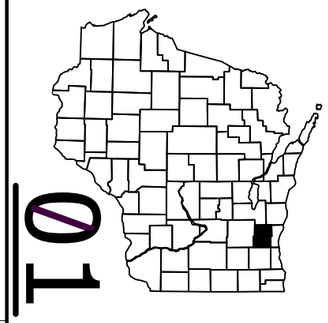
WKE SEPTEMBER 2015

PROJECT ID: 1000-44-73
WITH: DOT

COUNTY: WASHINGTON

ORDER OF SHEETS

TOTAL SHEETS = 86



N

DESIGN DESIGNATION

A.A.D.T.	2017	=	12,000
A.A.D.T.	2035	=	15,400
D.H.V.		=	6.5%
D.D.		=	62/38
T.		=	8.2%
DESIGN SPEED		=	45 MPH
ESALS		=	

CONVENTIONAL SYMBOLS

PLAN
- CORPORATE LIMITS
- PROPERTY LINE
- LOT LINE
- LIMITED HIGHWAY EASEMENT
- EXISTING RIGHT OF WAY
- PROPOSED OR NEW R/W LINE
- SLOPE INTERCEPT
- REFERENCE LINE
- EXISTING CULVERT
- PROPOSED CULVERT (Box or Pipe)
- COMBUSTIBLE FLUIDS (CAUTION)
- MARSH AREA
- WOODED OR SHRUB AREA

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

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

HOLY HILL RD.

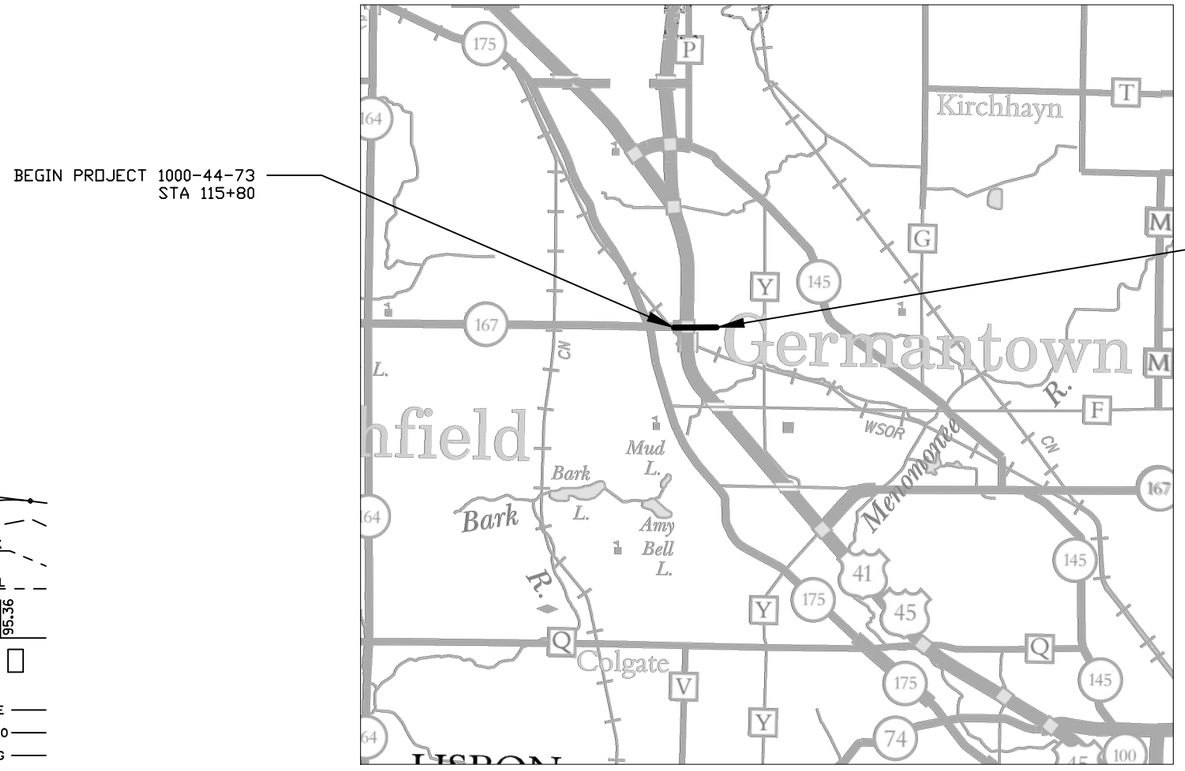
WISCONSIN SOR RR TO USH 41/45

STH 167

WASHINGTON COUNTY

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
1000-44-73	———	—

STATE PROJECT NUMBER
1000-44-73



LAYOUT
SCALE 0 1 MI

TOTAL NET LENGTH OF CENTERLINE = 0.318

HORIZONTAL POSITIONS SHOWN ON THIS PLAN ARE WISCONSIN COUNTY COORDINATES, WASHINGTON COUNTY, NAD83 (2007), IN U.S. SURVEY FEET. VALUES ARE GRID COORDINATES, GRID BEARINGS, AND GRID DISTANCES. GRID DISTANCES MAY BE USED AS GROUND DISTANCES. ELEVATIONS SHOWN ON THIS PLAN ARE REFERENCED TO THE NATIONAL GEODETIC VERTICAL DATUM OF NAVD88 (2007).

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY

Surveyor	DOT
Designer	N. YANG
Project Manager	CHRISTINE HANNA
Regional Examiner	REGIONAL EXAMINER
Regional Supervisor	REEM SHAHIN
C.O. Examiner	

APPROVED FOR THE DEPARTMENT
DATE: April 30, 2015 Christine Hanna
(Signature)

E

2

GENERAL NOTES

THE LOCATIONS OF EXISTING OR PROPOSED UTILITIES, AS NOTED ON THE PLANS, ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT AREA THAT ARE NOT SHOWN.

ANY LOCAL MUNICIPAL UTILITY WHICH IS NOT A MEMBER OF THE DIGGERS HOTLINE MUST BE CONTACTED SEPERATELY.

ALL HOLES OR OPENINGS BELOW SUBGRADE RESULTING FROM ABANDONMENT OR REMOVAL OF EXISTING STRUCTURES SHALL BE BACKFILLED WITH SUITABLE MATERIAL, OR AS DIRECTED BY THE ENGINEER.

DIMENSIONS GIVEN FOR EXISTING FEATURES SHALL BE CONSIDERED AS APPROXIMATE AND SHALL BE MEASURED IN THE FIELD FOR MATCHING PURPOSES.

CURB AND GUTTER RADII, GRADES AND OFFSETS ARE TO THE FLANGE UNLESS NOTED OTHERWISE.

ALL DISTURBED AREAS WITHIN THE RIGHT OF WAY, EXCLUDING ROAD BED, ARE TO BE TOPSOILED OR SALVAGED TOPSOILED, FERTILIZED, AND SEEDED, SODDED, MULCHED OR INSTALLED EROSION-MAT AS DIRECTED BY THE ENGINEER.

EROSION CONTROL BMP'S ARE SHOWN AT SUGGESTED LOCATIONS. THE ACTUAL LOCATIONS WILL BE DETERMINED BY THE CONTRACTOR'S ECIP AND BY THE ENGINEER. EROSION CONTROL BMP'S SHALL BE MAINTAINED UNTIL PERMANENT VEGETATION IS ESTABLISHED OR UNTIL THE ENGINEER DETERMINES THAT THE BMP IS NO LONGER REQUIRED.

EROSION CONTROL FEATURES ARE TO BE PLACED IN SEQUENCE WITH CONSTRUCTION STAGING AND MAINTAINED THROUGH EACH STAGE OR AS DETERMINED BY THE ENGINEER.

IMMEDIATELY AFTER CONSTRUCTION OF ANY INLET, CONTRACTOR SHALL CONSTRUCT THE INLET PROTECTION TO MINIMIZE SEDIMENTATION IN THE INLET AND STORM SEWER.

EXISTING DRIVEWAYS AND FIELD ENTRANCES WILL BE RESTORED IN KIND AS DIRECTED BY THE ENGINEER IN THE FIELD AND AT THE LOCATION DETERMINED BY THE ENGINEER.

A SAWED JOINT IS REQUIRED WHERE NEW HMA SURFACE MEETS EXISTING ASPHALTIC CONCRETE SURFACE.

SHOULDERS SHALL BE PAVED FULL WIDTH IN LOCATIONS WHICH REQUIRE STEEL PLATE BEAM GUARD AND SHALL BE PAVED PRIOR TO BEAM GUARD INSTALLATION.

HMA PAVEMENTS WILL BE CONSTRUCTED WITH THE FOLLOWING LAYERS AND GRADATIONS:

4 1/4 INCH PAVEMENT TYPE E-3 (MAINLINE SHOULDER WIDENING)

1 3/4	INCH UPPER LAYER	12.5 MM	PG58-28
2 1/2	INCH LOWER LAYER	19.0 MM	PG58-28

UTILITIES

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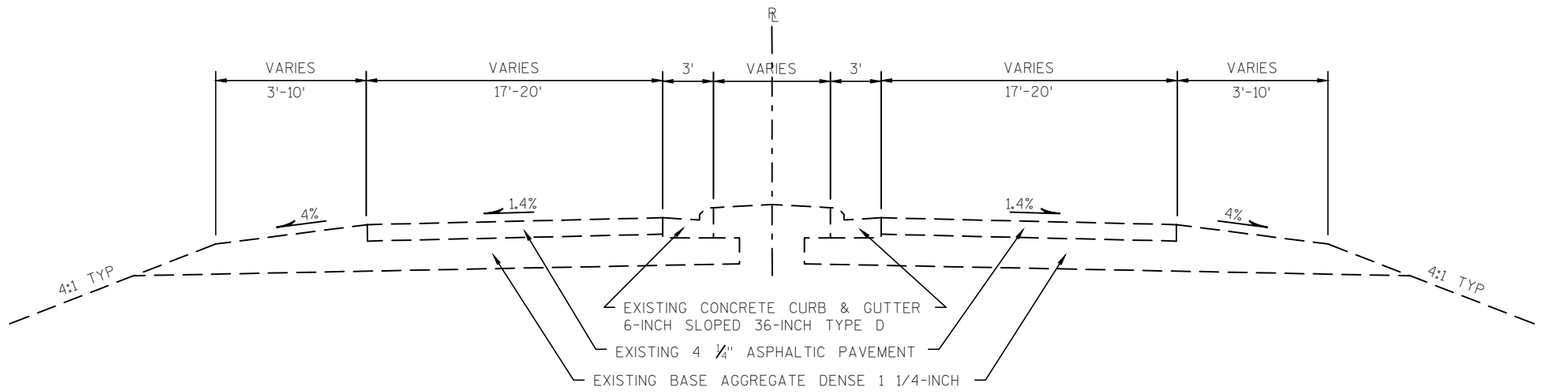
DIGGERS HOTLINE
Dial 811 or (800) 242-8511
www.DiggersHotline.com

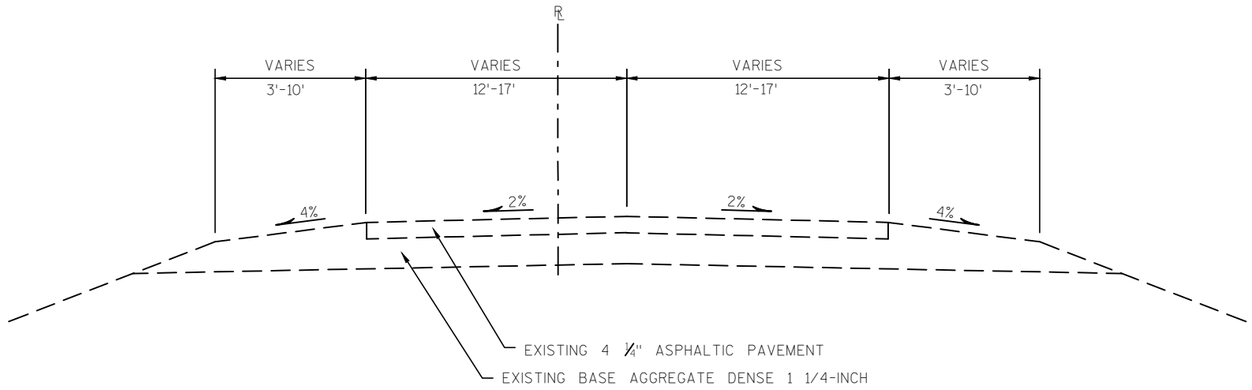


TYPICAL EXISTING SECTION

HOLY HILL RD.

STA. 115+80 TO STA. 118+91

STA. 121+05 TO STA. 128+00



TYPICAL EXISTING SECTION

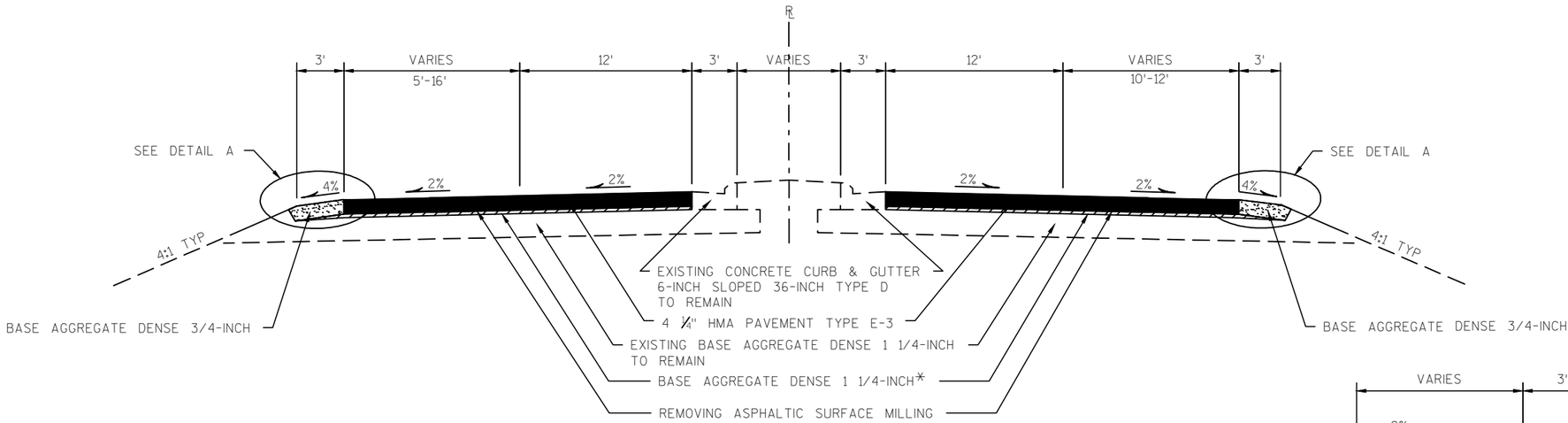
HOLY HILL RD.

STA. 128+00 TO STA. 132+62

PROJECT NO: 1000-44-73	HWY: HOLY HILL RD.	COUNTY: WASHINGTON	PLAN: TYPICAL SECTION	SHEET 4	E

FILE NAME : N:\PDS\C3D\CAD\10004473\020301_TS.DWG PLOT DATE : 4/27/2015 11:34 AM PLOT BY : SCHMIDT, JUDENE M PLOT NAME : ---------- PLOT SCALE : 0.099847

WISDOT/CADDS SHEET 42



TYPICAL FINISHED SECTION

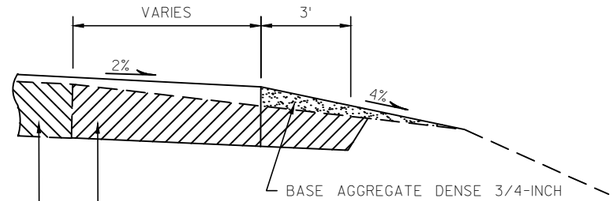
HOLY HILL RD.

STA. 115+80 TO STA. 118+91

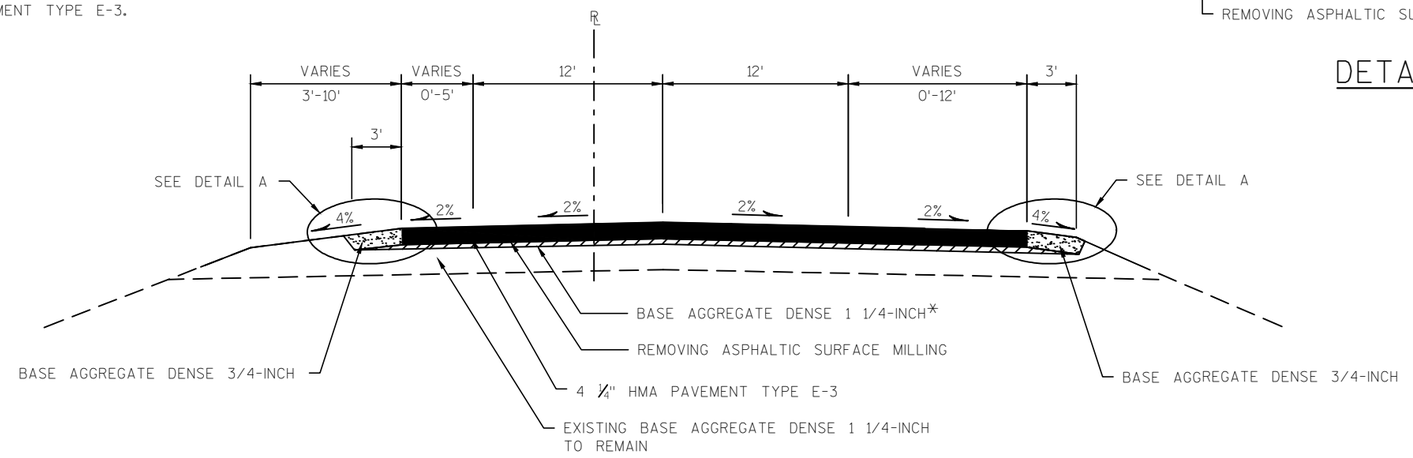
STA. 121+05 TO STA. 128+00

NOTES:

* EXISTING ASPHALT THICKNESS FOR AS-BUILTS ANTICIPATED TO BE 4 ¼". IF EXISTING THICKNESS IS GREATER THAN 4 ¼", REMOVE ALL ASPHALT AND USE BASE AGGREGATE DENSE 1 1/4-INCH TO BRING AGGREGATE LAYER TO APPROPRIATE GRADE FOR PAVING 4 ¼" OF HMA PAVEMENT TYPE E-3.



DETAIL A

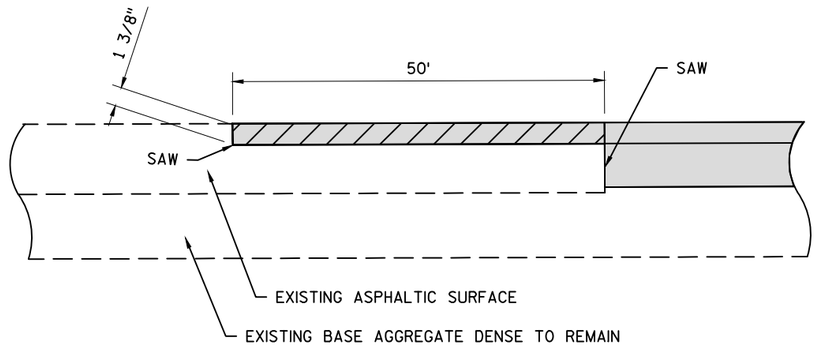


TYPICAL FINISHED SECTION

HOLY HILL RD.

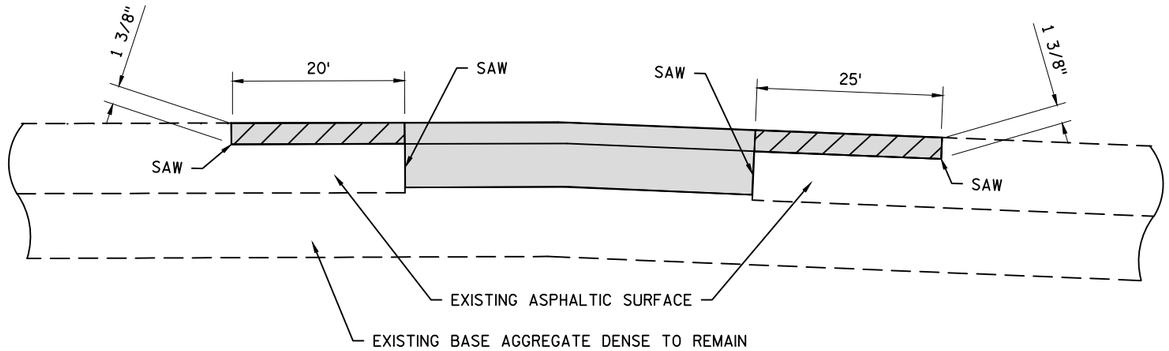
STA. 128+00 TO STA. 132+62

PROJECT NO: 1000-44-73	HWY: HOLY HILL RD.	COUNTY: WASHINGTON	PLAN: TYPICAL SECTION	SHEET 5	E



REMOVING ASPHALTIC SURFACE BUTT JOINTS

STA 115+30 TO STA 115+80
STA 132+61 TO STA 133+11



REMOVING ASPHALTIC SURFACE BUTT JOINTS

STA 130+88 TO STA 131+64

2

N

RAMP B

621+00

620+00

619+00

CABC

620+05.9
15.6' LT

620+06.2
0.0' LT

619+94.1
19.3' LT

619+97.2
0.0' LT

STA 116+46.39
43.99' LT
EL. 974.45

STA 116+57.07
43.41' LT
EL. 974.55

REMOVING CURB & GUTTER

REMOVING ASPHALTIC SURFACE BUTT JOINTS

SAWING ASPHALT IS REQUIRED FOR STAGE 1 CONSTRUCTION

HOLY HILL ROAD

BEGIN PROJECT

BP: 619+58.99

EP: 620+36.97

STH 167

PI: 619+84.10

PI: 619+00.42

34'

24'

114+00

115+00

116+00

117+00

118+00

119+00

120+00

+30

+82.3

+95

+96

+16

+20

+80.8

+05

+53

+90

+91

ASPH

CONC

GUARDRAIL

SIGN

LINK FENCE

MH

SS

USH 41

USH 41/45 SB

4" ASPHALTIC SURFACE SAFETY ISLAND

3'

4 1/4" HMA PAVEMENT TYPE E-3

2%

CONCRETE CURB & GUTTER 4-INCH SLOPED
36-INCH TYPE D

4" BASE AGGREGATE DENSE 1 1/4-INCH

SECTION A-A

LEGEND:

1. REMOVING ASPHALTIC SURFACE MILLING
2. CONCRETE CURB & GUTTER 4-INCH SLOPED 36-INCH TYPE D
3. HMA PAVEMENT TYPE E-3
4. MGS GUARDRAIL TERMINAL EAT
5. CONCRETE MEDIAN SLOPED NOSE TYPE 1
6. MGS GUARDRAIL TERMINAL TYPE 2

XXX SAWING ASPHALT

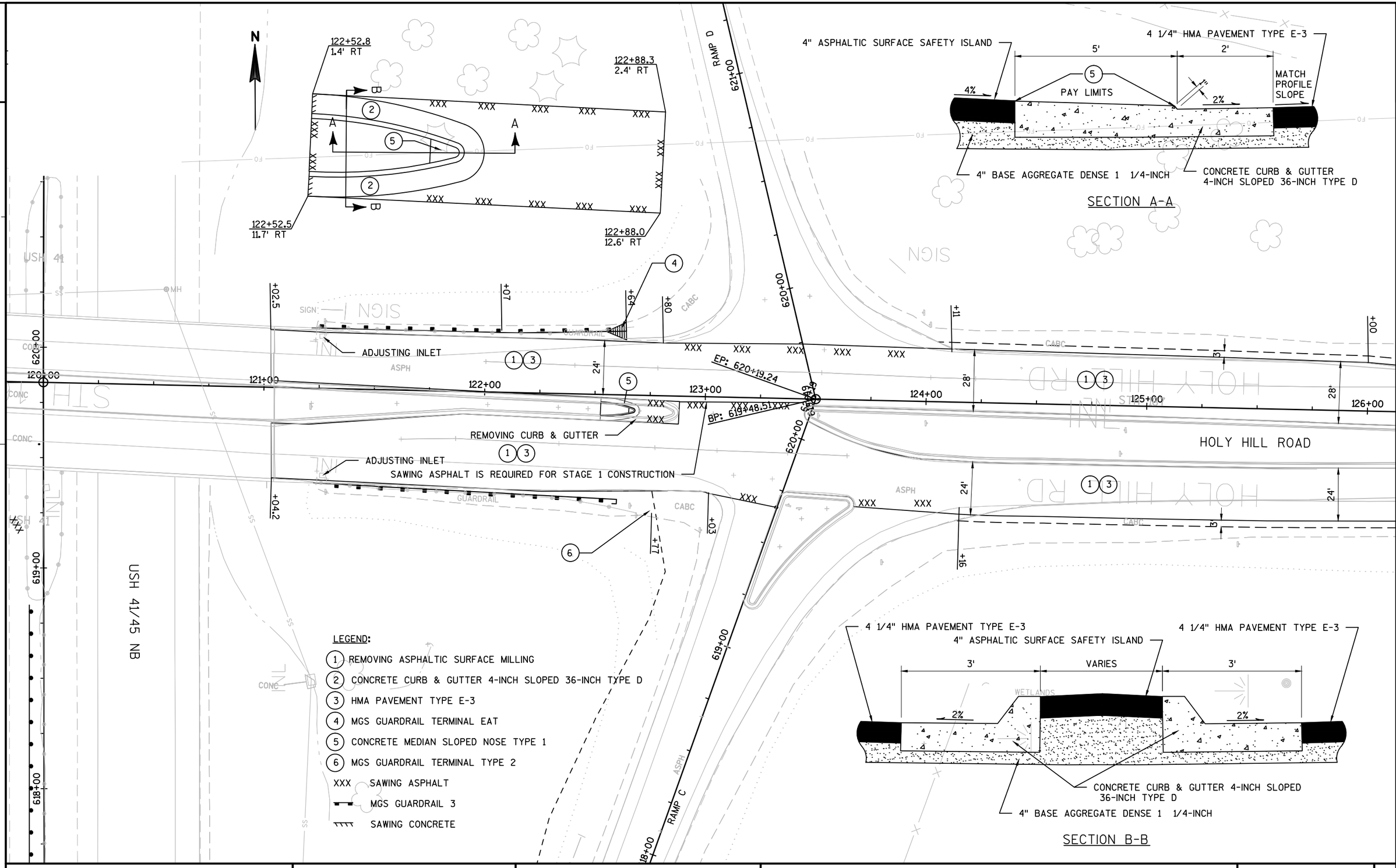
MGS GUARDRAIL 3

SAWING CONCRETE

PROJECT NO: 1000-44-73	HWY: HOLY HILL ROAD	COUNTY: WASHINGTON	PLAN: PLAN DETAIL	SHEET 7	E

FILE NAME : N:\PDS\C3D\CAD\10004473\021114_ID.DWG PLOT DATE : 6/8/2015 5:51 PM PLOT BY : SCHMIDT, JUDENE M PLOT NAME : _____ PLOT SCALE : 0.30000000 = 1'-0" XREF

WISDOT/CADDS SHEET 42



LEGEND:

1. REMOVING ASPHALTIC SURFACE MILLING
2. CONCRETE CURB & GUTTER 4-INCH SLOPED 36-INCH TYPE D
3. HMA PAVEMENT TYPE E-3
4. MGS GUARDRAIL TERMINAL EAT
5. CONCRETE MEDIAN SLOPED NOSE TYPE 1
6. MGS GUARDRAIL TERMINAL TYPE 2

XXX SAWING ASPHALT

MGS GUARDRAIL 3

SAWING CONCRETE

PROJECT NO: 1000-44-73	HWY: HOLY HILL ROAD	COUNTY: WASHINGTON	PLAN: PLAN DETAIL	SHEET 8	E

2

N

REMOVING ASPHALTIC SURFACE BUTT JOINTS

EXISTING CONCRETE RUMBLE STRIPS TO REMAIN

+00

28'

3

+74.7

18'

126+00

127+00

128+00

129+00

130+00

18'

131+00

132+00

+78

20'

+85

1 3

1 3

HOLY HILL ROAD

24'

24'

3

SAWING ASPHALT IS REQUIRED FOR STAGE 1 CONSTRUCTION

+22

+64

+87.7
67.2' RT

+31.8
71.9' RT

25'

REMOVING ASPHALTIC SURFACE BUTT JOINTS

LEGEND:

(1) REMOVING ASPHALTIC SURFACE MILLING
(2) CONCRETE CURB & GUTTER 4-INCH SLOPED 36-INCH TYPE D
(3) HMA PAVEMENT TYPE E-3
(4) MGS GUARDRAIL TERMINAL EAT
(5) CONCRETE MEDIAN SLOPED NOSE TYPE 1
(6) MGS GUARDRAIL TERMINAL TYPE 2

XXX SAWING ASPHALT

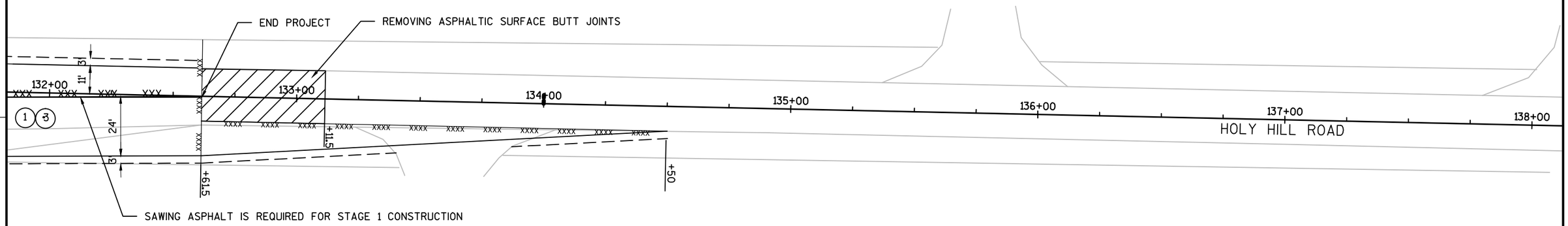
MGS GUARDRAIL 3

SAWING CONCRETE

PROJECT NO: 1000-44-73	HWY: HOLY HILL ROAD	COUNTY: WASHINGTON	PLAN: PLAN DETAIL	SHEET 9	E

2

N



LEGEND:

1. REMOVING ASPHALTIC SURFACE MILLING
2. CONCRETE CURB & GUTTER 4-INCH SLOPED 36-INCH TYPE D
3. HMA PAVEMENT TYPE E-3
4. MGS GUARDRAIL TERMINAL EAT
5. CONCRETE MEDIAN SLOPED NOSE TYPE 1
6. MGS GUARDRAIL TERMINAL TYPE 2

XXX SAWING ASPHALT

MGS GUARDRAIL 3

SAWING CONCRETE

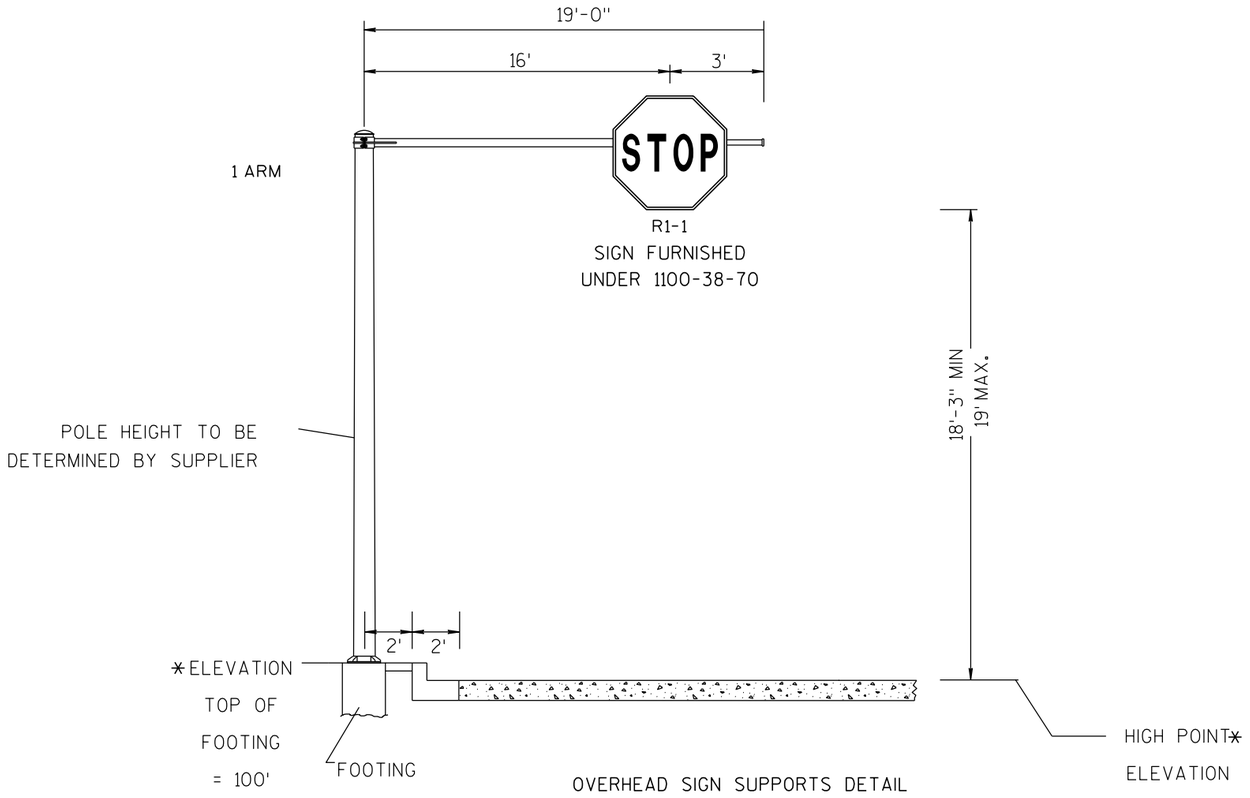
PROJECT NO: 1000-44-73	HWY: HOLY HILL ROAD	COUNTY: WASHINGTON	PLAN: PLAN DETAIL	SHEET 10	E

FILE NAME : N:\PDS\C3D\CAD\10004473\021117_ID.DWG PLOT DATE : 6/8/2015 5:53 PM PLOT BY : SCHMIDT, JUDENE M PLOT NAME : ---------- PLOT SCALE : 1:40_XREF

LEGEND

(XXX) DENOTES SIGN NUMBER

(X) INDICATES SIGN SIZE



OVERHEAD SIGN SUPPORTS DETAIL
S-66-241
STH 67 EB @ USH 41 NB ON RAMP
STA 122+50

CONTRACTOR TO USE SDD 15C 23-2, 30" DIAMETER CANTILEVER OVERHEAD SIGN SUPPORT BASE

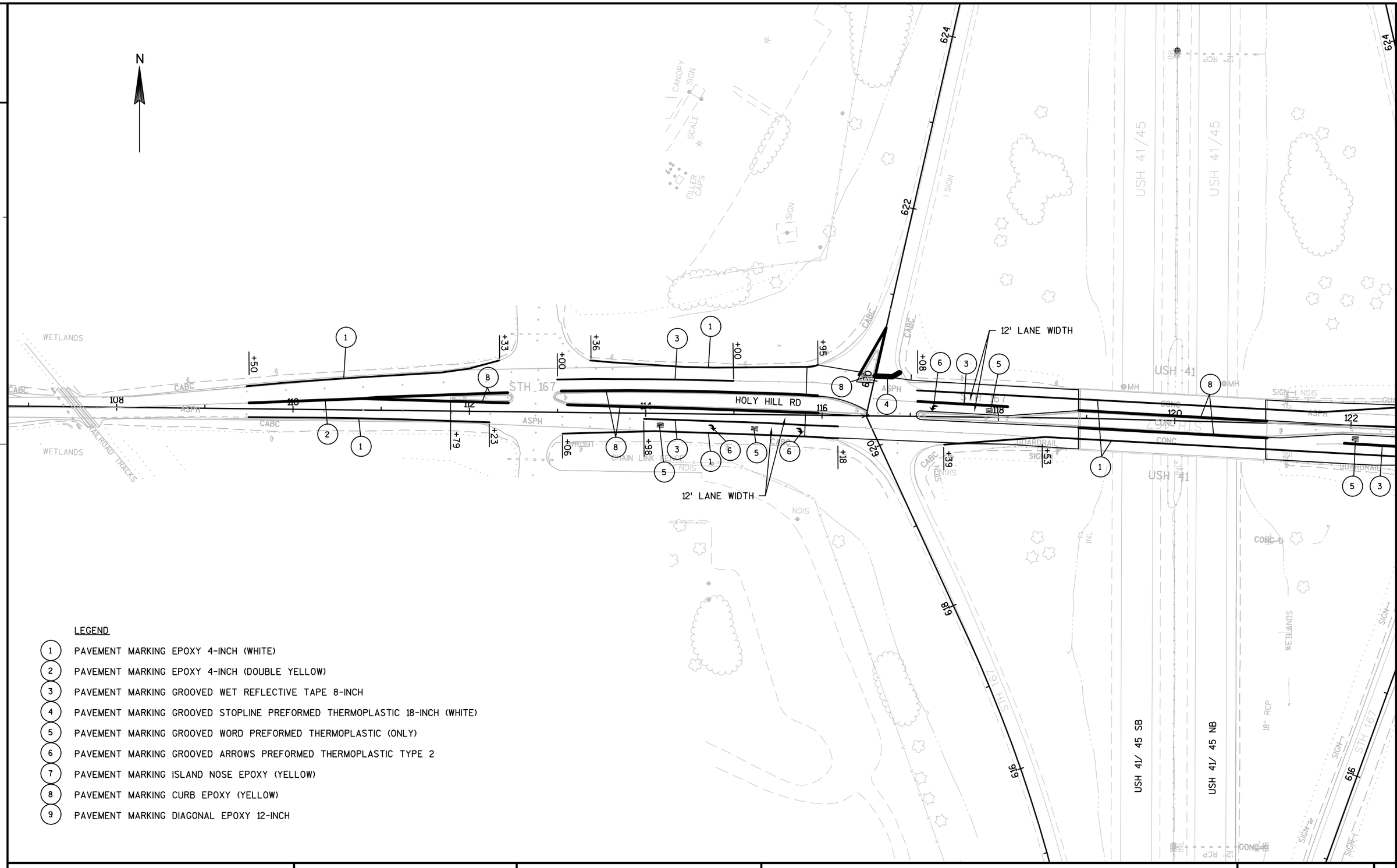
MOUNTING BRACKETS FOR SIGNS TO BE APPROVED FROM PRODUCT LIST FOR TYPE II SIGNS

IBEAMS- W5X3.7 IBEAMS FOR MOUNTING SIGNS ARE INCIDENTAL TO TYPE I SIGNS

NOTE, CONTRACTOR SHALL:
1.) SUBMIT SHOP DRAWINGS OF OVERHEAD SIGN SUPPORT. FOOTING IS INCIDENTAL TO OVERHEAD SIGN SUPPORT.
2.) PROVIDE DESIGN CALCULATIONS.
3.) SHOW SIGNS ON SHOP DRAWINGS.
4.) I.D. PLAQUE INCIDENTAL TO SIGN SUPPORT
5.) 6ANCHER RODS SHALL BE USED PER SDD 15C 23-1

SHEET 1 OF 1

PROJECT NO: 1000-44-73	HWY: HOLY HILL RD	COUNTY: WASHINGTON	OVERHEAD SIGN SUPPORT S-66-241	SHEET 11	E

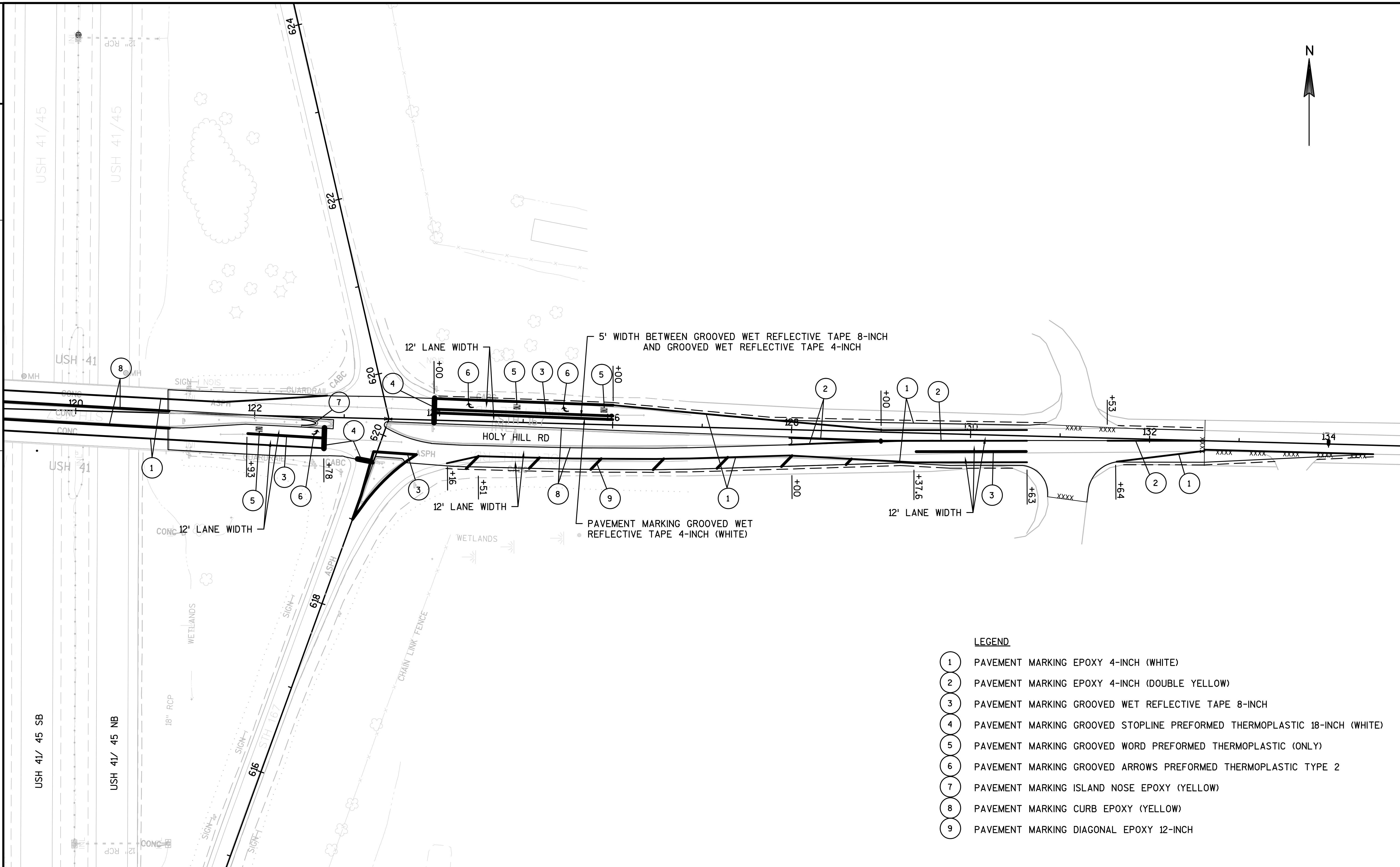


LEGEND

1. PAVEMENT MARKING EPOXY 4-INCH (WHITE)
2. PAVEMENT MARKING EPOXY 4-INCH (DOUBLE YELLOW)
3. PAVEMENT MARKING GROOVED WET REFLECTIVE TAPE 8-INCH
4. PAVEMENT MARKING GROOVED STOPLINE PREFORMED THERMOPLASTIC 18-INCH (WHITE)
5. PAVEMENT MARKING GROOVED WORD PREFORMED THERMOPLASTIC (ONLY)
6. PAVEMENT MARKING GROOVED ARROWS PREFORMED THERMOPLASTIC TYPE 2
7. PAVEMENT MARKING ISLAND NOSE EPOXY (YELLOW)
8. PAVEMENT MARKING CURB EPOXY (YELLOW)
9. PAVEMENT MARKING DIAGONAL EPOXY 12-INCH

PROJECT NO: 1000-44-73	HWY: HOLY HILL ROAD	COUNTY: WASHINGTON	PAVEMENT MARKING	SHEET 12	E

2



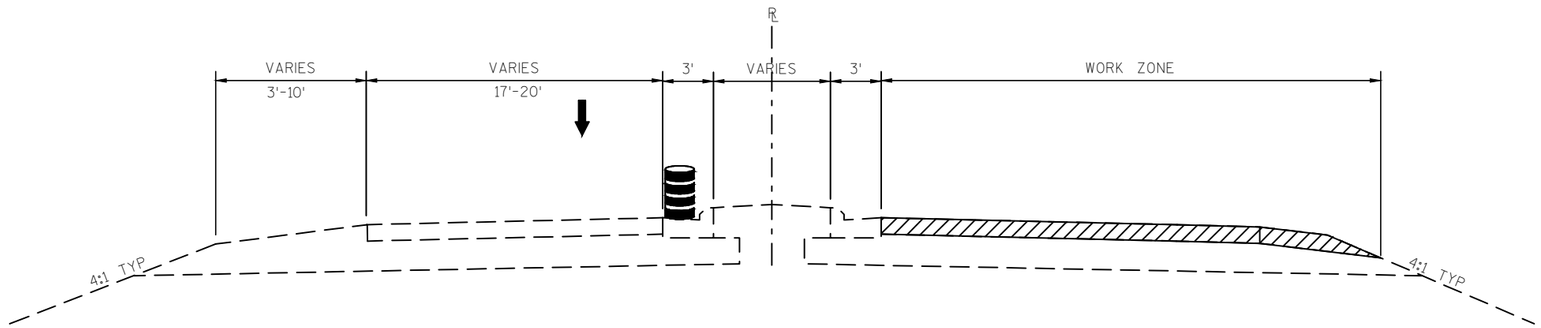
2

LEGEND

1. PAVEMENT MARKING EPOXY 4-INCH (WHITE)
2. PAVEMENT MARKING EPOXY 4-INCH (DOUBLE YELLOW)
3. PAVEMENT MARKING GROOVED WET REFLECTIVE TAPE 8-INCH
4. PAVEMENT MARKING GROOVED STOPLINE PREFORMED THERMOPLASTIC 18-INCH (WHITE)
5. PAVEMENT MARKING GROOVED WORD PREFORMED THERMOPLASTIC (ONLY)
6. PAVEMENT MARKING GROOVED ARROWS PREFORMED THERMOPLASTIC TYPE 2
7. PAVEMENT MARKING ISLAND NOSE EPOXY (YELLOW)
8. PAVEMENT MARKING CURB EPOXY (YELLOW)
9. PAVEMENT MARKING DIAGONAL EPOXY 12-INCH

PROJECT NO:1000-44-73	HWY:HOLY HILL ROAD	COUNTY:WASHINGTON	PAVEMENT MARKING	SHEET 13	E

2

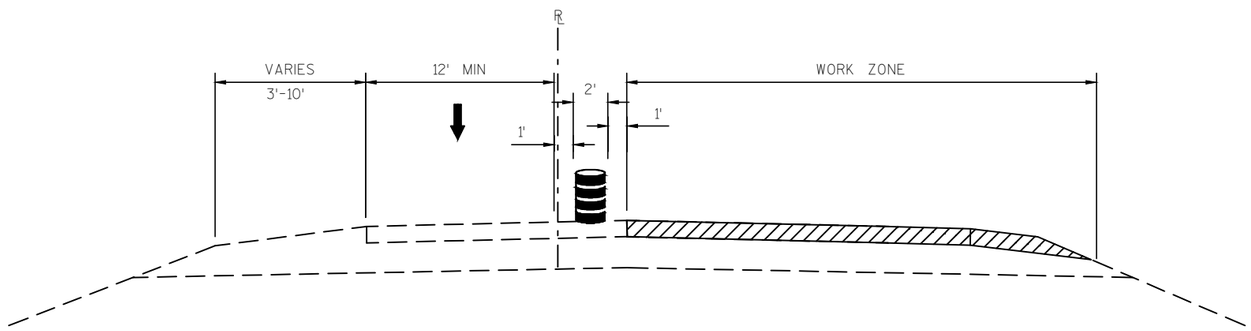


TYPICAL SECTION - STAGE 1

HOLY HILL RD.

STA. 113+00 TO STA. 118+91

STA. 121+05 TO STA. 128+00

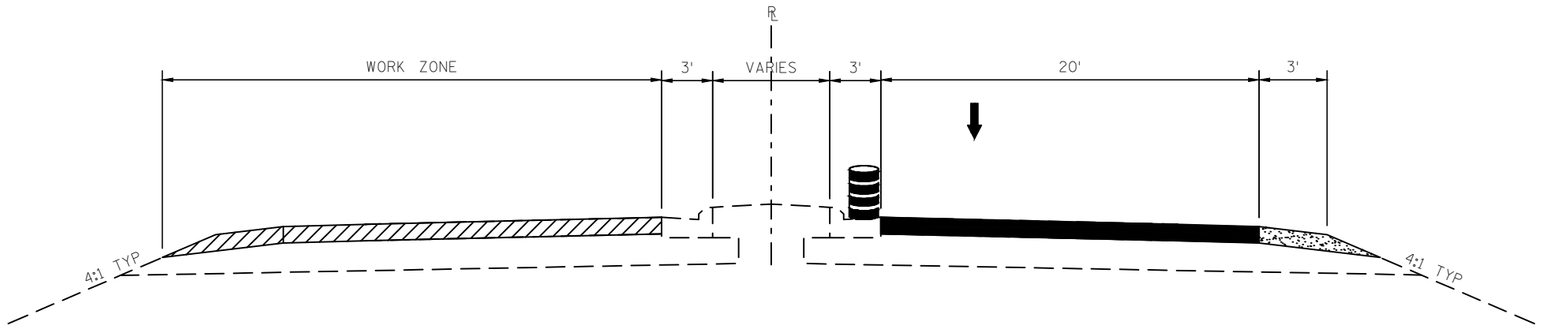


TYPICAL SECTION - STAGE 1

HOLY HILL RD.

STA. 128+00 TO STA. 132+62

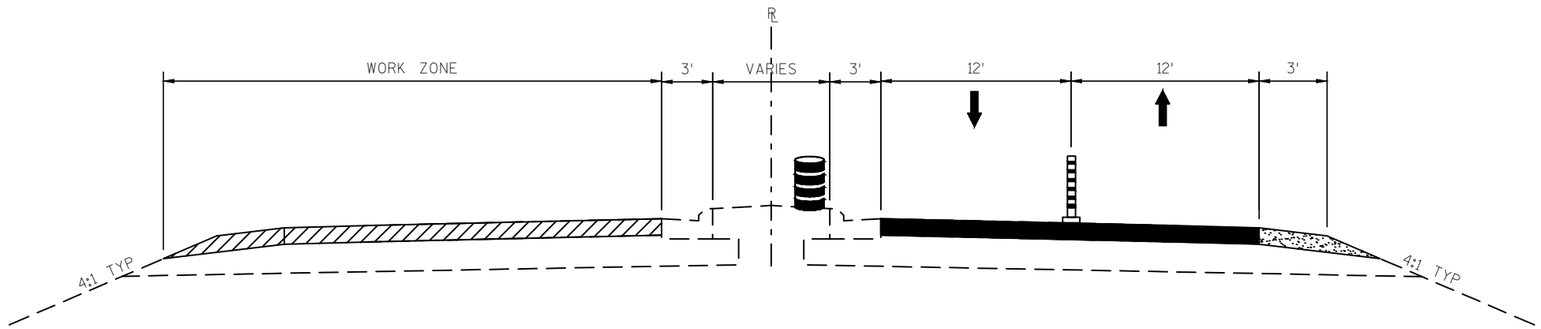
PROJECT NO: 1100-38-70	HWY: USH 41/45	COUNTY: WASHINGTON	PLAN: TRAFFIC CONTROL - STAGE 1	SHEET 14	E



TYPICAL SECTION - STAGE 2

HOLY HILL RD.

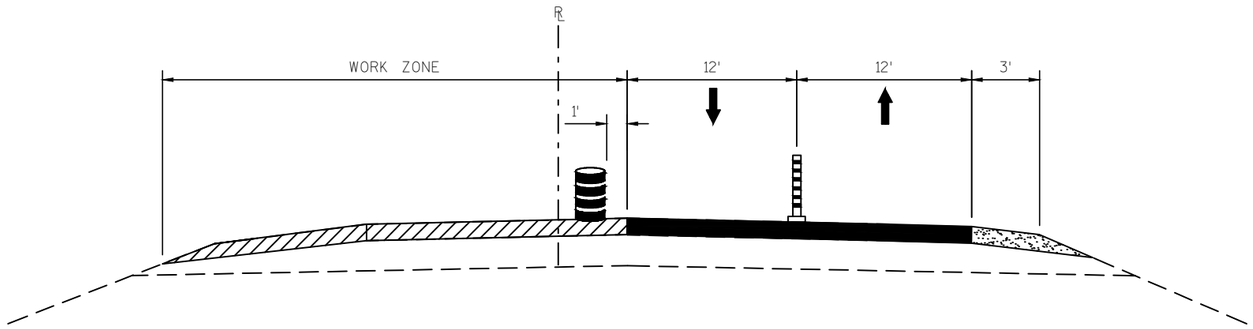
STA. 113+00 TO STA. 123+75



TYPICAL SECTION - STAGE 2

HOLY HILL RD.

