NEL

MAY 2017

PROJECT ID: 4399-00-71

WITH: N/A

COUNTY: KEWAUNEE

ORDER OF SHEETS

TOTAL SHEETS = 70

PROJECT LOCATION

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

CTH J, STH 42 - WOODSIDE RD

SANDY BAY CREEK BRIDGE & APPROACHES

CTH J

KEWAUNEE COUNTY

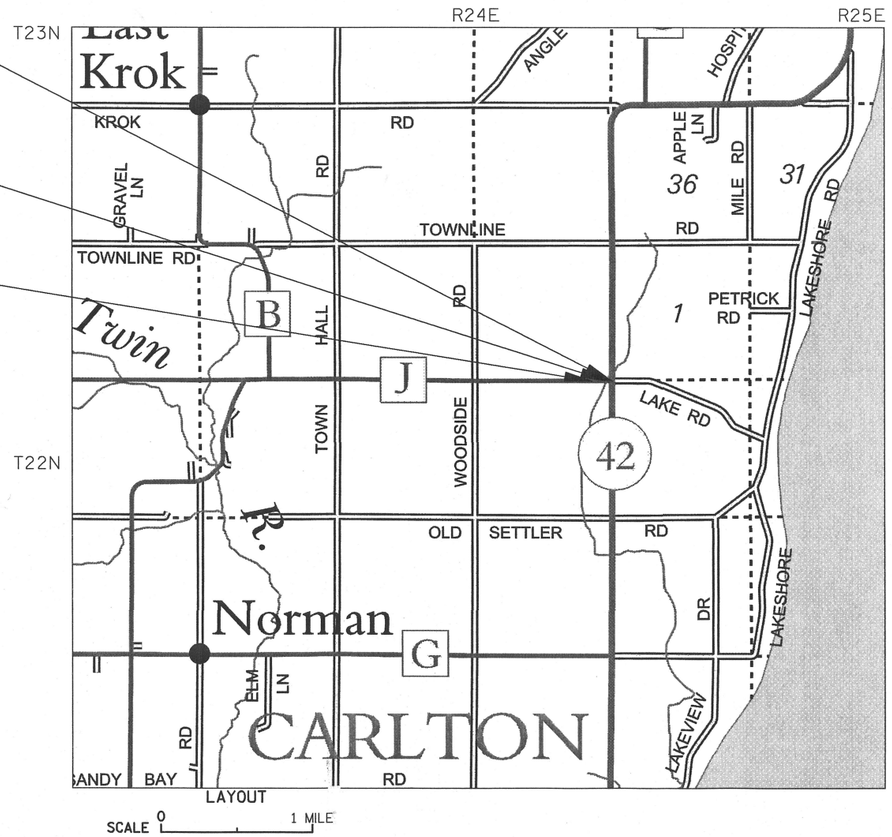
STATE PROJECT NUMBER
4399-00-71

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
4399-00-71		

END PROJECT
STA. 15+20

STRUCTURE
B-31-0098

BEGIN PROJECT
STA. 12+96
Y = 413110.95
X = 263736.21



TOTAL NET LENGTH OF CENTERLINE = 0.042 MI

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

DESIGN DESIGNATION

A.A.D.T.	2017	= 770
A.A.D.T.	2037	= 900
D.H.V.		= 3.3
D.D.		= 60/40
T.		= 3.9%
DESIGN SPEED		= 35M.P.H.
ESALS		= 73,000

CONVENTIONAL SYMBOLS

PLAN

- CORPORATE LIMITS
- PROPERTY LINE
- LOT LINE
- LIMITED HIGHWAY EASEMENT
- EXISTING RIGHT OF WAY
- PROPOSED OR NEW R/W LINE
- SLOPE INTERCEPT
- REFERENCE LINE (300'EB')
- EXISTING CULVERT
- PROPOSED CULVERT (Box or Pipe)
- COMBUSTIBLE FLUIDS (CAUTION)
- MARSH AREA
- WOODED OR SHRUB AREA

PROFILE

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

UTILITIES

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

ACCEPTED FOR COUNTY OF KEWAUNEE

1-26-17 (DATE) Todd L. Lucey (SIGNATURE)

ORIGINAL PLANS PREPARED BY:

Robert E. Lee & Associates, Inc.
ENGINEERING, SURVEYING, ENVIRONMENTAL SERVICES
1250 CENTENNIAL CENTRE BOULEVARD HOBART, WI 54155
920-662-0041 www.relassinc.com
Celebrating 60 Years of Excellence

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

1-26-17 (Date) (Signature)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY

Surveyor: ROBERT E. LEE & ASSOCIATES, INC.

Designer: ROBERT E. LEE & ASSOCIATES, INC.

Management Consultant: SHORT ELLIOTT HENDRICKSON

APPROVED FOR THE DEPARTMENT

DATE: 1/27/17 MANAGEMENT CONSULTANT SIGNATURE

E

FILE NAME : R:\1000\1075\1075169\DWG(2014)\010101_TI.DWG
LAYOUT NAME - ****

PLOT DATE : 1/24/2017 9:37 AM 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.

UTILITIES

AT&T WISCONSIN
JOE KASSAB
205 S. JEFFERSON STREET
GREEN BAY, WI 54305
(920) 433-4200
jk572k@att.com

WISCONSIN PUBLIC SERVICE (ELECTRIC)
JEFF PELISCHEK
100 NORTH ADAMS STREET
GREEN BAY, WI 54307
(920) 657-1816
jpelischek@wisconsinpublicservice.com

CONTACTS

ROBERT E. LEE & ASSOCIATES, INC.
RYAN TRZINSKI
1250 CENTENNIAL CENTRE BOULEVARD
HOBART, WI. 54155
(920) 662-9641
rtrzinski@releeinc.com

WDNR CONTACT
MATT SCHAEVE
2984 SHAWANO AVENUE
GREEN BAY, WI 54313
(920) 366-1544
matt.schaeve@wisconsin.gov

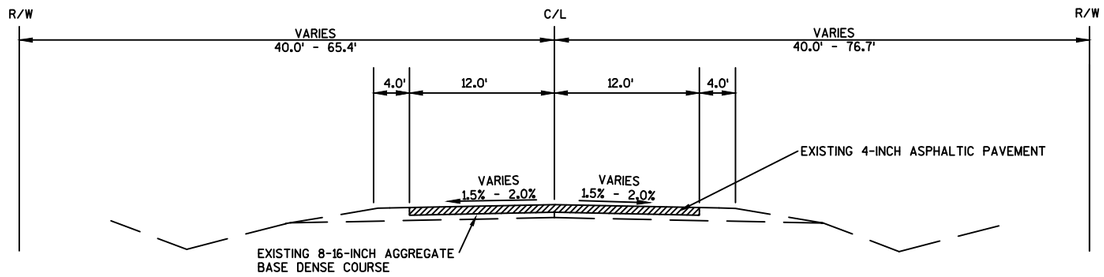
KEWAUNEE COUNTY HIGHWAY DEPARTMENT, COMMISSIONER
TODD EVERY
E4280 COUNTY ROAD F
KEWAUNEE, WI 54216
(920) 388-3707
everyt@kewauneeco.org

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.

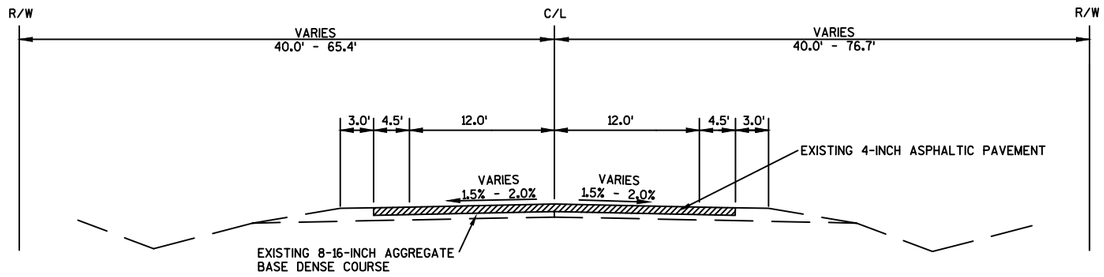
STANDARD ABBREVIATIONS

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		



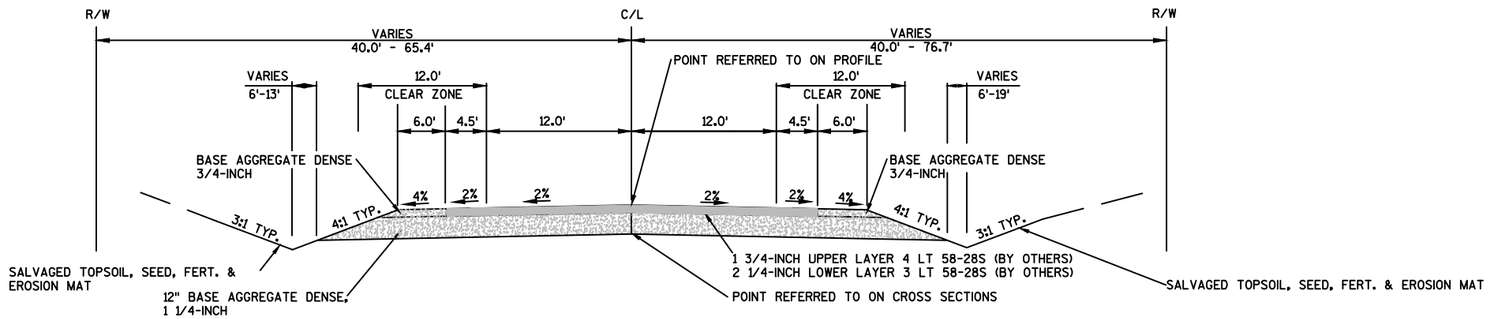
TYPICAL EXISTING SECTION

*STA. 12+96 TO STA. 13+97



TYPICAL EXISTING SECTION

STA. 14+17 TO STA. 15+20



TYPICAL FINISHED SECTION

STA. 12+96 TO STA. 13+91.42
STA. 14+22.58 TO STA. 15+20

* BRIDGE

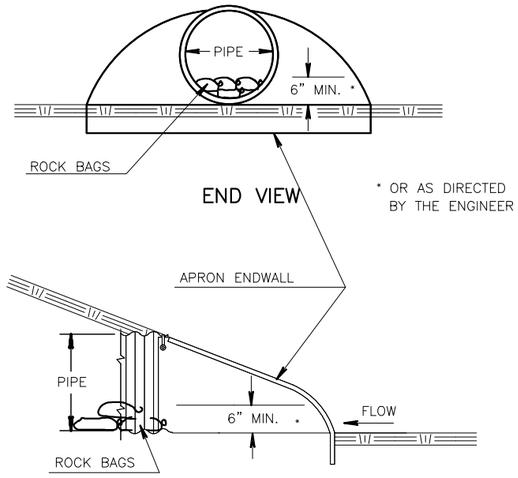
STA. 13+91.42 TO STA. 14+22.58

PROJECT NO: 4399-00-71	HWY: CTH J	COUNTY: KEWAUNEE	PLAN: TYPICAL SECTIONS	SHEET 3	E

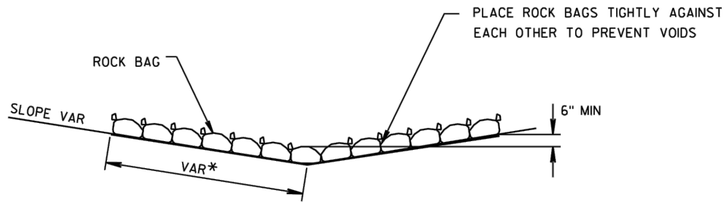
FILE NAME : R:\1000\1075\1075169\DWG(2014)\020301_TS.DWG
-

PLOT DATE : 2/23/2017 4:17 PM PLOT BY : ROCHELLE L. BURSA PLOT NAME : PLOT SCALE : **********

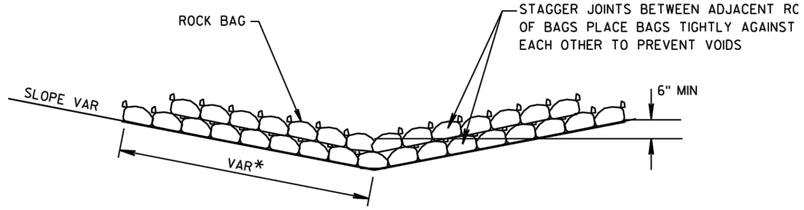
WISDOT/CADDS SHEET 42



CULVERT PIPE CHECK DETAIL

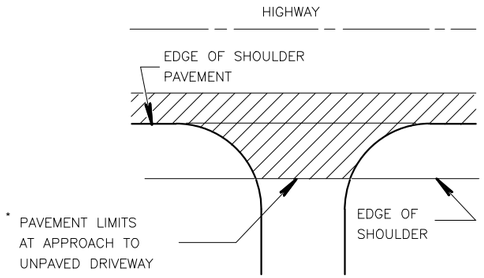


SIDE VIEW (SINGLE LAYER)



* LENGTH AND NUMBER OF BAGS MAY VARY DEPENDING ON DESIRED DEPTH OF WATER POOL

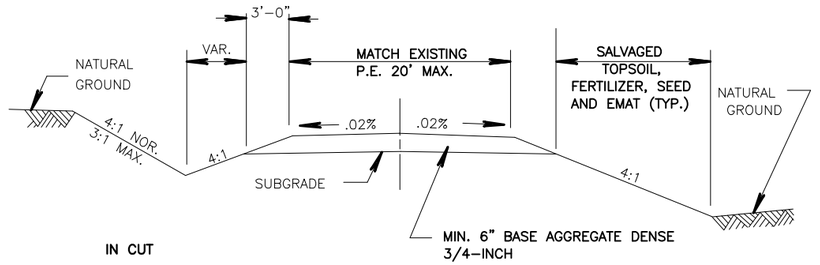
SIDE VIEW (MULTIPLE LAYER)



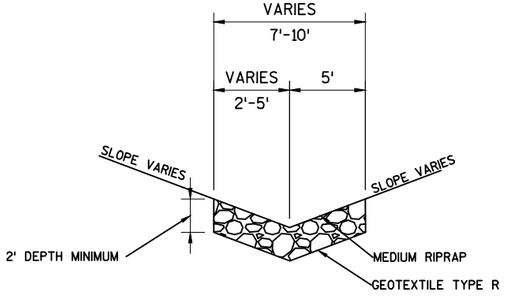
*WHERE DRIVEWAY IS PAVED, APPROACH PAVEMENT SHOULD BE EXTENDED TO MATCH DRIVEWAY PAVEMENT.

PLAN VIEW
(PAVED SHOULDER ON HIGHWAY)

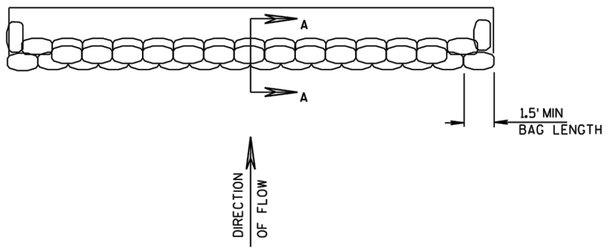
RURAL DRIVEWAY INTERSECTION DETAIL



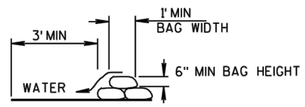
TYPICAL CROSS SECTION FOR PRIVATE DRIVEWAY



MEDIUM RIPRAP DITCH DETAIL

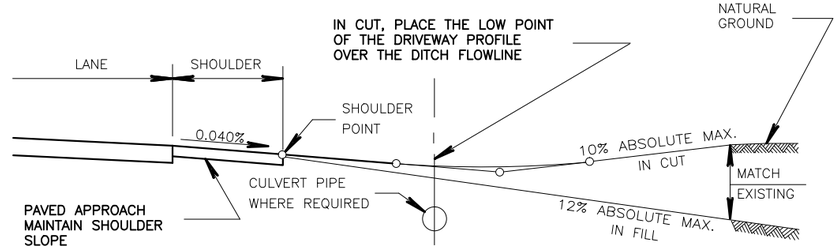


TOP VIEW (MULTIPLE LAYER)



SECTION A-A

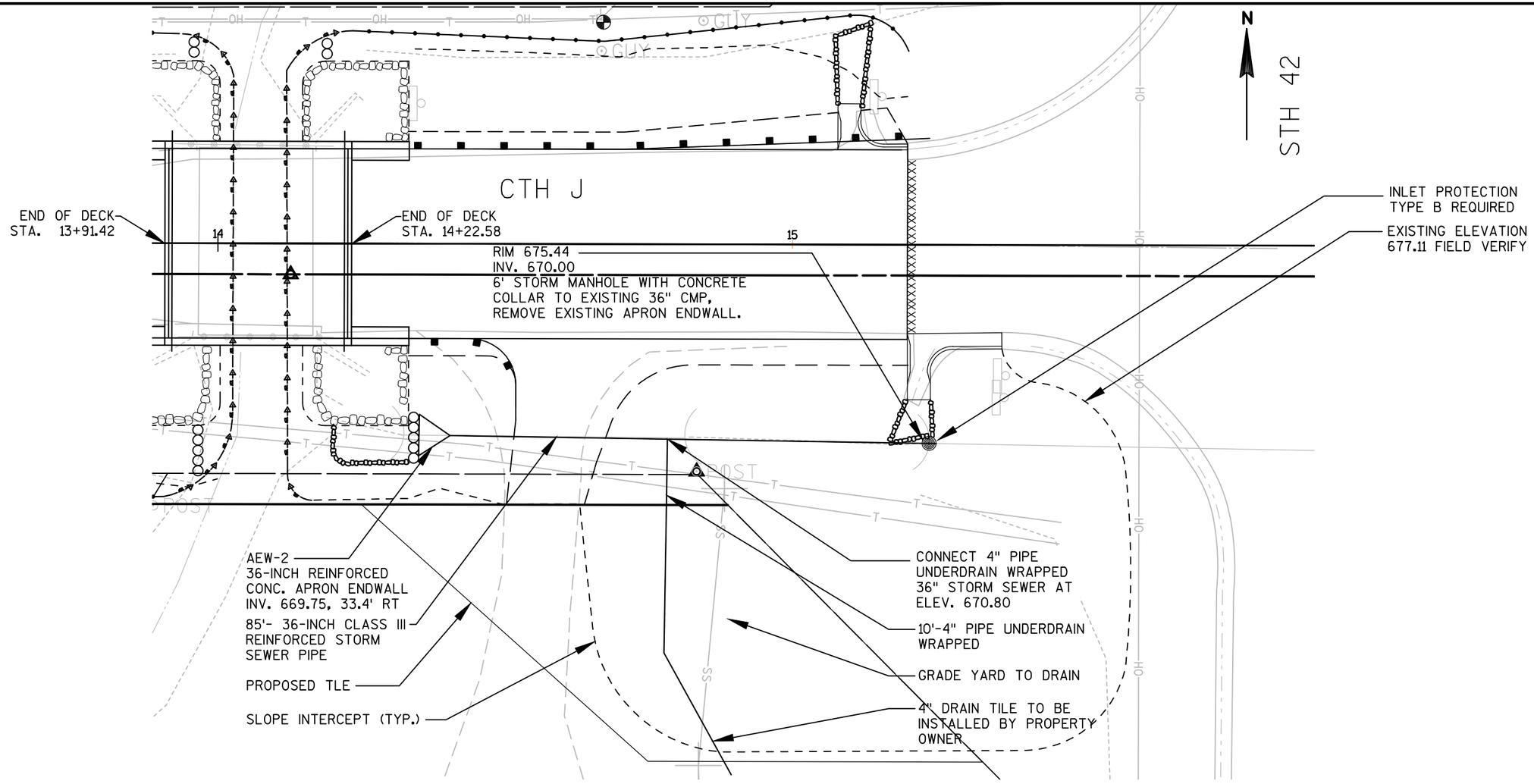
ROCK BAGS USED FOR DITCH CHECKS DETAIL



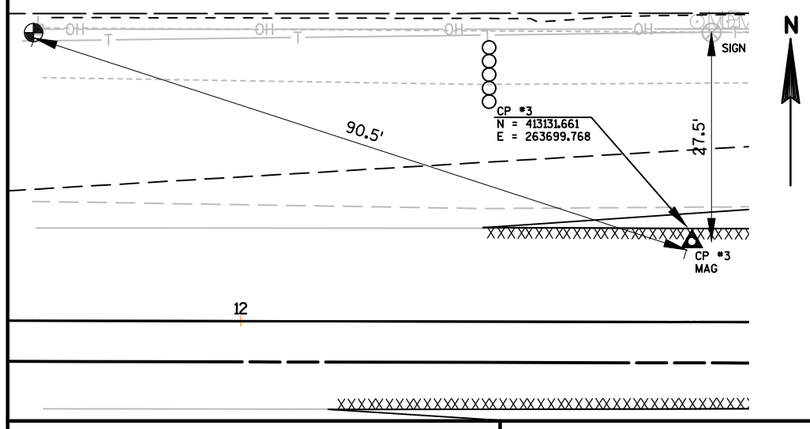
TYPICAL DRIVEWAY PROFILES

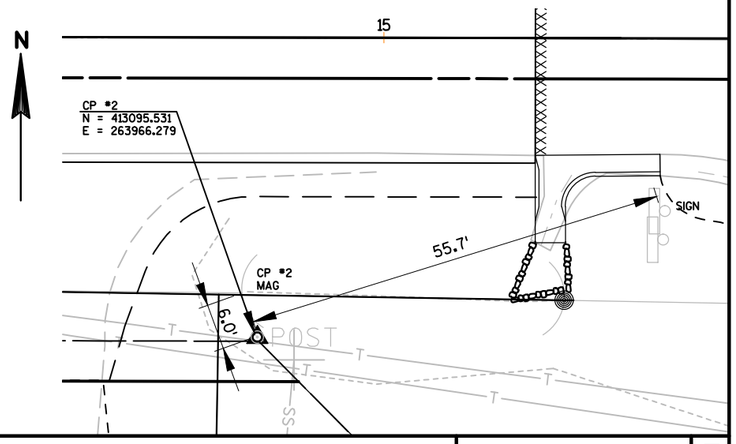
PROJECT NO: 4399-00-71	HWY: CTH J	COUNTY: KEWAUNEE	CONSTRUCTION DETAILS	SHEET 4 4	E

2



SURFACE DRAINAGE DETAIL





PROJECT NO: 4399-00-71	HWY: CTH J	COUNTY: KEWAUNEE	CONSTRUCTION DETAIL: PROPOSED GRADING DETAIL & CONTROL POINTS	SHEET 5	E

FILE NAME : R:\1000\1075\1075169\DWG(2014)\020301_TS.DWG
-
PLOT DATE : 2/23/2017 4:16 PM PLOT BY : ROCHELLE L. BURSA PLOT NAME : PLOT SCALE : **********
WISDOT/CADDS SHEET 42

1

DETOUR AHEAD W20-2

EAST M3-2 24" X 12"

CTH J I-3 24" X 12"

2

DETOUR M4-8 24" X 12"

EAST M3-2 24" X 12"

CTH J I-3 24" X 12"

M6-1 21" X 21"

3

DETOUR M4-8 24" X 12"

EAST M3-2 24" X 12"

CTH J I-3 24" X 12"

M5-1L 21" X 21"

4

DETOUR M4-8 24" X 12"

EAST M3-2 24" X 12"

CTH J I-3 24" X 12"

M6-1R 21" X 21"

5

DETOUR M4-8 24" X 12"

EAST M3-2 24" X 12"

CTH J I-3 24" X 12"

M6-1 21" X 21"

6

DETOUR M4-8 24" X 12"

EAST M3-2 24" X 12"

CTH J I-3 24" X 12"

M6-1 21" X 21"

7

END DETOUR M4-8A 24" X 18"

DETOUR M4-8 24" X 12"

EAST M3-2 24" X 12"

CTH J I-3 24" X 12"

8

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

BRIDGE OUT R11-2B 48" X 30"

9

DETOUR AHEAD W20-2

WEST M3-4 24" X 12"

CTH J I-3 24" X 12"

10

DETOUR M4-8 24" X 12"

WEST M3-4 24" X 12"

CTH J I-3 24" X 12"

M6-1 21" X 21"

11

DETOUR M4-8 24" X 12"

WEST M3-4 24" X 12"

CTH J I-3 24" X 12"

M5-1R 21" X 21"

12

DETOUR M4-8 24" X 12"

WEST M3-4 24" X 12"

CTH J I-3 24" X 12"

M6-1 21" X 21"

13

END DETOUR M4-8A 24" X 18"

DETOUR M4-8 24" X 12"

WEST M3-4 24" X 12"

CTH J I-3 24" X 12"

14

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

BRIDGE OUT R11-2B 48" X 30"

15

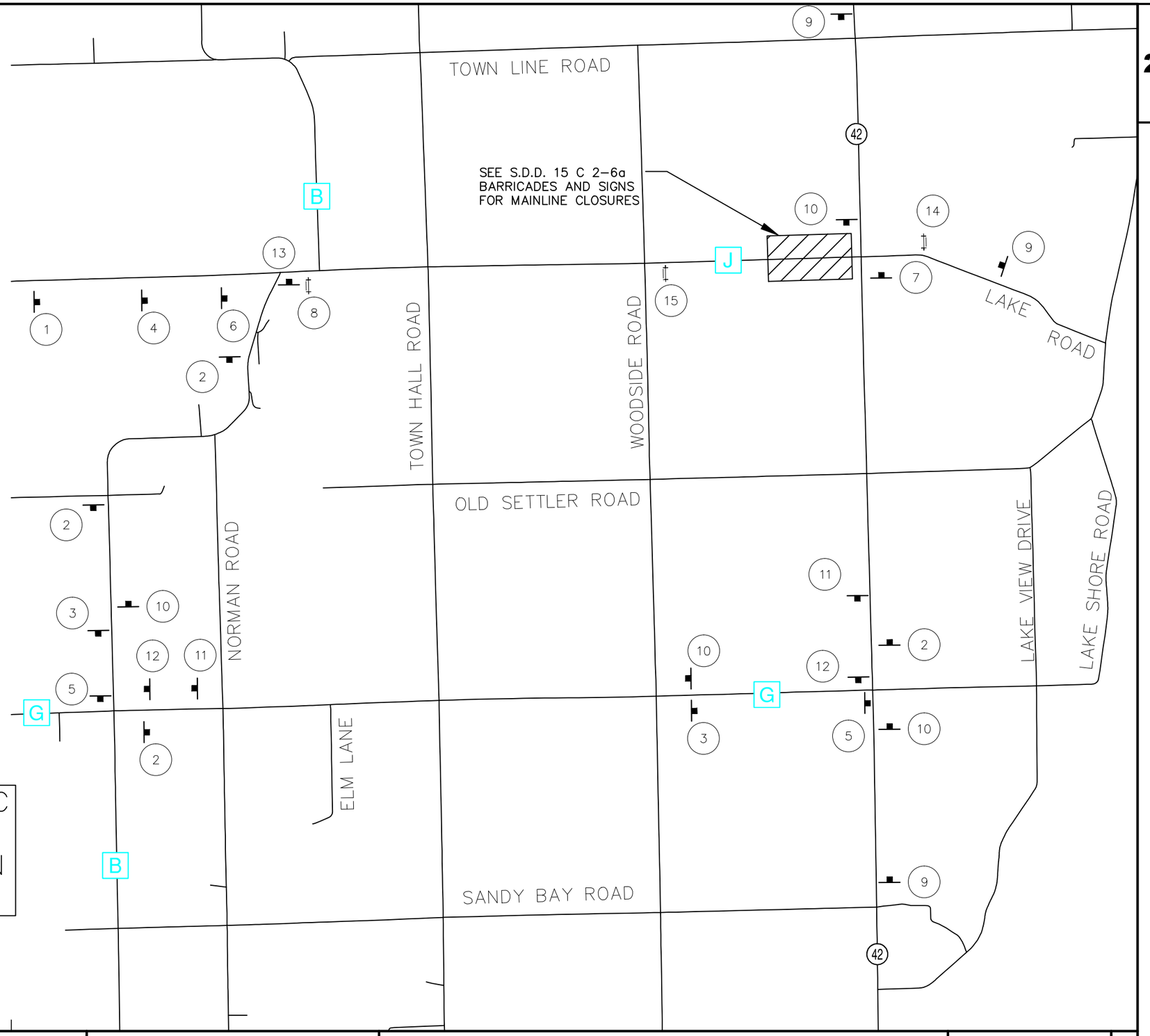
ROAD CLOSED .3 MILES AHEAD LOCAL TRAFFIC ONLY R11-3 60" X 30"

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

DETOUR TRAFFIC CONTROL IMPLEMENTATION BY OTHERS



PROJECT NO: 4399-00-71	HWY: CTH J	COUNTY: KEWAUNEE	DETOUR PLAN: CTH J	SHEET 6 6	E

Estimate Of Quantities

4399-00-71

Line	Item	Item Description	Unit	Total	Qty
0010	203.0100	Removing Small Pipe Culverts	EACH	1.000	1.000
0020	203.0600.S	Removing Old Structure Over Waterway With Minimal Debris (station) 01. 14+07	LS	1.000	1.000
0030	205.0100	Excavation Common **P**	CY	630.000	630.000
0040	206.1000	Excavation for Structures Bridges (structure) 01. B-31-0098	LS	1.000	1.000
0050	208.0100	Borrow **P**	CY	172.000	172.000
0060	210.1500	Backfill Structure Type A	TON	194.000	194.000
0070	213.0100	Finishing Roadway (project) 01. 4399-00-71	EACH	1.000	1.000
0080	305.0110	Base Aggregate Dense 3/4-Inch	TON	155.000	155.000
0090	305.0120	Base Aggregate Dense 1 1/4-Inch	TON	860.000	860.000
0100	502.0100	Concrete Masonry Bridges	CY	132.000	132.000
0110	502.3200	Protective Surface Treatment	SY	124.000	124.000
0120	505.0400	Bar Steel Reinforcement HS Structures	LB	4,030.000	4,030.000
0130	505.0600	Bar Steel Reinforcement HS Coated Structures	LB	15,850.000	15,850.000
0140	513.4061	Railing Tubular Type M (structure) 01. B-31-0098	LF	105.000	105.000
0150	516.0500	Rubberized Membrane Waterproofing	SY	18.000	18.000
0160	520.8000	Concrete Collars for Pipe	EACH	1.000	1.000
0170	522.1036	Apron Endwalls for Culvert Pipe Reinforced Concrete 36-Inch	EACH	1.000	1.000
0180	550.1100	Piling Steel HP 10-Inch X 42 Lb	LF	950.000	950.000
0190	606.0200	Riprap Medium	CY	60.000	60.000
0200	606.0300	Riprap Heavy	CY	154.000	154.000
0210	608.0336	Storm Sewer Pipe Reinforced Concrete Class III 36-Inch	LF	85.000	85.000
0220	611.0612	Inlet Covers Type C	EACH	1.000	1.000
0230	611.2006	Manholes 6-FT Diameter	EACH	1.000	1.000
0240	612.0404	Pipe Underdrain Wrapped 4-Inch	LF	10.000	10.000
0250	612.0406	Pipe Underdrain Wrapped 6-Inch	LF	130.000	130.000
0260	614.0150	Anchor Assemblies for Steel Plate Beam Guard	EACH	4.000	4.000
0270	614.0345	Steel Plate Beam Guard Short Radius	LF	31.000	31.000
0280	614.0390	Steel Plate Beam Guard Short Radius Terminal	EACH	1.000	1.000
0290	614.2500	MGS Thrie Beam Transition	LF	132.000	132.000
0300	614.2610	MGS Guardrail Terminal EAT	EACH	3.000	3.000
0310	619.1000	Mobilization	EACH	1.000	1.000
0320	624.0100	Water	MGAL	2.000	2.000
0330	625.0500	Salvaged Topsoil	SY	1,750.000	1,750.000
0340	628.1504	Silt Fence	LF	280.000	280.000
0350	628.1520	Silt Fence Maintenance	LF	280.000	280.000
0360	628.1905	Mobilizations Erosion Control	EACH	4.000	4.000
0370	628.1910	Mobilizations Emergency Erosion Control	EACH	2.000	2.000

4399-00-71

Line	Item	Item Description	Unit	Total	Qty
0380	628.2004	Erosion Mat Class I Type B	SY	1,750.000	1,750.000
0390	628.6005	Turbidity Barriers	SY	115.000	115.000
0400	628.7010	Inlet Protection Type B	EACH	1.000	1.000
0410	628.7555	Culvert Pipe Checks	EACH	10.000	10.000
0420	628.7570	Rock Bags	EACH	85.000	85.000
0430	629.0210	Fertilizer Type B	CWT	2.000	2.000
0440	630.0130	Seeding Mixture No. 30	LB	35.000	35.000
0450	630.0200	Seeding Temporary	LB	55.000	55.000
0460	634.0614	Posts Wood 4x6-Inch X 14-FT	EACH	4.000	4.000
0470	637.2210	Signs Type II Reflective H	SF	12.000	12.000
0480	638.2602	Removing Signs Type II	EACH	8.000	8.000
0490	638.3000	Removing Small Sign Supports	EACH	8.000	8.000
0500	642.5001	Field Office Type B	EACH	1.000	1.000
0510	643.0100	Traffic Control (project) 01. 4399-00-71	EACH	1.000	1.000
0520	643.0300	Traffic Control Drums	DAY	300.000	300.000
0530	643.0420	Traffic Control Barricades Type III	DAY	900.000	900.000
0540	643.0705	Traffic Control Warning Lights Type A	DAY	1,440.000	1,440.000
0550	643.0900	Traffic Control Signs	DAY	960.000	960.000
0560	645.0120	Geotextile Type HR	SY	212.000	212.000
0570	645.0130	Geotextile Type R	SY	34.000	34.000
0580	646.0106	Pavement Marking Epoxy 4-Inch	LF	1,200.000	1,200.000
0590	650.4000	Construction Staking Storm Sewer	EACH	3.000	3.000
0600	650.4500	Construction Staking Subgrade	LF	350.000	350.000
0610	650.5000	Construction Staking Base	LF	350.000	350.000
0620	650.6500	Construction Staking Structure Layout (structure) 01. B-31-0098	LS	1.000	1.000
0630	650.9910	Construction Staking Supplemental Control (project) 01. 4399-00-71	LS	1.000	1.000
0640	650.9920	Construction Staking Slope Stakes	LF	350.000	350.000
0650	690.0150	Sawing Asphalt	LF	200.000	200.000
0660	690.0250	Sawing Concrete	LF	10.000	10.000
0670	715.0502	Incentive Strength Concrete Structures	DOL	792.000	792.000

3

REMOVALS

CATEGORY	STA	OFFSET	203.0100 REMOVING SMALL PIPE CULVERTS EACH
0010	14+55	RT	1.0
PROJECT TOTAL			1.0

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	11+50 - 12+96	55	160	0.6
0010	12+96 - 13+91	35	330	0.4
0010	14+22 - 15+20	55	340	0.6
UNDISTRIBUTED		10	30	0.4
SUBTOTAL (0010)		155	860	2
PROJECT TOTAL		155	860	2

Division	From/To Station	Location	Common Excavation (1) Cut (2)	**p** (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 **p** (item #208.0100)	Comment:
0010	11+50 to 15+20	Mainline	627	0	102	525	0	0	0	0	0	0	0	557	697	-172		172	
	Undistributed		3																
Division 0010 Subtotal			630	0	102	525	0	0	0	0	0	0	0	557	697	-172			
Grand Total			630	0	102	525	0	0	0	0	0	0	0	557	697	-172	0	172	
		Total Common Exc	630																

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/Unusable 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

STORM SEWER ITEMS

STRUCTURE NO.	LOCATION	RIM / FLOW ELEVATION	TOP OF STRUCTURE ELEVATION	STRUCTURE INVERT ELEVATION	STRUCTURE DEPTH	FROM STRUCTURE NO.	TO STRUCTURE NO.	% SLOPE	INVERT IN ELEVATION	DISCHARGE ELEVATION	CONCRETE COLLARS FOR PIPE 520.8000 EACH	APRON ENDWALLS FOR CULVERT PIPE REINFORCED CONCRETE 36-INCH 522.1036 EACH	STORM SEWER PIPE REINFORCED CONCRETE CLASS III 36-INCH 608.0324 LF	INLET COVERS TYPE C 611.0612 EACH	MANHOLE 6-FT DIAMETER 611.0201 EACH	612.0404 PIPE UNDERDRAIN WRAPPED 4-INCH LF	CONSTRUCTION STAKING STORM SEWER 650.4000 EACH	NOTES
UNDER	14+80-35.0' RT	-	-	-	-	----	----	2.00	671.0	670.8	---	----	----	----	----	10	1	C,F,G
MH	15+24 -34.6' RT	675.44	674.19	670.42	3.77	-	-	-	-	-	1	----	----	1	1	-	1	A,B,C,D,E
AEW-2	14+40 -33.4' RT	669.75	-	669.75	-	MH	AEW 2	0.79	670.42	669.75	----	1	85'	----	----	-	1	C,F,G
PROJECT TOTAL											1	1	85	1	1	10	3	

(A) STATION AND OFFSET MEASURED TO CENTER OF STRUCTURE UNLESS OTHERWISE NOTED.
(B) TOP OF STRUCTURE ELEVATION MEASURED AS FOLLOWS:
MANHOLES: TYPE C COVERS = RIM - 9" CASTING - 6"ADJUSTMENT = 15" (1.25')
(C) STRUCTURE INVERT ELEVATION MEASURED FROM INVERT IN ELEVATION
(D) STRUCTURE DEPTH MEASURED AS TOP OF STRUCTURE ELEVATION - STRUCTUE INVERT ELEVATION.
(E) RIM / FLOW ELEVATION TAKEN FROM FLOW LINE OR CENTER OF MANHOLE COVER
(F) ENDWALL STATION AND OFFSET MEASURED TO END OF SLOPED SECTION OF STRUCTURE UNLESS OTHERWISE NOTED.
(G) ENDWALL STATION AND OFFSET MEASURED TO END OF PIPE

RIPRAP AND GEOTEXTILE FABRIC

STATION	OFFSET	LOCATION	606.0200 RIPRAP MEDIUM CY	645.0130 GEOTEXTILE TYPE R SY
14+40	RT	CTH J	2	8
15+10	LT	CTH J	4	18
15+21	RT	CTH J	2	8
11+75-13+95	LT	CTH J	52	146
PROJECT TOTAL			60	180

Beam Guard

CATEGORY	LOCATION	614.0345 STEEL PLATE BEAM GUARD SHORT RADIUS LF	614.0390 STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL EACH	614.2500 MGS THRIE BEAM TRANSITION LF	614.2610 MGS GUARDRAIL TERMINAL EAT EACH
0010	12+90 - 13+83 LT	-	-	39	1
0010	12+90 - 13+83 RT	-	-	39	1
0010	14+31 - 15+24 LT	-	-	39	1
0010 *	14+31 - 14+46 RT	31	1	15	-
SUBTOTAL (0010)		31	1	132	3
PROJECT TOTAL		31	1	132	3

* Install Terminal Connector, Posts 5 through 10 and assoicated Thrie beam steel. Then connect to Steel Plate Beam Guard Short Radius

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	11+51 - 13+91 LT	440	440	0.3	8	12
0010	11+49 - 13+91 RT	444	444	0.3	8	12
0010	14+23 - 15+20 LT	172	172	0.2	3	5
0010	14+23 - 15+50 RT	660	660	0.5	12	18
UNDISTRIBUTED		34	34	0.7	4	8
SUBTOTAL (0010)		1,750	1,750	2.0	35	55
PROJECT TOTAL		1,750	1,750	2.0	35	55

EROSION CONTROL

CATEGORY	STATION	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	628.7010 INLET PROTECTION TYPE B EACH	628.7555 CULVERT PIPE CHECKS EACH	628.7570 ROCK BAGS EACH
0010	11+50 - 14+95 LT	50	--	1	--	28	-	-	25
0010	11+50 - 14+95 RT	70	--	1	--	28	-	-	25
0010	14+20 - 15+20 LT	110	--	1	--	28	-	-	15
0010	14+20 - 15+20 RT	0	--	--	--	28	1	4	10
0010	UNDISTRIBUTED	50	280	1	2	3	-	2	10
SUBTOTAL (0010)		280	280	4	2	115	1	6	85
PROJECT TOTAL		280	280	4	2	115	1	6	85

3

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	638.2602 REMOVING SIGNS TYPE II EACH	638.3000 REMOVING SMALL SIGN SUPPORTS EACH
0010	13+81 RT	W5-52R		12 X 36	1	3.00	1.00	1.00
0010	13+81 LT	W5-52L		12 X 36	1	3.00	1.00	1.00
0010	14+33 RT	W5-52R		12 X 36	1	3.00	1.00	1.00
0010	14+33 LT	W5-52L		12 X 36	1	3.00	1.00	1.00
0010	11+37 RT		15 TON BRIDGE AHEAD				1.00	1.00
0010	14+35 LT		CTH J				1.00	1.00
0010	14+35 LT		STANGELVILLE 7				1.00	1.00
0010	15+16 LT		15 TON BRIDGE AHEAD				1.00	1.00
SUBTOTAL (0010)					4	12	8	8
PROJECT TOTAL					4	12	8	8

TRAFFIC CONTROL

CATEGORY	DURATION DAYS	643.0300 TRAFFIC CONTROL DRUMS NO.	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
0010	60	5	300	15	900	24	1440	16	960
SUBTOTAL (0010)			300		900		1440		960
PROJECT TOTAL			300		900		1440		960

PAVEMENT MARKING

CATEGORY	STA TO STA		646.0106 PAVEMENT MARKING EPOXY 4-INCH (WHITE) LF	(YELLOW) LF
0010	12+30 - 13+91	LT	161	--
0010	12+09 - 13+91	RT	182	364
0010	13+91 14+23		32	64
0010	14+23 - 15+20	LT	97	194
0010	14+23 - 15+20	RT	97	--
0010	UNDISTRIBUTED		6	3
SUBTOTAL (0010)			575	625
PROJECT TOTAL			1200	

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-31-0098) LS	650.9910 CONSTRUCTION STAKING SUPPLEMENTAL CONTROL LS	650.9920 CONSTRUCTION STAKING SLOPE STAKES LS
0010	11+50 - 13+91	241	241	--	--	241
0010	14+23 - 15+20	97	97	--	--	97
0020	11+50 - 13+91	--	--	1	--	--
0010	UNDISTRIBUTED	12	12	--	1	12
SUBTOTAL (0010)		350	350	1	1	350
PROJECT TOTAL		350	350	1	1	350

SAWING

CATEGORY	STATION		690.0150 SAWING ASPHALT LF	690.0250 SAWING CONCRETE LF
0010	12+96	CTH J	165	-
0010	15+20	CTH J	35	-
0010	15+20	CTH J	-	10
SUBTOTAL (0010)			200	10
PROJECT TOTAL			200	10

CONVENTIONAL SYMBOLS

SECTION LINE
QUARTER LINE
SIXTEENTH LINE
NEW REFERENCE LINE
NEW R/W LINE
EXISTING R/W OR HE LINE
PROPERTY LINE
LOT, TIE & OTHER MINOR LINES
SLOPE INTERCEPT
CORPORATE LIMITS
UNDERGROUND FACILITY (COMMUNICATIONS, ELECTRIC, ETC)
NEW R/W (FEE OR HE) (HATCHING VARIES BY OWNER)
TEMPORARY LIMITED EASEMENT AREA
EASEMENT AREA (PERMANENT LIMITED OR RESTRICTED DEVELOPMENT)
TRANSMISSION STRUCTURES
BUILDING — TO BE REMOVED
BRIDGE

SECTION CORNER SYMBOL
SECTION CORNER MONUMENT
R/W MONUMENT (TO BE SET)
NON-MONUMENTED R/W POINT
FOUND IRON PIN (1-INCH UNLESS NOTED) IP
GEODETIC SURVEY MONUMENT
SIXTEENTH CORNER MONUMENT
R/W POST ⊙POST
OFF-PREMISE SIGN

	COMPENSABLE	NON-COMPENSABLE
ELECTRIC POLE		
TELEPHONE POLE		
PEDESTAL (LABEL TYPE) (TV, TEL, ELEC, ETC.)		

ACCESS RESTRICTED BY ACQUISITION
NO ACCESS (BY STATUTORY AUTHORITY)
ACCESS RESTRICTED (BY PREVIOUS PROJECT OR CONTROL)
NO ACCESS (NEW HIGHWAY)
PARCEL NUMBER (25) UTILITY NUMBER (40)
PARALLEL OFFSETS

CONVENTIONAL ABBREVIATIONS

ACCESS RIGHTS	AR	POINT OF INTERSECTION	PI
ACRES	AC	PROPERTY LINE	PL
AHEAD	AH	RECORDED AS	(100')
ALUMINUM	ALUM	REEL / IMAGE	R/I
AND OTHERS	ET AL	REFERENCE LINE	R/L
BACK	BK	REMAINING	REM
BLOCK	BLK	RESTICTIVE DEVELOPMENT EASEMENT	RDE
CENTERLINE	C/L	RIGHT	RT
CERTIFIED SURVEY MAP	CSM	RIGHT OF WAY	R/W
CONCRETE	CONC	SECTION	SEC
COUNTY	CO	SEPTIC VENT	SEPV
COUNTY TRUNK HIGHWAY	CTH	SQUARE FEET	SF
DISTANCE	DIST	STATE TRUNK HIGHWAY	STH
CORNER	COR	STATION	STA
DOCUMENT NUMBER	DOC	TELEPHONE PEDESTAL	TP
EASEMENT	EASE	TEMPORARY LIMITED EASEMENT	TLE
EXISTING	EX	TRANSPORTATION PROJECT PLAT	TPP
GAS VALVE	GV	UNITED STATES HIGHWAY	USH
GRID NORTH	GN	VOLUME	V
HIGHWAY EASEMENT	HE	WARRANTY DEED	WD
IDENTIFICATION	ID		
LAND CONTRACT	LC		
LEFT	LT		
MONUMENT	MON		
NATIONAL GEODETIC SURVEY	NGS		
NUMBER	NO		
OUTLOT	OL		
PAGE	P		
POINT OF TANGENCY	PT		
PERMANENT LIMITED EASEMENT	PLE		
POINT OF BEGINNING	POB		
POINT OF CURVATURE	PC		
POINT OF COMPOUND CURVE	PCC		

CURVE DATA

LONG CHORD	LCH
LONG CHORD BEARING	LCB
RADIUS	R
DEGREE OF CURVE	D
CENTRAL ANGLE	Δ/DELTA
LENGTH OF CURVE	L
TANGENT	T
DIRECTION AHEAD	DA
DIRECTION BACK	DB

NOTES:

POSITIONS SHOWN ON THIS PLAT ARE WISCONSIN COORDINATE REFERENCE SYSTEM COORDINATES (WISCRS), KEWAUNEE COUNTY, NAD 83 (1997) IN US 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 24"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 OR OTHER SURVEYS OF PUBLIC RECORD.

CONVENTIONAL UTILITY SYMBOLS

WATER	W
GAS	G
TELEPHONE	T
OVERHEAD TRANSMISSION LINES	OH
ELECTRIC	E
CABLE TELEVISION	TV
FIBER OPTIC	FO
SANITARY SEWER	SAN
STORM SEWER	SS

ROAD NAME	BASIS OF EXISTING R/W	YEAR
CTH J	E 1229 (29) STANGLEVILLE - STH 42	1962
STH 42 (17)	DF 01-4(32)T REPLACES T01-4(16)	1958
STH 42 (17)	DF 01-4(32)T	1985

CAUTION
THIS PLAT IS FOR ILLUSTRATIVE PURPOSES ONLY. DEEDS MUST BE CHECKED TO DETERMINE PROPERTY BOUNDARIES.

