SWL

AUG 2017

PROJECT ID: 5001-00-70

WITH: N/A

COUNTY: CRAWFORD

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
5001-00-70	WISC 2017406	1

CLAYTON - SOLDIERS GROVE

(JOHNSON CREEK BRIDGE B-12-0181)

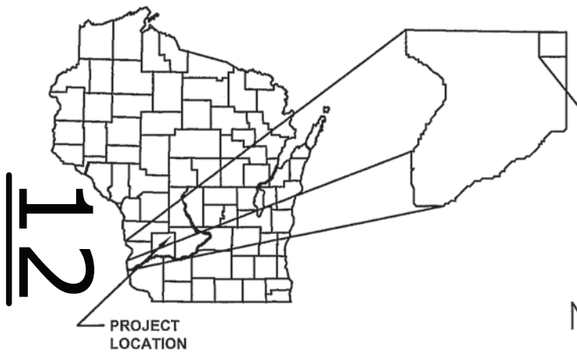
CTH C
CRAWFORD COUNTY

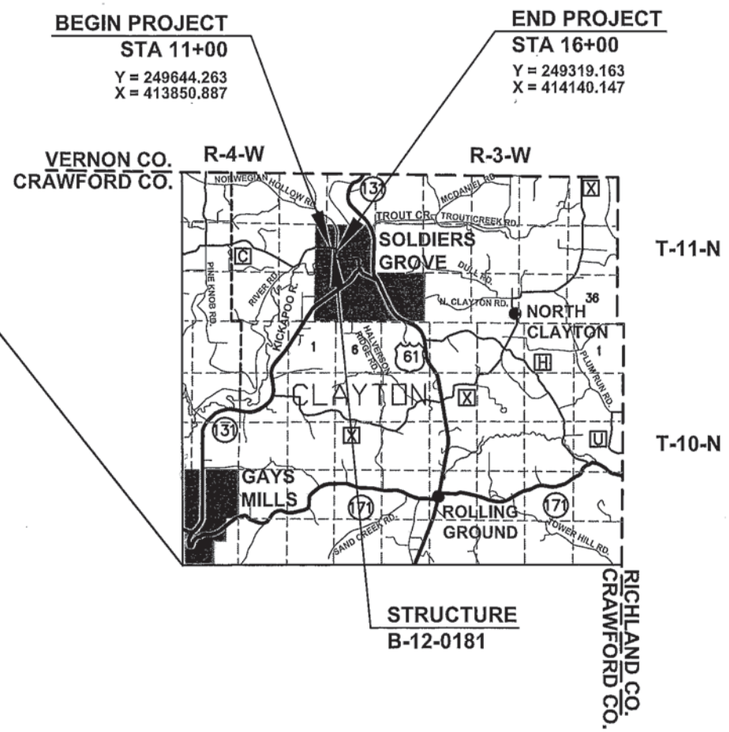
STATE PROJECT NUMBER
5001-00-70

AS-BUILT PLAN
SUPERVISOR: Joe Gregas
PROJECT MANAGER: Daniel Kleinertz
PROJECT LEADER: Nicholas Brey
CONTRACTOR: Larson Construction Company, Inc.
WORK STARTED: 10/09/2017
WORK COMPLETED: 05/31/2018

ORDER OF SHEETS

TOTAL SHEETS = 68





N

LAYOUT
SCALE 0 1 MI. 2 MI.

TOTAL NET LENGTH OF CENTERLINE = 0.095 MI.

COORDINATES ON THIS PLAN ARE REFERENCED TO THE WISCONSIN COUNTY COORDINATE SYSTEM (WCCS), CRAWFORD COUNTY.

DESIGN DESIGNATION

A.D.T. (2018)	=	380
A.D.T. (2038)	=	450
D.H.V.	=	7.7
D.	=	60/40
T.	=	9.2%
DESIGN SPEED	=	30 MPH
ESALS	=	72,708

CONVENTIONAL SYMBOLS

PLAN
- CORPORATE LIMITS
- PROPERTY LINE (P.L. + 59.1)
- LOT LINE
- LIMITED EASEMENT
- EXISTING RIGHT OF WAY
- PROPOSED OR NEW R/W LINE
- SLOPE INTERCEPT
- REFERENCE LINE
- COMBUSTIBLE FLUIDS (CAUTION)
- EXISTING CULVERT
- PROPOSED CULVERT (Box or Pipe)
- 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 (BK 336)
- CULVERT (Profile View)

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

ACCEPTED FOR
COUNTY OF CRAWFORD
19 April 17 (Date) HIGHWAY COMMISSIONER

ORIGINAL PLANS PREPARED BY
TEAM ENGINEERING
Transportation | Environmental | Agricultural | Municipal and Land Surveying

WISCONSIN
JEREMY F. KRACHEY
E-37258
WAUZEKA
WIS.
PROFESSIONAL ENGINEER
4-14-2017 (Date) (Signature)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY

Surveyor	TEAM ENGINEERING
Designer	TEAM ENGINEERING
Management Consultant	KL ENGINEERING, INC.

APPROVED FOR THE DEPARTMENT
4/29/17 (Date) (Management Consultant Signature)

E

LIST OF STANDARD ABBREVATIONS

ABUT.	Abutment	JT	Joint	SEC	Section
AC	Acre	JCT	Junction	SHLDR	Shoulder
AGG.	Aggregate	LHF	Left–Hand Forward	SHR	Shrinkage
AH	Ahead	L	Length of Curve	SW	Sidewalk
<	Angle	LIN FT OR LF	Linear Foot	S	South
ASPH	Asphaltic	LC	Long Chord of Curve	SQ	Square
AVG.	Average	MH	Manhole	SF OR SQ FT	Square feet
A.D.T.	Average Daily Traffic	MB	Mailbox	SY OR SQ YD	Square Yard
BAD	Base Aggregate Dense	ML OR M/L	Match Line	STD	Standard
BK.	Back	N	North	SDD	Standard Detail Drawings
BF	Back Face	Y	North Grid Coordiante	STH	State Trunk Highways
B.M	Bench Mark	OD	Outside Diameter	STA	Station
BR.	Bridge	PLE	Permanent Limited Easement	SS	Storm Sewer
C/L	Center Line	PT	Point	SG	Subgrade
CC	Center to Center	PC	Point of Curvature	SE	Superelevation
CTH	County Trunk Highway	PI	Point of Intersection	SL OR S/L	Survey Line
CR.	Creek	PRC	Point of Reverse Curvature	SV	Septic Vent
CY OR CU YD	Crushed	PT	Point of Tangency	T	Tangent
CP	Cubic Yard	POC	Point on curve	TEL	Telephone
C & G	Culvert Pipe	POT	Point on Tangent	TEMP	Temporary
D	Curb and Gutter	PVC	Polyvinyl Chloride	TI	Temporary Interest
DHV	Degree of Curve	PCC	Portland Cement Concrete	TLE	Temporary Limited Easement
DIA	Design Hour Volume	LB	Pound	t	Ton
E	Diameter	PSI	Pounds Per Square Inch	T OR TN	Town
X	East	PE	Private Entrance	TRANS	Transition
ELEC	East Grid Coordinate	R	Radius	TL OR T/L	Transit Line
EL OR ELEV	Electric	RR	Railroad	T	Trucks (percent of)
ESALS	Elevation	RL OR R/L	Reference Line	TYP	Typical
EBS	Equivalent Single Axle Loads	RP	Reference Point	UNCL	Unclassified
FF	Excavation Below Subgrade	RCCP	Reinforced Concrete Culvert Pipe	UG	Underground Cable
FE	Face to Face	REQD	Required	USH	United States Highway
F	Field Entrance	RES	Residence or Residential	VAR	Variable
FG	Fill	RW	Retaining Wall	V	Velocity or Design Speed
FL OR F/L	Finished Grade	RT	Right	VERT	Vertical
FT	Flow Line	RHF	Right–Hand Forward	VC	Vertical Curve
FTG	Foot	R/W	Right–of–Way	VOL	Volume
GN	Footing	R	River	WM	Water Main
HT	Grid North	RD	Road	WV	Water Valve
CWT	Height	RDWY	Roadway	W	West
HYD	Hundredweight	SALV	Salvaged	WB	Westbound
INL	Hydrant	SAN S	Sanitary Sewer	YD	Yard
ID	Inlet				
INV	Inside Diameter				
IP	Invert				
IRS	Iron Pipe or Pin				
	Iron Rod Set				

DESIGNER

TEAM ENGINEERING, INC.
240 MAIN STREET
LOGANVILLE, WI 53943
ATTN: JAMIE BRANDT, P.E.
PH: (608) 727–2146
jbrandt@teamenginc.com

DNR CONTACT

DEPARTMENT OF NATURAL RESOURCES
3550 MORMON COULEE ROAD
LA CROSSE, WI 54601
ATTN: KAREN KALVELAGE
ENVIRONMENTAL ANALYSIS & REVIEW SPECIALIST
PH: (608) 785–9115
karen.kalvelage@wisconsin.gov

MUNICIPALITY CONTACT

CRAWFORD COUNTY HIGHWAY DEPARTMENT
21515 STATE HWY 27
SENECA, WI 54654
ATTN: DENNIS PELOCK, COMMISSIONER
PH: (608) 734–9500
ccommish@centurytel.net

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

UTILITIES

SCENIC RIVERS ENERGY COOPERATIVE
231 N. SHERIDAN ST.
LANCASTER, WI 53813
ATTN: ANDY KILCOYNE
PH: (608) 723–2121 EXT. 568
akilcoyne@srec.net

RICHLAND GRANT TELEPHONE COOP
P.O. BOX 67
BLUE RIVER, WI 53518
ATTN: JOHN BARTZ
PH: (608) 537–2461
jbartz@mwt.net

* – NOT A MEMBER OF DIGGER'S HOTLINE.

GENERAL NOTES

FINISHING ITEMS SHALL BE PLACED TO THE SLOPE INTERCEPT WITH THE ORIGINAL GROUND AS SHOWN ON THE CROSS SECTIONS AND ON ALL DISTURBED AREAS.

NO TREES OR SHRUBS ARE TO BE REMOVED UNLESS SUCH TREES OR SHRUBS HAVE FIRST BEEN INDICATED FOR REMOVAL BY THE ENGINEER IN THE FIELD.

EXCAVATION BELOW SUBRGRADE (EBS) IS NOT USED TO BALANCE YARDAGE AND IS NOT SHOWN ON THE CROSS SECTIONS, BUT IS MEASURED AND PAID FOR AS EXCAVATION COMMON. THE LOCATION OF EBS WILL BE DETERMINED BY THE ENGINEER IN THE FIELD AND PAID FOR SEPARATELY ABOVE THE PLAN QUANTITY AS MEASURED IN THE FIELD.

DISTURBED AREAS SHOWN WITHIN THE RIGHT–OF–WAY, EXCEPT THE AREAS WITHIN THE FINISHED SHOULDER POINTS, ARE TO BE FERTILIZED (TYPE B), SEEDED (USE SEEDING MIXTURE #20 AND SEEDING TEMPORARY), AND MULCHED AS DIRECTED BY THE ENGINEER IN THE FIELD.

THE LOCATIONS OF SILT FENCE, SALVAGED TOPSOIL, SEEDING MIX #20, SEEDING TEMPORARY, MULCH AND TEMPORARY DITCH CHECKS ARE APPROXIMATE. LOCATIONS ARE TO BE DETERMINED BY THE ENGINEER IN THE FIELD.

REMOVAL OF ASPHALTIC SURFACES WHERE AN ABUTTING ASPHALTIC SURFACE IS TO REMAIN IN PLACE SHALL REQUIRE A SAWCUT MEETING THE APPROVAL OF THE ENGINEER IN THE FIELD.

THE LOCATIONS OF EXISTING AND PROPOSED UTILITY INSTALLATIONS AS SHOWN ON THE PLAN ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT AREA THAT ARE NOT SHOWN.

ELEVATIONS SHOWN ON THE PLAN ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF NAVD88 (2012 ADJUSTMENT).

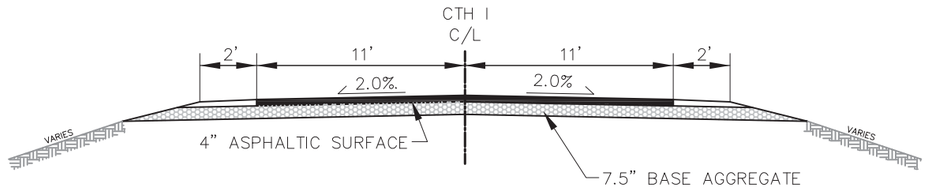
BEARINGS ON THE PLAN ARE REFERENCED TO THE WISCONSIN COORDINATE REFERENCE SYSTEM (WISCRS 2011 ADJ.), CRAWFORD COUNTY.

EROSION CONTROL DEVICES SHALL BE INSTALLED PRIOR TO CONSTRUCTION. EROSION CONTROL ITEMS ON THE PLAN ARE AT SUGGESTED LOCATIONS. EXACT LOCATIONS AND DIMENSIONS WILL BE DETERMINED BY THE ENGINEER IN THE FIELD. ALL EROSION CONTROL DEVICES SHALL BE MAINTAINED UNTIL SUCH TIME AS THE ENGINEER IN THE FIELD DEEMS THE DEVICES NO LONGER NECESSARY.

4–INCH ASPHALTIC SURFACE SHALL BE PLACED WITH A 2 1/4–INCH LOWER LAYER AND A 1 3/4–INCH UPPER LAYER. THE NOMINAL SIZE OF AGGREGATE USED FOR THE LOWER LAYER SHALL BE 19.0 MM AND THE UPPER LAYER SHALL BE 12.5 MM.

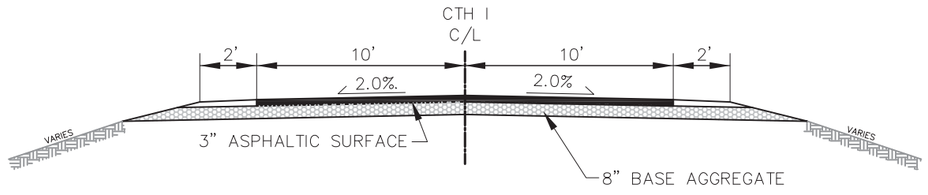
EXACT DIMENSIONS OF ANY PART ITEM CONTAINING THE WORK "RIPRAP" SHALL BE DETERMINED BY THE ENGINEER IN THE FIELD.

2



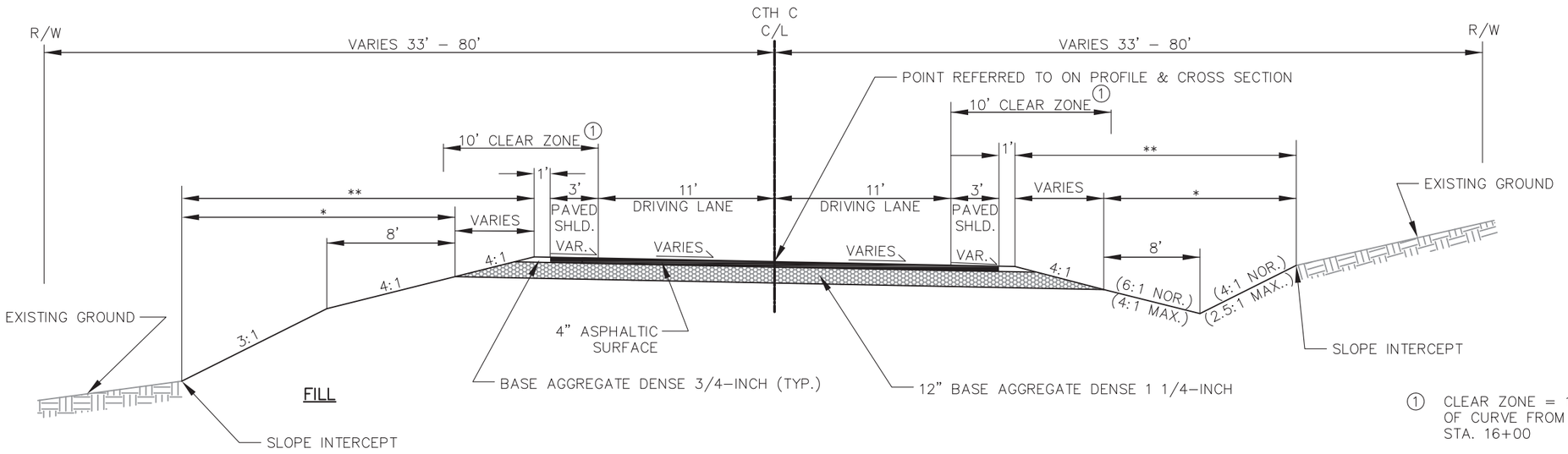
TYPICAL EXISTING SECTION

CTH C



TYPICAL EXISTING SECTION

NORWEGIAN HOLLOW ROAD



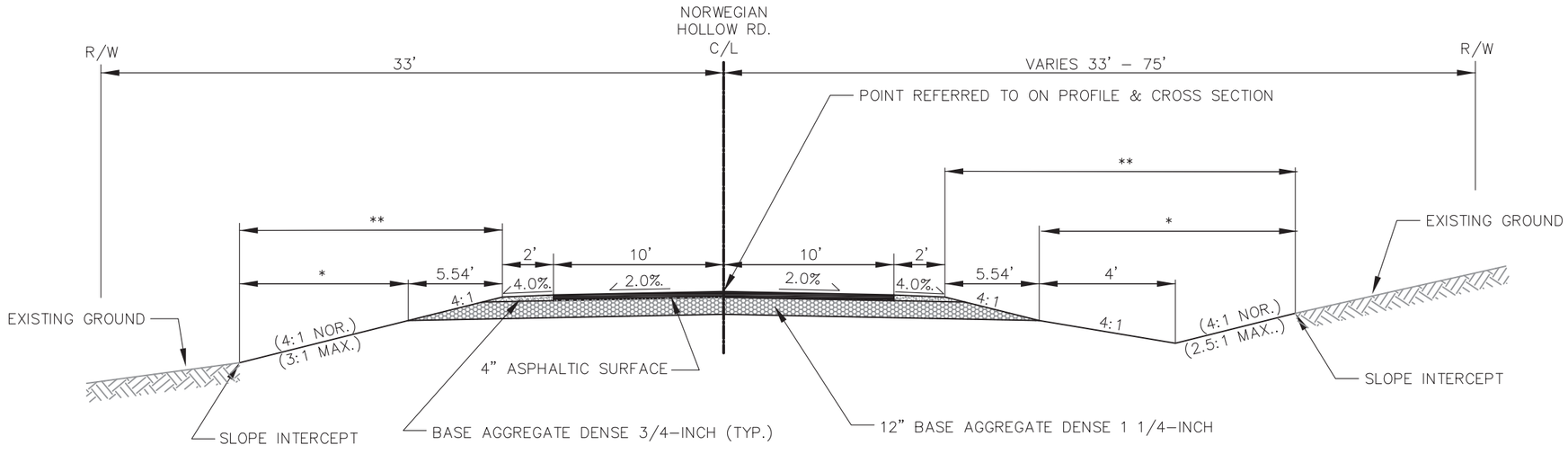
① CLEAR ZONE = 12' ON OUTSIDE OF CURVE FROM STA. 11+00 TO STA. 16+00

** LIMITS OF SEEDING, TEMPORARY SEEDING & FERTILIZER

* LIMITS OF SALVAGED TOPSOIL, EROSION MAT AND MULCH

TYPICAL FINISHED SUPERELEVATED SECTION

CTH C
STA. 11+00 – STA. 11+20
STA. 13+63 – STA. 16+00



** LIMITS OF SEEDING, TEMPORARY SEEDING & FERTILIZER

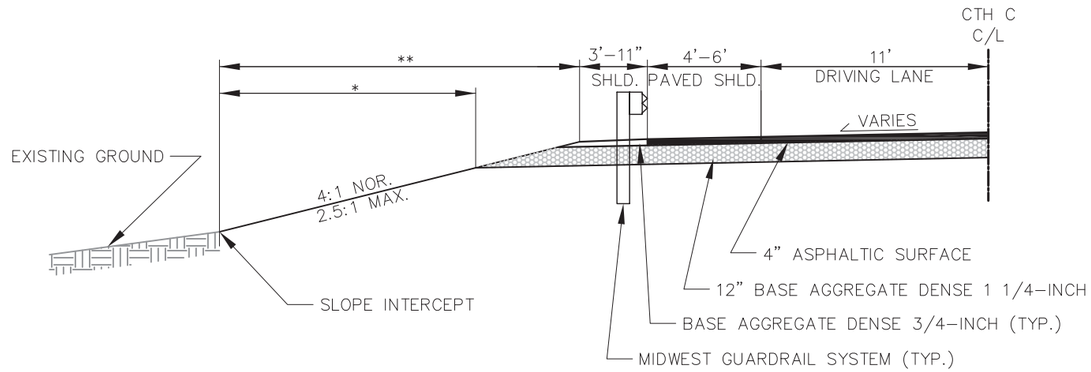
* LIMITS OF SALVAGED TOPSOIL, EROSION MAT AND MULCH

TYPICAL FINISHED SECTION

NORWEGIAN HOLLOW RD.
STA. 30+15 – STA. 31+25

PROJECT NO: 5001–00–70	HWY: CTH C	COUNTY: CRAWFORD	TYPICAL SECTIONS	SHEET 4	E

2



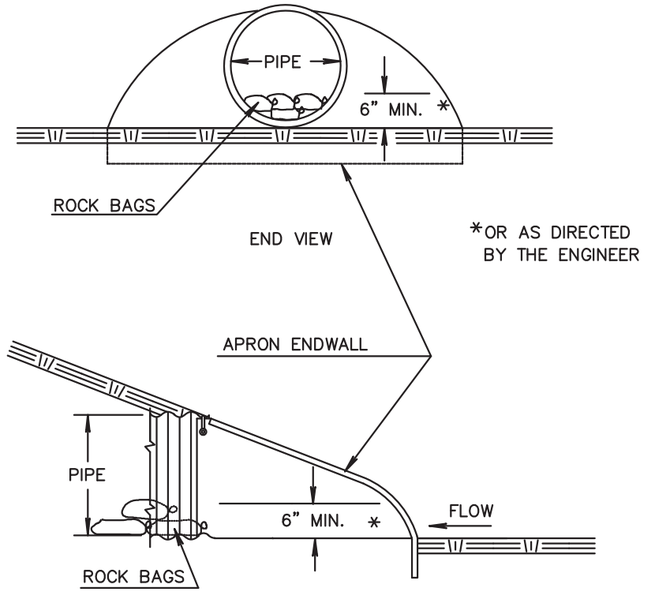
TYPICAL FINISHED BEAM GUARD HALF SECTION

CTH C
STA. 11+20 – STA. 13+63, RT
STA. 11+25 – STA. 13+44, LT

** LIMITS OF SEEDING, TEMPORARY SEEDING & FERTILIZER

* LIMITS OF SALVAGED TOPSOIL, EROSION MAT AND MULCH

2



CULVERT PIPE CHECK

2

BK: 8+00.00

P.I. STA 9+72.41
N=249,656.859
E=413,723.924

BM #1
SPIKE IN PP
ELEV=743.55

JOHNSON VALLEY CREEK

CURVE 2
PI STA = 30+55.17
Y = 249505.82
X = 414170.59
R = 100.00'
D = 57°17'45"
Δ = 50°11'30"
L = 87.60'
T = 46.83'
C = 84.83'

