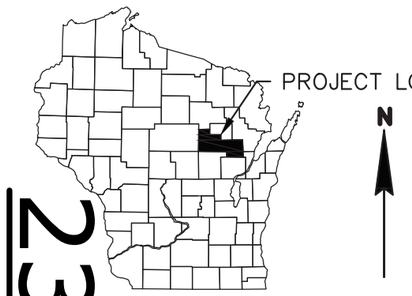
RHI MAR 2014

PROJECT ID: 9180-17-70
WITH: N/A

COUNTY: SHAWANO

ORDER OF SHEETS

TOTAL SHEETS = 88



DESIGN DESIGNATION

		STH 22	CTH BE
A.A.D.T.	2013	= 11,200	2,900
A.A.D.T.	2033	= 13,700	3,500
D.H.V.		= 1,550	---
D.D.		= 62/38	---
T.		= 8.5%	---
DESIGN SPEED		= 50 MPH	50 MPH
ESALS		= 693,500	693,500

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 (CAUTION)
- MARSH AREA
- WOODED OR SHRUB AREA

PROFILE

- GRADE LINE
- ORIGINAL GROUND
- MARSH OR ROCK PROFILE (To be noted as such) (ROCK)
- SPECIAL DITCH (LABEL)
- GRADE ELEVATION (95.36)
- CULVERT (Profile View)

UTILITIES

- ELECTRIC (E)
- FIBER OPTIC (FO)
- GAS (G)
- SANITARY SEWER (SAN)
- STORM SEWER (SS)
- TELEPHONE (T)
- WATER (W)
- UTILITY PEDESTAL
- POWER POLE
- TELEPHONE POLE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

SHAWANO - GILLETT

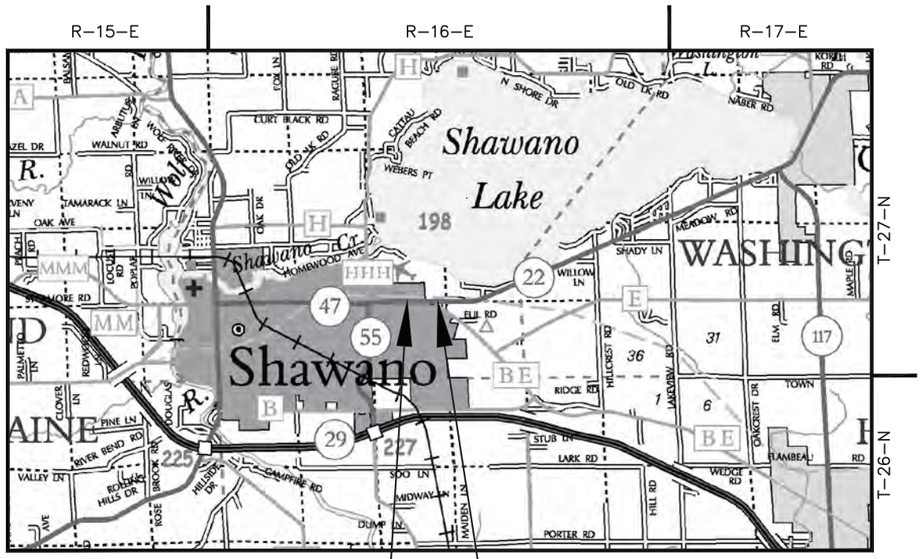
STH 22 & CTH BE INTERSECTION

STH 22

SHAWANO COUNTY

STATE PROJECT NUMBER
9180-17-70

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
9180-17-70	WISC 2014080	1



BEGIN PROJECT 9180-17-70
STA 105+18
Y=271,853.36
X=873,917.17

END PROJECT 9180-17-70
STA 119+24
Y=271,855.69
X=875,322.84

LAYOUT
SCALE 0 1 MI.

TOTAL NET LENGTH OF CENTERLINE = 0.266 MI.

COORDINATES ON THIS PLAN ARE REFERENCED TO THE WISCONSIN COUNTY COORDINATE SYSTEM (WCCS), SHAWANO COUNTY.

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

ORIGINAL PLAN PREPARED BY

BECHER HOPPE
330 Fourth Street - PO Box 3000
Wausau, WI 54402-3000
715.845.8000 - Fax 715.845.8003
becherhoppe.com

MARIJEAN M. HOPPE
E-36665-006
WAUNAKEE
WISCONSIN
PROFESSIONAL ENGINEER

10-22-13 (Date) (Signature)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY

Surveyor	BECHER-HOPPE ASSOCIATES, INC.
Designer	BECHER-HOPPE ASSOCIATES, INC.
Project Manager	JIM VOLKMANN
Regional Examiner	CHERYL SIMON
Regional Supervisor	ANNA WISNER

APPROVED FOR THE DEPARTMENT
DATE: 10/29/13 (Signature)

E

2

GENERAL NOTES

BEARINGS SHOWN ON THE PLAN ARE TRUE BEARINGS TO THE NEAREST SECOND.

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

NO TREES OR SHRUBS ARE TO BE REMOVED WITHOUT APPROVAL OF THE ENGINEER

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.

WHEN THE QUANTITY OF THE ITEM OF BASE OR HMA PAVEMENT IS MEASURED FOR THE PAYMENT BY THE TON. THE DEPTH OR THICKNESS OF THE LAYER SHOWN ON THE PLANS IS APPROXIMATE AND THE ACTUALL THICKNESS WILL DEPEND ON THE DISTRIBUTION OF THE MATERIAL AS DIRECTED BY THE ENGINEER.

SECTION 2 ORDER

RUNOFF COEFFICIENT TABLE

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

TOTAL PROJECT AREA = 6.00 ACRES
TOTAL AREA EXPECTED TO BE DISTURBED BY CONSTRUCTION ACTIVITIES = 1.59 ACRES

UTILITIES

COMMUNICATION
CHARTER COMMUNICATIONS
5024 HEFFRON ST
STEVENS POINT, WI 54481
RUDI RUDIGER
MOBILE PHONE: (715) 302-1550
rudi.rudiger@charter.com

COMMUNICATION
FRONTIER COMMUNICATIONS OF WI
26 W 12TH ST
CLINTONVILLE, WI 54929
JAMES JASKOLSKI
PHONE: (715) 823-1227
james.jaskolski@ftr.com

ELECTRIC
SHAWANO MUNICIPAL UTILITIES
PO BOX 436
122 N SAWYER ST
SHAWANO, WI 54166
ROBERT KOEPP
PHONE: (715) 526-3132 X7722
MOBILE PHONE: (715) 853-9314
rkoepp@shawanonet.net

ELECTRIC
WE ENERGIES
PO BOX 1699
APPLETON, WI 54912
JIM QUINN
PHONE: (920) 380-3401
MOBILE PHONE: (920) 450-9430
jim.quinn@we-energies.com

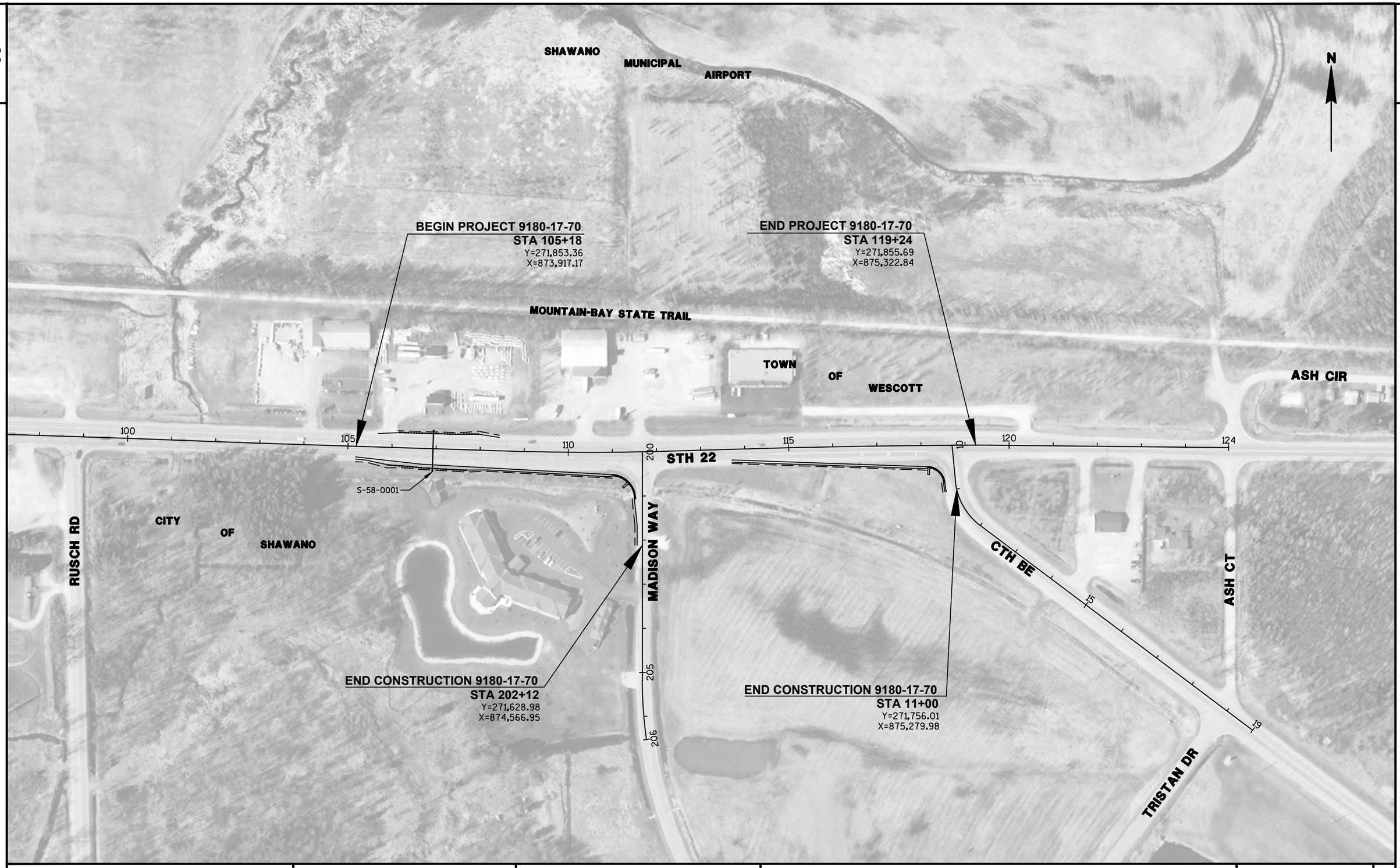
GAS
WE ENERGIES
800 S LYNMDALE DR
APPLETON, WI 54912
CODY BECKMAN
PHONE: (920) 380-3422
MOBILE PHONE: (920) 428-1038
cody.beckman@we-energies.com

SANITARY SEWER
SHAWANO LAKE SANITARY DISTRICT
PO BOX 452
N4802 RIVER BEND RD
SHAWANO, WI 54166
DUFFY SCHULTZ
PHONE: (715) 524-2176

WATER
SHAWANO LAKE SANITARY DISTRICT
PO BOX 452
N4802 RIVER BEND RD
SHAWANO, WI 54166
DUFFY SCHULTZ
PHONE: (715) 524-2176

DNR CONTACT

WISCONSIN DEPARTMENT OF NATURAL RESOURCES
NORTHEAST REGIONAL HEADQUARTERS
2984 SHAWANO AVE
GREEN BAY, WI 54313
JIM DOPERALSKI
PHONE: (920) 662-5119
james.doperalski@wisconsin.gov

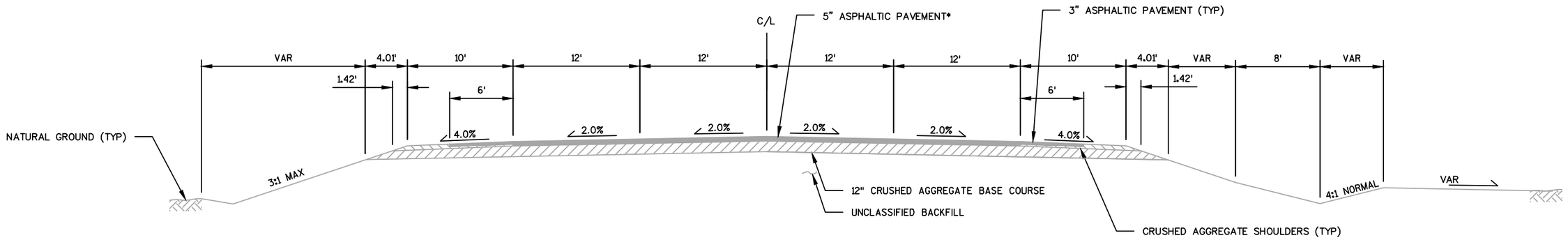


PROJECT NO: 9180-17-70	HWY: STH 22	COUNTY: SHAWANO	PROJECT OVERVIEW	SHEET 3	E

FILE NAME : P:\2011\2011.080 - WISDOT NC - STH 22 (CTH BE) SHAWANO\CAD\PLANS\2011080_020201_PO.DWG PLOT DATE : 10/25/2013 1:58 PM PLOT BY : MIKE A. HIGGINS PLOT NAME : ----------

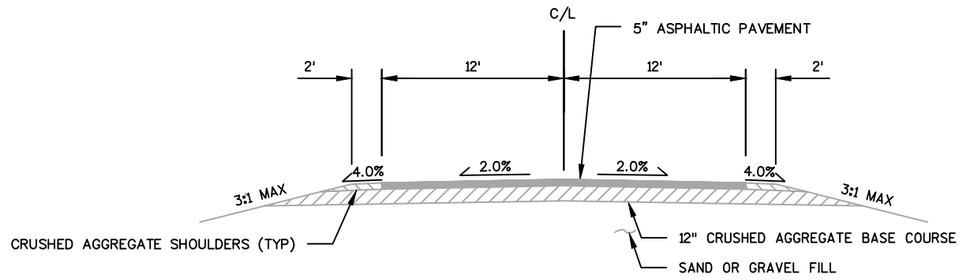
WISDOT/CADDS SHEET 42

2



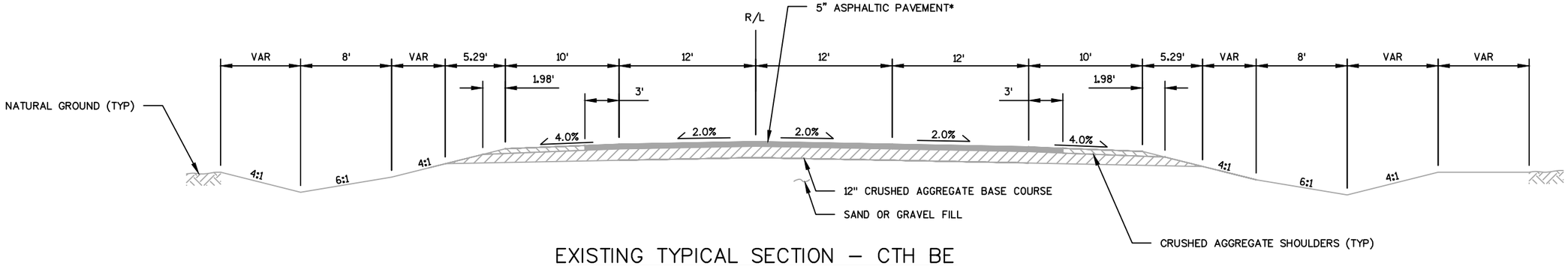
EXISTING TYPICAL SECTION – STH 22

STATION 105+18 – STATION 119+24



EXISTING TYPICAL SECTION – MADISON WAY

STATION 200+00 – STATION 202+12



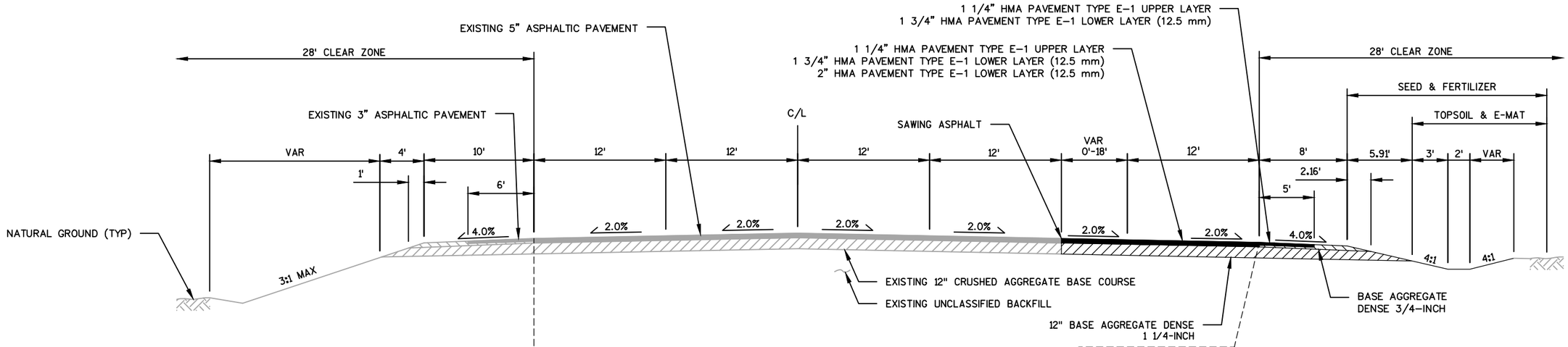
EXISTING TYPICAL SECTION – CTH BE

STATION 10+00 – STATION 11+00

*AS–BUILT PLANS SHOW A PAVEMENT DEPTH OF 5" ALTHOUGH PAVEMENT CORES TAKEN ON 3–8–12 REPORT A DEPTH OF 7"

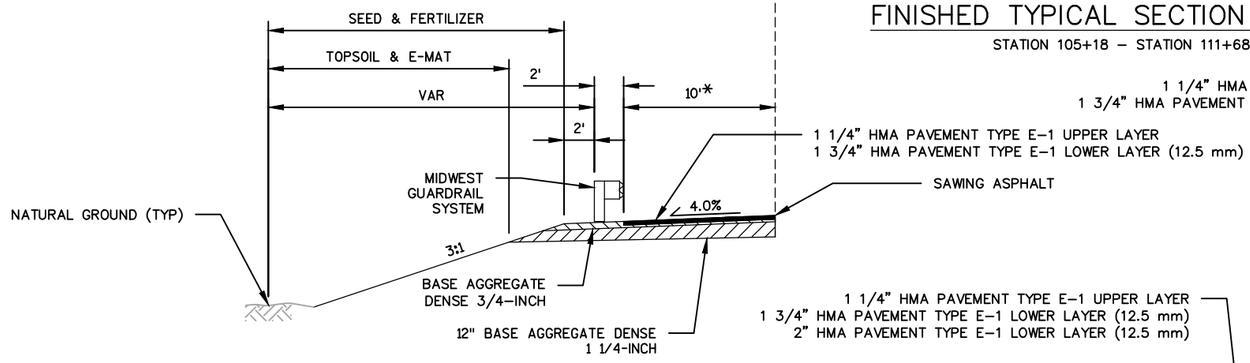
PROJECT NO: 9180-17-70	HWY: STH 22	COUNTY: SHAWANO	TYPICAL SECTIONS	SHEET 4	E

2

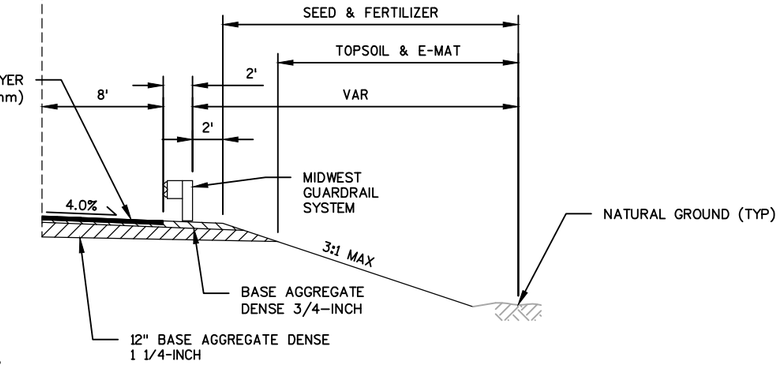


FINISHED TYPICAL SECTION – STH 22

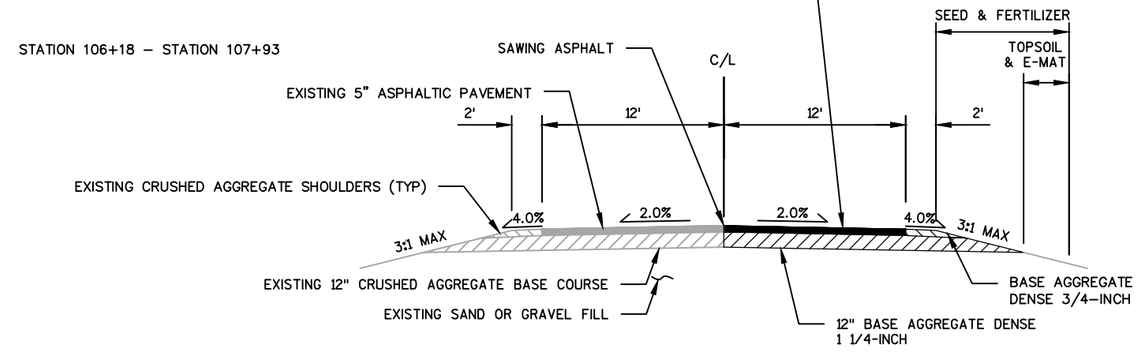
STATION 105+18 – STATION 111+68



STATION 106+18 – STATION 107+93



STATION 105+93 – STATION 107+68

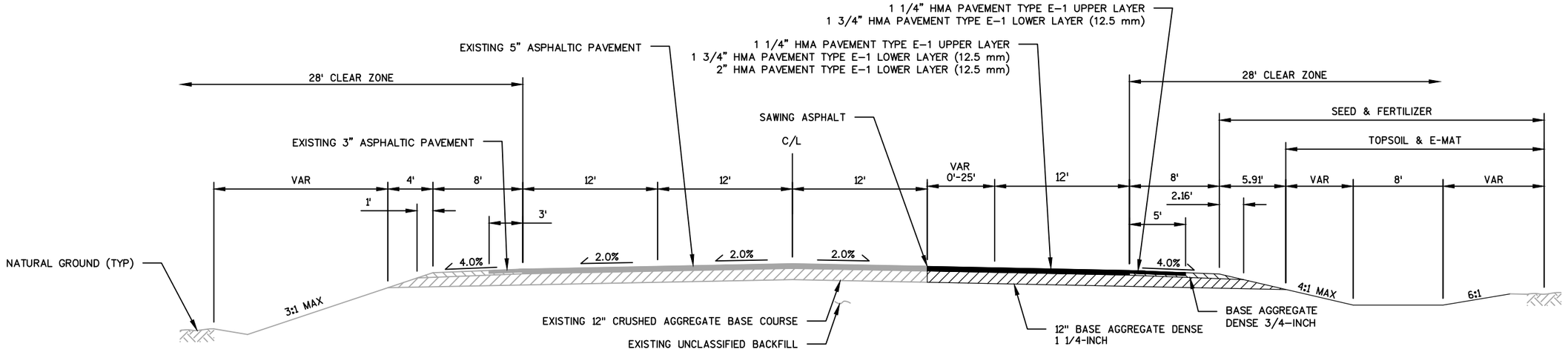


FINISHED TYPICAL SECTION – MADISON WAY

STATION 200+00 – STATION 202+12

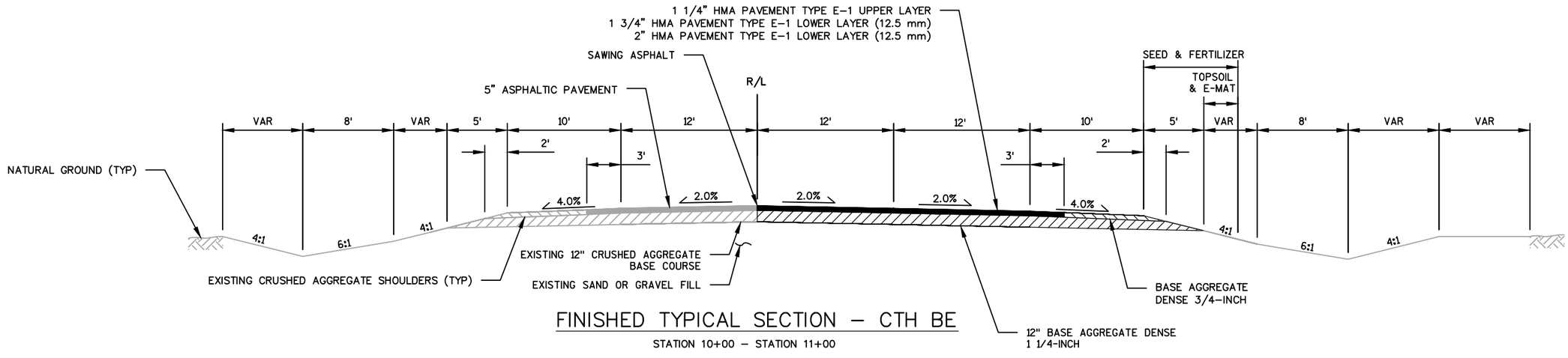
*10' SHOULDER AT GUARDRAIL TO INCREASE ADJACENT ENTRANCE VISION TO STH 22

PROJECT NO: 9180-17-70	HWY: STH 22	COUNTY: SHAWANO	TYPICAL SECTIONS	SHEET 5	E



FINISHED TYPICAL SECTION – STH 22

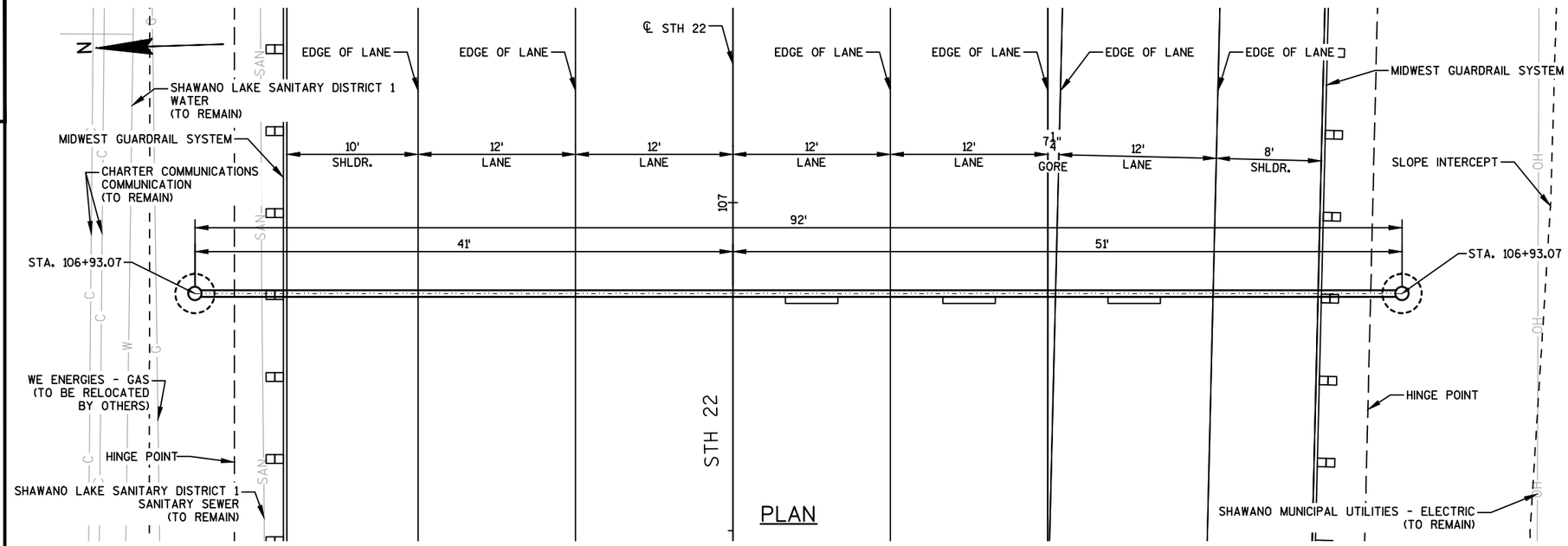
STATION 113+71 – STATION 118+71



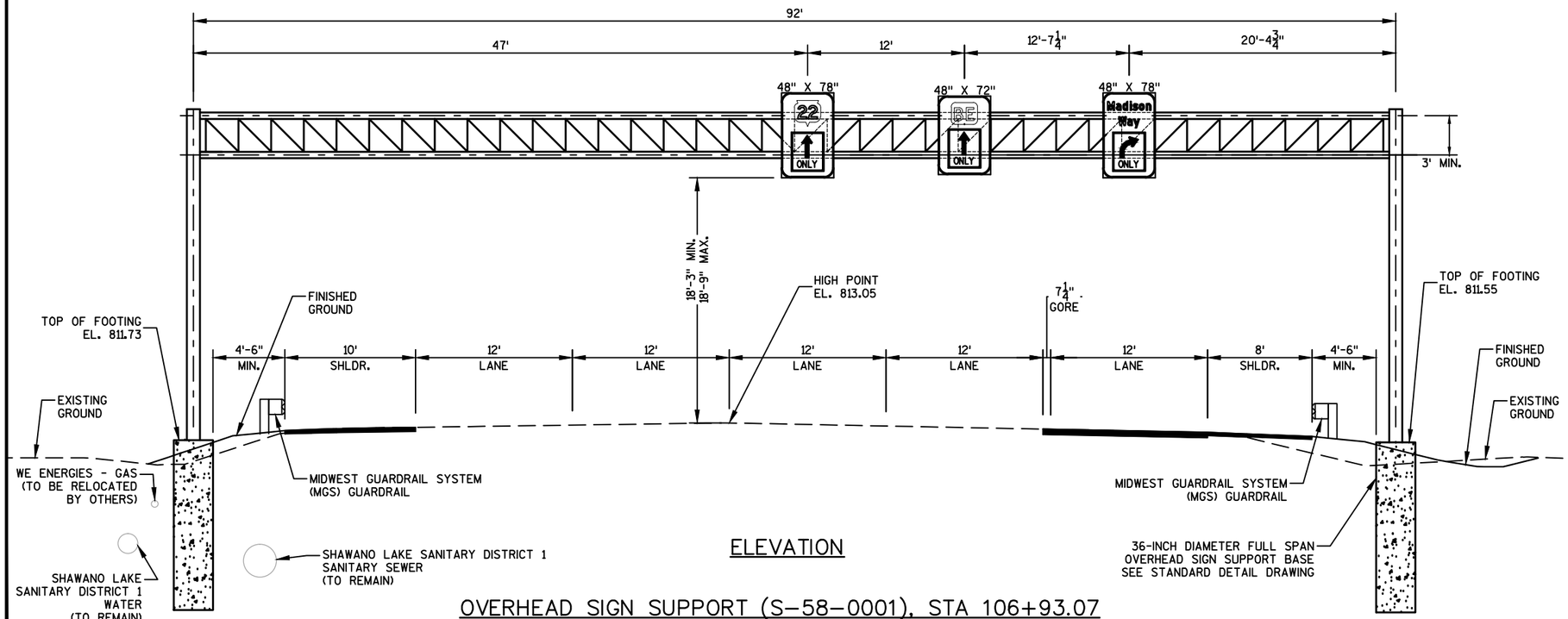
FINISHED TYPICAL SECTION – CTH BE

STATION 10+00 – STATION 11+00

PROJECT NO: 9180-17-70	HWY: STH 22	COUNTY: SHAWANO	TYPICAL SECTIONS	SHEET 6	E



PLAN



ELEVATION

OVERHEAD SIGN SUPPORT (S-58-0001), STA 106+93.07
STH 22 AT MADISON WAY & CTH BE

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

ELEVATIONS ARE IN FEET UNLESS OTHERWISE SHOWN OR NOTED.

OVERHEAD SIGN SUPPORTS SHALL BE DESIGNED AND FABRICATED USING STEEL.

CENTER SIGNS VERTICALLY ON CHORD/TRUSS.

CENTER TYPE I SIGNS OVER THEIR RESPECTIVE LANE.

PROVIDE AN IDENTIFICATION PLAQUE FOR THE OVERHEAD SIGN SUPPORT, TO BE CONSIDERED INCIDENTAL TO THE BID ITEM "OVERHEAD SIGN SUPPORT STRUCTURE S-58-0001.

DESIGN NEW OVERHEAD SIGN SUPPORT ACCORDING TO THE LATEST EDITION OF, AND SUPPLEMENTAL TO THE STATE OF WISCONSIN "STANDARD SPECIFICATIONS FOR HIGHWAY AND STRUCTURE CONSTRUCTION" AND AASHTO "STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS." THE OVERHEAD SIGN SHALL BE DESIGNED FOR FATIGUE CATEGORY I.

DESIGN THE STRUCTURE BASE PLATE CONNECTION TO ACCOMMODATE A MINIMUM OF SIX (6) ANCHOR BOLTS.

SIZE THE ANCHOR BOLT / TEMPLATE ASSEMBLY TO FIT WITHIN THE BAR CAGE OF THE FOOTING BASE SHOWN IN THE CONTRACT PLANS IN ADDITION TO MEETING ALL APPLICABLE DESIGN REQUIREMENTS FOR THE DESIGN OF THE UPRIGHT BASE CONNECTION.

SIGNS OR BLANKS SHALL BE INSTALLED ON THE OVERHEAD SIGN SUPPORT AT THE TIME OF ERECTION. BLANKS, IF USED, SHALL BE OF THE SAME SIZE AND LOCATION AS PERMANENT SIGNS.

MOUNTING BRACKETS FOR SIGNS SHALL BE PER APPROVED PRODUCT LIST.

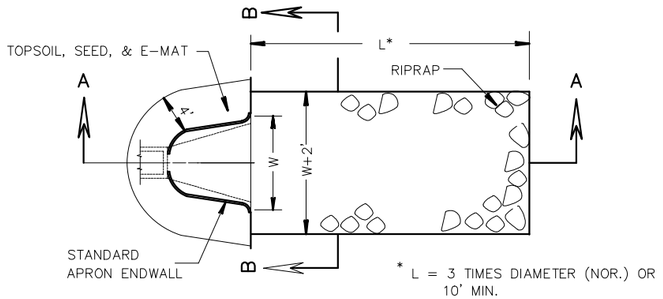
UPRIGHT DIMENSIONS TO BE DETERMINED BY MANUFACTURER.

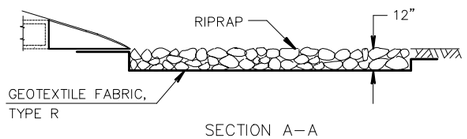
2

PROJECT NO: 9180-17-70	HWY: STH 22	COUNTY: SHAWANO	CONSTRUCTION DETAILS	SHEET E

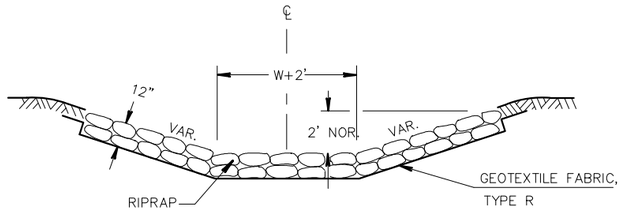
FILE NAME : P:\2011\2011.080 - WISDOT NC - STH 22 (CTH BE) SHAWANO\CAD\PLANS\2011080_021001_CD.DWG PLOT DATE : 10/25/2013 1:58 PM PLOT BY : MIKE A. HIGGINS PLOT NAME : ----------
WISDOT/CADDS SHEET 42

2



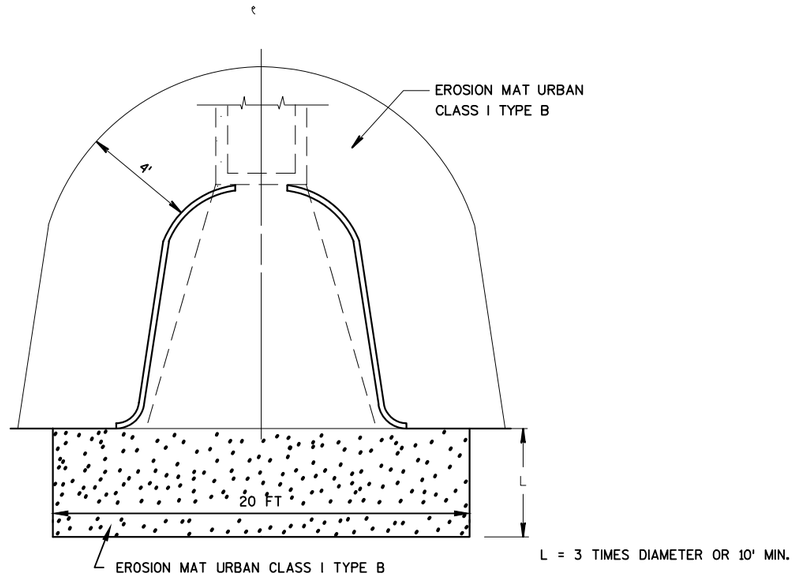


SECTION A–A



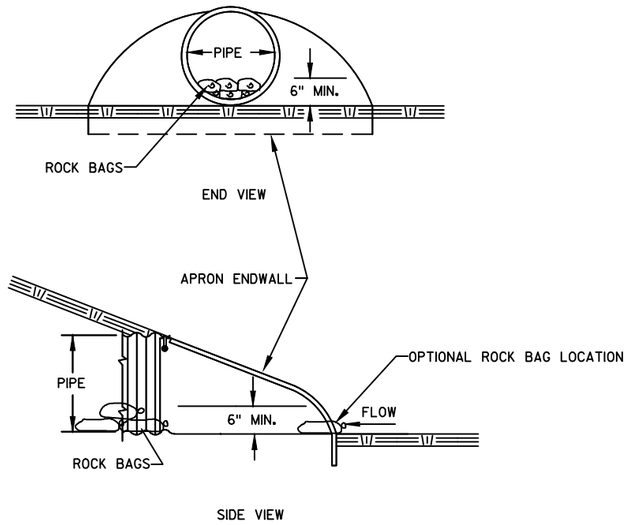
SECTION B–B

TOPSOIL, SEED, RIPRAP AND GEOTEXTILE FABRIC DETAIL
AT APRON ENDWALLS



L = 3 TIMES DIAMETER OR 10' MIN.

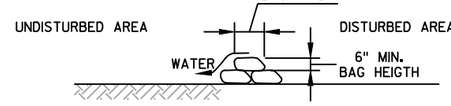
EROSION CONTROL AT PIPE ENDS



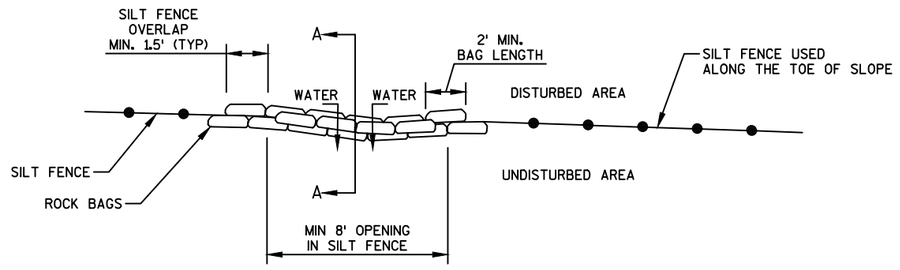
SIDE VIEW

CULVERT PIPE CHECK DETAIL

CURB & GUTTER DETAIL
STATION 111+00.31 - STATION 111+50.80
STATION 118+15.73 - STATION 118+53.99



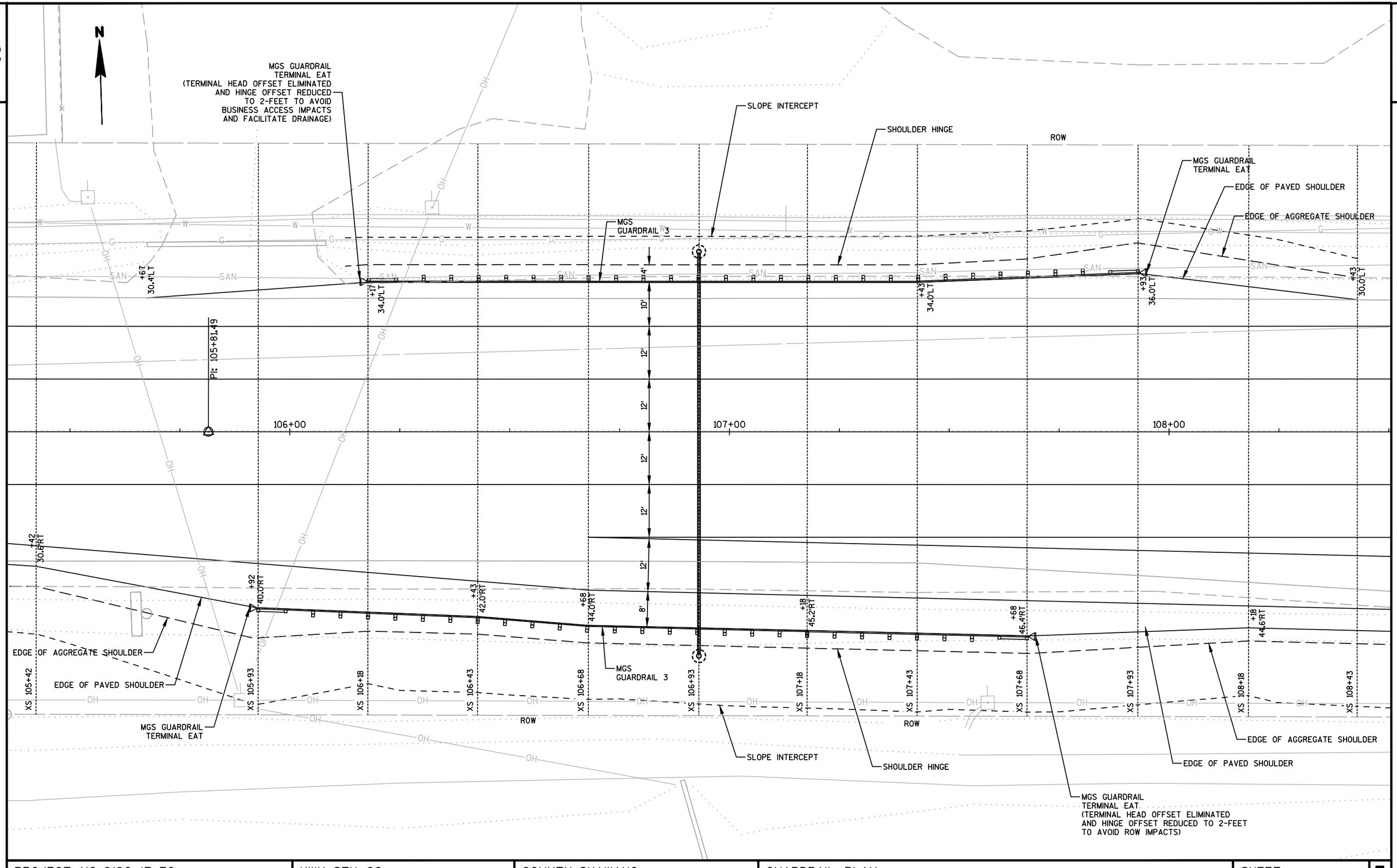
SECTION A–A



TOP VIEW

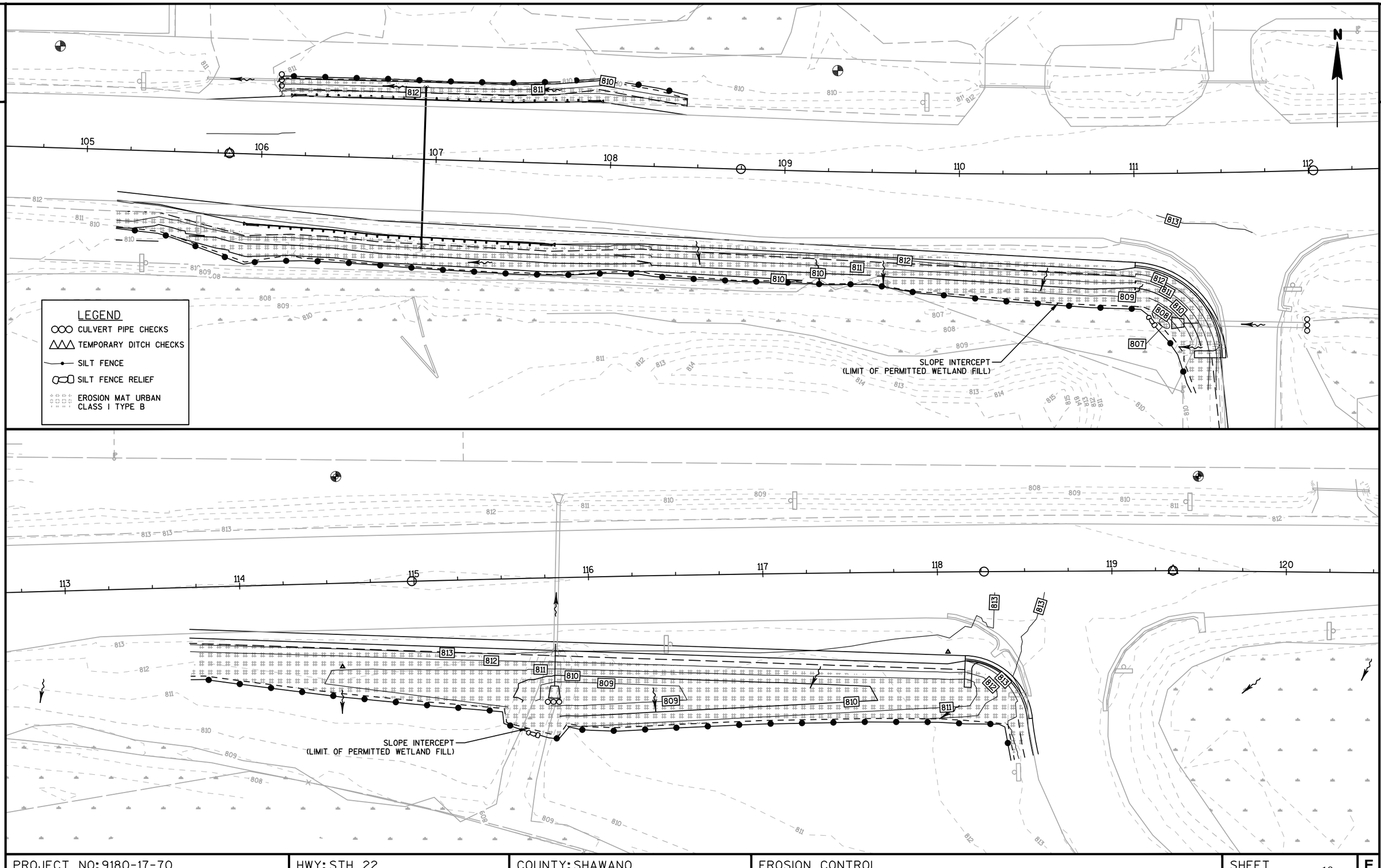
ROCK BAGS USED FOR SILT FENCE RELIEF

2



PROJECT NO: 9180-17-70	HWY: STH 22	COUNTY: SHAWANO	GUARDRAIL PLAN	SHEET 9	E

2



PROJECT NO: 9180-17-70	HWY: STH 22	COUNTY: SHAWANO	EROSION CONTROL	SHEET 10	E

2

2

SIGNING LEGEND

EXISTING SIGN MOUNTED ON POST(S)
PROPOSED SIGN MOUNTED ON POST(S)

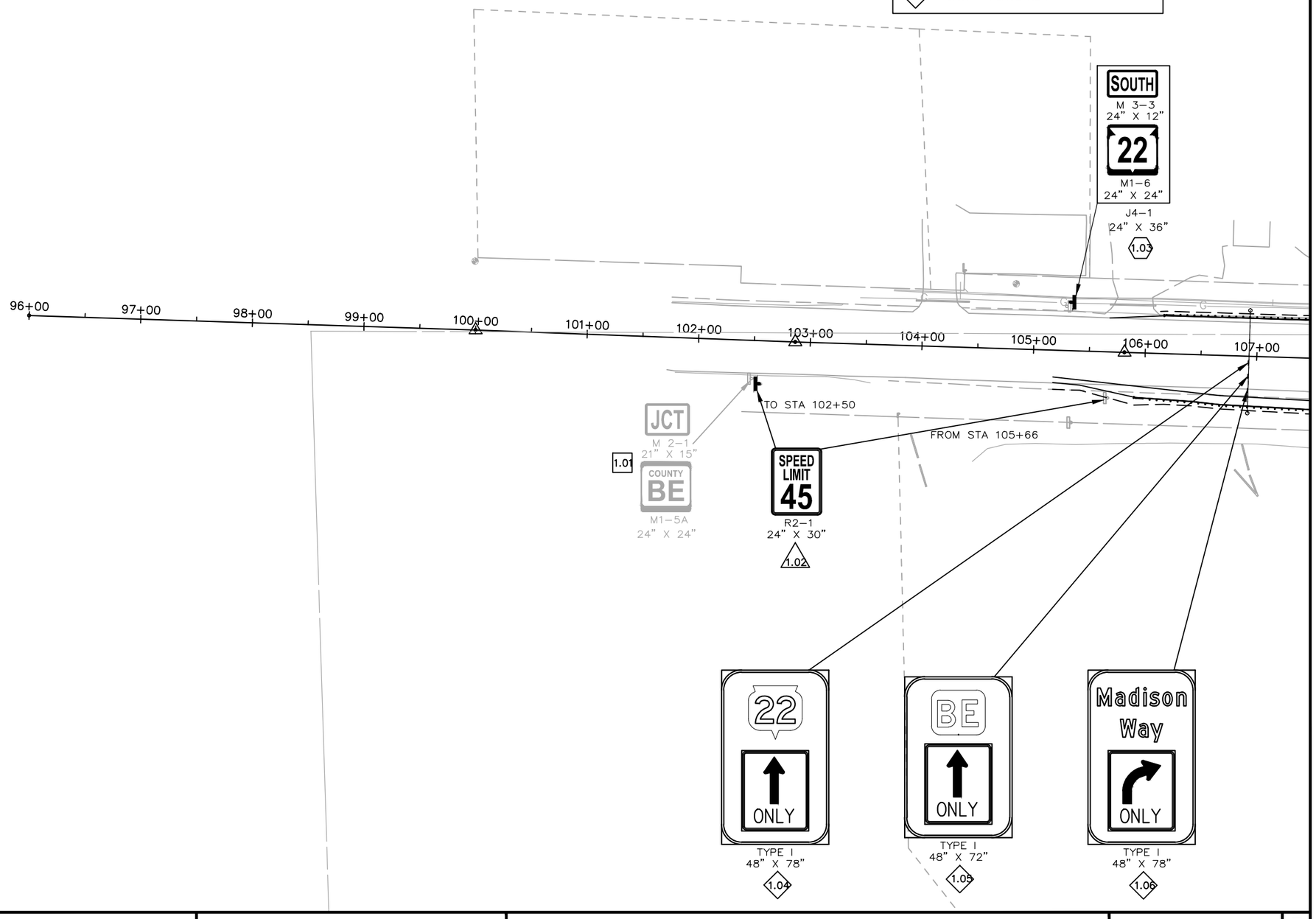
X.XX SIGN – MOVE

X.XX SIGN – REMOVE AND REPLACE

X.XX SIGN – REMOVE

X.XX SIGN – PLACE NEW

N



PROJECT NO: 9180–17–70	HWY: STH 22	COUNTY: SHAWANO	PERMANENT SIGNING	SHEET 11	E

2

N

SIGNING LEGEND

- EXISTING SIGN MOUNTED ON POST(S) / PROPOSED SIGN MOUNTED ON POST(S)
- X.XX — SIGN – MOVE
- X.XX — SIGN – REMOVE AND REPLACE
- X.XX — SIGN – REMOVE
- X.XX — SIGN – PLACE NEW

SPEED LIMIT 45
R2–1
24" X 30"
TO REMAIN

SOUTH
M 3–3
24" X 12"
22
M1–6
24" X 24"
J4–1
24" X 36"
2.05

COUNTY BE
M1–5A
24" X 24"
M 6–1
21" X 21"
J13–1
24" X 45"
2.07

108+00 109+00 110+00 111+00 112+00 113+00 114+00 115+00 116+00 117+00 118+00 119+00 120+00 121+00 122+00 123+00

200+00 201+00 202+00 203+00 204+00

10+00 11+00 12+00 13+00 14+00 15+00 16+00

STOP
R1–1
30" X 30"
TO REMAIN
2.01

RIGHT LANE MUST TURN RIGHT
R3–7R
30" X 30"

ONLY ONLY
R3–8D
36" X 30"
2.02

Bonduel
D1–1
48" X 15"
2.04

COUNTY BE
M1–5A
24" X 24"
M 6–1
21" X 21"
J13–1
24" X 45"
2.03

FROM STA 10+66
STOP
TO STA 10+81
2.06
R1–1
30" X 30"

