LAX

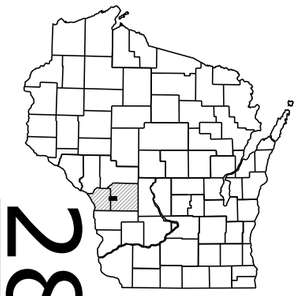
JUNE 2017

PROJECT ID: 7570-05-63

COUNTY: LA CROSSE & MONROE

ORDER OF SHEETS

TOTAL SHEETS = 36



28

N

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

LA CROSSE - SPARTA

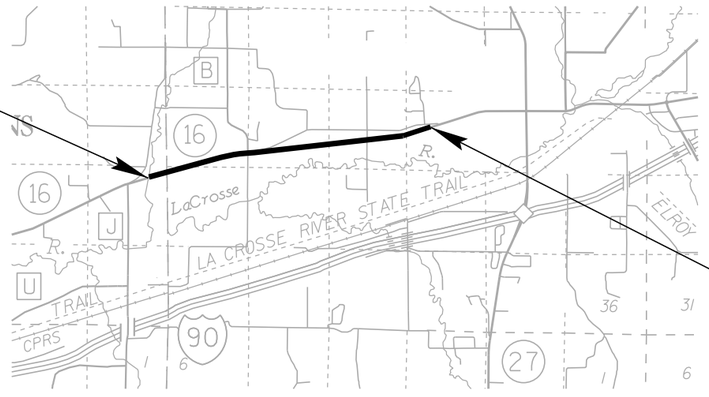
STRUC B-32-555 TO .12 MI W HAMLET AVE

STH 16

LA CROSSE & MONROE COUNTY

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
7570-05-63		

STATE PROJECT NUMBER
7570-05-63



BEGIN PROJECT
STATION 99+97.90
X=598982
Y=373151
+/- 100'

END PROJECT
STATION 288+60.00

DESIGN DESIGNATION

A.A.D.T.	2014	=	4,950
A.A.D.T.	2040	=	6,090
D.H.V.		=	5.3
D.D.		=	60/40
T.		=	6.4%
DESIGN SPEED		=	55
ESALS		=	1,700,000

CONVENTIONAL SYMBOLS

PLAN
- CORPORATE LIMITS
- PROPERTY LINE
- LOT LINE
- LIMITED HIGHWAY EASEMENT
- EXISTING RIGHT OF WAY
- PROPOSED OR NEW R/W LINE
- SLOPE INTERCEPT
- REFERENCE LINE
- EXISTING CULVERT
- PROPOSED CULVERT (Box or Pipe)
- COMBUSTIBLE FLUIDS (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 = 3.572 MI.

HORIZONTAL POSITIONS SHOWN ARE WISCONSIN COUNTY COORDINATES, MONROE COUNTY, NAD83 YEAR, IN U.S. SURVEY FEET. VALUES ARE GRID COORDINATES, GRID BEARINGS, AND GRID DISTANCES. GRID DISTANCES MAY BE USED AS GROUND DISTANCES.

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY

Surveyor	WISCONSIN DOT
Designer	TONY VANDER WIELEN
Project Manager	DAN KLEINERTZ
Regional Examiner	DAN KLEINERTZ
Regional Supervisor	JOSEPH GREGAS III
C.O. Examiner	

APPROVED FOR THE DEPARTMENT

DATE: 2/27/2017 (Signature)

E

STANDARD ABBREVIATIONS

AC	ACRE
AGG	AGGREGATE
<	ANGLE
AE, AEW	APRON ENDWALL
ASPH.	ASPHALTIC
A.D.T.	AVERAGE DAILY TRAFFIC
A.A.D.T.	ANNUAL AVERAGE DAILY TRAFFIC
B.F.	BACK FACE
BM	BENCHMARK
BTWN	BETWEEN
CTR.	CENTER
C/L	CENTER LINE
Δ	CENTRAL ANGLE OR DELTA
C.E.	COMMERCIAL ENTRANCE
CONST.	CONSTRUCTION
CMCP	CORRUGATED METAL CULVERT PIPE
CMP	CORRUGATED METAL PIPE
CO.	COUNTY
CTH	COUNTY TRUNK HIGHWAY
CR.	CREEK
CABC	CRUSHED AGGREGATE BASE COURSE
CY	CUBIC YARD
CP	CONTROL POINT OR CULVERT PIPE
C&G	CURB AND GUTTER
D	DEGREE OF CURVE
D.H.V.	DESIGN HOURLY VOLUME
DIA.	DIAMETER
D.D.	DIRECTIONAL DISTRIBUTION
DISCH.	DISCHARGE
DMS	DYNAMIC MESSAGE SIGN
EA	EACH
E	EAST
EB	EASTBOUND
ELEC.	ELECTRIC(AL), ELEC. CABLE
EL., ELEV.	ELEVATION
ESALS	EQUIVALENT SINGLE AXLE LOADS
EXC.	EXCAVATION
EXIST	EXISTING
F.F.	FACE TO FACE
FERT.	FERTILIZER
F.E.	FIELD ENTRANCE
F/L, F.L.	FLOW LINE
GALV.	GALVANIZE
H.S.	HIGH STRENGTH
CWT	HUNDRED WEIGHT
INL	INLET
INTER.	INTERSECTION
IH	INTERSTATE HIGHWAY
JT.	JOINT
LT	LEFT
L.H.F.	LEFT HAND FORWARD
L.	LENGTH OF CURVE
L.F.	LINEAR FOOT(FEET)
LC.	LONG CHORD
LS	LUMP SUM
M.P.	MARKER POST
MGAL	1000 GALLONS
N.C.	NORMAL CROWN
N	NORTH
NB	NORTHBOUND
NOR	NORMAL
NO.	NUMBER
PAV'T	PAVEMENT
P.L.E.	PERMANENT LIMITED EASEMENT
P.C.	POINT OF CURVATURE
P.I.	POINT OF INTERSECTION
P.T.	POINT OF TANGENCY
PCC	PORTLAND CEMENT CONCRETE
P.E.	PRIVATE ENTRANCE
PGL	PROFILE GRADE LINE
P.L.	PROPERTY LINE
R	RADIUS OR RANGE
R/L	REFERENCE LINE
R.C.C.P.	REINFORCED CONCRETE CULVERT PIPE
REQ'D	REQUIRED
RT	RIGHT
R.H.F.	RIGHT HAND FORWARD
R/W	RIGHT OF WAY
RD.	ROAD
SHLD.	SHOULDER(S)
SHR.	SHRINKAGE
S	SOUTH
SB	SOUTHBOUND
S.F.	SQUARE FOOT (FEET)
SDD	STANDARD DETAIL DRAWING(S)
STH	STATE TRUNK HIGHWAY
STA.	STATION
S.E.	SUPERELEVATION
S/L	SURVEY LINE
SYM	SYMMETRICAL
T.	PERCENT TRUCKS
TEL.	TELEPHONE
TEMP.	TEMPORARY
T.L.E.	TEMPORARY LIMITED EASEMENT
T.O.C.	TOP OF CURB
TYP	TYPICAL
UNCL.	UNCLASSIFIED
U.G.	UNDERGROUND (CABLE)
VAR	VARIABLE
V.C.	VERTICAL CURVE
V.P.C.	VERTICAL POINT OF CURVATURE
V.P.I.	VERTICAL POINT OF INTERSECTION
V.P.T.	VERTICAL POINT OF TANGENCY
Wt.	WEIGHT
W	WEST
WB	WESTBOUND

GENERAL NOTES

- THE LOCATIONS OF EXISTING AND PROPOSED UTILITY INSTALLATIONS AS SHOWN ON THE PLANS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT AREA THAT ARE NOT SHOWN.
- ALL RADII ARE MEASURED TO EDGE OF PAVEMENT UNLESS OTHERWISE SHOWN OR NOTED ON THE PLAN.
- CONTRACTOR SHALL MAINTAIN ACCESS TO ALL DRIVEWAYS AT ALL TIMES EXCEPT WHEN PIPE LAYING OPERATIONS REQUIRE THE DRIVEWAY TO BE CLOSED. ACCESS TO DRIVEWAY SHALL BE RE-ESTABLISHED IMMEDIATELY AFTER PIPE IN DRIVEWAY AREA IS INSTALLED. ACCESS SHALL BE PROVIDED DURING ALL NON-WORKING HOURS.
- PRIOR TO THE PLACEMENT OF STEEL PLATE BEAM GUARD OR MGS GUARDRAIL, THE SHOULDERS SHALL BE IN PLACE, SHAPED AND COMPACTED UNLESS SHOWN OTHERWISE.
- THE CONTRACTOR'S PAVING OPERATIONS SHALL BE CONSISTENT WITH THE PLAN TYPICAL SECTIONS AND CONSTRUCTED TO PREVENT HMA LONGITUDINAL JOINTS FROM BEING LOCATED WITHIN A DRIVING, TURNING, BIKE OR PARKING LANE.
- CONTRACTOR WILL BE RESPONSIBLE FOR RESHAPING AND SEEDING ANY PREVIOUSLY GRASSED AREAS WHICH ARE DISTURBED BY HIS OPERATION OUTSIDE OF THE NORMAL CONSTRUCTION LIMITS.

DNR LIAISON

KAREN KALVELAGE
ENVIRONMENTAL ANALYSIS & REVIEW SPECIALIST
WISCONSIN DEPT. OF NATURAL RESOURCES
WEST CENTRAL REGION
3550 MORMON COULEE ROAD
LA CROSSE, WI 54601
608-785-9115
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DESIGN CONTACTS

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anthony.vanderwielen@dot.wi.gov

UTILITY CONTACTS

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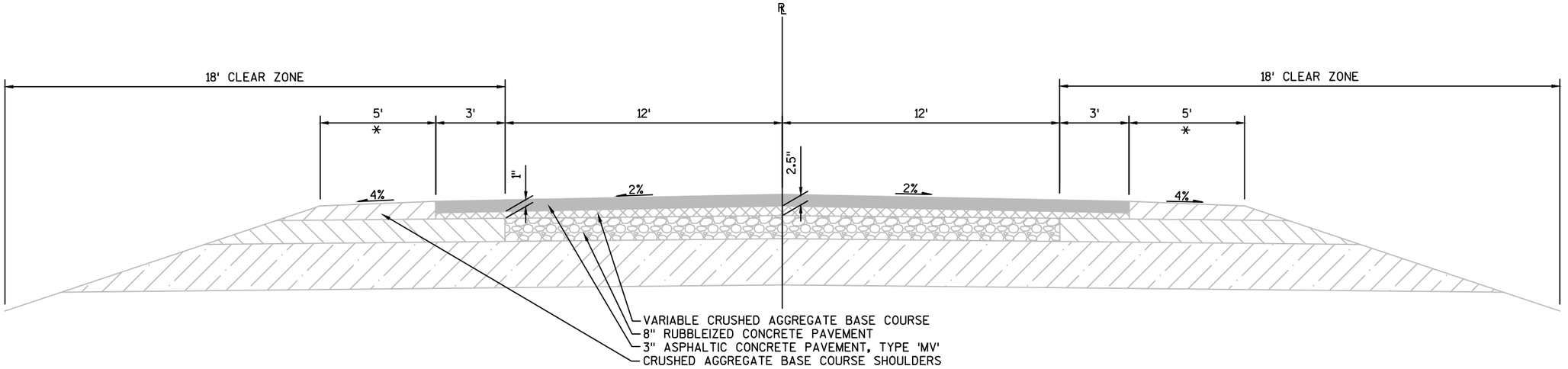
La Crosse, WI 54602
Attn: Bret Clark
Phone: 608-269-0819
bret.clark@centurylink.com

Xcel Energy- transmission
1414 W Hamilton Ave
P.O. Box 8
Eau Claire, WI 54702-0008
Attn: Dawn Schultz
Phone: 715-737-2482
dawn.schultz@xcelenergy.com

Xcel Energy- distribution
1003 South Black River Street
Sparta, WI 54656
Attn: KayeCrook
Phone:608-789-3622
kaye.m.crook@xcelenergy.com

Northern Natural Gas
1120 Centre Pointe Dr, Suite 400
Mendota Heights, MN 55120
Attn: Kimberly Krause
Phone: 651-456-1766
kimberly.Krouse@nngco.com

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

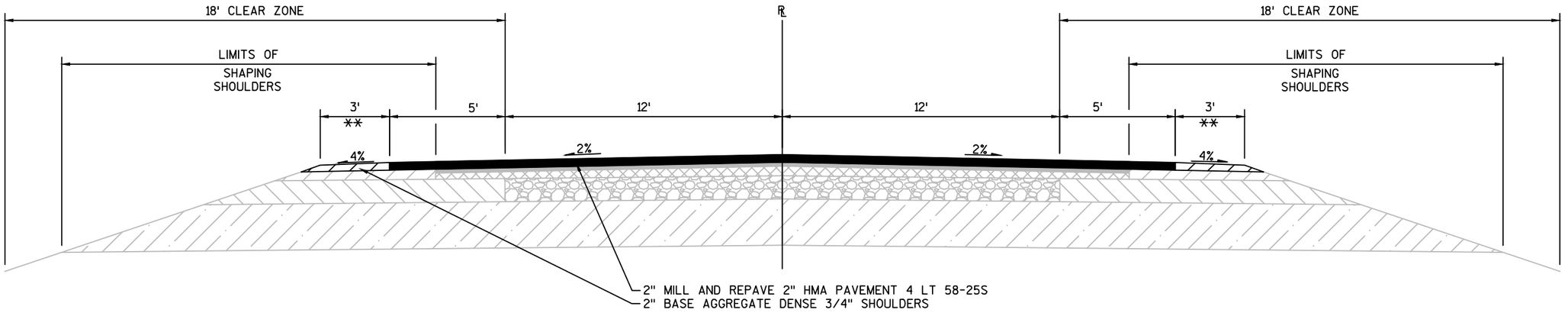


STH 16 EXISTING TYPICAL

STA. 170+15.9 - 288+58

*STA. 177+82.6 RT - 190+21.5 RT
*STA. 178+11 LT - 190+07.8 LT
*STA. 219+21.7 LT - 224+00 LT
*STA. 220+52.8 - STA. 227+55 RT
*STA. 237+78 RT - 241+73 RT
*STA. 238+72 LT - 241+84 LT
*STA. 286+35 RT - 288+58 RT
*STA. 286+88 LT - 288+58 LT

*FULL PAVED SHOULDER LOCATIONS



STH 16 PROPOSED TYPICAL

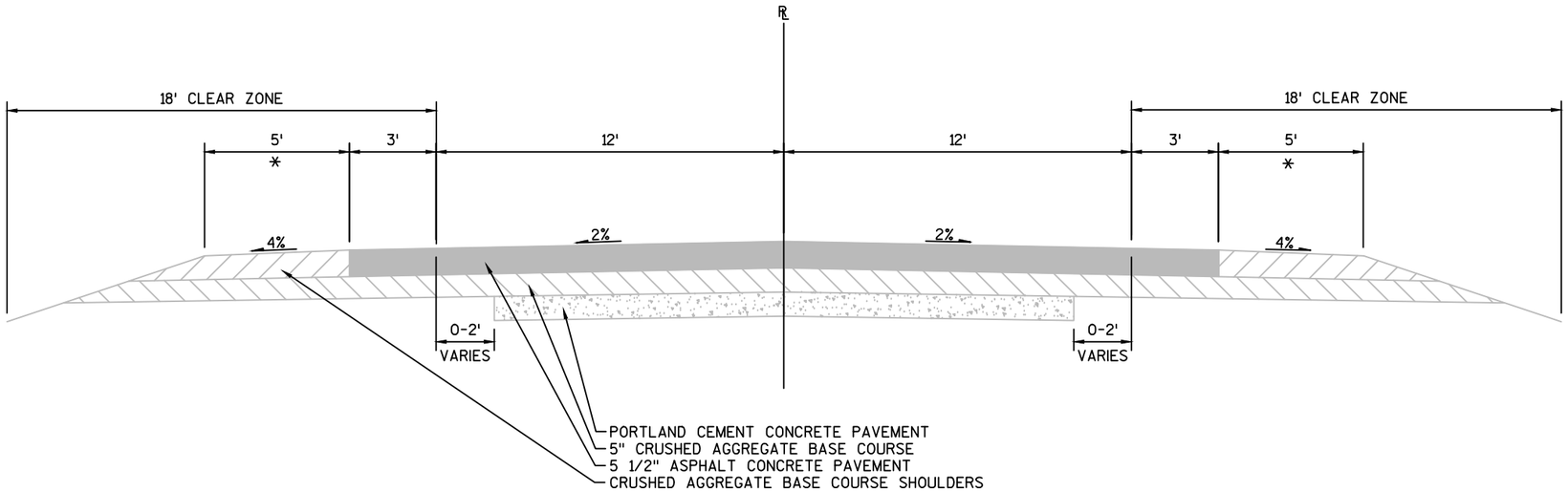
STA. 170+15.9 - 288+58

**STA. 177+82.6 RT - 190+21.5 RT
**STA. 178+11 LT - 190+07.8 LT
**STA. 219+21.7 LT - 224+00 LT
**STA. 220+52.8 - STA. 227+55 RT
**STA. 236+00 RT - 241+73 RT
**STA. 238+72 LT - 241+84 LT
**STA. 286+35 RT - 288+58 RT
**STA. 286+88 LT - 288+58 LT

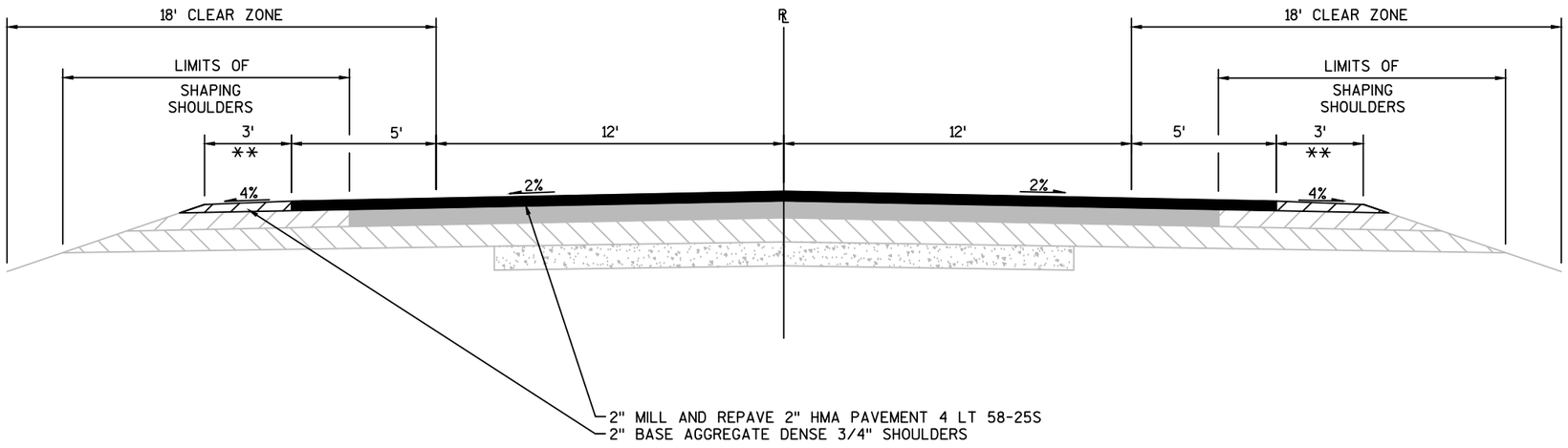
**FULL PAVED SHOULDER LOCATIONS

NOTE:
WHERE EXISTING FULL PAVED SHOULDERS ARE LOCATED, MILL THE ENTIRE SHOULDER.

