

EAU

NOVEMBER 2025

PROJECT ID: 9547-03-70

WITH: N/A

COUNTY: TAYLOR

ORDER OF SHEETS

Section No.	1	Title
Section No.	2	Typical Sections and Details
Section No.	3	Estimate of Quantities
Section No.	3	Miscellaneous Quantities
Section No.	4	Right of Way Plat
Section No.	5	Plan and Profile
Section No.	6	Standard Detail Drawings
Section No.	7	Sign Plates
Section No.	8	Structure Plans
Section No.	9	Computer Earthwork Data
Section No.	9	Cross Sections

TOTAL SHEETS = 102



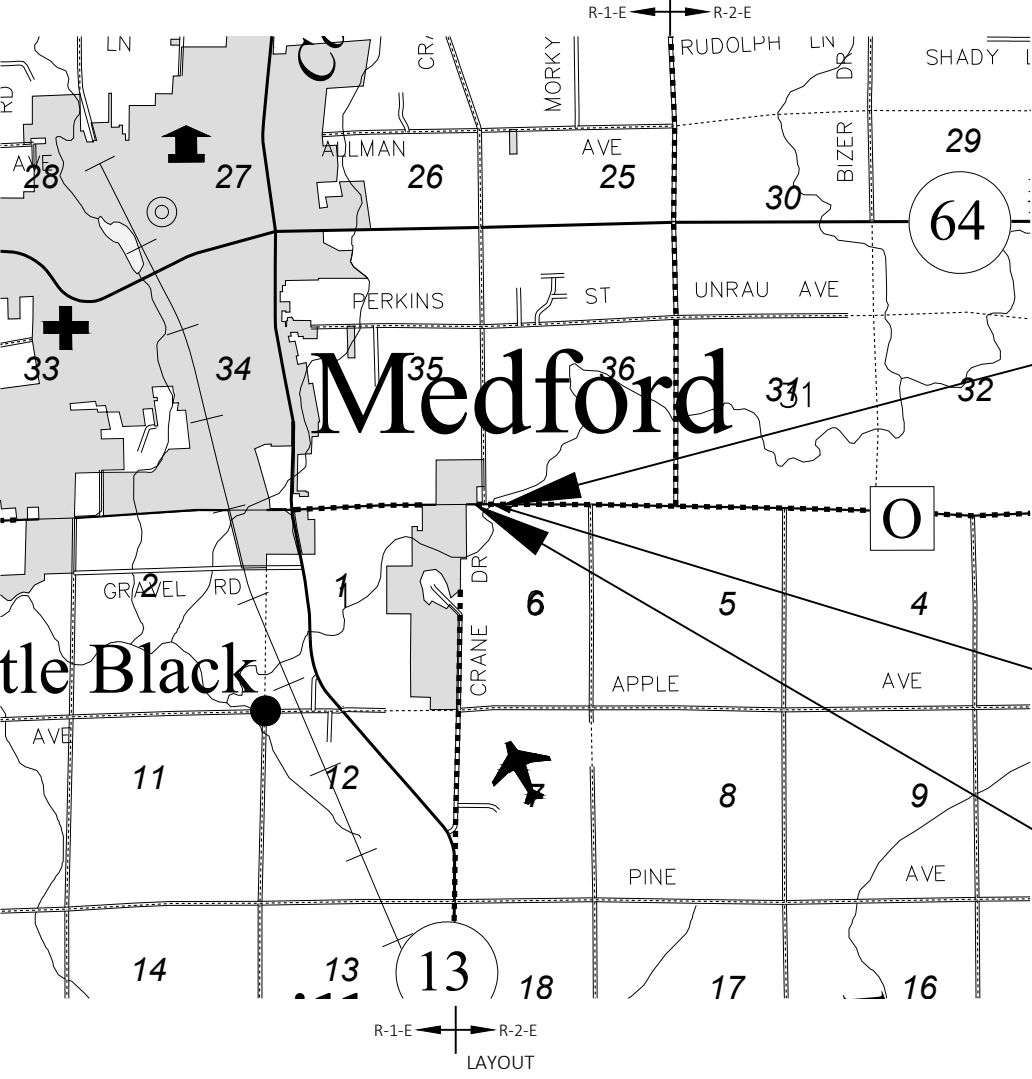
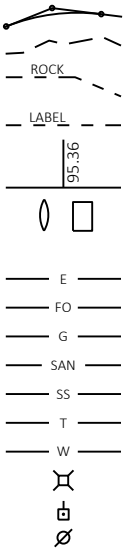
DESIGN DESIGNATION

A.A.D.T.	2026	=	680
A.A.D.T.	2046	=	730
D.H.V.		=	N/A
D.D.		=	50/50
T.		=	21.2%
DESIGN SPEED		=	55 MPH
ESALS		=	300,000

CONVENTIONAL SYMBOLS

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

PROFILE	
GRADE LINE	
ORIGINAL GROUND	
MARSH OR ROCK PROFILE (To be noted as such)	
SPECIAL DITCH	
GRADE ELEVATION	
CULVERT (Profile View)	
UTILITIES	
ELECTRIC	
FIBER OPTIC	
GAS	
SANITARY SEWER	
STORM SEWER	
TELEPHONE	
WATER	
UTILITY PEDESTAL	
POWER POLE	
TELEPHONE POLE	



TOTAL NET LENGTH OF CENTERLINE = 0.045 MILES

HORIZONTAL POSITIONS SHOWN ON THIS PLAN ARE WISCONSIN COORDINATE REFERENCE SYSTEM (WISCRS), TAYLOR COUNTY, NAD83 (2011), IN U.S. SURVEY FEET. POSITIONS SHOWN ARE GRID COORDINATES, GRID BEARINGS, AND GRID DISTANCES. GRID DISTANCES ARE THE SAME AS GROUND DISTANCES.

ELEVATIONS ARE REFERENCED TO NAVD 88 (2012). GPS DERIVED ELEVATIONS ARE BASED ON GEOID G18-WI.

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

STH 13 - ECL
LITTLE BLACK RIVER BRIDGE B-60-0031
CTH O
TAYLOR COUNTY

STATE PROJECT NUMBER
9547-03-70

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
9547-03-70		

ACCEPTED FOR
TAYLOR COUNTY
Date 7/29/2025
Benjamin Stanfley
(Signature and Title of Official)
Highway Commissioner

ORIGINAL PLANS PREPARED BY
CORRE
ENGINEERING
MADISON | EAU CLAIRE | WAUKESHA | APPLETON | TOMAH | WAUSAU

WISCONSIN
ERIC T. PRICE
E-39027
MADISON WI
PROFESSIONAL ENGINEER
July 29, 2025

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY
Surveyor CORRE, INC.
Designer CORRE, INC.
Project Manager MATTHEW BERG, PE
Regional Examiner NW REGION
Regional Supervisor TOU YANG, P.E.

APPROVED FOR THE DEPARTMENT
DATE: 7/29/2025
(Signature)

E

UTILITIES CONTACTS

CHARTER COMMUNICATIONS
COMMUNICATION
JESSE GRUNY
606 N. DIVISION STREET
COLBY, WI 54421
PHONE: 715-651-5605
EMAIL: JESSE.GRUNY@CHARTER.COM

TDS TELECOM
COMMUNICATION
RODNEY LINDEMANN
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MADISON, WI 53717
PHONE: 715-743-5933
EMAIL: RODNEY.LINDEMANN@TDSTELECOM.COM

MEDFORD ELECTRIC SERVICE
ELECTRIC
JON VISSERS
639 S. SECOND STREET
MEDFORD, WI 54451
PHONE: 715-965-2167
EMAIL: UNAVAILABLE

ORDER OF SECTION 2 DETAIL SHEETS

- GENERAL NOTES
- TYPICAL SECTIONS
- CONSTRUCTION DETAILS
- GUARDRAIL DETAILS
- EROSION CONTROL
- DETOUR PLAN

WISCONSIN DNR LIAISON

WENDY HENNIGES
NORTHERN REGION
1007 SUTLIFF AVENUE
RHINELANDER, WI 54501
PHONE: 715-499-1608
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COUNTY HIGHWAY COMMISSIONER

BENJAMIN STANFLY
TAYLOR COUNTY
208 N. 8TH STREET
MEDFORD, WI 54451
PHONE: 715-748-1477
EMAIL: BEN.STANFLY@CO.TAYLOR.WI.US

WISDOT PROJECT MANAGER

MATTHEW BERG, P.E.
NORTHWEST REGION
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GREEN BAY, WI 54304
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DESIGN CONSULTANT

ERIC PRICE, P.E.
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6510 GRAND TETON PLAZA, SUITE 314
MADISON, WI 53719
PHONE: 608-826-6146
EMAIL: EPRICE@CORREINC.COM

GENERAL NOTES

THE LOCATION OF EXISTING UTILITIES AS SHOWN ON THE PLANS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT AREA THAT ARE NOT SHOWN. THE CONTRACTOR SHALL COORDINATE CONSTRUCTION ACTIVITIES BY CALLING DIGGER'S HOTLINE AND CONTACTING UTILITIES DIRECTLY AS NEEDED.

THE CONTRACTOR IS TO WORK WITH UTMOST CARE AND PROTECT ALL SURVEY MARKERS. REMOVAL OF ANY SURVEY MARKER IS TO BE WITH THE APPROVAL OF THE ENGINEER.

WHEN THE QUANTITY OF THE ITEMS OF BASE AGGREGATE, SUBBASE OR HMA PAVEMENT IS MEASURED FOR PAYMENT BY THE TON OR CUBIC YARD, THE DEPTH OR THICKNESS OF THE LAYERS SHOWN ON THE PLAN IS APPROXIMATE AND THE ACTUAL THICKNESS WILL DEPEND ON THE DISTRIBUTION OF THE MATERIAL AS DIRECTED BY THE ENGINEER.

EROSION CONTROL FEATURES AS SHOWN IN THE PLANS ARE AT APPROXIMATE LOCATIONS. EXACT LOCATIONS WILL BE DETERMINED BY THE CONTRACTOR'S EROSION CONTROL IMPLEMENTATION PLAN (ECIP) AND APPROVED BY THE ENGINEER. MAINTAIN EROSION CONTROL MEASURES UNTIL SUCH A TIME AS THE ENGINEER DETERMINES THE MEASURE IS NO LONGER NECESSARY.

PRIOR TO PLACING THE NEW BASE AGGREGATE DENSE COURSE OR PAVED SHOULDERS EXISTING UNCOMPACTED SHOULDER MATERIAL SHALL BE REMOVED OR DEPOSITED ON THE OUTER PORTION OF THE EXISTING SHOULDER OR AS DIRECTED BY THE ENGINEER.

THE PROPOSED SHOULDER WIDTH SHOWN IN THE TYPICAL SECTIONS ARE MINIMUM WIDTH. PERPETUATE EXISTING SHOULDERS THAT ARE WIDER THAN WHAT IS SHOWN IN THE TYPICAL SECTIONS.

PRIOR TO PLACEMENT OF BEAM GUARD THE SHOULDERS SHALL BE IN PLACE, SHAPED AND COMPACTED.

DO NOT DRIVE OR STORE EQUIPMENT, OR STORE CONSTRUCTION MATERIALS IN ENVIRONMENTALLY SENSITIVE AREAS, WETLANDS OR WATERWAYS.

CONTRACTOR SHALL MAINTAIN ACCESS TO ALL DRIVEWAYS AND PUBLIC TRAILS AT ALL TIMES.

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

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

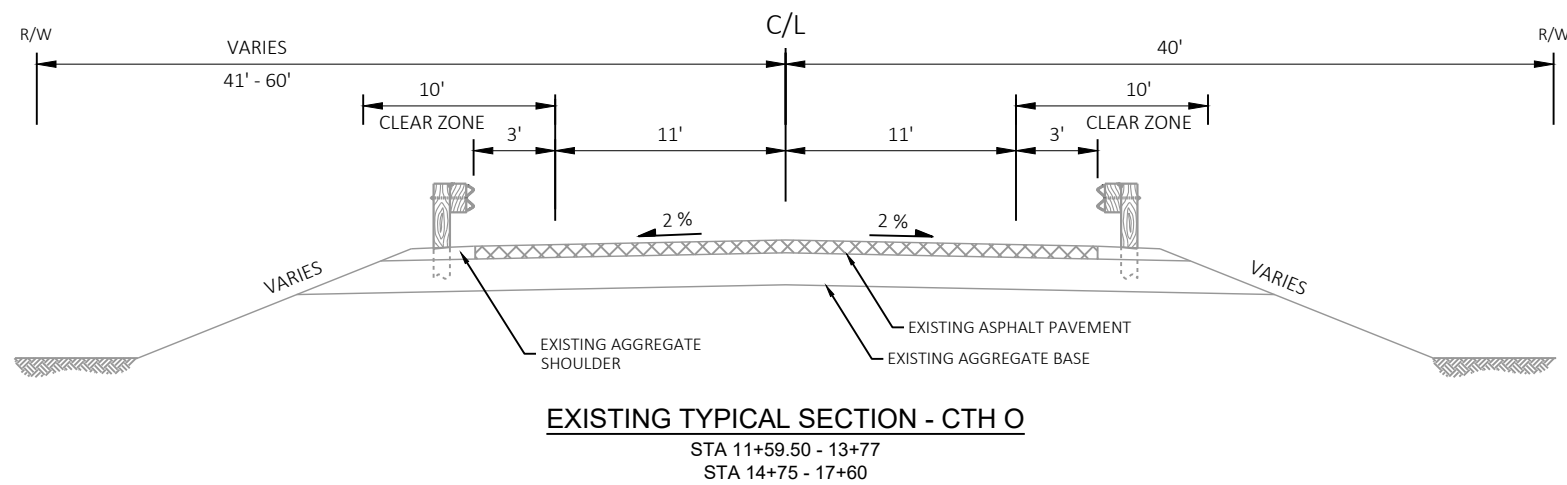
TACK COAT CALCULATIONS ARE BASED ON AN APPLICATION RATE OF 0.07 GAL/SY.

RUNOFF COEFFICIENT TABLE

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

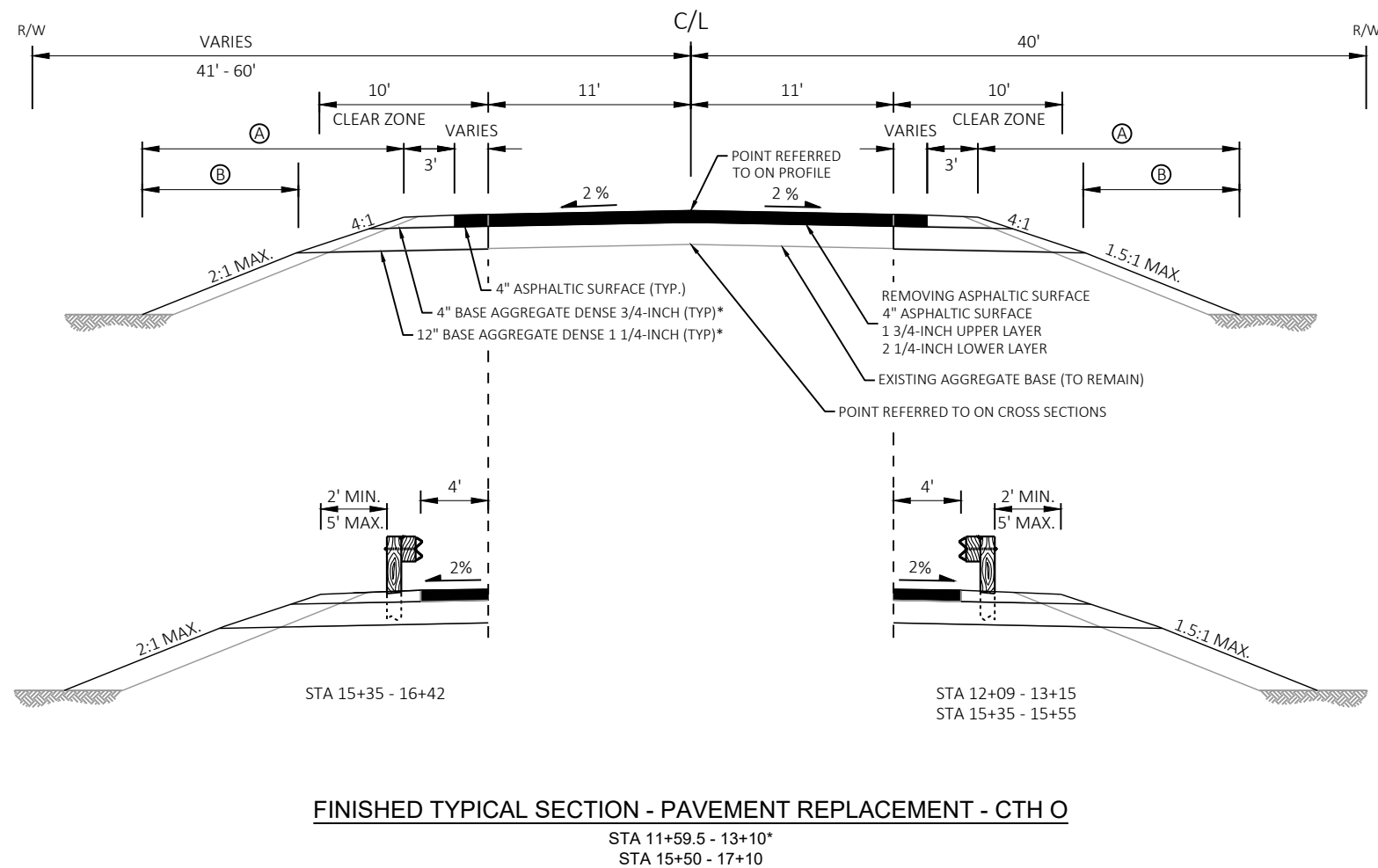
TOTAL PROJECT AREA = 0.990 ACRES
TOTAL AREA EXPECTED TO BE DISTURBED BY CONSTRUCTION ACTIVITIES = 0.027 ACRES

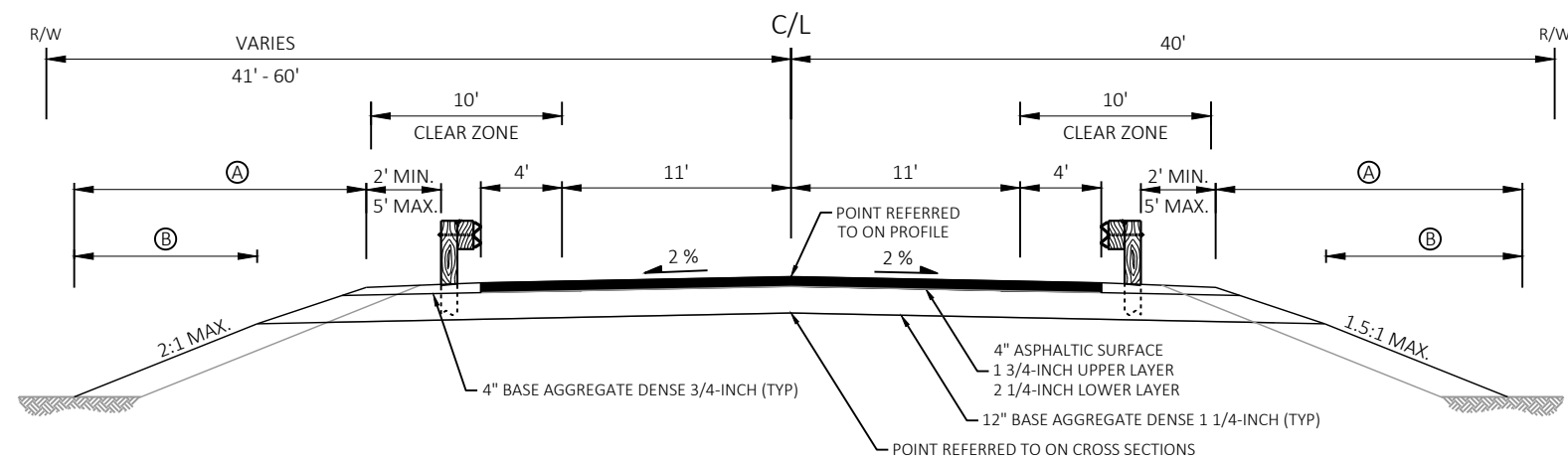




- LEGEND
- Ⓐ FERTILIZER TYPE A, SEEDING MIXTURE NO. 20 & SEEDING TEMPORARY
 - Ⓑ SALVAGED TOPSOIL & EROSION MAT URBAN CLASS I TYPE B

*NOTE: NO NEW BASE AGGREGATE DENSE 1 1/4-INCH OR 3/4-INCH TO BE PLACED AT STA. 11+59.5 - 13+10 LT OR ALONG CRANE DR LT. SHAPING SHOULDERS APPLIES TO THIS AREA FOR SALVAGING EXISTING SHOULD AGGREGATE.



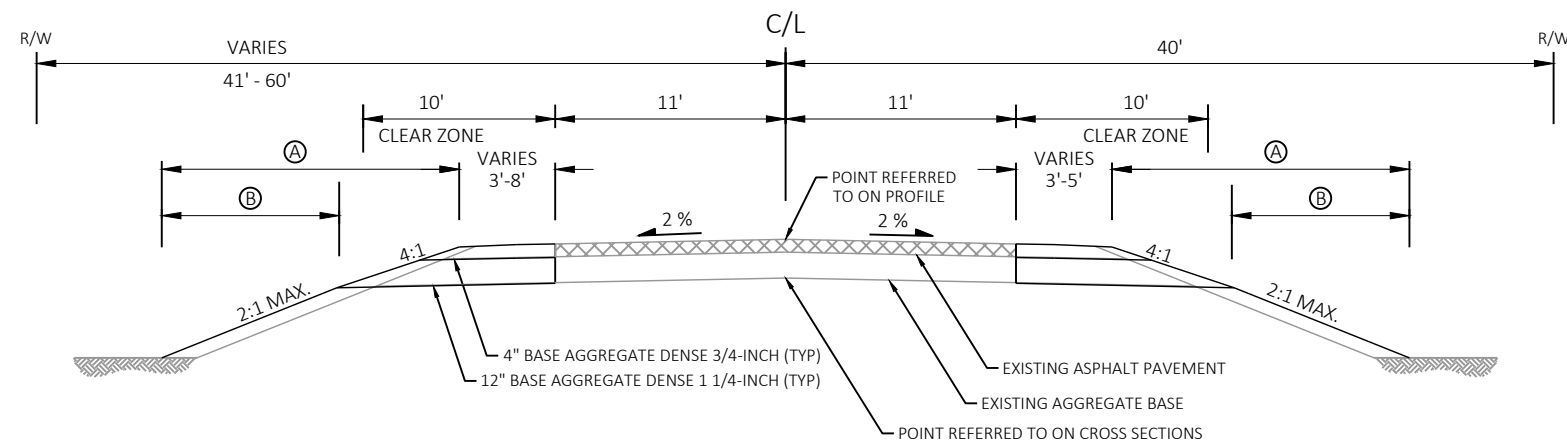


FINISHED TYPICAL SECTION - RECONSTRUCT - CTH O

STA 13+10 - 13+77
STA 14+75 - 15+50

LEGEND

- Ⓐ FERTILIZER TYPE A, SEEDING MIXTURE NO. 20 & SEEDING TEMPORARY
- Ⓑ SALVAGED TOPSOIL & EROSION MAT URBAN CLASS I TYPE B

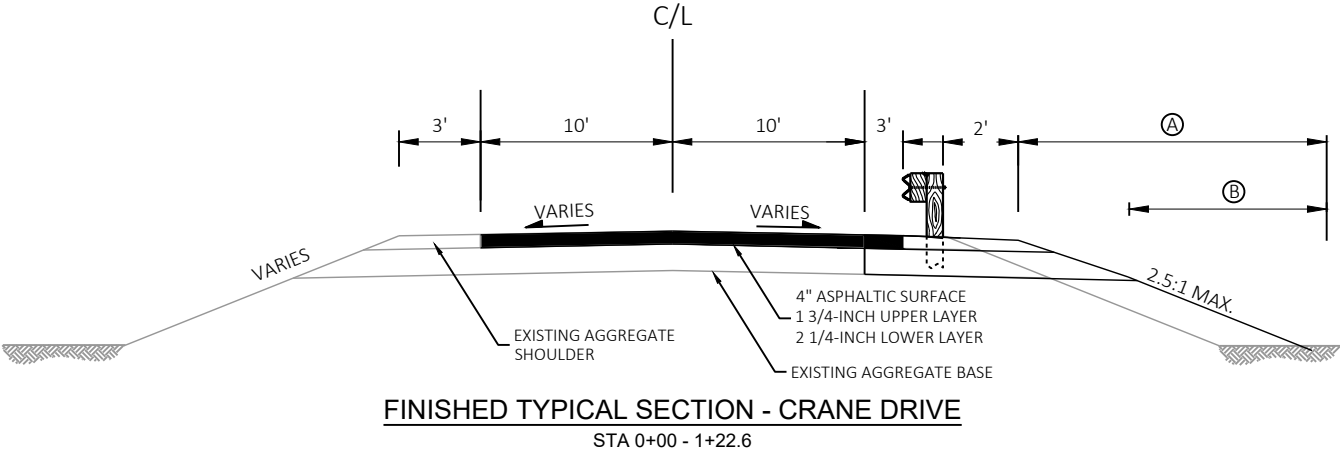
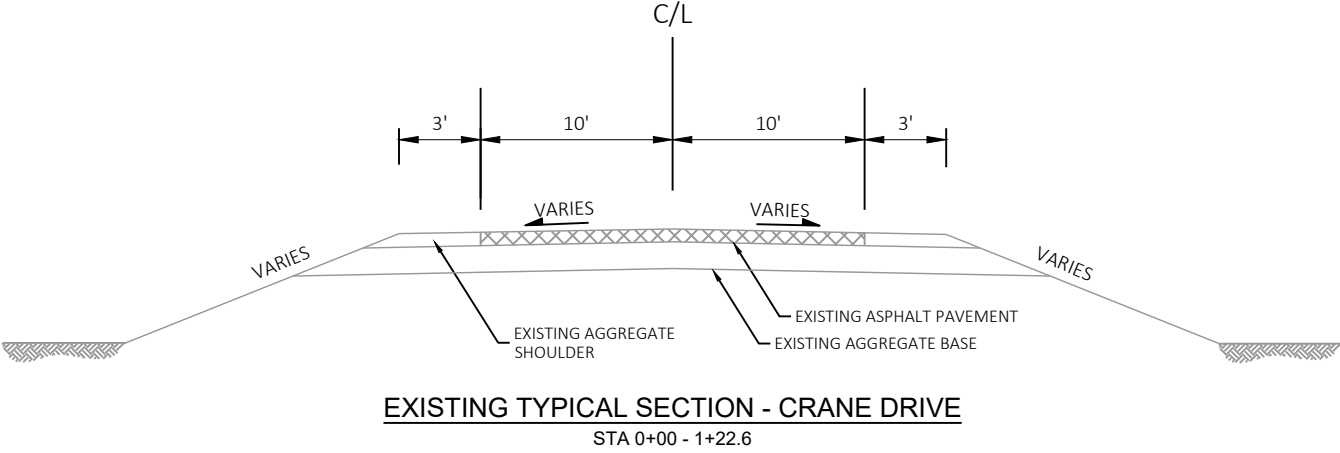


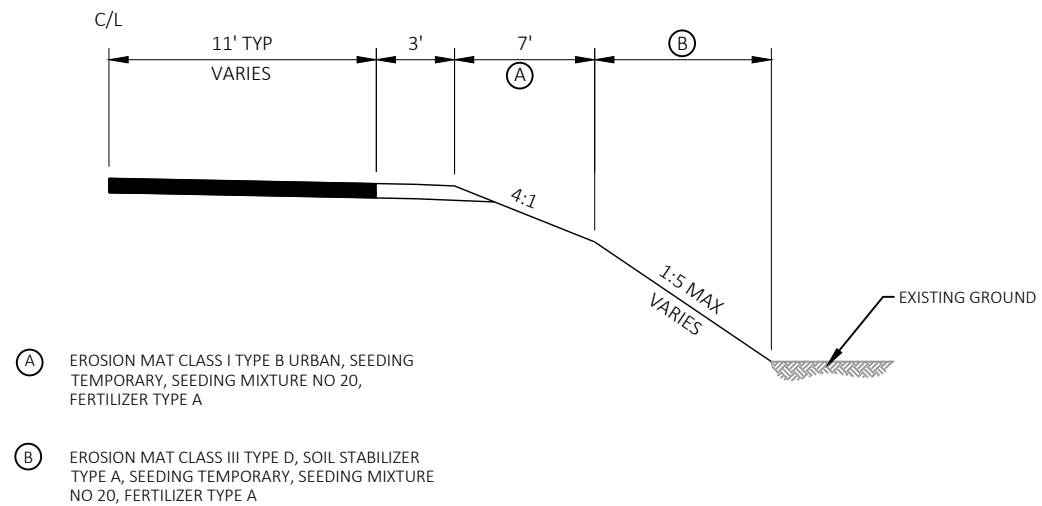
FINISHED TYPICAL SECTION - SHOULDER WIDENING - CTH O

STA 17+10 - 17+60

2

2





*NOTE: FINAL LOCATIONS TO BE FIELD VERIFIED WITH THE ENGINEER.

SLOPE STABILIZATION DETAIL

*STA 13+00 - 13+50 RT

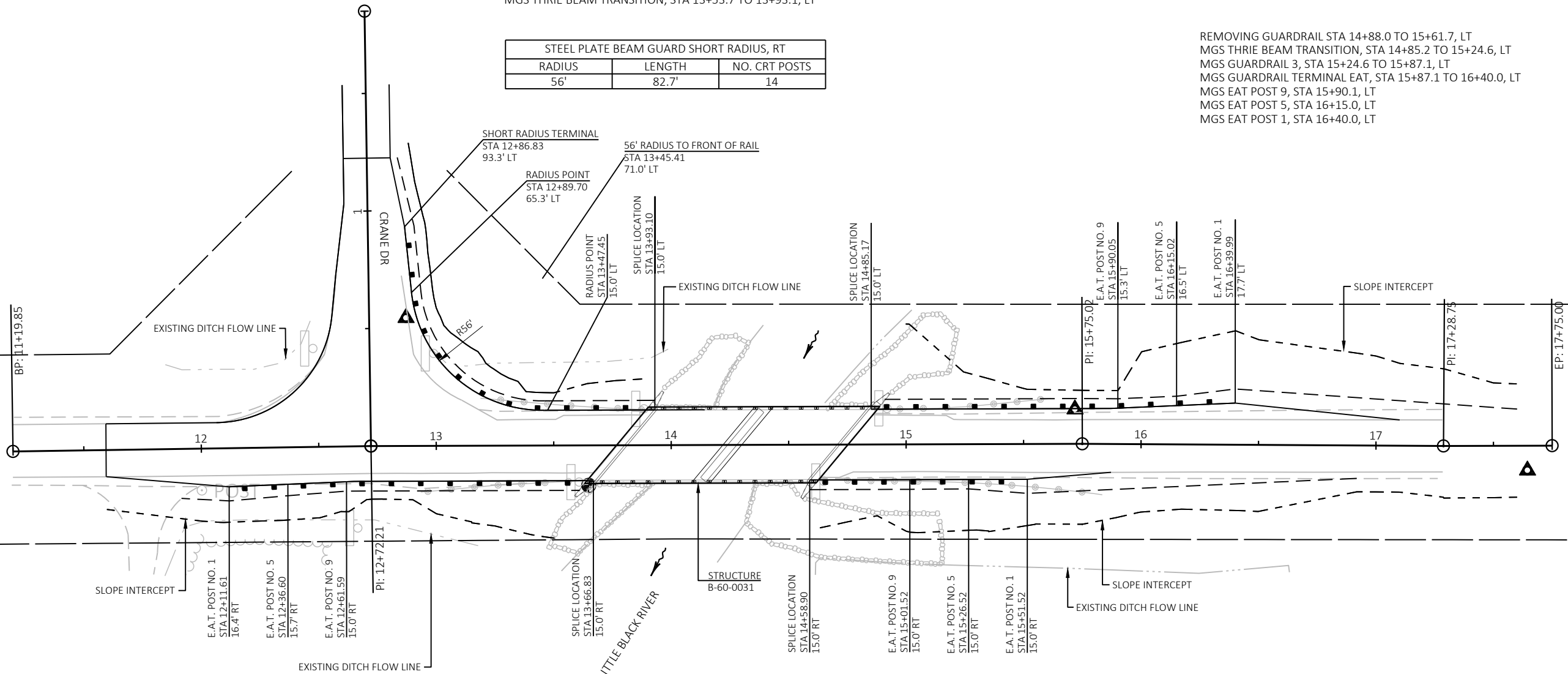
*STA 14+63 - 16+50 RT



REMOVING GUARDRAIL STA 13+18.9 TO 13+91.0, LT
SHORT RADIUS BEAM GUARD TERMINAL, STA 12+86.8 TO 12+89.7, LT
SHORT RADIUS BEAM GUARD MGS, STA 12+89.7 TO 13+47.4, LT
MGS GUARDRAIL 3 K, STA 13+47.4 TO 13+53.7, LT
MGS THRIE BEAM TRANSITION, STA 13+53.7 TO 13+93.1, LT

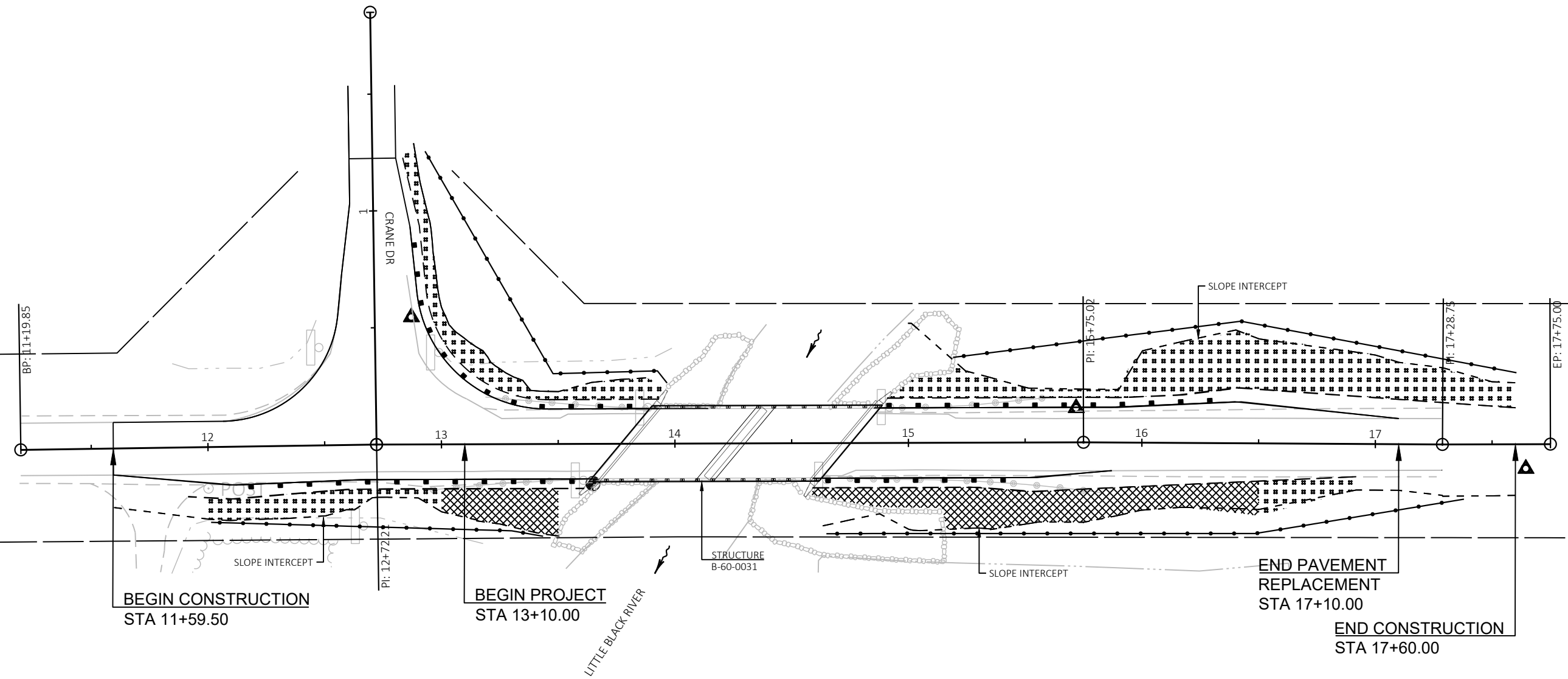
STEEL PLATE BEAM GUARD SHORT RADIUS, RT		
RADIUS	LENGTH	NO. CRT POSTS
56'	82.7'	14

REMOVING GUARDRAIL STA 14+88.0 TO 15+61.7, LT
MGS THRIE BEAM TRANSITION, STA 14+85.2 TO 15+24.6, LT
MGS GUARDRAIL 3, STA 15+24.6 TO 15+87.1, LT
MGS GUARDRAIL TERMINAL EAT, STA 15+87.1 TO 16+40.0, LT
MGS EAT POST 9, STA 15+90.1, LT
MGS EAT POST 5, STA 16+15.0, LT
MGS EAT POST 1, STA 16+40.0, LT



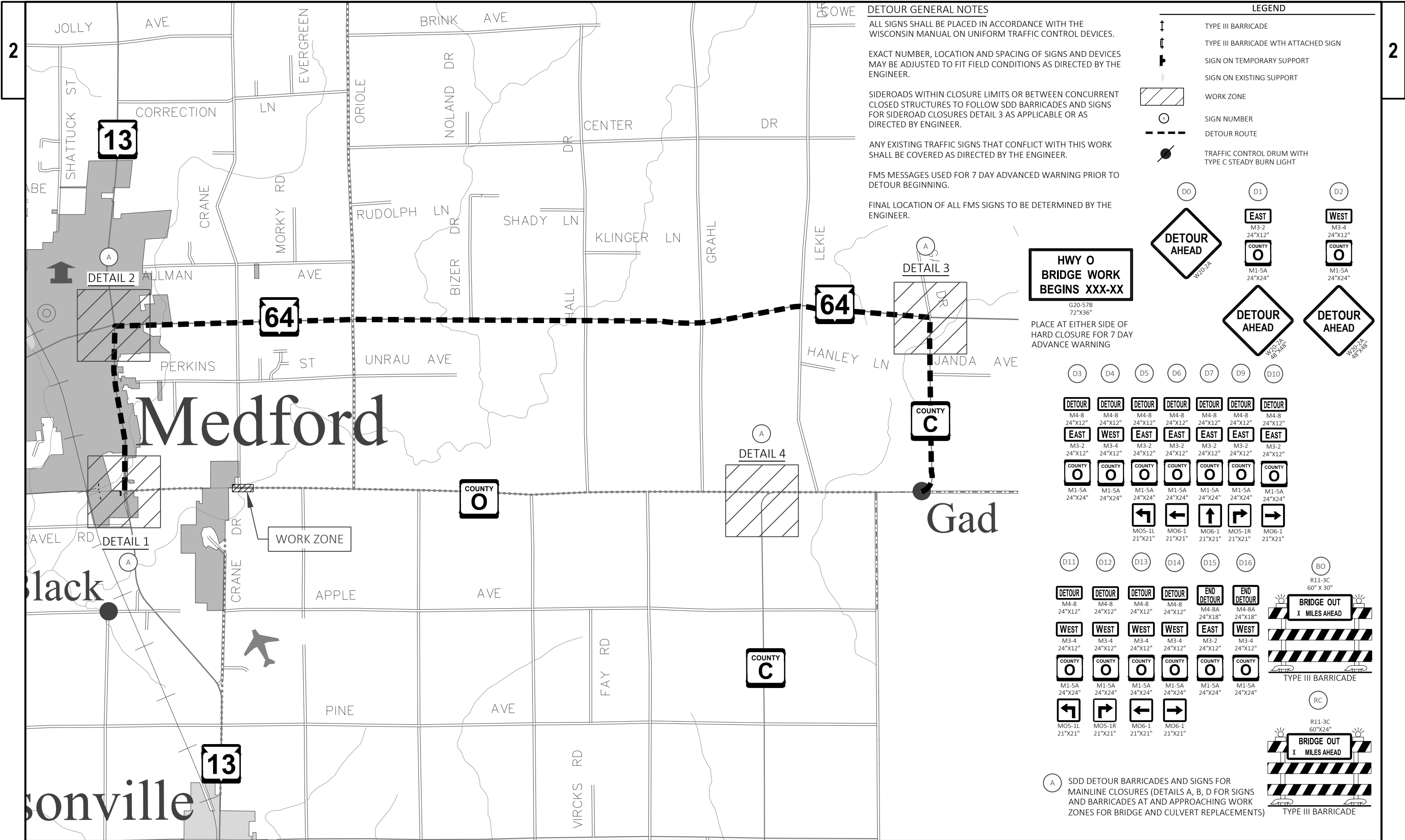
REMOVING GUARDRAIL STA 12+93.3 TO 13+64.3, RT
MGS GUARDRAIL TERMINAL EAT, STA 12+11.6 TO 12+64.7, RT
MGS EAT POST 1, STA 12+11.6, RT
MGS EAT POST 5, STA 12+36.6, RT
MGS EAT POST 9, STA 12+61.5, RT
MGS GUARDRAIL 3, STA 12+64.7 TO 13+27.2, RT
MGS THRIE BEAM TRANSITION, STA 13+27.2 TO 13+66.6, RT

REMOVING GUARDRAIL STA 14+61.3 TO 15+83.6, RT
MGS THRIE BEAM TRANSITION, STA 14+58.9 TO 14+98.3, RT
MGS GUARDRAIL TERMINAL EAT, STA 14+98.3 TO 15+51.5, RT
MGS EAT POST 9, STA 15+01.5, RT
MGS EAT POST 5, STA 15+26.5, RT
MGS EAT POST 1, STA 15+51.5, RT



LEGEND

- ##### EROSION MAT URBAN CLASS I, TYPE B
- ▨ EROSION MAT CLASS III, TYPE D
- SILT FENCE
- EXISTING RIPRAP
- - - SLOPE INTERCEPT
- ~> SURFACE WATER FLOW



DETOUR GENERAL NOTES

ALL SIGNS SHALL BE PLACED IN ACCORDANCE WITH THE WISCONSIN MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

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

SIDEROADS WITHIN CLOSURE LIMITS OR BETWEEN CONCURRENT CLOSED STRUCTURES TO FOLLOW SDD BARRICADES AND SIGNS FOR SIDEROAD CLOSURES DETAIL 3 AS APPLICABLE OR AS DIRECTED BY ENGINEER.

ANY EXISTING TRAFFIC SIGNS THAT CONFLICT WITH THIS WORK SHALL BE COVERED AS DIRECTED BY THE ENGINEER.

FMS MESSAGES USED FOR 7 DAY ADVANCED WARNING PRIOR TO DETOUR BEGINNING.

FINAL LOCATION OF ALL FMS SIGNS TO BE DETERMINED BY THE ENGINEER.

LEGEND

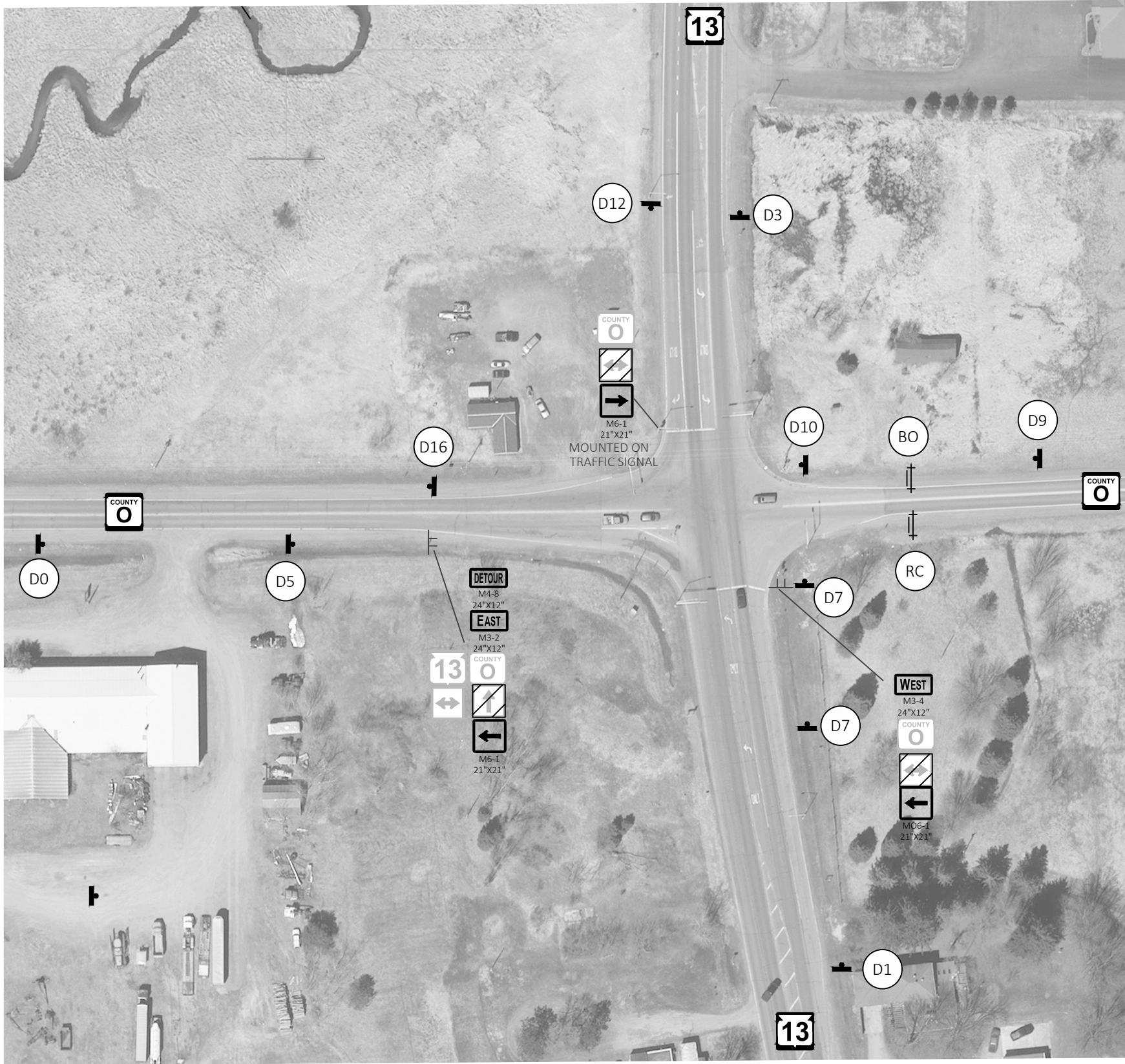
- TYPE III BARRICADE
- TYPE III BARRICADE WITH ATTACHED SIGN
- SIGN ON TEMPORARY SUPPORT
- SIGN ON EXISTING SUPPORT
- WORK ZONE
- SIGN NUMBER
- DETOUR ROUTE
- TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT

HWY 0
BRIDGE WORK
BEGINS XXX-XX

PLACE AT EITHER SIDE OF
HARD CLOSURE FOR 7 DAY
ADVANCE WARNING

D3	D4	D5	D6	D7	D9	D10
DETOUR M4-8 24"x12"	DETOUR M4-8 24"x12"	DETOUR M4-8 24"x12"	DETOUR M4-8 24"x12"	DETOUR M4-8 24"x12"	DETOUR M4-8 24"x12"	DETOUR M4-8 24"x12"
EAST M3-2 24"x12"	WEST M3-4 24"x12"	EAST M3-2 24"x12"	EAST M3-2 24"x12"	EAST M3-2 24"x12"	EAST M3-2 24"x12"	EAST M3-2 24"x12"
COUNTY M1-5A 24"x24"	COUNTY M1-5A 24"x24"	COUNTY M1-5A 24"x24"	COUNTY M1-5A 24"x24"	COUNTY M1-5A 24"x24"	COUNTY M1-5A 24"x24"	COUNTY M1-5A 24"x24"
MO5-1L 21"x21"	MO5-1R 21"x21"	MO6-1 21"x21"	MO6-1 21"x21"	MO6-1 21"x21"	MO6-1 21"x21"	MO6-1 21"x21"
D11	D12	D13	D14	D15	D16	BO
DETOUR M4-8 24"x12"	DETOUR M4-8 24"x12"	DETOUR M4-8 24"x12"	DETOUR M4-8 24"x12"	END M4-8A 24"x18"	END M4-8A 24"x18"	BRIDGE OUT X MILES AHEAD
WEST M3-4 24"x12"	WEST M3-4 24"x12"	WEST M3-4 24"x12"	WEST M3-4 24"x12"	EAST M3-2 24"x12"	WEST M3-4 24"x12"	TYPE III BARRICADE
COUNTY M1-5A 24"x24"	COUNTY M1-5A 24"x24"	COUNTY M1-5A 24"x24"	COUNTY M1-5A 24"x24"	COUNTY M1-5A 24"x24"	COUNTY M1-5A 24"x24"	RC
MO5-1L 21"x21"	MO5-1R 21"x21"	MO6-1 21"x21"	MO6-1 21"x21"			BRIDGE OUT X MILES AHEAD

A SDD DETOUR BARRICADES AND SIGNS FOR
MAINLINE CLOSURES (DETAILS A, B, D FOR SIGNS
AND BARRICADES AT AND APPROACHING WORK
ZONES FOR BRIDGE AND CULVERT REPLACEMENTS)



DETAIL 1
STH 13 AND CTH O

DETOUR GENERAL NOTES

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FMS MESSAGES USED FOR 7 DAY ADVANCED WARNING PRIOR TO DETOUR BEGINNING.

FINAL LOCATION OF ALL FMS SIGNS TO BE DETERMINED BY THE ENGINEER.

LEGEND

- TYPE III BARRICADE
- TYPE III BARRICADE WITH ATTACHED SIGN
- SIGN ON TEMPORARY SUPPORT
- SIGN ON EXISTING SUPPORT
- WORK ZONE
- SIGN NUMBER
- DETOUR ROUTE
- TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT

HWY O
BRIDGE WORK
BEGINS XXX-XX

G20-57B
72"X36"

PLACE AT EITHER SIDE OF
HARD CLOSURE FOR 7 DAY
ADVANCE WARNING

D3 D4 D5 D6 D7 D9 D10

DETOUR M4-8 24"X12" M4-8 24"X12" M4-8 24"X12" M4-8 24"X12" M4-8 24"X12" M4-8 24"X12" M4-8 24"X12"
EAST M3-2 24"X12" M3-4 24"X12" M3-2 24"X12" M3-2 24"X12" M3-2 24"X12" M3-2 24"X12" M3-2 24"X12"
COUNTY M1-5A 24"X24" M1-5A 24"X24" M1-5A 24"X24" M1-5A 24"X24" M1-5A 24"X24" M1-5A 24"X24" M1-5A 24"X24"
MOS-1L 21"X21" MOS-1R 21"X21" MOS-1L 21"X21" MOS-1R 21"X21" MOS-1L 21"X21" MOS-1R 21"X21" MOS-1L 21"X21"

D11 D12 D13 D14 D15 D16

DETOUR M4-8 24"X12" M4-8 24"X12" M4-8 24"X12" M4-8 24"X12" M4-8 24"X12" M4-8 24"X12" M4-8 24"X12"
WEST M3-4 24"X12" M3-4 24"X12" M3-4 24"X12" M3-4 24"X12" M3-4 24"X12" M3-4 24"X12" M3-4 24"X12"
COUNTY M1-5A 24"X24" M1-5A 24"X24" M1-5A 24"X24" M1-5A 24"X24" M1-5A 24"X24" M1-5A 24"X24" M1-5A 24"X24"
MOS-1L 21"X21" MOS-1R 21"X21" MOS-1L 21"X21" MOS-1R 21"X21" MOS-1L 21"X21" MOS-1R 21"X21" MOS-1L 21"X21"

LC R11-2L 48"X30"
LANE CLOSED

BO R11-3C 60"X30"
BRIDGE OUT
1.0 MILES AHEAD

RC M4-9L 30"X24"
DETOUR

A SDD DETOUR BARRICADES AND SIGNS FOR MAINLINE CLOSURES (DETAILS A, B, D FOR SIGNS AND BARRICADES AT AND APPROACHING WORK ZONES FOR BRIDGE AND CULVERT REPLACEMENTS)



DETAIL 2
STH 13 AND STH 64

DETOUR GENERAL NOTES

ALL SIGNS SHALL BE PLACED IN ACCORDANCE WITH THE WISCONSIN MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

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

SIDERoadS WITHIN CLOSURE LIMITS OR BETWEEN CONCURRENT CLOSED STRUCTURES TO FOLLOW SDD BARRICADES AND SIGNS FOR SIDERoad CLOSURES DETAIL 3 AS APPLICABLE OR AS DIRECTED BY ENGINEER.

ANY EXISTING TRAFFIC SIGNS THAT CONFLICT WITH THIS WORK SHALL BE COVERED AS DIRECTED BY THE ENGINEER.

FMS MESSAGES USED FOR 7 DAY ADVANCED WARNING PRIOR TO DETOUR BEGINNING.

FINAL LOCATION OF ALL FMS SIGNS TO BE DETERMINED BY THE ENGINEER.

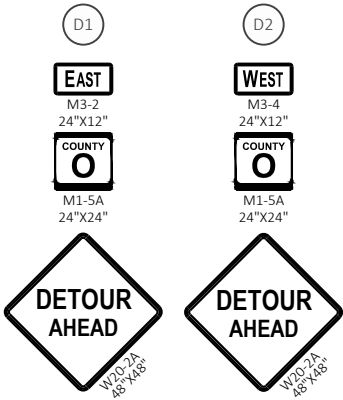
LEGEND

- TYPE III BARRICADE
- TYPE III BARRICADE WITH ATTACHED SIGN
- SIGN ON TEMPORARY SUPPORT
- SIGN ON EXISTING SUPPORT
- WORK ZONE
- SIGN NUMBER
- DETOUR ROUTE
- TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT

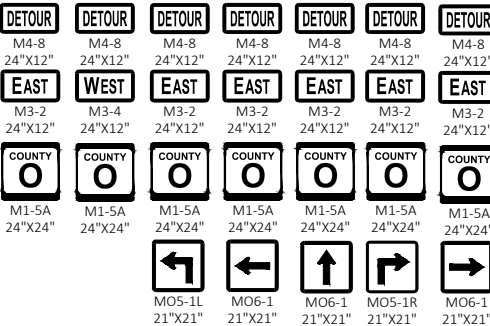
**HWY 0
BRIDGE WORK
BEGINS XXX-XX**

G20-57B
72"x36"

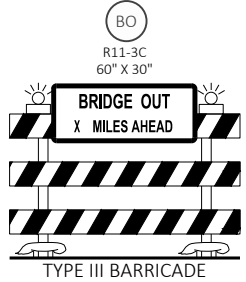
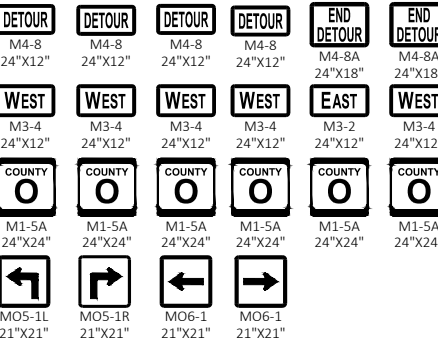
PLACE AT EITHER SIDE OF
HARD CLOSURE FOR 7 DAY
ADVANCE WARNING



D3 D4 D5 D6 D7 D9 D10



D11 D12 D13 D14 D15 D16



A SDD DETOUR BARRICADES AND SIGNS FOR
MAINLINE CLOSURES (DETAILS A, B, D FOR SIGNS
AND BARRICADES AT AND APPROACHING WORK
ZONES FOR BRIDGE AND CULVERT REPLACEMENTS)



DETAIL 3
STH 64 AND CTH C

DETOUR GENERAL NOTES

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SIDEROADS WITHIN CLOSURE LIMITS OR BETWEEN CONCURRENT CLOSED STRUCTURES TO FOLLOW SDD BARRICADES AND SIGNS FOR SIDEROAD CLOSURES DETAIL 3 AS APPLICABLE OR AS DIRECTED BY ENGINEER.

ANY EXISTING TRAFFIC SIGNS THAT CONFLICT WITH THIS WORK SHALL BE COVERED AS DIRECTED BY THE ENGINEER.

FMS MESSAGES USED FOR 7 DAY ADVANCED WARNING PRIOR TO DETOUR BEGINNING.

FINAL LOCATION OF ALL FMS SIGNS TO BE DETERMINED BY THE ENGINEER.

LEGEND

- TYPE III BARRICADE
- TYPE III BARRICADE WITH ATTACHED SIGN
- SIGN ON TEMPORARY SUPPORT
- SIGN ON EXISTING SUPPORT
- WORK ZONE
- SIGN NUMBER
- DETOUR ROUTE
- TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT

HWY 0
BRIDGE WORK
BEGINS XXX-XX

G20-57B
72"x36"

PLACE AT EITHER SIDE OF
HARD CLOSURE FOR 7 DAY
ADVANCED WARNING

D3 D4 D5 D6 D7 D9 D10

DETOUR M4-8 24"x12"	DETOUR M4-8 24"x12"	DETOUR M4-8 24"x12"	DETOUR M4-8 24"x12"	DETOUR M4-8 24"x12"	DETOUR M4-8 24"x12"	DETOUR M4-8 24"x12"
EAST M3-2 24"x12"	WEST M3-4 24"x12"	EAST M3-2 24"x12"	EAST M3-2 24"x12"	EAST M3-2 24"x12"	EAST M3-2 24"x12"	EAST M3-2 24"x12"
COUNTY O M1-5A 24"x24"	COUNTY O M1-5A 24"x24"	COUNTY O M1-5A 24"x24"	COUNTY O M1-5A 24"x24"	COUNTY O M1-5A 24"x24"	COUNTY O M1-5A 24"x24"	COUNTY O M1-5A 24"x24"
MO5-1L 21"x21"	MO6-1 21"x21"	MO5-1L 21"x21"	MO6-1 21"x21"	MO5-1R 21"x21"	MO6-1 21"x21"	MO6-1 21"x21"

D11 D12 D13 D14 D15 D16

DETOUR M4-8 24"x12"	DETOUR M4-8 24"x12"	DETOUR M4-8 24"x12"	DETOUR M4-8 24"x12"	END DETOUR M4-8A 24"x18"	END DETOUR M4-8A 24"x18"
WEST M3-4 24"x12"	WEST M3-4 24"x12"	WEST M3-4 24"x12"	WEST M3-4 24"x12"	EAST M3-2 24"x12"	WEST M3-4 24"x12"
COUNTY O M1-5A 24"x24"	COUNTY O M1-5A 24"x24"	COUNTY O M1-5A 24"x24"	COUNTY O M1-5A 24"x24"	COUNTY O M1-5A 24"x24"	COUNTY O M1-5A 24"x24"
MO5-1L 21"x21"	MO5-1R 21"x21"	MO6-1 21"x21"	MO6-1 21"x21"		

BO

R11-3C
60" X 30"

BRIDGE OUT
X MILES AHEAD

TYPE III BARRICADE

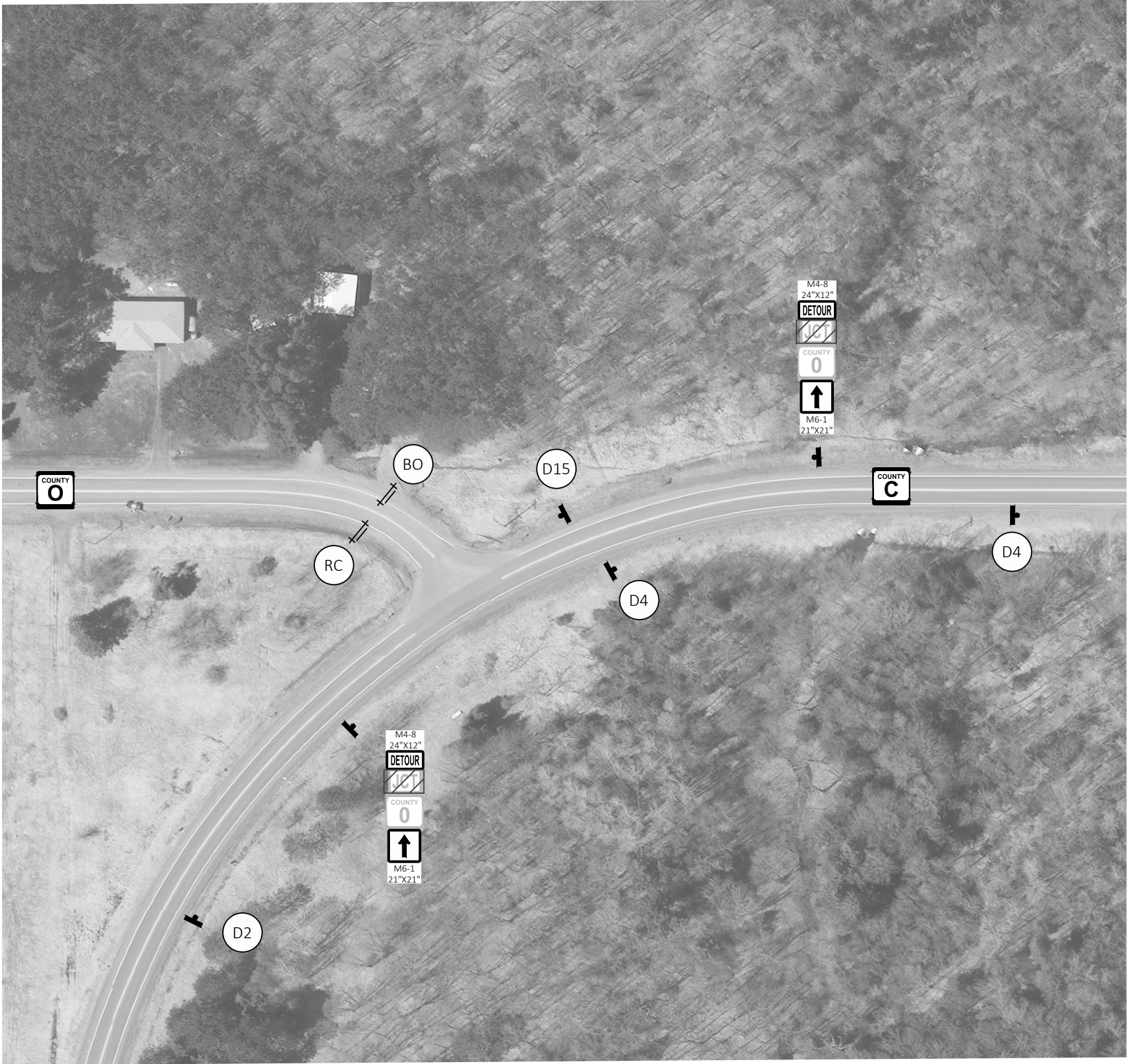
RC

R11-3
60"X30"

ROAD CLOSED
TO THRU TRAFFIC
X MILES AHEAD

TYPE III BARRICADE

A SDD DETOUR BARRICADES AND SIGNS FOR
MAINLINE CLOSURES (DETAILS A, B, D FOR SIGNS
AND BARRICADES AT AND APPROACHING WORK
ZONES FOR BRIDGE AND CULVERT REPLACEMENTS)



DETAIL 4
CTH 0 AND CTH C

DETOUR GENERAL NOTES

ALL SIGNS SHALL BE PLACED IN ACCORDANCE WITH THE WISCONSIN MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

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

SIDEROADS WITHIN CLOSURE LIMITS OR BETWEEN CONCURRENT CLOSED STRUCTURES TO FOLLOW SDD BARRICADES AND SIGNS FOR SIDEROAD CLOSURES DETAIL 3 AS APPLICABLE OR AS DIRECTED BY ENGINEER.

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FMS MESSAGES USED FOR 7 DAY ADVANCED WARNING PRIOR TO DETOUR BEGINNING.

FINAL LOCATION OF ALL FMS SIGNS TO BE DETERMINED BY THE ENGINEER.

LEGEND

- TYPE III BARRICADE
- TYPE III BARRICADE WITH ATTACHED SIGN
- SIGN ON TEMPORARY SUPPORT
- SIGN ON EXISTING SUPPORT
- WORK ZONE
- SIGN NUMBER
- DETOUR ROUTE
- TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT

**HWY 0
BRIDGE WORK
BEGINS XXX-XX**
G20-57B
72"x36"
PLACE AT EITHER SIDE OF
HARD CLOSURE FOR 7 DAY
ADVANCE WARNING

D1
EAST
M3-2
24"x12"
COUNTY
O
M1-5A
24"x24"
DETOUR AHEAD
W20-7A
48" X 48"

D2
WEST
M3-4
24"x12"
COUNTY
O
M1-5A
24"x24"
DETOUR AHEAD
W20-7A
48" X 48"

D3
DETOUR
M4-8
24"x12"
EAST
M3-2
24"x12"
COUNTY
O
M1-5A
24"x24"
MOS-1L
21"x21"

D4
DETOUR
M4-8
24"x12"
WEST
M3-4
24"x12"
COUNTY
O
M1-5A
24"x24"
MOS-1R
21"x21"

D5
DETOUR
M4-8
24"x12"
EAST
M3-2
24"x12"
COUNTY
O
M1-5A
24"x24"
MOS-1L
21"x21"

D6
DETOUR
M4-8
24"x12"
EAST
M3-2
24"x12"
COUNTY
O
M1-5A
24"x24"
MOS-1L
21"x21"

D7
DETOUR
M4-8
24"x12"
EAST
M3-2
24"x12"
COUNTY
O
M1-5A
24"x24"
MOS-1R
21"x21"

D9
DETOUR
M4-8
24"x12"
EAST
M3-2
24"x12"
COUNTY
O
M1-5A
24"x24"
MOS-1R
21"x21"

D10
DETOUR
M4-8
24"x12"
EAST
M3-2
24"x12"
COUNTY
O
M1-5A
24"x24"
MOS-1R
21"x21"

D11
DETOUR
M4-8
24"x12"
WEST
M3-4
24"x12"
COUNTY
O
M1-5A
24"x24"
MOS-1L
21"x21"

D12
DETOUR
M4-8
24"x12"
WEST
M3-4
24"x12"
COUNTY
O
M1-5A
24"x24"
MOS-1R
21"x21"

D13
DETOUR
M4-8
24"x12"
WEST
M3-4
24"x12"
COUNTY
O
M1-5A
24"x24"
MOS-1L
21"x21"

D14
DETOUR
M4-8
24"x12"
WEST
M3-4
24"x12"
COUNTY
O
M1-5A
24"x24"
MOS-1R
21"x21"

D15
END DETOUR
M4-8A
24"x18"
EAST
M3-2
24"x12"
COUNTY
O
M1-5A
24"x24"
MOS-1L
21"x21"

D16
END DETOUR
M4-8A
24"x18"
WEST
M3-4
24"x12"
COUNTY
O
M1-5A
24"x24"
MOS-1R
21"x21"

BO
R11-3C
60" X 30"
BRIDGE OUT
4 1/2 MILES AHEAD
TYPE III BARRICADE

RC
M4-9L
30"x24"
DETOUR
TYPE III BARRICADE

A SDD DETOUR BARRICADES AND SIGNS FOR MAINLINE CLOSURES (DETAILS A, B, D FOR SIGNS AND BARRICADES AT AND APPROACHING WORK ZONES FOR BRIDGE AND CULVERT REPLACEMENTS)



WORK ZONE DETAIL
STRUCTURE B-60-0031

DETOUR GENERAL NOTES

ALL SIGNS SHALL BE PLACED IN ACCORDANCE WITH THE WISCONSIN MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

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FMS MESSAGES USED FOR 7 DAY ADVANCED WARNING PRIOR TO DETOUR BEGINNING.

FINAL LOCATION OF ALL FMS SIGNS TO BE DETERMINED BY THE ENGINEER.