W1–6
48" X 24"
TO REMAIN

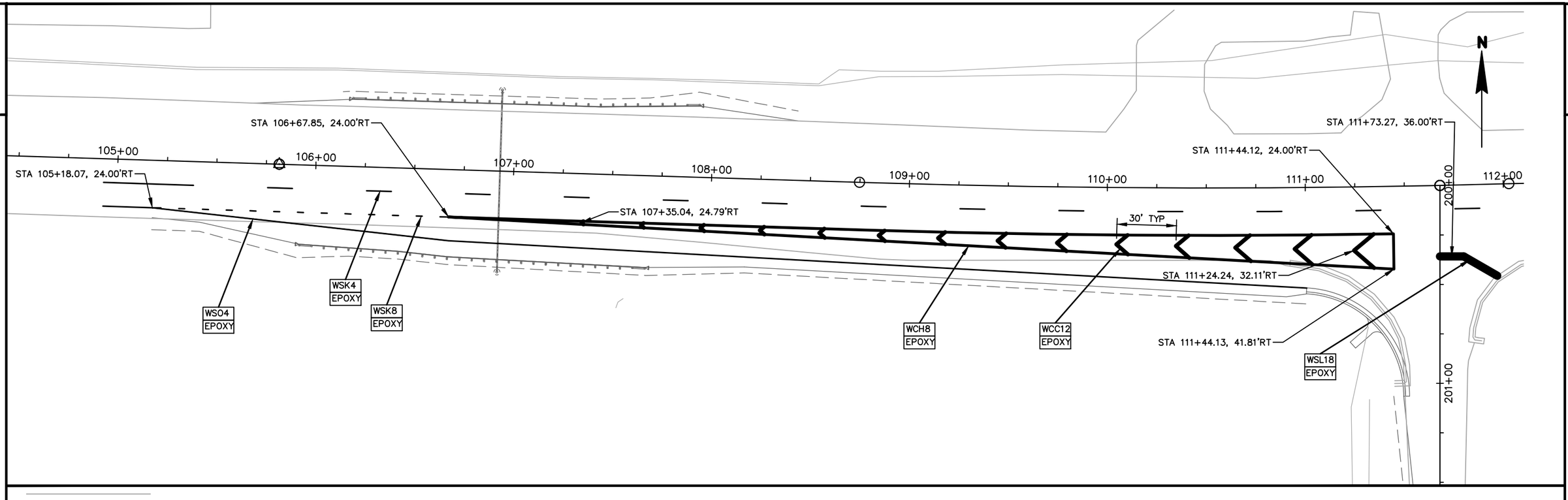
Bonduel 6
D2–1
48" X 15"
TO REMAIN

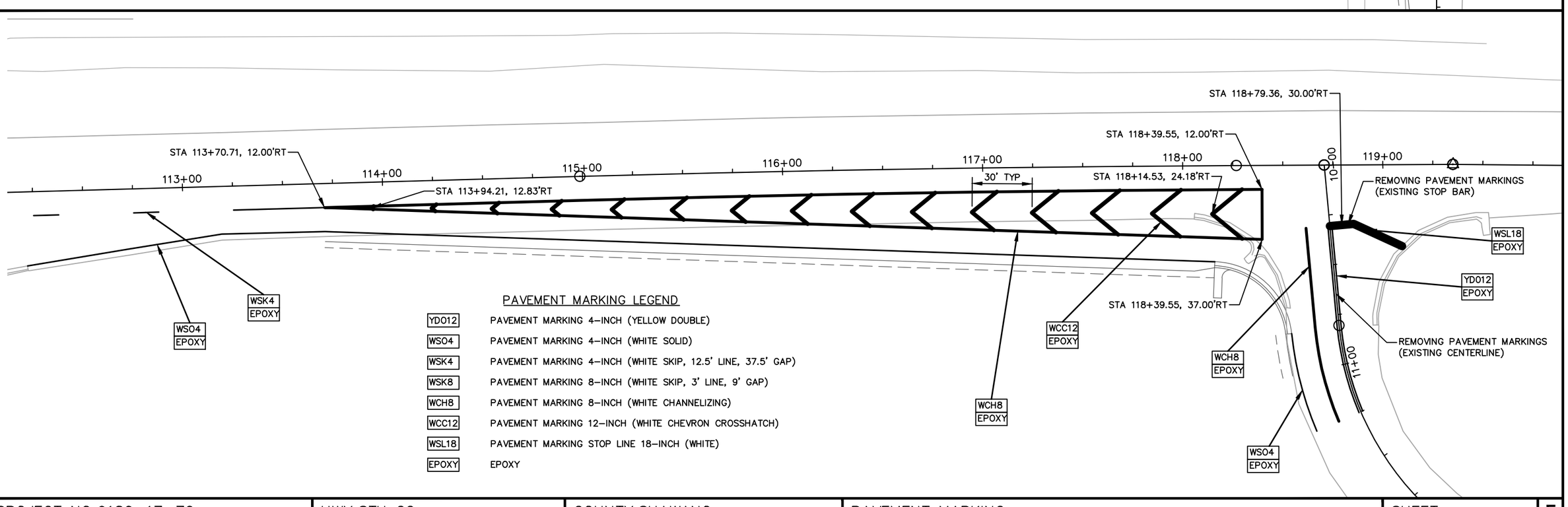
STOP
R1–1
30" X 30"
TO REMAIN

NORTH
M 3–1
24" X 12"
22
M1–6
24" X 24"
J4–1
24" X 36"
2.09

W3–1
36" X 36"
2.08

PROJECT NO: 9180–17–70	HWY: STH 22	COUNTY: SHAWANO	PERMANENT SIGNING	SHEET 12	E





PAVEMENT MARKING LEGEND

YD012	PAVEMENT MARKING 4–INCH (YELLOW DOUBLE)
WS04	PAVEMENT MARKING 4–INCH (WHITE SOLID)
WSK4	PAVEMENT MARKING 4–INCH (WHITE SKIP, 12.5' LINE, 37.5' GAP)
WSK8	PAVEMENT MARKING 8–INCH (WHITE SKIP, 3' LINE, 9' GAP)
WCH8	PAVEMENT MARKING 8–INCH (WHITE CHANNELIZING)
WCC12	PAVEMENT MARKING 12–INCH (WHITE CHEVRON CROSSHATCH)
WSL18	PAVEMENT MARKING STOP LINE 18–INCH (WHITE)
EPOXY	EPOXY

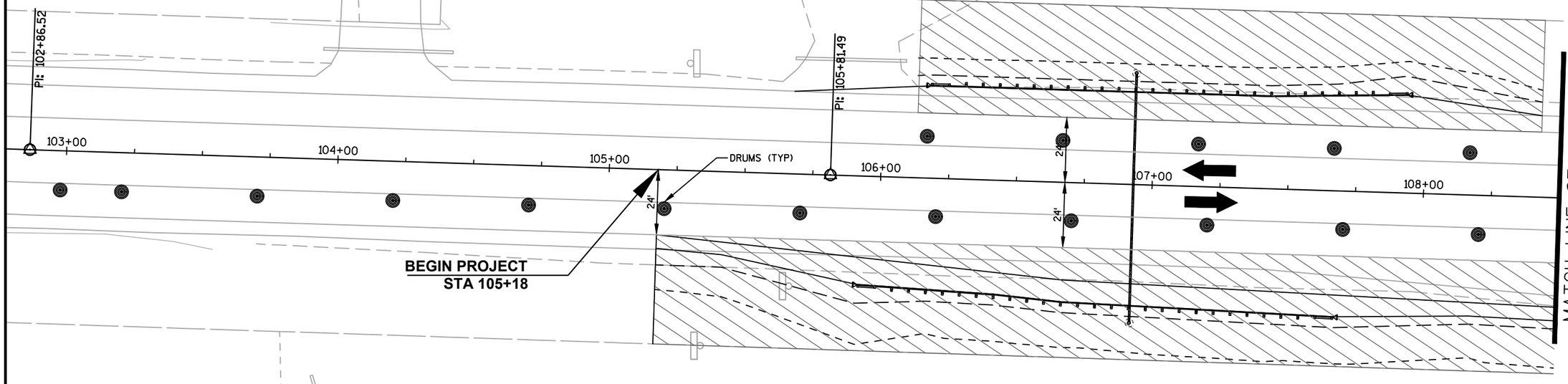
PROJECT NO: 9180–17–70	HWY: STH 22	COUNTY: SHAWANO	PAVEMENT MARKING	SHEET 13 E

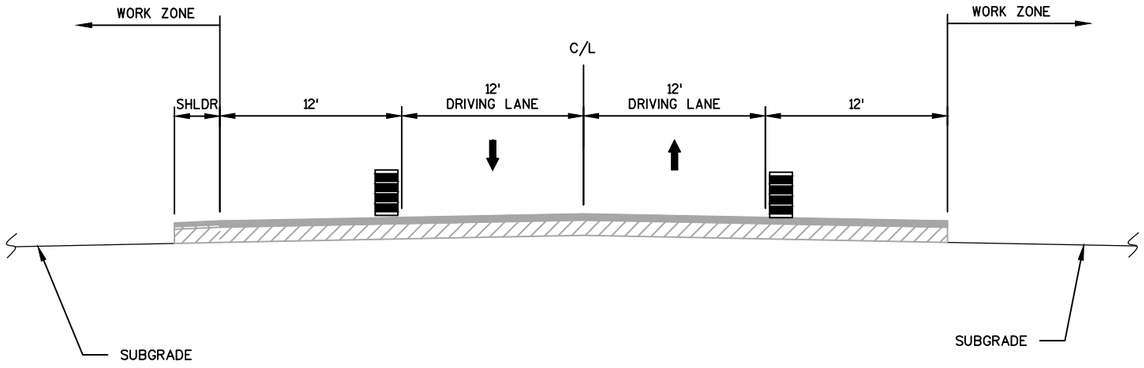
2

WORK ZONE

APPROXIMATE LOCATION OF FLAGGER, EQUIPPED WITH STOP/SLOW PADDLE FASTENED ON SUPPORT STAFF

N





TRAFFIC CONTROL TYPICAL SECTION – STH 22

STATION 105+18 – STATION 111+68

NOTE:
PERFORM WORK USING "TRAFFIC CONTROL, WORK ON SHOULDER OR PARKING LANE, UNDIVIDED ROADWAY", "TRAFFIC CONTROL, SINGLE LANE CLOSURE, NON-FREEWAY/EXPRESSWAY", AND "TRAFFIC CONTROL FOR LANE CLOSURE (SUITABLE FOR MOVING OPERATIONS)" UNLESS OTHERWISE NOTED. MAINTAIN MINIMUM 12' LANE WIDTH.

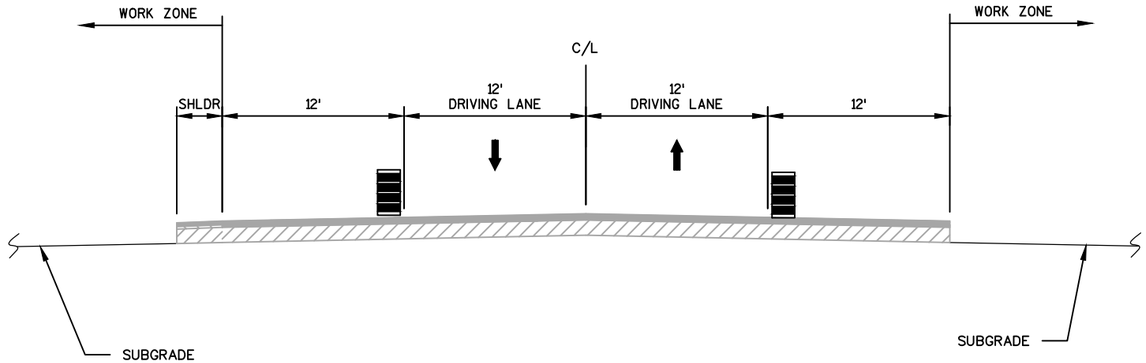
PROJECT NO: 9180-17-70	HWY: STH 22	COUNTY: SHAWANO	TRAFFIC CONTROL: STH 22 / MADISON WAY	SHEET 14	E

2

N

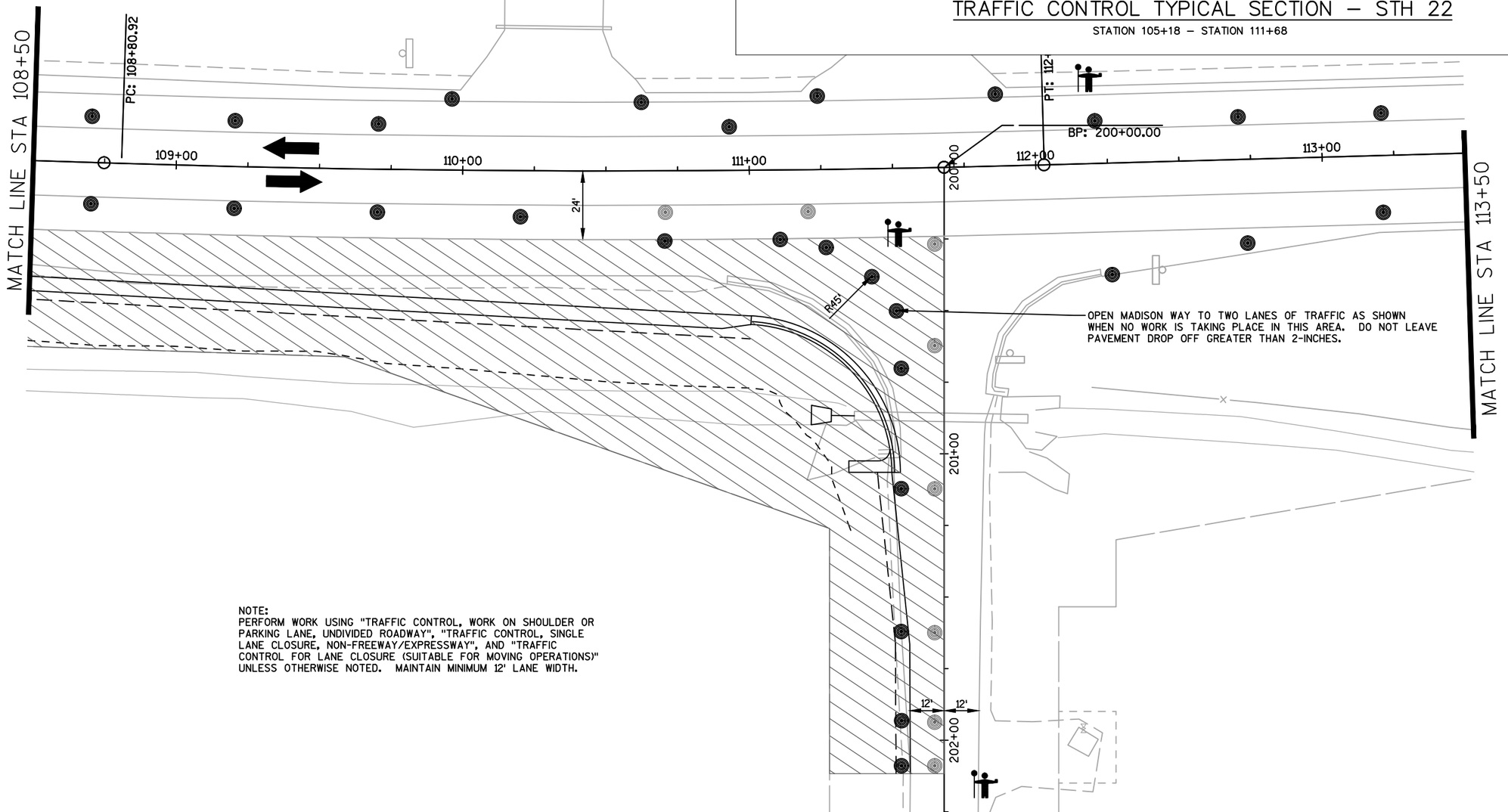
WORK ZONE

APPROXIMATE LOCATION OF FLAGGER, EQUIPPED WITH STOP/SLOW PADDLE FASTENED ON SUPPORT STAFF



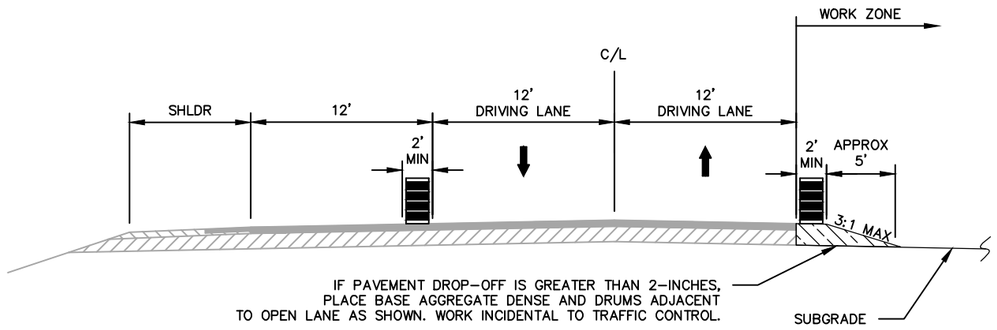
TRAFFIC CONTROL TYPICAL SECTION – STH 22

STATION 105+18 – STATION 111+68



NOTE:
PERFORM WORK USING "TRAFFIC CONTROL, WORK ON SHOULDER OR PARKING LANE, UNDIVIDED ROADWAY", "TRAFFIC CONTROL, SINGLE LANE CLOSURE, NON-FREEWAY/EXPRESSWAY", AND "TRAFFIC CONTROL FOR LANE CLOSURE (SUITABLE FOR MOVING OPERATIONS)" UNLESS OTHERWISE NOTED. MAINTAIN MINIMUM 12' LANE WIDTH.

PROJECT NO: 9180-17-70	HWY: STH 22	COUNTY: SHAWANO	TRAFFIC CONTROL: STH 22 / MADISON WAY	SHEET 15	E



TRAFFIC CONTROL TYPICAL SECTION – STH 22

STATION 113+71 – STATION 118+71

WORK ZONE

APPROXIMATE LOCATION OF FLAGGER, EQUIPPED WITH STOP/SLOW PADDLE FASTENED ON SUPPORT STAFF

N

NOTE:
PERFORM WORK USING "TRAFFIC CONTROL, WORK ON SHOULDER OR PARKING LANE, UNDIVIDED ROADWAY", "TRAFFIC CONTROL, SINGLE LANE CLOSURE, NON-FREEWAY/EXPRESSWAY", AND "TRAFFIC CONTROL FOR LANE CLOSURE (SUITABLE FOR MOVING OPERATIONS)" UNLESS OTHERWISE NOTED. MAINTAIN MINIMUM 12' LANE WIDTH.

END PROJECT
STA 119+24

MATCH LINE STA 113+50

MATCH LINE STA 119+50

PC: 115+00

DRUMS (TYP)

PT: 118+26.82

PI: 119+35.08

BP: 10+00.00

114+00

115+00

116+00

117+00

118+00

119+00

10+00

12'

OPEN CTH BE TO TWO LANES OF TRAFFIC AS SHOWN WHEN NO WORK IS TAKING PLACE IN THIS AREA. DO NOT LEAVE PAVEMENT DROP OFF GREATER THAN 2-INCHES.

R45'

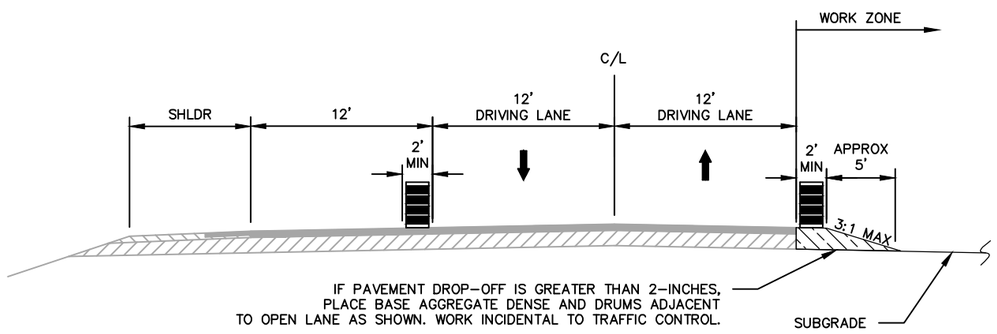
PC: 10+80.53

11+00

PT: 12+07

13+00

PROJECT NO: 9180-17-70	HWY: STH 22	COUNTY: SHAWANO	TRAFFIC CONTROL: STH 22 / CTH BE	SHEET 16	E

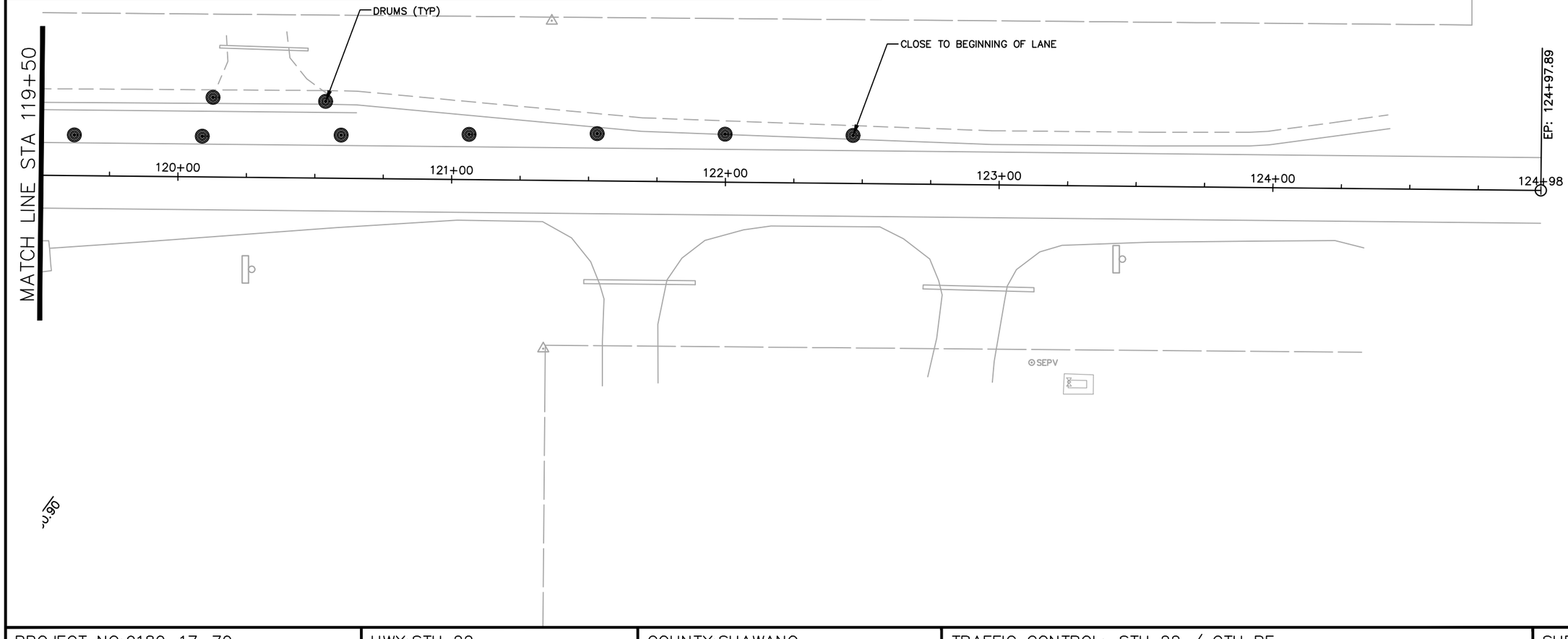


TRAFFIC CONTROL TYPICAL SECTION – STH 22

STATION 113+71 – STATION 118+71

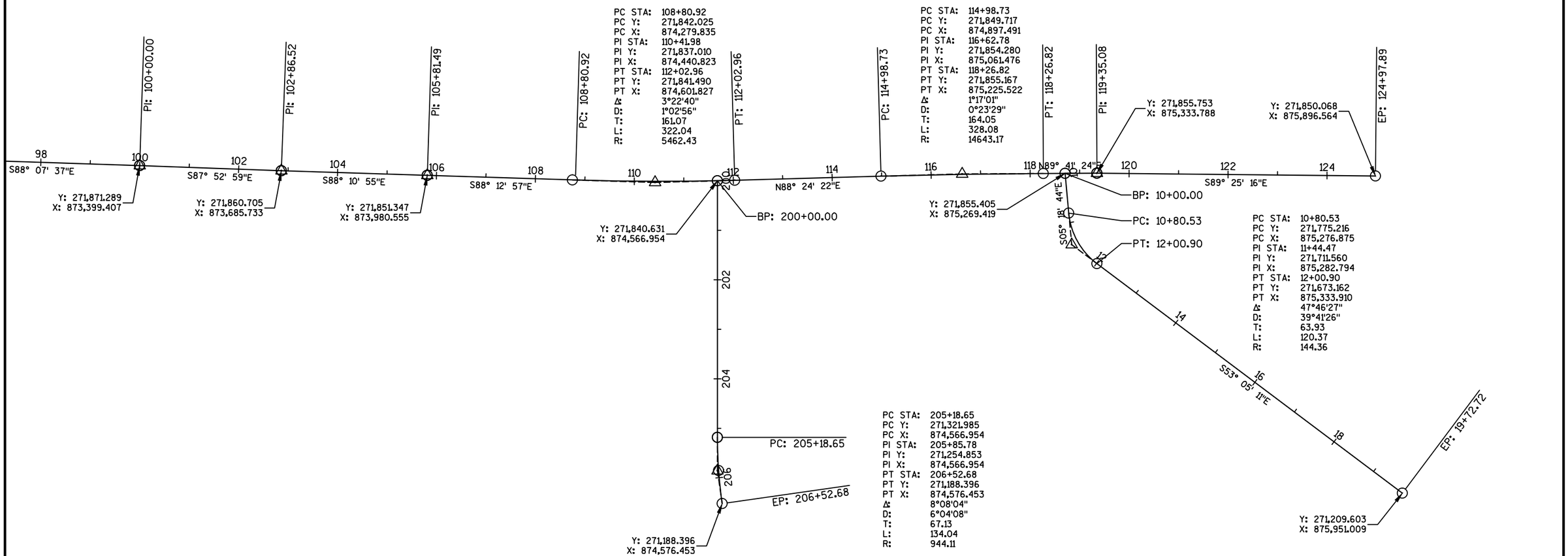
NOTE:
PERFORM WORK USING "TRAFFIC CONTROL, WORK ON SHOULDER OR PARKING LANE, UNDIVIDED ROADWAY", "TRAFFIC CONTROL, SINGLE LANE CLOSURE, NON-FREEWAY/EXPRESSWAY", AND "TRAFFIC CONTROL FOR LANE CLOSURE (SUITABLE FOR MOVING OPERATIONS)" UNLESS OTHERWISE NOTED. MAINTAIN MINIMUM 12' LANE WIDTH.

N



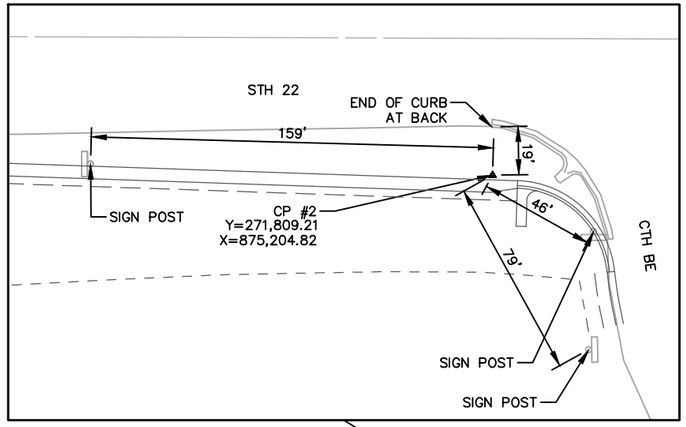
PROJECT NO: 9180-17-70	HWY: STH 22	COUNTY: SHAWANO	TRAFFIC CONTROL: STH 22 / CTH BE	SHEET 17	E

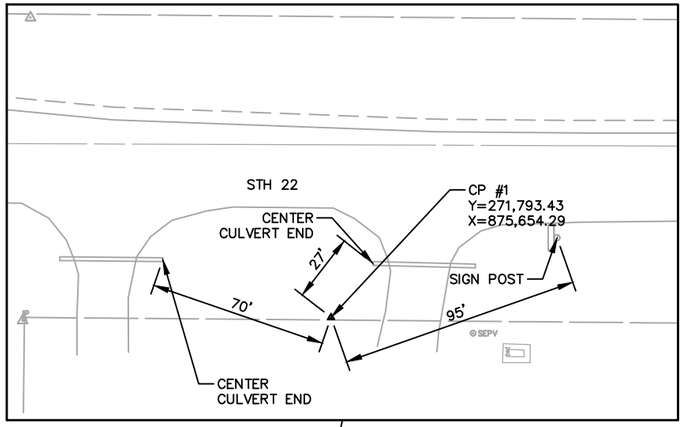
2

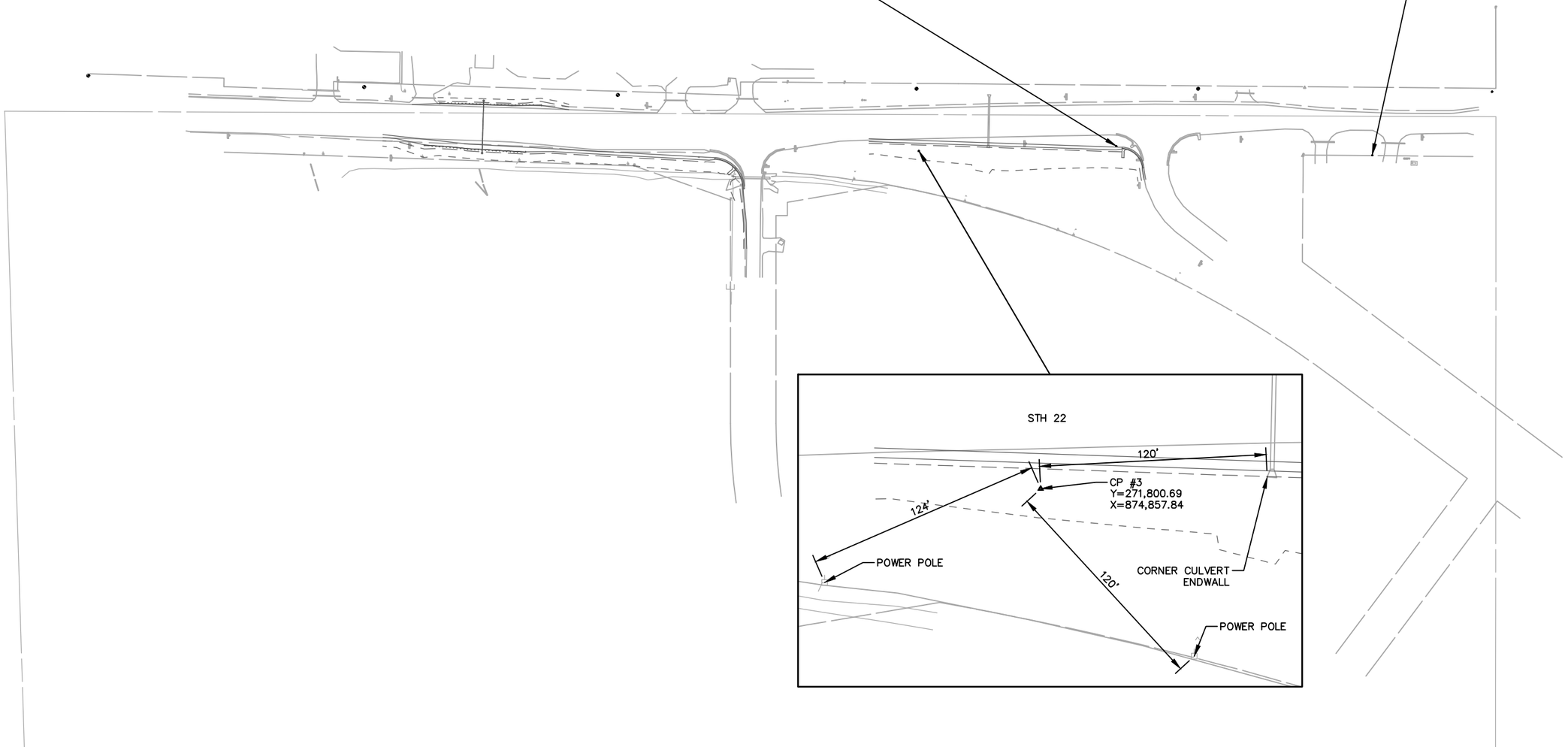


PROJECT NO: 9180-17-70	HWY: STH 22	COUNTY: SHAWANO	ALIGNMENT DIAGRAM	SHEET 18	E

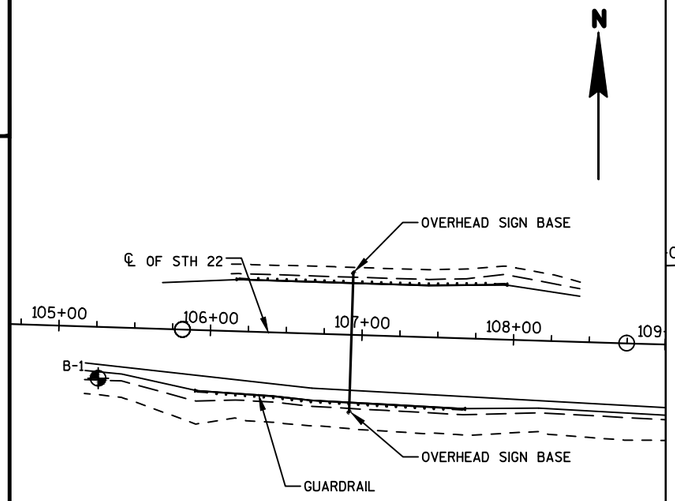
2

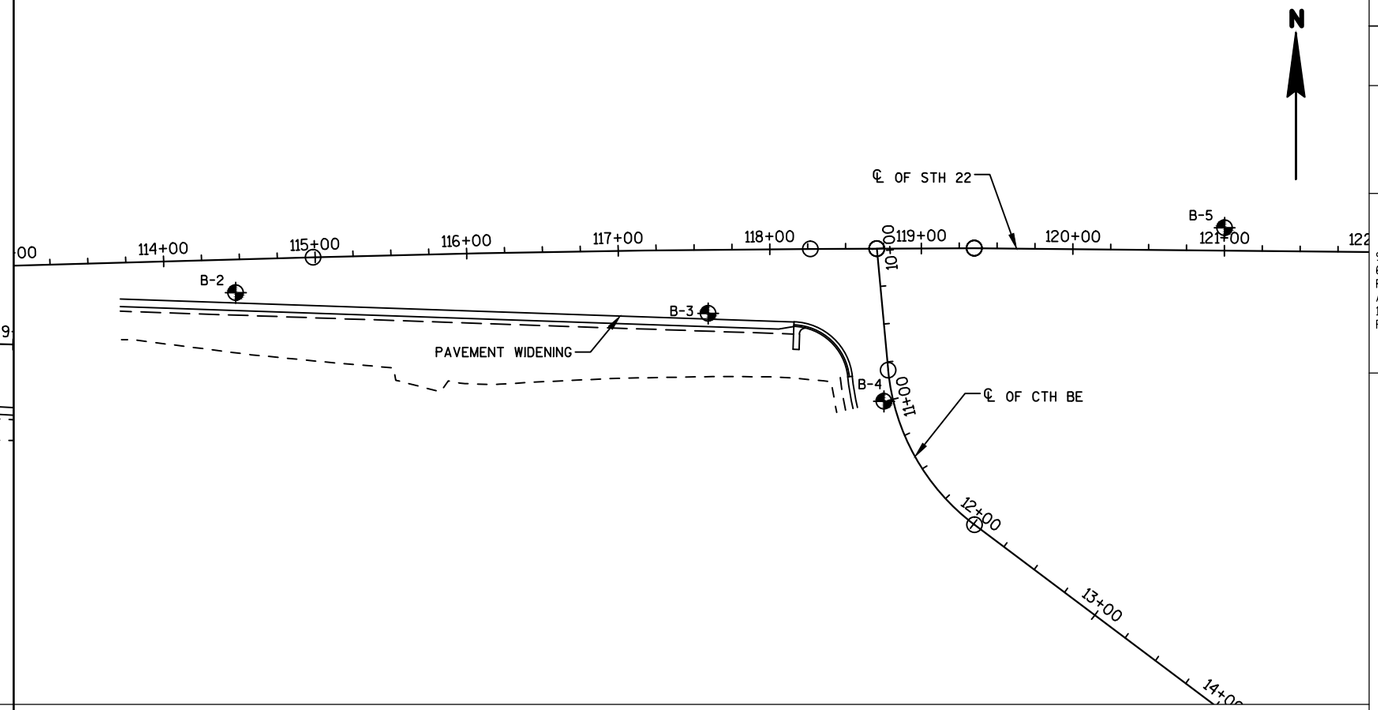






PROJECT NO:9180-17-70	HWY:STH 22	COUNTY:SHAWANO	CONTROL POINTS AND TIES	SHEET 19	E





STATE PROJECT NUMBER

9180-17-70

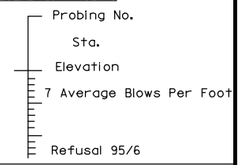
ABBREVIATIONS

F— Fine M—Medium C— Coarse
Ws— Weathered So— Sound

MATERIAL SYMBOLS

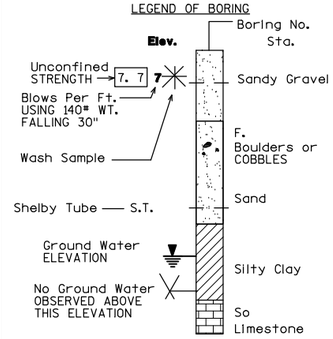
Topsoil, Silt, Sandstone
Sand, Peat, Limestone
Gravel, Clay, Igneous Rock

LEGEND OF PROBING



95/6=95 BLOWS FOR 6" PENETRATION PROBING TAKEN WITH A 350# WT. FALLING 18" ON A 2" O.D. POINT.

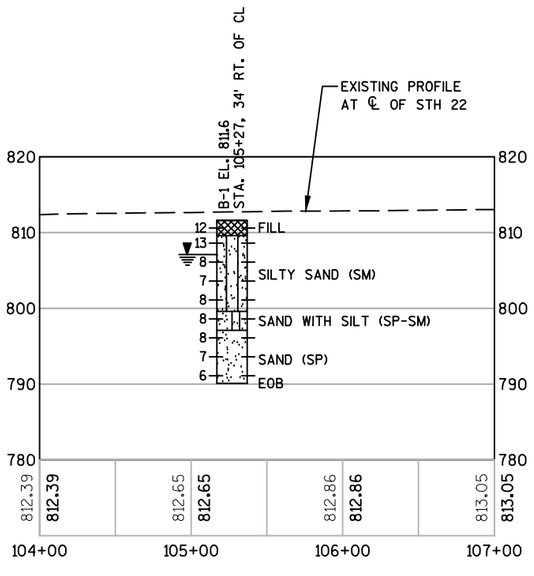
LEGEND OF BORING

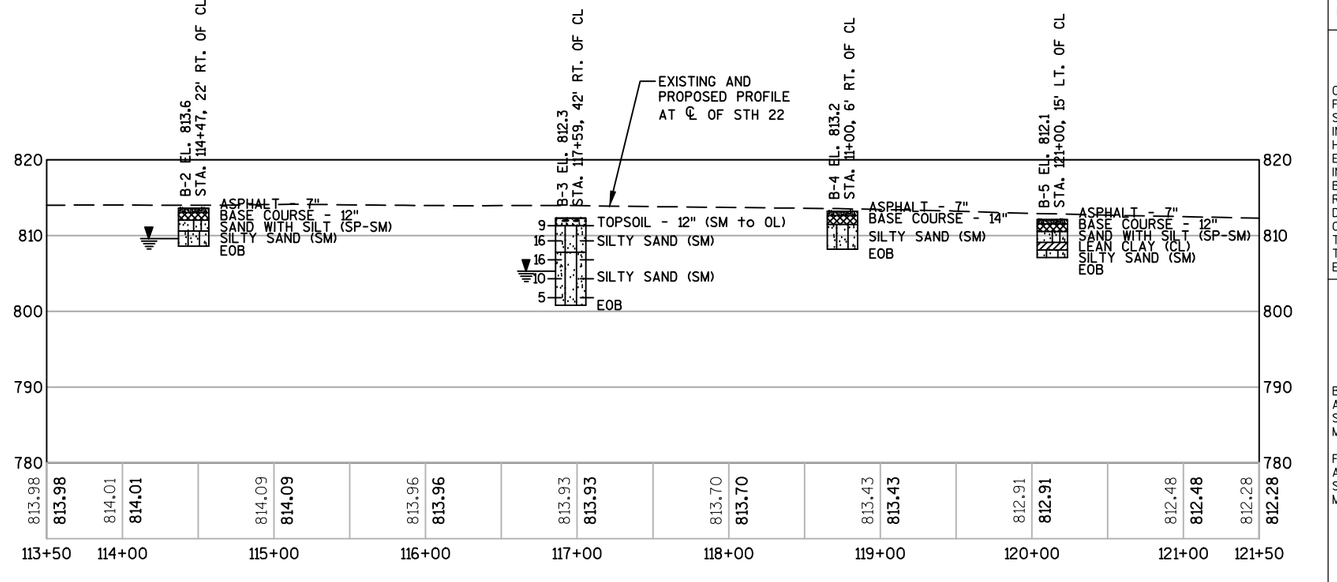


UNLESS OTHERWISE SPECIFIED, THE BLOWS PER FOOT AT THE LOCATIONS INDICATED ARE BASED ON DRIVING A 2" O.D. X 1.4" I.D. SPLIT SPOON SAMPLER WITH A 140# HAMMER HAVING A FREE FALL OF 30". THE BLOW COUNT IS TAKEN IN UNDISTURBED SOIL IMMEDIATELY BELOW A CASED OR OPEN HOLE ELIMINATING SIDE FRICTION ON THE DRIVE PIPE.

SUBSURFACE EXPLORATION FOR FOUNDATION DESIGN AND BIDDERS INFORMATION

TO OBTAIN RELATIVE DATA CONCERNING THE CHARACTER OF MATERIAL IN AND UPON WHICH THE FOUNDATION MIGHT BE BUILT, BORINGS AND/OR SOUNDINGS WERE MADE AT POINTS APPROXIMATELY AS INDICATED ON THIS DRAWING. THE DATA PRESENTED HEREIN REPRESENTS THE FINDINGS OF THE SUBSURFACE EXPLORATIONS MADE. HOWEVER, BECAUSE THE DEPTHS INVESTIGATED ARE LIMITED AND THE AREA OF THE BORINGS AND/OR SOUNDINGS IS VERY SMALL IN RELATION TO THE ENTIRE AREA, THE WISCONSIN DEPARTMENT OF TRANSPORTATION DOES NOT WARRANT CONDITIONS BELOW THE DEPTHS INVESTIGATED OR THAT THE CLASSIFICATION OF MATERIAL ENCOUNTERED IN THESE INVESTIGATIONS IS NECESSARILY TYPICAL OF THE ENTIRE SITE.





BORINGS TAKEN BY:
AMERICAN ENGINEERING TESTING, INC.
SCHOFIELD, WI
MARCH 8, 2012

FACTUAL REPORT OF GEOTECHNICAL EXPLORATION BY:
AMERICAN ENGINEERING TESTING, INC.
SCHOFIELD, WI
MARCH 14, 2012

PROJECT NO: 9180-17-70	HWY: STH 22	COUNTY: SHAWANO	SUBSURFACE EXPLORATION	SHEET 20	E

DATE 09JAN14 — E S T I M A T E O F Q U A N T I T I E S

LINE NUMBER	ITEM	ITEM DESCRIPTION	UNIT	TOTAL	9180-17-70 QUANTITY
0010	203.0100	REMOVING SMALL PIPE CULVERTS	EACH	2.000	2.000
0020	204.0150	REMOVING CURB & GUTTER	LF	164.000	164.000
0030	205.0100	EXCAVATION COMMON	CY	2,221.000	2,221.000
0040	213.0100	FINISHING ROADWAY (PROJECT) 01. 9180-17-70	EACH	1.000	1.000
0050	305.0110	BASE AGGREGATE DENSE 3/4-INCH	TON	310.000	310.000
0060	305.0120	BASE AGGREGATE DENSE 1 1/4-INCH	TON	3,500.000	3,500.000
0070	455.0105	ASPHALTIC MATERIAL PG58-28	TON	60.900	60.900
0080	455.0605	TACK COAT	GAL	188.000	188.000
0090	460.1101	HMA PAVEMENT TYPE E-1	TON	1,073.000	1,073.000
0100	460.2000	INCENTIVE DENSITY HMA PAVEMENT	DOL	690.000	690.000
0110	465.0315	ASPHALTIC FLUMES	SY	20.000	20.000
0120	520.8000	CONCRETE COLLARS FOR PIPE	EACH	1.000	1.000
0130	521.0749	PIPE ARCH CORRUGATED STEEL 49X33-INCH	LF	8.000	8.000
0140	521.1249	APRON ENDWALLS FOR PIPE ARCH STEEL 49X33-INCH	EACH	1.000	1.000
0150	523.0429	CULVERT PIPE REINFORCED CONCRETE HORIZONTAL ELLIPTICAL CLASS HE-IV 29X45-INCH	LF	24.000	24.000
0160	523.0529	APRON ENDWALLS FOR CULVERT PIPE REINFORCED CONCRETE HORIZONTAL ELLIPTICAL 29X45-INCH	EACH	1.000	1.000
0170	601.0557	CONCRETE CURB AND GUTTER 6-INCH SLOPED 36-INCH TYPE D	LF	136.000	136.000
0180	606.0200	RIPRAP MEDIUM	CY	16.000	16.000
0190	614.2300	MGS GUARDRAIL 3	LF	150.000	150.000
0200	614.2610	MGS GUARDRAIL TERMINAL EAT	EACH	4.000	4.000
0210	618.0100	MAINTENANCE AND REPAIR OF HAUL ROADS (PROJECT) 01. 9180-17-70	EACH	1.000	1.000
0220	619.1000	MOBILIZATION	EACH	1.000	1.000
0230	625.0100	TOPSOIL	SY	3,710.000	3,710.000
0240	628.1504	SILT FENCE	LF	1,740.000	1,740.000
0250	628.1520	SILT FENCE MAINTENANCE	LF	3,480.000	3,480.000
0260	628.1905	MOBILIZATIONS EROSION CONTROL	EACH	3.000	3.000
0270	628.1910	MOBILIZATIONS EMERGENCY EROSION CONTROL	EACH	2.000	2.000
0280	628.2008	EROSION MAT URBAN CLASS I TYPE B	SY	3,700.000	3,700.000
0290	628.7504	TEMPORARY DITCH CHECKS	LF	125.000	125.000
0300	628.7555	CULVERT PIPE CHECKS	EACH	15.000	15.000
0310	628.7570	ROCK BAGS	EACH	34.000	34.000
0320	629.0210	FERTILIZER TYPE B	CWT	2.500	2.500
0330	630.0140	SEEDING MIXTURE NO. 40	LB	80.000	80.000
0340	633.5200	MARKERS CULVERT END	EACH	2.000	2.000
0350	634.0614	POSTS WOOD 4X6-INCH X 14-FT	EACH	9.000	9.000
0360	637.1220	SIGNS TYPE I REFLECTIVE SH	SF	76.000	76.000
0370	637.2210	SIGNS TYPE II REFLECTIVE H	SF	39.000	39.000
0380	637.2230	SIGNS TYPE II REFLECTIVE F	SF	9.000	9.000
0390	638.2102	MOVING SIGNS TYPE II	EACH	3.000	3.000
0400	638.2602	REMOVING SIGNS TYPE II	EACH	13.000	13.000
0410	638.3000	REMOVING SMALL SIGN SUPPORTS	EACH	9.000	9.000
0420	641.8100	OVERHEAD SIGN SUPPORT (STRUCTURE) 01. S-58-0001	LS	1.000	1.000
0430	642.5001	FIELD OFFICE TYPE B	EACH	1.000	1.000
0440	643.0100	TRAFFIC CONTROL (PROJECT) 01. 9180-17-70	EACH	1.000	1.000
0450	643.0300	TRAFFIC CONTROL DRUMS	DAY	7,200.000	7,200.000
0460	643.0420	TRAFFIC CONTROL BARRICADES TYPE III	DAY	240.000	240.000

3

DATE 09JAN14 E S T I M A T E O F Q U A N T I T I E S

LINE NUMBER	ITEM	ITEM DESCRIPTION	UNIT	TOTAL	9180-17-70 QUANTITY
0470	643.0705	TRAFFIC CONTROL WARNING LIGHTS TYPE A	DAY	480.000	480.000
0480	643.0715	TRAFFIC CONTROL WARNING LIGHTS TYPE C	DAY	660.000	660.000
0490	643.0800	TRAFFIC CONTROL ARROW BOARDS	DAY	60.000	60.000
0500	643.0900	TRAFFIC CONTROL SIGNS	DAY	720.000	720.000
0510	645.0120	GEOTEXTILE FABRIC TYPE HR	SY	88.000	88.000
0520	646.0106	PAVEMENT MARKING EPOXY 4-INCH	LF	1,814.000	1,814.000
0530	646.0126	PAVEMENT MARKING EPOXY 8-INCH	LF	2,081.000	2,081.000
0540	646.0600	REMOVING PAVEMENT MARKINGS	LF	324.000	324.000
0550	647.0566	PAVEMENT MARKING STOP LINE EPOXY 18-INCH	LF	71.000	71.000
0560	647.0726	PAVEMENT MARKING DIAGONAL EPOXY 12-INCH	LF	500.000	500.000
0570	649.0400	TEMPORARY PAVEMENT MARKING REMOVABLE TAPE 4-INCH	LF	770.000	770.000
0580	650.4500	CONSTRUCTION STAKING SUBGRADE	LF	1,175.000	1,175.000
0590	650.5000	CONSTRUCTION STAKING BASE	LF	1,175.000	1,175.000
0600	650.5500	CONSTRUCTION STAKING CURB GUTTER AND CURB & GUTTER	LF	136.000	136.000
0610	650.6000	CONSTRUCTION STAKING PIPE CULVERTS	EACH	2.000	2.000
0620	650.9910	CONSTRUCTION STAKING SUPPLEMENTAL CONTROL (PROJECT) 01. 9180-17-70	LS	1.000	1.000
0630	650.9920	CONSTRUCTION STAKING SLOPE STAKES	LF	1,175.000	1,175.000
0640	690.0150	SAWING ASPHALT	LF	1,790.000	1,790.000

EARTHWORK SUMMARY

STATION	TO	STATION	205.0100 EXCAVATION COMMON (1) CUT (2) CY	205.0100 EXCAVATION COMMON (1) EBS (3) CY	SALVAGED/ UNUSABLE PAVEMENT MATERIAL (4) CY	AVAILABLE MATERIAL (5) CY	UNEXPANDED FILL CY	EXPANDED FILL (6) CY	MASS ORDINATE ±(7) CY	WASTE CY	COMMENTS:
106+18 LT	-	108+43 LT	95	0	13	82	23	29	53	66	BEAMGUARD LT
105+18 RT	-	111+50 RT	742	0	101	641	133	166	475	576	MADISON WAY
113+75 RT	-	118+75 RT	1,384	0	131	1,253	46	58	1,195	1,326	CTH BE
		TOTAL	**2,221**	**0**	**245**	**1,976**	**202**	**253**	**1,723**	**1,968**	

1) Excavation Common is the sum of the Cut and EBS Excavation columns. Item No. 205.0100
2) Salvaged/Unsuable Pavement Material is included in Cut.
3) EBS Excavation to be backfilled with Select Borrow material. Note: this is designers choice, can be backfilled with Borrow, or Cut as well.
4) Salvaged/Unusable Pavement Material
5) Available Material = Cut - Salvaged/Unusable Pavement Material
6) Expanded Fill. Factor = 1.25
7) The Mass Ordinate + or - Qty calculated for the Division. Plus quantity indicates an excess of material within the Division. Minus indicates a shortage of material within the Division.

