MAD

SEPTEMBER 2020

PROJECT ID: 5270-01-60

WITH:

COUNTY: COLUMBIA

ORDER OF SHEETS

TOTAL SHEETS = 54

02

N

DESIGN DESIGNATION 5270-01-30

A.A.D.T.	2021	=	4140
A.A.D.T.	2041	=	5150
D.H.V.		=	20.7
D.D.		=	60/40
T.		=	24.6%
DESIGN SPEED		=	55 MPH
ESALS		=	2,200,000

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 (300'EB')
- EXISTING CULVERT
- PROPOSED CULVERT (Box or Pipe)
- COMBUSTIBLE FLUIDS (CAUTION)
- MARSH AREA
- WOODED OR SHRUB AREA

PROFILE

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

UTILITIES

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

SAUK CITY - ARLINGTON

WISC R OVERFLOW BRIDGE TO RIDDLE ROAD

STH 60

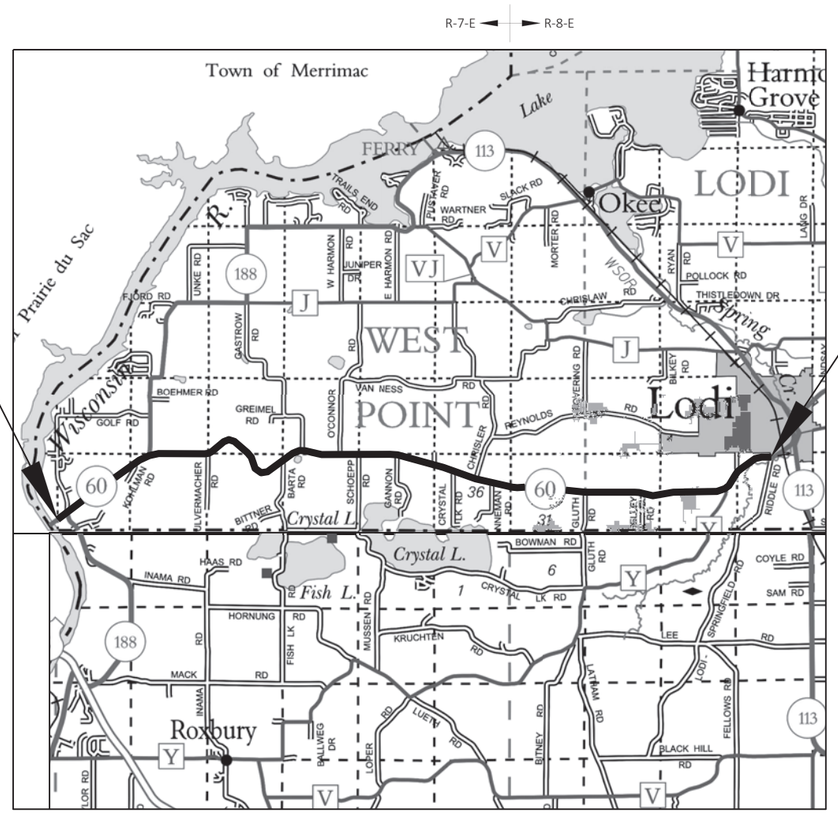
COLUMBIA COUNTY

STATE PROJECT NUMBER
5270-01-60

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
5270-01-60	WISC 2020411	1

BEGIN PROJECT
STA 62+93

END PROJECT
STA 607+30



LAYOUT

SCALE 0 2 MI

TOTAL NET LENGTH OF CENTERLINE = 10.316 MI

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY

Surveyor	SURVEYOR
Designer	LORRAINE BETZEL
Project Manager	CHRIS HAZARD
Regional Examiner	REGIONAL EXAMINER
Regional Supervisor	KURT JOHNSON

APPROVED FOR THE DEPARTMENT

DATE: 4-9-2020 (Signature)

E

FILE NAME : C:\WISDOT\DESIGN\C3D\52700130\SHEETSPLAN\010101_TI.DWG PLOT DATE : 4/9/2020 1:20 PM PLOT BY : BETZEL, LORRAINE L PLOT NAME :

GENERAL NOTES:

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

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

HMA PAVEMENT WEIGHT CALCULATIONS ARE BASED ON 112 LB/SY/IN.

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, PASSING, OR PARKING LANE.

THE 2" TYPE 4 MT 58-28 S HMA PAVEMENT IS TO BE PLACED USING ONE 2" LIFT. APPLY TACK COAT BETWEEN LAYERS OF PAVEMENT AND TO MILLED SURFACES. THE APPLICATION RATE IS 0.07 GALLONS PER SQUARE YARD BETWEEN THE MILLED SURFACE, 0.05 GALLONS PER SQUARE YARD BETWEEN NEW HMA PAVEMENT LAYERS, OR AS DIRECTED BY THE ENGINEER.

HMA PAVEMENT IS TO BE PLACED ON THE SAME DAY OF MILLING TO MINIMIZE DAMAGE TO THE REMAINING PAVEMENT.

PAVING LIMITS AT INTERSECTIONS AND AT THE PROJECT BEGINNING AND END ARE TO BE DETERMINED IN THE FIELD BY THE ENGINEER.

SAWCUTS, AS SHOWN ON THE PLANS, ARE SUGGESTED LOCATIONS AND MAY BE ADJUSTED AT THE DISCRETION OF THE ENGINEER TO BETTER SUIT FIELD CONDITIONS.

THE LOCATION OF STOP LINES SHALL BE DETERMINED IN THE FIELD BY THE ENGINEER.

EXACT EROSION CONTROL DEVICE LOCATIONS WILL BE DETERMINED BY THE ENGINEER. EROSION CONTROL DEVICES SHALL BE PLACED IN SEQUENCE WITH CONSTRUCTION OPERATIONS AS DETERMINED BY THE ENGINEER.

HAND MILLING OPERATIONS MAY BE NECESSARY TO ENSURE THAT SURVEY MONUMENTS ARE NOT DISTURBED DURING MILLING OPERATIONS. PAYMENT IS INCLUDED AS PART OF REMOVING ASPHALTIC SURFACE MILLING.

UTILITY CONTACTS

ELECTRICITY - TRANSMISSION

ATC MANAGEMENT, INC.
MIKE OLSEN
801 O'KEEFE RD
P.O. BOX 6113
DE PERE, WI 54115-6113
PHONE: (920) 338-6582
EMAIL: molsen@atcllc.com

ELECTRICITY

ALLIANT ENERGY
MICHAEL BROLIN
4902 NORTH BILTMORE LN
MADISON, WI 53713
PHONE: (608) 458-4871
EMAIL: michaelbrolin@alliantenergy.com

COMMUNICATIONS

CHARTER COMMUNICATIONS
LUKAS LA CROSSE
2701 DANIELS ST.
MADISON, WI 53718
PHONE: (608) 709-1562
EMAIL: lukas.lacrosse@charter.com

WATER

CITY OF LODI
KENNAN BUHR
130 SOUTH MAIN ST.
LODI, WI 53555
PHONE: (608) 592-3246
EMAIL: kbuhr@cityoflodi.us

COMMUNICATIONS

FRONTIER COMMUNICATIONS OF WI LLC
RUSS RYAN
107 PLEASANTVIEW DR.
PLYMOUTH, WI 53073
PHONE: (920) 583-3275
EMAIL: russel.w.ryan@ftr.com

GAS/PETROLEUM

MADISON GAS AND ELECTRIC COMPANY
JANE ROSSING
P.O. BOX 1231
MADISON, WI 53701-1231
PHONE: (608) 252-7099
EMAIL: workplans@mge.com

COMMUNICATIONS

SPRINT COMMUNICATIONS CO LP
JASON JARVIS
7459 W 79TH ST.
BRIDGEVIEW, IL 60455
PHONE: (219) 433-4091
EMAIL: jason.m.jarvis@sprint.com

DNR CONTACT

ERIC HEGGELUND
3911 FISH HATCHERY RD
FITCHBURG, WI 53711
PHONE: (608) 275-3301
EMAIL: ERIC.HEGGELUND@WISCONSIN.GOV

WISDOT CONTACT

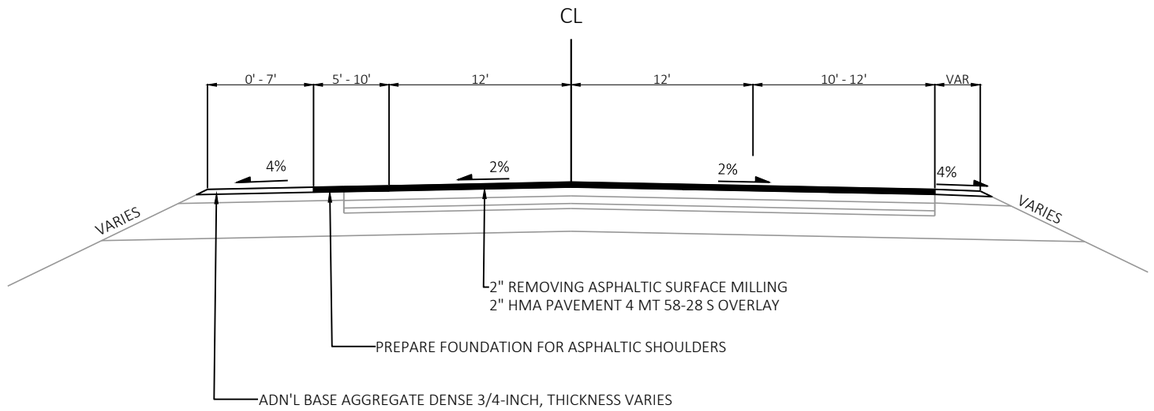
CHRIS HAZARD, PROJECT MANAGER
2101 WRIGHT STREET
MADISON, WI 53704
PHONE: (608) 245-2652
EMAIL: CHRISTOPHER.HAZARD@DOT.WI.GOV

DESIGN CONTACT

LORRAINE BETZEL, DESIGN ENGINEER
2101 WRIGHT STREET
MADISON, WI 53704
PHONE: (608) 246-3279
EMAIL: LORRAINE.BETZEL@DOT.WI.GOV

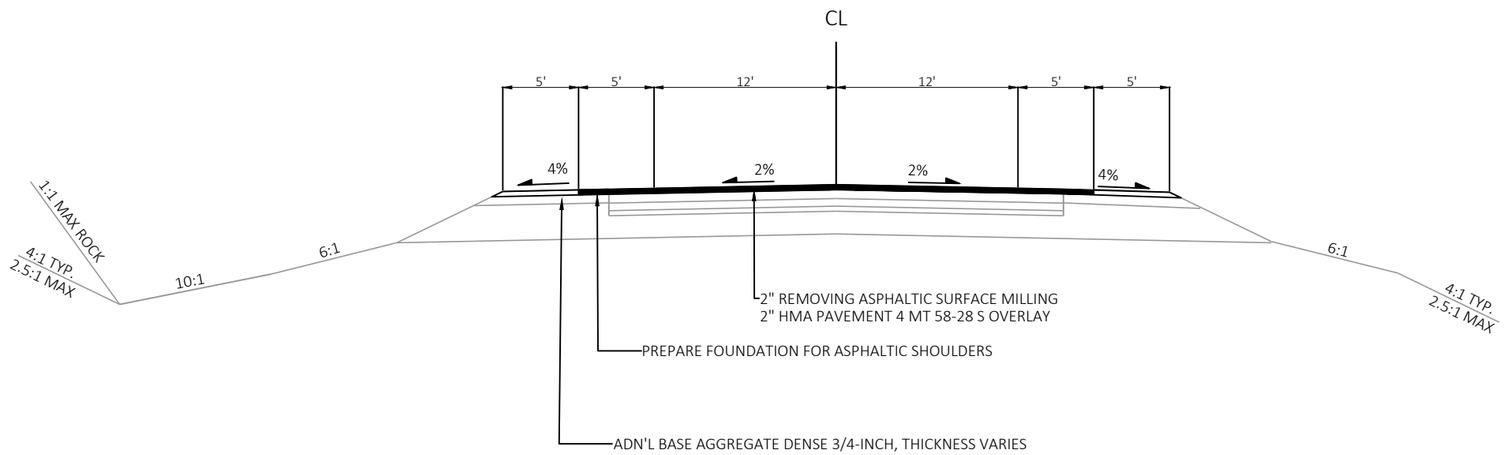
DIGGERS HOTLINE
Dial 811 or (800)242-8511
www.DiggersHotline.com

2



PROPOSED TYPICAL SECTION

STA. 62+93 - 71+30



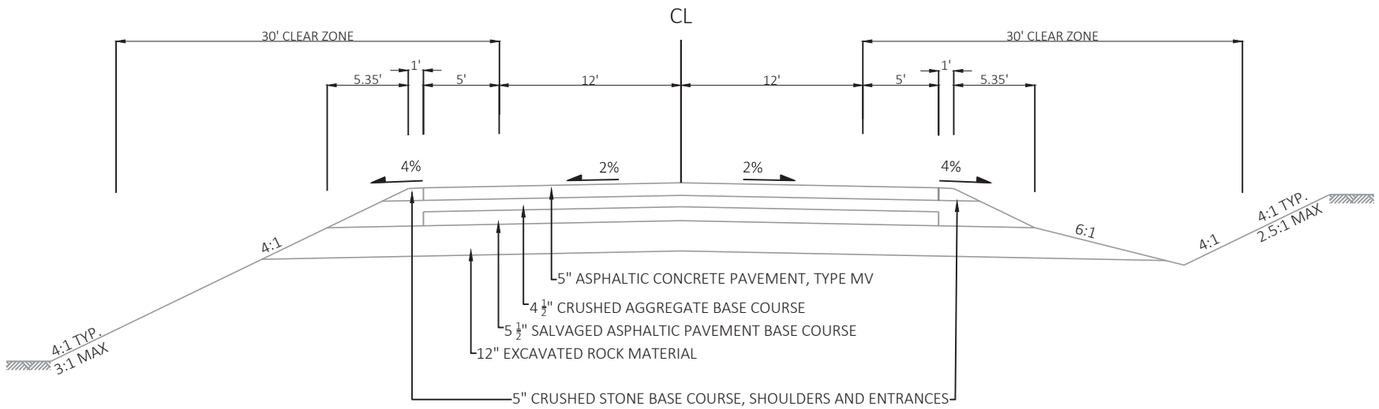
PROPOSED TYPICAL SECTION

STA. 71+30 - 140+85

PROJECT NO: 5270-01-60	HWY: STH 60	COUNTY: COLUMBIA	PLAN: PROPOSED TYPICAL SECTIONS	SHEET 3	E

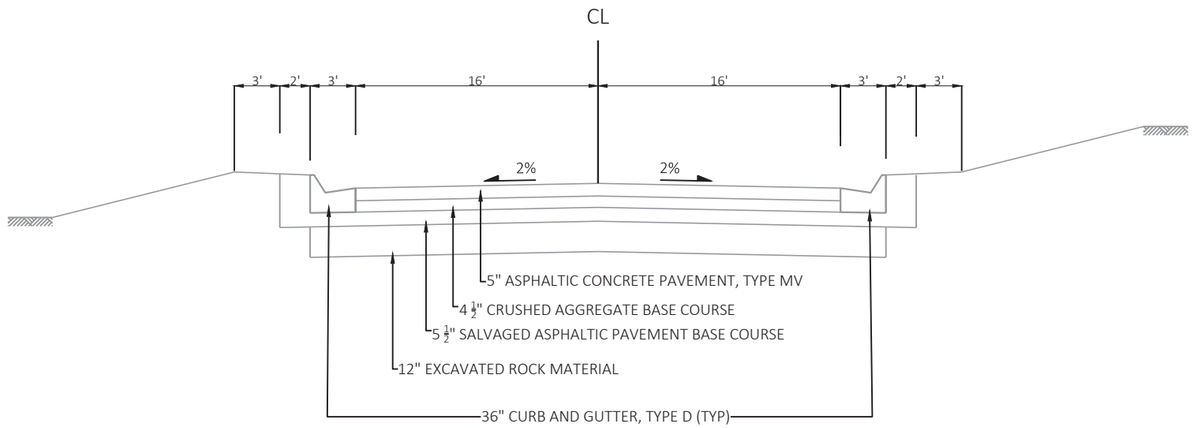
FILE NAME : C:\WISDOT\DESIGN\C3D\52700130\SHEETSPLAN\020301_TS.DWG
LAYOUT NAME - 020304_ts
PLOT DATE : 6/2/2020 12:35 PM
PLOT BY : BETZEL, LORRAINE L
PLOT NAME :
PLOT SCALE : 1 IN:10 FT
WISDOT/CADDS SHEET 42

2



EXISTING TYPICAL SECTION

STA. 141+60 - 213+00
STA. 218+00 - 278+00
STA. 281+00 - 329+00
STA. 332+00 - 390+00
STA. 393+00 - 417+00
STA. 424+00 - 509+00
STA. 527+00 - 597+00



EXISTING TYPICAL SECTION

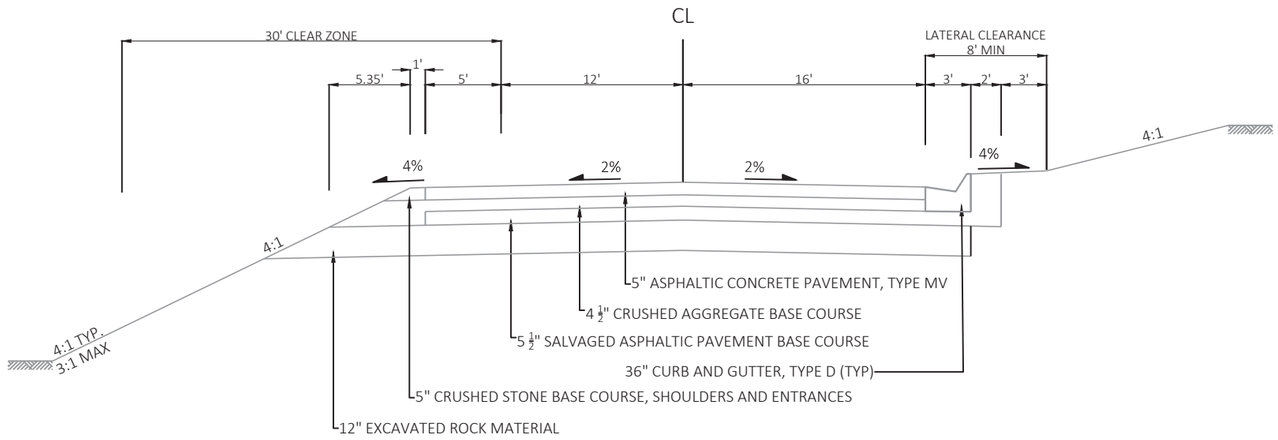
STA. 597+00 - 607+30

PROJECT NO: 5270-01-60	HWY: STH 60	COUNTY: COLUMBIA	TYPICAL EXISTING SECTIONS	SHEET 4	E

FILE NAME : C:\WISDOT\DESIGN\C3D\52700130\SHEETSPLAN\020301_TS.DWG
LAYOUT NAME - 020302_ts

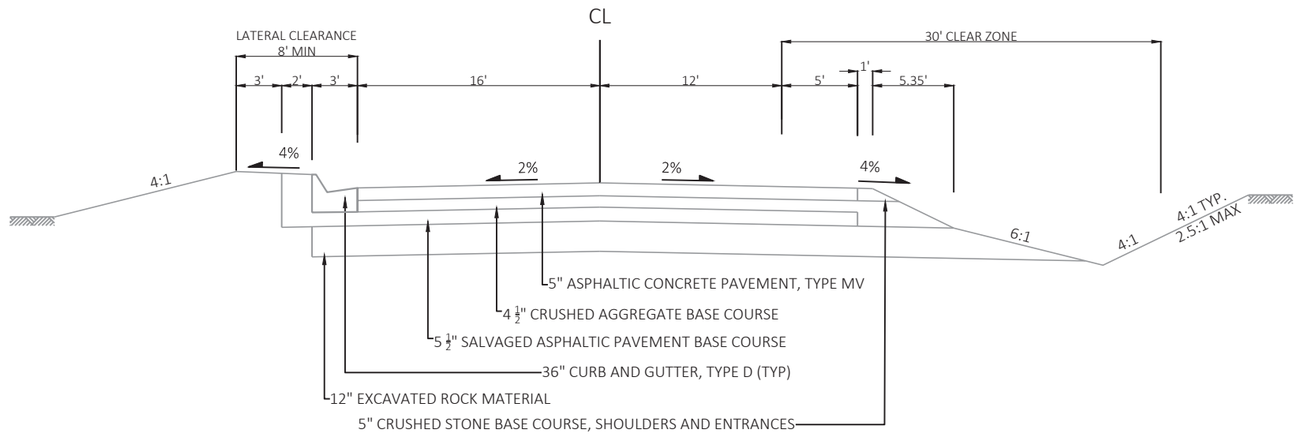
PLOT DATE : 4/9/2020 1:20 PM PLOT BY : BETZEL, LORRAINE L PLOT NAME : PLOT SCALE : 1 IN:10 FT

2



EXISTING TYPICAL SECTION

STA. 213+00 - 218+00

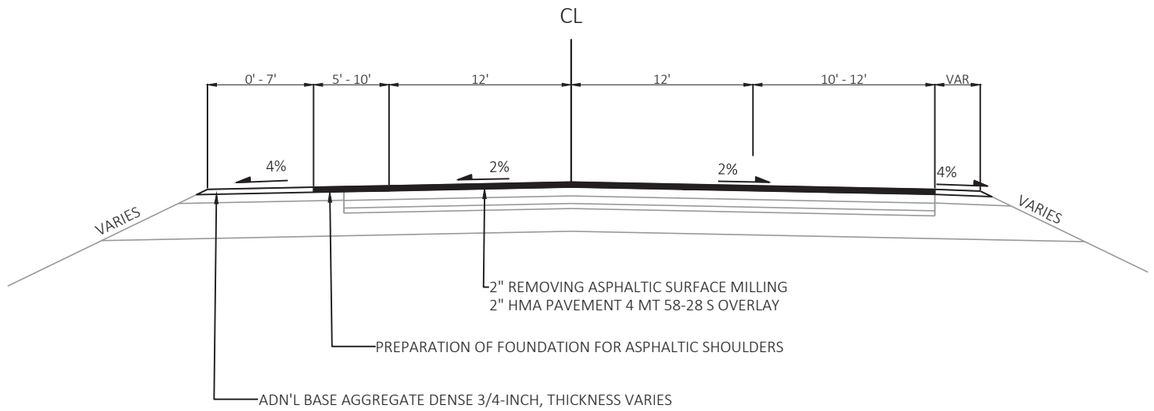


EXISTING TYPICAL SECTION

STA. 278+00 - 281+00
STA. 329+00 - 332+00
STA. 390+00 - 393+00
STA. 415+00 - 424+00
STA. 509+00 - 527+00

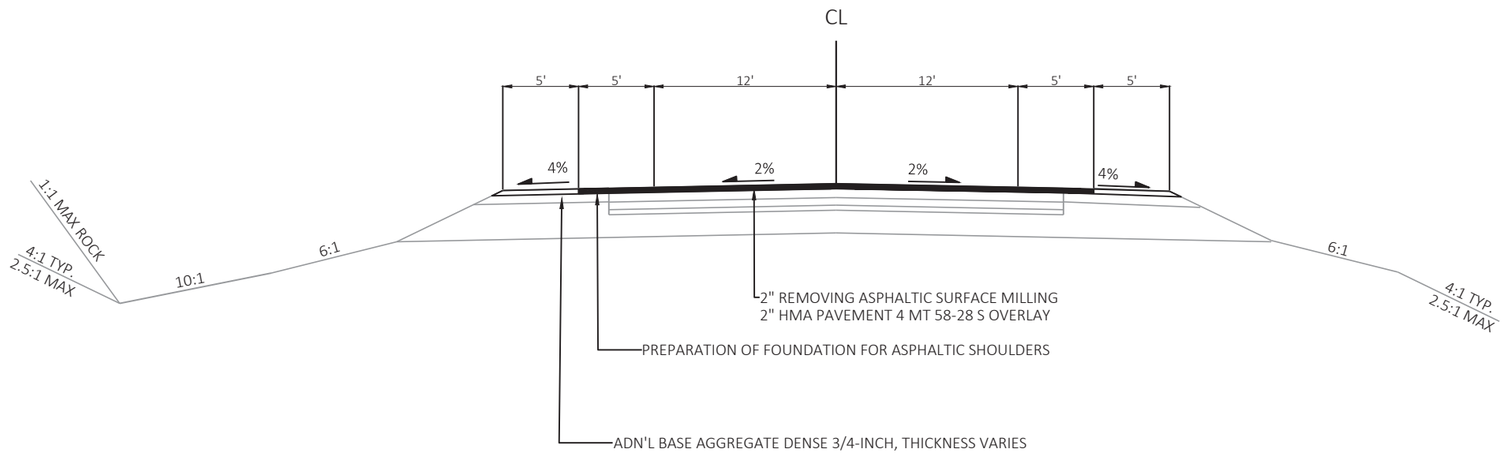
PROJECT NO: 5270-01-60	HWY: STH 60	COUNTY: COLUMBIA	TYPICAL EXISTING SECTIONS	SHEET 5	E

2



PROPOSED TYPICAL SECTION

STA. 62+93 - 71+30

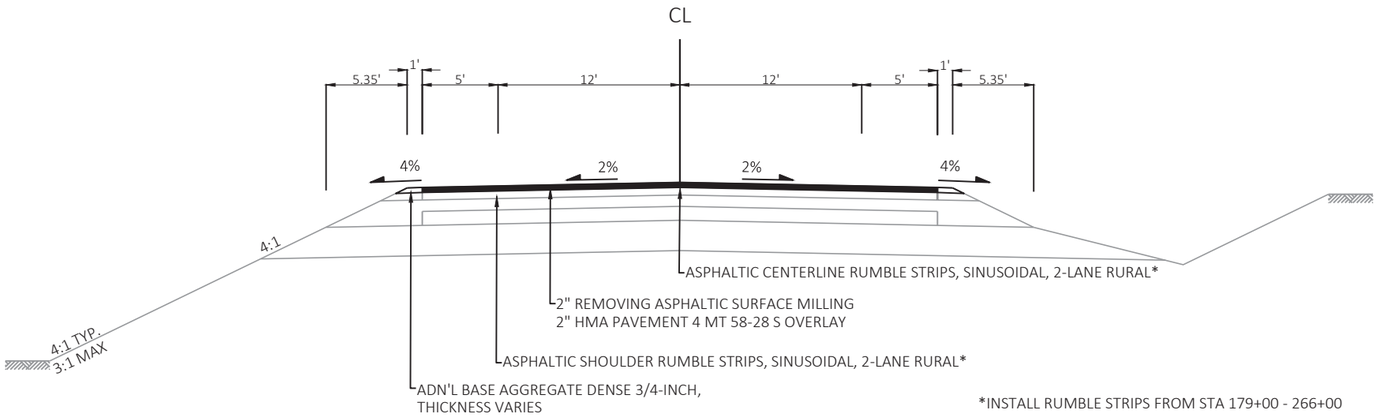


PROPOSED TYPICAL SECTION

STA. 71+30 - 140+85

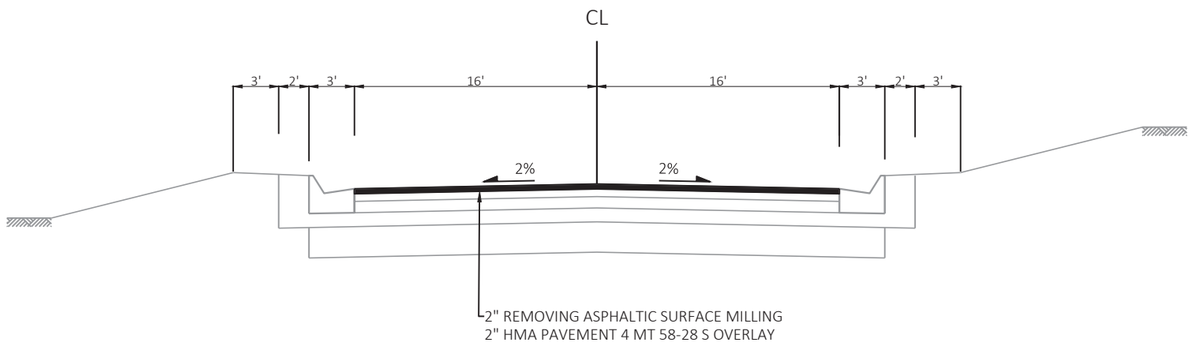
PROJECT NO: 5270-01-60	HWY: STH 60	COUNTY: COLUMBIA	PLAN: PROPOSED TYPICAL SECTIONS	SHEET 6	E

2



PROPOSED TYPICAL SECTION

STA. 140+85 - 213+00
STA. 218+00 - 278+00
STA. 281+00 - 329+00
STA. 332+00 - 390+00
STA. 393+00 - 417+00
STA. 424+00 - 509+00
STA. 527+00 - 597+00



