NEL APRIL 2016

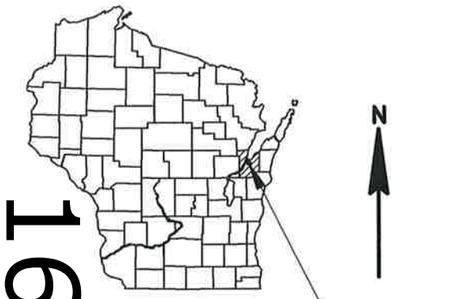
PROJECT ID: 4516-06-71

WITH:

COUNTY: BROWN

ORDER OF SHEETS

TOTAL SHEETS = 66



DESIGN DESIGNATION

A.A.D.T.	2014	= 1200
A.A.D.T.	2035	= 1900
D.H.V.		= 6.8
D.D.		= 60/40
T.		= 7.9%
DESIGN SPEED		= 40 M.P.H.
ESALS		= 416,100

CONVENTIONAL SYMBOLS

PLAN

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

PROFILE

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

UTILITIES

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

V. BELLEVUE, BOWER CREEK ROAD

BOWER CREEK BRIDGE

LOCAL STREET

BROWN COUNTY

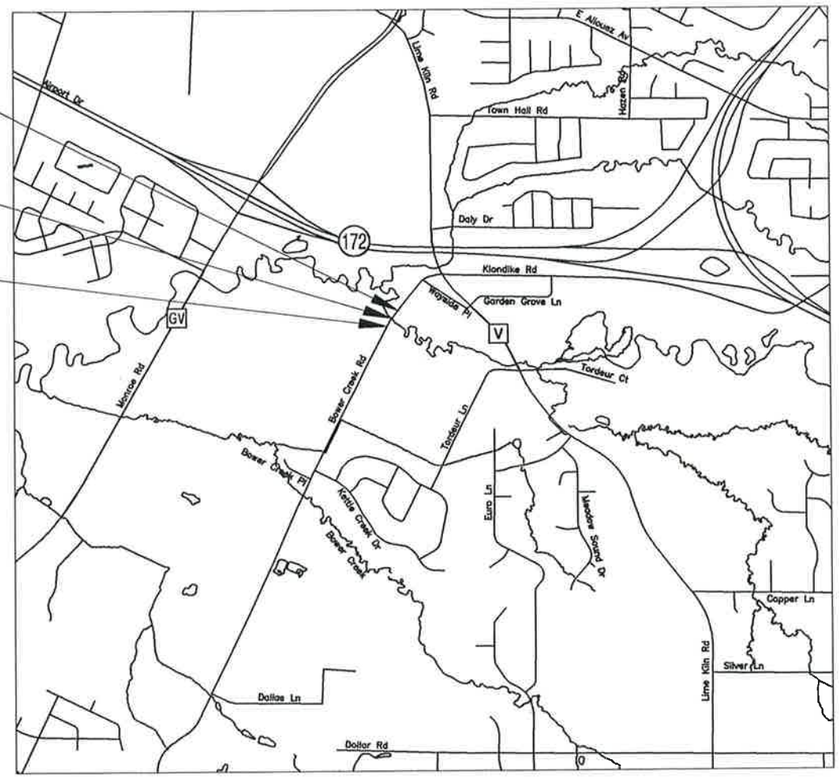
STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
4516-06-71	WISC 2016099	1

STATE PROJECT NUMBER
4516-06-71

END PROJECT
STA. 22+00
X = 108037.13
Y = 543772.15

STRUCTURE
B-05-0418

BEGIN PROJECT
STA. 19+00
X = 107871.99
Y = 543522.29



LAYOUT
SCALE 0 1/2 MI.

TOTAL NET LENGTH OF CENTERLINE = 0.057 MI.

HORIZONTAL POSITIONS SHOWN ON THIS PLAN ARE WISCONSIN COUNTY COORDINATES, BROWN COUNTY, NAD83 (2011), IN U.S. SURVEY FEET. VALUES ARE GRID COORDINATES, GRID BEARINGS, AND GRID DISTANCES. GRID DISTANCES MAY BE USED AS GROUND DISTANCES.

ACCEPTED FOR
COUNTY OF BROWN
10/16/15 (DATE) (SIGNATURE)

ACCEPTED FOR
VILLAGE OF BELLEVUE
10/14/15 (DATE) (SIGNATURE)

ORIGINAL PLANS PREPARED BY:

Robert E. Lee & Associates, Inc.
ENGINEERING, SURVEYING, ENVIRONMENTAL SERVICES
4664 GOLDEN POND PARK COURT
HOBART, WI 54155
INTERNET: www.releinc.com
PHONE:(920) 662-9641
FAX:(920) 662-9141

WISCONSIN
RYAN H. TRZINSKI
E-42371
GREEN BAY
W
PROFESSIONAL ENGINEER
10-14-15
(Signature) (Date)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY

Surveyor	ROBERT E. LEE & ASSOCIATES, INC.
Designer	ROBERT E. LEE & ASSOCIATES, INC.
Project Manager	SHORT ELLIOTT HENDRICKSON
Regional Examiner	
Regional Supervisor	DAVE SCHMIDT

APPROVED FOR THE DEPARTMENT
DATE: 10/20/15 (Signature)

E

FILE NAME : R:\1000\1075\1075153\DWG\1075153 TI.DWG

PLOT DATE : 10/13/2015 12:29 PM PLOT BY : ROCHELLE L. BURSA PLOT NAME :

WISDOT/CADDS SHEET 10

TO OBTAIN LOCATION OF PARTICIPANTS UNDERGROUND FACILITIES BEFORE YOU DIG IN WISCONSIN

WIS. STATUTE 182.0175 (1974) REQUIRES MIN. OF 3 WORK DAYS NOTICE BEFORE YOU EXCAVATE.

GENERAL NOTES

1. THE LOCATIONS OF EXISTING OR PROPOSED UTILITIES, AS NOTED ON THE PLANS ARE APPROXIMATE, THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT AREA THAT ARE NOT SHOWN. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR THE UTILITIES SHOWN ON THESE PLANS. CONTACT DIGGERS HOTLINE (BELOW) FOR FIELD LOCATION OF UTILITIES. NOTE, NOT ALL UTILITIES ARE AFFILIATED WITH DIGGERS HOTLINE.
2. THE CONTRACTOR IS RESPONSIBLE FOR CONTACTING LOCAL UTILITIES AND CONTACTING DIGGERS HOTLINE.
3. NO TREES OR SHRUBS SHALL BE REMOVED WITHOUT THE APPROVAL OF THE ENGINEER.
4. ALL DISTURBED AREAS SHALL BE SALVAGE TOPSOILED, FERTILIZED, SEEDED AND EROSION MAT AS NOTED ON THE PLAN OR AS DETERMINED BY THE ENGINEER.
5. EROSION CONTROL ITEMS SHOWN ON THE PLAN ARE AT SUGGESTED LOCATIONS. THE EXACT LOCATIONS AND DIMENSIONS WILL BE DETERMINED IN THE FIELD BY THE ENGINEER. ALL EROSION CONTROL MEASURES SHALL BE MAINTAINED IN PLACE UNTIL SUCH TIME AS THE ENGINEER DETERMINES THAT THEY ARE NO LONGER REQUIRED.
6. TRAFFIC CONTROL SHALL BE IN ACCORDANCE WITH THE LATEST M.U.T.C.D MANUAL.
7. WISDOT WILL FURNISH A BENCHMARK MONUMENT TO BE SET BY THE CONTRACTOR AS DIRECTED BY THE ENGINEER IN THE FIELD.
8. PROPERTY LINES AS SHOWN AS APPROXIMATE.

UTILITIES

WISCONSIN PUBLIC SERVICE (GAS)
CHRIS STREBEL
100 NORTH ADAMS STREET
GREEN BAY, WI 54307
(920) 617-5127

AT&T WISCONSIN
KAREN WELLS
205 S. JEFFERSON STREET
GREEN BAY, WI 54305
(920) 433-4226

WISCONSIN PUBLIC SERVICE (ELECTRIC)
RANDY STEIER
100 NORTH ADAMS STREET
GREEN BAY, WI 54307
(920) 617-5167

CONTACTS

ROBERT E. LEE & ASSOCIATES, INC.
MARK SCHUSTER
1250 CENTENNIAL CENTRE BOULEVARD
HOBART, WI. 54155
(920) 662-9641

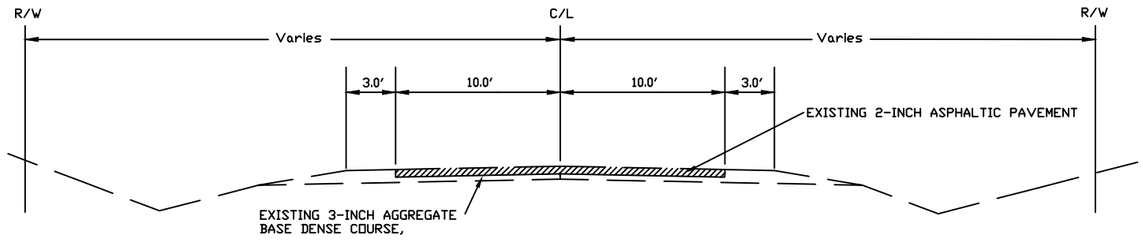
WDNR CONTACT
JIM DOPERALSKI
2984 SHAWANO AVENUE
GREEN BAY, WI 54313
(920) 662-5119

VILLAGE OF BELLEVUE
WILLIAM BALKE, DIRECTOR OF PUBLIC WORKS
2828 ALLOUEZ AVE
BELLEVUE, WI 54311
(920) 468-5225

BROWN COUNTY
NICK UITENBROEK
2198 GLENDALE AVENUE
GREEN BAY, WI 54303
(920) 662-2152

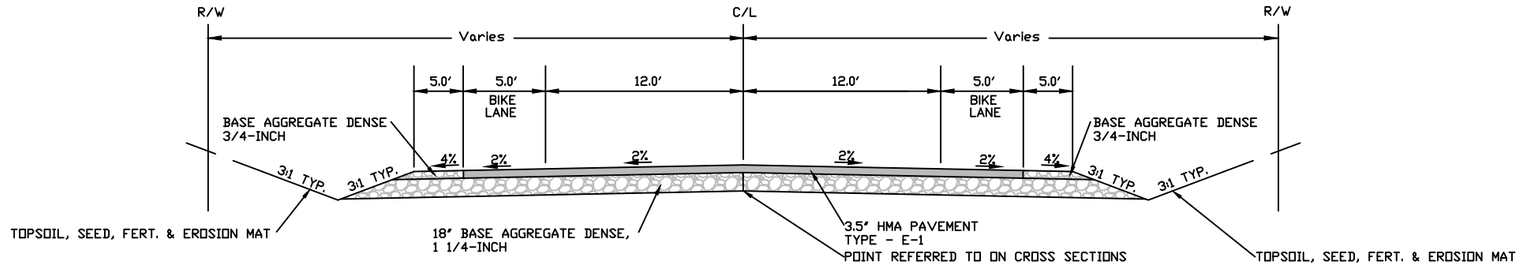
STANDARD ABBREVIATIONS

GR	GRAVEL	WM	WATERMAIN	VPC	VERTICAL POINT OF CURVATURE	R/W	RIGHT OF WAY
BIT	BITUMINOUS	HYD	HYDRANT	VPI	VERTICAL POINT OF INTERSECTION	T/C	TOP OF CURB
ASPH	ASPHALT PAVEMENT	WV	WATER VALVE	VPT	VERTICAL POINT OF TANGENCY	F/L	FLOW LINE
CONC	CONCRETE	SAN	SANITARY SEWER	PC	POINT OF CURVATURE	C/L	CENTERLINE
SW	SIDEWALK	MH	MANHOLE	PI	POINT OF INTERSECTION	P/L	PROPERTY LINE
BLDG	BUILDING	ST	STORM SEWER	PT	POINT OF TANGENCY	R/L	REFERENCE LINE
HSE	HOUSE	CB	CATCH BASIN	R	RADIUS	INV	INVERT
PED	PEDESTAL	TELE	TELEPHONE	EX	EXISTING	CMP	CORRUGATED METAL PIPE
PP	POWER POLE	ELEC	ELECTRIC	PR	PROPOSED	RCP	REINFORCED CONCRETE PIPE
LP	LIGHT POLE	TV	TELEVISION	EOR	END OF RADIUS	CULV	CULVERT
BM	BENCH MARK	STA	STATION	B-B	BACK TO BACK (OF CURB)	PE	PERSONAL ENTRANCE
CE	COMMERCIAL ENTRANCE	FE	FIELD ENTRANCE	E.O.P.	EDGE OF PAVEMENT		



TYPICAL EXISTING SECTION

STA. 19+00 TO STA. 22+00



TYPICAL FINISHED SECTION

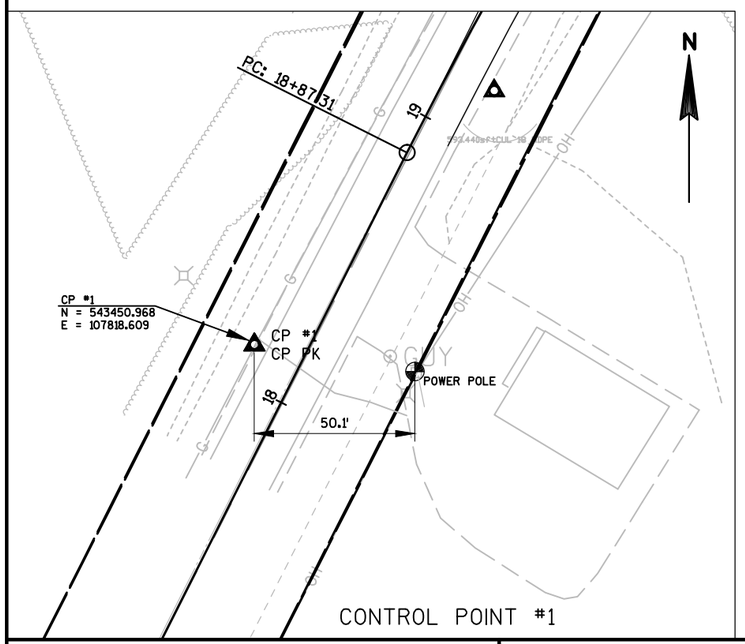
STA. 19+00 TO STA. 20+36
STA. 21+17.42 TO STA. 22+00

CONCRETE APPROACH SLAB

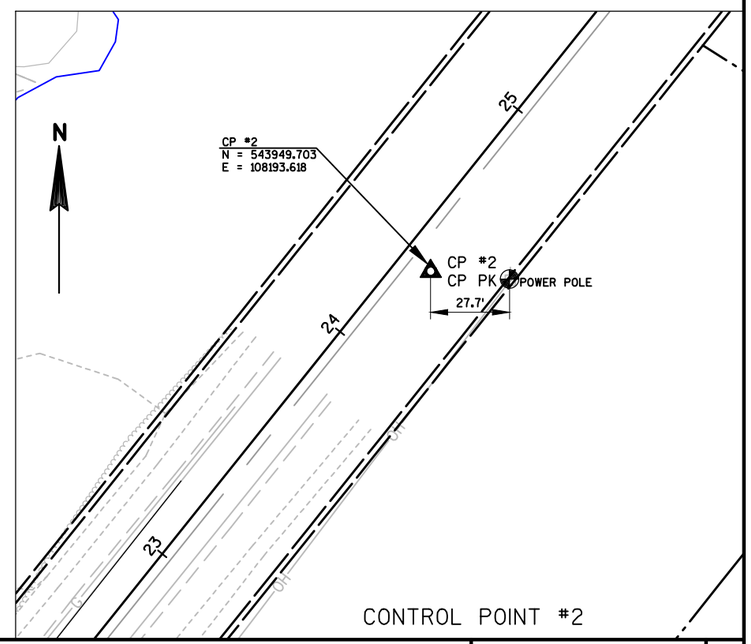
STA. 20+36 TO STA. 20+51.75
STA. 21+01.75 TO STA. 21+17.42

BRIDGE

STA. 20+51.75 TO STA. 21+01.75



CONTROL POINT #1



CONTROL POINT #2

PROJECT NO: 4516-06-71	HWY: BOWER CREEK ROAD	COUNTY: BROWN	TYPICAL SECTIONS & CONTROL POINTS	SHEET 3	E

FILE NAME : R:\1000\1075\1075153\DWG\1075153 TS.DWG PLOT DATE : 1/15/2016 8:56 AM PLOT BY : ROCHELLE L. BURSA PLOT NAME : PLOT SCALE : 0.036230
WISDOT/CADDS SHEET 42

(1)

NORTH
M3-1
24" X 12"

BOWER CREEK ROAD
I-3
24" X 18"

(2)

DETOUR
M4-8
24" X 12"

NORTH
M3-1
24" X 12"

BOWER CREEK ROAD
I-3
24" X 18"

M6-1
21" X 21"

(3)

DETOUR
M4-8
24" X 12"

NORTH
M3-1
24" X 12"

BOWER CREEK ROAD
I-3
24" X 18"

M5-1L
21" X 21"

(4)

DETOUR
M4-8
24" X 12"

NORTH
M3-1
24" X 12"

BOWER CREEK ROAD
I-3
24" X 18"

M6-1
21" X 21"

(5)

END DETOUR
M4-8A
24" X 18"

DETOUR
M4-8
24" X 12"

NORTH
M3-1
24" X 12"

BOWER CREEK ROAD
I-3
24" X 18"

(6)

ROAD CLOSED
1.5 MILES AHEAD
LOCAL TRAFFIC ONLY
R11-3
60" X 30"

BRIDGE OUT
R11-2B
48" X 30"

(7)

SOUTH
M3-3
24" X 12"

BOWER CREEK ROAD
I-3
24" X 18"

(8)

DETOUR
M4-8
24" X 12"

SOUTH
M3-3
24" X 12"

BOWER CREEK ROAD
I-3
24" X 18"

M6-1
21" X 21"

(9)

DETOUR
M4-8
24" X 12"

SOUTH
M3-3
24" X 12"

BOWER CREEK ROAD
I-3
24" X 18"

M5-1R
21" X 21"

(10)

DETOUR
M4-8
24" X 12"

SOUTH
M3-3
24" X 12"

BOWER CREEK ROAD
I-3
24" X 18"

M6-1
21" X 21"

(11)

END DETOUR
M4-8A
24" X 18"

DETOUR
M4-8
24" X 12"

SOUTH
M3-3
24" X 12"

BOWER CREEK ROAD
I-3
24" X 18"

(12)

ROAD CLOSED
.1 MILE AHEAD
LOCAL TRAFFIC ONLY
R11-3
60" X 30"

BRIDGE OUT
R11-2B
48" X 30"

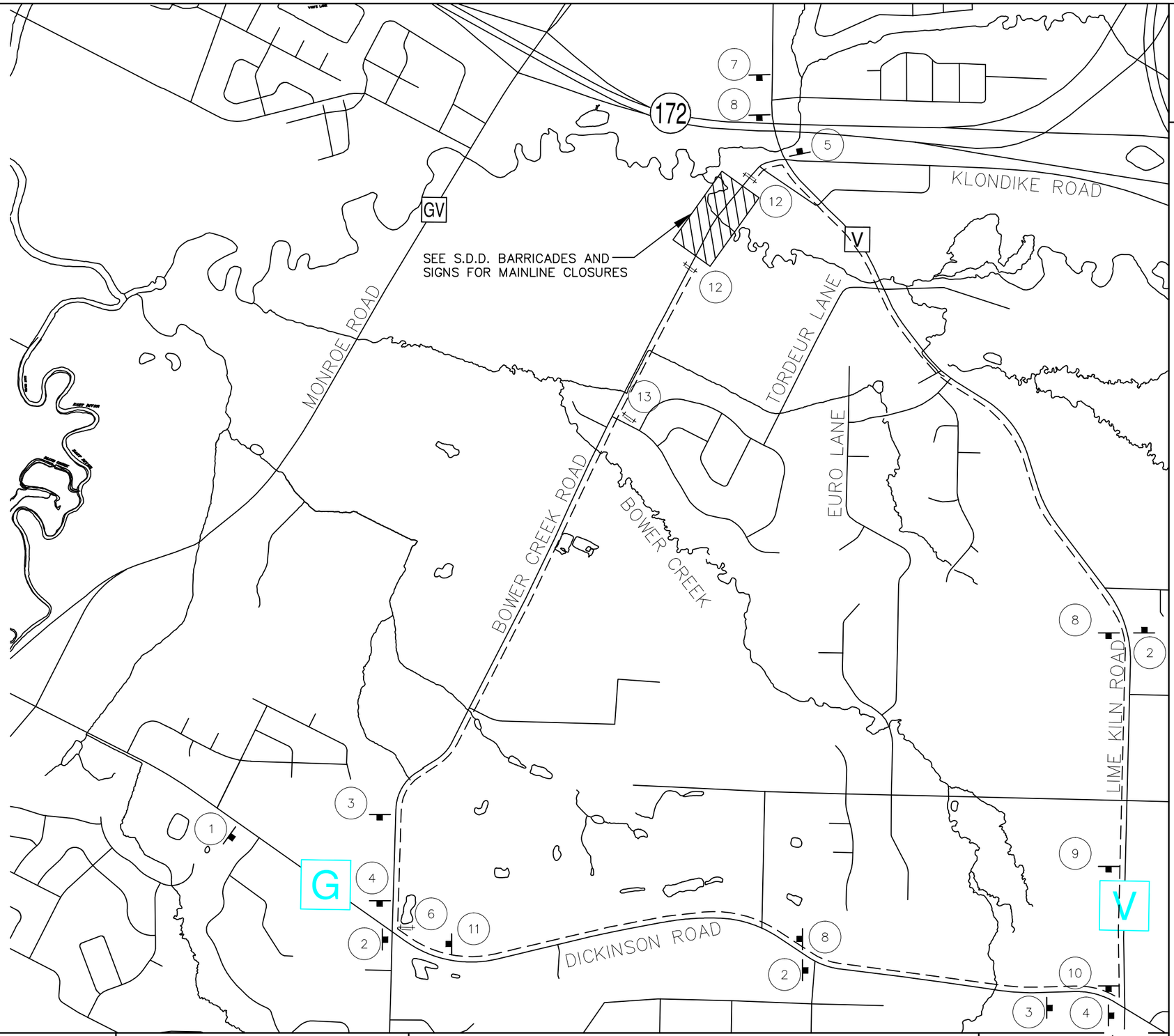
(13)

ROAD CLOSED
.4 MILES AHEAD
LOCAL TRAFFIC ONLY
R11-3
60" X 30"

BRIDGE OUT
R11-2B
48" X 30"

LEGEND

- WORK AREA
- DETOUR ROUTE
- (X) SIGN NUMBER
- TYPE III BARRICADE
- SIGN MOUNTED ON TYPE III BARRICADE
- POST MOUNTED SIGN



PROJECT NO: 4516-06-71	HWY: BOWER CREEK ROAD	COUNTY: BROWN	DETOUR PLAN: BOWER CREEK ROAD	SHEET 4 4 E

PI STA = 20+13.71
Y = 543623.846
X = 107923.154
DELTA = 10°48'18"
D = 4°17'12"
T = 126.40'
L = 252.06'
R = 1336.56'
PC STA = 18+87.31
PT STA = 21+39.36

BOWER CREEK CONSTRUCTION

VERITAS ASSET HOLDINGS LLC
B-314

STRUCTURE B-05-0418
REQUIRED

MGS GUARDRAIL TERMINAL EAT

BEGIN BEAM GUARD 19+54 / 27.33' LT.

MGS THRIE BEAM TRANSITION

END OF DECK
STA. 20+51.75

BOWER CREEK

PRIVATE PL

STREAM BANK STABILIZATION EASEMENT

SLOPE INTERCEPT

CONCRETE APPROACH SLAB
(15'-8" IN LENGTH) (TYP.)

EXISTING BRIDGE

DAVID J. VANRITE
B-130

22+03 / 26.30' LT. END BEAM GUARD

PI: 22+17.91

E.O.P. 23+46 / 8.11' LT.

PC: 18+87.31

PI: 21+39.36

E.O.P. 18+12 / 11.50' LT.

18+00

19+00

20+00

21+00

22+00

23+00

BOWER CREEK ROAD

E.O.P. 18+79 / 11.00' RT.

END OF DECK
STA. 21+01.75

PAVEMENT MARKING
EPOXY 4-INCH (WHITE) (TYP.)

STA. 19+00
START PROJECT

BEGIN BEAM GUARD 19+50 / 19.75' RT.

PAVEMENT MARKING
EPOXY 4-INCH
(DOUBLE YELLOW)

MGS THRIE BEAM TRANSITION

MGS GUARDRAIL TERMINAL EAT

LARRY PETERS
B-311-5

MGS THRIE BEAM TRANSITION

MGS GUARDRAIL TERMINAL EAT

PRIVATE CLAIM PL

E.O.P. 22+93 / 9.89' RT.

CLARENCE SCHLAG
FAMILY TRUST
B-129-9

STA. 22+00
END PROJECT

BENCHMARK	BENCHMARK ESTABLISHED BY: ROBERT E. LEE & ASSOCIATES, INC. FIELD VERIFY BENCHMARKS FOR ACCURACY.	
NO.	DESCRIPTION	EL.
1	NAIL IN PP*645AA24	598.06
2	FOUND CHISELED SQUARE	599.08
3	NAIL IN PP*645BB15	593.45

1

W5-52R
12" X 36"

2

END BEAM GUARD 22+03 / 20.75' RT.

W5-52L
12" X 36"

PROJECT NO: 4516-06-71	HWY: BOWER CREEK ROAD	COUNTY: BROWN	PLAN DETAIL: BOWER CREEK ROAD BEAM GUARD & SIGNAGE & PAVEMENT MARKING	SHEET 5 5 E

DATE 05FEB16 E S T I M A T E O F Q U A N T I T I E S

LINE NUMBER	ITEM	ITEM DESCRIPTION	UNIT	TOTAL	4516-06-71 QUANTITY
0010	201.0205	Grubbing	STA	5.000	5.000
0020	203.0600.S	Removing Old Structure Over Waterway With Minimal Debris (station) 01. 20+77 P-05-103	LS	1.000	1.000
0040	205.0100	Excavation Common	CY	333.000	333.000
0050	206.1000	Excavation for Structures Bridges (structure) 01. B-05-418	LS	1.000	1.000
0070	208.0100	Borrow	CY	565.000	565.000
0080	210.0100	Backfill Structure	CY	148.000	148.000
0090	213.0100	Finishing Roadway (project) 01. 4516-06-71	EACH	1.000	1.000
0110	305.0110	Base Aggregate Dense 3/4-Inch	TON	300.000	300.000
0120	305.0120	Base Aggregate Dense 1 1/4-Inch	TON	3,100.000	3,100.000
0140	415.0410	Concrete Pavement Approach Slab	SY	120.000	120.000
0150	455.0105	Asphaltic Material PG58-28	TON	15.000	15.000
0160	455.0605	Tack Coat	GAL	60.000	60.000
0170	460.1101	HMA Pavement Type E-1	TON	235.000	235.000
0180	460.2000	Incentive Density HMA Pavement	DOL	188.000	188.000
0190	460.4000	HMA Cold Weather Paving	TON	47.000	47.000
0200	502.0100	Concrete Masonry Bridges	CY	292.000	292.000
0210	502.3200	Protective Surface Treatment	SY	274.000	274.000
0220	505.0400	Bar Steel Reinforcement HS Structures	LB	5,656.000	5,656.000
0230	505.0600	Bar Steel Reinforcement HS Coated Structures	LB	37,590.000	37,590.000
0250	513.7031	Railing Steel Type C6 (structure) 01. B-05-418	LF	140.000	140.000
0260	516.0500	Rubberized Membrane Waterproofing	SY	20.000	20.000
0270	517.1015.S	Concrete Staining Multi-Color (structure) 01. B-05-418	SF	653.000	653.000
0280	517.1050.S	Architectural Surface Treatment (structure) 01. B-05-418	SF	653.000	653.000
0290	550.1100	Piling Steel HP 10-Inch X 42 Lb	LF	980.000	980.000
0310	606.0300	Riprap Heavy	CY	210.000	210.000
0320	614.0150	Anchor Assemblies for Steel Plate Beam Guard	EACH	4.000	4.000
0330	614.2500	MGS Thrie Beam Transition	LF	156.000	156.000
0340	614.2610	MGS Guardrail Terminal EAT	EACH	4.000	4.000
0350	619.1000	Mobilization	EACH	0.500	0.500
0360	624.0100	Water	MGAL	4.000	4.000
0370	625.0500	Salvaged Topsoil	SY	1,650.000	1,650.000
0380	628.1104	Erosion Bales	EACH	20.000	20.000
0390	628.1504	Silt Fence	LF	950.000	950.000
0400	628.1520	Silt Fence Maintenance	LF	950.000	950.000
0410	628.1905	Mobilizations Erosion Control	EACH	1.000	1.000
0420	628.1910	Mobilizations Emergency Erosion Control	EACH	1.000	1.000
0430	628.2004	Erosion Mat Class I Type B	SY	1,650.000	1,650.000
0440	628.6005	Turbidity Barriers	SY	70.000	70.000
0450	629.0210	Fertilizer Type B	CWT	2.000	2.000
0460	630.0130	Seeding Mixture No. 30	LB	35.000	35.000
0470	630.0200	Seeding Temporary	LB	50.000	50.000
0480	634.0614	Posts Wood 4x6-Inch X 14-FT	EACH	4.000	4.000
0490	637.2210	Signs Type II Reflective H	SF	12.000	12.000
0500	642.5001	Field Office Type B 01. 4516-06-71	EACH	1.000	1.000
0520	643.0100	Traffic Control (project) 01. 4516-06-71	EACH	1.000	1.000
0540	643.0420	Traffic Control Barricades Type III	DAY	1,100.000	1,100.000

3

DATE 05FEB16 E S T I M A T E O F Q U A N T I T I E S

LINE NUMBER	ITEM	ITEM DESCRIPTION	UNIT	TOTAL	4516-06-71 QUANTITY
0550	643.0705	Traffic Control Warning Lights Type A	DAY	2,000.000	2,000.000
0560	643.0900	Traffic Control Signs	DAY	600.000	600.000
0570	643.2000	Traffic Control Detour (project) 01. 4516-06-71	EACH	1.000	1.000
0590	643.3000	Traffic Control Detour Signs	DAY	6,400.000	6,400.000
0600	645.0120	Geotextile Fabric Type HR	SY	362.000	362.000
0610	646.0106	Pavement Marking Epoxy 4-Inch	LF	1,900.000	1,900.000
0620	650.4500	Construction Staking Subgrade	LF	250.000	250.000
0630	650.5000	Construction Staking Base	LF	250.000	250.000
0640	650.6500	Construction Staking Structure Layout (structure) 01. B-05-418	LS	1.000	1.000
0660	650.9910	Construction Staking Supplemental Control (project) 01. 4516-06-71	LS	1.000	1.000
0680	690.0150	Sawing Asphalt	LF	45.000	45.000
0690	715.0415	Incentive Strength Concrete Pavement	DOL	500.000	500.000
0700	715.0502	Incentive Strength Concrete Structures	DOL	2,352.000	2,352.000
0710	ASP.1T0A	On-the-Job Training Apprentice at $5.00/HR	HRS	150.000	150.000
0720	ASP.1T0G	On-the-Job Training Graduate at $5.00/HR	HRS	300.000	300.000

Division	From/To Station	Location	Common Excavation (1) Cut (2)	(item # 205.0100) EBS Excavation (3)	Salvaged/Unusable Pavement Material (4)	Available Material (5)	Marsh Excavation (6) (item #205.0500)	Rock Excavation (7) (item #205.0200)	Reduced Marsh in Fill (8) Factor 0.60	Reduced EBS in Fill (9) Factor 0.80	Expanded Marsh Backfill (10) Factor 1.50	Expanded EBS Backfill (11) Factor 1.30	Expanded Rock (12) Factor 1.10	Unexpanded Fill	Expanded Fill (13) Factor 1.25	Mass Ordinate +/- (14)	Waste	Borrow (item #208.0100)	Comment:
0010	18+00 to 23+50	Mainline	710	0	0	710	0	0	0	0	0	0	0	1020	1275	-565		565	
Division 0010 Subtotal			710	0	0	710	0	0	0	0	0	0	0	1020	1275	-565			
Grand Total			710	0	0	710	0	0	0	0	0	0	0	1020	1275	-565	0	565	
			Total Common Exc	710															

1) Common Excavation is the sum of the Cut and EBS Excavation columns. Item number 205.0100
2) Salvaged/Unsuable Pavement Material is included in Cut.
3) EBS Excavation to be backfilled with Select Borrow material. Note: this is designers choice, can be backfilled with Borrow, or Cut as well.
4) Salvaged/Unusable Pavement Material
5) Available Material = Cut - Salvaged/Unusuable Pavement Material
6) Marsh Excavation - to be backfilled with Select Borrow Material. Note: this is designers choice, can be backfilled with Borrow, or Cut as well. Item number 205.0500
7) Rock Excavation item number 205.0200
8) Reduced Marsh in Fill - Excavated Marsh material is usuable in Fills outside the 1:1 slope. Marsh in Fill Reduction factor = 0.6
9) Reduced EBS in Fill - Excavated EBS material is usuable in Fills outside the 1:1 slope. EBS in Fill Reduction factor = 0.8
10) Expanded Marsh Backfill - This is to be filled with Select Borrow material. Marsh Backfill Factor = 1.5. Item number 208.11
11) Expanded EBS Backfill - This is to be filled with Select Borrow material. EBS Backfill Factor = 1.3. Item number 208.11
12) Expanded Rock - Factor = 1.1.
13) Expanded Fill. Factor = 1.25

Depending on selections:

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

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

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

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

14) The Mass Ordinate + or - Qty calculated for the Division. Plus quantity indicates an excess of material within the Division. Minus indicates a shortage of material within the Division.
15) Use 113,641 CY of material from Division 1. Borrow Excavation item number 208.0100

GRUBBING

CATEGORY	STA TO STA	201.0205 GRUBBING STA
0010	18+00 - 23+50	5.0
PROJECT TOTAL		5.0

AGGREGATE

CATEGORY	STA TO STA	305.0110 BASE AGGREGATE DENSE 3/4-INCH TON	305.0120 BASE AGGREGATE DENSE 1 1/4-INCH TON	624.0100 WATER MGAL
0010	19+00 - 20+52	120	1,450	2.0
0010	21+02 - 22+00	150	1,600	1.7
UNDISTRIBUTED		30	50	0.3
SUBTOTAL (0010)		300	3,100	4
PROJECT TOTAL		300	3,100	4

CONCRETE

CATEGORY	STATION TO STATION	415.0410 CONCRETE PAVEMENT APPROACH SLAB SY
0010	20+36 - 20+52	60
0010	21+02 - 21+18	60
SUBTOTAL (0010)		120
PROJECT TOTAL		120

ASPHALT ITEMS

CATEGORY	STA TO STA	455.0105 ASPHALTIC MATERIAL PG58-28 TON	455.0605 TACK COAT GAL	460.1101 HMA PAVEMENT TYPE E-1 TON
0010	19+00 - 20+52	8	32	125
0010	21+02 - 22+00	7	28	110
SUBTOTAL (0010)		15	60	235
PROJECT TOTAL		15	60	235

BEAM GUARD

CATEGORY	LOCATION	614.2500 MGS THRIE BEAM TRANSITION LF	614.2610 MGS GUARDRAIL TERMINAL EAT EACH
0010	19+00 - 20+52 LT	39	1
0010	19+00 - 20+52 RT	39	1
0010	21+02 - 22+00 LT	39	1
0010	21+02 - 22+00 RT	39	1
SUBTOTAL (0010)		156	4
PROJECT TOTAL		156	4

FINISHING ITEMS

CATEGORY	STATION	625.0500 SALVAGED TOPSOIL SY	628.2004 EROSION MAT CLASS I TYPE B SY	629.0210 FERTILIZER TYPE B CWT	630.0130 SEEDING MIXTURE NO. 30 LB	630.0200 SEEDING TEMPORARY LB
0010	19+00 - 20+52 LT	548	548	0.4	10	15
0010	19+00 - 20+52 RT	254	254	0.2	5	7
0010	21+02 - 22+00 LT	428	428	0.3	8	12
0010	21+02 - 22+00 RT	367	367	0.3	7	10
UNDISTRIBUTED		53	53	0.8	5	6
SUBTOTAL (0010)		1,650	1,650	2.0	35	50
PROJECT TOTAL		1,650	1,650	2.0	35	50

TRAFFIC CONTROL

CATEGORY	DURATION DAYS	643.0420 TRAFFIC CONTROL BARRICADES TYPE III NO.	DAYS	643.0705 TRAFFIC CONTROL WARNING LIGHTS TYPE A NO.	DAYS	643.0900 TRAFFIC CONTROL SIGNS NO.	DAYS	643.2000 TRAFIC CONTROL DETOUR 4516-06-71 EACH	643.3000 TRAFFIC CONTROL DETOUR SIGNS NO.	DAYS
0010	100	11	1100	20	2000	6	600	1	64	6400
SUBTOTAL (0010)			1100		2000		600	1		6400
PROJECT TOTAL			1100		2000		600	1		6400

EROSION CONTROL

CATEGORY	STATION	628.1104 EROSION BALES EACH	628.1504 SILT FENCE LF	628.1520 SILT FENCE MAINTENANCE LF	628.1905 MOBILIZATIONS EROSION CONTROL EACH	628.1910 MOBILIZATIONS EMERGENCY EROSION CONTROL EACH	628.6005 TURBIDITY BARRIERS SY
0010	19+00 - 20+52 LT	3	260	--	--	--	17
0010	19+00 - 20+52 RT	7	180	--	--	--	17
0010	21+02 - 22+00 LT	3	250	--	--	--	17
0010	21+02 - 22+00 RT	3	220	--	--	--	17
0010	UNDISTRIBUTED	4	40	950	--	--	2
SUBTOTAL (0010)		20	950	950	1	1	70
PROJECT TOTAL		20	950	950	1	1	70

CONSTRUCTION STAKING

CATEGORY	STA TO STA	650.4500 CONSTRUCTION STAKING SUBGRADE LF	650.5000 CONSTRUCTION STAKING BASE LF	650.6500 CONSTRUCTION STAKING STRUCTURE LAYOUT (B-05-418) LS	650.9910 CONSTRUCTION STAKING SUPPLEMENTAL CONTROL LS
0010	19+00 - 20+52	152	152	--	--
0010	21+02 - 22+00	98	98	--	--
0010	19+00 - 22+00	--	--	1	1
SUBTOTAL (0010)		250	250	1	1
PROJECT TOTAL		250	250	1	1

SIGNING

CATEGORY	STATION	SIGN CODE	SIGN MESSAGE	SIZE IN X IN	634.0614 POSTS WOOD 4X6-INCH X 14-FT EACH	637.2210 SIGNS TYPE II REFLECTIVE H SF
0010	20+52 RT	W5-52R		12 X 36	1	3.00
0010	20+52 LT	W5-52L		12 X 36	1	3.00
0010	21+02 RT	W5-52R		12 X 36	1	3.00
0010	21+02 LT	W5-52L		12 X 36	1	3.00
SUBTOTAL (0010)					4	12
PROJECT TOTAL					4	12

PAVEMENT MARKING

CATEGORY	STA TO STA		646.0106 PAVEMENT MARKING EPOXY 4-INCH (WHITE) LF	(YELLOW) LF
0010	17+52 - 20+52	LT	300	--
0010	17+52 - 20+52	RT	300	304
0010	20+52 - 21+02		100	100
0010	21+02 - 24+02	LT	300	196
0010	21+02 - 24+02	RT	300	--
SUBTOTAL (0010)			1300	600
PROJECT TOTAL			1900	

SAWING

CATEGORY	STATION		690.0150 SAWING ASPHALT LF
0010	19+00	Bower Creek	22
0010	22+00	Bower Creek	23
SUBTOTAL (0010)			45
PROJECT TOTAL			45

CONVENTIONAL SYMBOLS

FOUND IRON PIPE/PIN	IP (1" UNLESS NOTED)
R/W MONUMENT	○ (SET)
R/W POST	⊙POST (SET)
COMPUTED POINT NO MONUMENT SET	×
HORIZONTAL CONTROL POINT	△
EXISTING R/W POST	⊙POST
SIGN	|SIGN
WELL	Ⓦ
SEPTIC VENT	⊙SEPV
SECTION CORNER MONUMENT	⊕
SECTION CORNER SYMBOL	
R/W BOUNDARY POINT	RWB20
PARCEL NUMBER	20
UTILITY INTEREST	40

PROPOSED R/W LINE	
EXISTING R/W LINE	
PROPERTY LINE	P.L.
LOT & TIE LINES	
SLOPE INTERCEPTS	
CORPORATE LIMITS	
SECTION LINE	
QUARTER LINE	
SIXTEENTH LINE	
EXISTING CENTERLINE	
BUILDING	
FENCE LINE	
TREE LINE	
FEE (HATCH VARIES)	
TEMPORARY LIMITED EASEMENT	

CONVENTIONAL UTILITY SYMBOLS

		COMPENSABLE	NON-COMPENSABLE
WATER	W	■	⊡
GAS	G	■	⊡
TELEPHONE	T	✖	✖
OVERHEAD TRANSMISSION LINES	OH	●	
ELECTRIC	E	■	
CABLE TELEVISION	TV		
FIBER OPTIC	FO		
GUY WIRE	⊙GUY		

CONVENTIONAL SIGNS AND ABBREVIATIONS

AC.	ACRES	P.L.	PROPERTY LINE
BLDG.	BUILDING	P.L.E.	PERMANENT LIMITED EASEMENT
CSM	CERTIFIED SURVEY MAP	R.	RANGE OR RECORD
C.T.H.	COUNTY TRUNK HIGHWAY	RT.	RIGHT
E.	EAST	R/W	RIGHT OF WAY
ET. AL.	AND OTHER	S.T.H.	STATE TRUCK HIGHWAY
FRACT.	FRACTURED	T.	TOWN
INC.	INCORPORATED	T.I.	TEMPORARY INTEREST
L.	LENGTH OF CURVE	T.L.E.	TEMPORARY LIMITED EASEMENT
L.C.	LONG CHORD OF CURVE	V.	VOLUME
LT.	LEFT	W.	WEST
N	NORTH	WIS.	WISCONSIN
P.C.	PRIVATE CLAIM		

POSITIONS SHOWN ON THIS PLAT ARE WISCONSIN COUNTY COORDINATE, BROWN COUNTY, NAD83 (2007) IN U.S. SURVEY FEET. VALUES SHOWN ARE GRID COORDINATES, GRID BEARINGS, AND GRID DISTANCES. GRID DISTANCES MAY BE USED AS GROUND DISTANCES.

RIGHT-OF-WAY MONUMENTS ARE TYPE 2 MONUMENTS (TYPICALLY 1"X 18"IRON PIPE) AND WILL BE PLACED PRIOR TO THE COMPLETION OF THE PROJECT.

RIGHT-OF-WAY BOUNDARIES ARE DEFINED WITH COURSES OF THE PERIMETER OF THE HIGHWAY LANDS REFERENCED TO THE U.S. PUBLIC LAND SURVEY SYSTEM OR OTHER "SURVEYS OF PUBLIC RECORD".

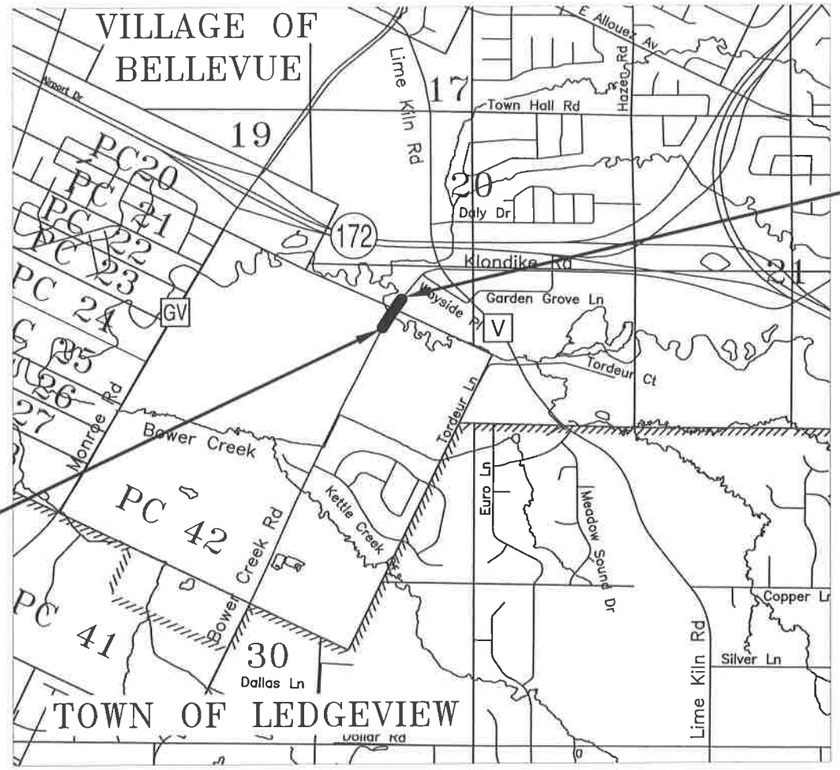
PROPERTY LINES SHOWN ON THIS PLAT ARE DRAWN FROM DATA DERIVED FROM MAPS AND DOCUMENTS OF PUBLIC RECORD AND/OR EXISTING OCCUPATIONAL LINES. THIS PLAT MAY NOT BE A TRUE REPRESENTATION OF EXISTING PROPERTY LINES, EXCLUDING RIGHT-OF-WAY LINES, AND SHOULD NOT BE USED AS A SUBSTITUTE FOR AN ACCURATE FIELD SURVEY.

DIMENSIONING FOR THE NEW RIGHT-OF-WAY IS MEASURED ALONG AND PERPENDICULAR TO NEW REFERENCE LINES.

ROAD NAME	BASIS OF EXISTING R/W	YEAR
BOWER CREEK ROAD	RELEASE OF RIGHTS-VARIOUS DOC.	1954
BOWER CREEK ROAD	4516-06-71 - PRIOR BRIDGE PROJECT	2014

R-21-E

T-23-N



T-23-N

BEGIN RELOCATION ORDER

Located S30°16'09"W, 461.19 feet from Brown County Monument 13 P/Q-6/7, Private Claim 42, ESFR Station 17+00

END RELOCATION ORDER

Located N38°02'05"E, 137.70 feet From Brown County Point 13 P/Q-6/7, Government Lot 2, Section 20, T23N, R21E Station 23+00

R-21-E
BROWN COUNTY
VILLAGE OF BELLEVUE

LAYOUT
SCALE 0 .25 MI.
TOTAL NET LENGTH OF CENTERLINE = 0.11 MI.

N

R/W PROJECT NUMBER	SHEET NUMBER	TOTAL SHEETS
4516-06-71	4.00	2

PLAT OF RIGHT-OF-WAY REQUIRED FOR

BOWER CREEK BRIDGE

BOWER CREEK ROAD — BROWN COUNTY

VILLAGE OF BELLEVUE

ORIGINAL PLANS PREPARED BY

Robert E. Lee & Associates, Inc.
ENGINEERING, SURVEYING, ENVIRONMENTAL SERVICES
1250 CENTENNIAL CENTRE BOULEVARD
HOBART, WI 54155 PHONE:(920) 662-9641
INTERNET: www.releeinc.com FAX:(920) 662-9141

WISCONSIN
SCOTT M. DE BAKER
S-2483
GREEN BAY
WI
LAND SURVEYOR

DATE: 1-18-16

ACCEPTED FOR
VILLAGE OF BELLEVUE

DIRECTOR OF PUBLIC WORKS 1/18/16
(Signature & Title of Official) (Date)

REVISION DATE
DATE: 1/26/2016 -ADDED UTILITY INTEREST TABLE

SCHEDULE OF LANDS & INTERESTS REQUIRED						
PARCEL NUMBER	OWNER(S)	INTEREST REQUIRED	R/W NEW ACRES	R/W EXISTING ACRES	R/W TOTAL ACRES	PLE, TLE SF
5	CLARENCE SCHLAG FAMILY TRUST	FEE	0.031	0.105	0.136	
6	DAVID J. VAN RITE	FEE	0.034	0.073	0.107	
7	GLEN J & ROY P PANSIER ETAL	FEE	0.052	0.076	0.128	

UTILITY INTERESTS REQUIRED		
UTILITY NUMBER	OWNER(S)	INTEREST REQUIRED
200	AT&T	RELEASE OF RIGHTS

STATION & OFFSET TABLE				
POINT	STATION	OFFSET	NORTH	EAST
209	18+00.00	0.00	543432.99	107827.00
210	18+00.00	40.00 LT	543450.98	107791.28
208	18+87.31	0.00	543510.96	107866.28
211	18+87.31	40.00 LT	543528.96	107830.56
212	19+50.00	60.00 LT	543595.74	107843.53
213	20+50.00	50.00 LT	543679.20	107906.54
207	21+39.36	0.00	543724.07	108000.18
205	21+51.57	45.00 LT	543761.17	107971.94
206	21+62.19	0.00	543742.17	108014.09
200	21+72.60	49.34 RT	543720.35	108059.55
204	22+17.91	45.00 LT	543814.12	108012.63
201	23+00.00	40.00 RT	543825.46	108130.56
202	23+00.00	0.00	543850.45	108099.32
203	23+00.00	40.00 LT	543875.44	108068.09

Line Table		
Line #	Direction	Length
206-207	S37°32'36"W	22.82'
207-208*	S32°08'27"W	251.68'
211-212	N10°59'29"E	68.04'
212-213	N37°03'11"E	104.57'
213-205	N38°34'58"E	104.86'

* = LONG CHORD BEARING

NOTE:
RIGHT OF WAY IS NOT CENTERED ON ROAD ALIGNMENT

PRIVATE CLAIM 42

BOWER CREEK

GOVERNMENT LOT 2
SECTION 20

GLEN J & ROY P PANSIER
B-314

PROPOSED STRUCTURE
B-05-0418

Ingress / Egree Easement for Channel Maintenance - 81-MR-281

DAVID J. VAN RITE
B-130

Road Record 81-MR-284
Road Record Doc No. 2697783

Road Record 81-MR-281
Road Record Doc No. 2708629

BOWER CREEK ROAD

Road Record 81-MR-287
Road Record Doc No. 2699279

N = 543343.680
E = 107782.011

207-208
R=1336.56
L=252.06
Δ=10°48'18"

SHED

VILLAGE OF BELLEVUE

LARRY H. PEETERS
B-311-5

Ingress / Egree Easement for Channel Maintenance - 81-MR-287

60'

PI STA = 20+13.71
Y = 543623.846
X = 107923.154
DELTA = 10°48'18"
D = 4°17'12"
T = 126.40'
L = 252.06'
R = 1336.56'
PC STA = 18+87.31
PT STA = 21+39.36

B.C. ID 31P/Q-6/7
MAG NAIL W/WASHER
N = 543741.990
E = 108014.480

CLARENCE SCHLAG FAMILY TRUST

B-129-9

Road Record 81-MR-286

B.C. ID 31 Q/R-7/8
COMPUTED FROM TIES
N = 542961.454
E = 109640.646

REVISION DATE 1/15/16 1/26/16 -ADDED PARCEL 200	DATE 1/18/2016 GRID FACTOR N/A	SCALE, FEET 0 20' 40'	HWY: BOWER CREEK ROAD COUNTY: BROWN	STATE R/W PROJECT NUMBER 4516-06-71 CONSTRUCTION PROJECT NUMBER 4516-06-71	PLAT SHEET 4.01 PS&E SHEET 9 -- 11	E

PI STA = 20+13.71
Y = 543623.846
X = 107923.154
DELTA = 10°48'18"
D = 4°17'12"
T = 126.40'
L = 252.06'
R = 1336.56'
PC STA = 18+87.31
PT STA = 21+39.36

BOWER CREEK CONSTRUCTION

VERITAS ASSET HOLDINGS LLC
B-314

DAVID J. VANRITE
B-130

CLARENCE SCHLAG
FAMILY TRUST
B-129-9

LARRY PETERS
B-311-5

BOWER CREEK ROAD

BOWER CREEK

PRIVATE CLAIM

PL

STRUCTURE B-05-0418
REQUIRED

EROSION BALE, BARRIER

34' CLEAR ROADWAY

END OF DECK
STA. 20+51.75

20+50
50' LT.

19+00
MATCH EX.

PI: 18+87.31

18+00

19+00

20+00

TURBIDITY BARRIER

SILT FENCE REQUIRED

TURBIDITY BARRIER

EROSION BALE, BARRIER

CONCRETE APPROACH SLAB
(15'-8" IN LENGTH) (TYP.)

21+55
45' LT.
EXISTING BRIDGE

PI: 22+17.91

22+00
MATCH EX.

21+00

END OF DECK
STA. 21+01.75

22+00

23+00

21+70.52
41' RT.

PT: 21+39.36

EX. RIGHT OF WAY

EROSION MAT CLASS I, TYPE B
(TYP.)

19+00
MATCH
EX.

EROSION BALE, BARRIER

SLOPE INTERCEPT

20+50
55' RT.

SILT FENCE REQUIRED
EROSION BALE, BARRIER

STA. 19+00
START PROJECT
FULL DEPTH SAWCUT
MATCH EXISTING

BENCHMARK	BENCHMARK ESTABLISHED BY: ROBERT E. LEE & ASSOCIATES, INC. FIELD VERIFY BENCHMARKS FOR ACCURACY.	
NO.	DESCRIPTION	EL.
1	NAIL IN PP*645AA24	598.06
2	FOUND CHISELED SQUARE	599.08
3	NAIL IN PP*645BB15	593.45

SUPER ELEVATION DATA		
STATION	RATE %	REMARKS
19+00	-2	END NORMAL CROWN
19+50	3.1%	BEGIN FULL SUPER ELEVATION
21+18	3.1%	END FULL SUPER ELEVATION
22+00	-2	BEGIN NORMAL CROWN

EROSION BALE, BARRIER
HEAVY RIP RAP
EROSION MAT
SILT FENCE

STA 19+00.00
EL 598.67

VPC STA 19+30.00
VPC EL 598.91

VPI STA 19+90.00
VPI EL 599.38

VPT STA 20+50.00
VPT EL 599.08

STA. 22+00
END PROJECT
FULL DEPTH SAWCUT
MATCH EXISTING

STA 23+00.00
EL 597.83

600.00
590.00
580.00

0.79%

-0.50%

VCL = 120.00
K = 93.04

STA. 20+76
REMOVE EXISTING STRUCTURE
P-05-103 SINGLE SPAN
PRESTRESSED BOX GIRDER BRIDGE
41.1 FEET LONG

STA. 20+76.75
STRUCTURE B-05-0418 REQUIRED
SINGLE SPAN CONCRETE SLAB
34' CLEAR ROADWAY

OBSERVED WSE 586.68
10-28-13

EXISTING PROFILE

FINISHED GRADE

18 19 20 21 22 23

598.36 598.35 | 598.55 598.51 | 598.67 598.67 | 598.74 599.04 | 598.77 599.20 | 598.73 599.08 | 598.70 598.83 | 598.64 598.58 | 598.33 598.33 | 598.06 598.08 | 597.81 597.83

PROJECT NO: 4516-06-71	HWY: BOWER CREEK ROAD	COUNTY: BROWN	PLAN AND PROFILE: BOWER CREEK ROAD	SHEET 10

12

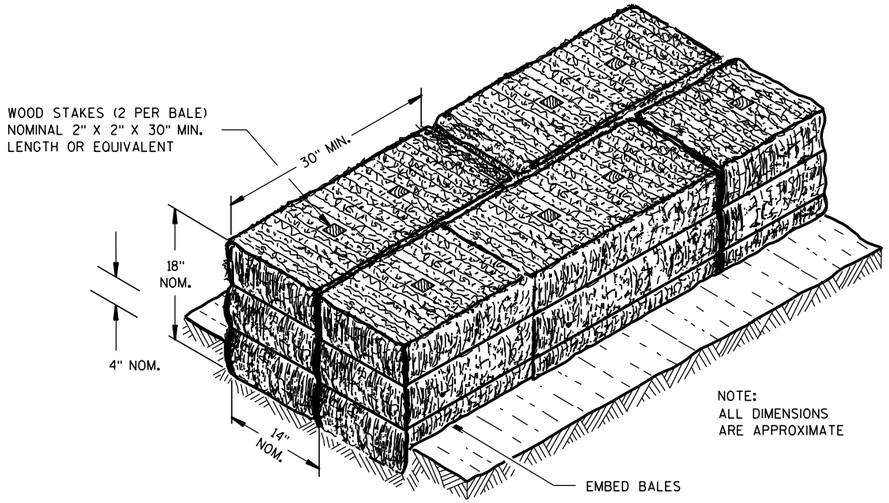
E

FILE NAME : R:\1000\1075\1075153\DWG\1075153 PP.DWG PLOT DATE : 1/18/2016 2:13 PM PLOT BY : ROCHELLE L. BURSA PLOT NAME : PLOT SCALE : 1 IN:40 FT

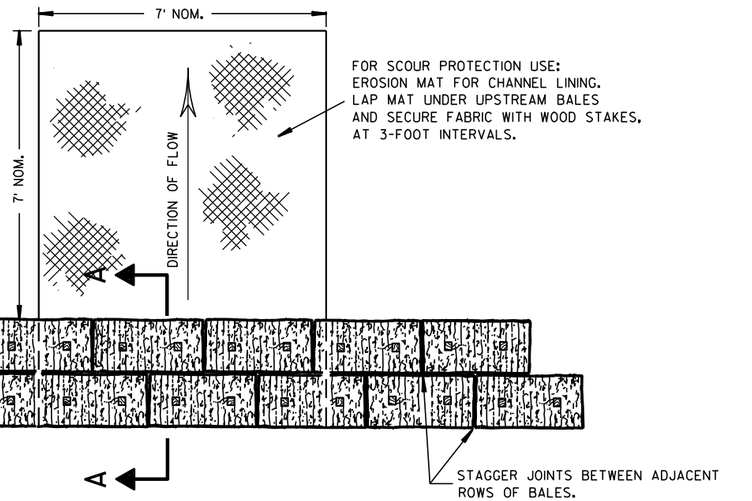
WISDOT/CADDS SHEET 44

Standard Detail Drawing List

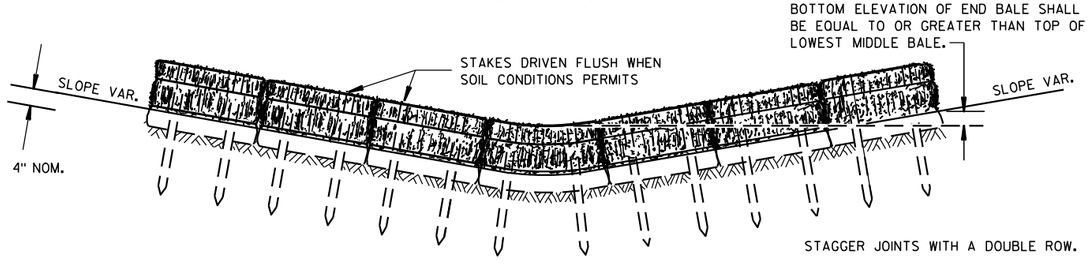
08E08-03	TYPICAL INSTALLATIONS OF EROSION BALES / TEMPORARY DITCH CHECKS
08E09-06	SILT FENCE
08E11-02	TURBIDITY BARRIER
12A03-10	NAME PLATE (STRUCTURES)
13B02-08A	CONCRETE PAVEMENT APPROACH SLAB
13B02-08B	STRUCTURAL APPROACH SLAB AND CONCRETE PAVEMENT APPROACH SLAB
14B42-03A	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-03B	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-03C	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B44-02A	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-02B	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-02C	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B45-04A	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04B	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04C	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04D	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04E	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04F	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04G	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04H	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04I	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04J	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04K	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04L	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
15C02-05A	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-05B	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-05C	DETOUR SIGNING FOR MAINLINE CLOSURES
15C04-02	TRAFFIC CONTROL, ADVANCE WARNING SIGNS 45 M.P.H. OR GREATER TWO-WAY UNDIVIDED ROAD OPEN TO TRAFFIC
15C05-02	TRAFFIC CONTROL, ADVANCE WARNING SIGNS 40 M.P.H. OR LESS
15C06-07	SIGNING & MARKING FOR TWO LANE BRIDGES
15C08-16A	PAVEMENT MARKING (MAINLINE)



SECTION A-A



PLAN VIEW



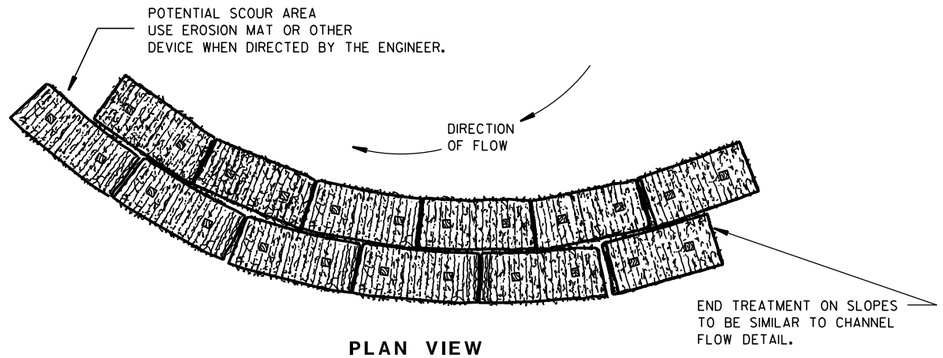
FRONT ELEVATION

TEMPORARY DITCH CHECK USING EROSION BALES ①

GENERAL NOTES

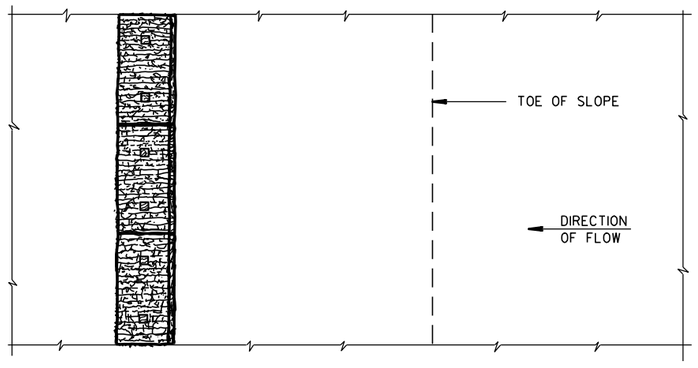
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

① TEMPORARY DITCH CHECKS EITHER EROSION BALES OR MANUFACTURED SHALL BE PAID FOR UNDER THE BID ITEM OF TEMPORARY DITCH CHECK. THE DEPARTMENT WILL NOT PAY FOR TEMPORARY DITCH CHECKS CONSTRUCTED OF A SINGLE ROW OF EROSION BALES.

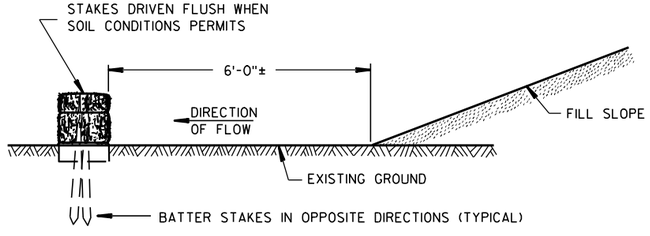


PLAN VIEW

WHEN ALTERING THE DIRECTION OF FLOW



PLAN VIEW



FRONT ELEVATION

WHEN EXISTING GROUND SLOPES AWAY FROM FILL SLOPE

EROSION BALES FOR SHEET FLOW

TYPICAL INSTALLATIONS OF EROSION BALES / TEMPORARY DITCH CHECKS

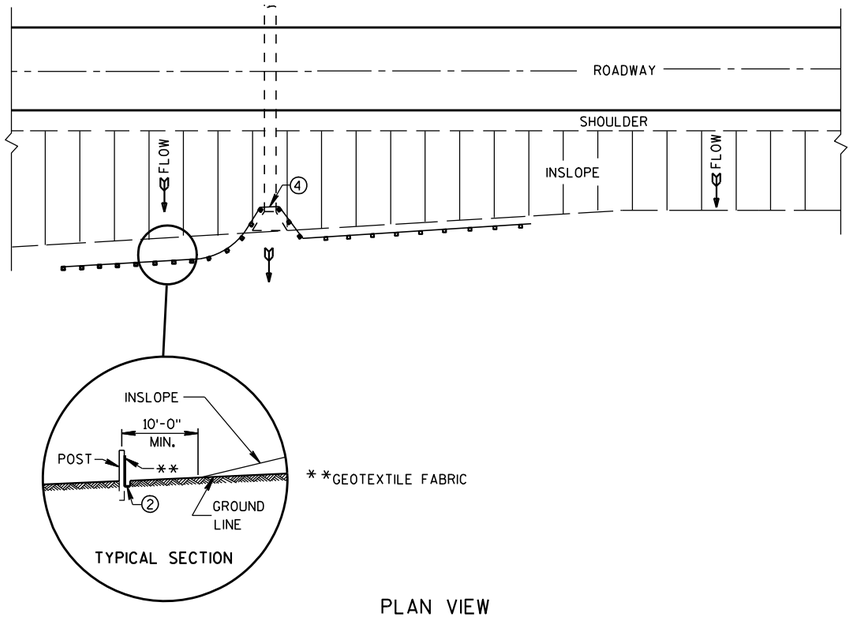
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

6/04/02 DATE — /S/ Beth Cannestra — CHIEF ROADWAY DEVELOPMENT ENGINEER

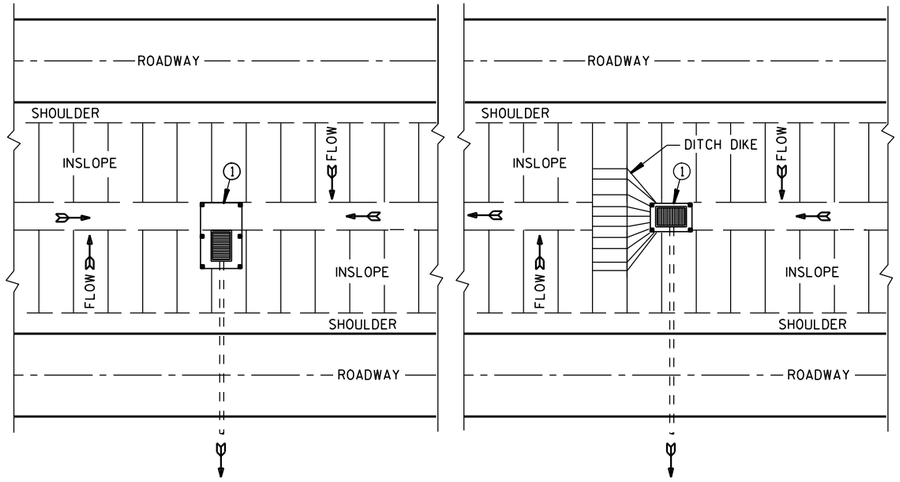
FHWA

6
S.D.D. 8 E 8-3



PLAN VIEW

TYPICAL APPLICATION OF SILT FENCE



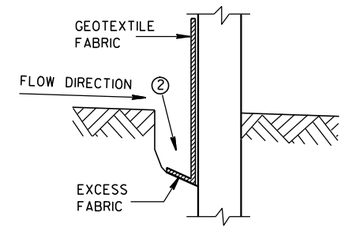
PLAN VIEW

SILT FENCE AT MEDIAN SURFACE DRAINS

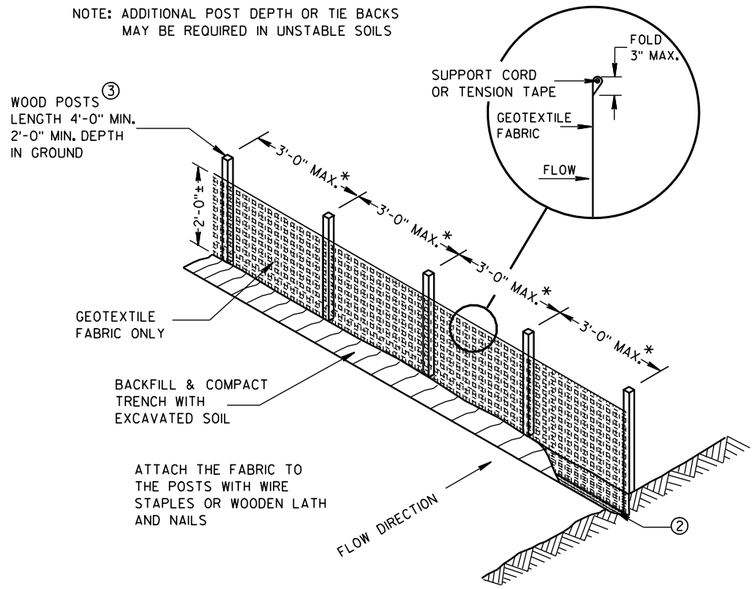
GENERAL NOTES

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

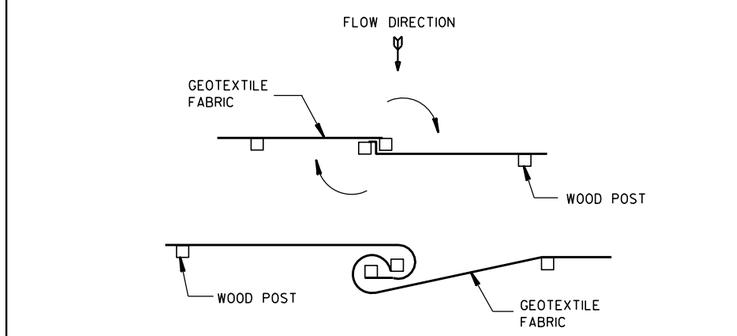
1. HORIZONTAL BRACE REQUIRED WITH 2" X 4" WOODEN FRAME OR EQUIVALENT AT TOP OF POSTS.
2. FOR MANUAL INSTALLATIONS THE TRENCH SHALL BE A MINIMUM OF 4" WIDE & 6" DEEP TO BURY AND ANCHOR THE GEOTEXTILE FABRIC. FOLD MATERIAL TO FIT TRENCH AND BACKFILL & COMPACT TRENCH WITH EXCAVATED SOIL.
3. WOOD POSTS SHALL BE A MINIMUM SIZE OF 1⅛" X 1⅛" OF OAK OR HICKORY.
4. SILT FENCE TO EXTEND ACROSS THE TOP OF THE PIPE.
5. CONSTRUCT SILT FENCE FROM A CONTINUOUS ROLL IF POSSIBLE BY CUTTING LENGTHS TO AVOID JOINTS. IF A JOINT IS NECESSARY USE ONE OF THE FOLLOWING TWO METHODS; A) OVERLAP THE END POSTS AND TWIST, OR ROTATE, AT LEAST 180 DEGREES, B) HOOK THE END OF EACH SILT FENCE LENGTH.



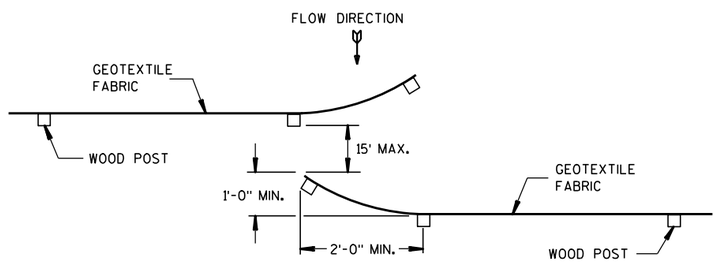
TRENCH DETAIL



SILT FENCE

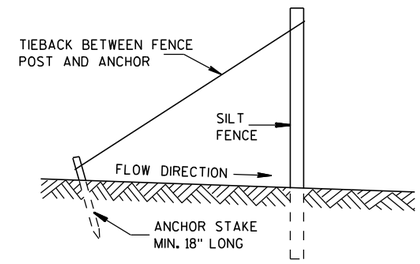


TWIST METHOD



HOOK METHOD

JOINING TWO LENGTHS OF SILT FENCE 5



SILT FENCE TIE BACK

(WHEN REQUIRED BY THE ENGINEER)

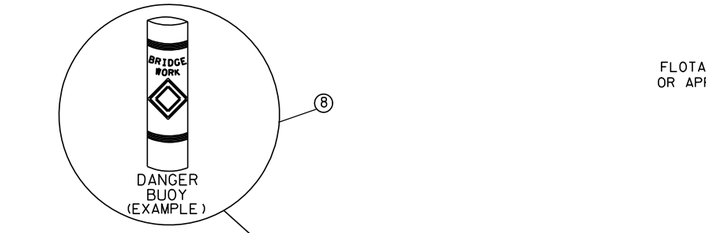
SILT FENCE	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED	
4-29-05 DATE	/S/ Beth Cannestra CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA	

6

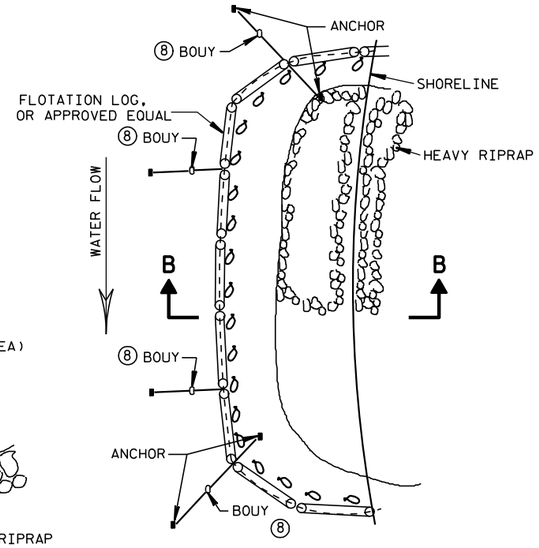
S.D.D. 8 E 9-6

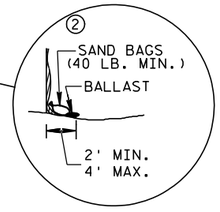
6

S.D.D. 8 E 9-6

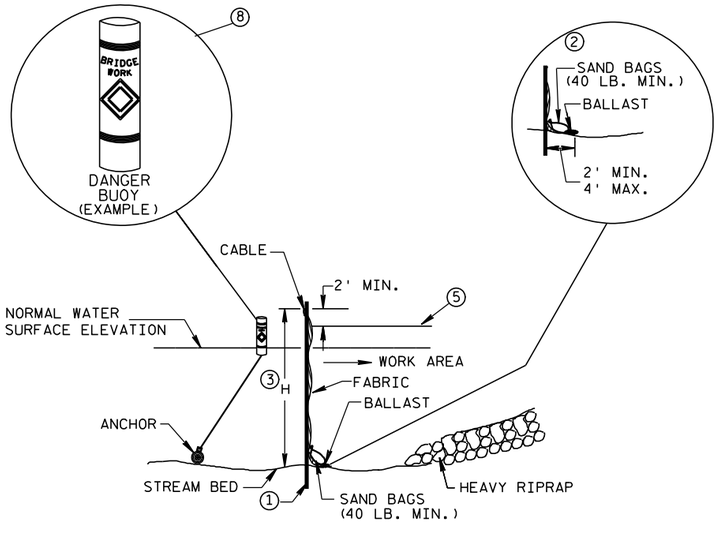


SECTION B-B

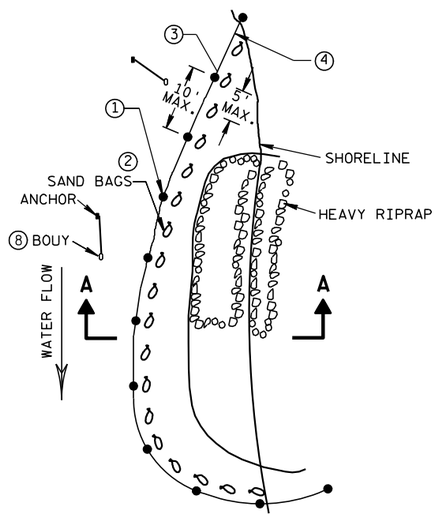




TURBIDITY BARRIER FLOAT ALTERNATIVE
CAUTION - SEE NOTE 6



SECTION A-A



PLAN VIEW

TURBIDITY BARRIER STANDARD POST INSTALLATION

TURBIDITY BARRIER PLACEMENT DETAILS

GENERAL NOTES

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

TURBIDITY BARRIER MAY BE REMOVED AT THE ENGINEERS DISCRETION, WHEN PERMANENT EROSION CONTROL MEASURES HAVE BEEN ESTABLISHED.

① DRIVEN STEEL POSTS, PIPES, OR CHANNELS. LENGTH SHALL BE SUFFICIENT TO SECURELY SUPPORT BARRIER AT HIGH WATER ELEVATIONS.

② SANDBAGS TO BE USED AS ADDITIONAL BALLAST WHEN ORDERED BY THE ENGINEER TO MEET ADVERSE FIELD CONDITIONS. SPACE AS APPROPRIATE FOR SITE CONDITIONS.

③ WHEN BARRIER HEIGHT, H, EXCEEDS 8 FT., POST SPACING MAY NEED TO BE DECREASED.

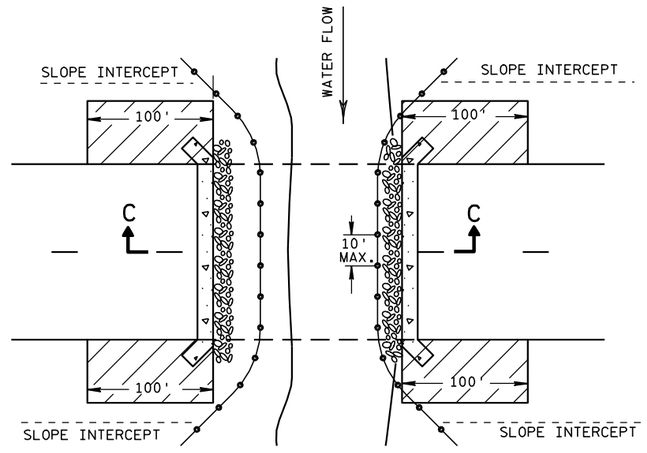
④ IN WATERWAYS SUBJECT TO FLUCTUATING WATER ELEVATIONS, PROVISIONS SHOULD BE MADE TO ALLOW THE WATER TO EQUALIZE ON EACH SIDE OF THE BARRIER. THIS MAY BE ACCOMPLISHED BY LEAVING A PORTION OF THE BARRIER OPEN ON THE UPSTREAM END.

⑤ ESTIMATED HIGH WATER ELEVATION DURING CONSTRUCTION PERIOD. MIMIMUM BARRIER HEIGHT SHALL BE 2'GREATER THAN EITHER THE O2 ELEVATION OR THE ESTIMATED HIGH WATER ELEVATION DURING CONSTRUCTION, WICHEVER IS GREATER.

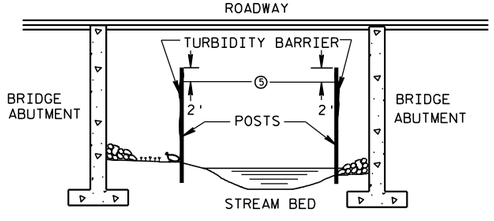
⑥ FLOAT ALTERNATIVE WILL ONLY BE ALLOWED WITH WRITTEN APPROVAL OF THE ENGINEER, AND IS MEANT FOR LOCATIONS WHERE BED ROCK PREVENTS THE INSTALLATION OF POSTS.

⑦ ALLOW SUFFICIENT SLACK VERTICALLY AND HORIZONTALLY SO THAT SEDIMENT BUILD UP WILL NOT SEPARATE OR LOWER THE TURBIDITY BARRIER.

⑧ USE AS DIRECTED BY COAST GUARD OR DNR PERMIT WHEN WORKING IN NAVIGABLE WATERWAYS.



PLAN VIEW



SECTION C-C

TURBIDITY BARRIER DETAIL SHOWING TYPICAL PLACEMENT AT STRUCTURES

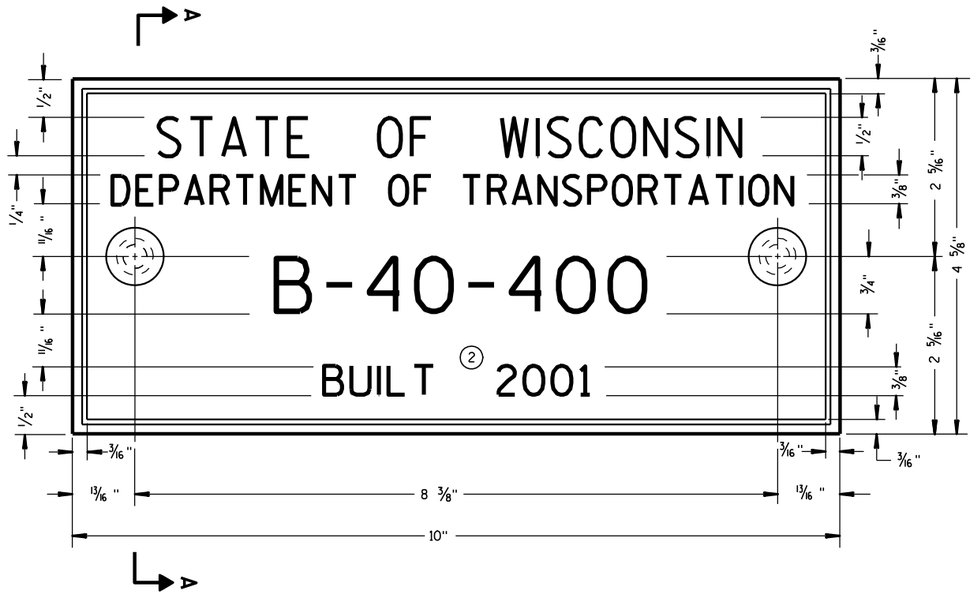
TURBIDITY BARRIER

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
6/04/02 — DATE
/S/ Beth Cannestra — CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA

6

S.D.D. 8 E 11-2



TYPICAL NAME PLATE
(BRIDGES, CULVERTS, AND RETAINING WALLS)

FOR MULTI-UNIT STRUCTURES
LINE 3 ABOVE SHALL READ

B = BRIDGE
C = CULVERT
R = RETAINING WALL

COUNTY NO.

BRIDGE NO.

UNIT NO. FOR MULTIPLE UNIT BRIDGE

B-40-400-1A

NUMBERING DESIGNATION
MULTI-UNIT STRUCTURES

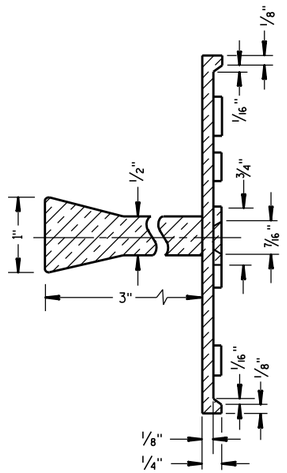
GENERAL NOTES

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.

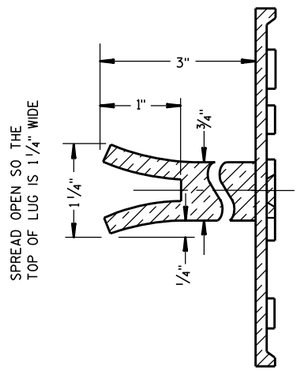
THE BRIDGE NUMBER AND YEAR BUILT SHOWN ON THIS DRAWING ARE EXAMPLES ONLY. SEE CONSTRUCTION PLANS FOR INDIVIDUAL NUMBERING AND YEAR BUILT.

(1) EPOXY RESIN SHALL BE FROM AN APPROVED MANUFACTURER AND USED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

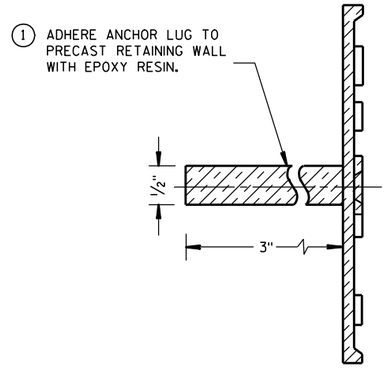
(2) REHABILITATION OF AN EXISTING STRUCTURE SHOULD USE THE DATE OF ORIGINAL STRUCTURE CONSTRUCTION.



SECTION A-A



ALTERNATE LUG



ALTERNATE LUG
(FOR ATTACHMENT TO PRECAST STRUCTURES)

NAME PLATE (STRUCTURES)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

3/26/10 DATE

/S/ Scot Beck -- CHIEF STRUCTURAL DEVELOPMENT ENGINEER

FHWA

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S.D.D. 12 A 3-10

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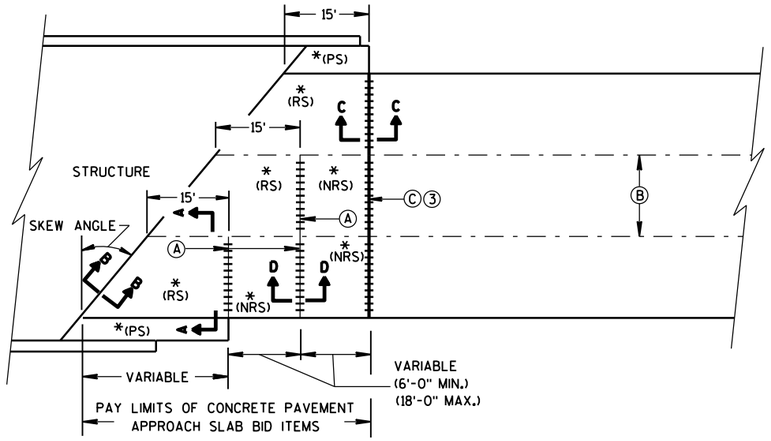
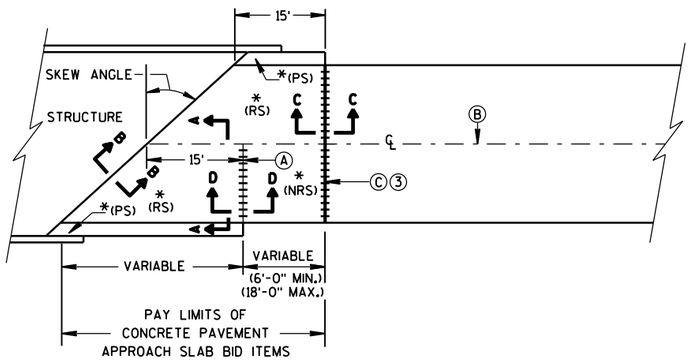
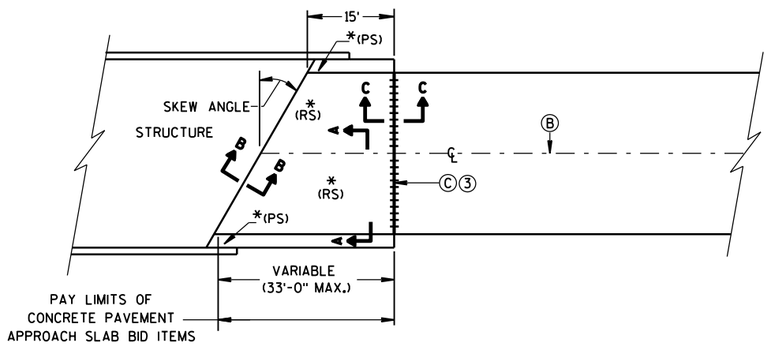
S.D.D. 12 A 3-10



SKEWED APPROACH
(PAVEMENT MORE THAN 2 LANES)



SKEWS >20°
(PAVEMENT WIDTH ≤30')



SKEWS ≤20°
(PAVEMENT WIDTH ≤30')

APPROACH SLAB AND ADJACENT PAVEMENT

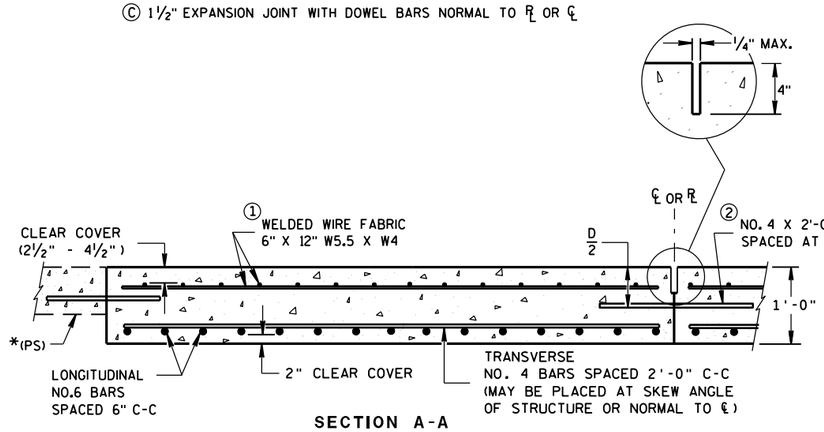
*(RS) = REINFORCED CONCRETE SLAB
*(PS) = PAVED CONCRETE SHOULDER OR CONCRETE DRAINAGE SLAB
(SEE DETAILS ELSEWHERE IN THE PLAN)
*(NRS) = NON-REINFORCED CONCRETE SLAB

***STANDARD DOWEL BAR DIAMETER
(SEE SDD 13C11, & SDD 13C13)

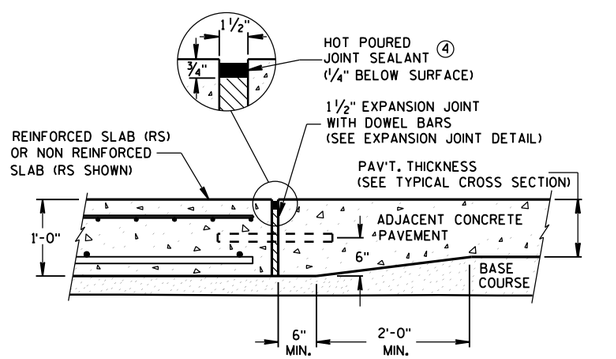
Ⓐ STANDARD CONTRACTION JOINT NORMAL TO ℄ OR ℄

Ⓑ STANDARD LONGITUDINAL JOINT WITH TIE BARS.