PROJECT NO: 7570-05-63	HWY: STH 16	COUNTY: MONROE	TYPICAL SECTIONS	SHEET 3	E



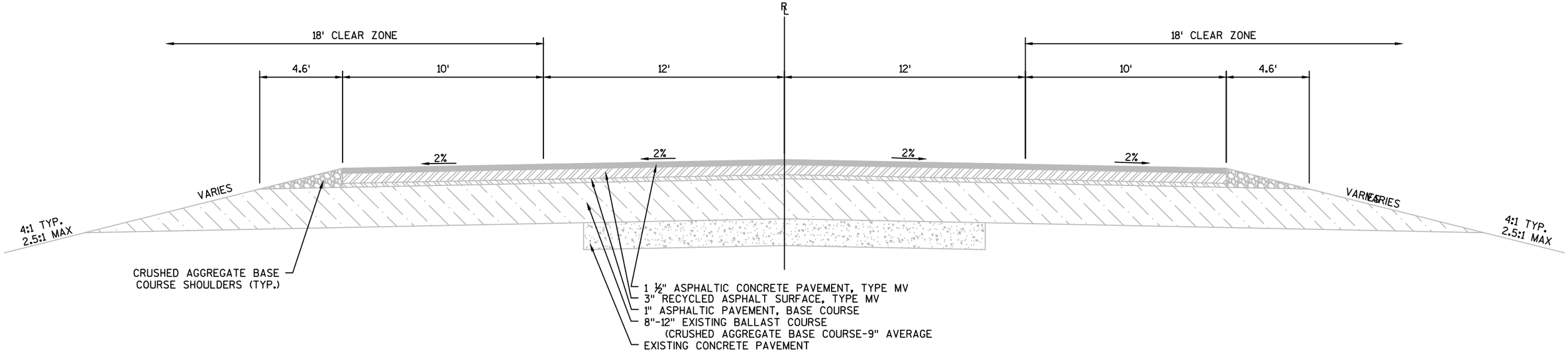
STH 16 EXISTING TYPICAL
STA. 99+97.9 - 170+15.9
*STA. 99+97.9 - 103+10 RT & LT
*FULL PAVED SHOULDER LOCATIONS



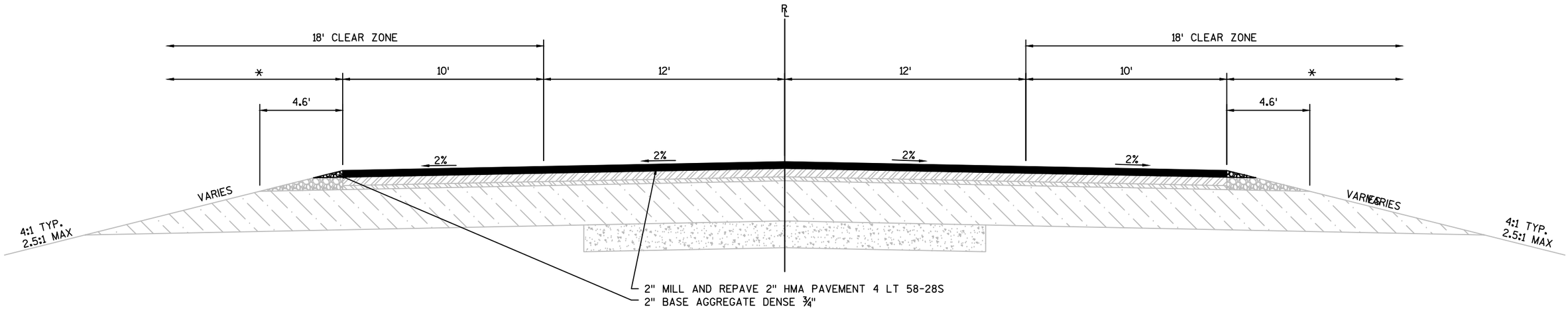
STH 16 PROPOSED TYPICAL
STA. 99+97.9 - 170+15.9
**STA. 99+97.9 - 103+10 RT & LT
**FULL PAVED SHOULDER LOCATIONS

NOTE:
WHERE EXISTING FULL PAVED SHOULDERS ARE LOCATED, MILL THE ENTIRE SHOULDER.

PROJECT NO: 7570-05-63	HWY: STH 16	COUNTY: MONROE	TYPICAL SECTIONS	SHEET 4	E



STH 16 EXISTING RURAL TYPICAL SECTION
STA. 520+60 - 529+00



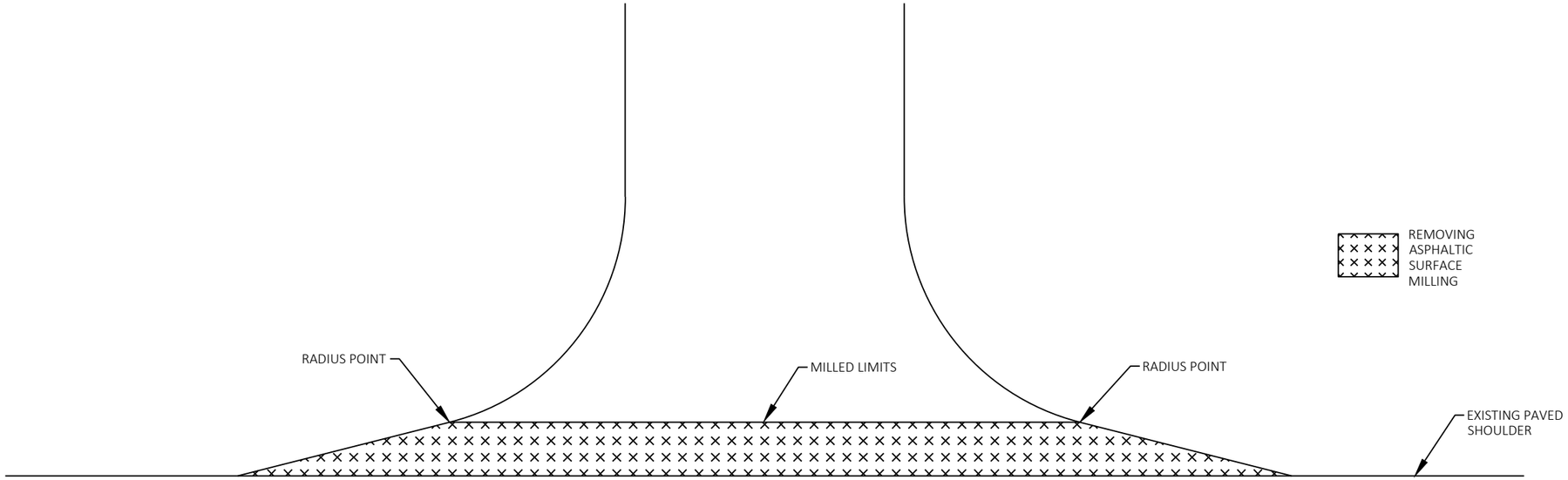
*LIMITS OF SHAPING SHOULDERS

STH 16 PROPOSED RURAL TYPICAL SECTION
STA. 520+60 - 529+00

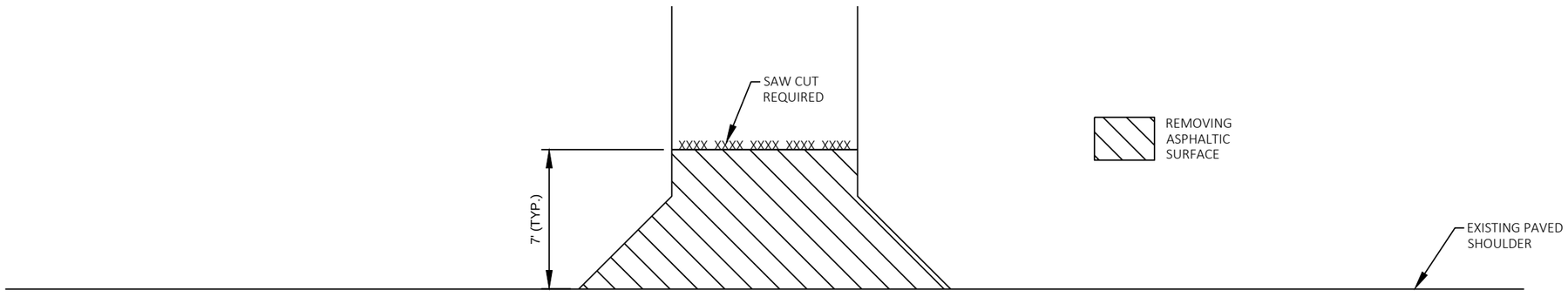
NOTE:
WHERE EXISTING FULL PAVED SHOULDERS ARE
LOCATED, MILL THE ENTIRE SHOULDER

PROJECT NO: 5735-04-60	HWY: STH 16	COUNTY: MONROE	TYPICAL SECTIONS	SHEET 5	E

2



INTERSECTION DETAIL



ASPHALT DRIVEWAY DETAIL

PROJECT NO: 7570-05-63	HWY: STH 16	COUNTY: MONROE	CONSTRUCTION DETAIL	SHEET 6	E

2

2

BEGIN PROJECT
STA 99+97.9
SAW CUT REQD.

95 100 105 110 115

EXISTING GUARDRAIL
TO REMAIN

SAW CUT
REQD

PI 94+00.00

N

115 120 125 130 135 140 145

PC 141+26.00

SAW CUT
REQD
XXXXX

R= 11460.00
L= 639.76
SE = NC

PROJECT NO: 7570-05-63	HWY: STH 16	COUNTY: MONROE	PLAN DETAIL	SHEET	E

FILE NAME : P:\State\s16\75700533\Cad\021201_pd.dgn PLOT DATE : 22-FEB-2017 08:54 PLOT BY : dotszz PLOT NAME : PLOT SCALE : 200:1

2

2

R= 5730.00
L= 1002.23
SE= 2.5%

CTH BC

HAMLET AVENUE

MILL LIMITS

MILL LIMITS

MILL LIMITS

ICARUS ROAD

SAW CUT
REOD

PT 147+65.76

153+88.55

163+90.78

145 150 155 160 165 170 175

N

SALVAGED RAIL
STA 178+12 TO STA 189+32 LT
INSTALL MGS GUARDRAIL 3
STA 178+65 TO STA 189+03 LT

MGS EAT STA 178+12
OUT 22' LT

MGS EAT STA 189+56
OUT 22' LT

180 185 190 195 200 205

SALVAGED RAIL
STA 178+84 TO STA 189+49 RT
INSTALL MGS GUARDRAIL 3
STA 178+38 TO STA 189+00 RT

MGS EAT STA 177+84
OUT 22' RT

SAW CUT
REOD

MGS EAT STA 189+53
OUT 22' RT

PROJECT NO: 7570-05-63	HWY: STH 16	COUNTY: MONROE	PLAN DETAILS	SHEET	E

FILE NAME : P:\State\s16\75700533\Cad\021202_pd.dgn PLOT DATE : 22-FEB-2017 08:55 PLOT BY : dotszz PLOT NAME : PLOT SCALE : 200:1

2

2

210 215 220 225 230 235

SAW CUT
REOD

MILL LIMITS

N

SALVAGED RAIL
STA 238+72 TO STA 241+86 LT
INSTALL MGS GUARDRAIL 3
STA 239+23 TO STA 241+36 LT

HAMMER ROAD

MGS EAT STA 238+70
OUT 22' LT

MGS EAT STA 241+89
OUT 22' LT

MILL LIMITS

SAW CUT
REOD

PC 260+56.76

240 245 250 255 260 265

MGS EAT STA 238+21
OUT 22' RT

SALVAGED RAIL
STA 238+21 TO STA 241+72 RT
INSTALL MGS GUARDRAIL 3
STA 23+74 TO STA 241+24 RT

MGS EAT STA 241+77
OUT 22' RT

MILL LIMITS

HAMMER ROAD

R= 7639.44
L= 1296.08
SE= 2.0%

PROJECT NO: 7570-05-63	HWY: STH 16	COUNTY: MONROE	PLAN DETAIL	SHEET	E

FILE NAME : P:\State\s16\75700533\Cad\021203_pd.dgn PLOT DATE : 22-FEB-2017 08:55 PLOT BY : dotszz PLOT NAME : PLOT SCALE : 200:1

2

PROJECT NO: 7570-05-63	HWY: STH 16	COUNTY: MONROE	PLAN DETAIL	SHEET	E

7570-05-63

Line	Item	Item Description	Unit	Total	Qty
0010	204.0110	Removing Asphaltic Surface	SY	944.000	944.000
0020	204.0120	Removing Asphaltic Surface Milling	SY	66,873.000	66,873.000
0030	213.0100	Finishing Roadway (project) 01.7570-05-63	EACH	1.000	1.000
0040	305.0110	Base Aggregate Dense 3/4-Inch	TON	4,532.000	4,532.000
0050	305.0500	Shaping Shoulders	STA	378.000	378.000
0060	440.4410	Incentive IRI Ride	DOL	14,289.000	14,289.000
0070	450.4000	HMA Cold Weather Paving	TON	2,100.000	2,100.000
0080	455.0605	Tack Coat	GAL	4,681.000	4,681.000
0090	460.2000	Incentive Density HMA Pavement	DOL	5,320.000	5,320.000
0100	460.4110.S	Reheating HMA Pavement Longitudinal Joints	LF	18,862.000	18,862.000
0110	460.5224	HMA Pavement 4 LT 58-28 S	TON	8,676.032	8,676.032
0120	465.0120	Asphaltic Surface Driveways and Field Entrances	TON	35.000	35.000
0130	465.0425	Asphaltic Shoulder Rumble Strips 2-Lane Rural	LF	31,426.000	31,426.000
0140	465.0475	Asphalt Center Line Rumble Strips 2-Lane Rural	LF	13,522.000	13,522.000
0150	614.0920	Salvaged Rail	LF	2,969.200	2,969.200
0160	614.2300	MGS Guardrail 3	LF	2,563.000	2,563.000
0170	614.2610	MGS Guardrail Terminal EAT	EACH	8.000	8.000
0180	618.0100	Maintenance And Repair of Haul Roads (project) 01.7570-05-63	EACH	1.000	1.000
0190	619.1000	Mobilization	EACH	1.000	1.000
0200	624.0100	Water	MGAL	9.000	9.000
0210	642.5201	Field Office Type C	EACH	1.000	1.000
0220	643.0100	Traffic Control (project) 01.7570-05-63	EACH	1.000	1.000
0230	643.0300	Traffic Control Drums	DAY	4,800.000	4,800.000
0240	643.0900	Traffic Control Signs	DAY	640.000	640.000
0250	643.1050	Traffic Control Signs PCMS	DAY	14.000	14.000
0260	646.0106	Pavement Marking Epoxy 4-Inch	LF	67,542.000	67,542.000
0270	646.0126	Pavement Marking Epoxy 8-Inch	LF	146.000	146.000
0280	649.0402	Temporary Pavement Marking Paint 4-Inch	LF	23,360.000	23,360.000
0290	650.8000	Construction Staking Resurfacing Reference	LF	18,862.000	18,862.000
0300	690.0150	Sawing Asphalt	LF	291.000	291.000
0310	SPV.0180	Special 01. Removing Distressed Pavement Milling	SY	1,250.000	1,250.000

3

REMOVING ASPHALTIC SURFACE

STATION	TO	STATION	LOCATION	204.0110 SY	REMARKS
102+94			RT	7	PE
104+35			LT	21	PE
106+36			LT	34	FE
120+61			LT	38	PE
131+92			RT	24	PE
139+23			RT	47	FE
144+14			LT	80	CE
151+73			LT	51	CE
171+53			RT	33	FE
191+14			LT	43	PE
208+06			RT	32	PE
212+34			LT	37	FE
212+37			RT	36	FE
228+00			LT	11	PE
231+54			RT	22	PE
232+15			LT	31	PE
253+78			LT	57	CE
258+73			RT	29	FE
258+73			LT	31	FE
265+84			RT	27	FE
266+06			LT	42	CE
268+53			LT	55	CE
270+58			LT	36	PE
272+42			LT	37	FE
274+63			RT	22	FE
274+63			LT	24	FE
279+77			LT	37	PE
			TOTAL 0010	944	

SALVAGED RAIL

STATION	TO	STATION	LOCATION	614.0920 LF
177+84	-	189+49	RIGHT	1165
178+12	-	189+32	LEFT	1140
238+21	-	241+72	RIGHT	351
238+72	-	241+86	LEFT	314
			TOTAL 0010	2969

REMOVING ASPHALTIC SURFACE MILLING

STATION	TO	STATION	LOCATION	204.0120 SY	REMARKS
99+98	-	170+16	Mainline	23393	30' wide
170+16	-	288+60	Mainline	39480	30' wide
177+83	-	190+22	RT	688	Full width shld
178+11	-	190+08	LT	133	Full width shld
219+22	-	224+00	LT	266	Full width shld
220+53	-	227+55	RT	390	Full width shld
237+78	-	241+73	RT	219	Full width shld
238+72	-	241+84	LT	173	Full width shld
286+35	-	288+60	RT	125	Full width shld
286+88	-	288+60	LT	95	Full width shld
CTH BC			LT	263	Intersection & Tapers
Icaruc Rd			RT	246	Intersection & Tapers
Hamelet Ave			LT	278	Intersection & Tapers
Hammer Road			RT	258	Intersection & Tapers
Hammer Road			LT	251	Intersection & Tapers
Riverwood Place			RT	615	Intersection & Tapers
			TOTAL 0010	66873	

BASE AGGREGATE DENSE 3/4-INCH

STATION	TO	STATION	LOCATION	305.0110 TON	REMARKS
99+98	-	288+60	LT & RT	3772	Mainline
				200	PE's & FE's
				160	EAT Locations
				400	undistrubuted
			TOTAL 0010	4532	