STA. 123+75 TO STA. 128+00



TYPICAL SECTION - STAGE 2

HOLY HILL RD.

STA. 128+00 TO STA. 132+62

PROJECT NO: 1000-44-73	HWY: HOLY HILL RD.	COUNTY: WASHINGTON	PLAN: TRAFFIC CONTROL - STAGE 2	SHEET 15	E

2

N

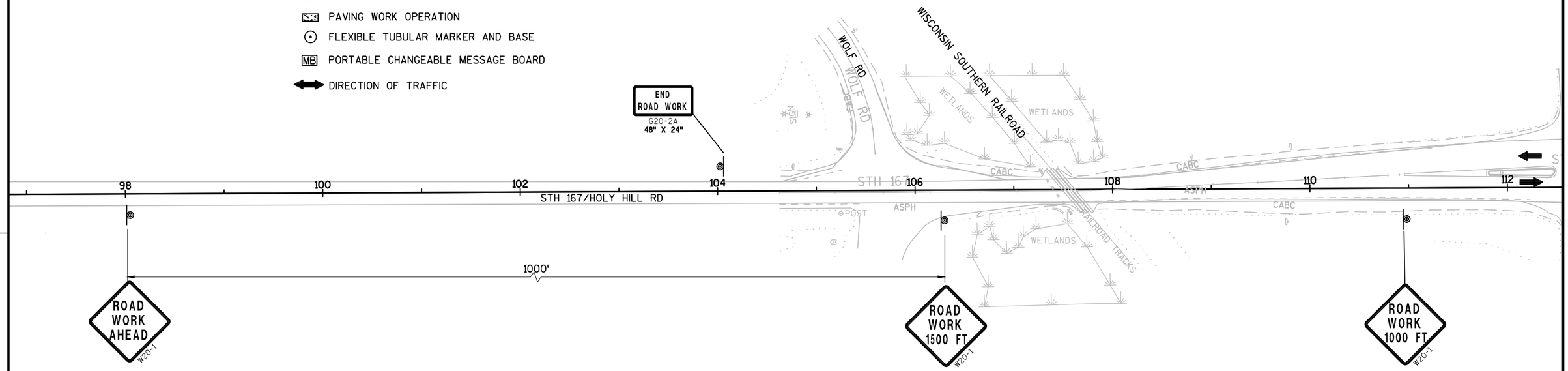
LEGEND

- BARRICADE TYPE III
- BARRICADE TYPE III WITH SIGN
- DRUM
- DRUM WITH WARNING LIGHT TYPE C
- SIGN ON PERMANENT SUPPORT
- FLASHING ARROW BOARD
- SIGN ON TEMPORARY SUPPORT
- WARNING LIGHT TYPE A
- MILLING WORK OPERATION
- PAVING WORK OPERATION
- FLEXIBLE TUBULAR MARKER AND BASE
- MB PORTABLE CHANGEABLE MESSAGE BOARD
- DIRECTION OF TRAFFIC

STAGE 1 CONSTRUCTION ACTIVITIES:
CONSTRUCT STH 167 MEDIAN NOSE AT NB RAMPS
CONSTRUCT SAFETY ISLAND AT SB OFF RAMP

STAGE 1 TRAFFIC:
ONE LANE OPEN IN EACH DIRECTION OF STH 167/HOLY HILL ROAD
EB AND WB STH 167 TRAFFIC WILL NEED TO SHIFT SLIGHTLY ONTO PAVED SHOULDER
ALL RAMPS REMAIN OPEN TO TRAFFIC

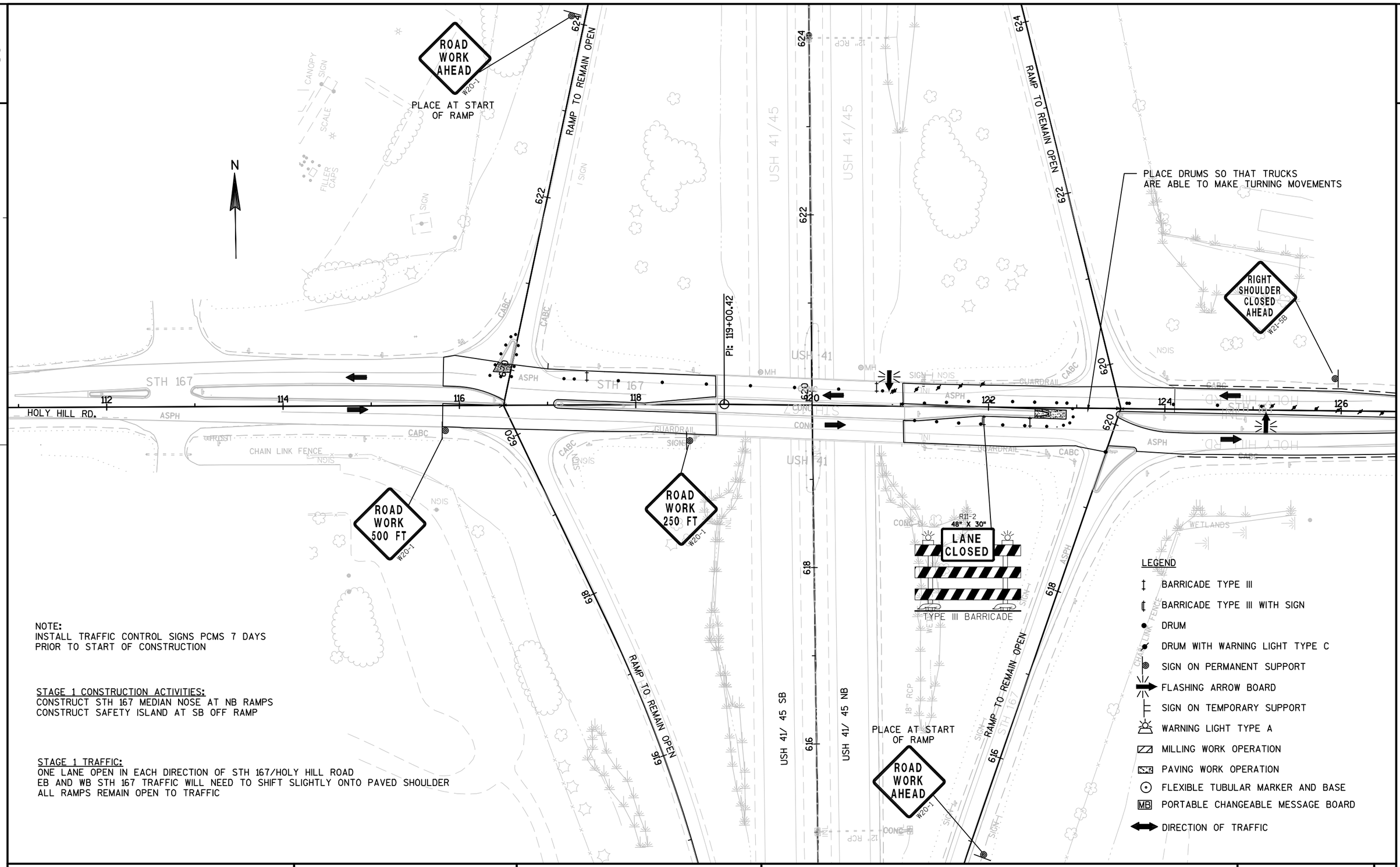
NOTE:
INSTALL TRAFFIC CONTROL SIGNS PCMS 7 DAYS
PRIOR TO START OF CONSTRUCTION



PROJECT NO: 1000-44-73	HWY: HOLY HILL RD.	COUNTY: WASHINGTON	TRAFFIC CONTROL - STAGE 1	SHEET	E

FILE NAME : N:\PDS\C3D\CAD\10004473\026001_S1.DWG PLOT DATE : 4/28/2015 4:00 PM PLOT BY : BLACKWOOD, JAMES W PLOT NAME : PLOT SCALE : 1:100_XREF

2



NOTE:
INSTALL TRAFFIC CONTROL SIGNS PCMS 7 DAYS PRIOR TO START OF CONSTRUCTION

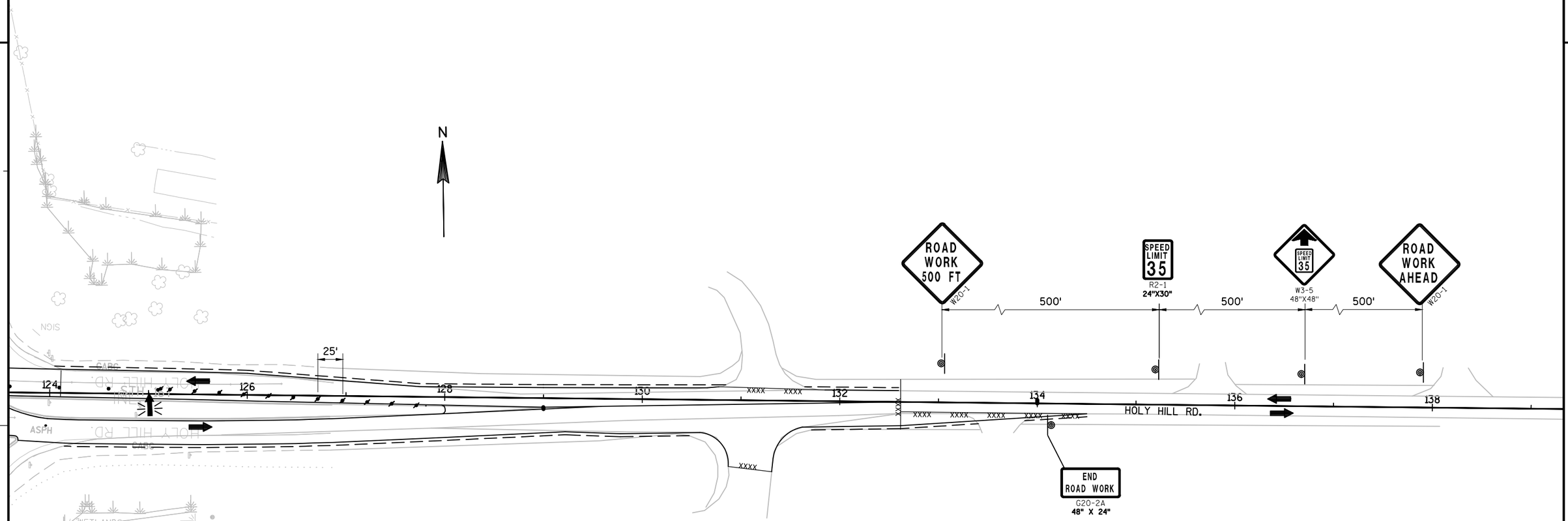
STAGE 1 CONSTRUCTION ACTIVITIES:
CONSTRUCT STH 167 MEDIAN NOSE AT NB RAMPS
CONSTRUCT SAFETY ISLAND AT SB OFF RAMP

STAGE 1 TRAFFIC:
ONE LANE OPEN IN EACH DIRECTION OF STH 167/HOLY HILL ROAD
EB AND WB STH 167 TRAFFIC WILL NEED TO SHIFT SLIGHTLY ONTO PAVED SHOULDER
ALL RAMPS REMAIN OPEN TO TRAFFIC

PROJECT NO: 1000-44-73	HWY: HOLY HILL RD.	COUNTY: WASHINGTON	TRAFFIC CONTROL - STAGE 1	SHEET	E

FILE NAME : N:\PDS\C3D\CAD\10004473\026002_S1.DWG PLOT DATE : 6/9/2015 5:28 PM PLOT BY : SCHMIDT, JUDENE M PLOT NAME : PLOT SCALE : 1:100_XREF

2



LEGEND

- BARRICADE TYPE III
- BARRICADE TYPE III WITH SIGN
- DRUM
- DRUM WITH WARNING LIGHT TYPE C
- SIGN ON PERMANENT SUPPORT
- FLASHING ARROW BOARD
- SIGN ON TEMPORARY SUPPORT
- WARNING LIGHT TYPE A
- MILLING WORK OPERATION
- PAVING WORK OPERATION
- FLEXIBLE TUBULAR MARKER AND BASE
- MB PORTABLE CHANGEABLE MESSAGE BOARD
- DIRECTION OF TRAFFIC

STAGE 1 CONSTRUCTION ACTIVITIES:
CONSTRUCT STH 167 MEDIAN NOSE AT NB RAMPS
CONSTRUCT SAFETY ISLAND AT SB OFF RAMP

NOTE:
INSTALL TRAFFIC CONTROL SIGNS PCMS 7 DAYS PRIOR TO START OF CONSTRUCTION

STAGE 1 TRAFFIC:
ONE LANE OPEN IN EACH DIRECTION OF STH 167/HOLY HILL ROAD
EB AND WB STH 167 TRAFFIC WILL NEED TO SHIFT SLIGHTLY ONTO PAVED SHOULDER
ALL RAMPS REMAIN OPEN TO TRAFFIC

PROJECT NO: 1000-44-73	HWY: HOLY HILL RD.	COUNTY: WASHINGTON	TRAFFIC CONTROL - STAGE 1	SHEET	E

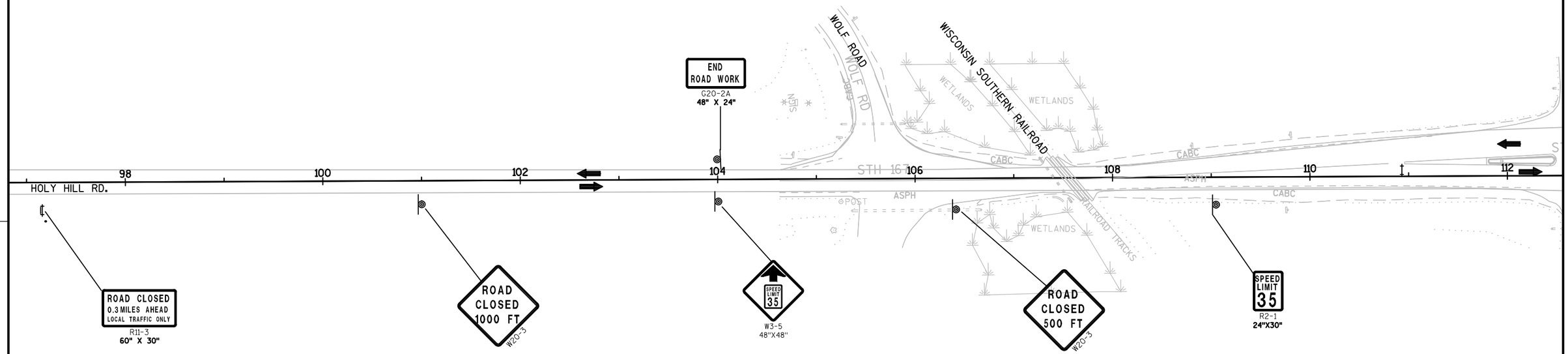
FILE NAME : N:\PDS\C3D\CAD\10004473\026003_S1.DWG PLOT DATE : 6/9/2015 5:29 PM PLOT BY : SCHMIDT, JUDENE M PLOT NAME : PLOT SCALE : 1:100_XREF
WISDOT/CADDS SHEET 42

2

2

NOTES: 1. SEE DETOUR PLAN FOR ADDITIONAL SIGNAGE
2. EXISTING SIGNS NOT SHOWN ARE TO REMAIN
UNLESS IN CONFLICT WITH TRAFFIC CONTROL SIGNAGE

N



PLACE AT STH 167/175
INTERSECTION

STAGE 2 CONSTRUCTION ACTIVITIES:
MILL AND OVERLAY EB STH 167
REPLACE EB BEAM GUARD
PAVE EB SHOULDER FOR USE IN STAGE 3

STAGE 2 TRAFFIC:
EB STH 167 CLOSED AT STA 113+00. DETOUR POSTED FOR EB STH 167 TRAFFIC
WB STH 167 OPEN TO THRU TRAFFIC USING EXISTING WB TRAVEL LANES
USH 41/45 SB ON RAMP CLOSED USING POSTED DETOUR
USH 41/45 SB OFF RAMP OPEN TO ONLY WB STH 167 TRAFFIC
USH 41/45 NB OFF RAMP OPEN TO ONLY WB STH 167 TRAFFIC
USH 41/45 NB ON RAMP TO REMAIN OPEN

LEGEND

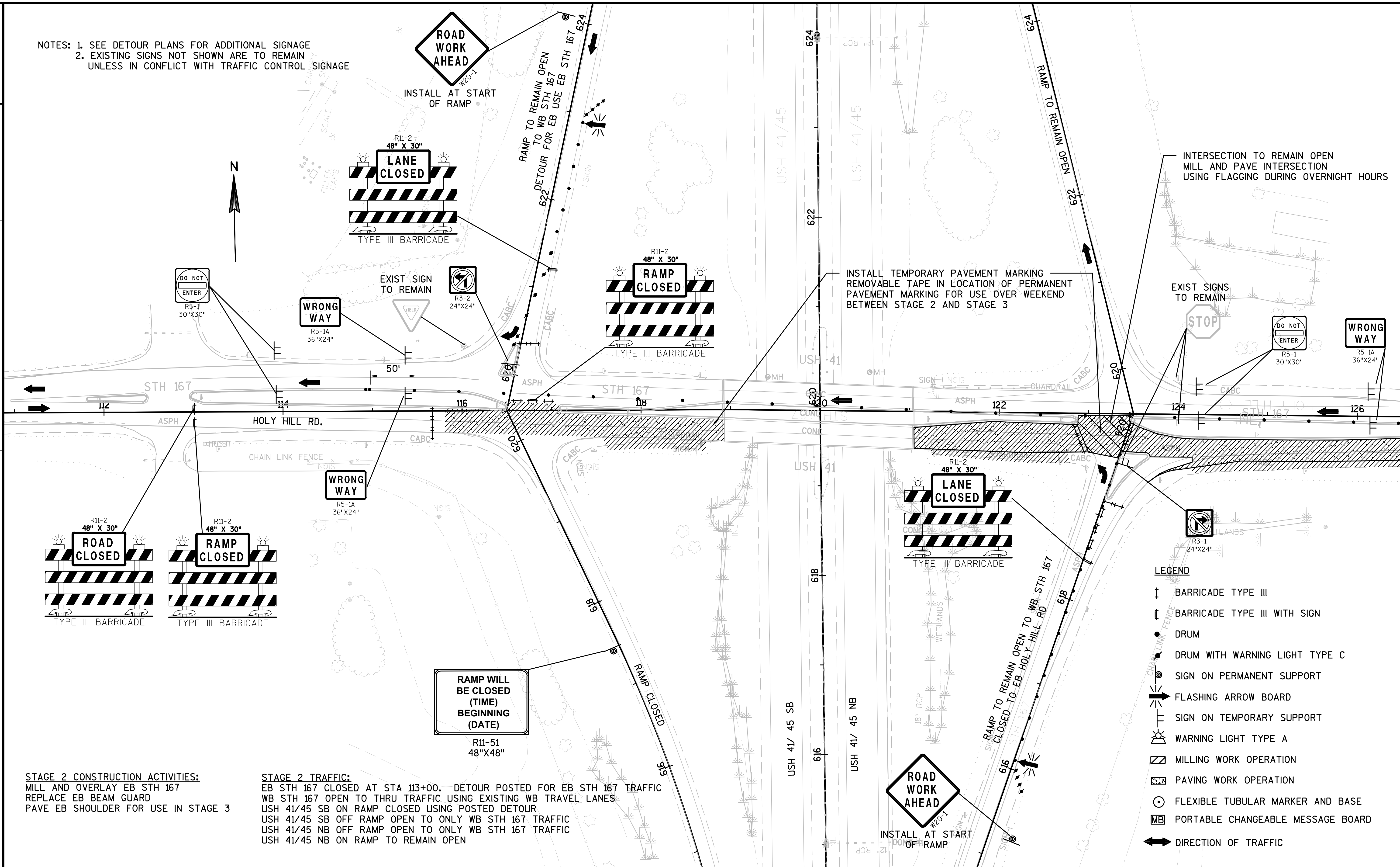
- BARRICADE TYPE III
- BARRICADE TYPE III WITH SIGN
- DRUM
- DRUM WITH WARNING LIGHT TYPE C
- SIGN ON PERMANENT SUPPORT
- FLASHING ARROW BOARD
- SIGN ON TEMPORARY SUPPORT
- WARNING LIGHT TYPE A
- MILLING WORK OPERATION
- PAVING WORK OPERATION
- FLEXIBLE TUBULAR MARKER AND BASE
- PORTABLE CHANGEABLE MESSAGE BOARD
- DIRECTION OF TRAFFIC

PROJECT NO: 1000-44-73	HWY: HOLY HILL RD.	COUNTY: WASHINGTON	TRAFFIC CONTROL - STAGE 2	SHEET	E

FILE NAME : N:\PDS\C3D\CAD\10004473\026201_S2.DWG PLOT DATE : 4/28/2015 4:03 PM PLOT BY : BLACKWOOD, JAMES W PLOT NAME : PLOT SCALE : 1:100_XREF
WISDOT/CADDS SHEET 42

2

NOTES: 1. SEE DETOUR PLANS FOR ADDITIONAL SIGNAGE
2. EXISTING SIGNS NOT SHOWN ARE TO REMAIN UNLESS IN CONFLICT WITH TRAFFIC CONTROL SIGNAGE



LEGEND

- BARRICADE TYPE III
- BARRICADE TYPE III WITH SIGN
- DRUM
- DRUM WITH WARNING LIGHT TYPE C
- SIGN ON PERMANENT SUPPORT
- FLASHING ARROW BOARD
- SIGN ON TEMPORARY SUPPORT
- WARNING LIGHT TYPE A
- MILLING WORK OPERATION
- PAVING WORK OPERATION
- FLEXIBLE TUBULAR MARKER AND BASE
- MB PORTABLE CHANGEABLE MESSAGE BOARD
- DIRECTION OF TRAFFIC

STAGE 2 CONSTRUCTION ACTIVITIES:
MILL AND OVERLAY EB STH 167
REPLACE EB BEAM GUARD
PAVE EB SHOULDER FOR USE IN STAGE 3

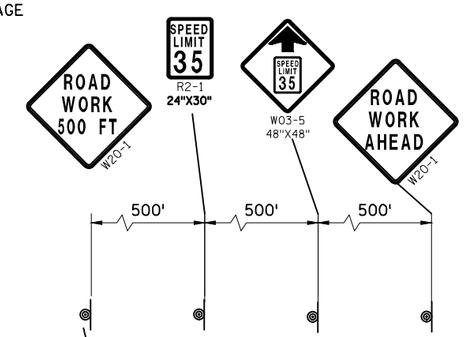
STAGE 2 TRAFFIC:
EB STH 167 CLOSED AT STA 113+00. DETOUR POSTED FOR EB STH 167 TRAFFIC
WB STH 167 OPEN TO THRU TRAFFIC USING EXISTING WB TRAVEL LANES
USH 41/45 SB ON RAMP CLOSED USING POSTED DETOUR
USH 41/45 SB OFF RAMP OPEN TO ONLY WB STH 167 TRAFFIC
USH 41/45 NB OFF RAMP OPEN TO ONLY WB STH 167 TRAFFIC
USH 41/45 NB ON RAMP TO REMAIN OPEN

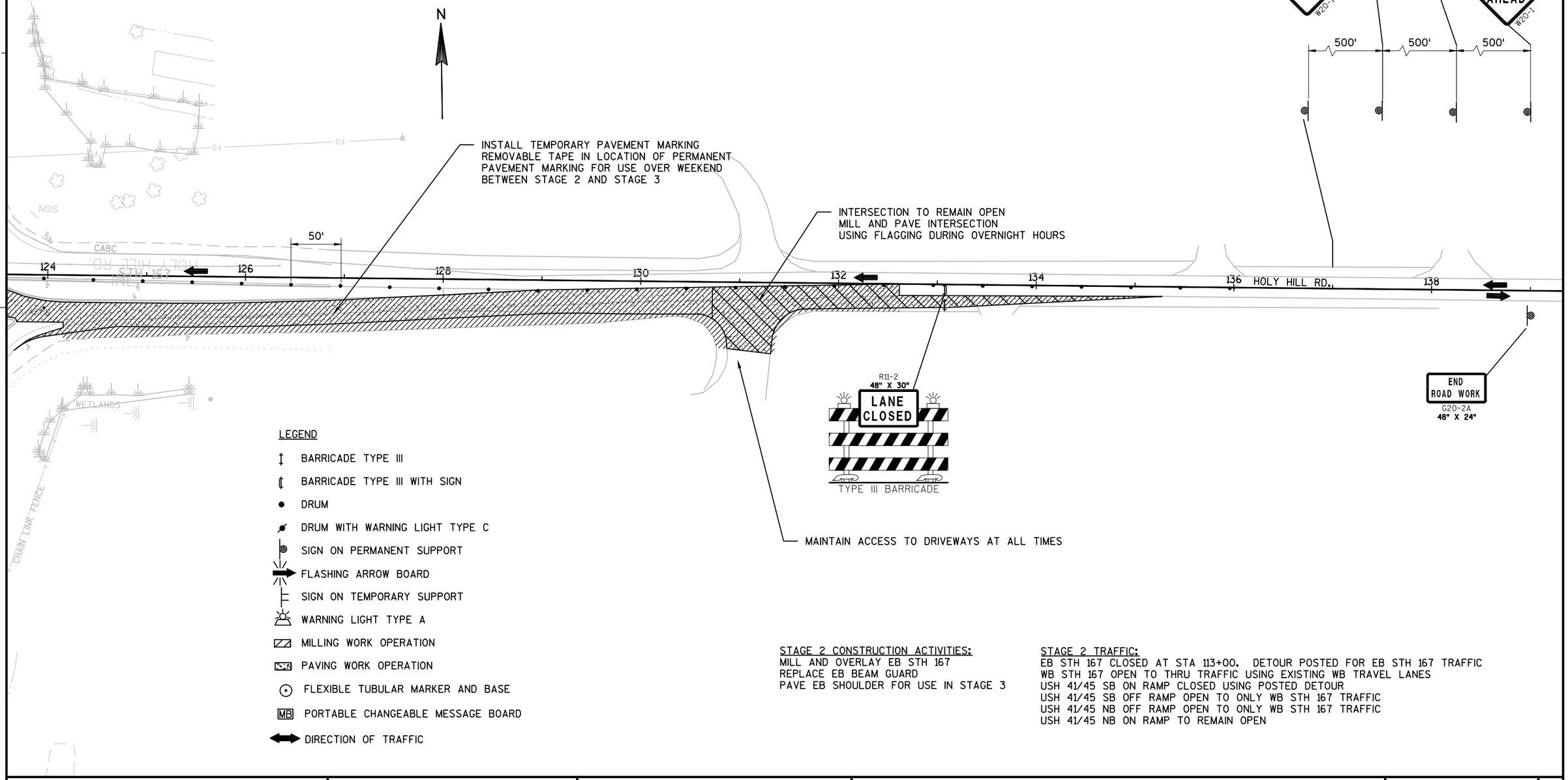
PROJECT NO:1000-44-73	HWY:HOLY HILL RD.	COUNTY:WASHINGTON	TRAFFIC CONTROL - STAGE 2	SHEET	E

FILE NAME : N:\PDS\C3D\CAD\10004473\026202_S2.DWG PLOT DATE : 6/11/2015 4:32 PM PLOT BY : SCHMIDT, JUDENE M PLOT NAME : PLOT SCALE : 1" = 100'_XREF WISDOT/CADDS SHEET 42

2

NOTES: 1. SEE DETOUR PLAN FOR ADDITIONAL SIGNAGE
2. EXISTING SIGNS NOT SHOWN ARE TO REMAIN UNLESS IN CONFLICT WITH TRAFFIC CONTROL SIGNAGE





LEGEND

- BARRICADE TYPE III
- BARRICADE TYPE III WITH SIGN
- DRUM
- DRUM WITH WARNING LIGHT TYPE C
- SIGN ON PERMANENT SUPPORT
- FLASHING ARROW BOARD
- SIGN ON TEMPORARY SUPPORT
- WARNING LIGHT TYPE A
- MILLING WORK OPERATION
- PAVING WORK OPERATION
- FLEXIBLE TUBULAR MARKER AND BASE
- MB PORTABLE CHANGEABLE MESSAGE BOARD
- DIRECTION OF TRAFFIC

STAGE 2 CONSTRUCTION ACTIVITIES:
MILL AND OVERLAY EB STH 167
REPLACE EB BEAM GUARD
PAVE EB SHOULDER FOR USE IN STAGE 3

STAGE 2 TRAFFIC:
EB STH 167 CLOSED AT STA 113+00. DETOUR POSTED FOR EB STH 167 TRAFFIC
WB STH 167 OPEN TO THRU TRAFFIC USING EXISTING WB TRAVEL LANES
USH 41/45 SB ON RAMP CLOSED USING POSTED DETOUR
USH 41/45 SB OFF RAMP OPEN TO ONLY WB STH 167 TRAFFIC
USH 41/45 NB OFF RAMP OPEN TO ONLY WB STH 167 TRAFFIC
USH 41/45 NB ON RAMP TO REMAIN OPEN

PROJECT NO: 1000-44-73	HWY: HOLY HILL RD.	COUNTY: WASHINGTON	TRAFFIC CONTROL - STAGE 2	SHEET	E

FILE NAME : N:\PDS\C3D\CAD\10004473\026203_S2.DWG PLOT DATE : 4/28/2015 4:06 PM PLOT BY : BLACKWOOD, JAMES W PLOT NAME : PLOT SCALE : 1:100_XREF
WISDOT/CADDS SHEET 42

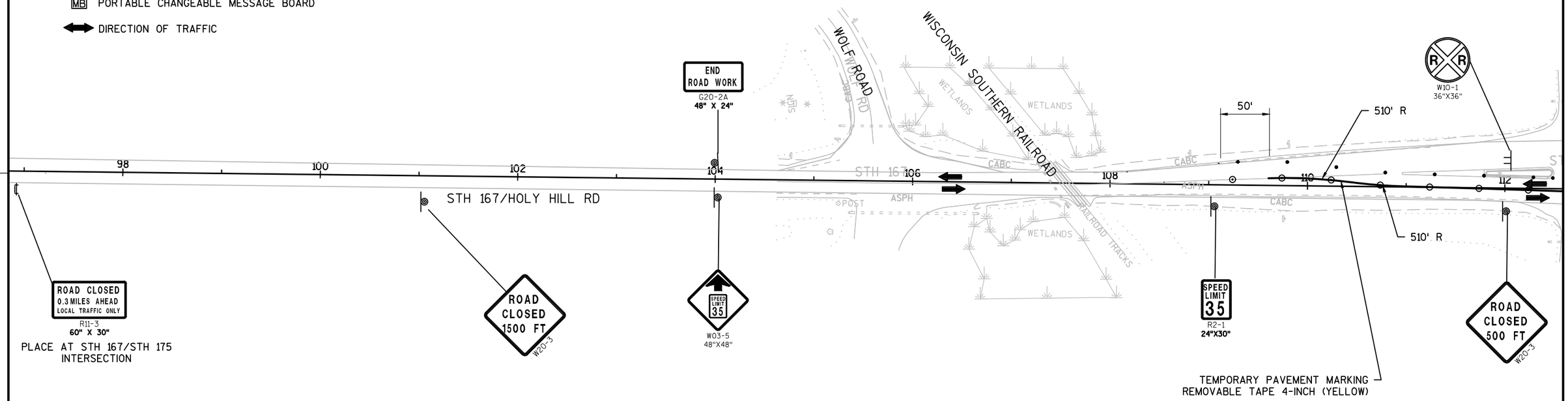
2

LEGEND

- BARRICADE TYPE III
- BARRICADE TYPE III WITH SIGN
- DRUM
- DRUM WITH WARNING LIGHT TYPE C
- SIGN ON PERMANENT SUPPORT
- FLASHING ARROW BOARD
- SIGN ON TEMPORARY SUPPORT
- WARNING LIGHT TYPE A
- MILLING WORK OPERATION
- PAVING WORK OPERATION
- FLEXIBLE TUBULAR MARKER WITH BASE
- PORTABLE CHANGEABLE MESSAGE BOARD
- DIRECTION OF TRAFFIC

NOTES: 1. SEE DETOUR PLANS FOR ADDITIONAL SIGNAGE
2. EXISTING SIGNS NOT SHOWN ARE TO REMAIN UNLESS IN CONFLICT WITH TRAFFIC CONTROL SIGNAGE

N



STAGE 3 CONSTRUCTION ACTIVITIES:
MILL AND OVERLAY WB STH 167
REPLACE WB BEAM GUARD

STAGE 3 TRAFFIC:
EB STH 167 CLOSED AT SB RAMPS. DETOUR POSTED FOR EB STH 167 TRAFFIC
EB HOLY HILL ROAD OPEN TO THRU TRAFFIC EAST OF USH 41/45 NB OFF RAMP
WB STH 167 OPEN TO THRU TRAFFIC USING EB TRAVEL LANES
USH 41/45 SB OFF RAMP AND NB ON RAMP CLOSED USING POSTED DETOUR
USH 41/45 SB ON RAMP OPEN TO ONLY WB HOLY HILL ROAD TRAFFIC
USH 41/45 NB OFF RAMP OPEN TO TRAFFIC

PROJECT NO: 1000-44-73	HWY: HOLY HILL RD.	COUNTY: WASHINGTON	TRAFFIC CONTROL - STAGE 3	SHEET 22	E

NOTES: 1. SEE DETOUR PLANS FOR ADDITIONAL SIGNAGE
2. EXISTING SIGNS NOT SHOWN ARE TO REMAIN UNLESS IN CONFLICT WITH TRAFFIC CONTROL SIGNAGE

SAW, REMOVE AND CONSTRUCT SAFETY ISLAND PRIOR TO MILLING AND PAVING WORK OPERATION

MAINTAIN FULL ACCESS TO MEDIAN OPENING AT ALL TIMES

R1-2 36" X 31"

R11-2 48" X 30" ROAD CLOSED TYPE III BARRICADE

R11-2 48" X 30" RAMP CLOSED TYPE III BARRICADE

RAMP CLOSED SEE S.D.D. 15D16 AND DETOUR PLAN

RAMP CLOSED SEE DETOUR PLAN

RAMP WILL BE CLOSED (TIME) BEGINNING (DATE) R11-51 48"X48"

R11-2 48" X 30" RAMP CLOSED TYPE III BARRICADE

TEMPORARY PAVEMENT MARKING REMOVABLE TAPE 4-INCH (YELLOW)

STOP R1-1 30"X30"

R3-2 24"X24"

HOLY HILL RD. STH 167

DO NOT ENTER R5-1 30"X30"

WRONG WAY R5-1A 36"X24"

W01-4R 35 M.P.H. W013-1 18" X 18"

R11-2 48" X 30" ROAD CLOSED TYPE III BARRICADE

EXIST SIGN TO REMAIN STOP

INSTALL AT START OF RAMP ROAD WORK AHEAD W20-1

RAMP TO REMAIN OPEN

USH 41/45 SB

USH 41/45 NB

USH 41

LEGEND
- BARRICADE TYPE III
- BARRICADE TYPE III WITH SIGN
- DRUM
- DRUM WITH WARNING LIGHT TYPE C
- SIGN ON PERMANENT SUPPORT
- FLASHING ARROW BOARD
- SIGN ON TEMPORARY SUPPORT
- WARNING LIGHT TYPE A
- MILLING WORK OPERATION
- PAVING WORK OPERATION
- FLEXIBLE TUBULAR MARKER WITH BASE
- MB PORTABLE CHANGEABLE MESSAGE BOARD
- DIRECTION OF TRAFFIC

STAGE 3 CONSTRUCTION ACTIVITIES:
MILL AND OVERLAY WB STH 167
REPLACE WB BEAM GUARD

STAGE 3 TRAFFIC:
EB STH 167 CLOSED AT SB RAMPS. DETOUR POSTED FOR EB STH 167 TRAFFIC
EB HOLY HILL ROAD OPEN TO THRU TRAFFIC EAST OF USH 41/45 NB OFF RAMP
WB STH 167 OPEN TO THRU TRAFFIC USING EB TRAVEL LANES
USH 41/45 SB OFF RAMP AND NB ON RAMP CLOSED USING POSTED DETOUR
USH 41/45 SB ON RAMP OPEN TO ONLY WB HOLY HILL ROAD TRAFFIC
USH 41/45 NB OFF RAMP OPEN TO TRAFFIC

PROJECT NO: 1000-44-73	HWY: HOLY HILL RD.	COUNTY: WASHINGTON	TRAFFIC CONTROL - STAGE 3	SHEET	E

FILE NAME : N:\PDS\C3D\CAD\10004473\100_S3.DWG PLOT DATE : 6/11/2015 4:36 PM PLOT BY : SCHMIDT, JUDENE M PLOT NAME : PLOT SCALE : 1" = 100'_XREF
WISDOT/CADDS SHEET 42

2

N

MAINTAIN ACCESS TO BUSINESS AT ALL TIMES

INTERSECTION TO REMAIN OPEN
MILL AND PAVE INTERSECTION
USING FLAGGING DURING OVERNIGHT HOURS

R11-2
48" X 30"
LANE CLOSED
TYPE III BARRICADE

TEMPORARY PAVEMENT MARKING
REMOVABLE TAPE 4-INCH (YELLOW)

W01-6
48"X24"

W01-4L
30 M.P.H.
W013-1
18"X18"

SPEED LIMIT 35
R2-1
24"X30"

SPEED LIMIT 35
W03-5
48"X48"

ROAD WORK AHEAD
W20-1

300' 500' 500' 500'

25'

50'

130 132 134 136 138 140

HOLY HILL RD.

xxxx

W01-6
48"X24"

END ROAD WORK
G20-2A
48" X 24"

MAINTAIN ACCESS TO BUSINESS AT ALL TIMES

W01-4L
30 M.P.H.
W013-1
18"X18"

LEGEND

- BARRICADE TYPE III
- BARRICADE TYPE III WITH SIGN
- DRUM
- DRUM WITH WARNING LIGHT TYPE C
- SIGN ON PERMANENT SUPPORT
- FLASHING ARROW BOARD
- SIGN ON TEMPORARY SUPPORT
- WARNING LIGHT TYPE A
- MILLING WORK OPERATION
- PAVING WORK OPERATION
- FLEXIBLE TUBULAR MARKER WITH BASE
- MB PORTABLE CHANGEABLE MESSAGE BOARD
- DIRECTION OF TRAFFIC

STAGE 3 CONSTRUCTION ACTIVITIES:
MILL AND OVERLAY WB STH 167
REPLACE WB BEAM GUARD

STAGE 3 TRAFFIC:
EB STH 167 CLOSED AT SB RAMPS. DETOUR POSTED FOR EB STH 167 TRAFFIC
EB HOLY HILL ROAD OPEN TO THRU TRAFFIC EAST OF USH 41/45 NB OFF RAMP
WB STH 167 OPEN TO THRU TRAFFIC USING EB TRAVEL LANES
USH 41/45 SB OFF RAMP AND NB ON RAMP CLOSED USING POSTED DETOUR
USH 41/45 SB ON RAMP OPEN TO ONLY WB HOLY HILL ROAD TRAFFIC
USH 41/45 NB OFF RAMP OPEN TO TRAFFIC

PROJECT NO: 1000-44-73	HWY: HOLY HILL RD.	COUNTY: WASHINGTON	TRAFFIC CONTROL - STAGE 3	SHEET	E

FILE NAME : N:\PDS\C3D\CAD\10004473\100_S3.DWG PLOT DATE : 6/9/2015 6:00 PM PLOT BY : SCHMIDT, JUDENE M PLOT NAME : PLOT SCALE : 1" = 100'_XREF

NOTES: FIXED MESSAGE SIGNS

1. CONTRACTOR TO LOCATE FIXED MESSAGE SIGNS A MINIMUM OF 400' FROM ANY EXISTING TYPE I SIGNS.

2. ALL FIXED MESSAGE SIGNS SHALL BE BLACK NON-REFLECTIVE MESSAGE ON ORANGE REFLECTIVE BACKGROUND.

3. SEE FIXED MESSAGE SIGNS LAYOUT FOR MORE INFORMATION.

NOTES:

1. ALL SIGNS TO HAVE TYPE F REFLECTIVE SHEETING - REFERENCE: "WISDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION," LATEST EDITION.

2. SIGNS SHALL BE BLACK NON-REFLECTIVE MESSAGE ON ORANGE TYPE H
REFLECTIVE SHEETING PER SPEC 643.2.9.3.

3. ALL SIGNS SHALL HAVE CAPITAL LETTERS AND NUMERALS:
12" CAPS SHALL BE SERIES "D"
6" CAPS SHALL BE SERIES "C"

4. SIGN BASE MATERIAL SHALL BE ACCORDING TO SECTION 637.2.2.1.

5. DIMENSIONS ARE IN INCHES UNLESS OTHERWISE NOTED.

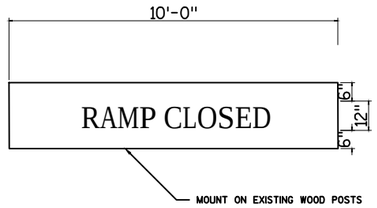
6. ALL SIGNS TO BE MOUNTED ON NEW WOODEN POST SUPPORTS (4"X6").
THE NUMBER OF POSTS REQUIRED FOR EACH LAYOUT IS SHOWN.

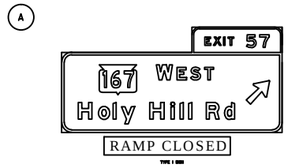
7. SIGNS ON THIS SHEET TO BE PAID UNDER THE ITEM "TRAFFIC CONTROL SIGNS FIXED MESSAGE."

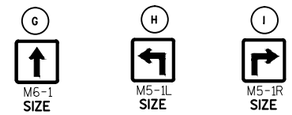
8. "BEGINS XXX XX" SIGNS PLACED PRIOR TO STAGE 2 SHALL BE SEPARATE
PANELS, BUT SHALL BE CONSIDERED AS PART OF THE SIGN.
"BEGINS XXX XX" SIGNS PLACED PRIOR TO STAGE 2 AND 4 SHALL BE
REMOVED OR COVERED WITH "EXPECT DELAYS" PANELS AFTER THEIR
EFFECTIVE DATE. THE MONTH AND DATE SHALL BE AS DIRECTED BY THE ENGINEER IN THE FIELD.

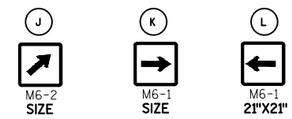
9. AFTER SIGNS HAVE BEEN LOCATED IN THE FIELD, BUT BEFORE INSTALLATION, THE WISDOT SIGNING AND MARKING SUPERVISOR SHALL
VERIFY EACH SIGN LOCATION.

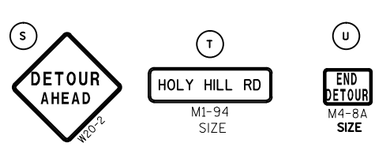
10. SIGNS TO BE PLACED 10 DAYS PRIOR TO CONSTRUCTION.











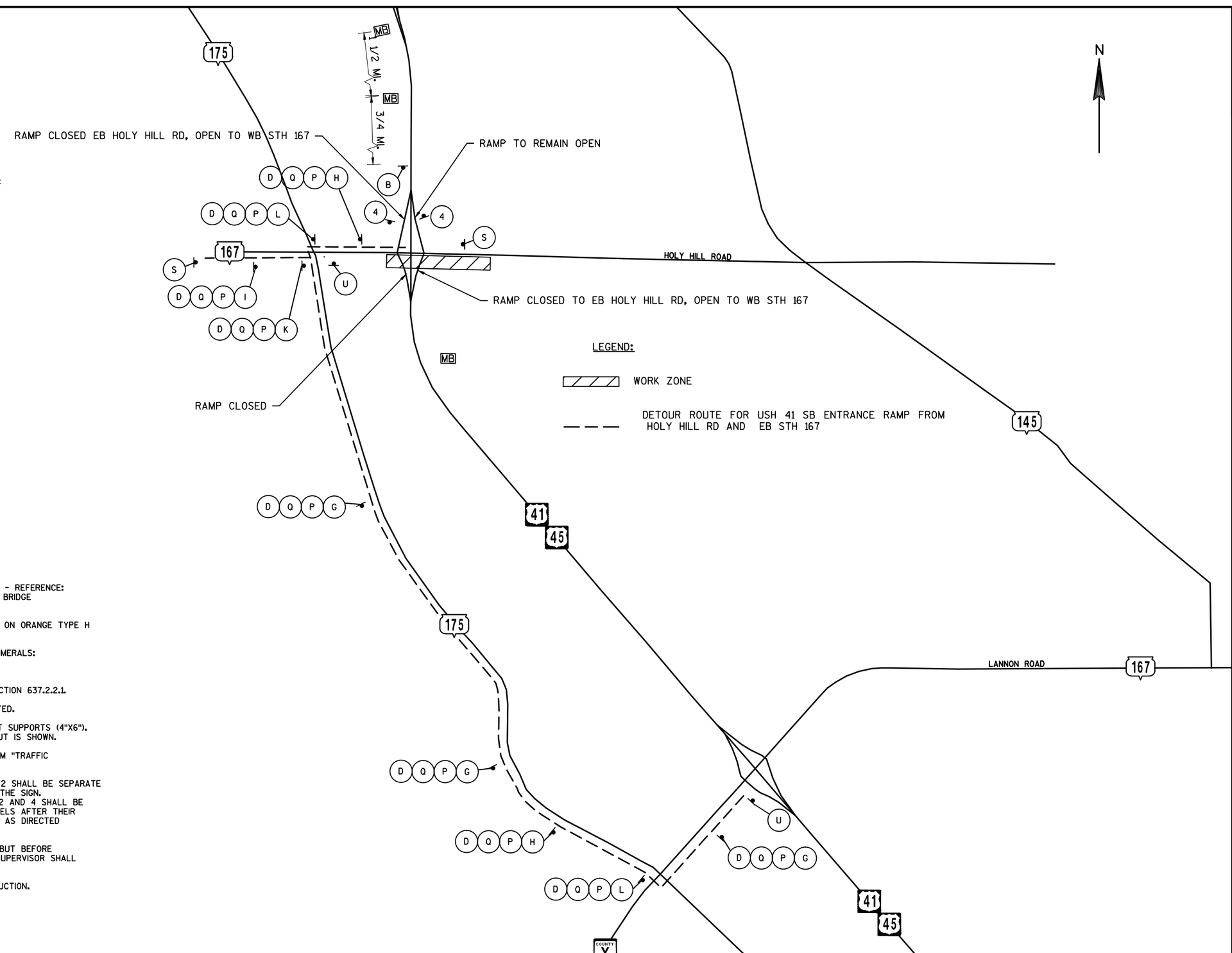
PROJECT NO: 1000-44-73	HWY: HOLY HILL ROAD	COUNTY: WASHINGTON	FIXED MESSAGE & DETOUR SIGNS	SHEET 25	E

LEGEND: FIXED MESSAGE SIGNS

- EXISTING GUIDE SIGN TO BE COVERED
- FIXED MESSAGE SIGN(S) ON WOOD POST SUPPORTS
- (XX) FIXED MESSAGE SIGN NUMBER
- (A1) CONTRACTOR SHALL COVER AS DIRECTED BY THE ENGINEER ALL ROUTE MARKINGS PERTAINING TO THE PROJECT. INCIDENTAL TO WORK ZONE TRAFFIC CONTROL SIGNING.
- [MB] CHANGEABLE MESSAGE SIGN

NOTES: FIXED MESSAGE SIGNS

1. CONTRACTOR SHOULD LOCATE FIXED MESSAGE SIGNS A MINIMUM OF 400' FROM ANY EXISTING TYPE "I" SIGN.
2. ALL FIXED MESSAGE SIGNS SHALL BE BLACK NON-REFLECTIVE MESSAGE ON ORANGE REFLECTIVE BACKGROUND.
3. SEE FIXED MESSAGE SIGNS AND SPECIAL MESSAGE SIGNS LAYOUT SHEETS FOR MORE INFORMATION.
4. COVER DETOUR SIGNING WHEN NOT IN USE. INCIDENTAL TO WORK ZONE TRAFFIC CONTROL SIGNING.
5. SIGNS TO BE PLACED 10 DAYS PRIOR TO CONSTRUCTION.



NOTES:

1. ALL SIGNS TO HAVE TYPE F REFLECTIVE SHEETING - REFERENCE: "WISDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION," LATEST EDITION.
2. SIGNS SHALL BE BLACK NON-REFLECTIVE MESSAGE ON ORANGE TYPE H REFLECTIVE SHEETING PER SPEC 643.2.9.3.
3. ALL SIGNS SHALL HAVE CAPITAL LETTERS AND NUMERALS:
   12" CAPS SHALL BE SERIES "D"
   6" CAPS SHALL BE SERIES "C"
4. SIGN BASE MATERIAL SHALL BE ACCORDING TO SECTION 637.2.2.1.
5. DIMENSIONS ARE IN INCHES UNLESS OTHERWISE NOTED.
6. ALL SIGNS TO BE MOUNTED ON NEW WOODEN POST SUPPORTS (4"X6"). THE NUMBER OF POSTS REQUIRED FOR EACH LAYOUT IS SHOWN.
7. SIGNS ON THIS SHEET TO BE PAID UNDER THE ITEM "TRAFFIC CONTROL SIGNS FIXED MESSAGE."
8. "BEGINS XXX XX" SIGNS PLACED PRIOR TO STAGE 2 SHALL BE SEPARATE PANELS, BUT SHALL BE CONSIDERED AS PART OF THE SIGN. "BEGINS XXX XX" SIGNS PLACED PRIOR TO STAGE 2 AND 4 SHALL BE REMOVED OR COVERED WITH "EXPECT DELAYS" PANELS AFTER THEIR EFFECTIVE DATE. THE MONTH AND DATE SHALL BE AS DIRECTED BY THE ENGINEER IN THE FIELD.
9. AFTER SIGNS HAVE BEEN LOCATED IN THE FIELD, BUT BEFORE INSTALLATION, THE WISDOT SIGNING AND MARKING SUPERVISOR SHALL VERIFY EACH SIGN LOCATION.
10. SIGNS TO BE PLACED 10 DAYS PRIOR TO CONSTRUCTION.