PROPOSED TYPICAL SECTION

STA. 597+00 - 607+30

PROJECT NO: 5270-01-60	HWY: STH 60	COUNTY: COLUMBIA	PLAN: TYPICAL PROPOSED SECTIONS	SHEET 7	E

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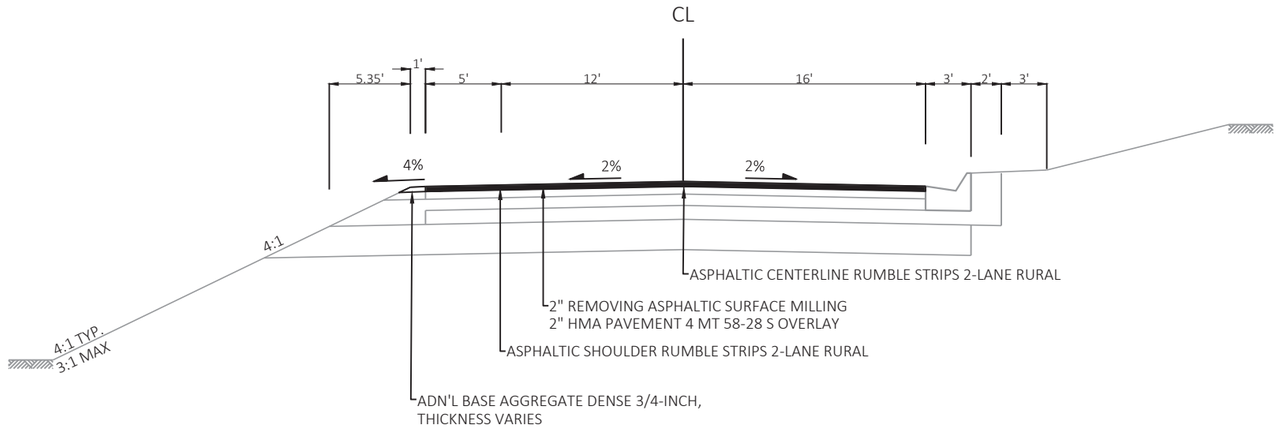
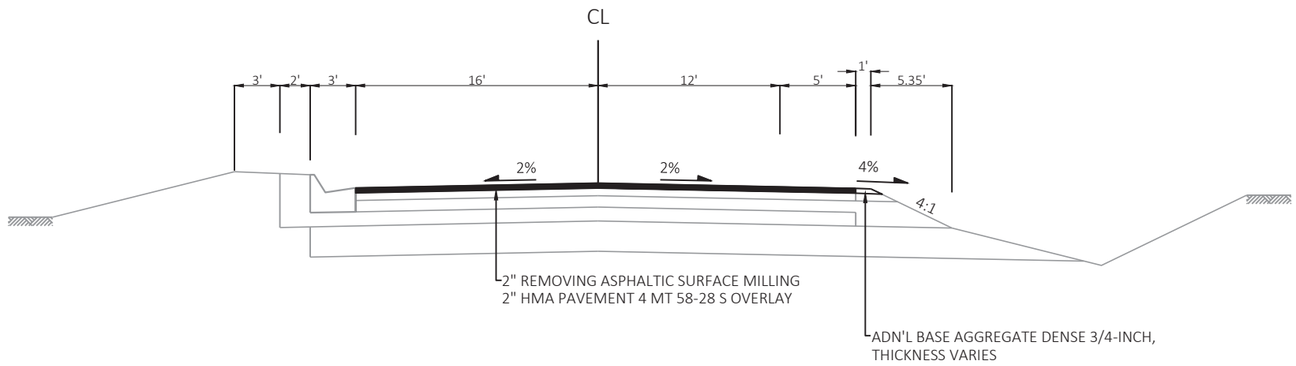
LAYOUT NAME - 020305_ts
PLOT DATE : 4/9/2020 1:20 PM
PLOT BY : BETZEL, LORRAINE L
PLOT NAME :
PLOT SCALE : 1 IN:10 FT
WISDOT/CADDS SHEET 42

2



PROPOSED TYPICAL SECTION

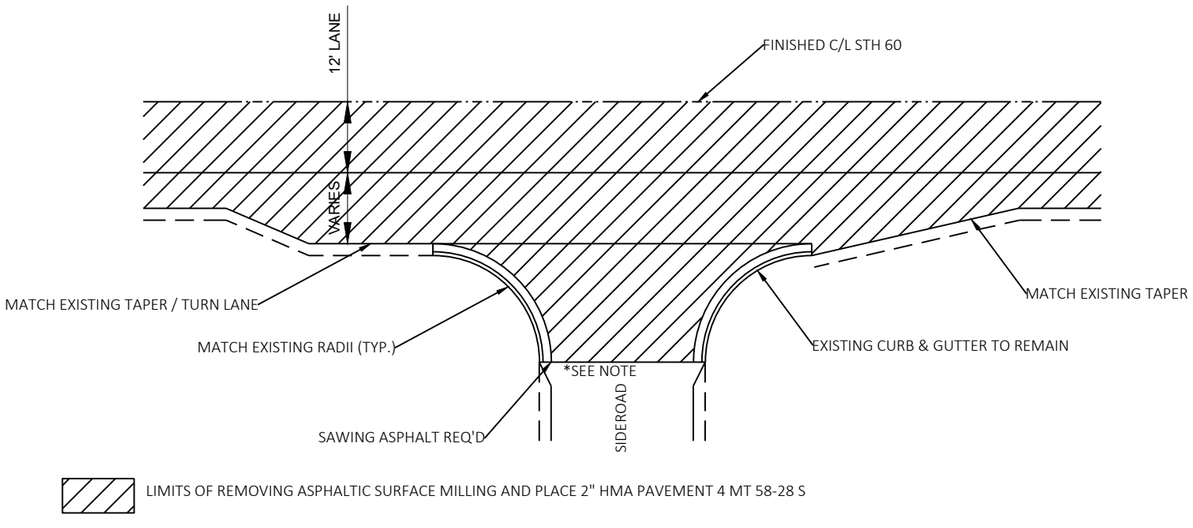
STA. 213+00 - 218+00



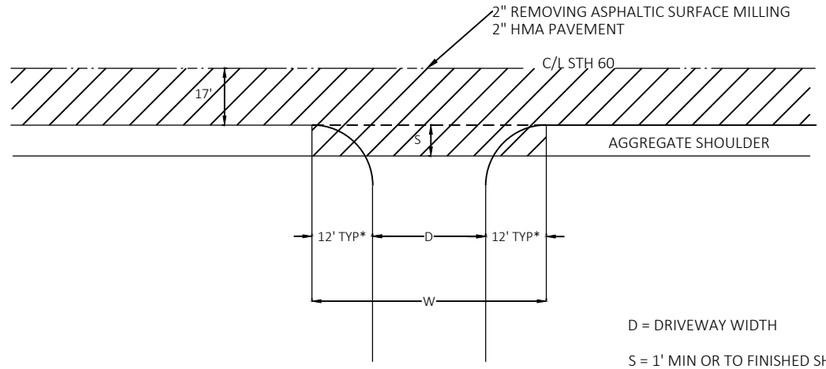
PROPOSED TYPICAL SECTION

STA. 278+00 - 281+00
STA. 329+00 - 332+00
STA. 390+00 - 393+00
STA. 415+00 - 424+00
STA. 509+00 - 527+00

PROJECT NO: 5270-01-60	HWY: STH 60	COUNTY: COLUMBIA	PLAN: TYPICAL PROPOSED SECTIONS	SHEET 8	E



TYPICAL SIDEROAD DETAIL WITH CURB & GUTTER



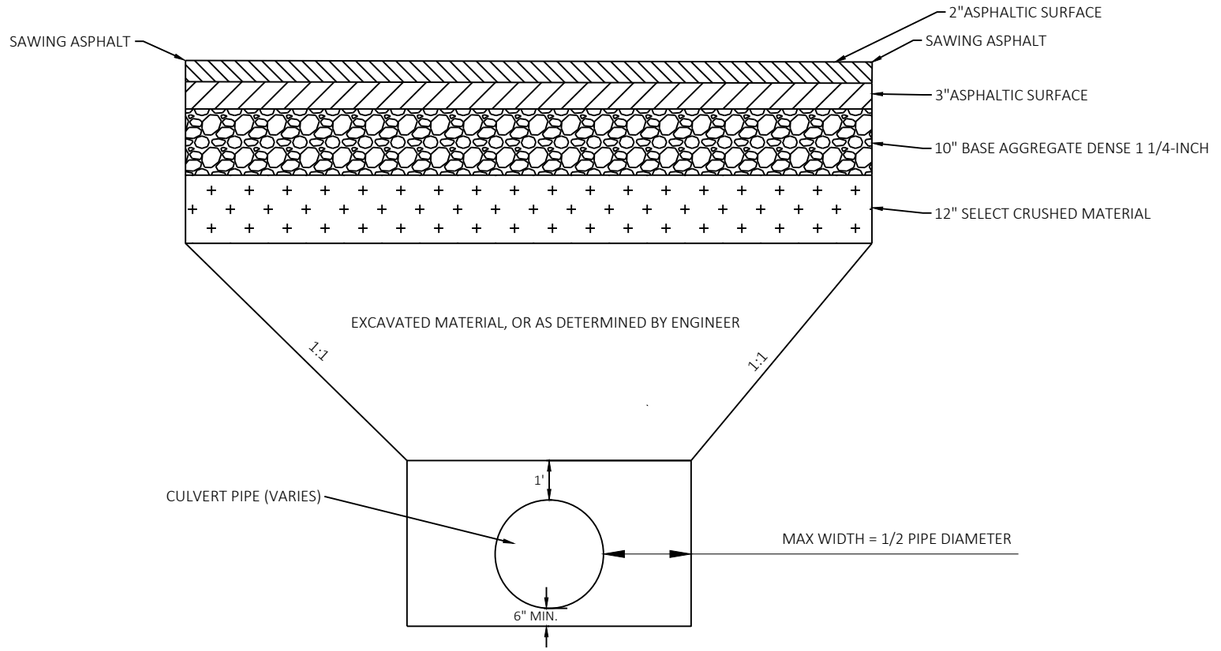
* WHERE DRIVEWAY IS PAVED, APPROACH PAVEMENT SHOULD BE EXTENDED TO MATCH DRIVEWAY PAVEMENT.

D = DRIVEWAY WIDTH

S = 1' MIN OR TO FINISHED SHOULDER WHICHEVER IS GREATER. MATCH POINT TO BE VERIFIED IN THE FIELD BY THE ENGINEER.

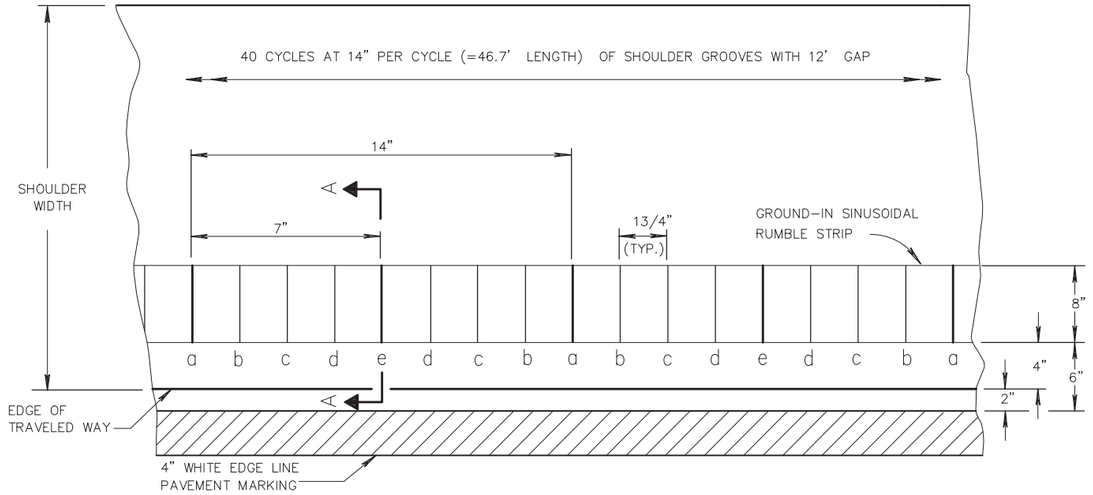
W = TOTAL WIDTH TO BE VERIFIED IN THE FIELD BY THE ENGINEER.

TYPICAL DRIVEWAY & FIELD ENTRANCE DETAIL



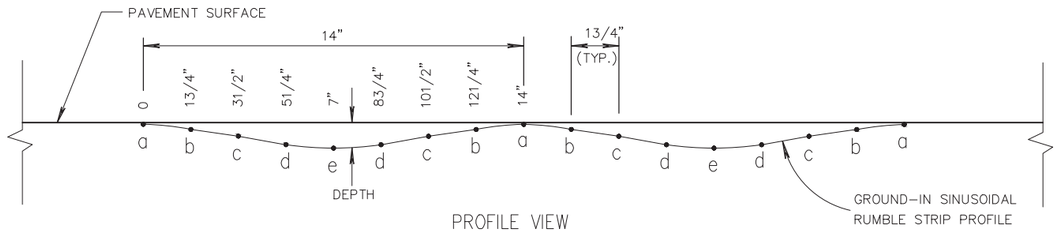
TEMPORARY TRENCH BACKFILL DETAIL

PROJECT NO: 5270-01-60	HWY: STH 60	COUNTY: COLUMBIA	CONSTRUCTION DETAILS	SHEET 9	E



PLAN VIEW

SHOULDER WITH GROOVE-IN SINUSOIDAL RUMBLE STRIP



PROFILE VIEW

GROOVE-IN SINUSOIDAL RUMBLE STRIP

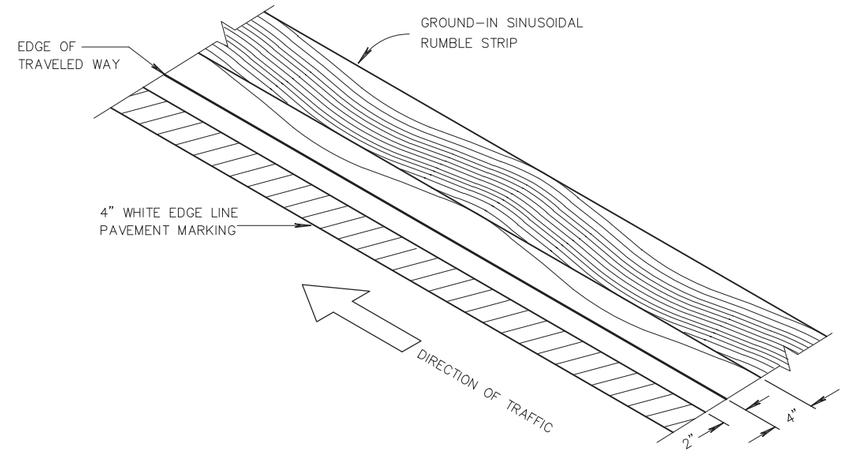
LOCATION	DEPTH INCHES
a	1/16"
b	5/32"
c	9/32"
d	7/16"
e	1/2"

GENERAL NOTES

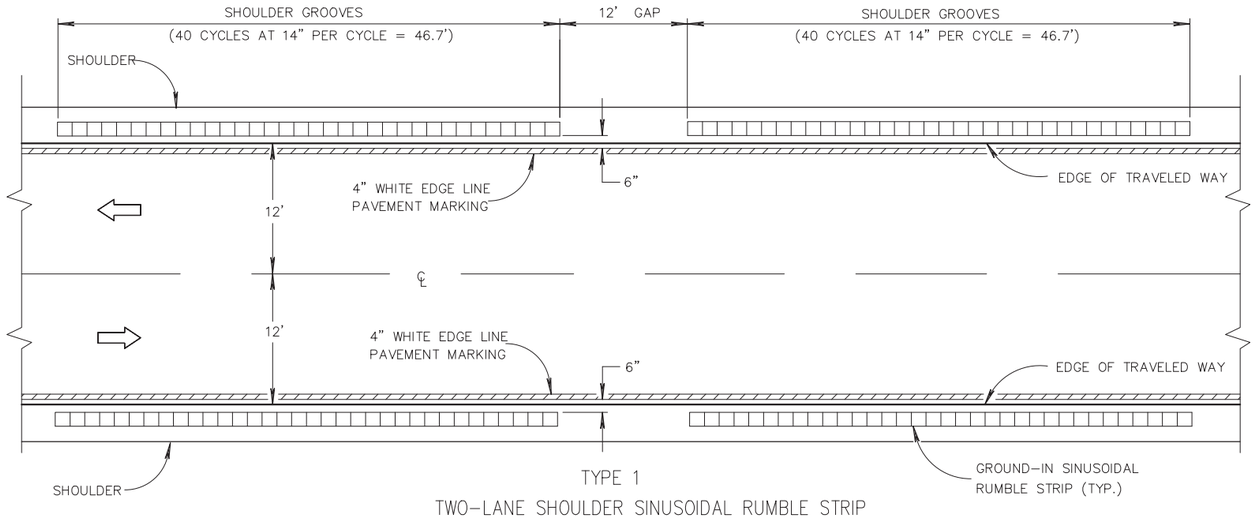
DETAILS OF CONSTRUCTION SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

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.

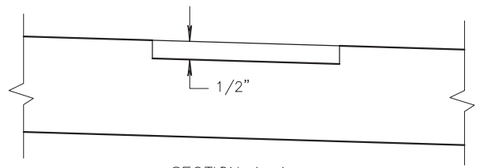


ISOMETRIC



TYPE 1

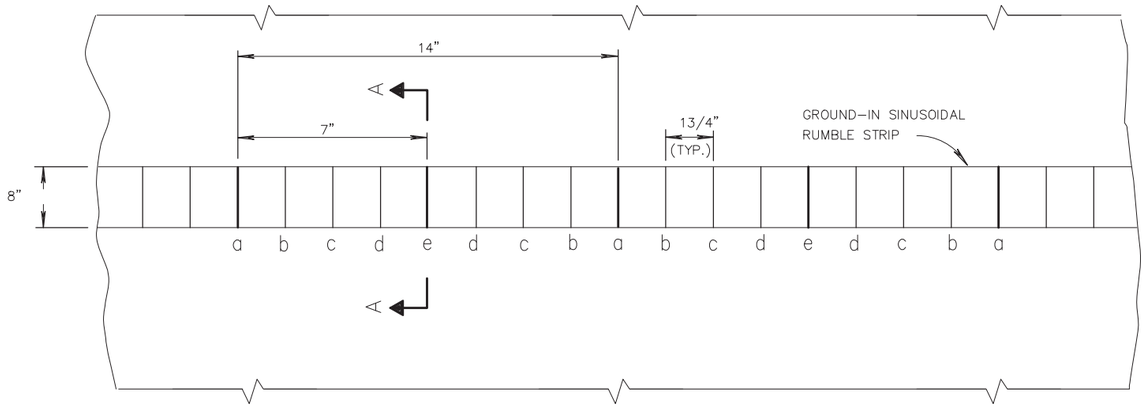
TWO-LANE SHOULDER SINUSOIDAL RUMBLE STRIP



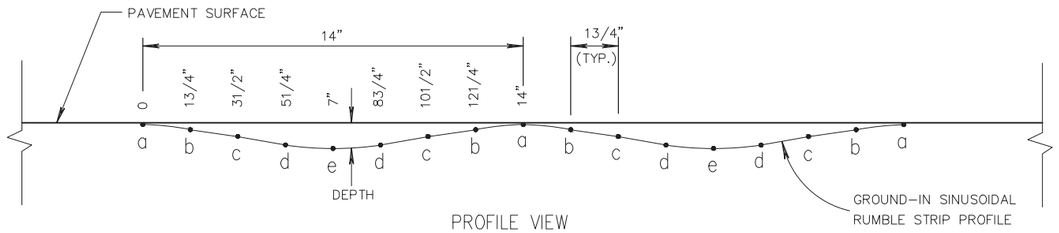
SECTION A-A

ASPHALTIC SHOULDER RUMBLE STRIPS, SINUSOIDAL, 2-LANE RURAL

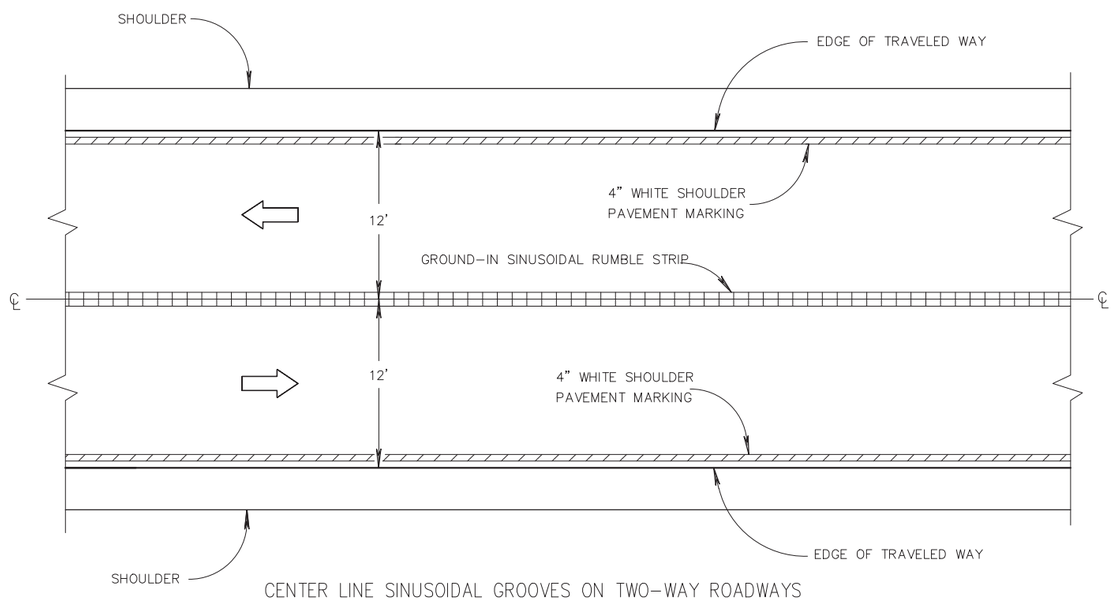
Revision Date: 11/15/2017



PLAN VIEW
CENTER LINE WITH GROUND–IN SINUSOIDAL RUMBLE STRIP



PROFILE VIEW
GROUND–IN SINUSOIDAL RUMBLE STRIP



CENTER LINE SINUSOIDAL GROOVES ON TWO–WAY ROADWAYS

LOCATION	DEPTH INCHES
a	1/16"
b	5/32"
c	9/32"
d	7/16"
e	1/2"

GENERAL NOTES

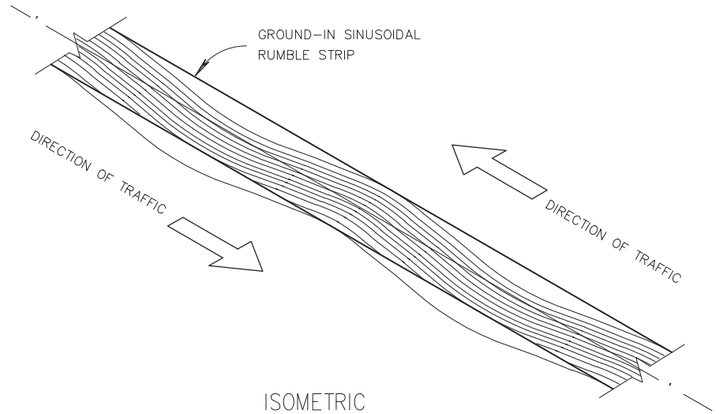
DETAILS OF CONSTRUCTION SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

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

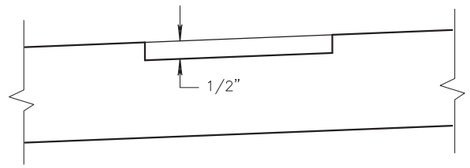
INSTALL TEMPORARY PAVEMENT MARKINGS BEFORE THE GROOVES ARE INSTALLED AND PERMANENT PAVEMENT MARKINGS AFTER THE GROOVES ARE INSTALLED.

SEE SIGNING PLAN FOR SIGN REQUIREMENTS THAT MAY BE NEEDED.

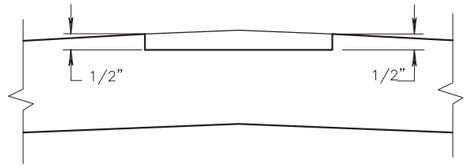
(1) CENTERLINE GROOVES MAY BE OMITTED IN AREAS WITH HIGH CONCENTRATIONS OF DRIVEWAYS, WHEN DIRECTED BY THE ENGINEER.



ISOMETRIC



SECTION A–A
SUPERELEVATED ROADWAY



SECTION A–A
CROWNED ROADWAY

ASPHALTIC CENTERLINE RUMBLE STRIPS, SINUSOIDAL, 2–LANE RURAL

2

2

SAWING ASPHALT REQUIRED
BUTT JOINT REQUIRED

GOLF RD

N

STH 60

65+00 70+00 75+00 80+00

MB

SAWING ASPHALT REQUIRED
BUTT JOINT REQUIRED

STH 188

BEGIN CONSTRUCTION
STA 62+93
MATCH EXISTING
SAWING ASPHALT REQUIRED
BUTT JOINT REQUIRED

TRAFFIC CONTROL DRUMS

PORTABLE CHANGEABLE MESSAGE SIGN

PCMS MESSAGE	PHASE 1	PHASE 2
7 DAYS PRIOR TO CONSTRUCTION	ROAD WORK BEGINS	(DATE)

FOR TRAFFIC CONTROL DURING MILL & OVERLAY AND PIPE REPLACEMENT, SEE SDD 15 C 4-5 "TRAFFIC CONTROL, ADVANCE WARNING SIGNS 45 M.P.H. OR GREATER, TWO-WAY UNDIVIDED ROAD" AND SDD 15 C 12-7 "TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATION"

FOR TEMPORARY AND PERMANENT PAVEMENT MARKING, SEE SDD 15 C 8-20A "LONGITUDINAL MARKING (MAINLINE)", SDD 15 C 8-20C "PAVEMENT MARKING (TURN LANES)", SDD 15 C 33 "STOP LINE AND CROSSWALK PAVEMENT MARKING", SDD 15 C 35 "PAVEMENT MARKING, INTERSECTIONS" AND SDD 15 C 19-6 "MOVING PAVEMENT MARKING OPERATION TWO-LANE ROADWAY"

N

85+00 90+00 95+00 N54° 05' 11"E 100+00 105+00 110+00

STH 60

6739.21'

PROJECT NO: 5270-01-60	HWY: STH 60	COUNTY: COLUMBIA	PLAN DETAILS	SHEET 12	E

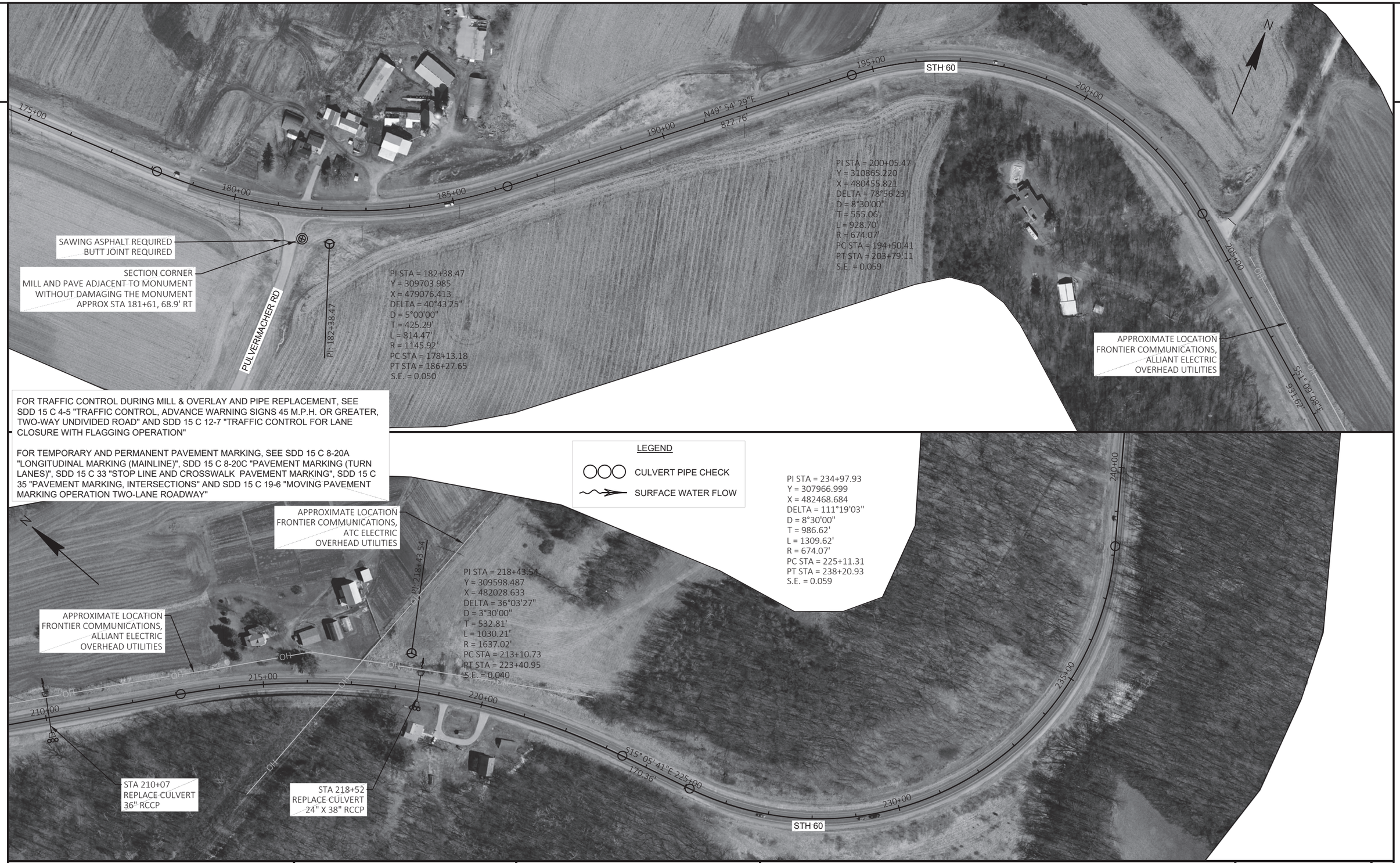
2

FOR TRAFFIC CONTROL DURING MILL & OVERLAY AND PIPE REPLACEMENT, SEE SDD 15 C 4-5 "TRAFFIC CONTROL, ADVANCE WARNING SIGNS 45 M.P.H. OR GREATER, TWO-WAY UNDIVIDED ROAD" AND SDD 15 C 12-7 "TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATION"

