2014127

PROJECT ID: 9478-05-70
WITH: N/A

COUNTY: MARATHON

ORDER OF SHEETS

TOTAL SHEETS =

REVISIONS:
SHEETS #4, #9, #11, #12, #15, and #16

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

CTH H - CTH S

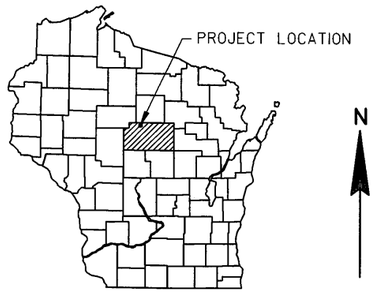
TOWN OF HALSEY

CTH F

MARATHON COUNTY

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
9478-05-70		

AS-BUILT PLAN
SUPERVISOR: Lynn Saeger, WisDOT
PROJECT MANAGER: Mike Roberts
DAAR Engineering, Inc.
PROJECT LEADER: Mathew D. Adams
Fleming, Andre & Associates, Inc.
CONTRACTOR: Marathon County
Highway Department
WORK STARTED: 05/27/2014
WORK COMPLETED: 08/01/2014
FINAL CONTRACT COST:
SUBCONTRACTORS:
Century Fence Company



N

STATE PROJECT NUMBER
9478-05-70

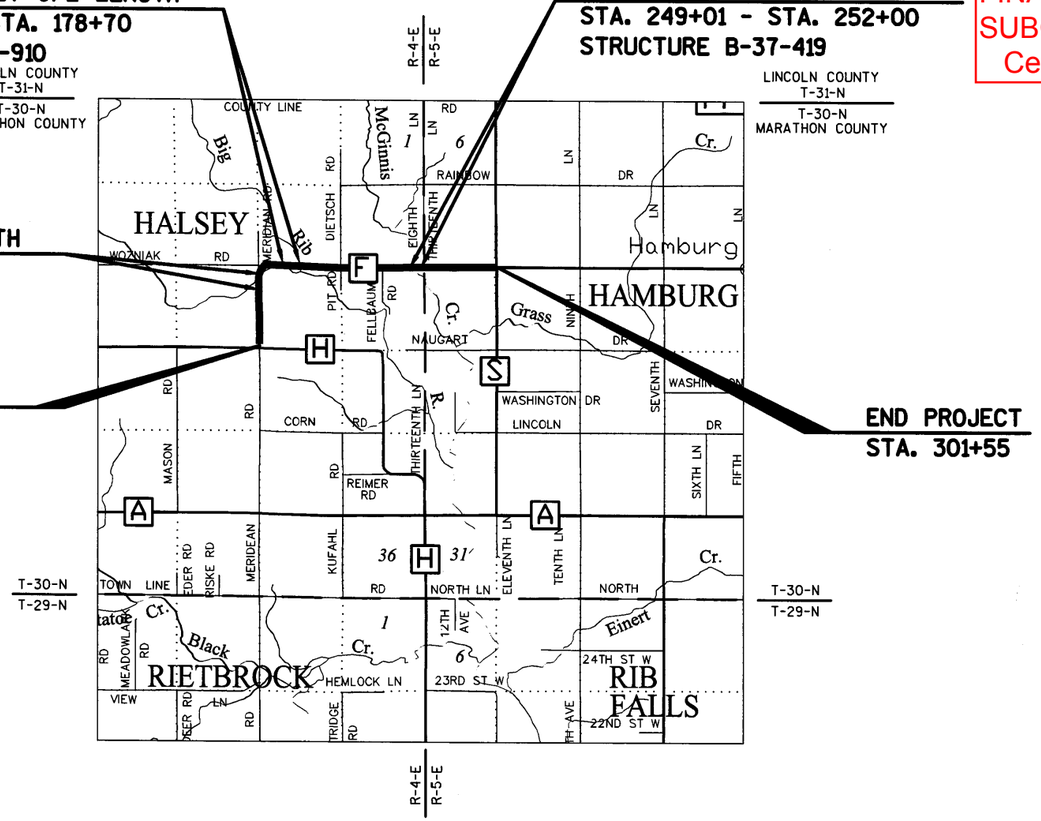
EXCEPTION TO NET C/L LENGTH
STA. 175+70 - STA. 178+70
STRUCTURE P-37-910

EXCEPTION TO NET C/L LENGTH
STA. 249+01 - STA. 252+00
STRUCTURE B-37-419

EXCEPTION TO NET C/L LENGTH
STA. 143+14 - STA. 147+59
STRUCTURE B-37-415

BEGIN PROJECT
STA. 100+75
Y= 244,758.69
X= 184,344.32

END PROJECT
STA. 301+55



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

LAYOUT
SCALE 0 1 MI.

TOTAL NET LENGTH OF CENTERLINE = 3.605 MI.

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

DESIGN DESIGNATION

A.A.D.T.	2014	=	570
A.A.D.T.	2034	=	850
D.H.V.	2034	=	140
D.D.		=	62/38
T.		=	4.0%
DESIGN SPEED		=	55 M.P.H.
ESALS		=	58,400

ORIGINAL PLANS PREPARED BY

JEWELL associates engineers, inc.
Engineers - Surveyors - Architects

WISCONSIN
PATRICK A. ECKELBERG
E-38776
WISCONSIN RAPIDS, WIS.
PROFESSIONAL ENGINEER
11/22/2013

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY
Surveyor JEWELL ASSOCIATES ENGINEERS, INC.
Designer JEWELL ASSOCIATES ENGINEERS, INC.
Management Consultant CEDAR CORPORATION

APPROVED FOR THE DEPARTMENT
DATE: 12-18-2013
Management Consultant Signature

E

FILE NAME : R:\PROJECTS\M97010 CTH F MARATHON COUNTY\CADD FILES\PRODUCTION DRAWINGS\ROADWAY\1 - TITLE SHEET\M97010 COVER.DWG PLOT DATE : 7/2/2013 3:30 PM PLOT BY : ECKELBERG, PATRICK

WISDOT/CADDS SHEET 10

2

UTILITIES

TELEPHONE/FIBER OPTIC

FRONTIER COMMUNICATIONS
1851 N 14TH AVENUE
WAUSAU, WI 54401
ATTN: WARREN INMAN
PH: (715) 847-1504
EMAIL: warren.e.inman@ftr.com

ELECTRIC

WISCONSIN PUBLIC SERVICE CORP.
3200 EAST MAIN STREET
MERRILL, WI 54452
ATTN: MICHAEL A. REHWINKEL
PH: (715) 539-4021
FAX: (715) 539-4055
EMAIL: marehwinkel@wisconsinpublicservice.com

ELECTRIC

TAYLOR ELECTRIC COOPERATIVE
N 1831 STATE HWY 13
MEDFORD, WI 54451
ATTN: KEVIN COMSTOCK
PH: (800) 862-2407
EMAIL: kevin@taylorelectric.org

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

* DENOTES UTILITY IS NOT A MEMBER OF DIGGERS HOTLINE

CONTACTS

DESIGN CONSULTANT:

JEWELL ASSOCIATES ENGINEERS, INC.
310 EAST JACKSON STREET
WISCONSIN RAPIDS, WI 54494
ATTN: FRED GRUBER, P.E.
PH: (608) 588-7484
CELL: (608) 341-8194
FAX: (608) 588-9322
E-MAIL: fred.gruber@jewellassoc.com

WDNR LIASON:

STATE OF WISCONSIN
DEPT. OF NATURAL RESOURCES
WEST CENTRAL REGIONAL OFFICE
473 GRIFFITH AVENUE
WISCONSIN RAPIDS, WI 54494
ATTN: MARC HERSHFIELD
PH: (715) 421-7867
FAX: (715) 421-7830
E-MAIL: marc.hershfield@wisconsin.gov

MARATHON COUNTY HIGHWAY DEPARTMENT

1430 WEST STREET
WAUSAU, WI 54401-5342
ATTN: JIM GRIESBACH
PH: (715) 261-1801
FAX: (715) 261-1810
EMAIL: jmgriesbach@mail.co.marathon.wi.us

LIST OF STANDARD ABBREVIATIONS

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

GENERAL NOTES

THE EXACT LOCATION AND WIDTH OF PRIVATE, COMMERCIAL, AND FIELD ENTRANCES TO BE DETERMINED BY THE ENGINEER IN THE FIELD.

ACCESS TO ALL ENTRANCES SHALL BE MAINTAINED DURING CONSTRUCTION.

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

ELEVATIONS SHOWN ON THE PLAN ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88).

CURVE DATA IS BASED ON THE ARC DEFINITION.

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

ASPHALTIC WASTE MATERIAL RESULTING FROM VARIOUS OPERATIONS UNDER THIS CONTRACT SHALL BE ENTIRELY REMOVED AND PROPERLY DISPOSED OF AT TIME OF OCCURRENCE.

UNLESS OTHERWISE SHOWN, ALL INTERSECTIONS SHALL BE TYPE "C" MODIFIED.

THE EXACT LOCATION OF BUTT JOINTS AND AMOUNT OF ASPHALTIC SURFACE TO BE REMOVED AT THE SIDE ROADS WILL BE DETERMINED IN THE FIELD BY THE ENGINEER.

THE EXACT LOCATIONS OF EXISTING UTILITY INSTALLATIONS AS SHOWN ON THE PLAN ARE APPROXIMATE. THERE MAY BE OF UTILITY INSTALLATIONS WITHIN THE PROJECT AREA THAT ARE NOT SHOWN. THE CONTRACTOR SHALL COORDINATE HIS CONSTRUCTION ACTIVITIES WITH A CALL TO DIGGERS HOTLINE AND/OR A DIRECT CALL TO THE UTILITIES THAT HAVE FACILITIES IN THE AREA.

ASPHALTIC HMA PAVEMENT SHALL BE CONSTRUCTED WITH THE FOLLOWING LAYER THICKNESS:

PAVEMENT THICKNESS (INCH)	LOWER LAYER (INCH)	NOM AGG SIZE (MM)	UPPER LAYER (INCH)	NOM AGG SIZE (MM)
4	2.25	19	1.75	12.5

2

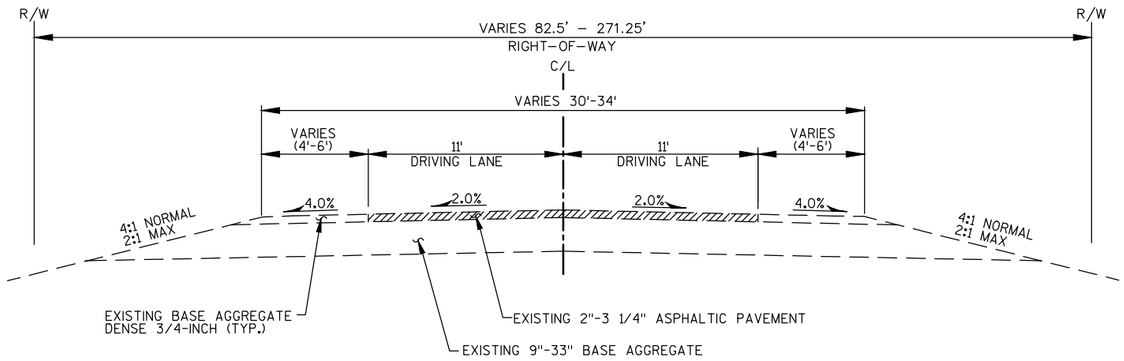
	HYDROLOGIC SOIL GROUP											
	A			B			C			D		
	SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)		
LAND USE	0-2	2-6	6 & OVER	0-2	2-6	6 & OVER	0-2	2-6	6 & OVER	0-2	2-6	6 & OVER
ROW CROPS	.08 .22	.16 .30	.22 .38	.12 .26	.20 .34	.27 .44	.15 .30	.24 .37	.33 .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= 41.36 ACRES
TOTAL AREA EXPECTED TO BE DISTURBED BY CONSTRUCTION ACTIVITIES = 16.31 ACRES

BORING LOG

CORE NO.	STATION	CL OFFSET	ASPHALT DEPTH	BASE COURSE	SUBBASE
F-9	111+88	6' RT.	2.25"	4" GRAVEL WITH SAND	17.75" GRAVELLY SAND
F-10	132+10	8' LT.	3"	4" GRAVEL WITH SAND	17" GRAVELLY SAND
F-11	152+27	7' RT.	3"	5" GRAVEL WITH SAND	16" GRAVELLY SAND
F-12	174+61	5' LT.	2.75"	5" GRAVEL WITH SAND	28.25" GRAVELLY SAND
F-13	196+73	5' RT.	3.25"	5" GRAVEL WITH SAND	10.75" GRAVELLY SAND
F-14	218+27	6' LT.	2"	4" GRAVELLY SAND	20" GRAVEL WITH SAND
F-15	242+72	9' RT.	2"	4" GRAVELLY SAND	10" GRAVELLY SAND
F-16	238+20	10' LT.	3"	4" GRAVEL WITH SAND	8" GRAVELLY SAND
F-17	233+69	7' RT.	2.5"	4" GRAVEL WITH SAND	12.5" GRAVEL WITH SAND

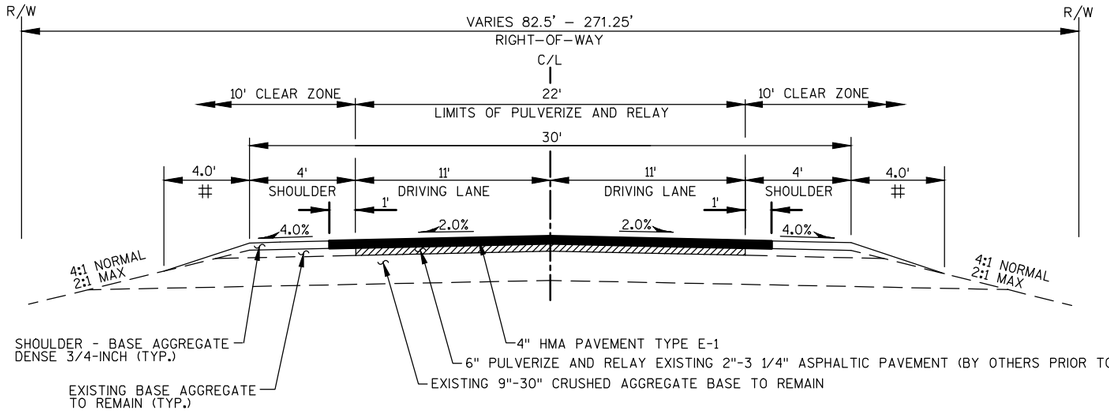
PROJECT NO: 9478-05-70	HWY: CTH F	COUNTY: MARATHON	GENERAL NOTES, UTILITIES, CONTACTS & ABBREVIATIONS	SHEET 2 _____	E



TYPICAL EXISTING SECTION

CTH F

STA. 100+75.00 - STA. 301+55.00

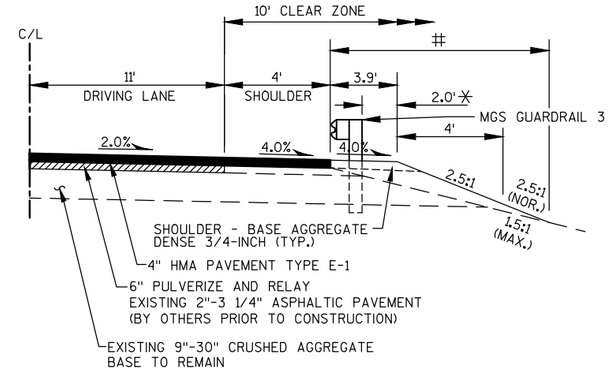


TYPICAL FINISHED SECTION

CTH F

STA. 100+75.00 - STA. 143+14.00
STA. 150+00.79 - STA. 158+73.35
STA. 162+92.01 - STA. 175+70.00
STA. 178+70.00 - STA. 249+01.00
STA. 252+00.00 - STA. 301+55.00

LIMITS OF FERTILIZER TYPE B, SEEDING MIXTURE NO. 20, SEEDING TEMPORARY & MULCH



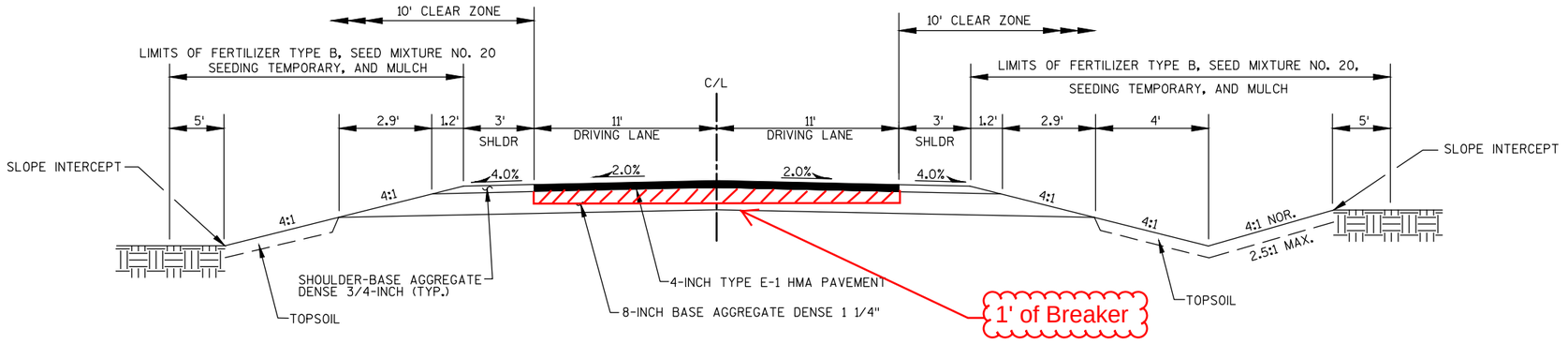
TYPICAL FINISHED HALF SECTION AT BEAM GUARD

CTH F

STA. 159+45 - STA. 172+20, RT.
STA. 221+15 - STA. 224+40, RT.

✳NOTE: WHEN DISTANCE FROM BACK OF POST TO SHOULDER HINGE POINT IS LESS THAN 2 FEET INSTALL MGS GUARDRAIL 3 K

PROJECT NO: 9478–05–70	HWY: CTH F	COUNTY: MARATHON	TYPICAL SECTIONS	SHEET 3 _____	E

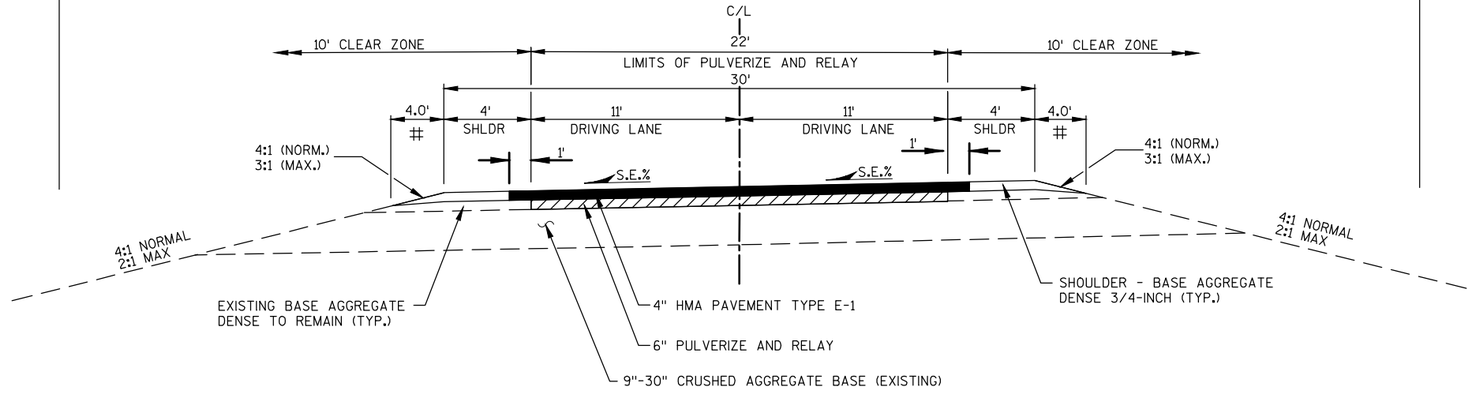


FILL SECTION

TYPICAL FINISHED SECTION

MERIDIAN RD
STA. 10+00 - STA. 11+55

CUT SECTION



TYPICAL FINISHED SUPERELEVATED SECTION

CTH F
STA. 147+59.00 - STA. 158+00.79
STA. 158+73.35 - STA. 162+92.61

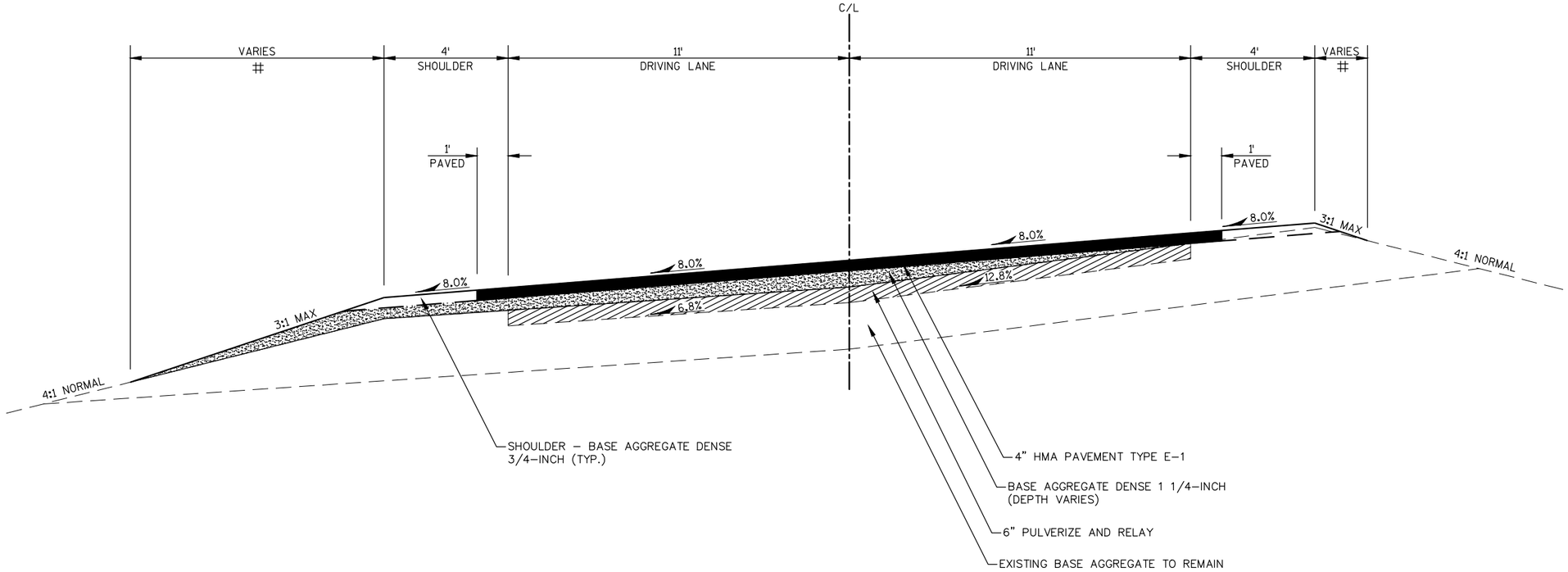
LIMITS OF FERTILIZER TYPE B, SEEDING MIXTURE NO. 20, SEEDING TEMPORARY & MULCH

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

SUPERELEVATION DATA TABLE

	EXISTING SUPERELVATION RATE (%)		PROPOSED SUPERELVATION RATE (%)		CHANGE IN SUPERELVATION	
PI STATION	LEFT	RIGHT	LEFT	RIGHT	LEFT	RIGHT
152+83.08	6.80	12.80	8.00	8.00	1.20	-4.80
160+83.02	2.60	6.50	6.00	6.00	3.40	-0.50
180+59.66	3.00	1.70	N.C.	N.C.	-1.00	0.30
203+19.44	1.50	4.00	N.C.	N.C.	0.50	-2.00
227+96.81	N.C.	N.C.	N.C.	N.C.	-	-

2

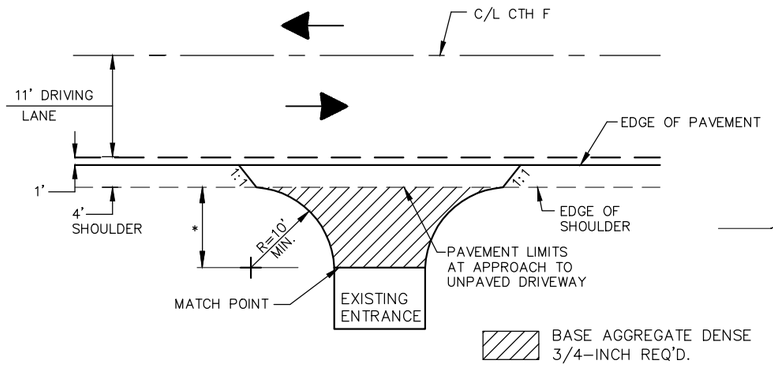


SUPERELEVATION CORRECTION DETAILS

CTH F
STA. 147+59.00 - STA. 158+00.79
STA. 158+73.35 - STA. 162+92.61
STA. 178+70.00 - STA. 183+22.99
STA. 200+21.99 - STA. 206+16.22

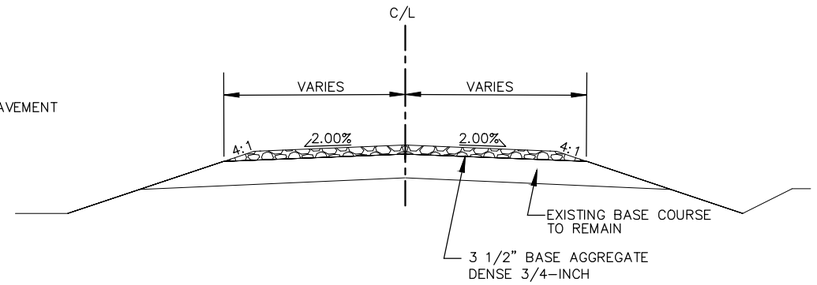
NOTE: DETAIL ABOVE SHOWS CORRECTION OF SUPERELEVATION IN CURVE 1 FROM AN EXISTING SUPERELEVATION OF 6.8% LEFT AND 12.8% RIGHT TO A PROPOSED SUPERELEVATION OF 8.0%.

LIMITS OF FERTILIZER TYPE B, SEEDING MIXTURE NO. 20, SEEDING TEMPORARY & MULCH



* 10' MIN. OR LIMITS AS DIRECTED BY ENGINEER

TYPICAL PRIVATE AND FIELD ENTRANCE DETAILS

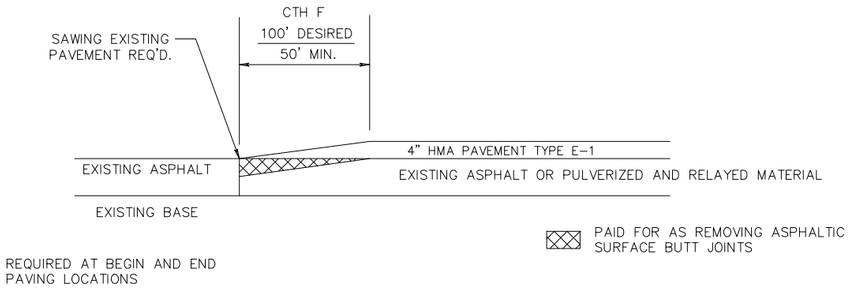


TYPICAL CROSS SECTION FOR PRIVATE DRIVE AND FIELD ENTRANCE

P.E. & F.E. DATA TABLE

STATION	LOCATION	TYPE	PAVEMENT STRUCTURE EXISTING	PAVEMENT STRUCTURE PROPOSED	WIDTH (ft)
102+69	MAINLINE, RT.	P.E.	BASE AGGREGATE DENSE	BASE AGGREGATE DENSE	11
110+39	MAINLINE, LT.	P.E.	BASE AGGREGATE DENSE	BASE AGGREGATE DENSE	13
122+75	MAINLINE, LT.	F.E.	BASE AGGREGATE DENSE	BASE AGGREGATE DENSE	15
126+62	MAINLINE, LT.	F.E.	BASE AGGREGATE DENSE	BASE AGGREGATE DENSE	25
128+22	MAINLINE, LT.	P.E.	BASE AGGREGATE DENSE	BASE AGGREGATE DENSE	18
131+54	MAINLINE, LT.	F.E.	BASE AGGREGATE DENSE	BASE AGGREGATE DENSE	18
139+38	MAINLINE, LT.	*	BASE AGGREGATE DENSE	BASE AGGREGATE DENSE	21
139+25	MAINLINE, RT.	*	BASE AGGREGATE DENSE	BASE AGGREGATE DENSE	13
160+08	MAINLINE, LT.	F.E.	BASE AGGREGATE DENSE	BASE AGGREGATE DENSE	11
180+68	MAINLINE, RT.	**	BASE AGGREGATE DENSE	BASE AGGREGATE DENSE	21
187+80	MAINLINE, LT.	F.E.	BASE AGGREGATE DENSE	BASE AGGREGATE DENSE	15
190+57	MAINLINE, RT.	F.E.	BASE AGGREGATE DENSE	BASE AGGREGATE DENSE	13
209+48	MAINLINE, RT.	F.E.	BASE AGGREGATE DENSE	BASE AGGREGATE DENSE	13
209+57	MAINLINE, LT.	P.E.	BASE AGGREGATE DENSE	BASE AGGREGATE DENSE	14
222+10	MAINLINE, LT.	F.E.	BASE AGGREGATE DENSE	BASE AGGREGATE DENSE	10
225+50	MAINLINE, RT.	F.E.	BASE AGGREGATE DENSE	BASE AGGREGATE DENSE	15
231+08	MAINLINE, LT.	F.E.	BASE AGGREGATE DENSE	BASE AGGREGATE DENSE	13
236+47	MAINLINE, RT.	P.E.	BASE AGGREGATE DENSE	BASE AGGREGATE DENSE	11
237+85	MAINLINE, RT.	P.E.	BASE AGGREGATE DENSE	BASE AGGREGATE DENSE	13
242+18	MAINLINE, LT.	F.E.	BASE AGGREGATE DENSE	BASE AGGREGATE DENSE	14
242+33	MAINLINE, RT.	F.E.	BASE AGGREGATE DENSE	BASE AGGREGATE DENSE	16
252+12	MAINLINE,LT.	P.E.	BASE AGGREGATE DENSE	BASE AGGREGATE DENSE	11
252+73	MAINLINE, LT.	P.E.	BASE AGGREGATE DENSE	BASE AGGREGATE DENSE	13
253+17	MAINLINE, RT.	P.E.	BASE AGGREGATE DENSE	BASE AGGREGATE DENSE	14
254+02	MAINLINE, RT.	P.E.	BASE AGGREGATE DENSE	BASE AGGREGATE DENSE	13
265+56	MAINLINE, LT.	P.E.	BASE AGGREGATE DENSE	BASE AGGREGATE DENSE	12
271+33	MAINLINE, RT.	F.E.	BASE AGGREGATE DENSE	BASE AGGREGATE DENSE	14
271+86	MAINLINE, LT.	F.E.	BASE AGGREGATE DENSE	BASE AGGREGATE DENSE	14
272+20	MAINLINE, RT.	P.E.	BASE AGGREGATE DENSE	BASE AGGREGATE DENSE	17
273+34	MAINLINE, RT.	F.E.	BASE AGGREGATE DENSE	BASE AGGREGATE DENSE	13
279+55	MAINLINE, LT.	F.E.	BASE AGGREGATE DENSE	BASE AGGREGATE DENSE	15
284+23	MAINLINE, RT.	P.E.	BASE AGGREGATE DENSE	BASE AGGREGATE DENSE	15
285+24	MAINLINE, RT.	P.E.	BASE AGGREGATE DENSE	BASE AGGREGATE DENSE	13

* CORRIDOR 18 SNOWMOBILE/ATV TRAIL X-ING
** AMCO COUNTY PARK ENTRANCE



REQUIRED AT BEGIN AND END PAVING LOCATIONS

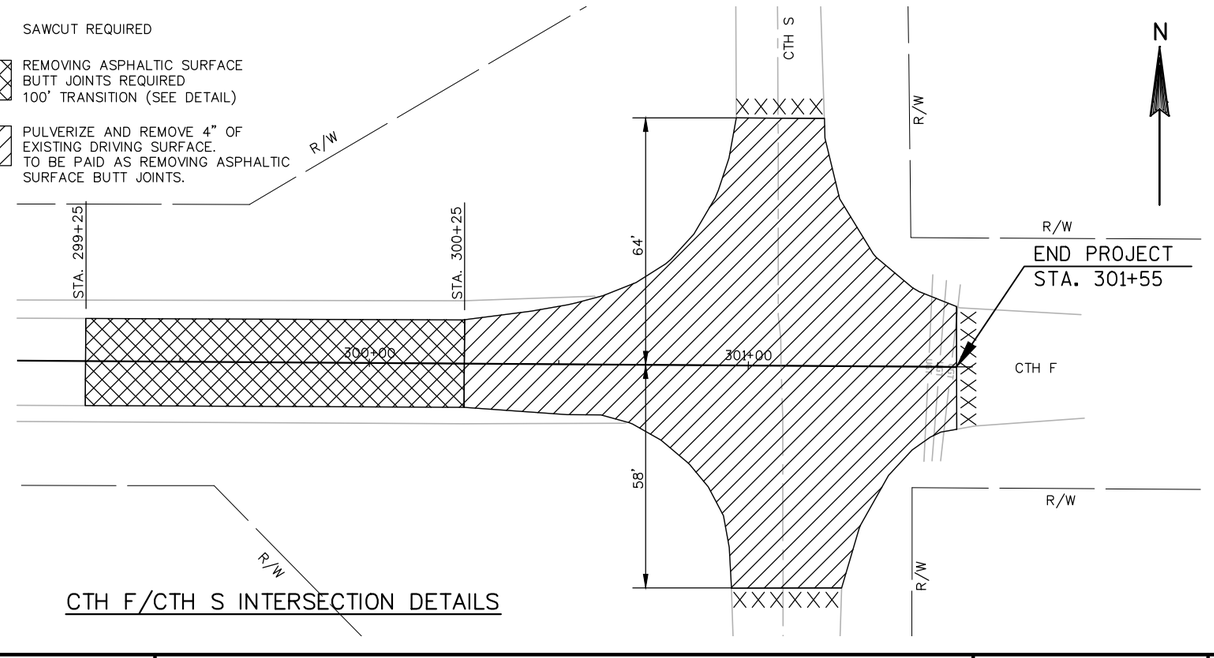
BUTT JOINT

STA. 100+75 – STA. 101+75
STA. 142+14 – STA. 143+14
STA. 147+59 – STA. 148+59
STA. 174+70 – STA. 175+70
STA. 178+70 – STA. 179+70
STA. 248+01 – STA. 249+01
STA. 252+00 – STA. 253+00
STA. 300+55 – STA. 301+55

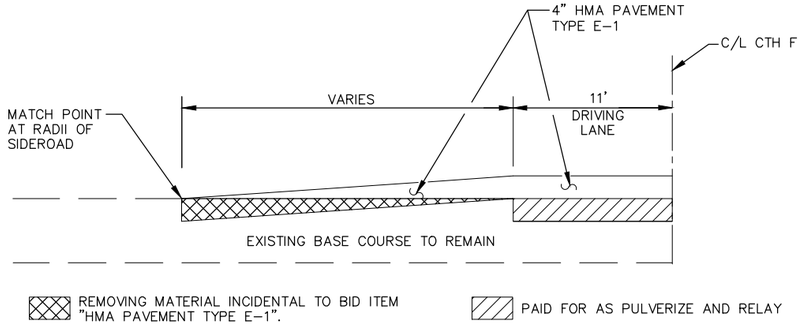
XXXXX SAWCUT REQUIRED

REMOVING ASPHALTIC SURFACE BUTT JOINTS REQUIRED 100' TRANSITION (SEE DETAIL)

PULVERIZE AND REMOVE 4" OF EXISTING DRIVING SURFACE. TO BE PAID AS REMOVING ASPHALTIC SURFACE BUTT JOINTS.