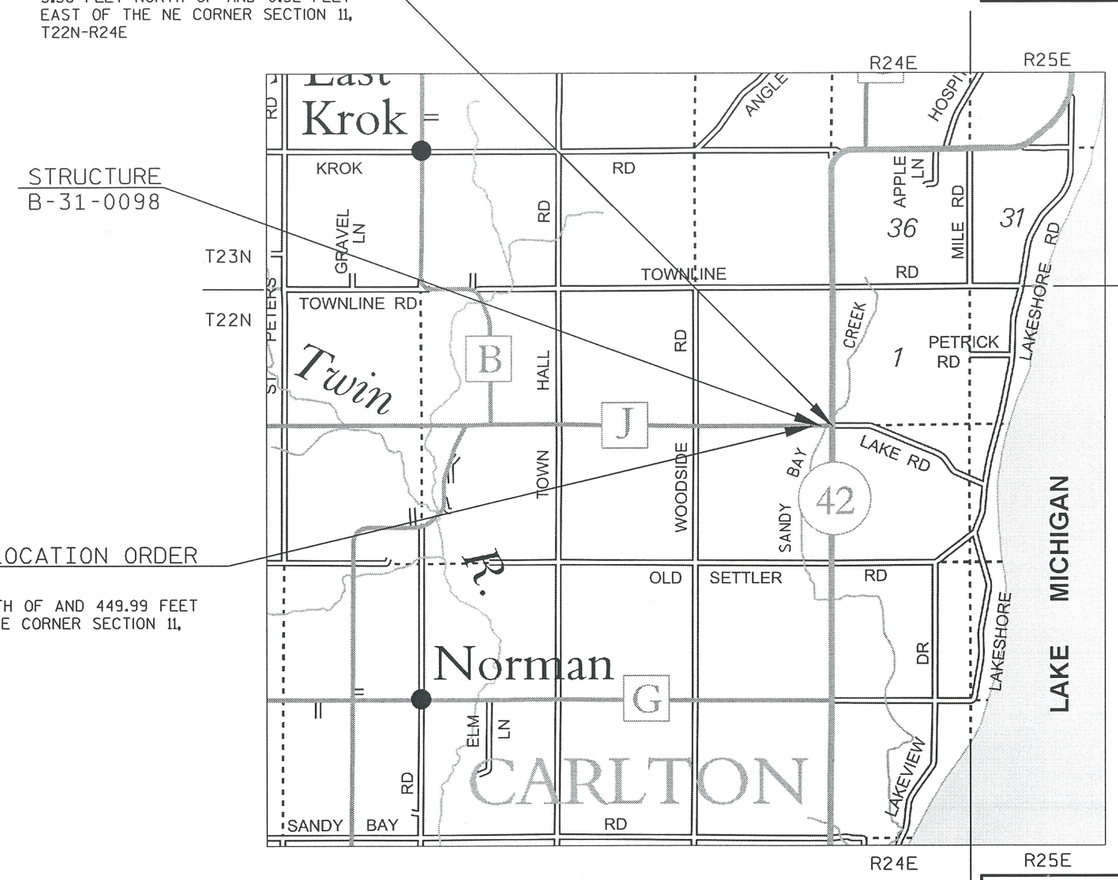
END RELOCATION ORDER
15+99.50

5.38 FEET NORTH OF AND 0.52 FEET EAST OF THE NE CORNER SECTION 11, T22N-R24E

STRUCTURE
B-31-0098

BEGIN RELOCATION ORDER
11+48.99

6.32 FEET NORTH OF AND 449.99 FEET WEST OF THE NE CORNER SECTION 11, T22N-R24E



N

LAYOUT
SCALE 0 1 MILE

TOTAL NET LENGTH OF CENTERLINE = 0.085 MILES

R/W PROJECT NUMBER 4399-00-71	SHEET NUMBER	TOTAL SHEETS
R/W PROJECT NUMBER 4399-00-71	4.01	2

PLAT OF RIGHT OF WAY REQUIRED FOR

CTH J

STH 42 - WOODSIDE RD

SANDY BAY CREEK BRIDGE AND APPROACHES KEWAUNEE

Robert E. Lee & Associates, Inc.
ENGINEERING, SURVEYING, ENVIRONMENTAL SERVICES
1250 CENTENNIAL CENTRE BOULEVARD HOBART, WI 54155
920-662-9641 www.rdeainc.com
Celebrating 60 Years of Excellence

I SCOTT M. DEBAKER, REGISTERED LAND SURVEYOR, S-2483, HEREBY CERTIFY THAT I HAVE SURVEYED THE LAND DESCRIBED HEREON AND THAT THE MAP IS A CORRECT REPRESENTATION OF THAT SURVEY TO THE BEST OF MY KNOWLEDGE AND BELIEF.

DATE: 12/15/16 (Signature)

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

12-15-16

REVISION DATE

KEWAUNEE COUNTY HIGHWAY DEPARTMENT

APPROVED FOR THE DEPARTMENT

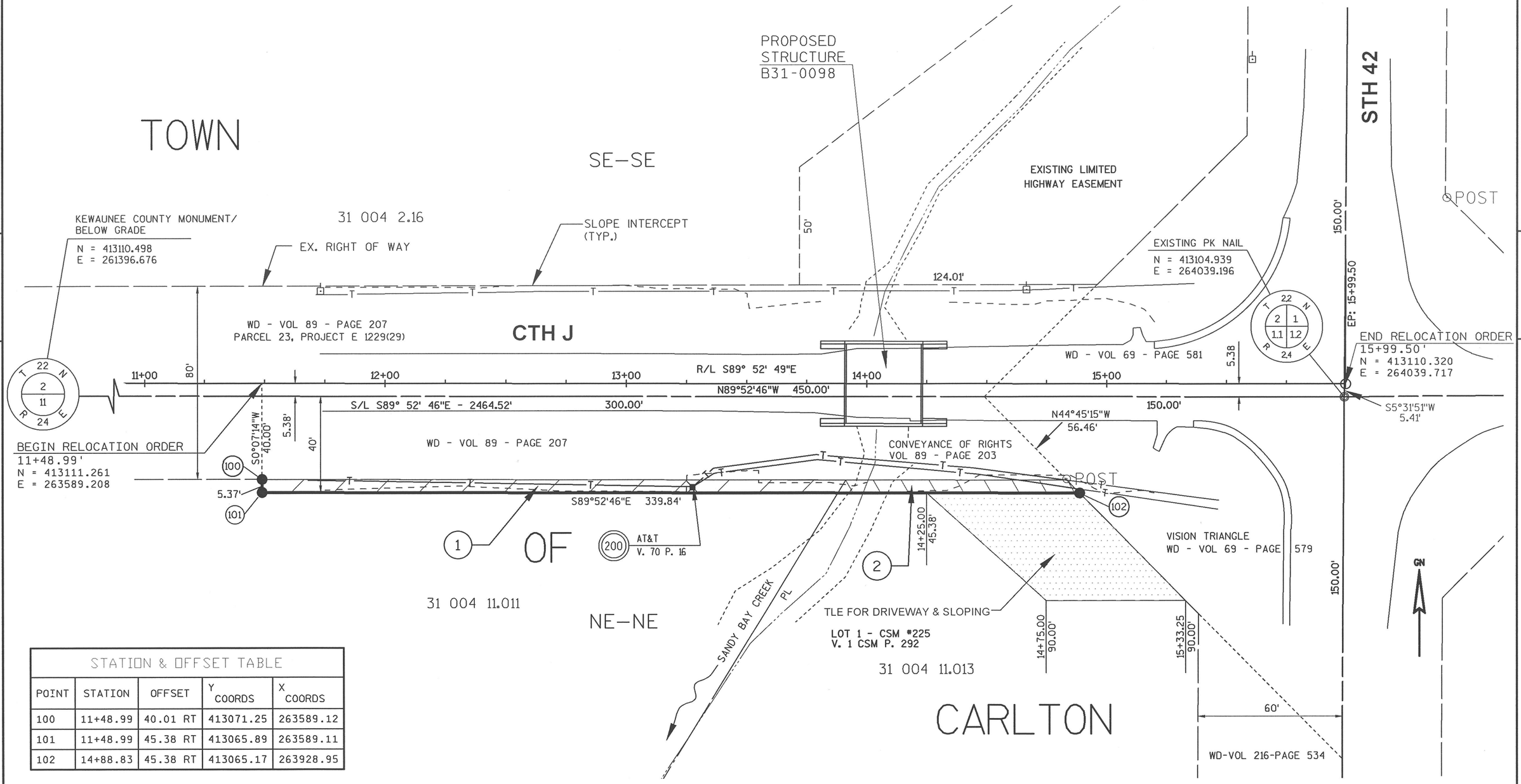
DATE: 12-15-16 (Signature)

10
12

FILE NAME : R:\1000\1075\1075169\DWG(2014)\040101_TI.DWG
LAYOUT NAME - TITLE SHEET

PLOT DATE : 12/15/2016 9:27 AM PLOT BY : SCOTT M. DEBAKER PLOT NAME :

WISDOT/CADDS SHEET 50



STATION & OFFSET TABLE				
POINT	STATION	OFFSET	Y COORDS	X COORDS
100	11+48.99	40.01 RT	413071.25	263589.12
101	11+48.99	45.38 RT	413065.89	263589.11
102	14+88.83	45.38 RT	413065.17	263928.95

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

SCHEDULE OF LANDS & INTERESTS REQUIRED						
PARCEL NUMBER	OWNER(S)	INTEREST REQUIRED	R/W NEW ACRES	R/W EXISTING ACRES	R/W TOTAL ACRES	TLE ACRES
1	Robert B. and Pamela J. Dworak Trust	FEE	0.030	0.200	0.230	
2	Randy L. & Sheri L. Ihlenfeldt	FEE & TLE	0.012	0.051	0.063	0.063

REVISION DATE

DATE 12/15/2016

GRID FACTOR N/A

SCALE. FEET 0 20 40

HWY: CTH J

COUNTY: KEWAUNEE

STATE R/W PROJECT NUMBER 4399-00-71

CONSTRUCTION PROJECT NUMBER 4399-00-71

PLAT SHEET 4.02

PS&E SHEET 11 of 13 E

FILE NAME : 040101_RW.DWG
LAYOUT NAME - 040101

PLOT DATE : 12/15/2016 9:26 AM PLOT BY : SCOTT M. DEBAKER PLOT NAME : PLOT SCALE : 1 IN:40 FT

WISDOT/CADDS SHEET 75

MEDIUM RIPRAP
EX. RIGHT OF WAY
ROCK BAGS FOR DITCH CHECKS (TYP.)
SLOPE INTERCEPT (TYP.)
EASEMENT
8" PVC DRAIN TILE
6" PVC DRAIN TILE (TO REMAIN)
SANDY BAY CREEK
TURBIDITY BARRIER (TYP.)
STRUCTURE B-31-0098
REMOVING OLD STRUCTURE B-31-0014
REMOVE SIGN AND SUPPORT
SILT FENCE (TYP.)
MEDIUM RIPRAP (TYP.)
REMOVE SIGN AND SUPPORT
ASPHALTIC FLUME (BY OTHERS) INSTALLED BETWEEN POSTS 3 AND 4
INLET PROTECTION TYPE B REQUIRED
6' STORM MANHOLE
RIM 675.44
INV. 670.00
WITH CONCRETE COLLAR TO EXISTING 36" CMP, REMOVE EXISTING APRON ENDWALL.
EX. 36" CMP
STA. 15+20
END PROJECT
FULL DEPTH SAWCUT MATCH EXISTING
CTH J CONSTRUCTION ℄
SECTION LINE
REMOVE SIGN AND SUPPORT
SAWCUT AND MATCH EXISTING (TYP.)
END OF DECK STA. 13+91.42
END OF DECK STA. 14+22.58
CTH J
TYPE 2 SHORT RADI
STH 42
N89°52'46"W
11+00
12+00
13+00
14+00
15+00
+51.5 16.0'LT
+31.9 12.4'LT
+90.2 18.5'LT
+43.2 16.5'LT
+70.8 16.5'LT
+23.9 18.6'LT
EP: 15+99.50
101
+49.8 15.0'RT
+11.6 11.6'RT
11.32'
12.43'
53.13' EAT
39.40' Δ
12.56' Δ
+90.3 18.5'RT
+43.3 16.5'RT
+43.9 16.4'RT
AEW-2
36-INCH REINFORCED CONC. APRON ENDWALL
INV. 669.75, 33.4' RT
85'- 36-INCH CLASS III REINFORCED STORM SEWER PIPE
P.E. 3/4-INCH BASE AGGREGATE DENSE
PROPOSED TLE
4" PIPE UNDER DRAIN WRAPPED
REMOVE EX. 24" CMP
MGS THRIE BEAM TRANSITION (TYP.)
MGS GUARDRAIL TERMINAL EAT (TYP.)
PROPOSED RIGHT OF WAY (TYP.)
STA. 12+96
BEGIN PROJECT
Y=413110.95
X=263736.21

BENCHMARK	BENCHMARK ESTABLISHED BY: ROBERT E. LEE & ASSOCIATES, INC. FIELD VERIFY BENCHMARKS FOR ACCURACY.	
NO.	DESCRIPTION	EL.
2	NAIL IN PP#2224 2R9	680.69
3	NAIL IN PP#2224 2R10	673.88

686
684
682
680
678
676
674
672
670

STA 12+96.00 EL 679.68
VPC STA 13+10.00 VPC EL 679.30
VPI STA 13+50.00 VPI EL 678.23
VPT STA 13+90.00 VPT EL 677.79
VPC STA 14+25.00 VPC EL 677.40
VPI STA 14+60.00 VPI EL 677.02
LOW POINT STA 14+79.17 LOW POINT EL 677.11
VPT STA 14+95.00 VPT EL 677.13
STA 15+16.00 EL 677.20
VCL = 80.00
K = 50.47
VCL = 70.00
K = 49.25
FINISHED GRADE
2.6%
-1.10%
0.32%
EXISTING PROFILE
13+96.8 674.88'
14+16.0 674.84'
EX. LOW CHORD ELEVATION
Q_2 ELEVATION - 672.25
14+12.7 670.76'
WATER ELEVATION 02/25/2016

STATION 14+07
REMOVE STRUCTURE B-31-0014
SINGLE SPAN CONCRETE SLAB BRIDGE
20' OVERALL LENGTH
33' OVERALL WIDTH

STATION 14+07
STRUCTURE B31-0098 REQUIRED
SINGLE SPAN CONCRETE SLAB BRIDGE 33-FT CLEAR ROADWAY
SKEW 0°

683.80 682.90 681.99 681.15 680.33 679.57 679.57 678.90 678.92 678.30 678.39 677.81 677.98 677.40 677.68 677.22 677.40 677.09 677.19 677.05 677.11 677.05 677.15 677.29 677.46 677.66

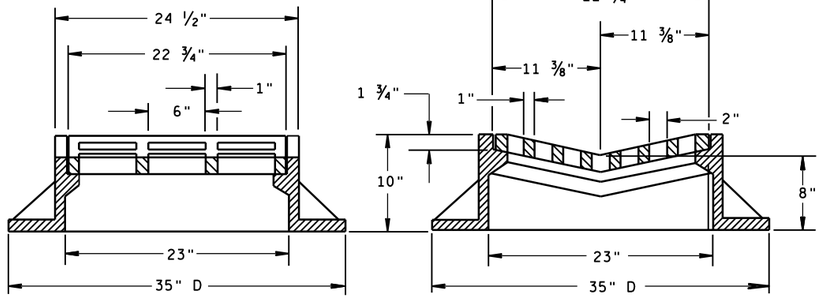
11+00 11+50 12+00 12+50 13+00 13+50 14+00 14+50 15+00 15+50 16+00

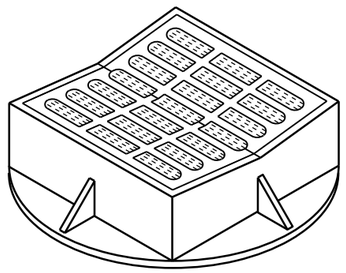
PROJECT NO: 4399-00-71	HWY: CTH J	COUNTY: KEWAUNEE	PLAN AND PROFILE: CTH J	SHEET 12 14	E

FILE NAME : R:\1000\1075\1075169\DWG(2014)\050101_P&P.DWG
LAYOUT NAME - 050101
PLOT DATE : 2/23/2017 2:57 PM
PLOT BY : ROCHELLE L. BURSA
PLOT NAME :
PLOT SCALE : 1 IN:40 FT

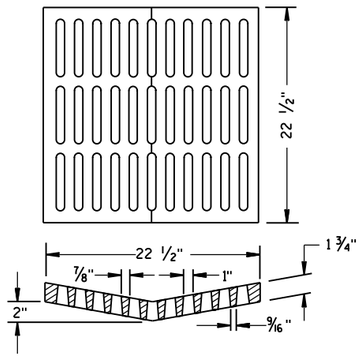
Standard Detail Drawing List

08A05-19B	INLET COVERS TYPE B, B-A, C, MS, MS-A, & WM
08B09-02	MANHOLES 3-FT, 4-FT, 5-FT, 6-FT, 7-FT AND 8-FT DIAMETER
08D01-19	CONCRETE CURB, CONCRETE CURB AND GUTTER AND TIES
08D04-05	CONCRETE SURFACE DRAINS & ASPHALTIC FLUMES
08E09-06	SILT FENCE
08E10-02	INLET PROTECTION TYPE A, B, C AND D
08E11-02	TURBIDITY BARRIER
08F01-11	APRON ENDWALLS FOR CULVERT PIPE
08F04-07	JOINT TIES FOR CONCRETE PIPE AND CONCRETE COLLAR DETAIL
14B27-01A	STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL
14B27-01B	STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL
14B27-01C	STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL
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)
15A03-02A	FLEXIBLE MARKER POST FOR CULVERT END
15A03-02B	FLEXIBLE MARKER POST FOR CULVERT END
15C02-06A	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-06B	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C08-17A	LONGITUDINAL MARKING (MAINLINE)
15C33-02	STOP LINE AND CROSSWALK PAVEMENT MARKING



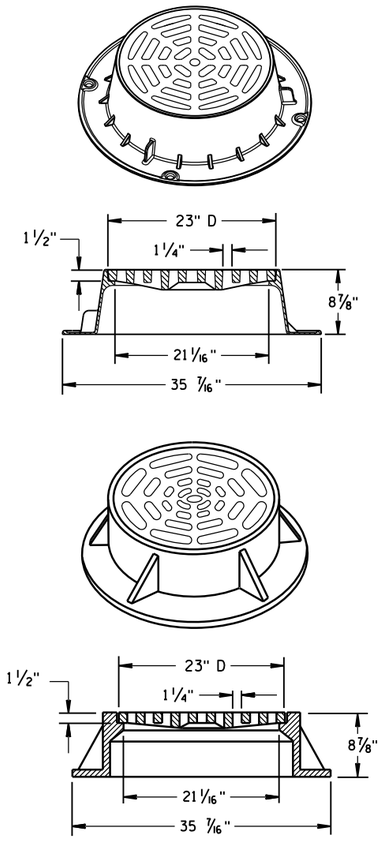


TYPE "B"



ALTERNATIVE GRATE FOR TYPE "B" COVER

USE WHERE PEDESTRIAN OR BICYCLE TRAFFIC IS POSSIBLE.
NOTED AS TYPE B-A ON THE DRAINAGE TABLE



TYPE "C"

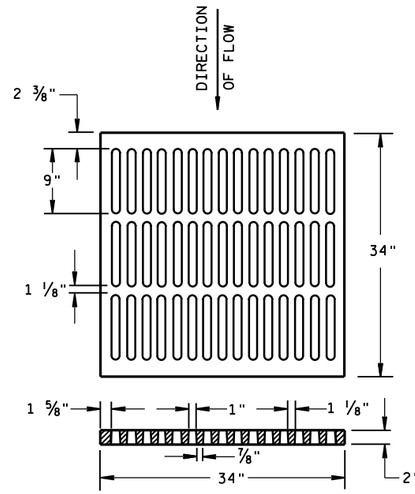
NOTE: EITHER CASTING IS ACCEPTABLE

GENERAL NOTES

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

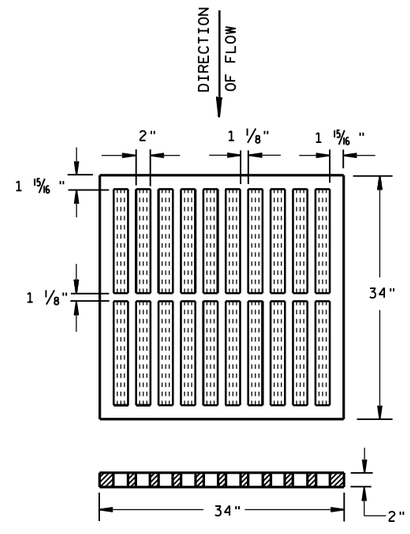
DETAIL DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR CATCH BASIN, MANHOLE AND INLET COVERS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PROVIDING THAT SUCH ALTERNATE DESIGNS MAKE PROVISION FOR EQUIVALENT CAPACITY AND STRENGTH.

ROUND FRAMES AND COVERS SHALL HAVE CONTINUOUSLY MACHINED BEARING SURFACES TO PREVENT ROCKING AND RATTLING.



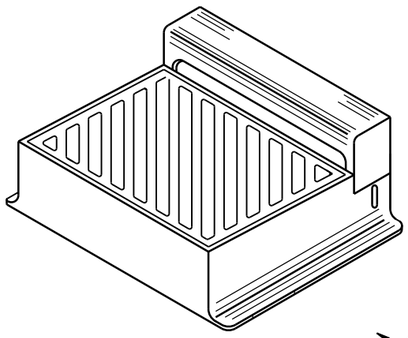
ALTERNATIVE TYPE "MS"

USE WHERE PEDESTRIAN OR BICYCLE TRAFFIC IS PERMITTED
NOTED AS TYPE MS-A ON THE DRAINAGE TABLE

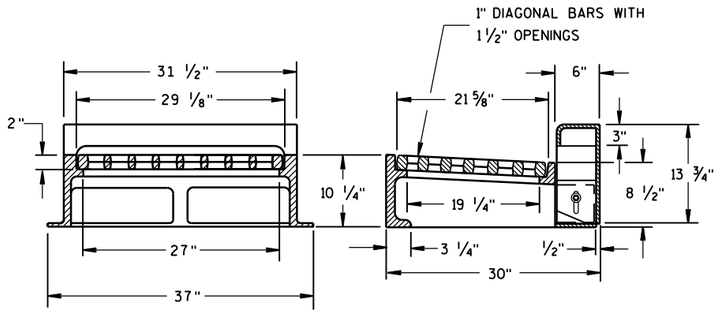


TYPE "MS"

USE ON FREEWAYS AND EXPRESSWAYS
NOTED AS TYPE MS ON DRAINAGE TABLE



DIAGONAL SLOTS, SHALL BE ORIENTED TO THE DIRECTION OF FLOW AS ILLUSTRATED. GRATES ARE MANUFACTURED TO BE REVERSIBLE.



NOTE: CURB BOX HEIGHT ADJUSTABLE 6" TO 9"

TYPE "WM"

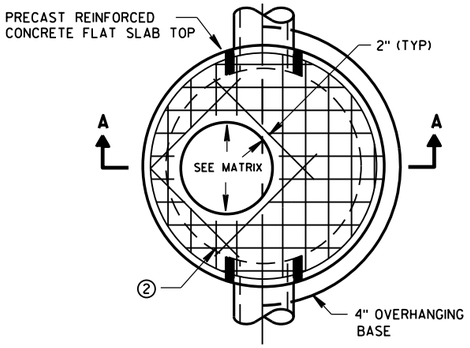
INLET COVERS
TYPE B, B-A, C,
MS, MS-A, & WM

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

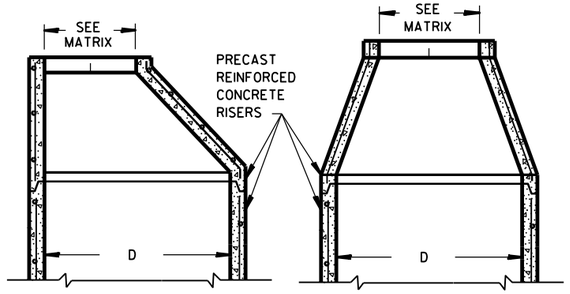
APPROVED
11/27/2013 — DATE
/S/ Jerry H. Zogg — ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA

6

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

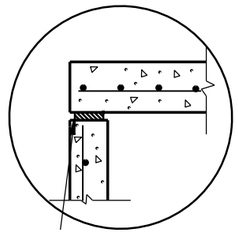


PLAN VIEW CIRCULAR OPENING

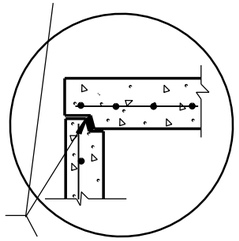


OPTIONAL PRECAST REINFORCED CONCRETE ECCENTRIC TOP

OPTIONAL PRECAST REINFORCED CONCRETE CONCENTRIC TOP

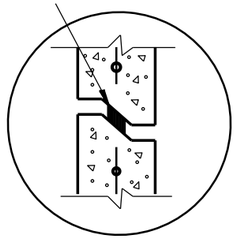


TOP WITH PLAIN END JOINT



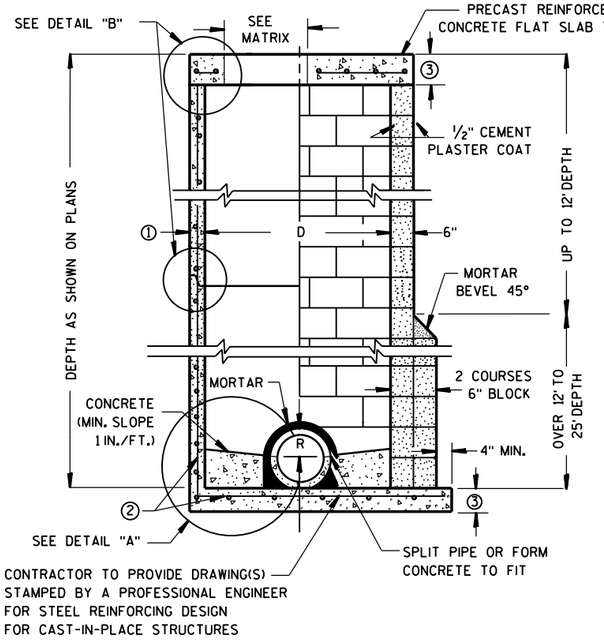
JOINTS TO BE SEALED WITH A BUTYL RUBBER SEAL PER SEALANT MANUFACTURERS RECOMMENDATIONS CONFORMING TO ASTM C990 (TYP)

TOP WITH TONGUE AND GROOVE JOINT



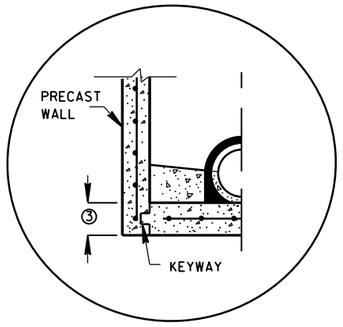
RISER WITH TONGUE AND GROOVE JOINT

DETAIL "B"

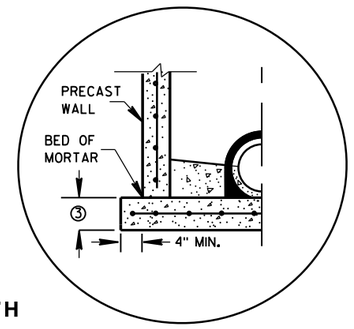


PRECAST REINFORCED CONCRETE WITH MONOLITHIC BASE

CONCRETE BLOCK WITH CAST-IN-PLACE OR PRECAST REINFORCED CONCRETE BASE ②

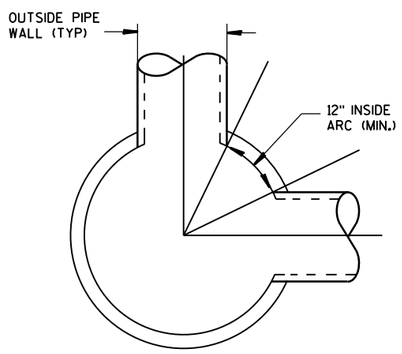


PRECAST REINFORCED CONCRETE WITH INTEGRAL BASE OPTION



SEPARATE PRECAST REINFORCED CONCRETE BASE OPTION

DETAIL "A"



DETAIL "C"

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.

UNLESS OTHERWISE AUTHORIZED IN WRITING BY THE ENGINEER, THE CONTRACTOR SHALL NOT ORDER AND DELIVER PRECAST MANHOLE UNITS REQUIRED FOR THE PROJECT UNTIL A LIST OF SIZES IS FURNISHED BY THE ENGINEER.

DETAILED DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR UNDERGROUND DRAINAGE STRUCTURES SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PROVIDING THAT SUCH ALTERNATE DESIGNS MAKE PROVISION FOR EQUIVALENT CAPACITY AND STRENGTH.

ALL DRAINAGE STRUCTURES ARE DESIGNATED ON THE PLANS AS "MANHOLES 3X3-L", "CATCH BASINS 4-B", "INLETS 2X3-H", ETC. THE FIRST NUMBERS DESIGNATE THE SIZE OF THE STRUCTURE, AND THE FOLLOWING LETTER DESIGNATES THE TYPE OF COVER TO BE USED TO COMPRISE THE COMPLETE UNIT.

BASES SHALL BE PLACED ON A BED OF MATERIAL AT LEAST 6 INCHES IN DEPTH, WHICH MEETS THE REQUIREMENTS OF FOUNDATION BACKFILL. THIS BEDDING SHALL BE COMPACTED AND PROVIDE UNIFORM SUPPORT FOR THE ENTIRE AREA OF THE BASE.

PRECAST REINFORCED CONE TOPS (ECCENTRIC OR CONCENTRIC) OR PRECAST REINFORCED FLAT SLAB TOPS MAY BE USED ON CONCRETE BLOCK STRUCTURES.

ECCENTRIC CONE TOPS MAY BE USED ON ALL STRUCTURES, AND CONCENTRIC CONE TOPS SHALL BE USED ONLY ON STRUCTURES 5 FEET OR LESS IN DEPTH, UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

STEPS MEETING AASHTO M199 AND THE FOLLOWING REQUIREMENTS SHALL BE INSTALLED IN ALL STRUCTURES OVER 5 FEET IN DEPTH: 16 INCH C-C MAXIMUM SPACING; PROJECT A MINIMUM CLEAR DISTANCE OF 4 INCHES FROM THE WALL AT THE POINT OF EMBEDMENT; MINIMUM LENGTH OF 10 INCHES; MINIMUM WALL EMBEDMENT OF 3 INCHES. FERROUS METAL STEPS NOT PAINTED OR TREATED TO RESIST CORROSION SHALL HAVE A MINIMUM CROSS SECTIONAL DIMENSION OF 1 INCH.

STEPS OF APPROVED POLYPROPYLENE PLASTIC COATED REINFORCEMENT BAR ARE ACCEPTABLE. REINFORCING BAR MUST BE A MINIMUM OF ½" AND MEET THE REQUIREMENTS OF ASTM A615.

CERTIFICATION SHALL BE PROVIDED THAT INSTALLED STEPS WHEN TESTED IN ACCORDANCE WITH SECTION 10 OF AASHTO T280 CAN WITHSTAND A VERTICAL LOAD OF 800 LBS. AND A HORIZONTAL LOAD OF 400 LBS.

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

CONCRETE BLOCK WILL NOT BE PERMITED FOR STRUCTURES GREATER THAN 4 FEET IN DIAMETER.

PRECAST REINFORCED RISERS SHALL HAVE A TONGUE AND GROOVE JOINT WITH TONGUE UP OR DOWN.

ALL PRECAST MANHOLE UNITS SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF AASHTO DESIGNATION M 199.

4" OVERHANGING BASES ARE REQUIRED FOR ALL CONCRETE BLOCK INSTALLATIONS. 4" OVERHANG IS REQUIRED WHEN SEPARATE PRECAST BASE IS PROVIDED. OVERHANG IS NOT REQUIRED ON PRECAST STRUCTURES WITH AN INTEGRAL OR MONOLITHIC BASE.

FOR ADDITIONAL CONFIGURATIONS, MAINTAIN A MINIMUM OF 12 INCHES AS MEASURED FROM THE INSIDE OF THE STRUCTURE WALL BETWEEN THE OUTSIDE PIPE WALLS OF ADJACENT PIPES. SEE DETAIL "C".

① MINIMUM WALL THICKNESS SHALL BE 4 INCHES FOR 3-FT, 5 INCHES FOR 4-FT, 6 INCHES FOR 5-FT, 7 INCHES FOR 6-FT, 8 INCHES FOR 7-FT AND 9 INCHES FOR 8-FT DIAMETER PRECAST MANHOLES.

② FOR PRECAST MANHOLES PROVIDE REINFORCING STEEL IN ACCORDANCE TO AASHTO M199.

③ PRECAST FLAT SLAB TOPS AND BASES WITH A DIAMETER OF 48" AND LESS SHALL HAVE A MINIMUM THICKNESS OF 6". PRECAST FLAT SLAB TOPS AND BASES WITH A DIAMETER LARGER THAN 48" SHALL HAVE A MINIMUM THICKNESS OF 8".

MANHOLE COVER OPENING MATRIX

MANHOLE COVER TYPE	C	ALL J'S	K	L	M
OPENING SIZE (FT)					
2 DIA.	X	X		X	
3 DIA.			X		X

PIPE MATRIX

MANHOLE SIZE	MAXIMUM INSIDE PIPE DIAMETER FOR TWO PIPES	
	180° SEPARATION (IN)	90° SEPARATION (IN)
3-FT	15	12
4-FT	24	18
5-FT	36	24
6-FT	42	36
7-FT	48	36
8-FT	60	42

MANHOLES 3-FT, 4-FT, 5-FT, 6-FT, 7-FT AND 8-FT DIAMETER

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

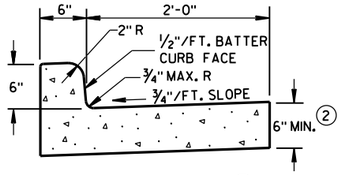
APPROVED

Sept., 2016
DATE

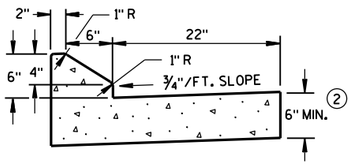
/S/ Rodney Taylor
ROADWAY STANDARDS DEVELOPMENT
UNIT SUPERV

FHWA

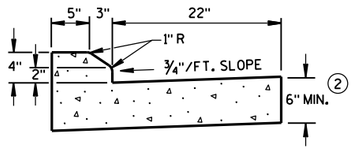
6
S.D.D. 8 B 9-2



TYPES A & D ①

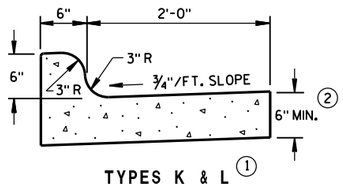


6" SLOPED CURB TYPES G & J ①

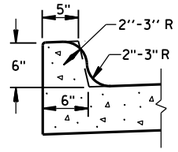


4" SLOPED CURB TYPES G & J ①

CONCRETE CURB & GUTTER 30"

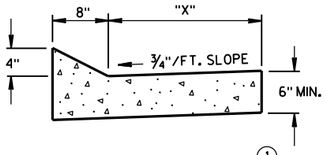


TYPES K & L ①



OPTIONAL CURB SHAPE FOR TYPES K & L ①

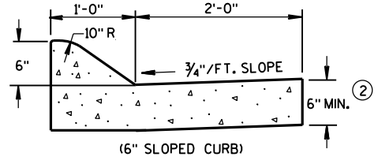
CONCRETE CURB & GUTTER 30"



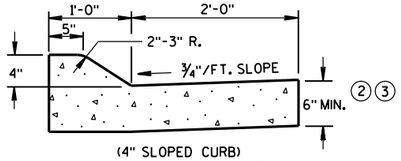
TYPES TBT & TBTT ①

CONCRETE CURB & GUTTER

TBT & TBTT	"X"
30"	22"
36"	28"

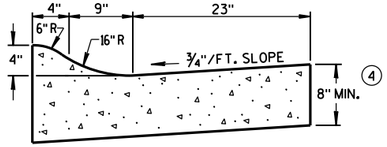


(6" SLOPED CURB)



(4" SLOPED CURB)

TYPES A & D ①



4" SLOPED CURB TYPES R & T ①⑤

CONCRETE CURB & GUTTER 36"

GENERAL NOTES

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

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

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

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

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

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

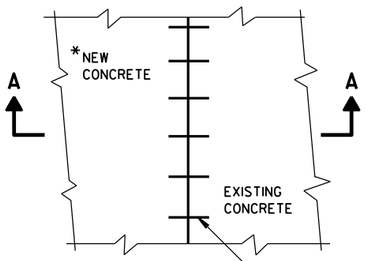
② THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 6" MINIMUM GUTTER THICKNESS IS MAINTAINED.

③ USE 8" MINIMUM GUTTER THICKNESS WHEN USED WITH AN ADJACENT CONCRETE TRUCK APRON PLACED BEHIND BACK OF CURB.

④ THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 8" MINIMUM GUTTER THICKNESS IS MAINTAINED.

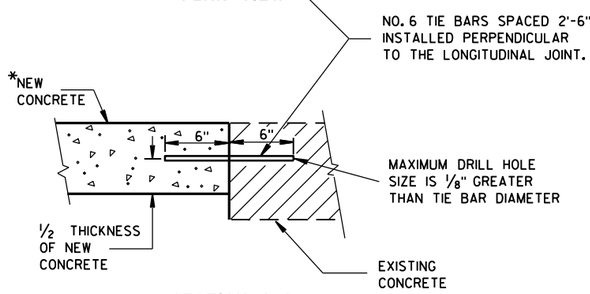
⑤ THE FACE OF CURB IS 6" FROM THE BACK OF CURB.

⑥ WHEN REVERSE SLOPE GUTTER IS REQUIRED, THE LOCATION(S) WILL BE SHOWN ELSEWHERE IN THE PLAN.



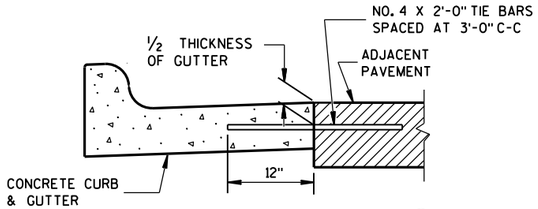
PLAN VIEW

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

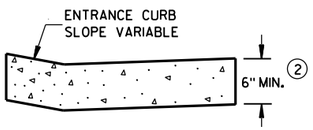


SECTION A-A

TIE BARS DRILLED INTO EXISTING PAVEMENT

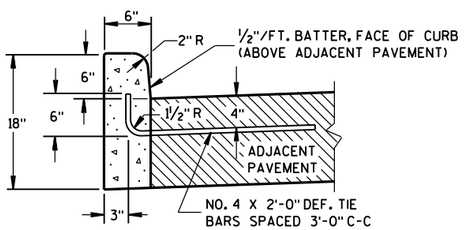


TYPICAL TIE BAR LOCATION ①

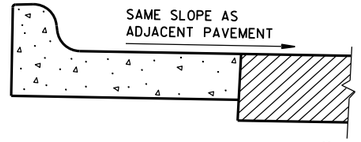


DRIVEWAY ENTRANCE CURB

(WHEN DIRECTED BY THE ENGINEER)

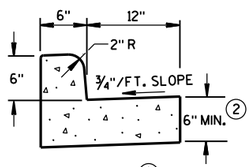


① TYPES A & D



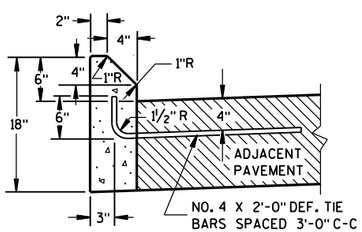
⑥ REVERSE SLOPE GUTTER

(TYPICAL FOR ALL CURB & GUTTER TYPES)



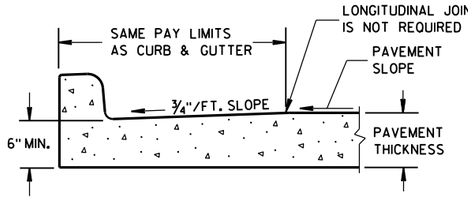
① TYPES A & D

CONCRETE CURB & GUTTER 18"

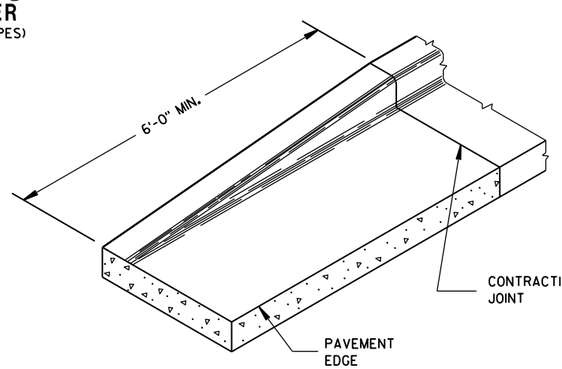


① TYPES G & J

CONCRETE CURB



PARTIAL SECTION OF PAVEMENT WITH INTEGRAL CURB & GUTTER



END SECTION CURB & GUTTER

CONCRETE CURB, CONCRETE CURB & GUTTER AND TIES

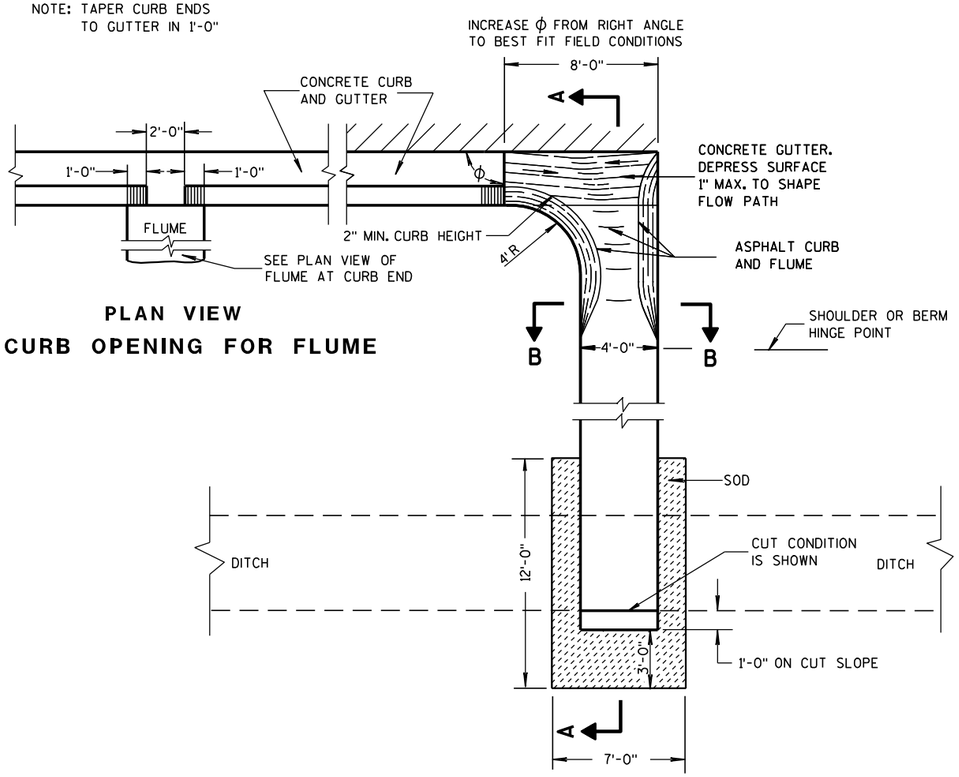
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

6

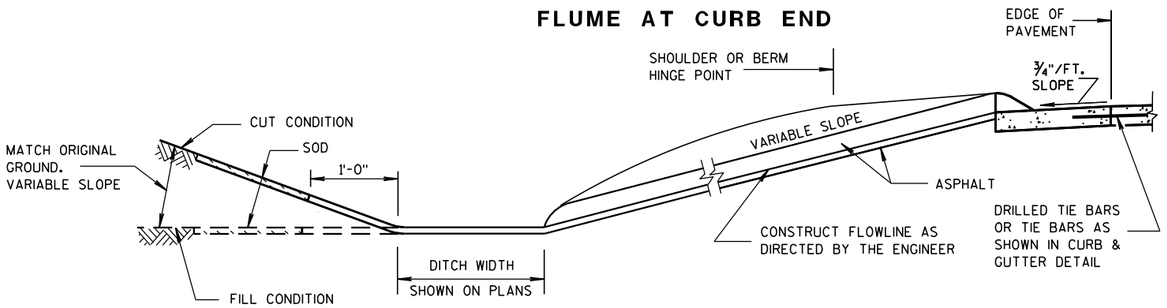
S.D.D. 8 D 1-19

ASPHALTIC FLUME

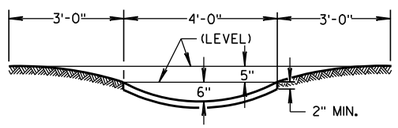


PLAN VIEW
CURB OPENING FOR FLUME

PLAN VIEW
FLUME AT CURB END



SECTION A-A



SECTION B-B

GENERAL NOTES

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

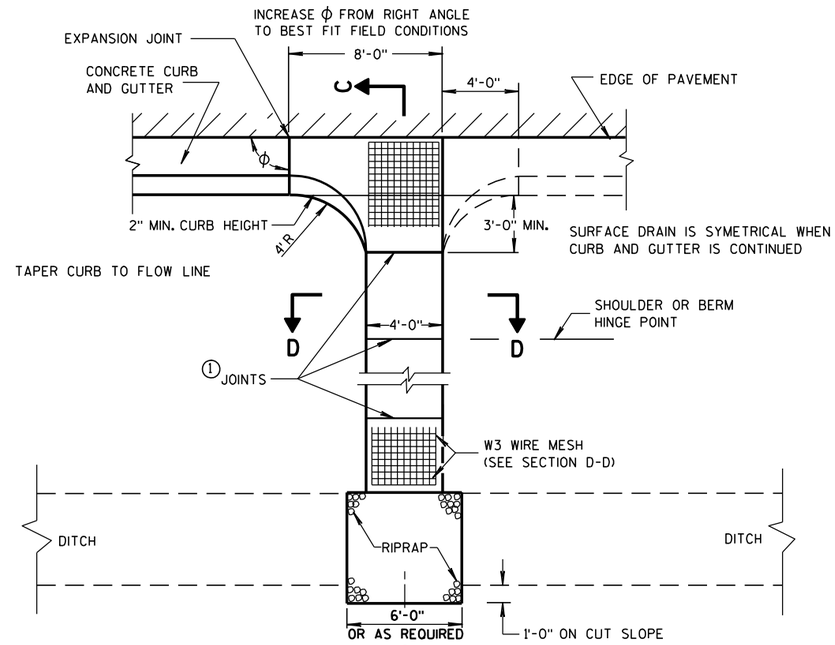
WELDED STEEL WIRE FABRIC SHALL BE IN ACCORDANCE WITH AASHTO SPECIFICATION M55.

① JOINTS SHALL BE $\frac{1}{8}$ TO $\frac{1}{4}$ INCH WIDE BY $1\frac{1}{2}$ INCHES DEEP AND SPACED AT UNIFORM INTERVALS OF APPROXIMATELY 4 FEET.

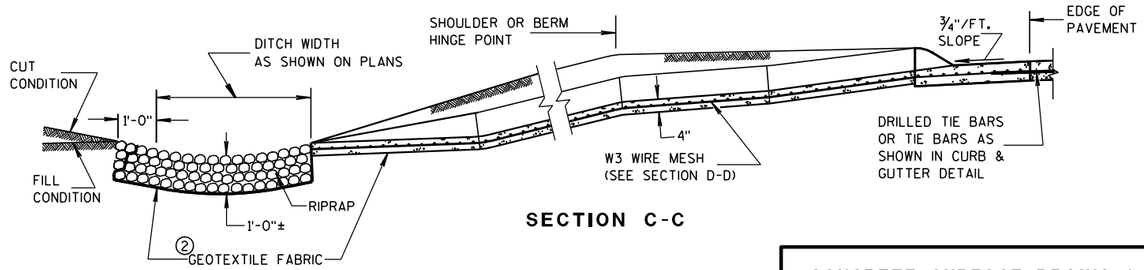
② GEOTEXTILE FABRIC TYPE "R" SHALL UNDERLAY THE FULL LENGTH AND WIDTH OF THE CONCRETE SURFACE DRAIN AND RIPRAP.