HMA PAVEMENT

LOCATION	455.0105 ASPHALTIC MATERIAL PG58-28 TON	455.0605 TACK COAT GAL	460.1101 HMA PAVEMENT TYPE E-1 TON	465.0315 ASPHALTIC FLUMES SY
MADISON WAY	29	90	510	10
BEAMGUARD LT	2.9	8	53	-
CTH BE	29	90	510	10
TOTALS	**60.9**	**188**	**1,073**	**20**

CONCRETE CURB & GUTTER

STATION	TO	STATION	LOCATION	601.0557 6-INCH SLOPED 36-INCH TYPE D LF
111+00	-	111+52	MADISON WAY	81
118+16	-	118+54	CTH BE	55
			TOTAL	**136**

614.2610 MGS GUARDRAIL TERMINAL EAT

STATION	TO	STATION	LOCATION	EACH
105+89.7	-	106+42.8	RT	1
107+17.8	-	107+70.9	RT	1
106+14.8	-	106+67.9	LT	1
107+42.9	-	107+96.0	LT	1
			TOTAL	**4**

ALL ITEMS AND QUANTITIES ON THIS SHEET ARE CATEGORY 0010 UNLESS OTHERWISE NOTED

520.8000 CONCRETE COLLARS FOR PIPE

STATION	LOCATION	EACH
115+81	RT	1
	TOTAL	**1**

521.0749 PIPE ARCH CORRUGATED STEEL 49X33-INCH

STATION	LOCATION	LF
200+87	RT	8
	TOTAL	**8**

523.0429 CULVERT PIPE REINFORCED CONCRETE HORIZONTAL ELLIPTICAL CLASS HE-IV 29X45-INCH

STATION	LOCATION	LF
115+81	RT	24
	TOTAL	**24**

606.0200 RIPRAP MEDIUM

STATION	TO	STATION	LOCATION	CY
	200+87		RT	6
			MADISON WAY FLUME	2
115+73	-	115+89	RT	6
			CTH BE FLUME	2
			TOTAL	**16**

619.1000 MOBILIZATION

PROJECT	EACH
9180-17-70	1

203.0100 REMOVING SMALL PIPE CULVERTS

LOCATION	EACH
STA. 115+81 (EXISTING ENDWALL)	1
STA. 200+87 (EXISTING ENDWALL)	1
TOTALS	**2**

204.0150 REMOVING CURB & GUTTER

STATION	TO	STATION	LOCATION	LF
110+92	-	111+50	RT	94
118+06	-	118+52	RT	70
			TOTALS	**164**

213.0100 FINISHING ROADWAY

PROJECT	EACH
9180-17-70	1

BASE AGGREGATE DENSE

STATION	-	STATION	LOCATION	305.0110 3/4-INCH TON	305.0120 1 1/4-INCH TON
105+00	-	111+68	MADISON WAY	150	1,650
105+68	-	108+43	BEAMGUARD LT	75	300
113+71	-	118+17	CTH BE	85	1,550
			TOTALS	**310**	**3,500**

523.0529 APRON ENDWALLS FOR CULVERT PIPE REINFORCED CONCRETE HORIZONTAL ELLIPTICAL 29X45-INCH

STATION	LOCATION	EACH
115+81	RT	1
	TOTAL	**1**

521.1249 APRON ENDWALLS FOR PIPE ARCH STEEL 49X33-INCH

STATION	LOCATION	EACH
200+87	RT	1
	TOTAL	**1**

614.2300 MGS GUARDRAIL 3

STATION	TO	STATION	LOCATION	LF
106+42.8	-	107+17.8	RT	75
106+67.9	-	107+42.9	LT	75
			TOTAL	**150**

TOPSOIL, SALVAGED TOPSOIL, MULCHING, FERTILIZER, SEED & TEMPORARY SEED

STATION	TO	STATION	LOCATION	625.0100 TOPSOIL SY	629.0210 FERTILIZER TYPE B CWT	630.0140 SEEDING MIXTURE NO. 40 LB
105+17	-	111+50	RT	1,100	0.8	25
106+10	-	108+44	LT	160	0.2	5
113+71	-	118+50	RT	1,700	1.2	35
UNDISTRIBUTED			PROJECT	750	0.3	15
			TOTALS	**3,710**	**2.5**	**80**

SILT FENCE & SILT FENCE MAINTENANCE

STATION	TO	STATION	LOCATION	628.1504 LF	628.1520 MAINTENANCE LF
105+16	-	111+38	RT	655	1,310
106+09	-	108+45	LT	240	480
113+72	-	118+42	RT	495	990
UNDISTRIBUTED			PROJECT	350	700
			TOTALS	**1,740**	**3,480**

MOBILIZATIONS EROSION CONTROL & EMERGENCY EROSION CONTROL

PROJECT	628.1905 MOBILIZATIONS EROSION CONTROL EACH	628.1910 MOBILIZATIONS EMERGENCY EROSION CONTROL EACH
9180-17-70	3	2

628.2008 EROSION MAT URBAN CLASS I TYPE B

STATION	TO	STATION	LOCATION	SY
105+17	-	111+50	RT	1,100
106+10	-	108+44	LT	160
113+71	-	118+50	RT	1,700
UNDISTRIBUTED			PROJECT	740
			TOTAL	**3,700**

628.7504 TEMPORARY DITCH CHECKS

STATION	LOCATION	LF
UNDISTRIBUTED	PROJECT	125

628.7555 CULVERT PIPE CHECKS

STATION	LOCATION	EACH
106+10	LT	4
111+97	RT	4
115+81	RT	4
UNDISTRIBUTED	PROJECT	3
	TOTAL	**15**

628.7570 ROCK BAGS

STATION	LOCATION	EACH	REMARKS
111+10	RT	17	SILT FENCE RELIEF
115+75	RT	17	SILT FENCE RELIEF
	TOTAL	**34**	

SIGNING SCHEDULE

STATION	OFFSET	SIGN NO.	CODE NO.	DESCRIPTION	MESSAGE LINE 1	MESSAGE LINE 2	MESSAGE LINE 3	SIZE IN X IN	634.0614 POSTS WOOD 4X6-INCH 14-FT EACH	637.1220 SIGNS TYPE I REFLECTIVE SH SF	637.2210 SIGNS TYPE II REFLECTIVE H SF	637.2230 SIGNS TYPE II REFLECTIVE F SF	638.2102 MOVING SIGNS TYPE II EACH	638.2602 REMOVING SIGNS TYPE II EACH	638.3000 REMOVING SMALL SIGN SUPPORTS EACH	REMARKS
102+50	RT	1.01	M2-1	Junction Marker				21 X 15	-	-	-	-	-	1	1	
102+50	RT	1.01	M1-5A	County Marker	BE			24 X 24	-	-	-	-	-	1	-	
102+50	RT	1.02	R2-1	Speed Limit 45 MPH				24 X 30	1	-	-	-	-	-	-	FROM 105+66
105+29	LT	1.03	M3-3	SOUTH Cardinal Route Marker				24 X 12	-	-	-	-	-	1	1	
105+29	LT	1.03	M1-6	State Route Marker	22			24 X 24	-	-	-	-	-	1	-	
105+33	LT	1.03	J4-1	Reassurance Assembly (1 Headed Route Panel)	South	22		24 X 36	1	-	6.00	-	-	-	-	
105+66	RT	1.02	R2-1	Speed Limit 45 MPH				24 X 30	-	-	-	-	1	-	1	TO 102+50
106+93	RT	1.04	-	Overhead Lane Guidance (Custom D-Series)	22	Arrow Up/Only		48 X 78	-	26.00	-	-	-	-	-	OVERHEAD SIGN
106+93	RT	1.05	-	Overhead Lane Guidance (Custom D-Series)	BE	Arrow Up/Only		48 X 72	-	24.00	-	-	-	-	-	OVERHEAD SIGN
106+93	RT	1.06	-	Overhead Lane Guidance (Custom D-Series)	Madison	Way	Lane Control Symbol - RIGHT ONLY	48 X 78	-	26.00	-	-	-	-	-	OVERHEAD SIGN
112+44	RT	2.01	R3-7R	Right Lane Must Turn Right				30 X 30	-	-	-	-	-	1	1	
113+72	RT	2.02	R3-8D	Ahead Only / Right Only				36 X 30	1	-	7.50	-	-	-	-	
116+31	RT	2.03	J13-1	Directional without Cardinal (1 Headed Route Panel)	BE	[RA]		24 X 45	1	-	7.50	-	-	-	-	
116+47	RT	2.04	D1-1	One Destination (Arrow)	Bonduel			48 X 15	-	-	-	-	1	-	1	TO 116+31
116+47	RT	2.03	M1-5A	County Marker	BE			24 X 24	-	-	-	-	-	1	-	
116+47	RT	2.03	M6-1	Arrow - RIGHT				21 X 21	-	-	-	-	-	1	-	
117+18	LT	2.05	M3-3	SOUTH Cardinal Route Marker				24 X 12	-	-	-	-	-	1	1	
117+18	LT	2.05	M1-6	State Route Marker	22			24 X 24	-	-	-	-	-	1	-	
117+18	LT	2.05	J4-1	Reassurance Assembly (1 Headed Route Panel)	South	22		24 X 36	1	-	6.00	-	-	-	-	
119+46	LT	2.07	M1-5A	County Marker	BE			24 X 24	-	-	-	-	-	1	1	
119+46	LT	2.07	M6-1	Arrow - LEFT				21 X 21	-	-	-	-	-	1	-	
119+46	LT	2.07	J13-1	Directional without Cardinal (1 Headed Route Panel)	BE	[LA]		24 X 36	1	-	6.00	-	-	-	-	
120+31	RT	2.09	M3-1	NORTH Cardinal Route Marker				24 X 12	-	-	-	-	-	1	1	
120+31	RT	2.09	M1-6	State Route Marker	22			24 X 24	-	-	-	-	-	1	-	
120+31	RT	2.09	J4-1	Reassurance Assembly (1 Headed Route Panel)	North	22		24 X 36	1	-	6.00	-	-	-	-	
10+68	RT	2.06	R1-1	Stop				30 X 30	1	-	-	-	1	-	1	
12+50	LT	2.08	W3-1	Stop Ahead				36 X 36	1	-	-	9.00	-	-	-	
								TOTALS	**9**	**76.00**	**39.00**	**9.00**	**3**	**13**	**9**	

ALL ITEMS AND QUANTITIES ON THIS SHEET ARE CATEGORY 0010 UNLESS OTHERWISE NOTED

633.5200 MARKERS CULVERT END

LOCATION	EACH
STA. 115+81	1
STA. 200+87	1
TOTAL	**2**

618.0100 MAINTENANCE AND REPAIR OF HAUL ROADS

PROJECT	EACH
9180-17-70	1

641.8100 OVERHEAD SIGN SUPPORT (S-58-0001)

LOCATION	LS
STA. 106+93	1

642.5001 FIELD OFFICE TYPE B

PROJECT	EACH
9180-17-70	1

645.0120 GEOTEXTILE FABRIC TYPE HR

STATION	TO	STATION	LOCATION	SY
	200+87		RT	35
			MADISON WAY FLUME	9
115+73	-	115+89	RT	35
			CTH BE FLUME	9
			TOTAL	**88**

TRAFFIC CONTROL

	643.0100 TRAFFIC CONTROL PROJECT 9180-17-70	**643.0300** DRUMS		**643.0420** BARRICADES TYPE III		**643.0705** WARNING LIGHTS TYPE A		**643.0715** WARNING LIGHTS TYPE C		**643.0800** ARROW BOARDS		**643.0900** SIGNS	
DURATION (DAYS)	EACH	EACH	DAY	EACH	DAY	EACH	DAY	EACH	DAY	EACH	DAY	EACH	DAY
60	1	120	7,200	4	240	8	480	11	660	1	60	12	720

PAVEMENT MARKING & TEMPORARY PAVEMENT MARKING

				646.0106 EPOXY 4-INCH (WHITE)	EPOXY 4-INCH (DOUBLE YELLOW)	**646.0126** EPOXY 8-INCH (CHANNELIZING)	**646.0600** REMOVING PAVEMENT MARKINGS	**647.0566** STOP LINE EPOXY 18-INCH	**647.0726** DIAGONAL EPOXY 12-INCH (CHEVRON)	**649.0400** REMOVABLE TAPE 4-INCH (WHITE)	
STATION	TO	STATION	LOCATION	LF	LF	LF	LF	LF	LF	LF	COMMENT
97+50	-	102+90	RT	135	-	-	135	-	-	-	12.5' DASHED LINE
97+50	-	105+18	RT	-	-	-	-	-	-	770	TRAFFIC CONTROL
104+93	-	111+00	RT	610	-	-	-	-	-	-	
104+93	-	113+71	RT	225	-	-	-	-	-	-	12.5' DASHED LINE
105+18	-	106+68	RT	-	-	39	150	-	-	-	3' DASHED LINE
106+67	-	111+44	RT	-	-	480	-	-	170	-	
106+67	-	111+44	RT	-	-	480	-	-	-	-	
	111+73.3		RT	-	-	-	-	32	-	-	MADISON WAY
112+21	-	118+52	RT	595	-	-	-	-	-	-	
113+70	-	118+40	RT	-	-	470	-	-	330	-	
113+70	-	118+40	RT	-	-	470	-	-	-	-	
	118+79.4		RT	-	-	-	39	39	-	-	CTH BE
200+24	-	200+42	RT	-	-	18	-	-	-	-	MADISON WAY
10+09	-	10+34	RT	-	-	25	-	-	-	-	CTH BE
10+30.6	-	11+25	RT	-	198	99	-	-	-	-	CTH BE
10+82	-	11+25	RT	51	-	-	-	-	-	-	CTH BE
			TOTALS	**1,814**		**2,081**	**324**	**71**	**500**	**770**	

CONSTRUCTION STAKING

			650.4500 SUBGRADE	**650.5000** BASE	**650.5500** CURB GUTTER AND CURB & GUTTER	**650.6000** PIPE CULVERTS	**650.9910** SUPPLEMENTARY CONTROL	**650.9920** SLOPE STAKES
STATION	TO	STATION	LF	LF	LF	EACH	LS	LF
MADISON WAY			675	675	81	-	-	675
CTH BE			500	500	55	-	-	500
200+87 RT			-	-	-	1	-	-
115+81 RT			-	-	-	1	-	-
PROJECT			-	-	-	-	1	-
TOTALS			**1,175**	**1,175**	**136**	**2**	**1**	**1,175**

690.0150 SAWING ASPHALT

STATION	TO	STATION	LOCATION	LF
	105+18		STH 22	15
105+18	-	111+69	STH 22	650
	105+67		LT	7
105+67	-	108+43	LT	280
	108+43		LT	6
	113+71		STH 22	15
113+71	-	118+71	STH 22	500
200+24	-	202+12	MADISON WAY	12
	202+12		MADISON WAY	190
10+12	-	11+00	CTH BE	27
	11+00		CTH BE	88
			TOTAL	**1,790**

ALL ITEMS AND QUANTITIES ON THIS SHEET ARE CATEGORY 0010 UNLESS OTHERWISE NOTED

N

BM #1

WETLAND BOUNDARY

MIDWEST GUARDRAIL SYSTEM
SEE GUARDRAIL PLAN

PI: 102+86.52

PI: 105+81.49

50'

50'

50'

50'

34'

34'

24'

36'

24'

24'

10'

8'

8'

SAWCUT NEAT EDGE
ALONG OUTSIDE OF EXISTING LANE

SAWCUT NEAT EDGE
ALONG OUTSIDE OF EXISTING LANE

103+00

104+00

105+00

106+00

107+00

108+00

STA 105+18.07, 24.00'RT

BEGIN PROJECT
STA 105+18

SEE PAVEMENT MARKING PLAN
FOR GORE MARKINGS

MATCH LINE STA 108+50

5

5

CHARTER COMMUNICATIONS
(COMMUNICATION)

SHAWANO MUNICIPAL UTILITIES
(ELECTRIC)

WETLAND BOUNDARY

SLOPE INTERCEPT

SAWING ASPHALT

MIDWEST GUARDRAIL SYSTEM
SEE GUARDRAIL PLAN

OVERHEAD SIGN SUPPORT
SEE CONSTRUCTION DETAIL

HMA SHOULDER

BASE AGGREGATE SHOULDER

BENCH MARKS

NO.	STATION	DESCRIPTION	ELEV.
1	104+83	NW BURY BOLT ON HYDRANT	812.86

PROJECT NO: 9180-17-70	HWY: STH 22	COUNTY: SHAWANO	PLAN: STH 22 / MADISON WAY	SHEET 26	E

N

MATCH LINE STA 108+50

MATCH LINE STA 113+50

MADISON WAY

WETLAND BOUNDARY

BM #2

PC: 108+80.92

CHARTER COMMUNICATIONS (COMMUNICATION)

WE ENERGIES (GAS)

SAWING ASPHALT

SAWCUT NEAT EDGE ALONG OUTSIDE OF EXISTING LANE

STA 111+67.56, 24.00'RT

PT: 112+02.96

BP: 200+00.00

109+00

110+00

111+00

112+00

113+00

200+00

201+00

202+00

SEE PAVEMENT MARKING PLAN FOR GORE MARKINGS

24'

812.97

812.96

812.71

812.79

812.85

812.88

813.08

813.10

813.12

STA 111+00.31, 50.83'RT EL 812.38

18'

12'

5'

8'

10'

R55'

REMOVE CURB AND GUTTER

STA 111+36.53, 68.30'RT EL 812.17

SHAWANO LAKE SANITARY DISTRICT 1 (WATER)

SHAWANO LAKE SANITARY DISTRICT 1 (SANITARY SEWER)

APPROXIMATE EXTENT OF CONTAMINATION BEYOND EXCAVATION LIMITS

WETLAND BOUNDARY

CONCRETE CURB & GUTTER 6-INCH SLOPED 36-INCH TYPE D

EX. INVERT EL. 806.19

INVERT EL. 806.17

SLOPE INTERCEPT

CHARTER COMMUNICATIONS (COMMUNICATION)

HMA SHOULDER

BASE AGGREGATE SHOULDER

WETLAND BOUNDARY

EXTEND PIPE ARCH CORRUGATED STEEL 49X33-INCH APRON ENDWALL REQ'D RIPRAP MEDIUM

STA 110+96.85, 105.71'RT

REMOVING SMALL PIPE CULVERTS (REMOVE EXISTING APRON ENDWALL ONLY)

ASPHALTIC FLUME SEE STANDARD DETAIL DRAWING USE TOPSOIL, SEED & E-MAT INSTEAD OF SOD RIPRAP MEDIUM

STA 111+50.80, 106.18'RT EL 811.96

STA 202+11.65, 0.00'

812.80

812.71

812.66

812.61

812.57

812.53

812.50

EX. INVERT EL. 806.36

SHAWANO MUNICIPAL UTILITIES (ELECTRIC)

BENCH MARKS

NO.	STATION	DESCRIPTION	ELEV.
2	109+29	NW BURY BOLT ON HYDRANT	812.20

PROJECT NO: 9180-17-70	HWY: STH 22	COUNTY: SHAWANO	PLAN: STH 22 / MADISON WAY	SHEET 27	E

FILE NAME : P:\2011\2011.080 - WISDOT NC - STH 22 (CTH BE) SHAWANO\CAD\PLANS\2011080_050101_PP.DWG PLOT DATE : 1/7/2014 11:02 AM PLOT BY : CHAD D. GRUNDEMANN PLOT NAME : ---------- PLOT SCALE : 1:40_XREF

WISDOT/CADDS SHEET 44

N

SHAWANO LAKE SANITARY DISTRICT 1
(SANITARY SEWER)

SHAWANO LAKE SANITARY DISTRICT 1
(WATER)

CHARTER COMMUNICATIONS
(COMMUNICATION)

WE ENERGIES
(GAS)

BM *3

BM *4

END PROJECT
STA 119+24

MATCH LINE STA 113+50

EX. INVERT
EL. 807.27

PC: 114+98.73

PT: 118+26.82

PI: 119+35.08

BP: 10+00.00

SEE PAVEMENT MARKING PLAN
FOR GORE MARKINGS

SAWING ASPHALT

SAWCUT NEAT EDGE
ALONG OUTSIDE OF EXISTING LANE

114+00

115+00

116+00

117+00

118+00

119+00

10+00

STA 118+71.76, 12.00'RT

STA 118+41.63, 58.94'RT
EL 812.98

813.37

813.31

813.34

25'

12'

8'

5'

REMOVING CURB & GUTTER

R40'

813.08

WETLAND BOUNDARY

STA 113+70.71, 12.00'RT

REMOVING SMALL PIPE CULVERTS
(REMOVE EXISTING APRON
ENDWALL ONLY)

EX. INVERT
EL. 808.12

INVERT EL. 808.34

EXTEND CPRCHE CLASS HE-IV 29"X45"
APRON ENDWALL REQ'D
RIPRAP MEDIUM

STA 118+15.73, 48.07'RT
EL 812.66

PC: 10+80.53

813.17

APPROXIMATE EXTENT OF
CONTAMINATION BEYOND
EXCAVATION LIMITS

HMA SHOULDER

BASE AGGREGATE SHOULDER

SLOPE INTERCEPT

ASPHALTIC FLUME
SEE STANDARD DETAIL DRAWING
USE TOPSOIL, SEED & E-MAT INSTEAD OF SOD
RIPRAP MEDIUM

813.25

813.31

11+00

CONCRETE CURB & GUTTER
6-INCH SLOPED 36-INCH TYPE D

STA 118+14.11, 88.04'RT

STA 118+53.99, 84.11'RT
EL 813.30

PT: 12+00.90

STA 11+00.00, 24.00'R
EL 813.56

12+00

STA 11+00.00, 0.00'

OH

WETLAND BOUNDARY

SHAWANO MUNICIPAL UTILITIES
(ELECTRIC)

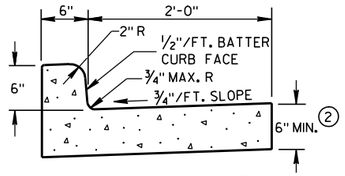
BENCH MARKS

NO.	STATION	DESCRIPTION	ELEV.
3	114+57	SW BURY BOLT ON HYDRANT	810.85
4	119+49	NW BURY BOLT ON HYDRANT	810.39

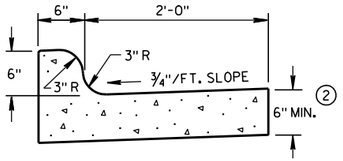
PROJECT NO: 9180-17-70	HWY: STH 22	COUNTY: SHAWANO	PLAN: STH 22 / CTH BE	SHEET 28	E

Standard Detail Drawing List

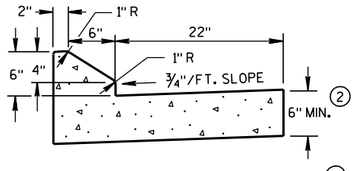
08D01-17	CONCRETE CURB, CONCRETE CURB AND GUTTER AND TIES
08D04-05	CONCRETE SURFACE DRAINS & ASPHALTIC FLUMES
08E08-03	TYPICAL INSTALLATIONS OF EROSION BALES / TEMPORARY DITCH CHECKS
08E09-06	SILT FENCE
08F02-01	APRON ENDWALLS FOR PIPE ARCH AND ELLIPTICAL PIPE
08F04-07	JOINT TIES FOR CONCRETE PIPE AND CONCRETE COLLAR DETAIL
12A04-03	STRUCTURE IDENTIFICATION PLAQUES, RAMP GATES, SIGN BRIDGES & OVERHEAD SIGN SUPPORTS & TRAFFIC SIGNALS
14B42-02A	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-02B	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-02C	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B44-01A	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-01B	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-01C	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
15A03-02A	FLEXIBLE MARKER POST FOR CULVERT END
15A03-02B	FLEXIBLE MARKER POST FOR CULVERT END
15C08-16A	PAVEMENT MARKING (MAINLINE)
15C08-16B	PAVEMENT MARKING (INTERSECTIONS)
15C12-04	TRAFFIC CONTROL FOR LANE CLOSURE (SUITABLE FOR MOVING OPERATIONS)
15C15-03	36" DIAMETER FULL SPAN OVERHEAD SIGN SUPPORT BASE
15C33-01	STOP LINE AND CROSSWALK PAVEMENT MARKING
15D20-02	TRAFFIC CONTROL, SINGLE LANE CLOSURE, NON-FREEWAY/EXPRESSWAY
15D21-02	TRAFFIC CONTROL, INTERSECTION WITHIN SINGLE LANE CLOSURE
15D28-02	TRAFFIC CONTROL, WORK ON SHOULDER OR PARKING LANE, UNDIVIDED ROADWAY



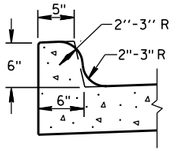
TYPES A & D (1)



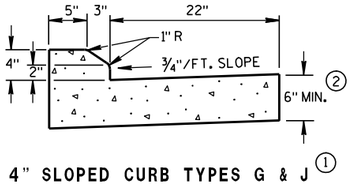
TYPES K & L (1)



6" SLOPED CURB TYPES G & J (1)

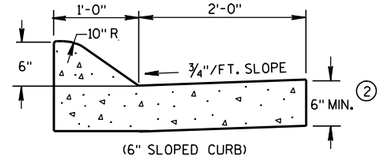


OPTIONAL CURB SHAPE FOR TYPES K & L (1)

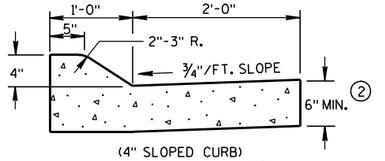


4" SLOPED CURB TYPES G & J (1)

CONCRETE CURB & GUTTER 30"

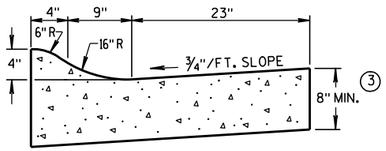


(6" SLOPED CURB)



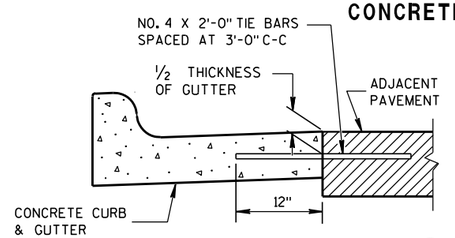
(4" SLOPED CURB)

TYPES A & D (1)

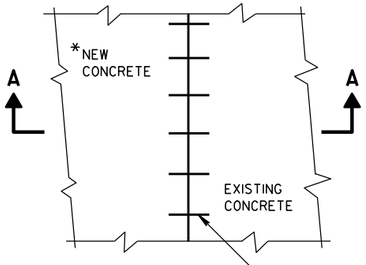


4" SLOPED CURB TYPES R & T (1) (4)

CONCRETE CURB & GUTTER 36"

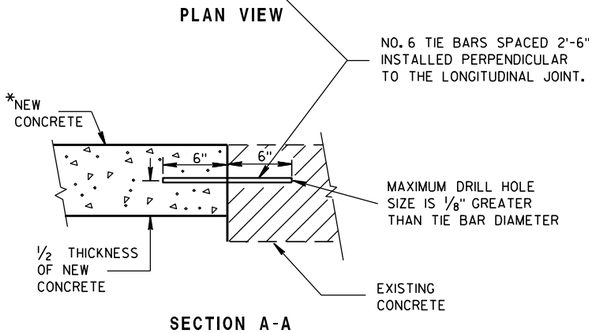


TYPICAL TIE BAR LOCATION (1)



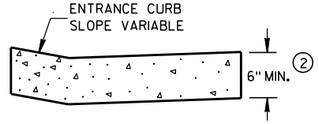
*NEW CURB & GUTTER, SURFACE DRAINS, CONCRETE PAVEMENT OR OTHER NEW CONCRETE.

PLAN VIEW

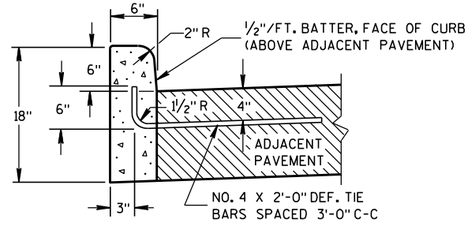


SECTION A-A

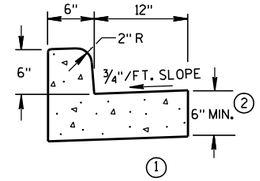
TIE BARS DRILLED INTO EXISTING PAVEMENT



DRIVEWAY ENTRANCE CURB
(WHEN DIRECTED BY THE ENGINEER)

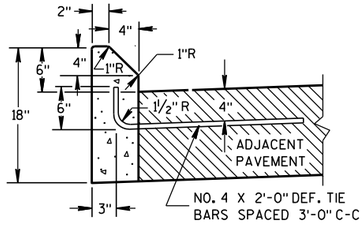


(1)
TYPES A & D



(1)
TYPES A & D

CONCRETE CURB & GUTTER 18"



(1)
TYPES G & J

CONCRETE CURB

GENERAL NOTES

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

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

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

WHERE THE TRANSVERSE JOINTS IN THE PAVEMENT ARE REQUIRED TO BE SEALED, THE JOINTS IN THE INTEGRAL CURB AND GUTTER SHALL BE SEALED TO THE FACE OF CURB WITH THE SAME TYPE OF SEALANT. THE COST OF FURNISHING AND INSTALLING THIS SEALANT SHALL BE INCIDENTAL TO THE ITEM CONCRETE CURB AND GUTTER.

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

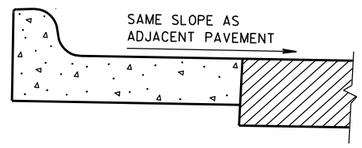
(1) TIE BARS ARE REQUIRED FOR CURB AND GUTTER TYPES A, G, K AND R.

(2) THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 6" MINIMUM GUTTER THICKNESS IS MAINTAINED.

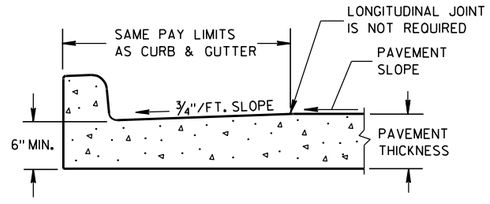
(3) THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 8" MINIMUM GUTTER THICKNESS IS MAINTAINED.

(4) THE FACE OF CURB IS 6" FROM THE BACK OF CURB.

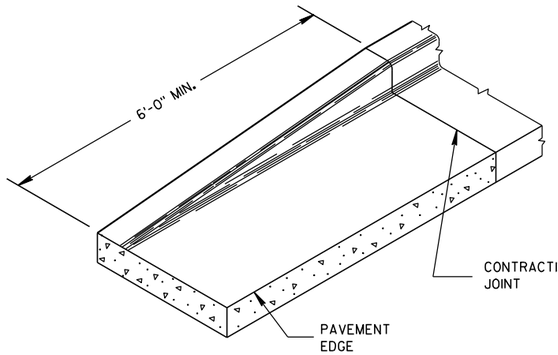
(5) WHEN REVERSE SLOPE GUTTER IS REQUIRED, THE LOCATION(S) WILL BE SHOWN ELSEWHERE IN THE PLAN.



REVERSE SLOPE GUTTER (5)
(TYPICAL FOR ALL CURB & GUTTER TYPES)



PARTIAL SECTION OF PAVEMENT WITH INTEGRAL CURB & GUTTER



END SECTION CURB & GUTTER

CONCRETE CURB, CONCRETE CURB & GUTTER AND TIES

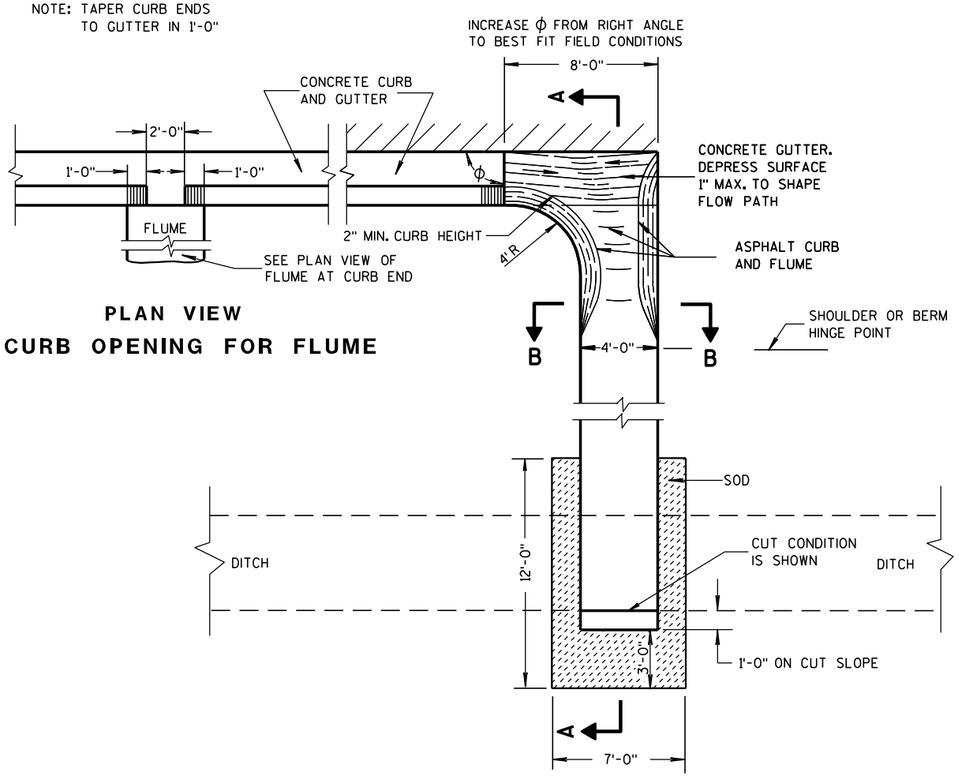
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
9/4/08 DATE
/S/ Jerry H. [illegible]
ROADWAY STANDARDS ENGINEER
FHWA

6

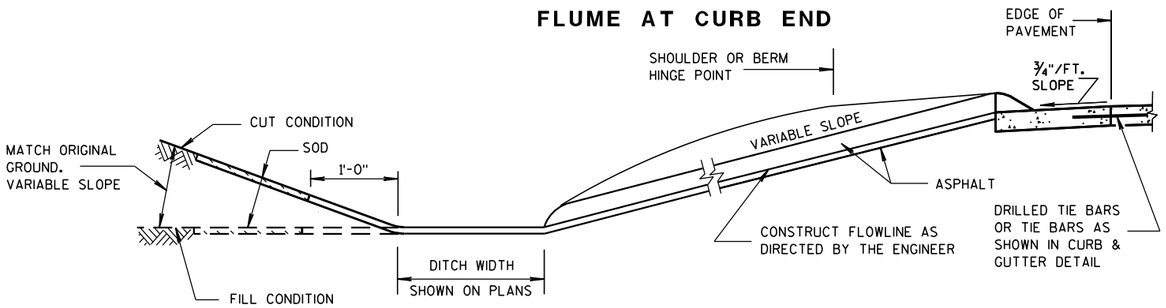
S.D.D. 8 D 1-17

ASPHALTIC FLUME

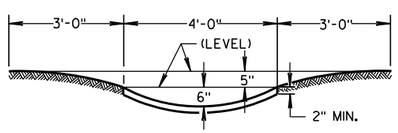


PLAN VIEW
CURB OPENING FOR FLUME

PLAN VIEW
FLUME AT CURB END



SECTION A-A



SECTION B-B

GENERAL NOTES

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

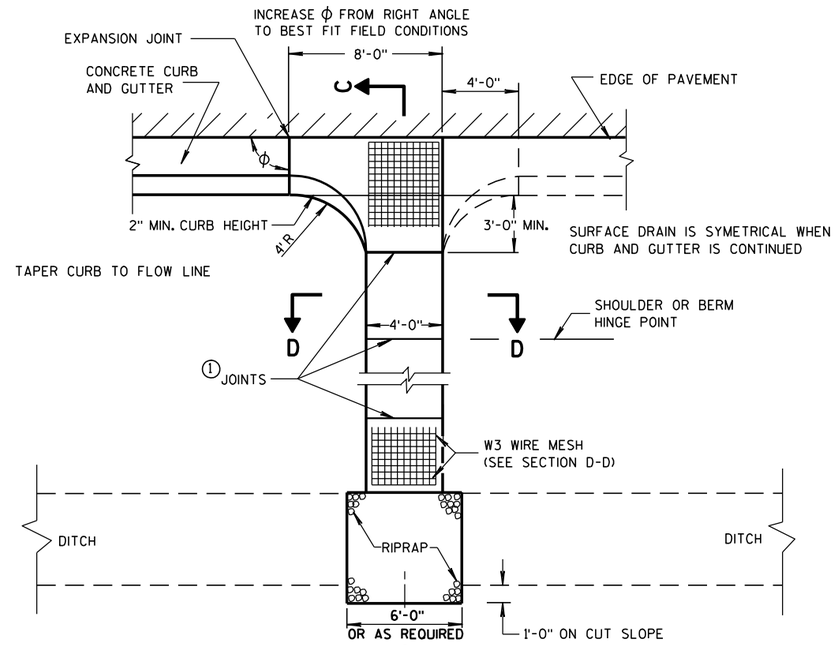
WELDED STEEL WIRE FABRIC SHALL BE IN ACCORDANCE WITH AASHTO SPECIFICATION M55.

① JOINTS SHALL BE ⅛ TO ¼ INCH WIDE BY 1½ INCHES DEEP AND SPACED AT UNIFORM INTERVALS OF APPROXIMATELY 4 FEET.

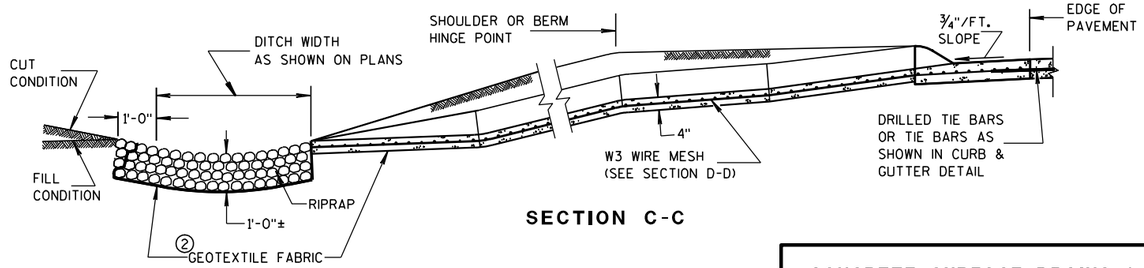
② GEOTEXTILE FABRIC TYPE "R" SHALL UNDERLAY THE FULL LENGTH AND WIDTH OF THE CONCRETE SURFACE DRAIN AND RIPRAP.

③ CONCRETE SURFACE DRAIN WITHOUT CURB AND GUTTER MAY BE USED ON BACKSLOPES WHEN SPECIFIED

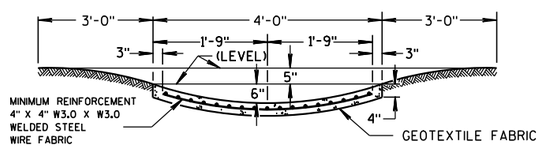
③ CONCRETE SURFACE DRAIN



PLAN VIEW



SECTION C-C



SECTION D-D

CONCRETE SURFACE DRAINS & ASPHALTIC FLUMES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

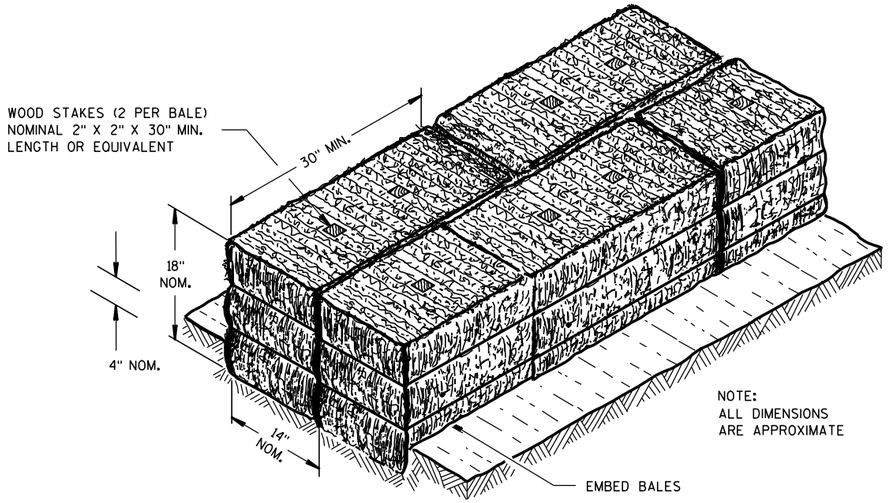
APPROVED
9-4-08 DATE
/S/ Jerry H. Zogg
ROADWAY STANDARDS ENGINEER
MENT
FHWA

6

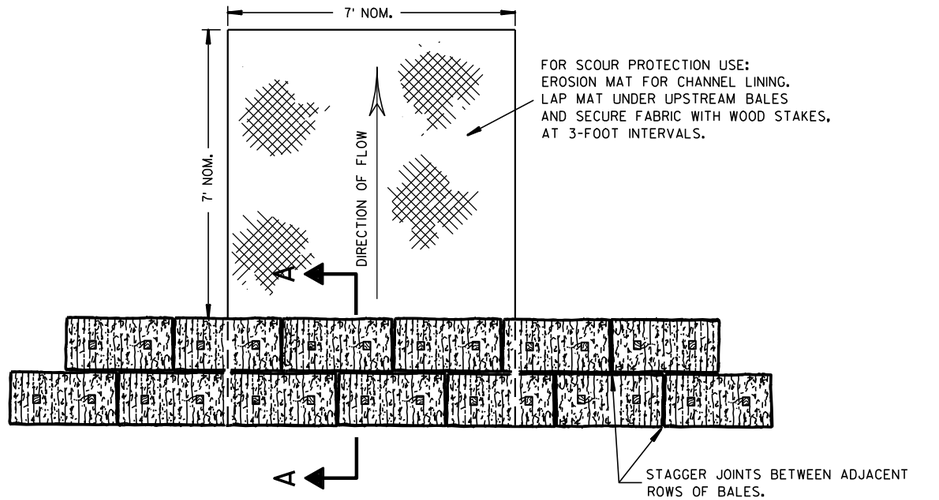
S.D.D. 8 D 4-5

6

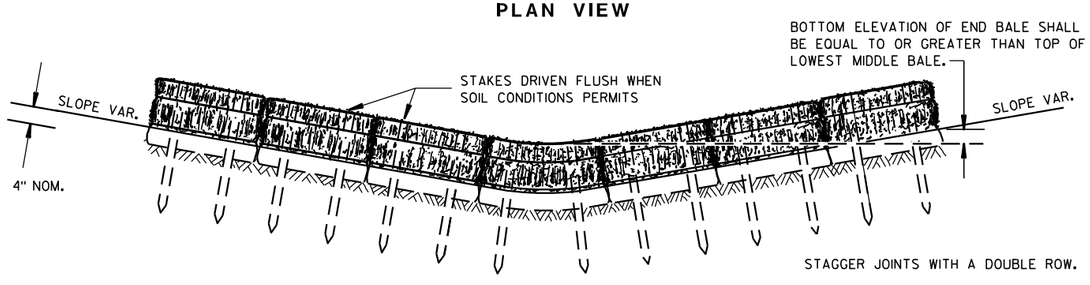
S.D.D. 8 D 4-5



SECTION A-A



PLAN VIEW



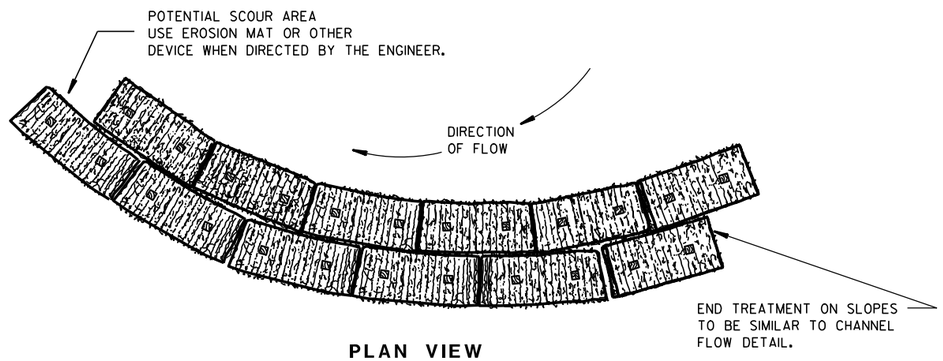
FRONT ELEVATION

TEMPORARY DITCH CHECK USING EROSION BALES ①

GENERAL NOTES

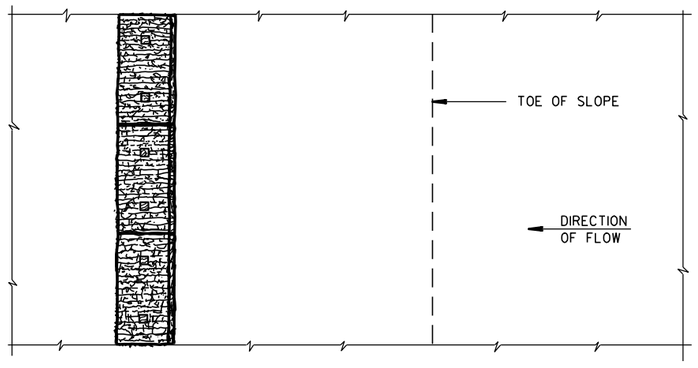
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

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

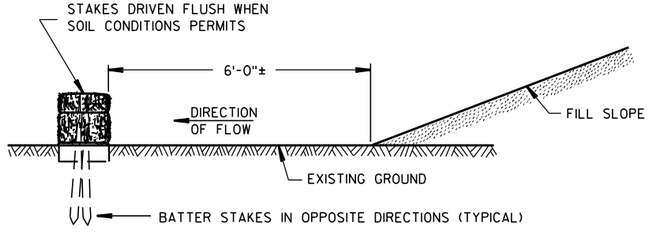


PLAN VIEW

WHEN ALTERING THE DIRECTION OF FLOW



PLAN VIEW



FRONT ELEVATION

WHEN EXISTING GROUND SLOPES AWAY FROM FILL SLOPE

EROSION BALES FOR SHEET FLOW

TYPICAL INSTALLATIONS OF EROSION BALES / TEMPORARY DITCH CHECKS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

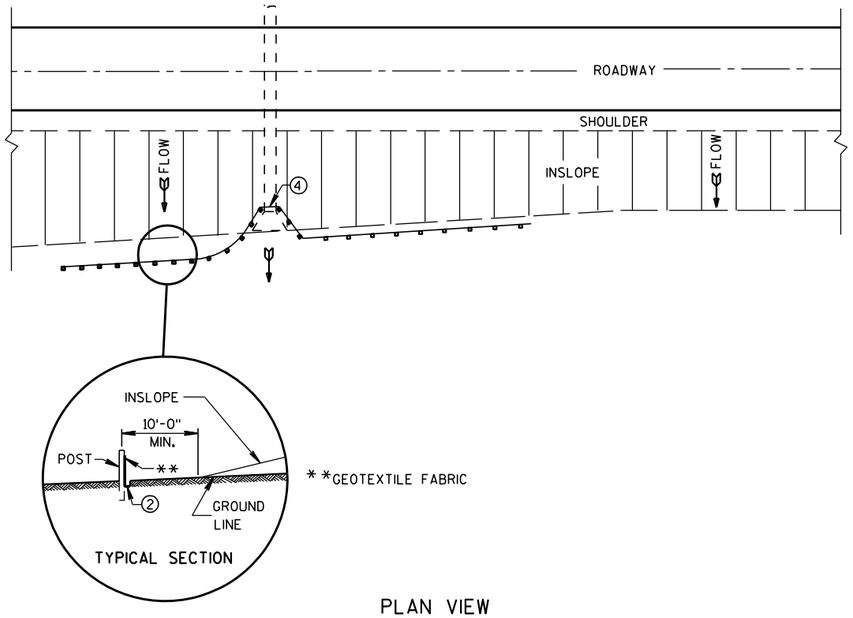
6/04/02 — DATE

/S/ Beth Cannestra — CHIEF ROADWAY DEVELOPMENT ENGINEER

FHWA

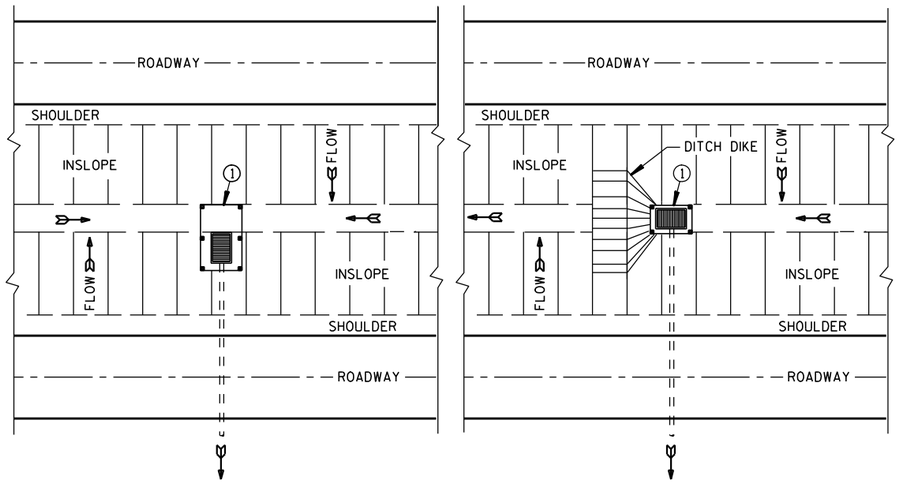
6

S.D.D. 8 E 8-3



PLAN VIEW

TYPICAL APPLICATION OF SILT FENCE



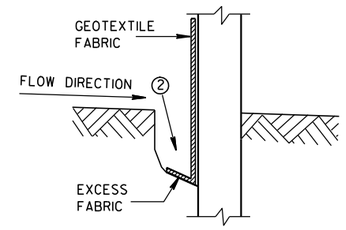
PLAN VIEW

SILT FENCE AT MEDIAN SURFACE DRAINS

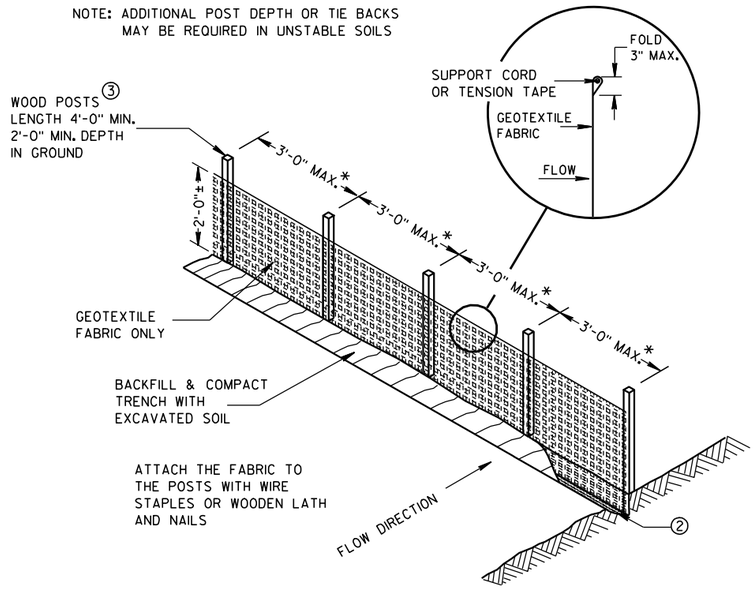
GENERAL NOTES

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

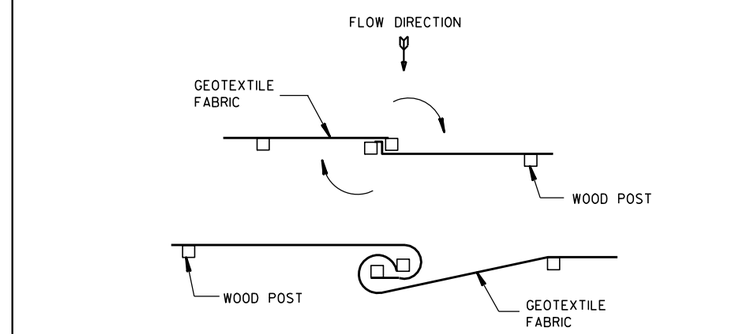
1. HORIZONTAL BRACE REQUIRED WITH 2" X 4" WOODEN FRAME OR EQUIVALENT AT TOP OF POSTS.
2. FOR MANUAL INSTALLATIONS THE TRENCH SHALL BE A MINIMUM OF 4" WIDE & 6" DEEP TO BURY AND ANCHOR THE GEOTEXTILE FABRIC. FOLD MATERIAL TO FIT TRENCH AND BACKFILL & COMPACT TRENCH WITH EXCAVATED SOIL.
3. WOOD POSTS SHALL BE A MINIMUM SIZE OF 1⅛" X 1⅛" OF OAK OR HICKORY.
4. SILT FENCE TO EXTEND ACROSS THE TOP OF THE PIPE.
5. CONSTRUCT SILT FENCE FROM A CONTINUOUS ROLL IF POSSIBLE BY CUTTING LENGTHS TO AVOID JOINTS. IF A JOINT IS NECESSARY USE ONE OF THE FOLLOWING TWO METHODS; A) OVERLAP THE END POSTS AND TWIST, OR ROTATE, AT LEAST 180 DEGREES, B) HOOK THE END OF EACH SILT FENCE LENGTH.



