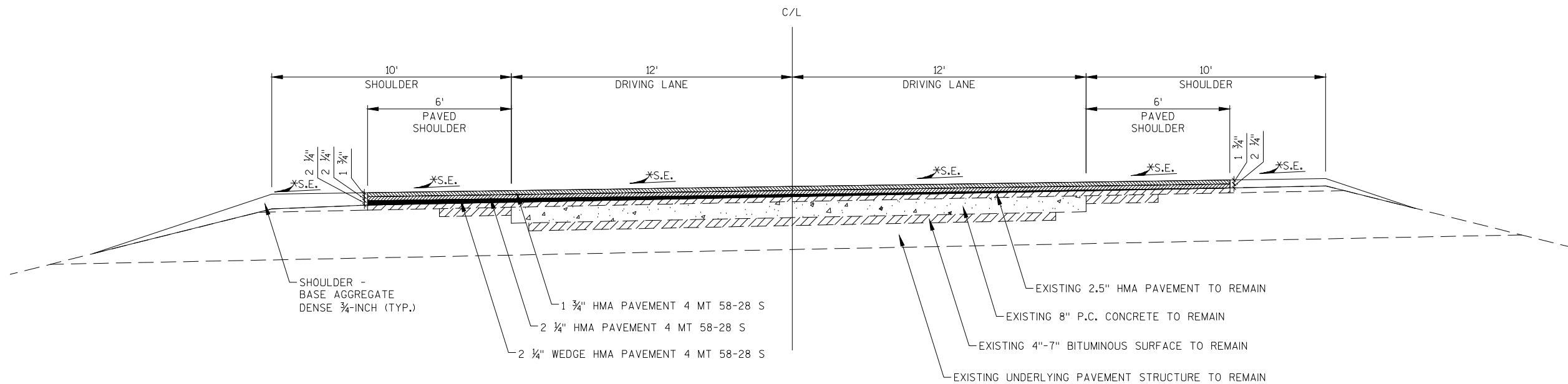
CURVE NO.	STATION-STATION	EXISTING SUPERELEVATION (%)	*PROPOSED SUPERELEVATION (%)	DIFFERENCE (%)
1	79+45 - 88+18	8.0	7.8	0.2

▲ ASPHALTIC SHOULDER RUMBLE STRIPS 2-LANE RURAL AND ASPHALTIC CENTERLINE RUMBLE STRIPS 2-LANE RURAL REQUIRED. SEE MISCELLANEOUS QUANTITIES AND STANDARD DETAIL DRAWINGS FOR DETAILS.

**SUPERELEVATION CORRECTION DETAIL**

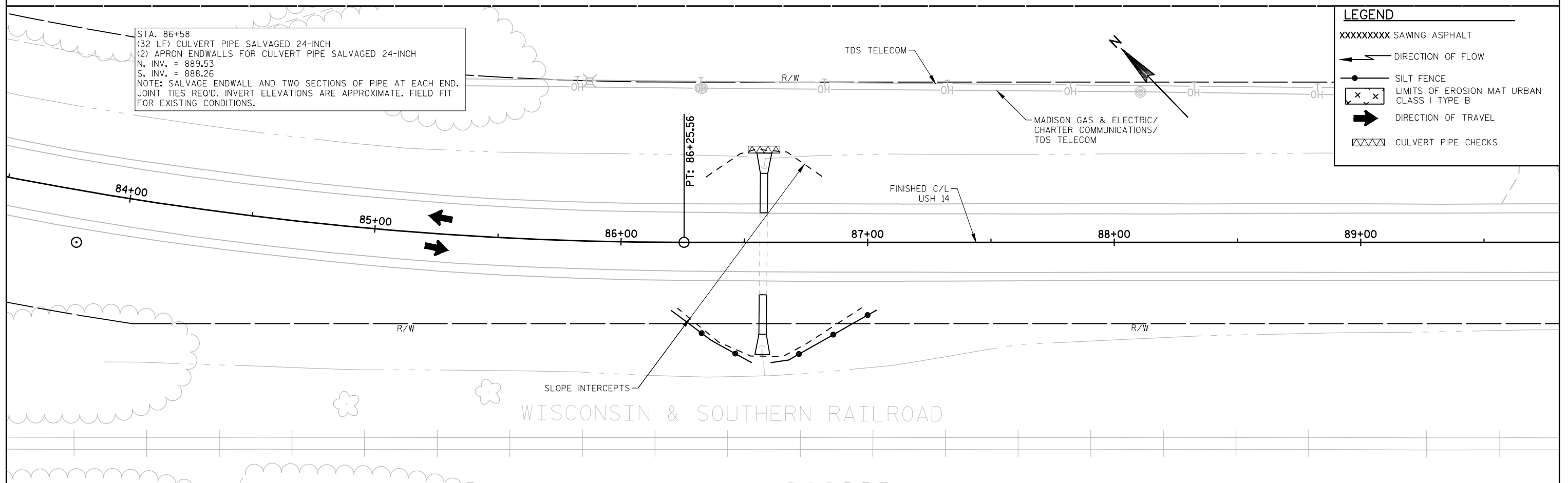
CURVE NO.	STATION-STATION	EXISTING SUPERELEVATION (%)	*PROPOSED SUPERELEVATION (%)	DIFFERENCE (%)
2	97+75 - 112+85	5.6	5.7	0.1

▲ ASPHALTIC SHOULDER RUMBLE STRIPS 2-LANE RURAL AND ASPHALTIC CENTERLINE RUMBLE STRIPS 2-LANE RURAL REQUIRED. SEE MISCELLANEOUS QUANTITIES AND STANDARD DETAIL DRAWINGS FOR DETAILS.

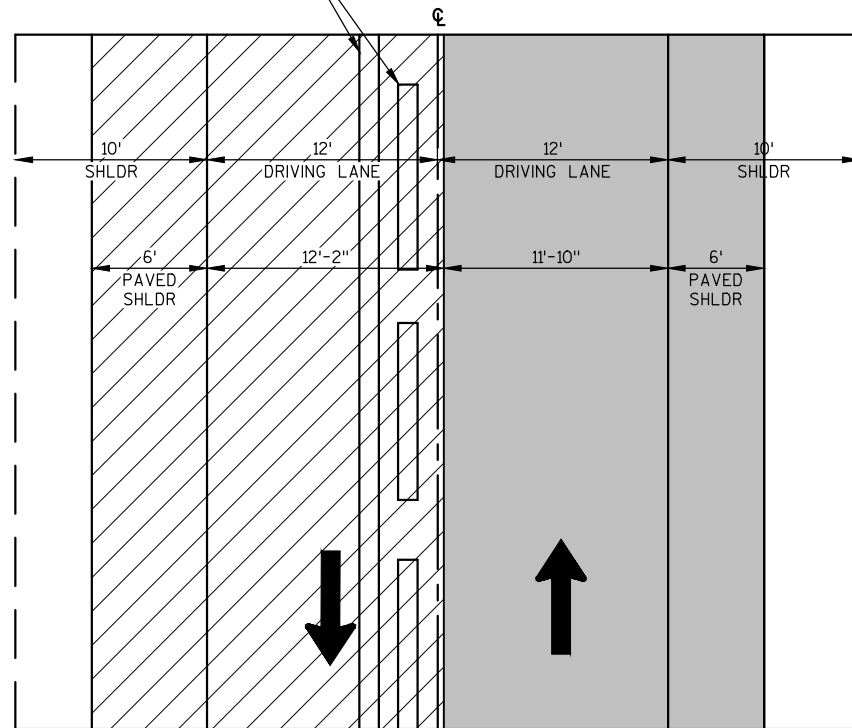


SUPERELEVATION CORRECTION DETAIL

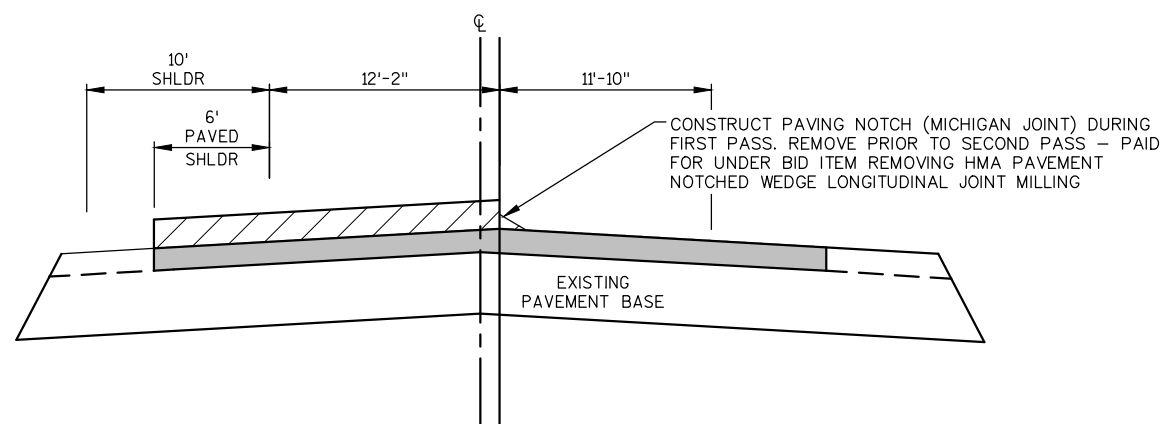
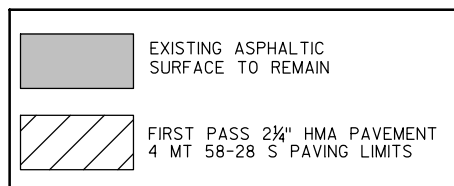
CURVE NO.	STATION-STATION	EXISTING SUPERELEVATION (%)	*PROPOSED SUPERELEVATION (%)	DIFFERENCE (%)
4	209+88 - 221+62	8.5	8.0	0.5



TEMPORARY MARKING LINE PAINT 4-INCH TO BE PLACED ON LOWER LAYER PAVEMENT SAME DAY AS PAVING OPERATION (ALL TEMPORARY MARKING LINE PAINT IS TO MATCH EXISTING CENTERLINE CONDITIONS)



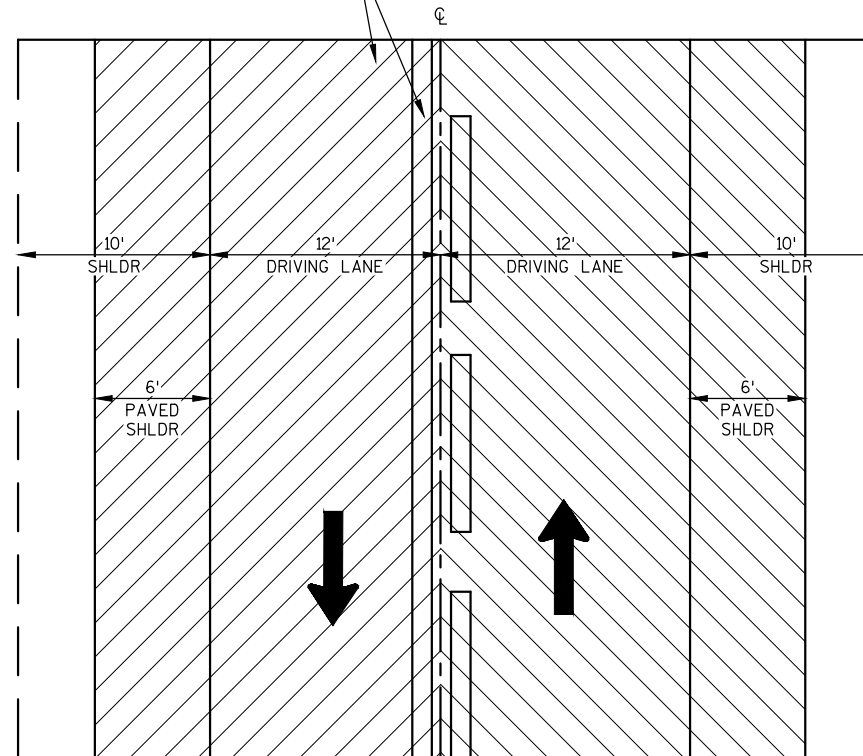
PLAN VIEW



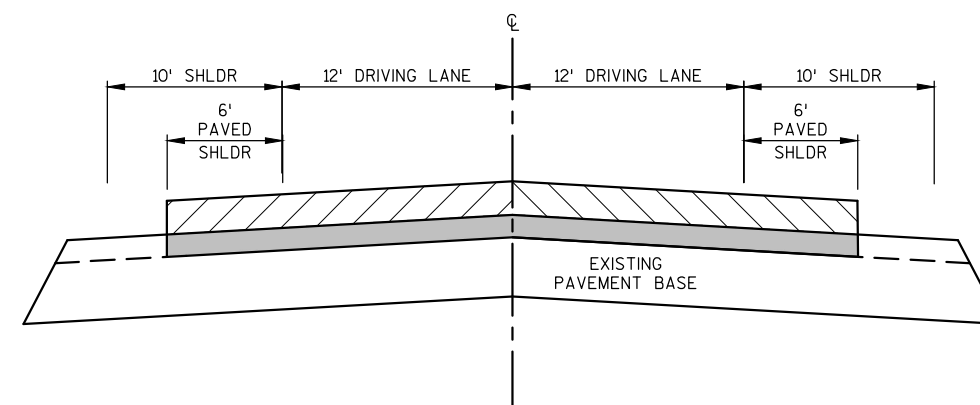
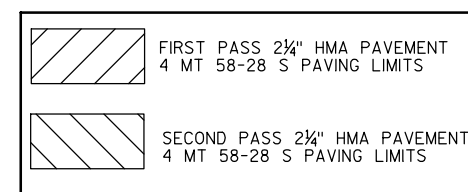
CROSS SECTION VIEW

FIRST PASS DETAIL

TEMPORARY MARKING LINE PAINT 4-INCH PLACED AFTER FIRST PASS TO REMAIN FOR SECOND PASS.



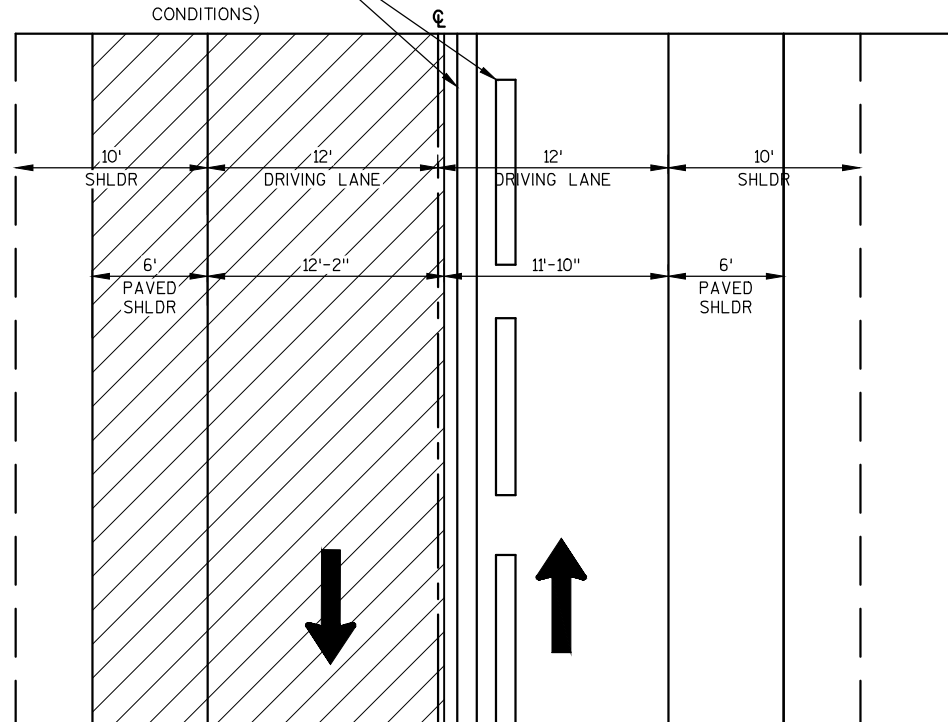
PLAN VIEW



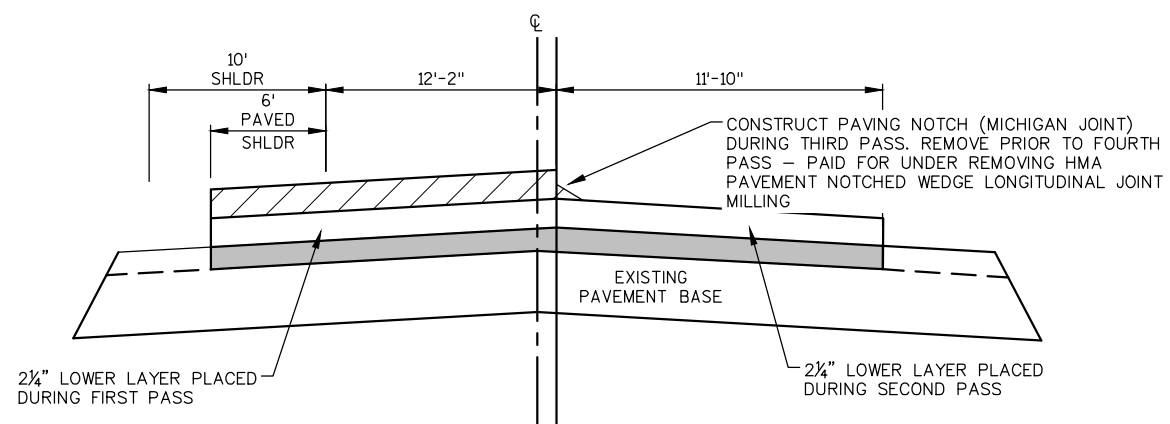
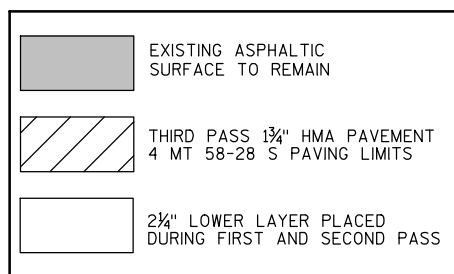
CROSS SECTION VIEW

SECOND PASS DETAIL

TEMPORARY MARKING LINE PAINT 4-INCH TO BE PLACED ON PAVING NOTCH OF UPPER LAYER PAVEMENT SAME DAY AS PAVING OPERATION (ALL TEMPORARY MARKING LINE PAINT IS TO MATCH EXISTING CENTERLINE CONDITIONS)



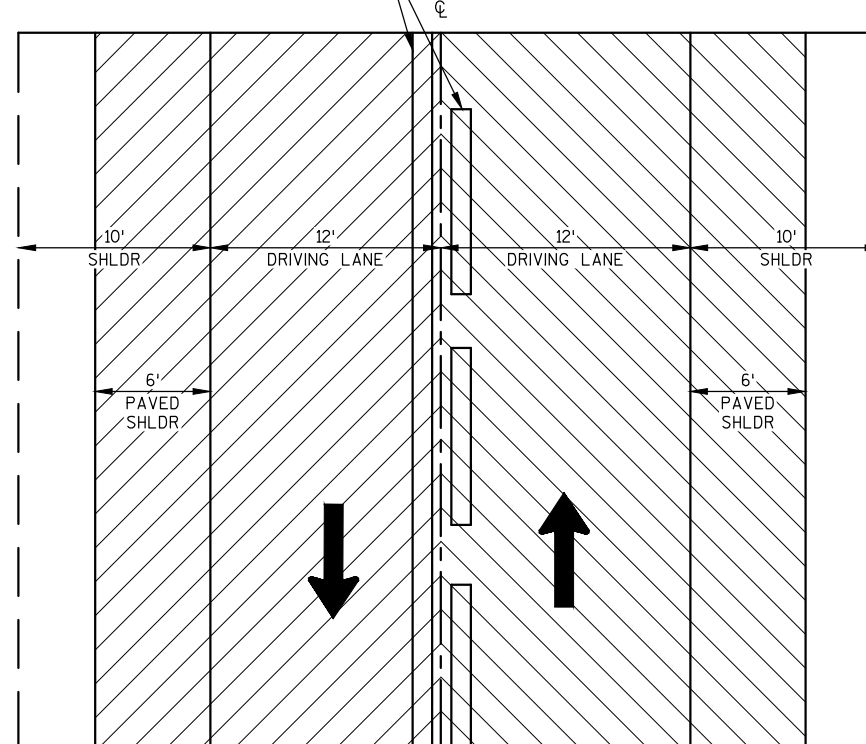
PLAN VIEW



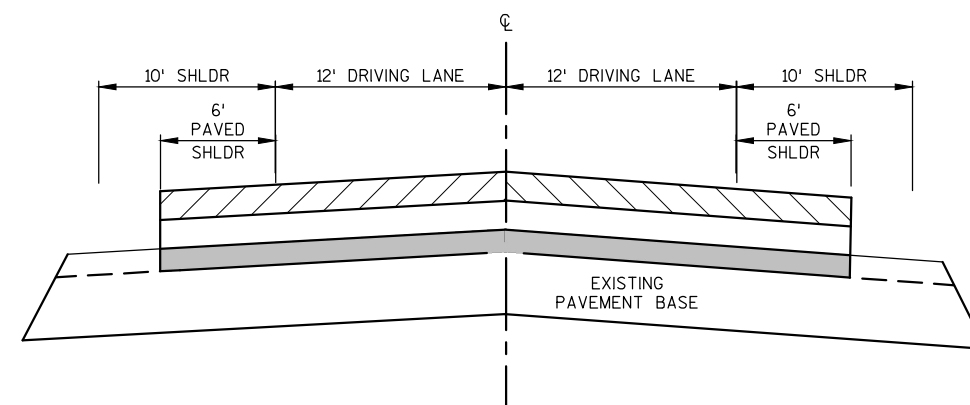
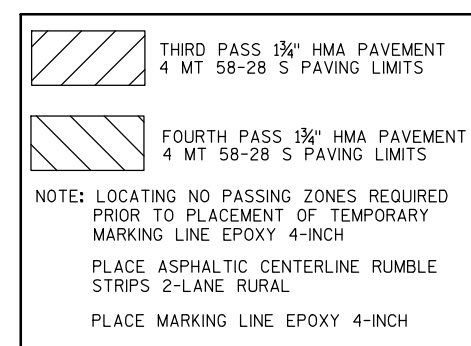
CROSS SECTION VIEW

THIRD PASS DETAIL

TEMPORARY MARKING LINE EPOXY 4-INCH TO BE PLACED SAME DAY AS PAVING OPERATION.

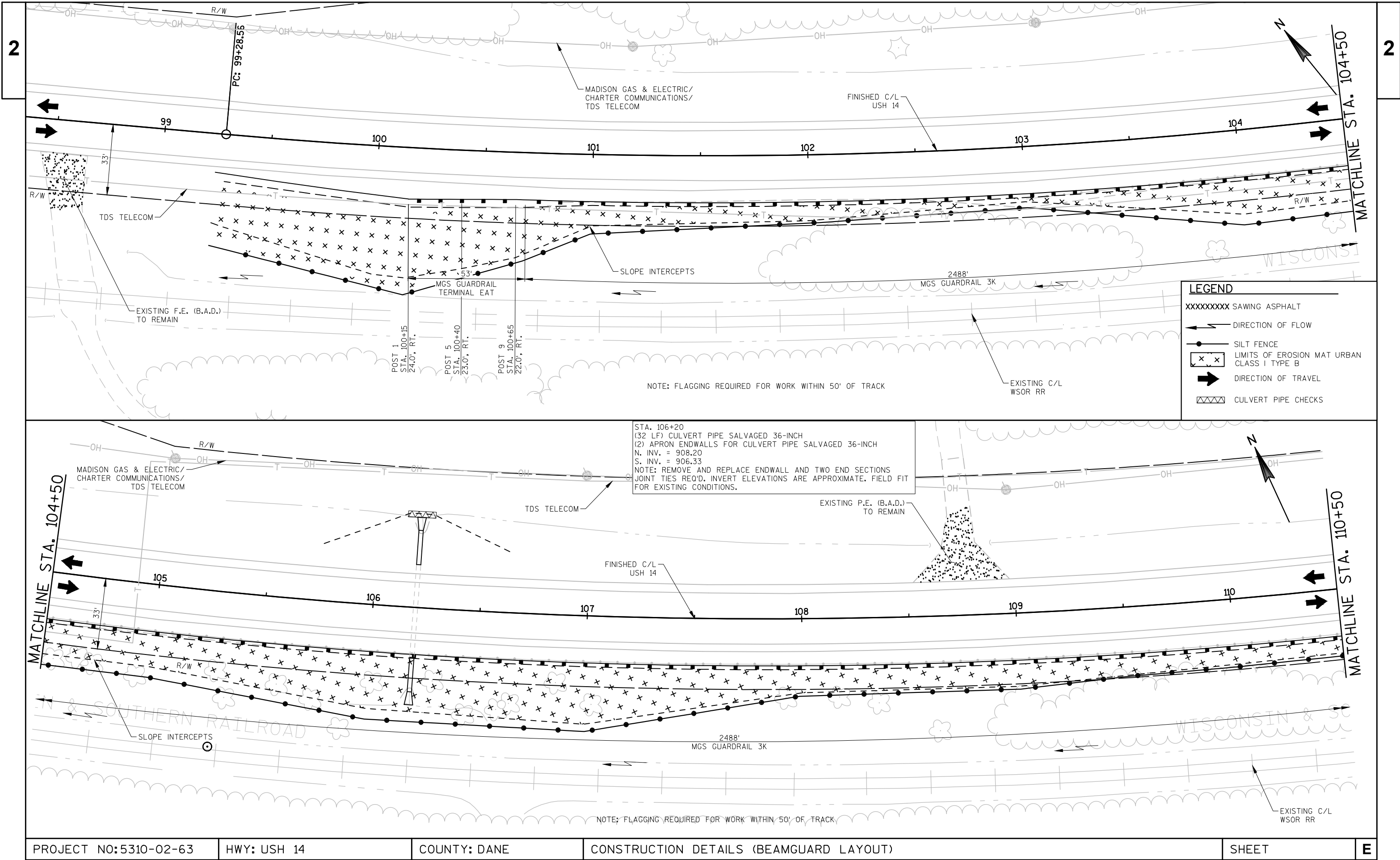


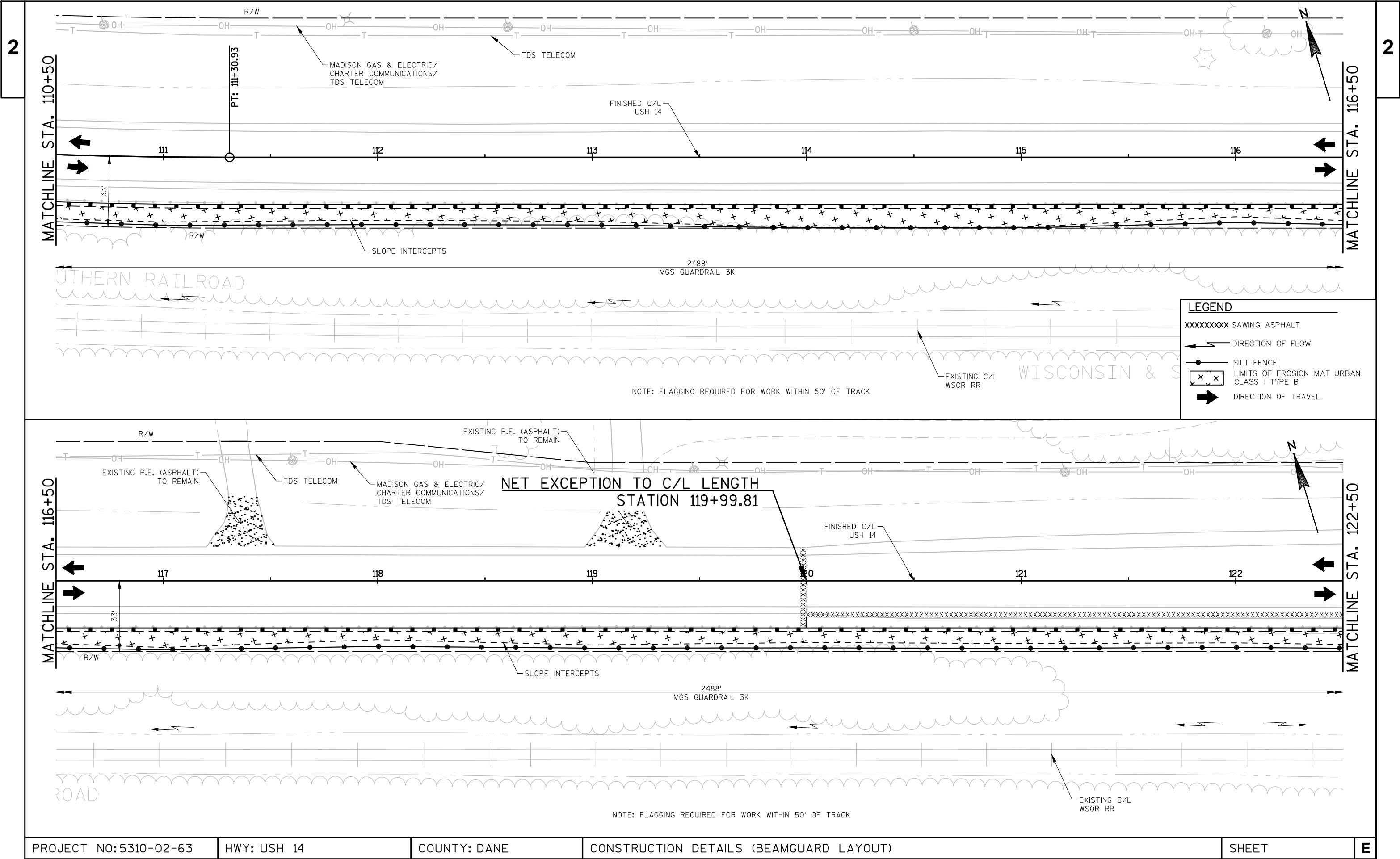
PLAN VIEW

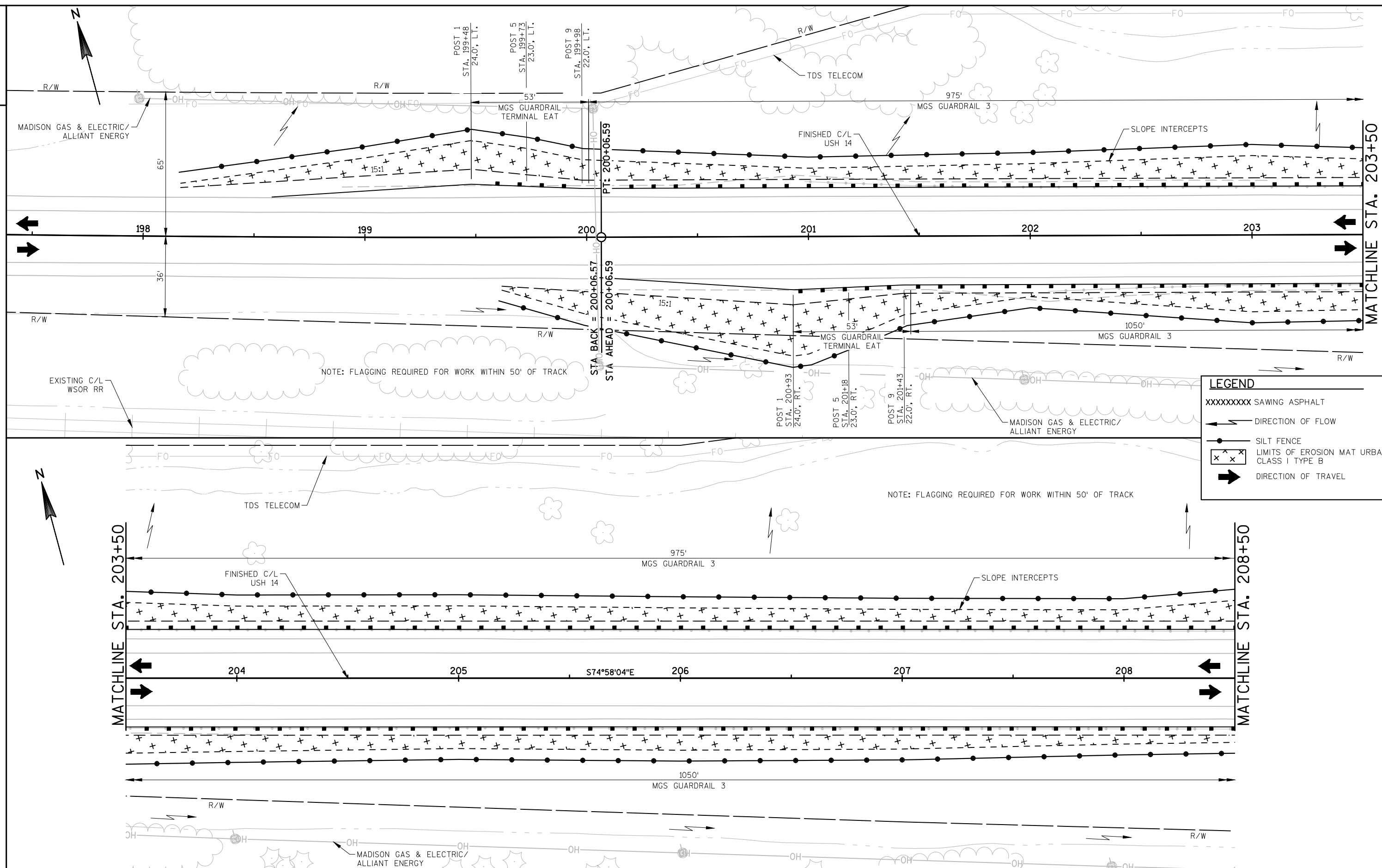


CROSS SECTION VIEW

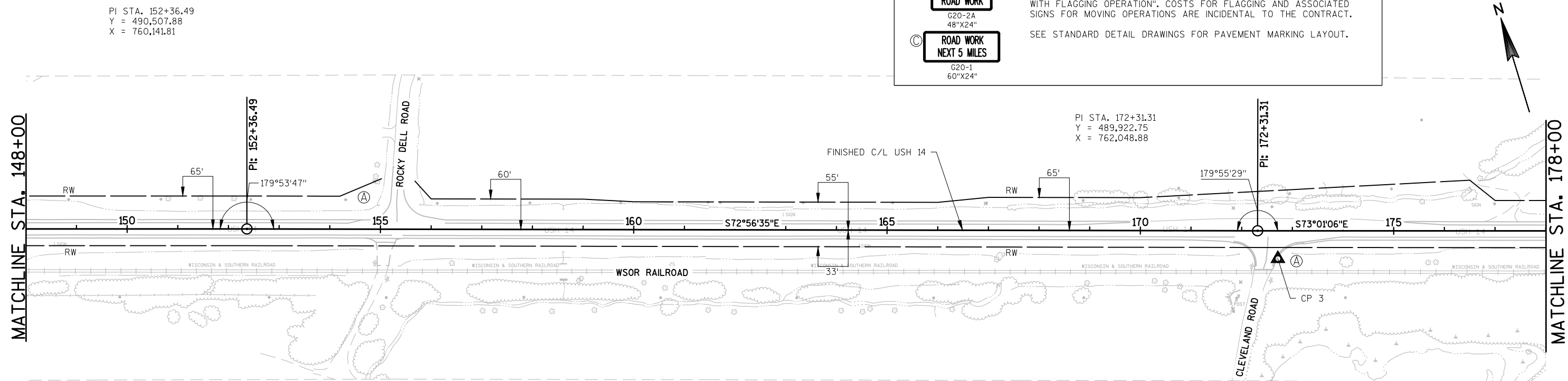
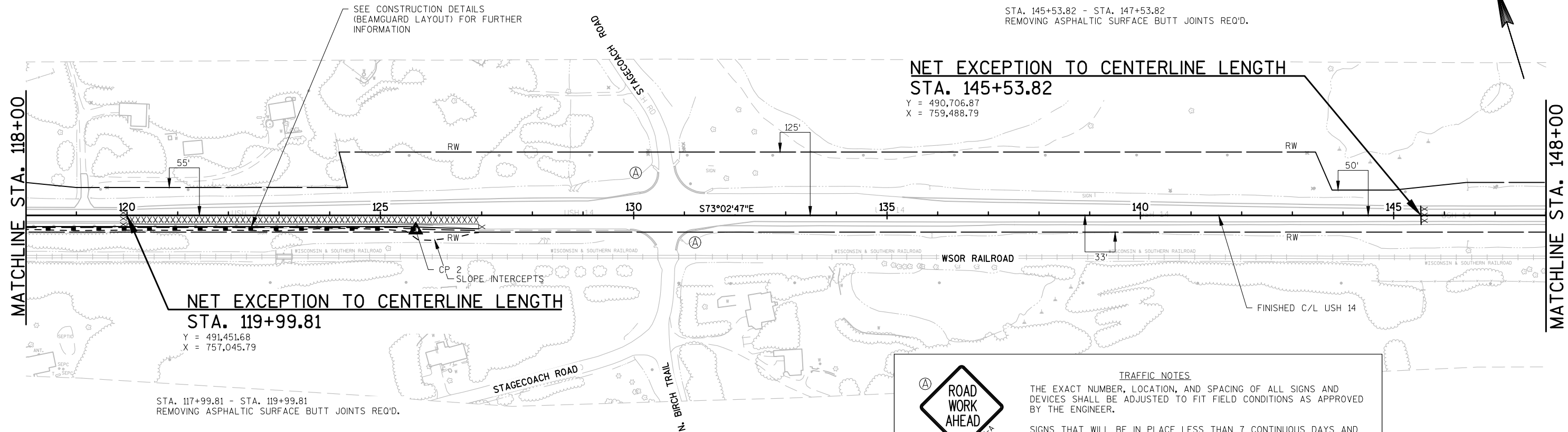
FOURTH PASS DETAIL











MATCHLINE STA. 237+00

ENVIRONMENTALLY SENSITIVE AREA 47DA688
(TWINN VALLEY) APPROXIMATE BOUNDARY.

FINISHED C/L USH 14

PC: 253+07.13

CURVE 5

PI STA. = 260+07.11
Y = 490,242.75
X = 770,403.11
R = 4583.66
D = 1°15'00"
DELTA = 17°21'55"
L = 1389.22
T = 699.98
C = 1383.91
PC STA. = 253+07.13
Y = 490,001.47
X = 769,746.03
PT STA. = 266+96.35
Y = 490,276.92
X = 771,102.25
S.E.=3.60%
R.O.=96'
TRANS=150'



TRAFFIC NOTES

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

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

FOR MOVING OPERATION STA. 89+76.82 TO STA. 307+00 SEE STANDARD DETAIL DRAWING "TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATION". COSTS FOR FLAGGING AND ASSOCIATED SIGNS FOR MOVING OPERATIONS ARE INCIDENTAL TO THE CONTRACT.

SEE STANDARD DETAIL DRAWINGS FOR PAVEMENT MARKING LAYOUT.

MATCHLINE STA. 266+00

MATCHLINE STA. 295+00

MATCHLINE STA. 295+00

MATCHLINE STA. 325+00



TRAFFIC NOTES

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

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

FOR MOVING OPERATION STA. 89+76.82 TO STA. 307+00 SEE STANDARD DETAIL DRAWING "TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATION". COSTS FOR FLAGGING AND ASSOCIATED SIGNS FOR MOVING OPERATIONS ARE INCIDENTAL TO THE CONTRACT.

SEE STANDARD DETAIL DRAWINGS FOR PAVEMENT MARKING LAYOUT.



MATCHLINE STA. 325+00

MATCHLINE STA. 355+00

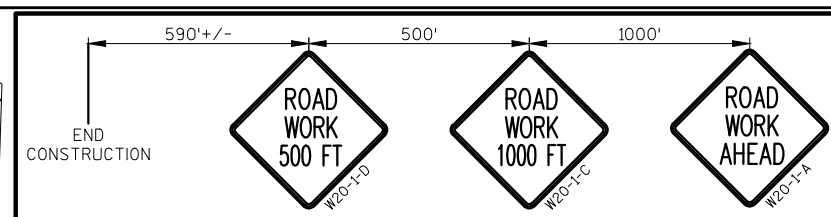
CURVE 6
PI STA. = 352'A'+20
Y = 490,692.99
X = 779,615.74
R = 5729.58
D = 1°00'00"
DELTA = 4°00'00"
L = 400.00
T = 200.08
C = 399.92
PC STA. = 350'A'+19.92
Y = 490,683.22
X = 779,415.90
PT STA. = 354'A'+19.92
Y = 490,716.67
X = 779,814.41
S.E.=N.C.

CURVE 7
PI STA. = 361'A'+37.31
Y = 490,801.59
X = 780,526.76
R = 7639.44
D = 0°45'00"
DELTA = 4°00'00"
L = 533.33
T = 266.78
C = 533.23
PC STA. = 358'A'+70.53
Y = 490,770.01
X = 780,261.86
PT STA. = 364'A'+03.87
Y = 490,814.61
X = 780,793.22
S.E.=N.C.