SHAPING SHOULDERS

STATION	TO	STATION	LOCATION	305.0500 STA
99+98	-	288+60	LT & RT	378
			TOTAL 0010	378

TACK COAT

STATION	TO	STATION	LOCATION	455.0605 GAL
99+98	-	170+16	Mainline	1638
170+16	-	288+60	Mainline	2764
177+83	-	190+22	RT	48
178+11	-	190+08	LT	9
219+22	-	224+00	LT	19
220+53	-	227+55	RT	27
237+78	-	241+73	RT	15
238+72	-	241+84	LT	12
286+35	-	288+60	RT	9
286+88	-	288+60	LT	7
CTH BC			LT	18
Icaruc Rd			RT	17
Hamelet Ave			LT	19
Hammer Road			RT	18
Hammer Road			LT	18
Riverwood Place			RT	43
			Total 0010	4681

HMA PAVEMENT 4 LT 58-28 S

STATION	TO	STATION	LOCATION	460.5224 TON	REMARKS
99+98	-	170+16	Mainline	2969	34' wide
170+16	-	288+60	Mainline	5011	34' wide
177+83	-	190+22	RT	46	Full paved shld
178+11	-	190+08	LT	45	Full paved shld
219+22	-	224+00	LT	18	Full paved shld
220+53	-	227+55	RT	26	Full paved shld
236+00	-	241+73	RT	21	Full paved shld
238+72	-	241+84	LT	12	Full paved shld
286+35	-	288+60	RT	8	Full paved shld
286+88	-	288+60	LT	6	Full paved shld
CTH BC			LT	29	Intersection & Tapers
Icaruc Rd			RT	28	Intersection & Tapers
Hamelet Ave			LT	31	Intersection & Tapers
Hammer Road			RT	29	Intersection & Tapers
Hammer Road			LT	28	Intersection & Tapers
Riverwood Place			RT	69	Intersection & Tapers
Undistrubuted/ Distressed Milled Areas				300	
			TOTAL 0010	8676	

REHEATING HMA PAVEMENT LONGITUDINAL JOINTS

STATION	TO	STATION	LOCATION	460.4110.S LF
99+98	-	288+60	C/L	18862
			TOTAL 0010	18862

ASPHALTIC SURFACE DRIVEWAYS AND FIELD ENTRANCES

STATION	TO	STATION	LOCATION	465.0120 TON	REMARKS
102+94			RT	1	PE
144+14			LT	7	CE
151+73			LT	4	CE
191+14			LT	4	PE
208+06			RT	3	PE
				0	
253+78			LT	5	CE
270+58			LT	3	PE
279+77			LT	3	PE
Undistrubuted				5	
			TOTAL 0010	35	

3

ASPHALTIC SHOULDER RUMBLE STRIPS 2-LANE RURAL

STATION	TO	STATION	LOCATION	465.0425 LF
100+33	-	102+59	RIGHT	226
103+32	-	131+60	RIGHT	2828
132+31	-	138+86	RIGHT	655
139+65	-	164+45	RIGHT	2480
169+08	-	220+33	RIGHT	5125
226+99	-	231+23	RIGHT	424
231+89	-	232+78	RIGHT	89
237+27	-	244+07	RIGHT	680
247+37	-	278+86	RIGHT	3149
284+80	-	288+60	RIGHT	380
100+43	-	104+00	LEFT	357
104+66	-	105+89	LEFT	123
106+64	-	120+17	LEFT	1353
120+99	-	135+18	LEFT	1419
136+05	-	143+38	LEFT	733
147+34	-	150+98	LEFT	364
152+92	-	164+41	LEFT	1149
175+21	-	190+78	LEFT	1557
141+51	-	222+34	LEFT	3083
223+05	-	227+63	LEFT	458
228+34	-	231+80	LEFT	346
232+44	-	243+97	LEFT	1153
248+52	-	253+09	LEFT	457
255+05	-	258+37	LEFT	332
259+15	-	265+66	LEFT	651
266+63	-	267+91	LEFT	128
269+13	-	272+06	LEFT	293
272+83	-	274+30	LEFT	147
275+03	-	279+42	LEFT	439
280+12	-	288+60	LEFT	848
			TOTAL 0010	31426

ASPHALT CENTER LINE RUMBLE STRIPS 2-LANE RURAL

STATION	TO	STATION	LOCATION	465.0475 LF
125+42	-	143+15	CENTERLINE	1773
147+11	-	164+77	CENTERLINE	1766
168+77	-	170+28	CENTERLINE	151
174+28	-	220+48	CENTERLINE	4620
222+48	-	224+94	CENTERLINE	246
226+94	-	232+96	CENTERLINE	602
236+96	-	244+00	CENTERLINE	704
248+00	-	281+15	CENTERLINE	3315
285+15	-	288+60	CENTERLINE	345
			TOTAL 0010	13522

MGS GUARDRAIL TERMINAL EAT

STATION	TO	STATION	LOCATION	614.2610 EACH
177+84	-	178+38	RIGHT	1
189+00	-	189+53	RIGHT	1
178+12	-	178+65	LEFT	1
189+03	-	189+56	LEFT	1
238+21	-	238+74	RIGHT	1
241+24	-	241+77	RIGHT	1
238+70	-	239+23	LEFT	1
241+36	-	241+89	LEFT	1
			TOTAL 0010	8

MGS GUARDRAIL 3

STATION	TO	STATION	LOCATION	614.2300 LF
178+38	-	189+00	RIGHT	1,063
178+65	-	189+03	LEFT	1,038
238+74	-	241+24	RIGHT	250
239+23	-	241+36	LEFT	213
			TOTAL 0010	2,563

3

WATER

STATION	TO	STATION	LOCATION	624.0100 MGAL	REMARKS
99+98	-	288+60	LT & RT	9	Shoulder compaction
			TOTAL 0010	9	

PAVEMENT MARKING EPOXY 4-INCH

STATION	TO	STATION	LOCATION	646.0106 LF
99+98	-	111+00	CENTERLINE YELLOW	275
111+00	-	125+50	CENTERLINE YELLOW	1,813
125+50	-	130+00	CENTERLINE YELLOW	900
130+00	-	144+75	CENTERLINE YELLOW	1,850
144+75	-	145+90	CENTERLINE YELLOW	38
145+90	-	159+00	CENTERLINE YELLOW	1,635
159+00	-	170+90	CENTERLINE YELLOW	2,380
170+90	-	184+40	CENTERLINE YELLOW	16,875
184+40	-	257+20	CENTERLINE YELLOW	1,825
257+20	-	264+00	CENTERLINE YELLOW	855
264+00	-	273+00	CENTERLINE YELLOW	225
273+00	-	278+00	CENTERLINE YELLOW	625
278+00	-	286+00	CENTERLINE YELLOW	200
286+00	-	288+60	CENTERLINE YELLOW	323
99+98	-	288+60	RIGHT EDGELINE WHITE	18,862
99+98	-	288+60	LEFT EDGELINE WHITE	18,862
			TOTAL 0010	67,542

PAVEMENT MARKING EPOXY 8-INCH

STATION	TO	STATION	LOCATION	646.0126 LF	REMARKS
280+07	-	282+71	RIGHT	146	Riverwood Place
			TOTAL 0010	146	

TRAFFIC CONTROL DRUMS

LOCATION	643.0300 DAY	REMARKS
Beam guard locations	4800	25' spacing
TOTAL 0010	4800	

3

TRAFFIC CONTROL SIGNS

LOCATION	643.0900 DAY
ADVANCE WARNING	400
SIDELINES	240
TOTAL 0010	640

TRAFFIC CONTROL SIGNS PCMS

LOCATION	643.1050 DAY	REMARKS
BEGIN PROJECT	7	COORDINATE LOCATION
END PROJECT	7	WITH ENGINEER
TOTAL 0010	14	

CONSTRUCTION STAKING RESURFACING REFERENCE

STATION	TO	STATION	LOCATION	650.8000 LF
99+98	-	288+60	Mainline	18862
			TOTAL 0010	18862

3

TEMPORARY PAVEMENT MARKING PAINT 4-INCH

STATION	TO	STATION	LOCATION	649.0402 LF
99+98	-	111+00	CENTERLINE	88
111+00	-	125+50	CENTERLINE	1,566
125+00	-	130+00	CENTERLINE	900
130+00	-	144+75	CENTERLINE	1,593
144+75	-	145+90	CENTERLINE	8
145+90	-	159+00	CENTERLINE	1,414
159+00	-	170+90	CENTERLINE	2,380
170+90	-	184+40	CENTERLINE	1,458
184+40	-	257+20	CENTERLINE	584
257+20	-	264+00	CENTERLINE	736
264+00	-	273+00	CENTERLINE	72
273+00	-	278+00	CENTERLINE	540
278+00	-	286+00	CENTERLINE	64
286+00	-	288+57	CENTERLINE	277
			x2 FOR TWO LAYERS	11,680
			TOTAL 0010	23,360

SAWING ASPHALT

STATION	TO	STATION	LOCATION	690.0150 LF	REMARKS
102+94			RT	30	PE
144+14			LT	65	CE
151+73			LT	39	CE
191+14			LT	15	PE
208+06			RT	20	PE
253+78			LT	41	CE
270+58			LT	19	PE
279+77			LT	22	PE
288+60			C/L	40	End Project
			TOTAL 0010	291	

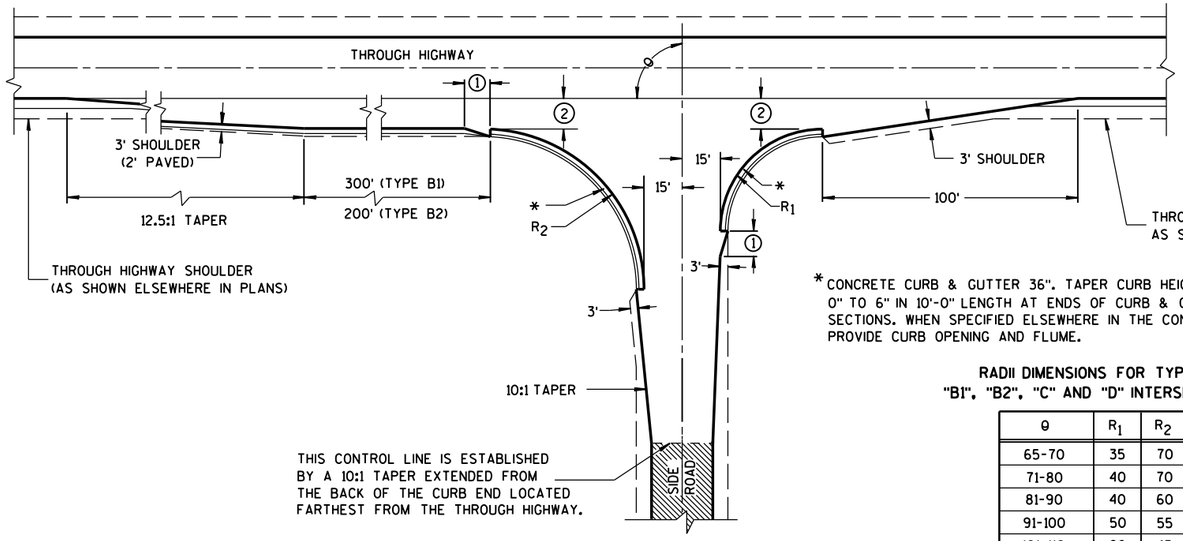
SPECIAL (01 REMOVING DISTRESSED PAVEMENT MILLING)

STATION	TO	STATION	LOCATION	SPV.0180.01 SY	REMARKS
				1250	UNDISTRUBUTED
			TOTAL 0010	1250	

3

Standard Detail Drawing List

09A01-13A	AT-GRADE SIDE ROAD INTERSECTION, TYPES "B1", "B2", "C" AND D AND TEE INTERSECTION BYPASS LANE
13A10-01A	2-LANE RURAL SHOULDER RUMBLE STRIP, MILLING
13A10-01C	2-LANE RURAL SHOULDER RUMBLE STRIP, MILLING
13A10-01D	2-LANE RURAL SHOULDER RUMBLE STRIP, MILLING
13A11-02A	2-LANE RURAL CENTER LINE RUMBLE STRIP, MILLING
13A11-02B	2-LANE RURAL CENTER LINE RUMBLE STRIP, MILLING
14B42-04A	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-04B	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-04C	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B44-02A	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-02B	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-02C	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
15C04-03	TRAFFIC CONTROL, ADVANCE WARNING SIGNS 45 M.P.H. OR GREATER TWO-WAY UNDIVIDED ROAD OPEN TO TRAFFIC
15C08-17A	LONGITUDINAL MARKING (MAINLINE)
15C12-04	TRAFFIC CONTROL FOR LANE CLOSURE (SUITABLE FOR MOVING OPERATIONS)
15C19-04A	MOVING PAVEMENT MARKING OPERATION TWO-LANE TWO-WAY ROADWAY
15C35-01A	PAVEMENT MARKING (INTERSECTIONS)

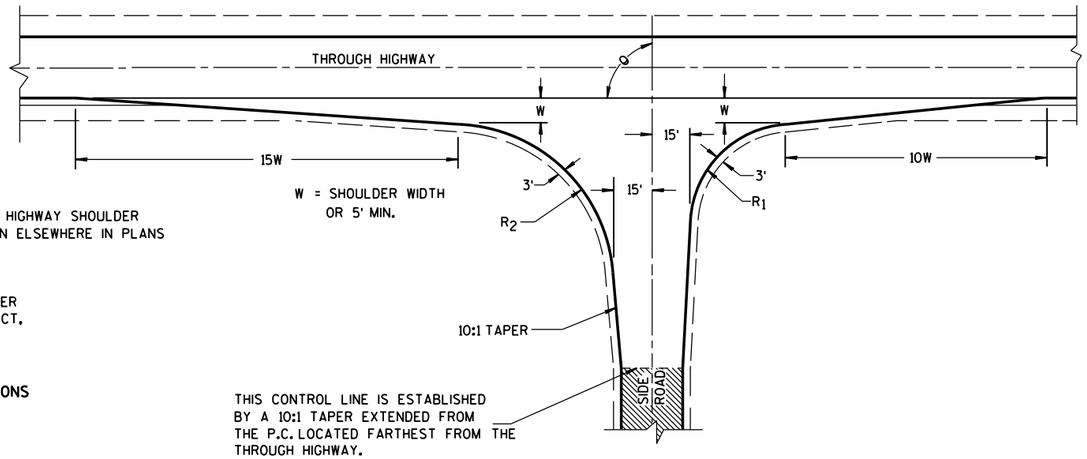


TYPE "B1" AND "B2"

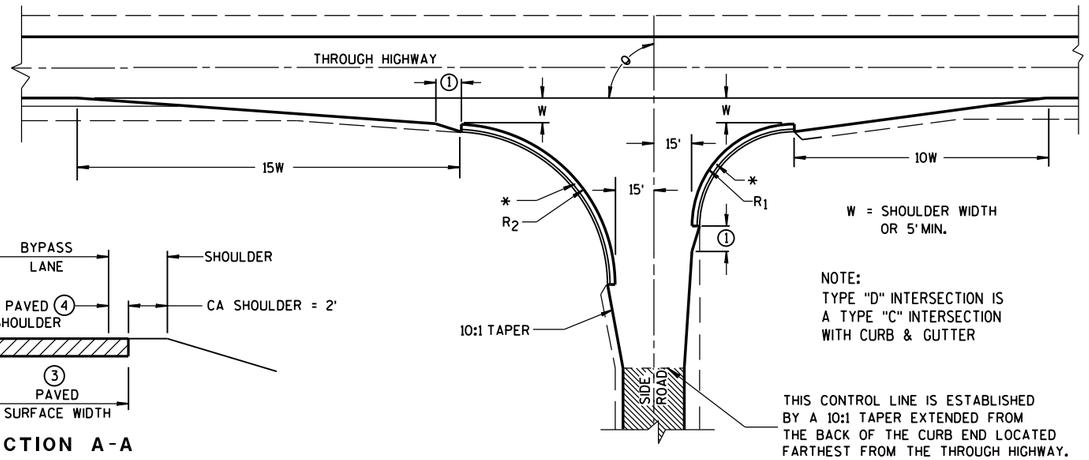
*CONCRETE CURB & GUTTER 36". TAPER CURB HEIGHT 0" TO 6" IN 10'-0" LENGTH AT ENDS OF CURB & GUTTER SECTIONS. WHEN SPECIFIED ELSEWHERE IN THE CONTRACT, PROVIDE CURB OPENING AND FLUME.

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

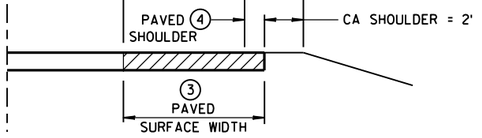
(1) 10-FT TYPICAL.

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

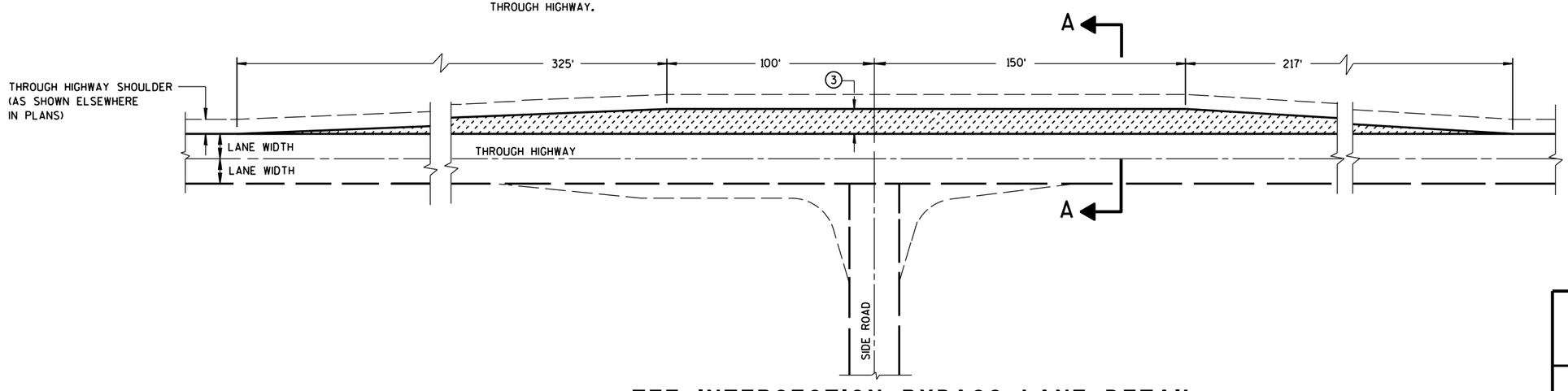
**10-FT MAY BE USED ON TYPE B2 ON RESURFACING PROJECTS IF SPECIFIED IN THE CONTRACT.