③ CONCRETE SURFACE DRAIN WITHOUT CURB AND GUTTER MAY BE USED ON BACKSLOPES WHEN SPECIFIED

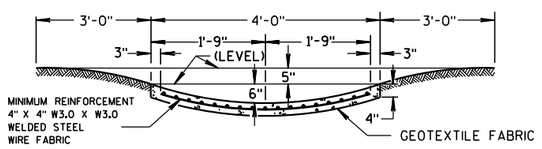
③ CONCRETE SURFACE DRAIN



PLAN VIEW



SECTION C-C



SECTION D-D

CONCRETE SURFACE DRAINS & ASPHALTIC FLUMES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
9-4-08 DATE
/S/ Jerry H. Zogg
ROADWAY STANDARDS ENGINEER
MENT
FHWA

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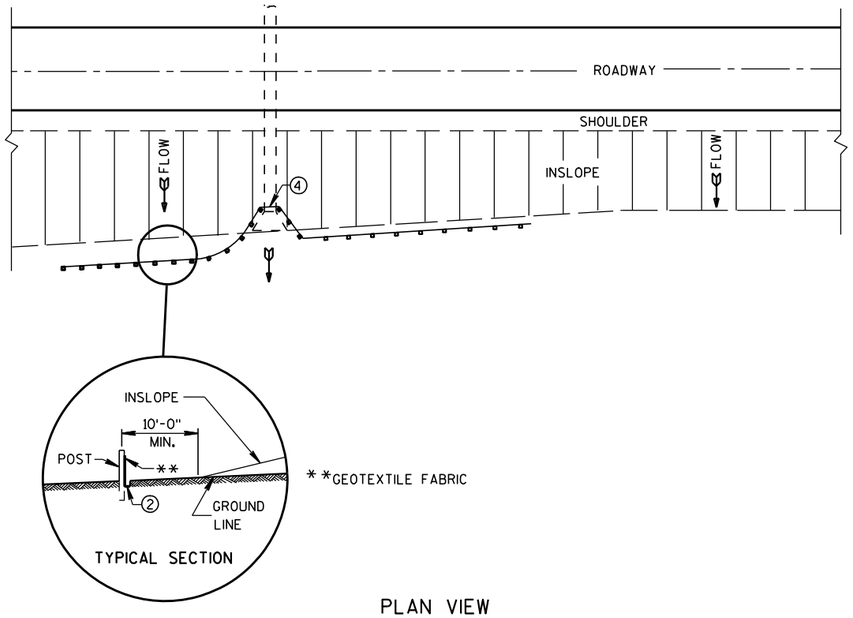
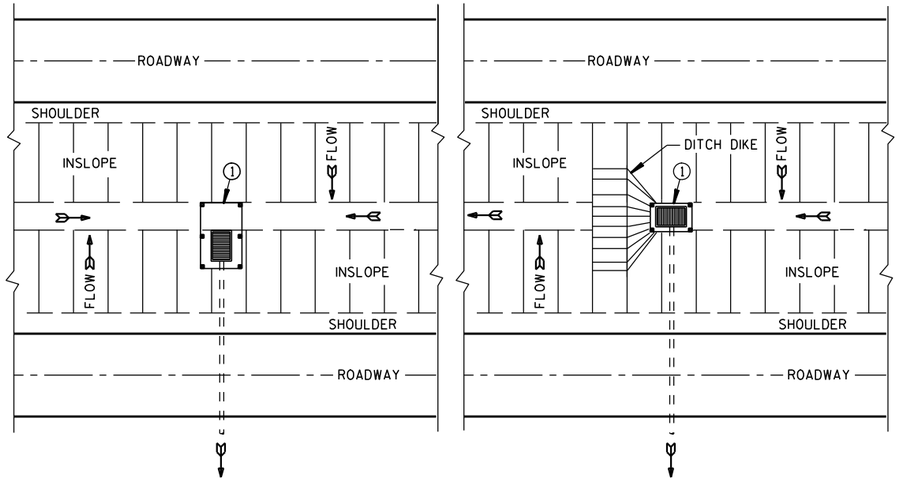
S.D.D. 8 D 4-5



PLAN VIEW

TYPICAL APPLICATION OF SILT FENCE



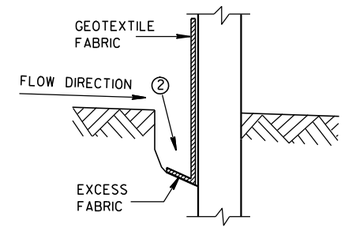
PLAN VIEW

SILT FENCE AT MEDIAN SURFACE DRAINS

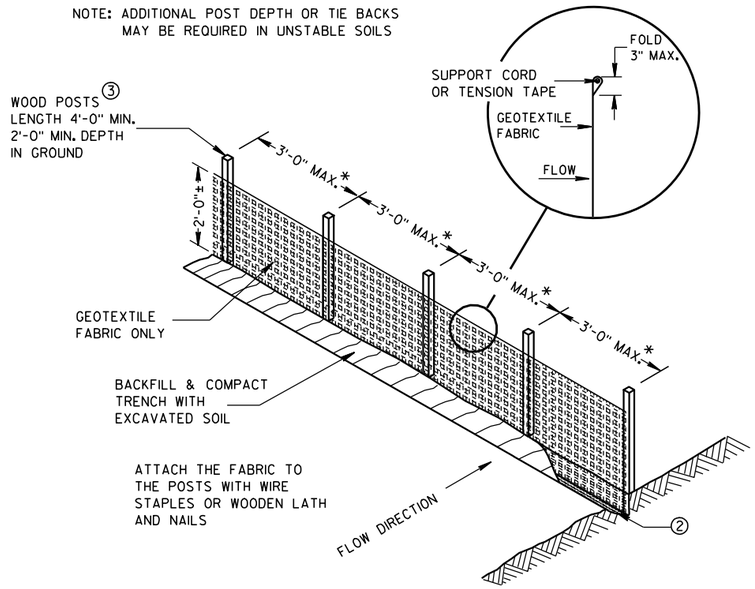
GENERAL NOTES

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

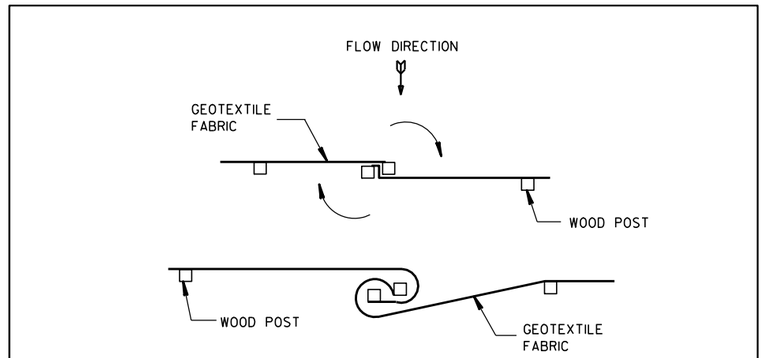
1. HORIZONTAL BRACE REQUIRED WITH 2" X 4" WOODEN FRAME OR EQUIVALENT AT TOP OF POSTS.
2. FOR MANUAL INSTALLATIONS THE TRENCH SHALL BE A MINIMUM OF 4" WIDE & 6" DEEP TO BURY AND ANCHOR THE GEOTEXTILE FABRIC. FOLD MATERIAL TO FIT TRENCH AND BACKFILL & COMPACT TRENCH WITH EXCAVATED SOIL.
3. WOOD POSTS SHALL 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.



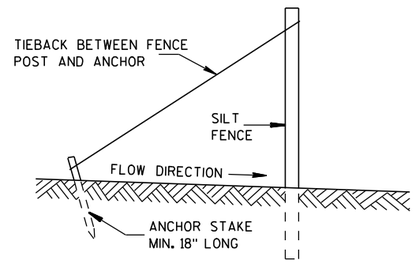
TRENCH DETAIL



SILT FENCE



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

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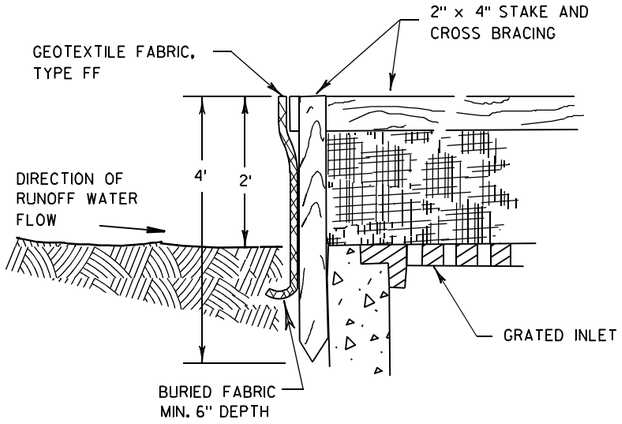
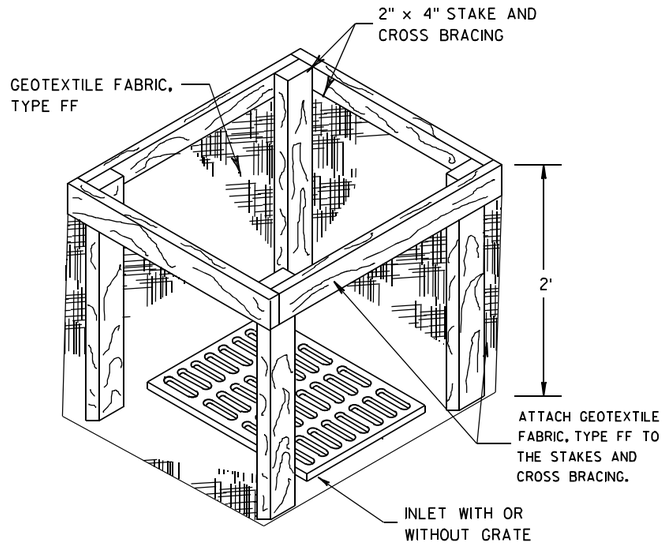
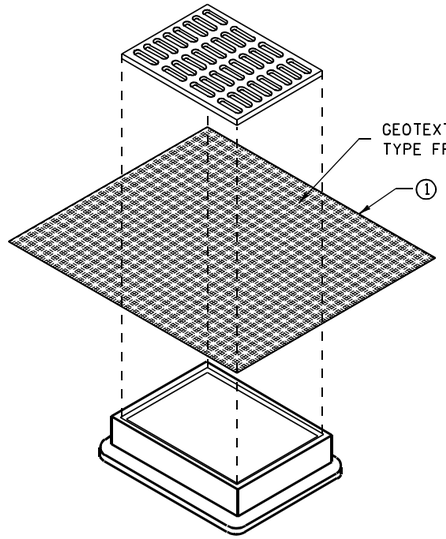
S.D.D. 8 E 9-6



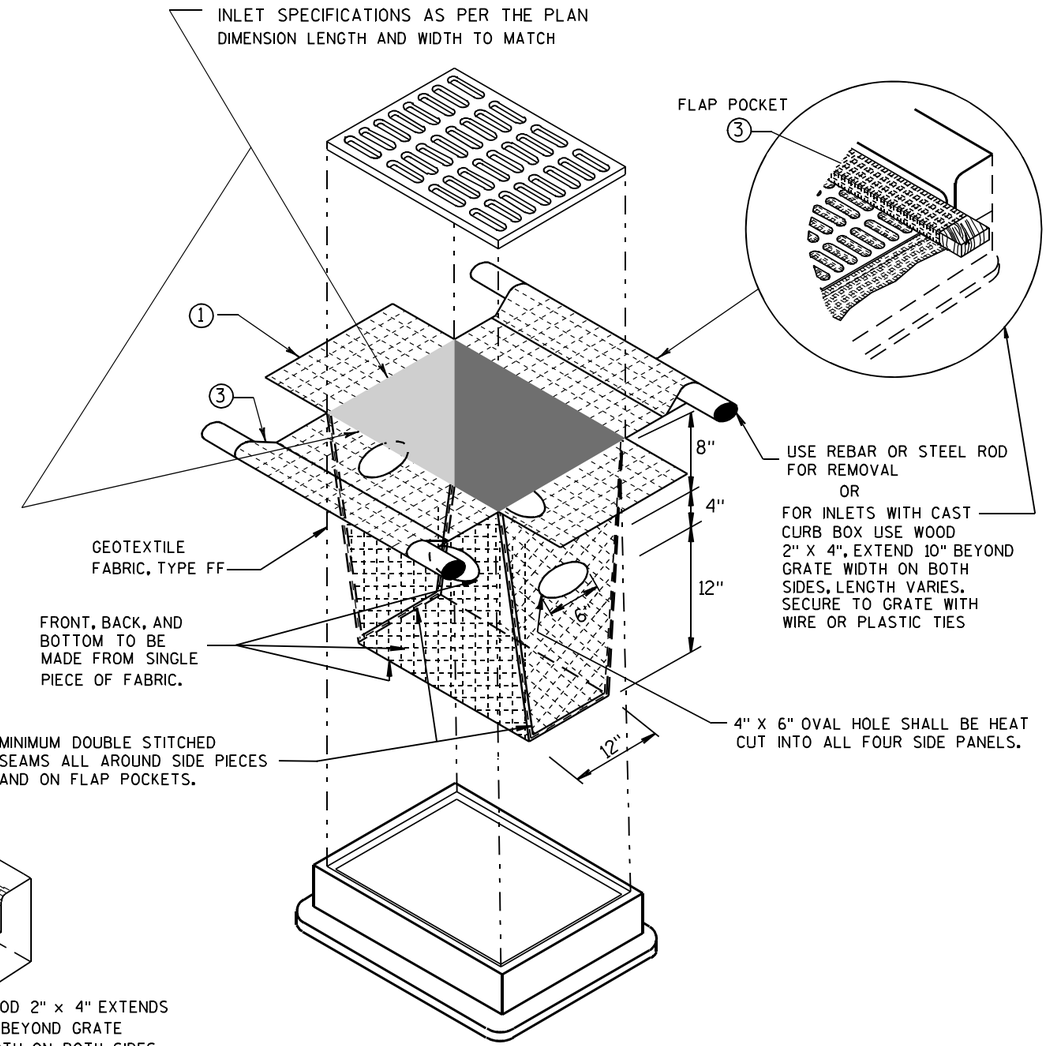


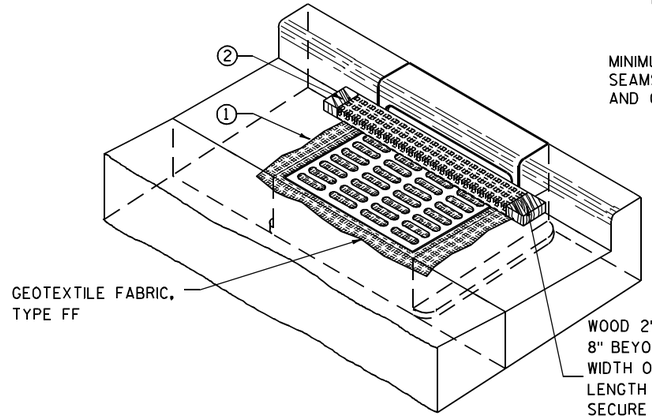
INLET PROTECTION, TYPE A



INLET PROTECTION, TYPE B
(WITHOUT CURB BOX)

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





INLET PROTECTION, TYPE C (WITH CURB BOX)

INLET PROTECTION, TYPE D

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

GENERAL NOTES

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

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

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

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

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

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

INSTALLATION NOTES

TYPE B & C

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

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

TYPE D

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

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

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

INLET PROTECTION
TYPE A, B, C, AND D

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

10/16/02
DATE

/S/ Beth Cannestra
CHIEF ROADWAY DEVELOPMENT ENGINEER

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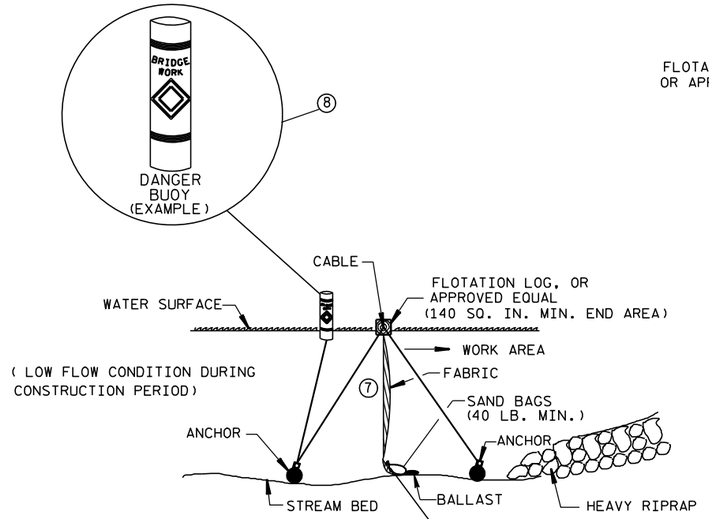
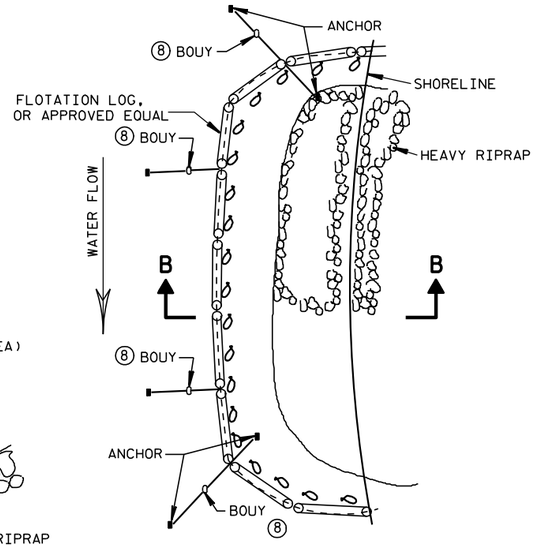
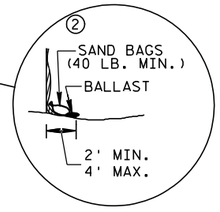
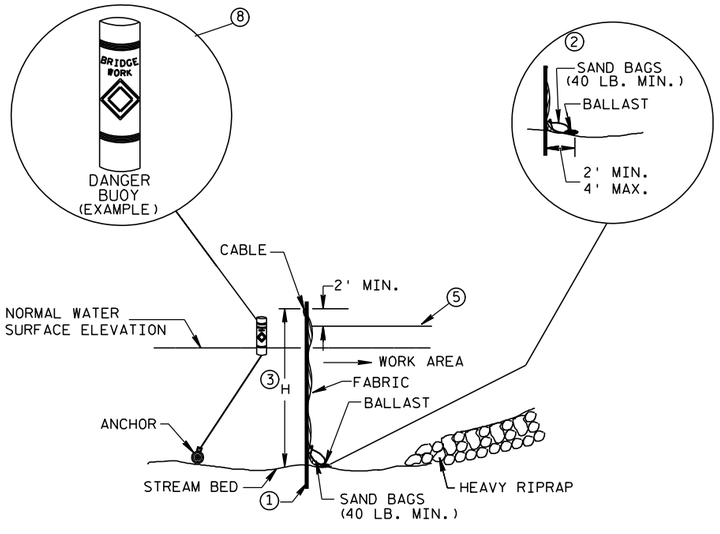


SECTION B-B

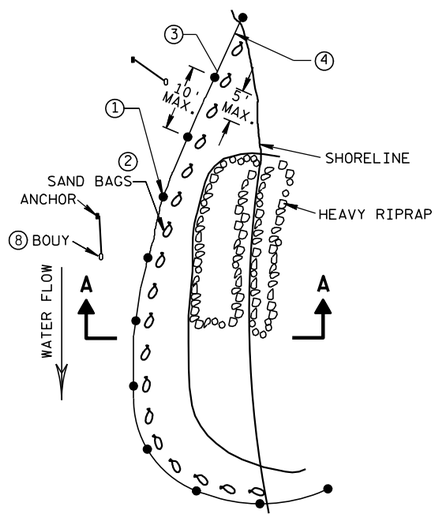




TURBIDITY BARRIER FLOAT ALTERNATIVE
CAUTION - SEE NOTE 6



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.

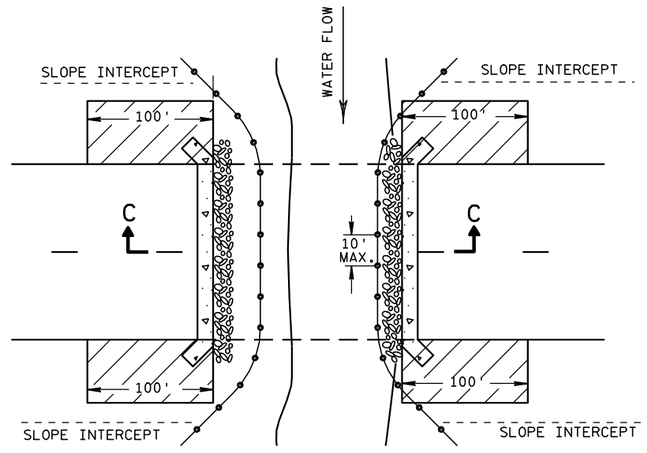
④ IN WATERWAYS SUBJECT TO FLUCTUATING WATER ELEVATIONS, PROVISIONS SHOULD BE MADE TO ALLOW THE WATER TO EQUALIZE ON EACH SIDE OF THE BARRIER. THIS MAY BE ACCOMPLISHED BY LEAVING A PORTION OF THE BARRIER OPEN ON THE UPSTREAM END.

⑤ ESTIMATED HIGH WATER ELEVATION DURING CONSTRUCTION PERIOD. MIMIMUM BARRIER HEIGHT SHALL BE 2'GREATER THAN EITHER THE 02 ELEVATION OR THE ESTIMATED HIGH WATER ELEVATION DURING CONSTRUCTION, WICHEVER IS GREATER.

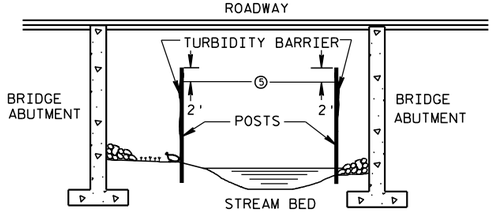
⑥ FLOAT ALTERNATIVE WILL ONLY BE ALLOWED WITH WRITTEN APPROVAL OF THE ENGINEER, AND IS MEANT FOR LOCATIONS WHERE BED ROCK PREVENTS THE INSTALLATION OF POSTS.

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	

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S.D.D. 8 E 11-2

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METAL APRON ENDWALLS

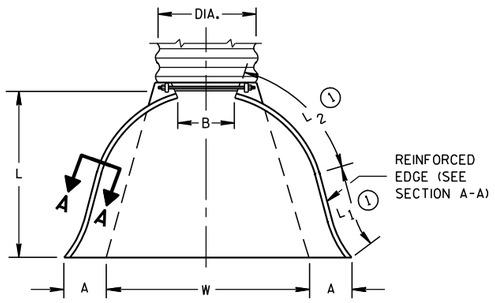
PIPE DIA. (IN.)	MIN. THICK. (Inches) STEEL	MIN. THICK. (Inches) ALUM.	DIMENSIONS (Inches) A (±1")	B (MAX.)	H (±1")	L (±1 1/2")	L1 ①	L2 ①	W (±2")	APPROX. SLOPE	BODY
12	.064	.060	6	6	6	21	12	17 1/2	24	2 1/2 to 1	1 Pc.
15	.064	.060	7	8	6	26	14	21 3/4	30	2 1/2 to 1	1 Pc.
18	.064	.060	8	10	6	31	15	28 1/4	36	2 1/2 to 1	1 Pc.
21	.064	.060	9	12	6	36	18	29 5/8	42	2 1/2 to 1	1 Pc.
24	.064	.075	10	13	6	41	18	37 1/4	48	2 1/2 to 1	1 Pc.
30	.079	.075	12	16	8	51	18	52 1/4	60	2 1/2 to 1	1 Pc.
36	.079	.105	14	19	9	60	24	59 3/4	72	2 1/2 to 1	2 Pc.
42	.109	.105	16	22	11	69	24	75 5/8	84	2 1/2 to 1	2 Pc.
48	.109	.105	18	27	12	78	24	81	90	2 1/4 to 1	3 Pc.
54	.109	.105	18	30	12	84	30	85 1/2	102	2 1/4 to 1	3 Pc.
60	.109×	.105×	18	33	12	87	—	—	114	2 to 1	3 Pc.
66	.109×	.105×	18	36	12	87	—	—	120	2 to 1	3 Pc.
72	.109×	.105×	18	39	12	87	—	—	126	2 to 1	3 Pc.
78	.109×	.105×	18	42	12	87	—	—	132	1 1/2 to 1	3 Pc.
84	.109×	.105×	18	45	12	87	—	—	138	1 1/2 to 1	3 Pc.
90	.109×	.105×	18	37	12	87	—	—	144	1 1/2 to 1	3 Pc.
96	.109×	.105×	18	35	12	87	—	—	150	1 1/2 to 1	3 Pc.

× EXCEPT CENTER PANEL SEE GENERAL NOTES

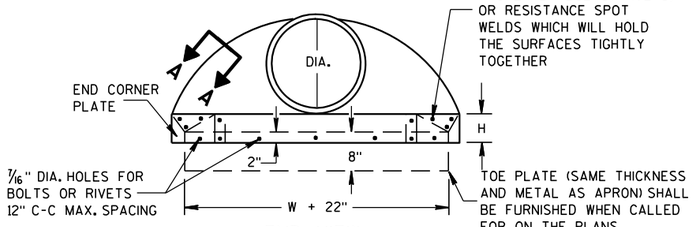
REINFORCED CONCRETE APRON ENDWALLS

PIPE DIA. (IN.)	DIMENSIONS (Inches) T	A	B	C	D	E	G	APPROX. SLOPE
12	2	4	24	48 7/8	72 1/8	24	2	3 to 1
15	2 1/4	6	27	46	73	30	2 1/4	3 to 1
18	2 1/2	9	27	46	73	36	2 1/2	3 to 1
21	2 3/4	9	36	37 1/2	73 1/2	42	2 3/4	3 to 1
24	3	9 1/2	43 1/2	30	73 1/2	48	3	3 to 1
27	3 1/4	10 1/2	49 1/2	24	73 1/2	54	3 1/4	3 to 1
30	3 1/2	12	54	19 3/4	73 1/2	60	3 1/2	3 to 1
36	4	15	63	34 3/4	97 3/4	72	4	3 to 1
42	4 1/2	21	63	35	98	78	4 1/2	3 to 1
48	5	24	72	26	98	84	5	3 to 1
54	5 1/2	27	65	* 33 1/4 - ** 35	* 98 1/4 - ** 100	90	5 1/2	2 2/5 to 1
60	6	* 30 - ** 35	60	39	99	96	5	2 to 1
66	6 1/2	* 24 - ** 30	* 72 - ** 78	* 21 - ** 27	99	102	5 1/2	2 to 1
72	7	* 24 - ** 36	78	21	99	108	6	2 to 1
78	7 1/2	* 24 - ** 36	78	21	99	114	6 1/2	2 to 1
84	8	36	90 1/2	21	111 1/2	120	6 1/2	1 1/2 to 1
90	8 1/2	41	87 1/2	24	111 1/2	132	6 1/2	1 1/2 to 1

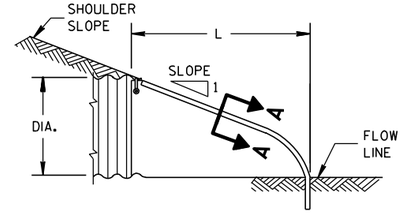
*MINIMUM
**MAXIMUM



PLAN VIEW

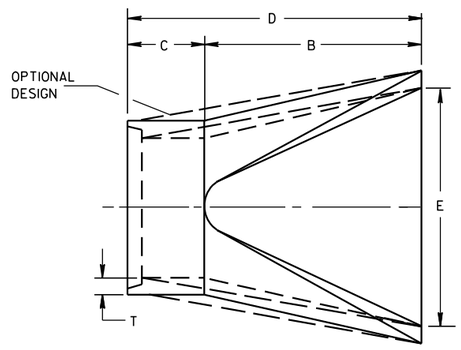


END VIEW

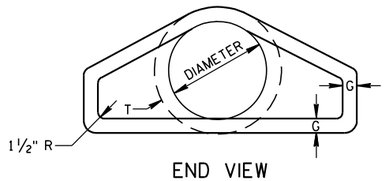


SIDE ELEVATION

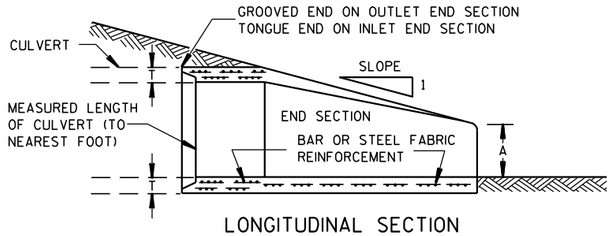
METAL ENDWALLS



PLAN

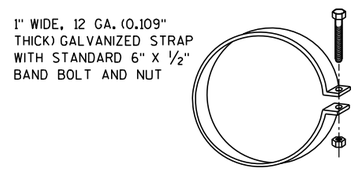


END VIEW



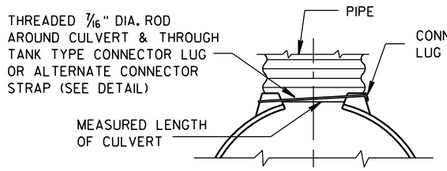
LONGITUDINAL SECTION

CONCRETE ENDWALLS

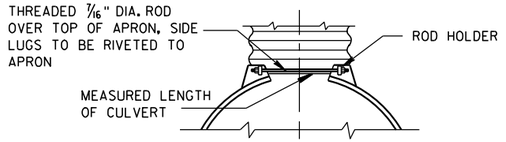


ALTERNATE FOR TYPE 1 CONNECTION

END SECTION CONNECTOR STRAP

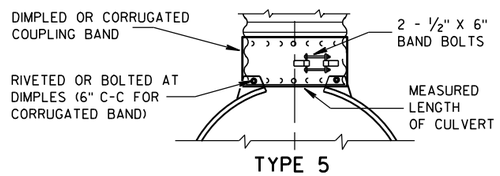


TYPE 1
FOR 12" THRU 24" CORR. PIPE



TYPE 2
FOR 30" THRU 96" CORR. PIPE

TYPE 3
FOR 42" THRU 96" CORR. PIPE



TYPE 5
ALTERNATE FOR:
ALL SIZES CORRUGATED CIRCULAR PIPE

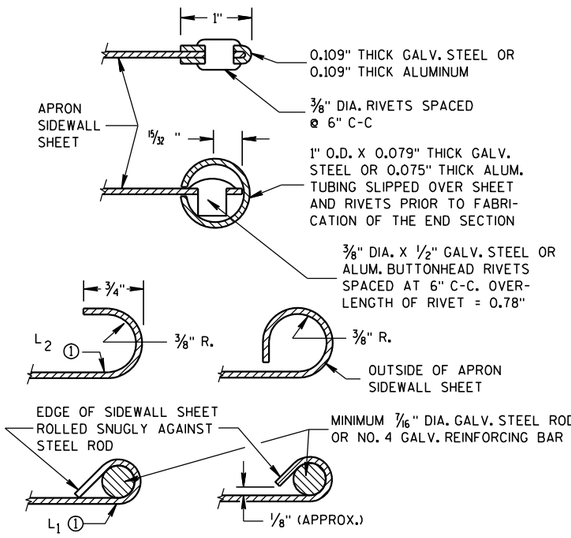
NOTE: DIMPLED BAND FITS OVER OUTSIDE OF ENDWALL. AND CORRUGATED BAND FITS INSIDE ENDWALL. DIMPLED BAND MAY BE USED WITH HELICALLY CORRUGATED PIPE.

FOR CIRCUMFERENTIALLY CORRUGATED PIPE USE ENDWALL CONNECTION DETAILS 1, 2, 3 OR 5 AS APPLICABLE.

FOR HELICALLY CORRUGATED PIPE USE ENDWALL CONNECTION DETAILS 1, 2 OR 5.

FOR HELICALLY CORRUGATED PIPES WITH TWO CIRCUMFERENTIAL CORRUGATIONS AT EACH END USE ENDWALL CONNECTION DETAILS 1, 2 OR 3.

CONNECTION DETAILS



SECTION A-A

GENERAL NOTES

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

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

ALL THREE PIECE STEEL APRON ENDWALLS FOR 60" DIAMETER PIPE AND LARGER SHALL HAVE 0.109" SIDES AND 0.138" CENTER PANELS. ALL THREE PIECE ALUMINUM APRON ENDWALLS FOR 60" DIAMETER PIPE AND LARGER SHALL HAVE 0.105" SIDES AND 0.134" CENTER PANELS. THE WIDTH OF CENTER PANELS SHALL BE GREATER THAN 20 PERCENT OF THE PIPE PERIMETER.

LAP SEAMS SHALL BE TIGHTLY JOINED BY GALVANIZED RIVETS OR BOLTS FOR STEEL UNITS AND ALUMINUM RIVETS AND BOLTS FOR ALUMINUM UNITS. FOR THE 60" THROUGH 96" DIAMETER APRON ENDWALL SIZES, THE REINFORCED EDGES AND CENTER PANEL SEAMS SHALL BE FURTHER REINFORCED WITH GALVANIZED STEEL OR ALUMINUM STIFFENER ANGLES. THE ANGLES SHALL BE ATTACHED BY GALVANIZED NUTS AND BOLTS FOR STEEL UNITS AND ALUMINUM NUTS AND BOLTS FOR ALUMINUM UNITS.

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

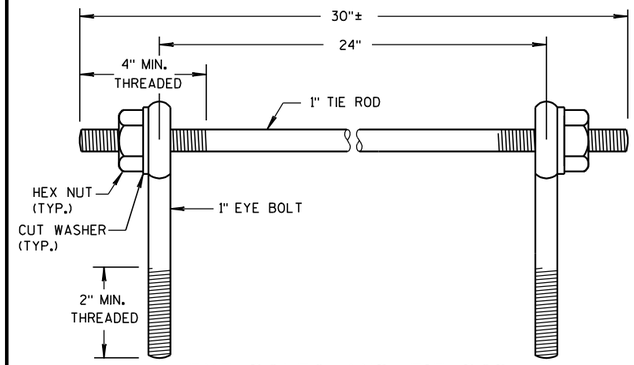
① FOR PIPE SIZES UP TO 60" DIAMETER, A 180° ROLLED EDGE MAY BE USED INSTEAD OF STEEL ROD REINFORCEMENT. SEE SECTION A-A.

APRON ENDWALLS FOR CULVERT PIPE

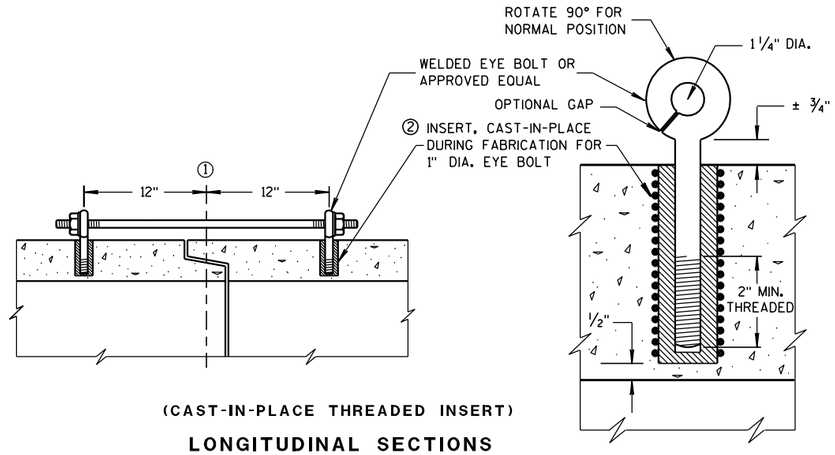
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

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



EYE BOLTS AND TIE ROD



(CAST-IN-PLACE THREADED INSERT)

LONGITUDINAL SECTIONS

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

GENERAL NOTES

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

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

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

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

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

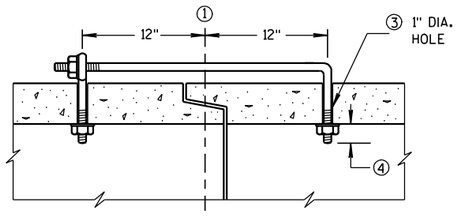
② THE INSIDE OF THE THREADED INSERTS SHALL BE CLEAN TO ALLOW THE INSERTION OF THREADED EYE BOLTS.

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

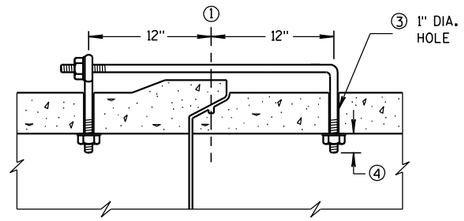
④ BOLT PROJECTION INSIDE OF PIPE SHALL NOT EXCEED 2 INCHES.

⑤ OPENING TO BE ROD DIAMETER PLUS 1 INCH.

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



(TONGUE & GROOVE PIPE)

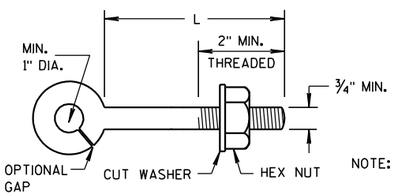


(MODIFIED BELL PIPE)

LONGITUDINAL SECTION

EYE BOLT DIMENSION TABLE

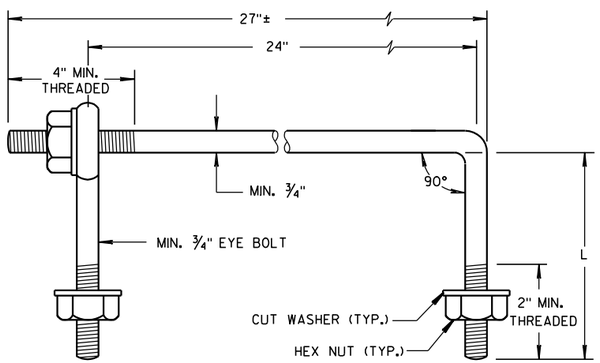
PIPE SIZE	L = LENGTH	
	TONGUE & GROOVE PIPE	MODIFIED BELL PIPE
18" TO 24"	4 1/2"	6 1/4"
30"	5"	7"
36"	5 1/2"	7"
42"	6"	
48"	6 1/2"	
60"	7 1/2"	
66"	8"	



NOTE:

EYE BOLT

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



EYE BOLT AND TIE ROD

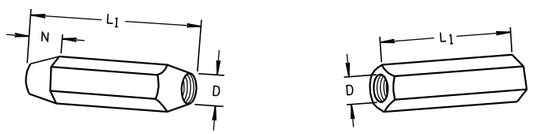
(JOINT TIES FOR 18" TO 66" DIA. CONCRETE PIPE)

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

ADJUSTABLE TIE ROD TABLE

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

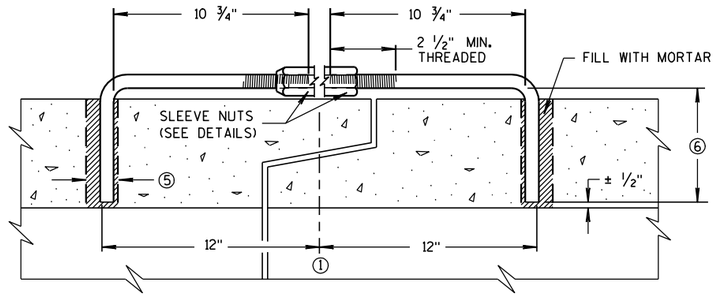
DIMENSIONS SHOWN ARE IN INCHES



TAPERED PLAIN

RIGHT AND LEFT THREADS

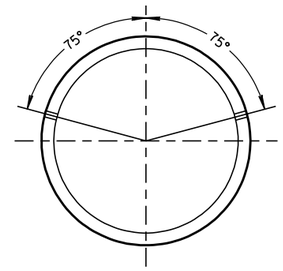
SLEEVE NUTS



LONGITUDINAL SECTION

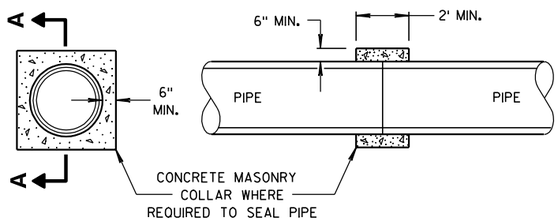
(JOINT TIES FOR 12" TO 108" DIA. CONCRETE PIPE)

ADJUSTABLE TIE ROD (ALTERNATE NO. 3)



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

TRANSVERSE SECTION



SECTION A-A

CONCRETE COLLAR DETAIL

JOINT TIES FOR CONCRETE PIPE AND CONCRETE COLLAR DETAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

6

S.D.D. 8 F 4-7

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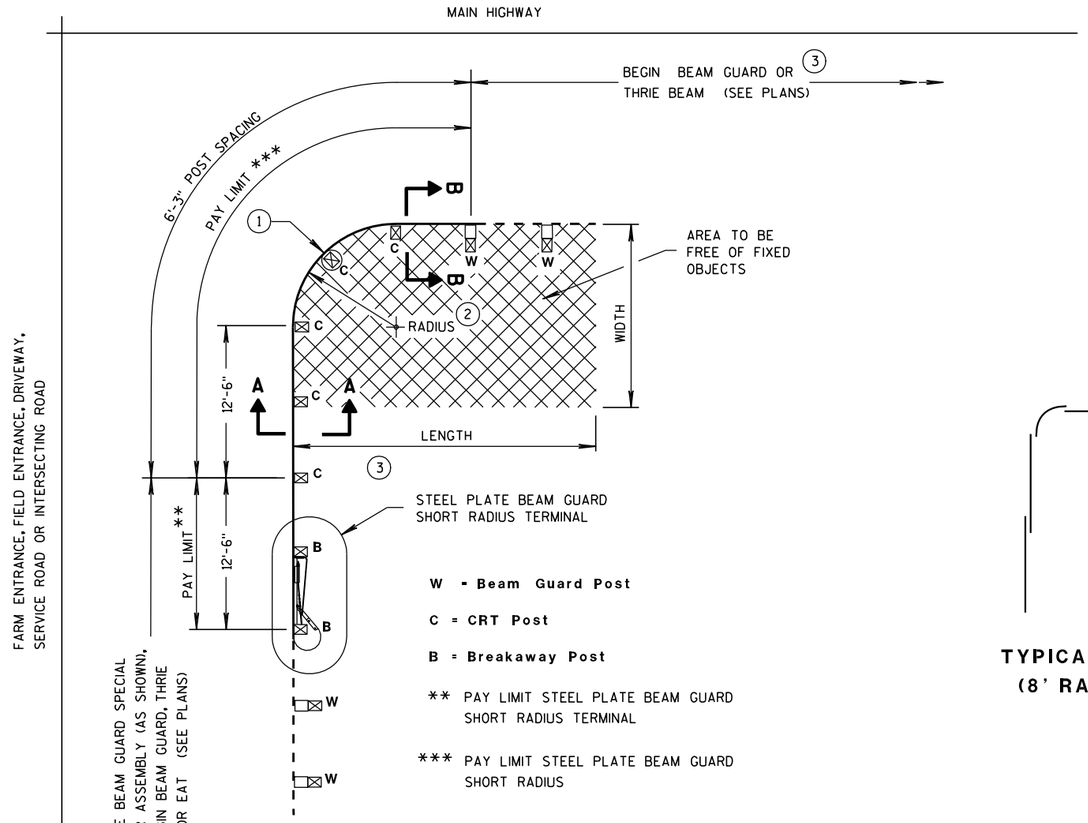
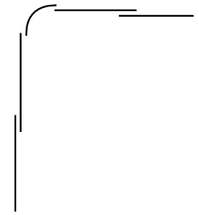
S.D.D. 8 F 4-7



TYPICAL LAYOUT
(8' RADIUS SHOWN)



TYPICAL LAP SPLICES
(8' RADIUS SHOWN)

GENERAL NOTES

ALL ANGLES, CHANNELS, AND PLATES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A36 AND THE STRUCTURAL TUBING SHALL CONFORM TO ASTM A 500. WELDING SHALL MEET THE CURRENT REQUIREMENTS OF THE AMERICAN WELDING SOCIETY STRUCTURAL WELDING CODE ANSI/AWS D1.1. ALL STRUCTURAL STEEL SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A 123. PUNCHING, DRILLING, CUTTING, OR WELDING WILL NOT BE PERMITTED AFTER GALVANIZING. FURNISH AND INSTALL HARDWARE PER STANDARD SPECIFICATION 614.2. UNLESS NOTED OTHERWISE.

SHOP BEND CURVED RAIL SECTIONS.

SEE STANDARD DETAIL DRAWING 14 B 15 FOR OTHER DETAIL.

(1) ON THE 8 FOOT RADIUS INSTALLATION, DO NOT INSTALL BUTTON HEAD BOLT AT CENTER CRT POST.

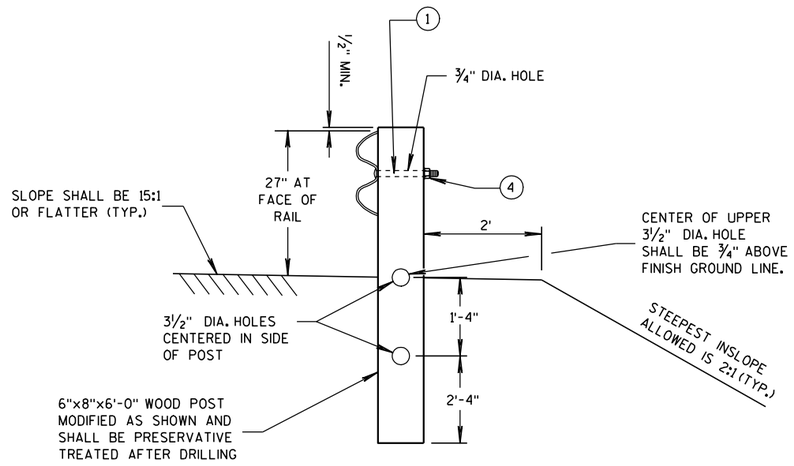
(2) RADIUS FROM 8' - 36'. SEE PLAN.

(3) HEIGHT TRANSITION MAY BE REQUIRED. SEE PLAN OR PROJECT ENGINEER.

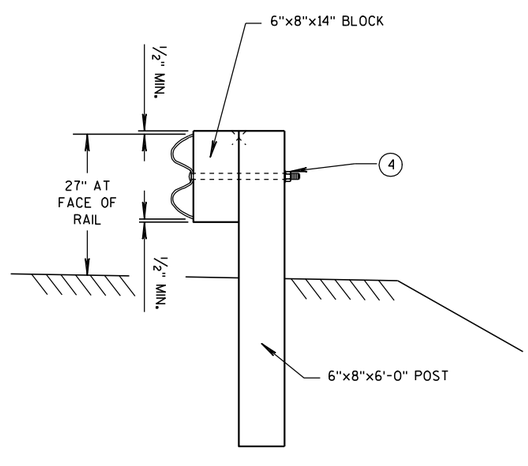
(4) 5/8" ø X 1'-6" BUTTON HEAD BOLT AND RECESS NUT WITH ROUND WASHER UNDER NUT.

RADIUS	NUMBER OF CRT POSTS	*NUMBER AND LENGTH OF CURVED RAILS	REQUIRED AREA FREE OF FIXED OBJECTS (LENGTH x WIDTH)
8'	5	1 at 12.5'	25' x 15'
16'	7	1 at 25'	30' x 15'
24'	9	1 at 25' and 1 at 12.5'	40' x 20'
32'	11	2 at 25'	50' x 20'

* THE NUMBER OF RAILS IS BASED ON A 90° INTERSECTION. SEE PLAN FOR NON 90° INSTALLATIONS.