STA. 354+76.17 - STA. 356+76.17
REMOVING ASPHALTIC SURFACE
BUTT JOINTS

ROAD
WORK
BEGINS

DAY: XXX
DATE: XXX XX



BEGIN CONSTRUCTION
STA. 350'A'+19.92
Y = 490,683.22
X = 779,415.90
STA. 350+19.92 =
STA. 350'A'+19.92

END CONSTRUCTION
STA. 360'A'+47.84
Y = 490,788.95
X = 780,438.15

END PROJECT
STA. 356+76.17
Y = 490,715.25
X = 780,071.36

Estimate Of Quantities

5310-02-63

Line	Item	Item Description	Unit	Total	Qty
0002	201.0105	Clearing	STA	9.000	9.000
0004	201.0205	Grubbing	STA	9.000	9.000
0006	204.0115	Removing Asphaltic Surface Butt Joints	SY	6,350.000	6,350.000
0008	204.0120	Removing Asphaltic Surface Milling	SY	1,370.000	1,370.000
0010	204.0165	Removing Guardrail	LF	4,030.000	4,030.000
0012	204.0180	Removing Delineators and Markers	EACH	4.000	4.000
0014	208.1100	Select Borrow	CY	100.000	100.000
0016	211.0400	Prepare Foundation for Asphaltic Shoulders	STA	316.000	316.000
0018	213.0100	Finishing Roadway (project) 01. 5310-02-63	EACH	1.000	1.000
0020	305.0110	Base Aggregate Dense 3/4-Inch	TON	11,900.000	11,900.000
0022	305.0120	Base Aggregate Dense 1 1/4-Inch	TON	110.000	110.000
0024	455.0605	Tack Coat	GAL	12,715.000	12,715.000
0026	460.2000	Incentive Density HMA Pavement	DOL	17,370.000	17,370.000
0028	460.6224	HMA Pavement 4 MT 58-28 S	TON	27,140.000	27,140.000
0030	465.0105	Asphaltic Surface	TON	635.000	635.000
0032	465.0125	Asphaltic Surface Temporary	TON	20.000	20.000
0034	465.0425	Asphaltic Shoulder Rumble Strips 2-Lane Rural	LF	36,620.000	36,620.000
0036	465.0475	Asphalt Centerline Rumble Strips 2-Lane Rural	LF	21,840.000	21,840.000
0038	524.0124	Culvert Pipe Salvaged 24-Inch	LF	32.000	32.000
0040	524.0136	Culvert Pipe Salvaged 36-Inch	LF	32.000	32.000
0042	524.0624	Apron Endwalls for Culvert Pipe Salvaged 24-Inch	EACH	2.000	2.000
0044	524.0636	Apron Endwalls for Culvert Pipe Salvaged 36-Inch	EACH	2.000	2.000
0046	603.8000	Concrete Barrier Temporary Precast Delivered	LF	38.000	38.000
0048	603.8125	Concrete Barrier Temporary Precast Installed	LF	38.000	38.000
0050	614.0010	Barrier System Grading Shaping Finishing	EACH	3.000	3.000
0052	614.2300	MGS Guardrail 3	LF	2,025.000	2,025.000
0054	614.2330	MGS Guardrail 3 K	LF	2,488.000	2,488.000
0056	614.2610	MGS Guardrail Terminal EAT	EACH	6.000	6.000
0058	618.0100	Maintenance And Repair of Haul Roads (project) 01. 5310-02-63	EACH	1.000	1.000
0060	619.1000	Mobilization	EACH	1.000	1.000
0062	624.0100	Water	MGAL	145.000	145.000
0064	628.1504	Silt Fence	LF	6,920.000	6,920.000
0066	628.1520	Silt Fence Maintenance	LF	6,920.000	6,920.000
0068	628.1905	Mobilizations Erosion Control	EACH	3.000	3.000
0070	628.1910	Mobilizations Emergency Erosion Control	EACH	2.000	2.000
0072	628.2008	Erosion Mat Urban Class I Type B	SY	7,000.000	7,000.000
0074	628.7555	Culvert Pipe Checks	EACH	20.000	20.000
0076	633.5200	Markers Culvert End	EACH	4.000	4.000
0078	642.5001	Field Office Type B	EACH	1.000	1.000

Estimate Of Quantities

5310-02-63					
Line	Item	Item Description	Unit	Total	Qty
0080	643.0300	Traffic Control Drums	DAY	250.000	250.000
0082	643.0900	Traffic Control Signs	DAY	2,525.000	2,525.000
0084	643.1050	Traffic Control Signs PCMS	DAY	14.000	14.000
0086	643.5000	Traffic Control	EACH	1.000	1.000
0088	646.1020	Marking Line Epoxy 4-Inch	LF	44,483.000	44,483.000
0090	646.1040	Marking Line Grooved Wet Ref Epoxy 4-Inch	LF	52,422.000	52,422.000
0092	646.3040	Marking Line Grooved Wet Ref Epoxy 8-Inch	LF	560.000	560.000
0094	646.6120	Marking Stop Line Epoxy 18-Inch	LF	38.000	38.000
0096	648.0100	Locating No-Passing Zones	MI	5.180	5.180
0098	649.0105	Temporary Marking Line Paint 4-Inch	LF	82,206.000	82,206.000
0100	649.0120	Temporary Marking Line Epoxy 4-Inch	LF	41,103.000	41,103.000
0102	650.8000	Construction Staking Resurfacing Reference	LF	27,320.000	27,320.000
0104	650.9910	Construction Staking Supplemental Control (project) 01. 5310-02-63	LS	1.000	1.000
0106	690.0150	Sawing Asphalt	LF	1,615.000	1,615.000
0108	ASP.1T0A	On-the-Job Training Apprentice at \$5.00/HR	HRS	1,000.000	1,000.000
0110	ASP.1T0G	On-the-Job Training Graduate at \$5.00/HR	HRS	500.000	500.000
0112	SPV.0090	Special 01. Removing HMA Pavement Notched Wedge Longitudinal Joint Milling	LF	54,640.000	54,640.000

SELECT BORROW AND BASE AGGREGATE DENSE

STATION - STATION	LOCATION	208.1100	305.0110	305.0120
		SELECT BORROW (CY)	BASE AGGREGATE DENSE 3/4 - INCH (TON)	BASE AGGREGATE DENSE 1 1/4 - INCH (TON)
68+30.60 - 119+99.81	MAINLINE, LT & RT	-	2028	-
119+99.81 - 126+94	MAINLINE, RT.	-	139	-
145+53.82 - 350+19.92	MAINLINE, LT & RT	-	7894	-
350+19.92 - 356+76.17	MAINLINE, RT	-	129	-
350'A'+19.92 - 360'A'+47.84	MAINLINE, LT	-	180	-
-	P.E., F.E.	-	600	-
-	UNDISTRIBUTED	-	930	-
86+58	SALVAGED CULVERT PIPE 36 INCH	28	-	65
106+20	SALVAGED CULVERT PIPE 24 INCH	72	-	45
TOTALS =		100	11900	110

CLEARING & GRUBBING

STATION - STATION	LOCATION	201.0105	201.0205
		CLEARING (STA)	GRUBBING (STA)
102+00 - 103+00	MAINLINE, RT	1	1
104+00 - 107+00	MAINLINE, RT	3	3
108+00 - 110+00	MAINLINE, RT	2	2
112+00 - 114+00	MAINLINE, RT	2	2
212+00 - 213+00	MAINLINE, RT	1	1
TOTAL =		9	9

REMOVING GUARDRAIL

STATION - STATION	LOCATION	204.0165
		(LF)
103+00 - 123+97	MAINLINE, RT.	2097
200+98 - 210+27	MAINLINE, LT.	929
202+08 - 212+11	MAINLINE, RT.	1004
TOTAL =		4030

HMA PAVEMENT

STATION - STATION	LOCATION	455.0605	*460.6224	460.0105	465.0125
		TACK COAT (GAL)	HMA PAVEMENT 4 MT 58-28 S (TON)	ASPHALTIC SURFACE (TON)	ASPHALTIC SURFACE TEMPORARY (TON)
68+30.60 - 119+99.81	MAINLINE	1940	5030	-	-
86+43 - 86+73	MAINLINE	-	-	-	7
106+05 - 106-35	MAINLINE	-	-	-	13
119+99.81 - 126+94	MAINLINE, RT	384	97	-	-
145+53.82 - 350-19.92	MAINLINE	8323	19373	-	-
350+19.92 - 356-76.17	MAINLINE, RT	260	596	-	-
350'A'+19.92 - 360'A'47.84	MAINLINE, LT	406	934	-	-
86+58 - 90+58	1 INCH THICK LEVELING COURSE	69	-	79	-
110+60 - 115-60	1 INCH THICK LEVELING COURSE	86	-	99	-
144+10 - 148-10	1 INCH THICK LEVELING COURSE	80	-	92	-
170+50 - 174-50	1 INCH THICK LEVELING COURSE	80	-	92	-
196+50 - 200-00	1 INCH THICK LEVELING COURSE	70	-	81	-
238+50 - 258-00	1 INCH THICK LEVELING COURSE	170	-	192	-
79+45 - 88+18	CURVE 1 S.E. CORRECTION WEDGE	175	59	-	-
97+75 - 112+85	CURVE 2 S.E. CORRECTION WEDGE	300	53	-	-
209+88 - 221-62	CURVE 4 S.E. CORRECTION WEDGE	235	198	-	-
155+35	ROCKY DELL (NORTH)	17	69	-	-
172+50	CLEVELAND ROAD	8	38	-	-
245+80	TWIN VALLEY ROAD	28	127	-	-
281+55	WILLOW LANE	7	31	-	-
281+60	WAYSIDE ROAD (WEST)	27	125	-	-
308+60	WAYSIDE ROAD (EAST)	19	79	-	-
337+50	SCHARTZ ROAD	11	48	-	-
342+60	CAPITAL COURT	8	33	-	-
350+80	PINEHURST DRIVE	12	50	-	-
-	DRIVEWAYS (P.E./F.E./C.E.)	-	200	-	-
TOTALS =		12715	27140	635	20

NOTE: 3 APPLICATIONS OF TACK COAT REQUIRED
1) BETWEEN EXISTING LAYER AND LEVELING COURSE LAYER OR S.E. CORRECTION WEDGE WHERE REQUIRED
2) BETWEEN EXISTING LAYER (OR LEVELING COURSE LAYER OR S.E. CORRECTION WEDGE LAYER WHERE REQUIRED) AND BINDER LAYER
3) BETWEEN BINDER LAYER AND SURFACE LAYER
1 INCH THICK LEVELING COURSE APPLIED TO THE DRIVING LANES AND EXISTING PAVED SHOULDER
*INCLUDES 1910 TON FROM CATEGORY 020

PREPARE FOUNDATION FOR ASPHALTIC SHOULDERS

STATION - STATION	LOCATION	211.0400
		(STA.)
68+30.60 - 119+99.81	MAINLINE, LT.	52
68+30.60 - 126+94	MAINLINE, RT.	59
198+58 - 211+19	MAINLINE, LT.	13
200+03 - 213+39	MAINLINE, RT.	14
*253+04 - 350+19.92	MAINLINE, LT.	91
**253+04 - 350+19.92	MAINLINE, RT.	87
TOTAL =		316

*DOES NOT INCLUDE STA. 278+11 - STA. 284+56, LT.
**DOES NOT INCLUDE STA. 338+92 - STA. 346+84, RT.
DOES NOT INCLUDE STA. 347+16 - STA. 350+19.92, RT.

REMOVING MARKERS

STATION	LOCATION	204.0180
		(EACH)
86+58	MAINLINE	2
106+20	MAINLINE	2
TOTAL =		4

REMOVING ASPHALTIC SURFACE BUTT JOINTS

STATION - STATION	LOCATION	204.0115
		(SY)
68+30.60 - 70+30.60	MAINLINE	690
117+99.81 - 119+99.81	MAINLINE	690
145+53.82 - 147+53.82	MAINLINE	800
354+76.17 - 356+76.17	MAINLINE	779
358'A'+47.86 - 360'A'+47.86	MAINLINE	779
ROCKY DELL ROAD (NORTH)	SIDE ROAD	293
CLEVELAND ROAD	SIDE ROAD	378
TWIN VALLEY ROAD	SIDE ROAD	254
WAYSIDE LANE (WEST)	SIDE ROAD	250
WILLOW LANE	SIDE ROAD	106
WAYSIDE LANE (EAST)	SIDE ROAD	237
SCHWARTZ ROAD	SIDE ROAD	247
CAPITAL COURT	SIDE ROAD	308
PINEHURST DRIVE	SIDE ROAD	539
TOTAL =		6350

REMOVING ASPHALTIC SURFACE MILLING

STATION	LOCATION	204.0120
		(SY)
69+00	PE, RT	50
95+15	PE, LT	29
117+45	PE, LT	52
119+20	PE, LT	55
187+00	PE, LT	27
220+80	PE, LT	77
220+80	FE, RT	40
224+00	PE, LT	29
238+40	FE, LT	182
258+00	PE, LT	193
276+60	CE, LT	143
285+40	PE, RT	31
313+95	CE, LT	153
316+80	PE, LT	33
333+55	CE, RT	64
334+50	CE, LT	100
336+90	CE, LT	112
TOTAL =		1370

3

3

BARRIER SYSTEM GRADING SHAPING FINISHING & EROSION MAT												ALL ITEMS ARE CATEGORY 010 UNLESS OTHERWISE NOTED							
614.0010 BARRIER SYSTEM GRADING SHAPING FINISHING			FOR INFORMATIONAL PURPOSES ONLY								MOBILIZATIONS EROSION CONTROL								
			EXCAVATION COMMON (CY)	BORROW (CY)	SALVAGED TOPSOIL (SY)	MULCHING (SY)	FERTILIZER TYPE B (CWT)	SEEDING MIXTURE NO. 30 (LB)	SEEDING TEMPORARY (LB)	CONSTRUCTION STAKING SLOPE STAKES (LF)	628.2008 EROSION MAT URBAN CLASS I TYPE B (SY)								
STATION - STATION	LOCATION	(EACH)																	
# 99+25 - 126+94	MAINLINE, RT.	1	* 37	1282	1324	0	1.9	56	28	2770	3103								
198+17 - 211+60	MAINLINE, LT.	1	7	524	322	0	0.8	22	11	1350	1188								
199+62 - 213+80	MAINLINE, RT.	1	18	625	408	0	0.9	24	12	1420	1321								
	UNDISTRIBUTED	-	-	-	-	-	-	-	-	-	1388								
TOTALS =			3	62	2431	2054	3.6	102	51	5540	7000								
# INCLUDES SALVAGED TOPSOIL, FERTILIZER TYPE B, SEEDING MIXTURE NO. 30, SEEDING TEMPORARY, AND EMAT QUANTITY FOR RESTORING SIDESLOPES AT STA. 86+58 AND STA. 106+20 FOR CULVERT PIPES SALVAGED.																			
* REMOVING ASPHALTIC SURFACE QUANTITIES FROM STA. 119+99.81 - STA. 126+94, RT. ARE INCLUDED IN THE EXCAVATION COMMON AND ARE PAID FOR UNDER THE BARRIER SYSTEM GRADING SHAPING FINISHING BID ITEM																			
SILT FENCE					CULVERT PIPE SALVAGED					MGS GUARDRAIL									
		628.1504 SILT FENCE (LF)	628.1520 SILT FENCE MAINTENANCE (LF)			524.0124	524.0136	524.0624	524.0636	633.5200									
STATION - STATION	LOCATION			STATION	LOCATION	(LF)	(LF)	(EACH)	(EACH)	(EACH)	STATION - STATION	LOCATION	3 (LF)	3K (LF)	614.2610 TERMINAL EAT (EACH)				
99+25 - 126+94	MAINLINE, RT.	2770	2770	106+20	MAINLINE	32	-	2	-	2	100+15 - 126+00	MAINLINE, RT.	-	2488	2				
198+17 - 211+60	MAINLINE, LT.	1350	1350	86+58	MAINLINE	-	32	-	2	2	199+48 - 210+29	MAINLINE, LT.	975	-	2				
199+62 - 213+80	MAINLINE, RT.	1420	1420	TOTALS =		32	32	2	2	4	200+93 - 212+49	MAINLINE, RT.	1050	-	2				
-	UNDISTRIBUTED	1380	1380								TOTALS =		2025	2488	6				
TOTALS =		6920	6920																
WATER			LOCATING NO PASSING ZONES			CONSTRUCTION STAKING					CONCRETE BARRIER TEMPORARY PRECAST								
											603.8000 DELIVERED (LF)				603.8125 INSTALLED (LF)				
			STATION - STATION	LOCATION	648.0100 (MI)						STATION	LOCATION							
			68+30.60 - 356+76.17	MAINLINE	4.98						106+20	MAINLINE	38	38					
			350'A'+19.92 - 360'A'+47.84	'A' - LINE	0.20						TOTAL =				38	38			
			TOTAL =		5.18														
			CULVERT PIPE CHECKS								SAWING ASPHALT								
			STATION	LOCATION	628.7555 (EACH)	STATION - STATION	LOCATION	RESURFACING REFERENCE (LF)	650.9910 SUPPLEMENTAL CONTROL 01. 5310-02-63 (LS)										
			86+58	MAINLINE, LT.	3	68+30.60 - 119+99.81	MAINLINE	5170	-										
			106+20	MAINLINE, LT.	7	145+53.82 - 356+76.17	MAINLINE	21122											
			209+20	MAINLINE, RT.	3	350'A'+19.92 - 360'A'+47.84	'A'-LINE	1028	-										
			209+99	MAINLINE, RT.	3	-	PROJECT	-	1										
			-	UNDISTRIBUTED	4	TOTALS =			27320	1									
			TOTAL =		20														
RUMBLE STRIPS					TRAFFIC CONTROL														
					643.0300					643.0900	643.1050	643.5000							

ALL ITEMS ARE CATEGORY 010 UNLESS OTHERWISE NOTED

PAVEMENT MARKING

			646.1020		646.1040			646.3040	646.6120	649.0105**		649.0120	
			MARKING LINE EPOXY 4-INCH		MARKING LINE GROOVED WET REF EPOXY 4-INCH			MARKING LINE GROOVED WET REF EPOXY 8-INCH	MARKING STOP LINE	TEMPORARY MARKING LINE PAINT 4-INCH		TEMPORARY MARKING LINE EPOXY 4-INCH	
			YELLOW SOLID (LF)	12.5' SKIP (LF)	WHITE SOLID (LF)	WHITE 3' SKIP (LF)	WHITE 12.5' SKIP (LF)	WHITE SOLID (LF)	EPOXY 18- INCH (LF)	YELLOW SOLID (LF)	12.5' SKIP (LF)	YELLOW SOLID (LF)	YELLOW 12.5' SKIP (LF)
STATION - STATION	LOCATION	DESCRIPTION											
68+30.60 - 119+99.81	MAINLINE	DOUBLE YELLOW	10338	-	-	-	-	-	-	20676	-	10338	-
145+53.82 - 150+70	MAINLINE	EB PASSING ONLY	518	129	-	-	-	-	-	1036	258	518	129
150+70 - 173+00	MAINLINE	PASSING	-	558	-	-	-	-	-	-	1116	-	558
173+00 - 182+00	MAINLINE	EB PASSING ONLY	900	225	-	-	-	-	-	1800	450	900	225
182+00 - 192+60	MAINLINE	WB PASSING ONLY	1060	265	-	-	-	-	-	2120	530	1060	265
192+60 - 263+00	MAINLINE	DOUBLE YELLOW	14080	-	-	-	-	-	-	28160	-	14080	-
263+00 - 278+00	MAINLINE	EB PASSING ONLY	1500	375	-	-	-	-	-	3000	750	1500	375
278+00 - 302+00	MAINLINE	DOUBLE YELLOW	4800	-	-	-	-	-	-	9600	-	4800	-
302+00 - 311+00	MAINLINE	EB PASSING ONLY	900	225	-	-	-	-	-	1800	450	900	225
311+00 - 330+70	MAINLINE	PASSING	-	493	-	-	-	-	-	-	986	-	493
330+70 - 342+00	MAINLINE	WB PASSING ONLY	1130	283	-	-	-	-	-	2260	566	1130	283
342+00 - 350+19.92	MAINLINE	DOUBLE YELLOW	1640	-	-	-	-	-	-	3280	-	1640	-
350'A'+19.92 - 360'A'+47.84	A'-LINE	YELLOW (MEDIAN)	1028	-	-	-	-	-	-	2056	-	1028	-
350+19.82 - 356+76.17	MAINLINE	YELLOW (MEDIAN)	656	-	-	-	-	-	-	1312	-	656	-
68+30.60 - 119+99.81	MAINLINE	WHITE EDGELINES	-	-	10340	-	-	-	-	-	-	-	-
145+53.82 - 350+19.93	MAINLINE	WHITE EDGELINES	-	-	39970	113	-	-	-	-	-	-	-
168+27 - 176+19	MAINLINE, LT	BYPASS LANE	-	-	-	-	63	-	-	-	-	-	-
237+33 - 241+23	MAINLINE, LT.	RIGHT TURN LANE	-	-	-	-	-	140	-	-	-	-	-
241+80 - 249+21	MAINLINE, LT. & RT.	BYPASS LANE / RIGHT TURN LANE	-	-	-	-	63	250	-	-	-	-	-
278+11 - 284+56	MAINLINE, LT.	BYPASS LANE	-	-	-	-	63	-	-	-	-	-	-
338+92 - 346+84	MAINLINE, RT.	BYPASS LANE	-	-	-	-	63	-	-	-	-	-	-
350'A'+19.92 - 360'A'+47.84	MAINLINE	WHITE EDGELINES	-	-	1028	-	-	-	-	-	-	-	-
350+19.82 - 356+76.17	MAINLINE	WHITE EDGELINES	-	-	656	-	-	-	-	-	-	-	-
347+16 - 355+08	MAINLINE, LT. & RT.	RIGHT TURN LANE / BYPASS LANE	-	-	-	-	63	170	38	-	-	-	-
	UNDISTRIBUTED*	LOCATING NO PASSING ZONE	3380	-	-	-	-	-	-	-	-	-	-
SUBTOTALS =			41930	2553	51994	113	315	560	38	77100	5106	38550	2553
TOTALS =			44483		52422			560	38	82206		41103	

* ADDITIONAL QUANTITY FOR POSSIBLE CLOSING OF EXISTING PASSING ZONES LOCATED OUTSIDE OF PROJECT LIMITS (USE ONLY IF REQUIRED)
** QUANTITIES INCLUDE PLACING PAVEMENT MARKING LINE AFTER FIRST AND THIRD PASS OF PAVING OPERATIONS

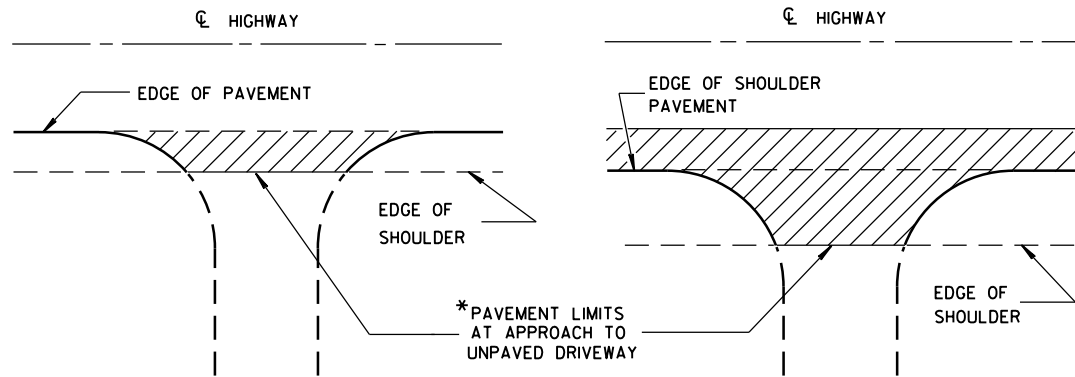
REMOVING HMA PAVEMENT NOTCHED WEDGE LONGITUDINAL
JOINT MILLING

STATION - STATION	LOCATION	SPV.0090.01	
		① (LF)	② (LF)
68+30.60 - 119+99.81	MAINLINE	5170	5170
145+53.82 - 350+19.92	MAINLINE	20466	20466
350+19.92 - 356+76.17	MAINLINE	656	656
350'A'+19.92 - 360'A'+47.84	'A' LINE	1028	1028
SUBTOTALS=		27,320	27,320
TOTALS=		54,640	

① REMOVAL PRIOR TO SECOND PASS
② REMOVAL PRIOR TO FOURTH PASS

Standard Detail Drawing List

08D21-01	DRIVEWAYS WITHOUT CURB & GUTTER
08D22-01	DRIVEWAYS WITHOUT CURB & GUTTER RESURFACING PROJECTS RURAL
08E09-06	SILT FENCE
08E15-01	CULVERT PIPE CHECK
08F04-07	JOINT TIES FOR CONCRETE PIPE AND CONCRETE COLLAR DETAIL
13A10-02A	2-LANE RURAL SHOULDER RUMBLE STRIP, MILLING
13A10-02B	2-LANE RURAL SHOULDER RUMBLE STRIP, MILLING
13A10-02C	2-LANE RURAL SHOULDER RUMBLE STRIP, MILLING
13A10-02D	2-LANE RURAL SHOULDER RUMBLE STRIP, MILLING
13A11-03A	2-LANE RURAL CENTER LINE RUMBLE STRIP, MILLING
13A11-03B	2-LANE RURAL CENTER LINE RUMBLE STRIP, MILLING
14B29-01	SAFETY EDGE
14B42-06A	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-06B	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-06C	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-06D	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B44-04A	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-04B	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-04C	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
15C04-05	TRAFFIC CONTROL, ADVANCE WARNING SIGNS 45 M.P.H. OR GREATER TWO-WAY UNDIVIDED ROAD OPEN TO TRAFFIC
15C08-19A	LONGITUDINAL MARKING (MAINLINE)
15C11-07A	CHANNELIZING DEVICES FLEXIBLE TUBULAR MARKER POST
15C11-07B	CHANNELIZING DEVICES DRUMS, CONES, BARRICADES AND VERTICAL PANELS
15C12-07	TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATION
15C19-05A	MOVING PAVEMENT MARKING OPERATION TWO-LANE TWO-WAY ROADWAY
15C21-08	SIGNING AND MARKING FOR TWO LANE TO FOUR LANE DIVIDED TRANSITIONS
15C33-03	STOP LINE AND CROSSWALK PAVEMENT MARKING
15C35-03A	PAVEMENT MARKING (INTERSECTIONS)
15D38-02A	TEMPORARY TRAFFIC CONTROL SIGN MOUNTING
15D38-02B	ATTACHMENT OF SIGNS TO POSTS
15D39-02	TRAFFIC CONTROL, DROP-OFF SIGNING

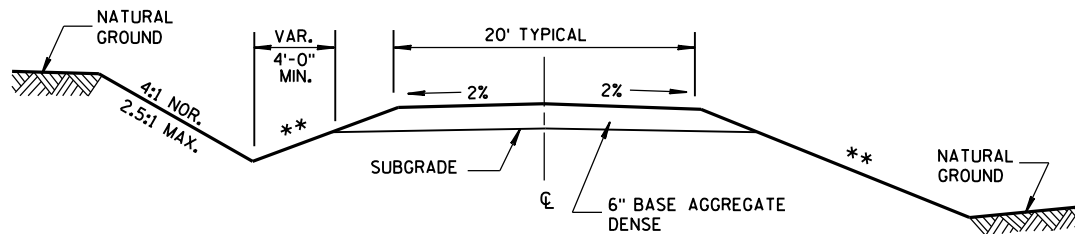


*WHERE DRIVEWAY IS PAVED, APPROACH PAVEMENT SHOULD BE EXTENDED TO MATCH DRIVEWAY PAVEMENT.

PLAN VIEW
(UNPAVED SHOULDER ON HIGHWAY)

PLAN VIEW
(PAVED SHOULDER ON HIGHWAY)

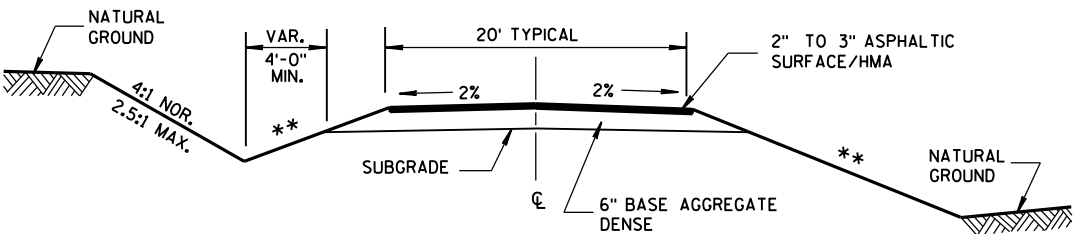
RURAL DRIVEWAY INTERSECTION DETAIL
(NO CURB & GUTTER OR SIDEWALK)



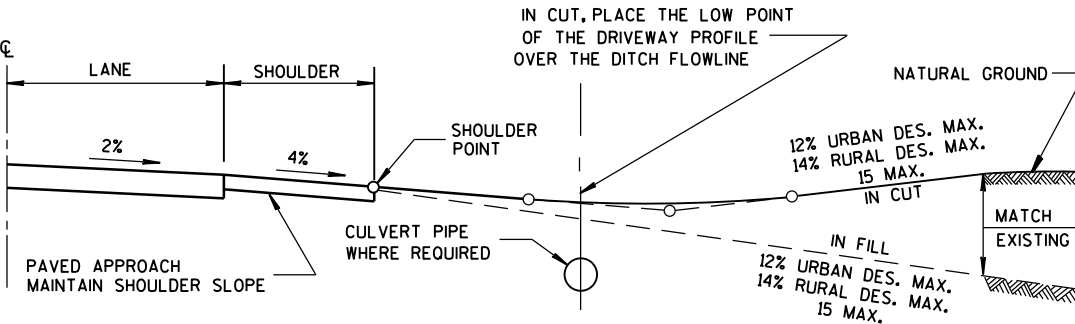
TYPICAL CROSS SECTION FOR PRIVATE DRIVE OR FIELD ENTRANCE
AGGREGATE SURFACE

** 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

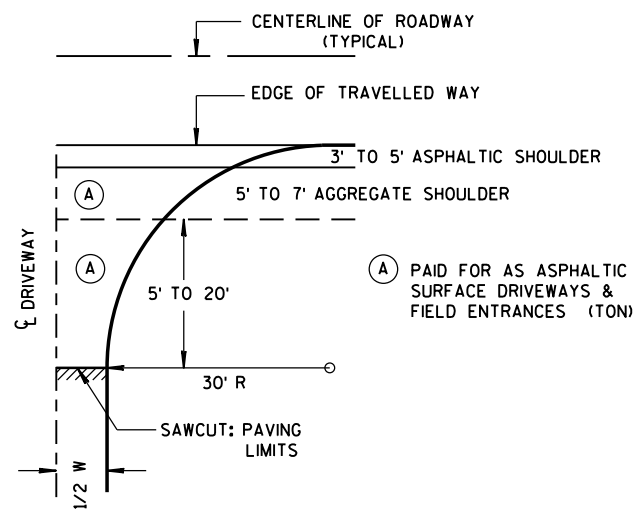


TYPICAL CROSS SECTION FOR PRIVATE DRIVE OR FIELD ENTRANCE
ASPHALTIC SURFACE



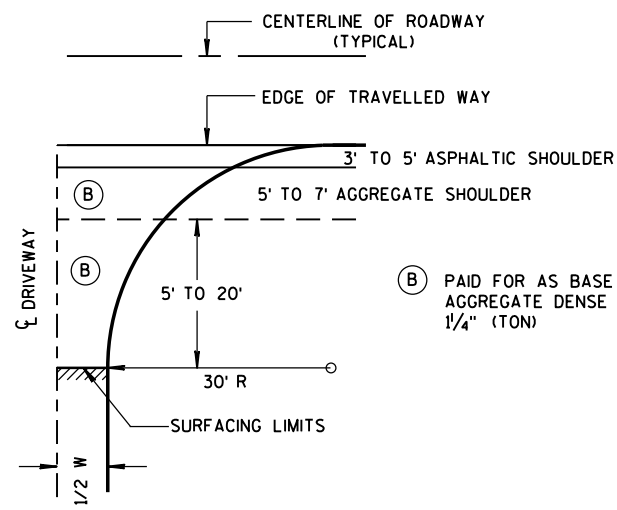
TYPICAL DRIVEWAY PROFILES

DRIVEWAYS WITHOUT CURB & GUTTER	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED December, 2016 DATE	/S/ Rodney Taylor ROADWAY STANDARDS DEVELOPMENT UNIT SUPERVISOR
FHWA	



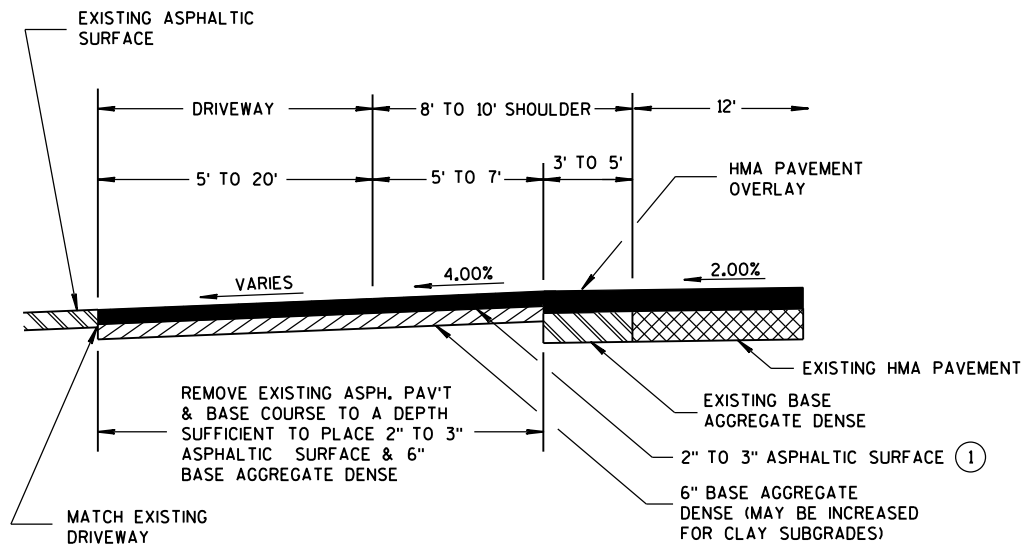
PLAN VIEW
HALF SECTION

W MIN. = 16'
W MAX. = 24'

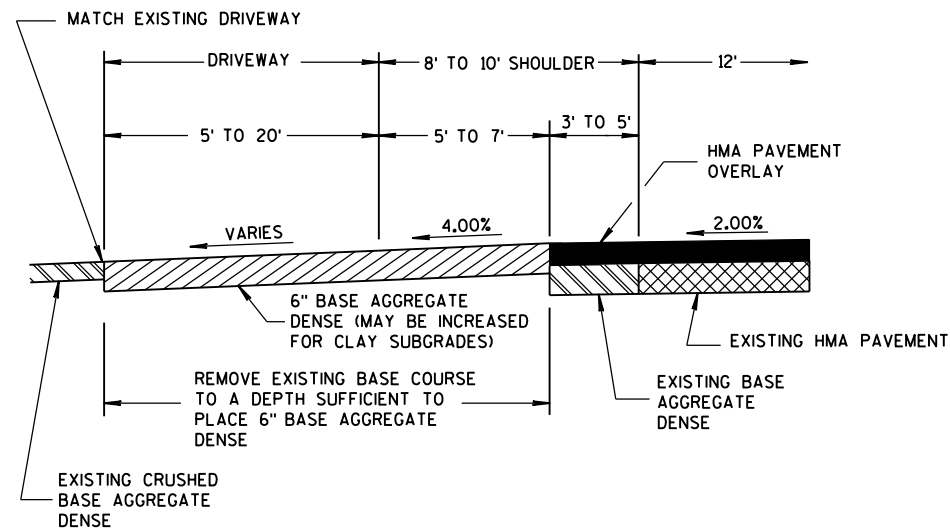


PLAN VIEW
HALF SECTION

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



PROFILE VIEW
RURAL ENTRANCE
WITH ASPHALTIC SURFACE
RESURFACING PROJECTS

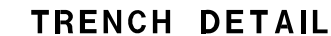


PROFILE VIEW
RURAL ENTRANCE
WITH AGGREGATE SURFACE
6" BASE AGGREGATE DENSE
RESURFACING PROJECTS

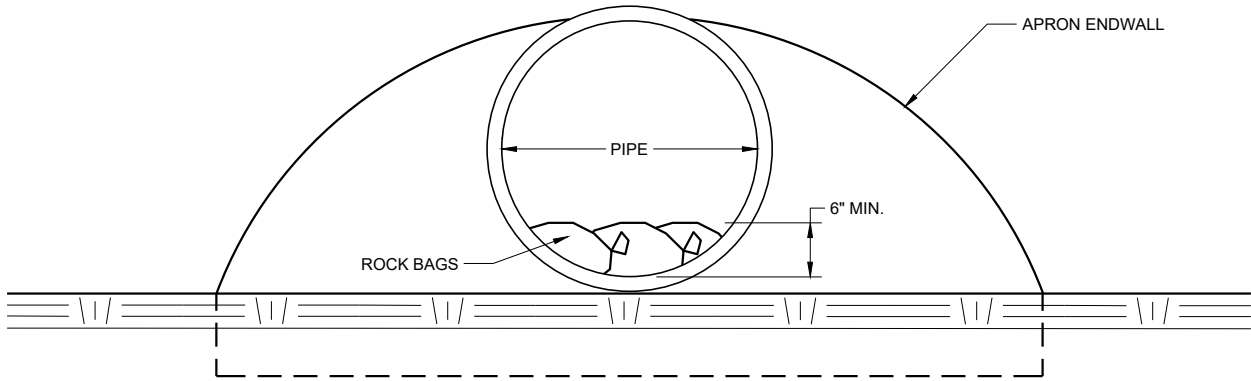
DRIVEWAYS WITHOUT CURB & GUTTER RESURFACING PROJECTS RURAL	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED December, 2016 DATE	/S/ Rodney Taylor ROADWAY STANDARDS DEVELOPMENT UNIT SUPERVISOR FHWA



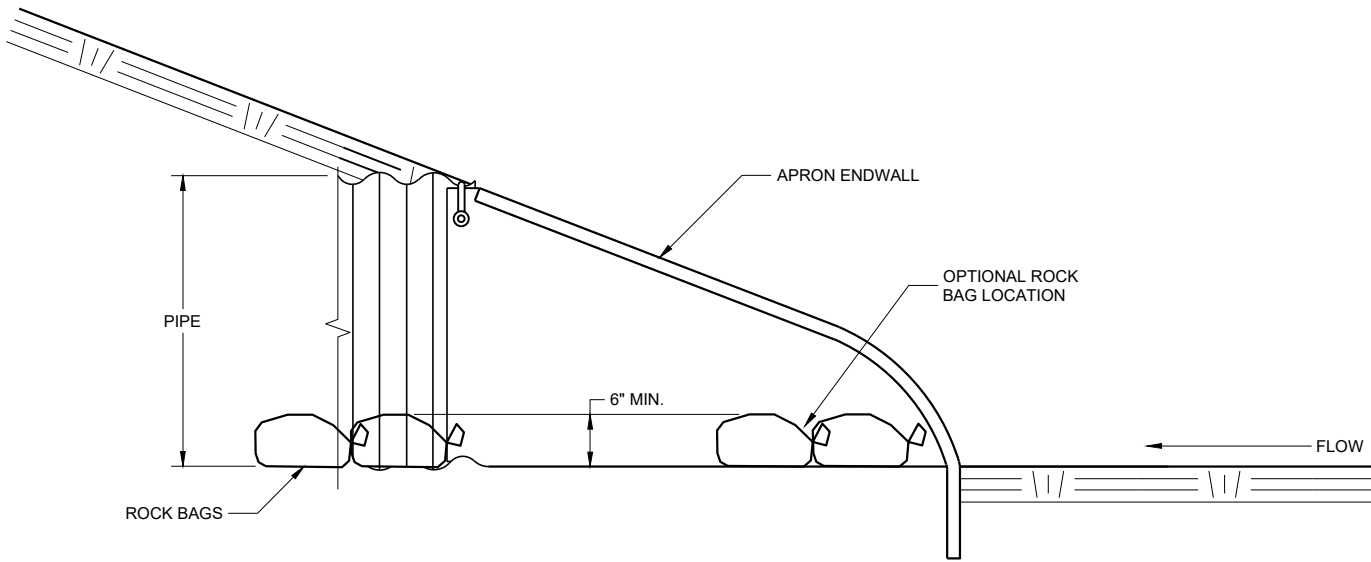
- ① HORIZONTAL BRACE REQUIRED WITH 2" X 4" WOODEN FRAME OR EQUIVALENT AT TOP OF POSTS.
- ② FOR MANUAL INSTALLATIONS THE TRENCH SHALL BE A MINIMUM OF 4" WIDE & 6" DEEP TO BURY AND ANCHOR THE GEOTEXTILE FABRIC. FOLD MATERIAL TO FIT TRENCH AND BACKFILL & COMPACT TRENCH WITH EXCAVATED SOIL.
- ③ WOOD POSTS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



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



END VIEW

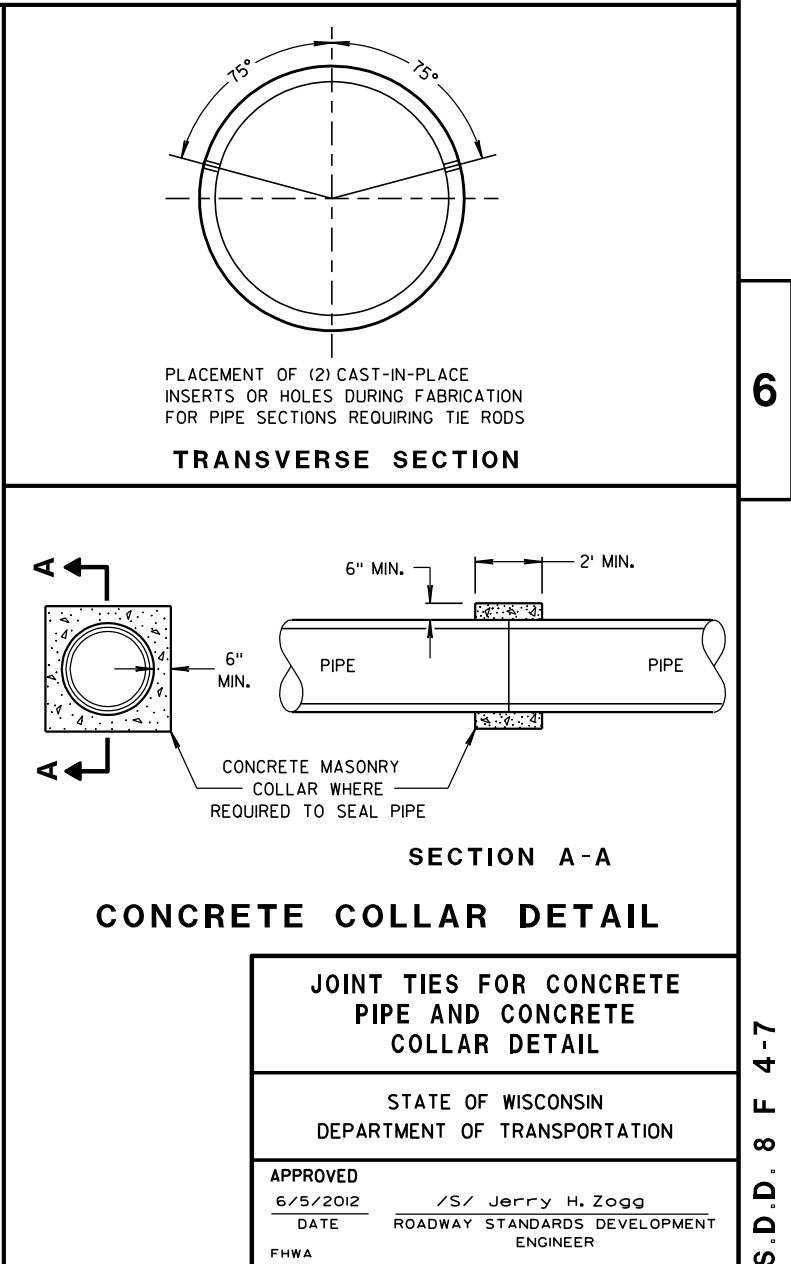
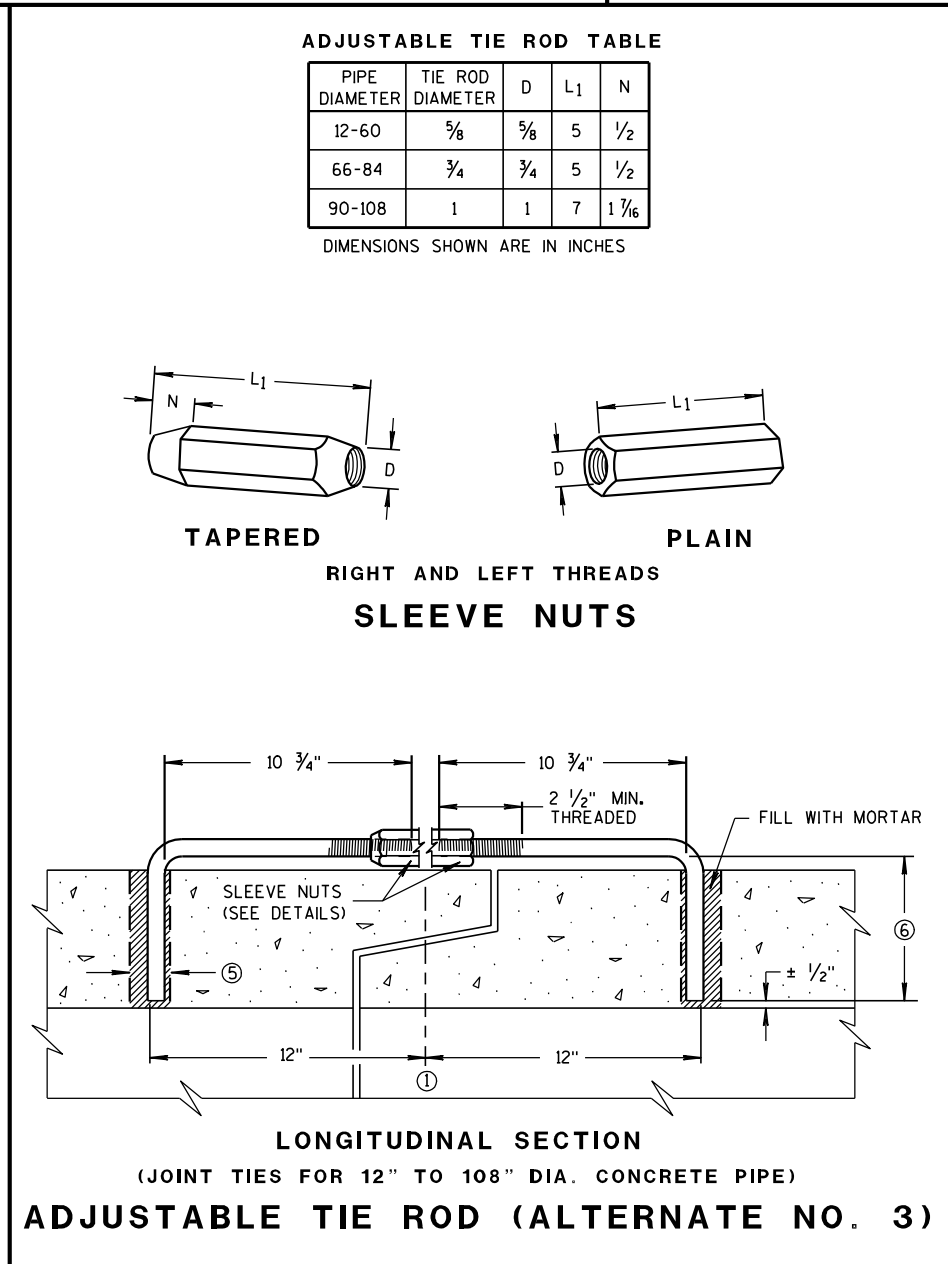
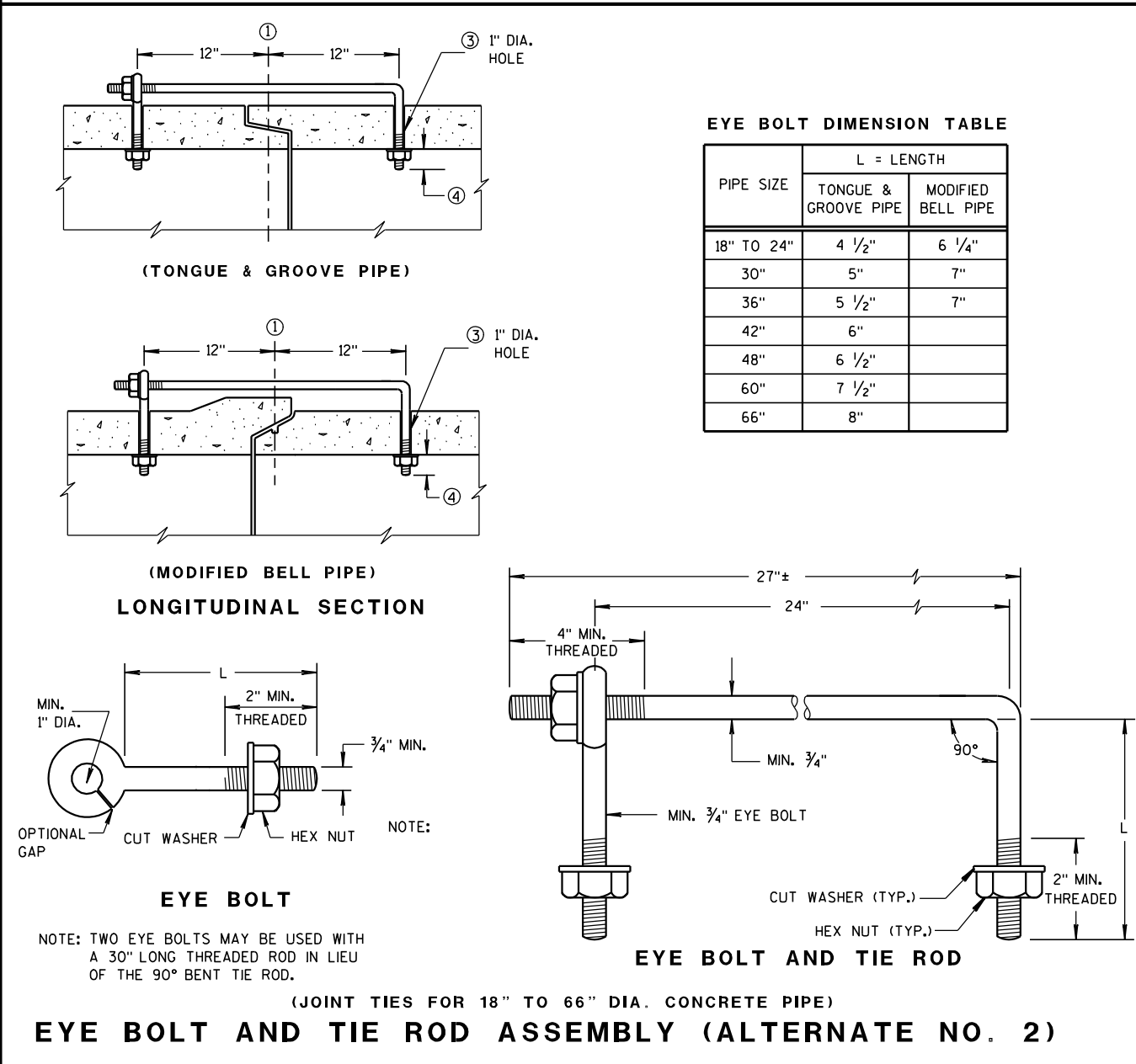
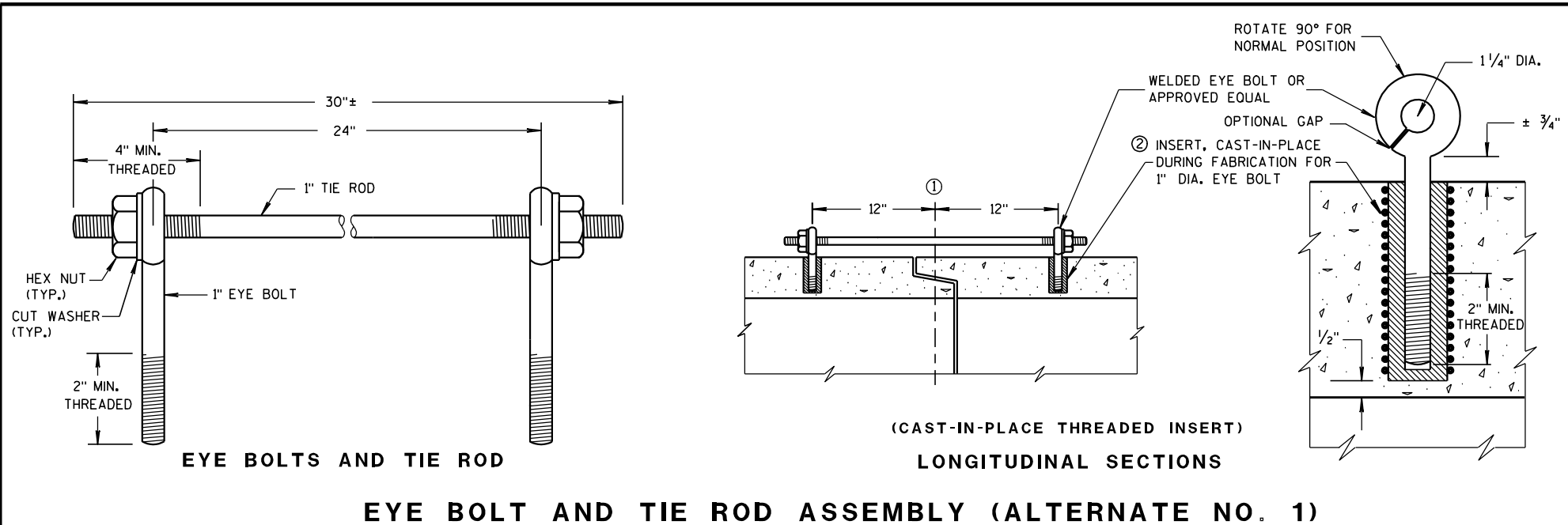