(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)

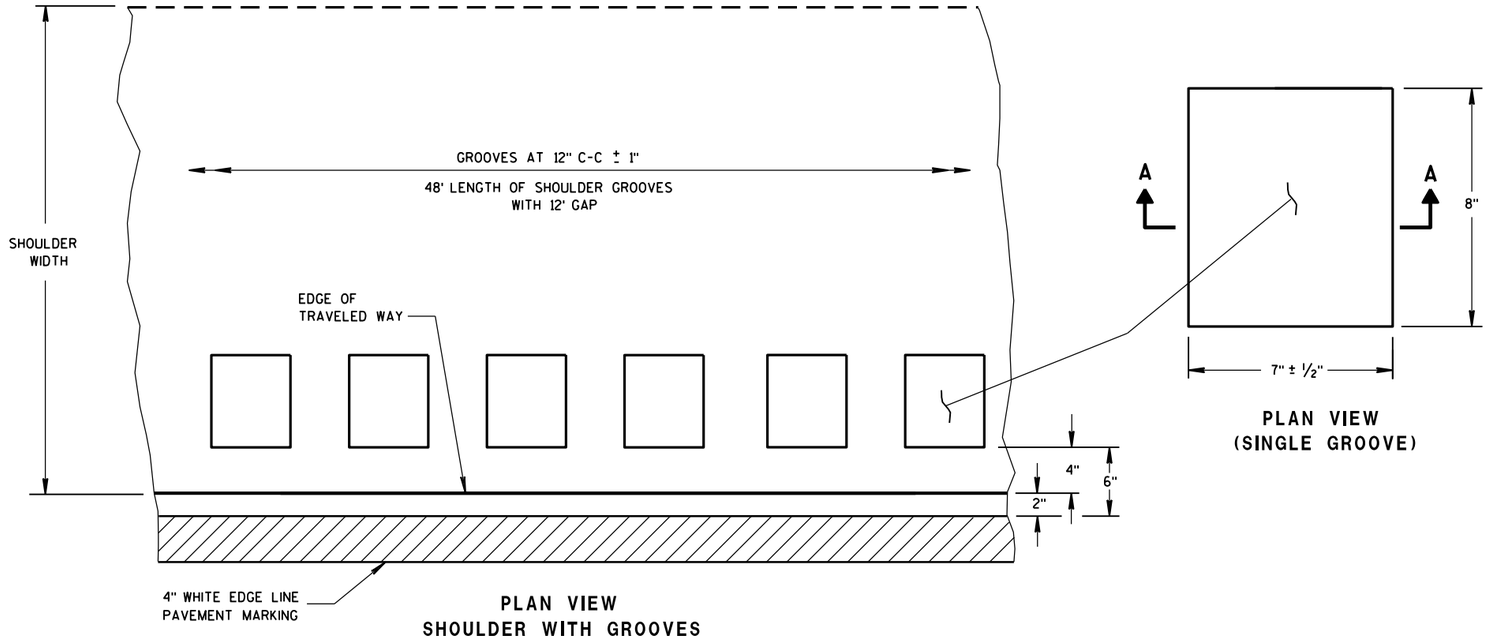


TEE INTERSECTION BYPASS LANE DETAIL

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

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



PLAN VIEW
SHOULDER WITH GROOVES

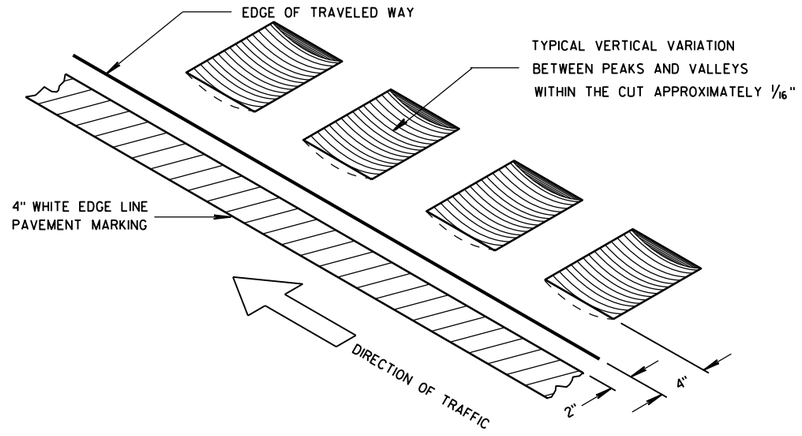
PLAN VIEW
(SINGLE GROOVE)

GENERAL NOTES

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

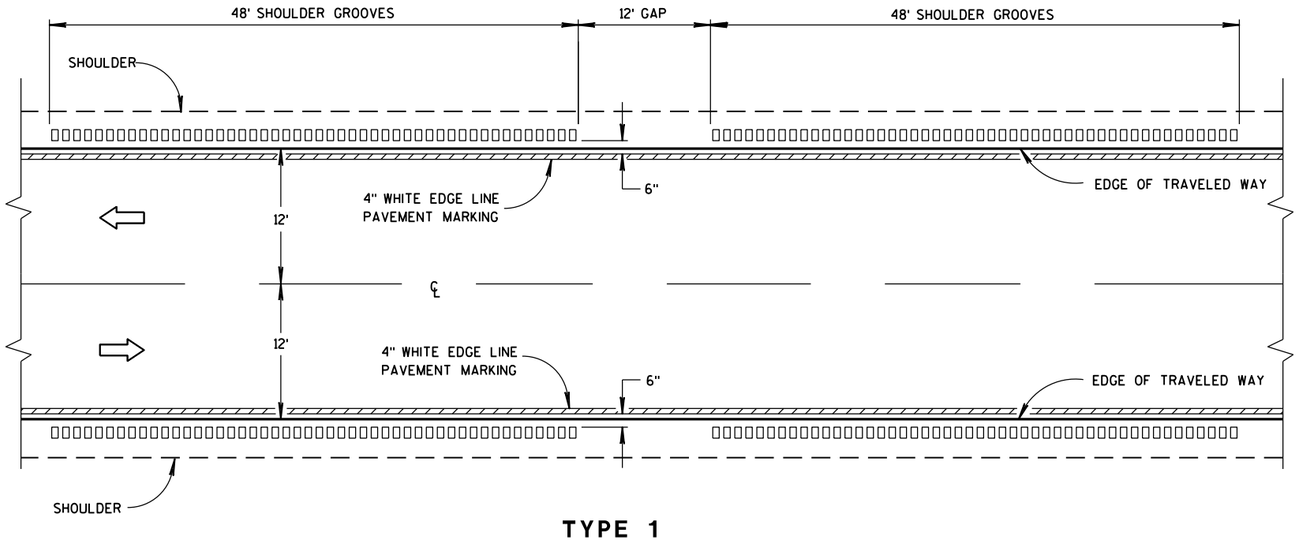
DO NOT MILL SHOULDER GROOVES THROUGH ANY INTERSECTION, MARKED CROSSWALK, NON-MOTORIZED PATH CROSSING, OR SNOWMOBILE CROSSING.

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

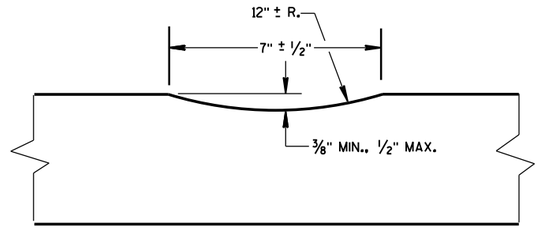


ISOMETRIC

PLACEMENT DETAIL FOR TYPE 1 MILLED RUMBLE STRIP



TYPE 1
2-LANE SHOULDER RUMBLE STRIP



SECTION A-A

2-LANE RURAL
SHOULDER RUMBLE STRIP, MILLING

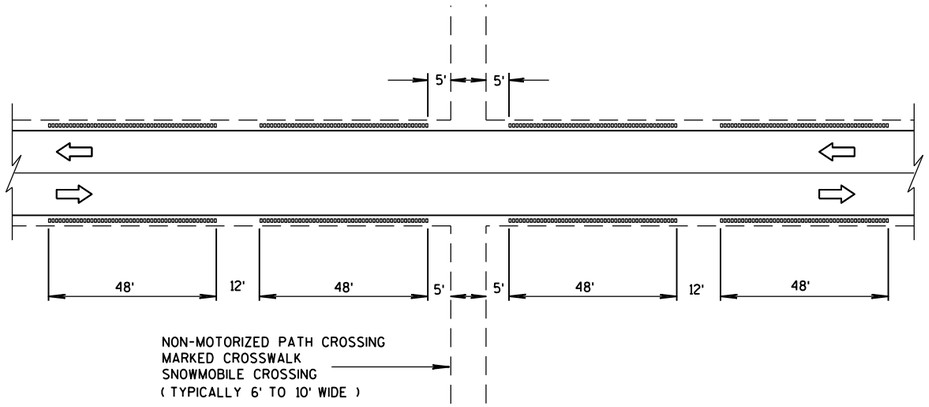
STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

6

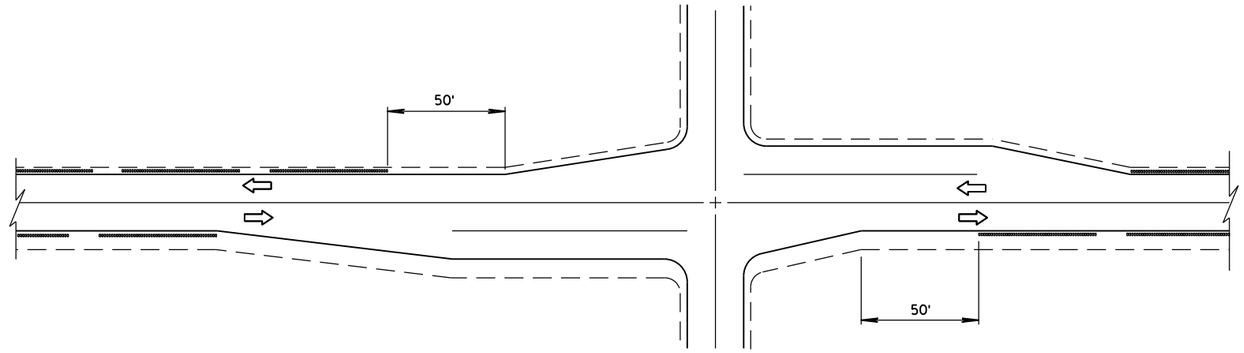
S.D.D. 13 A 10-1a

6

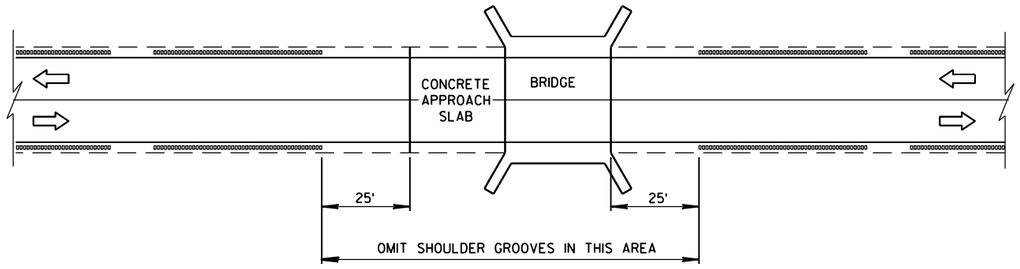
S.D.D. 13 A 10-1a



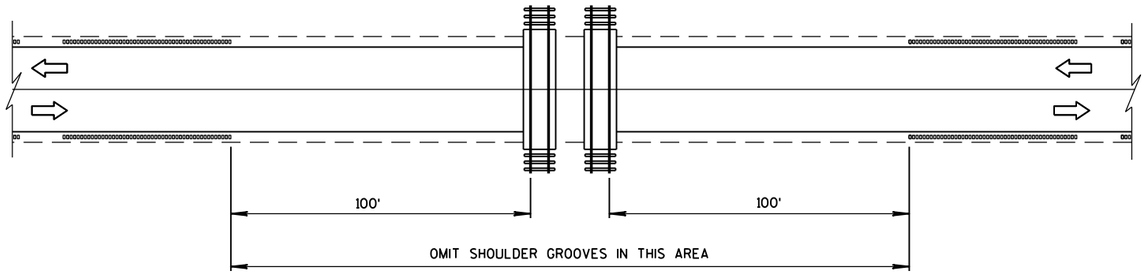
SHOULDER GROOVES AT MISCELLANEOUS CROSSINGS



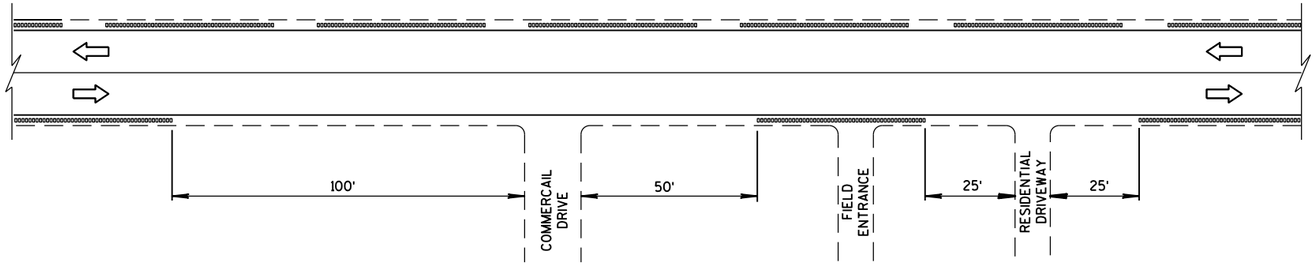
SHOULDER GROOVES AT INTERSECTIONS



SHOULDER GROOVES AT BRIDGES



SHOULDER GROOVES AT RAILROADS

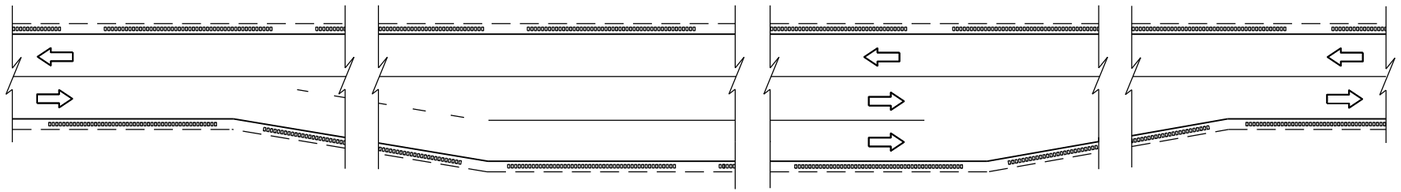


SHOULDER GROOVES AT DRIVEWAYS (1)

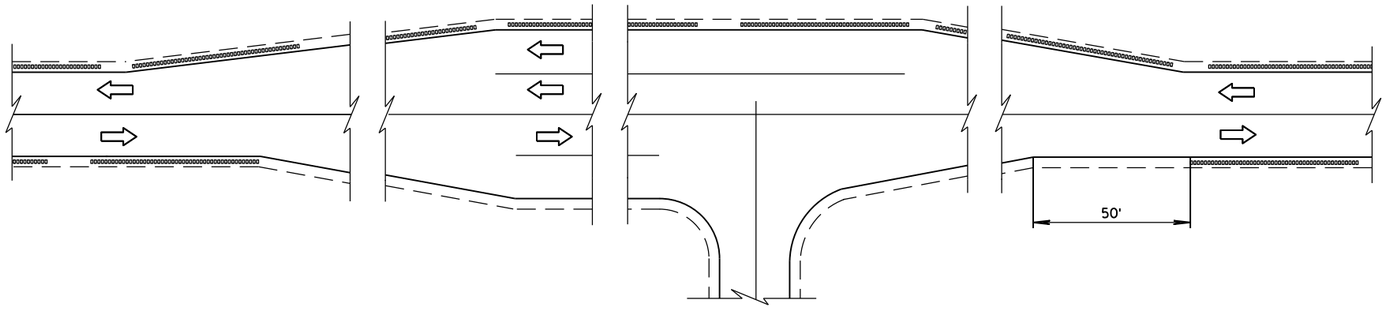
2-LANE RURAL
SHOULDER RUMBLE STRIP, MILLING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

6
S.D.D. 13 A 10-1c



SHOULDER GROOVES AT PASSING AND CLIMBING LANES



SHOULDER GROOVES AT BYPASS LANES

6

6

S.D.D. 13 A 10-1d

S.D.D. 13 A 10-1d

2-LANE RURAL
SHOULDER RUMBLE STRIP, MILLING

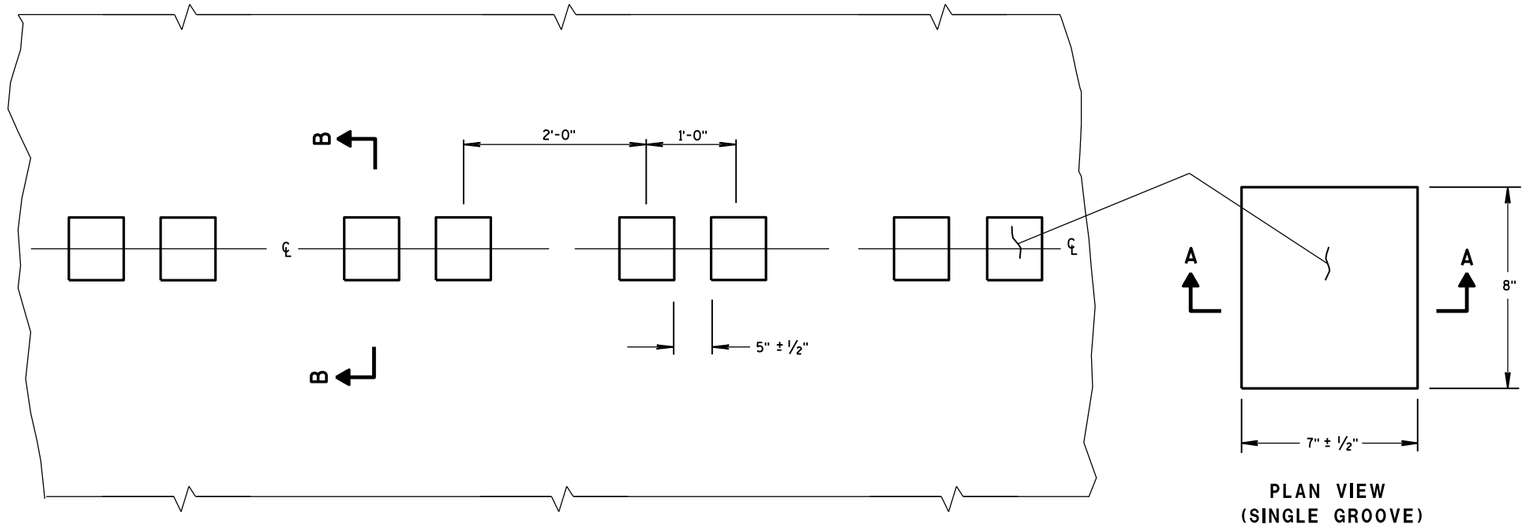
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