FOR TEMPORARY AND PERMANENT PAVEMENT MARKING, SEE SDD 15 C 8-20A "LONGITUDINAL MARKING (MAINLINE)", SDD 15 C 8-20C "PAVEMENT MARKING (TURN LANES)", SDD 15 C 33 "STOP LINE AND CROSSWALK PAVEMENT MARKING", SDD 15 C 35 "PAVEMENT MARKING, INTERSECTIONS" AND SDD 15 C 19-6 "MOVING PAVEMENT MARKING OPERATION TWO-LANE ROADWAY"

PROJECT NO: 5270-01-60	HWY: STH 60	COUNTY: COLUMBIA	PLAN DETAILS	SHEET 13	E

2



PROJECT NO: 5270-01-60	HWY: STH 60	COUNTY: COLUMBIA	PLAN DETAILS	SHEET 14	E

2

PI STA = 262+97.10
Y = 310022.486
X = 485255.422
DELTA = 49°32'26"
D = 5°15'00"
T = 503.59'
L = 943.63'
R = 1091.35'
PC STA = 257+93.51
PT STA = 267+37.14
S.E. = 0.050

245+00
N53° 35' 16"E
1972.58'
250+00
STH 60
255+00
260+00
PI 262+97.10
265+00
N
SAWING ASPHALT REQUIRED
BUTT JOINT REQUIRED
SAWING ASPHALT REQUIRED
BUTT JOINT REQUIRED
BARTA RD
GASTROW RD
ENVIRONMENTALLY SENSITIVE AREA

FOR TRAFFIC CONTROL DURING MILL & OVERLAY AND PIPE REPLACEMENT, SEE SDD 15 C 4-5 "TRAFFIC CONTROL, ADVANCE WARNING SIGNS 45 M.P.H. OR GREATER, TWO-WAY UNDIVIDED ROAD" AND SDD 15 C 12-7 "TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATION"

FOR TEMPORARY AND PERMANENT PAVEMENT MARKING, SEE SDD 15 C 8-20A "LONGITUDINAL MARKING (MAINLINE)", SDD 15 C 8-20C "PAVEMENT MARKING (TURN LANES)", SDD 15 C 33 "STOP LINE AND CROSSWALK PAVEMENT MARKING", SDD 15 C 35 "PAVEMENT MARKING, INTERSECTIONS" AND SDD 15 C 19-6 "MOVING PAVEMENT MARKING OPERATION TWO-LANE ROADWAY"

QUARTER SECTION CORNER
MILL AND PAVE ADJACENT TO MONUMENT
WITHOUT DAMAGING THE MONUMENT
APPROX STA 278+81, 18.4' LT

270+00
S76° 52' 18"E
852.14'
275+00
280+00
STH 60
285+00
290+00
N89° 30' 17"E
2521.39'
295+00
300+00
OCONNOR RD
SAWING ASPHALT REQUIRED
BUTT JOINT REQUIRED
PI 278+17.42

PI STA = 278+17.42
Y = 309662.741
X = 486797.893
DELTA = 13°37'25"
D = 3°00'00"
T = 228.13'
L = 454.12'
R = 1909.86'
PC STA = 275+89.29
PT STA = 280+43.40
S.E. = 0.055

PROJECT NO: 5270-01-60	HWY: STH 60	COUNTY: COLUMBIA	PLAN DETAILS	SHEET 15	E

2

SECTION CORNER
MILL AND PAVE ADJACENT TO MONUMENT
WITHOUT DAMAGING THE MONUMENT
APPROX STA 305+53, 2' LT

APPROXIMATE LOCATION
MG&E
UNDERGROUND GAS

N

PI: 305+64.79

305+00 310+00 315+00 S89° 23' 01"E 2029.13' STH 60 320+00 325+00 330+00

QUARTER SECTION CORNER
MILL AND PAVE ADJACENT TO MONUMENT
WITHOUT DAMAGING THE MONUMENT
APPROX STA 331+55, 50.5' LT

PI: 331+99.36

SAWING ASPHALT REQUIRED
BUTT JOINT REQUIRED

PI STA = 331+99.36
Y = 309658.161
X = 492181.733
DELTA = 15°02'56"
D = 1°15'00"
T = 605.44'
L = 1203.92'
R = 4583.66'
PC STA = 325+93.92
PT STA = 337+97.84
S.E. = 0.027

SAWING ASPHALT REQUIRED
BUTT JOINT REQUIRED

SCHOEPP RD

GANNON RD

STA 306+90
REPLACE CULVERTS
2- 30" RCCP

APPROXIMATE LOCATION
FRONTIER COMMUNICATIONS,
ALLIANT ENERGY
OVERHEAD UTILITIES

LEGEND

CULVERT PIPE CHECK

SURFACE WATER FLOW

FOR TRAFFIC CONTROL DURING MILL & OVERLAY AND PIPE REPLACEMENT, SEE SDD 15 C 4-5 "TRAFFIC CONTROL, ADVANCE WARNING SIGNS 45 M.P.H. OR GREATER, TWO-WAY UNDIVIDED ROAD" AND SDD 15 C 12-7 "TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATION"

FOR TEMPORARY AND PERMANENT PAVEMENT MARKING, SEE SDD 15 C 8-20A "LONGITUDINAL MARKING (MAINLINE)", SDD 15 C 8-20C "PAVEMENT MARKING (TURN LANES)", SDD 15 C 33 "STOP LINE AND CROSSWALK PAVEMENT MARKING", SDD 15 C 35 "PAVEMENT MARKING, INTERSECTIONS" AND SDD 15 C 19-6 "MOVING PAVEMENT MARKING OPERATION TWO-LANE ROADWAY"

N

DETTMAN RD

PI: 363+82.81

APPROXIMATE LOCATION
MG&E
UNDERGROUND GAS

SAWING ASPHALT REQUIRED
BUTT JOINT REQUIRED

335+00 340+00 345+00 S74° 20' 05"E 2211.32' STH 60 350+00 355+00 360+00

STA 333+63
REPLACE CULVERT
24" RCCP

APPROXIMATE LOCATION
FRONTIER COMMUNICATIONS,
ALLIANT ENERGY
OVERHEAD UTILITIES

PROJECT NO: 5270-01-60	HWY: STH 60	COUNTY: COLUMBIA	PLAN DETAILS	SHEET 16	E

FILE NAME : C:\WISDOT\DESIGN\C3D\52700130\SHEETSPLAN\021201_PD.DWG
LAYOUT NAME - 021201_pd - (05)

PLOT DATE : 4/9/2020 1:21 PM PLOT BY : BETZEL, LORRAINE L PLOT NAME : PLOT SCALE : 1 IN:200 FT

WISDOT/CADDS SHEET 44

2

2

FOR TRAFFIC CONTROL DURING MILL & OVERLAY AND PIPE REPLACEMENT, SEE SDD 15 C 4-5 "TRAFFIC CONTROL, ADVANCE WARNING SIGNS 45 M.P.H. OR GREATER, TWO-WAY UNDIVIDED ROAD" AND SDD 15 C 12-7 "TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATION"

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PROJECT NO: 5270-01-60	HWY: STH 60	COUNTY: COLUMBIA	PLAN DETAILS	SHEET 17	E

2

PI STA = 430+11.97
Y = 307519.335
X = 501661.290
DELTA = 19°31'20"
D = 3°30'00"
T = 281.62'
L = 557.78'
R = 1637.02'
PC STA = 427+30.35
PT STA = 432+88.13
S.E. = 0.055

PI STA = 430+11.97

430+00 435+00 440+00 445+00 450+00 455+00

STH 60

S81° 43' 18"E
2549.06'

N

FOR TRAFFIC CONTROL DURING MILL & OVERLAY AND PIPE REPLACEMENT, SEE SDD 15 C 4-5 "TRAFFIC CONTROL, ADVANCE WARNING SIGNS 45 M.P.H. OR GREATER, TWO-WAY UNDIVIDED ROAD" AND SDD 15 C 12-7 "TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATION"

FOR TEMPORARY AND PERMANENT PAVEMENT MARKING, SEE SDD 15 C 8-20A "LONGITUDINAL MARKING (MAINLINE)", SDD 15 C 8-20C "PAVEMENT MARKING (TURN LANES)", SDD 15 C 33 "STOP LINE AND CROSSWALK PAVEMENT MARKING", SDD 15 C 35 "PAVEMENT MARKING, INTERSECTIONS" AND SDD 15 C 19-6 "MOVING PAVEMENT MARKING OPERATION TWO-LANE ROADWAY"

QUARTER SECTION CORNER
MILL AND PAVE ADJACENT TO MONUMENT
WITHOUT DAMAGING THE MONUMENT
APPROX STA 466+53, 8.5' RT

460+00 465+00 470+00 475+00 480+00 485+00 490+00

STH 60

S89° 58' 38"E
1797.82'

N

PI STA = 463+88.51
Y = 307032.383
X = 505008.051
DELTA = 8°15'20"
D = 0°45'00"
T = 551.32'
L = 1100.74'
R = 7639.44'
PC STA = 458+37.18
PT STA = 469+37.92
S.E. = 0.021

PI STA = 463+88.51

SAWING ASPHALT REQUIRED
BUTT JOINT REQUIRED

GLUTH RD

2

PROJECT NO: 5270-01-60	HWY: STH 60	COUNTY: COLUMBIA	PLAN DETAILS	SHEET 18	E

2

QUARTER SECTION CORNER
MILL AND PAVE ADJACENT TO MONUMENT
WITHOUT DAMAGING THE MONUMENT
APPROX STA 492+97, 0.1' LT

N

PI STA = 502+95.93

S89° 38' 17"E
1286.40'

495+00

500+00

STH 60

505+00

S76° 00' 47"E
420.86'

510+00

515+00

520+00

N78° 34' 29"E
417.64'

PI STA = 502+95.93
Y = 307021.587
X = 508917.353
DELTA = 13°37'30"
D = 2°30'00"
T = 273.79'
L = 545.00'
R = 2291.83'
PC STA = 500+22.14
PT STA = 505+67.14
S.E. = 0.051

SAWING ASPHALT REQUIRED
BUTT JOINT REQUIRED

KELLEY RD

PI STA = 514+18.62
Y = 306749.609
X = 510009.261
DELTA = 25°24'44"
D = 3°00'00"
T = 430.62'
L = 847.08'
R = 1909.86'
PC STA = 509+88.00
PT STA = 518+35.08
S.E. = 0.055

PI STA = 514+18.62

FOR TRAFFIC CONTROL DURING MILL & OVERLAY AND PIPE REPLACEMENT, SEE SDD 15 C 4-5 "TRAFFIC CONTROL, ADVANCE WARNING SIGNS 45 M.P.H. OR GREATER, TWO-WAY UNDIVIDED ROAD" AND SDD 15 C 12-7 "TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATION"

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N

QUARTER SECTION CORNER
MILL AND PAVE ADJACENT TO MONUMENT
WITHOUT DAMAGING THE MONUMENT
APPROX STA 546+34, 0.3' RT

PI STA = 527+58.64

"E

525+00

530+00

535+00

540+00

N88° 40' 00"E
2488.61'

545+00

550+00

STH 60

PI STA = 527+58.64
Y = 307017.860
X = 511336.606
DELTA = 10°05'32"
D = 1°00'00"
T = 505.92'
L = 1009.21'
R = 5729.58'
PC STA = 522+52.72
PT STA = 532+61.93
S.E. = 0.027

PROJECT NO: 5270-01-60	HWY: STH 60	COUNTY: COLUMBIA	PLAN DETAILS	SHEET 19	E

2

2

PI STA = 566+13.82
Y = 307107.621
X = 515193.358
DELTA = 62°09'10"
D = 4°00'00"
T = 863.27'
L = 1553.81'
R = 1432.39'
PC STA = 557+50.55
PT STA = 573+04.36
S.E. = 0.058

555+00
560+00
565+00
570+00
575+00
580+00
585+00
STH 60
CTH Y
MCCULLY RD
PI: 579+39.24
L=620.562, R=1348.140
N26° 30' 50"E 319.02'
N52° 53' 16"E 840.27'
SAWING ASPHALT REQUIRED
BUTT JOINT REQUIRED

FOR TRAFFIC CONTROL DURING MILL & OVERLAY AND PIPE REPLACEMENT, SEE SDD 15 C 4-5 "TRAFFIC CONTROL, ADVANCE WARNING SIGNS 45 M.P.H. OR GREATER, TWO-WAY UNDIVIDED ROAD" AND SDD 15 C 12-7 "TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATION"

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PI STA = 596+74.06
Y = 309501.711
X = 517254.516
DELTA = 39°37'46"
D = 3°30'00"
T = 589.84'
L = 1132.27'
R = 1637.02'
PC STA = 590+84.22
PT STA = 602+16.49
S.E. = 0.055

PI STA = 607+52.29
Y = 309452.269
X = 518379.076
DELTA = 38°14'37"
D = 8°00'00"
T = 248.31'
L = 478.05'
R = 716.20'
PC STA = 605+03.98
PT STA = 609+82.03
S.E. = 0.034

PI: 596+74.06
SAWING ASPHALT REQUIRED
BUTT JOINT REQUIRED
LODI ST
595+00
590+00
STH 60
600+00
S87° 28' 57"E 287.49'
605+00
MB
TRAFFIC CONTROL DRUMS
SAWING ASPHALT REQUIRED
BUTT JOINT REQUIRED
RIDDLE RD
PI: 607+52.29

PORTABLE CHANGEABLE MESSAGE SIGN

PCMS MESSAGE	PHASE 1	PHASE 2
7 DAYS PRIOR TO CONSTRUCTION	ROAD WORK BEGINS	(DATE)

END CONSTRUCTION
STA 607+30
MATCH EXISTING
SAWING ASPHALT REQUIRED
BUTT JOINT REQUIRED

NESTLES ST
610+00
615+00
N54° 16' 25"E 708.17'

PROJECT NO: 5270-01-60	HWY: STH 60	COUNTY: COLUMBIA	PLAN DETAILS	SHEET 20	E

5270-01-60

Line	Item	Item Description	Unit	Total	Qty
0002	203.0100	Removing Small Pipe Culverts	EACH	5.000	5.000
0004	204.0120	Removing Asphaltic Surface Milling	SY	213,150.000	213,150.000
0006	205.0100	Excavation Common	CY	803.000	803.000
0008	211.0400	Prepare Foundation for Asphaltic Shoulders	STA	72.000	72.000
0010	213.0100	Finishing Roadway (project) 01. 5270-01-60	EACH	1.000	1.000
0012	305.0110	Base Aggregate Dense 3/4-Inch	TON	2,320.000	2,320.000
0014	305.0120	Base Aggregate Dense 1 1/4-Inch	TON	160.000	160.000
0016	312.0110	Select Crushed Material	TON	170.000	170.000
0018	455.0605	Tack Coat	GAL	15,222.000	15,222.000
0020	460.0105.S	HMA Percent Within Limits (PWL) Test Strip Volumetrics	EACH	1.000	1.000
0022	460.0110.S	HMA Percent Within Limits (PWL) Test Strip Density	EACH	1.000	1.000
0024	460.2005	Incentive Density PWL HMA Pavement	DOL	16,260.000	16,260.000
0026	460.2007	Incentive Density HMA Pavement Longitudinal Joints	DOL	22,592.000	22,592.000
0028	460.2010	Incentive Air Voids HMA Pavement	DOL	24,250.000	24,250.000
0030	460.6224	HMA Pavement 4 MT 58-28 S	TON	24,250.000	24,250.000
0032	465.0105	Asphaltic Surface	TON	501.000	501.000
0034	522.0124	Culvert Pipe Reinforced Concrete Class III 24-Inch	LF	82.000	82.000
0036	522.0130	Culvert Pipe Reinforced Concrete Class III 30-Inch	LF	108.000	108.000
0038	522.0136	Culvert Pipe Reinforced Concrete Class III 36-Inch	LF	68.000	68.000
0040	522.1024	Apron Endwalls for Culvert Pipe Reinforced Concrete 24-Inch	EACH	2.000	2.000
0042	522.1030	Apron Endwalls for Culvert Pipe Reinforced Concrete 30-Inch	EACH	4.000	4.000
0044	522.1036	Apron Endwalls for Culvert Pipe Reinforced Concrete 36-Inch	EACH	80.000	80.000
0046	522.2324	Culvert Pipe Reinforced Concrete Horizontal Elliptical Class HE-III 24x38-Inch	LF	58.000	58.000
0048	522.2624	Apron Endwalls for Culvert Pipe Reinforced Concrete Horizontal Elliptical 24x38-Inch	EACH	2.000	2.000
0050	618.0100	Maintenance And Repair of Haul Roads (project) 01. 5270-01-60	EACH	1.000	1.000
0052	619.1000	Mobilization	EACH	1.000	1.000
0054	624.0100	Water	MGAL	27.000	27.000
0056	625.0500	Salvaged Topsoil	SY	500.000	500.000
0058	628.1905	Mobilizations Erosion Control	EACH	2.000	2.000
0060	628.1910	Mobilizations Emergency Erosion Control	EACH	1.000	1.000
0062	628.2004	Erosion Mat Class I Type B	SY	500.000	500.000
0064	628.7504	Temporary Ditch Checks	LF	50.000	50.000
0066	628.7555	Culvert Pipe Checks	EACH	5.000	5.000
0068	629.0210	Fertilizer Type B	CWT	1.000	1.000
0070	630.0120	Seeding Mixture No. 20	LB	9.000	9.000

5270-01-60

Line	Item	Item Description	Unit	Total	Qty
0072	630.0500	Seed Water	MGAL	12.000	12.000
0074	633.5200	Markers Culvert End	EACH	10.000	10.000
0076	642.5001	Field Office Type B	EACH	1.000	1.000
0078	643.0300	Traffic Control Drums	DAY	70.000	70.000
0080	643.0900	Traffic Control Signs	DAY	718.000	718.000
0082	643.1050	Traffic Control Signs PCMS	DAY	14.000	14.000
0084	643.5000	Traffic Control	EACH	1.000	1.000
0086	646.1020	Marking Line Epoxy 4-Inch	LF	106,750.000	106,750.000
0088	646.3020	Marking Line Epoxy 8-Inch	LF	2,030.000	2,030.000
0090	646.4520	Marking Line Same Day Epoxy 4-Inch	LF	70,000.000	70,000.000
0092	646.5020	Marking Arrow Epoxy	EACH	17.000	17.000
0094	646.5120	Marking Word Epoxy	EACH	7.000	7.000
0096	646.5220	Marking Symbol Epoxy	EACH	6.000	6.000
0098	646.6120	Marking Stop Line Epoxy 18-Inch	LF	315.000	315.000
0100	649.0120	Temporary Marking Line Epoxy 4-Inch	LF	70,000.000	70,000.000
0102	650.6000	Construction Staking Pipe Culverts	EACH	5.000	5.000
0104	650.8000	Construction Staking Resurfacing Reference	LF	54,437.000	54,437.000
0106	650.9910	Construction Staking Supplemental Control (project) 01. 5270-01-60	LS	1.000	1.000
0108	690.0150	Sawing Asphalt	LF	826.000	826.000
0110	740.0440	Incentive IRI Ride	DOL	41,240.000	41,240.000
0112	SPV.0060	Special 01. Verify Landmark Reference Monuments	EACH	8.000	8.000
0114	SPV.0090	Special 01. Asphaltic Centerline Rumble Strips, Sinusoidal, 2-Lane Rural	LF	7,270.000	7,270.000
0116	SPV.0090	Special 02. Asphaltic Shoulder Rumble Strips, Sinusoidal, 2-Lane Rural	LF	16,050.000	16,050.000
0118	SPV.0180	Special 01. Removing Distressed Pavement Milling	SY	2,135.000	2,135.000

3

EARTHWORK SUMMARY

Division	From/To Station	205.0100 Common Excavation (1)	Salvaged/Unusable Pavement Material (3)	Available Material (4)	Unexpanded Fill	Expanded Fill (5)	Mass Ordinate +/- (6)
Division 1		Cut (2)				Factor 1.30	
Culvert Pipe	210+07 - 333+63	803	34	769	581	755	14
Grand Total		803	34	769	581	755	14

Notes:

(1) Common Excavation is the sum of the Cut and EBS Excavation columns. Item number 205.0100

(2) Salvaged/Unsuable Pavement Material is included in Cut.

(3) Salvaged/Unusable Pavement Material

(4) Available Material = Cut - Salvaged/Unusuable Pavement Material

(5) Expanded Fill Factor = 1.3

Depending on selections: **Expanded Fill = (Unexpanded Fill - Expanded Rock - Reduced Marsh - Reduced EBS) * Fill Factor**

Expanded Fill = (Unexpanded Fill - Expanded Rock - Reduced EBS) * Fill Factor

Expanded Fill = (Unexpanded Fill - Expanded Rock - Reduced Marsh) * Fill Factor

Expanded Fill = (Unexpanded Fill - Expanded Rock) * Fill Factor

(6) The Mass Ordinate + or - Qty calculated for the Division. Plus quantity indicates an excess of material within the Division. Minus indicates a shortage of material within the

3

BASE AGGREGATE ITEMS

CATEGORY	STATION	TO	STATION	LOCATION	305.0110 BASE AGGREGATE DENSE 3/4-INCH TON	305.0120 BASE AGGREGATE DENSE 1 1/4-INCH TON	312.0110 SELECT CRUSHED MATERIAL TON	REMARKS
0010	62+93	-	71+30	RT & LT	80	-	-	
0010	71+30	-	140+85	RT & LT	990	-	-	
0010	140+85	-	597+00	RT & LT	1,250	-	-	
0010	210+07	-		RT & LT	-	40	45	
0010	218+52	-		RT & LT	-	35	35	
0010	306+90	-		RT & LT	-	50	55	
0010	333+63	-		RT & LT	-	35	35	
				TOTAL 0010	2,320	160	170	

CATEGORY	STATION	TO	STATION	LOCATION	460.0105.S HMA PERCENT WITHIN LIMITS (PWL) TEST STRIP VOLUMETRICS EACH	REMARKS
0010	62+93	-	607+30	RT & LT	1	
				TOTAL 0010	1	

CATEGORY	STATION	TO	STATION	LOCATION	460.0110.S HMA PERCENT WITHIN LIMITS (PWL) TEST STRIP DENSITY EACH	REMARKS
0010	62+93	-	607+30	RT & LT	1	
				TOTAL 0010	1	

ASPHALT ITEMS

CATEGORY	STATION	TO	STATION	LOCATION	204.0120 REMOVING ASPHALTIC SURFACE MILLING SY	211.0400 PREPARE FOUNDATION FOR ASPHALTIC SHOULDERS STA	455.0605 TACK COAT GAL	460.6224 HMA PAVEMENT 4 MT 58-28 S TON	465.0105 ASPHALTIC SURFACE TON	SPV.0090.01 SPECIAL (01. ASPHALTIC CENTERLINE RUMBLE STRIPS, SINUSOIDAL, 2-LANE RURAL) LF	SPV.0090.02 SPECIAL (02. ASPHALTIC SHOULDER RUMBLE STRIPS, SINUSOIDAL, 2-LANE RURAL) LF	SPV.0180.01 SPECIAL (01. REMOVING DISTRESSED PAVEMENT MILLING) SY	REMARKS
0010	62+93	-	607+30	RT & LT	213,150	72	15,200	24,250	418	7,270	16,050	2,135	
0010	210+07	-		RT & LT	-	-	5	-	18	-	-	-	
0010	218+52	-		RT & LT	-	-	4	-	16	-	-	-	
0010	306+90	-		RT & LT	-	-	7	-	27	-	-	-	
0010	333+63	-		RT & LT	-	-	6	-	22	-	-	-	
				TOTAL 0010	213,150	72	15,222	24,250	501	7,270	16,050	2,135	

The following acceptance criteria are applicable for this project:

Location	Station From	Station To	Mixture Use	Underlying Surface	Bid Item	Tons	Thickness	Quality Management Program to be used for: Mixture Acceptance	Quality Management Program to be used for: Density Acceptance
12 foot Driving Lane	62+93	607+30	Upper Layer	Milled Existing HMA Surface	4 MT 58-28 S	16259	2"	PWL Incentive Air Voids HMA Pavement 460.2010	Incentive Density PWL HMA Pavement 460.2005
5 foot Shoulder + Intersections	62+93	607+30	Upper Layer	Milled Existing HMA Surface	4 MT 58-28 S	7991	2"	PWL Incentive Air Voids HMA Pavement 460.2010	Acceptance testing by department; Not eligible for incentive
Various	-		Culvert Patches	Base Aggregate	Asphaltic Surface	83	5"	QMP as per SS 465	Acceptance by ordinary compaction
Various	-		Spot Repairs Lower Layer	Milled Existing HMA Surface	Asphaltic Surface	418	2"	QMP as per SS 465	Acceptance by ordinary compaction

CULVERT ITEMS

CATEGORY	STATION	LOCATION	203.0100 REMOVING SMALL PIPE CULVERTS EACH	522.0124 CULVERT PIPE REINFORCED CONCRETE CLASS III 24-INCH LF	522.0130 CULVERT PIPE REINFORCED CONCRETE CLASS III 30-INCH LF	522.0136 CULVERT PIPE REINFORCED CONCRETE CLASS III 36-INCH LF	522.1024 APRON ENDWALLS FOR CULVERT PIPE REINFORCED CONCRETE 24-INCH EACH	522.1030 APRON ENDWALLS FOR CULVERT PIPE REINFORCED CONCRETE 30-INCH EACH	522.1036 APRON ENDWALLS FOR CULVERT PIPE REINFORCED CONCRETE 36-INCH EACH	522.2324 CULVERT PIPE REINFORCED CONCRETE HORIZONTAL ELLIPTICAL CLASS HE-III 24X38-INCH LF	522.2624 APRON ENDWALLS FOR CULVERT PIPE REINFORCED CONCRETE HORIZONTAL ELLIPTICAL 24X38-INCH EACH	633.5200 MARKERS CULVERT END EACH	REMARKS
0010	210+07	RT & LT	1	-	-	80	-	-	2	-	-	2	REMOVE EXISTING 36"X85' CSCP
0010	218+52	RT & LT	1	-	-	-	-	-	-	58	2	2	REMOVE EXISTING 24"X36"X60' CSCP
0010	306+90	RT & LT	2	-	108	-	-	4	-	-	-	4	REMOVE 2 EXISTING 30"X60' CSCP
0010	333+63	RT & LT	1	82	-	-	2	-	-	-	-	2	REMOVE EXISTING 24"X80' CSCP
		TOTAL 0010	5	82	108	80	2	4	2	58	2	10	

CATEGORY	STATION	TO	STATION	LOCATION	624.0100 WATER MGAL	REMARKS
0010	62+93	-	607+30	RT & LT	27	
				TOTAL 0010	27	

LANDSCAPING ITEMS

CATEGORY	STATION	LOCATION	625.0500 SALVAGED TOPSOIL SY	628.2004 EROSION MAT CLASS I TYPE B SY	629.0210 FERTILIZER TYPE B CWT	630.0120 SEEDING MIXTURE NO. 20 LB	630.0500 SEED WATER MGAL	REMARKS
0010	210+07	RT & LT	190	190	0.12	3.420	4	
0010	218+52	RT & LT	70	70	0.04	1.260	2	
0010	306+90	RT & LT	90	90	0.06	1.620	2	
0010	333+63	RT & LT	150	150	0.09	2.700	3	
		TOTAL 0010	500	500	1	9	12	

CATEGORY	STATION	TO	STATION	LOCATION	628.1905 MOBILIZATIONS EROSION CONTROL EACH	REMARKS
0010	62+93	-	607+30	RT & LT	2	
				TOTAL 0010	2	

CATEGORY	STATION	TO	STATION	LOCATION	628.1910 MOBILIZATIONS EMERGENCY EROSION CONTROL EACH	REMARKS
0010	62+93	-	607+30	RT & LT	1	
				TOTAL 0010	1	

EROSION CONTROL

CATEGORY	STATION	LOCATION	628.7504 TEMPORARY DITCH CHECKS LF	628.7555 CULVERT PIPE CHECKS EACH	REMARKS
0010	210+07	RT & LT	10	1	
0010	218+52	RT & LT	10	1	
0010	306+90	RT & LT	20	2	
0010	333+63	RT & LT	10	1	
		TOTAL 0010	50	5	

3

TRAFFIC CONTROL ITEMS

CATEGORY	STAGE	DAYS PER STAGE	643.0300 TRAFFIC CONTROL DRUMS *EACH	643.0300 TRAFFIC CONTROL DRUMS DAY	643.0900 TRAFFIC CONTROL SIGNS *EACH	643.0900 TRAFFIC CONTROL SIGNS DAY	643.1050 TRAFFIC CONTROL SIGNS PCMS *EACH	643.1050 TRAFFIC CONTROL SIGNS PCMS DAY	REMARKS
0010	PRE-CONSTRUCTION	7	10	70	-	-	2	14	
0010	CULVERT REPLACEMENT	5	-	-	16	80	-	-	
0010	MILLING & PAVING	19	-	-	29	551	-	-	
0010	RUMBLE STRIPS & MARKING	3	-	-	29	87	-	-	
		TOTAL 0010		70		718		14	