P.I. STA 30+55.17
N=249,505.822
E=414,170.594

PC: 11+50.91

8+00
9+00
S85°46'26"E
10+00
S84°20'04"E
11+00
12+00
13+00
14+00
15+00
16+00
30+00
31+00
32+00

CP #3
FD 3/4" REBAR
STA. 13+40, 49' LT
N=249,593.145
E=414,103.620
ELEV=744.96

N15°13'39"E

NORWEGIAN HOLLOW RD

STA. 31+25
N=249,579.053
E=414,190.528

PC: 30+95.94

PC: 30+08.34

P.I. STA 8+00
N=249,669.565
E=413,551.979

CURVE 1
PI STA = 14+36.19
Y = 249611.07
X = 414185.43
R = 270.00'
D = 21°13'14"
Δ = 93°09'08"
L = 438.97'
T = 285.28'
C = 392.20'

CP #4
SET 3/4" REBAR
STA. 9+90, 15' RT
N=249,640.233
E=413,739.613
ELEV.=741.81

BEGIN PROJECT
STA. 11+00
N=249,644.263
E=413,850.887

BM #2
TOP OF SW
BRIDGE CURB
ELEV.=743.10

FLOW

CTH C

STA 30+00
N=249,482.871
E=414,120.421

N65°25'08"E

P.I. STA 14+36.19
N=249,671.074
E=414,185.431

END PROJECT
STA. 16+00
N=249,319.163
E=414,140.147

CP #2
FD 3/4" REBAR
STA. 16+13, 22' RT
N=249,309.829
E=414,116.411
ELEV=746.21

PT: 15+89.88

BM #3
SPIKE IN FENCE POST
ELEV=749.68

S08°49'05"W

71.2' TO
POWER POLE

PI: 9+72.41

10+00 CTH C

CP #4
SET 3/4" REBAR

71.3' TO
CULVERT END

161.6' TO
POWER POLE

TIES TO CP #4

50.1' TO
ARROW SIGN

CP #3
FD 3/4" REBAR

70.5' TO
STOP SIGN

CTH C

31.6' TO
PK NAIL
IN C/L

PT:

TIES TO CP #3

CTH C

122.2' TO
ARROW SIGN

16+00

PT: 15+89.88

53.6' TO
FENCE
POST

56.7' TO
FENCE POST

TIES TO CP #2

PROJECT NO: 5001-00-70	HWY: CTH C	COUNTY: CRAWFORD	ALIGNMENT DETAILS	SHEET 7	E

5001-00-70

Line	Item	Item Description	Unit	Total	Qty
0010	201.0205	Grubbing	STA	2.000	2.000
0020	203.0100	Removing Small Pipe Culverts	EACH	1.000	1.000
0030	203.0600.S	Removing Old Structure Over Waterway With Minimal Debris (station) 01. 12+38	LS	1.000	1.000
0040	205.0100	Excavation Common **P**	CY	870.000	870.000
0050	206.1000	Excavation for Structures Bridges (structure) 01. B-12-0181	LS	1.000	1.000
0060	208.0100	Borrow	CY	3,330.000	3,330.000
0070	210.1500	Backfill Structure Type A	TON	928.000	928.000
0080	213.0100	Finishing Roadway (project) 01. 5001-00-70	EACH	1.000	1.000
0090	305.0110	Base Aggregate Dense 3/4-Inch	TON	160.000	160.000
0100	305.0120	Base Aggregate Dense 1 1/4-Inch	TON	1,700.000	1,700.000
0110	312.0110	Select Crushed Material	TON	75.000	75.000
0120	455.0605	Tack Coat	GAL	100.000	100.000
0130	465.0105	Asphaltic Surface	TON	460.000	460.000
0140	502.0100	Concrete Masonry Bridges	CY	291.000	291.000
0150	502.3200	Protective Surface Treatment	SY	226.000	226.000
0160	505.0400	Bar Steel Reinforcement HS Structures	LB	6,500.000	6,500.000
0170	505.0600	Bar Steel Reinforcement HS Coated Structures	LB	29,360.000	29,360.000
0180	513.4061	Railing Tubular Type M (structure) 01. B-12-0181	LF	106.000	106.000
0190	516.0500	Rubberized Membrane Waterproofing	SY	16.000	16.000
0200	520.1036	Apron Endwalls for Culvert Pipe 36-Inch	EACH	2.000	2.000
0210	521.0136	Culvert Pipe Corrugated Steel 36-Inch	LF	84.000	84.000
0220	550.1100	Piling Steel HP 10-Inch X 42 Lb	LF	886.000	886.000
0230	606.0300	Riprap Heavy	CY	120.000	120.000
0240	612.0406	Pipe Underdrain Wrapped 6-Inch	LF	200.000	200.000
0250	614.2500	MGS Thrie Beam Transition	LF	160.000	160.000
0260	614.2610	MGS Guardrail Terminal EAT	EACH	4.000	4.000
0270	619.1000	Mobilization	EACH	1.000	1.000
0280	624.0100	Water	MGAL	17.000	17.000
0290	625.0500	Salvaged Topsoil **P**	SY	3,100.000	3,100.000
0300	627.0200	Mulching **P**	SY	1,100.000	1,100.000
0310	628.1504	Silt Fence	LF	1,450.000	1,450.000
0320	628.1520	Silt Fence Maintenance	LF	2,900.000	2,900.000
0330	628.1905	Mobilizations Erosion Control	EACH	5.000	5.000
0340	628.1910	Mobilizations Emergency Erosion Control	EACH	2.000	2.000
0350	628.2008	Erosion Mat Urban Class I Type B	SY	2,800.000	2,800.000
0360	628.7504	Temporary Ditch Checks	LF	24.000	24.000
0370	628.7555	Culvert Pipe Checks	EACH	3.000	3.000
0380	629.0210	Fertilizer Type B	CWT	2.000	2.000

5001-00-70

Line	Item	Item Description	Unit	Total	Qty
0390	630.0120	Seeding Mixture No. 20 **P**	LB	90.000	90.000
0400	630.0200	Seeding Temporary **P**	LB	70.000	70.000
0410	630.0300	Seeding Borrow Pit	LB	25.000	25.000
0420	633.5100	Markers Row	EACH	17.000	17.000
0430	633.5200	Markers Culvert End	EACH	2.000	2.000
0440	634.0614	Posts Wood 4x6-Inch X 14-FT	EACH	5.000	5.000
0450	637.2230	Signs Type II Reflective F	SF	17.180	17.180
0460	638.2101	Moving Signs Type I	EACH	1.000	1.000
0470	638.2602	Removing Signs Type II	EACH	9.000	9.000
0480	638.3000	Removing Small Sign Supports	EACH	9.000	9.000
0490	642.5001	Field Office Type B	EACH	1.000	1.000
0500	643.0100	Traffic Control (project) 01. 5001-00-70	EACH	1.000	1.000
0510	645.0111	Geotextile Type DF Schedule A	SY	44.000	44.000
0520	645.0120	Geotextile Type HR	SY	275.000	275.000
0530	646.0106	Pavement Marking Epoxy 4-Inch	LF	1,890.000	1,890.000
0540	650.4500	Construction Staking Subgrade	LF	560.000	560.000
0550	650.5000	Construction Staking Base	LF	560.000	560.000
0560	650.6000	Construction Staking Pipe Culverts	EACH	1.000	1.000
0570	650.6500	Construction Staking Structure Layout (structure) 01. B-12-0181	LS	1.000	1.000
0580	650.9910	Construction Staking Supplemental Control (project) 01. 5001-00-70	LS	1.000	1.000
0590	650.9920	Construction Staking Slope Stakes	LF	560.000	560.000
0600	690.0150	Sawing Asphalt	LF	64.000	64.000
0610	715.0502	Incentive Strength Concrete Structures	DOL	2,320.000	2,320.000
0620	ASP.1T0A	On-the-Job Training Apprentice at $5.00/HR	HRS	1,200.000	1,200.000
0630	ASP.1T0G	On-the-Job Training Graduate at $5.00/HR	HRS	300.000	300.000

GRUBBING

STATION–STATION	LOCATION	(201.0205) GRUBBING (STA)
11+00–12+00	LT & RT	1
15+00–16+00	RT	1
	TOTALS	2

BASE AGGREGATE DENSE

STATION–STATION	LOCATION	(305.0110) 3/4–INCH (TON)	(305.0120) 1 1/4–INCH (TON)
11+00–12+12	CTH C	28	335
12+63–16+00	CTH C	70	980
30+11–31+25	NORWEGIAN HOLLOW	32	385
	P.E. 31+00, LT	30	–
	TOTALS	160	1700

SELECT CRUSHED MATERIAL

STATION–STATION	LOCATION	(312.0110) SELECT CRUSHED (TON)
EBS	MAINLINE	75
	TOTALS	75

WATER

STATION–STATION	LOCATION	(624.0100) (MGAL)
11+00–16+00	CTH C	13
30+11–31+25	NORWEGIAN HOLLOW	4
	TOTALS	17

CULVERT PIPE

STATION	LOCATION	(203.0100) REMOVING SMALL CULVERT PIPE (EACH)	(520.1036) APRON ENDWALLS 36–INCH (EACH)	(521.0136) CORRUGATED STEEL 36–INCH (LF)
14+75	CTH C	–	2	84
14+90	CTH C	1	–	–
	TOTALS	1	2	84

NOTES:
1.) 36–INCH CPCS TO HAVE MINIMUM 0.079 INCH THICKNESS

EARTHWORK SUMMARY

STATION–STATION	LOCATION	**P** (205.0100) EXCAVATION COMMON (1) (CY)	UNEXPANDED FILL (CY)	EXPANDED FILL (2) (20%) (CY)	MASS ORDINATE +/– (3) (CY)	208.0100 BOROW (4) (20%) (CY)
11+00–12+08	CTH C	113	610	732	–619	619
12+66–16+00	CTH C	530	2890	3468	–2938	2938
30+25–31+25	NORWEGIAN HOLLOW	227	0	0	227	–227
	TOTALS	870	3500	4200		3330

NOTES:
1.) EBS IS NOT INCLUDED IN DIVISIONS 1 THROUGH 4
2.) EXPANDED FILL FACTOR 1.20: EXPANDED FILL =(UNEXPANDED FILL)*1.20
3.) THE MASS ORDINATE +OR– QTY CALCULATED FOR THE DIVISION. PLUS QUANTITY INDICATED AN EXCESS OF MATERIAL WITHIN THE CATEGORY. MINUS INDICATES A SHORTAGE OF MATERIAL WITHIN THE CATEGORY.
4.) BORROW *(ABSOLUTE VALUE OF MASS ORDINATE/EXPANDED FILL FACTOR)*BORROW FACTOR

P PAY PLAN QUANTITY

ASPHALTIC ITEMS

STATION–STATION	LOCATION	(455.0600) TACK COAT (GAL)	(465.0105) ASPHALTIC SURFACE (TON)
11+00–12+12	CTH C	20	93
12+63–16+00	CTH C	58	263
30+11–31+25	NORWEGIAN HOLLOW	22	104
	TOTALS	100	460

NOTE: UNLESS NOTED, ALL ITEMS ARE IN CATEGORY 0010.

MGS THRIE BEAM TRANSITION
MGS GUARDRAIL TERMINAL EAT

STATION–STATION	LOCATION	(614.2500) (LF)	(614.2610) (EACH)
11+72–12+12	MAINLINE, RT	40	–
11+20	MAINLINE, RT	–	1
11+72–12+12	MAINLINE, LT	40	–
11+25	MAINLINE, LT	–	1
12+63–13+03	MAINLINE, LT	40	–
13+43	MAINLINE, LT	–	1
12+63–13+03	MAINLINE, RT	40	–
13+64	MAINLINE, RT	–	1
	TOTALS	160	4

3

MOBILIZATIONS EROSION CONTROL

PROJECT		(628.1905) MOBILIZATIONS EROSION CONTROL (EACH)	(628.1910) MOBILIZATIONS EMERGENCY EROSION CONTROL (EACH)
5001-00-70		5	2
	TOTALS	5	2

TEMPORARY DITCH CHECKS

STATION	LOCATION	(628.7504) TEMPORARY DITCH CHECKS (LF)
14+55	MAINLINE, LT	12
15+05	MAINLINE, LT	12
	TOTALS	24

CULVERT PIPE CHECKS

STATION	LOCATION	(628.7555) CULVERT PIPE CHECKS (EACH)
14+75	MAINLINE	3
	TOTALS	3

MARKERS CULVERT END

STATION	LOCATION	(633.5200) MARKERS CULVERT END (EACH)
14+75	MAINLINE	2
	TOTALS	2

FINISHING ITEMS

STATION-STATION	LOCATION	**P** (625.0500) SALVAGED TOPSOIL (SY)	**P** (627.0200) MULCHING (SY)	(629.0210) FERTILIZER TYPE B (CWT)	**P** (630.0120) SEEDING MIXTURE NO. 20 (LB)	**P** (630.0200) SEEDING TEMPORARY (LB)	(630.0200) SEEDING BORROW PIT (LB)
11+00-12+12	MAINLINE	707	137	0.5	21	10	-
12+63-16+00	MAINLINE	2393	463	1.5	69	35	-
-	BORROW PIT	-	500	-	-	25	25
	TOTALS	3100	1100	2.0	90	70	25

P PAY PLAN QUANTITY

RIPRAP HEAVY & GEOTEXTILE TYPE HR

STATION	LOCATION	(606.0300) (CY)	(645.0120) (SY)
14+75	MAINLINE, RT	10	25
	TOTALS	10	25

MARKERS ROW

STATION	LOCATION	Y	X	(633.5100) (EACH)
11+00.00	32.88' LT	249676.98	413854.13	1
11+00.00	33.12' RT	249611.30	413847.62	1
11+00.00	60.00' RT	249584.56	413844.96	1
11+25.00	60.00' LT	249701.42	413882.47	1
12+00.00	55.00' LT	249682.84	413964.93	1
12+00.00	60.00' RT	249572.34	413933.07	1
12+17.00	35.14' LT	249657.85	413977.71	1
12+28.44	36.81' LT	249654.79	413990.42	1
13+00.00	47.55' LT	249623.15	414067.34	1
13+00.00	60.00' RT	249537.60	414002.16	1
13+74.27	83.43' LT	249582.94	414157.39	1
14+09.79	127.35' LT	249565.61	414221.07	1
14+50.00	60.00' RT	249445.35	414071.12	1
15+06.92	39.59' LT	249417.85	414180.85	1
15+50.00	80.00' RT	249369.38	414064.89	1
16+00.00	32.98' LT	249314.11	414172.74	1
16+00.00	33.02' RT	249324.23	414107.52	1
		TOTALS		17

3

SILT FENCE & SILT FENCE MAINTENANCE

STATION–STATION	LOCATION	(628.1504) (LF)	(628.1520) (LF)
11+00.00–12+12.00	MAINLINE	390	780
12+63.00–16+00.00	MAINLINE	560	1120
BORROW PIT		500	1000
	TOTALS	1450	2900

MOVING SIGNS

STATION	LOCATION	(638.2101) TYPE I (EACH)
31+13	NORWEGIAN HOLLOW RD, LT	1
	TOTALS	1

REMOVING SIGNS TYPE II & REMOVING SMALL SIGN SUPPORTS

STATION	LOCATION	DESCRIPTION	(638.2602) (EACH)	(638.3000) (EACH)
11+85	RT	25 TON	1	1
12+08	RT	W5–52	1	1
12+08	LT	W5–52	1	1
12+65	RT	W5–52	1	1
12+65	LT	W5–52	1	1
12+75	LT	25 TON	1	1
13+00	LT	ARROW	1	1
15+08	LT	ARROW	1	1
31+10	LT	STOP	1	1
		TOTALS	9	9

CONSTRUCTION STAKING

STATION–STATION	LOCATION	(650.4500) SUBGRADE (LF)	(650.5000) BASE (LF)	(650.6000) PIPE CULVERTS (EACH)	(650.6500) STRUCTURE LAYOUT (LS)	(650.9910) SUPPLEMENTAL CONTROL (LS)	(650.9920) SLOPE STAKING (LF)
11+00–12+12	CTH C	112	112	–	–	0.5	112
12+63–16+00	CTH C	337	337	1	–	0.5	337
30+14–31+25	NORWEGIAN HOLLOW	111	111	–	–	–	111
	TOTALS	560	560	1	1 *	1	560

* CATEGORY 0020

EROSION MAT URBAN CLASS I TYPE B

STATION–STATION	LOCATION	(628.2008) (SY)
11+00–12+12	MAINLINE, LT	357
11+00–12+12	MAINLINE, RT	350
14+00–16+00	MAINLINE, LT	455
12+63–16+00	MAINLINE, RT	1338
BORROW PIT		300
	TOTALS	2800

PERMANENT SIGNING

STATION	LOCATION	SIGN CODE	(634.0614) POSTS WOOD 4X6–INCH X 14–FT (EACH)	(637.0202) SIGNS TYPE II REFLECTIVE TYPE F (SF)
12+12	LT	W5–52	1	3
12+12	RT	W5–52	1	3
12+63	LT	W5–52	1	3
12+63	RT	W5–52	1	3
30+50	LT	R1–1	1	5.18
TOTALS			5	17.18

PAVEMENT MARKING

STATION–STATION	LOCATION	(646.0106) PAVEMENT MARKING EPOXY 4–INCH (LF)
11+00–16+00	WHITE EDGELINE, LT	390
11+00–16+00	WHITE EDGELINE, RT	500
11+00–16+00	DOUBLE YELLOW, MAINLINE	1000
	TOTAL	1890

SAWING ASPHALT

STATION	LOCATION	(690.0150) (LF)
11+00	CTH C	24
16+00	CTH C	24
31+25	NORWEGIAN HOLLOW	20
	TOTALS	64

R/W PROJECT NUMBER	SHEET NUMBER	TOTAL SHEETS
5001-00-00	4.01	2
FEDERAL PROJECT NUMBER		

PLAT OF RIGHT-OF-WAY REQUIRED FOR

CLAYTON – SOLDIERS GROVE

(JOHNSON CREEK BRIDGE B-12-0181)

CTH C CRAWFORD COUNTY

CONSTRUCTION PROJECT NUMBER
5001-00-70

CONVENTIONAL ABBREVIATIONS

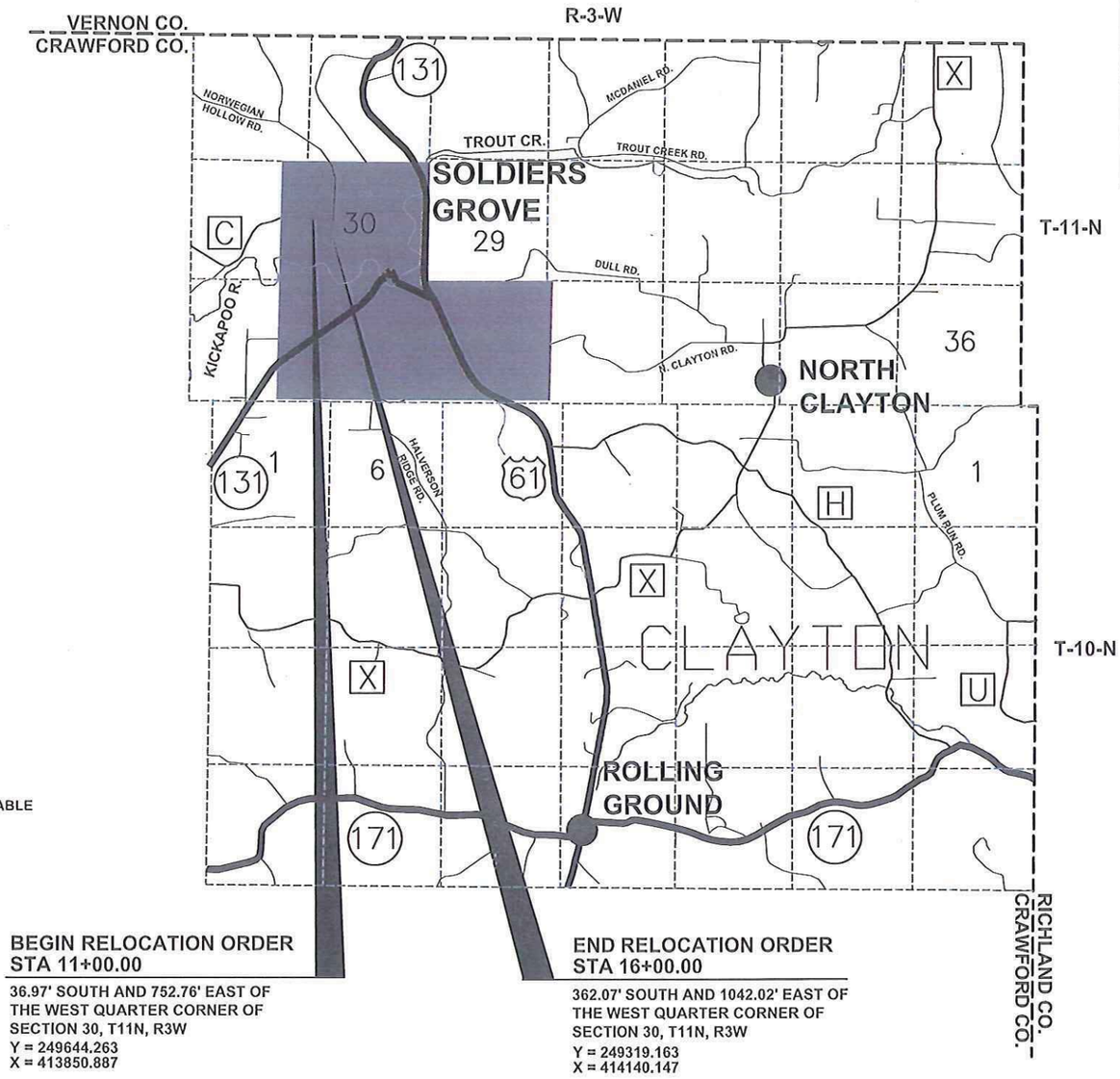
ACCESS RIGHTS	AR	REFERENCE LINE	R/L
ACRES	AC.	RELEASE OF RIGHTS	ROR
AND OTHERS	ET. AL.	REMAINING	REM.
CENTERLINE	C/L	RIGHT-OF-WAY	R/W
CERTIFIED SURVEY MAP	CSM	SECTION	SEC.
CORNER	COR.	STATION	STA.
DOCUMENT	DOC.	TEMPORARY LIMITED EASEMENT	TLE
EASEMENT	EASE.	VOLUME	V.
HIGHWAY EASEMENT	H.E.	**CURVE DATA**	
LAND CONTRACT	LC	LONG CHORD	LCH
MONUMENT	MON.	LONG CHORD BEARING	LCB
PAGE	P.	RADIUS	R
PERMANENT LIMITED EASEMENT	PLE	DEGREE OF CURVE	D
PROPERTY LINE	P.L.	CENTRAL ANGLE OR DELTA	DELTA
RECORDED AS	(100')	LENGTH OF CURVE	L
		TANGENT	TAN

CONVENTIONAL SYMBOLS

FOUND IRON PIPE/PIN	P	PROPOSED R/W LINE	
R/W MONUMENT	(SET)	EXISTING H.E. LINE	
R/W STANDARD	(SET)	PROPERTY LINE	
SIGN	SIGN	LOT & TIE LINES	
SECTION CORNER MONUMENT		SLOPE INTERCEPT	
SECTION CORNER SYMBOL		CORPORATE LIMITS	
FEE (HATCH VARIES)		ACCESS RESTRICTED (BY PREVIOUS ACQUISITION/CONTROL)	
TEMPORARY LIMITED EASEMENT		ACCESS RESTRICTED (BY ACQUISITION/CONTROL)	
PERMANENT LIMITED EASEMENT		NO ACCESS (BY STATUTORY AUTHORITY)	
R/W BOUNDARY POINT		SECTION LINE	
PARCEL NUMBER		QUARTER LINE	
UTILITY INTEREST		SIXTEENTH LINE	
SIGN NUMBER (OFF PREMISE)		EXISTING CENTERLINE	
BUILDING		PROPOSED REFERENCE LINE	
		PARALLEL OFFSET	

CONVENTIONAL UTILITY SYMBOLS

		NON COMPENSABLE	COMPENSABLE
WATER	W	POWER POLE	
GAS	G	TELEPHONE POLE	
TELEPHONE	T	TELEPHONE PEDISTAL	
OVERHEAD	OH	ELECTRIC TOWER	
TRANSMISSION LINES ELECTIC	E		
CABLE TELEVISION	TV		
FIBER OPTIC	FO		
SANITARY SEWER	SAN		
STORM SEWER	SS		



BEGIN RELOCATION ORDER
STA 11+00.00

36.97' SOUTH AND 752.76' EAST OF THE WEST QUARTER CORNER OF SECTION 30, T11N, R3W
Y = 249644.263
X = 413850.887

END RELOCATION ORDER
STA 16+00.00

362.07' SOUTH AND 1042.02' EAST OF THE WEST QUARTER CORNER OF SECTION 30, T11N, R3W
Y = 249319.163
X = 414140.147

POSITIONS SHOWN ON THIS PLAT ARE WISCONSIN COORDINATE REFERENCE SYSTEM COORDINATES (WISCRS), CRAWFORD COUNTY, NAD 83 (2011) IN U.S SURVEY FEET. VALUES SHOWN ARE GRID COORDINATES, GRID BEARINGS, AND GRID DISTANCES. GRID DISTANCES MAY BE USED AS GROUND DISTANCES.