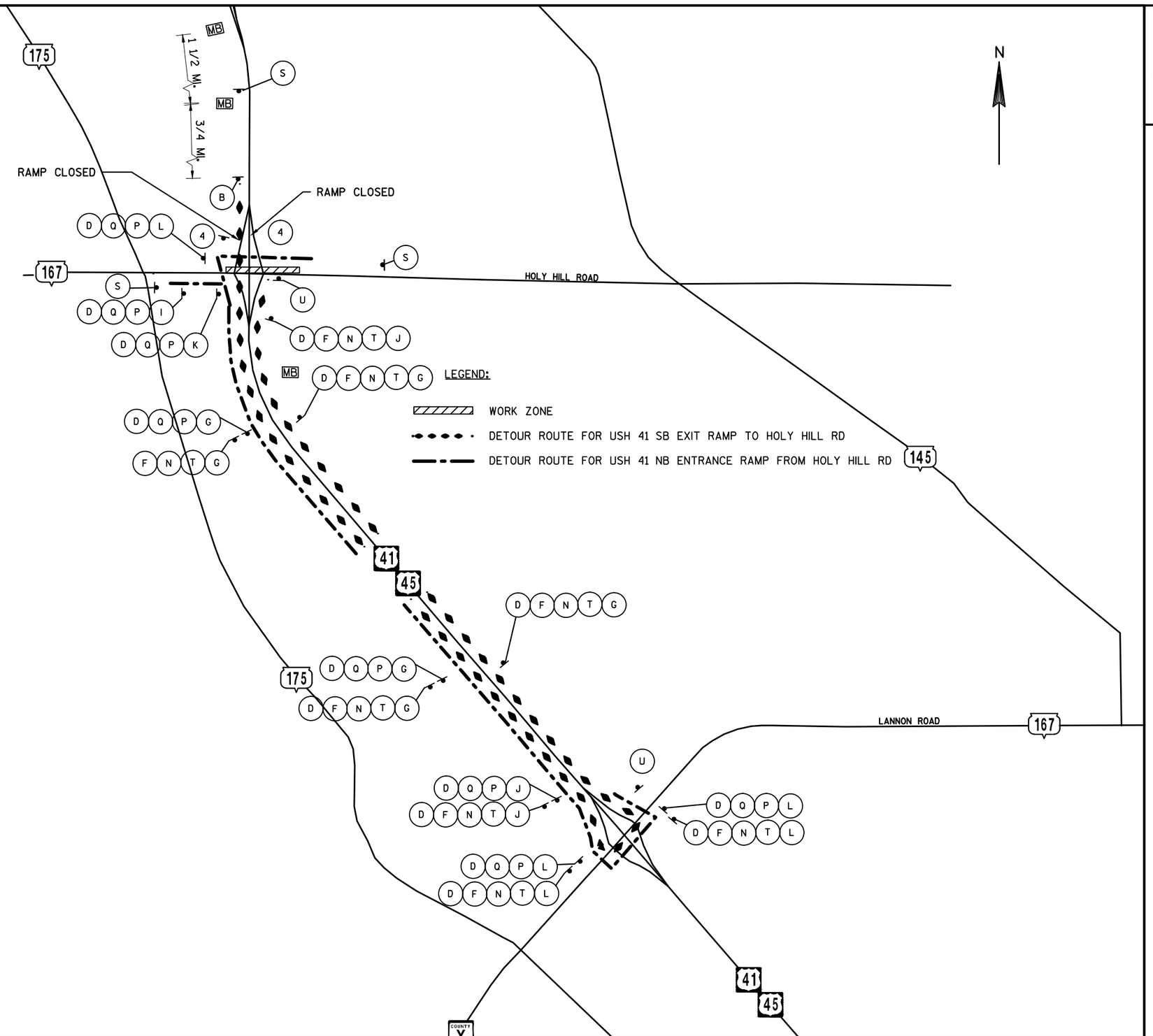
PROJECT NO: 1000-44-73	HWY: HOLY HILL ROAD	COUNTY: WASHINGTON	TRAFFIC CONTROL DETOUR PLAN - STAGE 2	SHEET E

LEGEND: FIXED MESSAGE SIGNS

- EXISTING GUIDE SIGN TO BE COVERED
- FIXED MESSAGE SIGN(S) ON WOOD POST SUPPORTS
- (XX) FIXED MESSAGE SIGN NUMBER
- (A1) CONTRACTOR SHALL COVER AS DIRECTED BY THE ENGINEER ALL ROUTE MARKINGS PERTAINING TO THE PROJECT. INCIDENTAL TO WORK ZONE TRAFFIC CONTROL SIGNING.
- [MB] CHANGEABLE MESSAGE SIGN

NOTES: FIXED MESSAGE SIGNS

1. CONTRACTOR SHOULD LOCATE FIXED MESSAGE SIGNS A MINIMUM OF 400' FROM ANY EXISTING TYPE "I" SIGN.
2. ALL FIXED MESSAGE SIGNS SHALL BE BLACK NON-REFLECTIVE MESSAGE ON ORANGE REFLECTIVE BACKGROUND.
3. SEE FIXED MESSAGE SIGNS AND SPECIAL MESSAGE SIGNS LAYOUT SHEETS FOR MORE INFORMATION.
4. COVER DETOUR SIGNING WHEN NOT IN USE. INCIDENTAL TO WORK ZONE TRAFFIC CONTROL SIGNING.
5. SIGNS TO BE PLACED 10 DAYS PRIOR TO CONSTRUCTION.

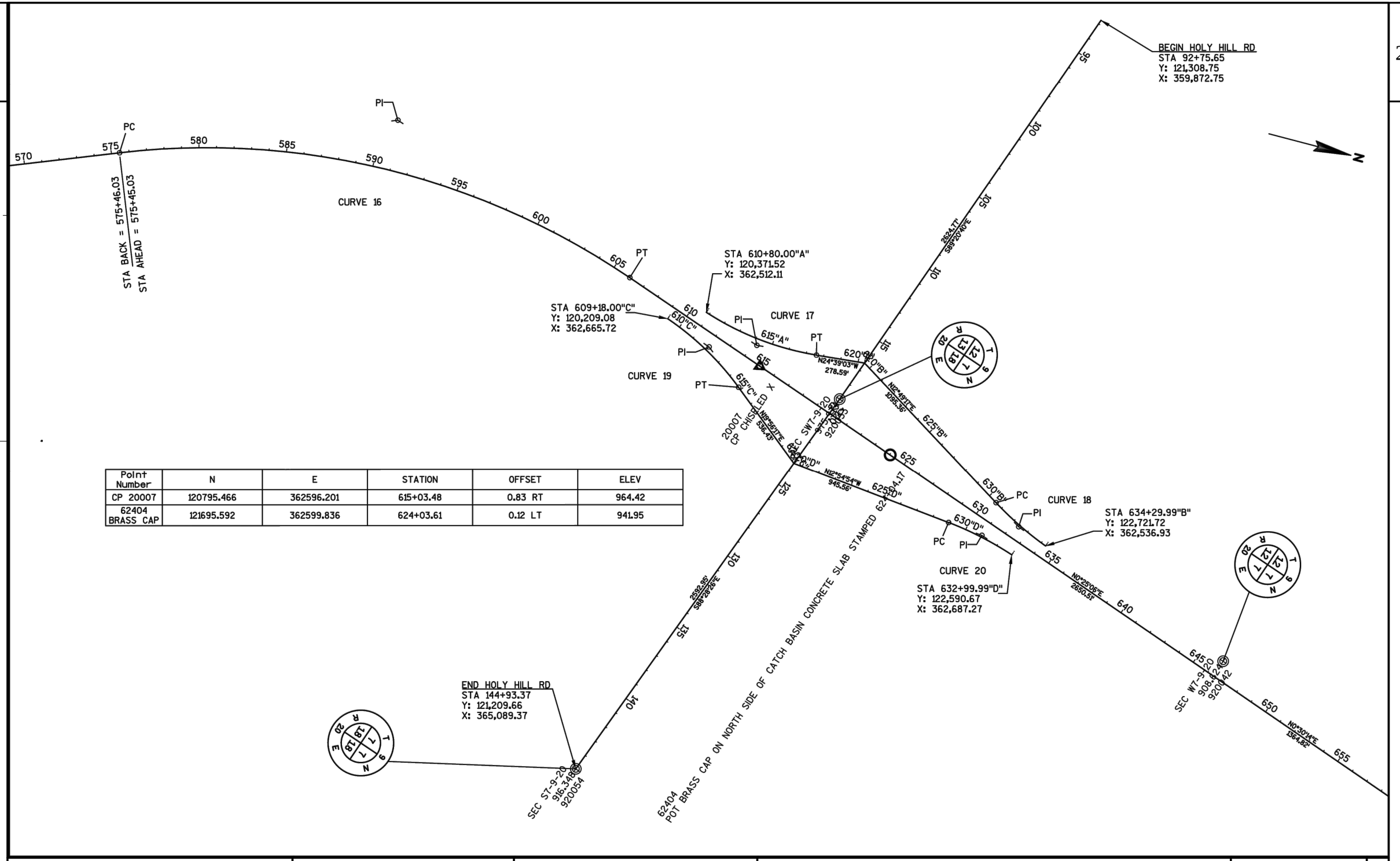


NOTES:

1. ALL SIGNS TO HAVE TYPE F REFLECTIVE SHEETING - REFERENCE: "WISDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION," LATEST EDITION.
2. SIGNS SHALL BE BLACK NON-REFLECTIVE MESSAGE ON ORANGE TYPE H REFLECTIVE SHEETING PER SPEC 643.2.9.3.
3. ALL SIGNS SHALL HAVE CAPITAL LETTERS AND NUMERALS:
   12" CAPS SHALL BE SERIES "D"
   6" CAPS SHALL BE SERIES "C"
4. SIGN BASE MATERIAL SHALL BE ACCORDING TO SECTION 637.2.2.1.
5. DIMENSIONS ARE IN INCHES UNLESS OTHERWISE NOTED.
6. ALL SIGNS TO BE MOUNTED ON NEW WOODEN POST SUPPORTS (4"X6"). THE NUMBER OF POSTS REQUIRED FOR EACH LAYOUT IS SHOWN.
7. SIGNS ON THIS SHEET TO BE PAID UNDER THE ITEM "TRAFFIC CONTROL SIGNS FIXED MESSAGE."
8. "BEGINS XXX XX" SIGNS PLACED PRIOR TO STAGE 2 SHALL BE SEPARATE PANELS, BUT SHALL BE CONSIDERED AS PART OF THE SIGN. "BEGINS XXX XX" SIGNS PLACED PRIOR TO STAGE 2 AND 4 SHALL BE REMOVED OR COVERED WITH "EXPECT DELAYS" PANELS AFTER THEIR EFFECTIVE DATE. THE MONTH AND DATE SHALL BE AS DIRECTED BY THE ENGINEER IN THE FIELD.
9. AFTER SIGNS HAVE BEEN LOCATED IN THE FIELD, BUT BEFORE INSTALLATION, THE WISDOT SIGNING AND MARKING SUPERVISOR SHALL VERIFY EACH SIGN LOCATION.
10. SIGNS TO BE PLACED 10 DAYS PRIOR TO CONSTRUCTION.

PROJECT NO: 1000-44-73	HWY: HOLY HILL ROAD	COUNTY: WASHINGTON	TRAFFIC CONTROL DETOUR PLAN - STAGE 3	SHEET	E

2



Point Number	N	E	STATION	OFFSET	ELEV
CP 20007	120795.466	362596.201	615+03.48	0.83 RT	964.42
62404 BRASS CAP	121695.592	362599.836	624+03.61	0.12 LT	941.95

PROJECT NO: 1000-44-73	HWY: HOLY HILL RD.	COUNTY: WASHINGTON	ALIGNMENT PLAN	SHEET	E

FILE NAME : N:\PDS\C3D\CAD\10004473\PS&E\027201_AD.DWG PLOT DATE : 4/23/2015 9:48 AM PLOT BY : SCHMIDT, JUDENE M PLOT NAME : PLOT SCALE : 0.998498

DATE 22JUN15 E S T I M A T E O F Q U A N T I T I E S

LINE NUMBER	ITEM	ITEM DESCRIPTION	UNIT	TOTAL	1000-44-73 QUANTITY
0010	204.0115	Removing Asphaltic Surface Butt Joints	SY	861.000	861.000
0020	204.0125	Removing Asphaltic Surface Milling	TON	1,845.000	1,845.000
0030	204.0150	Removing Curb & Gutter	LF	110.000	110.000
0040	204.0165	Removing Guardrail	LF	380.000	380.000
0050	211.0100	Prepare Foundation for Asphaltic Paving (project) 01. 1000-44-73	LS	1.000	1.000
0060	211.0400	Prepare Foundation for Asphaltic Shoulders	STA	16.000	16.000
0070	213.0100	Finishing Roadway (project) 01. 1000-44-73	EACH	1.000	1.000
0080	305.0110	Base Aggregate Dense 3/4-Inch	TON	231.000	231.000
0090	305.0120	Base Aggregate Dense 1 1/4-Inch	TON	985.000	985.000
0100	416.0610	Drilled Tie Bars	EACH	10.000	10.000
0110	455.0105	Asphaltic Material PG58-28	TON	133.000	133.000
0120	455.0605	Tack Coat	GAL	233.000	233.000
0130	460.1103	HMA Pavement Type E-3	TON	2,210.000	2,210.000
0140	460.2000	Incentive Density HMA Pavement	DOL	1,420.000	1,420.000
0150	460.4000	HMA Cold Weather Paving	TON	552.000	552.000
0160	460.4110.S	Reheating HMA Pavement Longitudinal Joints	LF	1,372.000	1,372.000
0170	465.0305	Asphaltic Surface Safety Islands	TON	1.700	1.700
0180	601.0553	Concrete Curb & Gutter 4-Inch Sloped 36-Inch Type D	LF	50.000	50.000
0190	611.0654	Inlet Covers Type V	EACH	2.000	2.000
0200	611.8120.S	Cover Plates Temporary	EACH	2.000	2.000
0210	614.0010	Barrier System Grading Shaping Finishing	EACH	2.000	2.000
0220	614.2300	MGS Guardrail 3	LF	200.000	200.000
0230	614.2500	MGS Thrie Beam Transition	LF	78.800	78.800
0240	614.2610	MGS Guardrail Terminal EAT	EACH	2.000	2.000
0250	614.2620	MGS Guardrail Terminal Type 2	EACH	1.000	1.000
0260	618.0100	Maintenance And Repair of Haul Roads (project) 01. 1000-44-73	EACH	1.000	1.000
0270	619.1000	Mobilization	EACH	1.000	1.000
0280	620.0300	Concrete Median Sloped Nose	SF	20.000	20.000
0290	628.1504	Silt Fence	LF	375.000	375.000
0300	628.1520	Silt Fence Maintenance	LF	375.000	375.000
0310	628.1905	Mobilizations Erosion Control	EACH	1.000	1.000
0320	628.1910	Mobilizations Emergency Erosion Control	EACH	1.000	1.000
0330	628.2004	Erosion Mat Class I Type B	SY	263.000	263.000
0340	628.7010	Inlet Protection Type B	EACH	2.000	2.000
0350	629.0210	Fertilizer Type B	CWT	0.200	0.200
0360	630.0130	Seeding Mixture No. 30	LB	8.000	8.000
0370	638.2602	Removing Signs Type II	EACH	1.000	1.000
0380	641.8100	Overhead Sign Support (structure) 01. S-66-241	LS	1.000	1.000
0390	643.0100	Traffic Control (project) 01. 1000-44-73	EACH	1.000	1.000
0400	643.0300	Traffic Control Drums	DAY	2,890.000	2,890.000
0410	643.0420	Traffic Control Barricades Type III	DAY	390.000	390.000
0420	643.0500	Traffic Control Flexible Tubular Marker Posts	EACH	37.000	37.000
0430	643.0600	Traffic Control Flexible Tubular Marker Bases	EACH	37.000	37.000
0440	643.0705	Traffic Control Warning Lights Type A	DAY	780.000	780.000
0450	643.0715	Traffic Control Warning Lights Type C	DAY	830.000	830.000
0460	643.0800	Traffic Control Arrow Boards	DAY	33.000	33.000

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DATE 22JUN15 E S T I M A T E O F Q U A N T I T I E S

LINE NUMBER	ITEM	ITEM DESCRIPTION	UNIT	TOTAL	1000-44-73 QUANTITY
0470	643.0900	Traffic Control Signs	DAY	1,040.000	1,040.000
0480	643.0920	Traffic Control Covering Signs Type II	EACH	31.000	31.000
0490	643.1000	Traffic Control Signs Fixed Message	SF	76.500	76.500
0500	643.1050	Traffic Control Signs PCMS	DAY	92.000	92.000
0510	643.2000	Traffic Control Detour (project) 01. 1000-44-73	EACH	1.000	1.000
0520	643.3000	Traffic Control Detour Signs	DAY	890.000	890.000
0530	646.0106	Pavement Marking Epoxy 4-Inch	LF	9,910.000	9,910.000
0540	646.0600	Removing Pavement Markings	LF	1,138.000	1,138.000
0550	646.0881.S	Pavement Marking Grooved Wet Reflective Tape 4-Inch	LF	200.000	200.000
0560	646.0883.S	Pavement Marking Grooved Wet Reflective Tape 8-Inch	LF	510.000	510.000
0570	647.0456	Pavement Marking Curb Epoxy	LF	45.000	45.000
0580	647.0606	Pavement Marking Island Nose Epoxy	EACH	1.000	1.000
0590	647.0726	Pavement Marking Diagonal Epoxy 12-Inch	LF	112.000	112.000
0600	649.0400	Temporary Pavement Marking Removable Tape 4-Inch	LF	8,700.000	8,700.000
0610	649.1200	Temporary Pavement Marking Stop Line Removable Tape 18-Inch	LF	28.000	28.000
0620	650.5000	Construction Staking Base	LF	1,568.000	1,568.000
0630	650.5500	Construction Staking Curb Gutter and Curb & Gutter	LF	50.000	50.000
0640	650.8000	Construction Staking Resurfacing Reference	LF	1,800.000	1,800.000
0650	650.9910	Construction Staking Supplemental Control (project) 01. 1000-44-73	LS	1.000	1.000
0660	690.0150	Sawing Asphalt	LF	1,317.000	1,317.000
0670	690.0250	Sawing Concrete	LF	12.000	12.000
0680	SPV.0060	Special 01. Pavement Marking Grooved Preformed Thermoplastic Arrows Type 2	EACH	6.000	6.000
0690	SPV.0060	Special 02. Pavement Marking Grooved Preformed Thermoplastic Words	EACH	6.000	6.000
0700	SPV.0090	Special 01. Pavement Marking Grooved Preformed Thermoplastic Stop Bars 18-Inch	LF	107.000	107.000
0710	SPV.0105	Special 01. Removing Overhead Sign Support and Footing	LS	1.000	1.000

3

3

REMOVING ASPHALTIC SURFACE BUTT JOINTS & SAWING ASPHALT

STATION	TO	STATION	LOCATION	REMOVING ASPHALTIC SURFACE BUTT JOINTS 204.0115 SY	REMOVING ASPHALTIC SURFACE MILLING 204.0125 TON	SAWING ASPHALT 690.0150 LF
115+31	-	115+81	HOLY HILL RD	333	--	64
115+81	-	118+91	HOLY HILL RD	--	481	56
121+03	-	132+61	HOLY HILL RD	--	1,364	494
132+61	-	133+11	HOLY HILL RD	128	--	48
115+81	-	116+85	USH 41/45 SB OFF	--	--	104
116+10	-	117+63	USH 41/45 SB ON	--	--	153
122+80	-	123+96	USH 41/45 NB OFF	--	--	116
123+00	-	124+31	USH 41/45 NB ON	--	--	131
130+75	-	131+75	N 48TH ST	278	--	44
130+88	-	131+32	S 48TH ST	122	--	107
			TOTAL 0010	861	1,845	1,317

PREPARE FOUNDATION FOR ASPHALTIC PAVING AND SHOULDERS

STATION	TO	STATION	LOCATION	PREPARE FOUNDATION FOR ASPHLALTIC PAVING (PROJECT) 1000-44-73 211.0100 LS	SHOULDERS 211.0400 STA
115+81	-	132+61	HOLY HILL RD	1	--
124+16	-	129+22	HOLY HILL RD	--	6
124+11	-	130+78	HOLY HILL RD	--	7
131+64	-	134+50	HOLY HILL RD	--	3
			TOTAL 0010	1	16

CONCRETE CURB & GUTTER AND SAWING CONCRETE

STATION	TO	STATION	LOCATION	REMOVING CURB & GUTTER 204.0150 LF	SAWING CONCRETE 690.0250 LF
122+52	-	122+87	HOLY HILL MED ISLAND	70	6
116+38	-	116+78	HOLY HILL SAFETY ISLAND	40	6
			TOTAL 0010	110	12

REMOVING GUARDRAIL

STATION	TO	STATION	LOCATION	204.0165 LF
117+81	-	118+71	HOLY HILL RD RT	90
121+25	-	122+70	HOLY HILL RD LT	145
121+25	-	122+70	HOLY HILL RD RT	145
			TOTAL 0010	380

FINISHING ROADWAY (PROJECT) 1000-44-73

STATION	TO	STATION	LOCATION	213.0100 EACH
111+81	-	132+61	HOLY HILL RD	1
			TOTAL 0010	1

BASE AGGREGATE DENSE

STATION	TO	STATION	LOCATION	BASE AGGREGATE DENSE 3/4-INCH 305.0110 TON	BASE AGGREGATE DENSE 1 1/4-INCH 305.0120 TON
115+81	-	118+91	HOLY HILL RD WB	49	229
121+03	-	132+61	HOLY HILL RD EB	182	648
115+81	-	132+61	UNDISTRIBUTED	--	108
			TOTAL 0010	231	985

ASPHALT ITEMS

STATION	TO	STATION	LOCATION	ASPHALTIC MATERIAL PG58-28 455.0205 TON	TACK COAT 455.0605 GAL	HMA PAVEMENT TYPE E-3 460.1103 TON	HMA COLD WEATHER PAVING 460.4000 TON	ASPHALTIC SURFACE SAFETY ISLANDS 465.0305 TON
115+81	-	118+91	HOLY HILL RD (LOWER LAYER)	18	--	296	74	--
115+31	-	118+91	HOLY HILL RD (UPPER LAYER)	14	60	241	60	--
116+46	-	116+58	HOLY HILL RD (47' LT)	--	--	--	--	0.2
122+52	-	123+67	HOLY HILL RD (MED. ISLAND)	--	--	--	--	1.5
121+03	-	132+61	HOLY HILL RD (LOWER LAYER)	59	--	977	244	--
131+03	-	133+11	HOLY HILL RD (UPPER LAYER)	42	173	697	174	--
			TOTAL 0010	133	233	2,210	552	1.7

3

REHEATING HMA LONGITUDINAL JOINTS

STATION	TO	STATION	LOCATION	REHEATING HMA LONGITUDINAL JOINTS 460.4110.S LF
116+52	-	117+07	HOLY HILL RD	110
120+70	-	123+40	HOLY HILL RD	540
129+00	-	132+61	HOLY HILL RD	722
			TOTAL 0010	1,372

INLET COVERS TYPE V, COVER PLATES TEMPORARY, & INLET PROTECTION TYPE B

STATION	LOCATION	INLET COVERS TYPE V 611.0654 EACH	COVER PLATES TEMPORARY 611.8120.S EACH	INLET PROTECTION TYPE B 628.7010 EACH
121+27	HOLY HILL RD, 22.71' LT	1	1	1
121+27	HOLY HILL RD, 38.39' RT	1	1	1
	TOTAL 0010	2	2	2

3

CONCRETE CURB & GUTTER AND DRILLED TIE BARS

STATION	TO	STATION	LOCATION	DRILLED TIE BARS 416.0610 EACH	CONCRETE CURB AND GUTTER 4-INCH SLOPED 36-INCH TYPE D 601.0553 LF	CONSTRUCTION STAKING CURB GUTTER AND CURB & GUTTER 650.5500 LF
122+52	-	122+70	HOLY HILL MED ISLAND	5	30	30
116+44	-	116+60	HOLY HILL SAFETY ISLAND	5	20	20
			TOTAL 0010	10	50	50

GUARDRAILS

STATION	TO	STATION	LOCATION	BARRIER SYSTEM GRADING SHAPING FINISHING 614.0010 EACH	MGS GUARDRAIL 3 614.2300 LF	MGS THRIE BEAM TRANSITION 614.2500 LF	MGS GUARDRAIL TERMINAL EAT 614.2610 EACH	MGS GUARDRAIL TERMINAL TYPE 2 614.2620 EACH
117+66	-	118+71	HOLY HILL RD RT	1	12.5	39.4	1	--
121+20	-	122+62	HOLY HILL RD LT	1	50.0	39.4	1	--
121+25	-	123+07	HOLY HILL RD RT	--	137.5	--	--	1
			TOTAL 0010	2	200.0	78.8	2	1

BARRIER SYSTEM GRADING SHAPING FINISHING (FOR INFORMATION ONLY)

LOCATION STA	-	STA	*EXCAVATION COMMON CY	*BORROW CY	*TOPSOIL SY	*FERTILIZER TYPE B CWT	*SEEDING MIXTURE NO. 30 LB
117+16		118+19	0	22	100	0.1	3
122+09		123+12	0	33	150	0.1	3
		TOTAL =	0	55	250	0.20	6

NOTES:
* = Items & Quantities listed for Bid Information Only

3

MAINTENANCE AND REPAIR OF HAUL ROADS (PROJECT) 1000-44-73

STATION	TO	STATION	LOCATION	618.0100 EACH
115+81	-	132+61	PROJECT LIMITS	1
			TOTAL 0010	1

MOBILIZATION

STATION	TO	STATION	LOCATION	619.1000 EACH
115+81	-	132+61	HOLY HILL RD	1
			TOTAL 0010	1

CONCRETE MEDIAN SLOPED NOSE

STATION	TO	STATION	LOCATION	620.0300 SF
122+63	-	122+68	HOLY HILL RD MED ISLAND	20
			TOTAL 0010	20

3

SILT FENCE & SILT FENCE MAINTENANCE

STATION	TO	STATION	LOCATION	SILT FENCE 628.1504 LF	SILT FENCE MAINTENANCE 628.1520 LF
117+25	-	118+50	HOLY HILL RD, RT	125	125
121+50	-	122+75	HOLY HILL RD, RT	125	125
121+50	-	122+75	HOLY HILL RD, LT	125	125
			TOTAL 0010	375	375

EROSION CONTROL & LANDSCAPING

STATION	TO	STATION	LOCATION	MOBILIZATIONS EROSION CONTROL 628.1905 EACH	MOBILIZATION EMERGENCY EROSION CONTROL 628.1910 EACH	EROSION MAT CLASS I TYPE B 628.2004 SY	FERTILIZER TYPE B 629.0210 CWT	SEEDING MIXTURE NO. 30 630.0130 LB
115+81	-	132+61	HOLY HILL RD	1	1	--	--	--
117+73	-	118+71	HOLY HILL RD RT	--	--	65	0.06	2
121+25	-	122+73	HOLY HILL RD LT	--	--	99	0.07	3
121+25	-	122+73	HOLY HILL RD RT	--	--	99	0.07	3
			TOTAL 0010	1	1	263	0.20	8

TRAFFIC CONTROL & DETOUR

STATION	TO	STATION	LOCATION	TRAFFIC CONTROL (PROJECT) 1000-44-73 643.0100 EACH	DRUMS 643.0300 DAY	BARRICADES TYPE III 643.0420 DAY	WARNING LIGHTS TYPE A 643.0705 DAY	WARNING LIGHTS TYPE C 643.0715 DAY	ARROW BOARDS 643.0800 DAY	SIGNS 643.0900 DAY	COVERING SIGNS TYPE II 643.0920 EACH	SIGNS FIXED MESSAGE 643.1000 SF	SIGNS PCMS 643.1050 DAY	DETOUR (PROJECT) 1000-44-73 643.2000 EACH	DETOUR SIGNS 643.3000 DAY
	STAGE 1:			0.3	--	--	--	--	--	--	--	--	--	--	
97+00		120+00	HOLY HILL RD		125	5	10	25	--	35	--	--	7	--	--
120+00		147+50	HOLY HILL RD		170	5	10	55	14	40	--	--	7	--	--
	STAGE 2:			0.3	--	--	--	--	--	--	--	--	6	0.5	--
97+00	-	120+00	HOLY HILL RD	--	240	50	100	90	--	150	17	12.5	6	--	130
120+00	-	147+50	HOLY HILL RD	--	330	50	100	70	--	120	5	--	--	--	10
572+00	-	612+00	USH 41/45 NB	--	190	30	60	40	6	30	--	16.0	6	--	--
632+00	-	672+00	USH 41/45 SB	--	140	40	80	100	6	80	--	16.0	6	--	--
CTH Y	-	STH 167	STH 175	--	--	--	--	--	--	--	--	--	--	--	160
STH 175	-	USH 41/45	LANNON RD	--	--	--	--	--	--	--	--	--	--	--	60
	STAGE 3:			0.4	--	--	--	--	--	--	--	--	--	0.5	--
97+00	-	120+00	HOLY HILL RD	--	360	75	150	135	--	240	4	--	7	--	150
120+00	-	147+50	HOLY HILL RD	--	555	75	150	165	7	225	5	--	7	--	10
454+00		620+00	USH 41/45 SB	--	--	--	--	--	--	--	--	--	--	--	150
572+00	-	612+00	USH 41/45 NB	--	--	--	--	--	--	--	--	16.0	20	--	110
632+00	-	672+00	USH 41/45 SB	--	780	60	120	150	--	120	--	16.0	20	--	110
			TOTAL 0010	1	2,890	390	780	830	33	1040	31	76.5	92	1	890

TRAFFIC CONTROL TUBULAR MARKER, REMOVING PAVEMENT MARKING, AND TEMPORARY PAVEMENT MARKING

STATION	TO	STATION	LOCATION	TRAFFIC CONTROL FLEXIBLE TUBULAR MARKER POSTS 643.0500 EACH	BASES 643.0600 EACH	REMOVING PAVEMENT MARKING 646.0600 LF	TEMPORARY PAVEMENT MARKING REMOVABLE TAPE 4-INCH 649.0400 LF (YELLOW)	(WHITE)	STOP LINE REMOVABLE TAPE 18-INCH 649.1200 LF (WHITE)	REMARKS
			STAGE 3:							
109+50	-	112+50	STH 167 C/L	7	7	--	600	600	--	
113+00	-	116+50	STH 167 EB LANE	8	8	--	700	700	--	
117+00	-	124+00	STH 167 EB LANE	--	--	--	1400	700	--	
124+00	-	130+50	STH 167 EB LANE	14	14	--	1300	1300	--	
131+50	-	135+00	STH 167 C/L	8	8	--	700	700	--	
109+50	-	111+80	STH 167 C/L	--	--	460	--	--	--	REMOVE DOUBLE YELLOW
123+10	-	123+15	USH 41/45 NB OFF-RAMP	--	--	--	--	--	16	STOP BAR FOR OFF-RAMP TRAFFIC
124+00	-	124+00	STH 167 RT	--	--	--	--	--	12	STOP BAR FOR WB TRAFFIC
131+61	-	135+00	STH 167 C/L	--	--	678	--	--	--	REMOVE DOUBLE YELLOW
			TOTAL 0010	37	37	1,138	8,700		28	

REMOVING SIGNS TYPE II

STATION	LOCATION	REMOVING SIGNS TYPE II 638.2602 EACH
122+75	HOLY HILL RD	1
	TOTAL 0010	1

CONSTRUCTION STAKINGS

STATION	TO	STATION	LOCATION	CONSTRUCTION STAKING BASE 650.5000 LF	CONSTRUCTION STAKING RESURFACING REFERENCE 650.8000 LF	CONSTRUCTION STAKING SUPPLEMENTAL CONTROL (PROJECT) 1000-44-73 650.9910 LS
108+00	-	132+61	HOLY HILL RD	--	--	1
115+81	-	118+91	HOLY HILL RD	310	--	--
108+00	-	133+00	HOLY HILL RD	--	2500	--
120+03	-	132+61	HOLY HILL RD	1258	--	--
			TOTAL 0010	1,568	2,500	1

3

PAVEMENT MARKING

				PAVEMENT MARKING								
STATION	TO	STATION	LOCATION	EPOXY 4-INCH 646.0106 LF	GROOVED WET REFLECTIVE TAPE 4-INCH 646.0881.S LF	GROOVED WET REFLECTIVE TAPE 8-INCH 646.0883.S LF	CURB EPOXY 647.0456 LF	ISLAND NOSE EPOXY 647.0606 EACH	DIAGONAL EPOXY 12-INCH 647.0726 LF	GROOVED PREFORMED THERMOPLASTIC ARROWS TYPE 2 SPV.0060.01 EACH	GROOVED PREFORMED THERMOPLASTIC WORDS SPV.0060.02 EACH	GROOVED PREFORMED THERMOPLASTIC STOP BARS 18-INCH SPV.0090.01 LF
109+50	-	116+50	HOLY HILL RD	2,800	--	--	15	--	--	2	2	--
117+10	-	120+00	HOLY HILL RD	1,160	--	102	--	--	--	1	1	--
120+00	-	122+75	HOLY HILL RD	1,100	--	85	30	1	--	1	1	--
123+50	-	128+00	HOLY HILL RD	1,800	200	200	--	--	112	2	2	51
128+00	-	130+75	HOLY HILL RD	1,650	--	123	--	--	--	--	--	--
131+50	-	135+00	HOLY HILL RD	1,400	--	--	--	--	--	--	--	--
116+00	-	116+90	USH 41/45 SB OFF	--	--	--	--	--	--	--	--	29
122+75	-	124+25	USH 41/45 NB OFF	--	--	--	--	--	--	--	--	27
			TOTAL 0010	9,910	200	510	45	1	112	6	6	107

3

3

OVERHEAD SIGN SUPPORTS - REMOVAL MISC QUANTITIES

LOCATION	REMOVING OVERHEAD SIGN SUPPORT & FOOTING STATION 122+75 L.S. SPV.0105.01
STH 167 HOLY HILL ROAD AT USH 41 NB ON RAMP	1
TOTAL	1

OVERHEAD SIGN SUPPORTS - MISC QUANTITIES

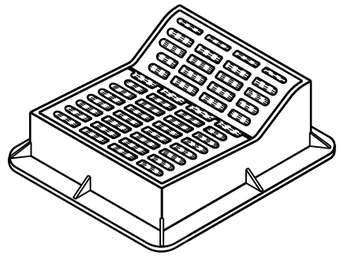
LOCATION	OVERHEAD SIGN SUPPORT STRUCTURE S-66-241 L.S. 641.8100.01
STH 167 HOLY HILL ROAD AT USH 41 NB ON RAMP	1
TOTAL	1

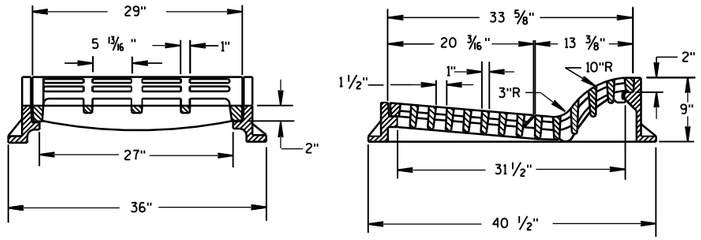
SHEET: 1 OF 1

PROJECT NO:1000-44-73	HWY: HOLY HILL ROAD	COUNTY: WASHINGTON	MISCELLANEOUS QUANTITIES – OVERHEAD SIGN SUPPORTS	SHEET:	E

Standard Detail Drawing List

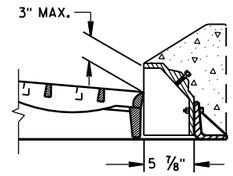
08A05-19C	INLET COVERS TYPE F, HM, HM-S, S, T, V, HM-GJ, & HM-GJ-S
08D01-17	CONCRETE CURB, CONCRETE CURB AND GUTTER AND TIES
08E09-06	SILT FENCE
08E10-02	INLET PROTECTION TYPE A, B, C AND D
11B02-02	CONCRETE MEDIAN NOSE
12A04-03	STRUCTURE IDENTIFICATION PLAQUES, RAMP GATES, SIGN BRIDGES & OVERHEAD SIGN SUPPORTS & TRAFFIC SIGNALS
14B42-03A	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-03B	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-03C	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B44-02A	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-02B	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-02C	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B45-03A	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-03B	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-03C	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-03D	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-03E	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-03F	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-03G	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-03H	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-03I	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-03J	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B47-02A	MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 2 TERMINAL
14B47-02B	MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 2 TERMINAL
14B47-02C	MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 2 TERMINAL
15C07-12B	PAVEMENT MARKING WORDS
15C07-12C	PAVEMENT MARKING ARROWS
15C08-16A	PAVEMENT MARKING (MAINLINE)
15C08-16F	PAVEMENT MARKING (ISLANDS)
15C11-05	FLEXIBLE TUBULAR MARKER POST, ANCHOR & BASES
15C18-03	MEDIAN ISLAND MARKING
15C22-02	24" DIAMETER CANTILEVER OVERHEAD SIGN SUPPORT BASE
15C23-02	30" DIAMETER CANTILEVER OVERHEAD SIGN SUPPORT BASE
15C33-01	STOP LINE AND CROSSWALK PAVEMENT MARKING
15D03-02	TRAFFIC CONTROL, LANE CLOSURE, SPEEDS GREATER THAN 40 M.P.H. WITH BARRIER
15D16-02	TRAFFIC CONTROL, EXIT RAMP CLOSURE
15D20-03	TRAFFIC CONTROL, SINGLE LANE CLOSURE, NON-FREEWAY/EXPRESSWAY
15D21-03	TRAFFIC CONTROL, INTERSECTION WITHIN SINGLE LANE CLOSURE
15D27-02	TRAFFIC CONTROL, SHOULDER CLOSURE ON DIVIDED ROADWAY, SPEEDS GREATER THAN 40 MPH
15D28-02	TRAFFIC CONTROL, WORK ON SHOULDER OR PARKING LANE, UNDIVIDED ROADWAY
15D38-01A	TEMPORARY TRAFFIC CONTROL FIXED MESSAGE SIGNS
15D38-01B	ATTACHMENT OF SIGNS TO POSTS





TYPE "F"

USE WITH TYPES A & D CONCRETE CURB & GUTTER, 36 INCH.



ALTERNATIVE CURB BOX FOR TYPE "HM" COVER

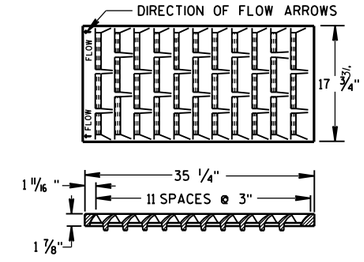
USE WITH TYPES G & J CONCRETE CURB & GUTTER, 30 INCH
NOTED AS TYPE HM-GJ ON DRAINAGE TABLE

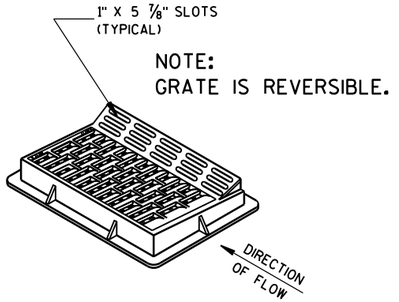
NOTE:
SPECIAL GRATE FOR THE
TYPE "H" COVER MAY ALSO BE
USED FOR THE TYPE "HM-GJ" COVER
NOTED AS TYPE HM-GJ-S ON DRAINAGE TABLE

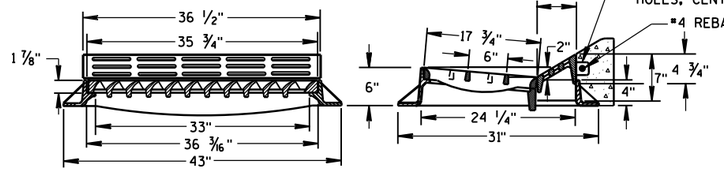
GENERAL NOTES

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.

DETAIL DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR INLET COVERS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PROVIDING THAT SUCH ALTERNATE DESIGNS MAKE PROVISION FOR EQUIVALENT CAPACITY AND STRENGTH.



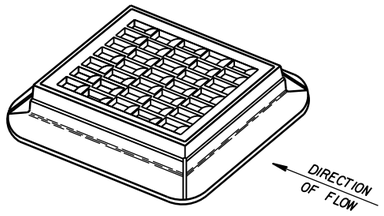


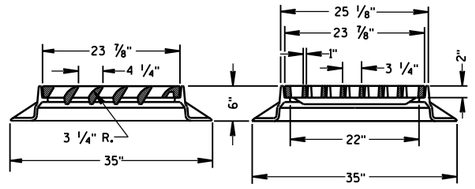


TYPE "HM"

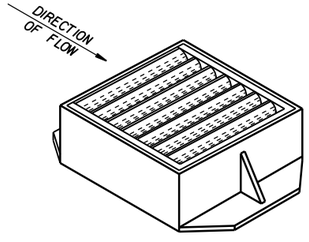
USE WITH TYPES A & D CONCRETE CURB & GUTTER, 36 INCH.

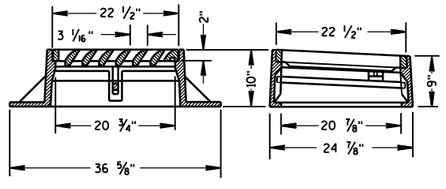
NOTE:
SPECIAL GRATE FOR THE
TYPE "H" COVER MAY ALSO BE
USED FOR THE TYPE "HM" COVER
NOTED AS TYPE HM-S ON DRAINAGE TABLE



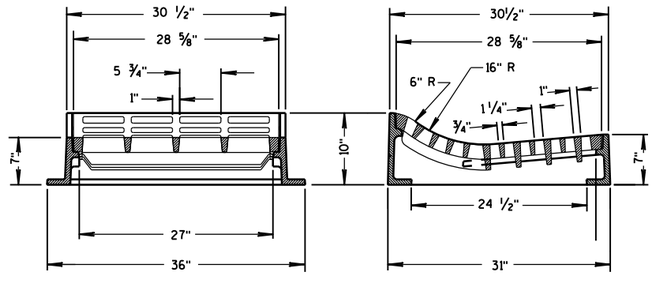


TYPE "S"



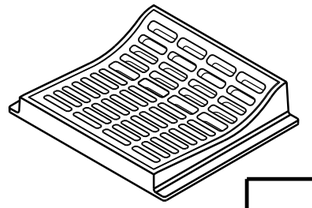


TYPE "V"



TYPE "T"

USE WITH TYPES R & T CONCRETE CURB & GUTTER, 36 INCH.



INLET COVERS
TYPE F, HM, HM-S, S, T, V, HM-GJ, & HM-GJ-S

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

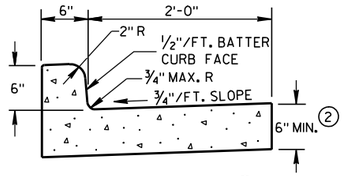
APPROVED
11/27/2013
DATE

/S/ Jerry H. Zogg
ROADWAY STANDARDS ENGINEER

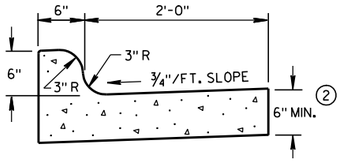
FHWA

6

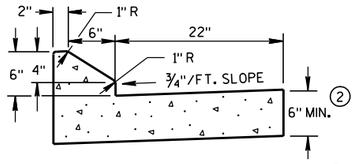
S.D.D. 8 A 5-19c



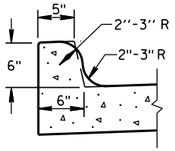
TYPES A & D (1)



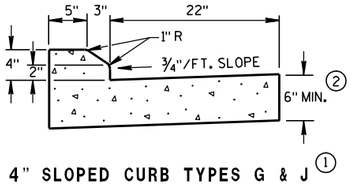
TYPES K & L (1)



6" SLOPED CURB TYPES G & J (1)

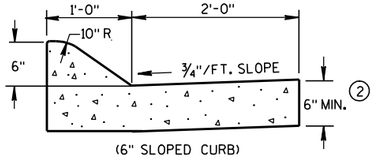


OPTIONAL CURB SHAPE FOR TYPES K & L (1)

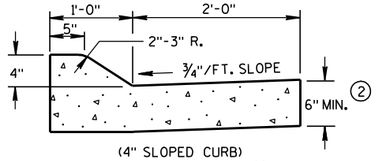


4" SLOPED CURB TYPES G & J (1)

CONCRETE CURB & GUTTER 30"

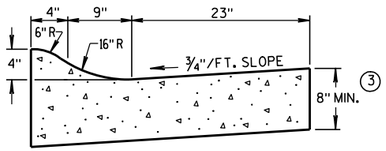


(6" SLOPED CURB)



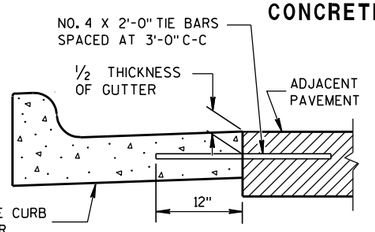
(4" SLOPED CURB)

TYPES A & D (1)

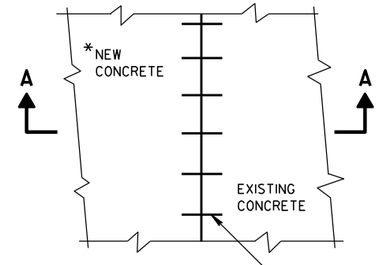


4" SLOPED CURB TYPES R & T (1) (4)

CONCRETE CURB & GUTTER 36"

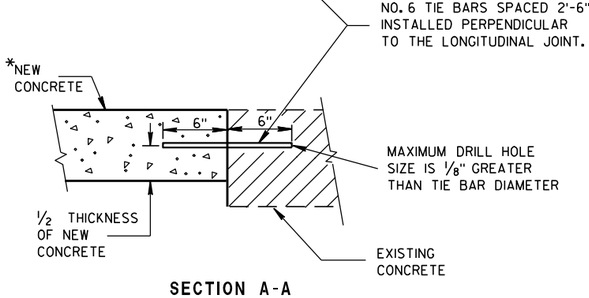


TYPICAL TIE BAR LOCATION (1)



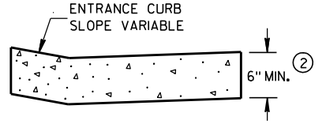
*NEW CURB & GUTTER, SURFACE DRAINS, CONCRETE PAVEMENT OR OTHER NEW CONCRETE.

PLAN VIEW



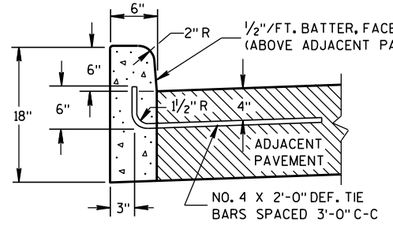
SECTION A-A

TIE BARS DRILLED INTO EXISTING PAVEMENT



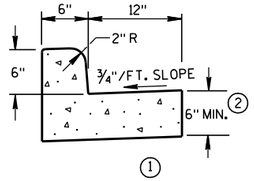
DRIVEWAY ENTRANCE CURB

(WHEN DIRECTED BY THE ENGINEER)



(1)

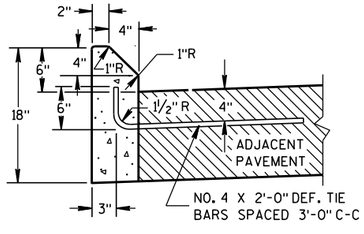
TYPES A & D



(1)

TYPES A & D

CONCRETE CURB & GUTTER 18"



(1)

TYPES G & J

CONCRETE CURB

REVERSE SLOPE GUTTER (5)

(TYPICAL FOR ALL CURB & GUTTER TYPES)

GENERAL NOTES

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

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

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

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

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

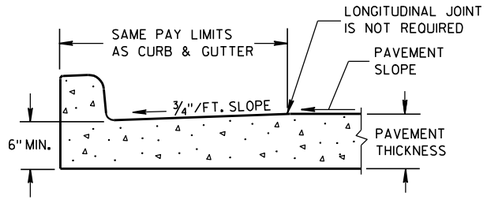
(1) TIE BARS ARE REQUIRED FOR CURB AND GUTTER TYPES A, G, K AND R.

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

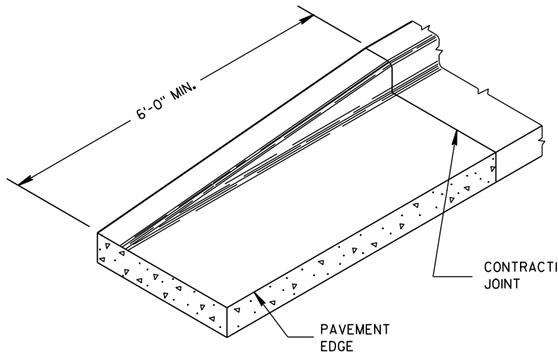
(3) THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 8" MINIMUM GUTTER THICKNESS IS MAINTAINED.

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

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



PARTIAL SECTION OF PAVEMENT WITH INTEGRAL CURB & GUTTER



END SECTION CURB & GUTTER

CONCRETE CURB, CONCRETE CURB & GUTTER AND TIES

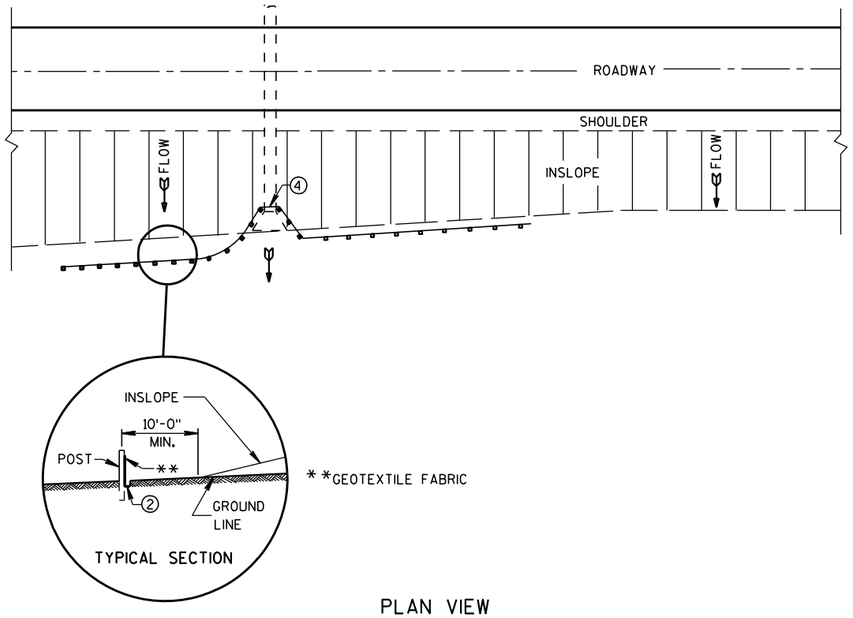
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

FHWA

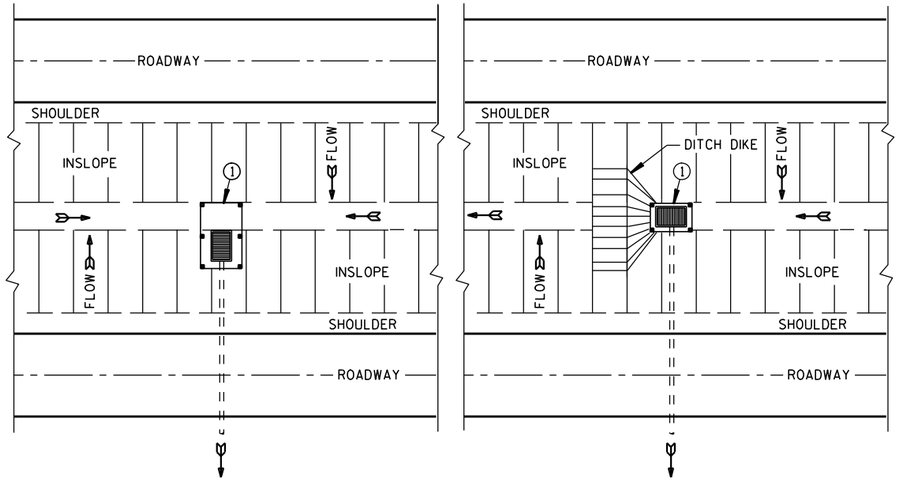
6

S.D.D. 8 D 1-17



PLAN VIEW

TYPICAL APPLICATION OF SILT FENCE



PLAN VIEW

SILT FENCE AT MEDIAN SURFACE DRAINS

GENERAL NOTES

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

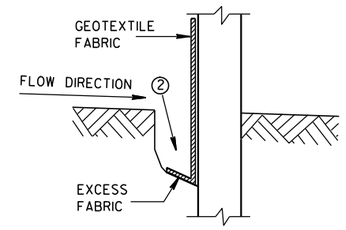
① HORIZONTAL BRACE REQUIRED WITH 2" X 4" WOODEN FRAME OR EQUIVALENT AT TOP OF POSTS.

② FOR MANUAL INSTALLATIONS THE TRENCH SHALL BE A MINIMUM OF 4" WIDE & 6" DEEP TO BURY AND ANCHOR THE GEOTEXTILE FABRIC. FOLD MATERIAL TO FIT TRENCH AND BACKFILL & COMPACT TRENCH WITH EXCAVATED SOIL.

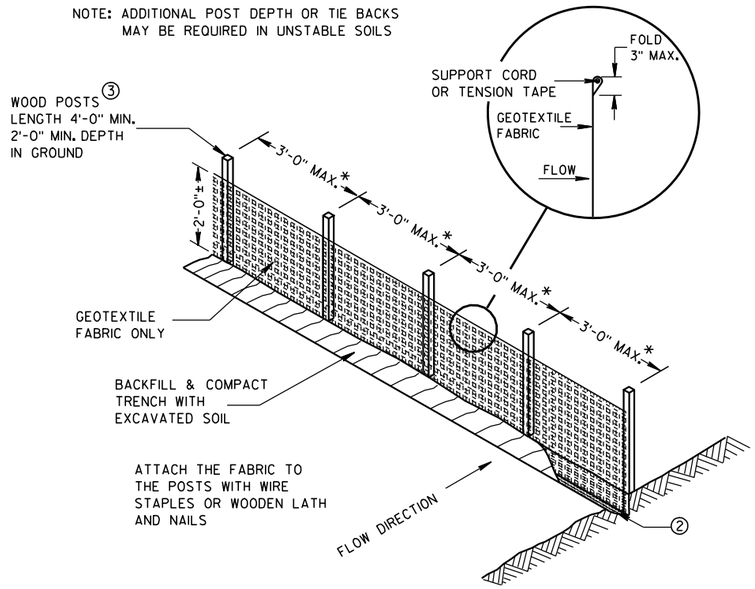
③ WOOD POSTS SHALL BE A MINIMUM SIZE OF 1⅛" X 1⅛" OF OAK OR HICKORY.