*FOR INFORMATIONAL PURPOSES ONLY

PAVEMENT MARKING ITEMS

CATEGORY	STATION	TO	STATION	LOCATION	646.1020 MARKING LINE EPOXY 4-INCH WHITE LF	646.3020 MARKING LINE EPOXY 8-INCH WHITE LF	646.4520 MARKING LINE SAME DAY EPOXY 4-INCH YELLOW LF	646.5020 MARKING ARROW EPOXY EACH	646.5120 MARKING WORD EPOXY EACH	646.5220 MARKING SYMBOL EPOXY EACH	646.6120 MARKING STOP LINE EPOXY 18-INCH LF	649.0120 TEMPORARY MARKING LINE EPOXY 4-INCH YELLOW LF	REMARKS
0010	62+93	-	607+30	RT & LT	106,750	2,030	70,000	-	-	-	315	70,000	
0010	65+00			RT	-	-	-	1	-	-	-	-	
0010	69+74			RT	-	-	-	-	1	-	-	-	
0010	70+14			RT	-	-	-	1	-	-	-	-	
0010	72+70			LT	-	-	-	1	-	-	-	-	
0010	73+10			LT	-	-	-	-	1	-	-	-	
0010	74+35			LT	-	-	-	1	-	-	-	-	
0010	141+83			LT	-	-	-	1	-	-	-	-	
0010	142+23			LT	-	-	-	-	1	-	-	-	
0010	143+44			LT	-	-	-	1	-	-	-	-	
0010	302+68			RT	-	-	-	1	-	-	-	-	
0010	303+83			RT	-	-	-	-	1	-	-	-	
0010	304+23			RT	-	-	-	1	-	-	-	-	
0010	329+48			RT	-	-	-	1	-	-	-	-	
0010	330+56			RT	-	-	-	-	1	-	-	-	
0010	330+96			RT	-	-	-	1	-	-	-	-	
0010	562+10			RT	-	-	-	1	-	-	-	-	
0010	536+16			RT	-	-	-	-	1	-	-	-	
0010	563+56			RT	-	-	-	1	-	-	-	-	
0010	581+00			LT	-	-	-	1	-	-	-	-	
0010	581+40			LT	-	-	-	-	1	-	-	-	
0010	582+66			LT	-	-	-	1	-	-	-	-	
0010	596+76			RT	-	-	-	-	-	1	-	-	
0010	596+87			RT	-	-	-	-	-	1	-	-	
0010	596+98			RT	-	-	-	1	-	-	-	-	
0010	598+31			LT	-	-	-	1	-	-	-	-	
0010	598+42			LT	-	-	-	-	-	1	-	-	
0010	598+51			LT	-	-	-	-	-	1	-	-	
0010	607+17			RT	-	-	-	-	-	1	-	-	
0010	607+28			RT	-	-	-	-	-	1	-	-	
0010	607+38			RT	-	-	-	1	-	-	-	-	
				TOTAL 0010	106,750	2,030	70,000	17	7	6	315	70,000	

CONSTRUCTION STAKING ITEMS

CATEGORY	STATION	TO	STATION	LOCATION	650.6000 CONSTRUCTION STAKING PIPE CULVERTS EACH	650.8000 CONSTRUCTION STAKING RESURFACING REFERENCE LF	REMARKS
0010	62+93	-	607+30	RT & LT	-	54,437	
0010	210+07	-		RT & LT	1	-	
0010	218+52	-		RT & LT	1	-	
0010	306+90	-		RT & LT	2	-	
0010	333+63	-		RT & LT	1	-	
				TOTAL 0010	5	54,437	

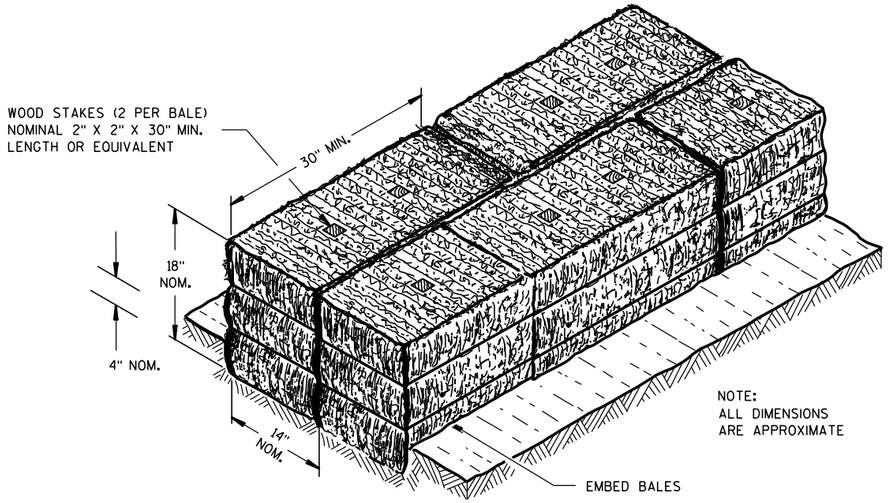
CATEGORY	STATION	LOCATION	690.0150 SAWING ASPHALT LF	REMARKS
0010	70+94	RT	41	
0010	72+20	LT	24	
0010	128+57	RT	25	
0010	141+04	LT	38	
0010	181+38	RT	30	
0010	204+30	LT	21	
0010	210+07	RT & LT	34	CULVERT REPLACEMENT
0010	218+52	RT & LT	34	CULVERT REPLACEMENT
0010	249+00	RT	30	
0010	265+60	LT	36	
0010	292+22	LT	31	
0010	305+25	RT	31	
0010	306+90	RT & LT	34	CULVERT REPLACEMENT
0010	331+96	RT	32	
0010	333+63	RT & LT	34	CULVERT REPLACEMENT
0010	358+40	LT	35	
0010	373+17	RT	30	
0010	389+24	LT	32	
0010	401+19	RT	30	
0010	466+56	RT	30	
0010	506+54	RT	36	
0010	564+50	RT	30	
0010	580+04	LT	31	
0010	599+38	LT	40	
0010	606+30	RT	25	
0010	607+30	RT & LT	32	
		TOTAL 0010	826	

CATEGORY	STATION	LOCATION	SPV.0060.01 SPECIAL (01. VERIFY LANDMARK REFERENCE MONUMENTS) EACH	REMARKS
0010	154+90	16.5' RT	1	
0010	181+61	68.9' RT	1	
0010	278+81	18.4' LT	1	
0010	305+53	2' LT	1	
0010	331+55	50.5' LT	1	
0010	466+53	8.5' RT	1	
0010	492+97	0.1' LT	1	
0010	546+34	0.3' RT	1	
		TOTAL 0010	8	

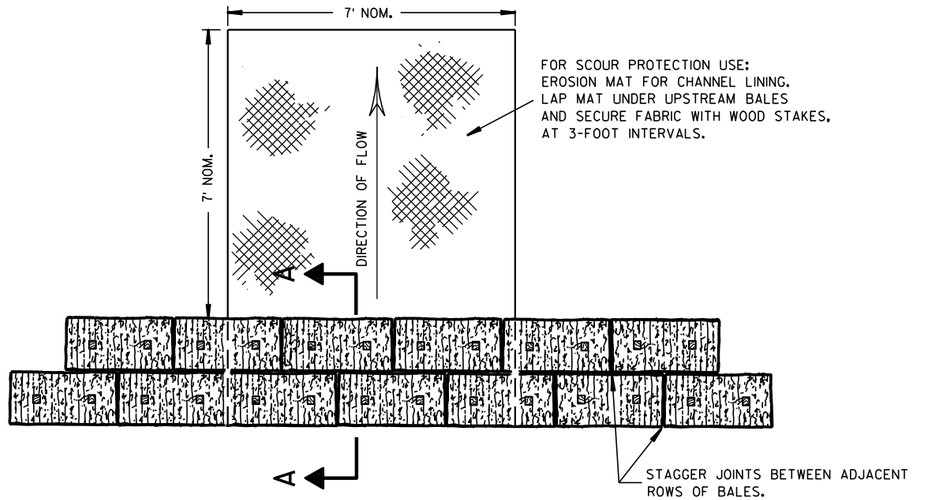
Standard Detail Drawing List

08E08-03	TYPICAL INSTALLATIONS OF EROSION BALES / TEMPORARY DITCH CHECKS
08E15-01	CULVERT PIPE CHECK
08F01-11	APRON ENDWALLS FOR CULVERT PIPE
08F02-01	APRON ENDWALLS FOR PIPE ARCH AND ELLIPTICAL PIPE
08F04-07	JOINT TIES FOR CONCRETE PIPE AND CONCRETE COLLAR DETAIL
13A10-02C	2-LANE RURAL SHOULDER RUMBLE STRIP, MILLING
13A10-02D	2-LANE RURAL SHOULDER RUMBLE STRIP, MILLING
13A11-03B	2-LANE RURAL CENTER LINE RUMBLE STRIP, MILLING
13C19-02	HMA LONGITUDINAL JOINTS
15A03-02A	FLEXIBLE MARKER POST FOR CULVERT END
15A03-02B	FLEXIBLE MARKER POST FOR CULVERT END
15C04-05	TRAFFIC CONTROL, ADVANCE WARNING SIGNS 45 M.P.H. OR GREATER TWO-WAY UNDIVIDED ROAD OPEN TO TRAFFIC
15C07-15C	PAVEMENT MARKING ARROWS
15C07-15E	PAVEMENT MARKING FOR BIKE LANES
15C08-20A	LONGITUDINAL MARKING (MAINLINE)
15C08-20B	PAVEMENT MARKING (TURN LANES)
15C08-20C	PAVEMENT MARKING (TURN LANES)
15C12-07	TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATION
15C19-06A	MOVING PAVEMENT MARKING OPERATION TWO-LANE TWO-WAY ROADWAY
15C29-06A	BICYCLE LANE MARKING
15C33-04	STOP LINE AND CROSSWALK PAVEMENT MARKING
15C35-04A	PAVEMENT MARKING (INTERSECTIONS)
15D38-02A	TEMPORARY TRAFFIC CONTROL SIGN MOUNTING
15D38-02B	ATTACHMENT OF SIGNS TO POSTS

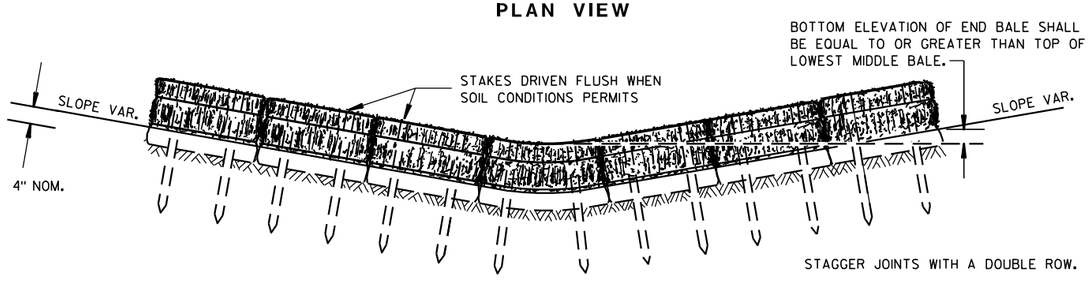
6



SECTION A-A



PLAN VIEW



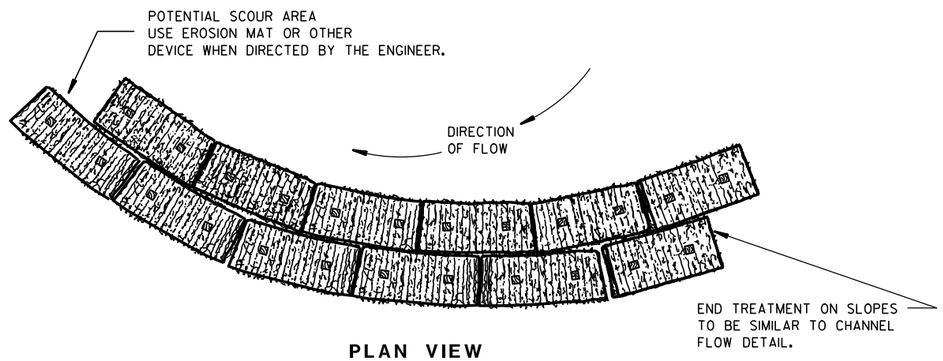
FRONT ELEVATION

TEMPORARY DITCH CHECK USING EROSION BALES ①

GENERAL NOTES

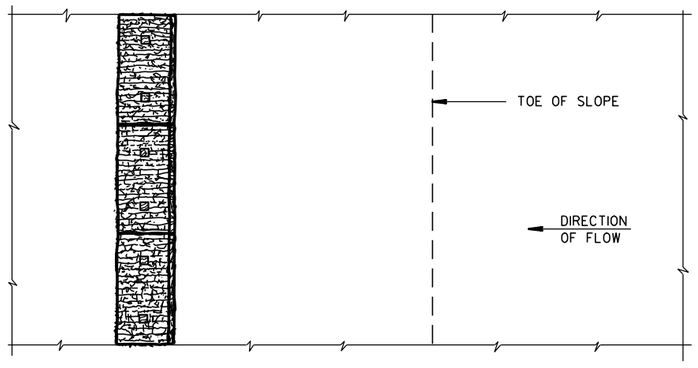
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

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.

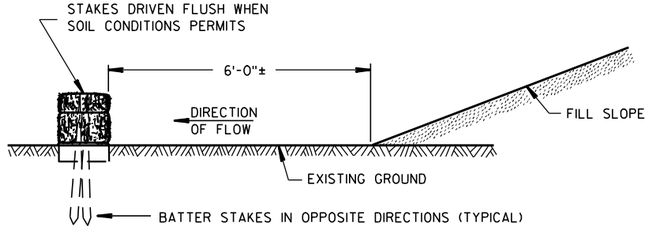


PLAN VIEW

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

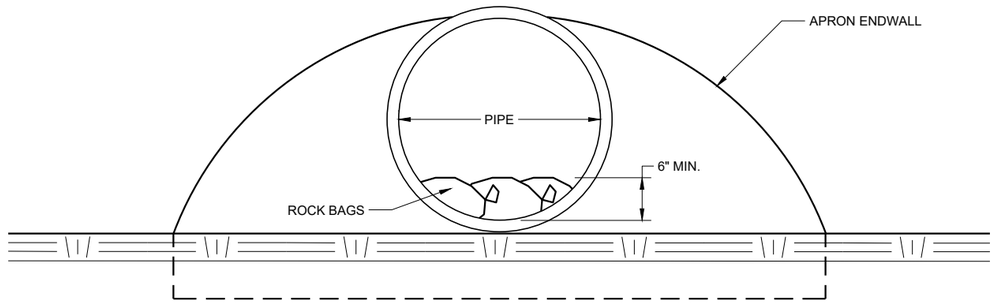
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

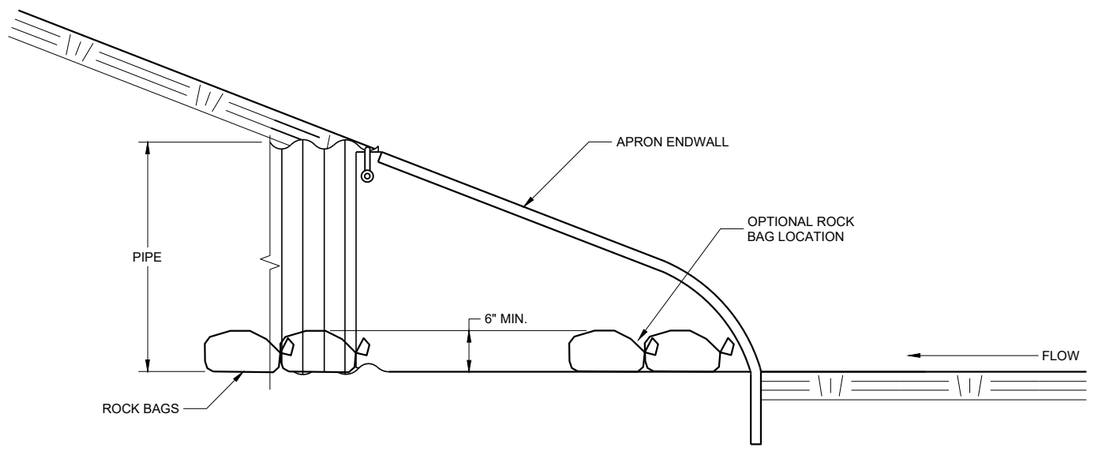
6/04/02 — DATE

/S/ Beth Cannestra — CHIEF ROADWAY DEVELOPMENT ENGINEER

FHWA



END VIEW



SIDE VIEW

CULVERT PIPE CHECK

(INSTALL ON INLET END ONLY)

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

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SDD 08E15 - 01

METAL APRON ENDWALLS

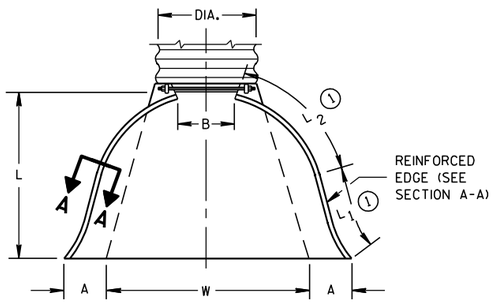
PIPE DIA. (IN.)	MIN. THICK. (Inches)		DIMENSIONS (Inches)							APPROX. SLOPE	BODY
	STEEL	ALUM.	A (±1")	B (MAX.)	H (±1")	L (±1 1/2")	L1 ①	L2 ①	W (±2")		
12	.064	.060	6	6	6	21	12	17 1/2	24	2 1/2 to 1	1 Pc.
15	.064	.060	7	8	6	26	14	21 3/4	30	2 1/2 to 1	1 Pc.
18	.064	.060	8	10	6	31	15	28 1/4	36	2 1/2 to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

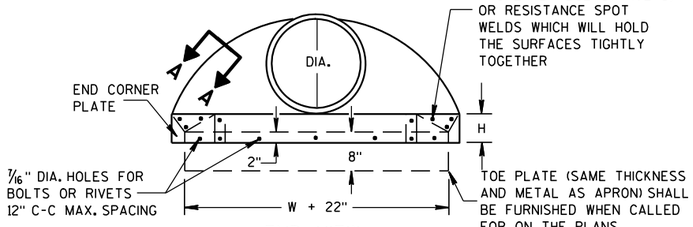
REINFORCED CONCRETE APRON ENDWALLS

PIPE DIA. (IN.)	DIMENSIONS (Inches)							APPROX. SLOPE
	T	A	B	C	D	E	G	
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 2/5 to 1
60	6	* 30 - ** 35	60	39	99	96	5	2 to 1
66	6 1/2	* 24 - ** 30	* 72 - ** 78	* 21 - ** 27	99	102	5 1/2	2 to 1
72	7	* 24 - ** 36	78	21	99	108	6	2 to 1
78	7 1/2	* 24 - ** 36	78	21	99	114	6 1/2	2 to 1
84	8	36	90 1/2	21	111 1/2	120	6 1/2	1 1/2 to 1
90	8 1/2	41	87 1/2	24	111 1/2	132	6 1/2	1 1/2 to 1

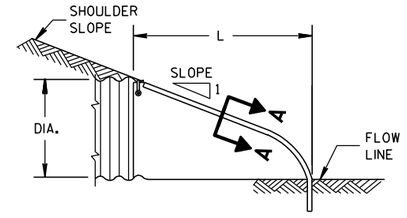
* MINIMUM
** MAXIMUM



PLAN VIEW

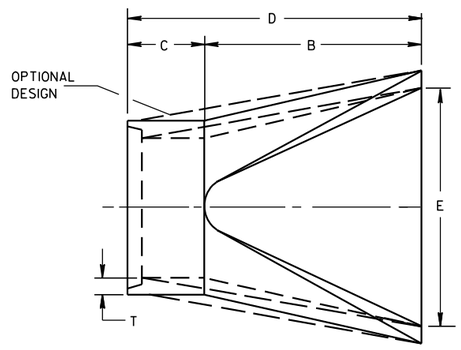


END VIEW

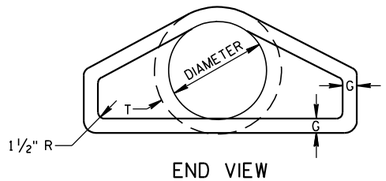


SIDE ELEVATION

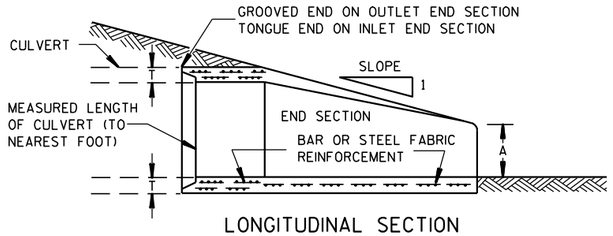
METAL ENDWALLS



PLAN

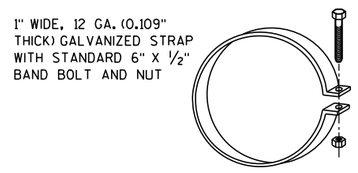


END VIEW



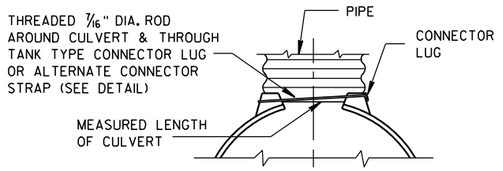
LONGITUDINAL SECTION

CONCRETE ENDWALLS

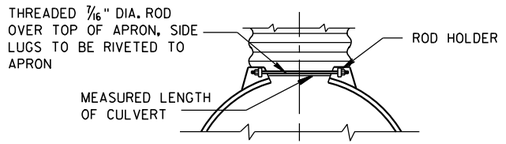


ALTERNATE FOR TYPE 1 CONNECTION

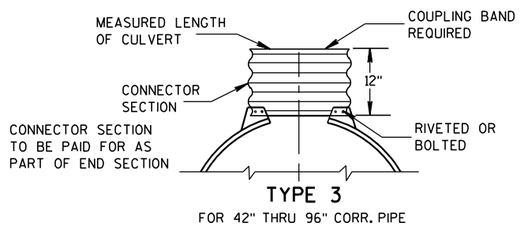
END SECTION CONNECTOR STRAP



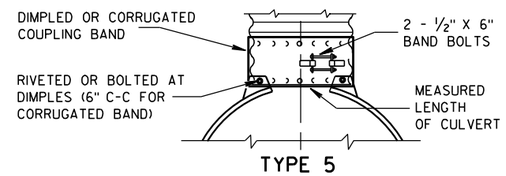
TYPE 1
FOR 12" THRU 24" CORR. PIPE



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

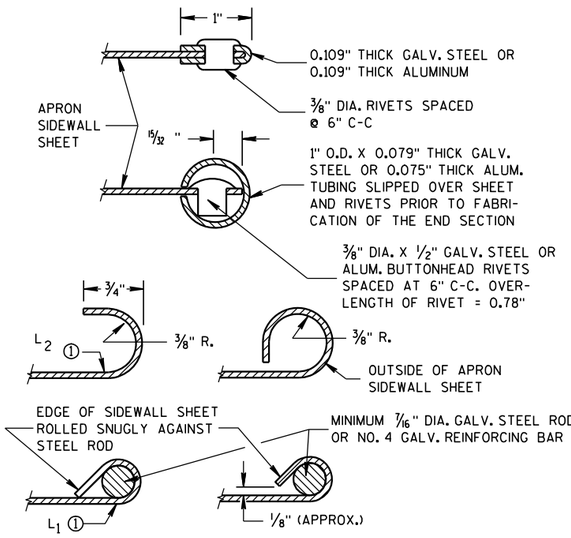
NOTE: DIMPLED BAND FITS OVER OUTSIDE OF ENDWALL. AND CORRUGATED BAND FITS INSIDE ENDWALL. DIMPLED BAND MAY BE USED WITH HELICALLY CORRUGATED PIPE.

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.

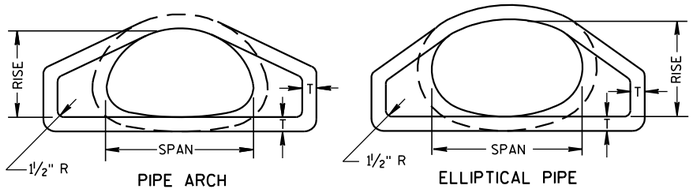
① FOR PIPE SIZES UP TO 60" DIAMETER, A 180° ROLLED EDGE MAY BE USED INSTEAD OF STEEL ROD REINFORCEMENT. SEE SECTION A-A.

APRON ENDWALLS FOR CULVERT PIPE

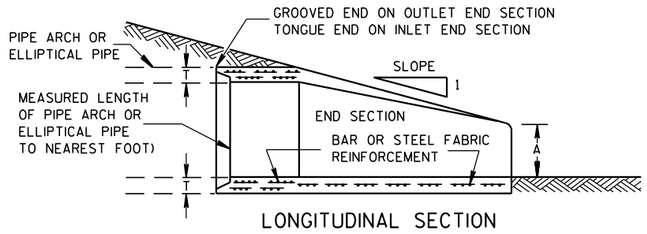
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

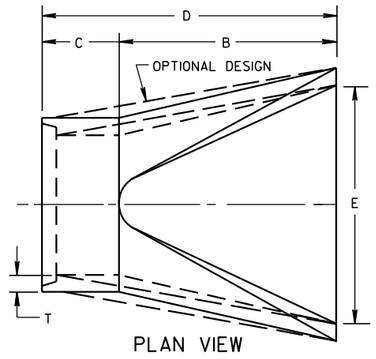
6
S.D.D. 8 F 1-11



END VIEW

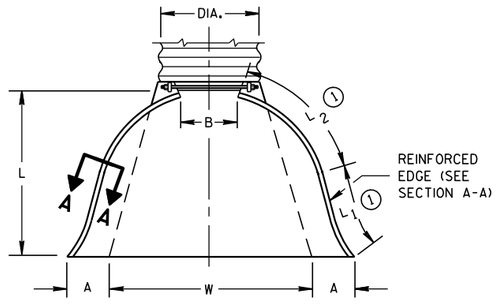


LONGITUDINAL SECTION

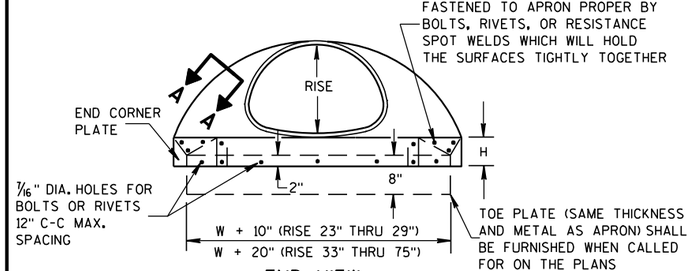


PLAN VIEW

CONCRETE ENDWALLS

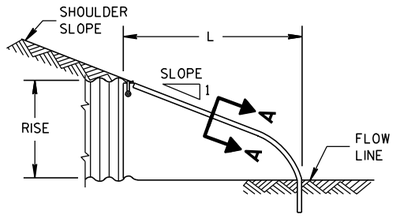


PLAN VIEW



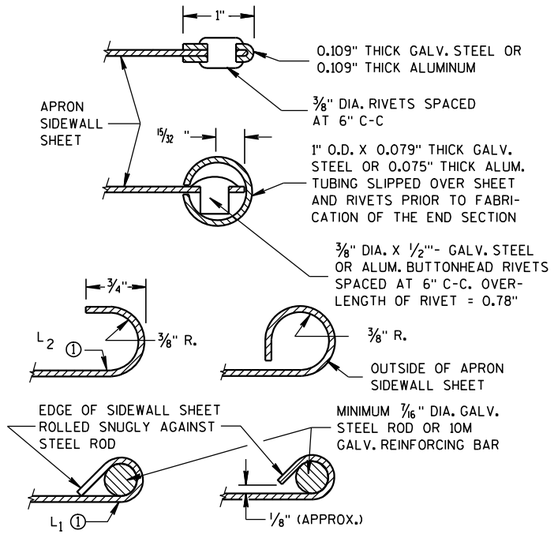
END CORNER PLATES MAY BE FASTENED TO APRON PROPER BY BOLTS, RIVETS, OR RESISTANCE SPOT WELDS WHICH WILL HOLD THE SURFACES TIGHTLY TOGETHER

END VIEW



SIDE ELEVATION

METAL ENDWALLS



SECTION A-A

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

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

3" X 1" CORRUGATIONS

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

NOTE: ALL SPLICES TO BE LAP RIVETED OR BOLTED.