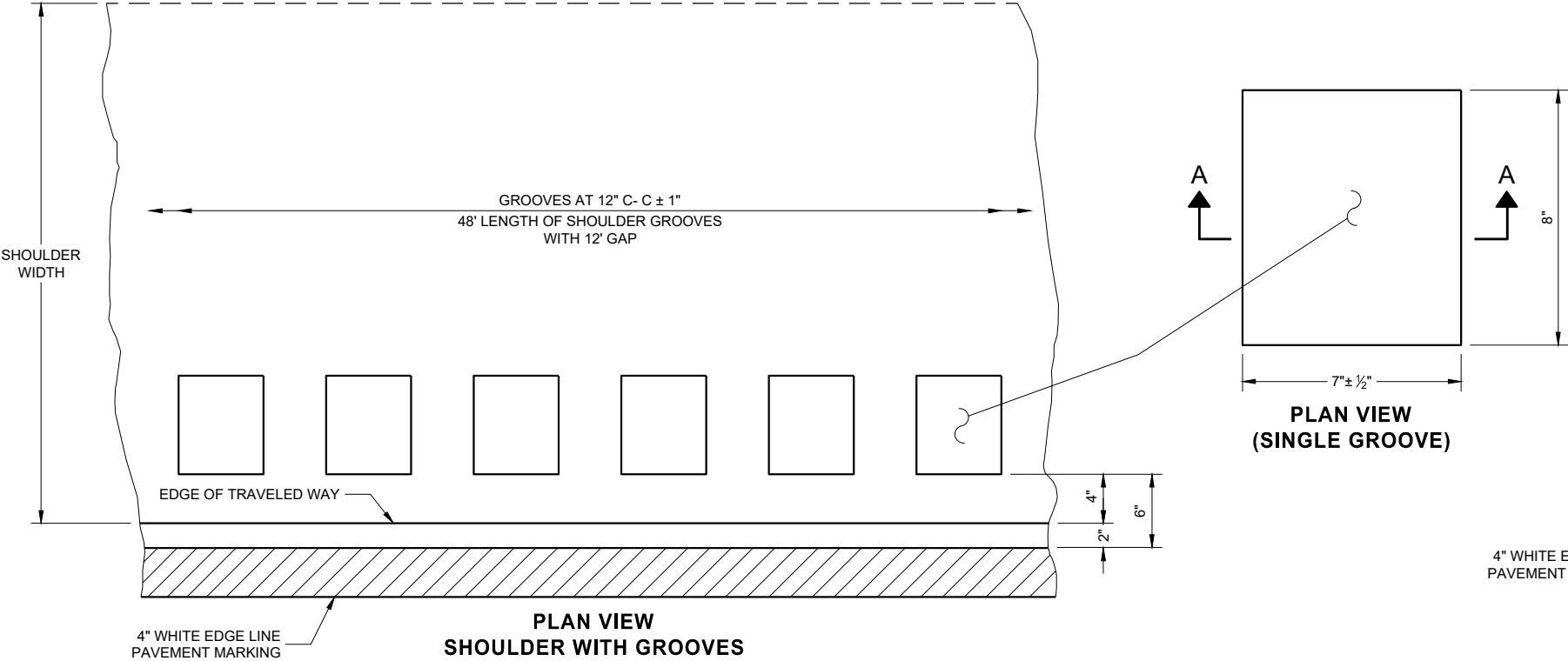
SIDE VIEW

CULVERT PIPE CHECK
(INSTALL ON INLET END ONLY)

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

FHWA





6

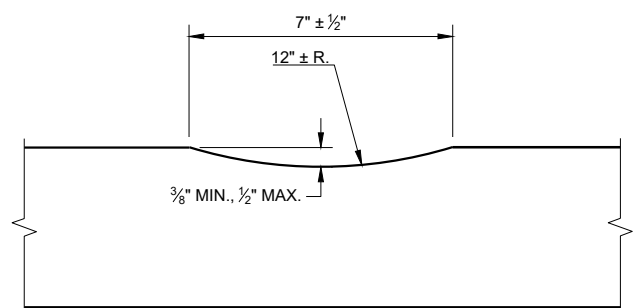
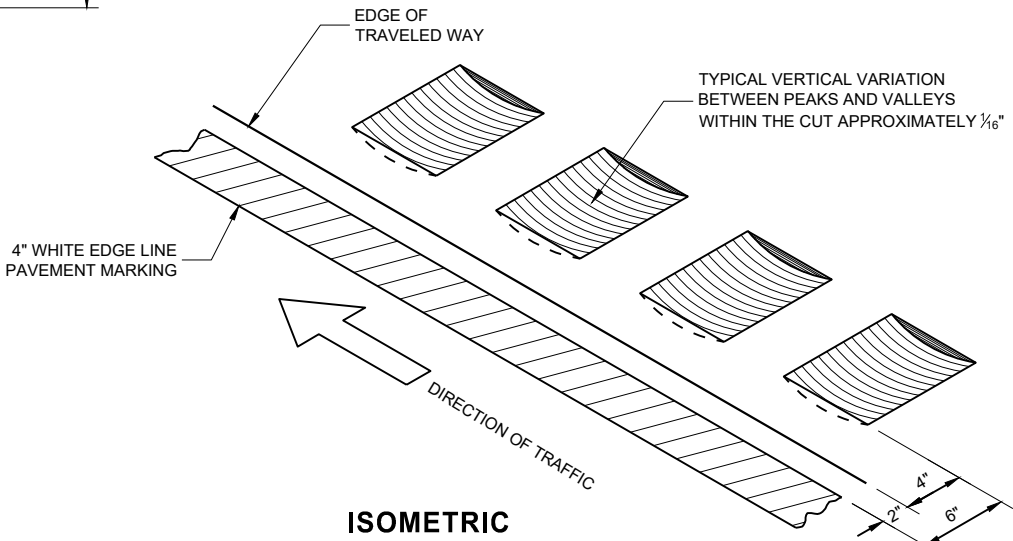
PLACEMENT DETAIL FOR TYPE 1 MILLED RUMBLE STRIP

GENERAL NOTES

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

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

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



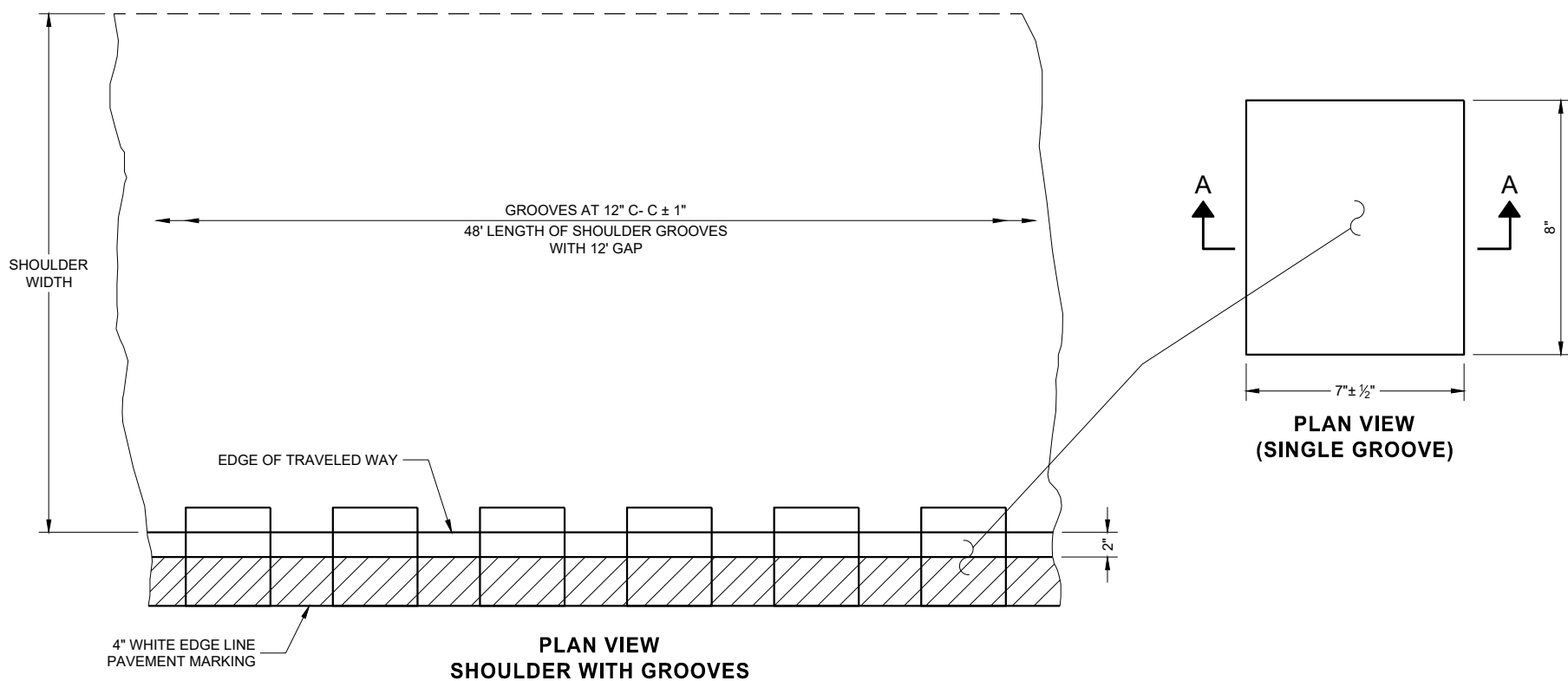
SECTION A - A

6

TYPE 1
2 - LANE SHOULDER RUMBLE STRIP

2-LANE RURAL SHOULDER
RUMBLE STRIP, MILLING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



6

6

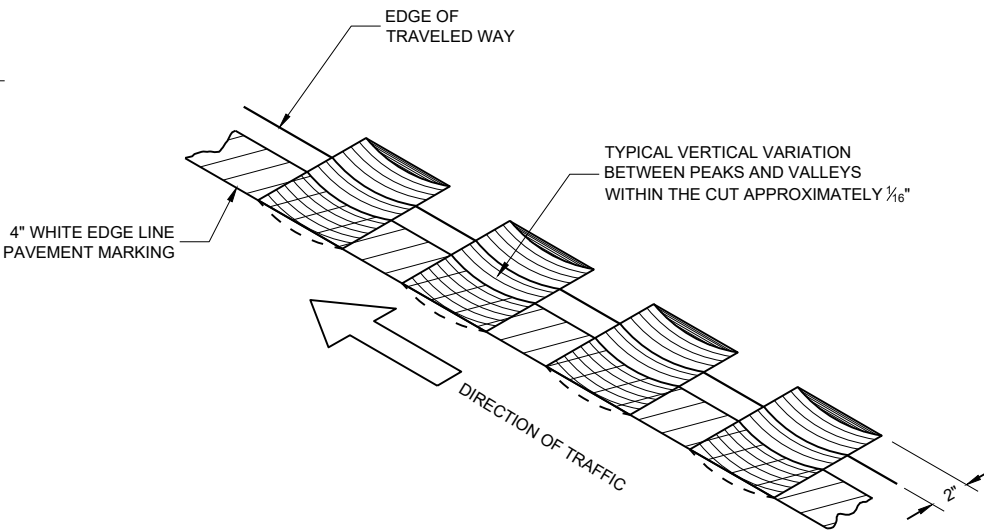
PLACEMENT DETAIL FOR TYPE 2 MILLED RUMBLE STRIP

GENERAL NOTES

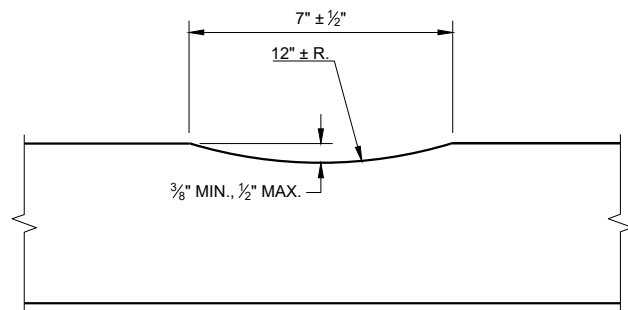
DETAILS OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

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

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



ISOMETRIC

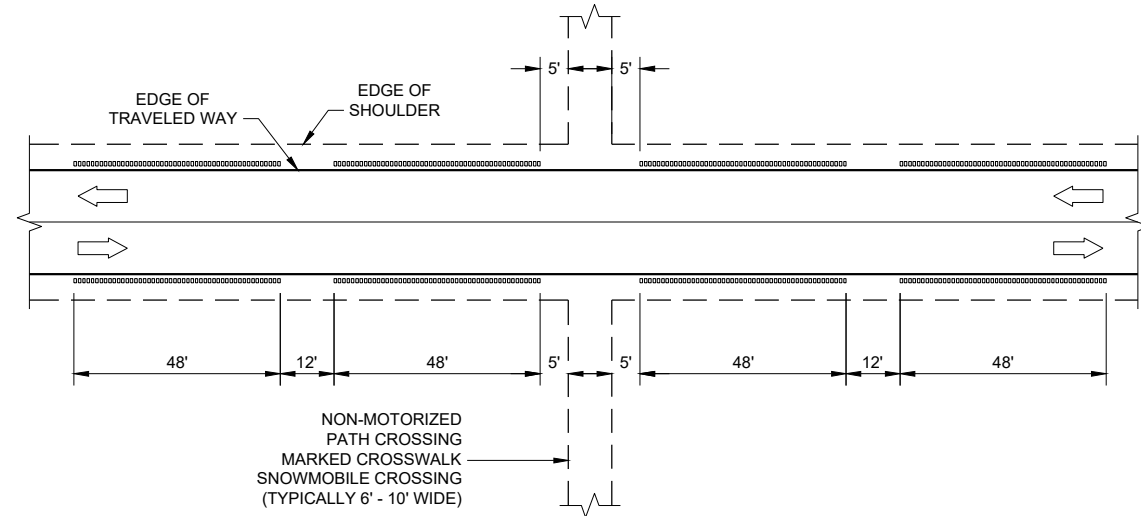


SECTION A - A

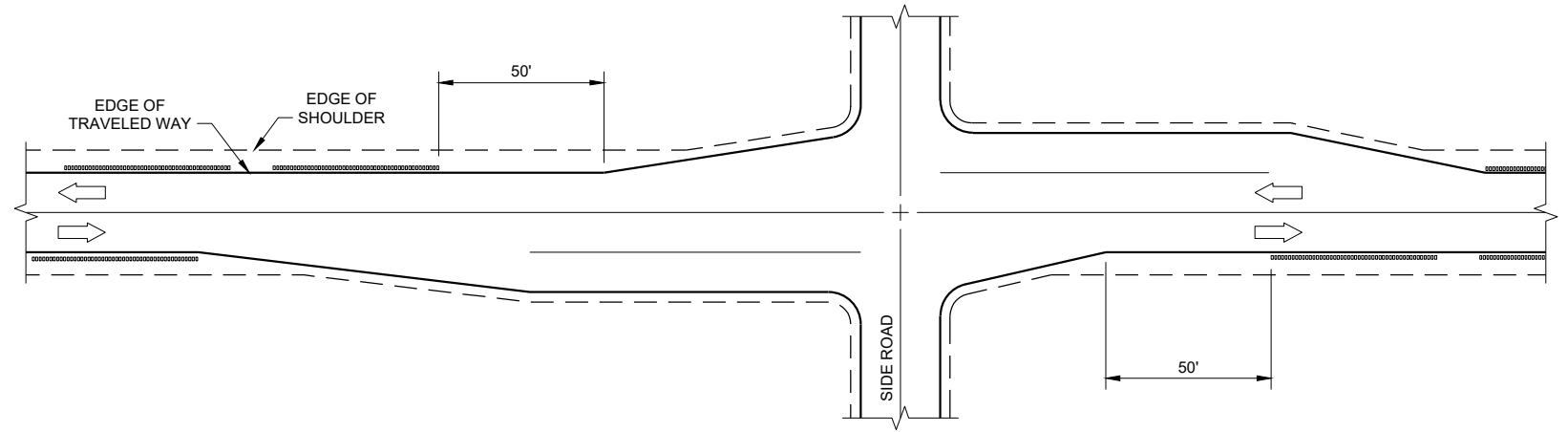
TYPE 2
2 - LANE SHOULDER RUMBLE STRIP

2-LANE RURAL SHOULDER
RUMBLE STRIP, MILLING

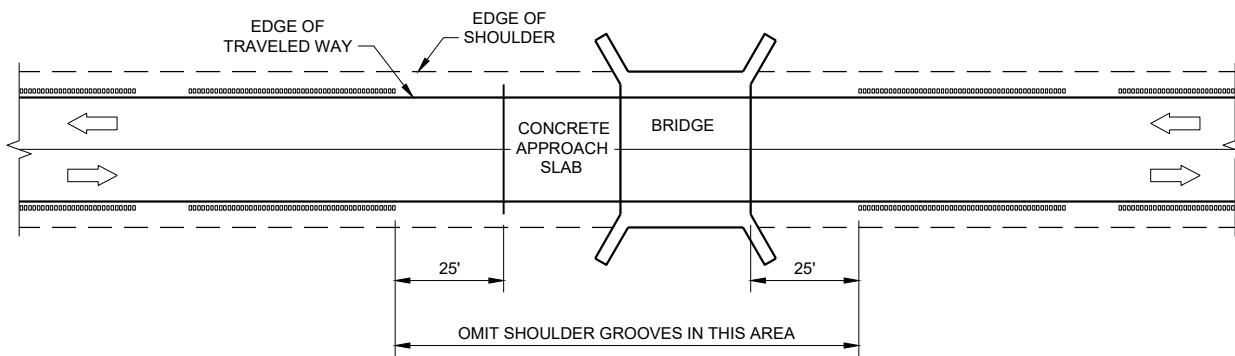
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



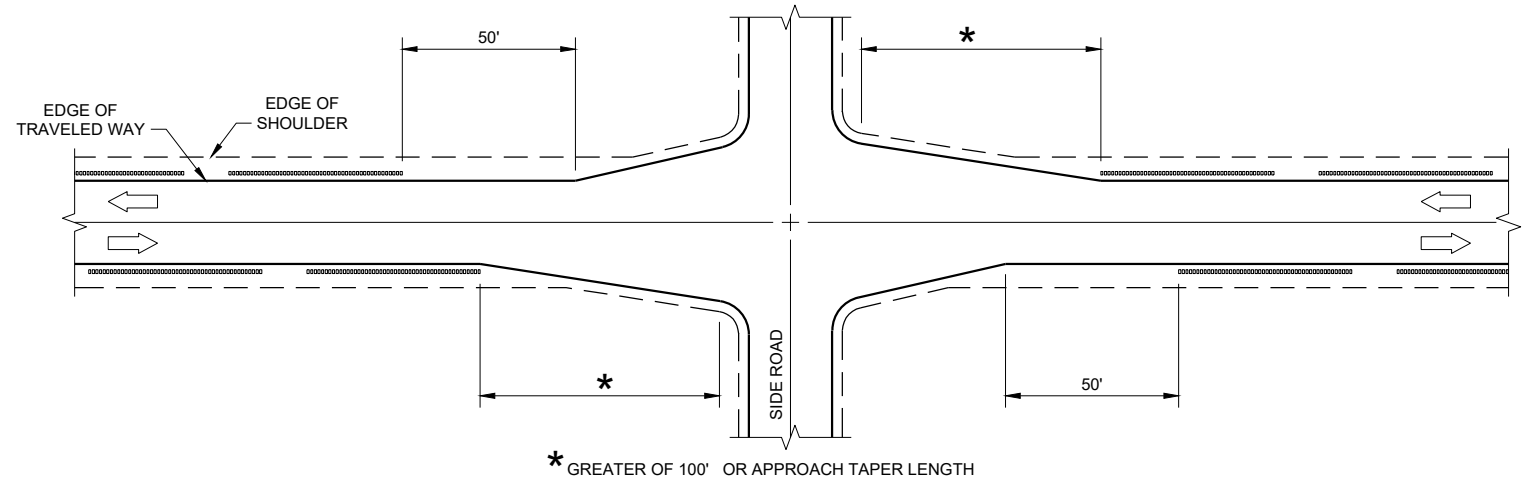
SHOULDER GROOVES AT MISCELLANEOUS CROSSINGS



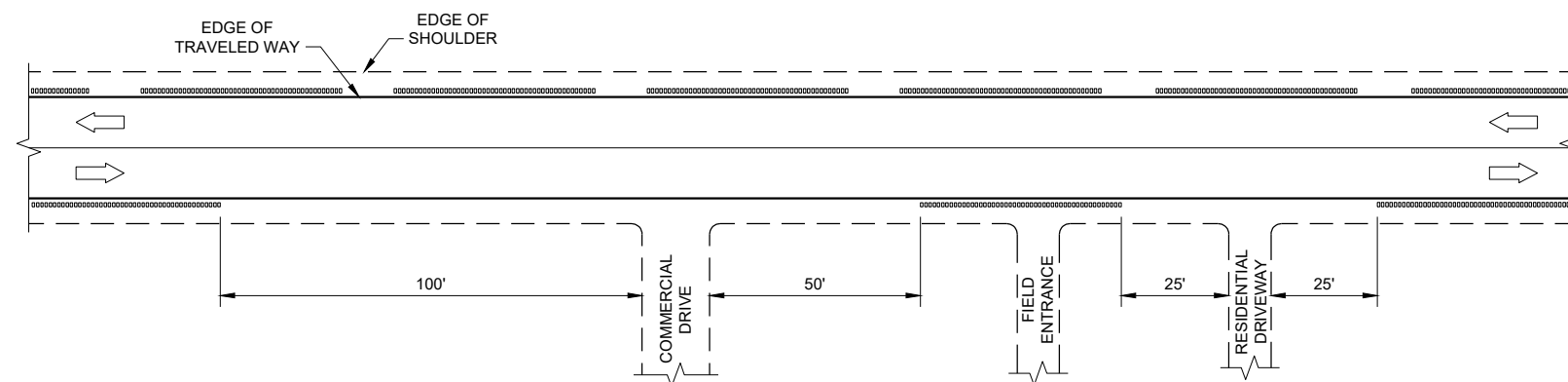
SHOULDER GROOVES AT RIGHT TURN LANE



SHOULDER GROOVES AT BRIDGES



SHOULDER GROOVES AT INTERSECTIONS WITH APPROACH TAPER



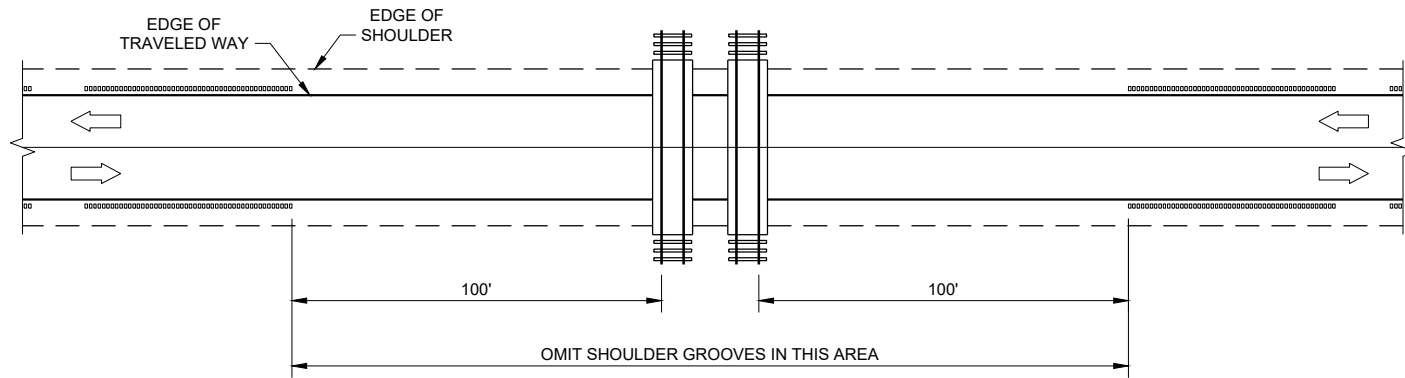
SHOULDER GROOVES AT DRIVEWAYS^①

GENERAL NOTES

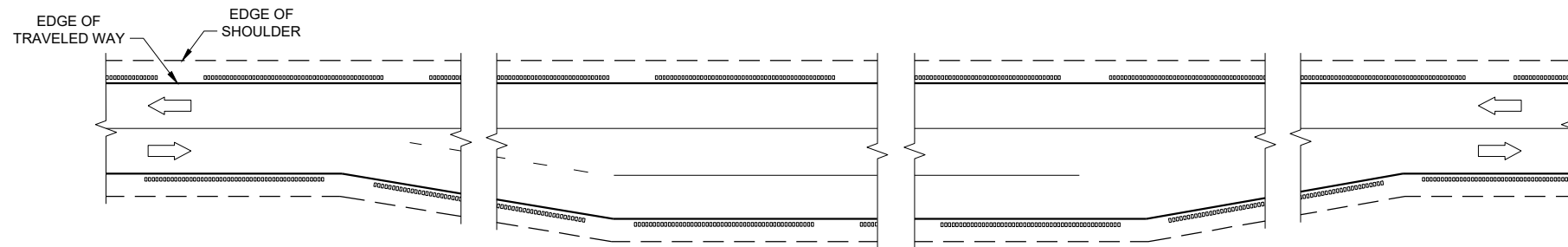
- ① SHOULDER GROOVES MAY BE OMITTED IN AREAS WITH HIGH CONCENTRATIONS OF DRIVEWAYS. WHEN DIRECTED BY THE ENGINEER.

2-LANE RURAL SHOULDER
RUMBLE STRIP, MILLING

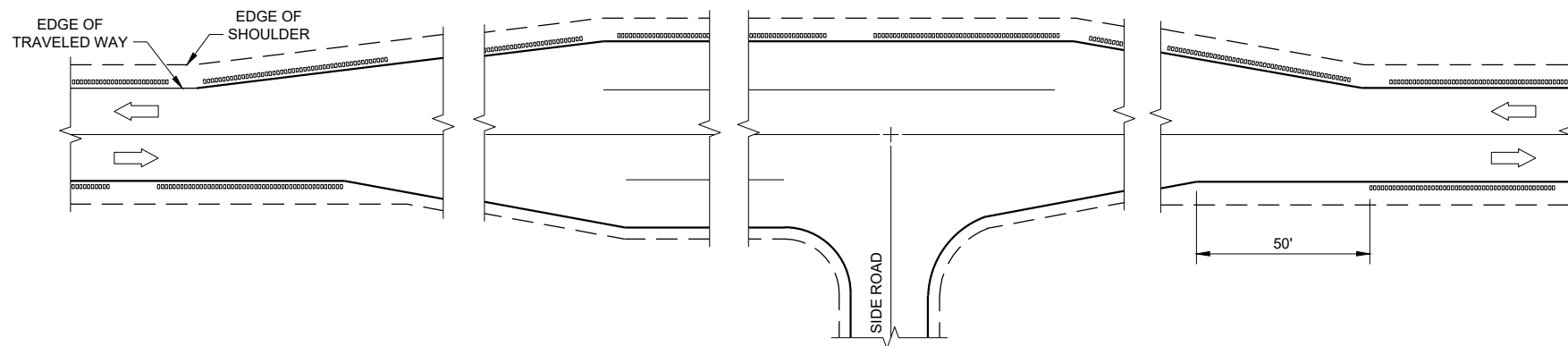
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



SHOULDER GROOVES AT RAILROADS



SHOULDER GROOVES AT PASSING AND CLIMBING LANES



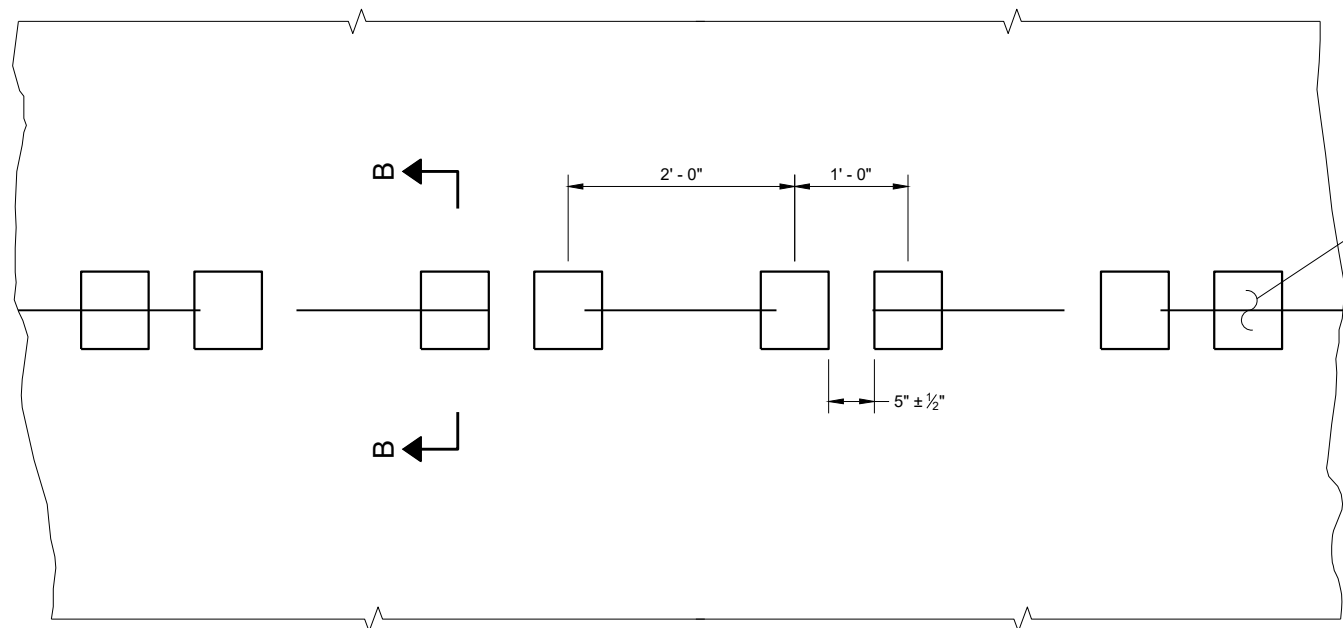
SHOULDER GROOVES AT BYPASS LANES

2-LANE RURAL SHOULDER
RUMBLE STRIP, MILLING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

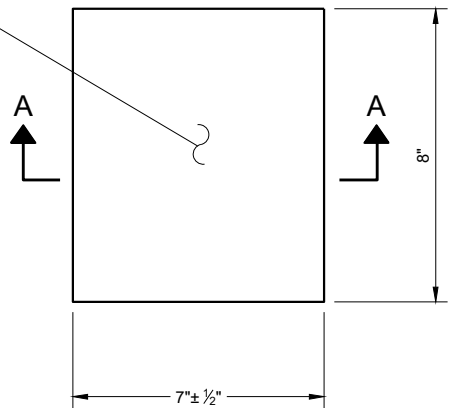
APPROVED
7/2018 DATE /S/ Rodney Taylor
ROADWAY STANDARDS DEVELOPMENT
ENGINEER

FHWA



PLAN VIEW
SHOULDER WITH GROOVES

PLACEMENT DETAIL FOR TYPE 1 MILLED RUMBLE STRIP



PLAN VIEW
(SINGLE GROOVE)

GENERAL NOTES

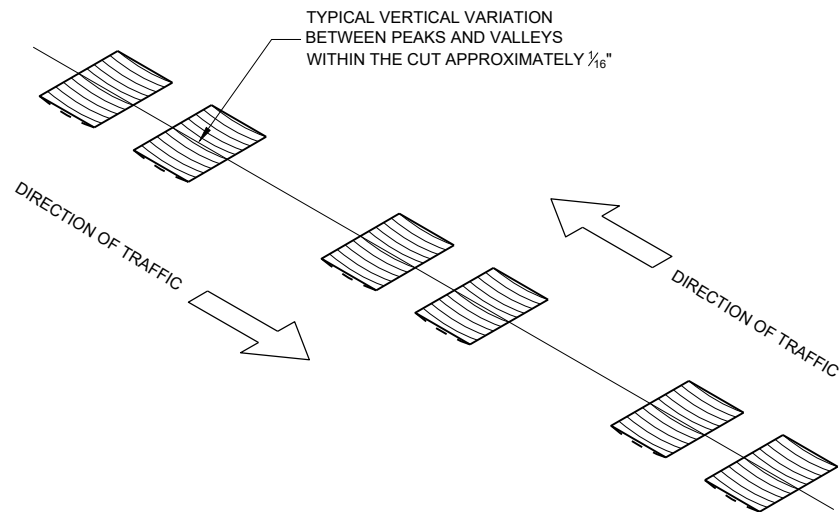
DETAILS OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

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

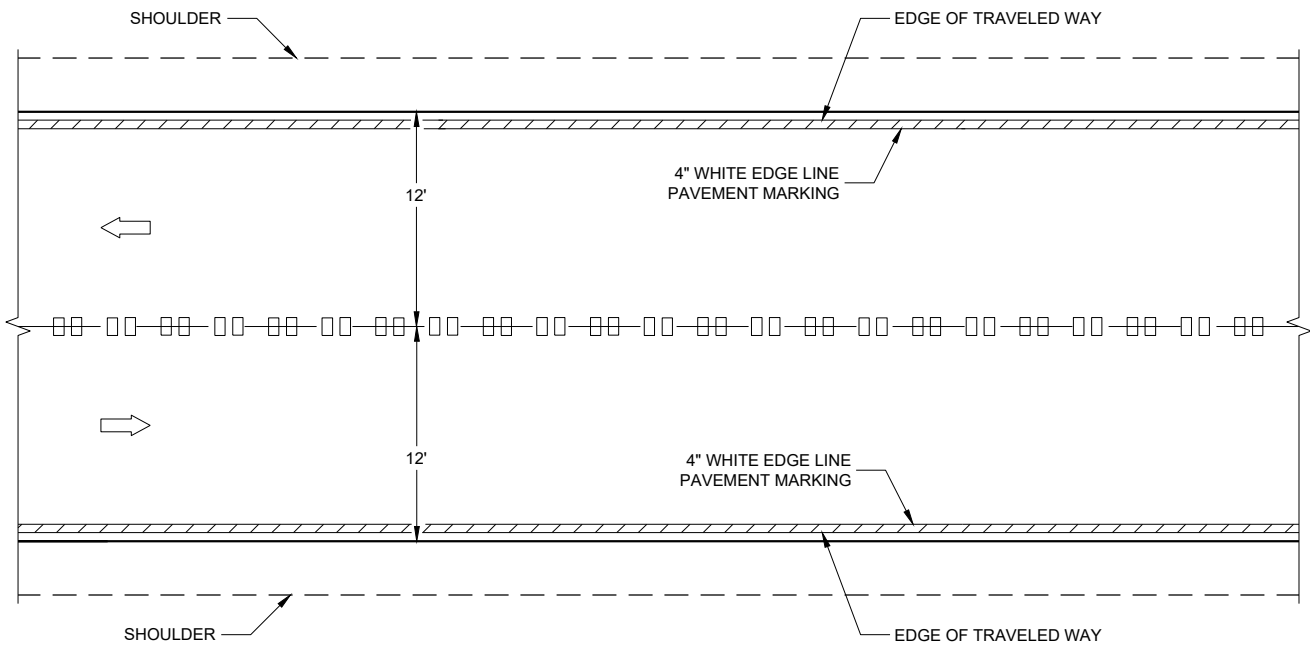
INSTALL PAVEMENT MARKING AFTER THE GROOVES ARE INSTALLED.

SEE SIGNING PLAN FOR SIGN REQUIREMENTS THAT MAY BE NEEDED.

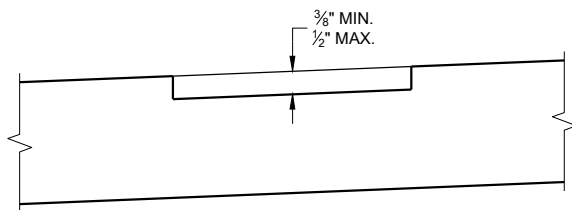
- ① CENTERLINE GROOVES MAY BE OMITTED IN AREAS WITH HIGH CONCENTRATIONS OF DRIVEWAYS. WHEN DIRECTED BY THE ENGINEER.



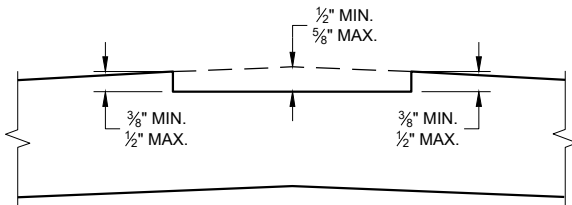
ISOMETRIC



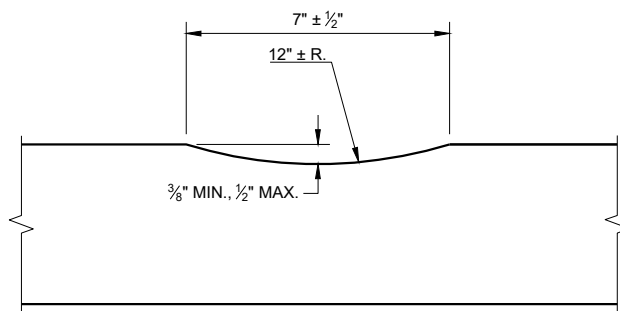
CENTERLINE GROOVES ON TWO-WAY ROADWAYS



SECTION B - B
SUPERELEVATED ROADWAY



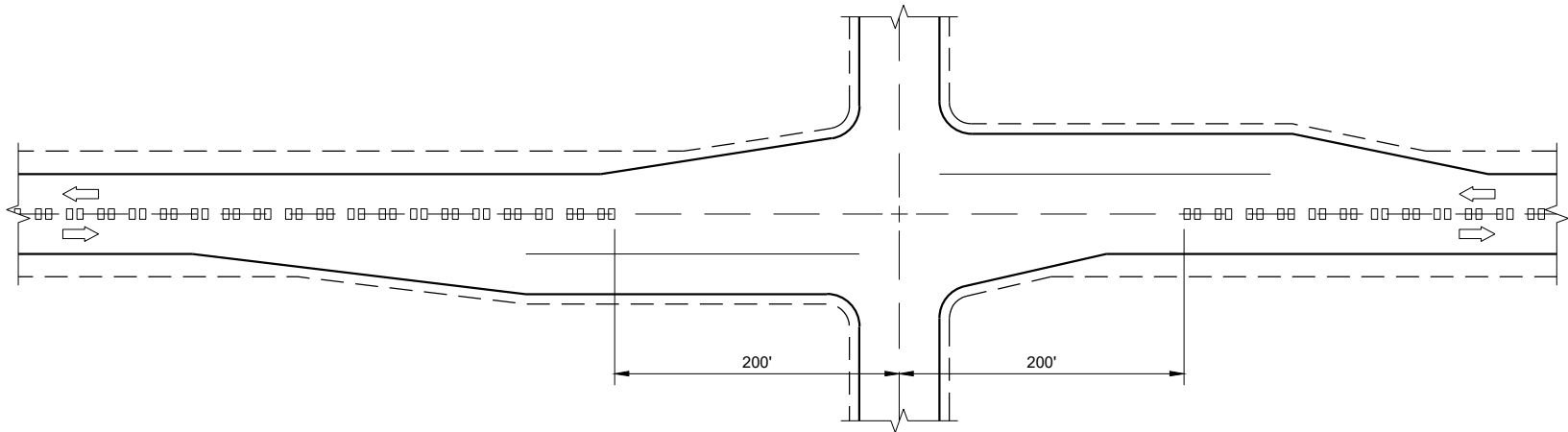
SECTION B - B
CROWNED ROADWAY



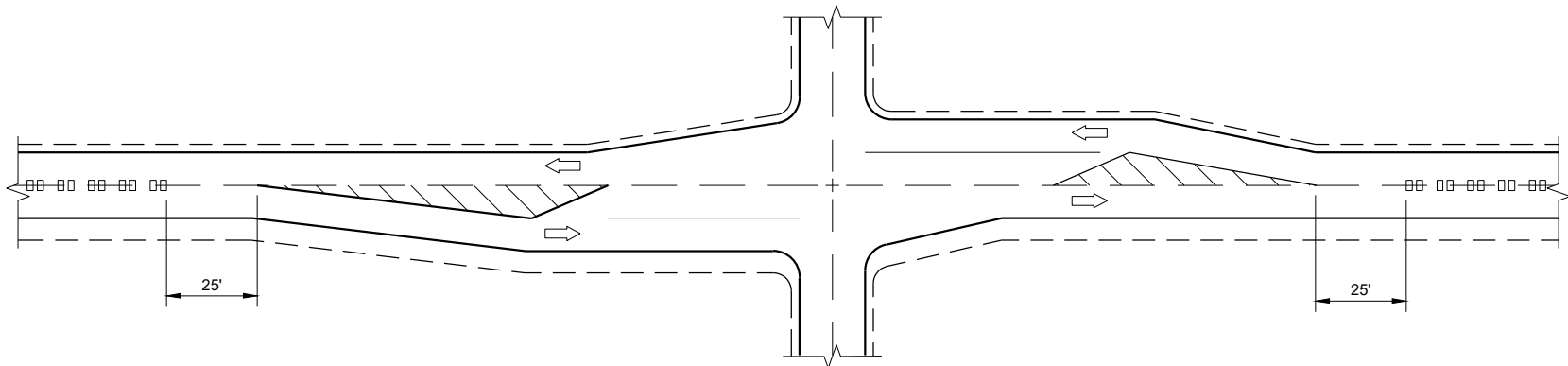
SECTION A - A

2-LANE RURAL
CENTER LINE RUMBLE STRIP,
MILLING

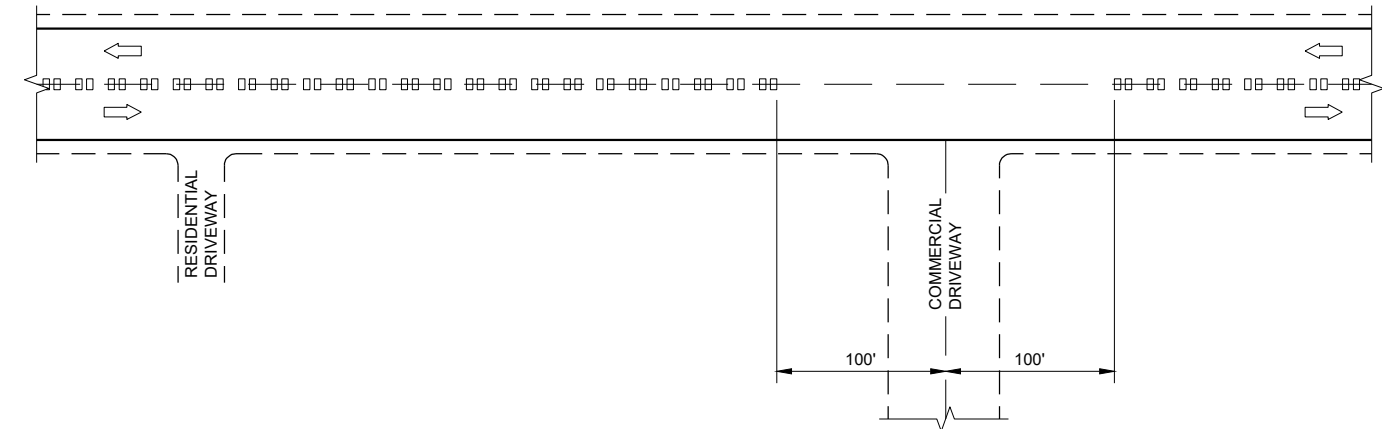
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