④ SILT FENCE TO EXTEND ACROSS THE TOP OF THE PIPE.

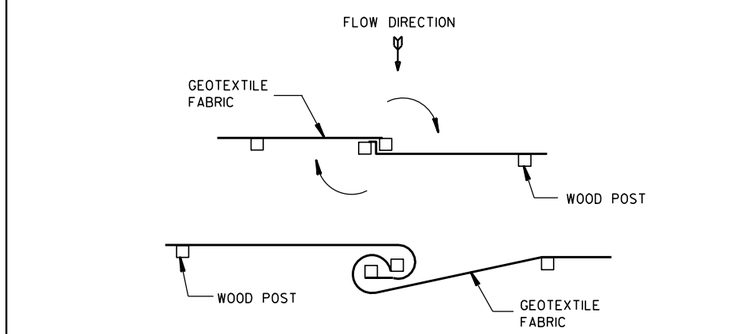
⑤ CONSTRUCT SILT FENCE FROM A CONTINUOUS ROLL IF POSSIBLE BY CUTTING LENGTHS TO AVOID JOINTS. IF A JOINT IS NECESSARY USE ONE OF THE FOLLOWING TWO METHODS; A) OVERLAP THE END POSTS AND TWIST, OR ROTATE, AT LEAST 180 DEGREES, B) HOOK THE END OF EACH SILT FENCE LENGTH.



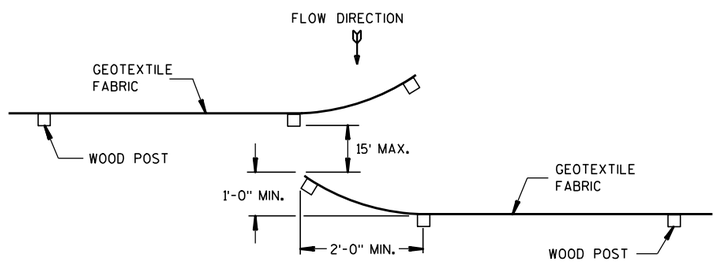
TRENCH DETAIL



SILT FENCE

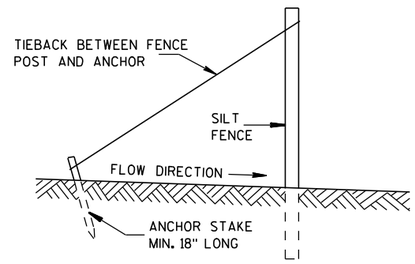


TWIST METHOD



HOOK METHOD

JOINING TWO LENGTHS OF SILT FENCE ⑤



SILT FENCE TIE BACK

(WHEN REQUIRED BY THE ENGINEER)

SILT FENCE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

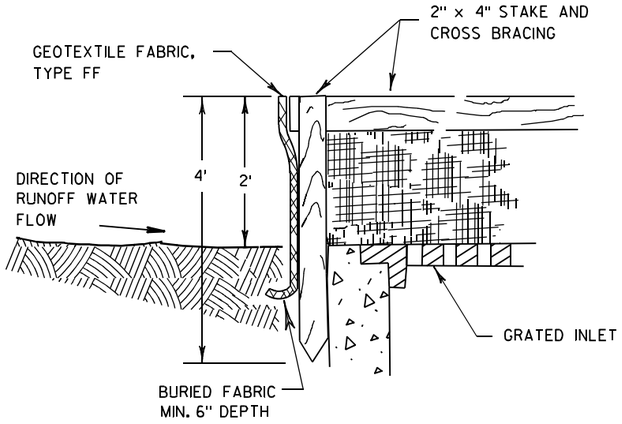
APPROVED
4-29-05 DATE
/S/ Beth Cannestra
CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA

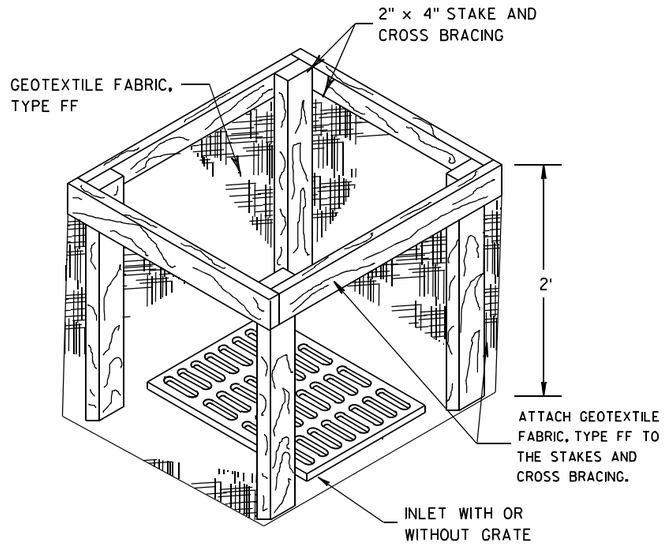
6

S.D.D. 8 E 9-6

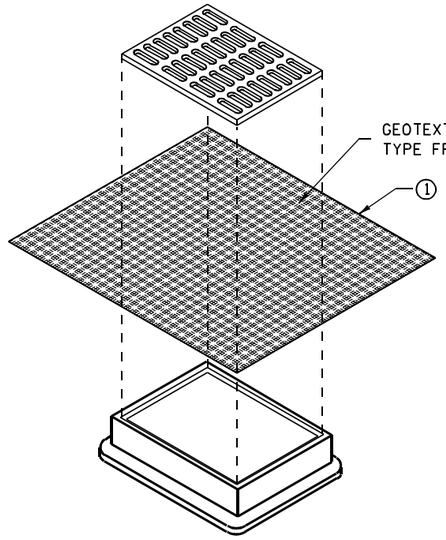
6

S.D.D. 8 E 9-6



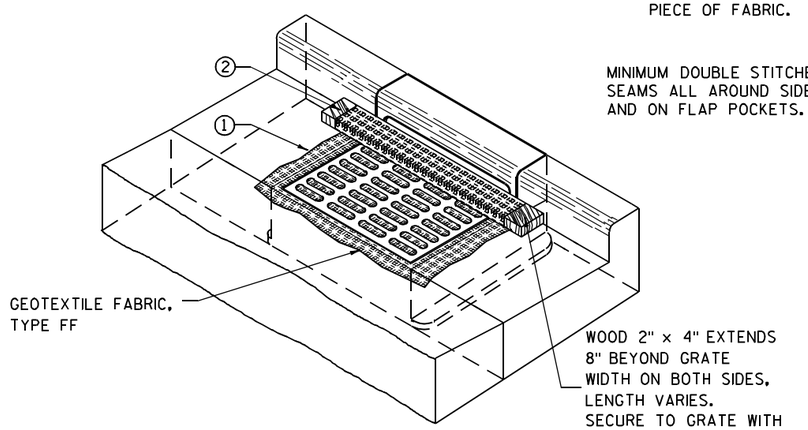


INLET PROTECTION, TYPE A

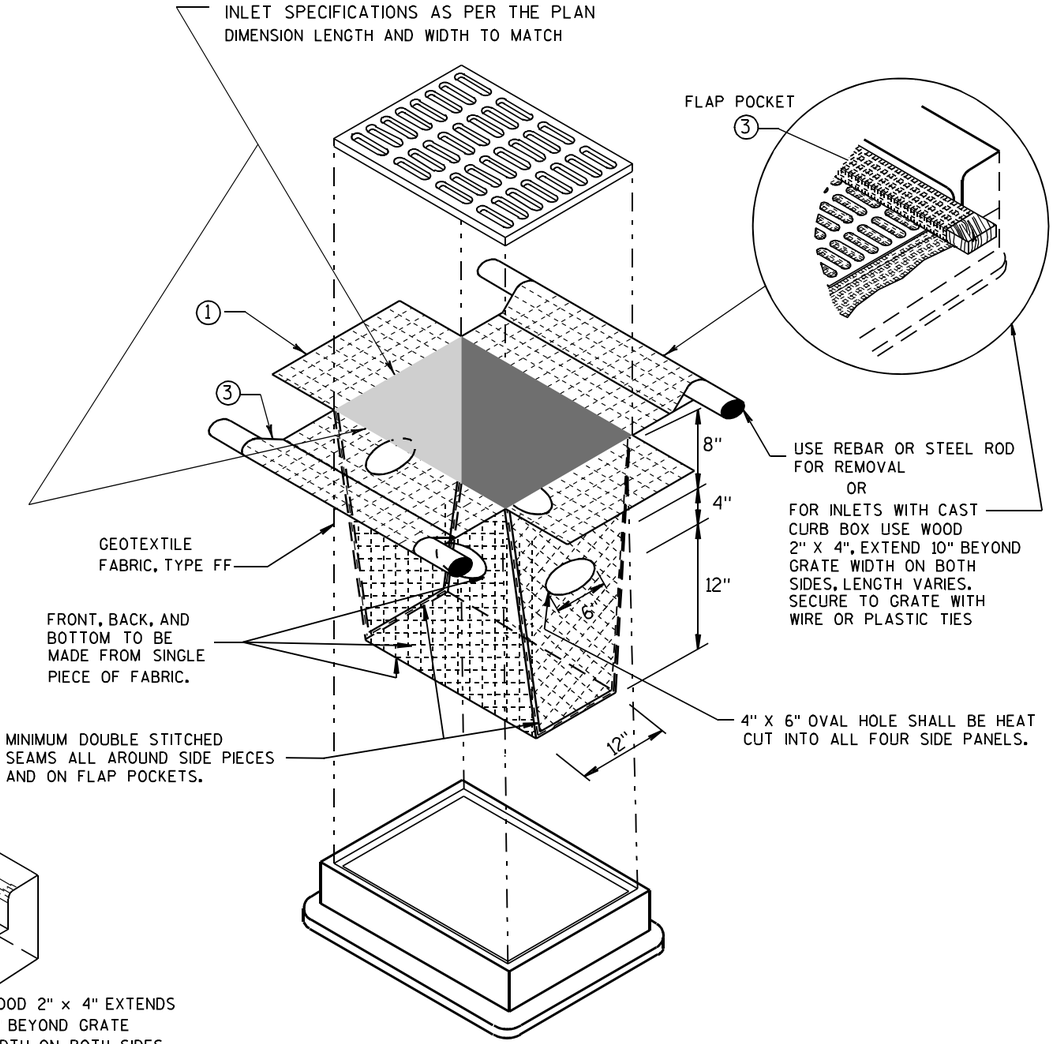


INLET PROTECTION, TYPE B
(WITHOUT CURB BOX)

(CAN BE INSTALLED IN ANY INLET WITHOUT A CURB BOX)



INLET PROTECTION, TYPE C (WITH CURB BOX)



INLET PROTECTION, TYPE D

(CAN BE INSTALLED IN ANY INLET TYPE WITH
OR WITHOUT A CURB BOX AS PER NOTE ②)

GENERAL NOTES

INLET PROTECTION DEVICES SHALL BE MAINTAINED OR REPLACED AT THE DIRECTION OF THE ENGINEER.

MANUFACTURED ALTERNATIVES APPROVED AND LISTED ON THE DEPARTMENT'S EROSION CONTROL PRODUCT ACCEPTABILITY LIST MAY BE SUBSTITUTED.

WHEN REMOVING OR MAINTAINING INLET PROTECTION, CARE SHALL BE TAKEN SO THAT THE SEDIMENT TRAPPED ON THE GEOTEXTILE FABRIC DOES NOT FALL INTO THE INLET. ANY MATERIAL FALLING INTO THE INLET SHALL BE REMOVED IMMEDIATELY.

① FINISHED SIZE, INCLUDING FLAP POCKETS WHERE REQUIRED, SHALL EXTEND A MINIMUM OF 10" AROUND THE PERIMETER TO FACILITATE MAINTENANCE OR REMOVAL.

② FOR INLET PROTECTION, TYPE C (WITH CURB BOX), AN ADDITIONAL 18" OF FABRIC IS WRAPPED AROUND THE WOOD AND SECURED WITH STAPLES. THE WOOD SHALL NOT BLOCK THE ENTIRE HEIGHT OF THE CURB BOX OPENING.

③ FLAP POCKETS SHALL BE LARGE ENOUGH TO ACCEPT WOOD 2X4.

INSTALLATION NOTES

TYPE B & C

TRIM EXCESS FABRIC IN THE FLOW LINE TO WITHIN 3" OF THE GRATE.

THE CONTRACTOR SHALL DEMONSTRATE A METHOD OF MAINTENANCE, USING A SEWN FLAP, HAND HOLDS OR OTHER METHOD TO PREVENT ACCUMULATED SEDIMENT FROM ENTERING THE INLET.

TYPE D

DO NOT INSTALL INLET PROTECTION TYPE D IN INLETS SHALLOWER THAN 30", MEASURED FROM THE BOTTOM OF THE INLET TO THE TOP OF THE GRATE.

TRIM EXCESS FABRIC IN THE FLOW LINE TO WITHIN 3" OF THE GRATE.

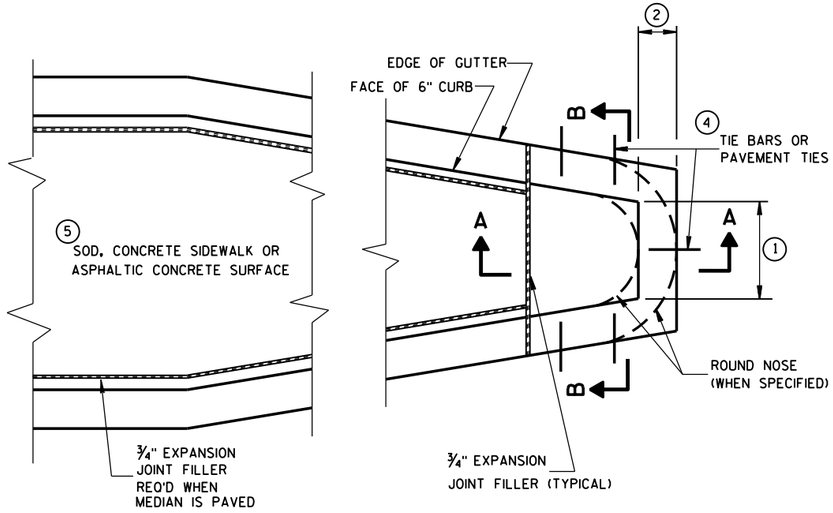
THE INSTALLED BAG SHALL HAVE A MINIMUM SIDE CLEARANCE, BETWEEN THE INLET WALLS AND THE BAG, MEASURED AT THE BOTTOM OF THE OVERFLOW HOLES, OF 3". WHERE NECESSARY THE CONTRACTOR SHALL CINCH THE BAG, USING PLASTIC ZIP TIES, TO ACHIEVE THE 3" CLEARANCE. THE TIES SHALL BE PLACED AT A MAXIMUM OF 4" FROM THE BOTTOM OF THE BAG.

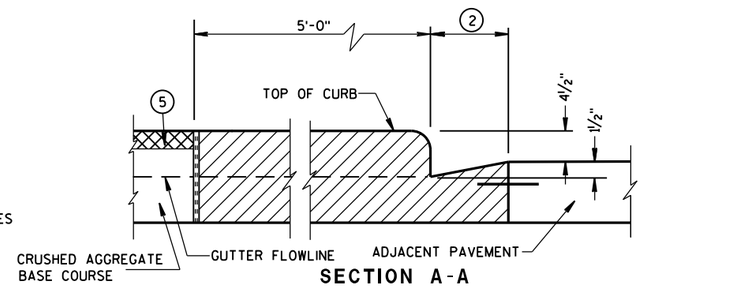
INLET PROTECTION
TYPE A, B, C, AND D

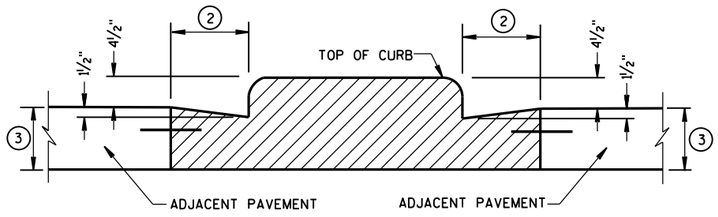
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
10/16/02
DATE
/S/ Beth Cannestra
CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA

6
S.D.D. 8 E 10-2







CONCRETE MEDIAN BLUNT NOSE DETAIL

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) SEE PLAN FOR MEDIAN NOSE WIDTH AND RADIUS (FOR ROUND NOSE ALTERNATE).

(2) WIDTH OF GUTTER TO MATCH EXISTING ADJACENT GUTTER OR AS SPECIFIED ELSEWHERE IN THE PLAN.

(3) DEPTH EQUAL TO ADJACENT PAVEMENT. ADJACENT PAVEMENT STRUCTURE DETAILS ARE SHOWN ON THE PLAN. TYPICAL OPTIONS ARE:

(1) NEW OR EXISTING CONCRETE PAVEMENT.

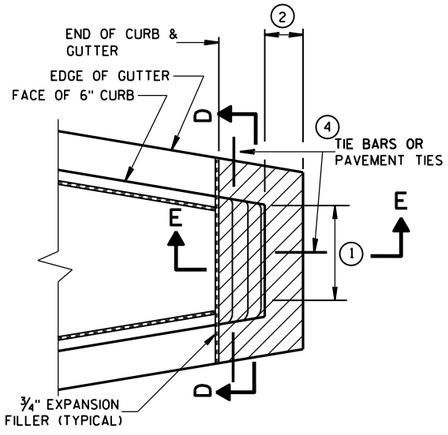
(2) ASPHALTIC CONCRETE PAVEMENT OVER NEW OR EXISTING CONCRETE BASE COURSE.

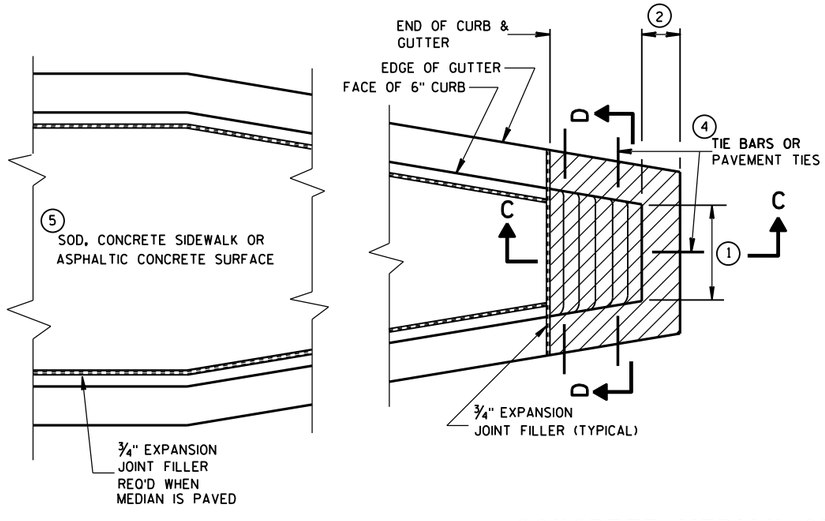
(3) ASPHALTIC CONCRETE PAVEMENT OVER CRUSHED AGGREGATE BASE COURSE.

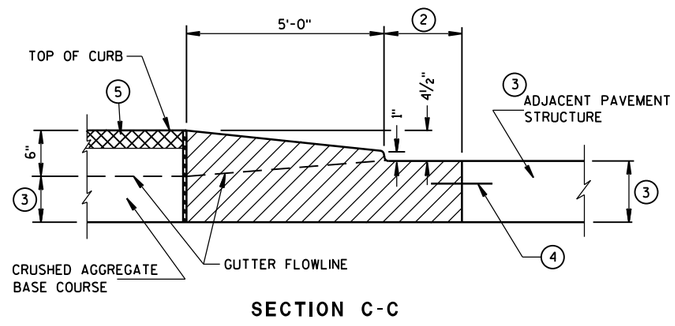
(4) TIE BARS OR PAVEMENT TIES REQUIRED IN NEW CONCRETE PAVEMENT OR CONCRETE BASE COURSE. TIE BARS SHALL BE NO. 4 X 2'-0" SPACED AT 2'-0" C-C.

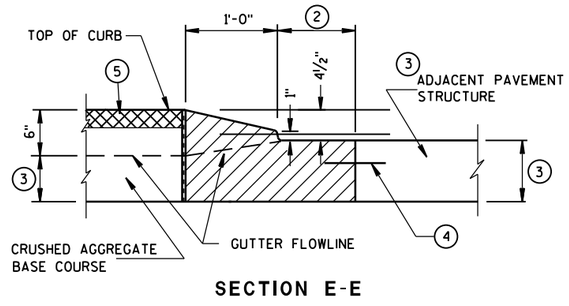
PAVEMENT TIES REQUIRED IN EXISTING CONCRETE BASE COURSE. PAVEMENT TIES SHALL BE NO. 6 X 1'-0" SPACED AT 3'-0" C-C INSTALLED ON A HORIZONTAL SKEW OF 6:1. THE DIRECTION OF SKEW SHALL ALTERNATE AFTER EVERY ONE OR TWO BARS.

(5) SURFACE TYPE AND DETAILS ARE SHOWN ELSEWHERE IN THE PLAN.



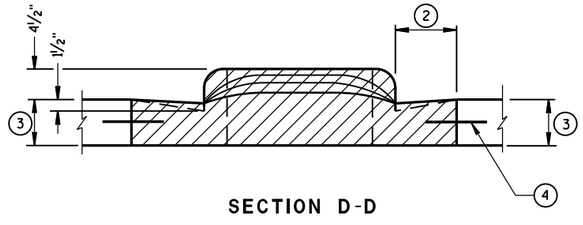






CONCRETE MEDIAN SLOPED NOSE TYPE 1

CONCRETE MEDIAN SLOPED NOSE TYPE 2



CONCRETE MEDIAN NOSE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
6/8/2006
DATE
/S/ Jerry H. Zogg
ROADWAY STANDARDS D ENGINEER
FHWA

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S.D.D. 11 B 2-2

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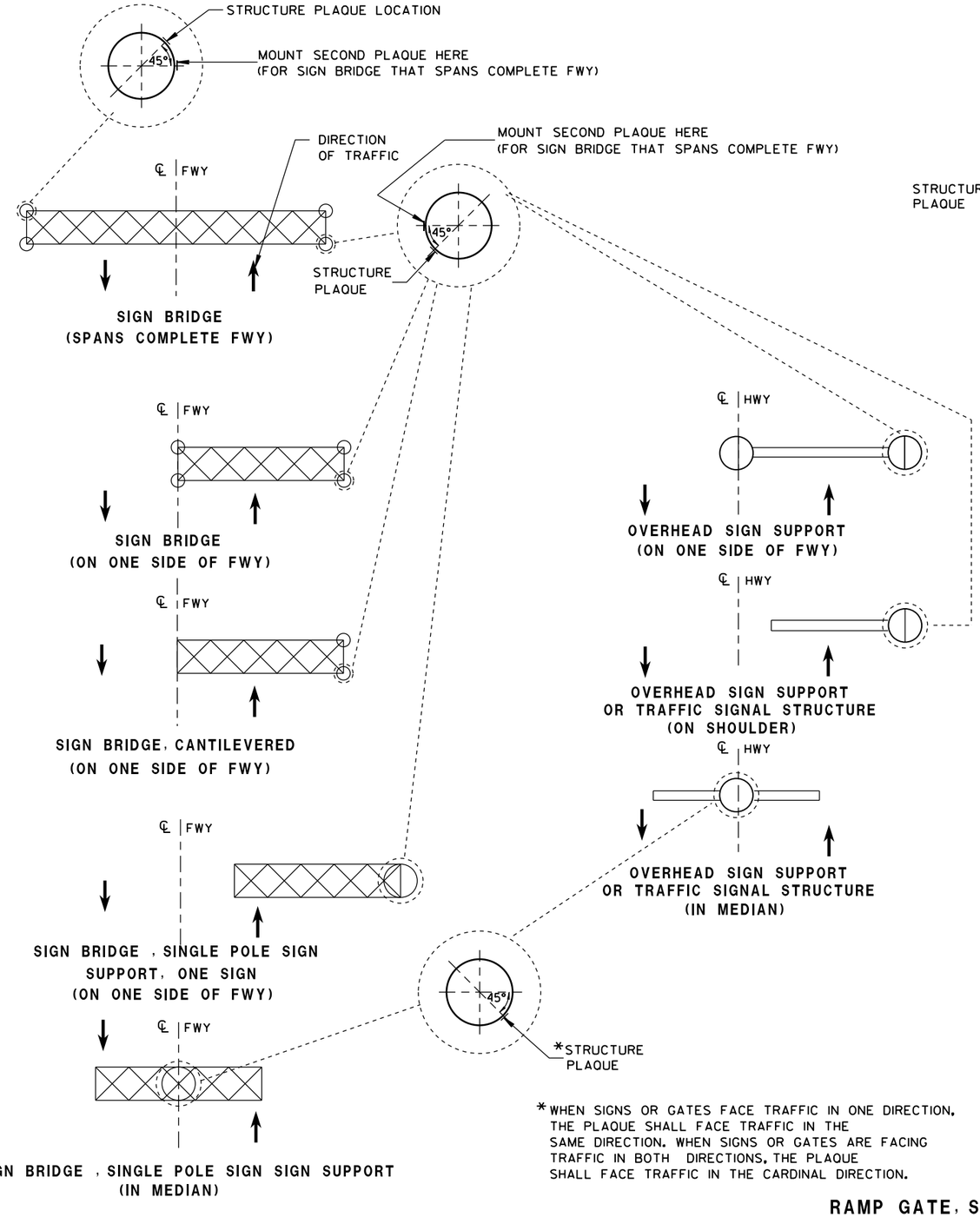
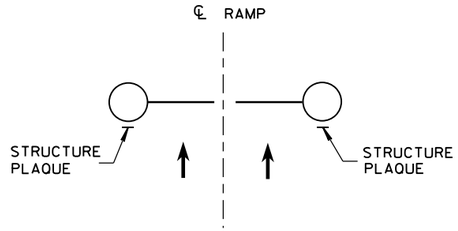
S.D.D. 11 B 2-2

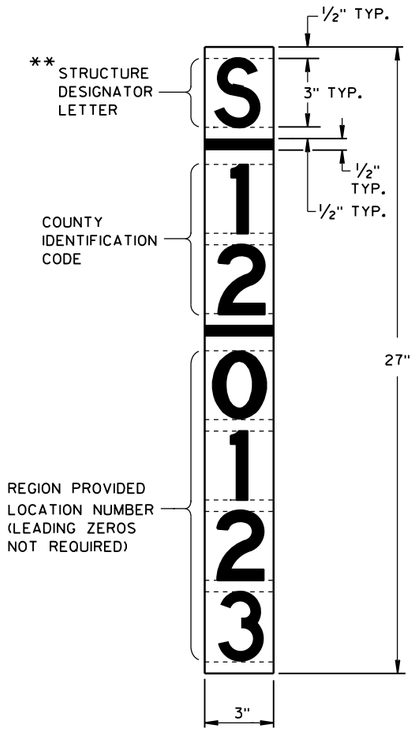


* WHEN SIGNS OR GATES FACE TRAFFIC IN ONE DIRECTION, THE PLAQUE SHALL FACE TRAFFIC IN THE SAME DIRECTION. WHEN SIGNS OR GATES ARE FACING TRAFFIC IN BOTH DIRECTIONS, THE PLAQUE SHALL FACE TRAFFIC IN THE CARDINAL DIRECTION.

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



**RAMP GATE
(ACROSS FWY ON-RAMP)**



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

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

GENERAL NOTES

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

PLAQUES SHALL BE INCIDENTAL TO ALL NEW INSTALLATIONS.

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

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

GALVANIZED STEEL SHAFT - 3 STAINLESS STEEL POP RIVETS

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

ALUMINUM SHAFTS - 3 ALUMINUM POP RIVETS

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

PLAQUE MATERIALS:

BASE - SHEET ALUMINUM, 0.060" THICK.

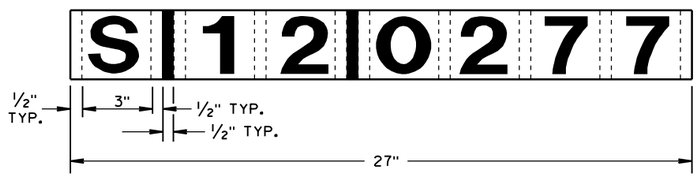
FACE - WHITE, SELF-ADHESIVE VINYL SHEETING, NON-RETROREFLECTIVE

LINES - BLACK, ½" WIDE, SELF-ADHESIVE

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

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

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



IDENTIFICATION PLAQUE FOR SIGN BRIDGE, STRUCTURE MOUNTED

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

6

S.D.D. 12 A 4-3

6

S.D.D. 12 A 4-3

GENERAL NOTES

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

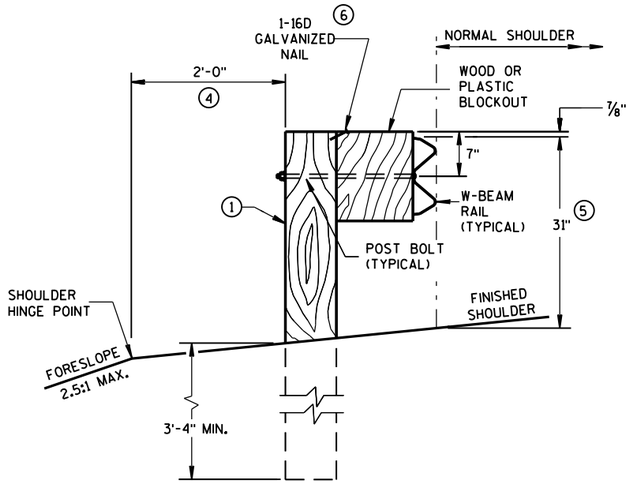
(2) USE WOOD OR APPROVED PLASTIC BLOCKOUTS. WOOD BLOCKOUTS MAY BE CONSTRUCTED OUT OF TWO OR MORE WOOD BLOCKOUTS. SEE ALTERNATE WOOD BLOCKOUT DETAIL. DIMENSIONS OF APPROVED PLASTIC BLOCKOUTS MAY VARY.

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

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

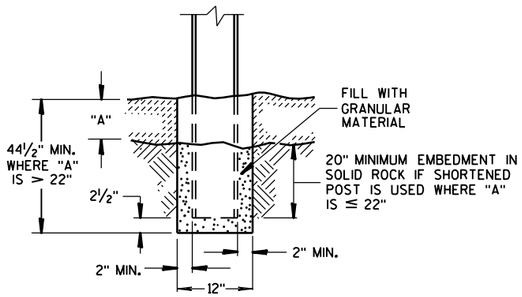
(5) FOR NEW MGS INSTALLATION TOP OF W-BEAM RAIL TOLERANCE IS ± 1". FOR EXISTING MGS INSTALLATION TOP OF W-BEAM IS BETWEEN 27¾" TO 32".

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



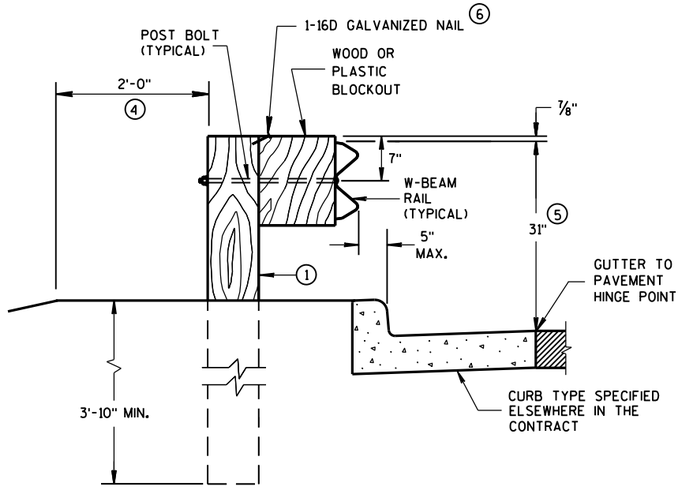
END VIEW

LOCATED ALONG A ROADWAY SHOULDER
STANDARD INSTALLATION



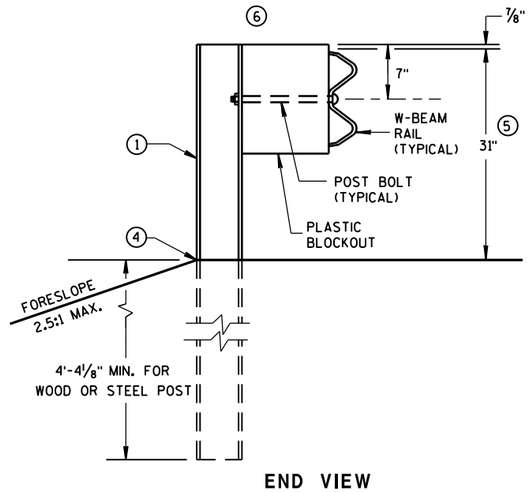
END VIEW

SETTING STEEL OR WOOD POST IN ROCK (3)



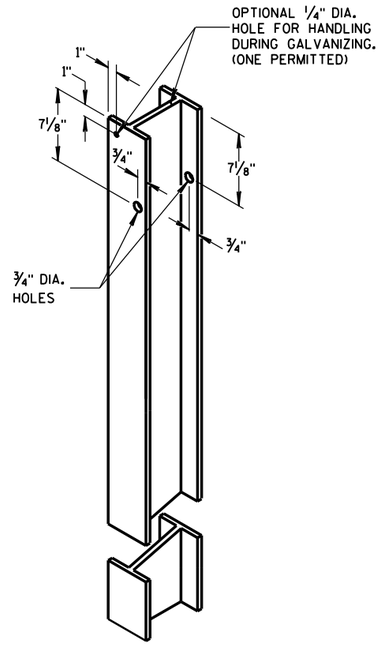
END VIEW

LOCATED ALONG A CURBED ROADWAY

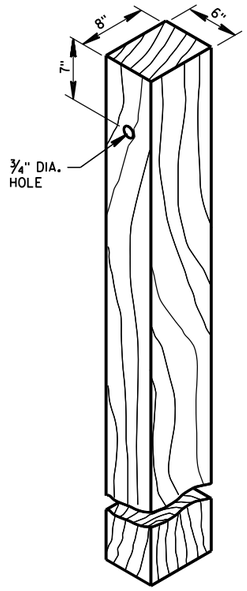


END VIEW

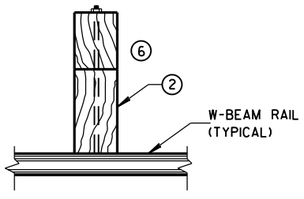
MGS LONGER POST AT HALFPOST SPACING W BEAM (K)



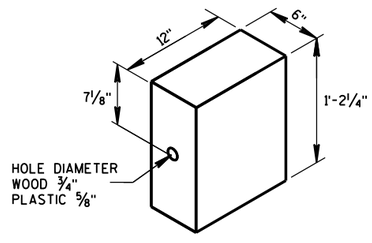
STEEL POST &
HOLE PUNCHING DETAIL
(w6X9) (1)



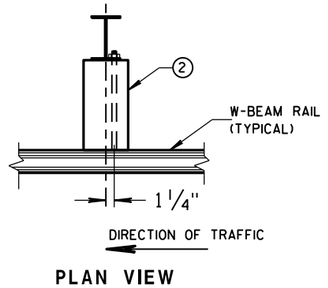
WOOD POST
(6" X 8") NOMINAL (1)



PLAN VIEW
WOOD POST,
BLOCKOUT & BEAM



WOOD OR
PLASTIC BLOCKOUT (2)

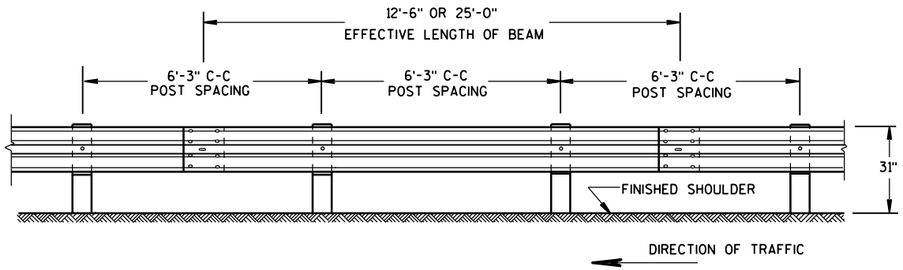


PLAN VIEW
STEEL POST,
PLASTIC BLOCKOUT & BEAM

MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL

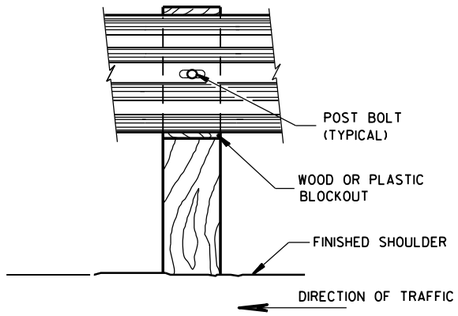
STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

6
S.D.D. 14 B 42-3a



FRONT VIEW

POST SPACING STANDARD INSTALLATION



FRONT VIEW AT WOOD POST

GENERAL NOTES

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

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

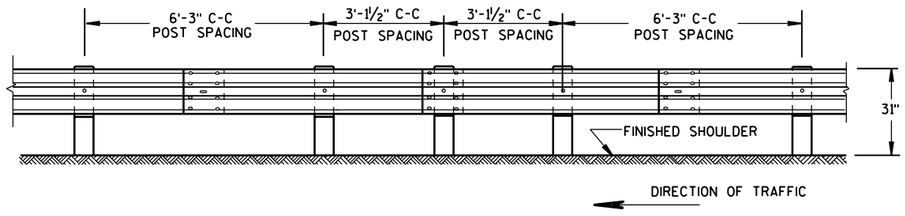
(9) REVERSE EVERY OTHER REFLECTOR FOR 2-WAY VISIBILITY. THE CONTRACTOR MAY FURNISH TWO-SIDED REFLECTORS IN LIEU OF ONE-SIDED REFLECTORS.

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

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

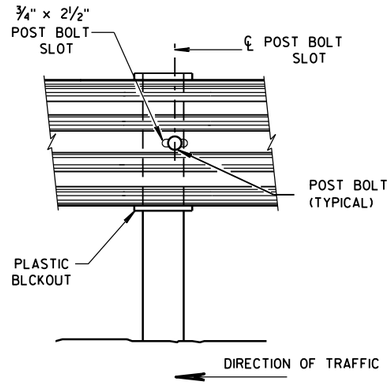
POST BOLTS ARE A 5/8" DIAMETER ASTM A307 GUARDRAIL BOLT. A POST BOLT REQUIRES 5/8" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT AND 5/8" DIAMETER F844 FLAT WASHER. POST BOLTS MAY BE LONGER IF MULTIPLE BLOCKOUTS ARE BEING USED.

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

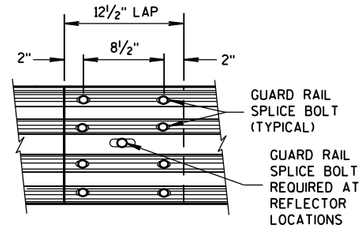


FRONT VIEW

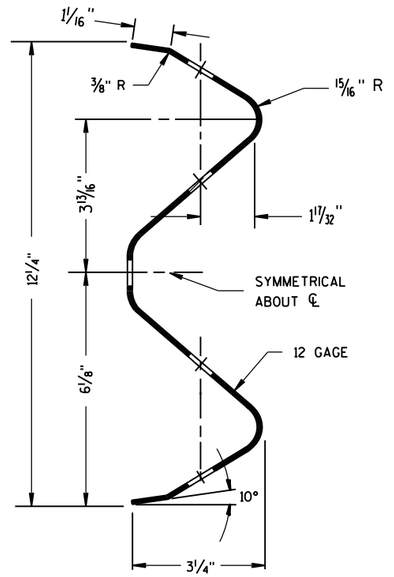
HALF POST SPACING (HS) AND HALF POST SPACING WITH LONGER POSTS (K)



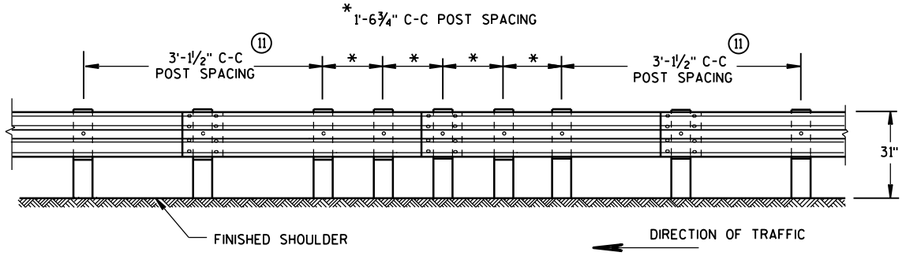
FRONT VIEW AT STEEL POST



FRONT VIEW
MID-SPAN BEAM SPLICE

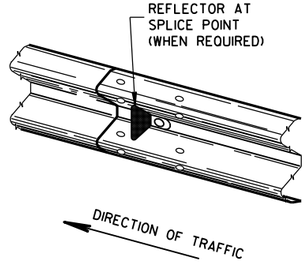


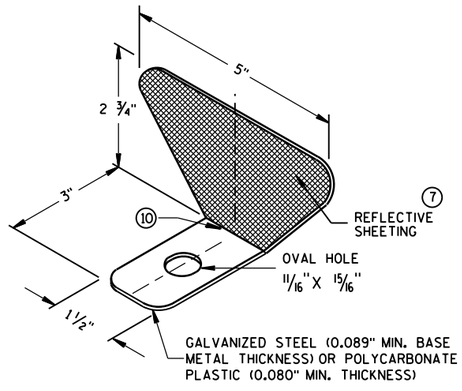
SECTION THRU W-BEAM RAIL



FRONT VIEW

QUARTER POST SPACING (QS)





REFLECTOR SPACING (8)

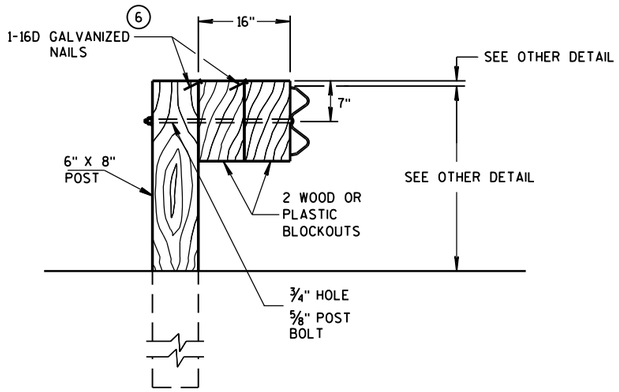
	BEAM GUARD LENGTH	REFLECTOR SPACING	NO. SURFACES REFLECTORIZED	MIN. NO. REFLECTORS
ONE WAY TRAFFIC	< 200' > 200'	50' C-C 100' C-C	1 1	3
TWO WAY TRAFFIC	< 200' > 200'	25' C-C 50' C-C	1 (9) 1	6
TWO WAY TRAFFIC	< 200' > 200'	50' C-C 100' C-C	2 2 (10)	3

ONE SIDED REFLECTOR DETAIL AND TYPICAL INSTALLATION (7)

MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL

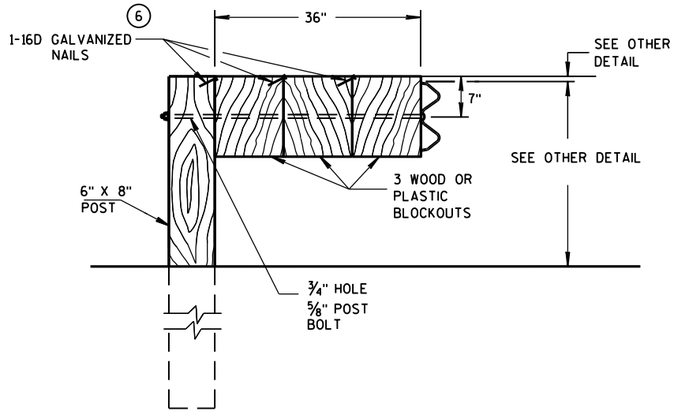
STATE OF WISCONSIN
DEPARTMENT OF TRANSPO

6
S.D.D. 14 B 42-3b



DETAIL FOR 16" BLOCKOUT DEPTH

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

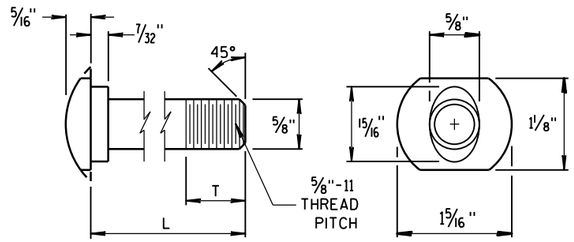


DETAIL FOR 36" BLOCKOUT DEPTH

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

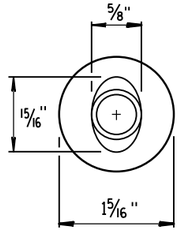
DO NOT USE 16" OR 36" BLOCKOUTS IF IT CAUSES THE POST TO BE DRIVEN BEYOND SHOULDER HINGE POINT OR CAUSES A FIXED OBJECT TO BE WITHIN THE DEFLECTION DISTANCE OF THE BARRIER.

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

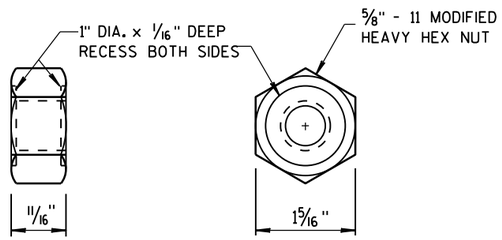


POST BOLT TABLE

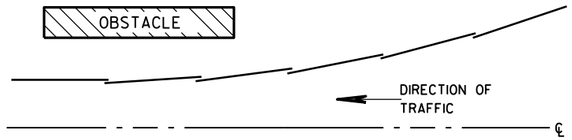
L	T (MIN.)
1¼"	1⅛"
2"	1¾"
10"	4"
14"	4 1/16"
18"	4"
21"	4 1/16"
25"	4"



ALTERNATE BOLT HEAD

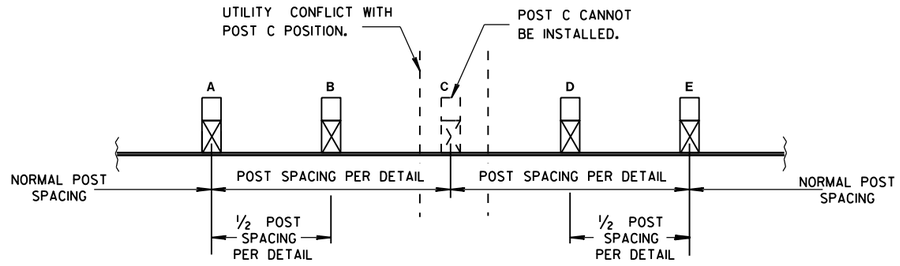


POST BOLT AND RECESS NUT

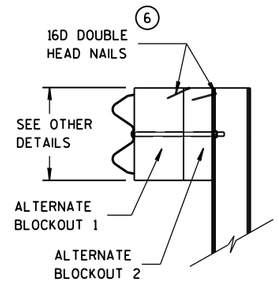


PLAN VIEW

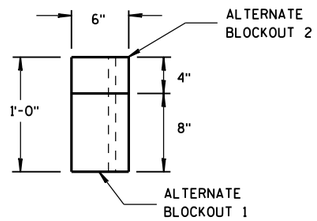
BEAM LAPPING DETAIL



POST DRIVING FOR CONTINUOUS UNDERGROUND OBSTRUCTION



SIDE VIEW



TOP VIEW

ALTERNATE WOOD BLOCKOUT DETAIL

MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

6
S.D.D. 14 B 42-3c

GENERAL NOTES

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

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

(C) DIFFERENT MANUFACTURES REQUIRE DIFFERENT PERFORATED W-BEAM RAIL END PANELS. SEE MANUFACTURES INFORMATION.

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

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

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

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

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

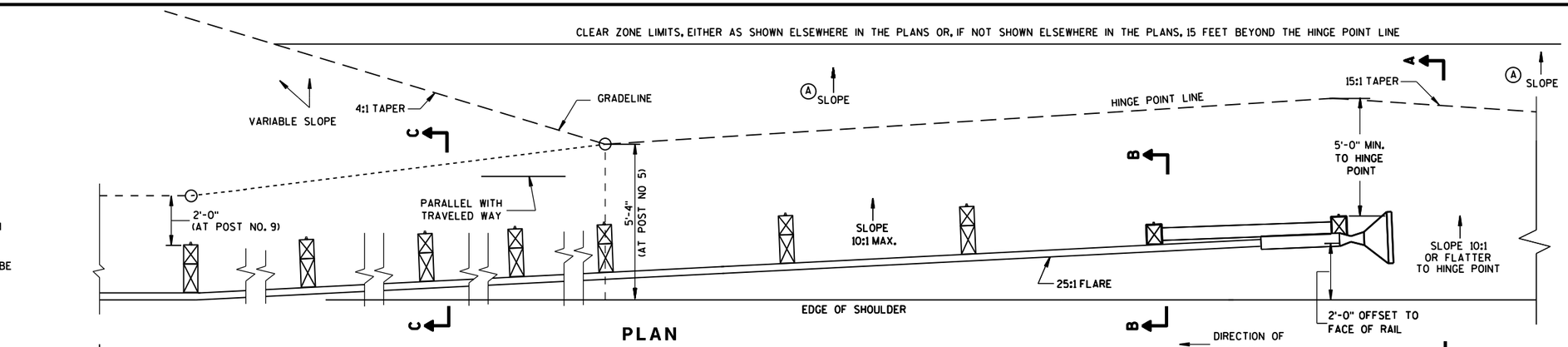
SEE SDD 14B42 FOR MORE INFORMATION.

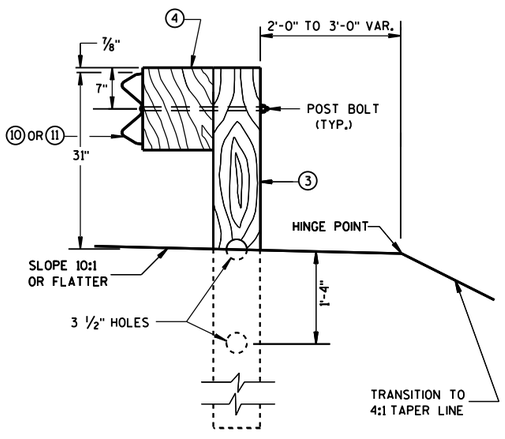
* DO NOT ATTACH BLOCKOUTS TO POSTS 1 AND 2.

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

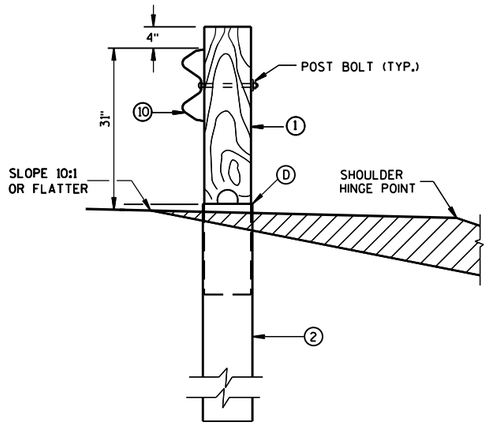
W-BEAM RAIL SPLICES ARE LOCATED AT POST NUMBER 3, AND BETWEEN POST 5 AND 6, BETWEEN POSTS 7 AND 8, AND MIDDLE OF THE SPAN AFTER POST 9.