* EXCEPT CENTER PANEL SEE GENERAL NOTES

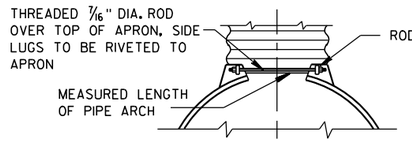
REINFORCED CONCRETE PIPE ARCH

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

REINFORCED CONCRETE ELLIPTICAL PIPE

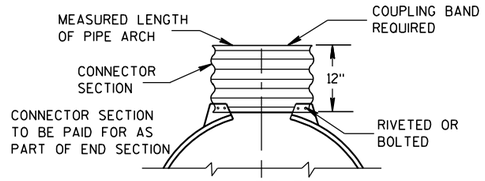
EQUIV. DIA. (Inches)	DIMENSIONS (Inches) ** SPAN	** RISE	T	A	B	C	D	E	APPROX. SLOPE
24	30	19	3¼	8½	39	33	72	48	3 to 1
30	38	24	3¾	9½	54	18	72	60	3 to 1
36	45	29	4½	11⅛	60	24	84	72	2½ to 1
42	53	34	5	15¾	60	36	96	78	2½ to 1
48	60	38	5½	21	60	36	96	84	2½ to 1
54	68	43	6	25½	60	36	96	90	2½ to 1
60	76	48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

**NOMINAL SIZE



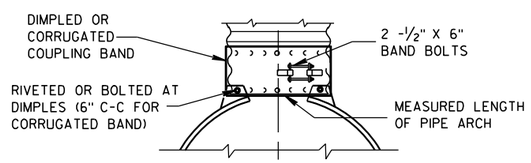
TYPE 2

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



TYPE 3

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



TYPE 5

ALTERNATE FOR:

ALL SIZES CORRUGATED PIPE ARCHES

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

CONNECTION DETAILS

GENERAL NOTES

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

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

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

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

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

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

APRON ENDWALLS FOR PIPE ARCH AND ELLIPTICAL PIPE

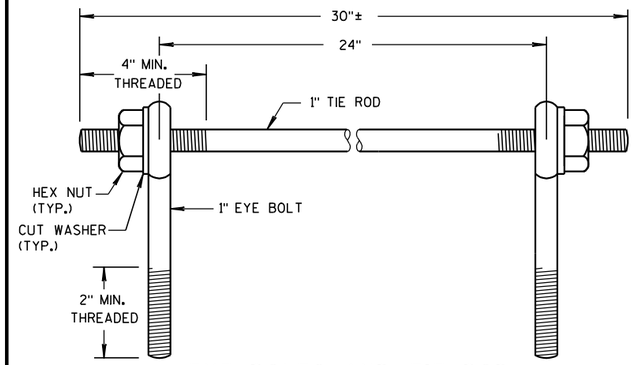
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

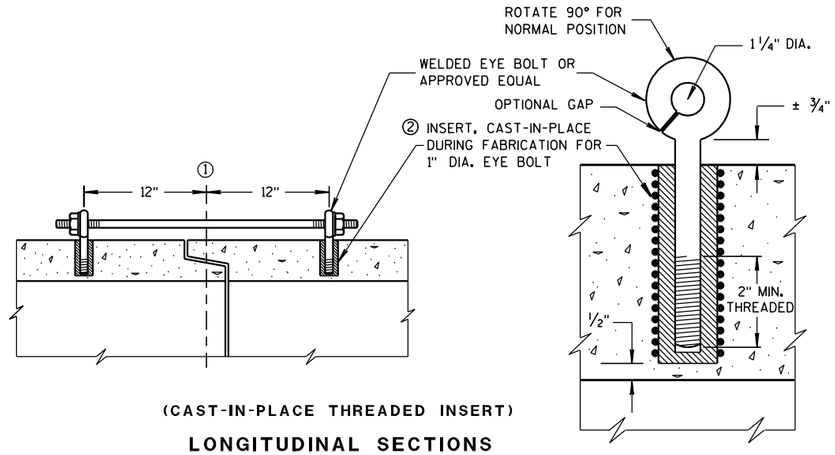
11/30/94 — DATE

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

FHWA



EYE BOLTS AND TIE ROD



(CAST-IN-PLACE THREADED INSERT)

LONGITUDINAL SECTIONS

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

GENERAL NOTES

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

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

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

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

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

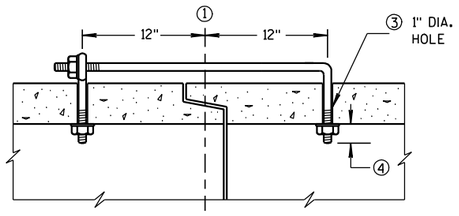
② THE INSIDE OF THE THREADED INSERTS SHALL BE CLEAN TO ALLOW THE INSERTION OF THREADED EYE BOLTS.

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

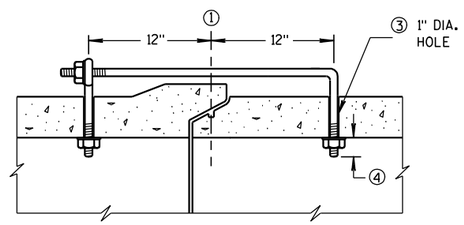
④ BOLT PROJECTION INSIDE OF PIPE SHALL NOT EXCEED 2 INCHES.

⑤ OPENING TO BE ROD DIAMETER PLUS 1 INCH.

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



(TONGUE & GROOVE PIPE)

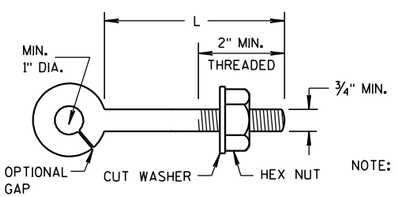


(MODIFIED BELL PIPE)

LONGITUDINAL SECTION

EYE BOLT DIMENSION TABLE

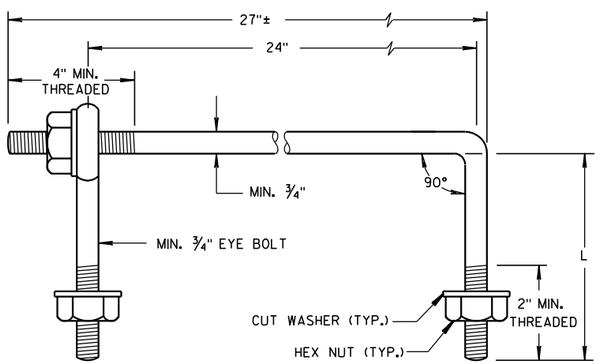
PIPE SIZE	L = LENGTH	
	TONGUE & GROOVE PIPE	MODIFIED BELL PIPE
18" TO 24"	4 1/2"	6 1/4"
30"	5"	7"
36"	5 1/2"	7"
42"	6"	
48"	6 1/2"	
60"	7 1/2"	
66"	8"	



NOTE:

EYE BOLT

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



EYE BOLT AND TIE ROD

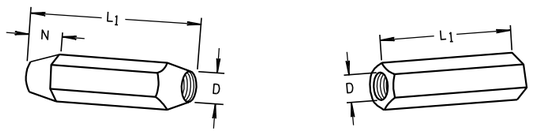
(JOINT TIES FOR 18" TO 66" DIA. CONCRETE PIPE)

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

ADJUSTABLE TIE ROD TABLE

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

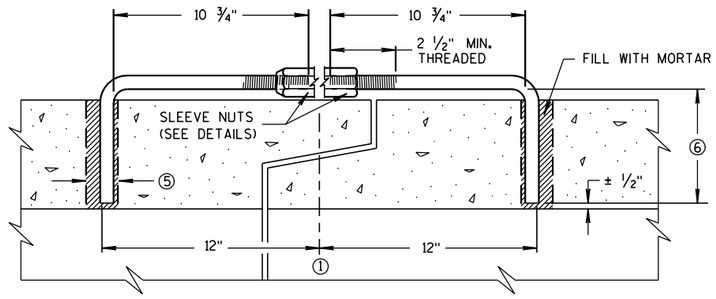
DIMENSIONS SHOWN ARE IN INCHES



TAPERED PLAIN

RIGHT AND LEFT THREADS

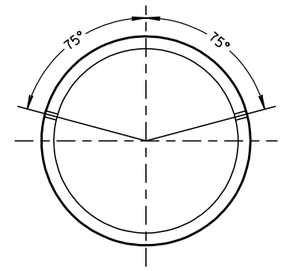
SLEEVE NUTS



LONGITUDINAL SECTION

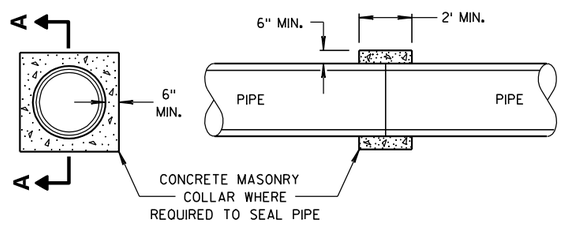
(JOINT TIES FOR 12" TO 108" DIA. CONCRETE PIPE)

ADJUSTABLE TIE ROD (ALTERNATE NO. 3)



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

TRANSVERSE SECTION



SECTION A-A

CONCRETE COLLAR DETAIL

JOINT TIES FOR CONCRETE PIPE AND CONCRETE COLLAR DETAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

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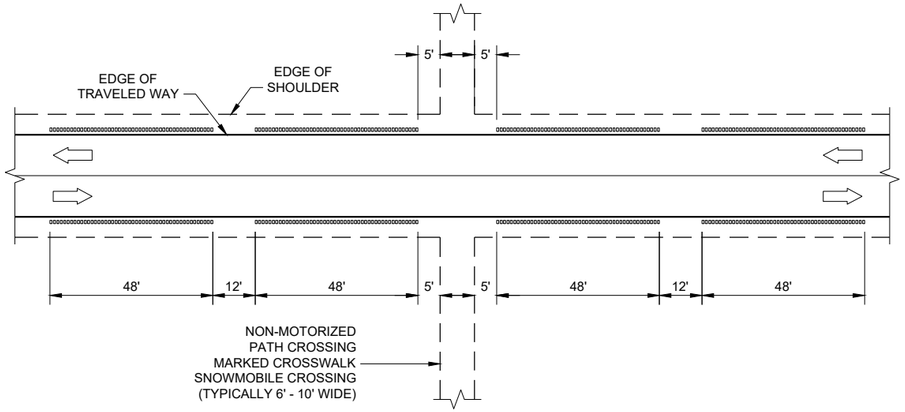
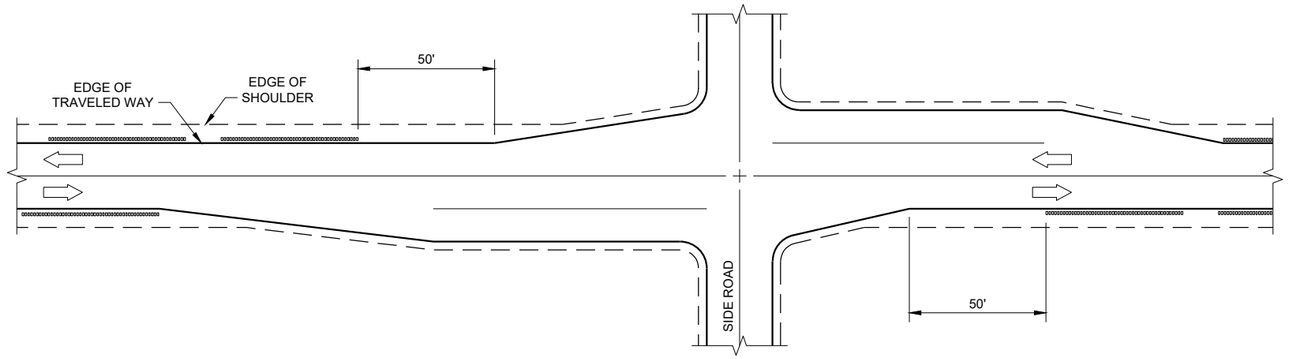
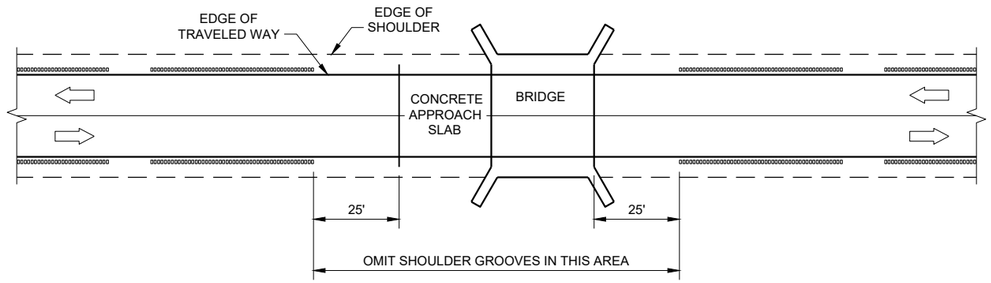
S.D.D. 8 F 4-7



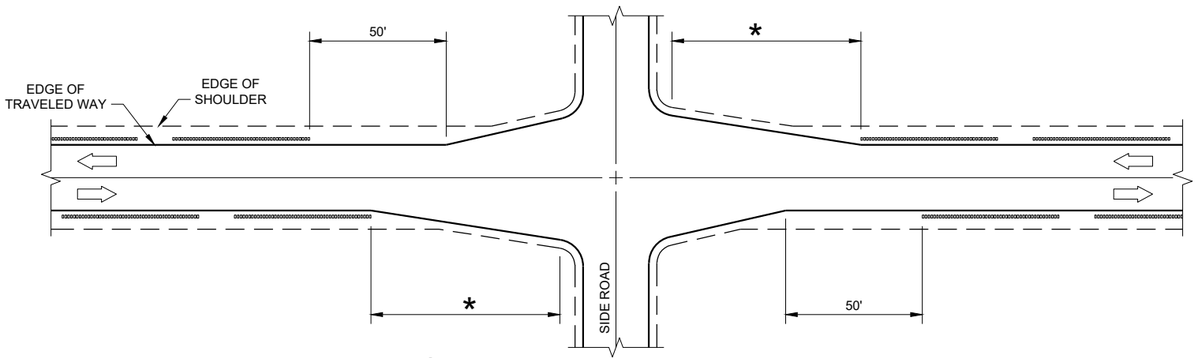
SHOULDER GROOVES AT MISCELLANEOUS CROSSINGS



SHOULDER GROOVES AT RIGHT TURN LANE

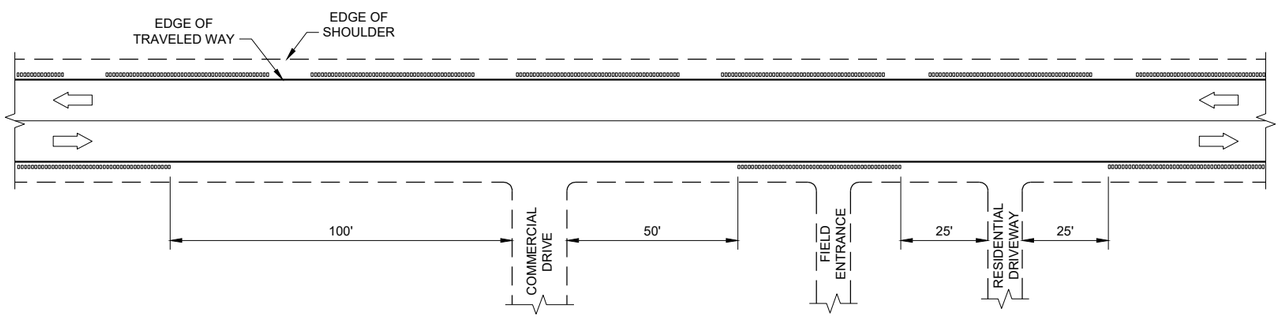


SHOULDER GROOVES AT BRIDGES



* GREATER OF 100' OR APPROACH TAPER LENGTH

SHOULDER GROOVES AT INTERSECTIONS WITH APPROACH TAPER



SHOULDER GROOVES AT DRIVEWAYS (1)

GENERAL NOTES

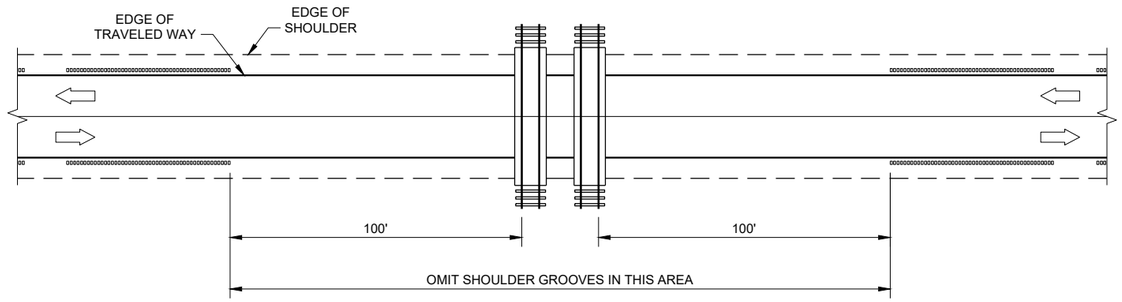
(1) SHOULDER GROOVES MAY BE OMITTED IN AREAS WITH HIGH CONCENTRATIONS OF DRIVEWAYS. WHEN DIRECTED BY THE ENGINEER.

2-LANE RURAL SHOULDER RUMBLE STRIP, MILLING

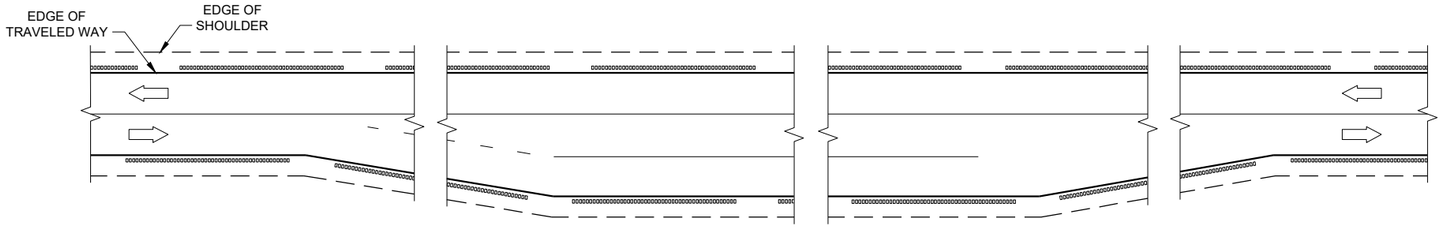
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

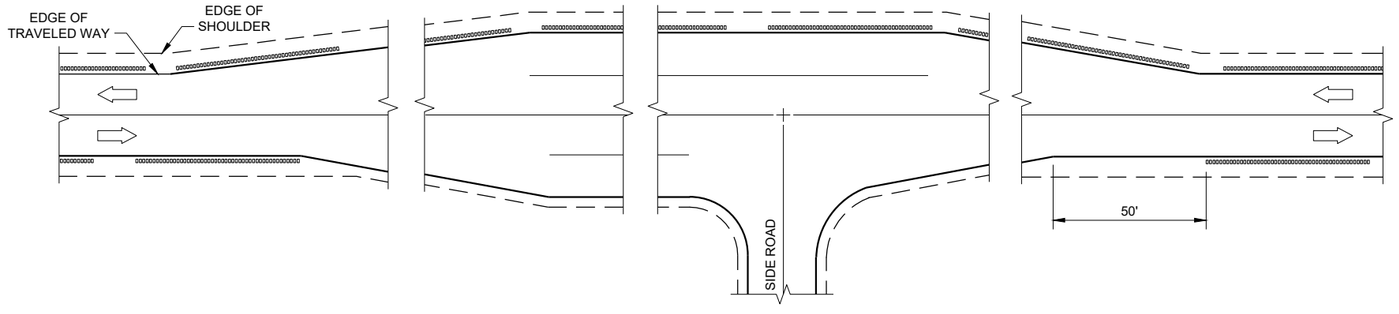
SDD 13A10 - 02c



SHOULDER GROOVES AT RAILROADS



SHOULDER GROOVES AT PASSING AND CLIMBING LANES



SHOULDER GROOVES AT BYPASS LANES

6

6

SDD 13A10 - 02d

SDD13A10 - 02d

2-LANE RURAL SHOULDER RUMBLE STRIP, MILLING

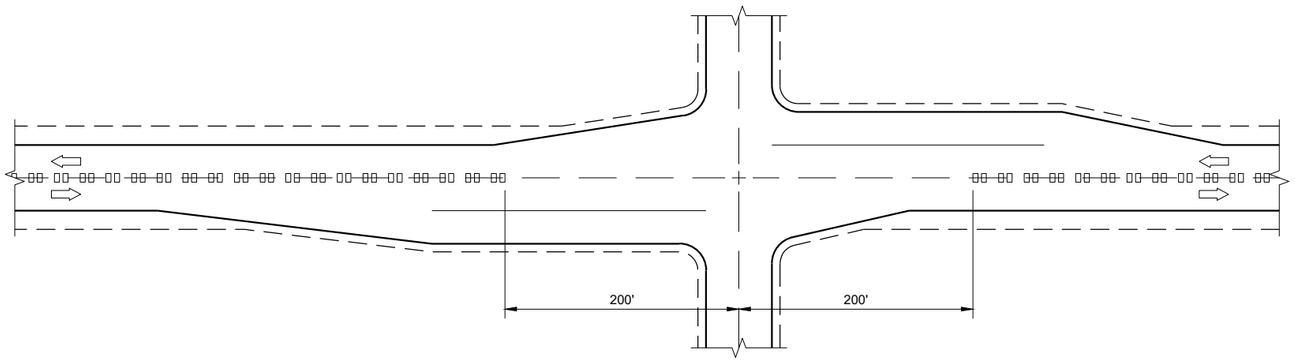
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

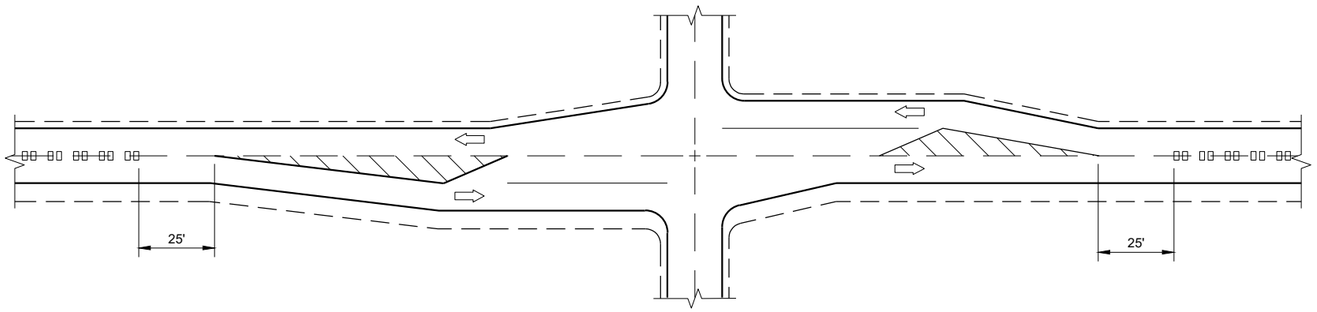
7/2018
DATE

/S/ Rodney Taylor
ROADWAY STANDARDS DEVE ENGINEER

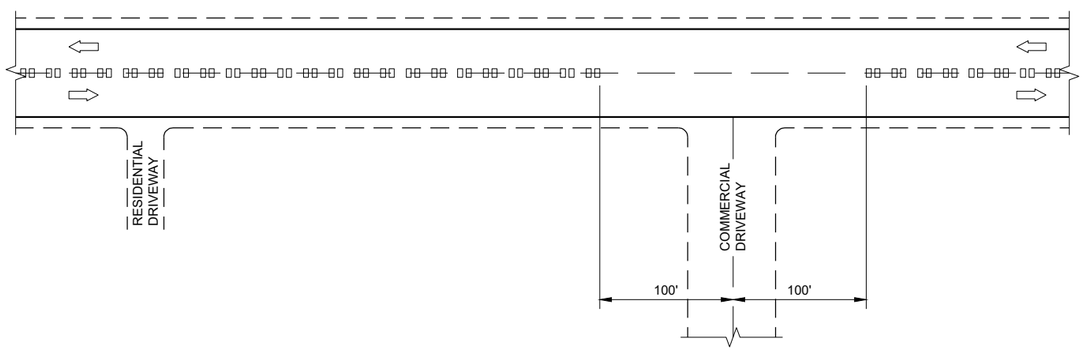
FHWA



CENTERLINE GROOVES AT INTERSECTIONS



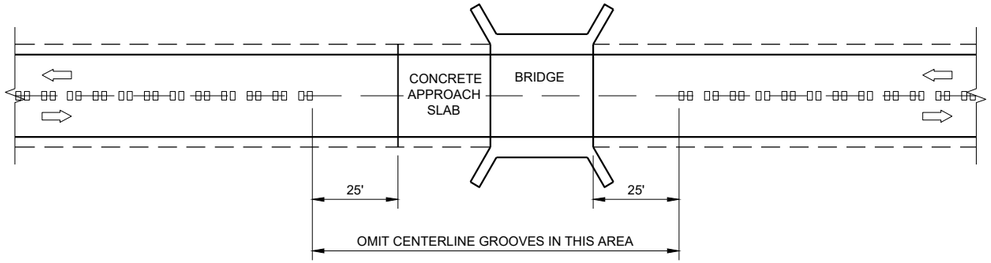
CENTERLINE GROOVES AT INTERSECTIONS (WITH LEFT TURN LANES)



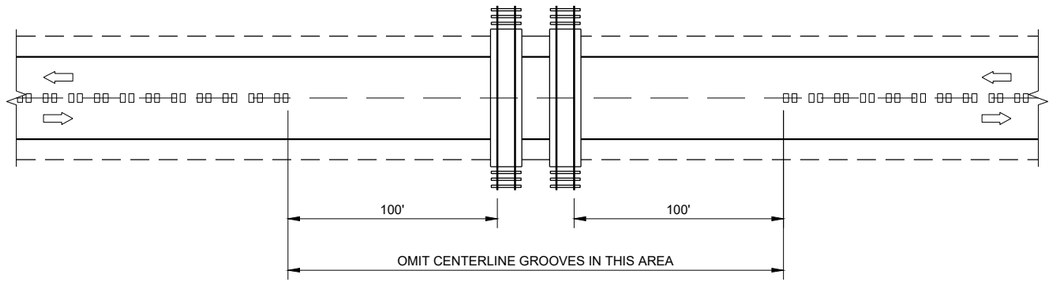
CENTERLINE GROOVES AT DRIVEWAYS (1)

GENERAL NOTES

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



CENTERLINE GROOVES AT BRIDGES



CENTERLINE GROOVES AT RAILROADS

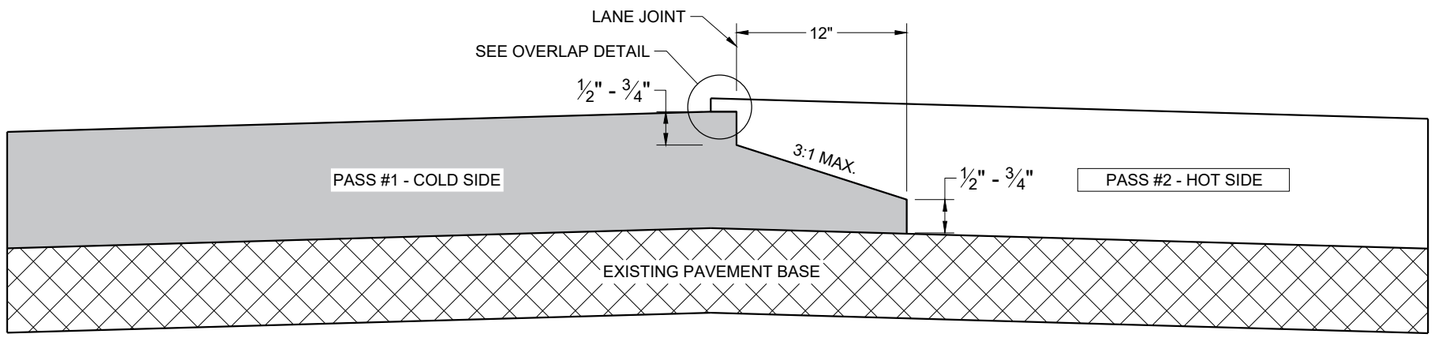
2-LANE RURAL CENTERLINE RUMBLE STRIP, MILLING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

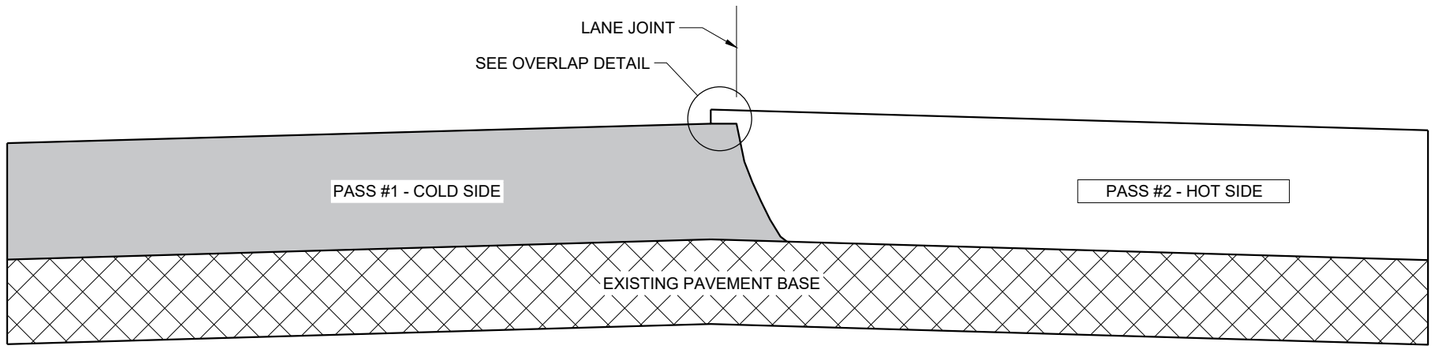
APPROVED
7/2018
DATE
/S/ Rodney Taylor
ROADWAY STANDARDS DEVE ENGINEER

FHWA

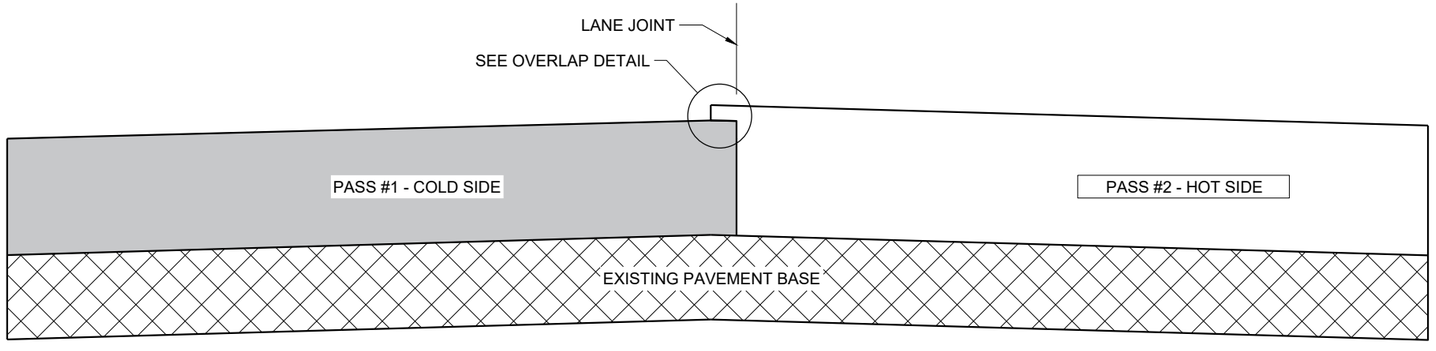
6
SDD 13A11 - 03b



TYPICAL PAVEMENT CROSS SECTION
OF NOTCHED WEDGE LONGITUDINAL JOINT



TYPICAL PAVEMENT CROSS SECTION
VERTICAL LONGITUDINAL JOINT



TYPICAL PAVEMENT CROSS SECTION
OF MILLED LONGITUDINAL JOINT

GENERAL NOTES

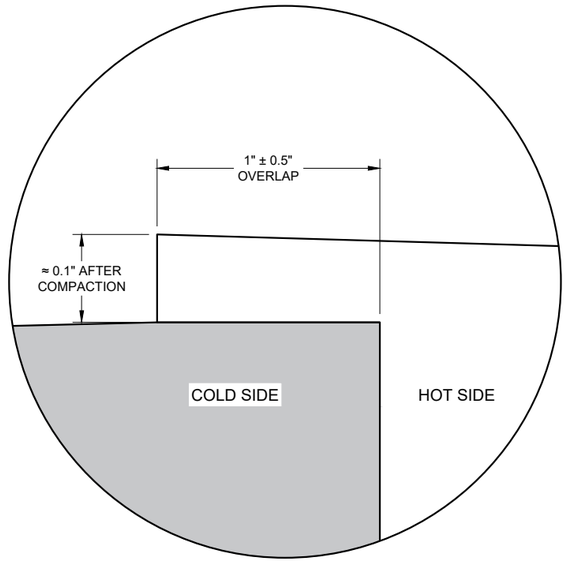
IN ADDITION TO THE DETAILS PROVIDED IN THIS DRAWING, CONFORM TO STANDARD SPECIFICATION 450.3.2.8 FOR WHEN A NOTCHED WEDGE JOINT IS REQUIRED AND FOR GENERAL JOINT CONSTRUCTION REQUIREMENTS.