ALL NEW RIGHT-OF-WAY MONUMENTS WILL BE TYPE 2 (TYPICALLY ¾" X 24" IRON REBARS), UNLESS OTHERWISE NOTED, AND WILL BE PLACED PRIOR TO THE COMPLETION OF THE PROJECT.

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

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

BASIS OF EXISTING RIGHT-OF-WAY FOR CTH C AND NORWEGIAN HOLLOW ROAD WAS BASED ON THE CENTERLINE OF EXISTING PAVEMENT AND WIS STATUE 82.31(2).

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

The most current Right of Way information should be viewed in DOTView using the Real Estate Project ID. The Plat information contained in the AsBuilt may not be the final records.

LAYOUT
SCALE 0 0.5 MI. 1 MI.

TOTAL NET LENGTH OF CENTERLINE = 0.095 MI.

REVISION DATE

ACCEPTED FOR
COUNTY OF CRAWFORD
8 May 16 (Date) HIGHWAY COMMISSIONER

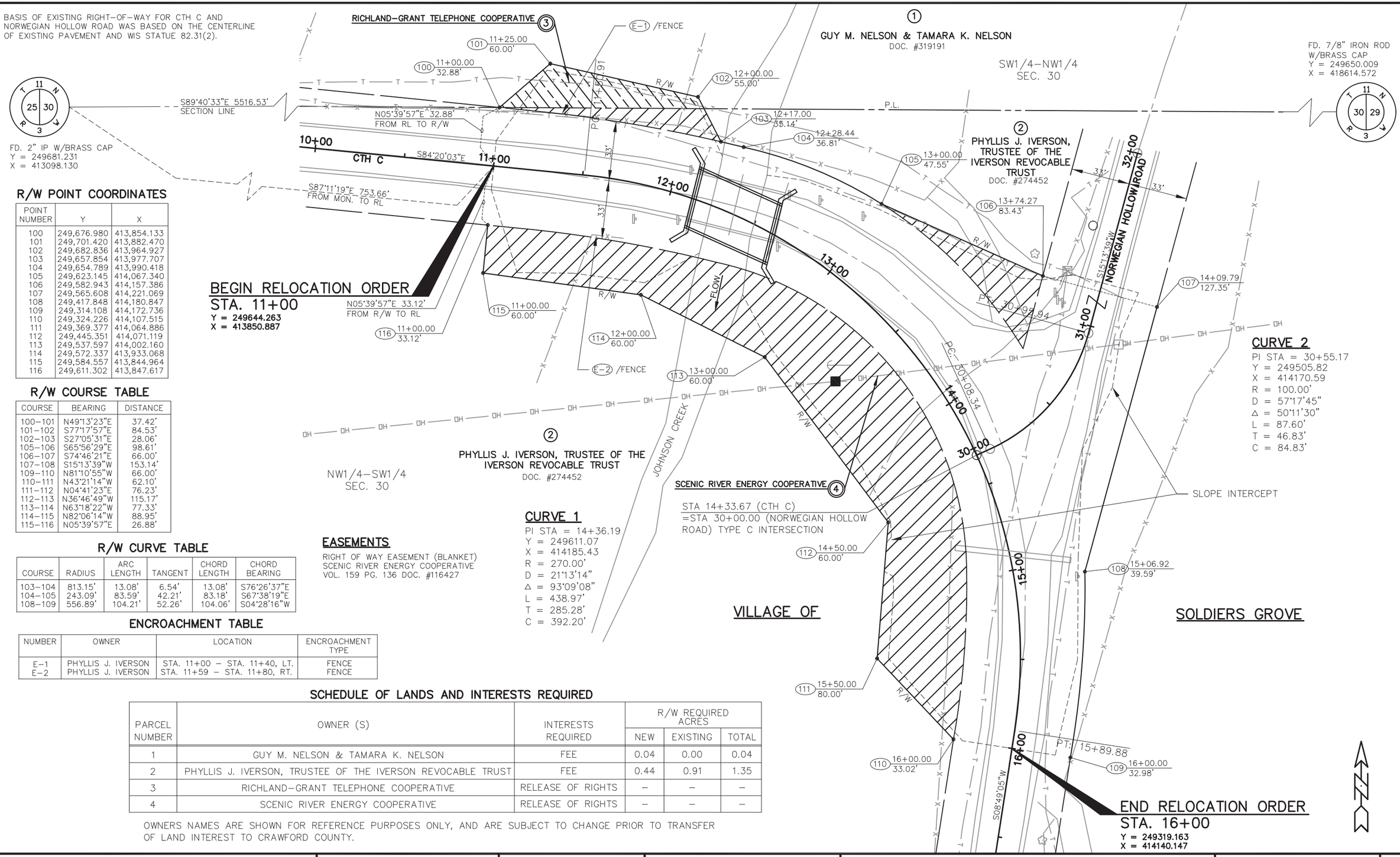
ORIGINAL PLAT PREPARED BY
TEAM ENGINEERING
Transportation Environmental Agricultural Municipal and Land Surveying

WISCONSIN
STEVEN A. ALT
S-3061-8
DODGEVILLE WIS.
LAND SURVEYOR

5-5-16 (Date) (Signatur

E

BASIS OF EXISTING RIGHT-OF-WAY FOR CTH C AND NORWEGIAN HOLLOW ROAD WAS BASED ON THE CENTERLINE OF EXISTING PAVEMENT AND WIS STATUE 82.31(2).



R/W POINT COORDINATES

POINT NUMBER	Y	X
100	249,676.980	413,854.133
101	249,701.420	413,882.470
102	249,682.836	413,964.927
103	249,657.854	413,977.707
104	249,654.789	413,990.418
105	249,623.145	414,067.340
106	249,582.943	414,157.386
107	249,565.608	414,221.069
108	249,417.848	414,180.847
109	249,314.108	414,172.736
110	249,324.226	414,107.515
111	249,369.377	414,064.886
112	249,445.351	414,071.119
113	249,537.597	414,002.160
114	249,572.337	413,933.068
115	249,584.557	413,844.964
116	249,611.302	413,847.617

R/W COURSE TABLE

COURSE	BEARING	DISTANCE
100-101	N49°13'23"E	37.42'
101-102	S77°17'57"E	84.53'
102-103	S27°05'31"E	28.06'
105-106	S65°56'29"E	98.61'
106-107	S74°46'21"E	66.00'
107-108	S15°13'39"W	153.14'
109-110	N81°10'55"W	66.00'
110-111	N43°21'14"W	62.10'
111-112	N04°41'23"E	76.23'
112-113	N36°46'49"W	115.17'
113-114	N63°18'22"W	77.33'
114-115	N82°06'14"W	88.95'
115-116	N05°39'57"E	26.88'

R/W CURVE TABLE

COURSE	RADIUS	ARC LENGTH	TANGENT	CHORD LENGTH	CHORD BEARING
103-104	813.15'	13.08'	6.54'	13.08'	S76°26'37"E
104-105	243.09'	83.59'	42.21'	83.18'	S67°38'19"E
108-109	556.89'	104.21'	52.26'	104.06'	S04°28'16"W

ENCROACHMENT TABLE

NUMBER	OWNER	LOCATION	ENCROACHMENT TYPE
E-1	PHYLLIS J. IVERSON	STA. 11+00 - STA. 11+40, LT.	FENCE
E-2	PHYLLIS J. IVERSON	STA. 11+59 - STA. 11+80, RT.	FENCE

CURVE 1

PI STA = 14+36.19
Y = 249611.07
X = 414185.43
R = 270.00'
D = 21°13'14"
Δ = 93°09'08"
L = 438.97'
T = 285.28'
C = 392.20'

CURVE 2

PI STA = 30+55.17
Y = 249505.82
X = 414170.59
R = 100.00'
D = 57°17'45"
Δ = 50°11'30"
L = 87.60'
T = 46.83'
C = 84.83'

EASEMENTS

RIGHT OF WAY EASEMENT (BLANKET)
SCENIC RIVER ENERGY COOPERATIVE
VOL. 159 PG. 136 DOC. #116427

SCHEDULE OF LANDS AND INTERESTS REQUIRED

PARCEL NUMBER	OWNER (S)	INTERESTS REQUIRED	R/W REQUIRED ACRES		
			NEW	EXISTING	TOTAL
1	GUY M. NELSON & TAMARA K. NELSON	FEE	0.04	0.00	0.04
2	PHYLLIS J. IVERSON, TRUSTEE OF THE IVERSON REVOCABLE TRUST	FEE	0.44	0.91	1.35
3	RICHLAND-GRANT TELEPHONE COOPERATIVE	RELEASE OF RIGHTS	-	-	-
4	SCENIC RIVER ENERGY COOPERATIVE	RELEASE OF RIGHTS	-	-	-

OWNERS NAMES ARE SHOWN FOR REFERENCE PURPOSES ONLY, AND ARE SUBJECT TO CHANGE PRIOR TO TRANSFER OF LAND INTEREST TO CRAWFORD COUNTY.

REVISION DATE	DATE: APRIL 26, 2016	SCALE, FEET 0 25 50	HWY: CTH C	R/W PROJECT NUMBER: 5001-00-00	PLAT SHEET NO: 4.02
	GRID FACTOR: N/A		COUNTY: CRAWFORD	CONSTRUCTION PROJECT NUMBER: 5001-00-70	PS&E SHEET 14 E

BENCHMARKS ⊕ NAVD 88			
NO.	STA./OFFSET	DESCRIPTION	ELEV.
1	9+78, 55' LT.	SPIKE IN PP	742.77
2	12+15, 12' RT.	TOP OF SW BRIDGE CURB	742.98

SILT FENCE
EROSION MAT CLASS I TYPE B URBAN
HEAVY RIPRAP OVER GEOTEXTILE FABRIC TYPE HR
DRAINAGE ARROWS

CURVE 1
PI STA = 14+36.19
Y = 249611.07
X = 414185.43
R = 270.00'
D = 21°13'14"
Δ = 93°09'08"
L = 438.97'
T = 285.28'
C = 392.20'
S.E. = 6.0%

GUY M. & TAMARA K. NELSON

PHYLLIS J. IVERSON

RICHLAND GRANT TELEPHONE COOP

REMOVE BY OTHERS

JOHNSON CREEK

SLOPE INTERCEPT

EXISTING C/L CTH C

40' RADIUS

PT: 30+95.94

BM #1

BM #2

CP #3

CP #4

SAWCUT REQ'D.

EX. R/W

R/W

PC: 30+08.34

FLOW

Q2 WS EL.=728.46
Q100 WS EL.=732.22

SCENIC RIVER ENERGY COOPERATIVE

SLOPE INTERCEPT

PROPOSED C/L CTH C

STA 14+33.67 (CTH C)
=STA 30+00.00 (NORWEGIAN HOLLOW ROAD) TYPE C INTERSECTION

BEGIN PROJECT
STA. 11+00

CTH C

9+00 10+00 11+00 12+00 13+00 14+00 30+00 31+00

BOP STA = 11+00.00
ELEV = 742.54

VPC STA = 13+05.00
VPC EL = 743.16

PROPOSED C/L PROFILE CTH C

PI STA = 13+80.00
EL = 743.38
K = 100.00
L = 150.00

0.30%

EXISTING C/L PROFILE CTH C

REMOVING OLD STRUCTURE
STA. 12+38 STRUCTURE P-12-0707
TWO SPAN STEEL GIRDER BRIDGE
26' CLEAR ROADWAY WIDTH 50.2' O.A.L.

STA. 12+37 STRUCTURE B-12-0181 REQ'D.
SINGLE SPAN CONCRETE FLAT SLAB BRIDGE
32' CLEAR ROADWAY WIDTH 50'-6" O.A.L.
10° SKEW

EXISTING C/L ELEVATION
PROPOSED C/L ELEVATION

750 748 746 744 742 740 738 736 734

8+50	8+75	9+00	9+25	9+50	9+75	10+00	10+25	10+50	10+75	11+00	11+25	11+50	11+75	12+00	12+25	12+50	12+75	13+00	13+25	13+50	13+75	14+00	14+25	14+50
743.20	743.12	742.87	742.64	742.53	742.42	742.44	742.47	742.46	742.45	742.54	742.64	742.82	743.04	743.10	726.08	726.98	742.45	742.40	742.63	742.40	742.14	742.12	743.60	744.79
										742.54	**742.62**	**742.69**	**742.76**	**742.84**	**742.92**	**742.99**	**743.06**	**743.14**	**743.24**	**743.39**	**743.61**	**743.89**	**744.24**	**744.64**

PROJECT NO: 5001-00-70	HWY: CTH C	COUNTY: CRAWFORD	PLAN & PROFILE – CTH C	SHEET 15	E

RICHLAND GRANT TELEPHONE COOP

60' RADIUS

STA. 14+75
1-36 CPCS REQ'D.
2-APRON ENDWALLS REQ'D.

REMOVING SMALL PIPE CULVERTS
STA. 14+90
REMOVE 36" CMP

PHYLLIS J. IVERSON

EXISTING C/L CTH C

EX. R/W

PT: 15+89.88

BM #3

PI: 17+00.00

BENCHMARKS		NAVD 88	
NO.	STA./OFFSET	DESCRIPTION	ELEV.
3	16+44, 25' LT.	SPIKE IN FENCE POST	749.50

SILT FENCE
EROSION MAT CLASS I TYPE B URBAN
HEAVY RIPRAP OVER GEOTEXTILE FABRIC TYPE HR
TEMPORARY DITCH CHECKS
DRAINAGE ARROWS

31+00

PT: 30+95.94

PROPOSED C/L CTH C

40' RADIUS

PC: 30+08.34

30+00

14+00

15+00

CTH C

16+00

SAWCUT REQ'D.

17+00

18+00

19+00

CP #2

EX. R/W

SLOPE INTERCEPTS

REMOVE BY OTHERS

R/W

STA 14+33.67 (CTH C)
=STA 30+00.00 (NORWEGIAN HOLLOW ROAD) TYPE C INTERSECTION

END PROJECT
STA. 16+00

SCENIC RIVER ENERGY COOPERATIVE

PHYLLIS J. IVERSON

5

5

BOP STA = 16+00.00
ELEV = 747.34

VPT STA = 14+55.00
VPT EL = 744.73

1.80%

EXISTING C/L PROFILE CTH C

PROPOSED C/L PROFILE CTH C

EXISTING C/L ELEVATION

PROPOSED C/L ELEVATION

742.12	743.60	744.79	745.55	746.12	746.51	746.83	747.13	747.37	747.73	747.92	747.90	747.77	747.47	747.12	746.68
743.89	**744.24**	**744.64**	**745.09**	**745.54**	**745.99**	**746.44**	**746.89**	**747.34**							

14+00 14+25 14+50 14+75 15+00 15+25 15+50 15+75 16+00 16+25 16+50 16+75 17+00 17+25 17+50 17+75 18+00 18+25 18+50 18+75 19+00 19+25 19+50 19+75 20+00

PROJECT NO: 5001-00-70	HWY: CTH C	COUNTY: CRAWFORD	PLAN & PROFILE - CTH C	SHEET 16	E

PHYLLIS J. IVERSON

MEDIACOM LLC

STA 30+00.00 (NORWEGIAN HOLLOW ROAD)
=STA 14+33.67 (CTH I)
TYPE C INTERSECTION

CURVE 2
PI STA = 30+55.17
Y = 249505.82
X = 414170.59
R = 100.00'
D = 57°17'45"
Δ = 50°11'30"
L = 87.60'
T = 46.83'
C = 84.83'
S.E. = N.C.

SLOPE INTERCEPTS

CTH C

14+00

30+00

PC: 30+08.34

PT: 30+95.94

40' RADIUS

GUY M. & TAMARA K. NELSON

NORWEGIAN HOLLOW RD.

31+00

32+00

SAWCUT REQ'D.

15+00

16+00

PROPOSED C/L
NORWEGIAN HOLLOW ROAD

SCENIC RIVER ENERGY COOPERATIVE

EXISTING C/L
NORWEGIAN HOLLOW RD.

60' RADIUS

PHYLLIS J. IVERSON

- SILT FENCE
- EROSION MAT CLASS I TYPE B URBAN
- HEAVY RIPRAP OVER GEOTEXTILE FABRIC TYPE HR
- TEMPORARY DITCH CHECKS
- DRAINAGE ARROWS

BOP STA = 30+00.00
ELEV = 744.37

BOP STA = 30+14.00
ELEV = 745.41

BOP STA = 31+25.00
ELEV = 749.41

PROPOSED C/L PROFILE
NORWEGIAN HOLLOW RD

EXISTING C/L PROFILE NORWEGIAN HOLLOW RD

5.00%

3.60%

EXISTING C/L ELEVATION

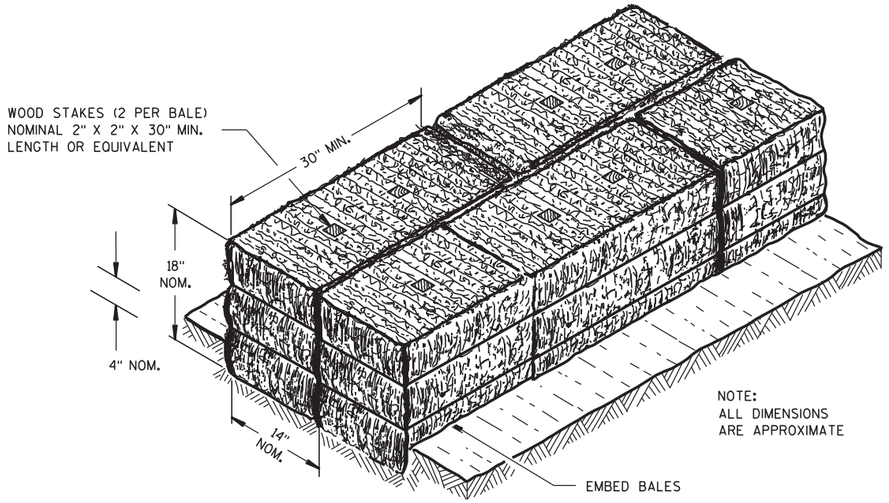
PROPOSED C/L ELEVATION

28+00	28+25	28+50	28+75	29+00	29+25	29+50	29+75	30+00	30+25	30+50	30+75	31+00	31+25	31+50	31+75	32+00	32+25	32+50	32+75	33+00	33+25	33+50	33+75	34+00
								743.99	746.02	746.54	747.57	748.38	749.21	750.07	751.27	752.50								
								744.37	**745.61**	**746.51**	**747.41**	**748.31**	**749.21**											

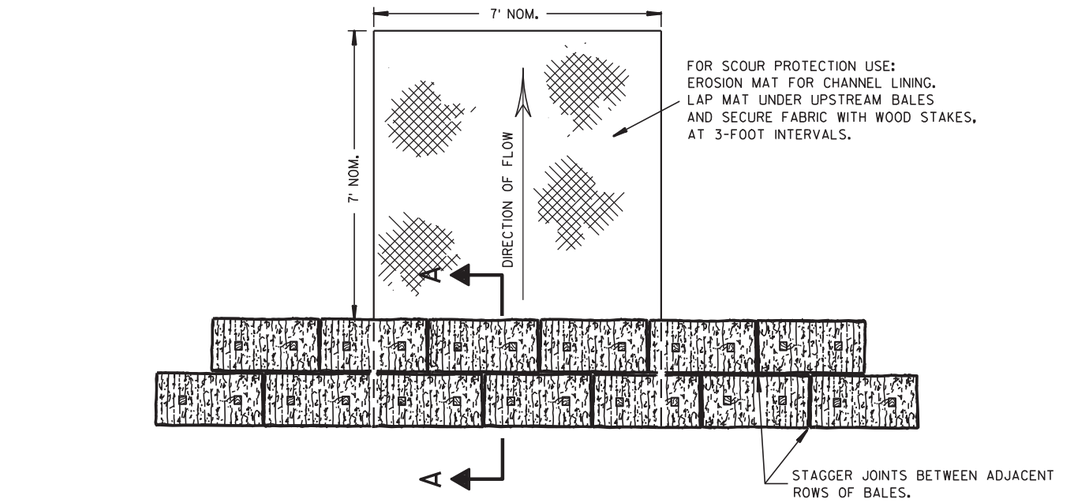
PROJECT NO: 5001-00-70 | HWY: CTH C | COUNTY: CRAWFORD | PLAN & PROFILE – NORWEGIAN HOLLOW ROAD | SHEET E