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

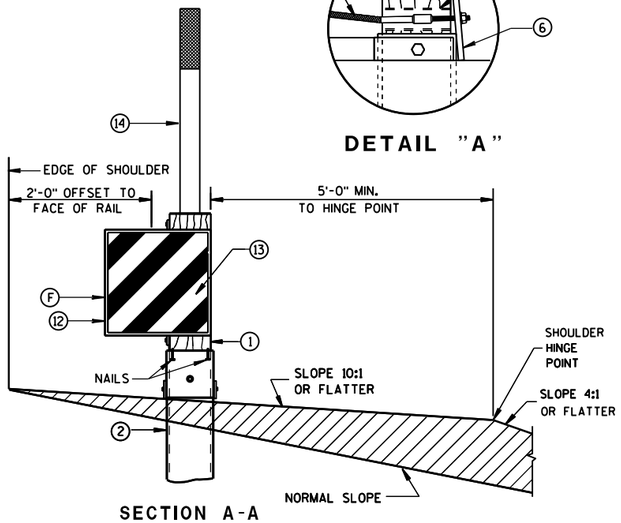




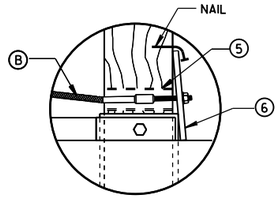
SECTION C-C
TYPICAL AT POST NOS. 3-9



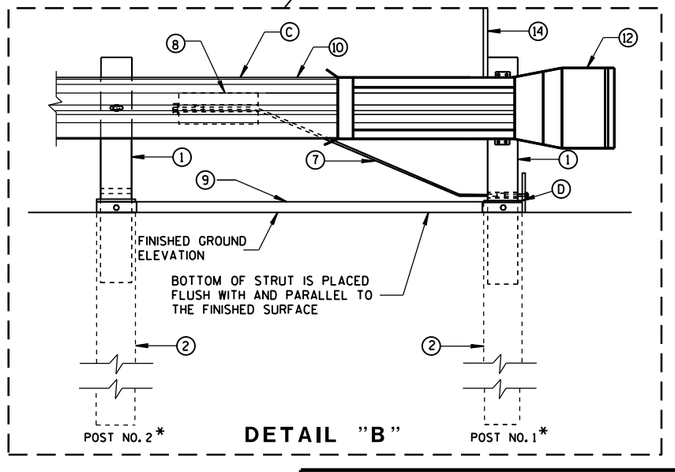
SECTION B-B
TYPICAL AT POST NO. 2*



SECTION A-A
TYPICAL AT POST NO. 1*



DETAIL "A"



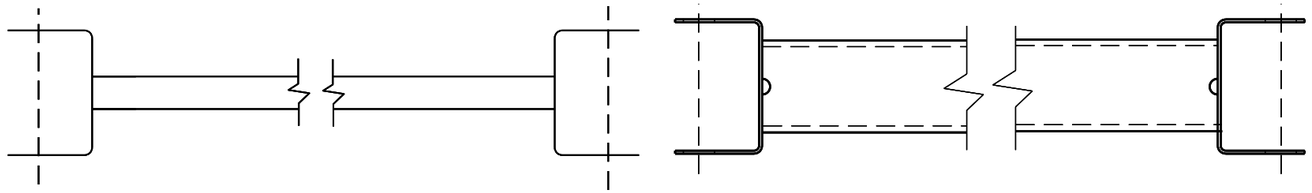
DETAIL "B"

MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPO

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

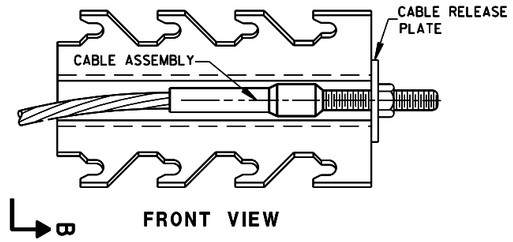
S.D.D. 14 B 44-2a



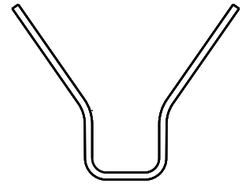
GENERIC GROUND STRUT (9) (H)

BILL OF MATERIALS

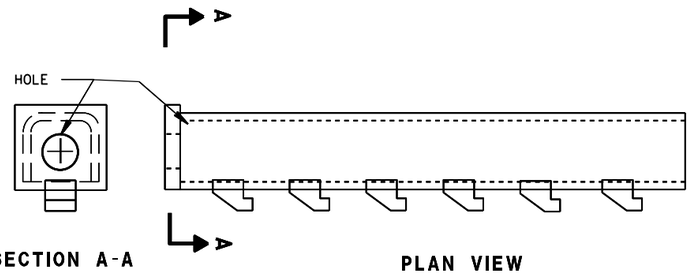
PART NO.	DESCRIPTION MATERIALS PROVIDED BY MGS EAT MANUFACTURER. SEE MANUFACTURER'S DETAILS FOR MORE INFORMATION.
(1)	WOOD BREAKAWAY POST
(2)	6" X 8" X 0.188", 6'-0" LONG FOUNDATION TUBE AT POSTS 1 AND 2
(3)	WOOD CRT
(4)	WOOD BLOCKOUT
(5)	PIPE SLEEVE
(6)	BEARING PLATE
(7)	BCT CABLE ASSEMBLY
(8)	ANCHOR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



FRONT VIEW



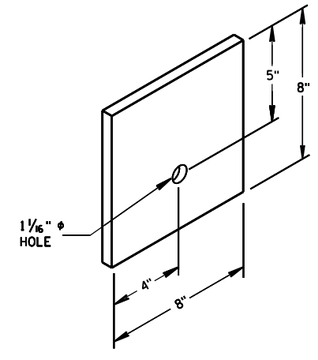
SECTION B-B



SECTION A-A

PLAN VIEW

GENERIC ANCHOR CABLE BOX (8) (H)



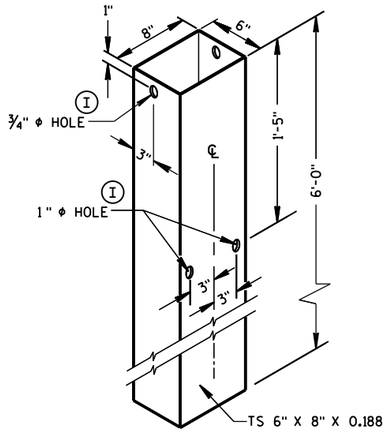
BEARING PLATE (6)

MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL
(MGS)

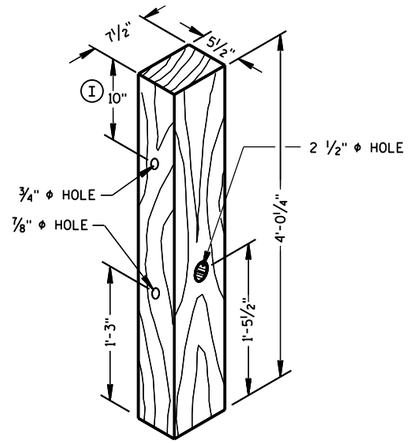
STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

6

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

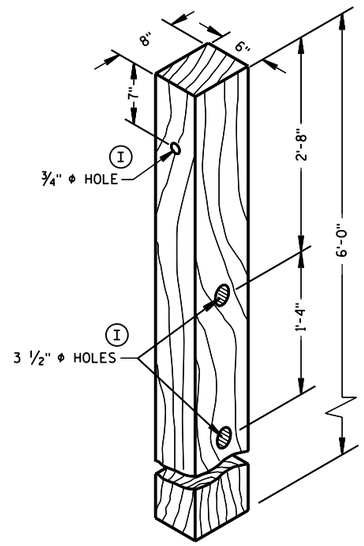


FOUNDATION TUBE (2)



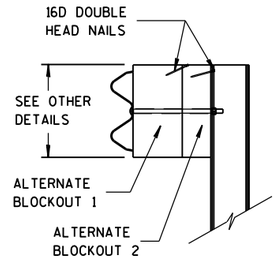
POSTS NUMBER 1 AND 2

WOOD BREAKAWAY POST (1)

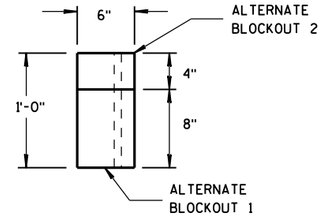


POSTS NUMBER 3-9

WOOD CRT POST (3)

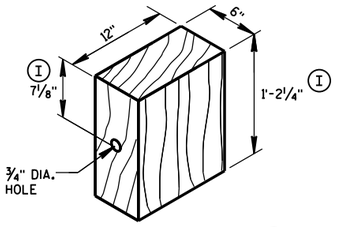


SIDE VIEW



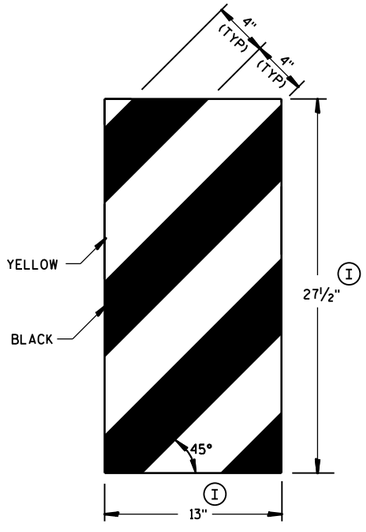
TOP VIEW

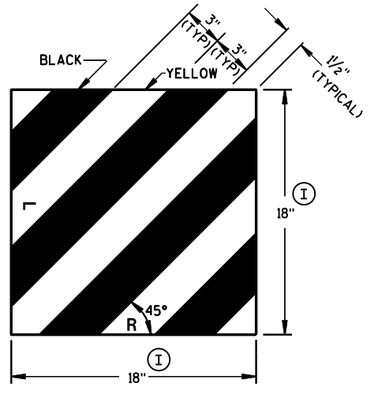
ALTERNATE WOOD BLOCKOUT DETAIL



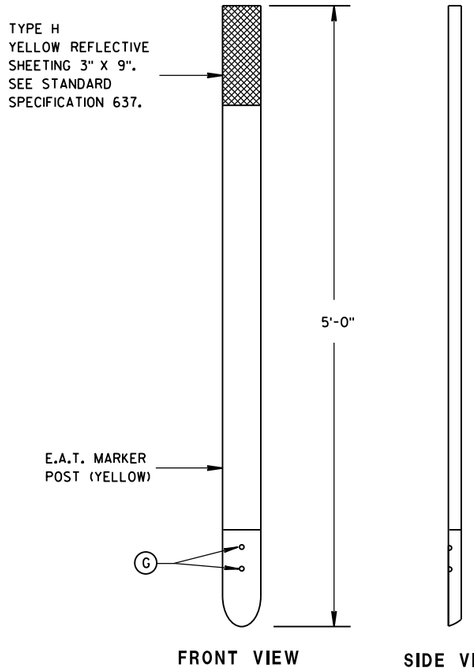
WOOD BLOCKOUT (4)

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





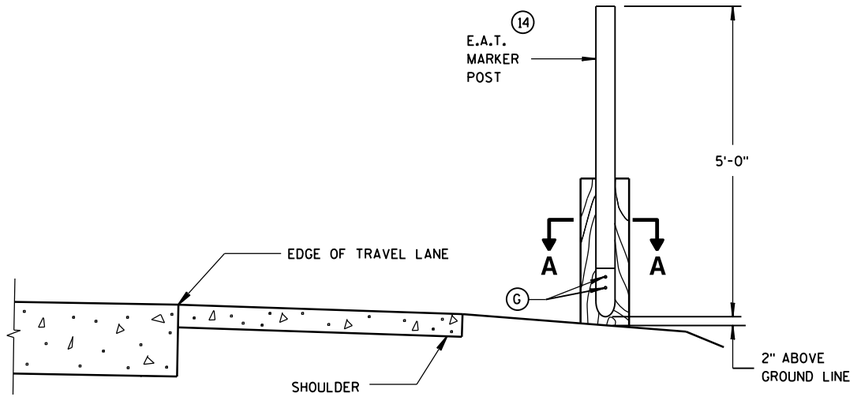
GENERIC REFLECTIVE SHEETING (13) (H)



FRONT VIEW

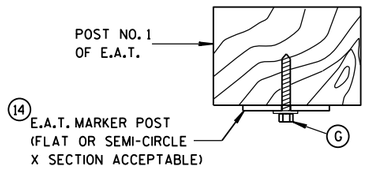
SIDE VIEW

E.A.T. MARKER POST (14)



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

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



SECTION A-A

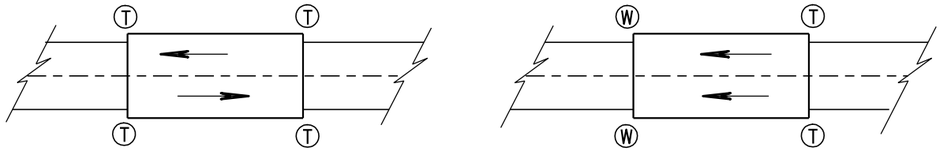
MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

6

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



TWO WAY TRAFFIC

ONE WAY TRAFFIC

Ⓣ THRIE BEAM CONNECTION

Ⓦ W-BEAM CONNECTION WHEN REQUIRED

TYPICAL LOCATIONS OF THRIE BEAM AND W-BEAM CONNECTIONS TO BRIDGE

GENERAL NOTES

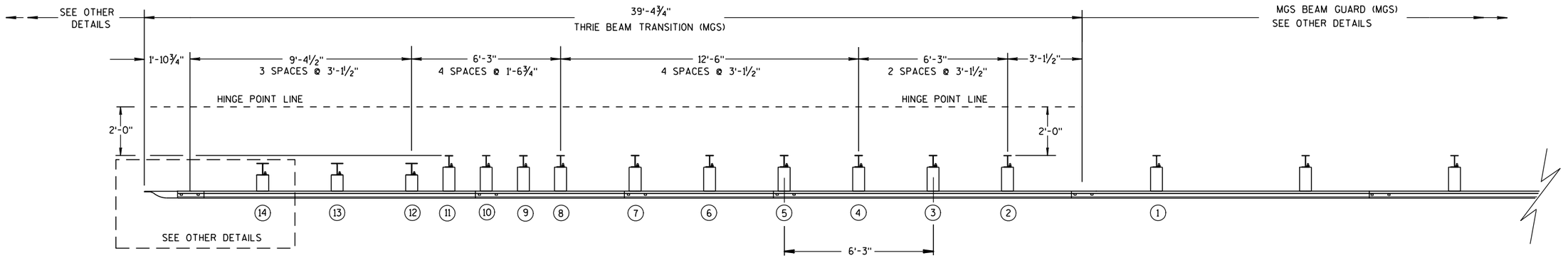
BOLT THE THRIE BEAM TO ALL POSTS AND BLOCKOUTS. DRILL OR PUNCH BOLT HOLES IN THE BEAM IF THE POST SPACING IS LESS THAN 6'-3.

IF ROCK IS ENCOUNTERED, REMOVE ROCK TO FULL DEPTH OF POST PLUS 2½", AND 12" DIAMETER AROUND POST. SEE 14B42 FOR MORE DETAILS.

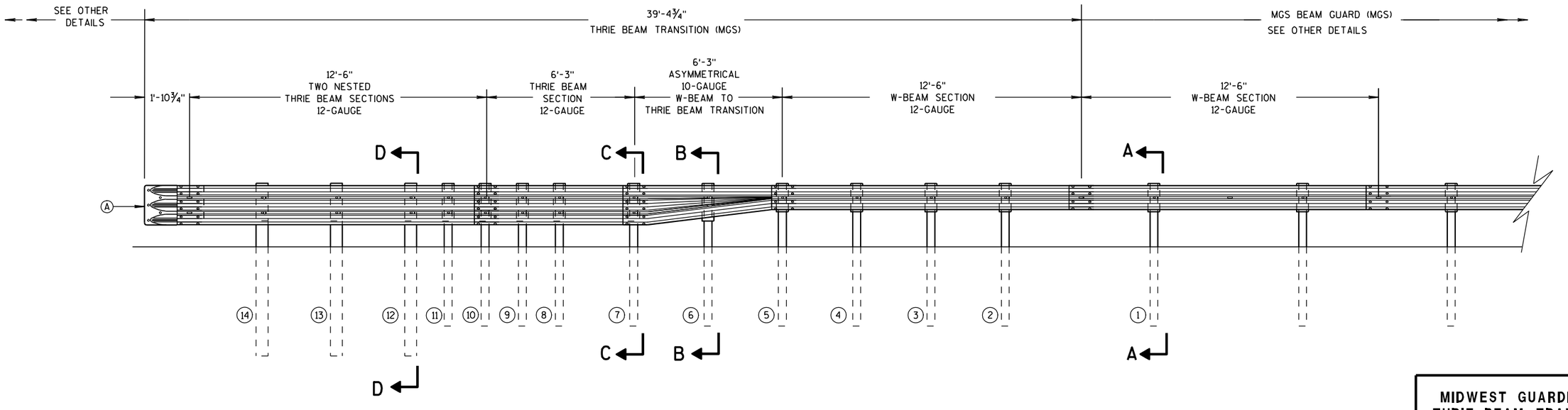
TRANSITION USES STEEL POSTS ONLY.

SEE STANDARD DETAIL DRAWING 14 B 42 FOR MORE INFORMATION.

Ⓐ BRIDGE RAILING TYPE "W" DOES NOT REQUIRE A TERMINAL CONNECTOR.



PLAN VIEW



ELEVATION VIEW

MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION

MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	50

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S.D.D. 14 B 45-3a

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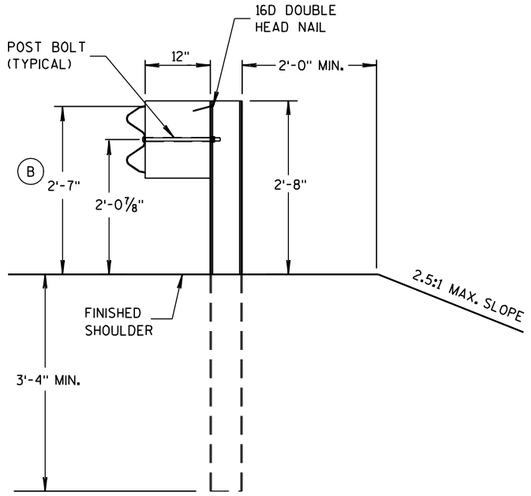
S.D.D. 14 B 45-3a

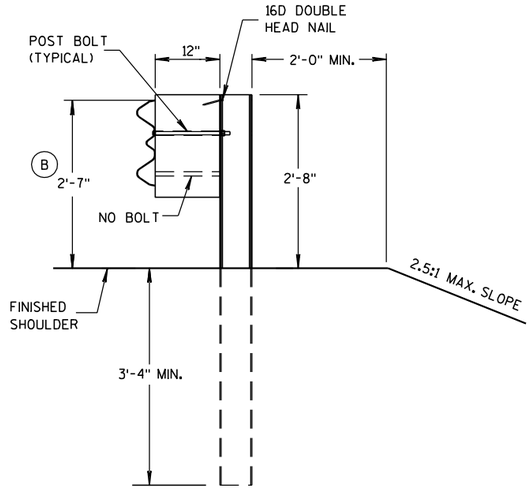
GENERAL NOTES

(B) TOLERANCE FOR TOP OF W-BEAM RAIL IS ± 1".



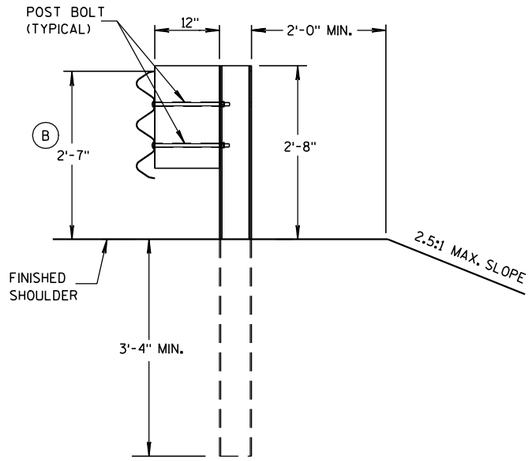
SECTION A-A

POSTS 1-5



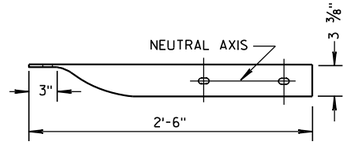
SECTION B-B

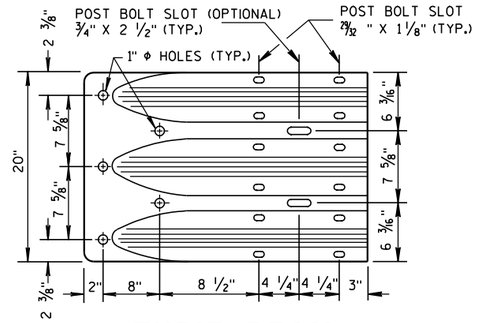
POST 6



SECTION C-C

POSTS 7-11





THRIE BEAM TERMINAL CONNECTOR

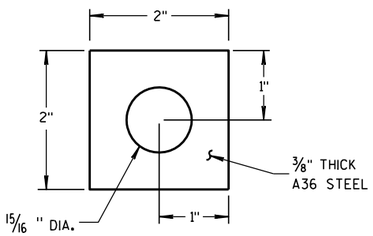
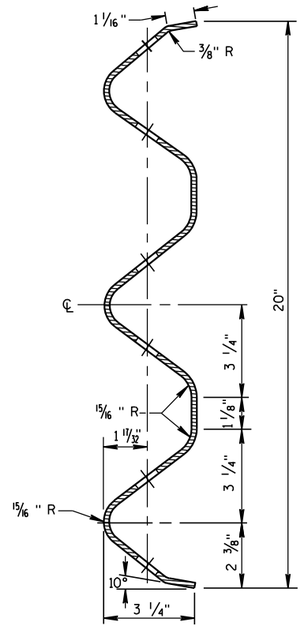
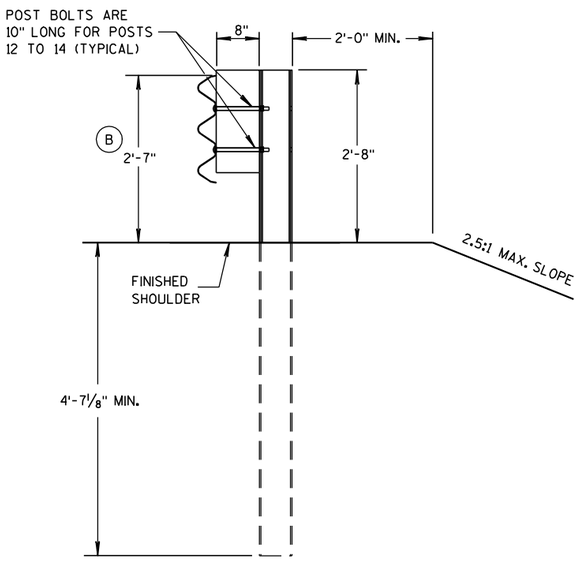


PLATE WASHER DETAIL

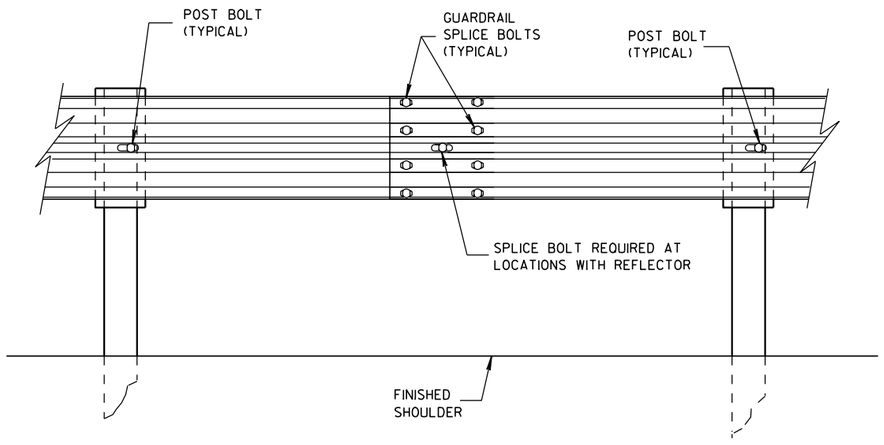


SECTION THRU THRIE BEAM RAIL ELEMENT



SECTION D-D

POSTS 12-14



SPLICE DETAIL

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

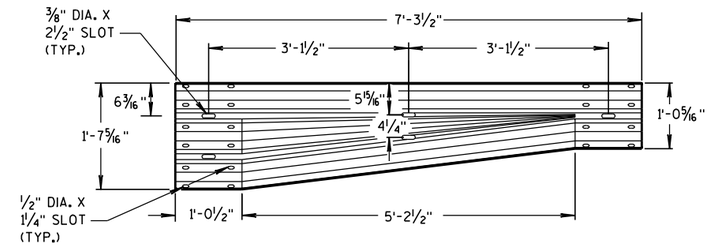
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

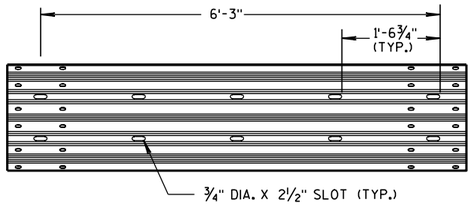
S.D.D. 14 B 45-3b

6

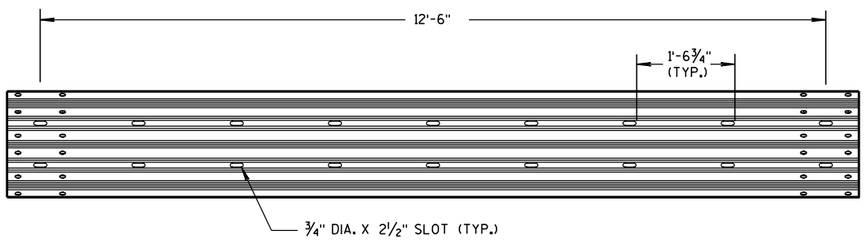
S.D.D. 14 B 45-3b



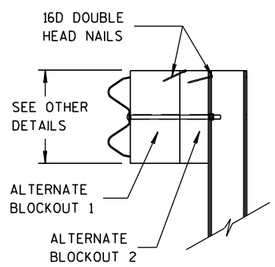
W-BEAM TO THRIE BEAM TRANSITION SECTION



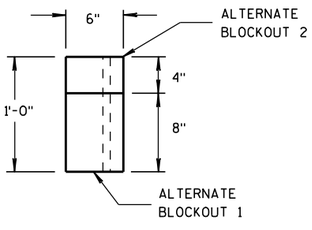
6'-3" THRIE BEAM SECTION



12'-6" THRIE BEAM SECTION

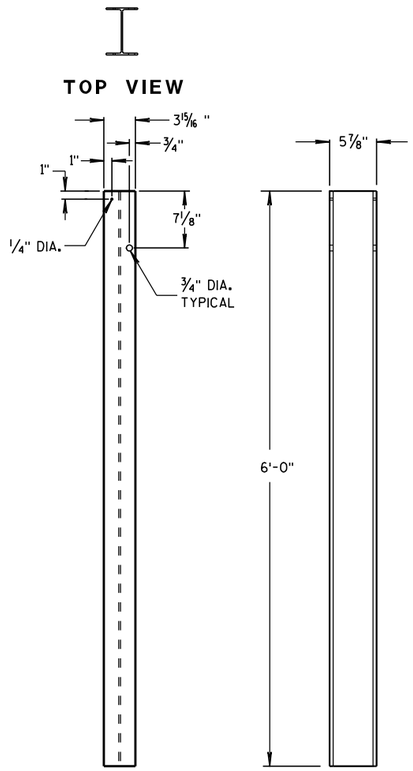


SIDE VIEW

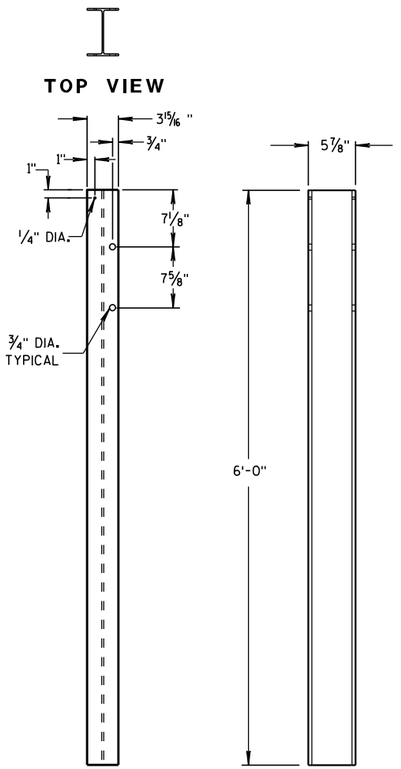


TOP VIEW

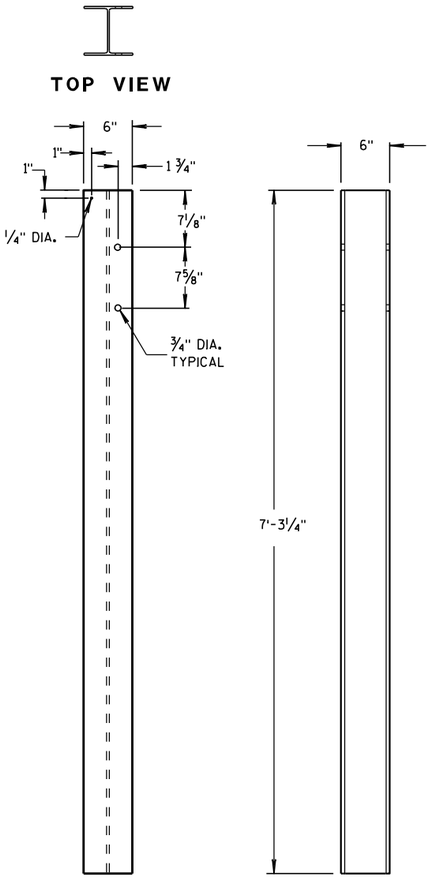
ALTERNATE WOOD BLOCKOUT DETAIL



STEEL POSTS 1-5

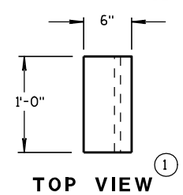


STEEL POSTS 6-11

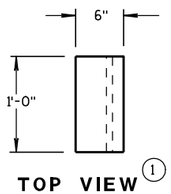


STEEL POSTS 12-14

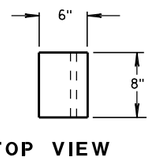
(1) WOOD BLOCKS MAY BE CONSTRUCTED OUT OF 2 WOOD BLOCKS. SEE ALTERNATE WOOD BLOCK DETAIL.



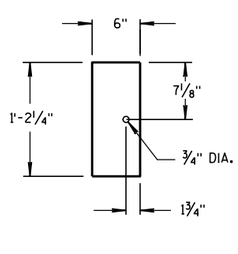
TOP VIEW (1)



TOP VIEW (1)

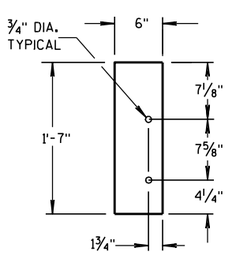


TOP VIEW



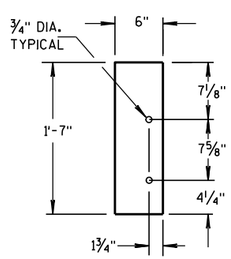
FRONT VIEW

BLOCKOUT POSTS 1-5



FRONT VIEW

BLOCKOUT POSTS 6-11



FRONT VIEW

BLOCKOUT POSTS 12-14

STEEL POST SIZES

POST NUMBER	SECTION TYPE	LENGTH
1	W6x9	72"
2	W6x9	72"
3	W6x9	72"
4	W6x9	72"
5	W6x9	72"
6	W6x9	72"
7	W6x9	72"
8	W6x9	72"
9	W6x9	72"
10	W6x9	72"
11	W6x9	72"
12	W6x15	87 1/8"
13	W6x15	87 1/8"
14	W6x15	87 1/8"

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

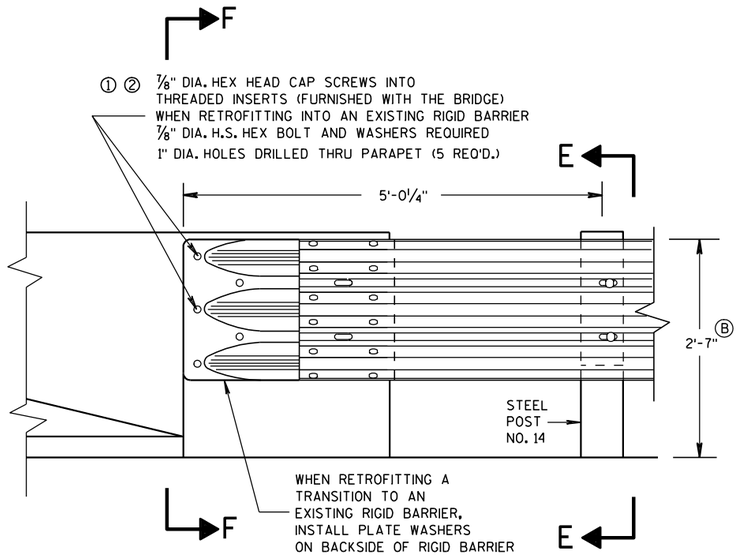
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

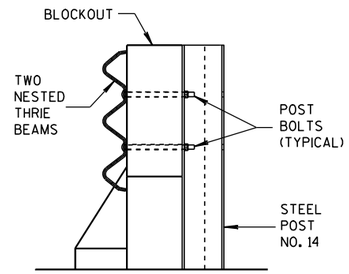
S.D.D. 14 B 45-3c

6

S.D.D. 14 B 45-3c



FRONT VIEW



SECTION E-E

GENERAL NOTES

THESE ARE TYPICAL CONNECTION DETAILS. ADJUST THE POSTION OF CONNECTIONS TO EXISTING BRIDGES TO FIT THE ACTUAL BRIDGE AND SITE DIMENSIONS.

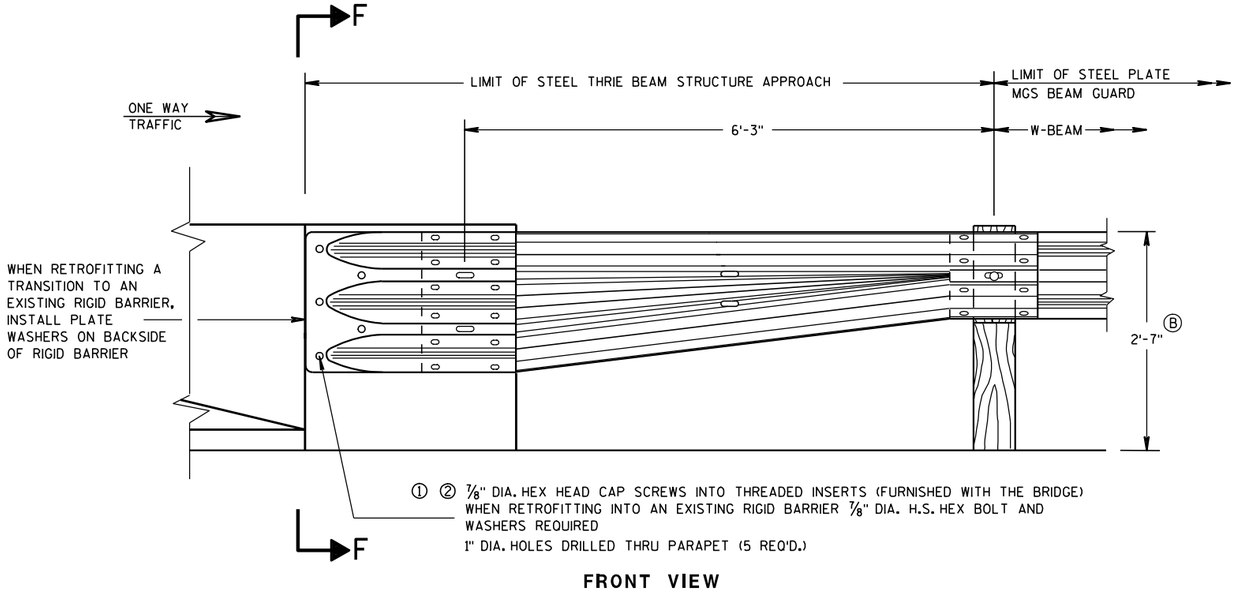
① DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.

② BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTOR PLATE. BOLTS THAT EXTEND THROUGH THE PARAPET AND OUT THE BACK FACE REQUIRE A HARDENED ROUND STEEL WASHER THAT IS 2" O.D. X 5/8" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.

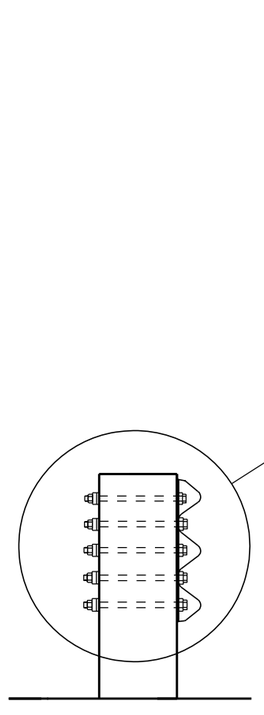
③ THE RECESS FOR A W-BEAM CONNECTION, WHICH EXISTS ON SOME PARAPETS OF THIS TYPE, SHALL BE FILLED WITH A TREATED TIMBER BLOCKOUT. BLOCKOUT SIZE IS 1'-6" X 2'-0" X 3 1/2".

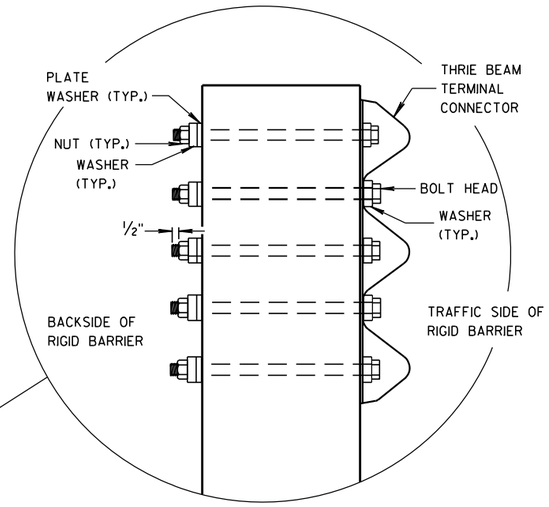
Ⓑ TOLERANCE FOR TOP OF BEAM IS ± 1".

THRIE BEAM CONNECTION TO BRIDGE PARAPET WITH SQUARE ENDS



FRONT VIEW





W BEAM TRANSITION AND CONNECTION TO BRIDGE PARAPETS WITH SQUARE ENDS

(USE ONLY ON THE TRAFFIC EXIT END OF ONE WAY BRIDGES)

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

8/31/2012 — DATE

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

FHWA

GENERAL NOTES

THESE ARE TYPICAL CONNECTION DETAILS. ADJUST THE POSTION OF CONNECTIONS TO EXISTING BRIDGES TO FIT THE ACTUAL BRIDGE AND SITE DIMENSIONS.

① DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.

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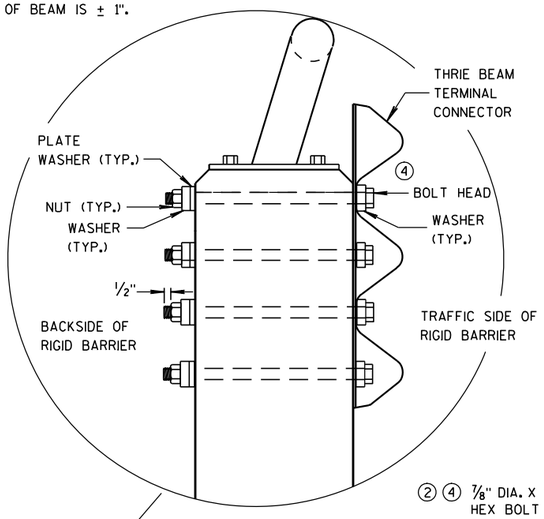
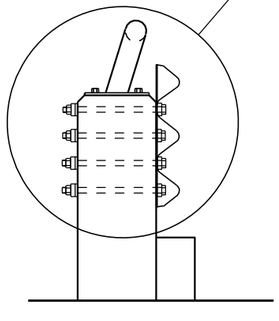
③ THE RECESS FOR A W-BEAM CONNECTION, WHICH EXISTS ON SOME PARAPETS OF THIS TYPE, SHALL BE FILLED WITH A TREATED TIMBER BLOCKOUT. BLOCKOUT SIZE IS 1'-6" X 2'-0" X 3 1/2". BLOCK IS INCIDENTAL TO THE CONTRACT.

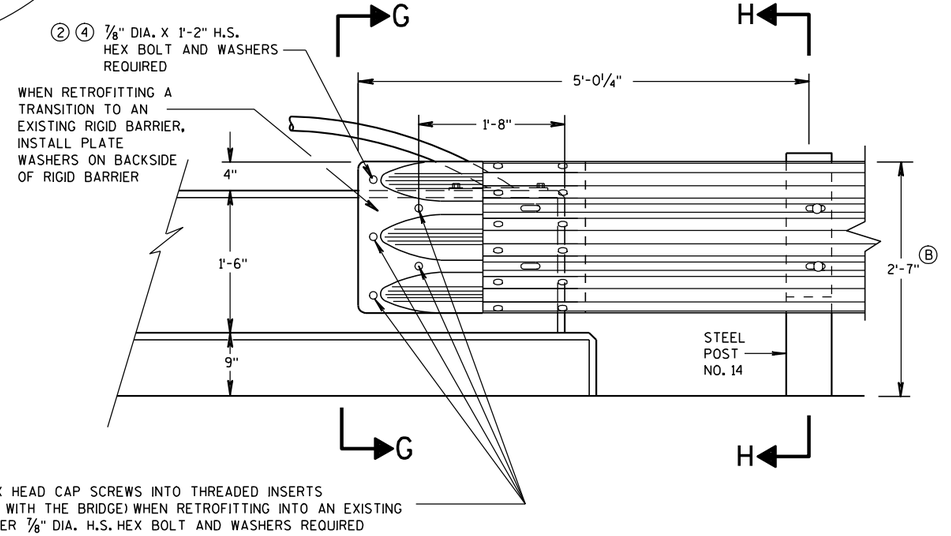
④ BOLT, NUT AND WASHERS NOT REQUIRED FOR THIS LOCATION WHEN RETROFITTING AN EXISTING PAPAPET AND THE HOLE IS EITHER ABOVE PARAPET OR WITHIN 4 INCHES OF THE EDGE OF PARAPET.

Ⓑ TOLERANCE FOR TOP OF BEAM IS ± 1".

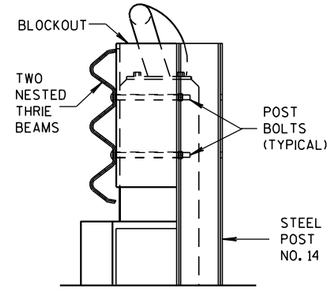




SECTION G-G

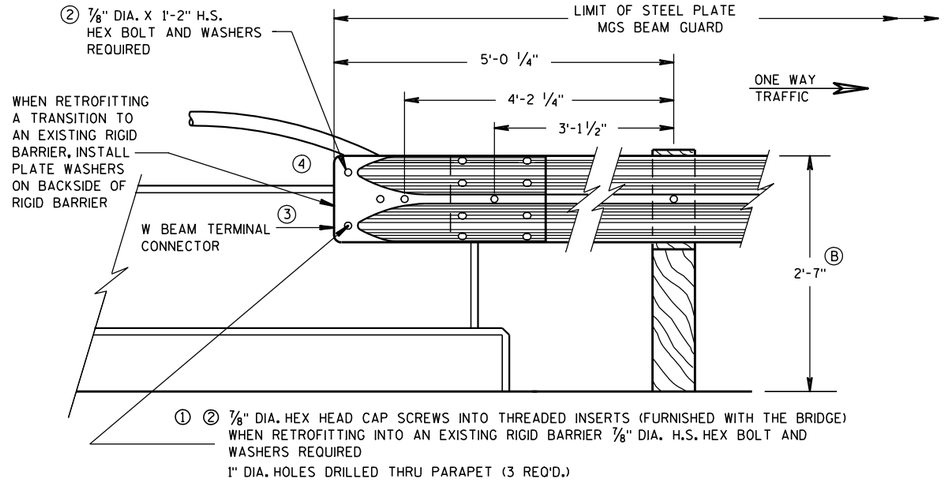


FRONT VIEW



SECTION H-H

THRIE BEAM CONNECTION TO VERTICAL FACED PARAPETS



FRONT VIEW

W BEAM CONNECTION TO VERTICAL FACE PARAPET

(USE ONLY ON THE TRAFFIC EXIT END OF ONE WAY BRIDGES)

MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED	
8-31-2012 DATE	/S/ Jerry H. Zogg ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA	

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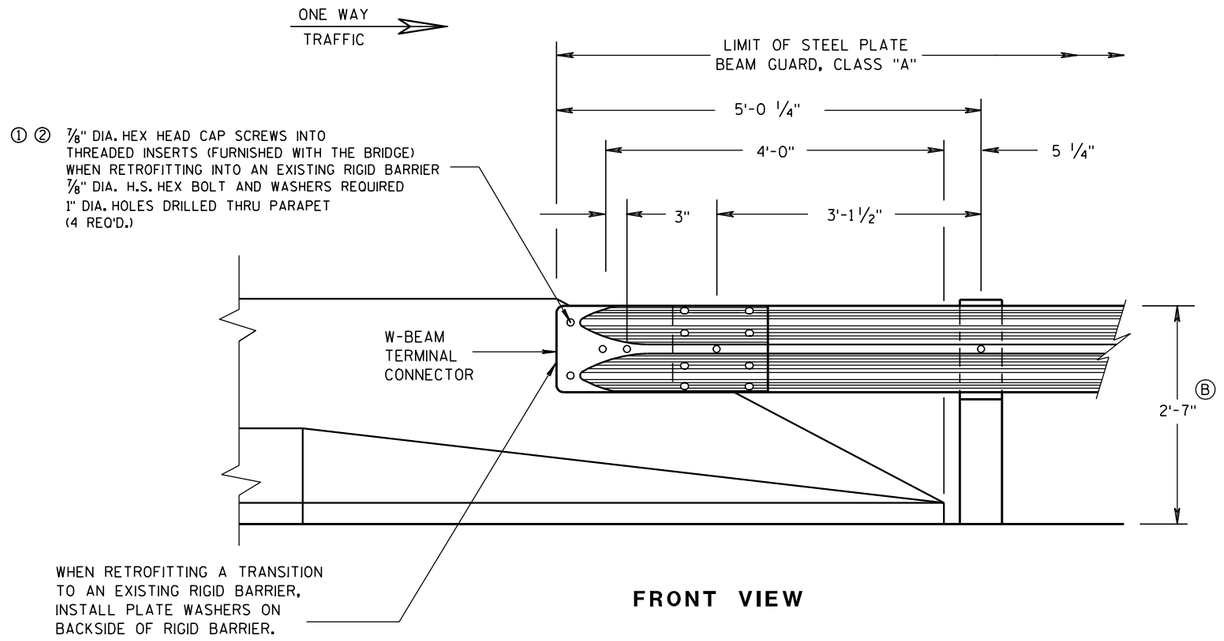
S.D.D. 14 B 45-3e



FRONT VIEW

W BEAM CONNECTION TO PARAPETS WITH SLOPED ENDS

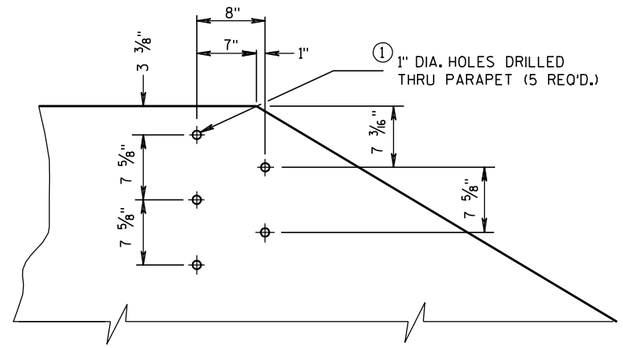
(USE ONLY AT TRAFFIC EXIT END OF ONE WAY BRIDGE)

GENERAL NOTES

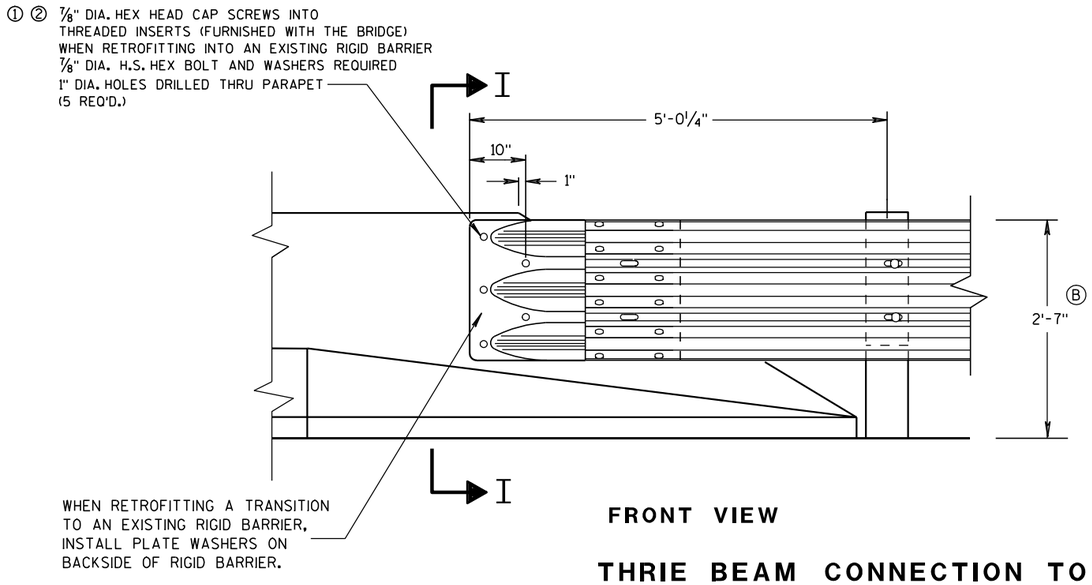
① DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.

② BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTOR PLATE. BOLTS THAT EXTEND THROUGH THE PARAPET AND OUT THE BACK FACE REQUIRE A HARDENED ROUND STEEL WASHER THAT IS 2" O.D. X 5/8" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.

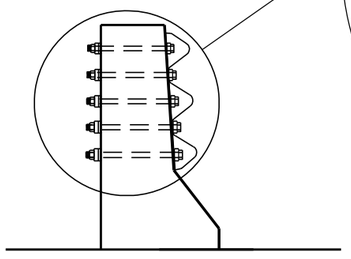
Ⓑ TOLERANCE FOR TOP OF BEAM IS ± 1".



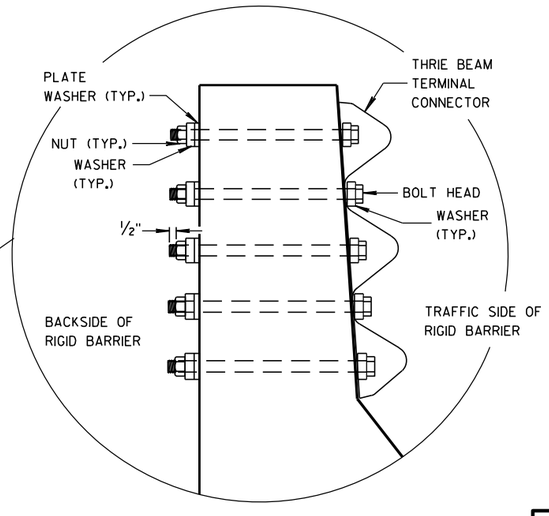
DRILL HOLE LOCATION AND PATTERN FOR THRIE BEAM CONNECTION



FRONT VIEW



SECTION I-I



THRIE BEAM CONNECTION TO BRIDGE PARAPETS WITH SLOPED ENDS

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

8/31/2012 DATE

/S/ Jerry H. Zogg
ROADWAY STANDARDS ENGINEER

55

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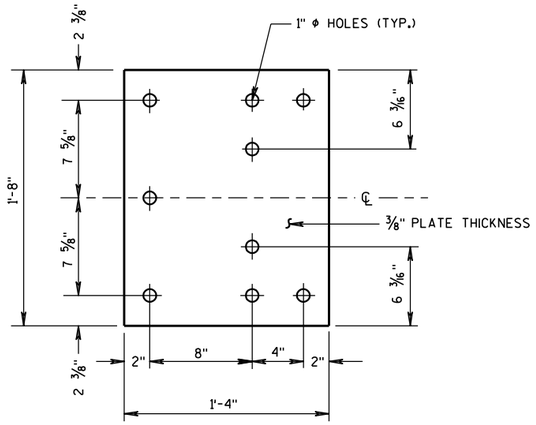
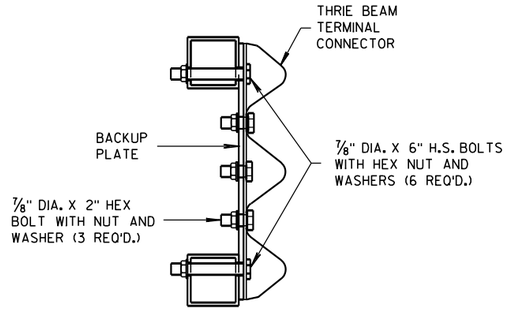
S.D.D. 14 B 45-3f



BACK-UP PLATE DETAIL

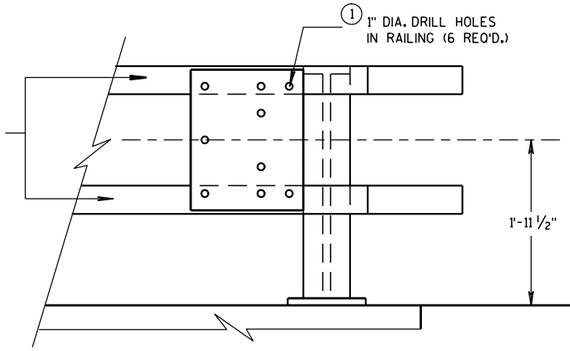


SECTION J-J

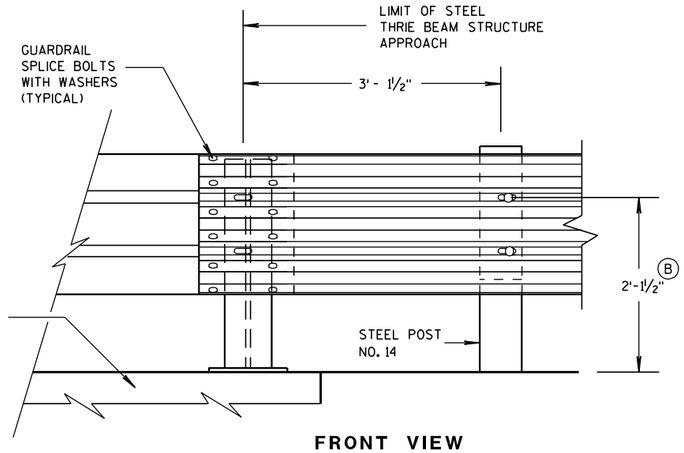
GENERAL NOTES

(1) DRILLING HOLES THROUGH THE PAPRPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.