CTH F/CTH S INTERSECTION DETAILS

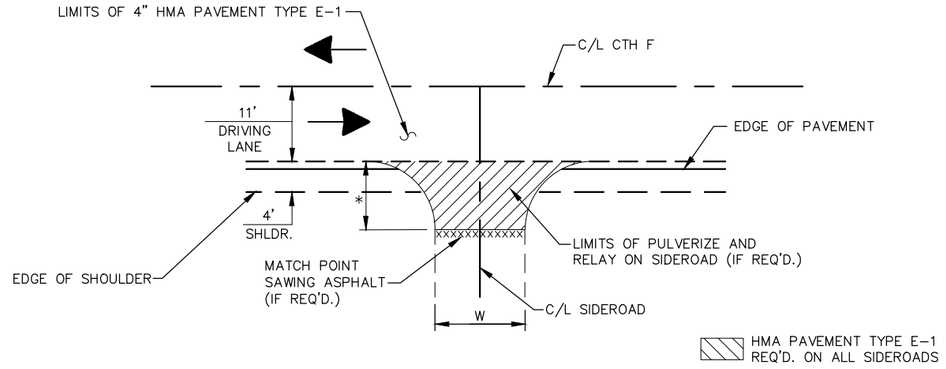


DETAILS OF BASE AGGREGATE DENSE AT SIDE ROADS

SIDE ROAD DATA TABLE

SIDEROAD	PAVEMENT STRUCTURE EXISTING	PAVEMENT STRUCTURE PROPOSED	W (ft.)
* MERIDIAN RD.	ASPHALT	ASPHALT	24
DIETSCH RD. (NORTH)	BASE AGGREGATE DENSE	ASPHALT	24
DIETSCH RD. (SOUTH)	BASE AGGREGATE DENSE	ASPHALT	19
FELLBAUM RD.	BASE AGGREGATE DENSE	ASPHALT	25
13TH LN.	BASE AGGREGATE DENSE	ASPHALT	24
CTH S (NORTH)	ASPHALT	ASPHALT	23
CTH S (SOUTH)	ASPHALT	ASPHALT	29

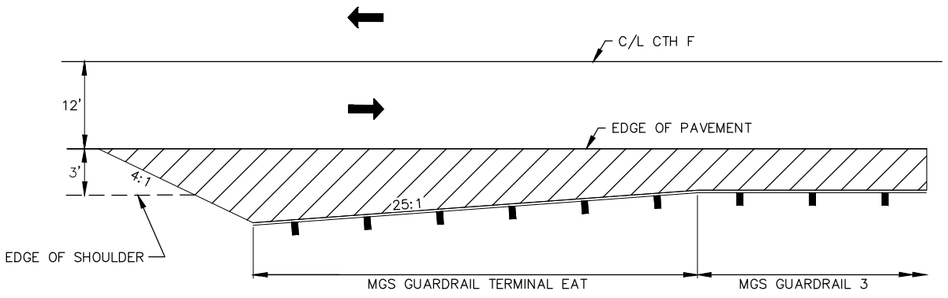
* DENOTES BASE AGGREGATE DENSE SIDEROAD PREVIOUSLY PAVED TO RADII POINTS AT INTERSECTION



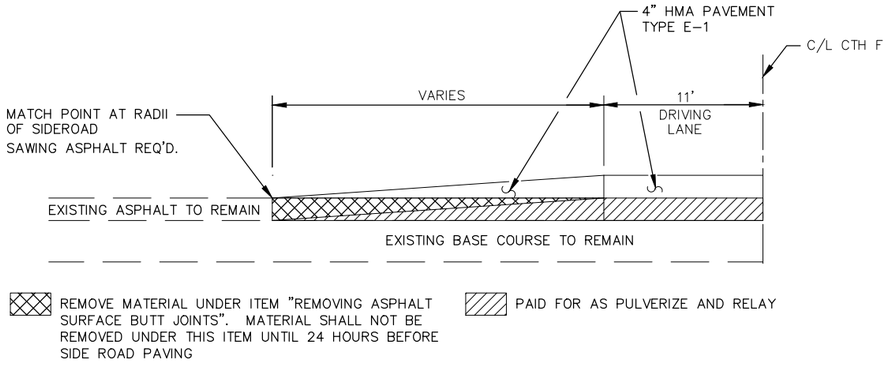
* REMOVING ASPHALTIC SURFACE BUTT JOINTS LIMITS TO BE DETERMINED BY ENGINEER IN FIELD.

SIDEROAD DETAIL

NOTE: GRADING, SHAPING, AND FINISHING SIDEROADS IS CONSIDERED INCIDENTAL TO HMA PAVEMENT TYPE E-1

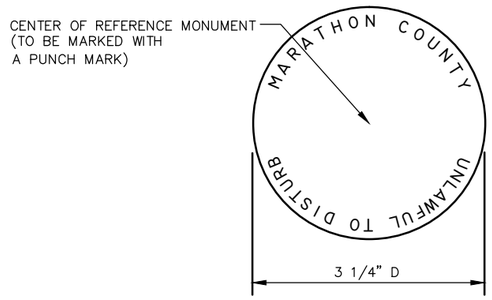


DETAIL FOR ASPHALTIC SHOULDER AT STEEL PLATE BEAM GUARD

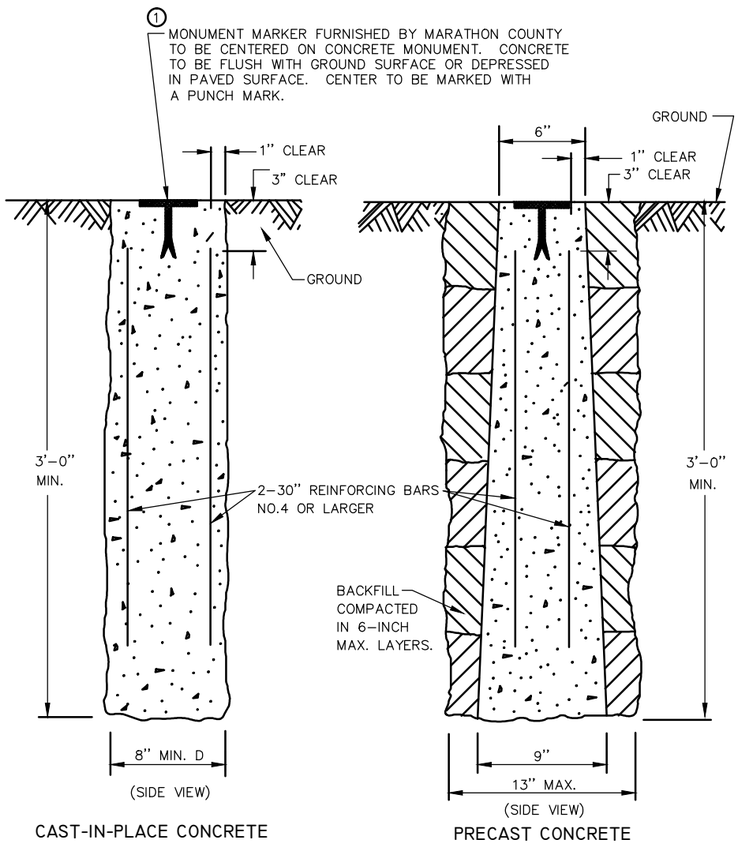


DETAILS OF HMA PAVEMENT AT SIDE ROADS

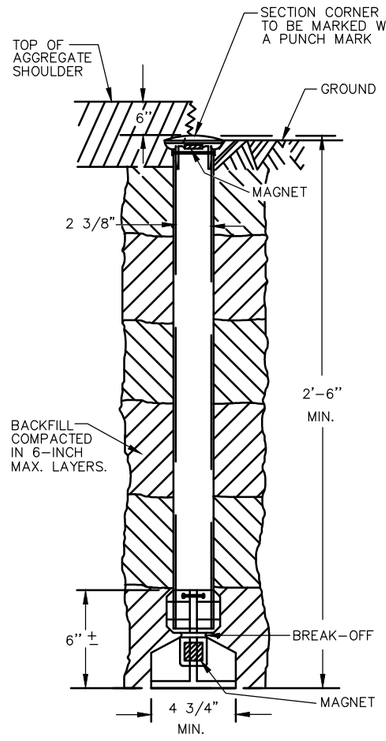
2



① MARATHON COUNTY MONUMENT MARKER LOGO

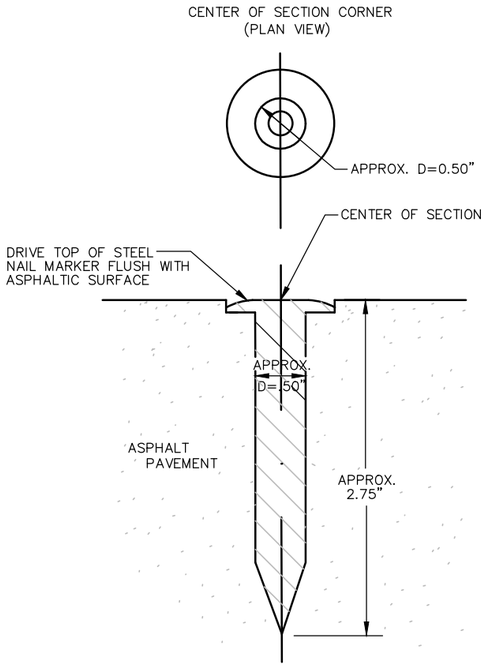


LANDMARK REFERENCE MONUMENTS (TIES ONLY)



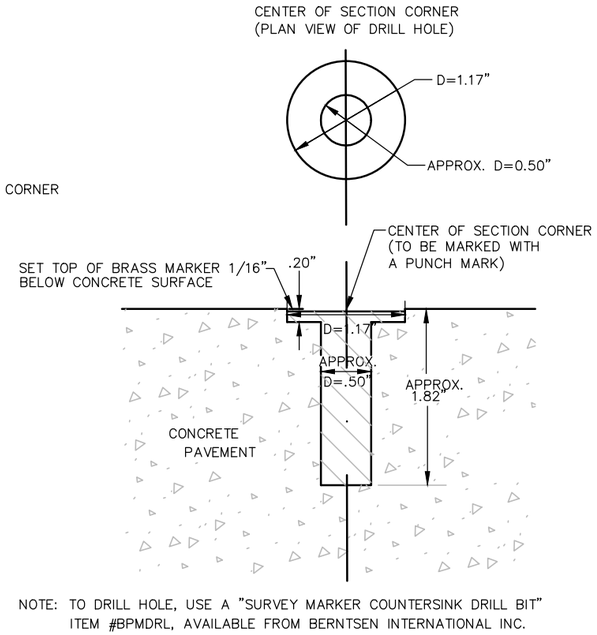
OUTSIDE OF PAVEMENT

① BERNSTEN AIBR30 ALUMINUM BREAK-OFF MONUMENT



IN ASPHALTIC PAVEMENT

① BERNSTEN SNMI STEEL NAIL MARKER



NOTE: TO DRILL HOLE, USE A "SURVEY MARKER COUNTERSINK DRILL BIT" ITEM #BPMDRL, AVAILABLE FROM BERNTSEN INTERNATIONAL INC.

(SIDE VIEW OF DRILL HOLE)

IN CONCRETE PAVEMENT

① BERNSTEN BP -I BRASS MARKER WITH ANCHOR PLUG

SECTION CORNER MONUMENTS

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.

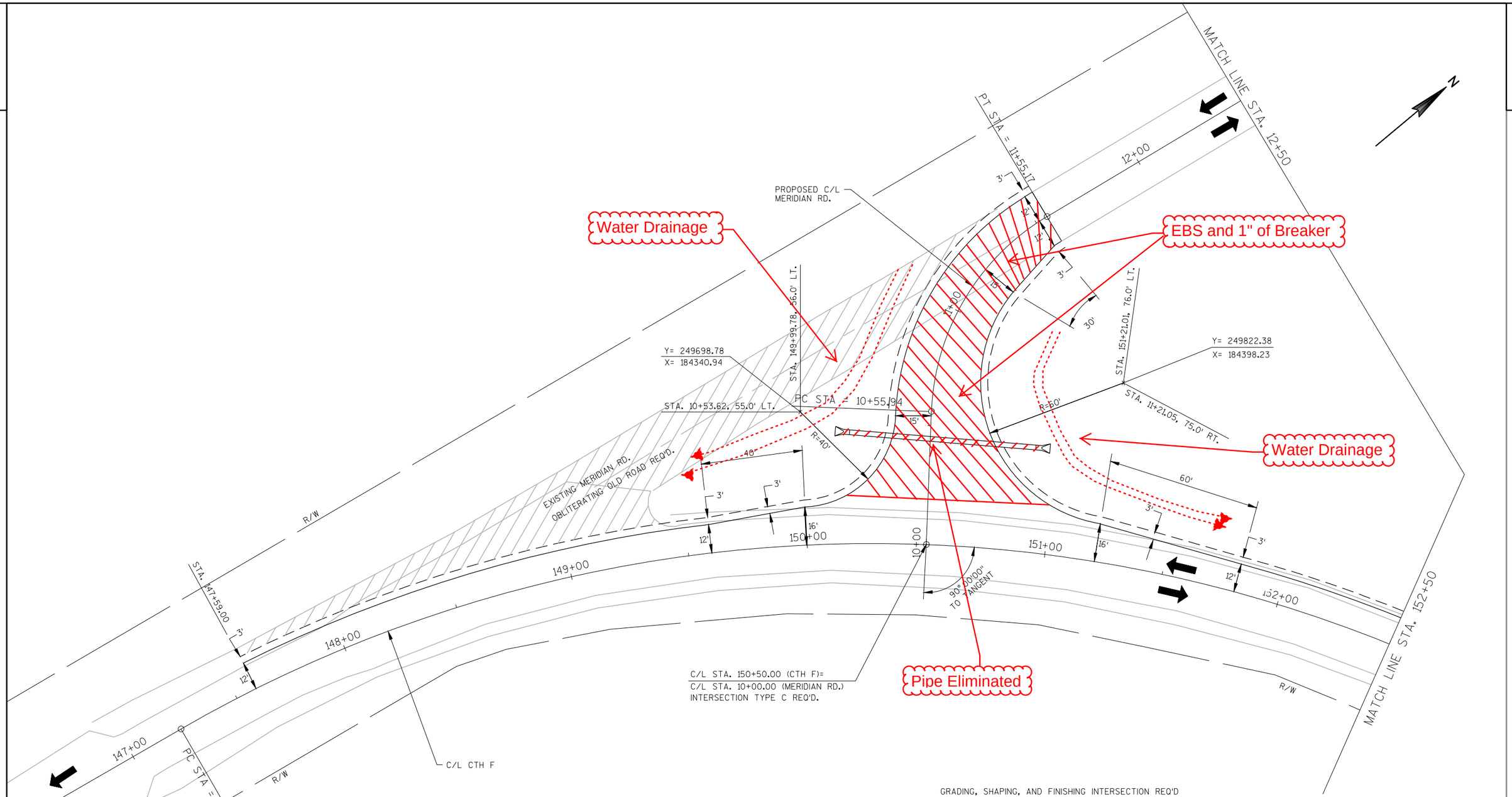
LOCATE LANDMARK REFERENCE MONUMENTS OUTSIDE THE CONSTRUCTION LIMITS AND WITHIN MARATHON COUNTY RIGHT OF WAY. LOCATION TO BE APPROVED BY THE ENGINEER.

① MARATHON COUNTY WILL SUPPLY.

SECTION CORNER MONUMENT AND LANDMARK REFERENCE MONUMENT DETAIL

PROJECT NO: 9478-05-70	HWY: CTH F	COUNTY: MARATHON	CONSTRUCTION DETAILS	SHEET 8	E

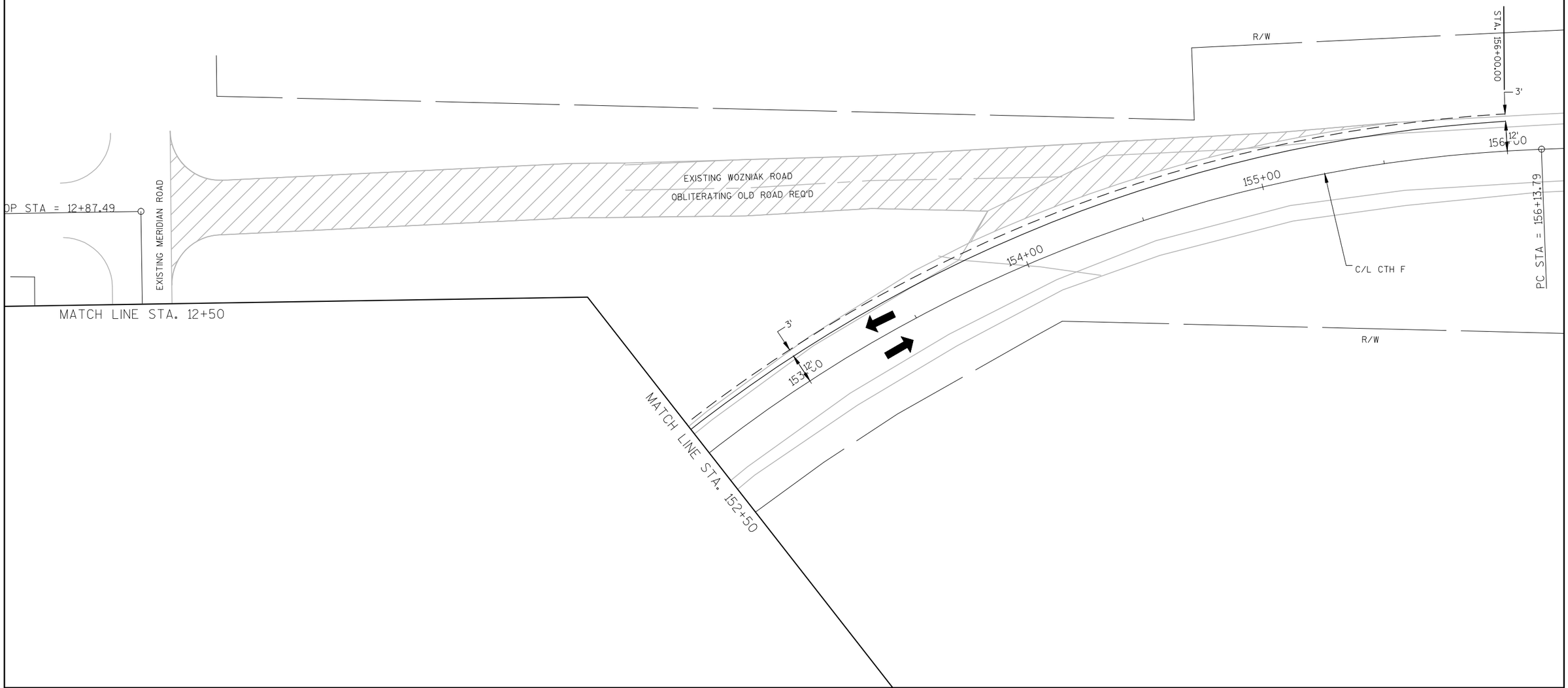
2



PROJECT NO: 9478-05-70	HWY: CTH F	COUNTY: MARATHON	INTERSECTION DETAILS	SHEET 9	E

2

N



PROJECT NO: 9478-05-70	HWY: CTH F	COUNTY: MARATHON	INTERSECTION DETAILS	SHEET 10	E

FILE NAME : R:\PROJECTS\M97010 CTH F MARATHON COUNTY\CADD FILES\PRODUCTION DRAWINGS\ROADWAY\2 - TYPICAL SECTIONS & DETAILS\5-INTERSECTIONS\M97010 - INTERSECTION DETAILS 2.DWG PLOT BY : ECKELBERG, PATRICK PLOT DATE : 9/3/2008 9:36 AM PLOT SCALE : 1 IN:40 FT

3

GRADING, SHAPING AND FINISHING INTERSECTION

PROJECT ID	STATION - STATION	LOCATION	205.9015.S.01 GRADING, SHAPING AND FINISHING INTERSECTION (LS)	FOR INFORMATION ONLY: 205.0100 EXCAVATION COMMON (CY)	625.0100 TOPSOIL (SY)	627.0200 MULCHING (SY)	629.0210 FERTILIZER TYPE B (CWT)	630.0120 SEEDING MIXTURE NO. 20 (LB)	630.0200 SEEDING TEMPORARY (LB)
9478-05-70	100+75 - 301+55	MERIDIAN RD	1	200	350	350	0.25	9.5	4.75
		TOTAL =	1	200	350	350	0.25	9.5	4.75

PREPARE FOUNDATION FOR ASPHALTIC PAVING

PROJECT ID	STATION - STATION	LOCATION	211.0100 (LS)
9478-05-70	100+75 - 301+55	MAINLINE	1
		TOTAL =	1

FINISHING ROADWAY

PROJECT ID	STATION - STATION	LOCATION	213.0100 (EACH)
9478-05-70	100+75 - 301+55	MAINLINE	1
		TOTAL =	1

OBLITERATING OLD ROAD

PROJECT ID	STATION - STATION	LOCATION	214.0100 OBLITERATING OLD ROAD (STA)	FOR INFORMATION ONLY: 205.0100 EXCAVATION COMMON (CY)	625.0100 TOPSOIL (SY)	627.0200 MULCHING (SY)	629.0210 FERTILIZER TYPE B (CWT)	630.0120 SEEDING MIXTURE NO. 20 (LB)	630.0200 SEEDING TEMPORARY (LB)
9478-05-70	151+67 - 154+25	CTH F (MAINLINE), LT	4	700	1050	1050	0.66	28	14
	149+00 - 150+50	CTH F (MAINLINE), LT	2	300	400	400	0.34	12	6
		TOTAL =	6	1000	1450	1450	1	40	20

BASE AGGREGATE DENSE

PROJECT ID	STATION - STATION	LOCATION	305.0110 3/4-INCH (TON)	305.0120 1 1/4-INCH (TON)
9478-05-70	100+75 - 143+14	MAINLINE	1101	--
	147+59 - 175+70	MAINLINE	715	--
	178+70 - 246+01	MAINLINE	1812	--
	252+00 - 301+55	MAINLINE	1256	--
	100-75 - 301+55	P.E. & F.E.	158	--
	159+45 - 172+20	MAINLINE, RT	737	--
	221+15 - 224+40	MAINLINE, RT	188	--
	10+00 - 11+55	MERIDIAN ROAD	28	270
	--	DIETSCH (NORTH)	8	--
	--	DIETSCH (SOUTH)	8	--
	--	FELBAUM ROAD	13	--
	--	13TH LANE	8	--
	--	CTH S (NORTH)	16	--
	--	CTH S (SOUTH)	16	--
	--	UNDISTRIBUTED	186	10
		TOTALS =	6250	280

ASPHALTIC ITEMS

PROJECT ID	STATION - STATION	LOCATION	455.0105 ASPHALTIC MATERIAL PG 58-28 (TON)	455.0605 TACK COAT (GAL)	460.1101 HMA PAVEMENT TYPE E-1 (TON)
9478-05-70	100+75 - 143+14	MAINLINE	143	283	2600
	147+59 - 175+70	MAINLINE	95	187	1724
	178+70 - 249+01	MAINLINE	237	469	4312
	252+00 - 301+55	MAINLINE	167	330	3039
	159+45 - 172+20	MAINLINE, RT	6	11	104
	221+15 - 224+40	MAINLINE, RT	2	3	31
	--	MERIDIAN ROAD	8	15	137
	--	DIETSCH ROAD (NORTH)	1	2	15
	--	DIETSCH ROAD (SOUTH)	2	4	40
	--	FELBAUM ROAD	3	5	48
	--	13TH LANE	1	3	26
	--	CTH S (NORTH)	3	7	63
	--	CTH S (SOUTH)	3	6	52
	--	UNDISTRIBUTED	24	35	359
		TOTAL =	695	1360	12550

NOTE: ASPHALTIC CONTENT IS 5.5%
HMA PAVEMENT 115 LBS/(SQUARE YARD * INCH OF THICKNESS)
TACK COAT 0.025 GAL/SY

PROJ ID	DESC	ITEM #	STA	LOC	QUANTITY	
9478-05-70	BREAKER RUN	311.0110	10+00 TO 11+55	MERIDIAN RD	600 TON	CCO#1
9478-05-70	PIPE EXTENSION & GRADING	SPV.0105	223+00 RT	MAINLINE	1 LS	CCO #2

CULVERT PIPE

PROJECT ID	STATION	LOCATION	522.0324 CULVERT PIPE REINFORCED CONCRETE CLASS IV 24-INCH (LF)	522.1024 APRON ENDWALLS FOR CULVERT PIPE REINFORCED CONCRETE 24-INCH (EACH)	633.5200 MARKERS CULVERT END (EACH)	JOINT TIES (EACH)
~~9478-05-70~~	~~150+00~~	~~MAINLINE, LT~~	~~80~~	~~2~~	~~2~~	~~12~~
		~~TOTAL =~~	~~80~~	~~2~~	~~2~~	~~12~~

ALL NEW CONCRETE CULVERT PIPE SHALL HAVE JOINT TIES ON THE LAST TWO PIPE-TO-PIPE JOINTS AND AT THE PIPE-TO-ENDWALL JOINT AT BOTH THE INLET AND DISCHARGE ENDS. JOINT TIES ARE A NON-BID ITEM; THE COST SHALL BE INCLUDED IN THE PRICE PER LINEAR FOOT OF PIPE.

3

BARRIER SYSTEM GRADING SHAPING FINISHING

PROJECT ID	STATION - STATION	LOCATION	614.0010 BARREIR SYSTEM GRADING SHAPING FINISHING (EACH)	FOR INFORMATION ONLY 208.0100 BORROW (CY)	625.0100 TOPSOIL (SY)	627.0200 MULCHING (SY)	629.0210 FERTILIZER TYPE B (CWT)	630.0120 SEEDING MIXTURE NO. 20 (LB)	650.0200 CONSTRUCTION STAKING SUBGRADE (LF)	650.9920 CONSTRUCTION STAKING SLOPE STAKES (LF)
9478-05-70	159+45 - 172+20	MAINLINE, RT	1	1450	3320	4050	2.6	110	1325	1325
	~~221+15 - 224+40~~	~~MAINLINE, RT~~	~~1~~	~~420~~	~~960~~	~~1170~~	~~0.7~~	~~35~~	~~375~~	~~375~~
		TOTALS =	2	1870	4280	5220	3.3	145	1700	1700

MGS GUARDRAIL

PROJECT ID	STATION - STATION	LOCATION	614.2300 MGS GUARDRAIL 3 (LF)	614.2610 MGS GUARDRAIL TERMINAL EAT (EACH)
9478-05-70	159+45 - 172+20	MAINLINE, RT	1175	2
	~~221+15 - 224+40~~	~~MAINLINE, RT~~	~~225~~	~~2~~
		TOTALS =	1400	4

WATER

PROJECT ID	STATION - STATION	LOCATION	624.0100 (MGAL)
9478-05-70	100+75 - 301+55	MAINLINE	66
	10+55 - 11+55	MERIDIAN RD	3
		UNDISTRIBUTED	6
		TOTAL =	75

NOTE: 20 GAL/TON BASE AGGREGATE DENSE

FINISHING ITEMS

PROJECT ID	STATION - STATION	LOCATION	627.0200 MULCHING (SY)	629.0210 FERTILIZER TYPE B (CWT)	630.0120 SEEDING MIXTURE NO. 20 (LB)	630.0200 SEEDING TEMPORARY (LB)
9478-05-70	100+75 - 301+55	MAINLINE LT. & RT.	17340	11	470	235
		UNDISTRBUTED	1660	3	80	55
		TOTAL =	19000	14	550	290

SEEDING MIXTURE NO. 20 APPLICATION RATE 3 LBS/1000 SF
SEEDING TEMPORARY APPLICATION RATE 1.5 LBS/1000 SF
FERTILIZER APPLICATION RATE 7 LBS/1000 SF

MOBILIZATION

PROJECT ID	LOCATION	619.1000 (EACH)
9478-05-70	MAINLINE	1
	TOTAL =	1

FIELD OFFICE TYPE B

PROJECT ID	LOCATION	642.5001 (EACH)
9478-05-70	PROJECT	1
	TOTAL =	1

EROSION CONTROL

PROJECT ID	STATION - STATION	LOCATION	628.1504 SILT FENCE (LF)	628.1520 SILT FENCE MAINTENANCE (LF)	628.1905 MOBILIZATION EROSION CONTROL (EACH)	628.1910 MOBILIZATION EMERGENCY EROSION CONTROL (EACH)	628.2023 EROSION MAT CLASS II TYPE B (SY)	628.7504 TEMPORARY DITCH CHECKS (LF)	628.7555 CULVERT PIPE CHECKS (EACH)
9478-05-70	147+65	MAINLINE, LT	--	--	--	--	--	10	--
	150+10	MAINLINE, LT	--	--	--	--	4	--	--
	151+00	MAINLINE, LT	--	--	--	--	--	--	6
	153+00	MAINLINE, LT	--	--	--	--	--	10	--
	159+45 - 172+20	MAINLINE, RT	1325	2650	--	--	--	--	--
	221+15 - 224+40	MAINLINE, RT	375	750	--	--	--	--	--
	100+75 - 301+55	UNDISTRIBUTED	400	800	2	1	6	5	--
		TOTAL =	2100	4200	2	1	10	25	6

TRAFFIC CONTROL

PROJECT ID	STATION - STATION	LOCATION	643.0100 TRAFFIC CONTROL (EACH)
9478-05-70	100+75 - 301+55	PROJECT	1
		TOTALS =	1

PAVEMENT MARKING EPOXY 4-INCH

PROJECT ID	STATION - STATION	LOCATION	646.0106 SOLID WHITE (LF)	SOLID YELLOW (LF)	DASHED YELLOW (LF)
9478-05-70	100+75 - 301+55	MAINLINE	39500	21017	3683
		TOTAL =		64200	

LOCATING NO-PASSING ZONES

PROJECT ID	STATION - STATION	LOCATION	648.0100 (MI)
9478-05-70	100+75 - 301+55	MAINLINE	3.80
		TOTALS =	3.80

CONSTRUCTION STAKING

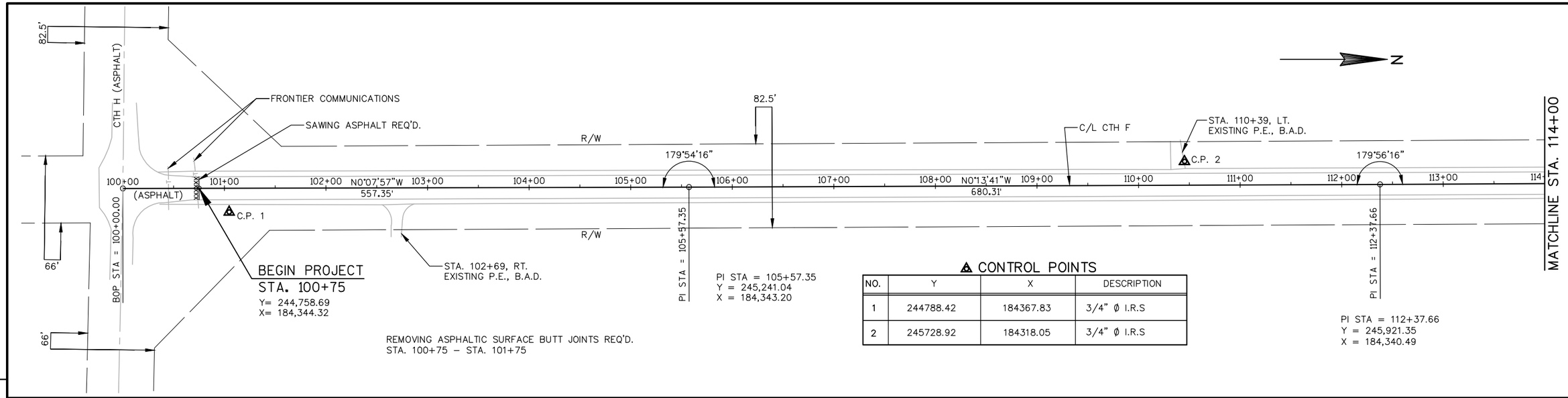
PROJECT ID	STATION - STATION	LOCATION	650.6000 PIPE CULVERT (EACH)	650.8000 RESURFACING REFERENCE (LF)	650.9910 SUPPLEMENTAL CONTROL (LS)
9478-05-70	100+75 - 301+55	MAINLINE	--	19040	1
	150+60	MAINLINE, LT	1	--	--
		TOTAL =	1	19040	1

SAWING ASPHALT

PROJECT ID	STATION	LOCATION	690.0150 (LF)
9478-05-70	100+75	MAINLINE	23
	143+14	MAINLINE	22
	147+59	MAINLINE	22
	175+70	MAINLINE	22
	178+70	MAINLINE	22
	249+01	MAINLINE	22
	252+00	MAINLINE	22
	301+55	MAINLINE	32
	--	CTH S (NORTH)	23
	--	CTH S (SOUTH)	30
	--	CTH F	32
		TOTALS =	272