12/17/2012
DATE

/S/ Jerry H. Zogg
ROADWAY STANDARDS ENGINEER

FHWA



PLAN VIEW
CENTER LINE WITH GROOVES

PLAN VIEW
(SINGLE GROOVE)

PLACEMENT DETAIL FOR MILLED RUMBLE STRIP

GENERAL NOTES

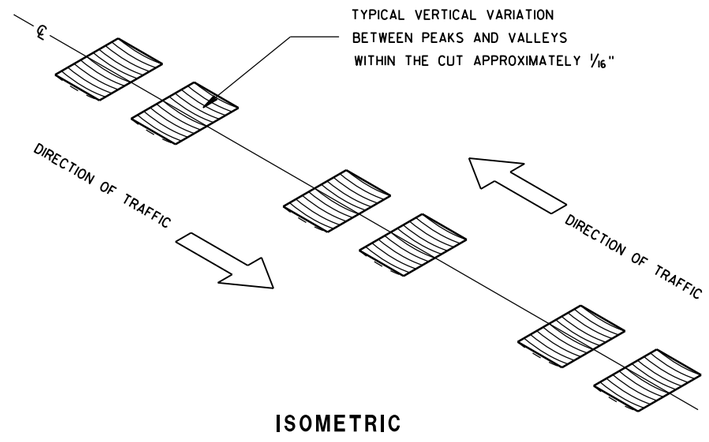
DETAILS OF CONSTRUCTION SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

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

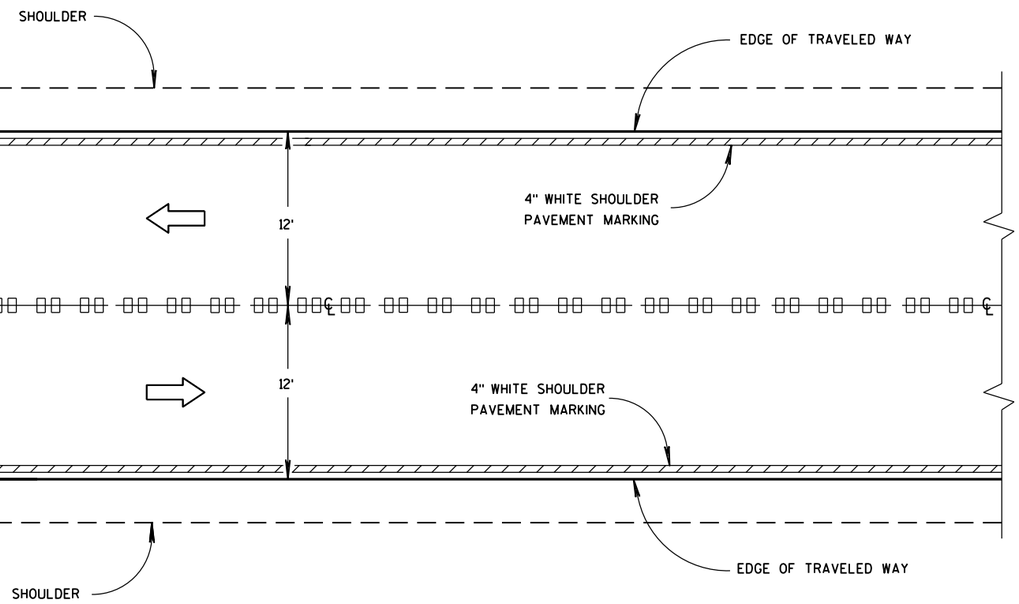
INSTALL PAVEMENT MARKING AFTER THE GROOVES ARE INSTALLED.

SEE SIGNING PLAN FOR SIGN REQUIREMENTS THAT MAY BE NEEDED.

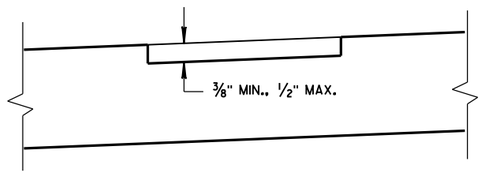
(1) CENTERLINE GROOVES MAY BE OMITTED IN AREAS WITH HIGH CONCENTRATIONS OF DRIVEWAYS, WHEN DIRECTED BY THE ENGINEER.



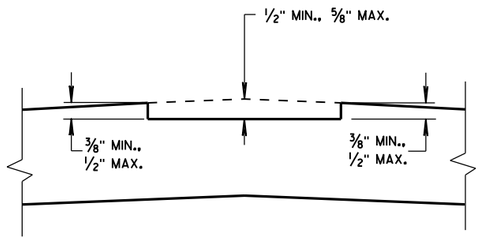
ISOMETRIC



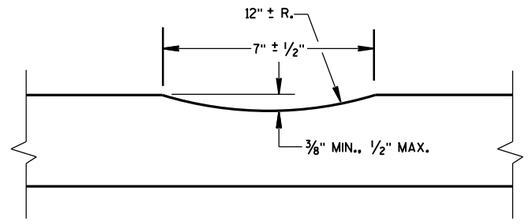
CENTER LINE GROOVES ON TWO-WAY ROADWAYS



SECTION B-B
SUPERELEVATED ROADWAY



SECTION B-B
CROWNED ROADWAY



SECTION A-A

2-LANE RURAL
CENTER LINE RUMBLE STRIP, MILLING

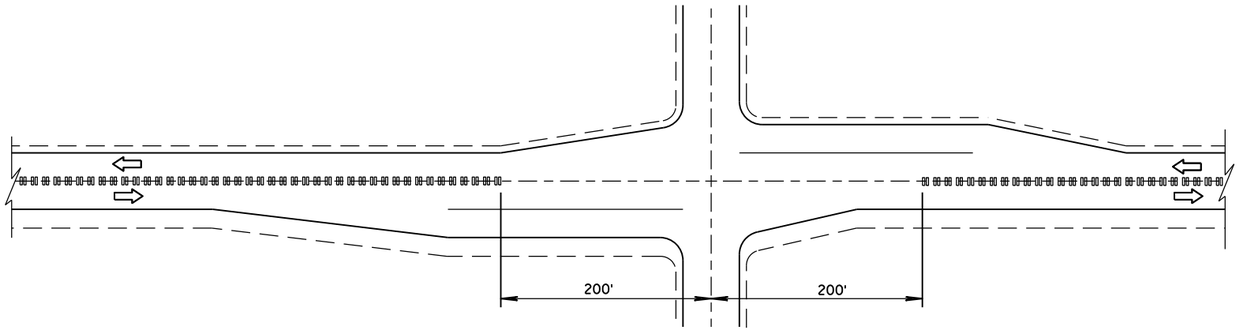
STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

6

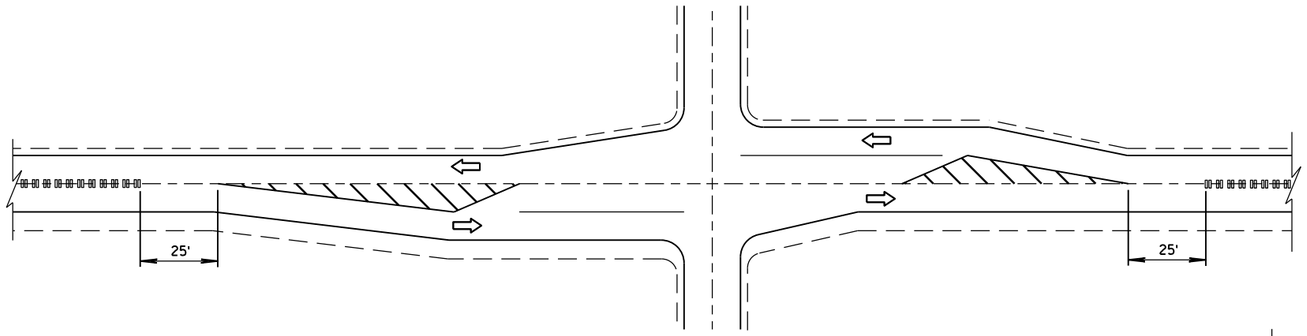
S.D.D. 13 A 11-2a

6

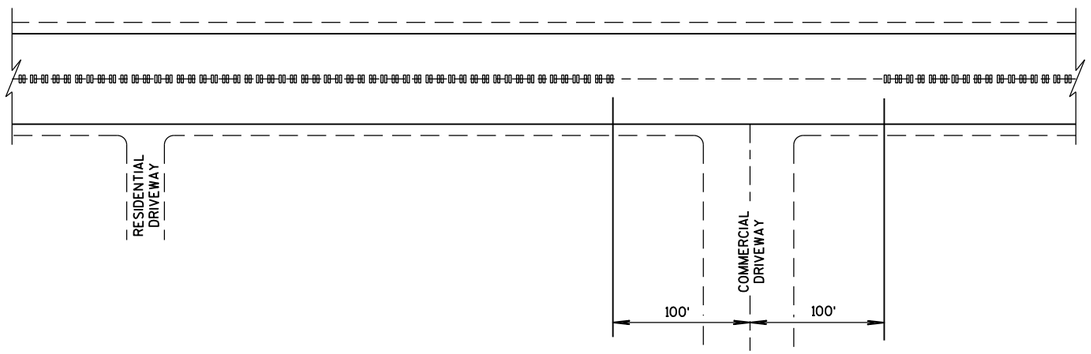
S.D.D. 13 A 11-2a



CENTER LINE GROOVES AT INTERSECTIONS

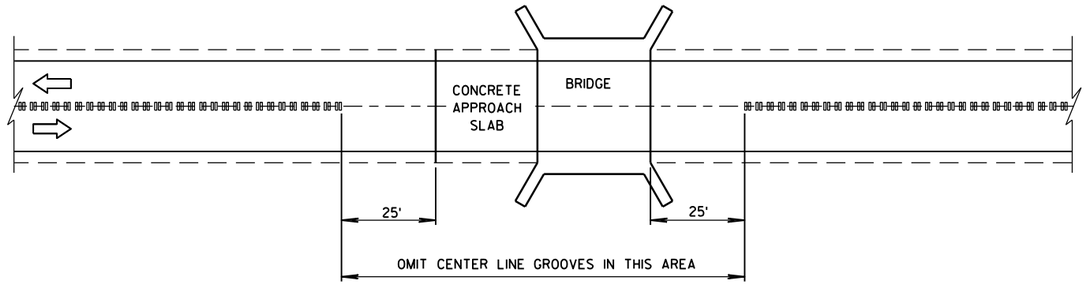


CENTER LINE GROOVES AT INTERSECTIONS
(WITH LEFT TURN LANES)

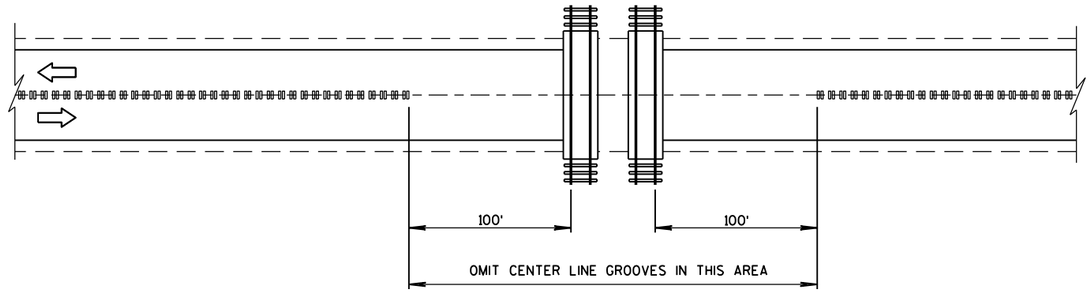


CENTER LINE GROOVES AT DRIVEWAYS (1)

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



CENTER LINE GROOVES AT BRIDGES



CENTER LINE GROOVES AT RAILROADS

6

S.D.D. 13 A 11-2b

6

S.D.D. 13 A 11-2b

2-LANE RURAL
CENTER LINE RUMBLE STRIP, MILLING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

5/15/2013 DATE

/S/ Jerry H. Zoda
ROADWAY STANDARDS DEVELOPMENT ENGINEER

NT

FHWA

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

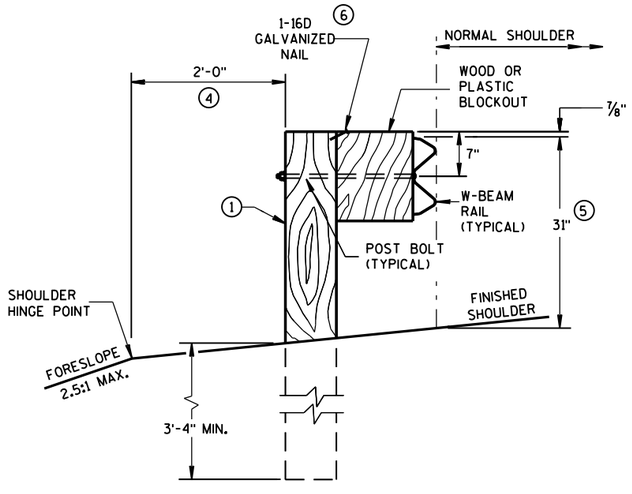
(2) USE WOOD OR APPROVED PLASTIC BLOCKOUTS. WOOD BLOCKOUTS MAY BE CONSTRUCTED OUT OF TWO OR MORE WOOD BLOCKOUTS. SEE ALTERNATE WOOD BLOCKOUT DETAIL. DIMENSIONS OF APPROVED PLASTIC BLOCKOUTS MAY VARY.

(3) IF ROCK IS ENCOUNTERED DURING EXCAVATION, PROVIDE A HOLE 12 INCHES IN DIAMETER EXTENDING 20 INCHES DEEP INTO THE ROCK. PLACE APPROXIMATELY 2½ INCHES 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).

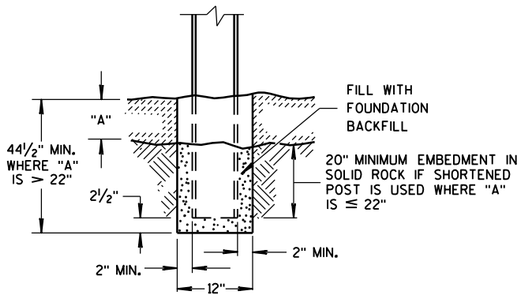
(5) FOR NEW MGS INSTALLATION TOP OF W-BEAM RAIL TOLERANCE IS ± 1". FOR EXISTING MGS INSTALLATION TOP OF W-BEAM IS BETWEEN 27¾" TO 32".

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



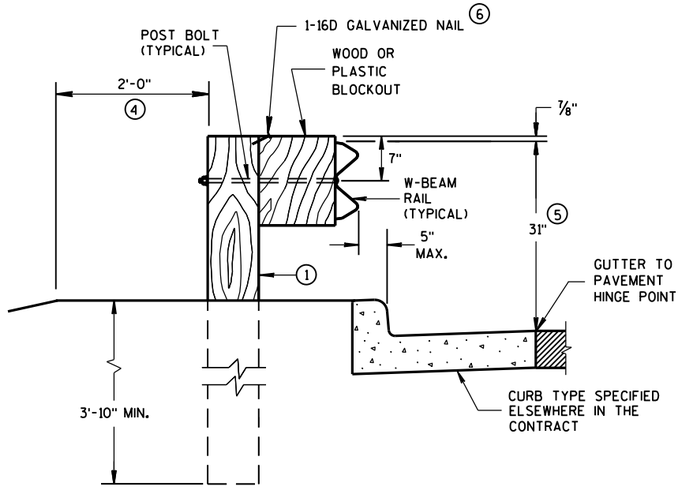
END VIEW

LOCATED ALONG A ROADWAY SHOULDER
STANDARD INSTALLATION



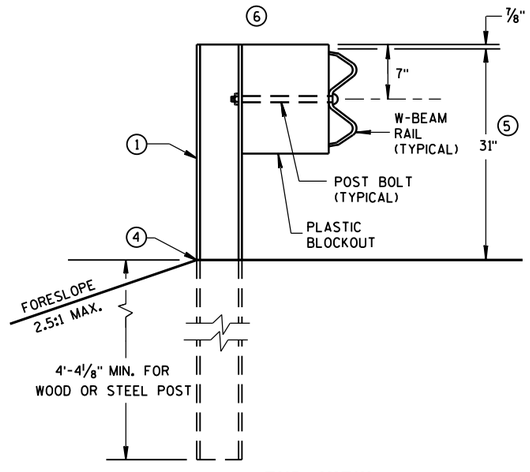
END VIEW

SETTING STEEL OR WOOD POST IN ROCK (3)



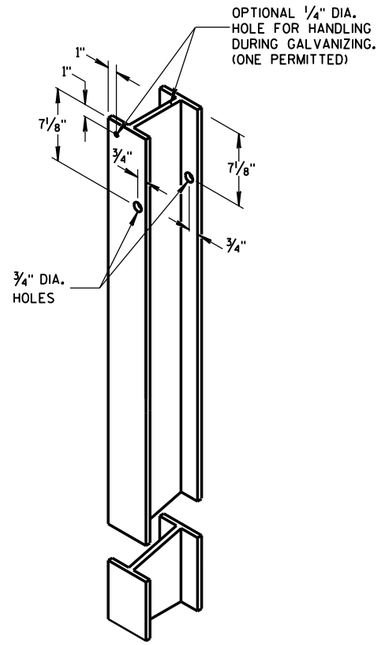
END VIEW

LOCATED ALONG A CURBED ROADWAY

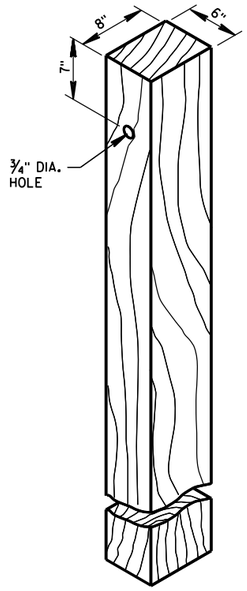


END VIEW

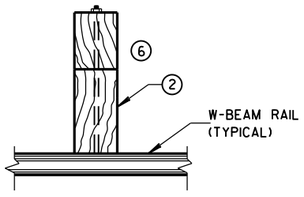
MGS LONGER POST AT HALFPOST SPACING W BEAM (K)