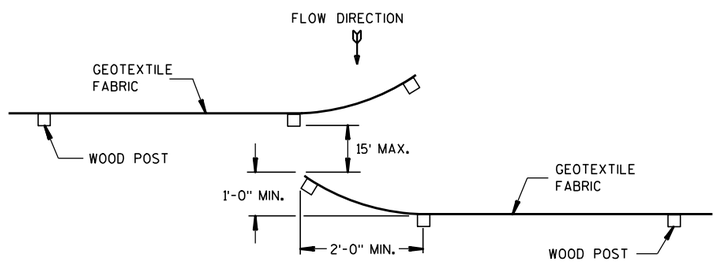
TRENCH DETAIL



SILT FENCE

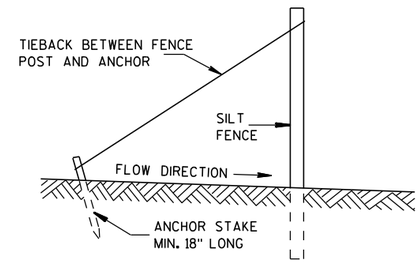


TWIST METHOD



HOOK METHOD

JOINING TWO LENGTHS OF SILT FENCE 5



SILT FENCE TIE BACK

(WHEN REQUIRED BY THE ENGINEER)

SILT FENCE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

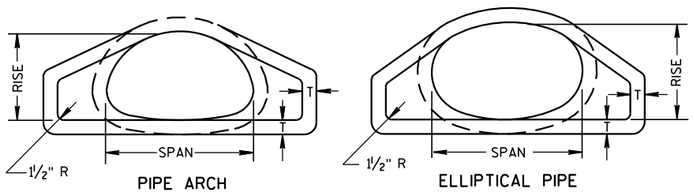
APPROVED
4-29-05 DATE
/S/ Beth Cannestra
CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA

6

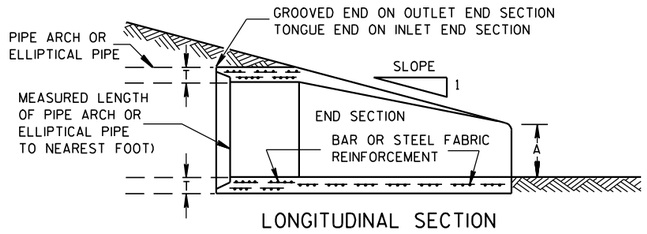
S.D.D. 8 E 9-6

6

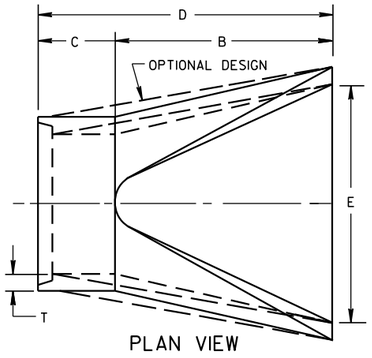
S.D.D. 8 E 9-6



END VIEW

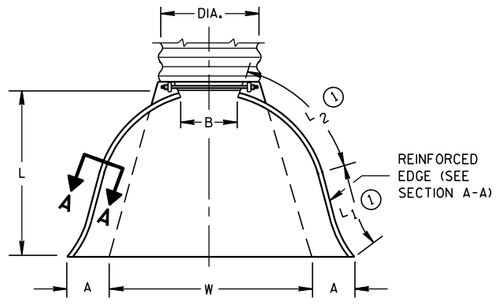


LONGITUDINAL SECTION

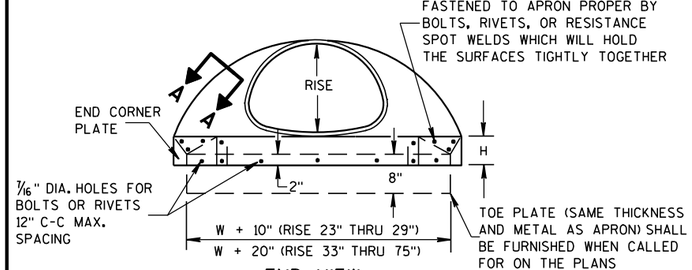


PLAN VIEW

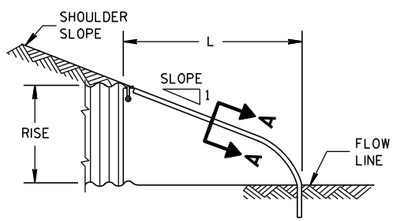
CONCRETE ENDWALLS



PLAN VIEW

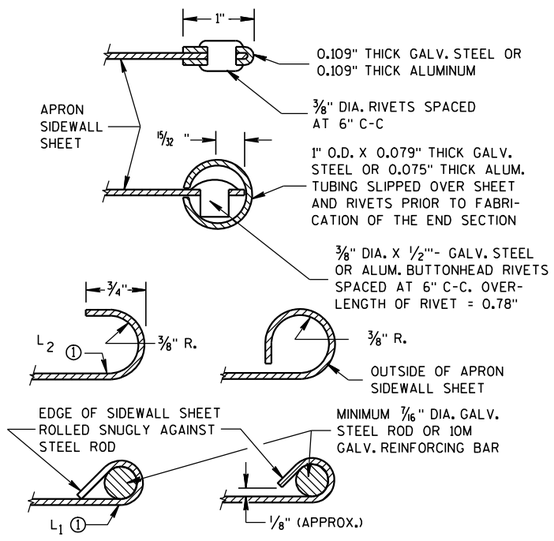


END VIEW



SIDE ELEVATION

METAL ENDWALLS



SECTION A-A

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

EQUIV. DIA. (Inches)	(Inches) SPAN	(Inches) RISE	MIN. THICK. (Inches) STEEL	MIN. THICK. (Inches) ALUM.	DIMENSIONS (Inches) A (±1")	B (MAX.)	H (±1")	L (±1 1/2")	L1 ①	L2 ①	W (±2")	APPROX. SLOPE	BODY
15	17	13	.064	.060	7	9	6	19	14	16	30	2½ to 1	1 Pc.
18	21	15	.064	.060	7	10	6	23	14	19 3/8	36	2½ to 1	1 Pc.
21	24	18	.064	.060	8	12	6	28	18	21¾	42	2½ to 1	1 Pc.
24	28	20	.064	.060	9	14	6	32	18	27½	48	2½ to 1	1 Pc.
30	35	24	.079	.075	10	16	6	39	18	37 5/8	60	2½ to 1	1 Pc.
36	42	29	.079	.075	12	18	8	46	24	45 3/8	75	2½ to 1	1 Pc.
42	49	33	.109	.105	13	21	9	53	24	54¾	85	2½ to 1	2 Pc.
48	57	38	.109	.105	18	26	12	63	24	68	90	2½ to 1	3 Pc.
54	64	43	.109	.105	18	30	12	70	24	72¾	102	2¼ to 1	3 Pc.
60	71	47	.109*	.105*	18	33	12	77	30	82¼	114	2¼ to 1	3 Pc.
66	77	52	.109*	.105*	18	36	12	77	—	—	126	2 to 1	3 Pc.
72	83	57	.109*	.105*	18	39	12	77	—	—	138	2 to 1	3 Pc.

3" X 1" CORRUGATIONS

EQUIV. DIA. (Inches)	(Inches) SPAN	(Inches) RISE	MIN. THICK. (Inches) STEEL	MIN. THICK. (Inches) ALUM.	DIMENSIONS (Inches) A (±1")	B (MAX.)	H (±1")	L (±1 1/2")	L1 ①	L2 ①	W (±2")	APPROX. SLOPE	BODY
48	53	41	.109	.105	18	26	12	63	24	72¾	90	2½ to 1	2 Pc.
54	60	46	.109	.105	18	30	12	70	30	82¼	102	2 to 1	2 Pc.
60	66	51	.109*	.105*	18	33	12	77	—	—	114	1½ to 1	3 Pc.
66	73	55	.109*	.105*	18	36	12	77	—	—	126	1½ to 1	3 Pc.
72	81	59	.109*	.105*	18	39	12	77	—	—	138	2 to 1	3 Pc.
78	87	63	.109*	.105*	22	38	12	77	—	—	148	1½ to 1	3 Pc.
84	95	67	.109*	.105*	22	34	12	77	—	—	162	1½ to 1	3 Pc.
90	103	71	.109*	.105*	22	38	12	77	—	—	174	1½ to 1	3 Pc.
96	112	75	.109*	.105*	24	40	12	77	—	—	174	1½ to 1	3 Pc.

NOTE: ALL SPLICES TO BE LAP RIVETED OR BOLTED.

* EXCEPT CENTER PANEL SEE GENERAL NOTES

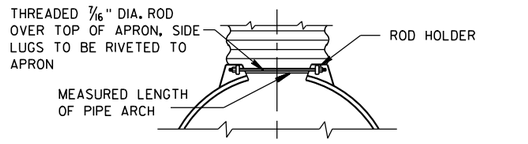
REINFORCED CONCRETE PIPE ARCH

EQUIV. DIA. (Inches)	DIMENSIONS (Inches) ** SPAN	** RISE	T	A	B	C	D	E	APPROX. SLOPE
24	29	18	3	8½	39	33	72	48	3 to 1
30	36	22	3½	9½	50	46	96	60	3 to 1
36	44	27	4	11⅛	60	36	96	72	3 to 1
42	51	31	4½	15 13/16	60	36	96	78	3 to 1
48	58	36	5	21	60	36	96	84	3 to 1
54	65	40	5½	25½	60	36	96	90	3 to 1
60	73	45	6	31	60	36	96	96	3 to 1
72	88	54	7	31	60	39	99	120	2 to 1
84	102	62	8	28½	83	19	102	144	2 to 1

REINFORCED CONCRETE ELLIPTICAL PIPE

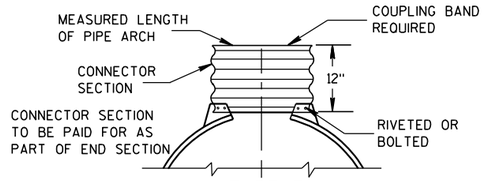
EQUIV. DIA. (Inches)	DIMENSIONS (Inches) ** SPAN	** RISE	T	A	B	C	D	E	APPROX. SLOPE
24	30	19	3¼	8½	39	33	72	48	3 to 1
30	38	24	3¾	9½	54	18	72	60	3 to 1
36	45	29	4½	11⅛	60	24	84	72	2½ to 1
42	53	34	5	15¾	60	36	96	78	2½ to 1
48	60	38	5½	21	60	36	96	84	2½ to 1
54	68	43	6	25½	60	36	96	90	2½ to 1
60	76	48	6½	30	60	36	96	96	2½ to 1

**NOMINAL SIZE



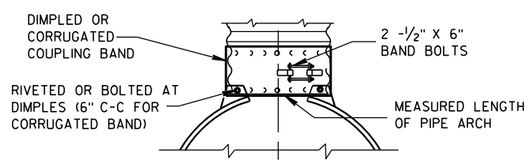
TYPE 2

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



TYPE 3

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



TYPE 5

ALTERNATE FOR:

ALL SIZES CORRUGATED PIPE ARCHES

NOTE: DIMPLED BAND FITS OVER OUTSIDE OF ENDWALL, AND CORRUGATED BAND FITS INSIDE ENDWALL.

CONNECTION DETAILS

GENERAL NOTES

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

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

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

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

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

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

APRON ENDWALLS FOR PIPE ARCH AND ELLIPTICAL PIPE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

11/30/94 — DATE

/S/ Rory L. Rhinesmith — CHIEF ROADWAY DEVELOPMENT ENGINEER

FHWA

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S.D.D. 8 F 2-1

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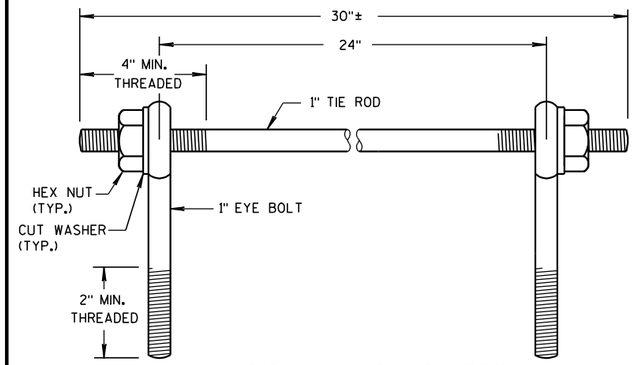
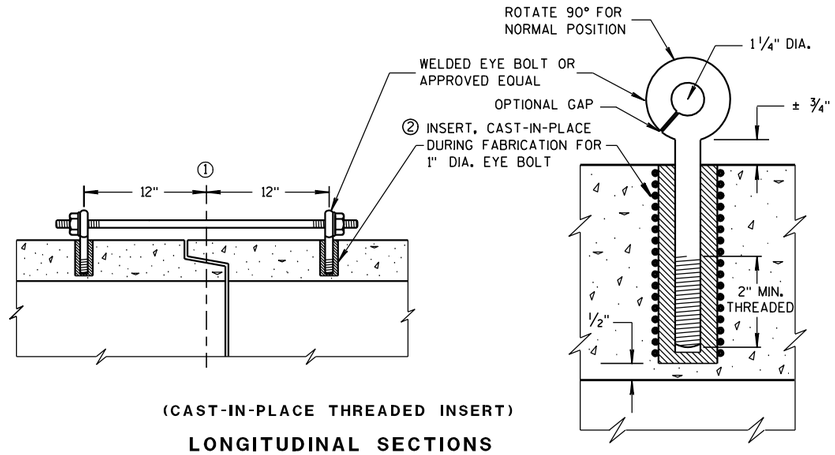
S.D.D. 8 F 2-1



EYE BOLTS AND TIE ROD



(CAST-IN-PLACE THREADED INSERT)

LONGITUDINAL SECTIONS

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

GENERAL NOTES

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

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

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

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

① ℄ OF TONGUE AND GROOVE OR BELL AND SPIGOT JOINTS.

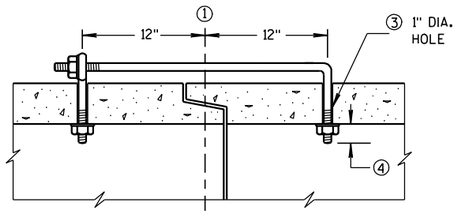
② THE INSIDE OF THE THREADED INSERTS SHALL BE CLEAN TO ALLOW THE INSERTION OF THREADED EYE BOLTS.

③ HOLES SHALL BE CAST-IN-PLACE OR DRILLED 12 INCHES FROM ℄ OF TONGUE AND GROOVE.

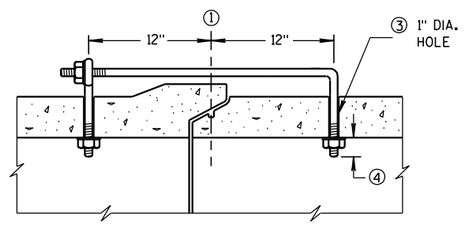
④ BOLT PROJECTION INSIDE OF PIPE SHALL NOT EXCEED 2 INCHES.

⑤ OPENING TO BE ROD DIAMETER PLUS 1 INCH.

⑥ LENGTH ADEQUATE TO EXTEND TO WITHIN 1/2 INCH OF THE INNER SURFACE OF THE PIPE.



(TONGUE & GROOVE PIPE)

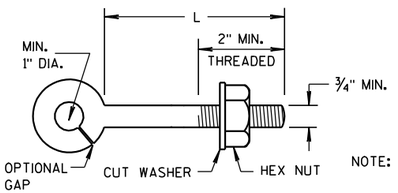


(MODIFIED BELL PIPE)

LONGITUDINAL SECTION

EYE BOLT DIMENSION TABLE

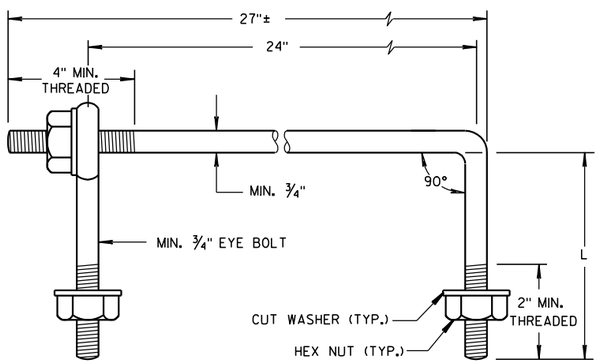
PIPE SIZE	L = LENGTH	
	TONGUE & GROOVE PIPE	MODIFIED BELL PIPE
18" TO 24"	4 1/2"	6 1/4"
30"	5"	7"
36"	5 1/2"	7"
42"	6"	
48"	6 1/2"	
60"	7 1/2"	
66"	8"	



NOTE:

EYE BOLT

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



EYE BOLT AND TIE ROD

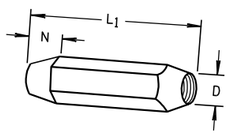
(JOINT TIES FOR 18" TO 66" DIA. CONCRETE PIPE)

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

ADJUSTABLE TIE ROD TABLE

PIPE DIAMETER	TIE ROD DIAMETER	D	L_1	N
12-60	5/8	5/8	5	1/2
66-84	3/4	3/4	5	1/2
90-108	1	1	7	1 1/16

DIMENSIONS SHOWN ARE IN INCHES



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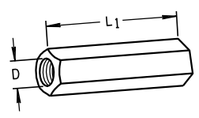
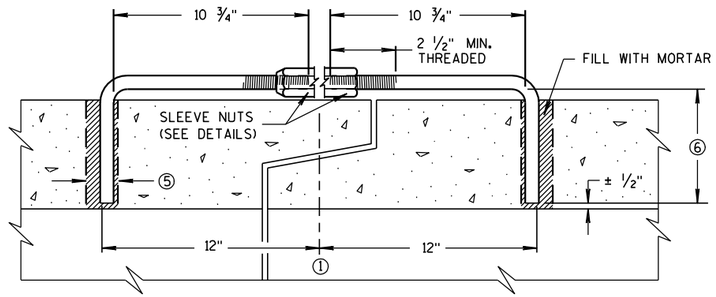


PLAIN

RIGHT AND LEFT THREADS

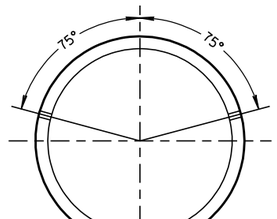
SLEEVE NUTS



LONGITUDINAL SECTION

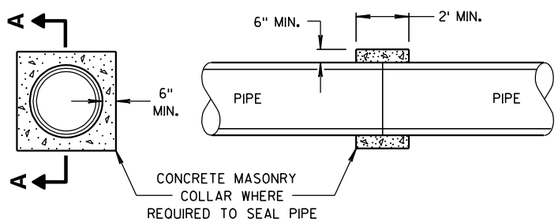
(JOINT TIES FOR 12" TO 108" DIA. CONCRETE PIPE)

ADJUSTABLE TIE ROD (ALTERNATE NO. 3)



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

TRANSVERSE SECTION



SECTION A-A

CONCRETE COLLAR DETAIL

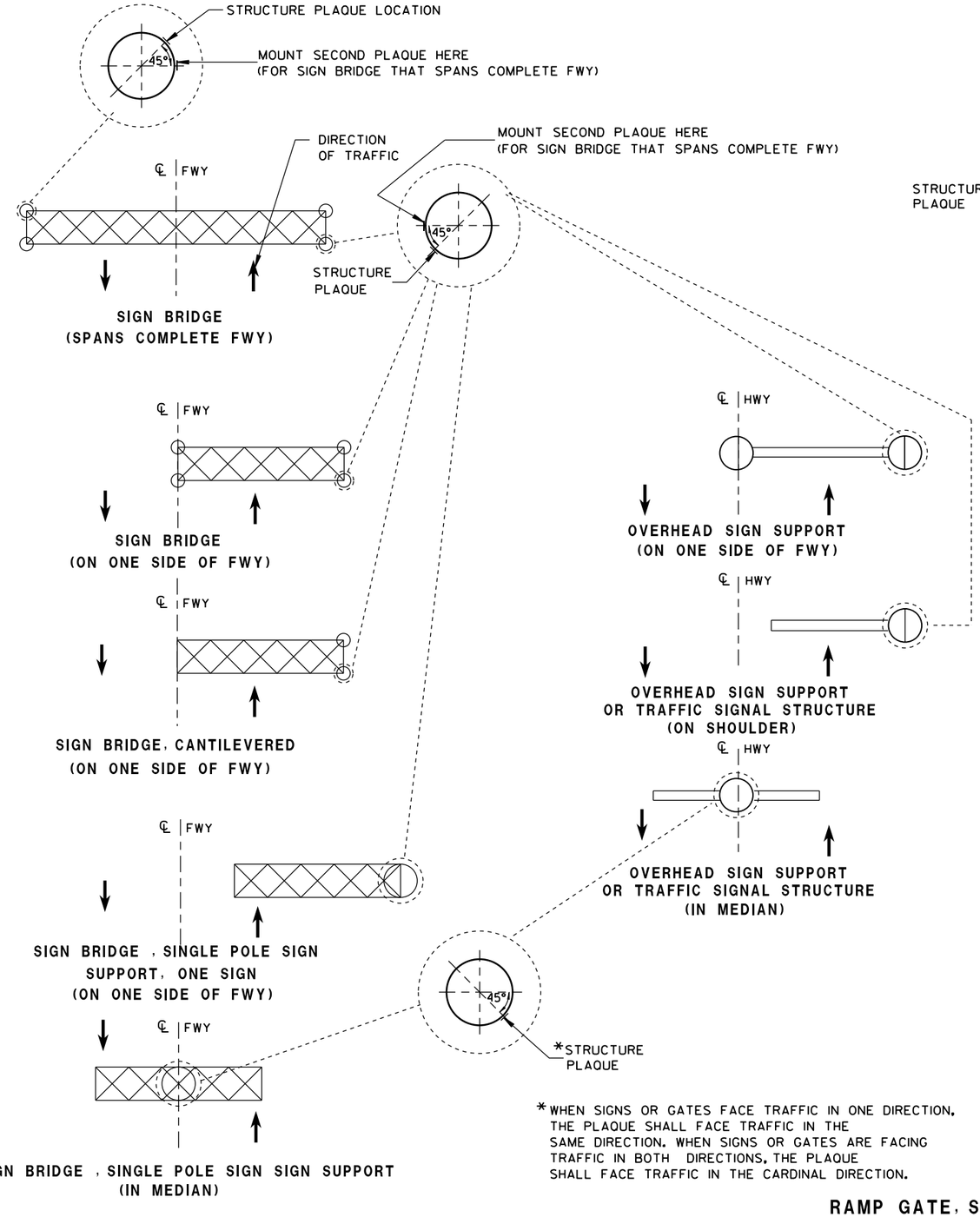
JOINT TIES FOR CONCRETE PIPE AND CONCRETE COLLAR DETAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
6/5/2012 — DATE
/S/ Jerry H. Zogg — ROADWAY STANDARDS ENGINEER
35
FHWA

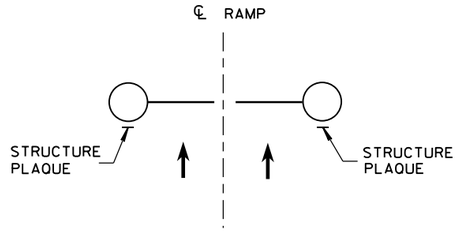
6

S.D.D. 8 F 4-7

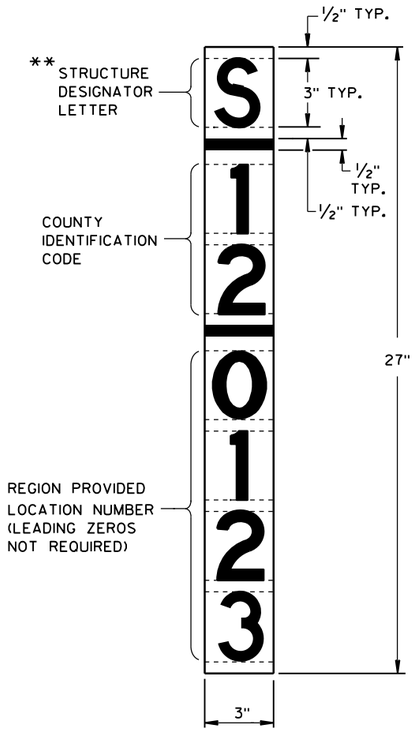


*WHEN SIGNS OR GATES FACE TRAFFIC IN ONE DIRECTION, THE PLAQUE SHALL FACE TRAFFIC IN THE SAME DIRECTION. WHEN SIGNS OR GATES ARE FACING TRAFFIC IN BOTH DIRECTIONS, THE PLAQUE SHALL FACE TRAFFIC IN THE CARDINAL DIRECTION.

LOCATION OF RAMP GATE, SIGN BRIDGE, OVERHEAD SIGN SUPPORT & TRAFFIC SIGNAL STRUCTURE PLAQUES



RAMP GATE
(ACROSS FWY ON-RAMP)



** LETTER "G" UTILIZED FOR RAMP GATES. LETTER "S" UTILIZED FOR SIGN BRIDGES, OVERHEAD SIGN SUPPORTS, AND TRAFFIC SIGNALS.

RAMP GATE, SIGN BRIDGE, OVERHEAD SIGN SUPPORT AND TRAFFIC SIGNAL STRUCTURE PLAQUE FOR SIGN BRIDGES AND OVERHEAD SIGN SUPPORT WHICH ARE NOT STRUCTURE MOUNTED

GENERAL NOTES

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

PLAQUES SHALL BE INCIDENTAL TO ALL NEW INSTALLATIONS.

IF THE PROPOSED SIGN BRIDGE OR OVERHEAD SIGN SUPPORT IS REPLACING AN EXISTING SIGN BRIDGE OR OVERHEAD SIGN SUPPORT, A NEW IDENTIFICATION PLAQUE WILL BE REQUIRED.

FASTEN TOP, CENTER AND BOTTOM OF PLAQUE TO POLE OR OTHER LOCATION AS FOLLOWS:

GALVANIZED STEEL SHAFT - 3 STAINLESS STEEL POP RIVETS

A588 STEEL SHAFT - SHIM FOR DRAINAGE WITH STAINLESS WASHERS; FASTEN WITH STAINLESS SELF-TAPPING SCREWS

ALUMINUM SHAFTS - 3 ALUMINUM POP RIVETS

MOUNTING HEIGHT SHALL BE APPROXIMATELY 5.0' ABOVE CURB OR SHOULDER. ADJUST IF IT IS KNOWN THAT REQUIRED TRAFFIC SIGNS WILL OBSTRUCT.

PLAQUE MATERIALS:

BASE - SHEET ALUMINUM, 0.060" THICK.

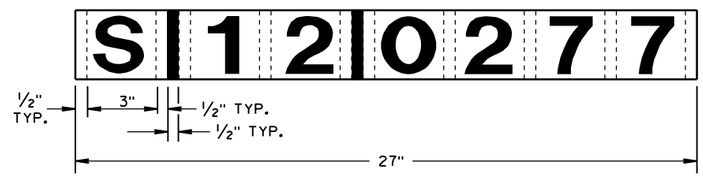
FACE - WHITE, SELF-ADHESIVE VINYL SHEETING, NON-RETROREFLECTIVE

LINES - BLACK, ½" WIDE, SELF-ADHESIVE

CHARACTERS:- BLACK, SELF ADHESIVE, SERIES "D", SIZE AS SHOWN.

FOR SIGN BRIDGES, STRUCTURE MOUNTED, THE STRUCTURE PLAQUE SHALL BE MOUNTED HORIZONTALLY AS SHOWN ON THE DRAWING. THE STRUCTURE PLAQUE SHALL BE MOUNTED HORIZONTALLY TO THE BACK OF THE SIGN, BETWEEN THE ALUMINUM EXTRUSIONS, NEAR THE TOP LEFT HAND CORNER OF THE SIGN. THE BASE MATERIAL SHALL BE OMITTED AND THE FACE ADHERED DIRECTLY TO THE ALUMINUM SURFACE. PRIOR TO ADHERING THE MATERIAL, THE ALUMINUM SURFACE SHALL BE SMOOTH, CLEAN AND DRY.

WHERE SIGN BRIDGE ILLUMINATION IS PROVIDED, THE STRUCTURE MUST ALSO HAVE A SIGN BRIDGE CIRCUIT PLAQUE AS SHOWN IN THE ELECTRICAL DETAILS.



IDENTIFICATION PLAQUE FOR SIGN BRIDGE, STRUCTURE MOUNTED

STRUCTURE IDENTIFICATION PLAQUES, RAMP GATES, SIGN BRIDGES, OVERHEAD SIGN SUPPORTS, & TRAFFIC SIGNALS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
12/4/2012 DATE
/S/ Travis Feltes STATE TRAFFIC ENGINEER
FHWA

6

S.D.D. 12 A 4-3

GENERAL NOTES

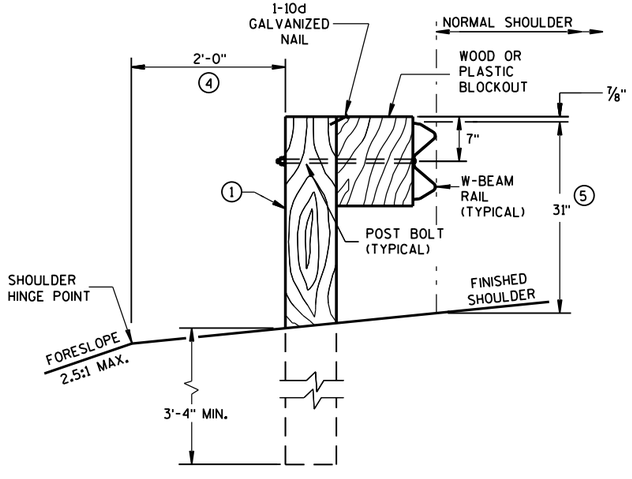
1. WOOD OR STEEL POSTS (w6X9 OR w6X8.5) MAY BE USED. DO NOT INTERMIX WOOD AND STEEL POSTS. INSTALL STEEL POSTS WITH HOLES ON APPROACHING TRAFFIC SIDE.

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 2½INCHES OF GRANULAR MATERIAL IN THE BOTTOM OF THE HOLE. CUT THE POSTS THE TO LENGTH AMD INSTALL. BACKFILL WITH EXCAVATED MATERIAL AND COMPACT. BACKFILL IS TO BE FREE OF LARGE ROCKS.

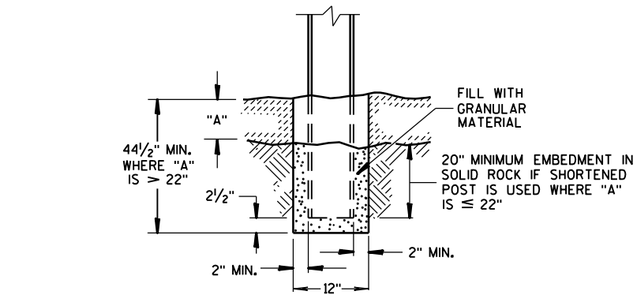
4. WHEN THE DISTANCE FROM BACK OF POST TO SHOULDER HINGE POINT IS LESS THAN 2 FEET INSTALL LONGER POST AT HALF POST SPACING (K).

5. FOR NEW MGS INSTALLATION TOP OF W-BEAM RAIL TOLERANCE IS ± 1". FOR EXISTING MGS INSTALLATION TOP OF W-BEAM IS BETWEEN 27¾" TO 32".



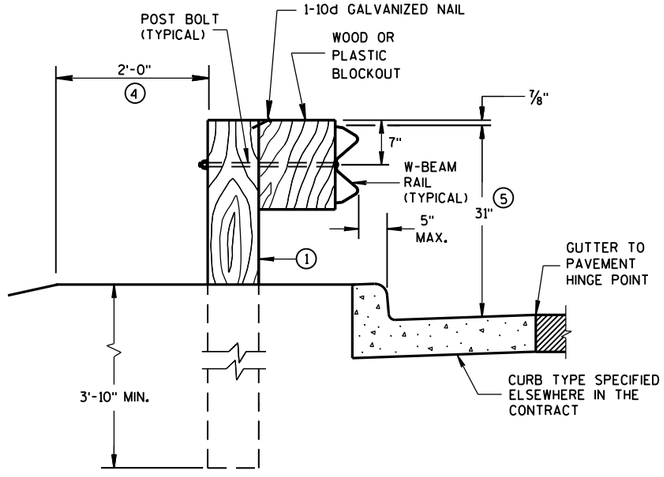
END VIEW

LOCATED ALONG A ROADWAY SHOULDER
STANDARD INSTALLATION



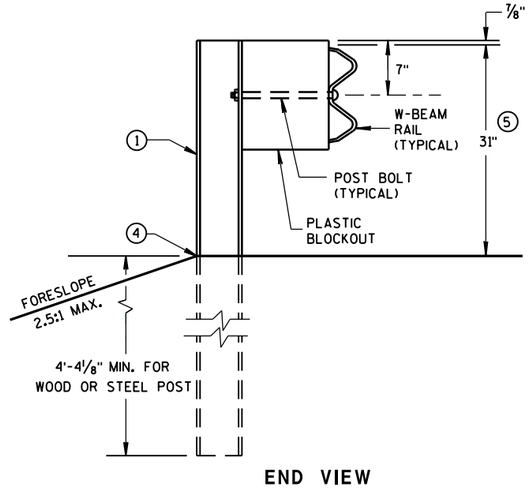
END VIEW

SETTING STEEL OR WOOD POST IN ROCK ③



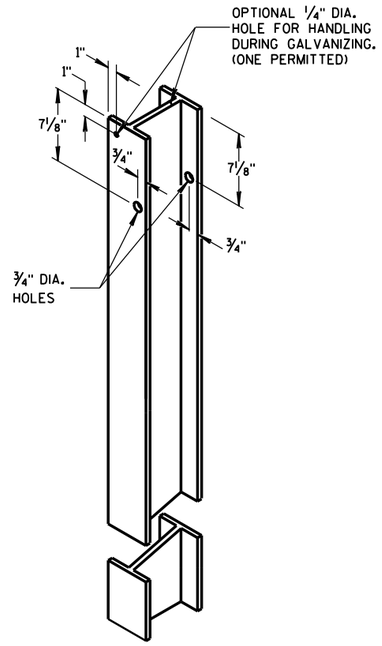
END VIEW

LOCATED ALONG A CURBED ROADWAY

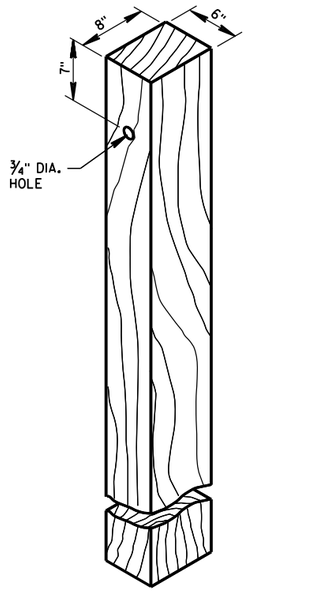


END VIEW

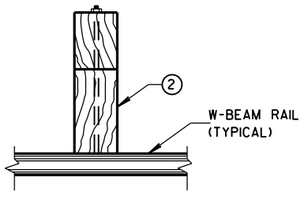
MGS LONGER POST AT HALFPOST SPACING W BEAM (K)



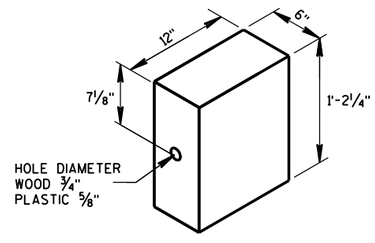
STEEL POST &
HOLE PUNCHING DETAIL
(w6X9) ①



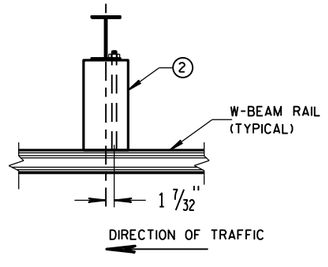
WOOD POST
(6" X 8") NOMINAL ①



PLAN VIEW
WOOD POST,
BLOCKOUT & BEAM



WOOD OR
PLASTIC BLOCKOUT ②



PLAN VIEW
STEEL POST,
PLASTIC BLOCKOUT & BEAM

MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

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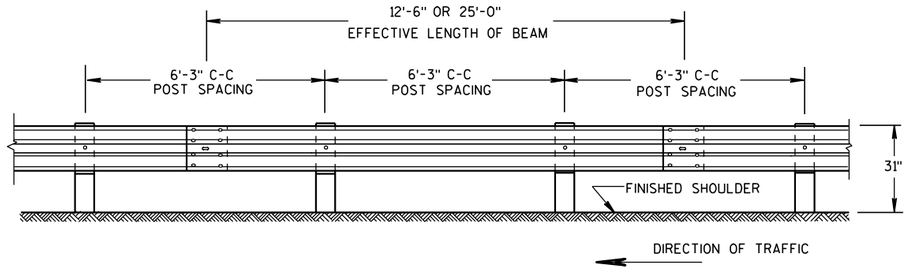
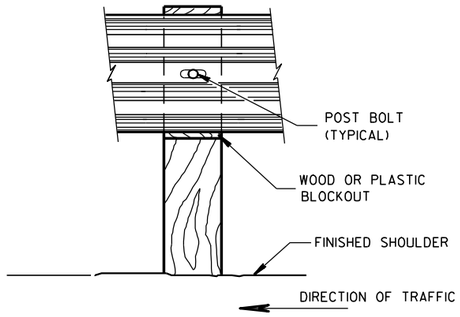
S.D.D. 14 B 42-2a



FRONT VIEW

POST SPACING STANDARD INSTALLATION



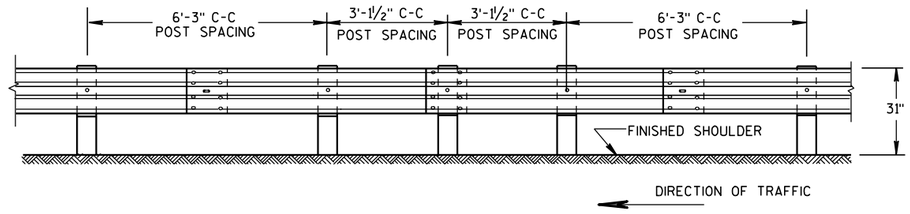
FRONT VIEW AT WOOD POST

GENERAL NOTES

1. PROVIDE TYPE "H" SILVER REFLECTIVE SHEETING ON ALL REFLECTORS EXCEPT THOSE LOCATED ALONG THE LEFT EDGE OF ONE-WAY ROADWAYS, WHICH SHALL BE PROVIDED WITH TYPE "H" YELLOW REFLECTIVE SHEETING.
2. 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.
3. REVERSE EVERY OTHER REFLECTOR FOR 2-WAY VISIBILITY. THE CONTRACTOR MAY FURNISH TWO-SIDED REFLECTORS IN LIEU OF ONE-SIDED REFLECTORS.
4. PROVIDE AN ANGLE OF BEND OF 90° ± 1° FOR TWO-SIDED REFLECTORS.
5. 25 FEET OF HALF POST SPACING IS REQUIRED ON APPROACH AND DEPARTURE ENDS OF QUARTER POST SPACING.

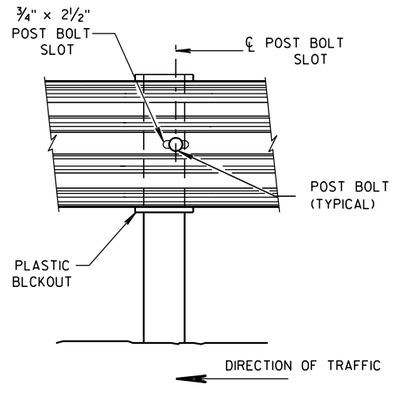
POST BOLTS ARE A 5/8" DIAMETER ASTM A307 GUARDRAIL BOLT. A POST BOLT REQUIRES 5/8" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT AND 5/8" DIAMETER F844 FLAT WASHER. POST BOLTS MAY BE LONGER IF MULTIPLE BLOCKOUTS ARE BEING USED.

GUARD RAIL SPLICE BOLTS ARE A 5/8" DIAMETER ASTM A307 GUARDRAIL HEAD BOLT. A GUARDRAIL SPLICE BOLT REQUIRES 5/8" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT.

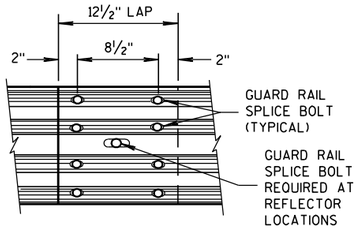


FRONT VIEW

HALF POST SPACING (HS) AND HALF POST SPACING WITH LONGER POSTS (K)

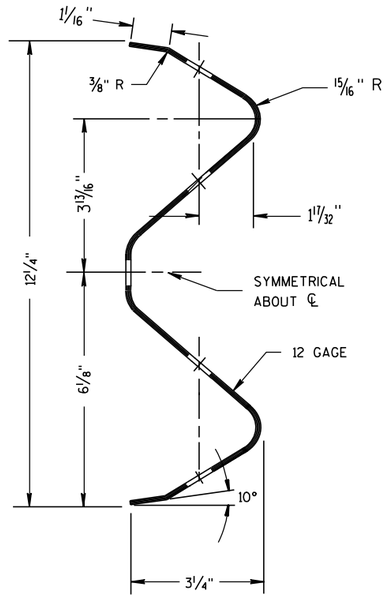


FRONT VIEW AT STEEL POST

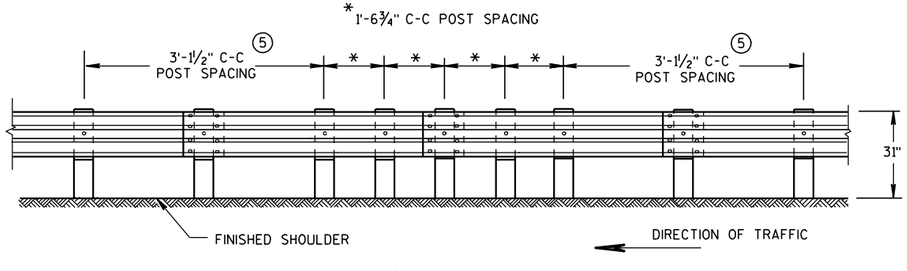


FRONT VIEW

MID-SPAN BEAM SPLICE

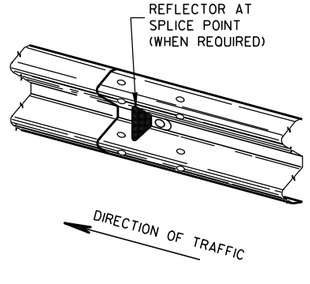


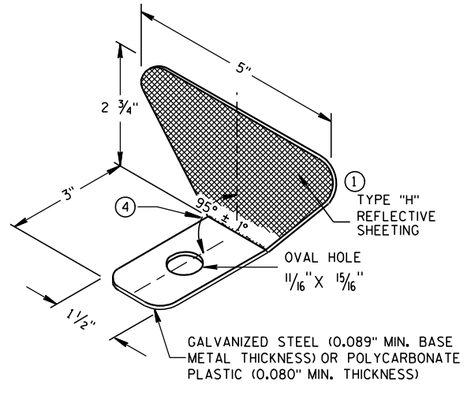
SECTION THRU W-BEAM RAIL



FRONT VIEW

QUARTER POST SPACING (QS)





ONE SIDED REFLECTOR DETAIL AND TYPICAL INSTALLATION ①

REFLECTOR SPACING ②

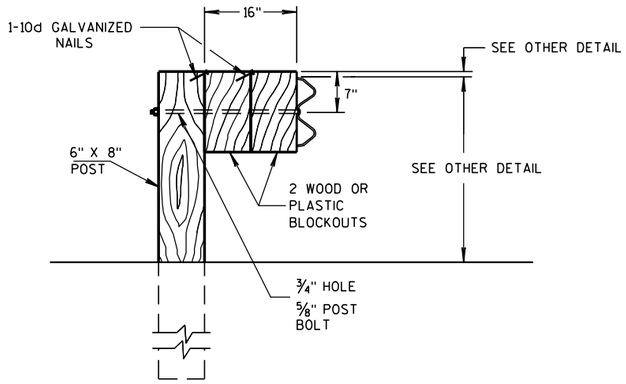
	BEAM GUARD LENGTH	REFLECTOR SPACING	NO. SURFACES REFLECTORIZED	MIN. NO. REFLECTORS
ONE WAY TRAFFIC	< 200'	50' C-C	1	3
	> 200'	100' C-C	1	
TWO WAY TRAFFIC	< 200'	25' C-C	1 ③	6
	> 200'	50' C-C	1	
TWO WAY TRAFFIC	< 200'	50' C-C	2 ④	3
	> 200'	100' C-C	2	

MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

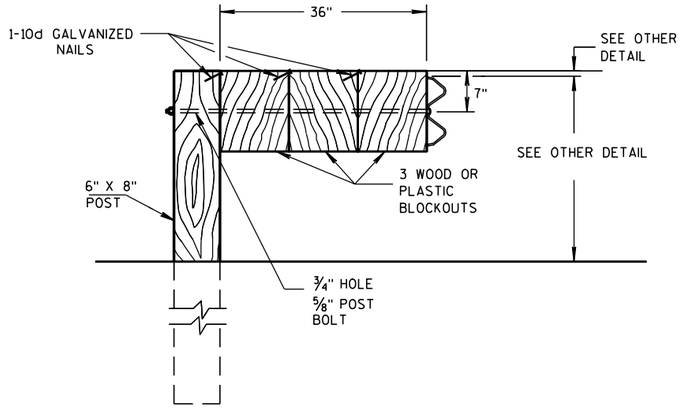
S.D.D. 14 B 42-2b

S.D.D. 14 B 42-2b



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.

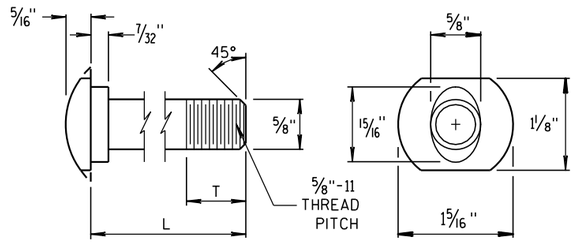


DETAIL FOR 36" BLOCKOUT DEPTH

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.

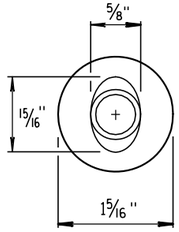
DO NOT USE 16" OR 36" BLOCKOUTS IF IT CAUSES THE POST TO BE DRIVEN BEYOND SHOULDER HINGE POINT OR CAUSES A FIXED OBJECT TO BE WITHIN THE DEFLECTION DISTANCE OF THE BARRIER.

NOTE: 1. ALL FILLETS SHALL HAVE A MINIMUM RADIUS OF 1/16".
2. IF THE BOLT EXTENDS MORE THAN 1/4" FROM THE NUT THE BOLT SHOULD BE TRIMMED BACK.

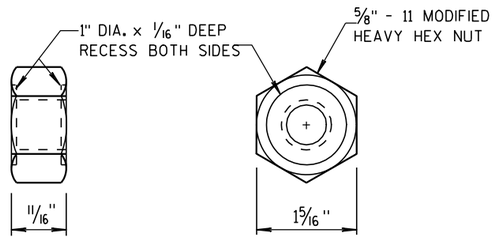


POST BOLT TABLE

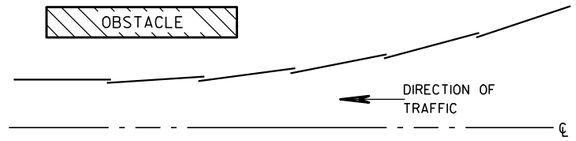
L	T (MIN.)
1 1/4"	1 1/8"
2"	1 3/4"
10"	4"
14"	4 1/16"
18"	4"
21"	4 1/16"
25"	4"



ALTERNATE BOLT HEAD

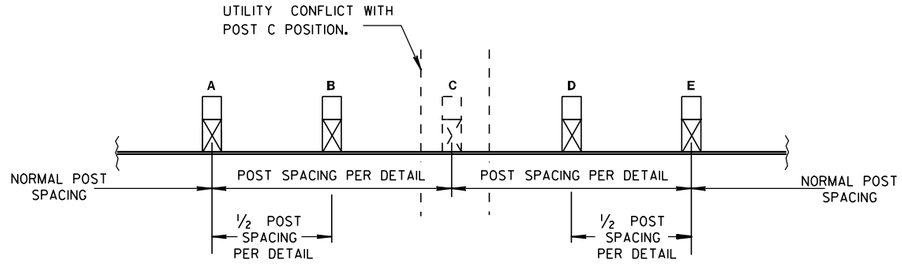


POST BOLT AND RECESS NUT

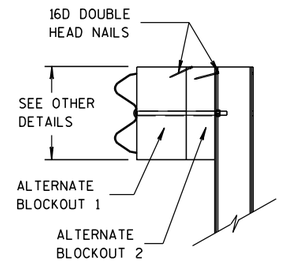


PLAN VIEW

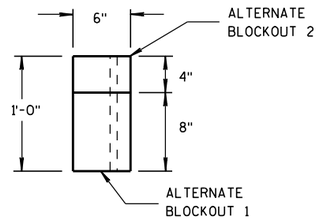
BEAM LAPPING DETAIL



POST DRIVING FOR CONTINUOUS UNDERGROUND OBSTRUCTION



SIDE VIEW



TOP VIEW

ALTERNATE WOOD BLOCKOUT DETAIL

MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

11/15/2011 — DATE

/S/ Jerry H. [illegible] — ROADWAY STANDARDS ENGINEER

FHWA

ENT

GENERAL NOTES

(A) THE SLOPE IN THE AREA BOUNDED BY THE EXTENDED VEHICLE RUNOUT PATH (EVRP), 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 MANUFACTURES REQUIRE DIFFERENT PERFORATED W-BEAM RAIL END PANELS. SEE MANUFACTURES INFORMATION.

(D) THE TOP OF THE STEEL TUBE ON POST 1 AND POST 2 SHALL NOT BE MORE THAN 3" ABOVE THE FINISH GROUND ELEVATION.

(F) SHEETING IS ATTACHED TO 0.040 ALUMINUM SHEET AND ATTACHED TO E.A.T. HEAD USING 4 STAINLESS STEEL SELF-TAPPING SCREWS. ONE SCREW PER CORNER OF E.A.T.

(G) ½" DIAMETER X 3" LONG LAG BOLT AND WASHER.

(H) HARDWARE VARIES BETWEEN DIFFERENT MANUFACTURES. SEE MANUFACTURE'S DRAWING FOR INFORMATION.

(I) DIMENSIONS MAY VARY. SEE MANUFACTURE'S INFORMATION.

SEE SDD 14B42 FOR MORE INFORMATION.

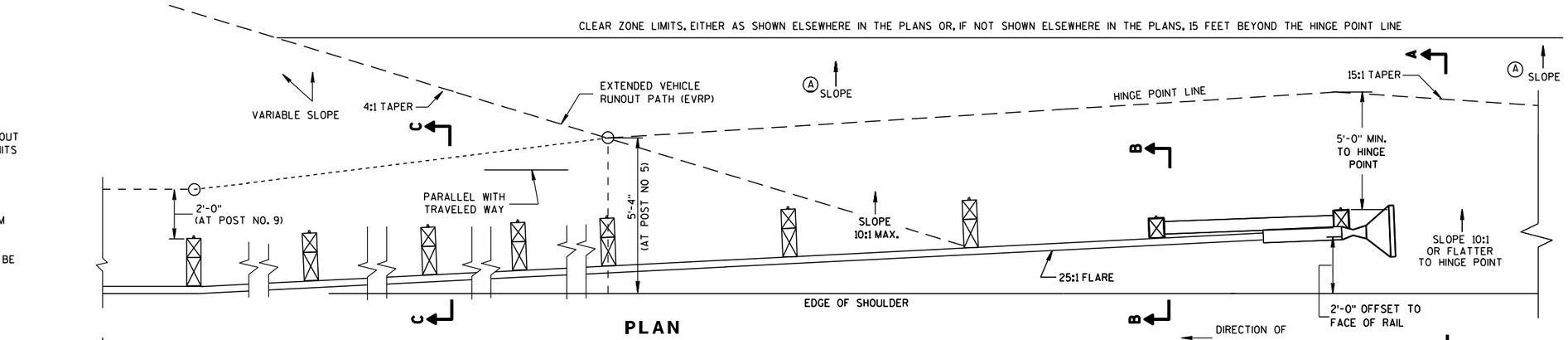
* DO NOT ATTACH BLOCKOUTS TO POSTS 1 AND 2.

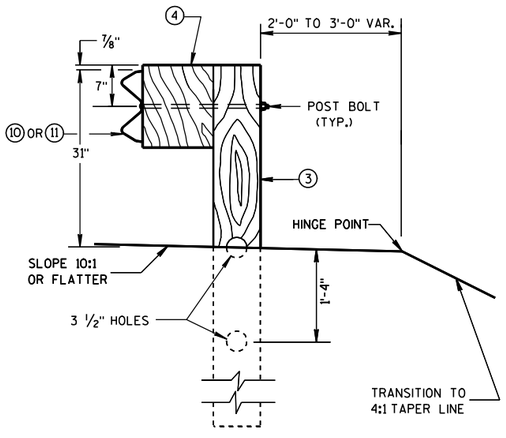
DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL.

W-BEAM RAIL SPLICES ARE LOCATED AT POST NUMBER 3, AND BETWEEN POST 5 AND 6, BETWEEN POSTS 7 AND 8, AND MIDDLE OF THE SPAN AFTER POST 9.