Standard Detail Drawing List

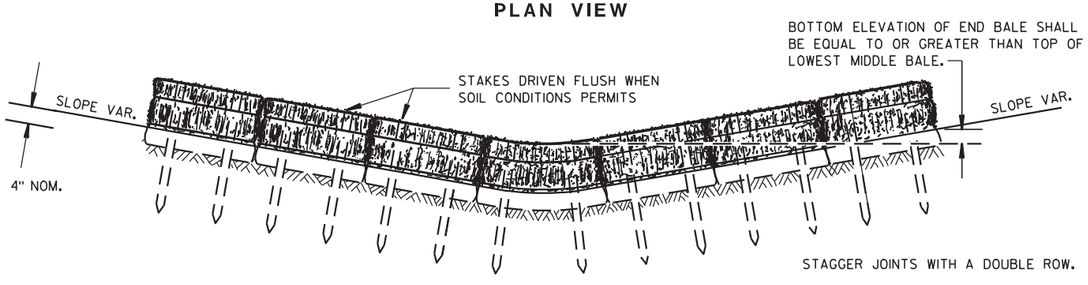
08E08-03	TYPICAL INSTALLATIONS OF EROSION BALES / TEMPORARY DITCH CHECKS
08E09-06	SILT FENCE
08F01-11	APRON ENDWALLS FOR CULVERT PIPE
09A01-13A	AT-GRADE SIDE ROAD INTERSECTION, TYPES "B1", "B2", "C" AND D AND TEE INTERSECTION BYPASS LANE
12A03-10	NAME PLATE (STRUCTURES)
14B44-02A	MIDWEST GUARDRAIL SYSTEM 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)
15A01-13A	MARKER POST FOR RIGHT-OF-WAY
15A01-13B	FLEXIBLE MARKER POST FOR RIGHT-OF-WAY
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
15C08-16A	PAVEMENT MARKING (MAINLINE)



SECTION A-A



PLAN VIEW



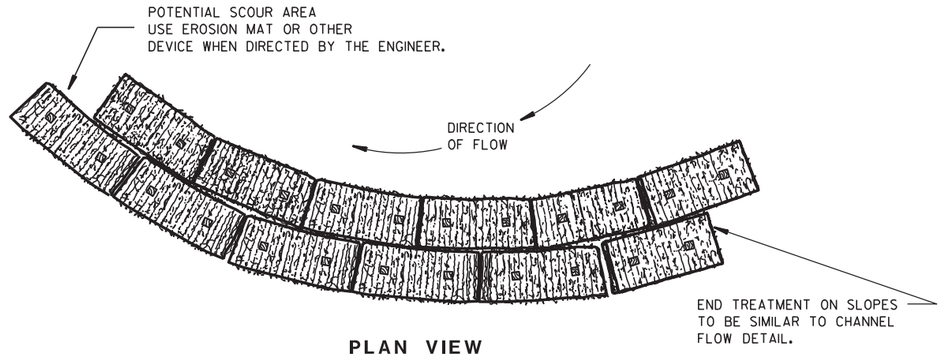
FRONT ELEVATION

TEMPORARY DITCH CHECK USING EROSION BALES (1)

GENERAL NOTES

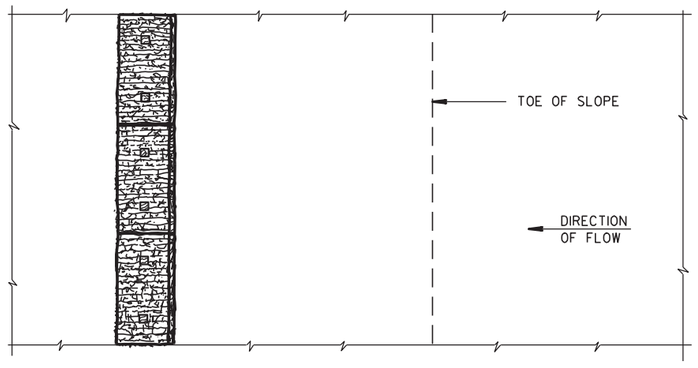
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

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

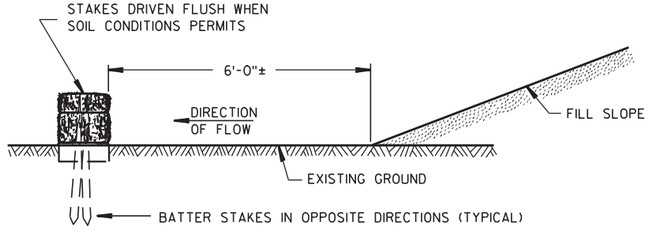


PLAN VIEW

WHEN ALTERING THE DIRECTION OF FLOW



PLAN VIEW



FRONT ELEVATION

WHEN EXISTING GROUND SLOPES AWAY FROM FILL SLOPE

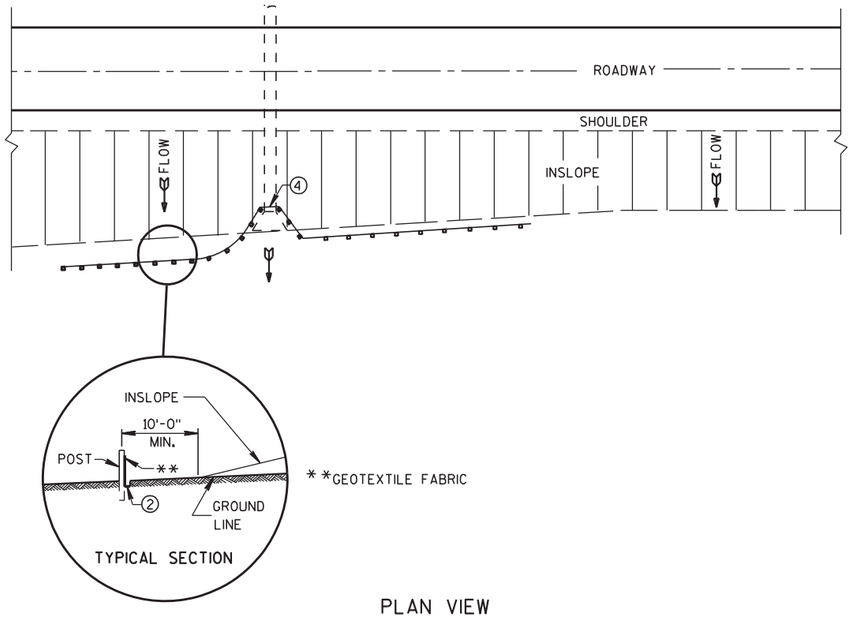
EROSION BALES FOR SHEET FLOW

TYPICAL INSTALLATIONS OF EROSION BALES / TEMPORARY DITCH CHECKS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

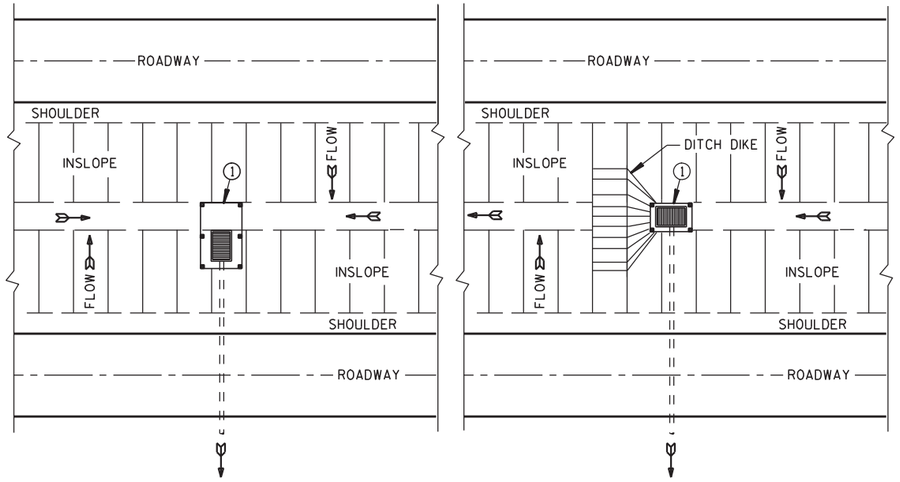
APPROVED
6/04/02 — DATE
/S/ Beth Cannestra — CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA

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



PLAN VIEW

TYPICAL APPLICATION OF SILT FENCE



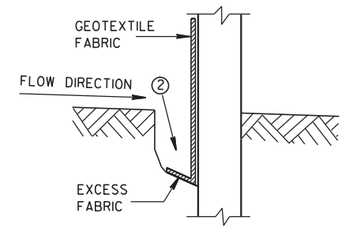
PLAN VIEW

SILT FENCE AT MEDIAN SURFACE DRAINS

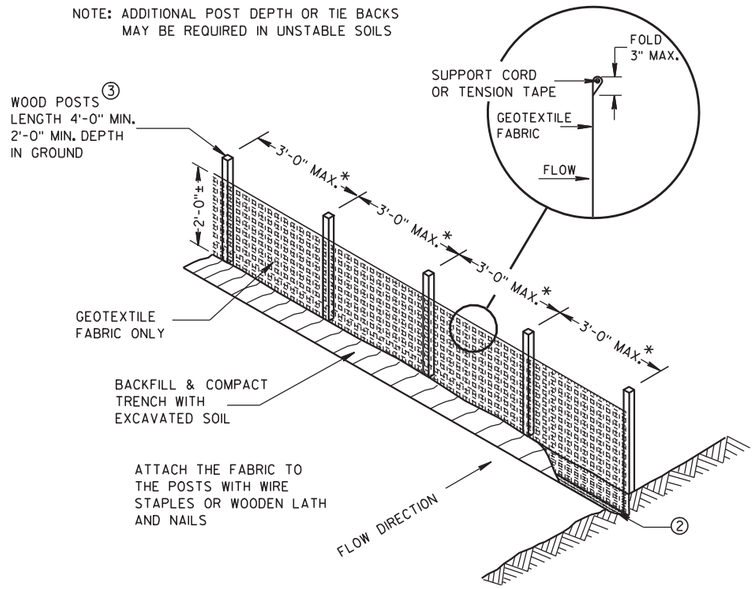
GENERAL NOTES

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

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

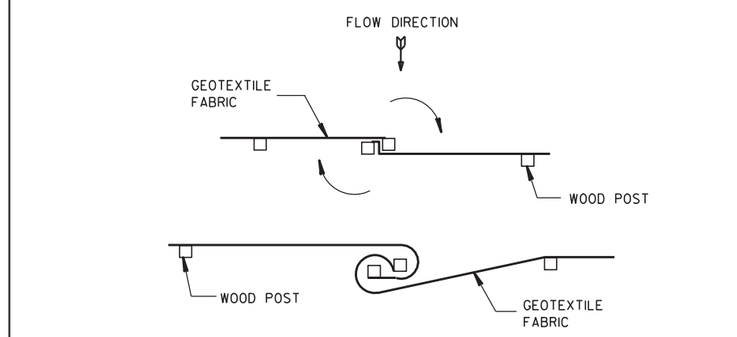


TRENCH DETAIL

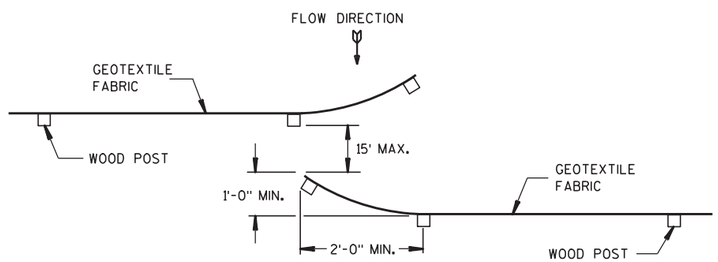


*NOTE: 8'-0" POST SPACING ALLOWED IF A WOVEN GEOTEXTILE FABRIC IS USED.

SILT FENCE

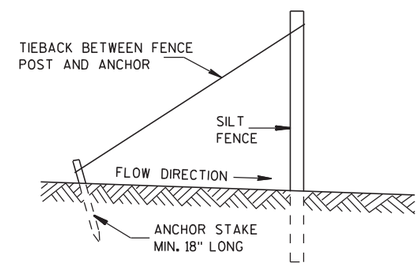


TWIST METHOD



HOOK METHOD

JOINING TWO LENGTHS OF SILT FENCE 5



SILT FENCE TIE BACK

(WHEN REQUIRED BY THE ENGINEER)

SILT FENCE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

6

S.D.D. 8 E 9-6

6

S.D.D. 8 E 9-6

METAL APRON ENDWALLS

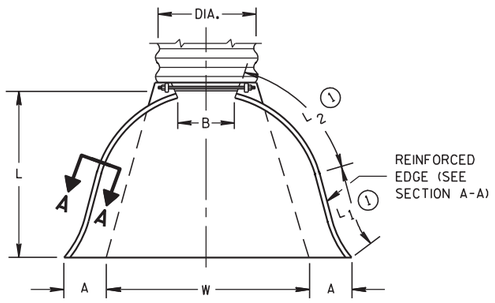
PIPE DIA. (IN.)	MIN. THICK. (Inches) STEEL	MIN. THICK. (Inches) ALUM.	DIMENSIONS (Inches) A (±1")	B (MAX.)	H (±1")	L (±1 1/2")	L1 ①	L2 ①	W (±2")	APPROX. SLOPE	BODY
12	.064	.060	6	6	6	21	12	17 1/2	24	2 1/2 to 1	1 Pc.
15	.064	.060	7	8	6	26	14	21 3/4	30	2 1/2 to 1	1 Pc.
18	.064	.060	8	10	6	31	15	28 1/4	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

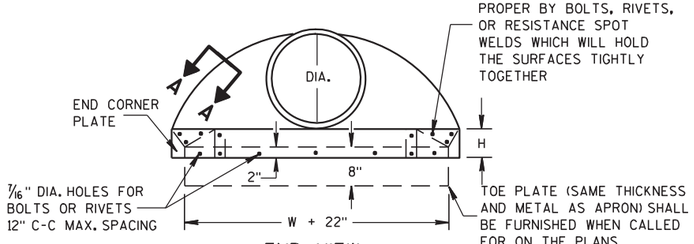
REINFORCED CONCRETE APRON ENDWALLS

PIPE DIA. (IN.)	DIMENSIONS (Inches) T	A	B	C	D	E	G	APPROX. SLOPE
12	2	4	24	48 7/8	72 7/8	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

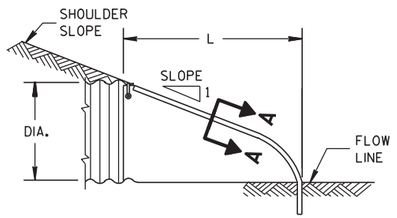
*MINIMUM
**MAXIMUM



PLAN VIEW

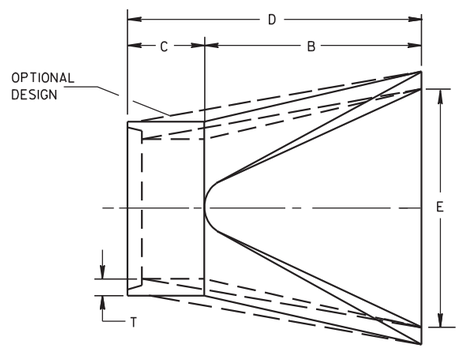


END VIEW

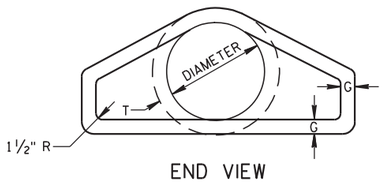


SIDE ELEVATION

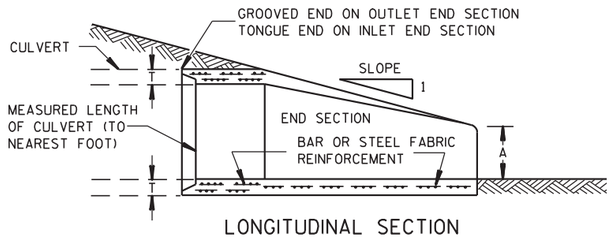
METAL ENDWALLS



PLAN

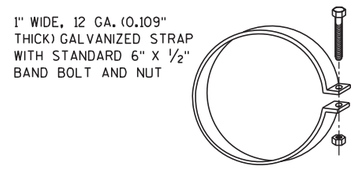


END VIEW



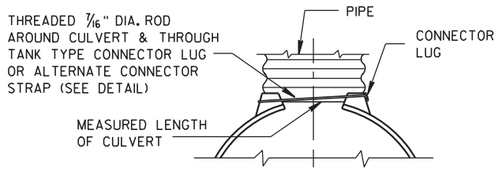
LONGITUDINAL SECTION

CONCRETE ENDWALLS

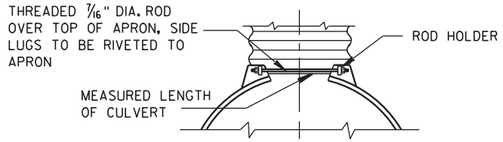


ALTERNATE FOR TYPE 1 CONNECTION

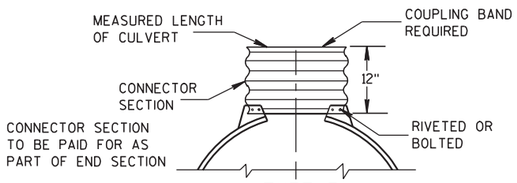
END SECTION CONNECTOR STRAP



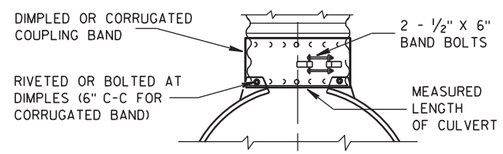
TYPE 1
FOR 12" THRU 24" CORR. PIPE



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

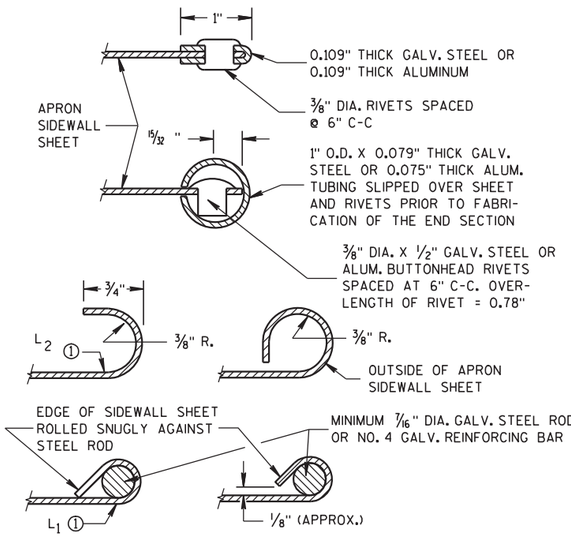
NOTE: DIMPLED BAND FITS OVER OUTSIDE OF ENDWALL. AND CORRUGATED BAND FITS INSIDE ENDWALL. DIMPLED BAND MAY BE USED WITH HELICALLY CORRUGATED PIPE.

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.

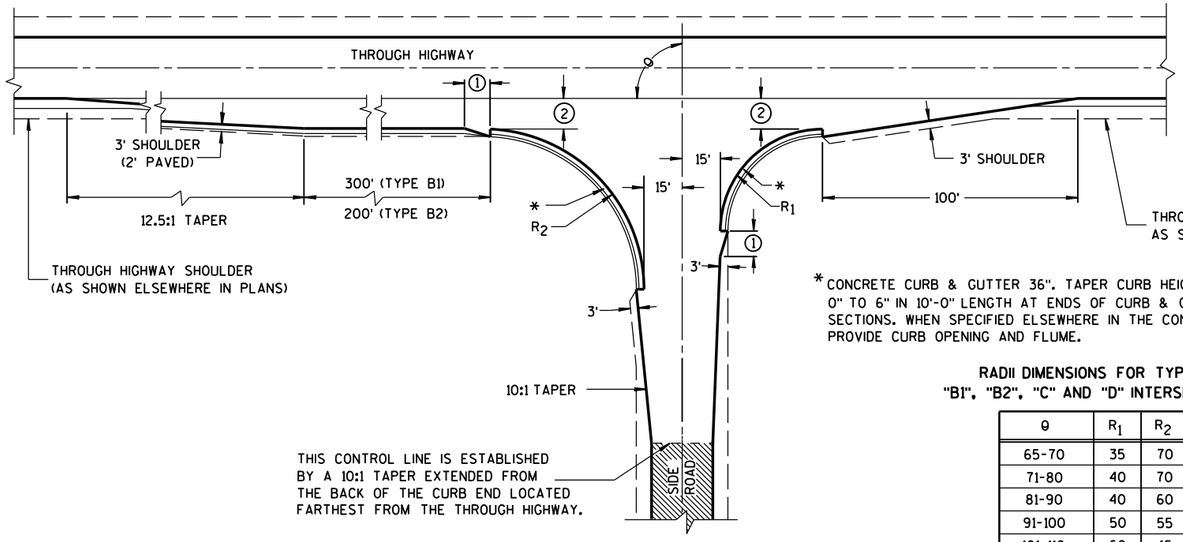
① FOR PIPE SIZES UP TO 60" DIAMETER, A 180° ROLLED EDGE MAY BE USED INSTEAD OF STEEL ROD REINFORCEMENT. SEE SECTION A-A.