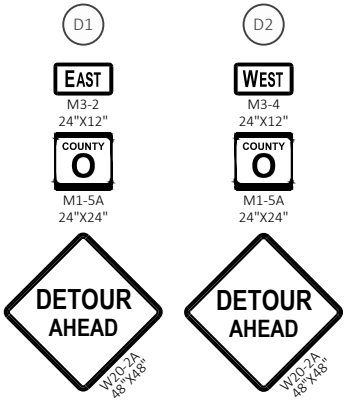
LEGEND

- TYPE III BARRICADE
- TYPE III BARRICADE WITH ATTACHED SIGN
- SIGN ON TEMPORARY SUPPORT
- SIGN ON EXISTING SUPPORT
- WORK ZONE
- SIGN NUMBER
- DETOUR ROUTE
- TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT

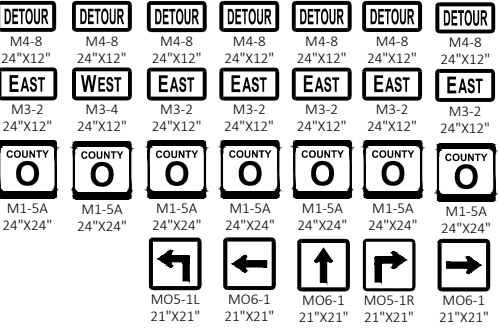
**HWY O
BRIDGE WORK
BEGINS XXX-XX**

G20-57B
72"x36"

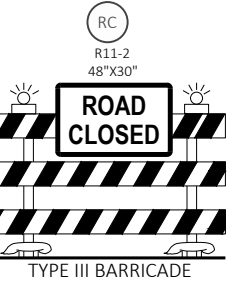
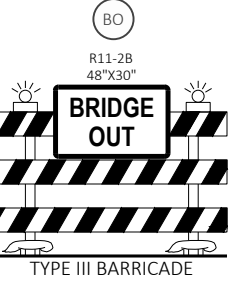
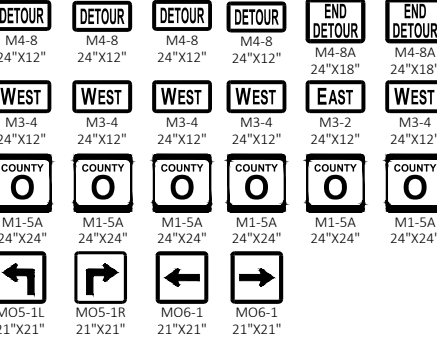
PLACE AT EITHER SIDE OF
HARD CLOSURE FOR 7 DAY
ADVANCE WARNING



- D3
- D4
- D5
- D6
- D7
- D9
- D10



- D11
- D12
- D13
- D14
- D15
- D16



A SDD DETOUR BARRICADES AND SIGNS FOR MAINLINE CLOSURES (DETAILS A, B, D FOR SIGNS AND BARRICADES AT AND APPROACHING WORK ZONES FOR BRIDGE AND CULVERT REPLACEMENTS)

Estimate Of Quantities

9547-03-70

Line	Item	Item Description	Unit	Total	Qty
0002	203.0211.S	Abatement of Asbestos Containing Material (structure) 01. B-60-31	EACH	1.000	1.000
0004	203.0260	Removing Structure Over Waterway Minimal Debris (structure) 01. B-60-31	EACH	1.000	1.000
0006	204.0110	Removing Asphaltic Surface	SY	1,225.000	1,225.000
0008	204.0165	Removing Guardrail	LF	48.000	48.000
0010	205.0100	Excavation Common	CY	435.000	435.000
0012	206.1001	Excavation for Structures Bridges (structure) 01. B-60-31	EACH	1.000	1.000
0014	208.0100	Borrow	CY	123.000	123.000
0016	210.1500	Backfill Structure Type A	TON	500.000	500.000
0018	213.0100	Finishing Roadway (project) 01. 9547-03-70	EACH	1.000	1.000
0020	305.0110	Base Aggregate Dense 3/4-Inch	TON	145.000	145.000
0022	305.0120	Base Aggregate Dense 1 1/4-Inch	TON	960.000	960.000
0024	305.0500	Shaping Shoulders	STA	2.000	2.000
0026	455.0605	Tack Coat	GAL	135.000	135.000
0028	465.0105	Asphaltic Surface	TON	428.000	428.000
0030	502.0100	Concrete Masonry Bridges	CY	99.000	99.000
0032	502.3200	Protective Surface Treatment	SY	397.000	397.000
0034	502.4204	Adhesive Anchors No. 4 Bar	EACH	12.000	12.000
0036	502.4205	Adhesive Anchors No. 5 Bar	EACH	194.000	194.000
0038	505.0600	Bar Steel Reinforcement HS Coated Structures	LB	23,220.000	23,220.000
0040	506.4000	Steel Diaphragms (structure) 01. B-60-31	EACH	6.000	6.000
0042	509.1500	Concrete Surface Repair	SF	15.000	15.000
0044	513.4061	Railing Tubular Type M	LF	200.000	200.000
0046	516.0500	Rubberized Membrane Waterproofing	SY	20.000	20.000
0048	612.0406	Pipe Underdrain Wrapped 6-Inch	LF	156.000	156.000
0050	614.0920	Salvaged Rail	LF	294.000	294.000
0052	614.2300	MGS Guardrail 3	LF	153.130	153.130
0054	614.2330	MGS Guardrail 3 K	LF	6.250	6.250
0056	614.2350	MGS Guardrail Short Radius	LF	83.000	83.000
0058	614.2500	MGS Thrie Beam Transition	LF	157.600	157.600
0060	614.2610	MGS Guardrail Terminal EAT	EACH	3.000	3.000
0062	614.2630	MGS Guardrail Short Radius Terminal	EACH	1.000	1.000
0064	618.0100	Maintenance and Repair of Haul Roads (project) 01. 9547-03-70	EACH	1.000	1.000
0066	619.1000	Mobilization	EACH	1.000	1.000
0068	624.0100	Water	MGAL	23.000	23.000
0070	625.0500	Salvaged Topsoil	SY	3,320.000	3,320.000
0072	628.1504	Silt Fence	LF	1,175.000	1,175.000
0074	628.1520	Silt Fence Maintenance	LF	1,175.000	1,175.000
0076	628.1905	Mobilizations Erosion Control	EACH	5.000	5.000
0078	628.1910	Mobilizations Emergency Erosion Control	EACH	3.000	3.000
0080	628.2008	Erosion Mat Urban Class I Type B	SY	3,740.000	3,740.000
0082	628.2039	Erosion Mat Class III Type D	SY	415.000	415.000
0084	628.6505	Soil Stabilizer Type A	ACRE	0.090	0.090
0086	629.0205	Fertilizer Type A	CWT	3.200	3.200
0088	630.0120	Seeding Mixture No. 20	LB	225.000	225.000
0090	630.0200	Seeding Temporary	LB	135.000	135.000
0092	630.0500	Seed Water	MGAL	109.000	109.000
0094	634.0614	Posts Wood 4x6-Inch X 14-FT	EACH	4.000	4.000
0096	637.2230	Signs Type II Reflective F	SF	12.000	12.000
0098	638.2602	Removing Signs Type II	EACH	4.000	4.000

Estimate Of Quantities

9547-03-70

Line	Item	Item Description	Unit	Total	Qty
0100	638.3000	Removing Small Sign Supports	EACH	4.000	4.000
0102	642.5001	Field Office Type B	EACH	1.000	1.000
0104	643.0420	Traffic Control Barricades Type III	DAY	1,190.000	1,190.000
0106	643.0705	Traffic Control Warning Lights Type A	DAY	1,720.000	1,720.000
0108	643.0900	Traffic Control Signs	DAY	7,730.000	7,730.000
0110	643.0920	Traffic Control Covering Signs Type II	EACH	5.000	5.000
0112	643.1000	Traffic Control Signs Fixed Message	SF	36.000	36.000
0114	643.5000	Traffic Control	EACH	1.000	1.000
0116	645.0111	Geotextile Type DF Schedule A	SY	120.000	120.000
0118	646.1020	Marking Line Epoxy 4-Inch	LF	1,490.000	1,490.000
0120	650.5000	Construction Staking Base	LF	614.000	614.000
0122	650.8000	Construction Staking Resurfacing Reference	LF	423.000	423.000
0124	650.9911	Construction Staking Supplemental Control (project) 01. 9547-03-70	EACH	1.000	1.000
0126	650.9920	Construction Staking Slope Stakes	LF	614.000	614.000
0128	690.0150	Sawing Asphalt	LF	64.000	64.000
0130	715.0502	Incentive Strength Concrete Structures	DOL	594.000	594.000
0132	999.2000.S	Installing and Maintaining Bird Deterrent System (station) 01. Sta 14+26	EACH	1.000	1.000
0134	SPV.0060	Special 01. Foam Void Filling B-60-31	EACH	1.000	1.000

3

3

REMOVALS

CATEGORY	STATION	TO	STATION	LOCATION	204.0110	204.0165	614.0920	690.0150	REMARKS
					REMOVING ASPHALTIC SURFACE SY	REMOVING GUARDRAIL LF	SALVAGED RAIL LF	SAWING ASPHALT LF	
0010			11+59	CTH O	-	-	-	22	
0010			1+23	CRANE DR	-	-	-	20	
0010			17+10	CTH O	-	-	-	22	
0010	12+93	-	13+65	RT	-	12	61	-	SALVAGE EXISTING RAIL AND REMOVE END TREATMENTS
0010	13+18	-	13+91	LT	-	12	61	-	
0010	14+61	-	15+84	RT	-	12	111	-	
0010	14+88	-	15+62	LT	-	12	61	-	
0010	11+59	-	13+10	CTH O & CRANE DR	825	-	-	-	
0010	15+50	-	17+10	CTH O	400	-	-	-	
TOTAL 0010					1,225	48	294	64	

EARTHWORK

DIVISION	FROM/TO STATION	LOCATION	205.0100 EXCAVATION COMMON	SALVAGED/UNUSABLE PAVEMENT MATERIAL (CY) (NOTE 2)	AVAILABLE MATERIAL CY	UNEXPANDED FILL (CY)	EXPANDED FILL (CY) (NOTE 3)	MASS ORDINATE +/- (CY) (NOTE 4)	WASTE (CY)	208.0100 BORROW (CY)	COMMENT
			CUT (CY) (NOTE 1)				FACTOR 1.25				
WEST APPROACH	11+60 / 13+77	CTH O	112	63	49	77	96	-47	0	47	
EAST APPROACH	14+75 / 17+10	CTH O	253	66	187	206	258	-71	0	71	
TOTAL COMMON EXC			365	129	236	283	354	-118	0	118	

DIVISION	FROM/TO STATION	LOCATION	205.0100	SALVAGED/UNUSABLE PAVEMENT MATERIAL (CY) (NOTE 2)	AVAILABLE MATERIAL CY	UNEXPANDED FILL (CY)	EXPANDED FILL (CY)	MASS ORDINATE +/- (CY) (NOTE 4)	WASTE (CY)	208.0100 BORROW (CY)	COMMENT
			EXCAVATION COMMON				(NOTE 3)				
			CUT (CY)				FACTOR 1.25				
			(NOTE 1)	(NOTE 2)							
CRANE DR	0+20 / 1+28.76		70	66	4	7	9	-5	0	5	
TOTAL COMMON EXC			70	66	4	7	9	-5	0	5	

BASE AGGREGATE

CATEGORY	STATION	TO	STATION	LOCATION	305.0110	305.0120	305.0500	624.0100
					BASE AGGREGATE DENSE 3/4-INCH TON	BASE AGGREGATE DENSE 1 1/4-INCH TON	SHAPING SHOULDERS STA	WATER MGAL
0010	11+88	-	13+77	WEST APPROACH & CRANE DR RT	52	405	-	10
0010	14+75	-	17+60	EAST APPROACH	93	555	-	13
0010	11+60	-	12+40	CTH O LT	-	-	1	
0010	0+25	-	1+23	CRANE DR LT	-	-	1	
TOTAL 0010					145	960	2	23

ASPHALT

CATEGORY	STATION	TO	STATION	LOCATION	455.0605 TACK COAT GAL	465.0105 ASPHALTIC SURFACE TON
0010	11+59	-	13+77	CTH O	47	148
0010	14+75	-	17+10	CTH O	52	165
0010	0+11	-	1+23	CRANE DR	36	115
TOTAL 0010					135	428

GUARDRAIL

CATEGORY	STATION	TO	STATION	LOCATION	614.2300 MGS GUARDRAIL 3 LF	614.2330 MGS GUARDRAIL 3 K LF	614.2350 MGS GUARDRAIL SHORT RADIUS LF	614.2500 MGS THRIE BEAM TRANSITION LF	614.2610 MGS GUARDRAIL TERMINAL EAT EACH	614.2630 MGS GUARDRAIL SHORT RADIUS TERMINAL EACH	REMARKS
0010	12+09	-	13+65	CTH O, RT	62.5	-	-	39.4	1	-	----
0010	12+86	-	13+90	CTH O, LT	28.125	6.25	83	39.4	-	1	56' RADIUS ON SHORT RADIUS GUARDRAIL; ONE 6'-3" SECTION OF MGS 3K
0010	14+62	-	15+55	CTH O, RT	-	-	-	39.4	1	-	----
0010	14+87	-	16+43	CTH O, LT	62.5	-	-	39.4	1	-	----
TOTAL 0010					153.125	6.25	83	157.6	3	1	RAIL BETWEEN THRIE BEAM TRANSITION AND RADIUS

EROSION CONTROL & RESTORATION

CATEGORY	LOCATION	625.0500 SALVAGED TOPSOIL SY	628.1504 SILT FENCE LF	628.1520 SILT FENCE MAINTENANCE LF	628.1905 MOBILIZATIONS EROSION CONTROL EACH	628.1910 MOBILIZATIONS EMERGENCY EROSION CONTROL EACH	628.2008 EROSION MAT URBAN CLASS I TYPE B SY	628.2039 EROSION MAT CLASS III TYPE D SY	628.6505 SOIL STABILIZER TYPE A ACRE	629.0205 FERTILIZER TYPE A CWT	630.0120 SEEDING MIXTURE NO. 20 LB	630.0200 SEEDING TEMPORARY LB	630.0500 SEED WATER MGAL
0010	ENTIRE PROJECT	3,320	940	940	5	3	2,990	330	0.07	2.5	175	105	87
0010	UNDISTRIBUTED	-	235	235	-	-	750	85	0.02	0.7	50	30	22
TOTAL 0010		3,320	1,175	1,175	5	3	3,740	415	0.09	3.2	225	135	109

PERMANENT SIGNING

CATEGORY	LOCATION	634.0614 POSTS WOOD 4X6-INCH X 14-FT EACH	637.2230 SIGNS TYPE II REFLECTIVE F SF	638.2602 REMOVING SIGNS TYPE II EACH	638.3000 REMOVING SMALL SIGN SUPPORTS EACH	REMARKS
0010	NW QUADRANT	1	3.0	1	1	PROPOSED BRIDGE MARKER SIGNS, W5-52L & W5-52R. INSTALL ACCORDING TO S.D.D "SIGNING AND MARKING FOR TWO LANE BRIDGES"
0010	SW QUADRANT	1	3.0	1	1	
0010	NE QUADRANT	1	3.0	1	1	
0010	SE QUADRANT	1	3.0	1	1	
TOTAL 0010		4	12	4	4	

3

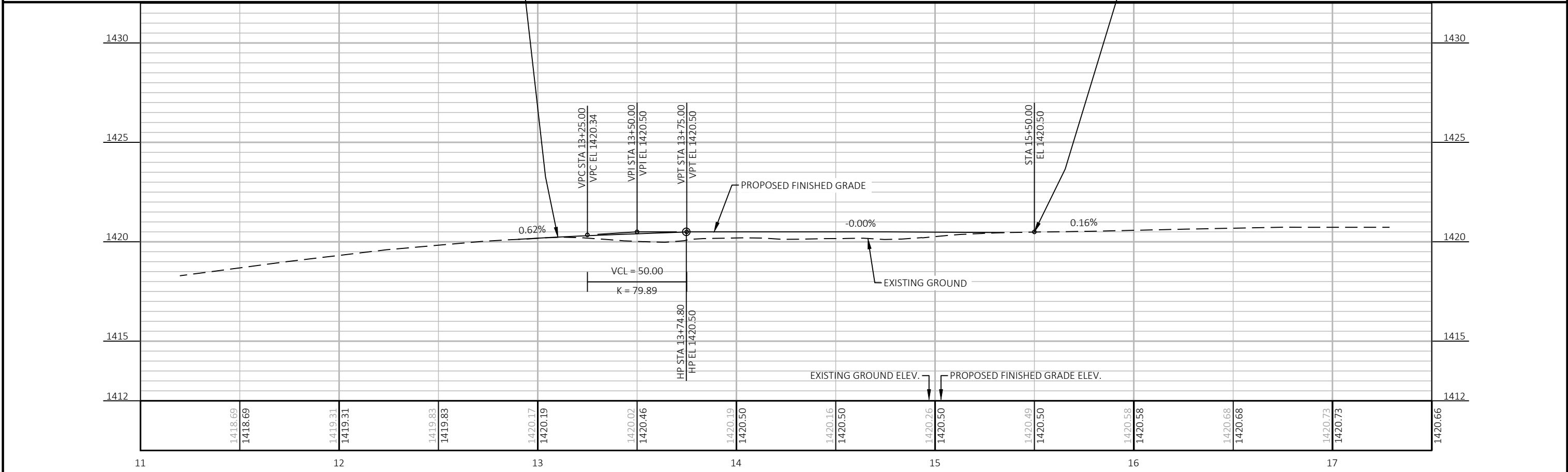
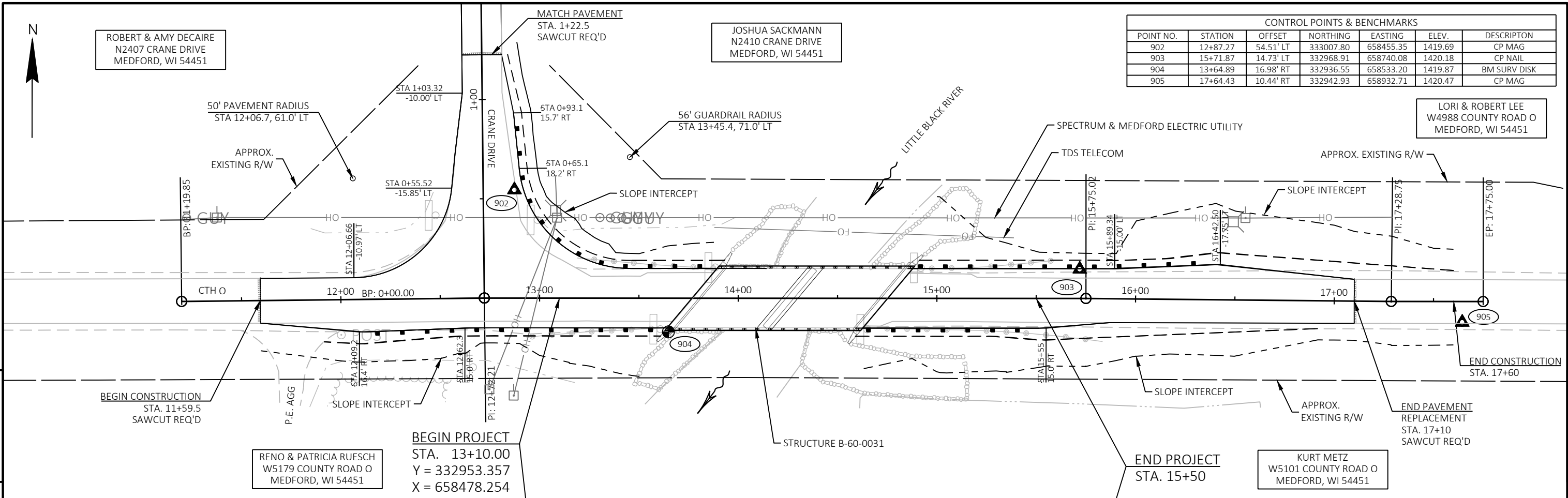
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TRAFFIC CONTROL								
CATEGORY	LOCATION	643.0420	643.0705	643.0900	643.0920	643.1000	643.5000	REMARKS
		TRAFFIC CONTROL BARRICADES TYPE III DAY	TRAFFIC CONTROL WARNING LIGHTS TYPE A DAY	TRAFFIC CONTROL SIGNS DAY	TRAFFIC CONTROL COVERING SIGNS TYPE II EACH	TRAFFIC CONTROL SIGNS FIXED MESSAGE SF	TRAFFIC CONTROL EACH	
0010	ENTIRE PROJECT	1,190	1,720	7,730	5	36	1	ONE CYCLE FOR COVERING SIGNS
	TOTAL 0010	1,190	1,720	7,730	5	36	1	

PAVEMENT MARKING							
CATEGORY	STATION	TO	STATION	LOCATION	646.1020	REMARKS	
					MARKING LINE EPOXY 4-INCH LF		
0010	11+59	-	14+75	CTH O, WEST APPROACH & DECK	80	YELLOW DASHED CENTERLINE	
0010					640	WHITE EDGE LINES	
0010	14+75	-	17+10	CTH O, EAST APPROACH	300	YELLOW EB NO PASSING	
0010					470	WHITE EDGE LINES	
				TOTAL 0010	1,490		

CONSTRUCTION STAKING								
CATEGORY	STATION	TO	STATION	LOCATION	650.5000	650.8000	650.9911.01	650.9920
					CONSTRUCTION STAKING BASE LF	CONSTRUCTION STAKING RESURFACING REFERENCE LF	CONSTRUCTION STAKING SUPPLEMENTAL CONTROL (PROJECT) (01. 9547-03-70) EACH	CONSTRUCTION STAKING SLOPE STAKES LF
0010	11+59	-	17+60	CTH O	502	311	1	502
0010	0+11	-	1+23	CRANE DR	112	112	-	112
				TOTAL 0010	614	423	1	614

BIRD DETERRENT SYSTEM			
CATEGORY	LOCATION	999.2000.S.01 INSTALLING AND MAINTAINING BIRD DETERRENT SYSTEM (STATION) (01. 14+26)	
		EACH	
0010	ENTIRE PROJECT	1	
	TOTAL 0010	1	



Standard Detail Drawing List

08E09-06	SILT FENCE
12A03-10	NAME PLATE (STRUCTURES)
13C19-03	HMA LONGITUDINAL JOINTS
14B42-07A	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-07B	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-07C	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-07D	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B44-04A	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-04B	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-04C	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B45-05A	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05B	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05C	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05D	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05E	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05F	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05G	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05H	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05I	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05J	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05K	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05L	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B53-03A	SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)
14B53-03B	SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)
14B53-03C	SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)
14B53-03D	SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)
14B53-03E	SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)
14B53-03F	SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)
14B53-03G	SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)
14B53-03H	SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)
14B53-03I	SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)
15C02-09A	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-09B	BARRICADES AND SIGNS FOR VARIOUS CLOSURES
15C02-09C	DETOUR SIGNING FOR MAINLINE CLOSURES
15C03-05	BARRICADES AND SIGNS FOR SIDEROAD CLOSURES
15C06-12	SIGNING & MARKING FOR TWO LANE BRIDGES
15C08-24A	PERMANENT LONGITUDINAL PAVEMENT MARKINGS
15C11-10B	CHANNELIZING DEVICES DRUMS, CONES, BARRICADES AND VERTICAL PANELS



- 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 1 1/8" X 1 1/8" 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.



SILT FENCE
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION
APPROVED <u>4-29-05</u> DATE <u>/S/ Beth Cunningham</u> CHIEF ROADWAY DEVELOP <u>22</u> INCHER FHWA

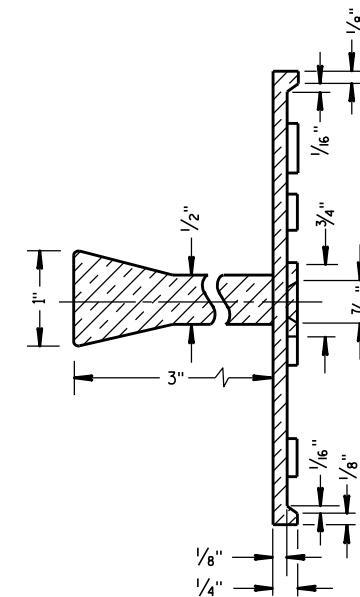


GENERAL NOTES

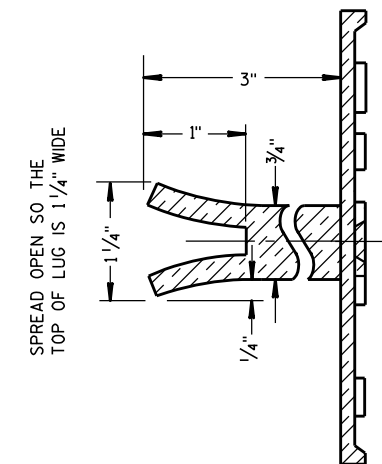
NAME PLATES TO BE INSTALLED ON BRIDGES, CULVERTS, AND RETAINING WALLS SHALL CONFORM TO THE REQUIREMENTS OF SECTION 502.3.11 OF THE STANDARD SPECIFICATIONS.

THE BRIDGE NUMBER AND YEAR BUILT SHOWN ON THIS DRAWING ARE EXAMPLES ONLY. SEE CONSTRUCTION PLANS FOR INDIVIDUAL NUMBERING AND YEAR BUILT.

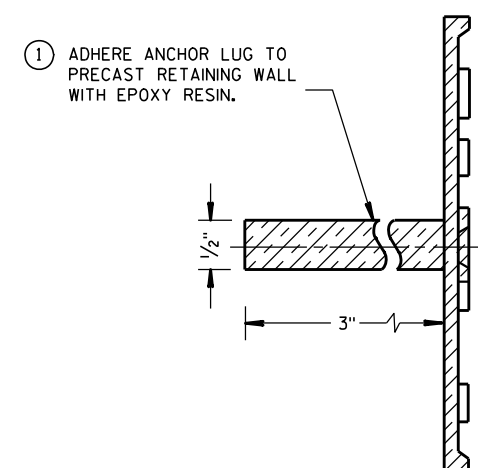
- ① EPOXY RESIN SHALL BE FROM AN APPROVED MANUFACTURER AND USED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
- ② REHABILITATION OF AN EXISTING STRUCTURE SHOULD USE THE DATE OF ORIGINAL STRUCTURE CONSTRUCTION.



SECTION A-A



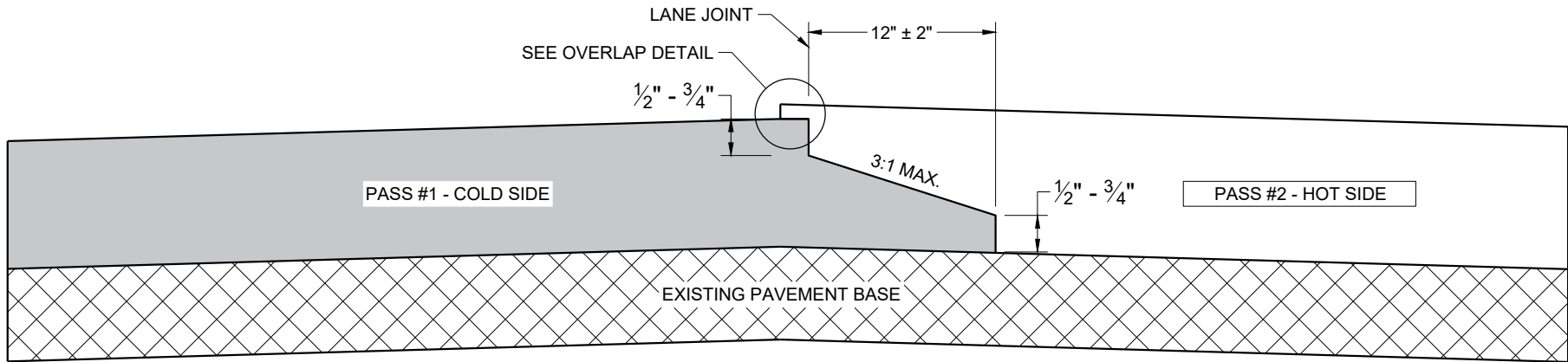
ALTERNATE LUG



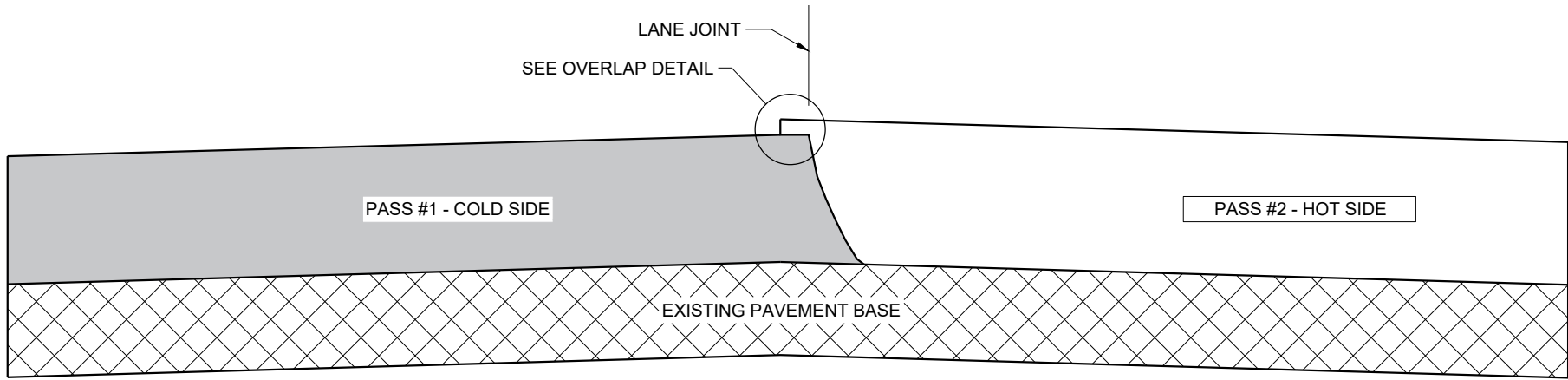
ALTERNATE LUG

(FOR ATTACHMENT TO PRECAST STRUCTURES)

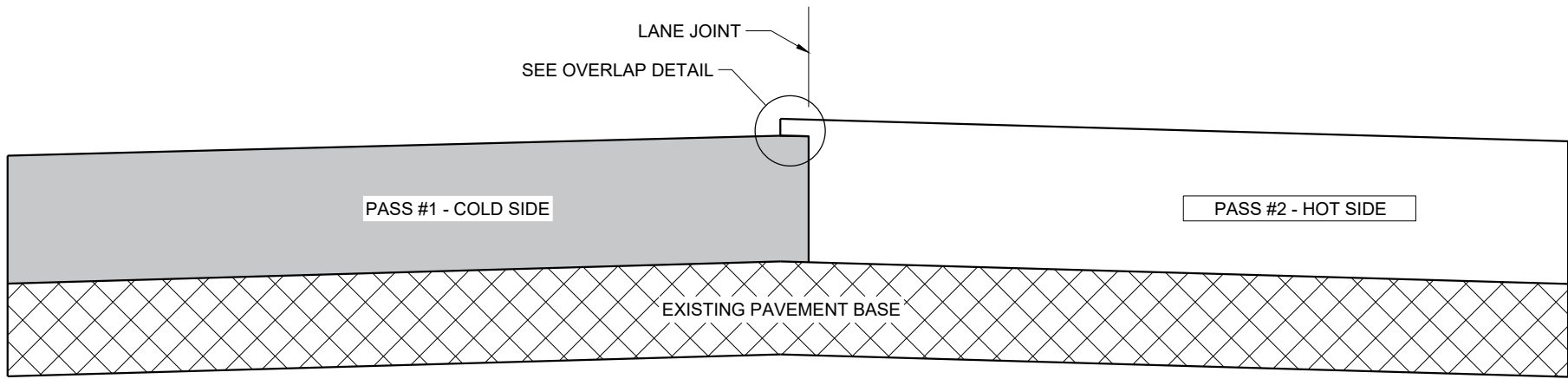
NAME PLATE (STRUCTURES)	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED <u>3/26/10</u> DATE	<u>/S/ Scot Beck</u> CHIEF STRUCTURAL DEVELOPER
FHWA	23 IEER



**TYPICAL PAVEMENT CROSS SECTION
NOTCHED WEDGE JOINT**



**TYPICAL PAVEMENT CROSS SECTION
VERTICAL JOINT**



**TYPICAL PAVEMENT CROSS SECTION
VERTICAL JOINT (MILLED)**

GENERAL NOTES

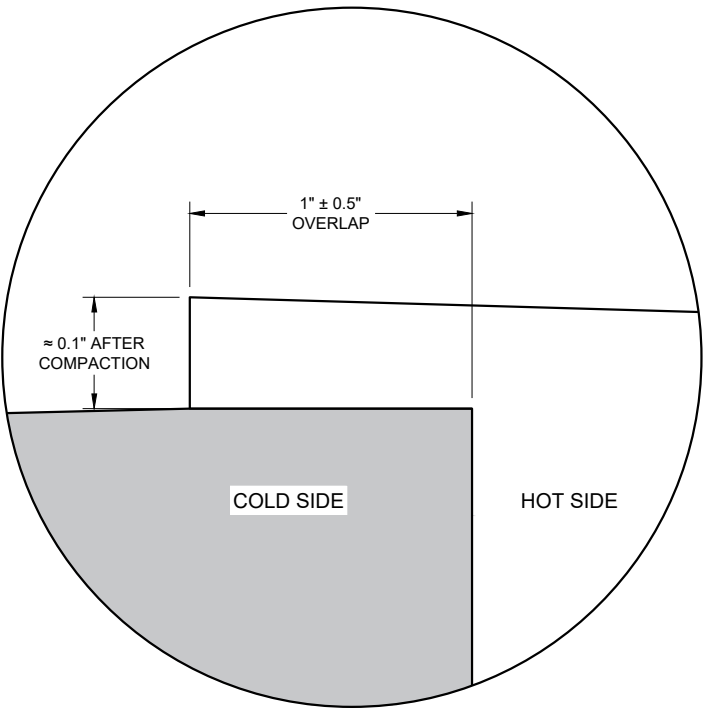
IN ADDITION TO THE DETAILS PROVIDED IN THIS DRAWING, CONFORM TO STANDARD SPECIFICATION 450.3.2.8 FOR WHEN A NOTCHED WEDGE JOINT IS REQUIRED AND FOR GENERAL JOINT CONSTRUCTION REQUIREMENTS.

FOR ALL LONGITUDINAL JOINTS, ENSURE THE PAVER SCREED OVERLAPS THE PREVIOUSLY PLACED PAVEMENT BY $1" \pm 0.5"$ AND THE HOT SIDE OF THE JOINT REMAINS HIGHER THAN THE COLD SIDE BY APPROXIMATELY $0.1"$ AFTER FINAL COMPACTION. (IT WILL BE FLUSH WHEN PAVING IN ECHELON.)

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

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

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



OVERLAP DETAIL (TYPICAL)

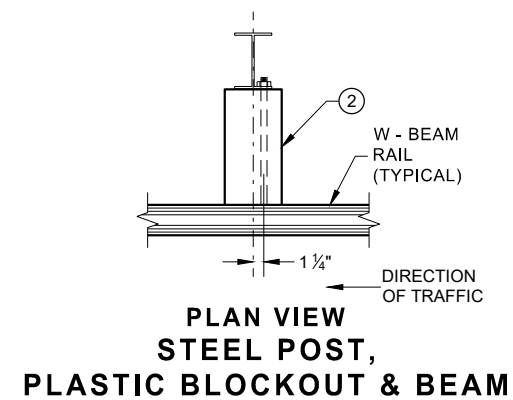
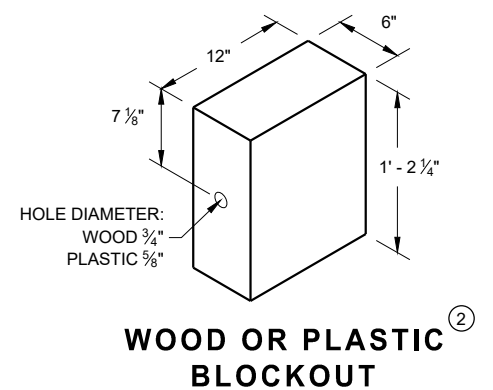
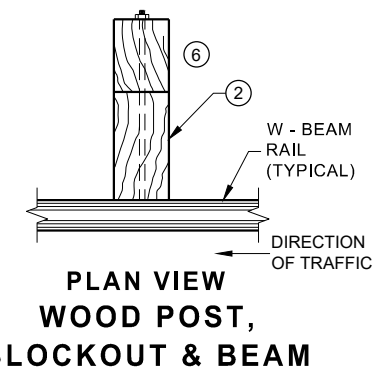
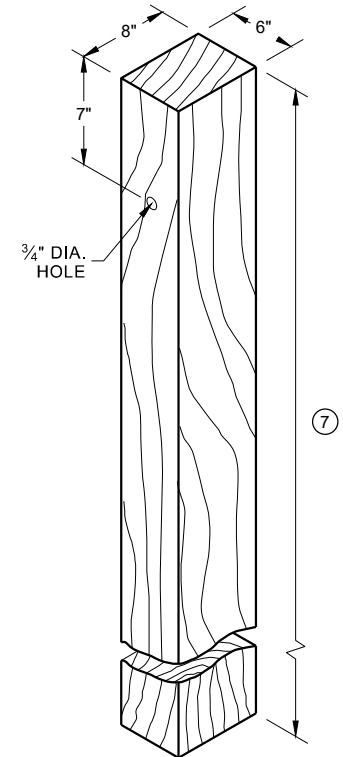
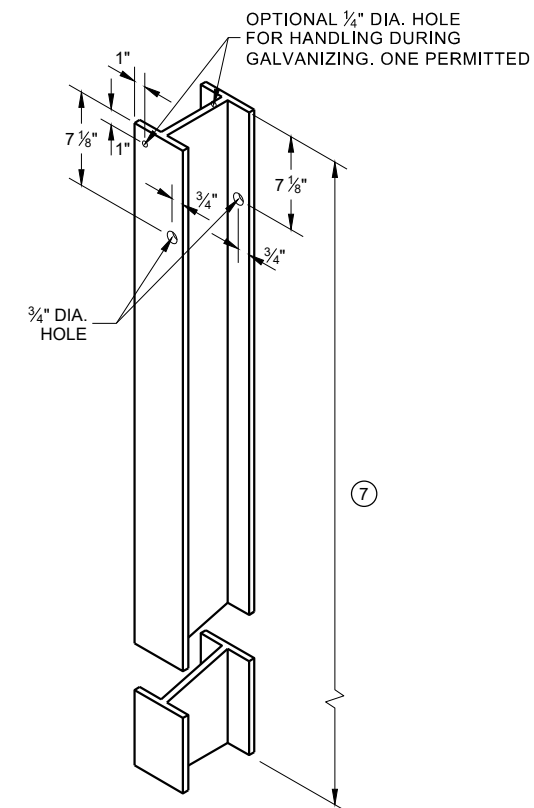
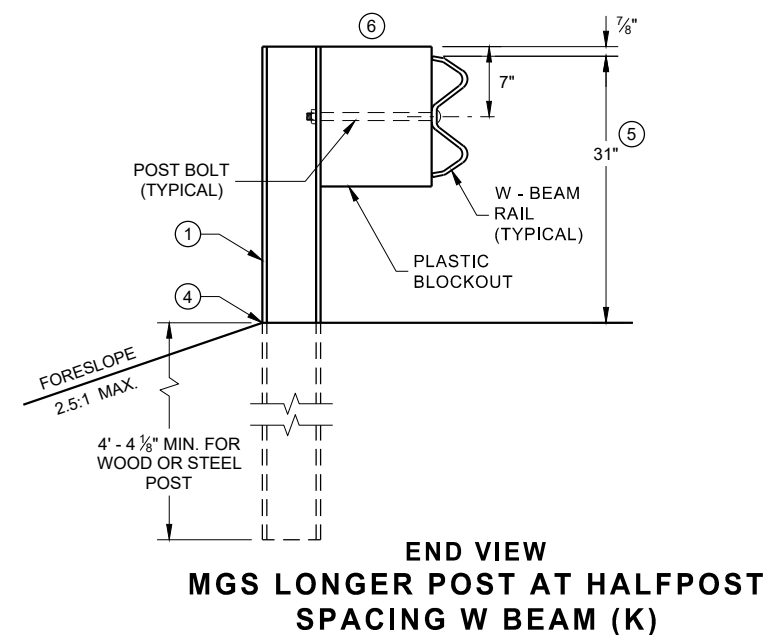
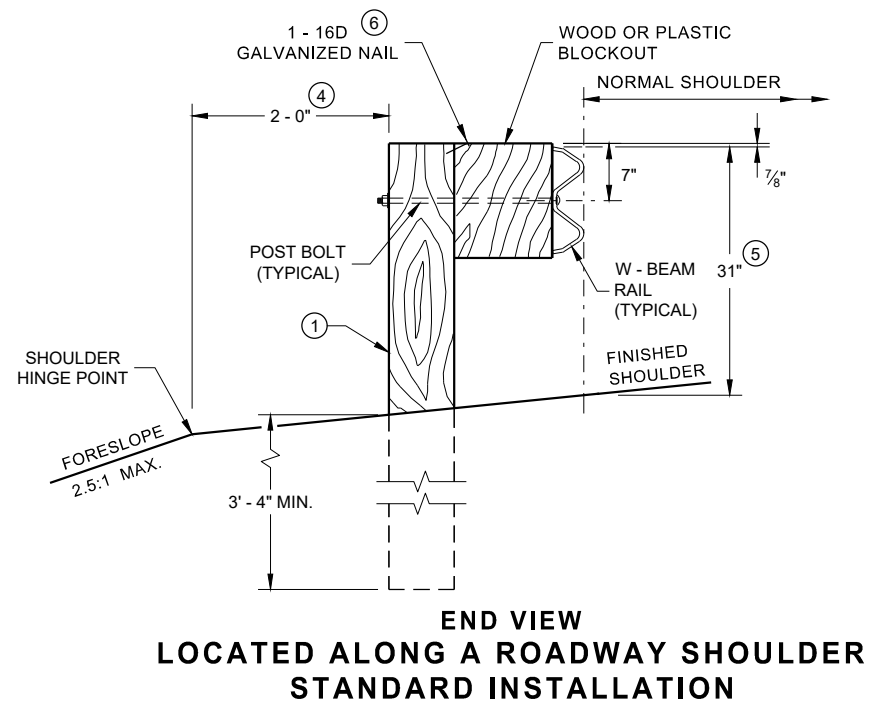
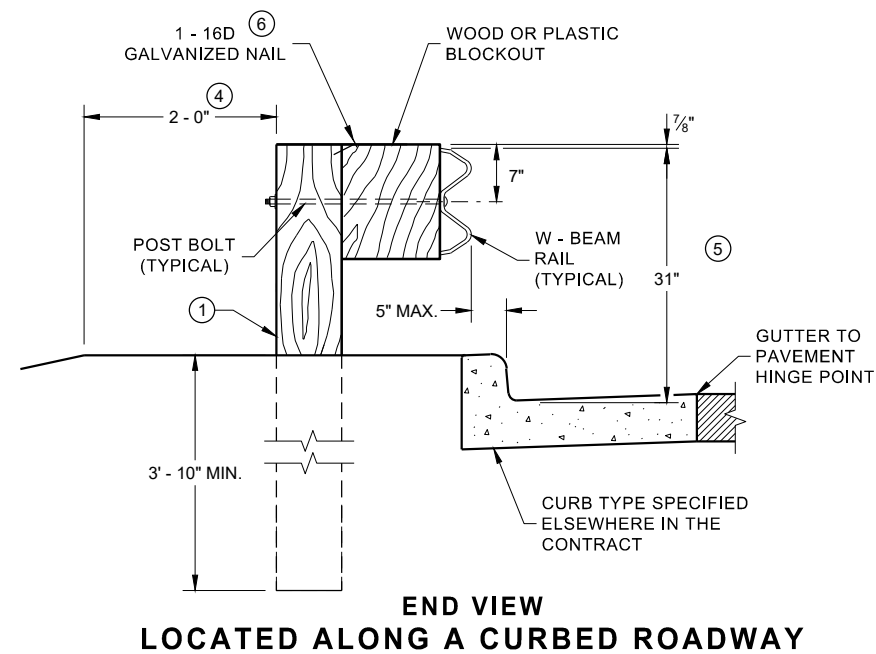
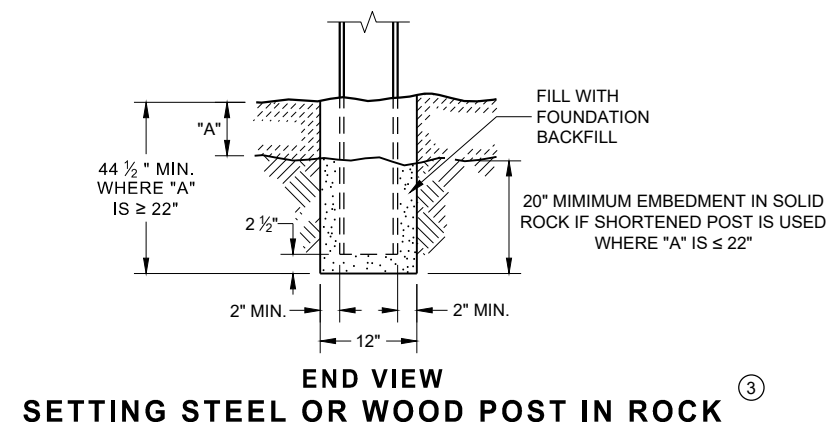
HMA LONGITUDINAL JOINTS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
November 2020 /S/ Steven Hefel
DATE HMA PAVEMENT ENGIN 24

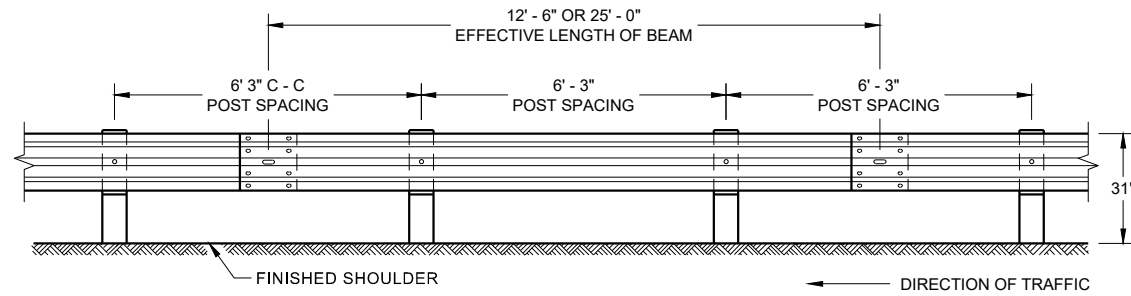
FHWA

- ① WOOD OR STEEL POSTS (w6X9 OR w6X8.5) MAY BE USED. DO NOT INTERMIX WOOD AND STEEL POSTS. INSTALL STEEL POSTS WITH HOLES ON APPROACHING TRAFFIC SIDE.
- ② USE WOOD OR APPROVED PLASTIC BLOCKOUTS. WOOD BLOCKOUTS MAY BE CONSTRUCTED OUT OF TWO OR MORE WOOD BLOCKOUTS. SEE ALTERNATE WOOD BLOCKOUT DETAIL. DIMENSIONS OF APPROVED PLASTIC BLOCKOUTS MAY VARY.
- ③ IF ROCK IS ENCOUNTERED DURING EXCAVATION, PROVIDE A HOLE 12 INCHES IN DIAMETER EXTENDING 20 INCHES DEEP INTO THE ROCK. PLACE APPROXIMATELY 2 1/2" INCHES OF GRANULAR MATERIAL IN THE BOTTOM OF THE HOLE. CUT THE POSTS THE TO LENGTH AND 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 $\pm 1"$. FOR EXISTING MGS INSTALLATION TOP OF W-BEAM IS BETWEEN 27 3/4" 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.
- ⑦ TOTAL POST LENGTH FOR TYPE K IS 7' - 0".
TOTAL POST LENGTH FOR OTHER MGS TYPES IS 6' - 0".

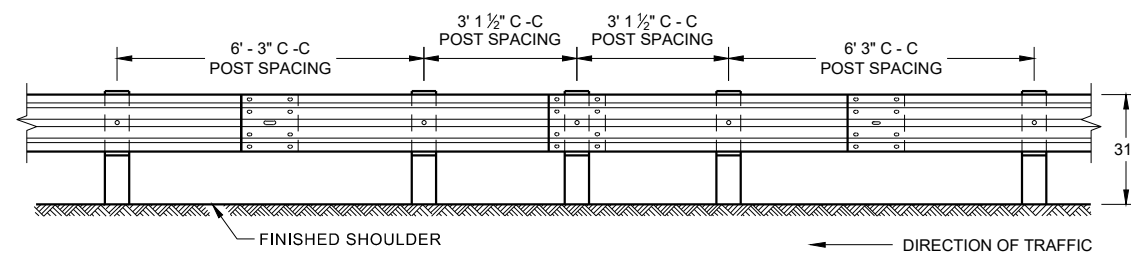


**MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL**

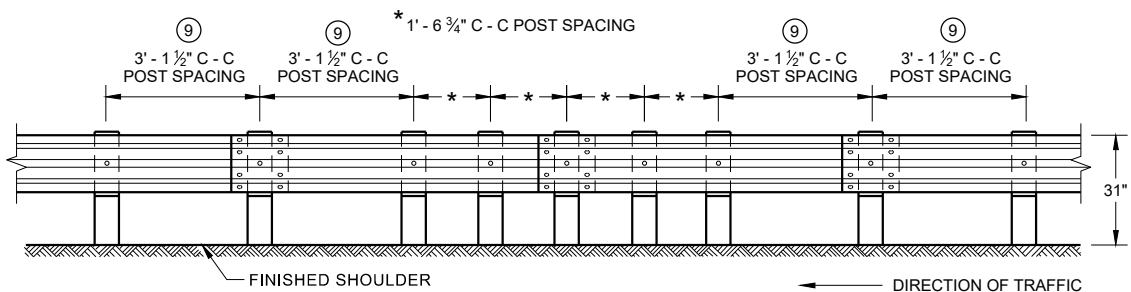
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION 25



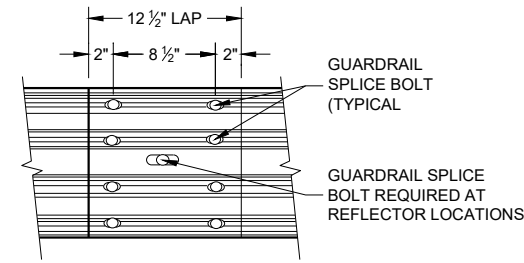
**FRONT VIEW
POST SPACING STANDARD INSTALLATION**



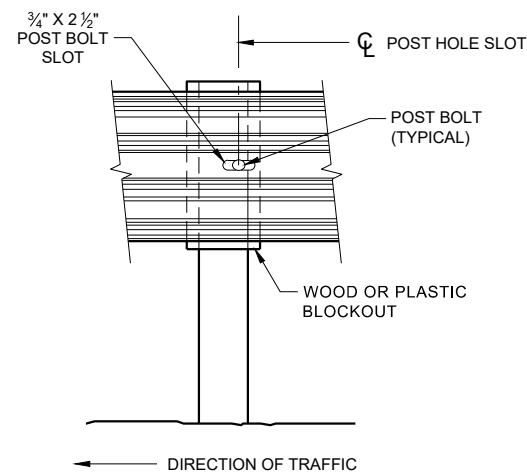
**FRONT VIEW
HALF POST SPACING (HS) AND
HALF POST SPACING WITH LONGER POSTS (K)**



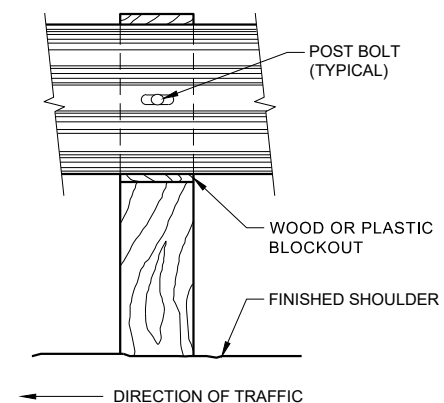
**FRONT VIEW
QUARTER POST SPACING (QS)**



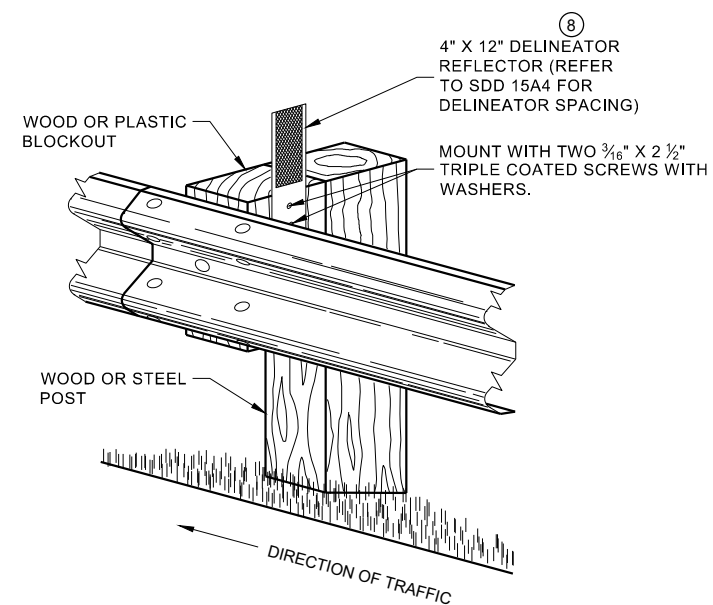
**FRONT VIEW
MID-SPAN BEAM SPLICE**



FRONT VIEW AT STEEL POST



FRONT VIEW AT WOOD POST



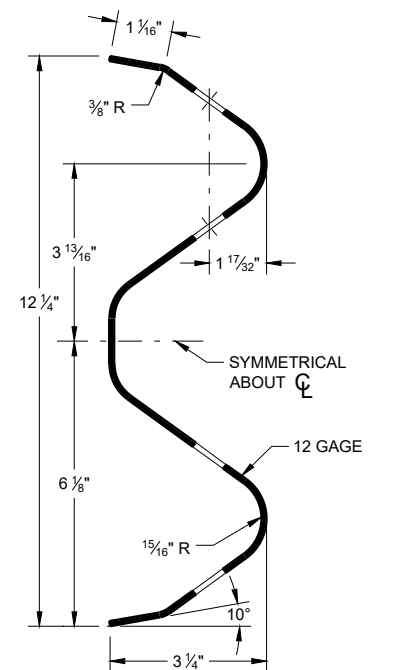
**ONE SIDED REFLECTOR DETAIL
AND TYPICAL INSTALLATION**

GENERAL NOTES

- 8 DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL.
- 9 25 FEET OF HALF POST SPACING IS REQUIRED ON APPROACH AND DEPARTURE ENDS OF QUARTER POST SPACING.

POST BOLTS ARE A 3/8" DIAMETER ASTM A307 GUARDRAIL BOLT. A POST BOLT REQUIRES 3/8" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT AND 3/8" DIAMETER F844 FLAT WASHER. POST BOLTS MAY BE LONGER IF MULTIPLE BLOCKOUTS ARE BEING USED.

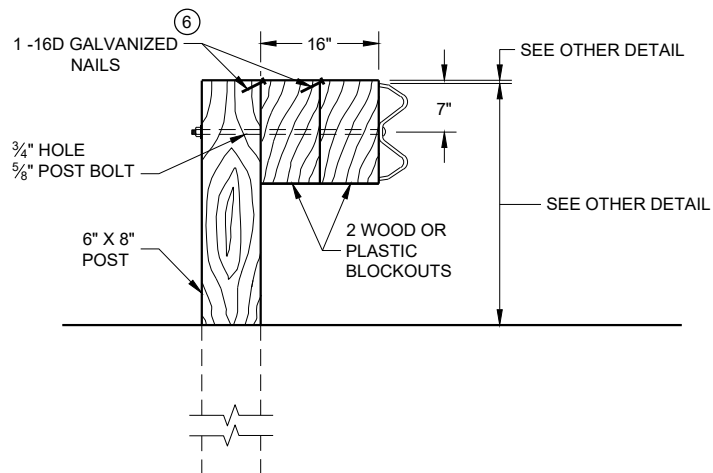
GUARD RAIL SPLICE BOLTS ARE A 3/8" DIAMETER ASTM A307 GUARDRAIL HEAD BOLT. A GUARDRAIL SPLICE BOLT REQUIRES 3/8" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT.



SECTION THRU W-BEAM RAIL

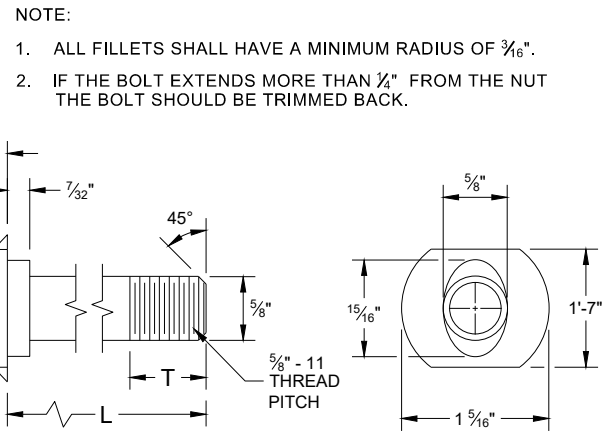
**MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



DETAIL FOR 16" BLOCKOUT DEPTH

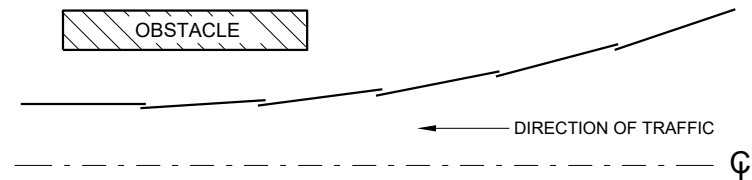
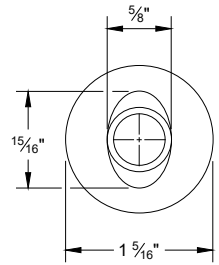
IT IS ACCEPTABLE TO USE BLOCKOUTS UP TO 16" DEEP TO INCREASE THE POST OFFSET TO AVOID UNDERGROUND OBSTACLES. THERE IS NO LIMIT TO THE NUMBER OF POSTS THAT CAN HAVE ADDITIONAL BLOCKOUTS UP TO 16" DEEP.



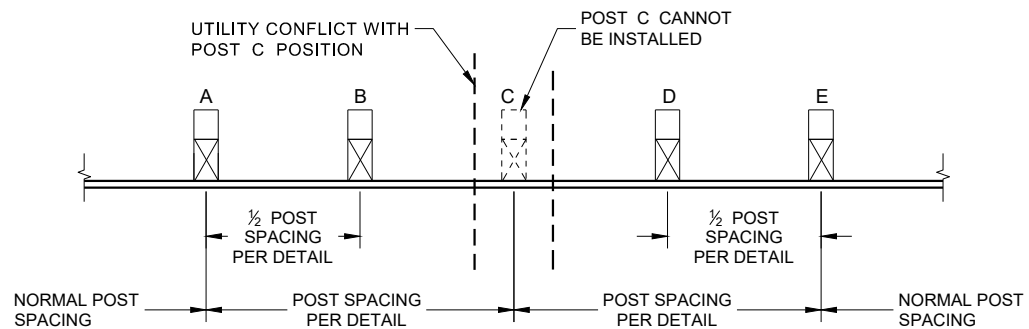
POST BOLT TABLE

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

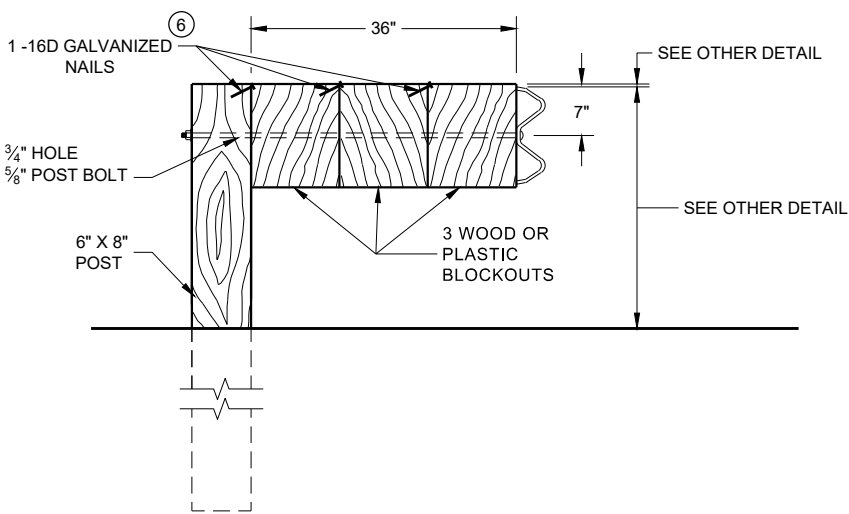
ALTERNATE BOLT HEAD



PLAN VIEW
BEAM LAPPING DETAIL

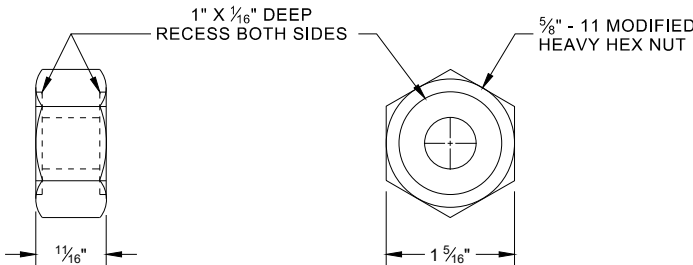


POST DRIVING FOR CONTINUOUS
UNDERGROUND OBSTRUCTION



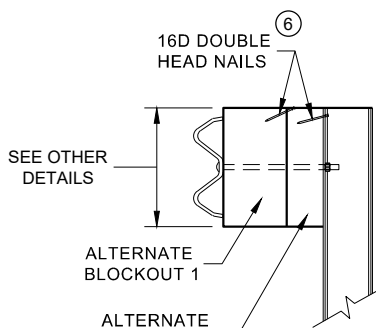
DETAIL FOR 36" BLOCKOUT DEPTH

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.

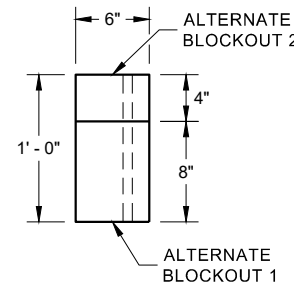


POST BOLT, SPLICE BOLT
AND RECESS NUT

6 WHEN USING STEEL POST AD 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.



SIDE VIEW

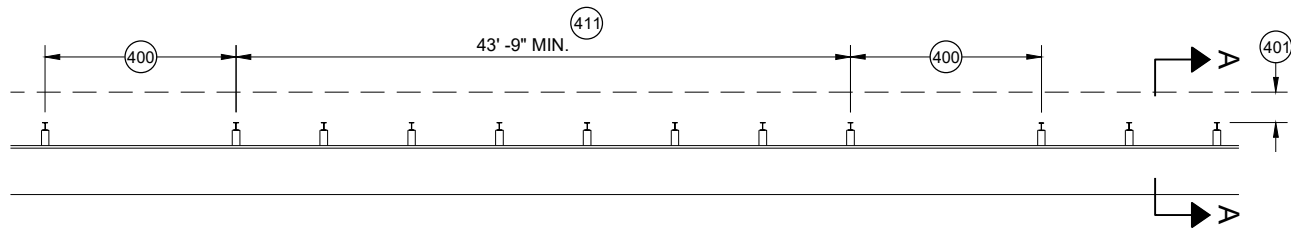


PLAN VIEW

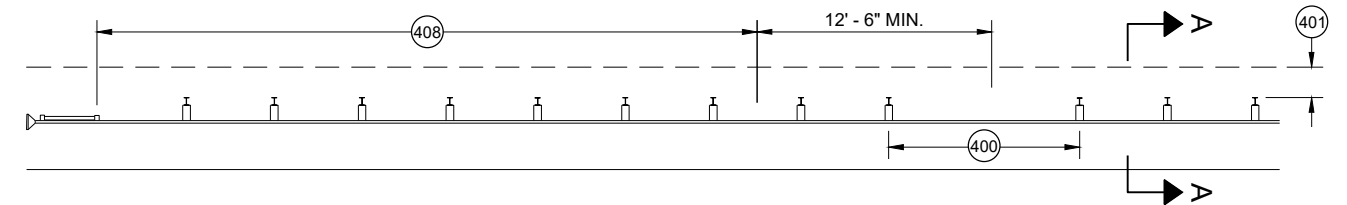
ALTERNATE WOOD
BLOCKOUT DETAIL

MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL

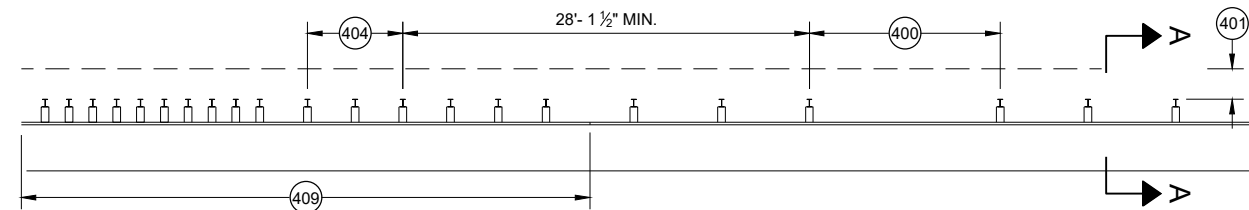
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



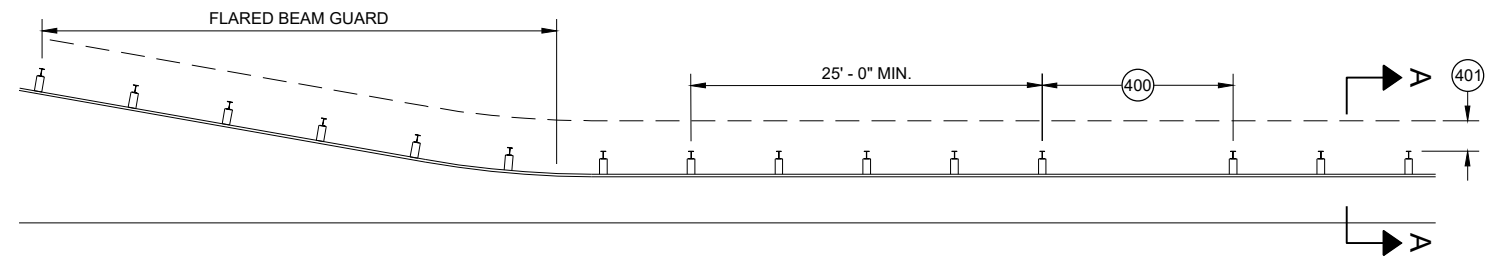
MISSING POST IN MGS GUARDRAIL



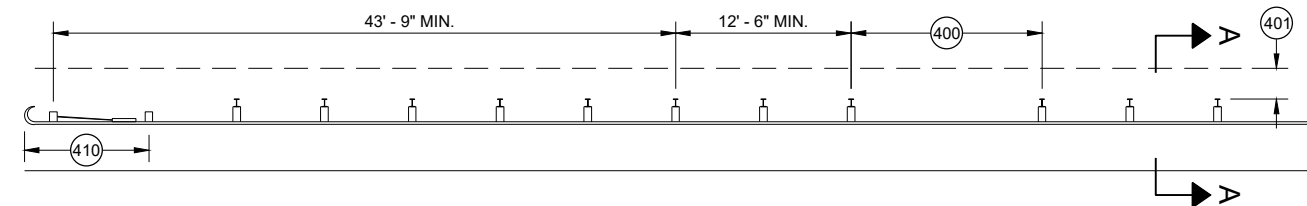
MISSING POST IN MGS GUARDRAIL NEAR EAT



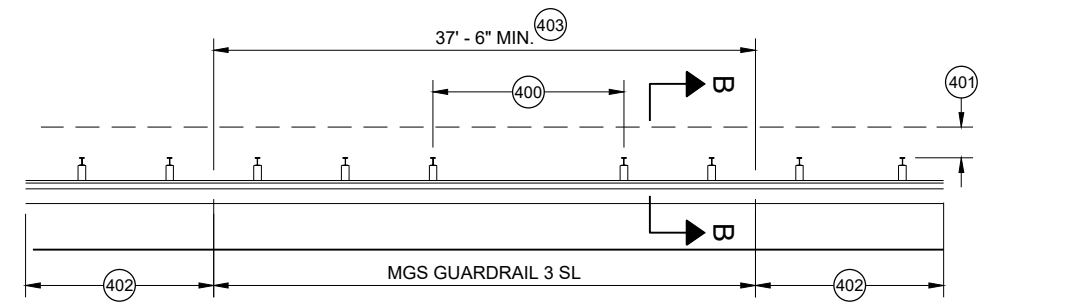
MISSING POST IN MGS GUARDRAIL NEAR AN APPROACH TRANSITION



MISSING POST IN MGS GUARDRAIL NEAR FLARED BEAM GUARD

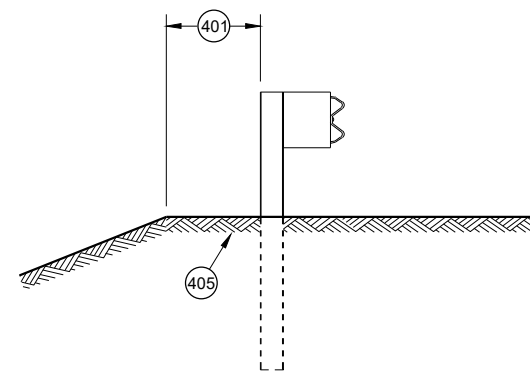


MISSING POST IN MGS GUARDRAIL NEAR A TYPE 2 END TERMINAL

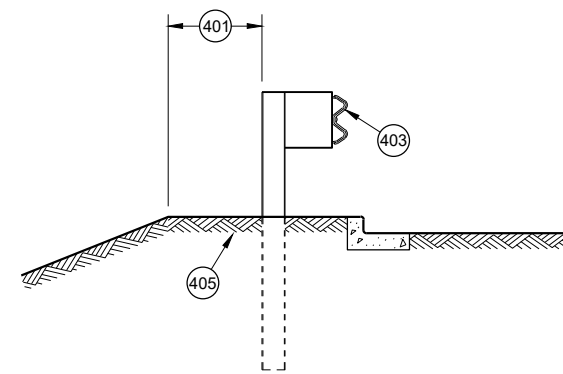


MISSING POST IN SHORT SPAN MGS GUARDRAIL NEAR CURB (SL)

- (400) MAX SPAN 12' - 6"
- (401) 2' MIN.
- (402) MGS GUARDRAIL 3
- (403) NESTING BEAM GUARD
- (404) ASYMMETRIC TRANSITION
- (405) SOIL WELL DRAINED AND COMPACTED
- (406) SEE OTHER DRAWINGS IN THIS SDD
- (407) SEE OTHER DRAWINGS FOR MIN. SPACING BETWEEN SPANS
- (408) SEE SDD 14B44
- (409) SEE SDD 14B45
- (410) SEE SDD 14B47
- (411) MINIMUM DISTANCE BETWEEN MISSING POST SPANS.



SECTION A - A



SECTION B - B

**MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May 2021
DATE
/S/ Rodney Taylor
ROADWAY STANDARDS DEVELOPMENT
UNIT SUPERVISOR

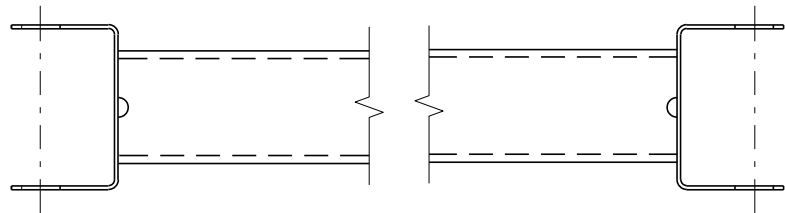
FHWA

- 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 MANUFACTURERS REQUIRE DIFFERENT PERFORATED W - BEAM RAIL END PANELS. SEE MANUFACTURER'S INFORMATION.
- D) ATTACH ALUMINUM SHEET TO E.A.T. HEAD USING 4 STAINLESS STEEL SELF - TAPPING SCREWS. ONE SCREW PER CORNER.
- E) HARDWARE MAY VARY BETWEEN MANUFACTURER. SEE MANUFACTURER'S DRAWING FOR INFORMATION.

DIMENSIONS MAY VARY, MANUFACTURER'S INFORMATION.

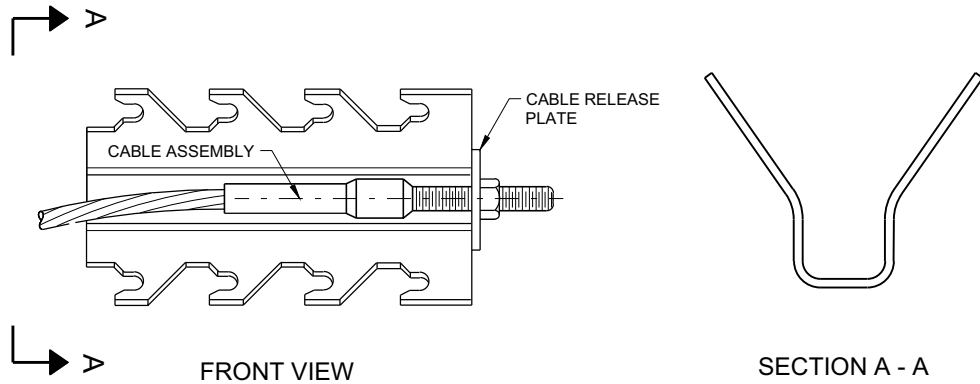
THE CENTER OF THE UPPER 3 1/2" DIAMETER HOLE ON POST NUMBER 3 THROUGH POST 9 IS TO BE FLUSH WITH THE GROUND LINE UP TO A MAXIMUM OF 2" ABOVE GROUND LINE. WOOD BLOCKS ON POSTS NUMBERED 3 THROUGH 9 MAY BE ADJUSTED UP TO 3" ABOVE THE TOP OF POST.