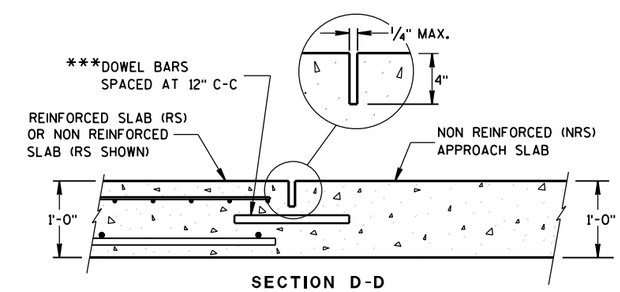
Ⓒ 1½" EXPANSION JOINT WITH DOWEL BARS NORMAL TO ℄ OR ℄



SECTION A-A
REINFORCEMENT POSITIONING DETAIL



SECTION C-C
TRANSITION DETAIL
APPROACH SLAB TO ADJACENT PAVEMENT



SECTION D-D
CONTRACTION JOINT

GENERAL NOTES

THE CONTRACTOR MAY SPLICE NO. 6 BARS IN THE APPROACH SLAB FOR SKEWED STRUCTURES ONLY. STAGGER SPLICES WITH A MAXIMUM OF ONE SPLICE PER BAR. THE LENGTH OF LAP IS 20 INCHES.

TACK WELD DOWEL BARS TO THE BASKETS ON ALTERNATE ENDS.

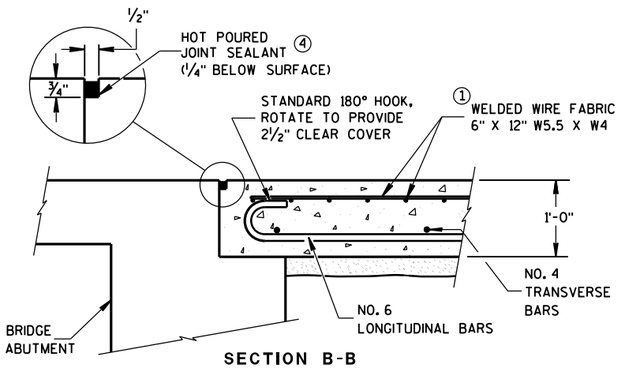
① THE CONTRACTOR MAY USE NO. 4 BARS SPACED AT 2'-0" C-C IN BOTH THE LONGITUDINAL AND TRANSVERSE DIRECTIONS FOR TOP REINFORCEMENT AS AN ALTERNATIVE TO THE WELDED WIRE FABRIC.

② THE CONTRACTOR MAY OMIT TIE BARS BETWEEN REINFORCED SLABS WHERE SLAB REINFORCEMENT BARS EXTEND ACROSS THE CENTERLINE OR REFERENCE LINE.

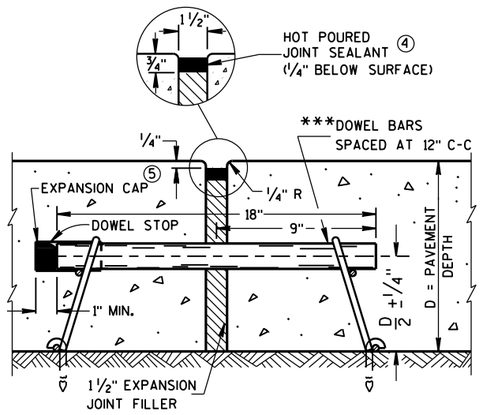
③ DO NOT CONSTRUCT AN EXPANSION JOINT OR INSTALL DOWEL BARS WHEN ABUTTING AN HMA PAVEMENT.

④ USE A JOINT SEALANT MEETING THE REQUIREMENTS OF ASTM D6690.

⑤ PLACE EXPANSION CAP ON THE END OF THE DOWEL THAT IS NOT TACK WELDED TO THE BASKET. DO NOT FORCE DOWEL BAR PAST THE DOWEL STOP.



SECTION B-B
BEND DETAIL
BOTTOM REINFORCEMENT



EXPANSION JOINT DETAIL

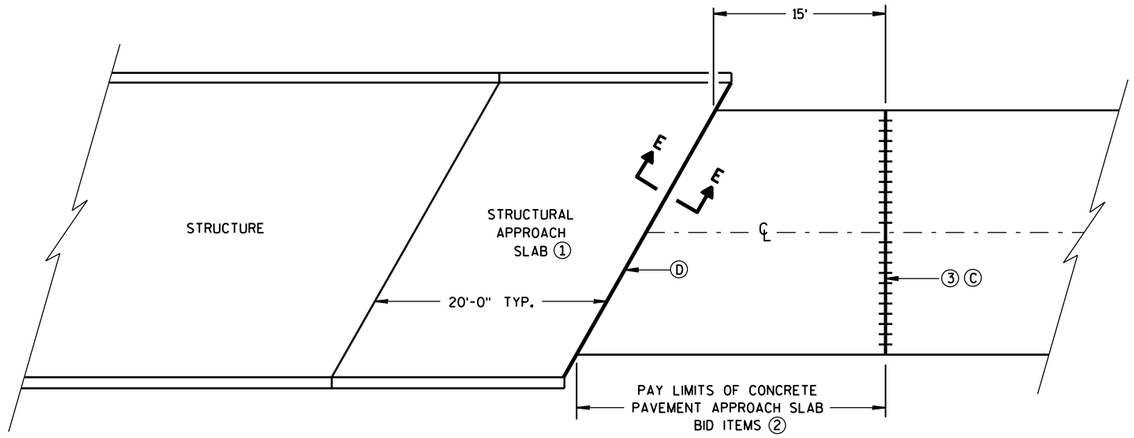
CONCRETE PAVEMENT APPROACH SLAB

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June, 2015
DATE
/S/ Peter Kemp, P.E.
PAVEMENT SUPER
FHWA

6
S.D.D. 13 B 2-8a

BRIDGE APPROACHES



GENERAL NOTES

ALL PROJECTS THAT INVOLVE A STRUCTURAL APPROACH SLAB WILL ALSO HAVE A CONCRETE PAVEMENT APPROACH SLAB.

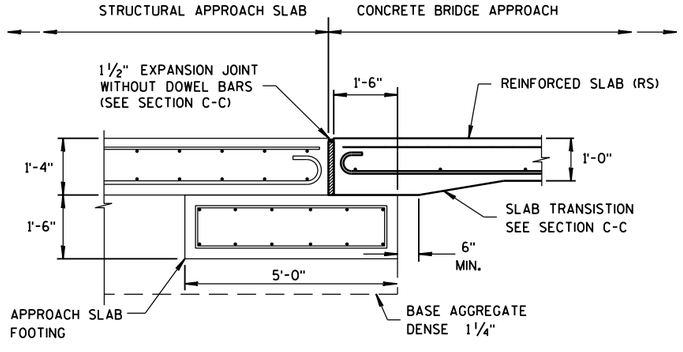
① SEE BRIDGE PLAN.

② CONFORM TO SHEET 13 B 2(A) FOR CONCRETE PAVEMENT APPROACH SLAB DETAILS.

③ DO NOT CONSTRUCT AN EXPANSION JOINT OR INSTALL DOWEL BARS WHEN ABUTTING AN HMA PAVEMENT.

Ⓒ 1½" EXPANSION JOINT WITH DOWEL BARS NORMAL TO ℄ OR ℄

Ⓓ 1½" EXPANSION JOINT (NO DOWELS)



SECTION E-E

FOOTING DETAIL

STRUCTURAL APPROACH SLAB TO CONCRETE BRIDGE APPROACH

STRUCTURAL APPROACH SLAB AND CONCRETE PAVEMENT APPROACH SLAB

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June, 2015 — DATE
/S/ Peter Kemp, P.E. — PAVEMENT SUPERV
FHWA

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S.D.D. 13 B 2-8b

GENERAL NOTES

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

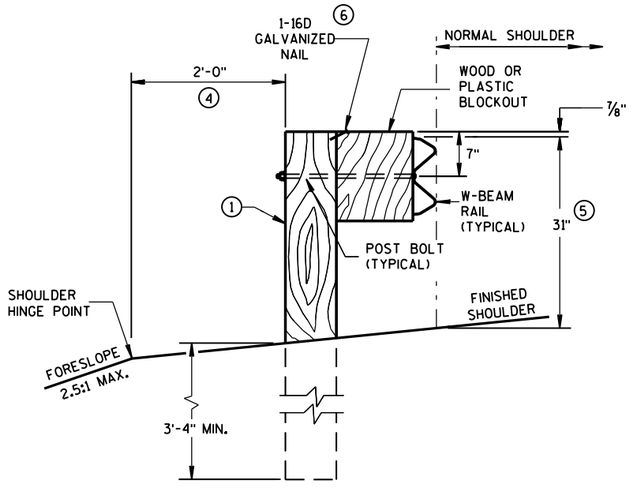
(2) USE WOOD OR APPROVED PLASTIC BLOCKOUTS. WOOD BLOCKOUTS MAY BE CONSTRUCTED OUT OF TWO OR MORE WOOD BLOCKOUTS. SEE ALTERNATE WOOD BLOCKOUT DETAIL. DIMENSIONS OF APPROVED PLASTIC BLOCKOUTS MAY VARY.

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

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

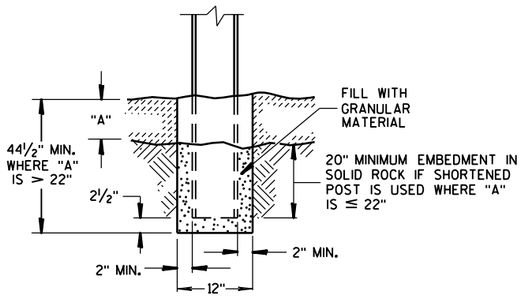
(5) FOR NEW MGS INSTALLATION TOP OF W-BEAM RAIL TOLERANCE IS ± 1". FOR EXISTING MGS INSTALLATION TOP OF W-BEAM IS BETWEEN 27¾" TO 32".

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



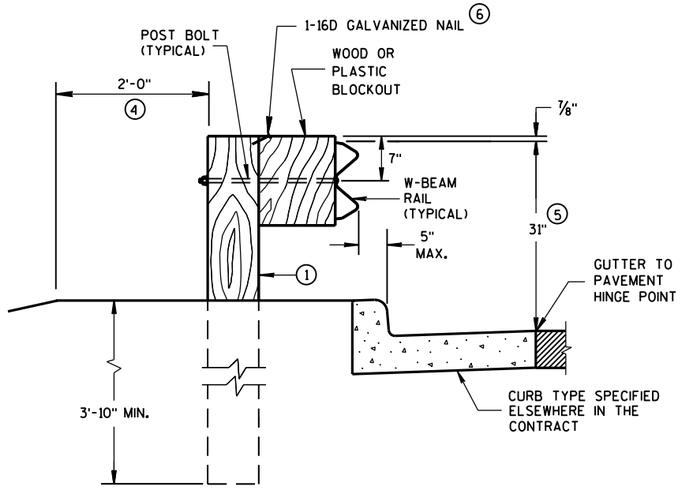
END VIEW

LOCATED ALONG A ROADWAY SHOULDER
STANDARD INSTALLATION



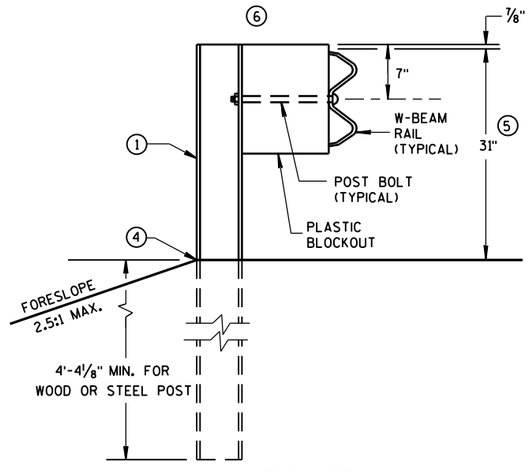
END VIEW

SETTING STEEL OR WOOD POST IN ROCK (3)



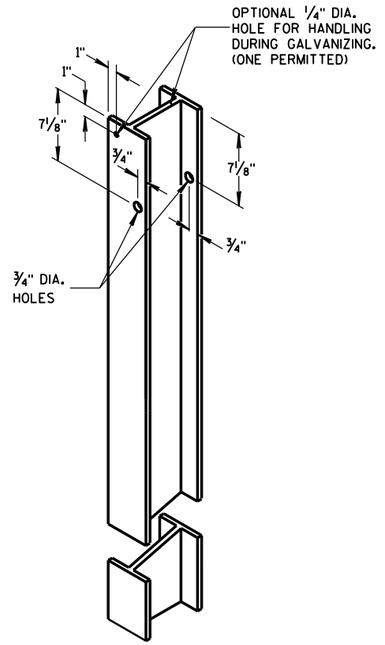
END VIEW

LOCATED ALONG A CURBED ROADWAY

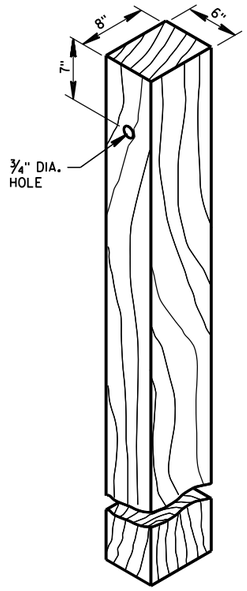


END VIEW

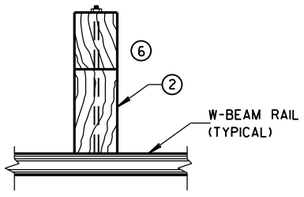
MGS LONGER POST AT HALFPOST SPACING W BEAM (K)



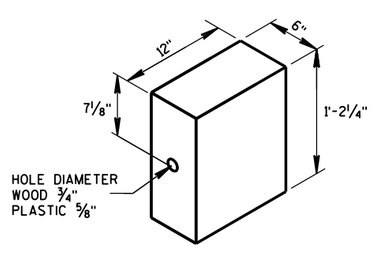
STEEL POST &
HOLE PUNCHING DETAIL
(w6X9) (1)



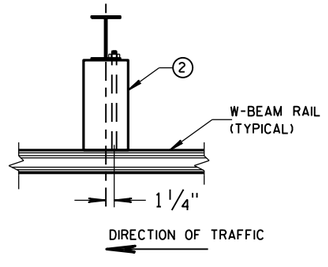
WOOD POST
(6" X 8") NOMINAL (1)



PLAN VIEW
WOOD POST,
BLOCKOUT & BEAM



WOOD OR
PLASTIC BLOCKOUT (2)

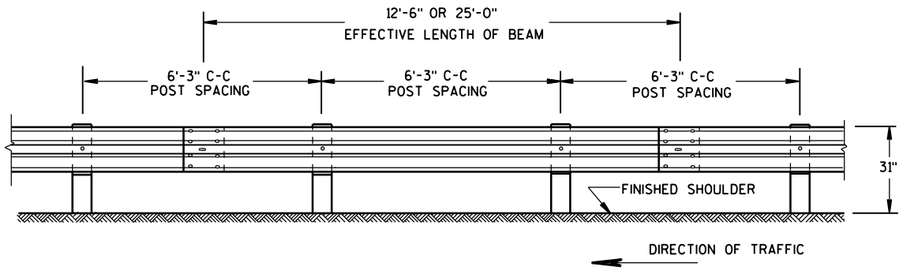


PLAN VIEW
STEEL POST,
PLASTIC BLOCKOUT & BEAM

MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL

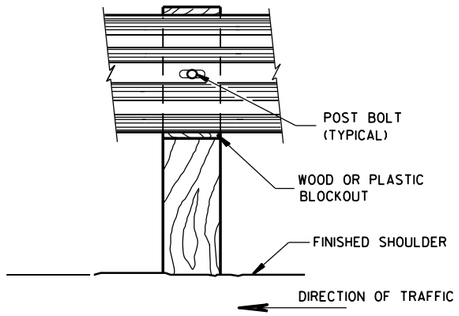
STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

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



FRONT VIEW

POST SPACING STANDARD INSTALLATION



FRONT VIEW AT WOOD POST

GENERAL NOTES

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

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

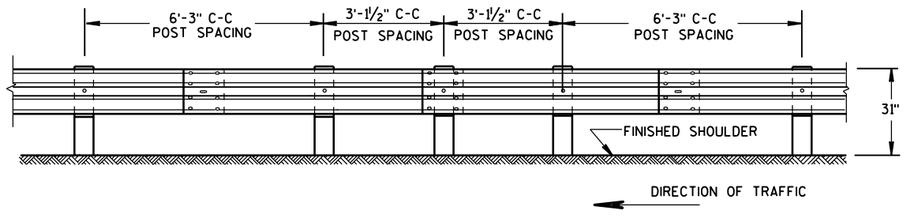
(9) REVERSE EVERY OTHER REFLECTOR FOR 2-WAY VISIBILITY. THE CONTRACTOR MAY FURNISH TWO-SIDED REFLECTORS IN LIEU OF ONE-SIDED REFLECTORS.

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

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

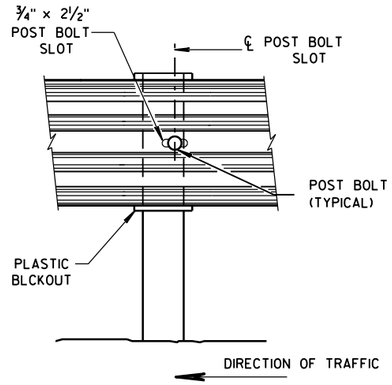
POST BOLTS ARE A 5/8" DIAMETER ASTM A307 GUARDRAIL BOLT. A POST BOLT REQUIRES 5/8" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT AND 5/8" DIAMETER F844 FLAT WASHER. POST BOLTS MAY BE LONGER IF MULTIPLE BLOCKOUTS ARE BEING USED.

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

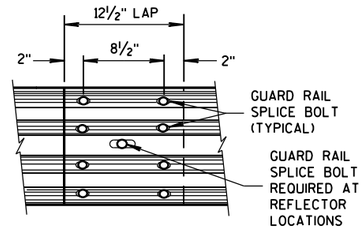


FRONT VIEW

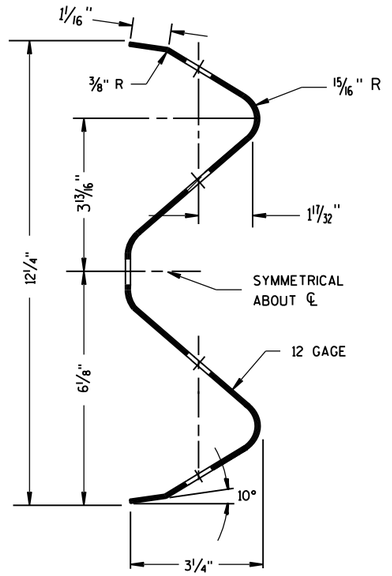
HALF POST SPACING (HS) AND HALF POST SPACING WITH LONGER POSTS (K)



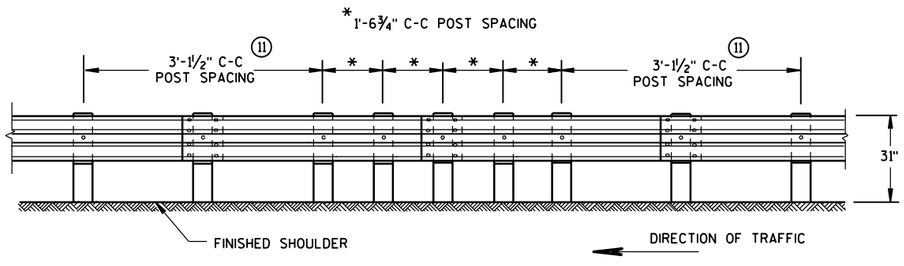
FRONT VIEW AT STEEL POST



FRONT VIEW
MID-SPAN BEAM SPLICE

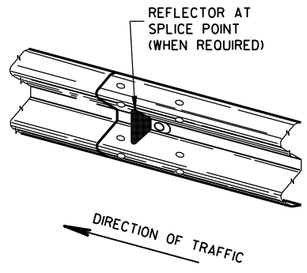


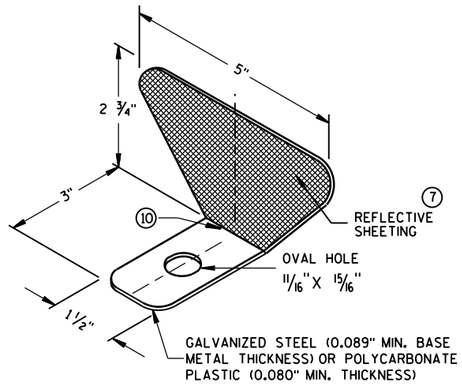
SECTION THRU W-BEAM RAIL



FRONT VIEW

QUARTER POST SPACING (QS)





ONE SIDED REFLECTOR DETAIL AND TYPICAL INSTALLATION (7)

REFLECTOR SPACING (8)

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

MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPO

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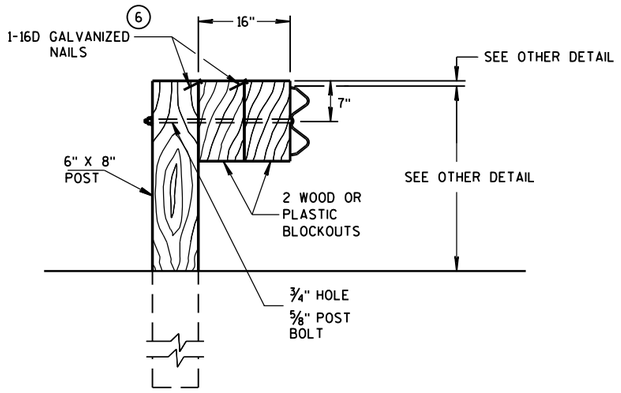
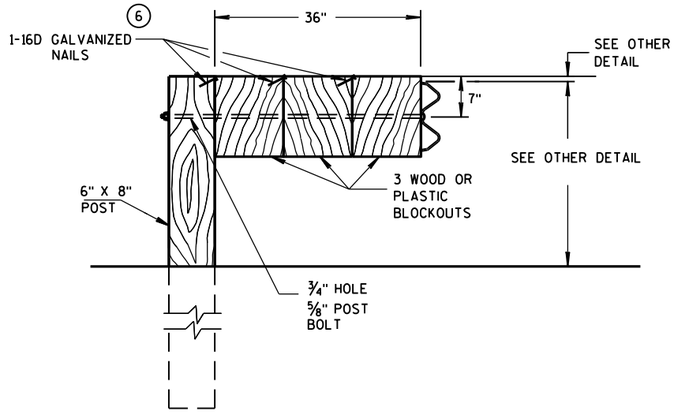
S.D.D. 14 B 42-3b



DETAIL FOR 16" BLOCKOUT DEPTH

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

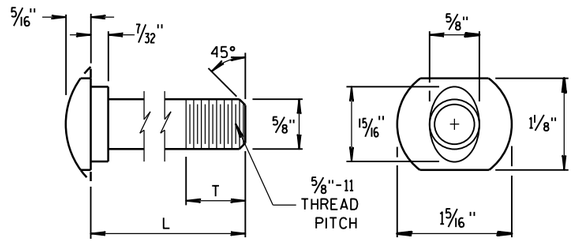


DETAIL FOR 36" BLOCKOUT DEPTH

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

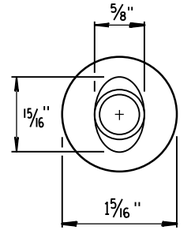
DO NOT USE 16" OR 36" BLOCKOUTS IF IT CAUSES THE POST TO BE DRIVEN BEYOND SHOULDER HINGE POINT OR CAUSES A FIXED OBJECT TO BE WITHIN THE DEFLECTION DISTANCE OF THE BARRIER.

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

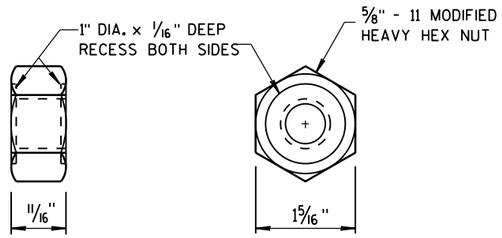


POST BOLT TABLE

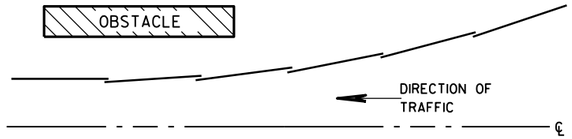
L	T (MIN.)
1 1/4"	1 1/8"
2"	1 3/4"
10"	4"
14"	4 1/16"
18"	4"
21"	4 1/16"
25"	4"



ALTERNATE BOLT HEAD

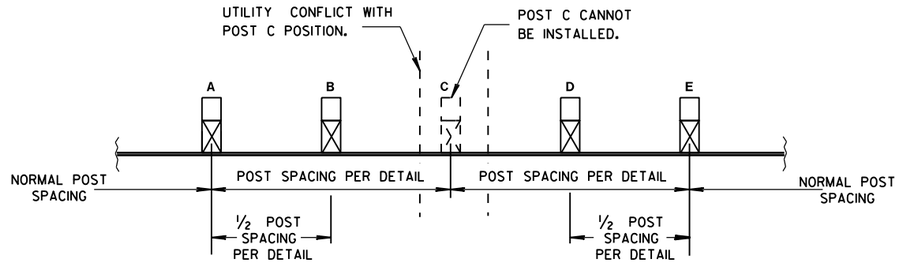


POST BOLT AND RECESS NUT

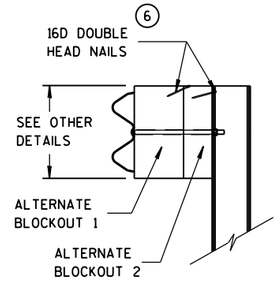


PLAN VIEW

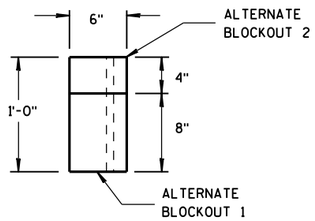
BEAM LAPPING DETAIL



POST DRIVING FOR CONTINUOUS UNDERGROUND OBSTRUCTION



SIDE VIEW



TOP VIEW

ALTERNATE WOOD BLOCKOUT DETAIL

MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

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

GENERAL NOTES

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

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

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

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

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

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

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

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

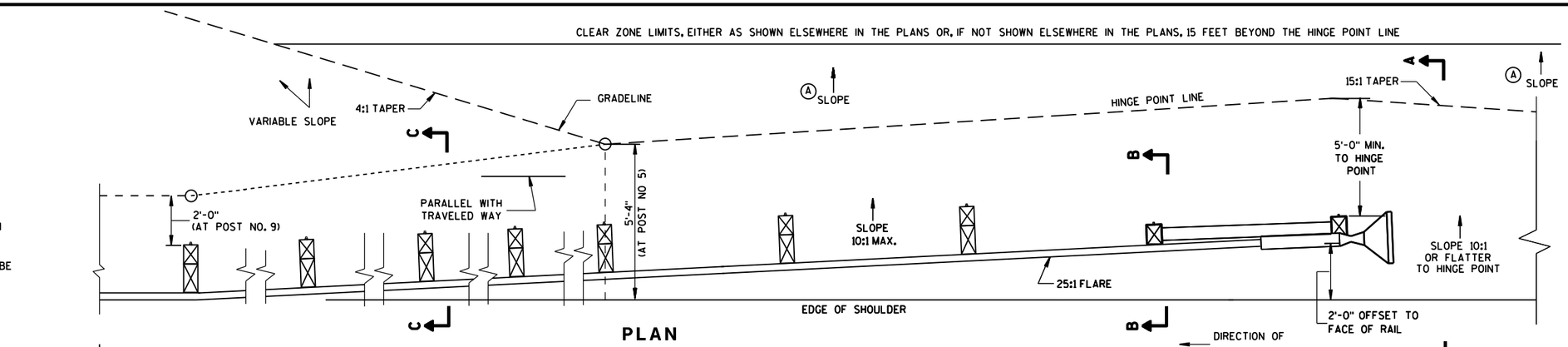
SEE SDD 14B42 FOR MORE INFORMATION.

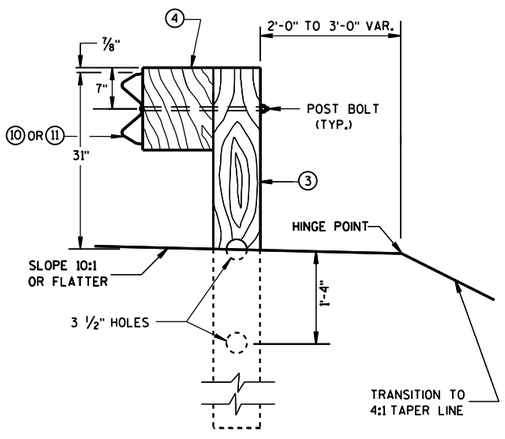
* DO NOT ATTACH BLOCKOUTS TO POSTS 1 AND 2.

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

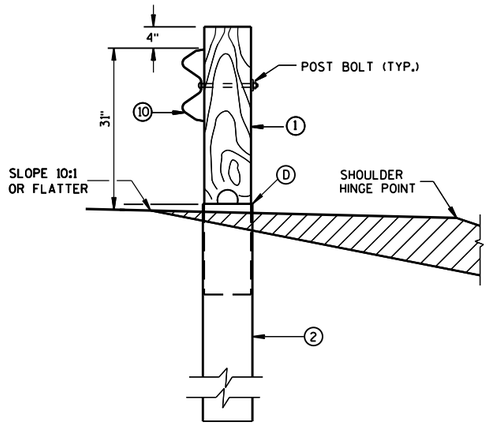
W-BEAM RAIL SPLICES ARE LOCATED AT POST NUMBER 3, AND BETWEEN POST 5 AND 6, BETWEEN POSTS 7 AND 8, AND MIDDLE OF THE SPAN AFTER POST 9.

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

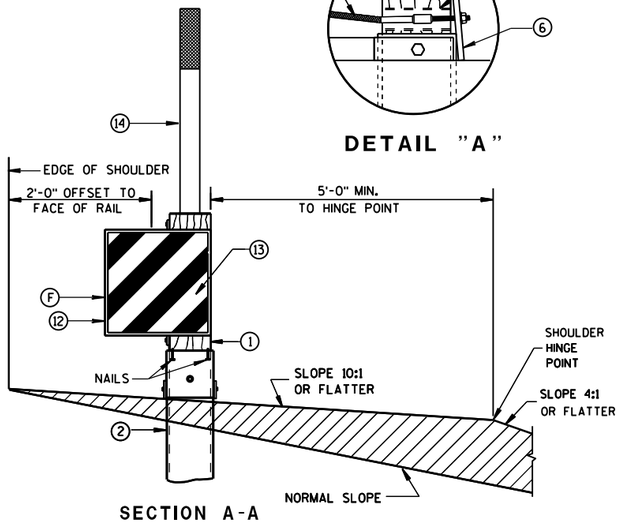




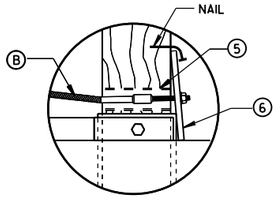
SECTION C-C
TYPICAL AT POST NOS. 3-9



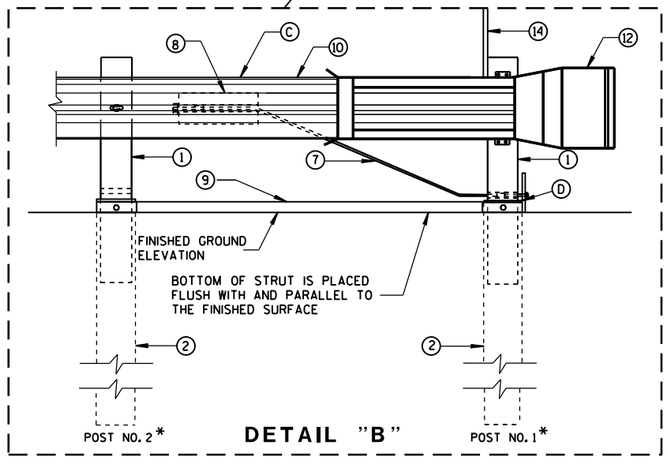
SECTION B-B
TYPICAL AT POST NO. 2*



SECTION A-A
TYPICAL AT POST NO. 1*



DETAIL "A"

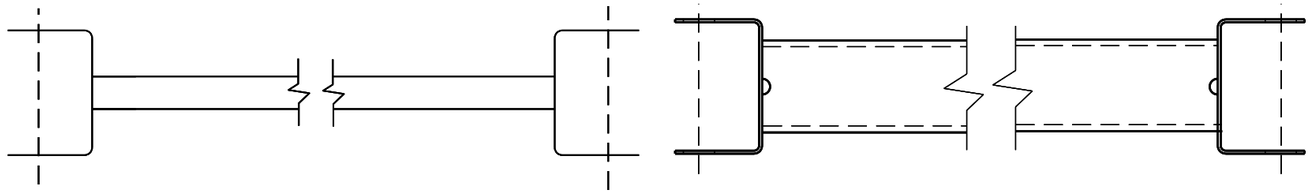


DETAIL "B"

MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL
(MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPO

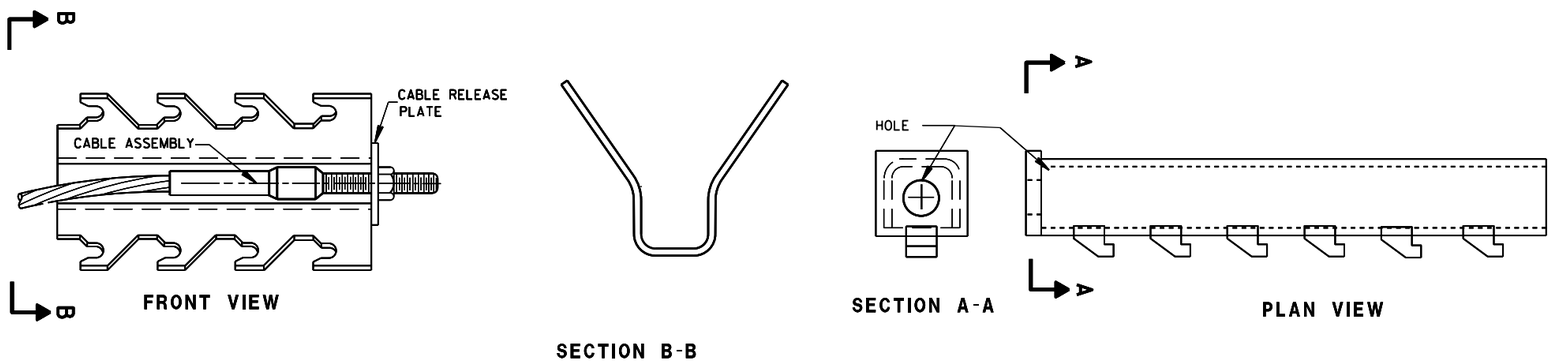
S.D.D. 14 B 44-2a



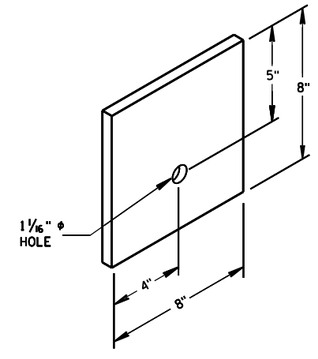
GENERIC GROUND STRUT (9) (H)

BILL OF MATERIALS

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



GENERIC ANCHOR CABLE BOX (8) (H)



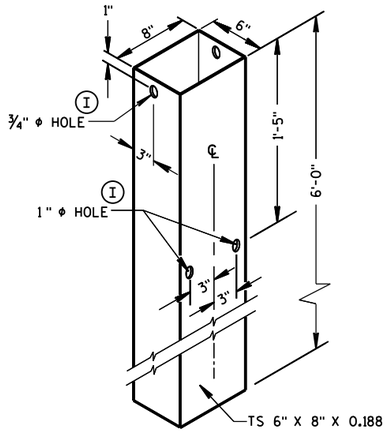
BEARING PLATE (6)

MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL
(MGS)

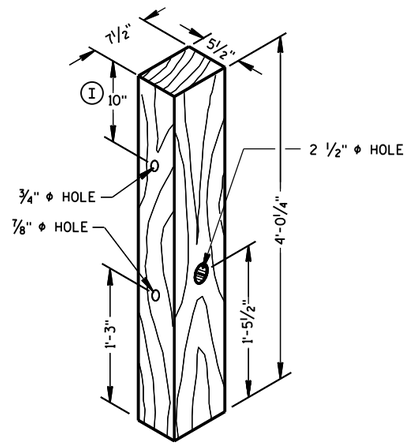
STATE OF WISCONSIN
DEPARTMENT OF TRANSPO

6

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

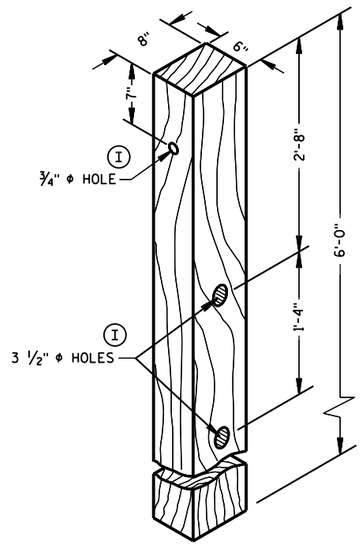


FOUNDATION TUBE (2)



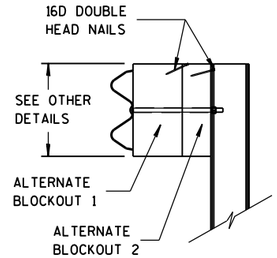
POSTS NUMBER 1 AND 2

WOOD BREAKAWAY POST (1)

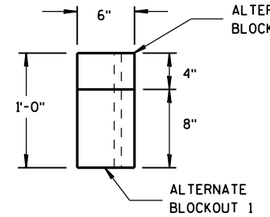


POSTS NUMBER 3-9

WOOD CRT POST (3)

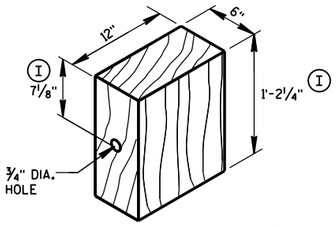


SIDE VIEW



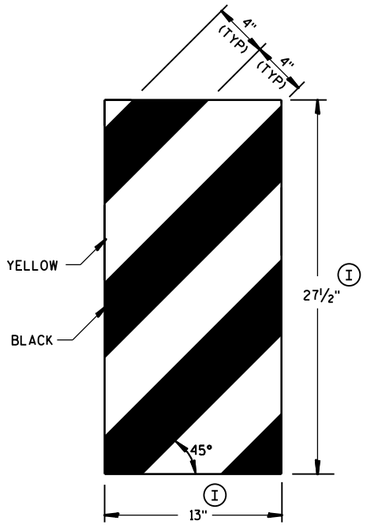
TOP VIEW

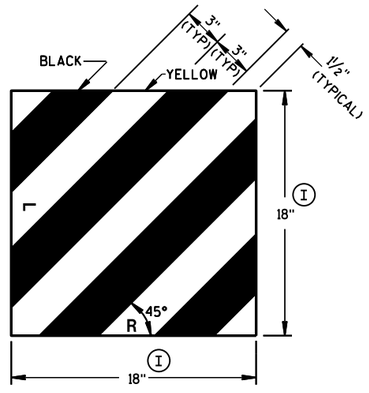
ALTERNATE WOOD BLOCKOUT DETAIL



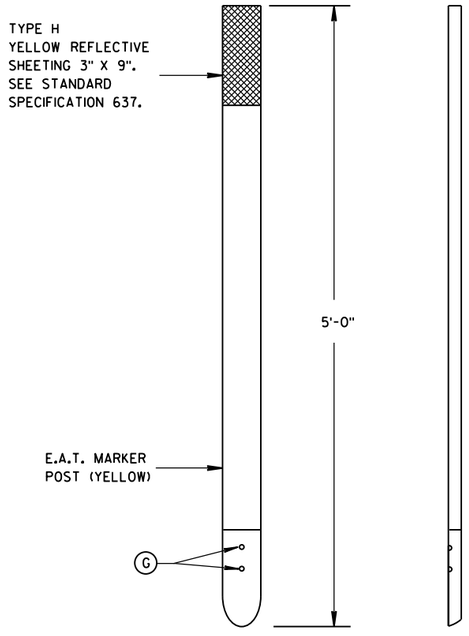
WOOD BLOCKOUT (4)

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





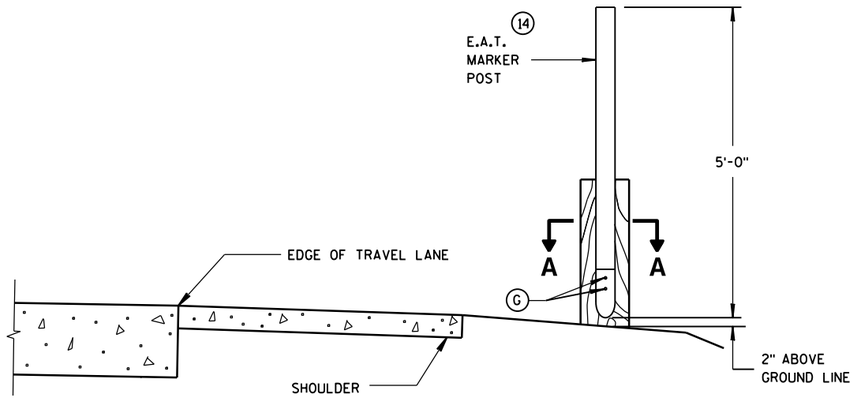
GENERIC REFLECTIVE SHEETING (13) (H)



FRONT VIEW

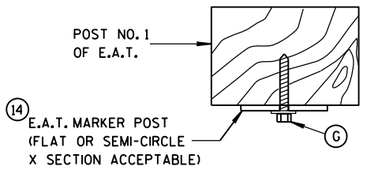
SIDE VIEW

E.A.T. MARKER POST (14)



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

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



SECTION A-A

MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

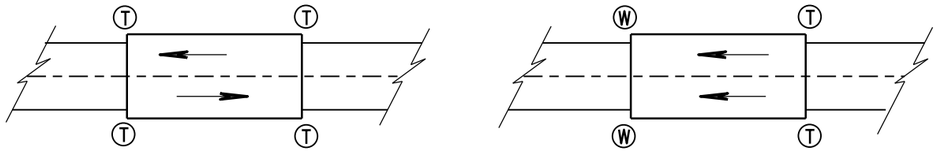
APPROVED
June 2014 — DATE
/S/ Jerry H. Zogg — ROADWAY STANDARDS ENGINEER
FHWA

6

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

6

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



TWO WAY TRAFFIC

ONE WAY TRAFFIC

Ⓣ THRIE BEAM CONNECTION

Ⓦ W-BEAM CONNECTION WHEN REQUIRED

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

GENERAL NOTES

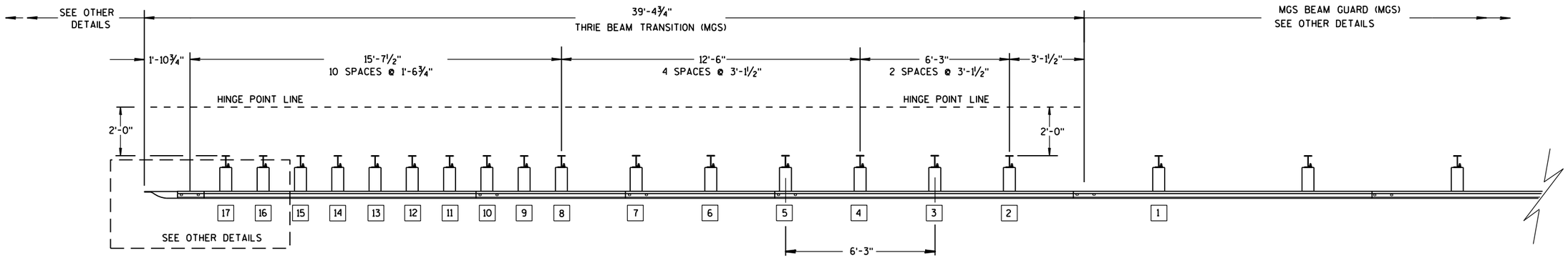
IF ROCK IS ENCOUNTERED, REMOVE ROCK TO FULL DEPTH OF POST PLUS 2½", AND 12" DIAMETER AROUND POST. SEE 14B42 FOR MORE DETAILS.

TRANSITION USES STEEL POSTS ONLY.

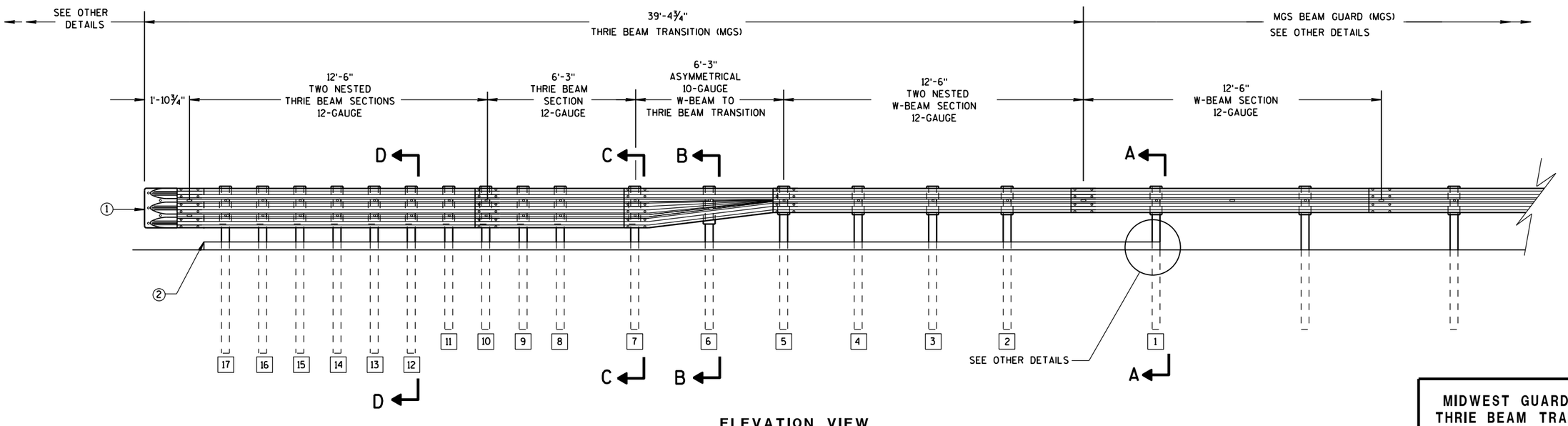
SEE STANDARD DETAIL DRAWING 14 B 42 FOR MORE INFORMATION.

① BRIDGE RAILING TYPE "W" DOES NOT REQUIRE A TERMINAL CONNECTOR.

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



PLAN VIEW



ELEVATION VIEW

MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

6

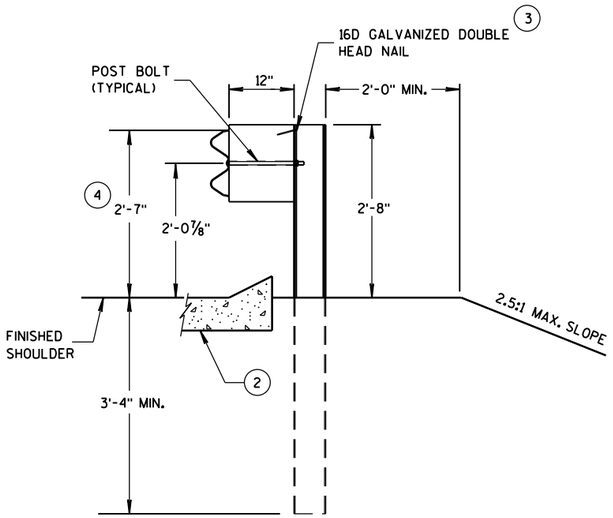
S.D.D. 14 B 45-4a

GENERAL NOTES

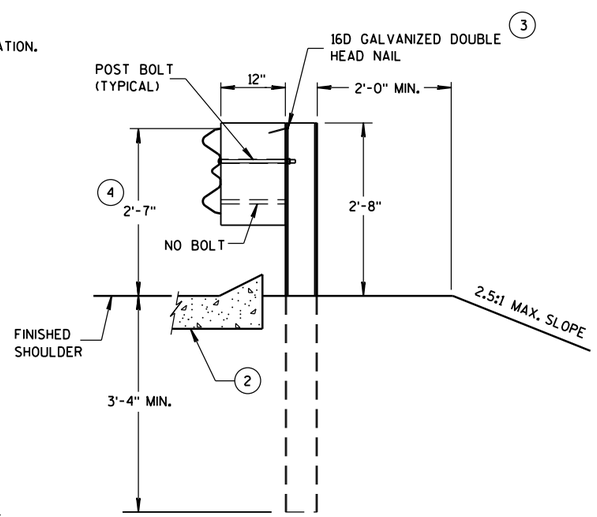
(2) OPTIONAL CURB AND GUTTER OR DRAINAGE_FEATURE SEE PLAN FOR INFORMATION.

(3) WHEN USING STEEL POSTS AND WOOD BLOCKOUTS INSTALL FOUR 10D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.

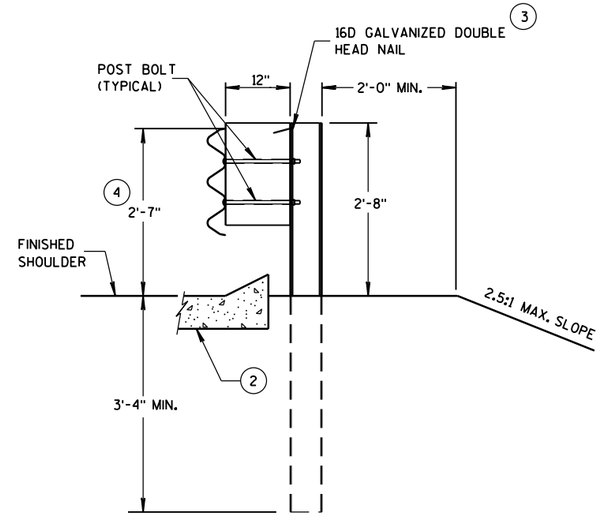
(4) TOLERANCE FOR TOP OF W-BEAM RAIL IS ± 1".



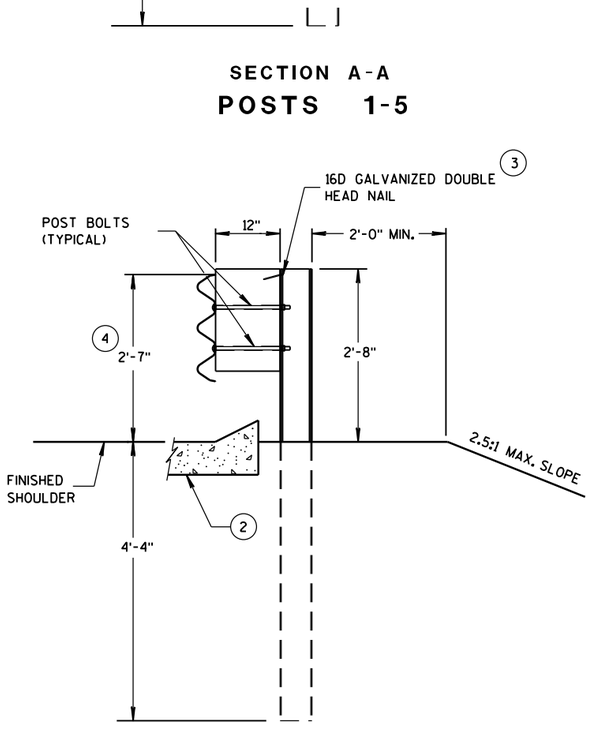
SECTION A-A
POSTS 1-5



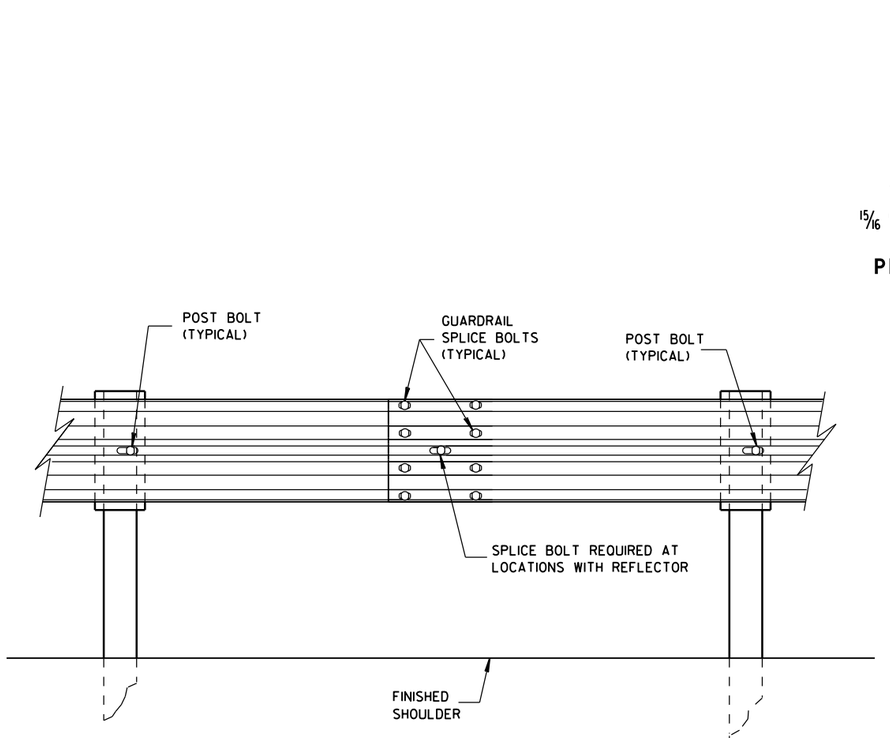
SECTION B-B
POST 6



SECTION C-C
POSTS 7-11



SECTION D-D
POSTS 12-17



SPLICE DETAIL

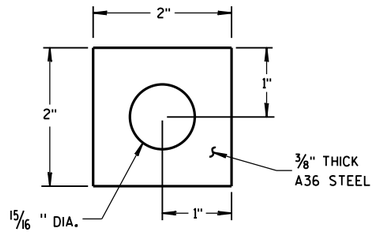
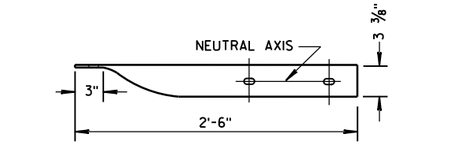
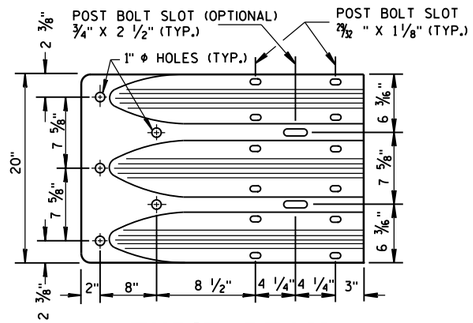
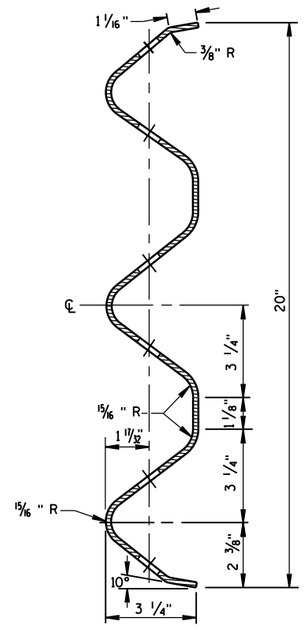


PLATE WASHER DETAIL





THRIE BEAM TERMINAL CONNECTOR



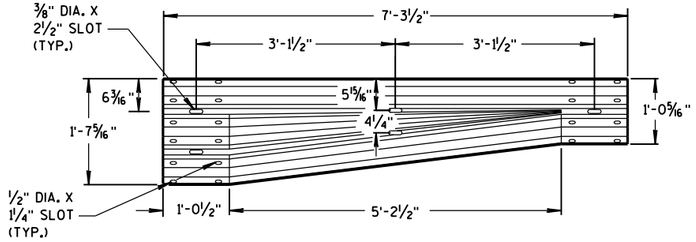
SECTION THRU THRIE BEAM RAIL ELEMENT

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

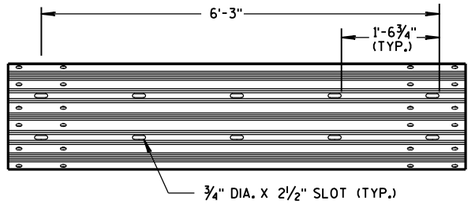
STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

6

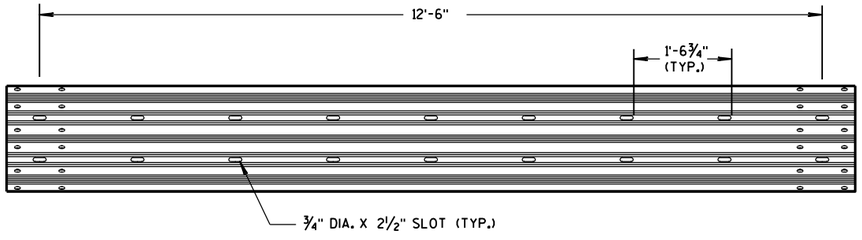
S.D.D. 14 B 45-4b



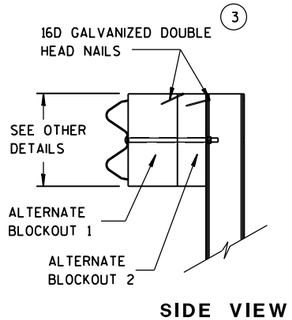
W-BEAM TO THRIE BEAM TRANSITION SECTION



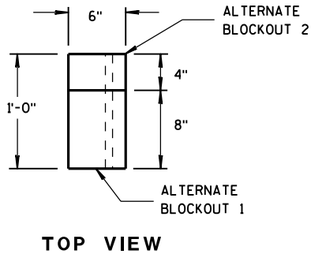
6'-3" THRIE BEAM SECTION



12'-6" THRIE BEAM SECTION

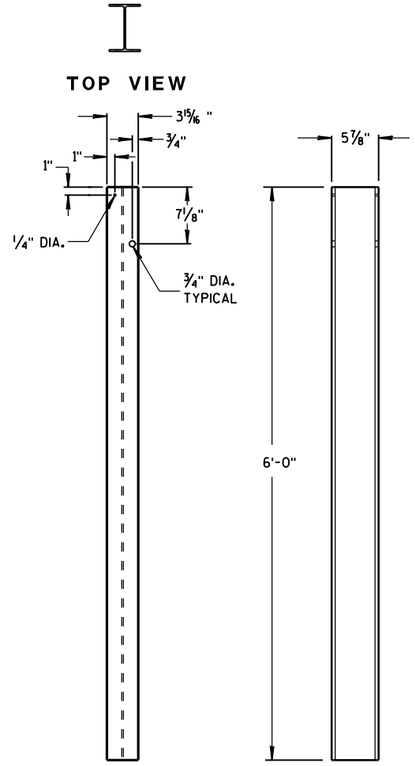


SIDE VIEW



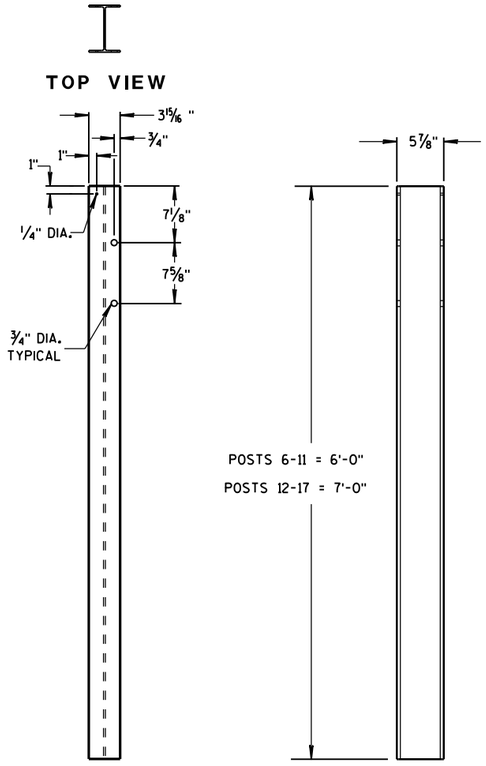
TOP VIEW

ALTERNATE WOOD BLOCKOUT DETAIL



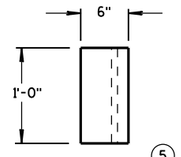
FRONT VIEW SIDE VIEW

STEEL POSTS 1-5

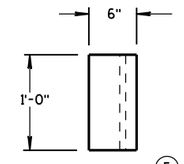


FRONT VIEW SIDE VIEW

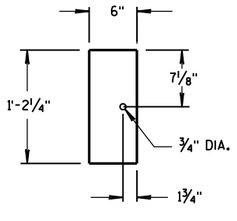
STEEL POSTS 6-17



TOP VIEW (5)

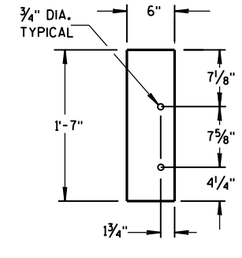


TOP VIEW (5)



FRONT VIEW

BLOCKOUT POSTS 1-5



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.

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

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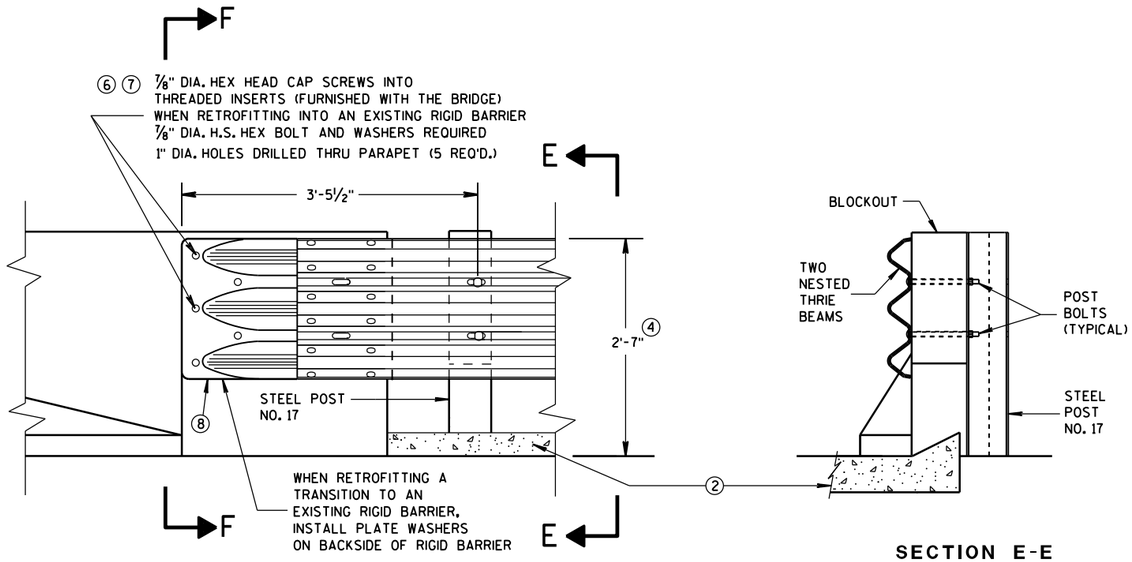
S.D.D. 14 B 45-4c



FRONT VIEW

SECTION E-E

THRIE BEAM CONNECTION TO BRIDGE PARAPET WITH SQUARE ENDS

GENERAL NOTES

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

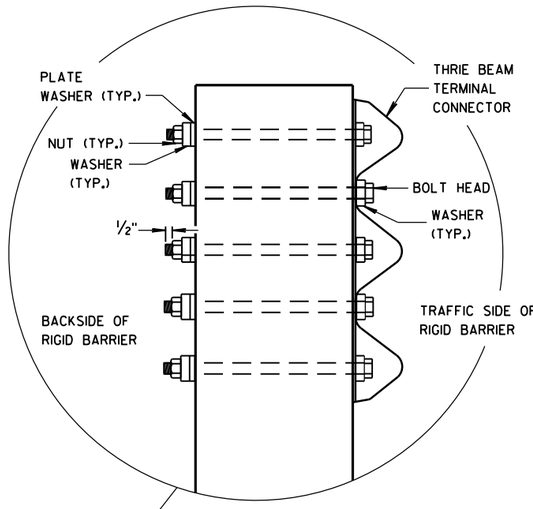
② OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.

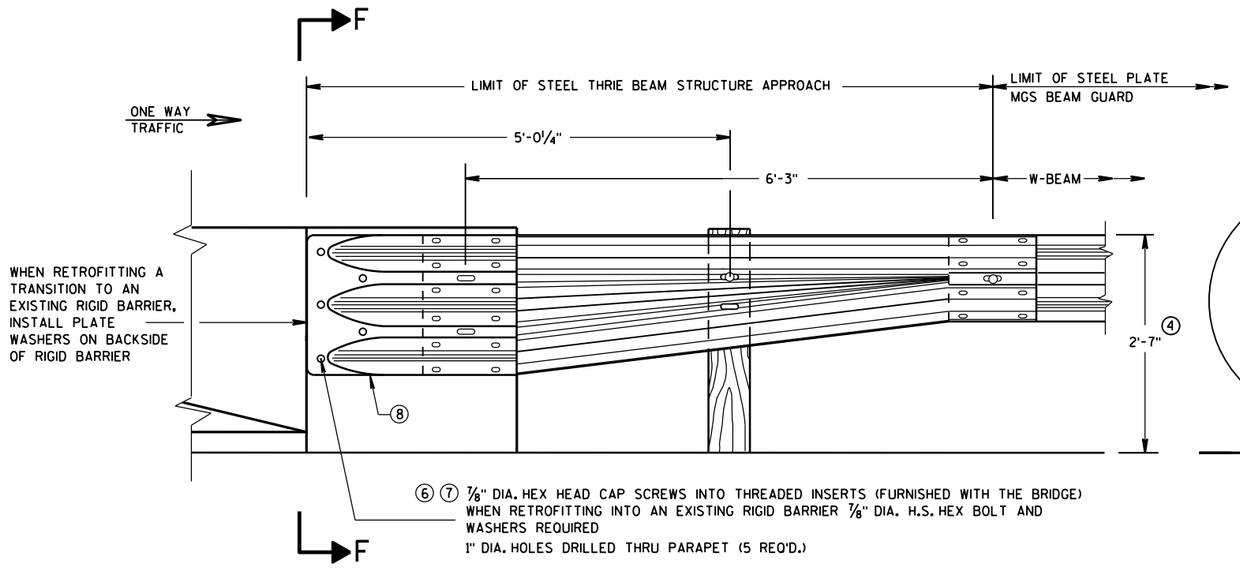
④ TOLERANCE FOR TOP OF BEAM IS ± 1".

⑥ DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.

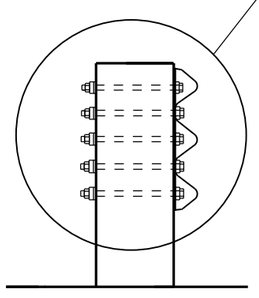
⑦ BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTOR PLATE. BOLTS THAT EXTEND THROUGH THE PARAPET AND OUT THE BACK FACE REQUIRE A HARDENED ROUND STEEL WASHER THAT IS 2" O.D. X 5/8" 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".

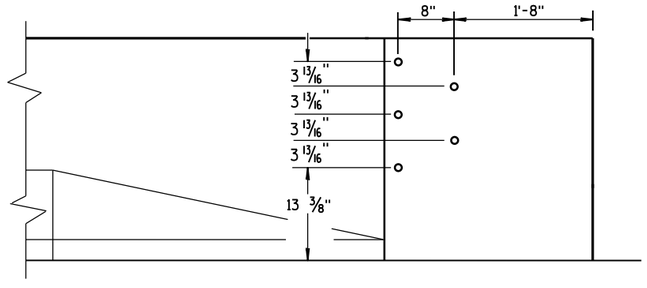




FRONT VIEW



SECTION F-F



DRILL HOLE LOCATION

W BEAM TRANSITION AND CONNECTION TO BRIDGE PARAPETS WITH SQUARE ENDS

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

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June, 2015 — DATE
/S/ Jerry H. Zogg — ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA

6

S.D.D. 14 B 45-4d

6

S.D.D. 14 B 45-4d

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.

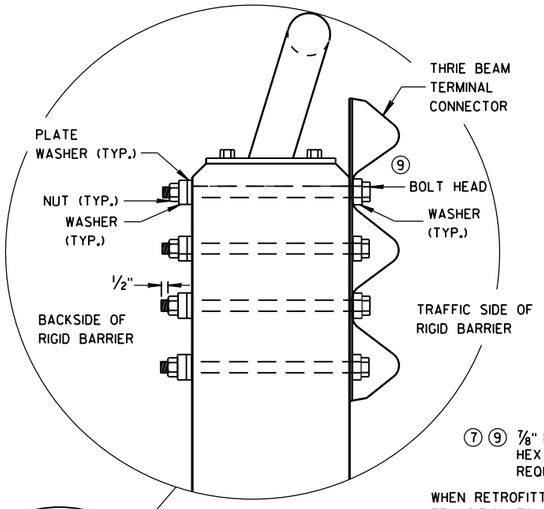
(4) TOLERANCE FOR TOP OF BEAM IS ± 1".

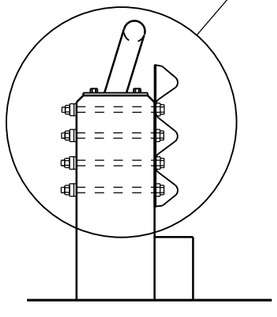
(6) DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.

(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 5/8" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.

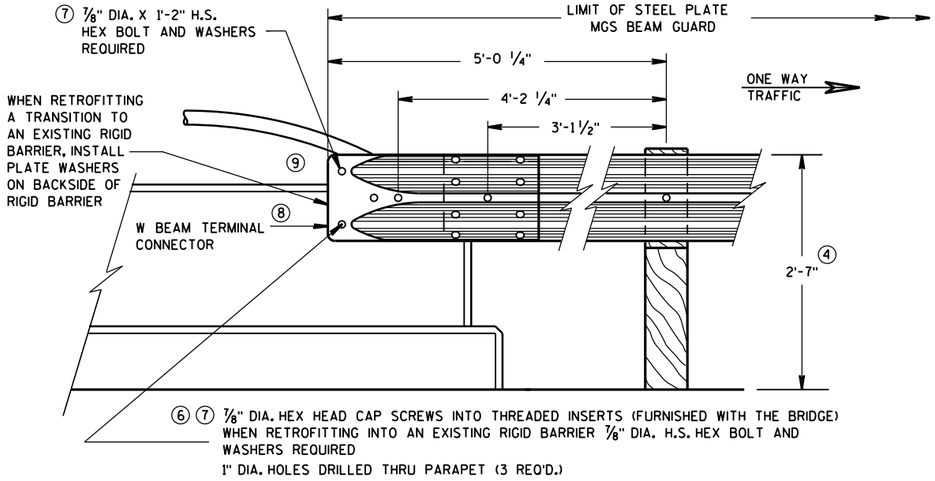
(8) THE RECESS FOR A W-BEAM CONNECTION, WHICH EXISTS ON SOME PARAPETS OF THIS TYPE, SHALL BE FILLED WITH A TREATED TIMBER BLOCKOUT. BLOCKOUT SIZE IS 1'-6" X 2'-0" X 3 1/2".

(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.





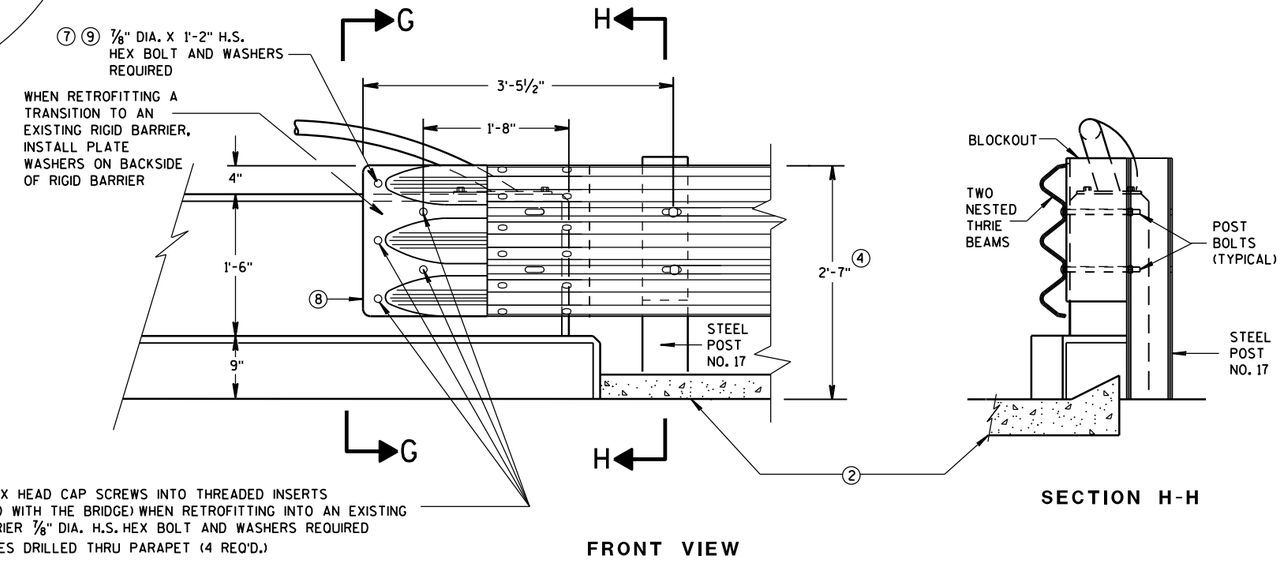
SECTION G-G



FRONT VIEW

W BEAM CONNECTION TO VERTICAL FACE PARAPET

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



FRONT VIEW

SECTION H-H

THRIE BEAM CONNECTION TO VERTICAL FACED PARAPETS

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June, 2015 — DATE
/S/ Jerry H. Zogg — ROADWAY STANDARDS DEVELOPMENT ENGINEER
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FHWA

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S.D.D. 14 B 45-4e

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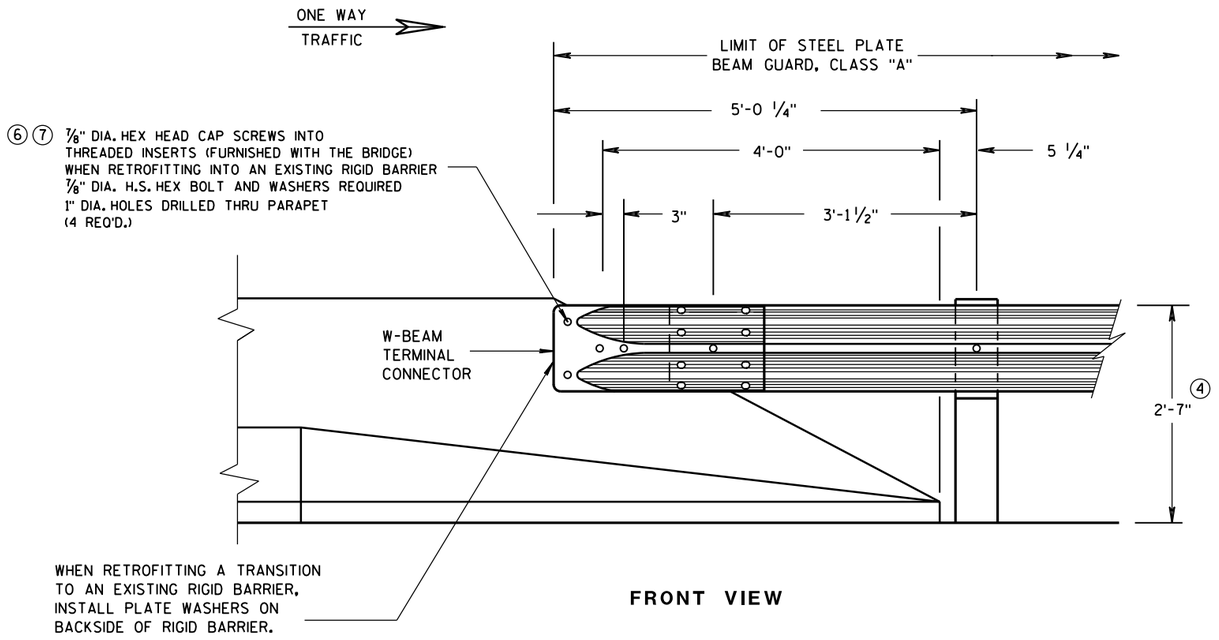
S.D.D. 14 B 45-4e



FRONT VIEW

W BEAM CONNECTION TO PARAPETS WITH SLOPED ENDS

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

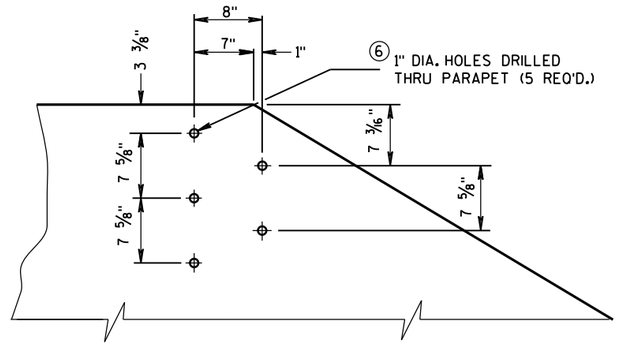
GENERAL NOTES

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

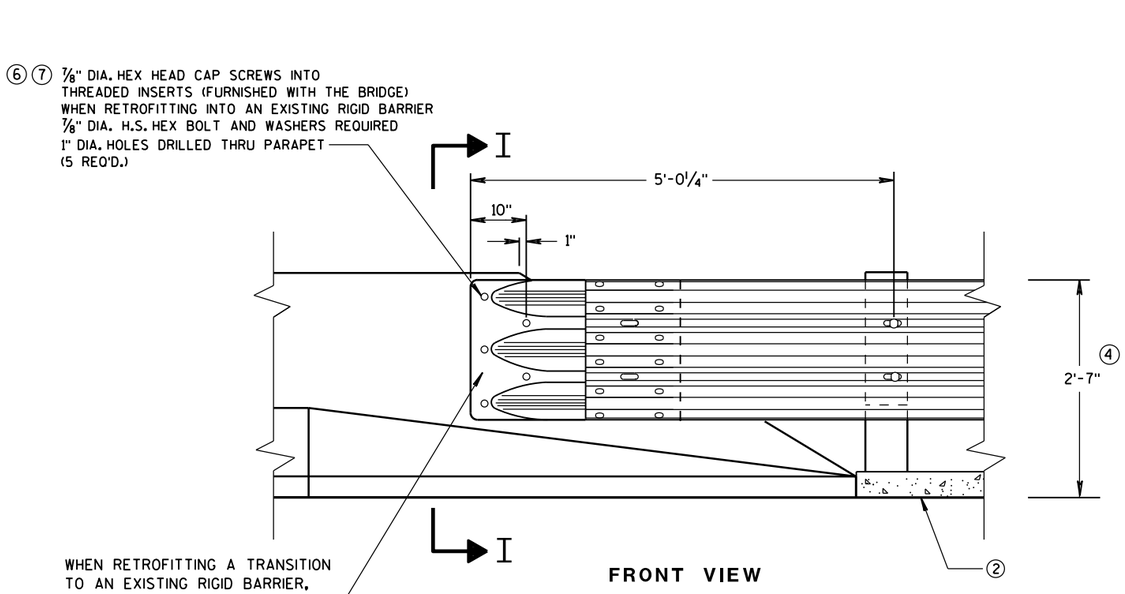
④ TOLERANCE FOR TOP OF BEAM IS ± 1".

⑥ DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.

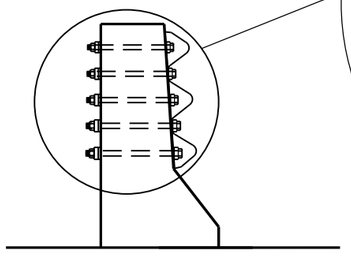
⑦ BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTOR PLATE. BOLTS THAT EXTEND THROUGH THE PARAPET AND OUT THE BACK FACE REQUIRE A HARDENED ROUND STEEL WASHER THAT IS 2" O.D. X 5/8" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.



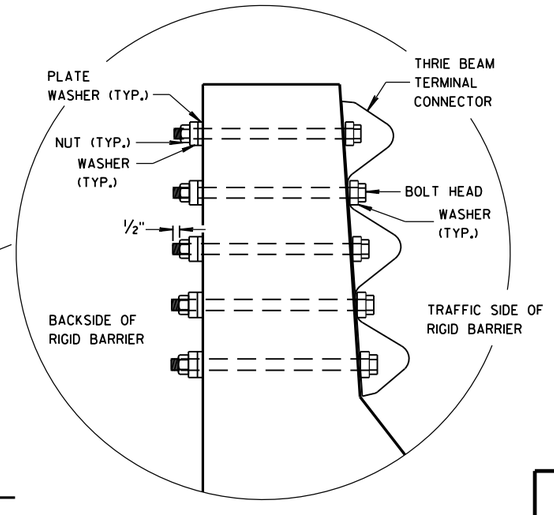
DRILL HOLE LOCATION AND PATTERN
FOR THRIE BEAM CONNECTION



FRONT VIEW



SECTION I-I



THRIE BEAM CONNECTION TO BRIDGE PARAPETS WITH SLOPED ENDS

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June, 2015 — DATE
/S/ Jerry H. Zogg — ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA

6

S.D.D. 14 B 45-4f

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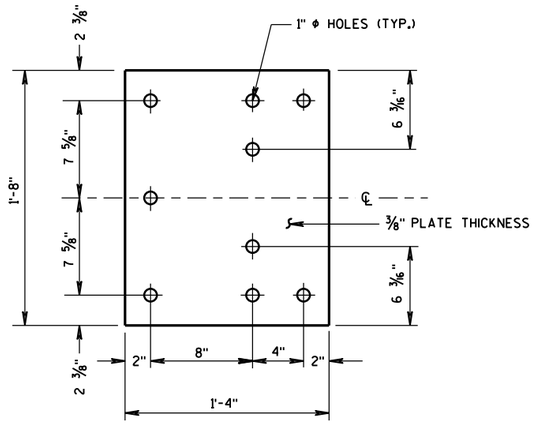
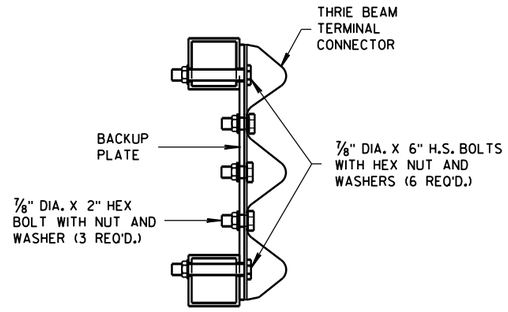
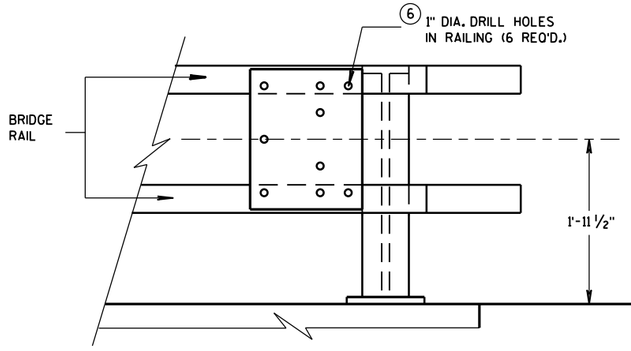
S.D.D. 14 B 45-4f



BACK-UP PLATE DETAIL



SECTION J-J

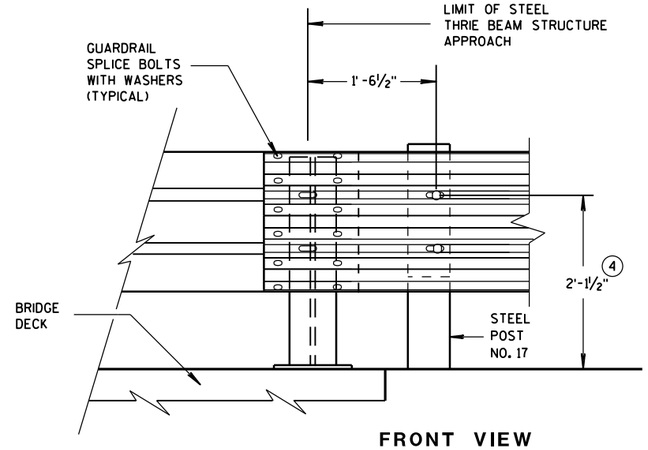


BACK-UP PLATE MOUNTING ONTO BRIDGE RAILING

GENERAL NOTES

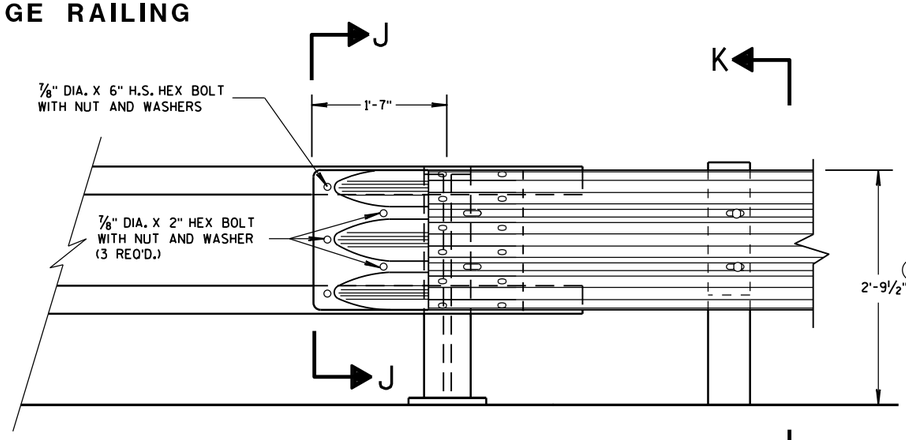
4 TOLERANCE FOR TOP OF BEAM IS ± 1".