APRON ENDWALLS FOR CULVERT PIPE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
11/30/94 — DATE
/S/ Rory L. Rhinesmith — CHIEF ROADWAY DEVELOP NEER
FHWA

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

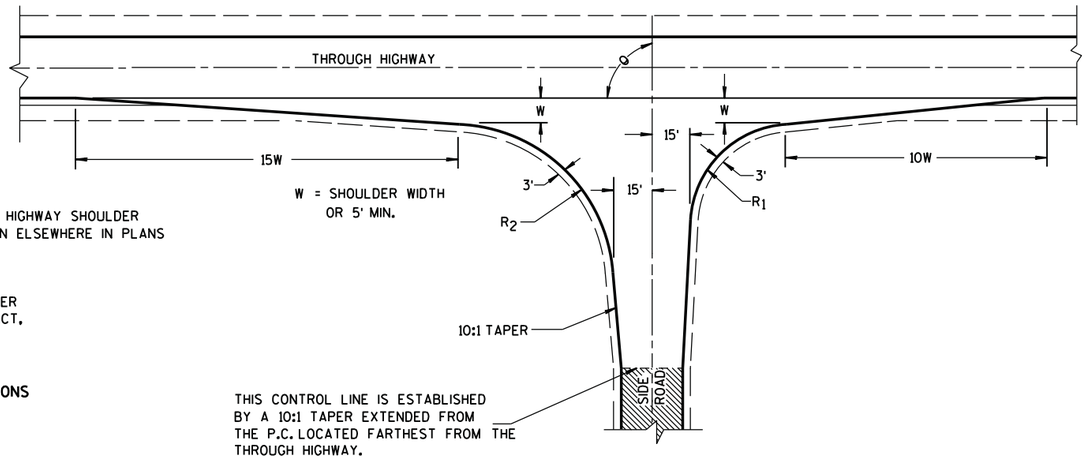


TYPE "B1" AND "B2"

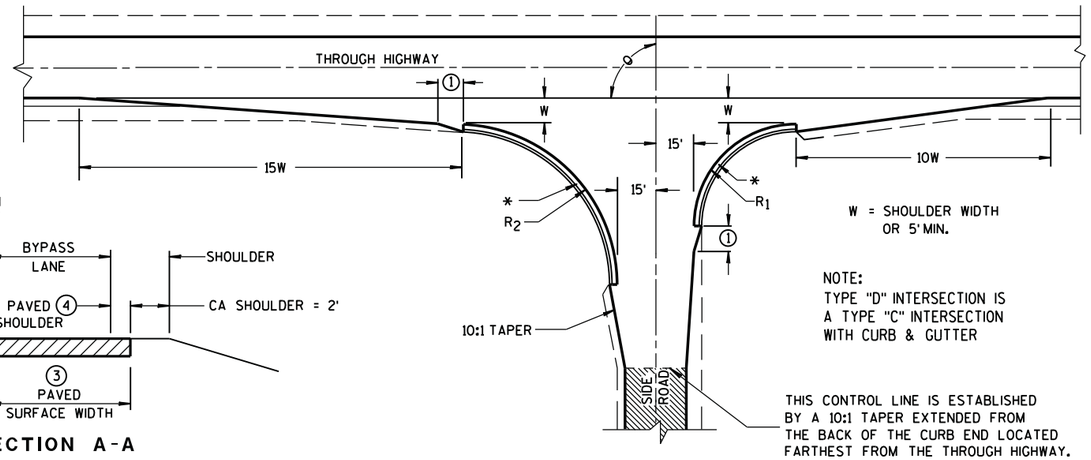
*CONCRETE CURB & GUTTER 36". TAPER CURB HEIGHT 0" TO 6" IN 10'-0" LENGTH AT ENDS OF CURB & GUTTER SECTIONS. WHEN SPECIFIED ELSEWHERE IN THE CONTRACT, PROVIDE CURB OPENING AND FLUME.

RADII DIMENSIONS FOR TYPES "B1", "B2", "C" AND "D" INTERSECTIONS

θ	R_1	R_2
65-70	35	70
71-80	40	70
81-90	40	60
91-100	50	55
101-110	60	45



TYPE "C"



TYPE "D"

GENERAL NOTES

DESIGNS MAY BE USED INTERCHANGEABLY IN COMBINATION OR SEPARATELY FOR ANY ONE COMPLETE INTERSECTION DEPENDING UPON INTERSECTION ANGLE AND SURFACING OF EACH APPROACH ROADWAY.

SIDE ROAD SURFACING NOTE

WHEN THE SIDE ROAD IS NOT PRESENTLY PAVED, PAVEMENT SHALL BE PLACED TO THE LIMITS SHOWN UNLESS OTHERWISE PROVIDED IN THE CONTRACT. WHERE THE CONSTRUCTION LIMITS ARE BEYOND THE PAVING LIMITS, CRUSHED AGGREGATE SURFACING SHALL BE PLACED BETWEEN THE PAVING LIMITS AND CONSTRUCTION LIMITS.

WHEN THE SIDE ROAD IS PRESENTLY PAVED, NEW PAVEMENT SHALL BE PLACED TO THE LIMITS OF DESIGN AS SHOWN AND BEYOND, IF NECESSARY, TO MEET EXISTING PAVEMENT.

WHEN THE SIDE ROAD IS THE CONSTRUCTION PROJECT, THE INTERSECTION SURFACING SHALL BE THE SAME AS FOR THE PROJECT.

EXISTING PAVED SURFACE

BYPASS LANE

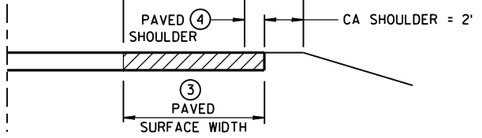
(1) 10-FT TYPICAL.

(2) 12-FT** PLUS ADDITIONAL WIDTH FOR BIKE LANE IF SHOWN ELSEWHERE IN THE PLAN.

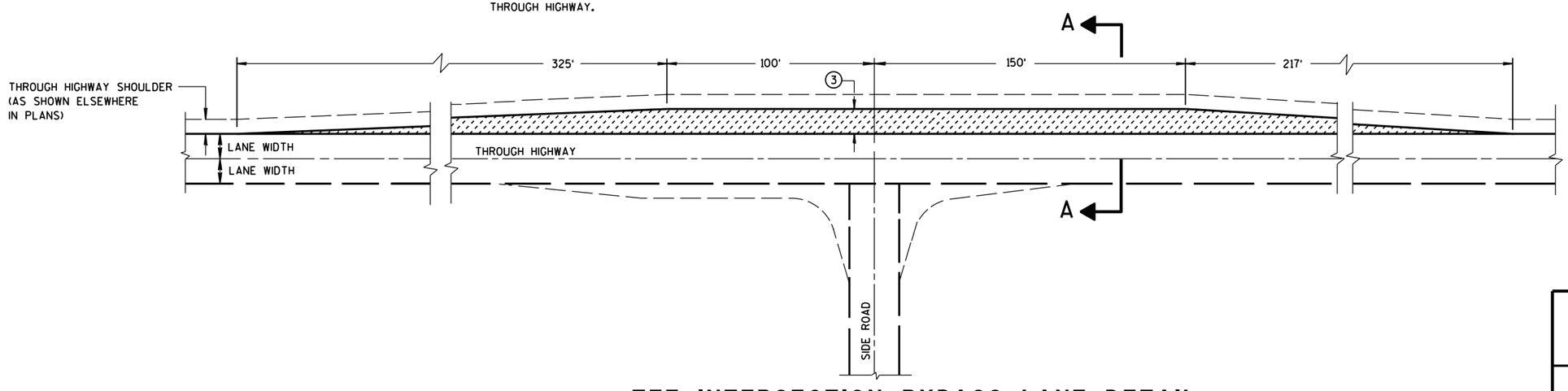
**10-FT MAY BE USED ON TYPE B2 ON RESURFACING PROJECTS IF SPECIFIED IN THE CONTRACT.

(3) BYPASS LANE PAVED SURFACE WIDTH OUTSIDE OF TRAVEL LANE
-ASPHALT = 12-FT PLUS PAVED SHOULDER WIDTH.
-PC CPNCRETE = 13-FT PLUS PAVED SHOULDER WIDTH.

(4) BYPASS LANE PAVED SHOULDER WIDTH = THE GREATER OF 1-FT OR THE PAVED SHOULDER WIDTH OF THE THROUGH HIGHWAY.



SECTION A-A
(SHOWING BYPASS LANE AND SHOULDER)

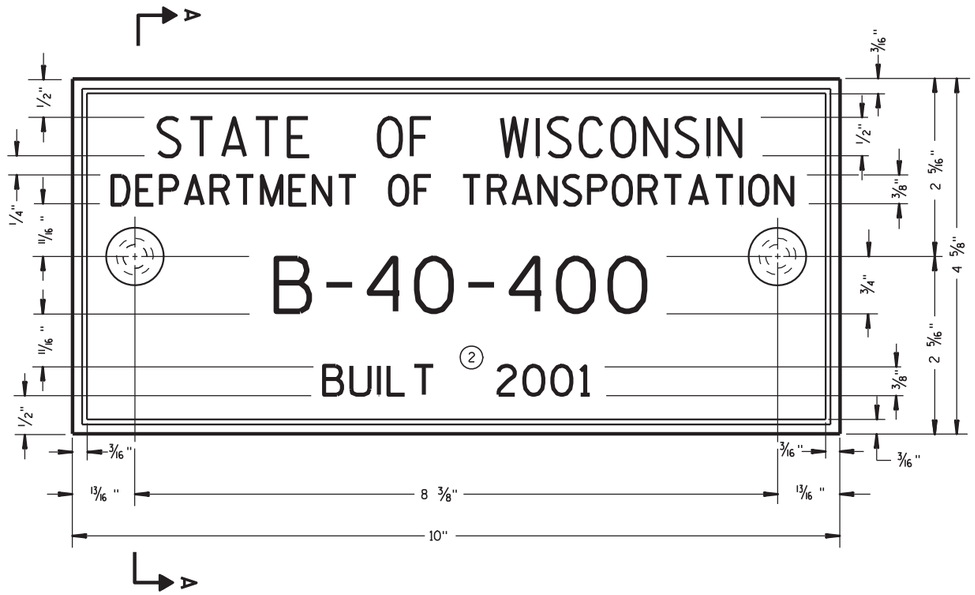


TEE INTERSECTION BYPASS LANE DETAIL

AT-GRADE SIDE ROAD INTERSECTION, TYPES "B1", "B2", "C" AND "D" AND TEE INTERSECTION BYPASS LANE

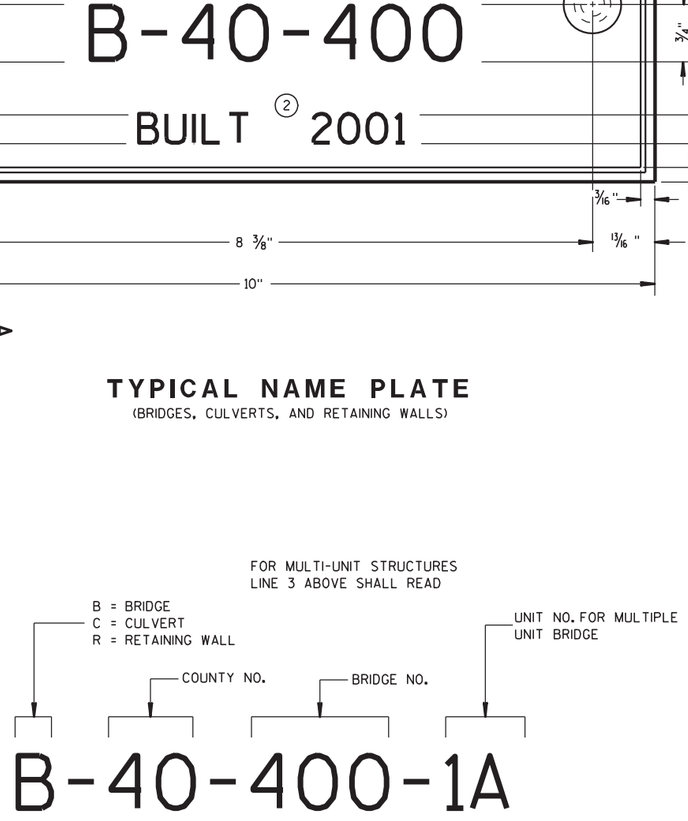
STATE OF WISCONSIN
DEPARTMENT OF TRANSPO

6
S.D.D. 9 A 1-13a



TYPICAL NAME PLATE

(BRIDGES, CULVERTS, AND RETAINING WALLS)



NUMBERING DESIGNATION
MULTI-UNIT STRUCTURES

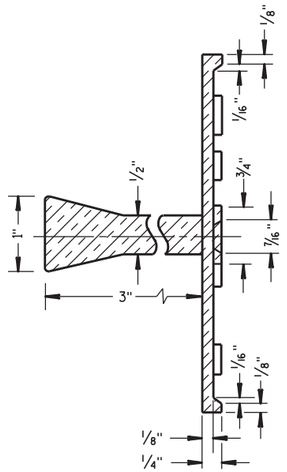
GENERAL NOTES

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

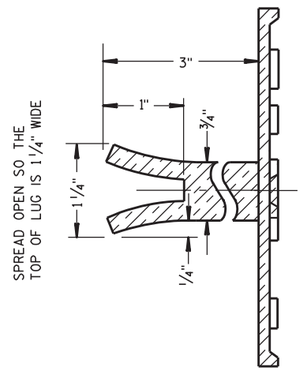
THE BRIDGE NUMBER AND YEAR BUILT SHOWN ON THIS DRAWING ARE EXAMPLES ONLY. SEE CONSTRUCTION PLANS FOR INDIVIDUAL NUMBERING AND YEAR BUILT.

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

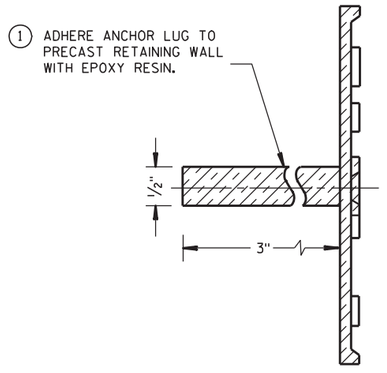
(2) REHABILITATION OF AN EXISTING STRUCTURE SHOULD USE THE DATE OF ORIGINAL STRUCTURE CONSTRUCTION.



SECTION A-A



ALTERNATE LUG



ALTERNATE LUG

(FOR ATTACHMENT TO PRECAST STRUCTURES)

NAME PLATE (STRUCTURES)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

3/26/10 DATE — /S/ Scot Beck — CHIEF STRUCTURAL DEVELOP ENGINEER

FHWA

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S.D.D. 12 A 3-10

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.

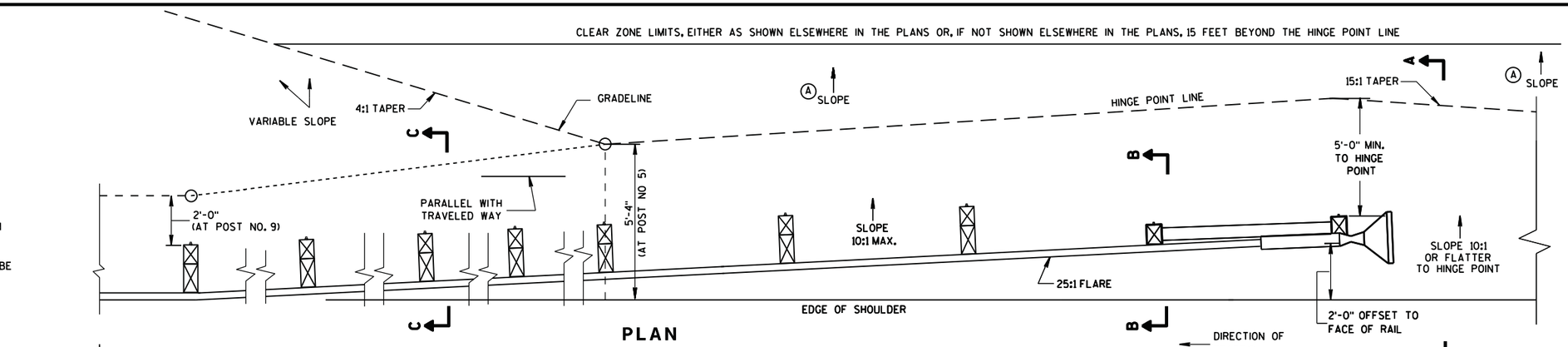
SEE SDD 14B42 FOR MORE INFORMATION.

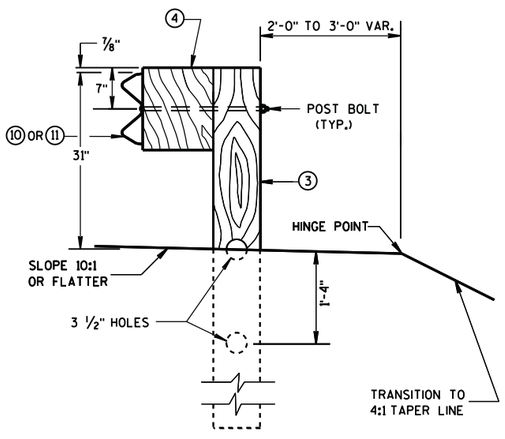
* DO NOT ATTACH BLOCKOUTS TO POSTS 1 AND 2.

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

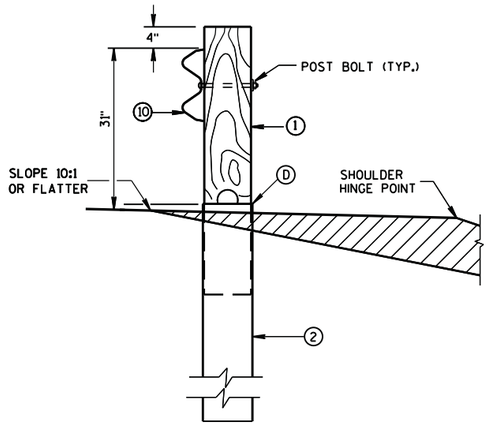
W-BEAM RAIL SPLICES ARE LOCATED AT POST NUMBER 3, AND BETWEEN POST 5 AND 6, BETWEEN POSTS 7 AND 8, AND MIDDLE OF THE SPAN AFTER POST 9.

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.

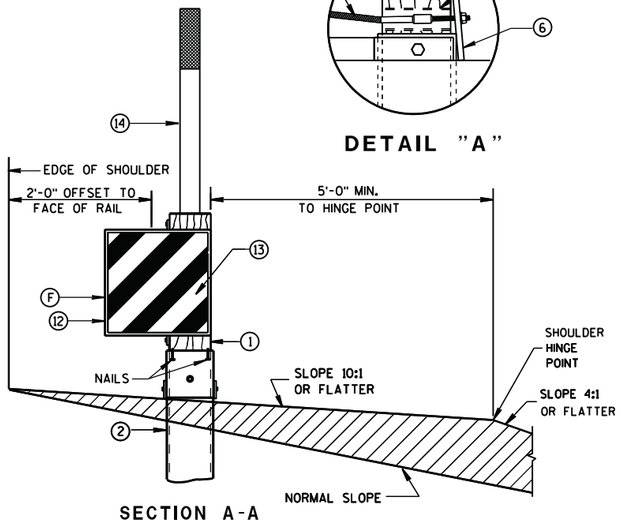




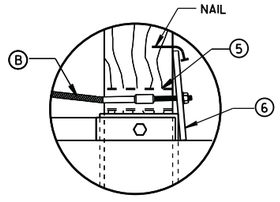
SECTION C-C
TYPICAL AT POST NOS. 3-9



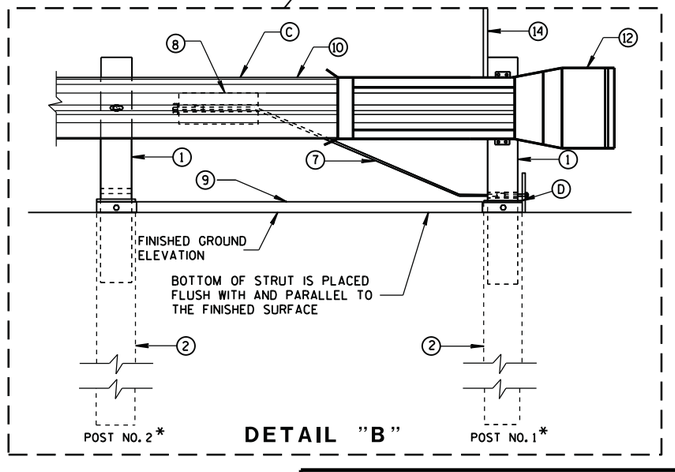
SECTION B-B
TYPICAL AT POST NO. 2*



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

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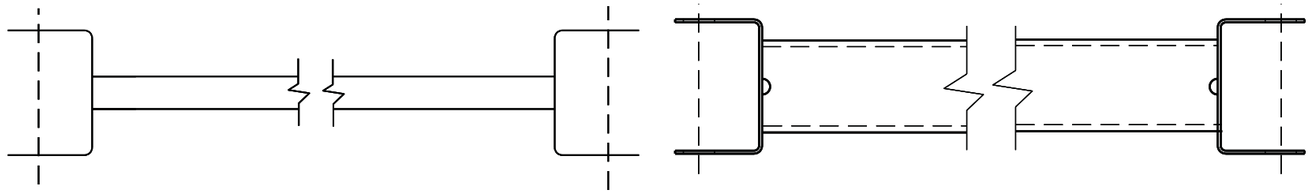
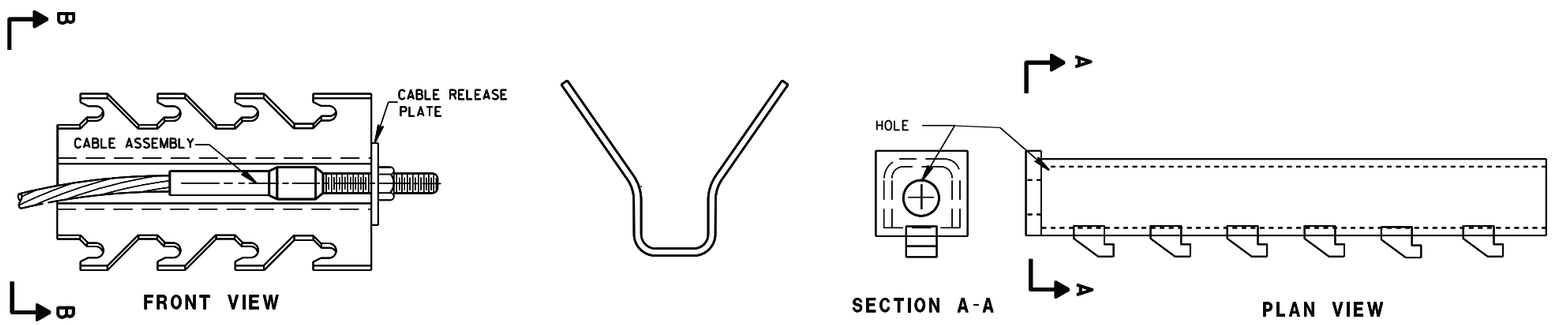


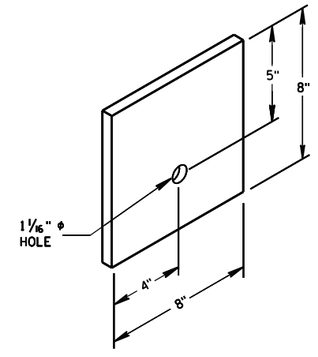
GENERIC GROUND STRUT (9) (H)

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 TRANSPOR

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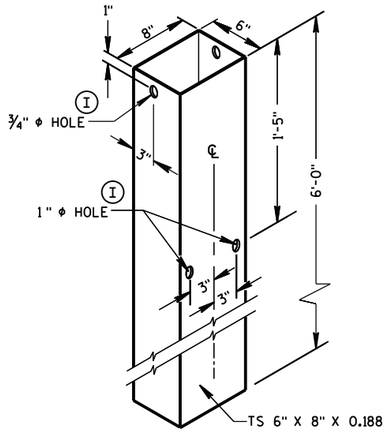
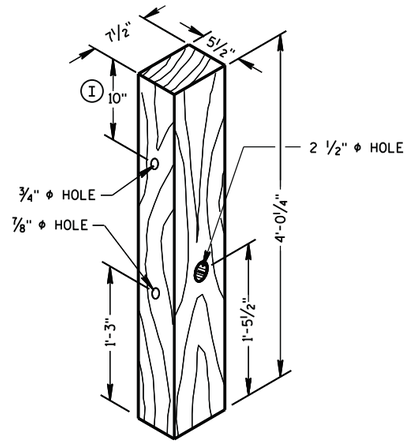
S.D.D. 14 B 44-2b