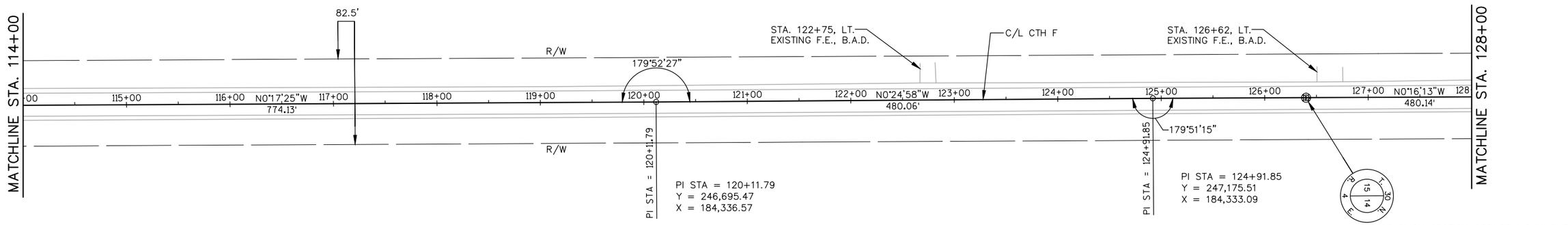
REESTABLISH SECTION CORNER MONUMENTS

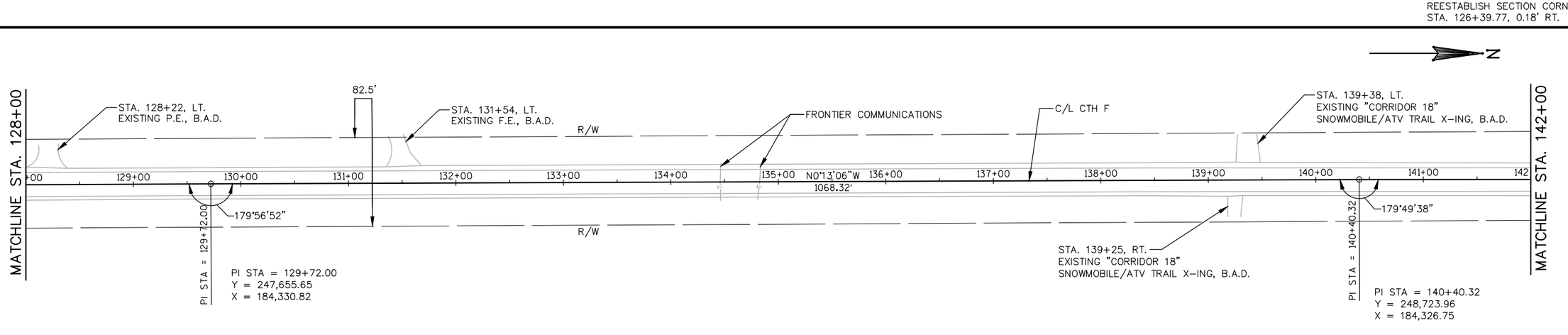
PROJECT ID	STATION	LOCATION	SPV.0060.01 (EACH)
9478-05-70	126+39.77	MAINLINE, 0.18' RT	1
	202+76.89	MAINLINE, 4.14' RT	1
	228+90.85	MAINLINE, 0.18' RT	1
	255+16.62	MAINLINE, 1.63' LT	1
	274+71.60	MAINLINE, 0.62' RT	1
	301+08.61	MAINLINE, 0.65' RT	1
		TOTAL=	6



⚠ CONTROL POINTS

NO.	Y	X	DESCRIPTION
1	244788.42	184367.83	3/4" Ø I.R.S
2	245728.92	184318.05	3/4" Ø I.R.S

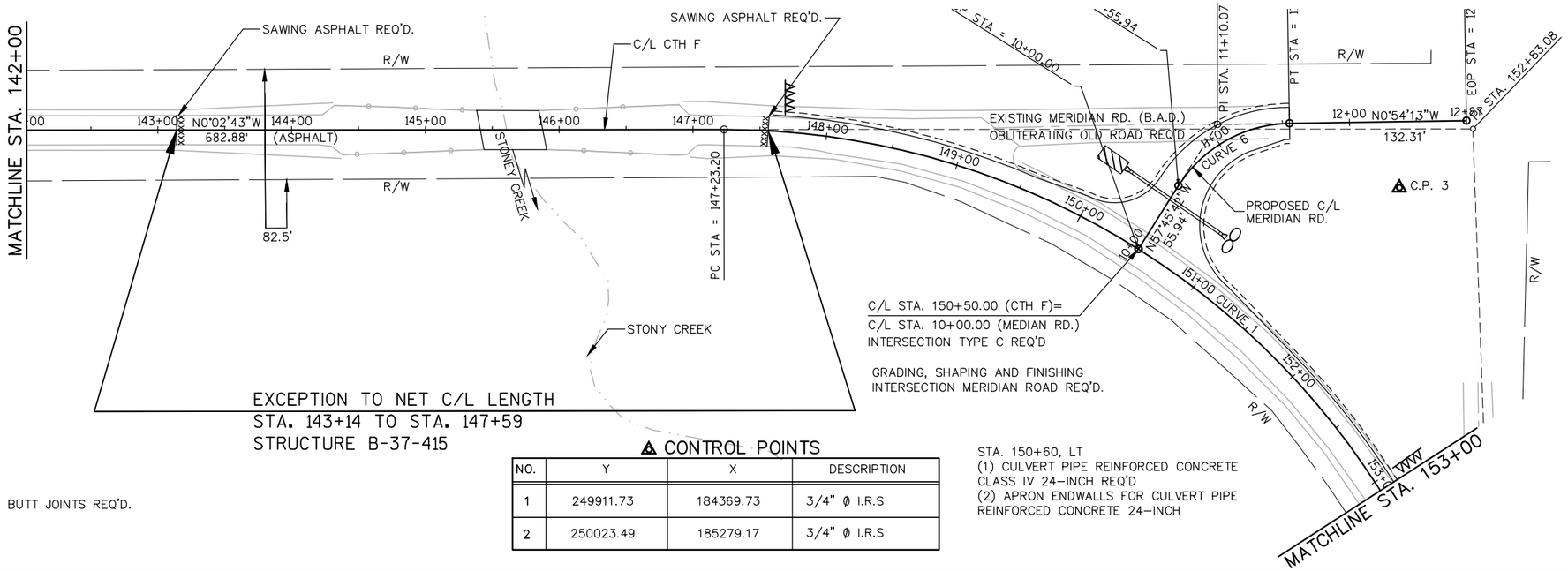




PROJECT NO: 9478-05-70	HWY: CTH F	COUNTY: MARATHON	PLAN VIEW	SHEET 13	E

CURVE 6

PI STATION = 11+10.07
Y = 249775.41
X = 184322.52
DELTA = 56°51'29"
D = 57°17'45"
TANGENT = 54.14'
LENGTH = 99.24'
RADIUS = 100.00'
PC STATION = 10+55.94
PT STATION = 11+55.17
SE = NORMAL CROWN
RO = N/A
SE TRANSITION = N/A



EXCEPTION TO NET C/L LENGTH
STA. 143+14 TO STA. 147+59
STRUCTURE B-37-415

⚠ CONTROL POINTS

NO.	Y	X	DESCRIPTION
1	249911.73	184369.73	3/4" Ø I.R.S
2	250023.49	185279.17	3/4" Ø I.R.S

REMOVING ASPHALTIC SURFACE BUTT JOINTS REQ'D.
STA. 142+14 – STA. 143+14
STA. 147+59 – STA. 148+59

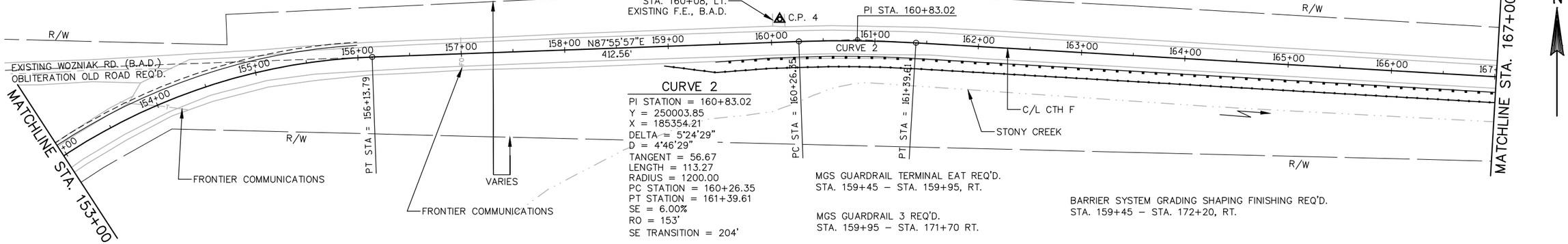
LEGEND

- EROSION MAT CLASS II TYPE B
- CULVERT PIPE CHECKS
- TEMPORARY DITCH CHECKS
- SILT FENCE

N

CURVE 1

PI STATION = 152+83.08
Y = 249966.72
X = 184325.77
DELTA = 87°58'41"
D = 09°52'43"
TANGENT = 559.88
LENGTH = 890.59
RADIUS = 580.00
PC STATION = 147+23.20
PT STATION = 156+13.79
SE = 8.00%
STA. 147+59 – STA. 148+30
STA. 147+59 – MATCH EXISTING
STA. 148+30 – FULL SUPERELEVATION
STA. 155+46 – STA. 158+01
RO = 204'
SE TRANSITION = 255'



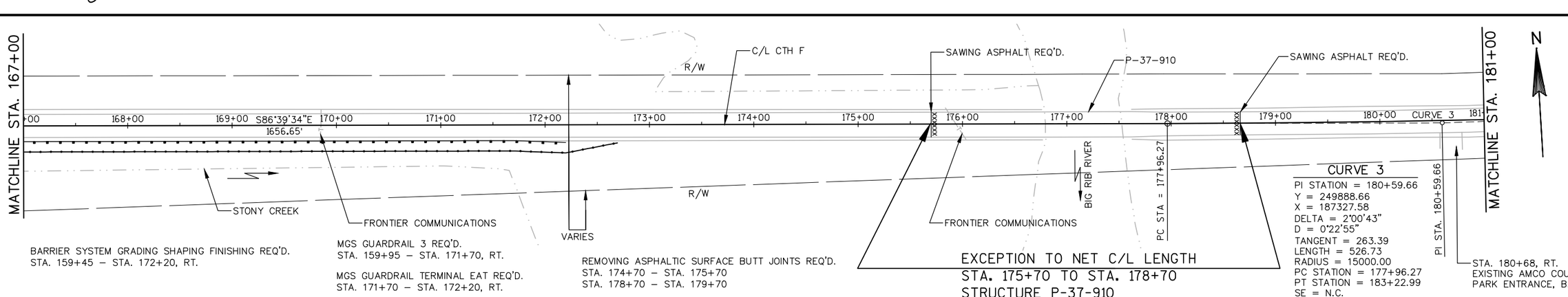
CURVE 2

PI STATION = 160+83.02
Y = 250003.85
X = 185354.21
DELTA = 5°24'29"
D = 4°46'29"
TANGENT = 56.67
LENGTH = 113.27
RADIUS = 1200.00
PC STATION = 160+26.35
PT STATION = 161+39.61
SE = 6.00%
RO = 153'
SE TRANSITION = 204'

MGS GUARDRAIL TERMINAL EAT REQ'D.
STA. 159+45 – STA. 159+95, RT.

MGS GUARDRAIL 3 REQ'D.
STA. 159+95 – STA. 171+70 RT.

BARRIER SYSTEM GRADING SHAPING FINISHING REQ'D.
STA. 159+45 – STA. 172+20, RT.



BARRIER SYSTEM GRADING SHAPING FINISHING REQ'D.
STA. 159+45 – STA. 172+20, RT.

MGS GUARDRAIL 3 REQ'D.
STA. 159+95 – STA. 171+70, RT.

MGS GUARDRAIL TERMINAL EAT REQ'D.
STA. 171+70 – STA. 172+20, RT.

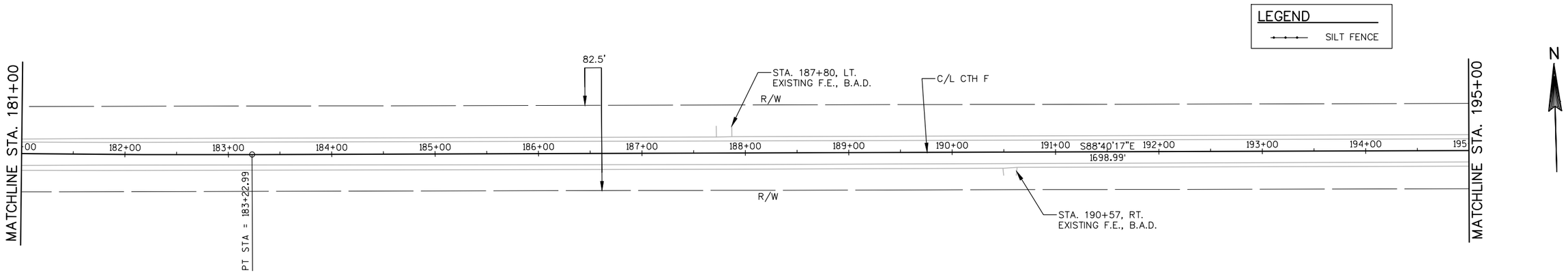
REMOVING ASPHALTIC SURFACE BUTT JOINTS REQ'D.
STA. 174+70 – STA. 175+70
STA. 178+70 – STA. 179+70

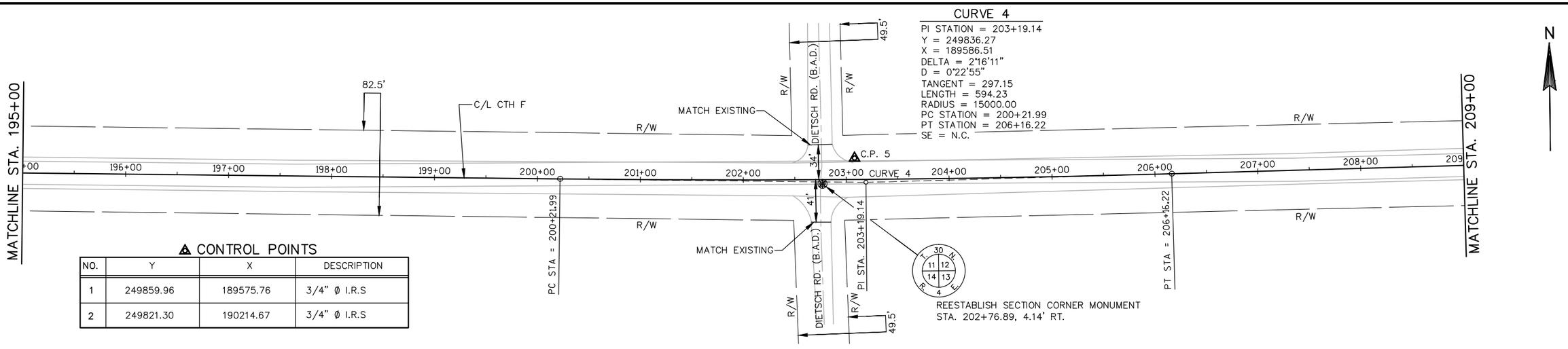
EXCEPTION TO NET C/L LENGTH
STA. 175+70 TO STA. 178+70
STRUCTURE P-37-910

CURVE 3

PI STATION = 180+59.66
Y = 249888.66
X = 187327.58
DELTA = 2°00'43"
D = 0°22'55"
TANGENT = 263.39
LENGTH = 526.73
RADIUS = 15000.00
PC STATION = 177+96.27
PT STATION = 183+22.99
SE = N.C.

PROJECT NO: 9478-05-70	HWY: CTH F	COUNTY: MARATHON	PLAN VIEW	SHEET 14	E





▲ CONTROL POINTS

NO.	Y	X	DESCRIPTION
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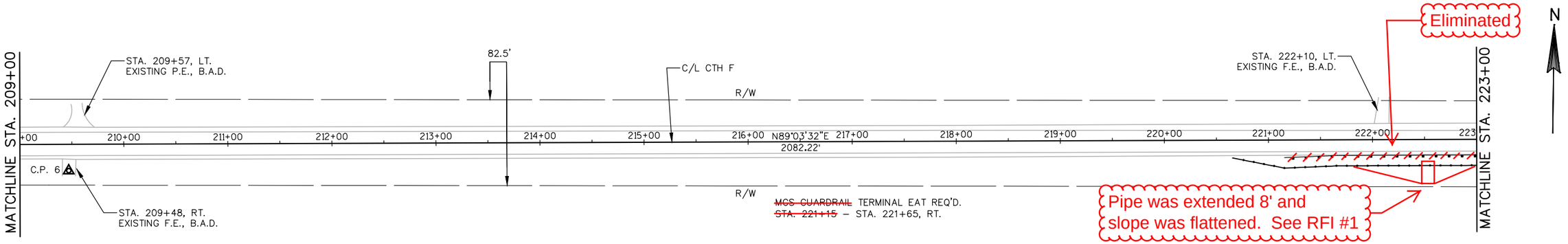
2	249821.30	190214.67	3/4" Ø I.R.S



~~MCS GUARDRAIL~~ TERMINAL EAT REQ'D.
~~STA. 221+15~~ – STA. 221+65, RT.

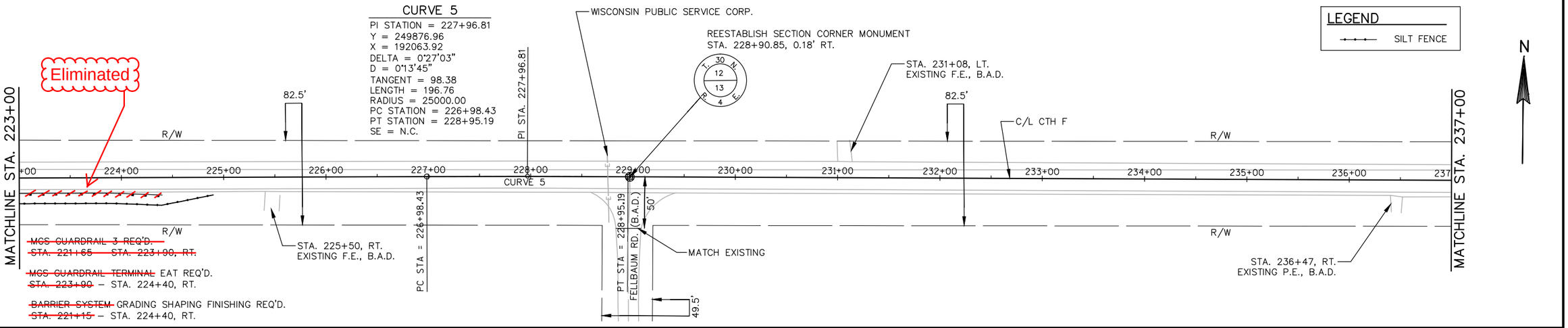
~~BARRIER SYSTEM~~ GRADING SHAPING FINISHING REQ'D.
~~STA. 221+15~~ – STA. 224+40, RT.

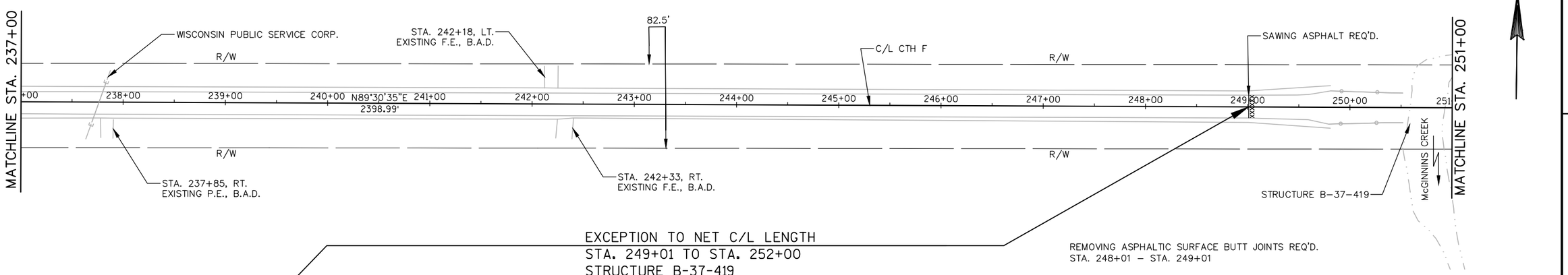
~~STEEL PLATE BEAM~~ GUARD ENERGY ABSORBING TERMINAL REQ'D.
~~STA. 221+65~~ – STA. 223+90, RT.

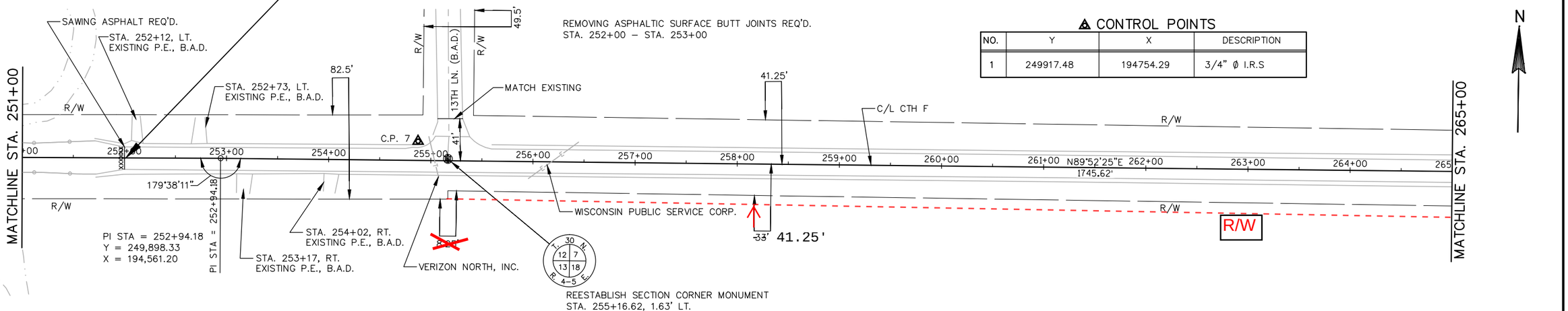
PROJECT NO: 9478-05-70	HWY: CTH F	COUNTY: MARATHON	PLAN VIEW	SHEET 15	E

FILE NAME : R:\PROJECTS\M97010 CTH F MARATHON COUNTY\CADD FILES\PRODUCTION DRAWINGS\ROADWAY\5 - PLAN & PROFILES\MAINLINE P&P'S\M97010-PLAN VIEW 3.DWG

PLOT BY : ECKELBERG, PATRICKPLOT DATE : 12-22-10 3:44PM



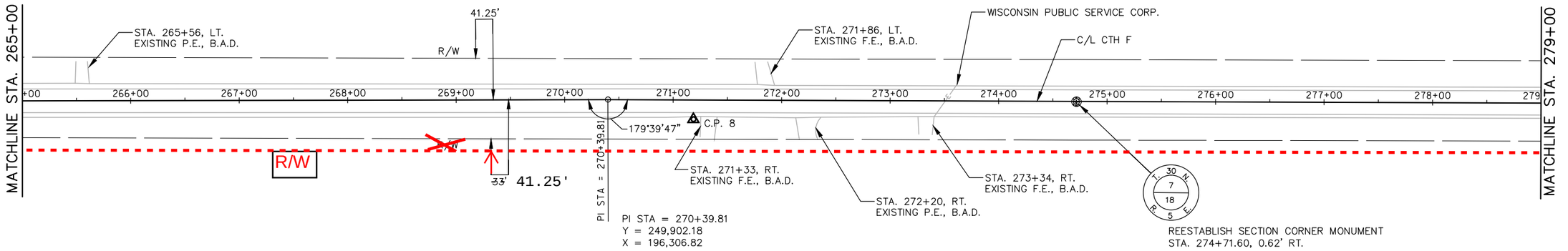


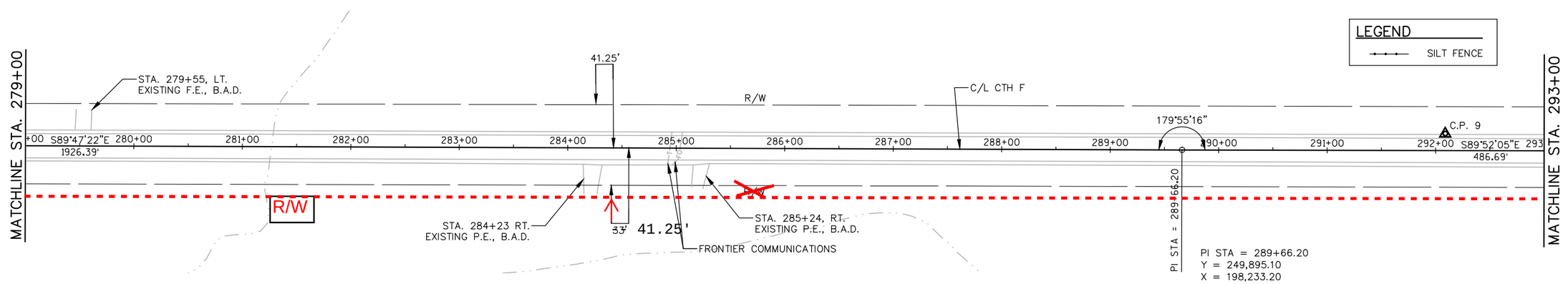


PROJECT NO: 9478-05-70	HWY: CTH F	COUNTY: MARATHON	PLAN VIEW	SHEET 16	E

FILE NAME : R:\PROJECTS\M97010 CTH F MARATHON COUNTY\CADD FILES\PRODUCTION DRAWINGS\ROADWAY\5 - PLAN & PROFILES\MAINLINE P&P'S\M97010-PLAN VIEW 4.DWG

PLOT BY : ECKELBERG, PATRICKPLOT DATE : 12-22-10 3:56PM





▲ CONTROL POINTS

NO.	Y	X	DESCRIPTION
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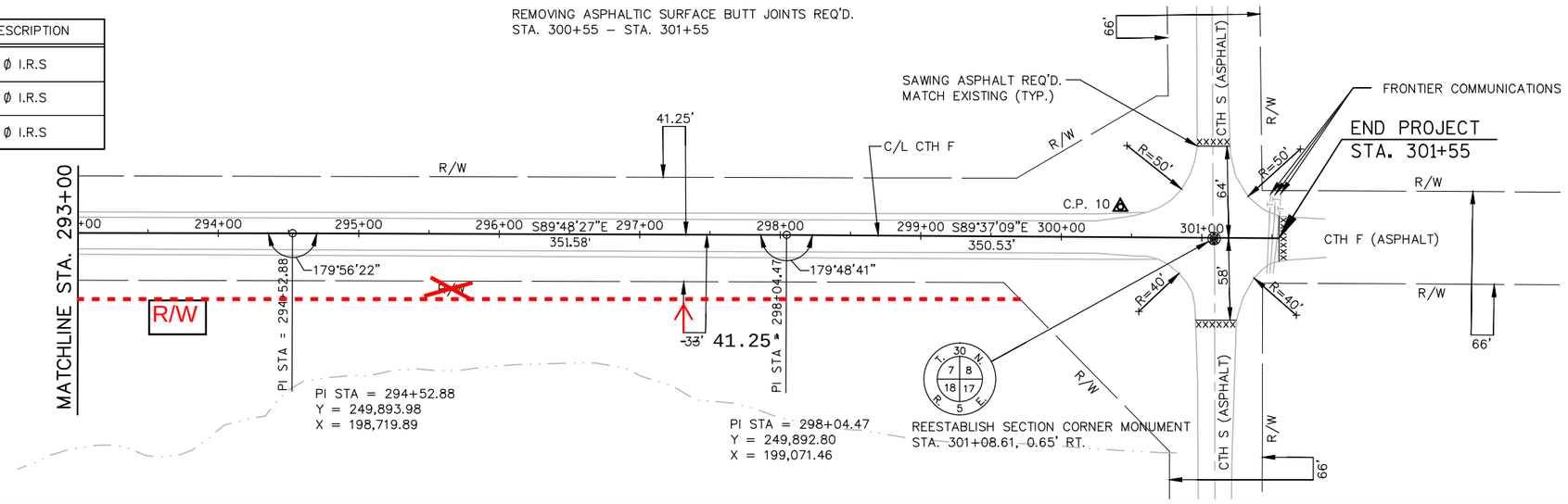
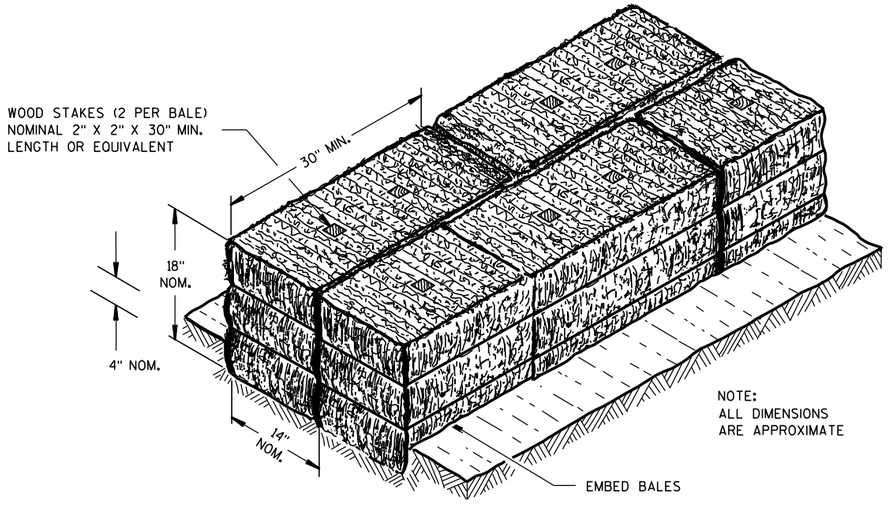
2	249910.07	198475.83	3/4" Ø I.R.S
3	249912.87	199309.08	3/4" Ø I.R.S

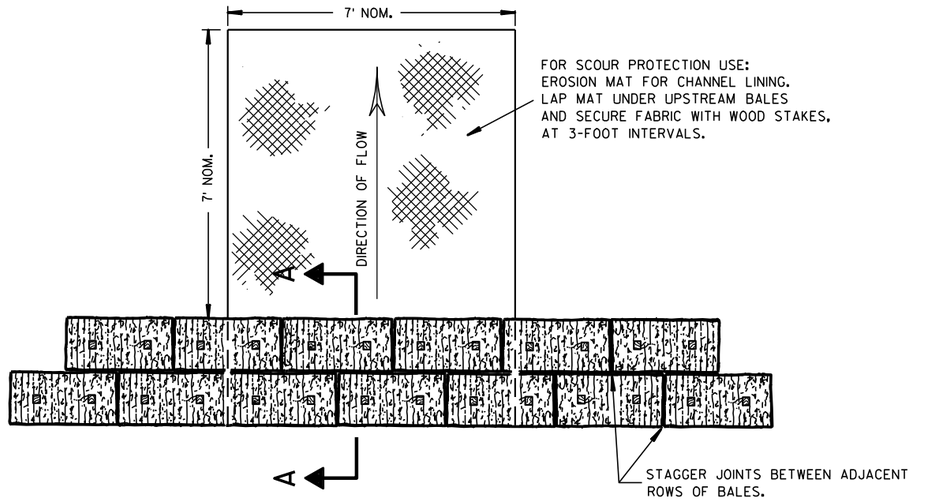


PROJECT NO: 9478-05-70	HWY: CTH F	COUNTY: MARATHON	PLAN VIEW	SHEET 17	E

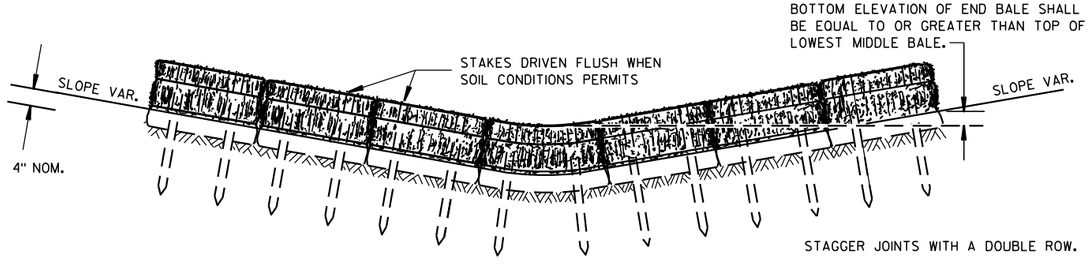
8E8: Typical Installations of Erosion Bales/Temporary Ditch Checks



SECTION A-A



PLAN VIEW



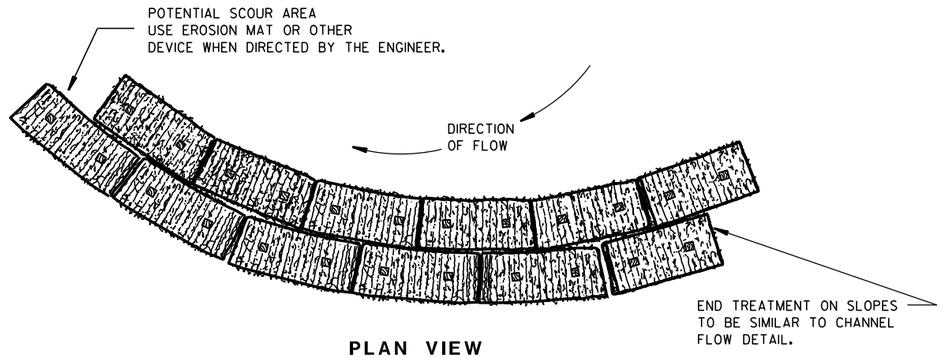
FRONT ELEVATION

TEMPORARY DITCH CHECK USING EROSION BALES (1)

GENERAL NOTES

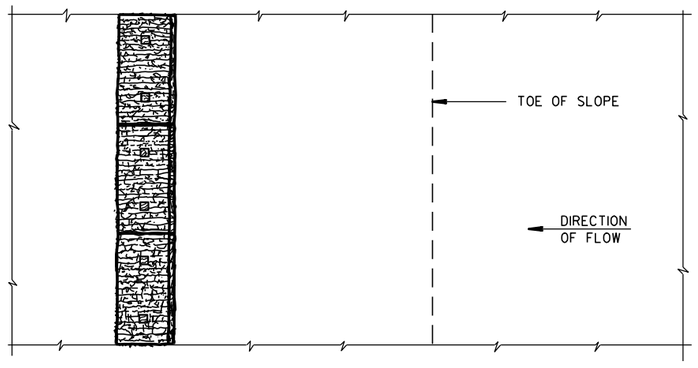
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

(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.