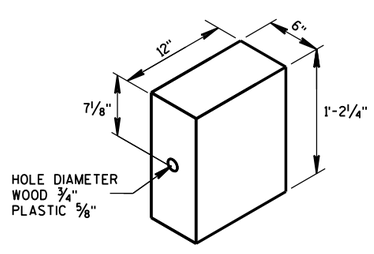
STEEL POST &
HOLE PUNCHING DETAIL
(w6X9) (1)



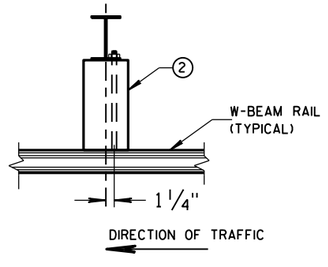
WOOD POST
(6" X 8") NOMINAL (1)



PLAN VIEW
WOOD POST,
BLOCKOUT & BEAM



WOOD OR
PLASTIC BLOCKOUT (2)

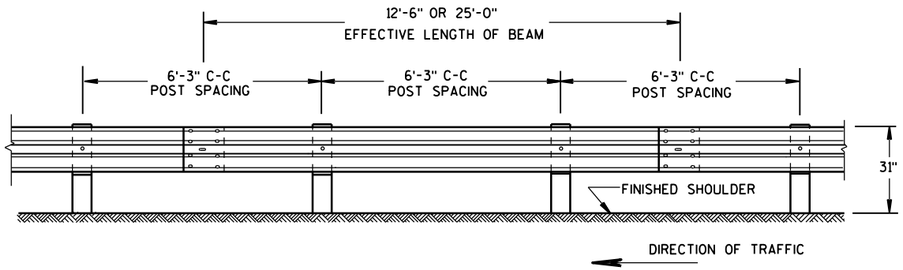


PLAN VIEW
STEEL POST,
PLASTIC BLOCKOUT & BEAM

MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL

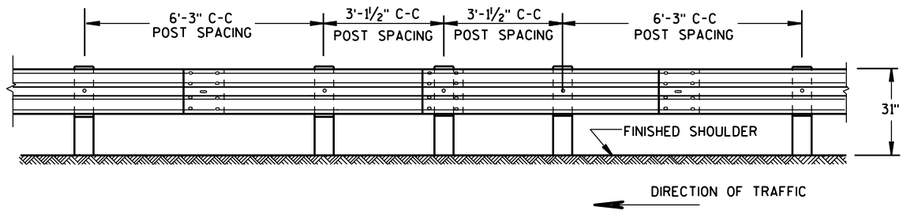
STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

6
S.D.D. 14 B 42-4a



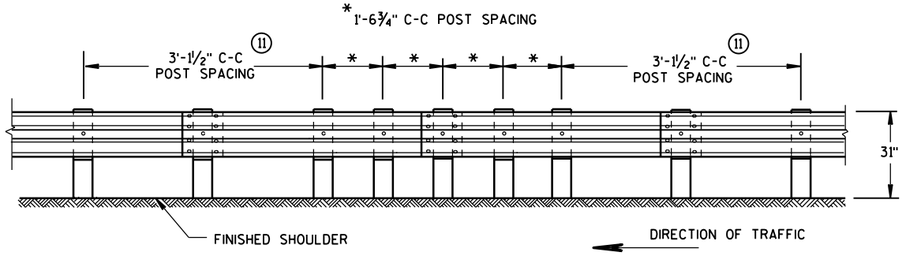
FRONT VIEW

POST SPACING STANDARD INSTALLATION



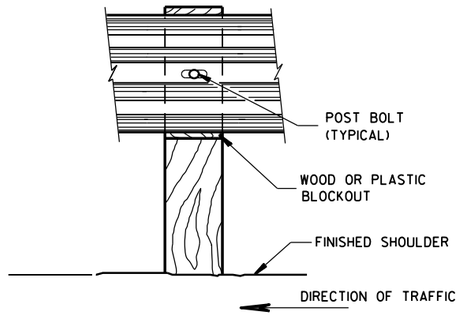
FRONT VIEW

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

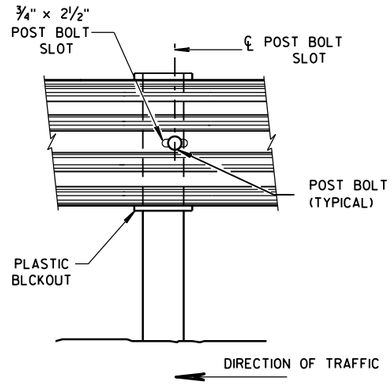


FRONT VIEW

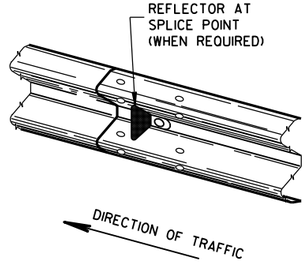
QUARTER POST SPACING (QS)

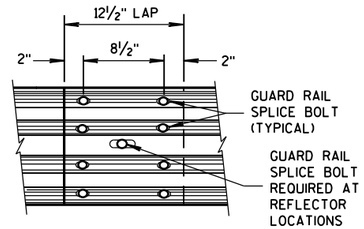


FRONT VIEW AT WOOD POST

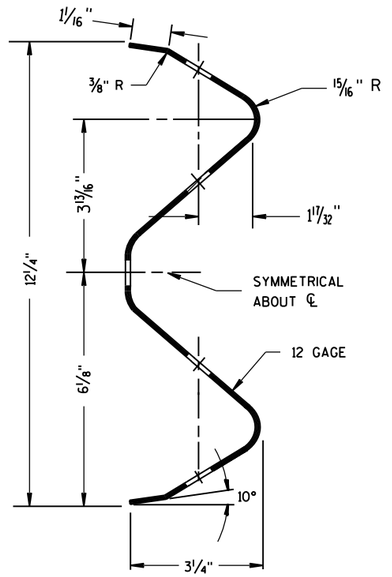


FRONT VIEW AT STEEL POST

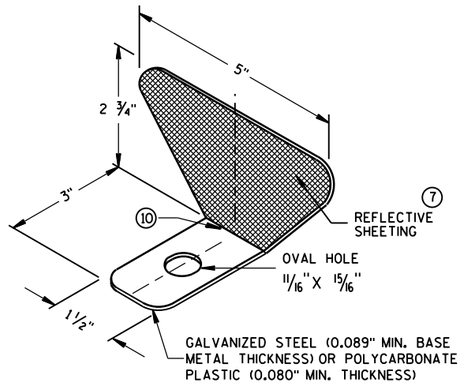




FRONT VIEW
MID-SPAN BEAM SPLICE



SECTION THRU W-BEAM RAIL



ONE SIDED REFLECTOR DETAIL AND TYPICAL INSTALLATION ⑦

⑦ PROVIDE SILVER REFLECTIVE SHEETING ON ALL REFLECTORS EXCEPT THOSE LOCATED ALONG THE LEFT EDGE OF ONE-WAY ROADWAYS, WHICH SHALL BE PROVIDED WITH YELLOW REFLECTIVE SHEETING. SHEETING IS TYPE H. SEE STANDARD SPECIFICATION 637.

⑧ DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL. RAIL SPLICE LOCATIONS ARE THE ONLY ACCEPTABLE LOCATIONS FOR REFLECTORS.

⑨ REVERSE EVERY OTHER REFLECTOR FOR 2-WAY VISIBILITY. THE CONTRACTOR MAY FURNISH TWO-SIDED REFLECTORS IN LIEU OF ONE-SIDED REFLECTORS.

⑩ PROVIDE AN ANGLE OF BEND OF 90° ± 1° FOR TWO-SIDED REFLECTORS.

⑪ 25 FEET OF HALF POST SPACING IS REQUIRED ON APPROACH AND DEPARTURE ENDS OF QUARTER POST SPACING.

POST BOLTS ARE A ⅝" DIAMETER ASTM A307 GUARDRAIL BOLT. A POST BOLT REQUIRES ⅝" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT AND ⅝" DIAMETER F844 FLAT WASHER. POST BOLTS MAY BE LONGER IF MULTIPLE BLOCKOUTS ARE BEING USED.

GUARD RAIL SPLICE BOLTS ARE A ⅝" DIAMETER ASTM A307 GUARDRAIL HEAD BOLT. A GUARDRAIL SPLICE BOLT REQUIRES ⅝" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT.

REFLECTOR SPACING ⑧

	BEAM GUARD LENGTH	REFLECTOR SPACING	NO. SURFACES REFLECTORIZED	MIN. NO. REFLECTORS
ONE WAY TRAFFIC	< 200' > 200'	50' C-C 100' C-C	1 1	3
TWO WAY TRAFFIC	< 200' > 200'	25' C-C 50' C-C	1 ⑨ 1	6
TWO WAY TRAFFIC	< 200' > 200'	50' C-C 100' C-C	2 2 ⑩	3

MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL

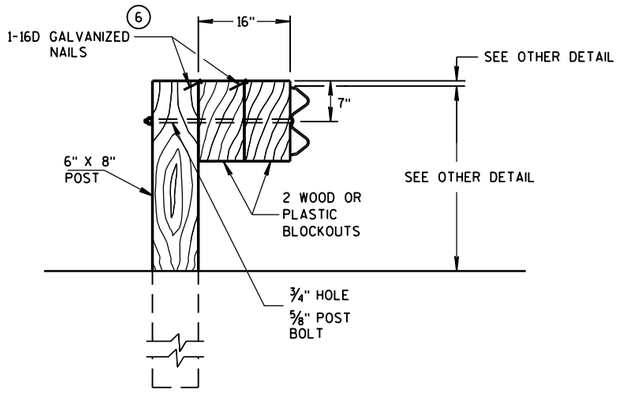
STATE OF WISCONSIN
DEPARTMENT OF TRANSPO 25

6

S.D.D. 14 B 42-4b

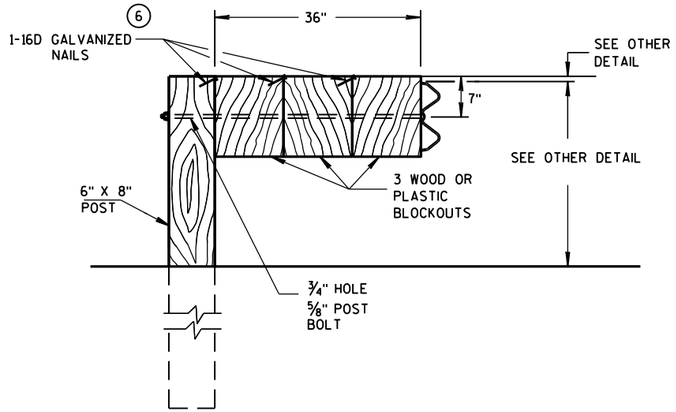
6

S.D.D. 14 B 42-4b



DETAIL FOR 16" BLOCKOUT DEPTH

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

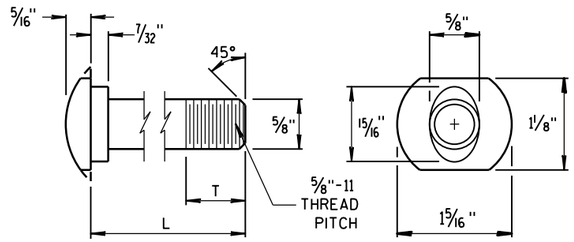


DETAIL FOR 36" BLOCKOUT DEPTH

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

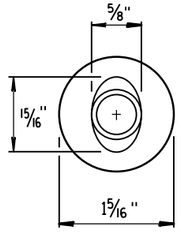
DO NOT USE 16" OR 36" BLOCKOUTS IF IT CAUSES THE POST TO BE DRIVEN BEYOND SHOULDER HINGE POINT OR CAUSES A FIXED OBJECT TO BE WITHIN THE DEFLECTION DISTANCE OF THE BARRIER.

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

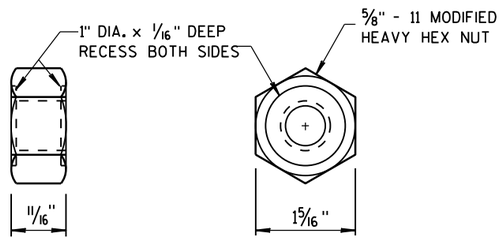


POST BOLT TABLE

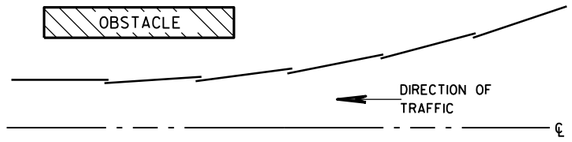
L	T (MIN.)
1 1/4"	1 1/8"
2"	1 3/4"
10"	4"
14"	4 1/16"
18"	4"
21"	4 1/16"
25"	4"



ALTERNATE BOLT HEAD

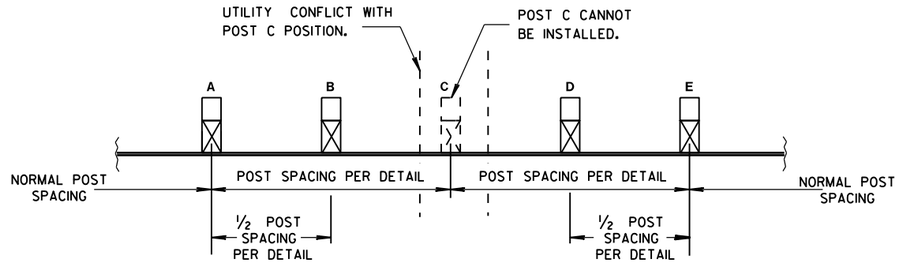


POST BOLT, SPLICE BOLT AND RECESS NUT

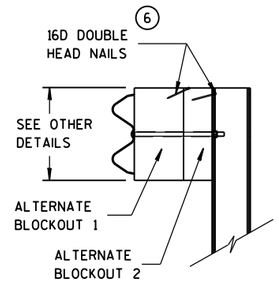


PLAN VIEW

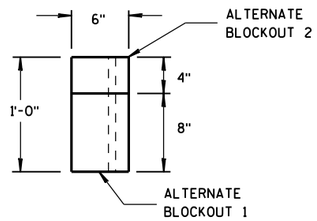
BEAM LAPPING DETAIL



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
June 2016 — DATE
/S/ Jerry H. Zogg — ROADWAY STANDARDS ENGINEER
FHWA

6

S.D.D. 14 B 42-4c

GENERAL NOTES

(A) THE SLOPE IN THE AREA BOUNDED BY THE GRADELINE, THE HINGE POINT LINE (HPL), AND THE CLEAR ZONE LIMITS (CZL) SHALL BE 4:1 OR FLATTER.

(B) AFTER FINAL ASSEMBLY, RECHECK CABLE TO BE SURE IT IS TAUT AND HAS NOT RELAXED.

(C) DIFFERENT 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) ATTACH ALUMINUM SHEET TO E.A.T. HEAD USING 4 STAINLESS STEEL SELF-TAPPING SCREWS. ONE SCREW PER CORNER.

(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.

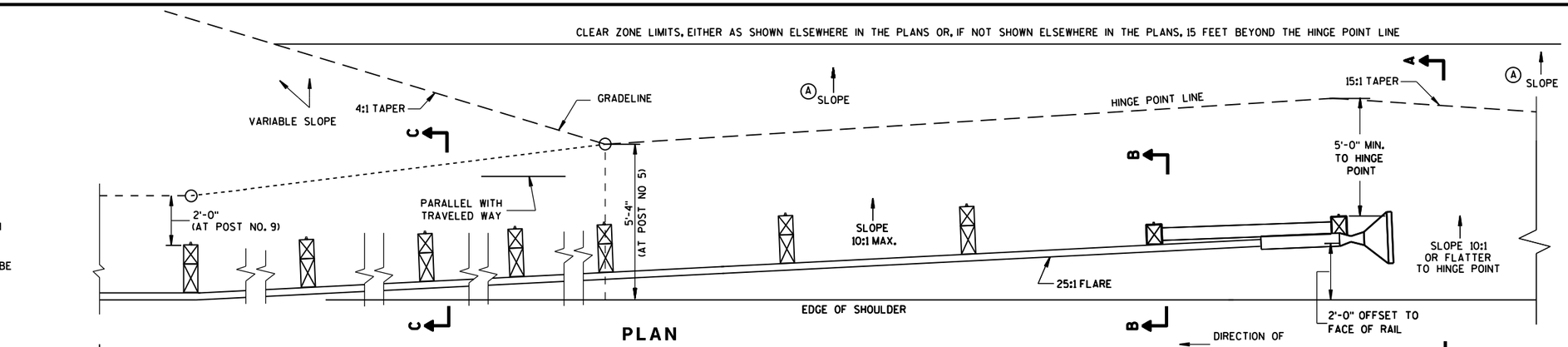
SEE SDD 14B42 FOR MORE INFORMATION.

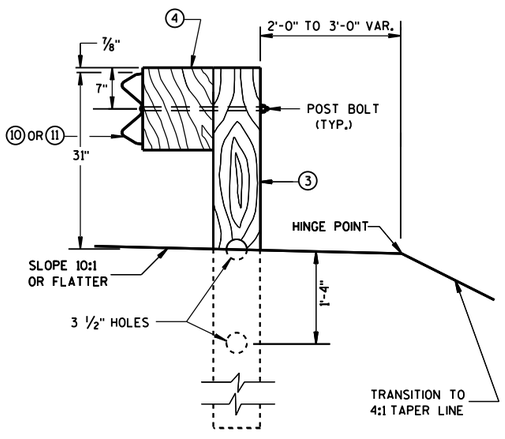
* DO NOT ATTACH BLOCKOUTS TO POSTS 1 AND 2.

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

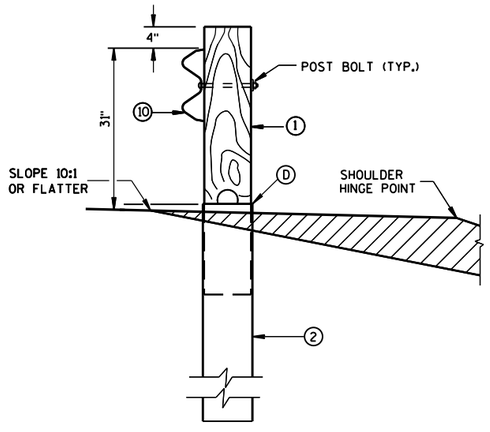
W-BEAM RAIL SPLICES ARE LOCATED AT POST NUMBER 3, AND BETWEEN POST 5 AND 6, BETWEEN POSTS 7 AND 8, AND MIDDLE OF THE SPAN AFTER POST 9.