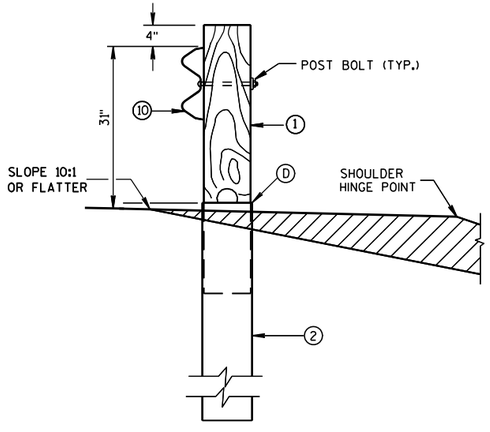
PATTERN AND COLORS ON REFLECTIVE SHEETING TYPE H ARE TO CONFORM TO OM3-L OR OM3-R OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

THE CENTER OF THE UPPER 3½" DIAMETER HOLE ON POST NUMBER 3 THROUGH POST 9 IS TO BE FLUSH WITH THE GROUND LINE (± ¾")

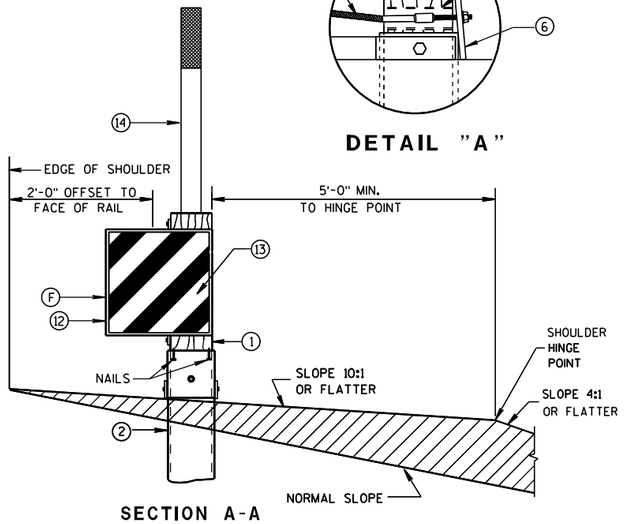




SECTION C-C
TYPICAL AT POST NOS. 3-9

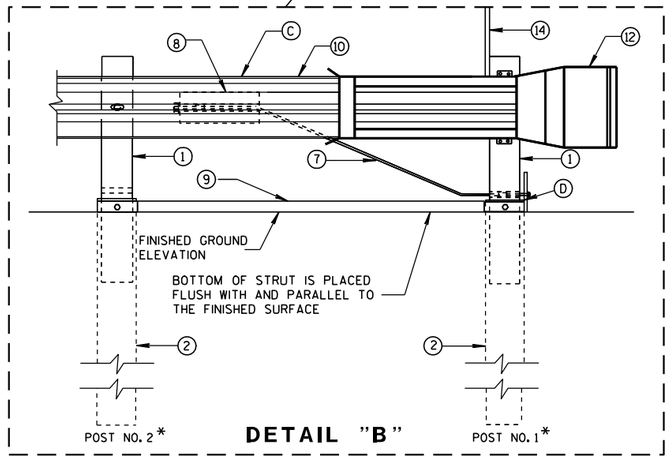


SECTION B-B
TYPICAL AT POST NO. 2*



SECTION A-A
TYPICAL AT POST NO. 1*

DETAIL "A"

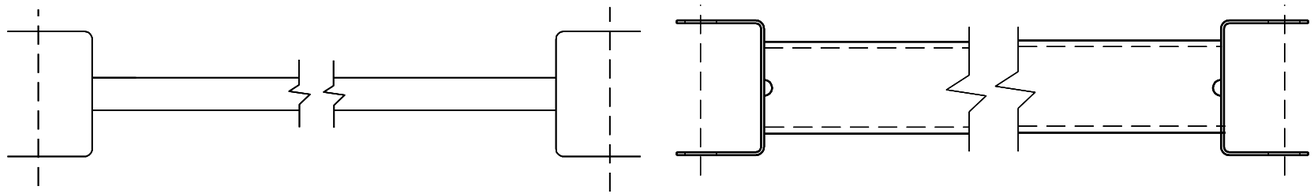


DETAIL "B"

MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

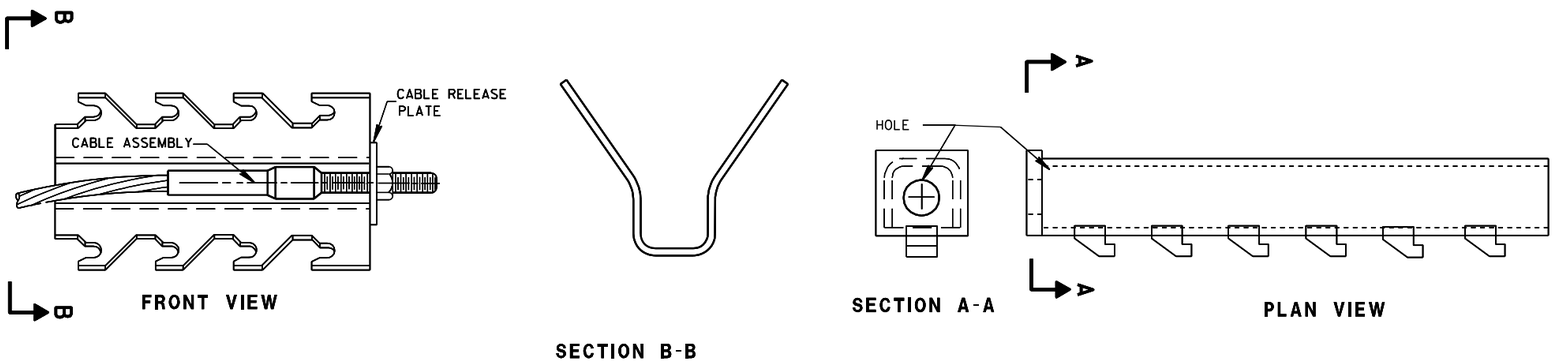
6
S.D.D. 14 B 44-1a



GENERIC GROUND STRUT (9) (H)

BILL OF MATERIALS

PART NO.	DESCRIPTION MATERIALS PROVIDED BY MGS EAT MANUFACTURER. SEE MANUFACTURER'S DETAILS FOR MORE INFORMATION.
(1)	WOOD BREAKAWAY POST
(2)	6" X 8" X 0.188", 6'-0" LONG FOUNDATION TUBE AT POSTS 1 AND 2
(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)	END SECTION EAT
(13)	0.040" ALUMINUM SHEET WITH REFLECTIVE SHEETING TYPE H (ONLY THE SHEETING IS SUPPLIED BY THE MANUFACTURER)
(14)	EAT MARKER POST - YELLOW (SEE APPROVED PRODUCTS LIST)



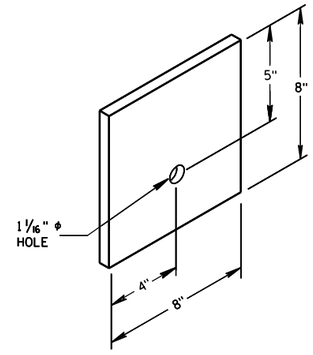
FRONT VIEW

SECTION B-B

SECTION A-A

PLAN VIEW

GENERIC ANCHOR CABLE BOX (8) (H)



BEARING PLATE (6)

MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL
(MGS)

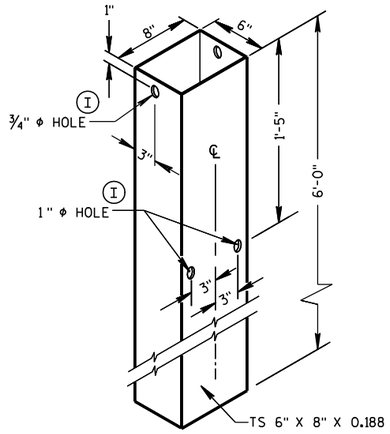
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

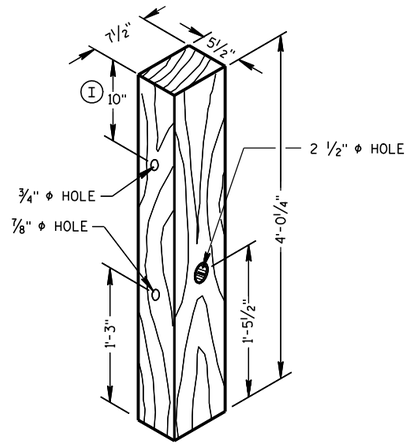
S.D.D. 14 B 44-1b

6

S.D.D. 14 B 44-1b

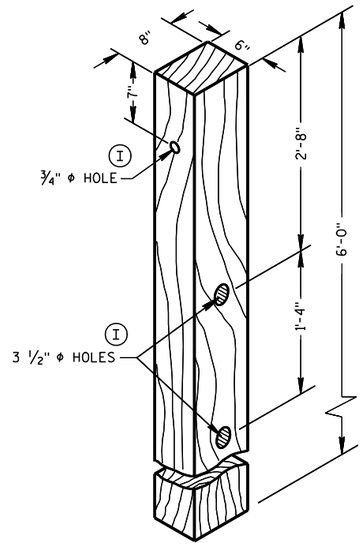


FOUNDATION TUBE (2)



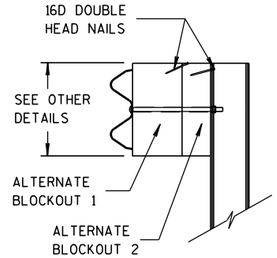
POSTS NUMBER 1 AND 2

WOOD BREAKAWAY POST (1)

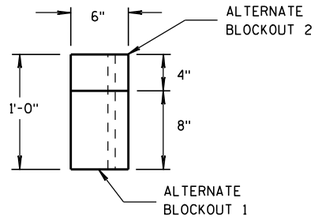


POSTS NUMBER 3-9

WOOD CRT POST (3)

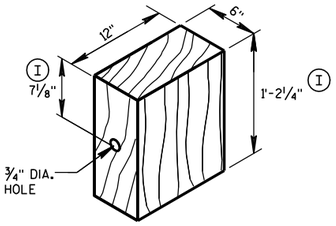


SIDE VIEW



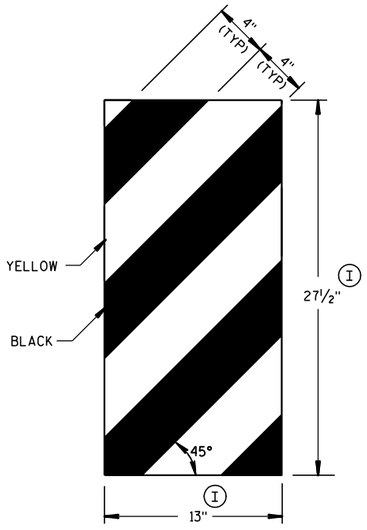
TOP VIEW

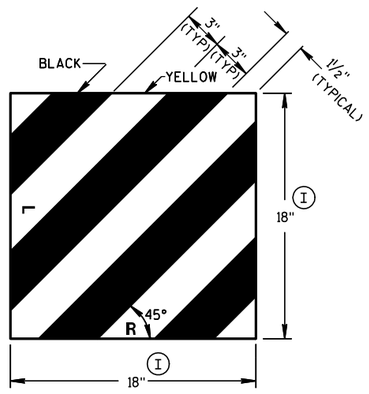
ALTERNATE WOOD BLOCKOUT DETAIL



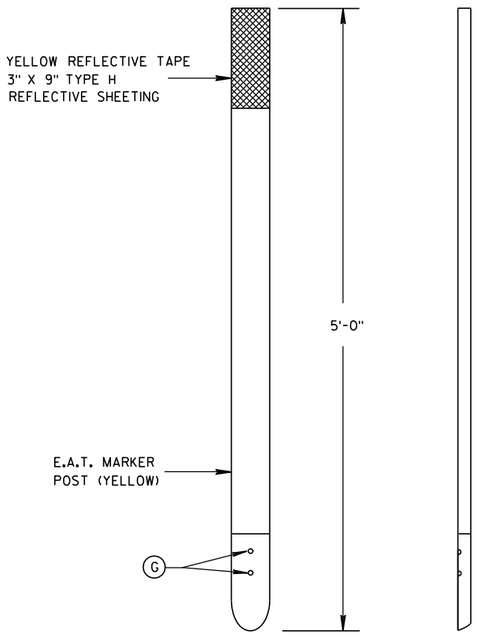
WOOD BLOCKOUT (4)

REQ'D. AT ALL POSTS EXCEPT POST NO'S 1 & 2





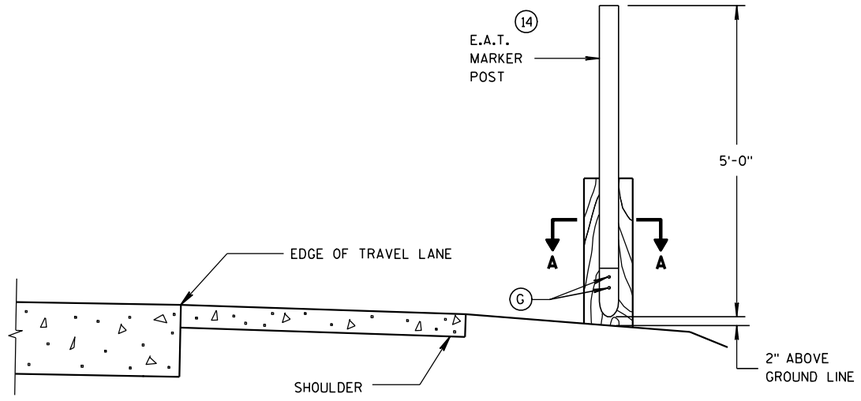
GENERIC REFLECTIVE SHEETING (13) H



FRONT VIEW

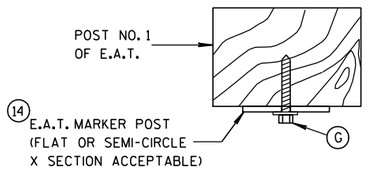
SIDE VIEW

E.A.T. MARKER POST (14)



TYPICAL INSTALLATION OF E.A.T. MARKER POST BACKSIDE OF POST NO. 1

(E.A.T. AND RAIL REMOVED FOR CLARITY)



SECTION A-A

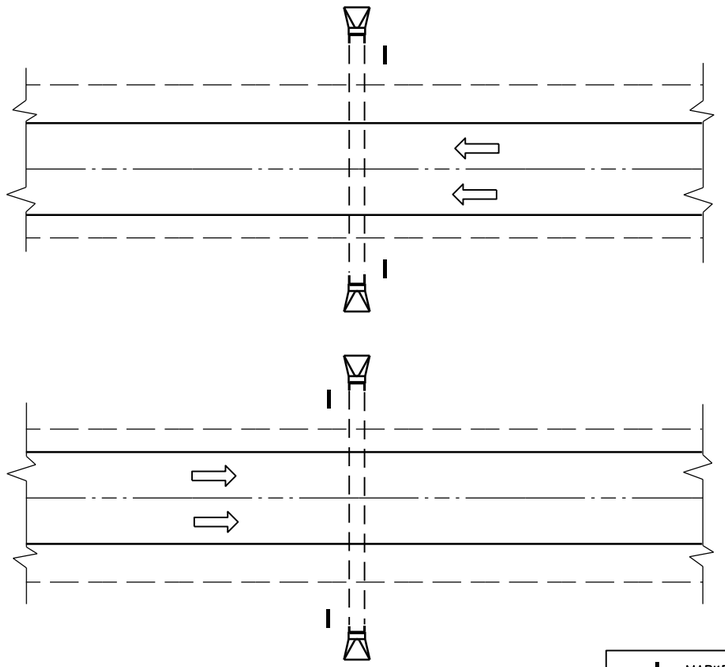
MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
5/23/2011
DATE
/S/ Jerry H. [illegible]
ROADWAY STANDARDS ENGINEER
FHWA

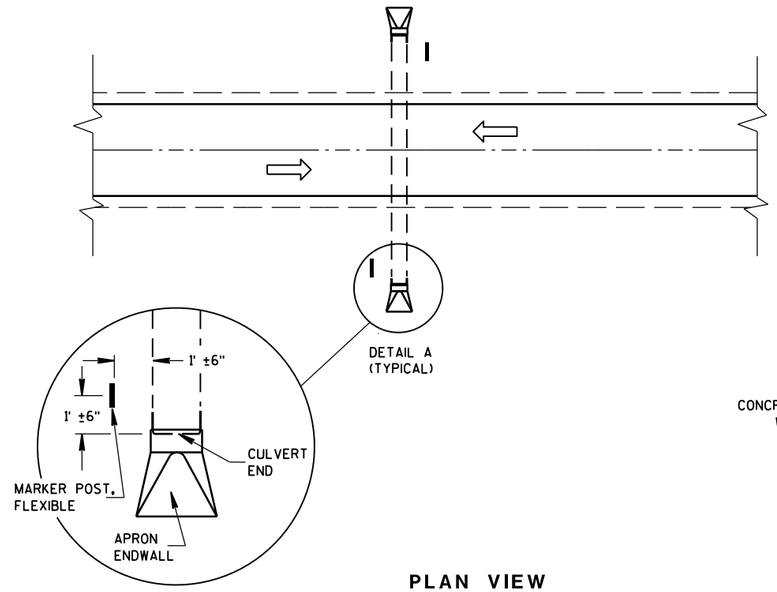
6

S.D.D. 14 B 44-1c



PLAN VIEW

DIVIDED HIGHWAY



DETAIL A
(TYPICAL)

PLAN VIEW

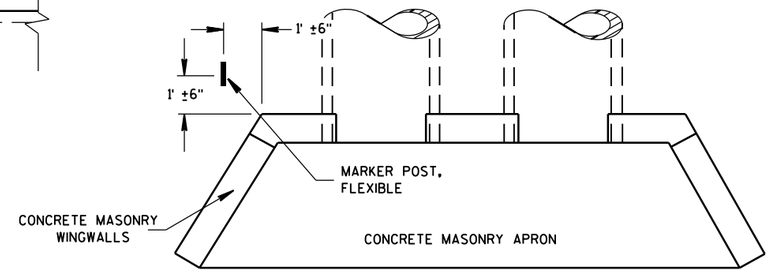
UNDIVIDED HIGHWAY

MARKER POST, FLEXIBLE

DIRECTION OF TRAFFIC FLOW

GENERAL NOTES

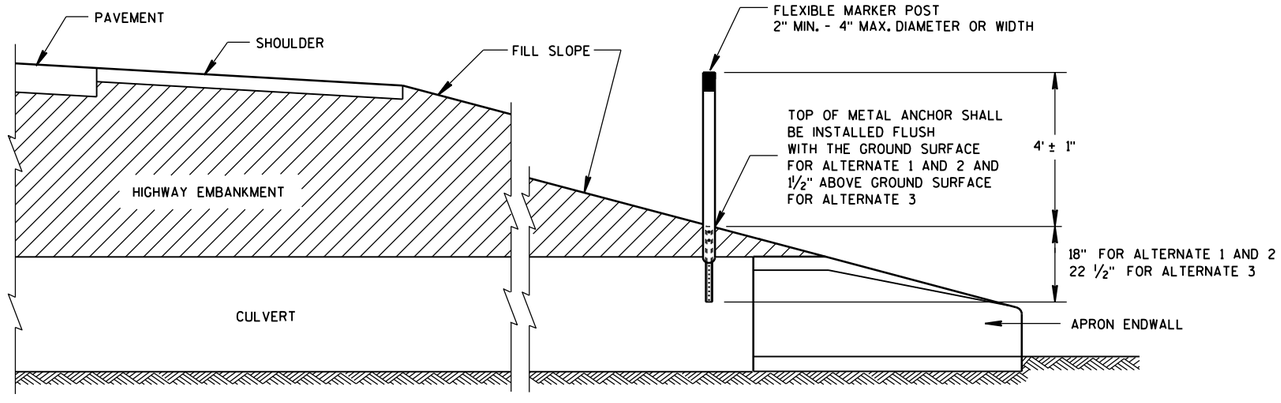
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.



PLAN VIEW

CONCRETE MASONRY ENDWALLS FOR CULVERT PIPE AND PIPE ARCH

FLEXIBLE MARKER POST LOCATION



CROSS SECTION

FLEXIBLE MARKER POST

FLEXIBLE MARKER POST FOR CULVERT END

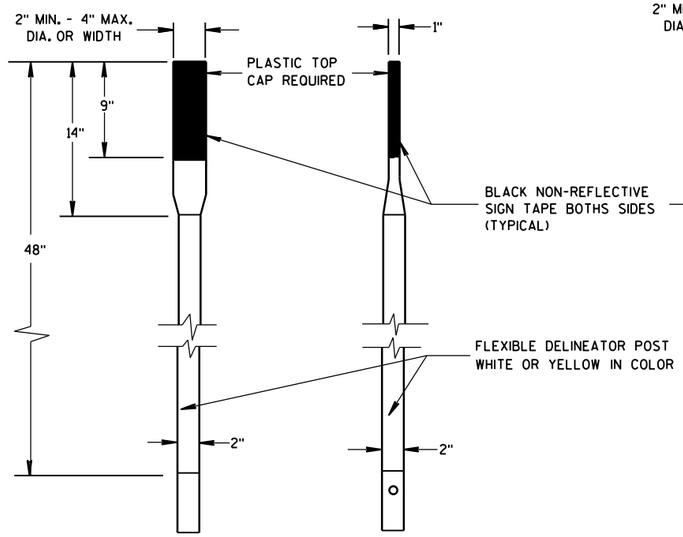
STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

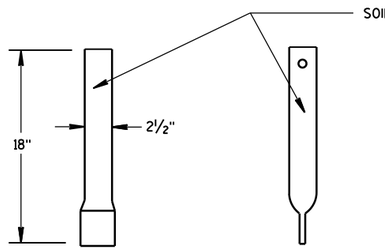
6

S.D.D. 15 A 3-2a

6

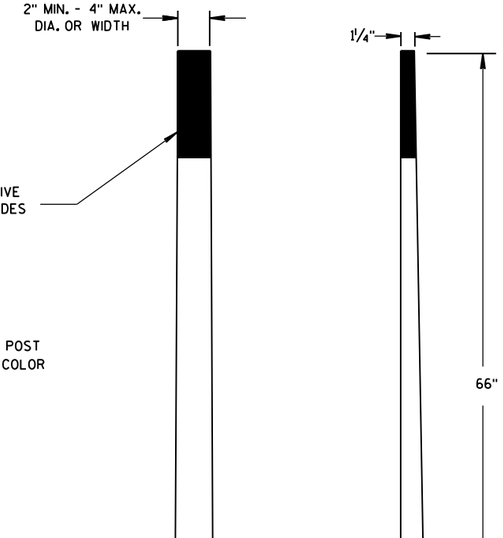
S.D.D. 15 A 3-2a





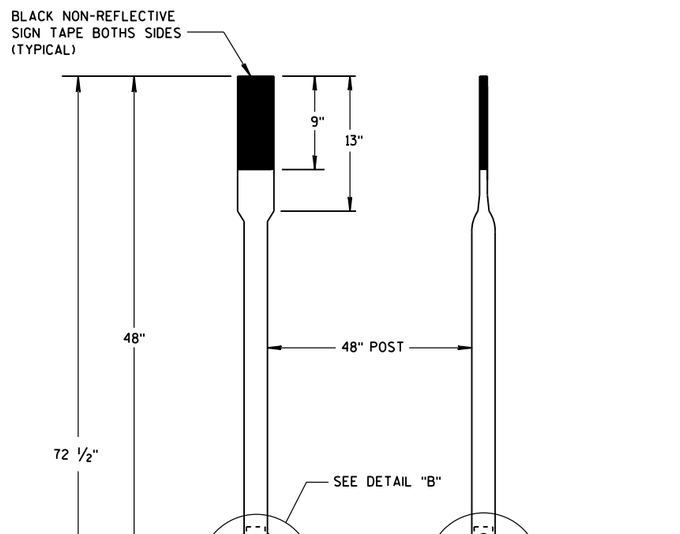
FRONT VIEW SIDE VIEW

ALTERNATE 1



FRONT VIEW SIDE VIEW

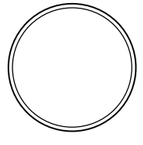
ALTERNATE 2



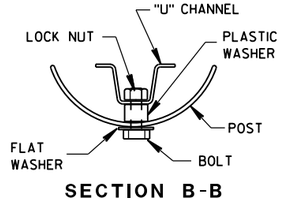
FRONT VIEW SIDE VIEW

ALTERNATE 3

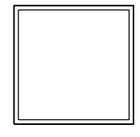
FLEXIBLE MARKER POSTS



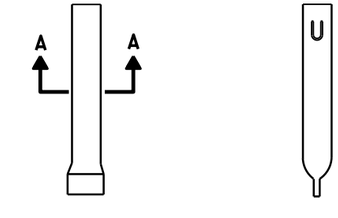
SECTION A-A



SECTION B-B

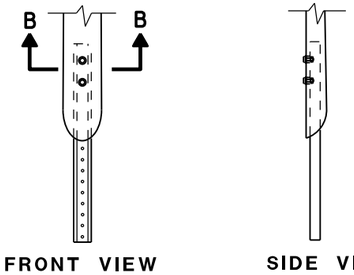


SECTION C-C



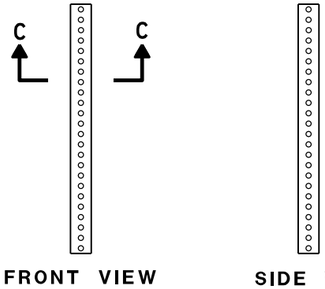
FRONT VIEW SIDE VIEW

ALTERNATE 1



FRONT VIEW SIDE VIEW

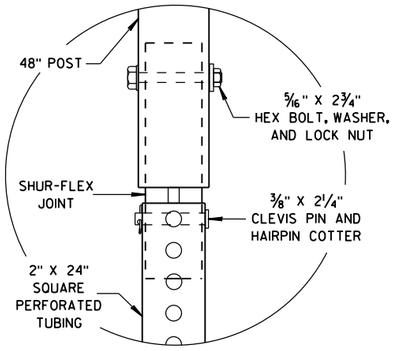
ALTERNATE 2



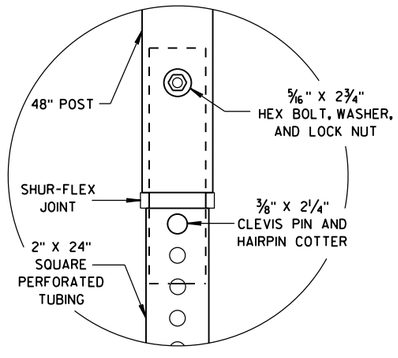
FRONT VIEW SIDE VIEW

ALTERNATE 3

FLEXIBLE MARKER POST ANCHORS



DETAIL B



DETAIL C

FLEXIBLE MARKER POST
FOR CULVERT END

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

6

S.D.D. 15 A 3-2b

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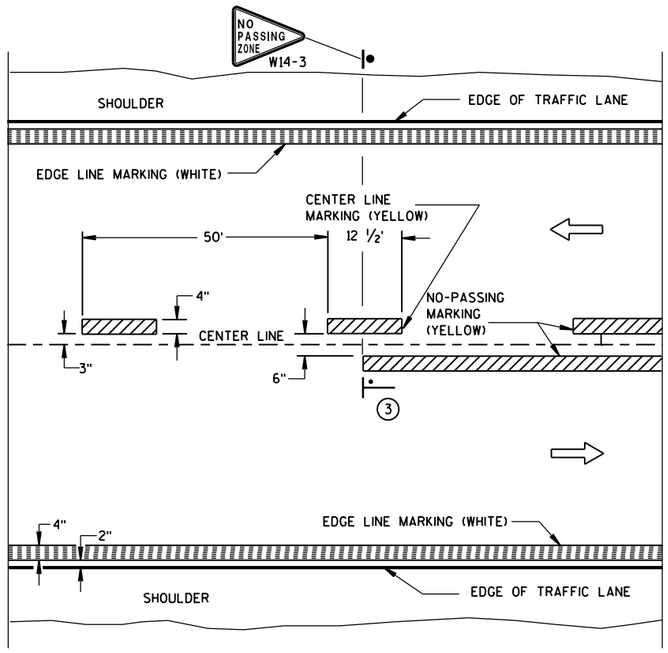
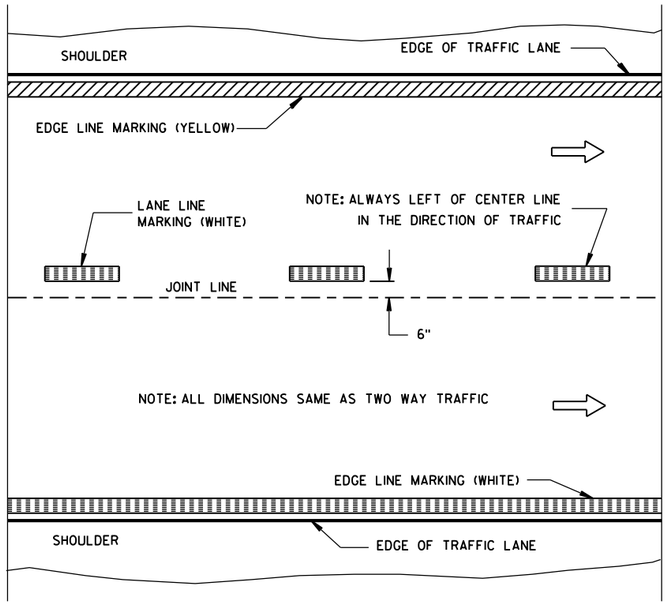
S.D.D. 15 A 3-2b

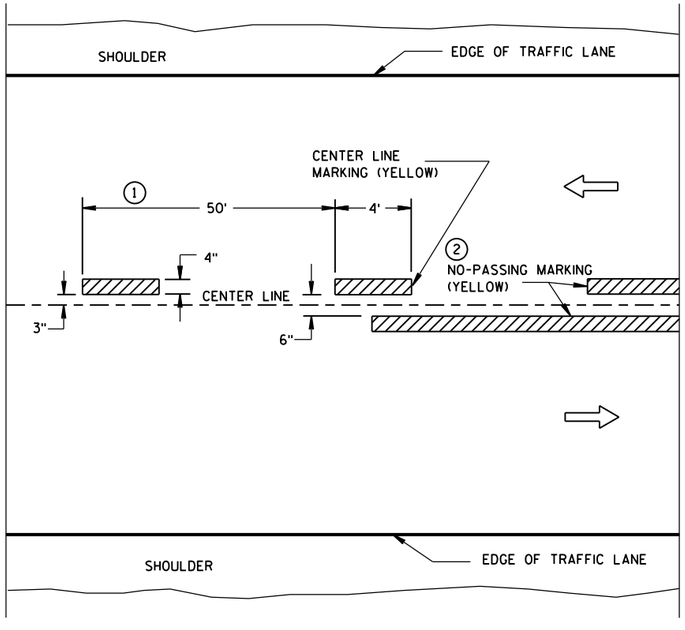


TWO WAY TRAFFIC

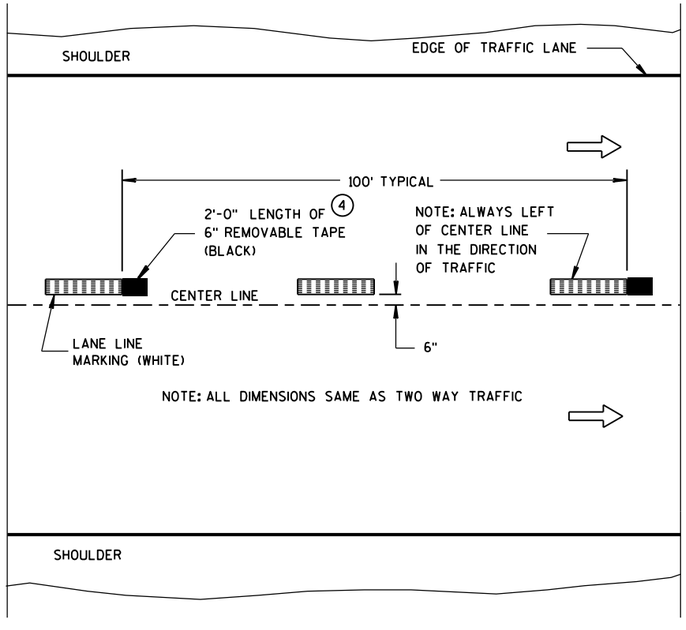


ONE WAY TRAFFIC

PERMANENT PAVEMENT MARKING



TWO WAY TRAFFIC



ONE WAY TRAFFIC

TEMPORARY (INTERMEDIATE) PAVEMENT MARKING

(SHOWS CYCLE FOR TEMPORARY CENTER LINE OR TEMPORARY LANE LINE MARKING)

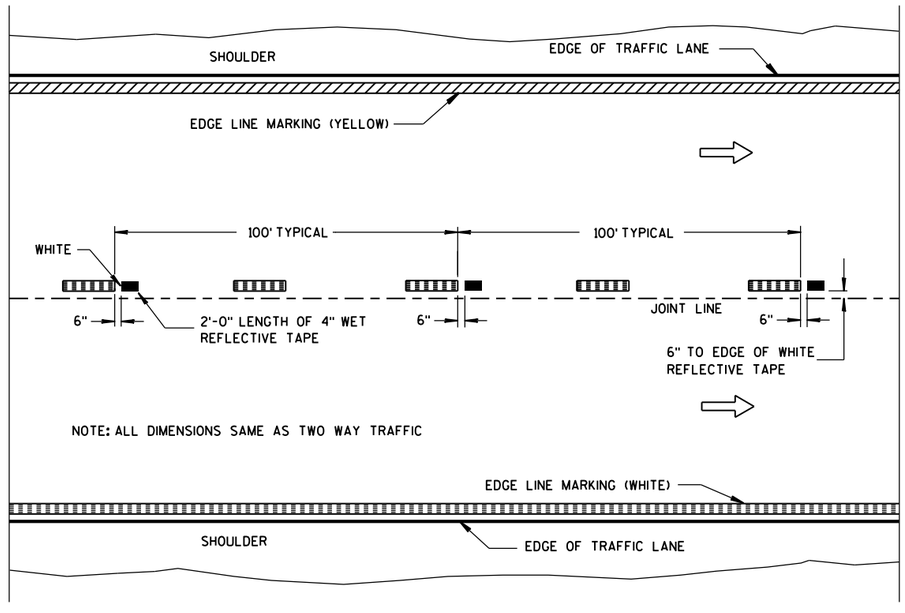
GENERAL NOTES

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

1. HALF CYCLE LENGTHS (25'±) WITH 2' MINIMUM STRIPE LENGTHS SHALL BE PROVIDED ON ROADWAYS (INCLUDING TEMPORARY TRAVELED WAYS) WITH REVERSE CURVATURE, CURVATURE OF OVER 5 DEGREES OR WHEN DIRECTED BY THE ENGINEER TO MARK UNUSUAL ALIGNMENT OF THE TRAVELED WAY.
2. NO PASSING ZONE TEMPORARY PAVEMENT MARKING IS REQUIRED TO BE PLACED, WHERE APPROPRIATE, ALONG WITH CENTERLINE TEMPORARY PAVEMENT MARKING WHEN A SAME DAY PERMANENT PAVEMENT MARKING ITEM IS INCLUDED IN THE CONTRACT.
3. NO PASSING ZONE MARKINGS ARE PLACED ACCORDING TO "T" MARKINGS. IF EXISTING NO PASSING ZONE W14-3 SIGNS ARE BEYOND 50 FEET IN EITHER DIRECTION, THE SIGNS SHALL BE MOVED TO THE "T" MARKINGS.
4. CONCRETE ONLY.

NOTE

ARROW SYMBOL (⇨) SHOWS DIRECTION OF TRAVEL



WET REFLECTIVE TAPE SUPPLEMENT TO
SPRAYED OR NON WET REFLECTIVE TAPE LANE LINE

LEGEND

"T" MARKING

POST MOUNTED SIGN

PAVEMENT MARKING (MAINLINE)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

5-13-2013
DATE

/S/ Travis Feltes
STATE TRAFFIC E

FHWA

6

S.D.D. 15 C 8-16a

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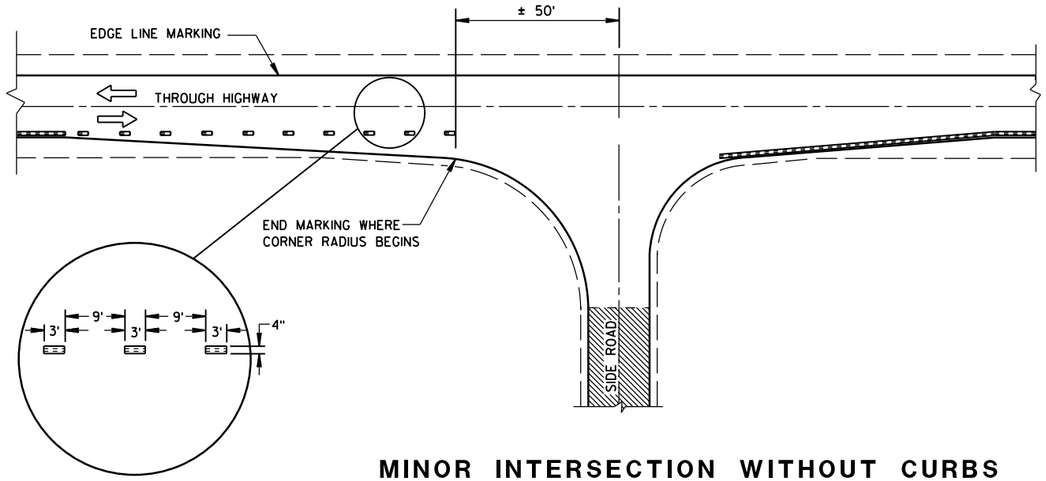
S.D.D. 15 C 8-16a



MINOR INTERSECTION WITHOUT CURBS

GENERAL NOTES

EDGE LINES SHALL BE OMITTED THROUGH INTERSECTIONS. EDGE LINES SHALL BE CONTINUED 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) ALTERNATIVE MARKING SHALL BE PROVIDED WHEN SPECIFIED IN THE CONTRACT. TYPICAL SITUATIONS WHERE THIS MARKING MAY BE REQUIRED ARE WHERE THE INTERSECTION IS ON A SHARP HORIZONTAL CURVE OR CREST VERTICAL CURVE IN AN UNLIGHTED AREA SUCH THAT THE EDGE LINE MAY BE MISLEADING TO THE MOTORIST OR DISAPPEAR FROM SIGHT.

(4) THE EDGE LINE IN THE TAPER AREAS OF THE BYPASS LANE AND THE BYPASS LANE SHALL BE LOCATED 1-FOOT FROM EDGE OF PAVEMENT TO THE OUTSIDE EDGE OF EDGE LINE.

(5) BARRIER LINE ENDS AT SIDE ROAD PAVEMENT/SURFACE EDGE EXTENSION.

(6) BARRIER LINE STARTS 500 FEET PRIOR TO THE BYPASS TAPER.

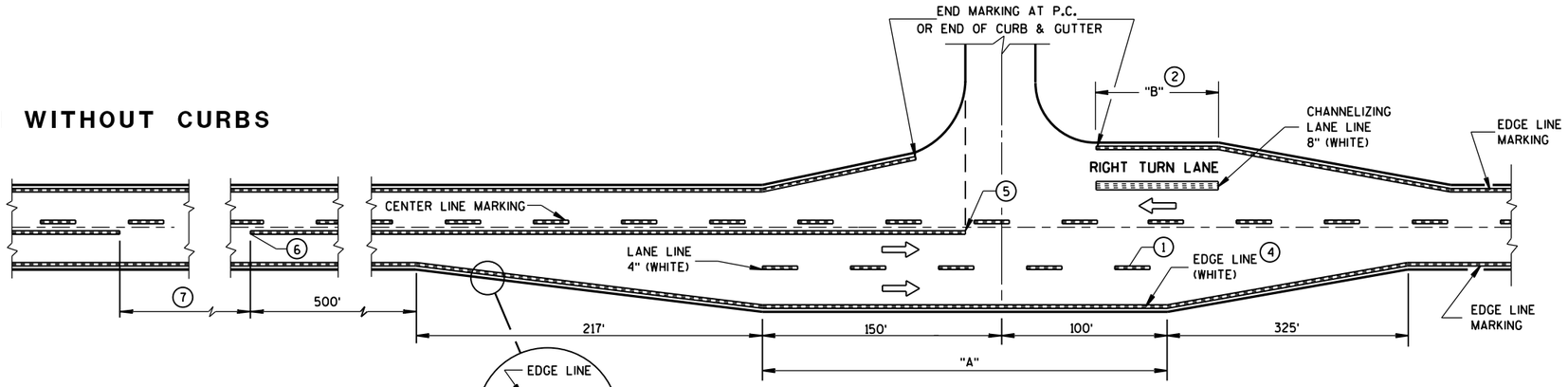
(7) IF THE DISTANCE BETWEEN 2 SUCCESSIVE NO-PASSING ZONES IS LESS THAN THE MINIMUM DISTANCE BETWEEN ZONES, CONNECT THE 2 ZONES.

(8) 3' LINE 9' GAP, EXCEPT RETRACE THE EXISTING LINE - GAP PATTERN WHERE EXISTING MARKINGS ARE IN PLACE.

ARROW SYMBOL (⇨) SHOWS DIRECTION OF TRAVEL

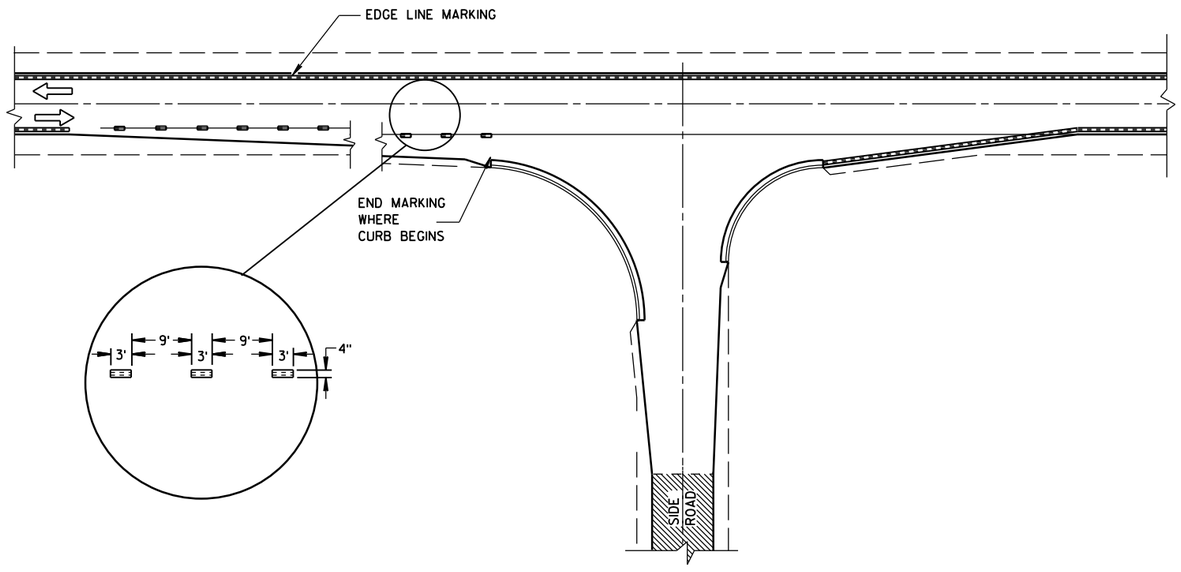
(7)

POSTED SPEED (MPH)	MINIMUM DISTANCE BETWEEN ZONES (FEET)
25 - 30	528
35 - 40	528
45 - 50	686
55	792



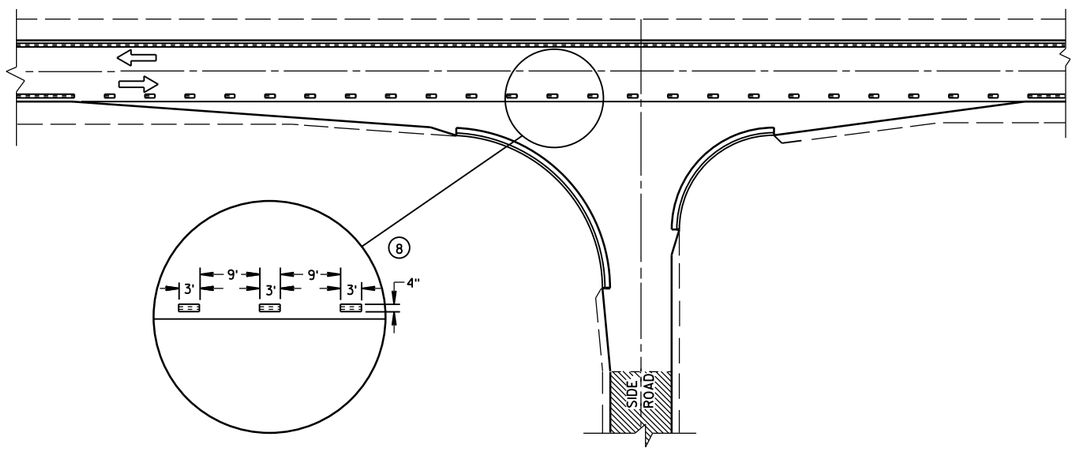
MAJOR INTERSECTIONS

(INTERSECTION WITH FULL RIGHT TURN LANE OR BYPASS LANES)



MINOR INTERSECTION WITH CURBS

(TYPICAL MARKING)



MINOR INTERSECTION WITH CURBS

(3) (FOR SPECIAL CONDITIONS AS SPECIFIED)

PAVEMENT MARKING
(INTERSECTIONS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

6

S.D.D. 15 C 8-16b

LEGEND

SIGN ON PORTABLE OR PERMANENT SUPPORT

DIRECTION OF TRAFFIC

WORK AREA

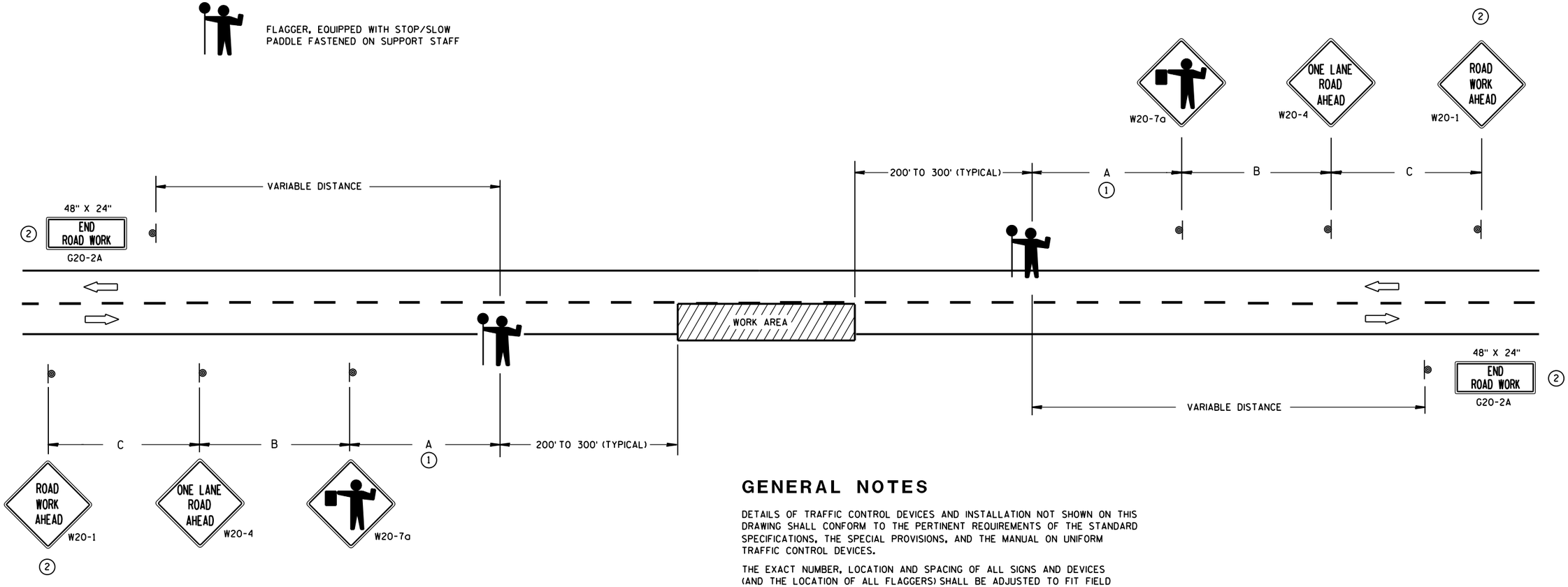
FLAGGER, EQUIPPED WITH STOP/SLOW PADDLE FASTENED ON SUPPORT STAFF

SIGN SPACING TABLE

SPEED LIMIT	SIGN SPACING A,B,C
25-35 MPH	200'
35-40 MPH	350'
45-55 MPH	500'

W3-4

USE OF THE "BE PREPARED TO STOP" SIGN IS OPTIONAL. WHEN USED, THIS SIGN SHALL BE LOCATED BETWEEN THE W20-7a AND W20-4 SIGNS. A 500' TYPICAL SPACING SHALL BE PROVIDED BETWEEN THE SIGNS.



(1) FOR A MOVING WORK OPERATION,
SIGNING FOR BOTH DIRECTIONS SHALL BE REESTABLISHED (AS SIMULTANEOUSLY AS PRACTICAL) AT APPROXIMATELY 3500 FOOT 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.

GENERAL NOTES

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

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

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

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

FLAGGERS SHALL BE IN SIGHT OF EACH OTHER OR IN DIRECT COMMUNICATION AT ALL TIMES. THEY SHALL BE EQUIPPED WITH STOP/SLOW PADDLES FASTENED ON SUPPORT STAFFS. WHEN THE FLAGGING OPERATION IS NOT IN EFFECT, COVER OR REMOVE ALL TEMPORARY TRAFFIC CONTROL SIGNS.

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

TRAFFIC CONTROL FOR LANE CLOSURE (SUITABLE FOR MOVING OPERATIONS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
8/2013 — DATE
/S/ Travis Feltes — STATE TRAFFIC ENGINEER
FHWA

6

S.D.D. 15 C 12-4

6

S.D.D. 15 C 12-4

GENERAL NOTES

ORIENT ANCHOR BOLTS IN FOOTING AND PROVIDE ANCHOR BOLT STICK OUT ABOVE TOP OF CONCRETE FOOTING BASE PER FABRICATION DRAWING.

BENDING DIMENSIONS FOR REINFORCING BARS ARE OUT TO OUT.

USE 3" CLEAR FOR ALL REINFORCEMENT UNLESS NOTED OTHERWISE.

SIGN SUPPORTS SHALL BE LOCATED NORMAL TO ROADWAY.

THE CONTRACTOR IS RESPONSIBLE FOR MAKING HIS OWN DETERMINATION AS TO THE TYPE AND LOCATION OF UNDERGROUND UTILITIES AS MAY BE NECESSARY TO AVOID DAMAGE THERETO.

WELDING OF ANCHOR BOLTS TO THE CAGE IS UNACCEPTABLE. TEMPLATES SHALL BE USED.

BAR CAGE TO BE ASSEMBLED USING TIE WIRES ONLY, NO WELDING.

BASES (SHAFT) SHALL BE EXCAVATED BY THE USE OF A CIRCULAR AUGER. IF A BASE REQUIRES A DEEP FORM BECAUSE OF LOOSE SOIL, THE FORM SHALL BE REMOVED BEFORE BACK FILLING AROUND THE BASE. ANY REQUIRED BACKFILL SHALL BE WELL COMPACTED IN LAYERS OF 1 FOOT OR LESS. COMPACTION SHALL BE BY MECHANICAL MEANS. CARE SHALL BE TAKEN SO NO DAMAGE OCCURS TO THE CONCRETE BASE DURING COMPACTION.

EXCAVATION OF MATERIALS NOT OCCUPIED BY CONCRETE SHALL BE MINIMIZED TO REDUCE DISTURBANCE OF THE SURROUNDING SOILS.

THE BOTTOM OF THE DRILLED HOLE SHALL BE FIRM AND THOROUGHLY CLEANED SO NO LOOSE OR COMPRESSIBLE MATERIALS ARE PRESENT AT THE TIME OF THE CONCRETE PLACEMENT.

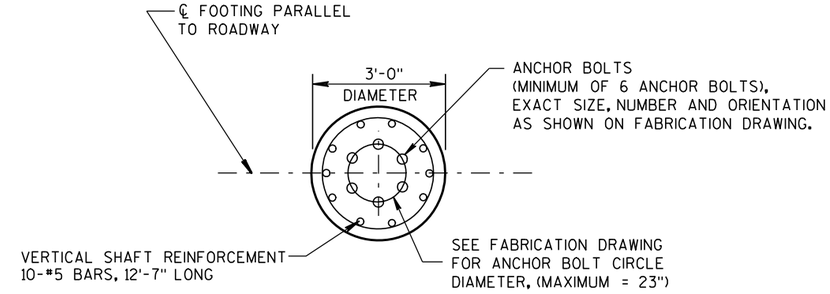
IF THE DRILLED HOLE CONTAINS STANDING WATER, THE CONCRETE SHALL BE PLACED USING A TREMIE TO DISPLACE THE WATER.

THE REINFORCEMENT AND ANCHOR BOLTS SHALL BE ADEQUATELY SUPPORTED IN THE PROPER POSITIONS SO NO MOVEMENT OCCURS DURING CONCRETE PLACEMENT.

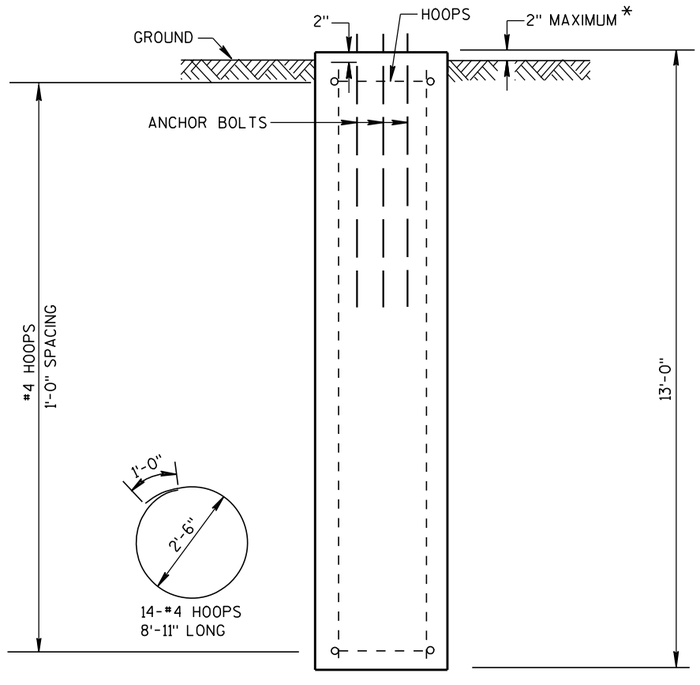
ANY DAMAGE TO THE CONCRETE BASE DURING CONSTRUCTION OPERATIONS SHALL BE REPAIRED AT THE ENGINEER'S DIRECTION, AT THE EXPENSE OF THE CONTRACTOR.

CONCRETE MASONRY	fc=3,500 p.s.i.
HIGH STRENGTH BAR STEEL REINFORCEMENT, GRADE 60	fy=60,000 p.s.i.
ANCHOR BOLTS	AASHTO M314 GRADE 55

THIS FOOTING HAS BEEN DESIGNED FOR SITES WHERE SOILS EXHIBIT A PHI-ANGLE GREATER THAN OR EQUAL TO 20 DEGREES (GRANULAR SOILS), OR A COHESION VALUE GREATER THAN OR EQUAL TO 350 PSF (COHESIVE SOILS).



PLAN VIEW



ELEVATION VIEW

* FOR OVERHEAD SIGN SUPPORTS THAT ARE INSTALLED ADJACENT TO SIDEWALKS, THE TOP OF THE BASE SHALL BE POURED FLUSH WITH THE GROUND.