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION 29

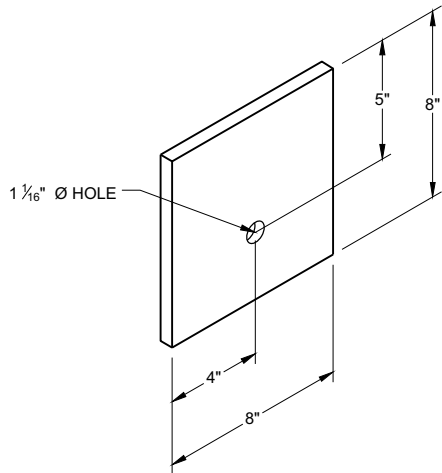


GENERIC GROUND STRUT^⑨ [Ⓔ]

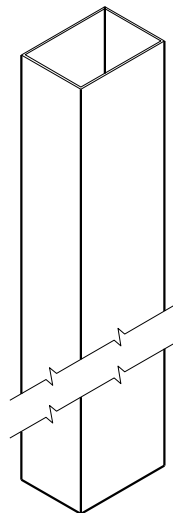
BILL OF MATERIALS	
PART NO.	DESCRIPTION MATERIALS PROVIDED BY MGS EAT MANUFACTURER. SEE MANUFACTURER'S DETAILS FOR MORE INFORMATION.
①	UPPER POST NO. 1 6" X 6" TUBE
②	LOWER POST NO. 1
③	WOOD CRT
④	WOOD BLOCKOUT
⑤	PIPE SLEEVE
⑥	BEARING PLATE
⑦	BCT CABLE ASSEMBLY
⑧	ANCHOR CABLE BOX
⑨	GROUND STRUT
⑩	PERFORATED W-BEAM RAIL END PANEL, 12'-6" LONG.
⑪	STANDARD W-BEAM RAIL. MULTIPLE SECTIONS REQUIRED. SECTIONS VARY IN LENGTH.
⑫	IMPACT HEAD
⑬	EAT MARKER POST - YELLOW (SEE APPROVED PRODUCTS LIST)
⑭	SOIL PLATE
⑮	UPPER POST NO. 2
⑯	LOWER POST NO. 2



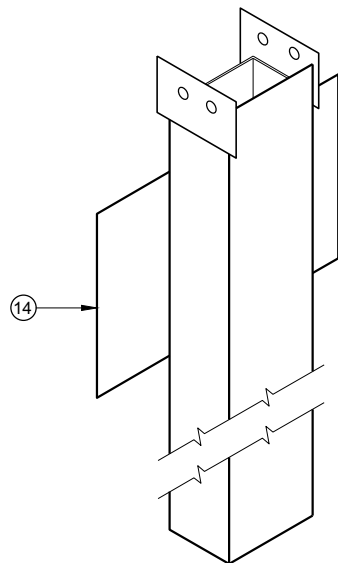
GENERIC ANCHOR CABLE BOX^⑨ [Ⓔ]



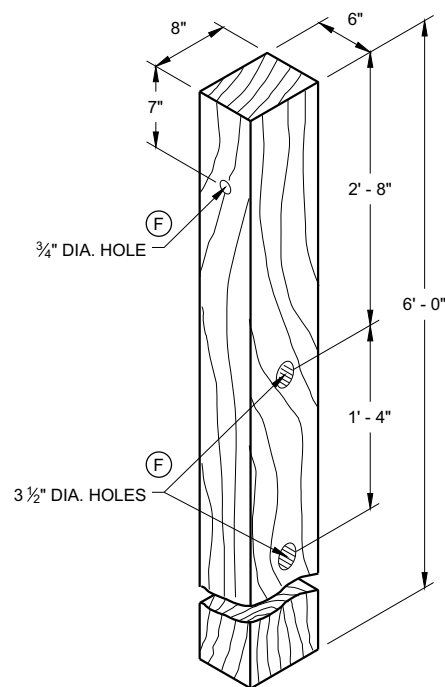
BEARING PLATE^⑥ [Ⓔ]



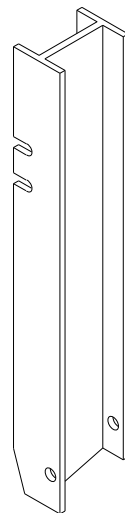
UPPER POST NO. 1 ⁽¹⁾ (E)



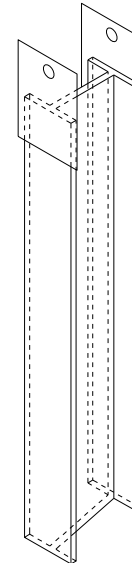
LOWER POST NO. 1 ⁽²⁾ (E)



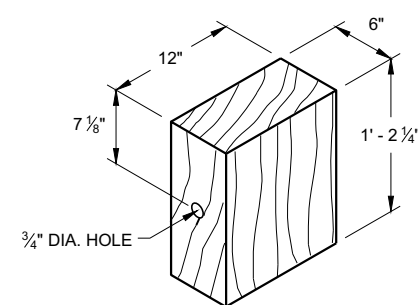
WOOD CRT POST ⁽³⁾ (E)
POSTS NUMBER 3-9



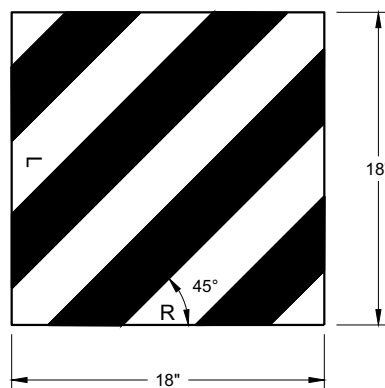
UPPER POST NO. 2 ⁽¹⁵⁾ (E)



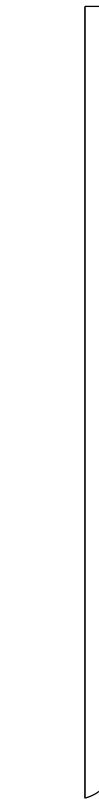
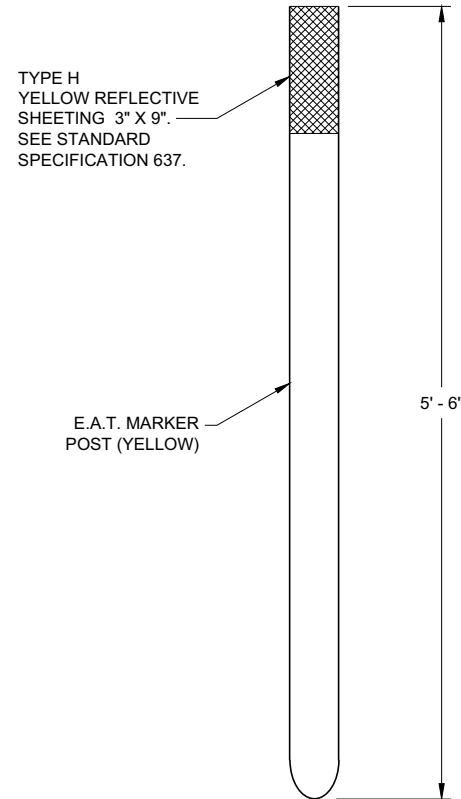
LOWER POST NO. 2 ⁽¹⁶⁾ (E)



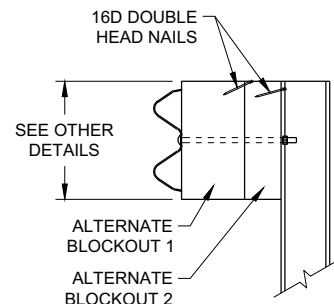
WOOD BLOCKOUT ⁽⁴⁾
REQ'D. AT ALL POSTS EXCEPT POST NO'S 1 & 2



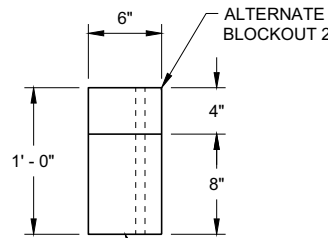
REFLECTIVE SHEETING DETAIL ^(E)



E.A.T. MARKER POST ⁽¹³⁾



SIDE VIEW



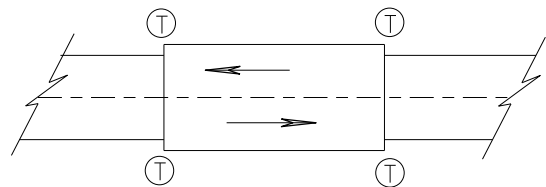
TOP VIEW

ALTERNATE WOOD
BLOCKOUT DETAIL

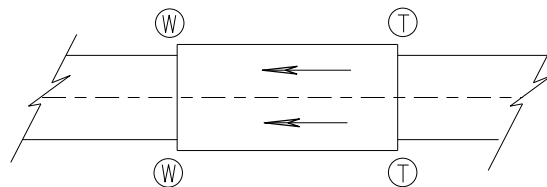
MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL
(MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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FHWA



TWO WAY TRAFFIC



ONE WAY TRAFFIC

(T) THRIE BEAM CONNECTION

(W) W-BEAM CONNECTION WHEN REQUIRED

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

GENERAL NOTES

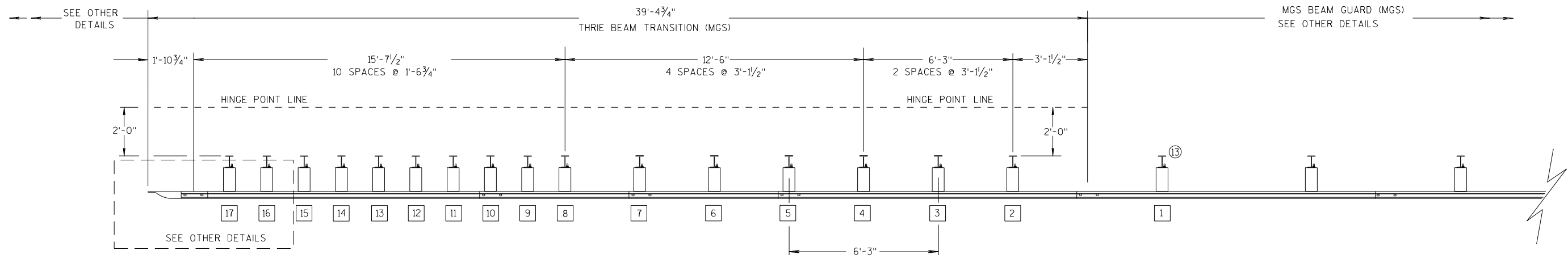
IF ROCK IS ENCOUNTERED, REMOVE ROCK TO FULL DEPTH OF POST PLUS 2 1/2", AND 12" DIAMETER AROUND POST. SEE 14B42 FOR MORE DETAILS.

TRANSITION USES STEEL POSTS ONLY.

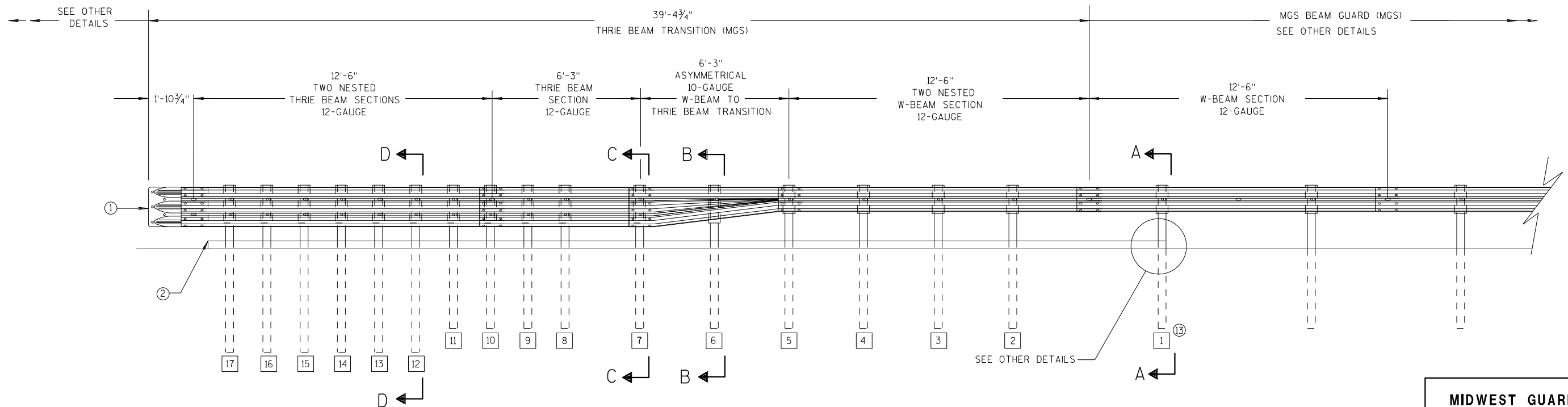
SEE STANDARD DETAIL DRAWING 14 B 42 FOR MORE INFORMATION.

POST 2 THROUGH 17 USES STEEL POST ONLY

- ① BRIDGE RAILING TYPE "W" DOES NOT REQUIRE A TERMINAL CONNECTOR.
- ② OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.
- ⑬ STEEL OR WOOD POST IS ACCEPTABLE AT POST 1. SEE SDD14B42



PLAN VIEW



ELEVATION VIEW

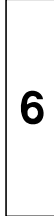
MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION

**MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)**

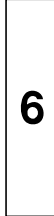
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

- S.D.D. 14 B 45-5b**

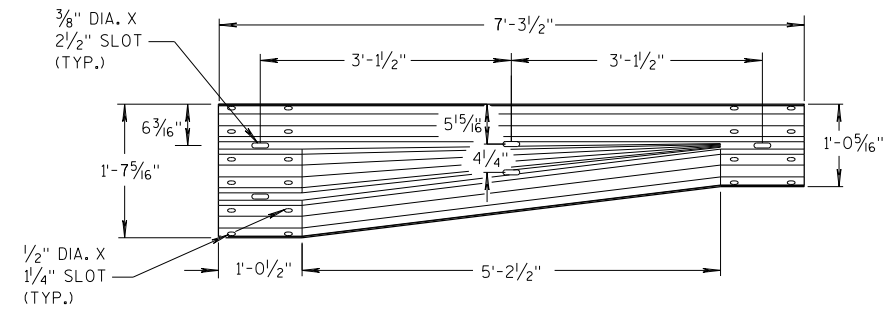


S.D.D. 14 B 45-5b

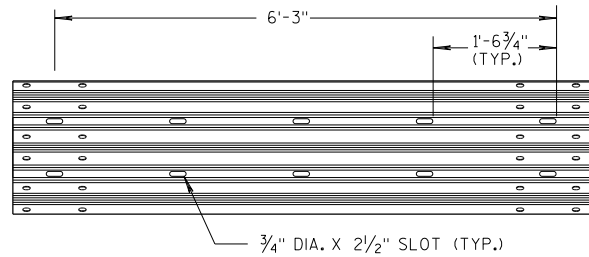


S.D.D. 14 B 45-5b

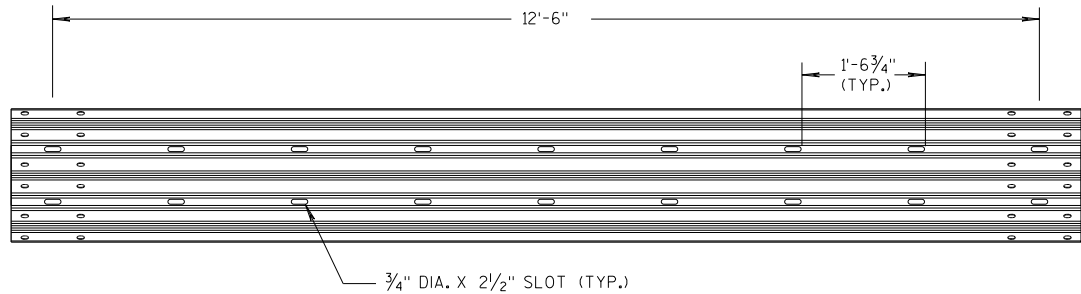




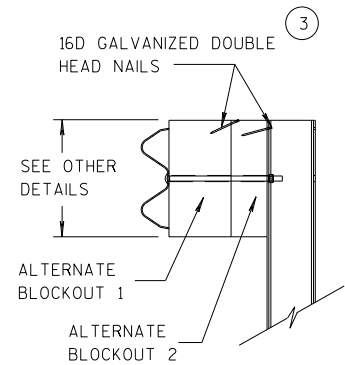
W-BEAM TO THRIE BEAM TRANSITION SECTION



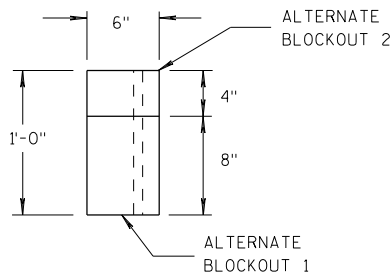
6'-3" THRIE BEAM SECTION



12'-6" THRIE BEAM SECTION

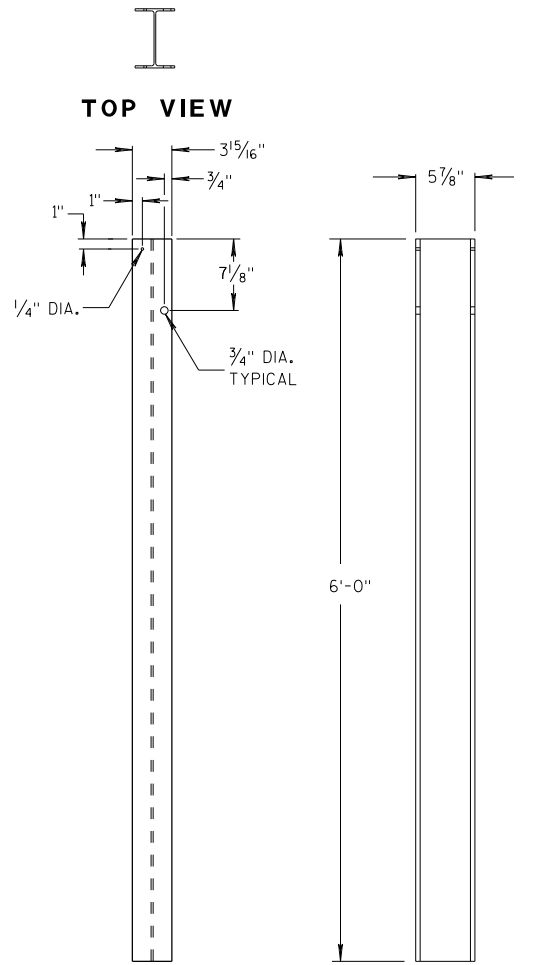


SIDE VIEW



TOP VIEW

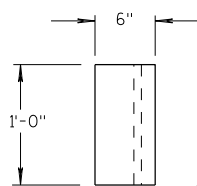
ALTERNATE WOOD BLOCKOUT DETAIL



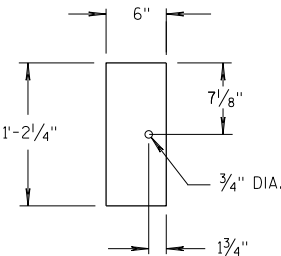
FRONT VIEW

SIDE VIEW

STEEL POSTS 1-5

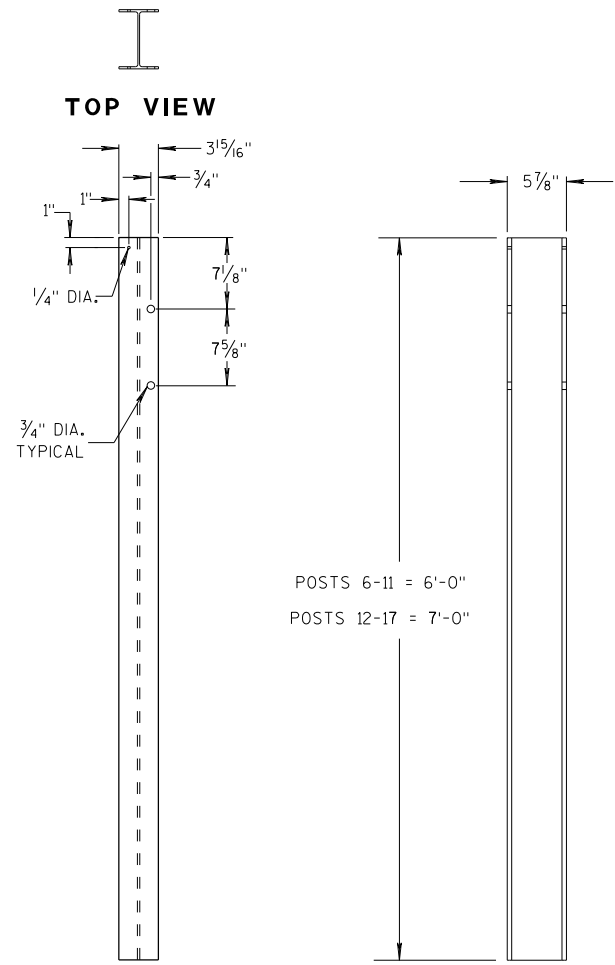


TOP VIEW



FRONT VIEW

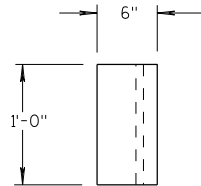
BLOCKOUT POSTS 1-5



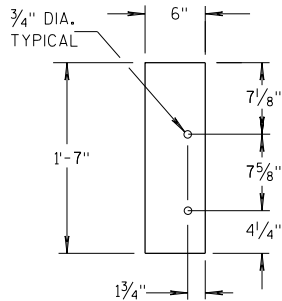
FRONT VIEW

SIDE VIEW

STEEL POSTS 6-17



TOP VIEW



FRONT VIEW

BLOCKOUT POSTS 6-17

GENERAL NOTES

STEEL POSTS ARE W6X9 OR W6X8.5.

BOLT HOLES FOR POST ARE ON FRONT AND OF SIDE OF POST.

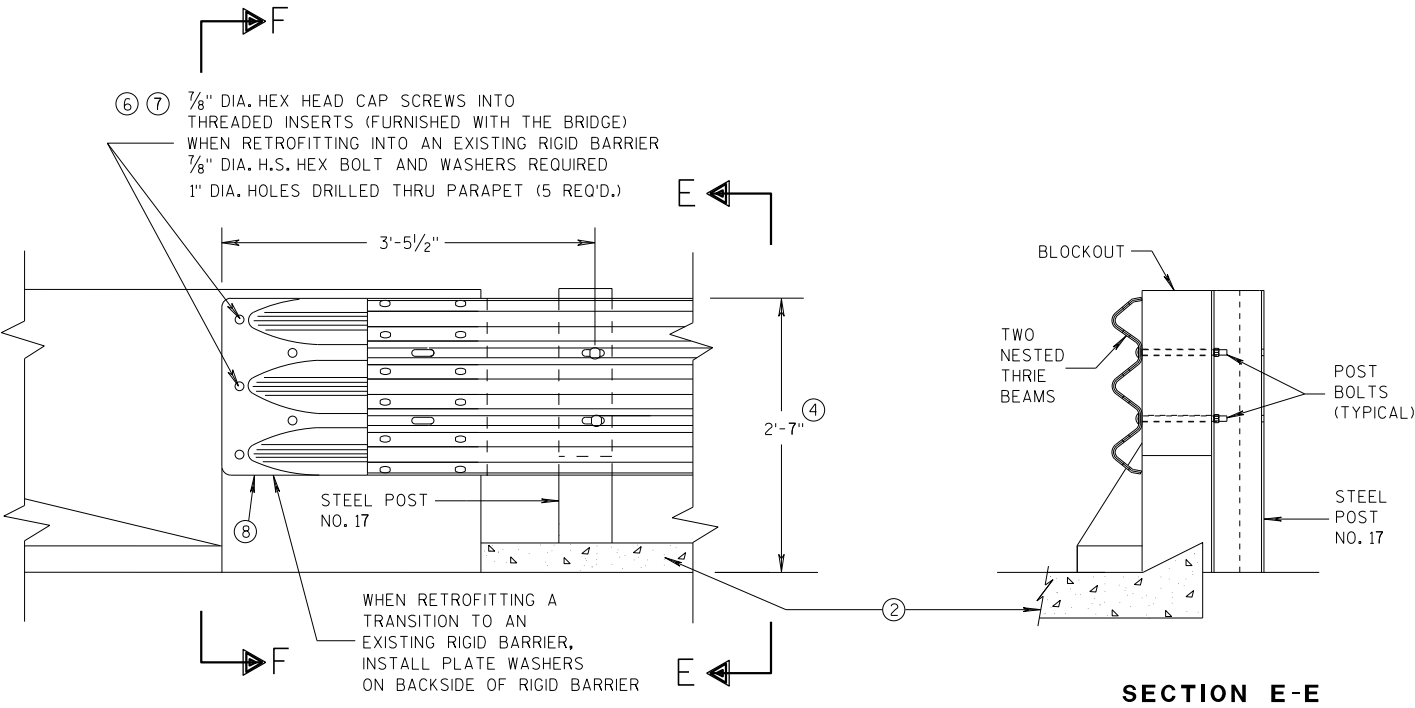
③ WHEN USING STEEL POSTS AND WOOD BLOCKOUTS INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.

⑤ WOOD BLOCKS MAY BE CONSTRUCTED OUT OF 2 WOOD BLOCKS. SEE ALTERNATE WOOD BLOCK DETAIL.

⑬ STEEL OR WOOD POST IS ACCEPTABLE AT POST 1. SEE SDD 14B42.

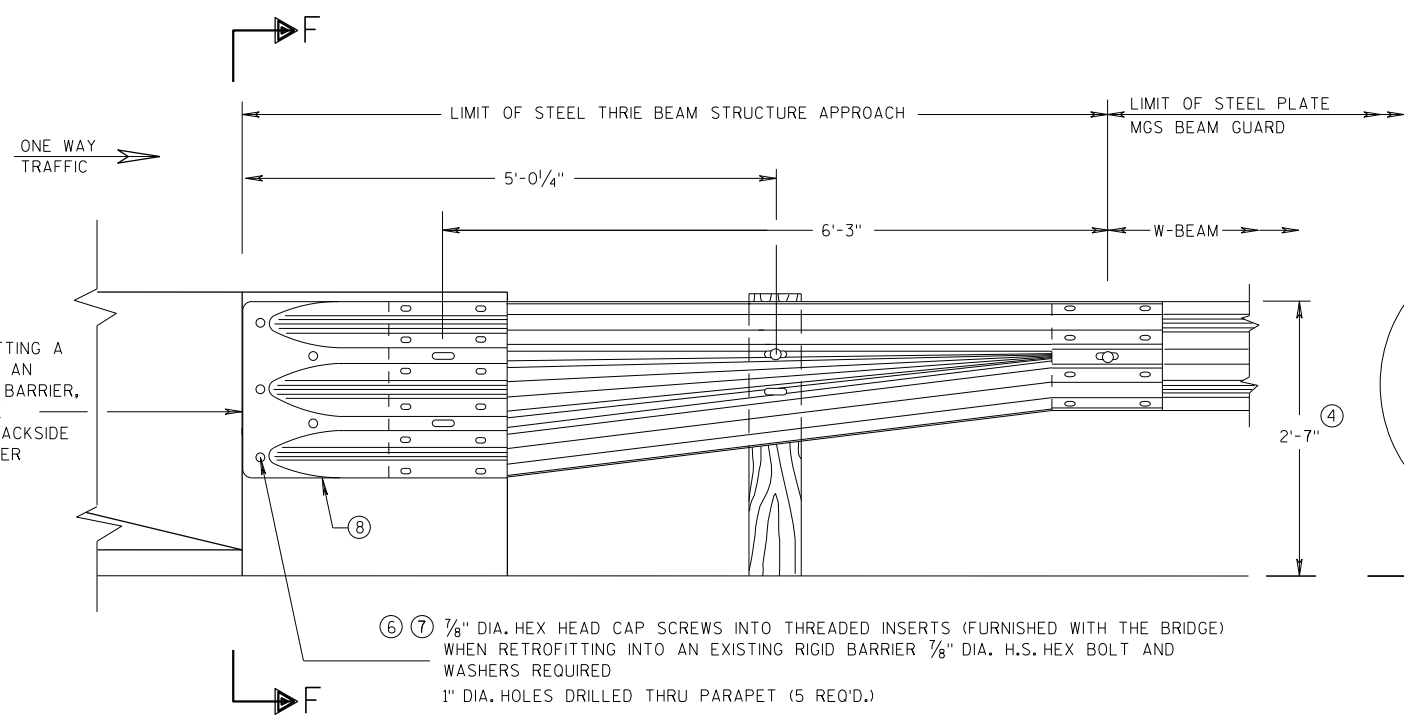
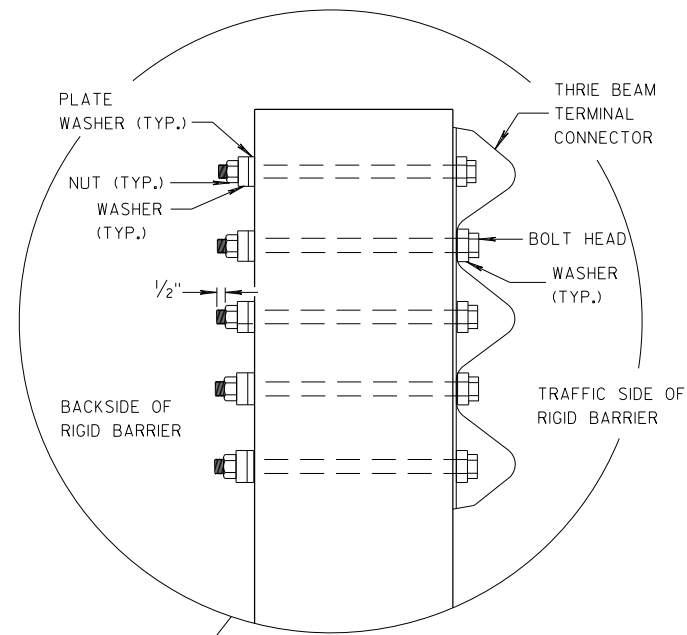
MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

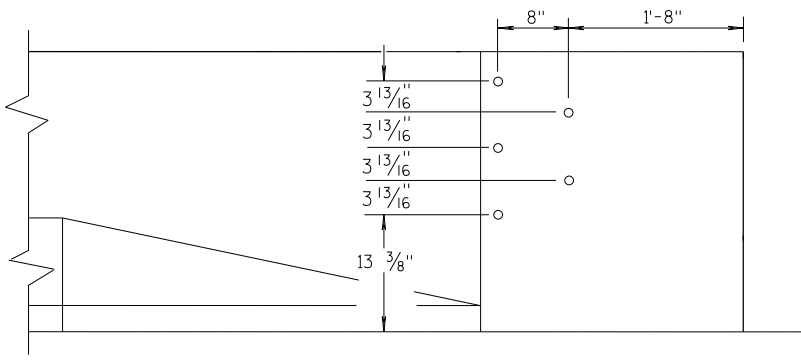


GENERAL NOTES

- THESE ARE TYPICAL CONNECTION DETAILS. ADJUST THE POSTION OF CONNECTIONS TO EXISTING BRIDGES TO FIT THE ACTUAL BRIDGE AND SITE DIMENSIONS.
- ② OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.
- ④ TOLERANCE FOR TOP OF BEAM IS $\pm 1"$.
- ⑥ DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.
- ⑦ 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 5/32" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.
- ⑧ 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".



SECTION F-F

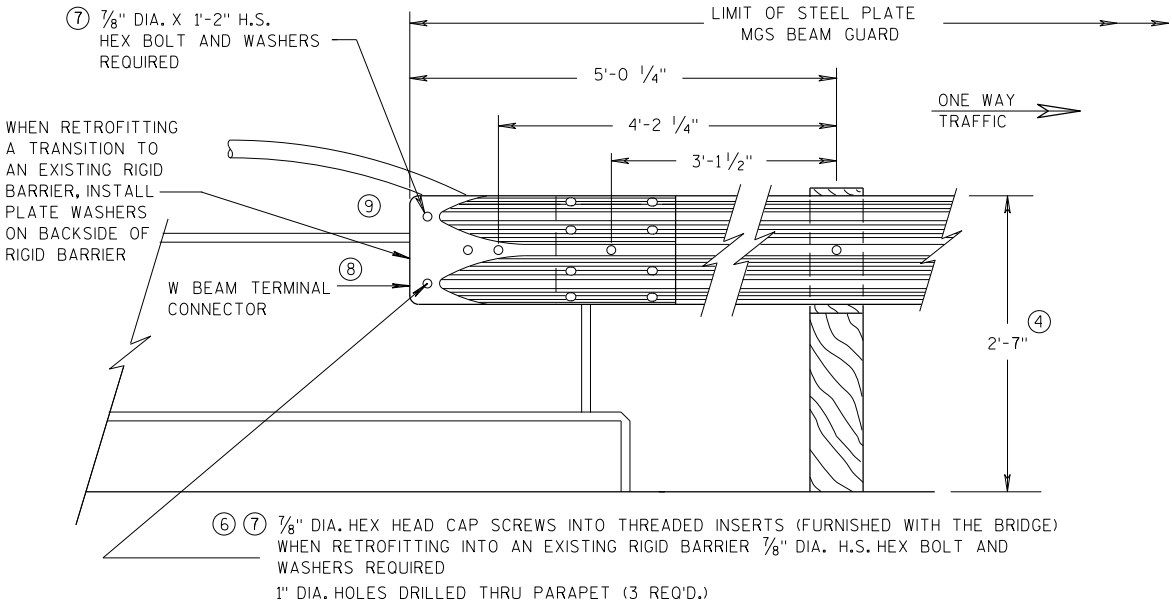


MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)			
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
APPROVED 07/2018 DATE	/S/ Rodney Taylor ROADWAY STANDARDS UNIT SUPERVISOR		
FHWA	35	NT	

GENERAL NOTES

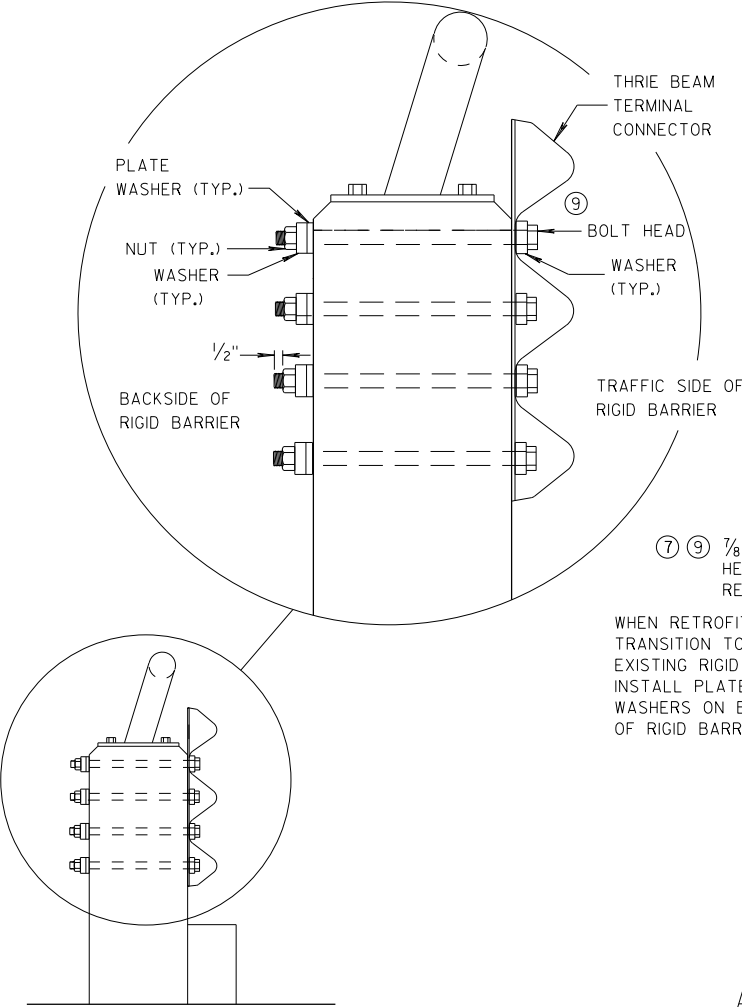
THESE ARE TYPICAL CONNECTION DETAILS. ADJUST THE POSTION OF CONNECTIONS TO EXISTING BRIDGES TO FIT THE ACTUAL BRIDGE AND SITE DIMENSIONS.

- ②
- OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.
- ④
- TOLERANCE FOR TOP OF BEAM IS ± 1".
- ⑥
- DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.
- ⑦
- 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 5/32" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.
- ⑧
- 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".
- ⑨
- 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.

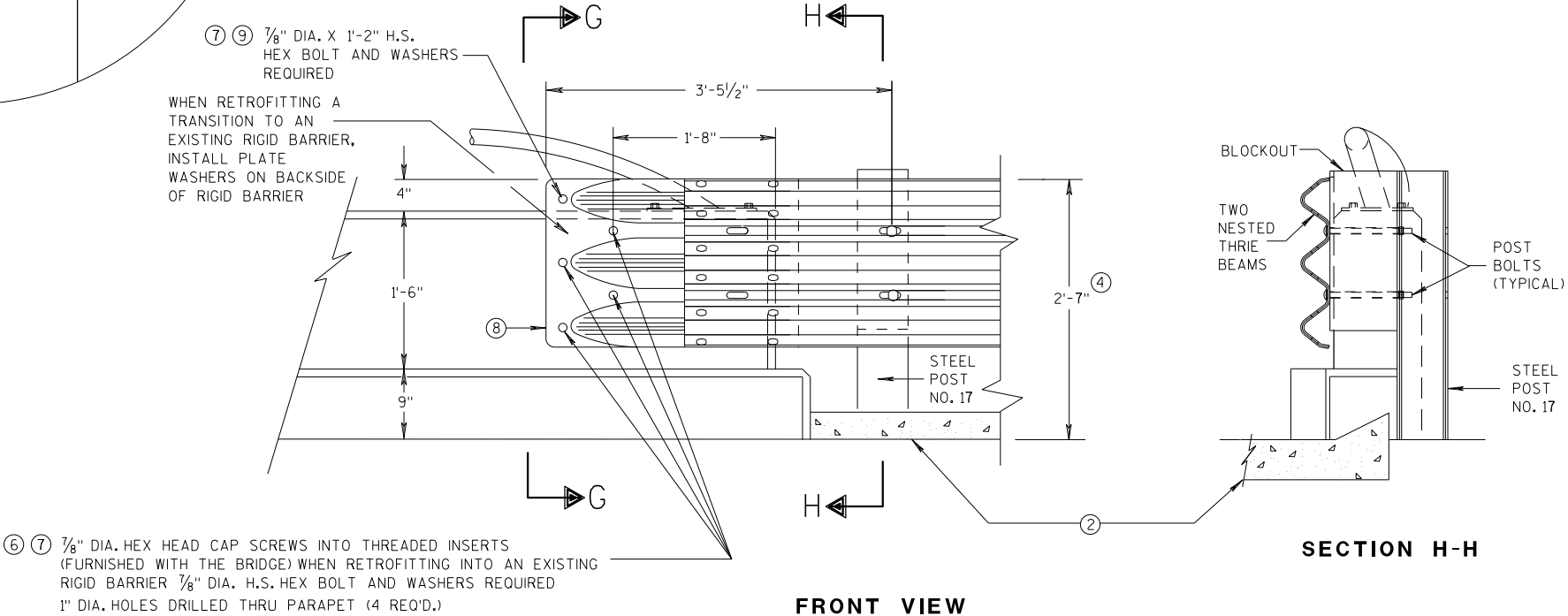


FRONT VIEW

W BEAM CONNECTION TO VERTICAL FACE PARAPET
(USE ONLY ON THE TRAFFIC EXIT END OF ONE WAY BRIDGES)

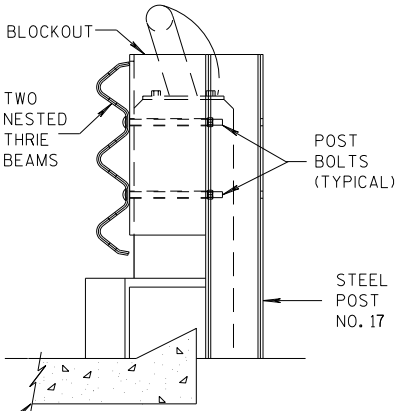


SECTION G-G



FRONT VIEW

THRIE BEAM CONNECTION TO VERTICAL FACED PARAPETS

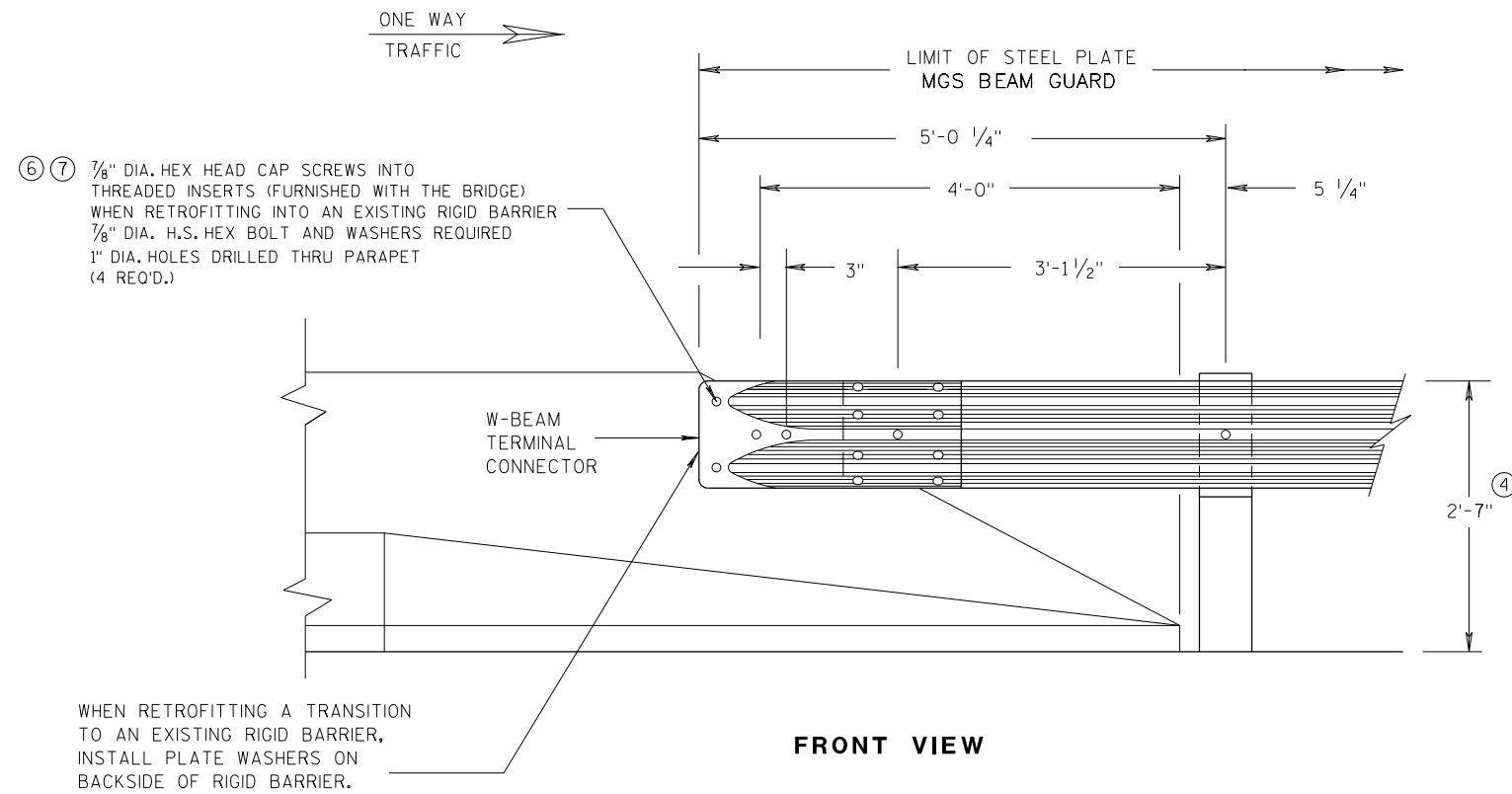


SECTION H-H

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

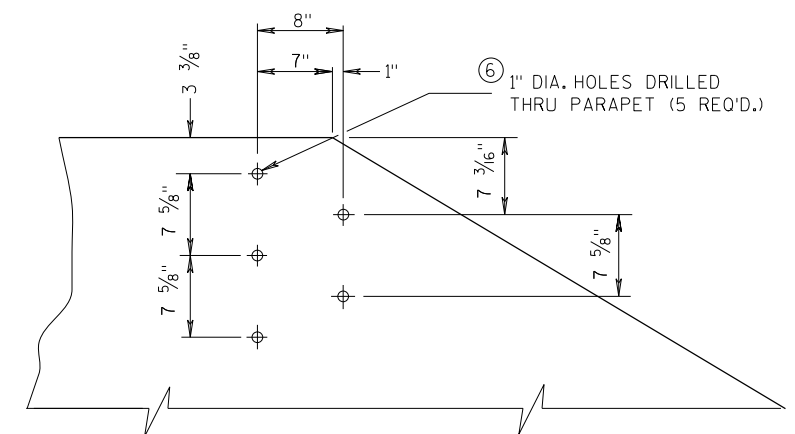
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07/2018 /S/ Rodney Taylor
DATE ROADWAY STANDARDS UNIT SUPERVISOR
FHWA 36



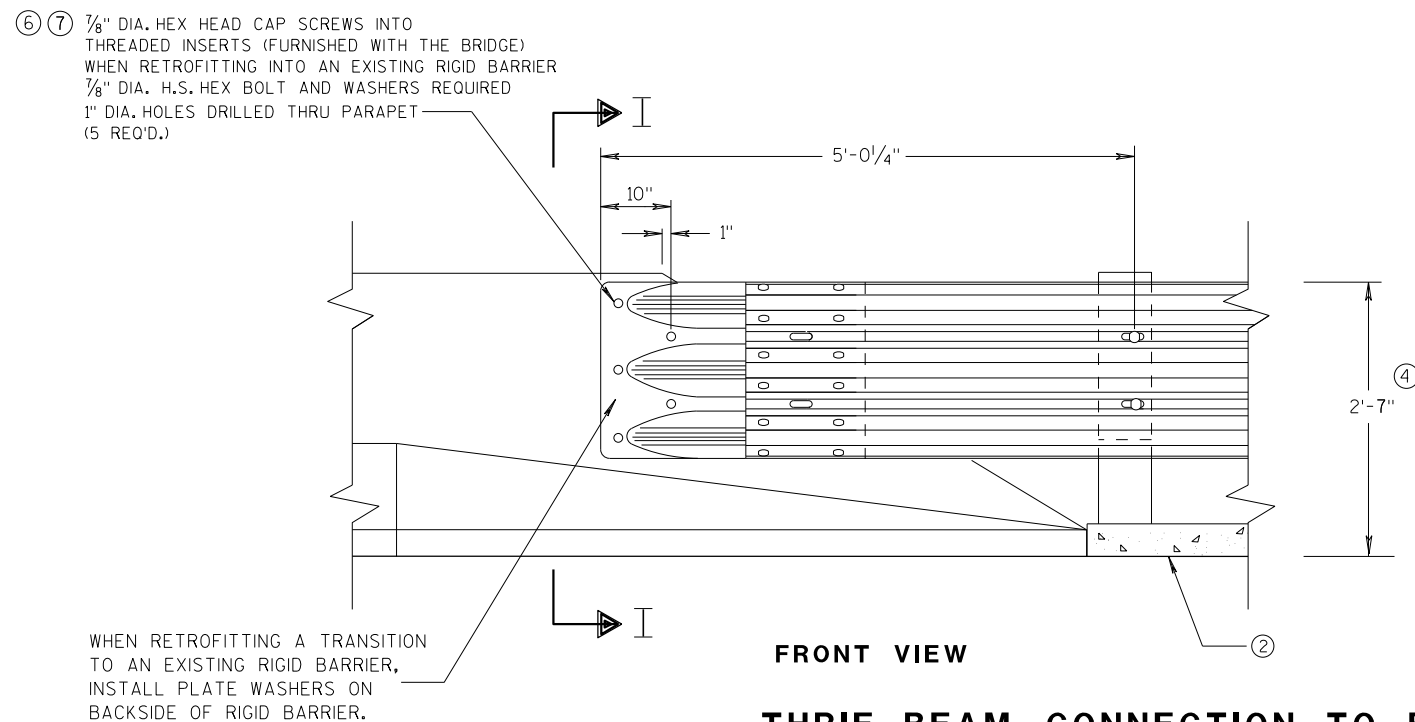
**W BEAM CONNECTION TO
PARAPETS WITH SLOPED ENDS**
(USE ONLY AT TRAFFIC EXIT END OF ONE WAY BRIDGE)

GENERAL NOTES

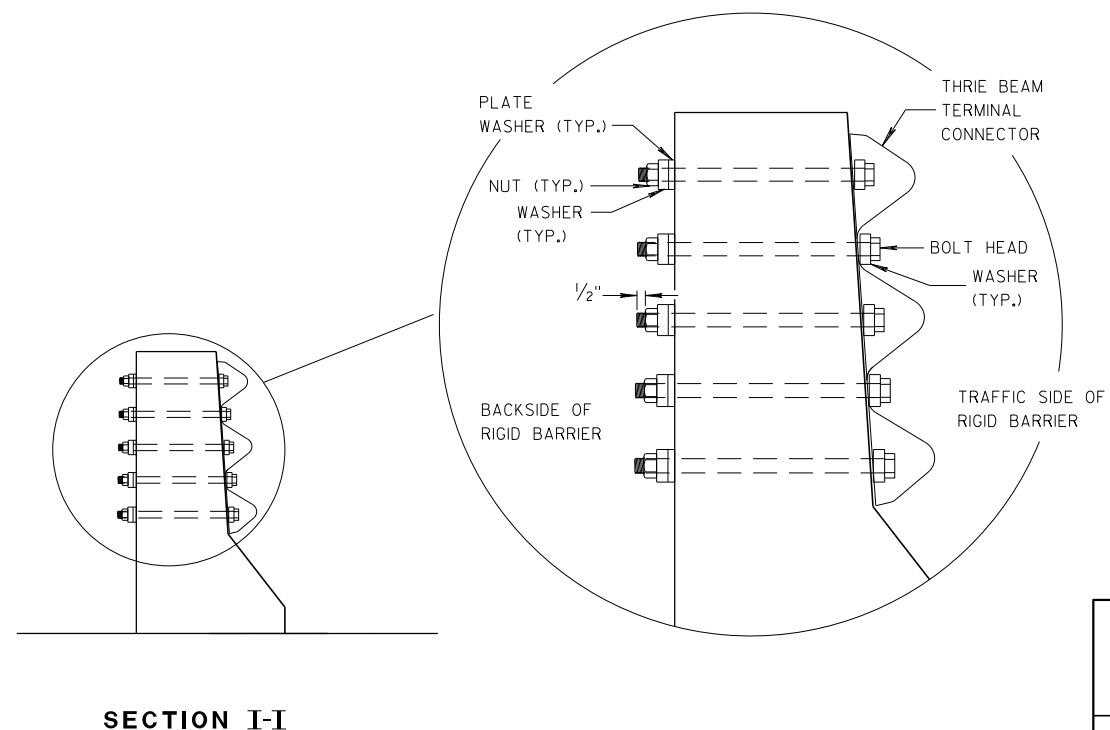
- ② OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.
- ④ TOLERANCE FOR TOP OF BEAM IS $\pm 1"$.
- ⑥ DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.
- ⑦ BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH 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 5/32" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.



**DRILL HOLE LOCATION AND PATTERN
FOR THRIE BEAM CONNECTION**



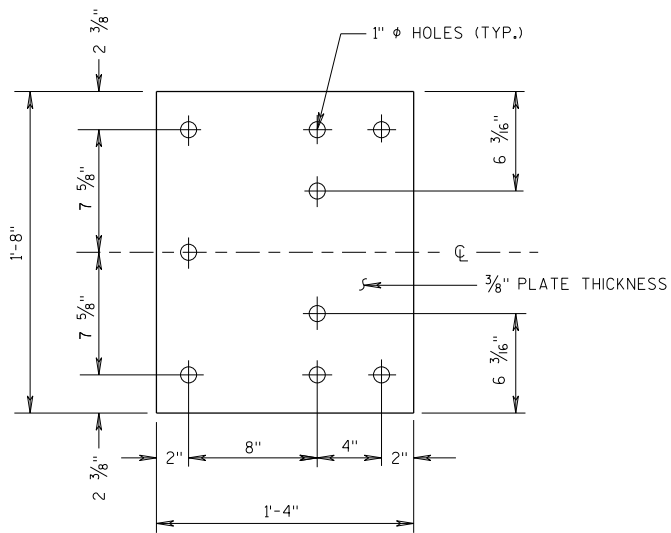
**THRIE BEAM CONNECTION TO BRIDGE
PARAPETS WITH SLOPED ENDS**



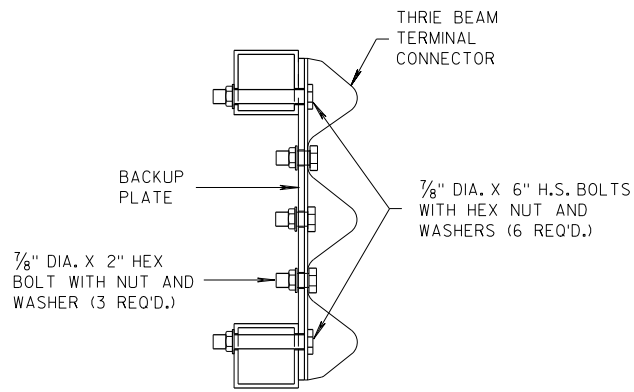
**MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

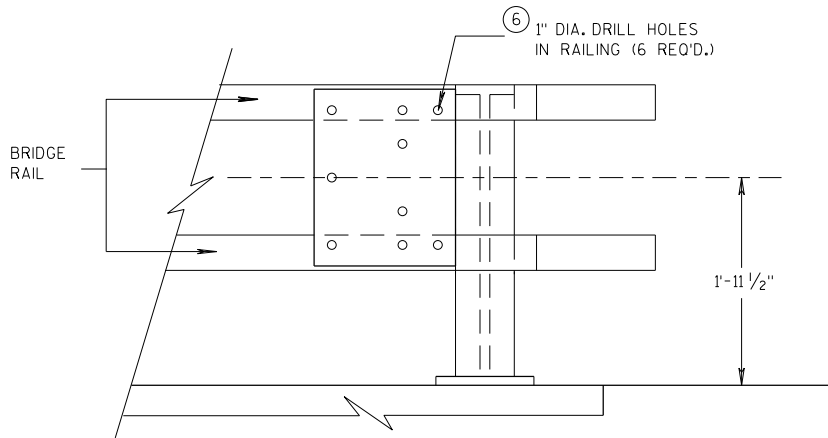
APPROVED
DATE 07/2018 /S/ Rodney Taylor
ROADWAY STANDARDS UNIT SUPERVISOR 37
FHWA



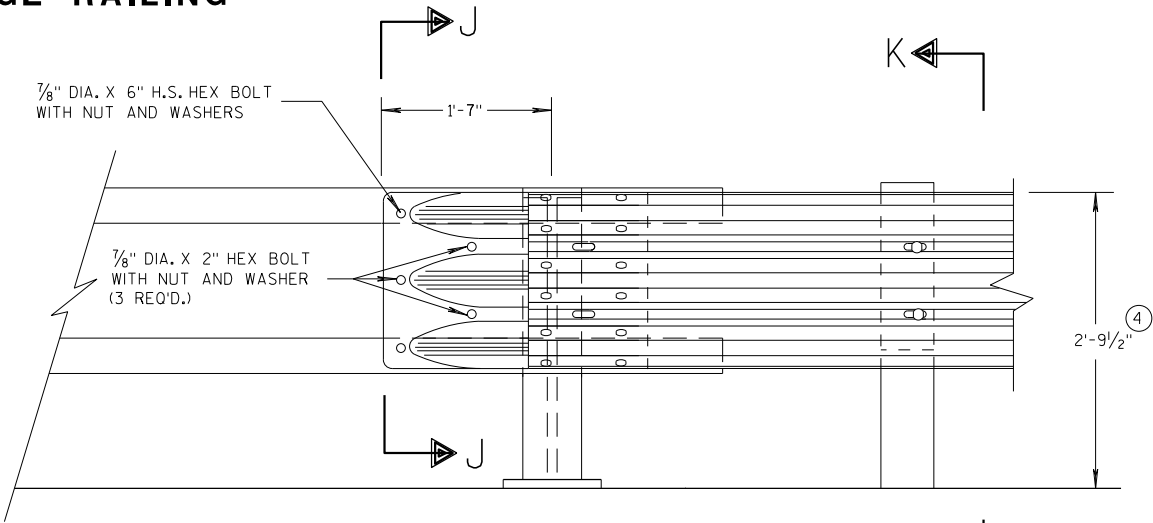
BACK-UP PLATE DETAIL



SECTION J-J

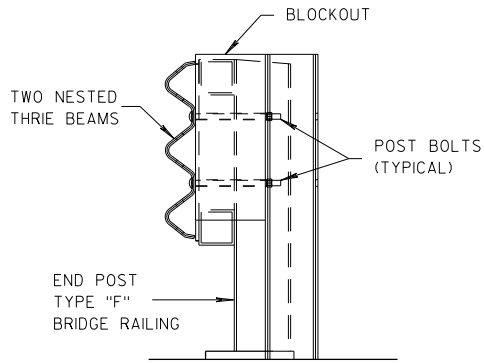


BACK-UP PLATE MOUNTING ONTO BRIDGE RAILING



FRONT VIEW

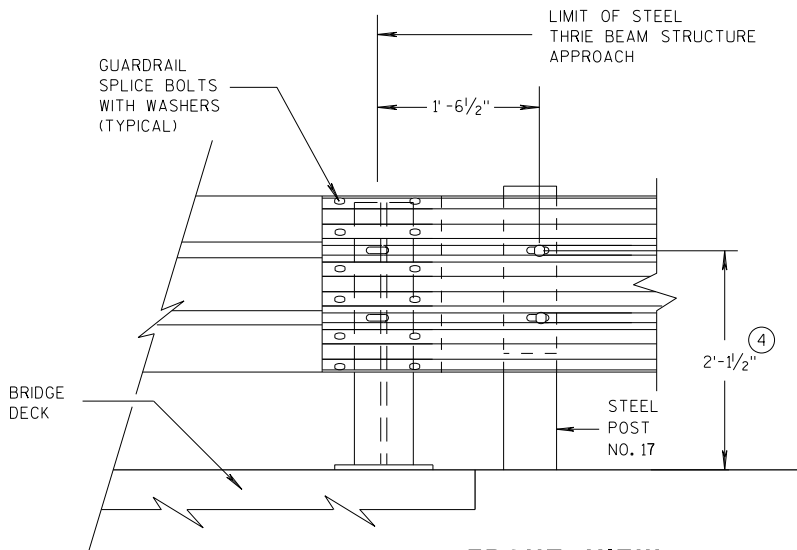
THRIE BEAM CONNECTION TO TUBULAR RAILING TYPE "F"



SECTION K-K

GENERAL NOTES

- ④ TOLERANCE FOR TOP OF BEAM IS $\pm 1"$.
- ⑥ DRILLING HOLES THROUGH THE PAPER, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.



FRONT VIEW

THRIE BEAM CONNECTION TO STEEL RAILING TYPE "W"

MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)		
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION		
APPROVED 07/2018	/S/ Rodney Taylor	38
DATE	ROADWAY STANDARDS DEVELOPMENT	UNIT SUPERVISOR
FHWA		

④ TOLERANCE FOR TOP OF W-BEAM RAIL IS $\pm 1"$.



ANCHOR PLATE DETAIL, TYPE "M"



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

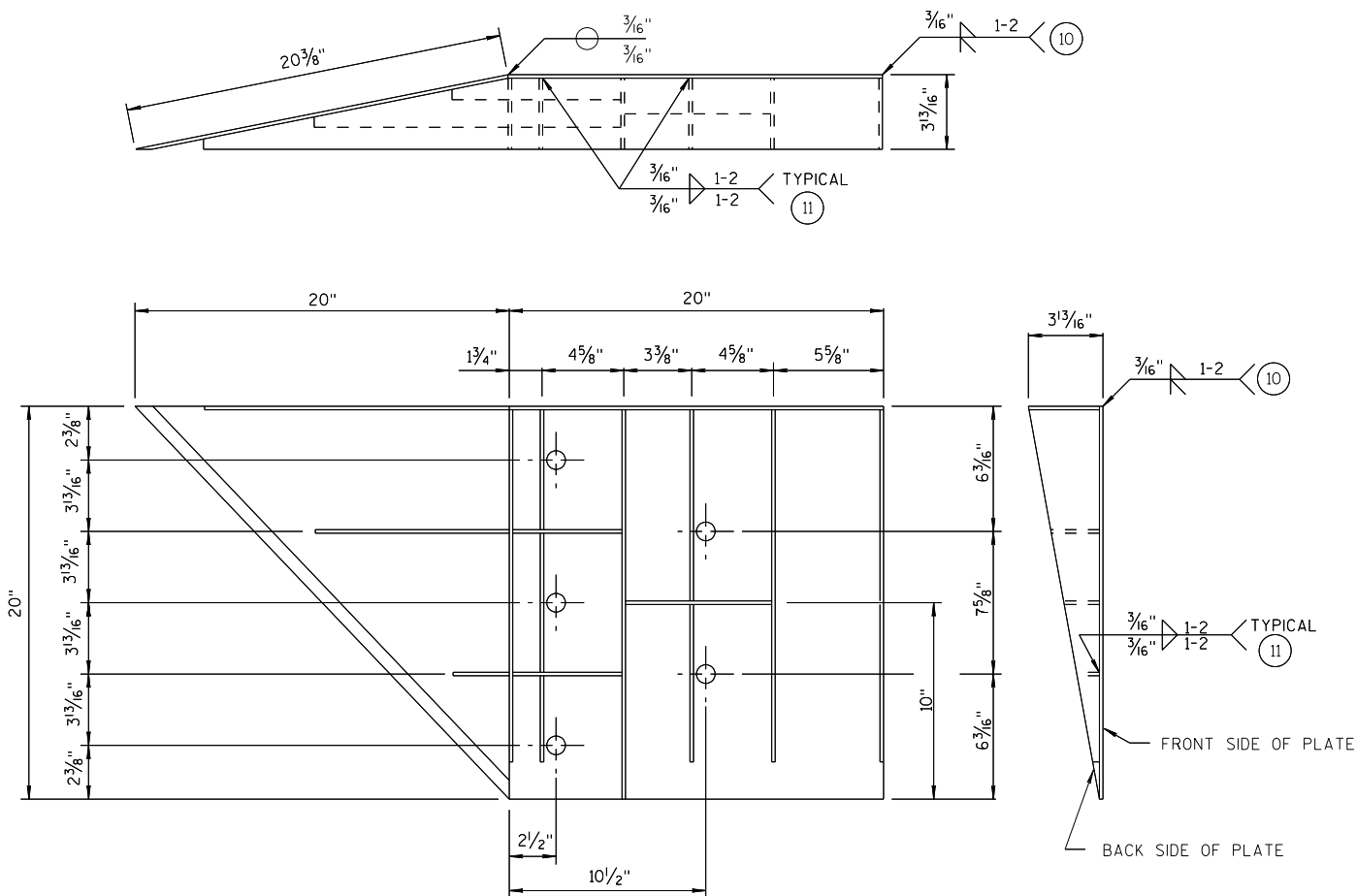


THRIE BEAM CONNECTION TO TUBULAR RAILING, TYPE "M"

**MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED		
07/2018	/S/ Rodney Taylor	
DATE	ROADWAY STANDARDS	39 ENT
FHWA	UNIT SUPERVISOR	



WELDING INSTRUCTION
(VIEWED FROM BACK SIDE OF PLATE)

CONNECTOR PLATE DIMENSION (PER ASSEMBLY)				
PLATE	QUANTITY	SHAPE	SIZE (A x B x C x D)	THICKNESS
P1	1		20" x 20"	3/16"
P2	1		20" x 20" x 28 3/16"	3/16"
P3	1		39" x 3 5/8" x 20" x 19 5/16"	3/16"
S1	4		18 7/16" x 3 5/8" x 18 3/4"	1/4"
S2	1		10 1/4" x 2 1/16" x 10 3/8" x 1/2"	1/4"
S3	1		3" x 1 1/16" x 3 3/8" x 1/2"	1/4"
S4	1		6 1/8" x 2 7/16"	1/4"
S5	1		6 1/8" x 1 1/16"	1/4"
S6	1		7 3/4" x 1 3/4"	1/4"
S7	1		2 3/16" x 6" x 3 5/8" x 5 7/8"	1/4"
S8	1		1 5/32" x 7 1/2" x 2 1/2" x 7 3/8"	1/4"
S9	1		6 1/16" x 6 3/16" x 1 3/32"	1/4"
S10	1		1 7/8" x 9 7/8" x 3 5/8" x 9 11/16"	1/4"
S11	1		8 1/2" x 8 3/4" x 1 3/16"	1/4"

SINGLE SLOPE CONNECTION PLATE

GENERAL NOTES

- COVER PLATE PANELS ARE 3/16" THICK.
- ALL STIFFENERS ARE 1/4" 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.

- 10 STIFFENERS LOCATED AT THE OUTSIDE EDGES OF THE COVER PLATES SHALL BE WELDED AS FOLLOWS:
SINGLE BEVEL GROOVE WELD ON EXTERNAL SIDES AND 3/16" FILLET WELD BY 1" LONG SPACED AT 2" ON INTERNAL SIDES.
- 11 STIFFENERS LOCATED ON THE INSIDE OF THE COVER PLATE SHALL BE WELDED AS FOLLOWS:
3/16" FILLET WELD BY 1" LONG SPACED AT 2".

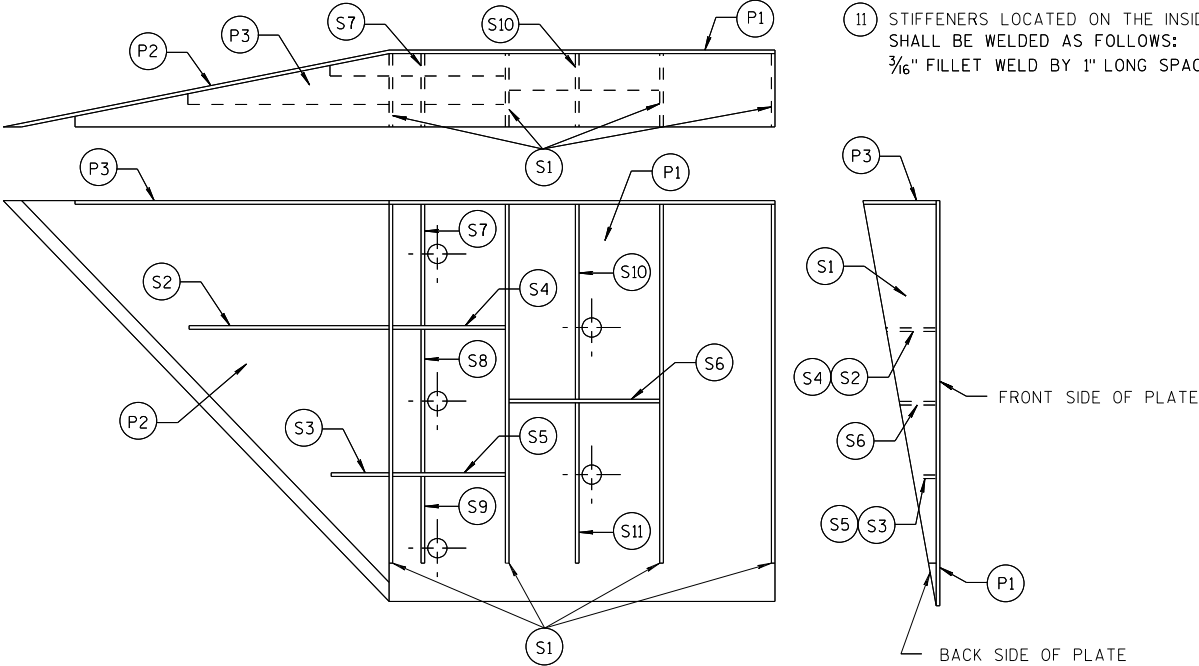


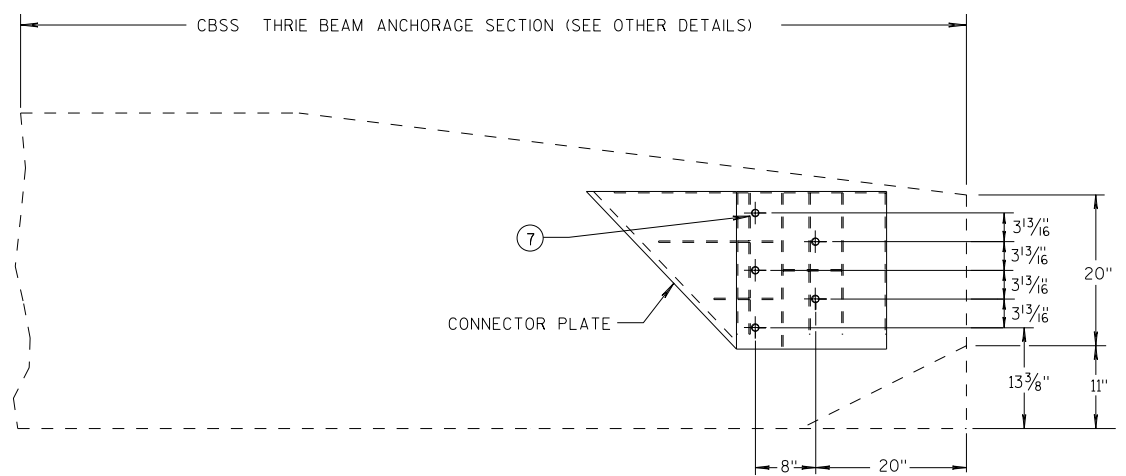
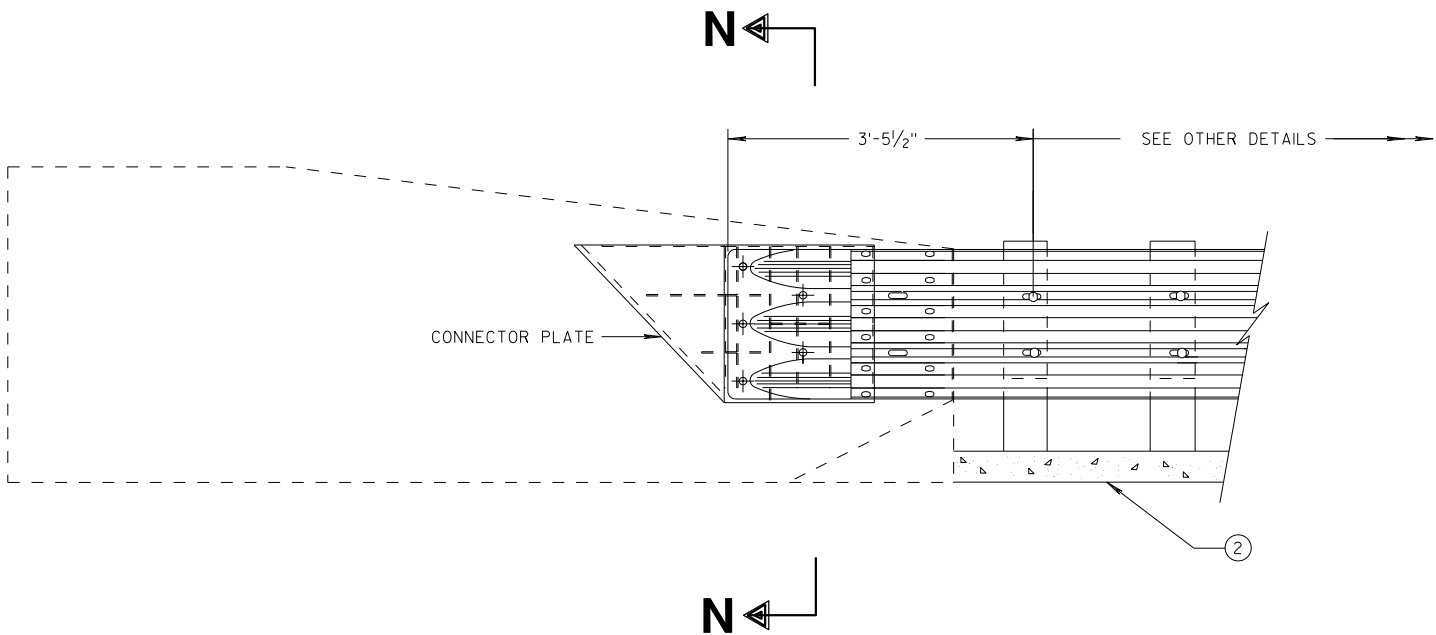
PLATE AND STIFFENER IDENTIFICATION
(VIEWED FROM BACK SIDE OF PLATE)

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
7/2018 /S/ Rodney Taylor
DATE ROADWAY STANDARDS UNIT SUPERVISOR
FHWA 40 ENT

THRIE BEAM CONNECTION TO SINGLE SLOPE BARRIER



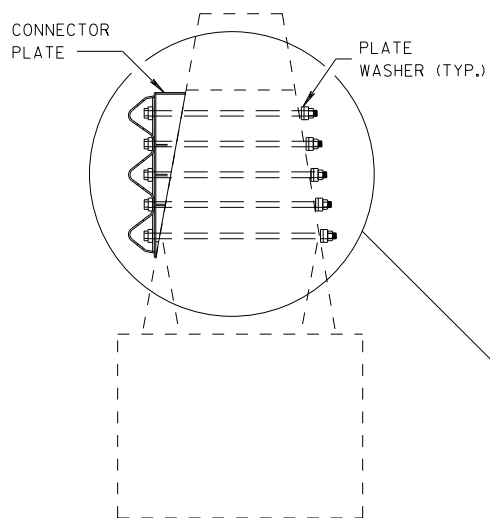
SINGLE SLOPE CONNECTION PLATE PLACEMENT

GENERAL NOTES

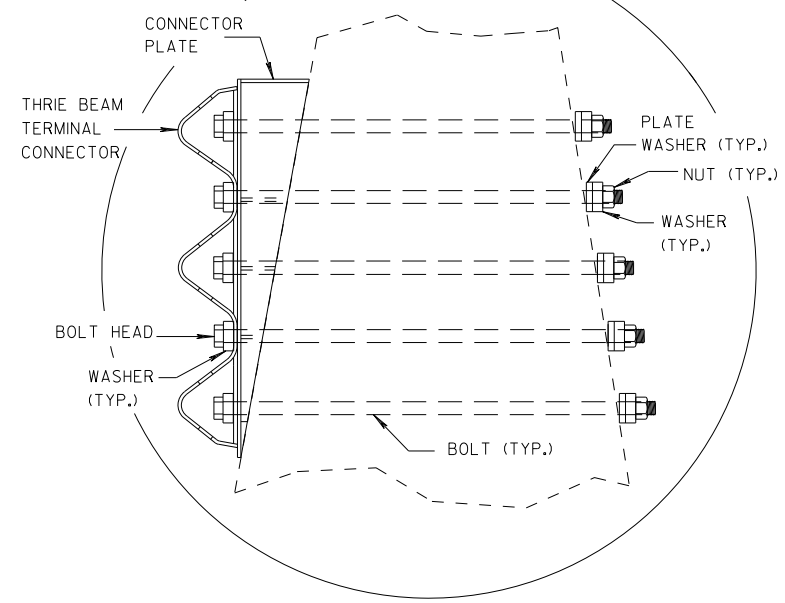
CONNECTOR PLATE, DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.

② OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.

⑦ 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 CONNECTION PLATE. BOLTS THAT EXTEND THROUGH THE PARAPET AND OUT THE BACK FACE REQUIRE A HARDENED ROUND STEEL WASHER THAT IS 2" O.D. X 5/32" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.