(B) TOLERANCE FOR TOP OF BEAM IS ± 1".

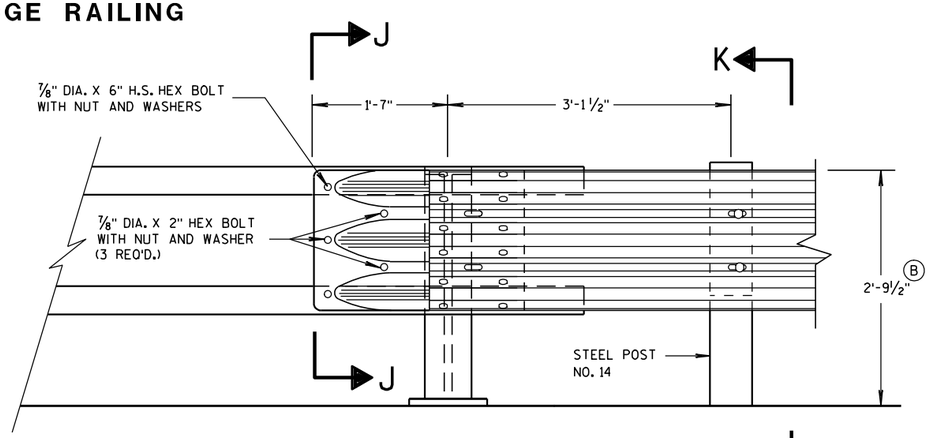


BACK-UP PLATE MOUNTING ONTO BRIDGE RAILING

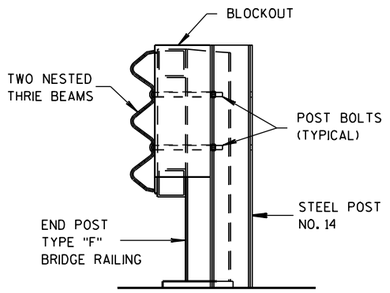


FRONT VIEW

THRIE BEAM CONNECTION TO STEEL RAILING TYPE "W"



FRONT VIEW



SECTION K-K

THRIE BEAM CONNECTION TO TUBULAR RAILING TYPE "F"

MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED	
8/31/2012 DATE	/S/ Jerry H. Zogg ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA	

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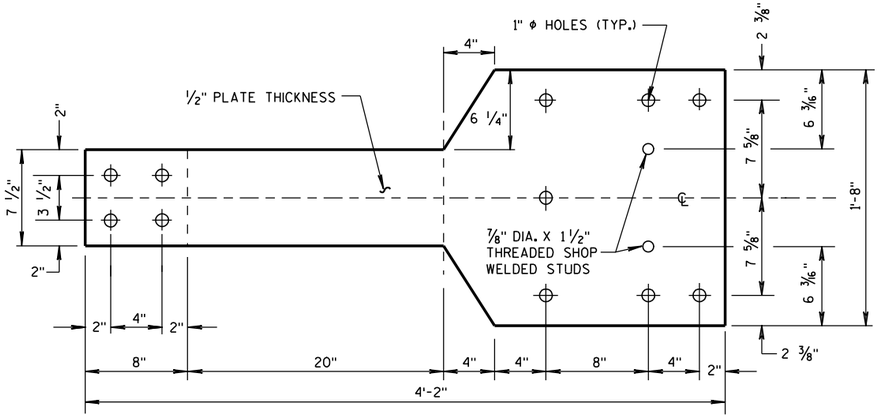
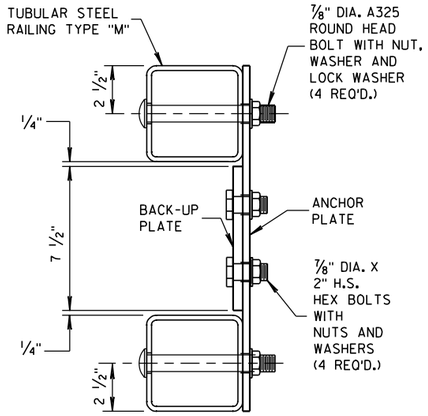
S.D.D. 14 B 45-3g

GENERAL NOTES

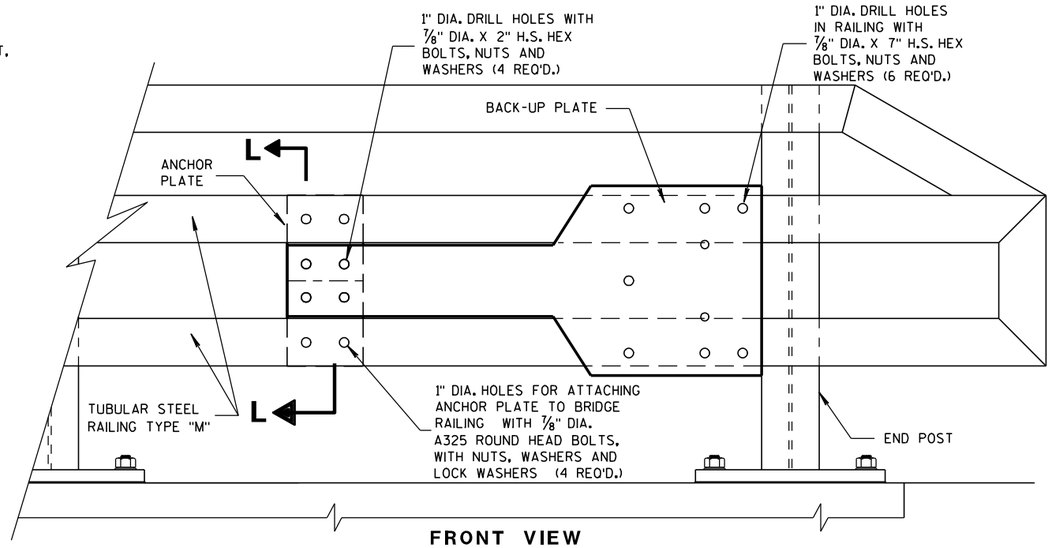
(B) TOLERANCE FOR TOP OF W-BEAM RAIL IS ± 1".



FRONT VIEW

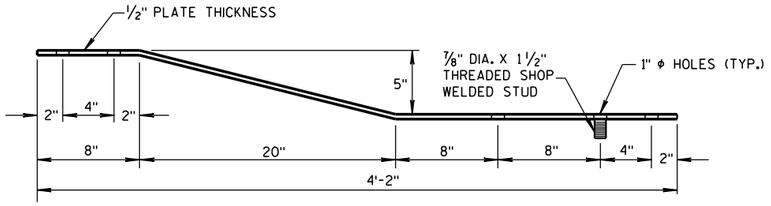


SECTION L-L



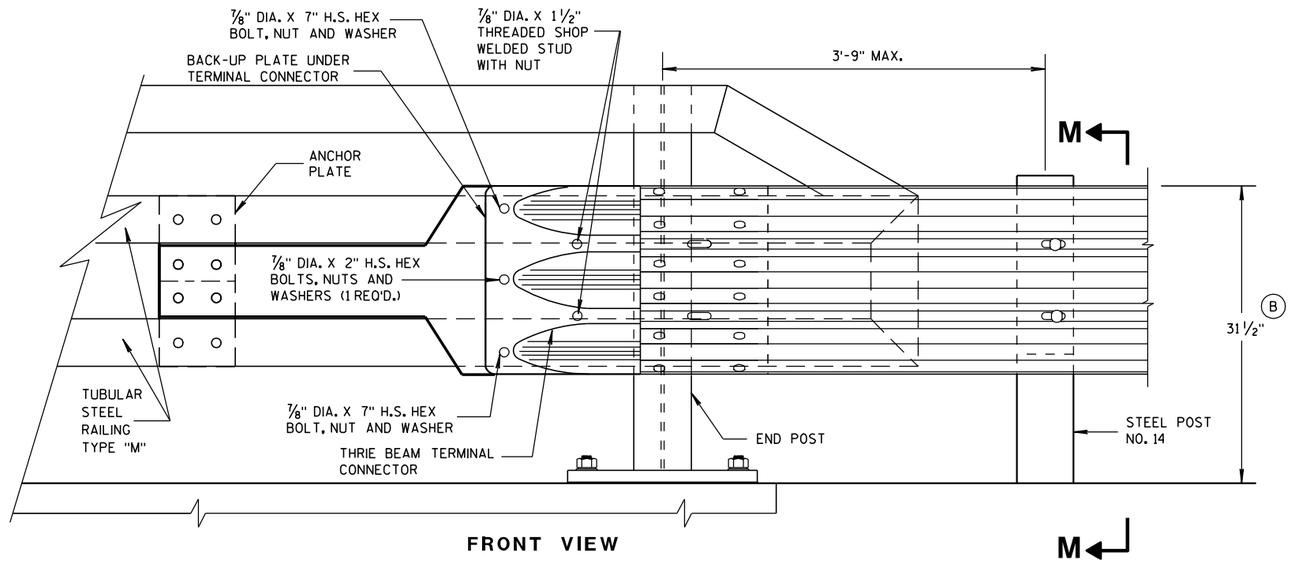
FRONT VIEW

ANCHOR AND BACK-UP PLATE MOUNTING TO BRIDGE RAILING, TYPE "M"

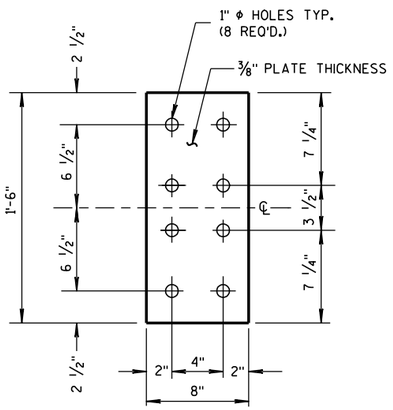


PLAN VIEW

BACK-UP PLATE DETAIL, TYPE "M"

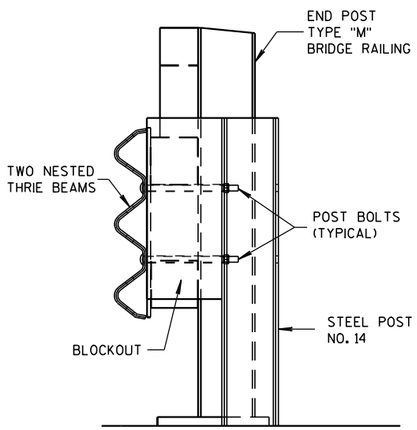


FRONT VIEW

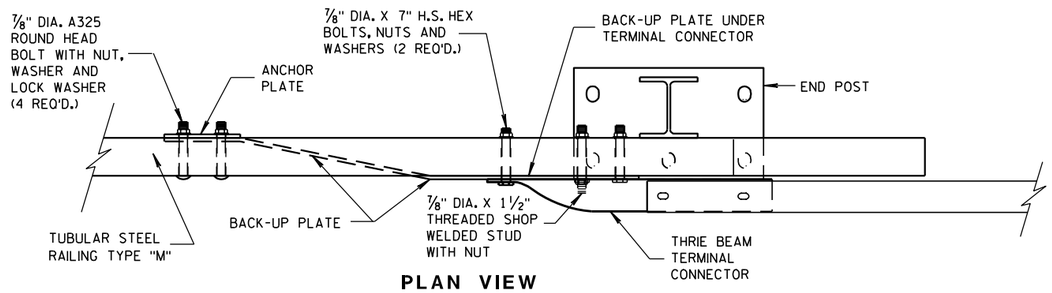


FRONT VIEW

ANCHOR PLATE DETAIL, TYPE "M"



SECTION M-M



PLAN VIEW

THRIE BEAM CONNECTION TO TUBULAR RAILING, TYPE "M"

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
8-31-2012 DATE
/S/ Jerry H. [illegible]
ROADWAY STANDARDS ENGINEER
57
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FHWA

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S.D. 14 B 45-3h

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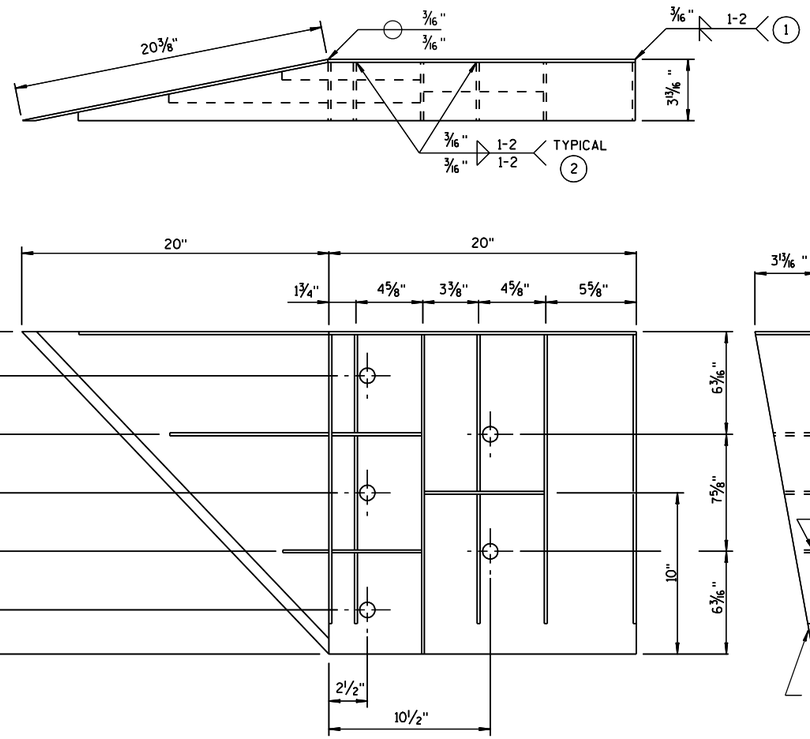
S.D. 14 B 45-3h



WELDING INSTRUCTION

(VIEWED FROM BACK SIDE OF PLATE)

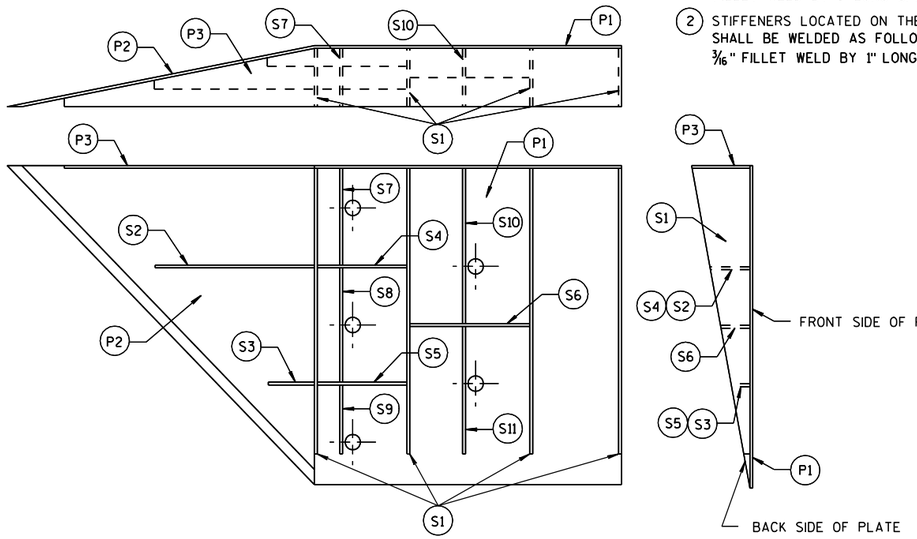


PLATE AND STIFFENER IDENTIFICATION

(VIEWED FROM BACK SIDE OF PLATE)

GENERAL NOTES

COVER PLATE PANELS ARE ⅜" THICK.

ALL STIFFENERS ARE ¼" THICK.

CONNECTOR PLATE SHALL BE FABRICATED FROM ASTM GRADE A36 STEEL AND GALVANIZED.

FOR GALVANIZED REQUIREMENTS, SEE SECTION 614 OF THE STANDARD SPECIFICATIONS.

ALL HOLE DIAMETERS SHALL BE 1".

FOR OPPOSITE SIDE INSTALLATION MIRROR DRAWINGS.

(1) STIFFENERS LOCATED AT THE OUTSIDE EDGES OF THE COVER PLATES SHALL BE WELDED AS FOLLOWS:
SINGLE BEVEL GROOVE WELD ON EXTERNAL SIDES AND ⅜" FILLET WELD BY 1" LONG SPACED AT 2" ON INTERNAL SIDES.

(2) STIFFENERS LOCATED ON THE INSIDE OF THE COVER PLATE SHALL BE WELDED AS FOLLOWS:
⅜" FILLET WELD BY 1" LONG SPACED AT 2".

CONNECTOR PLATE DIMENSION (PER ASSEMBLY)

PLATE	QUANTITY	SHAPE	SIZE (A x B x C x D)	THICKNESS
P1	1		20" x 20"	⅜"
P2	1		20" x 20" x 28⁹⁄₁₆"	⅜"
P3	1		39" x 3⅝" x 20" x 19⅝"	⅜"
S1	4		18⁷⁄₁₆" x 3⅝" x 18¾"	¼"
S2	1		10¼" x 2⁷⁄₁₆" x 10⅜" x ½"	¼"
S3	1		3" x 1¹⁄₁₆" x 3⅛" x ½"	¼"
S4	1		6⅛" x 2⁷⁄₁₆"	¼"
S5	1		6⅛" x 1¹⁄₁₆"	¼"
S6	1		7¾" x 1¾"	¼"
S7	1		2⁹⁄₁₆" x 6" x 3⅝" x 5⅞"	¼"
S8	1		1⁵⁄₃₂" x 7½" x 2½" x 7⅜"	¼"
S9	1		6¹⁄₁₆" x 6⅜" x 1³⁄₃₂"	¼"
S10	1		1⅞" x 9⅞" x 3⅝" x 9¹¹⁄₁₆"	¼"
S11	1		8½" x 8¾" x 1¹³⁄₁₆"	¼"

SINGLE SLOPE CONNECTION PLATE

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

8/31/2012
DATE

/S/ Jerry H ----
ROADWAY STANDARDS ENGINEER

FHWA

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S.D.D. 14 B 45-3i

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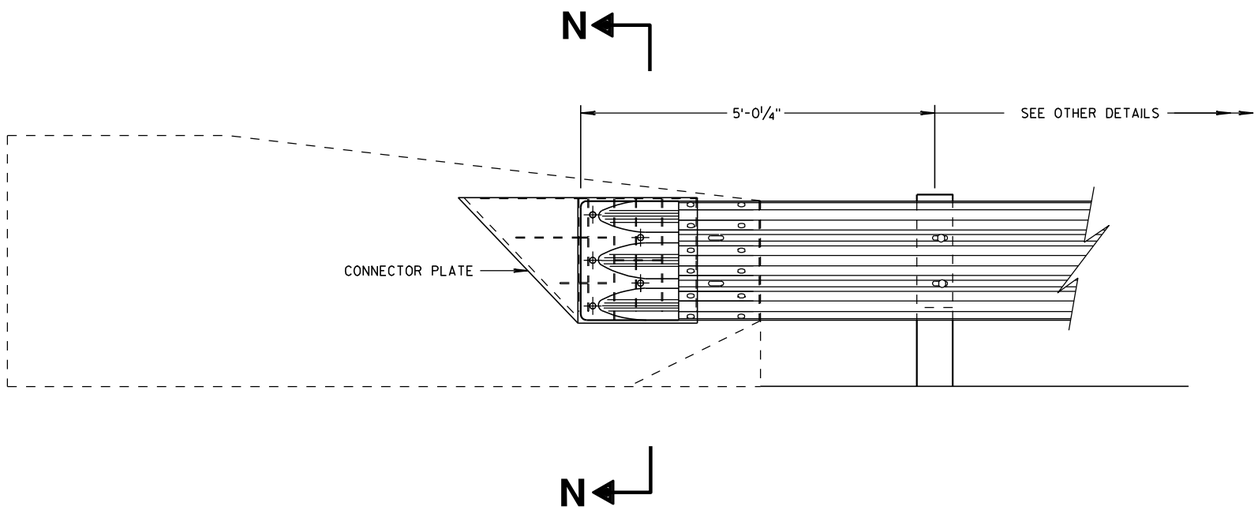
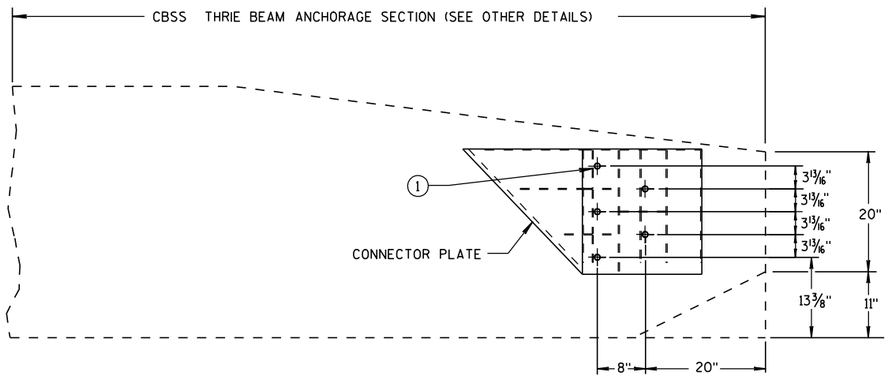
S.D.D. 14 B 45-3i



THRIE BEAM CONNECTION TO SINGLE SLOPE BARRIER

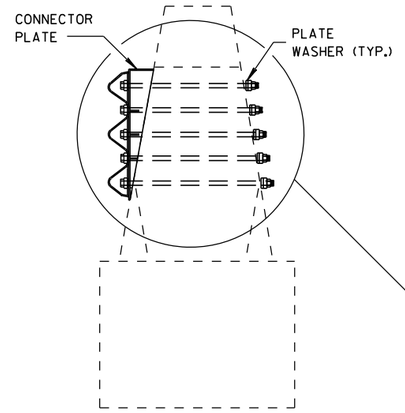


SINGLE SLOPE CONNECTION PLATE PLACEMENT

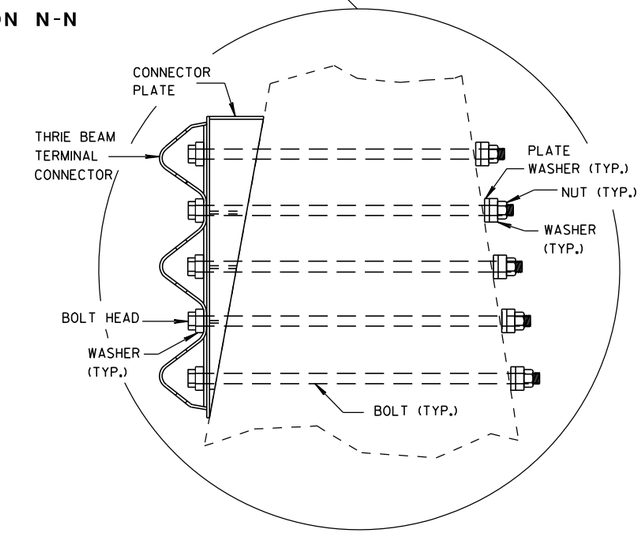
GENERAL NOTES

CONNECTOR PLATE, DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.

(1) BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTOR PLATE. BOLTS THAT EXTEND THROUGH THE PARAPET AND OUT THE BACK FACE REQUIRE A HARDENED ROUND STEEL WASHER THAT IS 2" O.D. X ⅝" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.



SECTION N-N



MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
8/31/2012 DATE
/S/ Jerry H. [illegible]
ROADWAY STANDARDS ENGINEER
FHWA

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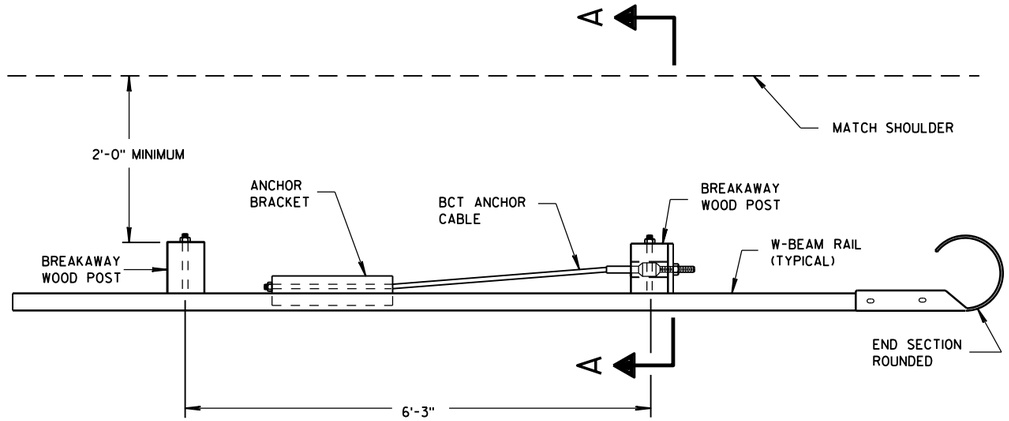
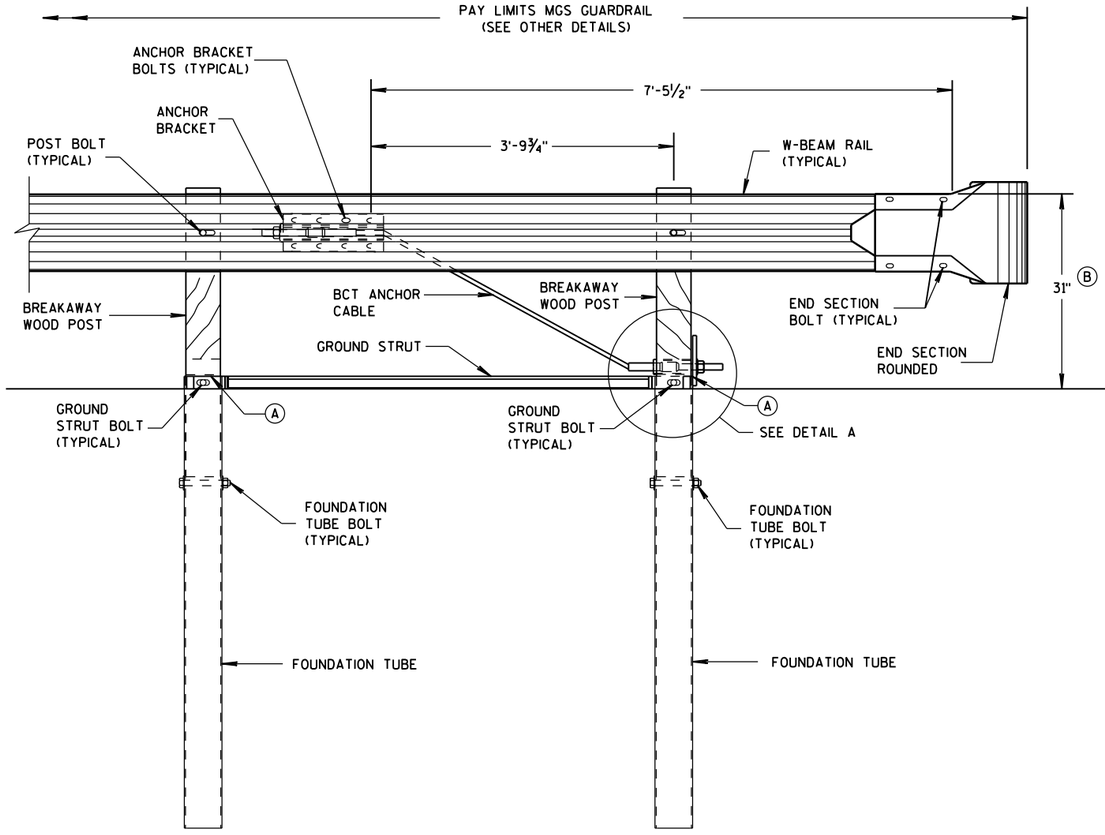
S.D.D. 14 B 45-3j

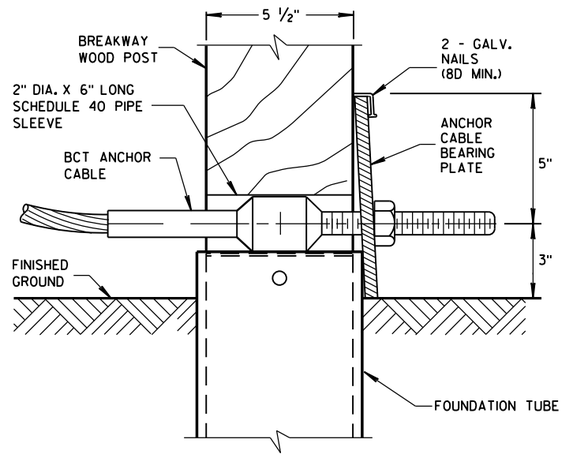


PLAN VIEW



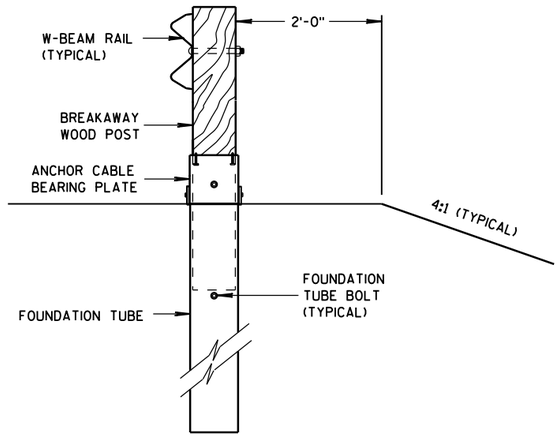
FRONT VIEW

END RAIL DETAIL



DETAIL A

POST NO. 1
GROUNG STRUT NOT SHOWN FOR CLARITY.



SECTION A-A

GENERAL NOTES

SEE SDD 14 B 42 FOR MORE INFORMATION.

END SECTION BOLTS AND NUTS HAVE THE SAME MATERIAL REQUIREMENTS AS SPLICE BOLTS.

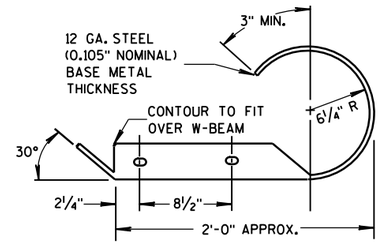
FOUNDATION TUBE BOLTS ARE ⅞" DIAMETER ASTM A307 HEX HEAD BOLT. FOUNDATION TUBE BOLTS REQUIRE ASTM A563 A NUT AND TWO ASTM F844 ⅞" DIAMETER FLAT WASHERS. INSTALL ONE WASHER UNDER BOLT HEAD AND ONE WASHER UNDER NUT.

ANCHOR BRACKET AND GROUND STRUT BOLTS ARE A ⅝" DIAMETER ASTM A307 HEX HEAD BOLT. ANCHOR BRACKET BOLTS REQUIRE ASTM A563 A NUT AND TWO ASTM F844 ⅝" DIAMETER FLAT WASHERS. INSTALL ONE WASHER UNDER BOLT HEAD AND ONE WASHER UNDER NUT.

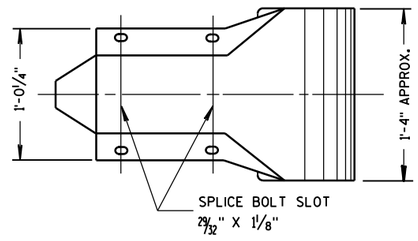
W-BEAM END SECTION ROUNDED HAS THE SAME MATERIAL PROPERTIES AS STANDARD STEEL RAIL.

(A) TOP OF FOUNDATION TUBE SHALL BE NO MORE THAN 3" ABOVE FINISHED GROUND.

(B) FOR NEW CONSTRUCTION TOP OF RAIL IS 31" ± 1".
FOR EXISTING INSTALLATIONS TOP OF RAIL IS BETWEEN 27¾" TO 32" ± 1".



PLAN VIEW



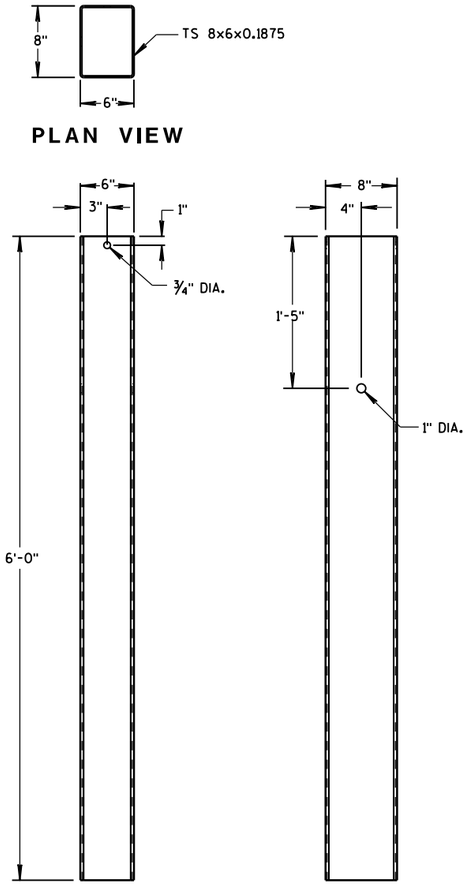
FRONT VIEW

W BEAM END SECTION ROUNDED

MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 2 TERMINAL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPO

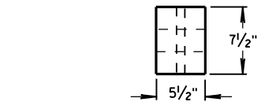
6
S.D.D. 14 B 47-2a



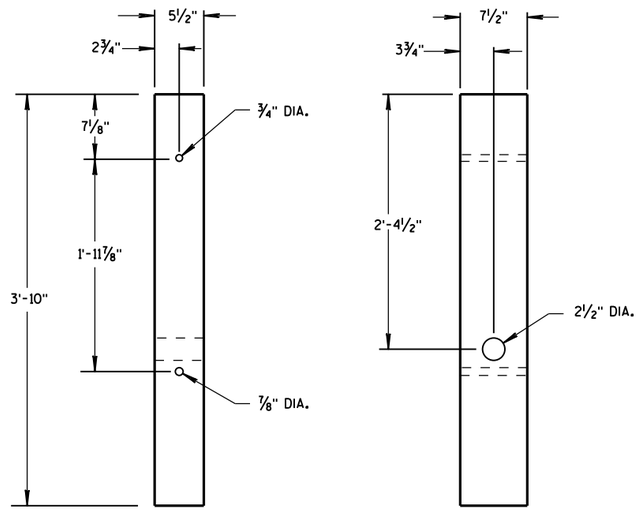
PLAN VIEW

FRONT VIEW SIDE VIEW

FOUNDATION TUBE



PLAN VIEW

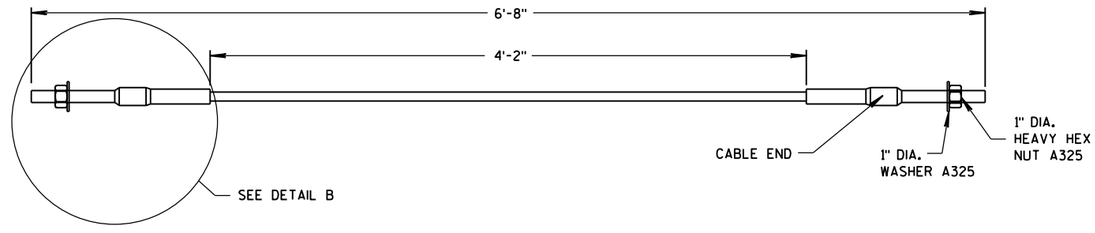


FRONT VIEW SIDE VIEW

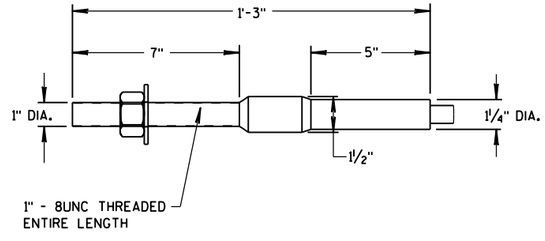
BREAKAWAY WOOD POST

GENERAL NOTES

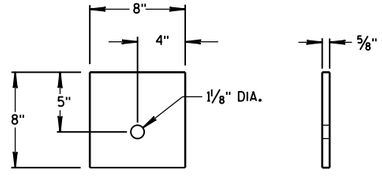
BCT ANCHOR CABLE IS A ¾" DIAMETER 6X19 IWRC IPS GALVANIZED WIRE ROPE. THE SWAGED FITTINGS AND STUD ARE REQUIRED. END FITTING SHALL BE MACHINED FROM HOT-ROLLED CARBON STEEL CONFORMING TO ASTM A576 GRADE 1035 AND GALVANIZED ACCORDING TO ASTM A123. TREADED STUD SHALL CONFORM TO ASTM A325 OR SAE GRADE 5. MINIMUM BREAKING STRENGTH OF WIRE ROPE IS 43,000 LB. WIRE ROPE IS TO BE TAUT.



BCT ANCHOR CABLE



DETAIL B



SIDE VIEW FRONT VIEW

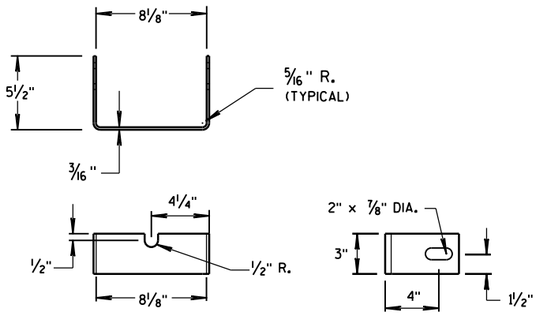
ANCHOR CABLE
BEARING PLATE

MIDWEST GUARDRAIL
SYSTEM (MGS) TYPE 2 TERMINAL

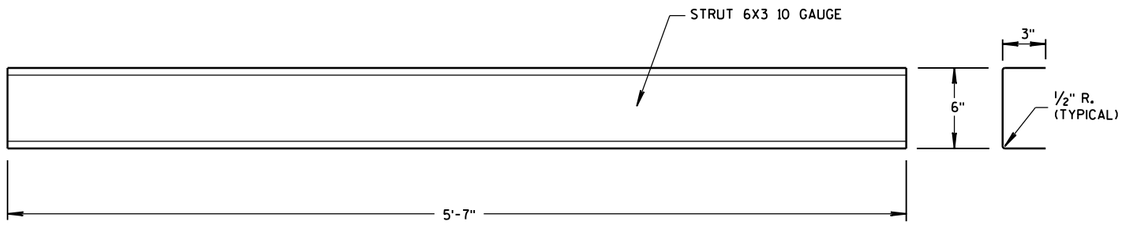
STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

6

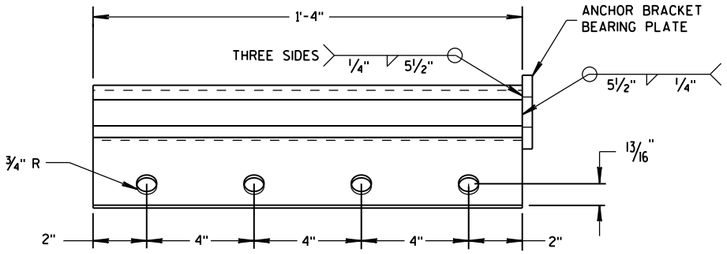
S.D.D. 14 B 47-2b

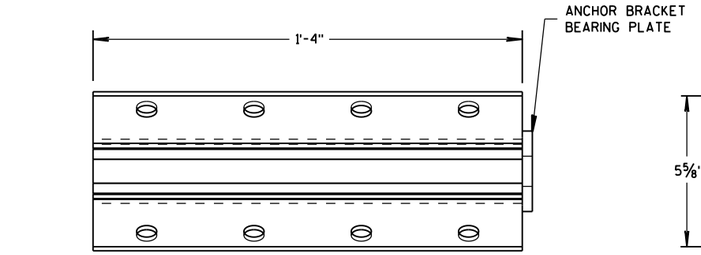


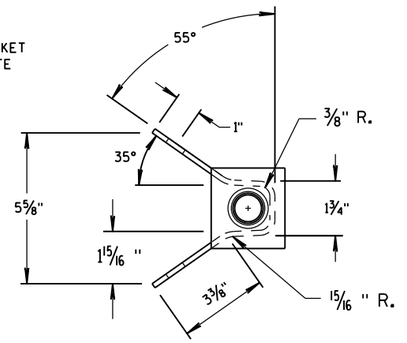
YOKE DETAIL



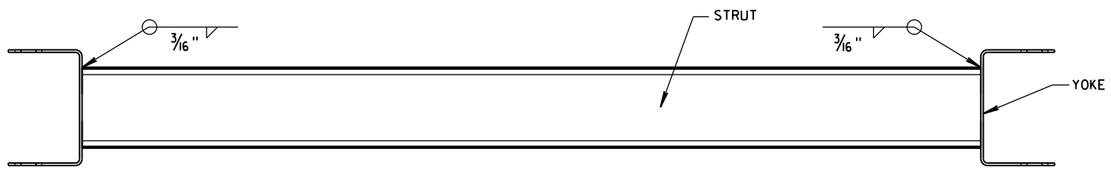
STRUT DETAIL



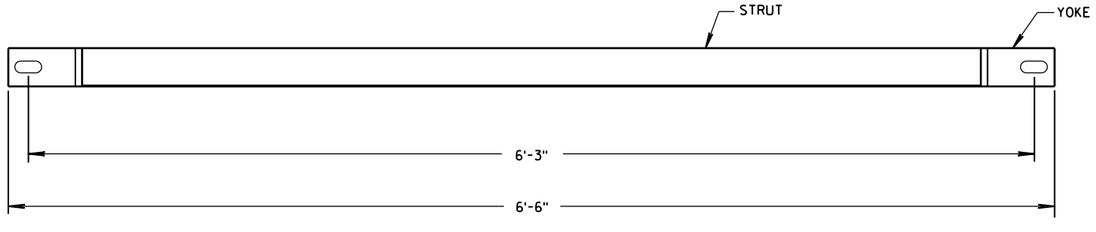




ANCHOR BRACKET

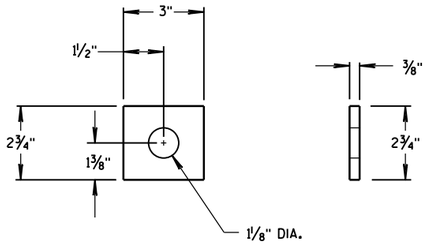


PLAN VIEW



FRONT VIEW

GROUND STRUT DETAIL



ANCHOR BRACKET BEARING PLATE

MIDWEST GUARDRAIL
SYSTEM (MGS) TYPE 2 TERMINAL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

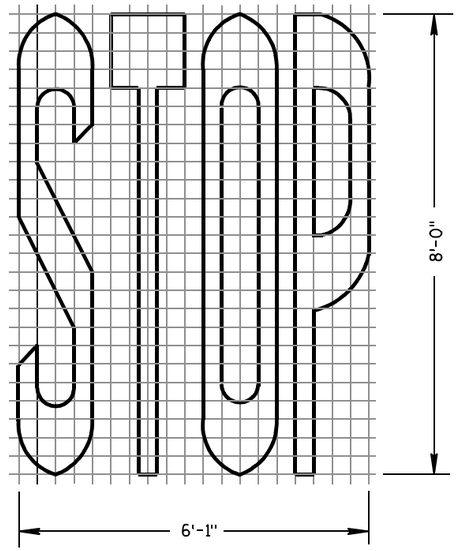
6

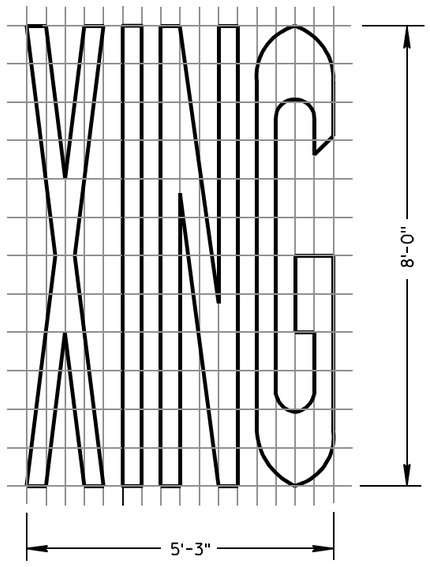
S.D.D. 14 B 47-2c

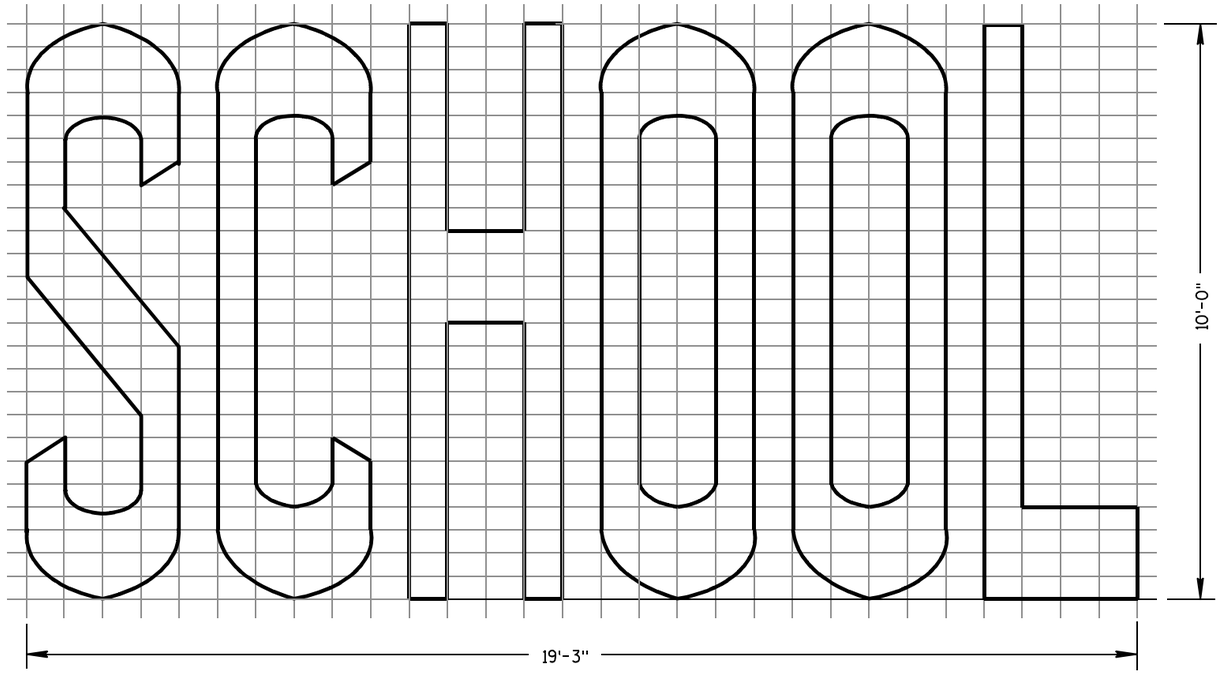
GENERAL NOTES

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.

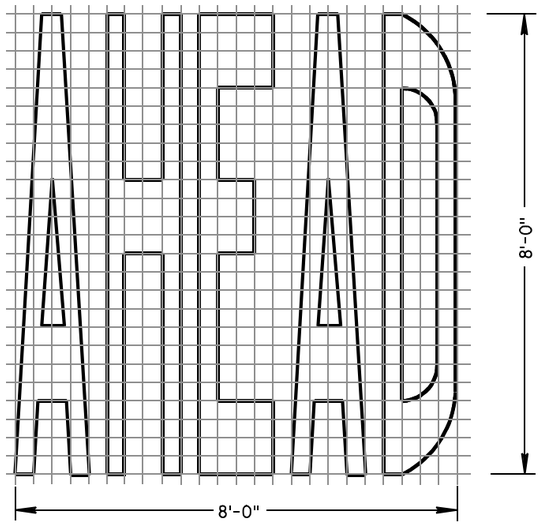
ALL LETTERS, ARROWS AND SYMBOLS SHALL BE IN CONFORMANCE WITH REQUIREMENTS INCLUDED IN "STANDARD ALPHABETS FOR HIGHWAY SIGNS AND PAVEMENT MARKING" BOOK BY THE FEDERAL HIGHWAY ADMINISTRATION. ALL LETTERS, ARROWS AND SYMBOLS SHALL BE WHITE AND REFLECTORIZED. SMALL DIFFERENCES IN DIMENSIONS WITHIN THE TOLERANCES OF THAT BOOK ARE ACCEPTABLE.

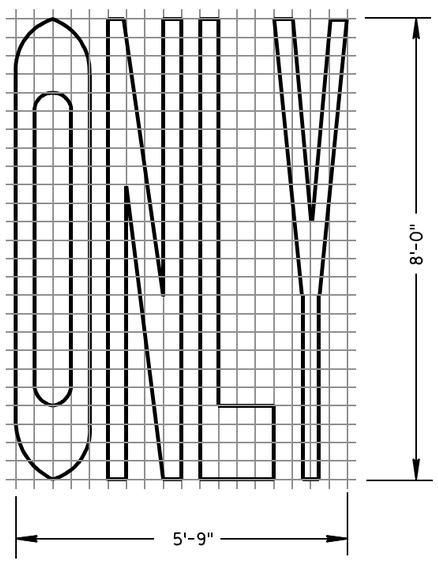


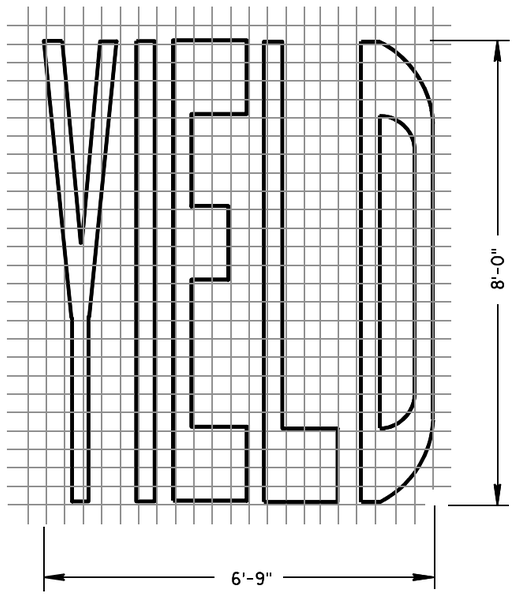


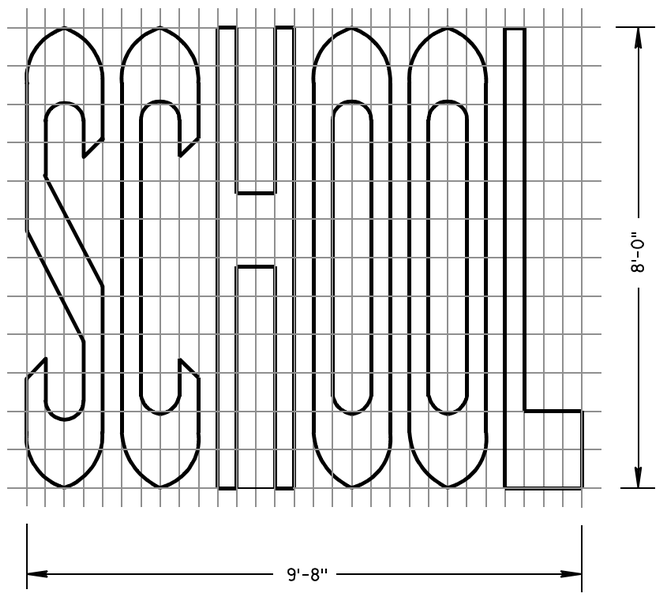


TWO-LANE









SINGLE-LANE

PAVEMENT MARKING WORDS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

7-1-11 — DATE

/S/ Thomas N. Nothohm — STATE TRAFFIC ENGINEER

FHWA

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S.D.D. 15 C 7-12b

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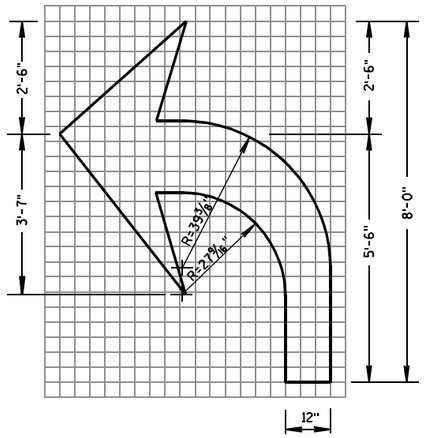
S.D.D. 15 C 7-12b

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.