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

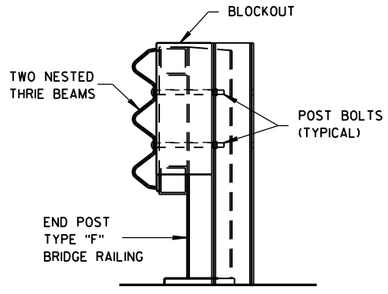


FRONT VIEW

THRIE BEAM CONNECTION TO STEEL RAILING TYPE "W"



FRONT VIEW



SECTION K-K

THRIE BEAM CONNECTION TO TUBULAR RAILING TYPE "F"

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June, 2015 — DATE
/S/ Jerry H. Zogg — ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA — NT

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S.D.D. 14 B 45-4g

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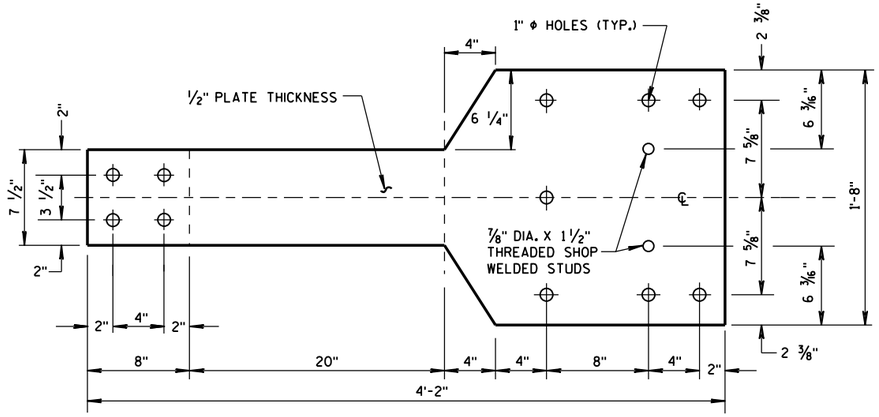
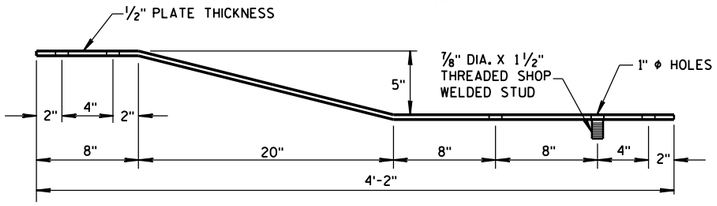
S.D.D. 14 B 45-4g

GENERAL NOTES

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

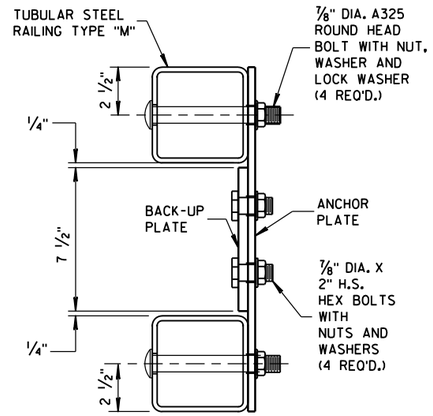


FRONT VIEW

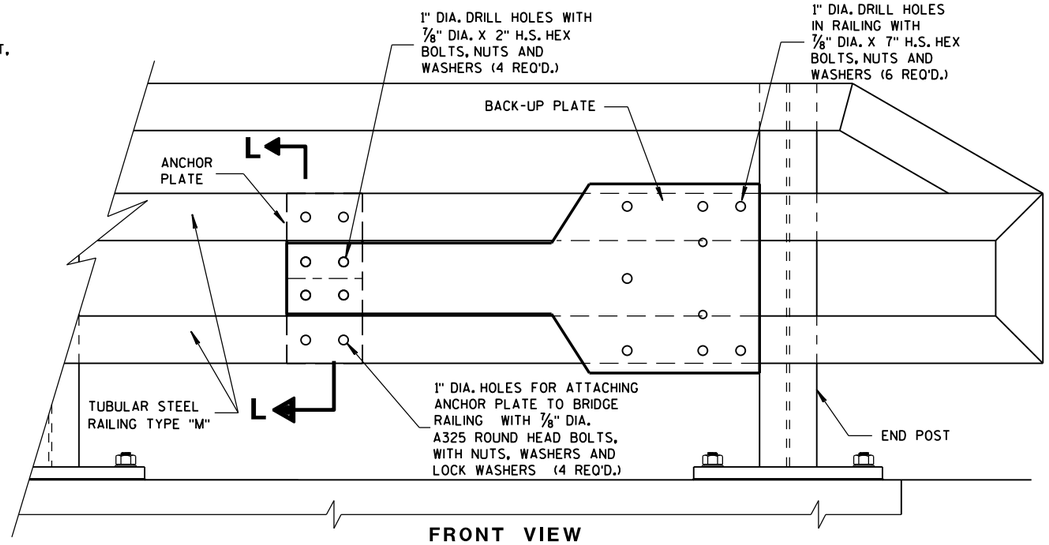


PLAN VIEW

BACK-UP PLATE DETAIL, TYPE "M"

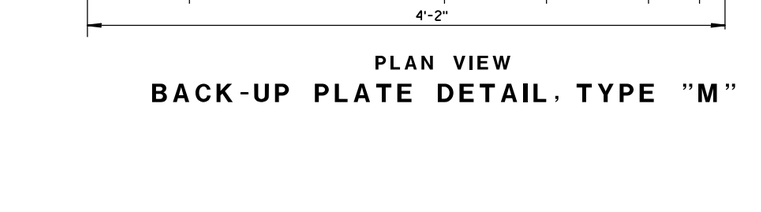


SECTION L-L



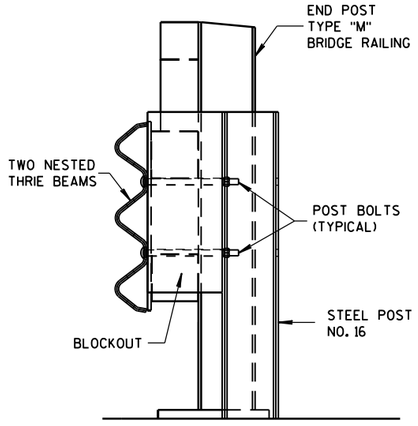
FRONT VIEW

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

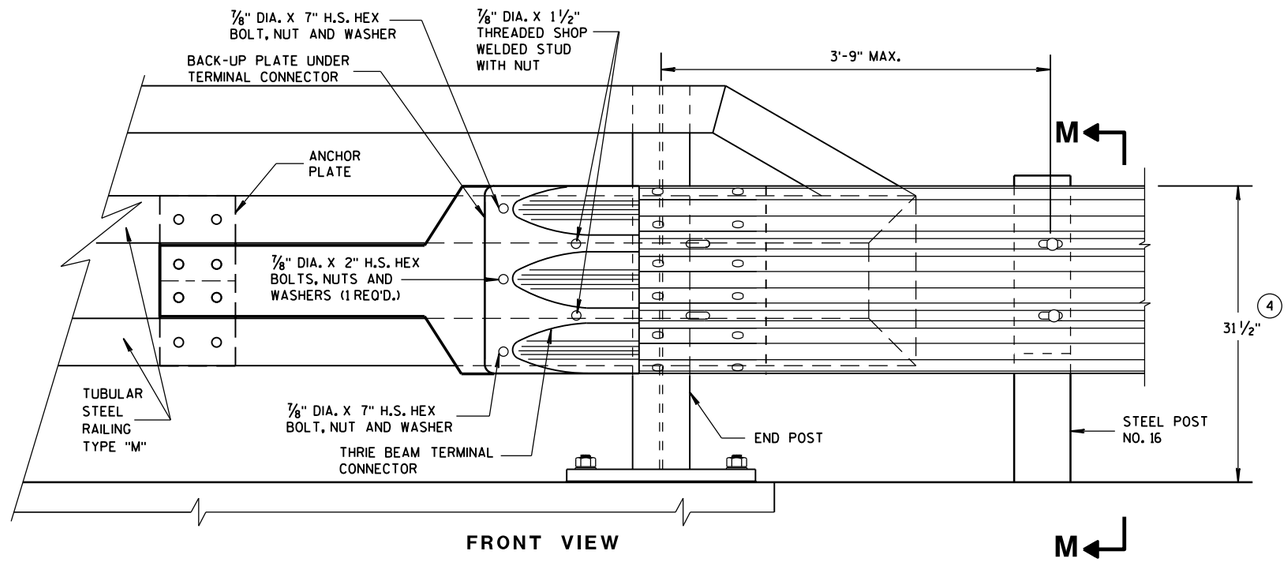


FRONT VIEW

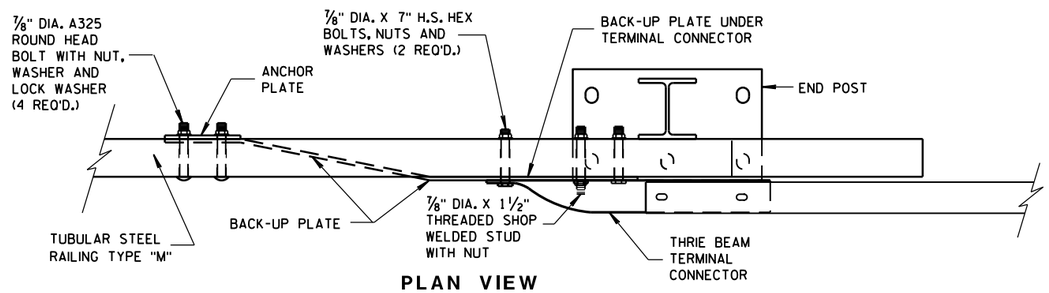
ANCHOR PLATE DETAIL, TYPE "M"



SECTION M-M



FRONT VIEW



PLAN VIEW

THRIE BEAM CONNECTION TO TUBULAR RAILING, TYPE "M"

MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED June, 2015 DATE	/S/ Jerry H. Zogg ROADWAY STANDARDS ENGINEER
FHWA	

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S.D.D. 14 B 45-4h

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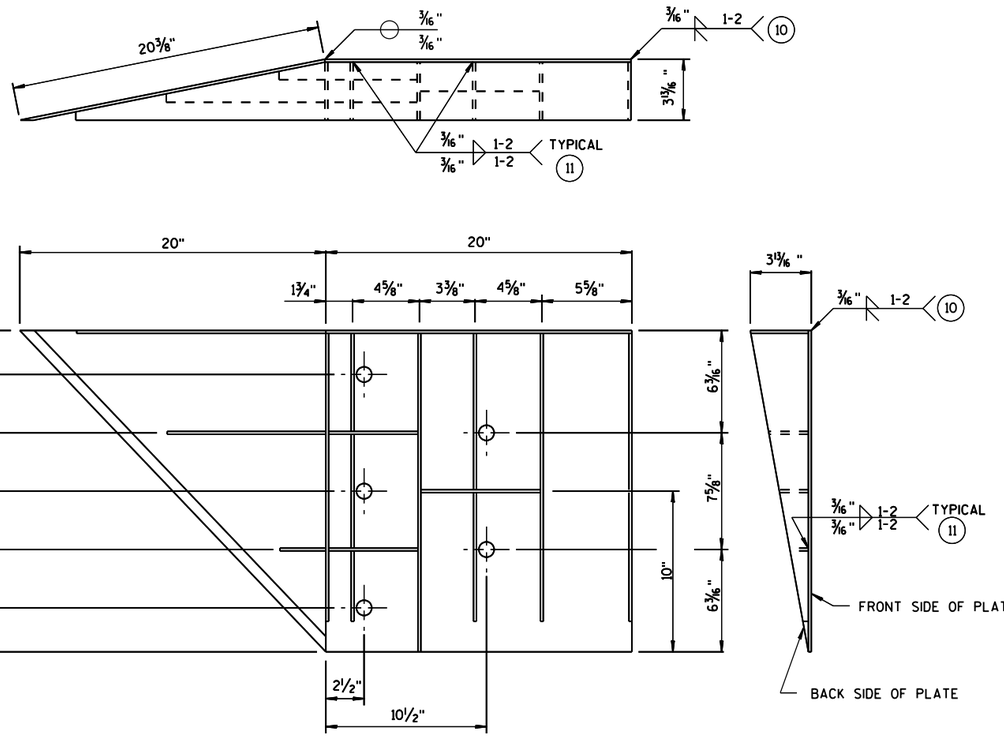

WELDING INSTRUCTION

(VIEWED FROM BACK SIDE OF PLATE)

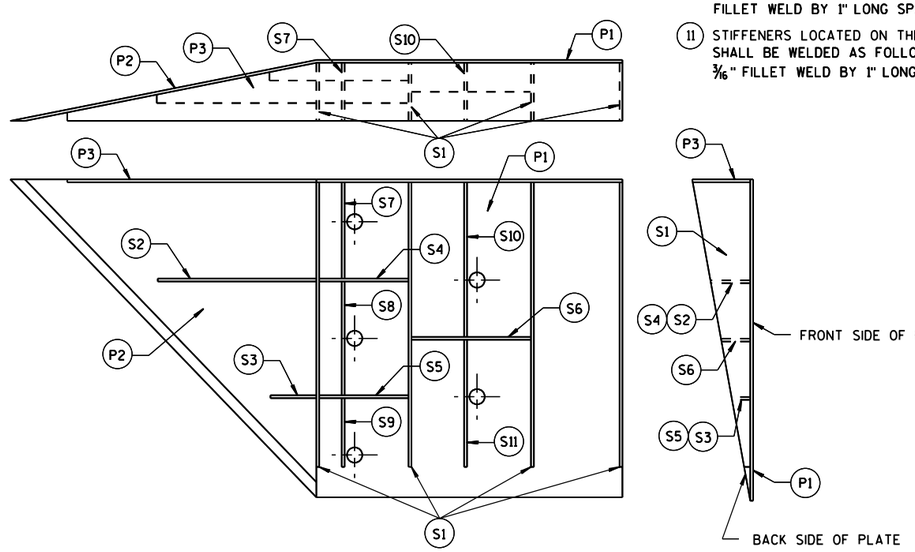

PLATE AND STIFFENER IDENTIFICATION

(VIEWED FROM BACK SIDE OF 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".

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 9/16"	3/16"
P3	1		39" x 3 5/8" x 20" x 19 5/16"	3/16"
S1	4		18 7/16" x 3 3/8" x 18 3/4"	1/4"
S2	1		10 1/4" x 2 7/16" x 10 3/8" x 1/2"	1/4"
S3	1		3" x 1 1/16" x 3 1/8" 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 9/16" 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 1/32"	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 13/16"	1/4"

SINGLE SLOPE CONNECTION PLATE

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June, 2015 — DATE
/S/ Jerry H. Zogg — ROADWAY STANDARDS ENGINEER
FHWA

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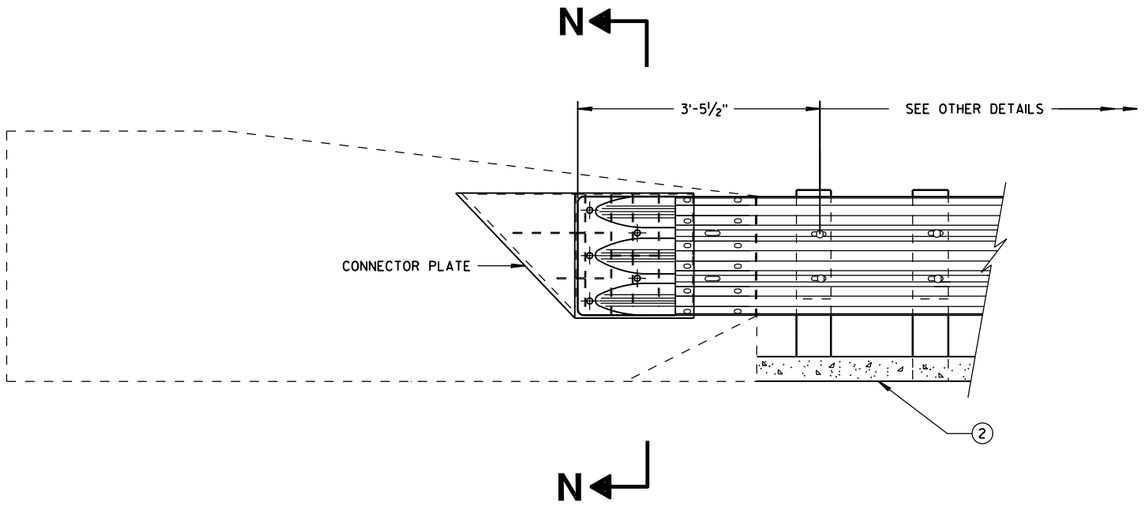
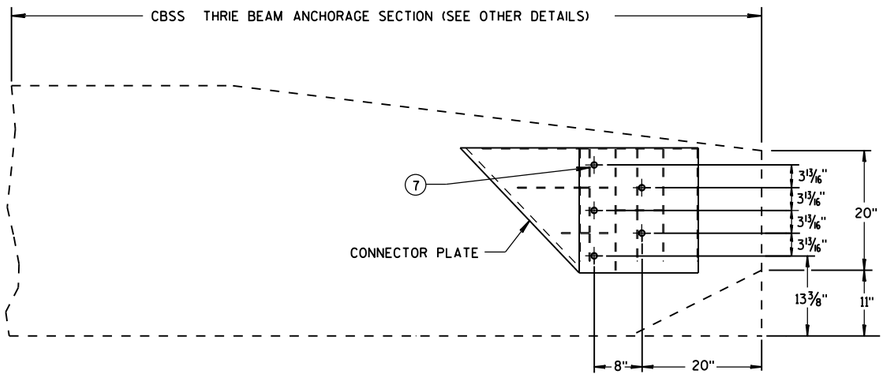


THRIE BEAM CONNECTION TO SINGLE SLOPE BARRIER



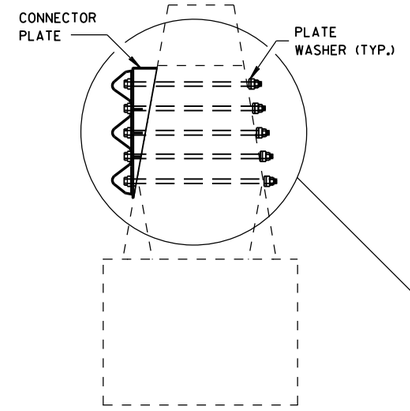
SINGLE SLOPE CONNECTION PLATE PLACEMENT

GENERAL NOTES

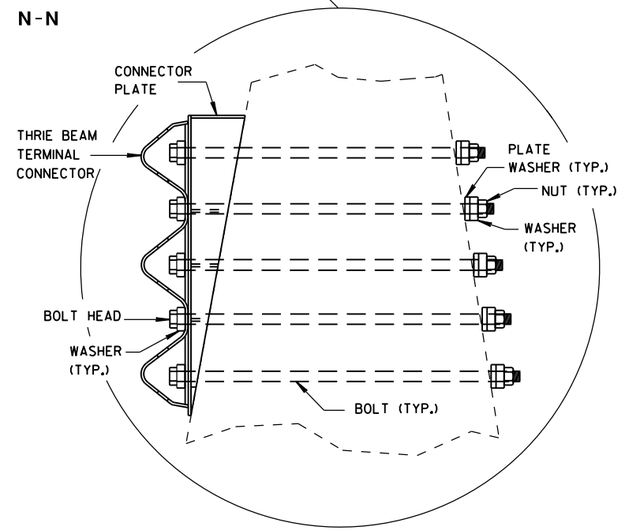
CONNECTOR PLATE, DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.

(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 CONNECTOR PLATE. BOLTS THAT EXTEND THROUGH THE PARAPET AND OUT THE BACK FACE REQUIRE A HARDENED ROUND STEEL WASHER THAT IS 2" O.D. X 5/8" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.



SECTION N-N



MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June, 2015 — DATE
/S/ Jerry H. Zoga — ROADWAY STANDARDS DEVELOPMENT ENGINEER
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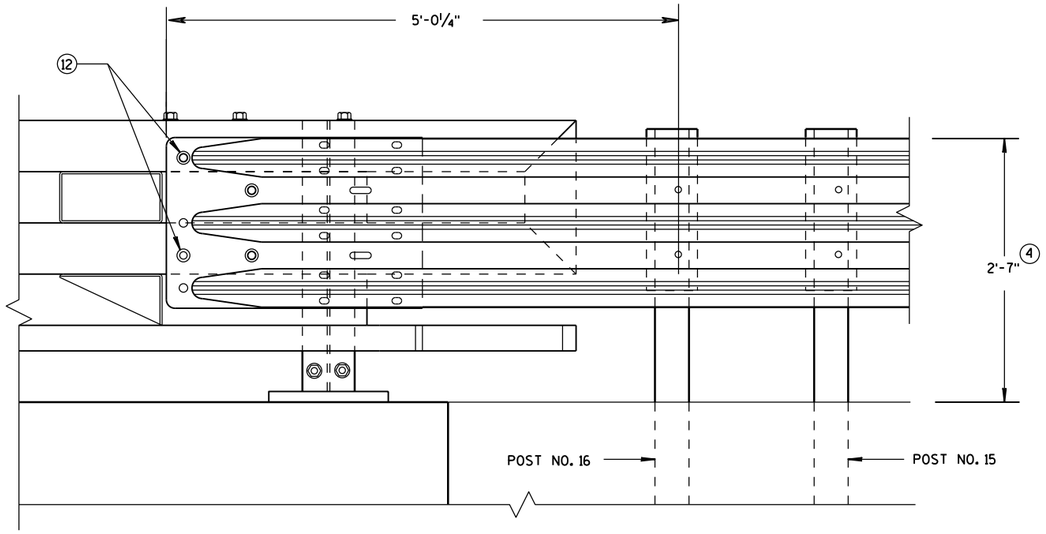
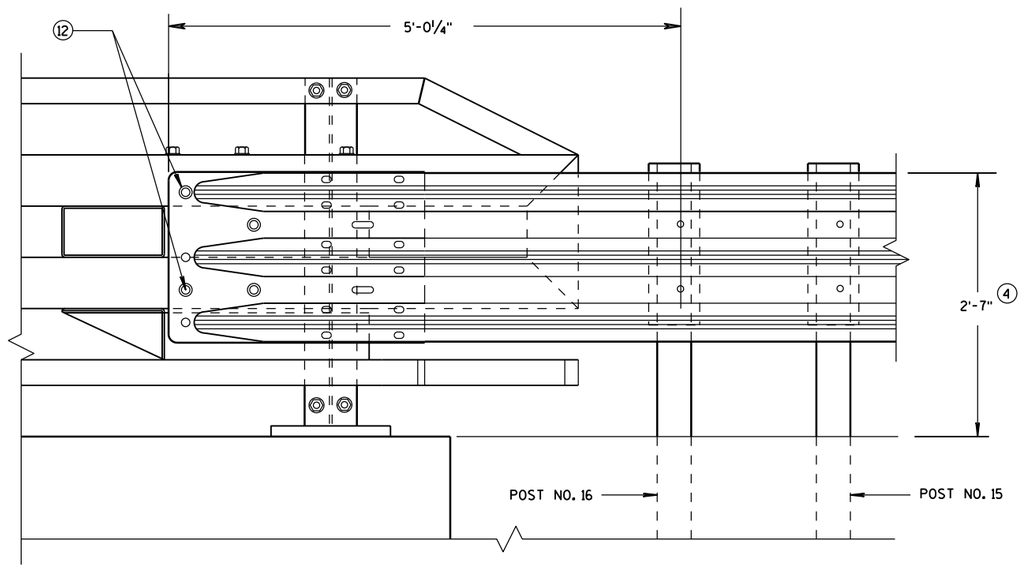


ELEVATION OF DETAIL AT NY3 END POST

THRIE BEAM RAIL ATTACHMENT



ELEVATION OF DETAIL AT NY4 END POST

THRIE BEAM RAIL ATTACHMENT

GENERAL NOTES

(4) TOLERANCE FOR TOP OF BEAM IS ± 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 ½-INCH BEYOND NUT.

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June, 2015
DATE

/S/ Jerry H. Zogg
ROADWAY STANDARDS D ENGINEER

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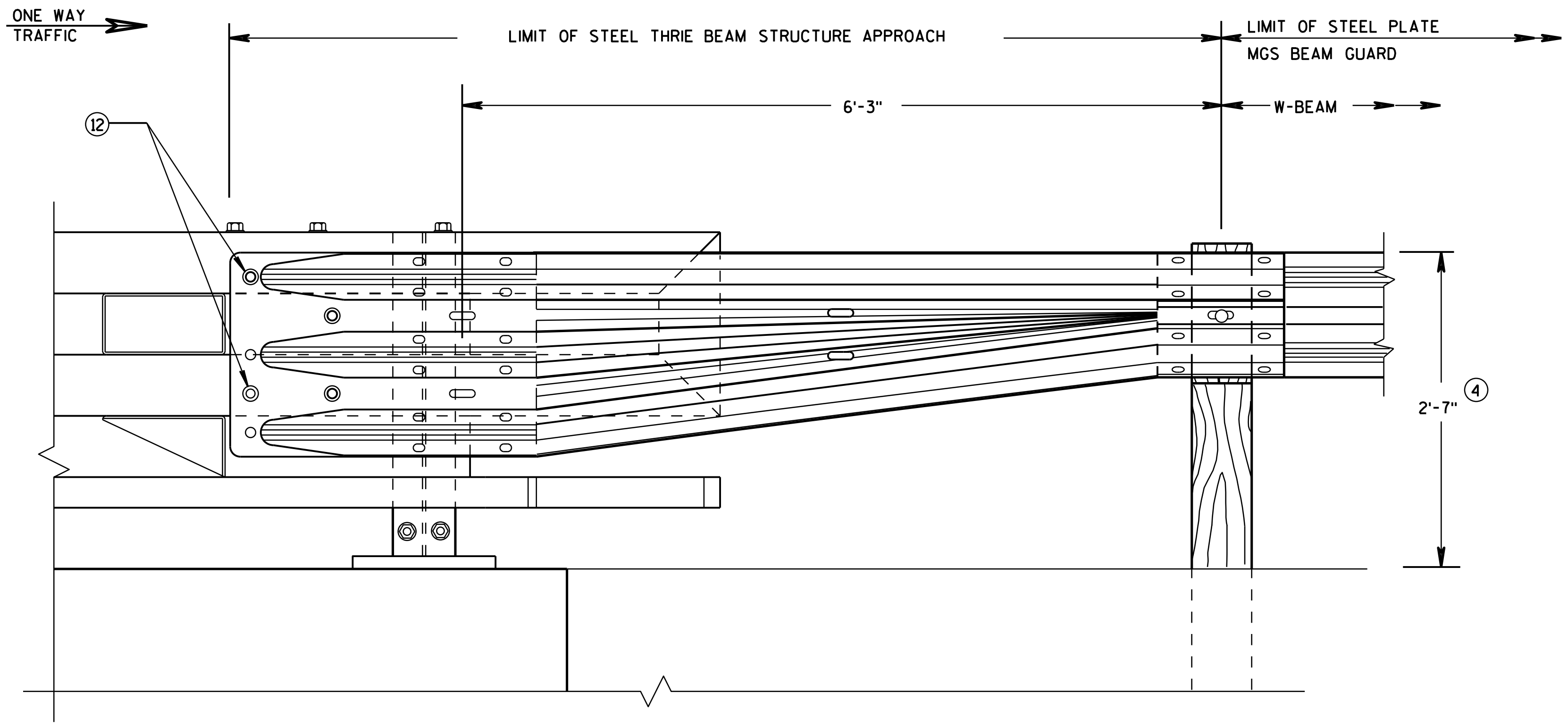


FRONT VIEW

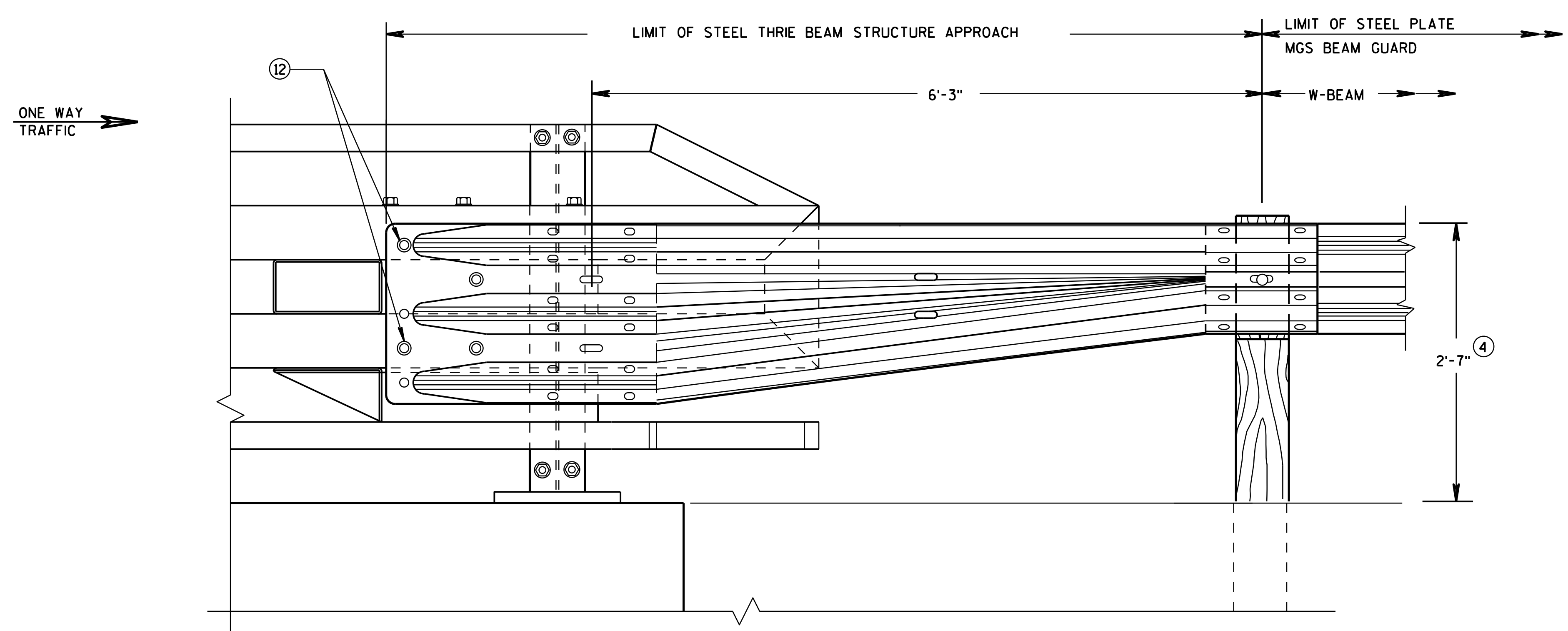
W BEAM TRANSITION AND CONNECTION TO BRIDGE RAILING TYPE "NY3"

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

GENERAL NOTES

④ TOLERANCE FOR TOP OF BEAM IS ± 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 1/2-INCH BEYOND NUT.

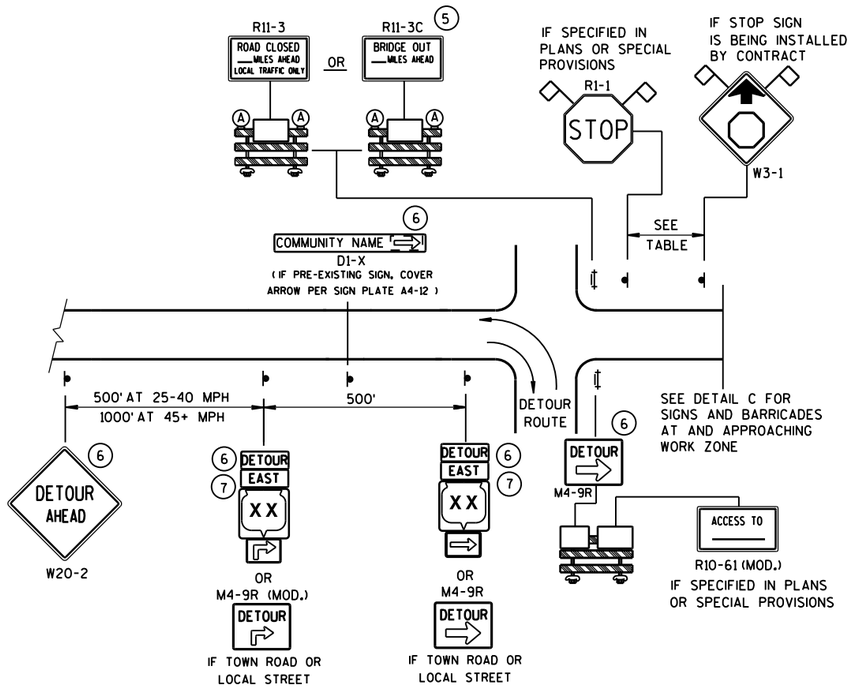


FRONT VIEW

W BEAM TRANSITION AND CONNECTION TO BRIDGE RAILING TYPE "NY4"

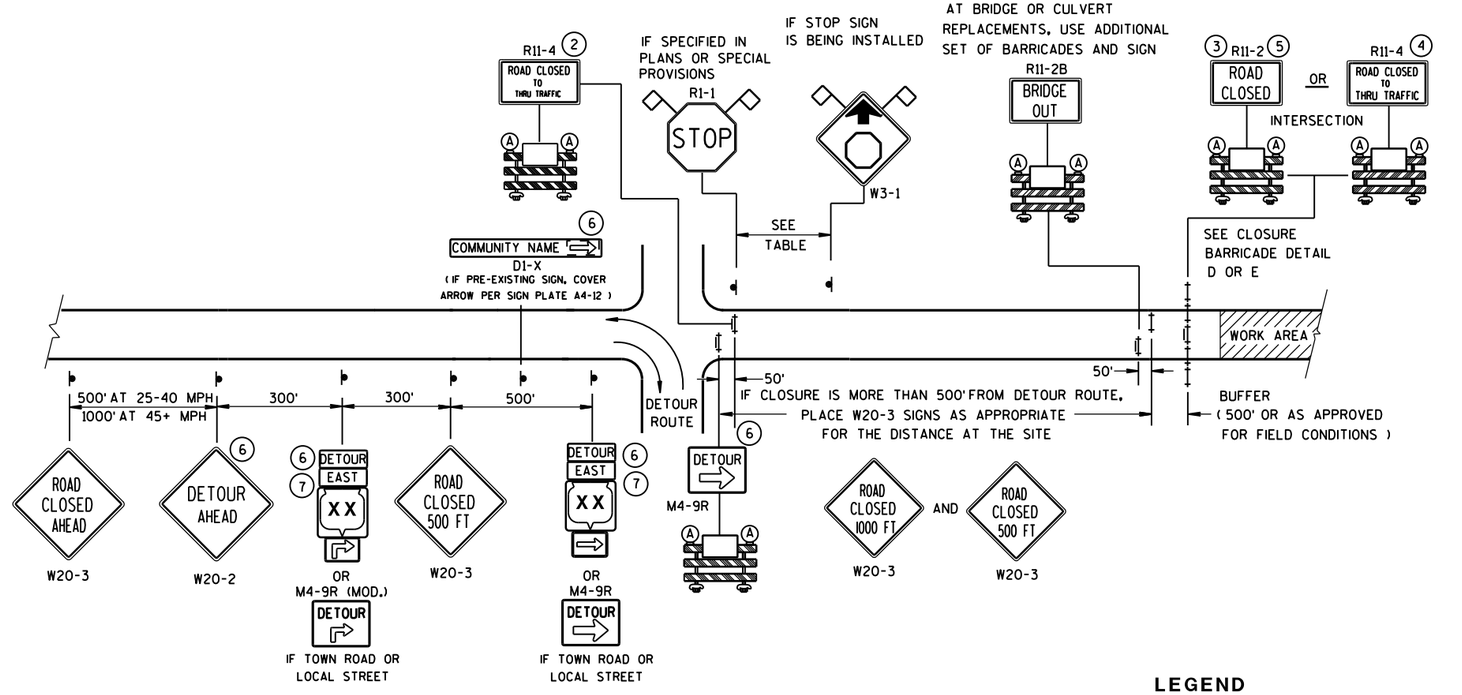
(USE ONLY ON THE TRAFFIC EXIT END OF ONE WAY BRIDGES)

MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION
APPROVED June, 2015 DATE /S/ Jerry H. Zogg ROADWAY STANDARDS DEVELOPMENT ENGINEER FHWA



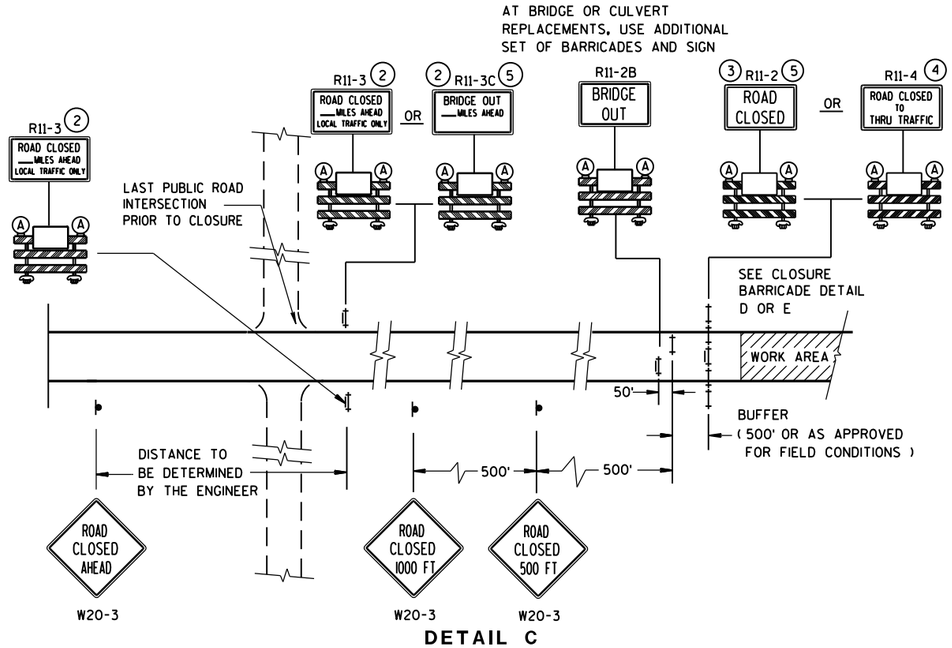
DETAIL A
MAINLINE CLOSURE WITH POSTED DETOUR

WORK ZONE GREATER THAN 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)



DETAIL C
MAINLINE CLOSURE, NO POSTED DETOUR

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

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

LEGEND

- SIGN ON PERMANENT SUPPORT
- TYPE III BARRICADE
- TYPE III BARRICADE WITH ATTACHED SIGN
- (A) TYPE "A" WARNING LIGHT (FLASHING)
- WORK AREA
- DETOUR / EAST — M4-8 / M3-X
- XX — M1-4; COUNTY XX — M1-5A; XX — M1-6
- M05-1 OR M06-1
- FLAGS, 16" X 16" MIN., (ORANGE)

BARRICADES AND SIGNS FOR MAINLINE CLOSURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

8/2013 DATE — /S/ Travis Feltes STATE TRAFFIC ENGINEER — DESIGN

FHWA

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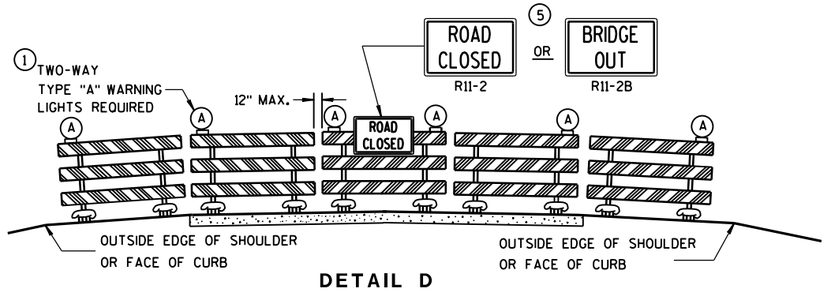
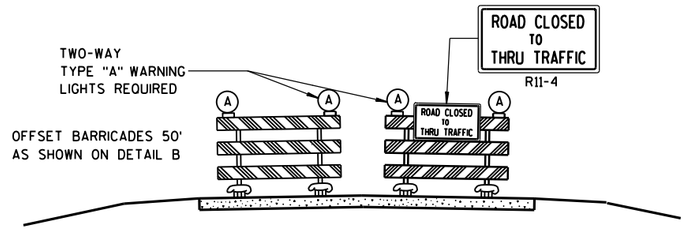
S.D.D. 15 C 2-5a



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 BARRICADES SHALL COVER NO MORE THAN THE TOP RAIL. THE SIGNS SHALL NOT COVER ANY PORTION OF THE MIDDLE 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, 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". (30" X 15" IF NEEDED TO MATCH EXISTING SIGNS.)
- M1-4, M1-5A, AND M1-6 SHALL BE 24" X 24". (36" X 36" IF NEEDED TO MATCH EXISTING SIGNS.)
- M05-1 AND M06-1 SHALL BE 21" X 21". (30" X 30" IF NEEDED TO MATCH EXISTING SIGNS.)
- D1-X SHALL BE AS SHOWN ON SPECIFIC PROJECT SIGNING DETAIL SHEETS.
- R1-1 SHALL BE 36" X 36".

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

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

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

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

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

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

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

BARRICADES AND SIGNS FOR MAINLINE CLOSURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

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S.D.D. 15 C 2-5b

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

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.

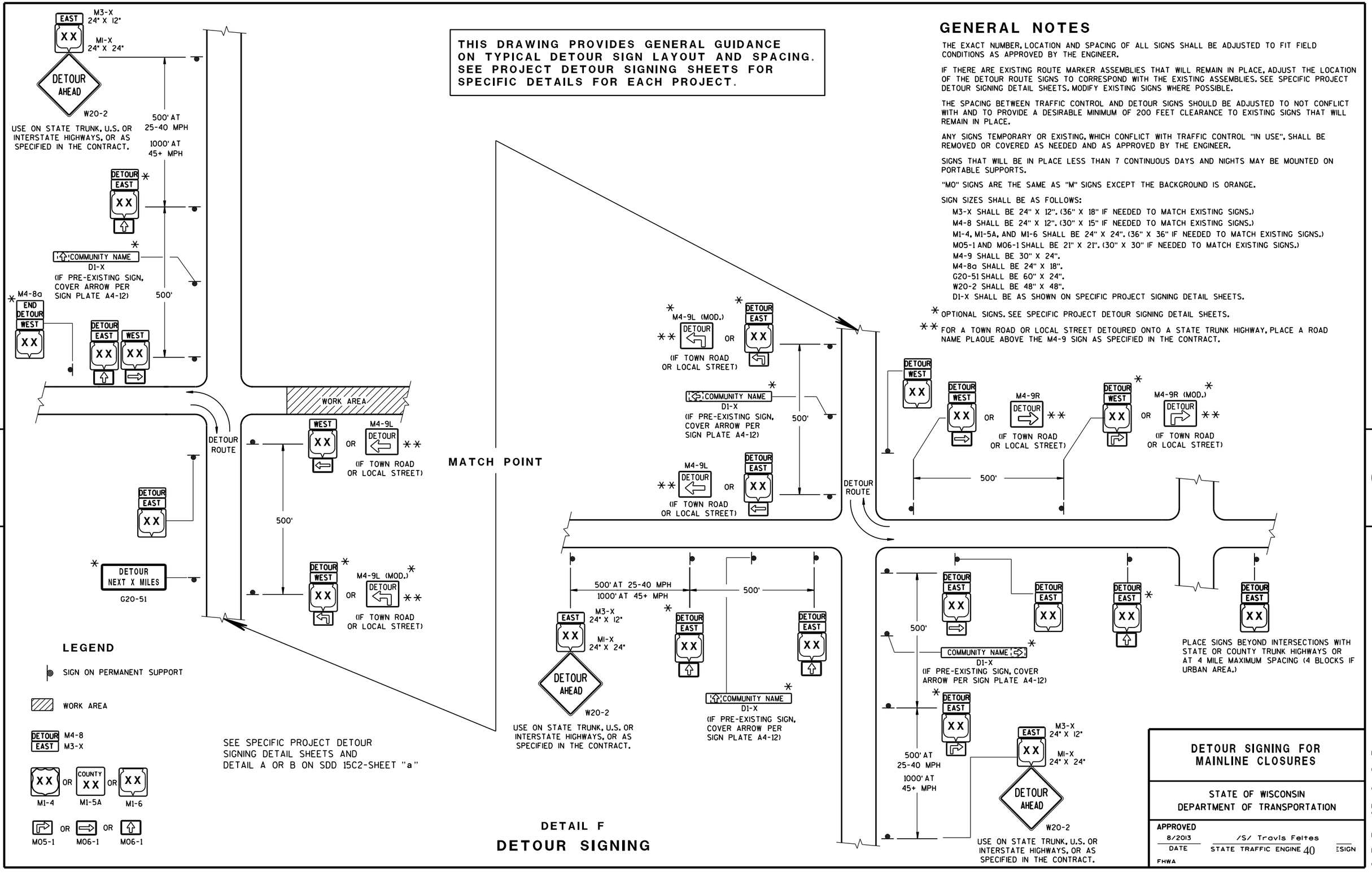
"MO" SIGNS ARE THE SAME AS "M" SIGNS EXCEPT THE BACKGROUND IS ORANGE.

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". (30" X 15" IF NEEDED TO MATCH EXISTING SIGNS.)
- M1-4, M1-5A, AND M1-6 SHALL BE 24" X 24". (36" X 36" IF NEEDED TO MATCH EXISTING SIGNS.)
- MO5-1 AND MO6-1 SHALL BE 21" X 21". (30" X 30" IF NEEDED TO MATCH EXISTING SIGNS.)
- M4-9 SHALL BE 30" X 24".
- M4-8a SHALL BE 24" X 18".
- G20-51 SHALL BE 60" X 24".
- W20-2 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.



DETAIL F

DETOUR SIGNING

DETOUR SIGNING FOR MAINLINE CLOSURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

FHWA

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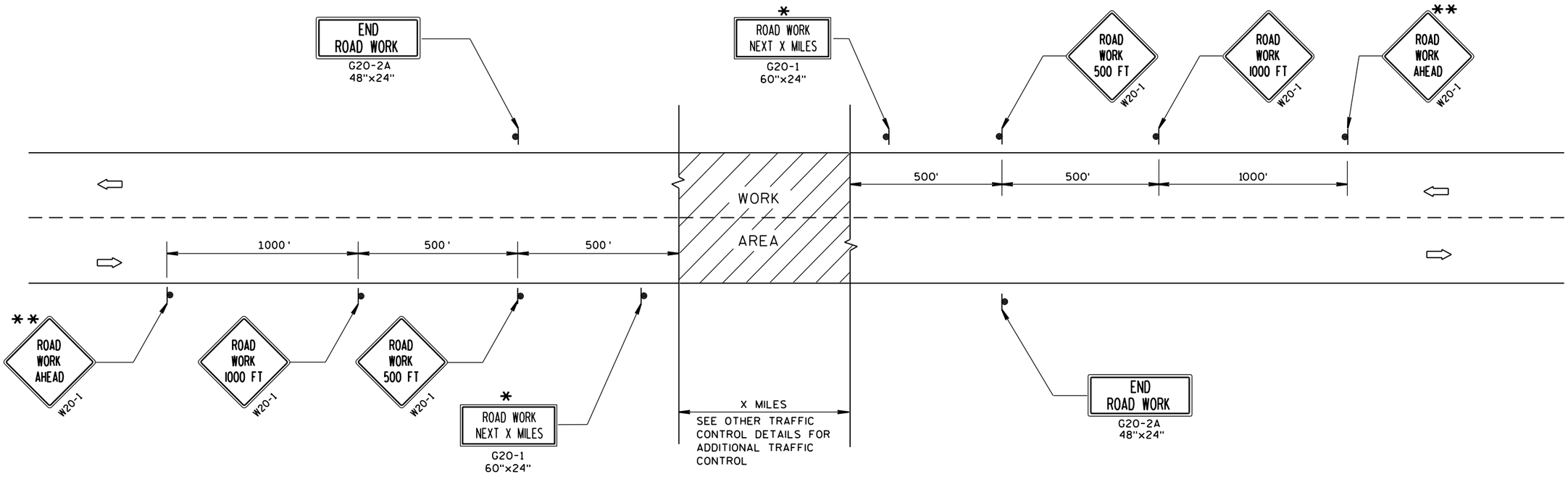
S.D.D. 15 C 2-5c



TYPICAL SIDEROAD APPROACH WARNING SIGN DETAIL

GENERAL NOTES

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

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

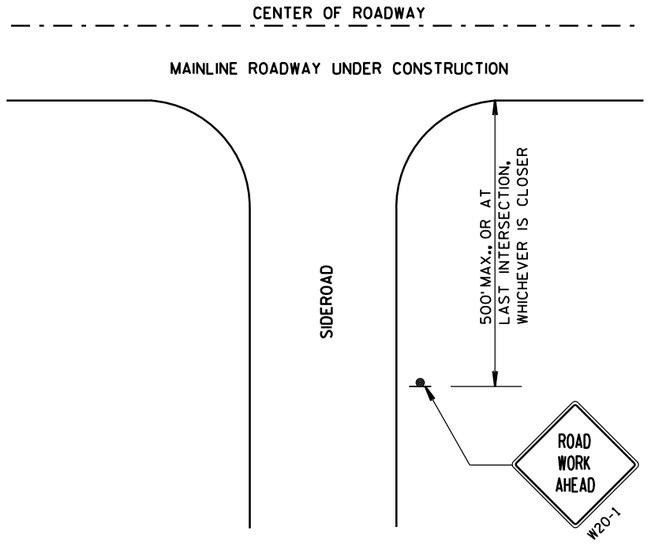
ALL SIGNS ARE 48"x48" UNLESS OTHERWISE NOTED.

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

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

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

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



LEGEND

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

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

8/2013 — DATE

/S/ Travis Feltes — STATE TRAFFIC ENGINEER

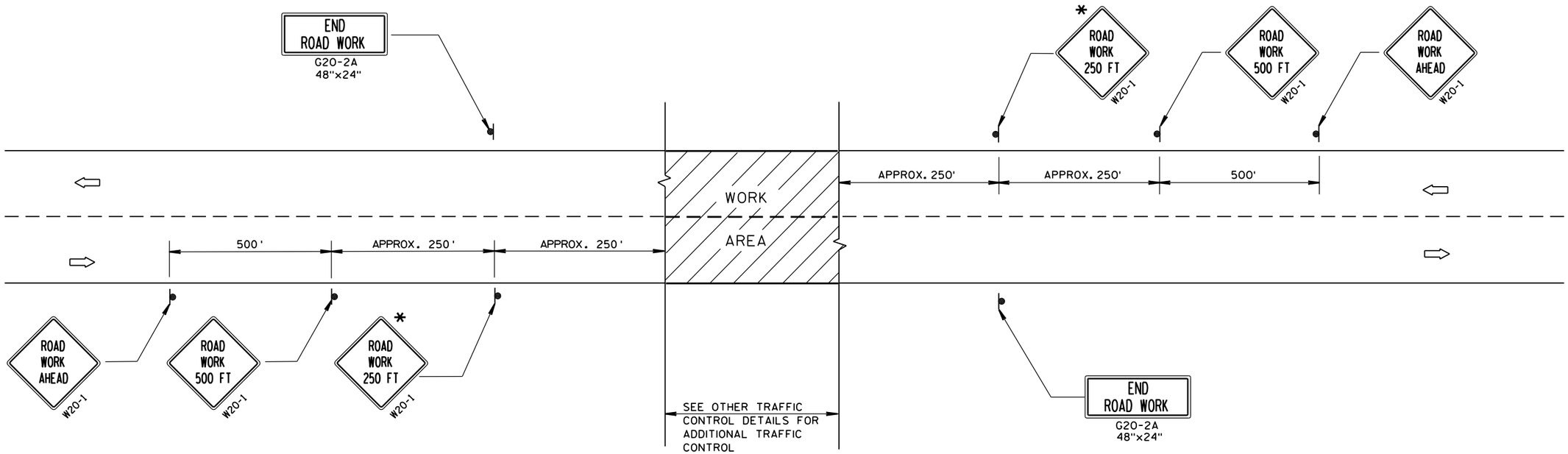
FHWA

SIGN

6

S.D.D. 15 C 4-2

TYPICAL SIDEROAD APPROACH WARNING SIGN DETAIL



GENERAL NOTES

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

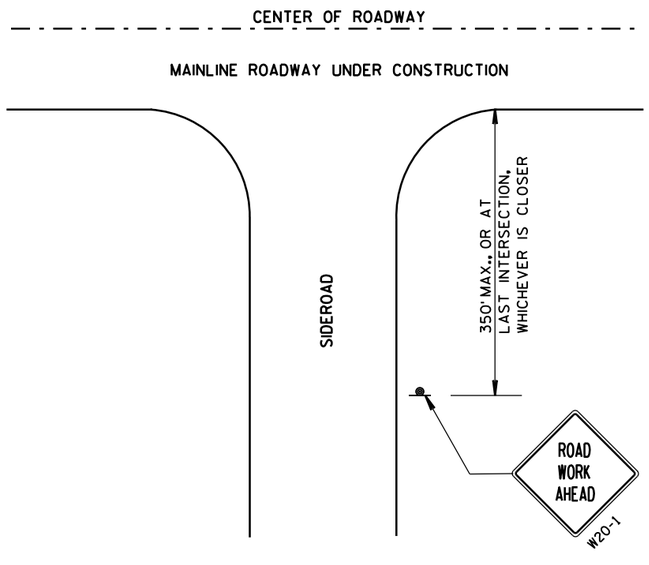
THE SPACING BETWEEN TRAFFIC CONTROL SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND SHOULD PROVIDE A DESIRABLE MINIMUM OF 200 FEET CLEARANCE TO EXISTING SIGNS THAT WILL REMAIN IN PLACE.

ALL SIGNS ARE 48"x48" UNLESS OTHERWISE NOTED. IF NECESSARY DUE TO SPACE CONSTRAINTS, 36"x36" SIGNS MAY BE USED INSTEAD OF 48"x48" SIGNS.

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

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

* THE THIRD W20-1 SIGN IS REQUIRED ONLY IF THERE IS AN INTERSECTION BETWEEN THE "ROAD WORK 500 FT" SIGN AND THE WORK ZONE. ADJUST THE PLACEMENT OF THIS SIGN BASED ON INTERSECTION LOCATION AND OTHER FIELD CONDITIONS.



LEGEND

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

TRAFFIC CONTROL, ADVANCE WARNING SIGNS 40 M.P.H. OR LESS TWO-WAY UNDIVIDED ROAD OPEN TO TRAFFIC

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

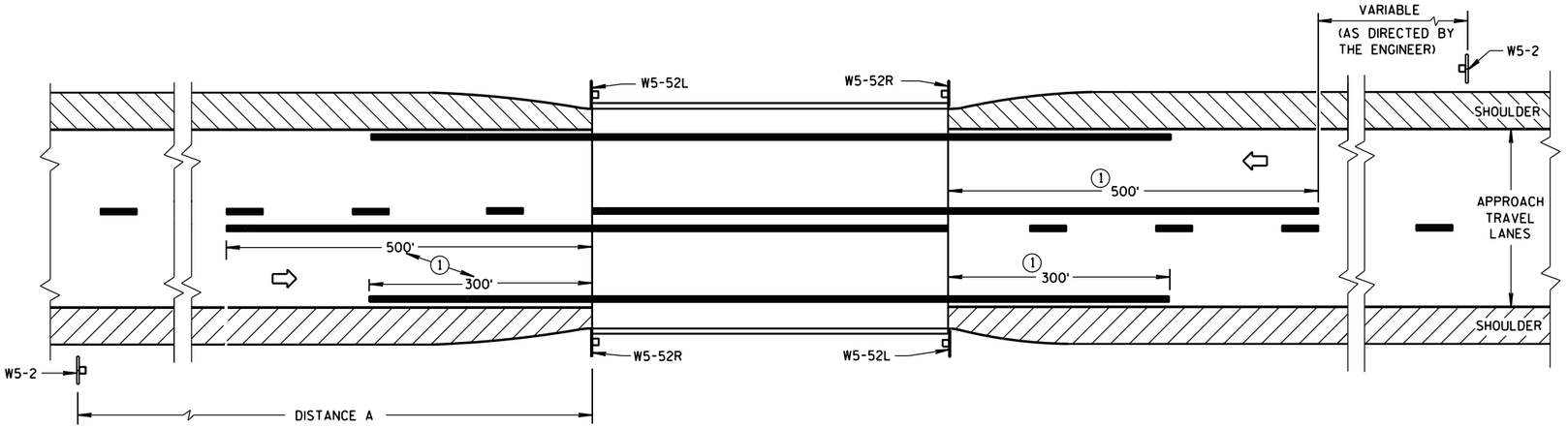
APPROVED

8/2013 (DATE) — /S/ Travis Feltes (STATE TRAFFIC ENGINEER) — (SIGN)

FHWA

6

S.D.D. 15 C 5-2



GENERAL NOTES

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

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

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

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

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

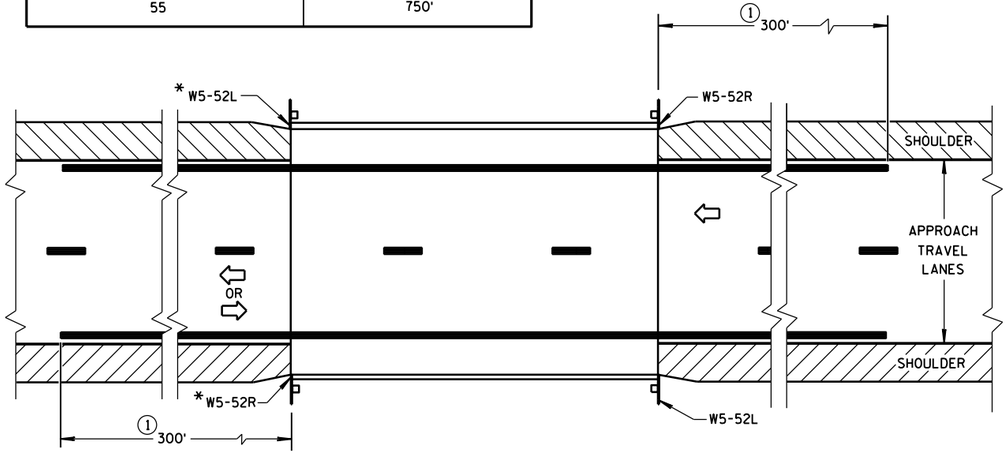
DISTANCE TABLE

POSTED OR 85th PERCENTILE SPEED	DISTANCE "A"
25	150'
30	200'
35	250'
40	300'
45	400'
50	550'
55	750'

SITUATION 1

WARRANTING CRITERIA:

BRIDGE WIDTH IS AT LEAST 16 FEET BUT LESS THAN 24 FEET

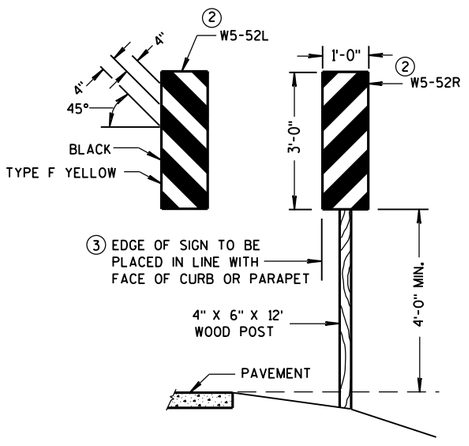


*OMIT ON ONE-WAY TRAVELLED WAYS

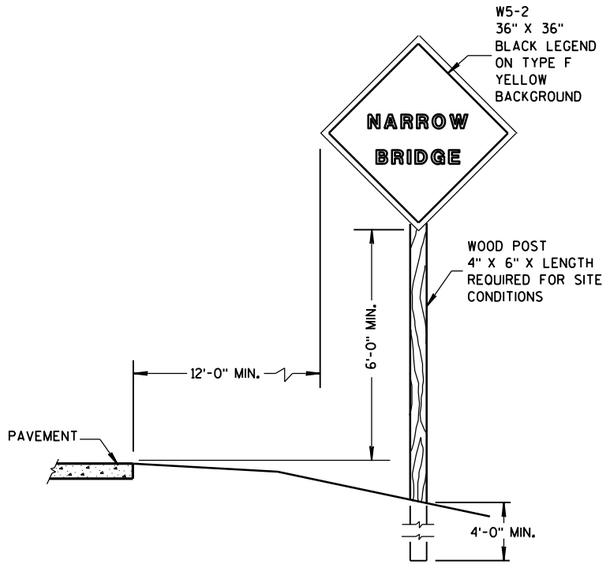
SITUATION 2

WARRANTING CRITERIA:

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



OBJECT MARKER PLACEMENT



SIGN PLACEMENT

SIGNING & MARKING FOR TWO LANE BRIDGES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

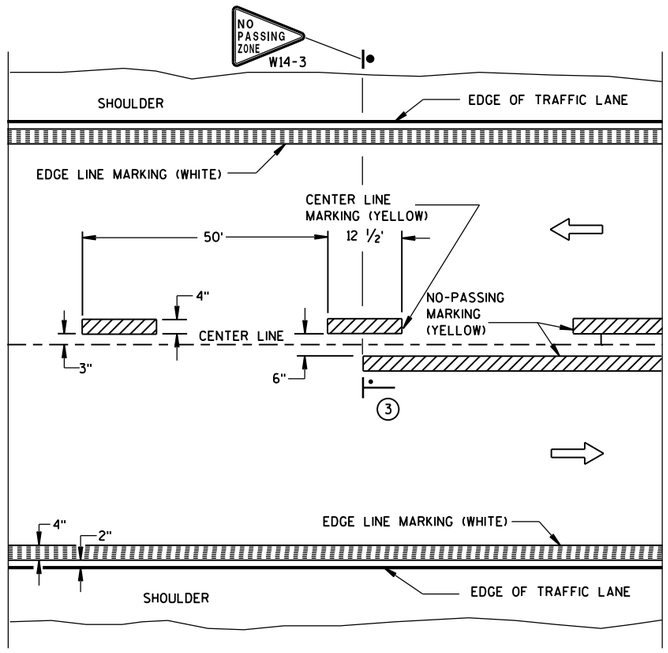
APPROVED

3-2014 DATE — /S/ Travis Feltes STATE TRAFFIC ENGINEER — SIGN

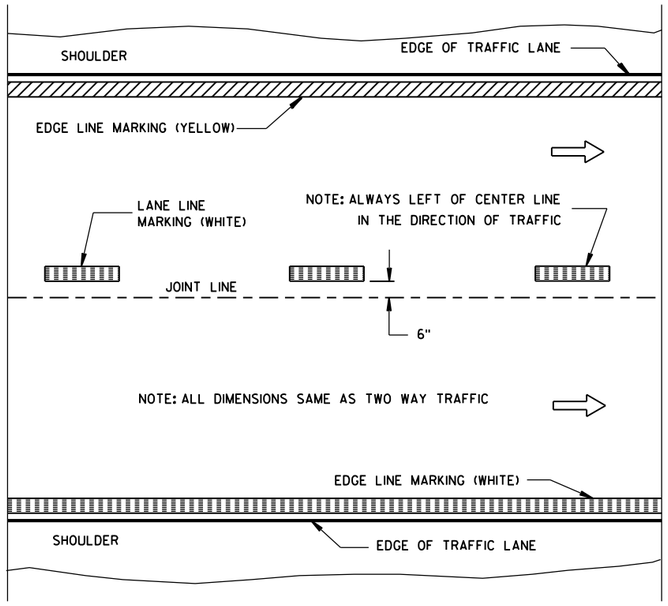
FHWA

6

S.D.D. 15 C 6-7

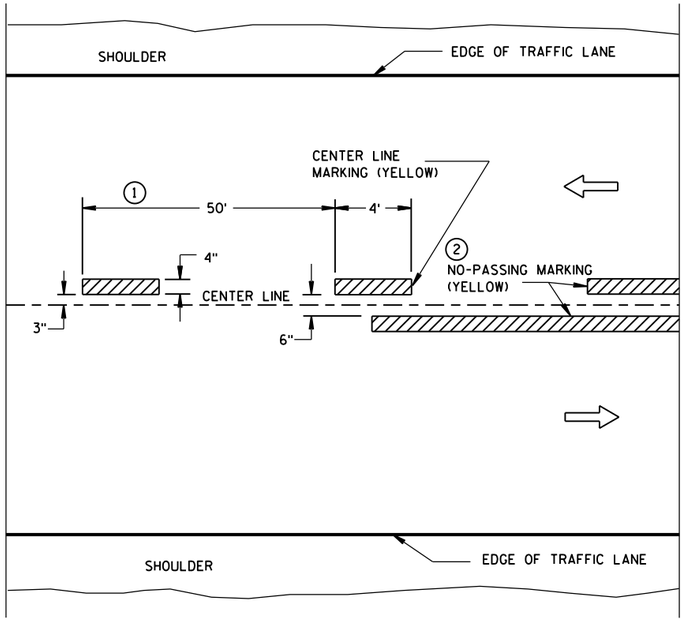


TWO WAY TRAFFIC

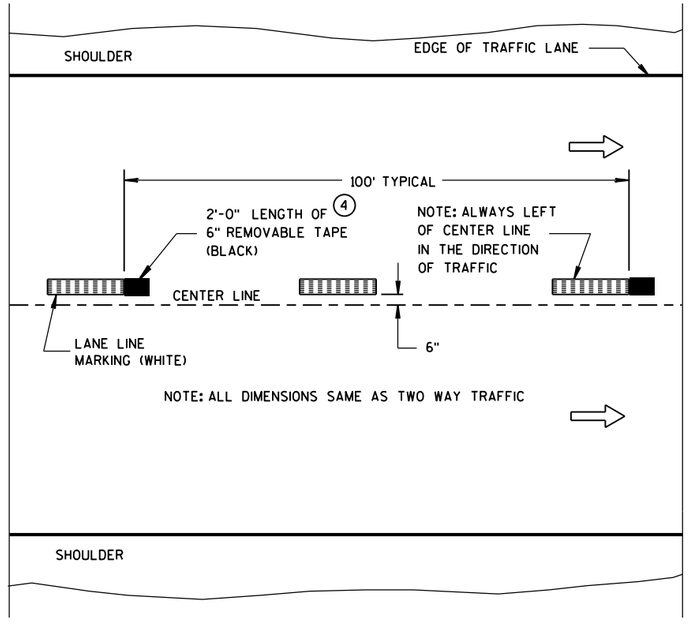


ONE WAY TRAFFIC

PERMANENT PAVEMENT MARKING



TWO WAY TRAFFIC



ONE WAY TRAFFIC

TEMPORARY (INTERMEDIATE) PAVEMENT MARKING

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

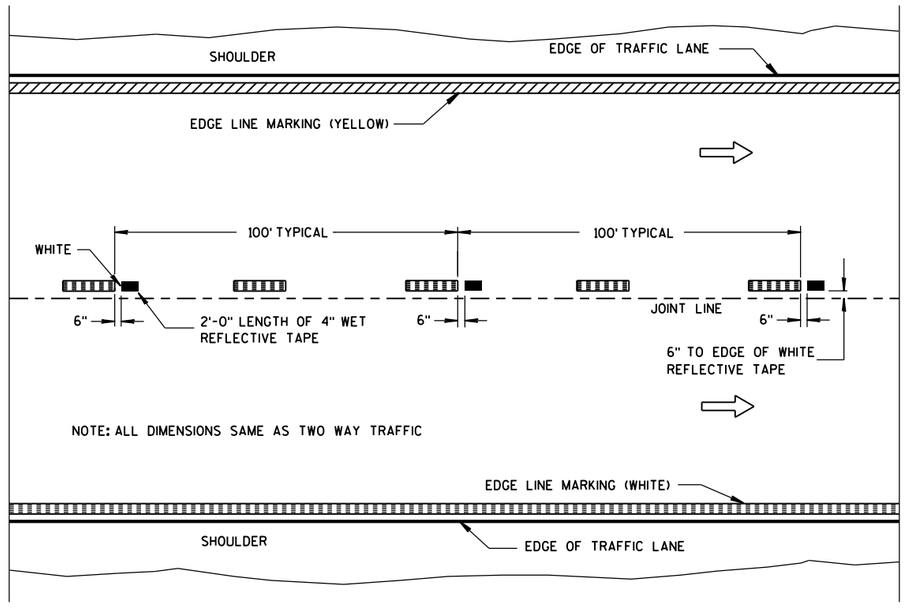
GENERAL NOTES

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

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

NOTE

ARROW SYMBOL (⇨) SHOWS DIRECTION OF TRAVEL



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

LEGEND

"T" MARKING

POST MOUNTED SIGN

PAVEMENT MARKING (MAINLINE)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

5-13-2013 DATE

/S/ Travis Feltes STATE TRAFFIC E

FHWA

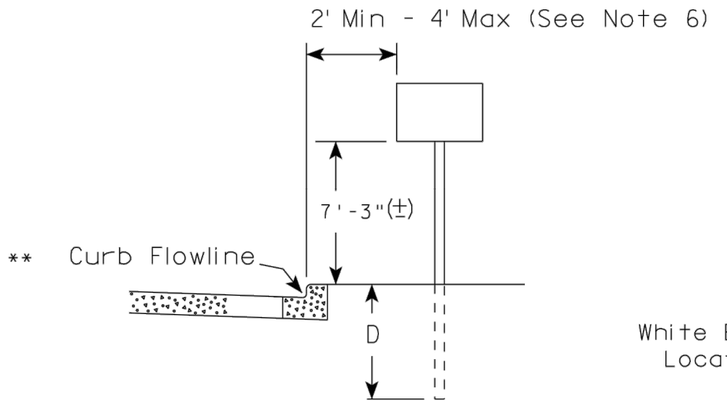
6

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

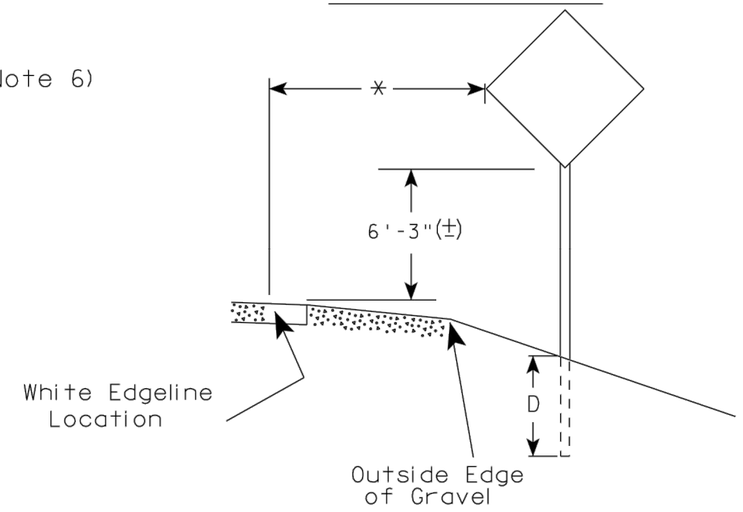
6

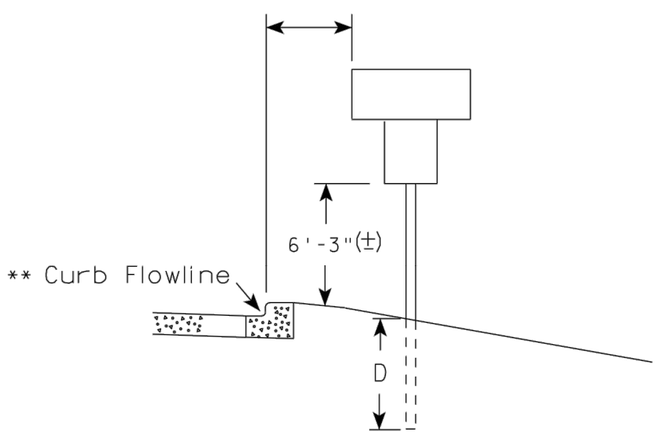
S.D.D. 15 C 8-16a

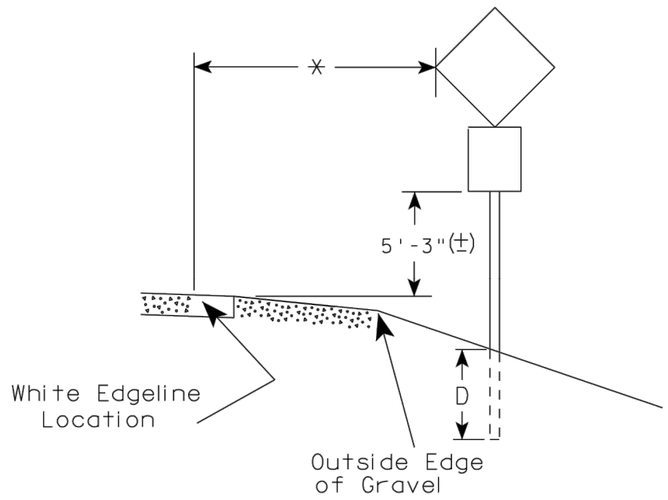
URBAN AREA



RURAL AREA (See Note 2)







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

* 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

1. Signs wider than 4 feet or 20 sq.ft or larger, shall be mounted on multiple posts. Refer to plate A4-4.
2. If signs are mounted on barrier wall, see A4-10 sign plate.
3. For expressways and freeways, mounting height is 7'- 3" (±) or 6'-3" (±) depending upon existence of a sub-sign.
4. Minimum mounting height for J assemblies (A2-1S) is 7'-3" (±) or 6'-3" (±) per urban or rural detail respectively.
5. Minimum mounting height for signs mounted on traffic signal poles is 5'- 3" (±).
6. Offset distance shall be consistent with existing signs or consistent throughout length of project.
7. The (±) tolerance for mounting height is 3 inches.
8. Folding signs shall be mounted at a height of 5'-3" (±) or as directd by the Engineer.
9. The Double Arrow sign (W12-1) shall be mounted at a height of 2'-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" (±).

TYPICAL INSTALLATION OF PERMANENT TYPE II SIGNS ON SINGLE POSTS

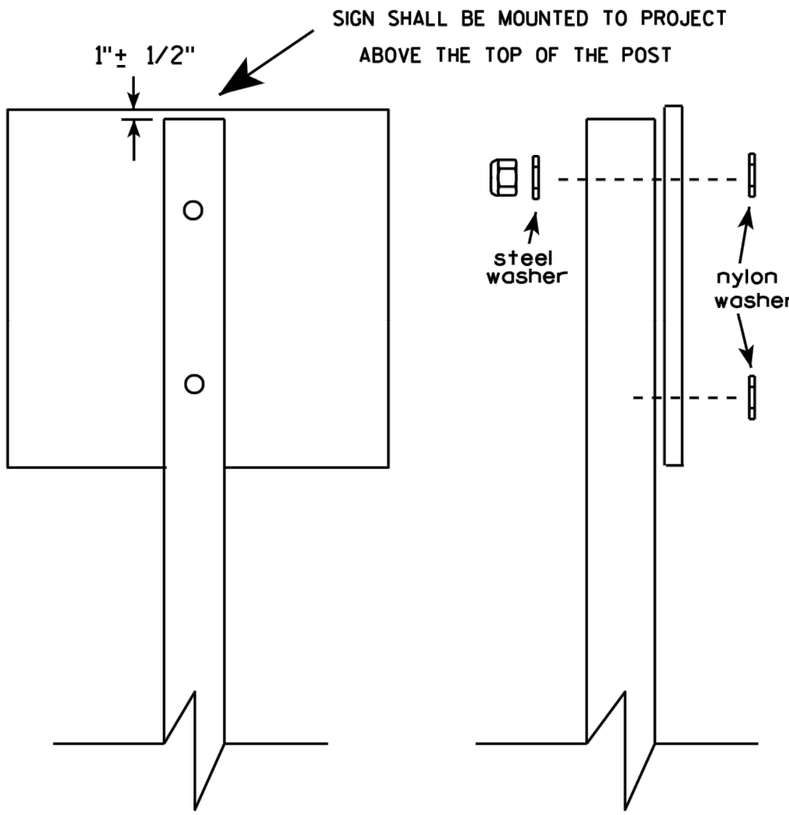
WISCONSIN DEPT OF TRANSPORTATION

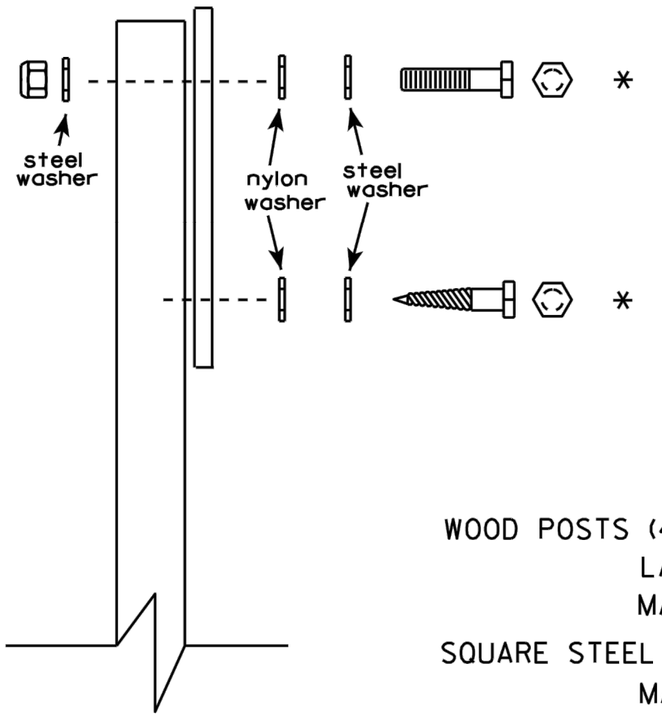
APPROVED Matthew R Rauch for State Traffic Engineer

DATE 7/23/15 PLATE NO. A4-3.20

PROJECT NO: 4516-06-71	HWY: BOWER CREEK ROAD	COUNTY: BROWN	SIGN PLATES	SHEET NO: 11	E

FILE NAME : C:\CAEfiles\Projects\tr_stdplate\A43.DGN PLOT DATE : 23-JUL-2015 15:21 PLOT BY : mscj9h PLOT NAME : PLOT SCALE : 99.237937:1.000000 WISDOT/CADDS SHEET 42





Nuts, bolts and lags used for mounting signs shall have hexagonal heads and shall be either :

a. Hot dip galvanized in accordance with ASTM Designation: A 153, Class D, or SC 3

b. Electro-galvanized in accordance with ASTM Designation : B 633, TYPE III, SC 3.

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

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

LAG SCREWS - 3/8" X 3"

MACHINE BOLTS - 5/16" X 6-1/2" or 7" Length w/ nuts

SQUARE STEEL POSTS (2" x 2")

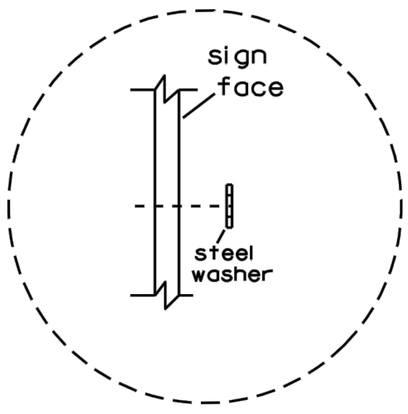
MACHINE BOLTS - 3/8" X 3-1/4" Length w/ nuts

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

WASHERS (ALL POSTS) -

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

1-1/4" O.D. X 3/8" I.D. X .080 NYLON for all Type H signs.



Washer Placement when Sign Has Other Than Type H or Type F Face

* 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

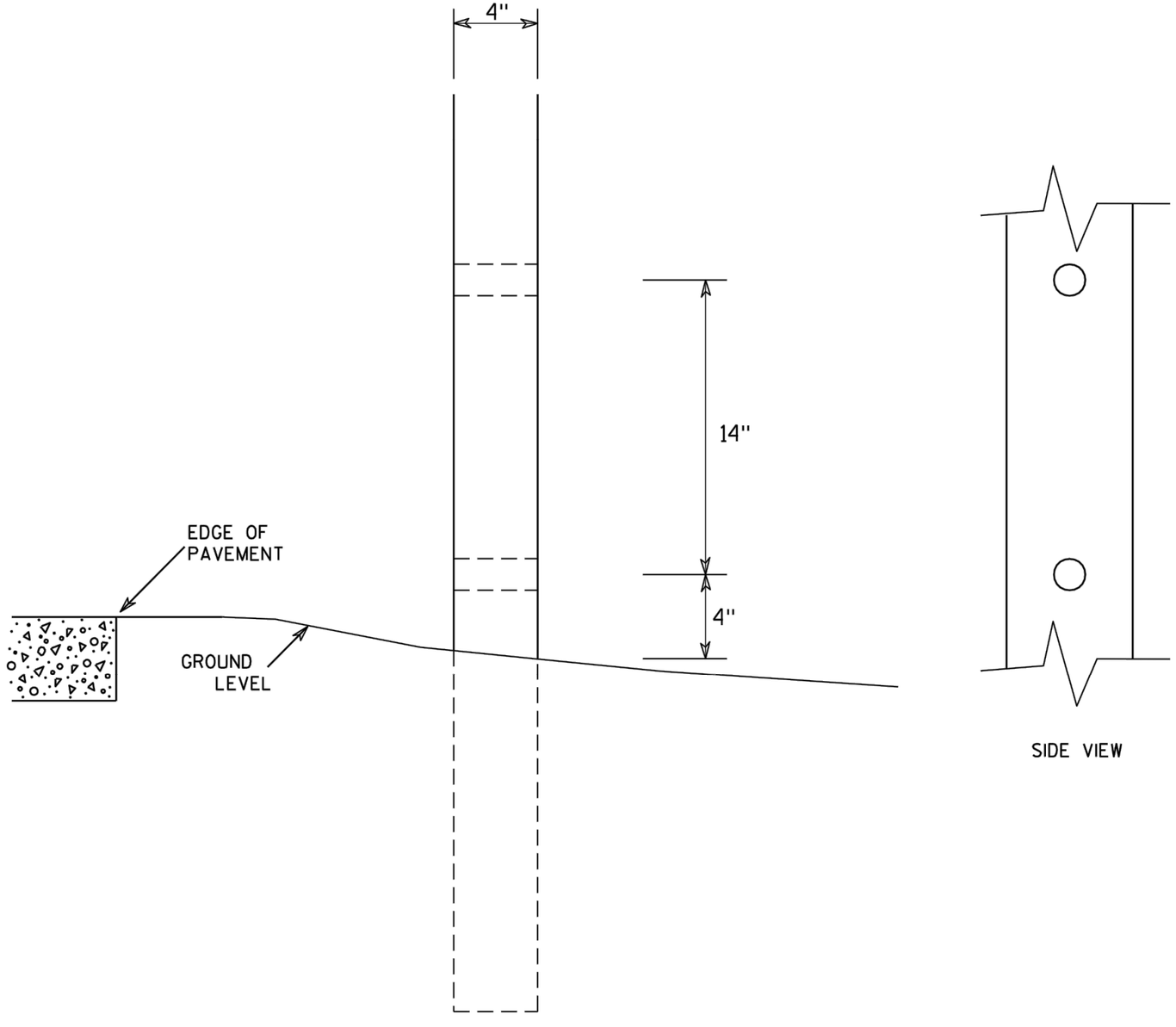
WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
For State Traffic Engineer

DATE 3/23/10 PLATE NO. A4-8.7

PROJECT NO: 4516-06-71	HWY: BOWER CREEK ROAD	COUNTY: BROWN	SIGN PLATES	SHEET NO: 46	E

FILE NAME : C:\Users\PROJECTS\tr_stdplate\A48.DGN PLOT DATE : 23-MAR-2010 10:15 PLOT BY : ditjph
WISDOT/CADDS SHEET 42



SIDE VIEW

GENERAL NOTES

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

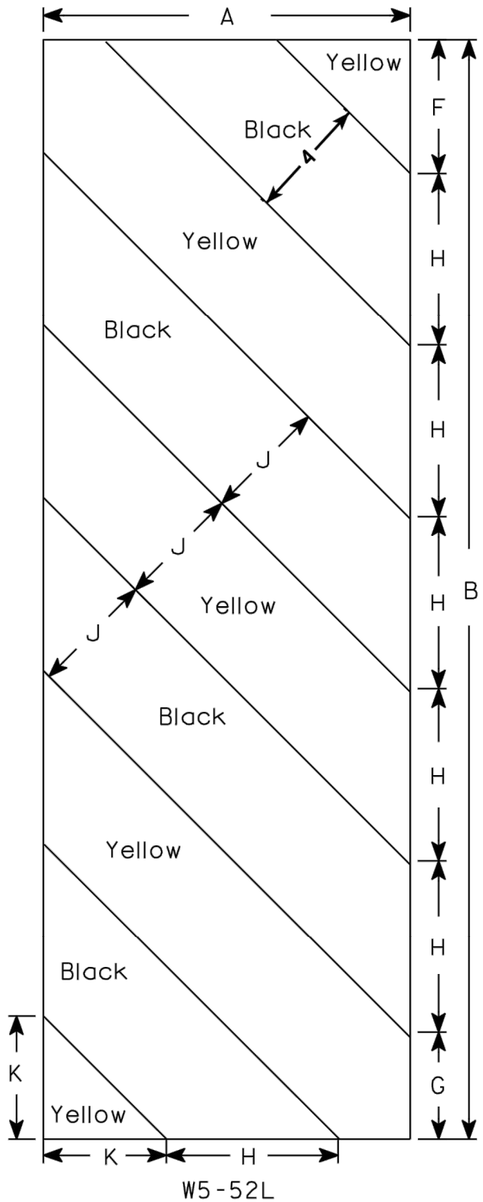
4 X 6 WOOD POST MODIFICATIONS

WISCONSIN DEPT OF TRANSPORTATION

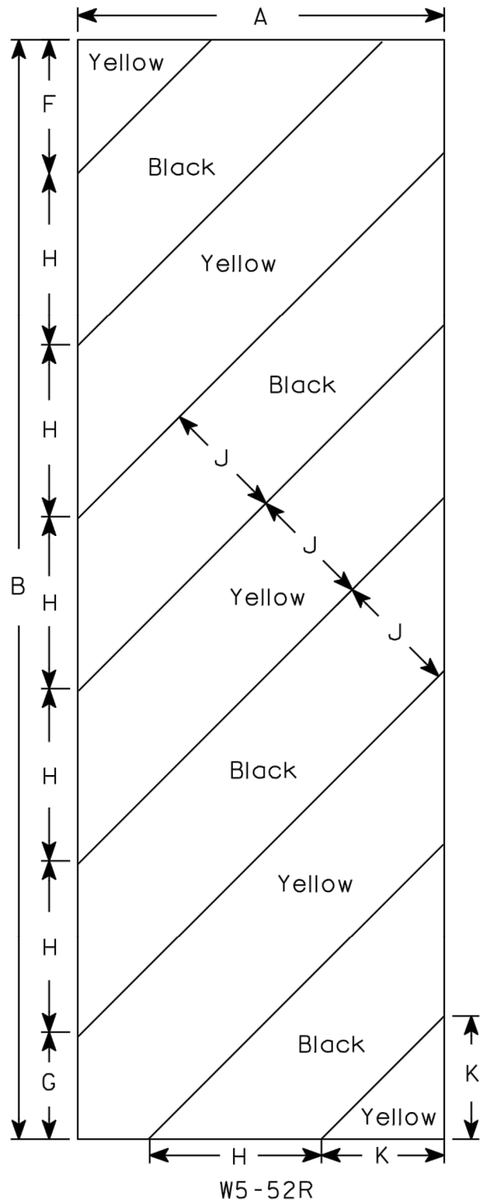
APPROVED Chester J Spang for State Traffic Engineer

DATE 3/27/97 PLATE NO. A4-11.2

PROJECT NO: 4516-06-71	HWY: BOWER CREEK ROAD	COUNTY: BROWN	SIGN PLATES	SHEET NO: 47	E



W5-52L



W5-52R

NOTES

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

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	12	36				4 3/8	3 1/2	5 5/8	45°	4	4																3.0
2M	12	36				4 3/8	3 1/2	5 5/8	45°	4	4																3.0
3	18	54				6	5 1/2	8 1/2	45°	6	6 9/16																6.75
4																											
5																											

STANDARD SIGN
W5-52L & W5-52R

WISCONSIN DEPT OF TRANSPORTATION

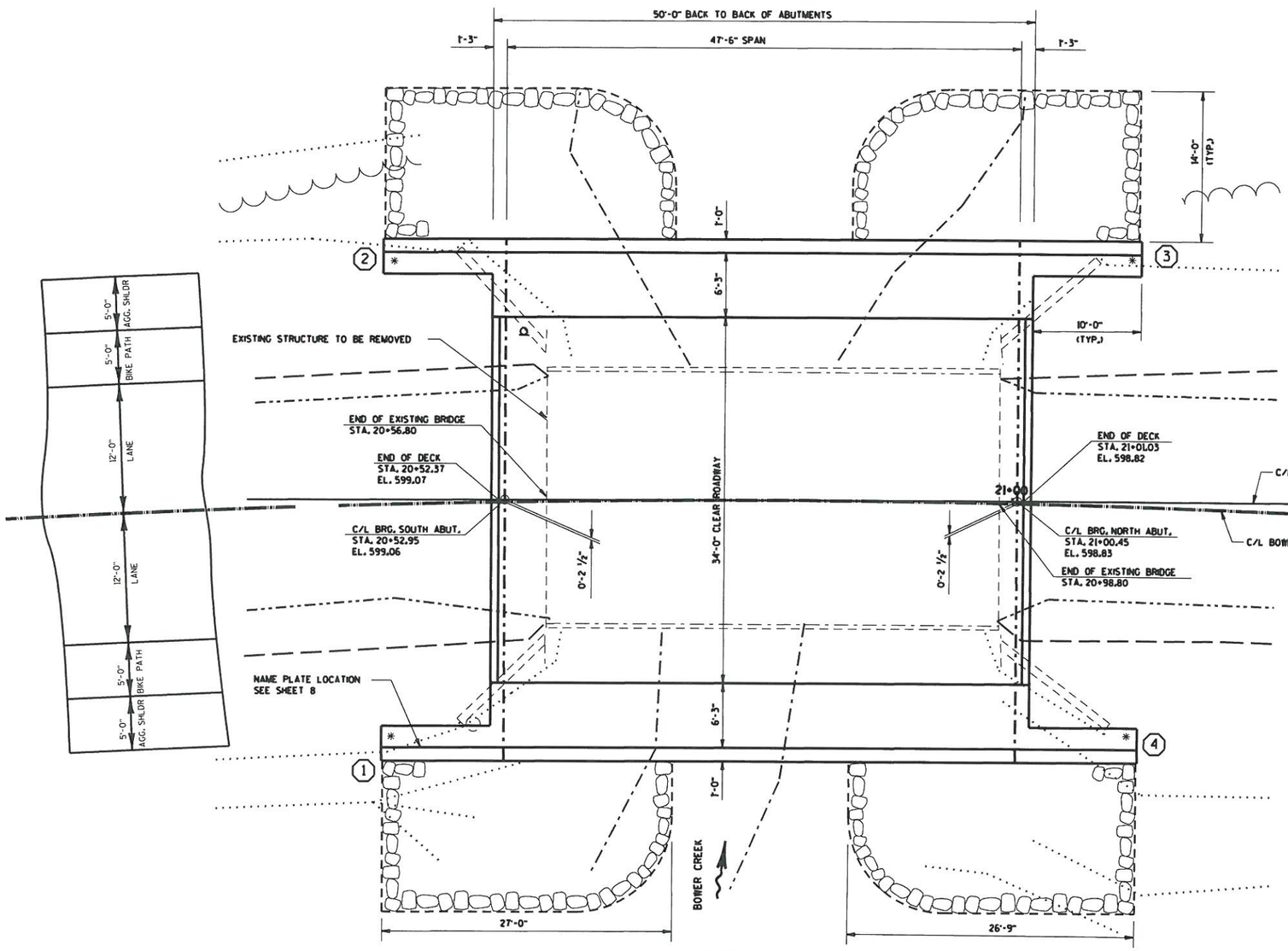
APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 5/29/12 PLATE NO. W5-52.9

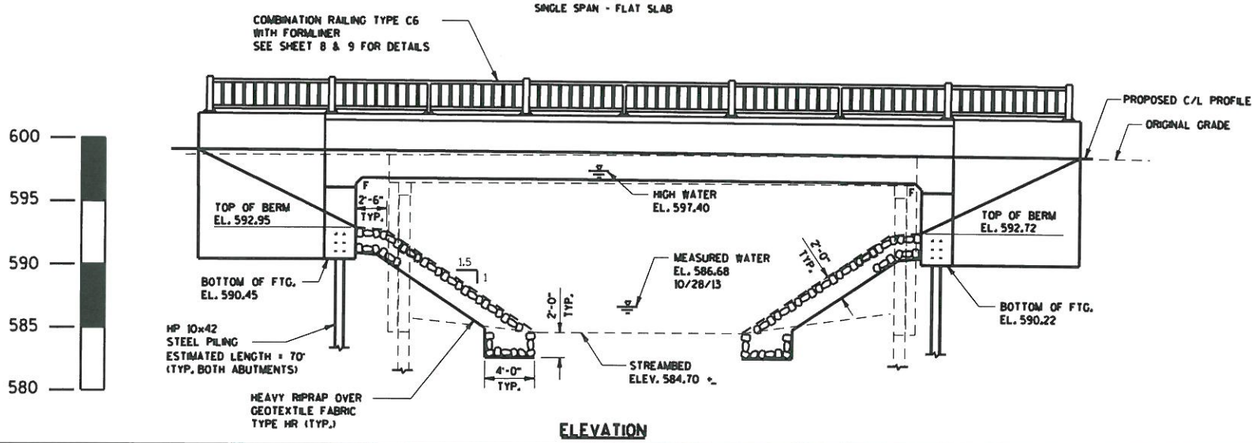
PROJECT NO: 4516-06-71	HWY: BOWER CREEK ROAD	COUNTY: BROWN	SIGN PLATES	SHEET NO: 48	E

STATE PROJECT NUMBER

4516-06-71



PLAN
SINGLE SPAN - FLAT SLAB



ELEVATION

** C/L BRIDGE IS TANGENT TO C/L BOWER CREEK ROAD AT STA. 20+76.70. CONSTRUCT BRIDGE PERPENDICULAR TO C/L BRIDGE.

INDICATES WING NUMBER

* INDICATES LOCATION OF PROVISION FOR THRIE BEAM GUARD ATTACHMENT.