FOR ALL LONGITUDINAL JOINTS, ENSURE THE PAVER SCREED OVERLAPS THE PREVIOUSLY PLACED PAVEMENT BY 1" ± 0.5" AND THE HOT SIDE OF THE JOINT REMAINS HIGHER THAN THE COLD SIDE BY APPROXIMATELY 0.1" AFTER FINAL COMPACTION.

ONLY REMOVE THE LONGITUDINAL NOTCHED WEDGE JOINT FOR SMA PAVEMENT OR AS DIRECTED BY THE ENGINEER TO ADDRESS SPECIFIC LENGTHS OF JOINT DAMAGED BY TRAFFIC.

WHEN MILLING BACK OR REMOVING ANY LONGITUDINAL JOINT, LIMIT THE MATERIAL REMOVED TO 2" FROM THE TOP NOTCH OR FROM THE VERTICAL JOINT EDGE ON THE COLD SIDE OF THE JOINT.

USE LONGITUDINAL MILLED JOINT AS PLANS SHOW OR THE AS THE ENGINEER DIRECTS.



OVERLAP DETAIL (TYPICAL)

HMA LONGITUDINAL JOINTS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

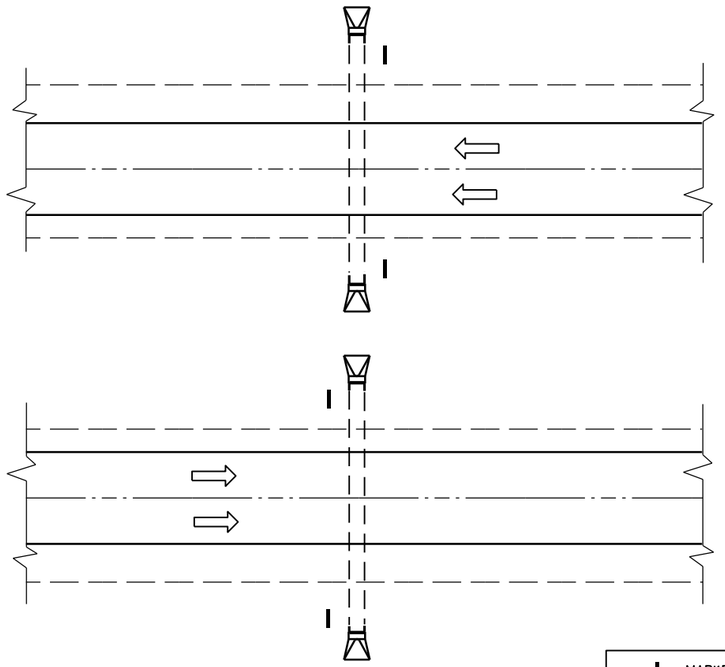
APPROVED
February 2020
DATE

/S/ Steven Hefel
HMA PAVEMENT ENGIN

FHWA

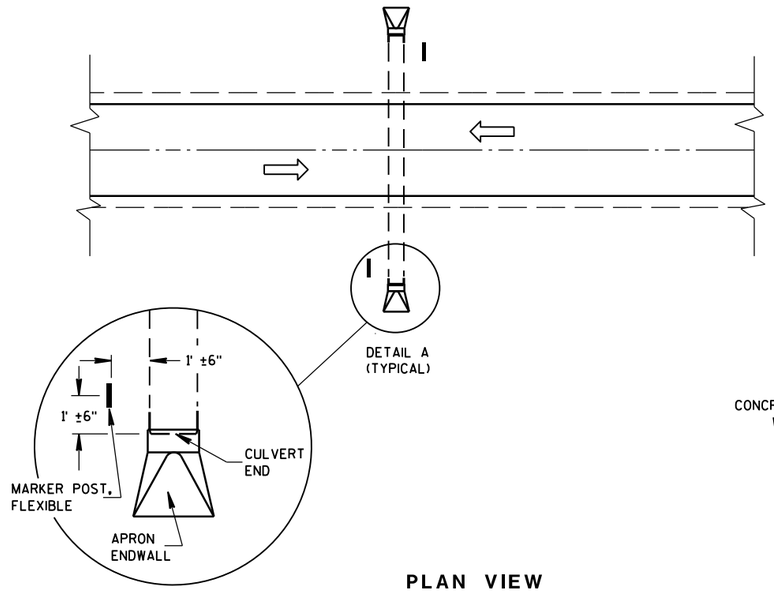
6

SDD 13C19 - 02



PLAN VIEW

DIVIDED HIGHWAY



DETAIL A
(TYPICAL)

PLAN VIEW

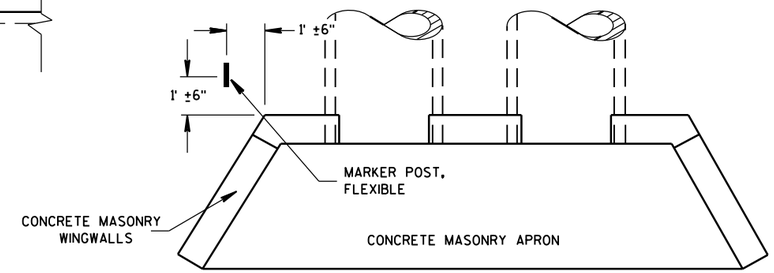
UNDIVIDED HIGHWAY

MARKER POST, FLEXIBLE

DIRECTION OF TRAFFIC FLOW

GENERAL NOTES

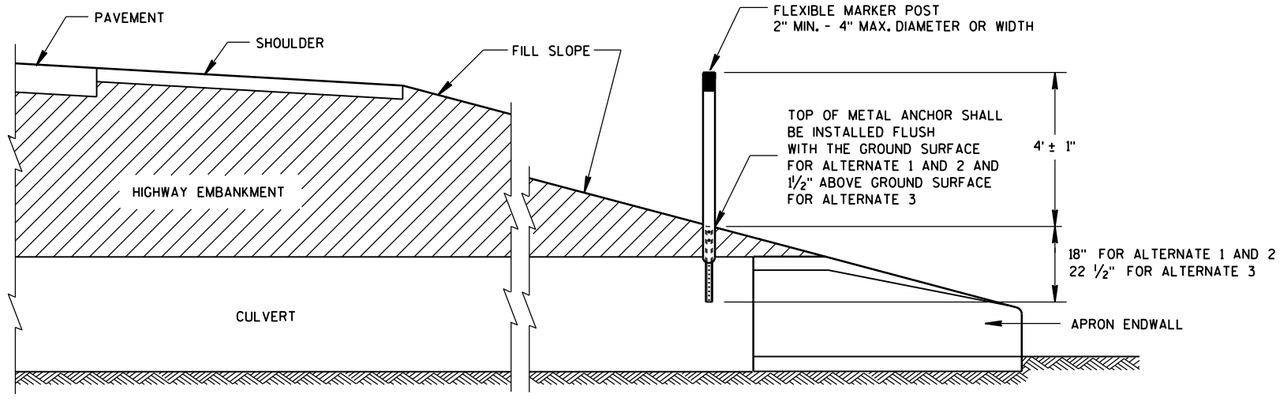
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.



PLAN VIEW

CONCRETE MASONRY ENDWALLS FOR CULVERT PIPE AND PIPE ARCH

FLEXIBLE MARKER POST LOCATION



CROSS SECTION

FLEXIBLE MARKER POST

FLEXIBLE MARKER POST
FOR CULVERT END

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

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

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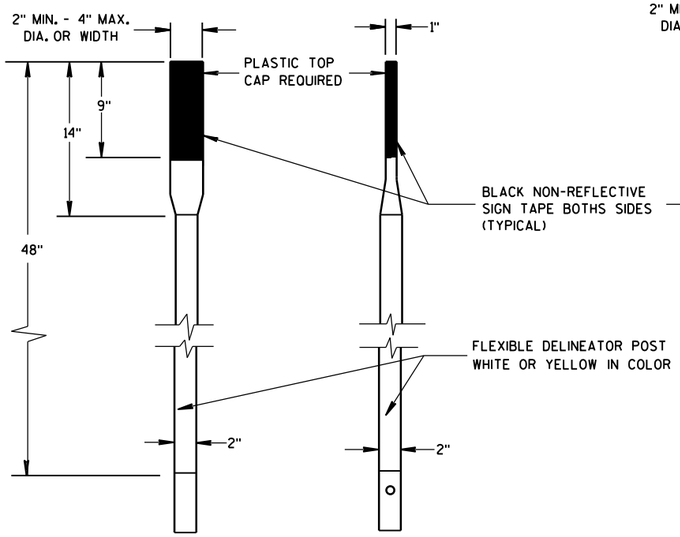
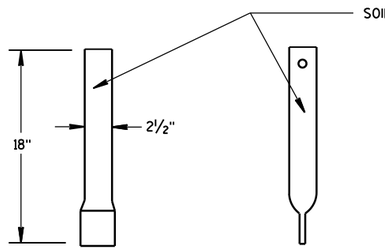
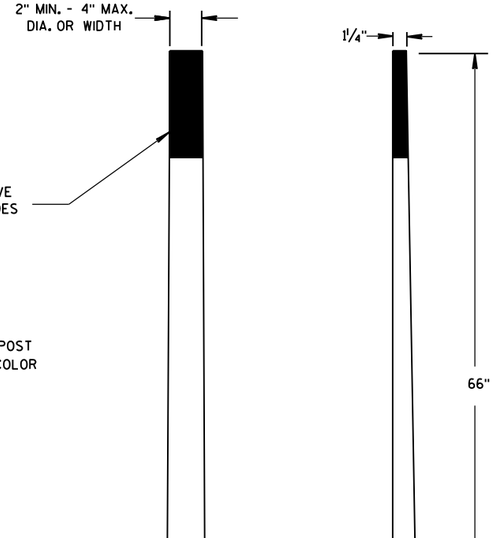
S.D.D. 15 A 3-2a





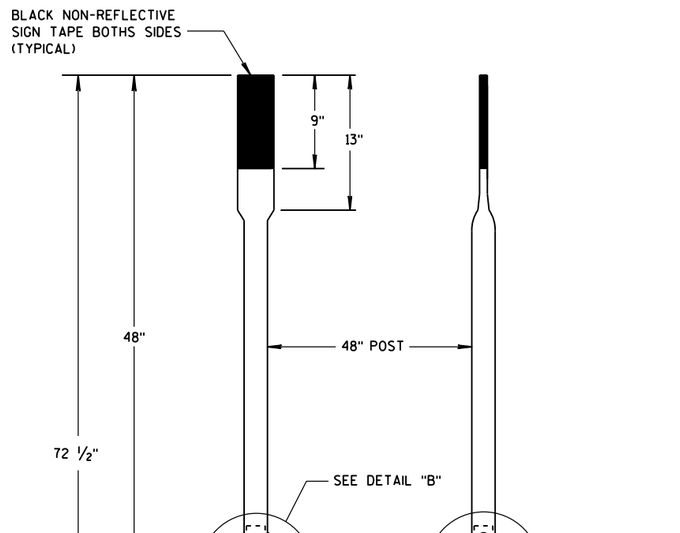
FRONT VIEW SIDE VIEW

ALTERNATE 1



FRONT VIEW SIDE VIEW

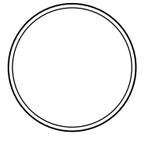
ALTERNATE 2



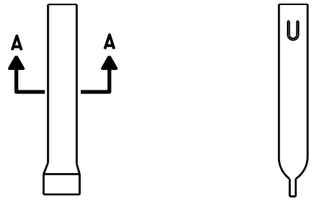
FRONT VIEW SIDE VIEW

ALTERNATE 3

FLEXIBLE MARKER POSTS

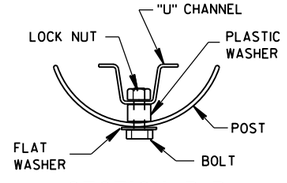


SECTION A-A

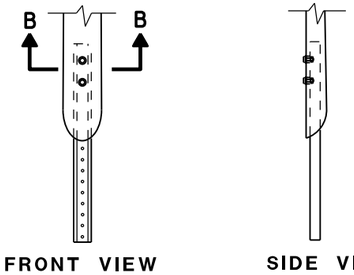


FRONT VIEW SIDE VIEW

ALTERNATE 1

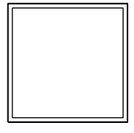


SECTION B-B

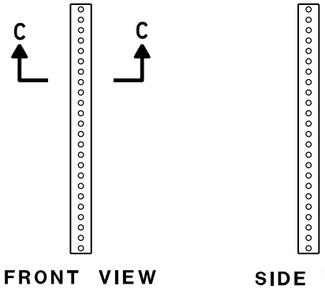


FRONT VIEW SIDE VIEW

ALTERNATE 2



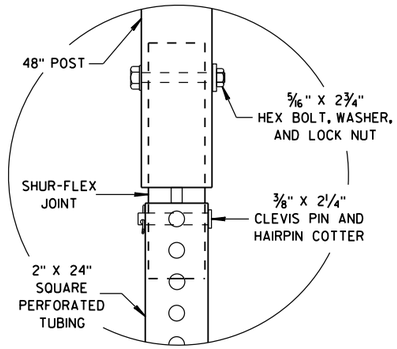
SECTION C-C



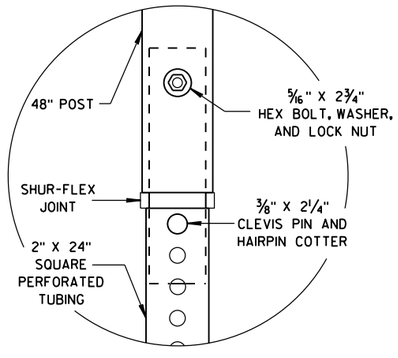
FRONT VIEW SIDE VIEW

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
IGN
FHWA

6
S.D.D. 15 A 3-2b

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.

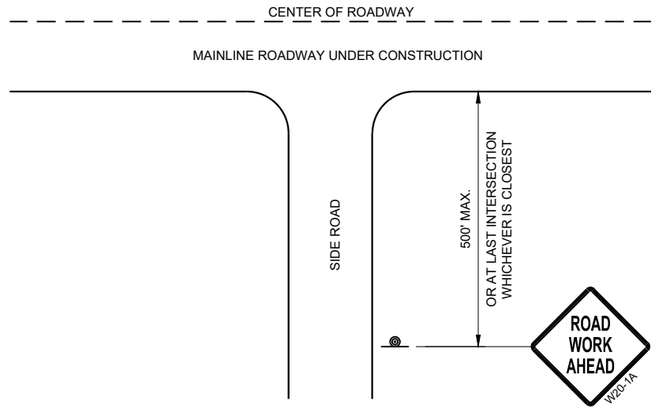
ALL SIGNS ARE 48" X 48" UNLESS OTHERWISE NOTED.

SIGNS THAT WILL BE IN PLACE LESS THAN SEVEN 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 REESTABLISHED.

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

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



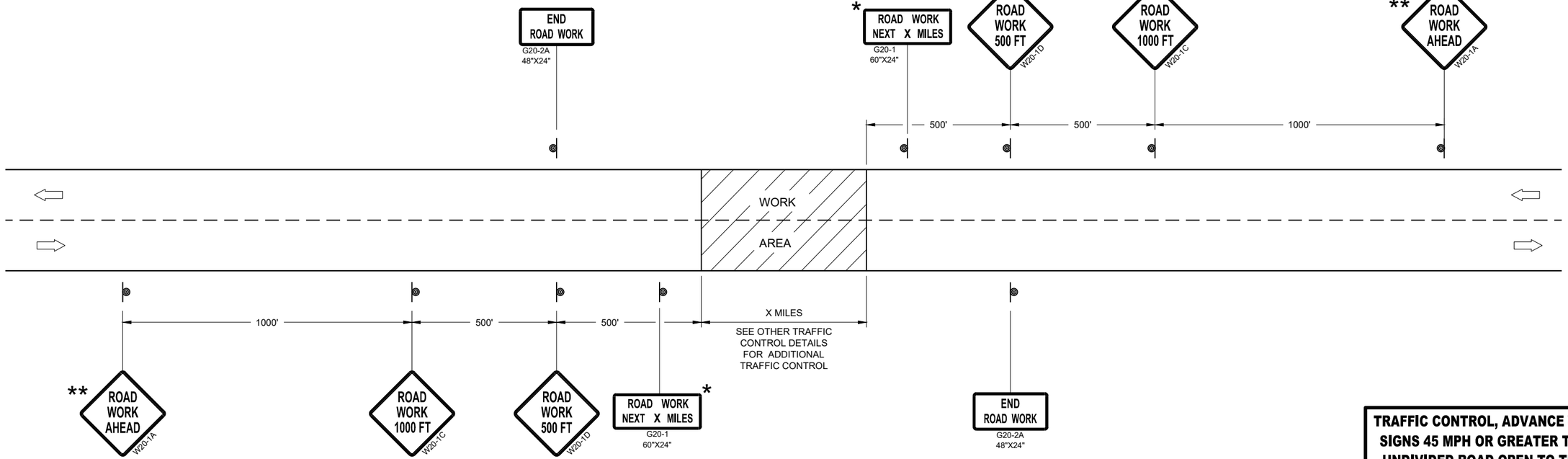
TYPICAL SIDE ROAD APPROACH WARNING SIGN DETAIL

LEGEND

SIGN ON PERMANENT SUPPORT

DIRECTION OF TRAFFIC

WORK AREA



TRAFFIC CONTROL, ADVANCE WARNING SIGNS 45MPH OR GREATER

TRAFFIC CONTROL, ADVANCE WARNING SIGNS 45 MPH OR GREATER TWO-WAY UNDIVIDED ROAD OPEN TO TRAFFICE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
July 2018
DATE

/S/ Andrew Heidtke
WORK ZONE ENGINEE

FHWA

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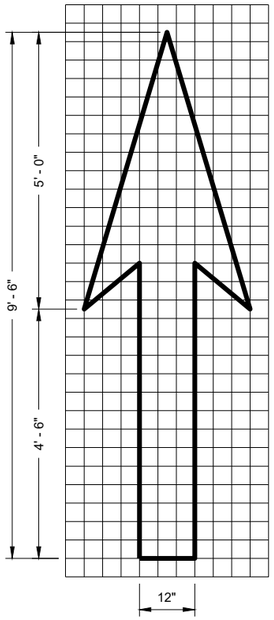
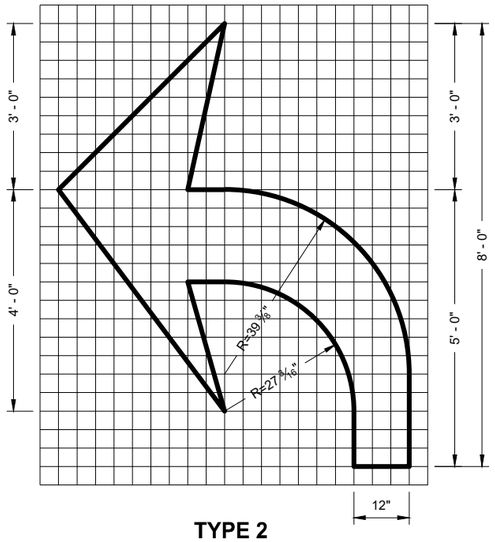
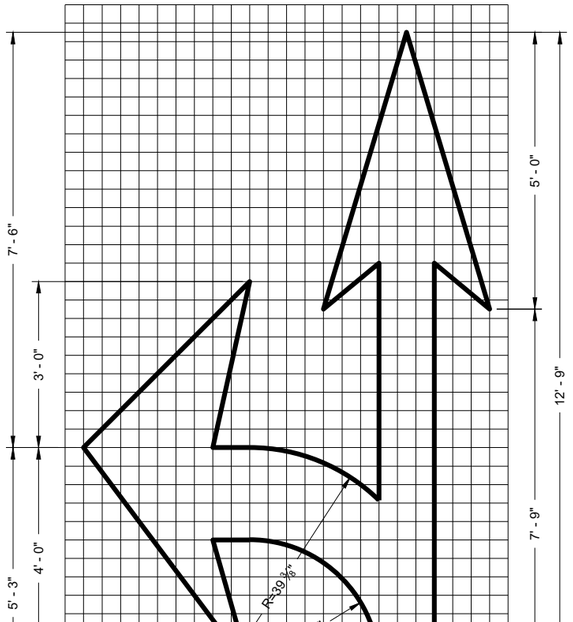
SDD 15C04 - 05



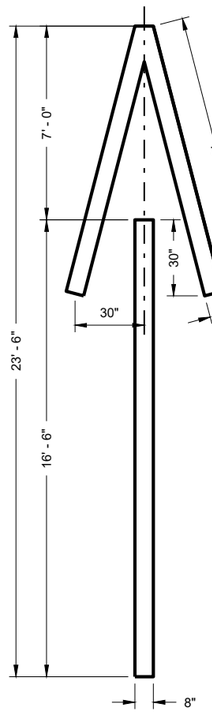
TYPE 1



TYPE 2



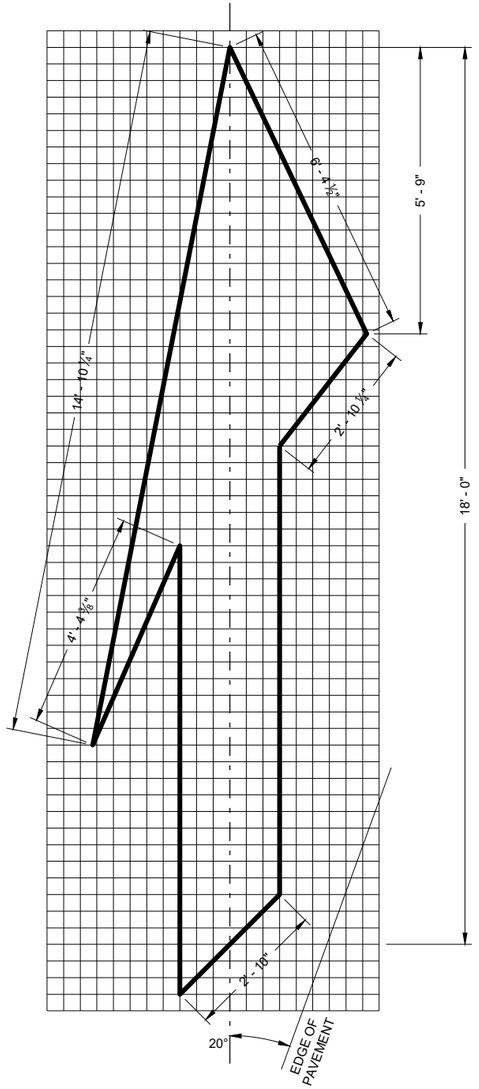
TYPE 3



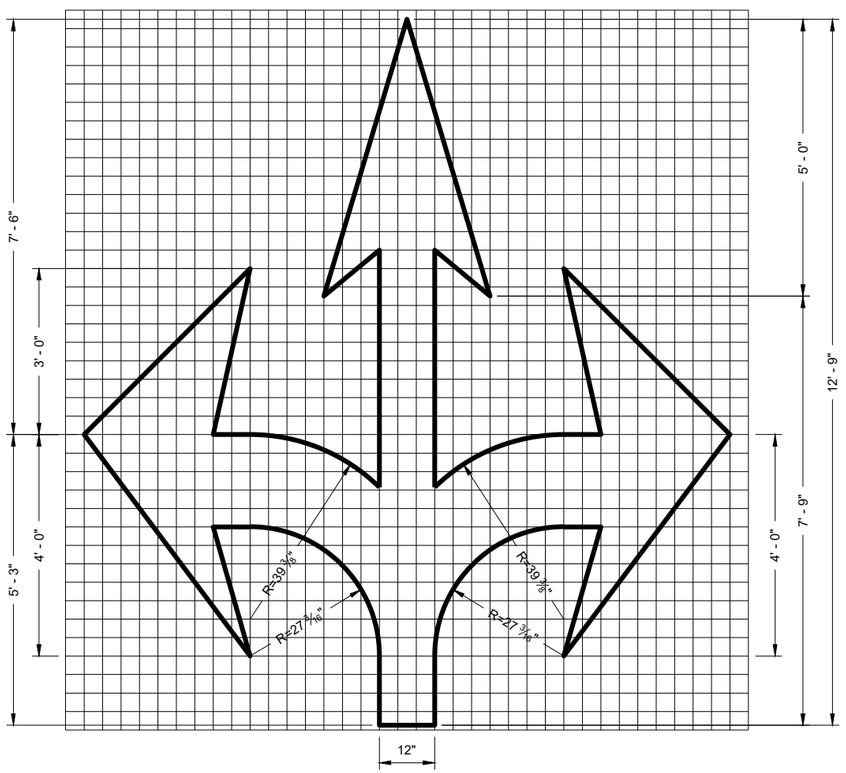
TYPE 4

GENERAL NOTES

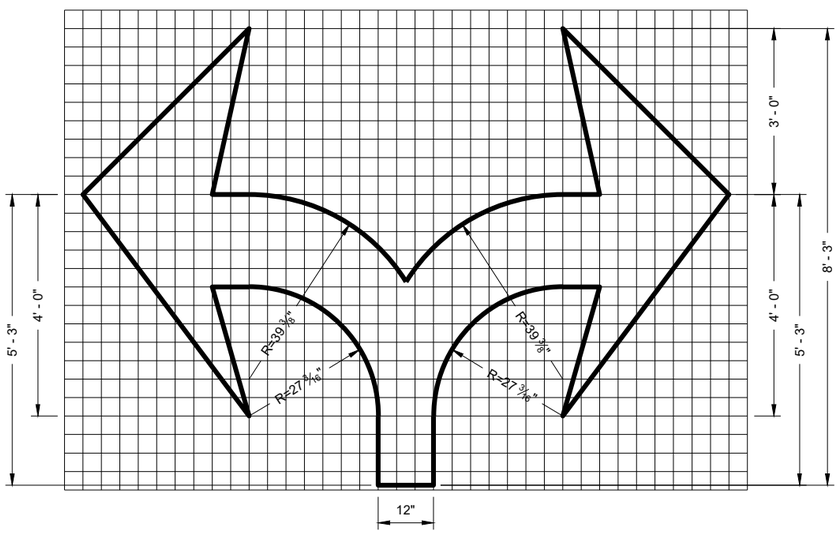
DETAILS OF INSTALLATION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.