SECTION N-N



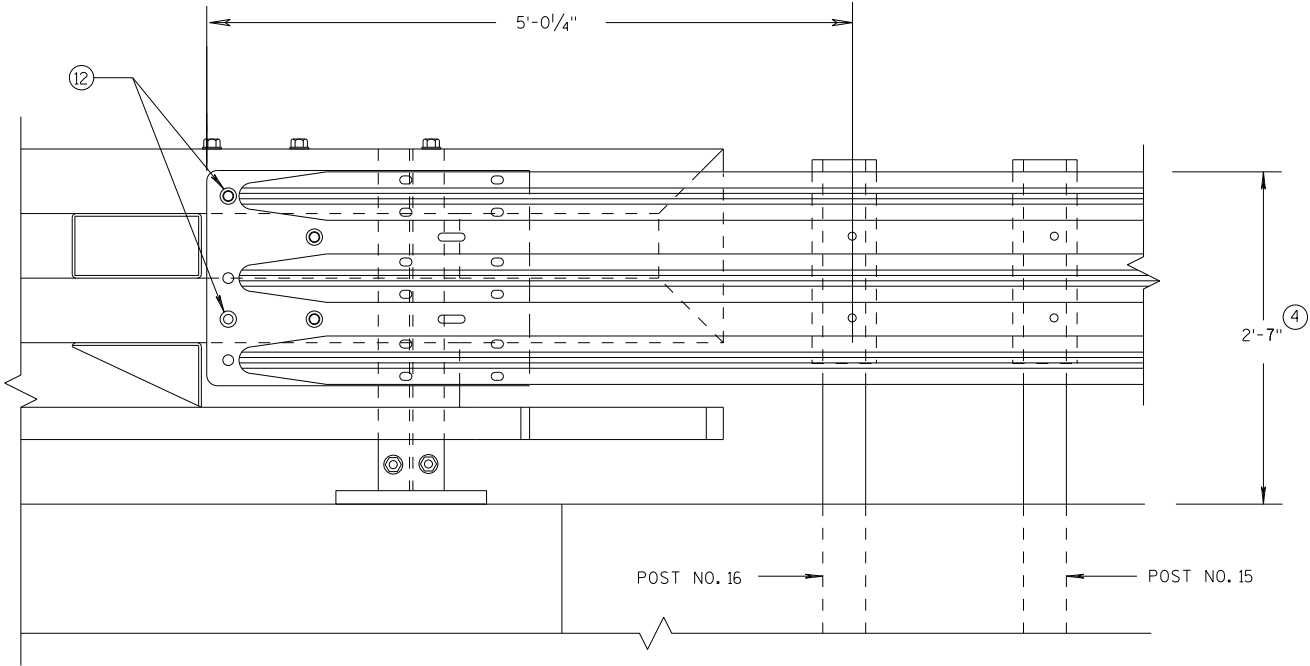
MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

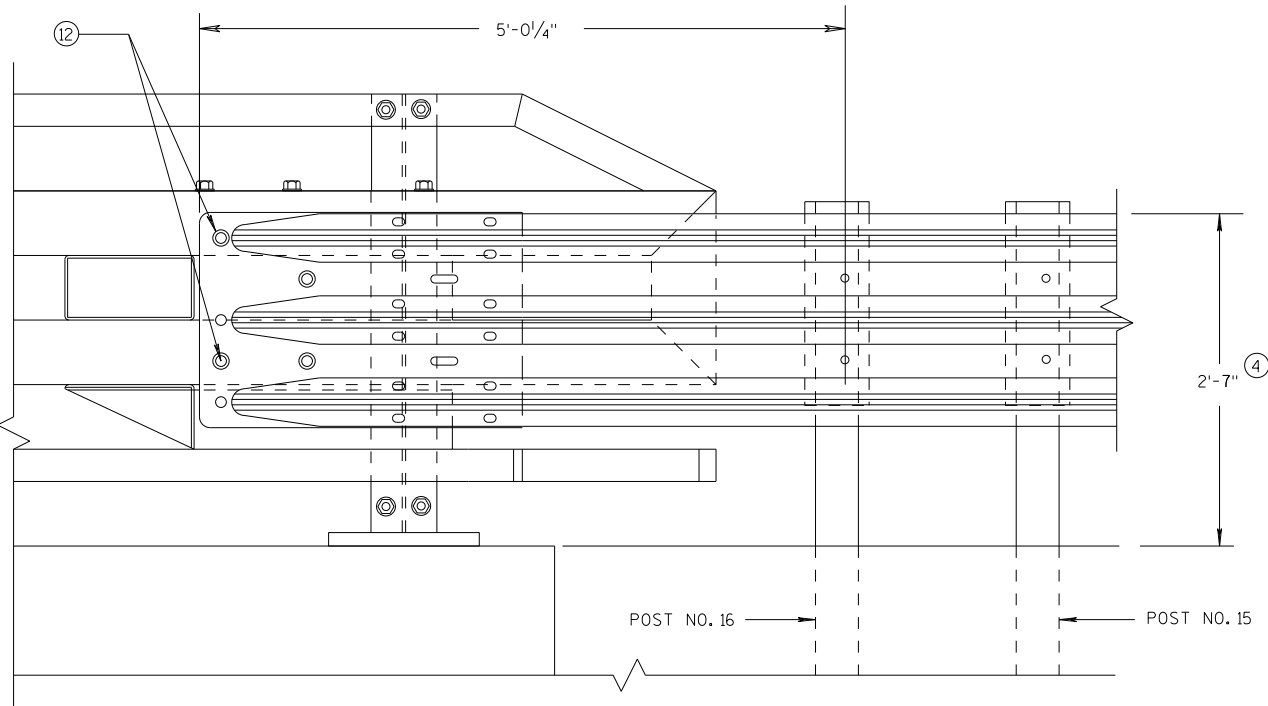
APPROVED
DATE 7/2018
ROADWAY STANDARDS DIVISION
UNIT SUPERVISOR /S/ Rodney Taylor
41
FHWA

GENERAL NOTES

- ④ TOLERANCE FOR TOP OF BEAM IS $\pm 1"$.
- ⑫ 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. ON BACKSIDE OF PARAPET ONE ROUND WASHER, AND NUT REQUIRED. BOLT THREAD IS TO EXTEND $\frac{1}{2}$ -INCH BEYOND NUT.



ELEVATION OF DETAIL AT NY3 END POST
THRIE BEAM RAIL ATTACHMENT

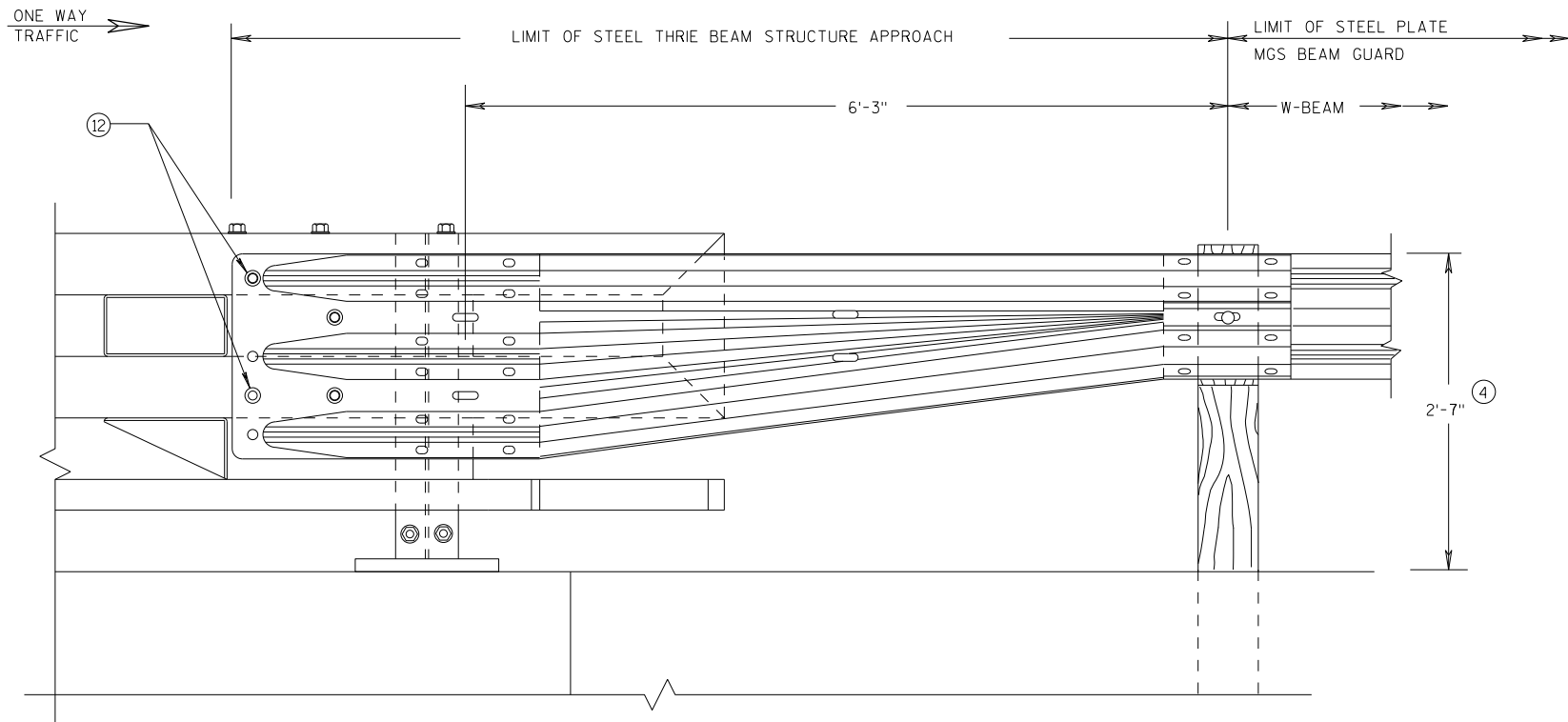


ELEVATION OF DETAIL AT NY4 END POST
THRIE BEAM RAIL ATTACHMENT

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED	/S/ Rodney Taylor	
DATE	7/2018	42
FHWA	ROADWAY STANDARDS	UNIT SUPERVISOR

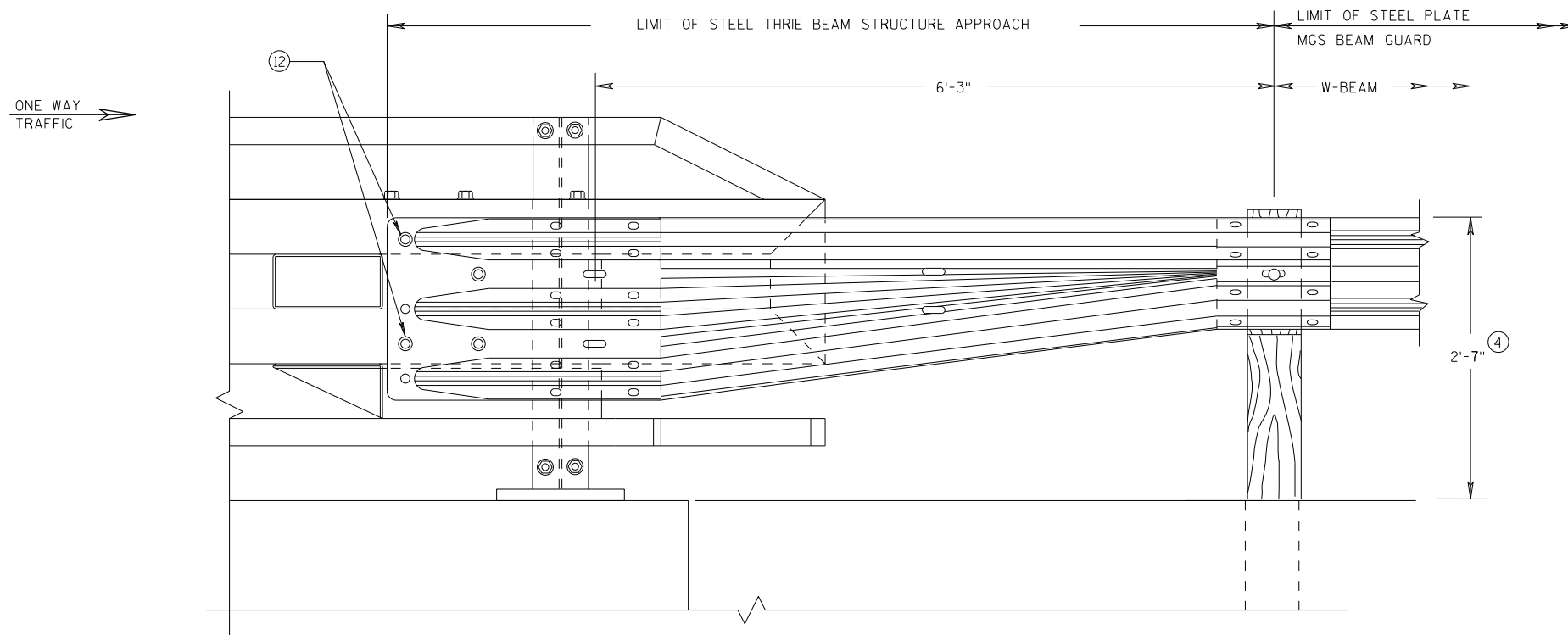


FRONT VIEW

**W BEAM TRANSITION AND
CONNECTION TO BRIDGE RAILING TYPE "NY3"**
(USE ONLY ON THE TRAFFIC EXIT END OF ONE WAY BRIDGES)

GENERAL NOTES

- ④ TOLERANCE FOR TOP OF BEAM IS $\pm 1"$.
- ⑫ 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. ON BACKSIDE OF PARAPET ONE ROUND WASHER, AND NUT REQUIRED. BOLT THREAD IS TO EXTEND $\frac{1}{2}$ -INCH BEYOND NUT.



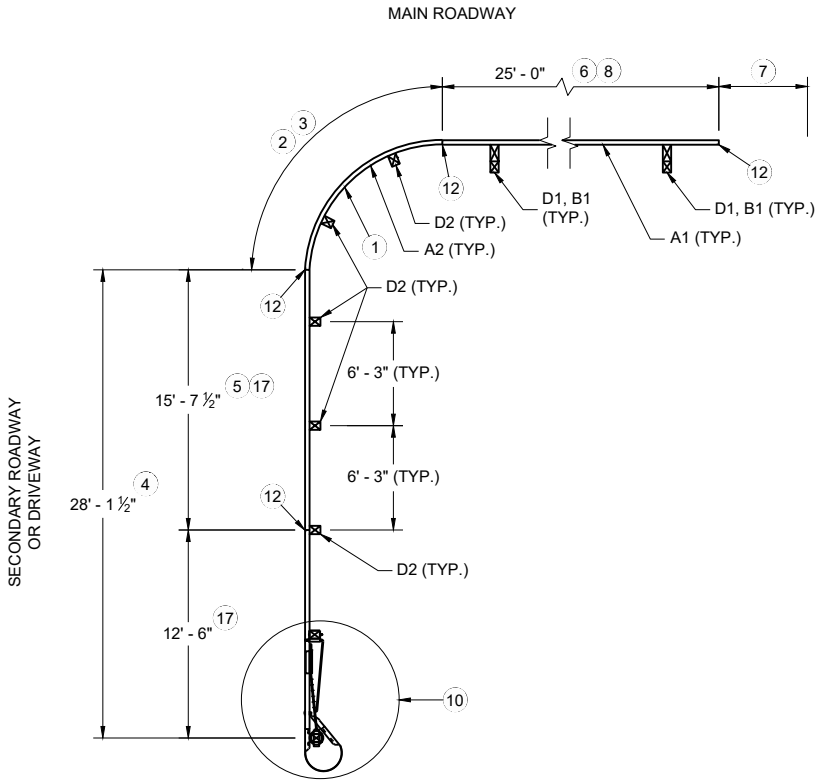
FRONT VIEW

**W BEAM TRANSITION AND
CONNECTION TO BRIDGE RAILING TYPE "NY4"**
(USE ONLY ON THE TRAFFIC EXIT END OF ONE WAY BRIDGES)

**MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)**

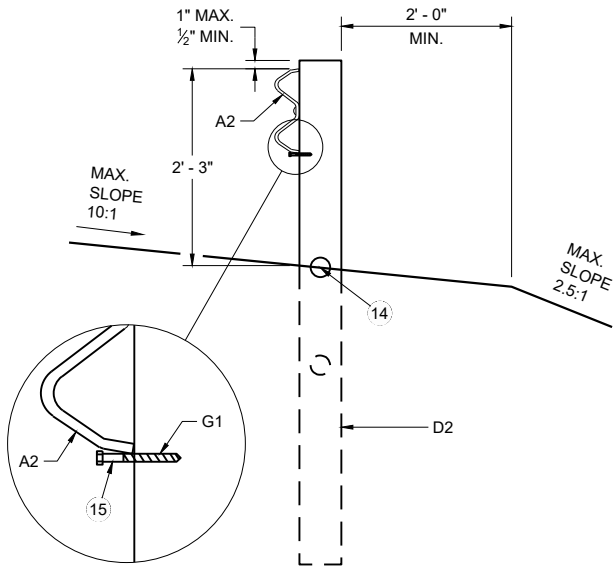
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED 7/2018 DATE	/S/ Rodney Taylor ROADWAY STANDARDS & UNIT SUPERVISOR	43 NT
FHWA		

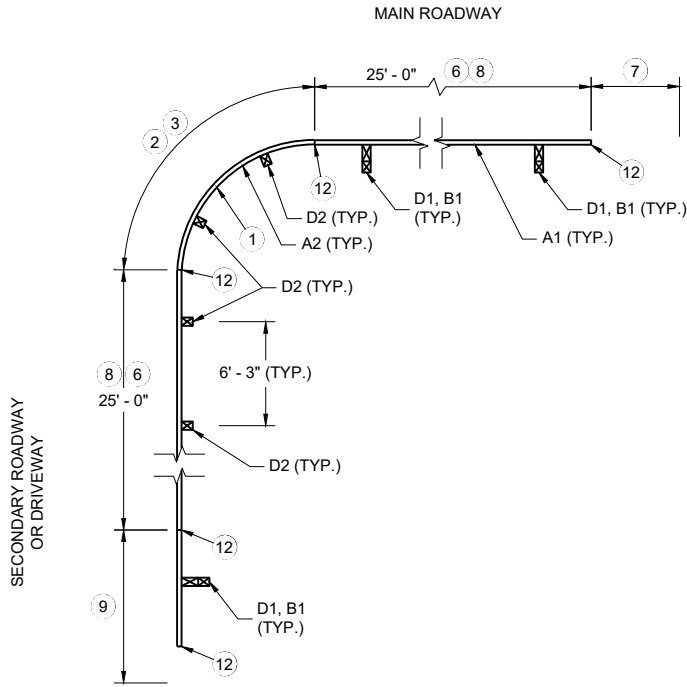


PLAN VIEW

**SHORT RADIUS BEAM GUARD WITH
SHORT RADIUS TERMINAL ON
SECONDARY ROAD OR DRIVEWAY**

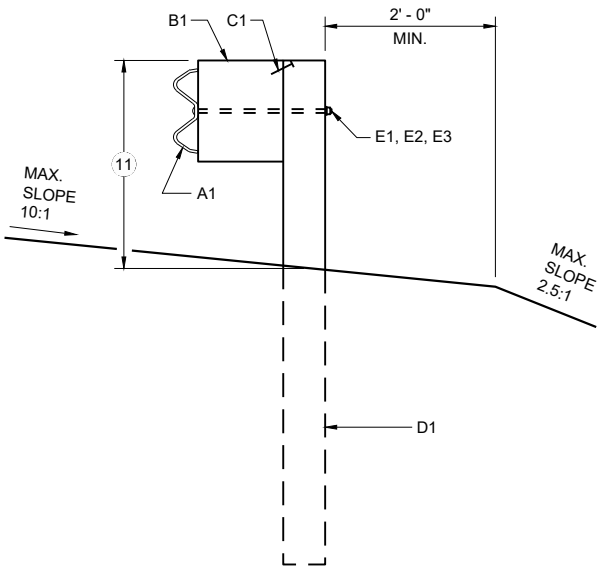


**CONTROLLED RELEASE
TERMINAL POST (CRT) IN RADIUS**



PLAN VIEW

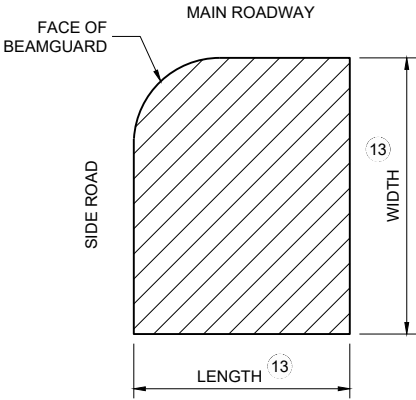
**SHORT RADIUS BEAM GUARD WITH
EAT, ADDITIONAL BEAM GUARD
OR
TRANSITION TO RIGID BARRIER ON
SECONDARY ROAD OR DRIVEWAY**



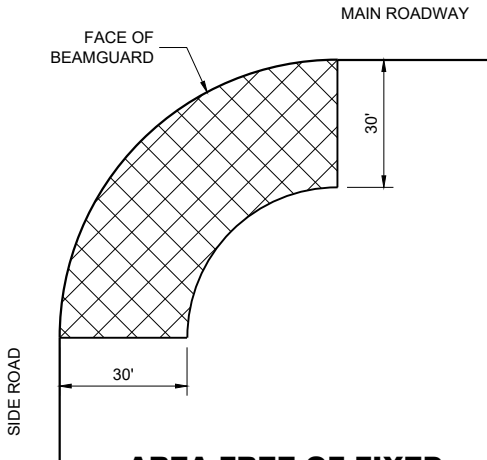
**BEAM GUARD POSTS
IN HEIGHT TRANSITION**

TABLE FOR RADIUS OF 32' AND LESS

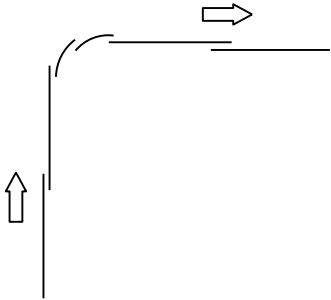
RADIUS (FT)	LENGTH (FT)	WIDTH (FT)
8	25	15
16	30	15
24	40	20
32	50	30



**AREA FREE OF FIXED
OBJECTS FOR RADIUS
32' AND LESS**



**AREA FREE OF FIXED
OBJECTS FOR RADIUS
GREATER THAN 32'**



LAP SPLICE DETAIL

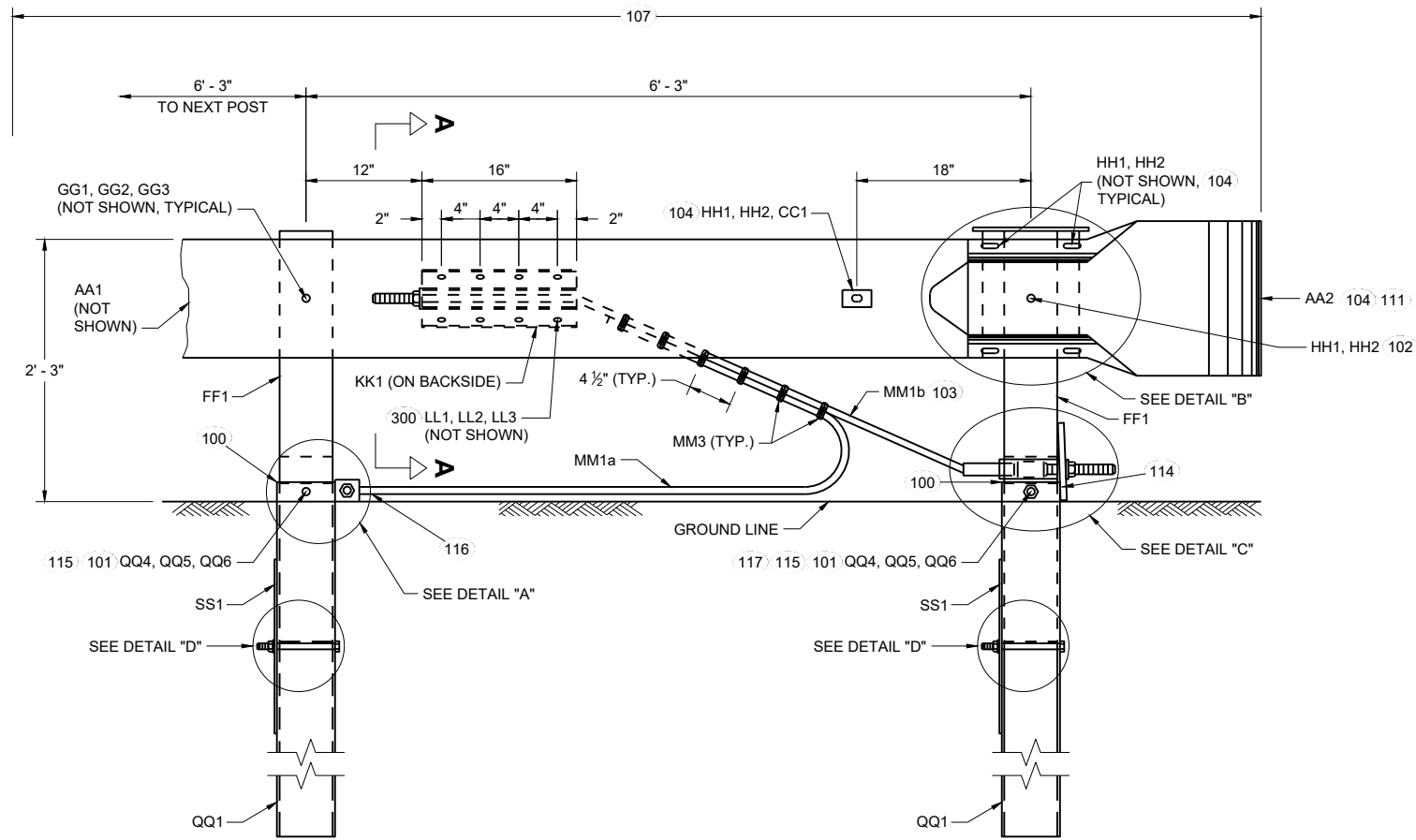
GENERAL NOTES

- SEE PLANS FOR OTHER BARRIER SYSTEM AND LOCATION SPECIFICS.
- SEE SDD 14B42 FOR MORE INFORMATION ON BEAM GUARD INSTALLATION, PARTS, MATERIALS, AND INSTALLATION INFORMATION.
- GALVANIZE PARTS AFTER FABRICATION.
- WELDING TO FOLLOW CURRENT REQUIREMENTS OF THE AMERICAN WELDING SOCIETY STRUCTURAL WELDING CODE ANSI / AWS D1.1.
- UNLESS NOTED OTHERWISE, ALL PLATES ARE FLAT AND FREE OF WARP.
- UNLESS NOTED OTHERWISE, ALL EDGES ARE SMOOTH, STRAIGHT AND VERTICAL.
- ALL CUTS AND HOLES, EXCEPT IN BEAM GUARD RAIL ARE TO BE MACHINED OR MACHINE FLAME CUT.
- UNLESS NOTED OTHERWISE, CUT OR PROVIDE BOLTS THAT ARE 1/4" TO 1/2" BEYOND THE NUT.
- DRAWINGS ARE NOT TO SCALE.

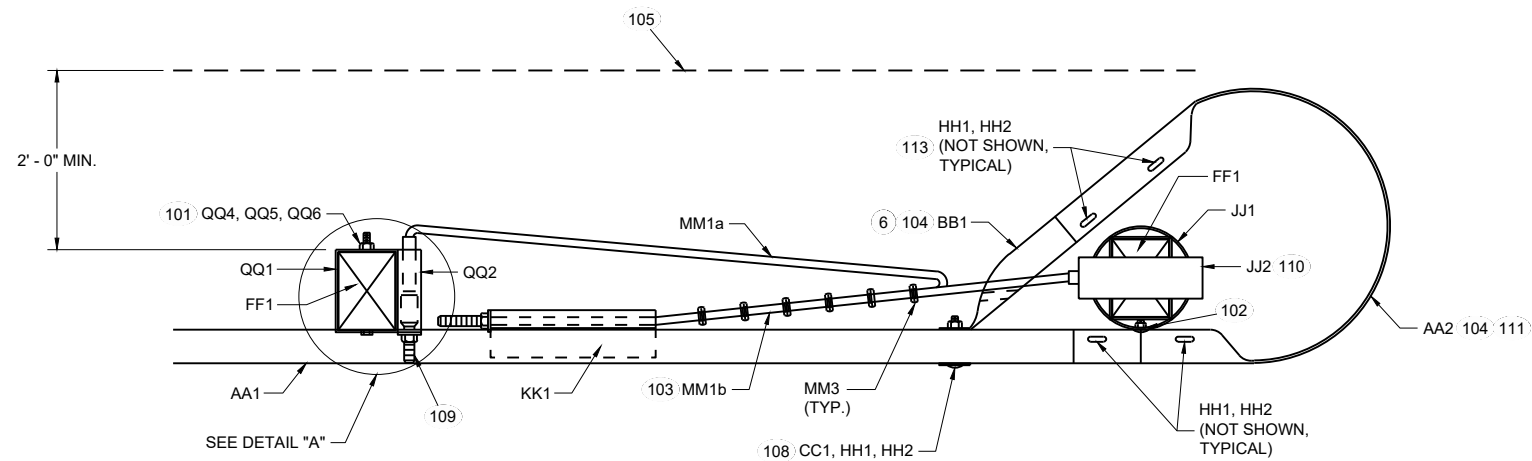
- 1 RADIUS MEASURE FROM INSIDE OF RAIL. LENGTH OF BEAM GUARD SHORT RADIUS GUARD MEASURED ALONG TRAFFIC SIDE OF RAIL. RADIUS BETWEEN 8 FEET TO 150 FEET. SEE PLAN FOR REQUIRED RADIUS. BEAM GUARD RAIL IN RADIUS IS SHOP BENT. ODD RAIL LENGTH OR FIELD CUTS MAY BE REQUIRED.
- 2 CONTROLLED RELEASE TERMINAL (CRT) POSTS ARE USED IN THE RADIUS. CONTROLLED RELEASE TERMINAL (CRT) POSTS ARE SPACED 6' - 3". SEE PLAN FOR NUMBER OF CONTROLLED RELEASE (CRT) POSTS.
- 3 WITHIN RADIUS BEAM GUARD RAILS ARE NOT BOLTED TO POSTS. BEAM GUARD RAIL IS RESTED ON TOP OF LAG SCREW.
- 4 MINIMUM LENGTH OF BEAM GUARD ALONG SIDE ROAD OR DRIVEWAY TO INSTALL SHORT RADIUS TERMINAL. BEAM GUARD IS PAID WITH BEAM GUARD ITEM.
- 5 ODD LENGTH OF BEAM GUARD REQUIRED TO INSTALL SHORT RADIUS TERMINAL.
- 6 MINIMUM AMOUNT OF BEAM GUARD TO BE INSTALLED PRIOR TO TRANSITION TO RIGID BARRIER. ADDITIONAL BEAM GUARD, OR EAT. BEAM GUARD PAID FOR WITH BEAM GUARD ITEM. SEE PLANS FOR MORE DETAIL.
- 7 BEAM GUARD, EAT, OR TRANSITION TO RIGID BARRIER. SEE PLAN.
- 8 TOP OF BEAM GUARD BY THE RADIUS IS 27". HEIGHT OF BEAM GUARD IS 31" BY TRANSITION TO RIGID BARRIER, ADDITIONAL BEAM GUARD OR EAT.
- 9 ADDITIONAL BEAM GUARD, EAT OR TRANSITION TO RIGID BARRIER. BEAM GUARD SHOWN. SEE PLAN FOR DETAILS.
- 10 SHORT RADIUS TERMINAL (SEE OTHER DETAILS).
- 11 HEIGHT VARIES. SEE NOTE 8 AND 8).
- 12 BEAM GUARD RAIL SPLICE LOCATION. SPLICE LOCATION REQUIRES PART F1 AND F2. SEE SDD 14B42 FOR DETAILS.
- 13 SEE TABLE FOR VALUES.
- 14 MAXIMUM HEIGHT FOR CENTER OF HOLE IS 3/4" ABOVE FINISHED GROUND ±1".
- 15 DRILL POST 15/64" DIA. PILOT HOLE. DO NOT HAMMER LAG SCREW INTO POST.
- 16 SMALL SIGNS ON BREAKAWAY HARDWARE ARE ACCEPTABLE.
- 17 TOP OF RAIL HEIGHT IS 27" WHEN USING A SHORT RADIUS TERMINAL (CRT).

**SHORT RADIUS BEAM
GUARD (MGS) SHORT
RADIUS TERMINAL (MGS)**

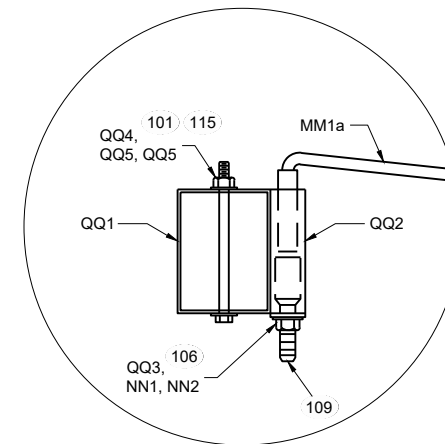
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



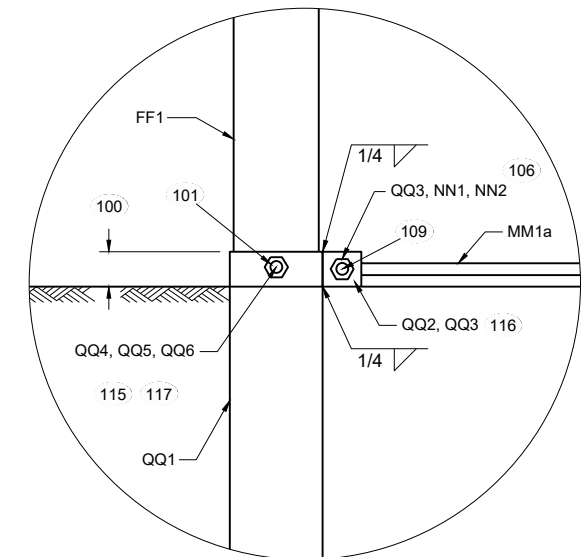
**PROFILE VIEW
SHORT RADIUS TERMINAL**



**TOP VIEW
SHORT RADIUS TERMINAL**



**TOP VIEW
DETAIL "A"
(WOOD BREAKAWAY AND BEAM
GUARD RAIL POSTS NOT SHOWN)**



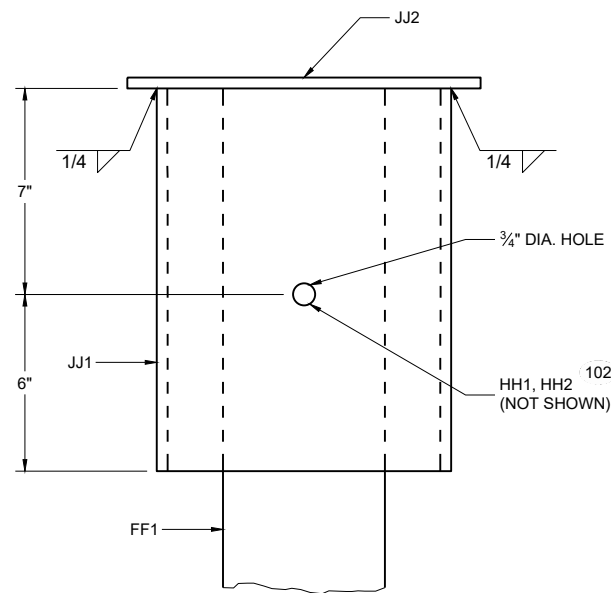
**PROFILE VIEW
DETAIL "A"**

GENERAL NOTES

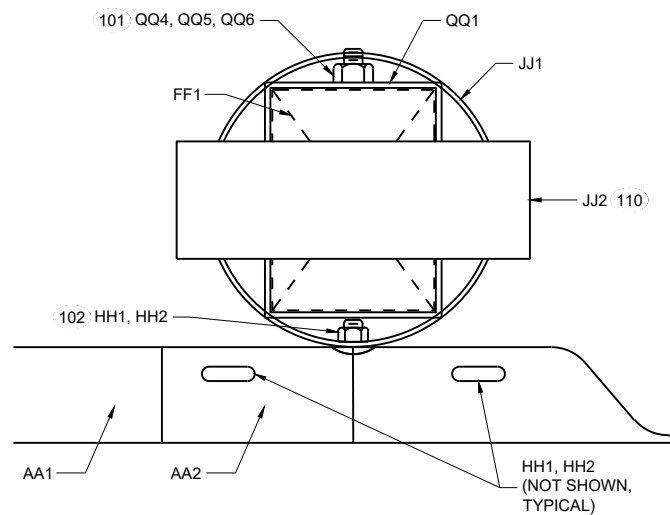
- 100 TOP OF FOUNDATION TUBE 2 INCHES MAXIMUM ABOVE FINISHED GROUND.
- 101 WASHERS REQUIRED BETWEEN BOLT HEAD AND FOUNDATION TUBE AND BETWEEN NUT AND FOUNDATION TUBE.
- 102 SPLICE BOLT AND NUT CONNECTS BEAM GUARD RAIL, W-BEAM SECTION BUFFER, AND STEEL PIPE ASSEMBLY. NO WASHER REQUIRED. SEE DETAIL "B".
- 103 CABLE IS TAUT.
- 104 ADJUST AA2 AND BB1 TO FIT.
- 106 BREAK POINT OF SHOULDER.
- 106 TACK WELD CABLE CONNECTOR TUBE PLATE TO CABLE CONNECTION TUBE. SEE DETAIL "A" PROFILE VIEW.
- 107 PAY LIMIT FOR BEAM GUARD.
- 108 SQUARE WASHER BETWEEN HEAD OF BOLT AND TRAFFIC FACE OF BEAM GUARD. ROUND WASHER REQUIRED BETWEEN NUT AND BB1.
- 109 CUT OR PROVIDE THREADED STUD THAT IS FLUSH WITH FACE OF BEAM GUARD RAIL KK1 (PLUS OR MINUS 1/2" TOLERANCE). DEBURR AFTER CUTTING.
- 110 SEE STEEL PIPE ASSEMBLY DETAILS.
- 111 ATTACH UU2 WITH UU3. SHOP APPLY UU1 TO UU2.
- 112 FOUR (4) HH1 AND HH2 REQUIRED TO ATTACH AA1 TO AA2.
- 113 FOUR (4) HH1 AND HH2 REQUIRED TO ATTACH AA2 TO BB1.
- 114 NO MATERIAL IS TO BE PLACED AGAINST THE VERTICAL FACES OF BEARING PLATE.
- 115 PREVENT OR REMOVE MATERIALS THAT BLOCK ACCESS TO BOLTS FOR POST AND SOIL TUBE.
- 116 PREVENT OR REMOVE MATERIALS THAT BLOCK ACCESS TO BOLT. PLACE CABLE ON TOP OF MATERIAL.
- 117 ONE WASHER BETWEEN BOLT HEAD AND FOUNDATION TUBE AND BETWEEN NUT AND FOUNDATION TUBE.

**SHORT RADIUS BEAM
GUARD (MGS) SHORT
RADIUS TERMINAL (MGS)**

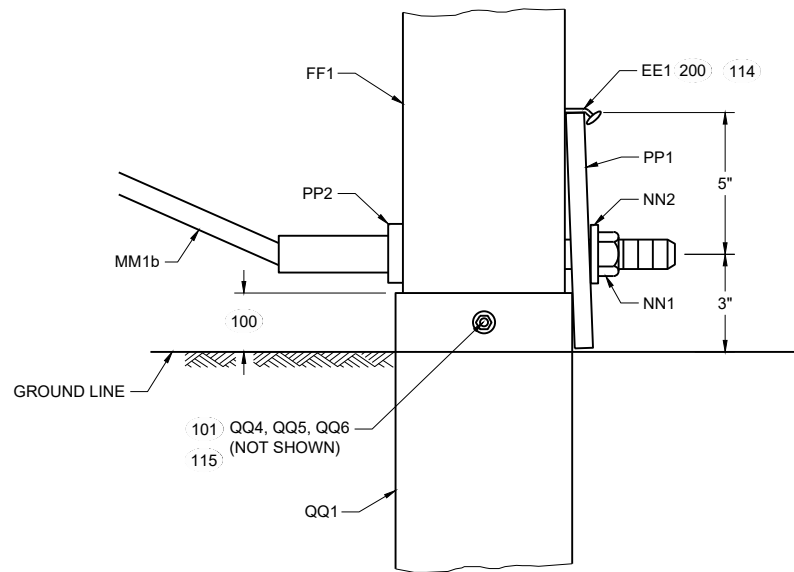
STATE OF WISCONSIN
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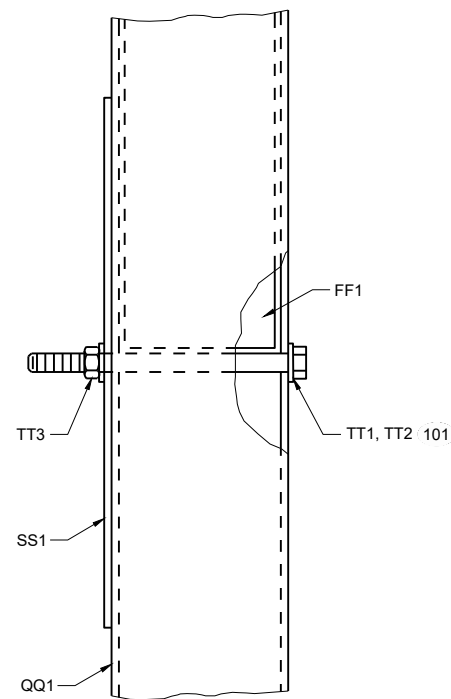
PROFILE VIEW
DETAIL "B"
STEEL PIPE ASSEMBLY
(BEAM GUARD AND W BEAM
END SECTION NOT SHOWN)



PLAN VIEW
DETAIL "B"
STEEL PIPE ASSEMBLY



PROFILE VIEW
DETAIL "C"



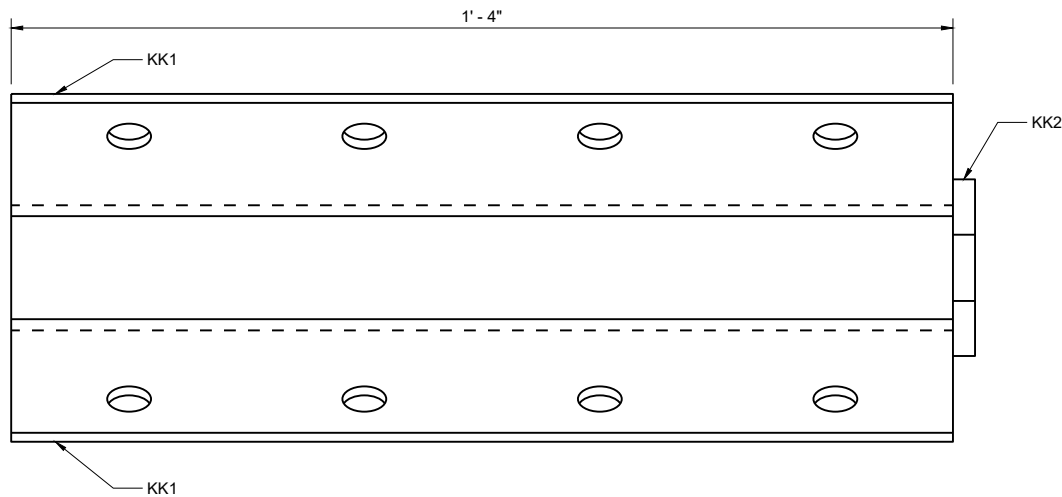
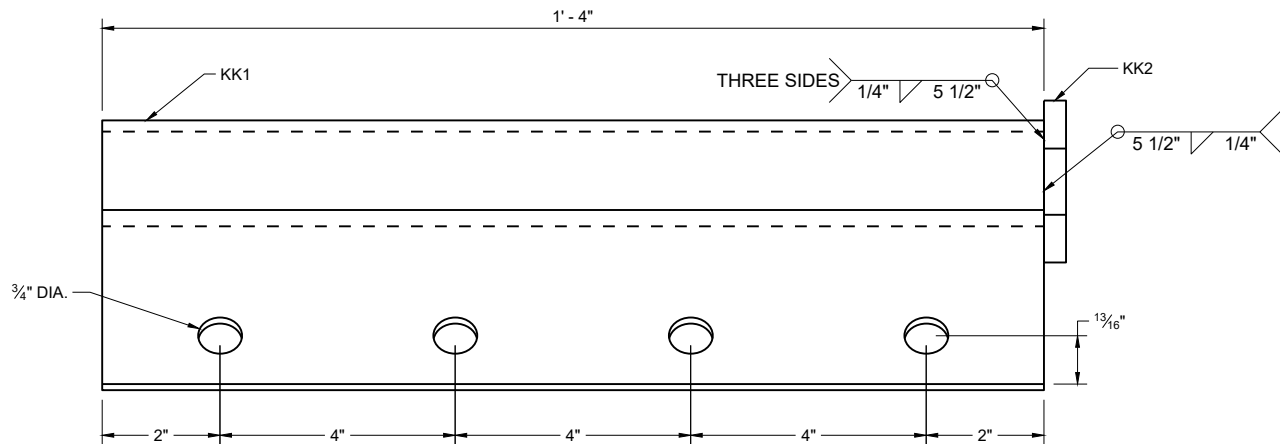
PROFILE VIEW
DETAIL "D"

GENERAL NOTES

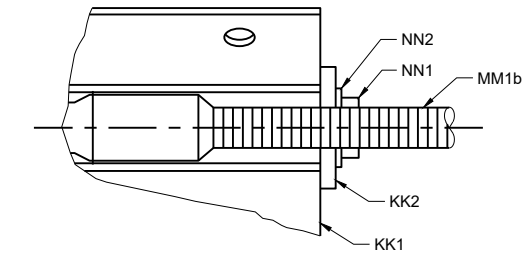
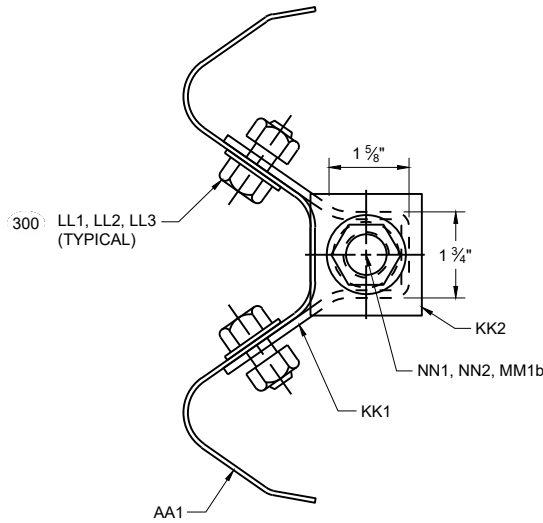
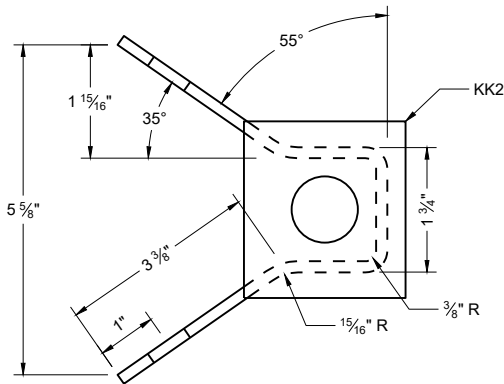
200 TWO (2) NAILS SPACED 4 INCHES CENTER TO CENTER.

SHORT RADIUS BEAM
GUARD (MGS) SHORT
RADIUS TERMINAL (MGS)

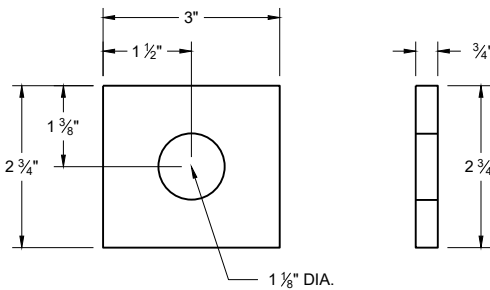
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ANCHOR BRACKET (KK1, KK2)



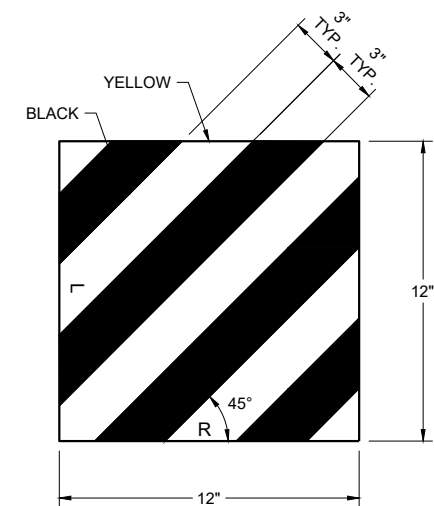
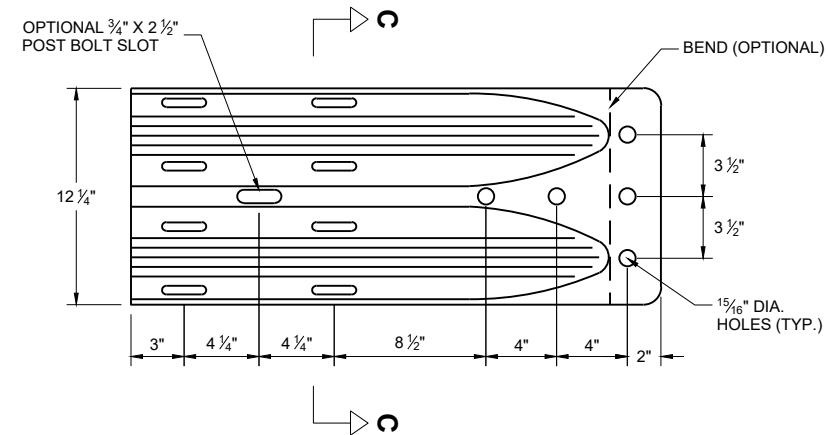
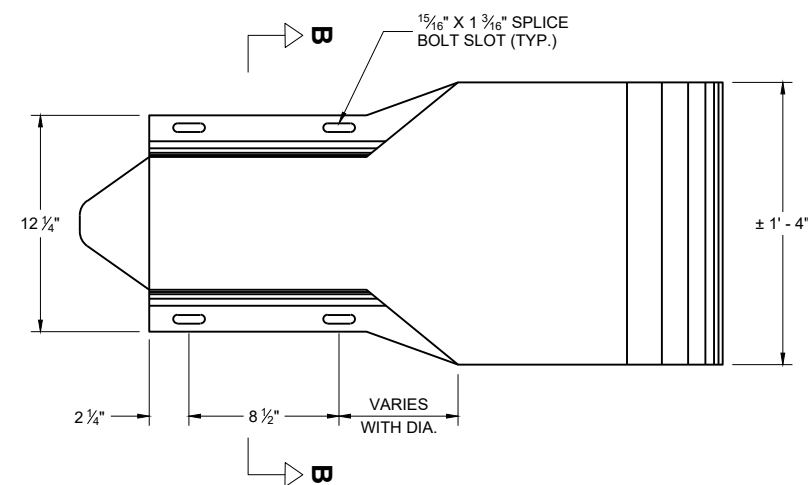
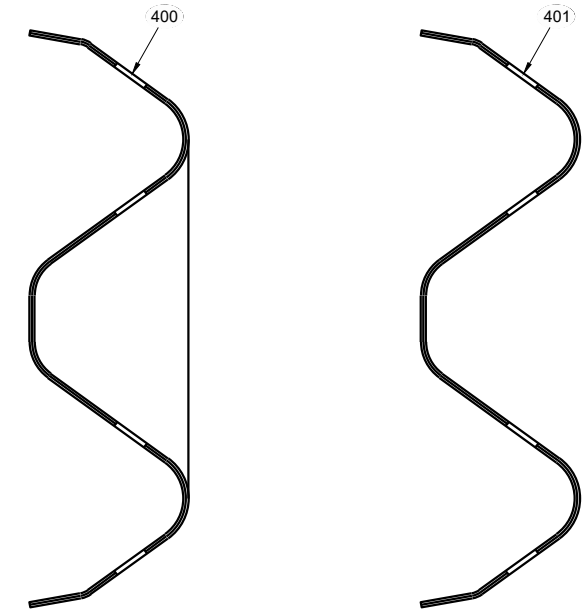
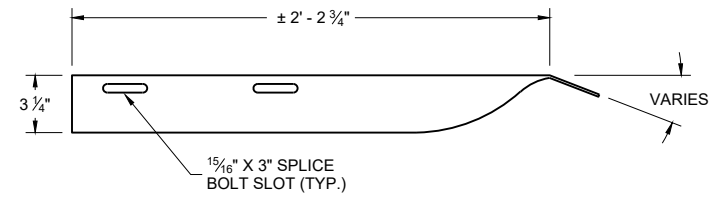
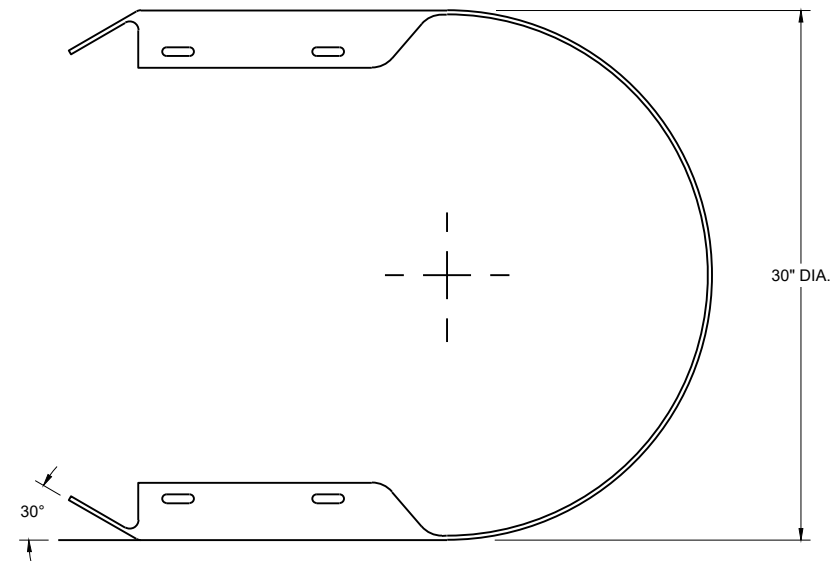
SECTION A - A

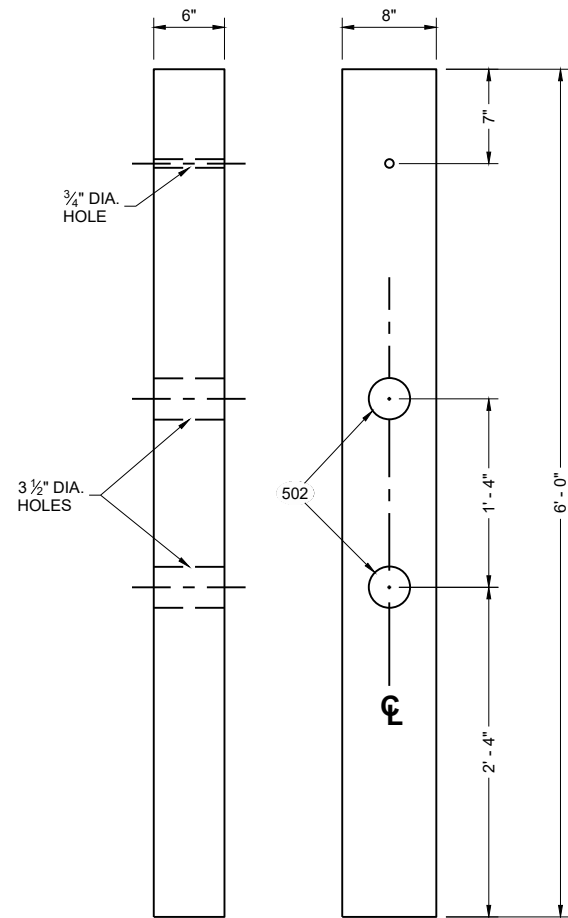


ANCHOR BRACKET BEARING PLATE (KK2)

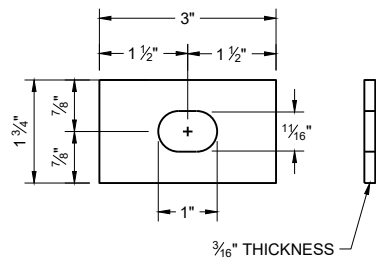
SHORT RADIUS BEAM
GUARD (MGS) SHORT
RADIUS TERMINAL (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

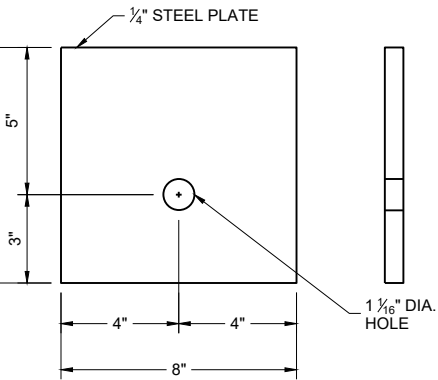




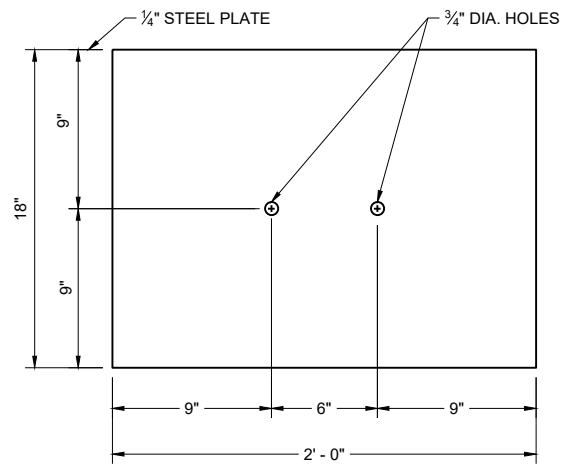
FRONT VIEW SIDE VIEW
CONTROLLED RELEASE POST (CRT) (DD2)



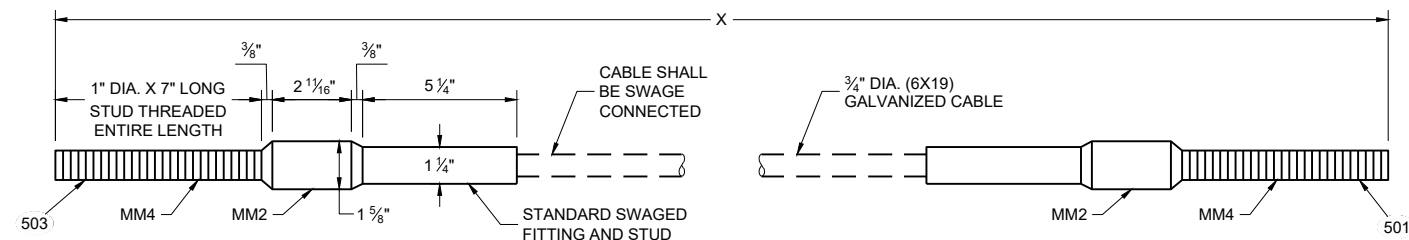
RECTANGULAR PLATE WASHER (CC1)



BEARING PLATE (PP1)



SOIL PLATE (SS1)

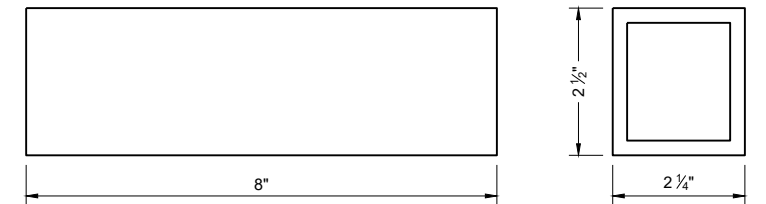


CABLE ASSEMBLY (MM1a, MM11b)

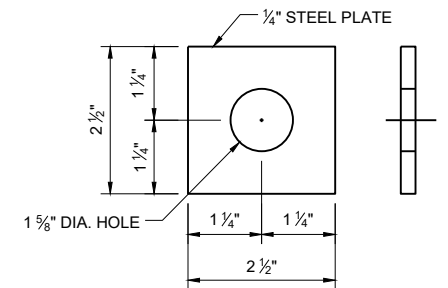
"X" LENGTH	
MM1b	9' - 0"
MM1b	6' - 8"

GENERAL NOTES

- 500 SEE DETAIL "D" FOR LOCATION AND ATTACHMENT OF SS1.
- 501 FOR MM1a THREADED STUD ONLY REQUIRED ON ONE END. SWAGED FITTING REQUIRED.
- 502 LOCATE HOLES ON THE CENTERLINE OF THE SIDE OF THE POST.
- 503 MM1a MAY HAVE ONE THREADED STUD 4 INCHES LONG. SEE NOTE 109.



FOUNDATION TUBE - ANCHOR CABLE TUBE (QQ2)



ANCHOR CABLE TUBE END PLATE (QQ3)

SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)

STATE OF WISCONSIN
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BILL OF MATERIALS - SHORT RADIUS BEAM GUARD (MGS)

PART	DESCRIPTION	MATERIALS SPECIFICATIONS	NOTES
A1	BEAM GUARD RAIL	AASHTO M180, CLASS A, TYPE 2	
		APPROVED PRODUCER	
A2	BEAM GUARD RAIL - SHOP BENT	INDICATE ON BACK OF RAIL THE RADIUS THAT RAIL WAS BENT TO. SHOP BEND RADIUS IS TO THE NEAREST FOOT. FOLLOW AASHTO M180 ON HOW TO MARK RADIUS INFORMATION.	
		AASHTO M180, CLASS A, TYPE 2	
		APPROVED PRODUCER	
B1	BLOCK - WOOD	WISDOT SPEC. 614	SEE SDD 14B42
C1	NAIL	ASTM A153 HOT DIP CLASS D	
		ASTM F1667 TYPE 1 STYLE 12 (16 DOUBLE HEAD)	
D1	POST-STRONG POST-WOOD	WISDOT SPEC. 614	SEE SDD 14B42
D2	POST-CRT-WOOD	WISDOT SPEC. 614	
E1	POST BOLT	ASTM A307 GRADE A OR SAE J429 GRADE 2	5/8" DIA. SEE SDD 14B42 FOR BOLT GEOMETRY
		AASHTO M180	
		GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	
		UNC	
E2	POST BOLT - WASHER	ASTM F436 TYPE 1 (HARDEN TYPICALLY USED WITH STEEL) OR ASTM F844 (UNHARDENED TYPICALLY WITH WOOD)	5/8" DIA.
		GALV. AASHTO M111 / ASTM A 123 OR GALV. HOT DIP. TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329	
E3	POST BOLT - NUT	AASHTO M180 DOUBLE RECESSED HEAVY HEX HEAD	5/8" DIA. SEE SDD 14B42 FOR BOLT GEOMETRY
		GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	
		UNC	
		OVER TAPPED NUTS OVER-SIZE AS SPECIFIED IN AASHTO 291 / ASTM A 563	
		ASTM A563 GRADE A HEAVY HEX HEAD	
F1	SPLICE BOLT	GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	5/8" DIA. SEE SDD 14B42 FOR BOLT GEOMETRY
		ASTM A307 GRADE A OR SAE J429 GRADE 2	
		UNC	
		AASHTO M180	

PART	DESCRIPTION	MATERIALS SPECIFICATIONS	NOTES
F2	SPLICE BOLT - NUT	ASTM A563 GRADE A	5/8" DIA. SEE SDD 14B42 FOR BOLT GEOMETRY
		AASHTO M180 DOUBLE RECESSED HEAVY HEX HEAD	
		GALV. HOT DIP TO AASHTO M232 CLASS C/ASTM A153 CLASS C/ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1/ASTM B695 CLASS 50, TYPE 1	
		OVER TAPPED NUTS OVER-SIZE AS SPECIFIED IN AASHTO 291 / ASTM A 563	
		UNC	
G1	LAG SCREW	ASTM A308 GRADE A ASTM A153 CLASS D	1/2" DIA. 6" LONG
H1	DELINEATOR - BEAM GUARD		SEE SDD 14B42 FOR MORE INFORMATION
H2	DELINEATION - SHEETING	YELLOW OR WHITE	
		WISDOT SPEC 637 TYPE SH	
		APPROVED PRODUCT LIST	
J1	FOUNDATION BACKFILL	STANDARD SPEC. 614	
AA1	BEAM GUARD RAIL - PUNCHED	AASHTO M180, CLASS A, TYPE 2	
		APPROVED PRODUCER	
AA2	BEAM GUARD RAIL - END SECTION BUFFER	AASHTO M180, CLASS A, TYPE 2	
		APPROVED PRODUCER	
BB1	BEAM GUARD RAIL - TERMINAL CONNECTOR MODIFIED	AASHTO M180, CLASS A, TYPE 2	
		APPROVED PRODUCER	
CC1	SHORT RADIUS - SQUARE WASHER	AASHTO M180	
		GALV. AASHTO M111 / ASTM A123	
EE1	NAIL	ASTM A153 HOT DIP CLASS D	
		ASTM F1667 TYPE 1 STYLE 12 (16 DOUBLE HEADED)	
FF1	POST - BCT - WOOD	S4S FINISH ON 4 SIDES	
		WISDOT SPEC. 614	
GG1	POST BOLT	ASTM A307 GRADE A OR SAE J429 GRADE 2	3/8" DIA. SEE SDD 14B42 FOR BOLT GEOMETRY
		AASHTO M180	
		GALV. HOT DIP TO AASHTO M232 CLASS C/ASTM A153 CLASS C/ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1/ASTM B695 CLASS 50, TYPE 1	
		UNC	
GG2	POST BOLT - WASHER	ASTM F436 TYPE 1 (HARDEN TYPICALLY USED WITH STEEL) OR ASTM F844 (UNHARDENED TYPICALLY WITH WOOD)	3/8" DIA.
		GALV. AASHTO M111 / ASTM A 123 OR GALV. HOT DIP. TO AASHTO M232 CLASS C/ASTM A153 CLASS C / ASTM F2329	

SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)

BILL OF MATERIALS - SHORT RADIUS BEAM GUARD (MGS)

PART	DESCRIPTION	MATERIALS SPECIFICATIONS	NOTES
GG3	POST BOLT - NUT	ASTM A563 GRADE A	$\frac{3}{8}$ " DIA. SEE 14B42 FOR GEOMETRY
		AASHTO M180 DOUBLE RECESSED HEAVY HEX HEAD	
		GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	
		UNC	
		OVER TAPPED NUTS OVER-SIZE AS SPECIFIED IN AASHTO 291 / ASTM A 563	
		ASTM A563 GRADE A HEAVY HEX HEAD	
HH1	SPLICE BOLT	GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	$\frac{3}{8}$ " DIA. SEE SDD 14B42 FOR BOLT GEOMETRY
		ASTM A307 GRADE A OR SAE J429 GRADE 2	
		UNC	
		AASHTO M180 HEAD GEOMETRY	
HH2	SPLICE BOLT - NUT	ASTM A563 GRADE A	$\frac{3}{8}$ " DIA. SEE SDD 14B42 FOR BOLT GEOMETRY
		AASHTO M180 DOUBLE RECESSED HEAVY HEX HEAD	
		GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	
		OVER TAPPED NUTS OVER-SIZE AS SPECIFIED IN AASHTO 291 / ASTM A 563	
		UNC	
JJ1	PIPE - STEEL	ASTM A53 GALVANIZED GRADE B SCHEDULE 40	10" O.D.
JJ2	TOP PLATE	ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI OR ASTM A709 MAX STRENGTH 50 KSI OR ASTM A992 MAX STRENGTH 50 KSI	DIMENSIONS $\frac{3}{8}$ " X 4" X 1' - 0"
		GALV. AASHTO M111 / ASTM A123	
KK1	ANCHOR BRACKET	ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI OR ASTM A709 MAX STRENGTH 50 KSI OR ASTM A992 MAX STRENGTH 50 KSI	
		GALV. AASHTO M111 / ASTM A123	
KK2	ANCHOR BRACKET - BEARING PLATE	ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI OR ASTM A709 MAX STRENGTH 50 KSI OR ASTM A992 MAX STRENGTH 50 KSI	
		GALV. AASHTO M111 / ASTM A123	
LL1	ANCHOR BRACKET - BOLT	ASTM A307 GRADE B HEAVY HEX HEAD OR SAE J429 GRADE 2 HEAVY HEX HEAD	$\frac{5}{8}$ " DIA.
		GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	
		UNC	

PART	DESCRIPTION	MATERIALS SPECIFICATIONS	NOTES
LL2	ANCHOR BRACKET - WASHER	ASTM F436 TYPE 1 (HARDEN WASHER ONLY)	$\frac{5}{8}$ " DIA.
		GALV. AASHTO M111 / ASTM A123 OR GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329	
LL3	ANCHOR BRACKET - NUT	ASTM A563 GRADE A	$\frac{5}{8}$ " DIA.
		GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	
		OVER TAPPED NUTS OVER-SIZE AS SPECIFIED IN AASHTO 291 / ASTM A 563	
		UNC	
MM1a	ANCHOR CABLE	AASHTO M30 / ASTM A741 INDEPENDENT WIRE CORE (IWRC) OR WIRE STRAND CORE (WCS), IMPROVED FLOW STEEL (IPS), 6X19, TYPE II OR IIc CLASS C ZINC COATED	
MM1b	ANCHOR CABLE	AASHTO M30 / ASTM A741 INDEPENDENT WIRE CORE (IWRC) OR WIRE STRAND CORE (WCS), IMPROVED FLOW STEEL (IPS), 6X19, TYPE II OR IIc CLASS C ZINC COATED	
MM2	ANCHOR CABLE - SWAGE FITTING	ASTM A576 GRADE 1035	
		SWAGE FITTINGS ARE TO BE FACTORY SWEDGED. WITH A BREAKING STRENGTH 40,000 LBS.	
		GALV. AASHTO M111 / ASTM A123	
		ASME B30.26 FORGED, CAST, OR DIE STAMPED WITH THE FOLLOWING INTO CONNECTION: NAME OF MANUFACTURER OR TRADEMARK OF CONNECTION'S MANUFACTURER, SIZE OR RATED LOAD, GRADE.	
MM3	WIRE ROPE CABLE CLAMPS	FF-C-450D TYPE 1 CLASS 1	$\frac{3}{4}$ "
		ASTM A153 HOT DIP CLASS D	
MM4	ANCHOR CABLE - SWAGE FITTING - STUD	ASTM F3125 GRADE A325 TYPE 1 OR SAE GRADE 5 OR ASTM A449 TYPE 1 HEAVY HEX HEAD	
		GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	
		UNC	
NN1	ANCHOR CABLE - NUT	ASTM A563 GRADE A	1" DIA.
		AASHTO M180 DOUBLE RECESSED HEAVY HEX HEAD	
		GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	
		OVER TAPPED NUTS OVER-SIZE AS SPECIFIED IN AASHTO 291 / ASTM A 563	
NN2	ANCHOR CABLE - NUT - WASHER	UNC	1" DIA.
		ASTM F436 TYPE 1 (HARDEN WASHER ONLY)	
		GALV. AASHTO M111 / ASTM A123 OR GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329	

SHORT RADIUS BEAM
GUARD (MGS) SHORT
RADIUS TERMINAL (MGS)

BILL OF MATERIALS - SHORT RADIUS BEAM GUARD (MGS)