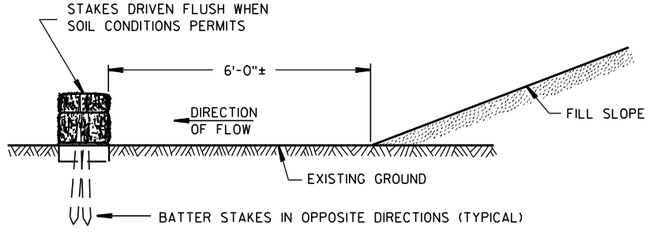


PLAN VIEW

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

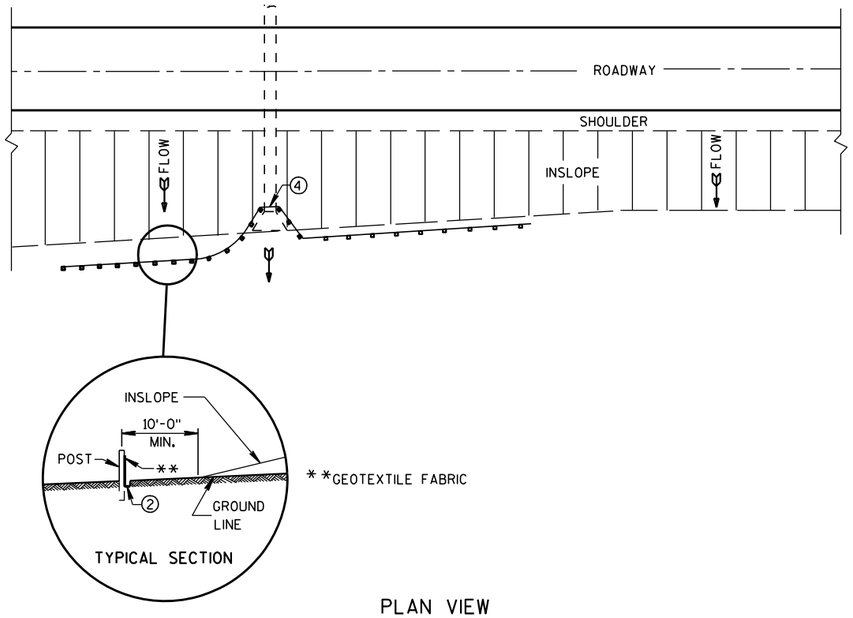
6

S.D.D. 8 E 8-3

6

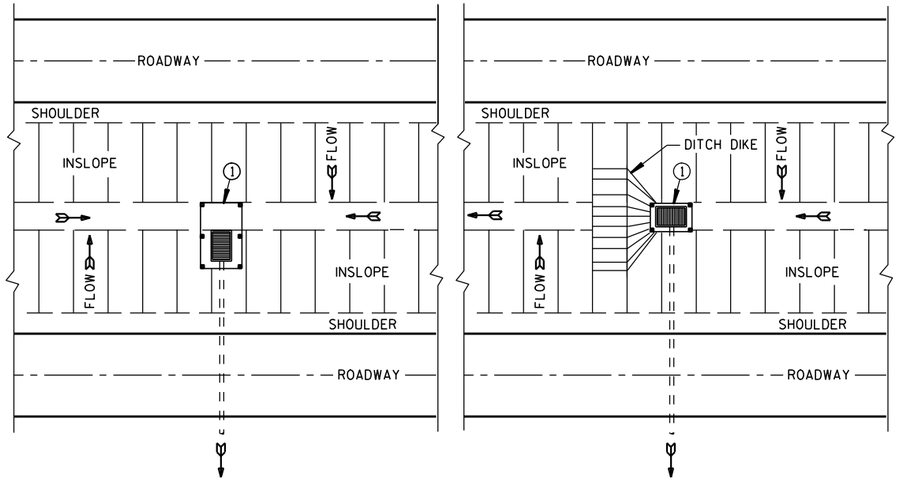
S.D.D. 8 E 8-3

8E9: Silt Fence



PLAN VIEW

TYPICAL APPLICATION OF SILT FENCE



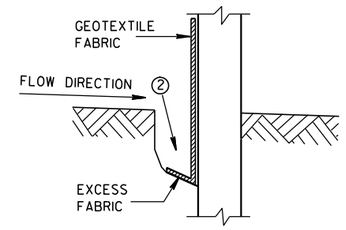
PLAN VIEW

SILT FENCE AT MEDIAN SURFACE DRAINS

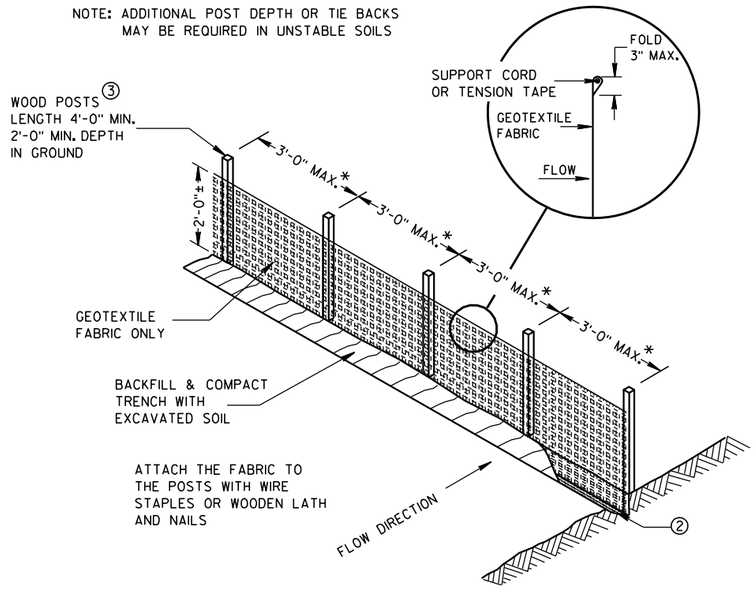
GENERAL NOTES

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

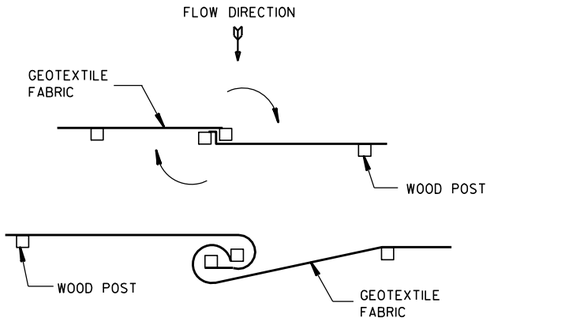
1. HORIZONTAL BRACE REQUIRED WITH 2" X 4" WOODEN FRAME OR EQUIVALENT AT TOP OF POSTS.
2. FOR MANUAL INSTALLATIONS THE TRENCH SHALL BE A MINIMUM OF 4" WIDE & 6" DEEP TO BURY AND ANCHOR THE GEOTEXTILE FABRIC. FOLD MATERIAL TO FIT TRENCH AND BACKFILL & COMPACT TRENCH WITH EXCAVATED SOIL.
3. WOOD POSTS SHALL 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.



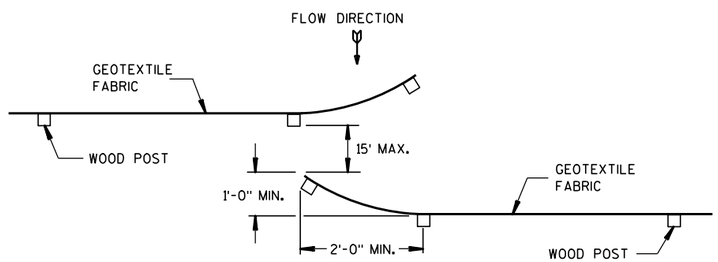
TRENCH DETAIL



SILT FENCE

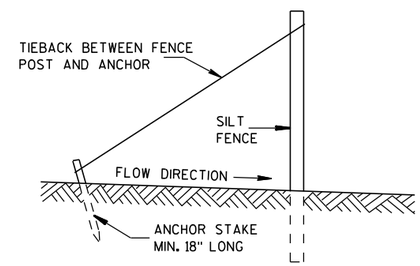


TWIST METHOD



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

8F1: Apron Endwalls for Culvert Pipe

METAL APRON ENDWALLS

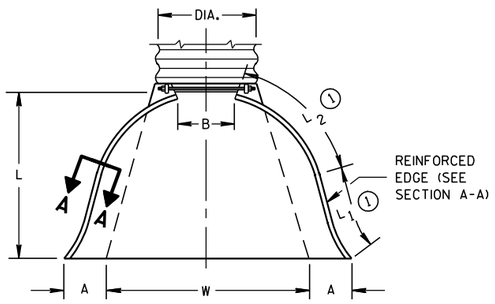
PIPE DIA. (IN.)	MIN. THICK. (Inches) STEEL	MIN. THICK. (Inches) ALUM.	DIMENSIONS (Inches) A (±1")	B (MAX.)	H (±1")	L (±1 1/2")	L1 ①	L2 ①	W (±2")	APPROX. SLOPE	BODY
12	.064	.060	6	6	6	21	12	17 1/2	24	2 1/2 to 1	1 Pc.
15	.064	.060	7	8	6	26	14	21 3/4	30	2 1/2 to 1	1 Pc.
18	.064	.060	8	10	6	31	15	28 1/4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

× EXCEPT CENTER PANEL SEE GENERAL NOTES

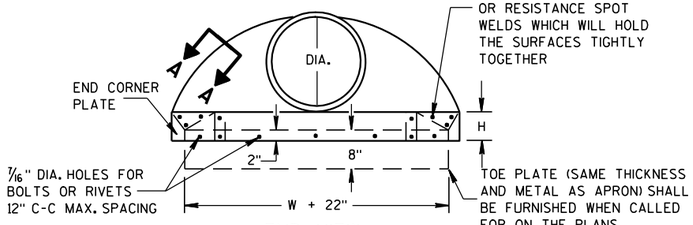
REINFORCED CONCRETE APRON ENDWALLS

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

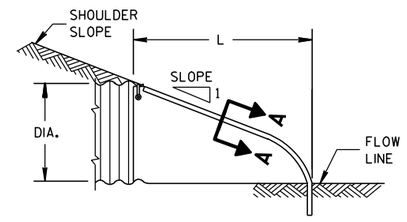
*MINIMUM
**MAXIMUM



PLAN VIEW

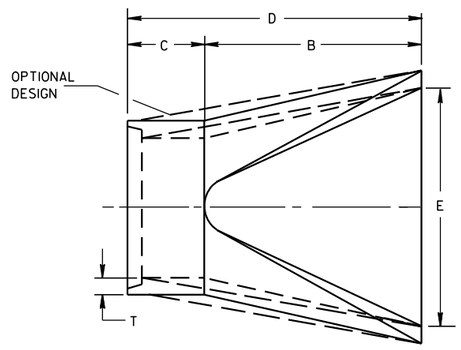


END VIEW

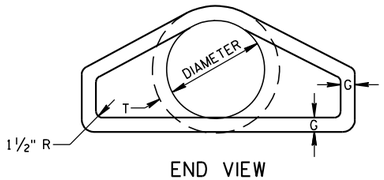


SIDE ELEVATION

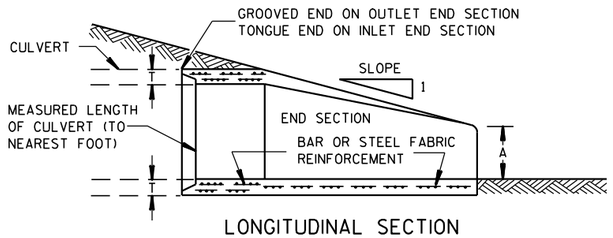
METAL ENDWALLS



PLAN

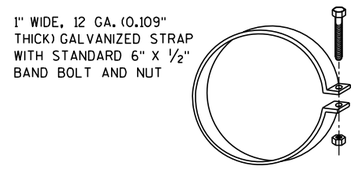


END VIEW



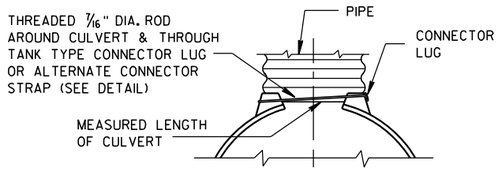
LONGITUDINAL SECTION

CONCRETE ENDWALLS

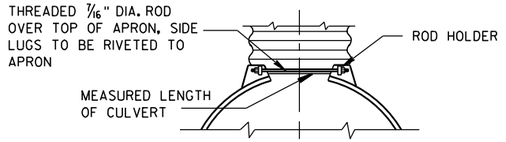


ALTERNATE FOR TYPE 1 CONNECTION

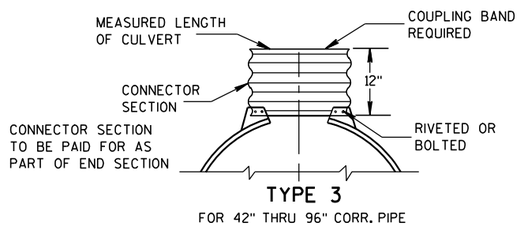
END SECTION CONNECTOR STRAP



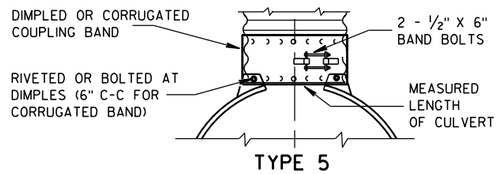
TYPE 1
FOR 12" THRU 24" CORR. PIPE



TYPE 2
FOR 30" THRU 96" CORR. PIPE



TYPE 3
FOR 42" THRU 96" CORR. PIPE



TYPE 5
ALTERNATE FOR:
ALL SIZES CORRUGATED CIRCULAR PIPE

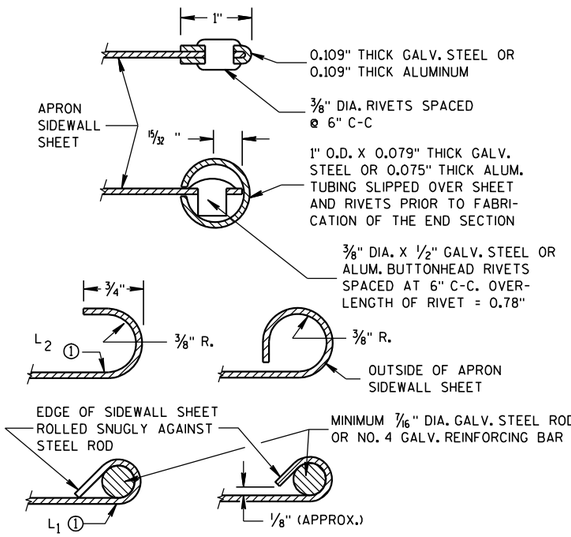
NOTE: DIMPLED BAND FITS OVER OUTSIDE OF ENDWALL. AND CORRUGATED BAND FITS INSIDE ENDWALL. DIMPLED BAND MAY BE USED WITH HELICALLY CORRUGATED PIPE.

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

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

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

CONNECTION DETAILS



SECTION A-A

GENERAL NOTES

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

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

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

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

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

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

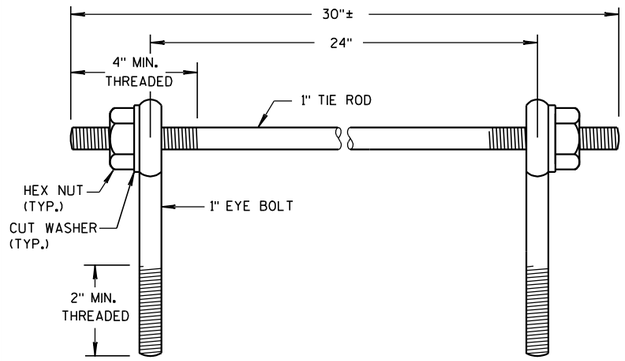
APRON ENDWALLS FOR CULVERT PIPE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

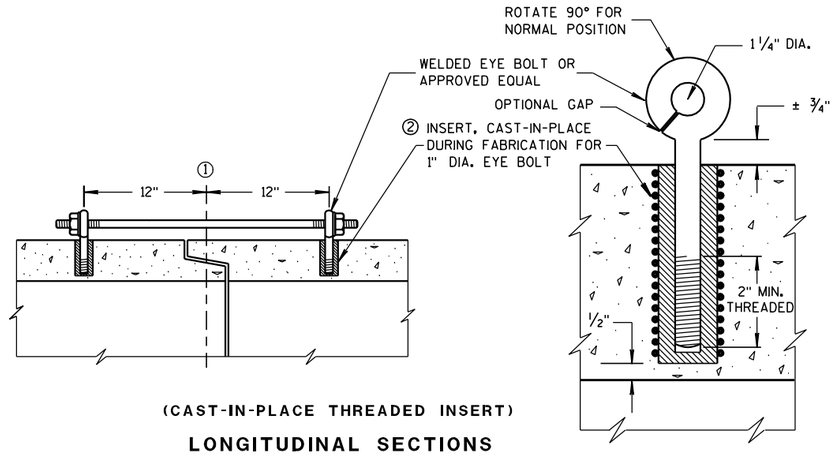
APPROVED
11/30/94 — DATE
/S/ Rory L. Rhinesmith — CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA

6
S.D.D. 8 F 1-11

8F4: Joint Ties for Concrete Pipe



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.

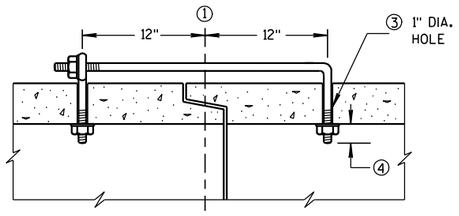
② THE INSIDE OF THE THREADED INSERTS SHALL BE CLEAN TO ALLOW THE INSERTION OF THREADED EYE BOLTS.

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

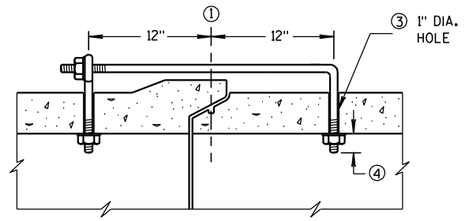
④ BOLT PROJECTION INSIDE OF PIPE SHALL NOT EXCEED 2 INCHES.

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)

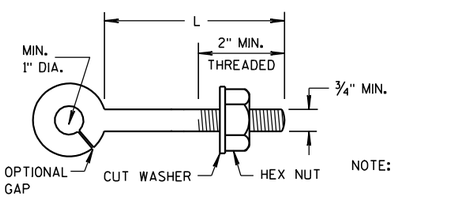


(MODIFIED BELL PIPE)

LONGITUDINAL SECTION

EYE BOLT DIMENSION TABLE

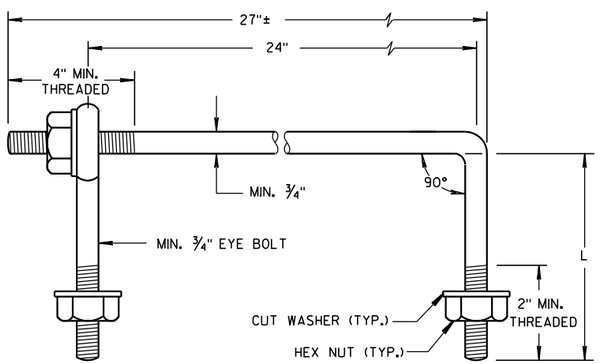
PIPE SIZE	L = LENGTH	
	TONGUE & GROOVE PIPE	MODIFIED BELL PIPE
18" TO 24"	4 1/2"	6 1/4"
30"	5"	7"
36"	5 1/2"	7"
42"	6"	
48"	6 1/2"	
60"	7 1/2"	
66"	8"	



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

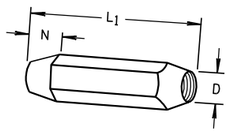
(JOINT TIES FOR 18" TO 66" DIA. CONCRETE PIPE)

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 7/16

DIMENSIONS SHOWN ARE IN INCHES



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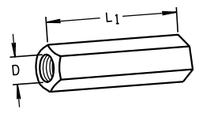
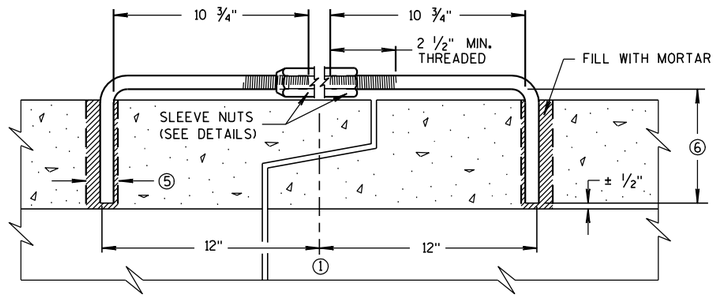


PLAIN

RIGHT AND LEFT THREADS

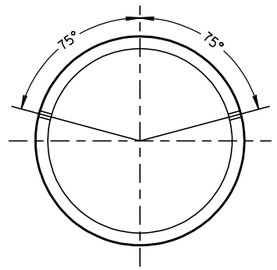
SLEEVE NUTS



LONGITUDINAL SECTION

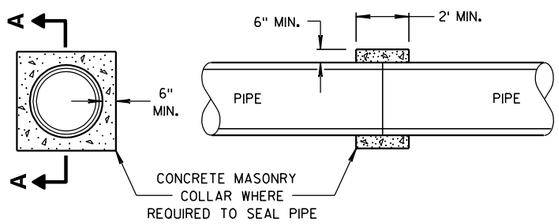
(JOINT TIES FOR 12" TO 108" DIA. CONCRETE PIPE)

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 DEVELOPMENT ENGINEER
FHWA

6

S.D.D. 8 F 4-7

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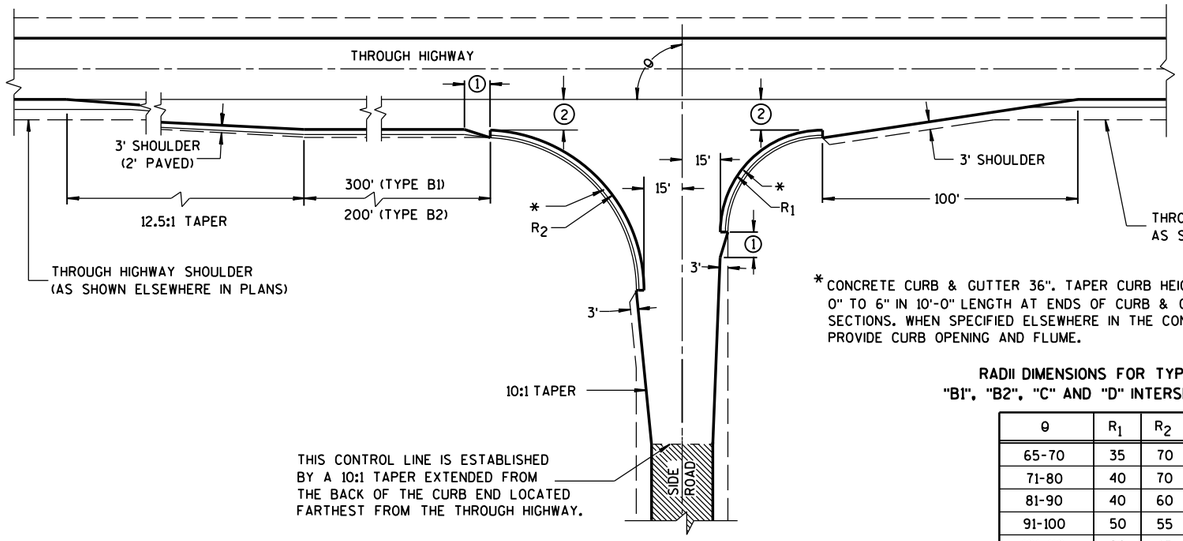
S.D.D. 8 F 4-7

9A1 sheet a: At-Grade Side Road Intersection, Types 'B1', 'B2', 'C' and 'D' and Tee Intersection Bypass Lane

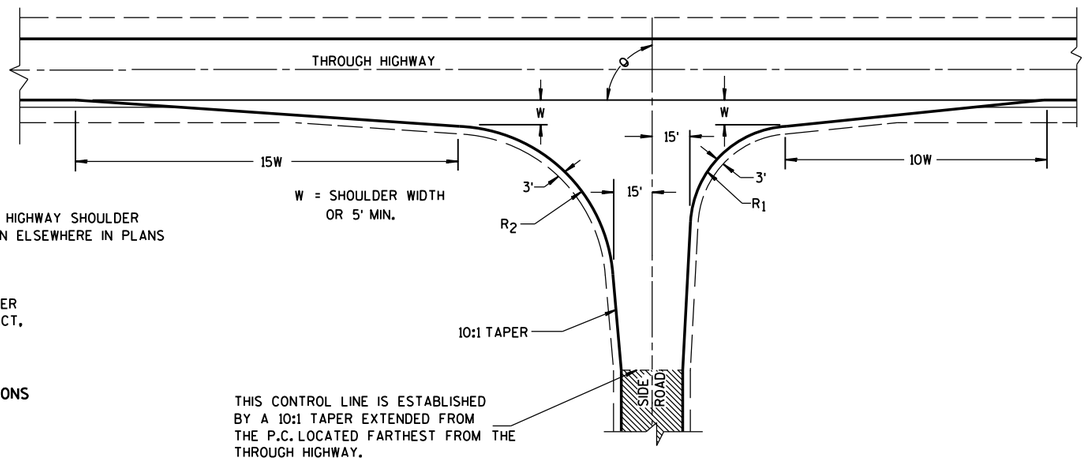


TYPE "B1" AND "B2"

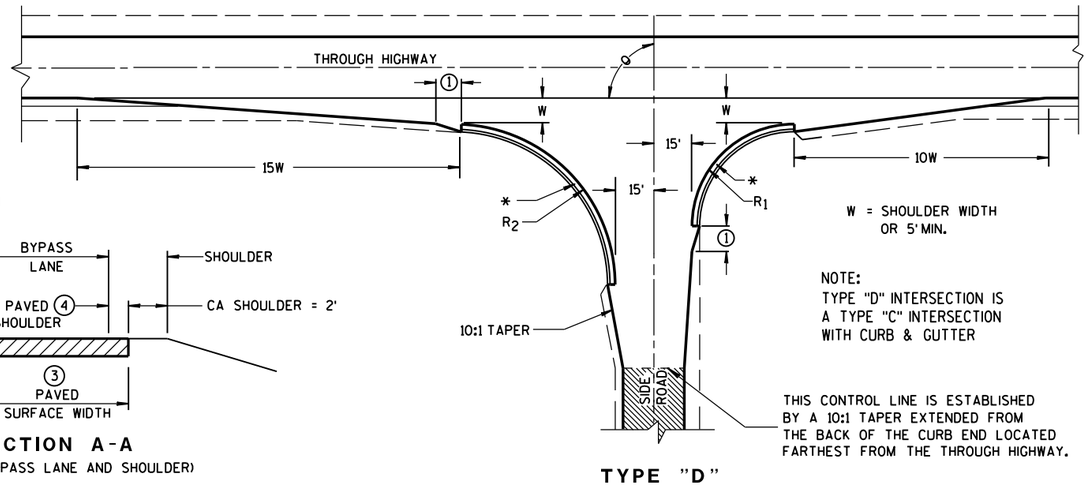
* CONCRETE CURB & GUTTER 36". TAPER CURB HEIGHT 0" TO 6" IN 10'-0" LENGTH AT ENDS OF CURB & GUTTER SECTIONS. WHEN SPECIFIED ELSEWHERE IN THE CONTRACT, PROVIDE CURB OPENING AND FLUME.

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

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



TYPE "C"



TYPE "D"

GENERAL NOTES

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

SIDE ROAD SURFACING NOTE

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

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

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

EXISTING PAVED SURFACE

BYPASS LANE

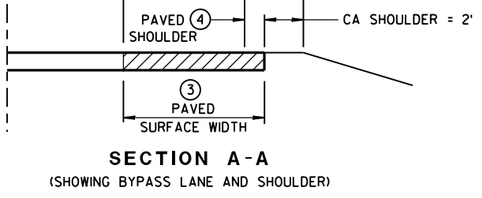
(1) 10-FT TYPICAL.

(2) 12-FT** PLUS ADDITIONAL WIDTH FOR BIKE LANE IF SHOWN ELSEWHERE IN THE PLAN.

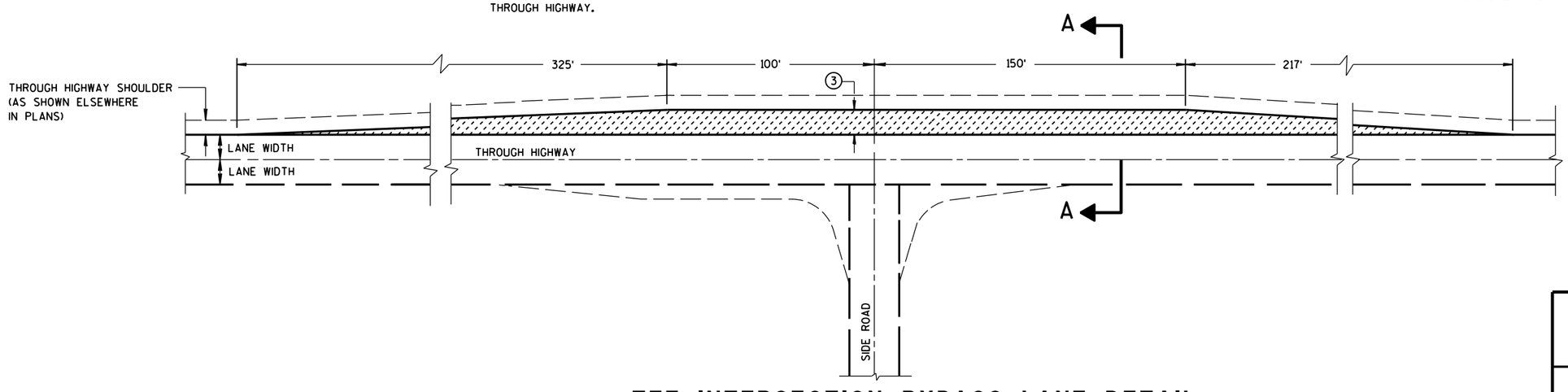
**10-FT MAY BE USED ON TYPE B2 ON RESURFACING PROJECTS IF SPECIFIED IN THE CONTRACT.

(3) BYPASS LANE PAVED SURFACE WIDTH OUTSIDE OF TRAVEL LANE
-ASPHALT = 12-FT PLUS PAVED SHOULDER WIDTH.
-PC CPNCRETE = 13-FT PLUS PAVED SHOULDER WIDTH.

(4) BYPASS LANE PAVED SHOULDER WIDTH = THE GREATER OF 1-FT OR THE PAVED SHOULDER WIDTH OF THE THROUGH HIGHWAY.



SECTION A-A
(SHOWING BYPASS LANE AND SHOULDER)



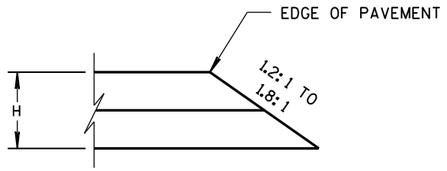
TEE INTERSECTION BYPASS LANE DETAIL

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

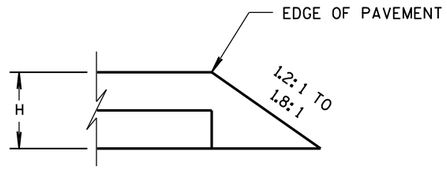
6
S.D.D. 9 A 1-13a

14B29: Safety Edge



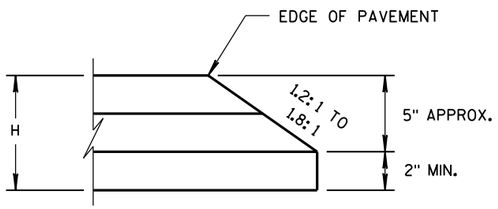
CONSTRUCTED WITH FINAL TWO LAYERS

FOR H 5" OR LESS



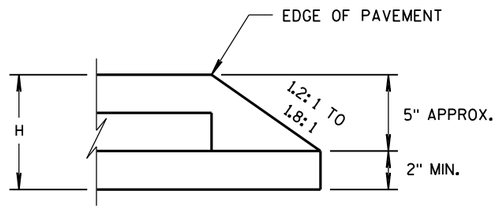
CONSTRUCTED WITH FINAL LAYER

FOR H 5" OR LESS



CONSTRUCTED WITH FINAL TWO LAYERS

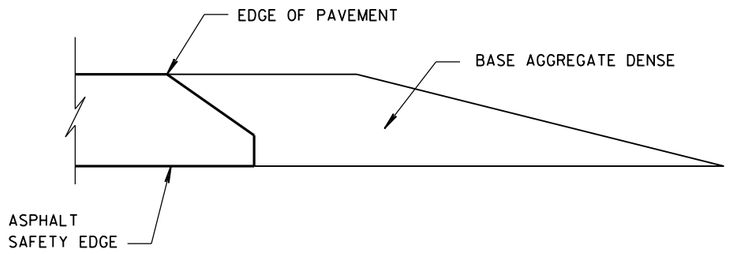
FOR H GREATER THAN 5"



CONSTRUCTED WITH FINAL LAYER

FOR H GREATER THAN 5"

HMA PAVEMENT AND HMA OVERLAYS



FINISHED SHOULDER AGGREGATE PLACEMENT

6

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S.D.D. 14 B 29-1

S.D.D. 14 B 29-1

SAFETY EDGE SM

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

11/30/2012
DATE

/S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT ENGINEER

FHWA

14B42 sheet a: Midwest Guardrail System (MGS) Installation Cross Sections, Post and Block Details

GENERAL NOTES

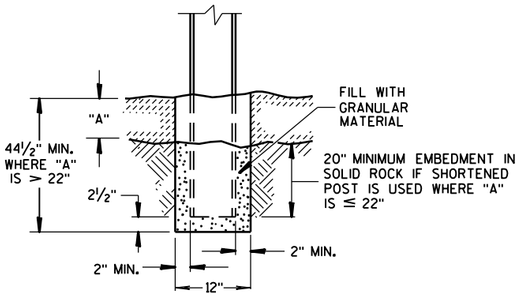
1. WOOD OR STEEL POSTS (w6X9 OR w6X8.5) MAY BE USED. DO NOT INTERMIX WOOD AND STEEL POSTS. INSTALL STEEL POSTS WITH HOLES ON APPROACHING TRAFFIC SIDE.

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.