DESIGN DATA

LIVE LOAD:

DESIGN RATING = ML-93
INVENTORY RATING = 1.19
OPERATING RATING = 1.54
MAXIMUM STANDARD PERMIT VEHICLE LOAD = SINGLE DF WITHOUT FWS - 250 Kips

STRUCTURE IS DESIGNED FOR A FUTURE WEARING SURFACE OF 20 PSF

INVENTORY AND OPERATING RATINGS DO NOT INCLUDE FUTURE WEARING SURFACE.

ULTIMATE DESIGN STRESSES:

CONCRETE MASONRY - SLAB f'c = 4,000 psi
- ALL OTHER (GRADE A) f'c = 3,500 psi

HIGH STRENGTH BAR STEEL REINFORCEMENT AASHTO GRADE 60 fy = 60,000 psi

FOUNDATION DATA

ABUTMENTS TO BE SUPPORTED ON HP 10x42 STEEL PILING DRIVEN TO REFUSAL, AN ESTIMATED REQUIRED DRIVING RESISTANCE OF 175 TONS *** PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA, USING DRIVEN L.2 IN THE GRLWEAP PROGRAM WITH A DELMAG D-30 HAMMER TYPE. ESTIMATED LENGTH 70 FT.

*** THE FACTORED GEOTECHNICAL RESISTANCE OF PILES IN COMPRESSION USED FOR DESIGN IS THE REQUIRED DRIVING RESISTANCE MULTIPLIED BY A RESISTANCE FACTOR OF 0.5 USING MODIFIED GATES TO DETERMINE DRIVEN PILE CAPACITY.

HYDRAULIC DATA

100 YEAR FREQUENCY

DRAINAGE AREA = ... 20.0 SQ. MI.
Q_{100} = ... 4737 CFS

THRU STRUCTURE ..... 2357 CFS
OVERTOPPING ROADWAY ..... 2380 CFS
VELOCITY ..... 7.47 FT/SEC
WATERWAY AREA ..... 316 SQ. FT
HIGH WATER $_{100}$ELEVATION 597.40
SCOUR CRITICAL CODE 5

ROADWAY OVERTOPPING

OVERTOPPING FREQUENCY = 10 YR.
OVERTOPPING ELEVATION = 596.80
OVERTOPPING DISCHARGE = 2950 CFS

TRAFFIC DATA

A.D.T. (2014) 1200

A.D.T. (2035) 1900

DESIGN SPEED ..... 40 MPH

BENCH MARKS

NO.	STATION	DESCRIPTION	ELEV.
1	21+62.72	41.45' RT NAIL IN PP =645BB15	594.36

LIST OF DRAWINGS

BRIDGE OFFICE CONTACT
WILLIAM DREHER, P.E.
TELEPHONE: (608) 266-8489

CONSULTANT CONTACT
JEFFREY TORMEY, P.E.
TELEPHONE: (847) 336-7100

WISCONSIN JEFFREY T. TORMEY E-21670 PEWAUKEE WI PROFESSIONAL ENGINEER
2/9/16

NO.	DATE	REVISION	BY

McClure Engineering Associates, Inc.

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

ACCEPTED William C. Dreher SDR 02/09/16
CHIEF STRUCTURES DESIGN ENGINEER DATE

STRUCTURE B-05-418

BOWER CREEK ROAD OVER BOWER CREEK

COUNTY	VILLAGE
BROWN	BELLVUE

DESIGN SPEC. AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS

DESIGNED BY	DF	DESIGN CK'D.	JT	DRAWN BY	JB	PLANS CK'D.	DF

GENERAL PLAN

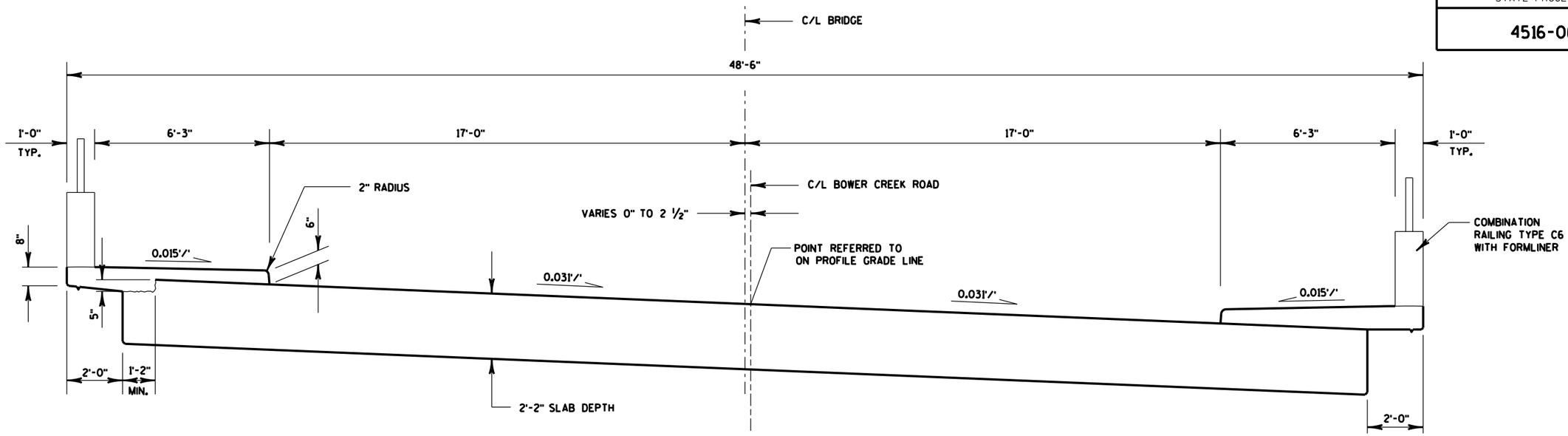
SHE 49 : 9

8

8

STATE PROJECT NUMBER

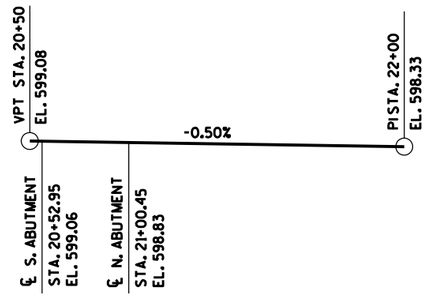
4516-06-71



CROSS SECTION THRU ROADWAY LOOKING NORTH

HORIZONTAL CURVE DATA

PI STA. = 20+13.71
Y = 543623.846
X = 107923.154
DELTA = 10°48'18"
D = 4°17'12"
T = 126.40'
L = 252.06'
R = 1336.56'
PC STA. = 18+87.31
PT STA. = 21+39.36



PROFILE GRADE LINE BOWER CREEK ROAD

ITEM NO.	BID ITEMS	UNIT	WEST ABUT.	EAST ABUT.	SUPER	TOTALS
203.0600.S	REMOVING OLD STRUCTURE OVER WATERWAY WITH MINIMAL DEBRIS (STA. 20+77)	LS				1
206.1000	EXCAVATION FOR STRUCTURES BRIDGES B-05-418	LS				1
210.0100	BACKFILL STRUCTURE	CY	74	74		148
502.0100	CONCRETE MASONRY BRIDGES	CY	42	42	208	292
502.3200	PROTECTIVE SURFACE TREATMENT	SY			274	274
505.0400	BAR STEEL REINFORCEMENT HS STRUCTURES	LB	2,828	2,828		5,656
505.0600	BAR STEEL REINFORCEMENT HS COATED STRUCTURES	LB	1,765	1,765	34,060	37,590
513.7031	RAILING STEEL TYPE C6 (B-05-418)	LF			140	140
516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	10	10		20
517.1015.S	CONCRETE STAINING MULTI-COLOR (B-05-418)	SF			653	653
517.1050.S	ARCHITECTURAL SURFACE TREATMENT (B-05-418)	SF			653	653
550.1100	PILING STEEL, HP 10-INCH x 42 LBS	LF	490	490		980
606.0300	RIPRAP HEAVY	CY	105	105		210
614.0150	ANCHOR ASSEMBLIES FOR STEEL PLATE BEAM GUARD	EA	2	2		4
645.0120	GEOTEXTILE FABRIC TYPE HR	SY	181	181		362
	NON-BID ITEMS					
	FILLER	SIZE				1/2" & 3/4"

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

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

SLAB FALSEWORK SHALL BE SUPPORTED ON PILES OR THE SUBSTRUCTURE UNLESS AN ALTERNATE METHOD IS APPROVED BY THE ENGINEER.

THE SLOPE OF THE FILL IN FRONT OF THE ABUTMENTS SHALL BE COVERED WITH HEAVY RIPRAP AND GEOTEXTILE FABRIC TYPE HR TO THE EXTENT SHOWN ON THE GENERAL PLAN SHEET AND IN THE ABUTMENT DETAILS. TYPE R AS APPROVED BY THE ENGINEER.

THIS STRUCTURE WILL REPLACE AN EXISTING 42 FOOT LENGTH SINGLE SPAN CONCRETE BOX GIRDERS SUPPORTED ON TIMBER ABUTMENT AND PILES. BUILT IN 1957.

SEE ROADWAY PLANS FOR EXISTING UTILITY LOCATIONS.

AT THE ABUTMENTS, ALL EXCAVATED VOLUME NOT OCCUPIED BY THE NEW STRUCTURE SHALL BE BACKFILLED WITH STRUCTURE BACKFILL.

THE EXISTING GROUNDLINE SHALL BE THE UPPER LIMITS FOR EXCAVATION FOR STRUCTURES.

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

PROTECTIVE SURFACE TREATMENT IS TO BE APPLIED TO THE TOP AND EDGES OF THE SLAB AND TO THE OUTSIDE 1'-6" OF UNDERSIDE OF THE SLAB.

SEE SUBSURFACE AND FOUNDATION EVALUATION REPORT BY M.E.S. DATED MAY 12, 2014 AND ADDITIONAL DRIVEN PILE RECOMMENDATIONS LETTER BY M.E.S. DATED OCTOBER 24, 2014 FOR ADDITIONAL PILE DRIVING NOTES.

NO.	DATE	REVISION	BY
1	2-4-16	ADDED PAVING NOTCH	JBB

McClure Engineering Associates, Inc.

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE B-05-418

DRAWN BY JB | PLANS CK'D. DF

CROSS SECTION & QUANTITIES

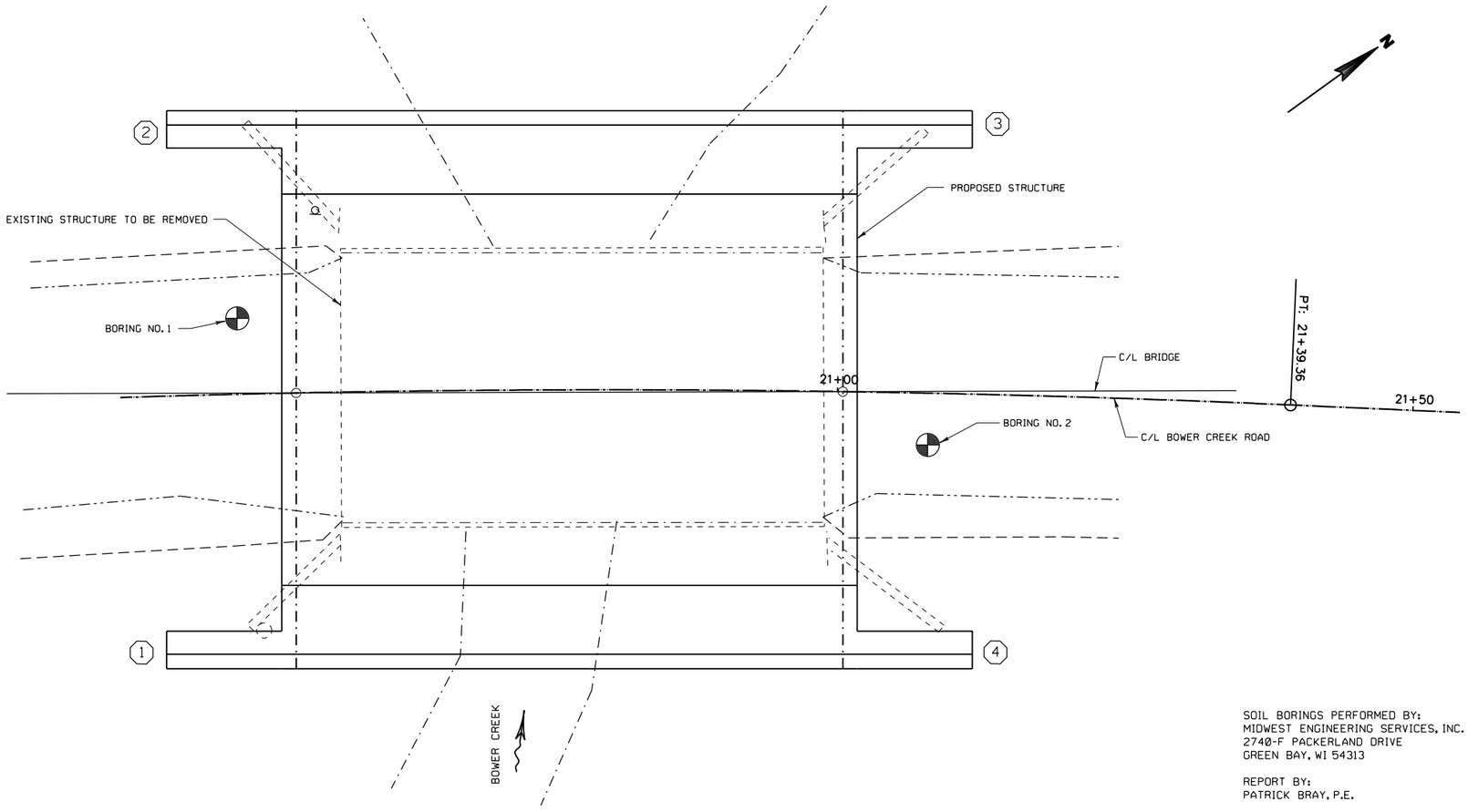
SHEET 2 OF 9
50

8

8

STATE PROJECT NUMBER

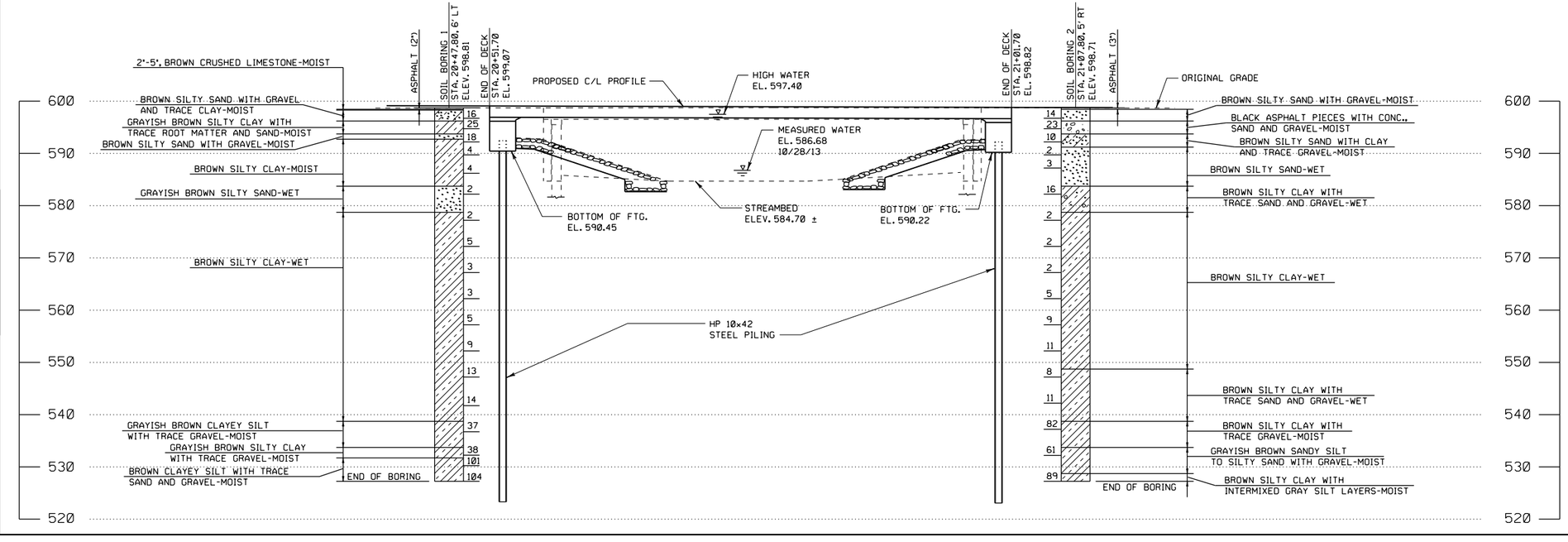
4516-06-71



SOIL BORINGS PERFORMED BY:
MIDWEST ENGINEERING SERVICES, INC.
2740-F PACKERLAND DRIVE
GREEN BAY, WI 54313

REPORT BY:
PATRICK BRAY, P.E.

BORINGS COMPLETED ON:
APRIL 17, 2014



ABBREVIATIONS

F - Fine M - Medium C - Coarse
Ws - Weathered So - Sound

MATERIAL SYMBOLS

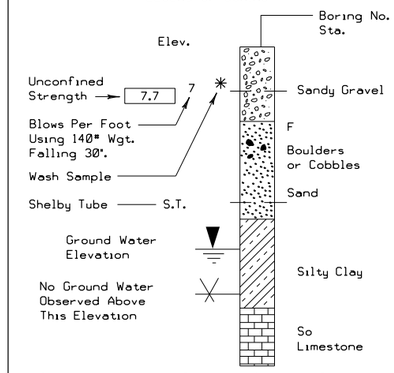
Topsoil, Silt, Sandstone
Sand, Peat, Limestone
Gravel, Clay, Igneous Rock

LEGEND OF PROBING

95/6 = 95 Blows for 6" Penetration
Probing taken with a 350# Wgt falling 18" on a 2" O.D. point.

Probing No.
Station
Elevation
7 Average Blows Per Ft.
Refusal 95/6

LEGEND OF BORING



Unless otherwise specified, the blows per foot at the locations indicated are based on driving a 2" O.D. x 1.4" I.D. split spoon sampler with a 140 lb. hammer having a free fall of 30". The blow count is taken in undisturbed soil immediately below a cased or open hole eliminating side friction on the drive pile.

SUBSURFACE EXPLORATION FOR FOUNDATION DESIGN AND BIDDERS INFORMATION

To obtain relative data concerning the character of material in and upon which the foundation might be built, borings and/or soundings were made at points approximately as indicated on this drawing. The data presented herein represents the findings of the subsurface explorations made. However, because the depths investigated are limited and the area of the borings and/or soundings is very small in relation to the entire area, the DEPT. of TRANSPORTATION does not warrant conditions below the depths investigated or that the classification of material encountered in these investigations is necessarily typical of the entire site.

NO.	DATE	REVISION	BY

McClure Engineering Associates, Inc.

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE B-05-418

DRAWN BY JB | PLANS CK'D. DF

SUBSURFACE EXPLORATION

SHEET 3 OF 9
51

8

8

STATE PROJECT NUMBER

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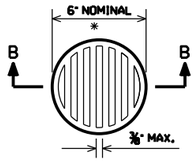
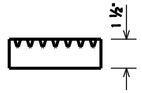




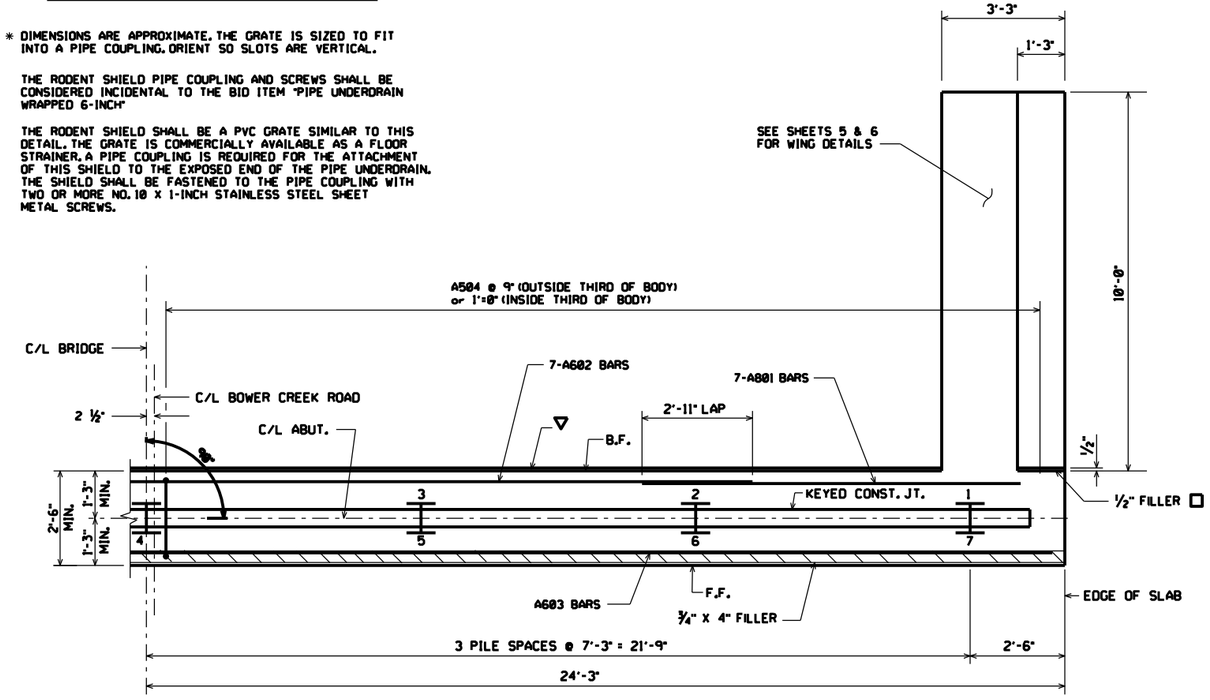
SECTION B-B

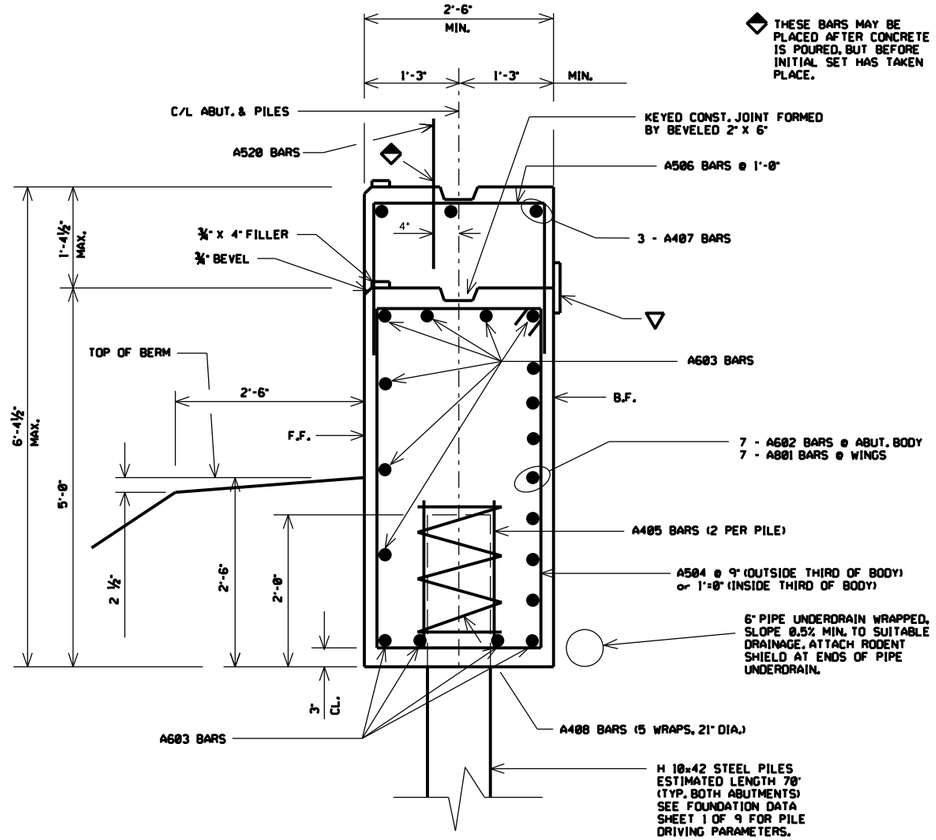
RODENT SHIELD DETAIL

* DIMENSIONS ARE APPROXIMATE. THE GRATE IS SIZED TO FIT INTO A PIPE COUPLING. ORIENT SO SLOTS ARE VERTICAL.

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 COMMERCIALLY AVAILABLE AS A FLOOR STRAINER. A PIPE COUPLING IS REQUIRED FOR THE ATTACHMENT OF THIS SHIELD TO THE EXPOSED END OF THE PIPE UNDERDRAIN. THE SHIELD SHALL BE FASTENED TO THE PIPE COUPLING WITH TWO OR MORE NO. 10 X 1-INCH STAINLESS STEEL SHEET METAL SCREWS.

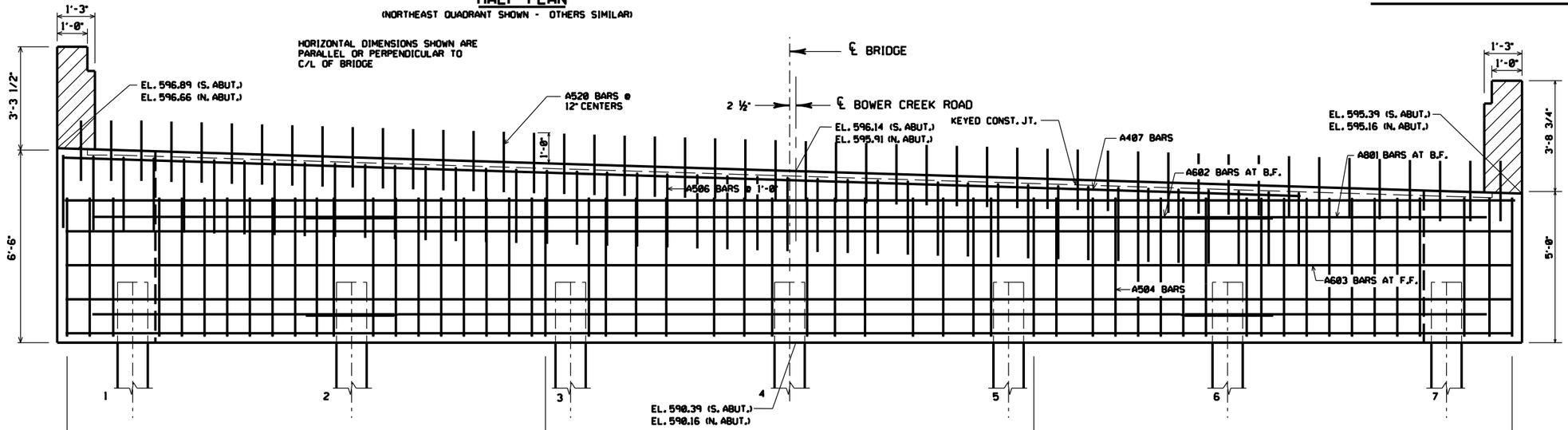




SECTION THRU BODY

HALF PLAN

(NORTHEAST QUADRANT SHOWN - OTHERS SIMILAR)



ELEVATION

NORTH ABUTMENT SHOWN - LOOKING NORTH
(SOUTH ABUTMENT SIMILAR)

NOTES

□ SEAL ALL EXPOSED HORIZ. & VERT. SURFACES OF ½" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD ⅛" BELOW SURFACE OF CONC.)

DO NOT PLACE FILL ABOVE 3'-0" FROM BOTTOM OF ABUTMENT UNTIL SUPERSTRUCTURE IS IN PLACE.

▽ 18" RUBBERIZED MEMBRANE WATERPROOFING.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE B-05-418

DRAWN BY JB | PLANS CK'D. DF

ABUTMENTS

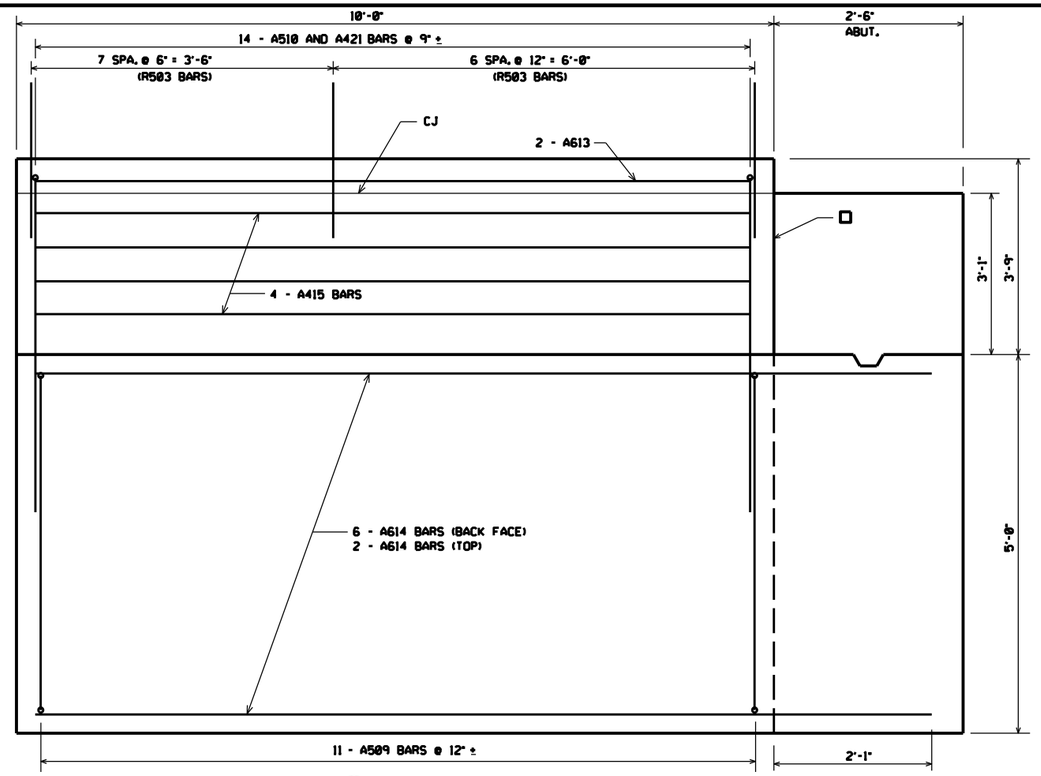
SHEET 4 OF 9
52

8

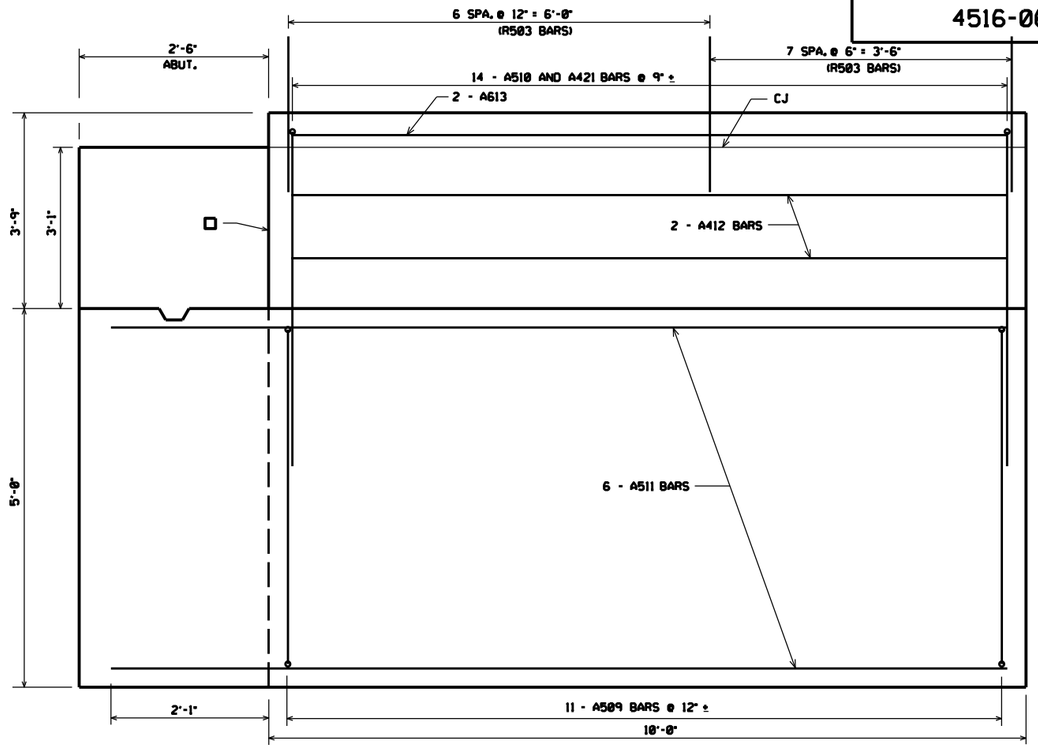
8

STATE PROJECT NUMBER

4516-06-71

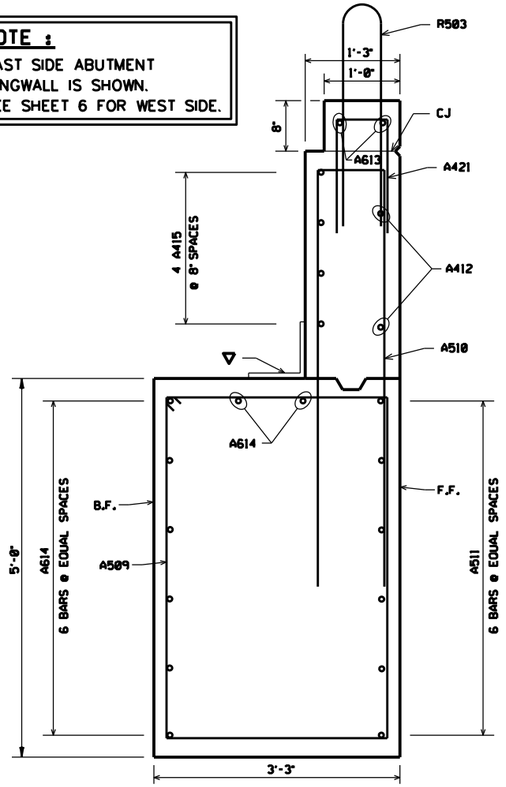


BACK FACE



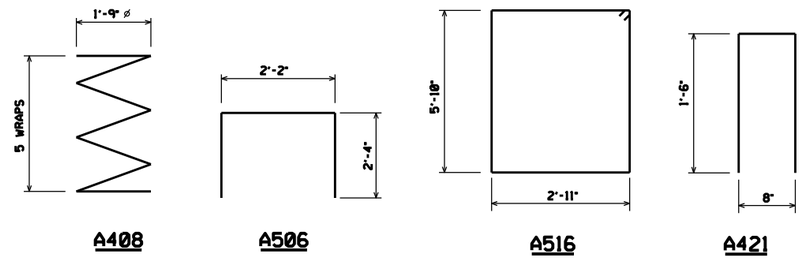
FRONT FACE

NOTE :
EAST SIDE ABUTMENT WINGWALL IS SHOWN.
SEE SHEET 6 FOR WEST SIDE.

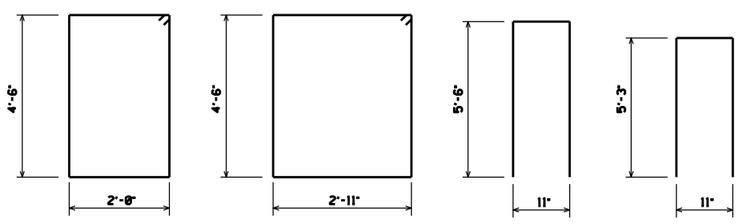


SECTION THRU WING

EAST WING ELEVATION



A408 A506 A516 A421



A504 A509 A510 A517

BAR DETAILS

BILL OF BARS (BOTH ABUTMENTS)

BAR MARK	NO.	LENGTH	BENT	CUT	COATED	LOCATION
A801	28	10'-0"				BODY AT WINGWALL - B.F. - HORIZ.
A602	14	32'-0"				BODY CENTER - B.F. - HORIZ.
A603	22	48'-2"				BODY - TOP, BOTTOM - F.F. - HORIZ.
A504	118	13'-5"	X			BODY - BASE - STIRRUPS - VERT.
A405	32	2'-3"				BODY - AT PILES - VERT.
A506	70	6'-7"	X			BODY - TOP - U BAR - VERT.
A407	6	41'-0"				BODY - TOP - HORIZ.
A408	16	28'-0"	X			BODY - PILE WRAP
A509	22	15'-5"	X		X	WINGWALL - BASE - STIRRUPS - VERT.
A510	28	11'-7"	X		X	WINGWALL - TOP - U BAR - VERT.
A511	26	11'-10"			X	WINGWALL - BASE - F.F. - HORIZ.
A412	8	9'-6"			X	WINGWALL - TOP - F.F. - HORIZ.
A613	8	9'-6"			X	WINGWALL - TOP - HORIZ.
A614	34	11'-10"			X	WINGWALL - BASE - B.F. - HORIZ.
A415	16	9'-6"			X	WINGWALL - TOP - B.F. - HORIZ.
A516	22	18'-1"	X		X	WINGWALL - BASE - STIRRUPS - VERT.
A517	28	11'-1"	X		X	WINGWALL - TOP - U BAR - VERT.
A418						NOT USED
A419						NOT USED
A520	98	2'-0"			X	BODY - TOP - DOWEL INTO SLAB - VERT.
A421	56	3'-6"	X		X	WINGWALL AT NOTCH

THE FIRST DIGIT OF A 3 DIGIT BAR MARK SIGNIFIES THE BAR SIZE

NOTES

□ SEAL ALL EXPOSED HORIZ. & VERT. SURFACES OF ½" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD ⅛" BELOW SURFACE OF CONC.)

DO NOT PLACE FILL ABOVE 3'-8" FROM BOTTOM OF ABUTMENT UNTIL SUPERSTRUCTURE IS IN PLACE.

▽ 18" RUBBERIZED MEMBRANE WATERPROOFING.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE B-05-418

DRAWN BY JB | PLANS CK'D. DF

EAST WING DETAILS BILL OF BARS

SHEET 5 OF 9

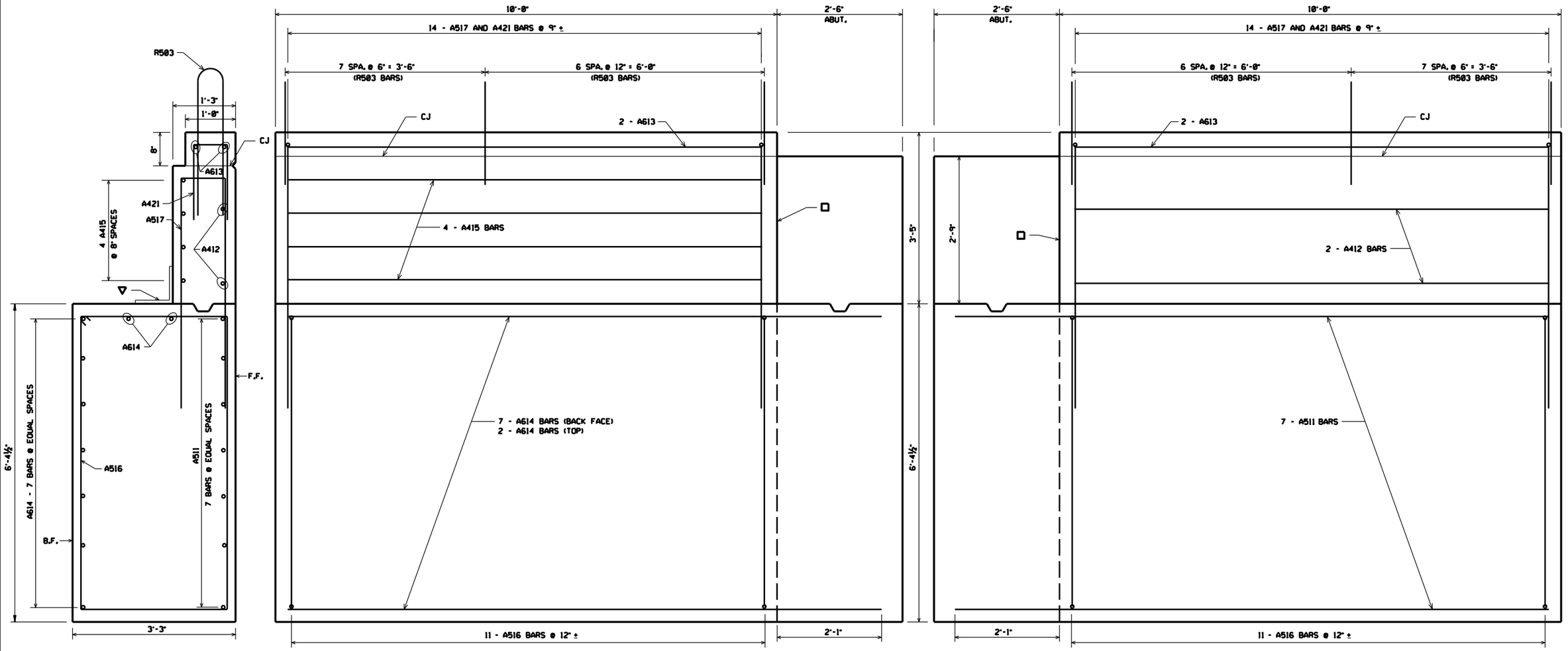
53

8

8

STATE PROJECT NUMBER

4516-06-71



SECTION THRU WING

BACK FACE

FRONT FACE

WEST WING ELEVATION

8

8

NOTES

□ SEAL ALL EXPOSED HORIZ. & VERT. SURFACES OF ½" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD ⅛" BELOW SURFACE OF CONC.)

DO NOT PLACE FILL ABOVE 3'-0" FROM BOTTOM OF ABUTMENT UNTIL SUPERSTRUCTURE IS IN PLACE.

▽ 18" RUBBERIZED MEMBRANE WATERPROOFING.

NOTE :

WEST SIDE ABUTMENT WINGWALL IS SHOWN. SEE SHEET 5 FOR EAST SIDE.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE B-05-418

DRAWN BY JB | PLANS CK'D. DF

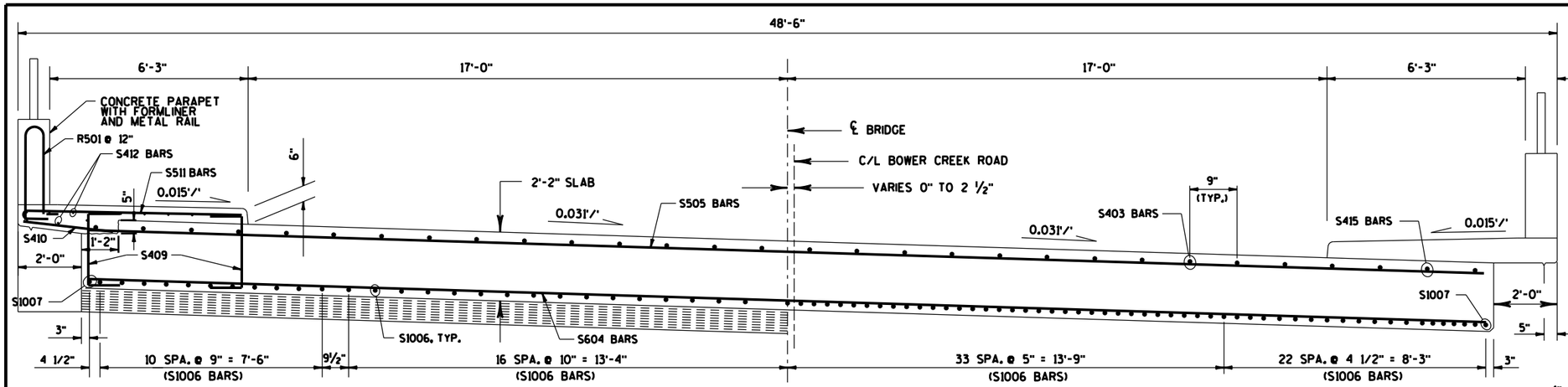
WEST WING DETAILS

SHEET 6 OF 9

54

STATE PROJECT NUMBER

4516-06-71

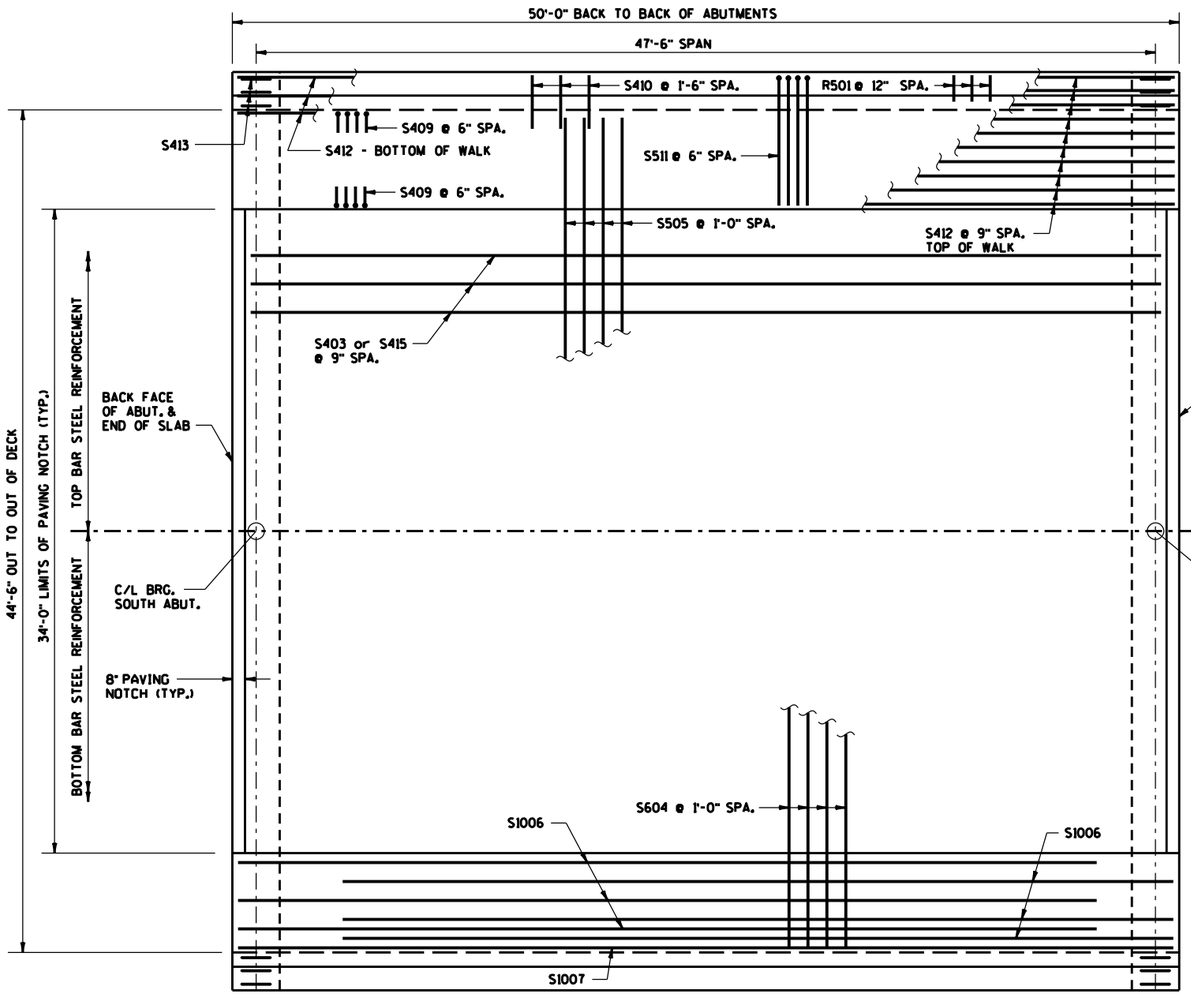


CROSS SECTION THRU ROADWAY

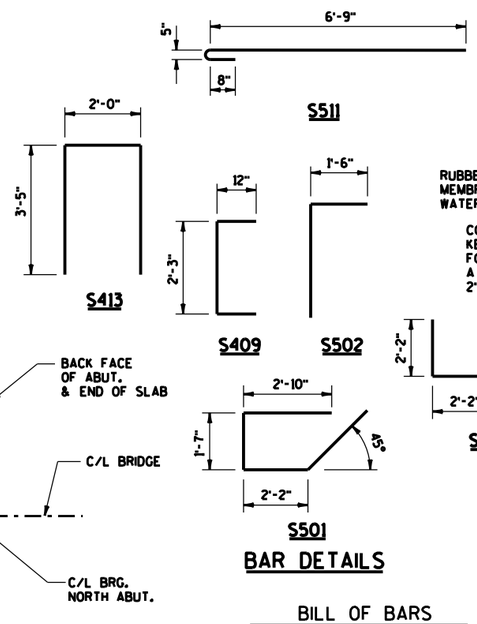
(LOOKING NORTH)

CAMBER/TOP OF SLAB ELEV. TABLE

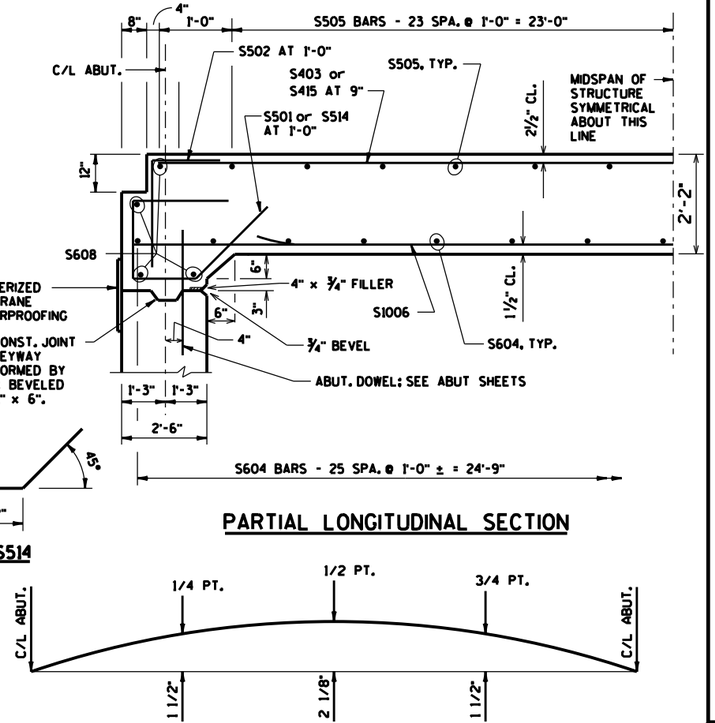
STA.	CAMBER	PGL ELEV.	W. CURB ELEV.	W. EDGE/ SLAB ELEV.	E. CURB ELEV.	E. EDGE/ SLAB ELEV.
20+53.00	0	599.06	599.59	599.75	598.53	598.37
20+57.75	0.7	599.04	599.56	599.73	598.51	598.35
20+62.50	1.3	599.01	599.54	599.70	598.49	598.32
20+67.25	1.7	598.99	599.52	599.68	598.46	598.30
20+72.00	2.0	598.97	599.49	599.65	598.44	598.28
20+76.75	2.1	598.94	599.47	599.63	598.41	598.25
20+81.50	2.0	598.92	599.44	599.61	598.39	598.23
20+86.25	1.7	598.89	599.42	599.58	598.37	598.20
20+91.00	1.3	598.87	599.40	599.56	598.34	598.18
20+95.75	0.7	598.85	599.37	599.54	598.32	598.16
21+00.50	0	598.82	599.35	599.51	598.30	598.13



DECK PLAN



BAR DETAILS



PARTIAL LONGITUDINAL SECTION

CAMBER DIAGRAM

BILL OF BARS

BAR MARK	NO.	LENGTH	BENT	CUT	COATED	LOCATION
S501	70	8'-1"	X		X	DIAPHRAGM AT ABUTS. - LONGIT. AT PAVING NOTCH
S502	98	4'-2"	X		X	DIAPHRAGM AT ABUTS. - VERT.
S403	46	48'-2"			X	SLAB TOP - LONGIT. AT PAVING NOTCH
S604	51	44'-0"			X	SLAB BOTTOM - TRANSVERSE
S505	47	44'-0"			X	SLAB TOP - TRANSVERSE
S1006	109	43'-9"			X	SLAB BOTTOM - LONGIT.
S1007	2	49'-6"			X	SLAB, BOTTOM, LONGIT.
S608	8	48'-0"			X	SLAB BOTTOM AT ABUT. - TRANSVERSE
S409	400	4'-3"	X		X	SIDEWALK - U-BAR INTO DECK
S410	66	2'-10"			X	SIDEWALK - BOTTOM - TRANSVERSE
S511	200	8'-0"	X		X	SIDEWALK - HOOK BAR - TRANSVERSE
S412	26	49'-6"			X	SIDEWALK - LONGIT. BARS
S413	12	8'-10"	X		X	DIAPHRIAGM AT ABUT. - UNDER SIDEWALK
S514	20	6'-8"	X		X	DIAPHRAGM AT ABUTS. - LONGIT. AT SIDEWALK
S415	14	49'-6"			X	SLAB TOP - LONGIT. AT SIDEWALK

THE FIRST DIGIT OF A THREE DIGIT BAR MARK OR FIRST TWO DIGITS OF A FOUR DIGIT BAR MARK SIGNIFIES THE BAR SIZE

CAMBER SHOWN IS BASED ON 3 TIMES DEAD LOAD DEFLECTIONS. CAMBER SPANS AS SHOWN TO PROVIDE FOR DEAD LOAD DEFLECTION & FUTURE CREEP. CAMBER DOES NOT INCLUDE ALLOWANCE FOR FORM SETTLEMENT. PARAPETS, SIDEWALKS AND MEDIANS PLACED ON TOP OF THE SLAB SHALL BE POURED AFTER FALSEWORK HAS BEEN RELEASED.

NO.	DATE	REVISION	BY
1	2-4-16	ADDED PAVING NOTCH	JBB

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE B-05-418

DRAWN BY JB | PLANS CK'D. DF

SUPERSTRUCTURE

SHEET 7 OF 9
55

8

8

STATE PROJECT NUMBER

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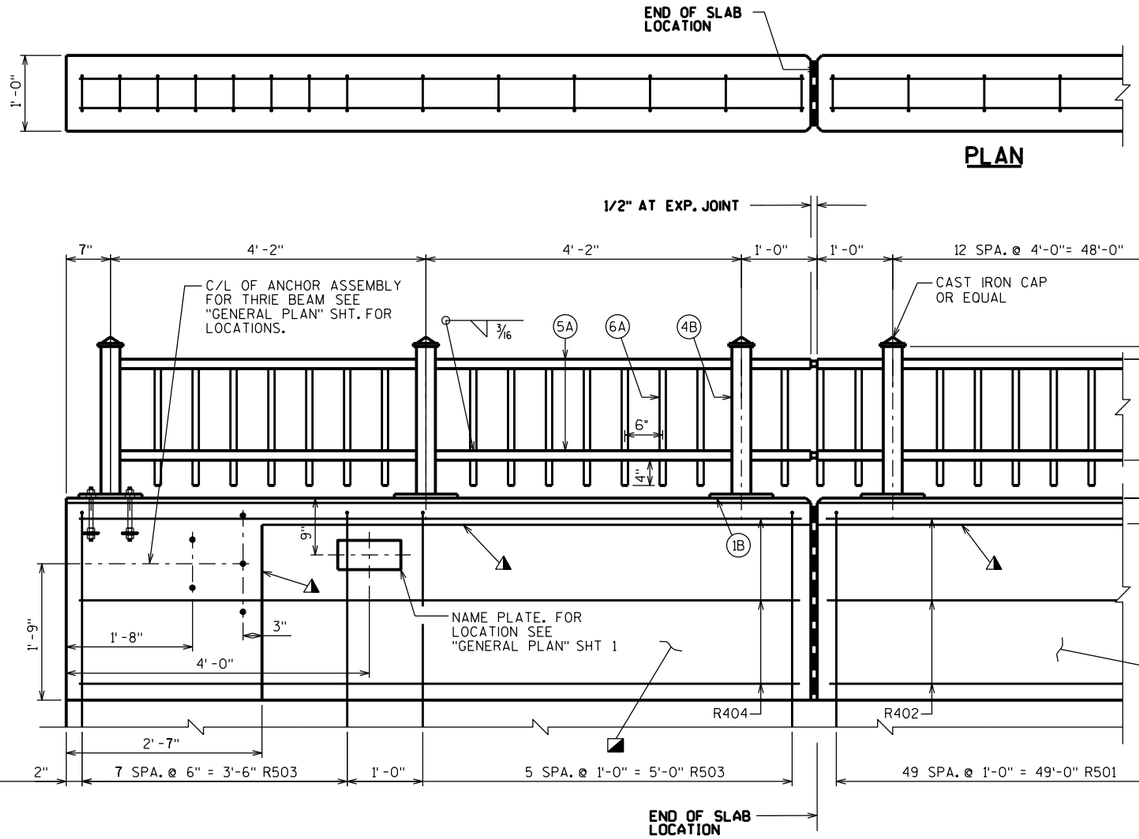
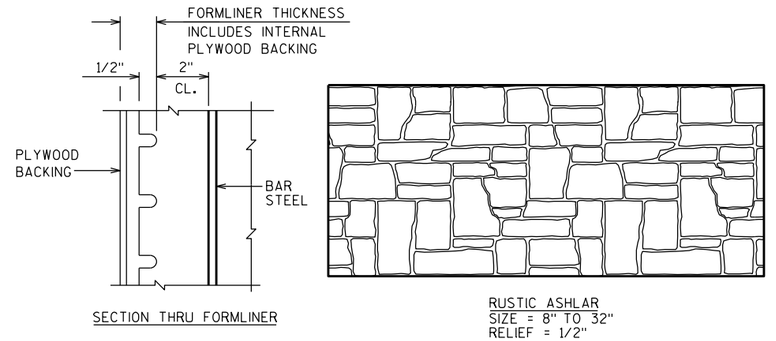


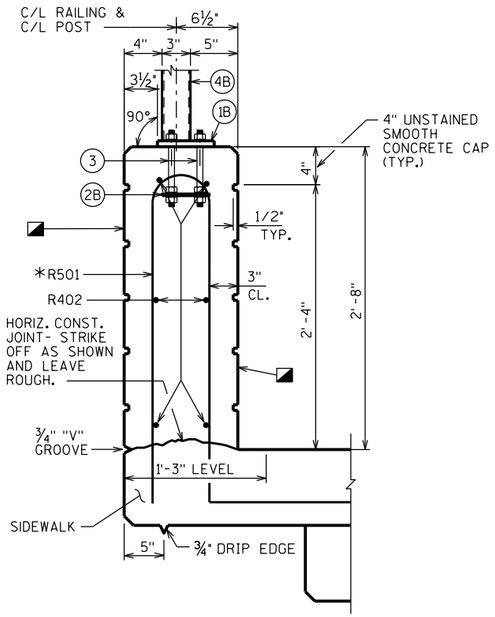


FORMLINER DETAILS

PARAPET NOTES

FORMLINER COURSING ON PARAPETS SHALL BE PARALLEL TO TOP OF PARAPET.

INSIDE ELEVATION OF PARAPET

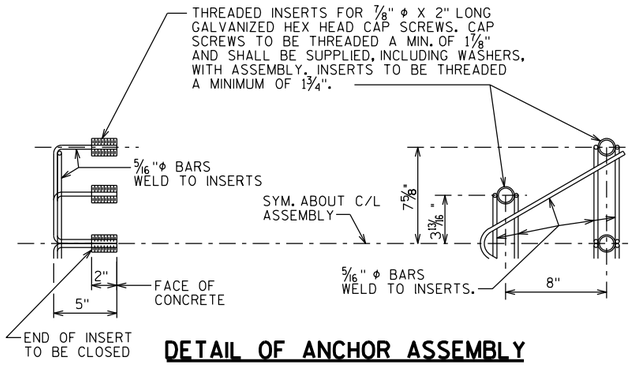


SECTION THRU PARAPET ON BRIDGE

* ADJUST LOCATIONS OF BARS TO ALLOW PLACEMENT OF ANCHOR ASSEMBLY FOR RAILING AND BEAM GUARD.

◪ "RUSTIC ASHLAR" PATTERN ARCHITECTURAL SURFACE TREATMENT ON BOTH SIDES OF VERTICAL FACE PARAPET. COLOR SHALL BE MULTI-COLOR AS SPECIFIED IN THE SPECIAL PROVISIONS OR SIMILAR AS APPROVED BY THE PROJECT ENGINEER.

◭ LIMITS OF ARCHITECTURAL SURFACE TREATMENT AND CONCRETE STAINING MULTI-COLOR. FORMLINER ON OUTSIDE FACE EXTENDS END TO END OF PARAPET.



DETAIL OF ANCHOR ASSEMBLY

NOTE: HEX HEAD CAP SCREWS & WASHERS TO BE GALVANIZED IN ACCORDANCE WITH AASHTO M232 CLASS C.

ASSEMBLY SHALL BE BID ITEM "ANCHOR ASSEMBLIES FOR STEEL PLATE BEAM GUARD", EACH.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE B-05-418

DRAWN BY JB | PLANS CK'D. DF

PARAPET DETAILS

SHEET 8 OF 9
56

SCALE = 1.000

1011 12

1 2 3 4

8

8

STATE PROJECT NUMBER

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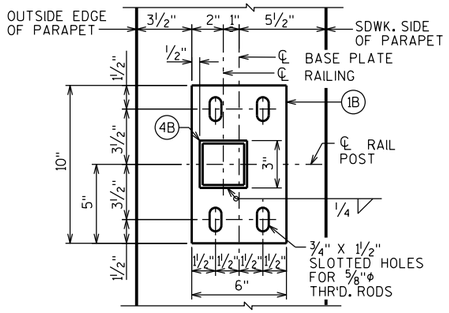
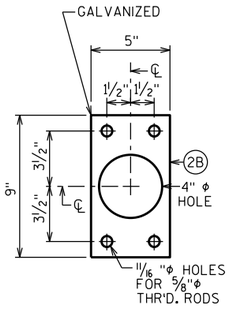
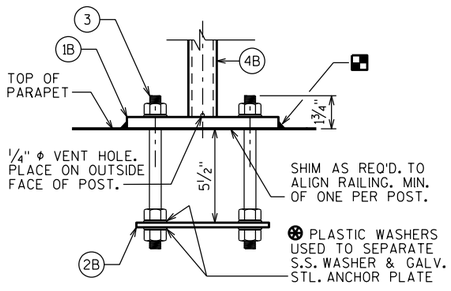


TYPICAL RAIL POST BASE PLATE

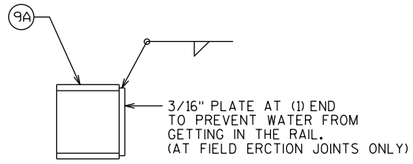


ANCHOR PLATE



ANCHORAGE FOR RAIL POSTS

NOTE: ANCHOR PLATE NOT REQUIRED WHEN TYPE S ANCHORS ARE USED.



CLOSURE PLUG DETAIL

LEGEND

(1B) PLATE ⅝" X 6" X 10" WITH ¾" X 1½" SLOTTED HOLES

(2B) ¼" X 5" X 9" ANCHOR PLATE WITH 11/16 " φ HOLES FOR THR'D. RODS NO. 3.

(3) ⅝" DIA. X 9" LONG, TYPE 316 STAINLESS STEEL THREADED RODS (MIN. TENSILE STRENGTH = 70 KSI) WITH NUT AND WASHERS OF SAME ALLOY GROUP. (ALTERNATE RAIL POST ANCHORAGE: 4 EQUIVALENT STAINLESS STEEL CONCRETE MASONRY ANCHORS TYPE S ⅝-INCH. EMBED 7" IN CONCRETE FOR RAIL POSTS. EMBED 5" IN CONCRETE FOR END RAILS.)

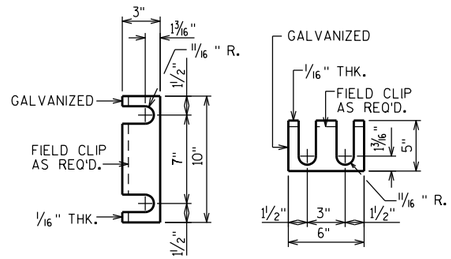
(4B) STRUCTURAL TUBING 3" X 3" X 3/16". PLACE VERTICAL. WELD TO NO. 1 & 5.

(5A) STRUCTURAL TUBING 3" X 1½" X 3/16" RAILS. WELD TO NO. 1 & NO. 4. INSIDE OF TUBE TO BE PAINTED AT ALL FIELD ERECTION & EXPANSION JOINTS.

(6A) BAR 1" X 1" PICKETS. WELD TO NO. 5. PLACE VERTICAL.

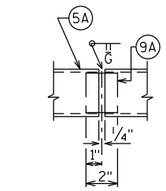
(9A) RECTANGULAR SLEEVE FABRICATED FROM 3/16" PLATES. PROVIDE "SLIDING FIT".

(10A) RECTANGULAR SLEEVE FABRICATED FROM 3/16" PLATES. (1'-4" @ FIELD ERECTION JTS.) (1'-4" @ STRIP SEAL EXP. JTS.)



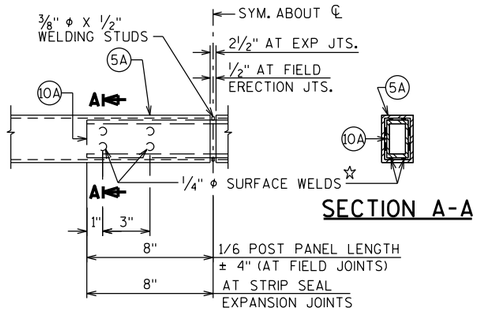
RAIL POST SHIM DETAIL

(2 SETS PER POST)



SHOP RAIL SPLICE DETAIL

(LOCATION MUST BE SHOWN ON SHOP DRAWINGS)



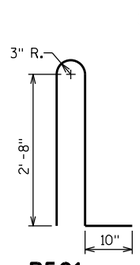
SECTION A-A

FIELD ERECTION JOINT DETAIL

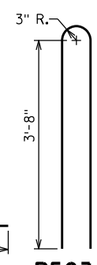
☆ MIN. ⅝" FLAT SURFACE DIA. PUNCHINGS OR STUDS MAY BE USED AS AN ALTERNATE.

BILL OF BARS

BAR MARK	COAT	NO. REQ'D	LENGTH	BENT	LOCATION
R501	X	100	6'-10"	X	PARAPET VERT.
R402	X	12	49'-6"		PARAPET HORIZ.
R503	X	56	8'-2"	X	PARAPET VERT. @ WINGS
R404	X	24	9'-8"		PARAPET HORIZ. @ WINGS



R501



R503

RAILING NOTES

BID ITEM SHALL BE "RAILING STEEL TYPE C6 B-05-418", WHICH SHALL INCLUDE ALL STEEL ITEMS SHOWN.

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 CUTS.

ALL PLATES, BARS, AND RECTANGULAR SLEEVES SHALL CONFORM TO ASTM A709 GRADE 36. ALL STRUCTURAL TUBING SHALL CONFORM TO ASTM A500 GRADE B.

ANCHORAGES SHALL BE ACCURATELY PLACED TO PROVIDE CORRECT ALIGNMENT OF RAILING. SET NORMAL TO GRADE.

CUT BOTTOM OF POST TO MAKE POST VERTICAL IN BOTH TRANSVERSE AND LONGITUDINAL DIRECTION.

STEEL SHIMS SHALL BE PROVIDED & USED UNDER BASE PLATES WHERE REQUIRED FOR ALIGNMENT, AND SHALL BE GALVANIZED.

CAULK AROUND PERIMETER OF BASE PLATES, NO. 1, AND FILL BOLT SLOT OPENINGS IN SHIMS AND BASE PLATES WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER.

ALL JOINTS AND RECESSES IN CONCRETE PARAPET ARE TO BE VERTICAL.

ALL MATERIAL (EXCEPT NO. 3 & 12) SHALL BE GALVANIZED AFTER FABRICATION. PRIOR TO GALVANIZING, THE STEEL RAILING SHALL BE GIVEN A NO. 6 BLAST CLEANING PER SSPC SPECIFICATIONS. PAINT OVER GALVANIZING WITH AN APPROVED TIE COAT AND TOP COAT AS SPECIFIED IN THE "BRIDGE SPECIAL PROVISIONS". THE RAILING SHALL BE PAINTED FEDERAL COLOR NO. 20059, BROWN.

VENT HOLES SHALL BE DRILLED IN POST AND RAIL MEMBERS AS REQUIRED TO FACILITATE GALVANIZING AND DRAINAGE.

RAILING SHALL BE FABRICATED IN LENGTHS THAT INCLUDE 3 OR 4 POSTS.

TOUCH-UP PAINTING TO BE DONE AT COMPLETION OF STEEL RAILING INSTALLATION TO THE SATISFACTION OF THE ENGINEER AT NO EXTRA COST.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE B-05-418

DRAWN BY JB | PLANS CK'D. JTT

COMBINATION RAIL TYPE "C6"

SHEET 9 OF 9
57

SCALE = 1.000

8

1 2 3 4 10 11

STATION	Real Station	Distance	AREA (SF) Cut	Salvaged/ Unusable Pavement Material	Fill	Marsh Exc	Rock Exc	EBS	Incremental Vol (CY) (Unadjusted) Cut	Salvaged/ Unusable Pavement Material	Fill	Marsh Exc	Rock Exc	EBS	Cumulative Vol (CY) Cut	Expanded Fill	Expanded Marsh Backfill	Expanded Rock	Expanded EBS Backfill	Reduced Marsh in Fill	Reduced EBS In Fill	Mass Ordinate
															1.00	1.25	1.50	1.10	1.30	0.60	0.80	
									Note 1	Note 2	Note 3				Note 1		Note 4		Note 5	Note 6	Note 7	Note 8
18+12.36	1812		0.01	0	0.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18+50.00	1850	38	39.93	0	6.44	0	0	0	28	0	4	0	0	0	28	6	0	0	0	0	0	22
18+79.09	1879	29	71.94	0	13.26	0	0	0	60	0	11	0	0	0	88	19	0	0	0	0	0	69
19+00.00	1900	21	49.33	0	24.79	0	0	0	47	0	15	0	0	0	135	37	0	0	0	0	0	98
19+25.00	1925	25	40.05	0	92.44	0	0	0	41	0	54	0	0	0	176	105	0	0	0	0	0	71
19+50.00	1950	25	36.07	0	66.22	0	0	0	35	0	116	0	0	0	212	251	0	0	0	0	0	-39
19+75.00	1975	25	33.75	0	160.15	0	0	0	32	0	148	0	0	0	244	435	0	0	0	0	0	-191
20+00.00	2000	25	33.88	0	138.38	0	0	0	31	0	138	0	0	0	275	608	0	0	0	0	0	-332
20+25.00	2025	25	34.92	0	146.16	0	0	0	32	0	132	0	0	0	307	773	0	0	0	0	0	-465
21+50.00	2150	125	66.30	0	98.79	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-465
22+00.00	2200	50	52.36	0	94.85	0	0	0	110	0	179	0	0	0	110	224	0	0	0	0	0	-579
22+50.00	2250	50	73.13	0	52.93	0	0	0	116	0	137	0	0	0	226	395	0	0	0	0	0	-634
22+92.96	2293	43	67.03	0	21.79	0	0	0	112	0	59	0	0	0	338	469	0	0	0	0	0	-597
23+45.68	2346	53	0.00	0	5.61	0	0	0	65	0	27	0	0	0	403	503	0	0	0	0	0	-565
					Column totals				709	0	1020	0	0	0								

1) Common Excavation is the sum of the Cut and EBS Excavation columns. Item number 205.0100
2) Salvaged/Unsuable Pavement Material is included in Cut.
3) EBS Excavation to be backfilled with Select Borrow material. Note: this is designers choice, can be backfilled with Borrow, or Cut as well.
4) Salvaged/Unusable Pavement Material
5) Available Material = Cut - Salvaged/Unusuable Pavement Material
6) Marsh Excavation - to be backfilled with Select Borrow Material. Note: this is designers choice, can be backfilled with Borrow, or Cut as well. Item number 205.0500
7) Rock Excavation item number 205.0200
8) Reduced Marsh in Fill - Excavated Marsh material is usuable in Fills outside the 1:1 slope. Marsh in Fill Reduction factor = 0.6
9) Reduced EBS in Fill - Excavated EBS material is usuable in Fills outside the 1:1 slope. EBS in Fill Reduction factor = 0.8
10) Expanded Marsh Backfill - This is to be filled with Select Borrow material. Marsh Backfill Factor = 1.5. Item number 208.11
11) Expanded EBS Backfill - This is to be filled with Select Borrow material. EBS Backfill Factor = 1.3. Item number 208.11
12) Expanded Rock - Factor = 1.1.
13) Expanded Fill. Factor = 1.25

Depending on selections:

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

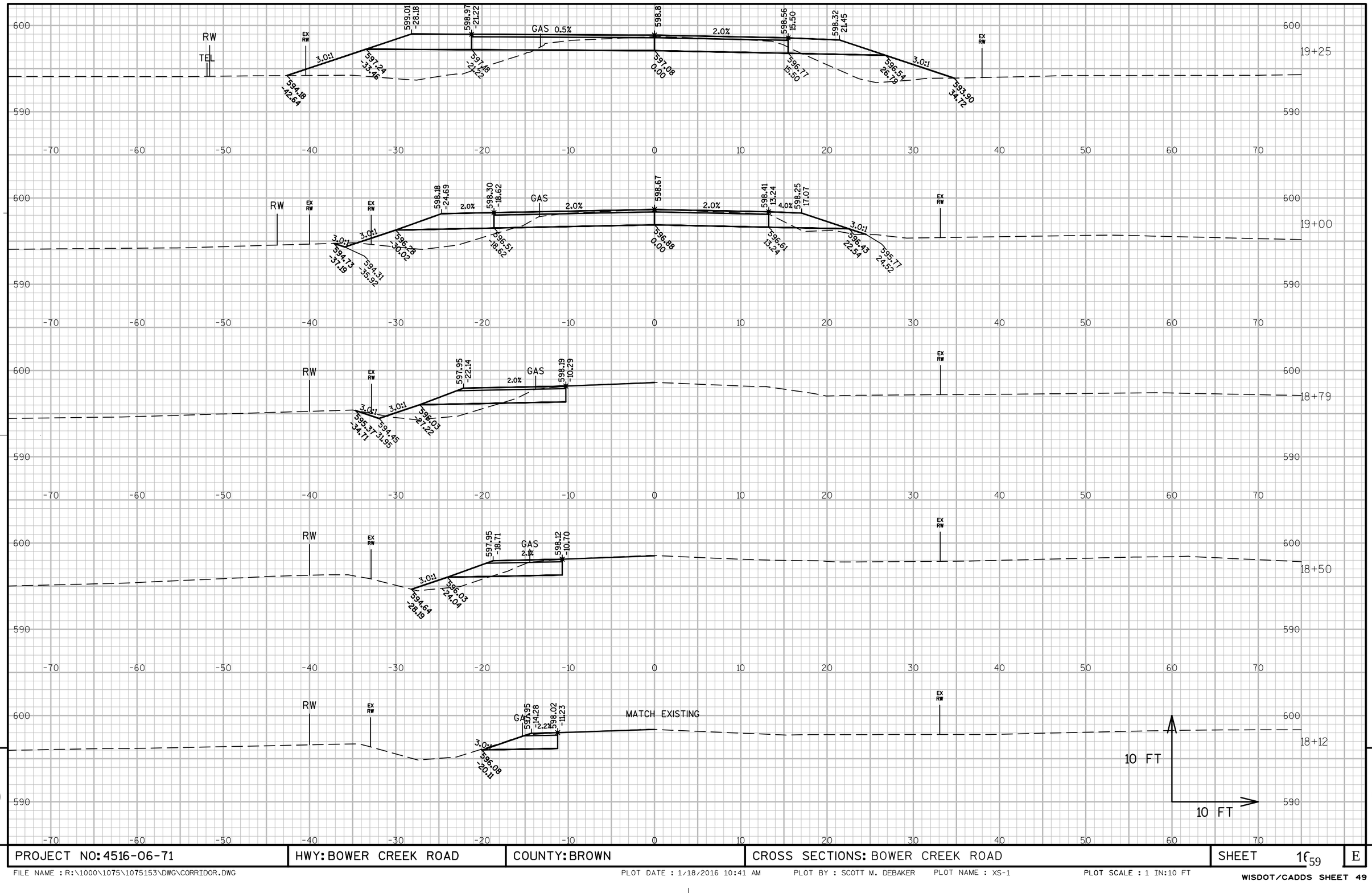
Or Expanded Fill = (Unexpanded Fill - Rock* Rock Factor - Reduced EBS) * Fill Factor

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

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

14) The Mass Ordinate + or - Qty calculated for the Division. Plus quantity indicates an excess of material within the Division. Minus indicates a shortage of material within the Division.
15) Use 113,641 CY of material from Division 1. Borrow Excavation item number 208.0100

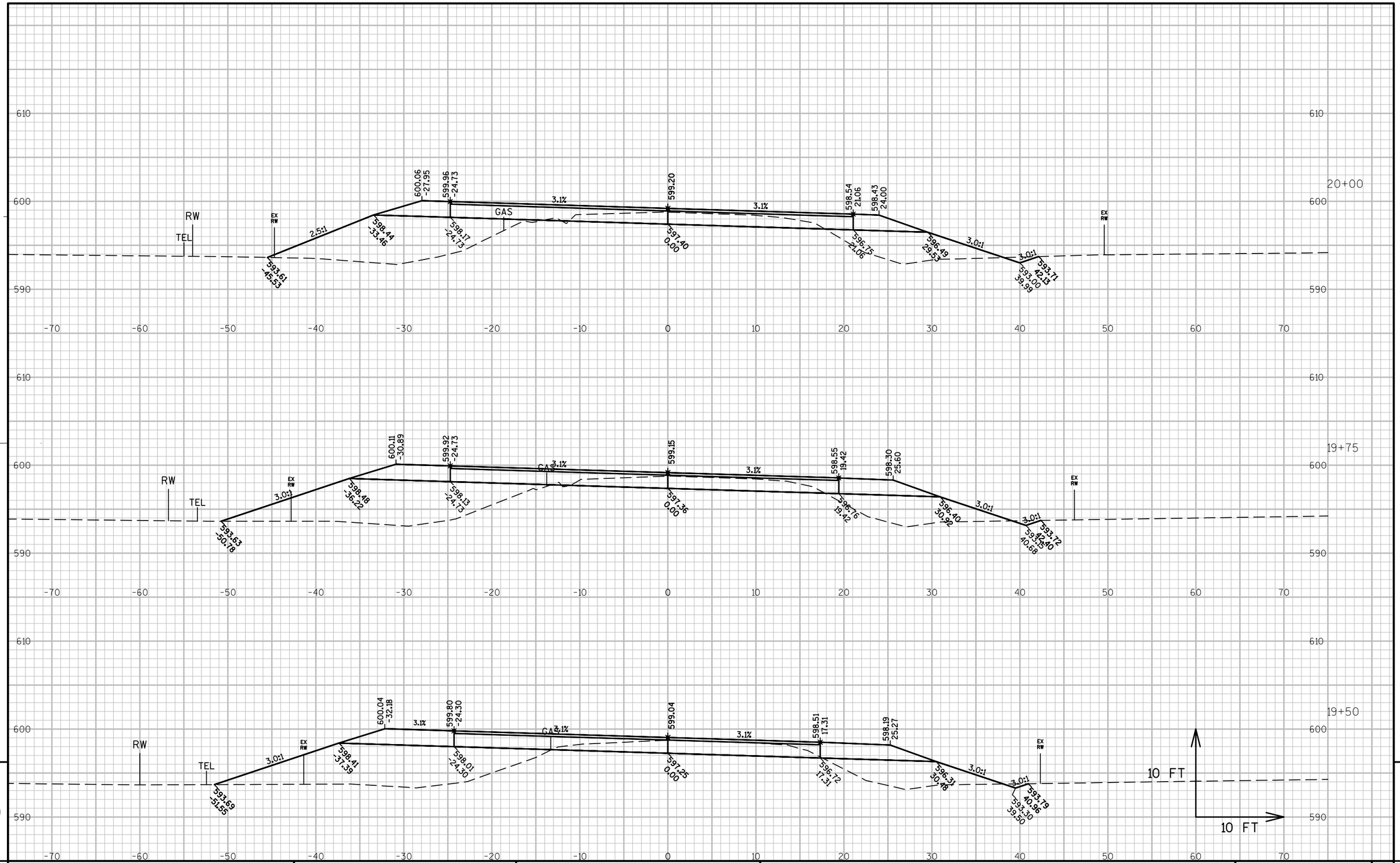
9 9



PROJECT NO: 4516-06-71	HWY: BOWER CREEK ROAD	COUNTY: BROWN	CROSS SECTIONS: BOWER CREEK ROAD	SHEET 16	E

FILE NAME : R:\1000\1075\1075153\DWG\CORRIDOR.DWG PLOT DATE : 1/18/2016 10:41 AM PLOT BY : SCOTT M. DEBAKER PLOT NAME : XS-1 PLOT SCALE : 1 IN:10 FT