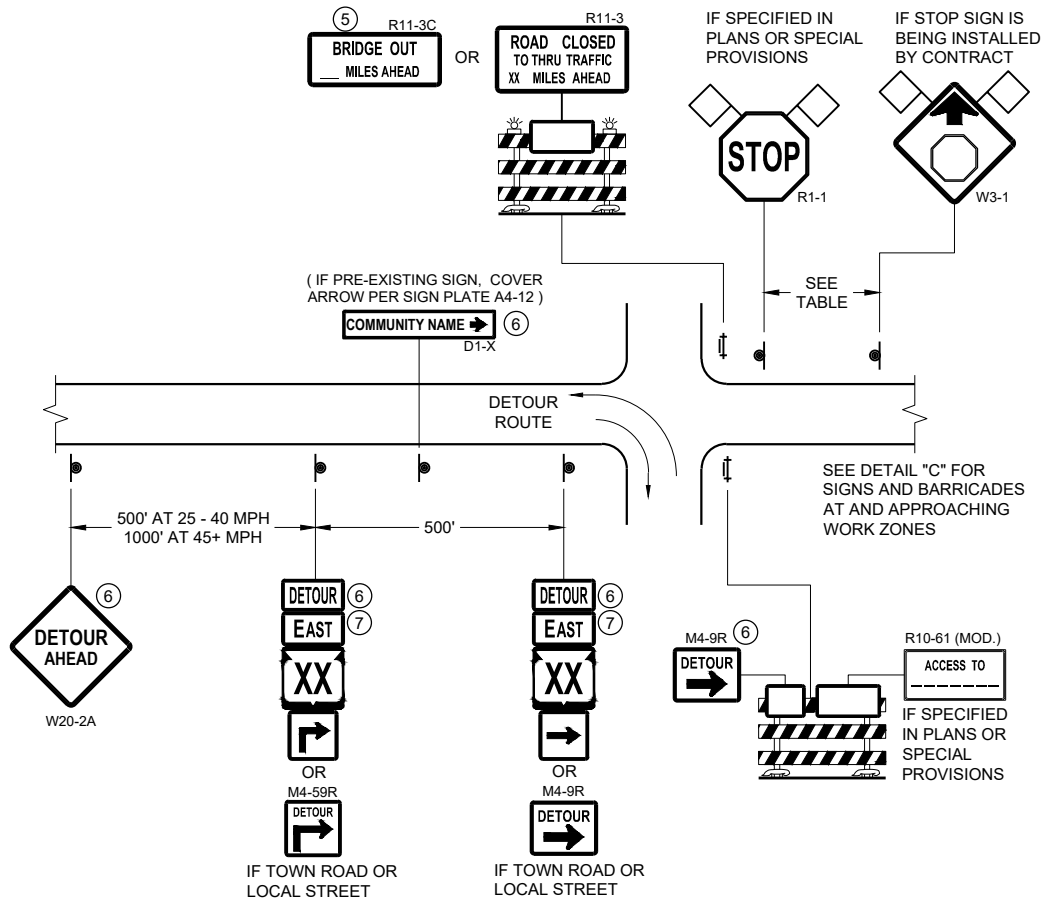
PART	DESCRIPTION	MATERIALS SPECIFICATIONS	NOTES
PP1	BEARING PLATE AT POST	ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI OR ASTM A709 MAX STRENGTH 50 KSI OR ASTM A992 MAX STRENGTH 50 KSI	
		GALV. AASHTO M111 / ASTM A123	
PP2	PIPE - STEEL	ASTM A53 GALVANIZED GRADE B SCHEDULE 40	2" DIA. x 6" LONG
QQ1	FOUNDATION TUBE	ASTM A500 GRADE B	8" X 6" X 3⁄16"
		GALV. AASHTO M111 / ASTM A123	
QQ2	SHORT RADIUS - FOUNDATION TUBE - ANCHOR CABLE - TUBE	ASTM A500 GRADE B	DIMENSIONS 2 ½" X 2 ¼" X ¼" X 8"
		GALV. AASHTO M111 / ASTM A123	
QQ3	SHORT RADIUS - SOIL TUBE - ANCHOR CABLE - TUBE - END PLATE	ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI OR ASTM A709 MAX STRENGTH 50 KSI OR ASTM A992 MAX STRENGTH 50 KSI	DIMENSIONS 2 ½" X 2 ½" X ¼"
		GALV. AASHTO M111 / ASTM A123	
QQ4	GROUND STRUT AND YOKE - BOLT	GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	5⁄8 DIA.
		ASTM A307 GRADE B HEAVY HEX HEAD OR SAE J429 GRADE 2 HEAVY HEX HEAD	
		UNC	
QQ5	GROUND PLATE AND YOKE - WASHER	ASTM F436 TYPE 1 (HARDEN WASHER ONLY)	5⁄8 DIA.
		GALV. AASHTO M111 / ASTM A123 OR GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329	
QQ6	GROUND STRUT AND YOKE - NUT	HEAVY HEX	5⁄8 DIA.
		UNC	
		ASTM A563 GRADE A	
		OVER TAPPED NUTS AS SPECIFIED IN AASHTO 291 / ASTM A 563	
		GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	

PART	DESCRIPTION	MATERIALS SPECIFICATIONS	NOTES
SS1	SOIL PLATE	ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI OR ASTM A709 MAX STRENGTH 50 KSI OR ASTM A992 MAX STRENGTH 50 KSI	
		GALV. AASHTO M111 / A123	
TT1	SOIL PLATE - BOLT	ASTM A307 GRADE B HEAVY HEX HEAD OR SAE J429 GRADE 2 HEAVY HEX HEAD	5⁄8 DIA.
		GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	
		UNC	
TT2	SOIL PLATE - WASHER	ASTM F436 TYPE 1 (HARDEN WASHER ONLY)	5⁄8 DIA.
		GALV. AASHTO M111 / ASTM A123 OR GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329	
TT3	SOIL PLATE - NUT	GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	5⁄8 DIA.
UU1	OBJECT MARKER - SHEETING	MUTCD / WISDOT OBJECT MARKER TYPE 3	PATTERN AND COLOR FOR SHEETING. SHEETING TYPE FOR MARKER.
		WISDOT SPEC 637 TYPE F	
		APPROVED PRODUCT LIST	
UU2	OBJECT MARKER - ALUMINUM PLATE	WISDOT SPEC 637 ALUMINUM PLATE	MATERIAL AND THICKNESS OF MATERIALS
UU3	OBJECT MARKER - SCREWS	STAINLESS SELF-TAPPING SCREWS	
VV1	FOUNDATION BACKFILL	WISDOT SPEC 614	

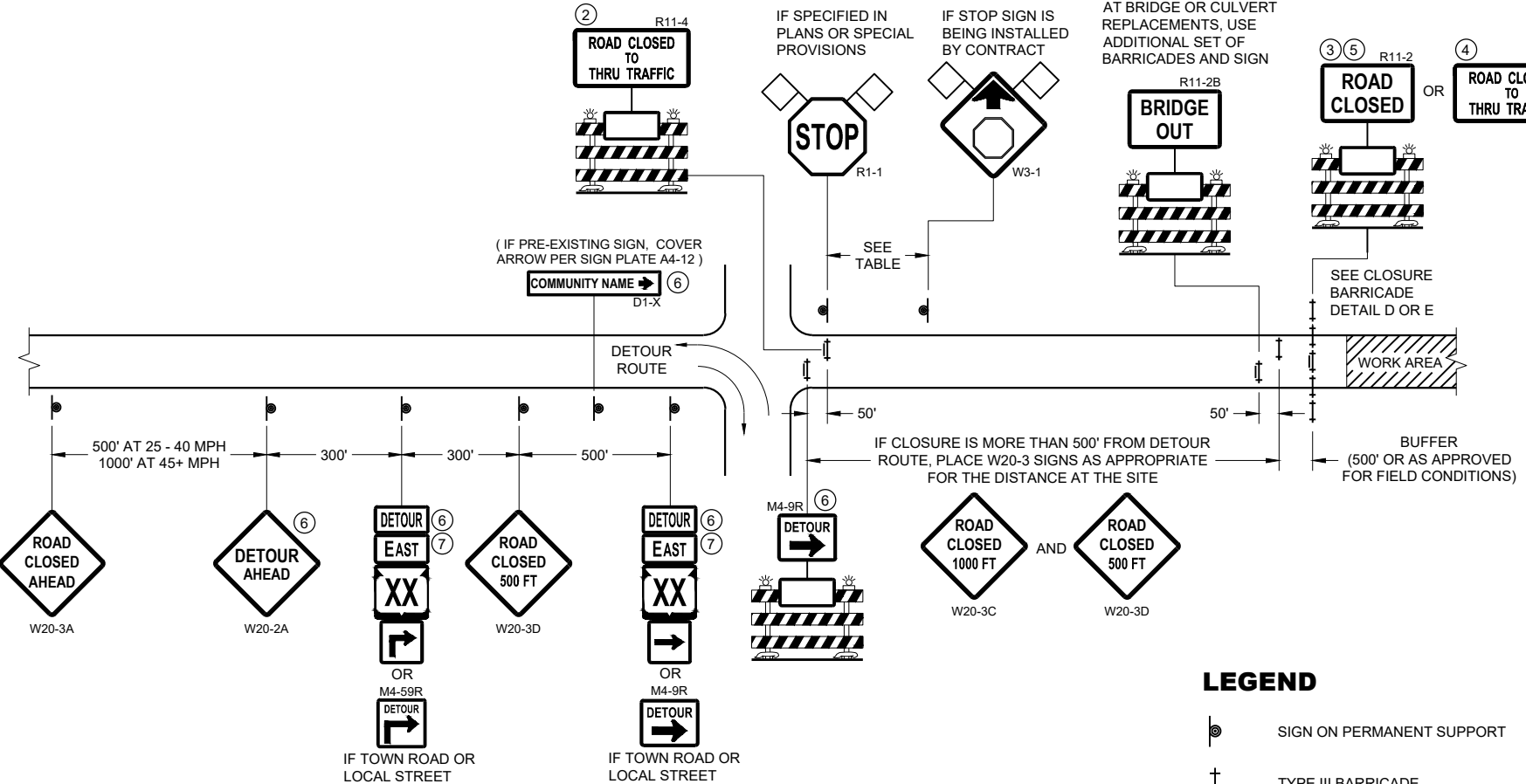
SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)

STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION

APPROVED December 2024 /S/ Rodney Taylor DATE ROADWAY STANDARDS DEVELOPMENT UNIT SUPERVISOR FHWA



DETAIL A
MAINLINE CLOSURE WITH POSTED DETOUR
WORK ZONE GREATER THAN OR EQUAL TO ½ MILE FROM
DETOUR ROUTE (1000 FEET IF URBAN)



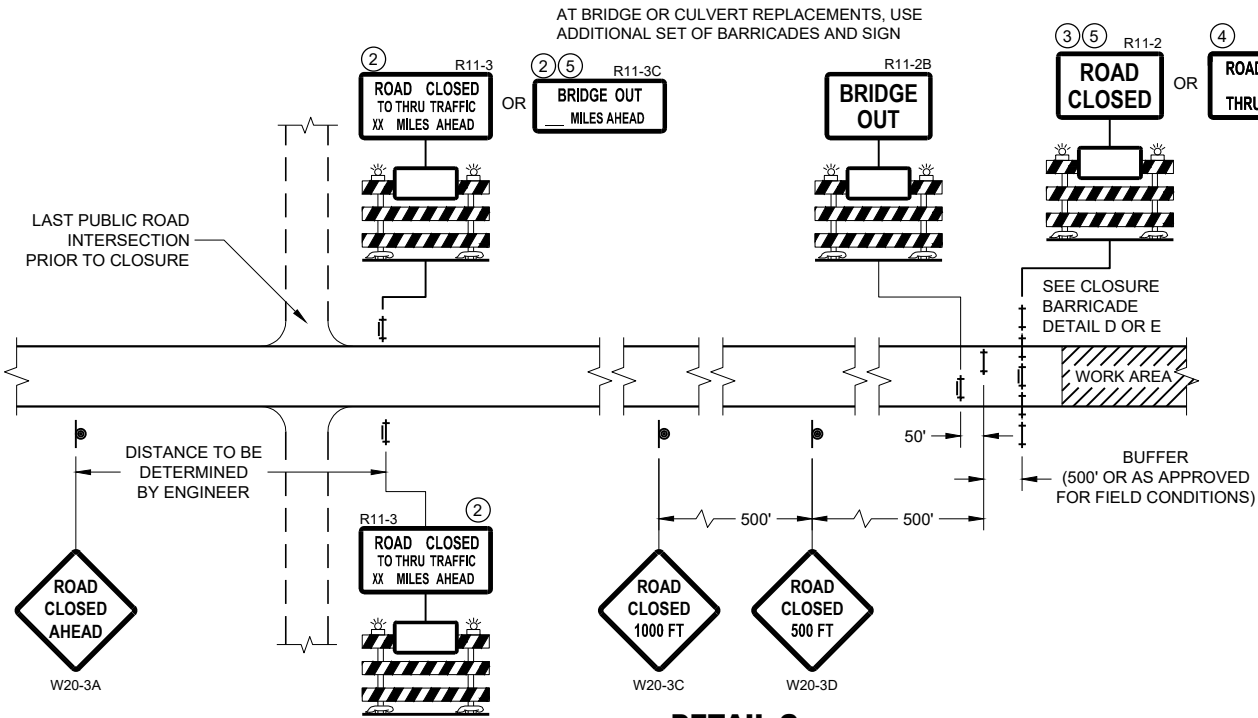
DETAIL B
MAINLINE CLOSURE WITH POSTED DETOUR
WORK ZONE LESS THAN ½ MILE FROM
DETOUR ROUTE (1000 FEET IF URBAN)

- LEGEND**
- SIGN ON PERMANENT SUPPORT
 - TYPE III BARRICADE
 - TYPE III BARRICADE WITH ATTACHED SIGN
 - TYPE "A" WARNING LIGHT (FLASHING)
 - WORK AREA
 - FLAGS, 16" X 16" MIN. (ORANGE)

- DETOUR M4 - 8
- EAST M3 - X
- XX M1 - 4 OR XX M1 - 6 OR COUNTY M1 - 5A
- OR M05 - 1 OR M06 - 1

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

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



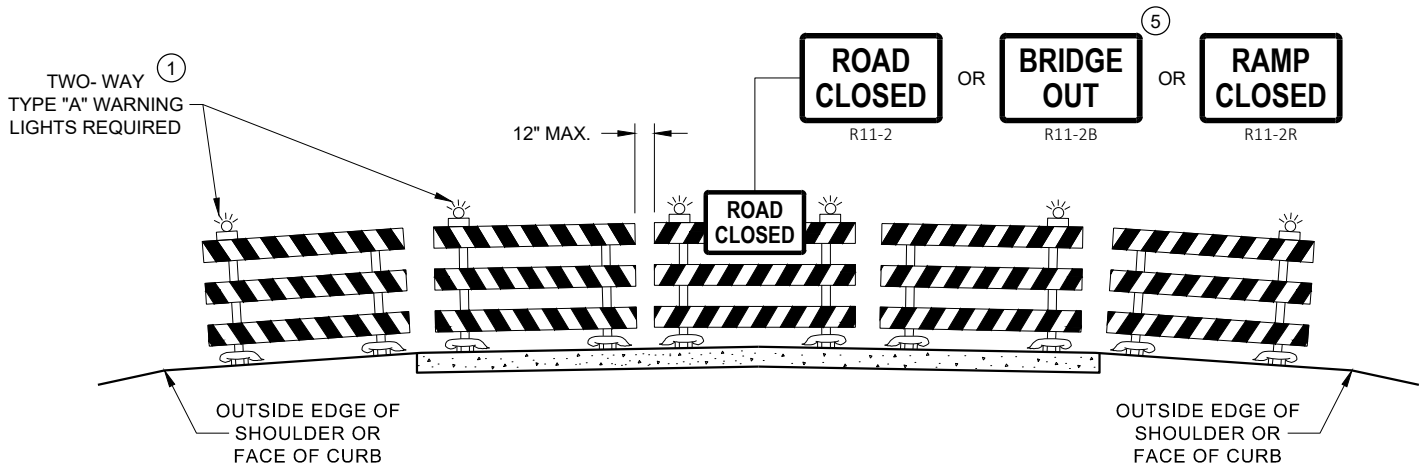
DETAIL C
MAINLINE CLOSURE, NO POSTED DETOUR

**BARRICADES AND SIGNS
FOR MAINLINE CLOSURES**

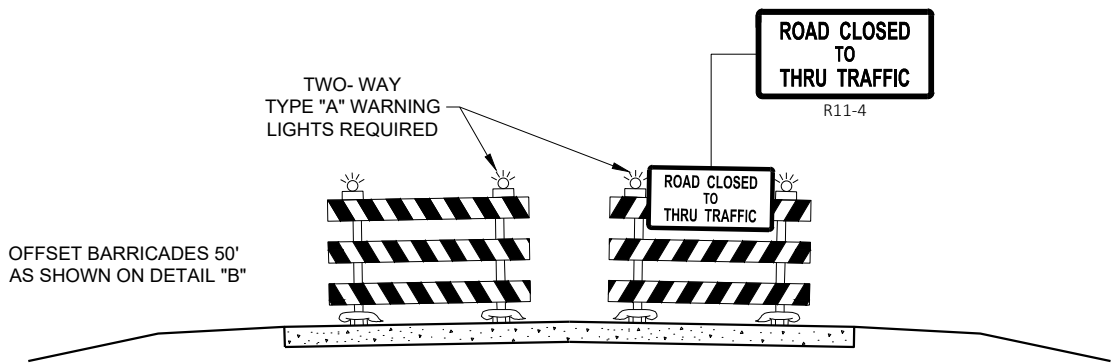
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May 2023 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER 53

FHWA



DETAIL D
ROAD CLOSURE BARRICADE DETAIL
APPROACH VIEW



DETAIL E
LANE CLOSURE BARRICADE DETAIL
APPROACH VIEW

SEE SDD 15C2 - SHEET "a" FOR LEGEND

GENERAL NOTES

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

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

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

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

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

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

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

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

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

ALL SIGNS SHALL BE 48" X 48" UNLESS OTHERWISE NOTED BELOW:

- R11 - 2 SHALL BE 48" X 30"
- R11 - 3 SHALL, R11 - 4 AND R10 - 61 SHALL BE 60 " X 30"
- M4 - 9 SHALL BE 30" X 24"
- M3 - X SHALL BE 24" X 12" (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS)
- M4 - 8 SHALL BE 24" X 12" (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS)
- M1 - 4, M1 - 5A AND M1 - 6 SHALL BE 24" X 24" (36" X 36" IF NEEDED TO MATCH EXISTING SIGNS)
- MO5 - 1 AND MO6 - 1 SHALL BE 21" X 21" (30" X 30" IF NEEDED TO MATCH EXISTING SIGNS)
- D1 - X SHALL BE AS SHOWN ON SPECIFIC PROJECT SIGNING DETAIL SHEETS.
- R1 - 1 SHALL BE 36" X 36"

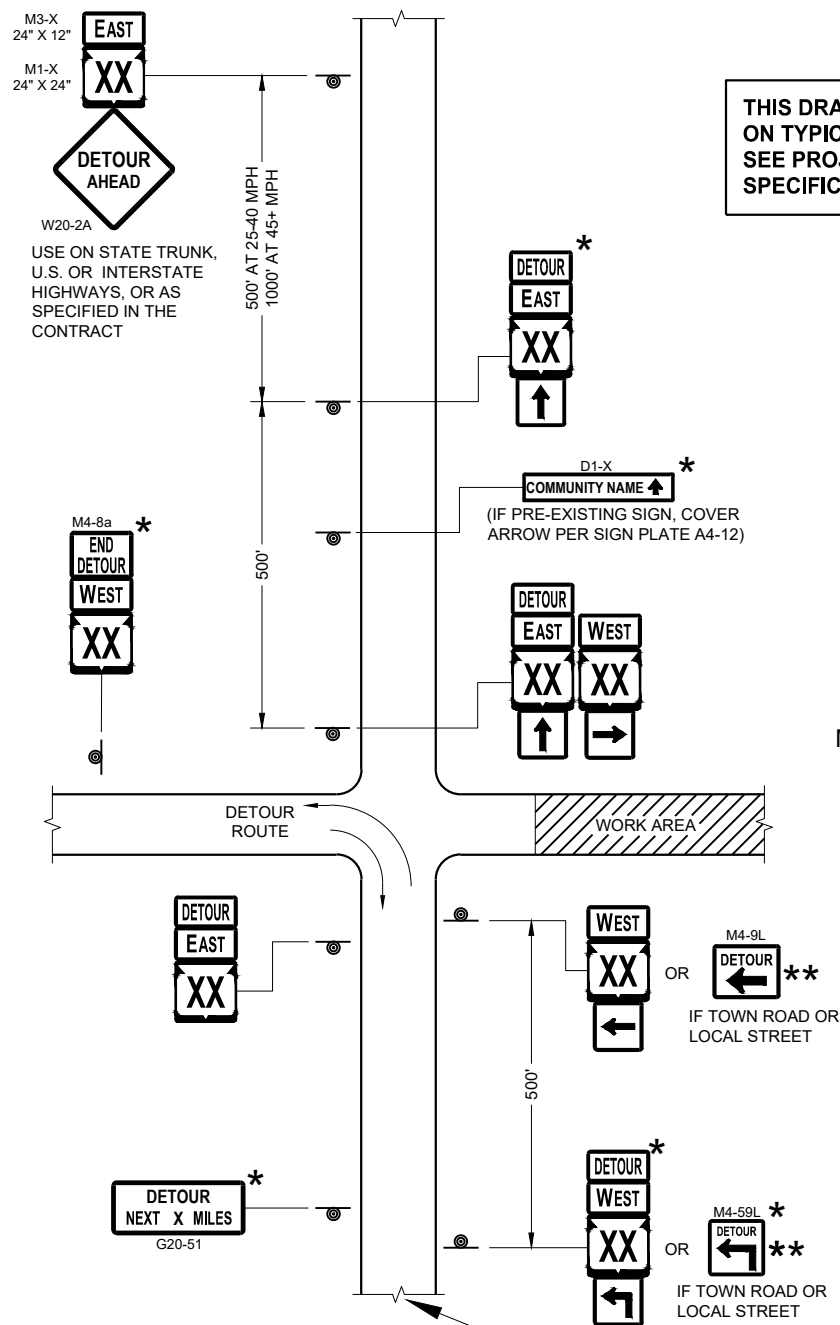
- 1 TWO WARNING LIGHTS SHALL BE PROVIDED ON THE CENTER BARRICADE AND A MINIMUM OF ONE WARNING LIGHT SHALL BE PROVIDED ON EACH OF THE OTHER BARRICADES WITHIN THE ROADWAY LIMITS. SPACING OF THE WARNING LIGHTS SHALL BE UNIFORM TO THE EDGE OF ROADWAY AS SHOWN (APPROX. 8 FOOT LIGHT SPACING).
- 2 THESE SIGNS AND BARRICADES ARE NOT REQUIRED IF ROAD CLOSURE BEGINS AT AN INTERSECTION.
- 3 FOR ROAD CLOSURE WITHOUT LOCAL ACCESS TO PROJECT, SEE ROAD CLOSURE BARRICADE DETAIL "D".
- 4 FOR ROAD CLOSURE WITH LOCAL ACCESS TO PROJECT, SEE ROAD CLOSURE BARRICADE DETAIL "E".
- 5 FOR BRIDGE OR CULVERT REPLACEMENTS, SUBSTITUTE "BRIDGE OUT" INSTEAD OF "ROAD CLOSED" ON R11 - 2 AND R11 - 3 SIGNS.
- 6 INSTALL DETOUR AND COMMUNITY GUIDE SIGNS AND ARROWS ONLY IF SPECIFIED IN THE CONTRACT. IF THERE ARE EXISTING ROUTE MARKER ASSEMBLIES THAT WILL REMAIN IN PLACE, ADJUST THE LOCATION OF THE DETOUR ROUTE SIGNS TO CORRESPOND WITH THE EXISTING ASSEMBLIES. MODIFY EXISTING SIGNS WHERE POSSIBLE. SEE SPECIFIC PROJECT DETOUR SIGNING DETAIL SHEETS. IF DETOUR SIGNS ARE BEING INSTALLED BY OTHERS, PLACE THE CONTRACTED TRAFFIC CONTROL SIGNS TO ALLOW FOR PLACEMENT OF ALL WARNING, DETOUR AND GUIDE SIGNS AS SHOWN.
- 7 "EAST" CARDINAL DIRECTION MARKERS AND RIGHT TURN ARROWS ARE SHOWN. USE OTHER CARDINAL DIRECTIONS AND ARROWS AS APPROPRIATE.

BARRICADES AND SIGNS
FOR
VARIOUS CLOSURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May 2023 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER 54

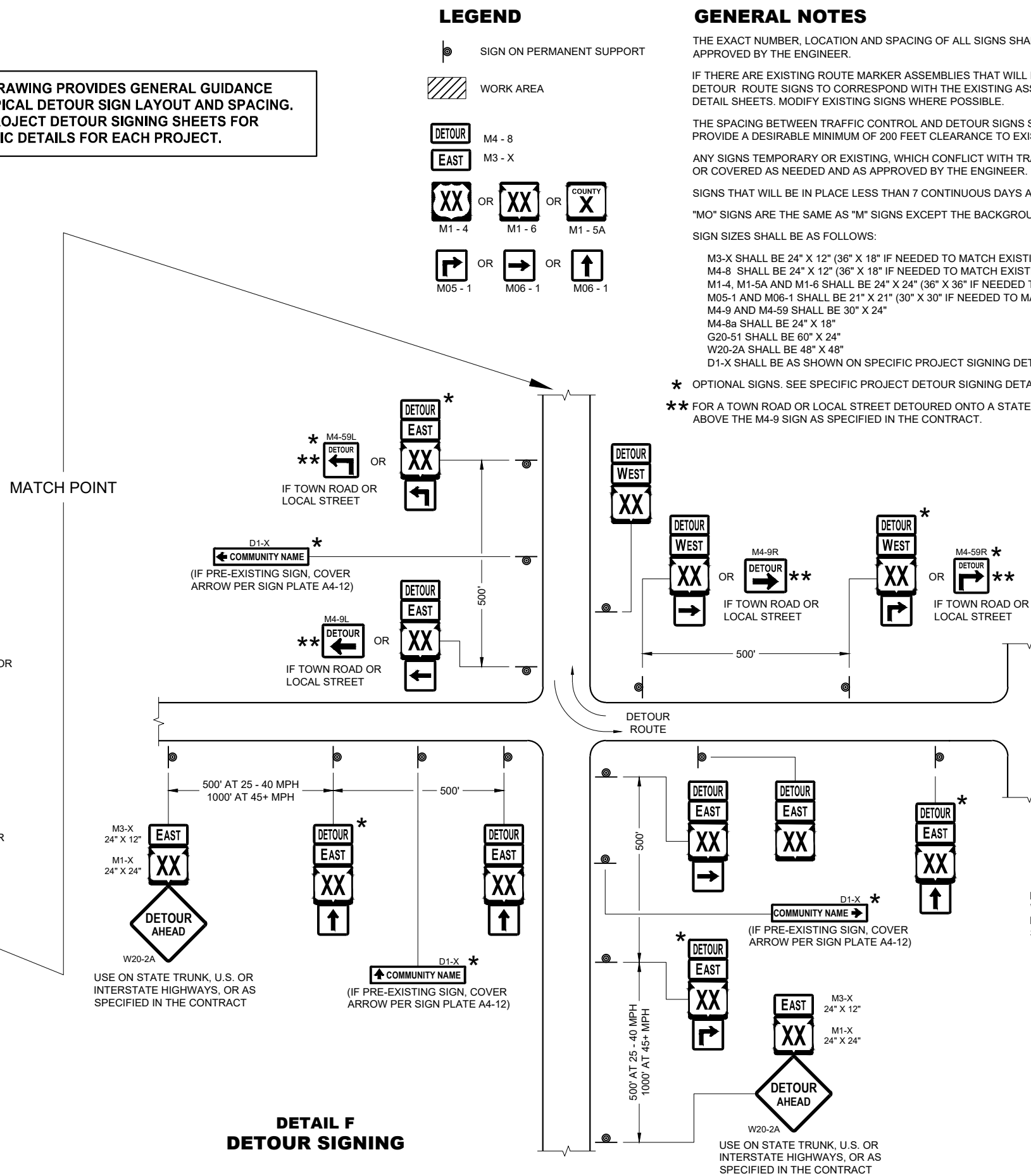
FHWA



**THIS DRAWING PROVIDES GENERAL GUIDANCE
ON TYPICAL DETOUR SIGN LAYOUT AND SPACING.
SEE PROJECT DETOUR SIGNING SHEETS FOR
SPECIFIC DETAILS FOR EACH PROJECT.**

SEE SPECIFIC PROJECT DETOUR
SIGNING DETAIL SHEETS AND
DETAIL A OR B ON SDD SHEET 15C02 - SHEET "a"

SDD 15C02 - 09c



DETAIL F DETOUR SIGNING

GENERAL NOTES

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

IF THERE ARE EXISTING ROUTE MARKER ASSEMBLIES THAT WILL REMAIN IN PLACE, ADJUST THE LOCATION OF THE DETOUR ROUTE SIGNS TO CORRESPOND WITH THE EXISTING ASSEMBLIES. SEE SPECIFIC PROJECT DETOUR SIGNING DETAIL SHEETS. MODIFY EXISTING SIGNS WHERE POSSIBLE.

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

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.

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

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

SIGN SIZES SHALL BE AS FOLLOWS:

M3-X SHALL BE 24" X 12" (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS)
M4-8 SHALL BE 24" X 12" (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS)
M1-4, M1-5A AND M1-6 SHALL BE 24" X 24" (36" X 36" IF NEEDED TO MATCH EXISTING SIGNS)
M05-1 AND M06-1 SHALL BE 21" X 21" (30" X 30" IF NEEDED TO MATCH EXISTING SIGNS)
M4-9 AND M4-59 SHALL BE 30" X 24"
M4-8a SHALL BE 24" X 18"
G20-51 SHALL BE 60" X 24"
W20-2A SHALL BE 48" X 48"
D1-X SHALL BE AS SHOWN ON SPECIFIC PROJECT SIGNING DETAIL SHEETS.

* OPTIONAL SIGNS. SEE SPECIFIC PROJECT DETOUR SIGNING DETAIL SHEETS.

**** FOR A TOWN ROAD OR LOCAL STREET DETOURED ONTO A STATE TRUNK HIGHWAY, PLACE A ROAD NAME PLAQUE ABOVE THE M4-9 SIGN AS SPECIFIED IN THE CONTRACT.**

DETOUR SIGNING FOR MAINLINE CLOSURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

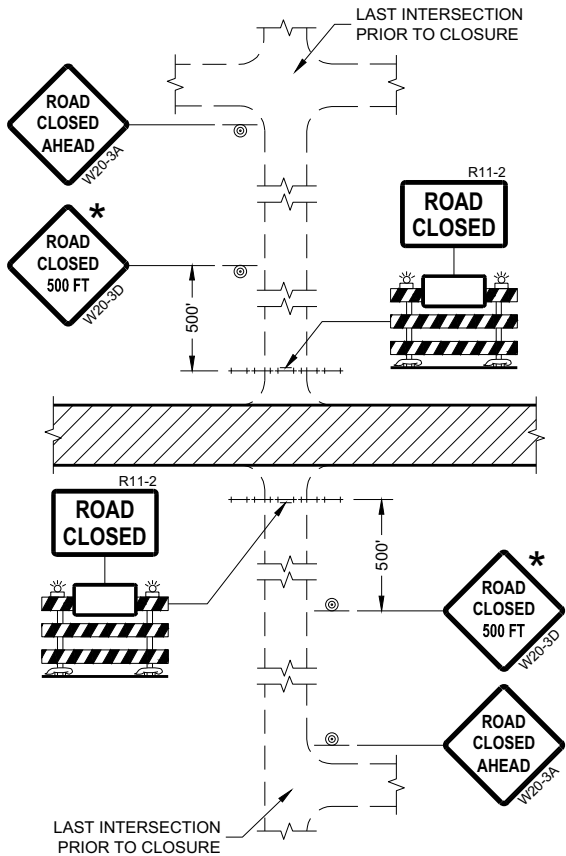
APPROVED
May 2023
DATE

/S/ Andrew Heidtke
WORK ZONE ENGINEER

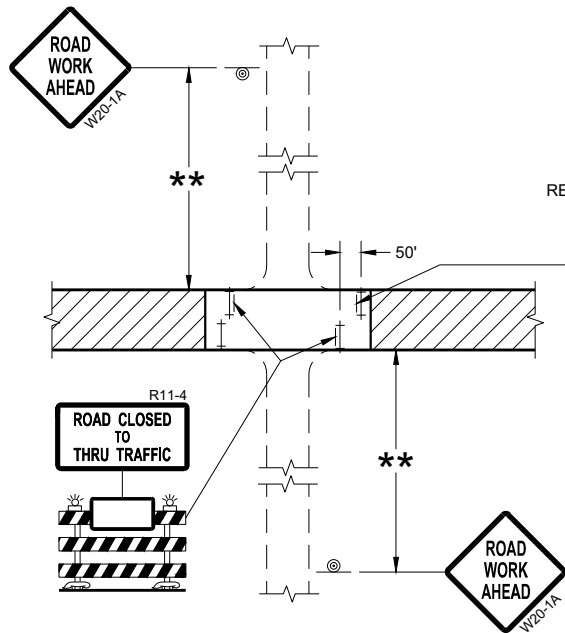
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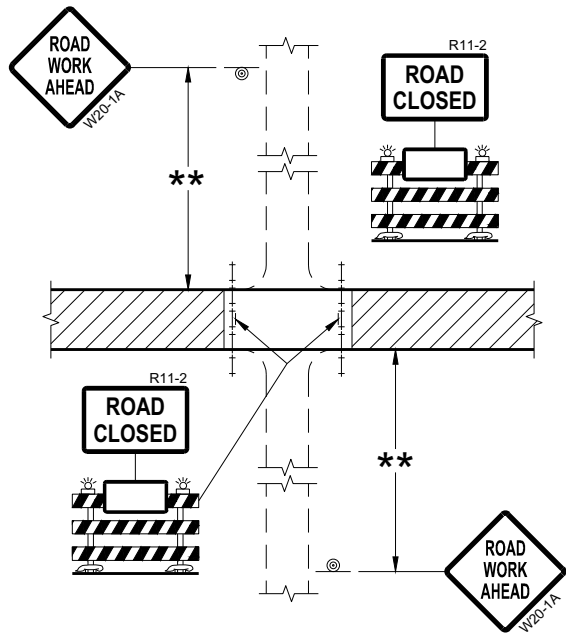
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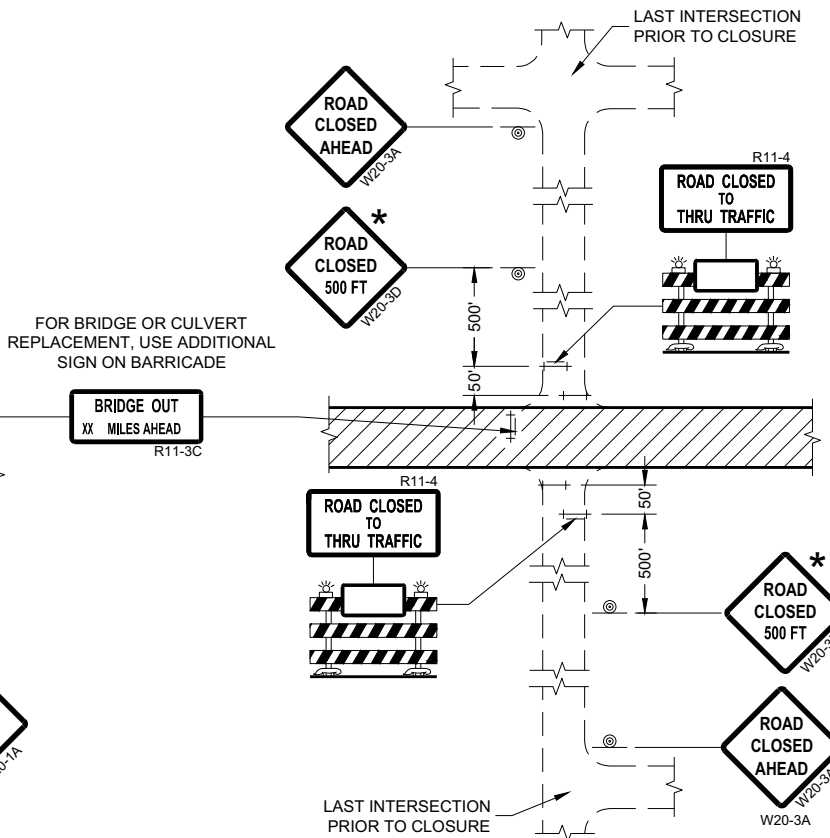
DETAIL 1
(NO ACCESS TO PROJECT)



DETAIL 3
(PUBLIC CROSS-TRAFFIC MAINTAINED.
CONTRACTOR, LOCAL BUSINESS AND
RESIDENT ACCESS TO PROJECT)



DETAIL 2
(PUBLIC CROSS-TRAFFIC MAINTAINED.
NO ACCESS TO PROJECT)



DETAIL 4
(CONTRACTOR, LOCAL BUSINESS AND
RESIDENT ACCESS TO PROJECT)

GENERAL NOTES

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

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

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

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

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

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

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

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

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

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

- * OMIT THE "ROAD CLOSED 500 FT." SIGN IF THE LAST INTERSECTION IS 500 FEET OR LESS FROM THE WORK ZONE.
- ** 500' MAX. OR AT LAST INTERSECTION, WHICHEVER IS CLOSEST.

LEGEND

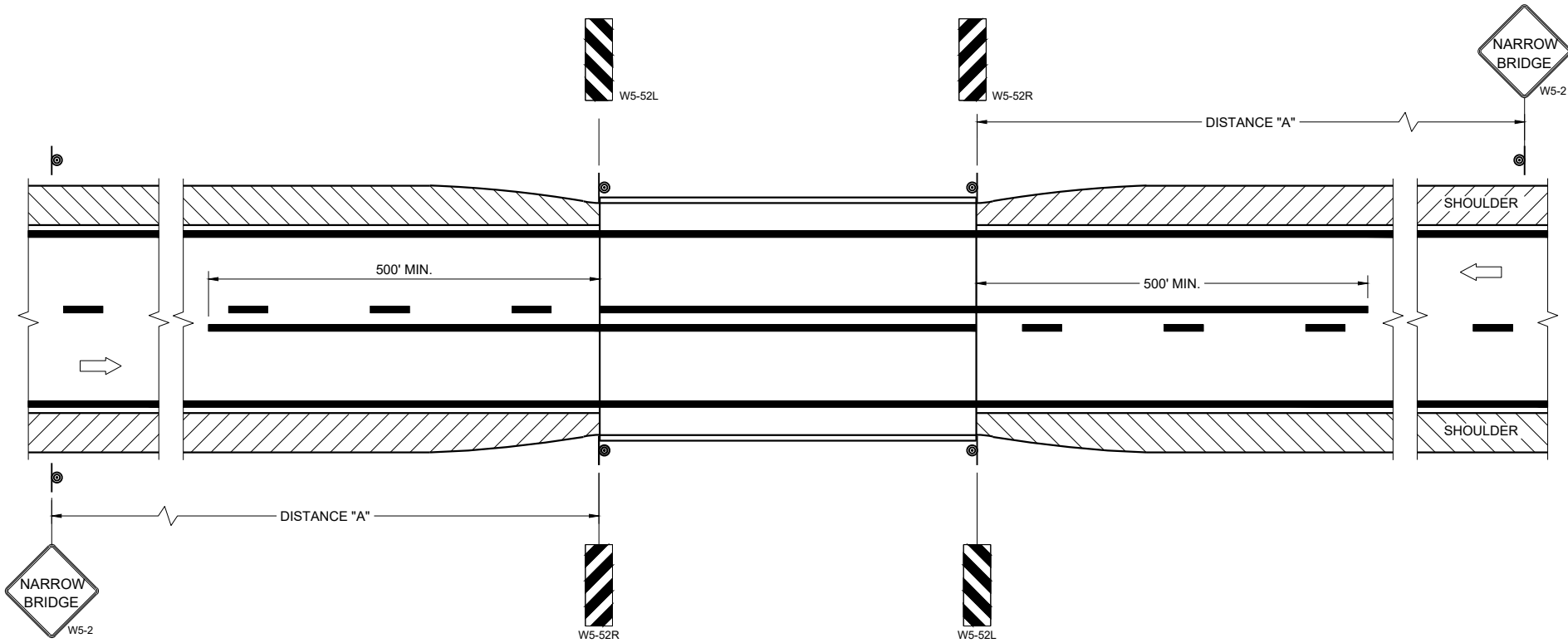
- SIGN ON PERMANENT SUPPORT
- TYPE III BARRICADE
- TYPE III BARRICADE WITH ATTACHED SIGN
- TYPE "A" WARNING LIGHT (FLASHING)
- WORK AREA

BARRICADES AND SIGNS FOR SIDEROAD CLOSURES

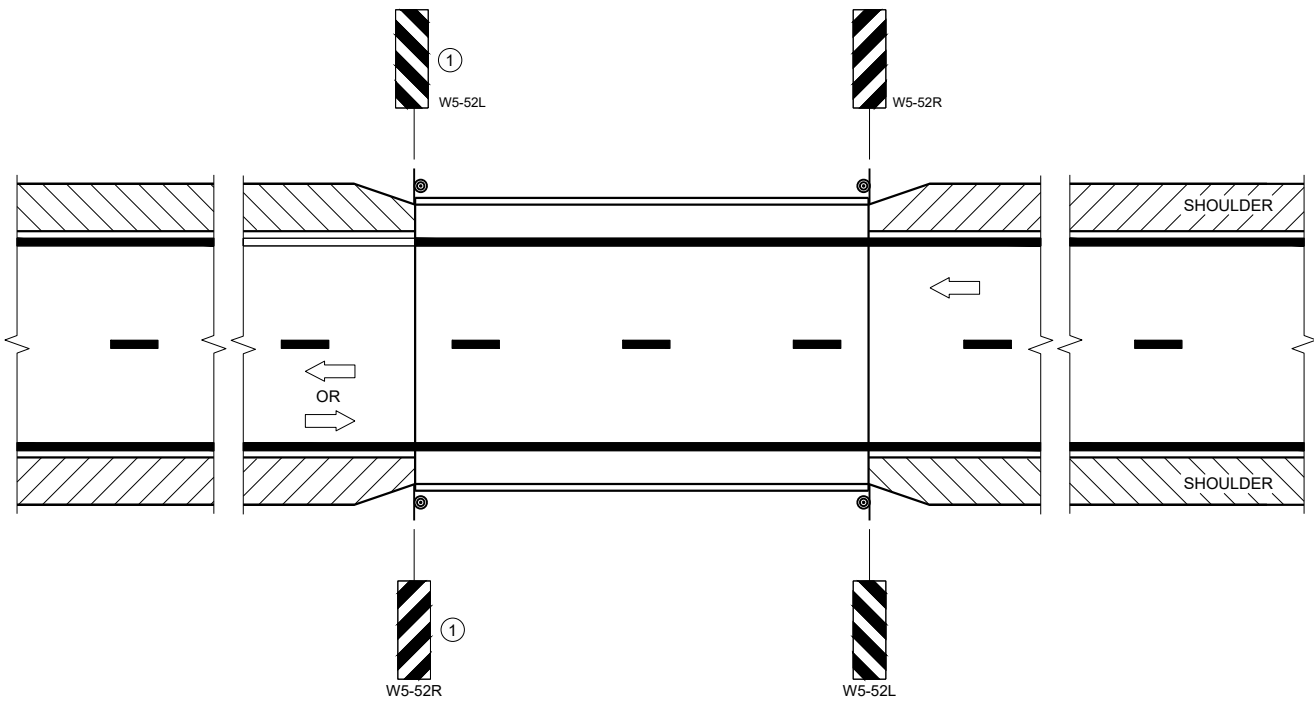
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
July 2018 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER 56

FHWA



SITUATION 1
WARRANTING CRITERIA:
BRIDGE WIDTH IS AT LEAST 16 FEET BUT LESS THAN 24 FEET.



SITUATION 2
WARRANTING CRITERIA:
1. BRIDGE WIDTH IS AT LEAST 24 FEET AND
2. BRIDGE SHOULDER WIDTH IS LESS THAN 6 FEET

GENERAL NOTES

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

LOCATE W5-52 SIGN POST(S) BEHIND GUARDRAIL WHEN PRESENT.

PLACE THE EDGE OF THE W5-52 SIGN IN LINE WITH FACE OF CURB OR PARAPET.

ON BRIDGE ONLY PROJECTS, PLACE 300 FEET OF EDGELINE.

OMIT EDGELINES ON ROADWAYS WITHOUT EXISTING EDGELINES.

① OMIT ON ONE-WAY TRAVELED WAYS.

LEGEND

⊙ SIGN ON PERMANENT SUPPORT

➡ DIRECTION OF TRAFFIC

DISTANCE TABLE

POSTED OR 85TH PERCENTILE SPEED	DISTANCE "A"
25	150'
30	200'
35	250'
40	300'
45	400'
50	550'
55	700'

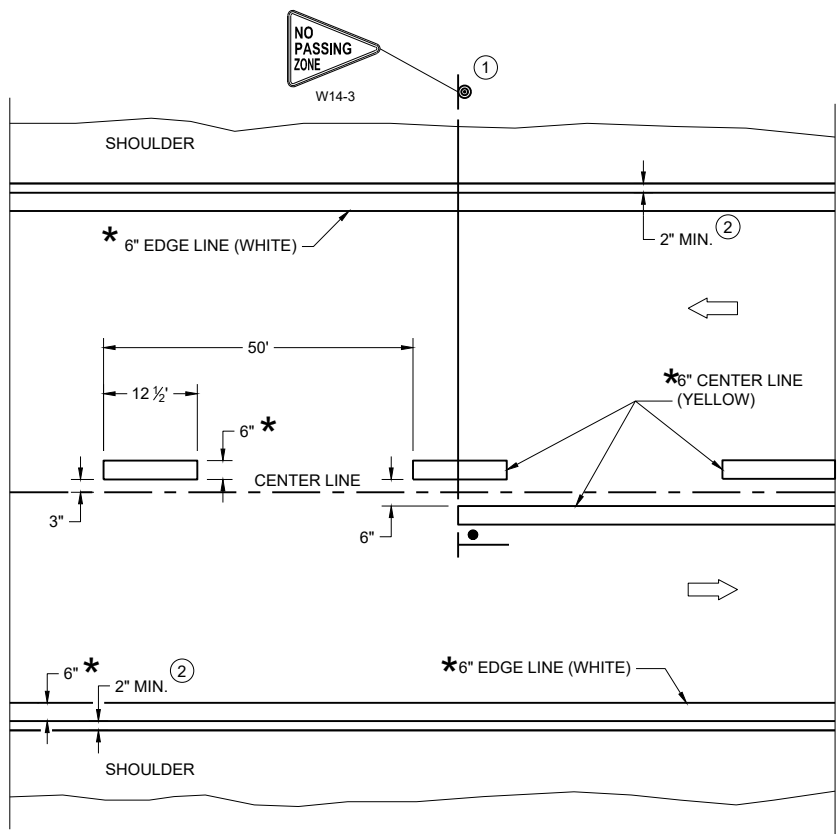
**SIGNING AND MARKING
FOR TWO LANE BRIDGES**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

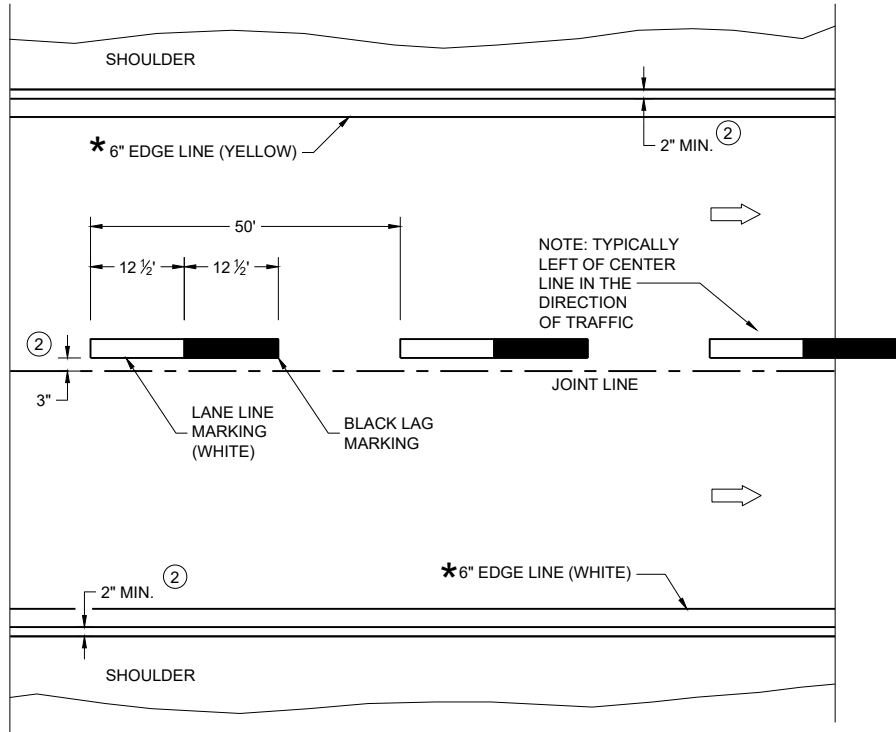
APPROVED
May 2023
DATE

/S/ Jeannie Silver
Statewide Pavement Marking Engineer

FHWA



TWO WAY TRAFFIC



ONE WAY TRAFFIC

PERMANENT PAVEMENT MARKING

*CONFIRM MARKING LINE WIDTH WITH THE MISCELLANEOUS QUANTITIES

GENERAL NOTES

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

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

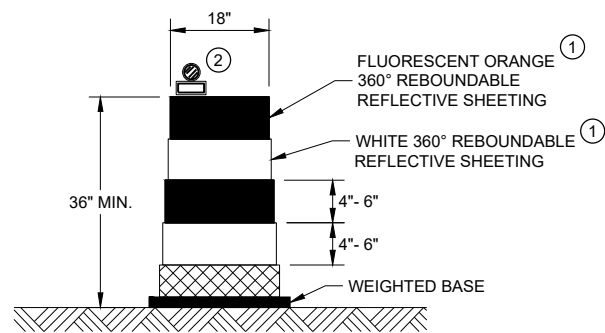
LEGEND

- "T" MARKING
- SIGN ON PERMANENT SUPPORT
- DIRECTION OF TRAFFIC

PERMANENT LONGITUDINAL PAVEMENT MARKINGS

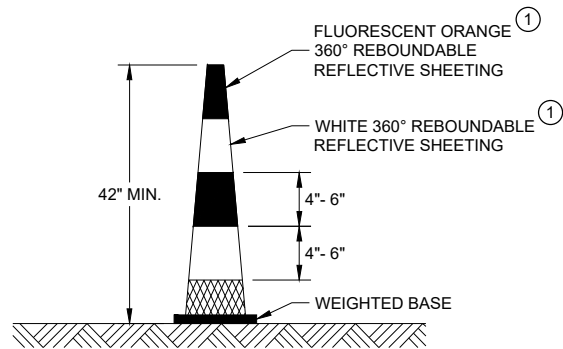
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
December 2024 /S/ Jeannie Silver
DATE Statewide Pavement Marking Engineer



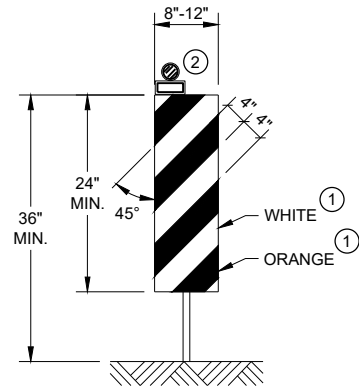
DRUM

BALLAST WIDTHS
RANGE FROM 24"-36"



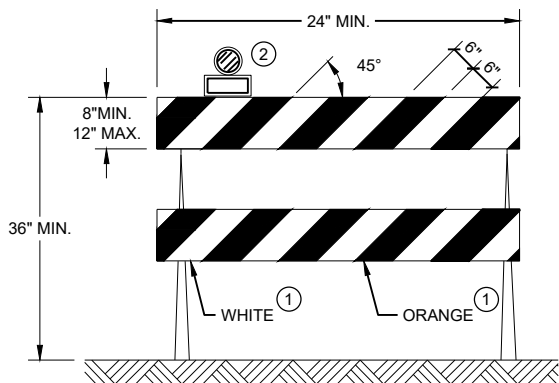
42" CONE

DO NOT USE IN TAPERS
½ SPACING OF DRUMS
BALLAST WIDTHS
RANGE FROM 14"-20"



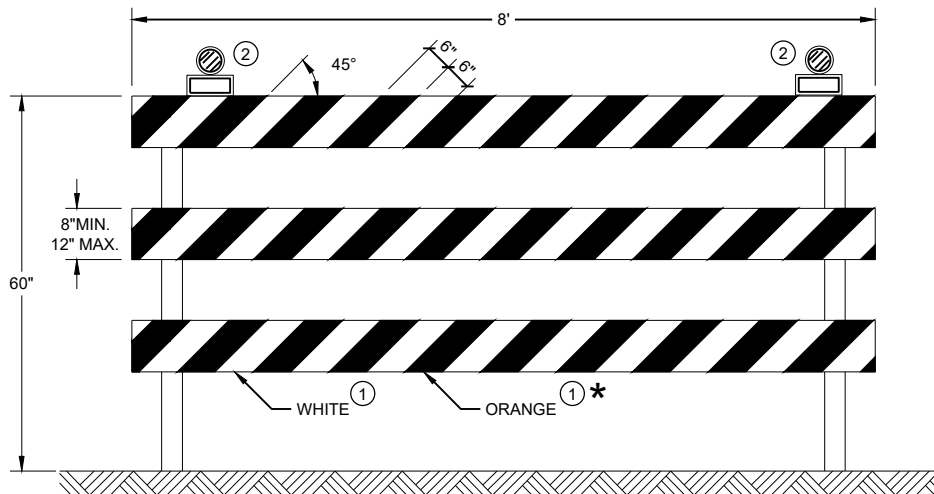
VERTICAL PANEL

THE STRIPES SHALL SLOPE DOWNWARD TO
THE TRAFFIC SIDE FOR CHANNELIZATION.



TYPE II BARRICADE

FOR RAILS LESS THAN 36" LONG, 4" WIDE STRIPES
MAY BE USED. ALL STRIPES SHALL SLOPE DOWNWARD
TO THE TRAFFIC SIDE FOR CHANNELIZATION.



TYPE III BARRICADE

IF SIGN MOUNTED, DO NOT COVER MORE THAN 50% OF THE TOP
TWO RAILS OR 33% OF THE TOTAL AREA OF THE THREE RAILS.

* IF USED FOR A PERMANENT APPLICATION USE RED SHEETING.

GENERAL NOTES

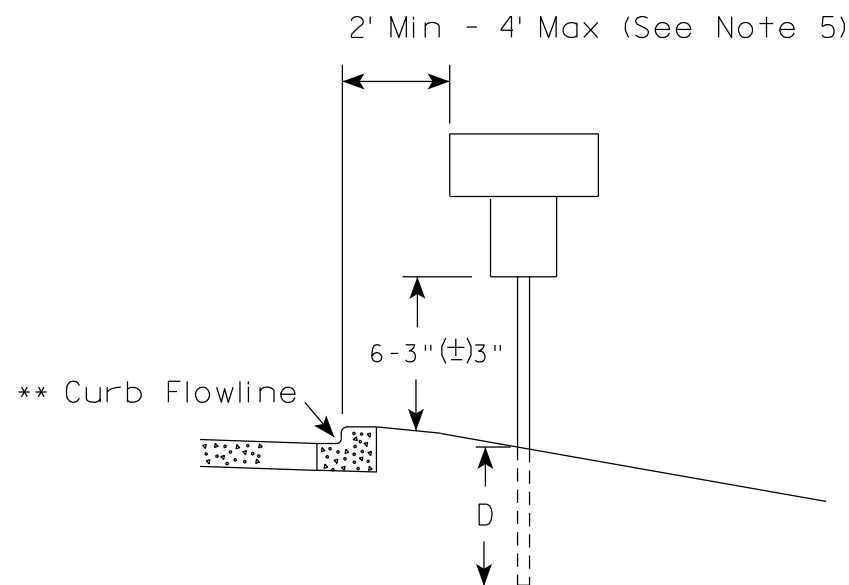
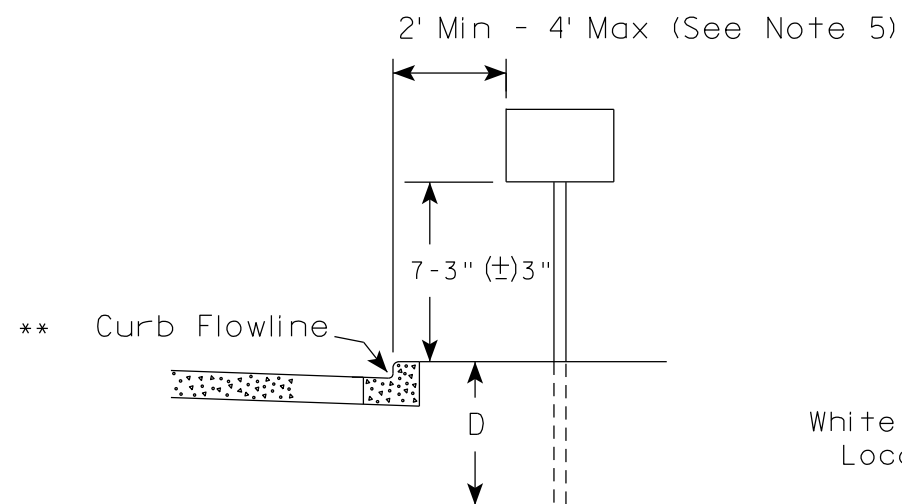
- ① REFLECTIVE SHEETING SHALL FOLLOW THE REQUIREMENTS IN THE APPROVED PRODUCTS LISTING FOR SIGN SHEETING.
- ② LOCATION OF WARNING LIGHTS WHEN SHOWN ON THE PLAN.

**CHANNELIZING DEVICES
DRUMS, CONES, BARRICADES
AND VERTICAL PANELS**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

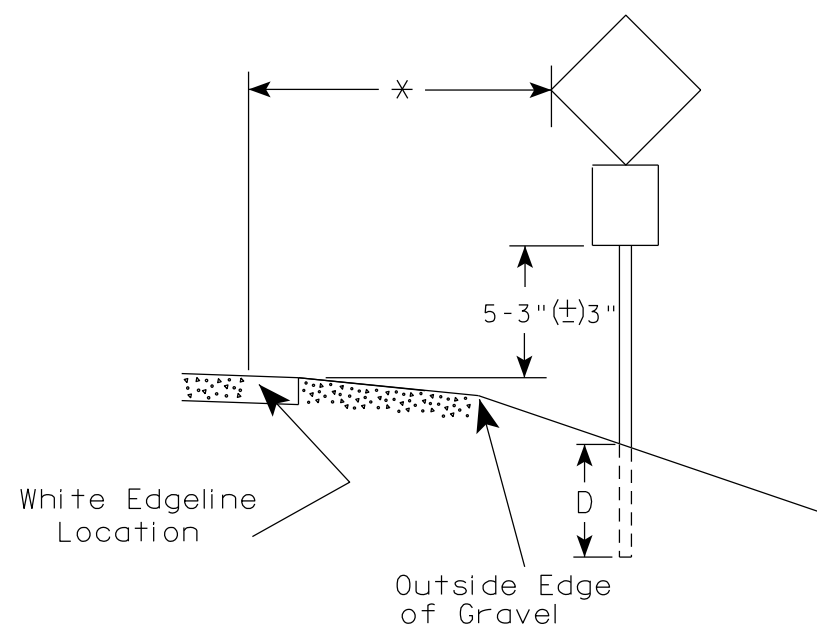
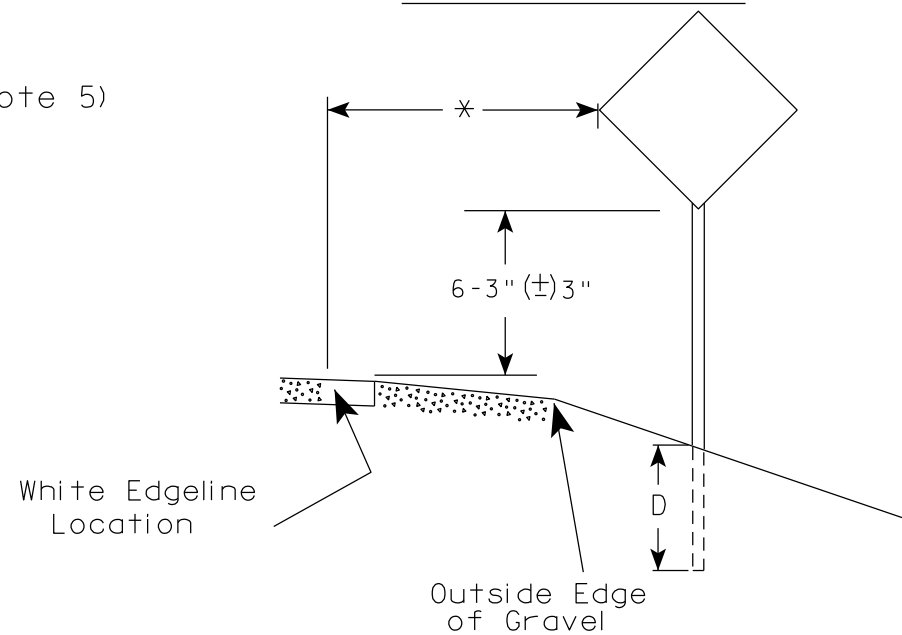
APPROVED
November 2022 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER 59
FHWA

URBAN AREA



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

RURAL AREA (See Note 2)



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

POST EMBEDMENT DEPTH

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

GENERAL NOTES

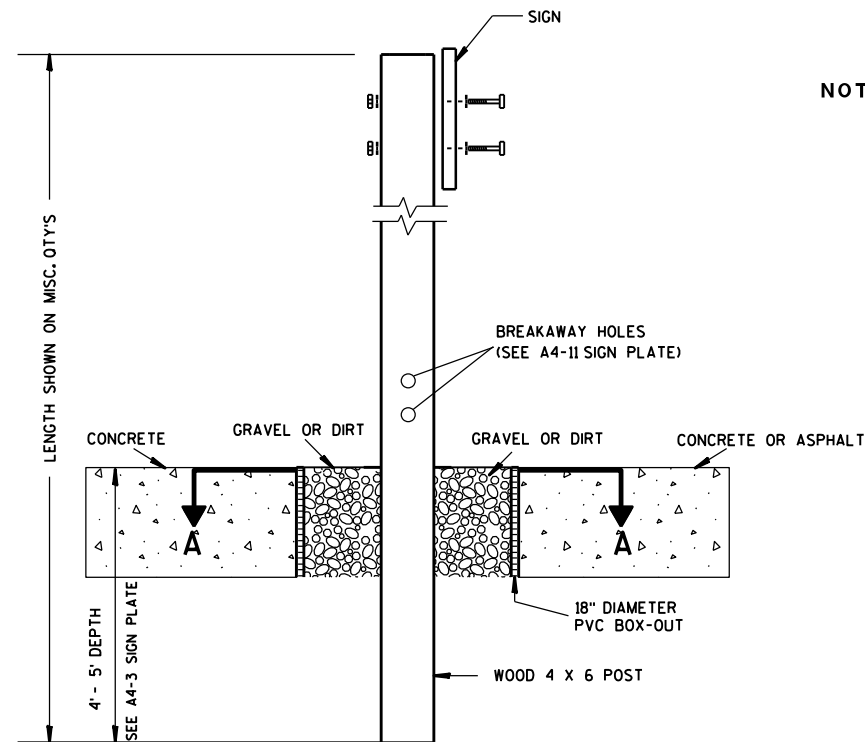
- Signs wider than 4 feet or 20 sq.ft or larger, shall be mounted on multiple posts. Refer to plate A4-4.
- If signs are mounted on or behind barrier wall, see A4-10 sign plate.
The Double Arrow sign (W12-1D) shall be mounted at a height of 2'-3" (±) 3". The Chevron sign (W1-8), Roundabout Chevron panel (R6-4B), Enhanced Reference Markers, Clearance Markers (W5-52), Mile Markers (D10 series), In Road Object Markers (W5-54) & End of Road Markers (W5-56) shall be mounted at a height of 4'-3" (±) 3".
- For expressways and freeways, mounting height is 7'- 3" (±) 3" or 6'-3" (±) 3" depending upon existence of a sub-sign.
- Minimum mounting height for signs mounted on traffic signal poles is 5'- 3" (±) 3".
- Offset distance shall be consistent with existing signs or consistent throughout length of project.
- Folding signs shall be mounted at a height of 5'-3" (±) 3" or as directed by the Engineer.

TYPICAL INSTALLATION
OF PERMANENT TYPE II
SIGNS ON SINGLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

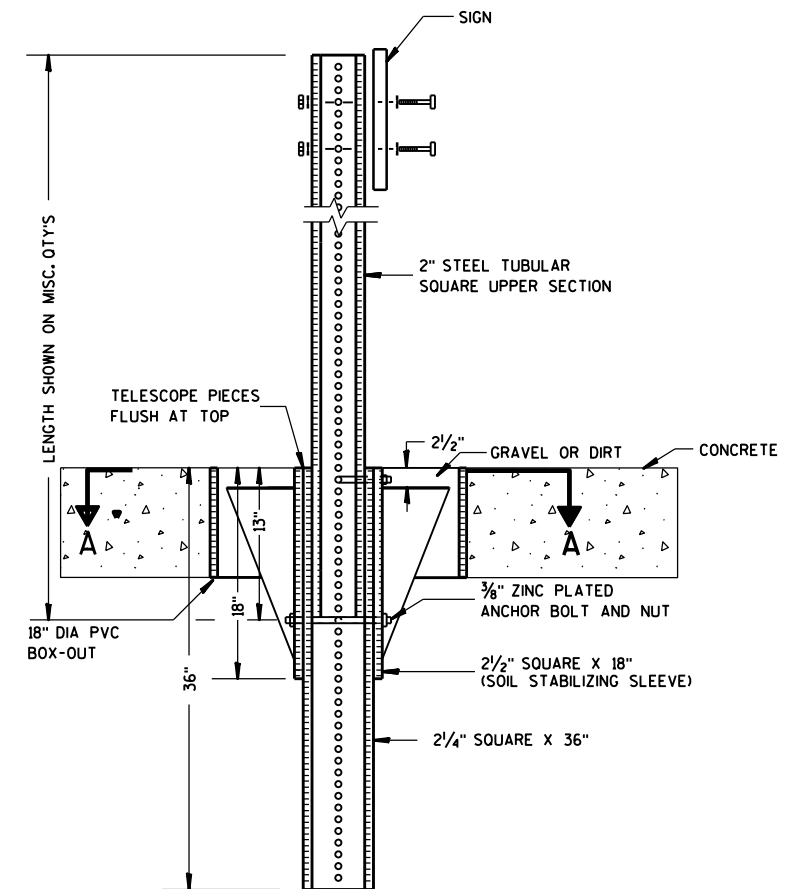
DATE 12/6/23 PLATE NO. A4-3.23



ELEVATION VIEW

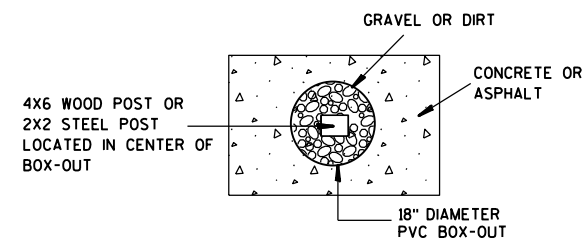
DETAIL OF WOOD 4 X 6 SIGN POST IN BOX-OUT

- NOTES: 1. ALL MATERIAL TO BE APPROVED BY ENGINEER PRIOR TO INSTALLATION
2. SEE SIGN PLATE A4-8 FOR SIGN HARDWARE REQUIREMENTS
3. 18 INCH X 18 INCH SQUARE BOX-OUTS MAY BE USED FOR INSTALLATIONS IN EXISTING CONCRETE OR ASPHALT LOCATIONS.



ELEVATION VIEW

DETAIL OF STEEL 2 X 2 SIGN POST IN BOX-OUT



PLAN VIEW

FOR NEW CONCRETE/ASPHALT INSTALLATIONS

SIGN POST
BOX-OUTS
A4-3B

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 1/27/14 PLATE A4-3B.1

PROJECT NO:

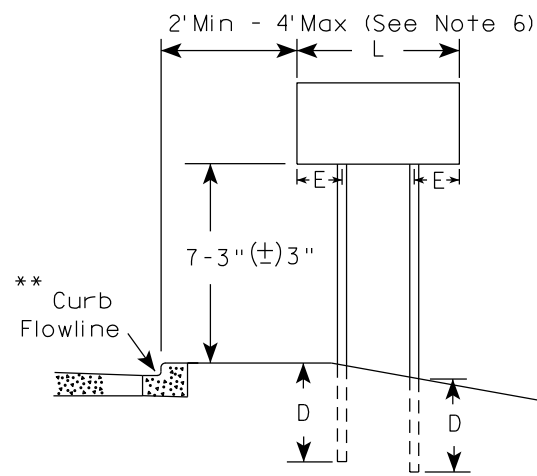
HWY:

COUNTY:

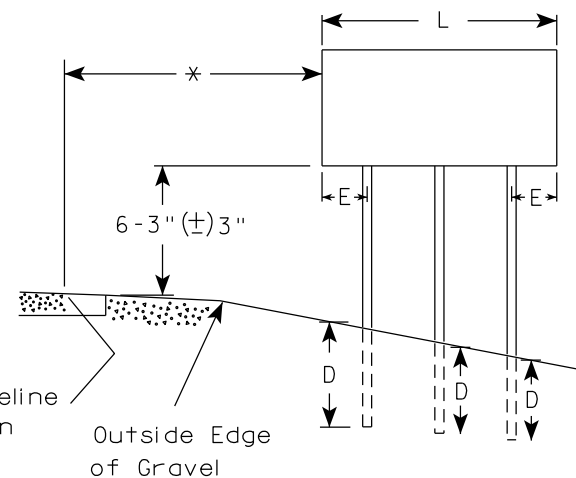
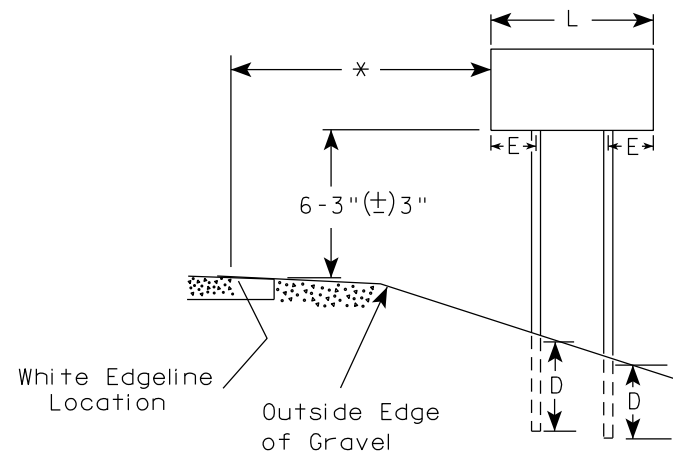
SHEET NO:

E

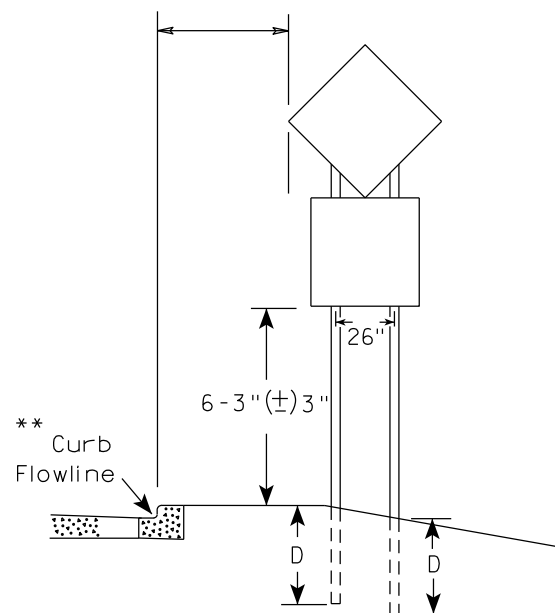
URBAN AREA



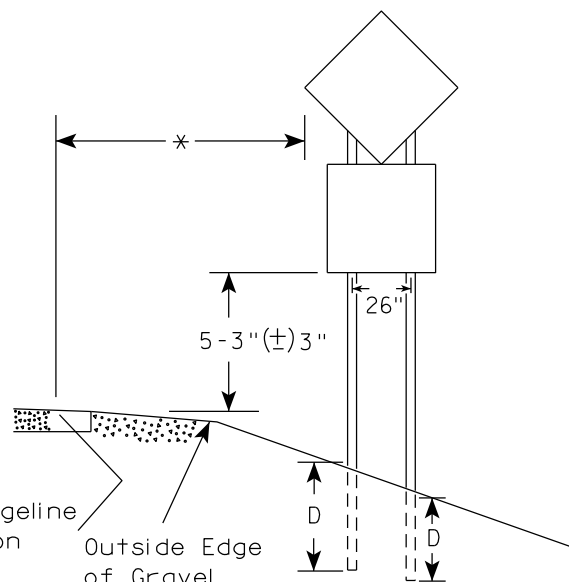
RURAL AREA (See Note 3)



2' Min - 4' Max (See Note 6)



48" DIAMOND WARNING SIGN



48" DIAMOND WARNING SIGN

GENERAL NOTES

1. For 3 or 4 post installations, individual post spacing shall be greater than 3'-6".
2. See tables below for required number of posts.
3. For expressways and freeways, mounting height is 7'-3" (±) 3" or 6'-3" (±) 3" depending upon existence of sub-sign.
4. The (±) tolerance for mounting height is 3 inches.
5. J-Assemblies are considered to be one sign for mounting height.
6. Offset distance shall be consistent with existing signs or consistent throughout length of project.
7. Folding signs shall be mounted at a height of 5'-3" (±) 3" or as directed by the engineer.
8. The Double Arrow sign (W12-1) shall be mounted at a height of 2'-3" (±) 3". The Chevron sign (W1-8), Roundabout Chevron panel (R6-4B), Clearance Markers (W5-52), Mile Markers (D10 series), In Road Object Markers (W5-54) & End of Road Markers (W5-56) shall be mounted at a height of 4'-3" (±) 3".