CENTERLINE GROOVES AT INTERSECTIONS



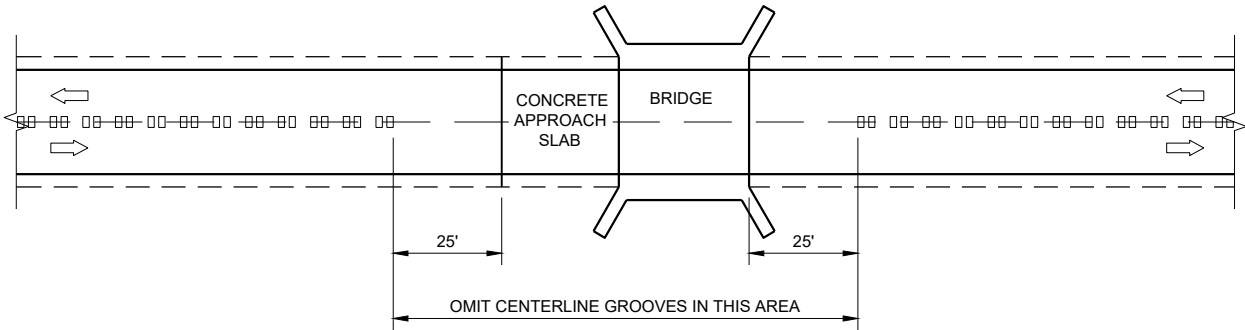
CENTERLINE GROOVES AT INTERSECTIONS
(WITH LEFT TURN LANES)



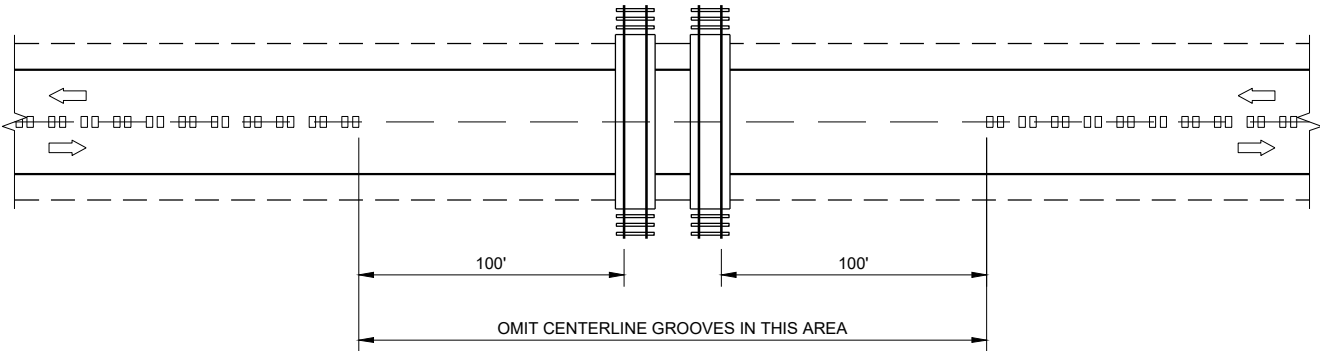
CENTERLINE GROOVES AT DRIVEWAYS^①

GENERAL NOTES

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



CENTERLINE GROOVES AT BRIDGES



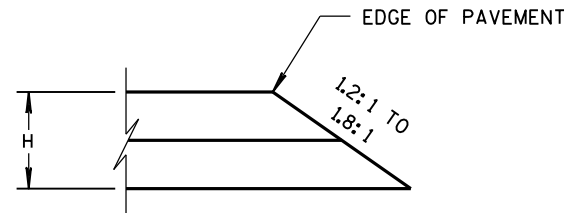
CENTERLINE GROOVES AT RAILROADS

2-LANE RURAL
CENTERLINE RUMBLE STRIP,
MILLING

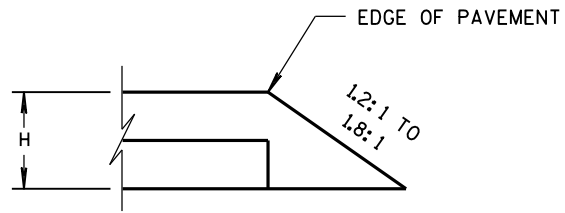
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
7/2018
DATE
/S/ Rodney Taylor
ROADWAY STANDARDS DEVELOPMENT
ENGINEER

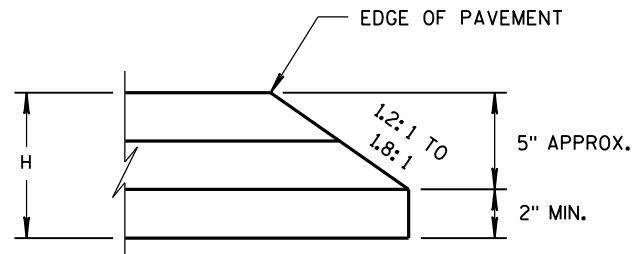
FHWA



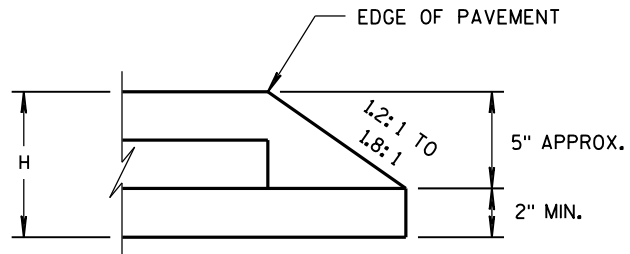
CONSTRUCTED WITH FINAL TWO LAYERS
FOR H 5" OR LESS



CONSTRUCTED WITH FINAL LAYER
FOR H 5" OR LESS

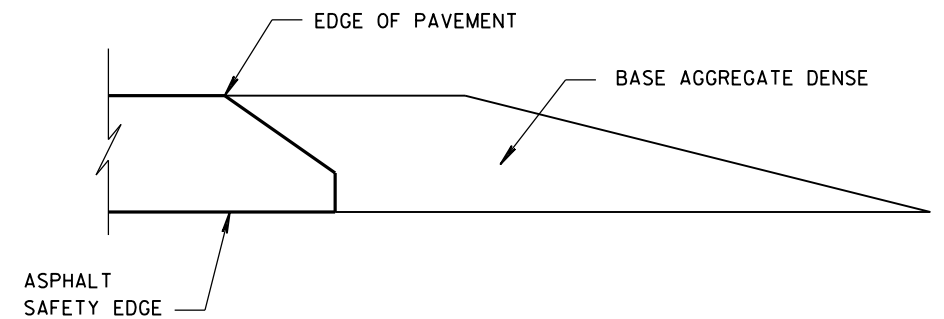


CONSTRUCTED WITH FINAL TWO LAYERS
FOR H GREATER THAN 5"



CONSTRUCTED WITH FINAL LAYER
FOR H GREATER THAN 5"

HMA PAVEMENT AND HMA OVERLAYS



FINISHED SHOULDER AGGREGATE PLACEMENT

SAFETY EDGE_{SM}

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

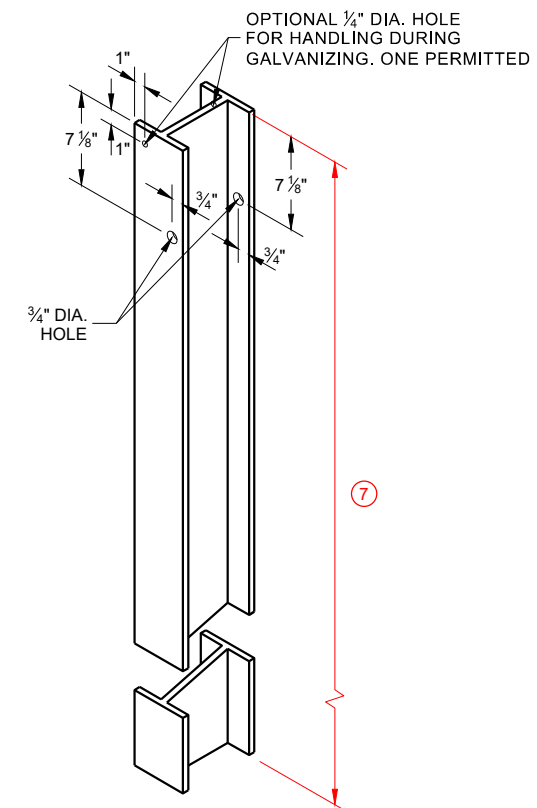
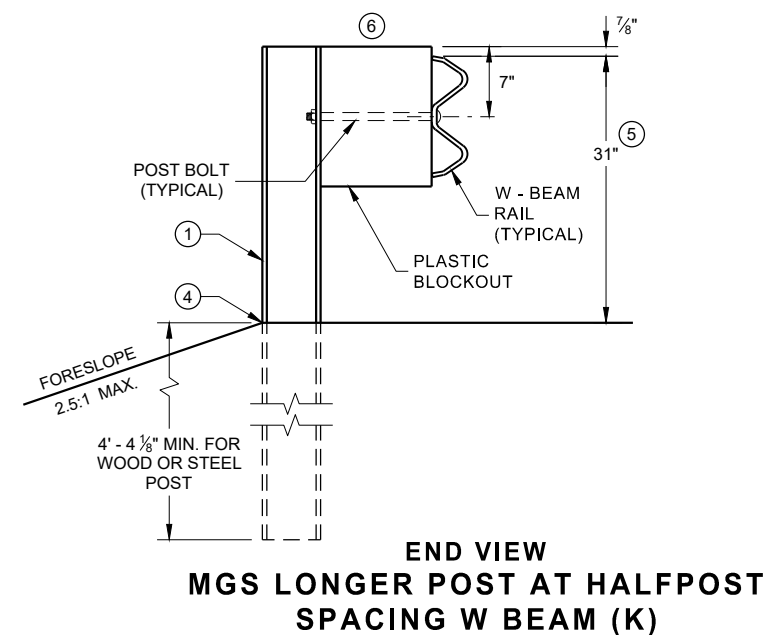
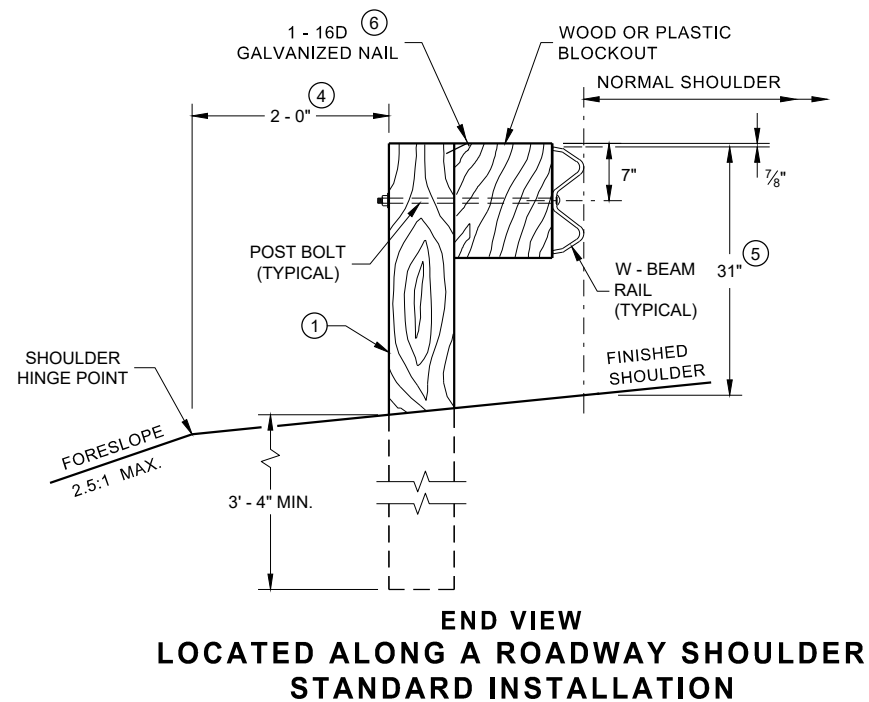
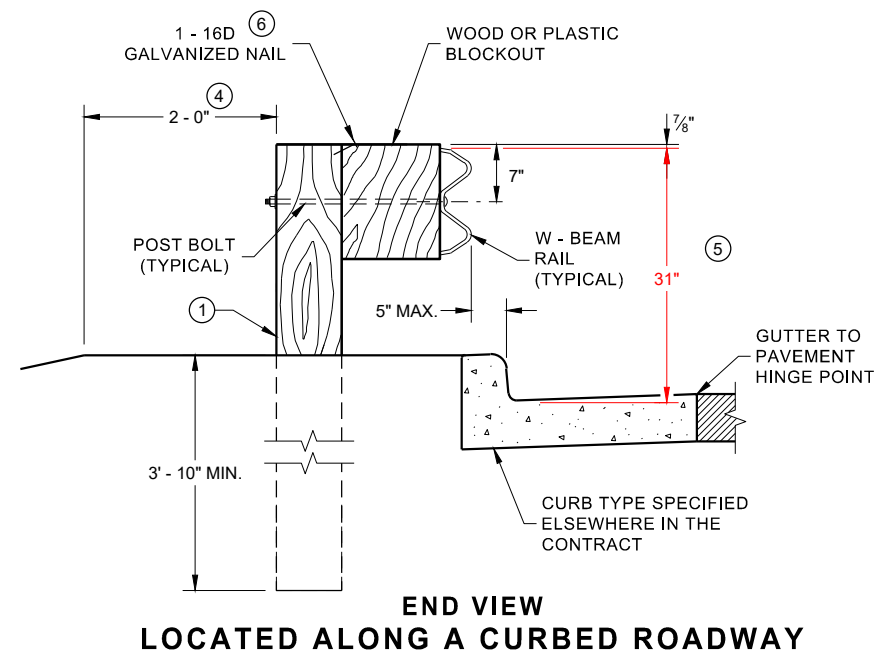
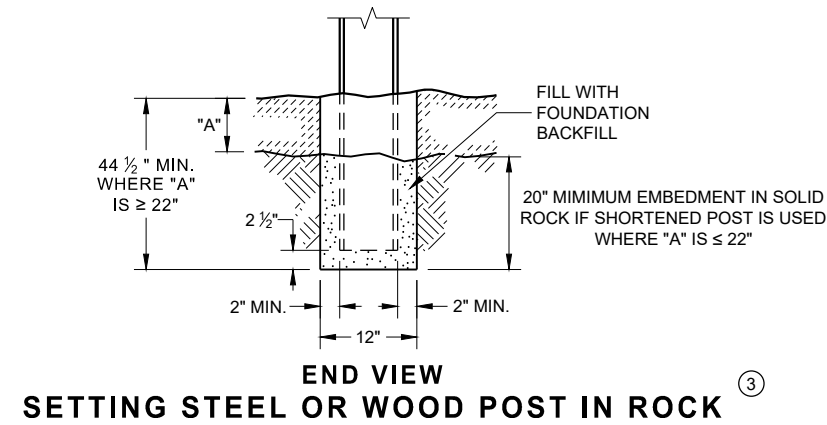
APPROVED

11/30/2012
DATE

FHWA

/s/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT
ENGINEER

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



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

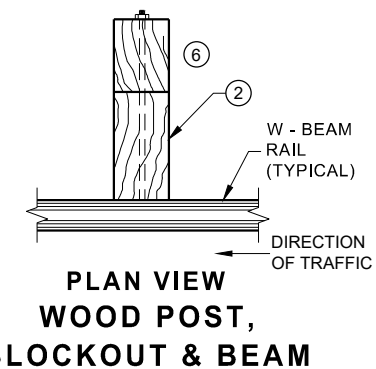
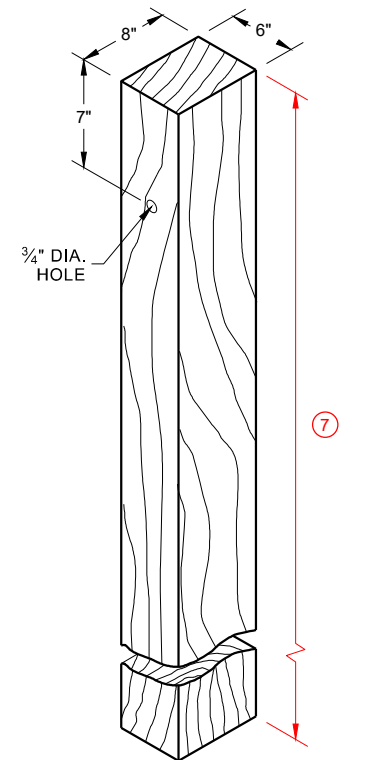
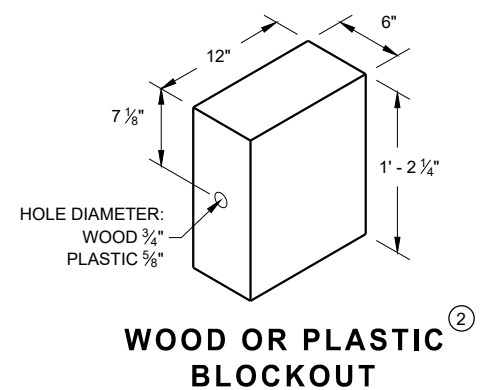


Diagram illustrating the Plan View of a Steel Post, Plastic Blockout, and Beam. The diagram shows a cross-section of a beam with a steel post and a plastic blockout. The beam is labeled "W - BEAM RAIL (TYPICAL)". The steel post is labeled "2". The plastic blockout is labeled "1". The distance between the center of the steel post and the center of the plastic blockout is indicated as $1 \frac{1}{4}"$. The direction of traffic is indicated by an arrow pointing to the right.

PLAN VIEW
STEEL POST,
PLASTIC BLOCKOUT & BEAM



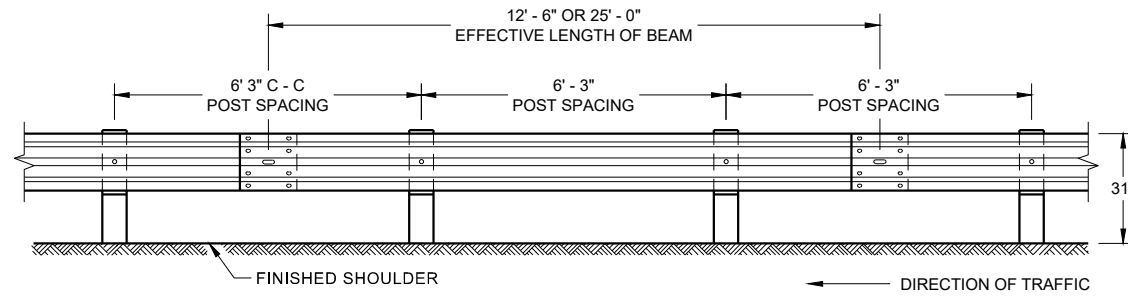
WOOD POST (6" X 8") NOMINAL ⁽¹⁾



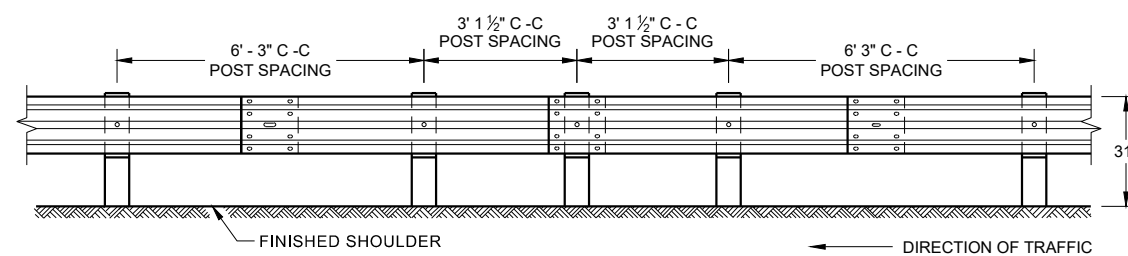
WOOD OR PLASTIC BLOCKOUT ⁽²⁾

MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL

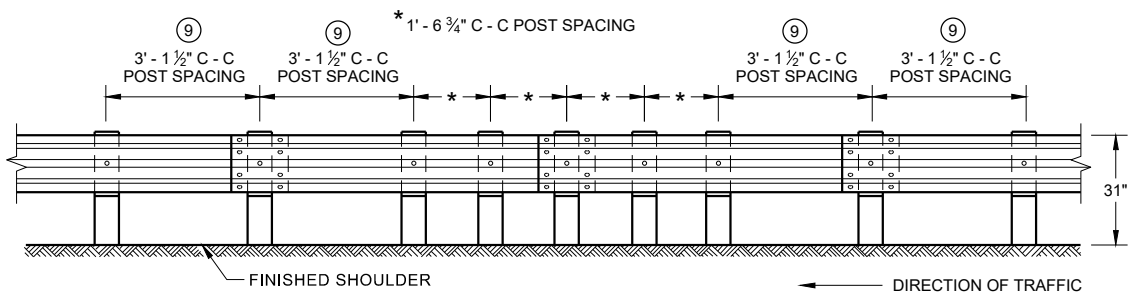
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



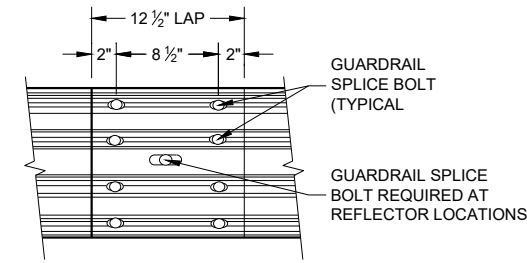
**FRONT VIEW
POST SPACING STANDARD INSTALLATION**



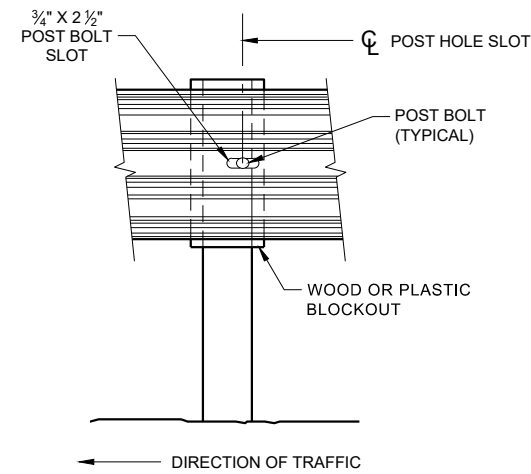
**FRONT VIEW
HALF POST SPACING (HS) AND
HALF POST SPACING WITH LONGER POSTS (K)**



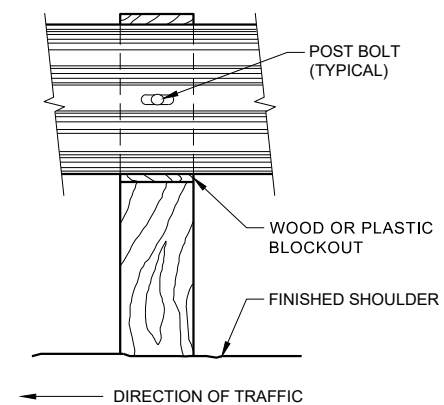
**FRONT VIEW
QUARTER POST SPACING (QS)**



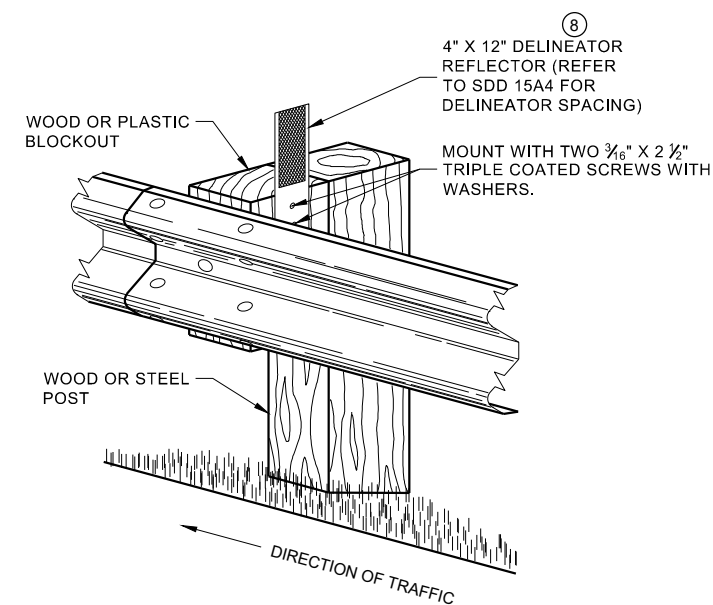
**FRONT VIEW
MID-SPAN BEAM SPLICE**



FRONT VIEW AT STEEL POST



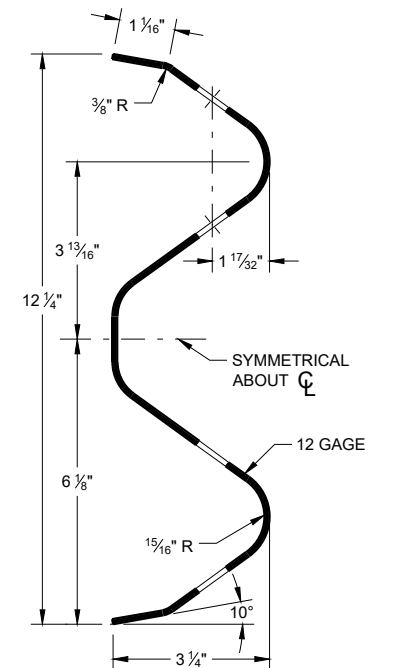
FRONT VIEW AT WOOD POST



**ONE SIDED REFLECTOR DETAIL
AND TYPICAL INSTALLATION**

GENERAL NOTES

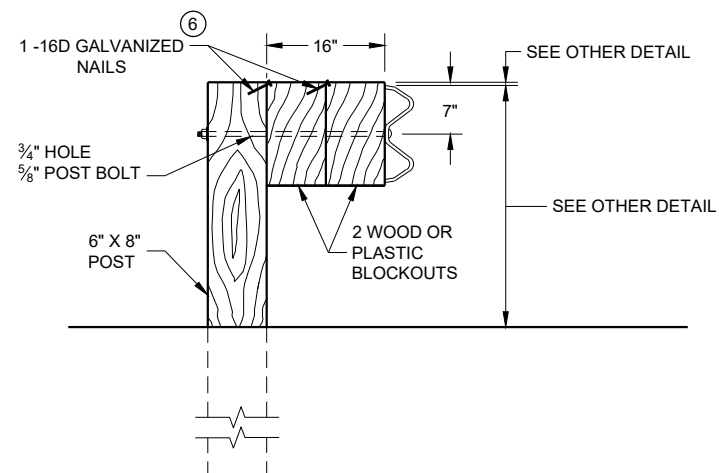
- 8 DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL. RAIL SPLICE LOCATIONS ARE THE ONLY ACCEPTABLE LOCATIONS FOR REFLECTORS.
 - 9 25 FEET OF HALF POST SPACING IS REQUIRED ON APPROACH AND DEPARTURE ENDS OF QUARTER POST SPACING.
- POST BOLTS ARE A 3/8"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



SECTION THRU W-BEAM RAIL

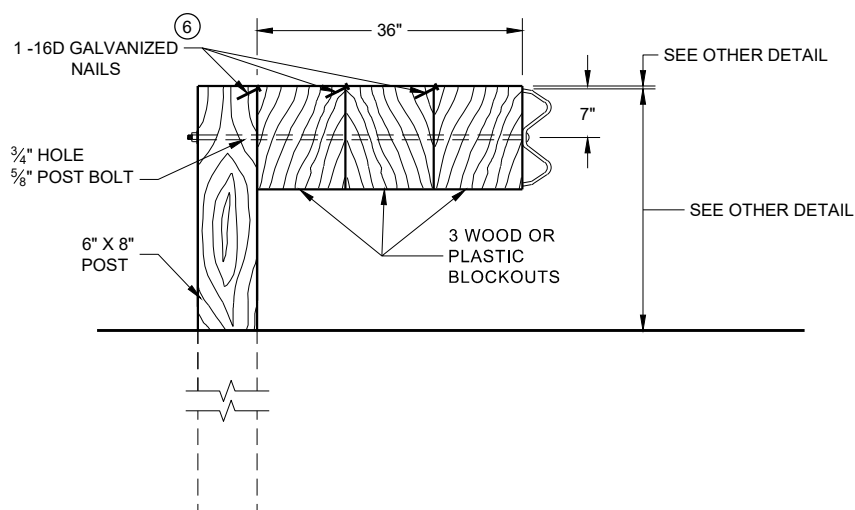
**MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



DETAIL FOR 16" BLOCKOUT DEPTH

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



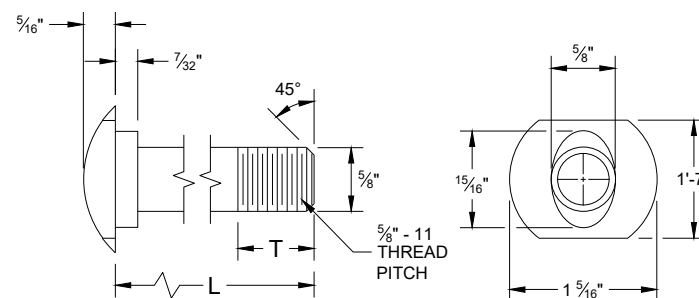
DETAIL FOR 36" BLOCKOUT DEPTH

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

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

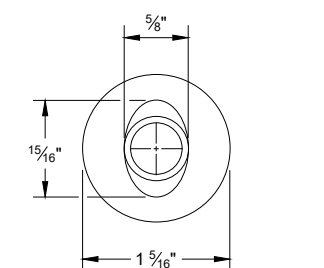
NOTE:

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

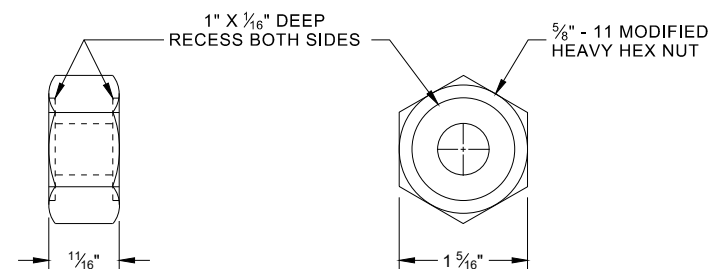


POST BOLT TABLE

L	T (MIN.)
1 ¼"	1 ⅛"
2"	1 ¾"
10"	4"
14"	4 ⅙"
18"	4"
21"	4 ⅙"
25"	4"

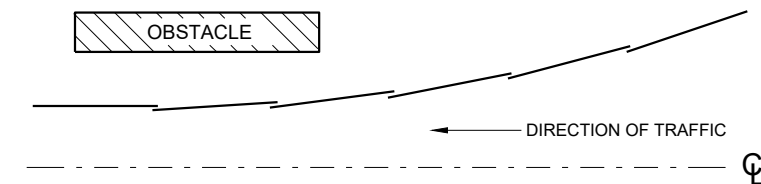


ALTERNATE BOLT HEAD

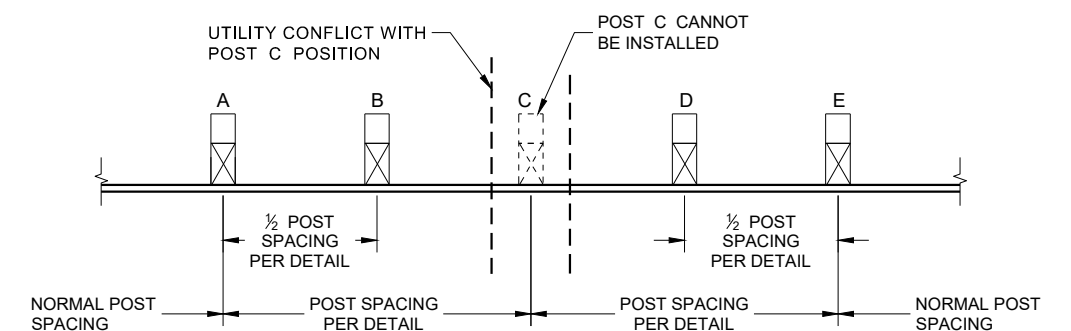


POST BOLT, SPLICE BOLT AND RECESS NUT

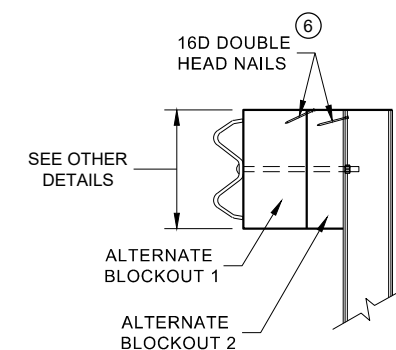
- ⑥ WHEN USING STEEL POST AD WOOD BLOCKOUTS, INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.



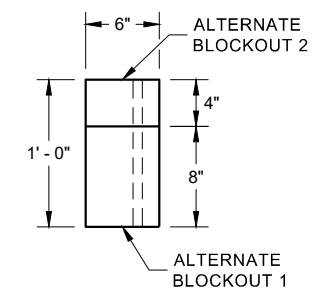
PLAN VIEW
BEAM LAPPING DETAIL



POST DRIVING FOR CONTINUOUS UNDERGROUND OBSTRUCTION



SIDE VIEW

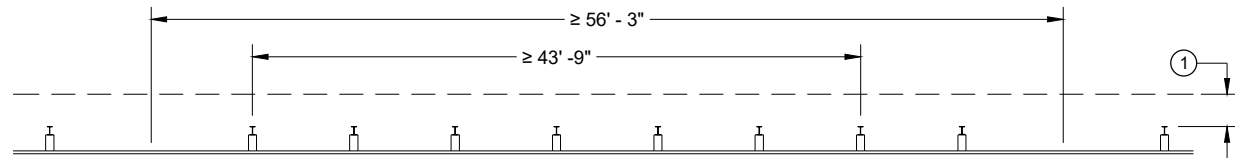


PLAN VIEW

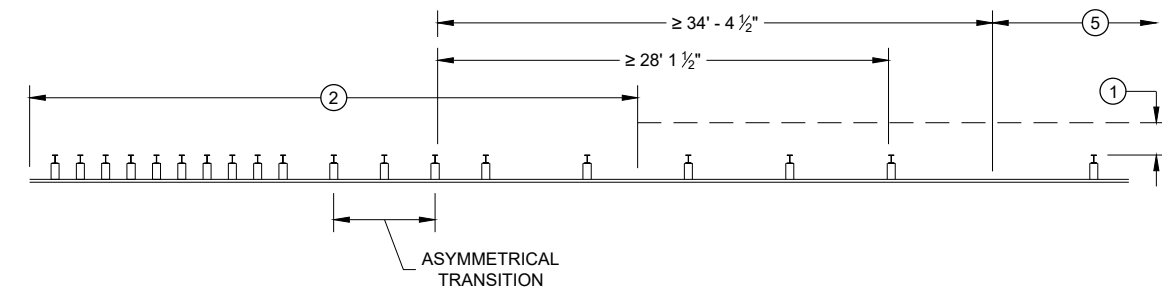
ALTERNATE WOOD BLOCKOUT DETAIL

MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL

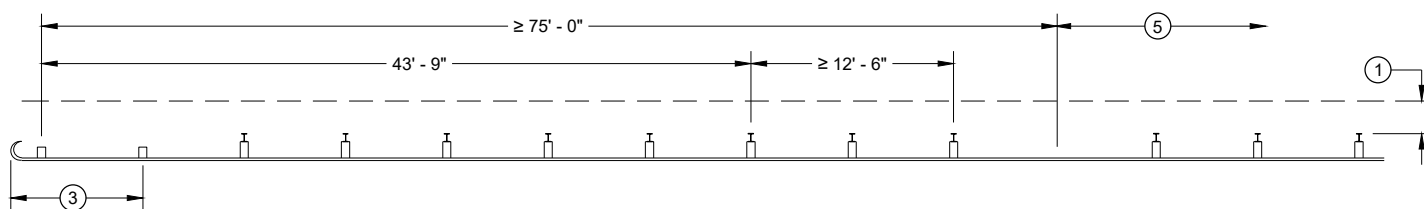
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



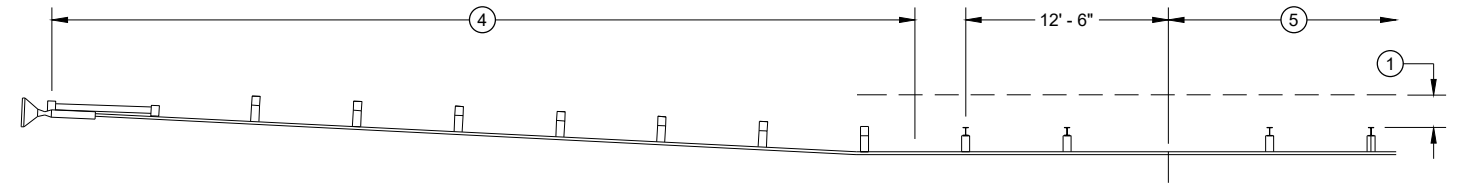
MISSING POST IN NORMAL BEAM GUARD RUN



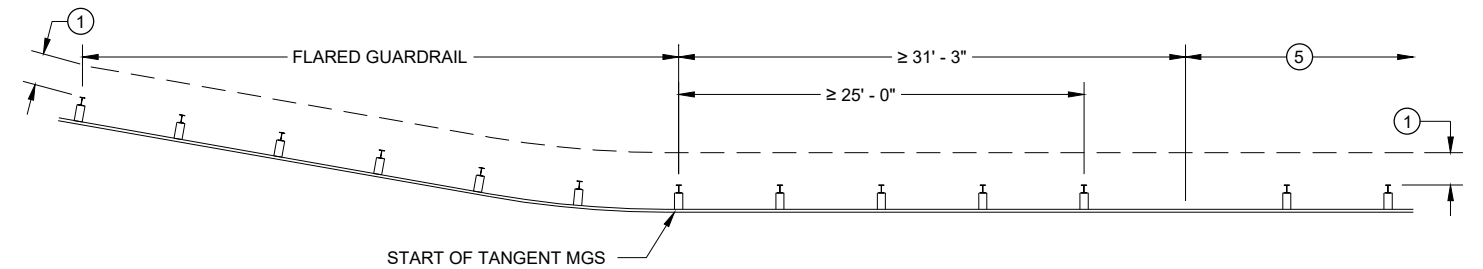
MISSING POST NEAR APPROACH THRIE BEAM TRANSITION



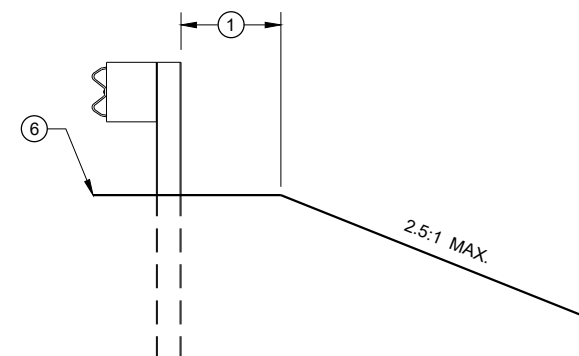
MISSING POST IN NORMAL BEAM GUARD RUN
NEAR TYPE 2 TERMINAL



MISSING POST IN NORMAL BEAM GUARD RUN NEAR EAT



MISSING POST IN NORMAL BEAM GUARD RUN
NEAR FLARED BEAM GUARD



CROSS SECTION VIEW

- ① MINIMUM OF 2 FEET OF GRADING BEHIND POST.
- ② SEE SDD 14B45 FOR MORE DETAILS.
- ③ SEE SDD 14B47 FOR MORE DETAILS.
- ④ SEE SDD 14B44 FOR MORE DETAILS.
- ⑤ SEE MISSING POST IN NORMAL BEAM GUARD RUN FOR DISTANCE TO NEXT MISSING POST AND AREA FOR WELL DRAINED, COMPACTED SOILS.
- ⑥ SEE PLAN FOR SHOULDER DESIGN.

MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL

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DATE
/S/ Rodney Taylor
ROADWAY STANDARDS DEVELOPMENT
UNIT SUPERVISOR
FHWA

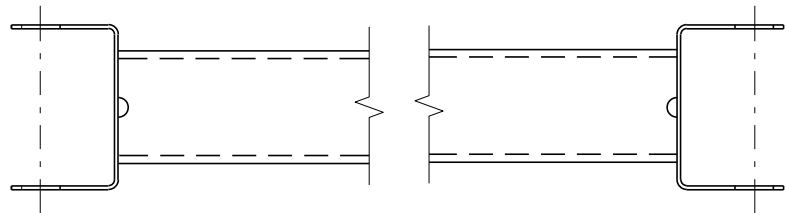
- (A) THE SLOPE IN THE AREA BOUNDED BY THE GRADELINE, THE HINGE POINT LINE (HPL) AND THE CLEAR ZONE LIMITS (CZL) SHALL BE 4:1 OR FLATTER.
- (B) AFTER FINAL ASSEMBLY, RECHECK CABLE TO BE SURE IT IS TAUT AND HAS NOT RELAXED
- (C) DIFFERENT MANUFACTURERS REQUIRE DIFFERENT PERFORATED W - BEAM RAIL END PANELS.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

DIMENSIONS MAY VARY, MANUFACTURER'S INFORMATION.

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

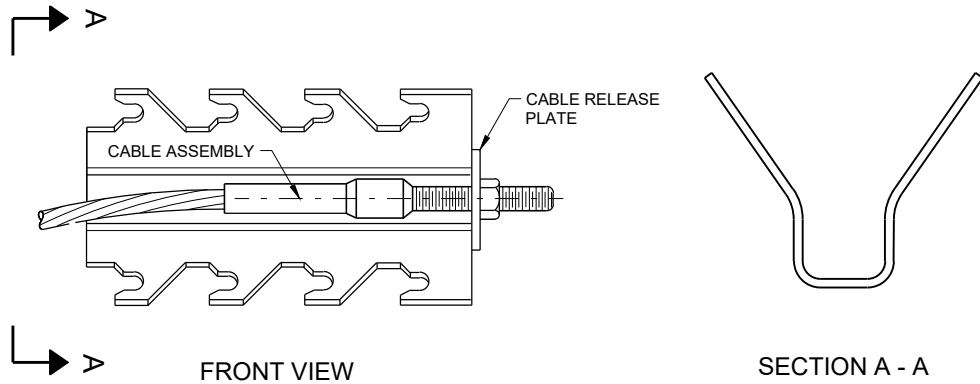


STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

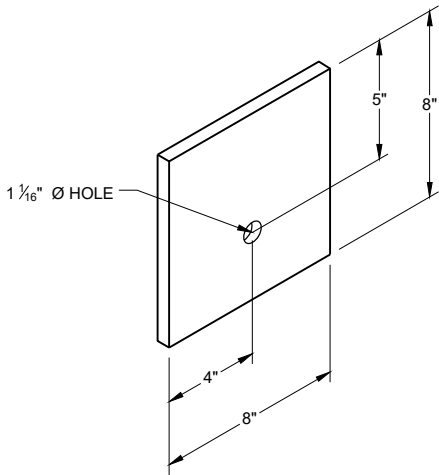


GENERIC GROUND STRUT⁹ (E)

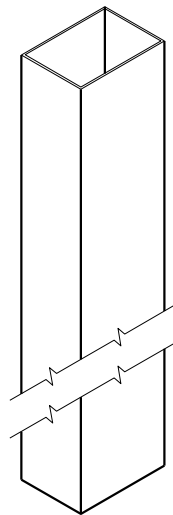
BILL OF MATERIALS	
PART NO.	DESCRIPTION MATERIALS PROVIDED BY MGS EAT MANUFACTURER. SEE MANUFACTURER'S DETAILS FOR MORE INFORMATION.
①	UPPER POST NO. 1 6" X 6" TUBE
②	LOWER POST NO. 1
③	WOOD CRT
④	WOOD BLOCKOUT
⑤	PIPE SLEEVE
⑥	BEARING PLATE
⑦	BCT CABLE ASSEMBLY
⑧	ANCHOR CABLE BOX
⑨	GROUND STRUT
⑩	PERFORATED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



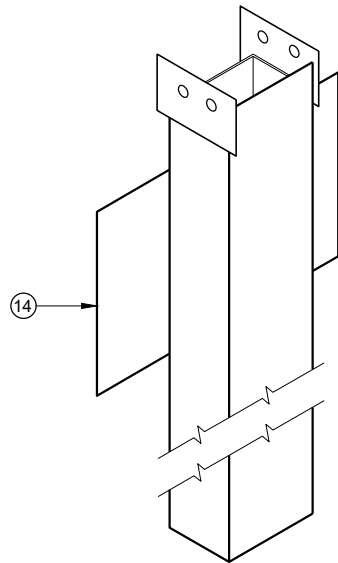
GENERIC ANCHOR CABLE BOX⁹ (E)



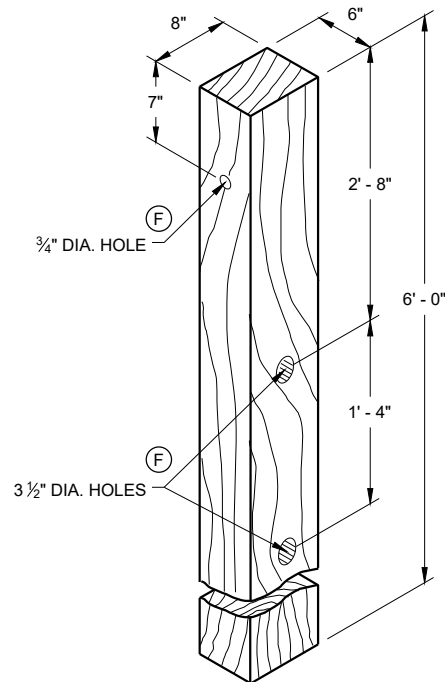
BEARING PLATE⁶ (E)



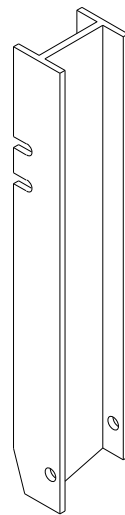
UPPER POST NO. 1 ⁽¹⁾ (E)



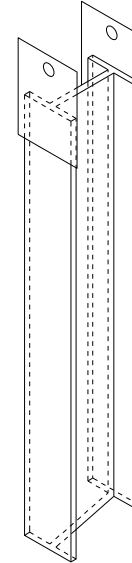
LOWER POST NO. 1 ⁽²⁾ (E)



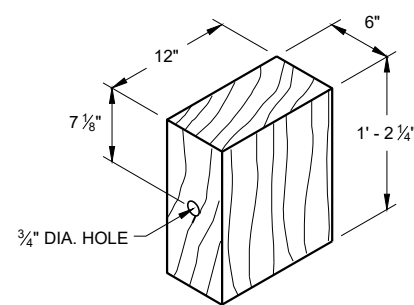
WOOD CRT POST ⁽³⁾ (E)
POSTS NUMBER 3-9



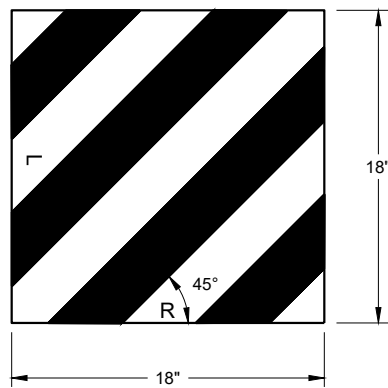
UPPER POST NO. 2 ⁽¹⁵⁾ (E)



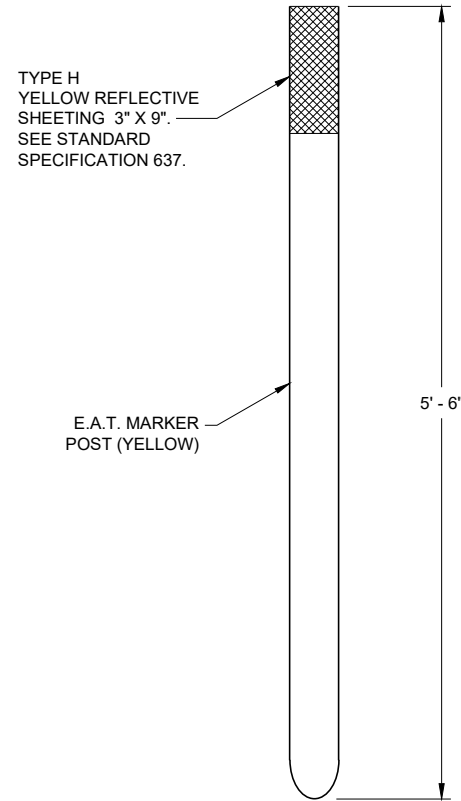
LOWER POST NO. 2 ⁽¹⁶⁾ (E)



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



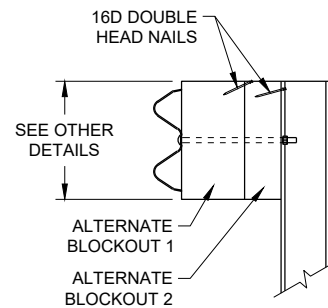
REFLECTIVE SHEETING DETAIL ^(E)



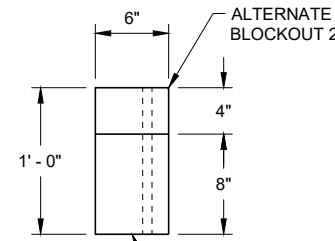
FRONT VIEW

SIDE VIEW

E.A.T. MARKER POST ⁽¹³⁾



SIDE VIEW



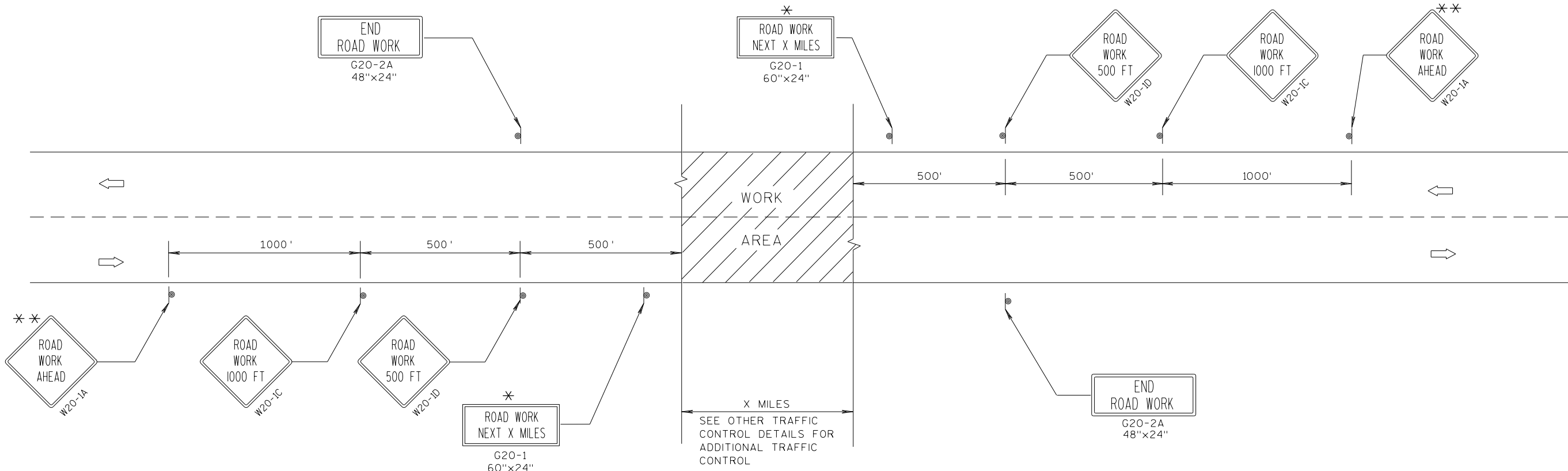
TOP VIEW

ALTERNATE WOOD
BLOCKOUT DETAIL

MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL
(MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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



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.