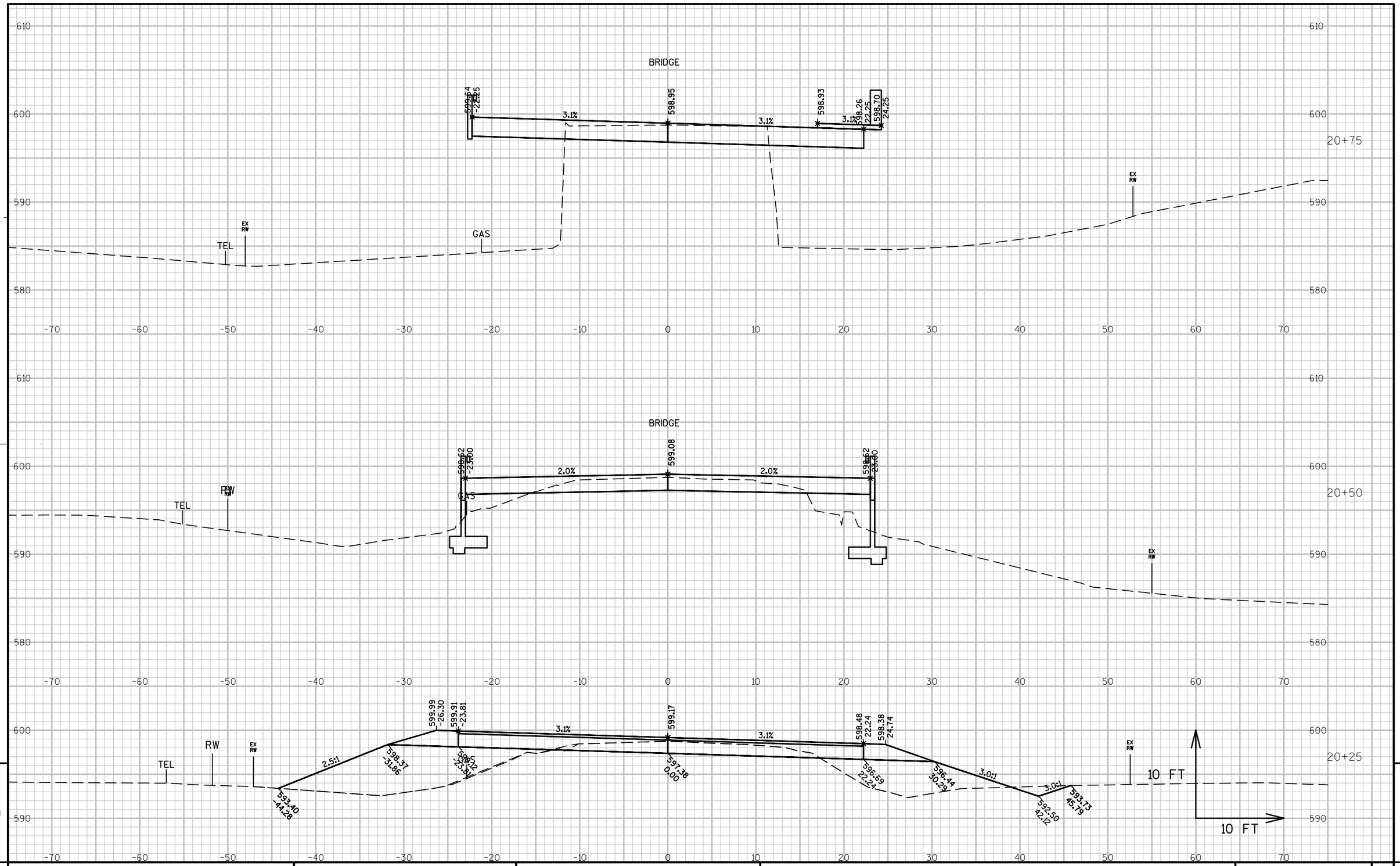
WISDOT/CADDS SHEET 49



PROJECT NO: 4516-06-71	HWY: BOWER CREEK ROAD	COUNTY: BROWN	CROSS SECTIONS: BOWER CREEK ROAD	SHEET 17 of 60	E

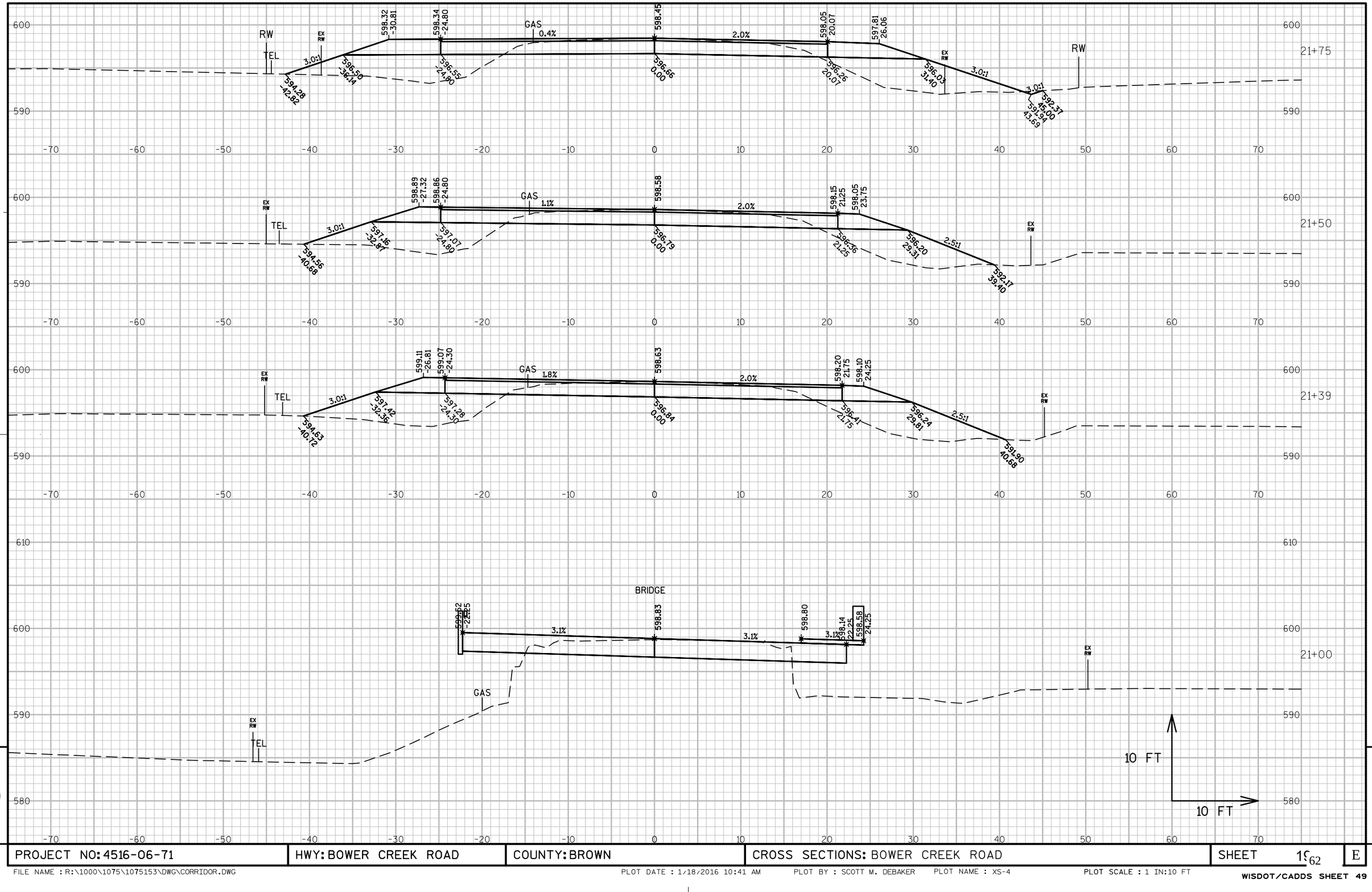
FILE NAME : R:\1000\1075\1075153\DWG\CORRIDOR.DWG PLOT DATE : 1/18/2016 10:41 AM PLOT BY : SCOTT M. DEBAKER PLOT NAME : XS-2 PLOT SCALE : 1 IN:10 FT

WISDOT/CADDS SHEET 49

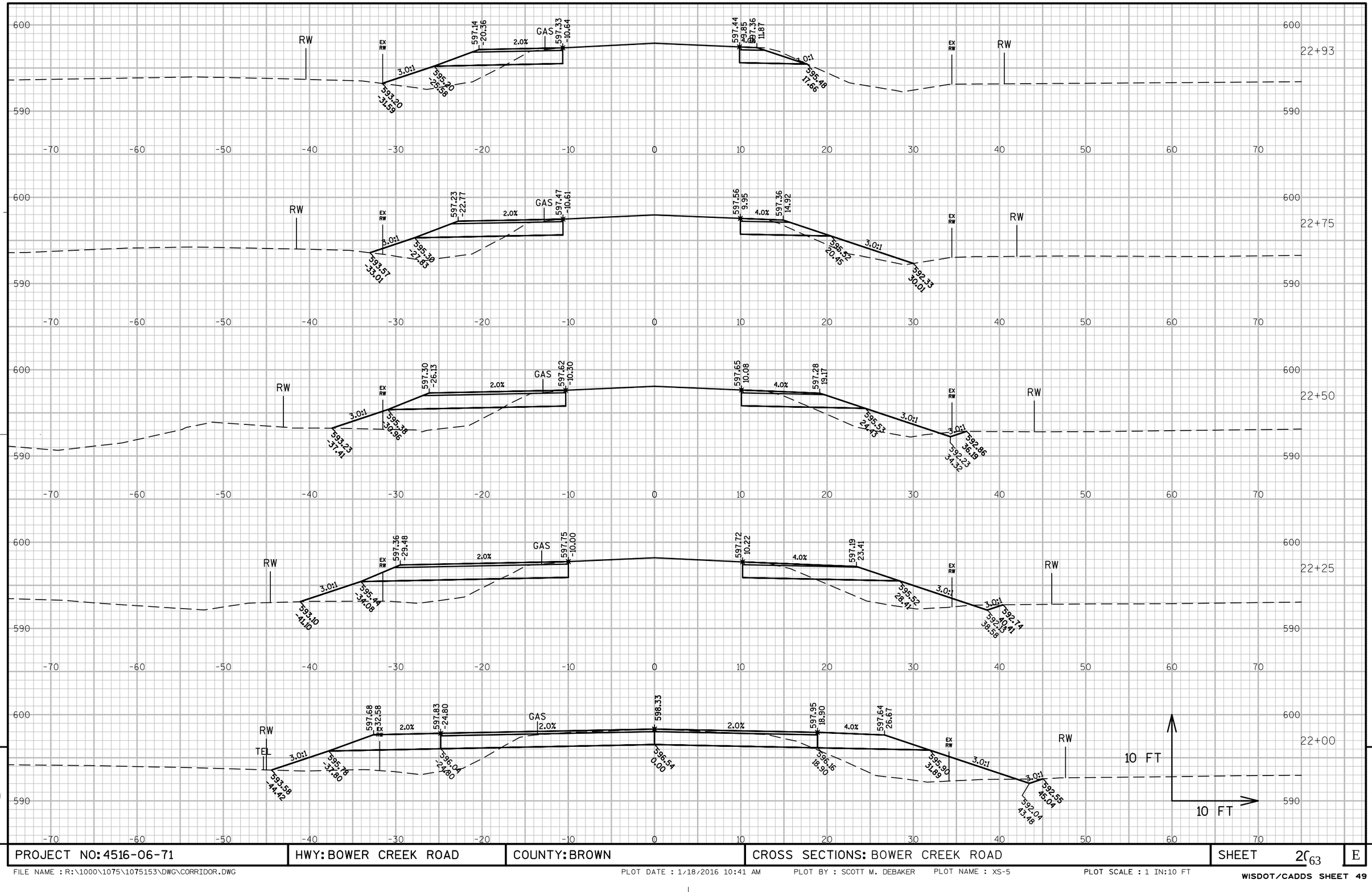


PROJECT NO: 4516-06-71	HWY: BOWER CREEK ROAD	COUNTY: BROWN	CROSS SECTIONS: BOWER CREEK ROAD	SHEET 18	E

FILE NAME : R:\1000\1075\1075153\DWG\CORRIDOR.DWG PLOT DATE : 1/18/2016 10:41 AM PLOT BY : SCOTT M. DEBAKER PLOT NAME : XS-3 PLOT SCALE : 1 IN:10 FT
WISDOT/CADDS SHEET 49

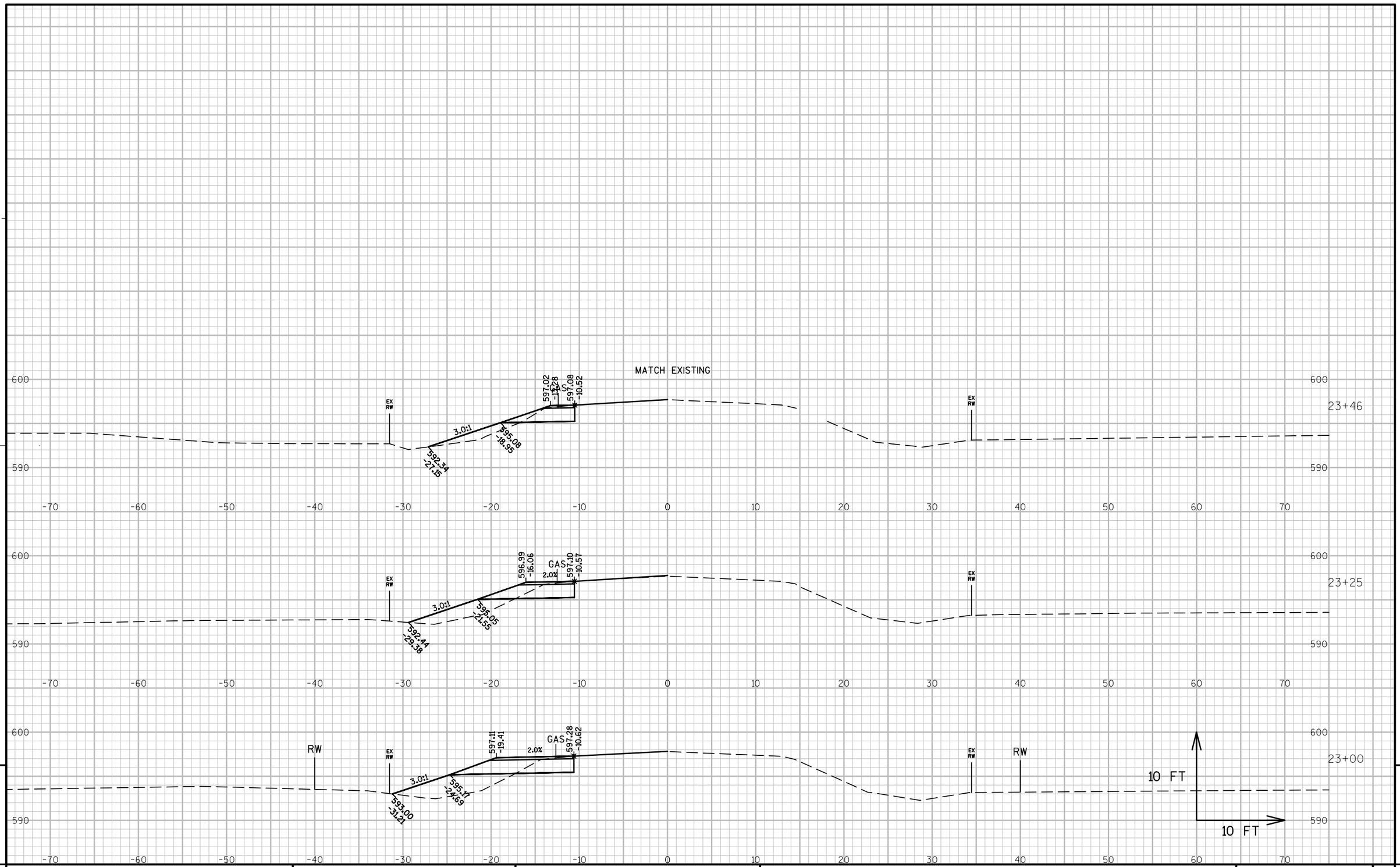


PROJECT NO: 4516-06-71	HWY: BOWER CREEK ROAD	COUNTY: BROWN	CROSS SECTIONS: BOWER CREEK ROAD	SHEET 19 62	E



PROJECT NO: 4516-06-71	HWY: BOWER CREEK ROAD	COUNTY: BROWN	CROSS SECTIONS: BOWER CREEK ROAD	SHEET 2063	E

FILE NAME : R:\1000\1075\1075153\DWG\CORRIDOR.DWG PLOT DATE : 1/18/2016 10:41 AM PLOT BY : SCOTT M. DEBAKER PLOT NAME : XS-5 PLOT SCALE : 1 IN:10 FT
WISDOT/CADDS SHEET 49



PROJECT NO: 4516-06-71	HWY: BOWER CREEK ROAD	COUNTY: BROWN	CROSS SECTIONS: BOWER CREEK ROAD	SHEET 2 64	E

FILE NAME : R:\1000\1075\1075153\DWG\CORRIDOR.DWG PLOT DATE : 1/18/2016 10:42 AM PLOT BY : SCOTT M. DEBAKER PLOT NAME : XS-6 PLOT SCALE : 1 IN:10 FT

WISDOT/CADDS SHEET 49

Notes

Wisconsin Department of Transportation

Dedicated people creating transportation solutions
through innovation and exceptional service.

http://www.dot.wisconsin.gov

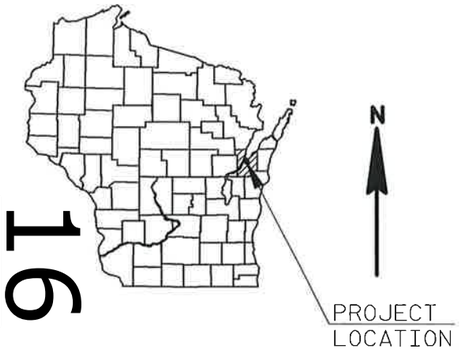
NEL APRIL 2016

PROJECT ID: 4519-08-71

COUNTY: BROWN

ORDER OF SHEETS

TOTAL SHEETS = 60



DESIGN DESIGNATION

A.A.D.T.	2014	=	1200
A.A.D.T.	2035	=	1400
D.H.V.		=	10.1
D.D.		=	60/40
T.		=	12.1%
DESIGN SPEED		=	50 MPH
ESALS		=	643,860

CONVENTIONAL SYMBOLS

PLAN		PROFILE	
CORPORATE LIMITS		GRADE LINE	
PROPERTY LINE		ORIGINAL GROUND	
LOT LINE		MARSH OR ROCK PROFILE (To be noted as such)	ROCK
LIMITED HIGHWAY EASEMENT		SPECIAL DITCH	LABEL
EXISTING RIGHT OF WAY		GRADE ELEVATION	95.36
PROPOSED OR NEW R/W LINE		CULVERT (Profile View)	
SLOPE INTERCEPT		UTILITIES	
REFERENCE LINE		ELECTRIC	E
EXISTING CULVERT		FIBER OPTIC	FO
PROPOSED CULVERT (Box or Pipe)		GAS	G
COMBUSTIBLE FLUIDS	CAUTION	SANITARY SEWER	SAN
		STORM SEWER	SS
		TELEPHONE	T
MARSH AREA		WATER	W
		UTILITY PEDESTAL	
		POWER POLE	
WOODED OR SHRUB AREA		TELEPHONE POLE	

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

T. WRIGHTSTOWN, FAIR ROAD

EAST RIVER BRIDGE

LOCAL STREET

BROWN COUNTY

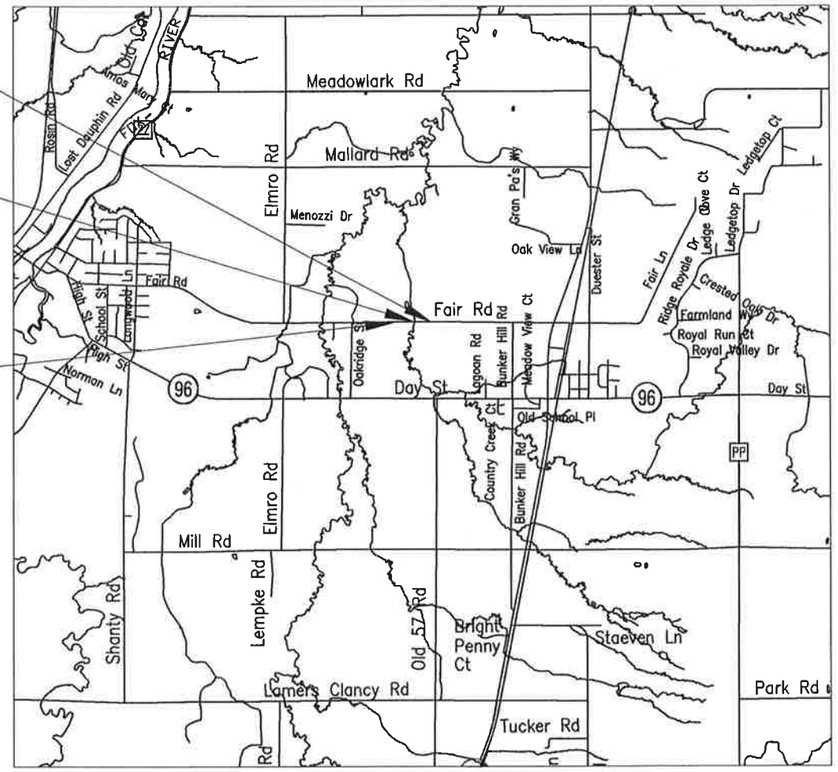
STATE PROJECT NUMBER
4519-08-71

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
4519-08-71	WISC 2016100	1

END PROJECT
STA. 19+00
X = 74060.85
Y = 496573.78

STRUCTURE
B-05-0419

BEGIN PROJECT
STA. 16+50
X = 73810.88
Y = 496569.90



LAYOUT
SCALE 0 1 MI.

TOTAL NET LENGTH OF CENTERLINE = 0.047 MI

HORIZONTAL POSITIONS SHOWN ON THIS PLAN ARE WISCONSIN COUNTY COORDINATES, BROWN COUNTY, NAD83 (2011), IN U.S. SURVEY FEET. VALUES ARE GRID COORDINATES, GRID BEARINGS, AND GRID DISTANCES. GRID DISTANCES MAY BE USED AS GROUND DISTANCES.

ACCEPTED FOR
COUNTY OF BROWN
10/16/15 (DATE) (SIGNATURE)

ACCEPTED FOR
TOWN OF WRIGHTSTOWN
10/14/15 (DATE) William Vedetter (SIGNATURE)

ORIGINAL PLANS PREPARED BY:

Robert E. Lee & Associates, Inc.
ENGINEERING, SURVEYING, ENVIRONMENTAL SERVICES
4664 GOLDEN POND PARK COURT
HOBART, WI 54155
PHONE:(920) 662-9641
INTERNET: www.releeinc.com FAX:(920) 662-9141

WISCONSIN
RYAN H. TRZINSKI
E-42371
GREEN BAY
WI
PROFESSIONAL ENGINEER

10-14-15
(Signature) (Date)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY

Surveyor	ROBERT E. LEE & ASSOCIATES, INC.
Designer	ROBERT E. LEE & ASSOCIATES, INC.
Project Manager	SHORT ELLIOTT HENDRICKSON
Regional Examiner	
Regional Supervisor	DAVE SCHMIDT

APPROVED FOR THE DEPARTMENT
DATE: 10/20/2015 (Signature)

E

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

TO OBTAIN LOCATION OF PARTICIPANTS UNDERGROUND FACILITIES BEFORE YOU DIG IN WISCONSIN

WIS. STATUTE 182.0175 (1974) REQUIRES MIN. OF 3 WORK DAYS NOTICE BEFORE YOU EXCAVATE.

UTILITIES

AT&T WISCONSIN
KAREN WELLS
205 S. JEFFERSON STREET
GREEN BAY, WI 54305
(920) 433-4226

WISCONSIN PUBLIC SERVICE (ELECTRIC)
SCOTT GAUGER
100 NORTH ADAMS STREET
GREEN BAY, WI 54307
(920) 617-5151

CONTACTS

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MARK SCHUSTER
1250 CENTENNIAL CENTRE BOULEVARD
HOBART, WI. 54155
(920) 662-9641

WDNR CONTACT
JIM DOPERALSKI
2984 SHAWANO AVENUE
GREEN BAY, WI 54313
(920) 662-5119

TOWN OF WRIGHTSTOWN
WILLIAM VERBETEN, CHAIRMAN
6481 DEUSTER ROAD
GREENLEAF, WI 54126
(920) 864-7549

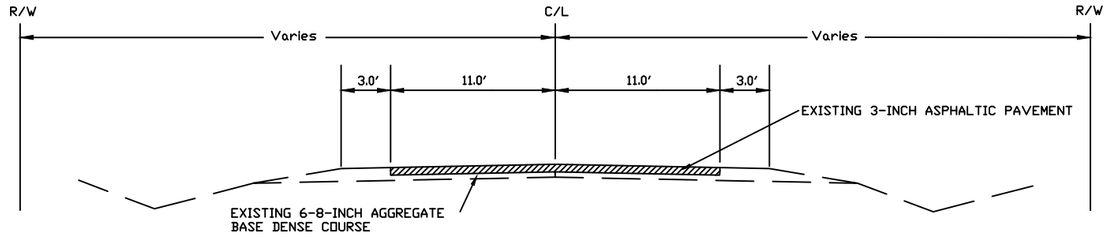
BROWN COUNTY
NICHOLAS UITENBROCK
2198 GLENDALE AVENUE
GREEN BAY, WI 54303
(920) 662-2152

GENERAL NOTES

1. THE LOCATIONS OF EXISTING OR PROPOSED UTILITIES, AS NOTED ON THE PLANS ARE APPROXIMATE, THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT AREA THAT ARE NOT SHOWN. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR THE UTILITIES SHOWN ON THESE PLANS. CONTACT DIGGERS HOTLINE (BELOW) FOR FIELD LOCATION OF UTILITIES. NOTE, NOT ALL UTILITIES ARE AFFILIATED WITH DIGGERS HOTLINE.
2. THE CONTRACTOR IS RESPONSIBLE FOR CONTACTING LOCAL UTILITIES AND CONTACTING DIGGERS HOTLINE.
3. NO TREES OR SHRUBS SHALL BE REMOVED WITHOUT THE APPROVAL OF THE ENGINEER.
4. ALL DISTURBED AREAS SHALL BE SALVAGE TOPSOILED, FERTILIZED, SEEDED AND EROSION MAT AS NOTED ON THE PLAN OR AS DETERMINED BY THE ENGINEER.
5. EROSION CONTROL ITEMS SHOWN ON THE PLAN ARE AT SUGGESTED LOCATIONS. THE EXACT LOCATIONS AND DIMENSIONS WILL BE DETERMINED IN THE FIELD BY THE ENGINEER. ALL EROSION CONTROL MEASURES SHALL BE MAINTAINED IN PLACE UNTIL SUCH TIME AS THE ENGINEER DETERMINES THAT THEY ARE NO LONGER REQUIRED.
6. TRAFFIC CONTROL SHALL BE IN ACCORDANCE WITH THE LATEST M.U.T.C.D MANUAL.
7. WISDOT WILL FURNISH A BENCHMARK MONUMENT TO BE SET BY THE CONTRACTOR AS DIRECTED BY THE ENGINEER IN THE FIELD.
8. PROPERTY LINES AS SHOWN AS APPROXIMATE.

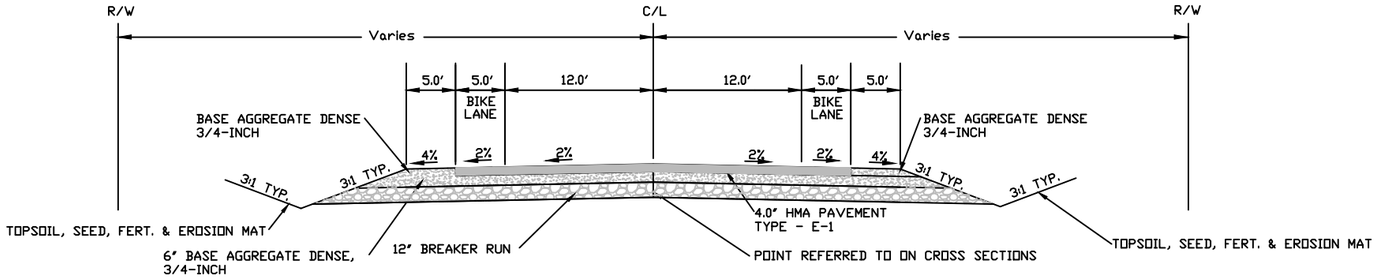
STANDARD ABBREVIATIONS

GR	GRAVEL	WM	WATERMAIN	VPC	VERTICAL POINT OF CURVATURE	R/W	RIGHT OF WAY
BIT	BITUMINOUS	HYD	HYDRANT	VPI	VERTICAL POINT OF INTERSECTION	T/C	TOP OF CURB
ASPH	ASPHALT PAVEMENT	WV	WATER VALVE	VPT	VERTICAL POINT OF TANGENCY	F/L	FLOW LINE
CONC	CONCRETE	SAN	SANITARY SEWER	PC	POINT OF CURVATURE	C/L	CENTERLINE
SW	SIDEWALK	MH	MANHOLE	PI	POINT OF INTERSECTION	P/L	PROPERTY LINE
BLDG	BUILDING	ST	STORM SEWER	PT	POINT OF TANGENCY	R/L	REFERENCE LINE
HSE	HOUSE	CB	CATCH BASIN	R	RADIUS	INV	INVERT
PED	PEDESTAL	TELE	TELEPHONE	EX	EXISTING	CMP	CORRUGATED METAL PIPE
PP	POWER POLE	ELEC	ELECTRIC	PR	PROPOSED	RCP	REINFORCED CONCRETE PIPE
LP	LIGHT POLE	TV	TELEVISION	EOR	END OF RADIUS	CULV	CULVERT
BM	BENCH MARK	STA	STATION	B-B	BACK TO BACK (OF CURB)	PE	PERSONAL ENTRANCE
CE	COMMERCIAL ENTRANCE	FE	FIELD ENTRANCE	E.O.P.	EDGE OF PAVEMENT		



TYPICAL EXISTING SECTION

STA. 16+50 TO STA. 19+00

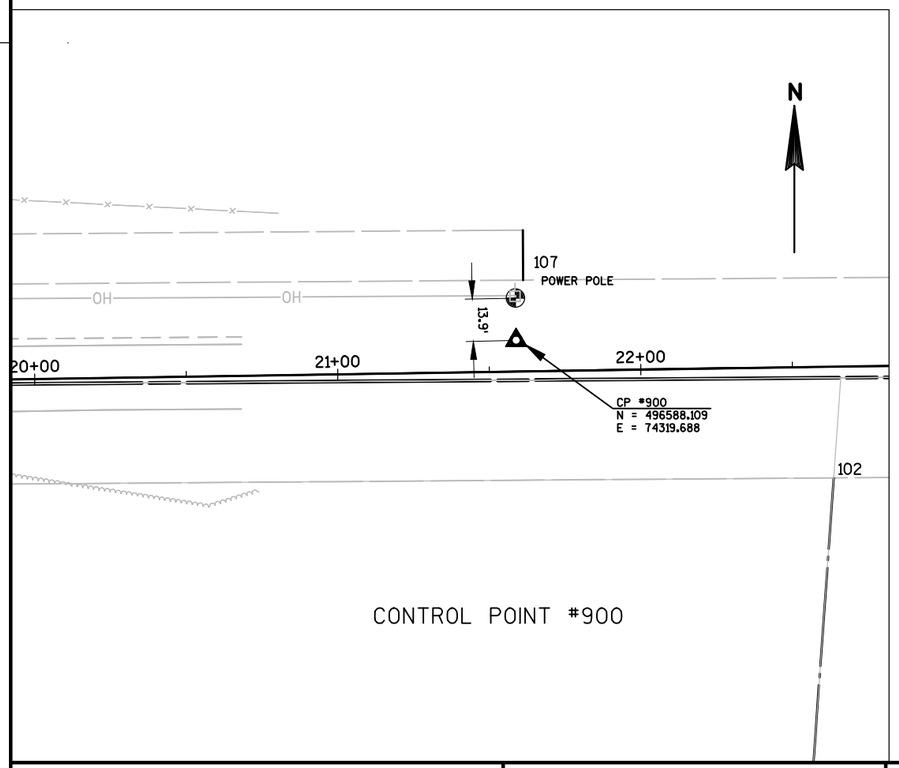


TYPICAL FINISHED SECTION

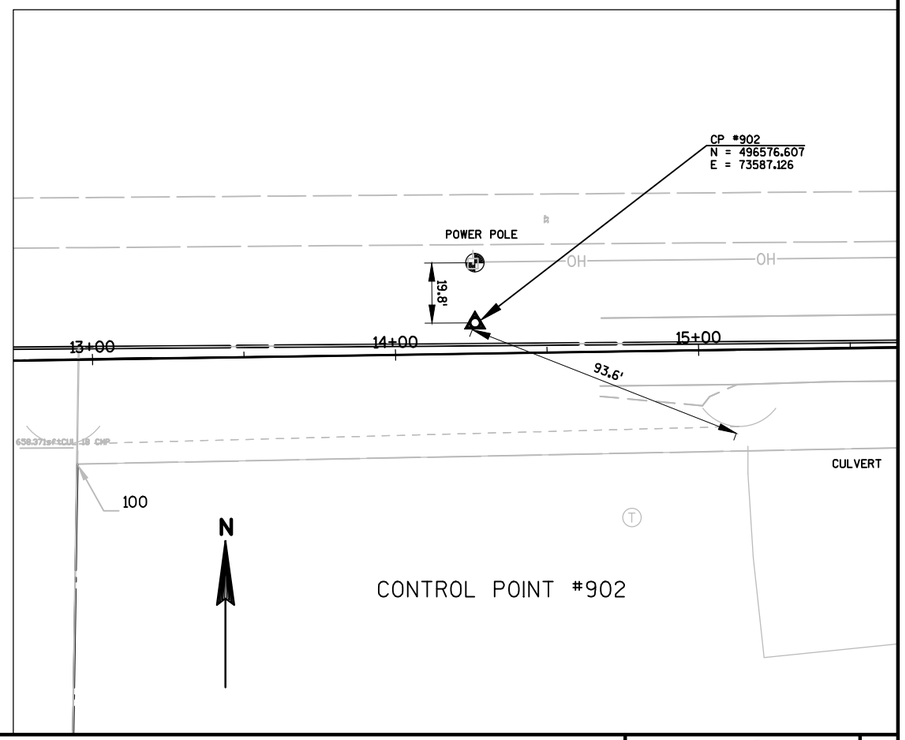
STA. 16+50 TO STA. 17+47.75
STA. 17+87.75 TO STA. 19+00

* BRIDGE

STA. 17+47.75 TO STA. 17+87.75



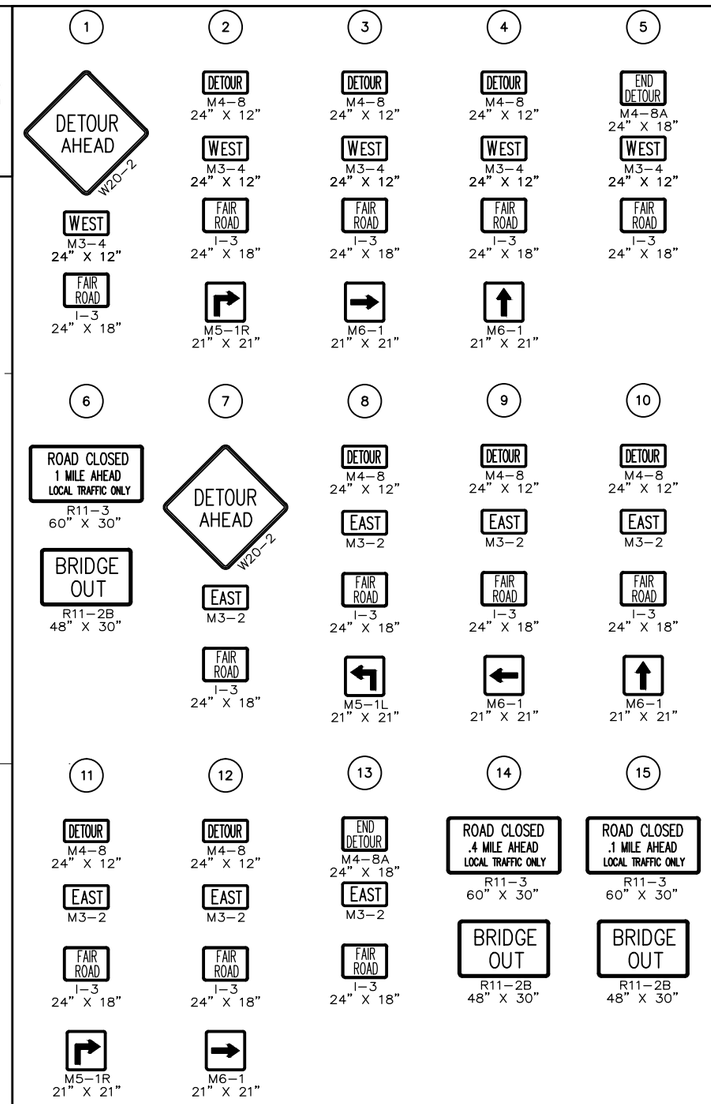
CONTROL POINT #900

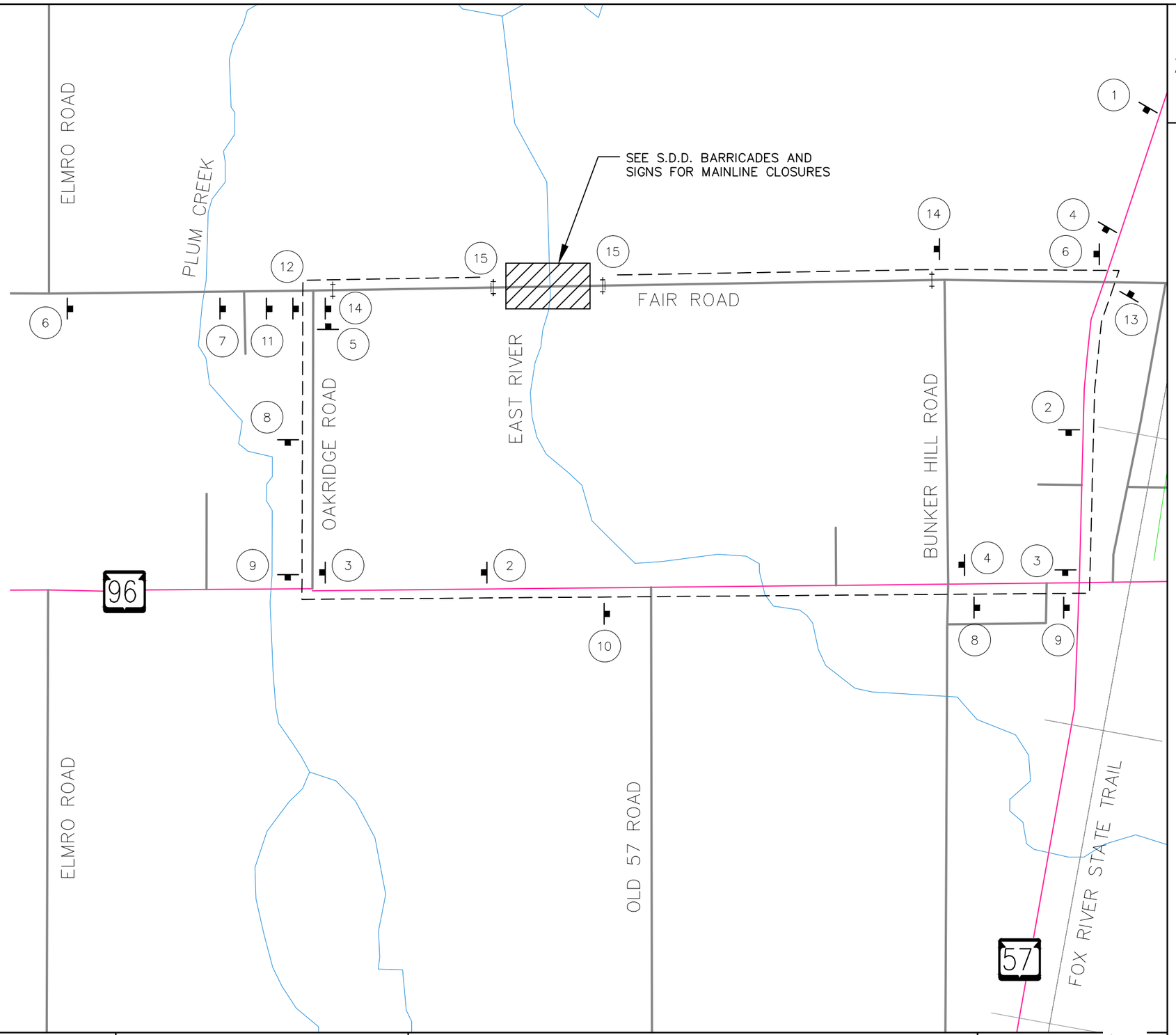


CONTROL POINT #902

PROJECT NO: 4519-08-71	HWY: FAIR ROAD	COUNTY: BROWN	TYPICAL SECTIONS & CONTROL POINTS	SHEET 3	E

FILE NAME : R:\1000\1075\1075154\DWG\1075154 TS.DWG PLOT DATE : 1/14/2016 1:39 PM PLOT BY : ROCHELLE L. BURSA PLOT NAME : PLOT SCALE : 0.036230



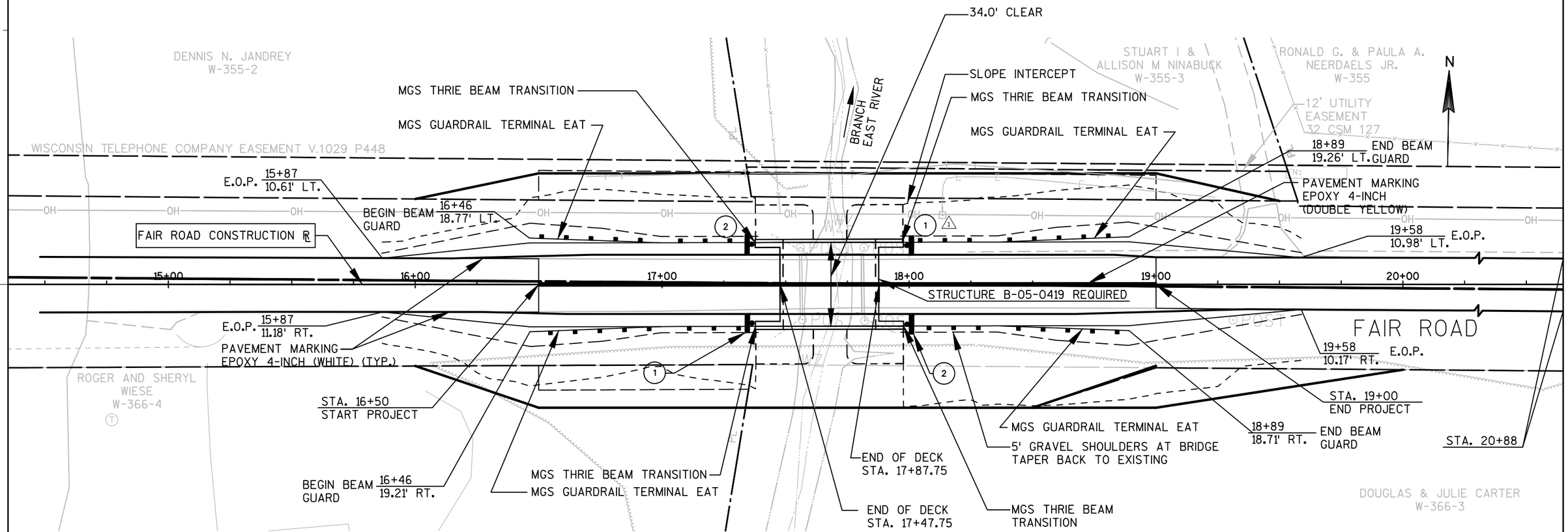


PROJECT NO: 4519-08-71	HWY: FAIR ROAD	COUNTY: BROWN	DETOUR PLAN: FAIR ROAD	SHEET 4 4 E

FILE NAME : R:\1000\1075\1075154\DWG\1075154 DP.DWG PLOT DATE : 3/25/2015 1:43 PM PLOT BY : ROCHELLE L. BURSA PLOT NAME : ---------- PLOT SCALE : 0.001069

WISDOT/CADDS SHEET 42

2



BENCHMARK	BENCHMARK ESTABLISHED BY: ROBERT E. LEE & ASSOCIATES, INC. FIELD VERIFY BENCHMARKS FOR ACCURACY.	
NO.	DESCRIPTION	EL.
1	NAIL IN PP*60D	651.09

W5-52R
12" X 36"

W5-52L
12" X 36"

PROJECT NO: 4519-08-71	HWY: FAIR ROAD	COUNTY: BROWN	PLAN DETAILS: BEAM GUARD & SIGNING & PAVEMENT MARKING	SHEET 5 5 E

DATE 05FEB16 — E S T I M A T E O F Q U A N T I T I E S

LINE NUMBER	ITEM	ITEM DESCRIPTION	UNIT	TOTAL	4519-08-71 QUANTITY
0010	201.0205	Grubbing	STA	4.000	4.000
0030	203.0600.S	Removing Old Structure Over Waterway With Minimal Debris (station) 02. 17+68 P-05-0911	LS	1.000	1.000
0040	205.0100	Excavation Common	CY	400.000	400.000
0060	206.1000	Excavation for Structures Bridges (structure) 02. B-05-419	LS	1.000	1.000
0070	208.0100	Borrow	CY	277.000	277.000
0080	210.0100	Backfill Structure	CY	116.000	116.000
0100	213.0100	Finishing Roadway (project) 02. 4519-08-71	EACH	1.000	1.000
0110	305.0110	Base Aggregate Dense 3/4-Inch	TON	650.000	650.000
0130	311.0110	Breaker Run	TON	1,000.000	1,000.000
0150	455.0105	Asphaltic Material PG58-28	TON	14.000	14.000
0160	455.0605	Tack Coat	GAL	48.000	48.000
0170	460.1101	HMA Pavement Type E-1	TON	210.000	210.000
0180	460.2000	Incentive Density HMA Pavement	DOL	168.000	168.000
0190	460.4000	HMA Cold Weather Paving	TON	44.000	44.000
0200	502.0100	Concrete Masonry Bridges	CY	161.000	161.000
0210	502.3200	Protective Surface Treatment	SY	192.000	192.000
0220	505.0400	Bar Steel Reinforcement HS Structures	LB	4,180.000	4,180.000
0230	505.0600	Bar Steel Reinforcement HS Coated Structures	LB	20,870.000	20,870.000
0240	513.4061	Railing Tubular Type M (structure) 01. B-05-419	LF	85.000	85.000
0260	516.0500	Rubberized Membrane Waterproofing	SY	18.000	18.000
0300	550.1120	Piling Steel HP 12-Inch X 53 Lb	LF	1,440.000	1,440.000
0310	606.0300	Riprap Heavy	CY	170.000	170.000
0320	614.0150	Anchor Assemblies for Steel Plate Beam Guard	EACH	4.000	4.000
0330	614.2500	MGS Thrie Beam Transition	LF	156.000	156.000
0340	614.2610	MGS Guardrail Terminal EAT	EACH	4.000	4.000
0350	619.1000	Mobilization	EACH	0.500	0.500
0360	624.0100	Water	MGAL	7.000	7.000
0370	625.0500	Salvaged Topsoil	SY	1,200.000	1,200.000
0380	628.1104	Erosion Bales	EACH	20.000	20.000
0390	628.1504	Silt Fence	LF	730.000	730.000
0400	628.1520	Silt Fence Maintenance	LF	730.000	730.000
0410	628.1905	Mobilizations Erosion Control	EACH	1.000	1.000
0420	628.1910	Mobilizations Emergency Erosion Control	EACH	1.000	1.000
0430	628.2004	Erosion Mat Class I Type B	SY	1,200.000	1,200.000
0440	628.6005	Turbidity Barriers	SY	60.000	60.000
0450	629.0210	Fertilizer Type B	CWT	1.000	1.000
0460	630.0130	Seeding Mixture No. 30	LB	25.000	25.000
0470	630.0200	Seeding Temporary	LB	35.000	35.000
0480	634.0614	Posts Wood 4x6-Inch X 14-FT	EACH	4.000	4.000
0490	637.2210	Signs Type II Reflective H	SF	12.000	12.000
0510	642.5001	Field Office Type B 02. 4519-08-71	EACH	1.000	1.000
0530	643.0100	Traffic Control (project) 02. 4519-08-71	EACH	1.000	1.000
0540	643.0420	Traffic Control Barricades Type III	DAY	600.000	600.000
0550	643.0705	Traffic Control Warning Lights Type A	DAY	1,200.000	1,200.000
0560	643.0900	Traffic Control Signs	DAY	720.000	720.000
0580	643.2000	Traffic Control Detour (project) 02. 4519-08-71	EACH	1.000	1.000
0590	643.3000	Traffic Control Detour Signs	DAY	3,840.000	3,840.000

DATE 05FEB16 E S T I M A T E O F Q U A N T I T I E S

LINE NUMBER	ITEM	ITEM DESCRIPTION	UNIT	TOTAL	4519-08-71 QUANTITY
0600	645.0120	Geotextile Fabric Type HR	SY	260.000	260.000
0610	646.0106	Pavement Marking Epoxy 4-Inch	LF	1,570.000	1,570.000
0620	650.4500	Construction Staking Subgrade	LF	210.000	210.000
0630	650.5000	Construction Staking Base	LF	210.000	210.000
0650	650.6500	Construction Staking Structure Layout (structure) 02. B-05-419	LS	1.000	1.000
0670	650.9910	Construction Staking Supplemental Control (project) 02. 4519-08-71	LS	1.000	1.000
0680	690.0150	Sawing Asphalt	LF	45.000	45.000
0700	715.0502	Incentive Strength Concrete Structures	DOL	1,304.000	1,304.000
0710	ASP.1T0A	On-the-Job Training Apprentice at $5.00/HR	HRS	150.000	150.000
0720	ASP.1T0G	On-the-Job Training Graduate at $5.00/HR	HRS	300.000	300.000

3

Division	From/To Station	Location	Common Excavation (1) Cut (2)	(item # 205.0100) EBS Excavation (3)	Salvaged/Unusable Pavement Material (4)	Available Material (5)	Marsh Excavation (6) (item #205.0500)	Rock Excavation (7) (item #205.0200)	Reduced Marsh in Fill (8) Factor 0.60	Reduced EBS in Fill (9) Factor 0.80	Expanded Marsh Backfill (10) Factor 1.50	Expanded EBS Backfill (11) Factor 1.30	Expanded Rock (12) Factor 1.10	Unexpanded Fill	Expanded Fill (13) Factor 1.25	Mass Ordinate +/- (14)	Waste	Borrow (item #208.0100)	Comment:
0010	16+00 to 19+58	Mainline	517	0	0	517	0	0	0	0	0	0	0	635	793	-277		277	
Division 0010 Subtotal			517	0	0	517	0	0	0	0	0	0	0	635	793	-277			
Grand Total			517	0	0	517	0	0	0	0	0	0	0	635	793	-277	0	277	
			Total Common Exc	517															

1) Common Excavation is the sum of the Cut and EBS Excavation columns. Item number 205.0100
2) Salvaged/Unsuable Pavement Material is included in Cut.
3) EBS Excavation to be backfilled with Select Borrow material. Note: this is designers choice, can be backfilled with Borrow, or Cut as well.
4) Salvaged/Unusable Pavement Material
5) Available Material = Cut - Salvaged/Unusuable Pavement Material
6) Marsh Excavation - to be backfilled with Select Borrow Material. Note: this is designers choice, can be backfilled with Borrow, or Cut as well. Item number 205.0500
7) Rock Excavation item number 205.0200
8) Reduced Marsh in Fill - Excavated Marsh material is usuable in Fills outside the 1:1 slope. Marsh in Fill Reduction factor = 0.6
9) Reduced EBS in Fill - Excavated EBS material is usuable in Fills outside the 1:1 slope. EBS in Fill Reduction factor = 0.8
10) Expanded Marsh Backfill - This is to be filled with Select Borrow material. Marsh Backfill Factor = 1.5. Item number 208.11
11) Expanded EBS Backfill - This is to be filled with Select Borrow material. EBS Backfill Factor = 1.3. Item number 208.11
12) Expanded Rock - Factor = 1.1.
13) Expanded Fill. Factor = 1.25
Depending on selections:

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

14) The Mass Ordinate + or - Qty calculated for the Division. Plus quantity indicates an excess of material within the Division. Minus indicates a shortage of material within the Division.
15) Use 113,641 CY of material from Division 1. Borrow Excavation item number 208.0100

NOTE: ALL ITEMS ON THIS PAGE ARE CATEGORY 0010 UNLESS NOTED.

GRUBBING

CATEGORY	STA TO STA	201.0205 GRUBBING STA
0010	16+00 - 19+50	4.0
PROJECT TOTAL		4.0

ASPHALT ITEMS

CATEGORY	STA TO STA	455.0105 ASPHALTIC MATERIAL PG58-28 TON	455.0605 TACK COAT GAL	460.1101 HMA PAVEMENT TYPE E-1 TON
0010	16+50 - 17+48	7	24	105
0010	17+88 - 19+00	7	24	105
SUBTOTAL (0010)		14	48	210
PROJECT TOTAL		14	48	210

AGGREGATE

CATEGORY	STA TO STA	305.0110 BASE AGGREGATE DENSE 3/4-INCH TON	311.0110 BREAKER RUN TON	624.0100 WATER MGAL
0010	16+50 - 17+48	305	450	3.1
0010	17+88 - 19+00	305	450	3.1
UNDISTRIBUTED		40	100	0.8
SUBTOTAL (0010)		650	1,000	7
PROJECT TOTAL		650	1,000	7

BEAM GUARD

CATEGORY	LOCATION	614.2500 MGS THRIE BEAM TRANSITION LF	614.2610 MGS GUARDRAIL TERMINAL EAT EACH
0010	16+50 - 17+48 LT	39	1
0010	16+50 - 17+48 RT	39	1
0010	17+88 - 19+00 LT	39	1
0010	17+88 - 14+00 RT	39	1
SUBTOTAL (0010)		156	4
PROJECT TOTAL		156	4

FINISHING ITEMS

CATEGORY	STATION	625.0500 SALVAGED TOPSOIL SY	628.2004 EROSION MAT CLASS I TYPE B SY	629.0210 FERTILIZER TYPE B CWT	630.0130 SEEDING MIXTURE NO. 30 LB	630.0200 SEEDING TEMPORARY LB
0010	15+80 - 17+48 LT	196	196	0.2	4	5
0010	15+80 - 17+48 RT	207	207	0.2	4	6
0010	17+88 - 19+60 RT	467	467	0.3	8	13
0010	17+88 - 19+30 LT	281	281	0.2	5	8
UNDISTRIBUTED		49	49	0.1	4	3
SUBTOTAL (0010)		1,200	1,200	1.0	25	35
PROJECT TOTAL		1,200	1,200	1.0	25	35

TRAFFIC CONTROL

CATEGORY	DURATION DAYS	643.0420 TRAFFIC CONTROL BARRICADES TYPE III NO.	DAYS	643.0705 TRAFFIC CONTROL WARNING LIGHTS TYPE A NO.	DAYS	643.0900 TRAFFIC CONTROL SIGNS NO.	DAYS	643.2000.01 TRAFIC CONTROL DETOUR 4519-08-71 EACH	643.3000 TRAFFIC CONTROL DETOUR SIGNS NO.	DAYS
0010	60	10	600	20	1200	12	720	1	64	3840
SUBTOTAL (0010)			600		1200		720	1		3840
PROJECT TOTAL			600		1200		720	1		3840

EROSION CONTROL

CATEGORY	STATION	628.1104 EROSION BALES EACH	628.1504 SILT FENCE LF	628.1520 SILT FENCE MAINTENANCE LF	628.1905 MOBILIZATIONS EROSION CONTROL EACH	628.1910 MOBILIZATIONS EMERGENCY EROSION CONTROL EACH	628.6005 TURBIDITY BARRIERS SY
0010	15+80 - 17+48 LT	3	180	--	--	--	14
0010	15+80 - 17+48 RT	3	180	--	--	--	14
0010	17+88 - 19+30 LT	3	160	--	--	--	14
0010	17+88 - 19+60 RT	7	190	--	--	--	14
0010	UNDISTRIBUTED	4	20	730	1	1	4
SUBTOTAL (0010)		20	730	730	1	1	60
PROJECT TOTAL		20	730	730	1	1	60

CONSTRUCTION STAKING

CATEGORY	STA TO STA	650.4500 CONSTRUCTION STAKING SUBGRADE LF	650.5000 CONSTRUCTION STAKING BASE LF	650.6500 CONSTRUCTION STAKING STRUCTURE LAYOUT (B-05-419) LS	650.9910 CONSTRUCTION STAKING SUPPLEMENTAL CONTROL LS
0010	16+50 - 17+48	98	98	--	--
0010	17+88 - 19+00	112	112	--	--
0010	16+50 - 19+00	--	--	1	1
SUBTOTAL (0010)		210	210	1	1
PROJECT TOTAL		210	210	1	1

SIGNING

CATEGORY	STATION	SIGN CODE	SIGN MESSAGE	SIZE IN X IN	634.0614 POSTS WOOD 4X6-INCH X 14-FT EACH	637.2210 SIGNS TYPE II REFLECTIVE H SF
0010	17+36 RT	W5-52R		12 X 36	1	3.00
0010	17+36 LT	W5-52L		12 X 36	1	3.00
0010	17+99 RT	W5-52R		12 X 36	1	3.00
0010	17+99 LT	W5-52L		12 X 36	1	3.00
SUBTOTAL (0010)					4	12
PROJECT TOTAL					4	12

PAVEMENT MARKING

CATEGORY	STA TO STA		646.0106 PAVEMENT MARKING EPOXY 4-INCH (WHITE) LF	(YELLOW) LF
0010	14+48 - 17+48	LT	300	--
0010	14+48 - 17+48	RT	300	98
0010	17+48 17+88		80	80
0010	17+88 - 20+88	LT	300	112
0010	17+88 - 20+88	RT	300	--
SUBTOTAL (0010)			1280	290
PROJECT TOTAL			1570	

SAWING

CATEGORY	STATION		690.0150 SAWING ASPHALT LF
0010	16+50	Fair Road	22
0010	19+00	Fair Road	23
SUBTOTAL (0010)			45
PROJECT TOTAL			45

CONVENTIONAL SYMBOLS

FOUND IRON PIPE/PIN	IP (1" UNLESS NOTED)
R/W MONUMENT	○ (SET)
R/W POST	⊙POST (SET)
COMPUTED POINT NO MONUMENT SET	×
HORIZONTAL CONTROL POINT	△
EXISTING R/W POST	⊙POST
SIGN	|SIGN
WELL	Ⓦ
SEPTIC VENT	⊙SEPV
SECTION CORNER MONUMENT	⊕
SECTION CORNER SYMBOL	
R/W BOUNDARY POINT	RWB20
PARCEL NUMBER	20
UTILITY INTEREST	40

PROPOSED R/W LINE	
EXISTING R/W LINE	
PROPERTY LINE	P.L.
LOT & TIE LINES	
SLOPE INTERCEPTS	
CORPORATE LIMITS	
SECTION LINE	
QUARTER LINE	
SIXTEENTH LINE	
EXISTING CENTERLINE	
BUILDING	
FENCE LINE	
TREE LINE	
FEE (HATCH VARIES)	
TEMPORARY LIMITED EASEMENT	

CONVENTIONAL UTILITY SYMBOLS

		COMPENSABLE	NON-COMPENSABLE
WATER	W	■	⊡
GAS	G		
TELEPHONE	T	✖	✖
OVERHEAD TRANSMISSION LINES	OH	●	
ELECTRIC	E		
CABLE TELEVISION	TV		
FIBER OPTIC	FO		
GUY WIRE	⊙GUY		

CONVENTIONAL SIGNS AND ABBREVIATIONS

AC.	ACRES	P.L.	PROPERTY LINE
BLDG.	BUILDING	P.L.E.	PERMANENT LIMITED EASEMENT
CSM	CERTIFIED SURVEY MAP	R.	RANGE OR RECORD
C.T.H.	COUNTY TRUNK HIGHWAY	RT.	RIGHT
E.	EAST	R/W	RIGHT OF WAY
ET. AL.	AND OTHER	S.T.H.	STATE TRUCK HIGHWAY
FRACT.	FRACTURED	T.	TOWN
INC.	INCORPORATED	T.I.	TEMPORARY INTEREST
L.	LENGTH OF CURVE	T.L.E.	TEMPORARY LIMITED EASEMENT
L.C.	LONG CHORD OF CURVE	V.	VOLUME
LT.	LEFT	W.	WEST
N	NORTH	WIS.	WISCONSIN
P.C.	PRIVATE CLAIM		

POSITIONS SHOWN ON THIS PLAT ARE WISCONSIN COUNTY COORDINATE, BROWN COUNTY, NAD83 (2007) IN U.S. SURVEY FEET. VALUES SHOWN ARE GRID COORDINATES, GRID BEARINGS, AND GRID DISTANCES. GRID DISTANCES MAY BE USED AS GROUND DISTANCES.

RIGHT-OF-WAY MONUMENTS ARE TYPE 2 MONUMENTS (TYPICALLY 1"X 18"IRON PIPE) AND WILL BE PLACED PRIOR TO THE COMPLETION OF THE PROJECT.

RIGHT-OF-WAY BOUNDARIES ARE DEFINED WITH COURSES OF THE PERIMETER OF THE HIGHWAY LANDS REFERENCED TO THE U.S. PUBLIC LAND SURVEY SYSTEM OR OTHER "SURVEYS OF PUBLIC RECORD".

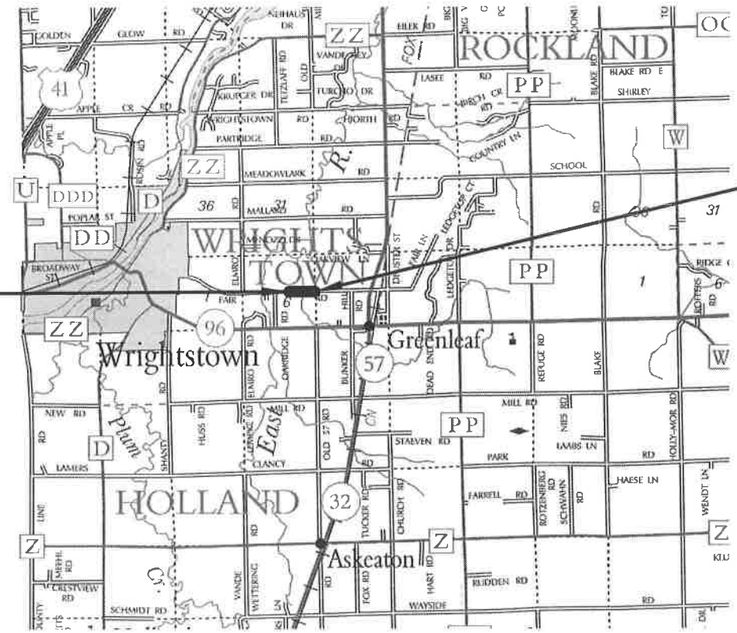
PROPERTY LINES SHOWN ON THIS PLAT ARE DRAWN FROM DATA DERIVED FROM MAPS AND DOCUMENTS OF PUBLIC RECORD AND/OR EXISTING OCCUPATIONAL LINES. THIS PLAT MAY NOT BE A TRUE REPRESENTATION OF EXISTING PROPERTY LINES, EXCLUDING RIGHT-OF-WAY LINES, AND SHOULD NOT BE USED AS A SUBSTITUTE FOR AN ACCURATE FIELD SURVEY.

DIMENSIONING FOR THE NEW RIGHT-OF-WAY IS MEASURED ALONG AND PERPENDICULAR TO NEW REFERENCE LINES.

ROAD NAME	BASIS OF EXISTING R/W	YEAR
FAIR ROAD	66' ASSUMED-TRAVELED CENTERLINE	NA
	35' DEDICATION VIA CSM #4968	
	4519-08-71 - PRIOR BRIDGE PROJECT	2014

R-19-E R-20-E R-21-E

T-22-N T-22-N



T-21-N T-21-N

R-19-E R-20-E R-21-E

BROWN COUNTY
TOWN OF WRIGHTSTOWN

N

LAYOUT
SCALE 0 1 MI.
TOTAL NET LENGTH OF CENTERLINE = 0.09 MI.

BEGIN RELOCATION ORDER

Located N89°39'01"E, 1560.97 feet from the Center 1/4 corner of Section 6, T21N, R20E Station 15+00

END RELOCATION ORDER

Located S89°43'03"W, 586.61 feet From the East 1/4 Corner, Section 6, T21N-R20E Station 20+00

R/W PROJECT NUMBER	SHEET NUMBER	TOTAL SHEETS
4519-08-71	4.00	2

PLAT OF RIGHT-OF-WAY REQUIRED FOR

FAIR ROAD BRIDGE BRANCH OF EAST RIVER

FAIR ROAD — BROWN COUNTY

TOWN OF WRIGHTSTOWN

ORIGINAL PLANS PREPARED BY

Robert E. Lee & Associates, Inc.
ENGINEERING, SURVEYING, ENVIRONMENTAL SERVICES
1250 CENTENNIAL CENTRE BOULEVARD
HOBART, WI 54155 PHONE:(920) 662-9641
INTERNET: www.releeinc.com FAX:(920) 662-9141

WISCONSIN
SCOTT M. DE BAKER
S-2483
GREEN BAY WI
LAND SURVEYOR

Scott M. DeBaker

DATE: 1-18-16

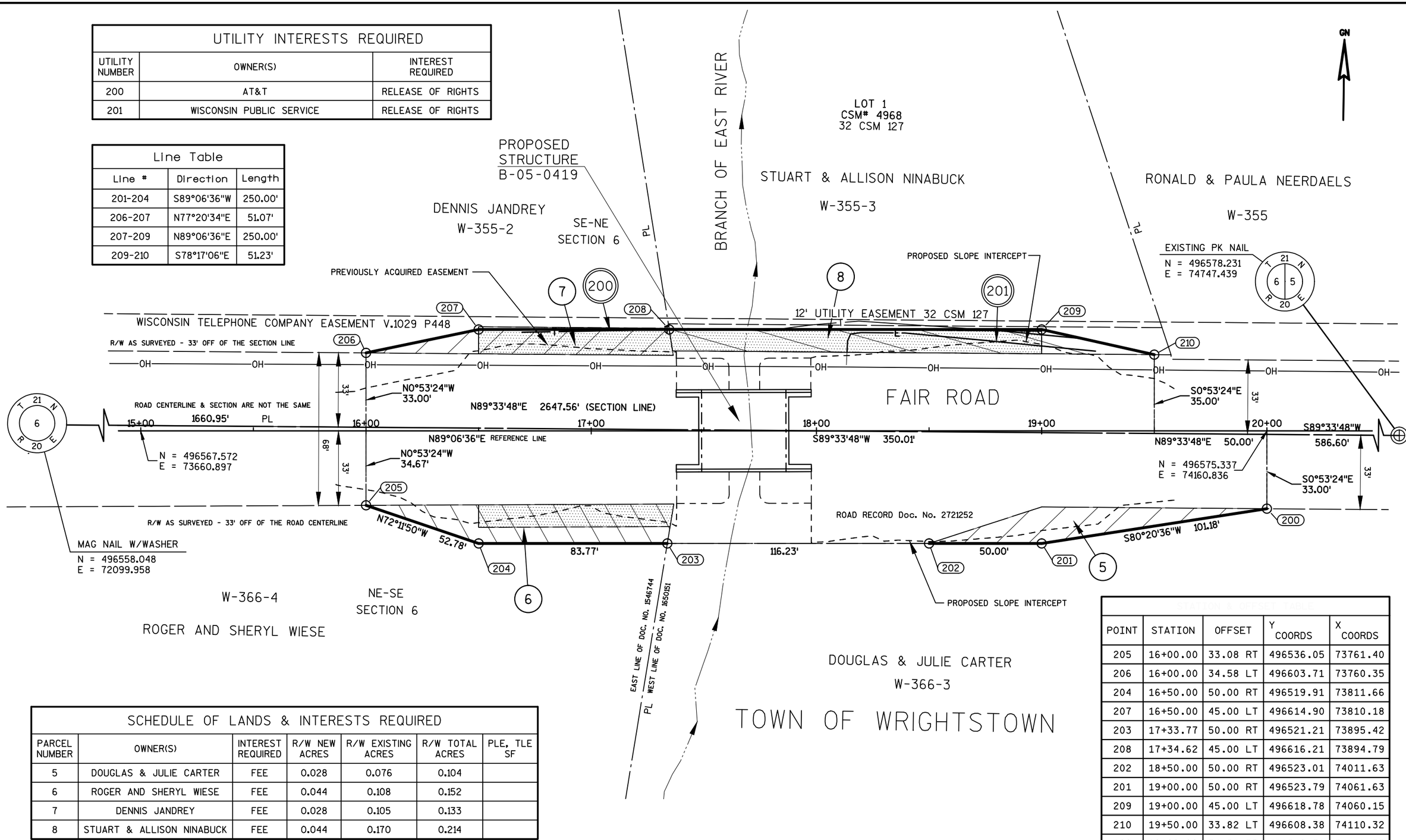
ACCEPTED FOR
TOWN OF WRIGHTSTOWN

William Vadetson 1-18 2016
(Signature & Title of Official) 10 (Date)

REVISION DATE
1/26/2016 -ADDED UTILITY INTEREST TABLE

UTILITY INTERESTS REQUIRED		
UTILITY NUMBER	OWNER(S)	INTEREST REQUIRED
200	AT&T	RELEASE OF RIGHTS
201	WISCONSIN PUBLIC SERVICE	RELEASE OF RIGHTS

Line Table		
Line #	Direction	Length
201-204	S89°06'36"W	250.00'
206-207	N77°20'34"E	51.07'
207-209	N89°06'36"E	250.00'
209-210	S78°17'06"E	51.23'



SCHEDULE OF LANDS & INTERESTS REQUIRED						
PARCEL NUMBER	OWNER(S)	INTEREST REQUIRED	R/W NEW ACRES	R/W EXISTING ACRES	R/W TOTAL ACRES	PLE, TLE SF
5	DOUGLAS & JULIE CARTER	FEE	0.028	0.076	0.104	
6	ROGER AND SHERYL WIESE	FEE	0.044	0.108	0.152	
7	DENNIS JANDREY	FEE	0.028	0.105	0.133	
8	STUART & ALLISON NINABUCK	FEE	0.044	0.170	0.214	

STATION & OFFSET TABLE

POINT	STATION	OFFSET	Y COORDS	X COORDS
205	16+00.00	33.08 RT	496536.05	73761.40
206	16+00.00	34.58 LT	496603.71	73760.35
204	16+50.00	50.00 RT	496519.91	73811.66
207	16+50.00	45.00 LT	496614.90	73810.18
203	17+33.77	50.00 RT	496521.21	73895.42
208	17+34.62	45.00 LT	496616.21	73894.79
202	18+50.00	50.00 RT	496523.01	74011.63
201	19+00.00	50.00 RT	496523.79	74061.63
209	19+00.00	45.00 LT	496618.78	74060.15
210	19+50.00	33.82 LT	496608.38	74110.32
200	20+00.00	34.58 RT	496540.76	74161.37

REVISION DATE
1/15/2016
1/26/2016 - ADDED UTILITY INTEREST

DATE 1/18/2016
GRID FACTOR N/A

SCALE, FEET
0 20' 40'

HWY: FAIR ROAD
COUNTY: BROWN

STATE R/W PROJECT NUMBER 4519-08-71
CONSTRUCTION PROJECT NUMBER 4519-08-71

PLAT SHEET 4.01
PS&E SHEET 9 of 11

E

DENNIS N. JANDREY
W-355-2

WISCONSIN TELEPHONE COMPANY EASEMENT V.1029 P448

TURBIDITY BARRIER
EROSION BALE, BARRIER
34' CLEAR ROADWAY
PROPOSED TLE

EX. RIGHT OF WAY

16+50
46.19' LT.

FAIR ROAD CONSTRUCTION RL

BRANCH EAST RIVER

TURBIDITY BARRIER
EXISTING BRIDGE
EROSION BALE, BARRIER
SLOPE INTERCEPT

STUART I & ALLISON M NINABUCK
W-355-3

RONALD G. & PAULA A. NEERDAELS JR.
W-355

12' UTILITY EASEMENT
32 CSM 127

19+00
44.21' LT.

N

T.L.E.

EROSION MAT CLASS I, TYPE B (TYP.)

STRUCTURE B-05-0419 REQUIRED

FAIR ROAD

15+00 16+00 17+00 18+00 19+00 20+00

STA. 16+50
START PROJECT
FULL DEPTH SAWCUT
MATCH EXISTING

16+50
42.87' RT.

T.L.E.

17+33.77
50' RT.

EROSION BALE, BARRIER

SILT FENCE REQUIRED
(TYPICAL)

EROSION BALE, BARRIER

END OF DECK
STA. 17+87.75

END OF DECK
STA. 17+47.75

PROPOSED R/W

18+50
50' RT

19+00
MATCH
EX.

SURFACE WATER FLOW

5' GRAVEL SHOULDERS AT BRIDGE
TAPER BACK TO EXISTING

STA. 19+00
END PROJECT
FULL DEPTH SAWCUT
MATCH EXISTING

ROGER AND SHERYL WIESE
W-366-4

DOUGLAS & JULIE CARTER
W-366-3

BENCHMARK	BENCHMARK ESTABLISHED BY: ROBERT E. LEE & ASSOCIATES, INC. FIELD VERIFY BENCHMARKS FOR ACCURACY.	
NO.	DESCRIPTION	EL.
1	NAIL IN PP*60D	651.09

EROSION BALE, BARRIER
HEAVY RIP RAP
EROSION MAT
SILT FENCE

660.00
650.00
640.00

STA 15+50.00 EL 659.18
STA 16+50.00 EL 657.28
STA 17+20.00 EL 656.34
STA 18+50.00 EL 655.24
STA 19+00.00 EL 654.84

-1.90% -1.35% -0.84% -0.80% 0.61%

STA. 17+67
REMOVE EXISTING STRUCTURE
P-05-91 SINGLE SPAN
PRESTRESSED BOX GIRDER BRIDGE
26.4 FEET LONG

STA. 17+67.75
STRUCTURE B-05-0419 REQUIRED
SINGLE SPAN CONCRETE SLAB
34 FOOT CLEAR

OBSERVED WSE 645.32
10-23-13

EXISTING PROFILE

FINISHED GRADE AT
CONSTRUCTION RL

15 16 17 18 19 20

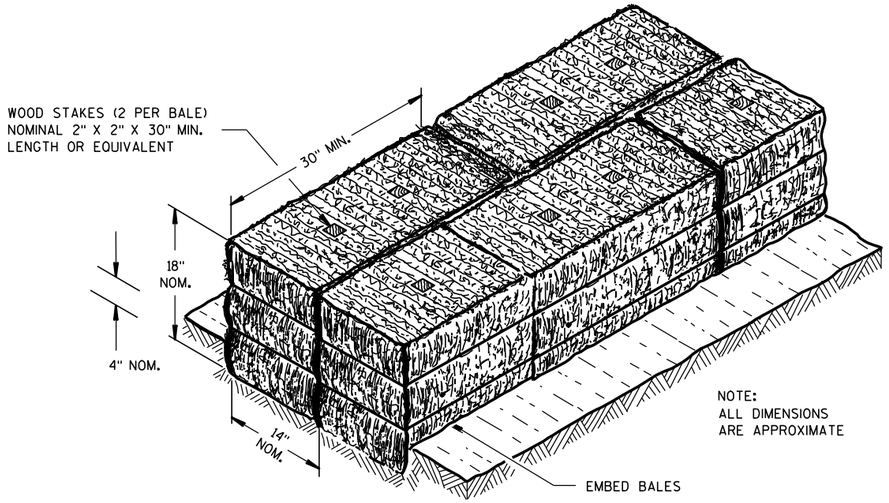
660.22 659.18 659.18 658.18 658.23 657.28 657.28 656.47 656.60 656.28 656.08 655.78 655.66 655.21 655.24 654.84 654.84 655.15 655.15 655.45 655.45

PROJECT NO: 4519-08-71	HWY: FAIR ROAD	COUNTY: BROWN	PLAN AND PROFILE: FAIR ROAD	SHEET 10

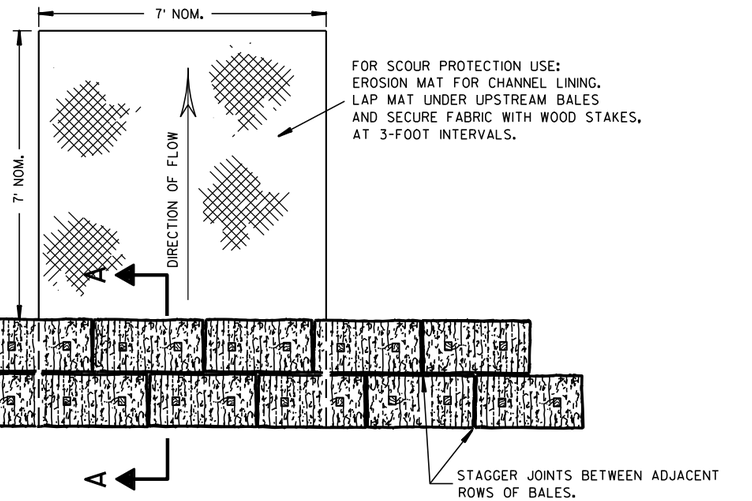
FILE NAME : R:\1000\1075\1075154\DWG\1075154 PP.DWG PLOT DATE : 1/18/2016 11:04 AM PLOT BY : ROCHELLE L. BURSA PLOT NAME : PLOT SCALE : 1 IN:40 FT
WISDOT/CADDS SHEET 44

Standard Detail Drawing List

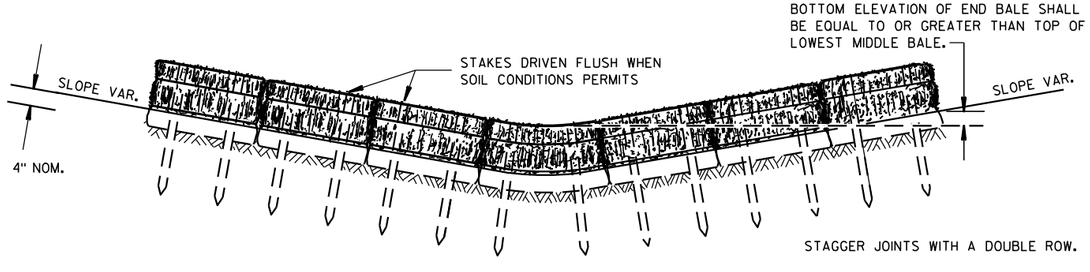
08E08-03	TYPICAL INSTALLATIONS OF EROSION BALES / TEMPORARY DITCH CHECKS
08E09-06	SILT FENCE
08E11-02	TURBIDITY BARRIER
12A03-10	NAME PLATE (STRUCTURES)
14B42-03A	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-03B	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-03C	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B44-02A	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-02B	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-02C	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B45-04A	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04B	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04C	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04D	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04E	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04F	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04G	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04H	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04I	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04J	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04K	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04L	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
15C02-05A	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-05B	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-05C	DETOUR SIGNING FOR MAINLINE CLOSURES
15C04-02	TRAFFIC CONTROL, ADVANCE WARNING SIGNS 45 M.P.H. OR GREATER TWO-WAY UNDIVIDED ROAD OPEN TO TRAFFIC
15C05-02	TRAFFIC CONTROL, ADVANCE WARNING SIGNS 40 M.P.H. OR LESS
15C06-07	SIGNING & MARKING FOR TWO LANE BRIDGES
15C08-16A	PAVEMENT MARKING (MAINLINE)



SECTION A-A



PLAN VIEW



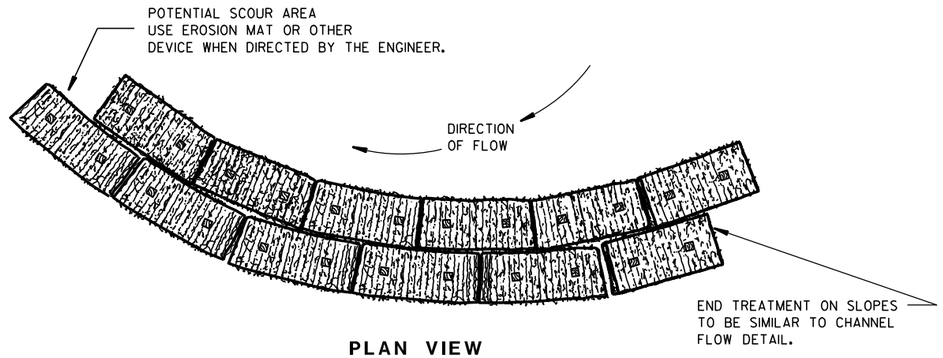
FRONT ELEVATION

TEMPORARY DITCH CHECK USING EROSION BALES ①

GENERAL NOTES

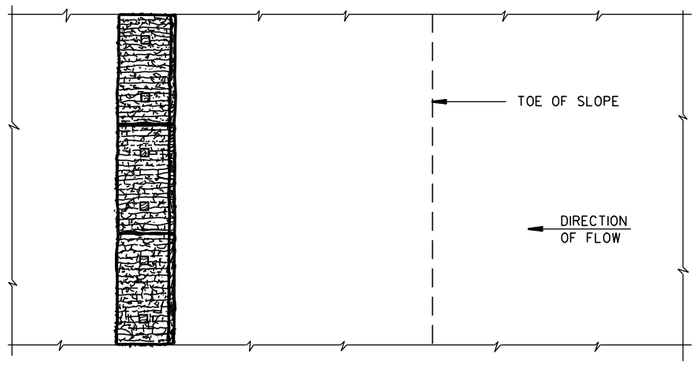
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

① TEMPORARY DITCH CHECKS EITHER EROSION BALES OR MANUFACTURED SHALL BE PAID FOR UNDER THE BID ITEM OF TEMPORARY DITCH CHECK. THE DEPARTMENT WILL NOT PAY FOR TEMPORARY DITCH CHECKS CONSTRUCTED OF A SINGLE ROW OF EROSION BALES.

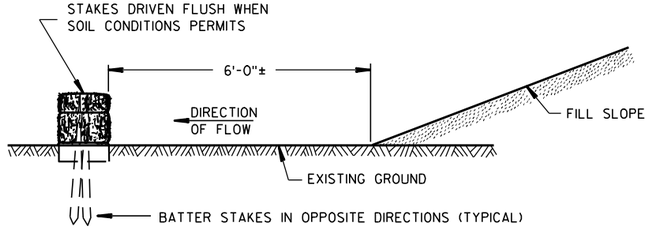


PLAN VIEW

WHEN ALTERING THE DIRECTION OF FLOW



PLAN VIEW



FRONT ELEVATION

WHEN EXISTING GROUND SLOPES AWAY FROM FILL SLOPE

EROSION BALES FOR SHEET FLOW

TYPICAL INSTALLATIONS OF EROSION BALES / TEMPORARY DITCH CHECKS

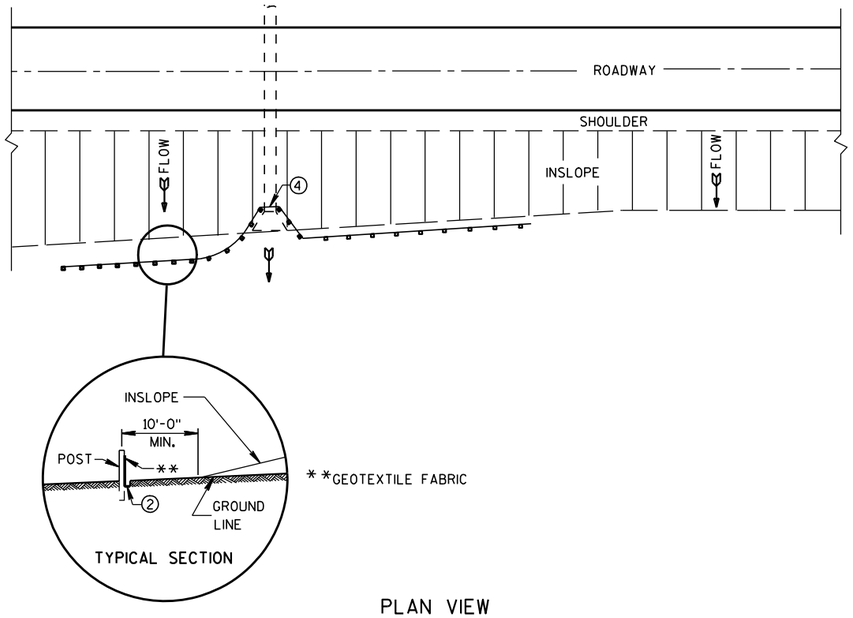
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

6/04/02 DATE — /S/ Beth Cannestra — CHIEF ROADWAY DEVELOPMENT ENGINEER

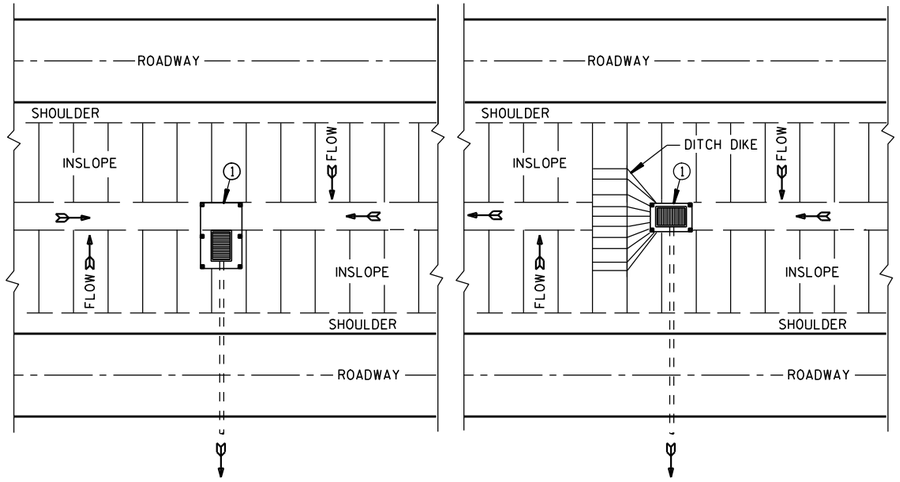
FHWA

6
S.D.D. 8 E 8-3



PLAN VIEW

TYPICAL APPLICATION OF SILT FENCE



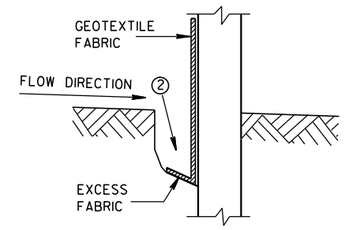
PLAN VIEW

SILT FENCE AT MEDIAN SURFACE DRAINS

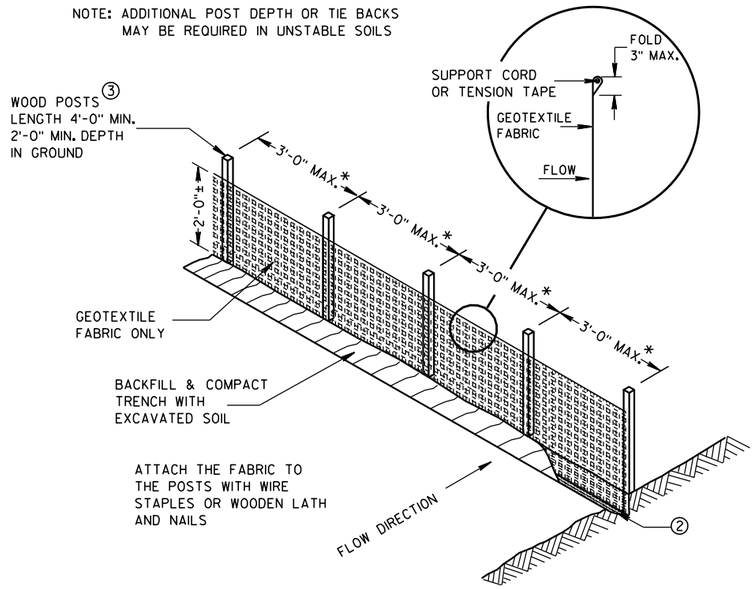
GENERAL NOTES

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

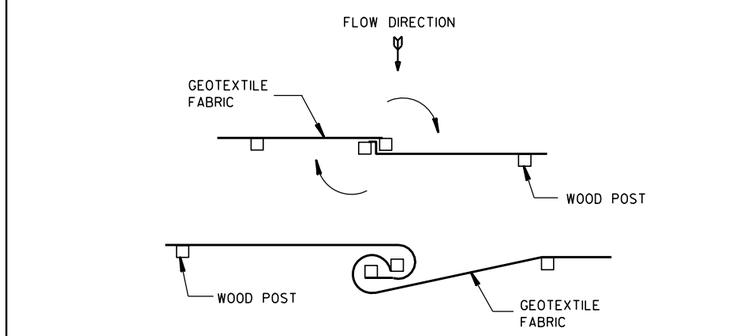
1. HORIZONTAL BRACE REQUIRED WITH 2" X 4" WOODEN FRAME OR EQUIVALENT AT TOP OF POSTS.
2. FOR MANUAL INSTALLATIONS THE TRENCH SHALL BE A MINIMUM OF 4" WIDE & 6" DEEP TO BURY AND ANCHOR THE GEOTEXTILE FABRIC. FOLD MATERIAL TO FIT TRENCH AND BACKFILL & COMPACT TRENCH WITH EXCAVATED SOIL.
3. WOOD POSTS SHALL BE A MINIMUM SIZE OF 1⅛" X 1⅛" OF OAK OR HICKORY.
4. SILT FENCE TO EXTEND ACROSS THE TOP OF THE PIPE.
5. CONSTRUCT SILT FENCE FROM A CONTINUOUS ROLL IF POSSIBLE BY CUTTING LENGTHS TO AVOID JOINTS. IF A JOINT IS NECESSARY USE ONE OF THE FOLLOWING TWO METHODS; A) OVERLAP THE END POSTS AND TWIST, OR ROTATE, AT LEAST 180 DEGREES, B) HOOK THE END OF EACH SILT FENCE LENGTH.