CONCRETE - 3.4 C.Y. PER FOOTING
H.S. REINFORCEMENT - 215 LBS. PER FOOTING

36" DIAMETER FULL SPAN OVERHEAD SIGN SUPPORT BASE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

4/17/09 — DATE

/S/ Thomas N. Nothdurft — STATE TRAFFIC ENGINEER

FHWA

S.D.D. 15 C 15-3

S.D.D. 15 C 15-3

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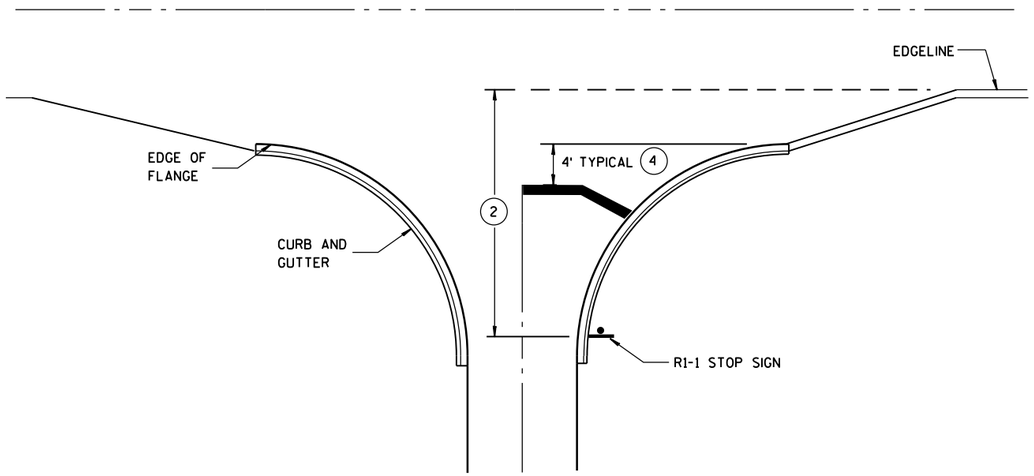
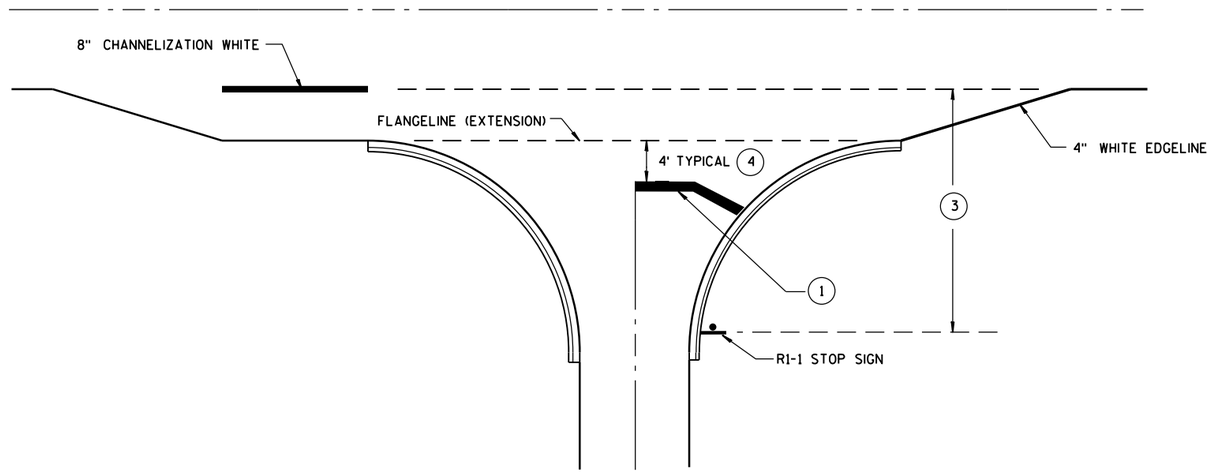
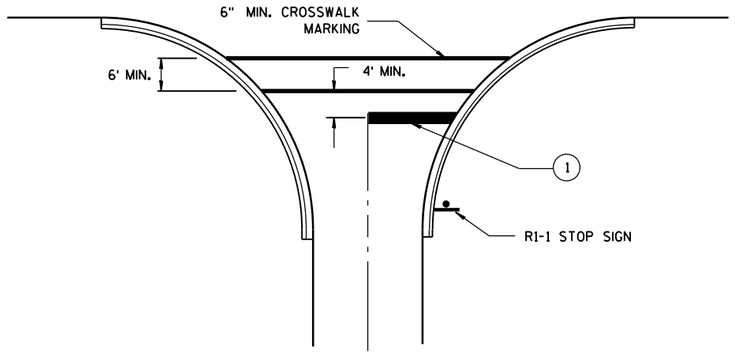


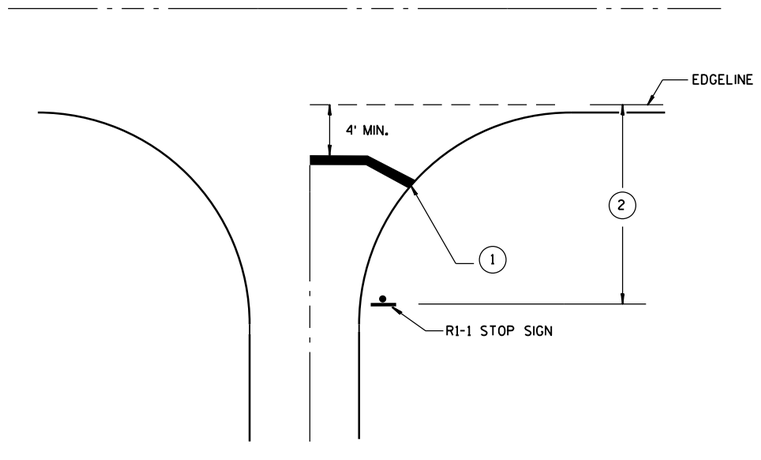
TYPICAL STOP LINE PAVEMENT MARKING WITH CURB AND GUTTER



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

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 EDGELINE 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.

STOP LINE AND CROSSWALK PAVEMENT MARKING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

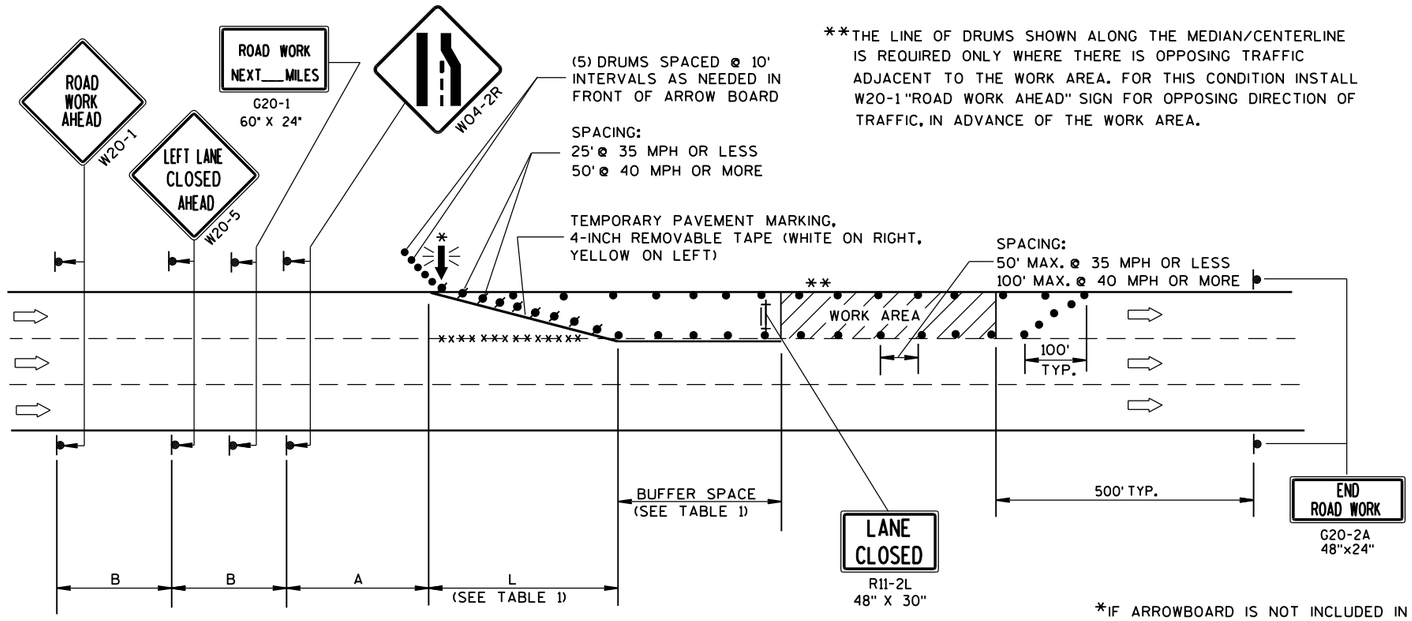
4/30/2013
DATE

/S/ Travis Feltes
STATE TRAFFIC E

FHWA

6

S.D.D. 15 C 33-1



**THE LINE OF DRUMS SHOWN ALONG THE MEDIAN/CENTERLINE IS REQUIRED ONLY WHERE THERE IS OPPOSING TRAFFIC ADJACENT TO THE WORK AREA. FOR THIS CONDITION INSTALL W20-1 "ROAD WORK AHEAD" SIGN FOR OPPOSING DIRECTION OF TRAFFIC, IN ADVANCE OF THE WORK AREA.

B=400' AT 25-30 MPH
700' AT 35-40 MPH
1000' AT 45-55 MPH

A=200' AT 25-30 MPH
350' AT 35-40 MPH
500' AT 45-55 MPH

(PLACE BARRICADE AND SIGN APPROX. EVERY 1000' ACROSS THE CLOSED LANE)

*IF ARROWBOARD IS NOT INCLUDED IN MISCELLANEOUS QUANTITIES, SUBSTITUTE A TYPE III BARRICADE WITH W01-6 SIGN IN THE LANE CLOSURE TAPER.

W01-6
48"x24"

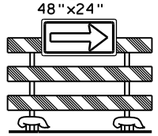


TABLE 1
TAPER AND BUFFER SPACE FOR 12' LANE WIDTH

S	L	BUFFER SPACE
25	125'	55'
30	180'	85'
35	245'	120'
40	320'	170'
45	540'	220'
50	600'	280'
55	660'	335'

FOR LANE WIDTH OTHER THAN 12':

L = WS AT 45 MPH OR GREATER

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

L = TAPER LENGTH IN FEET

S = NON-CONSTRUCTION SPEED LIMIT (MPH)

W = WIDTH OF LANE CLOSURE

LEGEND

- TYPE III BARRICADE WITH ATTACHED SIGN
- SIGN ON PERMANENT SUPPORT
- TRAFFIC CONTROL DRUM WITH TYPE "C" STEADY BURN LIGHT
- TRAFFIC CONTROL DRUM
- FLASHING ARROW BOARD
- DIRECTION OF TRAFFIC
- REMOVING PAVEMENT MARKING (SEE GENERAL NOTES)
- WORK AREA

GENERAL NOTES

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

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

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

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

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

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

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

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

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

ON UNDIVIDED ROADWAYS, OMIT THE SIGNS SHOWN ON LEFT SIDE OF ROAD.

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

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

CONSIDER GEOMETRICS WHEN LOCATING SIGNS AND ARROWBOARDS SO THE APPROACHING DRIVER HAS A CLEAR VIEW OF THE ARROWBOARDS AND LANE CLOSURE DRUMS.

PLACE THE ARROWBOARD AS CLOSE AS POSSIBLE TO THE BEGINNING OF THE LANE CLOSURE TAPER, PREFERABLY ON THE SHOULDER OR TERRACE.

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

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

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

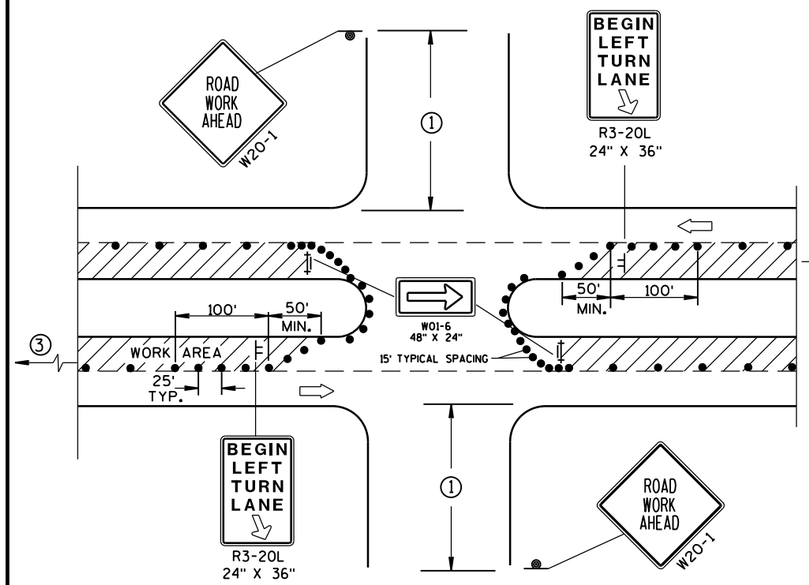
TRAFFIC CONTROL, SINGLE LANE CLOSURE, NON-FREEWAY/EXPRESSWAY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
8/2013 — DATE
/S/ Travis Feltes — STATE TRAFFIC ENGINEER
FHWA

6

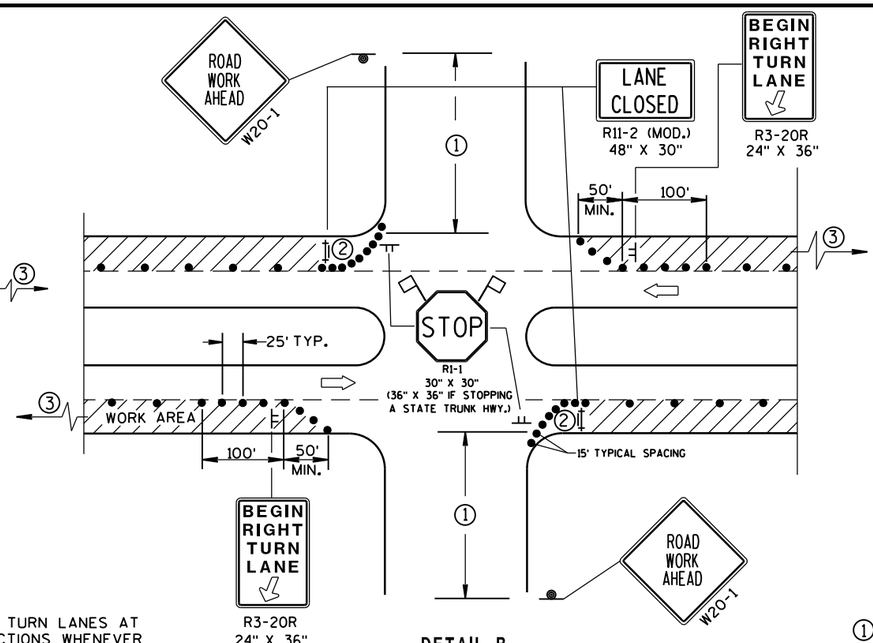
S.D.D. 15 D 20-2



DETAIL A

FOR LEFT LANE CLOSURE AT INTERSECTION OR MEDIAN OPENING

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



DETAIL B

FOR RIGHT LANE CLOSURE AT INTERSECTION

GENERAL NOTES

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

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

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

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

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

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

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

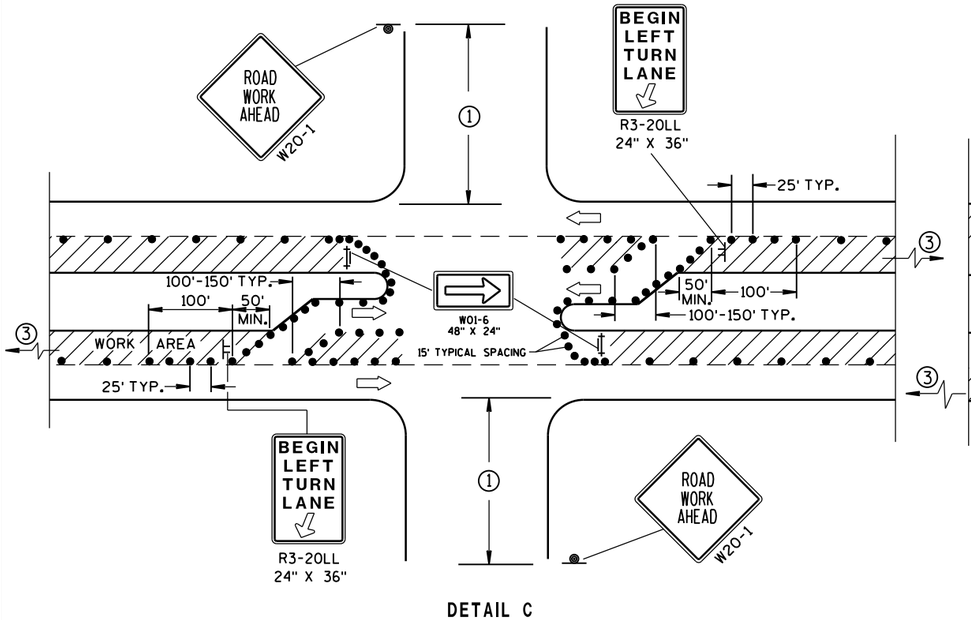
CHANNELIZING DEVICES PLACED ADJACENT TO WORK AREA SHALL BE PULLED BACK FROM THE TRAVEL LANE WHEN WORK IS NOT IN PROGRESS.

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

① 500' TYPICAL OR AT LAST INTERSECTION, WHICHEVER IS CLOSER.
350' IF 35-40 MPH.
200' IF 25-30 MPH.

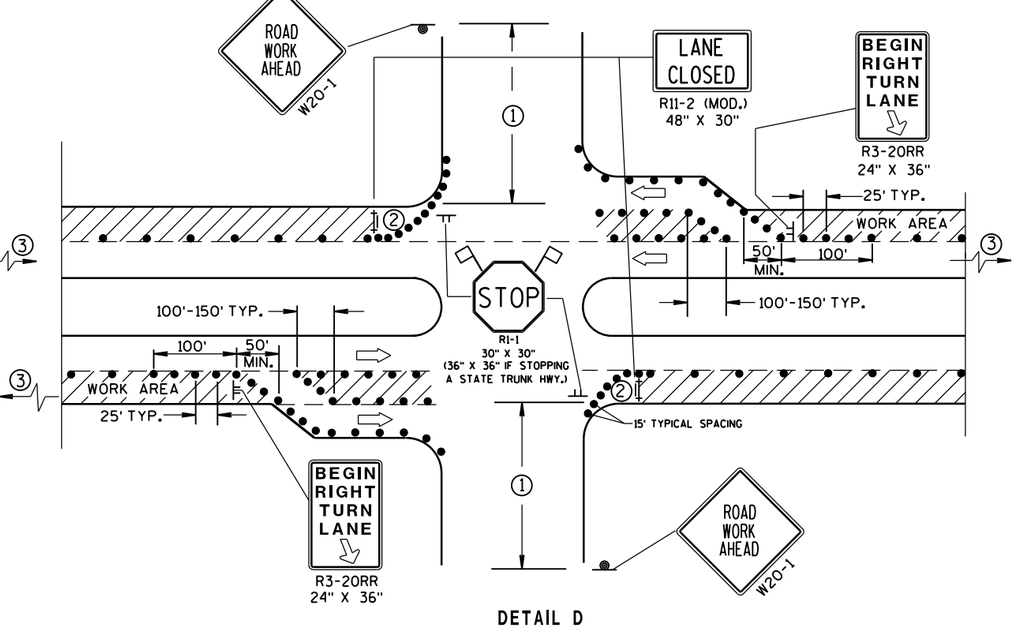
② ALSO USE BARRICADE AND 15-FOOT TYPICAL DRUM SPACING AT COMMERCIAL DRIVEWAYS.

③ SEE SEPARATE LANE CLOSURE DETAIL FOR ADDITIONAL TRAFFIC CONTROL.



DETAIL C

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



DETAIL D

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

LEGEND

- TRAFFIC CONTROL DRUM
- SIGN ON PERMANENT SUPPORT
- SIGN ON TEMPORARY SUPPORT (5' MIN. MOUNTING HEIGHT)
- TYPE III BARRICADE WITH ATTACHED SIGN AND TYPE "A" WARNING LIGHT (FLASHING)
- DIRECTION OF TRAFFIC
- FLAGS, 16" X 16" MIN., (ORANGE)
- WORK AREA

TRAFFIC CONTROL, INTERSECTION WITHIN SINGLE LANE CLOSURE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

8/2013	/S/ Travis Feltes
DATE	STATE TRAFFIC ENGINEER

FHWA

GENERAL NOTES

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

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

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

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

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

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

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

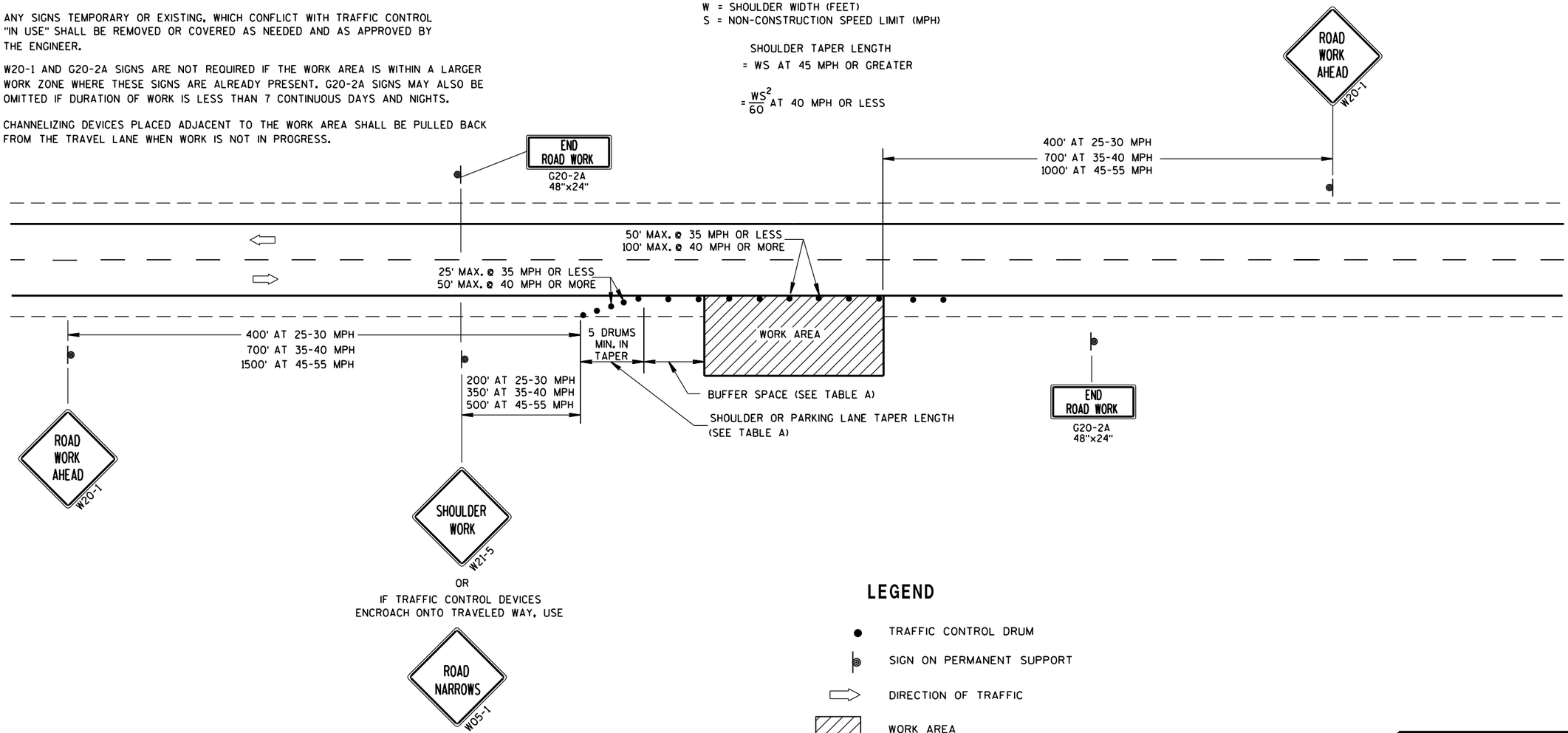
TABLE A

S \ W	SHOULDER TAPER LENGTH (FEET) 4	6	8	10	BUFFER SPACE (FEET)
30	20	30	40	50	85
35	30	45	55	70	120
40	40	55	75	90	170
45	60	90	120	150	220
50	70	100	135	170	280
55	75	110	150	185	335

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

SHOULDER TAPER LENGTH
= WS AT 45 MPH OR GREATER

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



LEGEND

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

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

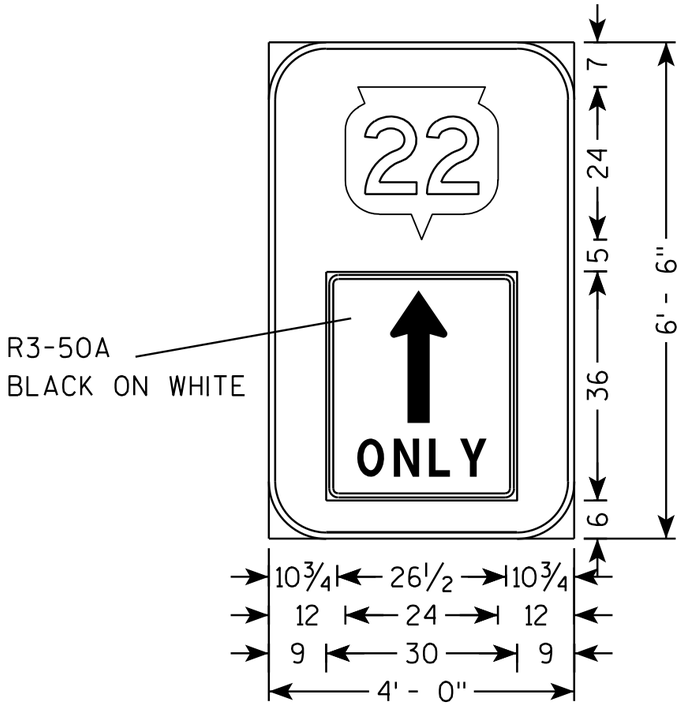
8/2013 DATE

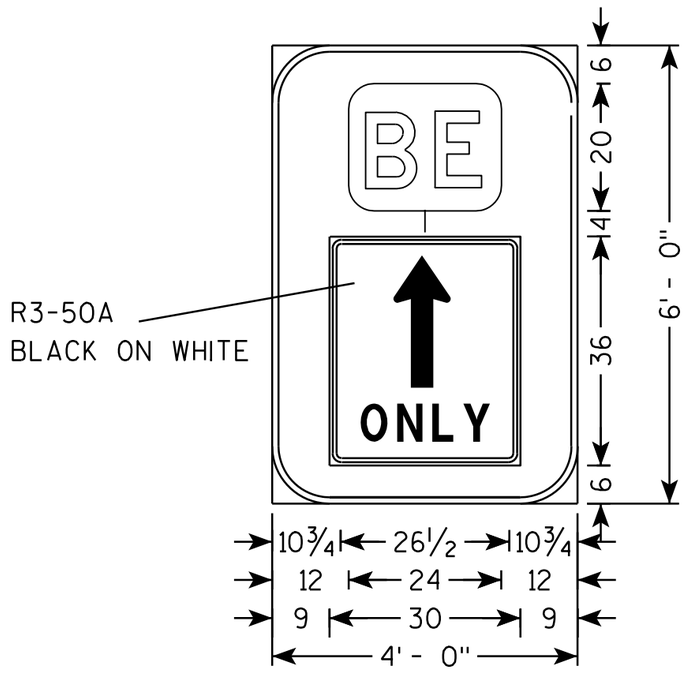
/S/ Travis Feltes
STATE TRAFFIC ENGINEER

FHWA

6

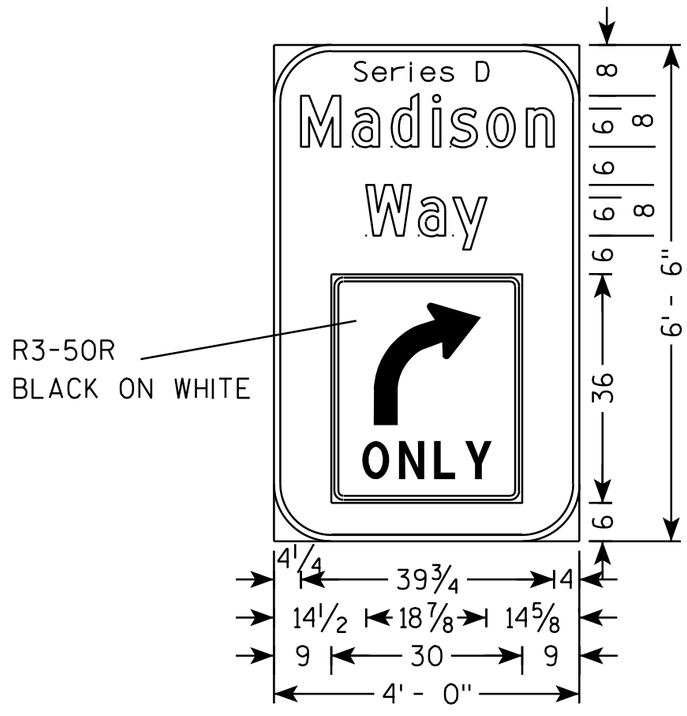
S.D.D. 15 D 28-2





NOTES

1. All Signs are Type I - Type SH Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - Green
   Message - White
3. Message Series - D



7

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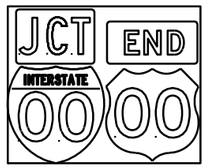
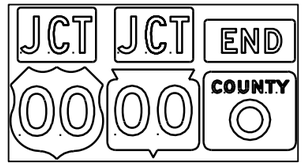
PROJECT NO: 9180-17-70	HWY: STH 22	COUNTY: SHAWANO	PERMANENT SIGNING	SHEET NO: 53	E

TYPICAL ASSEMBLIES

J1-1

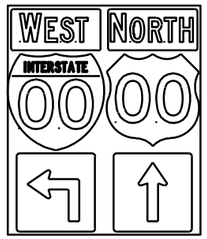


J1-2

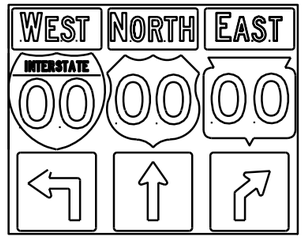


J1-3

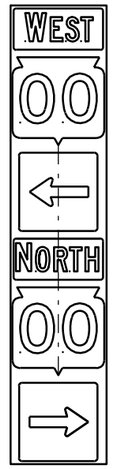
J2-1



J2-2

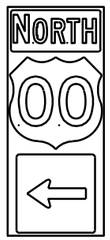


J2-3

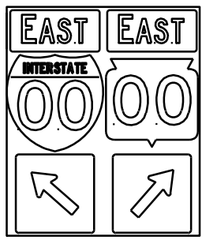


JV

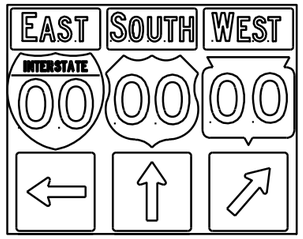
(Typical Vertical J-Assembly
See Note 10 and 11)



J3-1

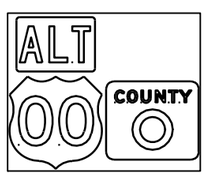


J3-2

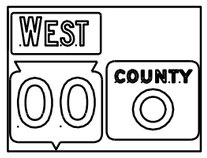


J3-3

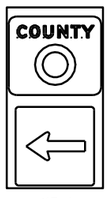
J4-1



J4-2



J4-2



J13-1

J12-1

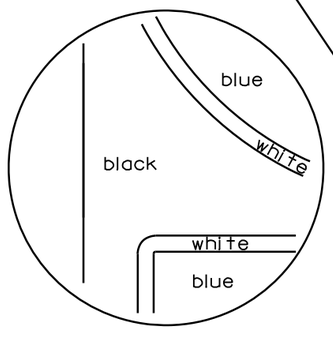
J32-1

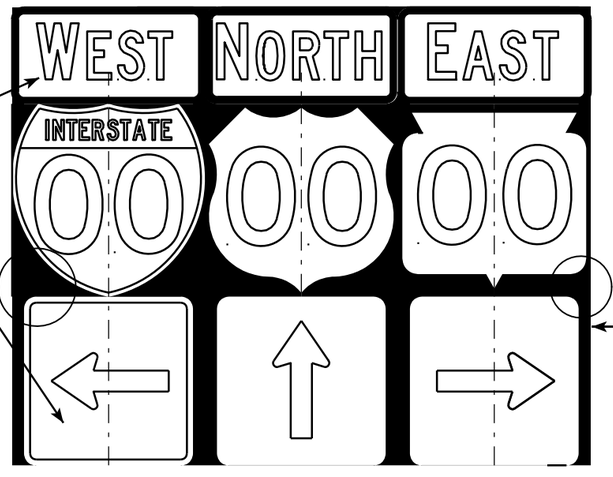
J33-1

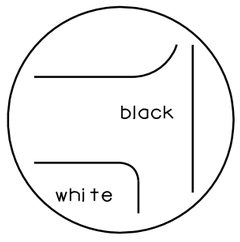
J23-1

J22-1

blue background
with interstate







black background

NOTES

1. Signs are Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - Black Non-reflective
   Message - see Note 5
3. Message Series - See Note 5
4. Corners shall be square or rounded if base material is plywood. If base material is metal the corners shall be rounded.
5. The colors and message spacing on each marker shall be according to the applicable route marker panel specifications.
6. Certain marker heads require the component pieces to be the same color. As an example, all the components used with an M1-1 interstate marker shall be blue.
7. Single panel j-assemblies shall only be used with route marker shields that are same size. If the route marker shields are different size use multiple piece component.
8. Route assemblies that have 24 inch route shields and have dimensions greater than 48 inches (both vertical and horizontal) shall have one horizontal splice between the arrows and route shields. Vertical splices shall not be used on route assemblies with a horizontal dimension of 144 inches or less. The contractor shall not use more than one vertical joint per sign and the joint shall be between route shields.
9. Route assemblies that have 36 inch shields and have dimensions greater than 48 inchs (both vertical and horizontal) shall have two horizontal splices. One horizontal splice shall be between the cardinal direction and route shields and the other horizontal splice shall be between the arrows and route shields. Vertical splices shall not be used on route assemblies with a horizontal dimension of 144 or less. The contractor shall not use more than one vertical joint per sign and the joint shall be between route shields.
10. All Vertical J Assemblies are given a Sign Code of JV
11. For JV Assemblies that have a mixture of interstate and non interstate shields, arrows and cardinals shall be white on blue.

ROUTE MARKERS & COMPONENTS
IN TYPICAL ASSEMBLIES

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 3/25/13 PLATE NO. A2-1S.7

7

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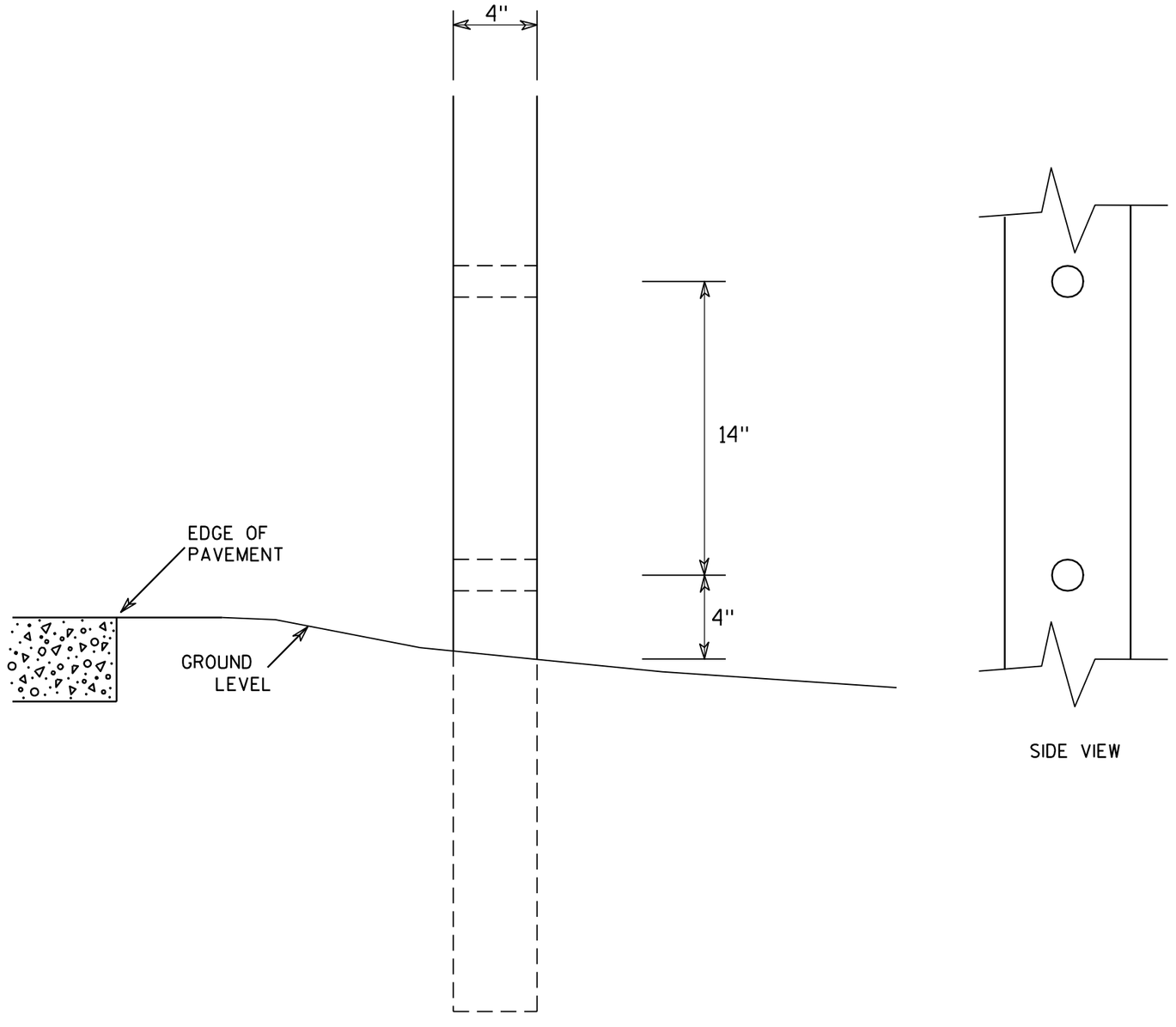
PROJECT NO:

SHEET NO: 54 E



SIDE VIEW

GENERAL NOTES

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

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4 X 6 WOOD POST MODIFICATIONS

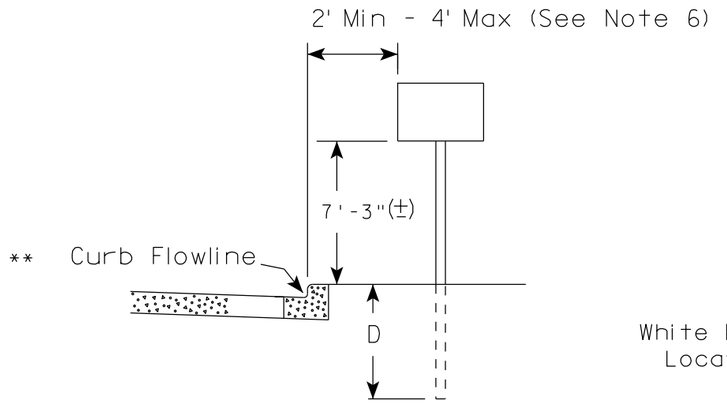
WISCONSIN DEPT OF TRANSPORTATION

APPROVED Chester J Spang for State Traffic Engineer

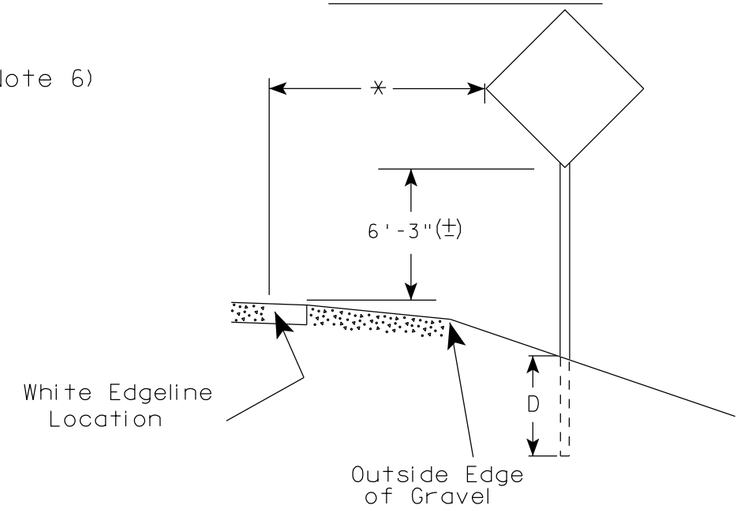
DATE 3/27/97 PLATE NO. A4-11.2

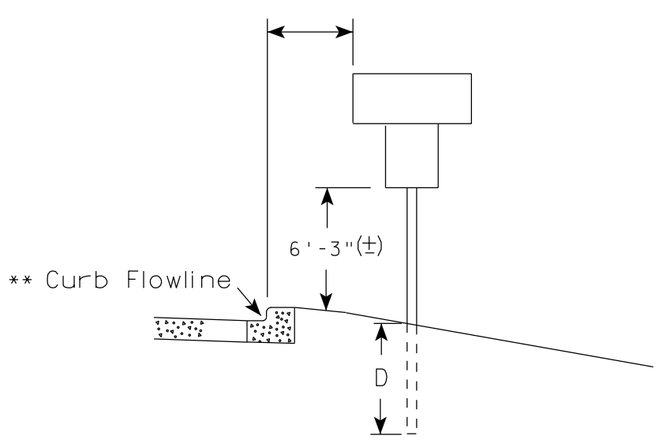
PROJECT NO:	HWY:	COUNTY:		SHEET NO: 55	E

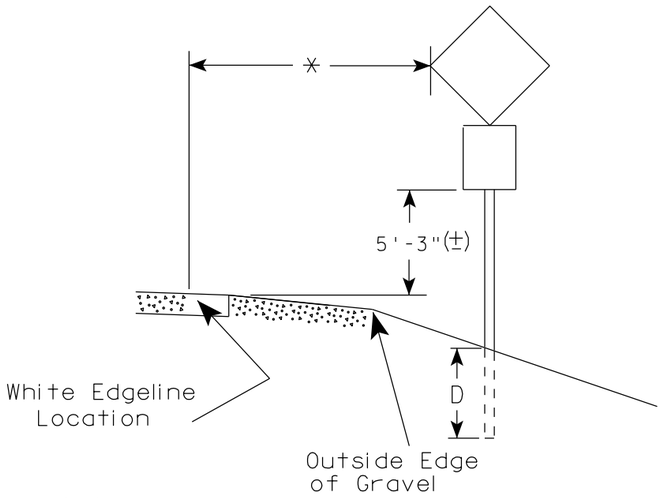
URBAN AREA



RURAL AREA (See Note 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. Offset of signs is measured from the flow line.

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

GENERAL NOTES

1. Signs wider than 4 feet, 20 sq.ft or larger, shall be mounted on multiple posts. Refer to plate A4-4.
2. If signs are mounted on barrier wall, see A4-10 sign plate.
3. For expressways and freeways, mounting height is 7'- 3" (±) or 6'-3" (±) depending upon existence of a sub-sign.
4. Minimum mounting height for J assemblies (A4-5) is 7'-3" (±) or 6'-3" (±) per urban or rural detail respectively.
5. Minimum mounting height for signs mounted on traffic signal poles is 5'- 3" (±).
6. Offset distance shall be consistent with existing signs or consistent throughout length of project.
7. The (±) tolerance for mounting height is 3 inches.
8. Folding stop signs (R1-1F) shall be mounted at a height of 5'-3" (±) or as directed by the Engineer.
9. The Double Arrow sign (W12-1) shall be mounted at a height of 2'-3" (±). The Chevron sign (W1-8), Roundabout Chevron panel (R6-4B), Enhanced Reference Markers, Clearance Markers (W5-52), Mile Markers (D10 series) & End of Rod Markers (W5-56 & W5-56A) shall be mounted at a height of 4'-3" (+).

POST EMBEDMENT DEPTH

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

TYPICAL INSTALLATION OF PERMANENT TYPE II SIGNS ON SINGLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

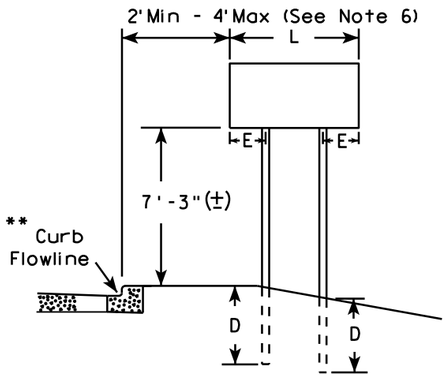
DATE 9/30/13 PLATE NO. A4-3.18

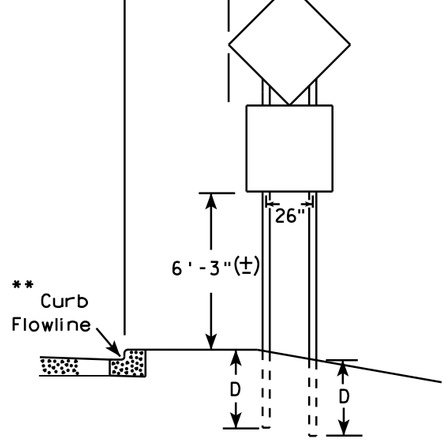
PROJECT NO:	HWY:	COUNTY:		SHEET NO:	E

7

7

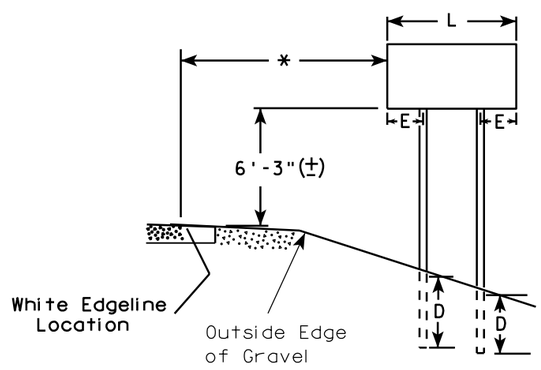
URBAN AREA

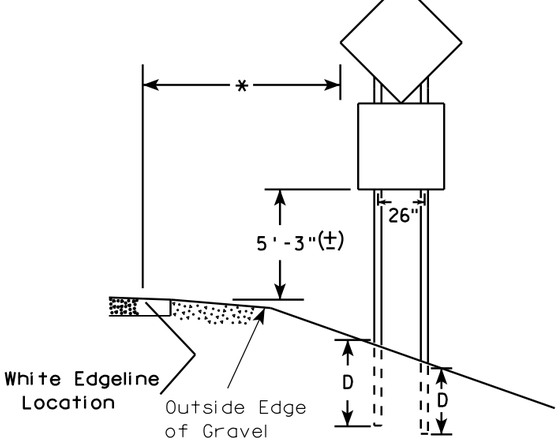




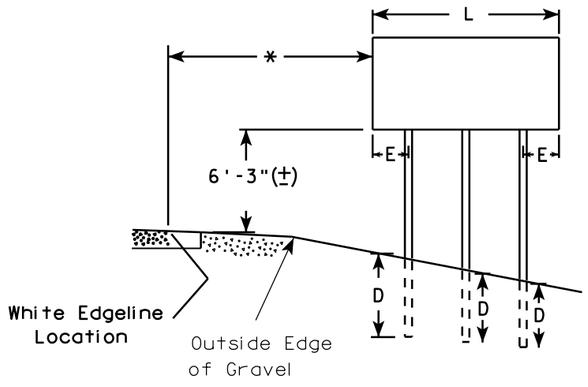
48" DIAMOND WARNING SIGN

RURAL AREA (See Note 3)





48" DIAMOND WARNING SIGN



GENERAL NOTES

1. For 3 or 4 post installations, individual post spacing shall be greater than 3'-6".
2. See tables below for required number of posts.
3. For expressways and freeways, mounting height is 7'-3" (±) or 6'-3" (±) depending upon existence of sub-sign.
4. The (±) tolerance for mounting height is 3 inches.
5. Minimum mounting height for J assemblies (A4-5) is 7'-3" (±) or 6'-3" (±) per urban or rural detail respectively.
6. Offset distance shall be consistent with existing signs or consistent throughout length of project.
7. Folding stop signs (R1-1F) shall be mounted at a height of 5'-3" (±) or as directed by the engineer.
8. The Double Arrow sign (W12-1) shall be mounted at a height of 2'-3" (±). The Chevron sign (W1-8), Roundabout Chevron panel (R6-4B), Clearance Markers (W5-52), Mile Markers (D10 series) & End of Road Markers (W5-56 & W5-56A) shall be mounted at a height of 4"-3" (±).

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

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

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

***

SIGN SHAPE OTHER THAN DIAMOND (TWO POSTS REQUIRED)	
L	E
Greater than 48" Less than 60"	12"
60" to 120"	L/5

SIGN SHAPE OTHER THAN DIAMOND (THREE POSTS REQUIRED)	
L	E
Greater than 120" less than 168"	12"

SIGN SHAPE OTHER THAN DIAMOND (FOUR POSTS REQUIRED)	
L	E
168" and greater	12"

POST EMBEDMENT DEPTH

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

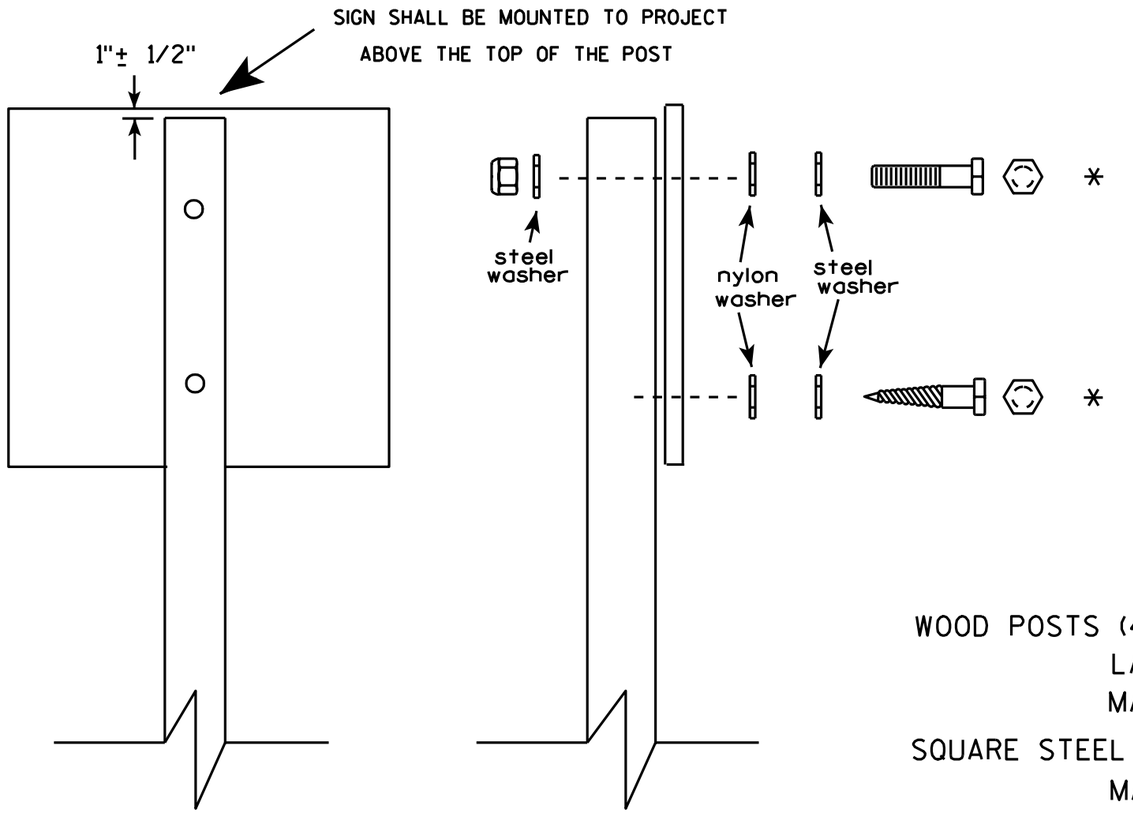
TYPICAL INSTALLATION OF TYPE II SIGNS ON MULTIPLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 9/30/13 PLATE NO. A4-4 12

PROJECT NO:	HWY:	COUNTY:		SHEET NO:	E



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

a. Hot dip galvanized in accordance with ASTM Designation: A 153, Class D, or SC 3

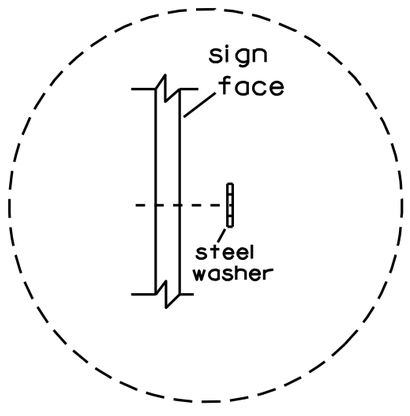
b. Electro-galvanized in accordance with ASTM Designation : B 633, TYPE III, SC 3.