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

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

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

SIGN SHAPE OTHER THAN DIAMOND (TWO POSTS REQUIRED)	
L	E
Greater than 48" Less than 60"	12"
60" to 108"	L/5

SIGN SHAPE OTHER THAN DIAMOND (THREE POSTS REQUIRED)	
L	E
Greater than 108" to 144"	12"

POST EMBEDMENT DEPTH

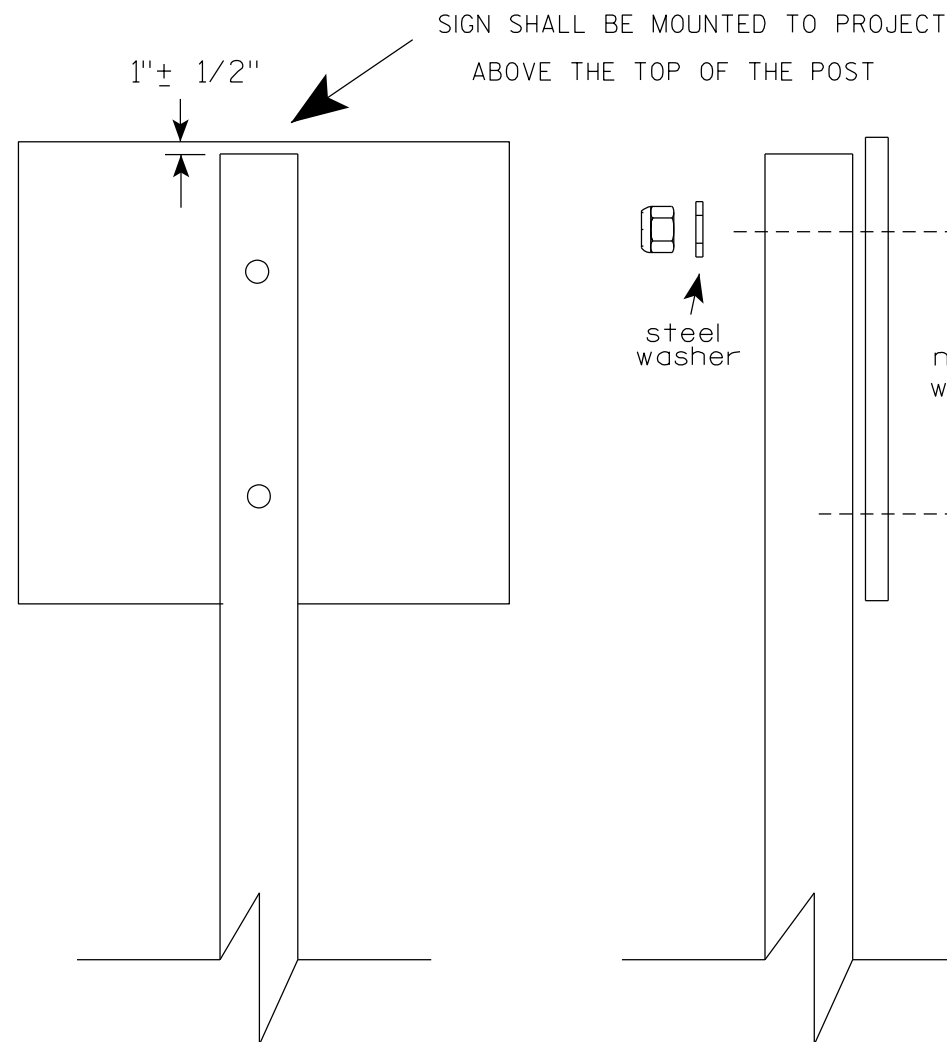
Area of Sign Installation (Sq.Ft.)	D (Min)
20 or Less	4'
Greater than 20	5'

TYPICAL INSTALLATION
OF TYPE II SIGNS
ON MULTIPLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 12/6/23 PLATE NO. A4-4.16



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.

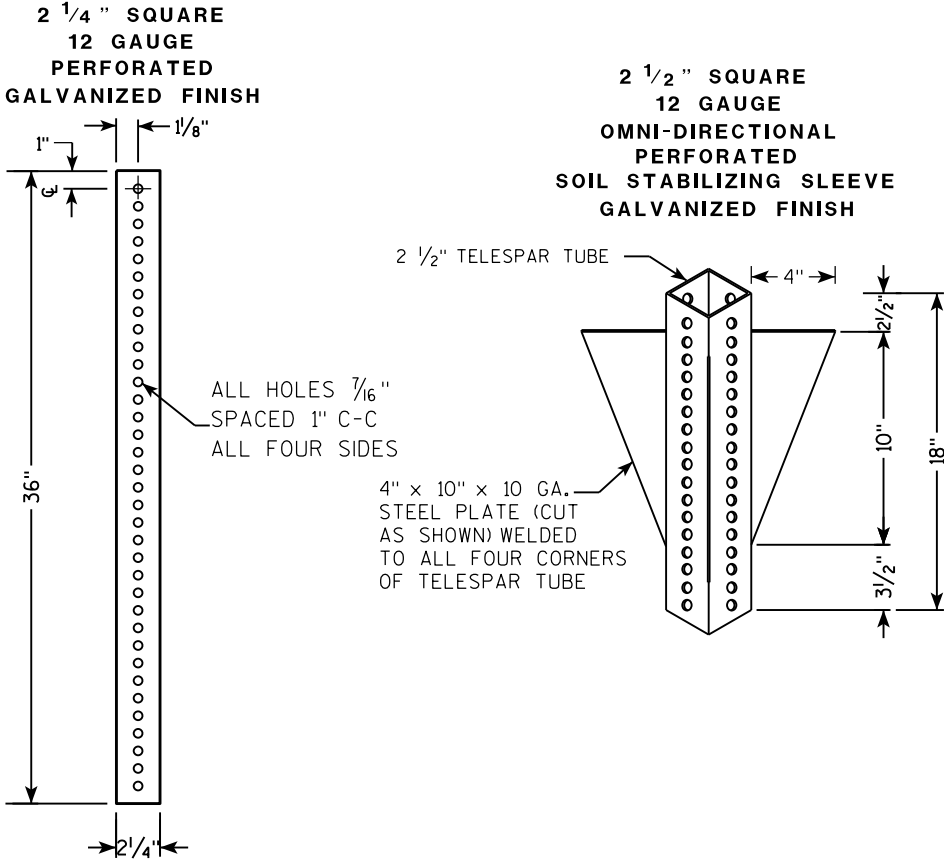
Threads on bolts and nuts shall be manufactured with sufficient allowance for the cadmium plate or galvanized coating to permit the nuts to run freely on the bolts.

- STRINGER BOLTING TO ALUMINUM SIGNS (SEE SIGN PLATE A4-18)
- MACHINE BOLTS - $\frac{5}{16}$ " X 1-3/4" Length w/ lock nuts
- WOOD POSTS (4" x 6")
- LAG SCREWS - $\frac{3}{8}$ " X 3" (NO STRINGERS ON BACK OF SIGN)
 $\frac{3}{8}$ " X 4" (STRINGERS ON BACK OF SIGN)
- SQUARE STEEL POSTS (2" x 2")
- MACHINE BOLTS - $\frac{3}{8}$ " X 3-1/4" Length w/ nuts (NO STRINGER ON BACK OF SIGN)
 $\frac{3}{8}$ " X 5" Length w/ nuts (STRINGERS ON BACK OF SIGN)
- RIVETS - $\frac{9}{32}$ " (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 $\frac{3}{8}$ " I.D. X $\frac{1}{16}$ " STEEL
 - 1-1/4" O.D. X $\frac{3}{8}$ " I.D. X .080 NYLON

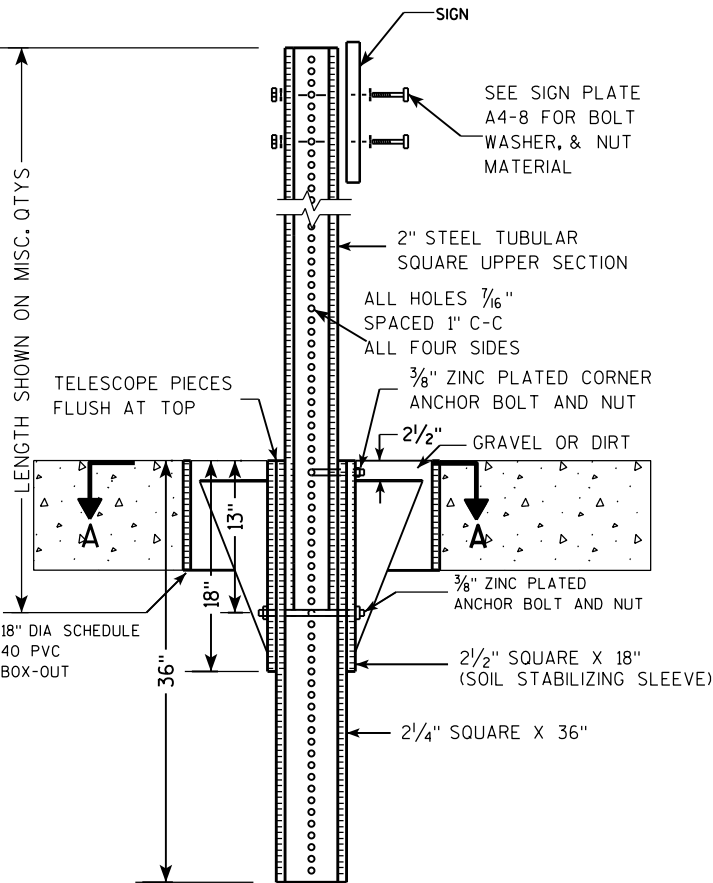
* Two different fastening systems are shown for illustration purposes. On any individual sign, either one or the other system shall be used. Actual number of fasteners per sign varies with the sign area, but normally there are two. For a single post installation, all signs greater than 9 sq. ft. require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

ATTACHMENT OF SIGNS TO POSTS	
WISCONSIN DEPT OF TRANSPORTATION	
APPROVED	<i>Matthew R. Rauch</i> For State Traffic Engineer
DATE 4/1/2020	PLATE NO. A4-8.9

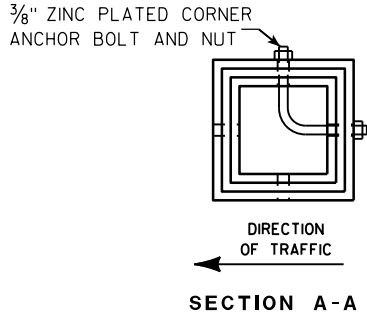
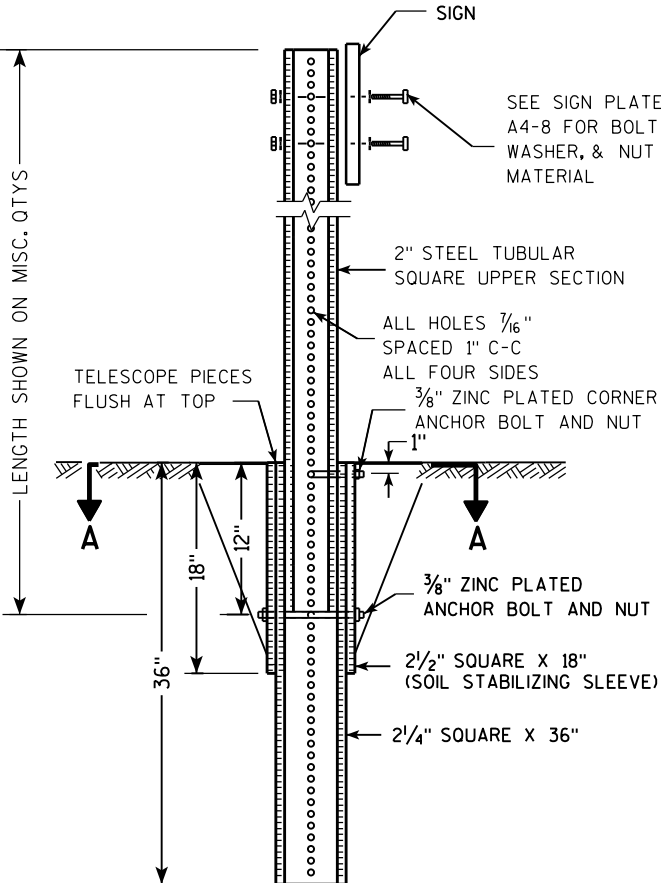
TELESCOPIC TUBING ANCHORS
TWO PIECE SYSTEM



DETAIL OF TUBULAR STEEL SIGN POST
(IN POURED CONCRETE OR ASPHALT)



DETAIL OF TUBULAR STEEL SIGN POST
(IN LOCATIONS OTHER THAN POURED CONCRETE OR ASPHALT)



Area of Sign Installation (Sq. Ft.)	Number of Required 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).

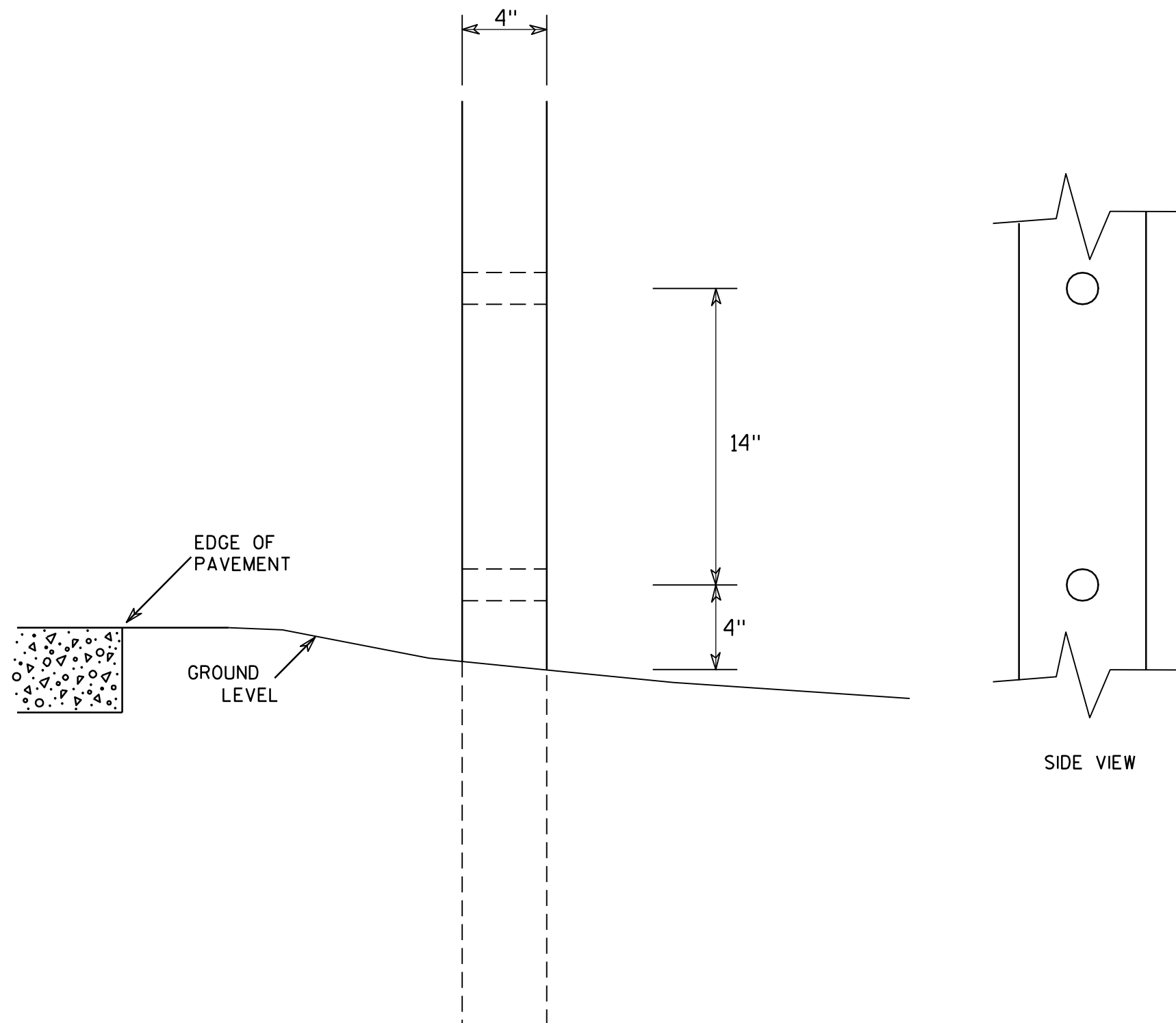
TUBULAR STEEL
SIGN POST
A4-9

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 2/05/15 PLAT 64 14-9.9

7



GENERAL NOTES

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

7

4 X 6 WOOD POST MODIFICATIONS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED

Chester J. Spang
for State Traffic Engineer

DATE 3/27/97

PLATE NO. A4-11.2

PROJECT NO:

HWY:

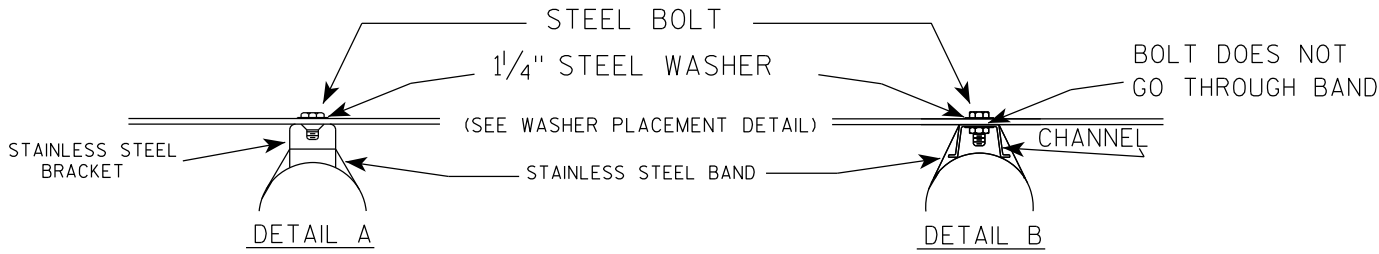
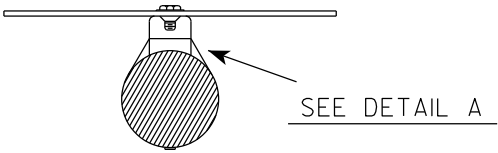
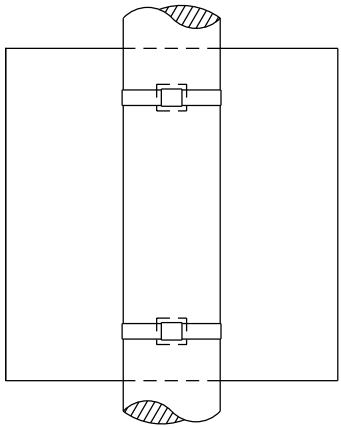
COUNTY:

SHEET NO: 65

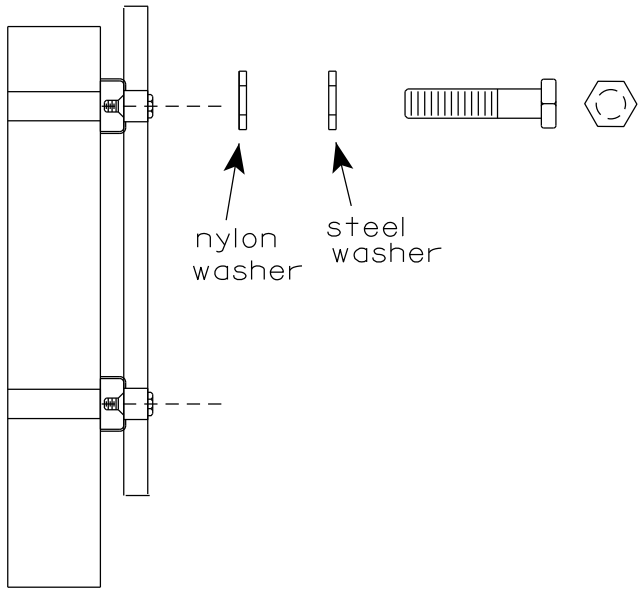
E

BANDING

SINGLE SIGN



WASHER PLACEMENT

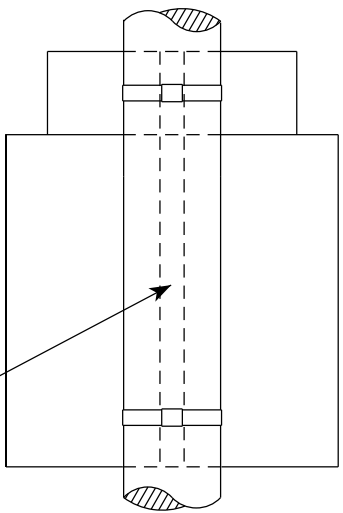


WASHERS (ALL POSTS) -
1-1/4" O.D. X 3/8" I.D. X 1/16" STEEL
1-1/4" O.D. X 3/8" I.D. X .080 NYLON
FOR ALL TYPE H SIGNS

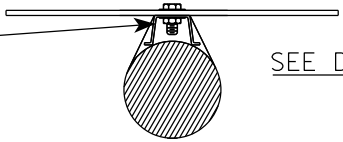
GENERAL NOTES

1. Any sign over 3 feet in width shall use the V-Block banding method. See A5-10 standard plate.
2. Signs 3 feet or greater in height shall have three bracket bands installed. Signs less than 3 feet in height shall have two bracket bands installed.
3. Banding and assembly bracket shall be stainless steel. All bands shall be 3/4" in width and 0.025" thickness.
4. ALL SIGN MOUNTING BOLTS AND WASHERS SHALL BE EITHER:
 - a. Hot dip or mechanically galvanized in accordance with ASTM Designation: A 153, Class D
 - b. Electro-galvanized in accordance with ASTM designation: B 633, Type III, SC 3

"J" ASSEMBLY



CHANNEL
SEE TYPICAL PANEL
INSTALLATION SHEET



STANDARD SIGN
SIGN BANDING DETAILS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer
DATE 6/10/19 PLATE NO. A5-9.4

VIEW FROM
BACK

7

PROJECT NO:

SHEET NO: 67

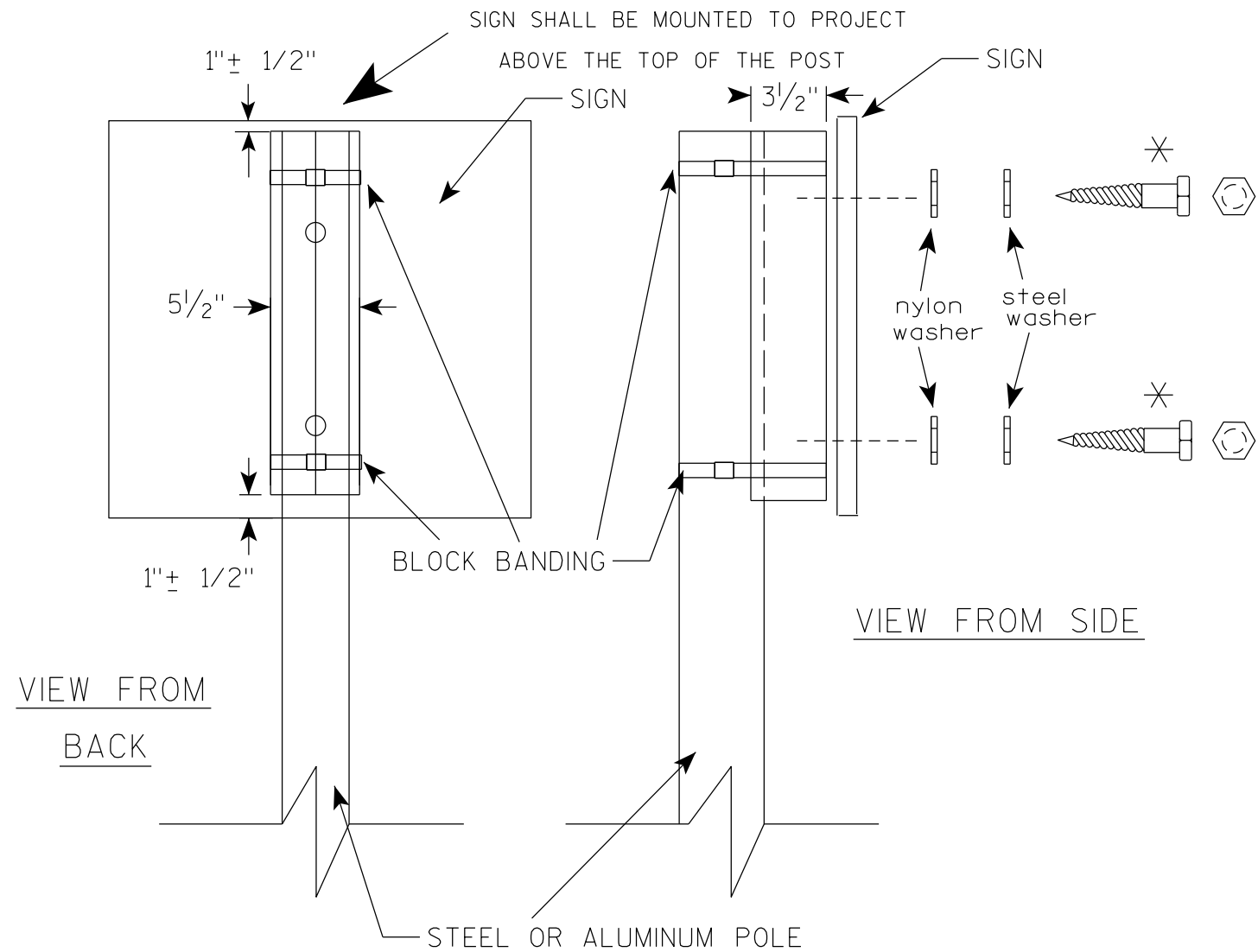
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FILE NAME : C:\CAEfiles\Projects\tr_stdplate\A510.dgn

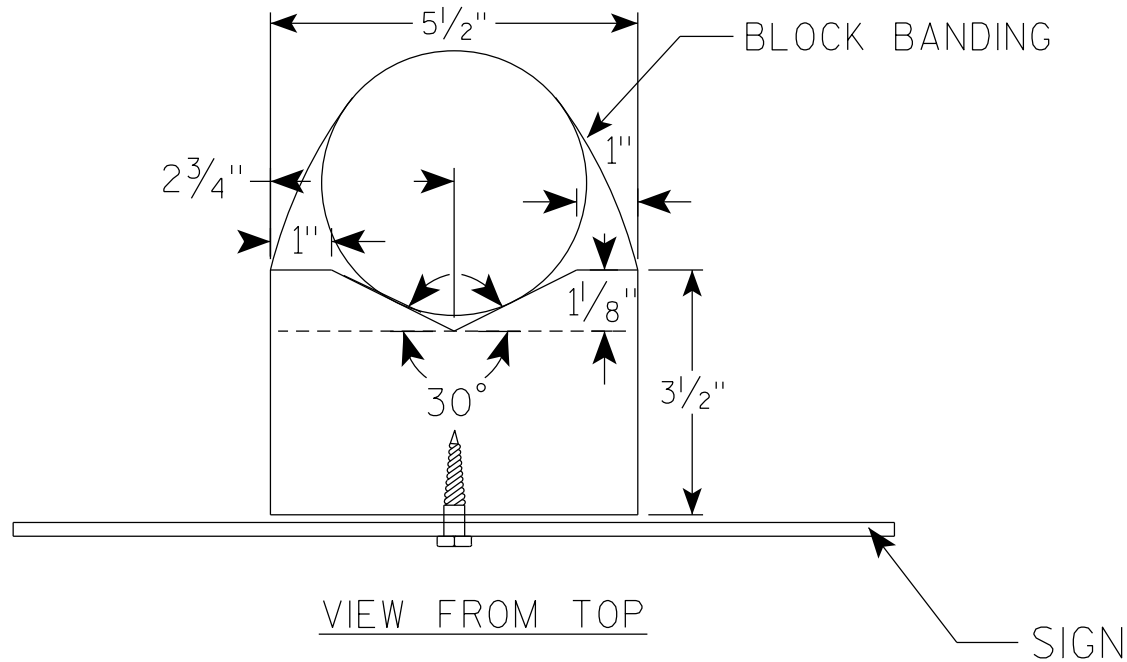
PLOT DATE : 19-APRIL 2022 11:55

PLOT BY : dotc4c

WISDOT/CADDs SHEET 42



VIEW FROM SIDE



VIEW FROM TOP

GENERAL NOTES

1. WOOD 4"X6" POST MATERIAL SHALL CONFORM TO 507.2.2 OF THE WISDOT STANDARD SPECIFICATIONS
2. BLOCK BANDING AND CLIPS SHALL BE STAINLESS STEEL, $\frac{3}{4}$ " WIDTH AND 0.025" THICKNESS
3. SIGNS 3' OR GREATER IN HEIGHT SHALL UTILIZE 3 BLOCK BANDS. SIGNS UNDER 3' IN HEIGHT SHALL UTILIZE 2 BLOCK BANDS
4. ACTUAL NUMBER OF FASTENERS PER SIGN VARIES WITH THE SIGN AREA, BUT NORMALLY THERE ARE TWO. FOR SIGNS GREATER THAN 9 S.F. 3 FASTENERS SHALL BE USED.
5. ALL SIGN MOUNTING BOLTS AND WASHERS SHALL BE EITHER:
 - a. Hot dip or mechanically galvanized in accordance with ASTM Designation: A 153, Class D
 - b. Electro-galvanized in accordance with ASTM Designation : B 633, TYPE III, SC 3
6. ALL BOLTS SHALL HAVE HEXAGONAL HEADS.
7. STEEL WASHERS SHALL BE $\frac{1}{4}$ " O.D. X $\frac{3}{8}$ " I.D. X $\frac{1}{16}$ "
8. NYLON WASHERS SHALL BE $\frac{1}{4}$ " O.D. X $\frac{3}{8}$ " I.D. X .080 FOR TYPE H OR TYPE F FACE SIGN

✱ LAG BOLTS SHALL BE $\frac{3}{8}$ " X $2\frac{1}{2}$ "

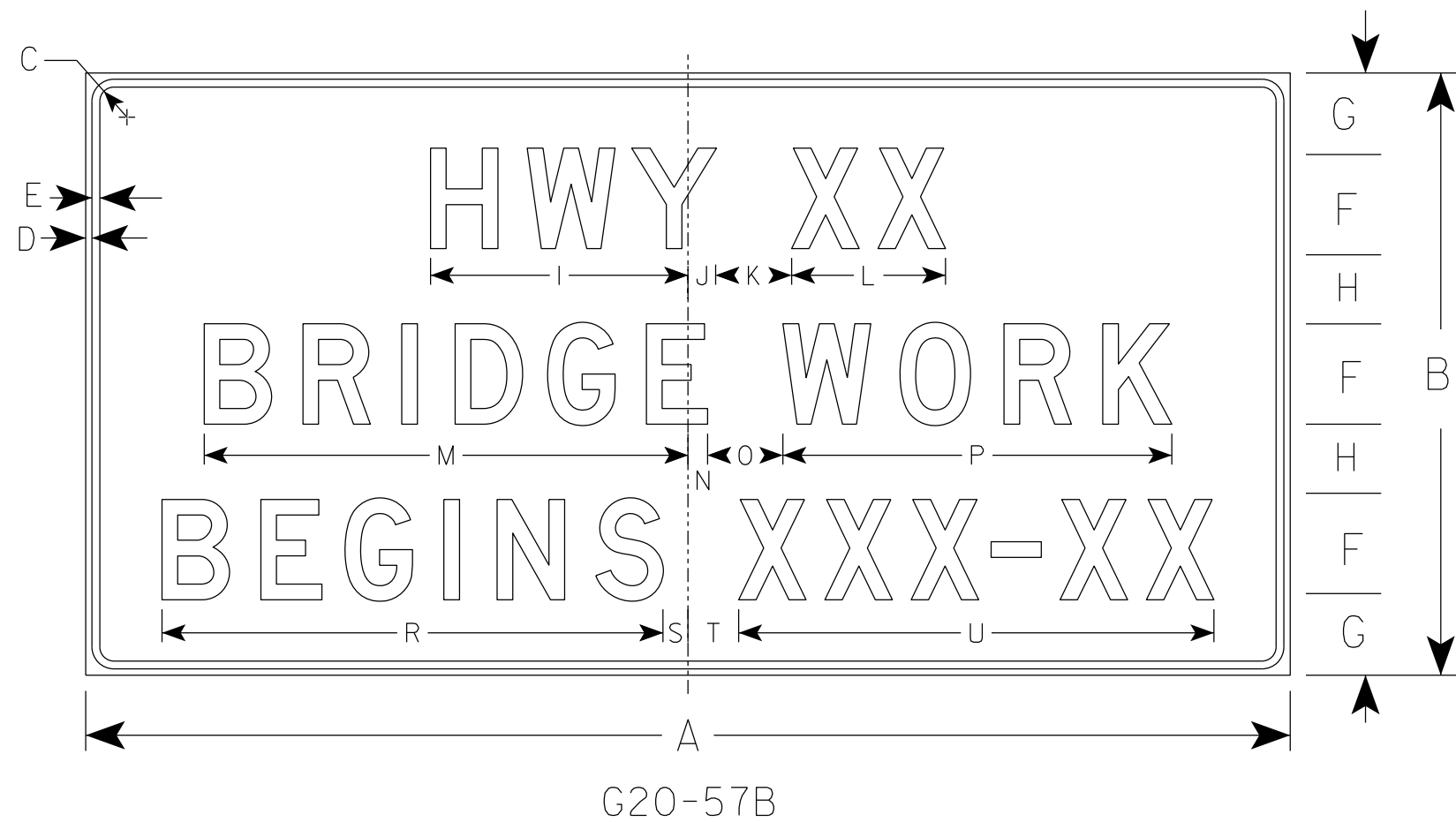
BLOCK BANDING DETAIL
(V-BLOCK OPTION)

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 4/19/2022 PLATE NO. A5-10.3

7



NOTES

1. Sign is Type II - Type F Reflective
2. Color:
Background - Orange
Message - Black
3. Message Series - D
4. Substitute appropriate numeral and adjust spacing to achieve proper balance.

7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2																											
3	72	36	1 1/8	1/2	5/8	6	5	4	15 5/8	1 5/8	5	9 1/4	29 1/8	7/8	5	23 1/4		29 7/8	1 3/4	3 1/4	28 1/2					18.0	
4	96	48	2 1/4	3/4	1	8	6 1/2	5 1/2	20 5/8	2 1/4	6	12 1/4	38 1/2	1 1/2	6	31		39 1/4	2	4	37 7/8					32.0	
5																											

PROJECT NO:

HWY:

COUNTY:

SHEET NO: 68

E

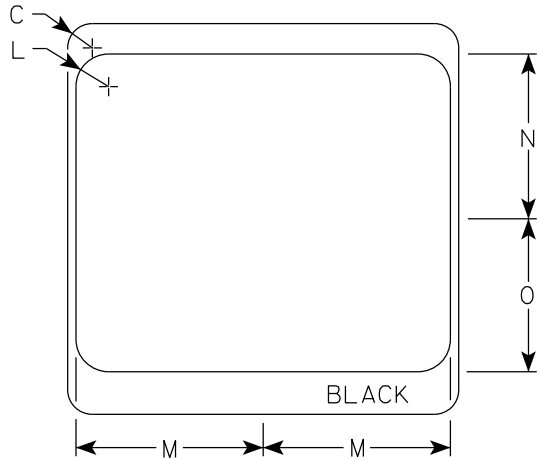
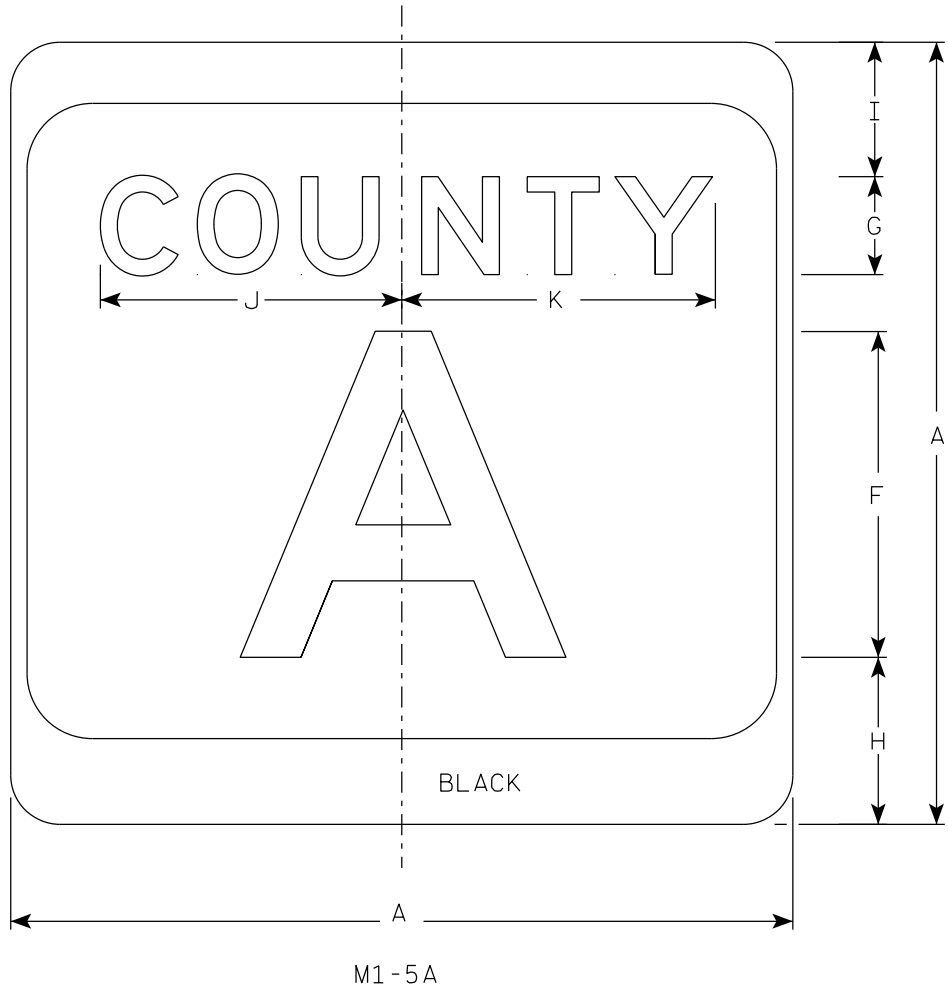
STANDARD SIGN
G20-57B

WISCONSIN DEPT OF TRANSPORTATION

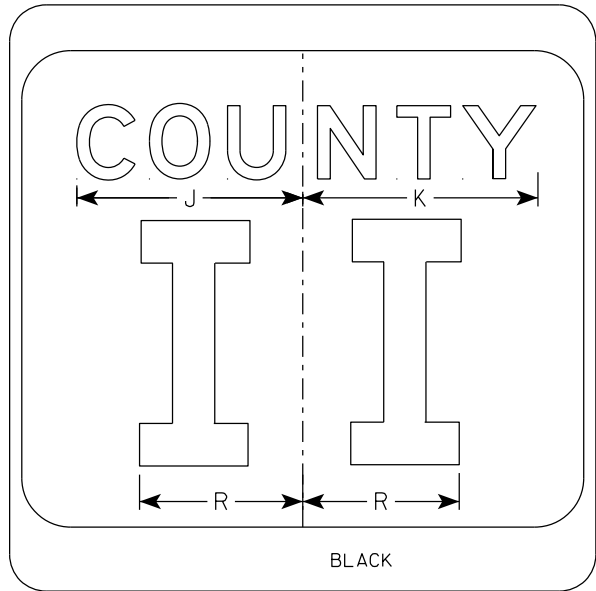
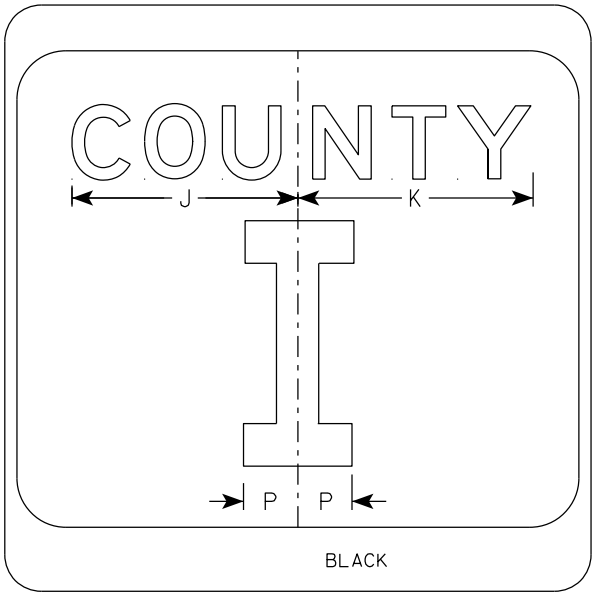
APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 1/22/19 PLATE NO. G20-57B.1

7



- NOTES
- Sign is Type II - Type H Reflective
 - Color:
Background - White & Black
Message - Black
 - Message Series - see Note 4
 - Message Series E for 1 letter.
Message Series D for 2 letters unless
message is too big then Series C.
Message Series C for 3 letters unless
message is too big then Series B.
 - Substitute appropriate letters & optically
center to achieve proper balance.



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

CTH MARKER

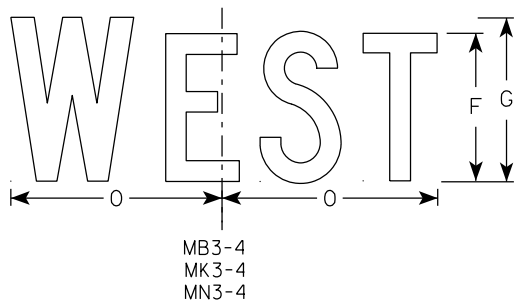
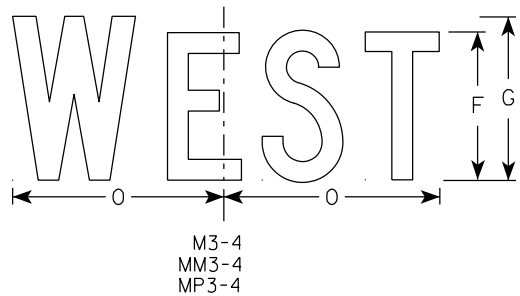
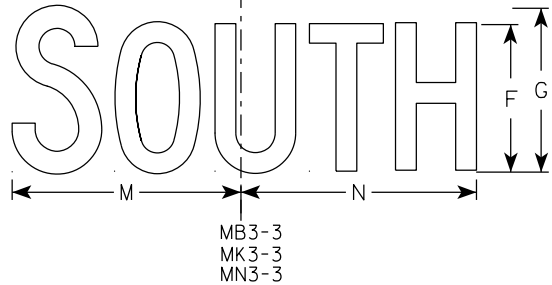
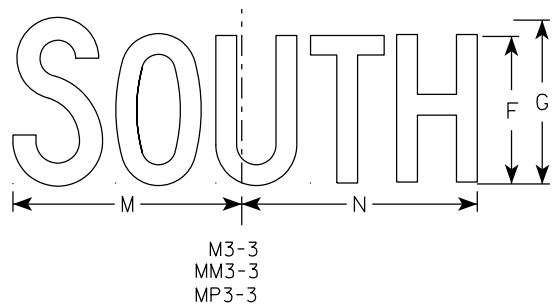
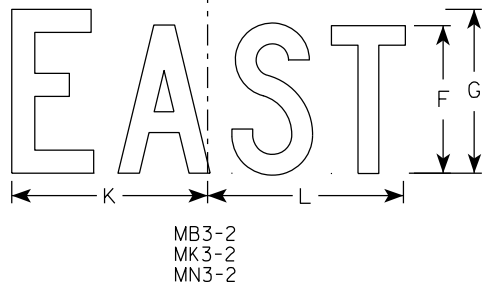
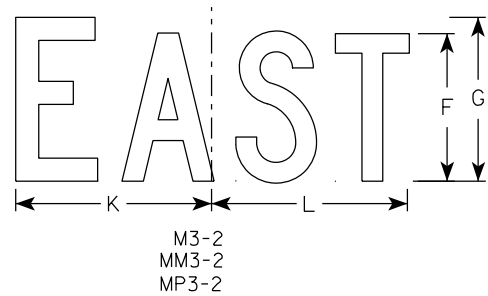
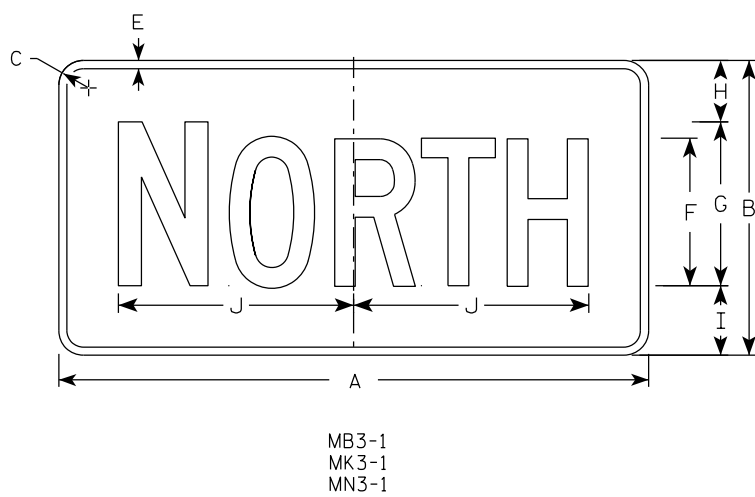
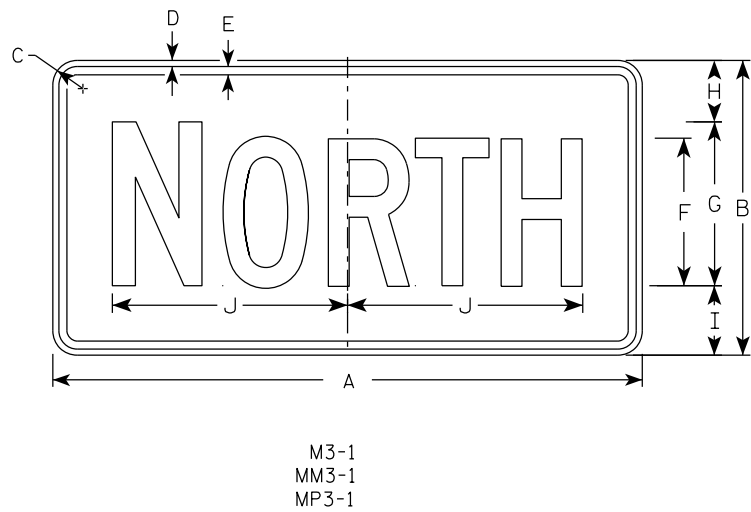
M1-5A FOR ASSEMBLIES

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 11/8/2022 PLATE NO. M1-5A.9

7



NOTES

1. All Signs Type II - Type H Reflective
2. Color:
Background - See note 5
Message - See note 5
3. Message Series - C
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. M3-1 thru M3-4 Background - White
Message - Black
MB3-1 thru MB3-4 Background - Blue
Message - White
MK3-1 thru MK3-4 Background - Green
Message - White
MM3-1 thru MM3-4 Background - White
Message - Green
MN3-1 thru MN3-4 Background - Brown
Message - White
MP3-1 thru MP3-4 Background - White
Message - Blue
6. Note the first letter of each direction is larger than the remainder of the message.

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

PROJECT NO:	HWY:	COUNTY:	SHEET NO: 70	E
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STANDARD SIGNS
M3-1 THRU M3-4
SERIES

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

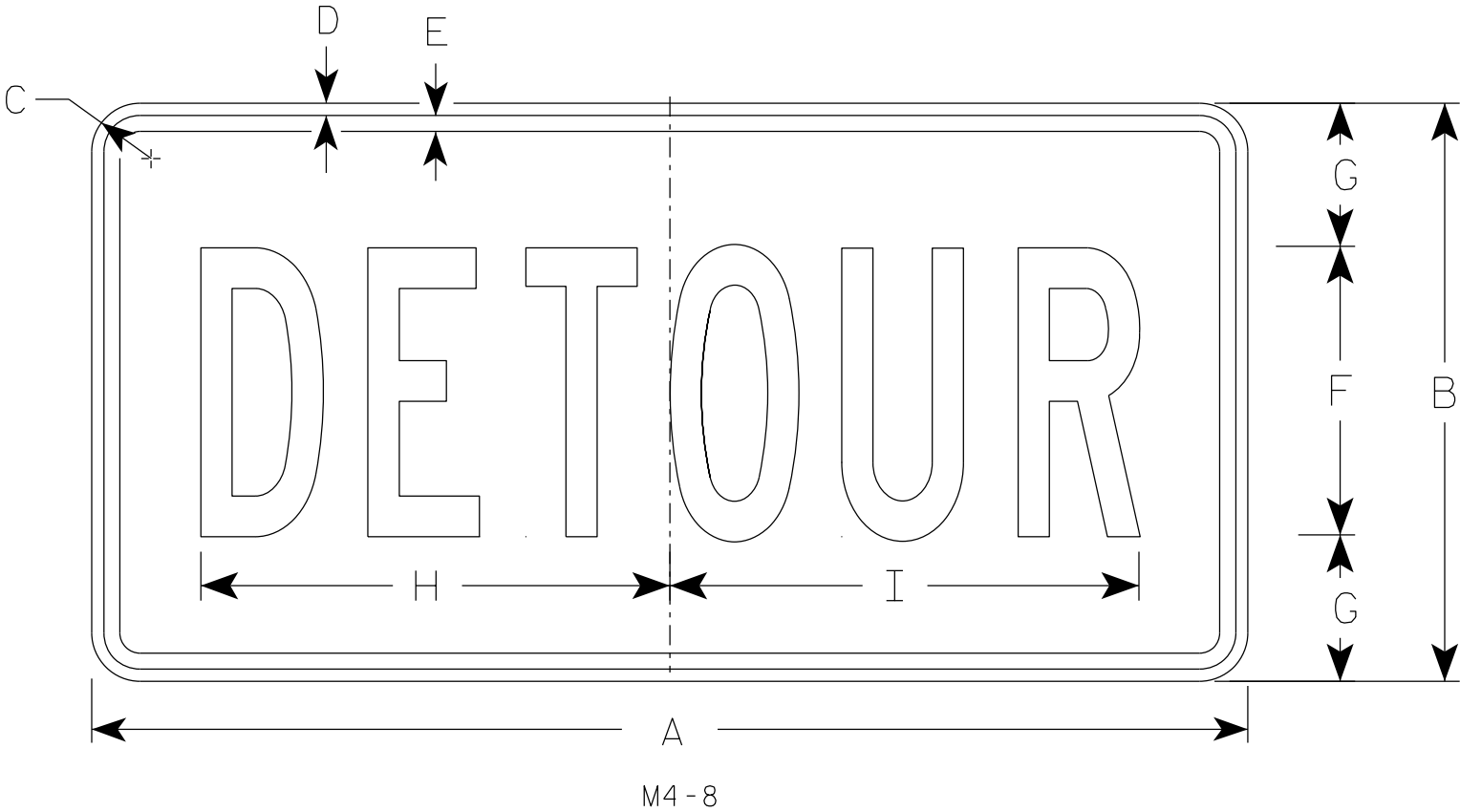
DATE 2/8/2023 PLATE NO. M3-1.15

7

7

NOTES

- 1. Sign is Type II - Type F Reflective
- 2. Color:
Background - Orange
Message - Black
- 3. Message Series - B
- 4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.



SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2	24	12	1 1/2	3/8	3/8	6	3	10	10 1/4																		2.0
2M	24	12	1 1/2	3/8	3/8	6	3	10	10 1/4																		2.0
3	36	18	1 1/2	3/8	1/2	9	4 1/2	14 5/8	14 1/2																		4.5
4	36	18	1 1/2	3/8	1/2	9	4 1/2	14 5/8	14 1/2																		4.5
5	36	18	1 1/2	3/8	1/2	9	4 1/2	14 5/8	14 1/2																		4.5

STANDARD SIGN

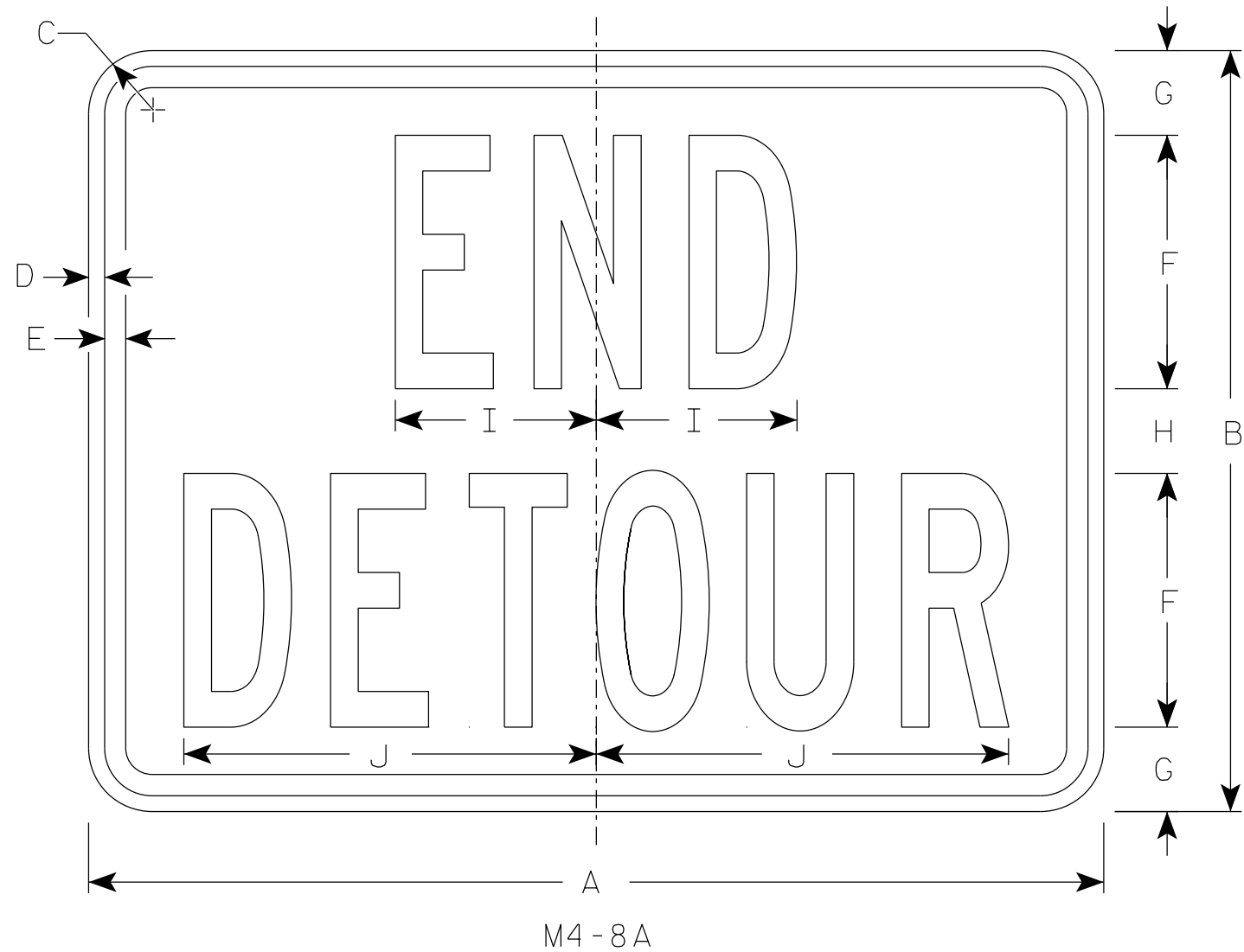
M4-8

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 2/9/2023 PLATE NO. M4-8.4

7



NOTES

1. Sign is Type II - Type F Reflective
2. Color:
Background - Orange
Message - Black
3. Message Series - B
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.

7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	v	W	X	Y	Z	Area sq. ft.
1																											
2	24	18	1 1/2	3/8	1/2	6	2	2	4 3/4	9 3/4																	3.0
2M	24	18	1 1/2	3/8	1/2	6	2	2	4 3/4	9 3/4																	3.0
3	30	24	1 1/2	3/8	1/2	8	2 1/2	3	6 3/4	13																	5.0
4	30	24	1 1/2	3/8	1/2	8	2 1/2	3	6 3/4	13																	5.0
5	30	24	1 1/2	3/8	1/2	8	2 1/2	3	6 3/4	13																	5.0

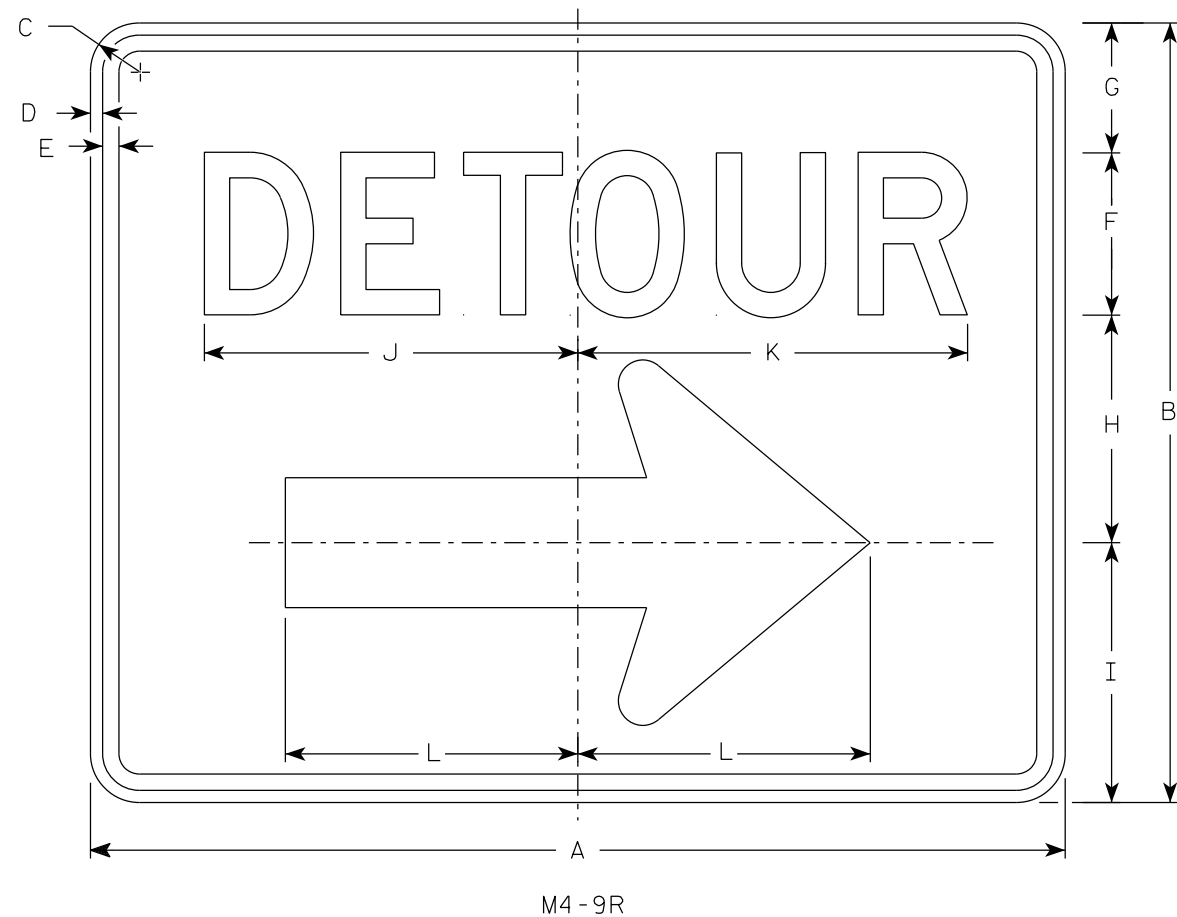
STANDARD SIGN

M4-8A

WISCONSIN DEPT OF TRANSPORTATION

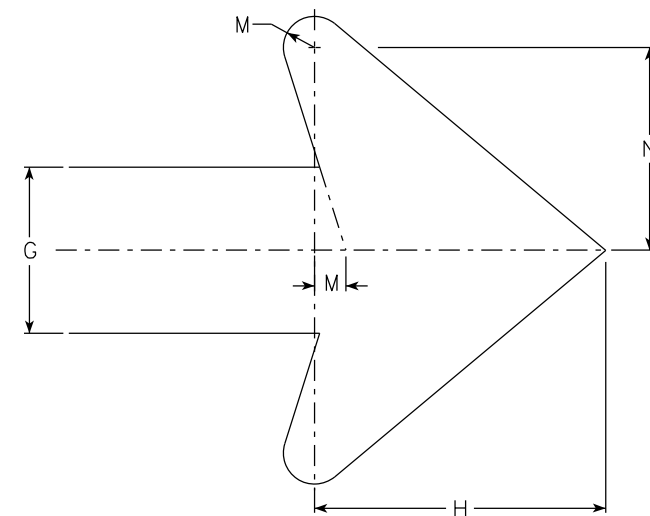
APPROVED *Matthew R. Rauch*
For State Traffic Engineer

DATE 2/9/2023 PLATE NO. M4-8A.4



NOTES

1. Sign is Type II - Type F Reflective
2. Color:
Background - Orange
Message - Black
3. Message Series - D
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
4. M4-9L is the same as M4-9R except the arrow is reversed.



Arrow Detail

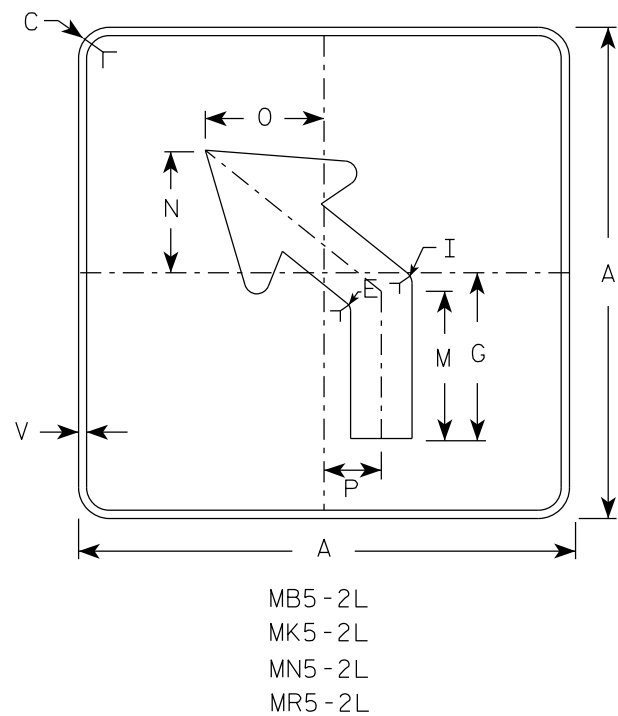
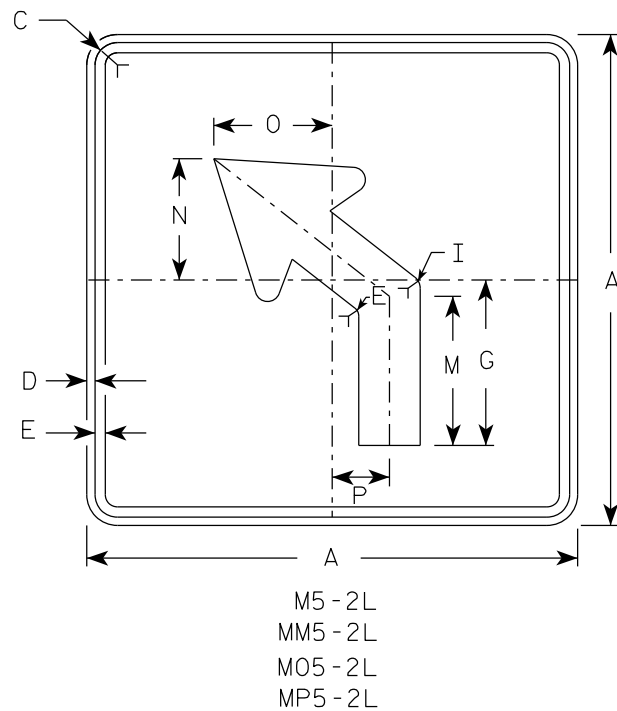
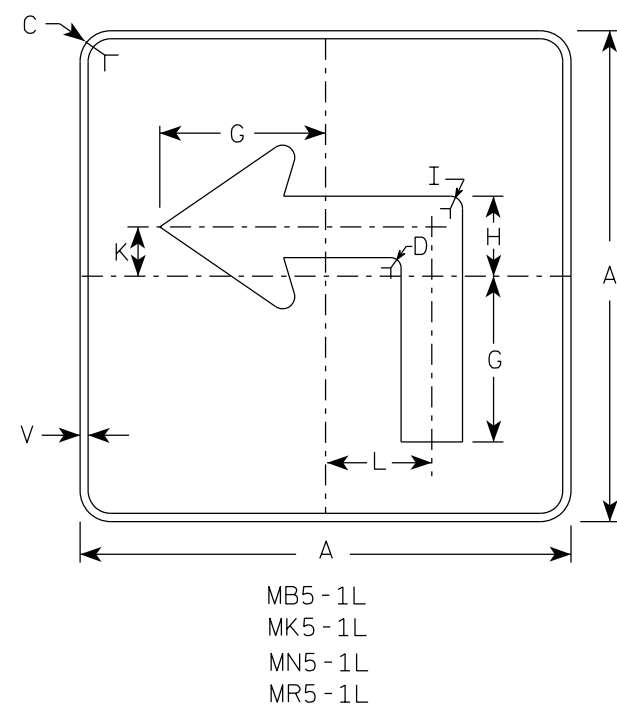
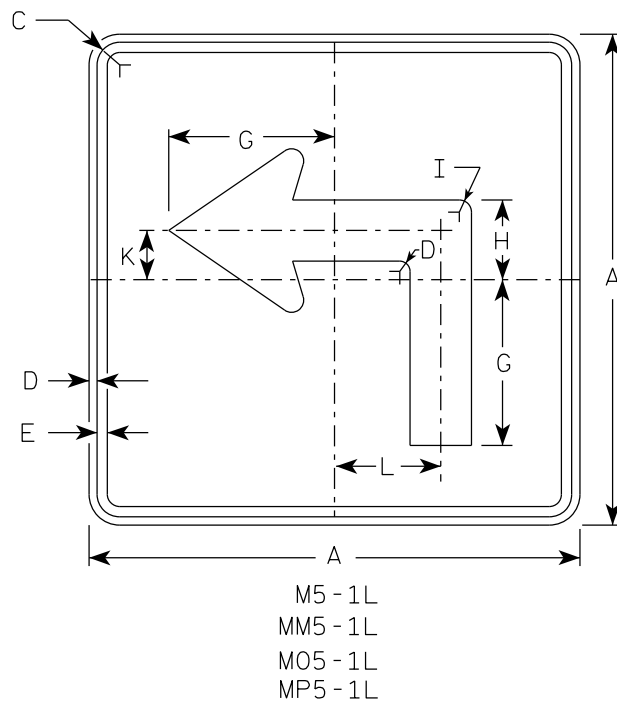
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2	30	24	1 1/2	3/8	1/2	5	4	7	8	11 1/2	12	9	3/4	4 7/8													5.00
2M	30	24	1 1/2	3/8	1/2	5	4	7	8	11 1/2	12	9	3/4	4 7/8													5.00
3	30	24	1 1/2	3/8	1/2	5	4	7	8	11 1/2	12	9	3/4	4 7/8													5.00
4	48	36	1 7/8	1/2	5/8	8	6	10 1/2	11 5/8	20 5/8	20 1/2	13 1/4	1 1/8	6 7/8													12.0
5	48	36	1 7/8	1/2	5/8	8	6	10 1/2	11 5/8	20 5/8	20 1/2	13 1/4	1 1/8	6 7/8													12.0

STANDARD SIGN
M4-9 R & L

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
For State Traffic Engineer

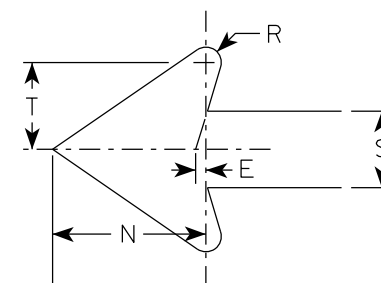
DATE 2/9/2023 PLATE NO. M4-9R.6



NOTES

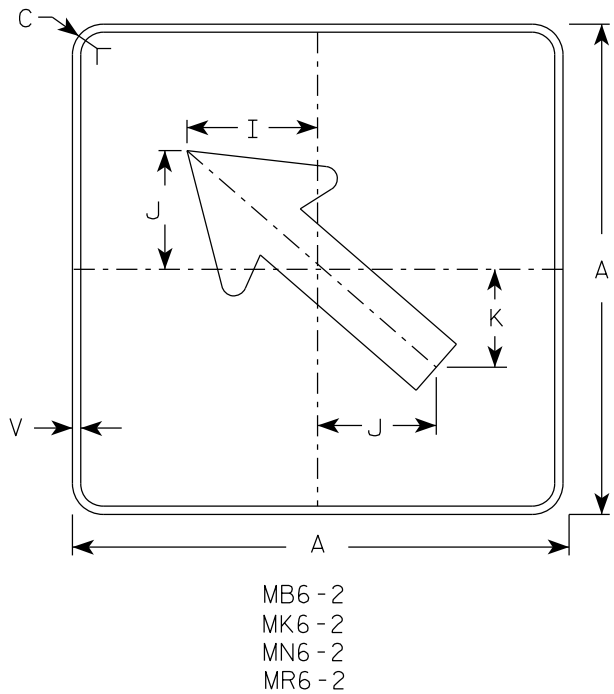
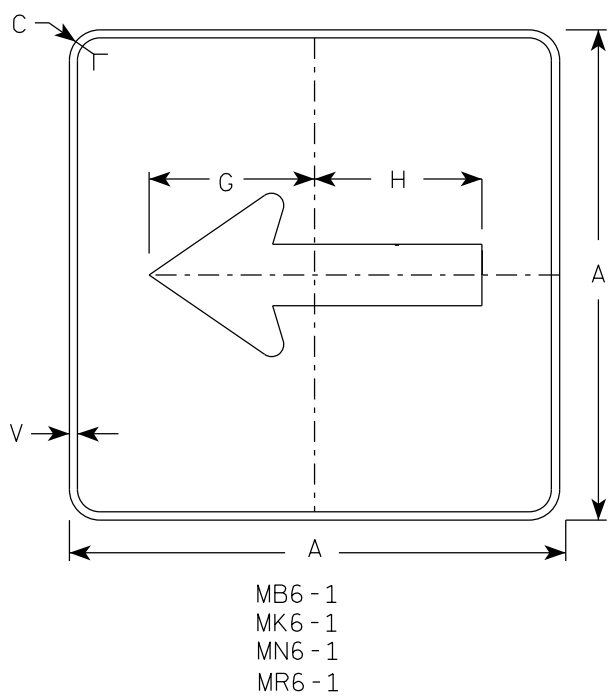
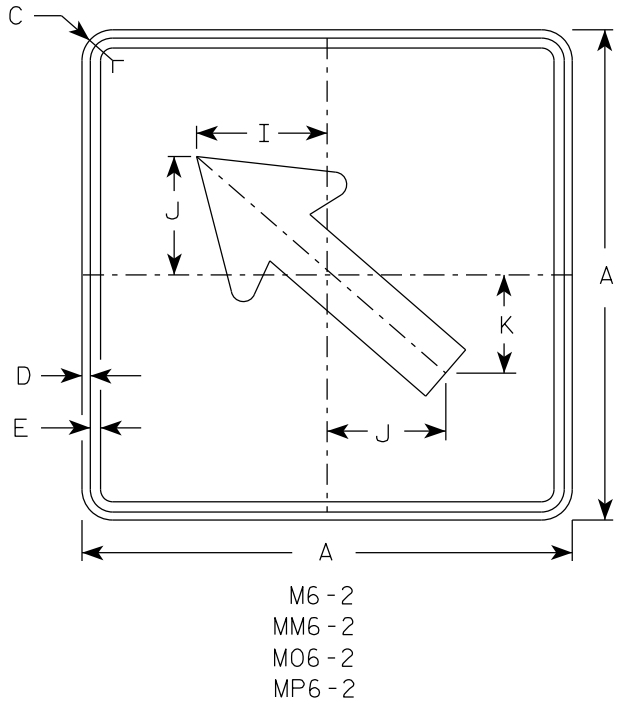
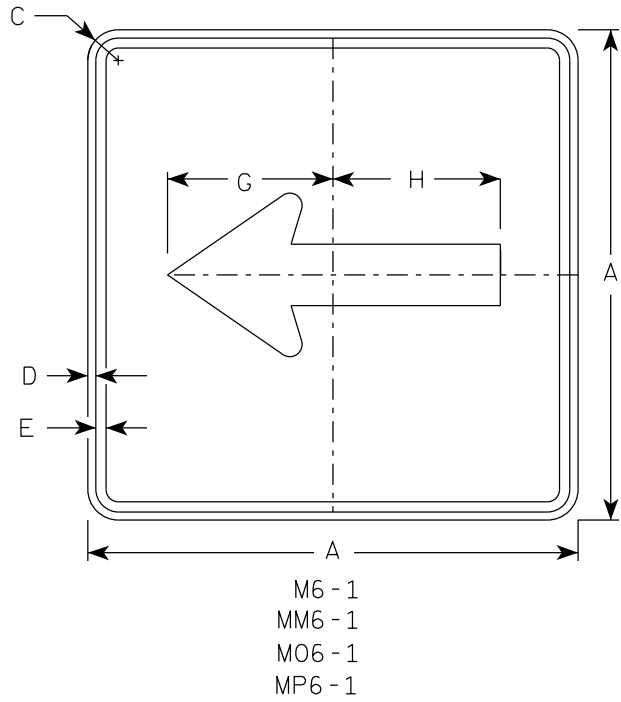
- Signs are Type II - Type H reflective except as shown
- Color:
Background - See note 4
Message - See note 4
- Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
- | | | |
|-----------|-------|---|
| M5-1 and | M5-2 | Background - White |
| | | Message - Black |
| MB5-1 and | MB5-2 | Background - Blue |
| | | Message - White |
| MK5-1 and | MK5-2 | Background - Green |
| | | Message - White |
| MM5-1 and | MM5-2 | Background - White |
| | | Message - Green |
| MN5-1 and | MN5-2 | Background - Brown |
| | | Message - White |
| M05-1 and | M05-2 | Background - Orange - Type F Reflective |
| | | Message - Black |
| MP5-1 and | MP5-2 | Background - White |
| | | Message - Blue |
| MR5-1 and | MR5-2 | Background - Brown |
| | | Message - Yellow |
- M5-1R same as M5-1L except arrow points right.
- M5-2R same as M5-2L except arrow tilts right.