ALL LETTERS, ARROWS AND SYMBOLS SHALL BE IN CONFORMANCE WITH REQUIREMENTS INCLUDED IN "STANDARD ALPHABETS FOR HIGHWAY SIGNS AND PAVEMENT MARKING" BOOK BY THE FEDERAL HIGHWAY ADMINISTRATION. ALL LETTERS, ARROWS AND SYMBOLS SHALL BE WHITE AND REFLECTORIZED. SMALL DIFFERENCES IN DIMENSIONS WITHIN THE TOLERANCES OF THAT BOOK ARE ACCEPTABLE.



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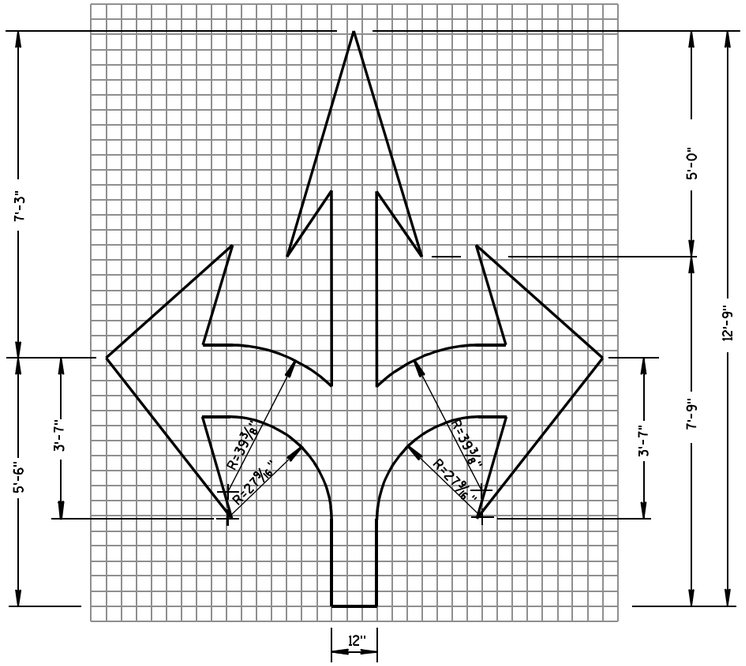
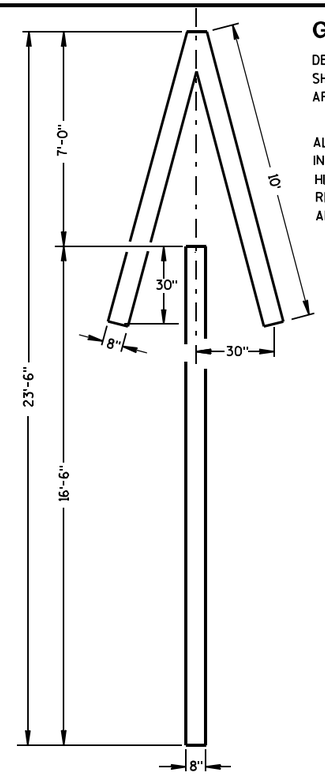


TYPE 6



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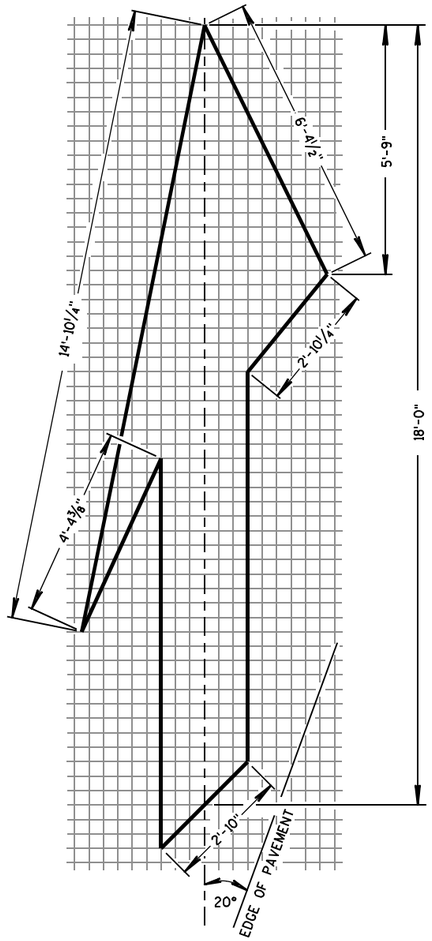
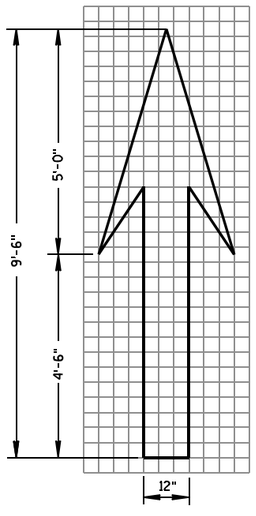
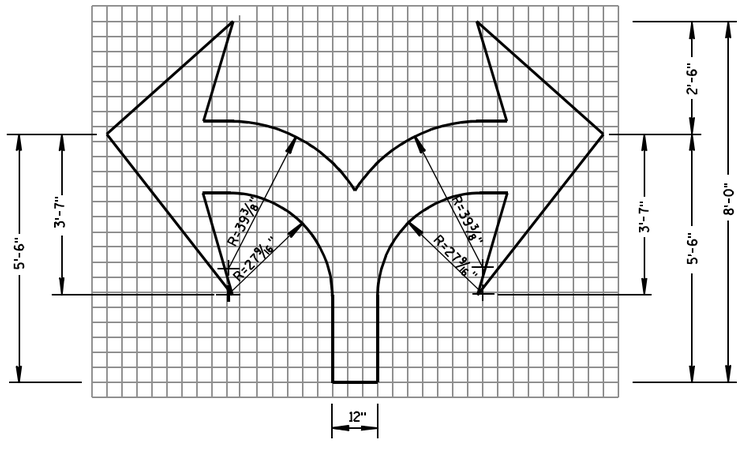


TYPE 5 LANE DROP ARROW



TYPE 1



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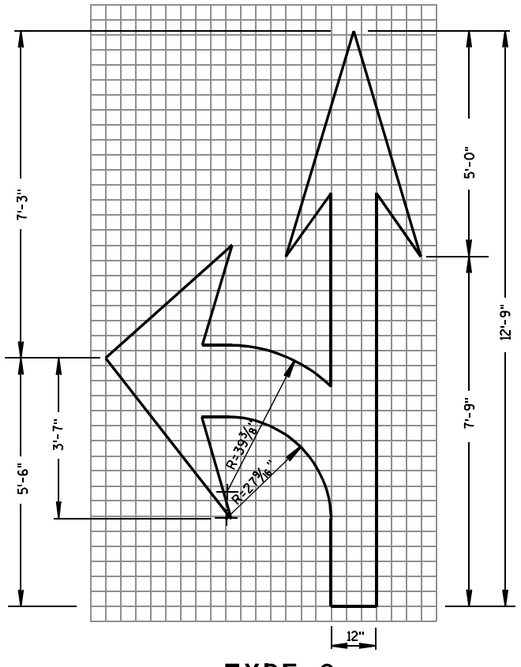

TYPE 3

PAVEMENT MARKING ARROWS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

7/1/11 — DATE

/S/ Thomas N. Nothdurft — STATE TRAFFIC ENGINEER

FHWA

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S.D.D. 15 C 7-12c

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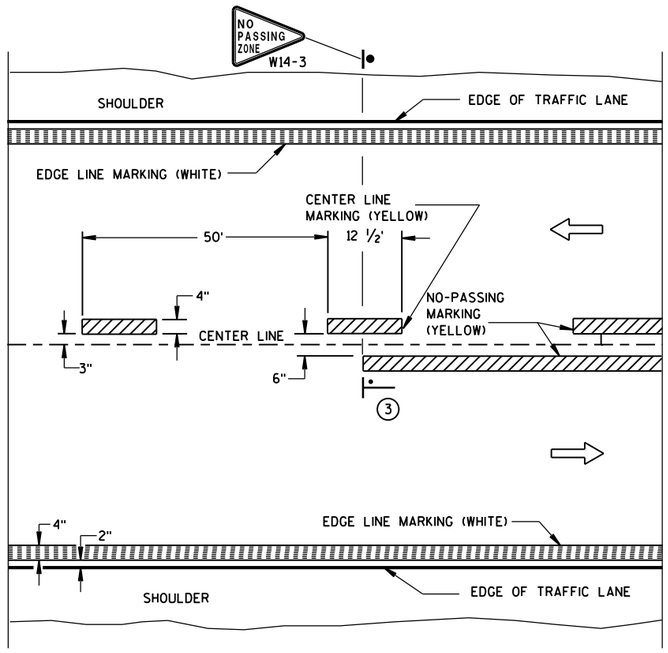
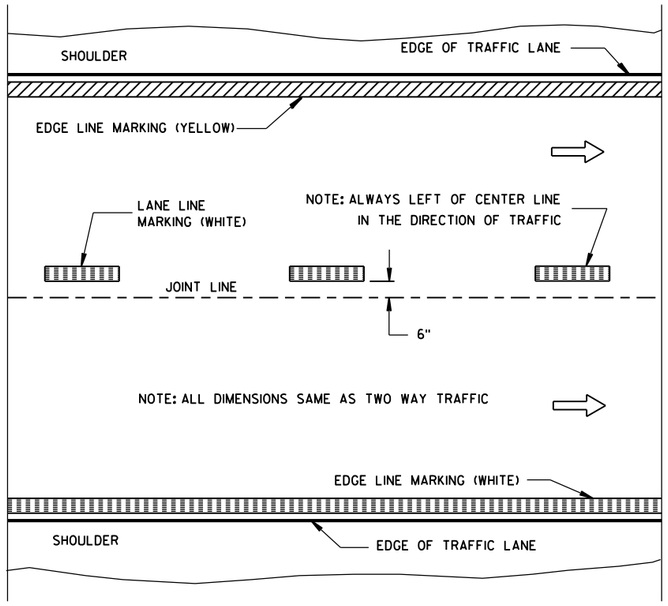
S.D.D. 15 C 7-12c

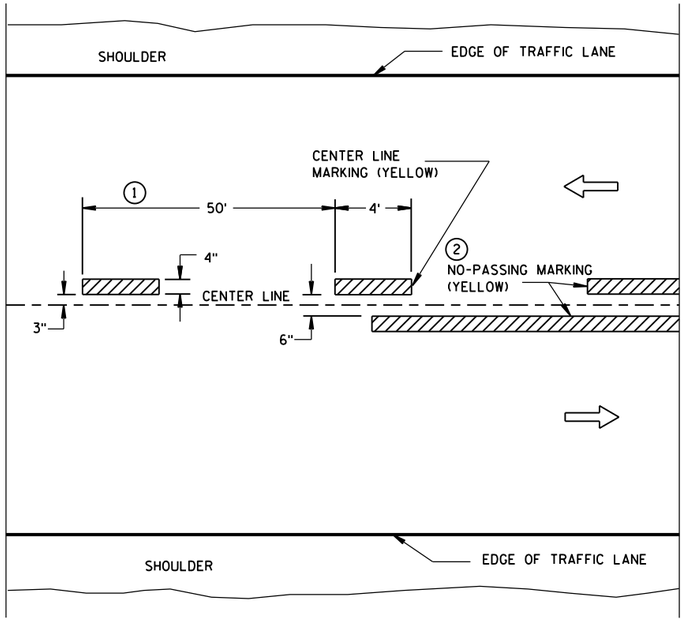


TWO WAY TRAFFIC

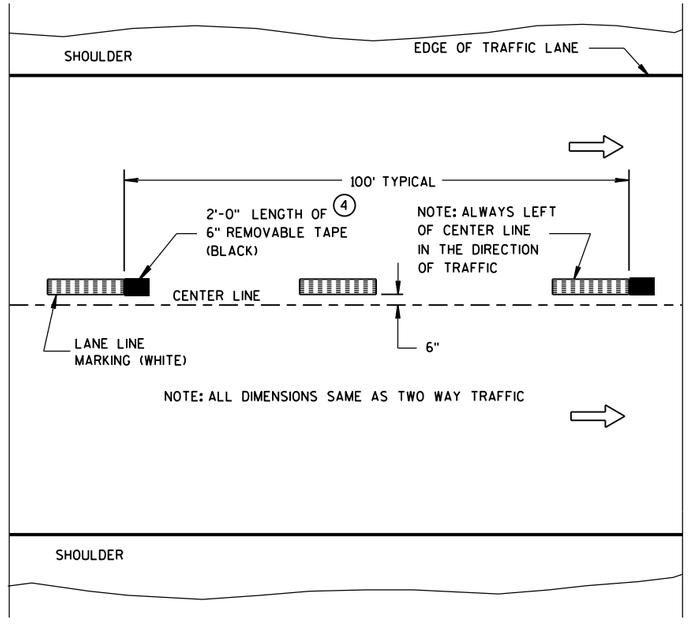


ONE WAY TRAFFIC

PERMANENT PAVEMENT MARKING



TWO WAY TRAFFIC



ONE WAY TRAFFIC

TEMPORARY (INTERMEDIATE) PAVEMENT MARKING

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

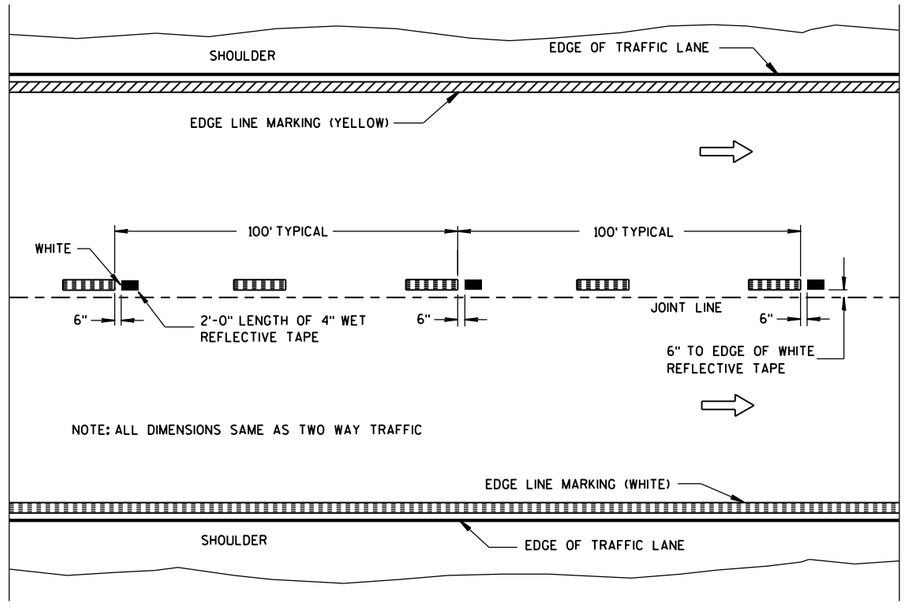
GENERAL NOTES

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

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

NOTE

ARROW SYMBOL (⇨) SHOWS DIRECTION OF TRAVEL



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

LEGEND

"T" MARKING

POST MOUNTED SIGN

PAVEMENT MARKING (MAINLINE)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
5-13-2013 DATE
/S/ Travis Feltes STATE TRAFFIC E
FHWA

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

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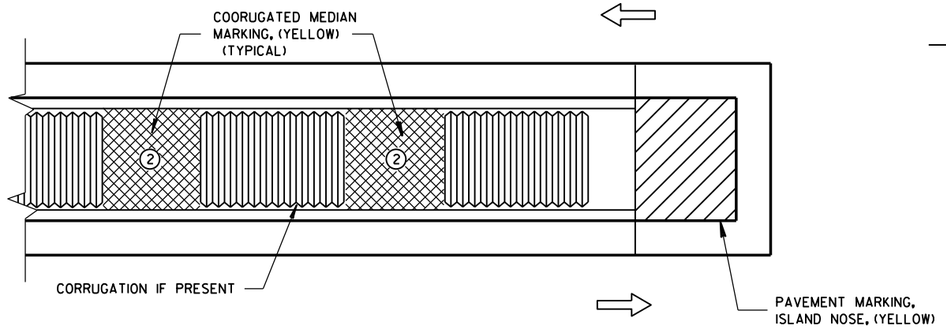
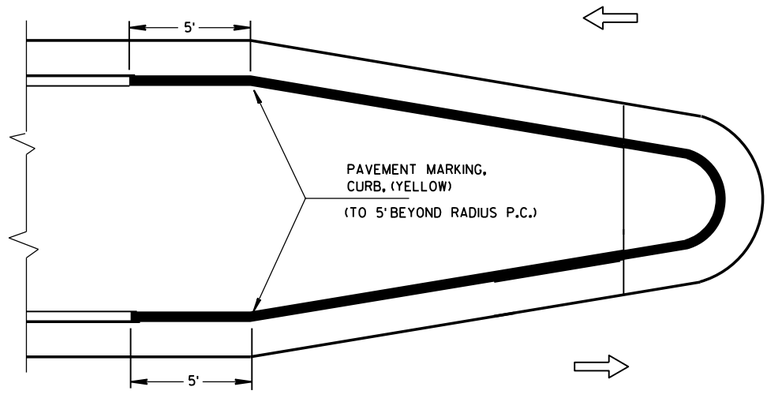
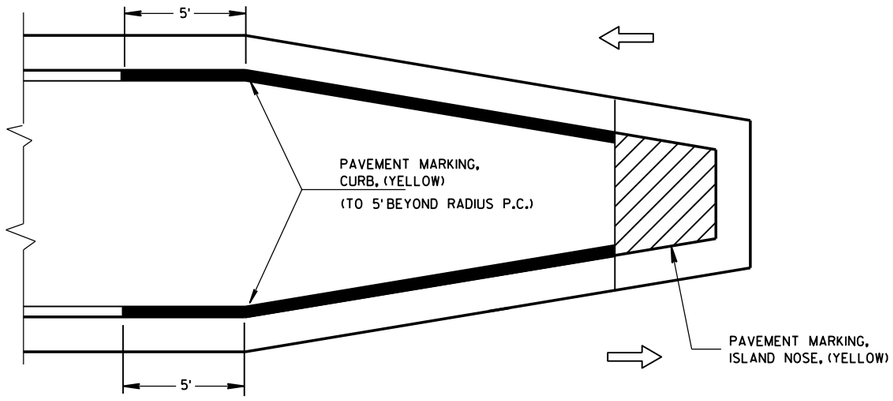
S.D.D. 15 C 8-16a



MEDIAN ISLAND WITH SQUARE BLUNT NOSE

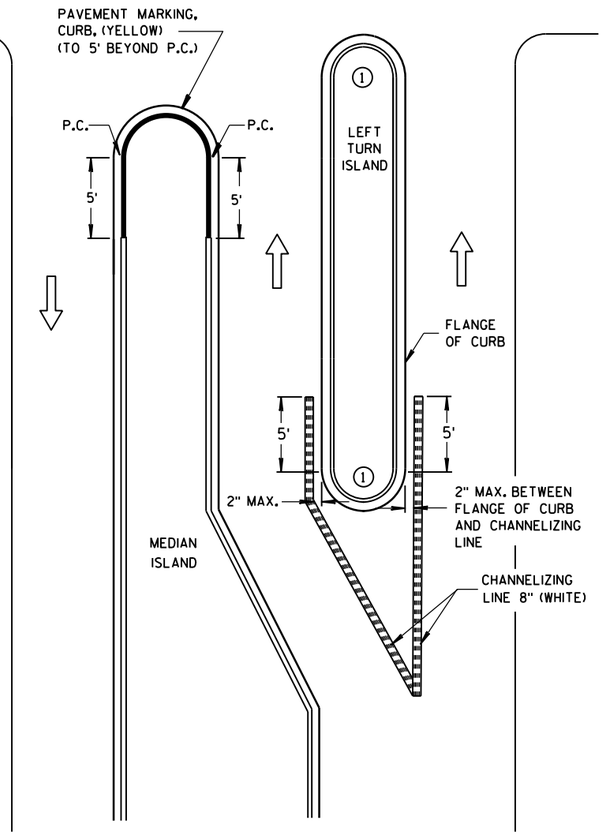


MEDIAN ISLAND WITH ROUND BLUNT NOSE



MEDIAN ISLAND WITH SLOPED NOSE

TYPICAL PLACEMENT OF PAVEMENT MARKING ON MEDIAN ISLANDS

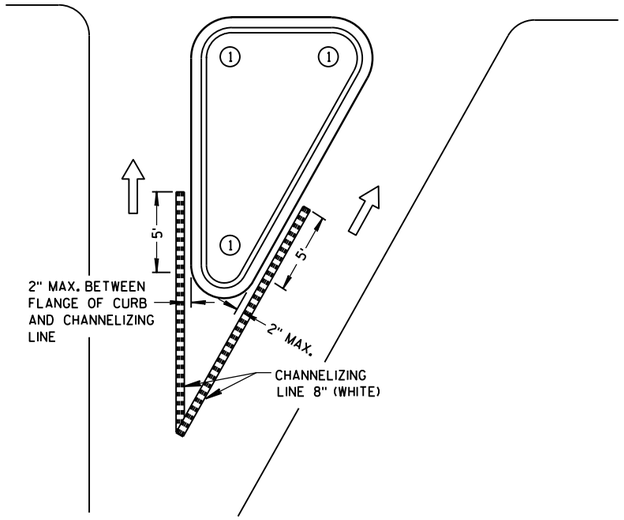


LEFT TURN & MEDIAN ISLAND

GENERAL NOTES

1. DO NOT MARK CURB NOSES THAT SEPARATE LANES OF TRAFFIC TRAVELING IN THE SAME DIRECTION.

2. WHEN CONCRETE CORRUGATED MEDIAN IS CONSTRUCTED TO SEPARATE TRAFFIC OPERATING IN THE OPPOSING DIRECTION YELLOW PAVEMENT MARKING SHALL BE APPLIED TO THE FLAT PORTION OF THE CONCRETE CORRUGATED MEDIAN. THE ITEM OF PAVEMENT MARKING, CONCRETE CORRUGATED MEDIAN, WILL BE MEASURED IN PLACE AND AND ACCEPTED IN ACCORDANCE WITH THE CONTRACT AND PAID FOR AT THE CONTRACT UNIT PRICE PER SQUARE FOOT.



RIGHT TURN ISLAND

LEGEND

- ISLAND NOSE MARKING
- CURB MARKING
- CORRUGATED MEDIAN MARKING
- DIRECTION OF TRAVEL

PAVEMENT MARKING
(ISLANDS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

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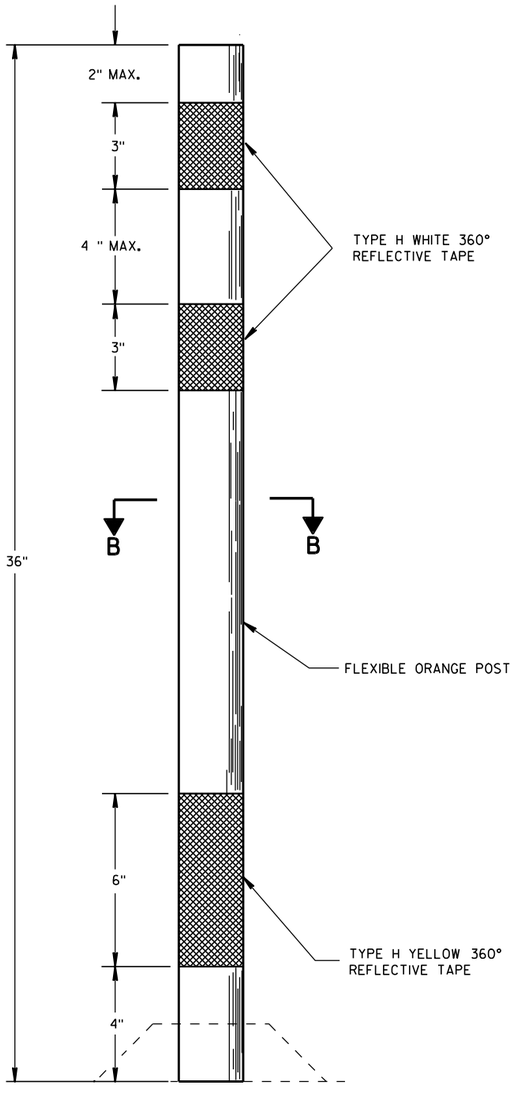
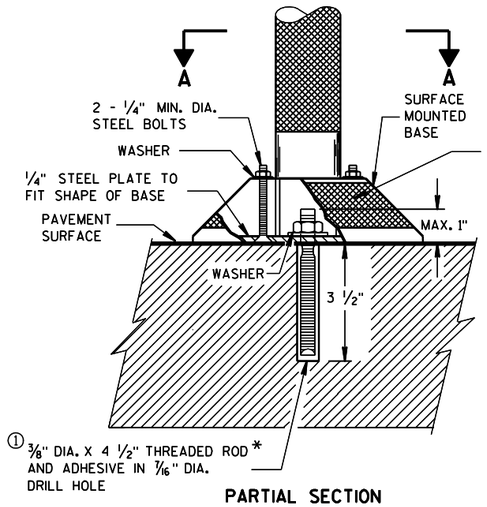
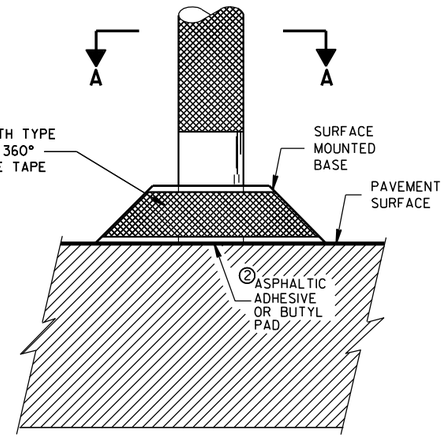


FLEXIBLE TUBULAR MARKER POST



PARTIAL SECTION TO SHOW BOLTS



POST BASES ON NEW OR EXISTING PAVEMENT

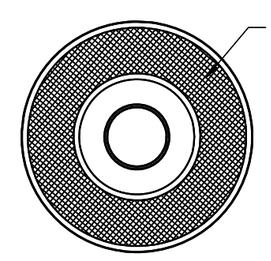
GENERAL NOTES

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

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

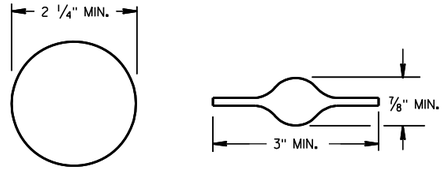
① THREADED ROD SHALL BE MACHINED DOWN TO 0.280 INCH DIA. 1 1/4 INCHES FROM THE TOP.

② THE ASPHALTIC ADHESIVE OR BUTYL PAD FURNISHED SHALL BE IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS.



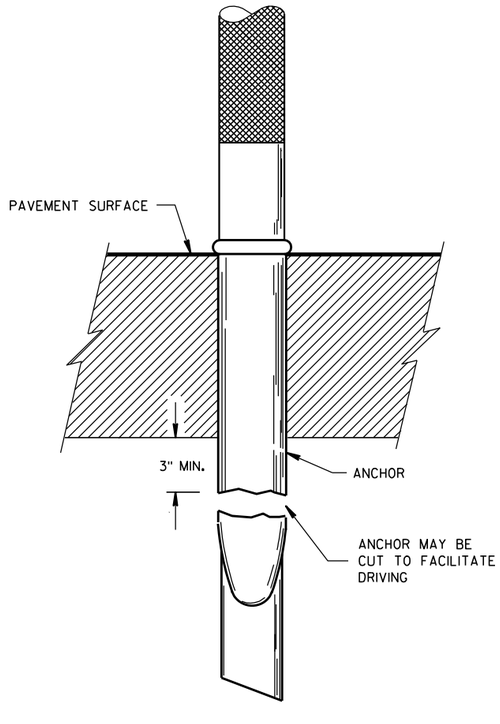
SECTION A-A

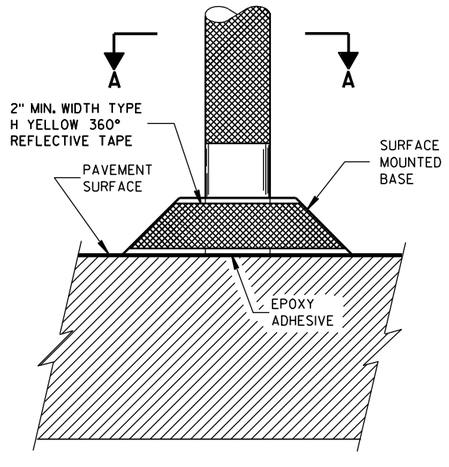
SURFACE MOUNTED BASE



SECTION B-B

ALTERNATIVE SHAPES





POST ANCHOR AND BASE ON PAVEMENT WHICH WILL BE REMOVED

FLEXIBLE TUBULAR MARKER POST, ANCHOR & BASES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

2/17/94 DATE

/S/ Chester J. [illegible] DIRECTOR, OFFICE O

FHWA

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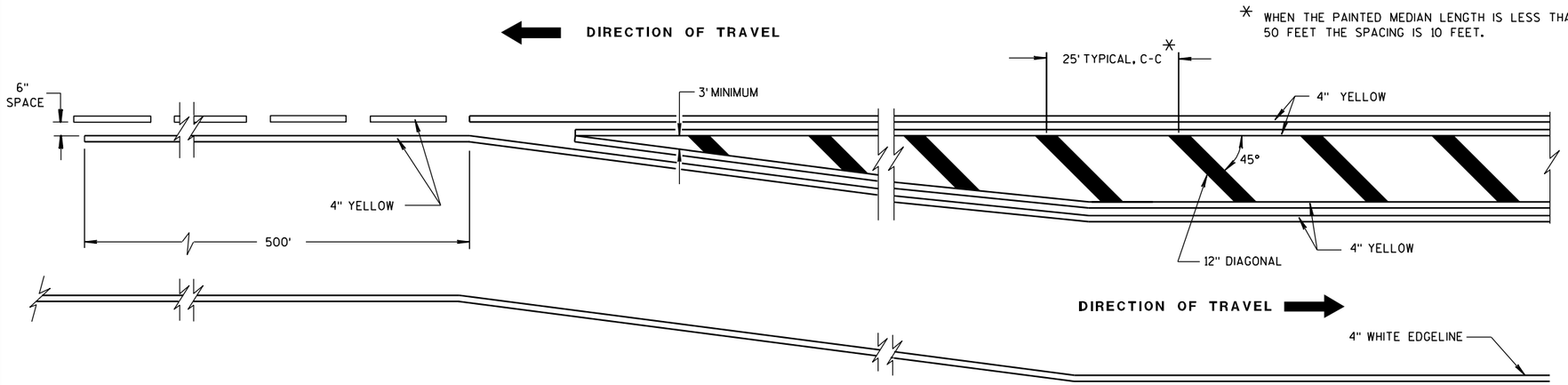
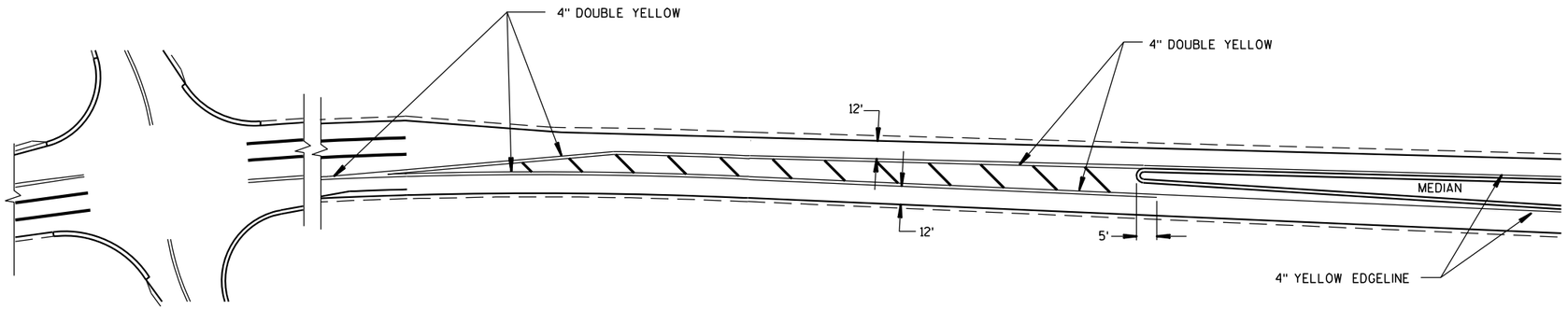
S.D.D. 15 C 11-5



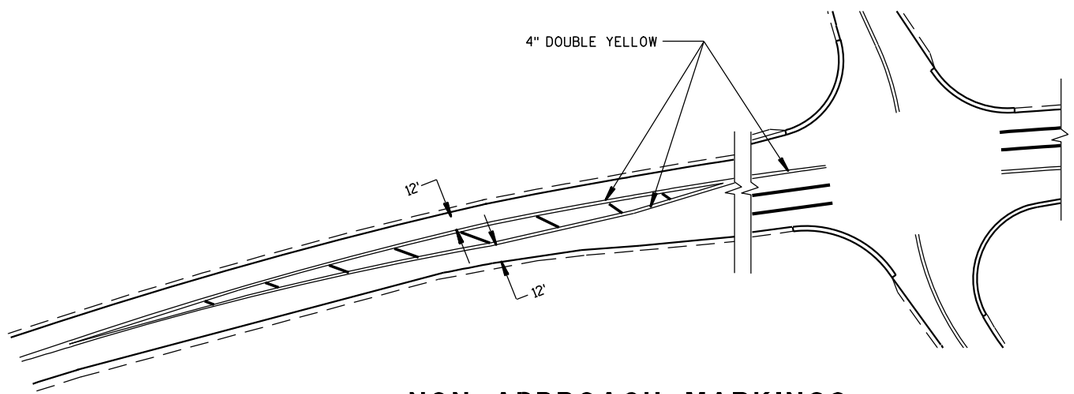
MEDIAN ISLAND DETAIL

GENERAL NOTE

DIAGONALS ARE OPTIONAL WHEN PAINTED ISLAND IS LESS THAN 6 FEET AT WIDEST POINT.



APPROACH MARKINGS FOR OTHER MEDIAN TYPES



NON APPROACH MARKINGS

MEDIAN ISLAND MARKING		
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION		
APPROVED 2-5-09 DATE	/S/ Thomas N. Nothohm STATE TRAFFIC ENGINEER	IGN
FHWA		

GENERAL NOTES

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

BENDING DIMENSIONS FOR REINFORCING BARS ARE OUT TO OUT.

USE 3" CLEAR FOR ALL REINFORCEMENT UNLESS NOTED OTHERWISE.

SIGN SUPPORTS SHALL BE LOCATED NORMAL TO ROADWAY.

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

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

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

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

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

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

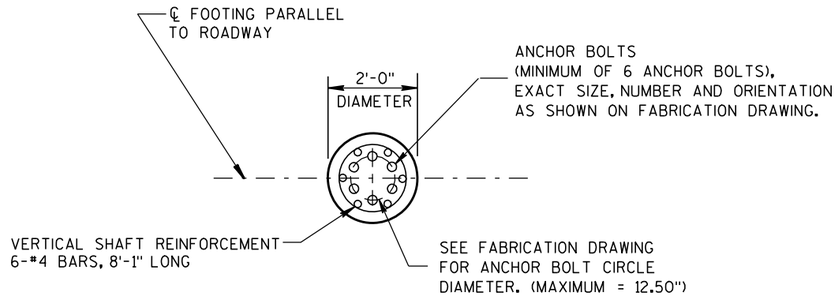
IF THE DRILLED HOLE CONTAINS STANDING WATER, THE CONCRETE SHALL BE PLACED USING A TREMIE TO DISPLACE THE WATER.

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

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

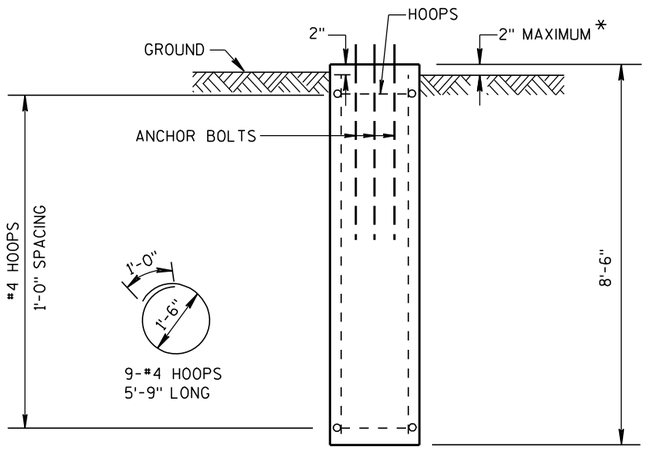
CONCRETE MASONRY	fc=3,500 p.s.i.
HIGH STRENGTH BAR STEEL REINFORCEMENT, GRADE 60	fy=60,000 p.s.i.
ANCHOR BOLTS	AASHTO M314 GRADE 55

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



PLAN VIEW

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



ELEVATION VIEW

CONCRETE - 1.0 C.Y. PER FOOTING
H.S. REINFORCEMENT - 67 LBS. PER FOOTING

24" DIAMETER CANTILEVER OVERHEAD SIGN SUPPORT BASE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

4-17-09 DATE

/S/ Thomas N. Nothnagel STATE TRAFFIC ENGINEER

SIGN

FHWA

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S.D.D. 15 C 22-2

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S.D.D. 15 C 22-2

GENERAL NOTES

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

BENDING DIMENSIONS FOR REINFORCING BARS ARE OUT TO OUT.

USE 3" CLEAR FOR ALL REINFORCEMENT UNLESS NOTED OTHERWISE.

SIGN SUPPORTS SHALL BE LOCATED NORMAL TO ROADWAY.

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

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

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

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

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

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

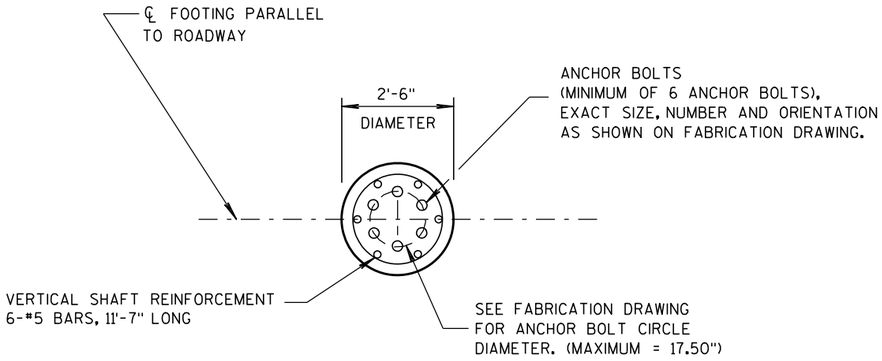
IF THE DRILLED HOLE CONTAINS STANDING WATER, THE CONCRETE SHALL BE PLACED USING A TREMIE TO DISPLACE THE WATER.

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

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

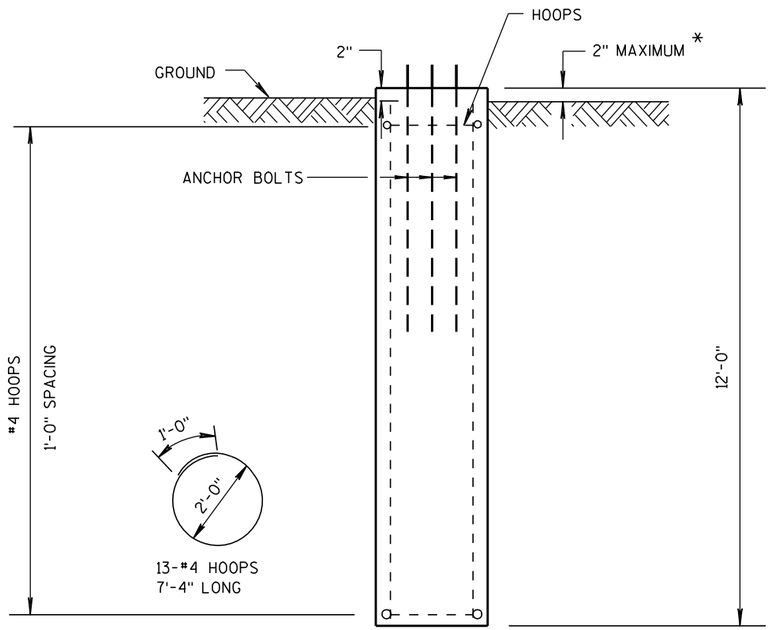
CONCRETE MASONRY	fc=3,500 p.s.i.
HIGH STRENGTH BAR STEEL REINFORCEMENT, GRADE 60	fy=60,000 p.s.i.
ANCHOR BOLTS	AASHTO M314 GRADE 55

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



PLAN VIEW

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



ELEVATION VIEW

CONCRETE - 2.2 C.Y. PER FOOTING
H.S. REINFORCEMENT - 136 LBS. PER FOOTING

30" DIAMETER CANTILEVER OVERHEAD SIGN SUPPORT BASE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
4/17/2009 DATE
/S/ Thomas N. N[illegible] STATE TRAFFIC ENGINEER
[illegible]SIGN
FHWA

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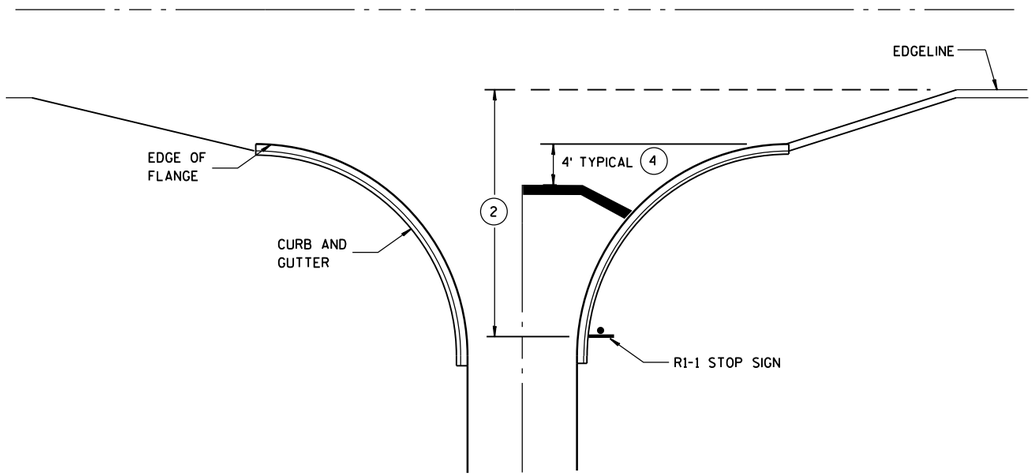
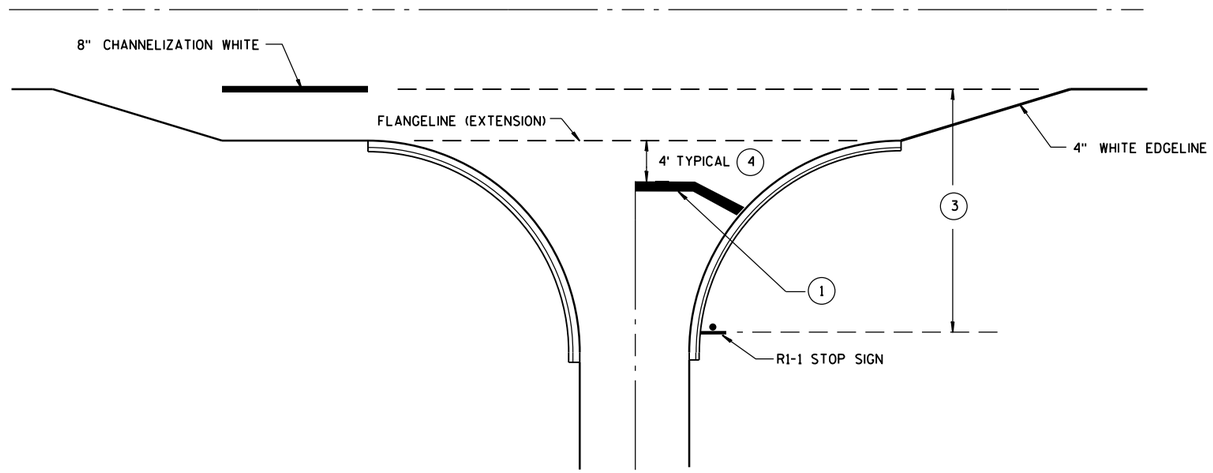
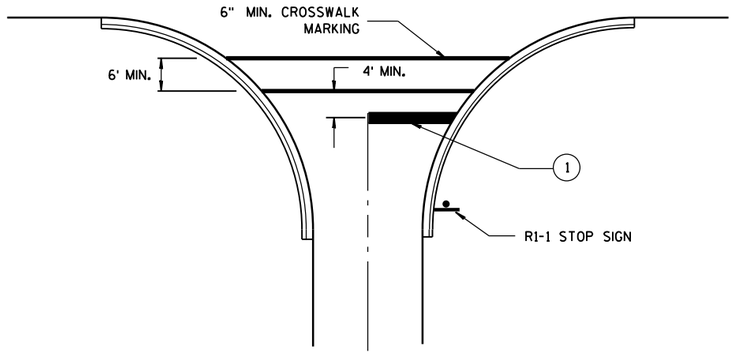
S.D.D. 15 C 23-2



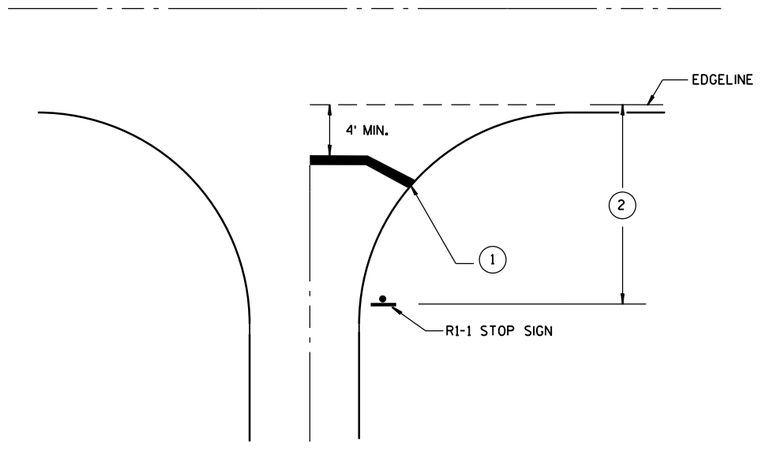
TYPICAL STOP LINE PAVEMENT MARKING WITH CURB AND GUTTER



TYPICAL STOP LINE PAVEMENT MARKING FOR SIDEROADS WITH RIGHT TURN LANE



TYPICAL STOP LINE PAVEMENT MARKING FOR SIDEROADS WITH CROSSWALK MARKING



TYPICAL STOP LINE PAVEMENT MARKING WITHOUT CURB AND GUTTER

GENERAL NOTES

1. 18-INCH STOP LINES MAY BE DELETED OR ADDED BY THE PROJECT ENGINEER BASED ON VISIBILITY AND SIGHT LINES.
2. IF STOP SIGN IS LESS THAN OR EQUAL TO 40 FEET FROM THE EDGELINE THAN NO STOP LINE IS REQUIRED.
3. IF STOP SIGN IS LESS THAN OR EQUAL TO 30 FEET FROM THE FLANGELINE EXTENSION THAN NO STOP LINE IS REQUIRED.
4. MOVE CLOSER TO EDGE OF TRAVEL LANE AS NEEDED FOR VISIBILITY AND SIGHT LINES.

STOP LINE AND CROSSWALK PAVEMENT MARKING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

4/30/2013
DATE

/S/ Travis Feltes
STATE TRAFFIC EI

FHWA

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S.D.D. 15 C 33-1

LEGEND

- SIGN ON PERMANENT SUPPORT
- TRAFFIC CONTROL DRUM WITH TYPE "C" STEADY BURN LIGHT
- TRAFFIC CONTROL DRUM
- FLASHING ARROW BOARD
- REMOVING PAVEMENT MARKING
- CONCRETE BARRIER TEMPORARY PRECAST
- DIRECTION OF TRAFFIC
- WORK AREA

W057-52
36"x24"

INSTALL ON EACH APPROACH AT THE CLOSEST INTERSECTION WITH A STATE OR COUNTY TRUNK HIGHWAY, OR AS DIRECTED BY THE ENGINEER. WIDTH ON SIGN TO BE APPROX. 1 FOOT LESS THAN AVAILABLE WIDTH (OMIT IF AVAILABLE WIDTH IS MORE THAN 16 FEET).

LOCATED 500 FEET IN ADVANCE OF R2-1 SIGN AND 500 FEET BEYOND THE "ROAD WORK 1 MILE" SIGN.

R2-1
48"x60"
(BLACK AND WHITE)

IF THE REGULATORY SPEED HAS BEEN REDUCED, A SPEED LIMIT SIGN SHALL BE LOCATED 1500 FEET BEYOND THE END OF THE ACCELERATION LANE OF EACH ENTRANCE RAMP. THERE SHOULD BE A SPEED LIMIT SIGN INCORPORATED A MINIMUM OF EVERY 2 OR 3 MILES.

* INCLUDE RESUME SPEED LIMIT SIGN A MINIMUM OF 200 FEET (500 FEET DESIRABLE) AFTER END ROAD WORK SIGNS.

GENERAL NOTES

THIS LANE CLOSURE IS TYPICAL FOR CLOSING RIGHT LANE - REVERSE FOR CLOSING LEFT LANE.

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

THE SPACING BETWEEN SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND TO PROVIDE A MINIMUM OF 200 FEET (500 FEET DESIRABLE) CLEARANCE TO EXISTING SIGNS.

ALL SIGNS ARE 48"x48" UNLESS OTHERWISE NOTED.

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

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

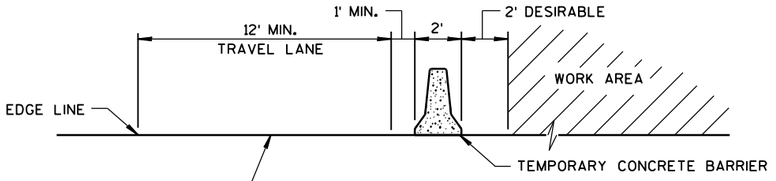
(1) CONSIDER ROADWAY GEOMETRICS WHEN LOCATING SIGNS AND ARROW BOARD SO THE DRIVER HAS A CLEAR VIEW OF THE ARROW BOARD AND LANE CLOSURE DRUMS FOR A MINIMUM 1500 FEET IN FRONT OF DRUM TAPER.

FOR A LANE CLOSURE THAT IS IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS, THE ADVANCED WARNING SIGNS MAY BE MOUNTED ON PORTABLE SUPPORTS.