THE CENTER OF THE UPPER 3½" DIAMETER HOLE ON POST NUMBER 3 THROUGH POST 9 IS TO BE FLUSH WITH THE GROUND LINE UP TO A MAXIMUM OF 2" ABOVE GROUND LINE.

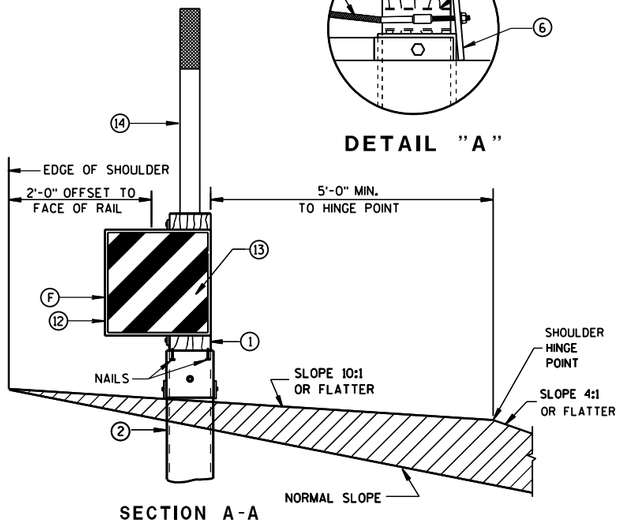




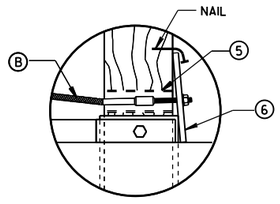
SECTION C-C
TYPICAL AT POST NOS. 3-9



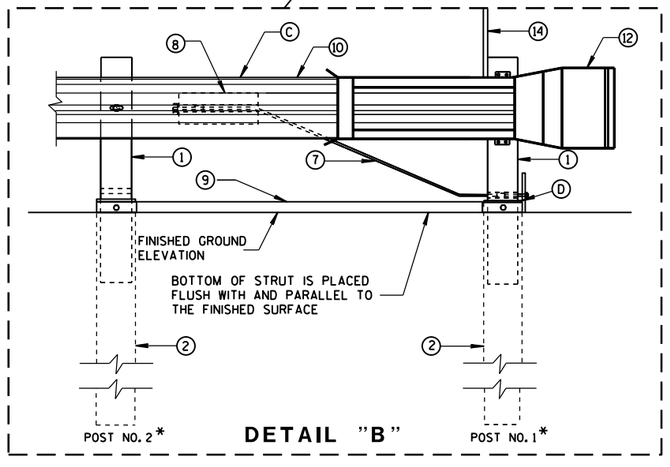
SECTION B-B
TYPICAL AT POST NO. 2*



SECTION A-A
TYPICAL AT POST NO. 1*



DETAIL "A"



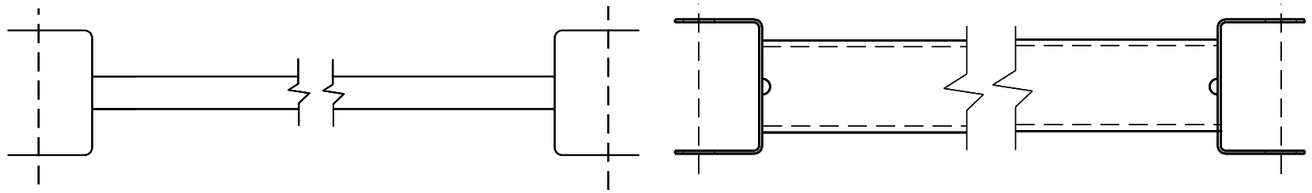
DETAIL "B"

MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPO

S.D.D. 14 B 44-2a

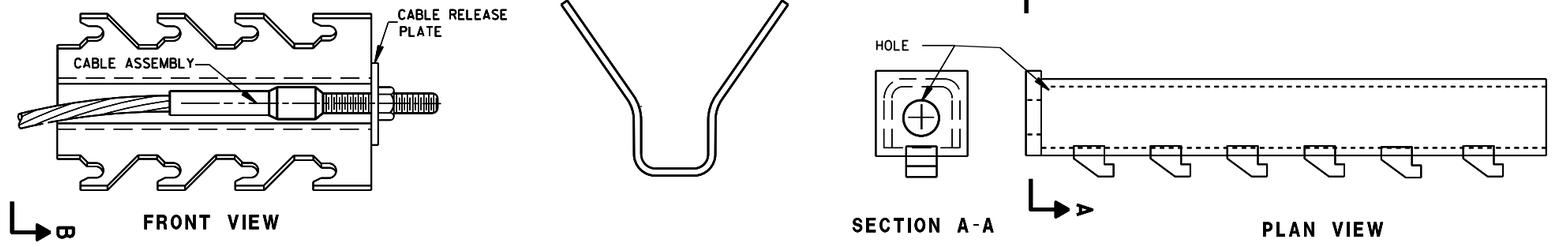
S.D.D. 14 B 44-2a



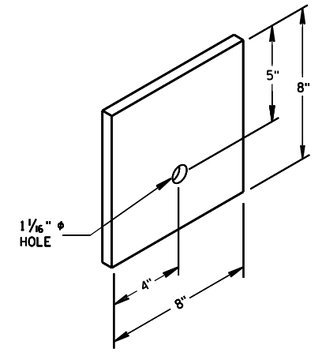
GENERIC GROUND STRUT (9) (H)

BILL OF MATERIALS

PART NO.	DESCRIPTION MATERIALS PROVIDED BY MGS EAT MANUFACTURER. SEE MANUFACTURER'S DETAILS FOR MORE INFORMATION.
(1)	WOOD BREAKAWAY POST
(2)	6" X 8" X 0.188", 6'-0" LONG FOUNDATION TUBE AT POSTS 1 AND 2
(3)	WOOD CRT
(4)	WOOD BLOCKOUT
(5)	PIPE SLEEVE
(6)	BEARING PLATE
(7)	BCT CABLE ASSEMBLY
(8)	ANCHOR CABLE BOX
(9)	GROUND STRUT
(10)	PERFORATED W-BEAM RAIL END PANEL, 12'-6" LONG.
(11)	STANDARD W-BEAM RAIL. MULTIPLE SECTIONS REQUIRED. SECTIONS VARY IN LENGTH.
(12)	END SECTION EAT
(13)	0.040" ALUMINUM SHEET WITH REFLECTIVE SHEETING TYPE F PER SECTION 637 OF THE STANDARD SPECIFICATIONS
(14)	EAT MARKER POST - YELLOW (SEE APPROVED PRODUCTS LIST)



GENERIC ANCHOR CABLE BOX (8) (H)

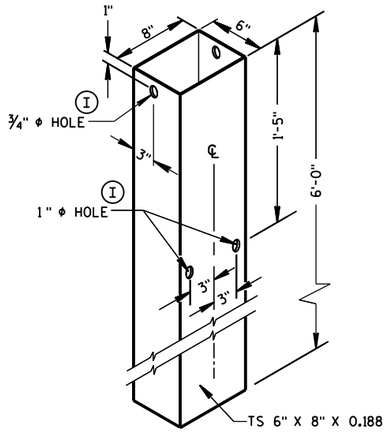


BEARING PLATE (6)

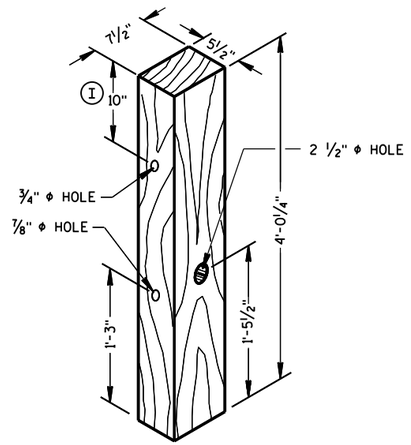
MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL
(MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

6
S.D.D. 14 B 44-2b

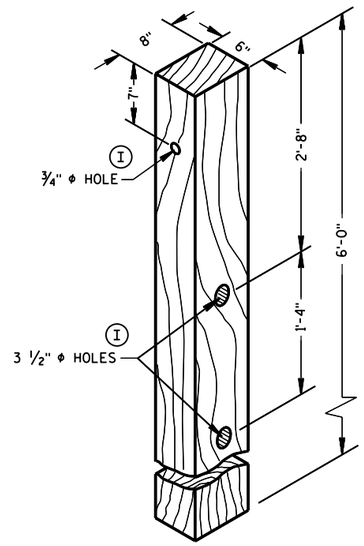


FOUNDATION TUBE (2)



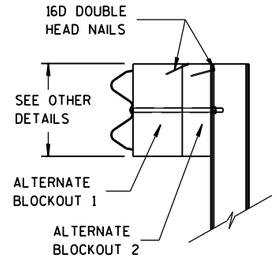
POSTS NUMBER 1 AND 2

WOOD BREAKAWAY POST (1)

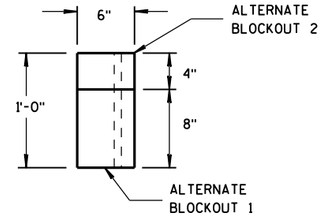


POSTS NUMBER 3-9

WOOD CRT POST (3)

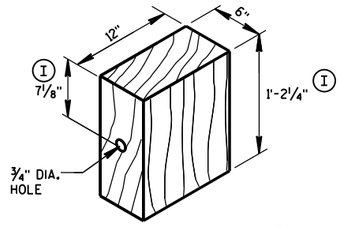


SIDE VIEW



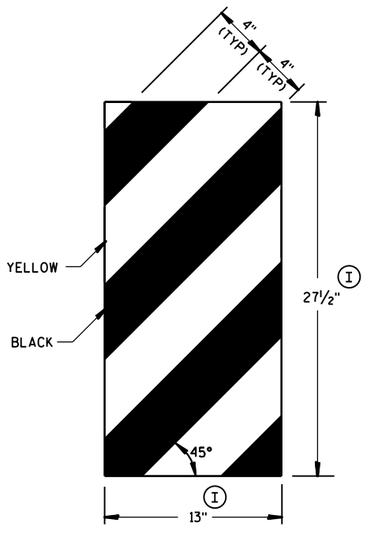
TOP VIEW

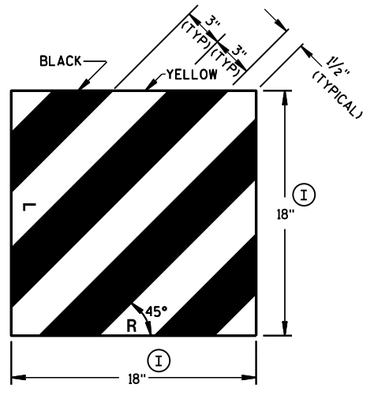
ALTERNATE WOOD BLOCKOUT DETAIL



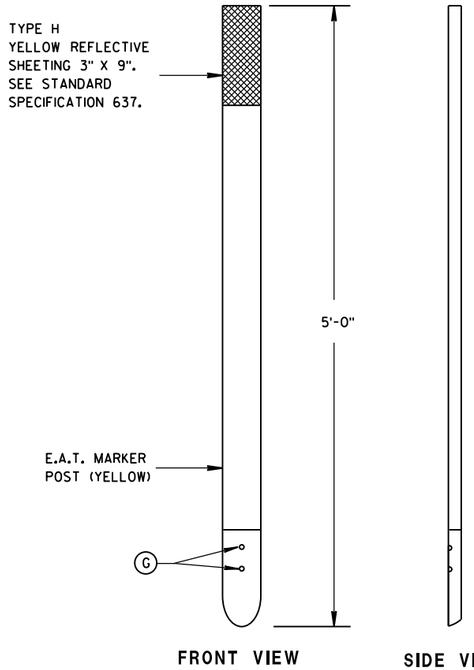
WOOD BLOCKOUT (4)

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





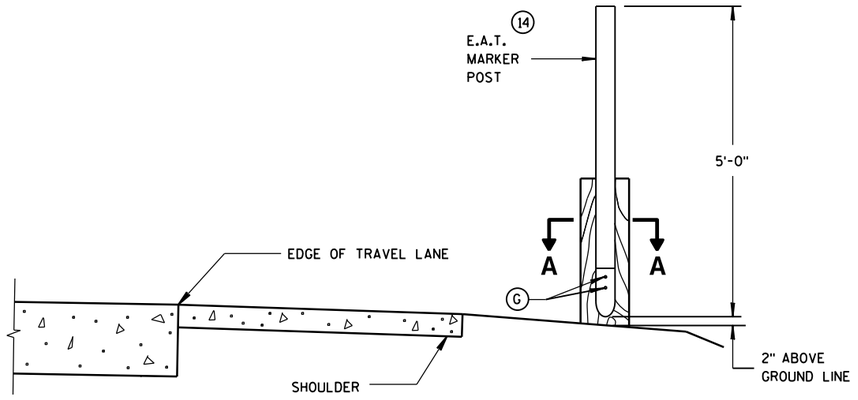
GENERIC REFLECTIVE SHEETING (13) (H)



FRONT VIEW

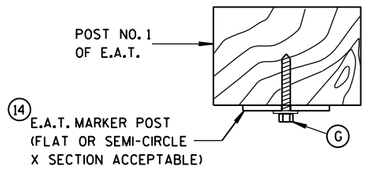
SIDE VIEW

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

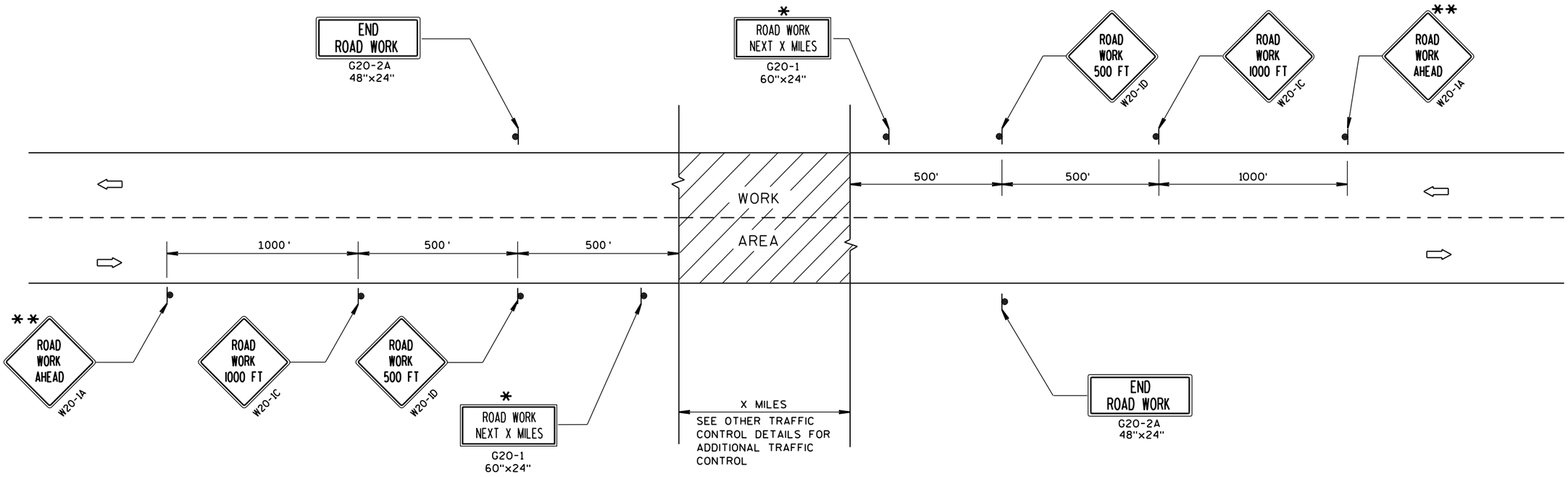
MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL
(MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June 2014 — DATE
/S/ Jerry H. Zogg — ROADWAY STANDARDS ENGINEER
FHWA

6

S.D.D. 14 B 44-2c



TYPICAL SIDEROAD APPROACH WARNING SIGN DETAIL

GENERAL NOTES

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

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

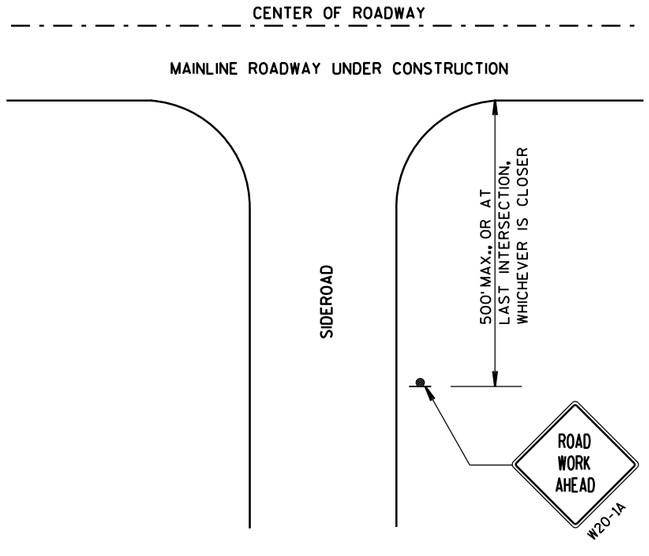
ALL SIGNS ARE 48"x48" UNLESS OTHERWISE NOTED.