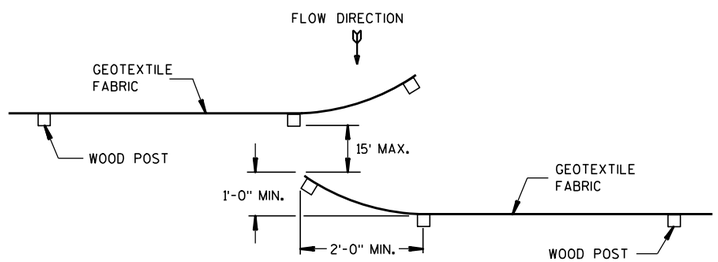
TRENCH DETAIL



SILT FENCE

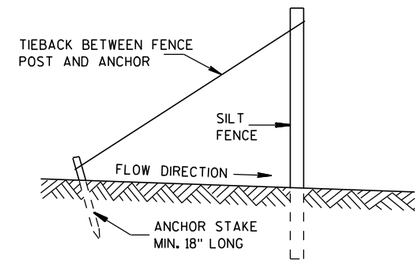


TWIST METHOD



HOOK METHOD

JOINING TWO LENGTHS OF SILT FENCE 5



SILT FENCE TIE BACK

(WHEN REQUIRED BY THE ENGINEER)

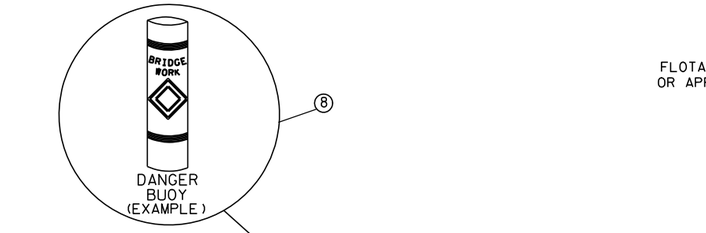
SILT FENCE	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED	
4-29-05 DATE	/S/ Beth Cannestra CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA	

6

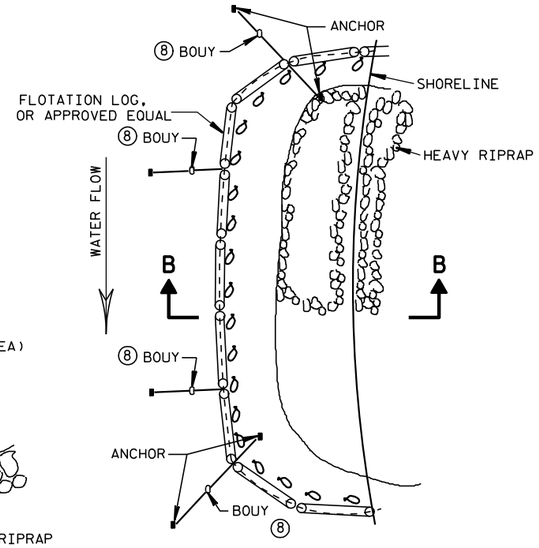
S.D.D. 8 E 9-6

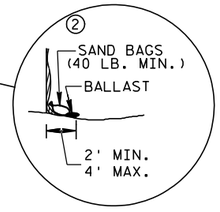
6

S.D.D. 8 E 9-6

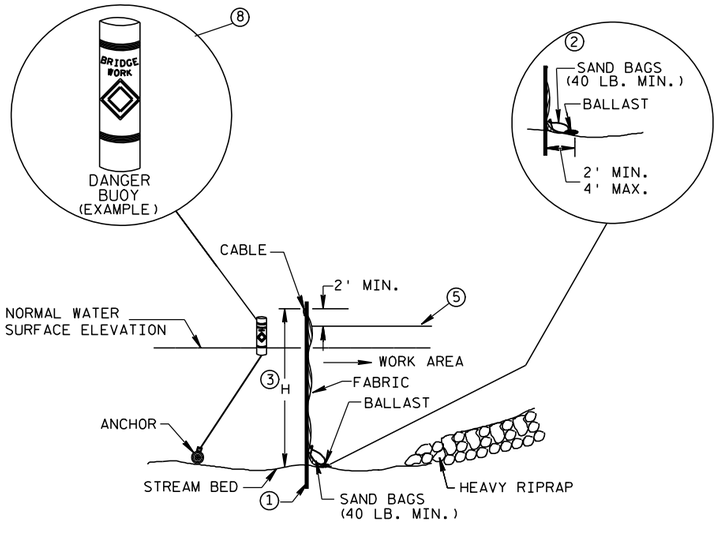


SECTION B-B

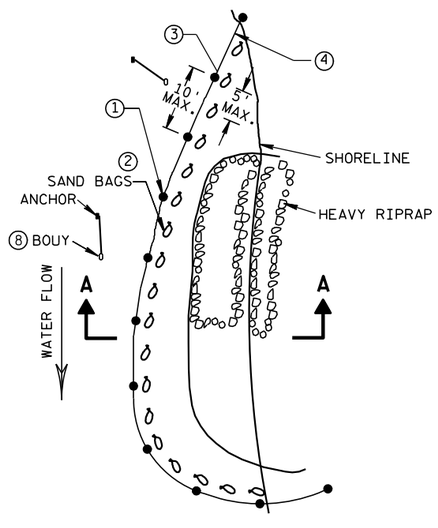




TURBIDITY BARRIER FLOAT ALTERNATIVE
CAUTION - SEE NOTE 6



SECTION A-A



PLAN VIEW

TURBIDITY BARRIER STANDARD POST INSTALLATION

TURBIDITY BARRIER PLACEMENT DETAILS

GENERAL NOTES

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

TURBIDITY BARRIER MAY BE REMOVED AT THE ENGINEERS DISCRETION, WHEN PERMANENT EROSION CONTROL MEASURES HAVE BEEN ESTABLISHED.

① DRIVEN STEEL POSTS, PIPES, OR CHANNELS. LENGTH SHALL BE SUFFICIENT TO SECURELY SUPPORT BARRIER AT HIGH WATER ELEVATIONS.

② SANDBAGS TO BE USED AS ADDITIONAL BALLAST WHEN ORDERED BY THE ENGINEER TO MEET ADVERSE FIELD CONDITIONS. SPACE AS APPROPRIATE FOR SITE CONDITIONS.

③ WHEN BARRIER HEIGHT, H, EXCEEDS 8 FT., POST SPACING MAY NEED TO BE DECREASED.

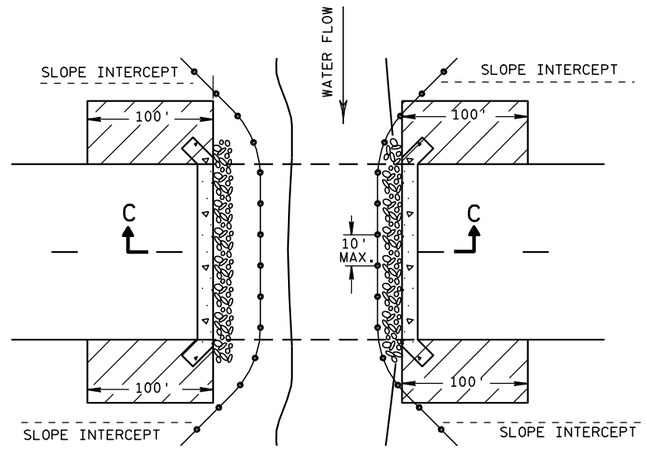
④ IN WATERWAYS SUBJECT TO FLUCTUATING WATER ELEVATIONS, PROVISIONS SHOULD BE MADE TO ALLOW THE WATER TO EQUALIZE ON EACH SIDE OF THE BARRIER. THIS MAY BE ACCOMPLISHED BY LEAVING A PORTION OF THE BARRIER OPEN ON THE UPSTREAM END.

⑤ ESTIMATED HIGH WATER ELEVATION DURING CONSTRUCTION PERIOD. MIMIMUM BARRIER HEIGHT SHALL BE 2'GREATER THAN EITHER THE O2 ELEVATION OR THE ESTIMATED HIGH WATER ELEVATION DURING CONSTRUCTION, WICHEVER IS GREATER.

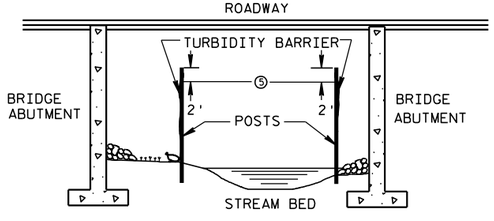
⑥ FLOAT ALTERNATIVE WILL ONLY BE ALLOWED WITH WRITTEN APPROVAL OF THE ENGINEER, AND IS MEANT FOR LOCATIONS WHERE BED ROCK PREVENTS THE INSTALLATION OF POSTS.

⑦ ALLOW SUFFICIENT SLACK VERTICALLY AND HORIZONTALLY SO THAT SEDIMENT BUILD UP WILL NOT SEPARATE OR LOWER THE TURBIDITY BARRIER.

⑧ USE AS DIRECTED BY COAST GUARD OR DNR PERMIT WHEN WORKING IN NAVIGABLE WATERWAYS.



PLAN VIEW



SECTION C-C

TURBIDITY BARRIER DETAIL SHOWING TYPICAL PLACEMENT AT STRUCTURES

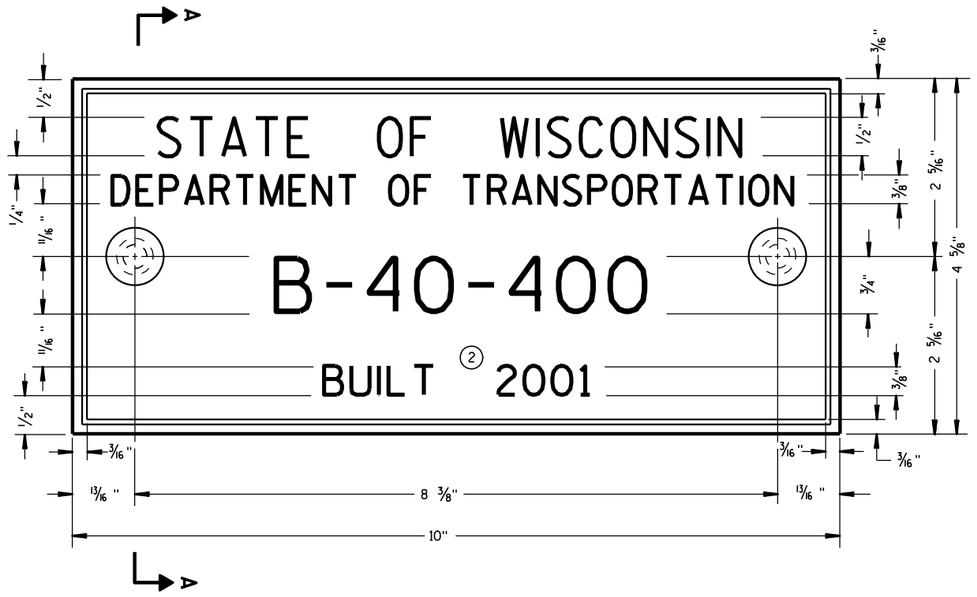
TURBIDITY BARRIER

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
6/04/02 — DATE
/S/ Beth Cannestra — CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA

6

S.D.D. 8 E 11-2



TYPICAL NAME PLATE
(BRIDGES, CULVERTS, AND RETAINING WALLS)

FOR MULTI-UNIT STRUCTURES
LINE 3 ABOVE SHALL READ

B = BRIDGE
C = CULVERT
R = RETAINING WALL

COUNTY NO.

BRIDGE NO.

UNIT NO. FOR MULTIPLE UNIT BRIDGE

B-40-400-1A

NUMBERING DESIGNATION
MULTI-UNIT STRUCTURES

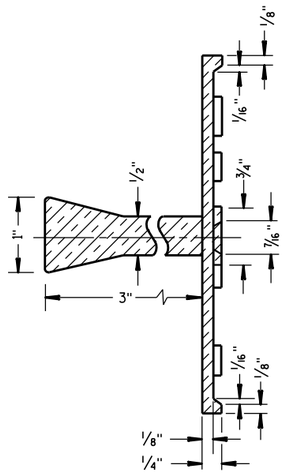
GENERAL NOTES

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.

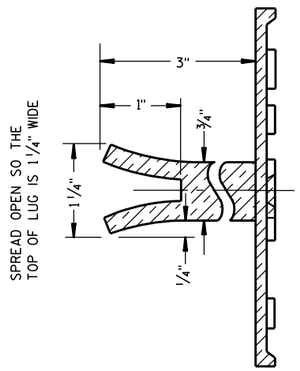
THE BRIDGE NUMBER AND YEAR BUILT SHOWN ON THIS DRAWING ARE EXAMPLES ONLY. SEE CONSTRUCTION PLANS FOR INDIVIDUAL NUMBERING AND YEAR BUILT.

(1) EPOXY RESIN SHALL BE FROM AN APPROVED MANUFACTURER AND USED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

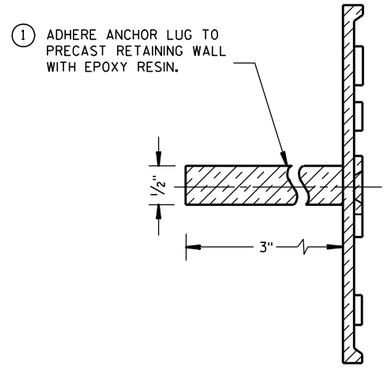
(2) REHABILITATION OF AN EXISTING STRUCTURE SHOULD USE THE DATE OF ORIGINAL STRUCTURE CONSTRUCTION.



SECTION A-A



ALTERNATE LUG



ALTERNATE LUG
(FOR ATTACHMENT TO PRECAST STRUCTURES)

NAME PLATE (STRUCTURES)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

3/26/10 DATE

/S/ Scot Beck -- CHIEF STRUCTURAL DEVELOPMENT ENGINEER

FHWA

6

S.D.D. 12 A 3-10

6

S.D.D. 12 A 3-10

GENERAL NOTES

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

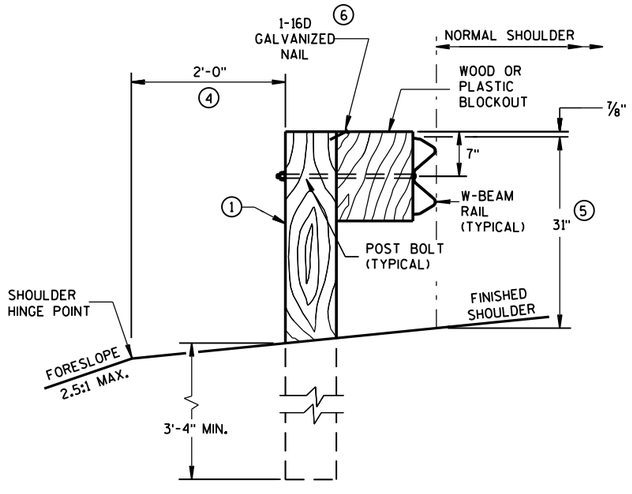
(2) USE WOOD OR APPROVED PLASTIC BLOCKOUTS. WOOD BLOCKOUTS MAY BE CONSTRUCTED OUT OF TWO OR MORE WOOD BLOCKOUTS. SEE ALTERNATE WOOD BLOCKOUT DETAIL. DIMENSIONS OF APPROVED PLASTIC BLOCKOUTS MAY VARY.

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

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

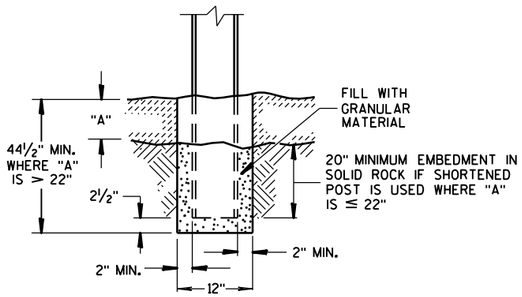
(5) FOR NEW MGS INSTALLATION TOP OF W-BEAM RAIL TOLERANCE IS ± 1". FOR EXISTING MGS INSTALLATION TOP OF W-BEAM IS BETWEEN 27¾" TO 32".

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



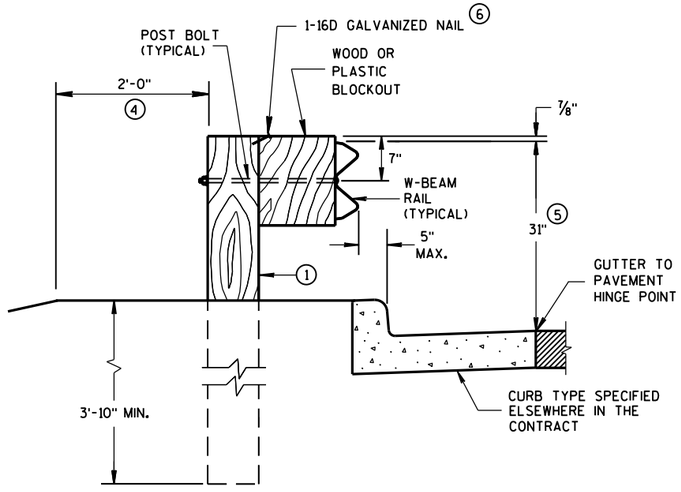
END VIEW

LOCATED ALONG A ROADWAY SHOULDER
STANDARD INSTALLATION



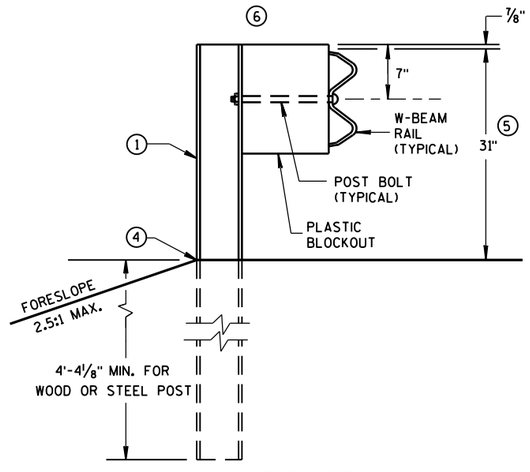
END VIEW

SETTING STEEL OR WOOD POST IN ROCK (3)



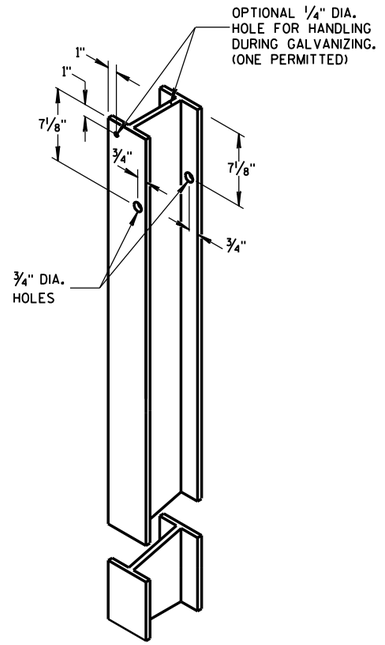
END VIEW

LOCATED ALONG A CURBED ROADWAY

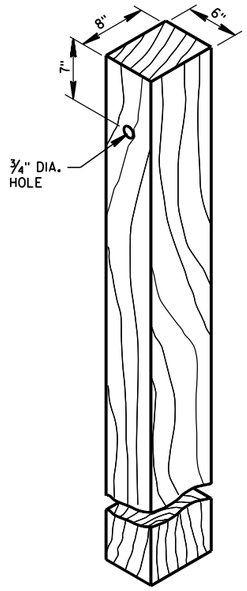


END VIEW

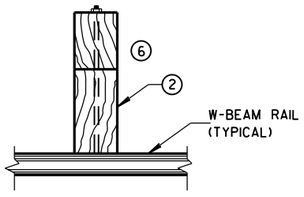
MGS LONGER POST AT HALFPOST SPACING W BEAM (K)



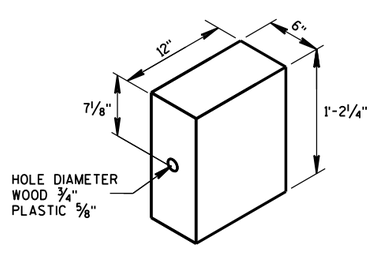
STEEL POST &
HOLE PUNCHING DETAIL
(w6X9) (1)



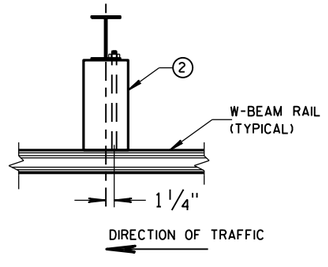
WOOD POST
(6" X 8") NOMINAL (1)



PLAN VIEW
WOOD POST,
BLOCKOUT & BEAM



WOOD OR
PLASTIC BLOCKOUT (2)



PLAN VIEW
STEEL POST,
PLASTIC BLOCKOUT & BEAM

MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

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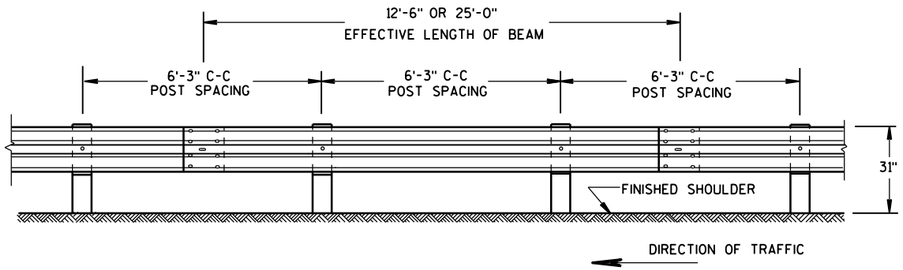
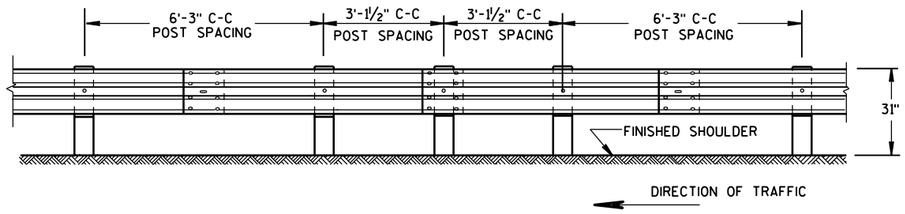
S.D.D. 14 B 42-3a



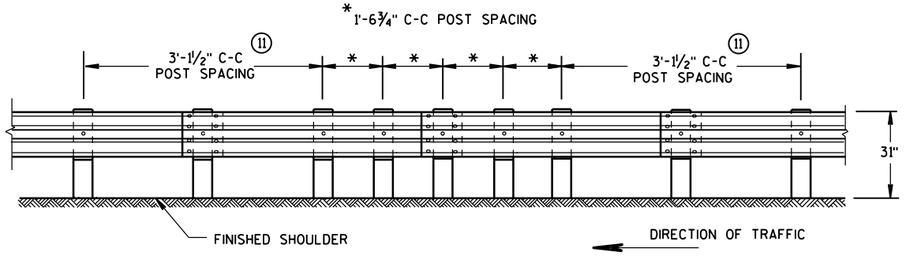
FRONT VIEW

POST SPACING STANDARD INSTALLATION



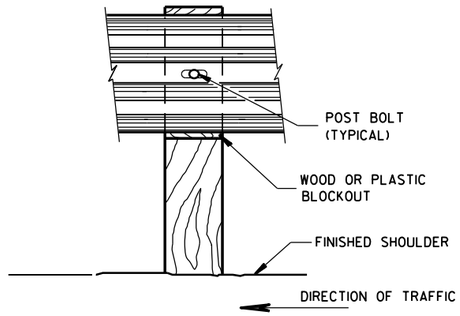
FRONT VIEW

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

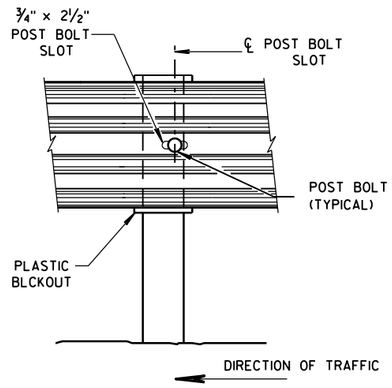


FRONT VIEW

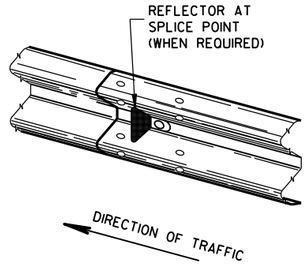
QUARTER POST SPACING (QS)

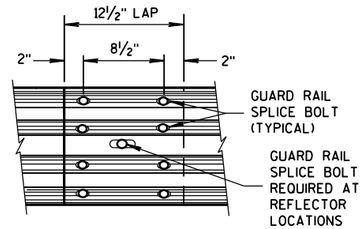


FRONT VIEW AT WOOD POST



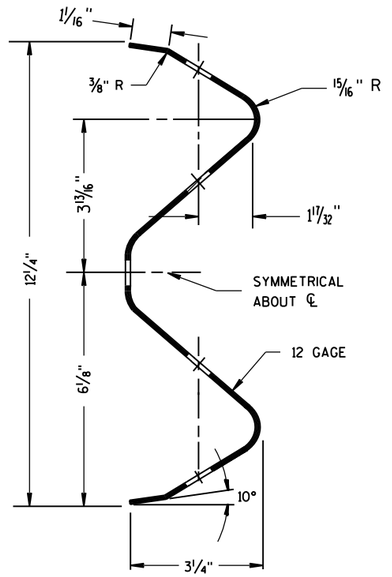
FRONT VIEW AT STEEL POST



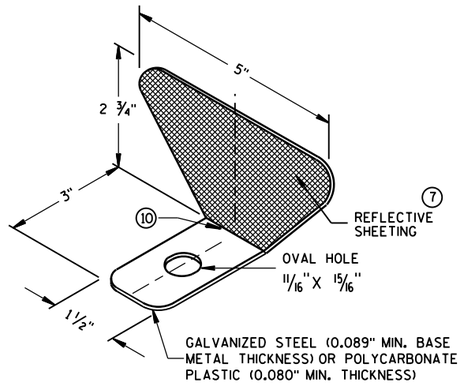


FRONT VIEW

MID-SPAN BEAM SPLICE



SECTION THRU W-BEAM RAIL



ONE SIDED REFLECTOR DETAIL AND TYPICAL INSTALLATION ⑦

GENERAL NOTES

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

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

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

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

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

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

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

REFLECTOR SPACING ⑧

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

MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL

STATE OF WISCONSIN
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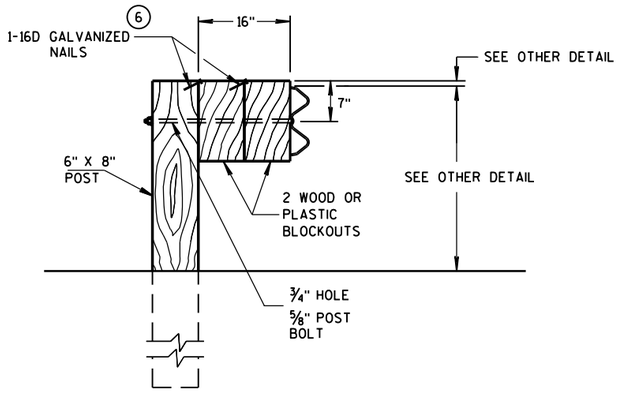
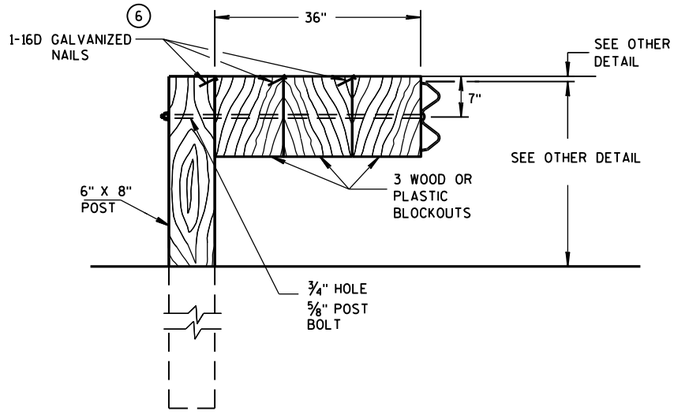


DETAIL FOR 16" BLOCKOUT DEPTH

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

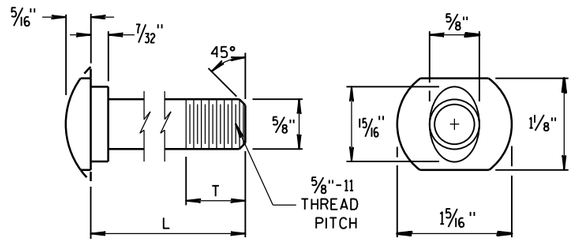


DETAIL FOR 36" BLOCKOUT DEPTH

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

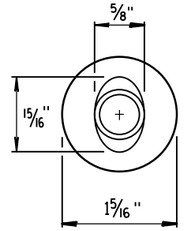
DO NOT USE 16" OR 36" BLOCKOUTS IF IT CAUSES THE POST TO BE DRIVEN BEYOND SHOULDER HINGE POINT OR CAUSES A FIXED OBJECT TO BE WITHIN THE DEFLECTION DISTANCE OF THE BARRIER.

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

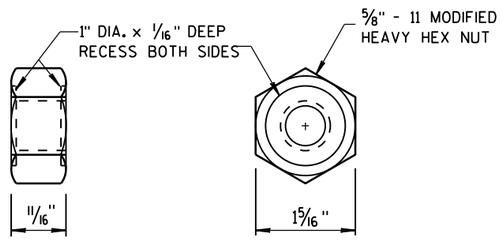


POST BOLT TABLE

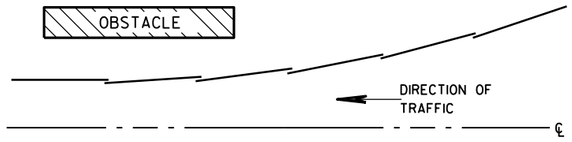
L	T (MIN.)
1 1/4"	1 1/8"
2"	1 3/4"
10"	4"
14"	4 1/16"
18"	4"
21"	4 1/16"
25"	4"



ALTERNATE BOLT HEAD

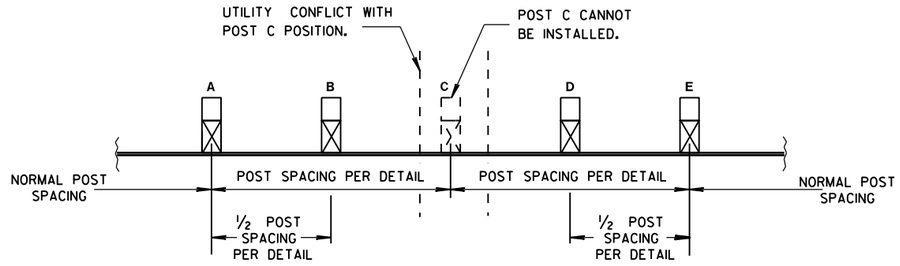


POST BOLT AND RECESS NUT

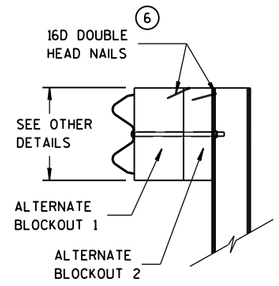


PLAN VIEW

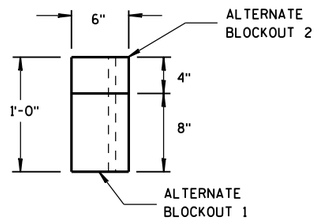
BEAM LAPPING DETAIL



POST DRIVING FOR CONTINUOUS UNDERGROUND OBSTRUCTION



SIDE VIEW



TOP VIEW

ALTERNATE WOOD BLOCKOUT DETAIL

MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

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

GENERAL NOTES

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

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

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

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

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

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

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

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

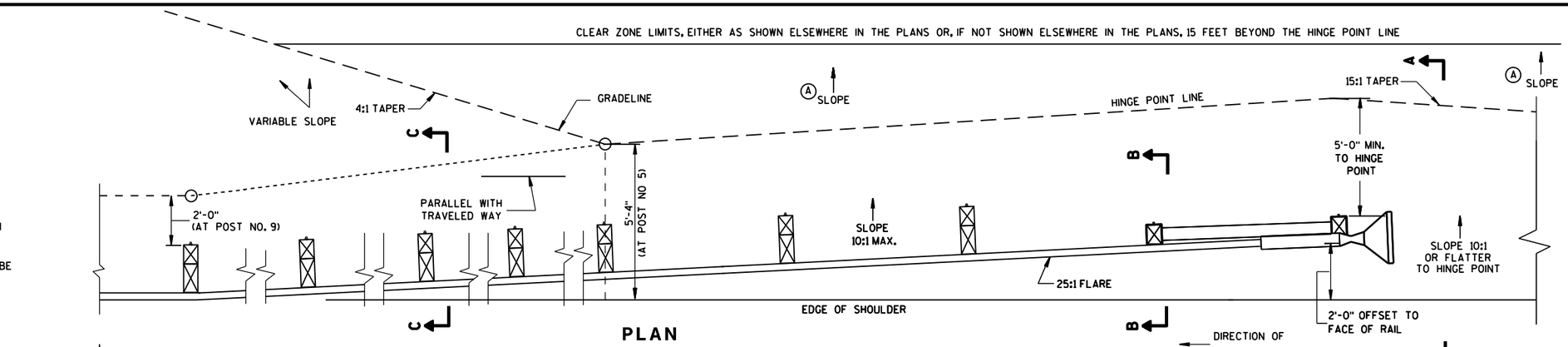
SEE SDD 14B42 FOR MORE INFORMATION.

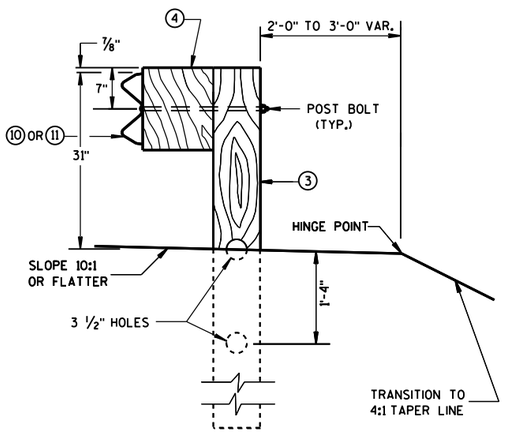
* DO NOT ATTACH BLOCKOUTS TO POSTS 1 AND 2.

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

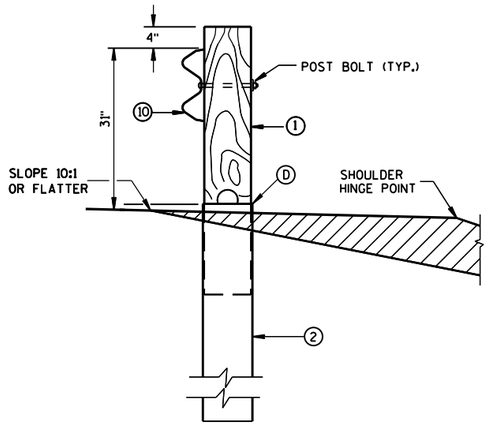
W-BEAM RAIL SPLICES ARE LOCATED AT POST NUMBER 3, AND BETWEEN POST 5 AND 6, BETWEEN POSTS 7 AND 8, AND MIDDLE OF THE SPAN AFTER POST 9.

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

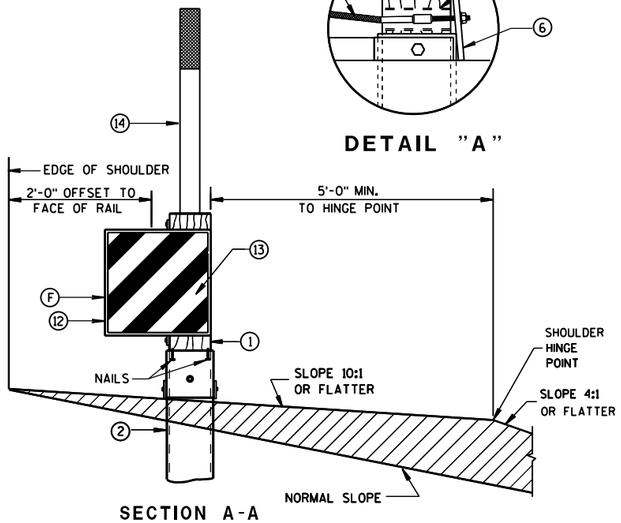




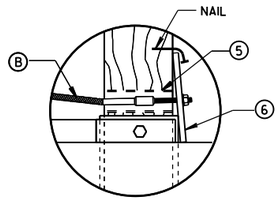
SECTION C-C
TYPICAL AT POST NOS. 3-9



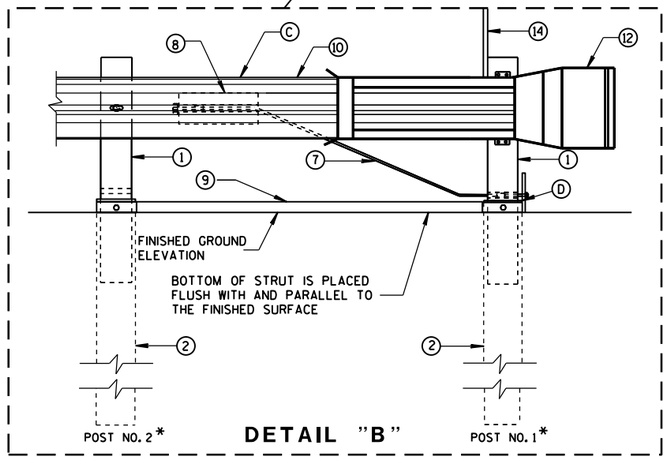
SECTION B-B
TYPICAL AT POST NO. 2*



SECTION A-A
TYPICAL AT POST NO. 1*



DETAIL "A"



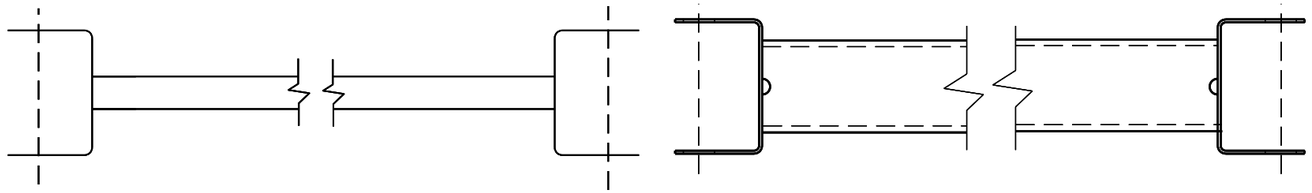
DETAIL "B"

MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL
(MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPO

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

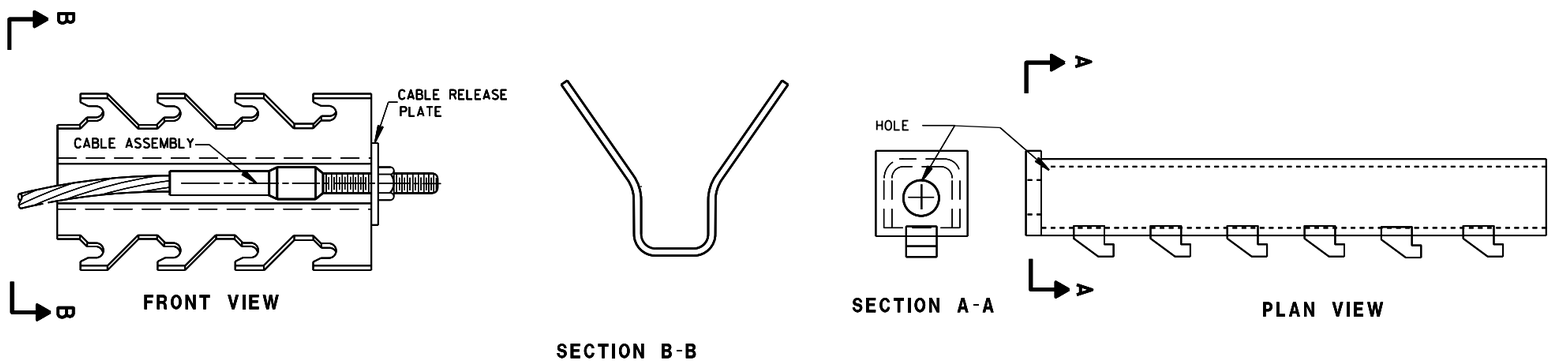
S.D.D. 14 B 44-2a



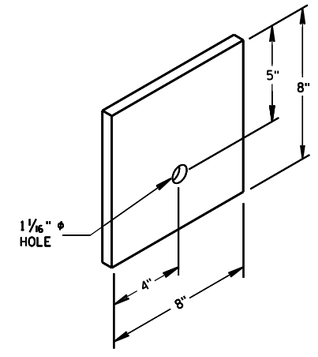
GENERIC GROUND STRUT (9) (H)

BILL OF MATERIALS

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



GENERIC ANCHOR CABLE BOX (8) (H)



BEARING PLATE (6)

MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL
(MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

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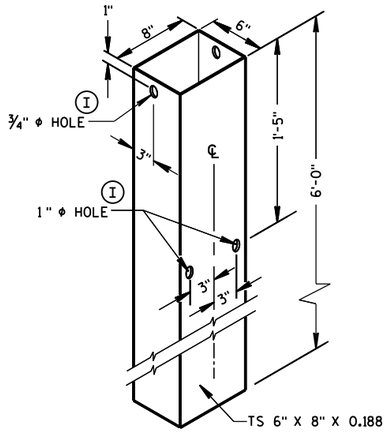
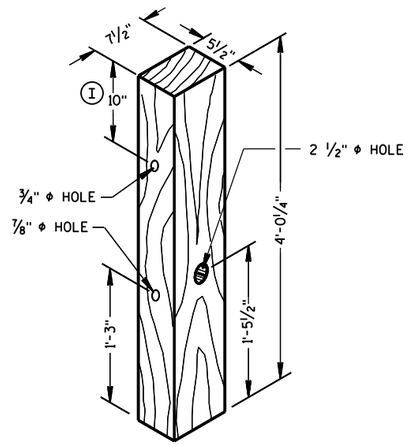
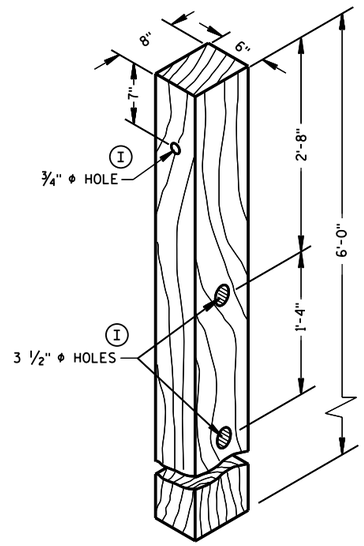


FOUNDATION TUBE (2)



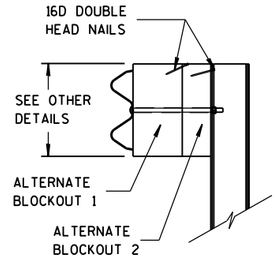
POSTS NUMBER 1 AND 2

WOOD BREAKAWAY POST (1)

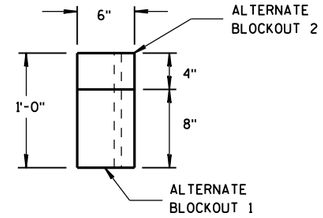


POSTS NUMBER 3-9

WOOD CRT POST (3)

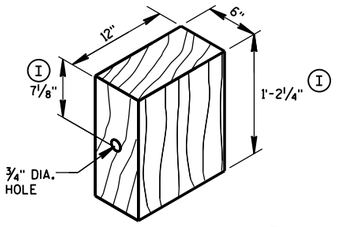


SIDE VIEW



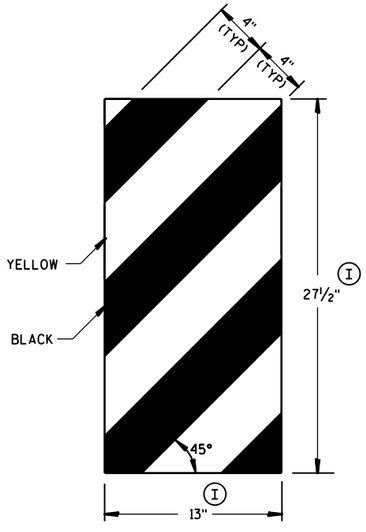
TOP VIEW

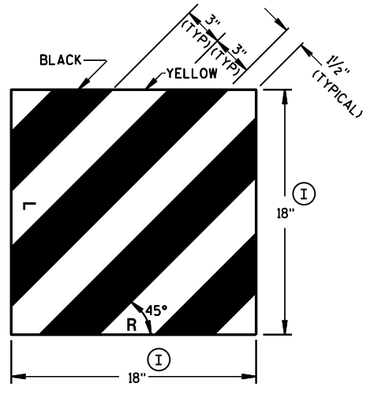
ALTERNATE WOOD BLOCKOUT DETAIL



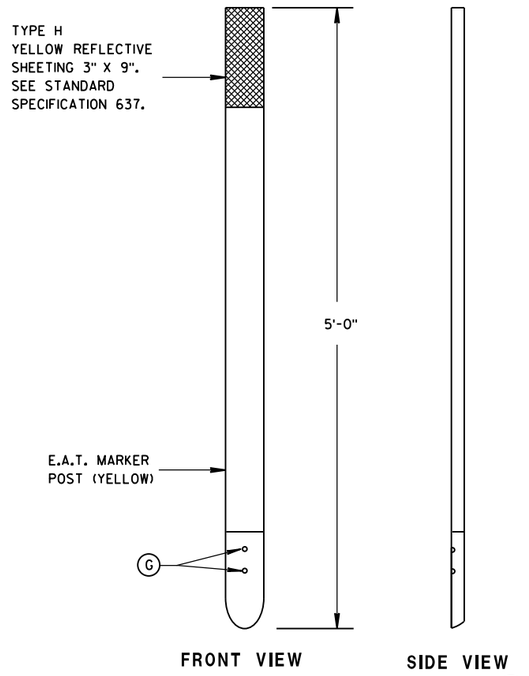
WOOD BLOCKOUT (4)

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





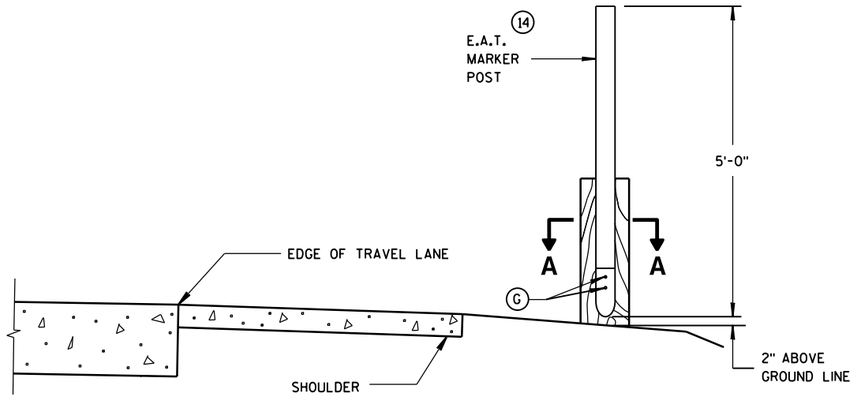
GENERIC REFLECTIVE SHEETING (13) (H)



FRONT VIEW

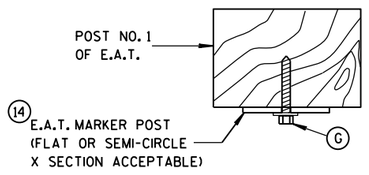
SIDE VIEW

E.A.T. MARKER POST (14)



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

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



SECTION A-A

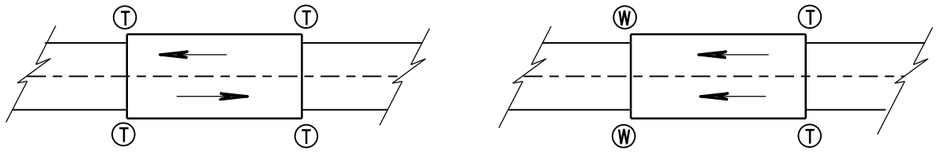
MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

6

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



TWO WAY TRAFFIC

ONE WAY TRAFFIC

Ⓣ THRIE BEAM CONNECTION

Ⓦ W-BEAM CONNECTION WHEN REQUIRED

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

GENERAL NOTES

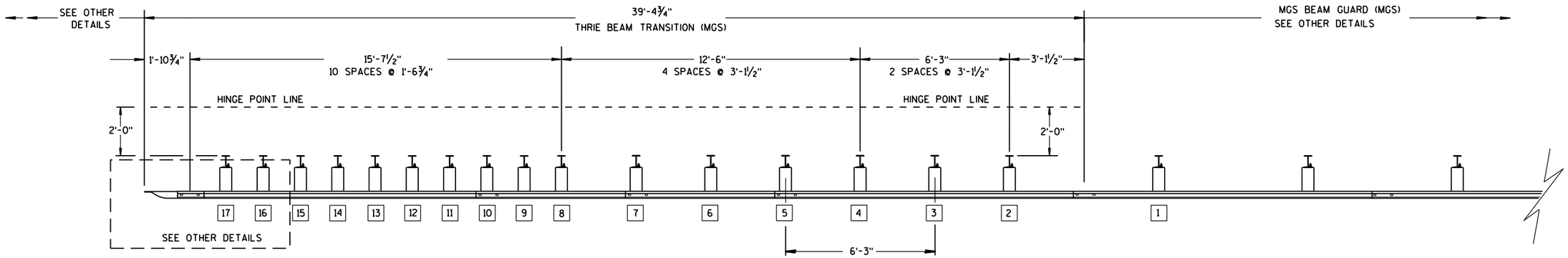
IF ROCK IS ENCOUNTERED, REMOVE ROCK TO FULL DEPTH OF POST PLUS 2½", AND 12" DIAMETER AROUND POST. SEE 14B42 FOR MORE DETAILS.

TRANSITION USES STEEL POSTS ONLY.

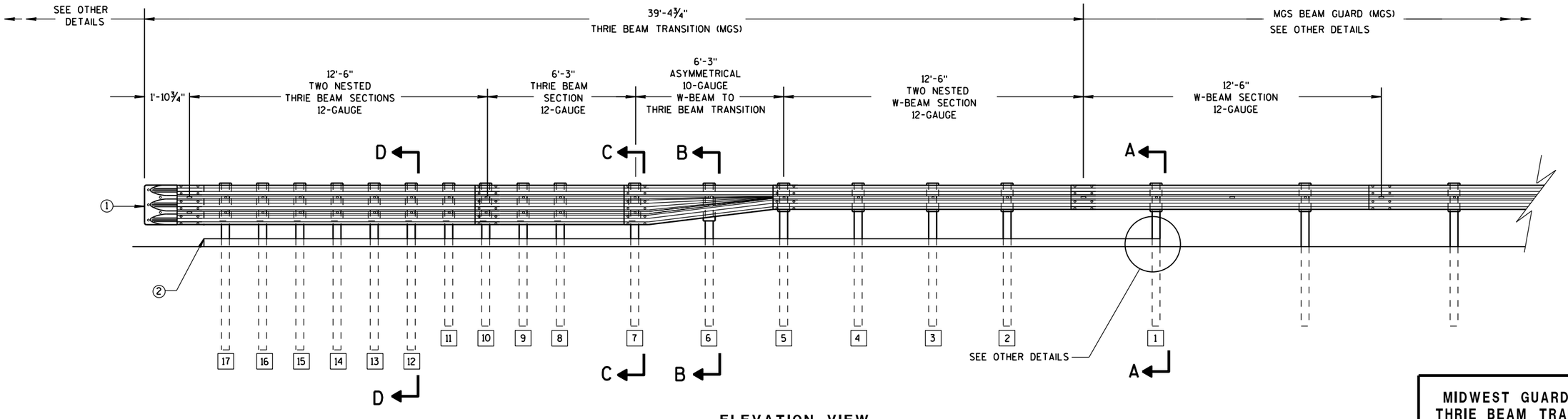
SEE STANDARD DETAIL DRAWING 14 B 42 FOR MORE INFORMATION.

① BRIDGE RAILING TYPE "W" DOES NOT REQUIRE A TERMINAL CONNECTOR.

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



PLAN VIEW



ELEVATION VIEW

MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

6

S.D.D. 14 B 45-4a

6

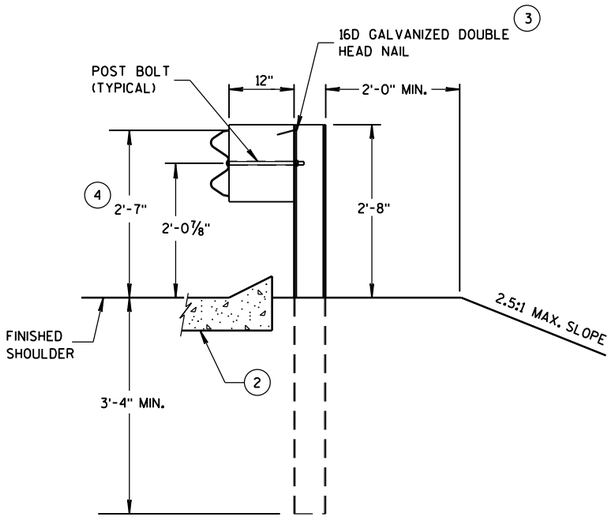
S.D.D. 14 B 45-4a

GENERAL NOTES

(2) OPTIONAL CURB AND GUTTER OR DRAINAGE_FEATURE SEE PLAN FOR INFORMATION.

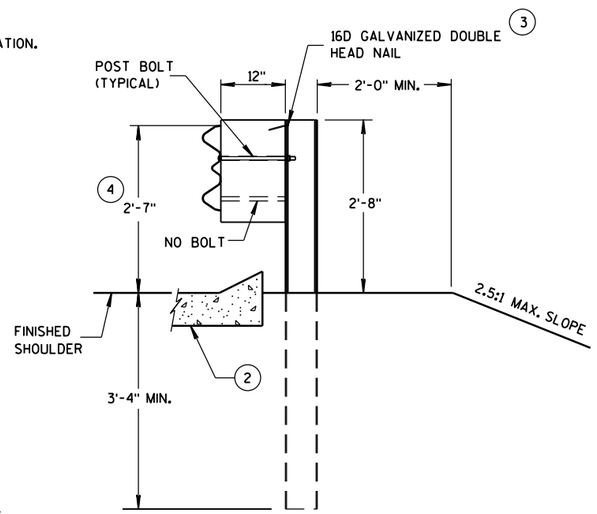
(3) WHEN USING STEEL POSTS AND WOOD BLOCKOUTS INSTALL FOUR 10D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.

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



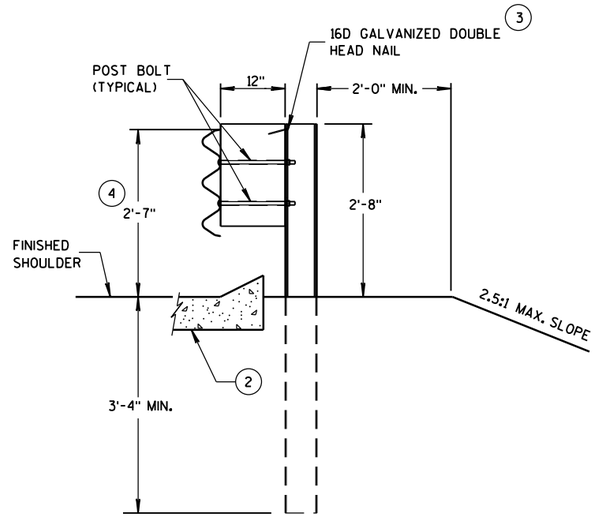
SECTION A-A

POSTS 1-5



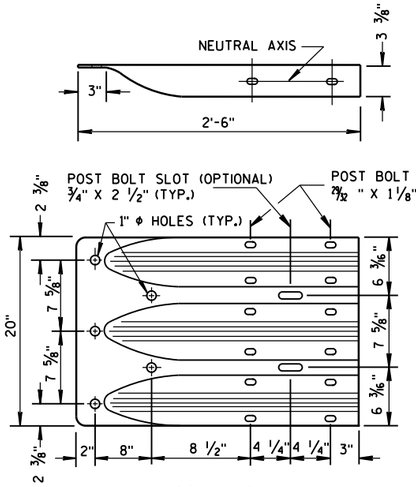
SECTION B-B

POST 6



SECTION C-C

POSTS 7-11



THRIE BEAM TERMINAL CONNECTOR

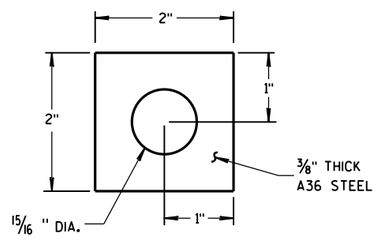
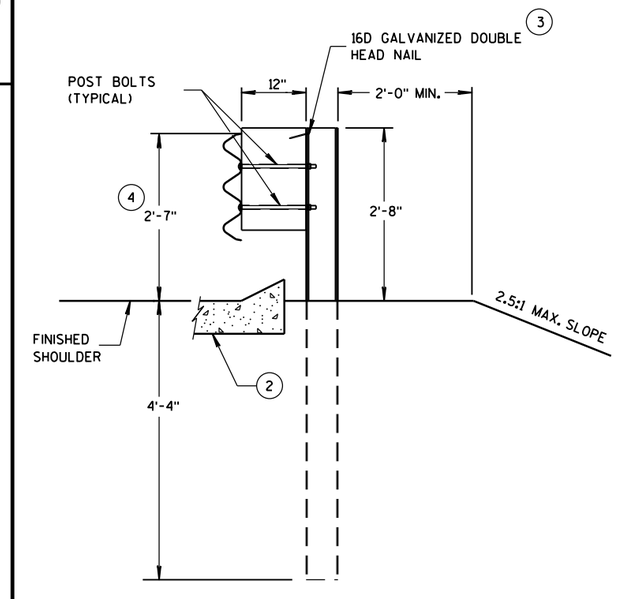
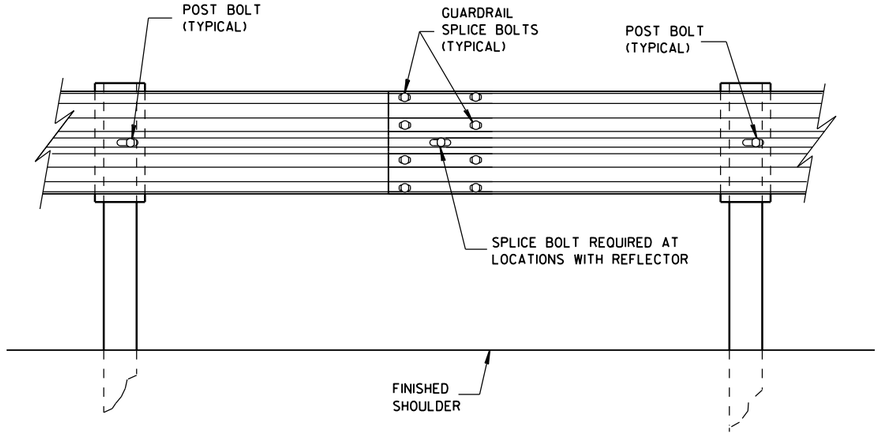


PLATE WASHER DETAIL

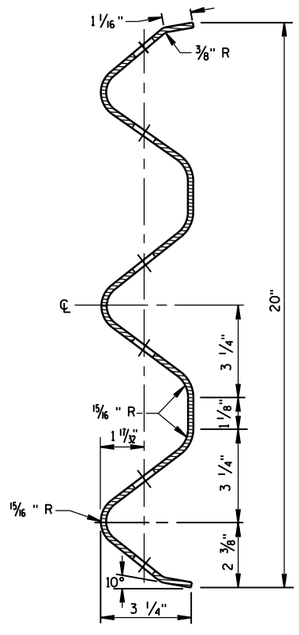


SECTION D-D

POSTS 12-17



SPLICE DETAIL



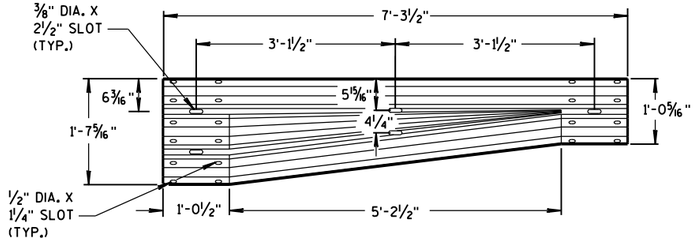
SECTION THRU THRIE BEAM RAIL ELEMENT

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

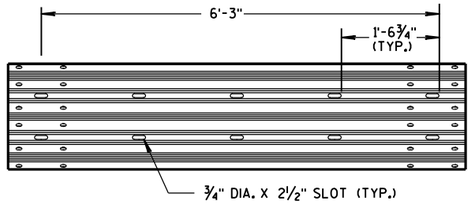
STATE OF WISCONSIN
DEPARTMENT OF TRANSPO

6

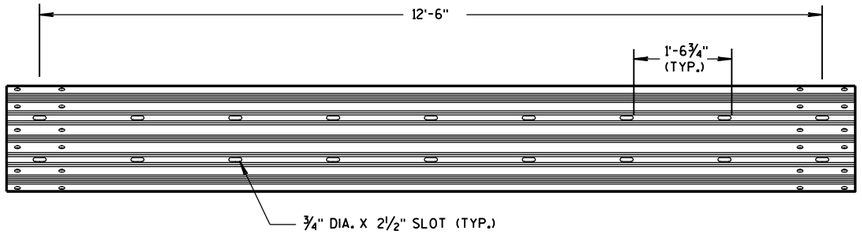
S.D.D. 14 B 45-4b



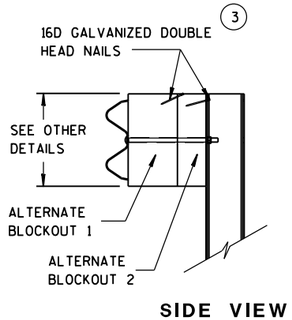
W-BEAM TO THRIE BEAM TRANSITION SECTION



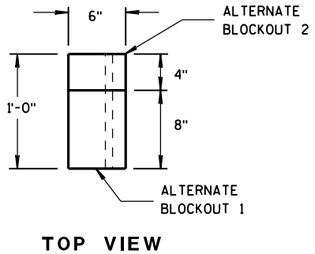
6'-3" THRIE BEAM SECTION



12'-6" THRIE BEAM SECTION

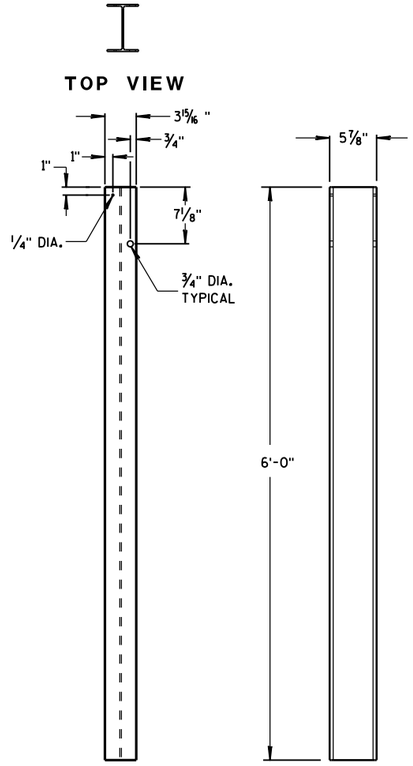


SIDE VIEW



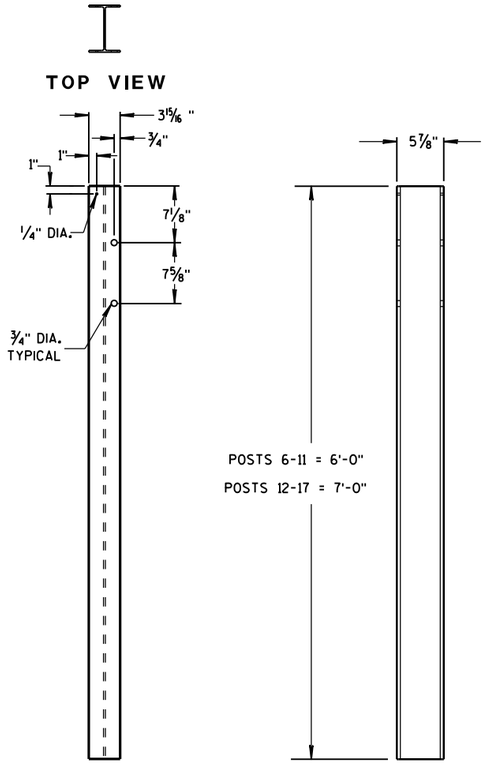
TOP VIEW

ALTERNATE WOOD BLOCKOUT DETAIL



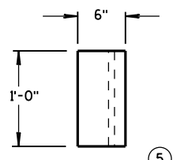
FRONT VIEW SIDE VIEW

STEEL POSTS 1-5

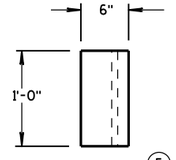


FRONT VIEW SIDE VIEW

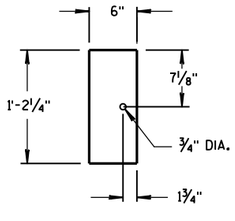
STEEL POSTS 6-17



TOP VIEW (5)

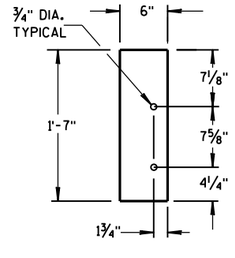


TOP VIEW (5)



FRONT VIEW

BLOCKOUT POSTS 1-5



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.

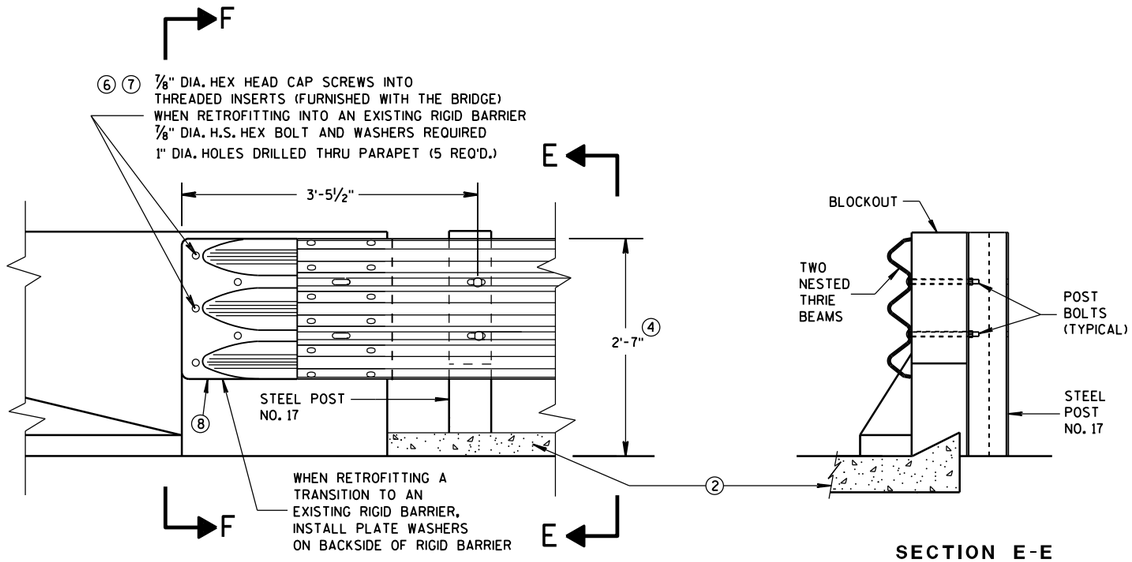
(5) WOOD BLOCKS MAY BE CONSTRUCTED OUT OF 2 WOOD BLOCKS. SEE ALTERNATE WOOD BLOCK DETAIL.

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

6

S.D.D. 14 B 45-4c



FRONT VIEW

SECTION E-E

THRIE BEAM CONNECTION TO BRIDGE PARAPET WITH SQUARE ENDS

GENERAL NOTES

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

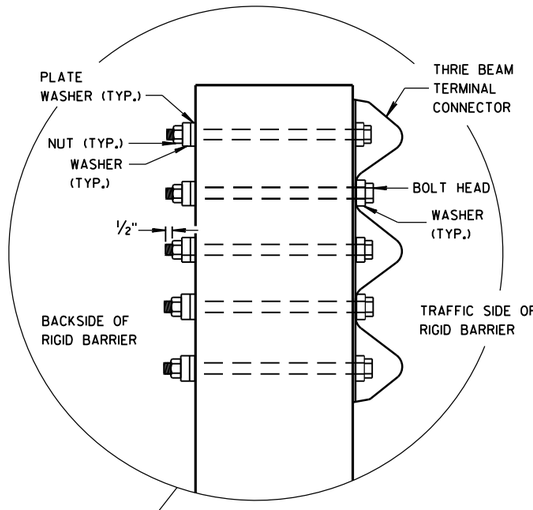
② OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.

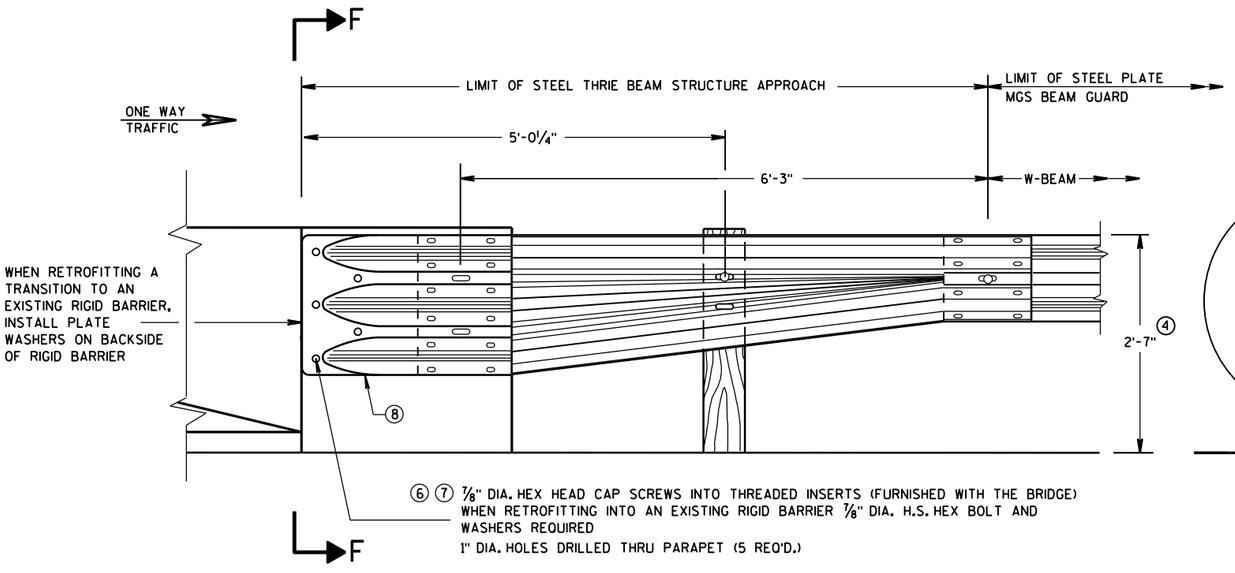
④ TOLERANCE FOR TOP OF BEAM IS ± 1".

⑥ DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.

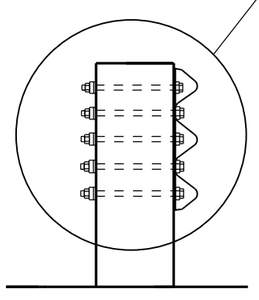
⑦ BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTOR PLATE. BOLTS THAT EXTEND THROUGH THE PARAPET AND OUT THE BACK FACE REQUIRE A HARDENED ROUND STEEL WASHER THAT IS 2" O.D. X 5/8" 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".

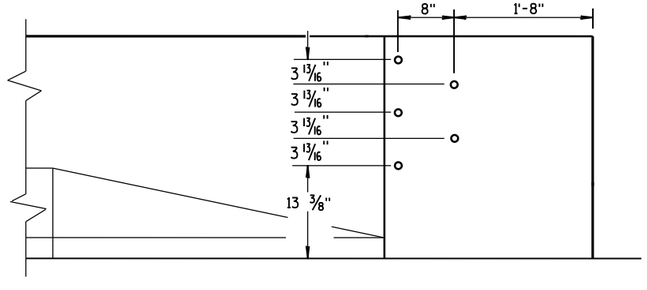




FRONT VIEW



SECTION F-F



DRILL HOLE LOCATION

W BEAM TRANSITION AND CONNECTION TO BRIDGE PARAPETS WITH SQUARE ENDS

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

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June, 2015 — DATE
/S/ Jerry H. Zogg — ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA
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NT

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S.D.D. 14 B 45-4d

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S.D.D. 14 B 45-4d

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.

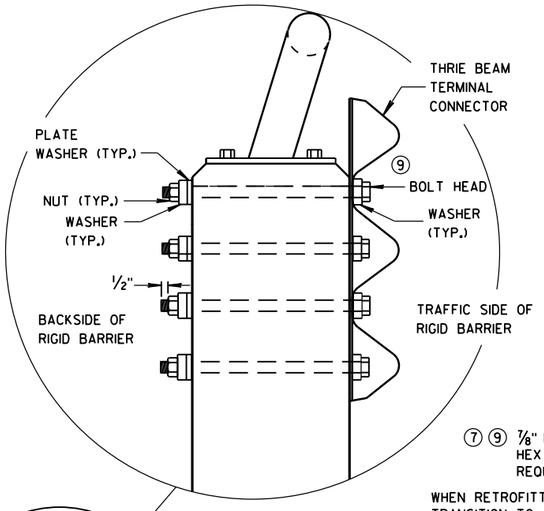
(4) TOLERANCE FOR TOP OF BEAM IS ± 1".

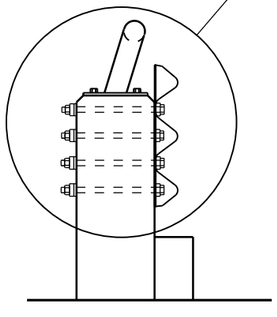
(6) DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.

(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 5/8" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.

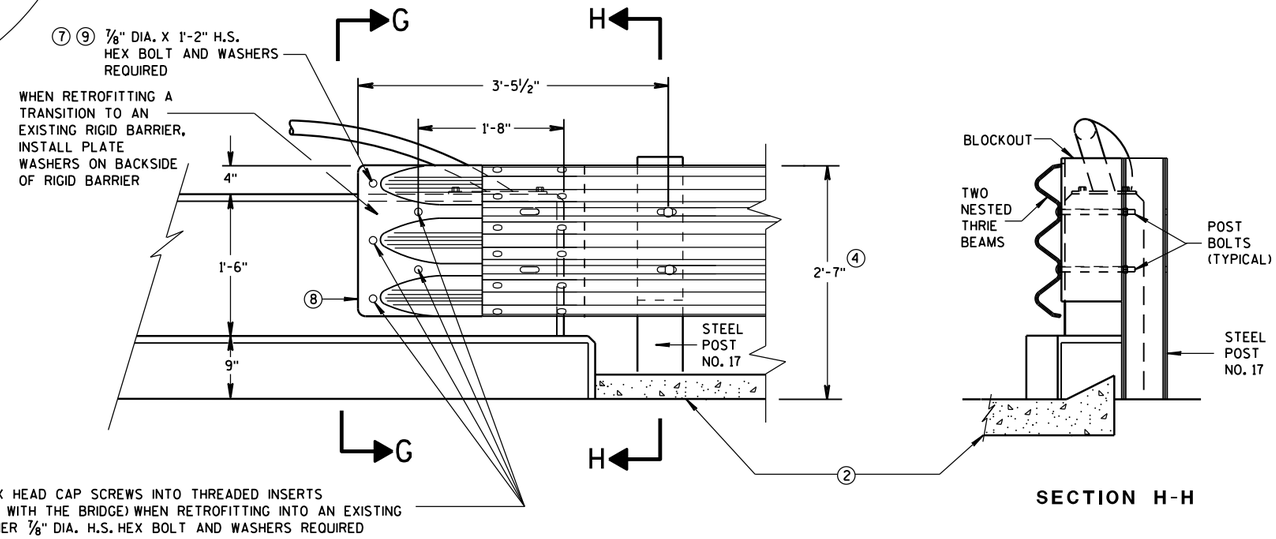
(8) THE RECESS FOR A W-BEAM CONNECTION, WHICH EXISTS ON SOME PARAPETS OF THIS TYPE, SHALL BE FILLED WITH A TREATED TIMBER BLOCKOUT. BLOCKOUT SIZE IS 1'-6" X 2'-0" X 3 1/2".

(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.





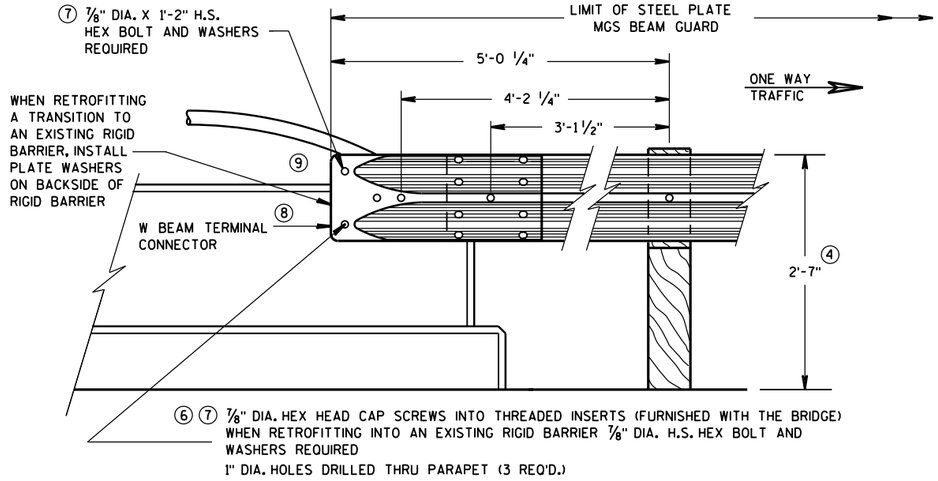
SECTION G-G



FRONT VIEW

SECTION H-H

THRIE BEAM CONNECTION TO VERTICAL FACED PARAPETS



FRONT VIEW

W BEAM CONNECTION TO VERTICAL FACE PARAPET

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

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
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June, 2015 — DATE
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S.D.D. 14 B 45-4e

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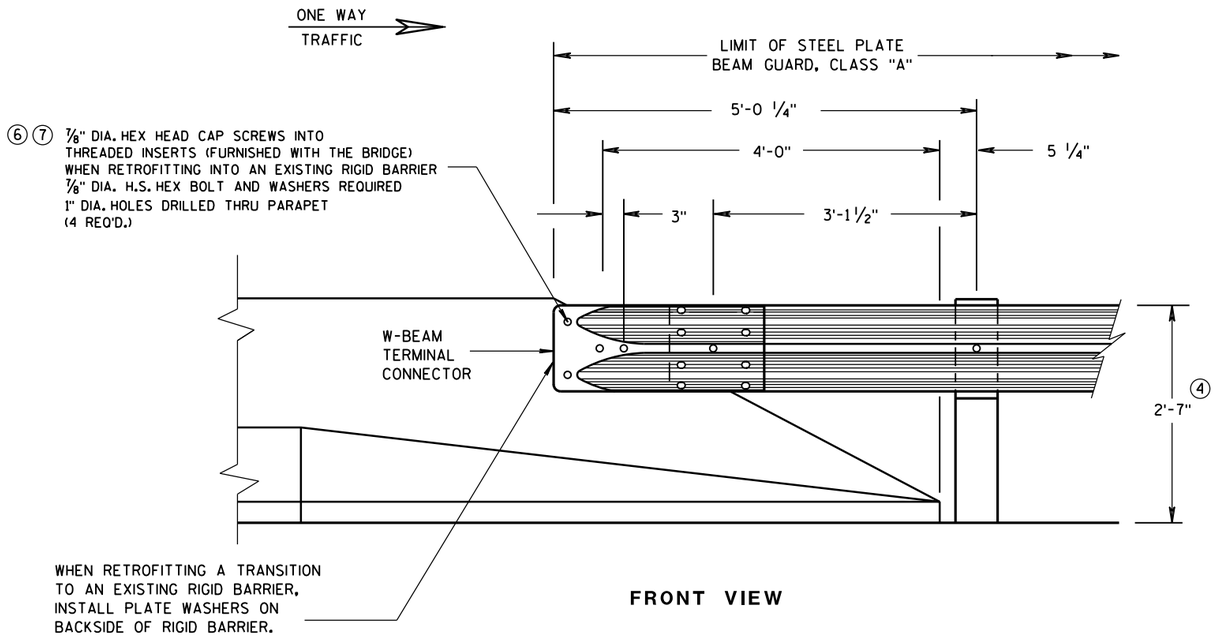
S.D.D. 14 B 45-4e



FRONT VIEW

W BEAM CONNECTION TO PARAPETS WITH SLOPED ENDS

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

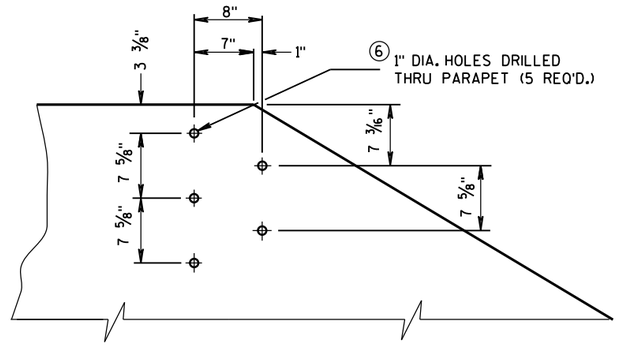
GENERAL NOTES

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

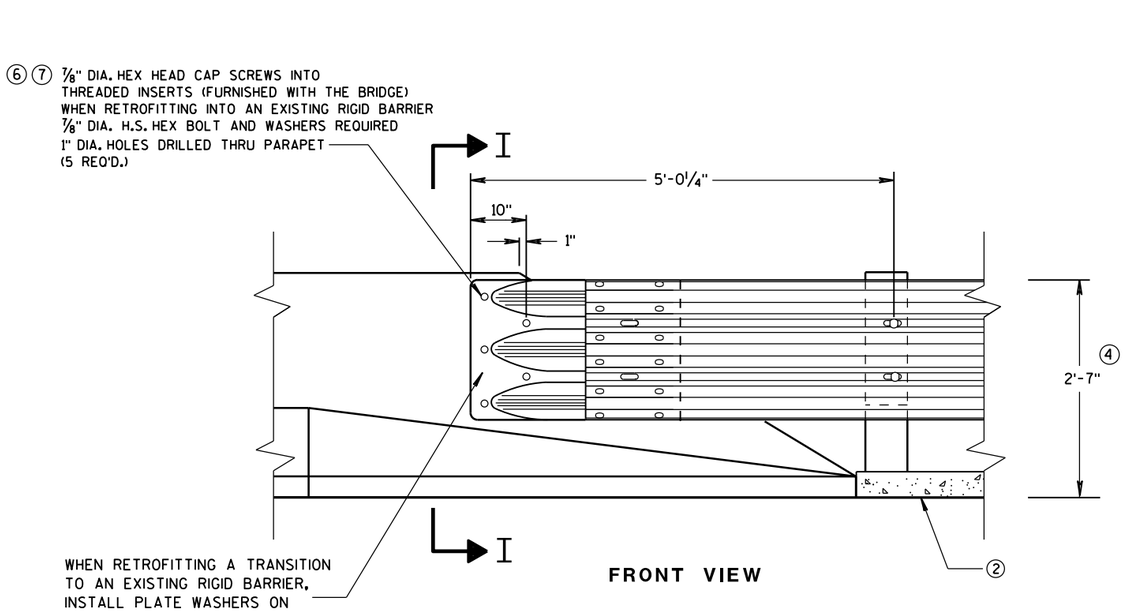
④ TOLERANCE FOR TOP OF BEAM IS ± 1".

⑥ DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.

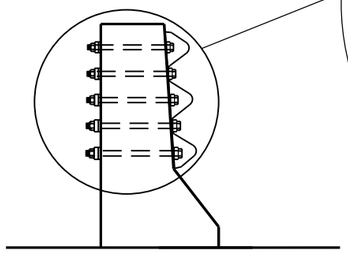
⑦ BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTOR PLATE. BOLTS THAT EXTEND THROUGH THE PARAPET AND OUT THE BACK FACE REQUIRE A HARDENED ROUND STEEL WASHER THAT IS 2" O.D. X 5/8" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.



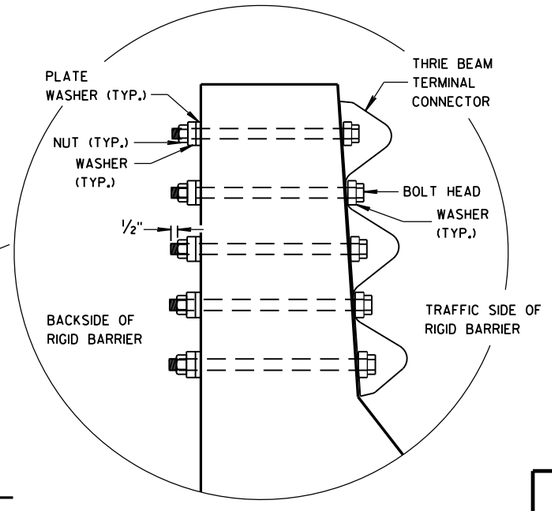
DRILL HOLE LOCATION AND PATTERN
FOR THRIE BEAM CONNECTION



FRONT VIEW



SECTION I-I



THRIE BEAM CONNECTION TO BRIDGE PARAPETS WITH SLOPED ENDS

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

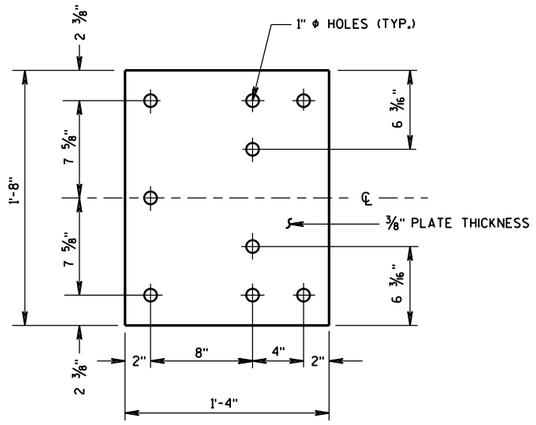
APPROVED
June, 2015 — DATE
/S/ Jerry H. Zogg — ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA

6

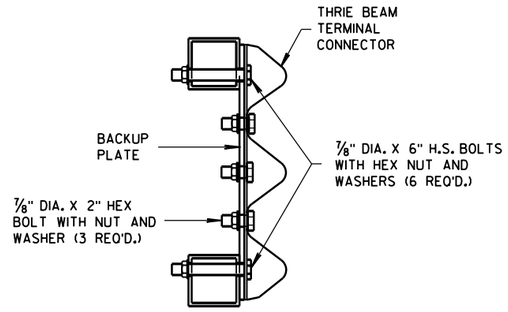
S.D.D. 14 B 45-4f

6

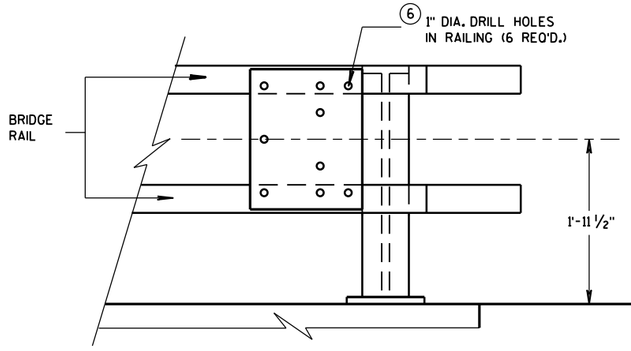
S.D.D. 14 B 45-4f



BACK-UP PLATE DETAIL



SECTION J-J

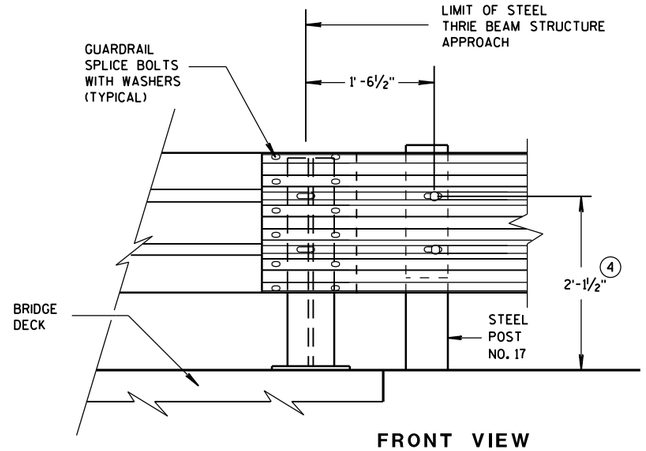


BACK-UP PLATE MOUNTING ONTO BRIDGE RAILING

GENERAL NOTES

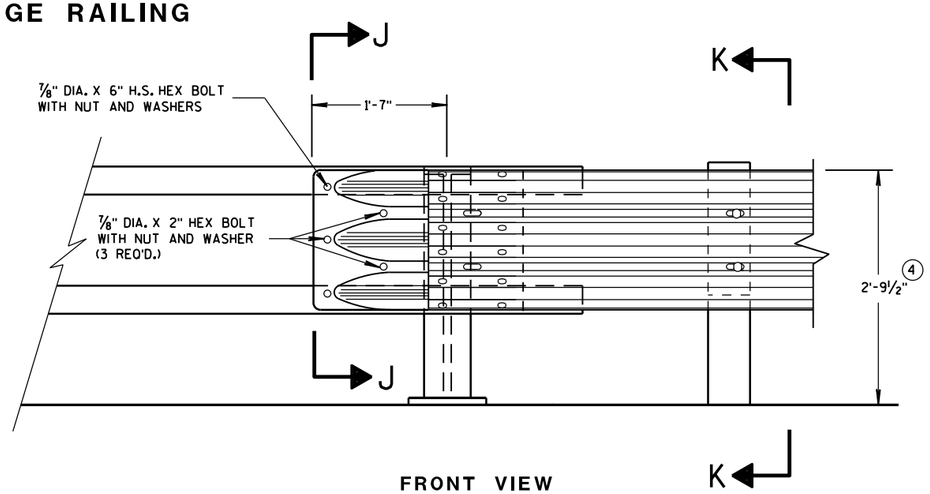
④ TOLERANCE FOR TOP OF BEAM IS ± 1".