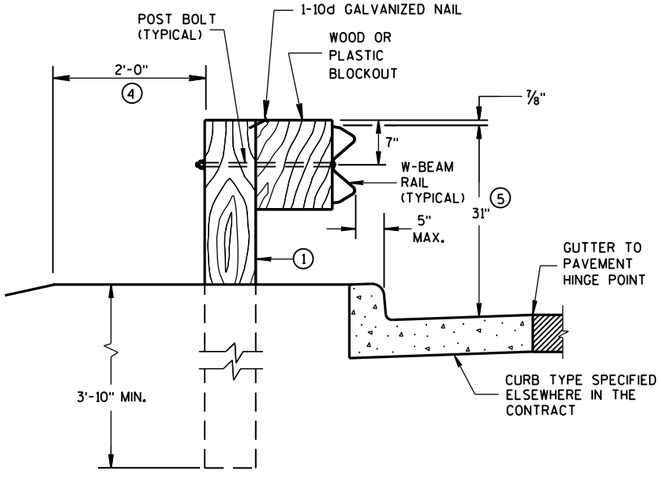
3. IF ROCK IS ENCOUNTERED DURING EXCAVATION, PROVIDE A HOLE 12 INCHES IN DIAMETER EXTENDING 20 INCHES DEEP INTO THE ROCK. PLACE APPROXIMATELY 2½INCHES OF GRANULAR MATERIAL IN THE BOTTOM OF THE HOLE. CUT THE POSTS THE TO LENGTH AMD INSTALL. BACKFILL WITH EXCAVATED MATERIAL AND COMPACT. BACKFILL IS TO 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).

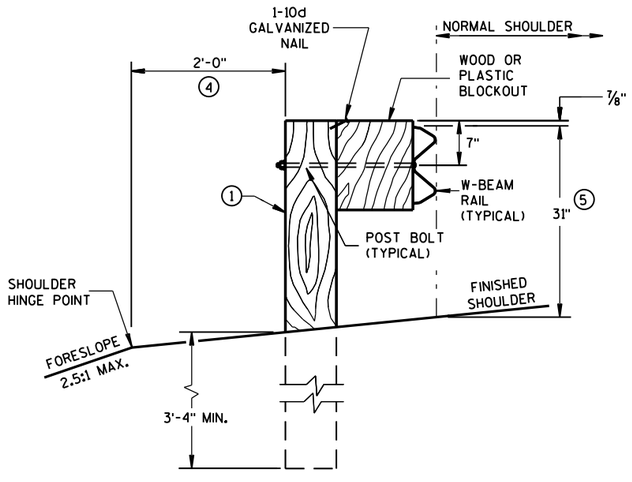
5. FOR NEW MGS INSTALLATION TOP OF W-BEAM RAIL TOLERANCE IS ± 1". FOR EXISTING MGS INSTALLATION TOP OF W-BEAM IS BETWEEN 27¾" TO 32".



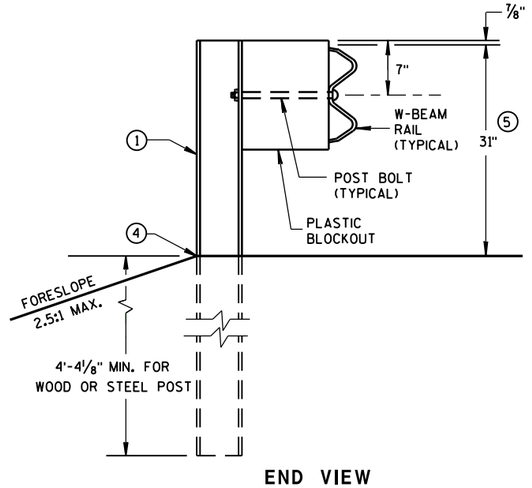
END VIEW
SETTING STEEL OR WOOD POST IN ROCK ③



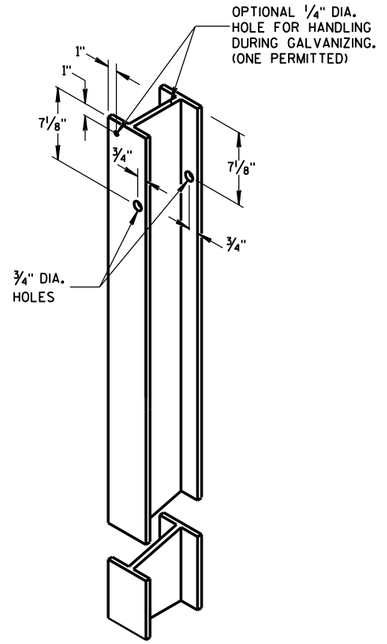
END VIEW
LOCATED ALONG A CURBED ROADWAY



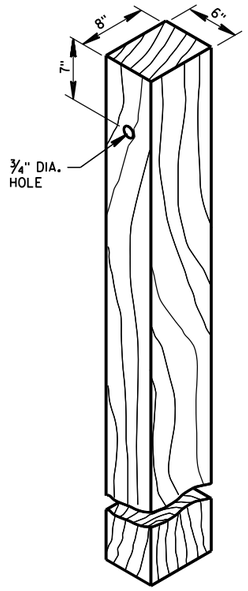
END VIEW
LOCATED ALONG A ROADWAY SHOULDER
STANDARD INSTALLATION



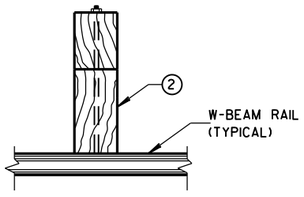
END VIEW
MGS LONGER POST AT HALFPOST SPACING W BEAM (K)



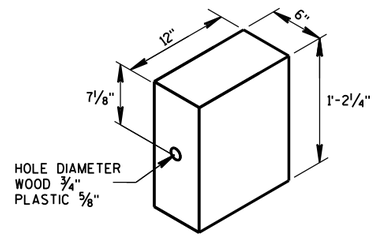
STEEL POST &
HOLE PUNCHING DETAIL
(w6X9) ①



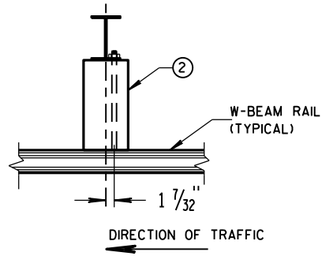
WOOD POST
(6" X 8") NOMINAL ①



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 TRANSPORTATION

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

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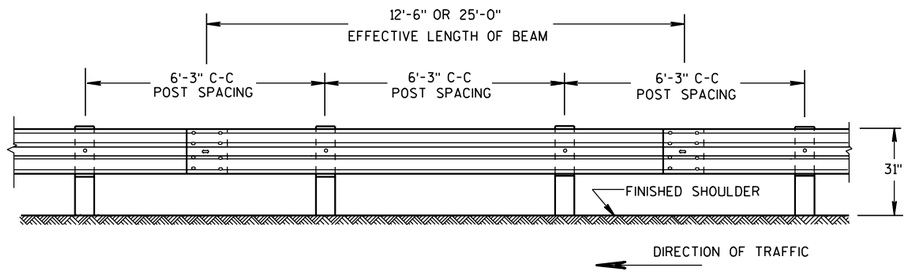
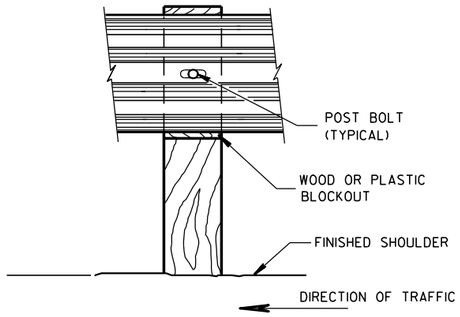
S.D.D. 14 B 42-2a



FRONT VIEW

POST SPACING STANDARD INSTALLATION



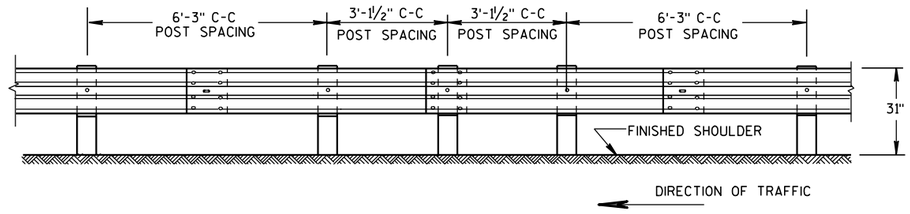
FRONT VIEW AT WOOD POST

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.

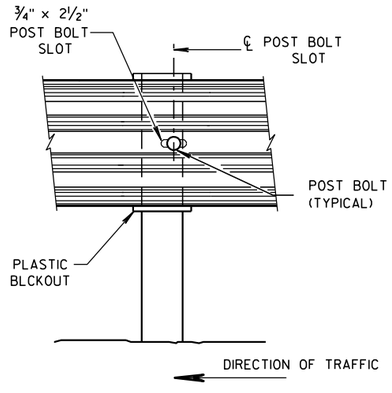
POST BOLTS ARE A 5/8" DIAMETER ASTM A307 GUARDRAIL BOLT. A POST BOLT REQUIRES 5/8" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT AND 5/8" DIAMETER F844 FLAT WASHER. POST BOLTS MAY BE LONGER IF MULTIPLE BLOCKOUTS ARE BEING USED.

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.

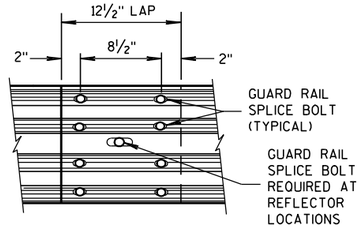


FRONT VIEW

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

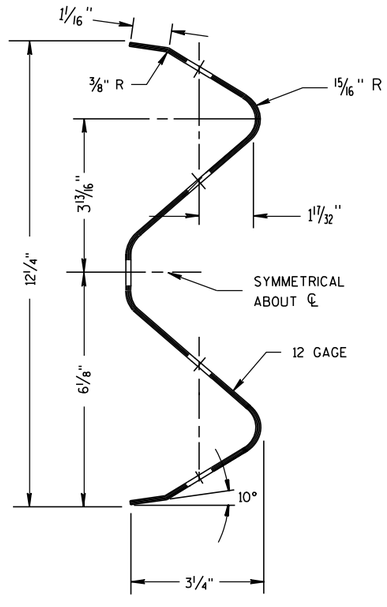


FRONT VIEW AT STEEL POST

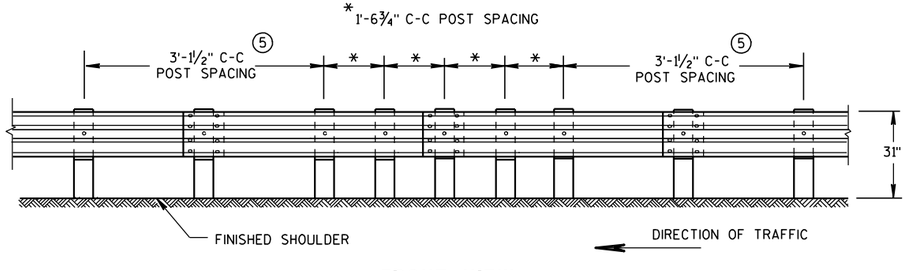


FRONT VIEW

MID-SPAN BEAM SPLICE

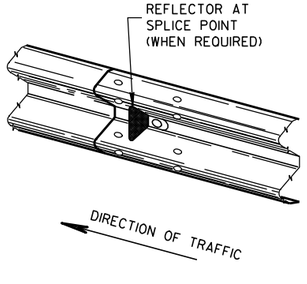


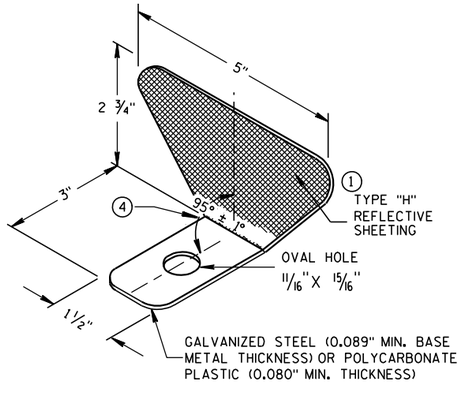
SECTION THRU W-BEAM RAIL



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	

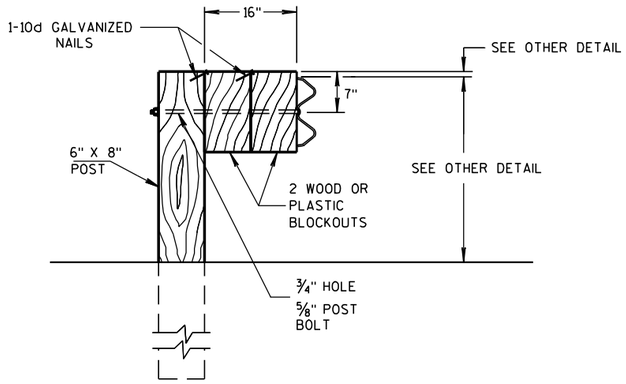
MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

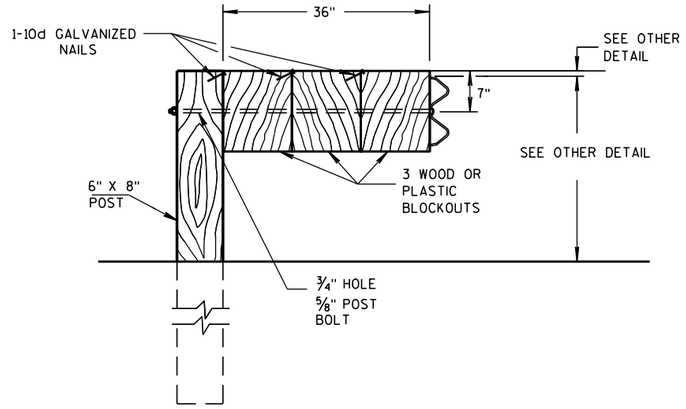
S.D.D. 14 B 42-2b

14B42 sheet c: Midwest Guardrail System (MGS) Post spacing, Reflector, W-beam rail, Bolt placement



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.

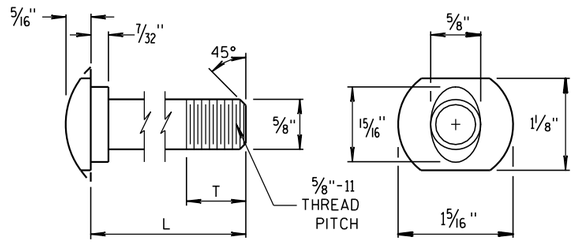


DETAIL FOR 36" BLOCKOUT DEPTH

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.

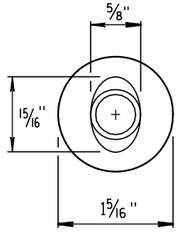
DO NOT USE 16" OR 36" BLOCKOUTS IF IT CAUSES THE POST TO BE DRIVEN BEYOND SHOULDER HINGE POINT OR CAUSES A FIXED OBJECT TO BE WITHIN THE DEFLECTION DISTANCE OF THE BARRIER.

NOTE: 1. ALL FILLETS SHALL HAVE A MINIMUM RADIUS OF 1/16".
2. IF THE BOLT EXTENDS MORE THAN ¼" FROM THE NUT THE BOLT SHOULD BE TRIMMED BACK.

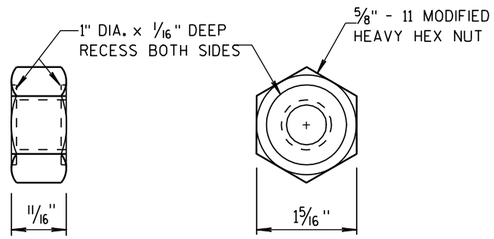


POST BOLT TABLE

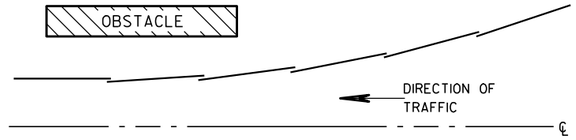
L	T (MIN.)
1¼"	1⅛"
2"	1¾"
10"	4"
14"	4 1/16"
18"	4"
21"	4 1/16"
25"	4"



ALTERNATE BOLT HEAD

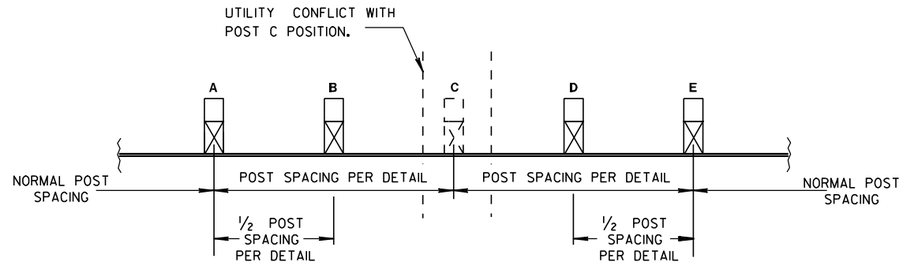


POST BOLT AND RECESS NUT

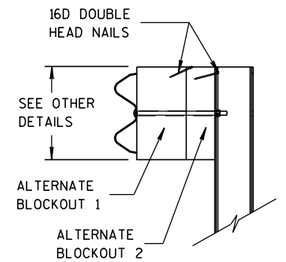


PLAN VIEW

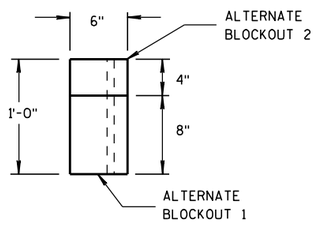
BEAM LAPPING DETAIL



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. Zogg ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA	

6

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

6

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

14B44 sheet a: Midwest Guardrail System (MGS) EAT

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.

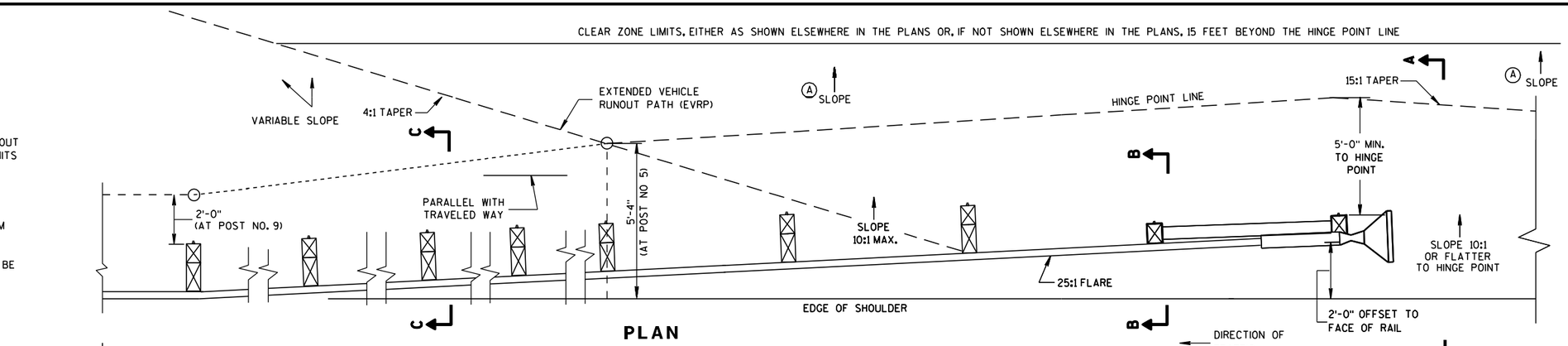
* DO NOT ATTACH BLOCKOUTS TO POSTS 1 AND 2.

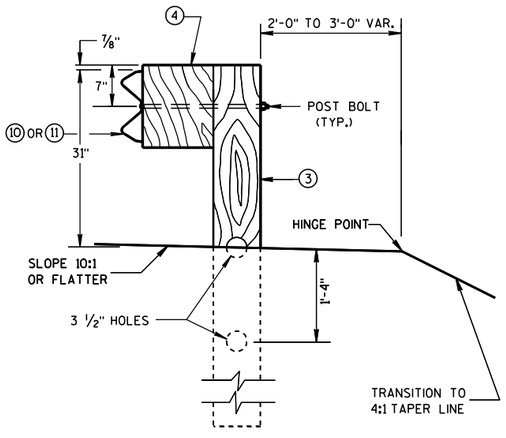
DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL.

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.

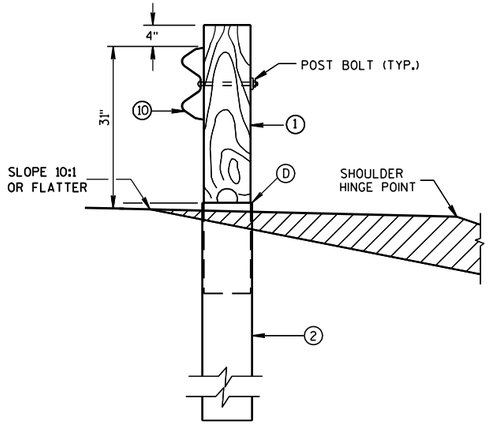
PATTERN AND COLORS ON REFLECTIVE SHEETING TYPE H ARE TO CONFORM TO OM3-L OR OM3-R OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

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

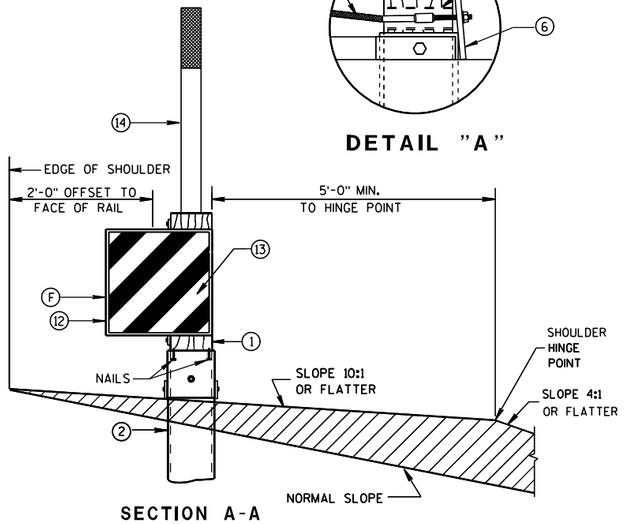




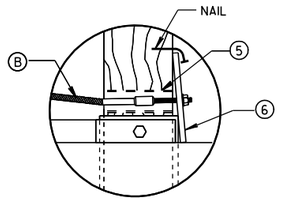
SECTION C-C
TYPICAL AT POST NOS. 3-9



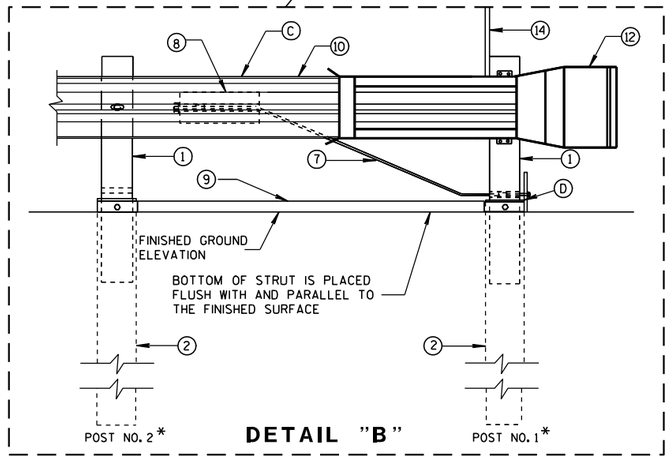
SECTION B-B
TYPICAL AT POST NO. 2*



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

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

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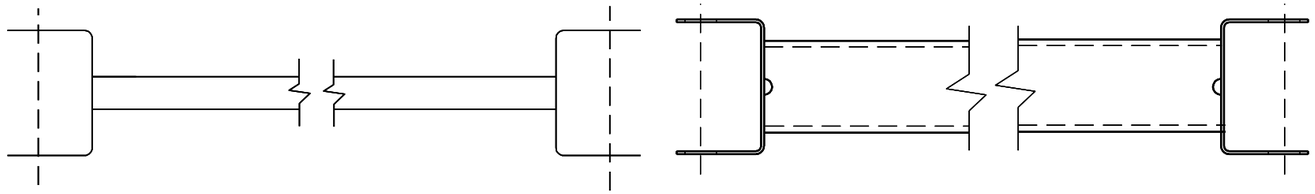
14B44 sheet b: Midwest Guardrail System (MGS) EAT Ground Strut, Anchor Cable Box

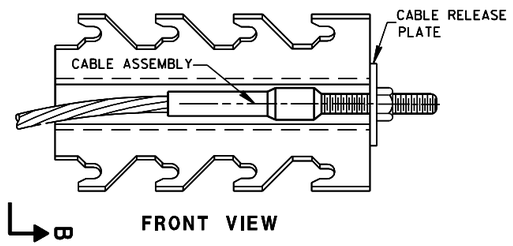


⑨ Ⓗ

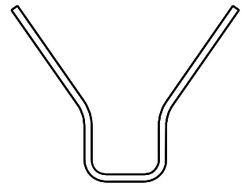
GENERIC GROUND STRUT

BILL OF MATERIALS

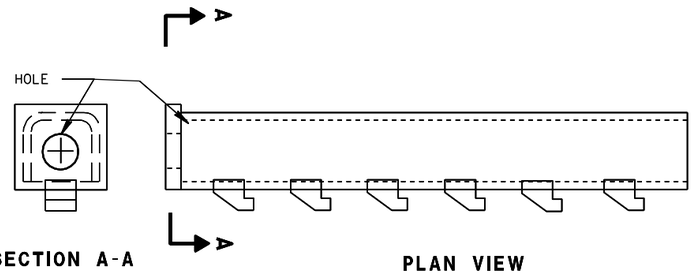
PART NO.	DESCRIPTION MATERIALS PROVIDED BY MGS EAT MANUFACTURER. SEE MANUFACTURER'S DETAILS FOR MORE INFORMATION.
①	WOOD BREAKAWAY POST
②	6" X 8" X 0.188", 6'-0" LONG FOUNDATION TUBE AT POSTS 1 AND 2
③	WOOD CRT
④	WOOD BLOCKOUT
⑤	PIPE SLEEVE
⑥	BEARING PLATE
⑦	BCT CABLE ASSEMBLY
⑧	ANCHOR CABLE BOX
⑨	GROUND 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



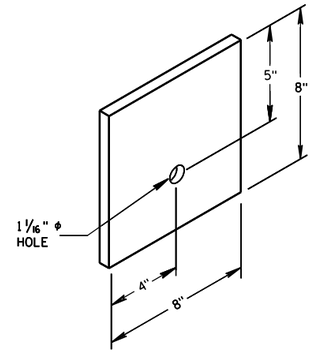
SECTION B-B



SECTION A-A

PLAN VIEW

GENERIC ANCHOR CABLE BOX ⑧ Ⓗ



BEARING PLATE ⑥

MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL
(MGS)

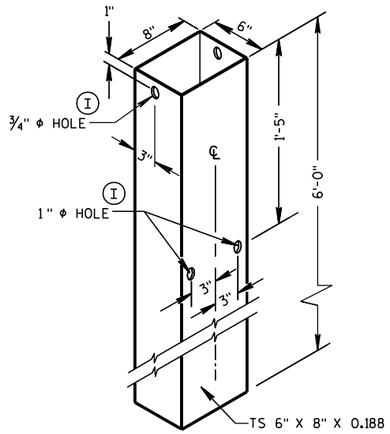
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

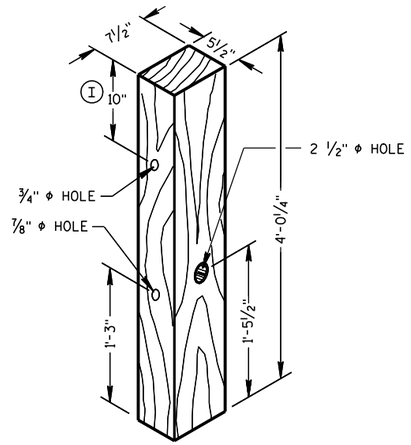
S.D.D. 14 B 44-1b

6

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

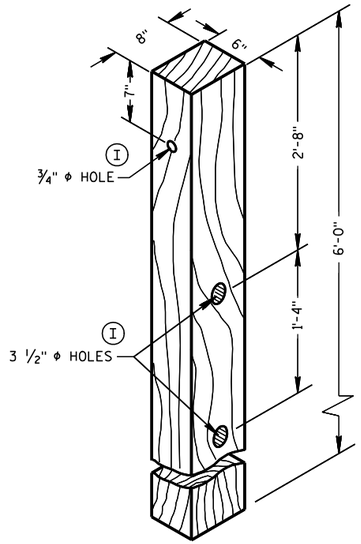


FOUNDATION TUBE (2)



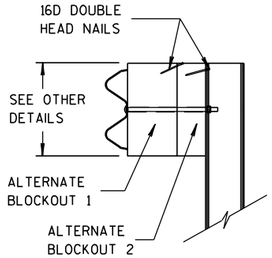
POSTS NUMBER 1 AND 2

WOOD BREAKAWAY POST (1)

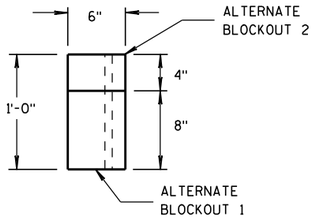


POSTS NUMBER 3-9

WOOD CRT POST (3)

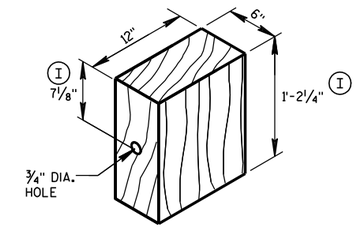


SIDE VIEW



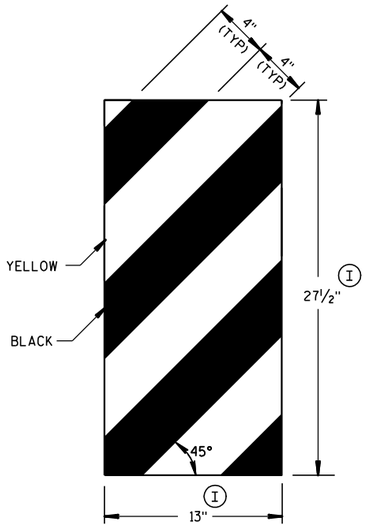
TOP VIEW

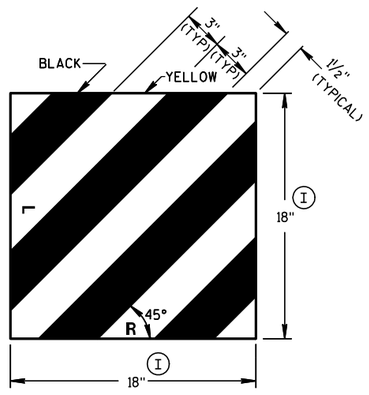
ALTERNATE WOOD BLOCKOUT DETAIL



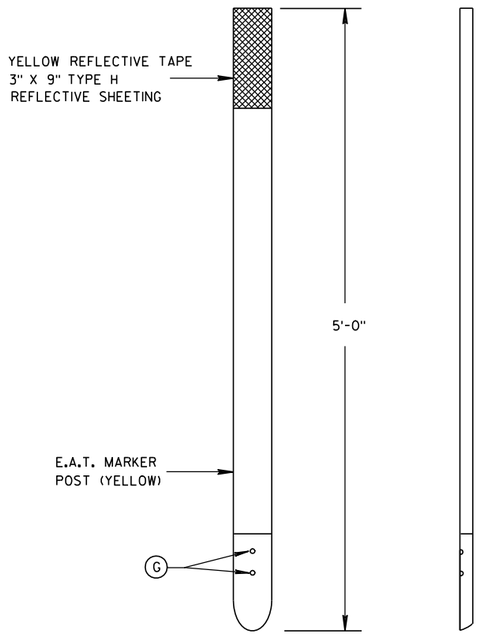
WOOD BLOCKOUT (4)

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





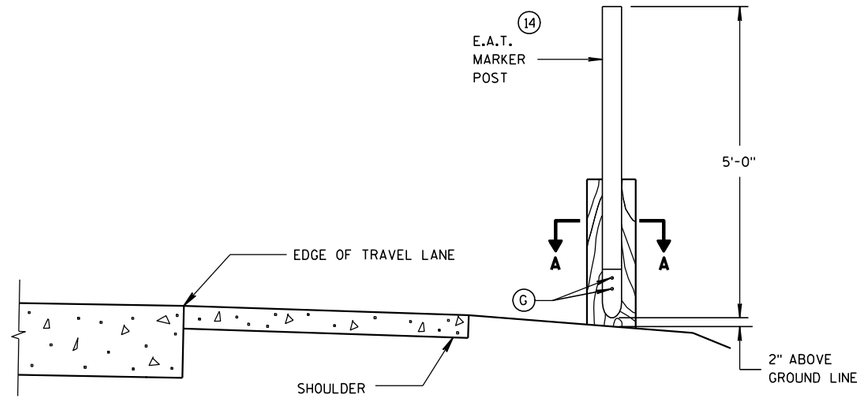
GENERIC REFLECTIVE SHEETING (13) (H)



FRONT VIEW

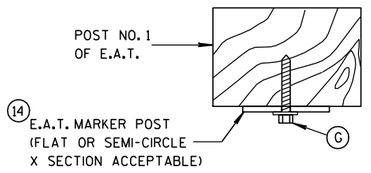
SIDE VIEW

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. Zogg
ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA

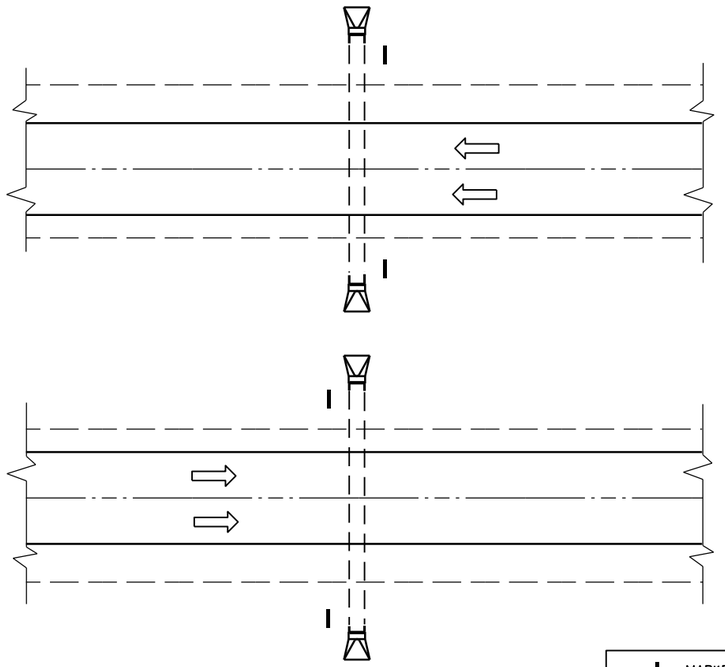
6

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

6

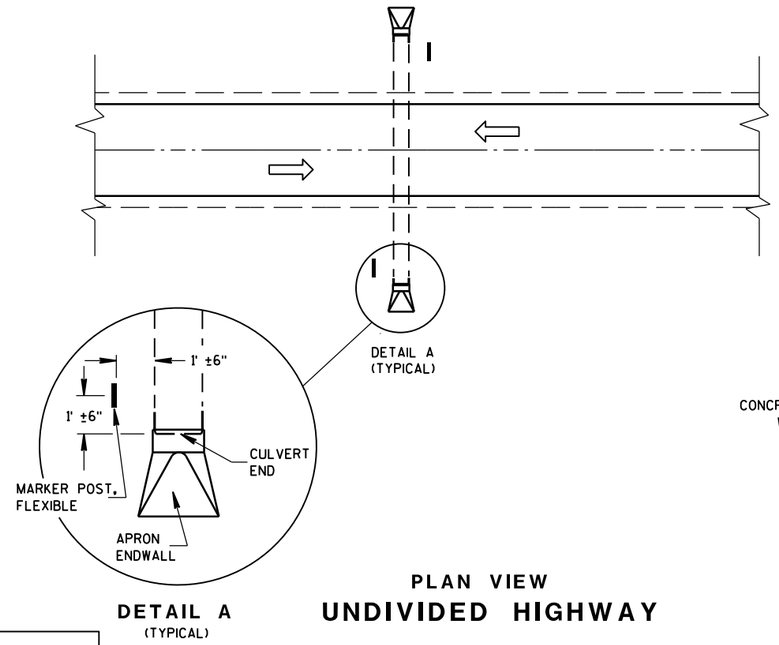
S.D.D. 14 B 44-1c

15A3 sheet a: Flexible Marker Post for Culvert End



PLAN VIEW

DIVIDED HIGHWAY



DETAIL A
(TYPICAL)

PLAN VIEW

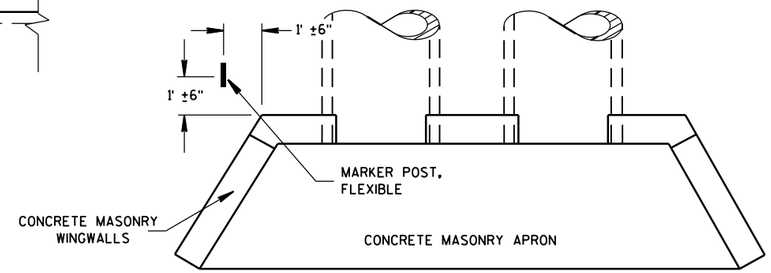
UNDIVIDED HIGHWAY

MARKER POST, FLEXIBLE

DIRECTION OF TRAFFIC FLOW

GENERAL NOTES

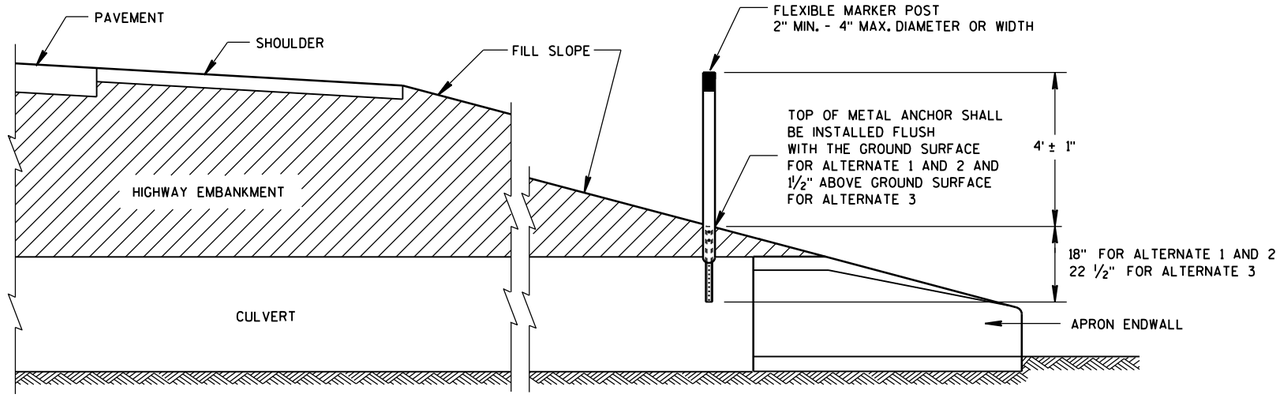
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.