SECTION A-A
(CRT POST)

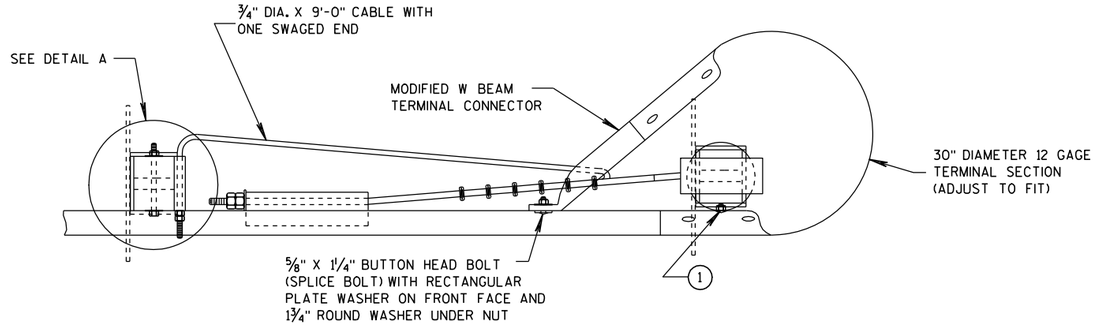


SECTION B-B
(BEAM GUARD POST)

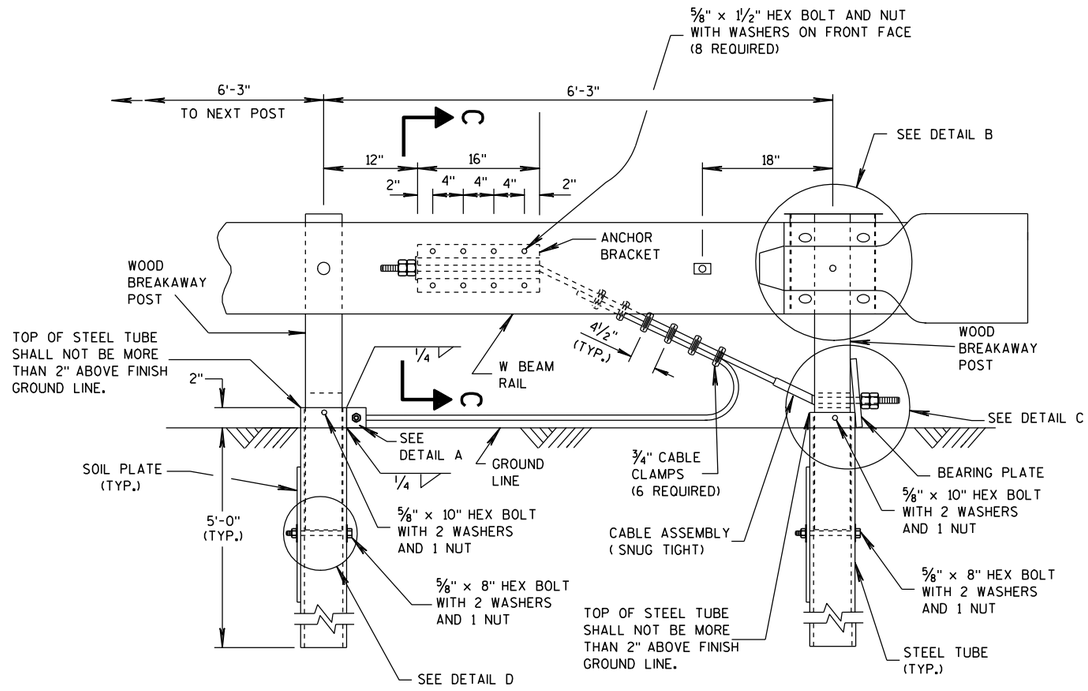
STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL

STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION

6
S.D.D. 14 B 27-1a



PLAN VIEW



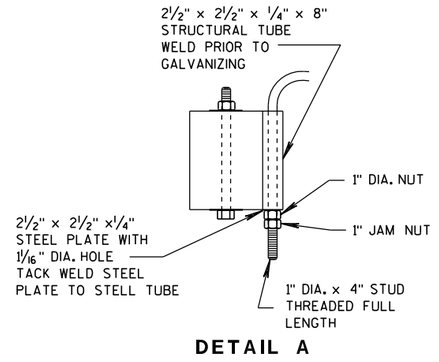
ELEVATION VIEW

STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL

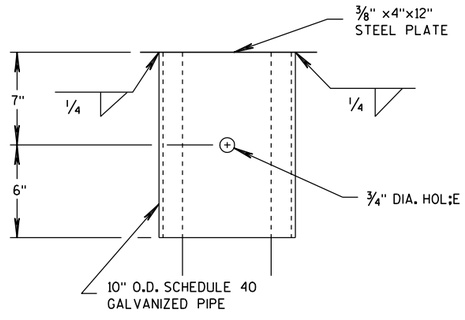
GENERAL NOTES

(1) ATTACH W BEAM RAIL TO THE STEEL PIPE WITH A ⅝" X 2" BUTTON HEAD BOLT WITH NO WASHER. CONNECTION TO THE POST IS NOT REQUIRED.

INSTALL GALVANIZED ¾" (6X19) PREFORMED WIRE OR INDEPENDENT WIRE ROPE CORE CONFORMING TO AASHTO M 30. MANUFACTURE WIRE ROPE OUT OF IMPROVED PLOW STEEL WITH A MINIMUM BREAKING STRENGTH OF 42,800 PSI.



DETAIL A



DETAIL B

(BEAM GUARD AND TERMINAL SECTION NOT SHOWN)

STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL

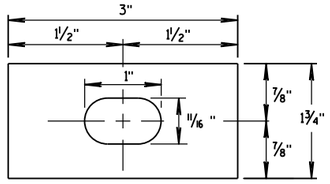
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

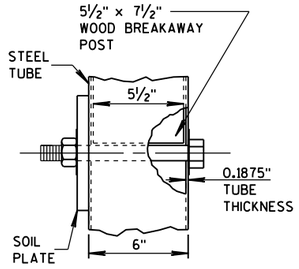
S.D.D. 14 B 27-1b

6

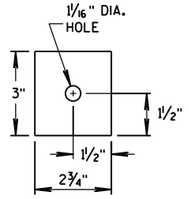
S.D.D. 14 B 27-1b



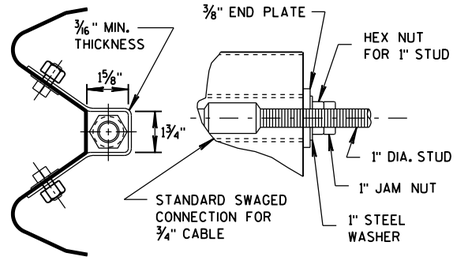
RECTANGULAR PLATE WASHER



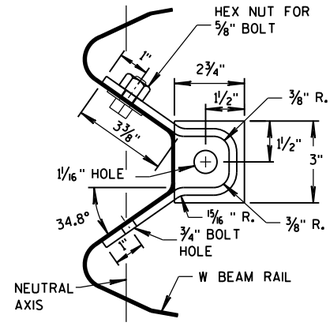
DETAIL D



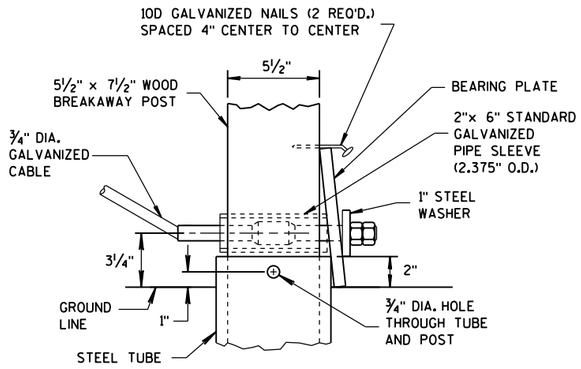
END PLATE



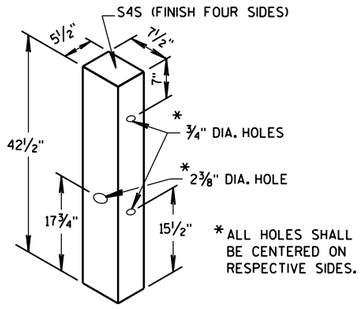
SECTION C-C
(END PLATE REMOVED)



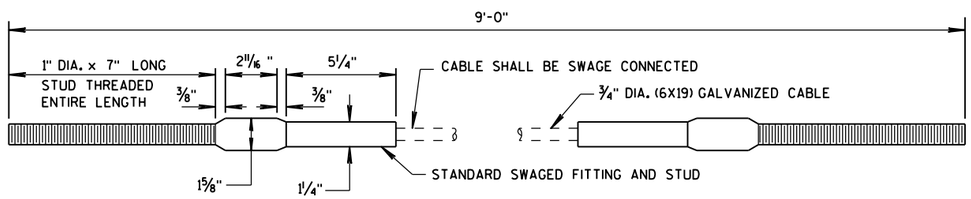
ANCHOR BRACKET



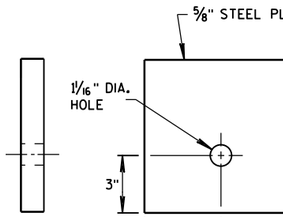
DETAIL C



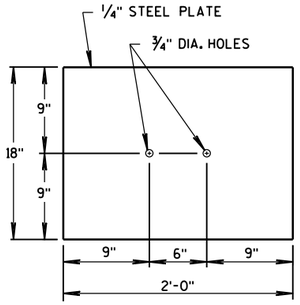
WOOD BREAKAWAY POST



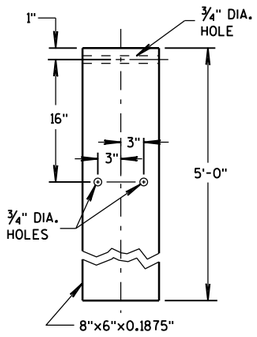
CABLE ASSEMBLY



BEARING PLATE



SOIL PLATE



STEEL TUBE

STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
12/18/08 — DATE
/S/ Jerry H. Zogg — ROADWAY STANDARDS ENGINEER
FHWA

6

S.D.D. 14 B 27-1c

6

S.D.D. 14 B 27-1c

GENERAL NOTES

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

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

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

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

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

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

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

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

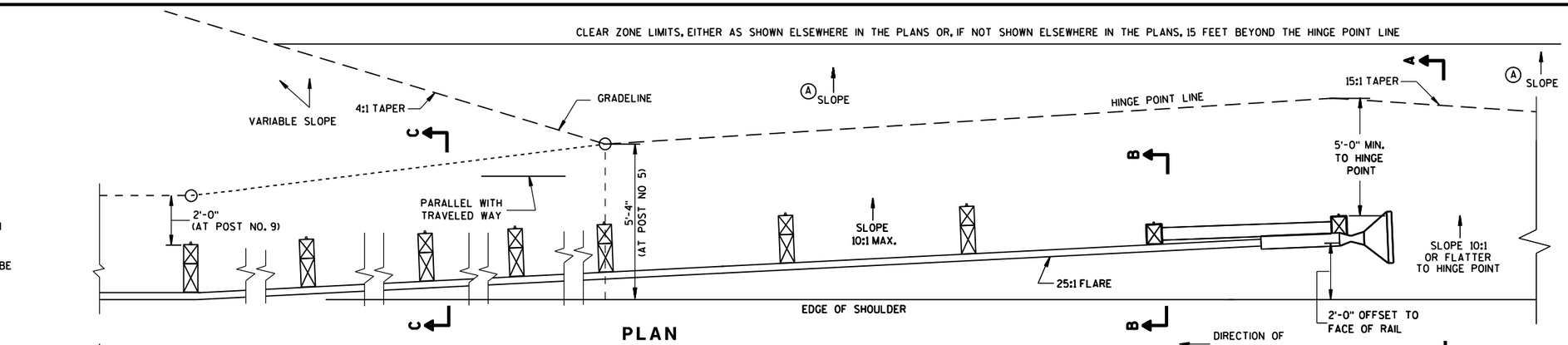
SEE SDD 14B42 FOR MORE INFORMATION.

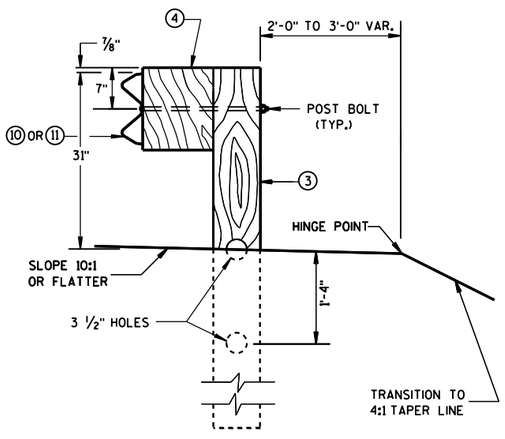
* DO NOT ATTACH BLOCKOUTS TO POSTS 1 AND 2.

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

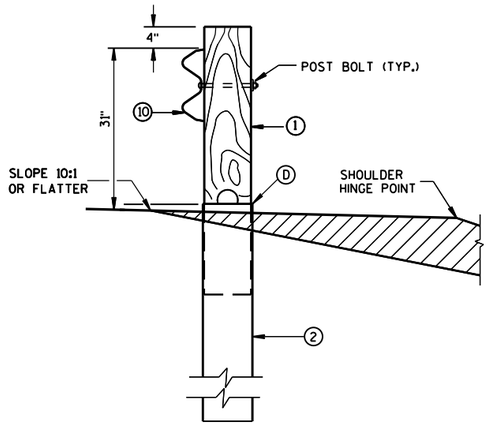
W-BEAM RAIL SPLICES ARE LOCATED AT POST NUMBER 3, AND BETWEEN POST 5 AND 6, BETWEEN POSTS 7 AND 8, AND MIDDLE OF THE SPAN AFTER POST 9.

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

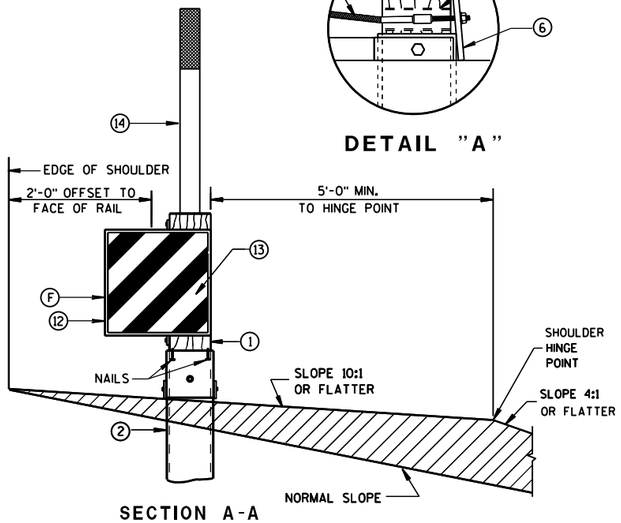




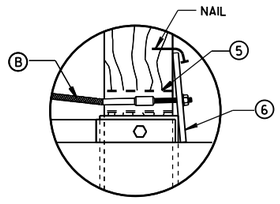
SECTION C-C
TYPICAL AT POST NOS. 3-9



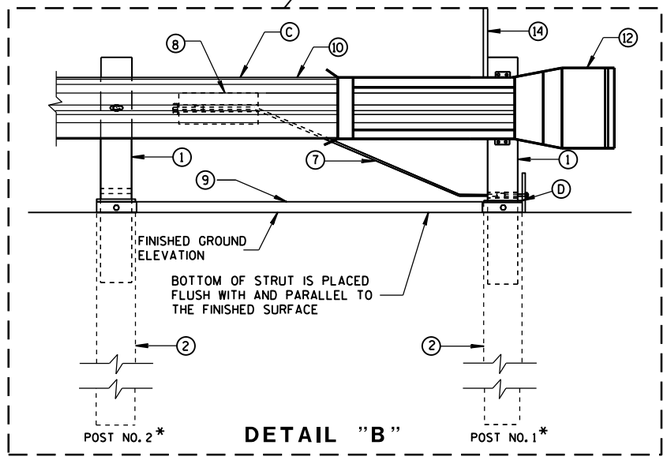
SECTION B-B
TYPICAL AT POST NO. 2*



SECTION A-A
TYPICAL AT POST NO. 1*



DETAIL "A"



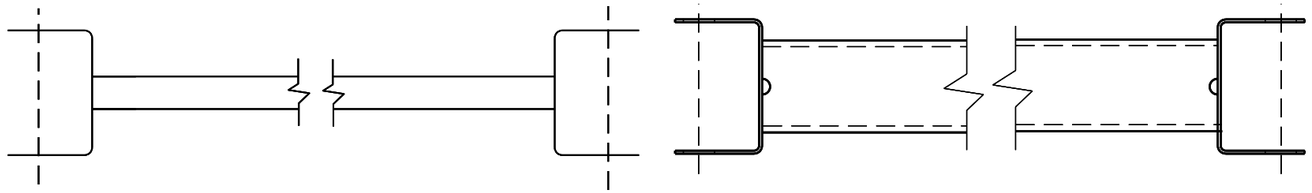
DETAIL "B"

MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL
(MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPO

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

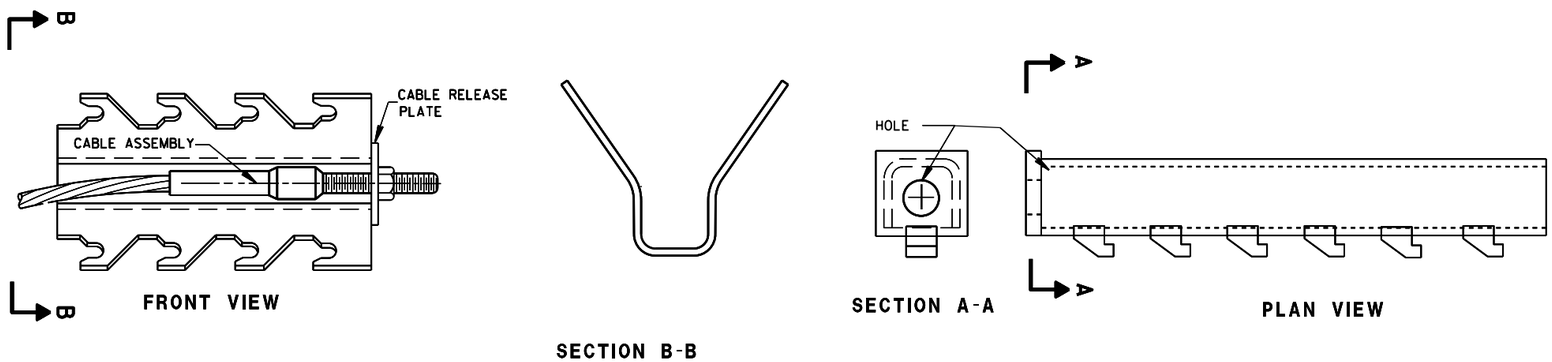
S.D.D. 14 B 44-2a



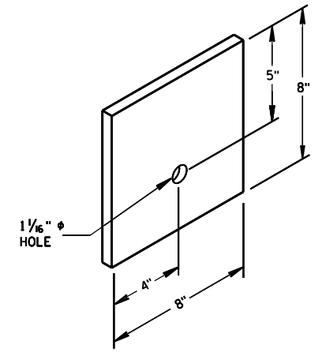
GENERIC GROUND STRUT (9) (H)

BILL OF MATERIALS

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



GENERIC ANCHOR CABLE BOX (8) (H)



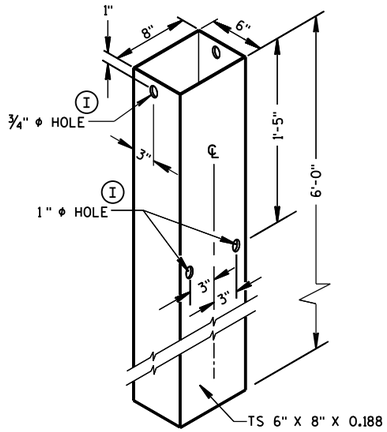
BEARING PLATE (6)

MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL
(MGS)

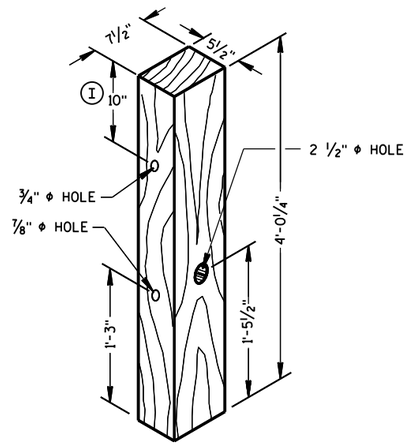
STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

6

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

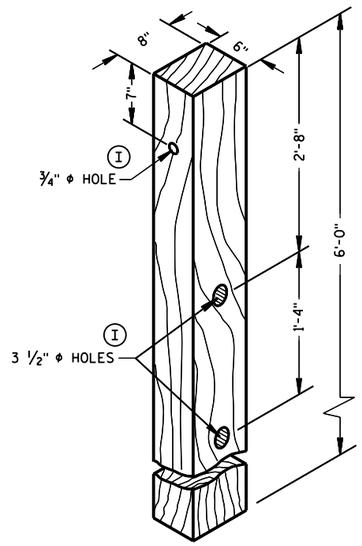


FOUNDATION TUBE (2)



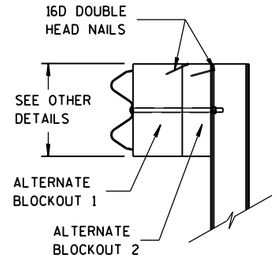
POSTS NUMBER 1 AND 2

WOOD BREAKAWAY POST (1)

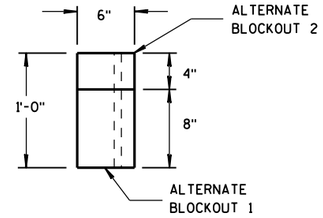


POSTS NUMBER 3-9

WOOD CRT POST (3)

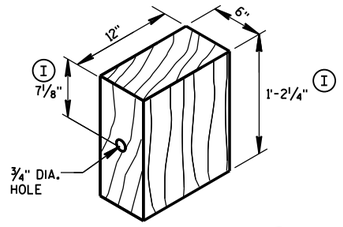


SIDE VIEW



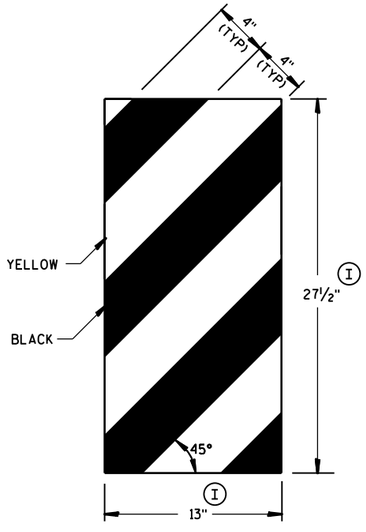
TOP VIEW

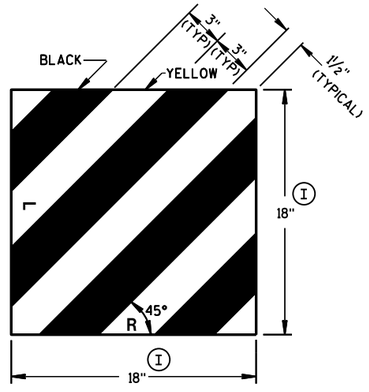
ALTERNATE WOOD BLOCKOUT DETAIL



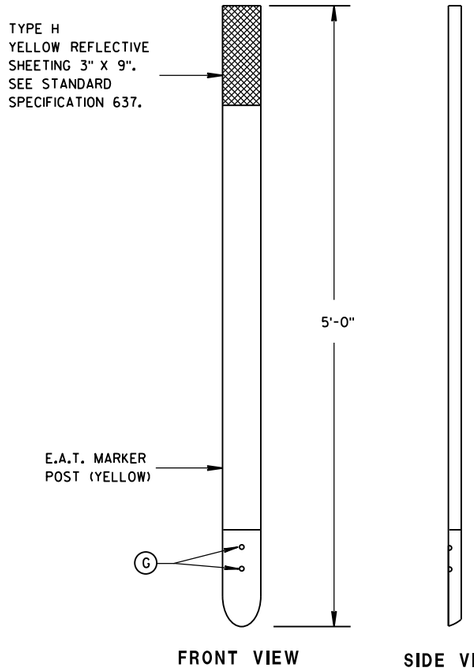
WOOD BLOCKOUT (4)

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





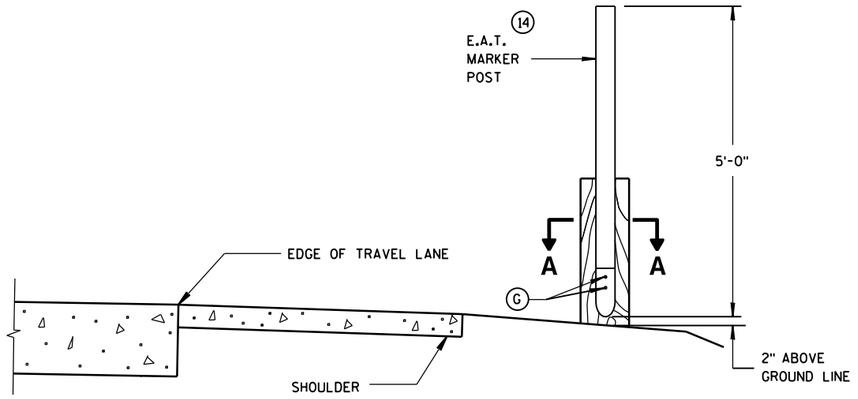
GENERIC REFLECTIVE SHEETING (13) (H)



FRONT VIEW

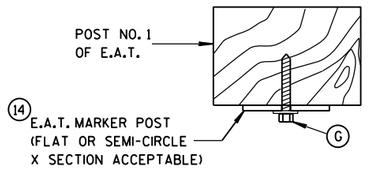
SIDE VIEW

E.A.T. MARKER POST (14)



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

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



SECTION A-A

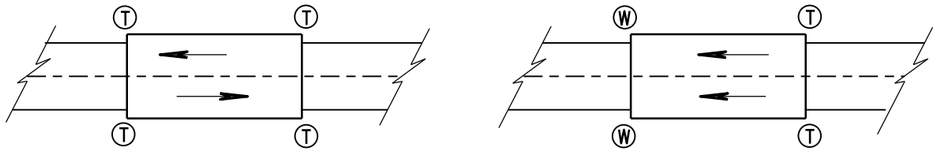
MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

6

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



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

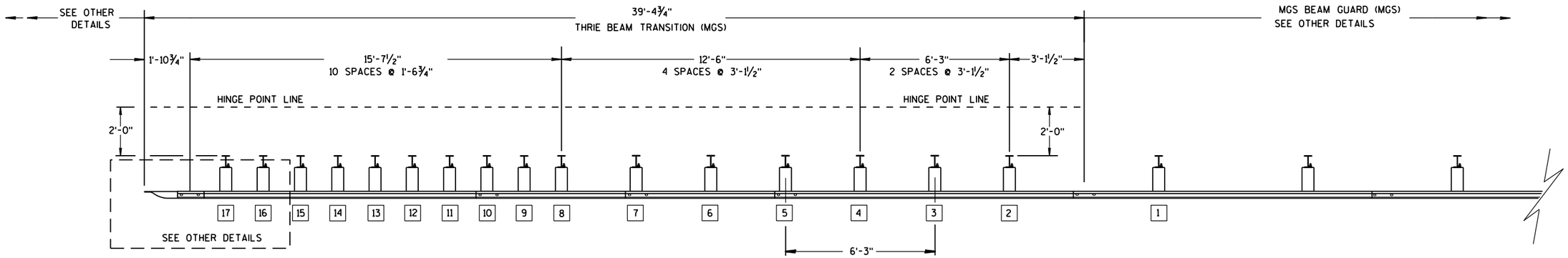
IF ROCK IS ENCOUNTERED, REMOVE ROCK TO FULL DEPTH OF POST PLUS 2½", AND 12" DIAMETER AROUND POST. SEE 14B42 FOR MORE DETAILS.

TRANSITION USES STEEL POSTS ONLY.

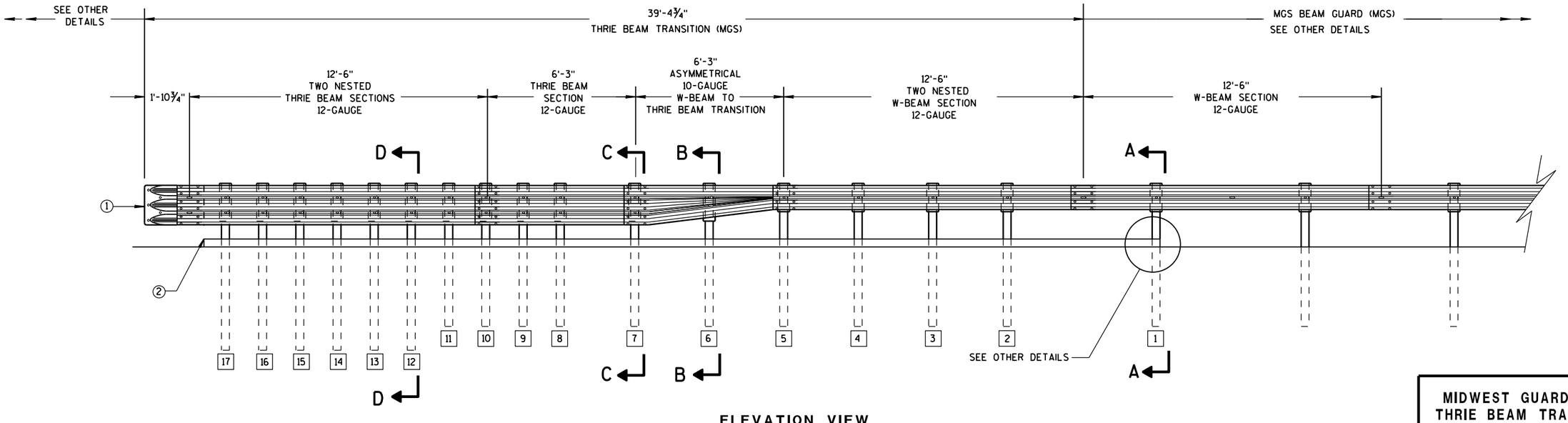
SEE STANDARD DETAIL DRAWING 14 B 42 FOR MORE INFORMATION.

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

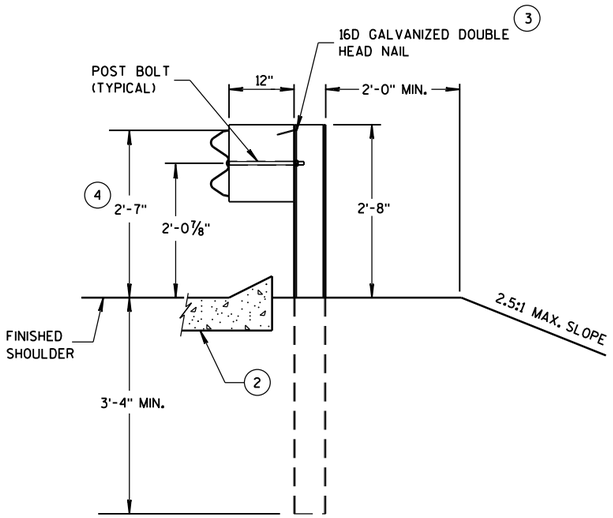
S.D.D. 14 B 45-4a

GENERAL NOTES

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

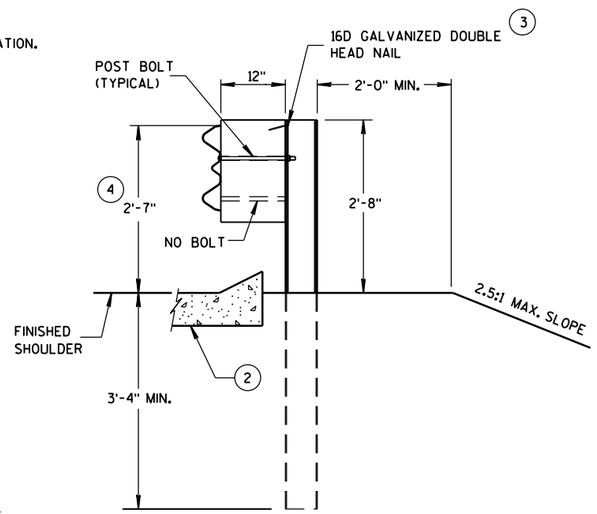
(3) WHEN USING STEEL POSTS AND WOOD BLOCKOUTS INSTALL FOUR 10D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.

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



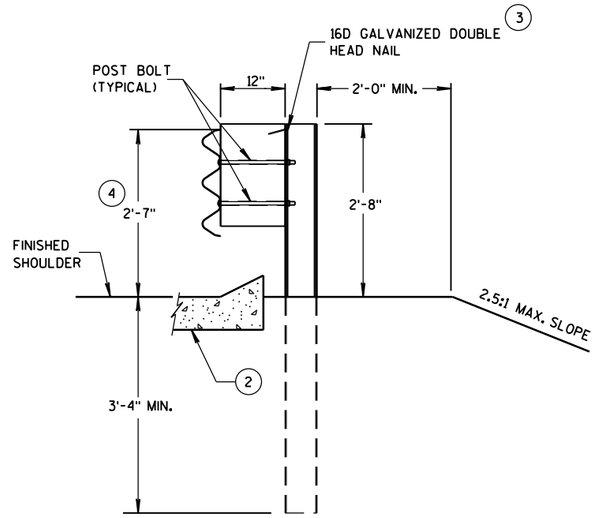
SECTION A-A

POSTS 1-5



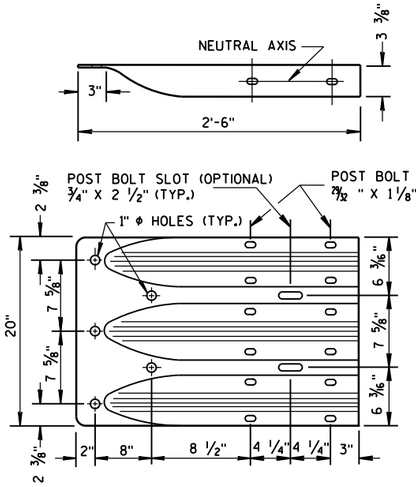
SECTION B-B

POST 6



SECTION C-C

POSTS 7-11



THRIE BEAM TERMINAL CONNECTOR

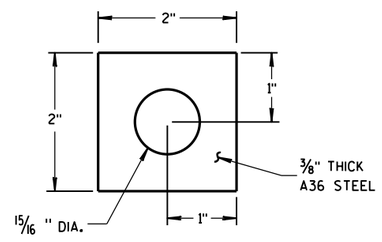
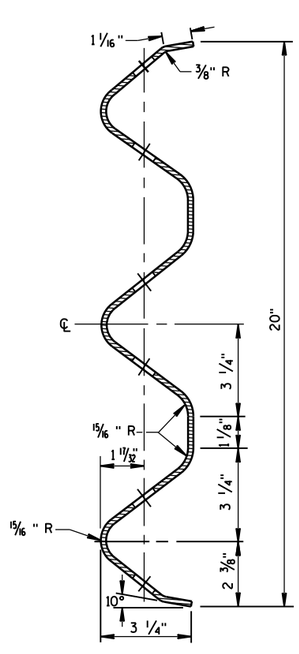
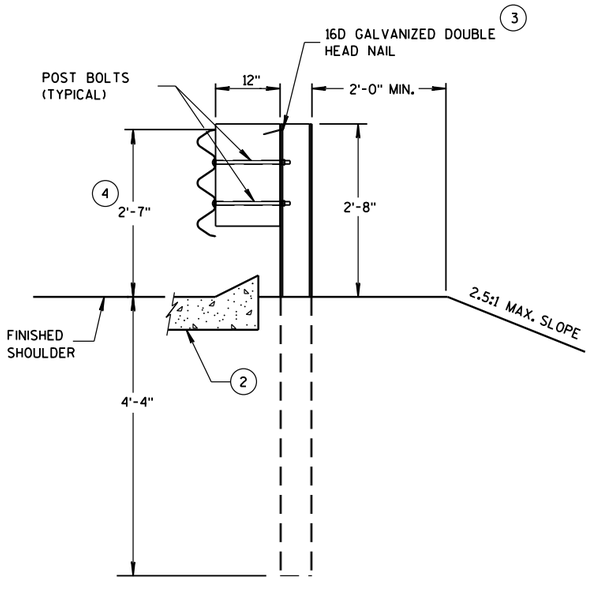


PLATE WASHER DETAIL

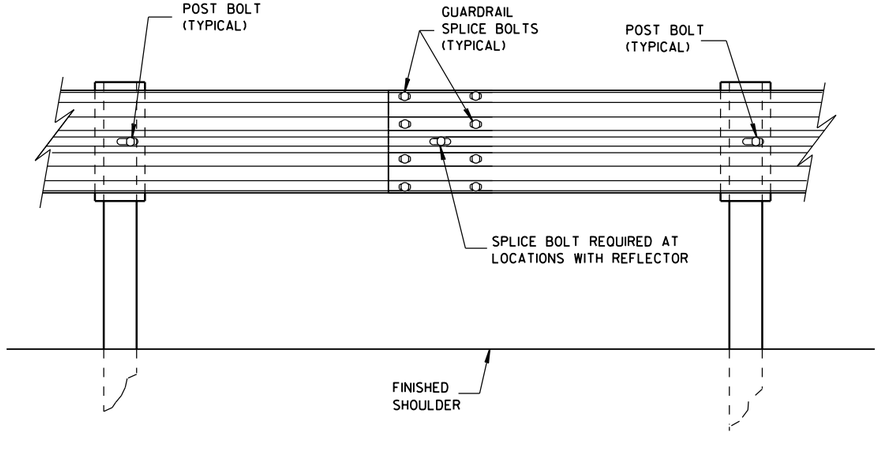


SECTION THRU THRIE BEAM RAIL ELEMENT



SECTION D-D

POSTS 12-17



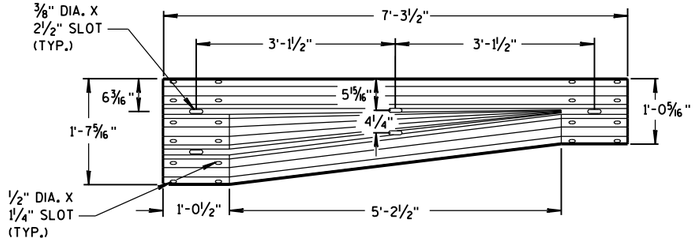
SPLICE DETAIL

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

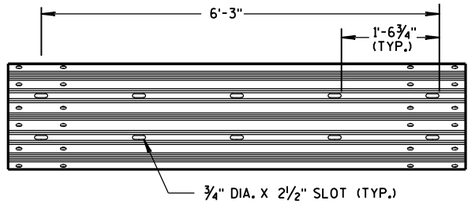
STATE OF WISCONSIN
DEPARTMENT OF TRANSPO

6

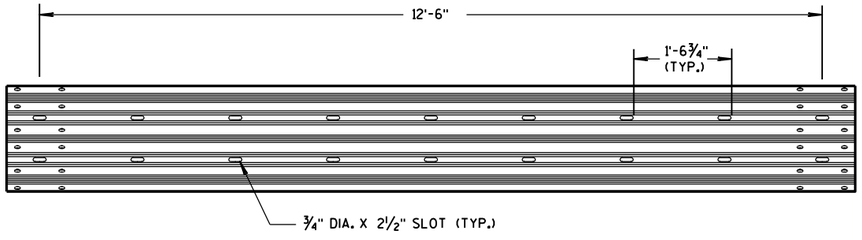
S.D.D. 14 B 45-4b



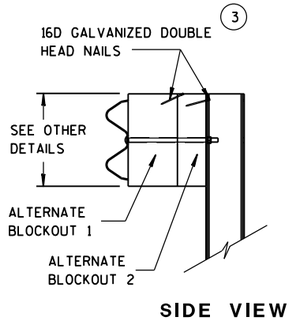
W-BEAM TO THRIE BEAM TRANSITION SECTION



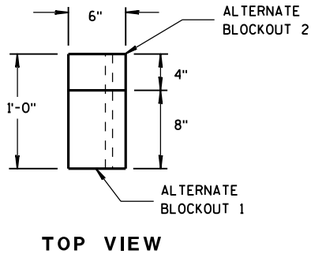
6'-3" THRIE BEAM SECTION



12'-6" THRIE BEAM SECTION

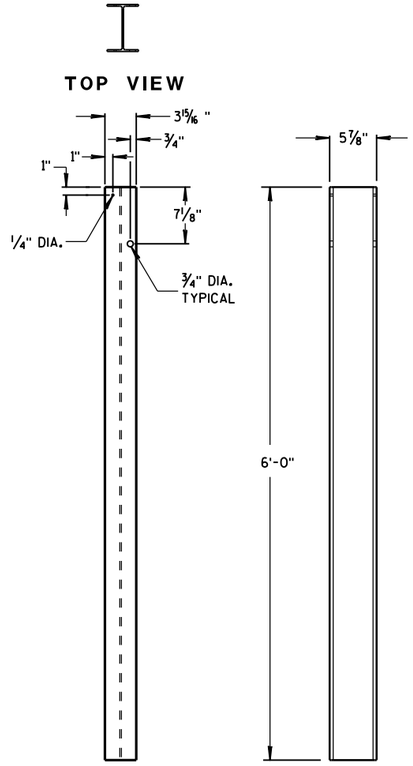


SIDE VIEW



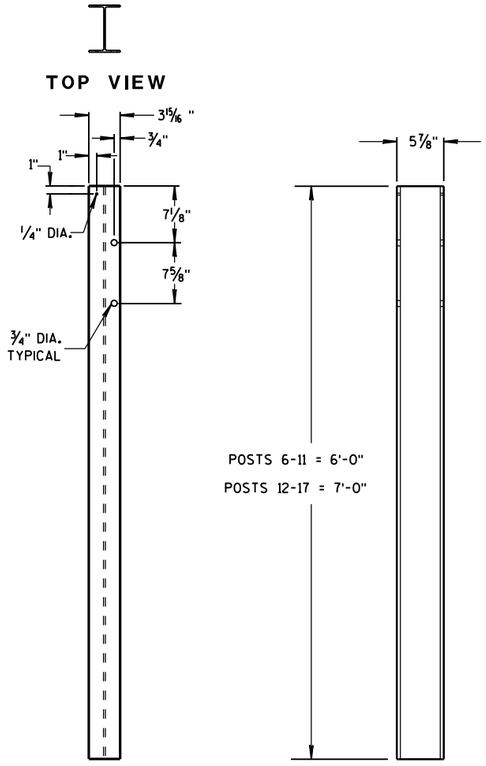
TOP VIEW

ALTERNATE WOOD BLOCKOUT DETAIL



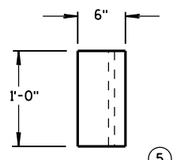
FRONT VIEW SIDE VIEW

STEEL POSTS 1-5

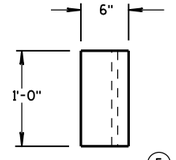


FRONT VIEW SIDE VIEW

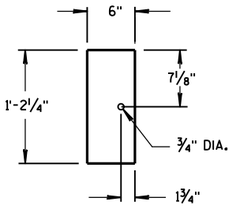
STEEL POSTS 6-17



TOP VIEW

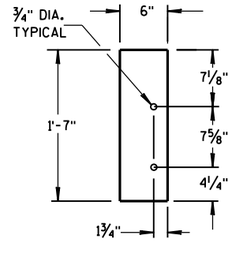


TOP VIEW



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.

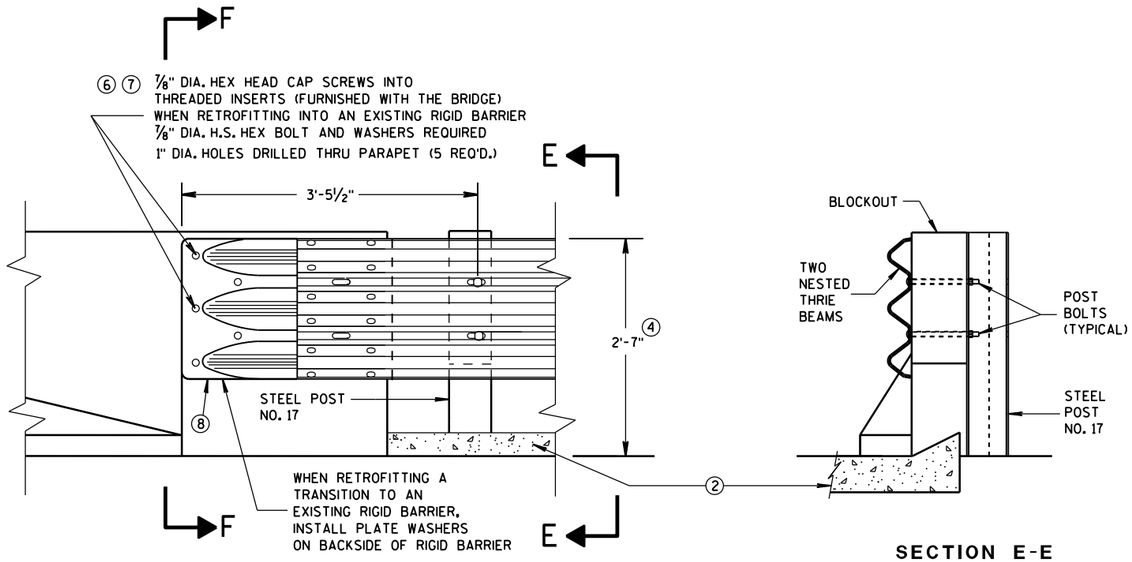
(5) WOOD BLOCKS MAY BE CONSTRUCTED OUT OF 2 WOOD BLOCKS. SEE ALTERNATE WOOD BLOCK DETAIL.

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.

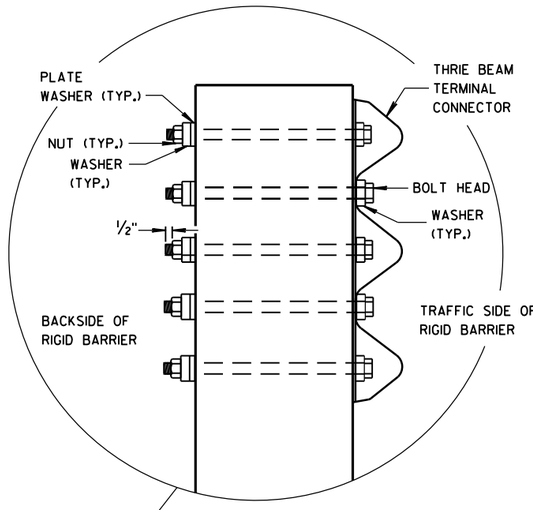
② OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.