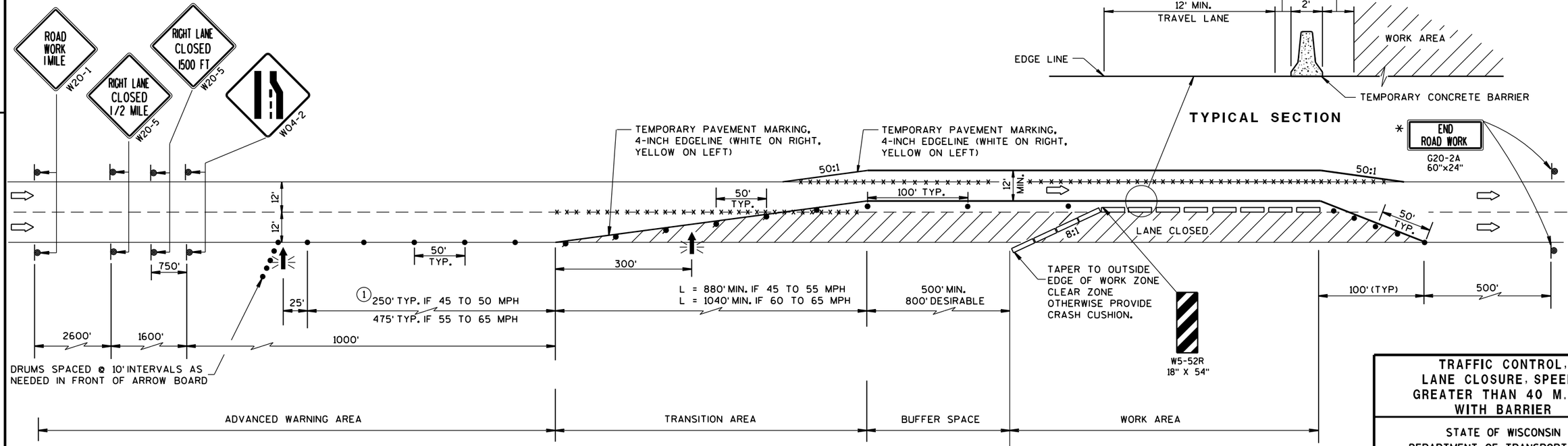
REMOVE PAVEMENT MARKINGS IF LANE CLOSURE IS TO BE IN PLACE FOR 4 OR MORE CONTINUOUS DAYS AND NIGHTS.

IF THE HORIZONTAL ALIGNMENT IS SUCH THAT A CURVE MAY REQUIRE ADDITIONAL DELINEATION, THE DEVICE SPACING MAY BE DECREASED TO 50 FEET.

ADJUSTMENTS IN BUFFER SPACE NEED TO BE INCORPORATED WHEN THE LANE CLOSURE OCCURS NEAR AN INTERCHANGE EXIT OR ENTRANCE RAMP OR INTERSECTION. THE LANE CLOSURE MUST TAKE PLACE FAR ENOUGH IN ADVANCE OF AN EXIT OR ENTRANCE RAMP TO STILL ALLOW FOR ADEQUATE BUFFER SPACE. THE MINIMUM LENGTH OF THE BUFFER SPACE BEFORE AN EXIT RAMP SHOULD BE 1/2 THE LENGTH OF THE TRANSITION AREA. THE ENTRANCE RAMP SHOULD BE FOLLOWED BY THE ORIGINAL BUFFER SPACE LENGTH OF 800 FEET DESIRABLE PRIOR TO ANOTHER TRAFFIC CONTROL CHANGE SUCH AS A CROSSOVER MANEUVER.



TYPICAL SECTION



TRAFFIC CONTROL, LANE CLOSURE, SPEEDS GREATER THAN 40 M.P.H. WITH BARRIER

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

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S.D.D. 15 D 3-2

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S.D.D. 15 D 3-2

LEGEND

TYPE III BARRICADE

TYPE III BARRICADE WITH ATTACHED SIGN

TRAFFIC CONTROL DRUM

SIGN ON PERMANENT SUPPORT

TYPE "A" WARNING LIGHT (FLASHING)

DIRECTION OF TRAFFIC

GENERAL NOTES

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

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

THE SPACING BETWEEN TRAFFIC CONTROL SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND SHOULD PROVIDE A 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 7 CONTINUOUS DAYS AND NIGHTS MAY BE MOUNTED ON PORTABLE SUPPORTS.

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

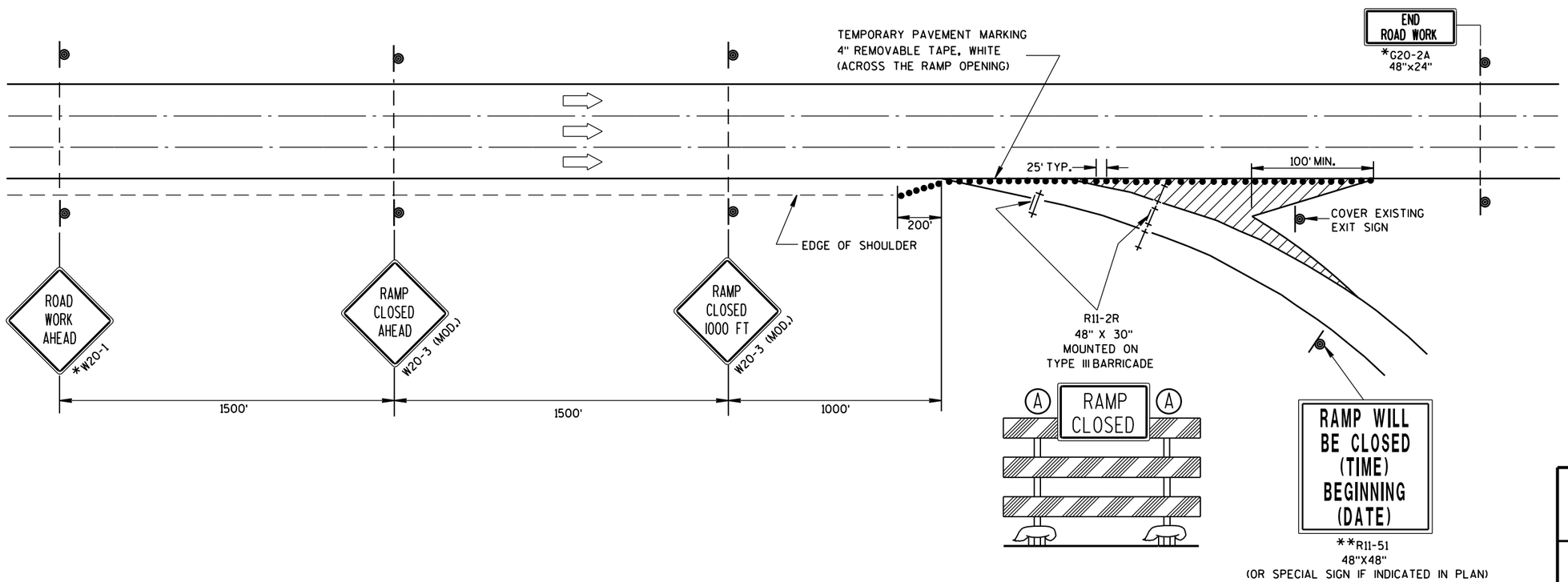
PLACE TEMPORARY PAVEMENT MARKING, REMOVABLE TAPE IF RAMP CLOSURE IS TO BE IN PLACE FOR 4 OR MORE CONTINUOUS DAYS AND NIGHTS.

WORK AREAS WITH A DROPOFF ALONG THE EDGE OF AN OPEN TRAVEL LANE SHALL BE LEVELED WITH TEMPORARY FILL WHEN THE CONTRACTOR IS NOT WORKING ADJACENT TO THE TRAVEL LANE. DRUMS SHALL BE PLACED ENTIRELY OUTSIDE THE TRAVEL LANE, ALLOWING THE FULL UNOBSTRUCTED LANE WIDTH, WHEN THE WORK IS NOT IN PROGRESS.

WHERE MEDIAN BARRIER IS IN PLACE, SIGNS SHOWN ON LEFT SIDE OF ROADWAY MAY BE OMITTED FOR RIGHT SIDE RAMP CLOSURES OF LESS THAN 12-HOUR DURATION.

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

** PLACE "RAMP WILL BE CLOSED" SIGN 10 CALENDAR DAYS PRIOR TO CLOSURE OR AS DIRECTED BY THE ENGINEER. SEE WISCONSIN STANDARD SIGN PLATES FOR SIGN LAYOUT.



TRAFFIC CONTROL,
EXIT RAMP CLOSURE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

6

S.D.D. 15 D 16-2

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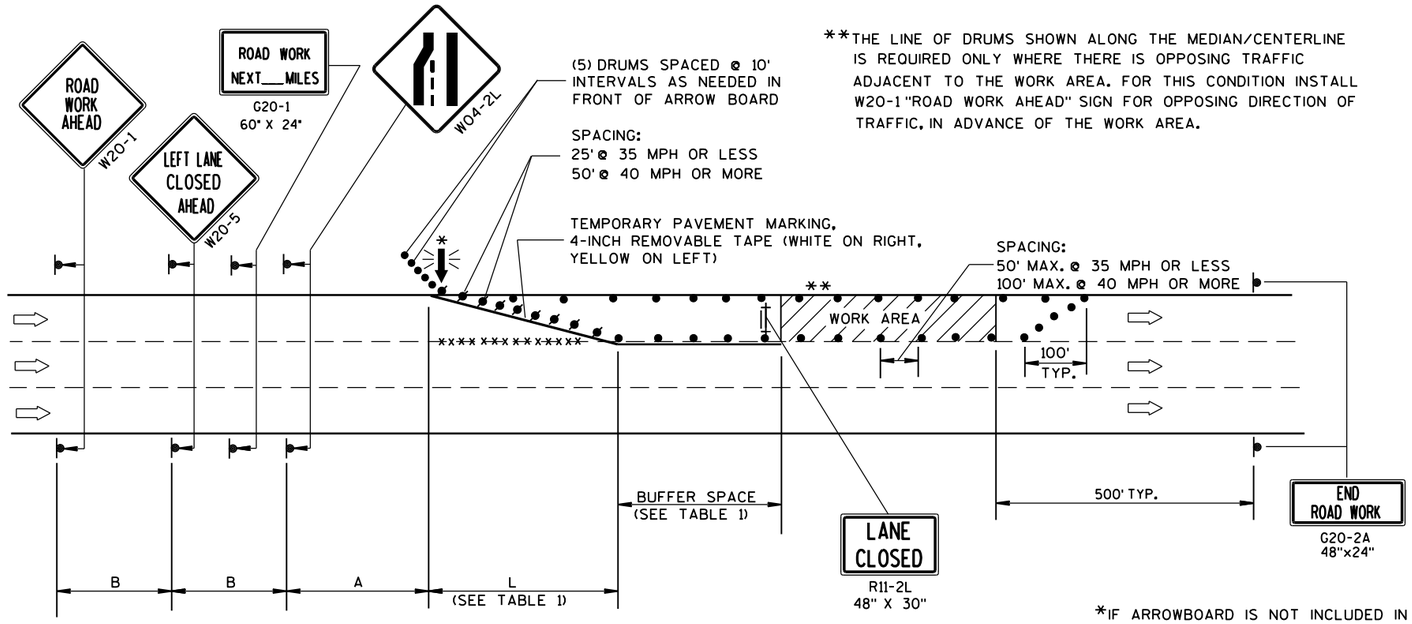
S.D.D. 15 D 16-2



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

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

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

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

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

W01-6
48"x24"

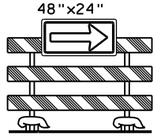


TABLE 1
TAPER AND BUFFER SPACE FOR 12' LANE WIDTH

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

FOR LANE WIDTH OTHER THAN 12':

L = WS AT 45 MPH OR GREATER

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

L = TAPER LENGTH IN FEET

S = NON-CONSTRUCTION SPEED LIMIT (MPH)

W = WIDTH OF LANE CLOSURE

LEGEND

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

GENERAL NOTES

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
Feb. 2015 — DATE
/S/ Travis Feltes — STATE TRAFFIC ENGINEER
FHWA

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S.D.D. 15 D 20-3

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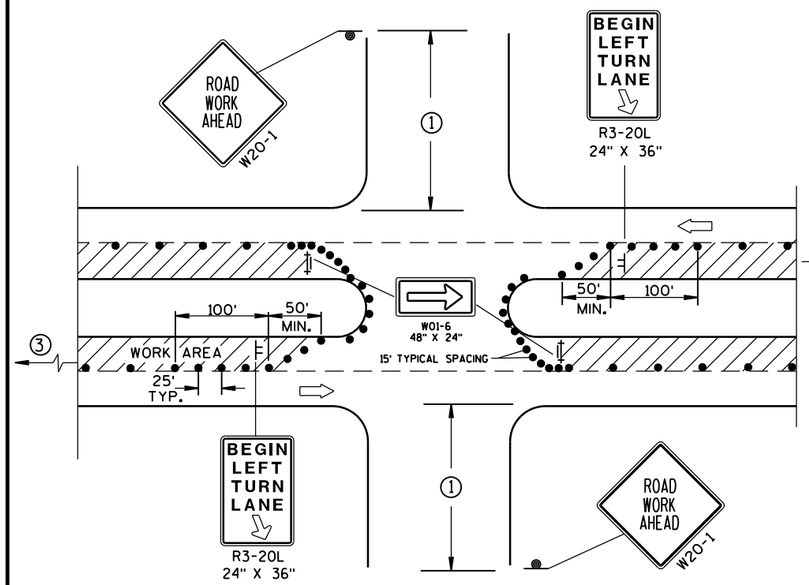
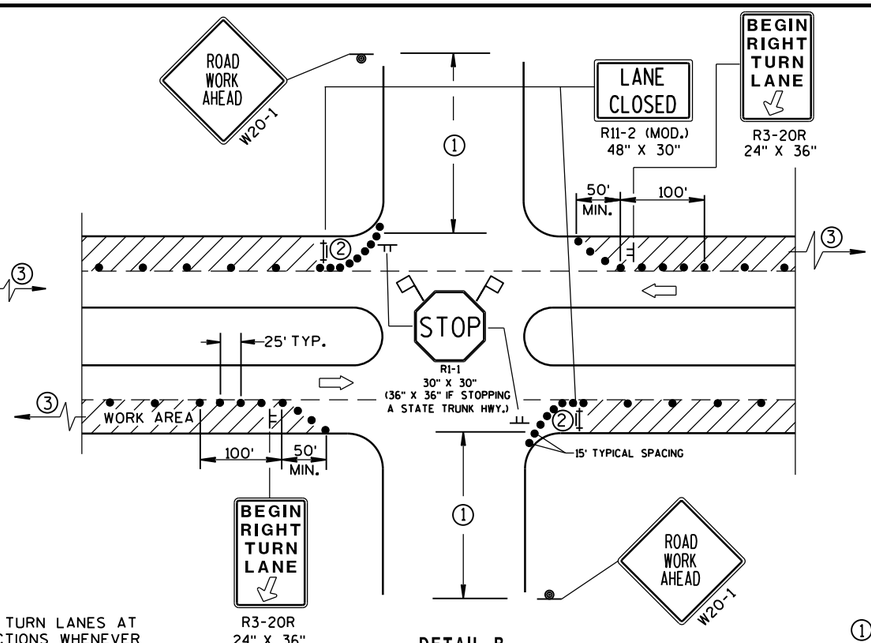
S.D.D. 15 D 20-3



DETAIL A

FOR LEFT LANE CLOSURE AT INTERSECTION OR MEDIAN OPENING

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



DETAIL B

FOR RIGHT LANE CLOSURE AT INTERSECTION

GENERAL NOTES

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

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

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

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

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

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

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

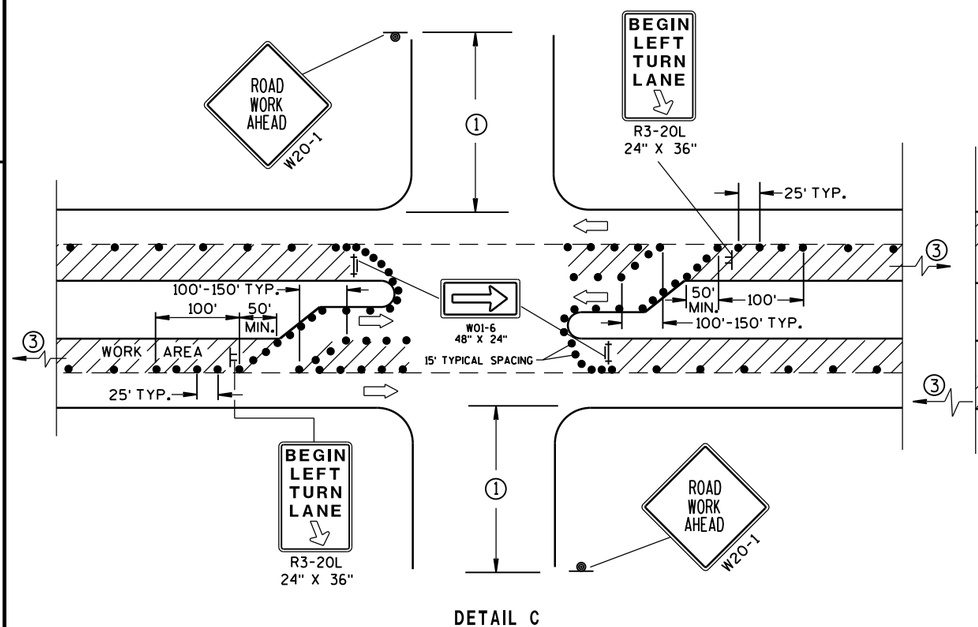
CHANNELIZING DEVICES PLACED ADJACENT TO WORK AREA SHALL BE PULLED BACK FROM THE TRAVEL LANE WHEN WORK IS NOT IN PROGRESS.

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

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

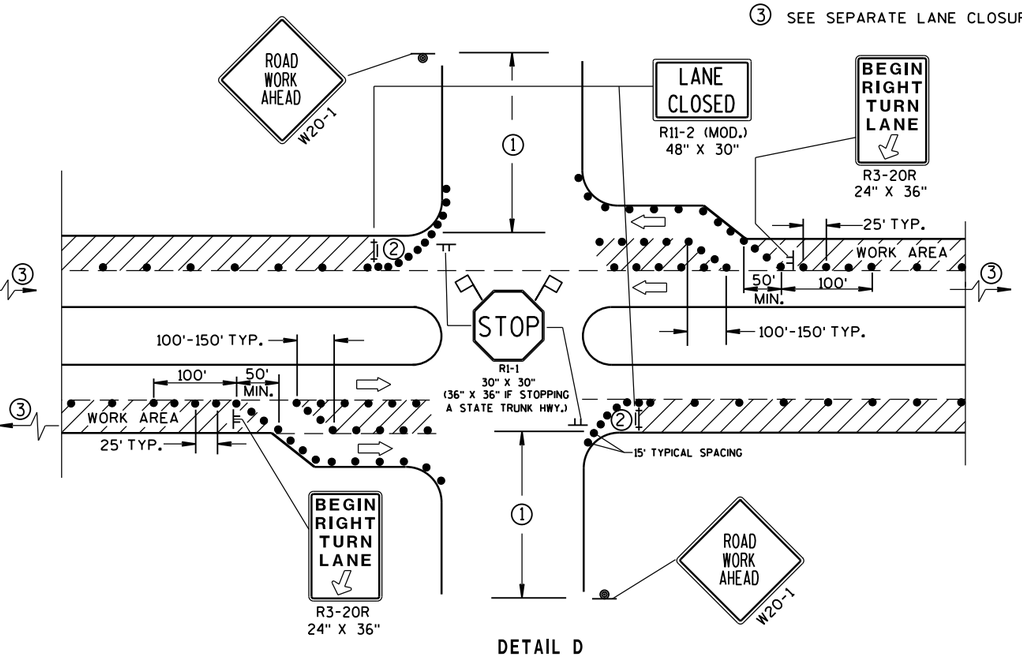
② ALSO USE BARRICADE AND 15-FOOT TYPICAL DRUM SPACING AT COMMERCIAL DRIVEWAYS.

③ SEE SEPARATE LANE CLOSURE DETAIL FOR ADDITIONAL TRAFFIC CONTROL.



DETAIL C

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



DETAIL D

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

LEGEND

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

TRAFFIC CONTROL, INTERSECTION WITHIN SINGLE LANE CLOSURE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
Nov. 2014 — DATE
/S/ Travis Feltes — STATE TRAFFIC ENGINEER
FHWA

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S.D.D. 15 D 21-3

LEGEND

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

GENERAL NOTES

THIS DETAIL IS TYPICAL FOR CLOSING THE RIGHT SHOULDER. FOR CLOSING THE LEFT SHOULDER, REVERSE THE TRAFFIC CONTROL.

THIS DETAIL MAY BE USED FOR DIVIDED ROADWAYS WITH ANY NUMBER OF TRAVEL LANES.

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

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

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

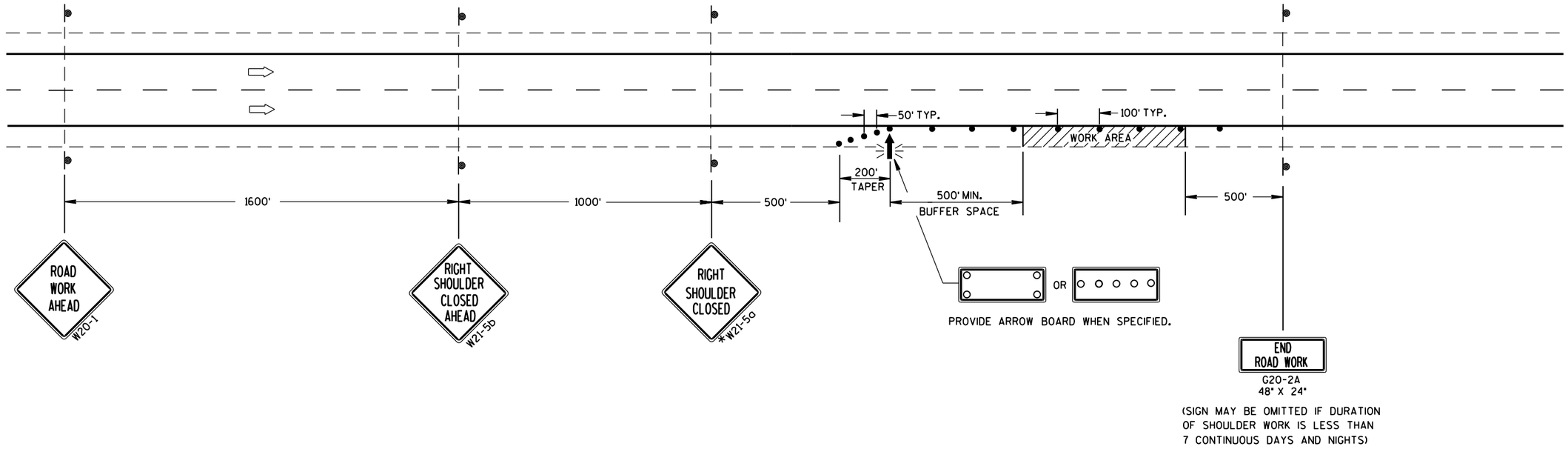
SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS MAY BE MOUNTED ON PORTABLE SUPPORTS.

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

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

WHEN A 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.

*FOR SHORT DURATION SHOULDER WORK OF LESS THAN ONE HOUR, THE W21-5a SIGN MAY BE OMITTED.



TRAFFIC CONTROL SHOULDER CLOSURE ON DIVIDED ROADWAY, SPEEDS GREATER THAN 40 MPH

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

8/2013 — DATE

/S/ Travis Feltes — STATE TRAFFIC ENGINEER

FHWA

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S.D.D. 15 D 27-2

GENERAL NOTES

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

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

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

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

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

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

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

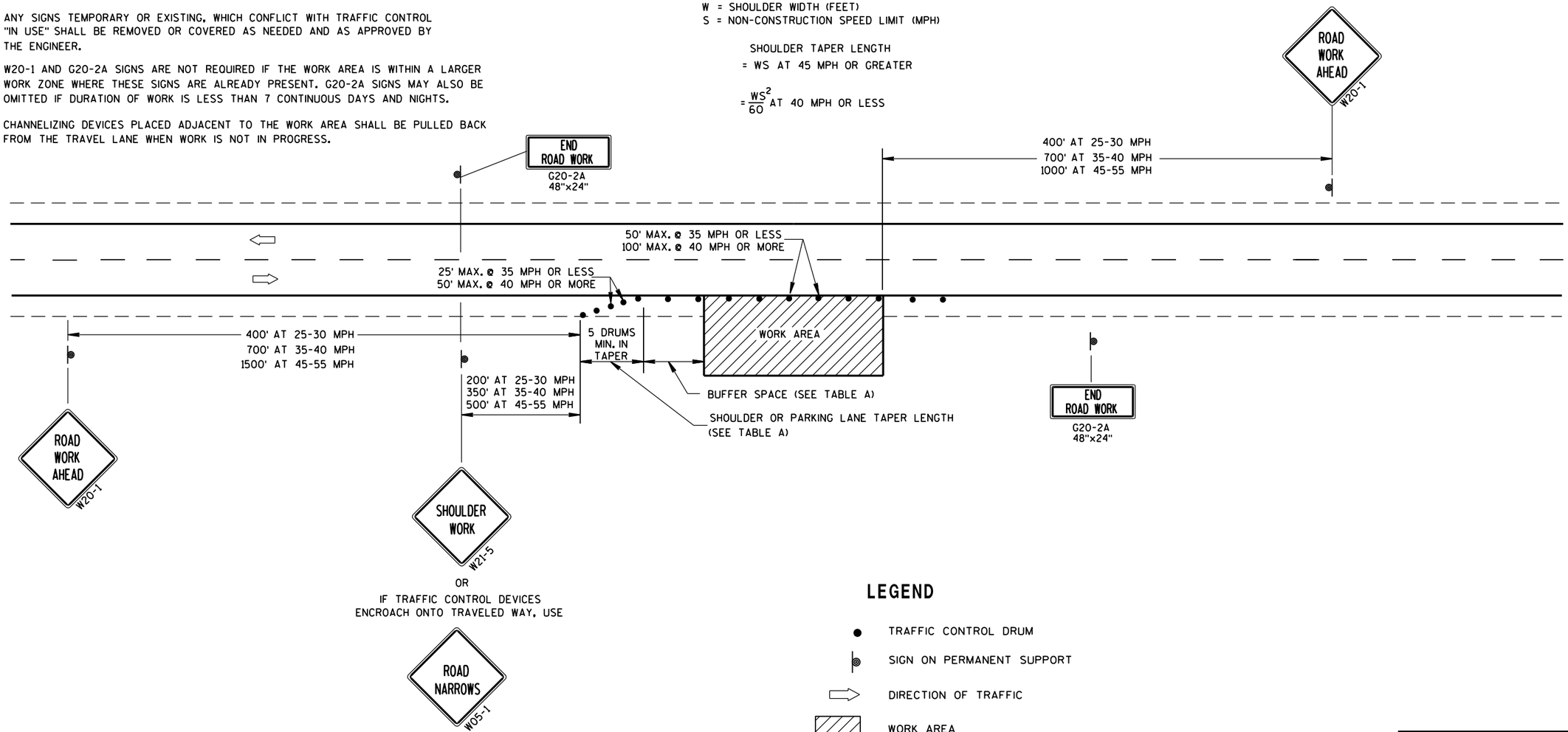
TABLE A

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

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

SHOULDER TAPER LENGTH
= WS AT 45 MPH OR GREATER

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



LEGEND

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

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

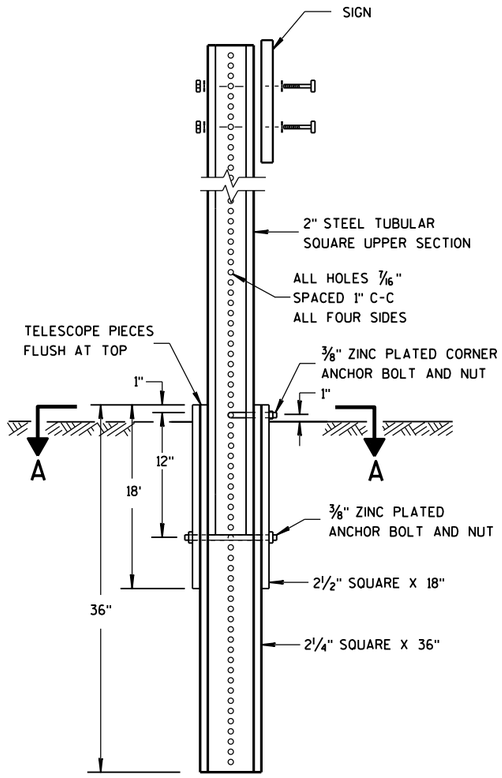
8/2013 DATE

/S/ Travis Feltes
STATE TRAFFIC ENGINEER

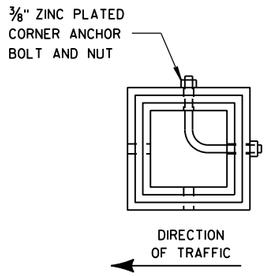
FHWA

6

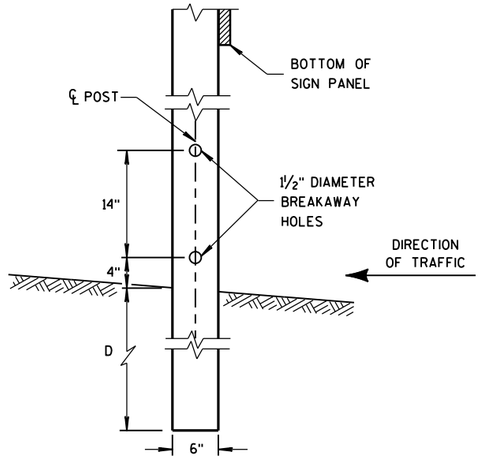
S.D.D. 15 D 28-2



DETAIL OF TUBULAR STEEL SIGN POST



SECTION A-A



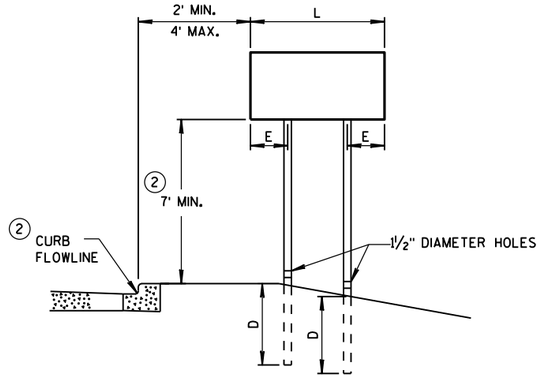
4"x6" WOOD POST MODIFICATION

GENERAL NOTES

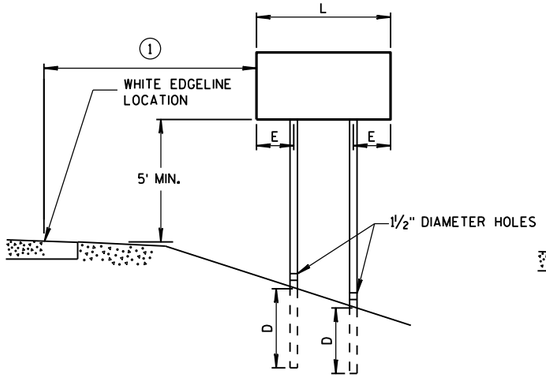
(1) 6 FEET FROM THE EDGE OF PAVEMENT (EDGE LINE LOCATION) UNLESS OTHERWISE DIRECTED BY THE PROJECT ENGINEER. LATERAL OFFSET SHOULD BE ADJUSTED TO AVOID THE DITCH FLOWLINE.

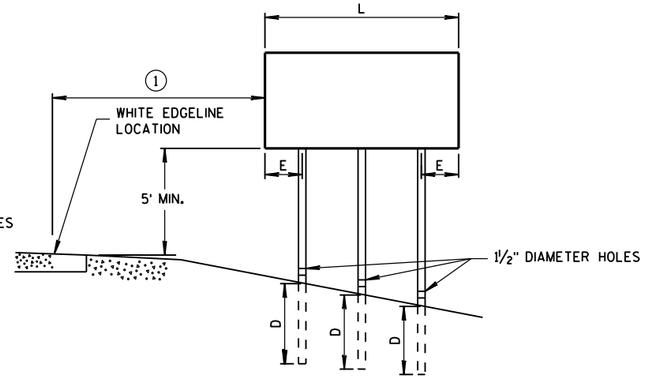
(2) THE EXISTENCE OF CURB AND GUTTER DOES NOT IN ITSELF MANDATE THE VERTICAL CLEARANCE ILLUSTRATED. THAT HEIGHT IS TYPICALLY MEASURED WHERE THERE IS SIDEWALK ADJACENT TO THE ROADWAY OR PARKING IS PERMITTED. IN THE ABSENCE OF SIDEWALK, VERTICAL CLEARANCE IS MEASURED FROM THE TOP OF THE CURB. IF NO SIDEWALK 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 FIXED MESSAGE SIGNS

STATE OF WISCONSIN DEPARTMENT OF TRANSPOR

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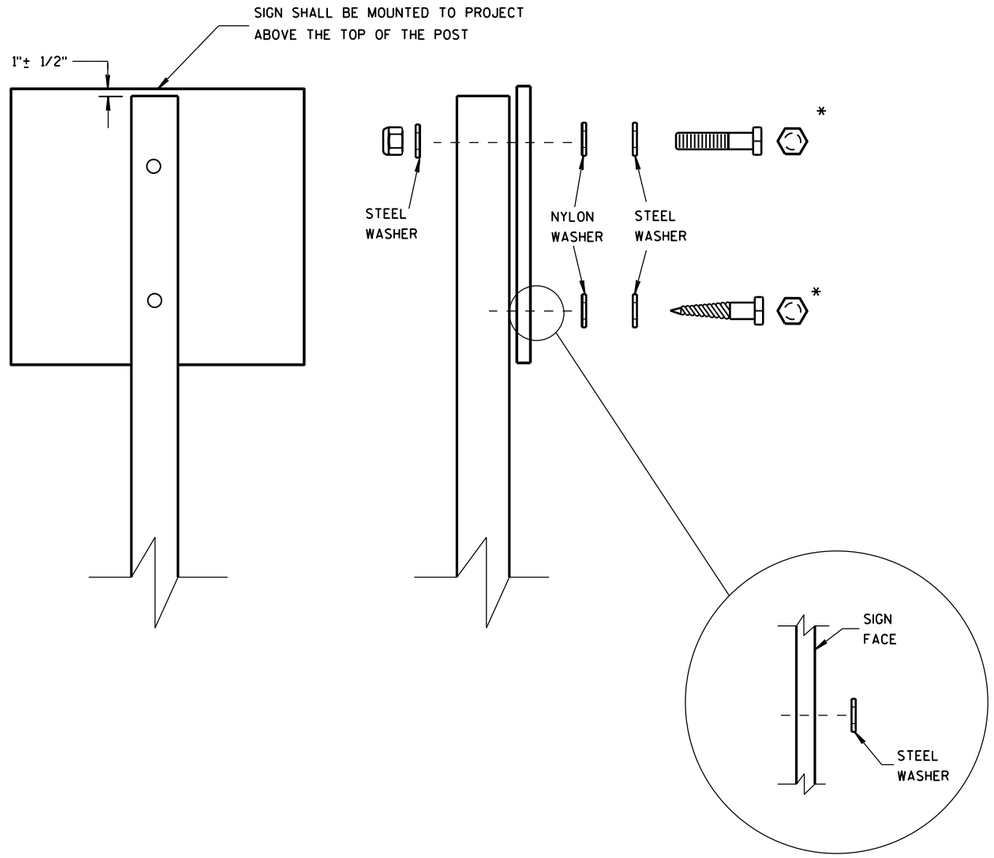
S.D.D. 15 D 38-1a



WASHER PLACEMENT WHEN SIGN HAS OTHER THAN TYPE H OR TYPE F FACE

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

A. HOT DIP GALVANIZED IN ACCORDANCE WITH ASTM DESIGNATION: A 153, CLASS D, OR SC 3

B. ELECTRO-GALVANIZED IN ACCORDANCE WITH ASTM DESIGNATION: B 633, TYPE III, SC 3

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

WOOD POSTS (4" x 4" or 4" x 6")

LAG SCREWS - 3/8" X 3"

MACHINE BOLTS - 5/16" X 6-1/2" OR 7" LENGTH W/ NUTS

SQUARE STEEL POSTS (2" x 2")

MACHINE BOLTS - 3/8" X 3-1/4" LENGTH W/ NUTS

RIVETS - 9/32" (6605-9-6) BULB-TITE, TRI-FOLD, ALUMINUM BODY/MANDREL O.D. FLANGE .720-.765 INCH, GRIP RANGE .042-.375 INCH

WASHERS (ALL POSTS) -

1-1/4" O.D. X 3/8" I.D. X 1/16" STEEL

1-1/4" O.D. X 3/8" I.D. X .080 NYLON FOR ALL TYPE H SIGNS

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

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S.D.D. 15 D 38-1b

S.D.D. 15 D 38-1b

ATTACHMENT OF SIGNS TO POSTS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

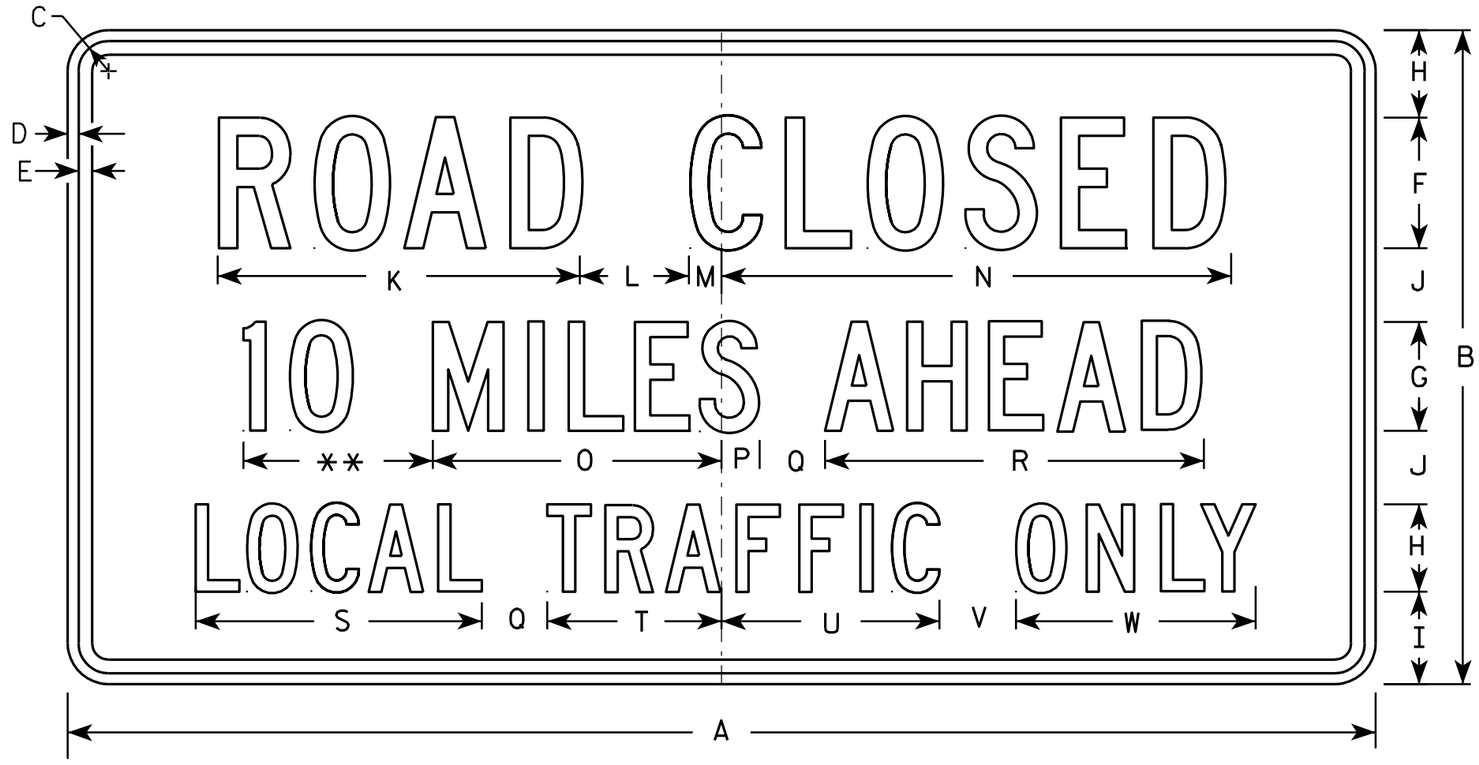
APPROVED

Feb. 2015
DATE

/S/ Travis Feltes
STATE TRAFFIC ENGINEER

FHWA

SIGN



R11-3

NOTES

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

** See Note 5

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

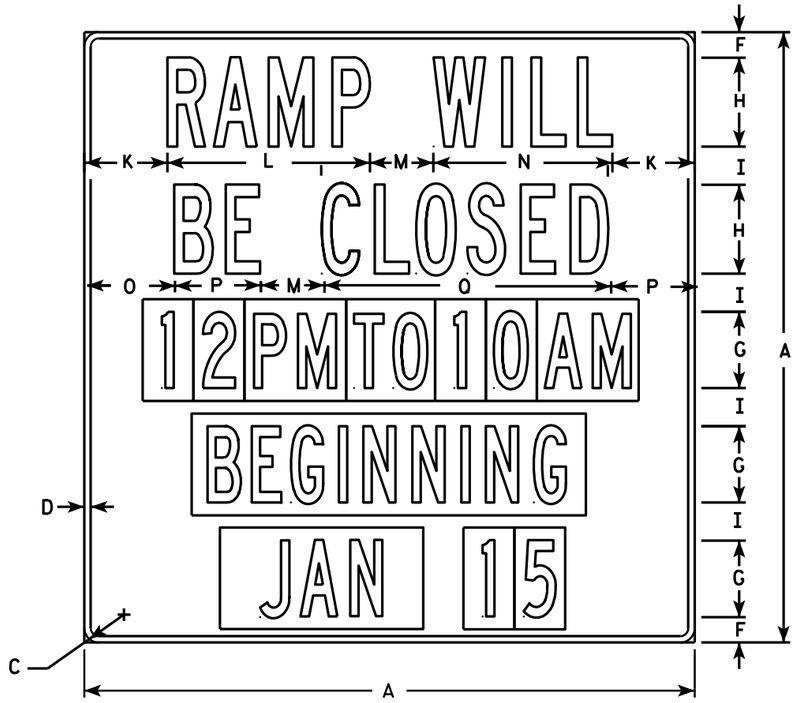
STANDARD SIGN
R11-3

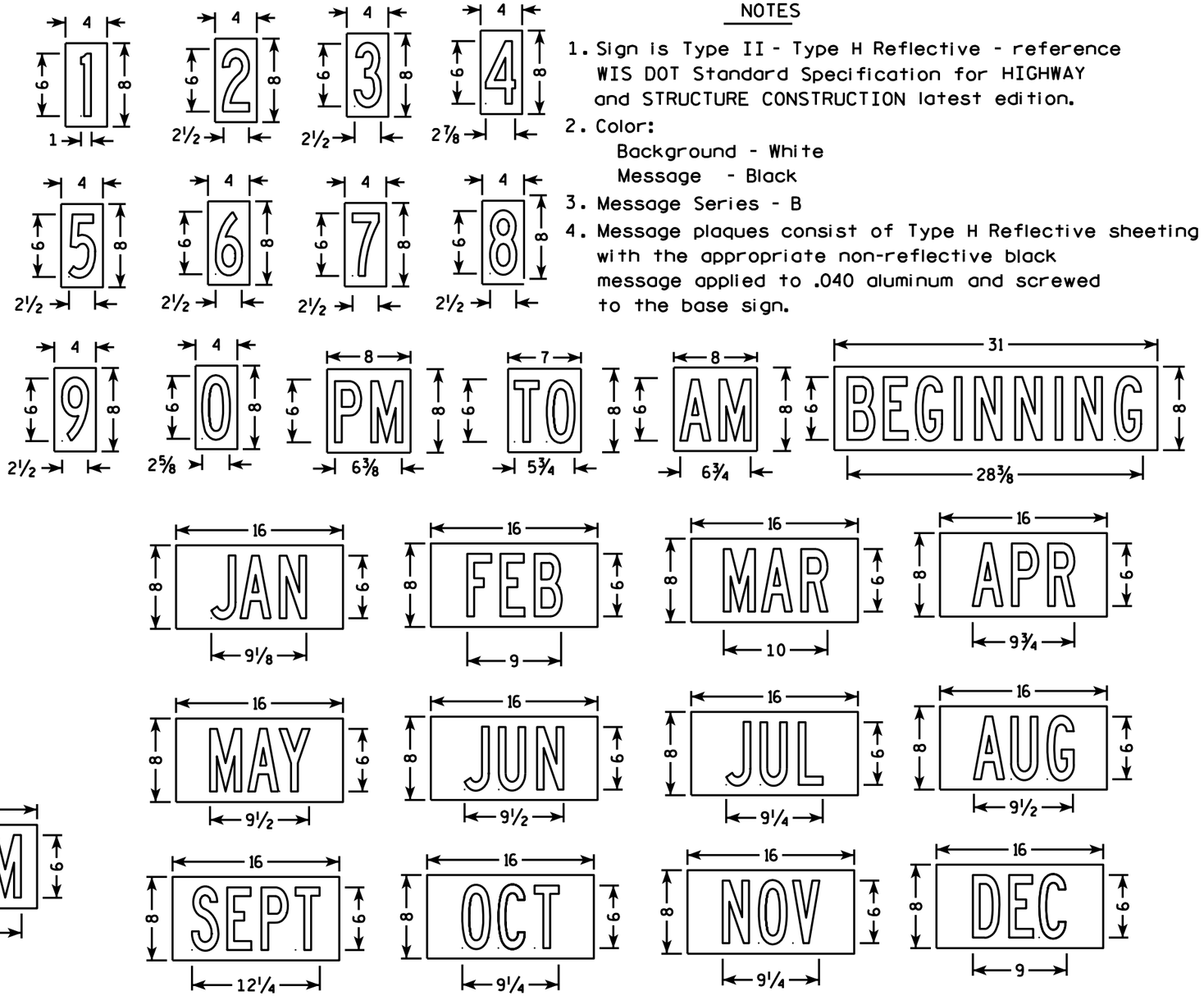
WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

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

PROJECT NO: | HWY: | COUNTY: | SHEET NO: 80 | E





NOTES

1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - White
   Message - Black
3. Message Series - B
4. Message plaques consist of Type H Reflective sheeting with the appropriate non-reflective black message applied to .040 aluminum and screwed to the base sign.

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	O	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	48		2 1/4	1/2		2	6	7	3		6 1/2	15 7/8	5	14 1/8	6 7/8	6 3/4	22 1/2										16.0
2M	48		2 1/4	1/2		2	6	7	3		6 1/2	15 7/8	5	14 1/8	6 7/8	6 3/4	22 1/2										16.0
3																											
4																											
5																											

STANDARD SIGN
R11-51

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 4/1/11 PLATE NO. R11-51.4

PROJECT NO:	HWY:	COUNTY:		SHEET NO: 81	E

FILE NAME : C:\Users\PROJECTS\tr_stdplate\R1151.DGN PLOT DATE : 01-APR-2011 14:07 PLOT BY : mscj9h PLOT NAME : PLOT SCALE : 11.918087:1.000000

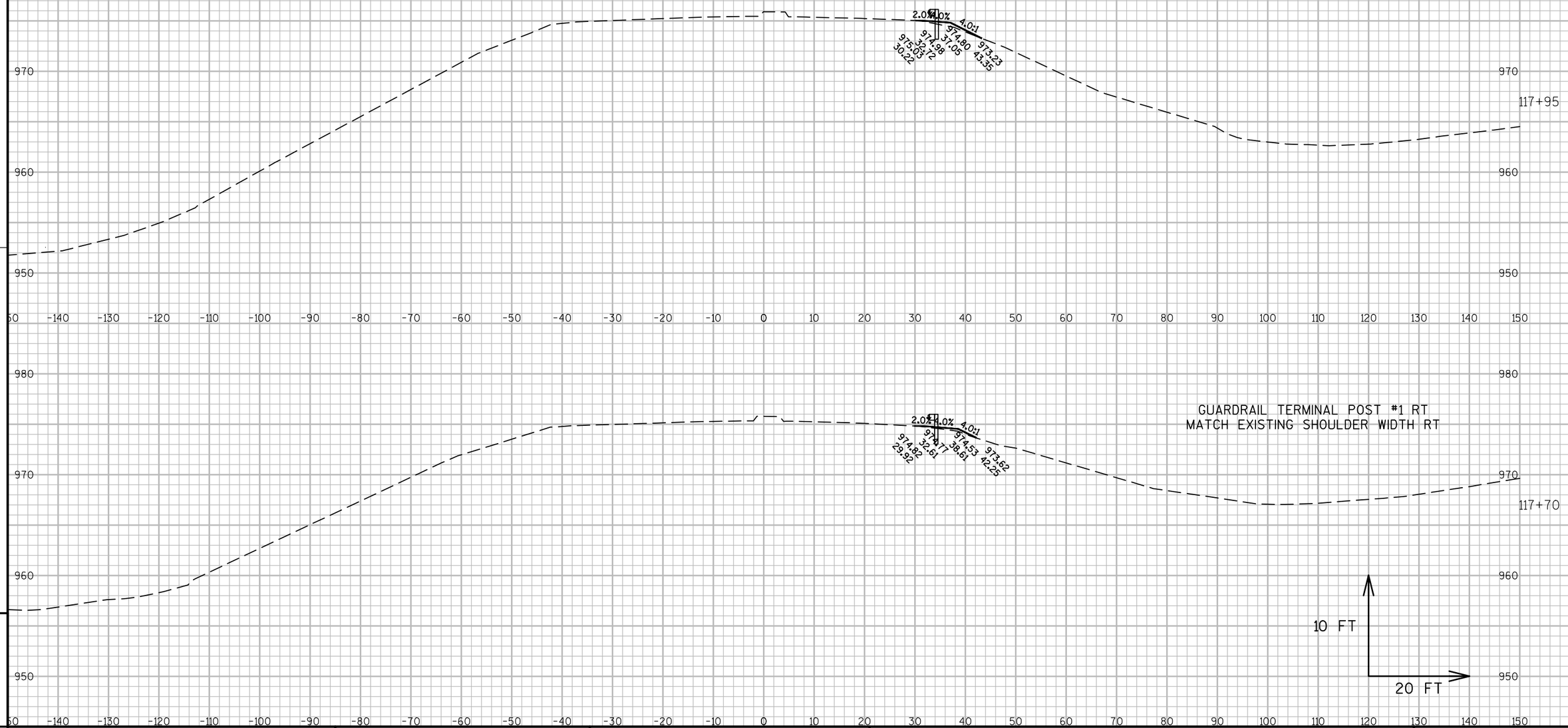
WISDOT/CADDS SHEET 42

7

7

CROSS SECTIONS FOR REFERENCE ONLY
EARTHWORK FOR GUARDRAIL TERMINAL PAID FOR
USING BARRIER SYSTEM GRADING SHAPING FINISHING
BID ITEM

GUARDRAIL TERMINAL POST #5 RT



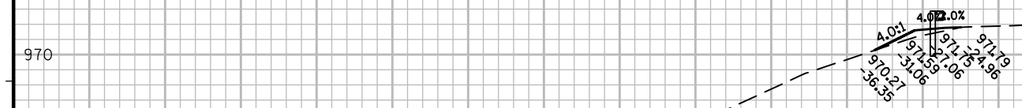
GUARDRAIL TERMINAL POST #1 RT
MATCH EXISTING SHOULDER WIDTH RT

10 FT
20 FT

PROJECT NO: 1000-44-73	HWY: HOLY HILL ROAD	COUNTY: WASHINGTON	CROSS SECTIONS: HOLY HILL ROAD	SHEET 82	E

CROSS SECTIONS FOR REFERENCE ONLY
EARTHWORK FOR GUARDRAIL TERMINAL PAID FOR
USING BARRIER SYSTEM GRADING SHAPING FINISHING
BID ITEM

GUARDRAIL TERMINAL POST #9 LT



122+14

GUARDRAIL TERMINAL POST #9 RT

118+20

10 FT
20 FT

PROJECT NO: 1000-44-73	HWY: HOLY HILL ROAD	COUNTY: WASHINGTON	CROSS SECTIONS: HOLY HILL ROAD	SHEET 83	E

FILE NAME : N:\PDS\C3D\CAD\10004473\090201_STH167.DWG PLOT DATE : 4/23/2015 4:49 PM PLOT BY : BLACKWOOD, JAMES W PLOT NAME : PLOT SCALE : 1" = 20'_XREF

WISDOT/CADDS SHEET 49

CROSS SECTIONS FOR REFERENCE ONLY
EARTHWORK FOR GUARDRAIL TERMINAL PAID FOR
USING BARRIER SYSTEM GRADING SHAPING FINISHING
BID ITEM

MATCH EXISTING SHOULDER WIDTH LT

122+69

GUARDRAIL TERMINAL POST #1 LT

122+64

GUARDRAIL TERMINAL POST #5 LT

122+39

10 FT

20 FT

9

9

PROJECT NO: 1000-44-73	HWY: HOLY HILL ROAD	COUNTY: WASHINGTON	CROSS SECTIONS: HOLY HILL ROAD	SHEET 84	E

Notes

Wisconsin Department of Transportation

Dedicated people creating transportation solutions
through innovation and exceptional service.

http://www.dot.wisconsin.gov