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 TRANSPORTATION

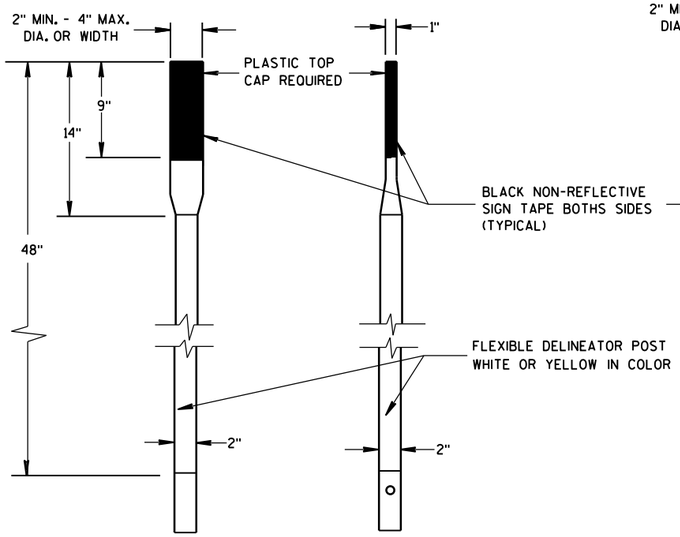
6

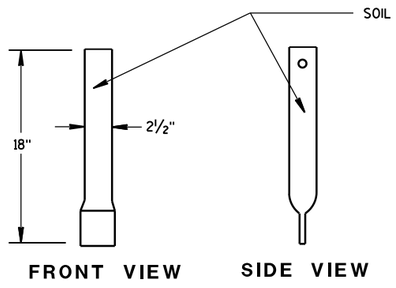
S.D.D. 15 A 3-2a

6

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

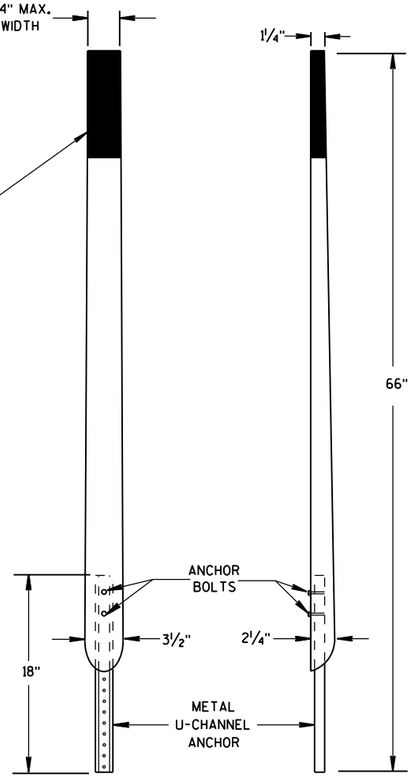
15A3 sheet b: Flexible Marker Post for Culvert End





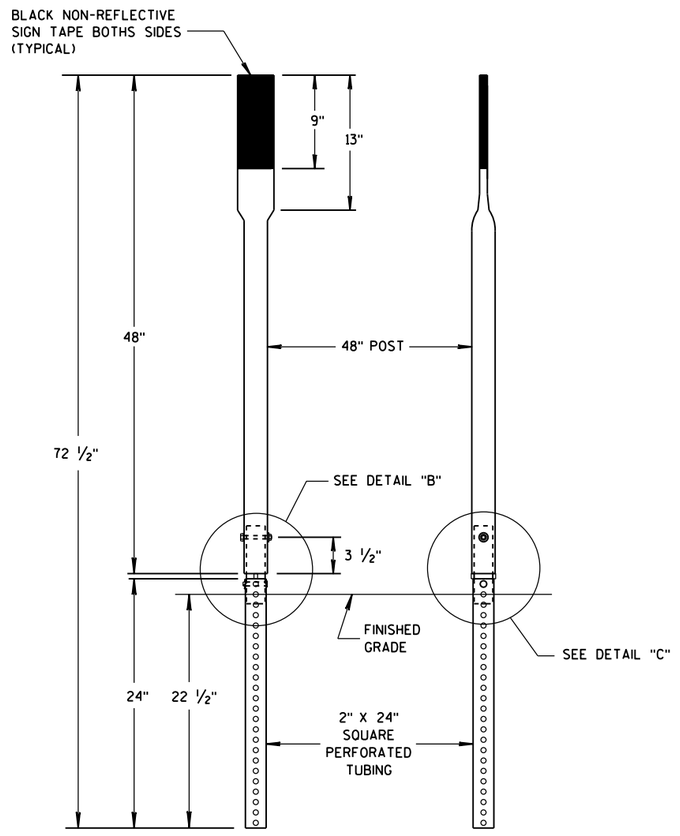
FRONT VIEW SIDE VIEW

ALTERNATE 1



FRONT VIEW SIDE VIEW

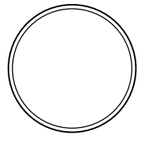
ALTERNATE 2



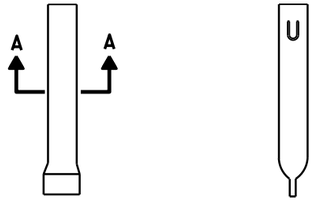
FRONT VIEW SIDE VIEW

ALTERNATE 3

FLEXIBLE MARKER POSTS

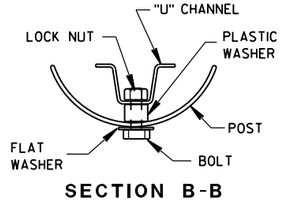


SECTION A-A

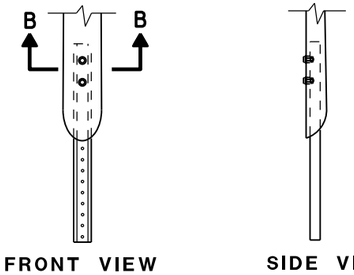


FRONT VIEW SIDE VIEW

ALTERNATE 1

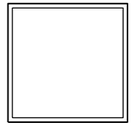


SECTION B-B

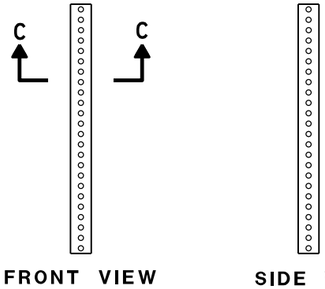


FRONT VIEW SIDE VIEW

ALTERNATE 2



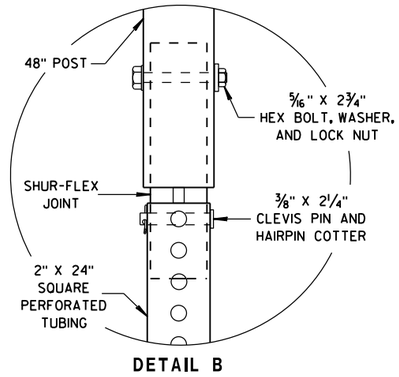
SECTION C-C



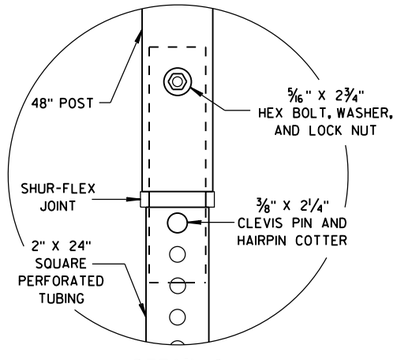
FRONT VIEW SIDE VIEW

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 OF DESIGN

FHWA

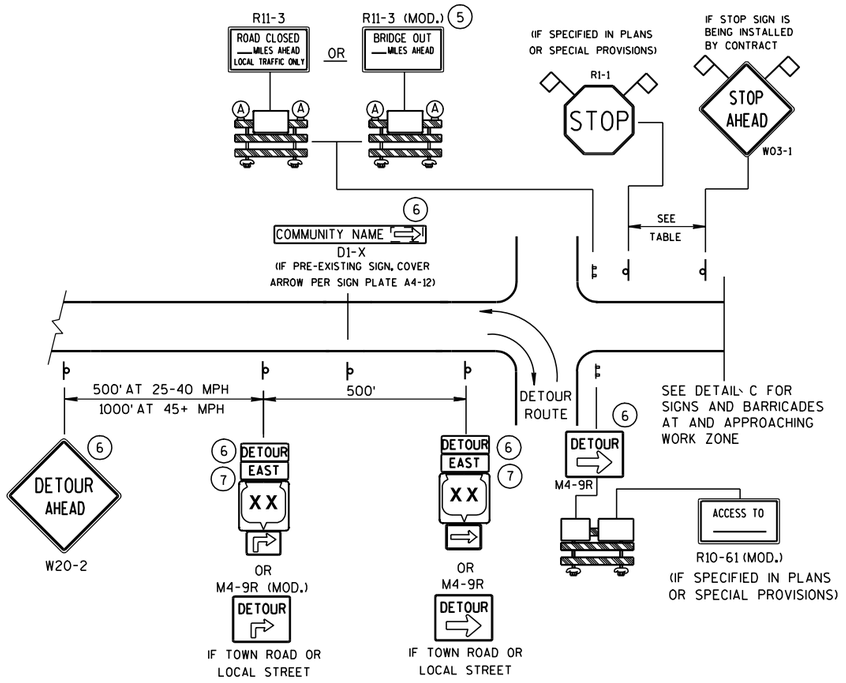
6

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

6

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

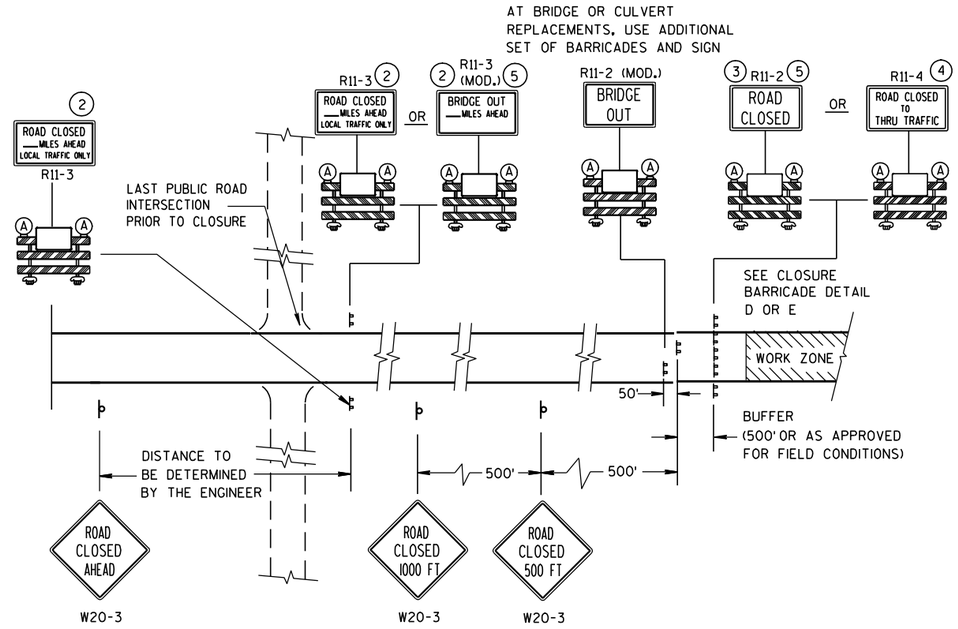
15C2 sheet a: Barricades and Signs for Mainline Closures



DETAIL A

MAINLINE CLOSURE WITH POSTED DETOUR

WORK ZONE GREATER THAN ½ MILE FROM DETOUR ROUTE (1000 FEET IF URBAN)

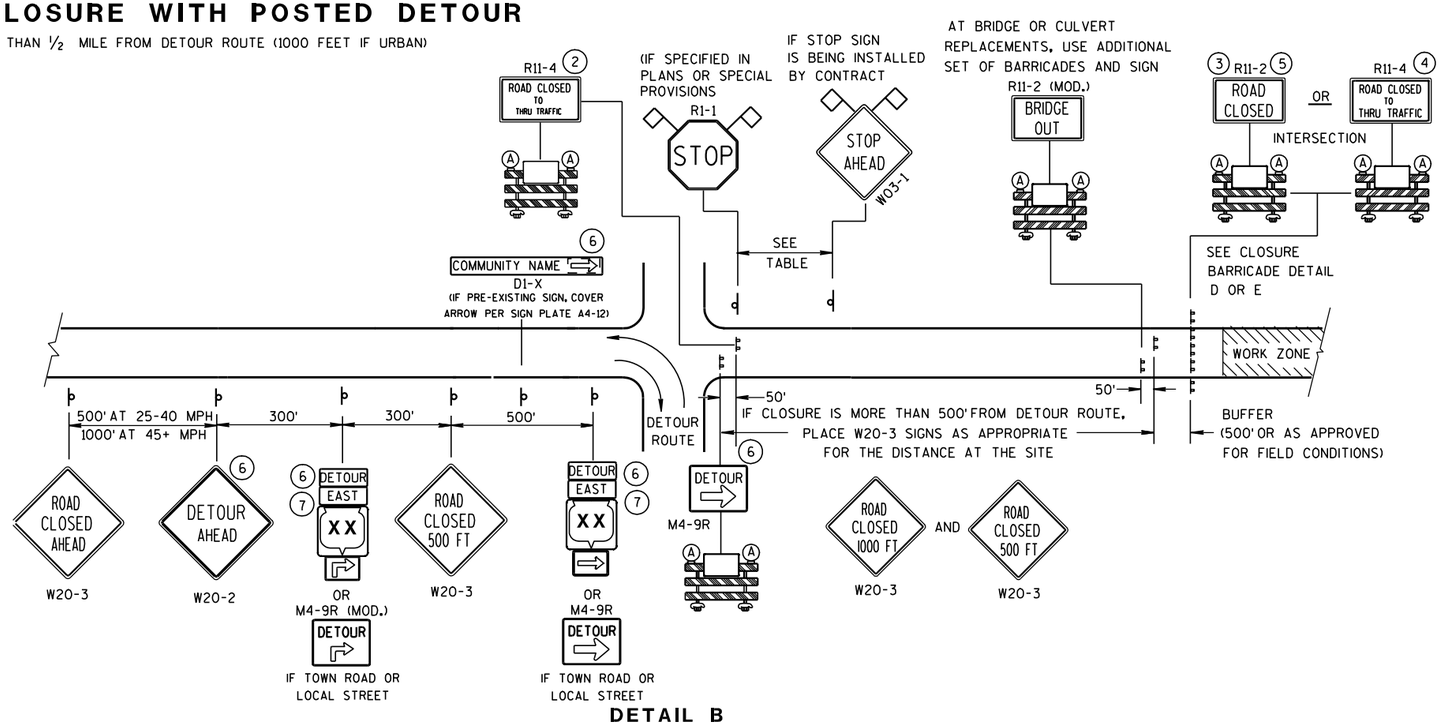


DETAIL C

MAINLINE CLOSURE, NO POSTED DETOUR

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

SEE SDD 15C2-4b
FOR GENERAL NOTES
AND FOOTNOTES ① THROUGH ⑦



DETAIL B

MAINLINE CLOSURE WITH POSTED DETOUR

WORK ZONE LESS THAN ½ MILE FROM DETOUR ROUTE (1000 FEET IF URBAN)

LEGEND

- POST MOUNTED SIGN
- TYPE III BARRICADES
- (A) TYPE "A" LOW INTENSITY FLASHING WARNING LIGHT (FOR NIGHT USE)
- WORK ZONE
- DETOUR / EAST — M4-8 / M3-X
- XX — M1-4; COUNTY XX — M1-5A; XX — M1-6
- M05-1; M06-1
- FLAGS, 16" X 16" MIN., (ORANGE)

BARRICADES AND SIGNS FOR MAINLINE CLOSURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

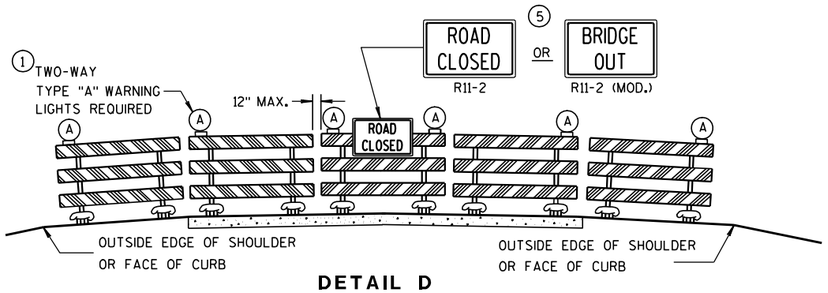
6

S.D.D. 15 C 2-4a

6

S.D.D. 15 C 2-4a

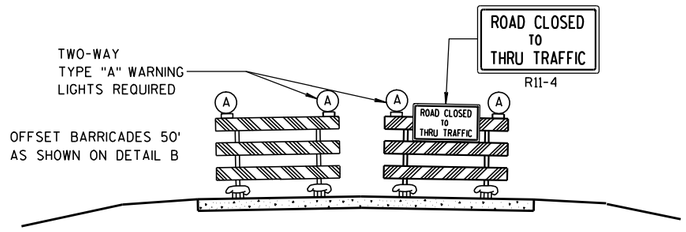
15C2 sheet b: Barricades and Signs for Mainline Closures



DETAIL D

ROAD CLOSURE BARRICADE DETAIL

APPROACH VIEW



DETAIL E

LANE CLOSURE BARRICADE DETAIL

APPROACH VIEW

SEE SDD 15C2-4a FOR LEGEND

GENERAL NOTES

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

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

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

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

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

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

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

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

THE REFLECTIVE SHEETING USED ON R11-2, R11-3, R11-4, R10-61 AND R1-1 SIGNS SHALL COMPLY WITH SUBSECTION 637.2.2.2 OF THE STANDARD SPECIFICATIONS.

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

ALL SIGNS SHALL BE 48" X 48" UNLESS OTHERWISE NOTED BELOW:
- R11-2 SHALL BE 48" X 30".
- R11-3, R11-4 AND R10-61 SHALL BE 60" X 30".
- M4-9 SHALL BE 30" X 24".
- M3-X AND M4-8 SHALL BE 24" X 12". (30" X 15" IF NEEDED TO MATCH EXISTING SIGNS.)
- M1-4, M1-5A, AND M1-6 SHALL BE 24" X 24". (36" X 36" IF NEEDED TO MATCH EXISTING SIGNS.)
- M05-1 AND M06-1 SHALL BE 21" X 21". (30" X 30" IF NEEDED TO MATCH EXISTING SIGNS.)
- D1-X SHALL BE AS SHOWN ON SPECIFIC PROJECT SIGNING DETAIL SHEETS.
- R1-1 SHALL BE 36" X 36".

(1) TWO WARNING LIGHTS SHALL BE PROVIDED ON THE CENTER BARRICADE AND A MINIMUM OF ONE WARNING LIGHT SHALL BE PROVIDED ON EACH OF THE OTHER BARRICADES WITHIN THE ROADWAY LIMITS. SPACING OF THE WARNING LIGHTS SHALL BE UNIFORM TO THE EDGE OF ROADWAY AS SHOWN (APPROX. 8-FOOT LIGHT SPACING).

(2) THESE SIGNS AND BARRICADES ARE NOT REQUIRED IF ROAD CLOSURE BEGINS AT INTERSECTION.

(3) FOR ROAD CLOSURE WITHOUT LOCAL ACCESS TO PROJECT, SEE ROAD CLOSURE BARRICADE DETAIL D.

(4) FOR ROAD CLOSURE WITH LOCAL ACCESS TO PROJECT, SEE LANE CLOSURE BARRICADE DETAIL E.

(5) FOR BRIDGE OR CULVERT REPLACEMENTS, SUBSTITUTE "BRIDGE OUT" INSTEAD OF "ROAD CLOSED" ON R11-2 AND R11-3 SIGNS.

(6) INSTALL DETOUR AND COMMUNITY GUIDE SIGNS AND ARROWS ONLY IF SPECIFIED IN THE CONTRACT. IF THERE ARE EXISTING ROUTE MARKER ASSEMBLIES THAT WILL REMAIN IN PLACE, ADJUST THE LOCATION OF THE DETOUR ROUTE SIGNS TO CORRESPOND WITH THE EXISTING ASSEMBLIES. MODIFY EXISTING SIGNS WHERE POSSIBLE. SEE SPECIFIC PROJECT DETOUR SIGNING DETAIL SHEETS. IF DETOUR SIGNS ARE BEING INSTALLED BY OTHERS, PLACE THE CONTRACTED TRAFFIC CONTROL SIGNS TO ALLOW FOR PLACEMENT OF ALL WARNING, DETOUR AND GUIDE SIGNS AS SHOWN.

(7) "EAST" CARDINAL DIRECTION MARKERS AND RIGHT TURN ARROWS ARE SHOWN. USE OTHER CARDINAL DIRECTIONS AND ARROWS AS APPROPRIATE.

BARRICADES AND SIGNS FOR MAINLINE CLOSURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

9/16/03 — DATE

/S/ Thomas N. Notbohm — CHIEF SIGNS AND MARKING ENGINEER

FHWA

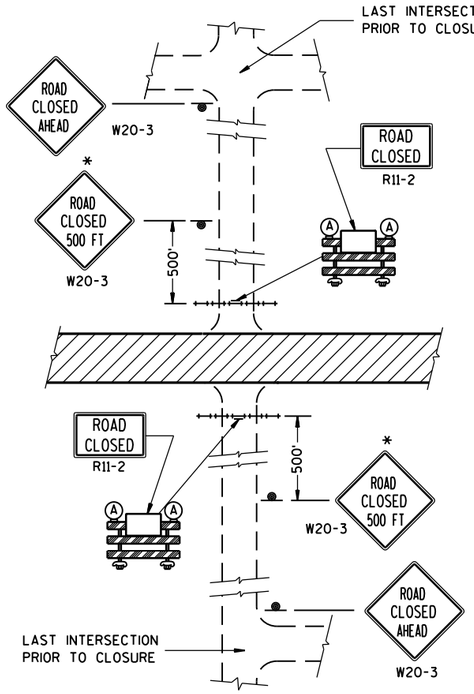
6

S.D.D. 15 C 2-4b

6

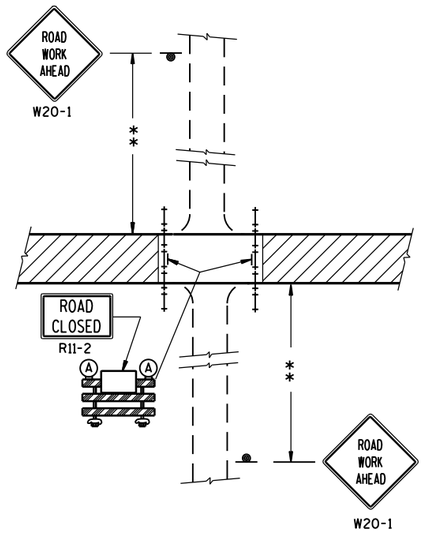
S.D.D. 15 C 2-4b

15C3: Barricades and Signs for Sideroad Closures



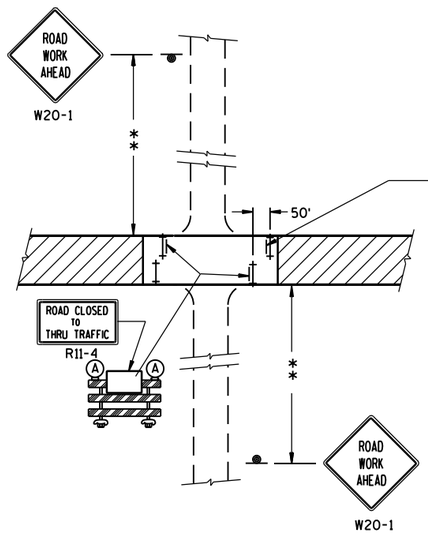
DETAIL 1

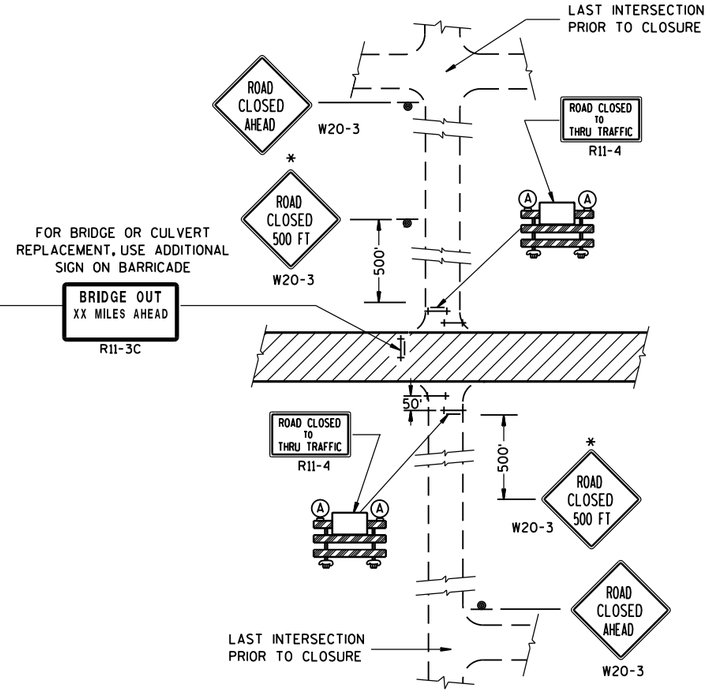
(NO ACCESS TO PROJECT)



DETAIL 2

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





DETAIL 3

(PUBLIC CROSS-TRAFFIC MAINTAINED. CONTRACTOR, LOCAL BUSINESS AND RESIDENT ACCESS).

DETAIL 4

(CONTRACTOR, LOCAL BUSINESS AND RESIDENT ACCESS TO PROJECT)

GENERAL NOTES

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

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

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

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

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

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

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

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

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

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

*OMIT THE "ROAD CLOSED 500 FT." SIGN IF THE LAST INTERSECTION IS 500 FT. OR LESS FROM THE WORK ZONE.

**500' MAX. OR AT LAST INTERSECTION WHICHEVER IS CLOSER.

LEGEND

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

BARRICADES AND SIGNS FOR SIDEROAD CLOSURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

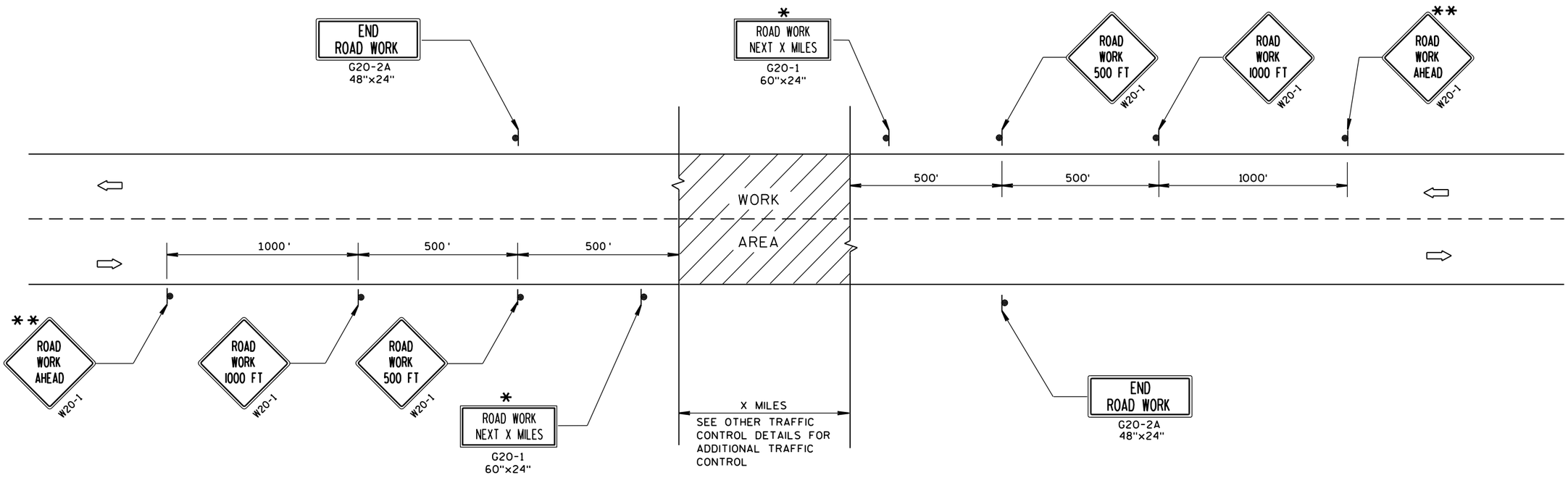
6

S.D.D. 15 C 3-2

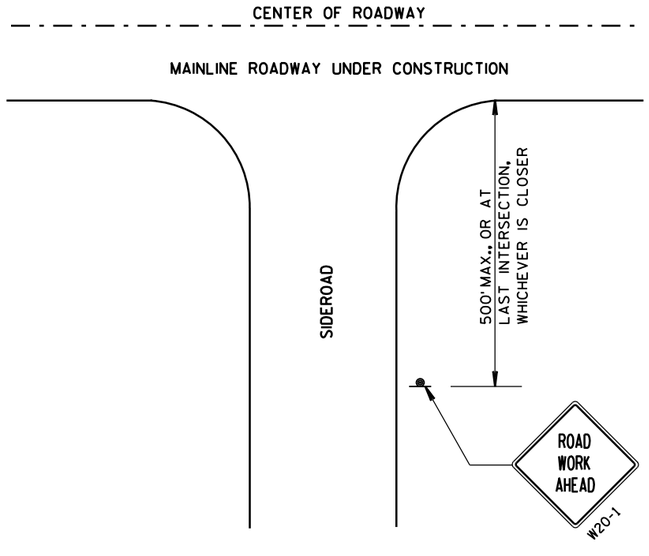
6

S.D.D. 15 C 3-2

15C4: Traffic Control, Advance Warning Signs 45 M.P.H. or Greater, Two Way Undivided Road Open to Traffic



TYPICAL SIDEROAD APPROACH WARNING SIGN DETAIL



GENERAL NOTES

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

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

ALL SIGNS ARE 48"x48" UNLESS OTHERWISE NOTED.