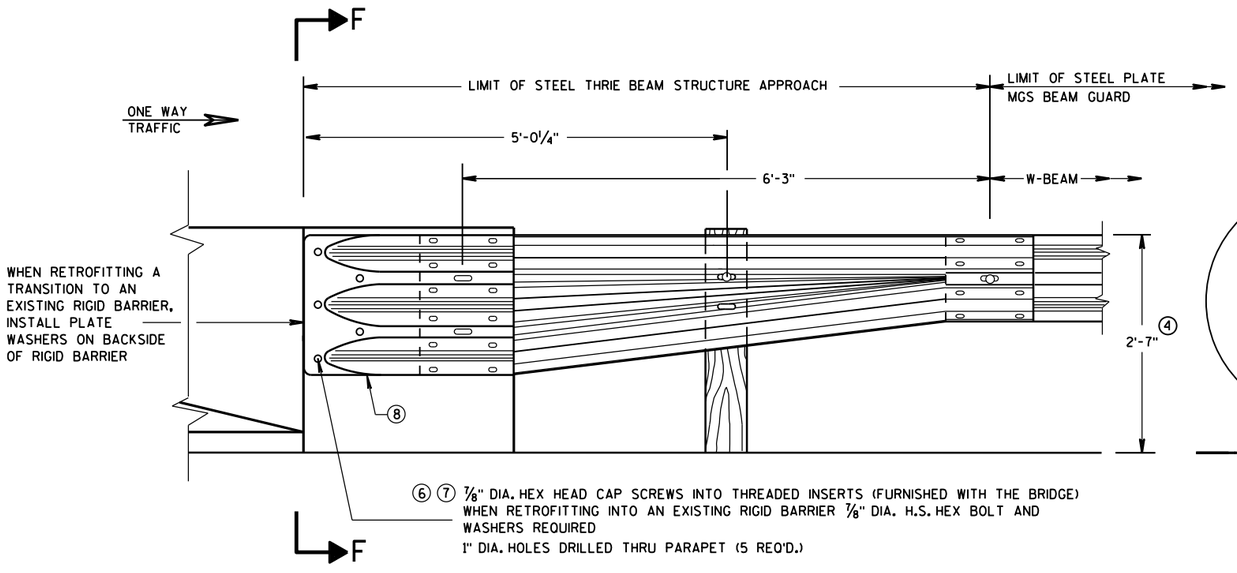
④ TOLERANCE FOR TOP OF BEAM IS ± 1".

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

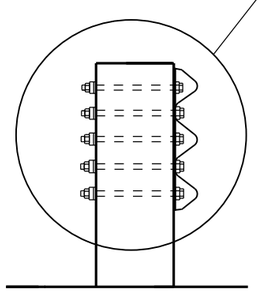
⑦ BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTOR PLATE. 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".

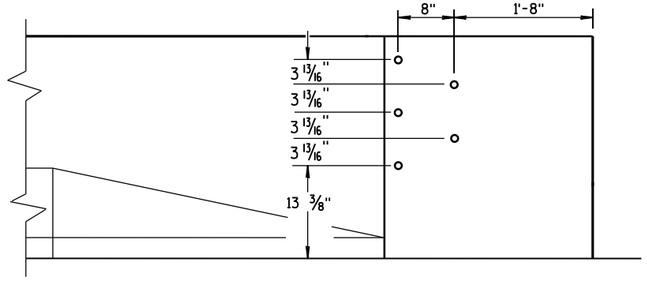




FRONT VIEW



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
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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.

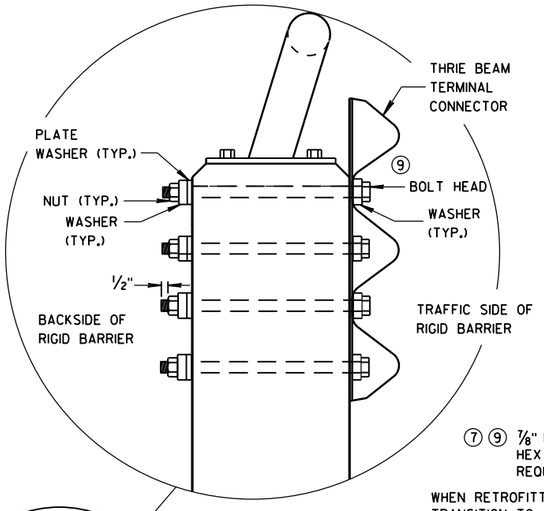
(4) TOLERANCE FOR TOP OF BEAM IS ± 1".

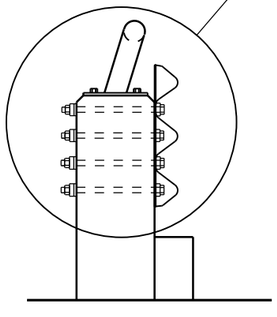
(6) DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.

(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.

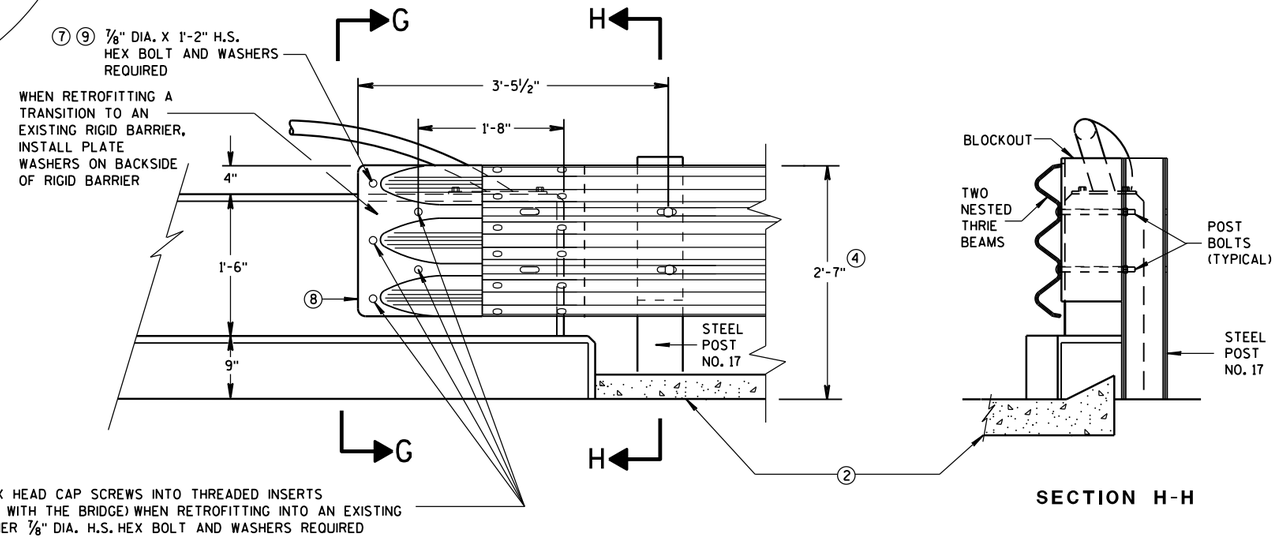
(8) THE RECESS FOR A W-BEAM CONNECTION, WHICH EXISTS ON SOME PARAPETS OF THIS TYPE, SHALL BE FILLED WITH A TREATED TIMBER BLOCKOUT. BLOCKOUT SIZE IS 1'-6" X 2'-0" X 3 1/2".

(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.





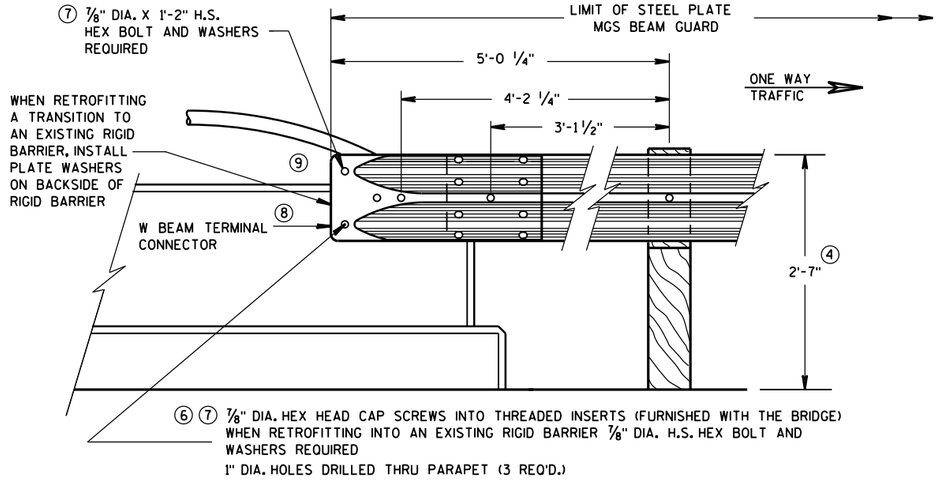
SECTION G-G



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)

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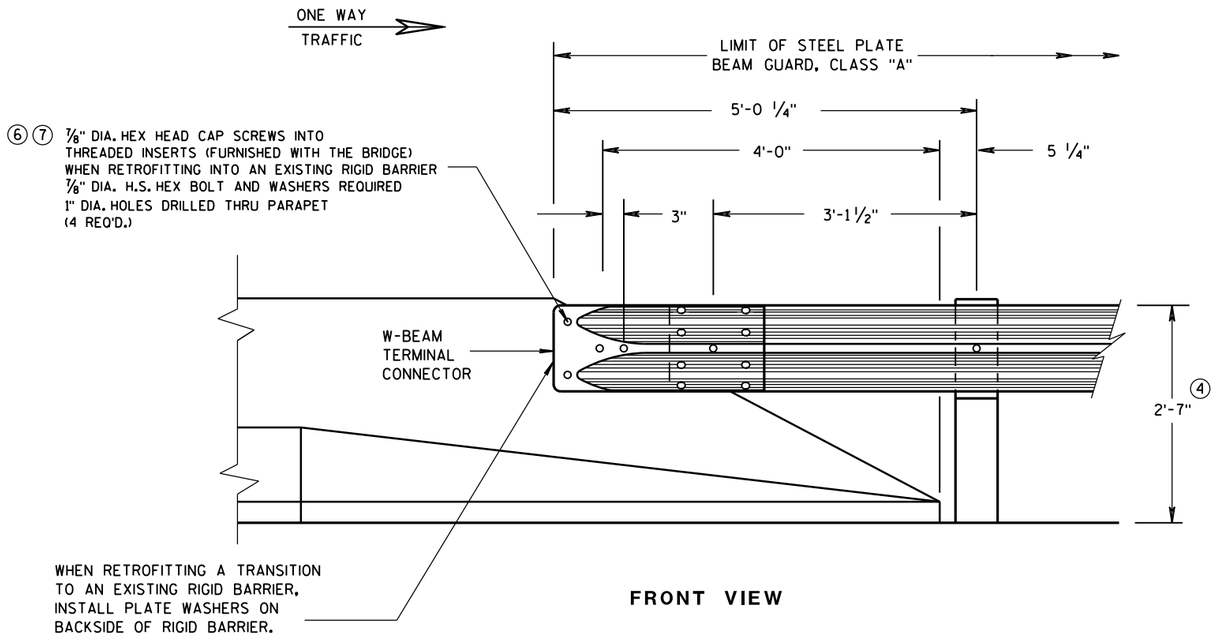


FRONT VIEW

W BEAM CONNECTION TO PARAPETS WITH SLOPED ENDS

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

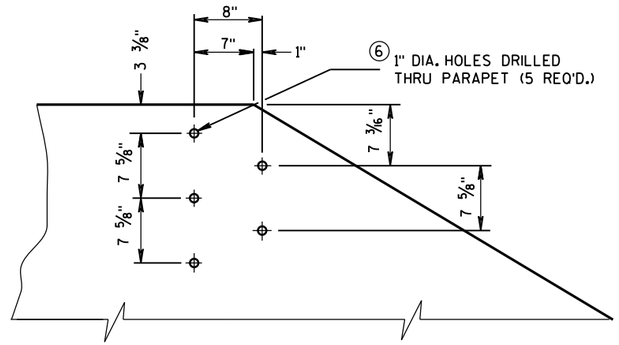
GENERAL NOTES

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

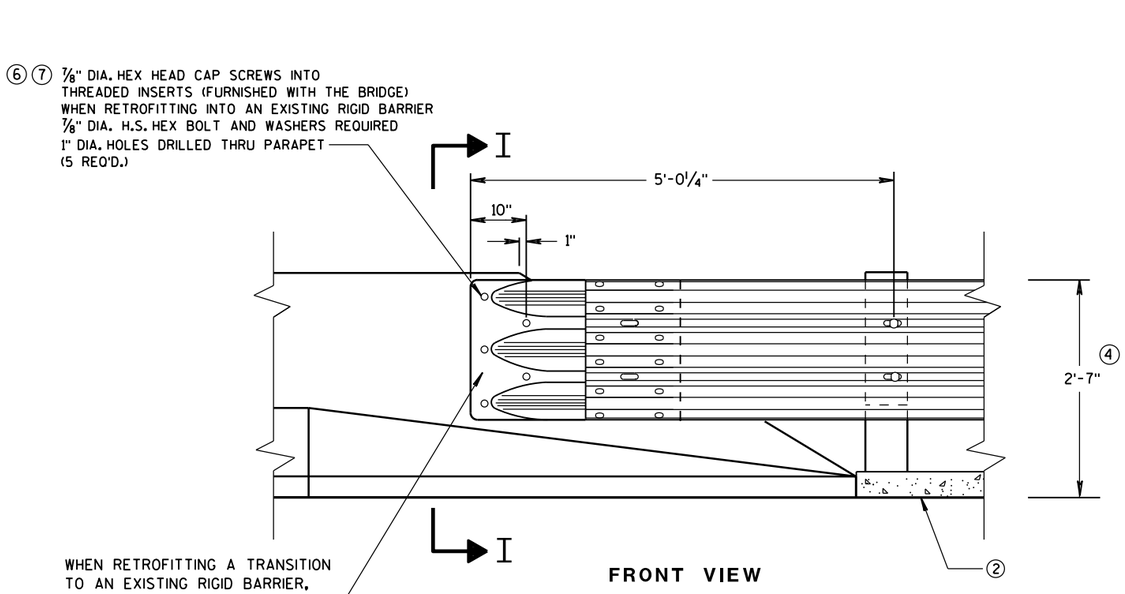
④ TOLERANCE FOR TOP OF BEAM IS ± 1".

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.

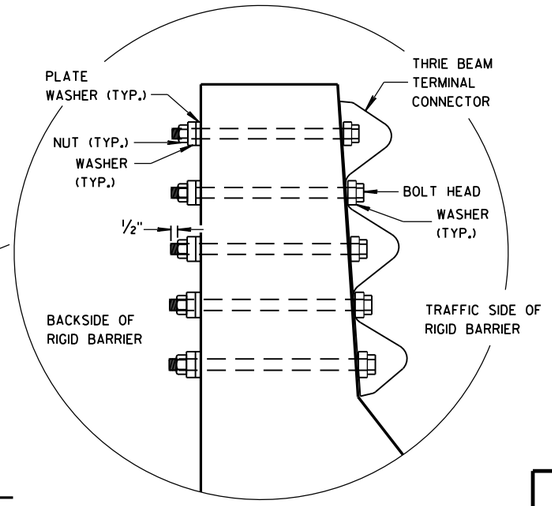


DRILL HOLE LOCATION AND PATTERN
FOR THRIE BEAM CONNECTION



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

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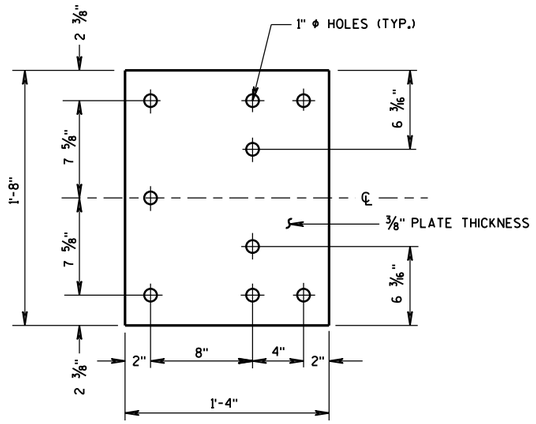
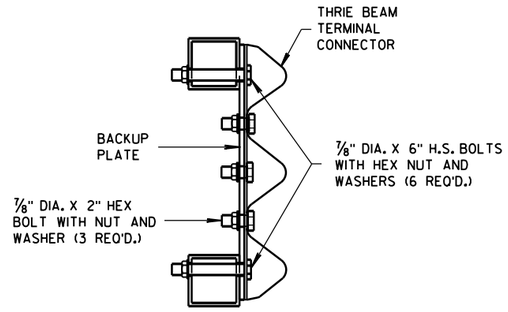
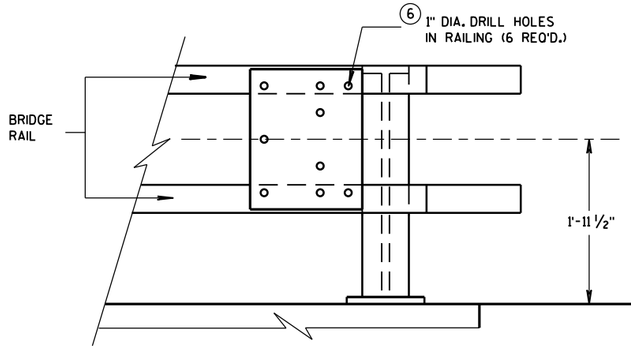


BACK-UP PLATE DETAIL



SECTION J-J

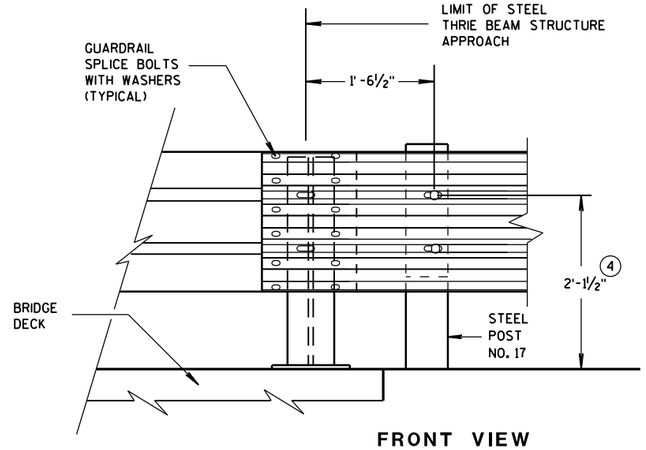


BACK-UP PLATE MOUNTING ONTO BRIDGE RAILING

GENERAL NOTES

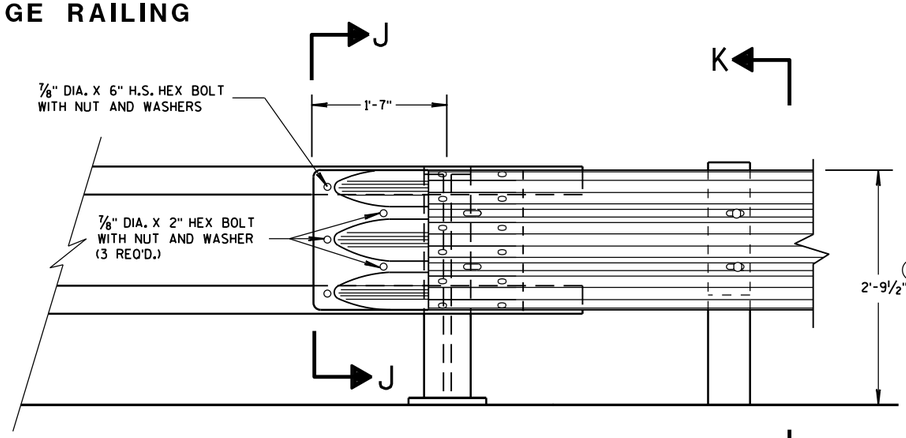
④ TOLERANCE FOR TOP OF BEAM IS ± 1".

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

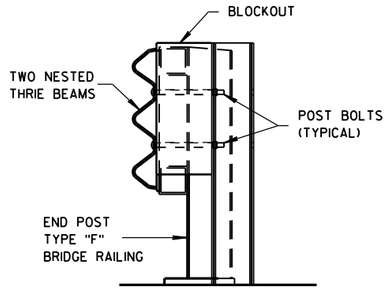


FRONT VIEW

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
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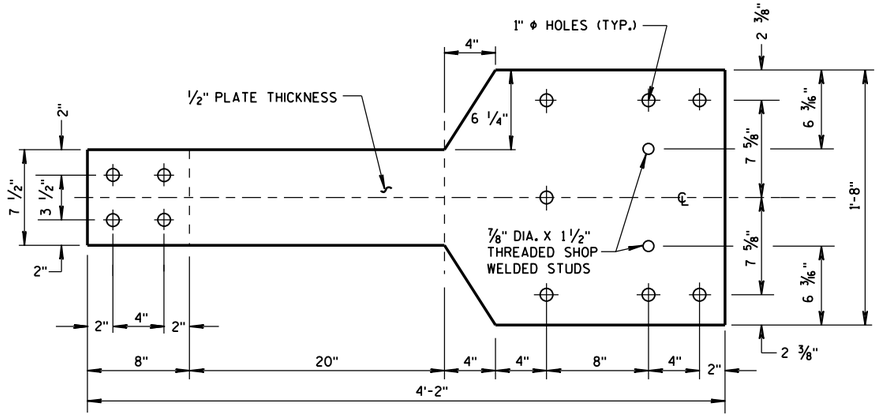
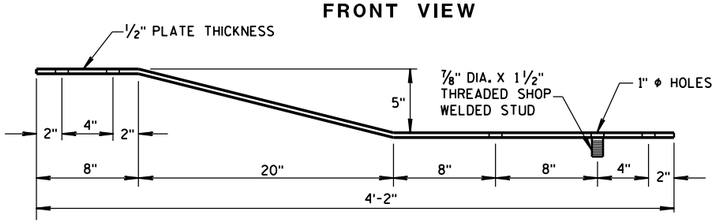
GENERAL NOTES

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

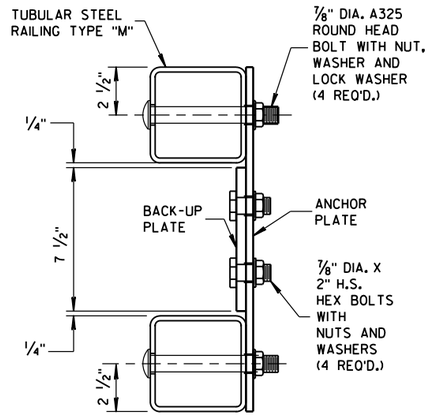


FRONT VIEW

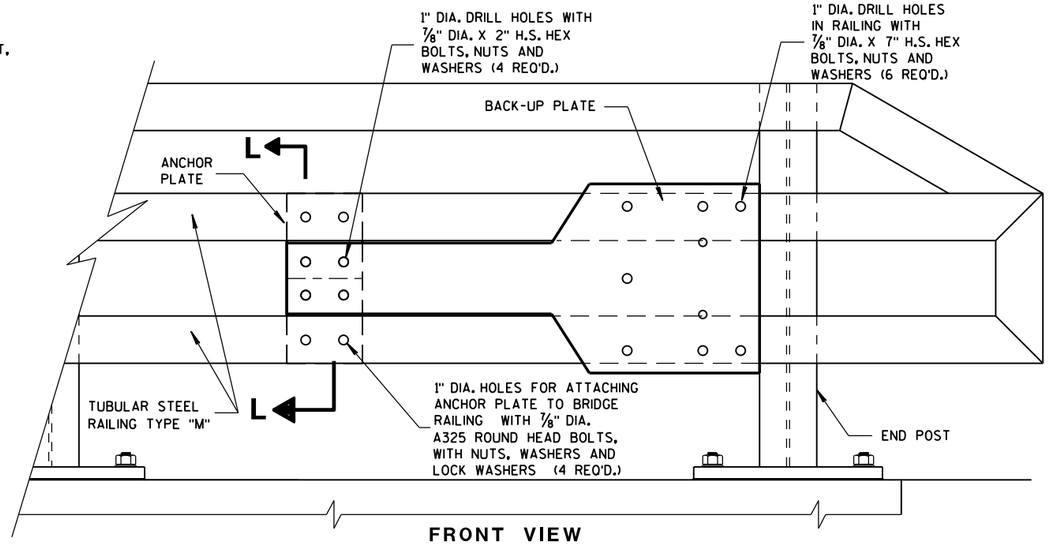


PLAN VIEW

BACK-UP PLATE DETAIL, TYPE "M"

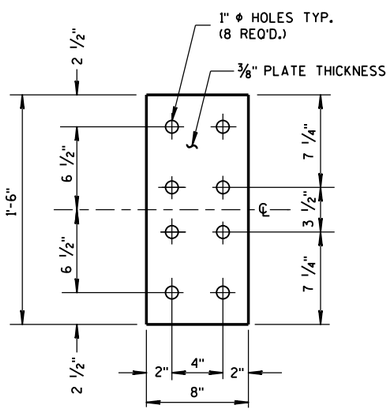


SECTION L-L



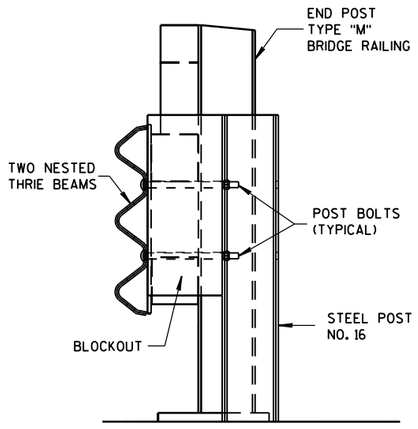
FRONT VIEW

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

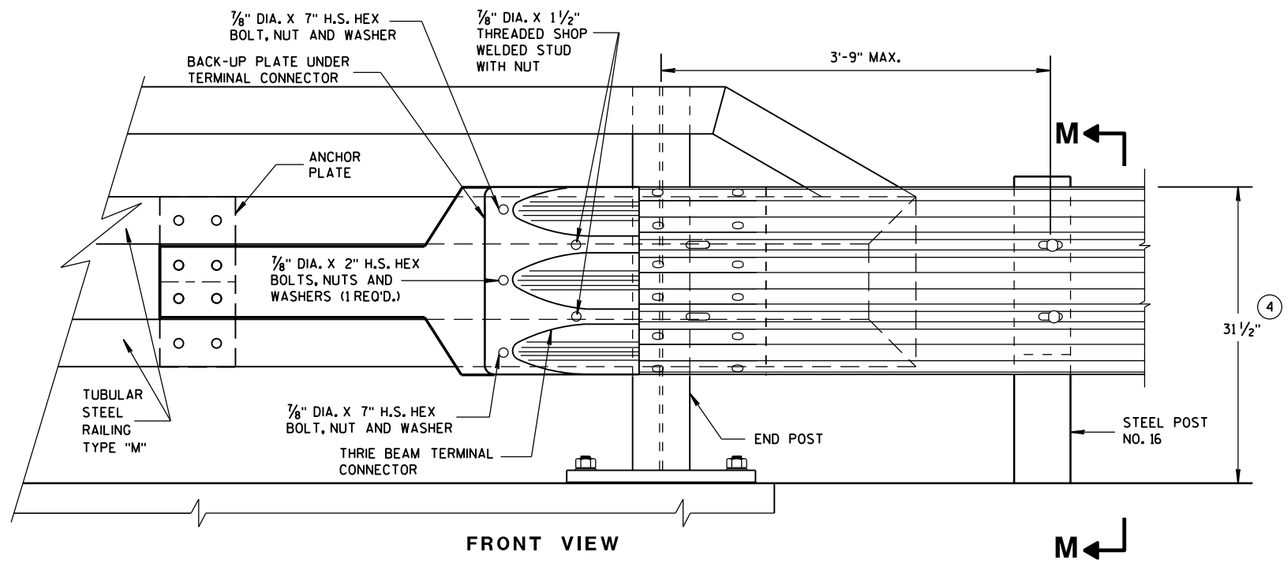


FRONT VIEW

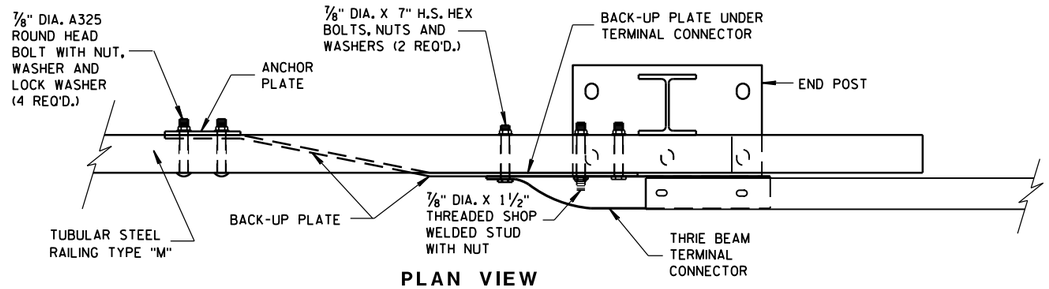
ANCHOR PLATE DETAIL, TYPE "M"



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
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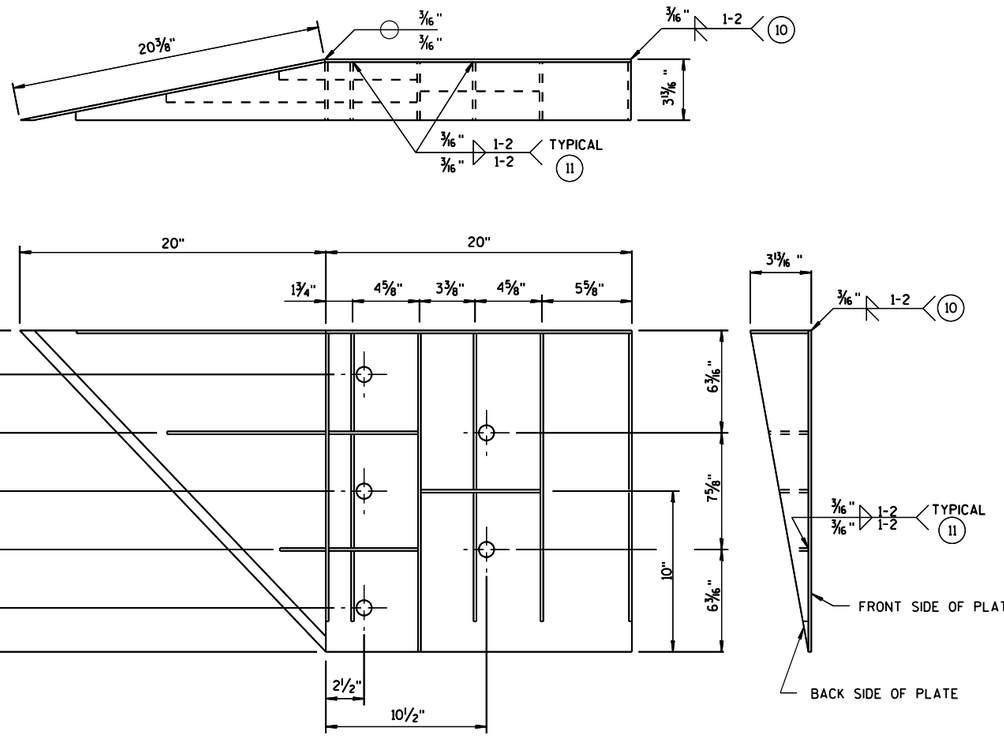

WELDING INSTRUCTION

(VIEWED FROM BACK SIDE OF PLATE)

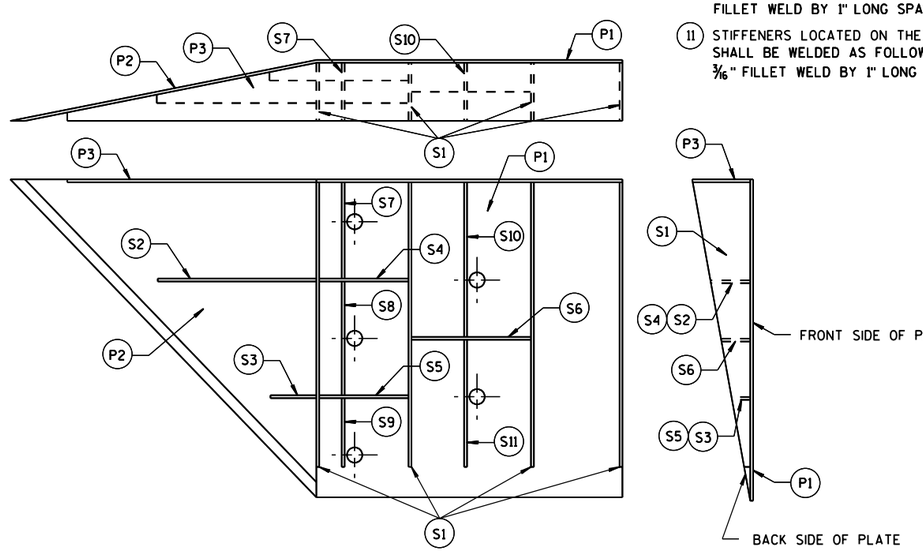

PLATE AND STIFFENER IDENTIFICATION

(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)

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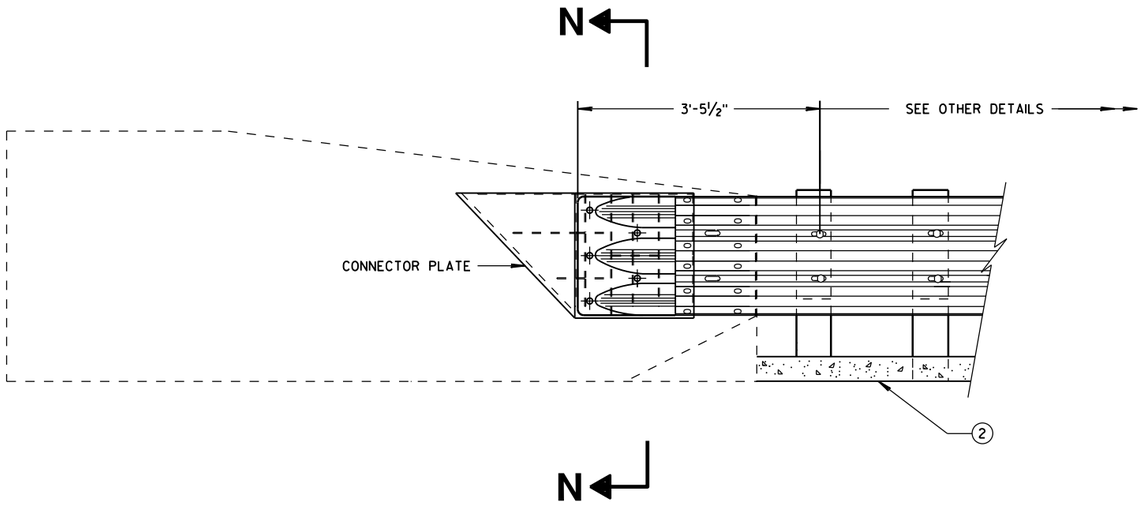
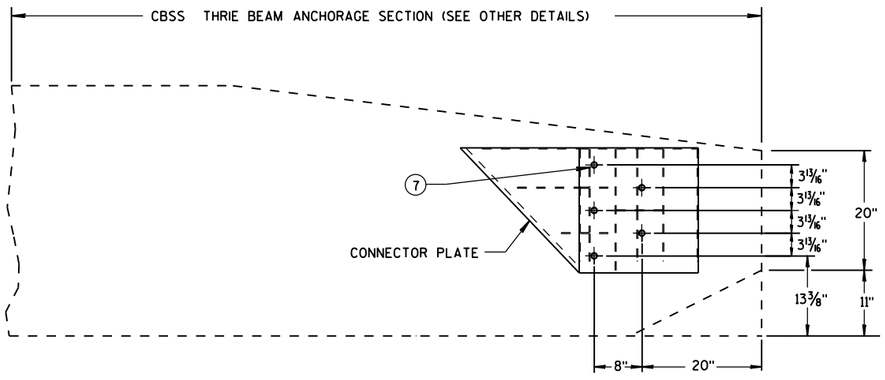


THRIE BEAM CONNECTION TO SINGLE SLOPE BARRIER



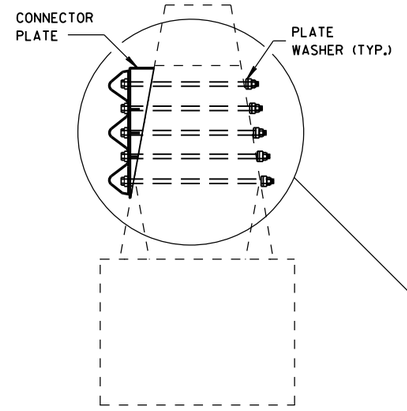
SINGLE SLOPE CONNECTION PLATE PLACEMENT

GENERAL NOTES

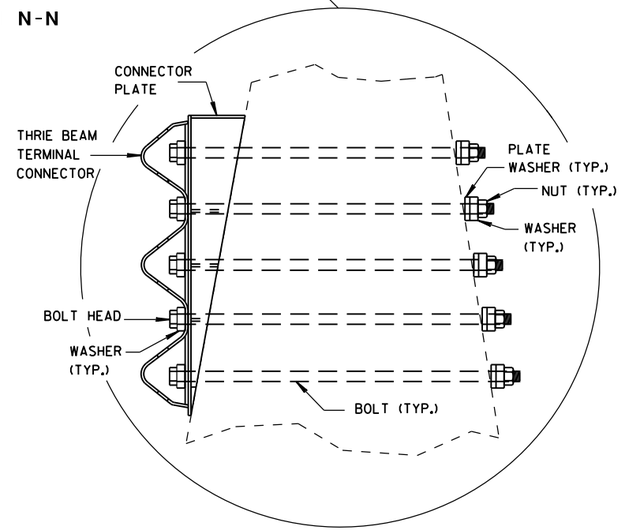
CONNECTOR PLATE, DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.

(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
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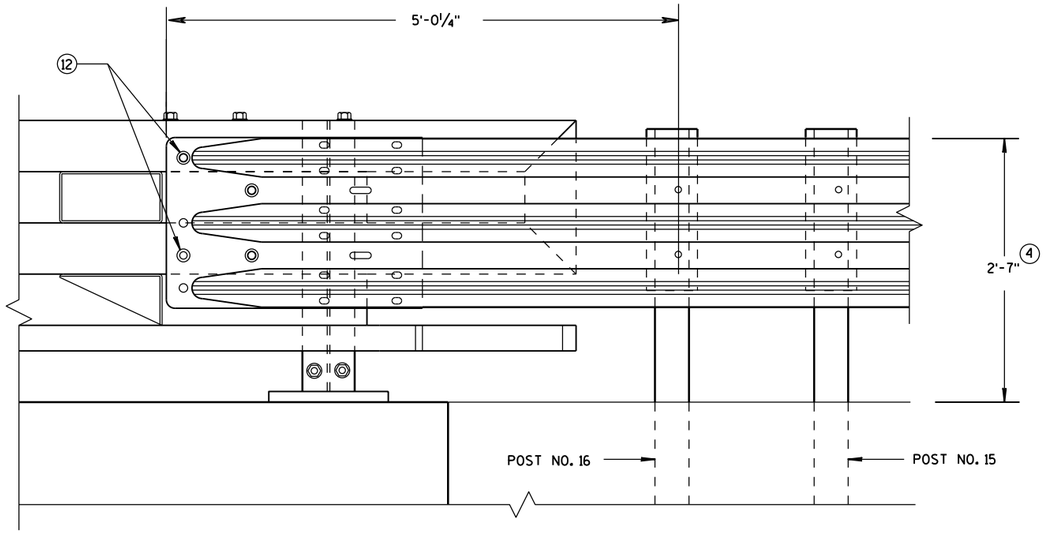
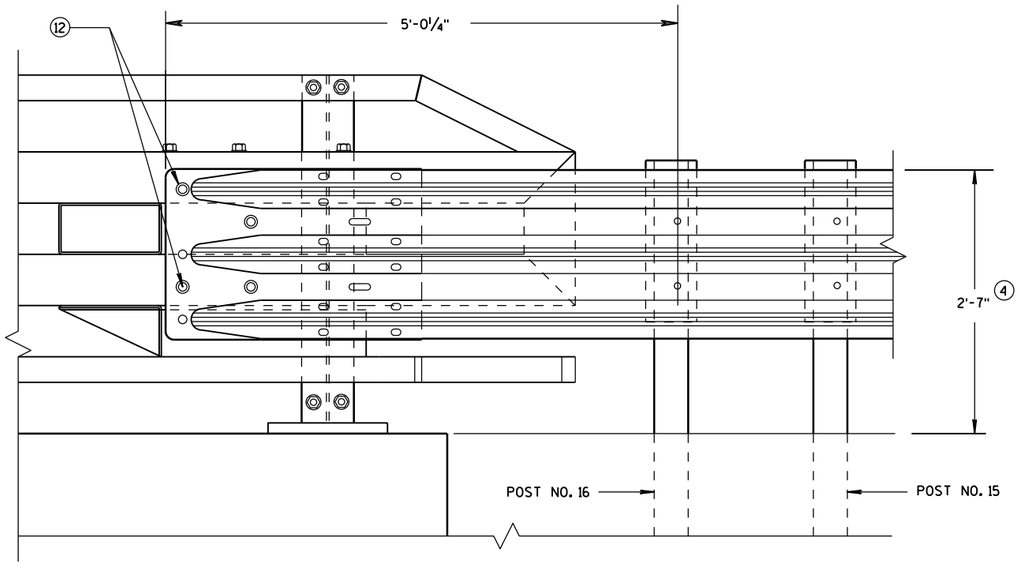


ELEVATION OF DETAIL AT NY3 END POST

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
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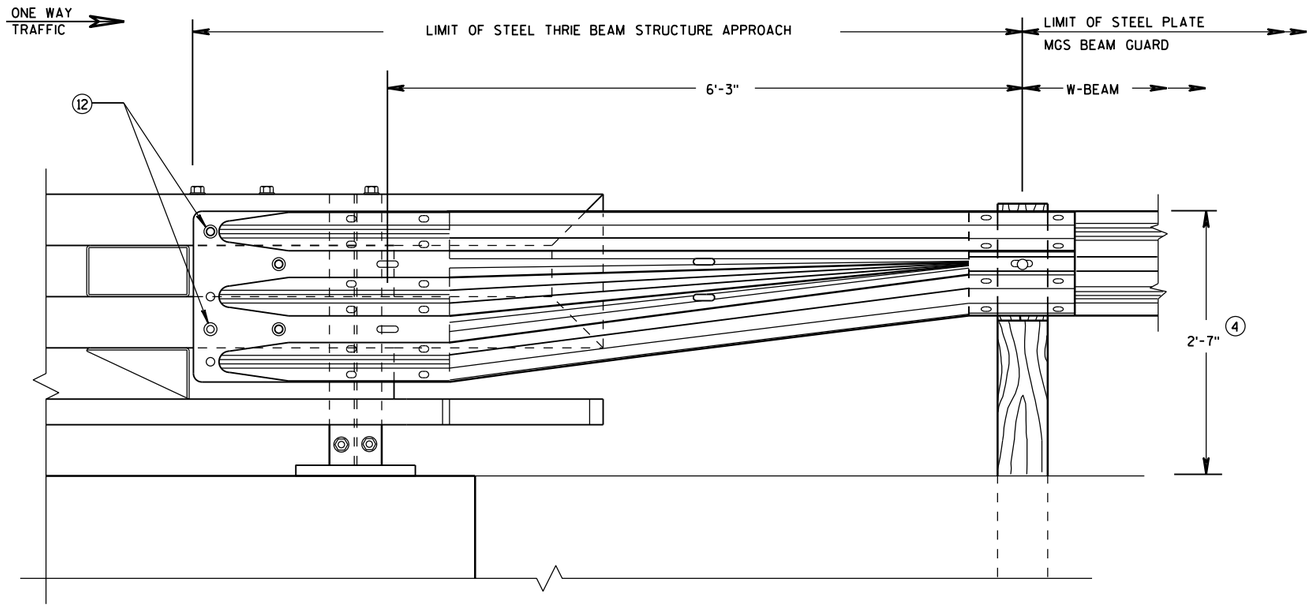


FRONT VIEW

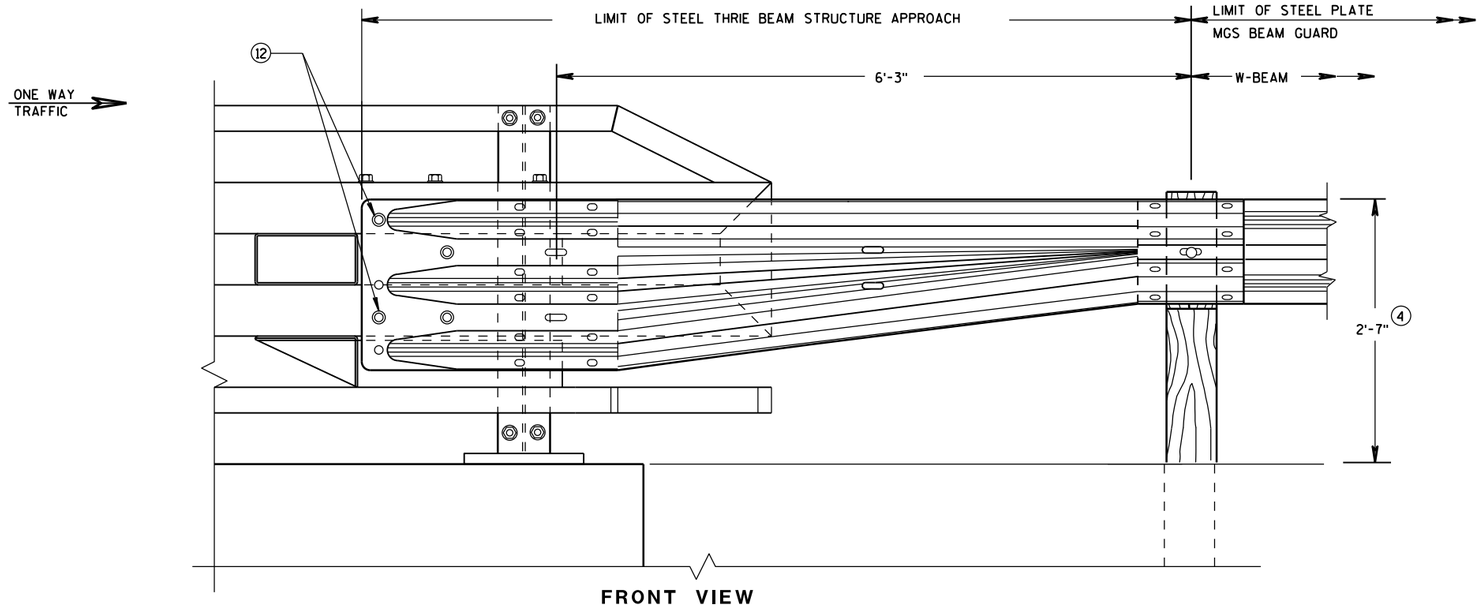
W BEAM TRANSITION AND CONNECTION TO BRIDGE RAILING TYPE "NY3"

(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

NT

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

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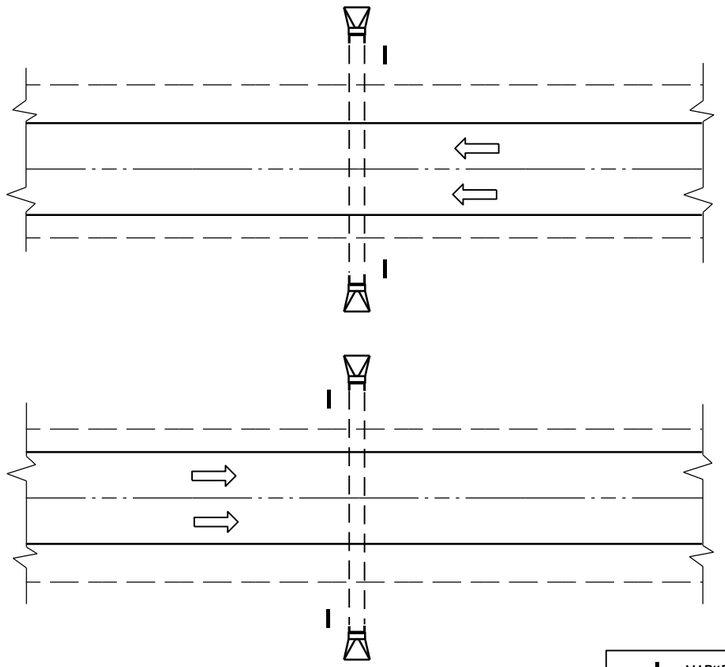
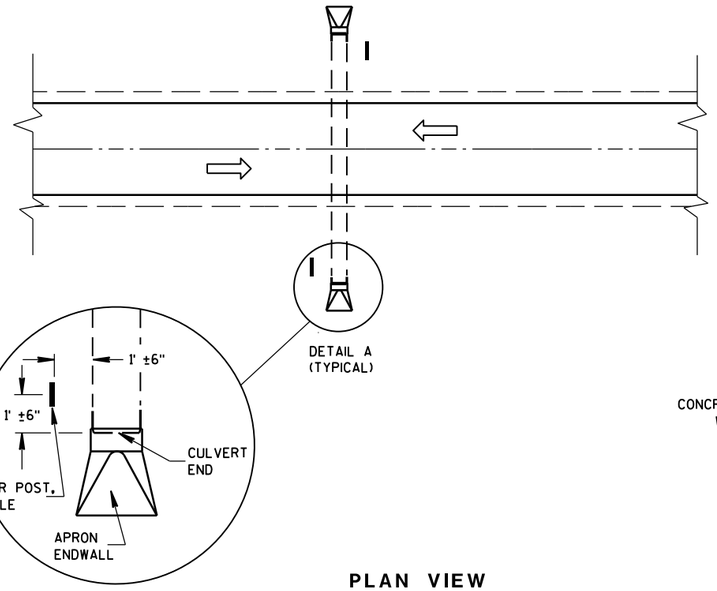
S.D.D. 14 B 45-4L



PLAN VIEW

DIVIDED HIGHWAY



DETAIL A
(TYPICAL)

PLAN VIEW

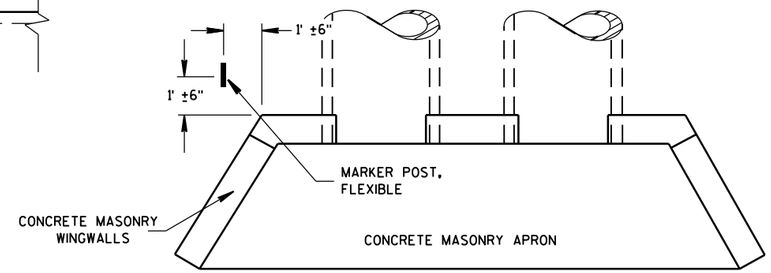
UNDIVIDED HIGHWAY

MARKER POST, FLEXIBLE

DIRECTION OF TRAFFIC FLOW

GENERAL NOTES

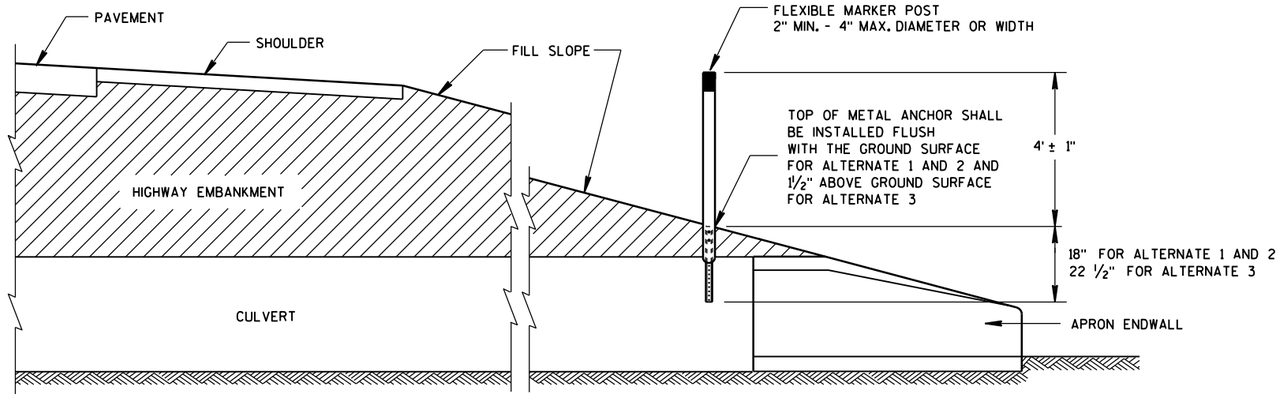
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.