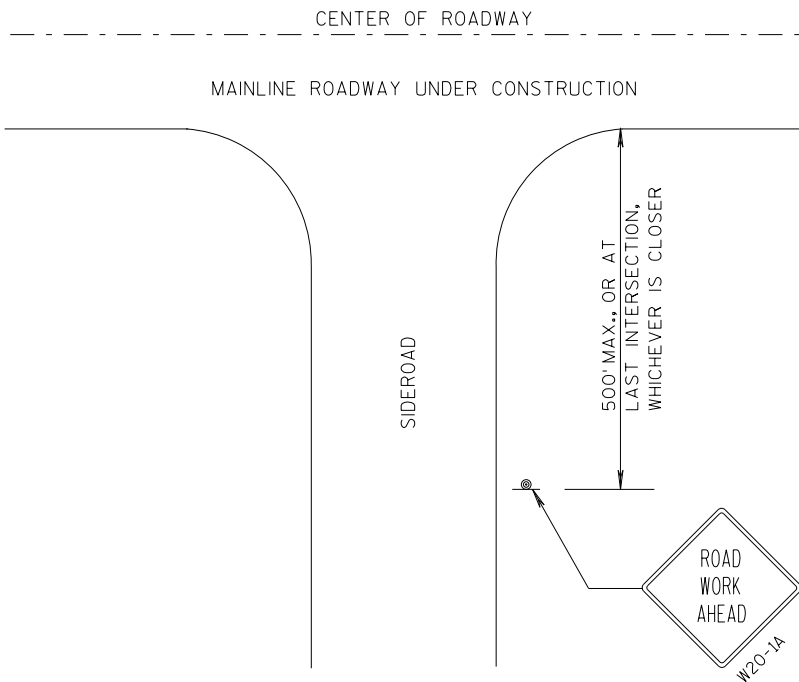
ALL SIGNS ARE 48"x48" UNLESS OTHERWISE NOTED.

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.



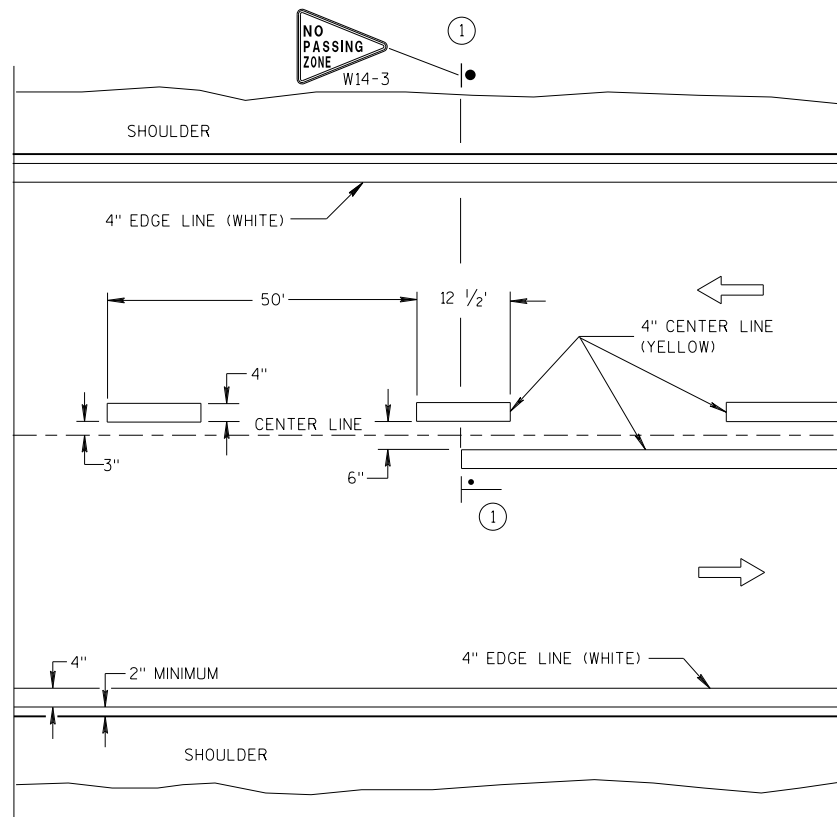
LEGEND

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

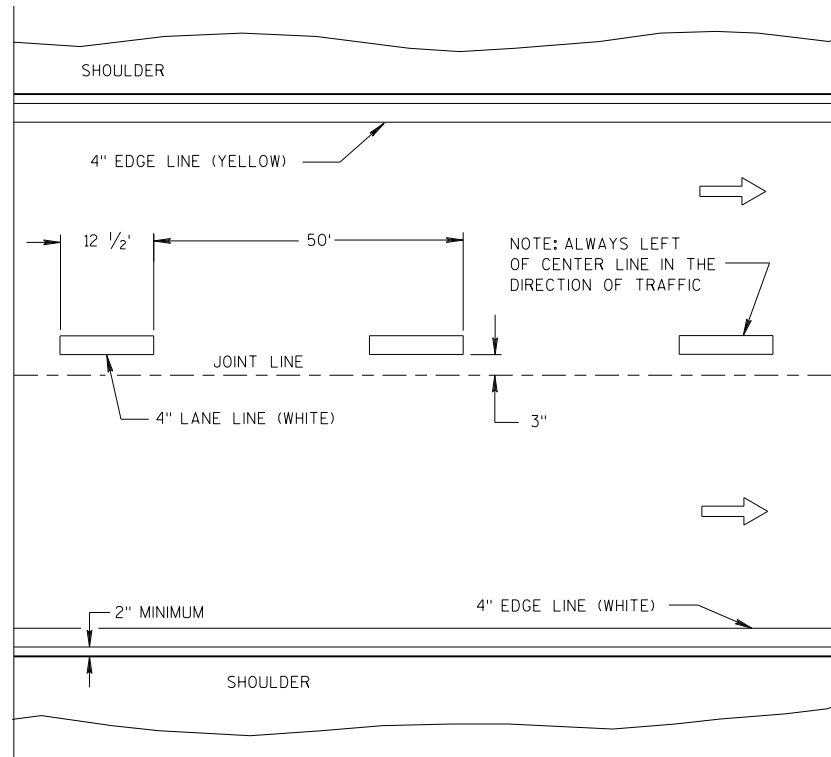
TRAFFIC CONTROL, ADVANCE
WARNING SIGNS 45 M.P.H.
OR GREATER TWO-WAY
UNDIVIDED ROAD OPEN TO TRAFFIC

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

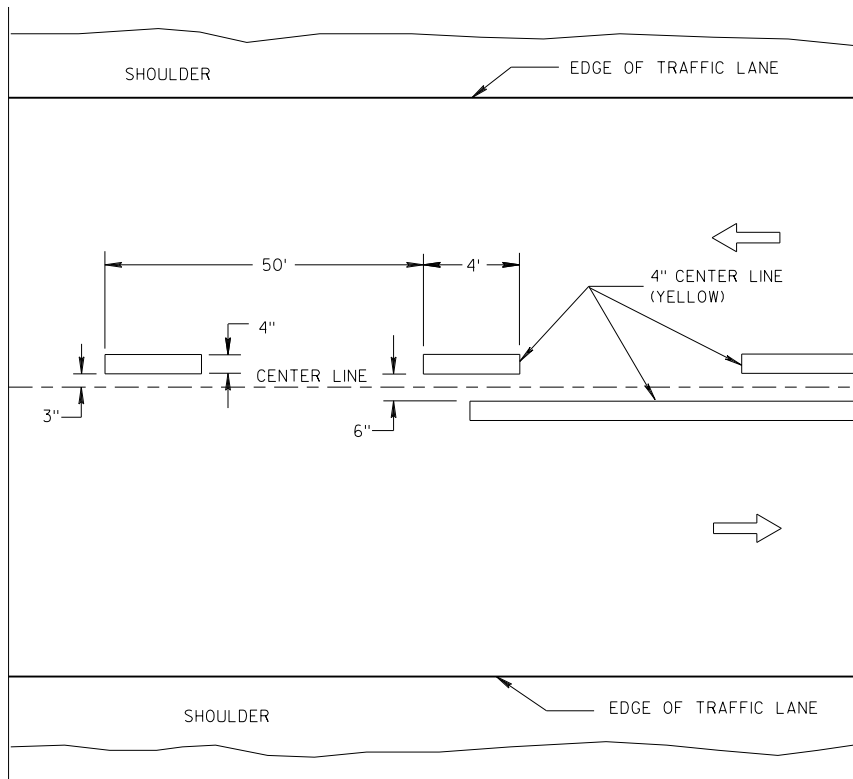


TWO WAY TRAFFIC

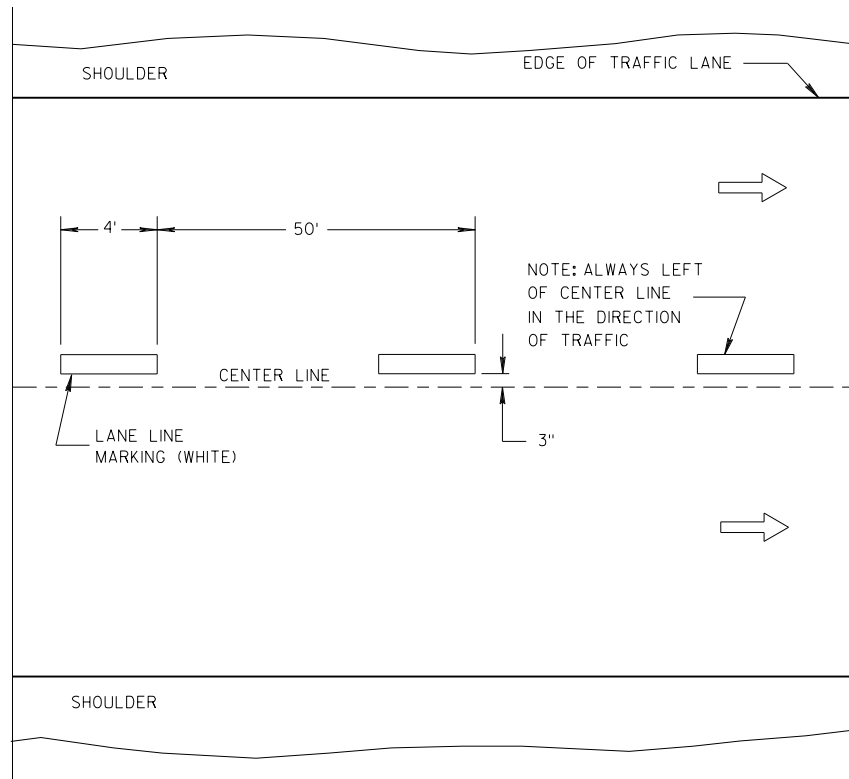


ONE WAY TRAFFIC

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

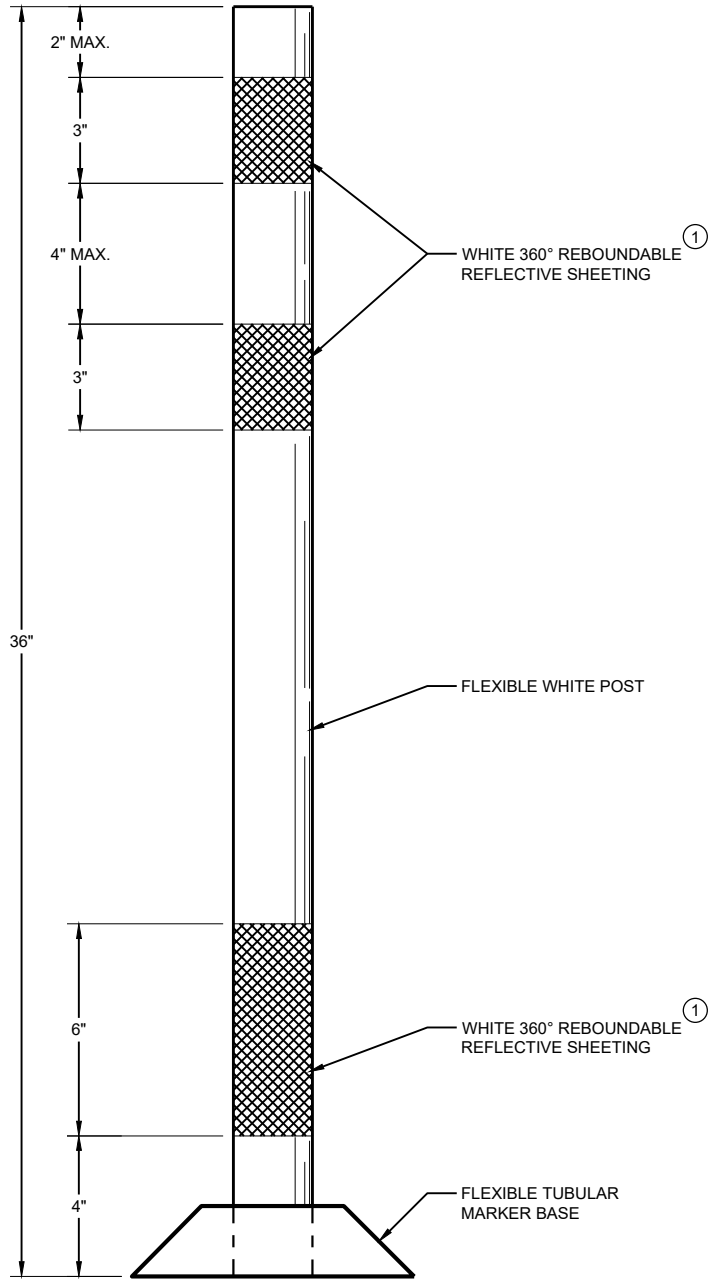
LEGEND

- "T" MARKING
- POST MOUNTED SIGN

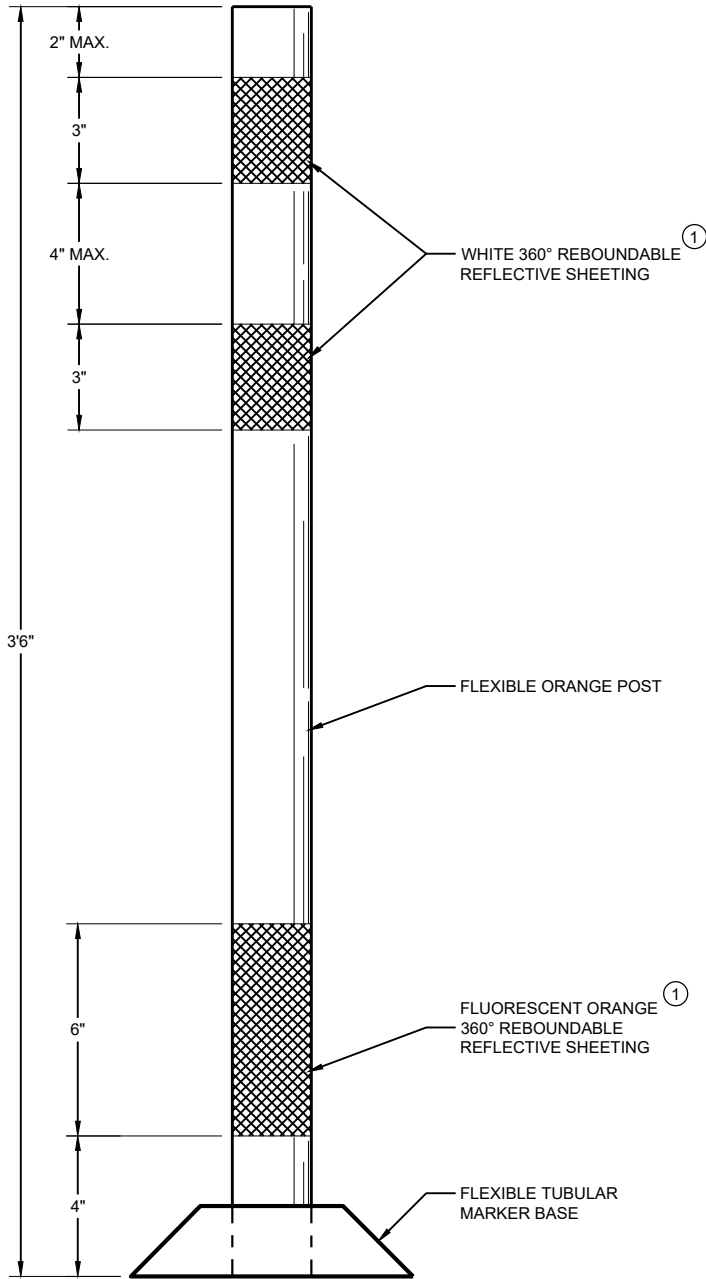
LONGITUDINAL MARKING
(MAINLINE)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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



**FLEXIBLE TUBULAR
MARKER POST
PERMANENT CROSSOVER**



**FLEXIBLE TUBULAR
MARKER POST
WORK ZONE**

GENERAL NOTES

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

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

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

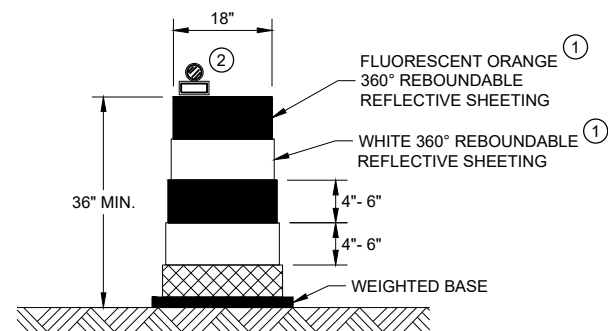
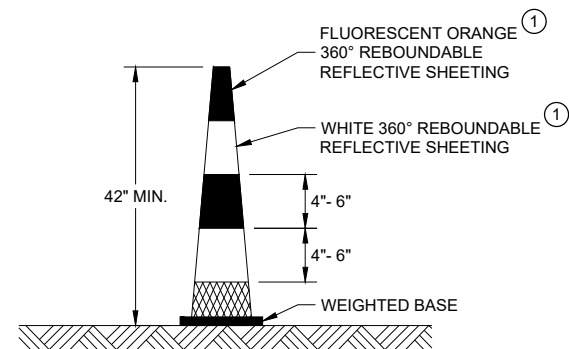
① REFLECTIVE SHEETING SHALL FOLLOW THE REQUIREMENTS IN THE APPROVED PRODUCTS LISTING FOR SIGN SHEETING.

CHANNELIZING DEVICES
FLEXIBLE TUBULAR
MARKER POST

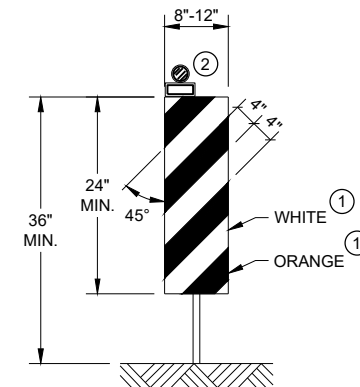
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June 2017 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER

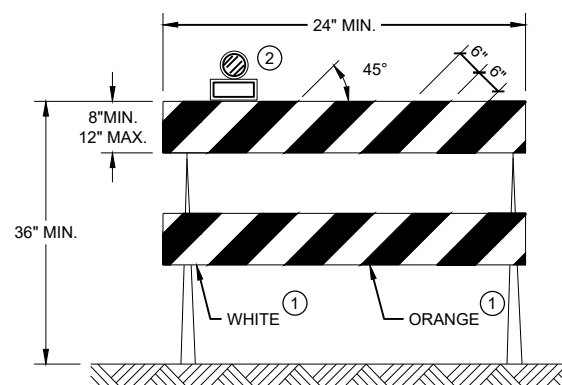
FHWA

**DRUM****42" CONE**

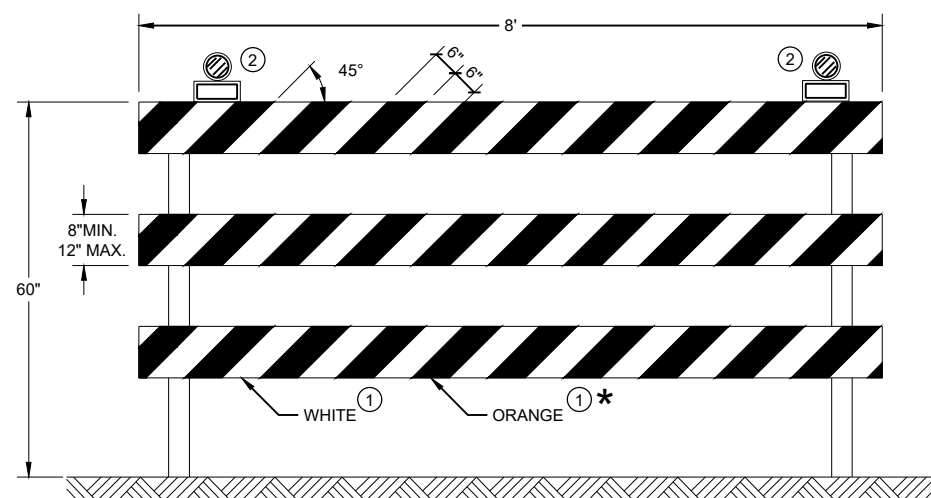
DO NOT USE IN TAPERS
½ SPACING OF DRUMS

**VERTICAL PANEL**

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

**TYPE II BARRICADE**

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

**TYPE III BARRICADE**

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

* IF USED FOR A PERMANENT APPLICATION USE RED SHEETING.

GENERAL NOTES

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

CHANNELIZING DEVICES DRUMS, CONES, BARRICADES AND VERTICAL PANELS	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED June 2017 DATE	/S/ Andrew Heidtke WORK ZONE ENGINEER
FHWA	

LEGEND

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

GENERAL NOTES

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

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

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

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

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

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

FLAGGING

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

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

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

TEMPORARY PORTABLE RUMBLE STRIPS

UTILIZE TEMPORARY PORTABLE RUMBLE STRIPS ON ALL FLAGGING OPERATIONS.

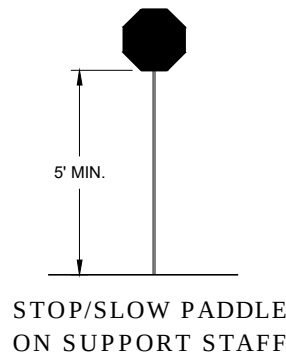
- ③ EACH TEMPORARY PORTABLE RUMBLE STRIP ARRAY CONSISTS OF THREE RUMBLE STRIPS SPACED ACCORDING TO MANUFACTURER'S RECOMMENDATION, PLACED TRANSVERSE ACROSS THE LANE AT LOCATIONS SHOWN.

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

INSTALL TEMPORARY RUMBLE STRIPS PER MANUFACTURER'S RECOMMENDATIONS.

PLACE ADVANCE SIGNING PRIOR TO INSTALLING TEMPORARY RUMBLE STRIPS.

DO NOT INSTALL TEMPORARY PORTABLE RUMBLE STRIPS ON GRAVEL, MILLED SURFACES, OR ASPHALT THAT HAS BEEN PAVED LESS THAN 12 HOURS.

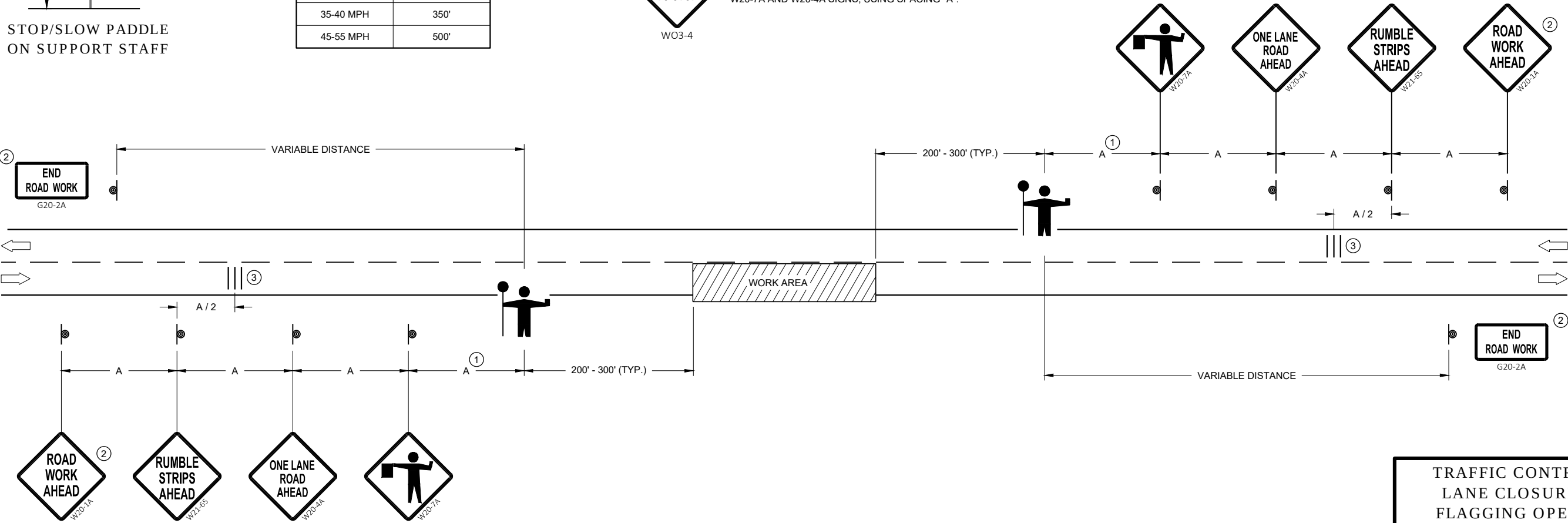


SIGN AND TEMPORARY RUMBLE STRIP ARRAY SPACING TABLE

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

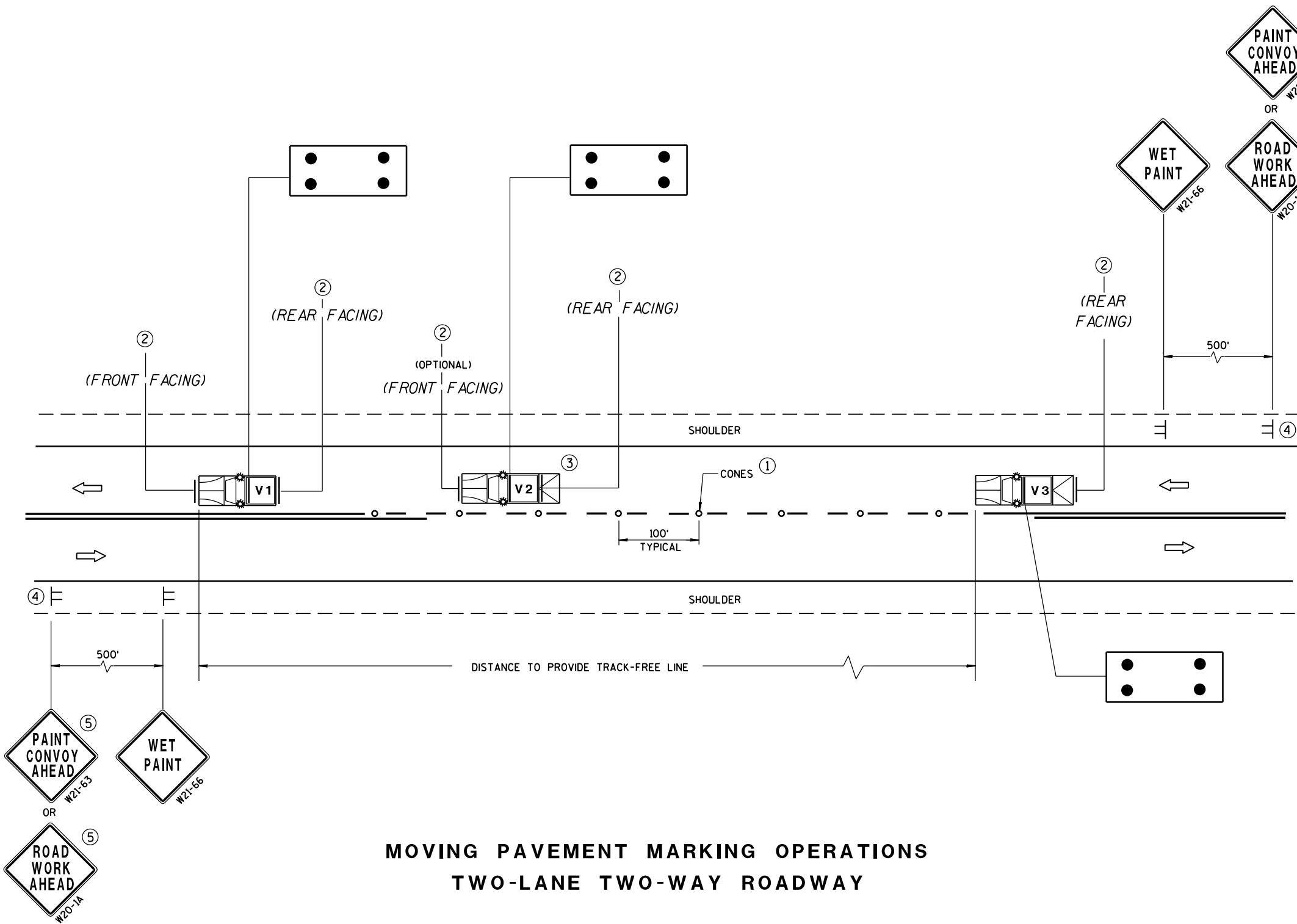


USE OF W03-4 SIGN IS OPTIONAL. WHEN USED, THIS SIGN SHALL BE LOCATED BETWEEN THE W20-7A AND W20-4A SIGNS, USING SPACING "A".



TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATION

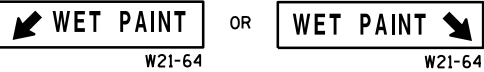
TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATION	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED May 2019 DATE	/S/ Andrew Heidtke WORK ZONE ENGINEER
FHWA	



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.



OR



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

GENERAL NOTES

SIGNING AND MARKING IS SHOWN AS TYPICAL PLACEMENT. FIELD CONDITIONS MAY DICTATE CHANGES IN SIGNING AND MARKING PLACEMENT.

A DISTANCE DEPENDENT ON SPEED (SEE TABLE)

1 USED ONLY WHEN APPROVED BY REGION TRAFFIC ENGINEER.

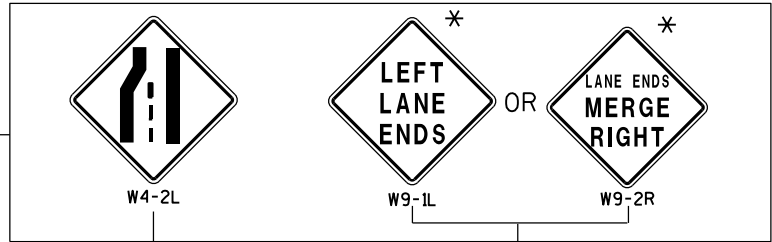
SYMBOLS

- * SIGNS MAY BE OMITTED IF SPACE DOES NOT PERMIT
- * * IF POSTED SPEED 45 MPH OR GREATER, PLACE W5-54 SIGN UNDER R4-7 SIGN. MOUNT W5-54 SIGN AT 4' MOUNTING HEIGHT (TOP OF ROADWAY TO BOTTOM OF SIGN)
- POST MOUNTED SIGN
- DIRECTION OF TRAFFIC FLOW

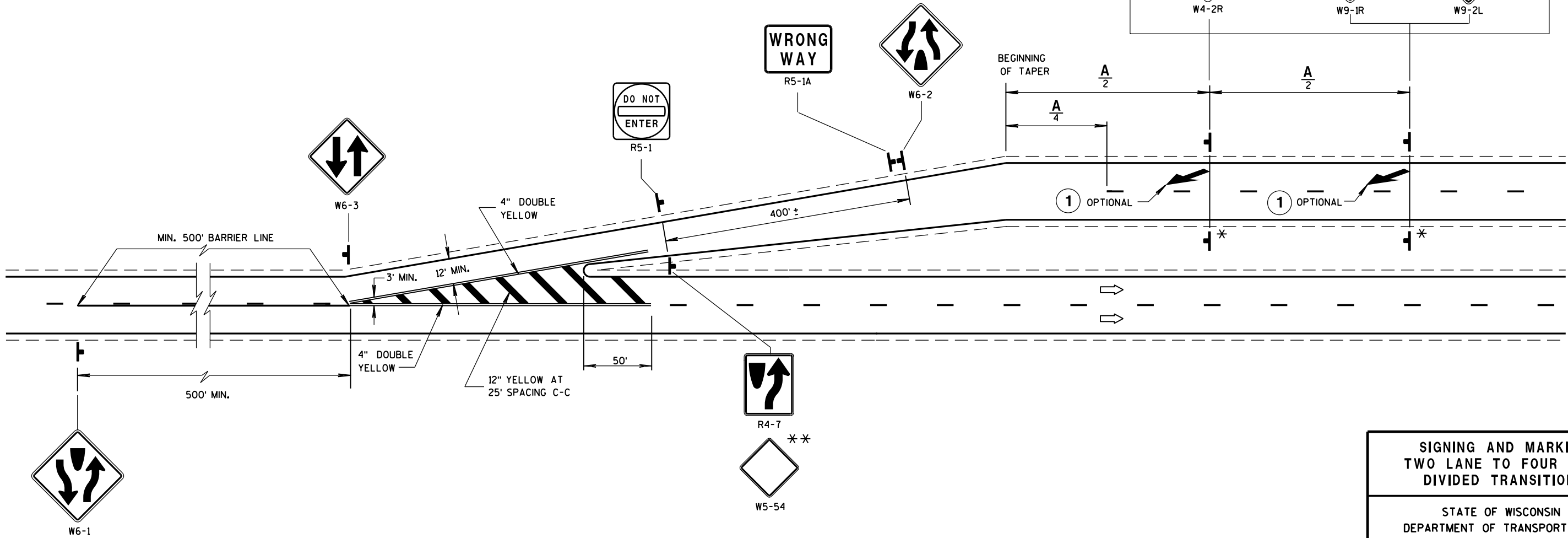
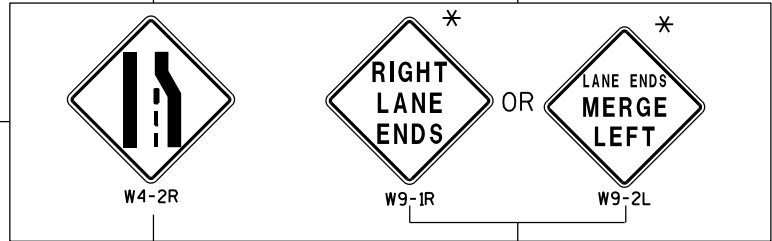
DISTANCE TABLE

POSTED OR 85th PERCENTILE SPEED	DISTANCE "A"
25	325
30	460
35	565
40	670
45	775
50	885
55	990

OPTION 2



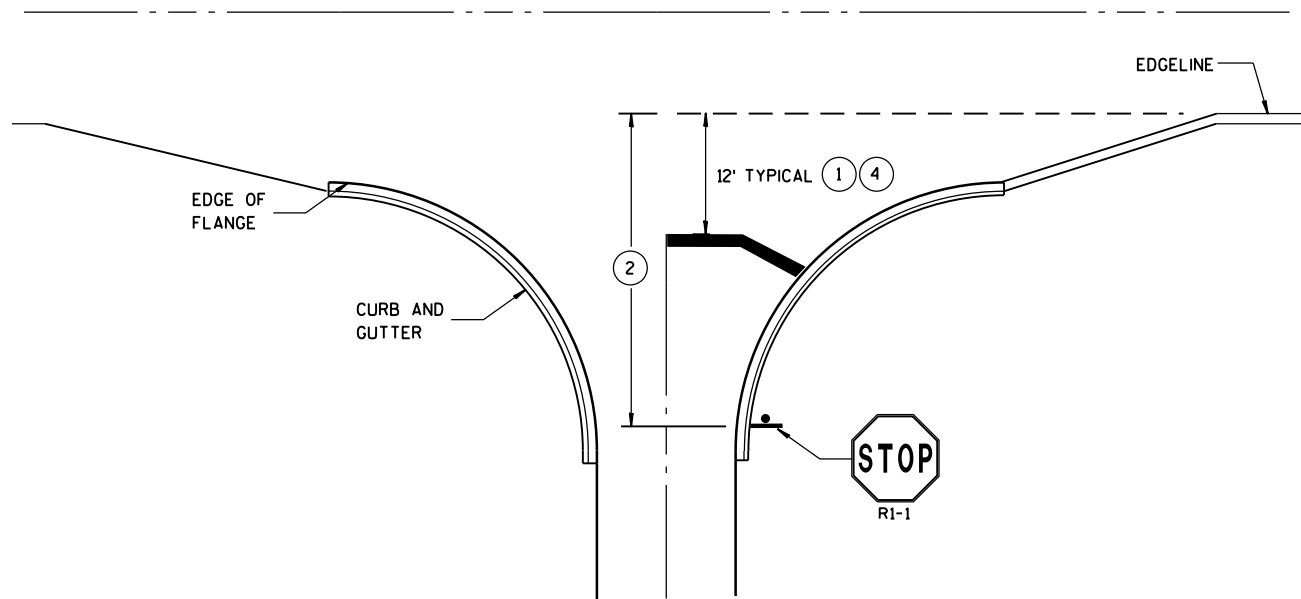
OPTION 1



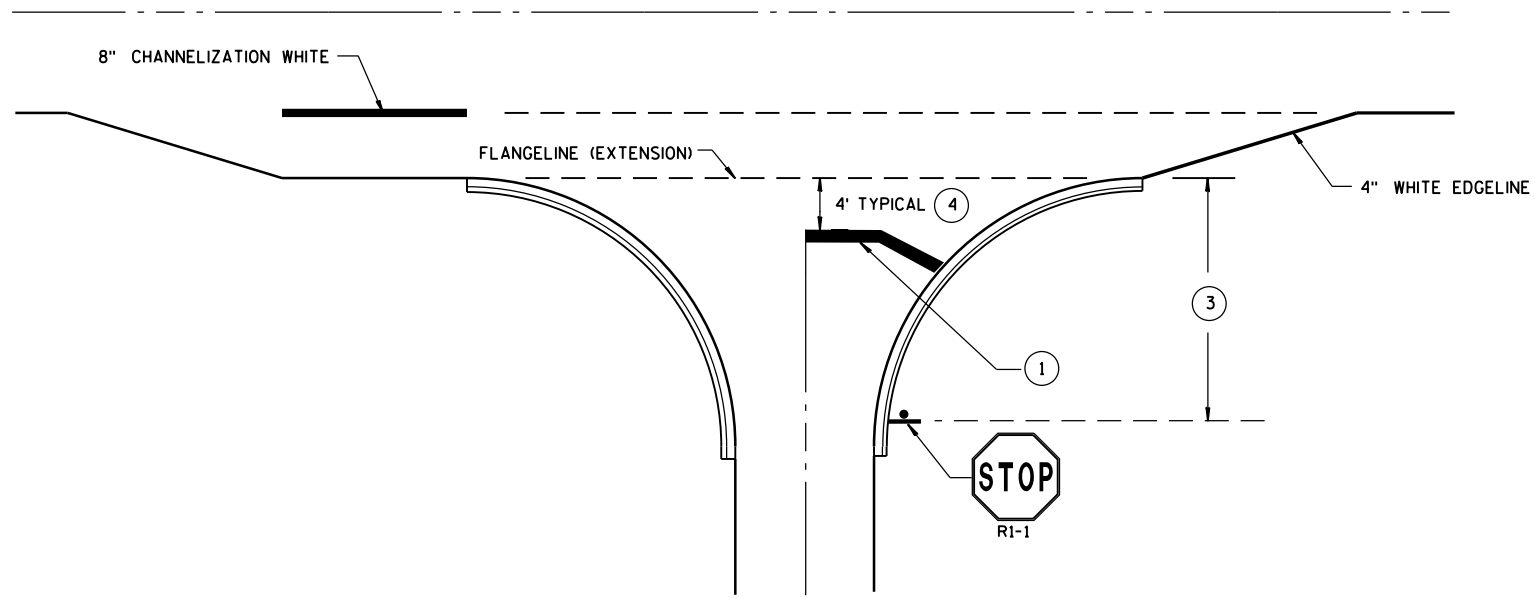
SIGNING AND MARKING
TWO LANE TO FOUR LANE
DIVIDED TRANSITIONS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

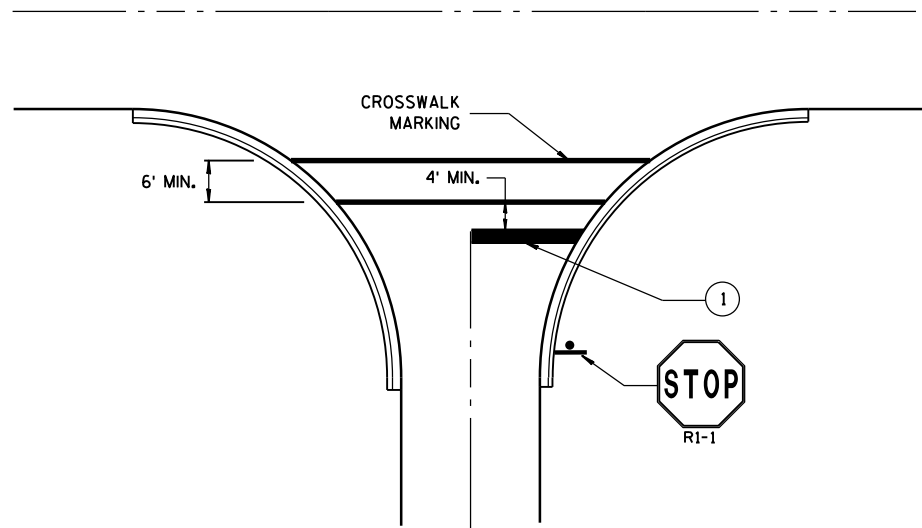
APPROVED
June 2017 /S/ Matthew R. Rauch
DATE STATE SIGNING AND MARKING ENGINEER
FHWA



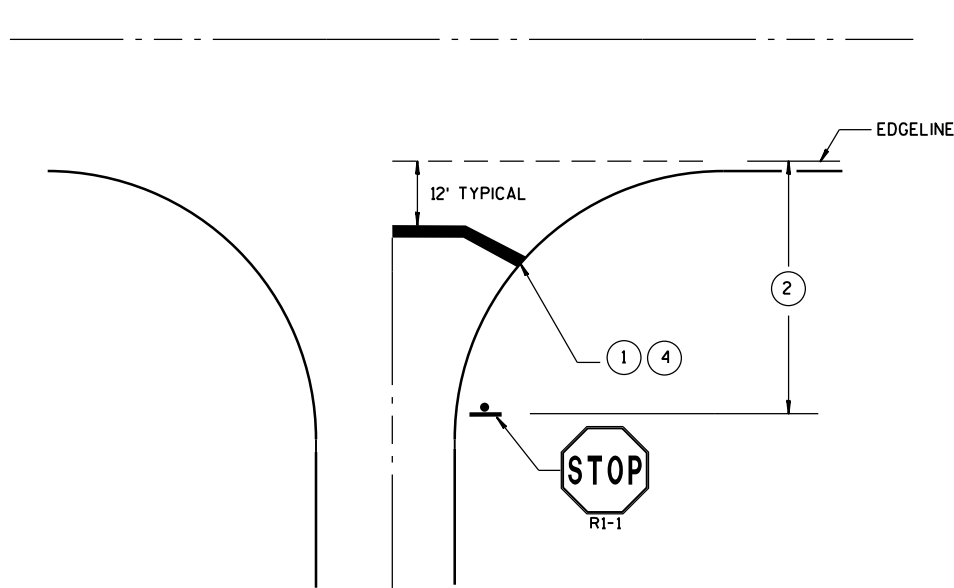
TYPICAL STOP LINE PAVEMENT MARKING
WITH CURB AND GUTTER



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

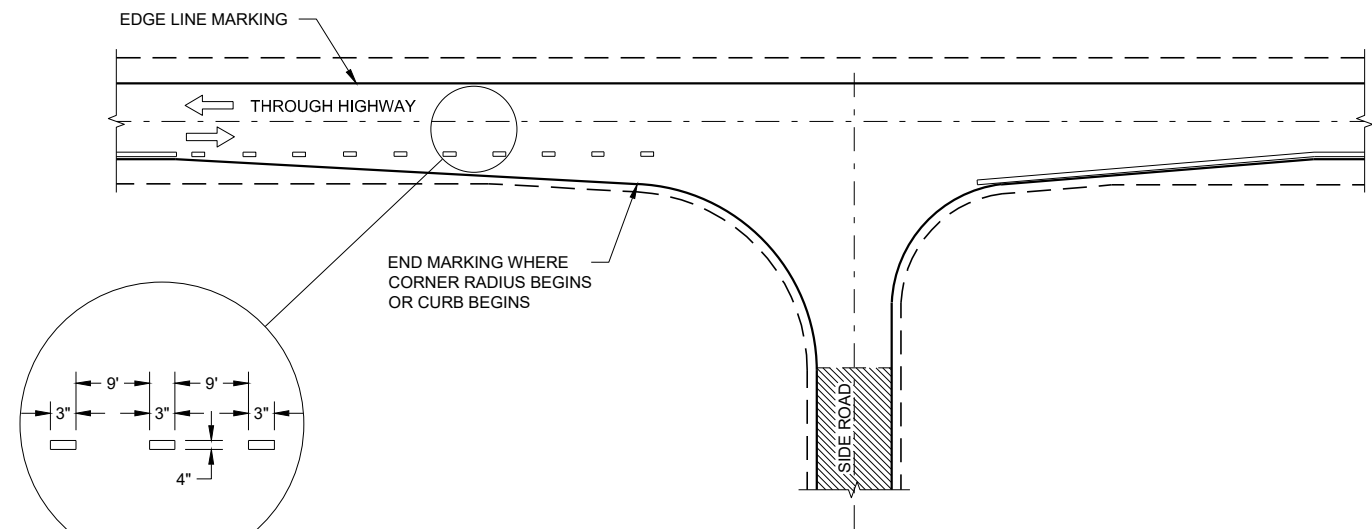
STOP SIGN SHALL BE PLACED A MINIMUM OF 6 FEET TO A MAXIMUM OF 50 FEET FROM THE EDGE LINE LOCATION.