TYPE 5 LANE DROP ARROW



TYPE 6



TYPE 7

PAVEMENT MARKING ARROWS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
November 2019 — DATE
/S/ Matthew Rauch — STATE SIGNING AND MAF ENGINEER

FHWA

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SDD 15C07 - 15c

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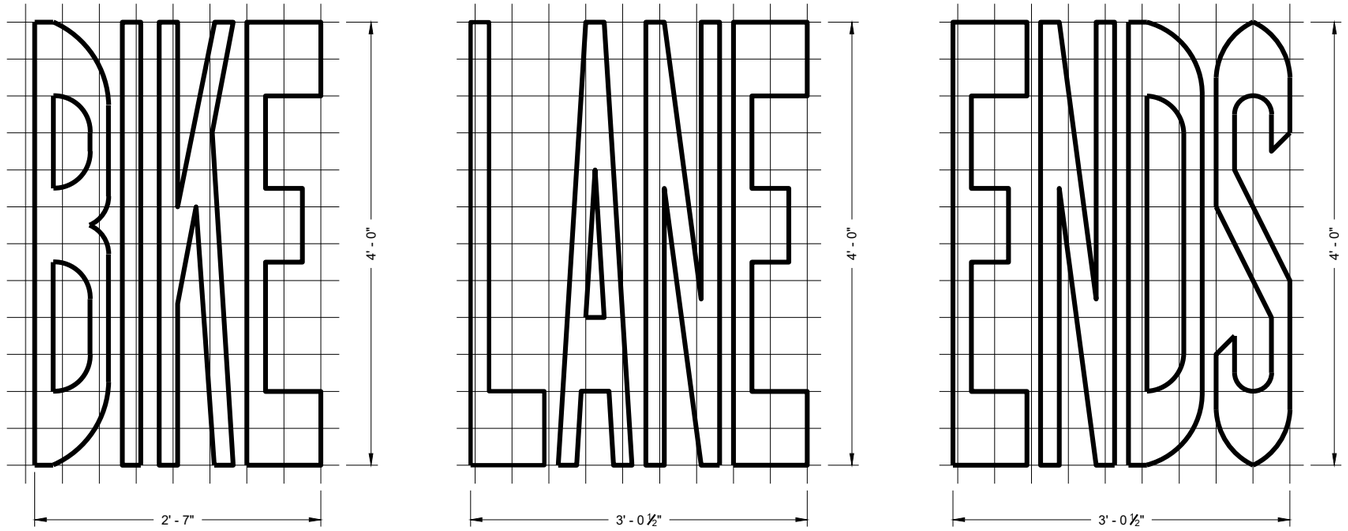
SDD 15C07 - 15c

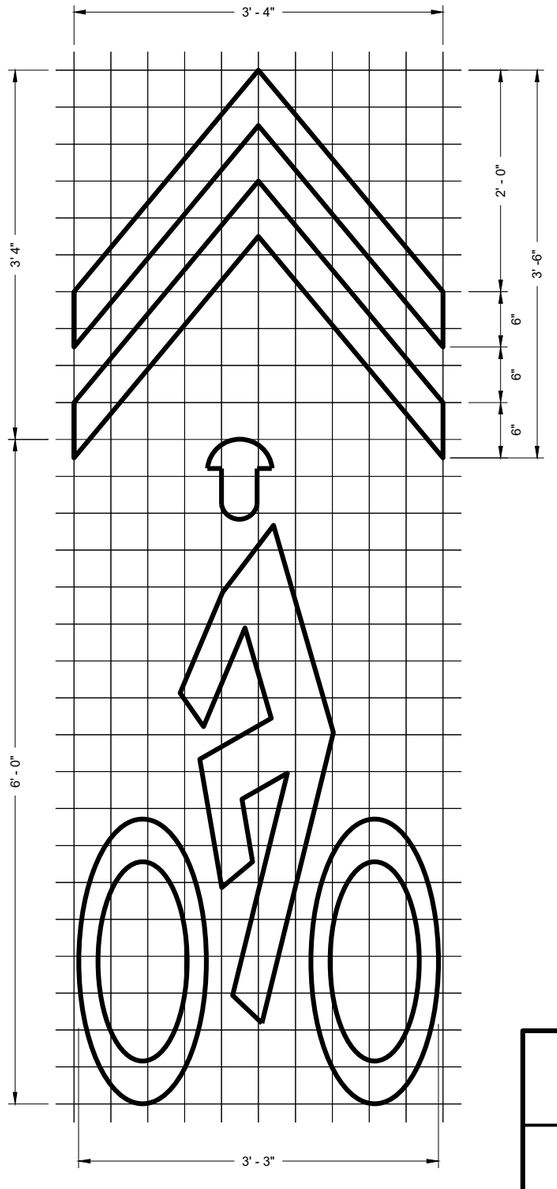
SDD 15C7-e Pavement Marking For Bike Lanes

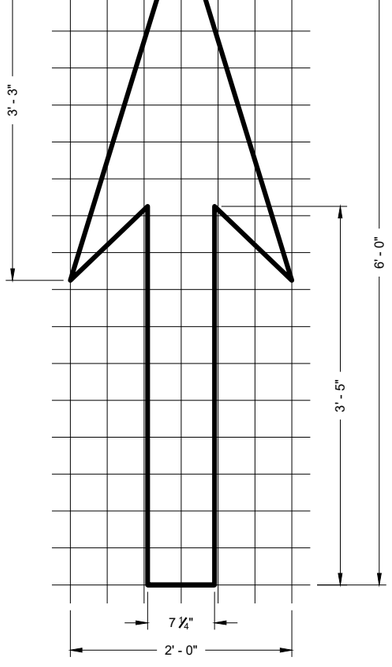


BIKE LANE WORDS

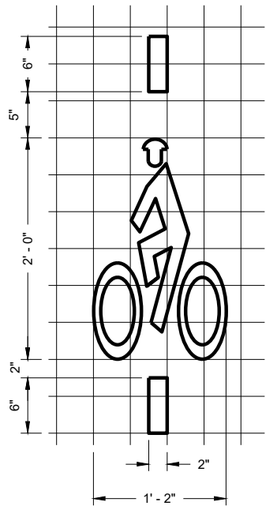
GENERAL NOTES

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

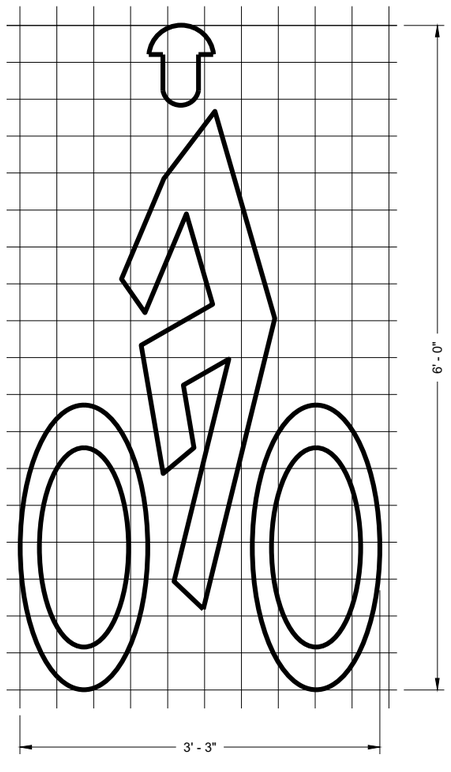




BIKE LANE ARROW



BICYCLE DETECTOR PAVEMENT MARKING



BIKE LANE SYMBOL

BIKE LANE SYMBOL FOR SHARED LANE

PAVEMENT MARKING FOR BIKE LANES

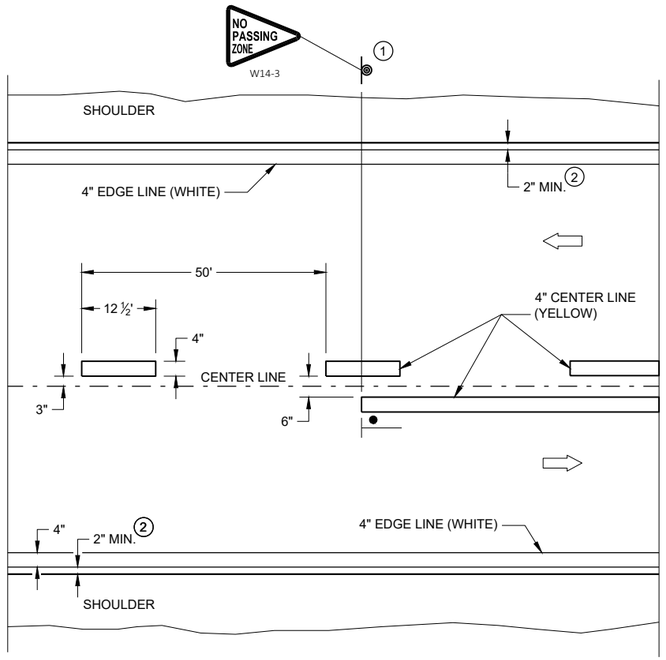
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
November 2019 — DATE
/S/ Matthew Rauch — STATE SIGNING AND MAF ENGINEER

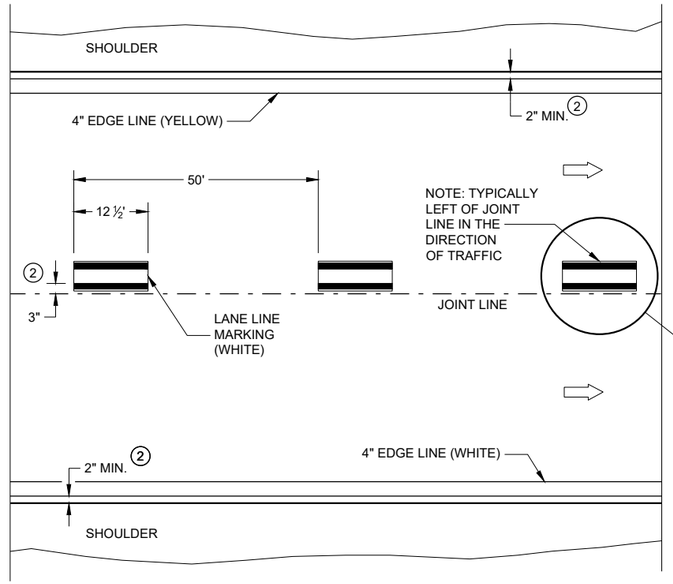
FHWA

6

SDD 15C07 - 15e

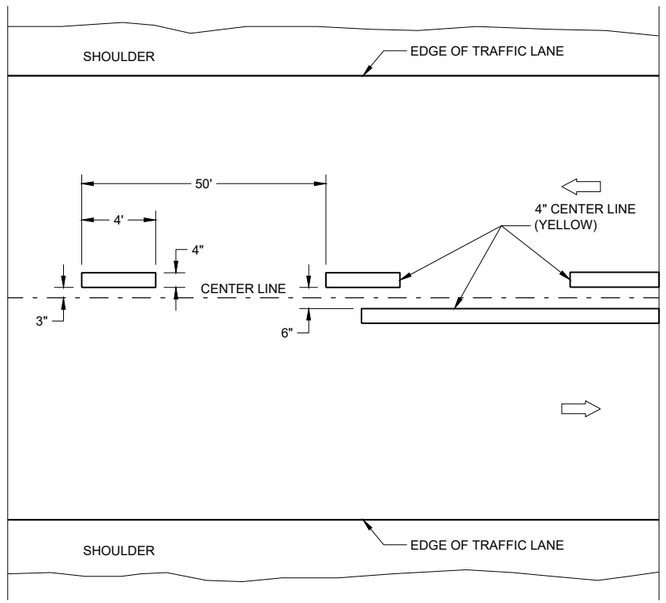


TWO WAY TRAFFIC

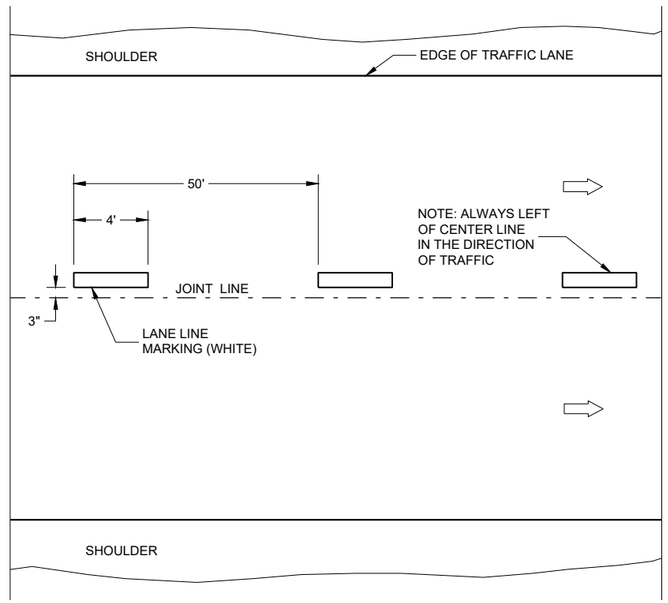


ONE WAY TRAFFIC

PERMANENT PAVEMENT MARKING



TWO WAY TRAFFIC



ONE WAY TRAFFIC

TEMPORARY PAVEMENT MARKING

GENERAL NOTES

DETAILS OF CONSTRUCTION NO SHOWN ON THIS DRAWING SHALL CONFORM TO STANDARD SPECIFICATIONS AND SPECIAL PROVISIONS.

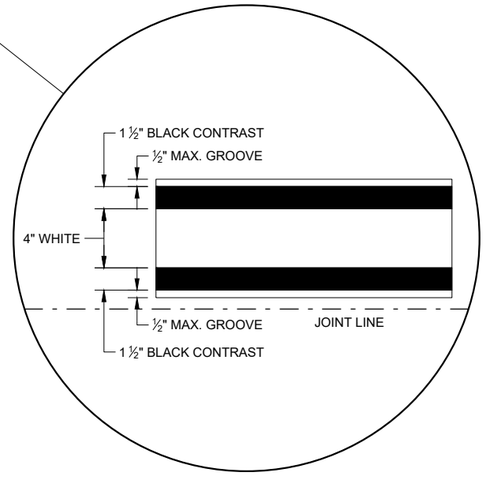
1. LOCATE THE NO PASSING ZONE W14-3 SIGN WITH 50 FEET OF THE "T" MARKING
2. MEASURE FROM EDGE OF MARKING TO JOINT LINE. THIS DOES NOT INCLUDE SPACE NEEDED FOR GROOVING OPERATIONS.

LEGEND

"T" MARKING

SIGN ON PERMANENT SUPPORT

DIRECTION OF TRAFFIC



LONGITUDINAL MARKING (MAINLINE)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
February 2020
DATE
/S/ Matthew Rauch
STATEWIDE SIGNING AND M ENGINEER

FHWA

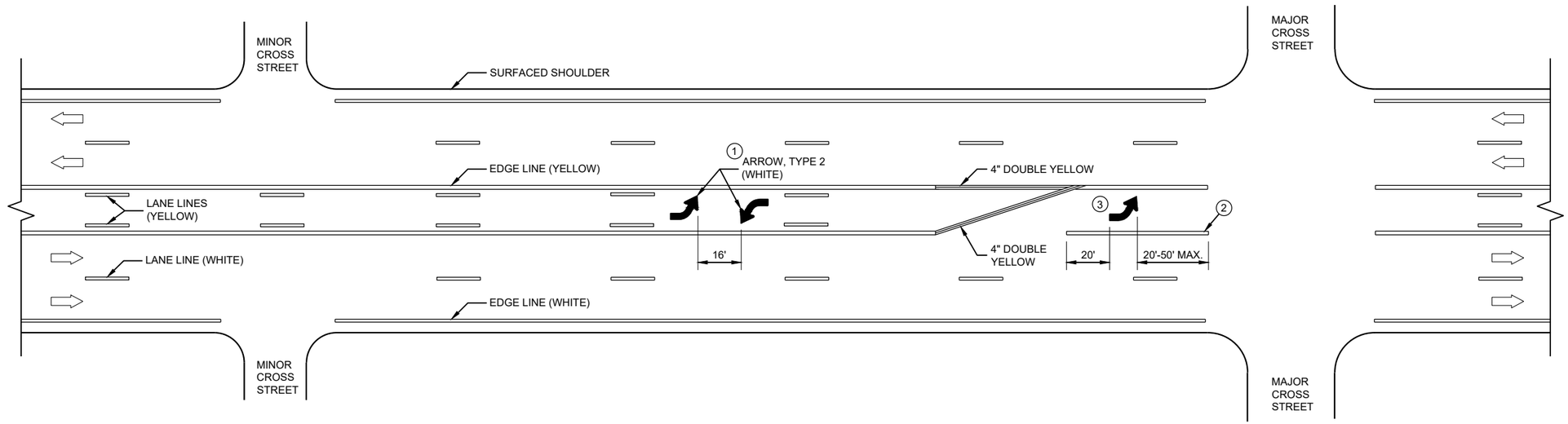
SDD 15C08 - 20a

SDD 15C08 - 20a

GENERAL NOTES

1. A SET OF ARROWS IS REQUIRED EVERY 400 FEET OR NEAR INTERSECTIONS OR DRIVEWAYS WITH TURNING TRAFFIC.
2. 8" WHITE
3. TURN BAY LENGTH OF LESS THAN 48' DOES NOT REQUIRE PAVEMENT ARROWS OR TEXT.

DIRECTION OF TRAFFIC



TWO WAY LEFT TURN LANE

6

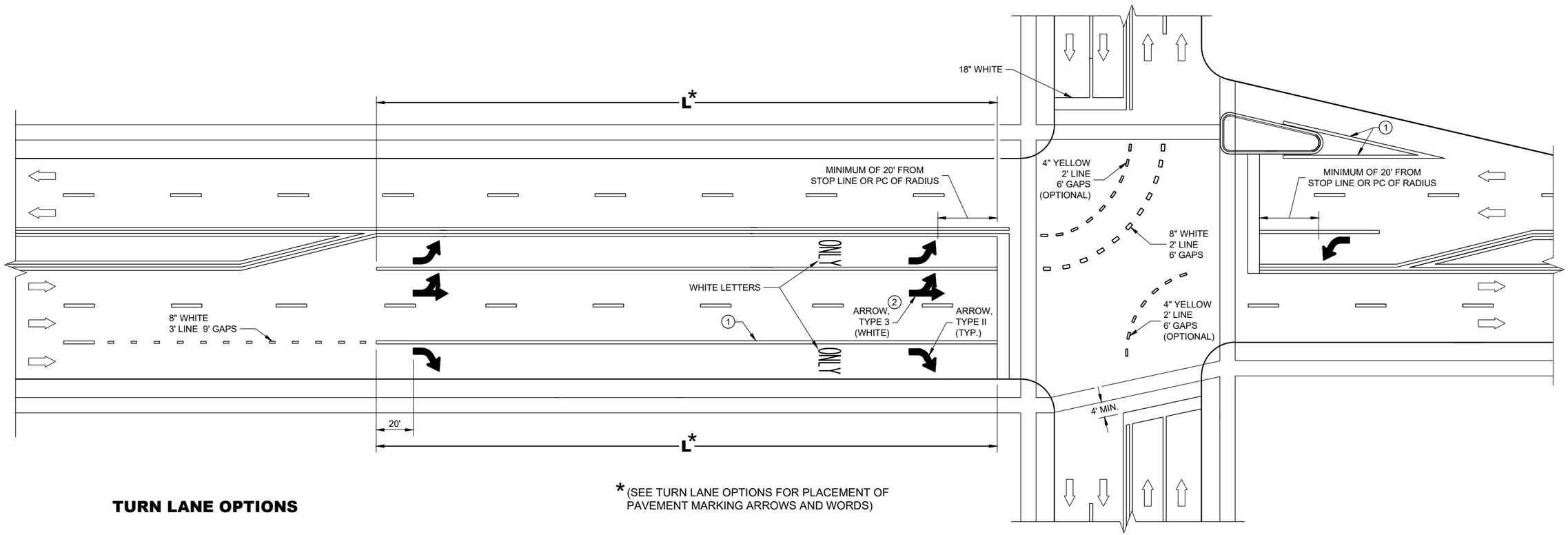
SDD 15C08 - 20b

PAVEMENT MARKING (TURN LANES)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

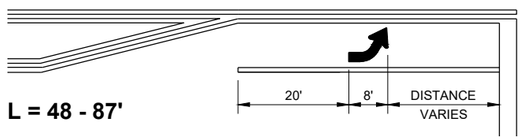
SDD 15C08 - 20b



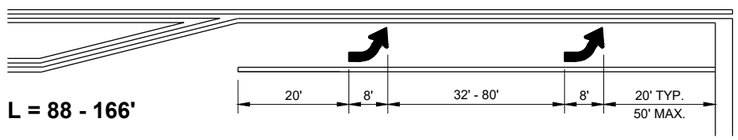
* (SEE TURN LANE OPTIONS FOR PLACEMENT OF PAVEMENT MARKING ARROWS AND WORDS)

TURN LANE OPTIONS

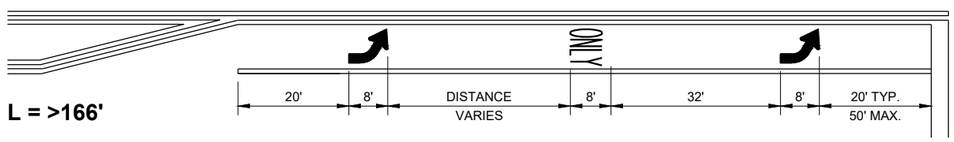
LENGTH OF TURN BAY (**L**) OF 0 - 47' DOES NOT REQUIRE PAVEMENT MARKING ARROWS OR WORDS



L = 48 - 87'



L = 88 - 166'



L = >166'

GENERAL NOTES

1. 8" WHITE
2. QUANTITY AND LOCATION OF TYPE 3 ARROWS ARE THE SAME AS THE TYPE II ARROWS IN THE ADJACENT TURN LANE. FOR TURN LANES WITH A PHYSICAL SEPARATION IN THE SAME DIRECTION OF TRAVEL, THE ARROWS AND "ONLY" MARKING MAY BE ELIMINATED.

DIRECTION OF TRAFFIC

L = LENGTH OF TURN BAY

PAVEMENT MARKING (TURN LANES)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

SDD 15C08 - 20c

LEGEND

SIGN ON PORTABLE OR PERMANENT SUPPORT

TEMPORARY PORTABLE RUMBLE STRIP ARRAY

DIRECTION OF TRAFFIC

WORK AREA

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

GENERAL NOTES

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

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

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

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

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

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

FLAGGING

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

(1) FOR MOVING WORK OPERATIONS, POST ADDITIONAL W20-7A FLAGGER SIGNS AT APPROXIMATELY 3,500' INTERVALS IN THE MOVING WORK OPERATION OR AS APPROVED BY THE ENGINEER.

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

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

TEMPORARY PORTABLE RUMBLE STRIPS

UTILIZE TEMPORARY PORTABLE RUMBLE STRIPS ON ALL FLAGGING OPERATIONS.

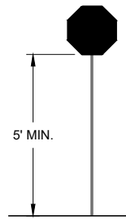
(3) EACH TEMPORARY PORTABLE RUMBLE STRIP ARRAY CONSISTS OF THREE RUMBLE STRIPS SPACED ACCORDING TO MANUFACTURER'S RECOMMENDATION, PLACED TRANSVERSE ACROSS THE LANE AT LOCATIONS SHOWN.

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

INSTALL TEMPORARY RUMBLE STRIPS PER MANUFACTURER'S RECOMMENDATIONS.

PLACE ADVANCE SIGNING PRIOR TO INSTALLING TEMPORARY RUMBLE STRIPS.

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



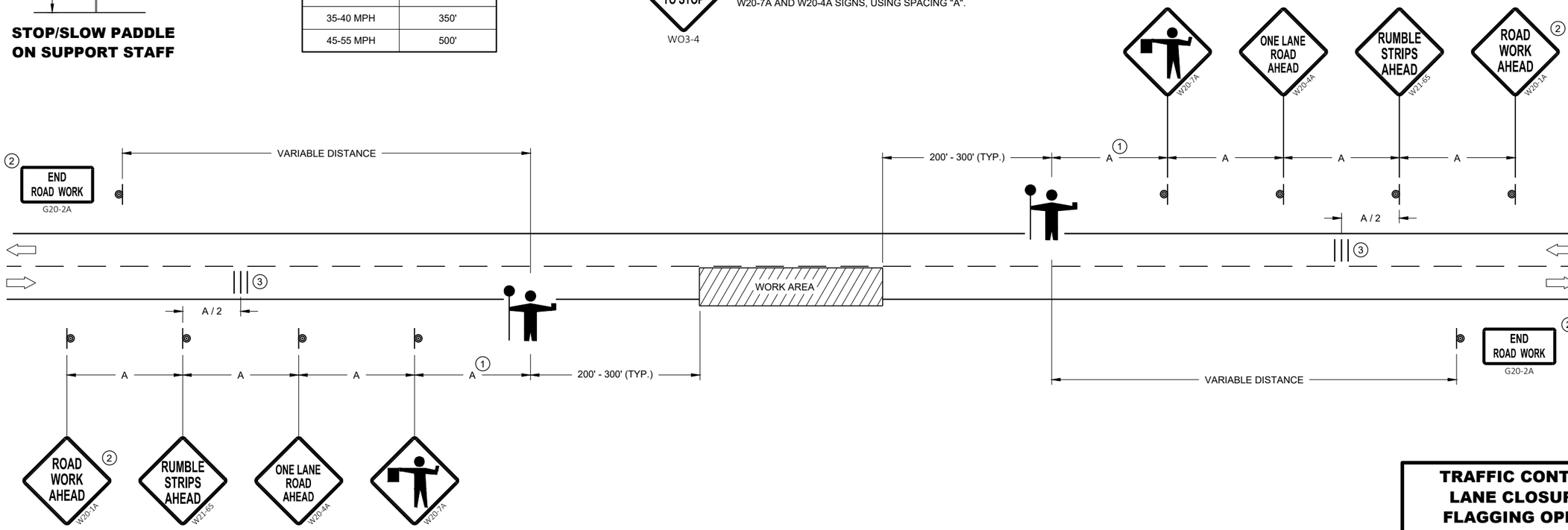
STOP/SLOW PADDLE ON SUPPORT STAFF

SIGN AND TEMPORARY RUMBLE STRIP ARRAY SPACING TABLE

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

WO3-4

USE OF WO3-4 SIGN IS OPTIONAL. WHEN USED, THIS SIGN SHALL BE LOCATED BETWEEN THE W20-7A AND W20-4A SIGNS, USING SPACING "A".



TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATION

TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATION

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May 2019
DATE

/S/ Andrew Heidtke
WORK ZONE ENGINEE

FHWA

6
SDD 15C12 - 07

LEGEND

V1 LEAD VEHICLE

V2 MARKING VEHICLE

V3 SHADOW VEHICLE

TRUCK MOUNTED ATTENUATOR (TMA)

SIGN ON TEMPORARY SUPPORT

DIRECTION OF TRAFFIC

FLASHING ARROW PANEL (CAUTION)

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.

ALL 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.

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 AND HORIZONTAL CURVES THAT RESTRICT SIGHT DISTANCE.

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

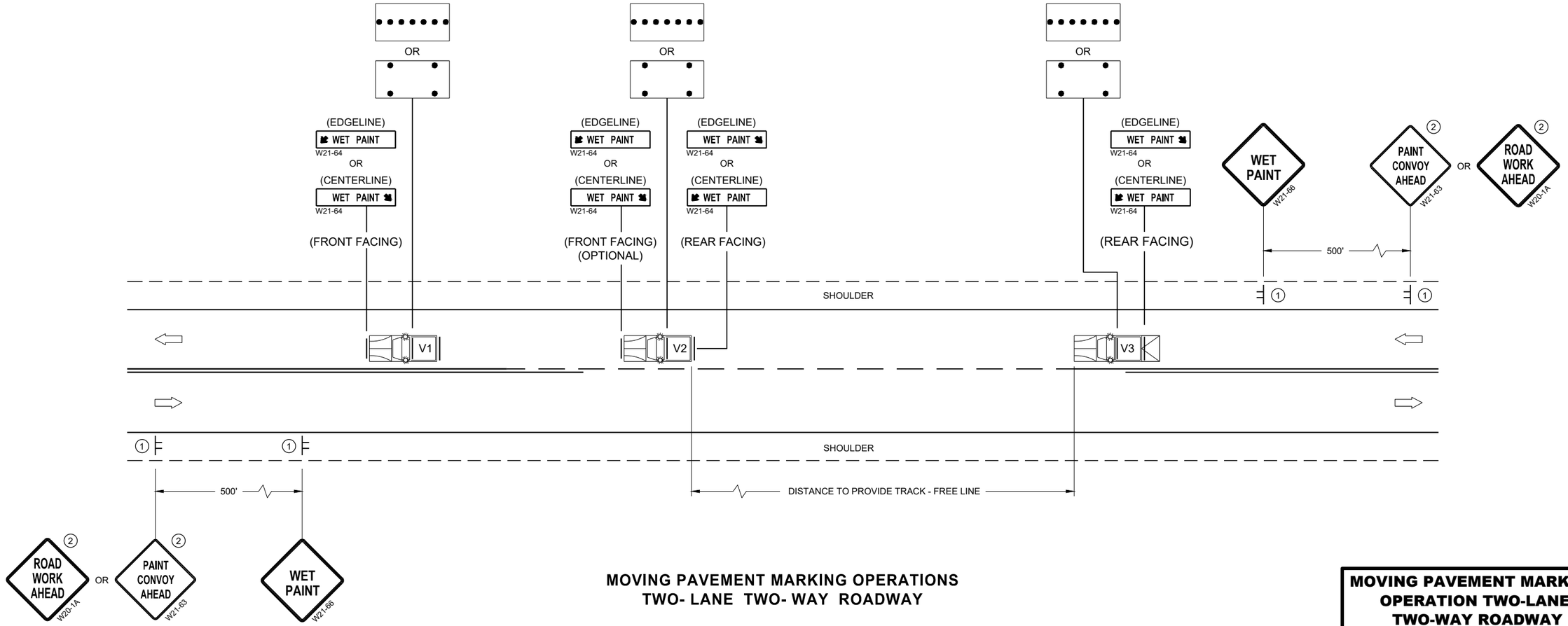
WHEN NO WORK ACTIVITY IS TAKING PLACE, REMOVE OR LAY STATIONARY SIGNS AND SUPPORTS FLAT ON THE GRADE WITH UPRIGHTS ORIENTED PARALLEL TO AND DOWNSTREAM FROM TRAFFIC.

CONES SHOULD BE USED BETWEEN THE MARKING AND SHADOW VEHICLE AT 100 FOOT SPACING. CONES MAY BE OMITTED ON PAINTED LINE IF APPROVED BY THE ENGINEER. CONSIDER PAVEMENT MARKING DRY OR CURE TIMES AND TRAFFIC VOLUME.

CONES SHALL BE A MINIMUM OF 18" FOR WET PAVEMENT MARKING .