PLAN VIEW

CONCRETE MASONRY ENDWALLS FOR CULVERT PIPE AND PIPE ARCH

FLEXIBLE MARKER POST LOCATION



CROSS SECTION

FLEXIBLE MARKER POST

FLEXIBLE MARKER POST FOR CULVERT END

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

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

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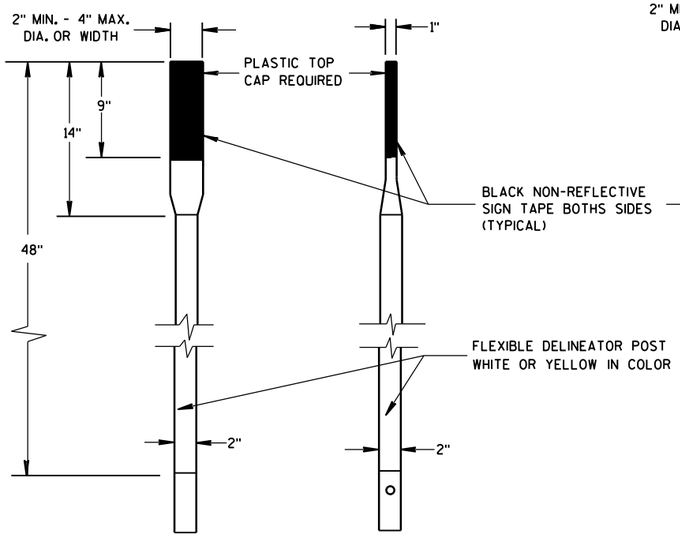
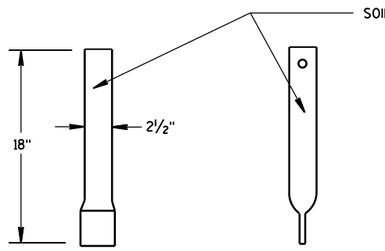
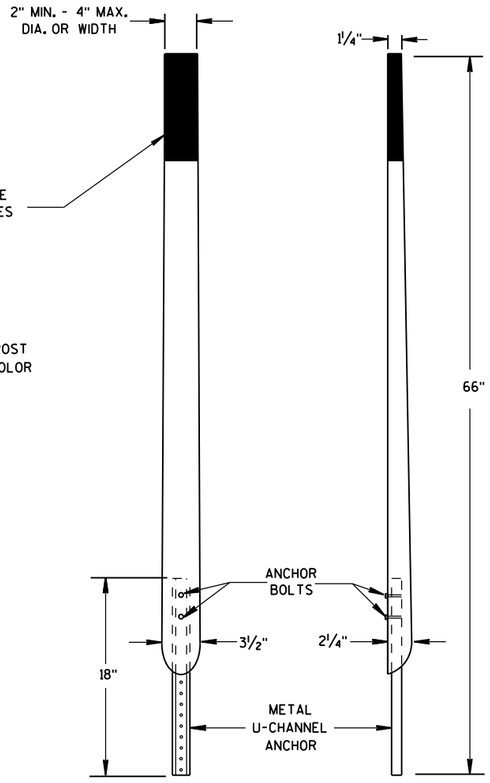
S.D.D. 15 A 3-2a





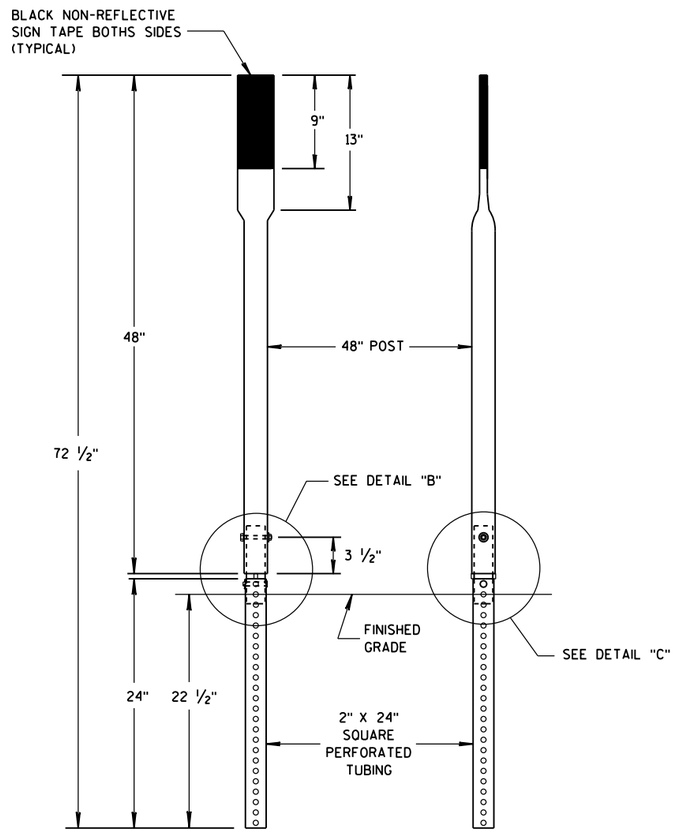
FRONT VIEW SIDE VIEW

ALTERNATE 1



FRONT VIEW SIDE VIEW

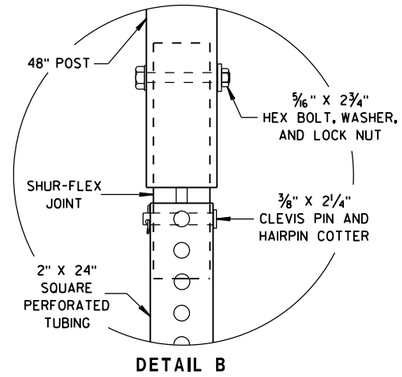
ALTERNATE 2



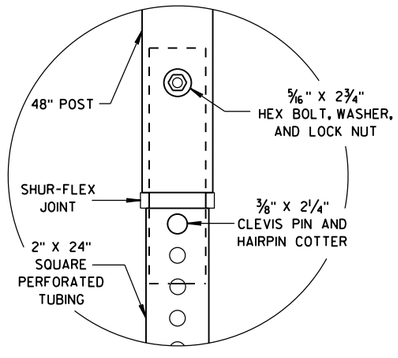
FRONT VIEW SIDE VIEW

ALTERNATE 3

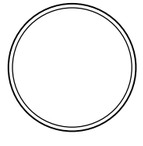
FLEXIBLE MARKER POSTS



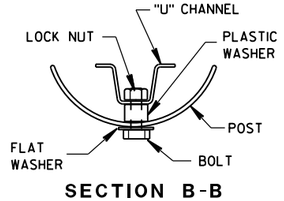
DETAIL B



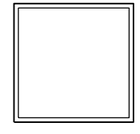
DETAIL C



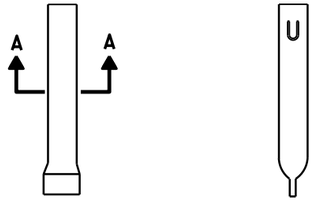
SECTION A-A



SECTION B-B

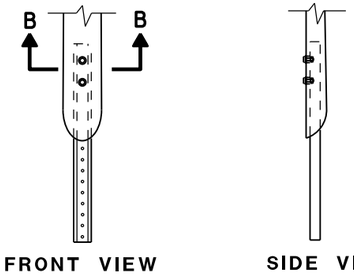


SECTION C-C



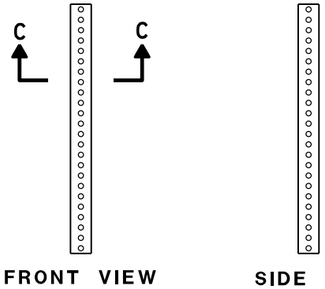
FRONT VIEW SIDE VIEW

ALTERNATE 1



FRONT VIEW SIDE VIEW

ALTERNATE 2



FRONT VIEW SIDE VIEW

ALTERNATE 3

FLEXIBLE MARKER POST ANCHORS

FLEXIBLE MARKER POST
FOR CULVERT END

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
10/1/2012 — DATE
/S/ Travis Feltes — STATE TRAFFIC ENGINEER
FHWA

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

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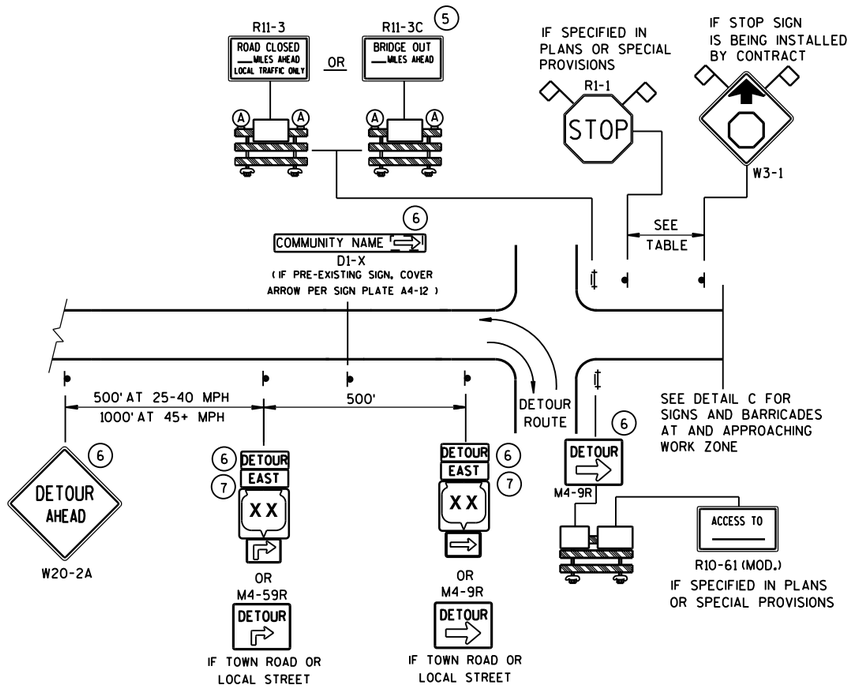
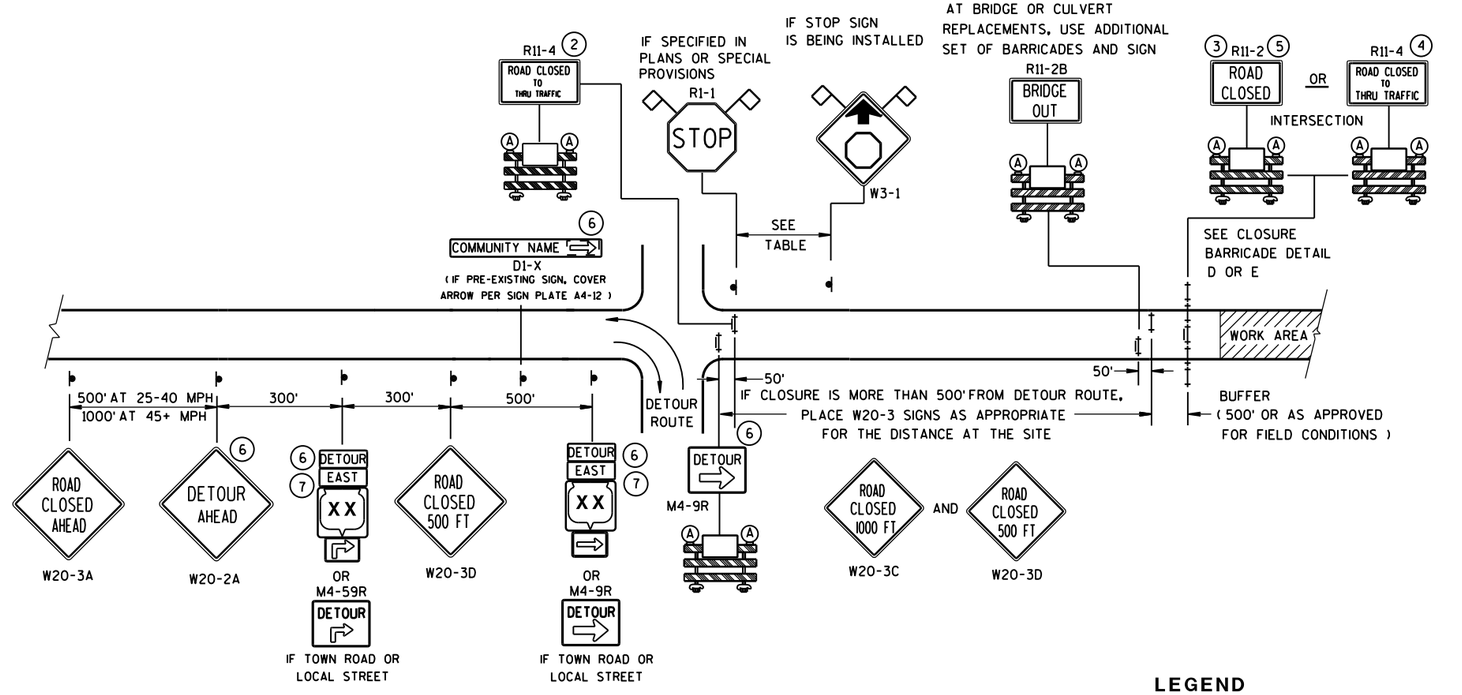
S.D.D. 15 A 3-2b



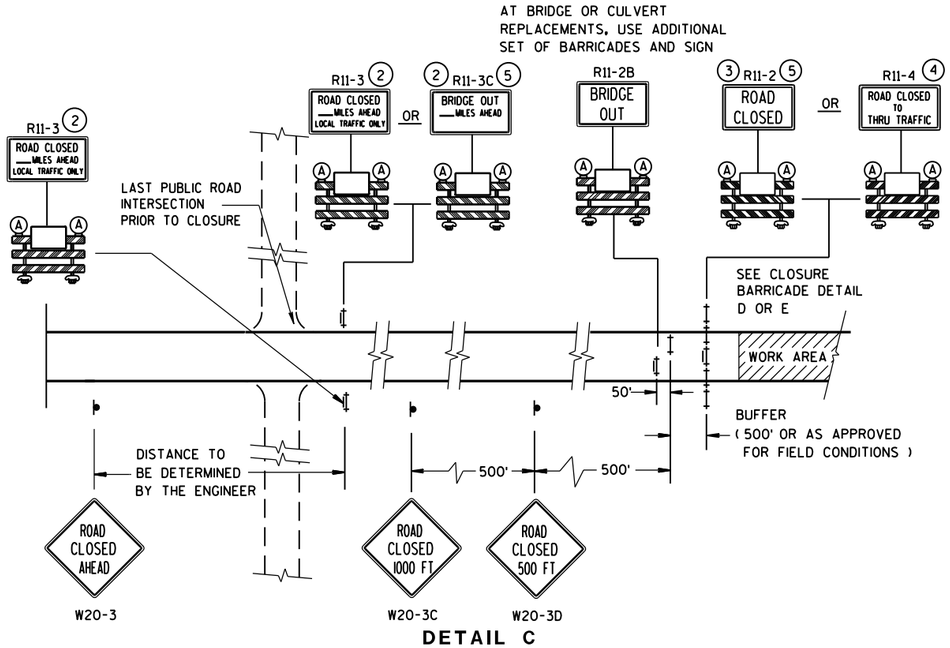
DETAIL A
MAINLINE CLOSURE WITH POSTED DETOUR

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

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

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S.D.D. 15 C 2-6a

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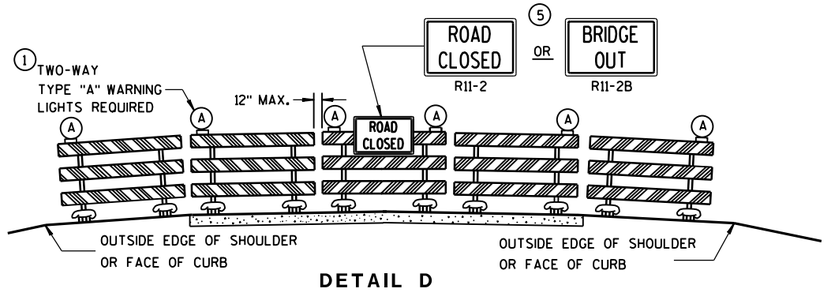
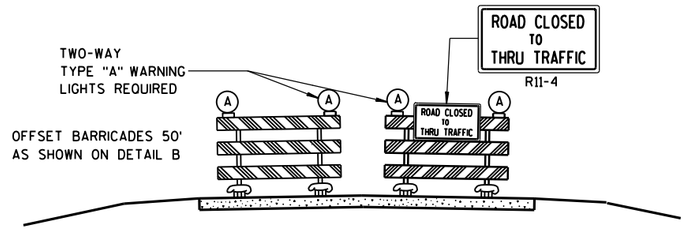
S.D.D. 15 C 2-6a



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

Sept. 2015 — DATE

/S/ Peter Amakobe Atepe
STATEWIDE WORK ZO SAFETY ENGI FIC
FHWA

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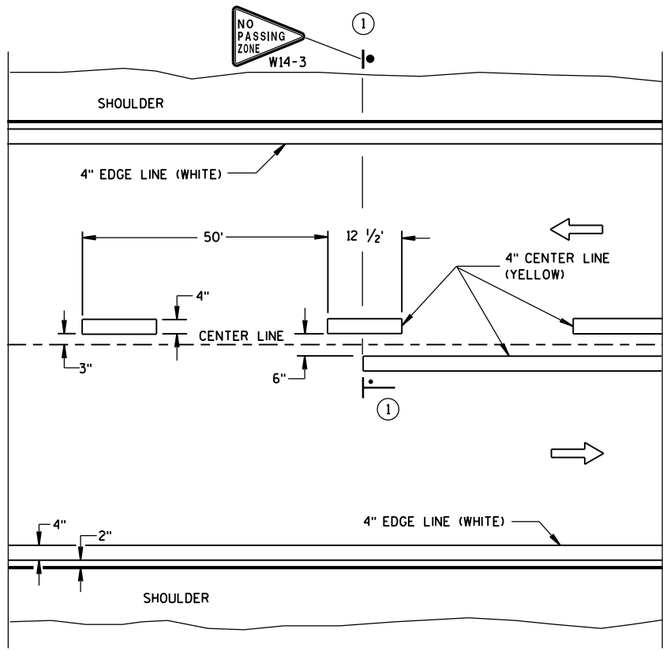
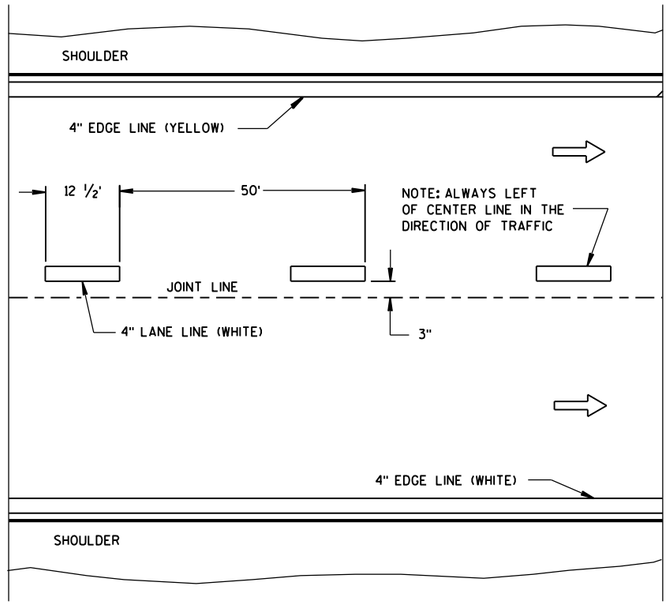
S.D.D. 15 C 2-6b



TWO WAY TRAFFIC



ONE WAY TRAFFIC

PERMANENT PAVEMENT MARKING

GENERAL NOTES

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

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

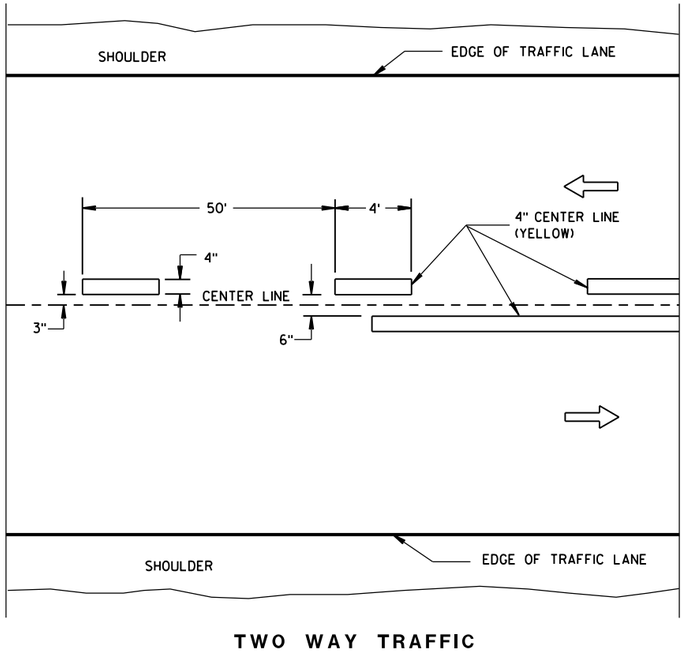
NOTE

ARROW SYMBOL (⇨) SHOWS DIRECTION OF TRAVEL

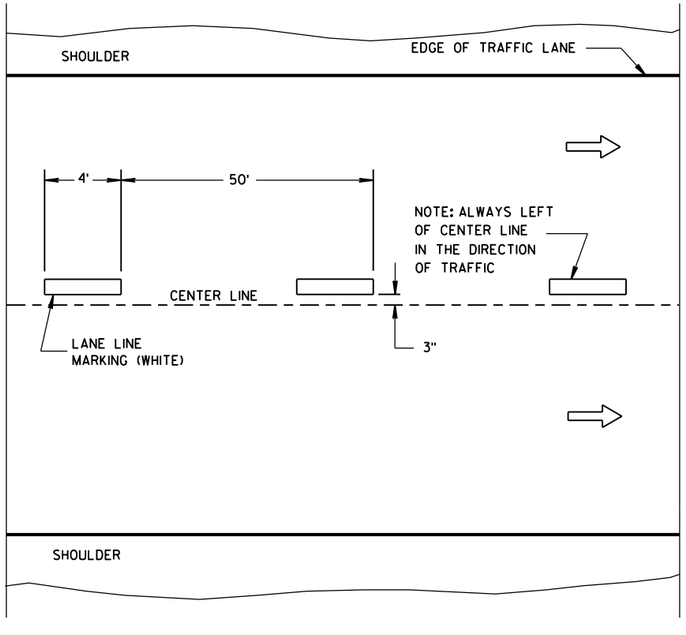
LEGEND

"T" MARKING

POST MOUNTED SIGN



TWO WAY TRAFFIC



ONE WAY TRAFFIC

TEMPORARY PAVEMENT MARKING

LONGITUDINAL MARKING (MAINLINE)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
Sept., 2016 — DATE
/S/ Matthew R. Rauch — STATE SIGNING AND MARKING ENGINEER
FHWA

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

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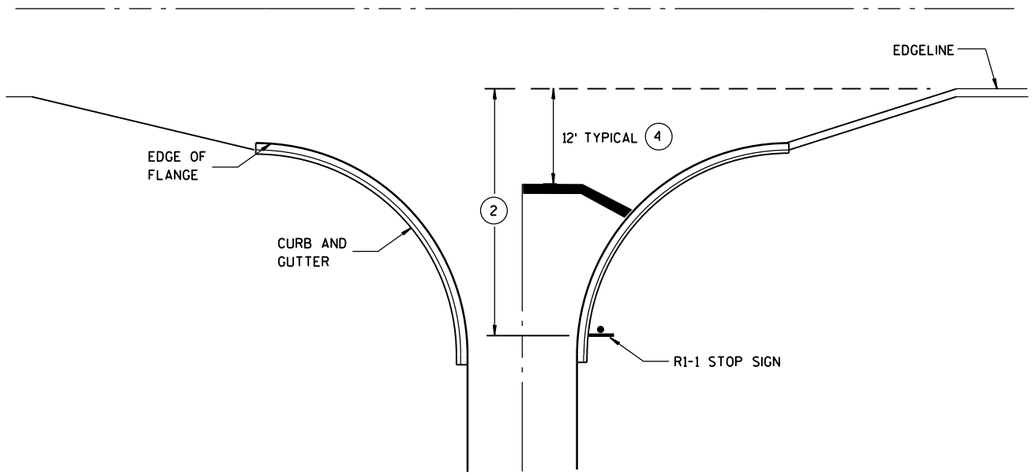
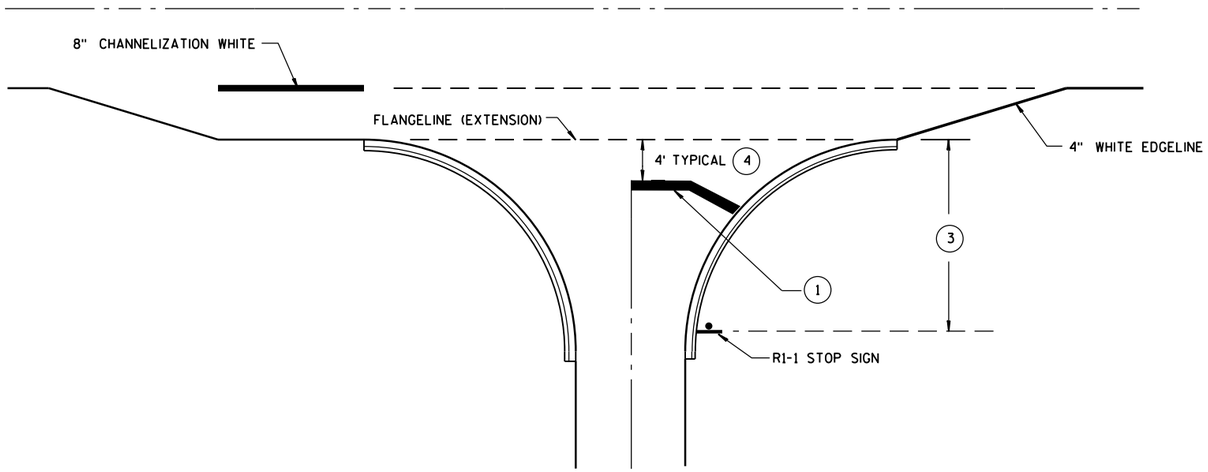
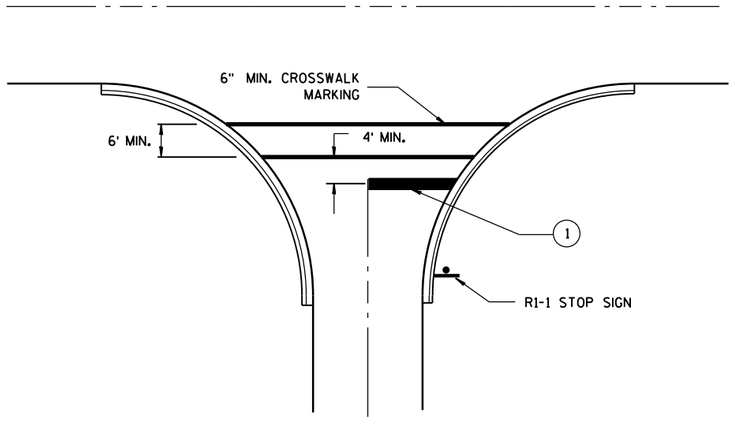
S.D.D. 15 C 8-17a



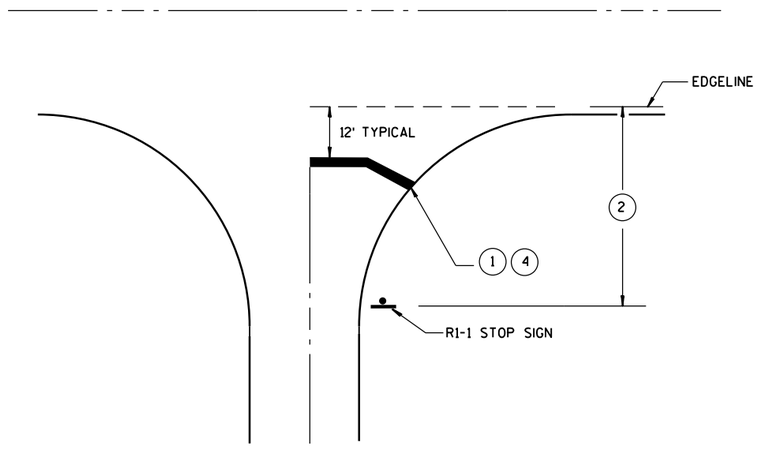
TYPICAL STOP LINE PAVEMENT MARKING WITH CURB AND GUTTER



TYPICAL STOP LINE PAVEMENT MARKING FOR SIDEROADS WITH RIGHT TURN LANE



TYPICAL STOP LINE PAVEMENT MARKING FOR SIDEROADS WITH CROSSWALK MARKING



TYPICAL STOP LINE PAVEMENT MARKING WITHOUT CURB AND GUTTER

GENERAL NOTES

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

STOP LINE AND CROSSWALK PAVEMENT MARKING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

4-18-2016
DATE

/S/ Matthew R. Rauch
STATE SIGNING AND MAR[illegible] ENGINEER

FHWA

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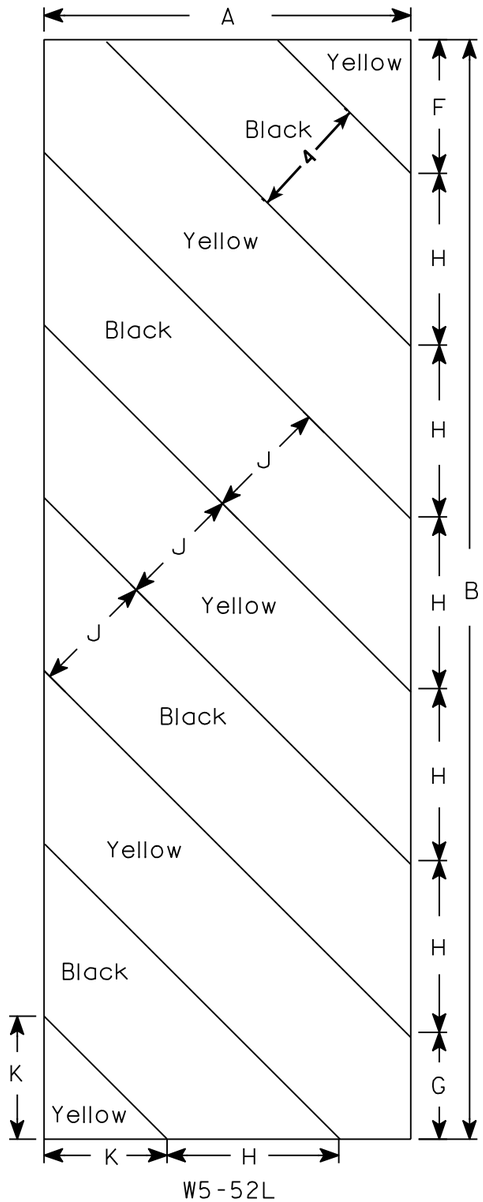
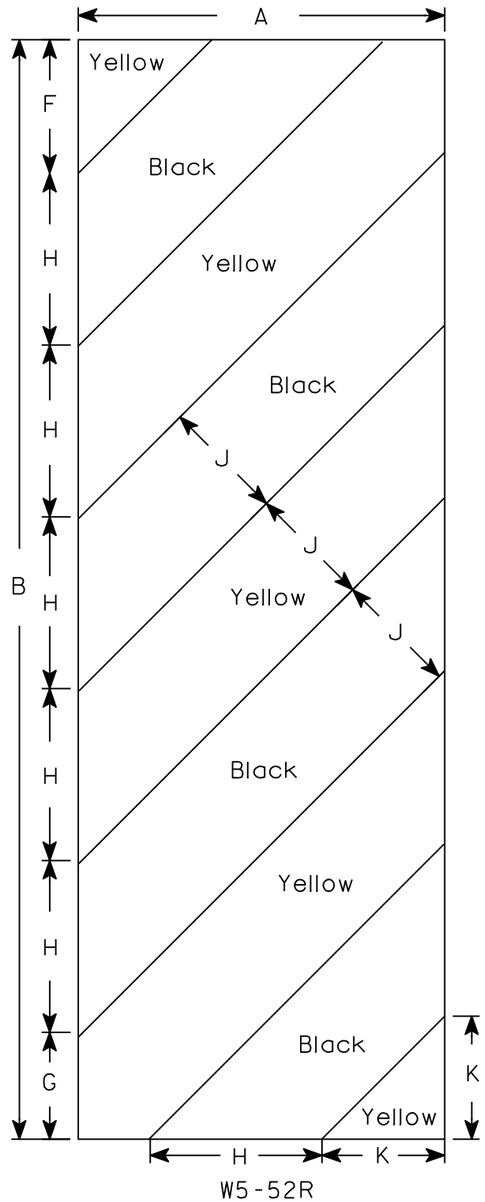
S.D.D. 15 C 33-2



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

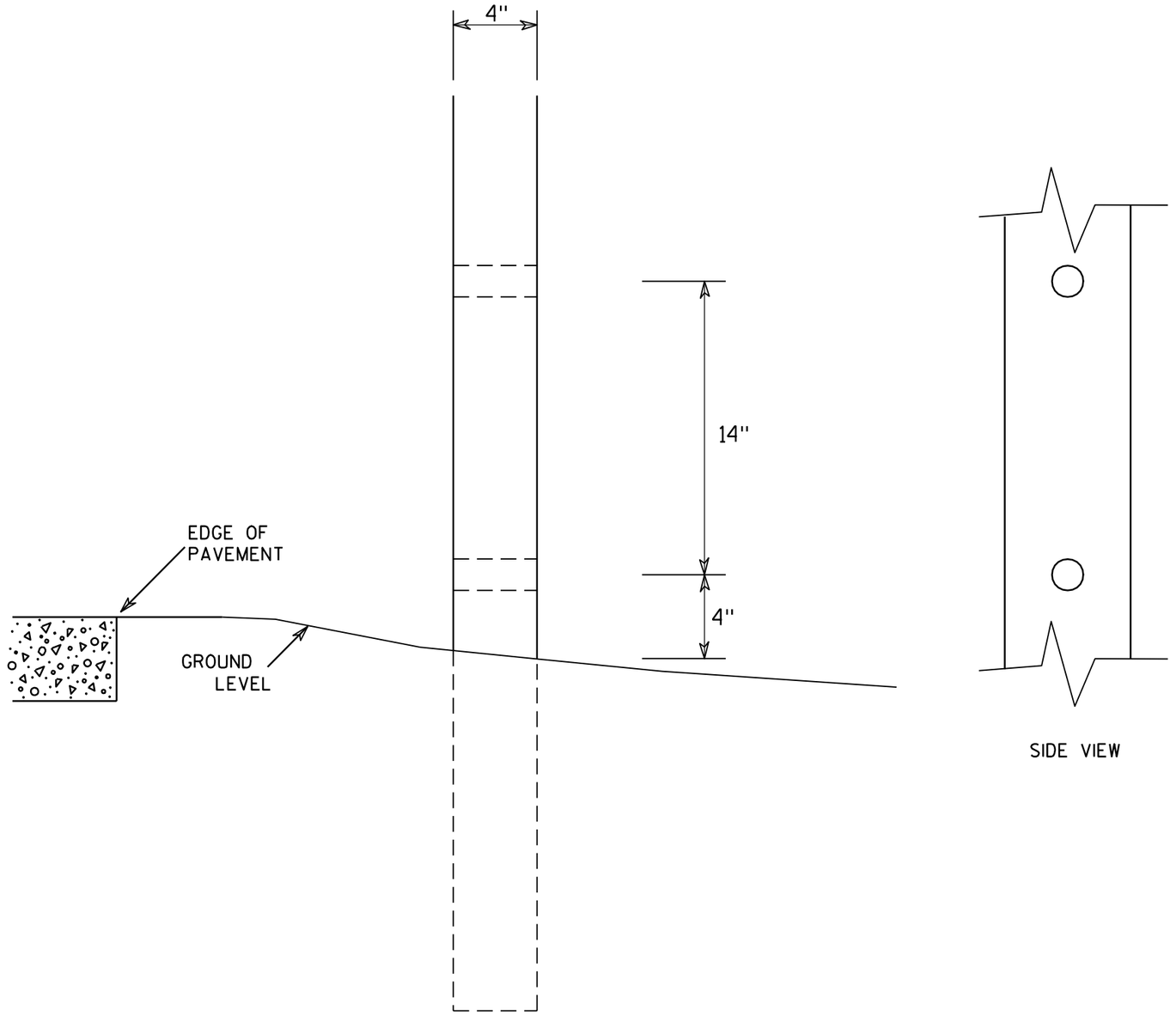
W5-52L & W5-52R

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

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

PROJECT NO:	HWY:	COUNTY:		SHEET NO: 49	E



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.

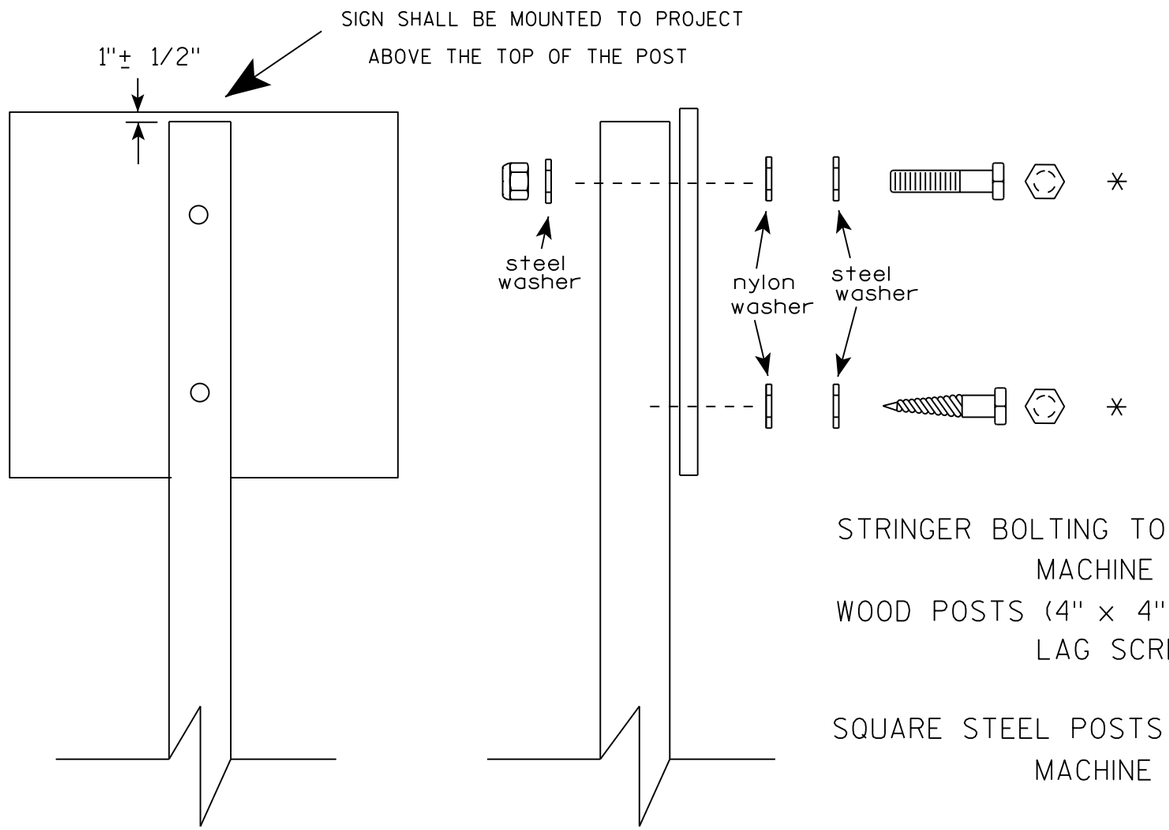
4 X 6 WOOD POST MODIFICATIONS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Chester J Spang
for State Traffic Engineer

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

PROJECT NO:	HWY:	COUNTY:		SHEET NO: 50	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.