- 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).

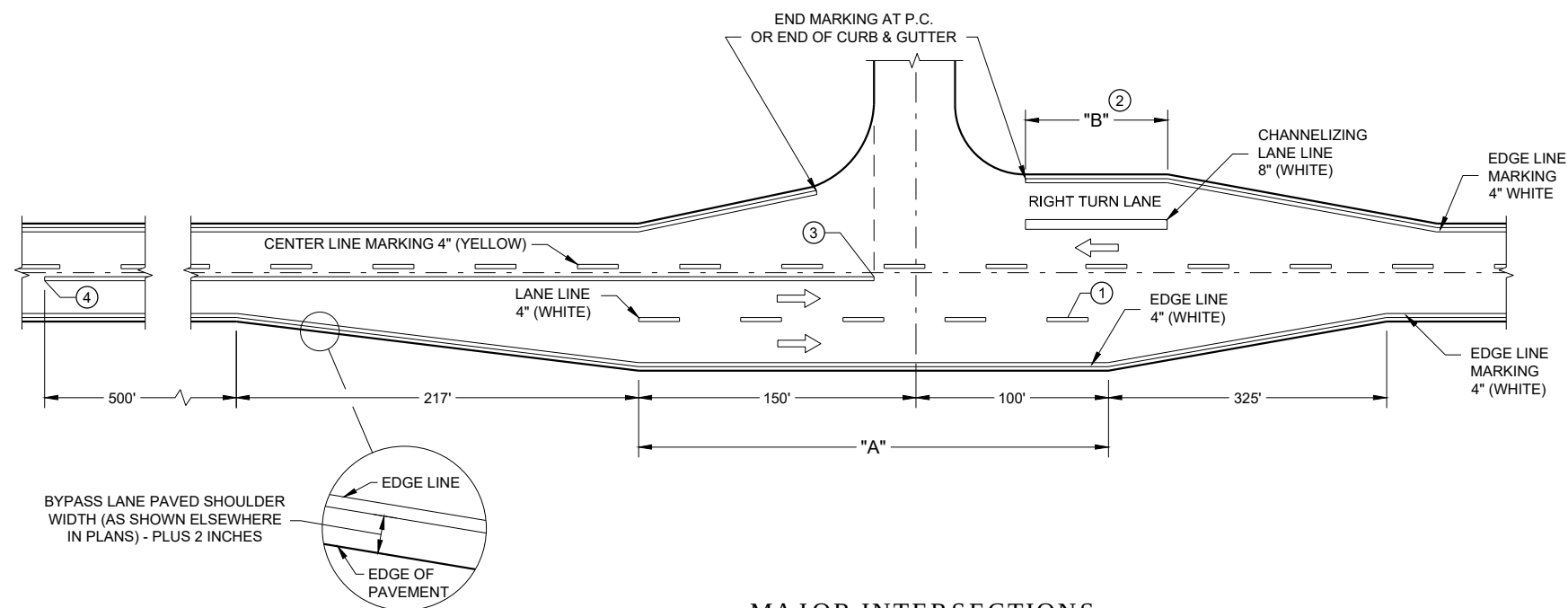
STOP LINE AND CROSSWALK
PAVEMENT MARKING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
DATE Sept., 2017 /S/ Matthew R. Rauch
STATE SIGNING AND MARKING ENGINEER
FHWA



MINOR INTERSECTION



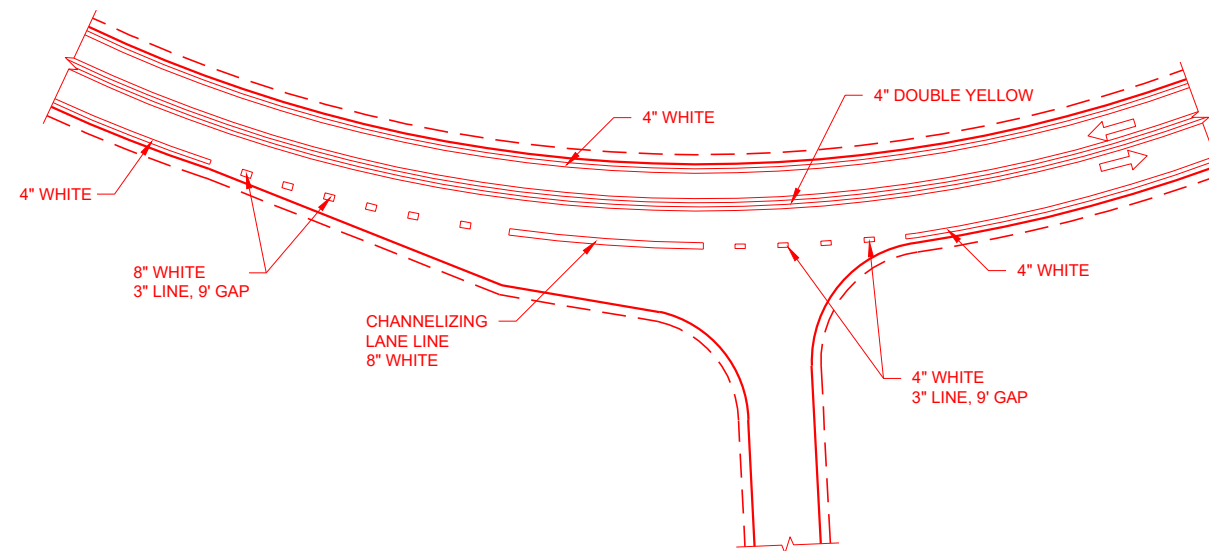
MAJOR INTERSECTIONS
(INTERSECTION WITH FULL RIGHT TURN LANE OR BYPASS LANE)

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

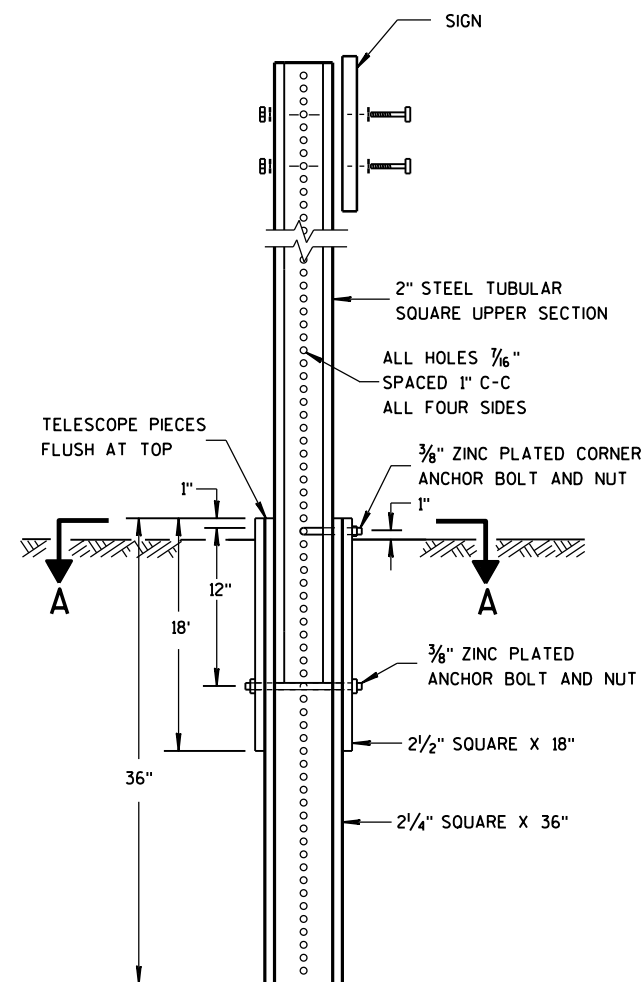
ARROW SYMBOL (➡) SHOWS DIRECTION OF TRAVEL



INTERSECTION ON OUTSIDE OF CURVE

PAVEMENT MARKING
(INTERSECTIONS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

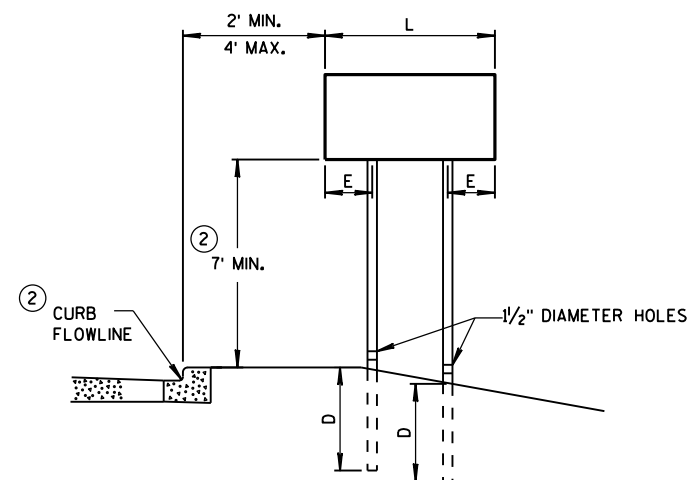
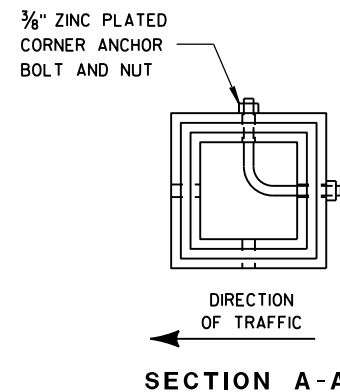


DETAIL OF TUBULAR STEEL SIGN POST

TUBULAR STEEL POSTS

AREA OF SIGN INSTALLATION (SQ. FT.)	NUMBER OF REQUIRED TUBULAR STEEL POSTS
9 OR LESS	1
GREATER THAN 9 LESS THAN OR EQUAL TO 18	2
GREATER THAN 18 LESS THAN OR EQUAL TO 27	3

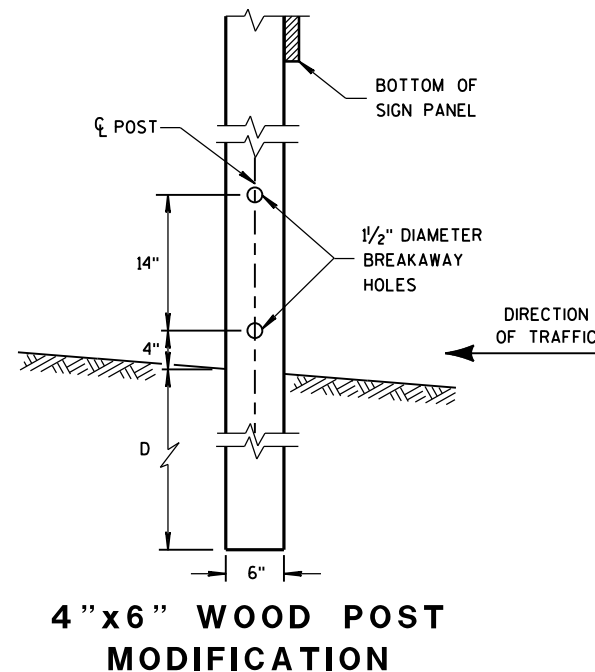
SIGNS WIDER THAN 3 FEET OR LARGER THAN 9 SQ. FT. SHALL BE MOUNTED ON MULTIPLE POSTS (SEE ABOVE TABLE).
SIGNS LARGER THAN 27 SQ. FT. SHALL NOT BE MOUNTED ON TUBULAR STEEL POSTS.



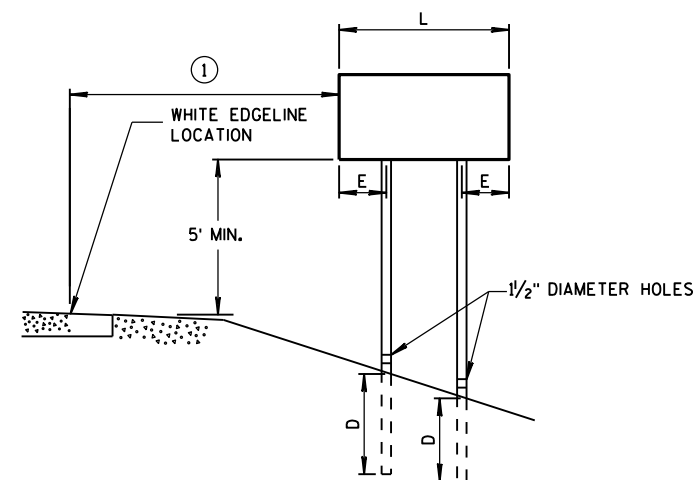
URBAN AREA

POST MOUNTING DETAIL FOR TEMPORARY TRAFFIC CONTROL FIXED MESSAGE SIGNS

WOOD POST EMBEDMENT DEPTH	
AREA OF SIGN INSTALLATION (SQ. FT.)	D (MIN)
20 OR LESS	4'
GREATER THAN 20	5'



4" x 6" WOOD POST MODIFICATION



RURAL AREA

POST SPACING REQUIREMENTS		NUMBER OF WOOD POSTS REQUIRED
L	E	
48" OR LESS AND LESS THAN 20 SQ. FT.	-	1
LESS THAN 60"	12"	2
60" TO 120"	L/5	2
GREATER THAN 120" LESS THAN 168"	12"	3
168" AND GREATER	12"	4

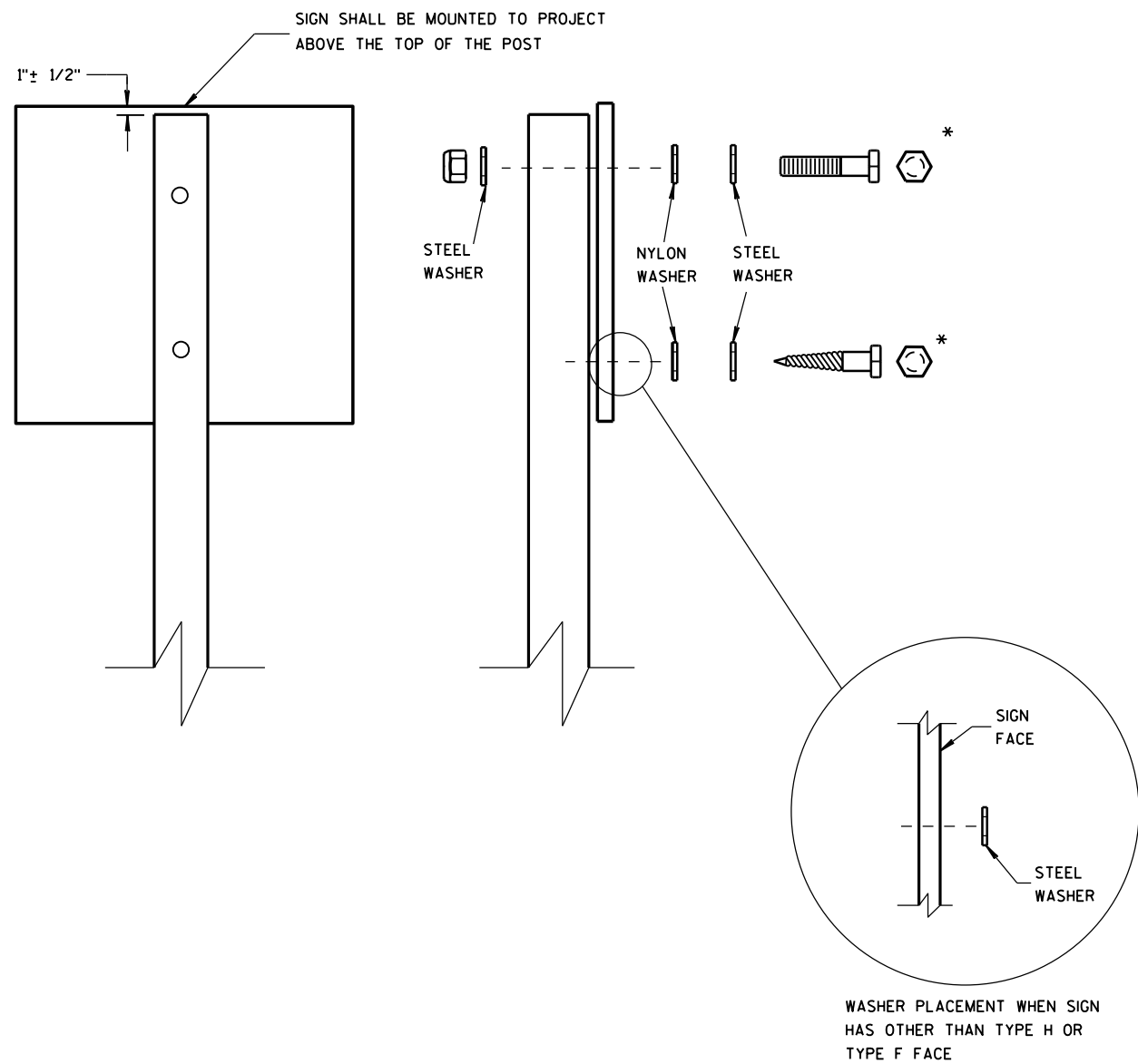
SEE NOTE ③

GENERAL NOTES

- ① 6 FEET FROM THE EDGE OF PAVEMENT (EDGE LINE LOCATION) UNLESS OTHERWISE DIRECTED BY THE PROJECT ENGINEER. LATERAL OFFSET SHOULD BE ADJUSTED TO AVOID THE DITCH FLOWLINE.
- ② THE EXISTENCE OF CURB AND GUTTER DOES NOT IN ITSELF MANDATE THE VERTICAL CLEARANCE ILLUSTRATED. THAT HEIGHT IS TYPICALLY MEASURED WHERE THERE IS SIDEWALK ADJACENT TO THE ROADWAY OR PARKING IS PERMITTED. IN THE ABSENCE OF SIDEWALK, VERTICAL CLEARANCE IS MEASURED FROM THE TOP OF THE CURB. IF NO SIDEWALK AND NO PARKING, VERTICAL CLEARANCE MAY BE REDUCED TO 5 FOOT MINIMUM. OFFSET OF SIGNS IS MEASURED FROM THE CURB FLOWLINE.
- ③ FOR SIGNS REQUIRING 4 POSTS, SPACE INTERMEDIATE POSTS EVENLY.

TEMPORARY TRAFFIC CONTROL SIGN MOUNTING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



NUTS, BOLTS AND LAGS USED FOR MOUNTING SIGNS SHALL HAVE HEXAGONAL HEADS AND SHALL BE EITHER:

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

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

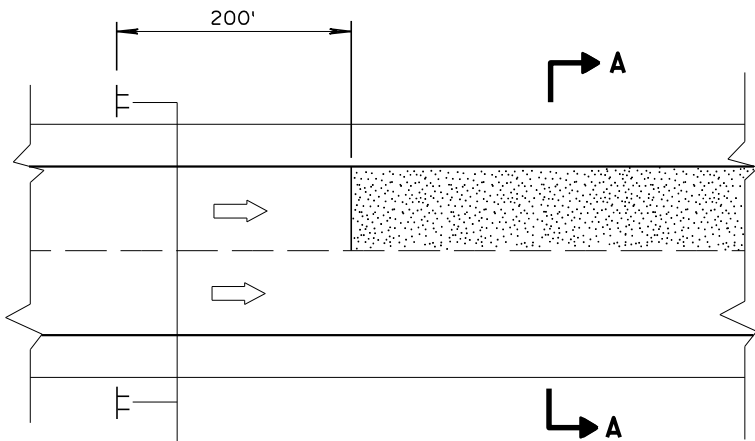
- WOOD POSTS (4" x 4" or 4" x 6")
- LAG SCREWS - 3/8" x 3"
 - MACHINE BOLTS - 5/16" x 6-1/2" OR 7" LENGTH W/ NUTS

- SQUARE STEEL POSTS (2" x 2")
- MACHINE BOLTS - 3/8" x 3-1/4" LENGTH W/ NUTS
 - RIVETS - 9/32" (6605-9-6) BULB-TITE, TRI-FOLD, ALUMINUM BODY/MANDREL O.D. FLANGE .720-.765 INCH, GRIP RANGE .042-.375 INCH

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

* TWO DIFFERENT FASTENING SYSTEMS ARE SHOWN FOR ILLUSTRATION PURPOSES. ON ANY INDIVIDUAL SIGN, EITHER ONE OR THE OTHER SYSTEM SHALL BE USED. ACTUAL NUMBER OF FASTENERS PER SIGN VARIES WITH THE SIGN AREA. FOR A SINGLE POST INSTALLATION, ALL SIGNS GREATER THAN 9 SQ. FT. REQUIRE THE USE OF 3 FASTENERS.

ATTACHMENT OF SIGNS TO POSTS	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED June 2017 DATE	/S/ Andrew Heidtke WORK ZONE ENGINEER
FHWA	

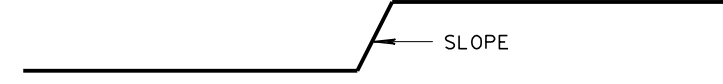


MULTI-LANE

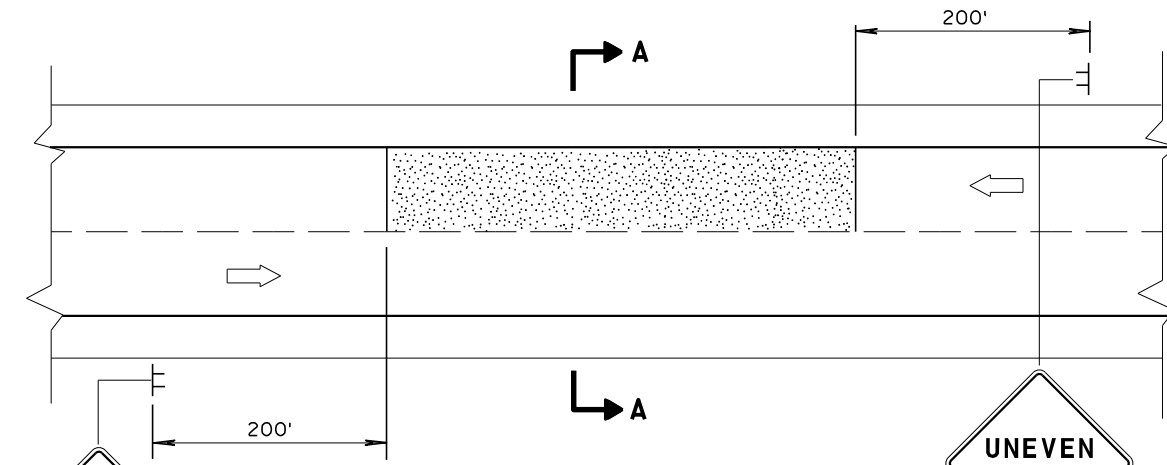


SECTION A-A

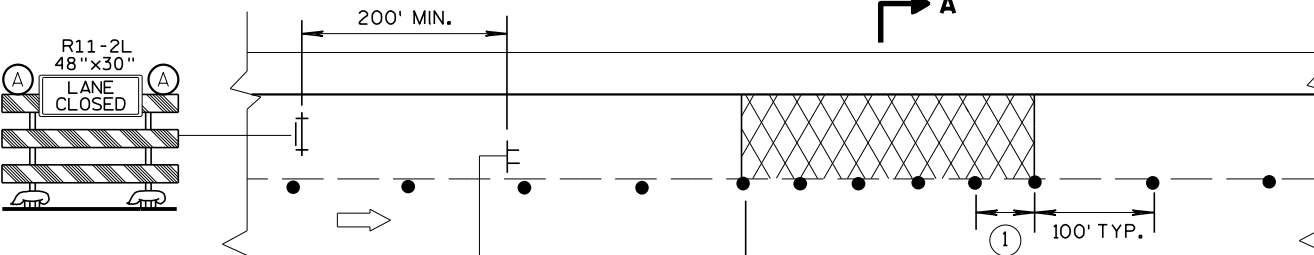
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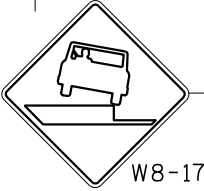
SECTION A-A



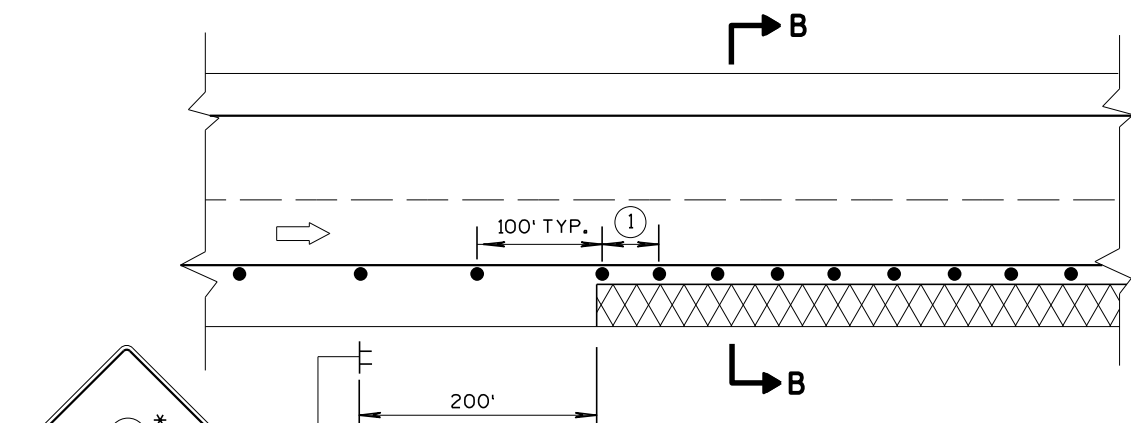
TWO-WAY TWO LANE



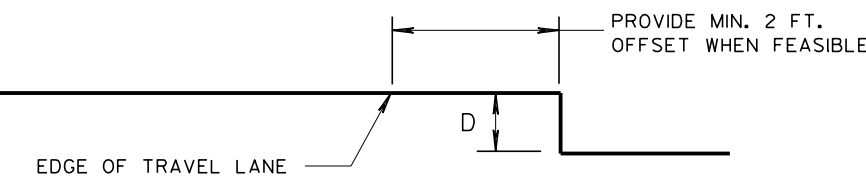
MULTI-LANE BASE PATCHING



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

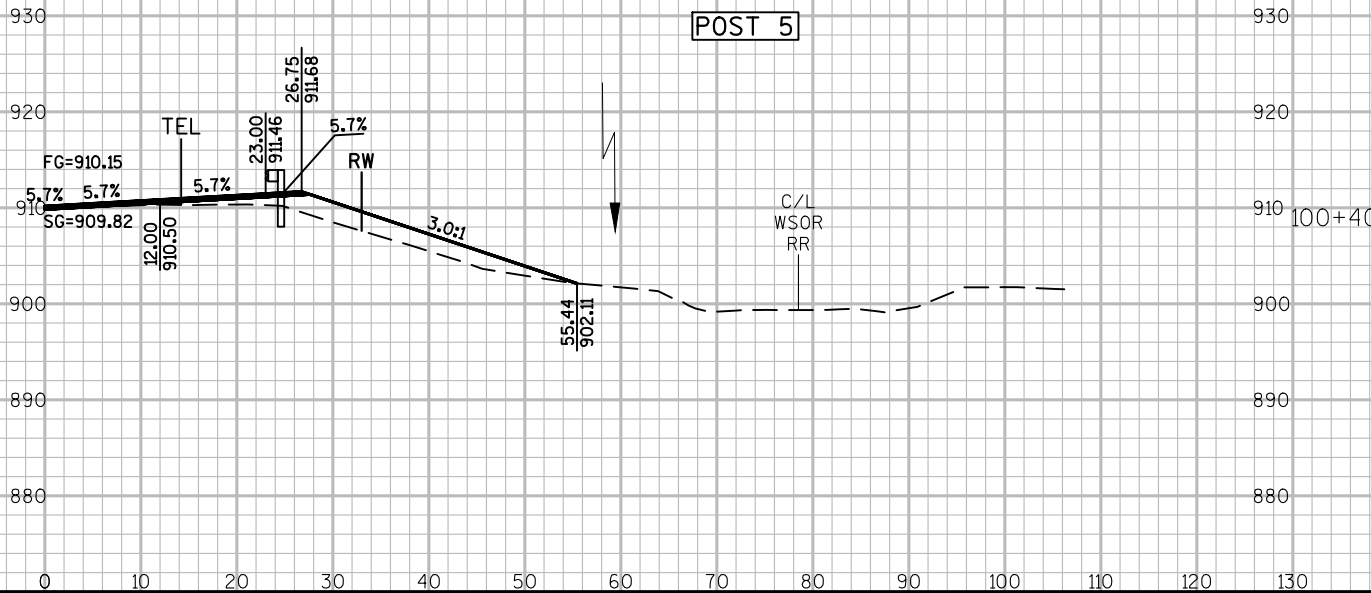
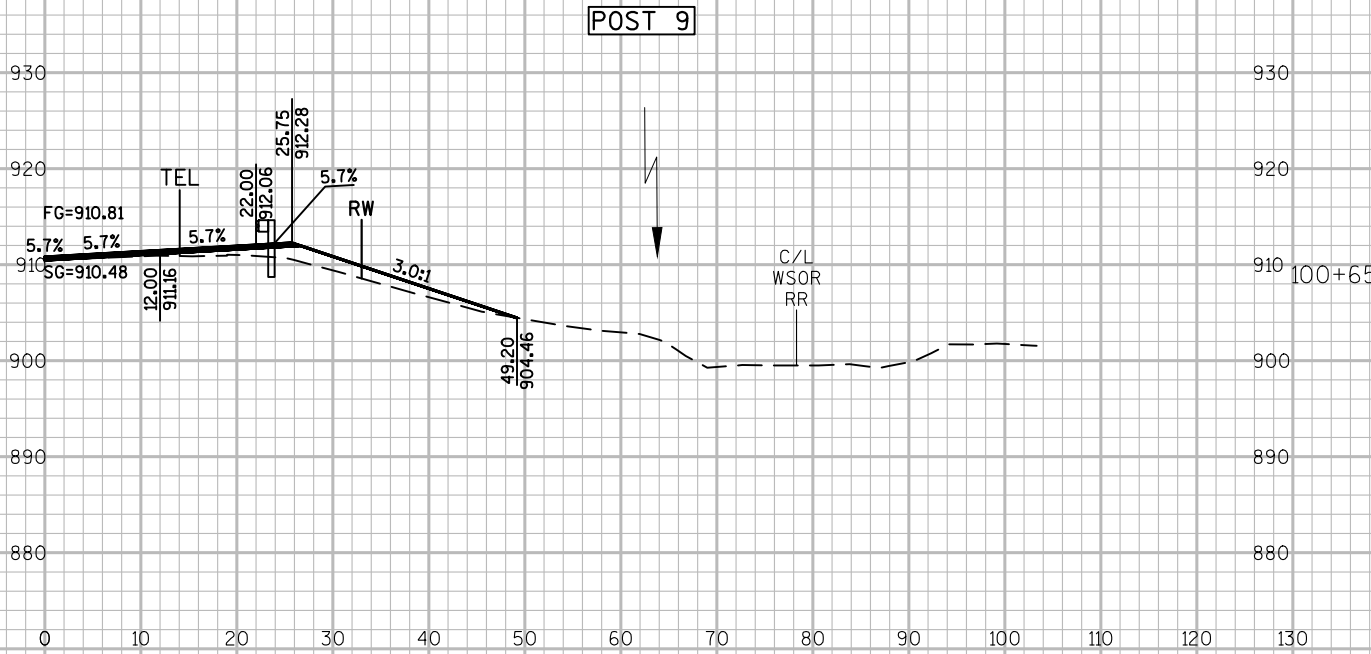
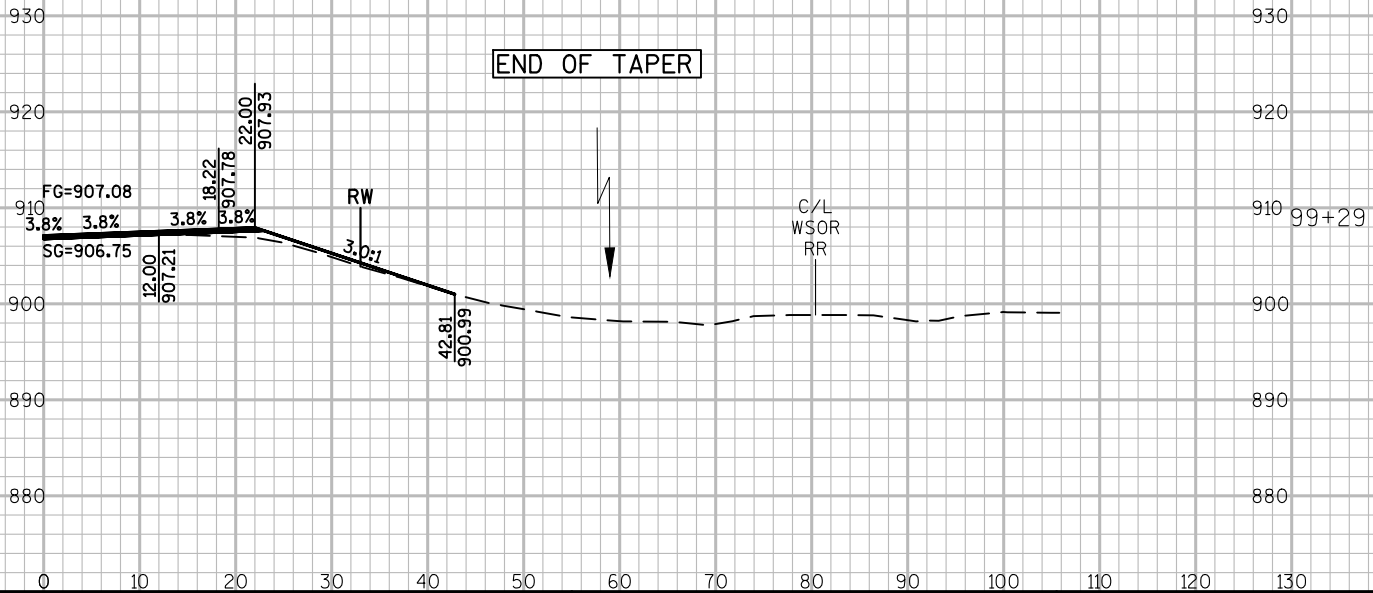
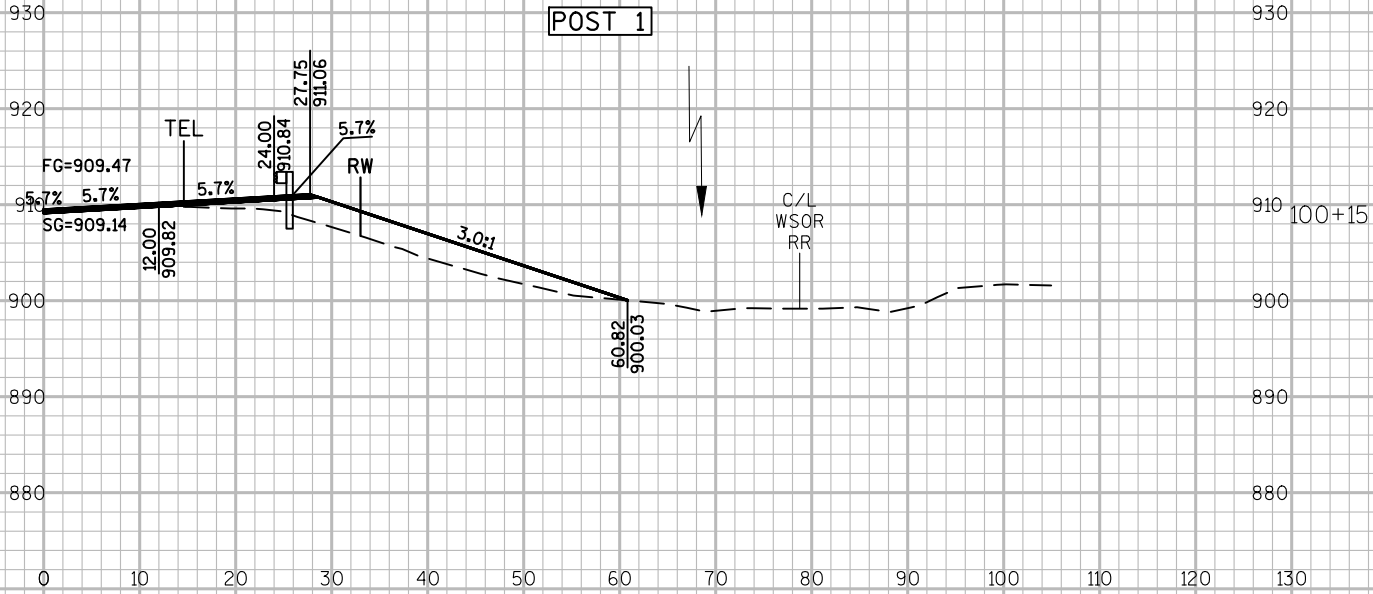
- TYPE III BARRICADE WITH ATTACHED SIGN
- SIGN ON TEMPORARY SUPPORT
- TRAFFIC CONTROL DRUM
- TYPE "A" WARNING LIGHT (FLASHING)
- DIRECTION OF TRAFFIC
- WORK AREA WITH DROP-OFF
- MILLED SURFACE