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

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.



Washer Placement when Sign Has Other Than Type H or Type F Face

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

ATTACHMENT OF SIGNS TO POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

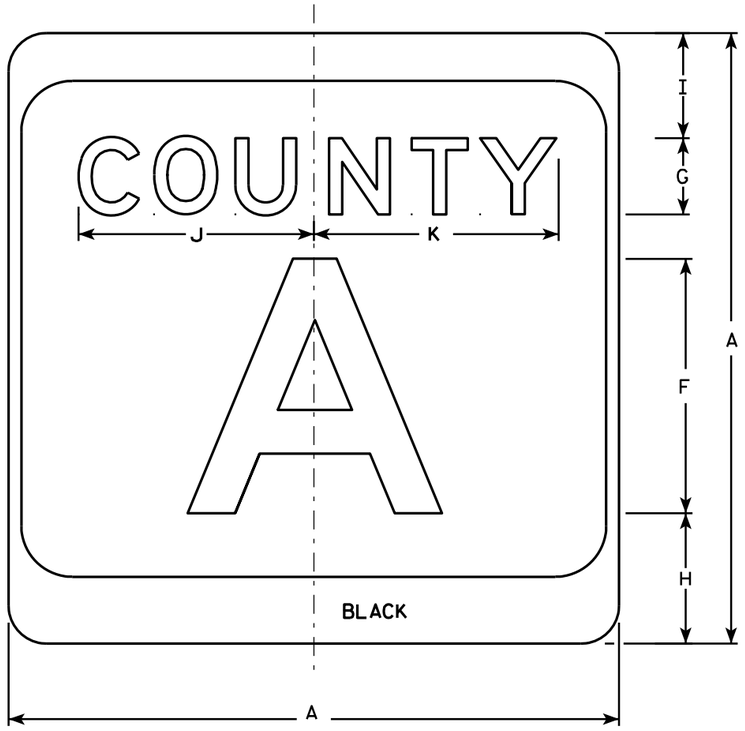
DATE 3/23/10 PLATE NO. A4-8.7

7

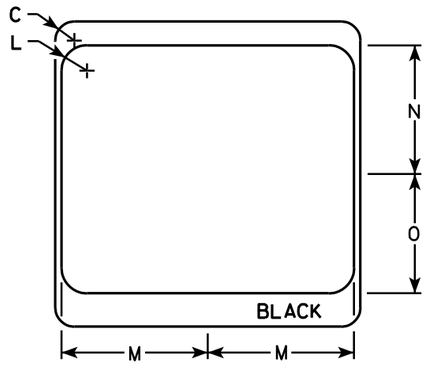
7

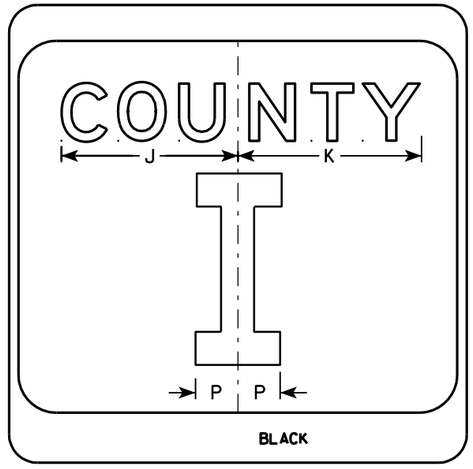
PROJECT NO:

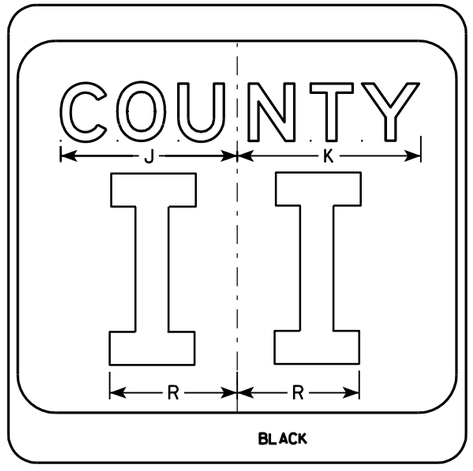
SHEET NO: 58 E



M1-5A







NOTES

1. Sign is Type II - see Note 7 - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - White & Black - See Note 7
   Message - Black
3. Message Series - see Note 5
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. Message Series E for 1 letter.
   Message Series D for 2 letters unless message is too big then Series C.
   Message Series C for 3 letters unless message is too big then Series B.
6. Substitute appropriate letters & optically center to achieve proper balance.
7. Permanent Signs
   Background - Type H Reflective
   Detour or temporary Signs
   Background - Reflective

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

CTH MARKER
M1-5A FOR ASSEMBLIES

WISCONSIN DEPT OF TRANSPORTATION

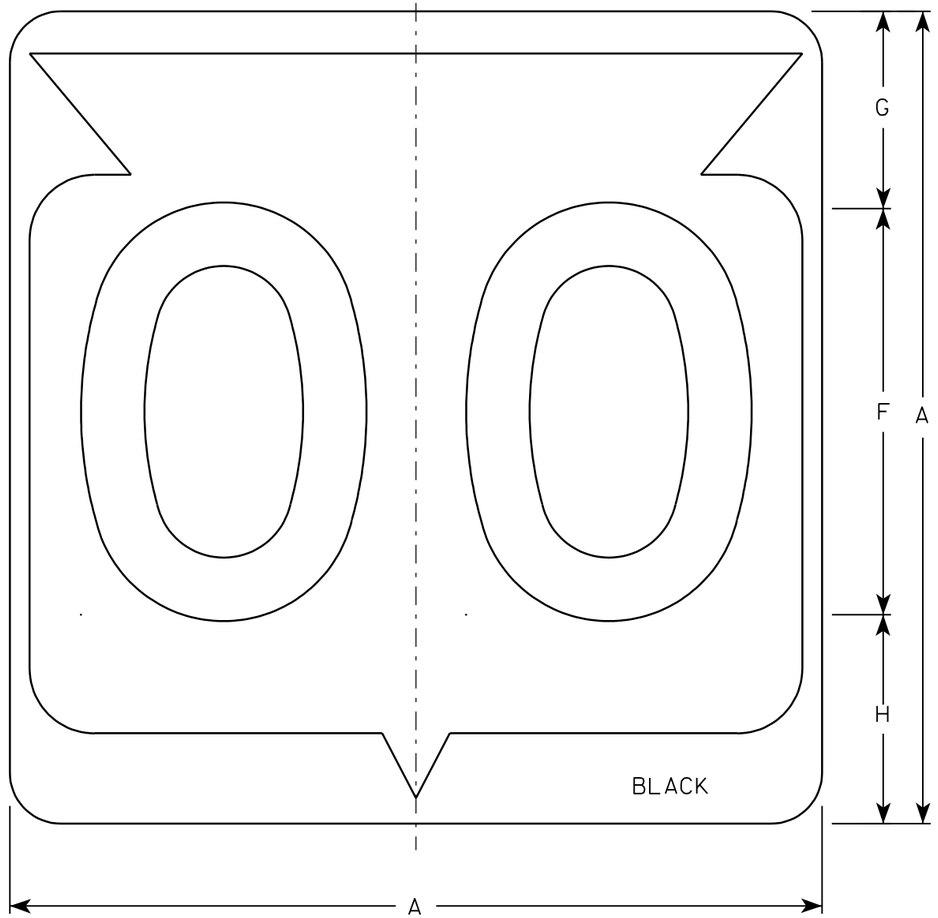
APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 9/27/11 PLATE NO. M1-5A.8

PROJECT NO: | HWY: | COUNTY: | SHEET NO: 59 | E

7

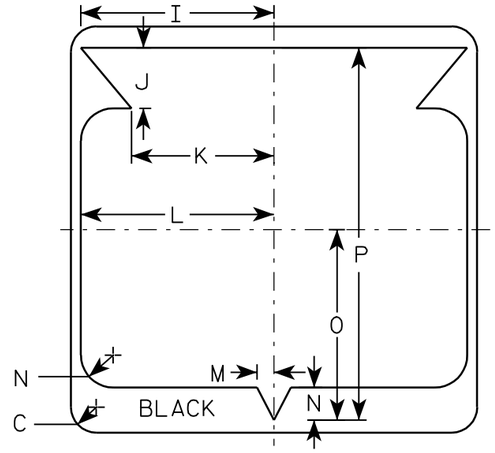
FILE NAME : C:\Users\PROJECTS\tr_stdplate\M15A.DGN PLOT DATE : 29-SEP-2011 11:25 PLOT BY : mscsja PLOT NAME : PLOT SCALE : 5.959043:1.000000
WISDOT/CADDS SHEET 42



M1-6

NOTES

1. Sign is Type II - See Note 6 - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - White & Black - See Note 6
   Message - Black
3. Message Series - See note 5
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. Substitute appropriate Series numerals and adjust spacing as per plate A10-1.
6. Permanent Signs
   Background - Type H Reflective
   Detour or temporary Signs
   Background - Reflective



Metric equivalent for this sign is:

SIZE	
1	
2	600 mm X 600 mm
3	900 mm X 900 mm
4	900 mm X 900 mm
5	900 mm X 900 mm

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.	Area m2
1																												
2	24		1 1/2			12	5 1/2	6 1/2	10 1/4	2 1/2	8 7/8	11 1/2	1	1 7/8	11 1/4	21 7/8											4.0	.36
3	36		2 1/4			18	8 3/4	9 1/4	15 3/8	5 3/8	12 5/8	17 1/8	1 1/2	2 7/8	16 7/8	33											9.0	.81
4	36		2 1/4			18	8 3/4	9 1/4	15 3/8	5 3/8	12 5/8	17 1/8	1 1/2	2 7/8	16 7/8	33											9.0	.81
5	36		2 1/4			18	8 3/4	9 1/4	15 3/8	5 3/8	12 5/8	17 1/8	1 1/2	2 7/8	16 7/8	33											9.0	.81

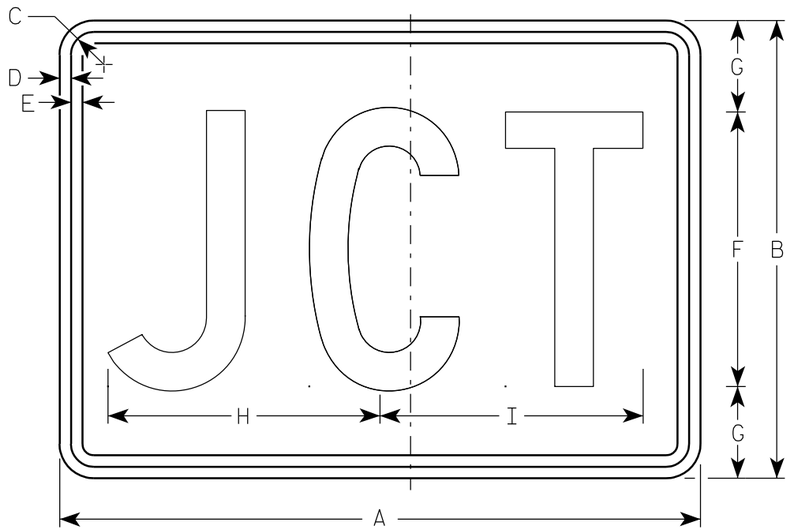
STATE ROUTE MARKER M1-6 FOR ASSEMBLIES

WISCONSIN DEPT OF TRANSPORTATION

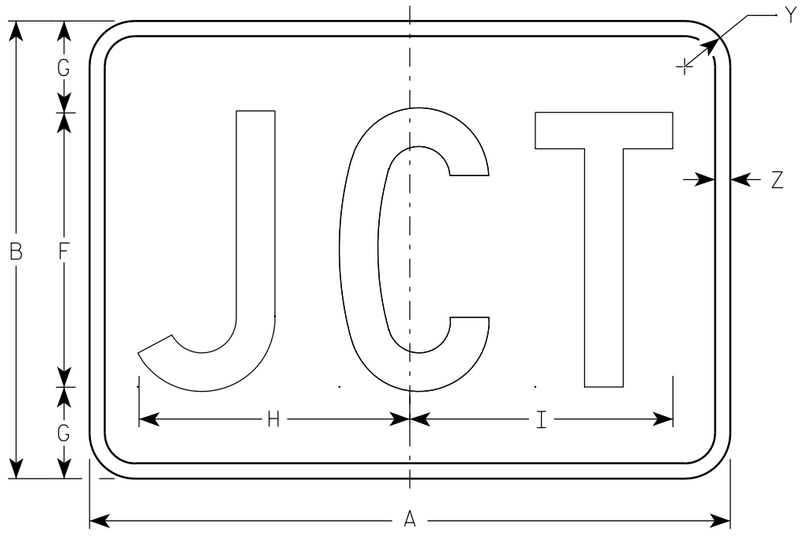
APPROVED Chester J Spang for State Traffic Engineer

DATE 3/20/02 PLATE NO. M1-6.9

PROJECT NO:	HWY:	COUNTY:		SHEET NO: 60	E



M2-1
MK2-1
MM2-1
MR2-1



MB2-1
MG2-1
MN2-1

NOTES

1. Sign is Type II - See Note 5 - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - See note 5
   Message - See note 5
3. Message Series - C
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. M2-1 Background - White - Type H Reflective
   (Detour or temporary Signs - Reflective)
   Message - Black
   MB2-1 Background - Blue
   Message - White - Type H Reflective
   (Detour or temporary Signs - Reflective)
   MG2-1 Background - Green
   Message - White - Type H Reflective
   MK2-1 Background - Green
   Message - White - Type H Reflective
   MM2-1 Background - White - Type H Reflective
   Message - Green
   MN2-1 Background - Brown
   Message - White - Type H Reflective
   MR2-1 Background - Brown
   Message - Yellow - Type H Reflective

Metric equivalent for this sign is:

SIZE	
1	
2	525 mm X 375 mm
3	750 mm X 525 mm
4	750 mm X 525 mm
5	750 mm X 525 mm

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.	Area m2
1																												
2	21	15	1 1/8	3/8	3/8	9	3	8 7/8	8 5/8																1 1/2	1/2	2.20	0.20
3	30	21	1 1/8	3/8	3/8	13	4	12 7/8	12 3/8																1 1/2	1/2	4.40	0.20
4	30	21	1 1/8	3/8	3/8	13	4	12 7/8	12 3/8																1 1/2	1/2	4.40	0.20
5	30	21	1 1/8	3/8	3/8	13	4	12 7/8	12 3/8																1 1/2	1/2	4.40	0.20

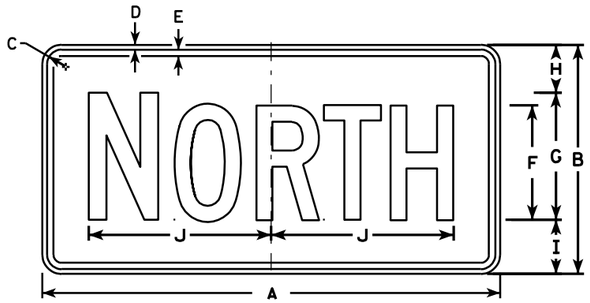
STANDARD SIGN
M2-1

WISCONSIN DEPT OF TRANSPORTATION

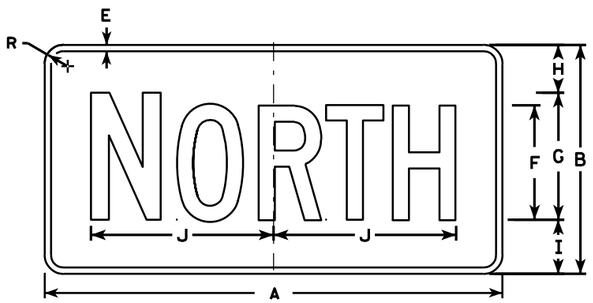
APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 3/16/10 PLATE NO. M2-1.10

PROJECT NO:	HWY:	COUNTY:		SHEET NO: 61	E

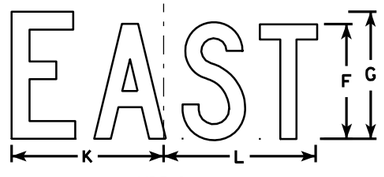


M3-1
MK3-1
MO3-1

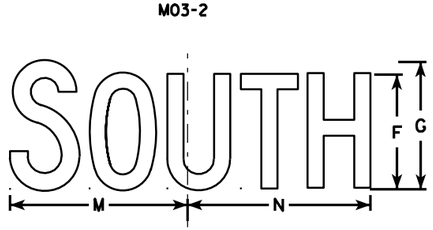


MB3-1
MG3-1
MM3-1
MN3-1

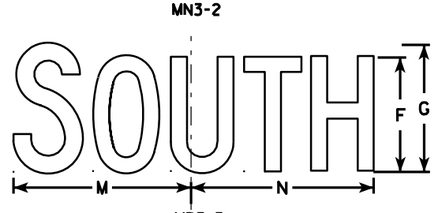
M3-2
MK3-2
MO3-2



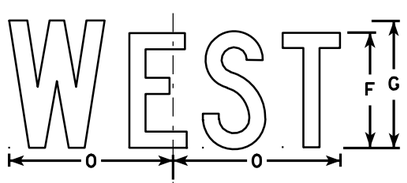
MB3-2
MG3-2
MM3-2
MN3-2



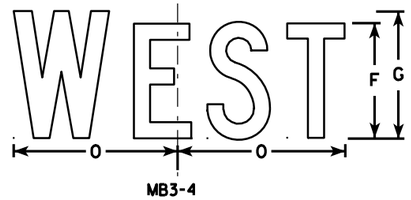
M3-3
MK3-3
MO3-3



MB3-3
MG3-3
MM3-3
MN3-3



M3-4
MK3-4
MO3-4



MB3-4
MG3-4
MM3-4
MN3-4

NOTES

1. All Signs Type II - See Note 5 - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - See note 5
   Message - See note 5
3. Message Series - C
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. M3-1 thru M3-4 Background - White - Type H Reflective
   (Detour or temporary signs - Reflective)
   Message - Black
   MB3-1 thru MB3-4 Background - Blue
   Message - White - Type H Reflective
   (Detour or temporary signs - Reflective)
   MG3-1 thru MG3-4 Background - Green
   Message - White - Type H Reflective
   MK3-1 thru MK3-4 Background - Green
   Message - White - Type H Reflective
   MM3-1 thru MM3-4 Background - White - Type H Reflective
   Message - Green
   MN3-1 thru MN3-4 Background - Brown
   Message - White - Type H Reflective
   M03-1 thru M03-4 Background - Orange - Reflective
   Message - Black
6. Note the first letter of each direction is larger than the remainder of the message.

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

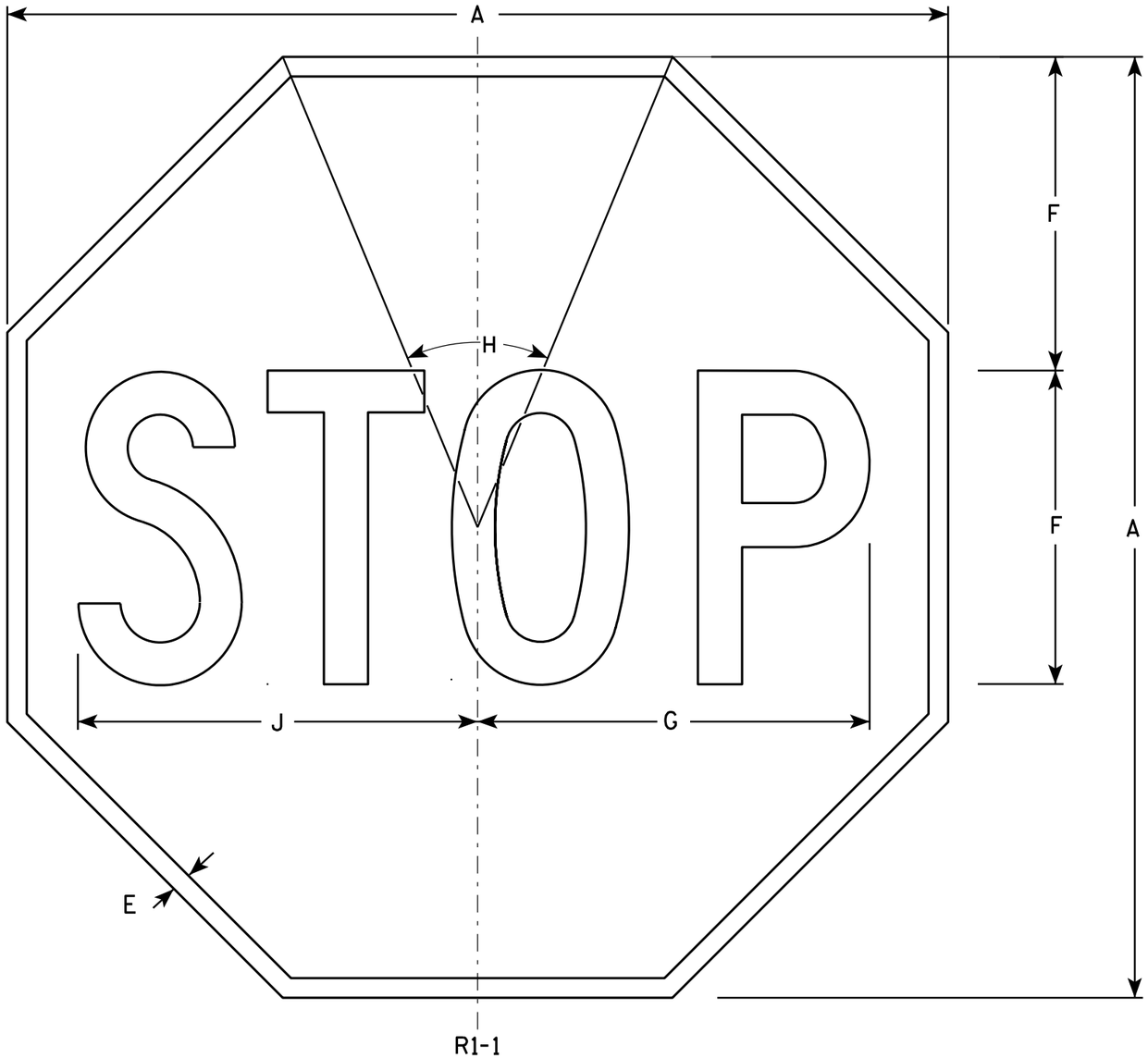
STANDARD SIGNS
M3-1 thur M3-4
SERIES

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch for State Traffic Engineer

DATE 11/10/10 PLATE NO. M3-1.12

PROJECT NO:	HWY:	COUNTY:		SHEET NO: 62	E



NOTES

1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - Red
   Message - White
3. Message Series - C

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	24				3/8	8	10	45°		10 1/4																	3.31
2S	30				5/8	10	12 1/2	45°		12 3/4																	5.18
2M	36				3/4	12	15	45°		15 3/8																	7.46
3	36				3/4	12	15	45°		15 3/8																	7.46
4	48				1	16	20	45°		20 1/2																	13.25
5	48				1	16	20	45°		20 1/2																	13.25
6	18				3/8	6	7 3/4	45°		7 3/4																	1.86
7	12				1/4	4	5	45°		5 1/8																	0.78

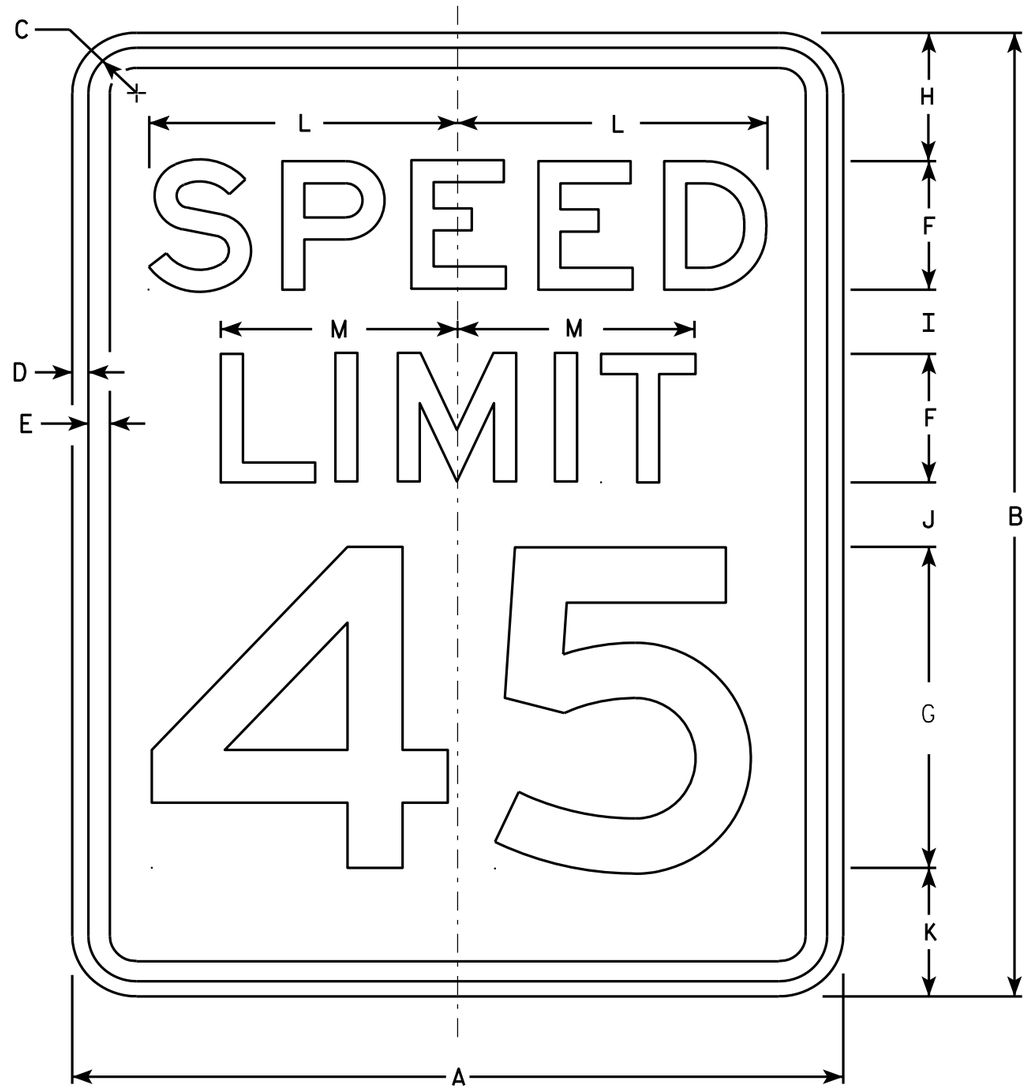
STANDARD SIGN
R1-1

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 12/03/10 PLATE NO. R1-1.12

PROJECT NO:	HWY:	COUNTY:		SHEET NO: 63	E



R2-1

NOTES

1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - White
   Message - Black
3. Message Series - E
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. Substitute appropriate numerals and optically adjust spacing to achieve proper balance.

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	18	24	1 1/8	3/8	1/2	3	8	3	2	2	3	7 1/4	5 1/2														3.0
2S	24	30	1 1/8	3/8	1/2	4	10	3	2 1/4	3 3/8	3 3/8	9 5/8	7 3/8														5.0
2M	30	36	1 3/8	1/2	5/8	5	12	5	2 1/2	2 1/2	4	12	9 1/4														7.5
3	36	48	1 3/8	1/2	5/8	6	14	6	5	5	6	14 3/8	11														12.0
4	36	48	1 3/8	1/2	5/8	6	14	6	5	5	6	14 3/8	11														12.0
5	48	60	2 1/4	3/4	1	8	20	6	4 1/2	6 3/4	6 3/4	19 1/4	14 5/8														20.0

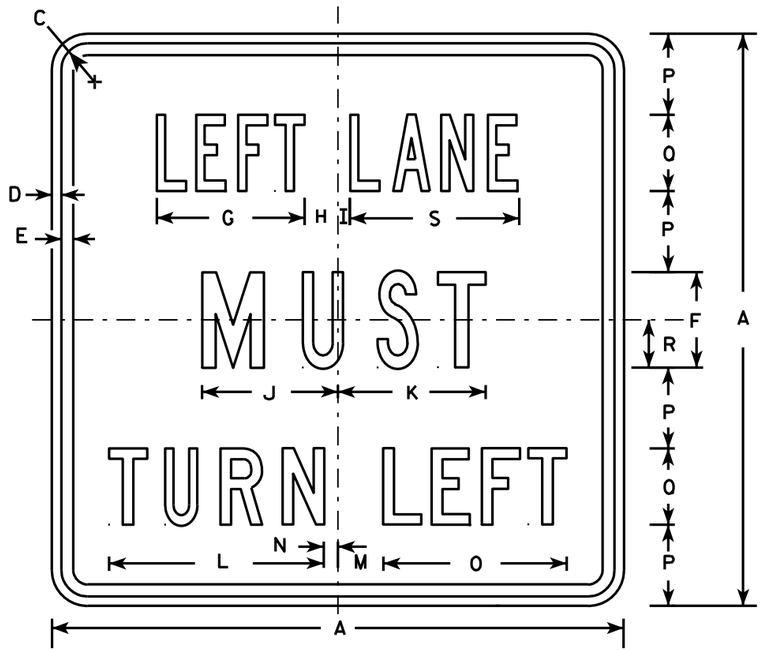
STANDARD SIGN
R2-1

WISCONSIN DEPT OF TRANSPORTATION

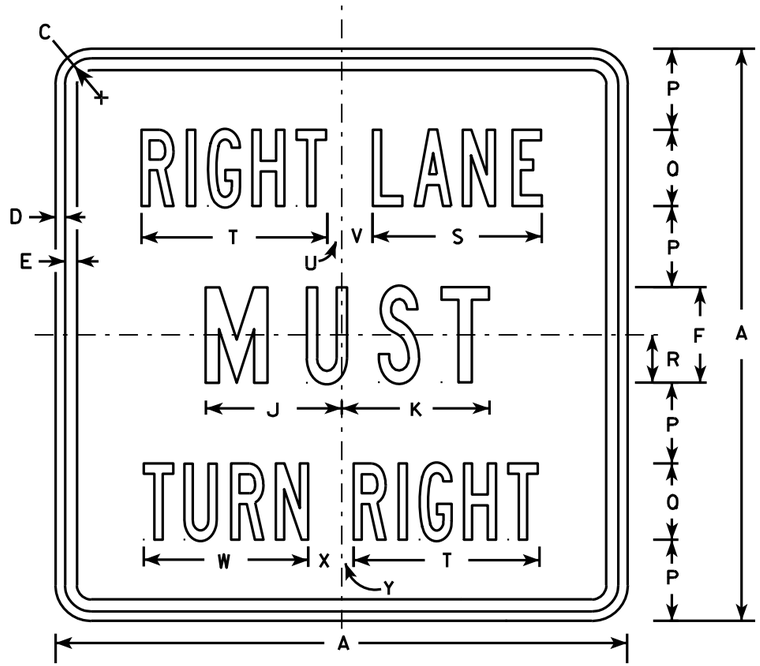
APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 5/26/10 PLATE NO. R2-1.13

PROJECT NO:	HWY:	COUNTY:		SHEET NO: 64	E



R3-7L



R3-7R

NOTES

1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - White
   Message - Black
3. Message Series - Line 1 is Series B.
   Line 2 is Series C.
   Line 3 on plate R3-7R is Series B and Series C on plate R3-7L.
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	30		1 3/8	1/2	5/8	5	7 3/4	1 3/4	5/8	7 1/8	7 3/4	11 1/4	2 3/8	3/4	9 5/8	4 1/4	4	2 1/2	8 7/8	9 3/4	3/4	1 5/8	8 5/8	1 5/8	5/8		6.25
2S	30		1 3/8	1/2	5/8	5	7 3/4	1 3/4	5/8	7 1/8	7 3/4	11 1/4	2 3/8	3/4	9 5/8	4 1/4	4	2 1/2	8 7/8	9 3/4	3/4	1 5/8	8 5/8	1 5/8	5/8		6.25
2M	30		1 3/8	1/2	5/8	5	7 3/4	1 3/4	5/8	7 1/8	7 3/4	11 1/4	2 3/8	3/4	9 5/8	4 1/4	4	2 1/2	8 7/8	9 3/4	3/4	1 5/8	8 5/8	1 5/8	5/8		6.25
3	36		1 5/8	5/8	3/4	6	9 5/8	2	1 1/8	8 3/4	9	13 1/2	3 7/8	1 1/2	12 1/2	5	5	3	10 5/8	12	7/8	2 1/4	10 5/8	2 1/8	1		9.00
4	48		2 1/4	3/4	1	8	13 1/2	2 3/8	1 1/2	11 1/2	11 7/8	17 3/4	3 5/8	2 1/2	16 3/8	6 1/2	7	4	14 3/8	16 7/8	5/8	3 1/4	15 1/8	2 3/4	1 1/8		16.00
5																											

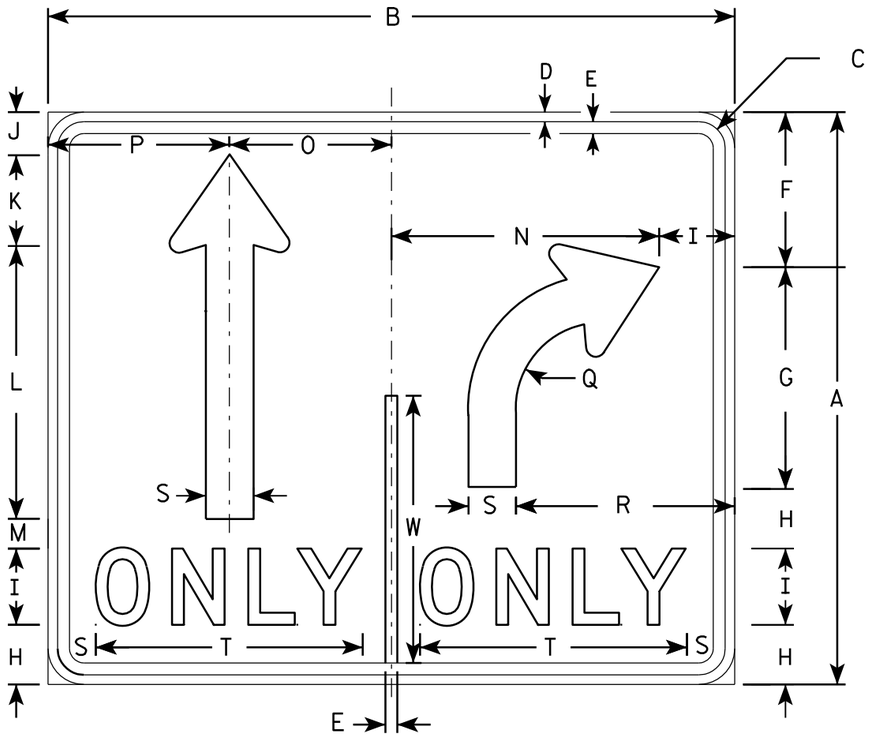
STANDARD SIGN
R3-7L & R3-7R

WISCONSIN DEPT OF TRANSPORTATION

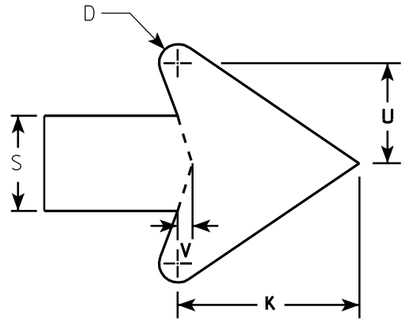
APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 3/18/2011 PLATE NO. R3-7.3

PROJECT NO: | HWY: | COUNTY: | SHEET NO: 65 | E



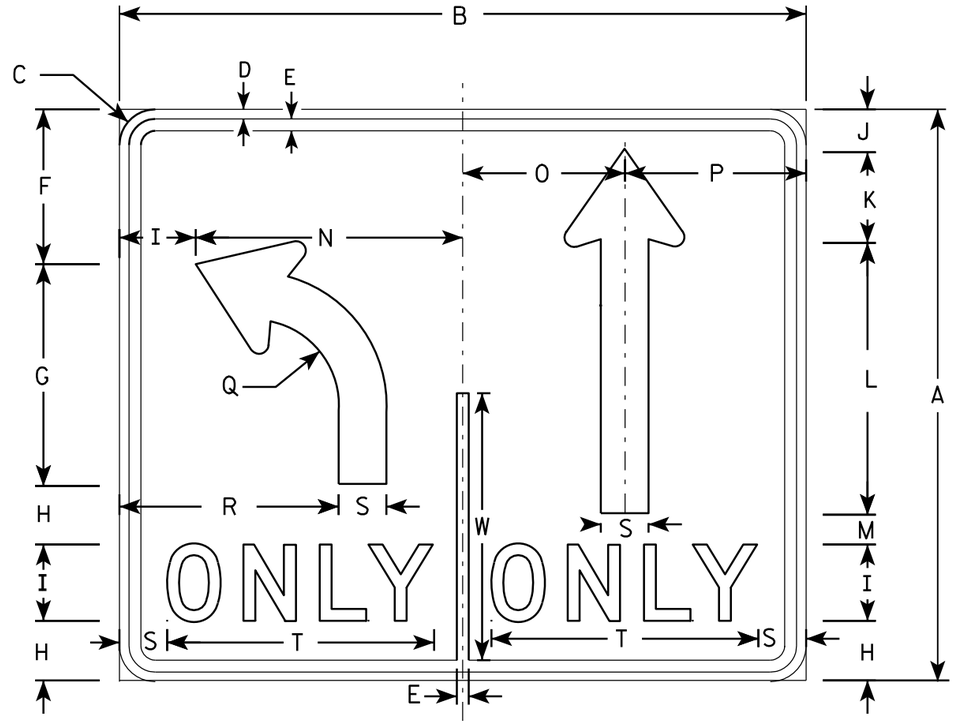
R3-8D



ARROW DETAIL

NOTES

1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - WHITE
   Message - BLACK
3. Message Series - D
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.



R3-8E

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	O	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	30	36	1 3/8	1/2	5/8	8 1/8	11 5/8	3 1/8	4	2 1/4	4 3/4	14 1/4	1 5/8	14	8 1/2	9 1/2	4 1/2	11 1/2	2 1/2	14	2 5/8	3/8	14				7.5
2M	30	36	1 3/8	1/2	5/8	8 1/8	11 5/8	3 1/8	4	2 1/4	4 3/4	14 1/4	1 5/8	14	8 1/2	9 1/2	4 1/2	11 1/2	2 1/2	14	2 5/8	3/8	14				7.5
3																											
4	48	54	2 1/4	3/4	1	13 1/4	18 1/2	5 1/8	6	3 1/2	7 1/8	21 1/2	4 3/4	21	12 3/4	14 1/4	7 1/4	17 1/8	3 3/4	20 5/8	4	5/8	22 3/8				18.0
5	48	54	2 1/4	3/4	1	13 1/4	18 1/2	5 1/8	6	3 1/2	7 1/8	21 1/2	4 3/4	21	12 3/4	14 1/4	7 1/4	17 1/8	3 3/4	20 5/8	4	5/8	22 3/8				18.0

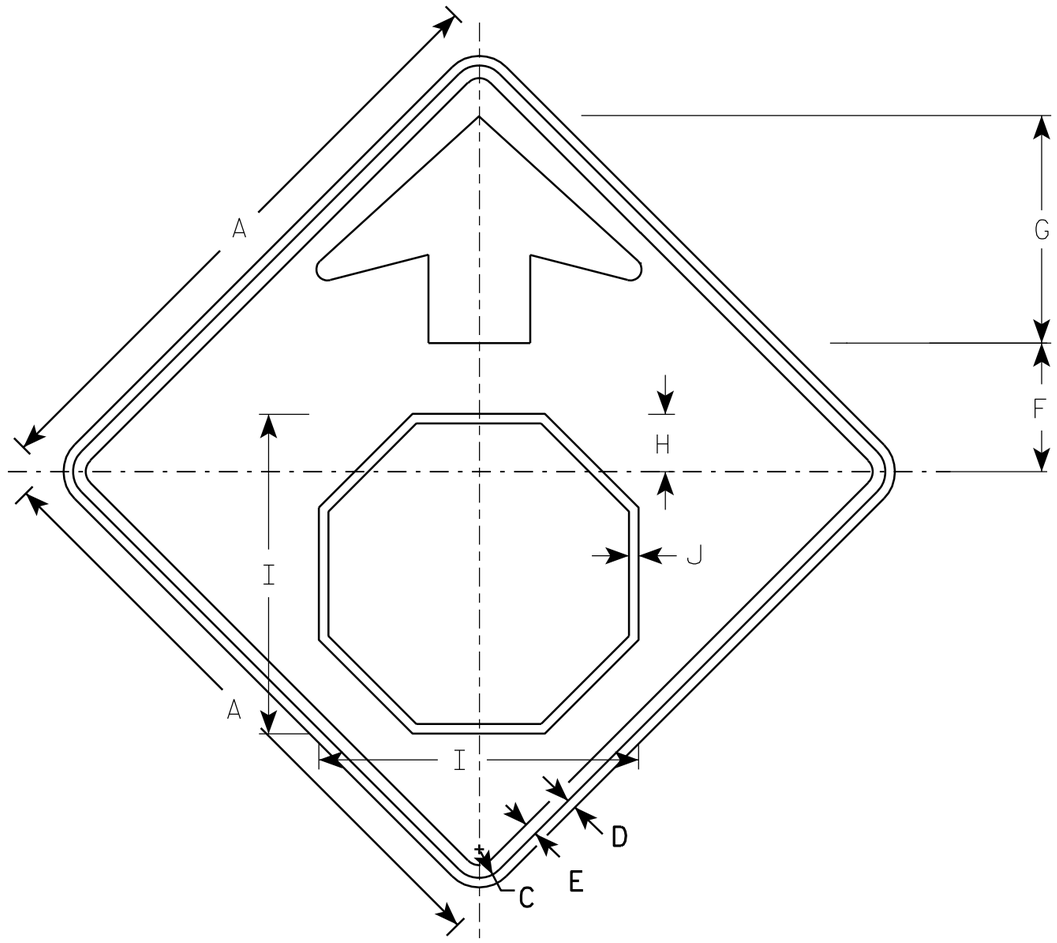
STANDARD SIGN
R3-8D & R3-8E

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 3/18/2011 PLATE NO. R3-8D.2

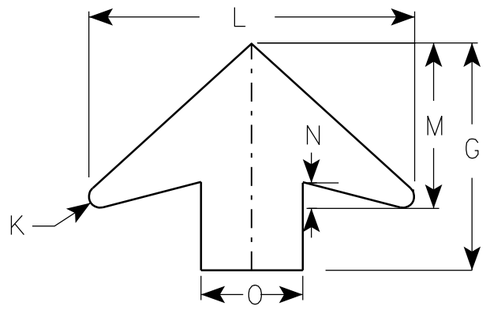
PROJECT NO:	HWY:	COUNTY:		SHEET NO: 66	E



W3-1

NOTES

1. All Signs Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - YELLOW
   Arrow & Border - BLACK
   Stop Symbol - WHITE BORDER ON RED BACKGROUND



ARROW DETAIL

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	30		1 3/8	1/2	5/8	6 1/4	11 1/4	2 7/8	15 3/4	1/2	1/2	16	8	1 1/4	5												6.25
2S	36		1 5/8	5/8	3/4	7 1/2	13 1/2	3 1/2	19	5/8	5/8	19 1/4	9 3/4	1 5/8	6												9.0
2M	36		1 5/8	5/8	3/4	7 1/2	13 1/2	3 1/2	19	5/8	5/8	19 1/4	9 3/4	1 5/8	6												9.0
3	36		1 5/8	5/8	3/4	7 1/2	13 1/2	3 1/2	19	5/8	5/8	19 1/4	9 3/4	1 5/8	6												9.0
4	48		2 1/4	3/4	1	10	17 7/8	4 1/2	25 1/8	3/4	7/8	25 5/8	13	2	8												16.0
5	48		2 1/4	3/4	1	10	17 7/8	4 1/2	25 1/8	3/4	7/8	25 5/8	13	2	8												16.0

STANDARD SIGN
W3-1

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 6/7/10 PLATE NO. W3-1.12

PROJECT NO:

SHEET NO: 67 E

STATION	DISTANCE	AREA (SF)				INCREMENTAL VOL (CY) (UNADJUSTED)				CUMULATIVE VOL (CY)		
		CUT	UNUSABLE PAVEMENT MATERIAL	FILL	EBS	CUT NOTE 1	UNUSABLE PAVEMENT MATERIAL NOTE 2	FILL NOTE 3	EBS	CUT 1.00 NOTE 1	EXPANDED FILL 1.25 NOTE 4	MASS ORDINATE NOTE 5
106+18 LT	---	32	2	2	0	---	---	---	---	---	---	---
106+43 LT	25	22	2	4	0	25	1	3	0	25	3	20
106+68 LT	25	11	2	3	0	15	1	3	0	40	7	30
106+93 LT	25	8	2	3	0	9	1	3	0	49	11	34
107+18 LT	25	8	2	2	0	8	1	2	0	57	14	38
107+43 LT	25	9	2	2	0	8	1	2	0	65	16	42
107+68 LT	25	9	2	3	0	8	1	2	0	73	19	46
107+93 LT	25	9	2	5	0	8	1	4	0	82	24	48
108+18 LT	25	10	2	2	0	9	1	3	0	90	28	51
108+43 LT	25	0	2	0	0	5	1	1	0	95	29	54
				COLUMN TOTALS		95	13	23	0			

NOTES:
1) CUT INCLUDES UNUSABLE PAVEMENT MATERIAL
2) UNUSABLE PAVEMENT MATERIAL DOES NOT APPEAR IN THE CROSS SECTIONS
3) FILL DOES NOT INCLUDE UNUSABLE PAVEMENT MATERIAL EXCAVATION VOLUME
4) EXPANDED FILL = UNEXPANDED FILL * EXPANDED FILL FACTOR. EXPANDED FILL FACTOR = 1.25
5) MASS ORDINATE = (CUT - UNUSABLE PAVEMENT MATERIAL) - (FILL * FILL FACTOR)

9

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STATION	DISTANCE	AREA (SF)				INCREMENTAL VOL (CY) (UNADJUSTED)				CUMULATIVE VOL (CY)		
		CUT	UNUSABLE PAVEMENT MATERIAL	FILL	EBS	CUT NOTE 1	UNUSABLE PAVEMENT MATERIAL NOTE 2	FILL NOTE 3	EBS	CUT 1.00 NOTE 1	EXPANDED FILL 1.25 NOTE 4	MASS ORDINATE NOTE 5
105+18 RT	---	26	2	0	0	---	---	---	---	---	---	---
105+25 RT	7	26	2	0	0	7	0	0	0	7	0	6
105+42 RT	17	26	2	0	0	16	1	0	0	23	0	22
105+75 RT	33	27	2	1	0	32	2	0	0	55	1	51
105+93 RT	18	30	2	1	0	19	1	1	0	74	1	68
106+18 RT	25	25	2	2	0	26	1	1	0	99	3	91
106+43 RT	25	27	2	2	0	24	1	2	0	123	5	111
106+68 RT	25	26	2	3	0	24	1	3	0	148	8	131
106+93 RT	25	27	2	3	0	24	1	3	0	172	12	150
107+18 RT	25	27	2	2	0	25	1	3	0	197	15	170
107+43 RT	25	29	2	2	0	26	1	2	0	223	18	192
107+68 RT	25	33	3	1	0	29	2	1	0	252	20	217
107+93 RT	25	31	4	1	0	30	3	1	0	281	21	243
108+18 RT	25	30	4	1	0	28	4	1	0	309	22	266
108+43 RT	25	30	5	0	0	28	4	0	0	337	22	290
108+75 RT	32	36	6	0	0	39	6	0	0	377	22	323
109+00 RT	25	40	6	0	0	35	5	0	0	412	22	353
109+25 RT	25	35	6	3	0	35	6	1	0	447	24	380
109+50 RT	25	34	6	2	0	32	5	2	0	479	27	404
109+75 RT	25	31	5	7	0	30	5	4	0	509	32	424
110+00 RT	25	29	5	11	0	27	5	8	0	536	42	436
110+25 RT	25	28	5	17	0	26	5	13	0	563	58	441
110+50 RT	25	28	5	18	0	26	5	16	0	588	79	442
110+75 RT	25	30	5	17	0	27	5	16	0	615	99	443
111+00 RT	25	35	6	13	0	30	5	14	0	646	116	451
111+25 RT	25	47	10	37	0	38	8	23	0	684	145	452
111+50 RT	25	79	23	0	0	58	15	17	0	742	167	474
				COLUMN TOTALS		742	101	133	0			

NOTES:

1) CUT INCLUDES UNUSABLE PAVEMENT MATERIAL
2) UNUSABLE PAVEMENT MATERIAL DOES NOT APPEAR IN THE CROSS SECTIONS
3) FILL DOES NOT INCLUDE UNUSABLE PAVEMENT MATERIAL EXCAVATION VOLUME
4) EXPANDED FILL = UNEXPANDED FILL * EXPANDED FILL FACTOR. EXPANDED FILL FACTOR = 1.25
5) MASS ORDINATE = (CUT - UNUSABLE PAVEMENT MATERIAL) - (FILL * FILL FACTOR)

9 9

STATION	DISTANCE	AREA (SF)				INCREMENTAL VOL (CY) (UNADJUSTED)				CUMULATIVE VOL (CY)		
		CUT	UNUSABLE PAVEMENT MATERIAL	FILL	EBS	CUT NOTE 1	UNUSABLE PAVEMENT MATERIAL NOTE 2	FILL NOTE 3	EBS	CUT 1.00 NOTE 1	EXPANDED FILL 1.25 NOTE 4	MASS ORDINATE NOTE 5
113+75 RT	—	36	6	0	0	—	—	—	—	—	—	—
114+00 RT	25	42	6	0	0	36	6	0	0	36	0	30
114+25 RT	25	48	6	0	0	42	6	0	0	77	0	66
114+50 RT	25	56	6	0	0	48	6	0	0	126	0	109
114+75 RT	25	58	6	0	0	53	6	0	0	178	0	156
115+00 RT	25	60	6	0	0	55	6	0	0	233	0	206
115+25 RT	25	61	6	0	0	56	6	0	0	290	0	256
115+50 RT	25	61	6	0	0	57	6	0	0	346	0	308
115+75 RT	25	32	6	41	0	43	6	19	0	390	24	322
115+80 RT	5	38	6	47	0	7	1	8	0	396	34	317
116+00 RT	20	103	6	0	0	52	4	18	0	449	56	343
116+25 RT	25	111	6	0	0	99	6	0	0	548	56	437
116+50 RT	25	105	6	0	0	100	6	0	0	648	56	531
116+75 RT	25	94	6	0	0	92	6	0	0	740	56	618
117+00 RT	25	83	6	0	0	82	6	0	0	822	56	694
117+25 RT	25	81	6	0	0	76	6	0	0	898	56	765
117+50 RT	25	84	6	0	0	76	6	0	0	975	56	836
117+75 RT	25	93	6	0	0	82	6	0	0	1057	56	912
118+00 RT	25	103	6	0	0	91	6	0	0	1147	56	997
118+20 RT	20	64	6	1	0	62	5	0	0	1209	56	1054
118+25 RT	5	65	7	1	0	12	1	0	0	1221	57	1064
118+50 RT	25	106	19	1	0	79	12	1	0	1300	58	1130
118+75 RT	25	74	21	0	0	83	19	0	0	1384	58	1194
				COLUMN TOTALS		1384	131	46	0			

NOTES:
1) CUT INCLUDES UNUSABLE PAVEMENT MATERIAL
2) UNUSABLE PAVEMENT MATERIAL DOES NOT APPEAR IN THE CROSS SECTIONS
3) FILL DOES NOT INCLUDE UNUSABLE PAVEMENT MATERIAL EXCAVATION VOLUME
4) EXPANDED FILL = UNEXPANDED FILL * EXPANDED FILL FACTOR. EXPANDED FILL FACTOR = 1.25
5) MASS ORDINATE = (CUT - UNUSABLE PAVEMENT MATERIAL) - (FILL * FILL FACTOR)