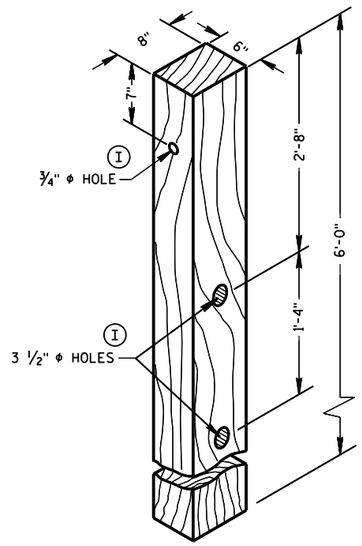


FOUNDATION TUBE (2)



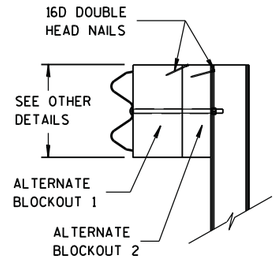
POSTS NUMBER 1 AND 2

WOOD BREAKAWAY POST (1)

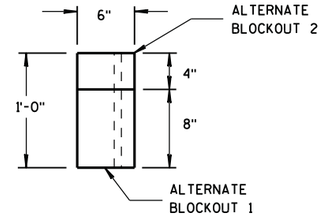


POSTS NUMBER 3-9

WOOD CRT POST (3)

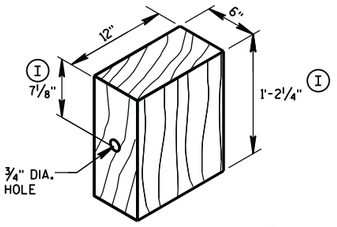


SIDE VIEW



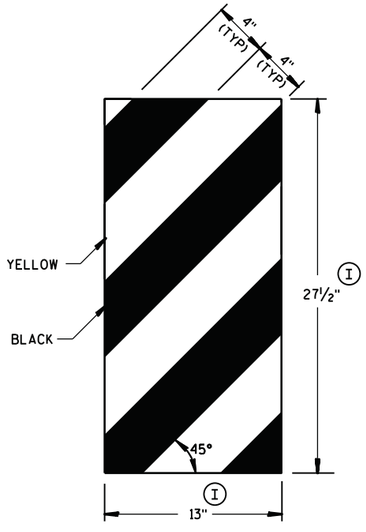
TOP VIEW

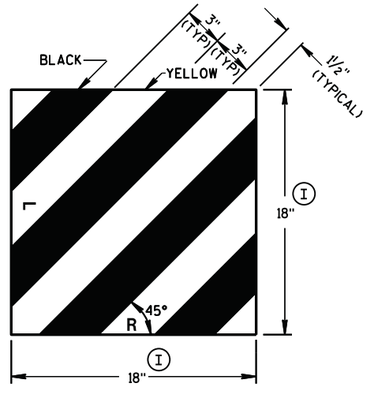
ALTERNATE WOOD BLOCKOUT DETAIL



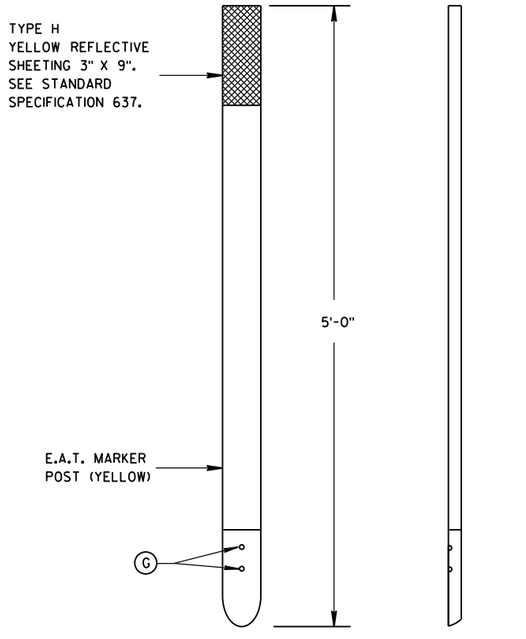
WOOD BLOCKOUT (4)

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





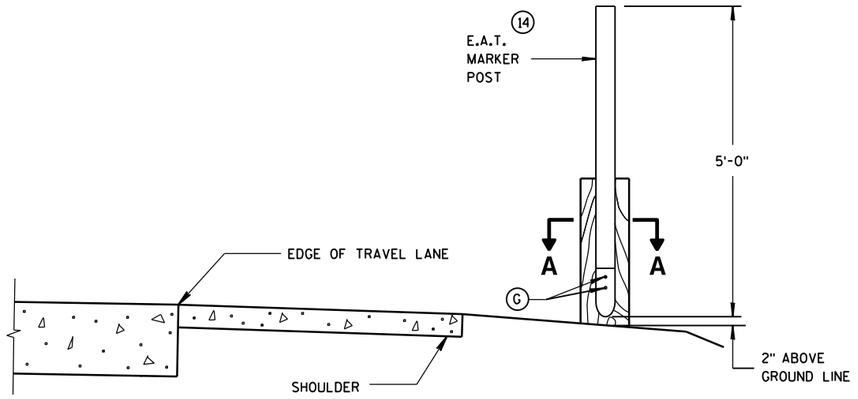
GENERIC REFLECTIVE SHEETING (13) (H)



FRONT VIEW

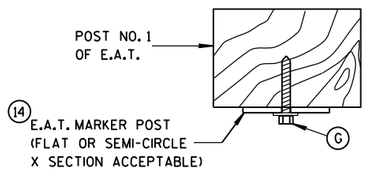
SIDE VIEW

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)

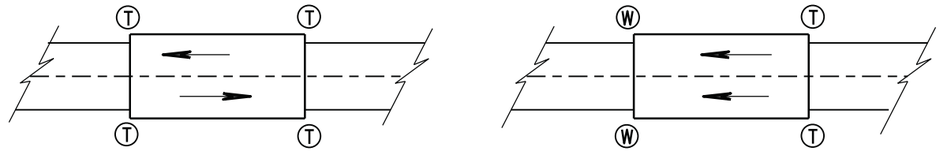


SECTION A-A

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



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

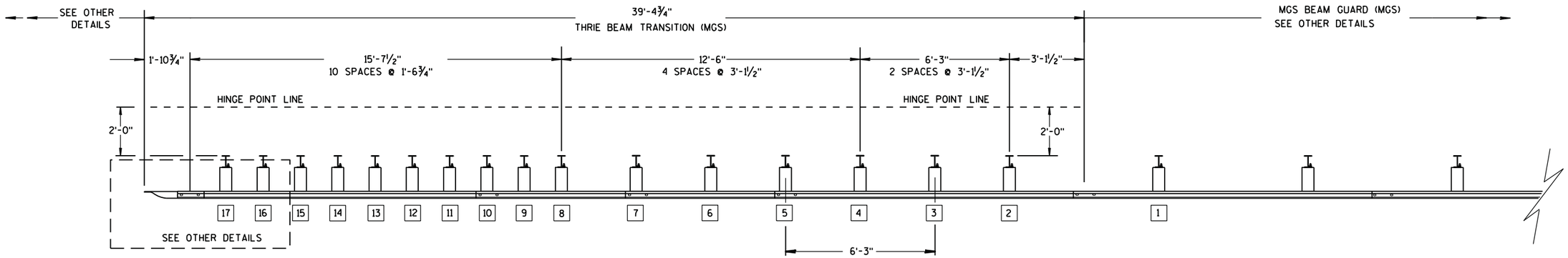
IF ROCK IS ENCOUNTERED, REMOVE ROCK TO FULL DEPTH OF POST PLUS 2½", AND 12" DIAMETER AROUND POST. SEE 14B42 FOR MORE DETAILS.

TRANSITION USES STEEL POSTS ONLY.

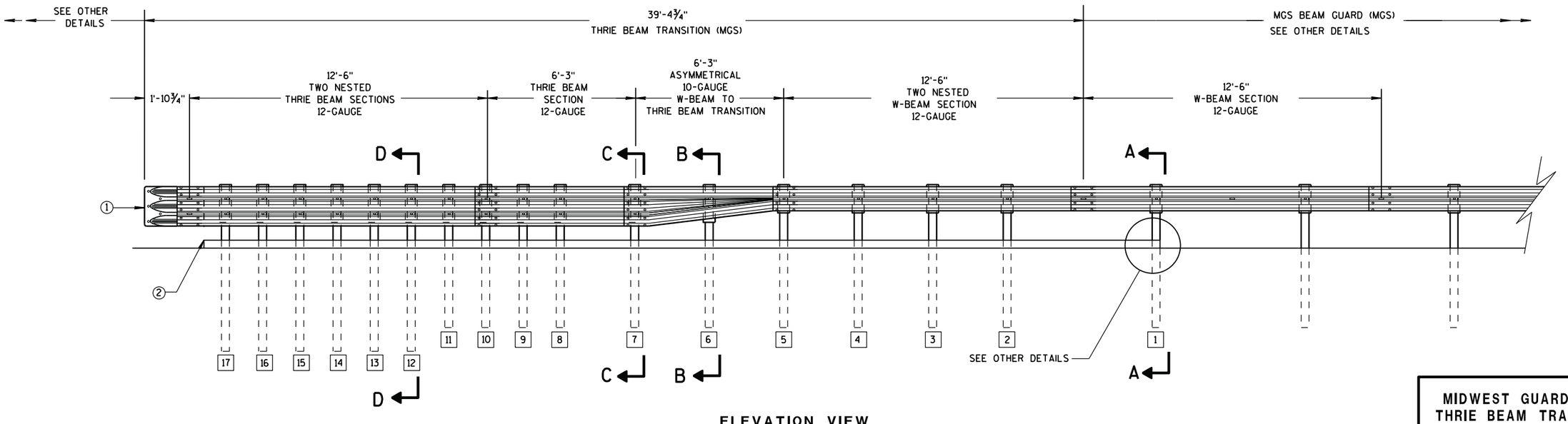
SEE STANDARD DETAIL DRAWING 14 B 42 FOR MORE INFORMATION.

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

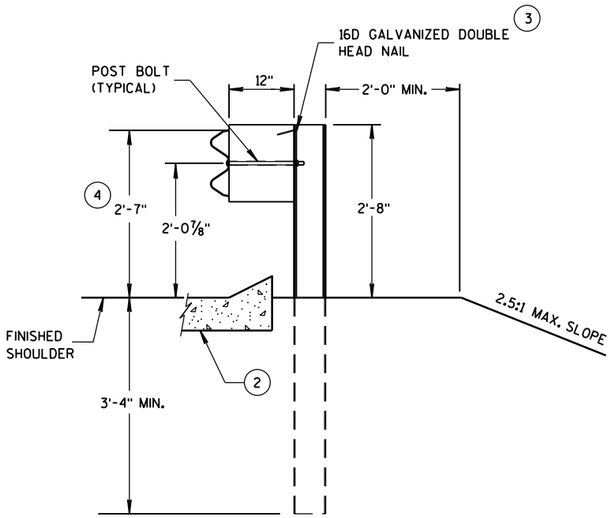
S.D.D. 14 B 45-4a

GENERAL NOTES

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

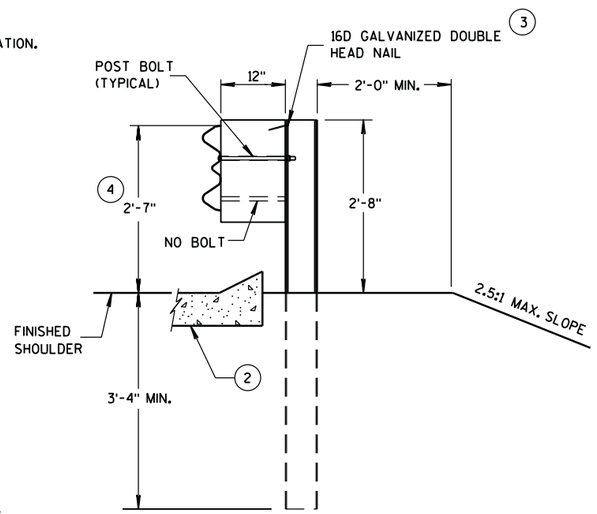
(3) WHEN USING STEEL POSTS AND WOOD BLOCKOUTS INSTALL FOUR 10D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.

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



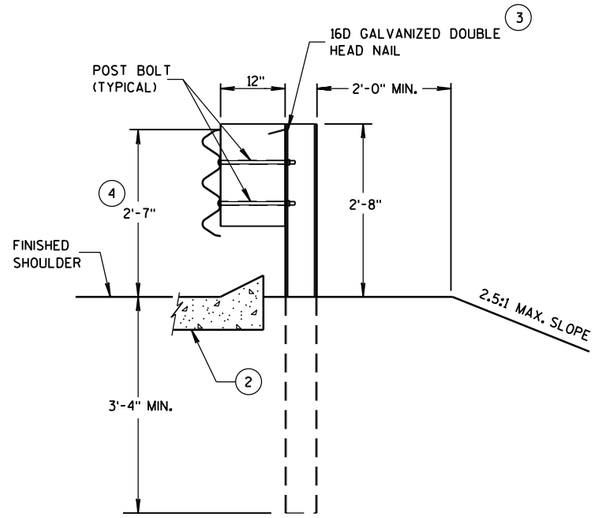
SECTION A-A

POSTS 1-5



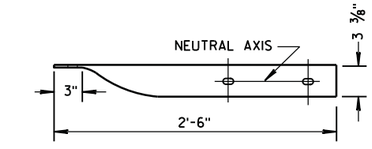
SECTION B-B

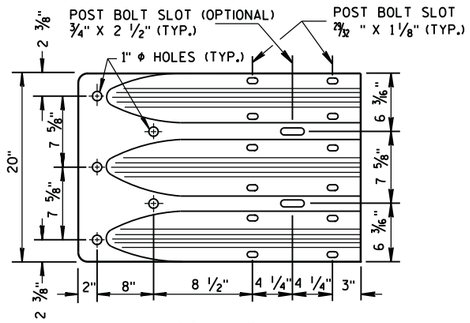
POST 6



SECTION C-C

POSTS 7-11





THRIE BEAM TERMINAL CONNECTOR

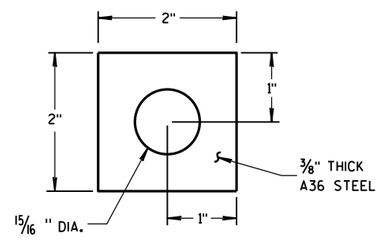
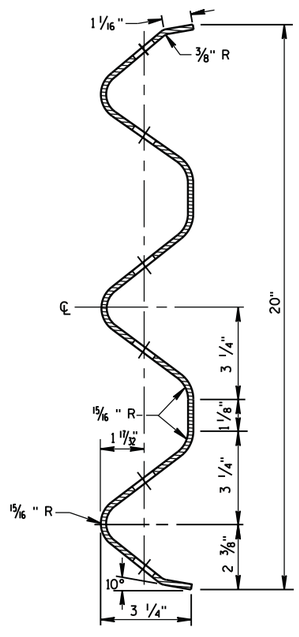
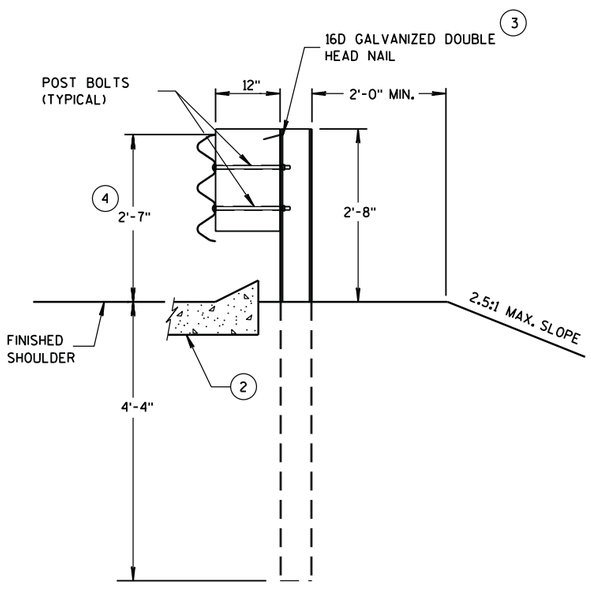


PLATE WASHER DETAIL

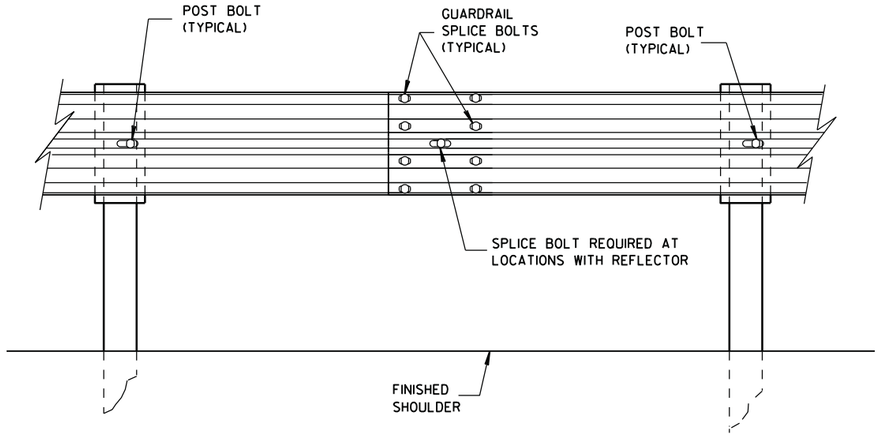


SECTION THRU THRIE BEAM RAIL ELEMENT



SECTION D-D

POSTS 12-17



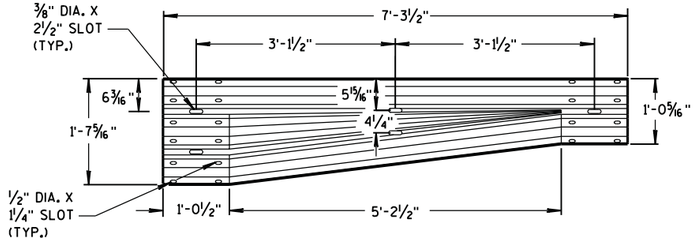
SPLICE DETAIL

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

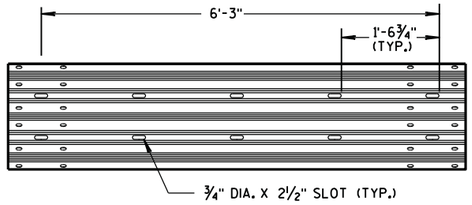
STATE OF WISCONSIN
DEPARTMENT OF TRANSPO

6

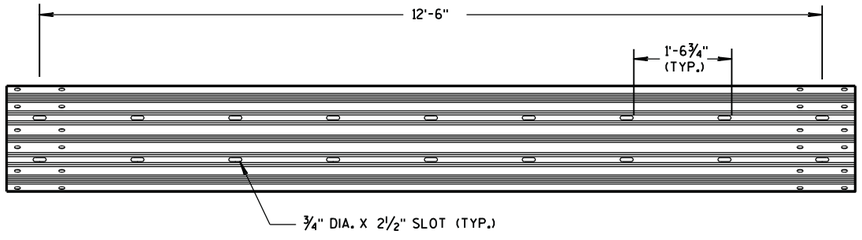
S.D.D. 14 B 45-4b



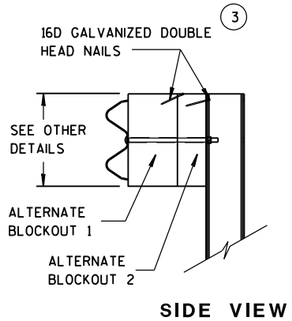
W-BEAM TO THRIE BEAM TRANSITION SECTION



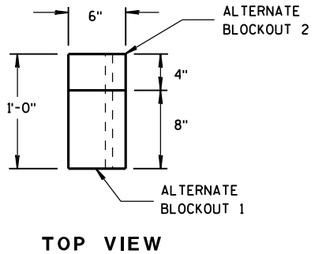
6'-3" THRIE BEAM SECTION



12'-6" THRIE BEAM SECTION

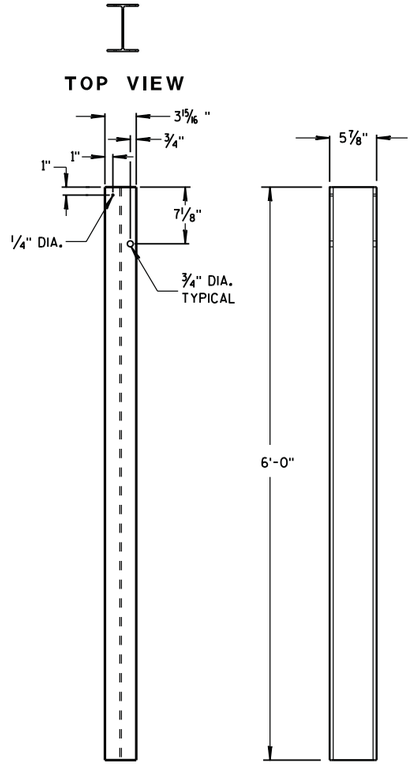


SIDE VIEW

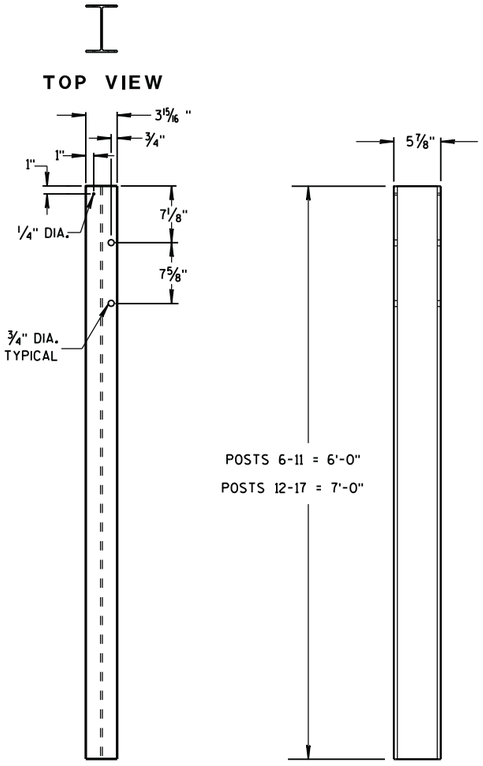


TOP VIEW

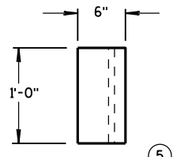
ALTERNATE WOOD BLOCKOUT DETAIL



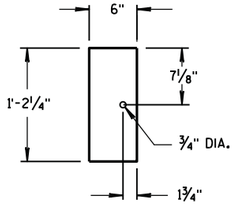
STEEL POSTS 1-5



STEEL POSTS 6-17

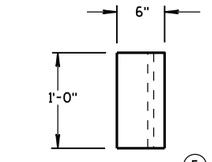


TOP VIEW

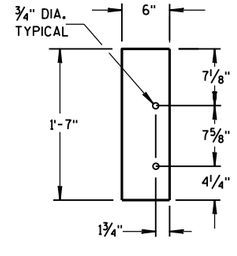


FRONT VIEW

BLOCKOUT POSTS 1-5



TOP VIEW



FRONT VIEW

BLOCKOUT POSTS 6-17

GENERAL NOTES

STEEL POSTS ARE W6X9 OR W6X8.5.