⑥ DRILLING HOLES THROUGH THE PAPRPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.

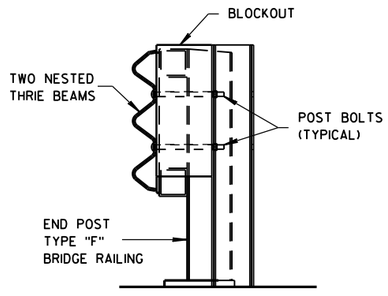


FRONT VIEW

THRIE BEAM CONNECTION TO STEEL RAILING TYPE "W"



FRONT VIEW



SECTION K-K

THRIE BEAM CONNECTION TO TUBULAR RAILING TYPE "F"

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June, 2015 — DATE
/S/ Jerry H. Zogg — ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA — NT

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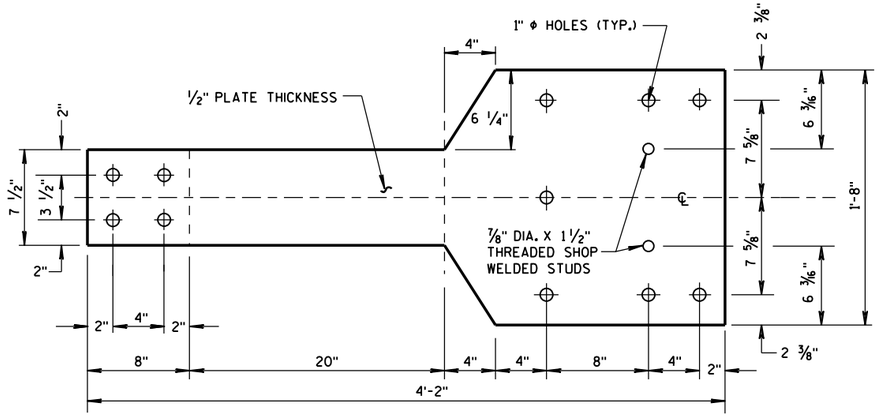
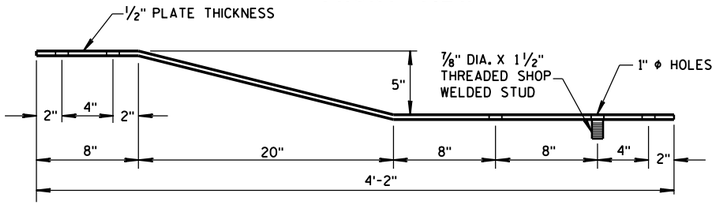
S.D.D. 14 B 45-4g

GENERAL NOTES

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

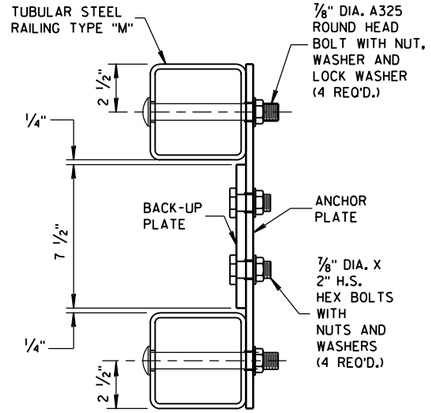


FRONT VIEW

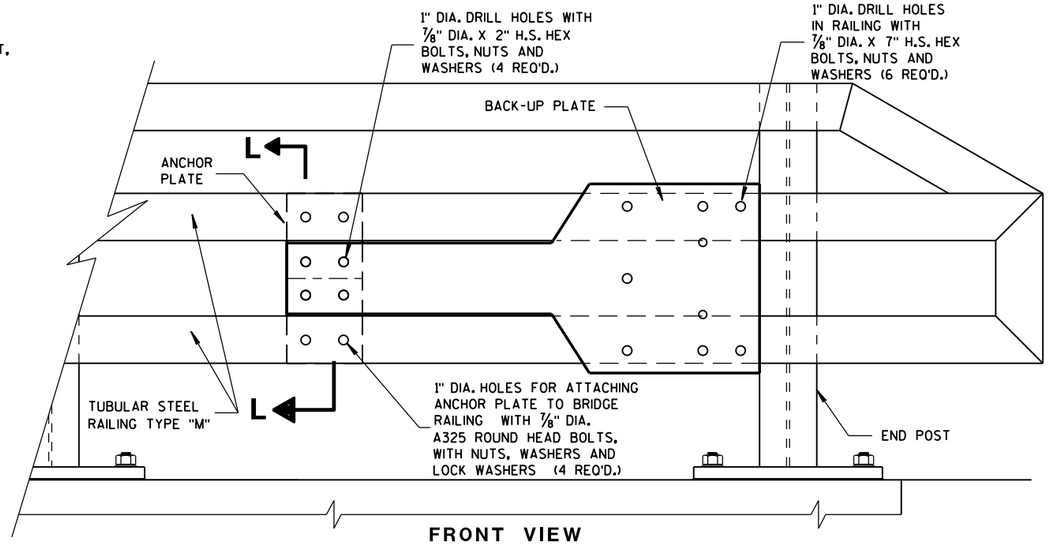


PLAN VIEW

BACK-UP PLATE DETAIL, TYPE "M"



SECTION L-L

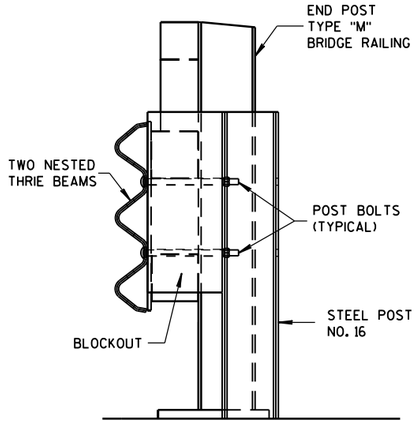


FRONT VIEW

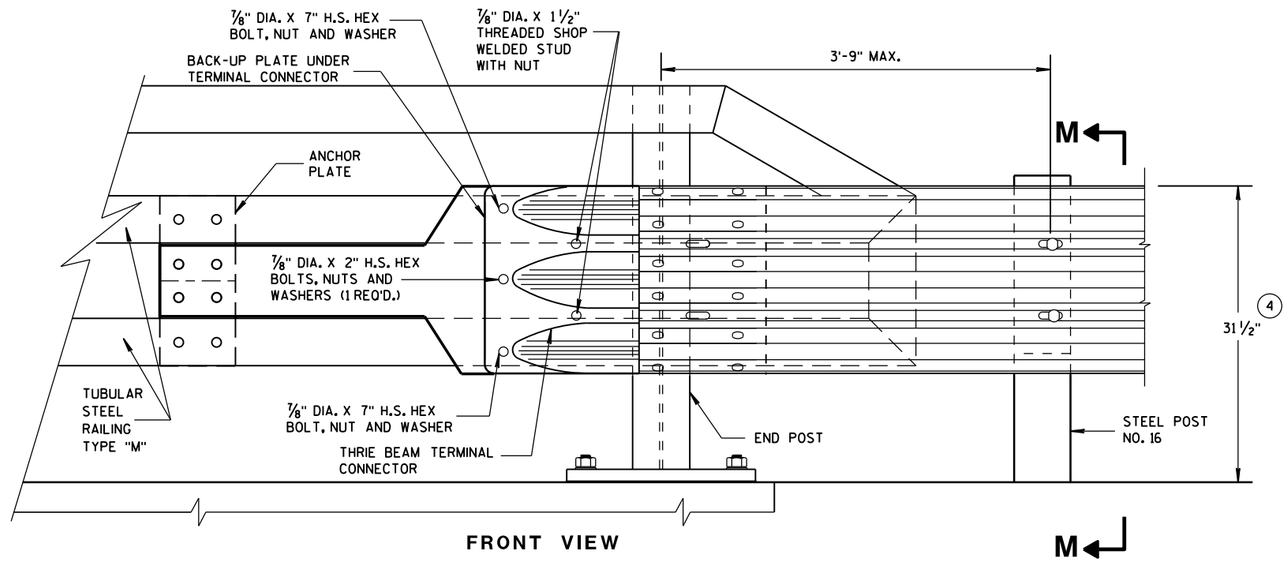
ANCHOR AND BACK-UP PLATE MOUNTING TO BRIDGE RAILING, TYPE "M"

FRONT VIEW

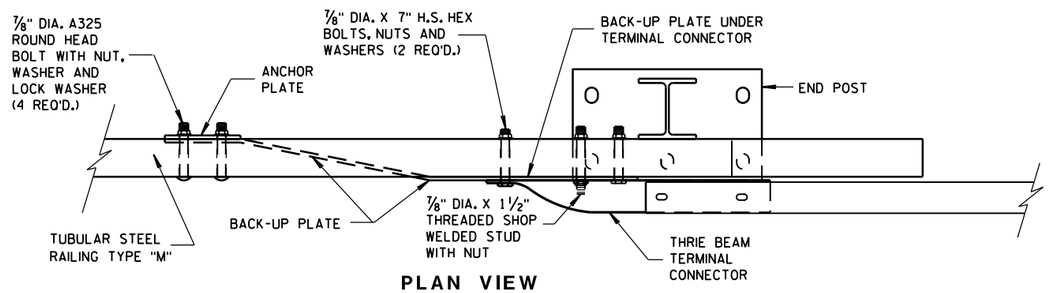
ANCHOR PLATE DETAIL, TYPE "M"



SECTION M-M



FRONT VIEW



PLAN VIEW

THRIE BEAM CONNECTION TO TUBULAR RAILING, TYPE "M"

MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED	
June, 2015	/S/ Jerry H. Zogg
DATE	ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA	

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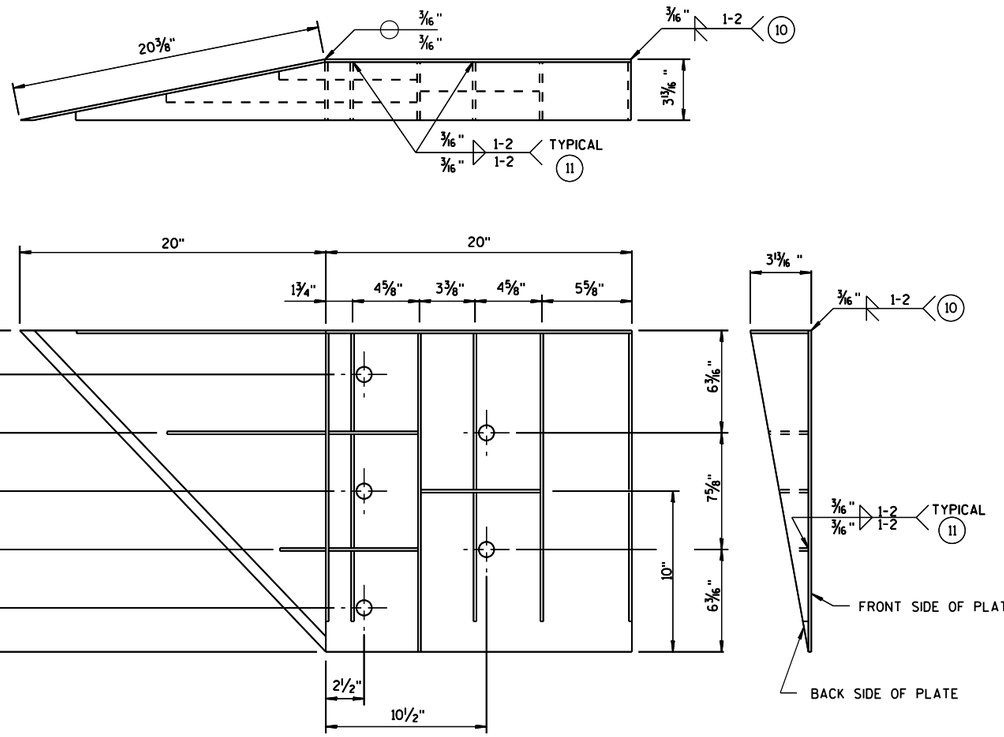

WELDING INSTRUCTION

(VIEWED FROM BACK SIDE OF PLATE)

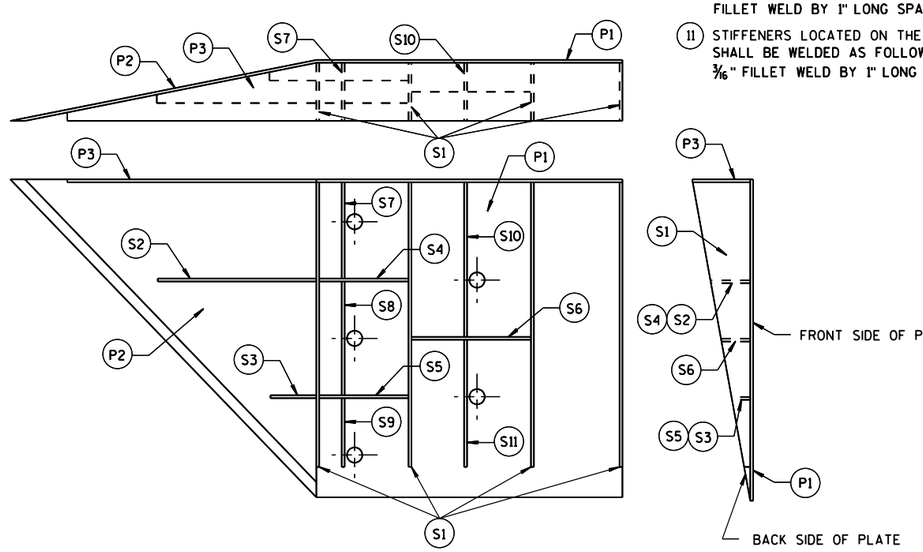

PLATE AND STIFFENER IDENTIFICATION

(VIEWED FROM BACK SIDE OF 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".

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 9/16"	3/16"
P3	1		39" x 3 5/8" x 20" x 19 5/16"	3/16"
S1	4		18 7/16" x 3 3/8" x 18 3/4"	1/4"
S2	1		10 1/4" x 2 7/16" x 10 3/8" x 1/2"	1/4"
S3	1		3" x 1 1/16" x 3 1/8" 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 9/16" 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 1/32"	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 13/16"	1/4"

SINGLE SLOPE CONNECTION PLATE

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June, 2015 — DATE
/S/ Jerry H. Zogg — ROADWAY STANDARDS ENGINEER
FHWA

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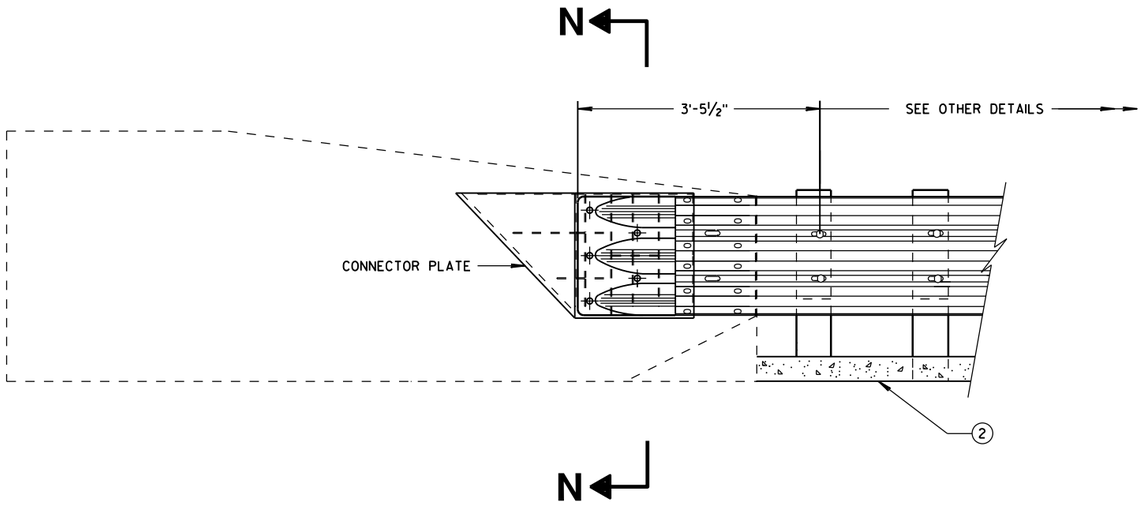
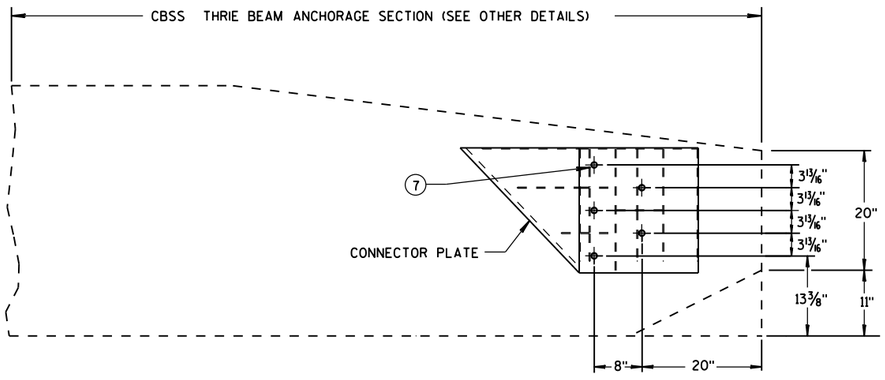
S.D.D. 14 B 45-4i



THRIE BEAM CONNECTION TO SINGLE SLOPE BARRIER



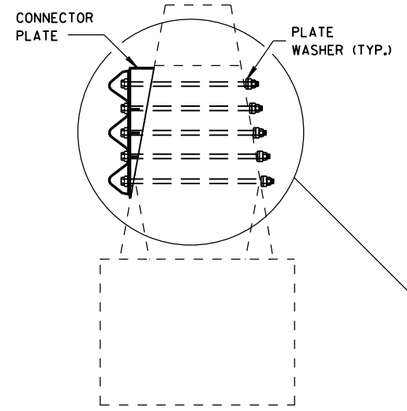
SINGLE SLOPE CONNECTION PLATE PLACEMENT

GENERAL NOTES

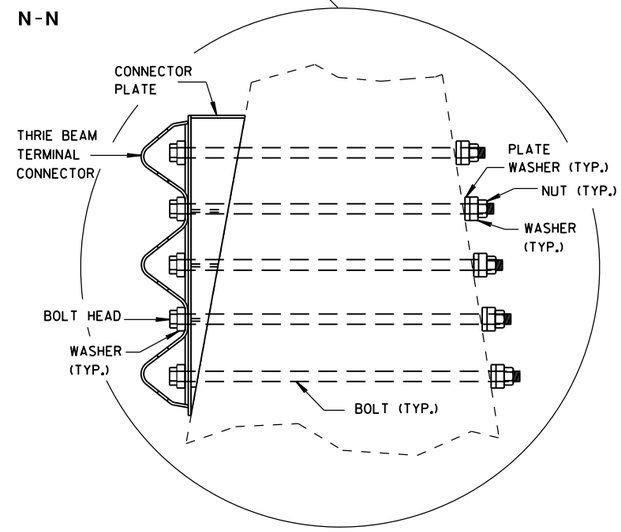
CONNECTOR PLATE, DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.

(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 CONNECTOR PLATE. BOLTS THAT EXTEND THROUGH THE PARAPET AND OUT THE BACK FACE REQUIRE A HARDENED ROUND STEEL WASHER THAT IS 2" O.D. X 5/8" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.



SECTION N-N



MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June, 2015 — DATE
/S/ Jerry H. Zoga — ROADWAY STANDARDS DEVELOPMENT ENGINEER
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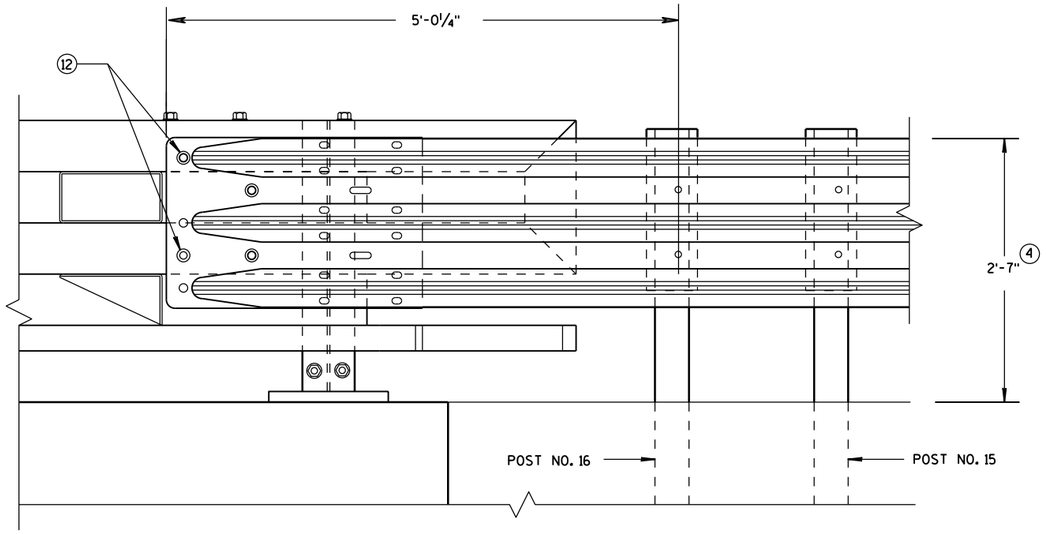
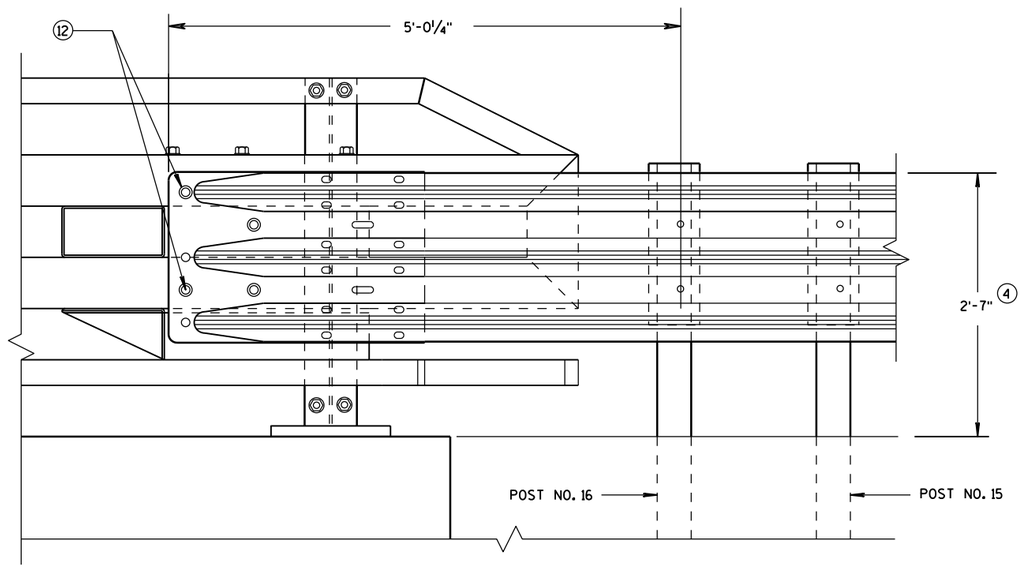


ELEVATION OF DETAIL AT NY3 END POST

THRIE BEAM RAIL ATTACHMENT



ELEVATION OF DETAIL AT NY4 END POST

THRIE BEAM RAIL ATTACHMENT

GENERAL NOTES

(4) TOLERANCE FOR TOP OF BEAM IS ± 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 ½-INCH BEYOND NUT.

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June, 2015
DATE

/S/ Jerry H. Zogg
ROADWAY STANDARDS D ENGINEER

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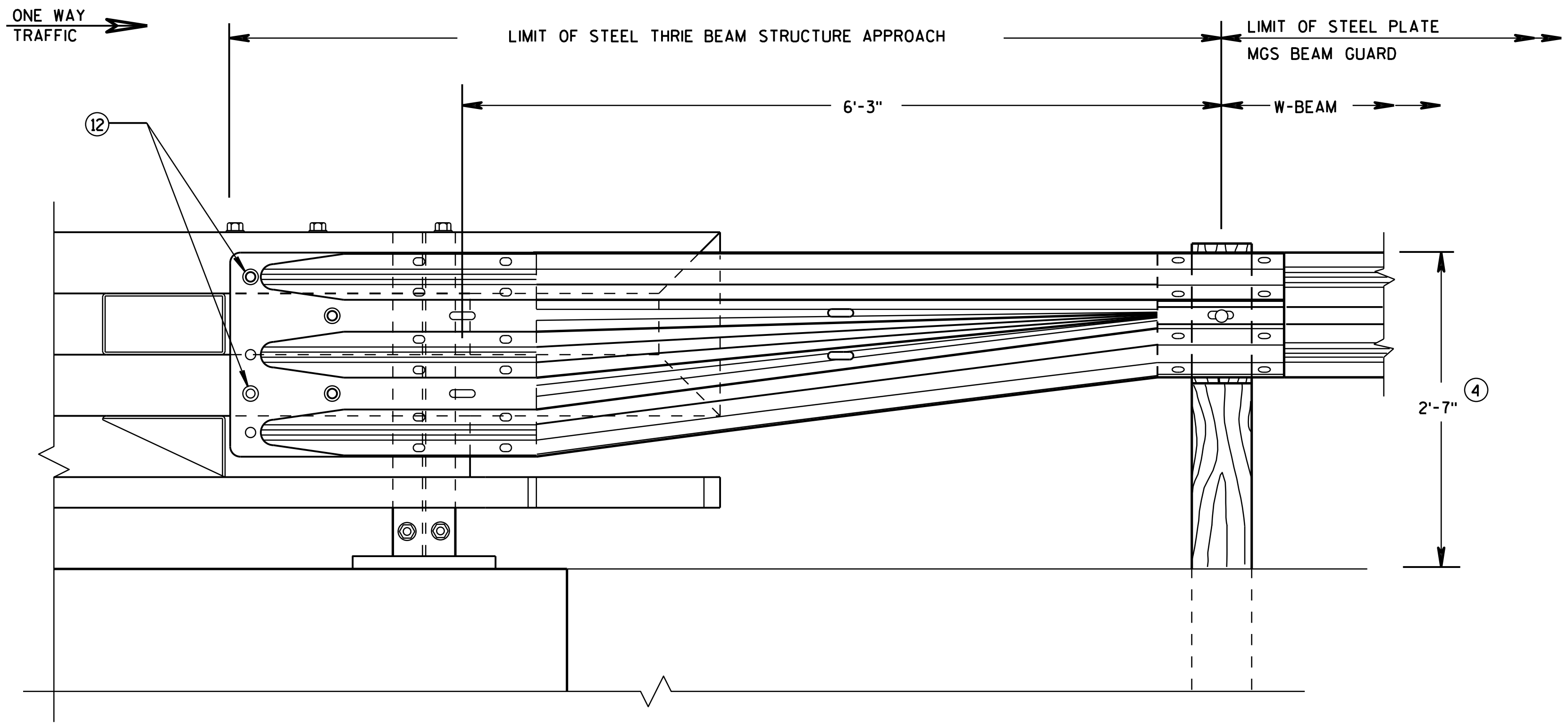


FRONT VIEW

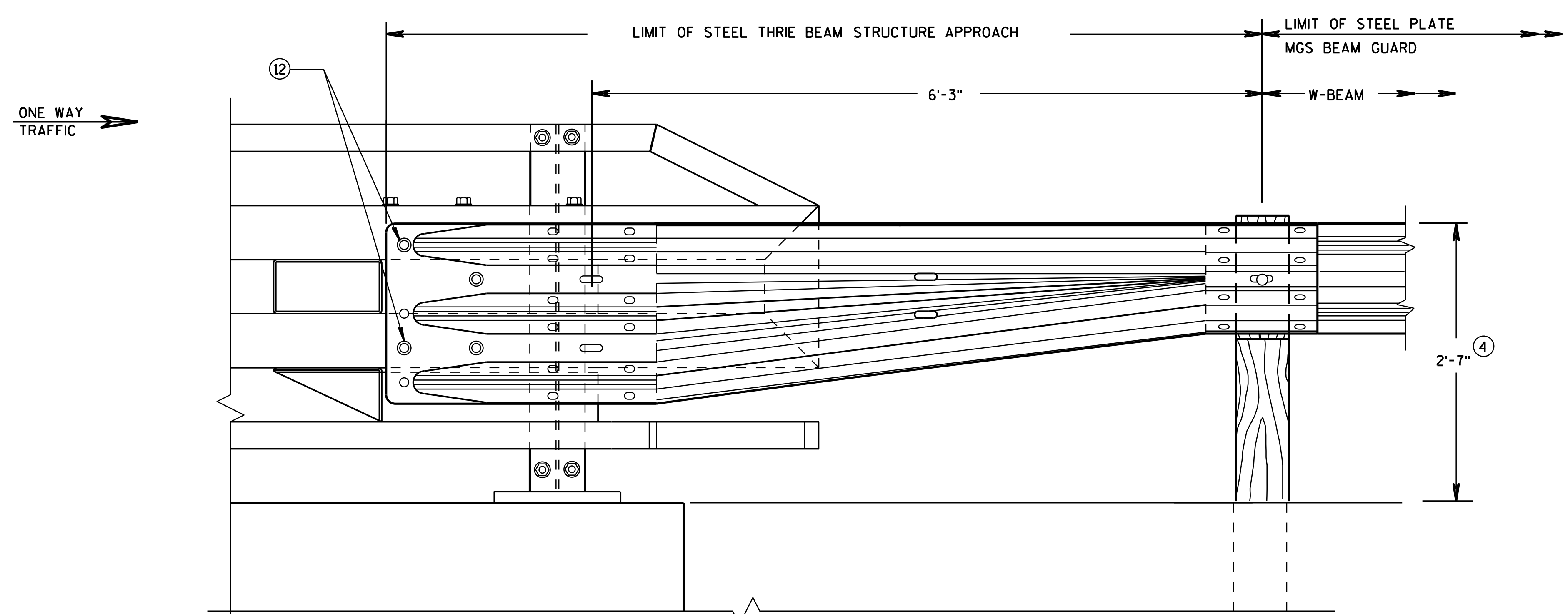
W BEAM TRANSITION AND CONNECTION TO BRIDGE RAILING TYPE "NY3"

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

GENERAL NOTES

(4) TOLERANCE FOR TOP OF BEAM IS ± 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 ½-INCH BEYOND NUT.



FRONT VIEW

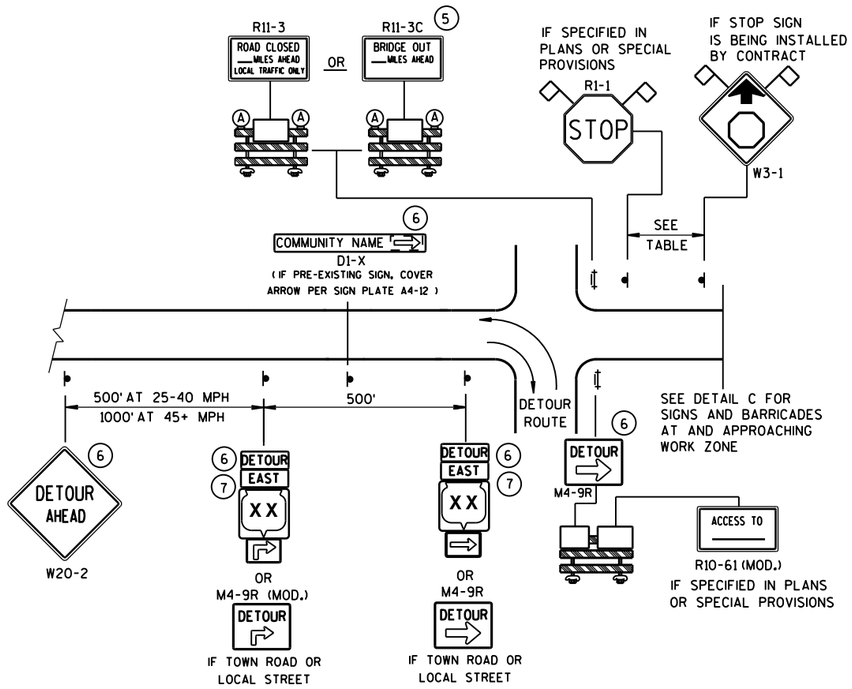
W BEAM TRANSITION AND CONNECTION TO BRIDGE RAILING TYPE "NY4"

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

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

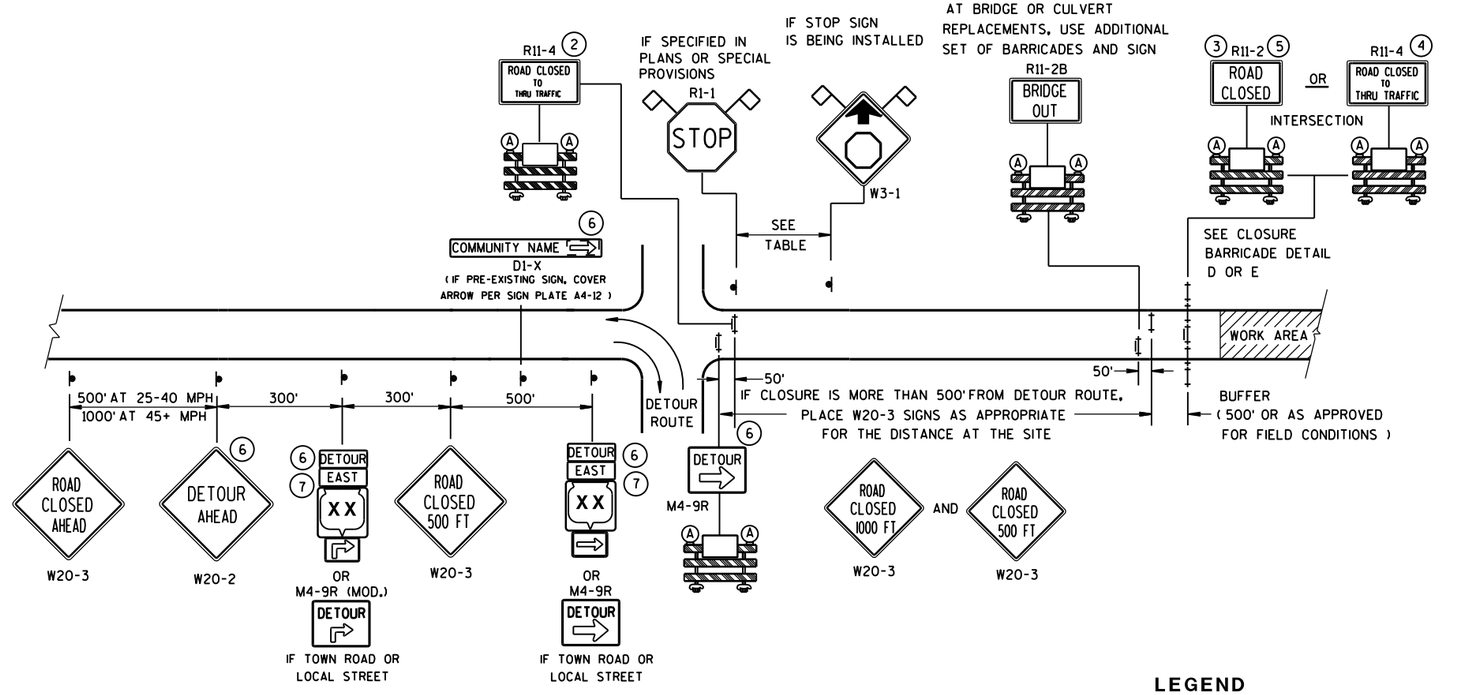
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June, 2015 — DATE
/S/ Jerry H. Zogg — ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA



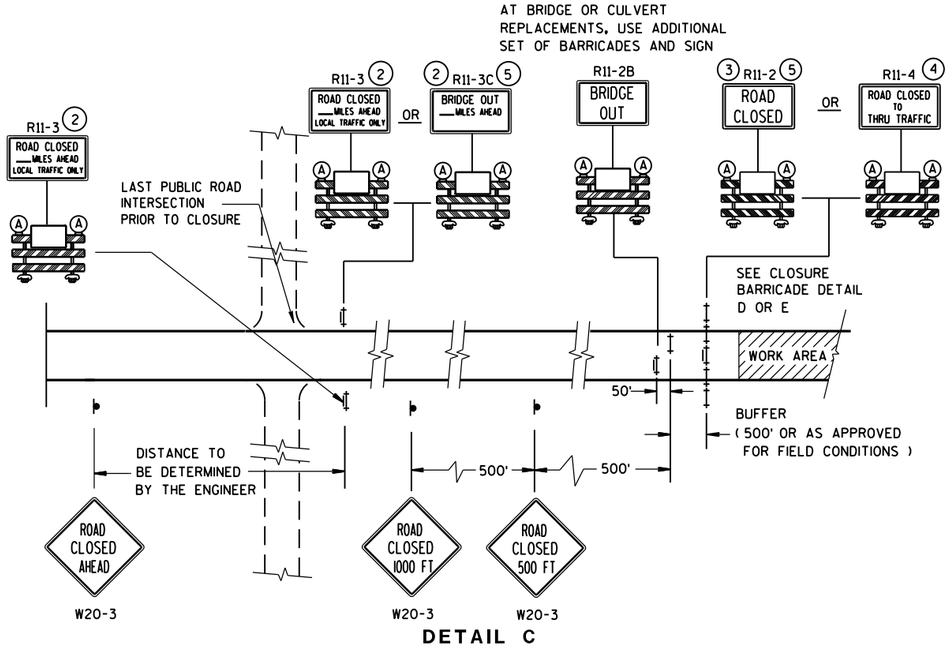
DETAIL A
MAINLINE CLOSURE WITH POSTED DETOUR

WORK ZONE GREATER THAN 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)



DETAIL C
MAINLINE CLOSURE, NO POSTED DETOUR

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

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

LEGEND

- SIGN ON PERMANENT SUPPORT
- TYPE III BARRICADE
- TYPE III BARRICADE WITH ATTACHED SIGN
- (A) TYPE "A" WARNING LIGHT (FLASHING)
- WORK AREA
- DETOUR / EAST — M4-8 / M3-X
- XX — M1-4; COUNTY XX — M1-5A; XX — M1-6
- M05-1 OR M06-1
- FLAGS, 16" X 16" MIN., (ORANGE)

BARRICADES AND SIGNS FOR MAINLINE CLOSURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

8/2013 DATE

/S/ Travis Feltes
STATE TRAFFIC ENGINEER

FHWA

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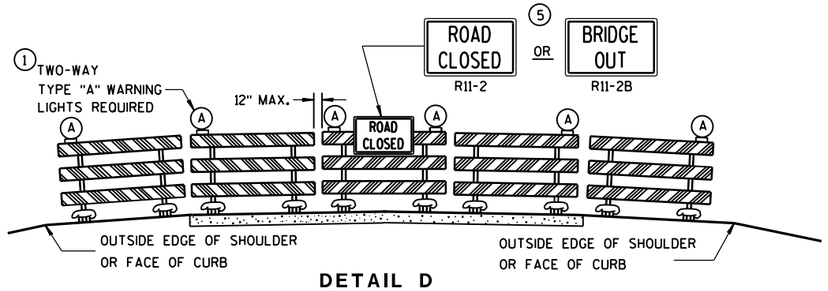
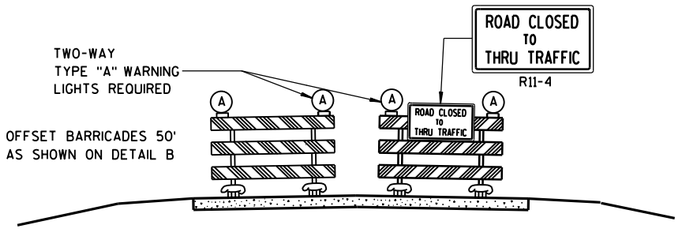
S.D.D. 15 C 2-5a



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 BARRICADES SHALL COVER NO MORE THAN THE TOP RAIL. THE SIGNS SHALL NOT COVER ANY PORTION OF THE MIDDLE 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, 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". (30" X 15" IF NEEDED TO MATCH EXISTING SIGNS.)
- M1-4, M1-5A, AND M1-6 SHALL BE 24" X 24". (36" X 36" IF NEEDED TO MATCH EXISTING SIGNS.)
- M05-1 AND M06-1 SHALL BE 21" X 21". (30" X 30" IF NEEDED TO MATCH EXISTING SIGNS.)
- D1-X SHALL BE AS SHOWN ON SPECIFIC PROJECT SIGNING DETAIL SHEETS.
- R1-1 SHALL BE 36" X 36".

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

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

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

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

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

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

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

BARRICADES AND SIGNS FOR MAINLINE CLOSURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

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S.D.D. 15 C 2-5b

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

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.

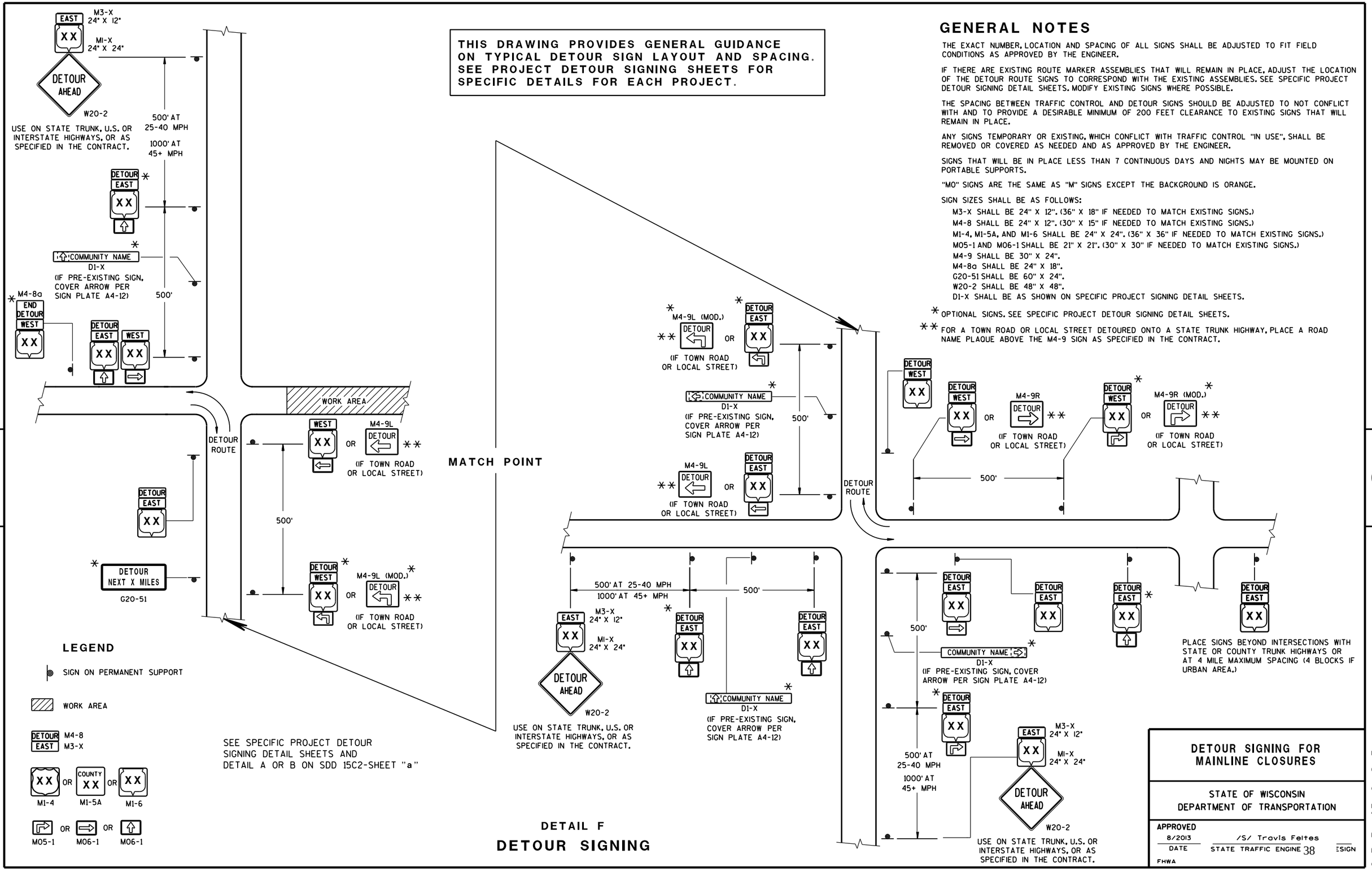
"MO" SIGNS ARE THE SAME AS "M" SIGNS EXCEPT THE BACKGROUND IS ORANGE.

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". (30" X 15" IF NEEDED TO MATCH EXISTING SIGNS.)
- M1-4, M1-5A, AND M1-6 SHALL BE 24" X 24". (36" X 36" IF NEEDED TO MATCH EXISTING SIGNS.)
- MO5-1 AND MO6-1 SHALL BE 21" X 21". (30" X 30" IF NEEDED TO MATCH EXISTING SIGNS.)
- M4-9 SHALL BE 30" X 24".
- M4-8a SHALL BE 24" X 18".
- G20-51 SHALL BE 60" X 24".
- W20-2 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.



LEGEND

- SIGN ON PERMANENT SUPPORT
- WORK AREA
- DETOUR EAST — M4-8, M3-X
- XX OR COUNTY XX OR XX — M1-4, M1-5A, M1-6
- MO5-1 OR MO6-1 OR MO6-1

SEE SPECIFIC PROJECT DETOUR SIGNING DETAIL SHEETS AND DETAIL A OR B ON SDD 15C2-SHEET "a"

DETAIL F

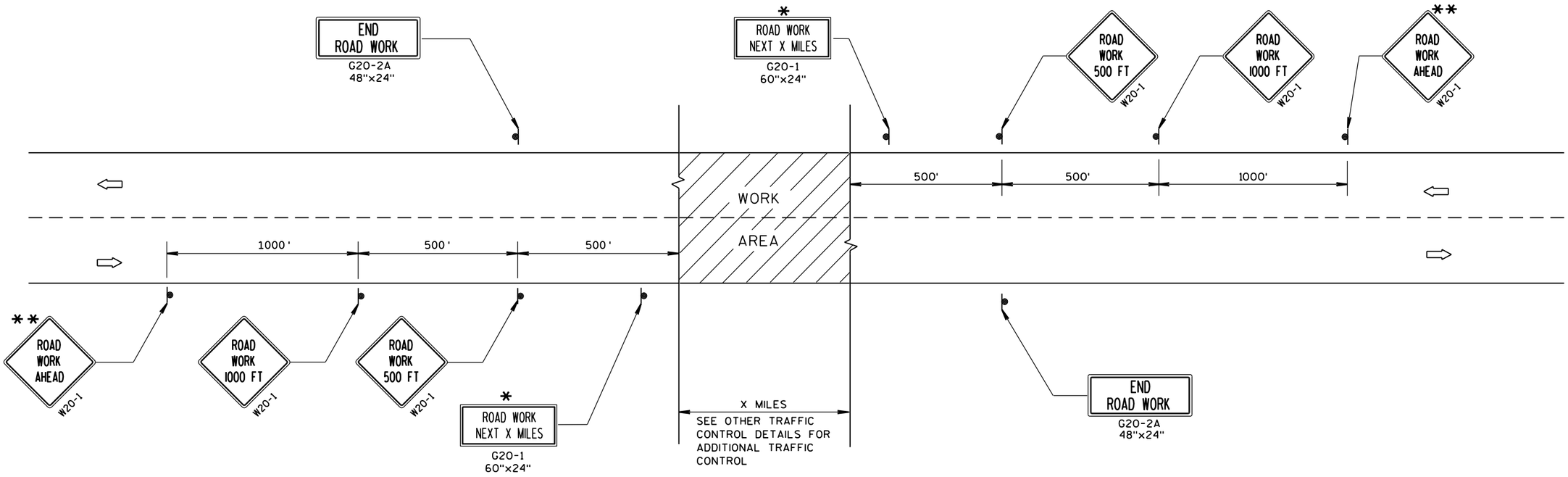
DETOUR SIGNING

DETOUR SIGNING FOR MAINLINE CLOSURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

6 S.D.D. 15 C 2-5c



TYPICAL SIDEROAD APPROACH WARNING SIGN DETAIL

GENERAL NOTES

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

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

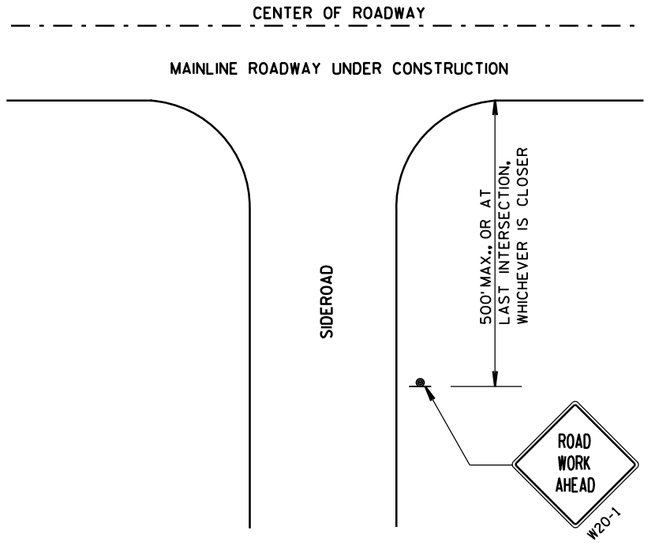
ALL SIGNS ARE 48"x48" UNLESS OTHERWISE NOTED.

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

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

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

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



LEGEND

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

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

8/2013 — DATE

/S/ Travis Feltes — STATE TRAFFIC ENGINEER

FHWA

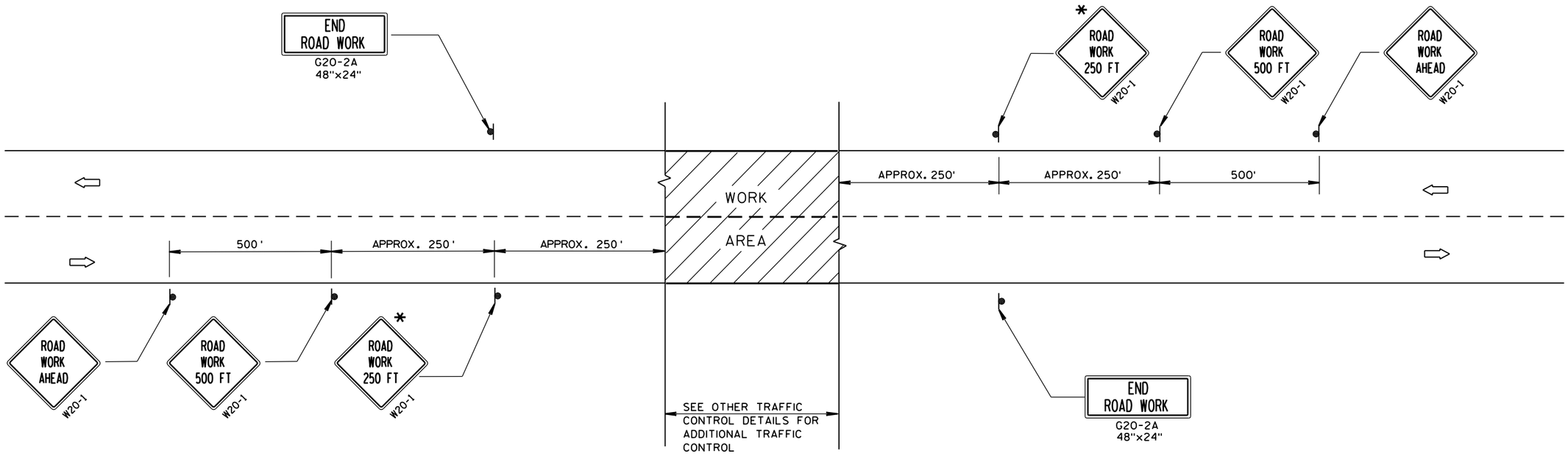
6

S.D.D. 15 C 4-2

6

S.D.D. 15 C 4-2

TYPICAL SIDEROAD APPROACH WARNING SIGN DETAIL



GENERAL NOTES

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

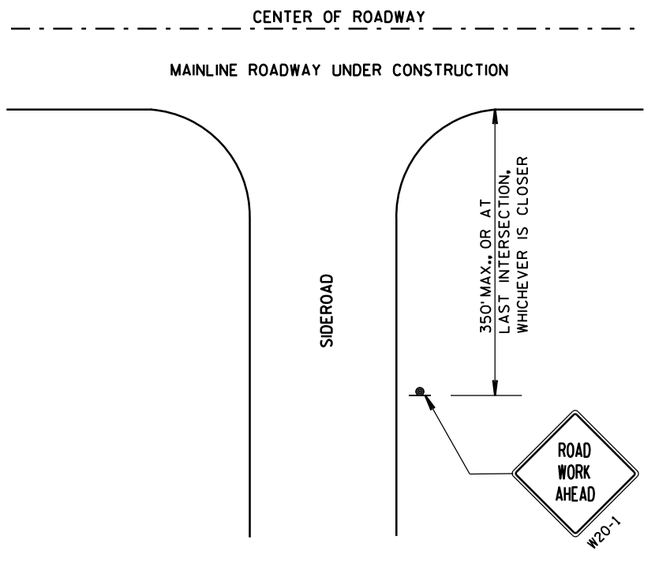
THE SPACING BETWEEN TRAFFIC CONTROL SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND SHOULD PROVIDE A DESIRABLE MINIMUM OF 200 FEET CLEARANCE TO EXISTING SIGNS THAT WILL REMAIN IN PLACE.

ALL SIGNS ARE 48"x48" UNLESS OTHERWISE NOTED. IF NECESSARY DUE TO SPACE CONSTRAINTS, 36"x36" SIGNS MAY BE USED INSTEAD OF 48"x48" SIGNS.

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

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

* THE THIRD W20-1 SIGN IS REQUIRED ONLY IF THERE IS AN INTERSECTION BETWEEN THE "ROAD WORK 500 FT" SIGN AND THE WORK ZONE. ADJUST THE PLACEMENT OF THIS SIGN BASED ON INTERSECTION LOCATION AND OTHER FIELD CONDITIONS.



LEGEND

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

TRAFFIC CONTROL, ADVANCE WARNING SIGNS 40 M.P.H. OR LESS TWO-WAY UNDIVIDED ROAD OPEN TO TRAFFIC

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

8/2013 — DATE

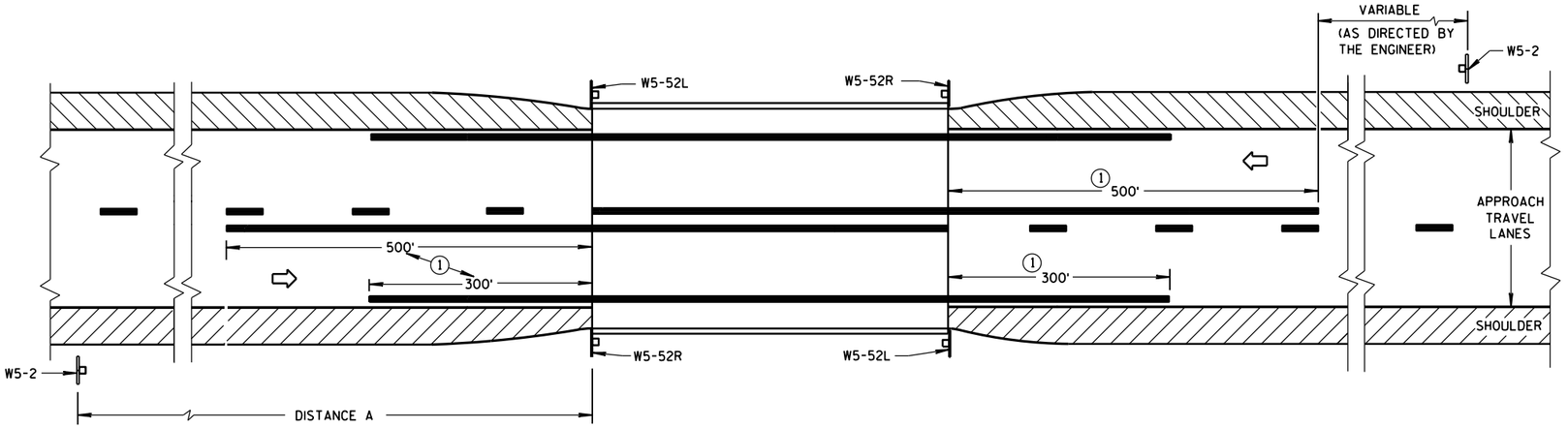
/S/ Travis Feltes — STATE TRAFFIC ENGINEER

FHWA

SIGN

6

S.D.D. 15 C 5-2



GENERAL NOTES

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

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

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

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

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

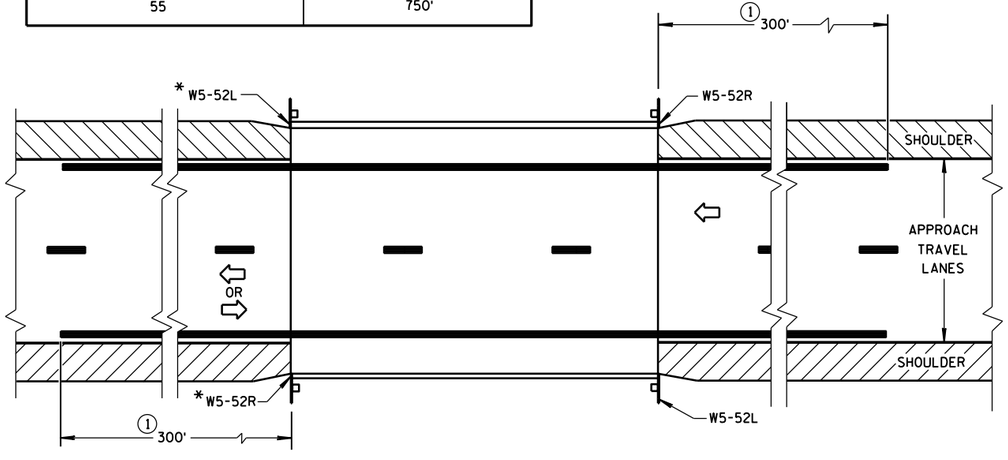
DISTANCE TABLE

POSTED OR 85th PERCENTILE SPEED	DISTANCE "A"
25	150'
30	200'
35	250'
40	300'
45	400'
50	550'
55	750'

SITUATION 1

WARRANTING CRITERIA:

BRIDGE WIDTH IS AT LEAST 16 FEET BUT LESS THAN 24 FEET

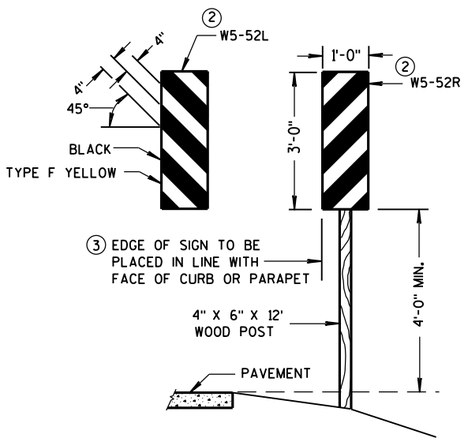


*OMIT ON ONE-WAY TRAVELLED WAYS

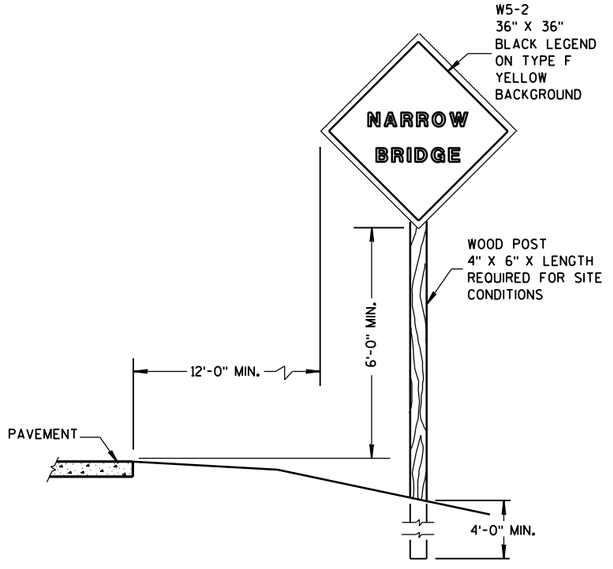
SITUATION 2

WARRANTING CRITERIA:

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



OBJECT MARKER PLACEMENT



SIGN PLACEMENT

SIGNING & MARKING
FOR TWO LANE BRIDGES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

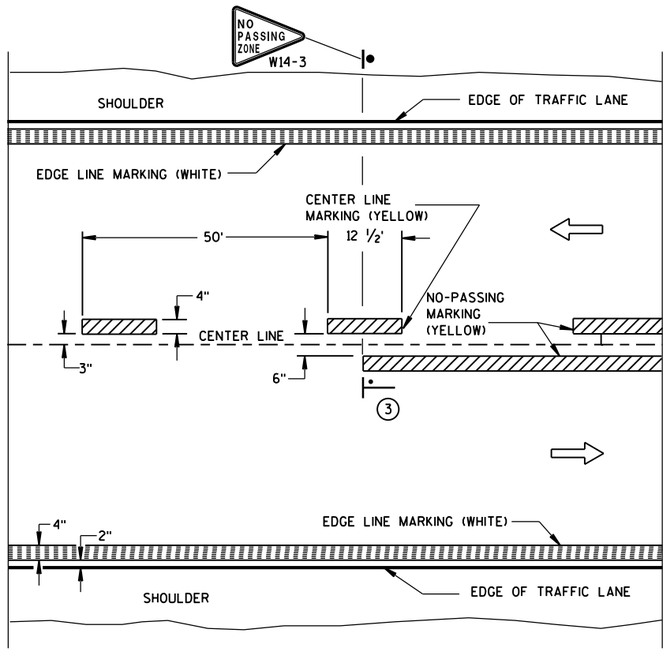
3-2014 DATE

/S/ Travis Feltes STATE TRAFFIC ENGINEER

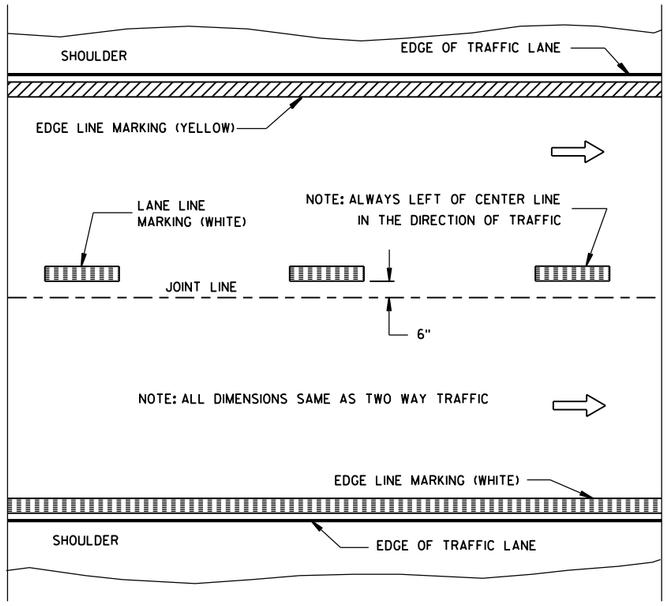
FHWA

6

S.D.D. 15 C 6-7

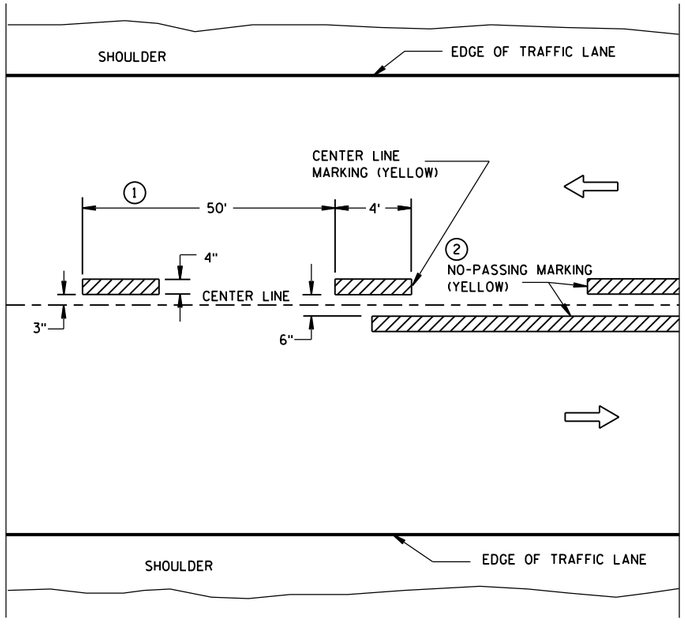


TWO WAY TRAFFIC

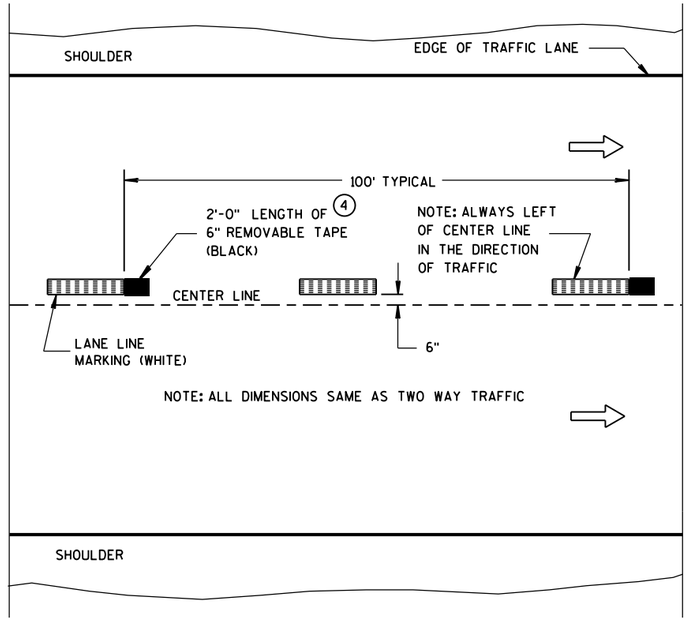


ONE WAY TRAFFIC

PERMANENT PAVEMENT MARKING



TWO WAY TRAFFIC



ONE WAY TRAFFIC

TEMPORARY (INTERMEDIATE) PAVEMENT MARKING

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

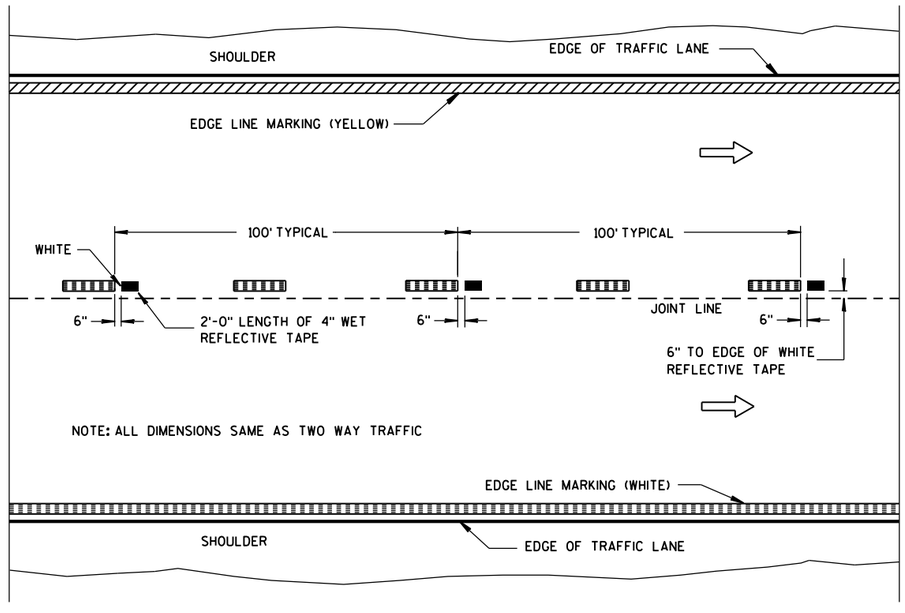
GENERAL NOTES

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

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

NOTE

ARROW SYMBOL (⇨) SHOWS DIRECTION OF TRAVEL



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

LEGEND

"T" MARKING

POST MOUNTED SIGN

PAVEMENT MARKING (MAINLINE)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

5-13-2013
DATE

/S/ Travis Feltes
STATE TRAFFIC E

FHWA

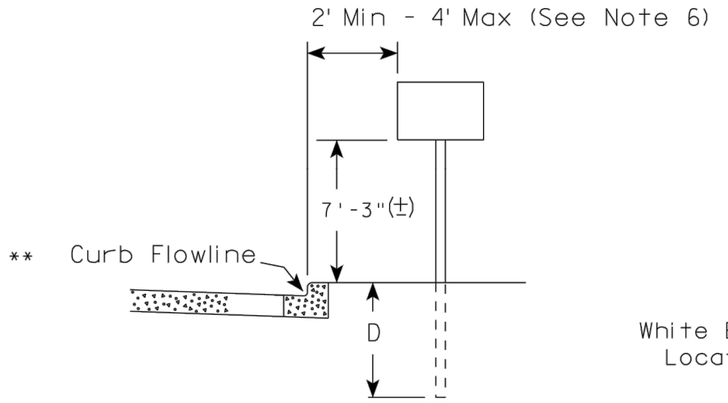
6

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

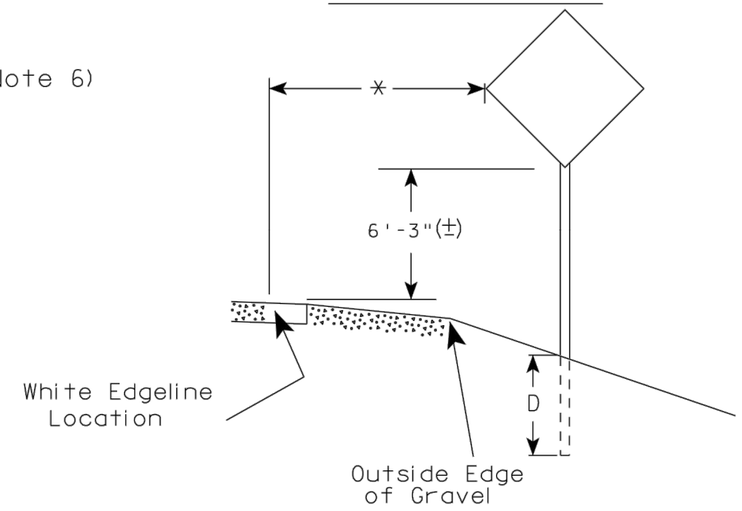
6

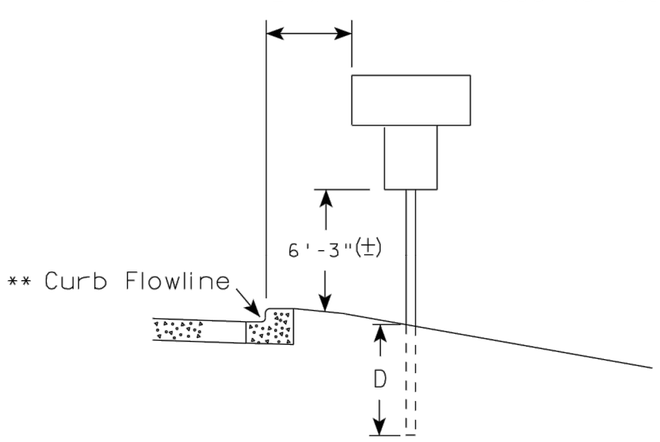
S.D.D. 15 C 8-16a

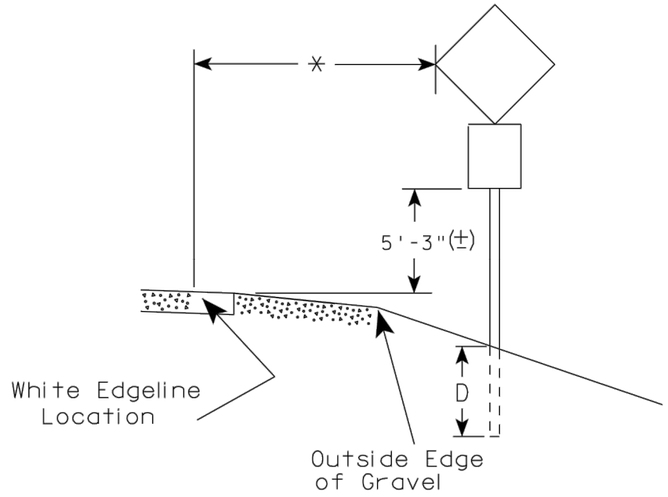
URBAN AREA



RURAL AREA (See Note 2)







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

* 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

1. Signs wider than 4 feet or 20 sq.ft or larger, shall be mounted on multiple posts. Refer to plate A4-4.
2. If signs are mounted on barrier wall, see A4-10 sign plate.
3. For expressways and freeways, mounting height is 7'- 3" (±) or 6'-3" (±) depending upon existence of a sub-sign.
4. Minimum mounting height for J assemblies (A2-1S) is 7'-3" (±) or 6'-3" (±) per urban or rural detail respectively.
5. Minimum mounting height for signs mounted on traffic signal poles is 5'- 3" (±).
6. Offset distance shall be consistent with existing signs or consistent throughout length of project.
7. The (±) tolerance for mounting height is 3 inches.
8. Folding signs shall be mounted at a height of 5'-3" (±) or as directd by the Engineer.
9. The Double Arrow sign (W12-1) shall be mounted at a height of 2'-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" (±).

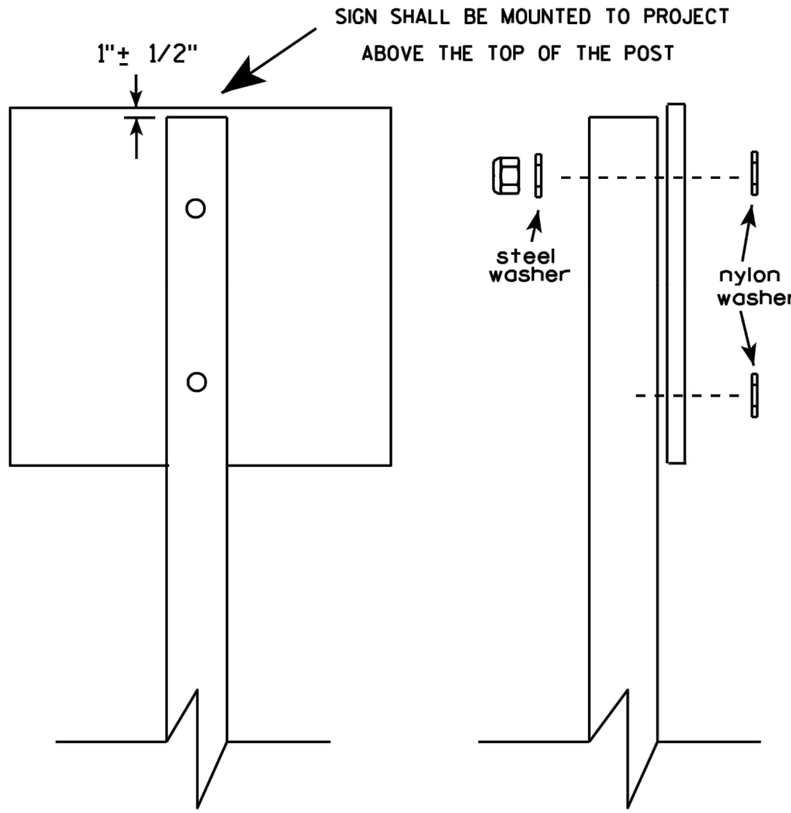
TYPICAL INSTALLATION OF PERMANENT TYPE II SIGNS ON SINGLE POSTS

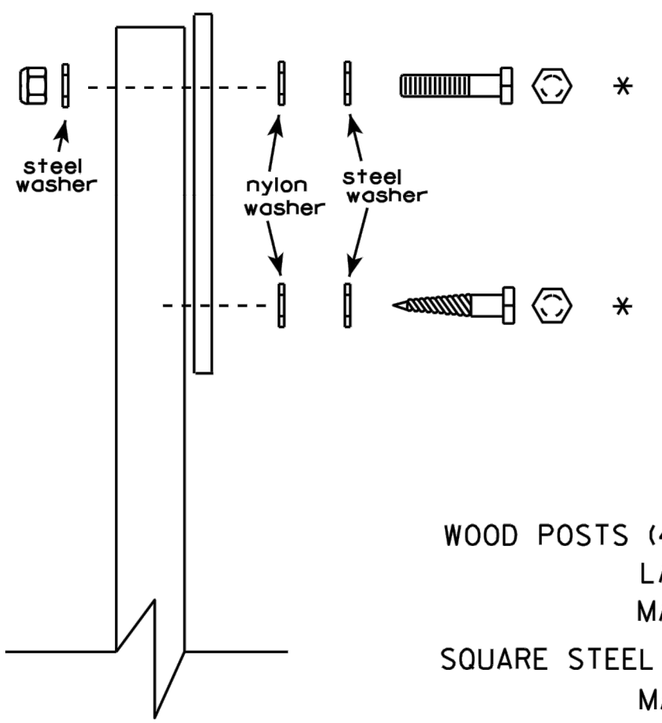
WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 7/23/15 PLATE NO 43 3.20

PROJECT NO: 4519-08-71	HWY: FAIR ROAD	COUNTY:BROWN	SIGN PLATES	SHEET NO: 11	E





Nuts, bolts and lags used for mounting signs shall have hexagonal heads and shall be either :

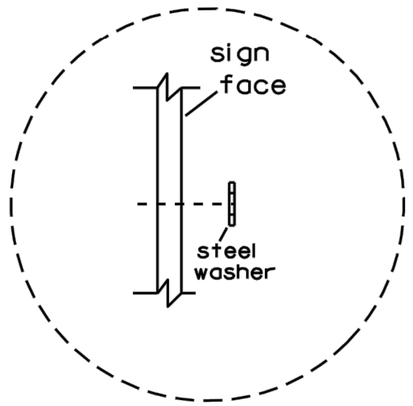
a. Hot dip galvanized in accordance with ASTM Designation: A 153, Class D, or SC 3
b. Electro-galvanized in accordance with ASTM Designation : B 633, TYPE III, SC 3.

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

WOOD POSTS (4" x 4" or 4" x 6")
LAG SCREWS - 3/8" X 3"
MACHINE BOLTS - 5/16" X 6-1/2" or 7" Length w/ nuts

SQUARE STEEL POSTS (2" x 2")
MACHINE BOLTS - 3/8" X 3-1/4" Length w/ nuts
RIVETS - 9/32 " (6605-9-6) BULB-TITE, TRI-FOLD, ALUMINUM BODY/MANDREL
O.D. FLANGE .720-.765 INCH, GRIP RANGE .042-.375 INCH

WASHERS (ALL POSTS) -
1-1/4" O.D. X 3/8" I.D. X 1/16" STEEL
1-1/4" O.D. X 3/8" I.D. X .080 NYLON for all Type H signs.