ARROW DETAIL

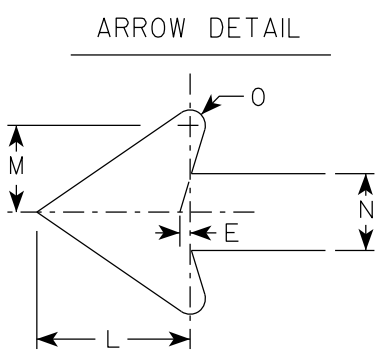


SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	21		1 1/2	3/8	3/8		7	3 3/8	5/8		2 1/8	4 1/2	6 3/8	5 1/4	5	2 1/2		1/2	2 5/8	3		1/2					3.06
2M	21		1 1/2	3/8	3/8		7	3 3/8	5/8		2 1/8	4 1/2	6 3/8	5 1/4	5	2 1/2		1/2	2 5/8	3		1/2					3.06
3	30		1 7/8	1/2	5/8		10 1/8	4 7/8	7/8		3	6 1/2	9 1/8	7 1/2	7 1/4	3 1/2		3/4	3 3/4	4 1/4		1/2					6.25
4	30		1 7/8	1/2	5/8		10 1/8	4 7/8	7/8		3	6 1/2	9 1/8	7 1/2	7 1/4	3 1/2		3/4	3 3/4	4 1/4		1/2					6.25
5	30		1 7/8	1/2	5/8		10 1/8	4 7/8	7/8		3	6 1/2	9 1/8	7 1/2	7 1/4	3 1/2		3/4	3 3/4	4 1/4		1/2					6.25

PROJECT NO:		HWY:		COUNTY:		SHEET NO: 74		E
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- NOTES
- Signs are Type II - Type H Reflective except as Shown
 - Color:
Background - See note 4
Message - See note 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.
 - M6-1 and M6-2 Background - White
Message - Black
MB6-1 and MB6-2 Background - Blue
Message - White
MK6-1 and MK6-2 Background - Green
Message - White
MM6-1 and MM6-2 Background - White
Message - Green
MN6-1 and MN6-2 Background - Brown
Message - White
M06-1 and M06-2 Background - Orange - Type F Reflective
Message - Black
MP6-1 and MP6-2 Background - White
Message - Blue
MR6-1 and MR6-2 Background - Brown
Message - Yellow



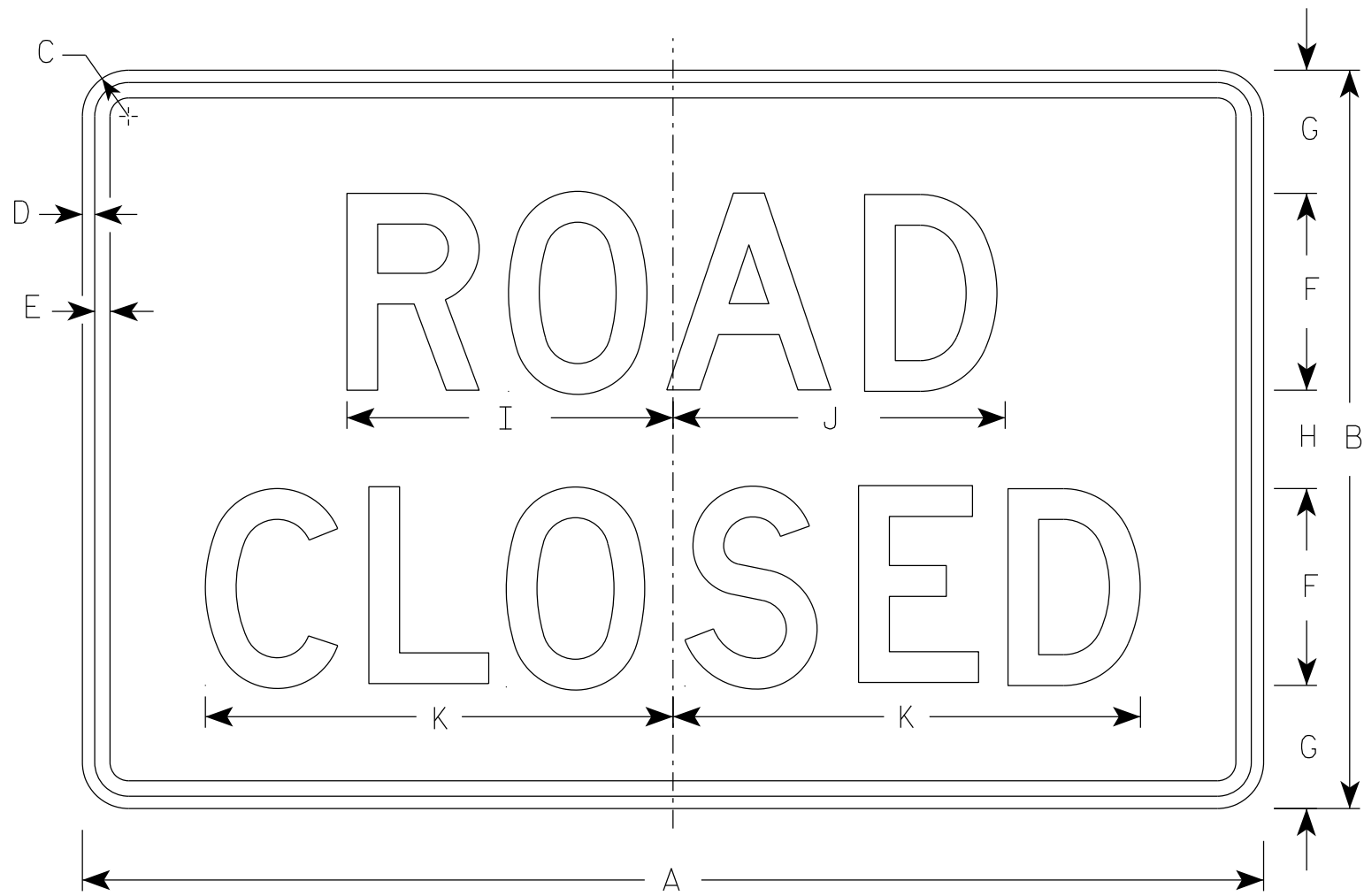
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	21		1 1/2	3/8	3/8		7 1/2	7 1/8	5 5/8	5	4 1/4	5 1/4	3	2 5/8	1/2							1/2					3.06
2M	21		1 1/2	3/8	3/8		7 1/2	7 1/8	5 5/8	5	4 1/4	5 1/4	3	2 5/8	1/2							1/2					3.06
3	30		1 7/8	1/2	5/8		10 3/4	10 1/4	8	7 1/4	6	7 1/2	4 1/4	3 3/4	3/4							1/2					6.25
4	30		1 7/8	1/2	5/8		10 3/4	10 1/4	8	7 1/4	6	7 1/2	4 1/4	3 3/4	3/4							1/2					6.25
5	30		1 7/8	1/2	5/8		10 3/4	10 1/4	8	7 1/4	6	7 1/2	4 1/4	3 3/4	3/4							1/2					6.25

STANDARD SIGN
M6 - 1 & M6 - 2
SERIES

WISCONSIN DEPT OF TRANSPORTATION

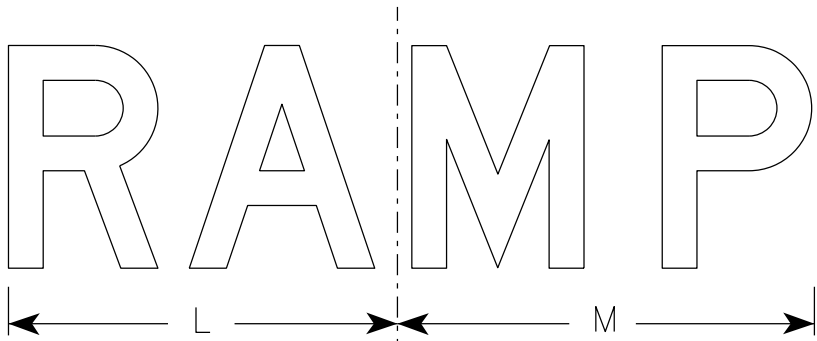
APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 2/13/2023 PLATE NO. M6-1.16

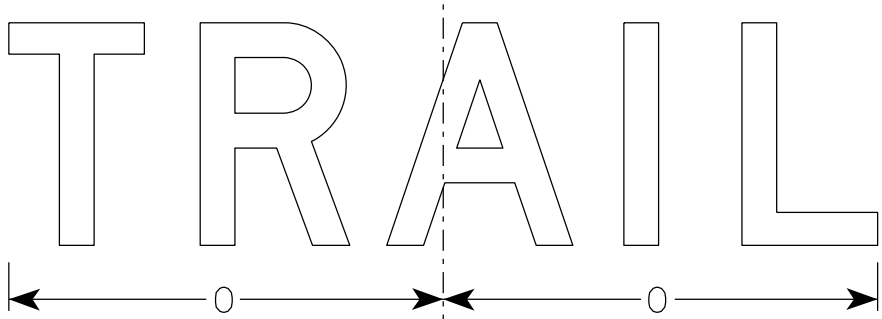


R11-2

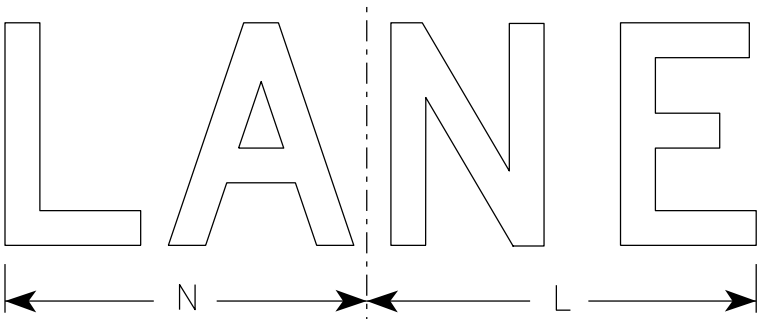
- NOTES
1. Sign is Type II - Type H Reflective
 2. Color:
Background - White
Message - Black
 3. Message Series - D
 4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
 5. Modify the message as required.



R11-2R



R11-2T



R11-2L

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	48	30	1 7/8	1/2	5/8	8	5	4	13 1/4	13 1/2	19	14	15	13	15 5/8												10.0
2M	48	30	1 7/8	1/2	5/8	8	5	4	13 1/4	13 1/2	19	14	15	13	15 5/8												10.0
3	48	30	1 7/8	1/2	5/8	8	5	4	13 1/4	13 1/2	19	14	15	13	15 5/8												10.0
4	48	30	1 7/8	1/2	5/8	8	5	4	13 1/4	13 1/2	19	14	15	13	15 5/8												10.0
5	48	30	1 7/8	1/2	5/8	8	5	4	13 1/4	13 1/2	19	14	15	13	15 5/8												10.0

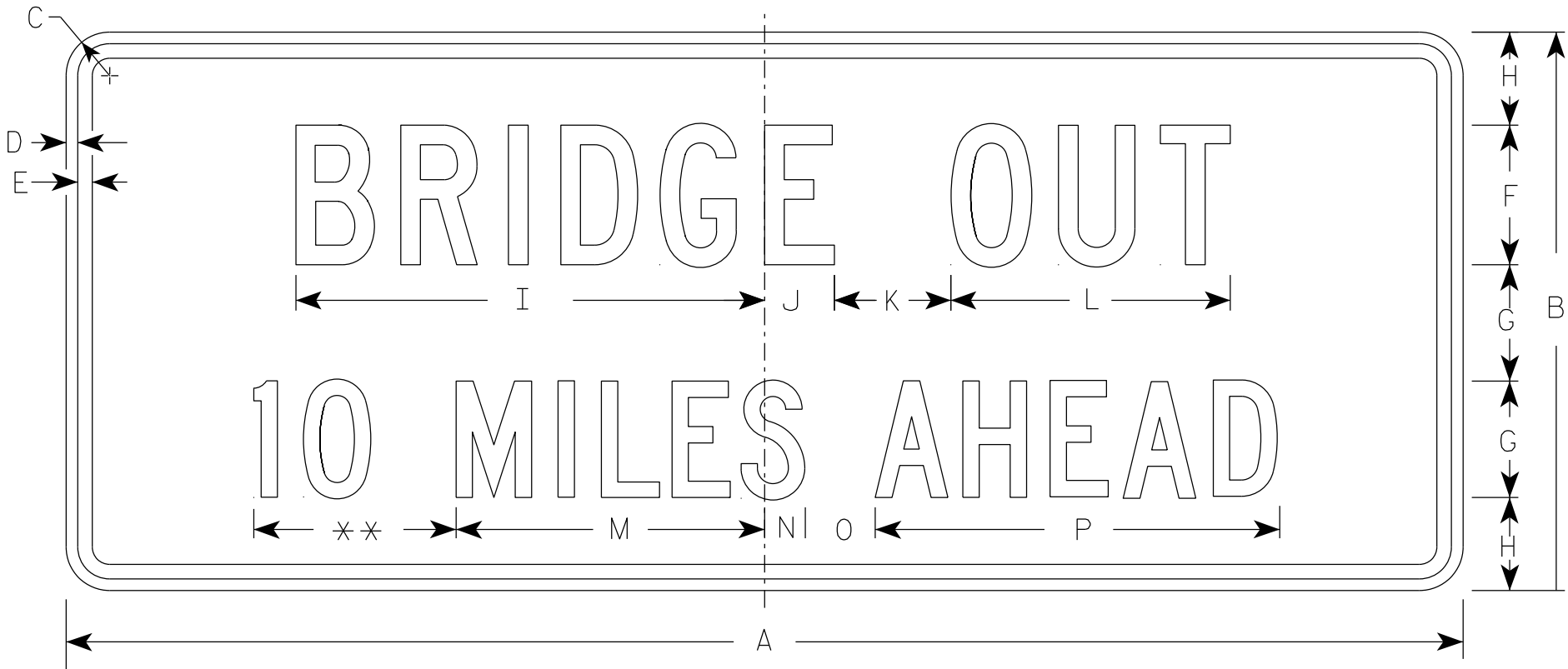
STANDARD SIGN R11-2	
WISCONSIN DEPT OF TRANSPORTATION	
APPROVED	<i>Matthew R. Rauch</i> For State Traffic Engineer
DATE 2/5/24	PLATE NO. R11-2.12

NOTES

1. Sign is Type II - Type H Reflective
2. Color:

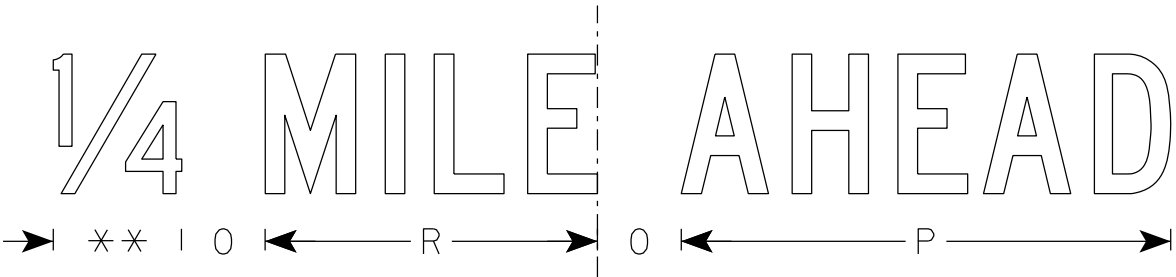
Background - White

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 to nearest quarter mile and optically adjust spacing to achieve proper balance.



R11-3C

** 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	15	1 1/2	1/2	5/8	4	3	2 1/2	13 1/4	2 1/4	3	8	8	1 1/2	2	10 3/4		7 1/8									3.75
2S	60	24	1 7/8	1/2	5/8	6	5	4	20 1/8	3	5	12	13 1/4	1 3/4	3	17 3/8		11 7/8									10.0
2M	60	24	1 7/8	1/2	5/8	6	5	4	20 1/8	3	5	12	13 1/4	1 3/4	3	17 3/8		11 7/8									10.0
3																											
4																											
5																											

STANDARD SIGN
R11-3C

WISCONSIN DEPT OF TRANSPORTATION

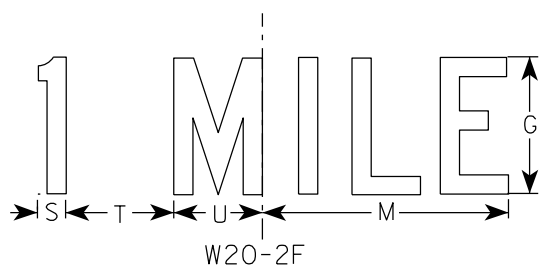
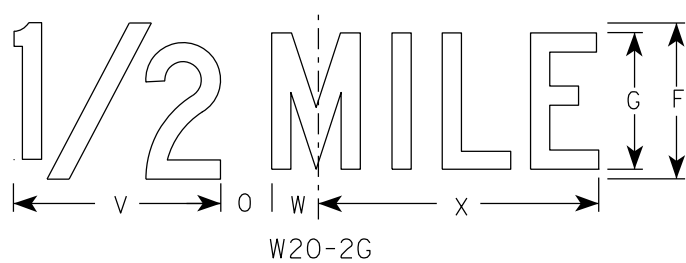
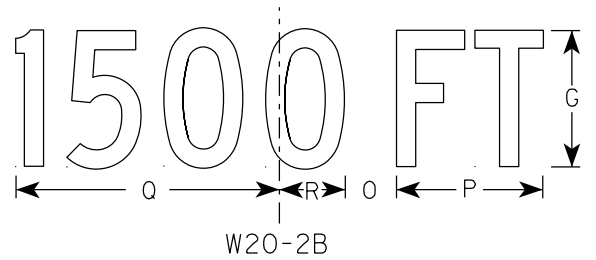
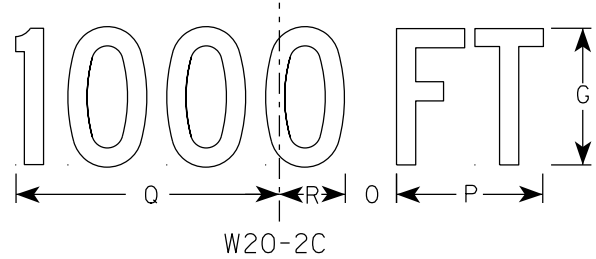
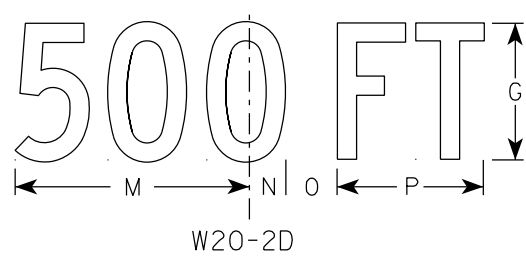
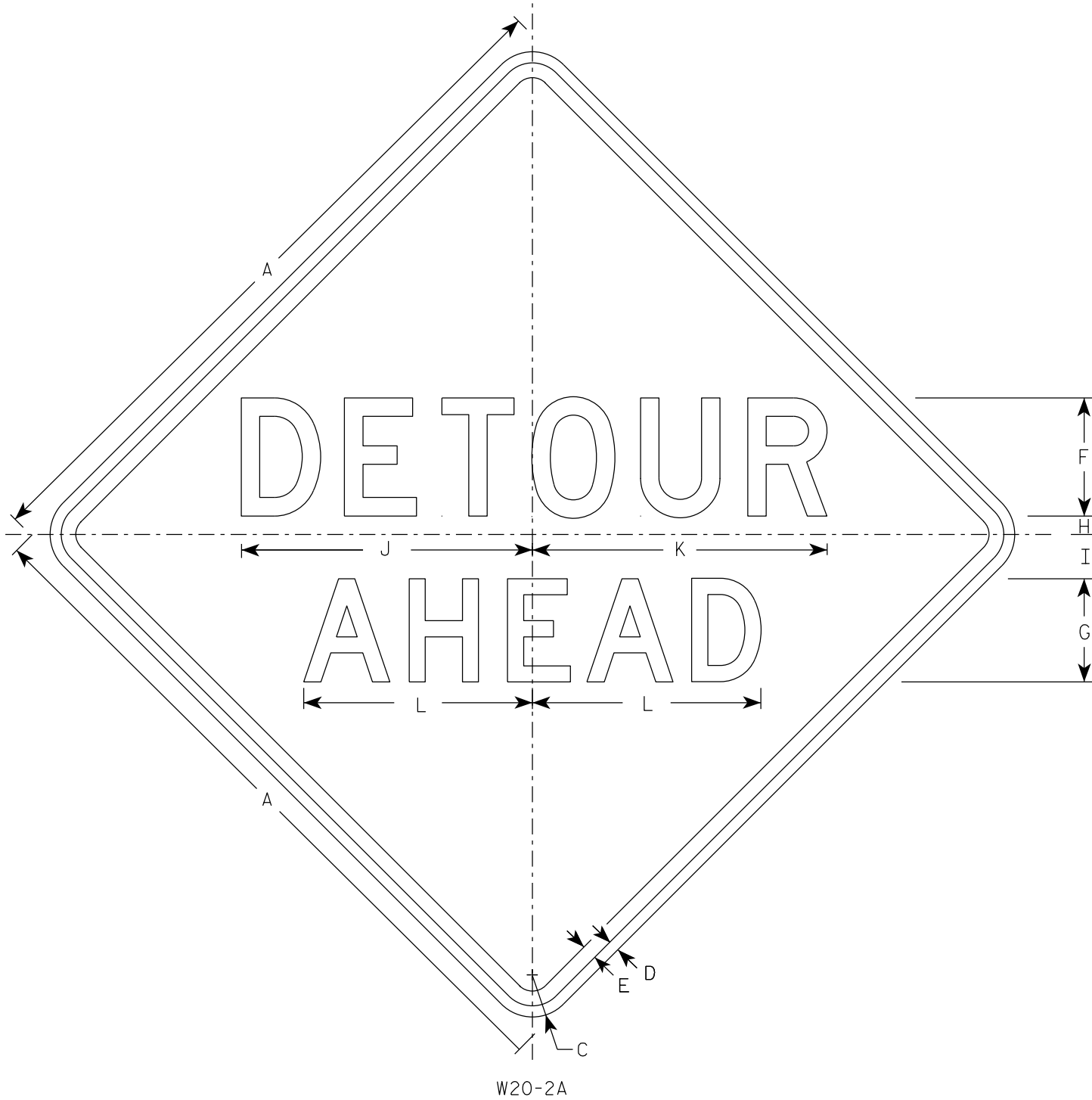
APPROVED
Matthew R. Rauch
for State Traffic Engineer

DATE 2/5/24 PLATE NO. R11-3C.4

PROJECT NO:

SHEET NO: 77

E



NOTES

1. Sign is Type II - Type F Reflective
2. Color:
Background - Orange
Message - Black
3. Message Series - See note 5
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. Line 1 is Series D.
Line 2 is Series D for AHEAD and Series C for all other distances.

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	v	w	X	Y	Z	Area sq. ft.
1	36		2 1/4	5/8	3/4	6	5	1	2 1/4	14 3/4	15	11 5/8	9	1 3/8	1 7/8	5 5/8	10 1/8	2 1/2	1 1/8	4 1/2	3 1/2	8	1 3/4	10 3/4			9.0
2S	48		3	3/4	1	8	7	1 1/4	3	19 3/4	20	15 1/2	12	1 7/8	2 5/8	7 1/2	13 1/2	3 3/8	1 1/2	6	4 5/8	10 5/8	2 3/8	14 3/8			16.0
2M	48		3	3/4	1	8	7	1 1/4	3	19 3/4	20	15 1/2	12	1 7/8	2 5/8	7 1/2	13 1/2	3 3/8	1 1/2	6	4 5/8	10 5/8	2 3/8	14 3/8			16.0
3	48		3	3/4	1	8	7	1 1/4	3	19 3/4	20	15 1/2	12	1 7/8	2 5/8	7 1/2	13 1/2	3 3/8	1 1/2	6	4 5/8	10 5/8	2 3/8	14 3/8			16.0
4	48		3	3/4	1	8	7	1 1/4	3	19 3/4	20	15 1/2	12	1 7/8	2 5/8	7 1/2	13 1/2	3 3/8	1 1/2	6	4 5/8	10 5/8	2 3/8	14 3/8			16.0
5	48		3	3/4	1	8	7	1 1/4	3	19 3/4	20	15 1/2	12	1 7/8	2 5/8	7 1/2	13 1/2	3 3/8	1 1/2	6	4 5/8	10 5/8	2 3/8	14 3/8			16.0

STANDARD SIGN W20-2A,B,C,D,F & G	
WISCONSIN DEPT OF TRANSPORTATION	
APPROVED	<i>Matthew R. Rauch</i> For State Traffic Engineer
DATE 1/10/2024	PLATE NO. W20-2.7

PROJECT NO:	HWY:	COUNTY:	SHEET NO: 78	E
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TRAFFIC DATA

AADT (2026) = 680
AADT (2046) = 730
DESIGN SPEED = 60 MPH

DESIGN DATA

LIVE LOAD:
DESIGN LOADING _____ HS20
INVENTORY RATING _____ HS21
OPERATING RATING _____ HS35
WISCONSIN STANDARD PERMIT VEHICLE (WIS-SPV) _____ 250 KIPS

STRUCTURE IS DESIGNED FOR A
FUTURE WEARING SURFACE OF _____ 20 PSF

MATERIAL PROPERTIES

CONCRETE MASONRY, SUPERSTRUCTURE _____ f'c = 4,000 PSI
ALL OTHER _____ f'c = 3,500 PSI
HIGH STRENGTH BAR STEEL _____
REINFORCEMENT GRADE 60 _____ fy = 60,00 PSI

LEGEND

(X) INDICATES WING NUMBER
* INDICATES THRIE-BEAM ATTACHMENT.

LIST OF DRAWINGS

1. GENERAL PLAN
2. CROSS SECTION & QUANTITIES
3. MISCELLANEOUS DETAILS
4. REMOVAL DETAILS
5. ABUTMENT DETAILS
6. INTERMEDIATE STEEL DIAPHRAGM
7. SUPERSTRUCTURE DETAILS-1
8. SUPERSTRUCTURE DETAILS-2
9. SUPERSTRUCTURE DETAILS-3
10. TUBULAR STEEL RAILING TYPE M

SCOPE OF WORK

1. REMOVE AND REPLACE EXISTING DECK.
2. REPAIR ABUTMENT UNDERMINING WITH FOAM VOID FILLING.
3. INSTALL DRAINAGE SYSTEM BEHIND THE ABUTMENTS.
4. CONCRETE SURFACE REPAIR AT LOCATIONS DESIGNATED BY THE ENGINEER.

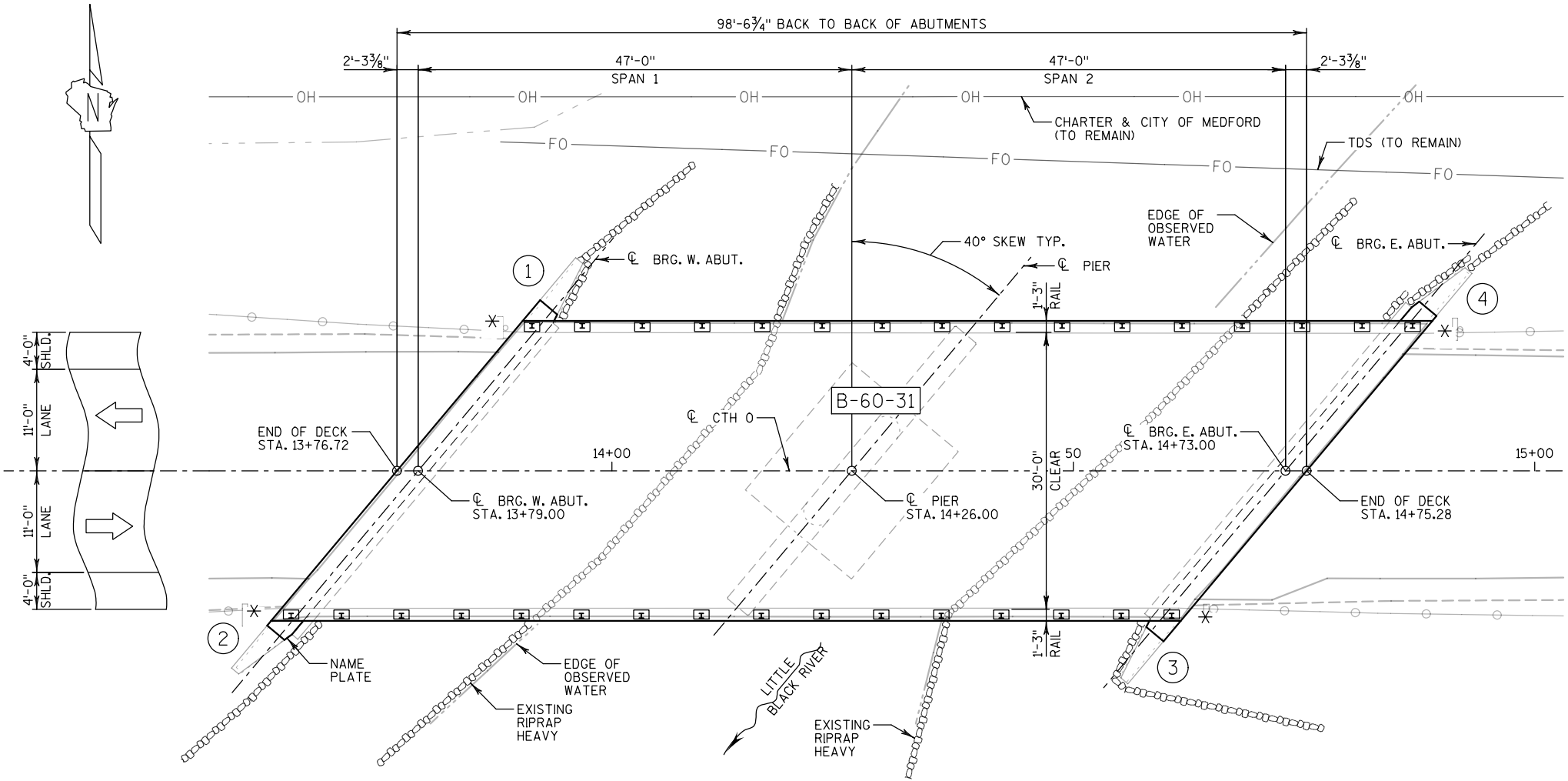


9/16/2025

BUREAU OF STRUCTURES CONTACT:
AARON BONK, P.E. (608) 261-0261

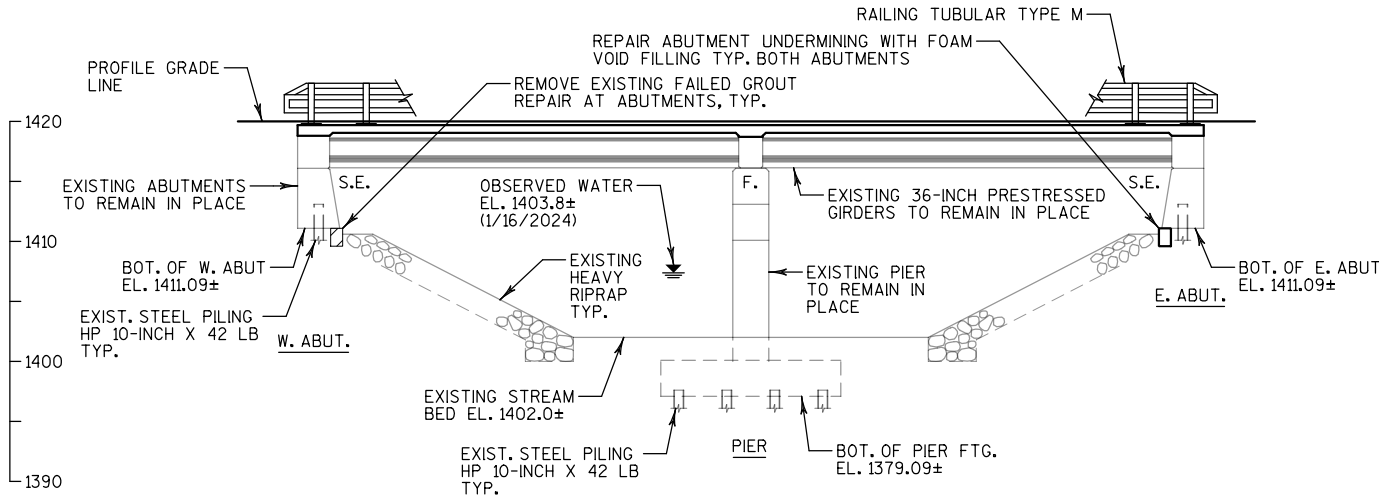
CONSULTANT CONTACT:
ERIC PRICE, P.E. (608) 826-6146

NO.	DATE	REVISION	BY
CORRE			
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
ACCEPTED	JLR CHIEF STRUCTURES DESIGN ENGINEER		09/16/25 DATE
STRUCTURE B-60-31			
CTH 0 OVER LITTLE BLACK RIVER			
COUNTY	TAYLOR	TOWN/CITY/VILLAGE	MEDFORD/DEER CREEK
DESIGN SPEC. REHABILITATION N/A			
DESIGNED BY	SAE	DESIGN CK'D.	ETP
DRAWN BY		TKB	PLANS CK'D.
SAE		SAE	
GENERAL PLAN			SHEET 1 OF 10



PLAN

(TWO SPAN CONTINUOUS 36" PRESTRESSED CONCRETE GIRDER BRIDGE)
(DECK REPLACEMENT)

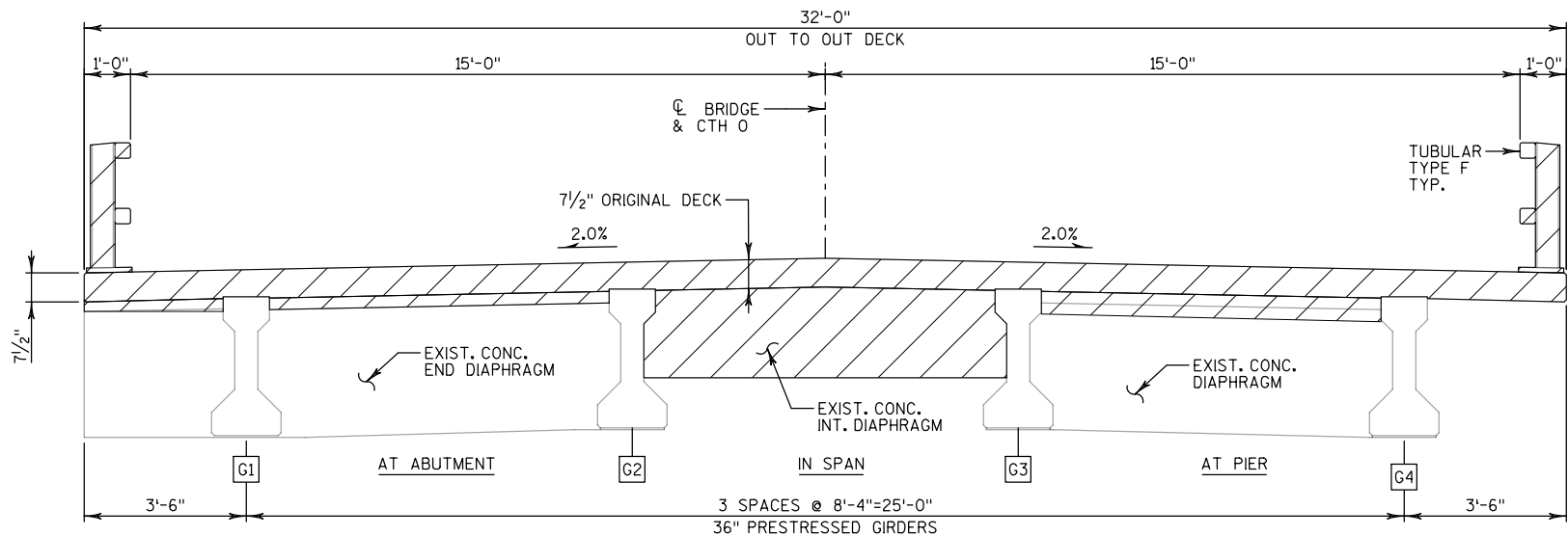


ELEVATION

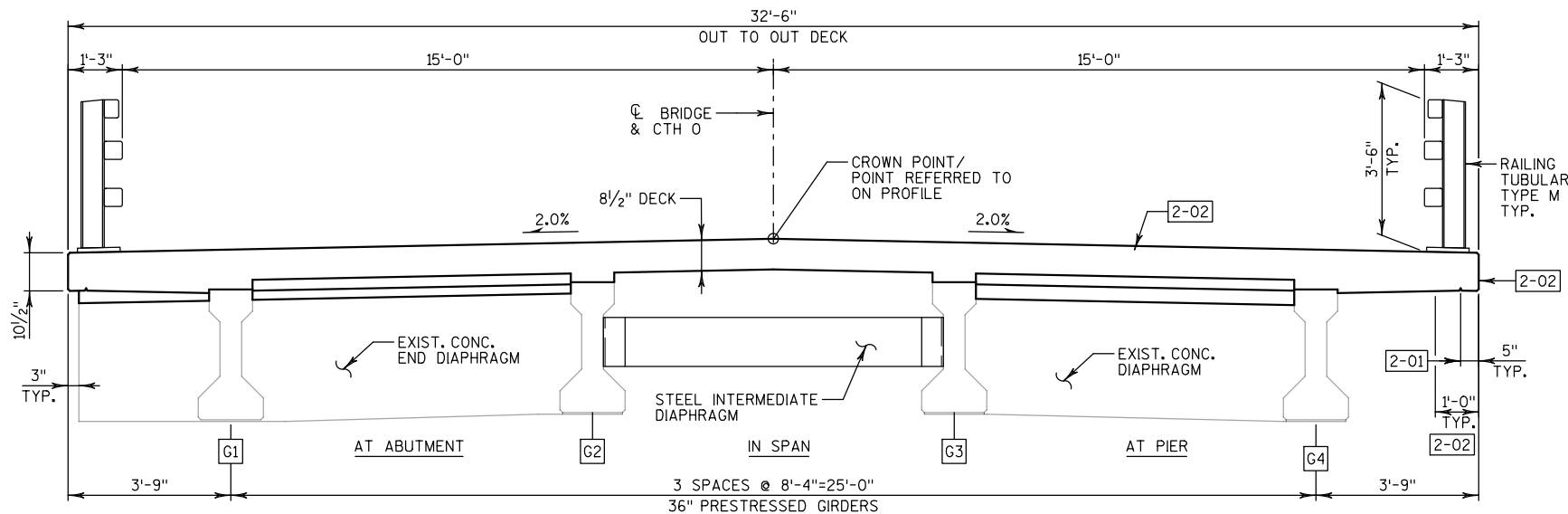
(LOOKING NORTH)
(NORMAL TO LITTLE BLACK RIVER)

BENCH MARK TABLE

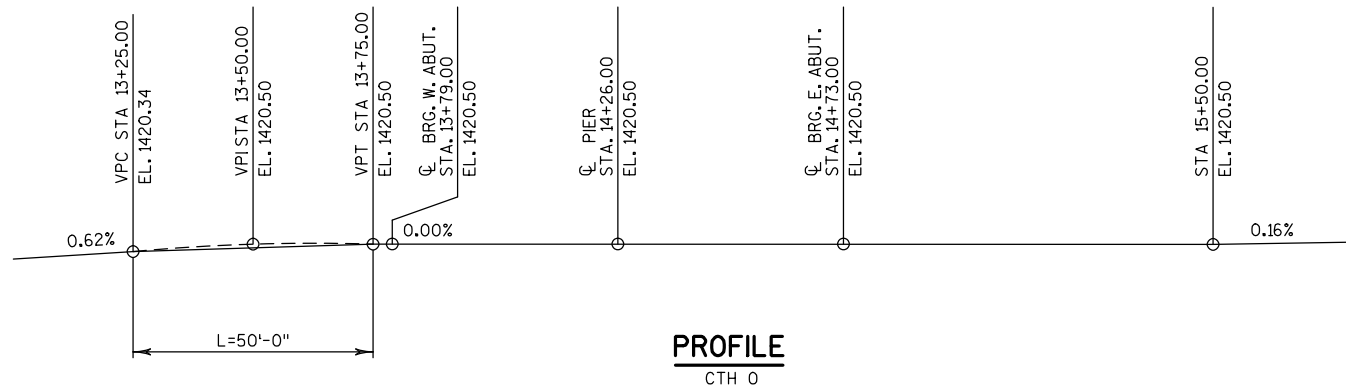
NO.	STATION	DESCRIPTION	ELEVATION
902	12+87.27 54.5' LT	CP MAG	1419.69
903	15+71.87, 14.7' LT	CP NAIL	1420.18
904	13+64.89, 17.0' RT	BENCH MARK SURVEY DISK	1419.87
905	17+64.43, 10.4' RT	CP MAG	1420.47



EXISTING CROSS SECTION
(LOOKING EAST)



PROPOSED CROSS SECTION
(LOOKING EAST)



PROFILE
CTH 0

ABBREVIATIONS:

- ABUT. - ABUTMENT
- BTWN. - BETWEEN
- B.F. - BACK FACE
- BOT. - BOTTOM
- BRG. - BEARING
- CL. - CLEAR
- CONST. - CONSTRUCTION
- DIA. - DIAMETER
- E.F. - EACH FACE
- EXIST. - EXISTING
- F.F. - FRONT FACE
- HORIZ. - HORIZONTAL
- JT. - JOINT
- LONG. - LONGITUDINAL
- PPT. - PARAPET
- PROJ. - PROJECTION
- SPA. - SPACED
- STD. - STANDARD
- SYMM. - SYMMETRICAL
- T&B - TOP AND BOTTOM
- TRANS. - TRANSVERSE
- TYP. - TYPICAL
- VERT. - VERTICAL
- U.N.O. - UNLESS NOTED OTHERWISE

2-03

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

DIMENSIONS SHOWN ARE BASED ON THE ORIGINAL STRUCTURE PLANS.

THE EXISTING STRUCTURE, B-60-31, IS A 2-SPAN PRESTRESSED CONCRETE DECK GIRDER STRUCTURE WITH A WIDTH OF 32'-0" AND END-OF-DECK TO END-OF-DECK LENGTH OF 98'-6 3/4". THE DECK AND RAILINGS ARE TO BE REMOVED AND REPLACED. EXISTING INTERMEDIATE CONCRETE DIAPHRAGMS TO BE REMOVED AND REPLACED WITH INTERMEDIATE STEEL DIAPHRAGMS.

THE FIRST OR FIRST TWO DIGITS OF A BAR MARK SIGNIFIES THE BAR SIZE.

BAR STEEL REINFORCEMENT SHALL BE EMBEDDED 2" CLEAR UNLESS OTHERWISE SHOWN OR NOTED.

UTILIZE EXISTING BAR STEEL REINFORCEMENT WHERE SHOWN AND EXTEND 24 BAR DIAMETERS INTO NEW WORK, UNLESS SPECIFIED OTHERWISE.

THE TOP LAYER OF BAR STEEL REINFORCEMENT IN THE DECK SHALL BE PLACED WITH 2 1/2" OF CLEAR COVER.

ALL CONCRETE REMOVALS SHALL BE DEFINED WITH A 1" DEEP SAW CUT.

BEVEL EXPOSED EDGES 3/4" UNLESS OTHERWISE NOTED.

PROTECTIVE SURFACE TREATMENT TO BE APPLIED TO THE ENTIRE TOP OF DECK, EDGES OF DECK, AND UNDERSIDE OF THE DECK, AS SHOWN.

VARIATIONS TO THE NEW GRADE LINE OVER 1/4" MUST BE SUBMITTED BY THE FIELD ENGINEER TO THE STRUCTURES DESIGN SECTION FOR REVIEW.

TOTAL ESTIMATED QUANTITIES

BID ITEM NUMBER	BID ITEM	UNIT	WEST ABUTMENT	PIER	EAST ABUTMENT	SUPER.	TOTALS
203.0211.S	ABATEMENT OF ASBESTOS CONTAINING MATERIAL B-60-31	EACH	--	--	--	--	1
203.0260	REMOVING STRUCTURE OVER WATERWAY MINIMAL DEBRIS B-60-31	EACH	--	--	--	--	1
206.1001	EXCAVATION FOR STRUCTURES BRIDGES B-60-31	EACH	--	--	--	--	1
210.1500	BACKFILL STRUCTURE TYPE A	TON	250	--	250	--	500
502.0100	CONCRETE MASONRY BRIDGES	CY	0.4	--	0.4	98.4	99
502.3200	PROTECTIVE SURFACE TREATMENT	SY	--	--	--	397	397
502.4204	ADHESIVE ANCHORS NO. 4 BAR	EACH	6	--	6	--	12
502.4205	ADHESIVE ANCHORS NO. 5 BAR	EACH	--	--	--	194	194
505.0600	BAR STEEL REINFORCEMENT HS COATED STRUCTURES	LB	15	--	15	23,190	23,220
506.4000	STEEL DIAPHRAGMS B-60-31	EACH	--	--	--	6	6
509.1500	CONCRETE SURFACE REPAIR	SF	5	--	10	--	15
513.4061	RAILING TUBULAR TYPE M	LF	--	--	--	200	200
516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	10	--	10	--	20
612.0406	PIPE UNDERDRAIN WRAPPED 6-INCH	LF	78	--	78	--	156
645.0111	GEOTEXTILE TYPE DF SCHEDULE A	SY	60	--	60	--	120
SPV.0060.01	FOAM VOID FILLING B-60-31	EACH	--	--	--	--	1
NON-BID ITEMS							
	FILLER	SIZE	--	--	--	--	1/2" & 3/4"
	NAME PLATE	EACH	--	--	--	--	1

ALL ITEMS ARE CATEGORY 0020

LEGEND

- GX INDICATES GIRDER NUMBER.
- INDICATES REMOVAL AREA.
- 2-01 3/4" V-GROOVE. TERMINATE 6" FROM FRONT FACE OF ABUTMENTS.
- 2-02 COAT WITH "PROTECTIVE SURFACE TREATMENT" AS PER THE WISDOT STANDARD SPECIFICATION.
- 2-03 TO BE USED FOR UNDERMINING AT BOTH ABUTMENTS AS DIRECTED BY THE ENGINEER.

STATE PROJECT NUMBER

9547-03-70

THE SUPERSTRUCTURE CONCRETE QUANTITY INCLUDES VOLUME FOR THE AVERAGE ESTIMATED HAUNCH HEIGHT AND OVERHANG TRIANGULAR AREA.

THE HAUNCH CONCRETE QUANTITY IS BASED ON AN AVERAGE DEPTH OF 2 3/4" WHICH IS THE MAXIMUM HAUNCH QUANTITY FOR WHICH THE CONTRACTOR WILL BE PAID.

AT THE BACKFACE OF ABUTMENT ALL VOLUME NOT OCCUPIED BY THE NEW STRUCTURE SHALL BE BACKFILLED WITH STRUCTURE BACKFILL TYPE A.

THE CONTRACTOR SHALL SUPPLY A NEW NAME PLATE IN ACCORDANCE WITH SECTION 502.3.11 OF THE STANDARD SPECIFICATIONS AND THE STANDARD DETAIL DRAWINGS. NAME PLATE TO SHOW ORIGINAL CONSTRUCTION YEAR OF 1983.

PERFORM "CONCRETE SURFACE REPAIR" AS DIRECTED BY THE FIELD ENGINEER. QUANTITIES SHOWN ON THE PLANS ARE APPROXIMATE.

DECK FALSEWORK SHALL BE SUPPORTED ON THE SUBSTRUCTURES, UNLESS AN ALTERNATE METHOD IS APPROVED BY THE ENGINEER.

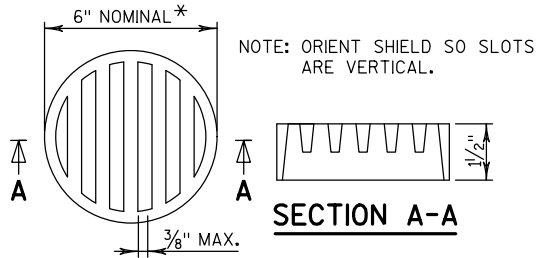
THE UPPER LIMITS OF "EXCAVATION FOR STRUCTURES BRIDGES B-60-31" SHALL BE THE EXISTING GROUNDLINE.

THE QUANTITY FOR BACKFILL STRUCTURE TYPE A IS CALCULATED BASED ON THE DETAIL SHOWN IN THE PLANS.

CARE SHALL BE TAKEN TO AVOID DAMAGE TO THE SHEAR STIRRUPS AND TOP FLANGE OF THE GIRDERS DURING DECK REMOVAL OPERATIONS. THE ENGINEER WILL INSPECT THE GIRDERS AFTER DECK REMOVAL. DAMAGES WILL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.

REMOVAL OF EXISTING FAILED GROUT REPAIR AT BOTH ABUTMENTS INCIDENTAL TO "REMOVING STRUCTURE OVER WATERWAY MINIMAL DEBRIS B-60-31".

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-60-31			
DRAWN BY TKB		PLANS CK'D. SAE	
CROSS SECTION & QUANTITIES			SHEET 2 OF 10
			80



* DIMENSION IS APPROXIMATE. THE GRATE IS SIZED TO FIT INTO A PIPE COUPLING.

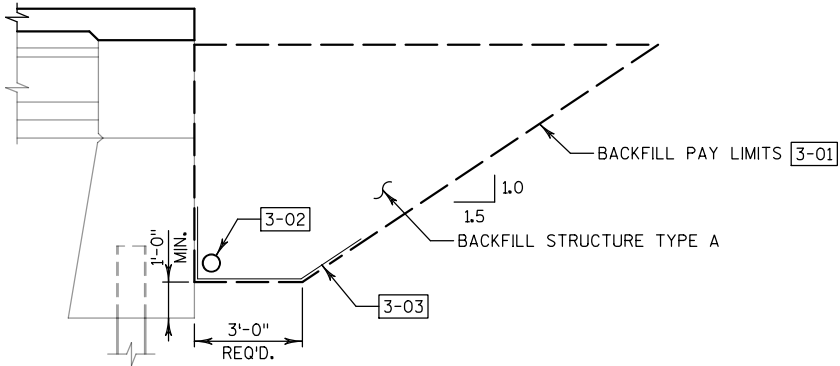
RODENT SHIELD DETAIL

THE RODENT SHIELD, PIPE COUPLING AND SCREWS SHALL BE CONSIDERED INCIDENTAL TO THE BID ITEM "PIPE UNDERDRAIN WRAPPED 6-INCH".

THE RODENT SHIELD SHALL BE A PVC GRATE SIMILAR TO THIS DETAIL. THE GRATE IS COMMERCIALY AVAILABLE AS A FLOOR STRAINER. A PIPE COUPLING IS REQUIRED FOR THE ATTACHMENT OF THIS SHIELD TO THE OUTFALL PIPE. THE SHIELD SHALL BE FASTENED TO THE PIPE COUPLING WITH TWO OR MORE NO. 10 X 1-INCH STAINLESS STEEL SHEET METAL SCREWS.

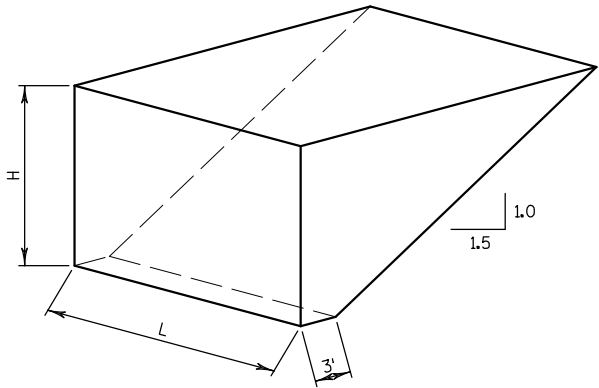
LEGEND

- 3-01
- BACKFILL PAY LIMITS. BACKFILL BEYOND BACKFILL PAY LIMITS SHALL BE INCIDENTAL TO EXCAVATION OF STRUCTURES. LIMITS OF EXCAVATION SHALL BE DETERMINED BY THE CONTRACTOR.
- 3-02
- PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. ATTACH RODENT SHIELD AT ENDS OF PIPE UNDERDRAIN.
- 3-03
- "GEOTEXTILE TYPE DF SCHEDULE A" SHALL BE SET AT THE BOTTOM OF EXCAVATION AND EXTEND 2'-0" ABOVE BOTTOM OF EXCAVATION LIMITS.



STRUCTURE BACKFILL LIMITS

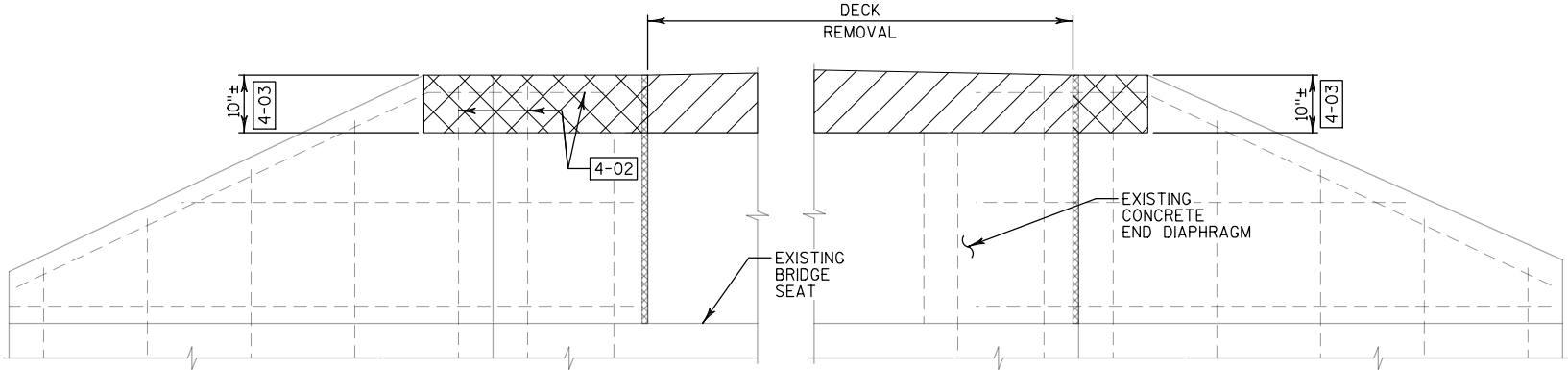
THE BACKFILL QUANTITIES ARE BASED ON THE PAY LIMITS SHOWN ON THE PLANS AND MAY NOT REFLECT ACTUAL PLACED QUANTITIES. "BACKFILL STRUCTURE TYPE A" REQUIRED DIRECTLY BEHIND ABUTMENTS AND ABUTMENTS FOR 3 FEET. BACKFILL PLACED BEYOND PAY LIMITS OR EXCEEDING PLAN QUANTITIES SHALL BE INCIDENTAL TO EXCAVATION FOR STRUCTURES.



ABUTMENT BACKFILL PAY LIMIT DIAGRAM

L = OUT TO OUT OF ABUTMENT, INCLUDING WINGS (FT)
H = AVERAGE ABUTMENT FILL HEIGHT (FT)
EF = EXPANSION FACTOR (1.20 FOR CY BID ITEMS AND 1.00 FOR TON BID ITEMS)
 $V_{CF} = (L)(3.0')(H) + (L)(0.5')(1.5H)(H)$
 $V_{CY} = V_{CF} (EF) / 27$
 $V_{TON} = V_{CY} (2.0)$

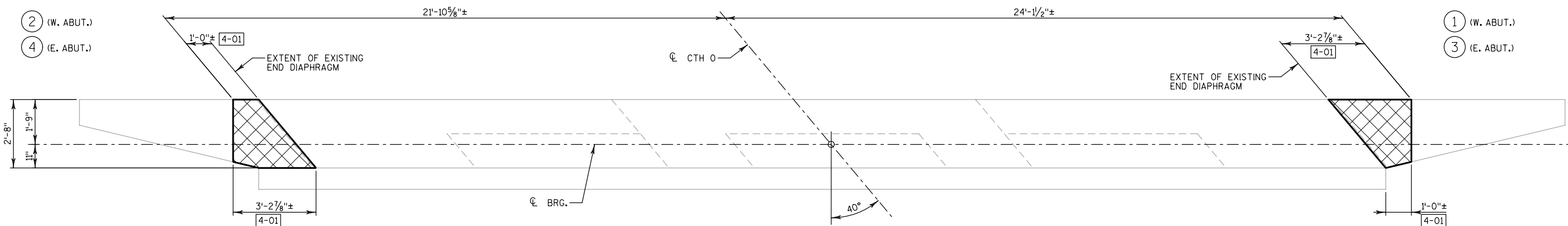
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-60-31			
DRAWN BY		TKB	PLANS CK'D. SAE
MISCELLANEOUS DETAILS			SHEET 3 OF 10
			81



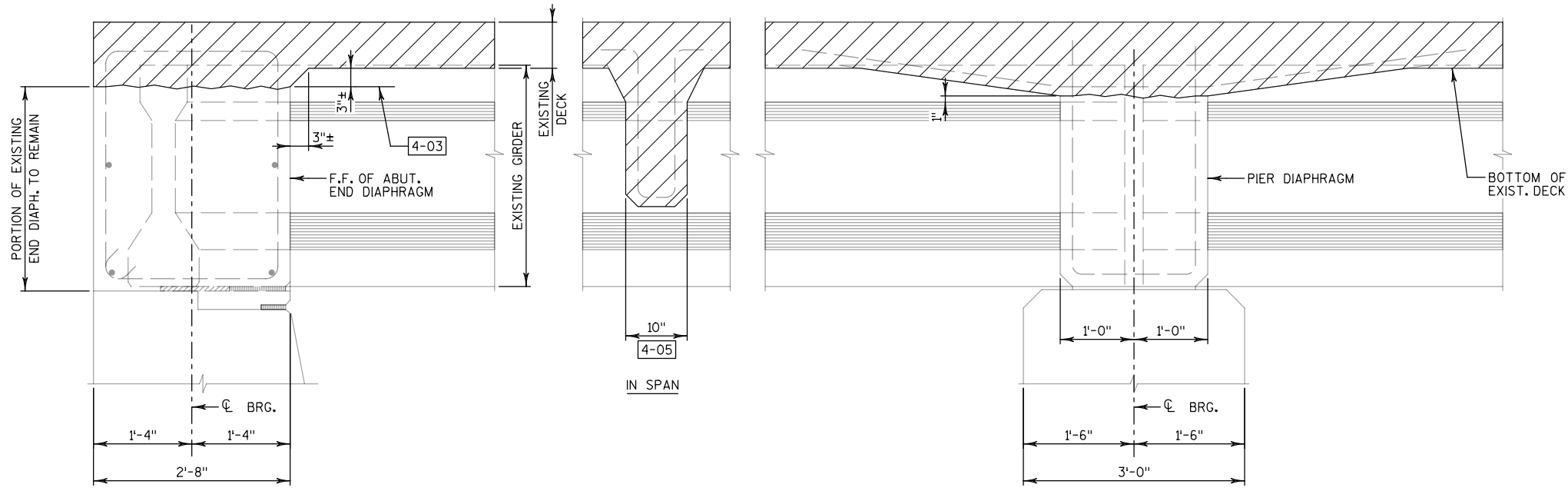
ABUTMENT PART ELEVATION

LEGEND

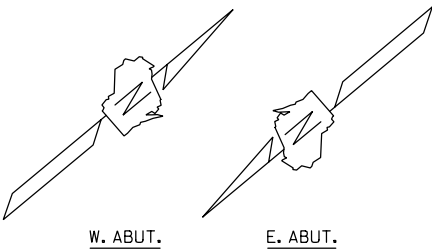
- (X) INDICATES WING NUMBER.
- [Hatched Box] INDICATES DECK REMOVALS AND PARTIAL END DIAPHRAGM REMOVALS.
- [Cross-hatched Box] INDICATES PARTIAL WING REMOVALS.
- [4-01] EXISTING 1/2" FILLER INCLUDED IN REMOVAL LENGTH.
- [4-02] CLEAN, STRAIGHTEN, PRESERVE AND INCORPORATE EXISTING REINFORCEMENT INTO NEW WORK. CUT TO MAINTAIN 2" CLEAR FROM EDGE OF NEW WORK. REPLACE DAMAGED OR CORRODED REINFORCEMENT AS DIRECTED BY ENGINEER.
- [4-03] REMOVE TO BOTTOM OF EXISTING DECK FILLET BETWEEN DECK AND END DIAPHRAGM.
- [4-04] DIMENSION IS TAKEN PERPENDICULAR TO C SUBSTRUCTURES UNLESS NOTED OTHERWISE.
- [4-05] DIMENSION IS TAKEN PARALLEL TO C CTH O.



ABUTMENT PLAN



PART LONGITUDINAL SECTION



NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-60-31			
DRAWN BY TKB		PLANS CK'D. SAE	
REMOVAL DETAILS			SHEET 4 OF 10



DIMENSIONS IN BENDING DETAILS ARE CUT-TO-CUT OF BARS						
BAR MARK	NO. REQ'D	LENGTH	BENT	BAR SERIES	LOCATION	
COATED BARS					TOTAL WEIGHT = 30 LBS	
A401	12	1'-11"			WINGS	VERT.
A402	8	3'-0"			WINGS	HORIZ.

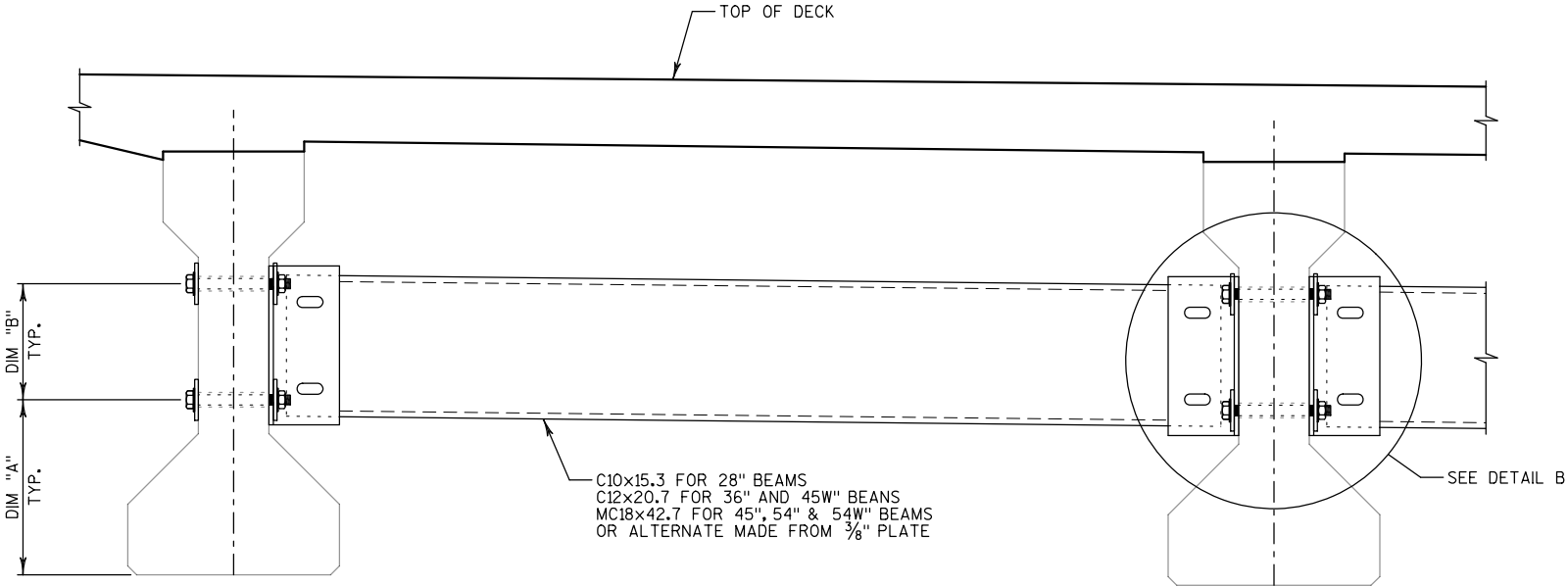
LEGEND

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-60-31			
DRAWN BY		TKB	PLANS CK'D. SAE
ABUTMENT DETAILS		SHEET 5 OF 10	
		83	

83

TABLE

GIRDER HEIGHT	DIM. "A"	DIM. "B"	DIM. "L"	* DIM. "X"
28"	1'-0 7/8"	5 7/8"	9 1/2"	2 1/4"
36"	1'-2 7/8"	9 7/8"	1'-1 1/2"	3 1/4"
45"	1'-5 3/8"	1'-1 7/8"	1'-5 1/2"	2 1/4"
45W"	1'-9 1/8"	8 7/8"	1'-0 1/2"	2 3/4"
54"	1'-7 7/8"	1'-5 7/8"	1'-9 1/2"	4 1/4"
54W"	1'-9 1/8"	1'-5 7/8"	1'-9 1/2"	4 1/4"



NOTES

REPLACE EXISTING INTERMEDIATE CONCRETE DIAPHRAGMS WITH STEEL DIAPHRAGMS PER THE DETAILS ON THIS SHEET.

ALL DIAPHRAGM MATERIAL NOT EMBEDDED IN THE CONCRETE GIRDER SHALL BE PAID FOR AT THE UNIT PRICE BID FOR "STEEL DIAPHRAGMS B-60-31", EACH.

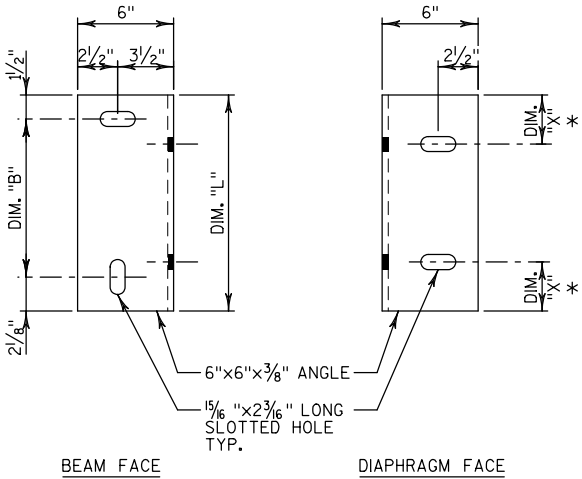
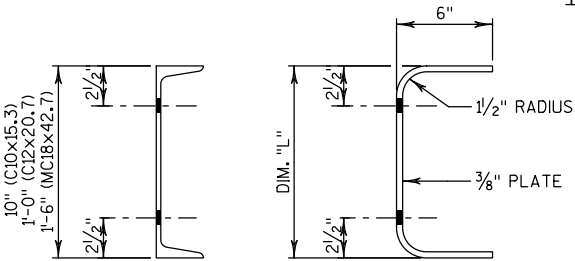
EACH DIAPHRAGM BETWEEN GIRDERS SHALL CONSTITUTE ONE UNIT.

ALL DIAPHRAGM STRUCTURAL STEEL SHALL BE ASTM A709 GRADE 36.

ALL DIAPHRAGM MATERIAL INCLUDING BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED AFTER FABRICATION.

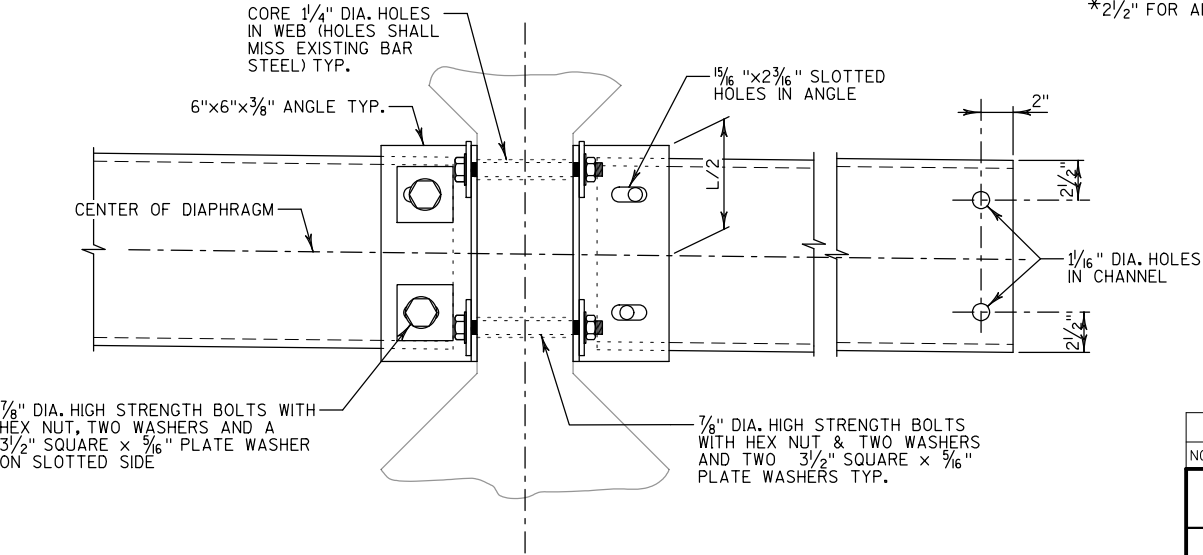
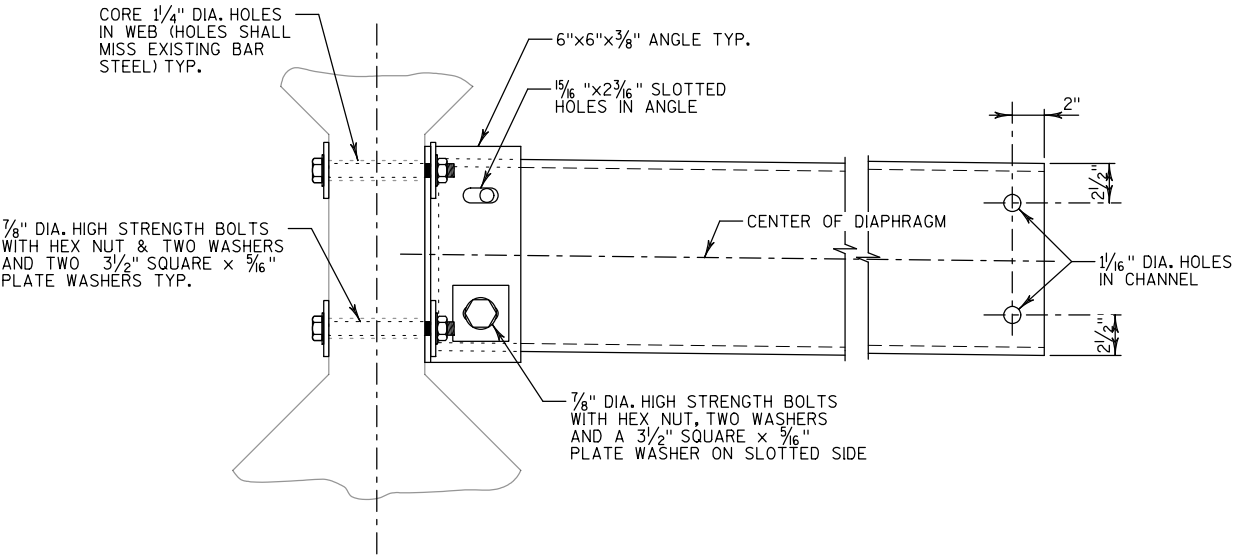
STEEL DIAPHRAGM TO CONCRETE WEB CONNECTION SHALL BE SNUG-TIGHT PLUS 1/4 TURN, UNLESS NOTED OTHERWISE. HIGH STRENGTH BOLTS FOR WEB CONNECTION SHALL MEET THE REQUIREMENTS FOR ASTM A325 OR ASTM A449.