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

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

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

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



LEGEND

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

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

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

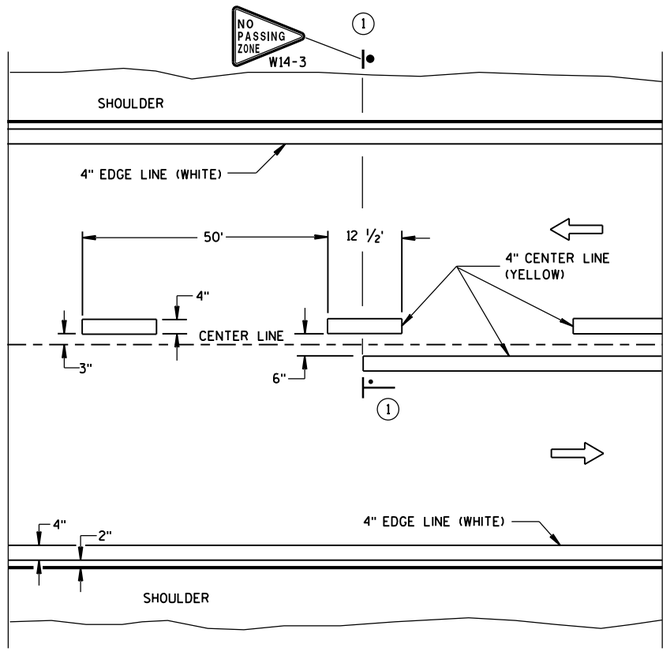
FHWA

6

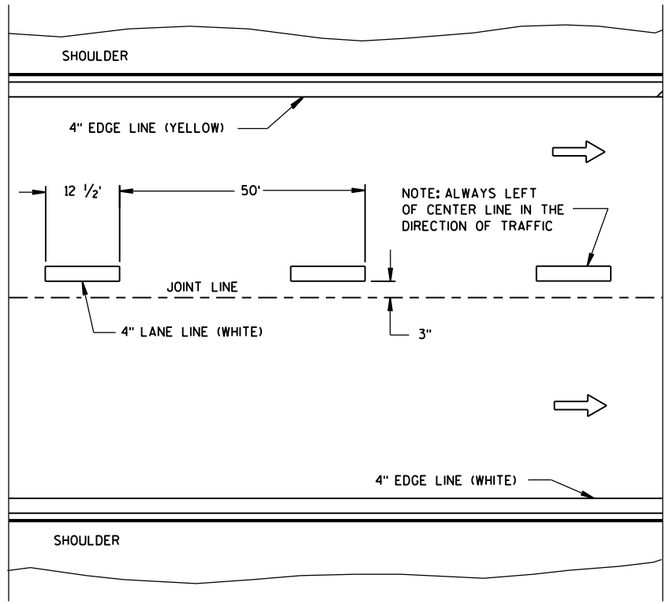
S.D.D. 15 C 4-3

6

S.D.D. 15 C 4-3



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) NO PASSING ZONE W14-3 SIGN SHALL BE LOCATED WITHIN 50 FEET OF THE "T" MARKING.

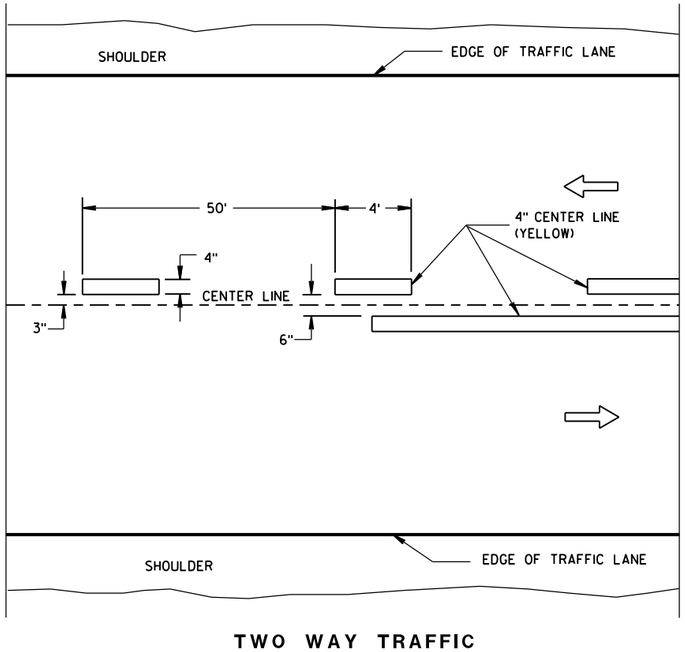
NOTE

ARROW SYMBOL (⇨) SHOWS DIRECTION OF TRAVEL

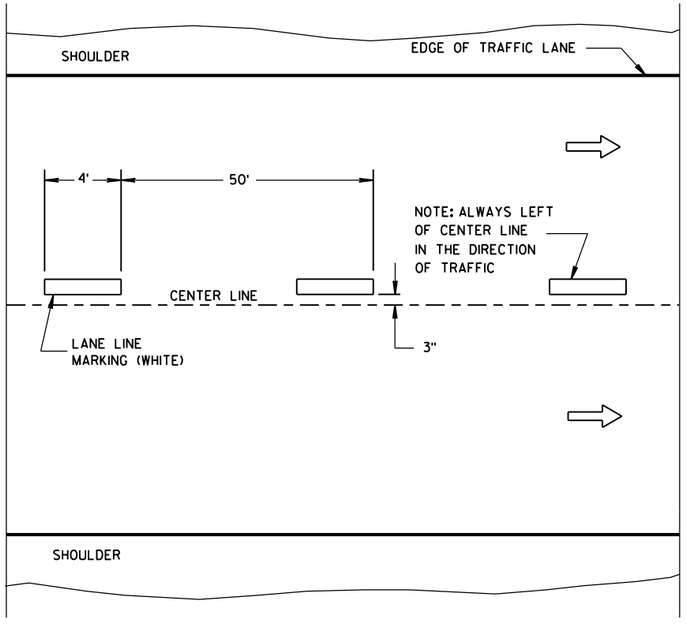
LEGEND

"T" MARKING

POST MOUNTED SIGN



TWO WAY TRAFFIC



ONE WAY TRAFFIC

TEMPORARY PAVEMENT MARKING

LONGITUDINAL MARKING (MAINLINE)	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED	
Sept., 2016	/S/ Matthew R. Rauch
DATE	STATE SIGNING AND MAR ENGINEER
FHWA	

6

S.D.D. 15 C 8-17a

6

S.D.D. 15 C 8-17a

LEGEND

SIGN ON PORTABLE OR PERMANENT SUPPORT

DIRECTION OF TRAFFIC

WORK AREA

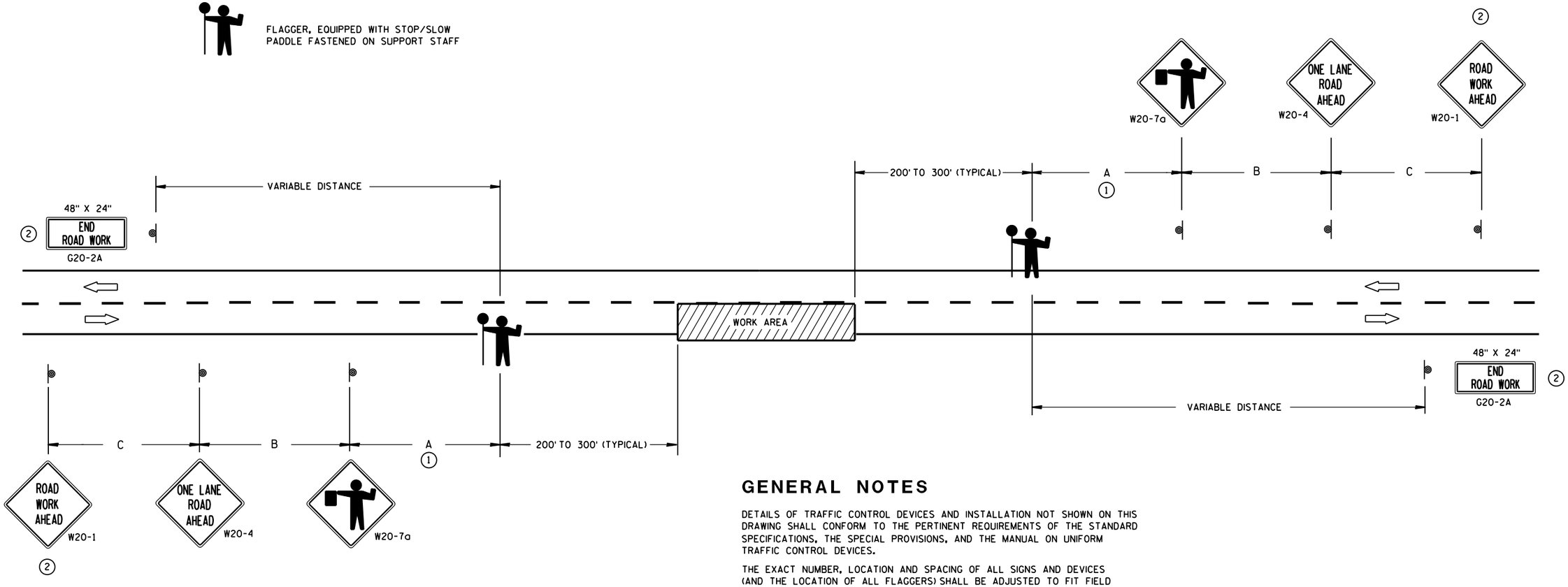
FLAGGER, EQUIPPED WITH STOP/SLOW PADDLE FASTENED ON SUPPORT STAFF

SIGN SPACING TABLE

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

BE PREPARED TO STOP
W3-4

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



(1) FOR A MOVING WORK OPERATION,
SIGNING FOR BOTH DIRECTIONS SHALL BE REESTABLISHED (AS SIMULTANEOUSLY AS PRACTICAL) AT APPROXIMATELY 3500 FOOT INTERVALS IN THE MOVING WORK OPERATION OR AS APPROVED BY THE ENGINEER.

(2) SIGN NOT REQUIRED IF FLAGGING OPERATION OCCURS WITHIN A SIGNED ROAD WORK ZONE AREA.

GENERAL NOTES

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

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

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

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

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

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

TRAFFIC CONTROL FOR LANE CLOSURE (SUITABLE FOR MOVING OPERATIONS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

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S.D.D. 15 C 12-4

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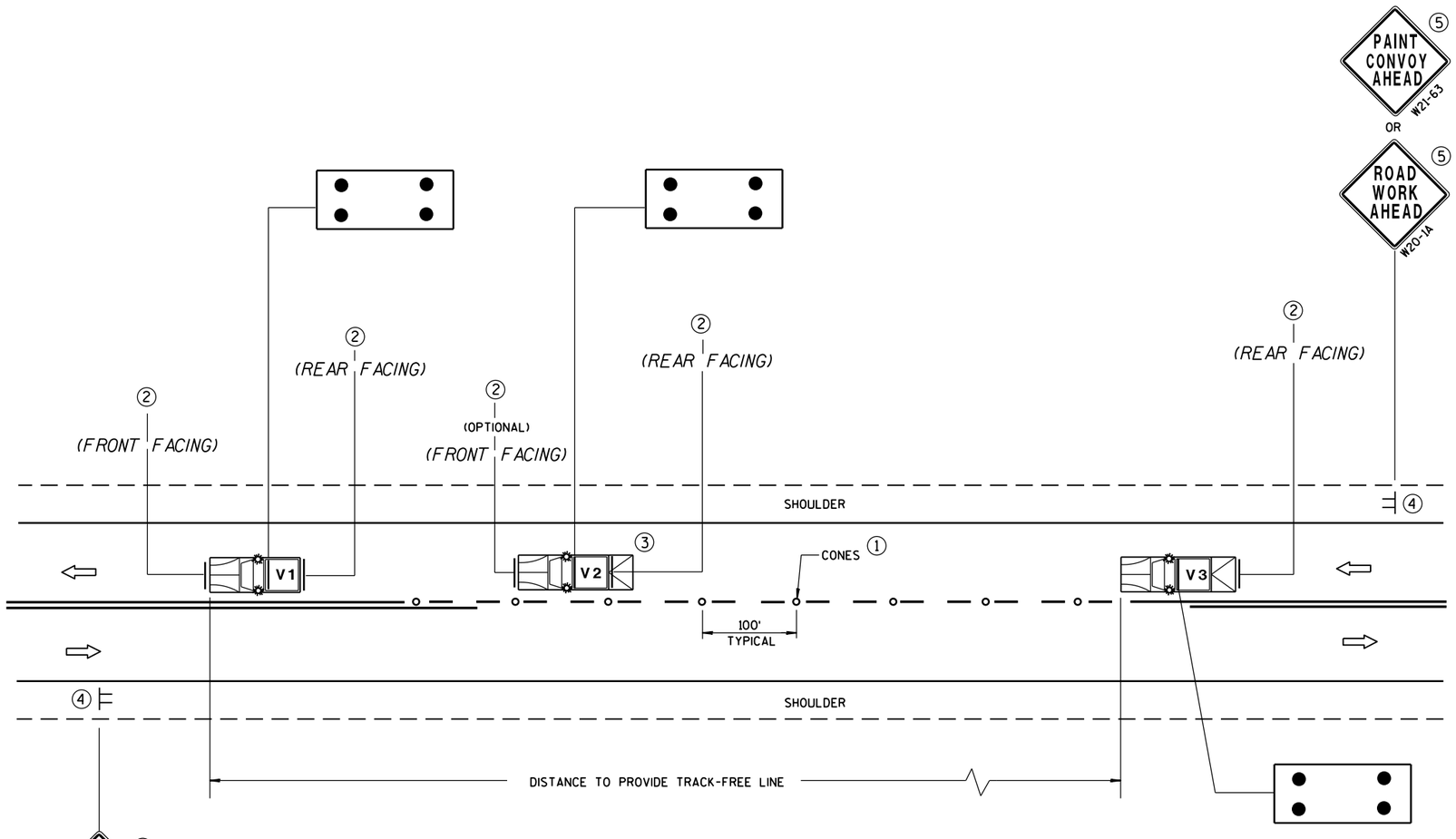
S.D.D. 15 C 12-4



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
o	CONES
⁘	FLASHING ARROW PANEL (CAUTION)

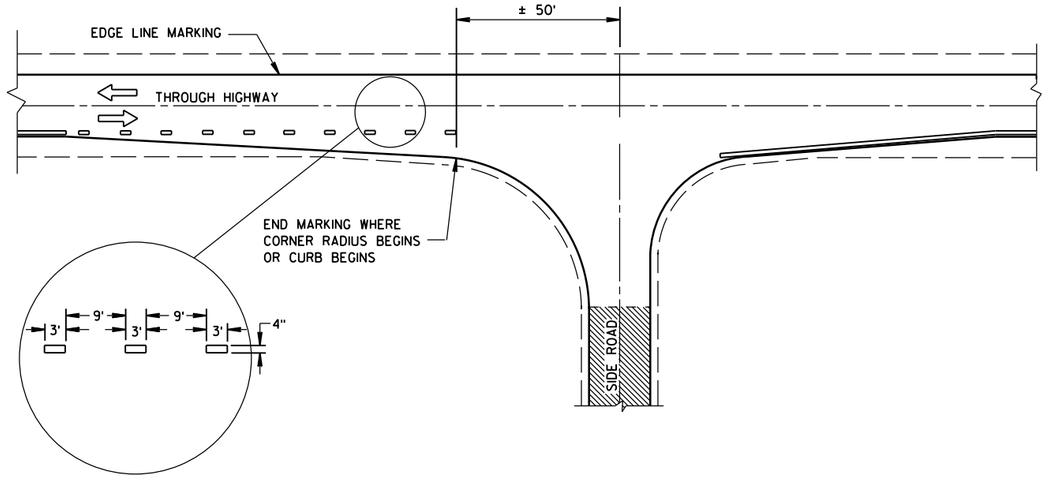
MOVING PAVEMENT MARKING OPERATION TWO-LANE TWO-WAY ROADWAY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION
APPROVED June 2016 — DATE /S/ Peter Amakobe Atepe — STATEWIDE WORK ZONE SAFETY ENGINEER FHWA

6

S.D.D. 15 C 19-4a

6

S.D.D. 15 C 19-4a



MINOR INTERSECTION WITHOUT CURBS

GENERAL NOTES

EDGE LINES SHALL BE OMITTED THROUGH INTERSECTIONS. EDGE LINES SHALL BE CONTINUED THROUGH DRIVEWAYS.

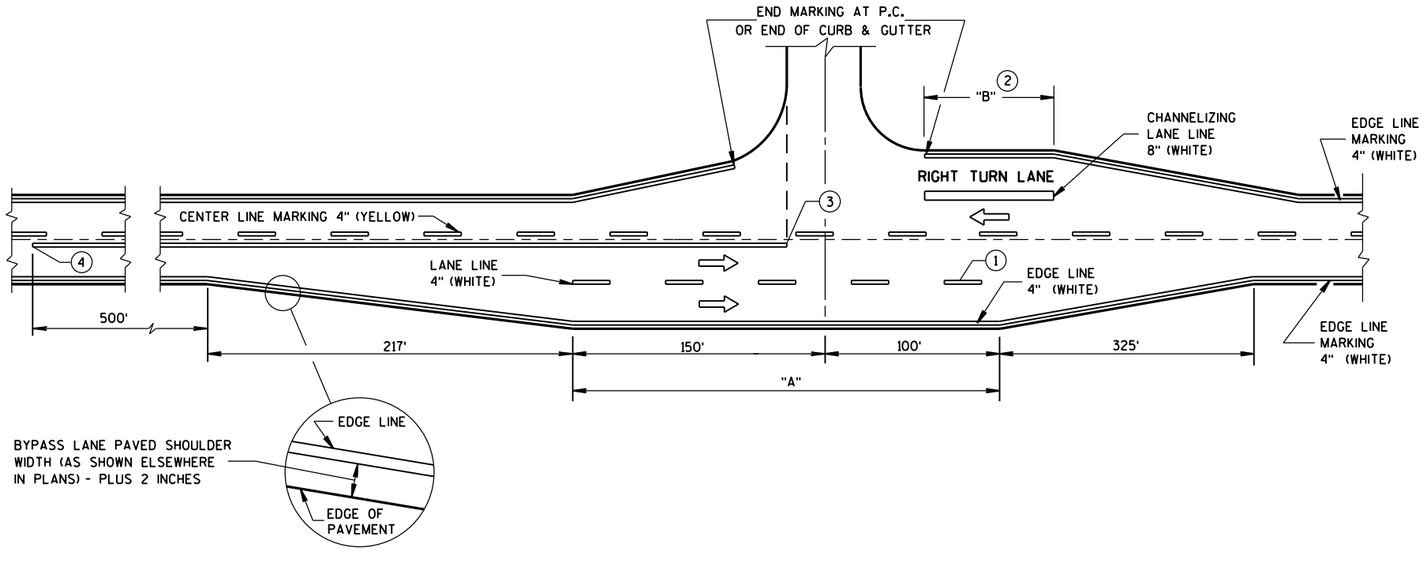
(1) WHEN DISTANCE "A" IS LESS THAN 250 FEET, OMIT LANE LINE.

(2) WHEN DISTANCE "B" IS LESS THAN 100 FEET, OMIT CHANNELIZING LANE LINE.

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

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

ARROW SYMBOL (⇨) SHOWS DIRECTION OF TRAVEL



MAJOR INTERSECTIONS

(INTERSECTION WITH FULL RIGHT TURN LANE OR BYPASS LANES)

PAVEMENT MARKING
(INTERSECTIONS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

6

S.D.D. 15 C 35-1a

Notes

Wisconsin Department of Transportation

Dedicated people creating transportation solutions
through innovation and exceptional service.

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