Washer Placement when Sign Has Other Than Type H or Type F Face

* 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

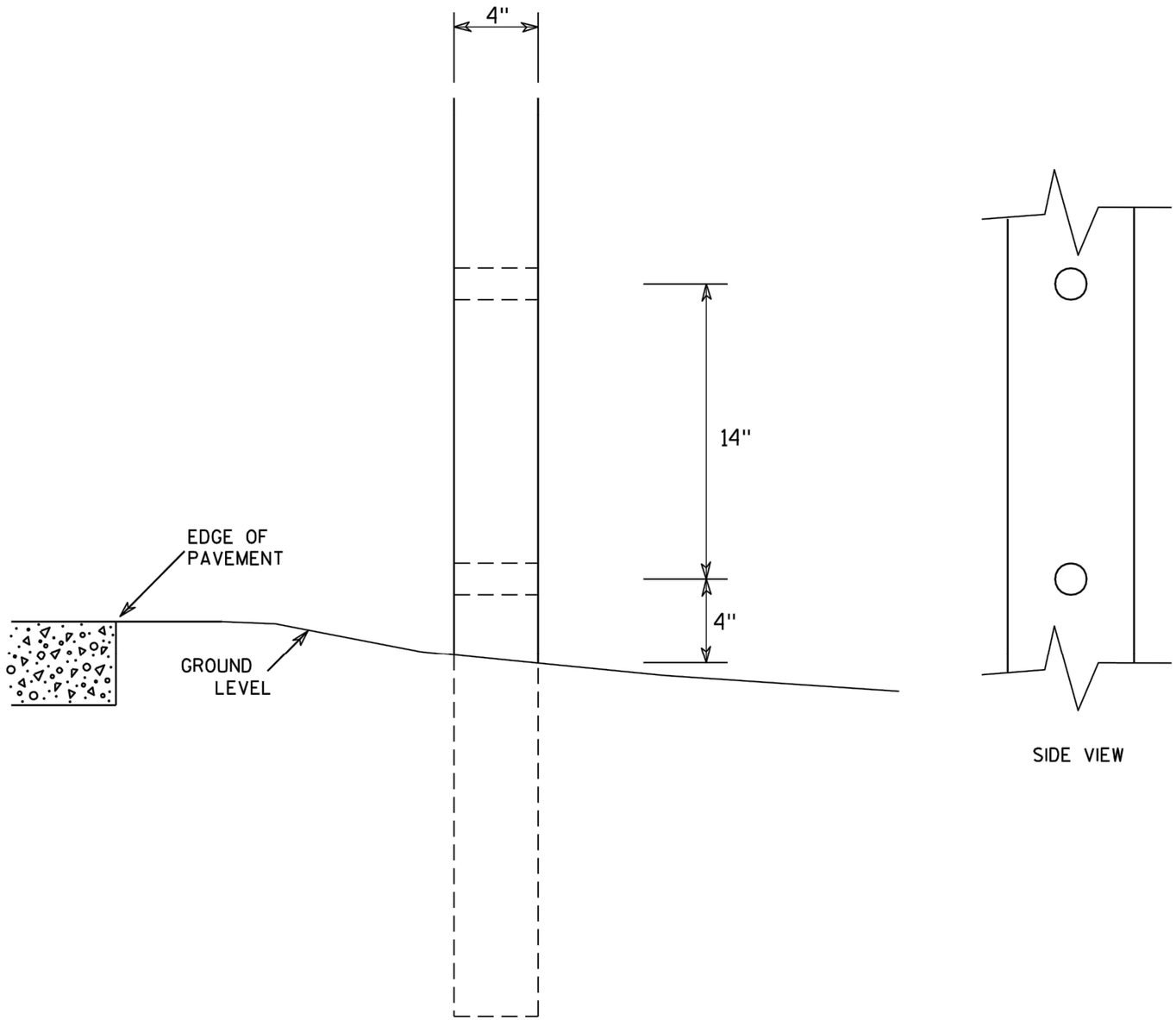
WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 3/23/10 PLATE NO. A4-8.7

PROJECT NO: 4519-08-71	HWY: FAIR ROAD	COUNTY: BROWN	SIGN PLATES	SHEET NO: 12	E

7



SIDE VIEW

GENERAL NOTES

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

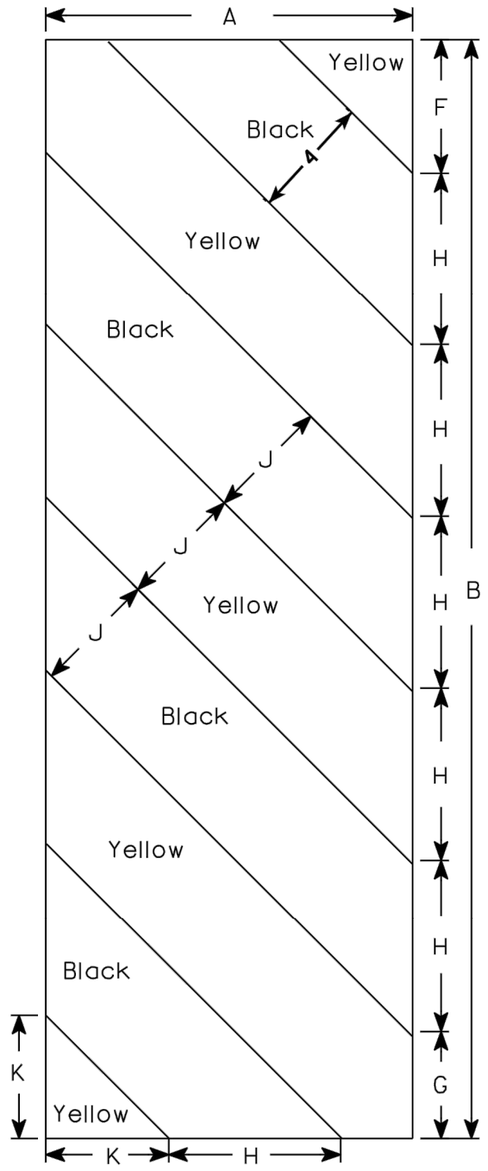
4 X 6 WOOD POST MODIFICATIONS

WISCONSIN DEPT OF TRANSPORTATION

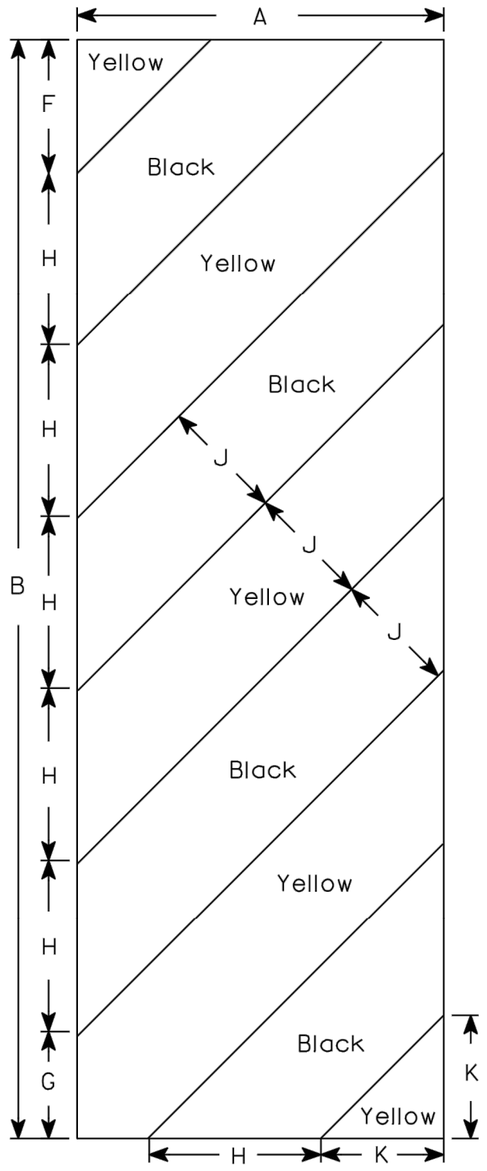
APPROVED Chester J Spang for State Traffic Engineer

DATE 3/27/97 PLATE NO 45 A11-11.2

PROJECT NO: 4519-08-71	HWY: FAIR ROAD	COUNTY: BROWN	SIGN PLATES	SHEET NO: 13	E



W5-52L



W5-52R

NOTES

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

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	12	36				4 3/8	3 1/2	5 5/8	45°	4	4																3.0
2M	12	36				4 3/8	3 1/2	5 5/8	45°	4	4																3.0
3	18	54				6	5 1/2	8 1/2	45°	6	6 9/16																6.75
4																											
5																											

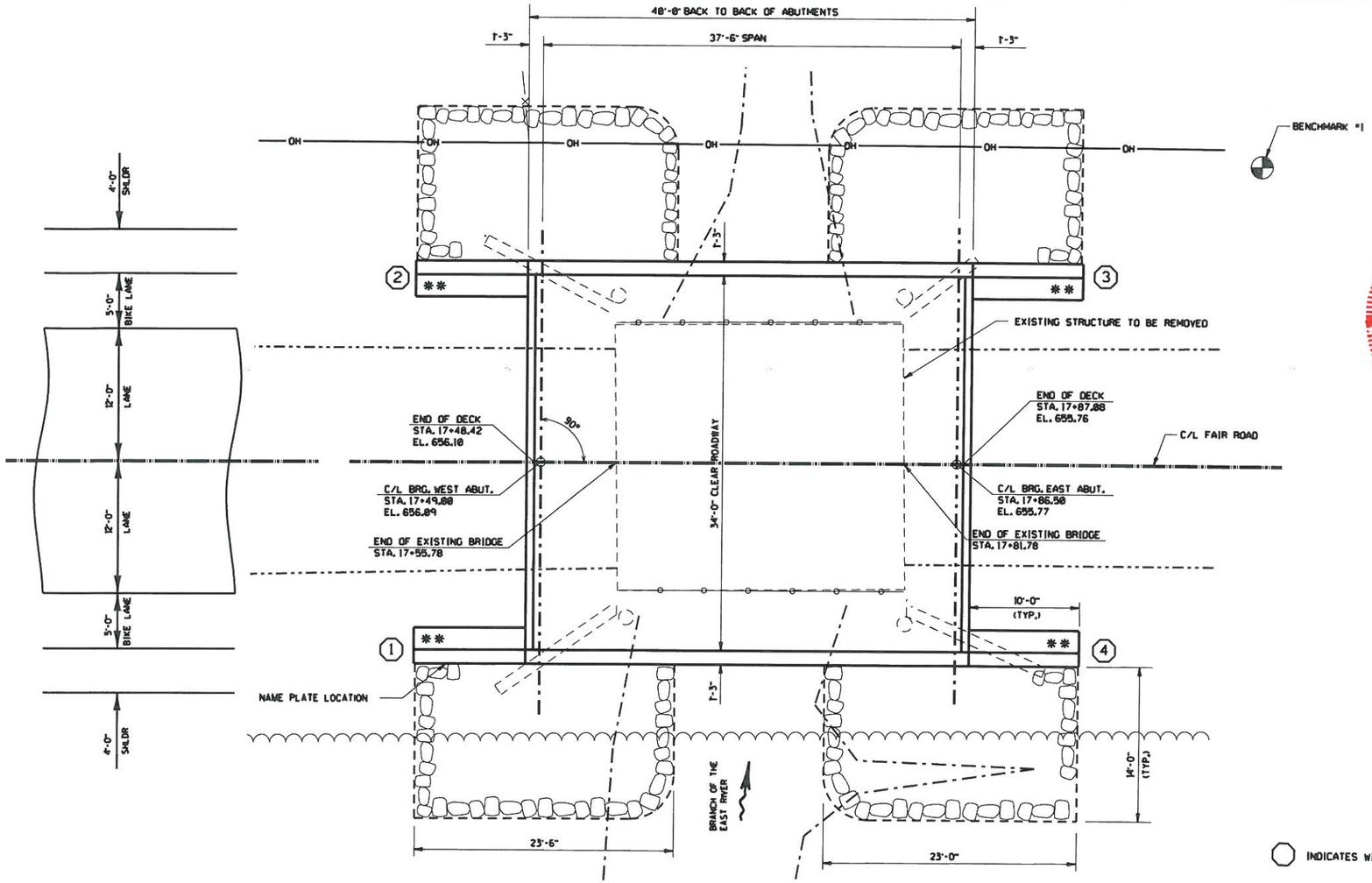
STANDARD SIGN
W5-52L & W5-52R

WISCONSIN DEPT OF TRANSPORTATION

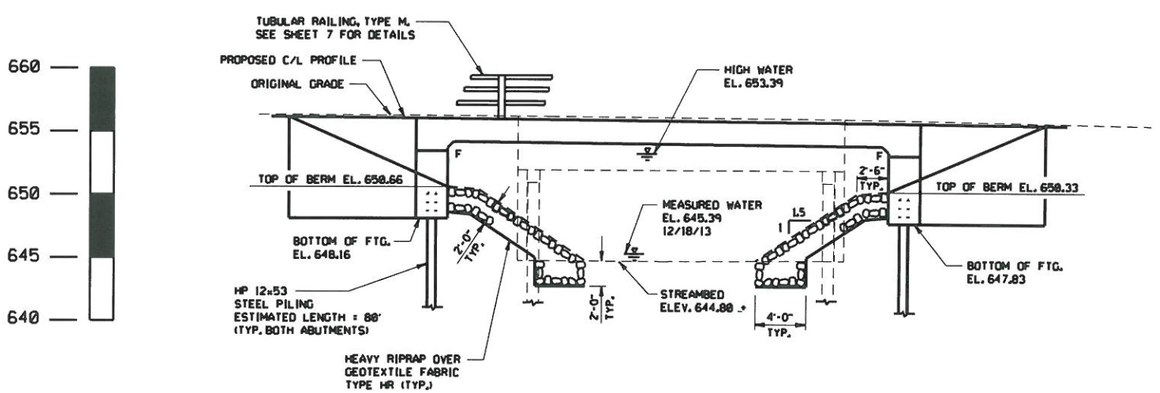
APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 5/29/12 PLATE NO. W5-52.9

PROJECT NO: 4519-08-71	HWY: FAIR ROAD	COUNTY: BROWN	SIGN PLATES	SHEET NO: 14	E



PLAN
SINGLE SPAN - FLAT SLAB



ELEVATION

○ INDICATES WING NUMBER

** INDICATES LOCATION OF PROVISION FOR THRIE BEAM GUARD ATTACHMENT.

N

WISCONSIN
JEFFREY T. TORMEY
E-21670
PEWAUKEE
PROFESSIONAL ENGINEER
2/9/16

STATE PROJECT NUMBER

4519-08-71

DESIGN DATA

LIVE LOAD:

DESIGN RATING = ML-93
INVENTORY RATING = LO9
OPERATING RATING = L41

MAXIMUM STANDARD PERMIT VEHICLE LOAD = SINGLE DF WITHOUT FWS - 250 Kips

STRUCTURE IS DESIGNED FOR A FUTURE WEARING SURFACE OF 20 PSF

INVENTORY AND OPERATING RATINGS DO NOT INCLUDE FUTURE WEARING SURFACE.

ULTIMATE DESIGN STRESSES:

CONCRETE MASONRY - SLAB f'c = 4,000 psi
- ALL OTHER (GRADE A) f'c = 3,500 psi

HIGH STRENGTH BAR STEEL REINFORCEMENT AASHTO GRADE 60 fy = 60,000 psi

FOUNDATION DATA

ABUTMENTS TO BE SUPPORTED ON HP 12x53 STEEL PILING DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 100 TONS * PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA. ESTIMATED LENGTH 80 FT.

* THE FACTORED AXIAL RESISTANCE OF PILES IN COMPRESSION USED FOR DESIGN IS THE REQUIRED DRIVING RESISTANCE MULTIPLIED BY A RESISTANCE FACTOR OF 0.5 USING MODIFIED GATES TO DETERMINE DRIVEN PILE CAPACITY.

HYDRAULIC DATA

100 YEAR FREQUENCY

DRAINAGE AREA = 10.50 SQ. MI.
Q_{100} = 1210 cfs

THRU STRUCTURE ..... 1210 CFS
OVERTOPPING ROADWAY ..... 0 CFS
VELOCITY ..... 9.8 FT/SEC
WATERWAY AREA ..... 123 SQ. FT
HIGH WATER 100 ELEVATION 653.39
SCOUR CRITICAL CODE 5

TRAFFIC DATA

A.D.T. (2014) 1200

A.D.T. (2035) 1400

DESIGN SPEED ..... 50 MPH

BENCH MARKS

NO.	STATION	DESCRIPTION	ELEV.
1	18+13.64	27.16' LT NAIL IN PP "2120 6E7	651.09

LIST OF DRAWINGS

BRIDGE OFFICE CONTACT
WILLIAM DREHER, P.E.
TELEPHONE: (608) 266-8489

CONSULTANT CONTACT
JEFFREY TORMEY, P.E.
TELEPHONE: (847) 336-7100

NO.	DATE	REVISION	BY

McClure Engineering Associates, Inc.

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

ACCEPTED William C. Dreher SDR 02/09/16
CHIEF STRUCTURES DESIGN ENGINEER DATE

STRUCTURE B-05-419

FAIR ROAD OVER BR EAST RIVER

COUNTY	TOWN
BROWN	WRIGHTSTOWN

DESIGN SPEC.
AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS

DESIGNED BY	DESIGN CK'D.	DRAWN BY	PLANS CK'D.
DF	JT	JB	DF

GENERAL PLAN

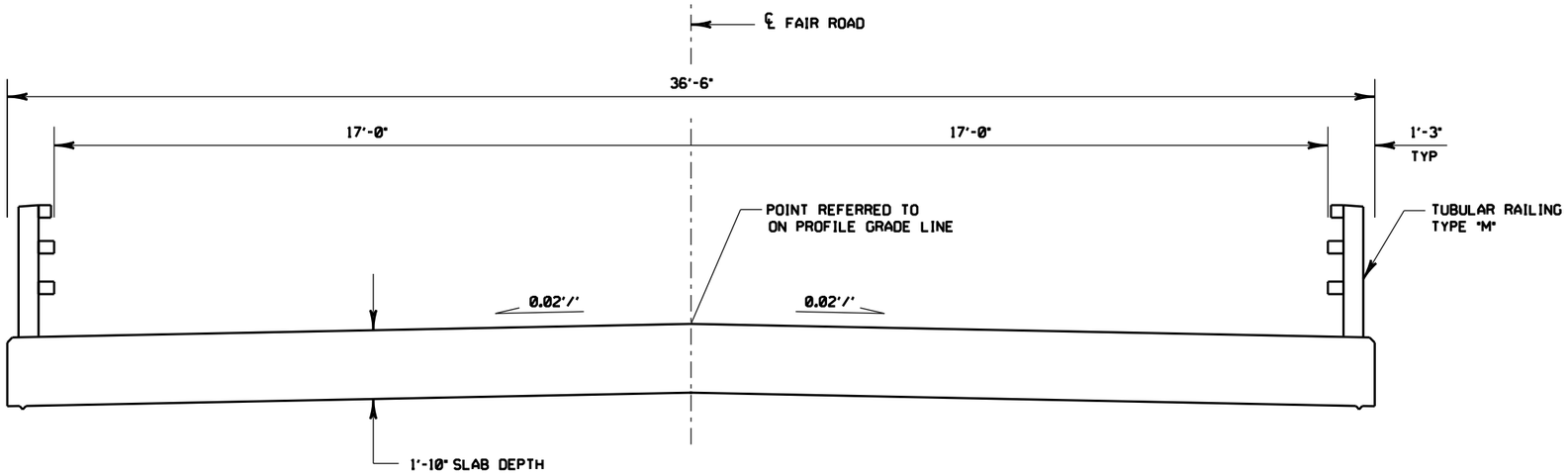
SHEE 47 7

8

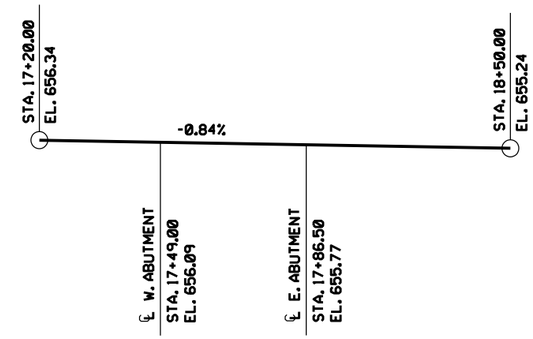
8

STATE PROJECT NUMBER

4519-08-71



CROSS SECTION THRU BRIDGE LOOKING EAST



PROFILE GRADE LINE FAIR ROAD

ITEM NO.	BID ITEMS	UNIT	WEST ABUT.	EAST ABUT.	SUPER	TOTALS
203.0600.S	REMOVING OLD STRUCTURE OVER WATERWAY WITH MINIMAL DEBRIS	LS				1
206.1000	EXCAVATION FOR STRUCTURES BRIDGES B-05-419	LS				1
210.0100	BACKFILL STRUCTURE	CY	58	58		116
502.0100	CONCRETE MASONRY BRIDGES	CY	32	32	97	161
502.3200	PROTECTIVE SURFACE TREATMENT	SY			192	192
505.0400	BAR STEEL REINFORCEMENT HS STRUCTURES	LB	2,090	2,090		4,180
505.0600	BAR STEEL REINFORCEMENT HS COATED STRUCTURES	LB	1,360	1,360	18,150	20,870
550.1120	PILING STEEL, HP 12-INCH x 53 LBS	LF	720	720		1,440
513.4061	RAILING TUBULAR TYPE M (B-05-419)	LF			85	85
516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	9	9		18
606.0300	RIPRAP HEAVY	CY	85	85		170
614.0150	ANCHOR ASSEMBLIES FOR STEEL PLATE BEAM GUARD	EA	2	2		4
645.0120	GEOTEXTILE FABRIC TYPE HR	SY	130	130		260
	NON-BID ITEMS					
	FILLER	SIZE				1/2" & 3/4"

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

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

SLAB FALSEWORK SHALL BE SUPPORTED ON PILES OR THE SUBSTRUCTURE UNLESS AN ALTERNATE METHOD IS APPROVED BY THE ENGINEER.

THE SLOPE OF THE FILL IN FRONT OF THE ABUTMENTS SHALL BE COVERED WITH HEAVY RIPRAP AND GEOTEXTILE FABRIC TYPE HR TO THE EXTENT SHOWN ON THE GENERAL PLAN SHEET AND IN THE ABUTMENT DETAILS. TYPE R AS APPROVED BY THE ENGINEER.

THIS STRUCTURE WILL REPLACE AN EXISTING 26 FOOT LENGTH SINGLE SPAN CONCRETE BOX GIRDERS SUPPORTED ON TIMBER ABUTMENT AND PILES. BUILT IN 1957.

SEE ROADWAY PLANS FOR EXISTING UTILITY LOCATIONS.

AT THE ABUTMENTS, ALL EXCAVATED VOLUME NOT OCCUPIED BY THE NEW STRUCTURE SHALL BE BACKFILLED WITH STRUCTURE BACKFILL.

THE EXISTING GROUNDLINE SHALL BE THE UPPER LIMITS FOR EXCAVATION FOR STRUCTURES.

THE FIRST DIGIT OF A THREE DIGIT BAR MARK OR FIRST TWO DIGITS OF A FOUR DIGIT BAR MARK SIGNIFY THE BAR SIZE.

PROTECTIVE SURFACE TREATMENT IS TO BE APPLIED TO THE TOP AND EDGES OF THE SLAB AND TO THE OUTSIDE 1'-6" OF UNDERSIDE OF THE SLAB.

SEE SUBSURFACE EXPLORATION AND FOUNDATION EVALUATION REPORT BY M.E.S. DATED MAY 30, 2014 FOR ADDITIONAL PILE DRIVING NOTES.

NO.	DATE	REVISION	BY
1	2/4/16	ADDED PAVING NOTCH	JBB

McClure Engineering Associates, Inc.

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE B-05-419

DRAWN BY JB | PLANS CK'D. DF

CROSS SECTION & QUANTITIES

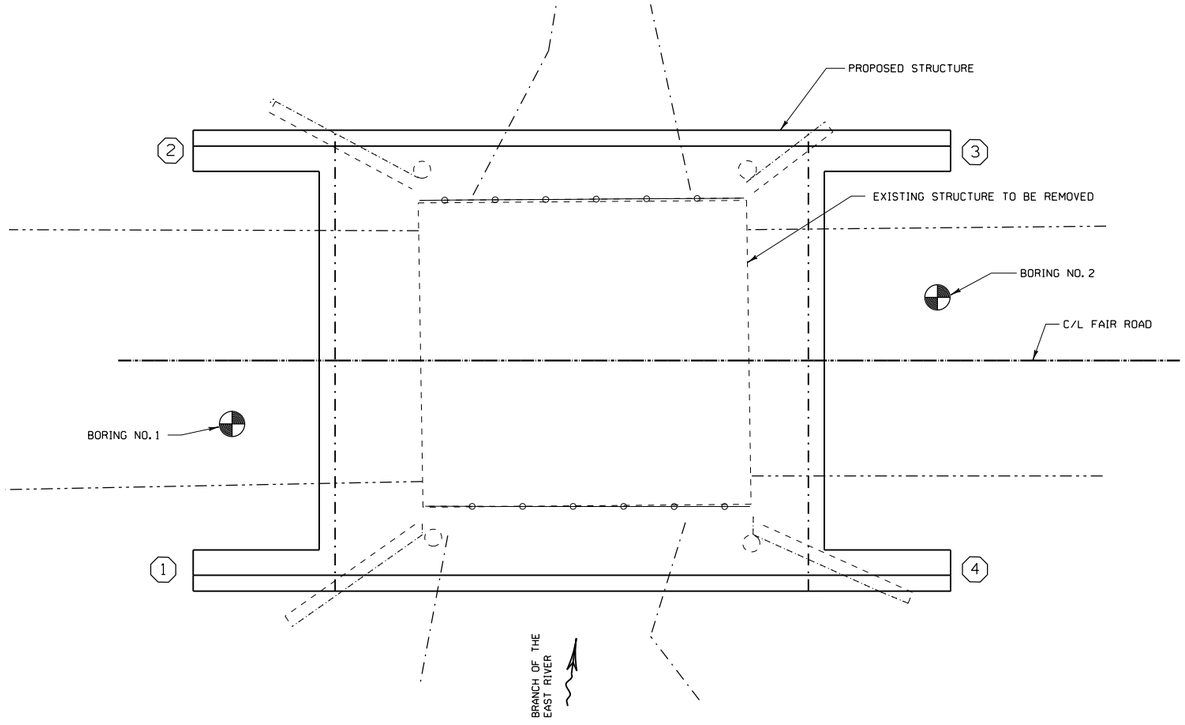
SHEET 2 OF 7

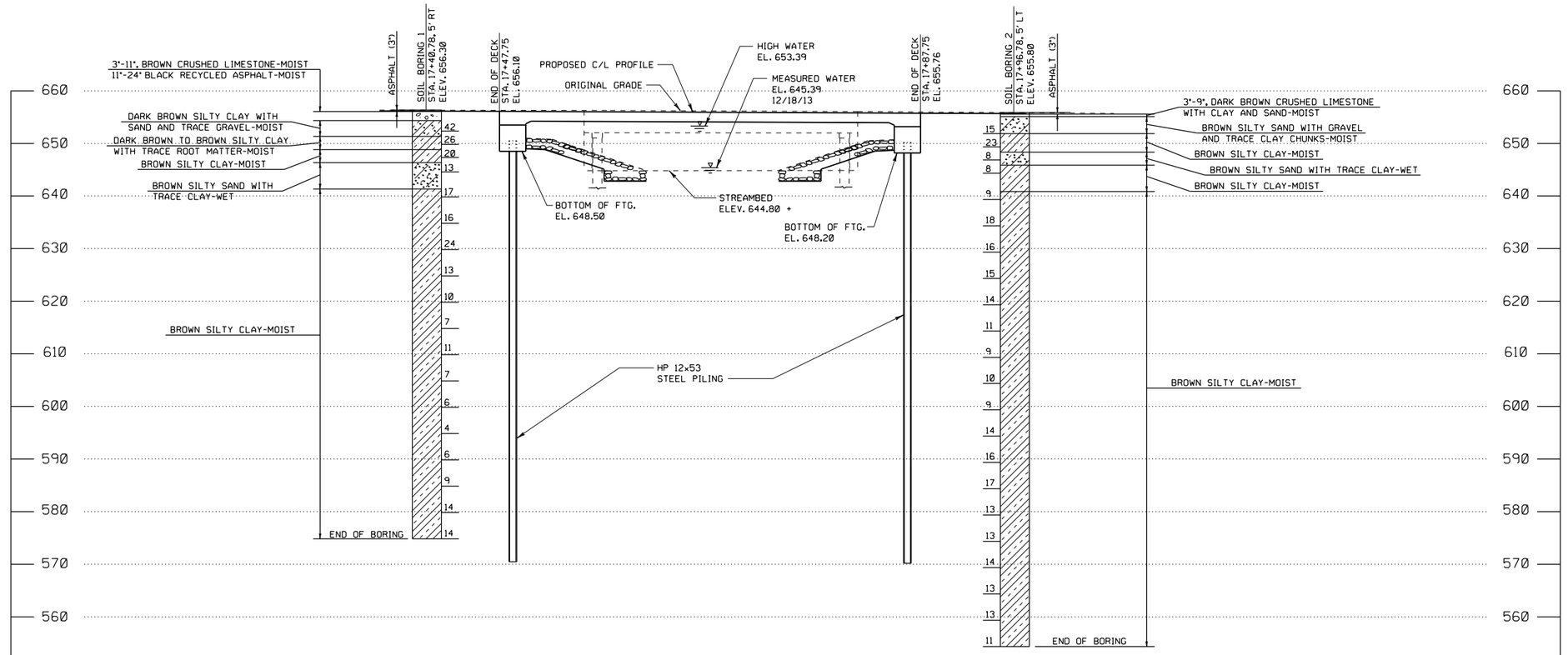
8

8

STATE PROJECT NUMBER

4519-08-71





N

SOIL BORINGS PERFORMED BY:
MIDWEST ENGINEERING SERVICES, INC.
2740-F PACKERLAND DRIVE
GREEN BAY, WI 54313

REPORT BY:
PATRICK BRAY, P.E.

BORINGS COMPLETED ON:
APRIL 25, 2014

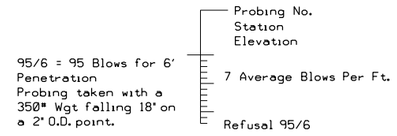
ABBREVIATIONS

F - Fine M - Medium C - Coarse
Ws - Weathered So - Sound

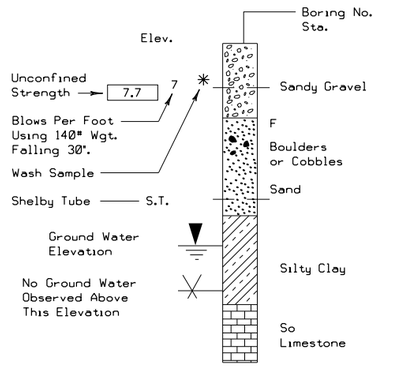
MATERIAL SYMBOLS

Topsoil, Silt, Sandstone, Sand, Peat, Limestone, Gravel, Clay, Igneous Rock

LEGEND OF PROBING



LEGEND OF BORING



Unless otherwise specified, the blows per foot at the locations indicated are based on driving a 2" O.D. x 1.4" I.D. split spoon sampler with a 140 lb. hammer having a free fall of 30". The blow count is taken in undisturbed soil immediately below a cased or open hole eliminating side friction on the drive pile.

SUBSURFACE EXPLORATION FOR FOUNDATION DESIGN AND BIDDERS INFORMATION

To obtain relative data concerning the character of material in and upon which the foundation might be built, borings and/or soundings were made at points approximately as indicated on this drawing. The data presented herein represents the findings of the subsurface explorations made. However, because the depths investigated are limited and the area of the borings and/or soundings is very small in relation to the entire area, the DEPT. of TRANSPORTATION does not warrent conditions below the depths investigated or that the classification of material encountered in these investigations is necessarily typical of the entire site.

NO.	DATE	REVISION	BY

McClure Engineering Associates, Inc.

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE B-05-419

DRAWN BY JB | PLANS CK'D. DF

SUBSURFACE EXPLORATION

SHEET 3 OF 7
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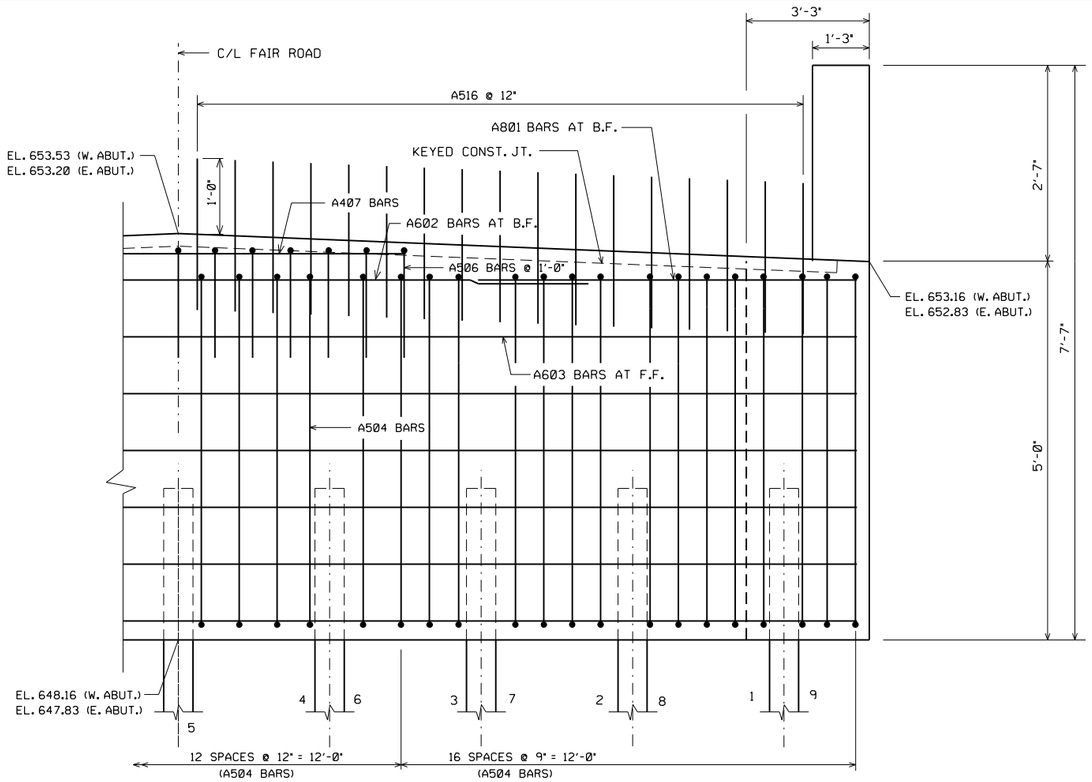
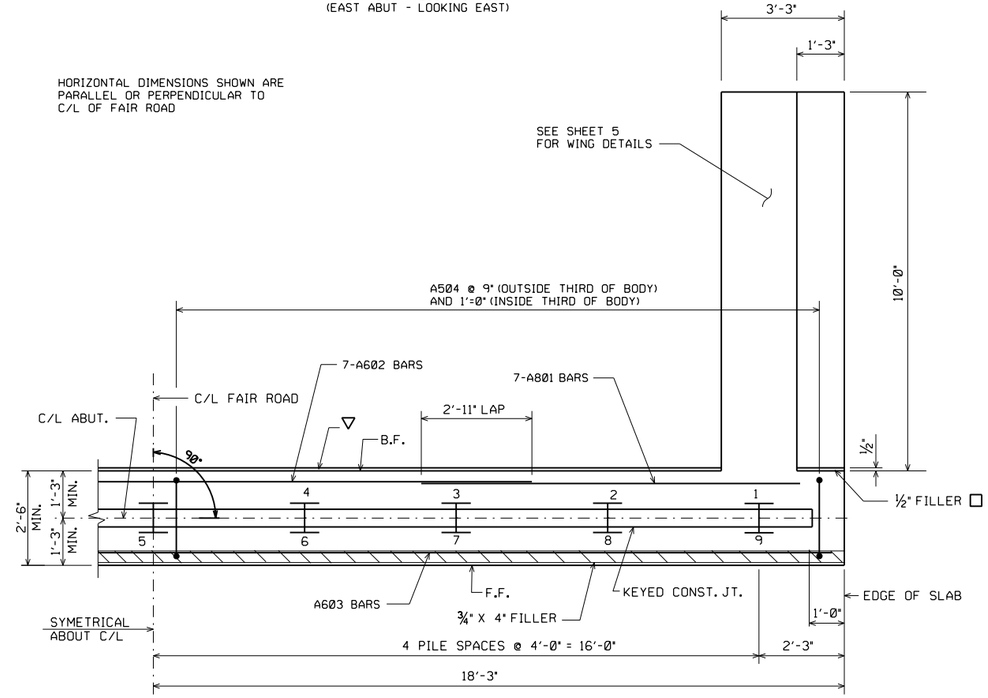
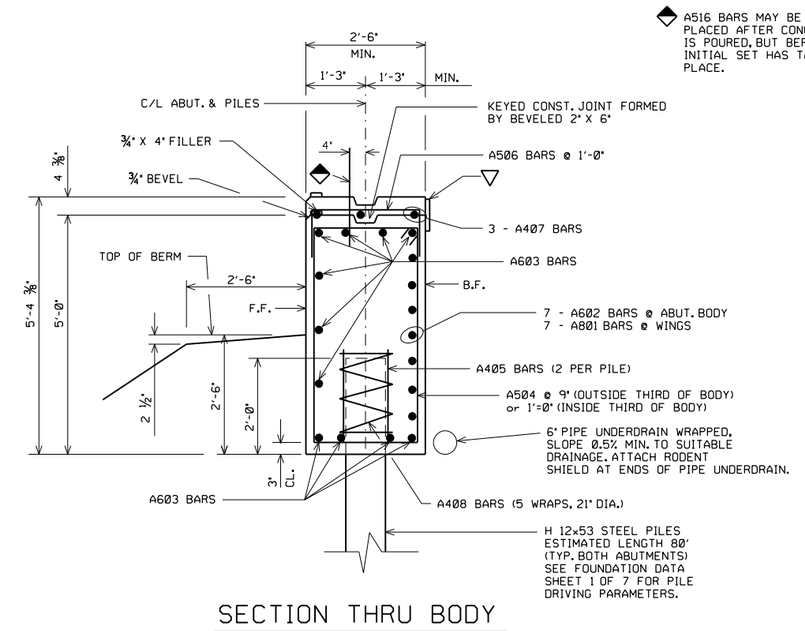


ELEVATION

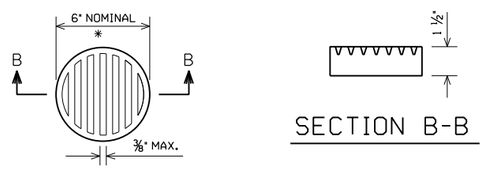
(WEST ABUT - LOOKING WEST)
(EAST ABUT - LOOKING EAST)



PLAN



SECTION THRU BODY



SECTION B-B

RODENT SHIELD DETAIL

NOTES

□ SEAL ALL EXPOSED HORIZ. & VERT. SURFACES OF ½" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD ⅛" BELOW SURFACE OF CONC.)

DO NOT PLACE FILL ABOVE 3'-0" FROM BOTTOM OF ABUTMENT UNTIL SUPERSTRUCTURE IS IN PLACE.

▽ 18" RUBBERIZED MEMBRANE WATERPROOFING.

* DIMENSIONS ARE APPROXIMATE. THE GRATE IS SIZED TO FIT INTO A PIPE COUPLING. ORIENT SO SLOTS ARE VERTICAL.

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 COMMERCIALLY AVAILABLE AS A FLOOR STRAINER. A PIPE COUPLING IS REQUIRED FOR THE ATTACHMENT OF THIS SHIELD TO THE EXPOSED END OF THE PIPE UNDERDRAIN. THE SHIELD SHALL BE FASTENED TO THE PIPE COUPLING WITH TWO OR MORE NO. 10 X 1-INCH STAINLESS STEEL SHEET METAL SCREWS.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE B-05-419

DRAWN BY	JB	PLANS CK'D.	DF

ABUTMENTS

SHEET 4 OF 7
50

8

8

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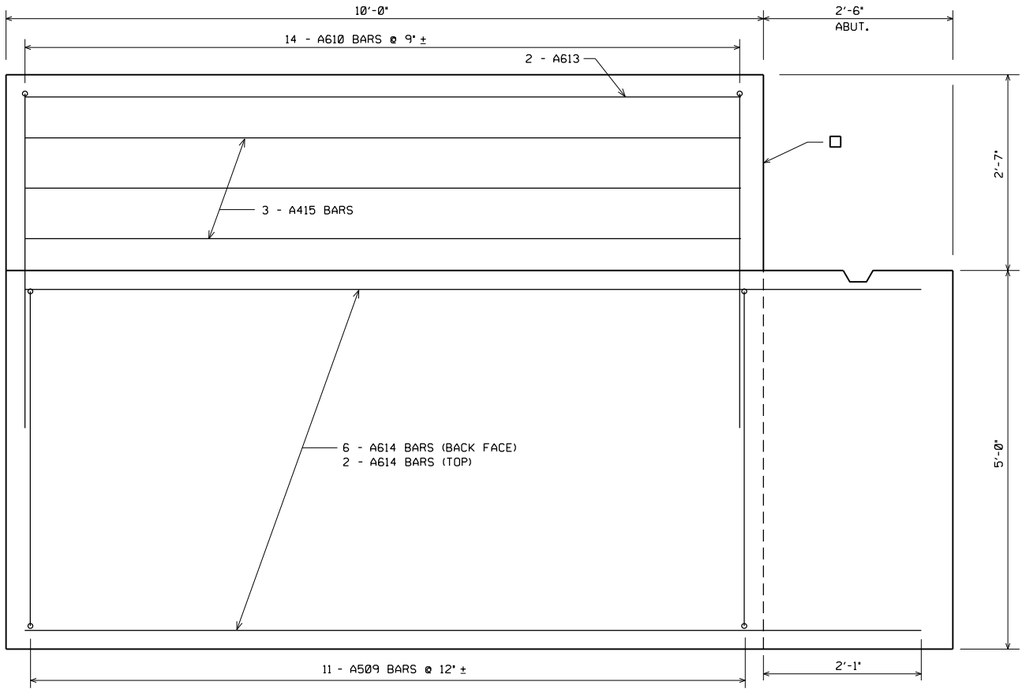
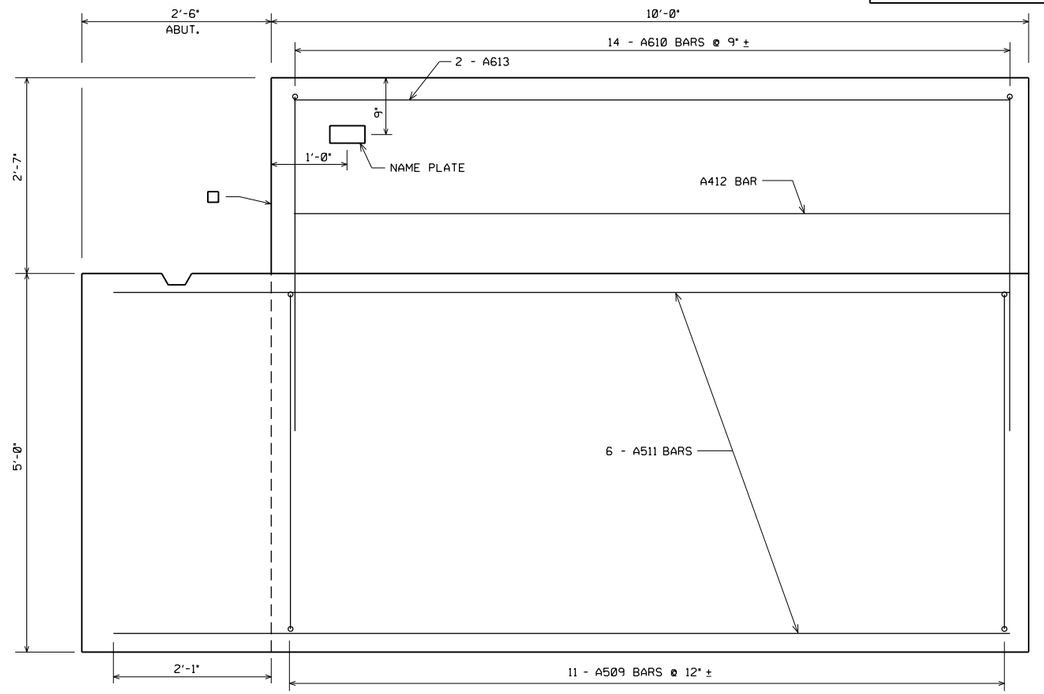
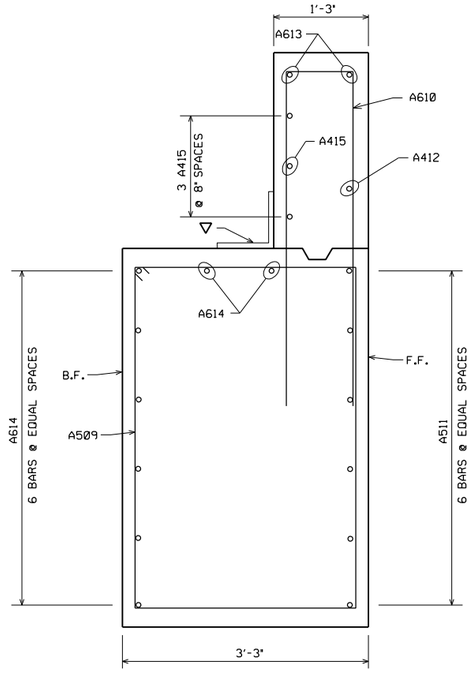
4519-08-71



BACK FACE

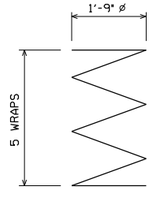


FRONT FACE



SECTION THRU WING

ELEVATION



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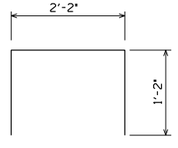

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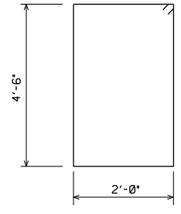

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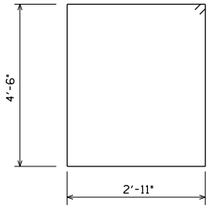

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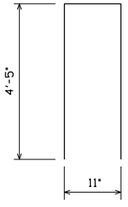

A610

BAR DETAILS

BILL OF BARS (BOTH ABUTMENTS)

BAR MARK	NO.	LENGTH	BENT	CUT	COATED	LOCATION
A801	28	10'-0"				BODY AT WINGWALL – B.F. – HORIZ.
A602	14	21'-10"				BODY CENTER – B.F. – HORIZ.
A603	22	36'-2"				BODY – TOP, BOTTOM – F.F. – HORIZ.
A504	90	13'-7"	X			BODY – BASE – STIRRUPS – VERT.
A405	32	2'-3"				BODY – AT PILES – VERT.
A506	26	4'-3"	X			BODY – TOP – U BAR – VERT.
A407	6	12'-0"				BODY – TOP – HORIZ.
A408	16	28'-0"	X			BODY – PILE WRAP
A509	44	15'-5"	X		X	WINGWALL – BASE – STIRRUPS – VERT.
A610	56	9'-6"	X		X	WINGWALL – TOP – STIRRUPS – VERT.
A511	24	11'-10"			X	WINGWALL – BASE – F.F. – HORIZ.
A412	4	9'-6"			X	WINGWALL – TOP – F.F. – HORIZ.
A613	8	9'-6"			X	WINGWALL – TOP – HORIZ.
A614	32	11'-10"			X	WINGWALL – BASE – B.F. – HORIZ.
A415	12	9'-6"			X	WINGWALL – TOP – B.F. – HORIZ.
A516	68	2'-0"			X	BODY – TOP – DOWEL INTO SLAB – VERT.

THE FIRST DIGIT OF A 3 DIGIT BAR MARK SIGNIFIES THE BAR SIZE

NOTES

□ SEAL ALL EXPOSED HORIZ. & VERT. SURFACES OF ½" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD ⅛" BELOW SURFACE OF CONC.)

DO NOT PLACE FILL ABOVE 3'-0" FROM BOTTOM OF ABUTMENT UNTIL SUPERSTRUCTURE IS IN PLACE.

▽ 18" RUBBERIZED MEMBRANE WATERPROOFING.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE B-05-419

DRAWN BY JB | PLANS CK'D. DF

ABUTMENT DETAILS

SHEET 5 OF 7
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8

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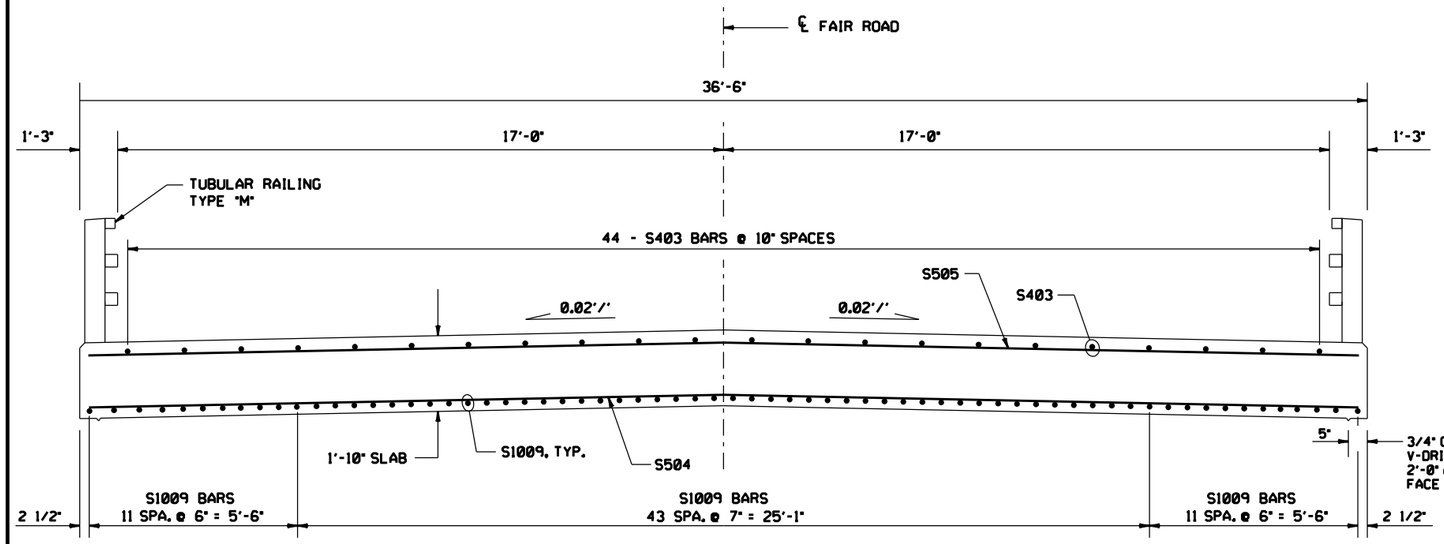
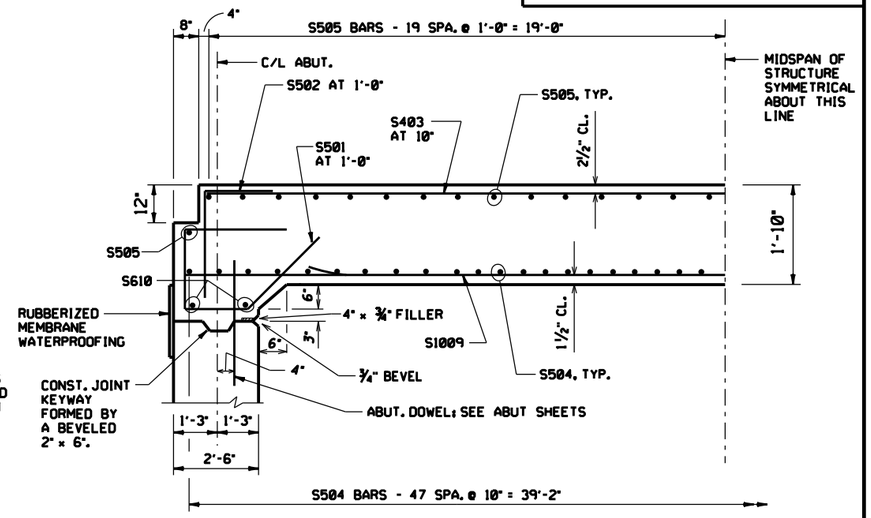
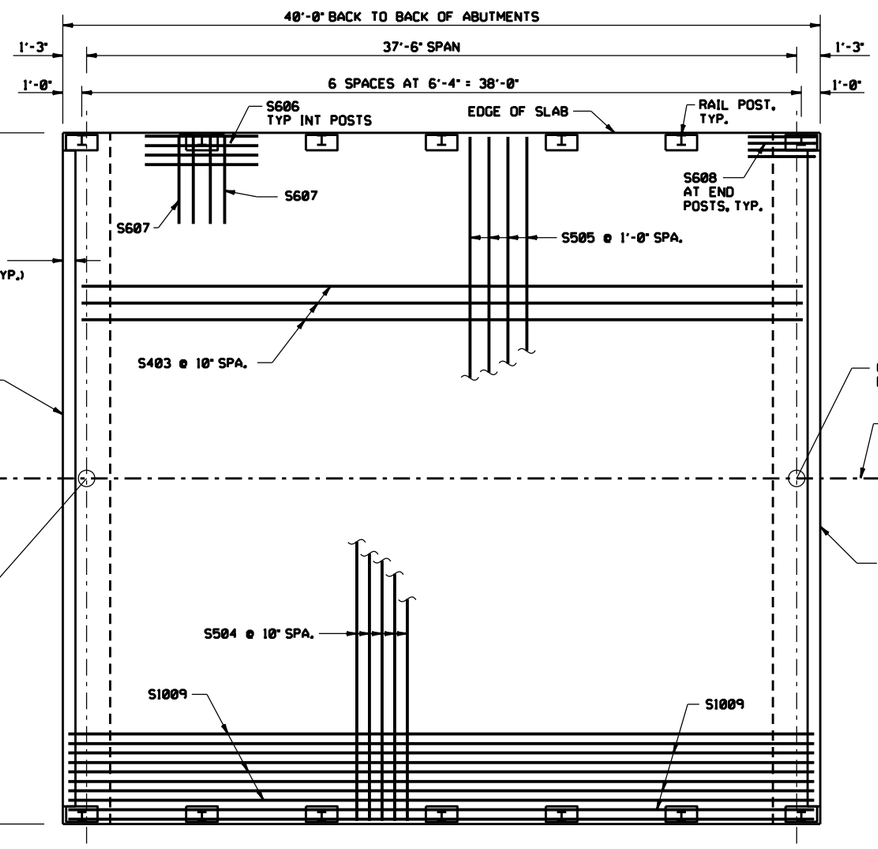


CROSS SECTION THRU ROADWAY



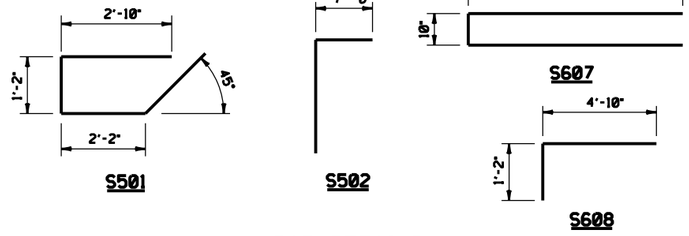
PARTIAL LONGITUDINAL SECTION



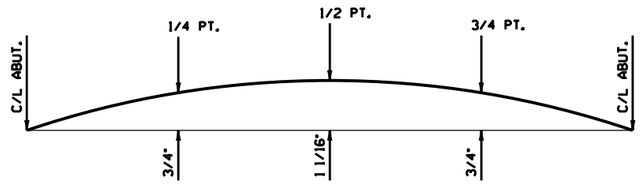
DECK PLAN

CAMBER/TOP OF SLAB ELEV. TABLE

STA.	CAMBER	PGL ELEV.	EDGE/SLAB ELEV.
17+49.00	0	656.09	655.73
17+52.25	-0.33	656.06	655.69
17+56.50	-0.627	656.03	655.66
17+60.25	-0.858	656.00	655.63
17+64.00	-1.005	655.96	655.60
17+67.75	-1.053	655.93	655.57
17+71.50	-1.005	655.90	655.54
17+75.25	-0.858	655.87	655.50
17+79.00	-0.627	655.84	655.47
17+82.75	-0.33	655.81	655.44
17+86.50	0	655.78	655.41



BAR DETAILS



CAMBER DIAGRAM

CAMBER SHOWN IS BASED ON 3 TIMES DEAD LOAD DEFLECTIONS. CAMBER SPANS AS SHOWN TO PROVIDE FOR DEAD LOAD DEFLECTION AND FUTURE CREEP. CAMBER DOES NOT INCLUDE ALLOWANCE FOR FORM SETTLEMENT. PARAPETS, SIDEWALKS AND MEDIANS PLACED ON TOP OF THE SLAB SHALL BE POURED AFTER FALSEWORK HAS BEEN RELEASED.

BILL OF BARS

BAR MARK	NO.	LENGTH	BENT	CUT	COATED	LOCATION
S501	74	7'-8"	X		X	DIAPHRAGM AT ABUTS. - LONGIT.
S502	74	3'-5"	X		X	DIAPHRAGM AT ABUTS. - VERT.
S403	44	38'-2"			X	SLAB TOP - LONGIT.
S504	48	36'-0"			X	SLAB BOTTOM - TRANSVERSE
S505	41	36'-0"			X	SLAB TOP - TRANSVERSE
S606	40	6'-0"			X	SLAB TOP AT RAIL POST (4 PER POST)
S607	28	12'-0"	X		X	SLAB TOP AT RAIL POST (2 PER POST)
S608	16	5'-10"	X		X	SLAB TOP AT END RAIL POSTS (4 PER POST)
S1009	66	39'-6"			X	SLAB BOTTOM - LONGIT.
S610	4	36'-0"			X	SLAB, BOTTOM AT ABUT. - TRANSVERSE

THE FIRST DIGIT OF A THREE DIGIT BAR MARK OR FIRST TWO DIGITS OF A FOUR DIGIT BAR MARK SIGNIFIES THE BAR SIZE

NO.	DATE	REVISION	BY
1	2/4/16	ADDED PAVING NOTCH	JBB

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE B-05-419

DRAWN BY JB | PLANS CK'D. DF

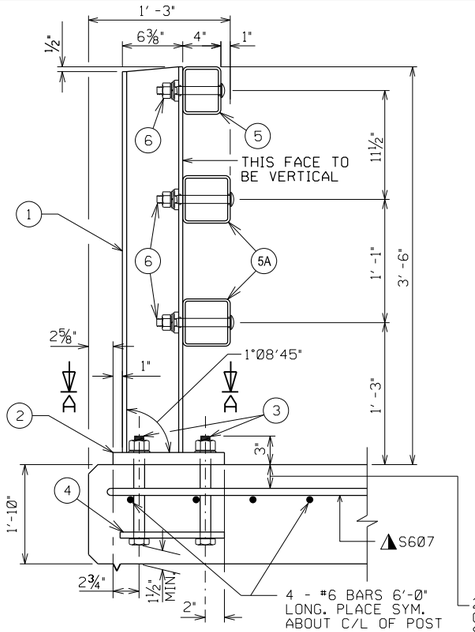
SHEET 6 OF 7

SUPERSTRUCTURE

8

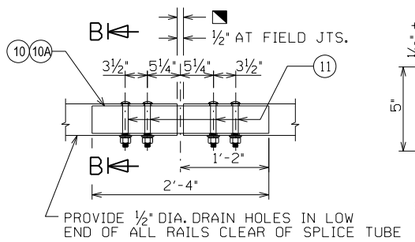
8

STATE PROJECT NUMBER
4519-08-71

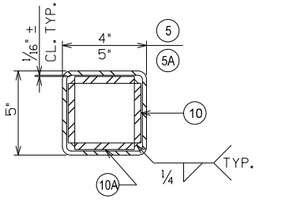


SECTION THRU RAILING ON DECK

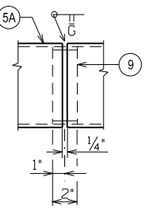
2½" FOR SLABS ON GIRDERS; FOR OTHER STRUCTURES, PLACE BELOW TOP MAT SLAB REINFORCEMENT.



FIELD ERECTION JOINT DETAIL

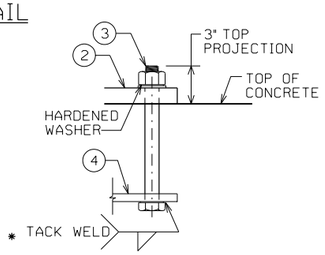


SECTION B-B

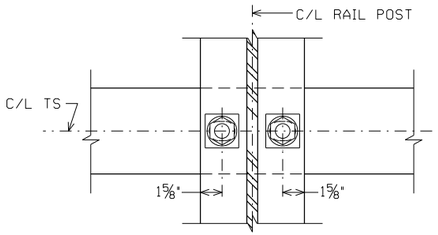


SHOP RAIL SPLICE DETAIL

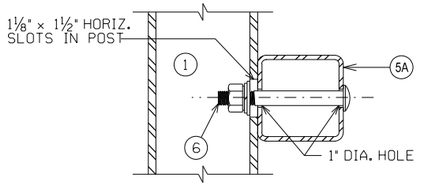
LOCATION MUST BE SHOWN ON SHOP DRAWINGS



ANCHOR BOLTS



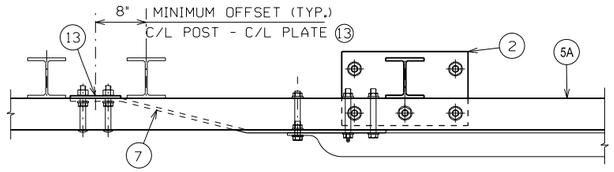
SECTION THRU POST WEB



SECTION THRU RAIL

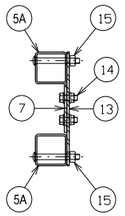
NOTE: CONNECTIONS AT LOWER RAILS SHOWN. CONNECTIONS AT TOP RAIL SIMILAR.

TYPICAL RAIL TO POST CONNECTIONS

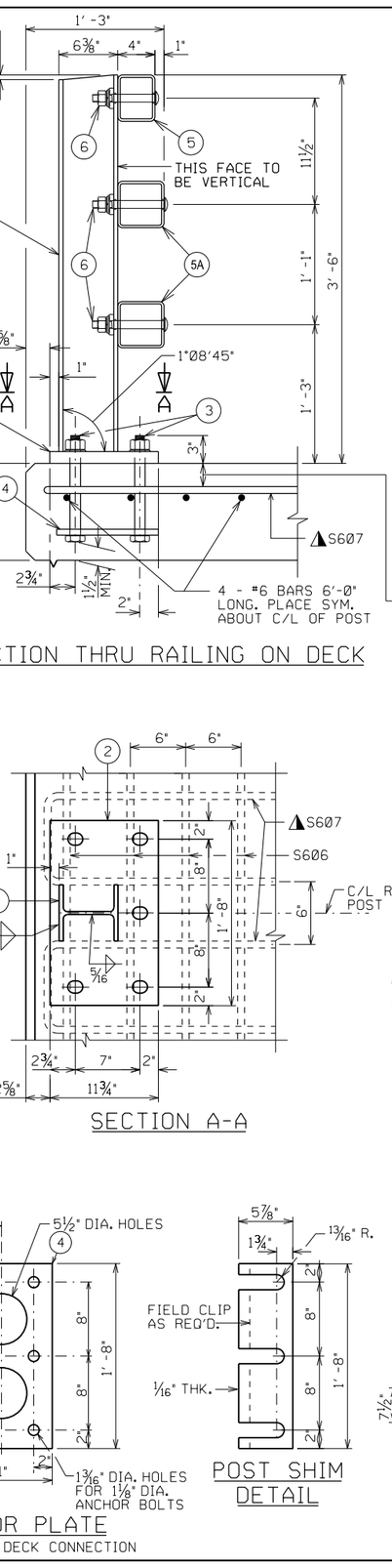


TOP VIEW AT END POST

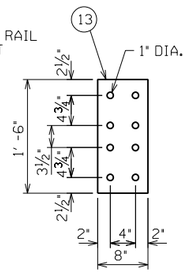
THRIE BEAM RAIL ATTACHMENT



SECTION C-C

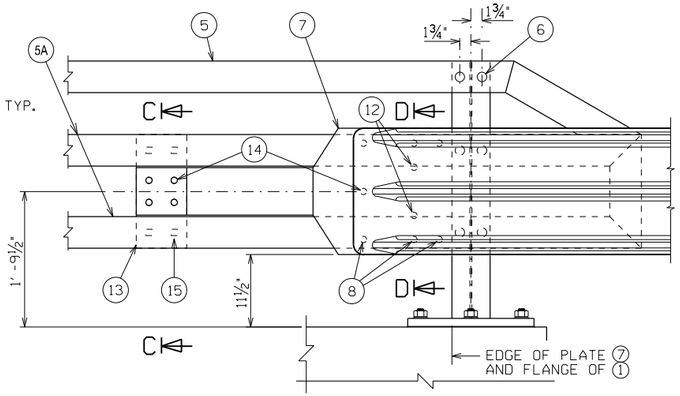


SECTION A-A



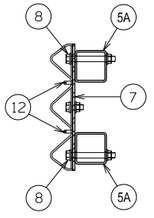
ANCHOR PLATE

AT BEAM GUARD ATTACHMENT



DETAIL AT END POST

THRIE BEAM RAIL ATTACHMENT



SECTION D-D

LEGEND

① W6 x 25 WITH 1⅛" X 1½" HORIZ. SLOTS ON EACH SIDE OF POST FOR BOLT NO. 6. CUT BOTTOM OF POST TO MATCH CROSS SLOPE OF ROADWAY. PLACE POST VERTICAL. PLACE POSTS NORMAL TO GRADE LINE.

② PLATE 1¼" x 11¾" x 1'-8" WITH 1⅝" X 1⅝" SLOTTED HOLES FOR ANCHOR BOLTS NO. 3. WELD TO NO. 1 AS SHOWN. SLOTS PARALLEL TO SHORT SIDE OF PLATE.

③ ASTM A449 - 1⅛" DIA. ANCHOR BOLTS WITH NUT AND HARDENED WASHER (ALL GALVANIZED). 5 REQ'D. PER POST. THREAD 3" AND PLACE NORMAL TO PLATE NO. 2. CHAMFER TOP OF BOLTS BEFORE THREADING. USE 1'-9" LONG IN ABUTMENT WINGS. AT POSTS ON CONCRETE SLAB SUPERSTRUCTURES WHERE THE SLAB THICKNESS IS > 16" USE 1'-3" LONG. USE 10¾" 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 CONSTRUCTIBILITY.)

④ ⅝" x 11" x 1'-8" ANCHOR PLATE (GALVANIZED) WITH 1⅜" DIA. HOLES FOR ANCHOR BOLTS NO. 3

⑤ TS 5 x 4 x 0.25 STRUCTURAL TUBING. ATTACH TO NO. 1 WITH NO. 6.

⑤A TS 5 x 5 x 0.25 STRUCTURAL TUBING. ATTACH TO NO. 1 WITH NO. 6.

⑥ ⅞" DIA. A325 SLOTTED ROUND HEAD BOLT WITH NUT, 3⁄16" X 1⅝" X 1⅝" WASHER, AND LOCK WASHER (2 REQ'D. AT EACH RAIL TO POST LOCATION.)

⑦ ½" THK. BACK-UP PLATE WITH 2 - ⅞" X 1½" THREADED SHOP WELDED STUDS (NO. 12). BOLT TO RAIL AS SHOWN IN DETAIL. REQUIRED AT THRIE BEAM GUARD RAIL ATTACHMENTS ONLY. PLACE SYMMETRICALLY ABOUT TUBES NO. 5A.

⑧ 1" DIA. HOLES IN PLATE NO. 7 & TUBES NO. 5A FOR ⅞" DIA. A325 BOLTS WITH HEX NUTS AND WASHERS. 6 HOLES IN TUBES AND PLATE NO. 7.

⑨ SPLICE SLEEVE FABRICATED FROM ¼" PLATE. PROVIDE "SLIDING FIT".

⑩ ⅜" X 3⅝" X 2'-4" PLATE. 2 PER RAIL. USED IN NO. 5 & 5A.

⑩A ⅜" X 2⅝" X 2'-4" PLATE USED IN NO. 5. ⅜" X 3⅝" X 2'-4" PLATE USED IN NO. 5A. 2 PER RAIL.

⑪ ⅞": A325 ROUND HEAD BOLT WITH NUT, WASHER, AND LOCK WASHER. USE 1⁵⁄16" X 1¼" LONGIT. SLOTTED HOLES AT FIELD JOINTS AND 1⁵⁄16" X 2¼" MIN. LONGIT. SLOTTED HOLES AT EXP. JOINTS IN PLATE NO. 10A.

⑫ ⅞" DIA. X 1½" LONG THREADED SHOP WELDED STUDS (2 REQ'D).

⑬ ⅜" X 8" X 1'-6" PLATE. BOLT TO RAIL AS SHOWN IN DETAIL. REQ'D. AT THRIE BEAM GUARD RAIL ATTACHMENTS ONLY. PLACE SYM. ABOUT TUBES NO. 5A.

⑭ ⅞" DIA. X 2" LONG A325 HEX BOLT WITH NUT AND WASHER (5 REQ'D.).

⑮ 1" DIA. HOLES IN TUBES NO. 5A FOR ⅞" DIA. A325 ROUND HEAD BOLT WITH NUT, WASHER AND LOCK WASHER (4 REQ'D.). 4 HOLES IN TUBES.

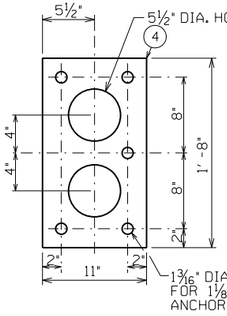
GENERAL NOTES

1. BID ITEM SHALL BE "RAILING TUBULAR TYPE M B-05-419" 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 ⅛ 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 NO. 2 AND CAULK AROUND PERIMETER OF PLATE NO. 2 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.
10. WHEN PAINTING IS REQUIRED, ALL MATERIAL EXCEPT ANCHORAGE DETAIL (NO. 3 & 4) SHALL BE PAINTED OVER GALVANIZING WITH APPROVED TIE COAT AND TOP COAT.
11. THIS RAILING MEETS NCHRP REPORT 350 EVALUATION CRITERIA FOR TEST LEVEL 4 (TL-4).
12. PLACE FIRST BOTTOM LONGITUDINAL BAR CLEAR OF DRIP GROOVE.

⚠ TIE TO TOP MAT OF STEEL.

* FOR ANCHOR BOLTS IN WINGS, TACK WELD MAY BE USED IN FIELD AFTER ANCHOR PLATE IS IN POSITION IF REQ'D. FOR CONSTRUCTIBILITY.

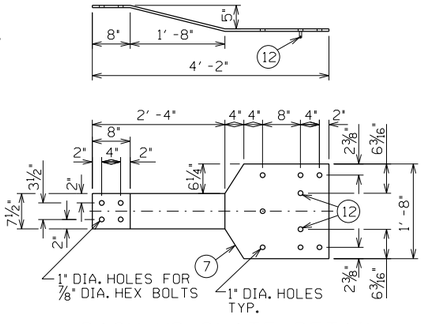
◥ RDWY. OPENING OR 2½" MIN. FOR STRIP SEAL EXP. JOINT & ½" OPENING FOR A1 ABUTMENT.



ANCHOR PLATE

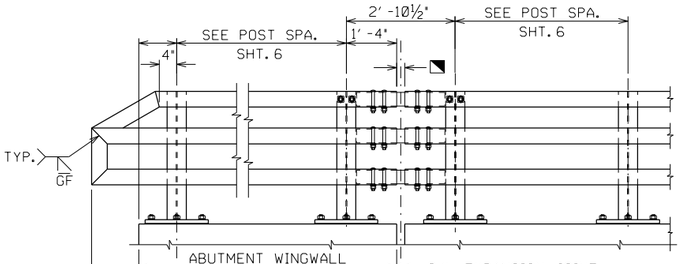
AT RAIL TO DECK CONNECTION

POST SHIM DETAIL



BACK-UP PLATE DETAIL

AT beam guard attachment



PART ELEVATION OF RAILING

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE B-05-419

DRAWN BY	JB	PLANS CK'D.	DF

TUBULAR STEEL RAILING TYPE M

SHEET 7 OF 7

53

SCALE =

STATION	Real Station	Distance	AREA (SF) Cut	Salvaged/ Unusable Pavement Material	Fill	Marsh Exc	Rock Exc	EBS	Incremental Vol (CY) (Unadjusted) Cut	Salvaged/ Unusable Pavement Material	Fill	Marsh Exc	Rock Exc	EBS	Cumulative Vol (CY) Cut	Expanded Fill	Expanded Marsh Backfill	Expanded Rock	Expanded EBS Backfill	Reduced Marsh in Fill	Reduced EBS In Fill	Mass Ordinate
									Note 1	Note 2	Note 3				1.00 Note 1	1.25	1.50 Note 4	1.10	1.30 Note 5	0.60 Note 6	0.80 Note 7	Note 8
16+00.00	1600		0.00	0	0.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16+50.00	1650	50	55.62	0	56.49	0	0	0	52	0	52	0	0	0	52	65	0	0	0	0	0	-14
17+00.00	1700	50	49.32	0	36.17	0	0	0	97	0	86	0	0	0	149	173	0	0	0	0	0	-24
17+35.00	1735	35	46.76	0	79.24	0	0	0	62	0	75	0	0	0	211	266	0	0	0	0	0	-55
17+47.00	1747	12	0.00	0	0.00	0	0	0	10	0	18	0	0	0	221	288	0	0	0	0	0	-67
17+50.00	1750	3	0.00	0	0.00	0	0	0	0	0	0	0	0	0	221	288	0	0	0	0	0	-67
17+75.00	1775	25	0.00	0	0.00	0	0	0	0	0	0	0	0	0	221	288	0	0	0	0	0	-67
17+88.00	1788	13	0.00	0	0.00	0	0	0	0	0	0	0	0	0	221	288	0	0	0	0	0	-67
18+00.00	1800	12	77.56	0	93.48	0	0	0	17	0	21	0	0	0	239	314	0	0	0	0	0	-76
18+50.00	1850	50	67.65	0	94.43	0	0	0	134	0	174	0	0	0	373	532	0	0	0	0	0	-159
18+85.00	1885	35	59.68	0	97.09	0	0	0	83	0	124	0	0	0	456	687	0	0	0	0	0	-231
19+00.00	1900	15	60.10	0	78.72	0	0	0	33	0	49	0	0	0	489	748	0	0	0	0	0	-259
19+25.00	1925	25	0.00	0	0.00	0	0	0	28	0	36	0	0	0	517	793	0	0	0	0	0	-277
19+58.77	1959	34	0.00	0	0.00	0	0	0	0	0	0	0	0	0	517	793	0	0	0	0	0	-277
					Column totals				517	0	635	0	0	0								

1) Common Excavation is the sum of the Cut and EBS Excavation columns. Item number 205.0100
2) Salvaged/Unsuable Pavement Material is included in Cut.
3) EBS Excavation to be backfilled with Select Borrow material. Note: this is designers choice, can be backfilled with Borrow, or Cut as well.
4) Salvaged/Unusable Pavement Material
5) Available Material = Cut - Salvaged/Unusuable Pavement Material
6) Marsh Excavation - to be backfilled with Select Borrow Material. Note: this is designers choice, can be backfilled with Borrow, or Cut as well. Item number 205.0500
7) Rock Excavation item number 205.0200
8) Reduced Marsh in Fill - Excavated Marsh material is usuable in Fills outside the 1:1 slope. Marsh in Fill Reduction factor = 0.6
9) Reduced EBS in Fill - Excavated EBS material is usuable in Fills outside the 1:1 slope. EBS in Fill Reduction factor = 0.8
10) Expanded Marsh Backfill - This is to be filled with Select Borrow material. Marsh Backfill Factor = 1.5. Item number 208.11
11) Expanded EBS Backfill - This is to be filled with Select Borrow material. EBS Backfill Factor = 1.3. Item number 208.11
12) Expanded Rock - Factor = 1.1.
13) Expanded Fill. Factor = 1.25

Depending on selections:

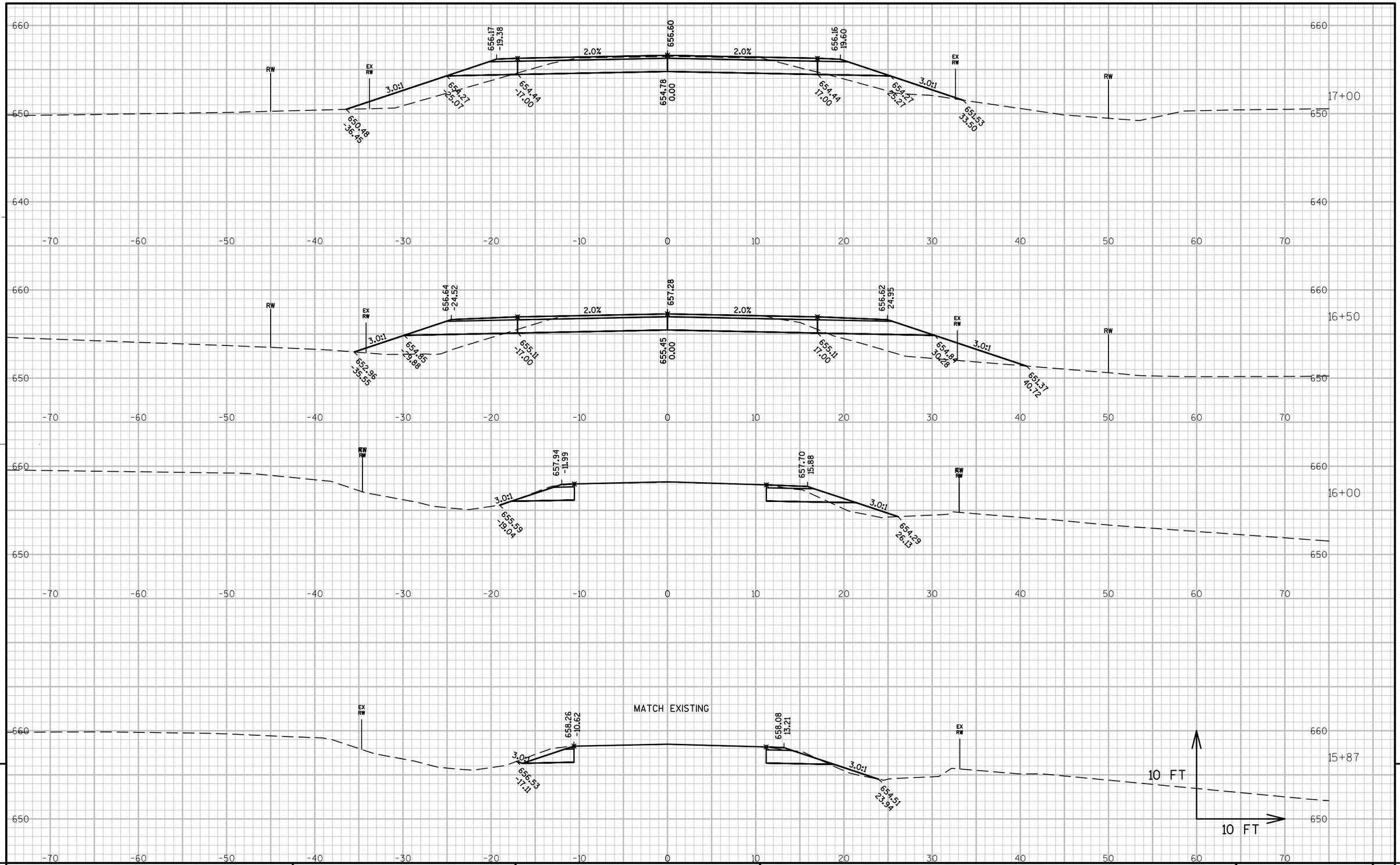
Expanded Fill = (Unexpanded Fill - Rock* Rock Factor - Reduced Marsh - Reduced EBS) * Fill Factor

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

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

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

14) The Mass Ordinate + or - Qty calculated for the Division. Plus quantity indicates an excess of material within the Division. Minus indicates a shortage of material within the Division.
15) Use 113,641 CY of material from Division 1. Borrow Excavation item number 208.0100

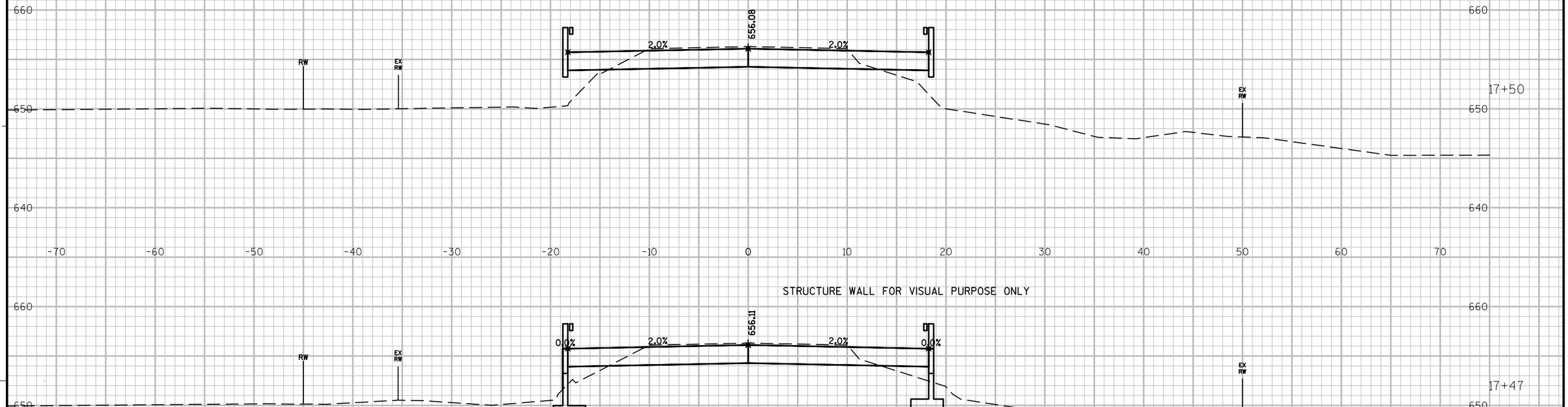


PROJECT NO: 4519-08-71	HWY: FAIR ROAD	COUNTY: BROWN	CROSS SECTIONS: FAIR ROAD	SHEET 16 55	E

FILE NAME : R:\1000\1075\1075154\DWG\CORRIDOR.DWG PLOT DATE : 1/18/2016 9:13 AM PLOT BY : SCOTT M. DEBAKER PLOT NAME : XS-4 PLOT SCALE : 1 IN:10 FT

WISDOT/CADDS SHEET 49

BRIDGE



STRUCTURE WALL FOR VISUAL PURPOSE ONLY

PROJECT NO: 4519-08-71	HWY: FAIR ROAD	COUNTY: BROWN	CROSS SECTIONS: FAIR ROAD	SHEET 17 of 56	E

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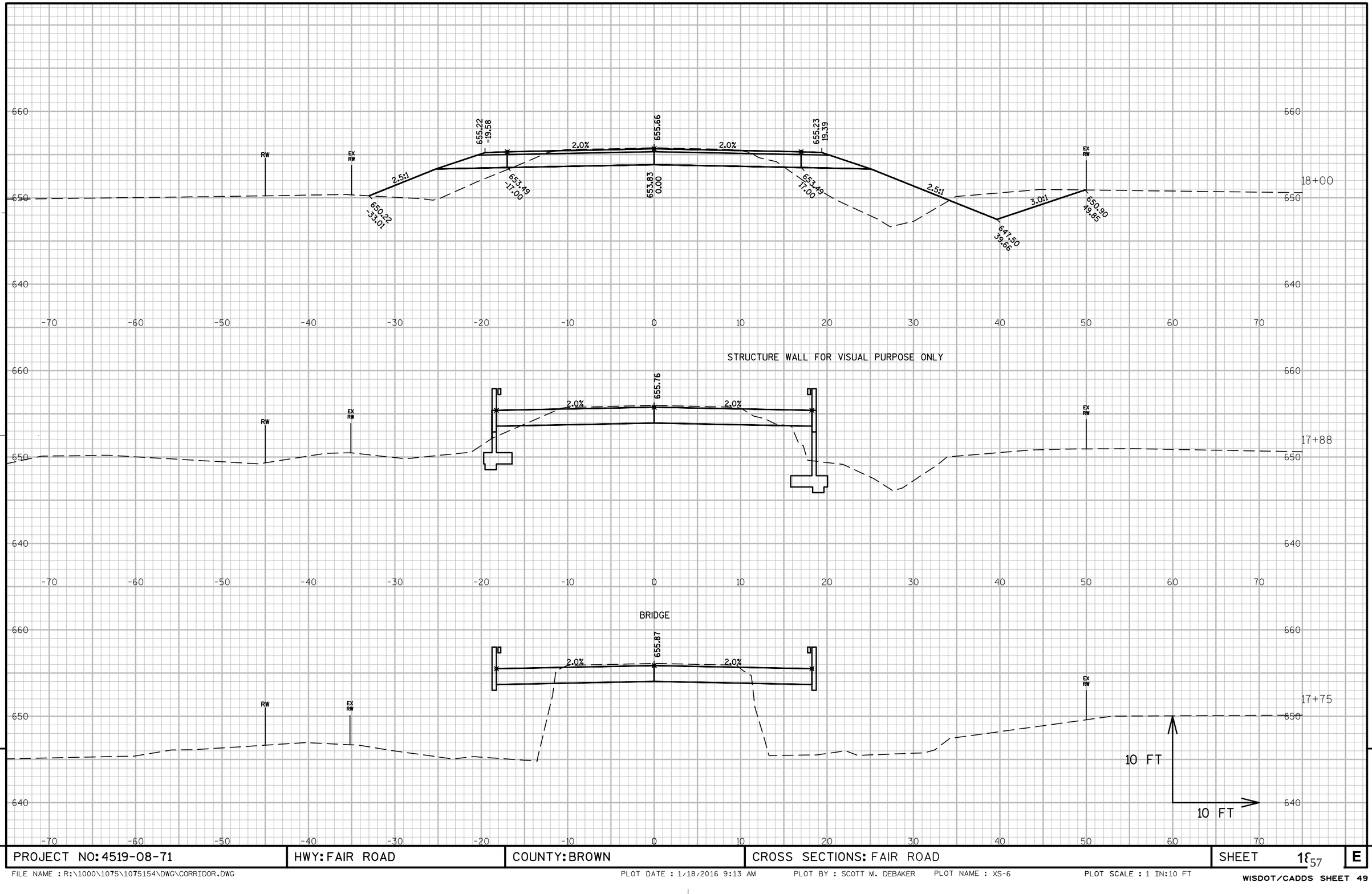
WISDOT/CADDS SHEET 49



PROJECT NO: 4519-08-71	HWY: FAIR ROAD	COUNTY: BROWN	CROSS SECTIONS: FAIR ROAD	SHEET 18 of 57	E

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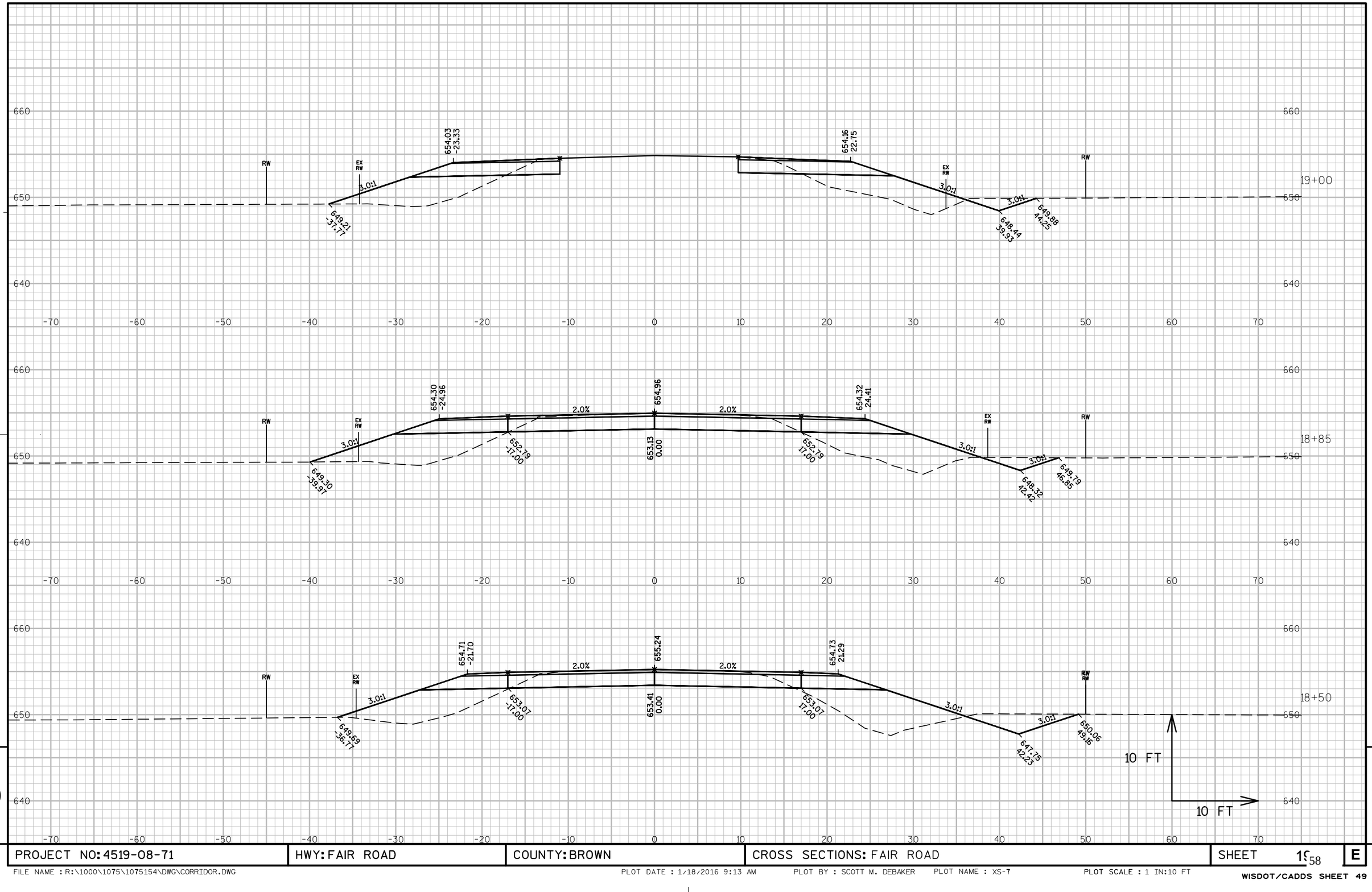
WISDOT/CADDS SHEET 49



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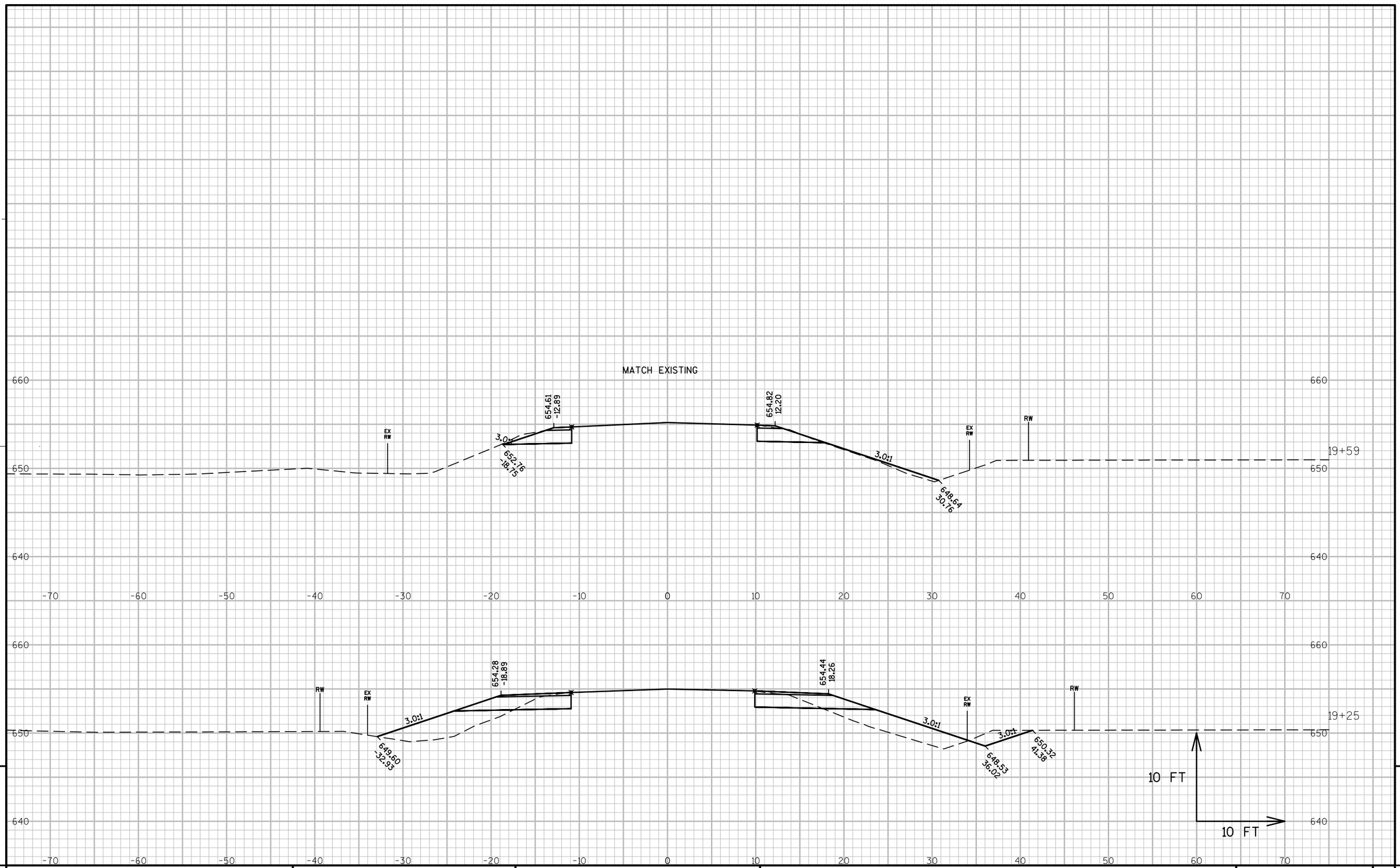
FILE NAME : R:\1000\1075\1075154\DWG\CORRIDOR.DWG PLOT DATE : 1/18/2016 9:13 AM PLOT BY : SCOTT M. DEBAKER PLOT NAME : XS-7 PLOT SCALE : 1 IN:10 FT

WISDOT/CADDS SHEET 49



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PROJECT NO: 4519-08-71	HWY: FAIR ROAD	COUNTY: BROWN	CROSS SECTIONS: FAIR ROAD	SHEET 20 59	E

Wisconsin Department of Transportation

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