STRINGER BOLTING TO ALUMINUM SIGNS (SEE SIGN PLATE A4-18)
MACHINE BOLTS - 5/16" X 1-3/4" Length w/ lock nuts
WOOD POSTS (4" x 4" or 4" x 6")
LAG SCREWS - 3/8" X 3" (NO STRINGERS ON BACK OF SIGN)
3/8" X 4" (STRINGERS ON BACK OF SIGN)
SQUARE STEEL POSTS (2" x 2")
MACHINE BOLTS - 3/8" X 3-1/4" Length w/ nuts (NO STRINGER ON BACK OF SIGN)
3/8" X 5" Length w/ nuts (STRINGERS ON BACK OF SIGN)
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

* 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

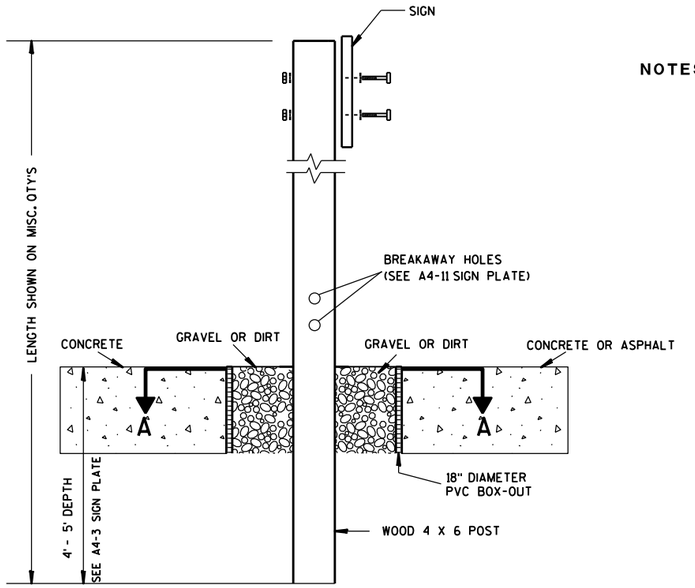
WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
For State Traffic Engineer

DATE 8/11/16 PLATE NO. A4-8.8

PROJECT NO:

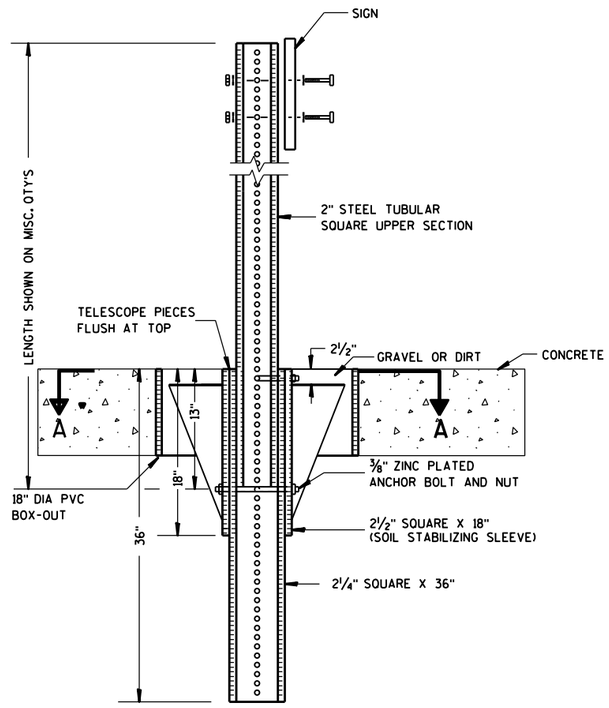
SHEET NO: 15 E



ELEVATION VIEW

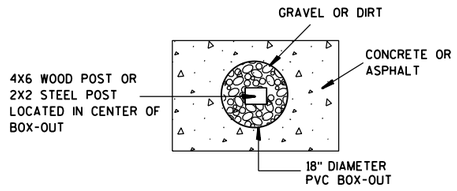
DETAIL OF WOOD 4 X 6 SIGN POST IN BOX-OUT

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



ELEVATION VIEW

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



PLAN VIEW

FOR NEW CONCRETE/ASPHALT INSTALLATIONS

SIGN POST BOX-OUTS A4-3B

WISCONSIN DEPT OF TRANSPORTATION

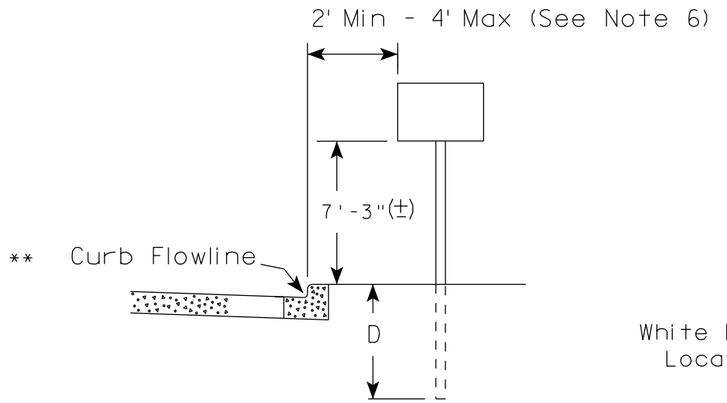
APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 1/27/14 PLATE NO. A4-3B.1

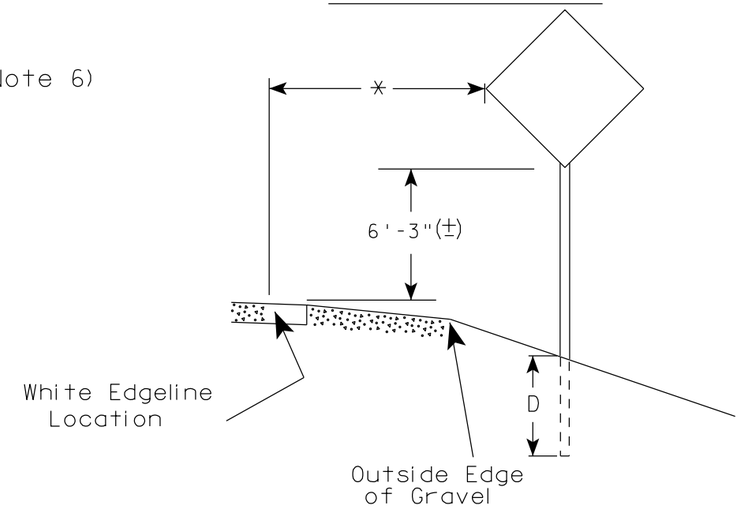
PROJECT NO:	HWY:	COUNTY:		SHEET NO: 16	E

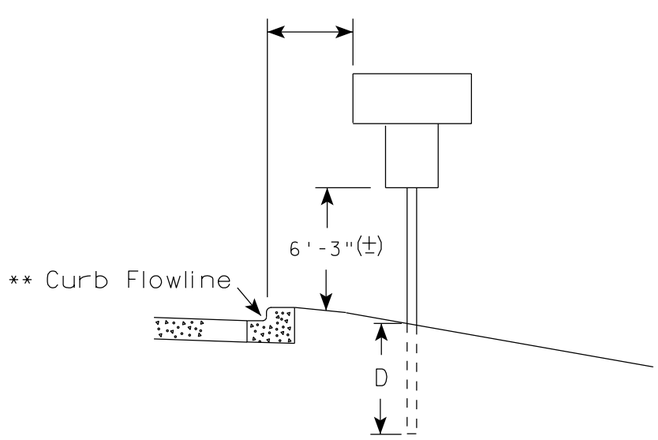
FILE NAME : C:\CAEFiles\Projects\tr_stdplate\A43B.DGN PLOT DATE : 27-JAN-2014 09:48 PLOT BY : mscsja PLOT NAME : PLOT SCALE : 13.659812:1.000000 WISDOT/CADDS SHEET 42

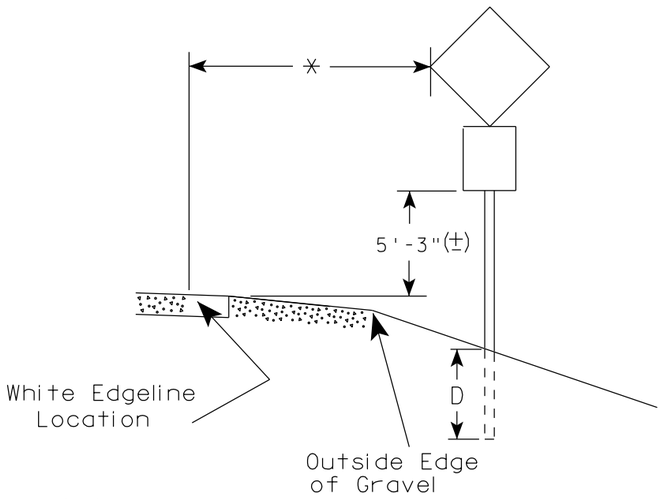
URBAN AREA



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

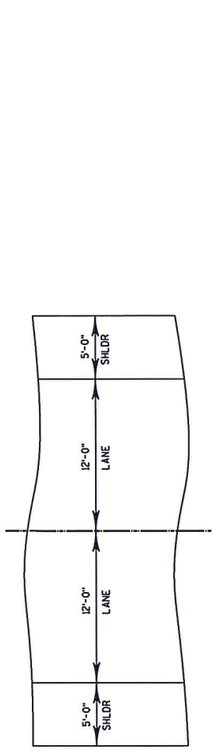
WISCONSIN DEPT OF TRANSPORTATION

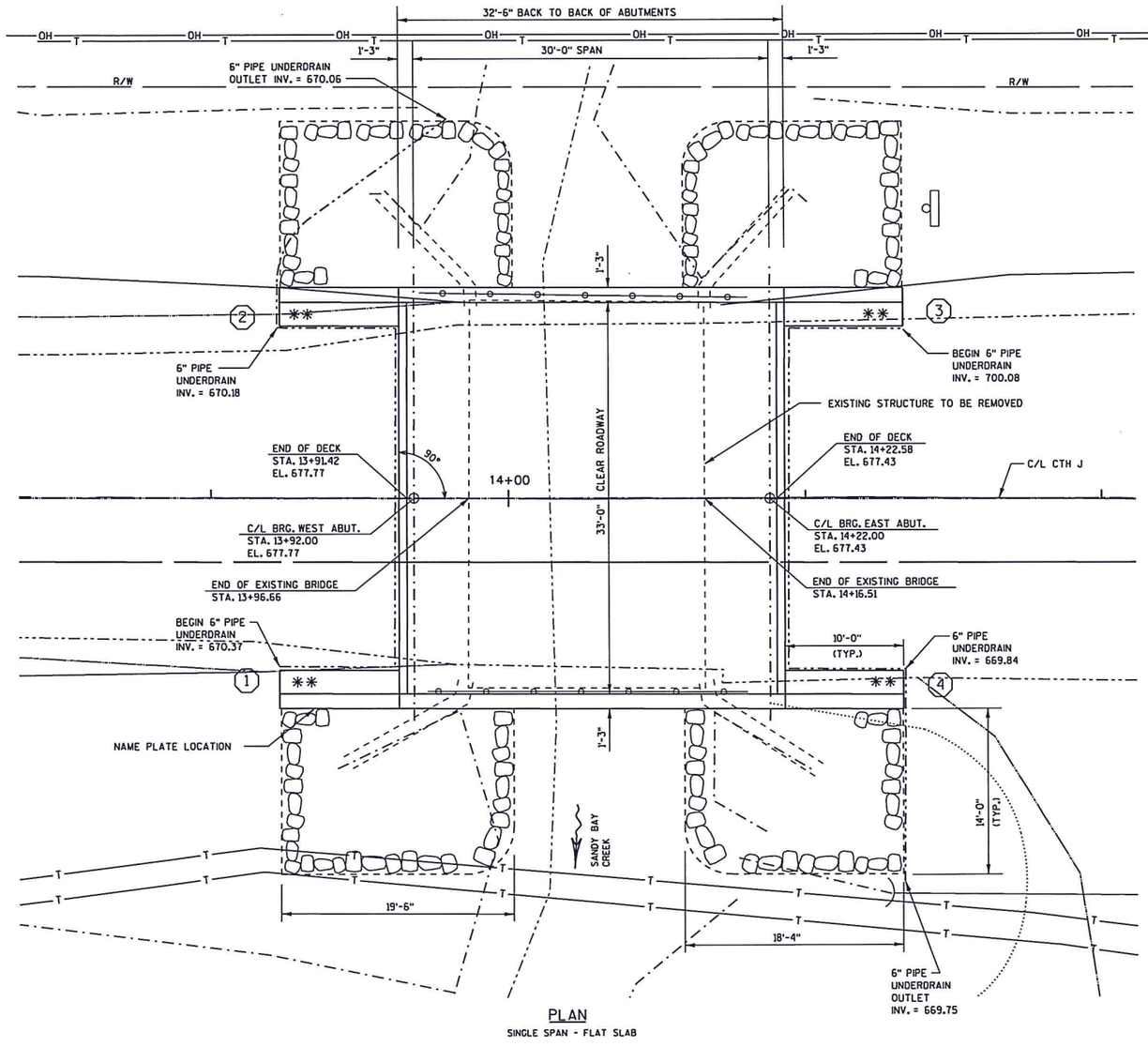
APPROVED Matthew R Rauch
for State Traffic Engineer

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

PROJECT NO:	HWY:	COUNTY:		SHEET NO: 17	E

STATE PROJECT NUMBER
4399-00-71





PLAN
SINGLE SPAN - FLAT SLAB

N

WISCONSIN
JEFFREY T. TORMEY
E-21670
PEWAUKEE
WI
PROFESSIONAL ENGINEER

Jeffrey T. Tormey 2/22/17

DESIGN DATA

LIVE LOAD:

DESIGN LOADING : HL-93
INVENTORY RATING FACTOR : RF = 1.15
OPERATING RATING FACTOR : RF = 1.47
WISCONSIN STANDARD PERMIT VEHICLE (WIS.-SPV): 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 A REQUIRED DRIVING RESISTANCE OF 160 TONS * PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA, ESTIMATED LENGTH 95 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 = 2.8 SQ. MI.
Q_{100} = 500 CFS

THRU STRUCTURE ..... 500 CFS
OVERTOPPING ROADWAY ..... 0 CFS
VELOCITY ..... 6.63 FT/SEC
WATERWAY AREA ..... 75.0 SQ. FT
HIGH WATER $_{100}$ ELEVATION 674.34
SCOUR CRITICAL CODE 5

2 YEAR FREQUENCY

DRAINAGE AREA = 2.8 SQ. MI.
Q_2 = 130 CFS

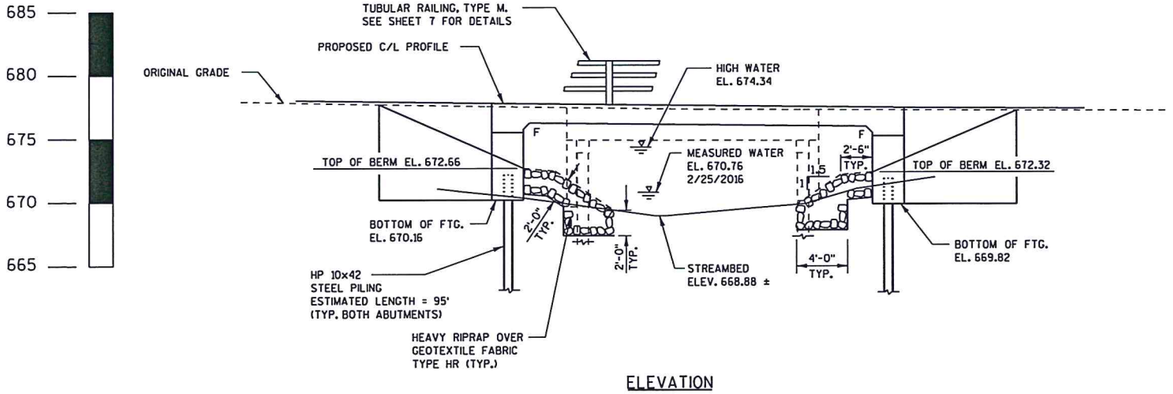
HIGH WATER $_2$ ELEVATION 672.25

TRAFFIC DATA

A.D.T. (2017) 770

A.D.T. (2037) 900

DESIGN SPEED ..... 35 MPH



ELEVATION

⬡ INDICATES WING NUMBER

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

BENCH MARKS

NO.	STATION	OFFSET	DESCRIPTION	ELEV.
3	14+67.05	38.58' LT	NAIL IN POWER POLE	673.88

LIST OF DRAWINGS

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

CONSULTANT CONTACT
JEFFREY TORMEY, P.E.
TELEPHONE: (414) 616-4880

NO.	DATE	REVISION	BY

McClure Engineering Associates, Inc.

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

ACCEPTED William C. Dreher SDR 02/27/17
CHIEF STRUCTURES DESIGN ENGINEER DATE

STRUCTURE B-31-98

CTH J OVER SANDY BAY CREEK

COUNTY	TOWN
KEWAUNEE	CARLTON

DESIGN SPEC.
AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS

DESIGNED BY	DESIGN CK'D.	DRAWN BY	PLANS CK'D.
		JBB	JTT

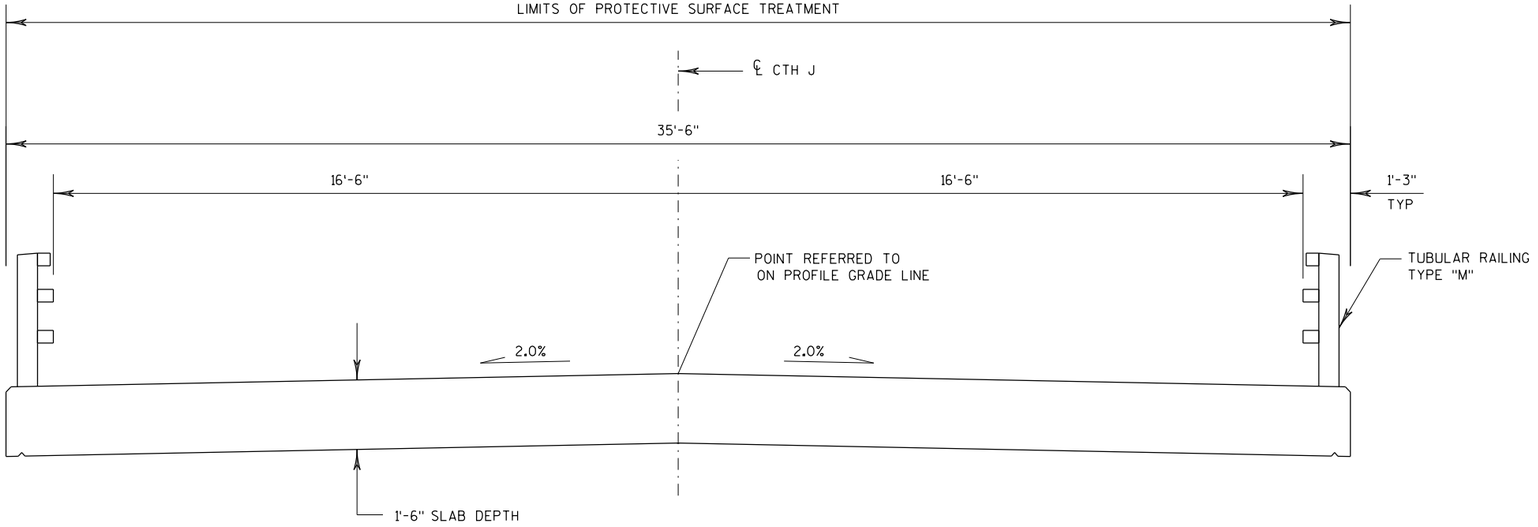
GENERAL PLAN

SHEET 1 OF 7
54

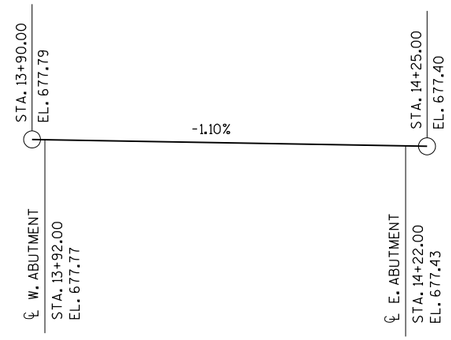
8

8

STATE PROJECT NUMBER
4399-00-71



CROSS SECTION THRU BRIDGE LOOKING EAST



PROFILE GRADE LINE CTH J

TOTAL ESTIMATED QUANTITIES

ITEM NO.	BID ITEMS	UNIT	WEST ABUT.	EAST ABUT.	SUPER	TOTALS
203.0600.S	REMOVING OLD STRUCTURE OVER WATERWAY WITH MINIMAL DEBRIS STA. 14+07	LS				1
206.1000	EXCAVATION FOR STRUCTURES BRIDGES B-31-98	LS				1
210.1500	STRUCTURE BACKFILL TYPE A	TON	97	97		194
502.0100	CONCRETE MASONRY BRIDGES	CY	31.6	31.6	68.5	131.7
502.3200	PROTECTIVE SURFACE TREATMENT	SY			123.4	123.4
505.0400	BAR STEEL REINFORCEMENT HS STRUCTURES	LB	1,997	1,997		3,994
505.0600	BAR STEEL REINFORCEMENT HS COATED STRUCTURES	LB	1,370	1,370	13,110	15,850
513.4061	RAILING TUBULAR TYPE M (B-31-98)	LF			105	105
516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	9	9		18
550.1100	PILING STEEL, HP 10-INCH x 42 LBS	LF	475	475		950
606.0300	RIPRAP HEAVY	CY	78	76		154
612.0406	PIPE UNDERDRAIN WRAPPED 6-INCH	LF	65	65		130
614.0150	ANCHOR ASSEMBLIES FOR STEEL PLATE BEAM GUARD	EA	2	2		4
645.0120	GEOTEXTILE TYPE HR	SY	108	104		212
	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.

THIS STRUCTURE WILL REPLACE AN EXISTING 22 FOOT LENGTH SINGLE SPAN CONCRETE SLAB SUPPORTED ON CONCRETE ABUTMENTS ON SPREAD FOOTINGS, BUILT IN 1936 AND WIDENED IN 1962.

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, TYPE A.

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 REPORT OF GEOTECHNICAL EXPLORATION BY RIVER VALLEY TESTING CORP., (RVT) DATED JUNE 20, 2016 FOR ADDITIONAL PILE DRIVING NOTES.

NO.	DATE	REVISION	BY

McClure Engineering Associates, Inc.

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-31-98

DRAWN BY JBB | PLANS CK'D. JTT

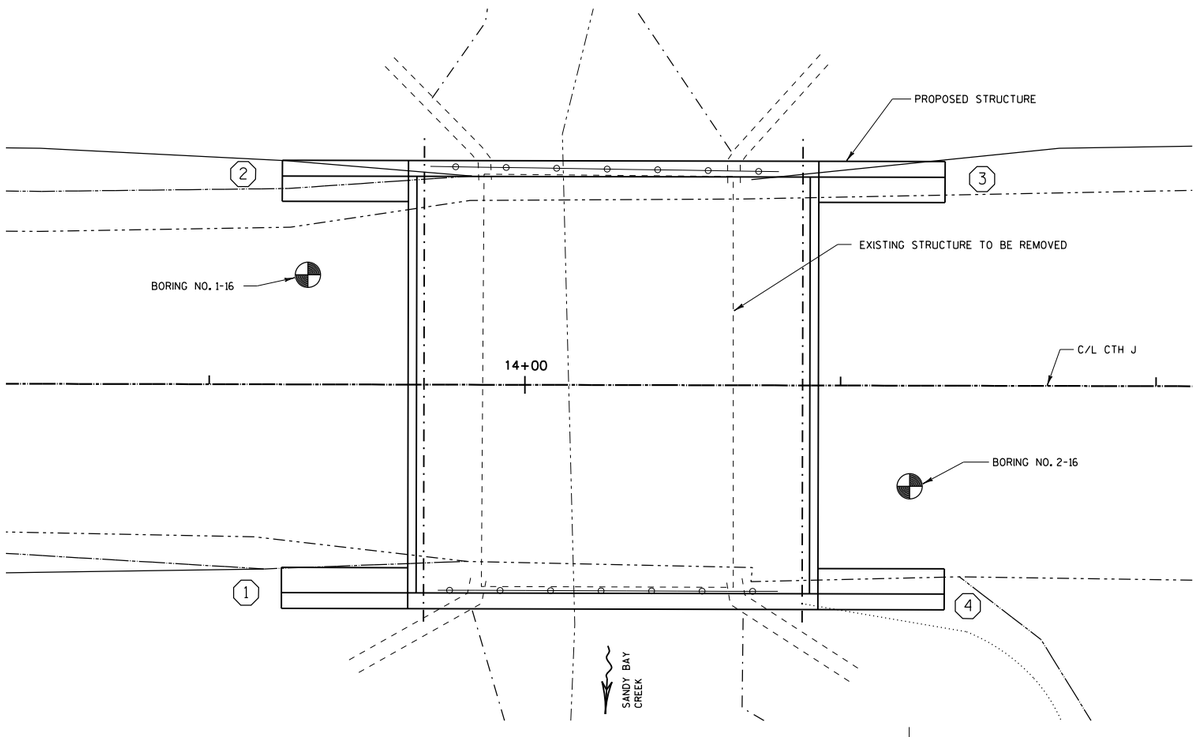
CROSS SECTION & QUANTITIES

8

8

STATE PROJECT NUMBER

4399-00-71



N

SOIL BORINGS PERFORMED BY:
RIVER VALLEY TESTING CORP.
1280 PARKVIEW ROAD
GREEN BAY, WI 54304

REPORT BY:
MARK KING, P.E.

BORINGS COMPLETED ON:
JUNE 2, 2016

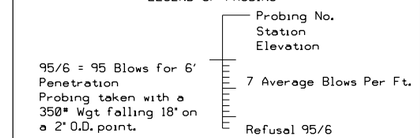
ABBREVIATIONS

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

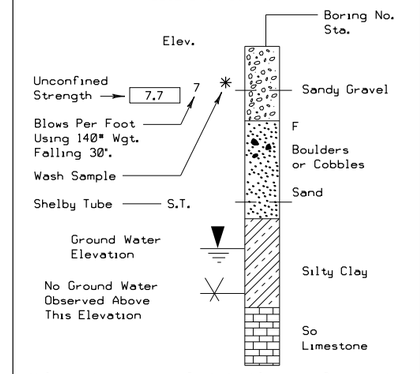
MATERIAL SYMBOLS

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

LEGEND OF PROBING



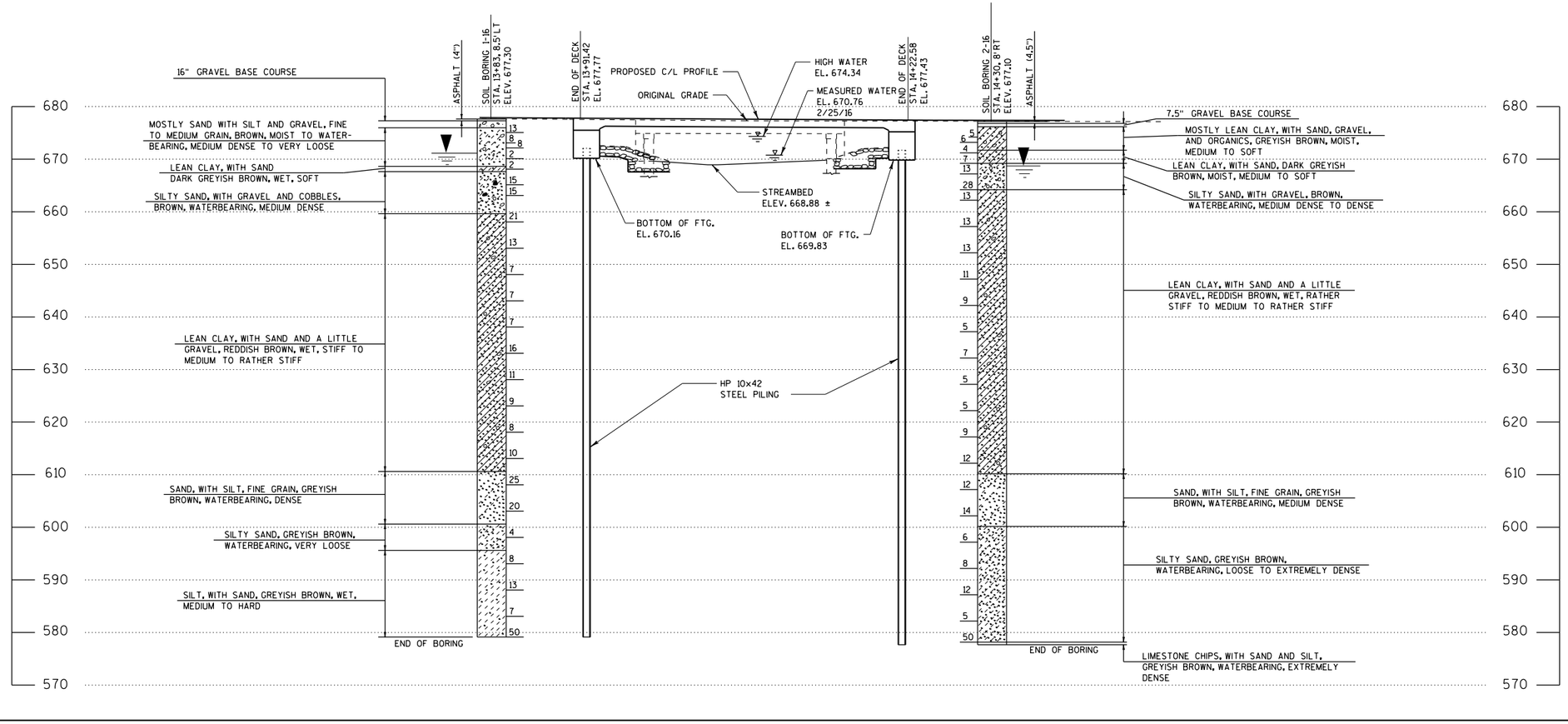
LEGEND OF BORING



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

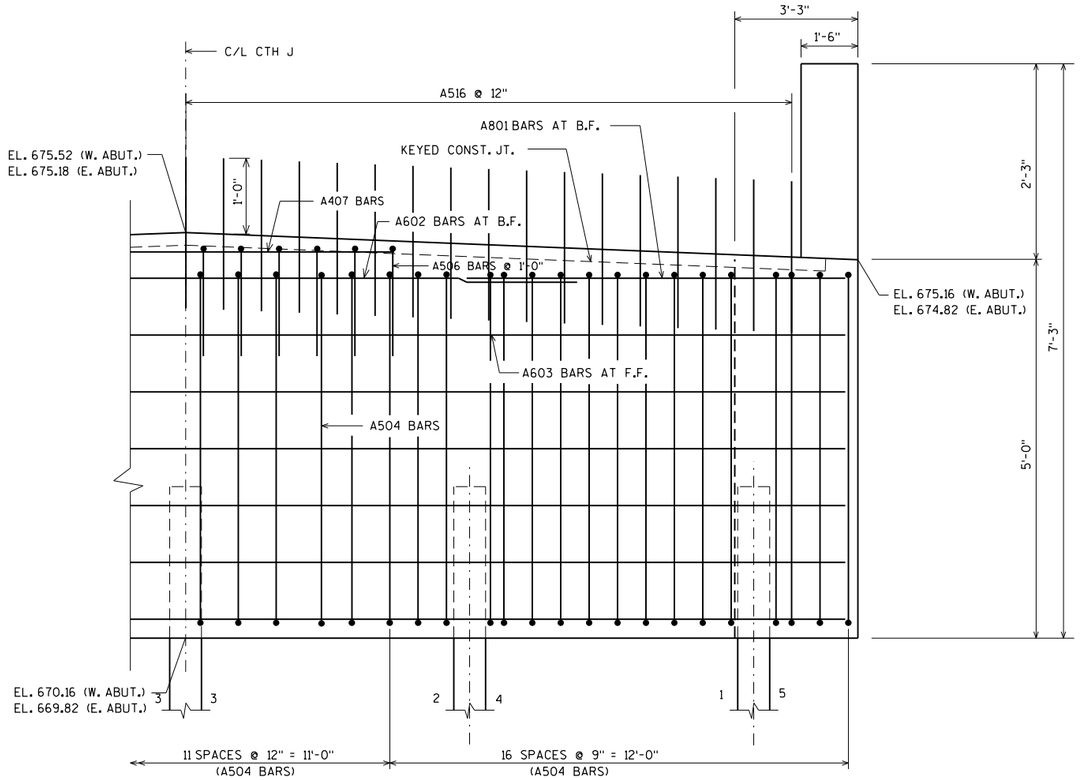
STRUCTURE B-31-98

DRAWN BY JB | PLANS CK'D. DF

SUBSURFACE EXPLORATION

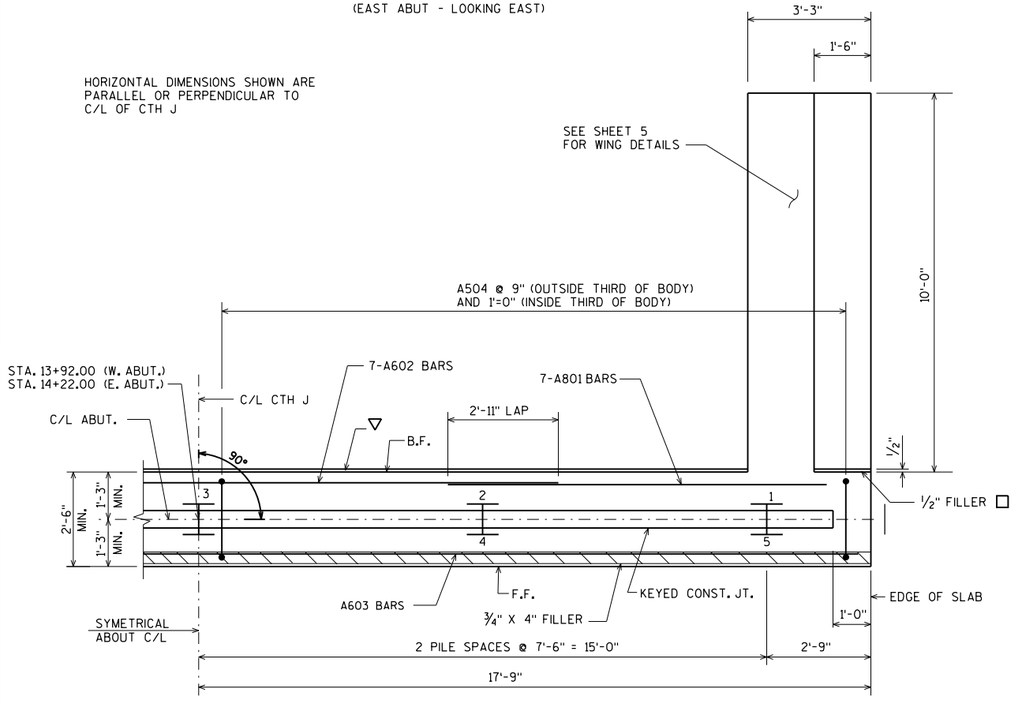
SHEET 3 OF 7
56

STATE PROJECT NUMBER
4399-00-71



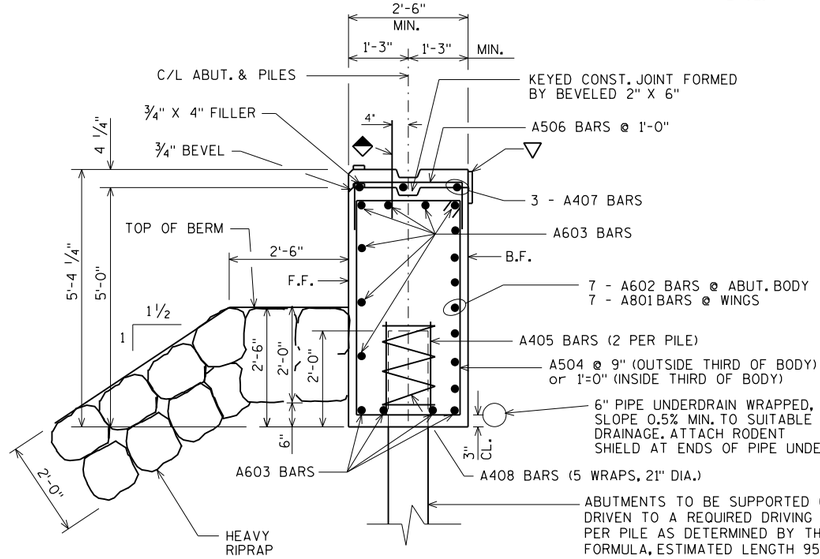
ELEVATION

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



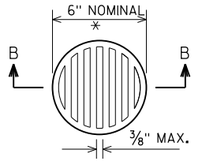
PLAN

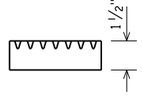
◆ A516 BARS MAY BE PLACED AFTER CONCRETE IS POURED, BUT BEFORE INITIAL SET HAS TAKEN PLACE.



* 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.

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

STRUCTURE B-31-98

DRAWN BY JB | PLANS CK'D. DF

ABUTMENTS

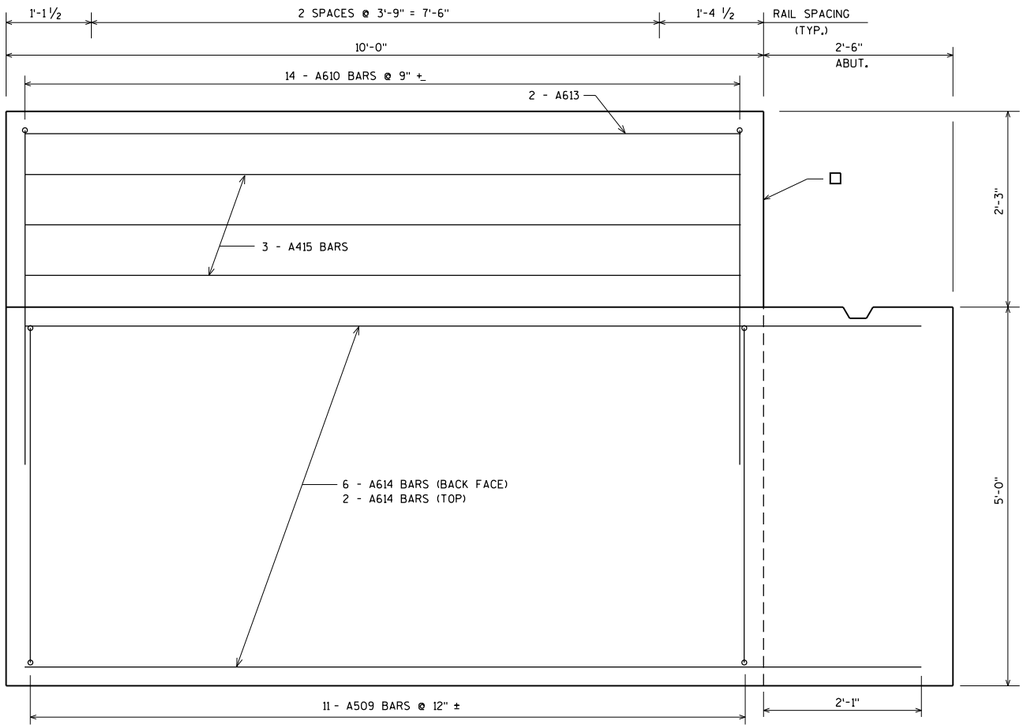
SHEET 4 OF 7
57

8

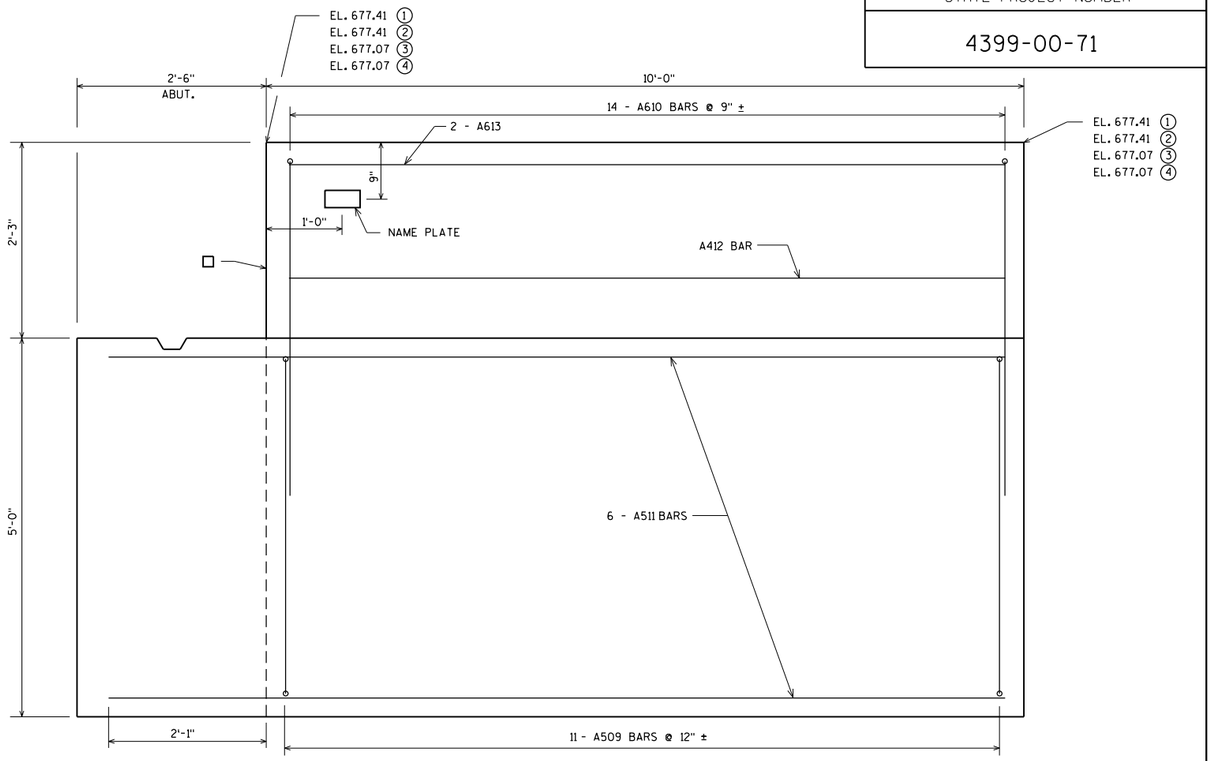
8

STATE PROJECT NUMBER

4399-00-71

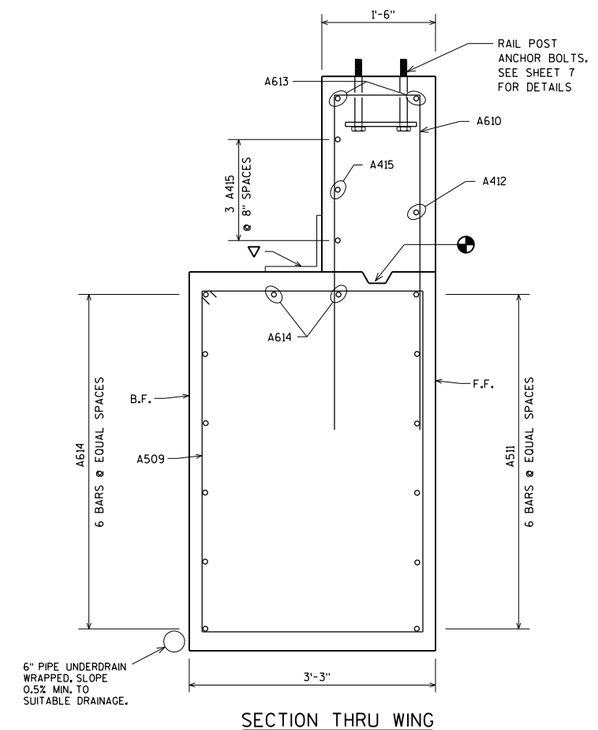


BACK FACE



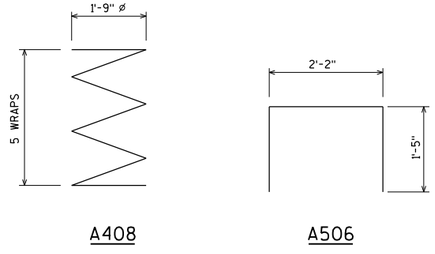
FRONT FACE

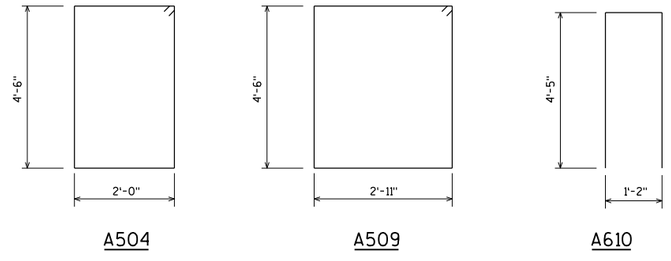
BACK FACE



SECTION THRU WING

ELEVATION





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	20'-10"				BODY CENTER – B.F. – HORIZ.
A603	22	35'-2"				BODY – TOP, BOTTOM – F.F. – HORIZ.
A504	88	13'-7"	X			BODY – BASE – STIRRUPS – VERT.
A405	20	2'-3"				BODY – AT PILES – VERT.
A506	26	4'-9"	X			BODY – TOP – U BAR – VERT.
A407	6	12'-0"				BODY – TOP – HORIZ.
A408	10	28'-0"	X			BODY – PILE WRAP
A509	44	15'-5"	X		X	WINGWALL – BASE – STIRRUPS – VERT.
A610	56	9'-8"	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	66	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.