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

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

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

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

LEGEND

SIGN ON PERMANENT SUPPORT

DIRECTION OF TRAFFIC

WORK AREA

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

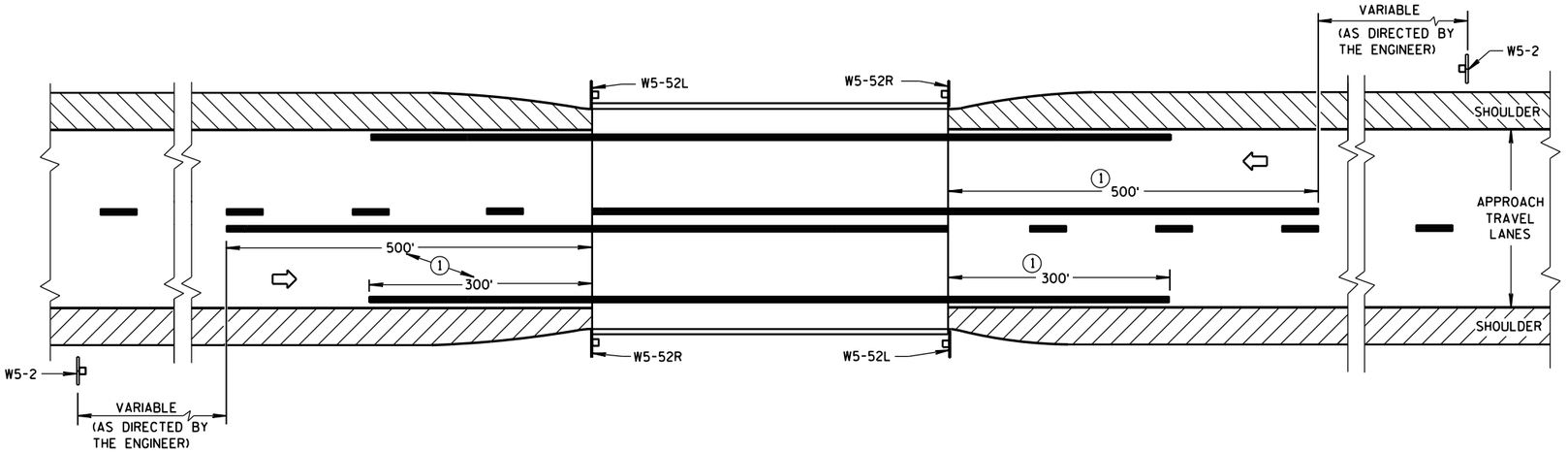
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

8/2013 — DATE

/S/ Travis Feltes — STATE TRAFFIC ENGINEER OF DESIGN

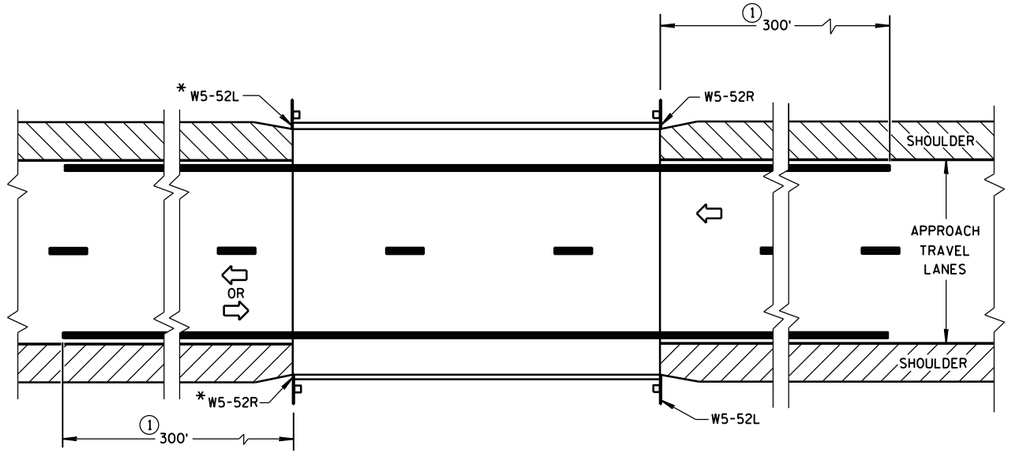
FHWA



SITUATION 1

WARRANTING CRITERIA:

BRIDGE WIDTH IS AT LEAST 18 FEET BUT LESS THAN 24 FEET



*OMIT ON ONE-WAY TRAVELLED WAYS

SITUATION 2

WARRANTING CRITERIA:

1. BRIDGE WIDTH IS AT LEAST 24 FEET AND
2. BRIDGE IS LESS THAN 6 FEET WIDER (ON EACH SIDE) THAN APPROACH TRAVEL LANES.

GENERAL NOTES

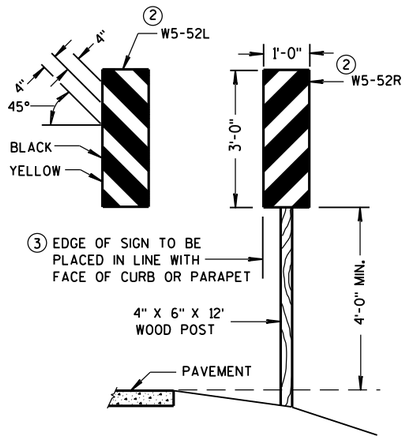
DETAILS OF TRAFFIC CONTROL DEVICES AND INSTALLATION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS, THE SPECIAL PROVISIONS, AND THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

PAVEMENT MARKING SHOWN ON THIS DRAWING IS NOT REQUIRED UNLESS OTHERWISE SPECIFIED IN THE CONTRACT. WHEN SPECIFIED, PAVEMENT MARKING SHALL CONFORM TO THIS DRAWING AND OTHER CONTRACT REQUIREMENTS.

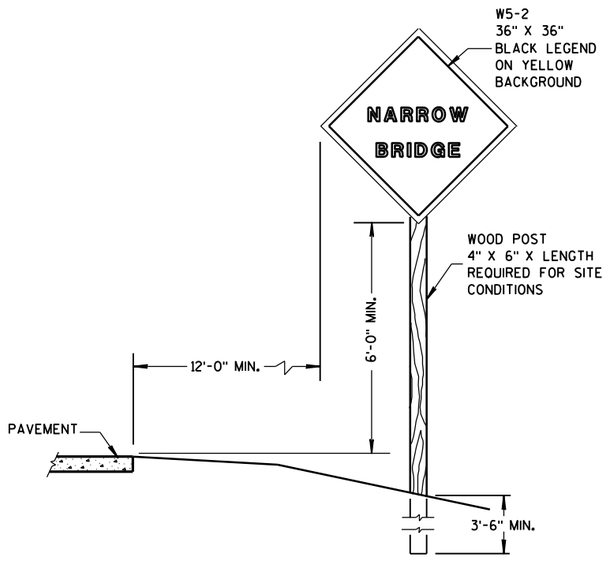
(1) MINIMUM DISTANCE UNLESS OTHERWISE SHOWN ON THE PLAN.

(2) FACE OF OBJECT MARKERS W5-52R, AND W5-52L SHALL BE COVERED WITH TYPE F REFLECTIVE SHEETING.

(3) LOCATE OBJECT MARKER POST(S) BEHIND GUARDRAIL WHEN PRESENT.



OBJECT MARKER PLACEMENT



SIGN PLACEMENT

SIGNING & MARKING
FOR TWO LANE BRIDGES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

3/4/2013 — DATE

/S/ Travis Feltes — STATE TRAFFIC ENGINEER OF DESIGN

FHWA

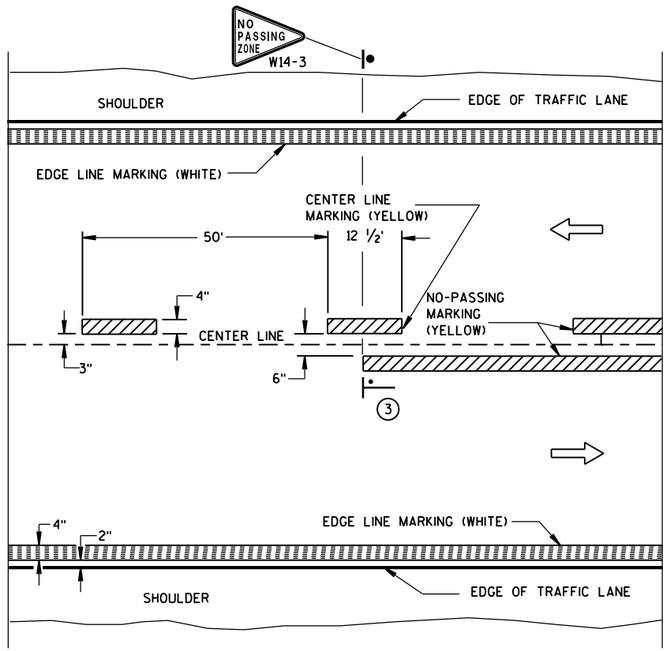
6

S.D.D. 15 C 6-6

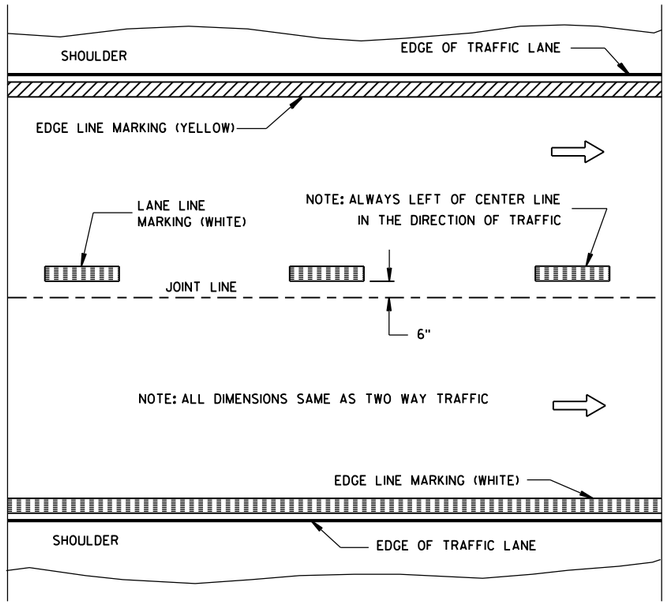
6

S.D.D. 15 C 6-6

15C8 sheet a: Pavement Marking (Mainline)



TWO WAY TRAFFIC



ONE WAY TRAFFIC

PERMANENT PAVEMENT MARKING

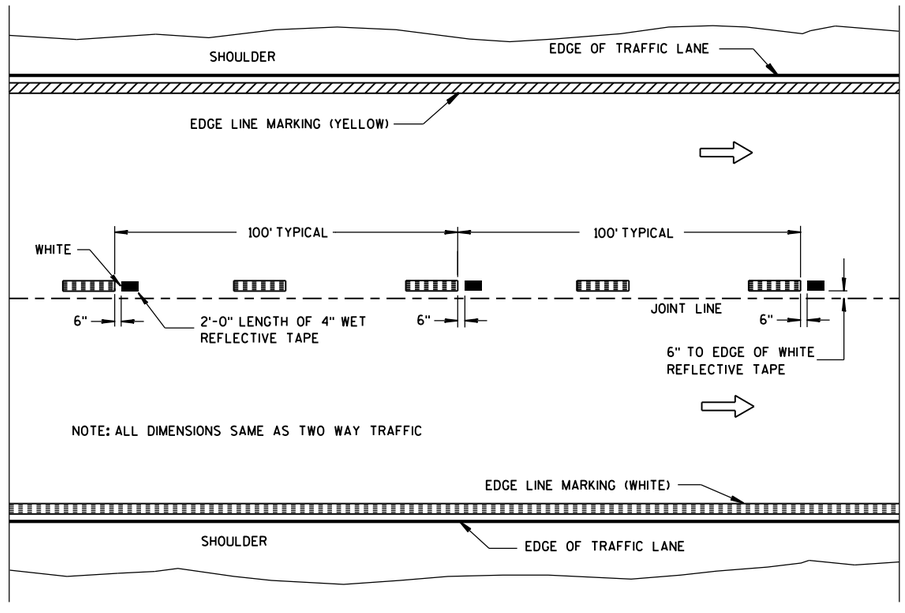
GENERAL NOTES

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

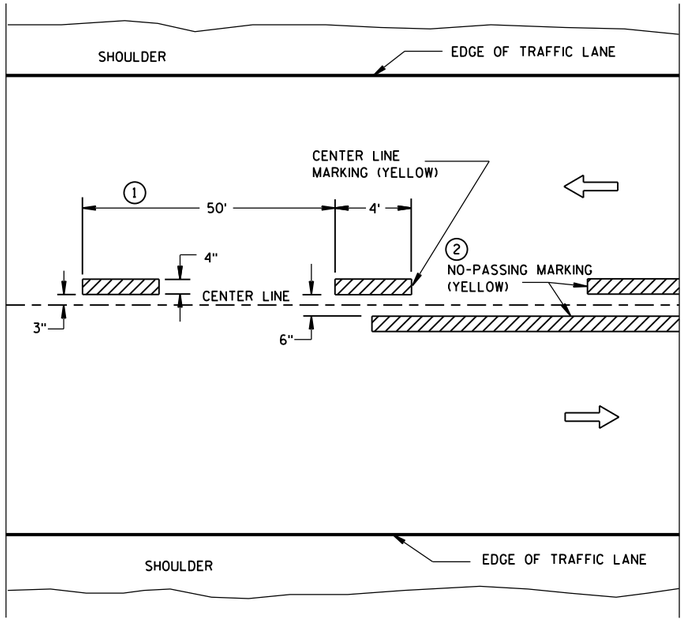
1. HALF CYCLE LENGTHS (25'±) WITH 2' MINIMUM STRIPE LENGTHS SHALL BE PROVIDED ON ROADWAYS (INCLUDING TEMPORARY TRAVELED WAYS) WITH REVERSE CURVATURE, CURVATURE OF OVER 5 DEGREES OR WHEN DIRECTED BY THE ENGINEER TO MARK UNUSUAL ALIGNMENT OF THE TRAVELED WAY.
2. NO PASSING ZONE TEMPORARY PAVEMENT MARKING 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

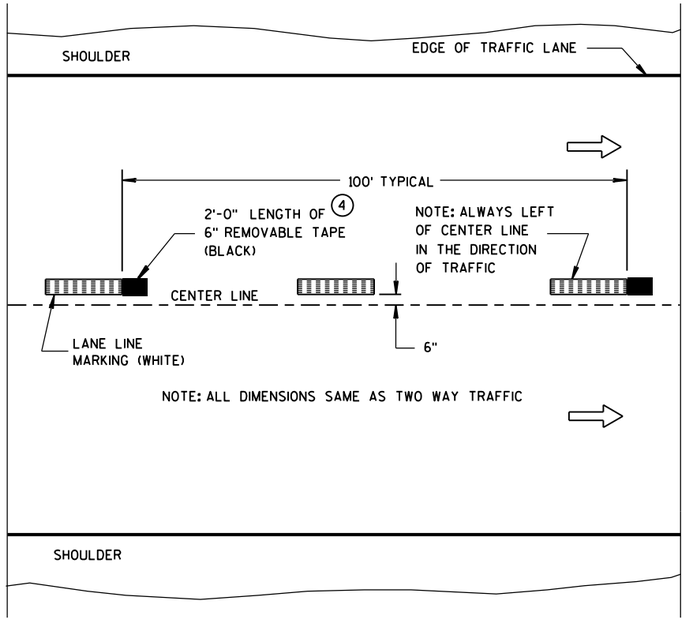
ARROW SYMBOL (⇨) SHOWS DIRECTION OF TRAVEL



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



TWO WAY TRAFFIC



ONE WAY TRAFFIC

TEMPORARY (INTERMEDIATE) PAVEMENT MARKING

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

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 ENGINEER

FHWA

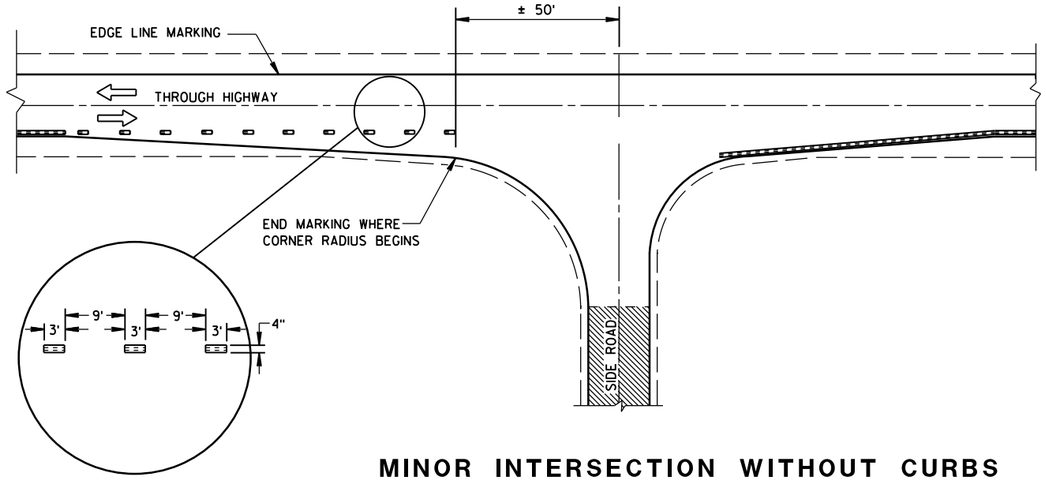
6

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

6

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

15C8 sheet b: Pavement Marking (Intersections)



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.

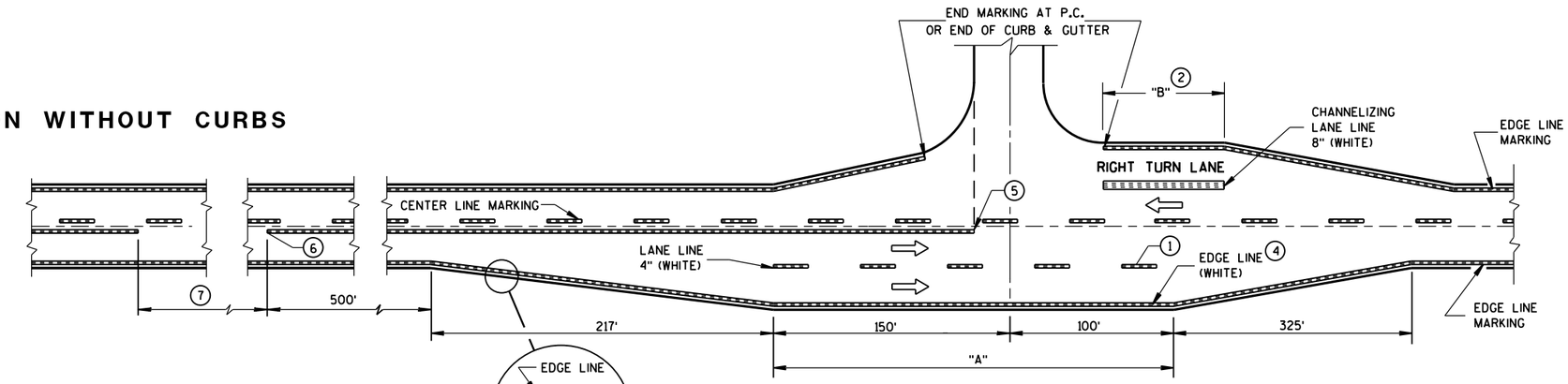
(7) IF THE DISTANCE BETWEEN 2 SUCCESSIVE NO-PASSING ZONES IS LESS THAN THE MINIMUM DISTANCE BETWEEN ZONES, CONNECT THE 2 ZONES.

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

ARROW SYMBOL (⇨) SHOWS DIRECTION OF TRAVEL

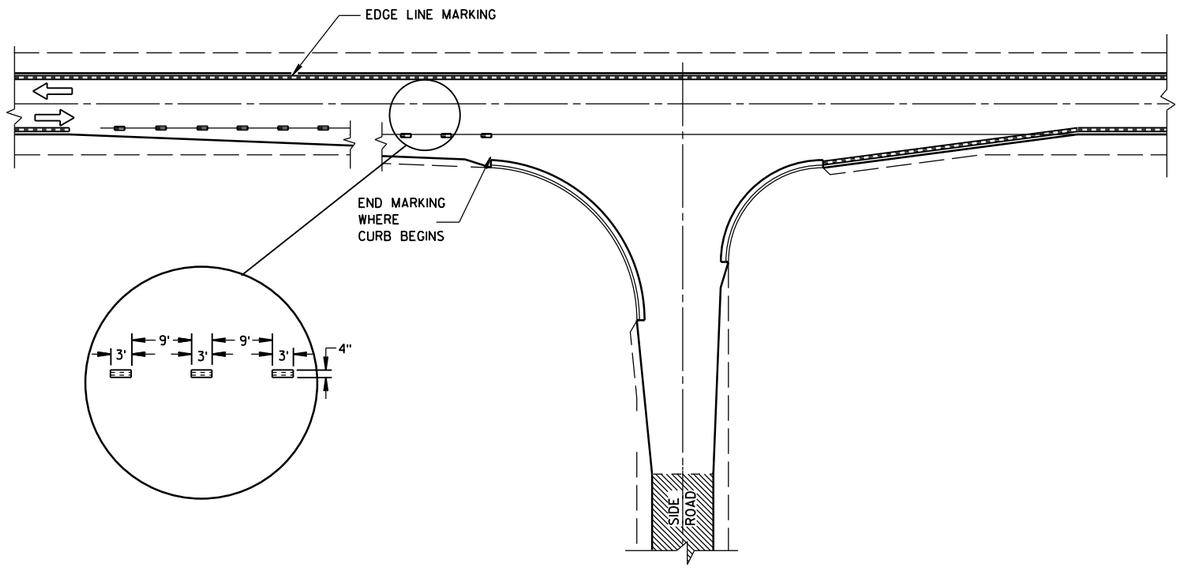
(7)

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



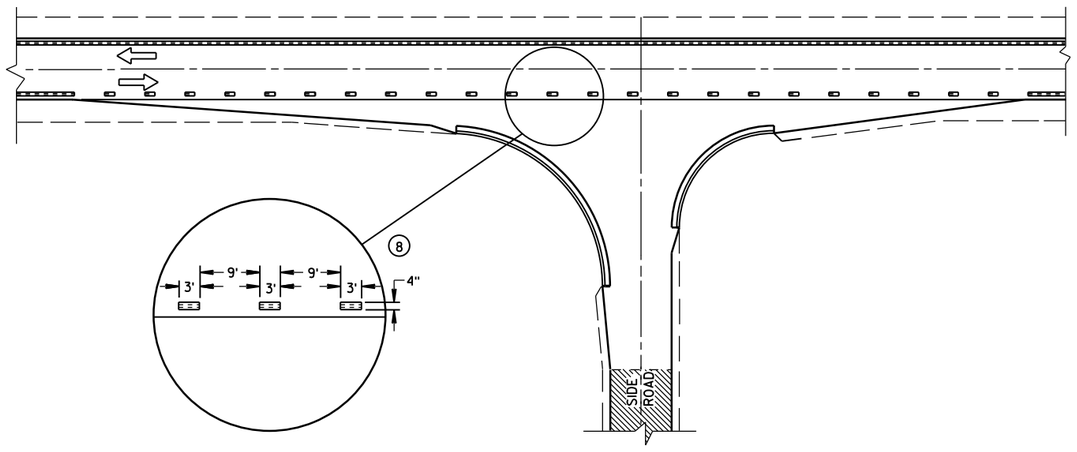
MAJOR INTERSECTIONS

(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 TRANSPORTATION

6

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

6

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

15C12: Traffic Control for Lane Closure (Suitable for Moving Operations)

LEGEND

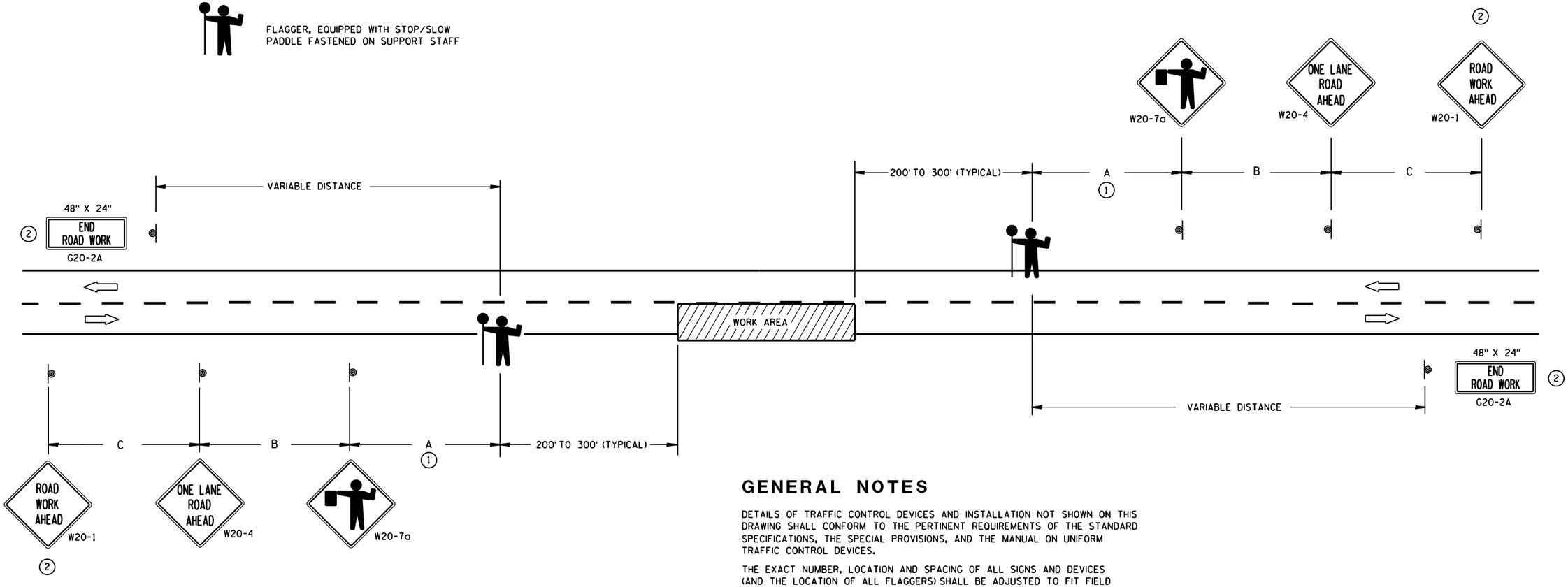
- SIGN ON PORTABLE OR PERMANENT SUPPORT
- DIRECTION OF TRAFFIC
- WORK AREA
- FLAGGER, EQUIPPED WITH STOP/SLOW PADDLE FASTENED ON SUPPORT STAFF

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 OF DESIGN
FHWA

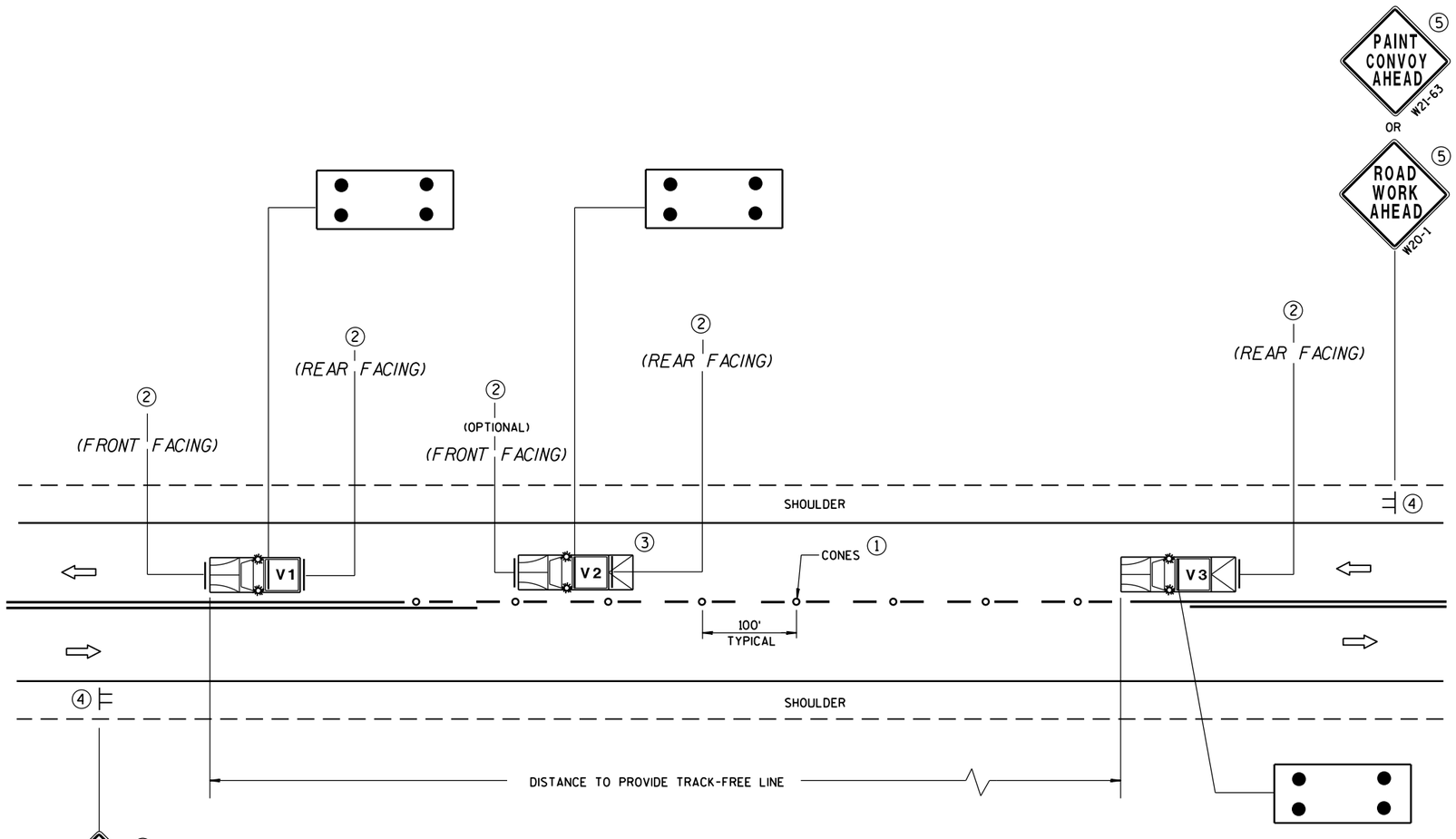
6

S.D.D. 15 C 12-4

6

S.D.D. 15 C 12-4

15C19 sheet a: Moving Pavement Marking Operations - Two-Lane Two-Way Roadway



MOVING PAVEMENT MARKING OPERATIONS
TWO-LANE TWO-WAY ROADWAY

GENERAL NOTES

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

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

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

IF SPEED LIMIT IS 40 MPH OR LESS STATIONARY SIGNS MAY BE OMITTED IF CONES ARE USED.

ALTERNATE SIGN MESSAGES, SUCH AS "PAINT CREW AHEAD" OR "ROAD PAINTING AHEAD" MAY BE USED.

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

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

THIS DRAWING SHALL BE USED FOR CENTERLINE OR EDGELINE MARKING.

WHEN NO WORK ACTIVITY IS TAKING PLACE, REMOVE OR TURN THE STATIONARY WARNING SIGNS AWAY FROM TRAFFIC.

(1) CONES MAY BE OMITTED ON PAINTED LINE IF APPROVED BY THE ENGINEER. CONSIDER PAVEMENT MARKING DRY OR CURE TIMES AND TRAFFIC VOLUME.

(2) USE STANDARD SIGN W21-64 WITH APPROPRIATE ARROW.

WET PAINT W21-64 OR WET PAINT W21-64

(3) OPTIONAL TRUCK-MOUNTED ATTENUATOR.

(4) SIGNS SHALL BE REPEATED APPROXIMATELY EVERY THREE MILES.

(5) IF CONSTRUCTION WORK ZONE SIGNS ARE IN PLACE, W20-1 OR W21-63 ARE NOT REQUIRED.