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

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

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

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

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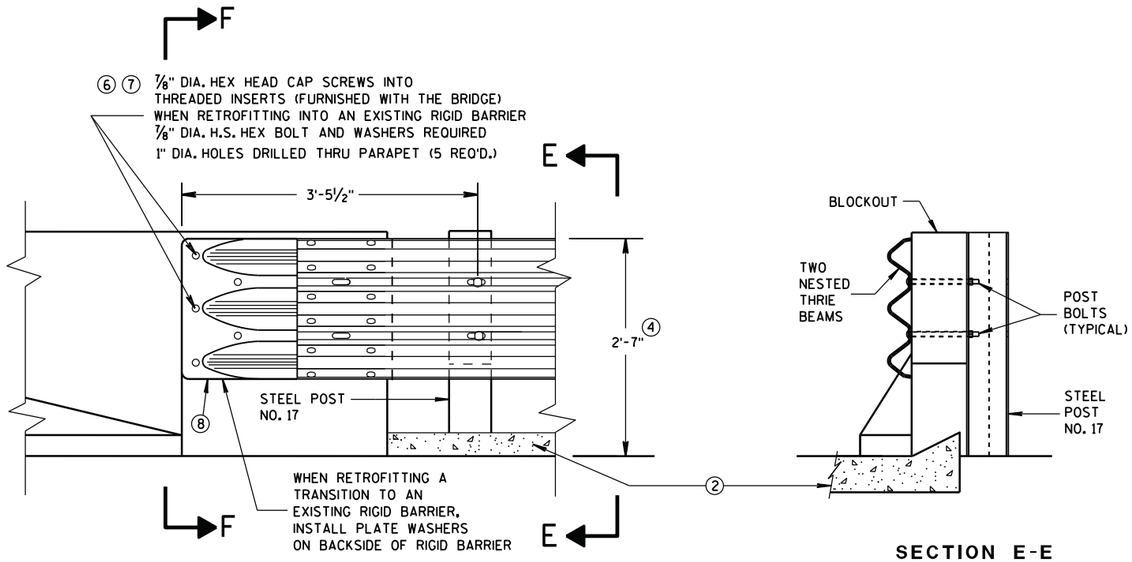


FRONT VIEW

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.

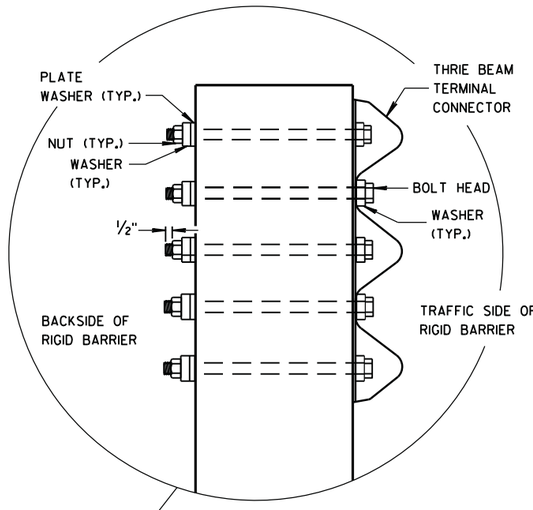
② OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.

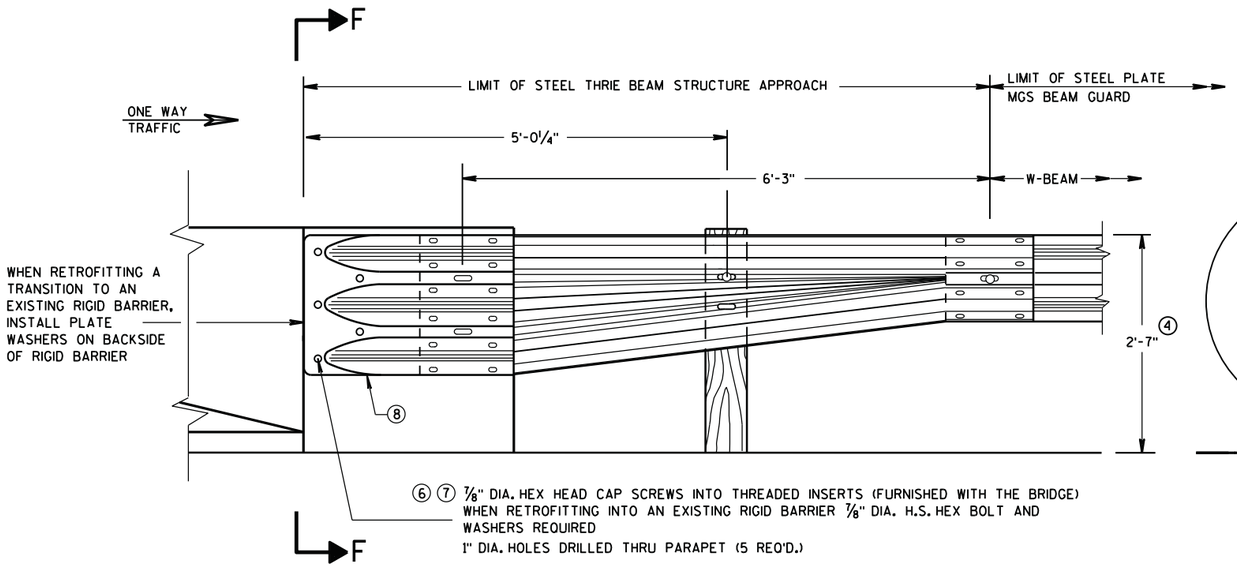
④ TOLERANCE FOR TOP OF BEAM IS ± 1".

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

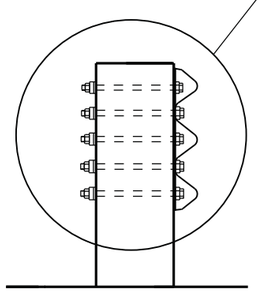
⑦ BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTOR PLATE.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

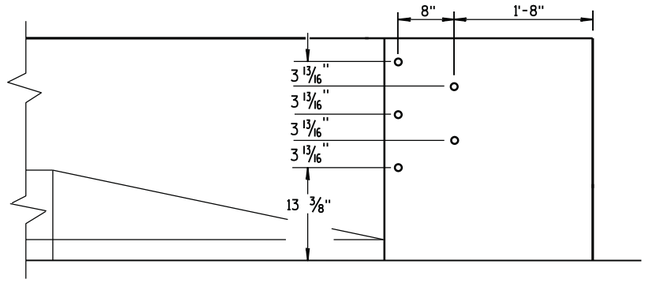




FRONT VIEW



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.

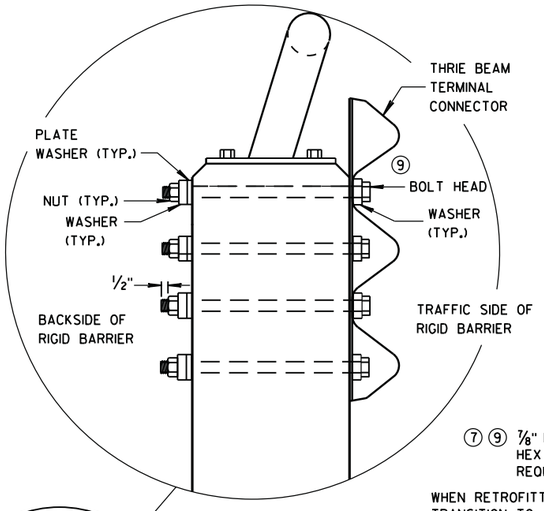
(4) TOLERANCE FOR TOP OF BEAM IS ± 1".

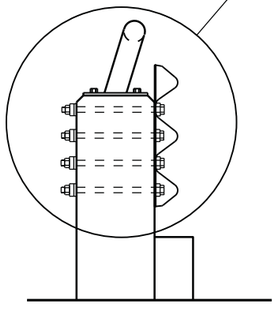
(6) DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.

(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.

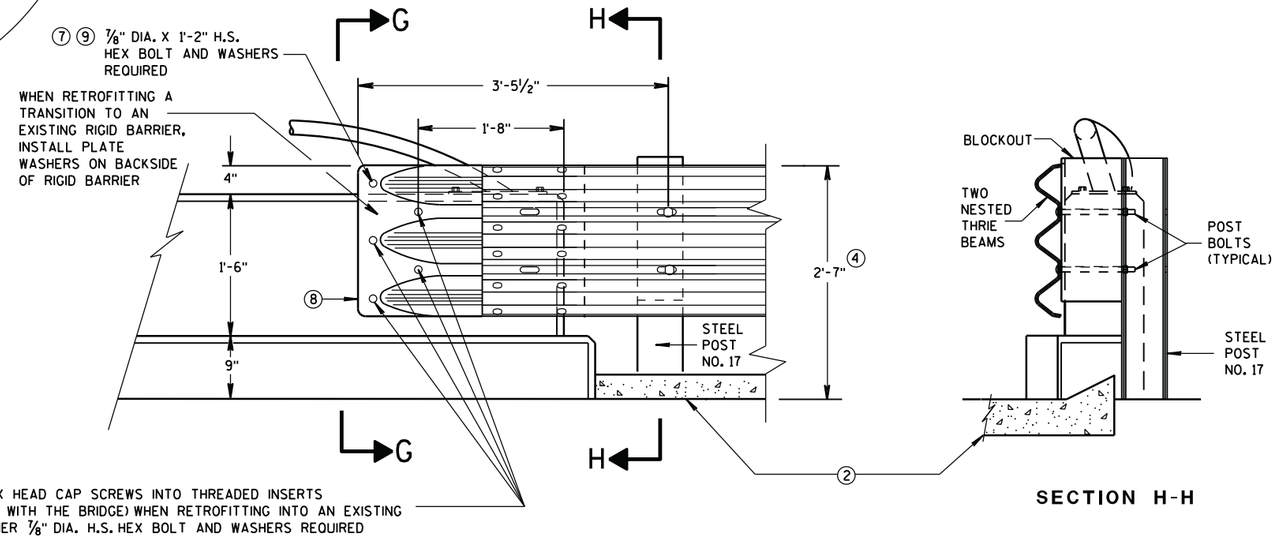
(8) THE RECESS FOR A W-BEAM CONNECTION, WHICH EXISTS ON SOME PARAPETS OF THIS TYPE, SHALL BE FILLED WITH A TREATED TIMBER BLOCKOUT. BLOCKOUT SIZE IS 1'-6" X 2'-0" X 3 1/2".

(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.





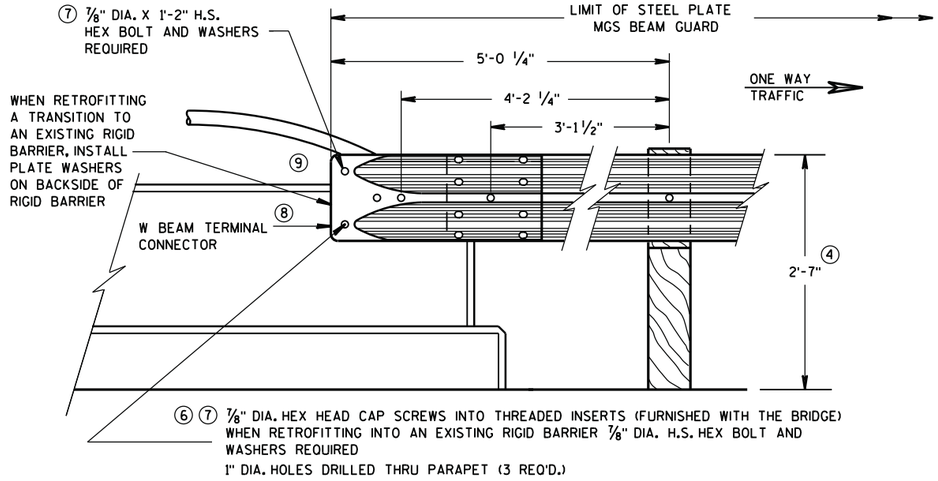
SECTION G-G



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)

STATE OF WISCONSIN
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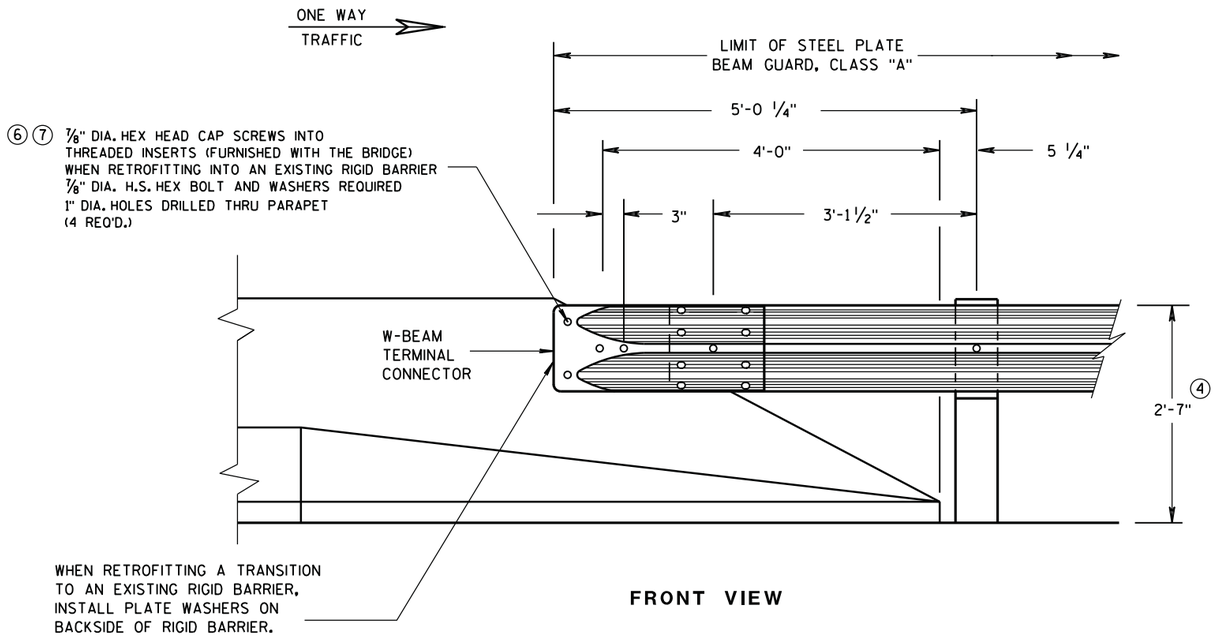


FRONT VIEW

W BEAM CONNECTION TO PARAPETS WITH SLOPED ENDS

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

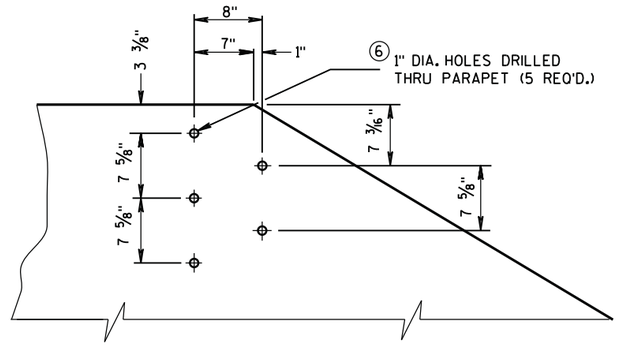
GENERAL NOTES

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

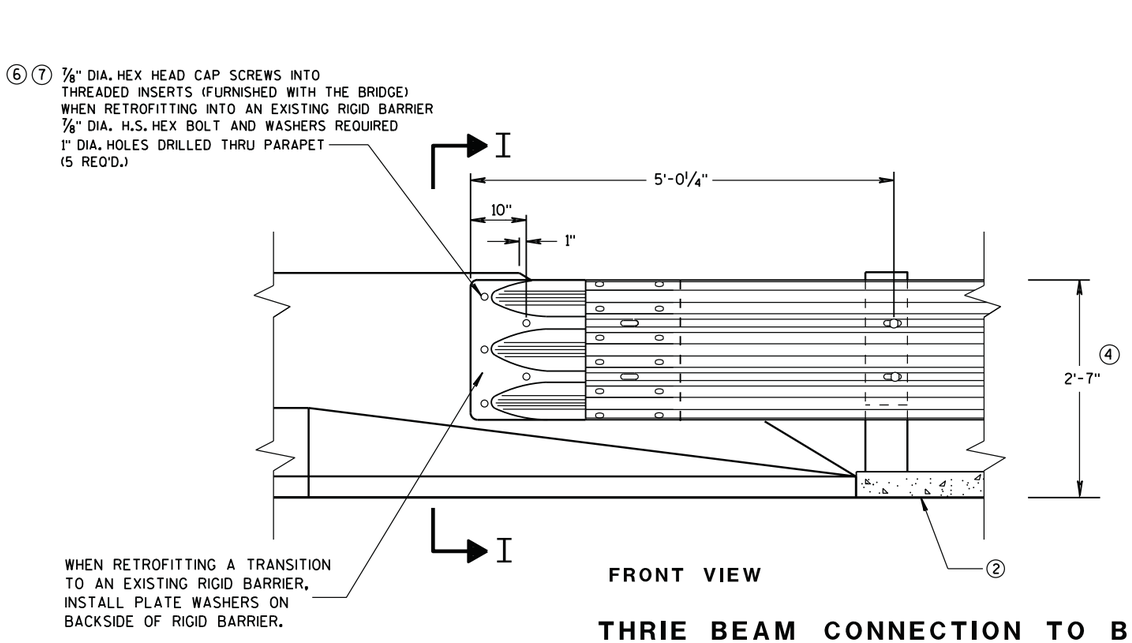
④ TOLERANCE FOR TOP OF BEAM IS ± 1".

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

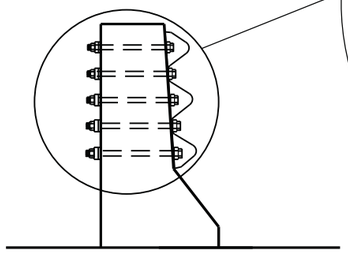
⑦ BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTOR PLATE.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



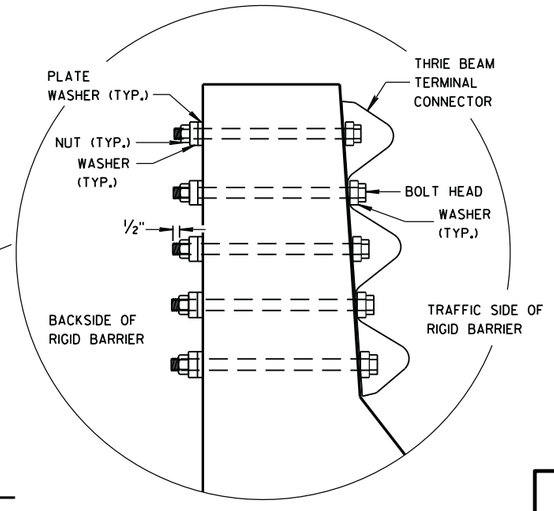
DRILL HOLE LOCATION AND PATTERN
FOR THRIE BEAM CONNECTION



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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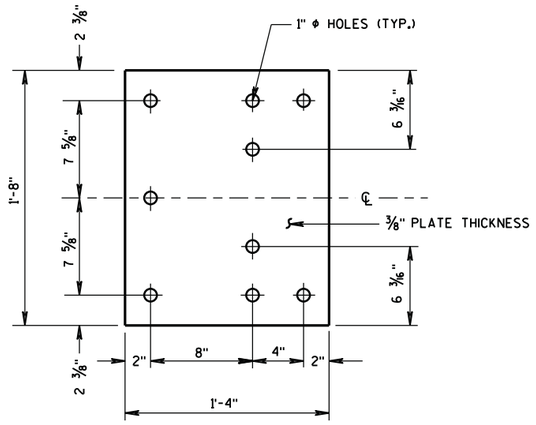
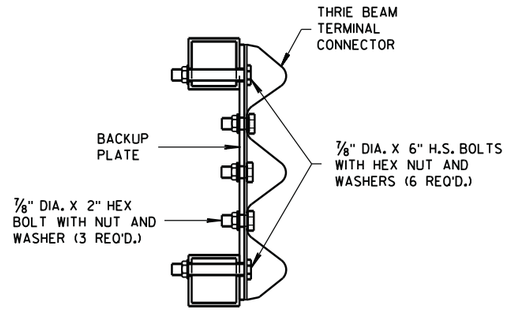
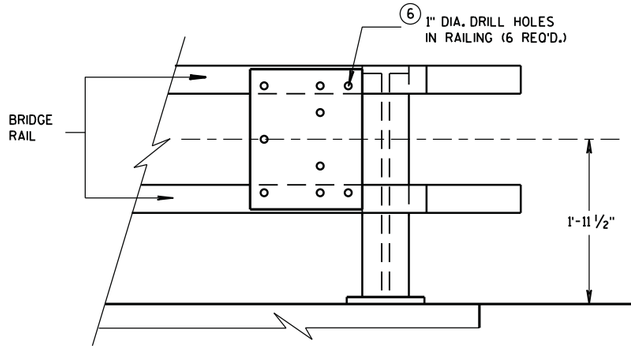


BACK-UP PLATE DETAIL



SECTION J-J

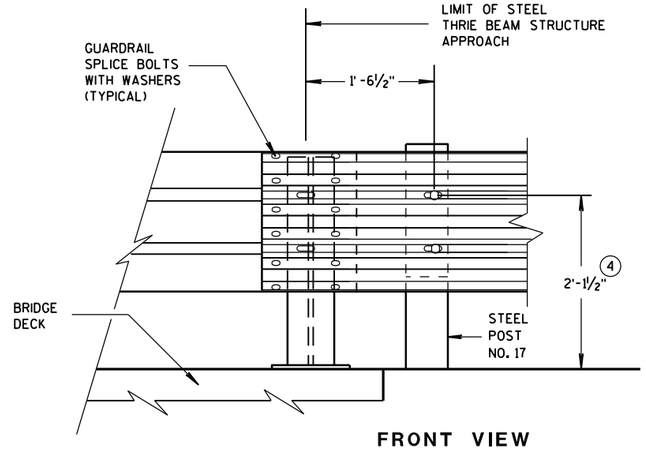


BACK-UP PLATE MOUNTING ONTO BRIDGE RAILING

GENERAL NOTES

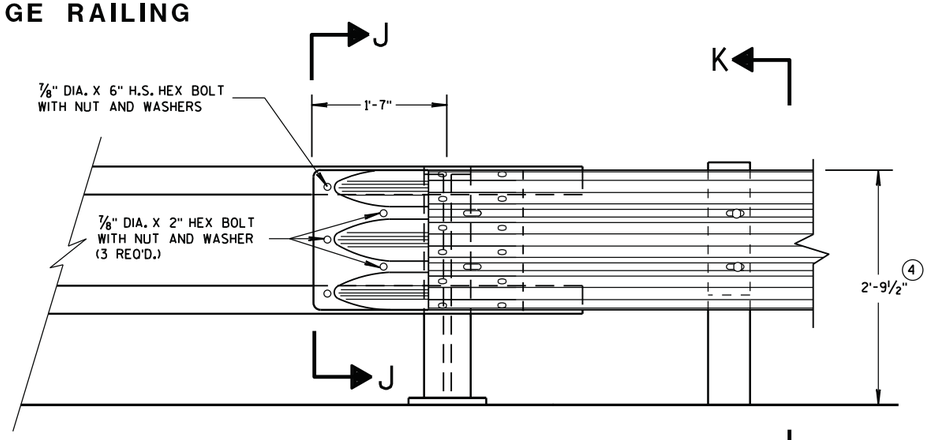
④ TOLERANCE FOR TOP OF BEAM IS ± 1".