9

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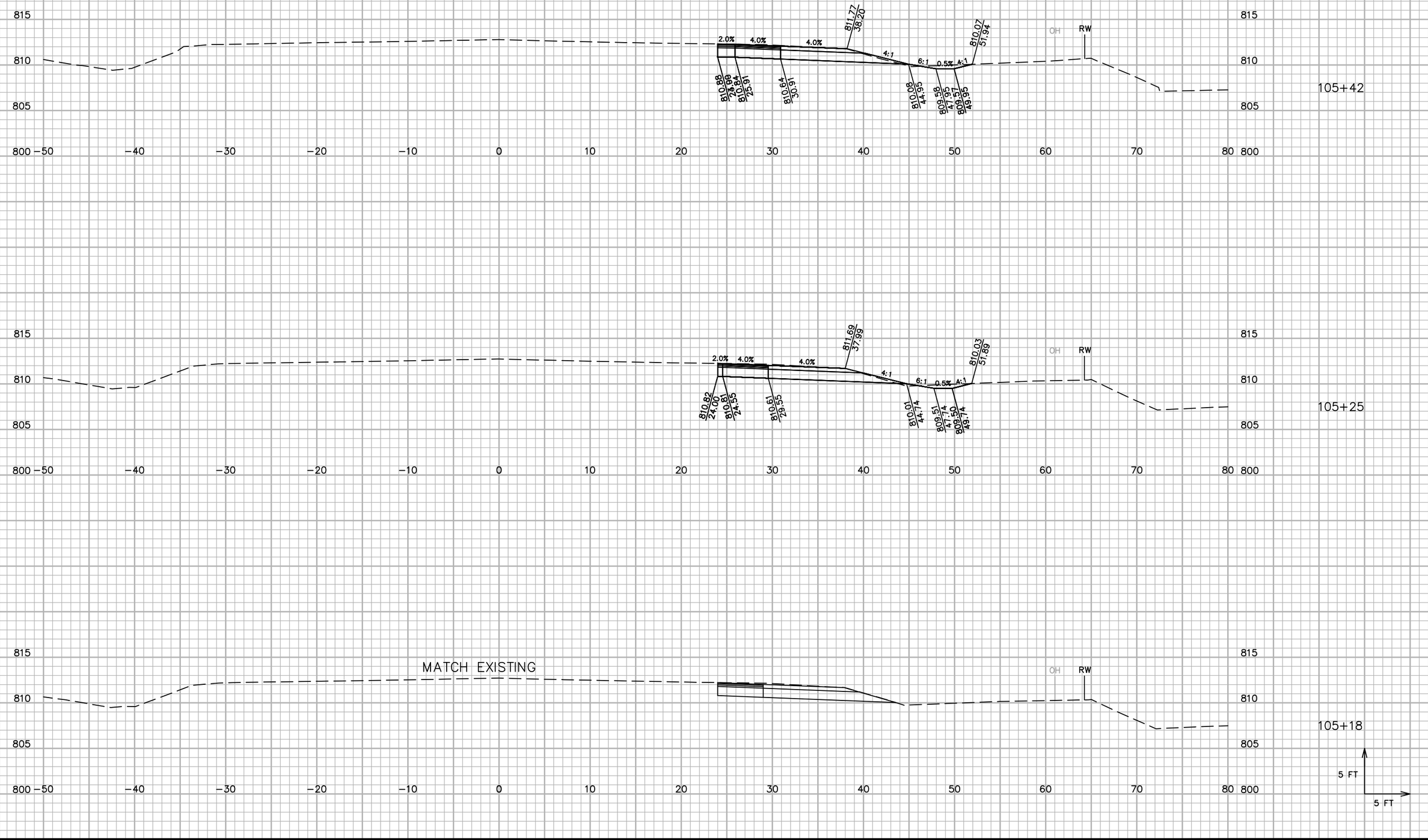
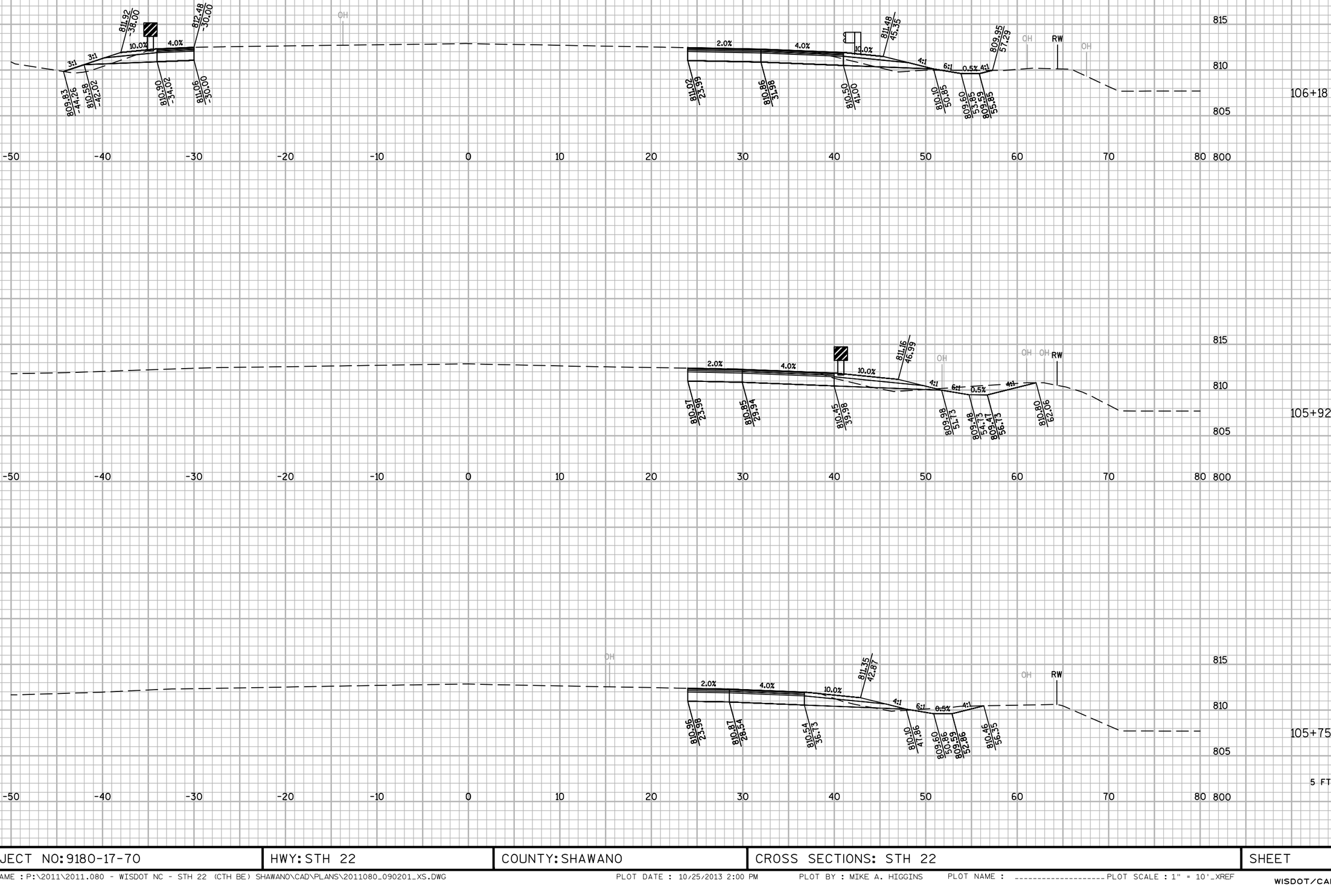


PROJECT NO:9180−17−70	HWY:STH 22	COUNTY:SHAWANO	CROSS SECTIONS: STH 22	SHEET 71	E



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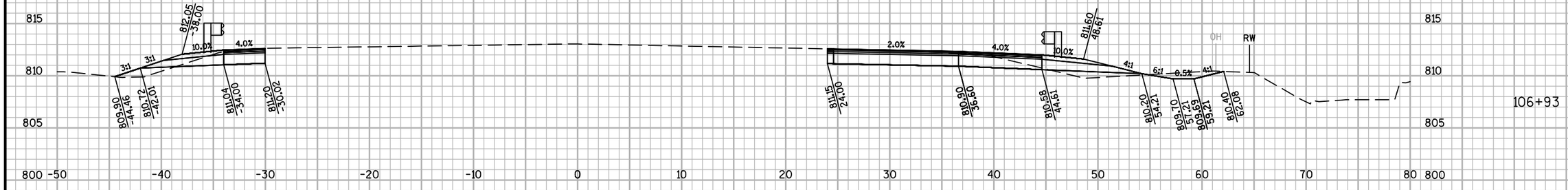
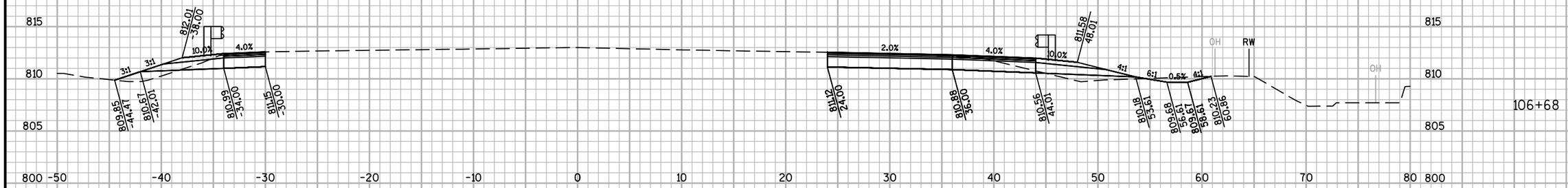
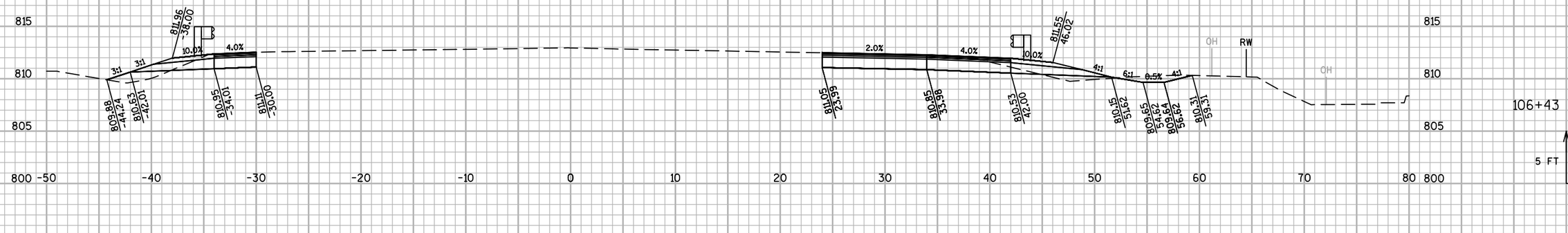
PROJECT NO: 9180-17-70	HWY: STH 22	COUNTY: SHAWANO	CROSS SECTIONS: STH 22	SHEET 72	E







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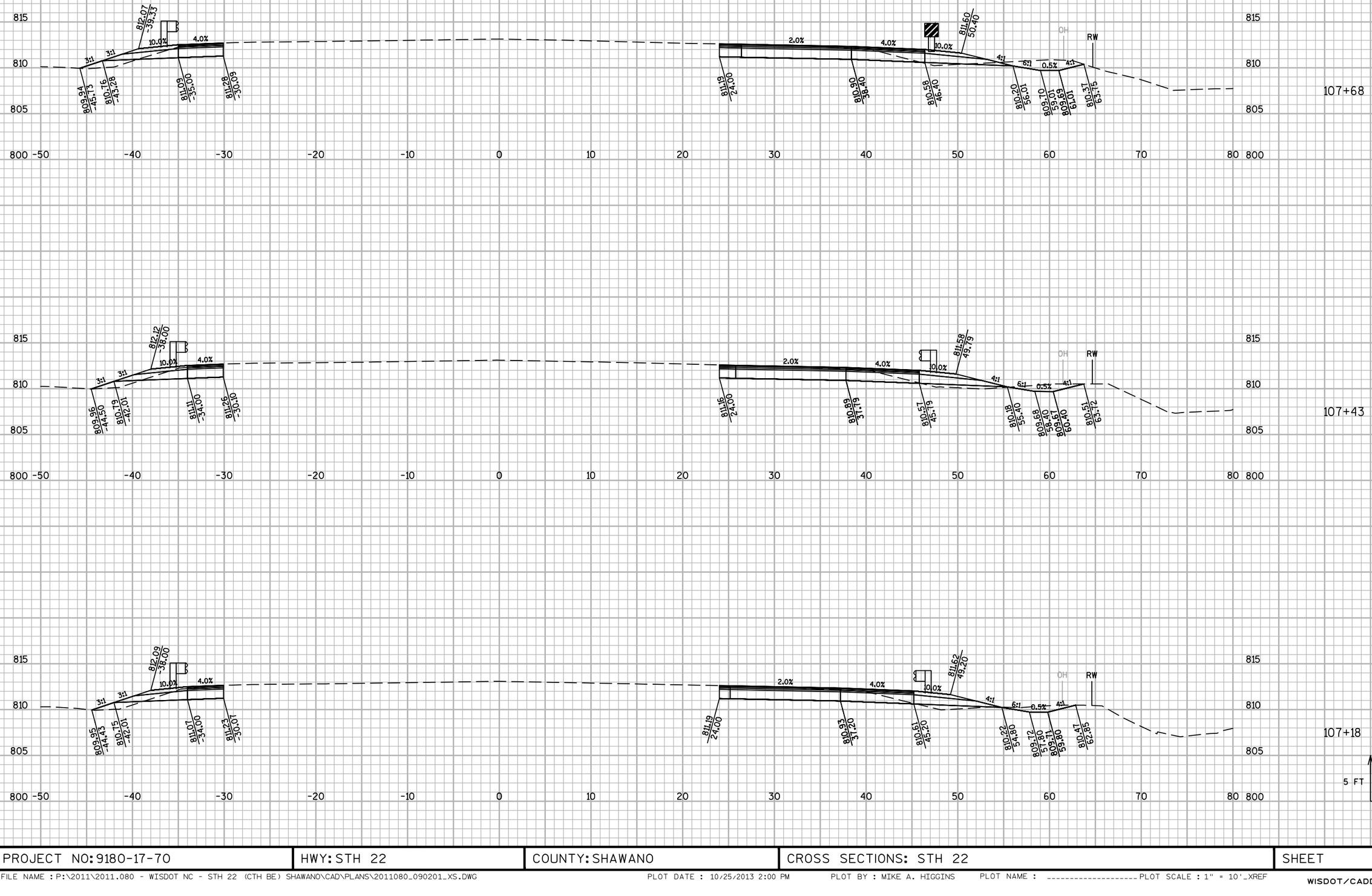
PROJECT NO: 9180-17-70	HWY: STH 22	COUNTY: SHAWANO	CROSS SECTIONS: STH 22	SHEET 73	E



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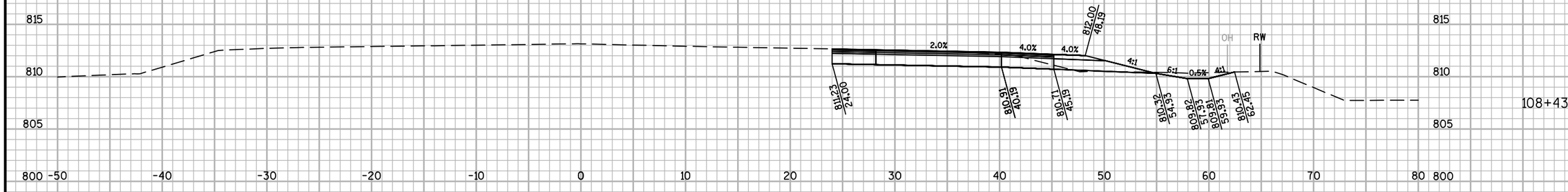
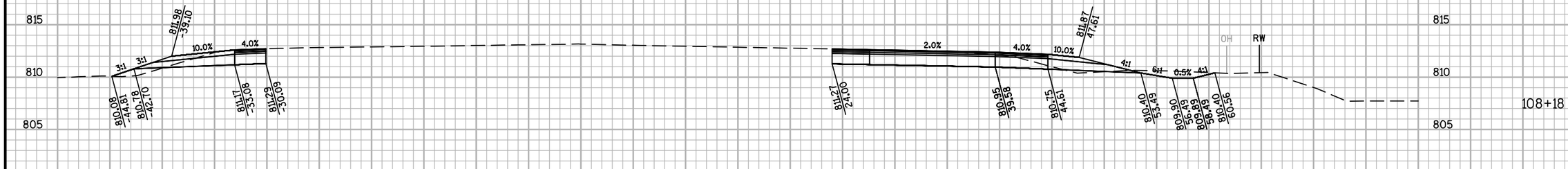
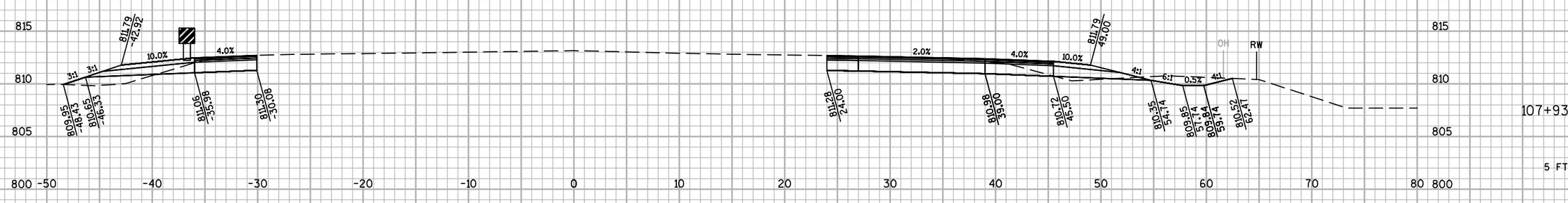
PROJECT NO: 9180-17-70	HWY: STH 22	COUNTY: SHAWANO	CROSS SECTIONS: STH 22	SHEET 74	E







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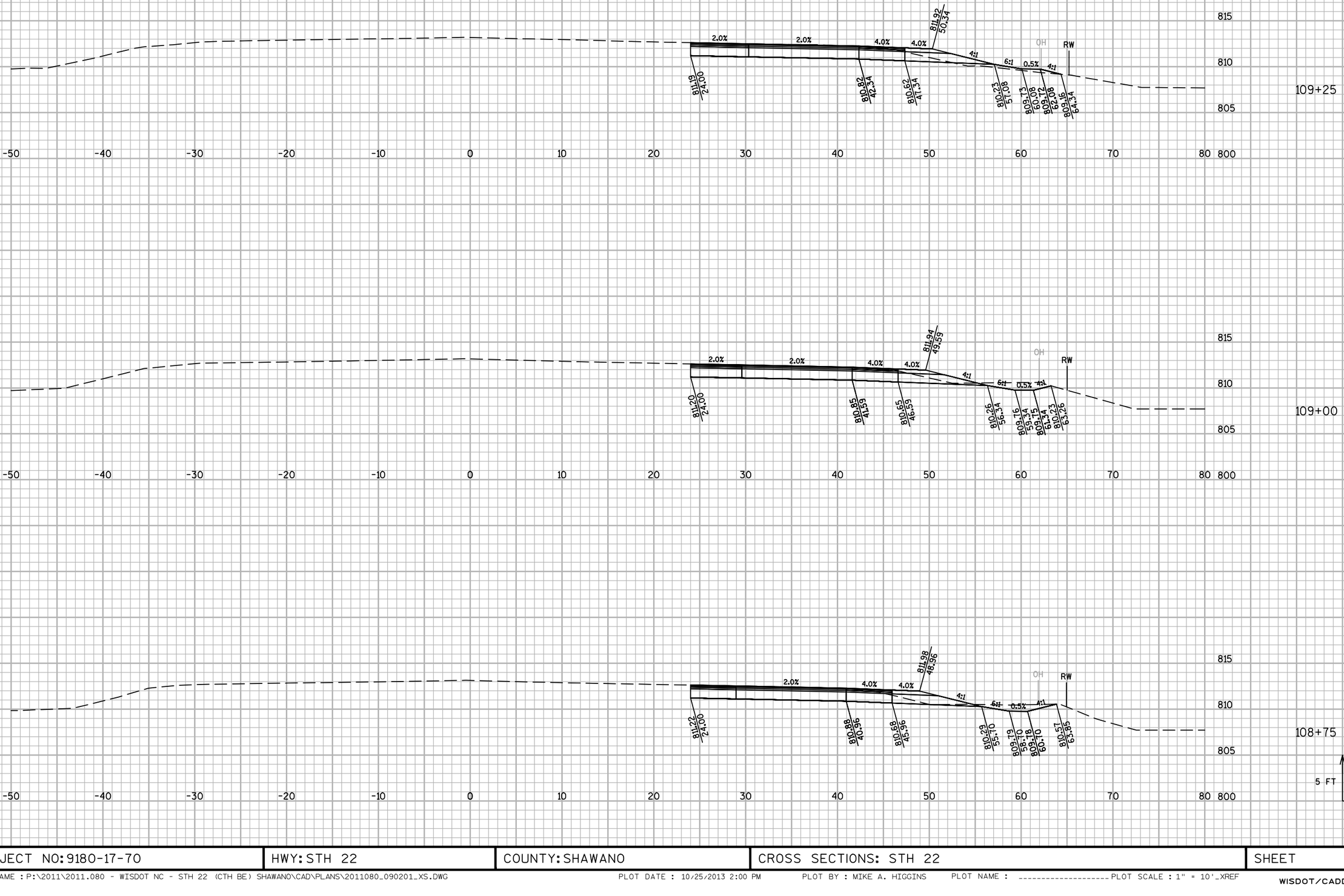
PROJECT NO: 9180-17-70	HWY: STH 22	COUNTY: SHAWANO	CROSS SECTIONS: STH 22	SHEET 75	E



9

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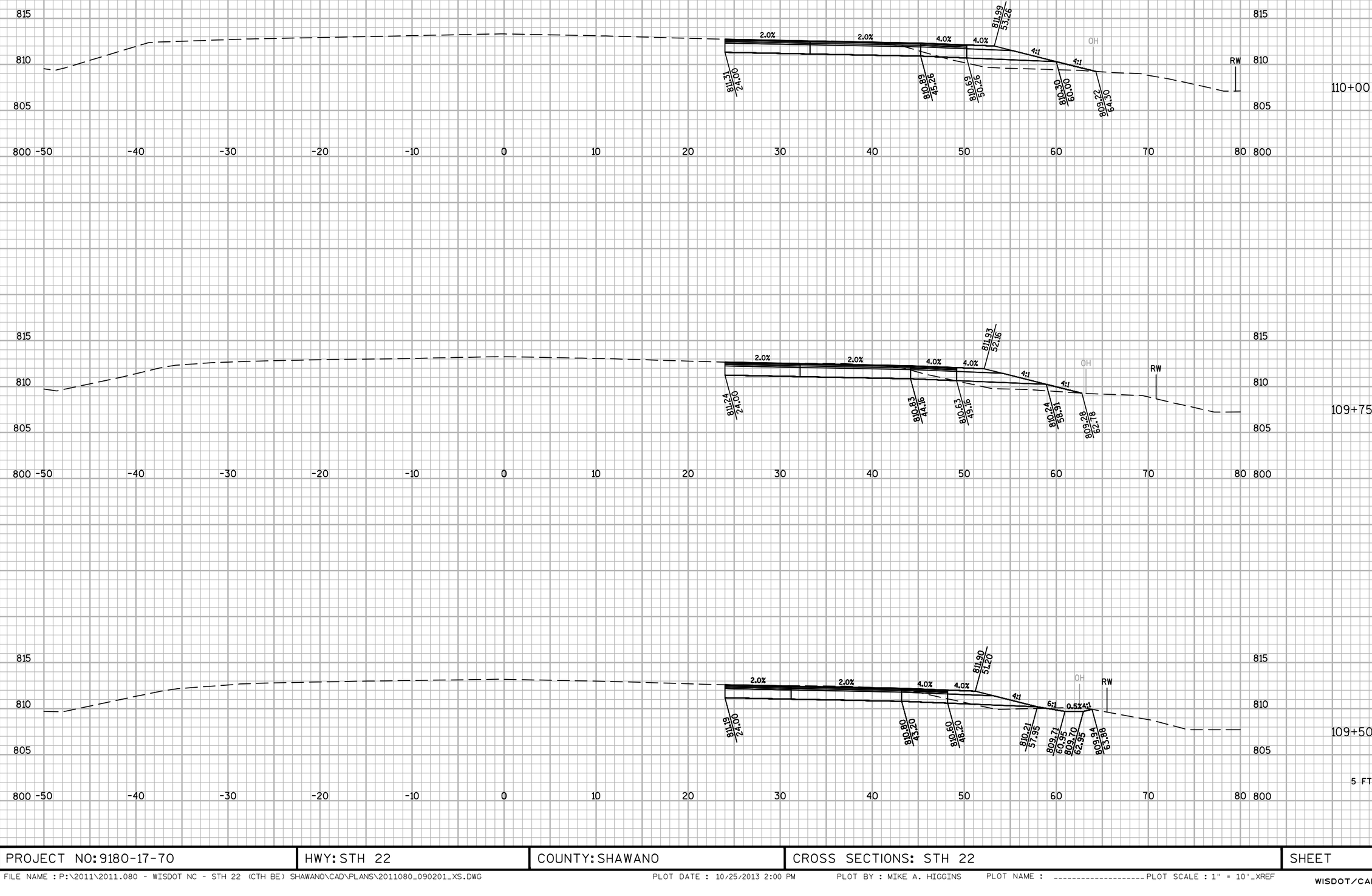
PROJECT NO: 9180-17-70	HWY: STH 22	COUNTY: SHAWANO	CROSS SECTIONS: STH 22	SHEET	E

FILE NAME : P:\2011\2011.080 - WISDOT NC - STH 22 (CTH BE) SHAWANO\CAD\PLANS\2011080_090201_XS.DWG PLOT DATE : 10/25/2013 2:00 PM PLOT BY : MIKE A. HIGGINS PLOT NAME : _____ PLOT SCALE : 1" = 10'_XREF



9

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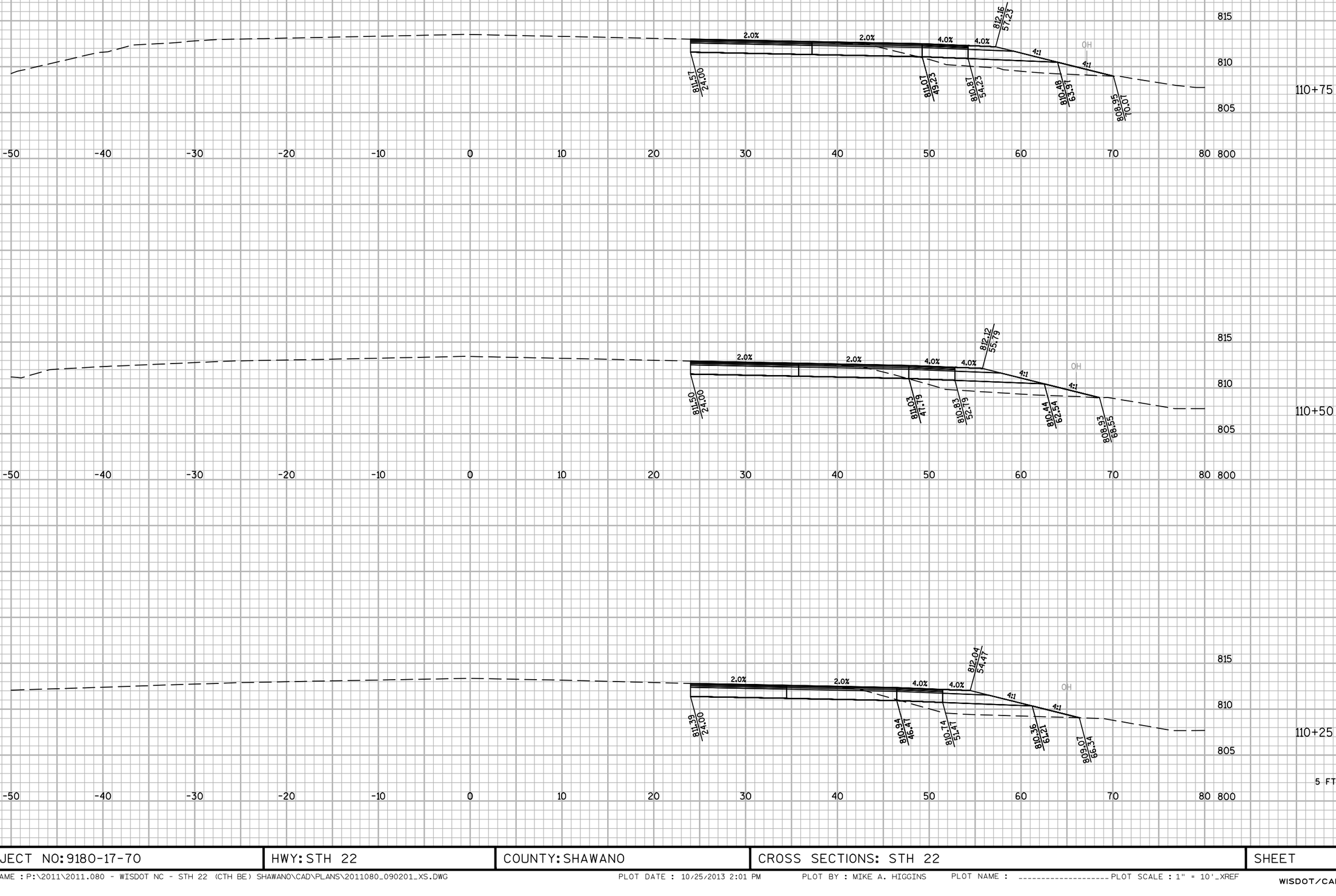
PROJECT NO: 9180-17-70	HWY: STH 22	COUNTY: SHAWANO	CROSS SECTIONS: STH 22	SHEET 77	E



9

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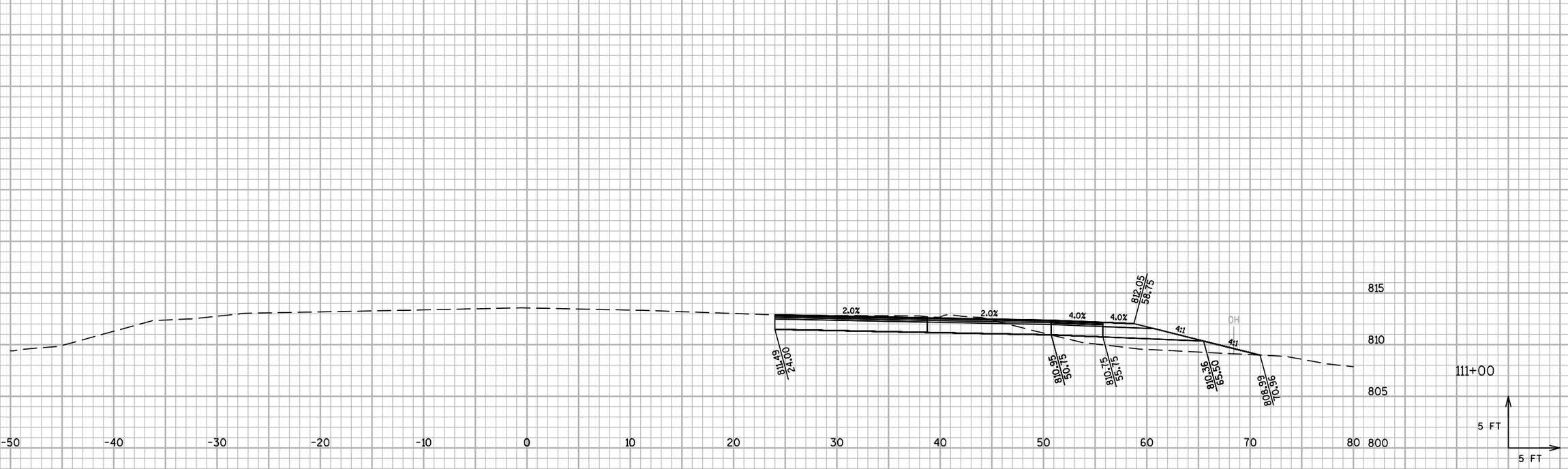
PROJECT NO: 9180-17-70	HWY: STH 22	COUNTY: SHAWANO	CROSS SECTIONS: STH 22	SHEET 78	E



9

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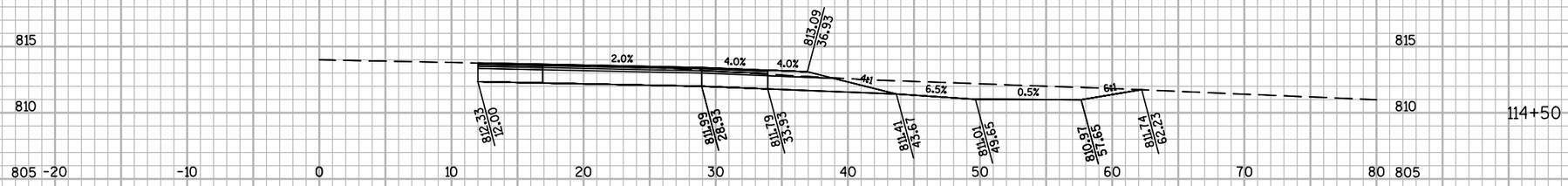
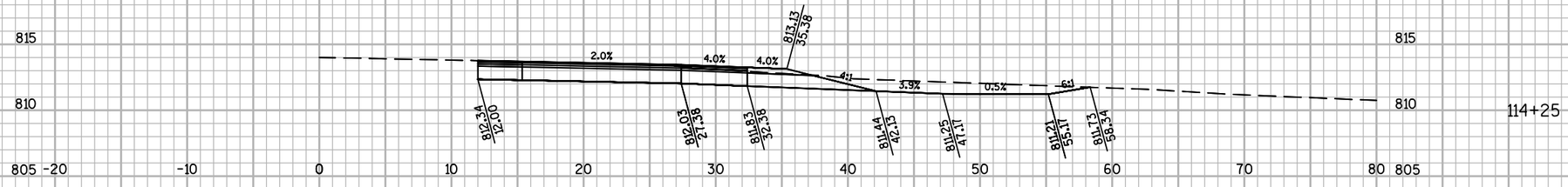
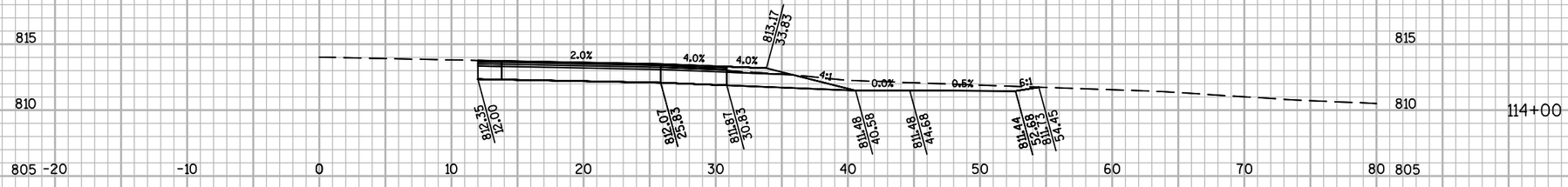
PROJECT NO: 9180-17-70	HWY: STH 22	COUNTY: SHAWANO	CROSS SECTIONS: STH 22	SHEET 79	E







9

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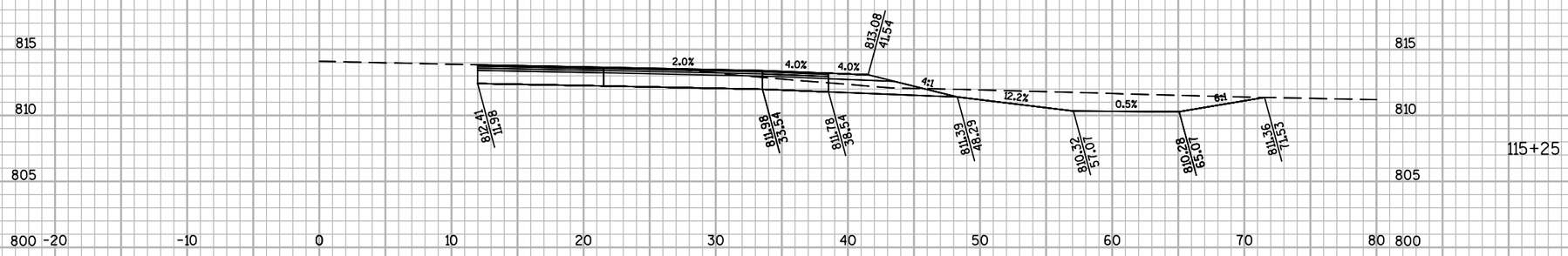
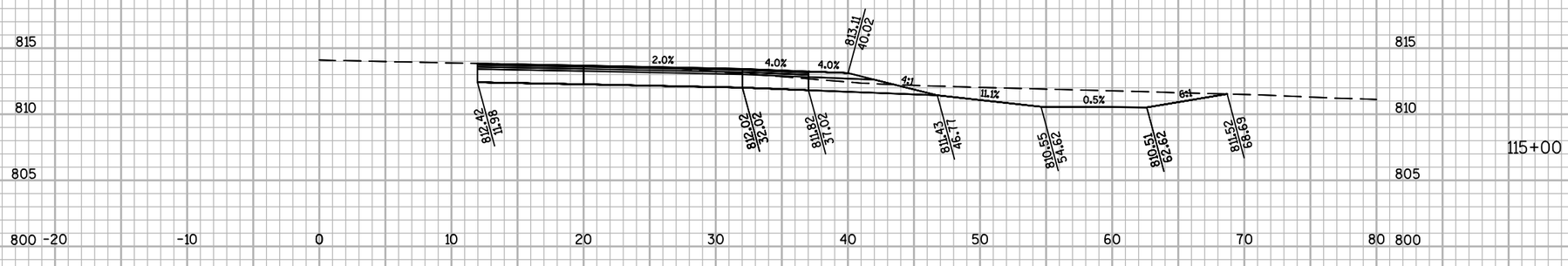
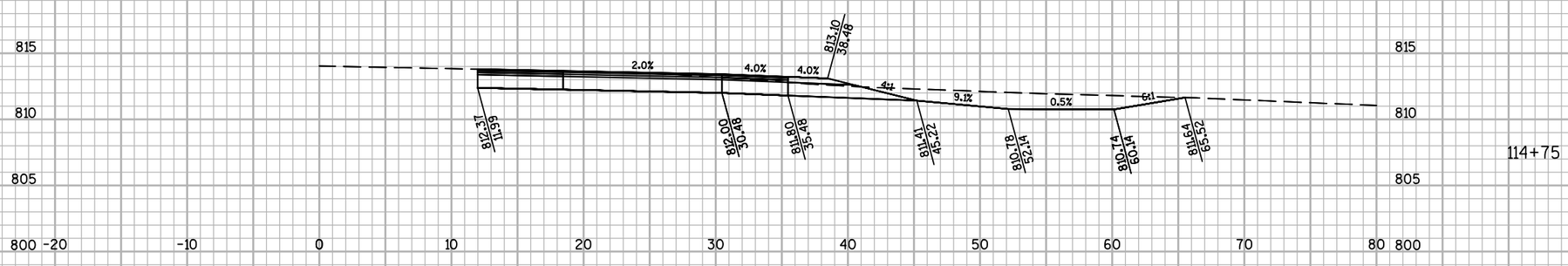
PROJECT NO: 9180-17-70	HWY: STH 22	COUNTY: SHAWANO	CROSS SECTIONS: STH 22	SHEET 80	E



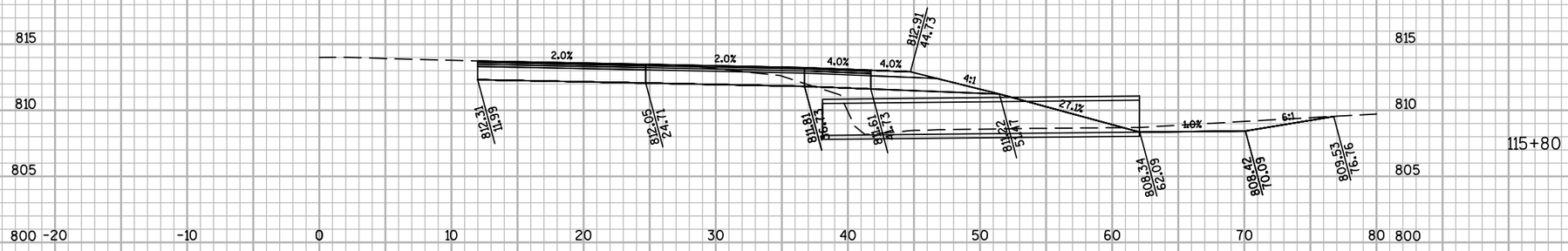


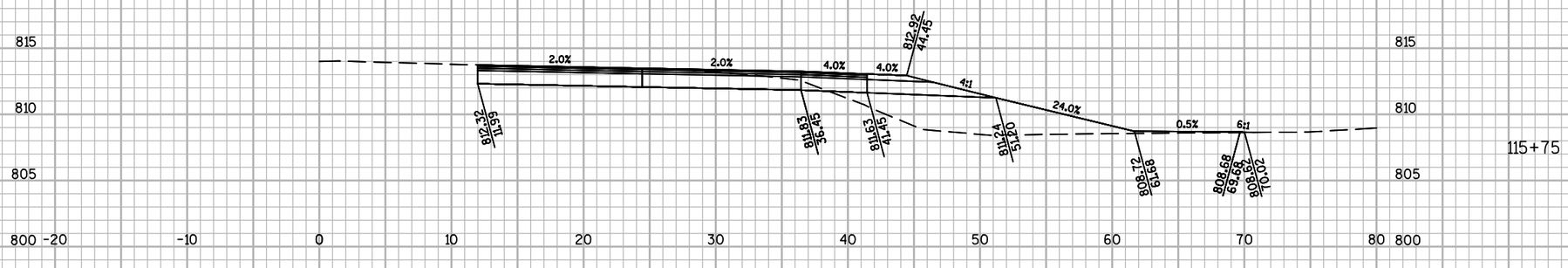


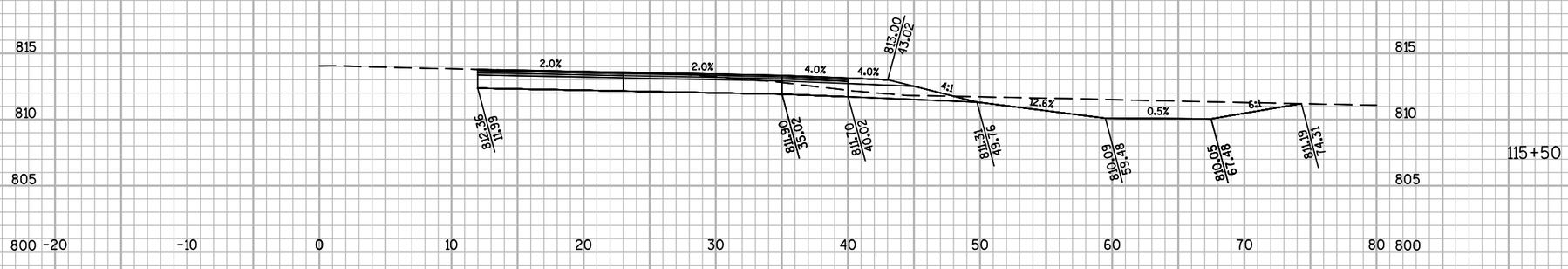
5 FT
5 FT

9 9

PROJECT NO: 9180-17-70	HWY: STH 22	COUNTY: SHAWANO	CROSS SECTIONS: STH 22	SHEET 81	E



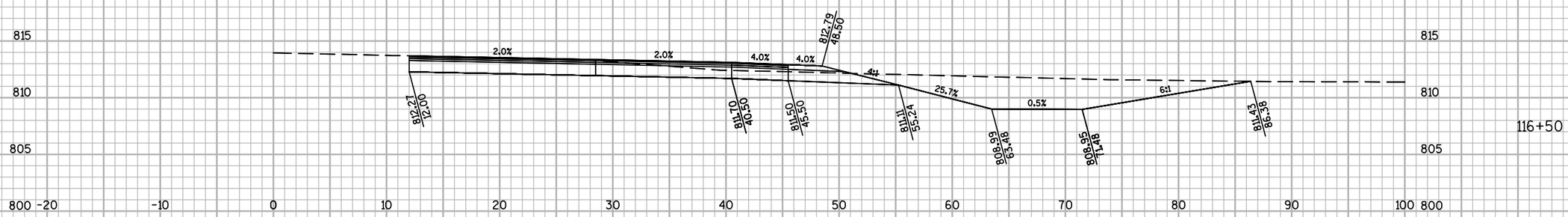


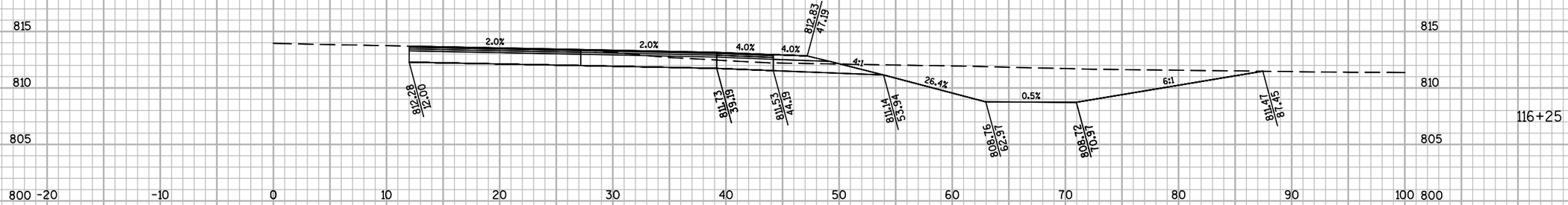


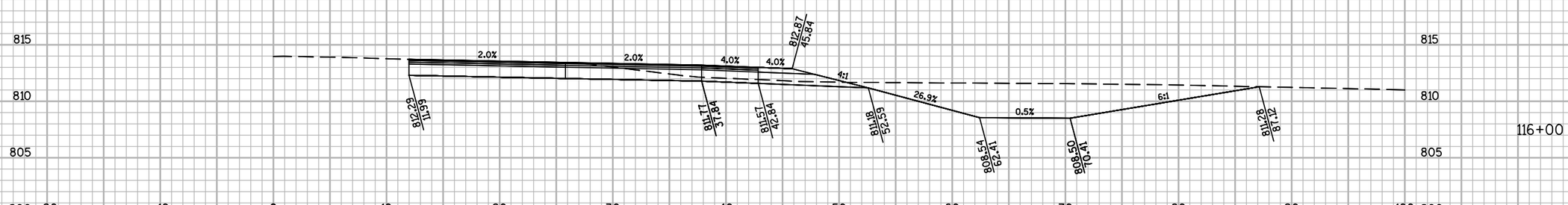
5 FT
5 FT

9 9

PROJECT NO: 9180-17-70	HWY: STH 22	COUNTY: SHAWANO	CROSS SECTIONS: STH 22	SHEET 82	E







9

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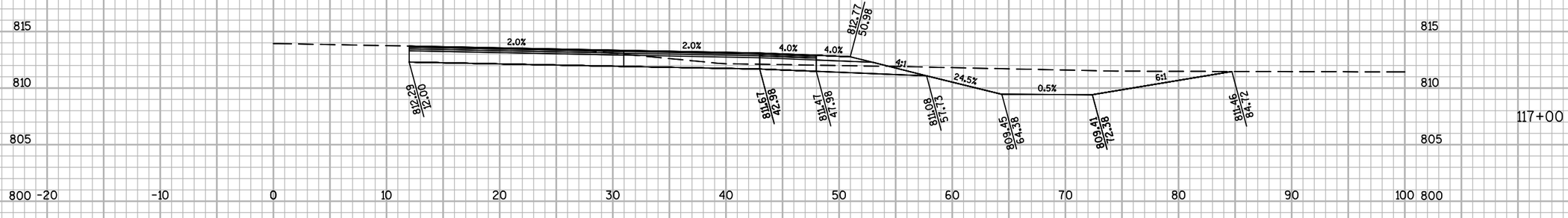
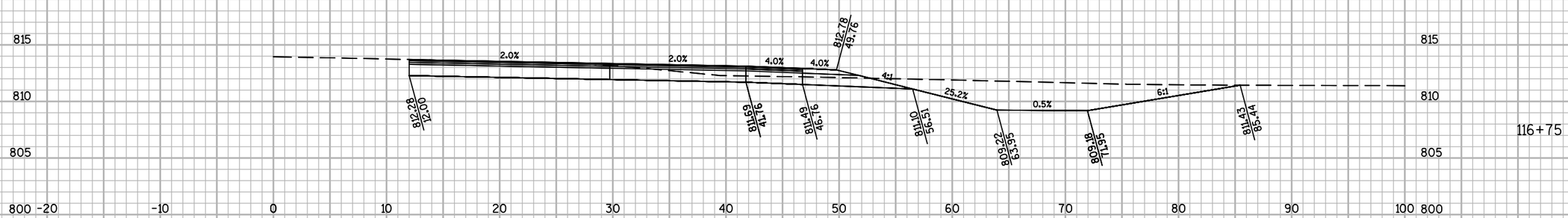
PROJECT NO: 9180-17-70	HWY: STH 22	COUNTY: SHAWANO	CROSS SECTIONS: STH 22	SHEET 83	E

117+25



117+00



116+75

9

9

PROJECT NO: 9180-17-70	HWY: STH 22	COUNTY: SHAWANO	CROSS SECTIONS: STH 22	SHEET 84	E

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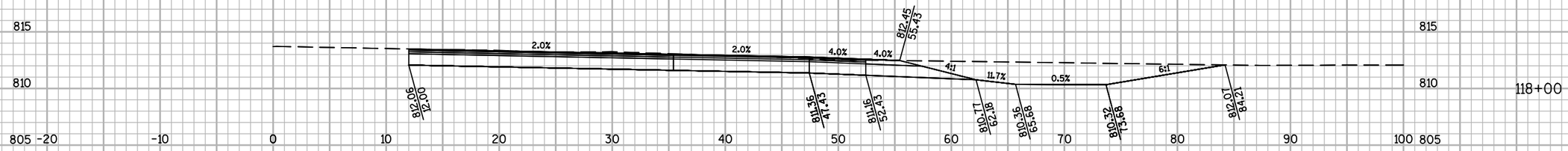
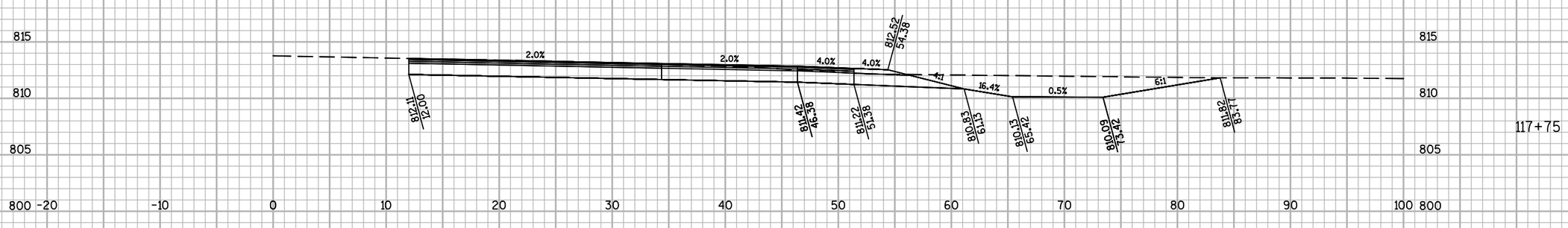
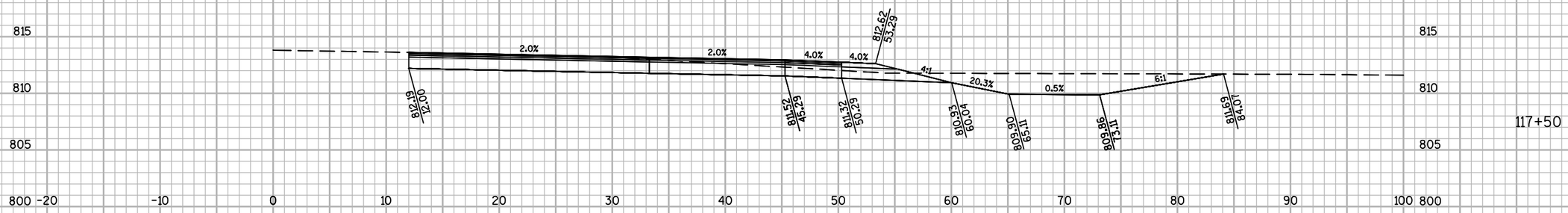
WISDOT/CADDS SHEET 49







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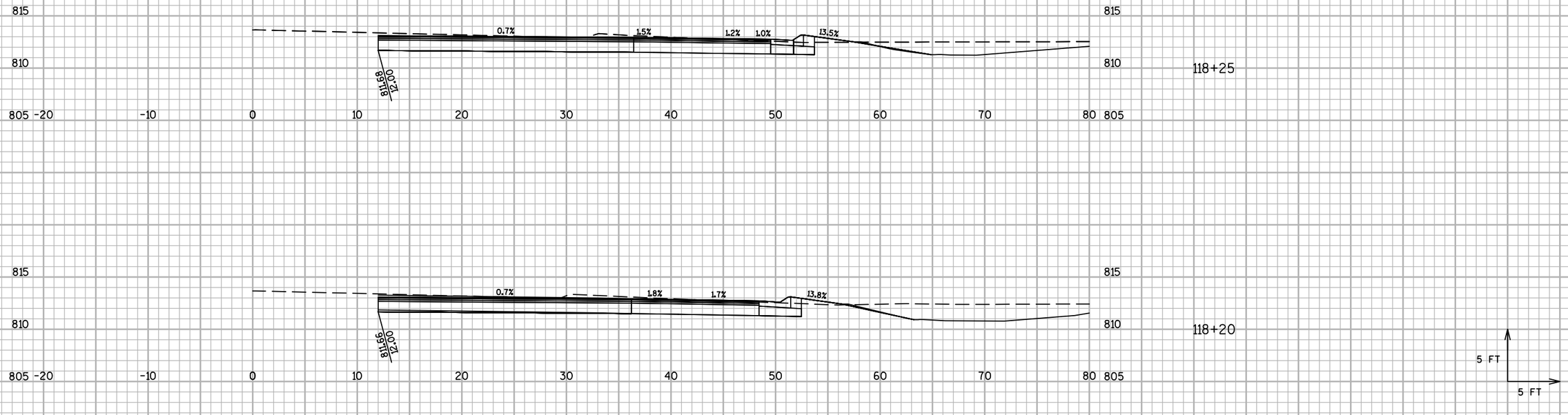
PROJECT NO: 9180-17-70	HWY: STH 22	COUNTY: SHAWANO	CROSS SECTIONS: STH 22	SHEET 85	E



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PROJECT NO: 9180-17-70	HWY: STH 22	COUNTY: SHAWANO	CROSS SECTIONS: STH 22	SHEET 86	E

Notes

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