⊕ OPTIONAL CONSTRUCTION JOINT FORMED BY BEVELED 2x6 KEYWAY WITH MEMBRANE ON BACK FACE.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-31-98

DRAWN BY JB | PLANS CK'D. DF

ABUTMENT DETAILS

SHEET 5 OF 7

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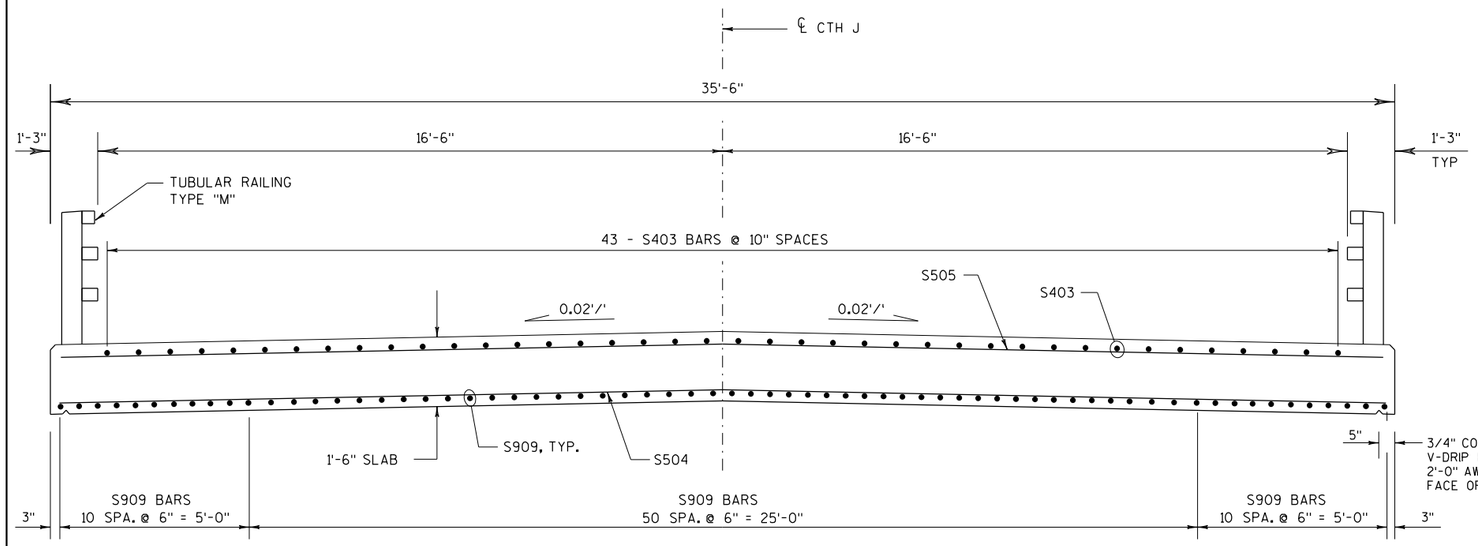
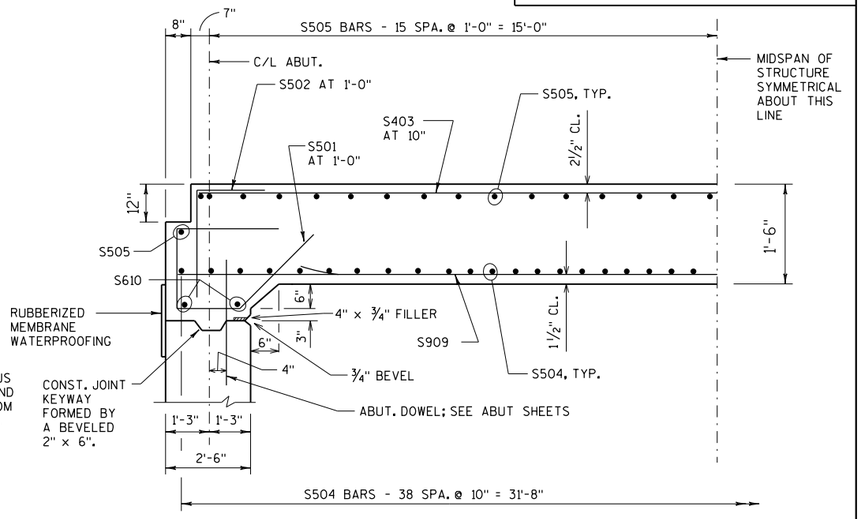
8

STATE PROJECT NUMBER

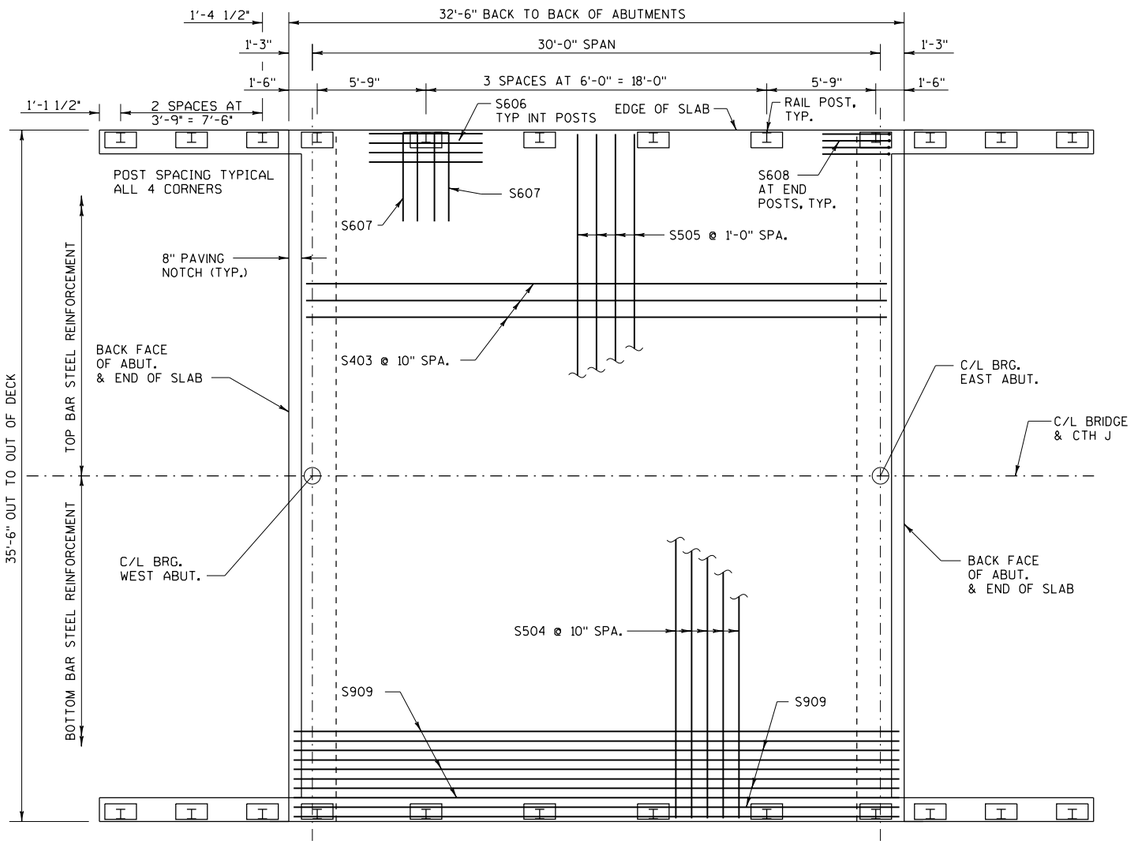
4399-00-71



CROSS SECTION THRU ROADWAY



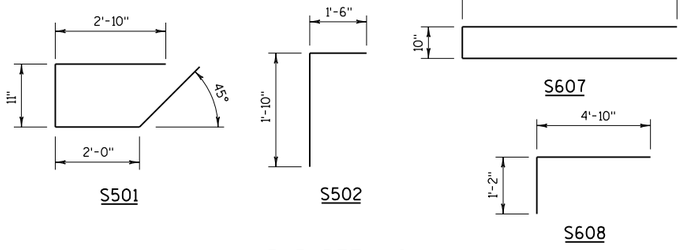
PARTIAL LONGITUDINAL SECTION



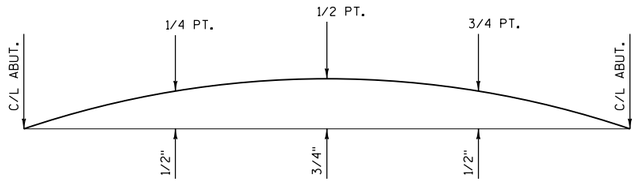
DECK PLAN

CAMBER/TOP OF SLAB ELEV. TABLE

STA.	CAMBER	PGL ELEV.	EDGE/SLAB ELEV.
13+92.00	0	677.77	677.41
13+95.00	0.21	677.75	677.40
13+98.00	0.40	677.73	677.38
14+01.00	0.54	677.71	677.36
14+04.00	0.64	677.69	677.33
14+07.00	0.67	677.66	677.30
14+10.00	0.64	677.62	677.27
14+13.00	0.54	677.58	677.22
14+16.00	0.40	677.53	677.18
14+19.00	0.21	677.48	677.13
14+22.00	0	677.43	677.08



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	72	7'-6"	X		X	DIAPHRAGM AT ABUTS. - LONGIT.
S502	72	3'-2"	X		X	DIAPHRAGM AT ABUTS. - VERT.
S403	43	30'-10"			X	SLAB TOP - LONGIT.
S504	39	35'-0"			X	SLAB BOTTOM - TRANSVERSE
S505	33	35'-0"			X	SLAB TOP - TRANSVERSE
S606	32	6'-0"			X	SLAB TOP AT RAIL POST (4 PER POST)
S607	24	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)
S909	71	32'-0"			X	SLAB BOTTOM - LONGIT.
S610	4	35'-0"			X	SLAB, BOTTOM AT ABUT. - TRANSVERSE

THE FIRST DIGIT OF A THREE DIGIT BAR MAR SIGNIFIES THE BAR SIZE

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-31-98

DRAWN BY JB | PLANS CK'D. DF

SUPERSTRUCTURE

SHEET 6 OF 7

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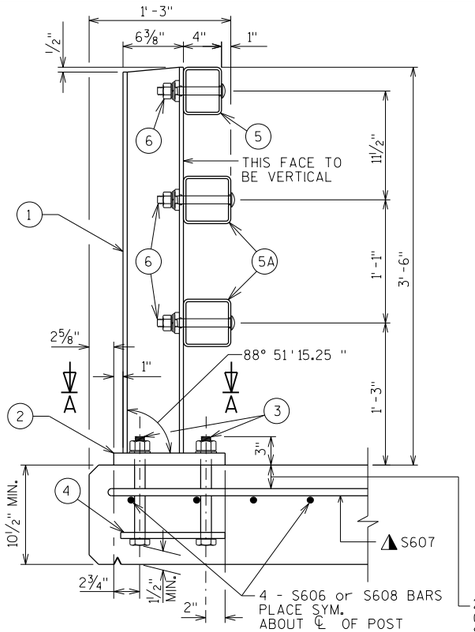
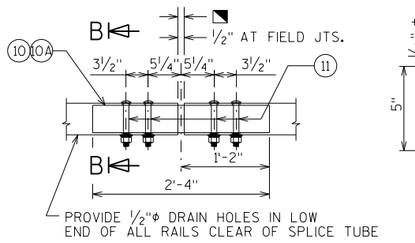
8

8

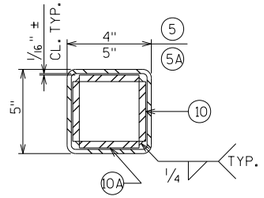
STATE PROJECT NUMBER
4399-00-71



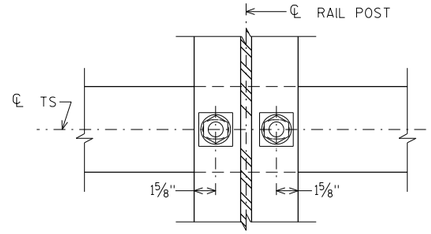
SECTION THRU RAILING ON DECK



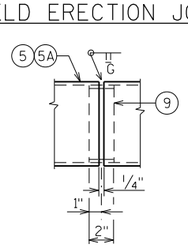
FIELD ERECTION JOINT DETAIL



SECTION B-B

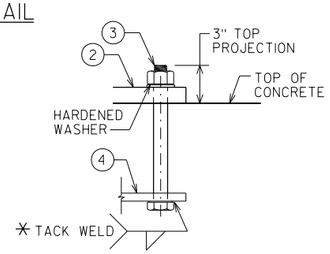


SECTION THRU POST WEB

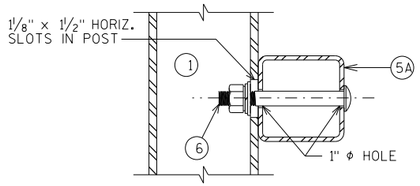


SHOP RAIL SPLICE DETAIL

LOCATION MUST BE SHOWN ON SHOP DRAWINGS



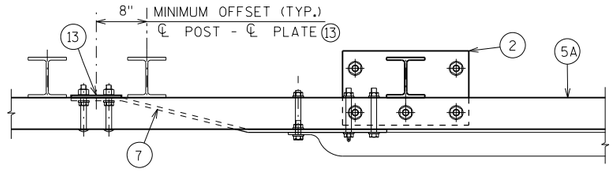
ANCHOR BOLTS



SECTION THRU RAIL

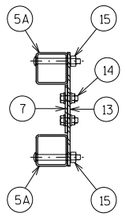
NOTE: CONNECTIONS AT LOWER RAILS SHOWN. CONNECTIONS AT TOP RAIL SIMILAR.

TYPICAL RAIL TO POST CONNECTIONS



TOP VIEW AT END POST

THRIE BEAM RAIL ATTACHMENT



SECTION C-C

LEGEND

(1) W6 x 25 WITH 1 1/8" X 1 1/2" 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 1 1/4" x 11 3/4" x 1'-8" WITH 15/16" X 1 5/8" SLOTTED HOLES FOR ANCHOR BOLTS NO. 3. WELD TO NO. 1 AS SHOWN. SLOTS PARALLEL TO SHORT SIDE OF PLATE.

(3) ASTM A449 - 1 1/8" 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 10 3/4" LONG AT ALL OTHER LOCATIONS. (AN EQUIVALENT THREADED ROD WITH NUTS AND HARDENED WASHERS MAY BE SUBSTITUTED FOR ANCHOR BOLTS IN WINGS IF REQ'D. FOR CONSTRUCTIBILITY.)

(4) 5/8" x 11" x 1'-8" ANCHOR PLATE (GALVANIZED) WITH 1 3/16" 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) 7/8" DIA. A325 SLOTTED ROUND HEAD BOLT WITH NUT, 3/16" X 1 5/8" X 1 5/8" WASHER, AND LOCK WASHER (2 REQ'D. AT EACH RAIL TO POST LOCATION.)

(7) 1/2" THK. BACK-UP PLATE WITH 2 - 7/8" X 1 1/2" 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 7/8" DIA. A325 BOLTS WITH HEX NUTS AND WASHERS. 6 HOLES IN TUBES AND PLATE NO. 7.

(9) SPLICE SLEEVE FABRICATED FROM 1/4" PLATE. PROVIDE "SLIDING FIT".

(10) 3/8" X 3 5/8" X 2'-4" PLATE. 2 PER RAIL. USED IN NO. 5 & 5A.

(10A) 3/8" X 2 5/8" X 2'-4" PLATE USED IN NO. 5, 3/8" X 3 5/8" X 2'-4" PLATE USED IN NO. 5A. 2 PER RAIL.

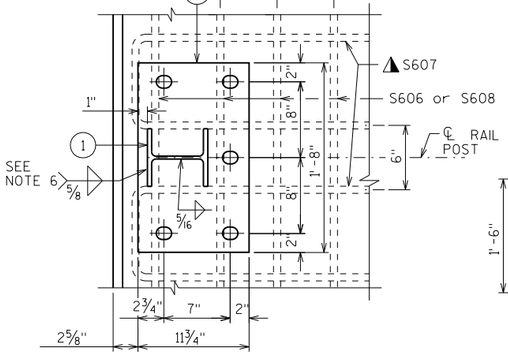
(11) 7/8" ϕ A325 ROUND HEAD BOLT WITH NUT, WASHER, AND LOCK WASHER, USE 15/16" X 1 1/4" LONGIT. SLOTTED HOLES AT FIELD JOINTS AND 15/16" X 2 1/4" MIN. LONGIT. SLOTTED HOLES AT EXP. JOINTS IN PLATE NO. 10A.

(12) 7/8" DIA. X 1 1/2" LONG THREADED SHOP WELDED STUDS (2 REQ'D).

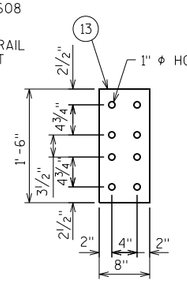
(13) 3/8" X 8" X 1'-6" PLATE. BOLT TO RAIL AS SHOWN IN DETAIL. REQ'D. AT THRIE BEAM GUARD RAIL ATTACHMENTS ONLY. PLACE SYM. ABOUT TUBES NO. 5A.

(14) 7/8" DIA. X 2" LONG A325 HEX BOLT WITH NUT AND WASHER (5 REQ'D.).

(15) 1" ϕ HOLES IN TUBES NO. 5A FOR 7/8" DIA. A325 ROUND HEAD BOLT WITH NUT, WASHER AND LOCK WASHER (4 REQ'D.). 4 HOLES IN TUBES.

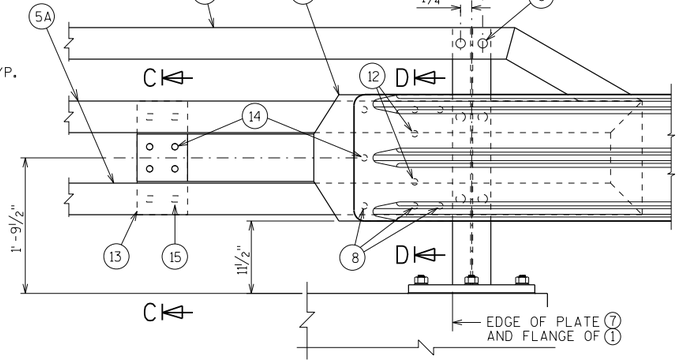


SECTION A-A



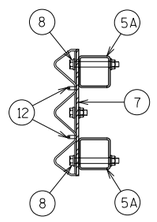
ANCHOR PLATE

AT BEAM GUARD ATTACHMENT



DETAIL AT END POST

THRIE BEAM RAIL ATTACHMENT



SECTION D-D

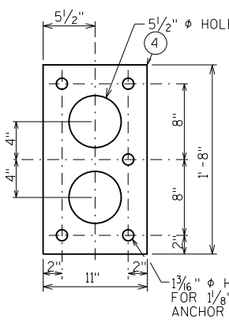
GENERAL NOTES

1. BID ITEM SHALL BE "RAILING TUBULAR TYPE M B-31-0098" WHICH INCLUDES ALL ITEMS SHOWN.
2. RAIL POST AND BASE PLATES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A709 GRADE 50. HOLLOW RAILING STRUCTURAL TUBING SHALL CONFORM TO THE REQUIREMENTS OF ASTM A500 GRADE B OR C WITH A CERTIFIED FY = 50 KSI. ANCHOR PLATES, AND SPLICE TUBE PLATES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A709 GRADE 36.
3. THE NUT SECURING THE POST BASE PLATE TO THE CONCRETE SHALL BE TIGHTENED TO A SNUG FIT AND GIVEN AN ADDITIONAL 1/8 TURN.
4. RAILS SHALL BE CONTINUOUS OVER A MINIMUM OF THREE (3) POSTS WITHOUT SPLICES WHERE POSSIBLE. RAILS SHALL BE SPLICED IN A PANEL OVER EXPANSION JOINTS.
5. ENDS OF TUBE SECTIONS SHALL BE SAWED. GRIND SMOOTH EXPOSED EDGES. ALL CUT ENDS SHALL BE TRUE AND SMOOTH.
6. WELD IS THE SAME ON BOTH FLANGES. FLANGE WELD DOES NOT REQUIRE MAGNETIC PARTICLE TESTING.
7. FILL BOLT SLOT OPENINGS IN POST SHIMS AND PLATE 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 AN APPROVED TIE COAT AND TOP COAT AS SPECIFIED IN THE CONTRACT DOCUMENTS.
11. THIS RAILING MEETS NCHRP REPORT 350 EVALUATION CRITERIA FOR TEST LEVEL 4 (TL-4).

▲ TIE TO TOP MAT OF STEEL.

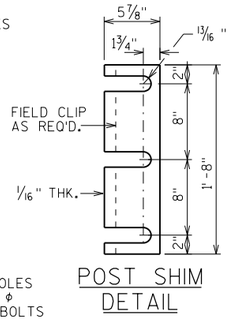
✳ FOR ANCHOR BOLTS IN WINGS, TACK WELD MAY BE USED IN FIELD AFTER ANCHOR PLATE IS IN POSITION IF REQ'D. FOR CONSTRUCTIBILITY.

◥ RDWY. OPENING OR 2 1/2" MIN. FOR STRIP SEAL EXP. JOINT & 1/2" OPENING FOR A1 ABUTMENT.

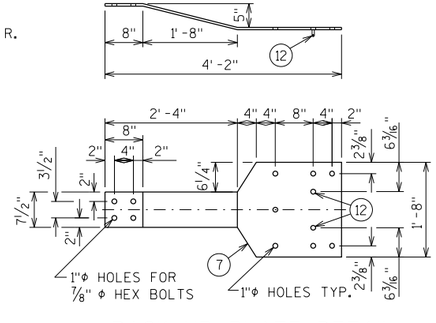


ANCHOR PLATE

AT RAIL TO DECK CONNECTION

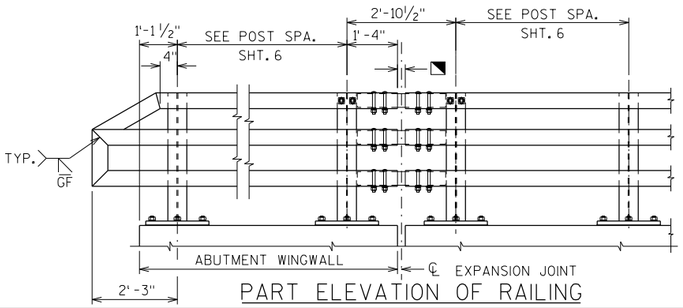


POST SHIM DETAIL



BACK-UP PLATE DETAIL

AT beam guard attachment



PART ELEVATION OF RAILING

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-31-98

DRAWN BY JB | PLANS CK'D.

TUBULAR STEEL RAILING TYPE M

SHEET 7 OF 7

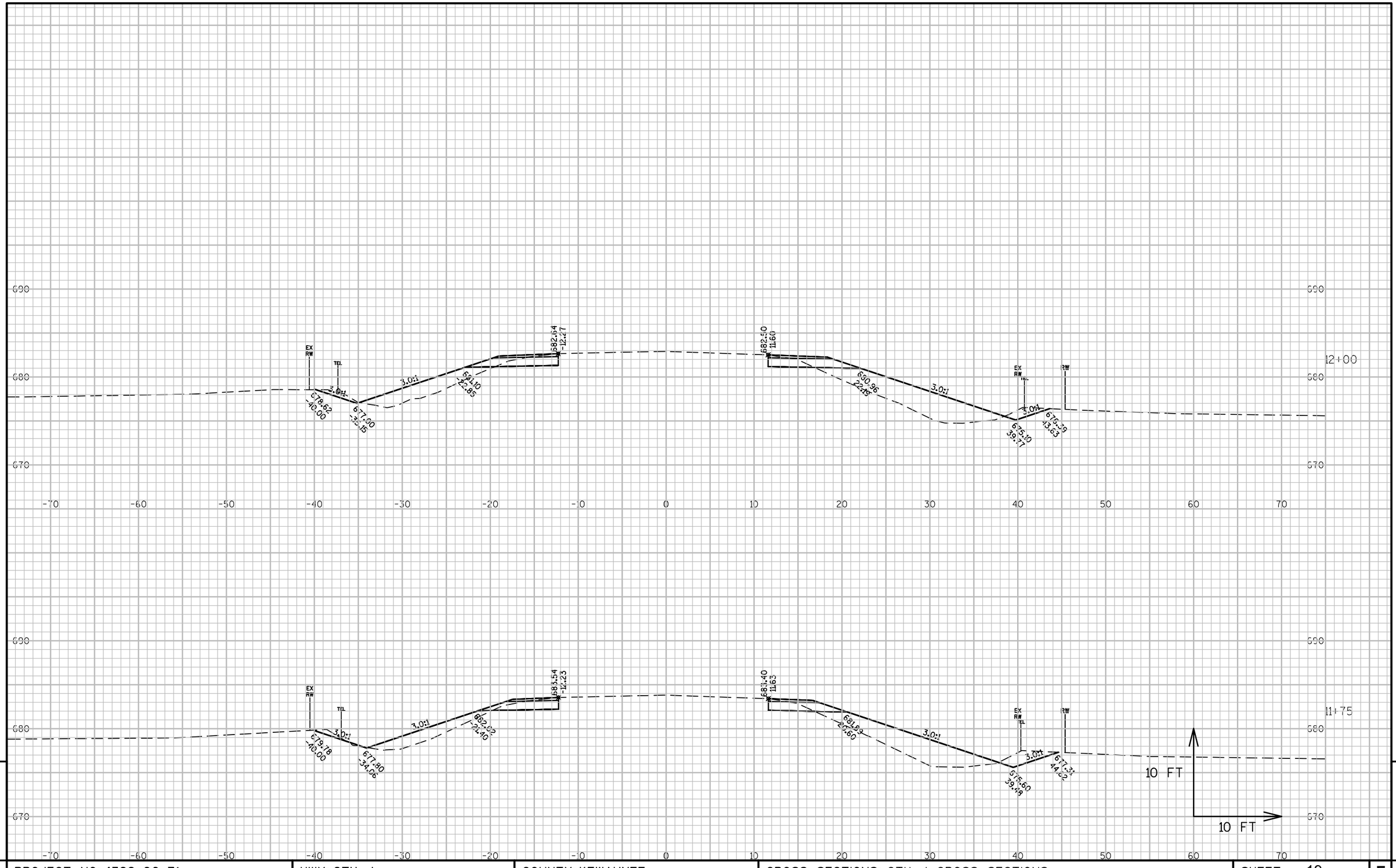
60

SCALE = -

railm

STATION	Real Station	Distance	AREA (SF) Cut	Salvaged/ Unusable Pavement Material	Fill	Marsh Exc	Rock Exc	EBS	Incremental Vol (CY) (Unadjusted) Cut Note 1	Salvaged/ Unusable Pavement Material Note 2	Fill Note 3	Marsh Exc	Rock Exc	EBS	Cumulative Vol (CY) Cut 1.00 Note 1	Expanded Fill 1.25	Expanded Marsh Backfill 1.50 Note 4	Expanded Rock 1.10	Expanded EBS Backfill 1.30 Note 5	Reduced Marsh in Fill 0.60 Note 6	Reduced EBS In Fill 0.80 Note 7	Mass Ordinate Note 8
11+75.00	1175		53.50	8	47.09	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12+00.00	1200	25	51.80	8	57.92	0	0	0	49	7	49	0	0	0	49	61	0	0	0	0	0	-19
12+50.00	1250	50	50.61	8	75.19	0	0	0	95	15	123	0	0	0	144	215	0	0	0	0	0	-93
12+75.00	1275	25	51.32	8	74.50	0	0	0	47	7	69	0	0	0	191	301	0	0	0	0	0	-140
13+00.00	1300	25	46.88	8	74.53	0	0	0	45	7	69	0	0	0	236	388	0	0	0	0	0	-189
13+25.00	1325	25	46.90	8	52.44	0	0	0	43	7	59	0	0	0	280	461	0	0	0	0	0	-226
13+50.00	1350	25	41.72	8	33.69	0	0	0	41	7	40	0	0	0	321	511	0	0	0	0	0	-242
13+75.00	1375	25	36.15	8	31.96	0	0	0	36	7	30	0	0	0	357	549	0	0	0	0	0	-252
13+91.42	1391	16	53.84	8	0.10	0	0	0	27	5	10	0	0	0	384	561	0	0	0	0	0	-241
14+22.58	1423		62.14	8	0.00	0	0	0	0	0	0	0	0	0	384	561	0	0	0	0	0	-241
14+50.00	1450	27	69.29	8	8.50	0	0	0	67	8	4	0	0	0	451	567	0	0	0	0	0	-188
14+60.00	1460	10	52.00	8	6.51	0	0	0	22	3	3	0	0	0	473	570	0	0	0	0	0	-172
14+75.00	1475	15	52.13	8	13.07	0	0	0	29	4	5	0	0	0	502	577	0	0	0	0	0	-154
15+00.00	1500	25	49.60	8	58.99	0	0	0	47	7	33	0	0	0	549	619	0	0	0	0	0	-156
15+20.00	1520	20	54.92	8	43.91	0	0	0	39	6	38	0	0	0	512	666	0	0	0	0	0	-171
15+50.00	1550	30	14.20	8	0.00	0	0	0	38	9	24	0	0	0	541	697	0	0	0	0	0	-172
										0												
						Column totals			627	102	557	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

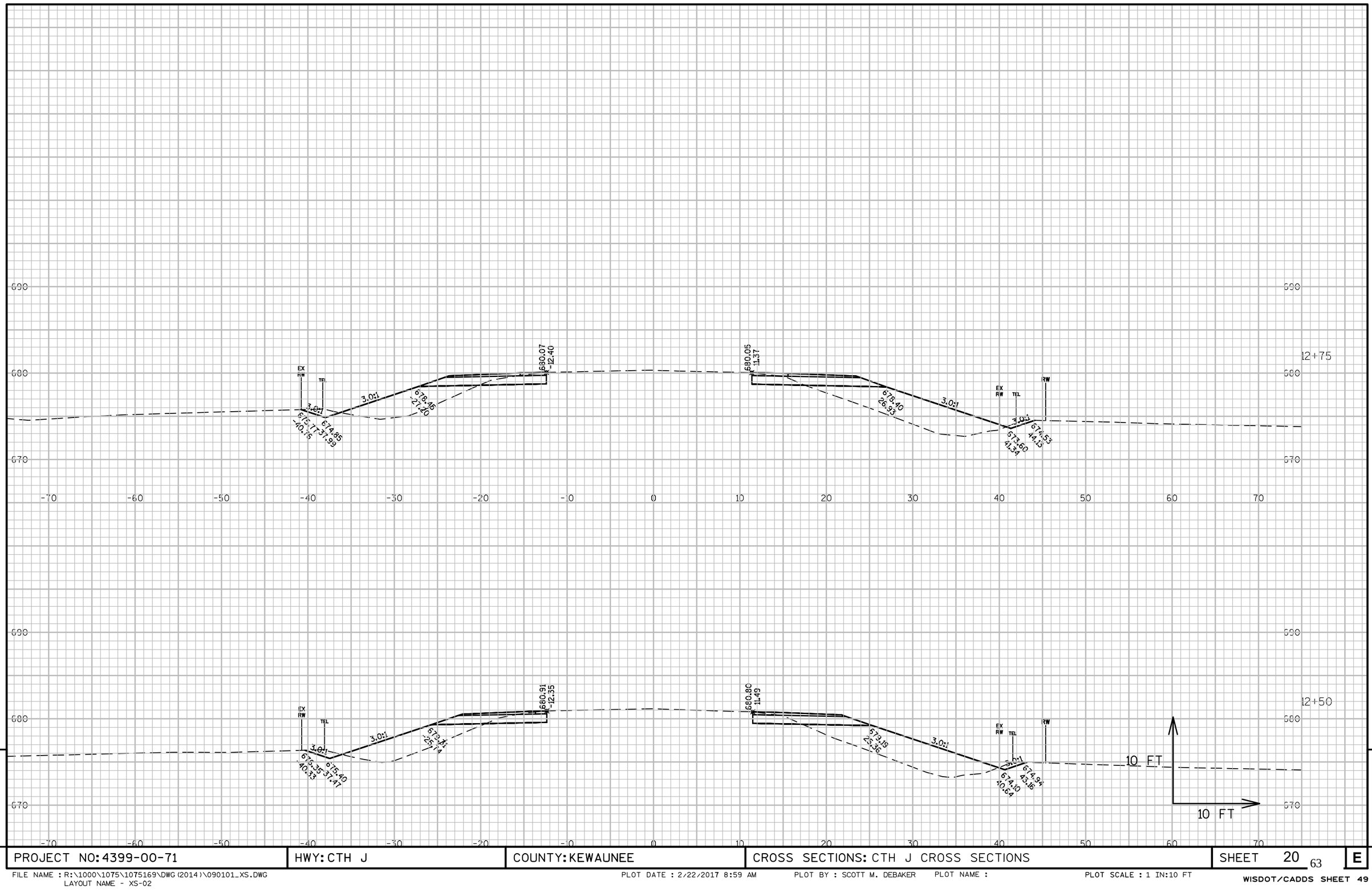
9

PROJECT NO: 4399-00-71	HWY: CTH J	COUNTY: KEWAUNEE	CROSS SECTIONS: CTH J CROSS SECTIONS	SHEET 19 62	E

FILE NAME : R:\1000\1075\1075169\DWG(2014)\090101_XS.DWG
LAYOUT NAME - XS-01

PLOT DATE : 2/22/2017 8:59 AM PLOT BY : SCOTT M. DEBAKER PLOT NAME : PLOT SCALE : 1 IN:10 FT

WISDOT/CADDS SHEET 49



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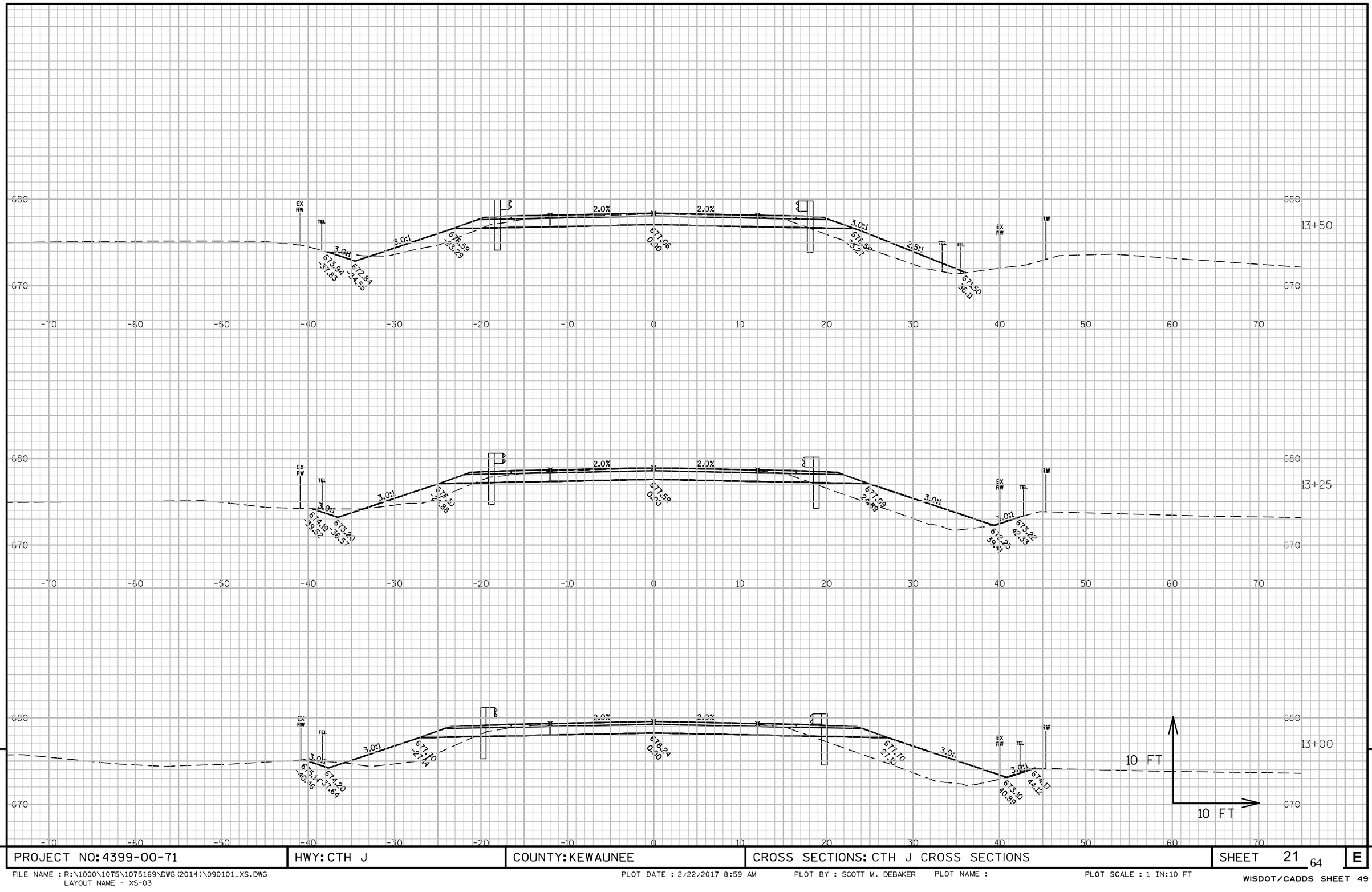
PROJECT NO: 4399-00-71	HWY: CTH J	COUNTY: KEWAUNEE	CROSS SECTIONS: CTH J CROSS SECTIONS	SHEET 20	E

FILE NAME : R:\1000\1075\1075169\DWG(2014)\090101_XS.DWG
LAYOUT NAME - XS-02

PLOT DATE : 2/22/2017 8:59 AM PLOT BY : SCOTT M. DEBAKER PLOT NAME : PLOT SCALE : 1 IN:10 FT

WISDOT/CADDS SHEET 49



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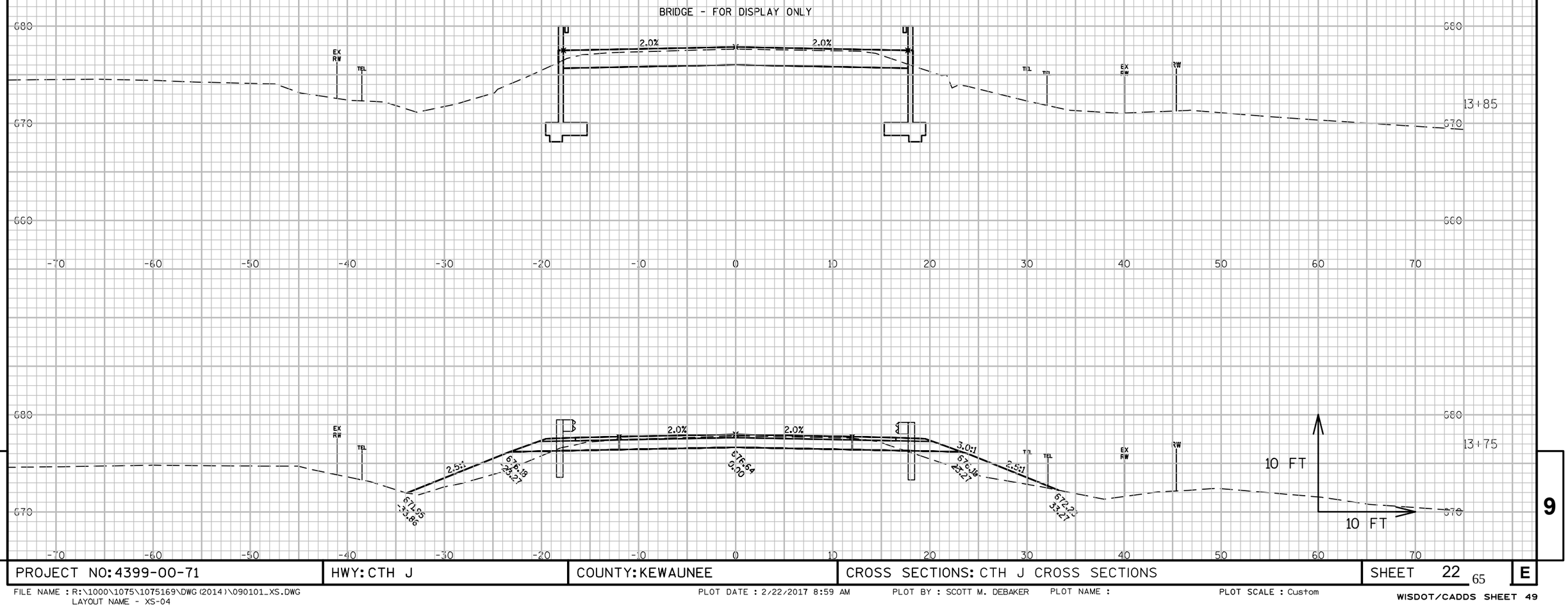
PROJECT NO: 4399-00-71	HWY: CTH J	COUNTY: KEWAUNEE	CROSS SECTIONS: CTH J CROSS SECTIONS	SHEET 21 64	E

FILE NAME : R:\1000\1075\1075169\DWG(2014)\090101_XS.DWG
LAYOUT NAME - XS-03

PLOT DATE : 2/22/2017 8:59 AM PLOT BY : SCOTT M. DEBAKER PLOT NAME : PLOT SCALE : 1 IN:10 FT

WISDOT/CADDS SHEET 49

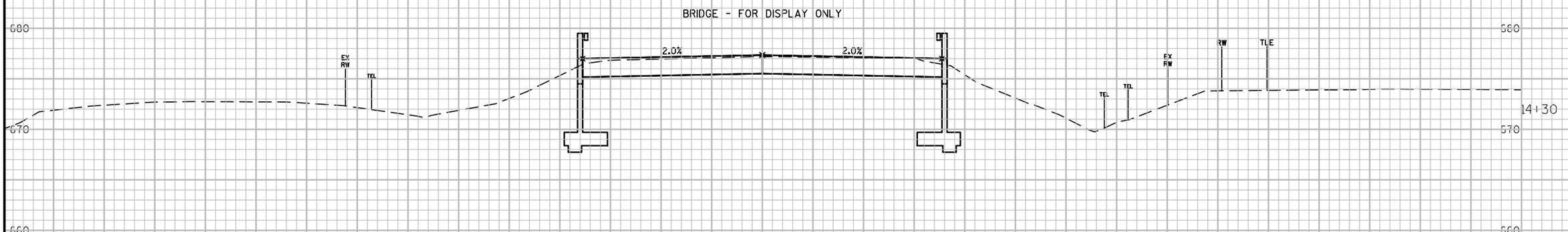


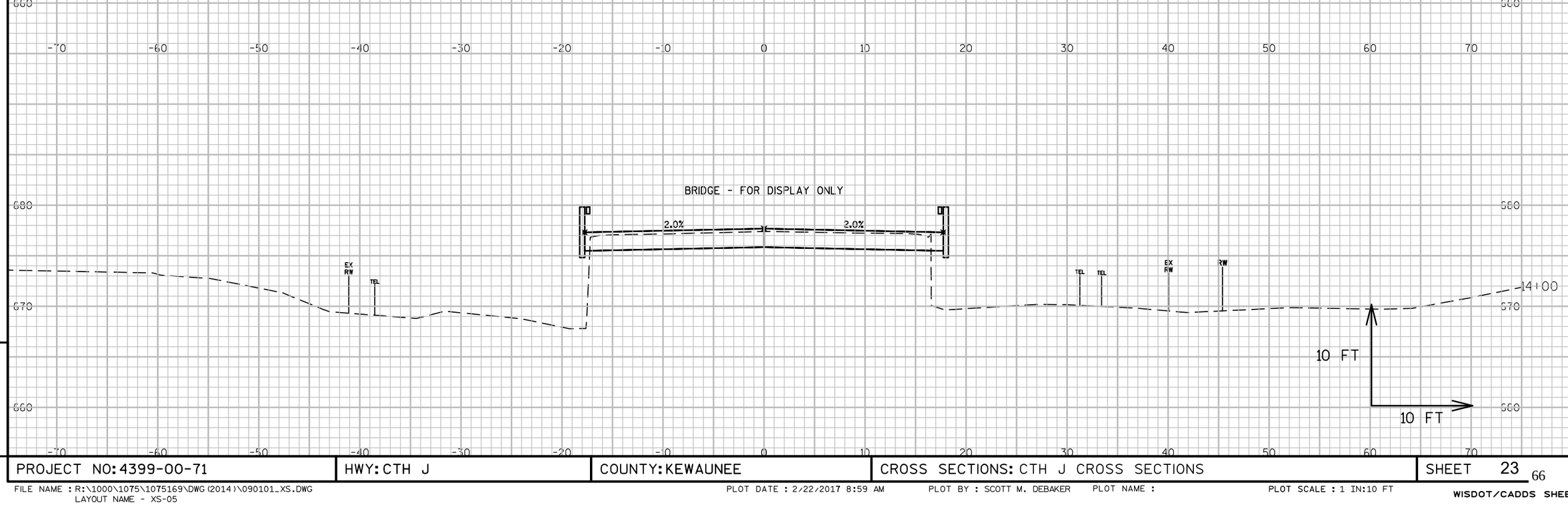
PROJECT NO: 4399-00-71	HWY: CTH J	COUNTY: KEWAUNEE	CROSS SECTIONS: CTH J CROSS SECTIONS	SHEET 22 65	E

FILE NAME : R:\1000\1075\1075169\DWG(2014)\090101_XS.DWG
LAYOUT NAME - XS-04

PLOT DATE : 2/22/2017 8:59 AM PLOT BY : SCOTT M. DEBAKER PLOT NAME : PLOT SCALE : Custom

WISDOT/CADDS SHEET 49



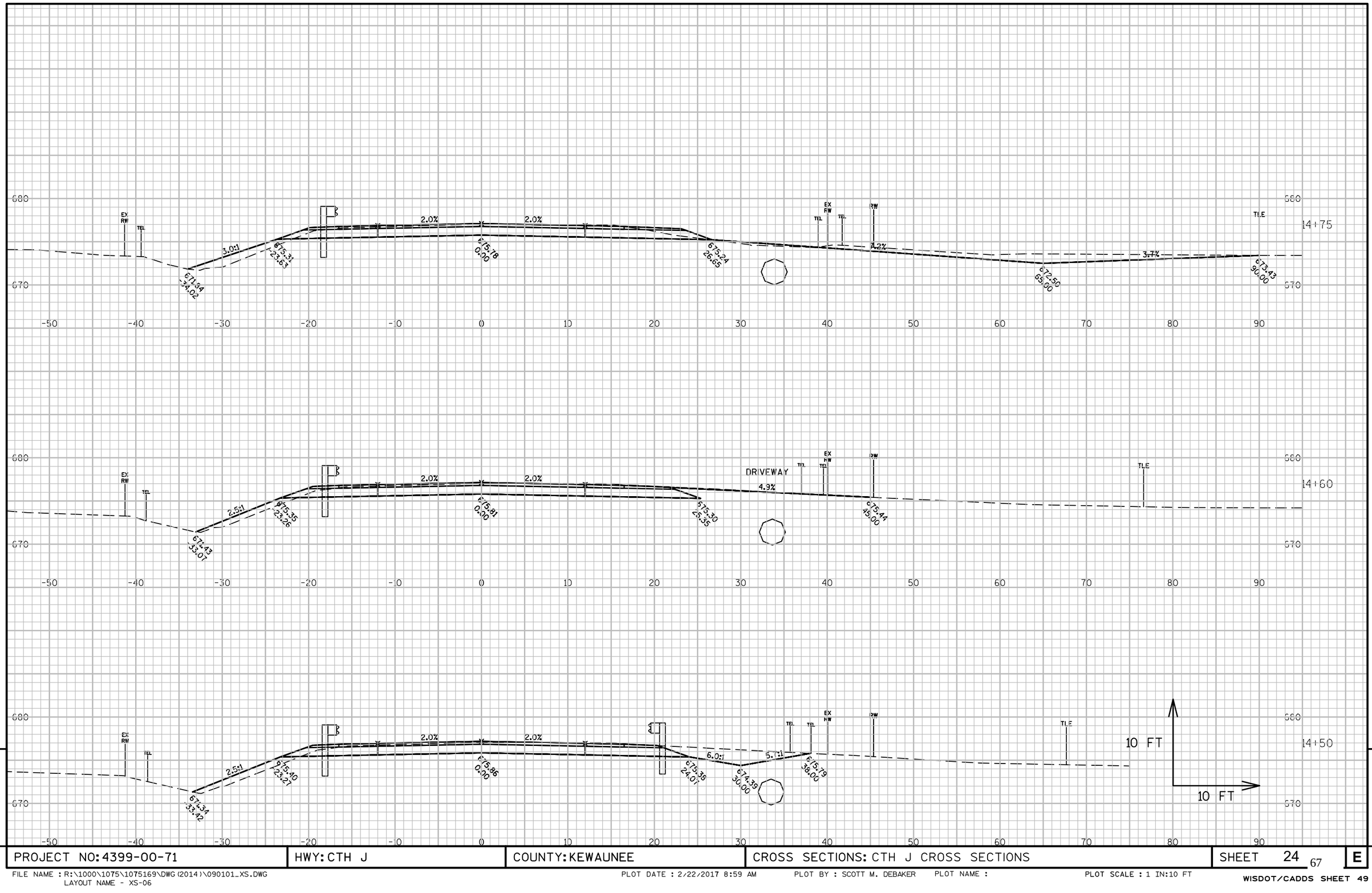


PROJECT NO: 4399-00-71	HWY: CTH J	COUNTY: KEWAUNEE	CROSS SECTIONS: CTH J CROSS SECTIONS	SHEET 23 66	E

FILE NAME : R:\1000\1075\1075169\DWG(2014)\090101_XS.DWG
LAYOUT NAME - XS-05

PLOT DATE : 2/22/2017 8:59 AM PLOT BY : SCOTT M. DEBAKER PLOT NAME : PLOT SCALE : 1 IN:10 FT

WISDOT/CADDS SHEET 49



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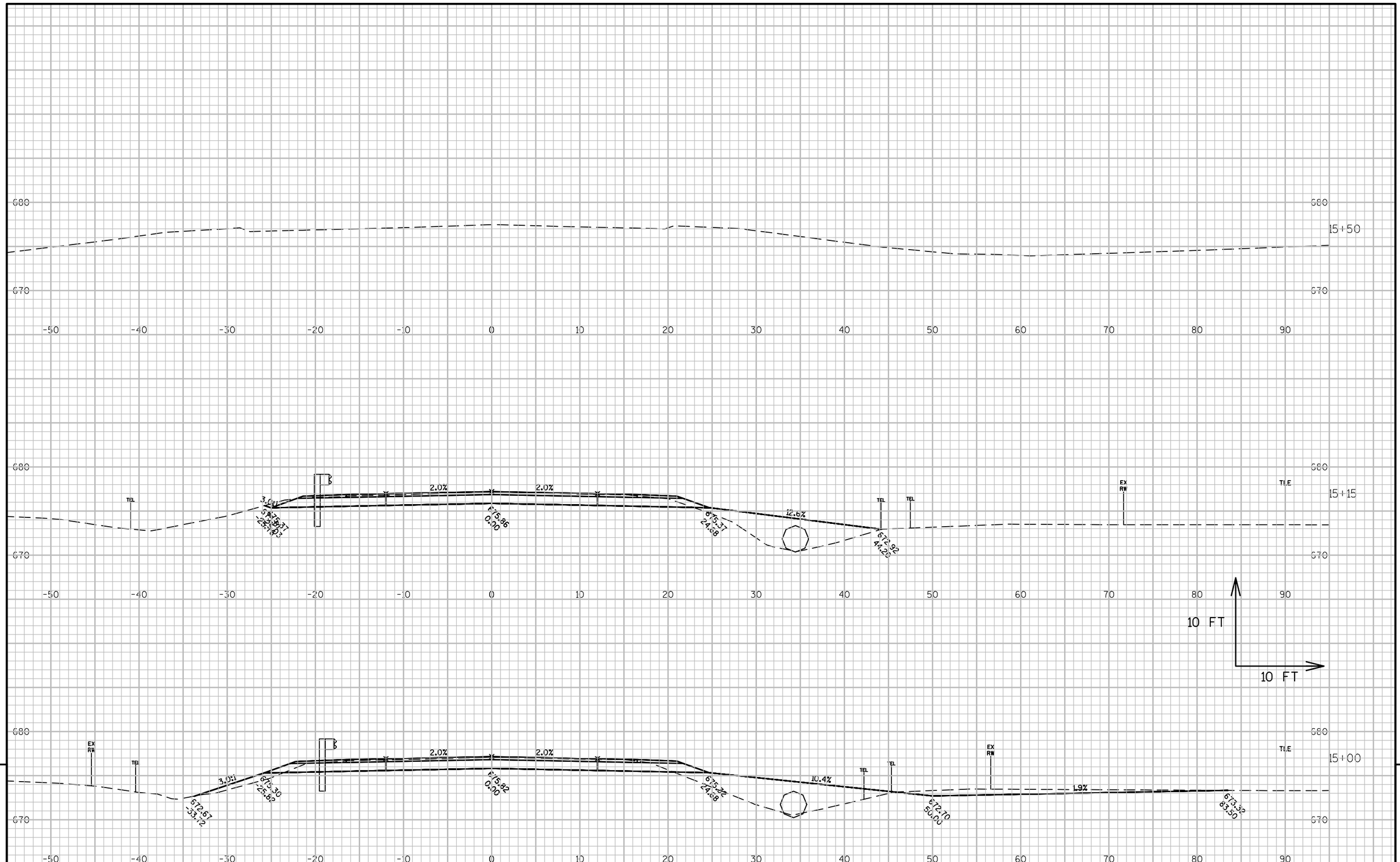
PROJECT NO: 4399-00-71	HWY: CTH J	COUNTY: KEWAUNEE	CROSS SECTIONS: CTH J CROSS SECTIONS	SHEET 24 67	E

FILE NAME : R:\1000\1075\1075169\DWG(2014)\090101_XS.DWG
LAYOUT NAME - XS-06

PLOT DATE : 2/22/2017 8:59 AM PLOT BY : SCOTT M. DEBAKER PLOT NAME : PLOT SCALE : 1 IN:10 FT

WISDOT/CADDS SHEET 49



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PROJECT NO: 4399-00-71	HWY: CTH J	COUNTY: KEWAUNEE	CROSS SECTIONS: CTH J CROSS SECTIONS	SHEET 25 68	E

FILE NAME : R:\1000\1075\1075169\DWG(2014)\090101_XS.DWG
LAYOUT NAME - XS-07

PLOT DATE : 2/22/2017 8:59 AM PLOT BY : SCOTT M. DEBAKER PLOT NAME : PLOT SCALE : Custom

WISDOT/CADDS SHEET 49

Notes

Wisconsin Department of Transportation

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