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

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



MOVING PAVEMENT MARKING OPERATIONS TWO- LANE TWO- WAY ROADWAY

MOVING PAVEMENT MARKING OPERATION TWO-LANE TWO-WAY ROADWAY

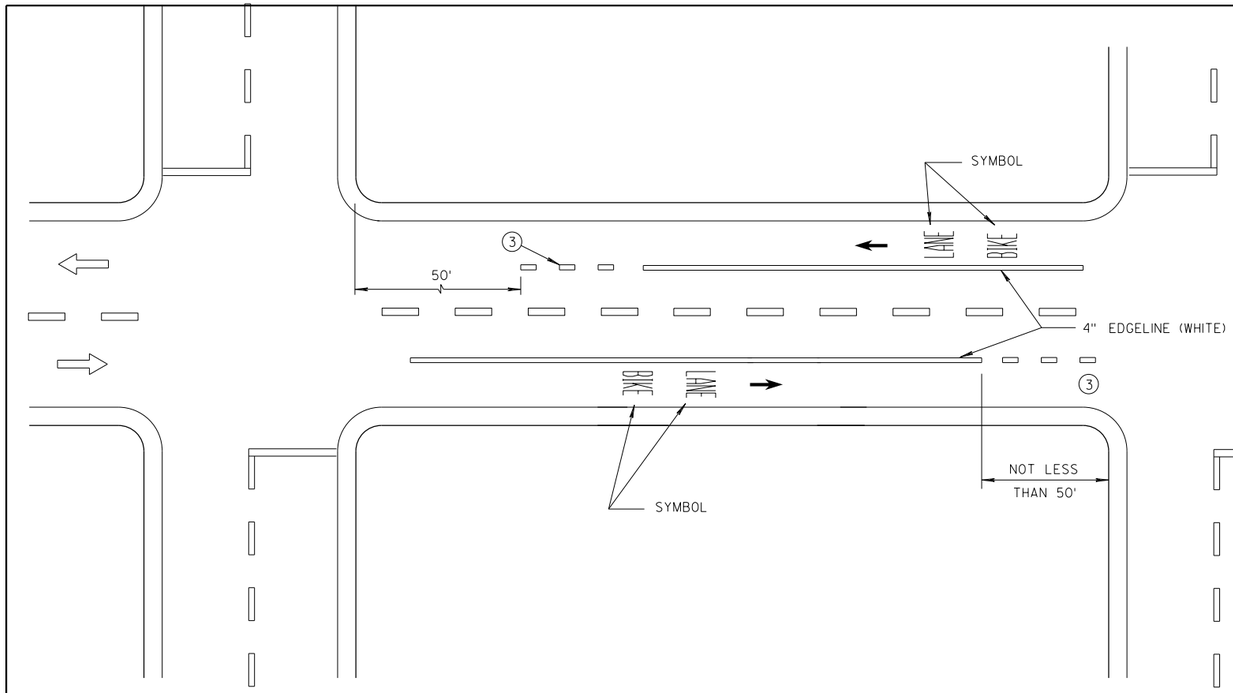
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

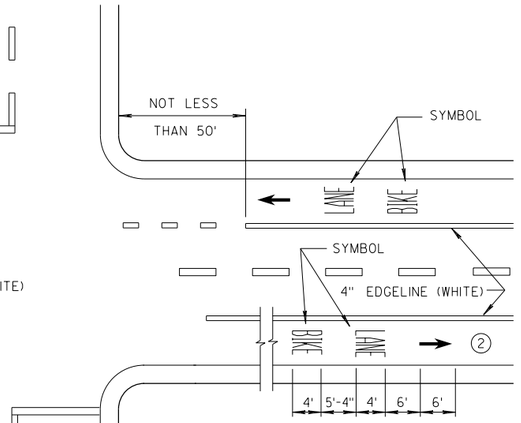
APPROVED
November 2019
DATE

/S/ Andrew Heidtke
WORK ZONE ENGINEE

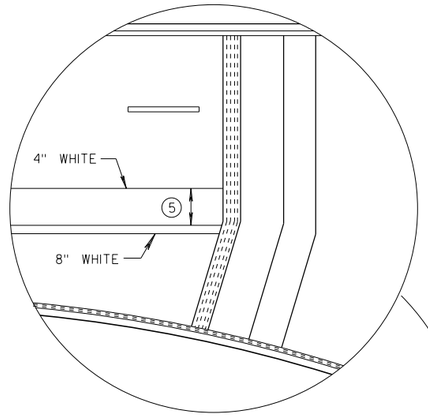
FHWA

6 SDD 15C19 - 06a

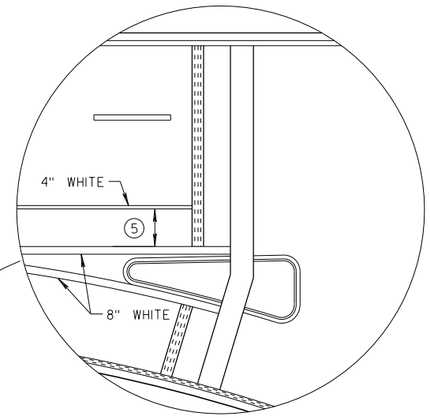




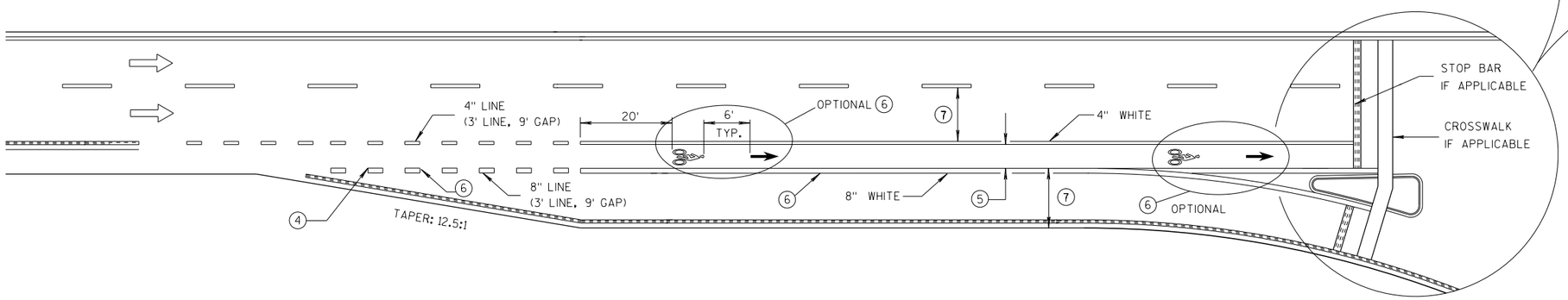
DESIGNATED BICYCLE LANE
NO PARKING



4 LANE DIVIDED WITHOUT ISLAND



4 LANE DIVIDED WITH ISLAND



BIKE LANE - FOR 2-LANE ROADWAYS AND 4-LANE DIVIDED ROADWAYS
(4-LANE DIVIDED WITH RIGHT TURN LANE SHOWN)

GENERAL NOTES

1. DETAILS OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO STANDARD SPECIFICATIONS AND SPECIAL PROVISIONS.
2. MINIMUM OF ONE PER BLOCK. MAXIMUM OF 250 FEET.
3. DOTTED LINES (3' LINE, 9' GAP) SHOULD BE USED 50 FEET TO 200 FEET IN ADVANCE OF AN INTERSECTION WHERE THERE IS NO RIGHT TURN ONLY LANE AND THERE IS HEAVY RIGHT TURN TRAFFIC OR THERE IS A NEAR-SIDE BUS STOP. AT OTHER INTERSECTIONS WHERE RIGHT TURN TRAFFIC IS LIGHT TO MODERATE, A SOLID LINE CAN BE USED UP TO THE INTERSECTION.
4. IF SIGNED AND/OR MARKED AS A BICYCLE FACILITY INCLUDE SECOND LINE OF LINE-SPACE MARKING, OTHERWISE DO NOT.
5. BIKE ACCOMODATION IS TYPICALLY 5 FEET WIDE AND A MINIMUM OF 4 FEET FROM A LONGITUDINAL JOINT. USE 5 FEET AT 45 MPH.
6. OMIT THESE MARKINGS FOR WIDER TURN LANE APPLICATIONS (MINIMUM OF 15 FEET WIDE TURN LANE).
7. REFER TO CONTRACT PLANS FOR LANE WIDTH.

DIRECTION OF TRAVEL

BICYCLE LANE MARKING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

7/2018
DATE

/S/ Matthew R. Rauch
STATE SIGNING AND MAR 49 NEER

FHWA

6

S.D.D. 15 C 29-6a

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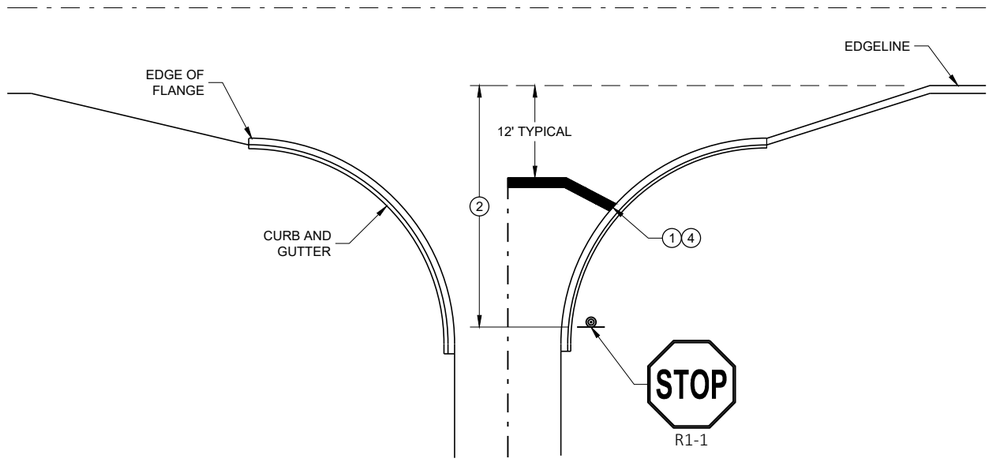
S.D.D. 15 C 29-6a

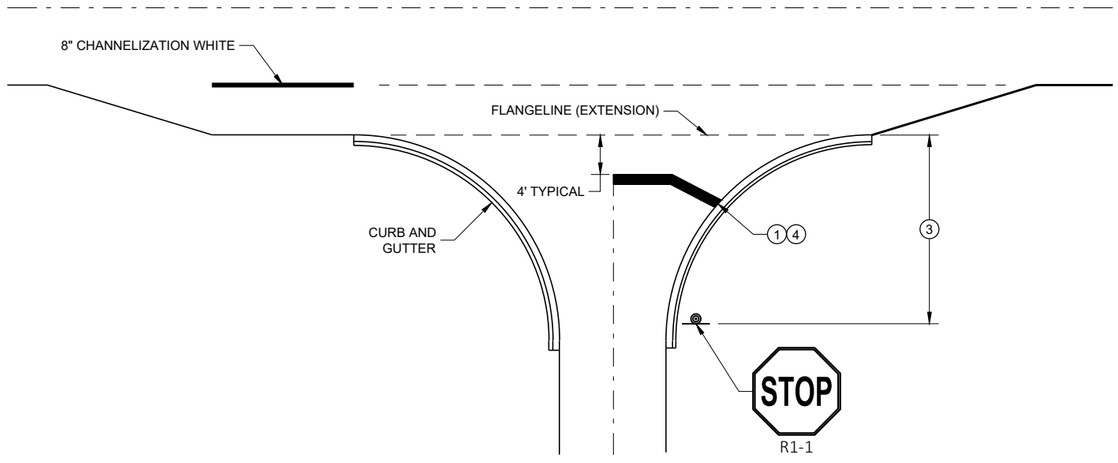
GENERAL NOTES

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

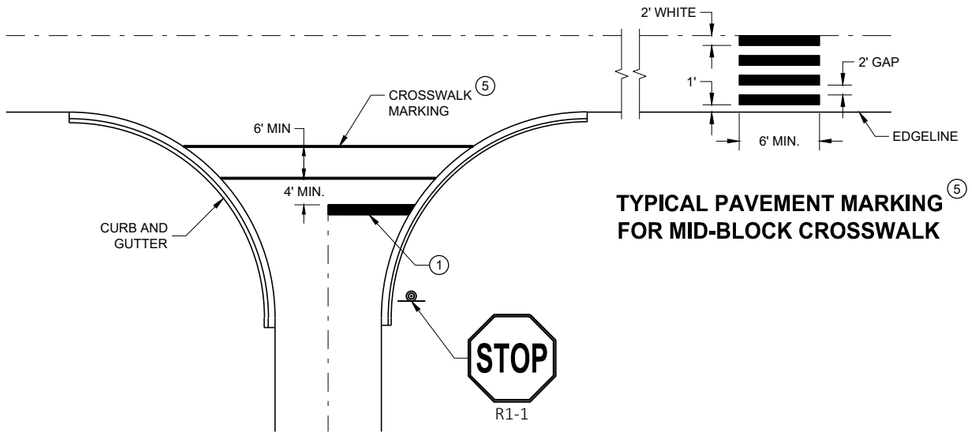
1. 18-INCH STOP LINES MAY BE DELETED OR ADDED BY THE REGION MARKING ENGINEER BASED ON VISIBILITY AND SIGHT LINES.
2. NO STOP LINE IS REQUIRED IF STOP SIGN IS LESS THAN OR EQUAL TO 40 FEET FROM THE EDGELINE.
3. NO STOP LINE IS REQUIRED IF STOP SIGN IS LESS THAN OR EQUAL TO 30 FEET FROM THE FLANGELINE EXTENSION.
4. MOVE CLOSER TO THE EDGE OF TRAVEL LINE AS NEEDED FOR VISIBILITY AND SIGHT LINES (NO CLOSER THAN 4 FEET).
5. LADDER BAR CROSSWALKS SHOULD ONLY BE USED FOR MID BLOCK CROSSINGS. USE 2 - 6" TRANSVERSE LINES INSTEAD.



TYPICAL STOP LINE PAVEMENT MARKING WITH CURB AND GUTTER

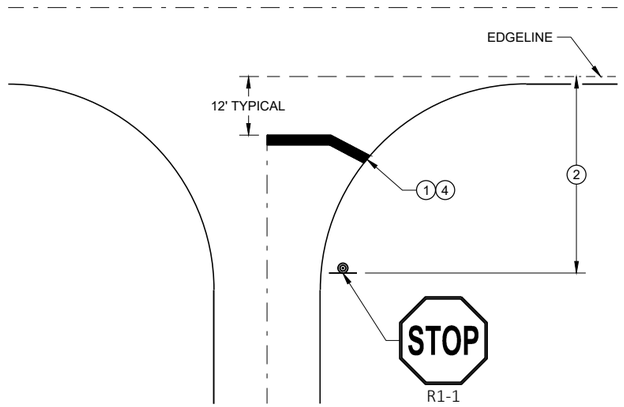


TYPICAL STOP LINE PAVEMENT MARKING FOR SIDEROADS WITH RIGHT TURN LANE



TYPICAL PAVEMENT MARKING FOR MID-BLOCK CROSSWALK 5

TYPICAL STOP LINE PAVEMENT MARKING FOR SIDEROADS WITH CROSSWALK MARKING



TYPICAL STOP LINE PAVEMENT MARKING WITHOUT CURB AND GUTTER

STOP LINE AND CROSSWALK PAVEMENT MARKING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
November 2019 — DATE
/S/ Matthew Rauch — STATE SIGNING AND MARKING ENGINEER
FHWA

6

SDD 15C33 - 04

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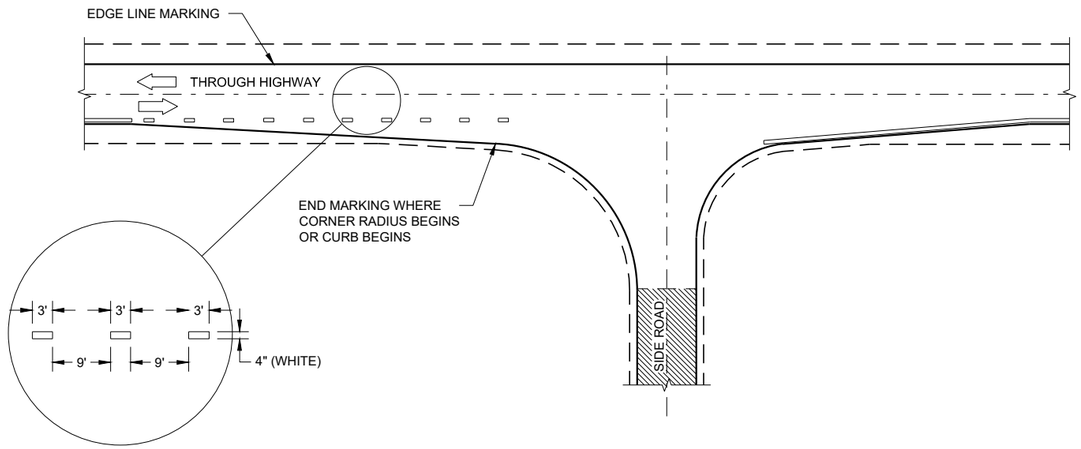
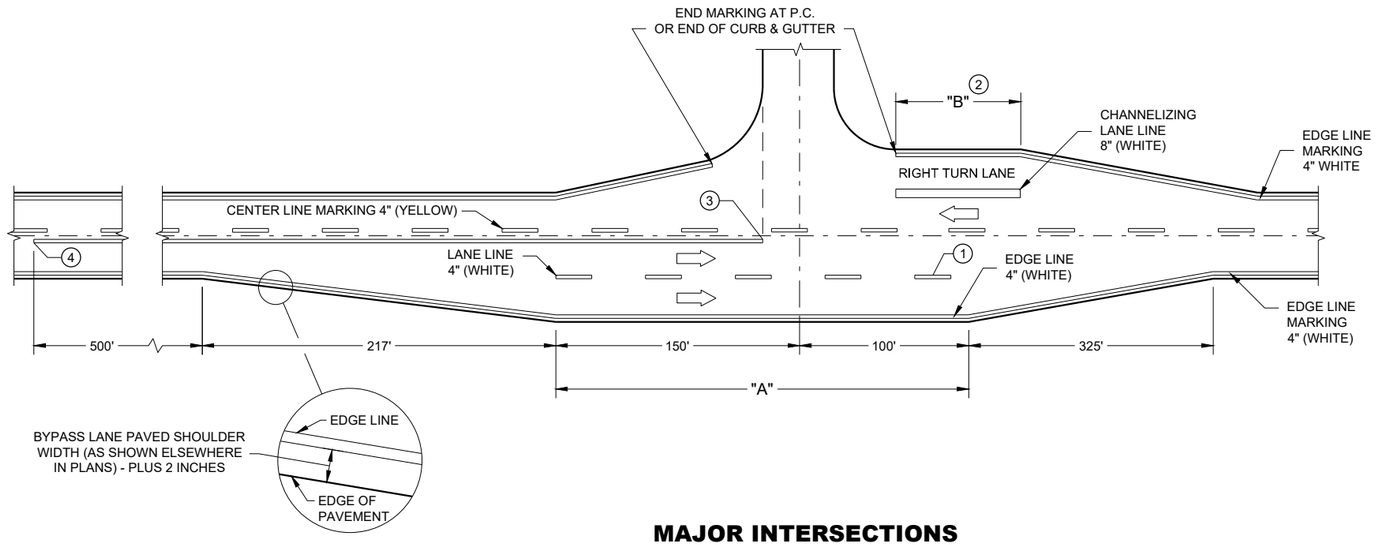
SDD 15C33 - 04



MINOR INTERSECTION



MAJOR INTERSECTIONS

(INTERSECTION WITH FULL RIGHT TURN LANE OR BYPASS LANE)

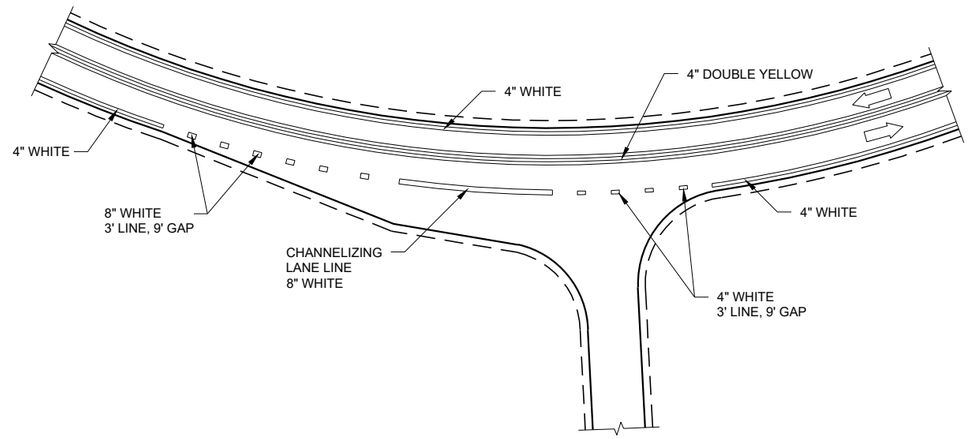
GENERAL NOTES

OMIT EDGE LINES THROUGH INTERSECTIONS. CONTINUE EDGE LINES THROUGH DRIVEWAYS.

1. WHEN DISTANCE "A" IS LESS THAN 250 FEET, OMIT LANE LINE.
2. WHEN DISTANCE "B" IS LESS THAN 100 FEET, OMIT CHANNELIZING LANE LINE.
3. BARRIER LINE ENDS AT SIDE ROAD PAVEMENT / SURFACE EDGE EXTENSION.
4. BARRIER LINE STARTS 500 FEET PRIOR TO THE BYPASS TAPER.

LEGEND

DIRECTION OF TRAVEL



INTERSECTION ON OUTSIDE OF CURVE

PAVEMENT MARKING (INTERSECTIONS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

SDD 15C35 - 04a

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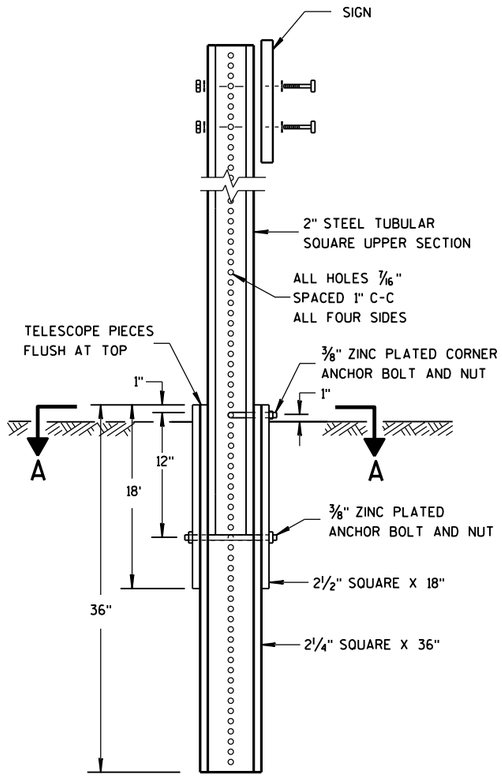
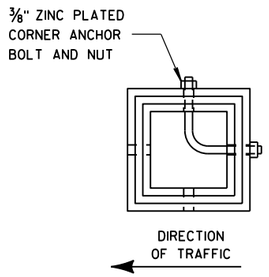
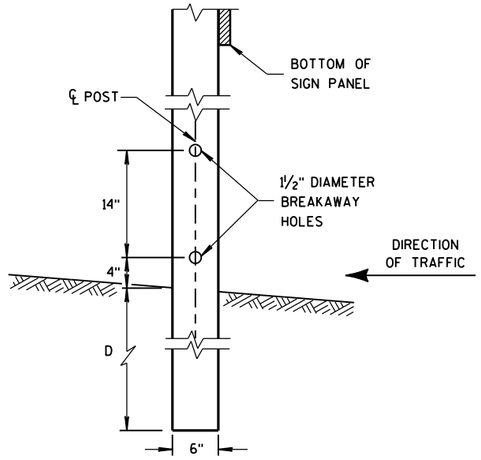
SDD 15C35 - 04a



DETAIL OF TUBULAR STEEL SIGN POST



SECTION A-A



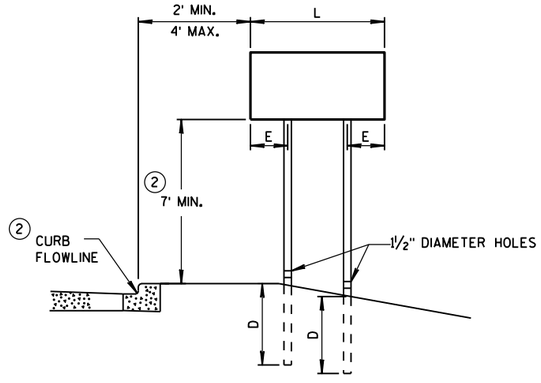
4"x6" WOOD POST MODIFICATION

GENERAL NOTES

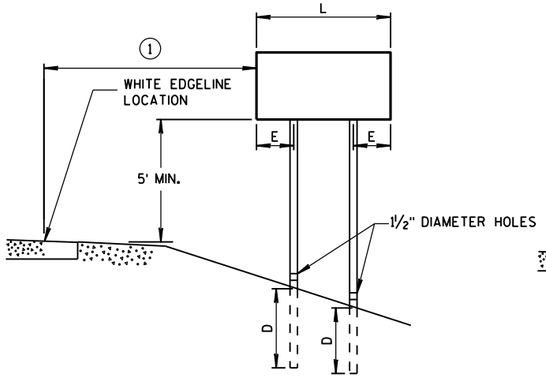
(1) 6 FEET FROM THE EDGE OF PAVEMENT (EDGE LINE LOCATION) UNLESS OTHERWISE DIRECTED BY THE PROJECT ENGINEER. LATERAL OFFSET SHOULD BE ADJUSTED TO AVOID THE DITCH FLOWLINE.

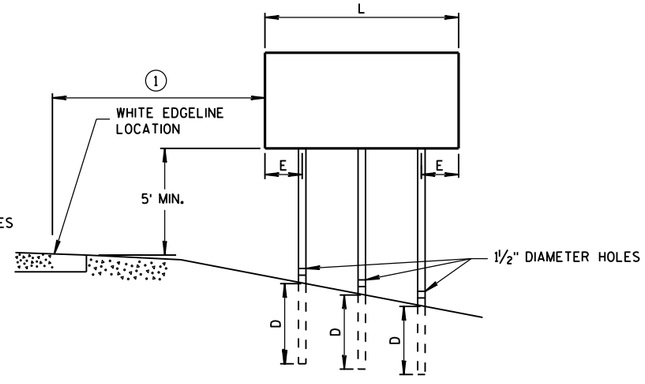
(2) THE EXISTENCE OF CURB AND GUTTER DOES NOT IN ITSELF MANDATE THE VERTICAL CLEARANCE ILLUSTRATED. THAT HEIGHT IS TYPICALLY MEASURED WHERE THERE IS SIDEWALK ADJACENT TO THE ROADWAY OR PARKING IS PERMITTED. IN THE ABSENCE OF SIDEWALK, VERTICAL CLEARANCE IS MEASURED FROM THE TOP OF THE CURB. IF NO SIDEWALK AND NO PARKING, VERTICAL CLEARANCE MAY BE REDUCED TO 5 FOOT MINIMUM. OFFSET OF SIGNS IS MEASURED FROM THE CURB FLOWLINE.

(3) FOR SIGNS REQUIRING 4 POSTS, SPACE INTERMEDIATE POSTS EVENLY.



URBAN AREA





RURAL AREA

POST MOUNTING DETAIL FOR TEMPORARY TRAFFIC CONTROL FIXED MESSAGE SIGNS

TUBULAR STEEL POSTS

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

SIGNS WIDER THAN 3 FEET OR LARGER THAN 9 SQ. FT. SHALL BE MOUNTED ON MULTIPLE POSTS (SEE ABOVE TABLE).

SIGNS LARGER THAN 27 SQ. FT. SHALL NOT BE MOUNTED ON TUBULAR STEEL POSTS.

WOOD POST EMBEDMENT DEPTH

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

4" X 6" WOOD POST

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

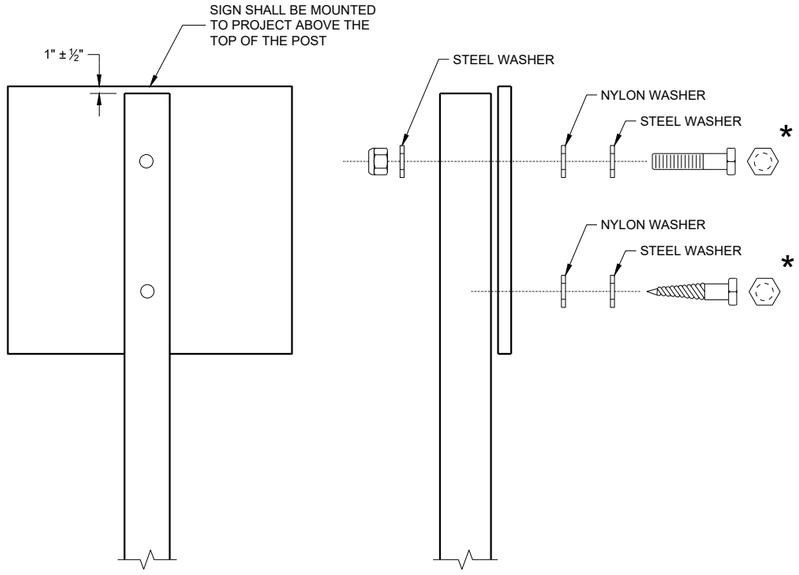
SEE NOTE (3)

TEMPORARY TRAFFIC CONTROL SIGN MOUNTING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

6

S.D.D. 15 D 38-2a



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

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

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

WOOD POST (4" x 6")
LAG SCREWS - ⅜" x 3"
MACHINE BOLTS - 5/16" x 6 ½" OR 7" LENGTH W/NUTS

SQUARE STEEL POST (2" x 2")
MACHINE BOLTS - ⅜" x 3 ¼" LENGTH W/NUTS
RIVETS - 9/32" (6605-9-6) BULB-TITE, TRI-FOLD, ALUMINUM BODY/MANDREL O.D. FLANGE 0.720 - 0.765 INCH, GRIP RANGE 0.042 - 0.375 INCH

WASHERS (ALL POSTS) -
1 ¼" O.D. x ⅜" I.D. x 1/16" STEEL
1 ¼" O.D. x ⅜" I.D. x 0.080 NYLON

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

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SDD 15D38 - 02b

SDD 15D38 - 02b

ATTACHMENT OF SIGNS TO POSTS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

FHWA

Wisconsin Department of Transportation

Dedicated people creating transportation solutions
through innovation and exceptional service.

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