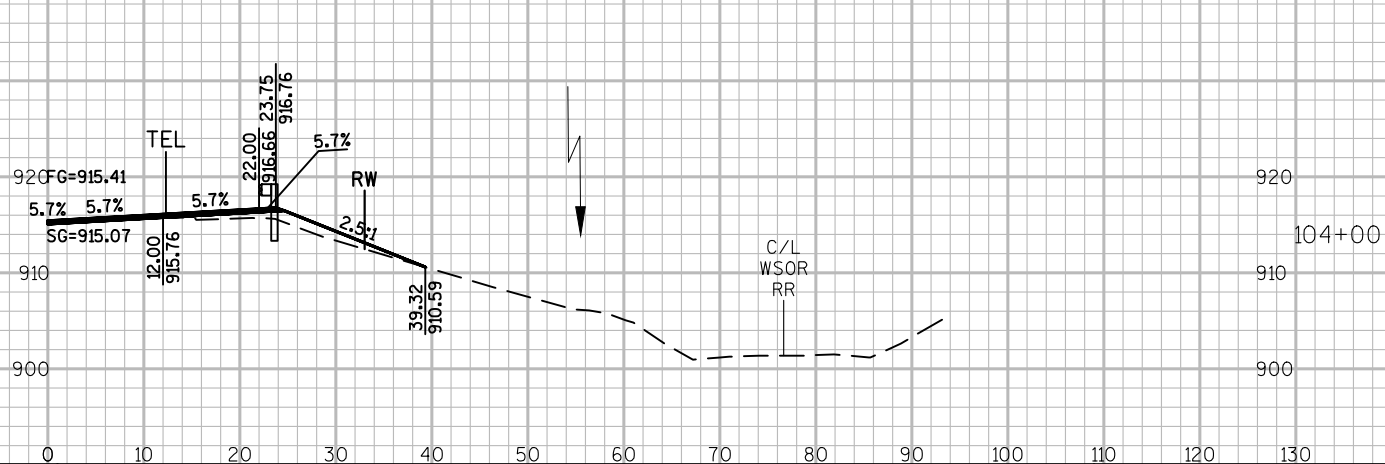
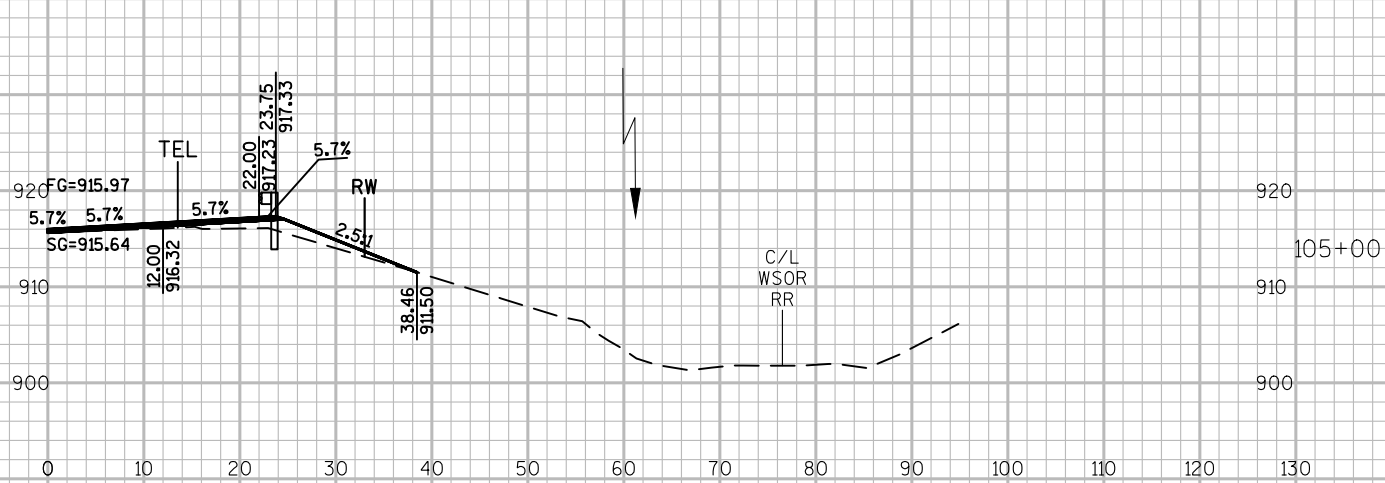
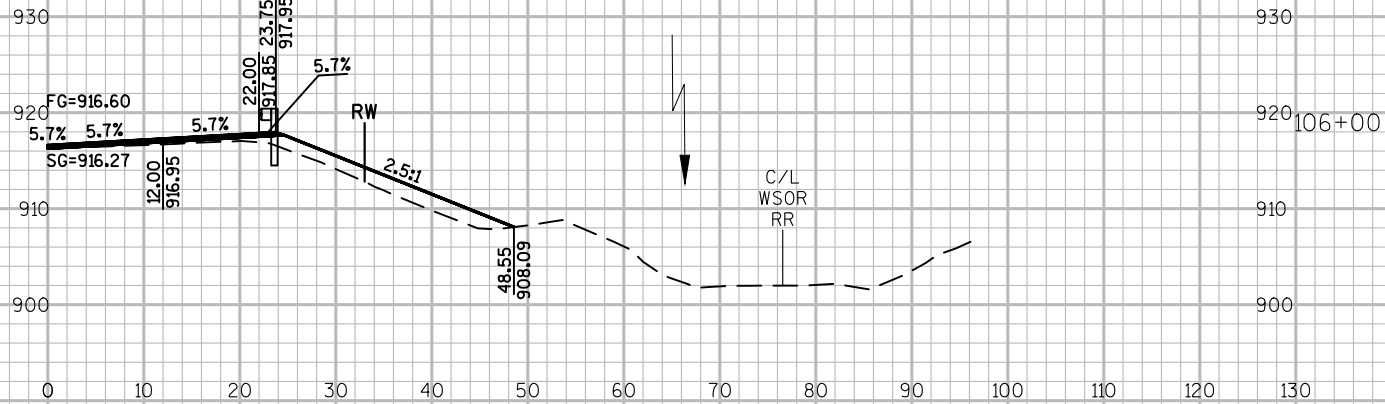
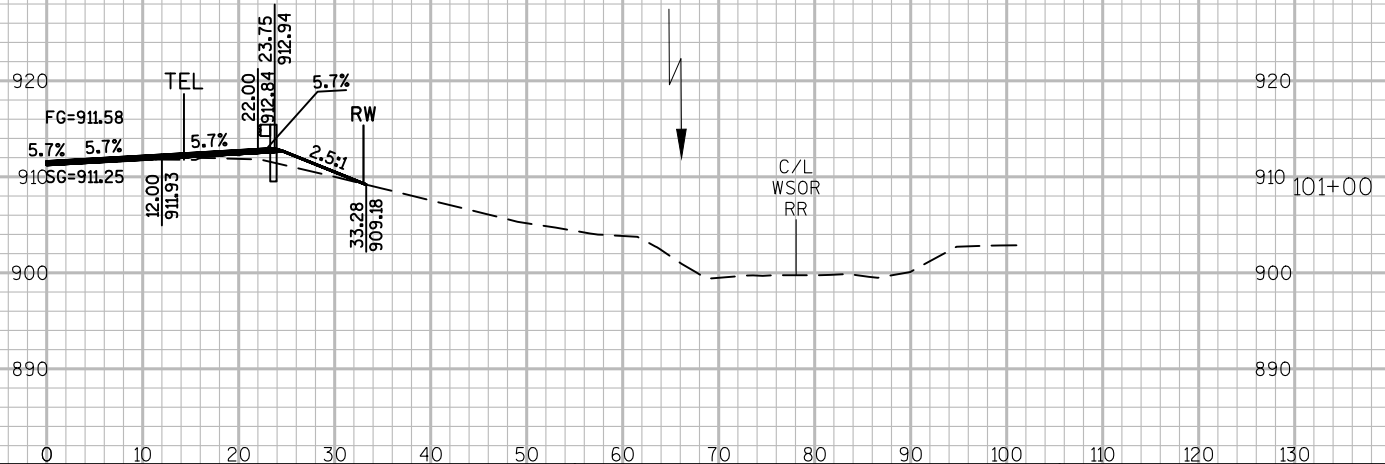
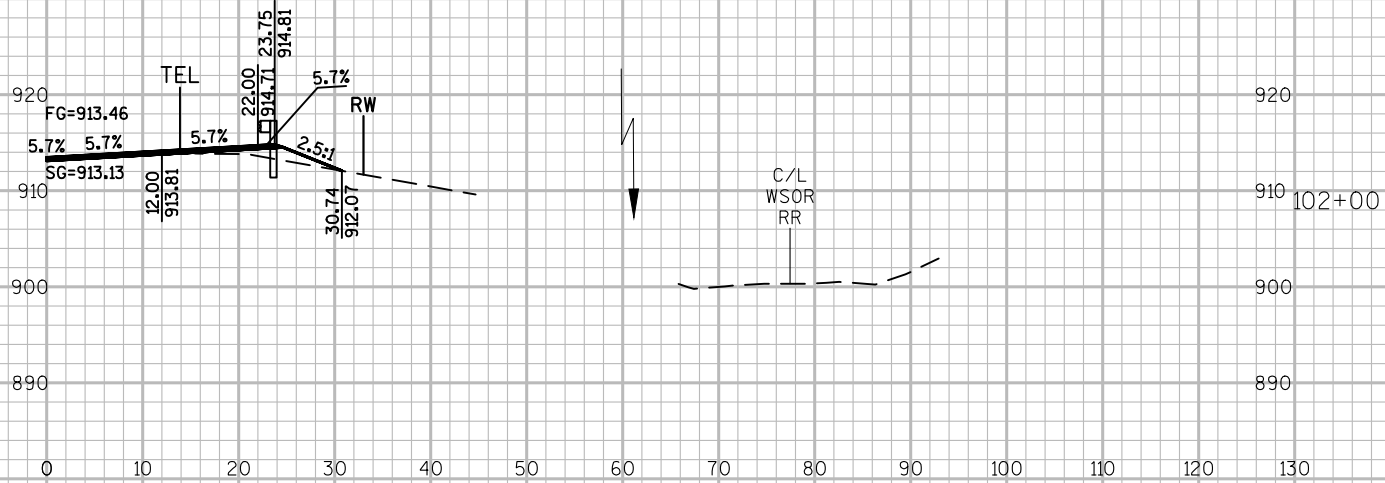
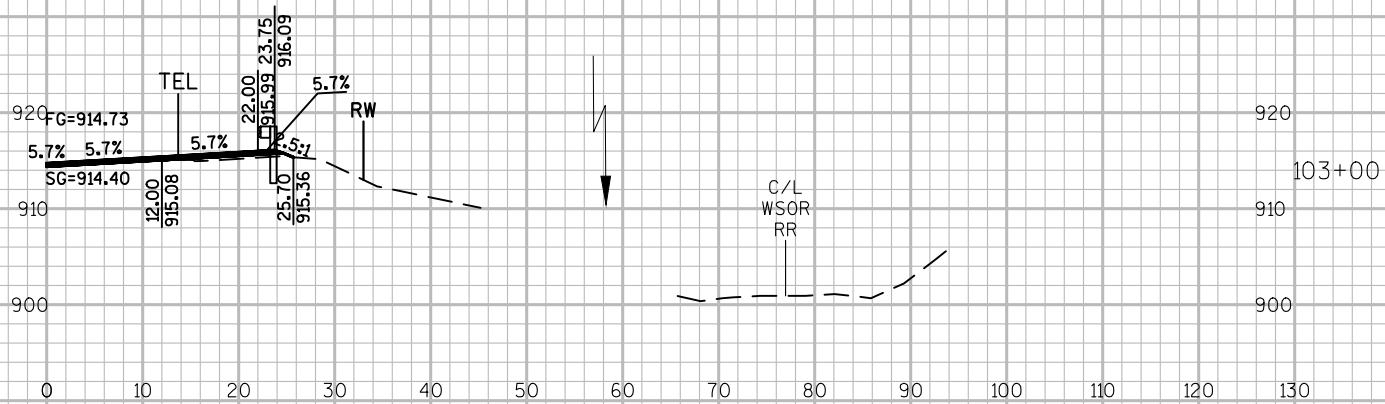
D	SIGN (C)
< 2" WITH A SLOPE STEEPER THAN 3:1	 W08-9
2" < 6" WITH A SLOPE STEEPER THAN 3:1	 W8-9A PROVIDE A 3:1 OR FLATTER SLOPE OF MATERIAL ADJACENT TO THE PAVEMENT

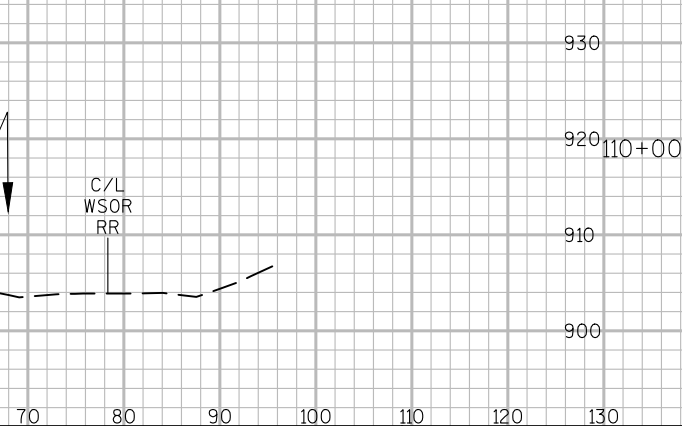
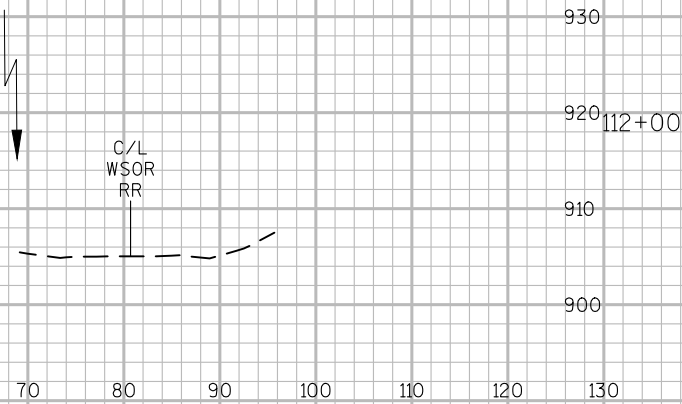
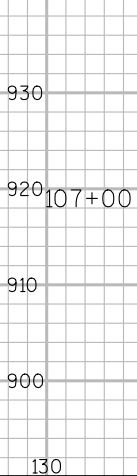
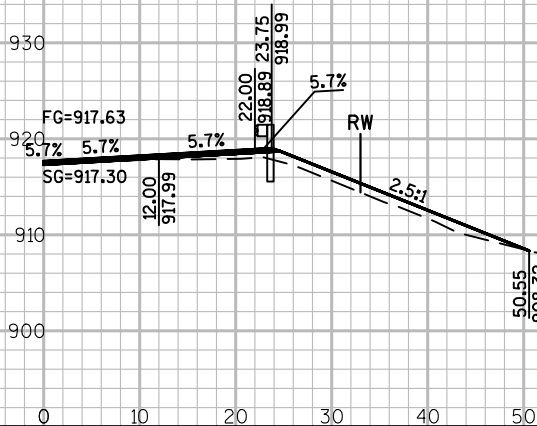
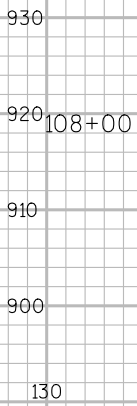
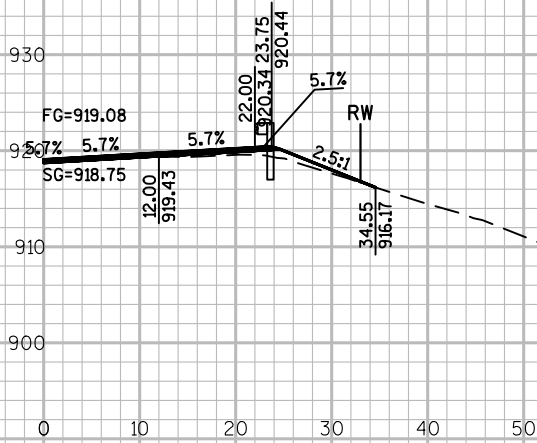
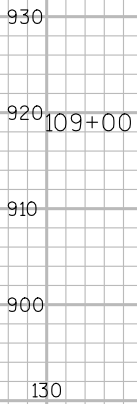
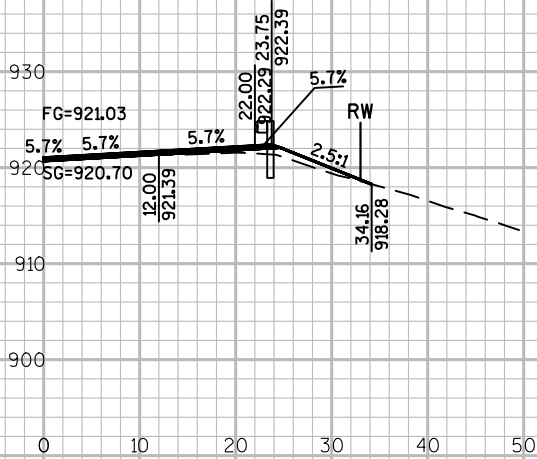
TRAFFIC CONTROL, DROP-OFF SIGNING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

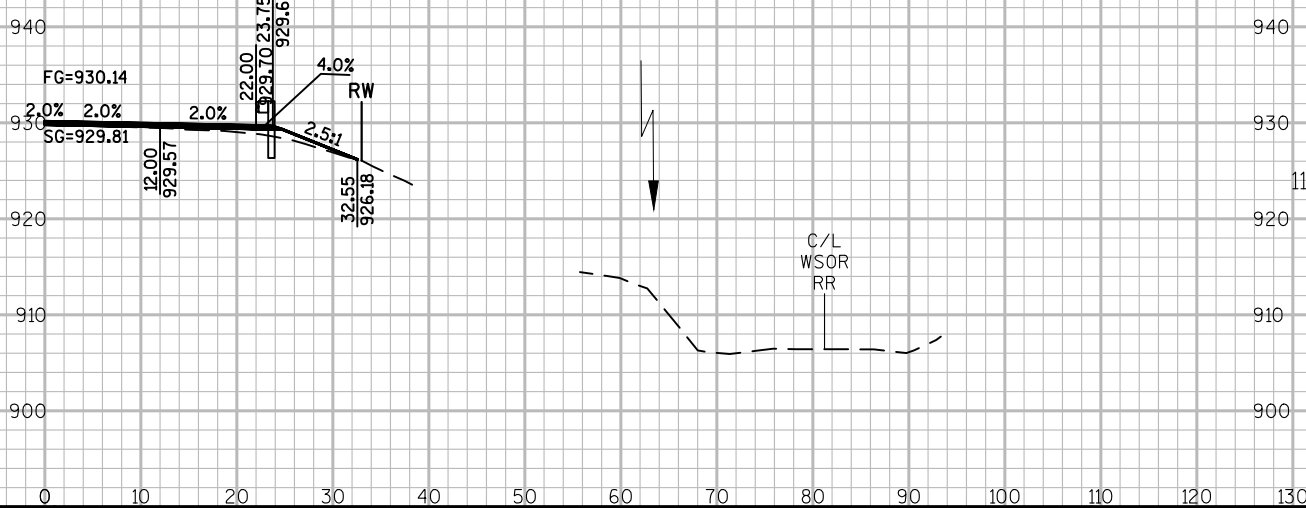
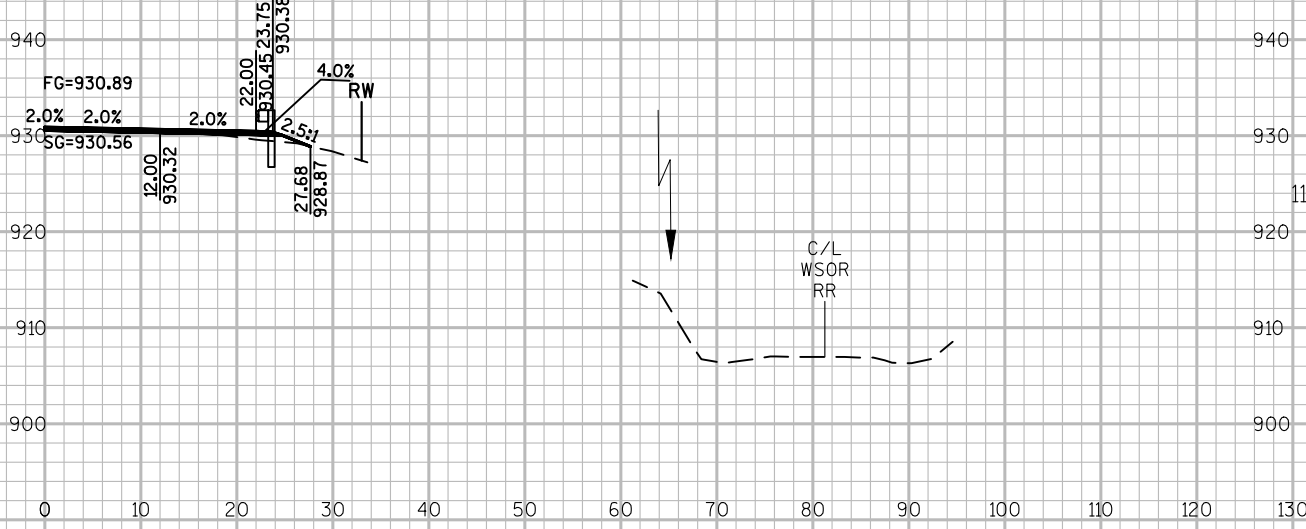
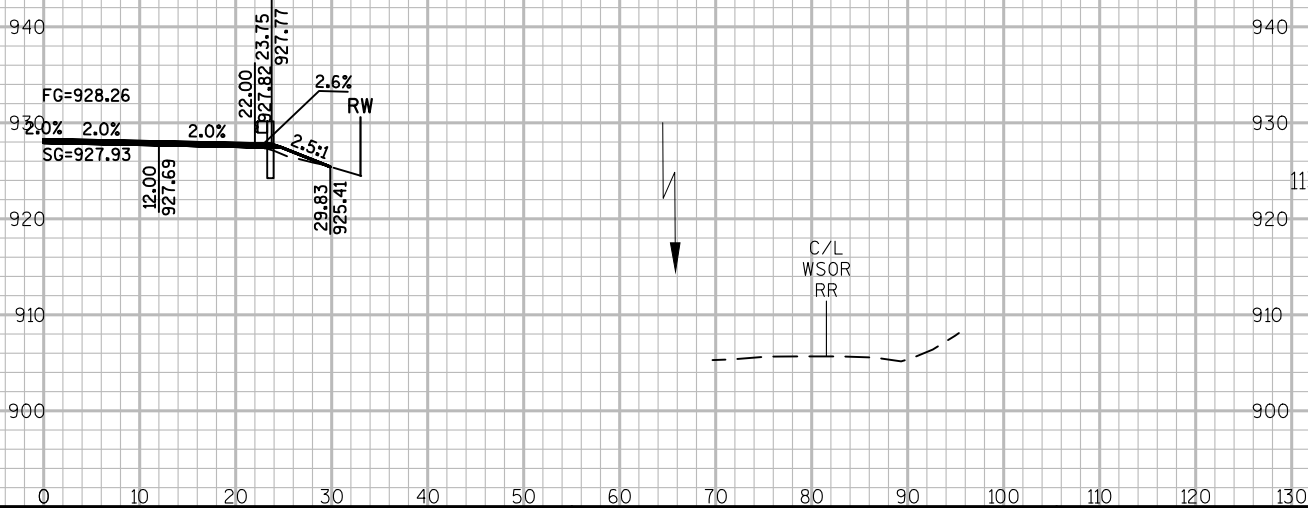
APPROVED
March 2018 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER
FHWA







9



9

PROJECT NO: 5310-02-63

HWY: USH 14

COUNTY: DANE

CROSS SECTIONS: MAINLINE (MGS GUARDRAIL)

SHEET

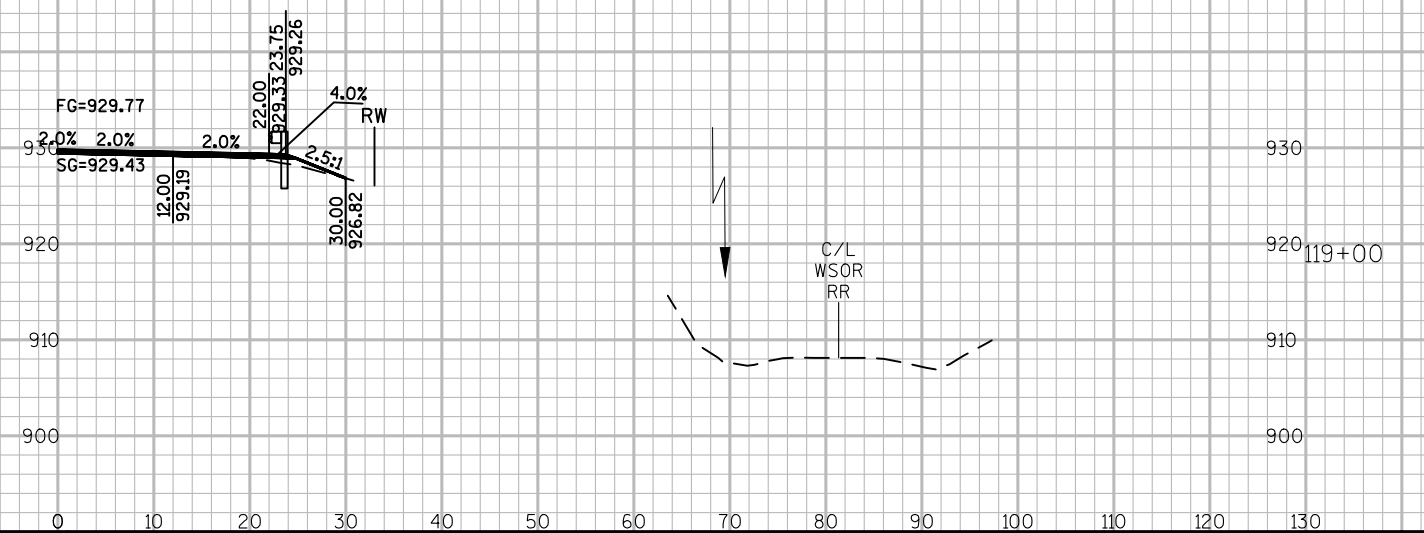
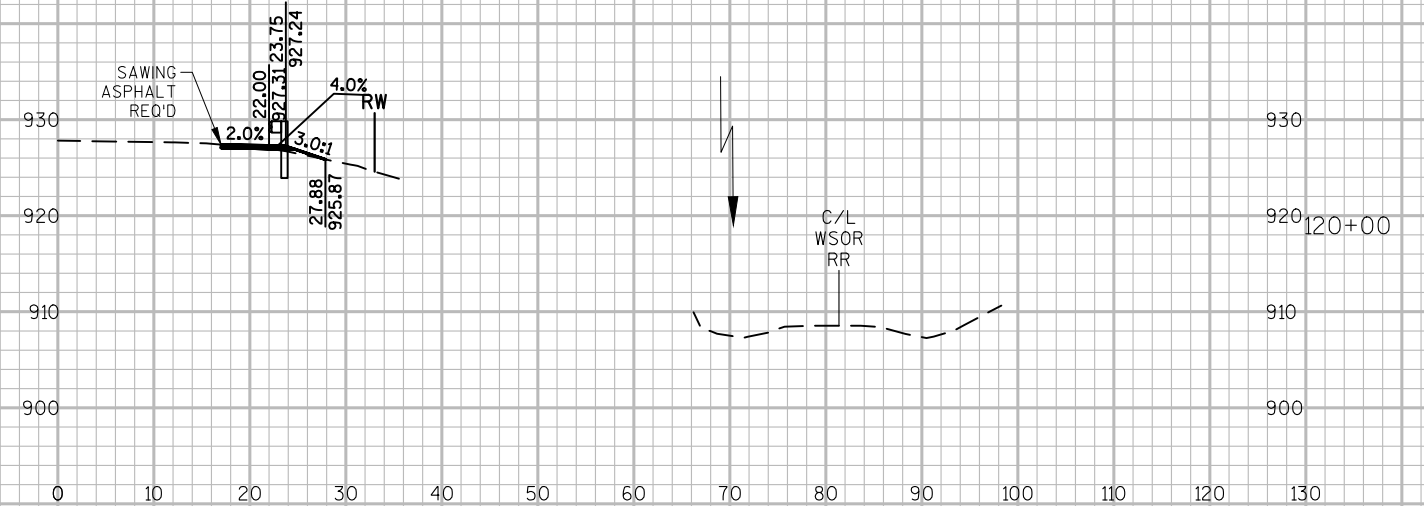
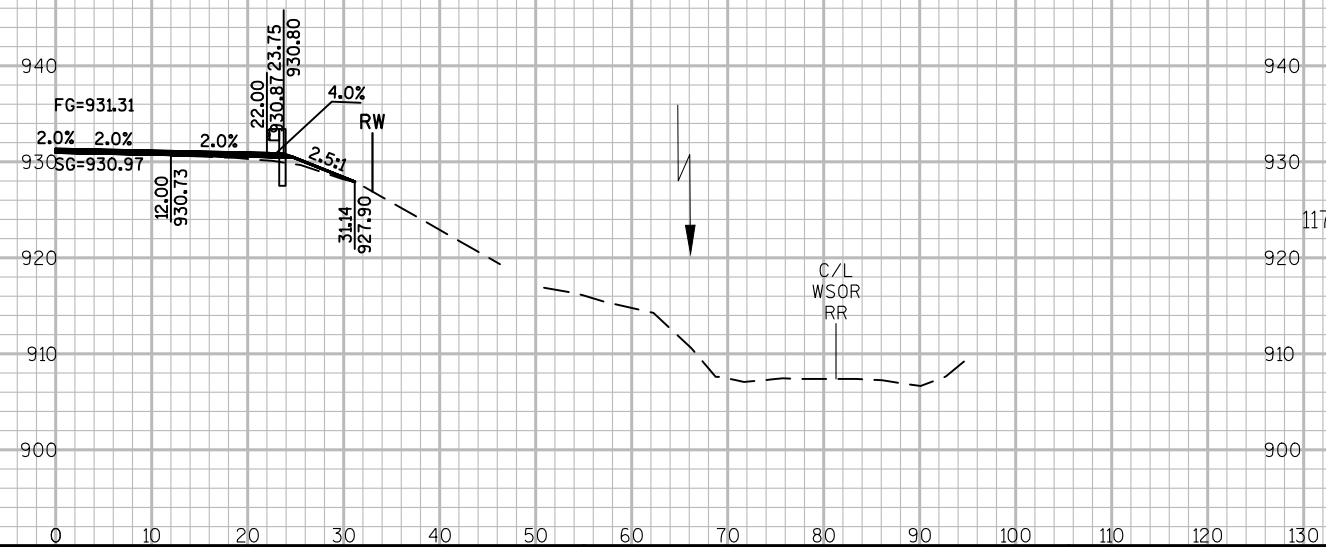
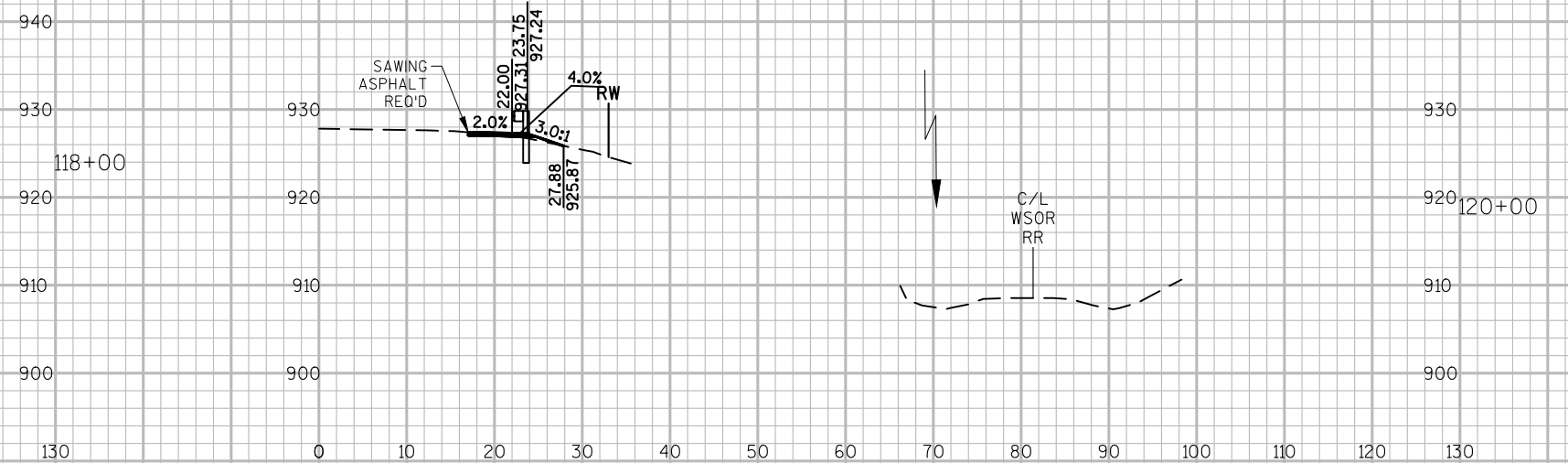
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LAYOUT : BEAMGUARD 1 - (4)

PLOT DATE : 6/10/2019
PLOT TIME : 4:34:45 PM

PLOT BY : JONAH DRAKE

PLOT SCALE : 1" = 1'



PROJECT NO: 5310-02-63

HWY: USH 14

COUNTY: DANE

CROSS SECTIONS: MAINLINE (MGS GUARDRAIL)

SHEET

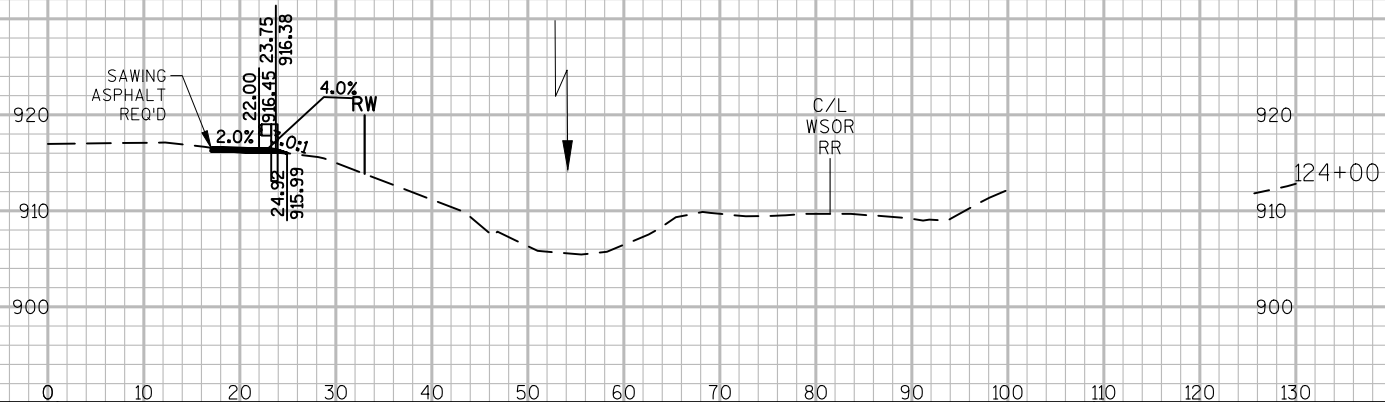
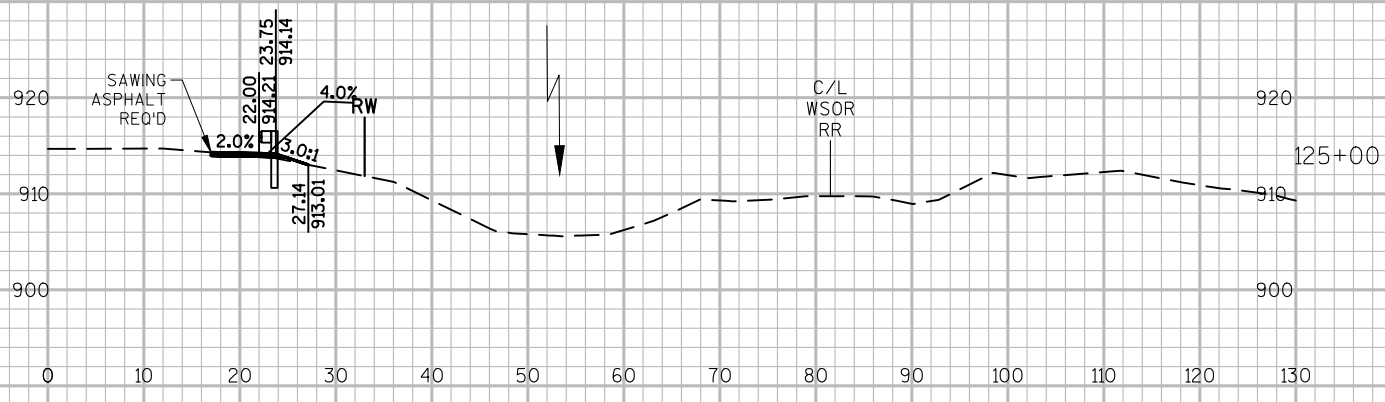
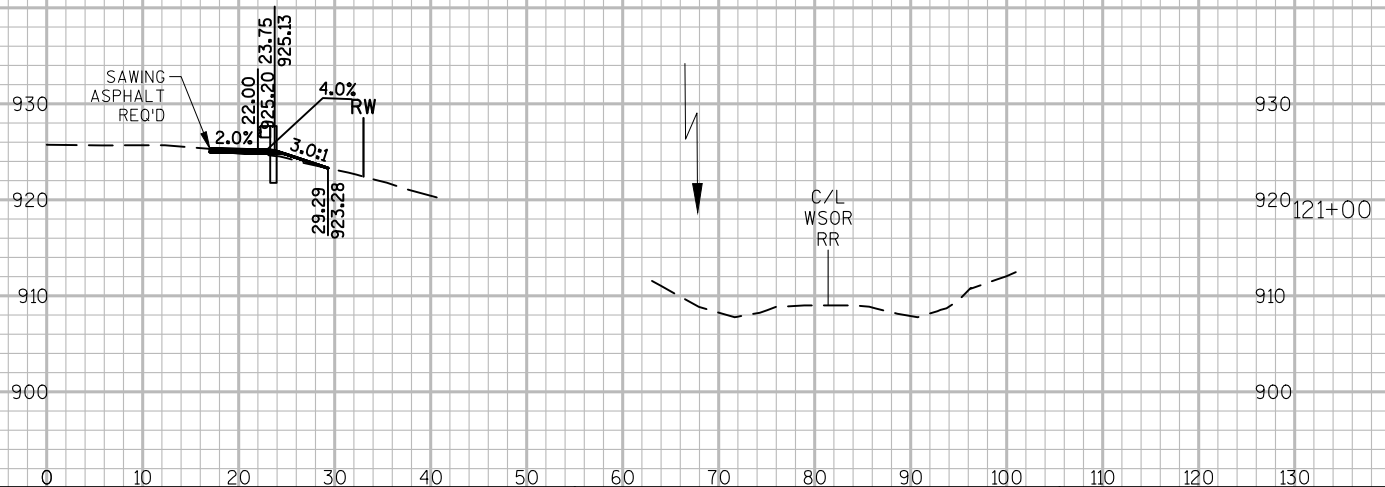
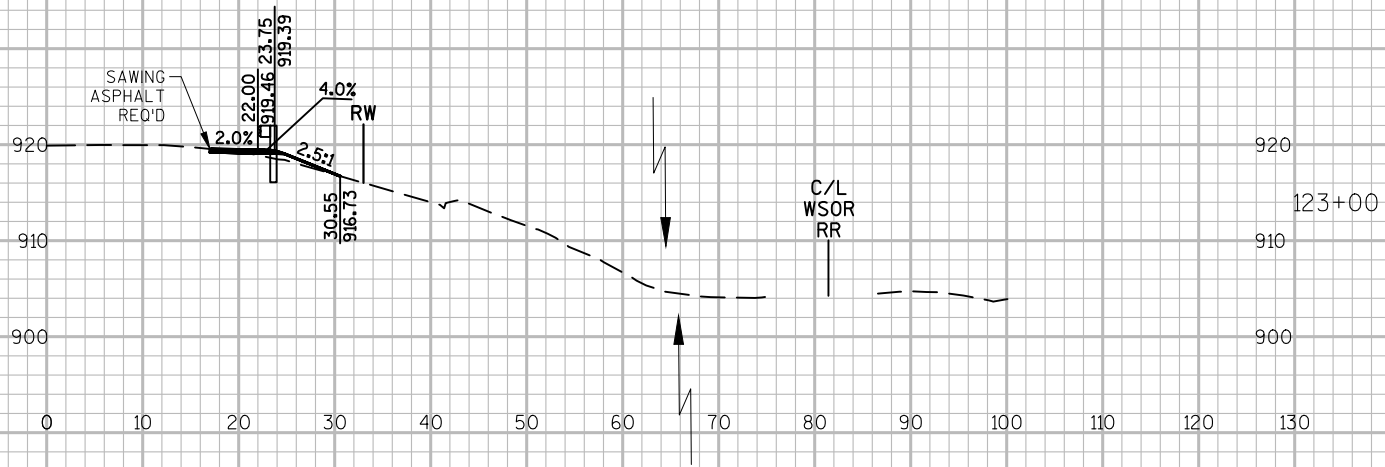
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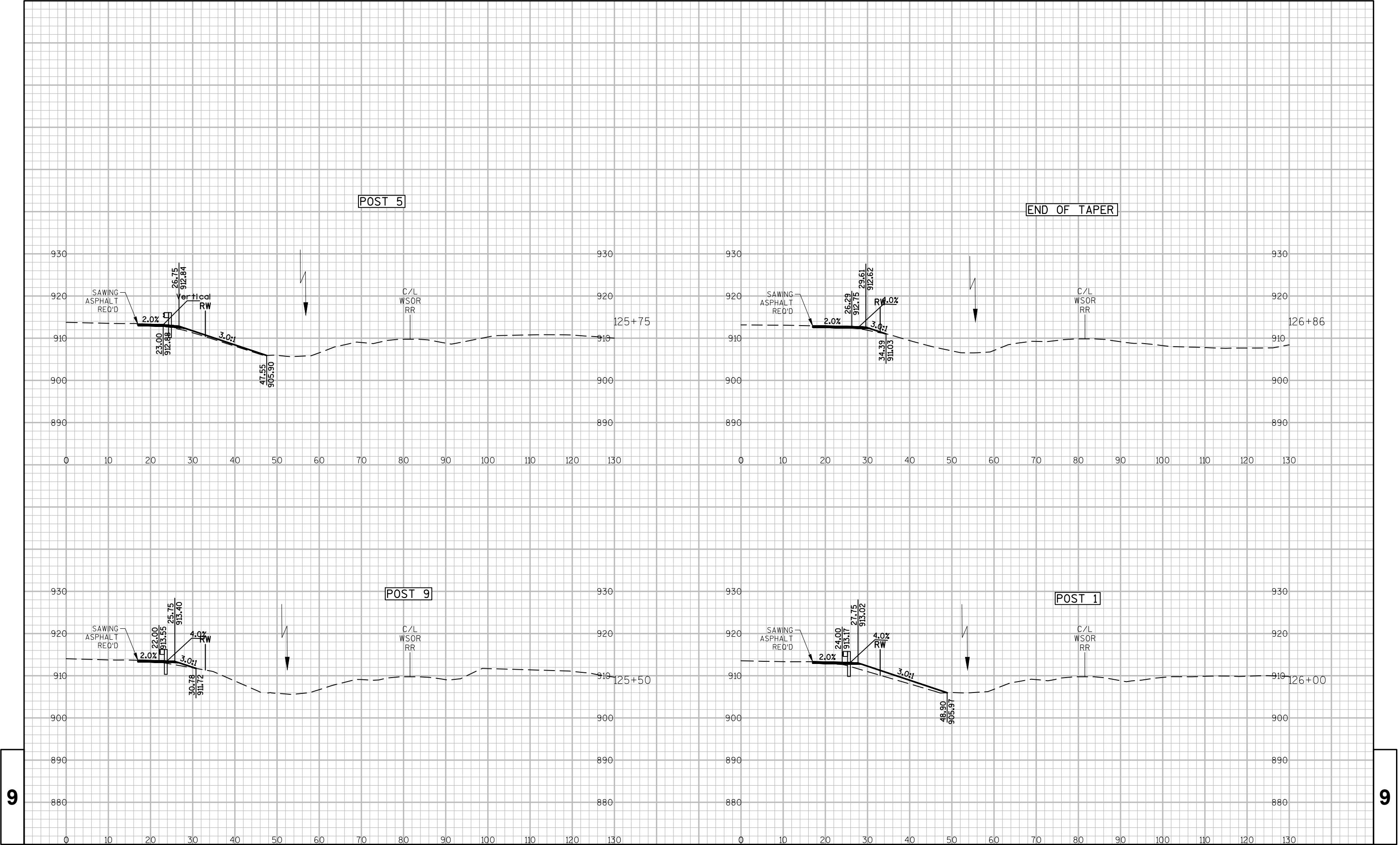
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LAYOUT : BEAMGUARD 1 - (5)

PLOT DATE : 6/10/2019
PLOT TIME : 4:34:55 PM

PLOT BY : JONAH DRAKE

PLOT SCALE : 1" = 1'