FIELD DRILLING OF 1/4" DIA. HOLES IN WEBS AND FIELD VERIFYING DIAPHRAGM LENGTHS PRIOR TO FABRICATION IS INCLUDED IN THE PRICE BID FOR "STEEL DIAPHRAGMS B-60-31".



DIAPHRAGM SUPPORT

*2 1/2" FOR ALTERNATE PLATE DIAPHRAGM



DETAIL B

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-60-31			
DRAWN BY TKB		PLANS CK'D. SAE	
INTERMEDIATE STEEL DIAPHRAGM			SHEET 6 OF 10

LEGEND

- 7-01 3/4" CONTINUOUS DRIP "V" GROOVE. END 6" FROM FRONT FACE OF ABUTMENTS.
- 7-02 COAT WITH "PROTECTIVE SURFACE TREATMENT" AS PER THE STANDARD SPECIFICATION.
- 7-03 SEE ABUTMENT SHEETS FOR DETAILS.
- 7-04 18" RUBBERIZED MEMBRANE WATERPROOFING. SEAL ALL HORIZONTAL AND VERTICAL JOINTS ON BACKFACE.
- 7-05 DIMENSION IS TAKEN PARALLEL TO C CTH O.
- 7-06 INCORPORATE EXISTING REINFORCEMENT INTO NEW WORK
- 7-07 REMOVAL LINE. REMOVALS SHALL BE DEFINED BY A 1" DEEP SAW CUT. SALVAGE EXISTING REINFORCEMENT AND INCORPORATE INTO NEW WORK.
- 7-08 ADHESIVE ANCHORS NO. 5 BAR. EMBED 1'-0" MIN. INCREASE EMBEDMENT IF NECESSARY TO MAINTAIN COVER AT TOP.
- 7-09 NOT USED.
- 7-10 SEE "TUBULAR STEEL RAILING TYPE M" SHEET FOR ADDITIONAL REINFORCEMENT DETAILS.

S417 @ EXISTING STIRRUP SPACING (VARIES 6" TO 1'-9"), NOT TO EXCEED 1'-0" MAX. CTRS. (TIP BARS IF REQ'D TO MAINTAIN CLEARANCE)

1/2" MIN. CL. TYP.

FIELD BEND EXIST. STIRRUPS AS REQ'D TO MAINTAIN CLEAR DISTANCES

S418 LAP 1'-8" MIN.

EXISTING GIRDER

HAUNCH REINFORCEMENT DETAIL

PART LONGITUDINAL SECTION

(DIMENSIONED PERPENDICULAR TO C SUBSTRUCTURES U.N.O.)

CROSS SECTION THRU DECK

(LOOKING EAST)

3 SPACES @ 8'-4"=25'-0"
EXISTING 36" PRESTRESSED GIRDERS

NEW STEEL INTERMEDIATE DIAPHRAGM
SEE "STEEL INTERMEDIATE DIAPHRAGM"
SHEET FOR DETAILS

EXIST. CONC.
DIAPHRAGM

IN SPAN

AT PIER

IN SPAN

AT ABUTMENT

AT ABUTMENT

EXIST. CONC.
END DIAPHRAGM

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7-XX SEE "SUPERSTRUCTURE DETAILS-1" SHEET FOR CALLOUTS AND NOTES.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-60-31			
DRAWN BY		TKB	PLANS CK'D. SAE
SUPERSTRUCTURE DETAILS-2		SHEET 8 OF 10	
		86	

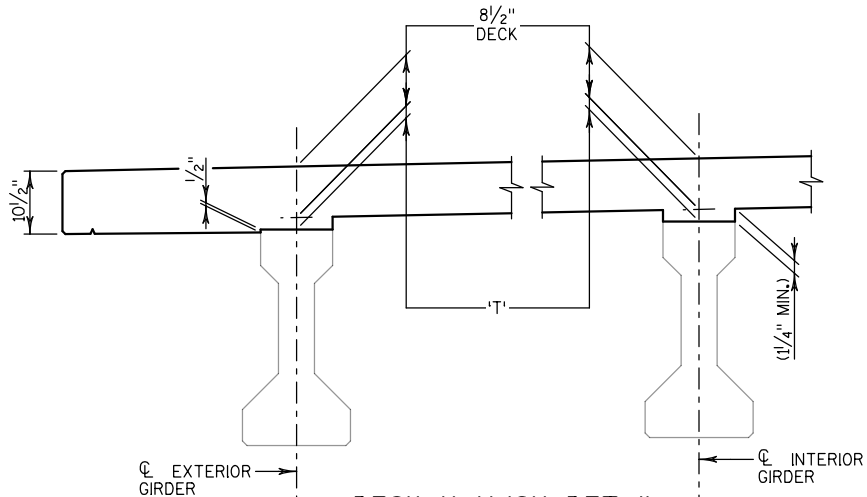
TOP OF DECK ELEVATIONS

LOCATION	W. ABUT.	0.1 PT	0.2 PT	0.3 PT	0.4 PT	0.5 PT	0.6 PT	0.7 PT	0.8 PT	0.9 PT	PIER	0.1 PT	0.2 PT	0.3 PT	0.4 PT	0.5 PT	0.6 PT	0.7 PT	0.8 PT	0.9 PT	E. ABUT.
NORTH EDGE OF SLAB	1420.18	1420.18	1420.18	1420.18	1420.18	1420.18	1420.18	1420.18	1420.18	1420.18	1420.18	1420.18	1420.18	1420.18	1420.18	1420.18	1420.18	1420.18	1420.18	1420.18	1420.18
GIRDER 1	1420.25	1420.25	1420.25	1420.25	1420.25	1420.25	1420.25	1420.25	1420.25	1420.25	1420.25	1420.25	1420.25	1420.25	1420.25	1420.25	1420.25	1420.25	1420.25	1420.25	1420.25
GIRDER 2	1420.42	1420.42	1420.42	1420.42	1420.42	1420.42	1420.42	1420.42	1420.42	1420.42	1420.42	1420.42	1420.42	1420.42	1420.42	1420.42	1420.42	1420.42	1420.42	1420.42	1420.42
CROWN / PGL	1420.50	1420.50	1420.50	1420.50	1420.50	1420.50	1420.50	1420.50	1420.50	1420.50	1420.50	1420.50	1420.50	1420.50	1420.50	1420.50	1420.50	1420.50	1420.50	1420.50	1420.50
GIRDER 3	1420.42	1420.42	1420.42	1420.42	1420.42	1420.42	1420.42	1420.42	1420.42	1420.42	1420.42	1420.42	1420.42	1420.42	1420.42	1420.42	1420.42	1420.42	1420.42	1420.42	1420.42
GIRDER 4	1420.25	1420.25	1420.25	1420.25	1420.25	1420.25	1420.25	1420.25	1420.25	1420.25	1420.25	1420.25	1420.25	1420.25	1420.25	1420.25	1420.25	1420.25	1420.25	1420.25	1420.25
SOUTH EDGE OF SLAB	1420.18	1420.18	1420.18	1420.18	1420.18	1420.18	1420.18	1420.18	1420.18	1420.18	1420.18	1420.18	1420.18	1420.18	1420.18	1420.18	1420.18	1420.18	1420.18	1420.18	1420.18

DEAD LOAD DEFLECTIONS

LOCATION	C/L BRG. W. ABUT.	0.1 PT	0.2 PT	0.3 PT	0.4 PT	0.5 PT	0.6 PT	0.7 PT	0.8 PT	0.9 PT	C/L BRG. PIER	0.1 PT	0.2 PT	0.3 PT	0.4 PT	0.5 PT	0.6 PT	0.7 PT	0.8 PT	0.9 PT	C/L BRG. E. ABUT.
EXT GIRDERS	0.0	0.1	0.2	0.3	0.3	0.4	0.3	0.3	0.2	0.1	0.0	0.1	0.2	0.3	0.3	0.4	0.3	0.3	0.2	0.1	0.0
INT GIRDERS	0.0	0.1	0.2	0.3	0.3	0.3	0.3	0.3	0.2	0.1	0.0	0.1	0.2	0.3	0.3	0.3	0.3	0.3	0.2	0.1	0.0

DEFLECTIONS SHOWN ARE IN INCHES



DECK HAUNCH DETAIL

IF 1 1/4" MINIMUM HAUNCH HEIGHT AT EDGE OF GIRDER CANNOT BE MAINTAINED, THE GRADE LINE MAY BE REVISED BY THE ENGINEER AT THE OPTION OF THE CONTRACTOR, THE PLAN DECK THICKNESS SHALL BE HELD. NOTIFY THE STRUCTURES SECTION IF THE GRADE LINE IS RAISED FROM THE PLAN PROFILE BY MORE THAN 1/2".

'T' = HAUNCH HEIGHT AT CENTERLINE OF GIRDER.

TO DETERMINE 'T': AFTER ALL STRUCTURAL STEEL HAS BEEN ERECTED, ELEVATIONS OF THE TOP FLANGES SHALL BE TAKEN AT CENTERLINE OF BEARINGS AND AT 0.1 POINTS.

TOP OF DECK ELEVATIONS AT FINAL GRADE

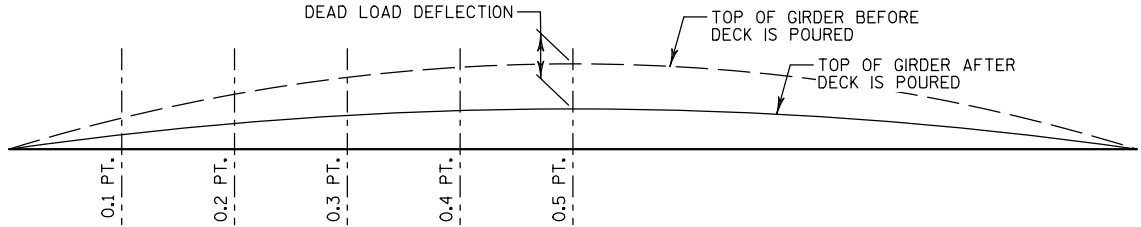
- TOP OF EXISTING GIRDER

+ CONCRETE ONLY DEFLECTION; DOWNWARD DEFLECTION IS ADDED, UPWARD DEFLECTION IS SUBTRACTED.

- DECK THICKNESS

= 'T' VALUE FOR SETTING HAUNCH

NOTE: AN AVERAGE HAUNCH ('T') OF 2 3/4" WAS USED IN THE QUANTITY "CONCRETE MASONRY BRIDGES".



DEAD LOAD DEFLECTION DIAGRAM

NOTE: DEAD LOAD DEFLECTIONS ARE THEORETICAL AND MAY VARY FROM ACTUAL FIELD CONDITIONS

STATE PROJECT NUMBER

9547-03-70

BILL OF BARS - SUPERSTRUCTURE

DIMENSIONS IN BENDING DETAILS ARE OUT-TO-OUT OF BAR.

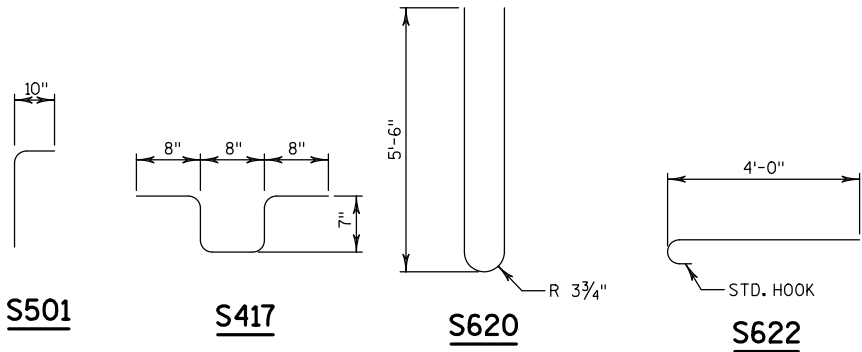
BAR MARK	NO. REQ'D	LENGTH	BENT	BAR SERIES	LOCATION	
COATED BARS					TOTAL WEIGHT = 23,190 LBS	
S501	194	2'-10"	X		ANCHORS AT ABUT & PIER DIAPHRAGMS	VERT.
S602	4	42'-1"			DECK - @ ABUTMENTS	TRANS.
S510	227	32'-2"			DECK - TOP & BOTTOM	TRANS.
S511	84	16'-10"		X	DECK - BOTTOM	TRANS.
S412	147	33'-11"			DECK - BOTTOM	LONGIT.
S413	100	34'-10"			DECK - TOP (IN SPAN)	LONGIT.
S514	50	32'-0"			DECK - TOP (@ PIER)	LONGIT.
S515	47	18'-0"			DECK - TOP (@ PIER)	LONGIT.
S516	84	16'-6"		X	DECK - TOP	TRANS.
S417	468	2'-10"	X		DECK - HAUNCH REINFORCEMENT	VERT.
S418	24	32'-6"			DECK - OVER GIRDERS IN HAUNCH	LONGIT.
S620	64	11'-4"	X		DECK - TOP AT RAIL POSTS	TRANS.
S621	112	6'-0"			DECK - TOP @ INT. RAIL POSTS	LONGIT.
S622	16	4'-8"	X		DECK - TOP @ EXT. RAIL PCSTS	LONGIT.

THE FIRST DIGIT OR FIRST TWO DIGITS OF THE BAR MARK SIGNIFIES THE BAR SIZE.

BAR SERIES TABLE

BAR MARK	NO. REQD	LENGTH
S511	2 SERIES OF 42	1'-6" TO 32'-1"
S516	2 SERIES OF 42	1'-2" TO 31'-9"

BUNDLE AND TAG EACH SERIES SEPARATELY.



NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-60-31			
DRAWN BY TKB		PLANS CK'D. SAE	
SUPERSTRUCTURE DETAILS-3		SHEET 9 OF 10	
		87	

LEGEND

- 10-01

W6x25 WITH 1/8"x1/2" HORIZ. SLOTS ON EACH SIDE OF POST FOR BOLT 10-06. CUT BOTTOM OF POST TO MATCH CROSS SLOPE OF ROADWAY. PLACE POST VERTICAL. PLACE POSTS NORMAL TO GRADE LINE.
- 10-02

PLATE 1/4"x11 3/4"x1'-8" WITH 1 1/16" DIA. OVERSIZED HOLES FOR ANCHOR BOLTS 10-03. WELD TO 10-01 AS SHOWN.
- 10-03

ASTM A449 - 1/8" DIA. ANCHOR BOLTS WITH NUT AND HARDENED WASHER (ALL GALVANIZED). 5 REQ'D. PER POST. THREAD 3" AND PLACE NORMAL TO PLATE 10-02. CHAMFER TOP OF BOLTS BEFORE THREADING. USE 1'-9" LONG IN ABUTMENT WINGS. USE 10 3/4" LONG AT ALL OTHER LOCATIONS. (AN EQUIVALENT THREADED ROD WITH NUTS AND HARDENED WASHERS MAY BE SUBSTITUTED FOR ANCHOR BOLTS IN WINGS IF REQ'D. FOR CONSTRUCTABILITY.)
- 10-04

5/8"x11"x1'-8" ANCHOR PLATE (GALVANIZED) WITH 1 1/16" DIA. HOLES FOR ANCHOR BOLTS 10-03.
- 10-05

TS 5x4x0.25 STRUCTURAL TUBING. ATTACH TO 10-01 WITH 10-06.
- 10-5A

TS 5x5x0.25 STRUCTURAL TUBING. ATTACH TO 10-01 WITH 10-06.
- 10-06

7/8" DIA. A325 SLOTTED ROUND HEAD BOLT WITH NUT, 3/16"x1 5/8"x1 5/8" MIN. WASHER, AND LOCK WASHER (2 REQ'D. AT EACH RAIL TO POST LOCATION.)
- 10-07

1/2" THK. BACK-UP PLATE WITH 2 - 7/8"x1/2" THREADED SHOP WELDED STUDS (10-12). BOLT TO RAIL AS SHOWN IN DETAIL. REQUIRED AT THRIE BEAM GUARD RAIL ATTACHMENTS ONLY. PLACE SYMMETRICALLY ABOUT TUBES 10-5A.
- 10-08

1" DIA. HOLES IN PLATE 10-07 & TUBES 10-5A FOR 7/8" DIA. A325 BOLTS WITH HEX NUTS AND WASHERS. 6 HOLES IN TUBES AND PLATE 10-07.
- 10-09

SPLICE SLEEVE FABRICATED FROM 1/4" PLATE. PROVIDE "SLIDING FIT".
- 10-10

3/8"x3 5/8"x2'-4" PLATE. 2 PER RAIL. USED IN 10-05 & 10-5A.
- 10-10A

3/8"x2 5/8"x2'-4" PLATE USED IN 10-05, 3/8"x3 5/8"x2'-4" PLATE USED IN 10-5A. 2 PER RAIL.
- 10-11

7/8" DIA. A325 ROUND HEAD BOLT WITH NUT, WASHER, AND LOCK WASHER. USE 1 5/16" x1 1/4" LONGIT. SLOTTED HOLES IN PLATE 10-10A AT FIELD JOINTS AND 1 5/16" x2 1/4" MIN. LONGIT. SLOTTED HOLES AT EXP. JOINTS IN PLATE 10-10A. PROVIDE 1 5/16" DIA. ROUND HOLES IN TUBES 10-05 AND 10-5A.
- 10-12

7/8" DIA. x 1/2" LONG THREADED SHOP WELDED STUDS (2 REQ'D).
- 10-13

3/8"x8"x1'-6" PLATE. BOLT TO RAIL AS SHOWN IN DETAIL. REQ'D. AT THRIE BEAM GUARD RAIL ATTACHMENTS ONLY. PLACE SYM. ABOUT TUBES 10-5A.
- 10-14

7/8" DIA. x 2" LONG A325 HEX BOLT WITH NUT AND WASHER (5 REQ'D.).
- 10-15

1" DIA. HOLES IN TUBES 10-5A FOR 7/8" DIA. A325 ROUND HEAD BOLT WITH NUT, WASHER AND LOCK WASHER (4 REQ'D.). 4 HOLES IN TUBES.
- 10-16

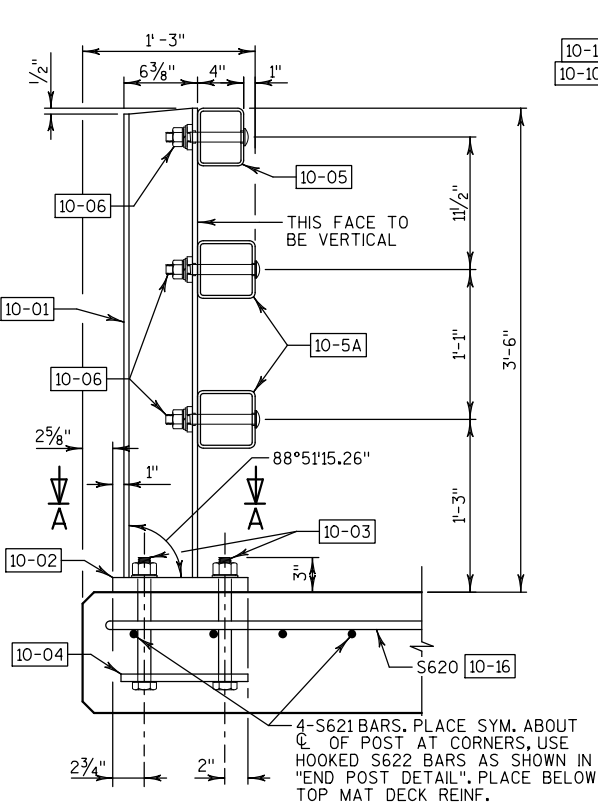
TIE BELOW TOP MAT OF STEEL.
- 10-17

1/4" TO 3/4".

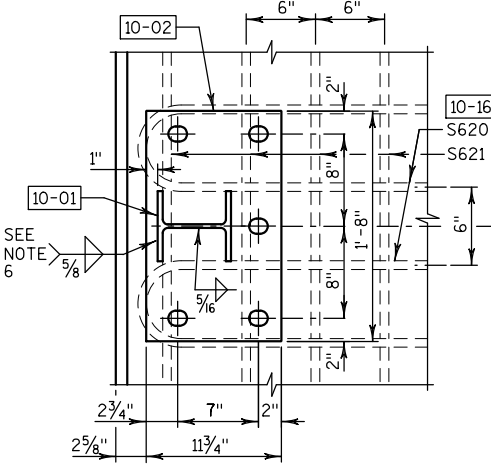
* ANCHOR BOLT ASSEMBLY MAY BE TACK WELDED, EITHER IN THE SHOP, OR IN THE FIELD AFTER THE ANCHOR PLATE IS PLACED.

NOTES

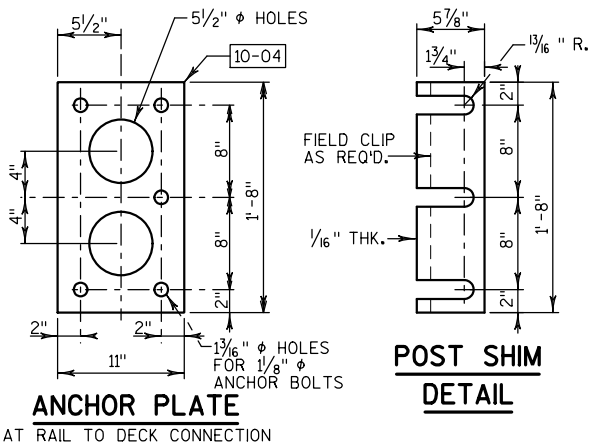
1. BID ITEM SHALL BE "RAILING TUBULAR TYPE M" WHICH INCLUDES ALL ITEMS SHOWN.
2. RAIL POST AND BASE PLATES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A709 GRADE 50. HOLLOW RAILING STRUCTURAL TUBING SHALL CONFORM TO THE REQUIREMENTS OF ASTM A500 GRADE B OR C WITH A CERTIFIED FY = 50 KSI. ANCHOR PLATES, AND SPLICE TUBE PLATES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A709 GRADE 36.
3. THE NUT SECURING THE POST BASE PLATE TO THE CONCRETE SHALL BE TIGHTENED TO A SNUG FIT AND GIVEN AN ADDITIONAL 1/8 TURN.
4. RAILS SHALL BE CONTINUOUS OVER A MINIMUM OF THREE (3) POSTS WITHOUT SPLICES WHERE POSSIBLE. RAILS SHALL BE SPLICED IN A PANEL OVER EXPANSION JOINTS.
5. ENDS OF TUBE SECTIONS SHALL BE SAWED. GRIND SMOOTH EXPOSED EDGES. ALL CUT ENDS SHALL BE TRUE AND SMOOTH.
6. WELD IS THE SAME ON BOTH FLANGES. FLANGE WELD DOES NOT REQUIRE MAGNETIC PARTICLE TESTING.
7. FILL BOLT SLOT OPENINGS IN POST SHIMS AND PLATE 10-02 AND CAULK AROUND PERIMETER OF PLATE 10-02 WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. STEEL POST SHIMS MAY BE USED UNDER POSTS WHERE REQ'D. FOR ALIGNMENT.
8. POST BASE PLATES SHALL BE FLAT WITH ALL SURFACES SMOOTH AND FREE FROM WARP AND ALL EDGES SMOOTH, STRAIGHT AND VERTICAL. ALL PLATE CUTS SHALL BE MACHINE OR MACHINE FLAME CUT.
9. ALL MATERIAL SHALL BE GALVANIZED AFTER FABRICATION. PRIOR TO GALVANIZING, ALL STEEL RAILING POSTS & STEEL TUBING SHALL BE GIVEN A NO. 6 BLAST CLEANING BY SSPC SPECIFICATIONS.



SECTION THRU RAILING ON DECK

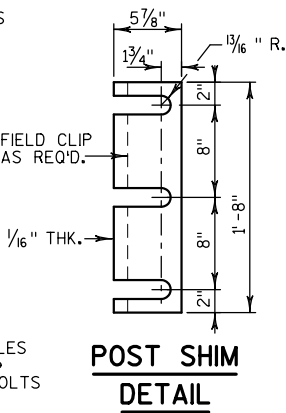


SECTION A-A

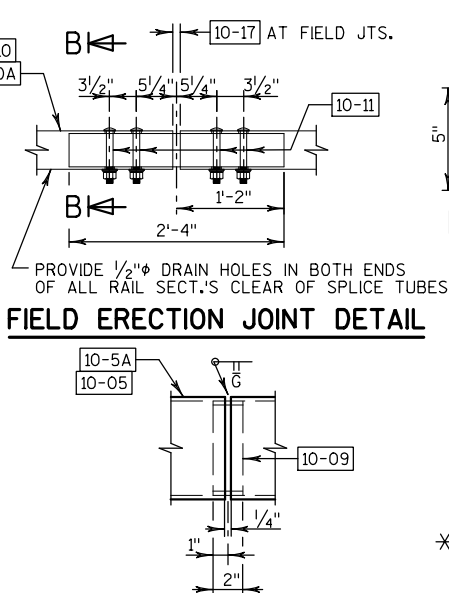


ANCHOR PLATE

AT RAIL TO DECK CONNECTION



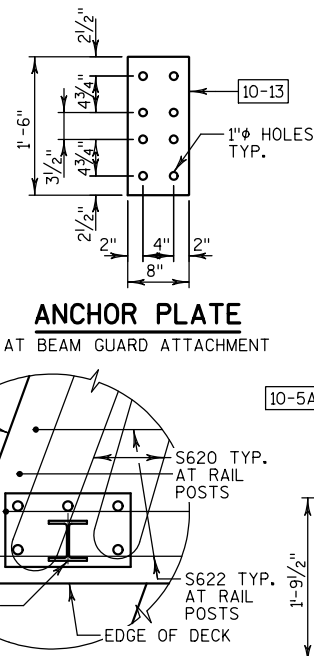
POST SHIM
DETAIL



FIELD ERECTION JOINT DETAIL

SHOP RAIL SPLICE DETAIL

LOCATION MUST BE SHOWN ON SHOP DRAWINGS

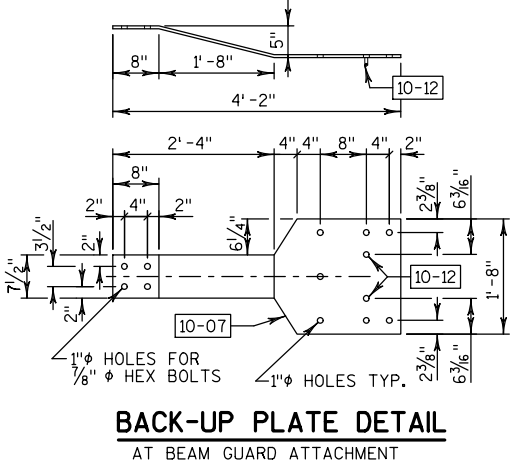


ANCHOR PLATE

AT BEAM GUARD ATTACHMENT

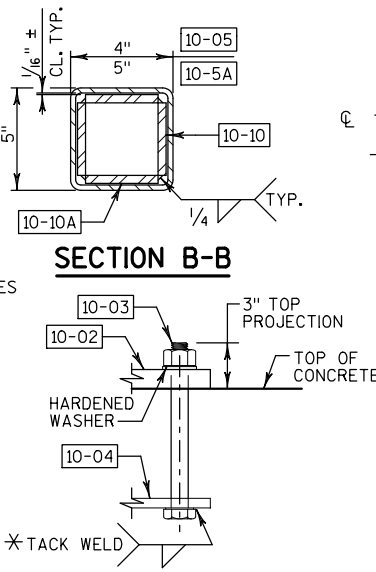
END POST DETAIL

REINFORCEMENT AT CORNERS



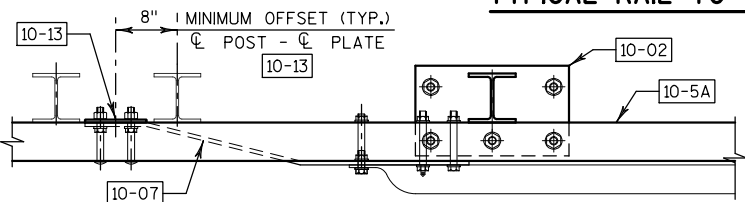
BACK-UP PLATE DETAIL

AT BEAM GUARD ATTACHMENT



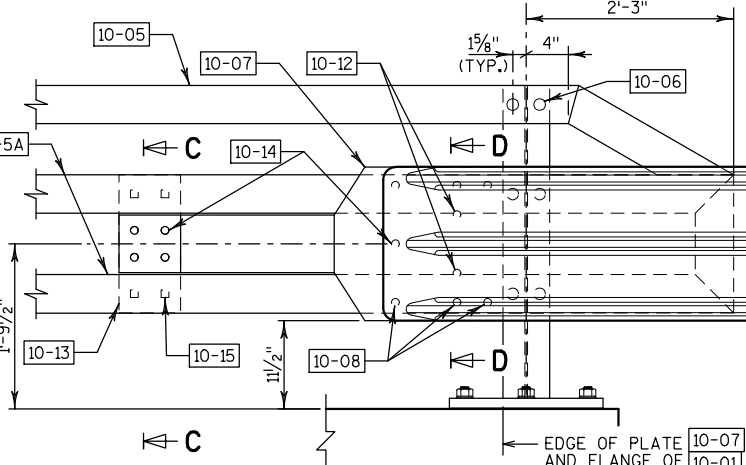
SECTION B-B

ANCHOR BOLTS



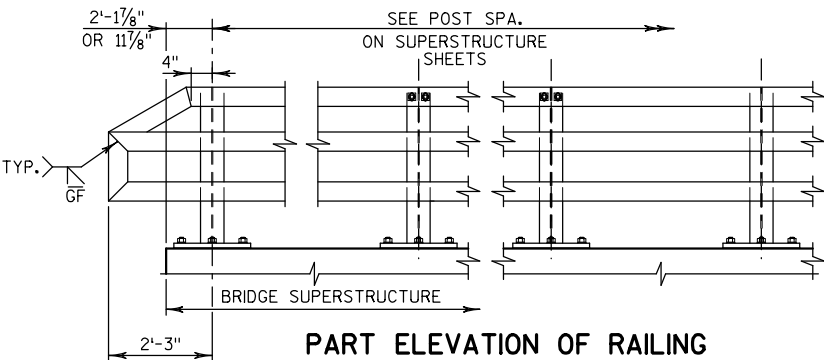
TOP VIEW AT END POST

THRIE BEAM RAIL ATTACHMENT

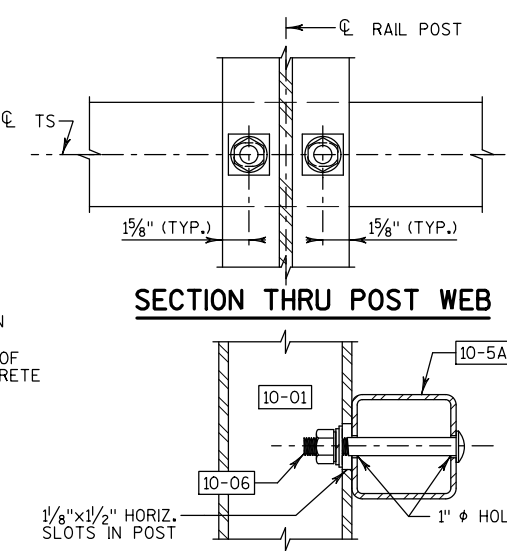


DETAIL AT END POST

THRIE BEAM RAIL ATTACHMENT



PART ELEVATION OF RAILING

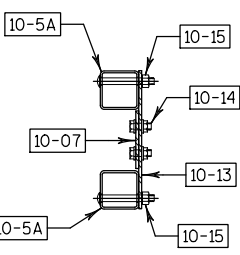


SECTION THRU POST WEB

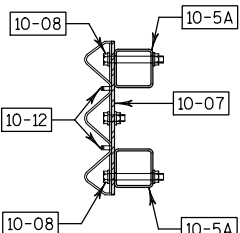
SECTION THRU RAIL

NOTE: CONNECTIONS AT LOWER RAILS SHOWN. CONNECTIONS AT TOP RAIL SIMILAR.

TYPICAL RAIL TO POST CONNECTIONS



SECTION C-C



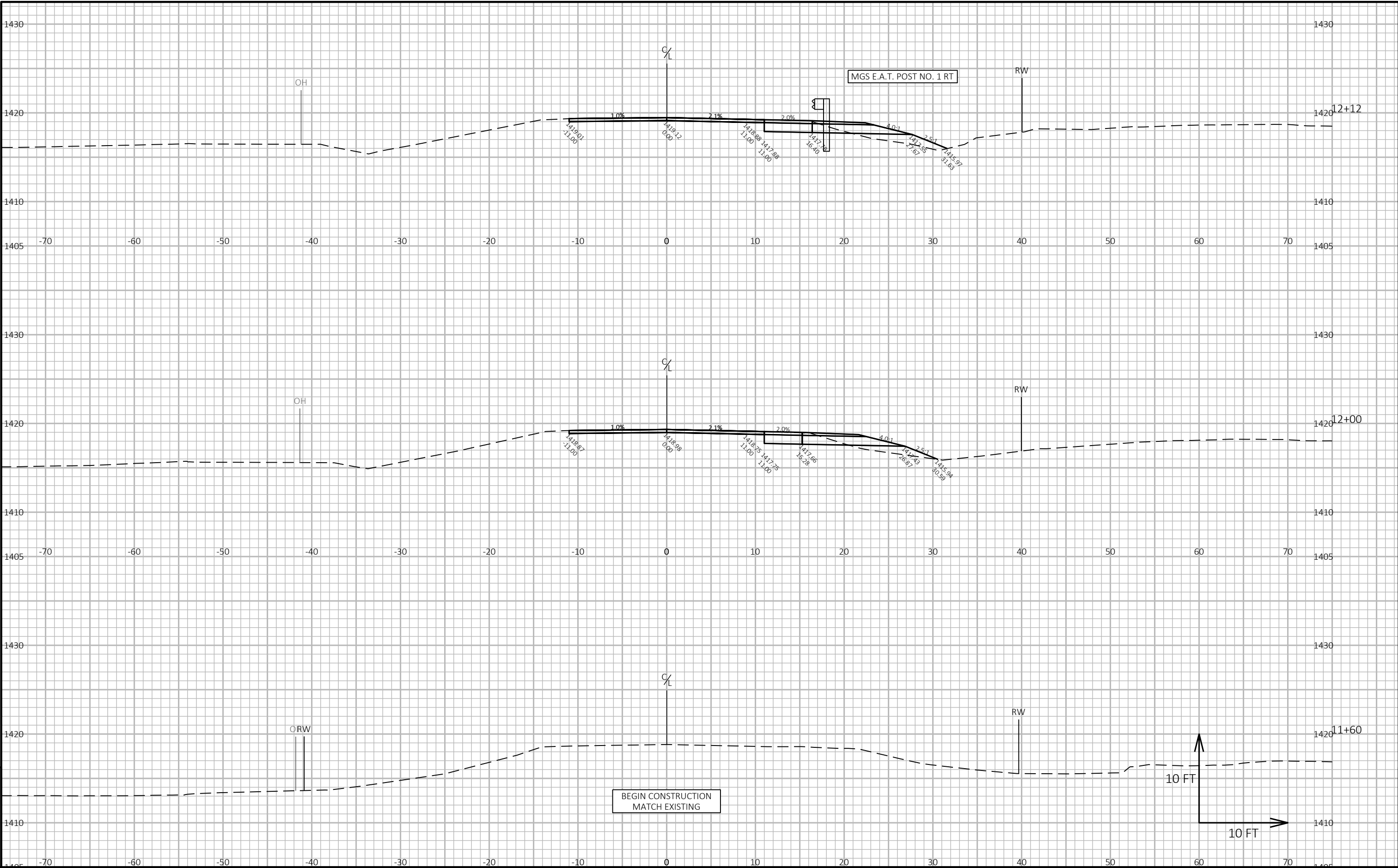
SECTION D-D

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-60-31			
DRAWN BY TKB		PLANS CK'D. SAE	
TUBULAR STEEL RAILING TYPE M			SHEET 10 OF 10
			88

DIVISION - CTH O										
STATION	REAL STATION	DISTANCE	AREA (SF)		INCREMENTAL VOL (CY) (UNADJUSTED)			CUMULATIVE VOL (CY)		
			CUT	FILL	CUT NOTE 1	SALVAGED/UNUSABLE PAVEMENT MATERIAL NOTE 2	FILL NOTE 3	CUT NOTE 1	EXPANDED FILL 1.25	MASS ORDINATE NOTE 4
11+60.00	1160.00	0.00	0.03	0.00	0	0	0	0	0	0
12+00.00	1200.00	40.00	4.08	5.59	3	7	4	3	5	-9
12+11.61	1211.61	11.61	8.18	7.22	3	7	3	6	9	-17
12+36.60	1236.60	24.99	10.91	4.53	9	7	5	15	15	-21
12+50.00	1250.00	13.40	11.66	2.40	6	7	2	21	18	-25
12+61.59	1261.59	11.59	12.78	0.91	5	7	1	26	19	-28
12+72.22	1272.22	10.63	14.05	0.00	5	7	0	31	19	-30
13+00.00	1300.00	27.78	15.91	0.95	15	7	0	46	19	-22
13+50.00	1350.00	50.00	36.07	40.64	48	7	39	94	68	-30
13+63.37	1363.37	13.37	35.57	51.91	18	7	23	112	96	-47
STRUCTURE B-60-0031										
14+85.71	1485.71	122.34	36.92	87.25				112	96	-47
15+00.00	1500.00	14.29	39.34	69.44	20	0	41	132	148	-79
15+01.52	1501.52	1.52	39.93	58.00	2	6	4	134	153	-88
15+26.52	1526.52	25.00	46.93	20.75	40	6	36	174	198	-99
15+50.00	1550.00	23.48	22.34	10.62	30	6	14	204	215	-92
15+51.52	1551.52	1.52	22.51	10.01	1	6	1	205	216	-98
15+90.05	1590.05	38.53	25.13	1.60	34	6	8	239	226	-80
16+00.00	1600.00	9.95	24.01	9.16	9	6	2	248	229	-80
16+15.02	1615.02	15.02	22.28	14.90	13	6	7	261	238	-82
16+39.99	1639.99	24.97	19.96	28.51	20	6	20	281	263	-93
16+50.00	1650.00	10.01	19.25	23.99	7	6	10	288	275	-104
17+00.00	1700.00	50.00	17.26	19.30	34	6	40	322	325	-126
17+60.00	1760.00	60.00	21.87	1.35	43	6	23	365	354	-118

DIVISION - CRANE DR										
STATION	REAL STATION	DISTANCE	AREA (SF)		INCREMENTAL VOL (CY) (UNADJUSTED)			CUMULATIVE VOL (CY)		
			CUT	FILL	CUT NOTE 1	SALVAGED/UNUSABLE PAVEMENT MATERIAL NOTE 2	FILL NOTE 3	CUT NOTE 1	EXPANDED FILL 1.25	MASS ORDINATE NOTE 4
0+20.00	20.00	0.00	46.12	0.00	0	0	0	0	0	0
0+30.81	30.81	10.81	21.60	16.65	14	11	3	14	4	-1
0+43.68	43.68	12.87	26.43	0.05	11	11	4	25	9	-6
0+50.00	50.00	6.32	20.45	0.00	5	11	0	30	9	-12
0+70.14	70.14	20.14	16.39	0.00	14	11	0	44	9	-9
0+98.26	98.26	28.12	11.94	0.00	15	11	0	59	9	-5
1+28.76	128.76	30.50	6.97	0.00	11	11	0	70	9	-5

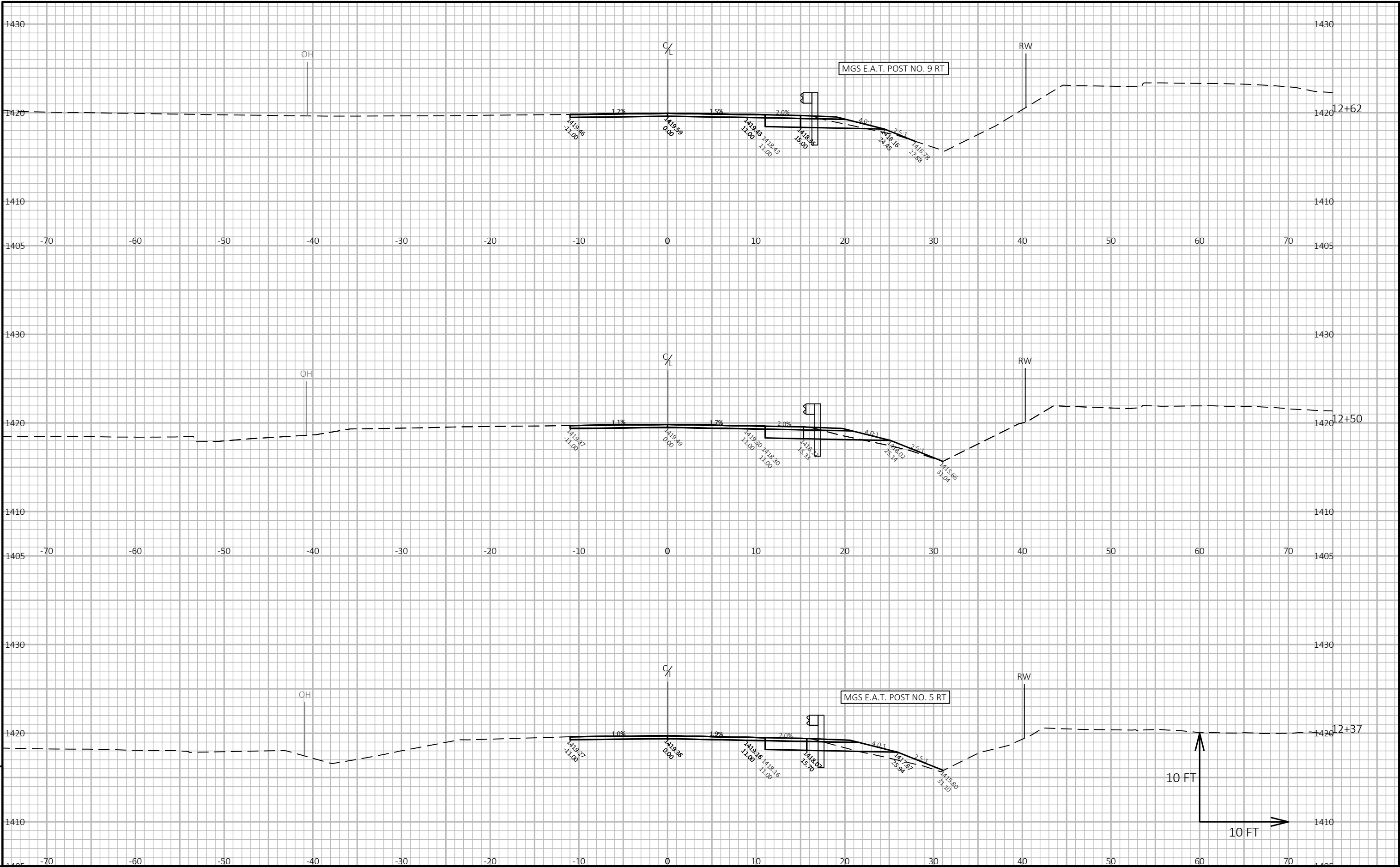
NOTES:	
1 - CUT	CUT INCLUDES SALVAGED/UNUSABLE PAVEMENT MATERIAL
2 - SALVAGED/UNUSABLE PAVEMENT MATERIAL	THIS DOES NOT SHOW UP IN CROSS SECTIONS
3 - FILL	DOES NOT INCLUDE UNUSABLE PAVEMENT EXC VOLUME
4 - MASS ORDINATE	(CUT - SALVAGED PAVEMENT) - (FILL * FILL FACTOR)

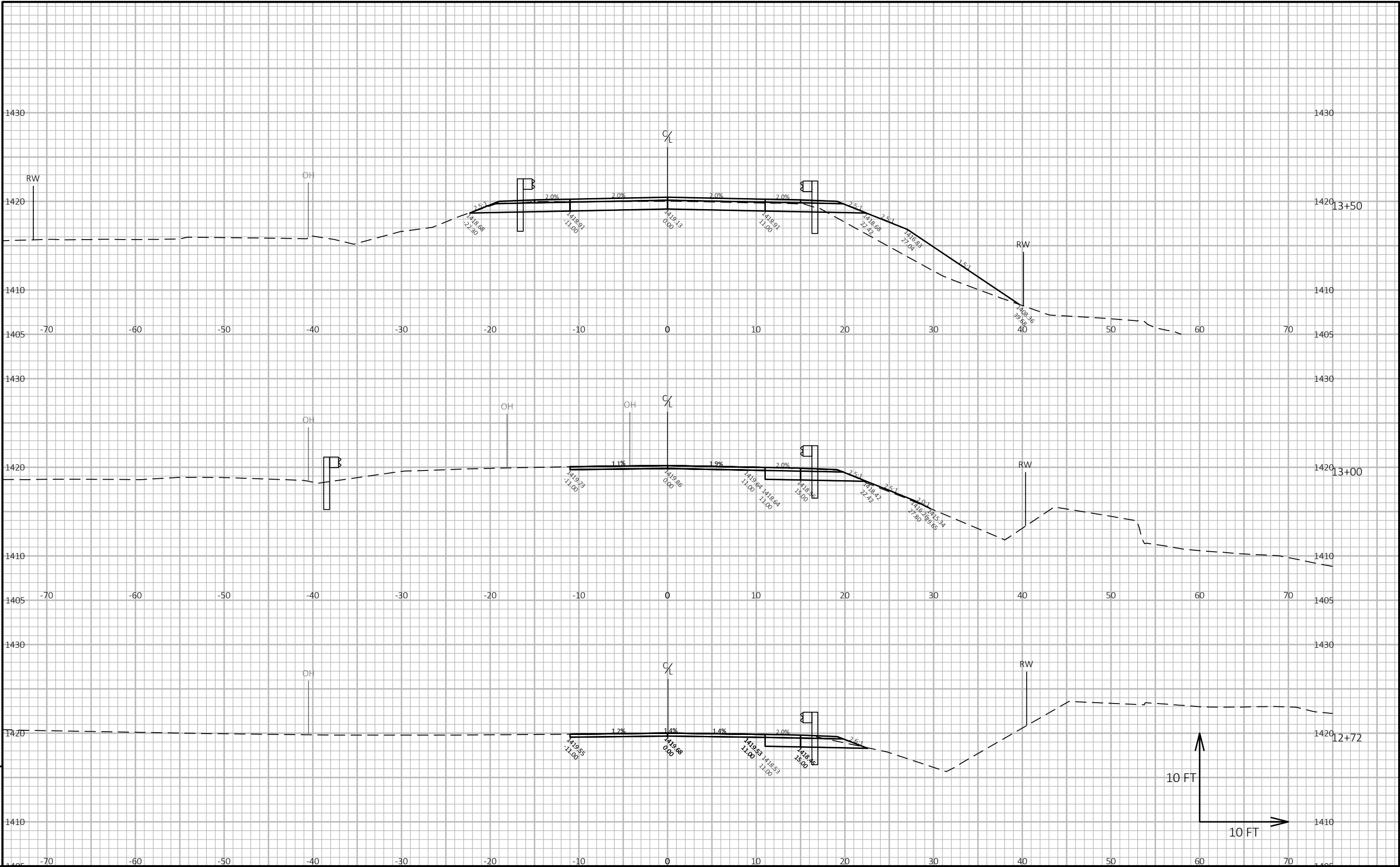


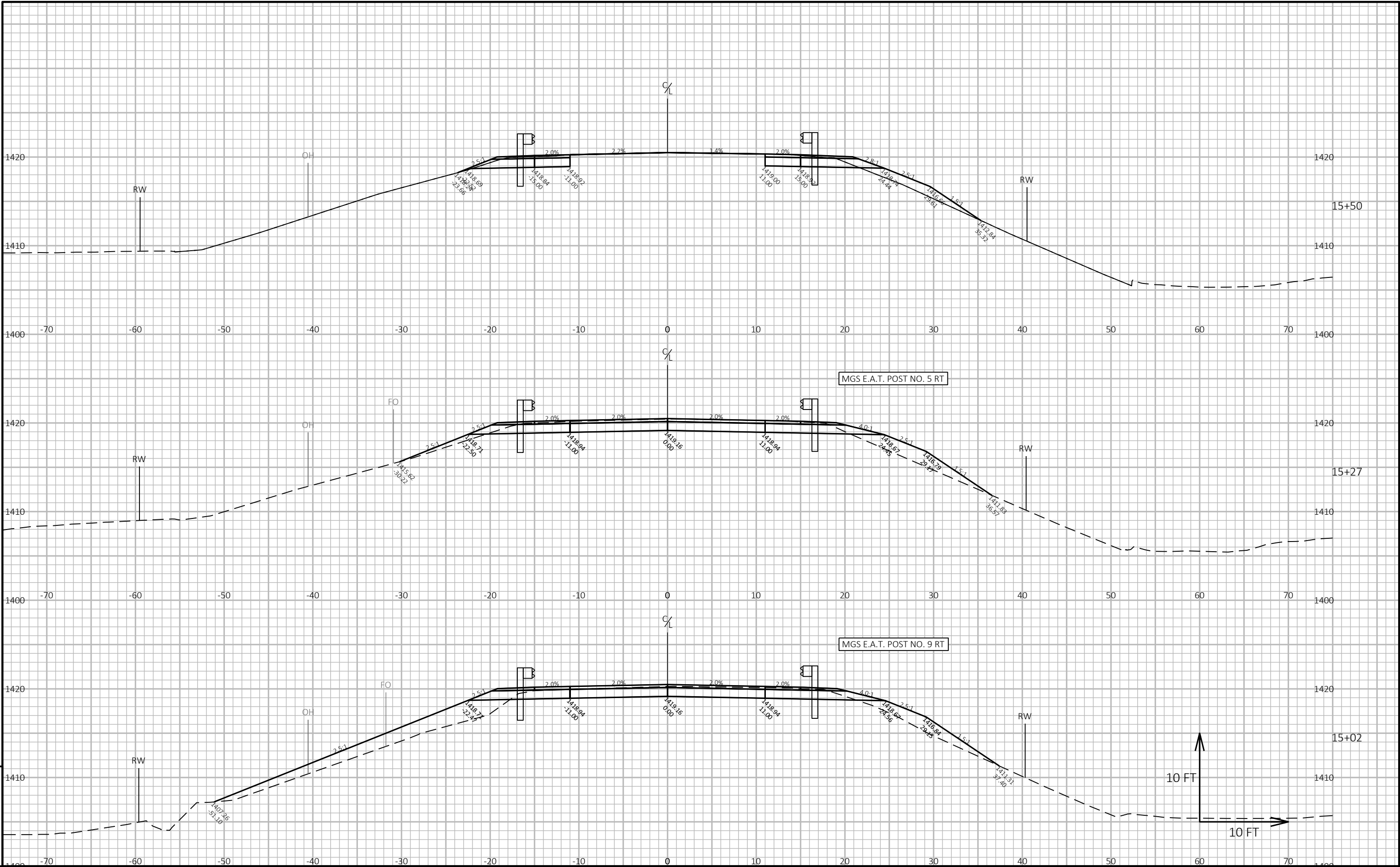
9

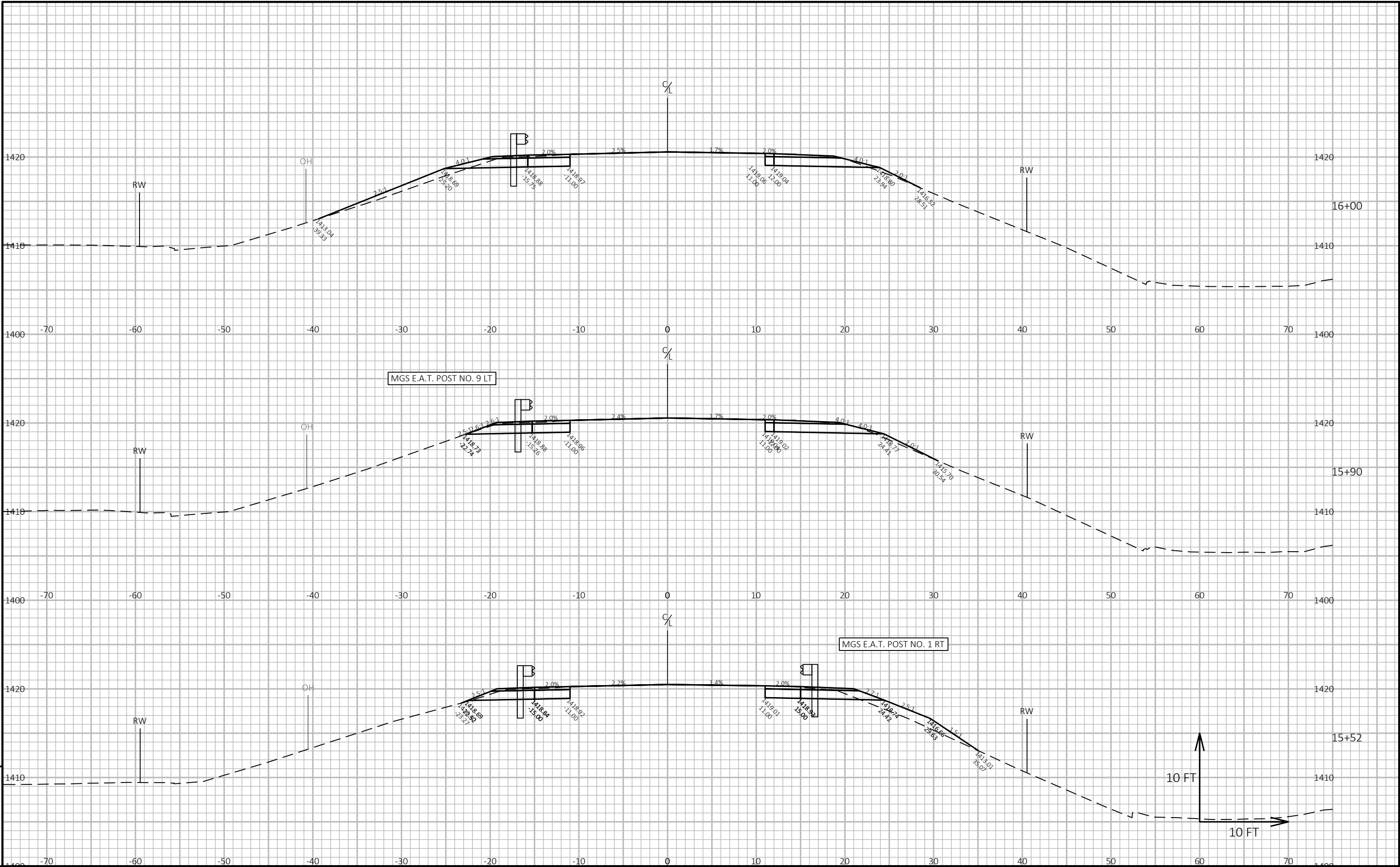
9

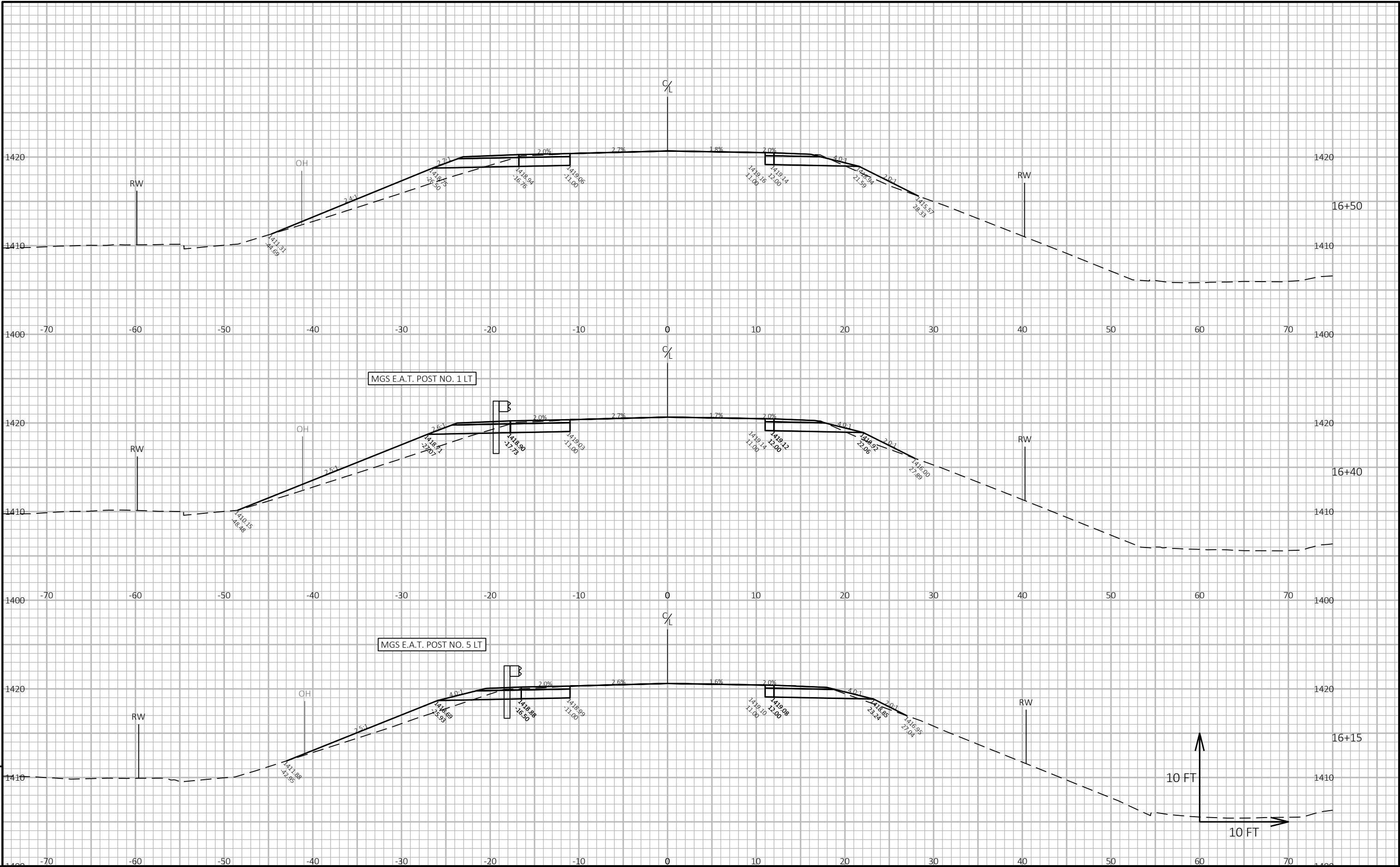
PROJECT NO: 9547-03-70	HWY: CTH O	COUNTY: TAYLOR	CROSS SECTIONS: CTH O	SHEET 90	E
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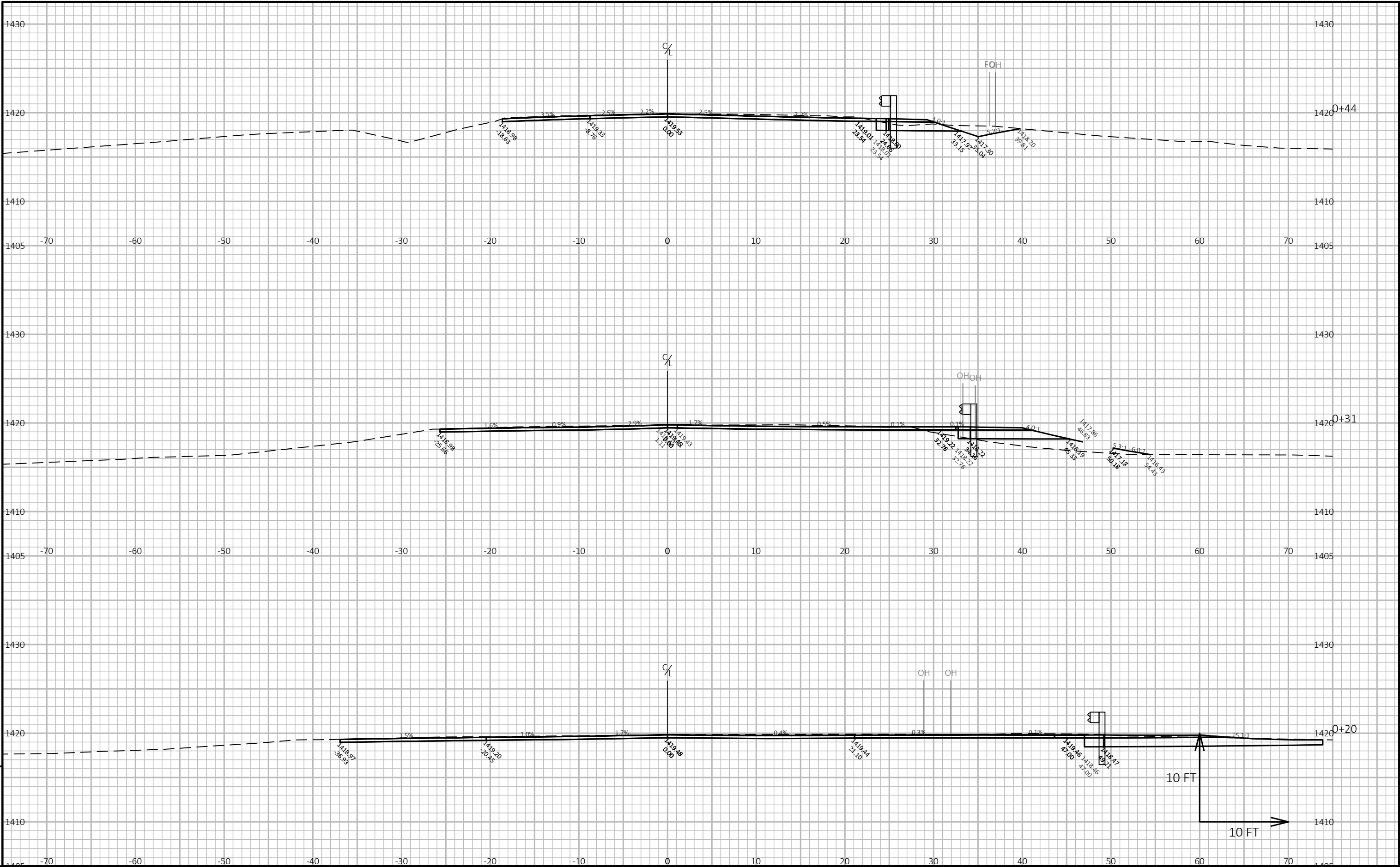


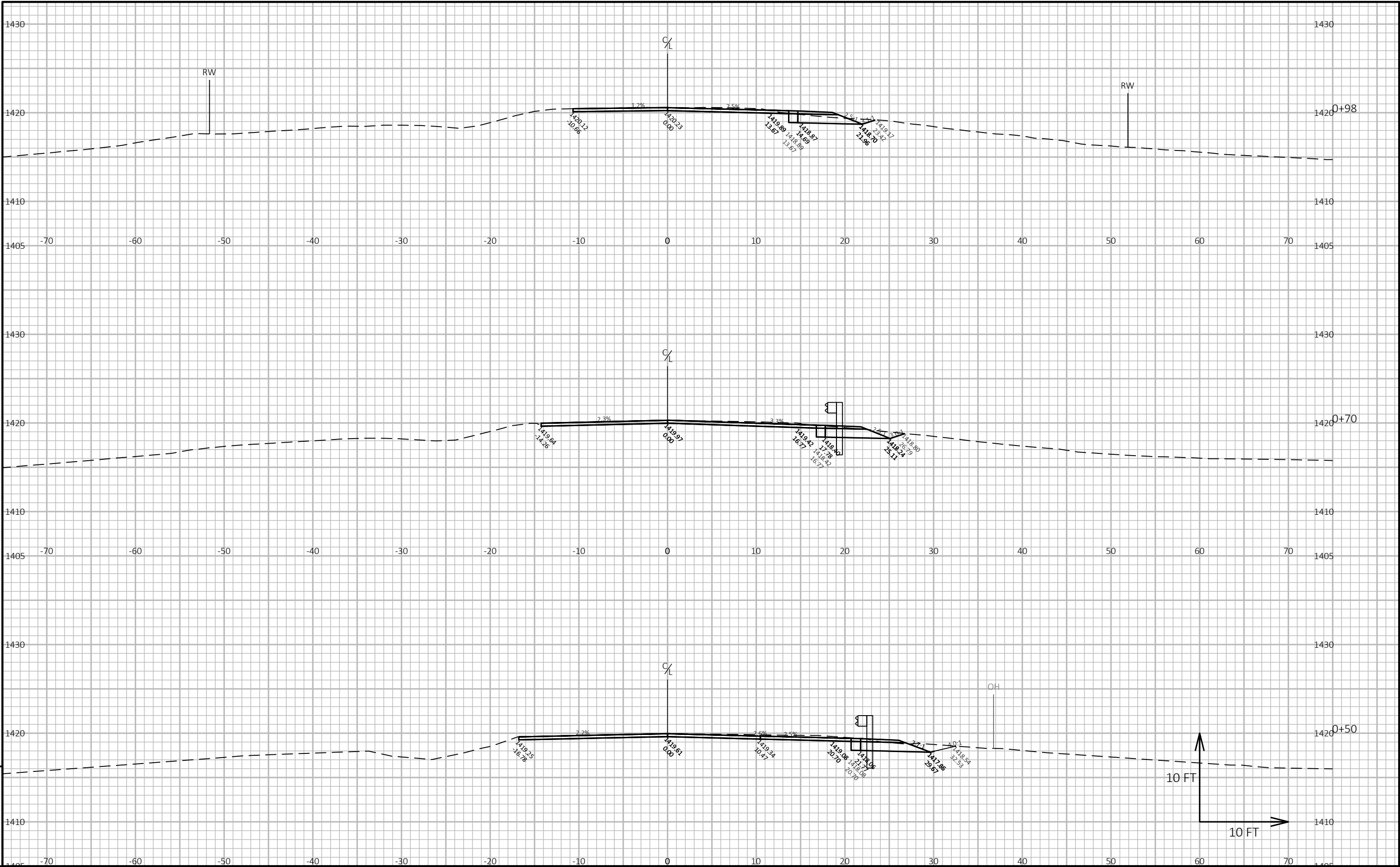


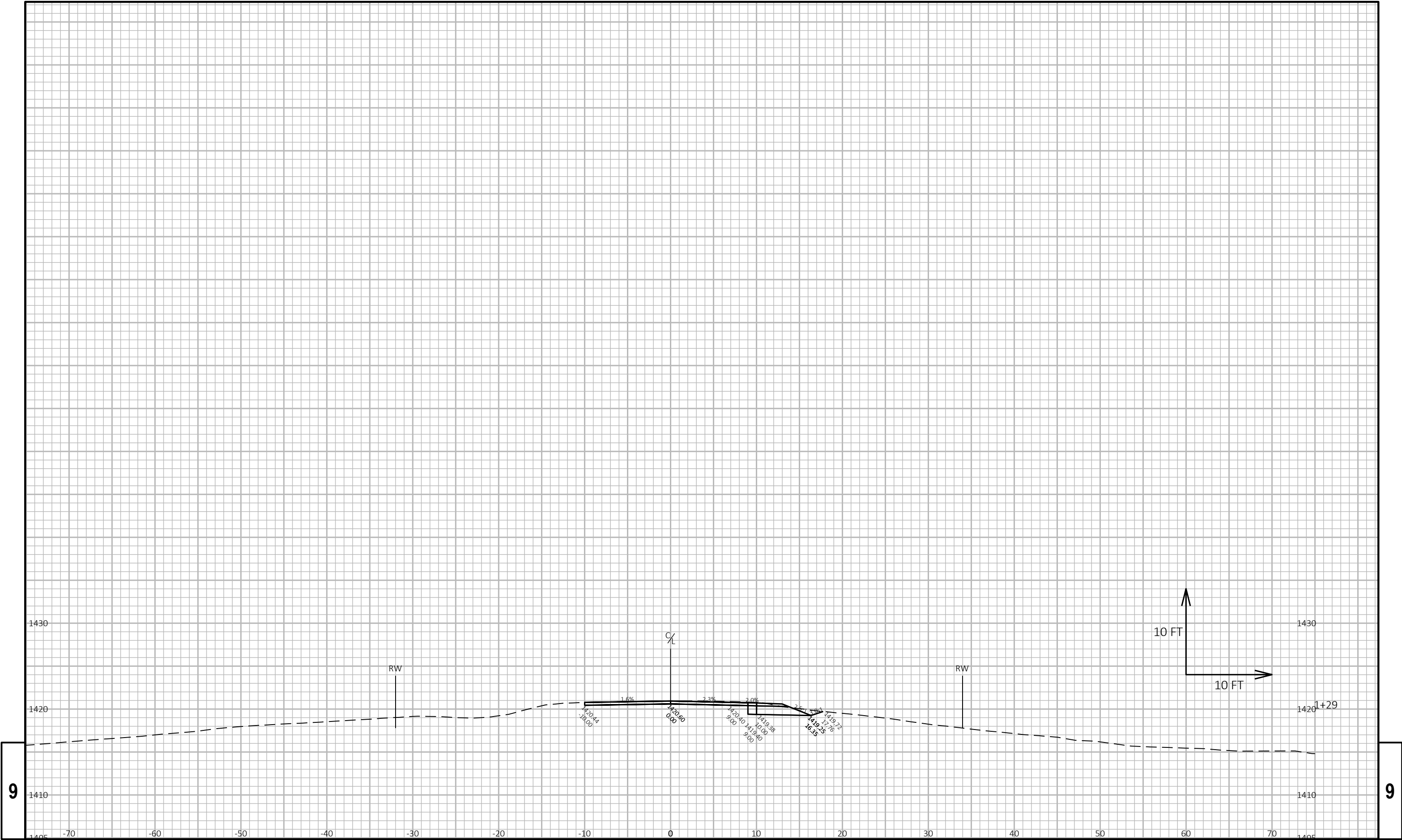




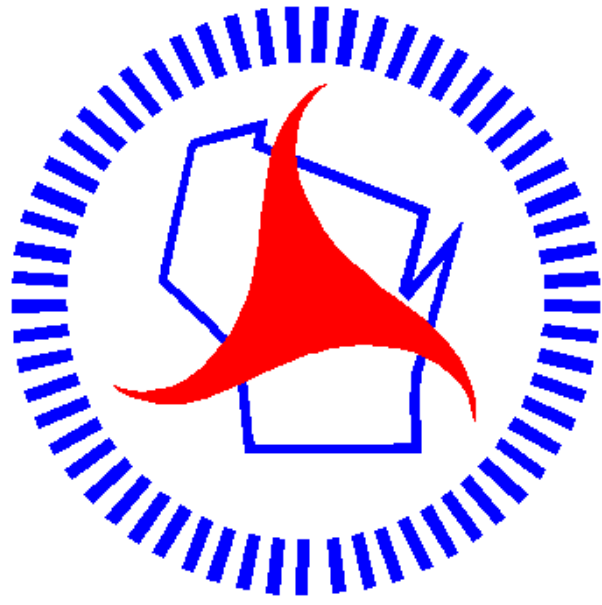








Notes



Wisconsin Department of Transportation

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