LEGEND

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

MOVING PAVEMENT MARKING OPERATION
TWO-LANE TWO-WAY ROADWAY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

5/3/2013 DATE

/S/ Travis Feltes
STATE TRAFFIC ENGINEER

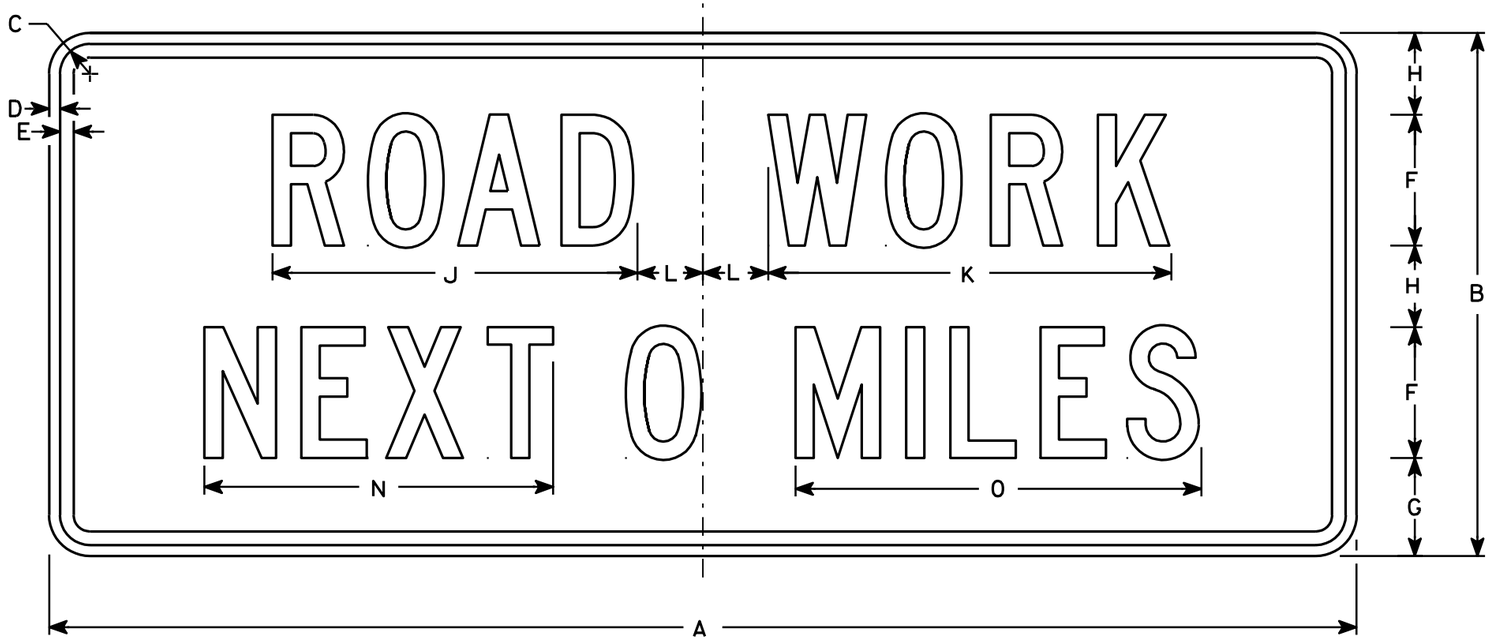
FHWA

6

S.D.D. 15 C 19-2a

6

S.D.D. 15 C 19-2a



G20-1

NOTES

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

Metric equivalent for this sign is:

SIZE	
1	
2	1500 mm X 600 mm
3	
4	1500 mm X 600 mm
5	

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	60	24	1 3/8	1/2	5/8	6	4 1/2	3 3/4		16 3/4	18 1/2	3		16	18 5/8												10	.90
3																												
4	60	24	1 3/8	1/2	5/8	6	4 1/2	3 3/4		16 3/4	18 1/2	3		16	18 5/8												10	.90
5																												

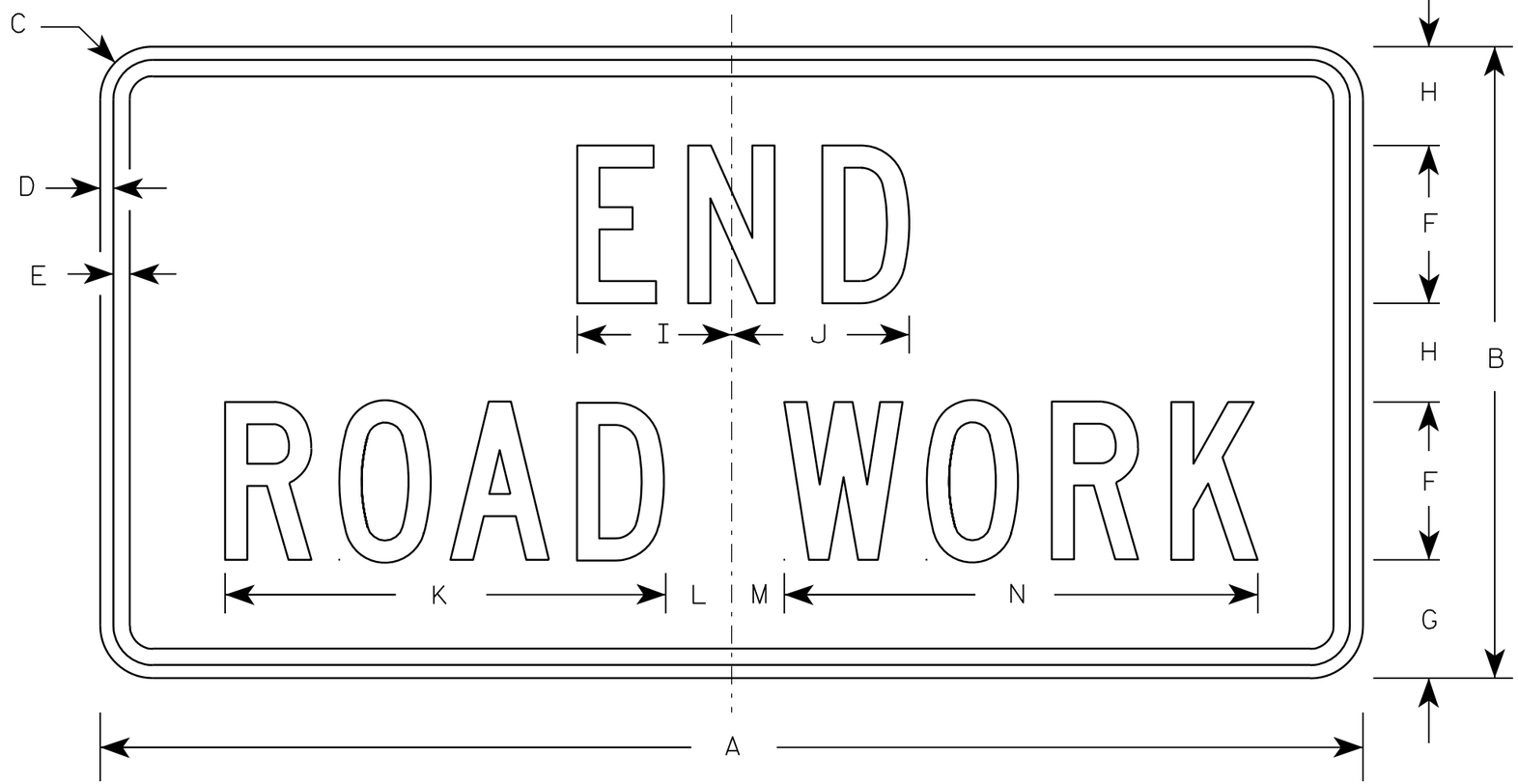
STANDARD SIGN
G20-1

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Chester J Spray for State Traffic Engineer

DATE 4/8/97 PLATE NO. G20-1.7

PROJECT NO:	HWY:	COUNTY:		SHEET NO:	E



G20-2A

NOTES

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

Metric equivalent for this sign is:

SIZE	
1	900 mm X 450 mm
2	1200 mm X 600 mm
3	1200 mm X 600 mm
4	1200 mm X 600 mm
5	1200 mm X 600 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	36	18	1 1/8	3/8	1/2	4	3 3/4	2 1/2	4 1/8	4 1/8	11 1/8	2	1	12 1/8													4.5	0.41
2	48	24	1 1/2	1/2	5/8	6	4 1/2	3 3/4	5 7/8	6 3/4	16 3/4	2 1/2	1 3/4	18 1/2													8.0	0.72
3	48	24	1 1/2	1/2	5/8	6	4 1/2	3 3/4	5 7/8	6 3/4	16 3/4	2 1/2	1 3/4	18 1/2													8.0	0.72
4	48	24	1 1/2	1/2	5/8	6	4 1/2	3 3/4	5 7/8	6 3/4	16 3/4	2 1/2	1 3/4	18 1/2													8.0	0.72
5	48	24	1 1/2	1/2	5/8	6	4 1/2	3 3/4	5 7/8	6 3/4	16 3/4	2 1/2	1 3/4	18 1/2													8.0	0.72

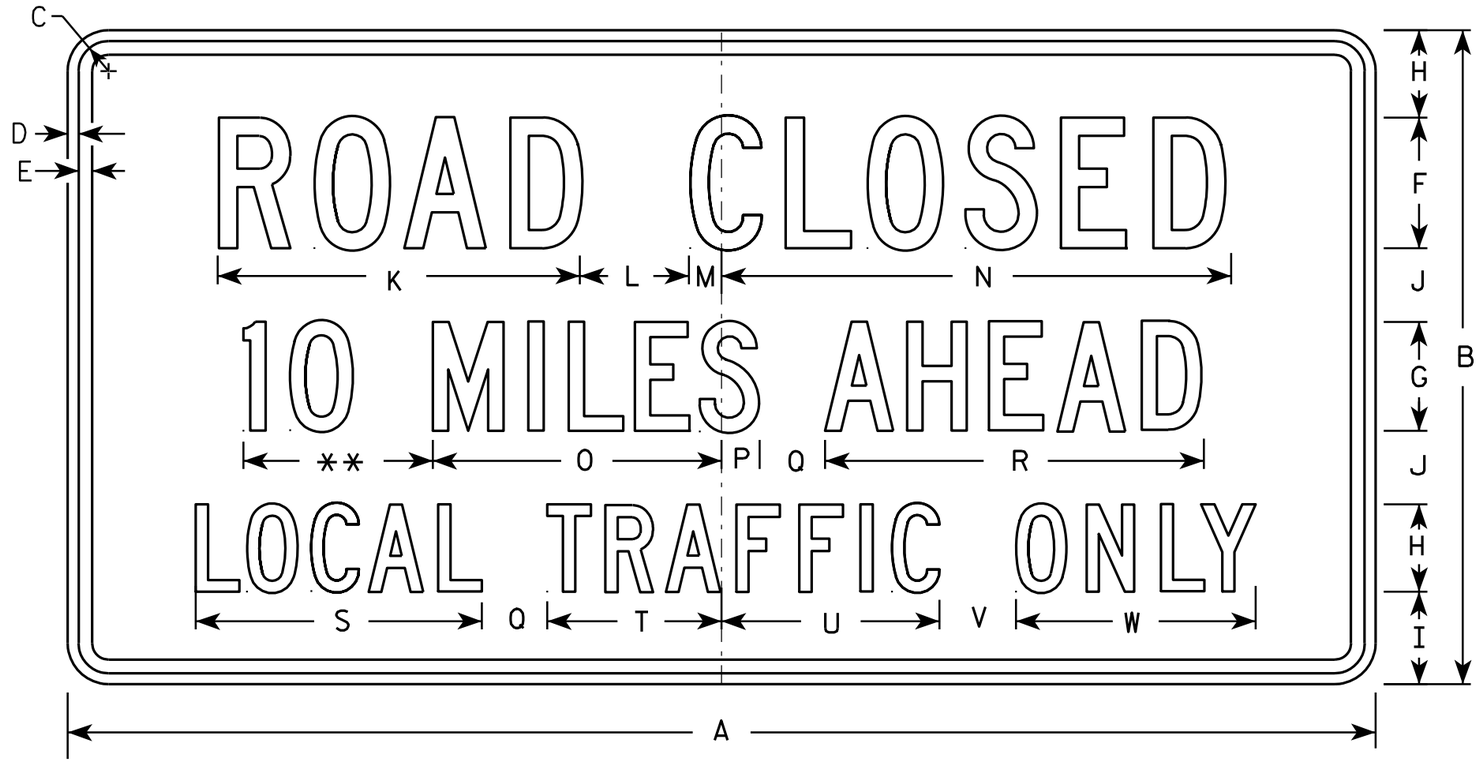
STANDARD SIGN
G20-2A

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 9/30/09 PLATE NO. G20-2A.8

PROJECT NO:	HWY:	COUNTY:		SHEET NO:	E



R11-3

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 - 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. Substitute appropriate numerals and optically adjust spacing to achieve proper balance.

** See Note 5

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36	18	1 3/8	1/2	5/8	4	3	2 1/2	2	2	11 1/8	3	1 1/8	15 1/4	8	1 1/2	2	10 3/4	8 3/8	4 3/4	6 1/2	2	6 3/4				4.5
2S	60	30	1 3/8	1/2	5/8	6	5	4	4 1/4	3 3/8	16 5/8	5	1 1/2	23	13 1/4	1 3/4	3	17 3/8	13 1/8	8	10	3 1/2	11				12.5
2M	60	30	1 3/8	1/2	5/8	6	5	4	4 1/4	3 3/8	16 5/8	5	1 1/2	23	13 1/4	1 3/4	3	17 3/8	13 1/8	8	10	3 1/2	11				12.5
3																											
4																											
5																											

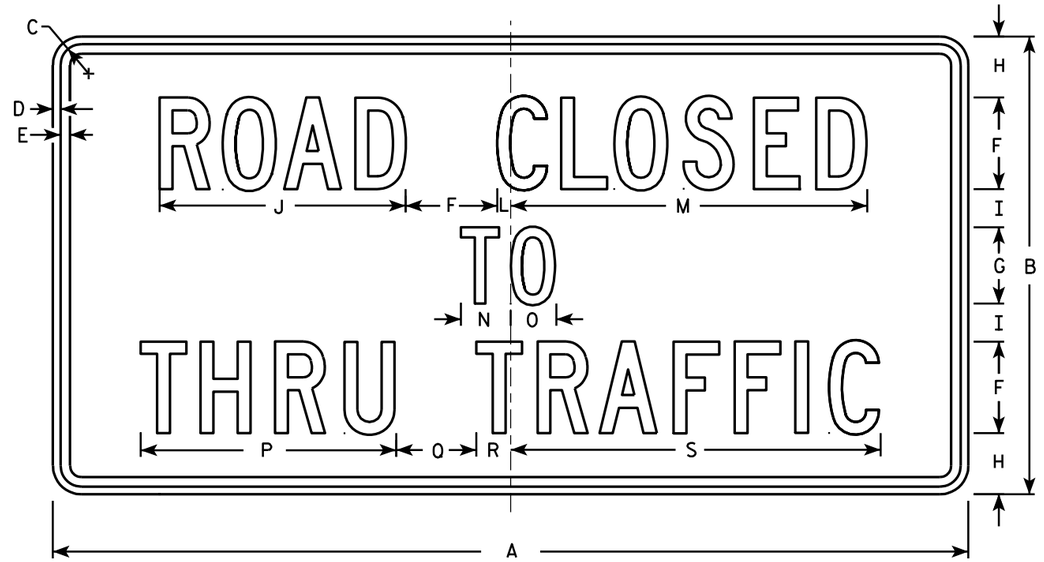
STANDARD SIGN
R11-3

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 4/1/11 PLATE NO. R11-3.6

PROJECT NO:	HWY:	COUNTY:		SHEET NO:	E



R11-4

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 - 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.

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

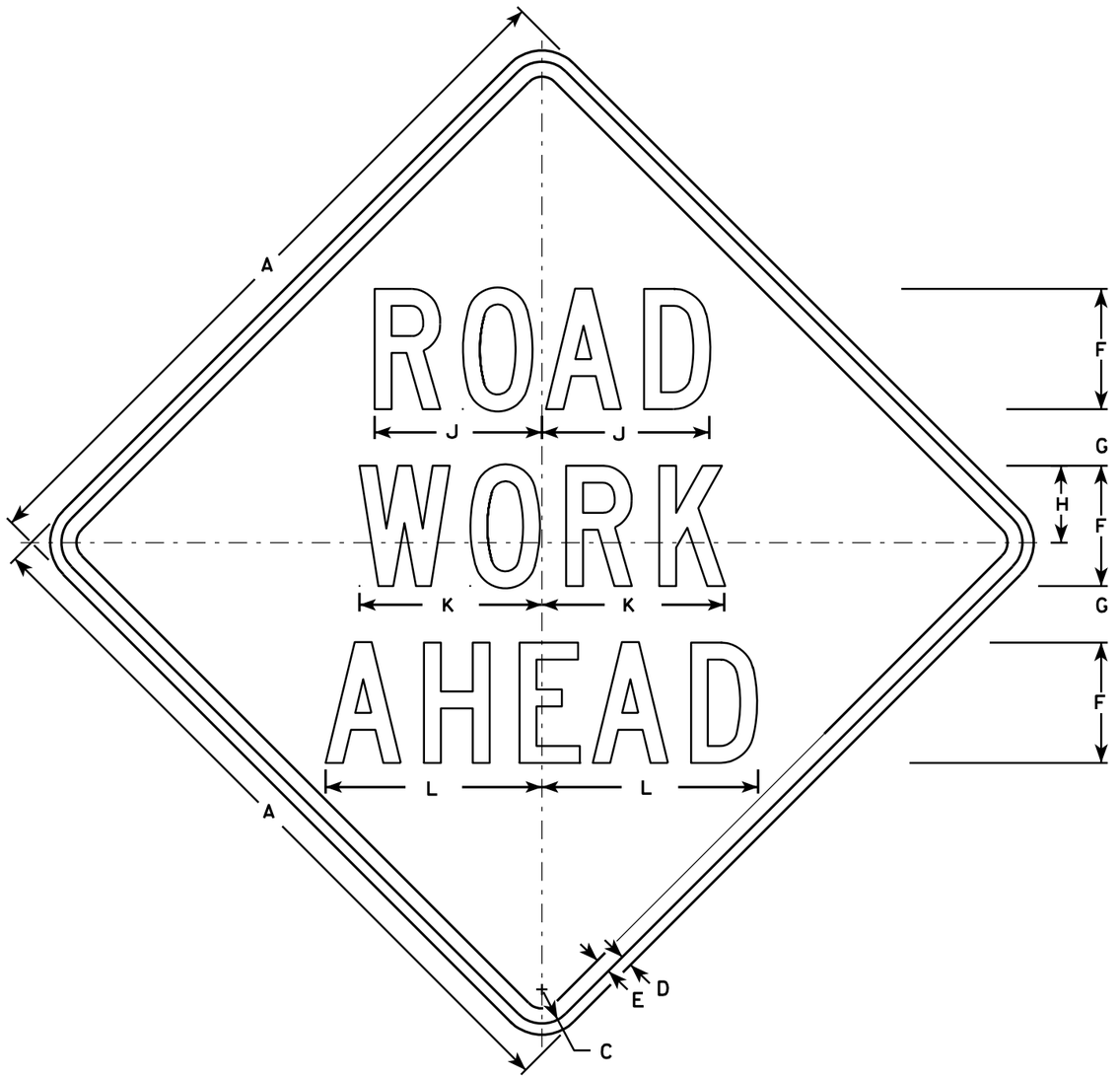
STANDARD SIGN
R11 - 4

WISCONSIN DEPT OF TRANSPORTATION

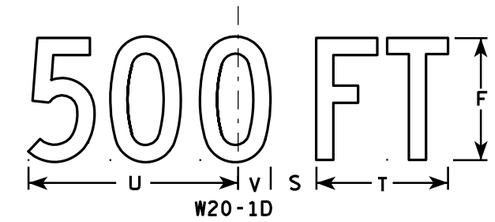
APPROVED Matthew R Rauch for State Traffic Engineer

DATE 4/1/11 PLATE NO. R11-4.3

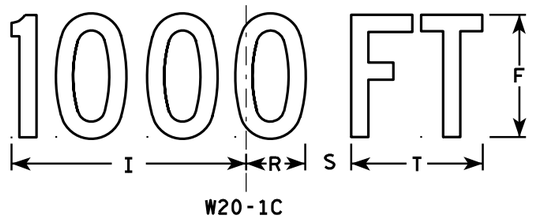
PROJECT NO:	HWY:	COUNTY:		SHEET NO:	E



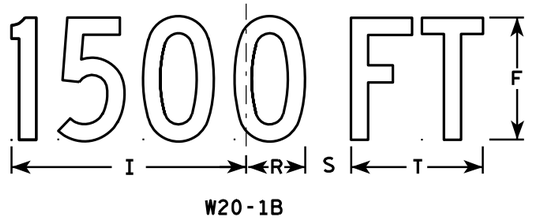
W20-1A



W20-1D

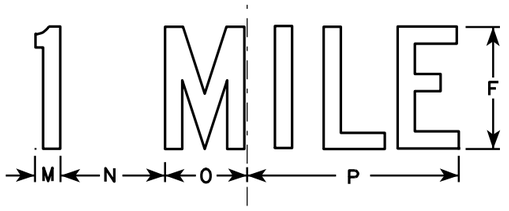


W20-1C



W20-1B

W20-1G



W20-1F

NOTES

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

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

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

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 3/18/11 PLATE NO. W20-1.9

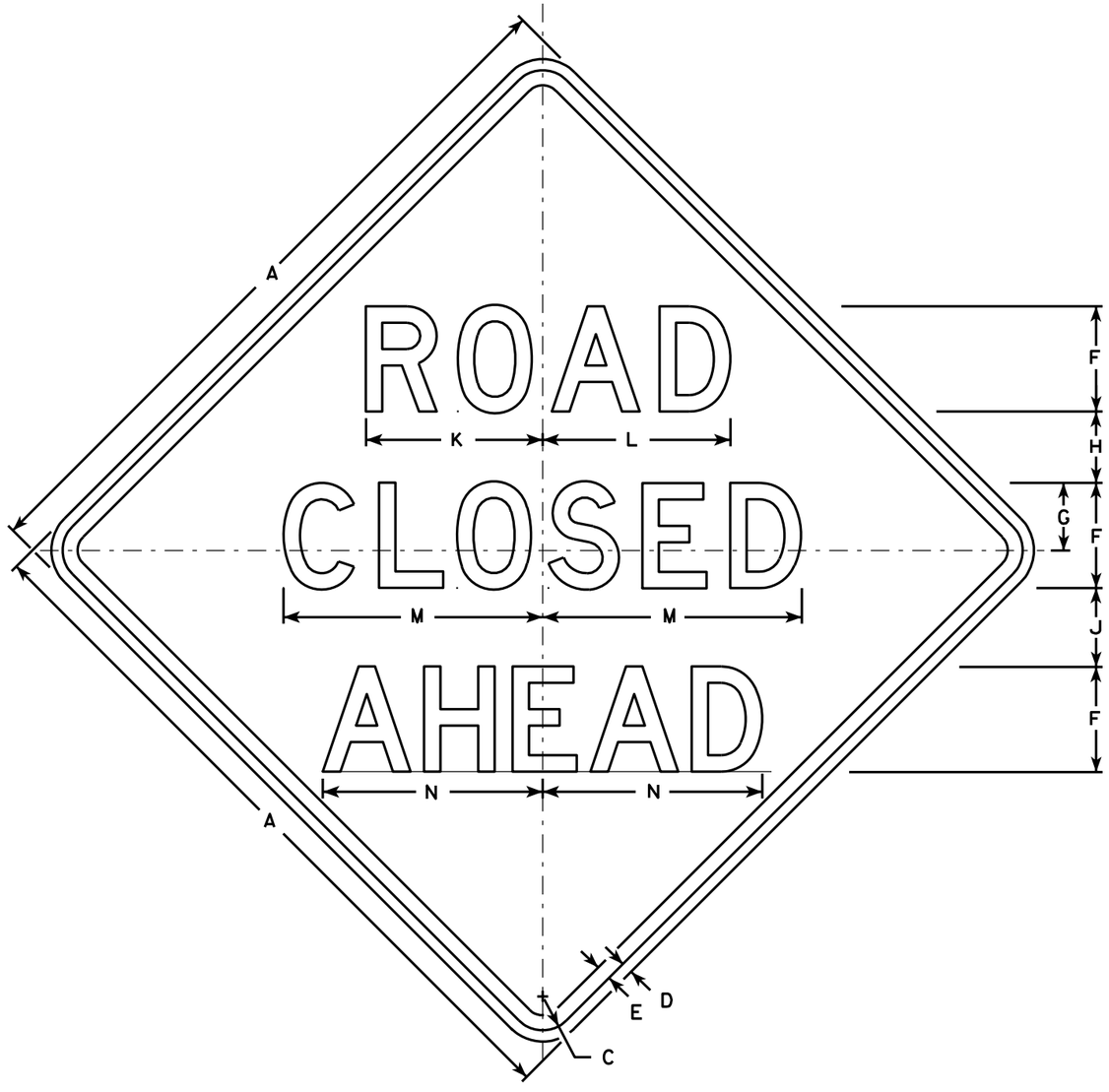
PROJECT NO: | SHEET NO: E

FILE NAME : C:\Users\PROJECTS\tr_stdplate\W201.DGN PLOT DATE : 18-MAR-2011 09:56 PLOT BY : mscj9h

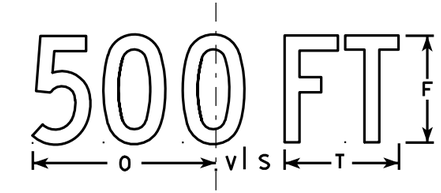
WISDOT/CADDS SHEET 42

7

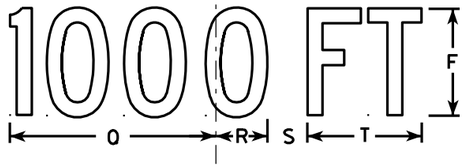
7



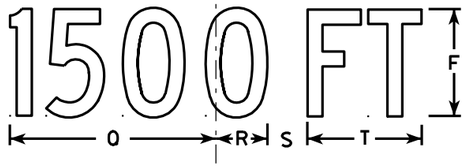
W20-3A



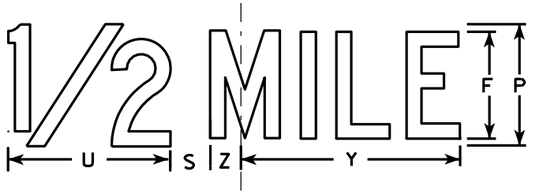
W20-3D



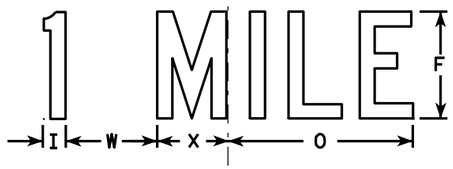
W20-3C



W20-3B



W20-3G



W20-3F

NOTES

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

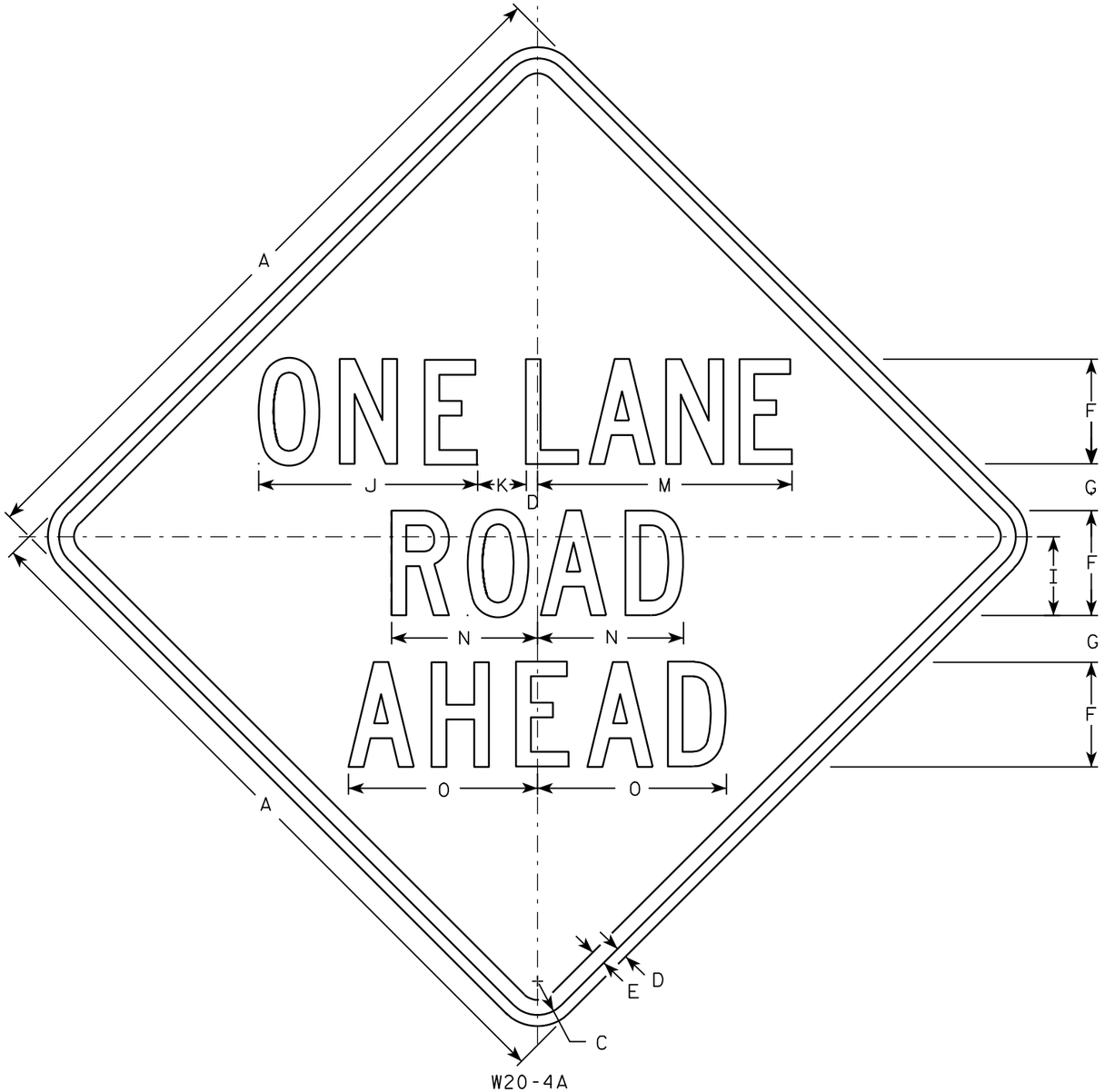
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36		1 5/8	5/8	3/4	5	3 3/8	3 1/2	1 1/8	4	8 3/8	8 7/8	12 1/2	11	9	6	10 1/8	2 1/2	1 7/8	5 5/8	8	1 3/8	4 1/2	3 1/2	10 3/4	1 3/4	9.0
2S	48		2 1/4	3/4	1	7	4 1/2	4 3/4	1 1/2	5 1/4	11 3/4	12 1/2	17 1/4	14 5/8	12	8	13 1/2	3 3/8	2 5/8	7 1/2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

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

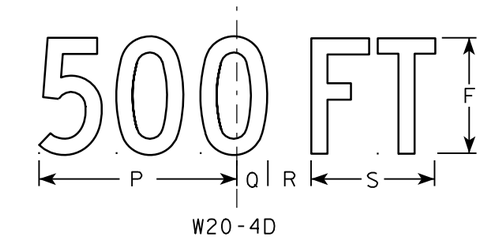
WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer
DATE 3/18/11 PLATE NO. W20-3.7

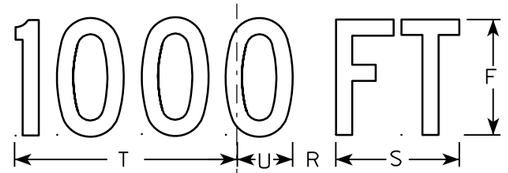
PROJECT NO:	HWY:	COUNTY:		SHEET NO:	E



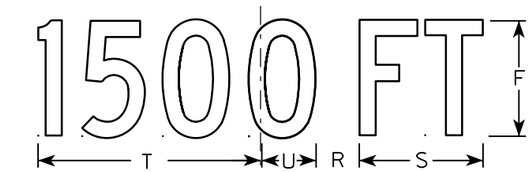
W20-4A



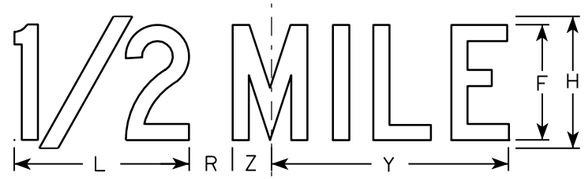
W20-4D



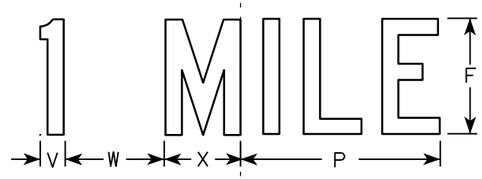
W20-4C



W20-4B



W20-4G



W20-4F

NOTES

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

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

STANDARD SIGN
W20-4A, B, C, D, F & G

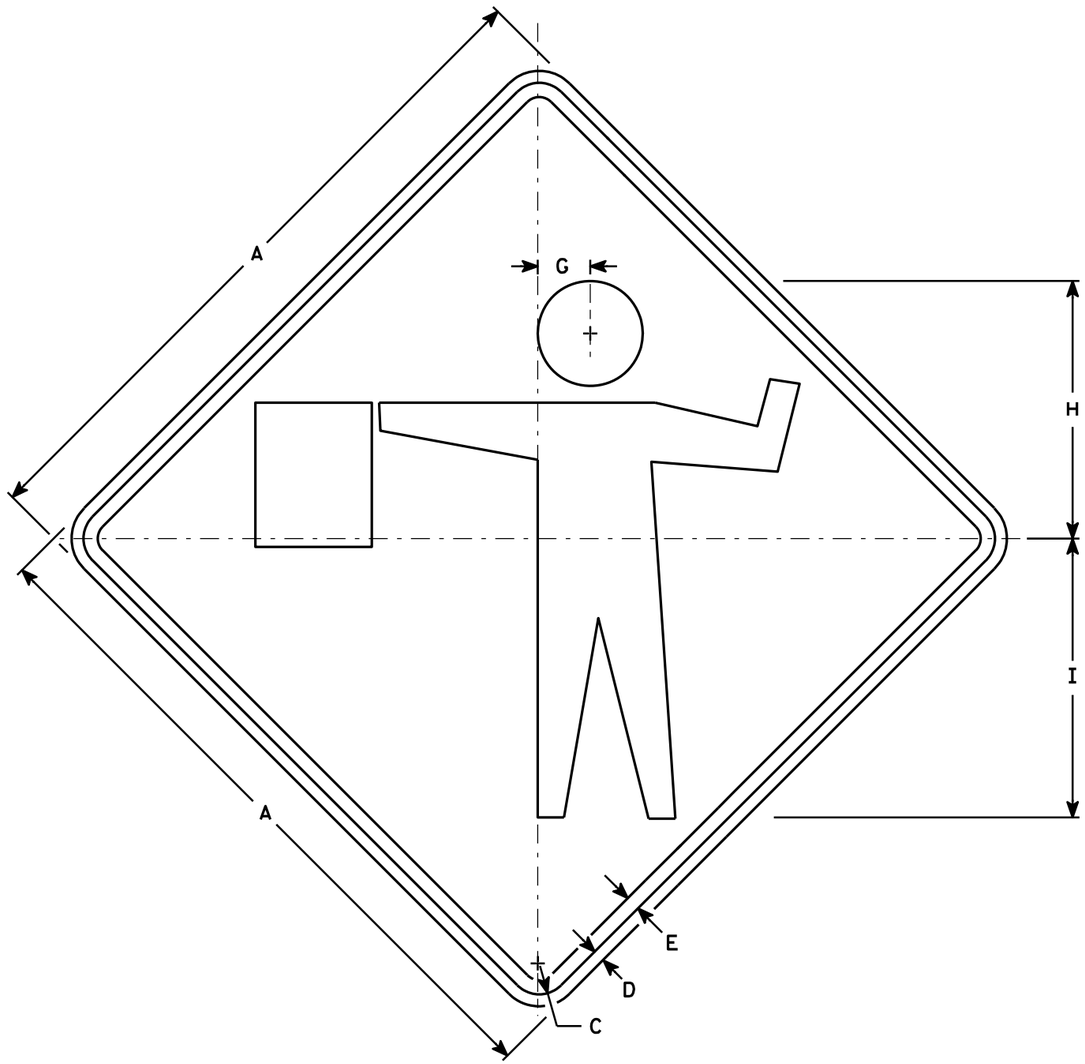
WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 3/18/11 PLATE NO. W20-4.9

PROJECT NO:

SHEET NO: E



W20-7A

NOTES

1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - Orange
   Message - Black
3. 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	36		1 5/8	5/8	3/4		2 3/4	13 1/2	14 5/8																		9.00
2S	48		2 1/4	3/4	1		3 3/4	18	19 1/2																		16.00
2M	48		2 1/4	3/4	1		3 3/4	18	19 1/2																		16.00
3	48		2 1/4	3/4	1		3 3/4	18	19 1/2																		16.00
4	48		2 1/4	3/4	1		3 3/4	18	19 1/2																		16.00
5	48		2 1/4	3/4	1		3 3/4	18	19 1/2																		16.00

STANDARD SIGN
W20-7A

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 3/18/11 PLATE NO. W20-7A.5

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

7

FILE NAME : C:\Users\PROJECTS\tr_stdplate\W207A.DGN PLOT DATE : 18-MAR-2011 13:14 PLOT BY : mscj9h PLOT NAME : PLOT SCALE : 7.945391:1.000000 WISDOT/CADDS SHEET 42