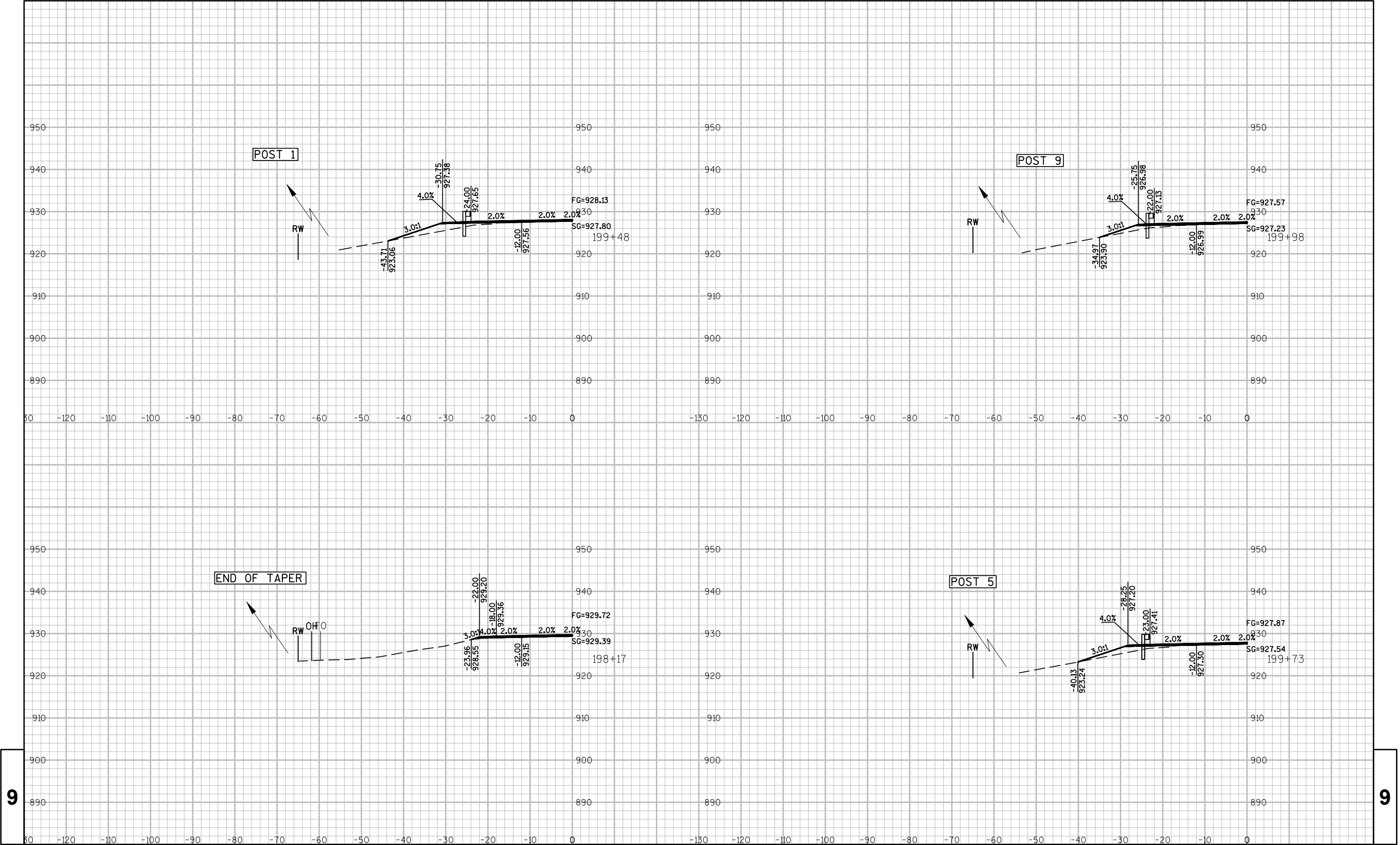


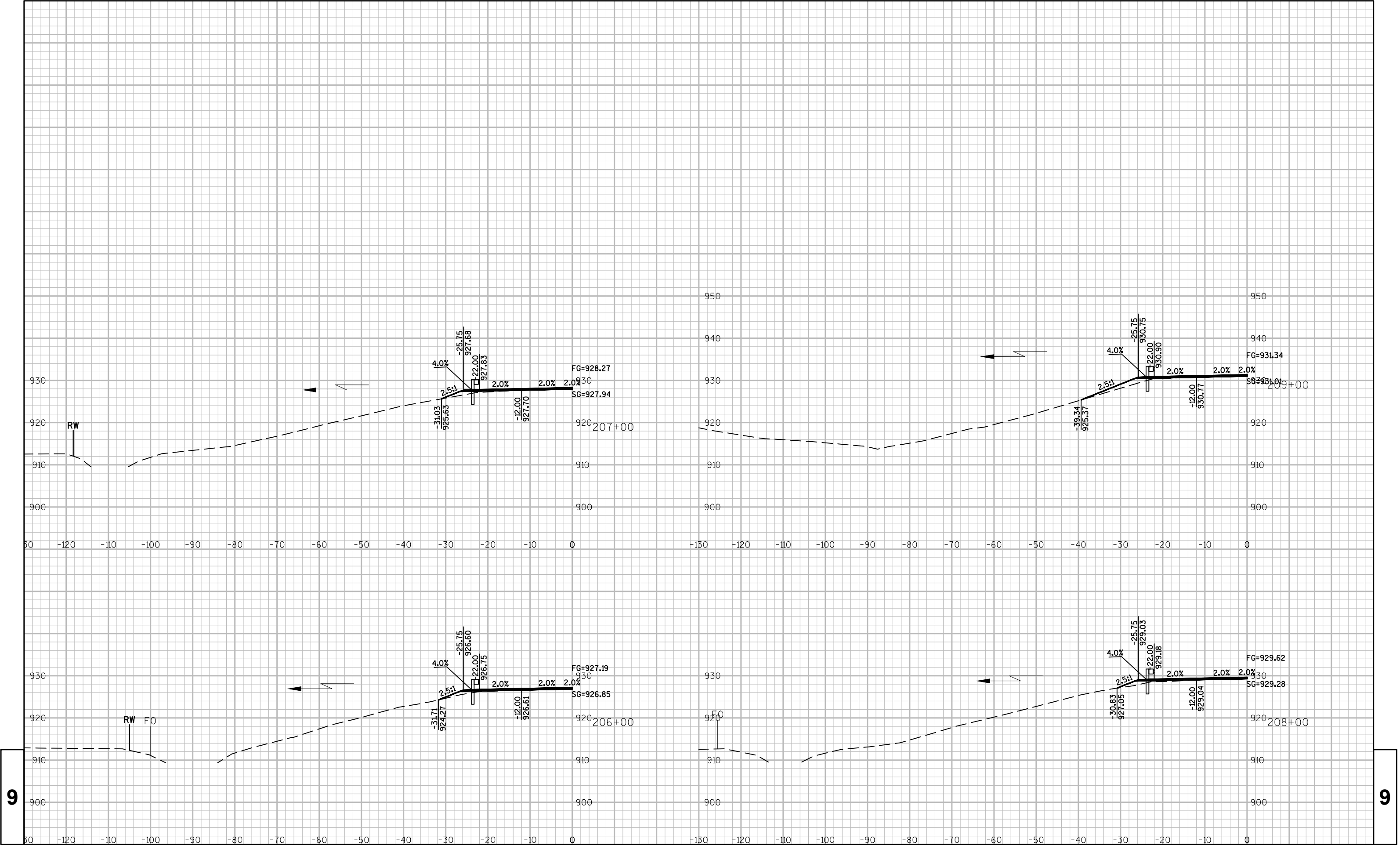


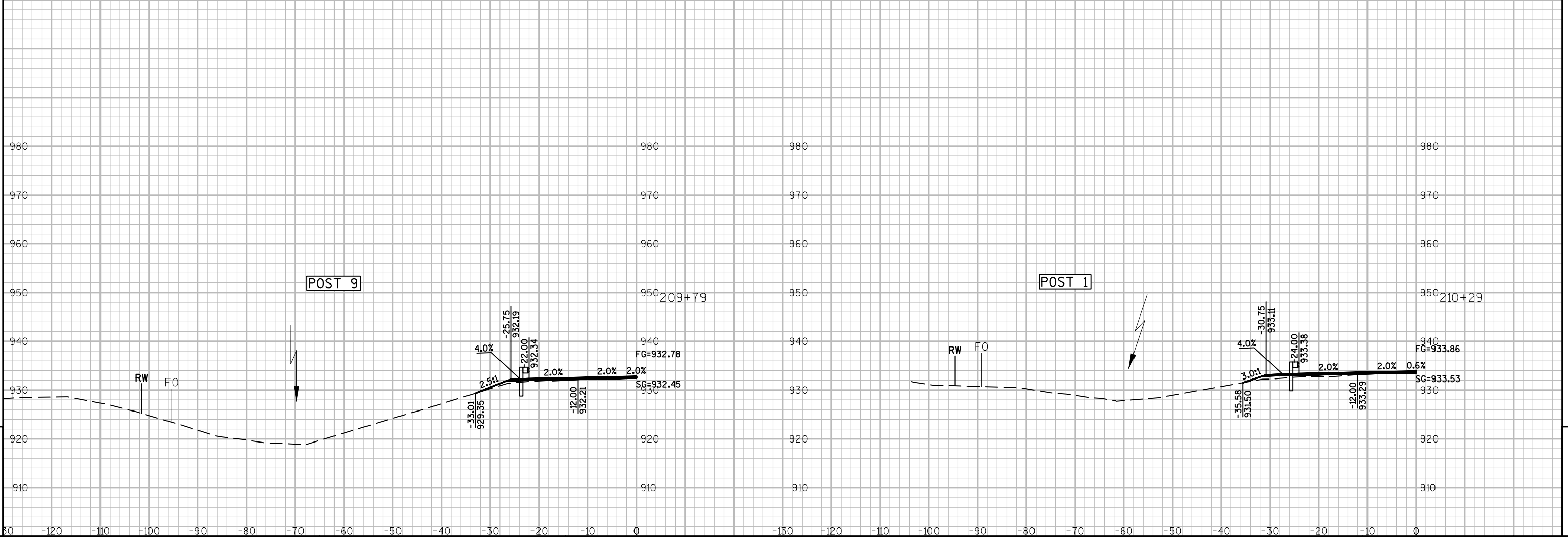
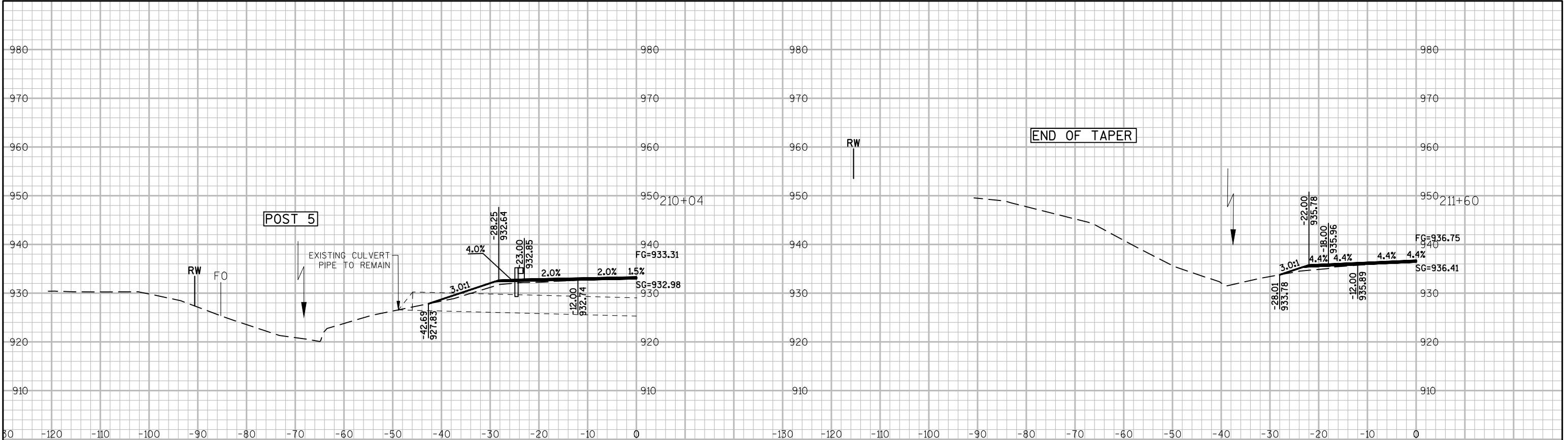
9

9

PROJECT NO: 5310-02-63	HWY: USH 14	COUNTY: DANE	CROSS SECTIONS: MAINLINE (MGS GUARDRAIL)	SHEET	E
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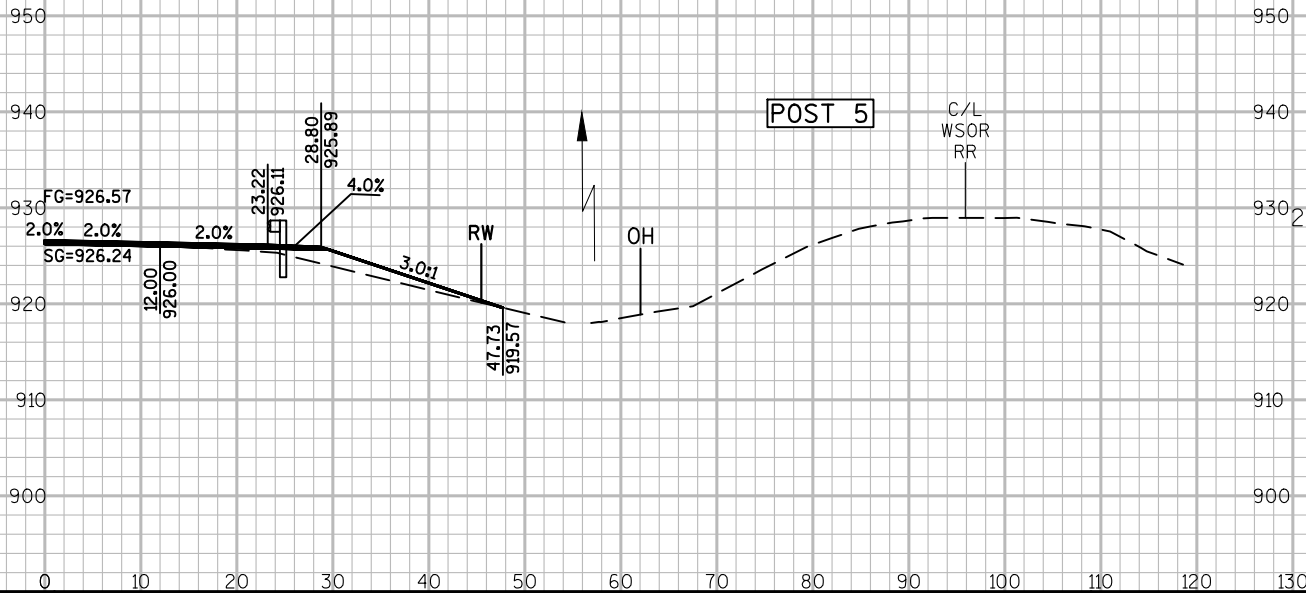
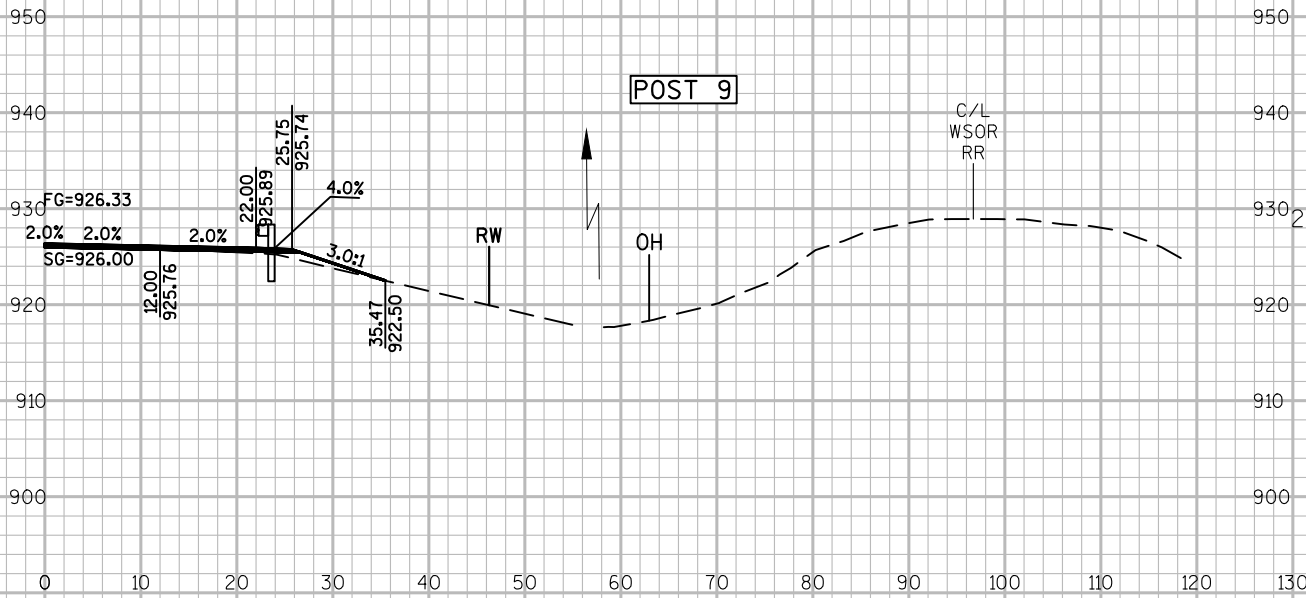
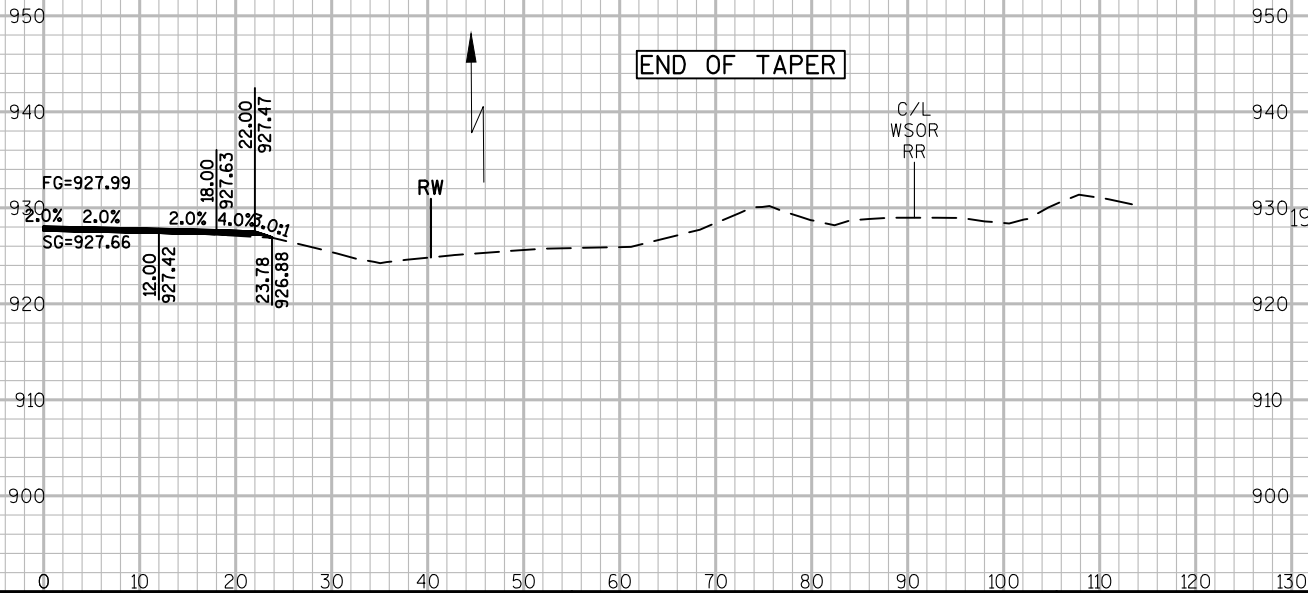
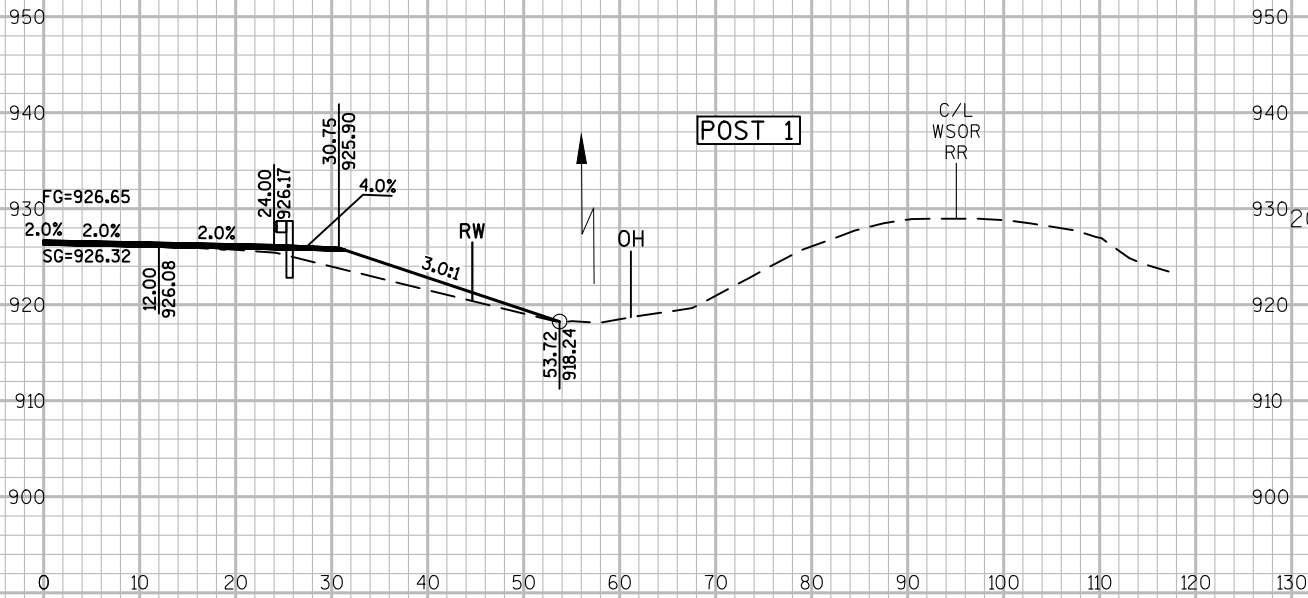


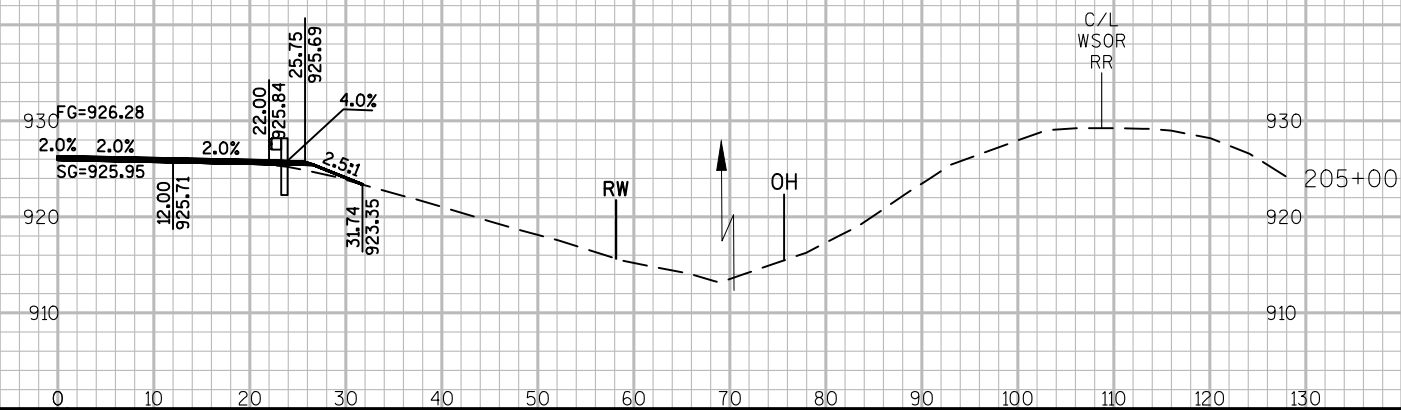
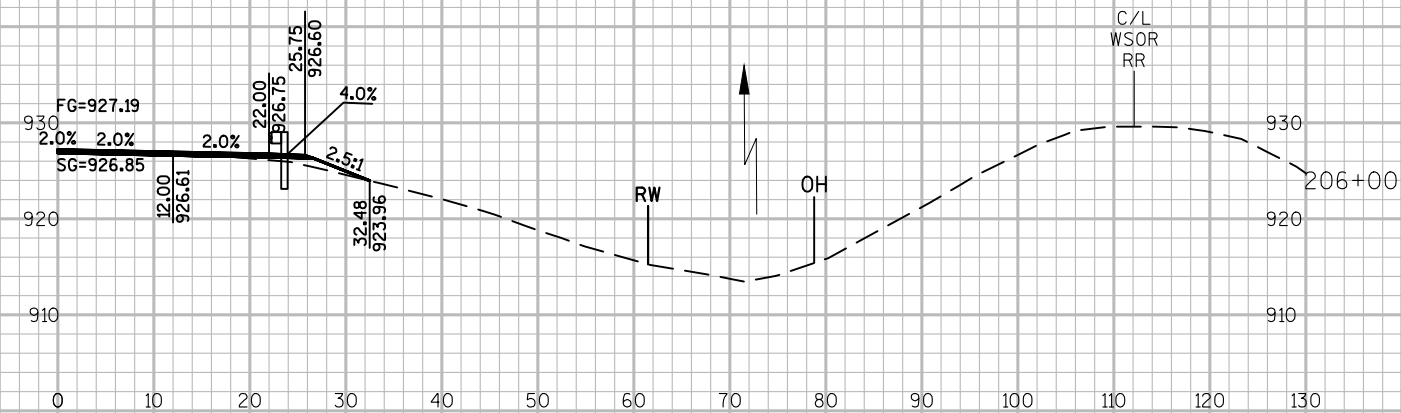
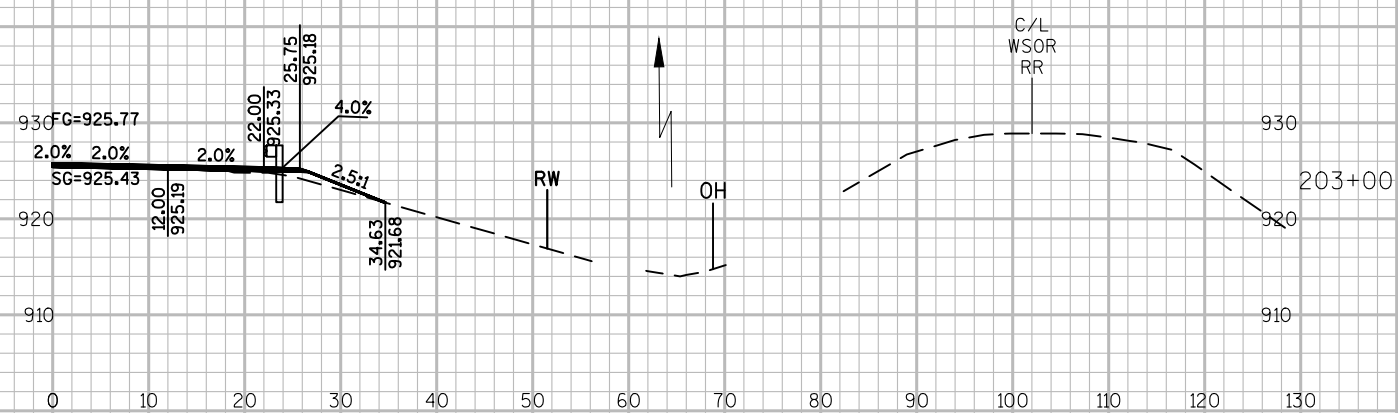
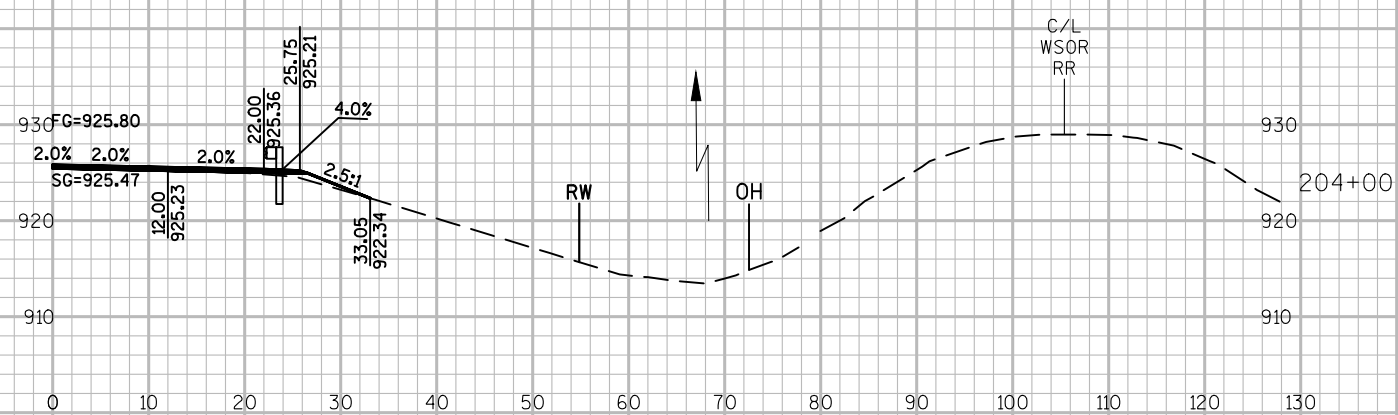


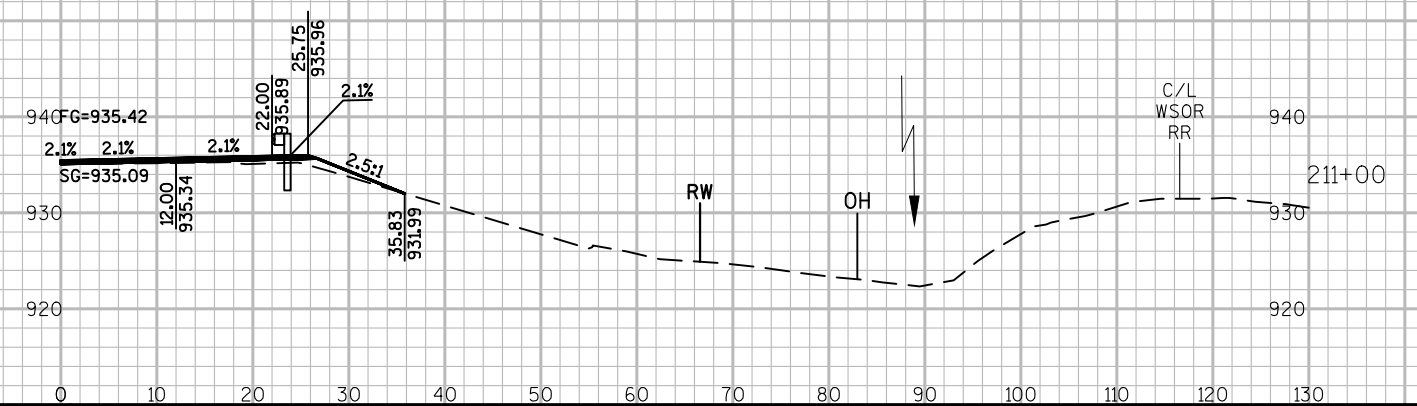
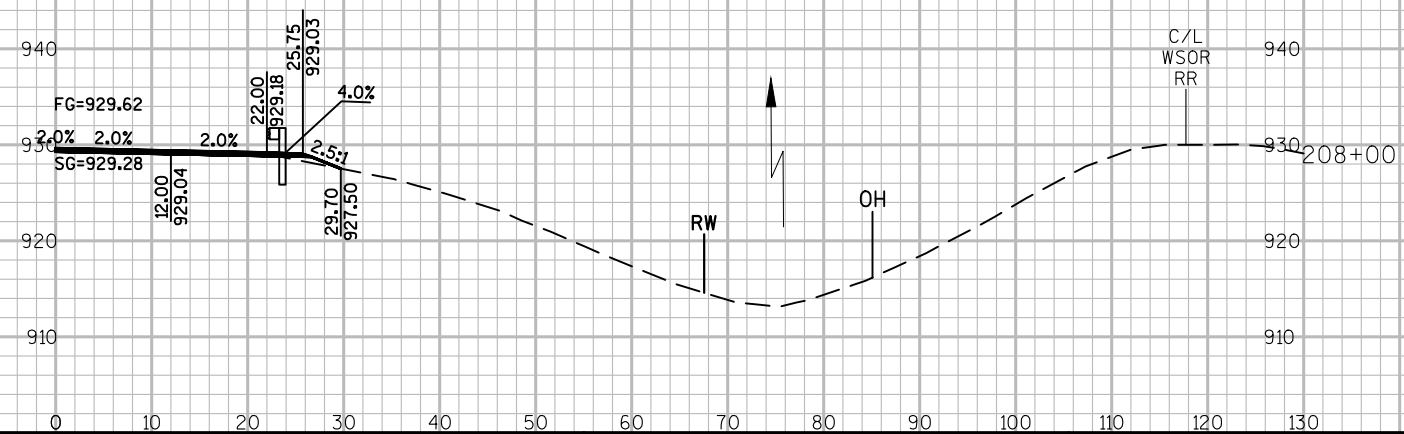
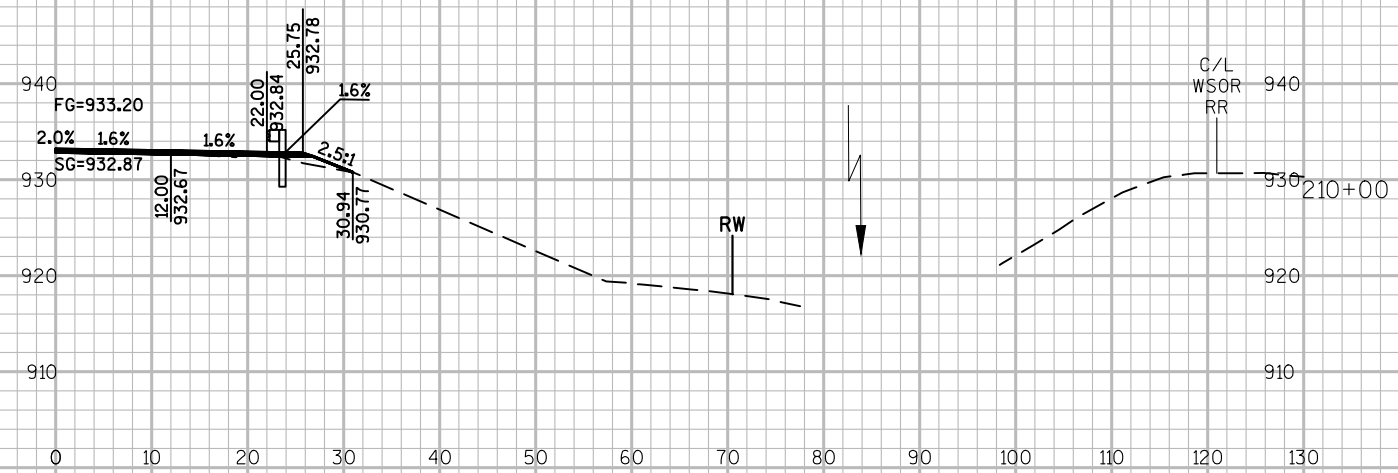


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PROJECT NO: 5310-02-63

HWY: USH 14

COUNTY: DANE

CROSS SECTIONS: MAINLINE (MGS GUARDRAIL)

SHEET

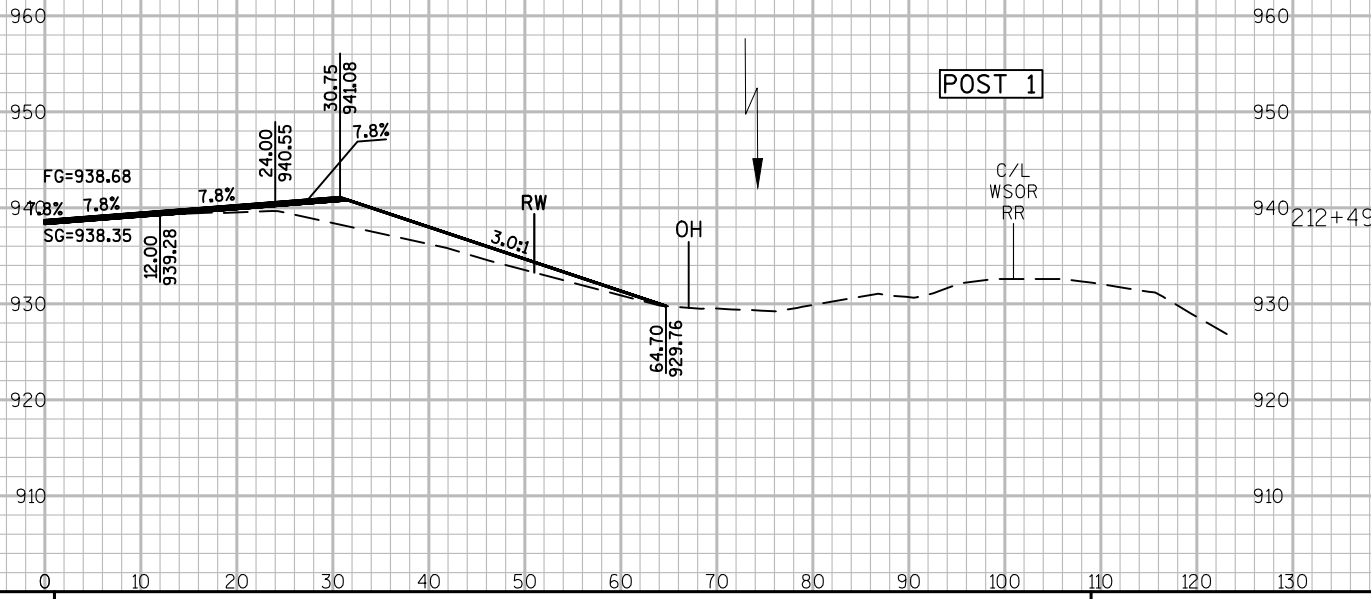
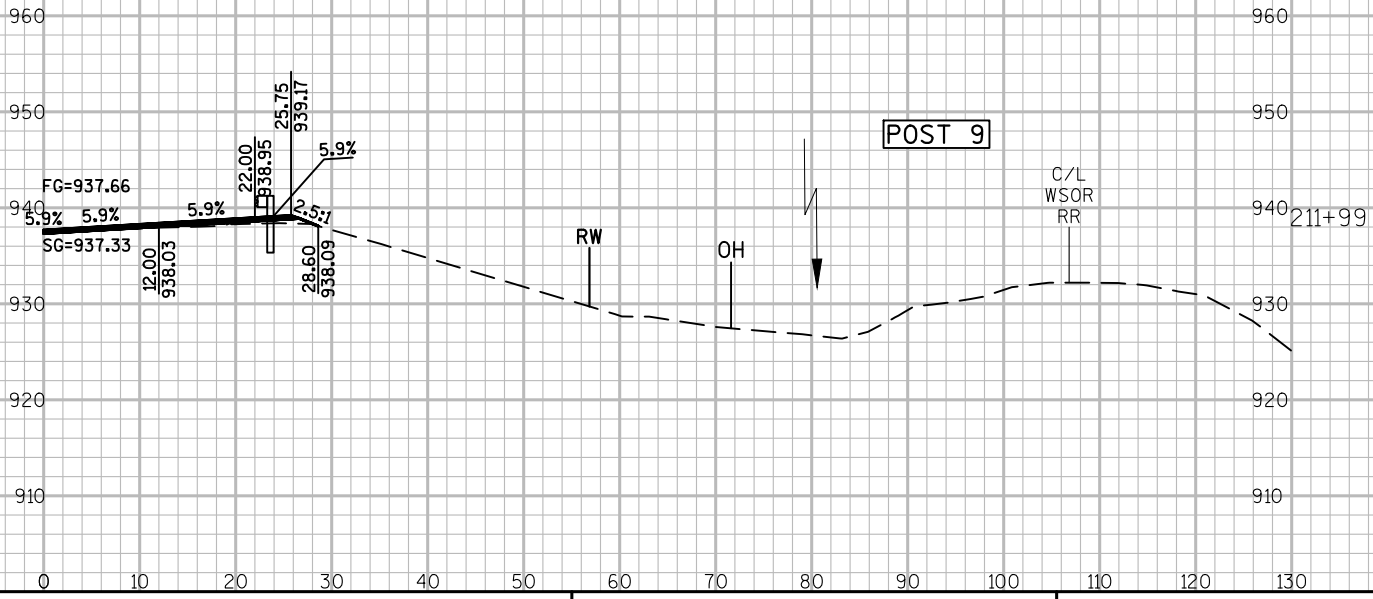
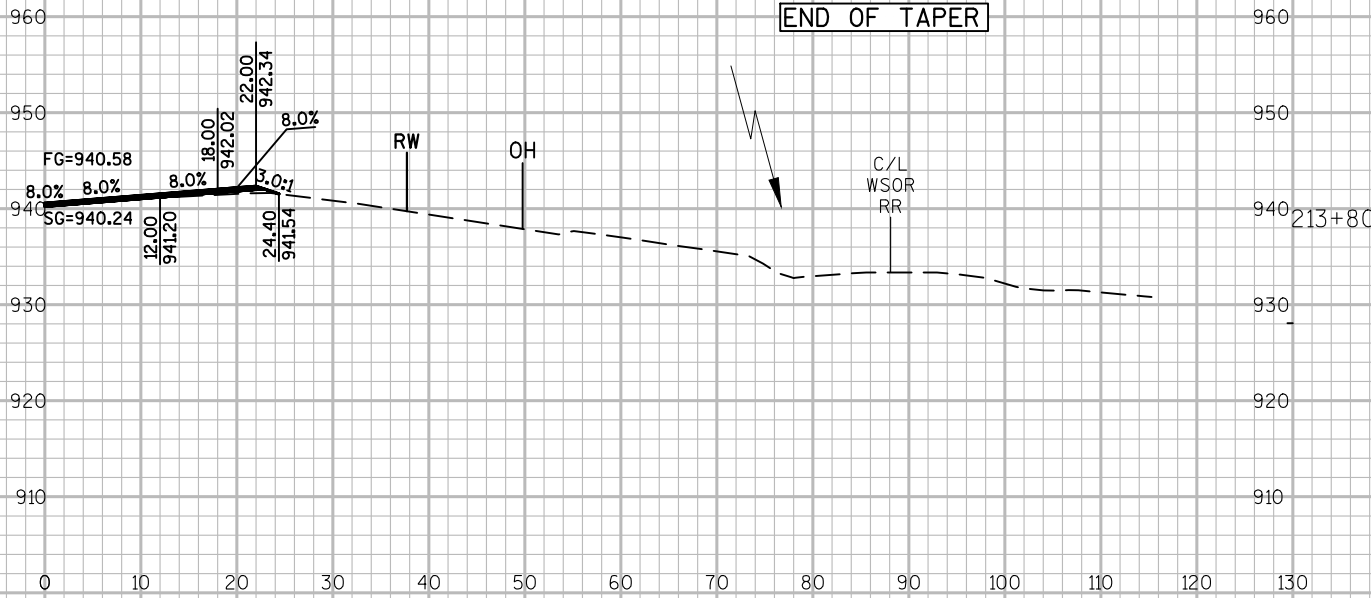
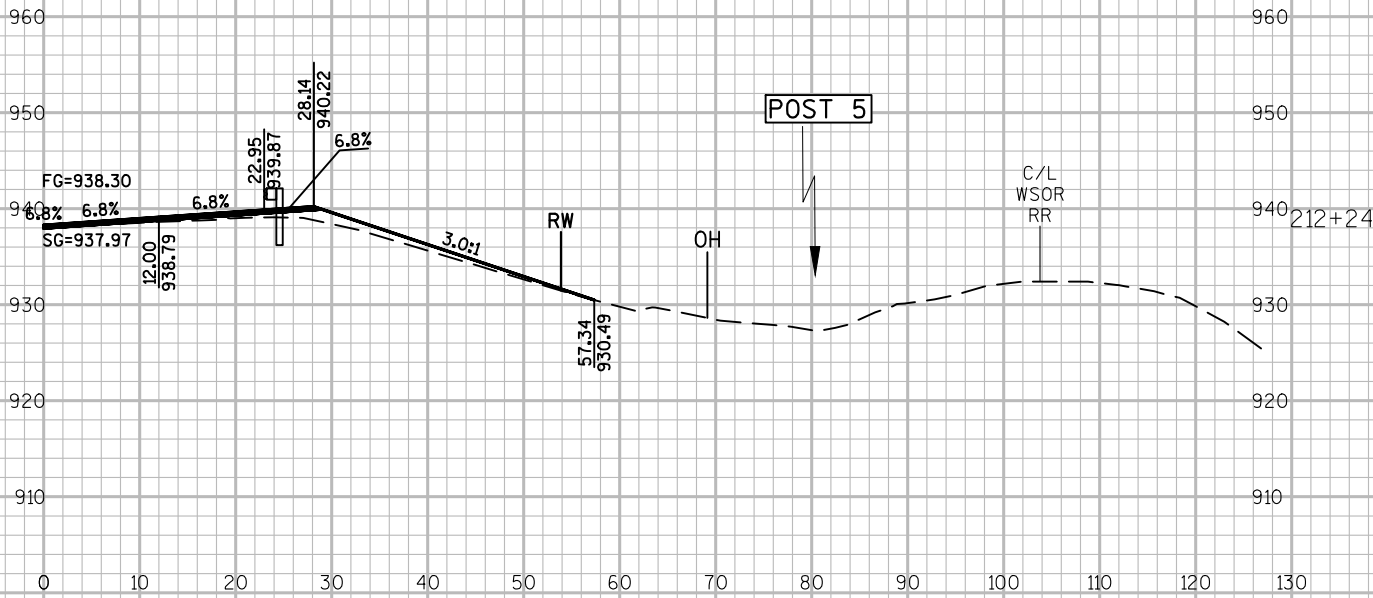
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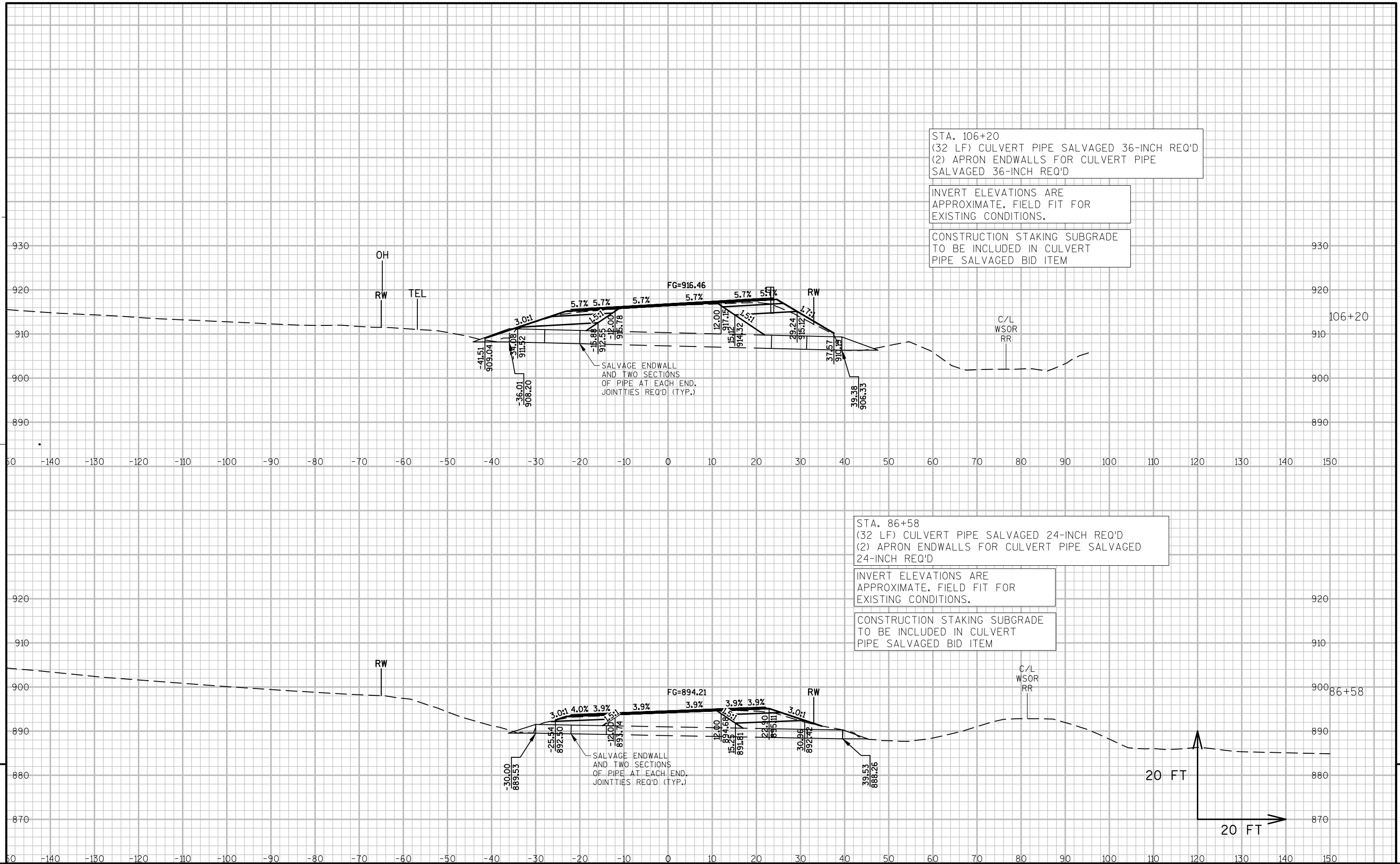
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LAYOUT : BEAMGUARD 3 - (3)

PLOT DATE : 6/10/2019
PLOT TIME : 4:36:25 PM

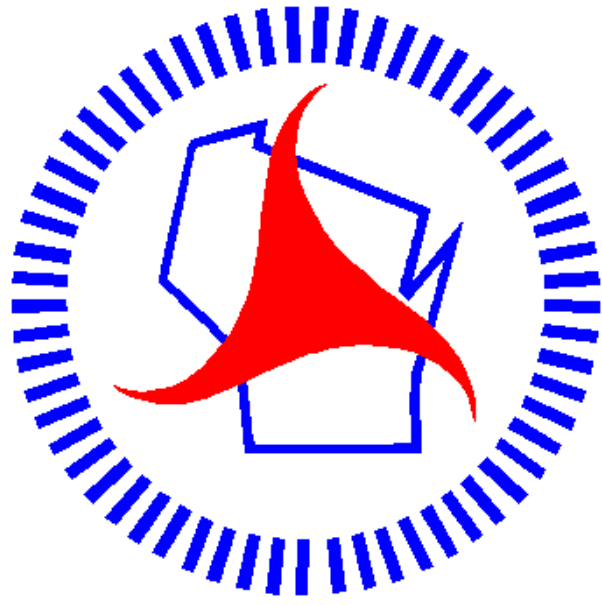
PLOT BY : JONAH DRAKE

PLOT SCALE : 1" = 1'





Notes



Wisconsin Department of Transportation

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<http://www.dot.wisconsin.gov>