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

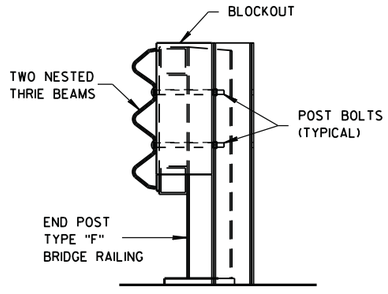


FRONT VIEW

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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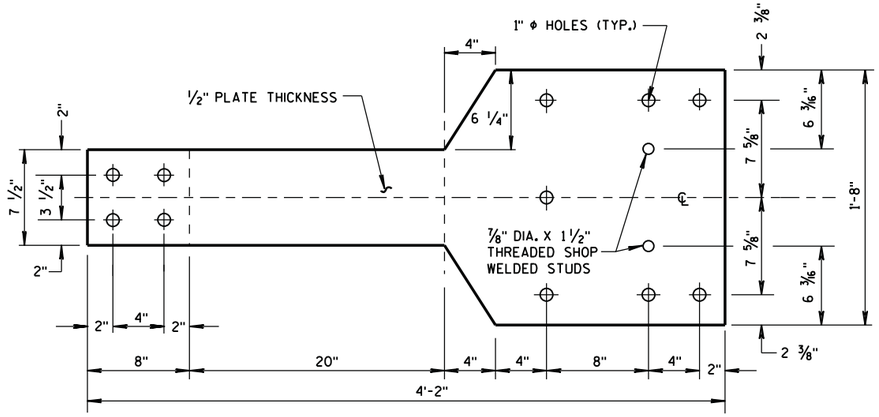
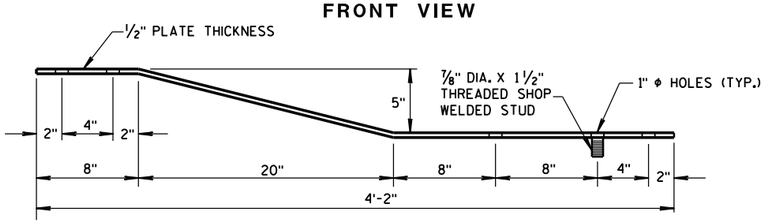
GENERAL NOTES

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

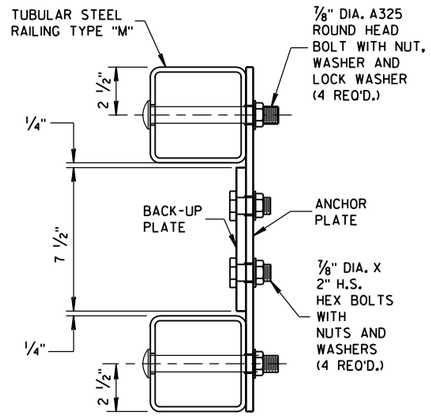


FRONT VIEW

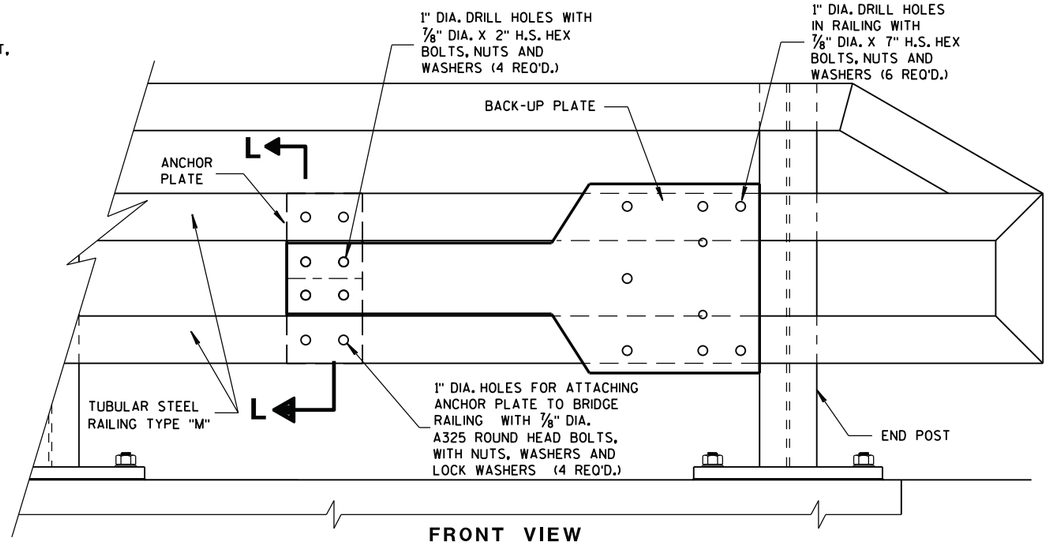


PLAN VIEW

BACK-UP PLATE DETAIL, TYPE "M"

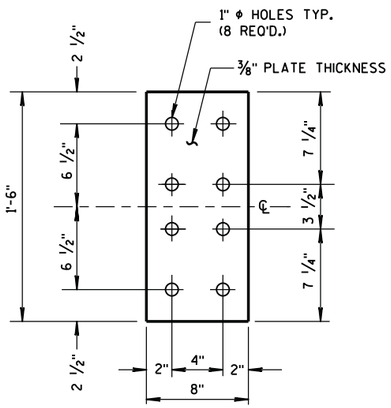


SECTION L-L



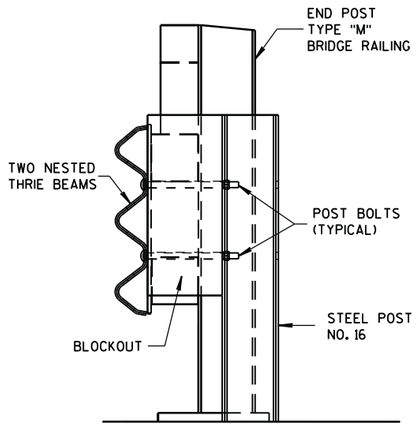
FRONT VIEW

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

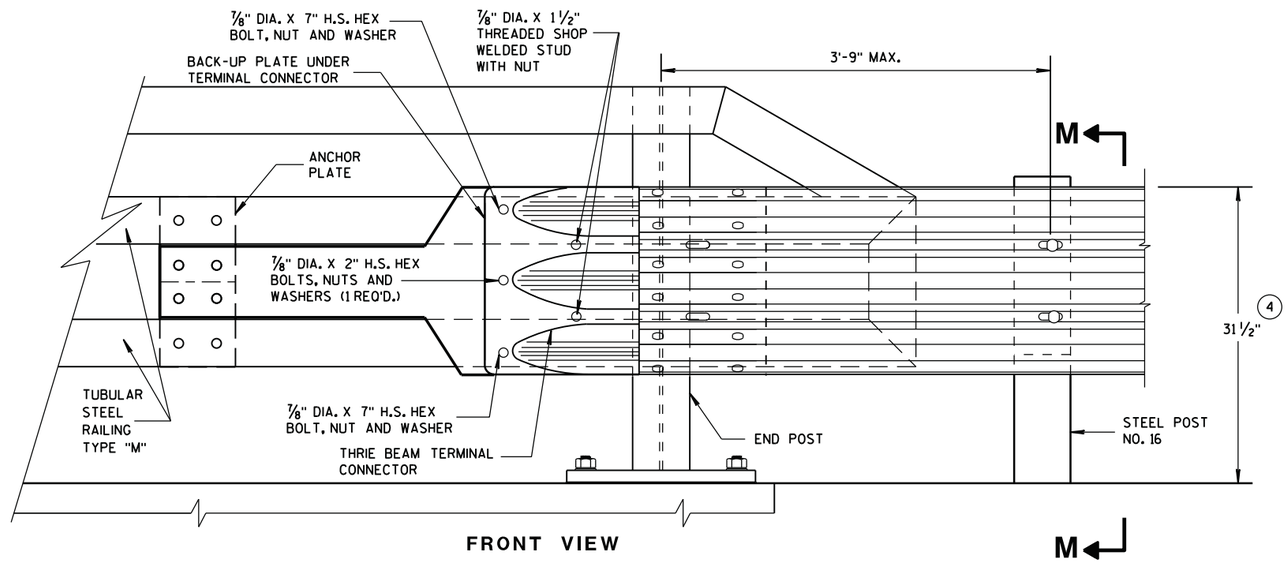


FRONT VIEW

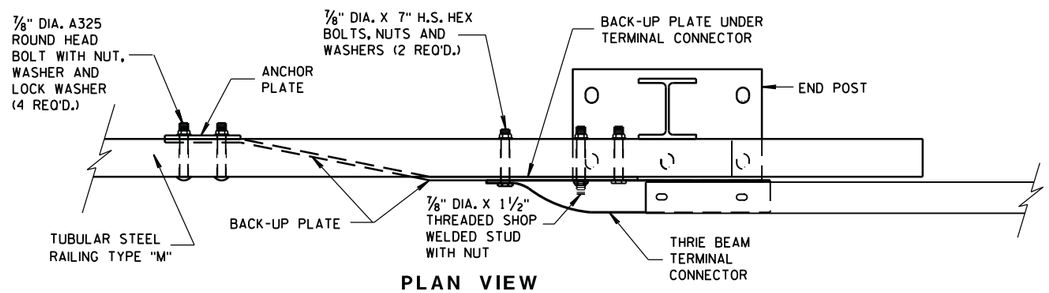
ANCHOR PLATE DETAIL, TYPE "M"



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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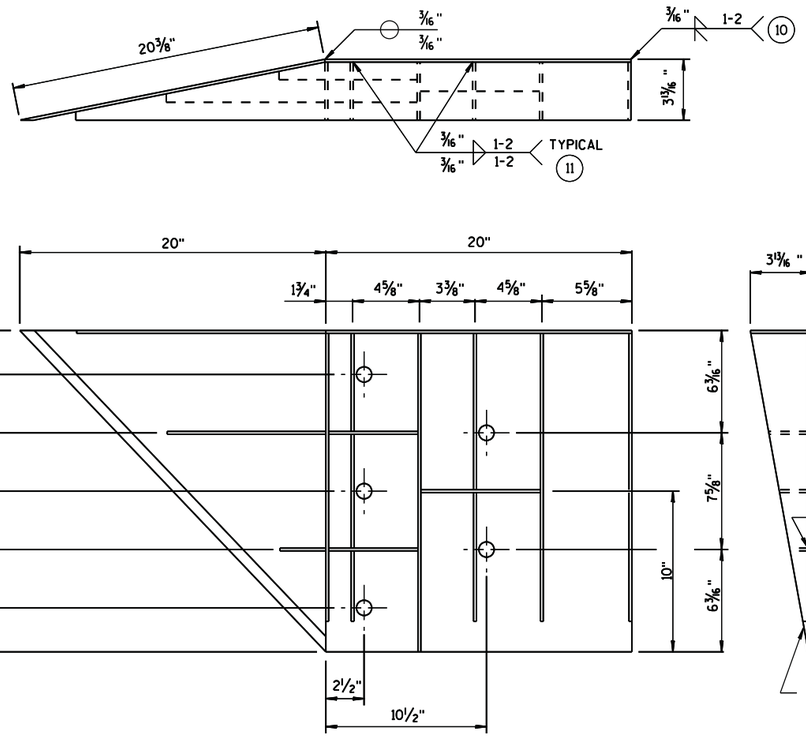


WELDING INSTRUCTION

(VIEWED FROM BACK SIDE OF PLATE)

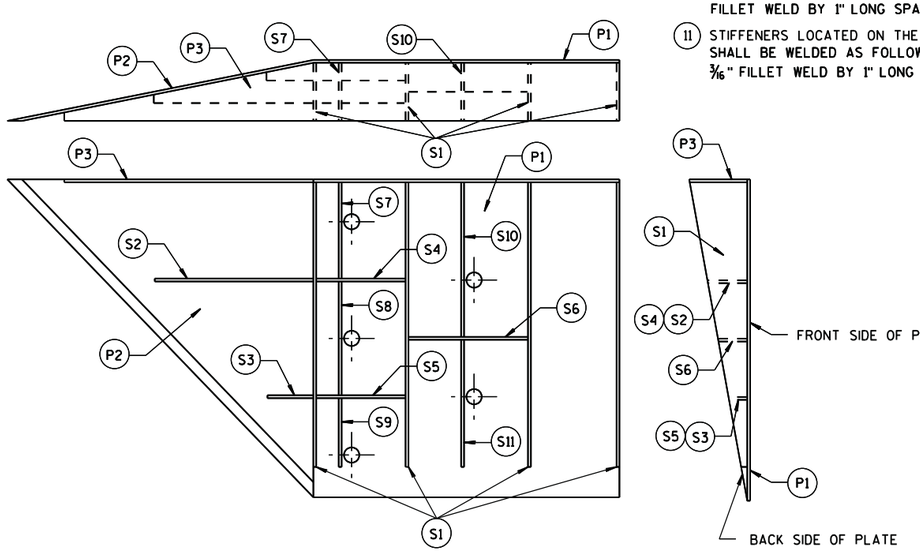


PLATE AND STIFFENER IDENTIFICATION

(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

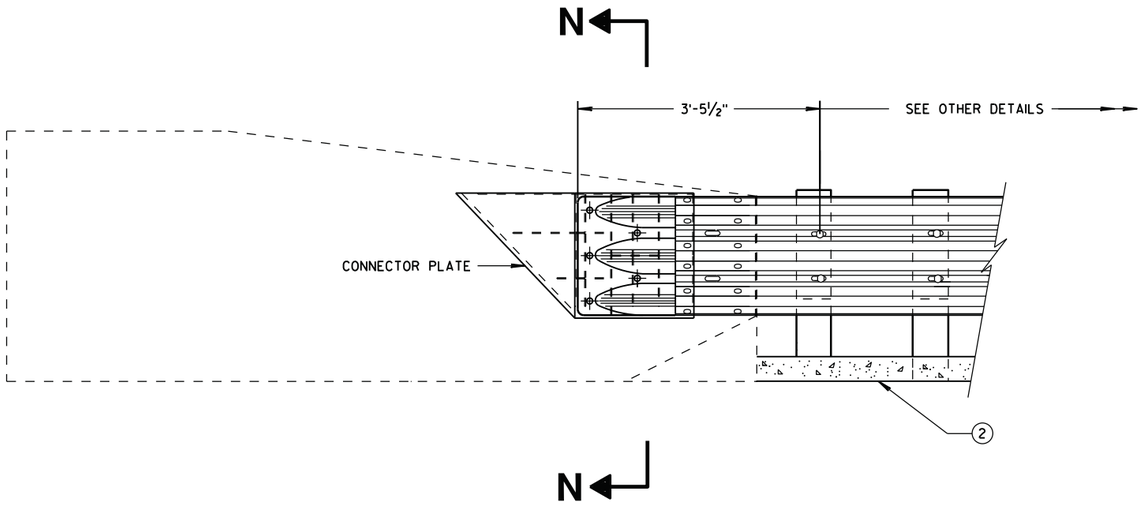
MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

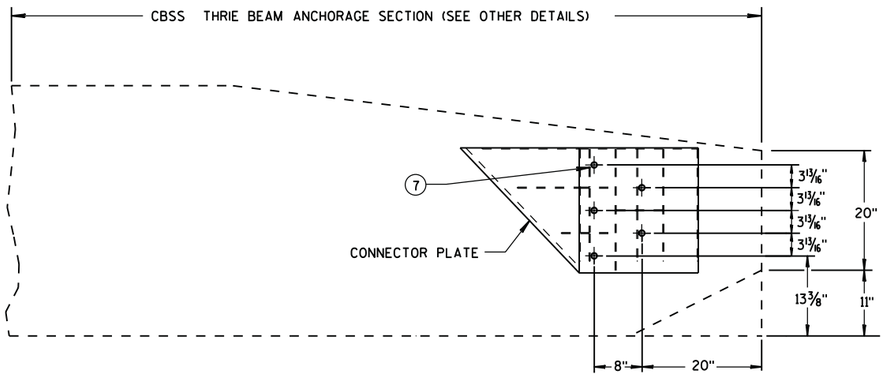
APPROVED
June, 2015 — DATE
/S/ Jerry H. Zogg — ROADWAY STANDARDS ENGINEER
FHWA

6

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



THRIE BEAM CONNECTION TO SINGLE SLOPE BARRIER



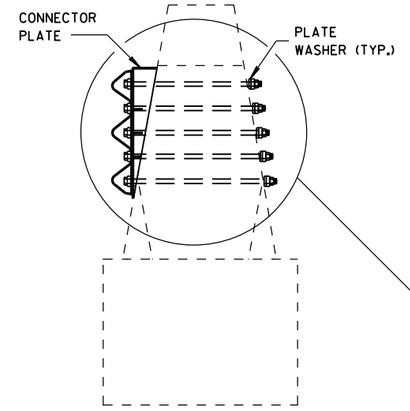
SINGLE SLOPE CONNECTION PLATE PLACEMENT

GENERAL NOTES

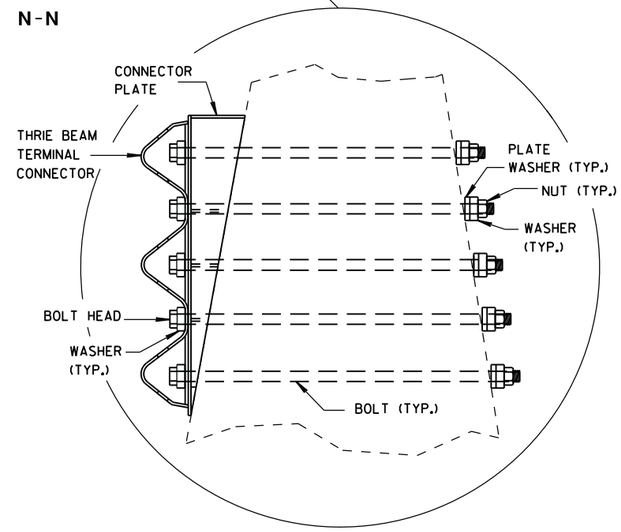
CONNECTOR PLATE, DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.

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

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



SECTION N-N



MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

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

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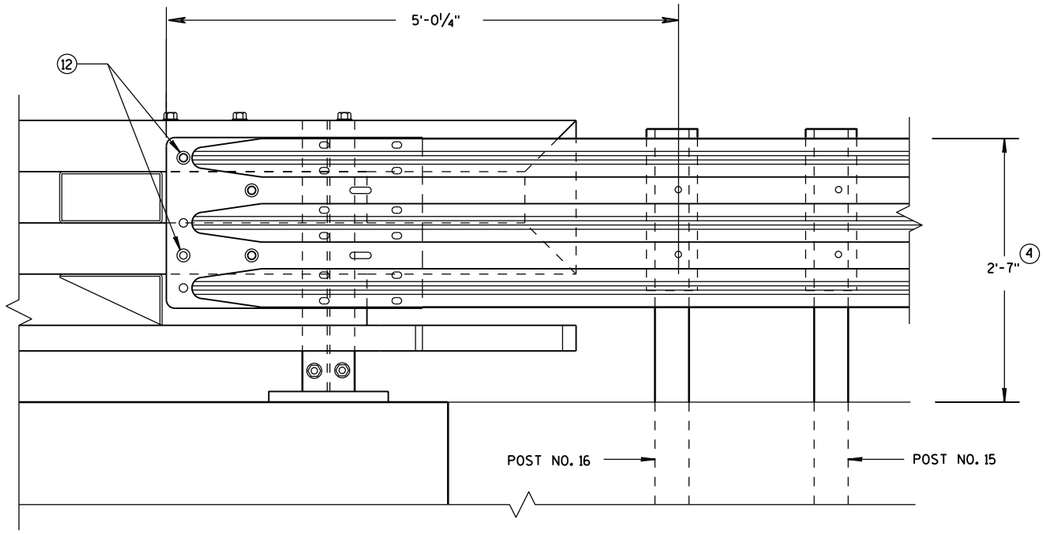
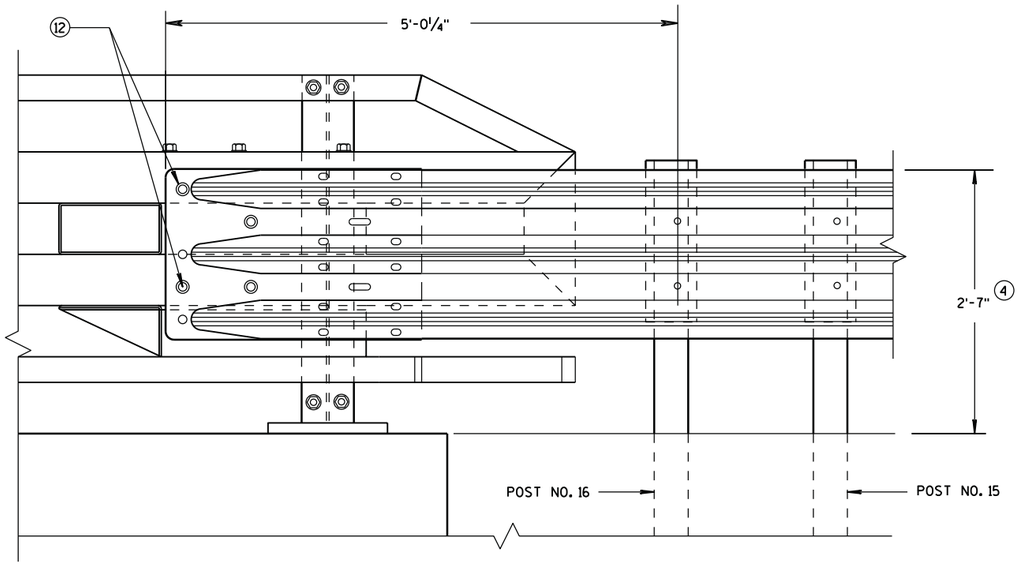
S.D.D. 14 B 45-4j



ELEVATION OF DETAIL AT NY3 END POST

THRIE BEAM RAIL ATTACHMENT



ELEVATION OF DETAIL AT NY4 END POST

THRIE BEAM RAIL ATTACHMENT

GENERAL NOTES

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

(12) BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTOR PLATE. ON BACKSIDE OF PARAPET ONE ROUND WASHER, AND NUT REQUIRED. BOLT THREAD IS TO EXTEND ½-INCH BEYOND NUT.

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June, 2015
DATE

/S/ Jerry H. Zogg
ROADWAY STANDARDS D 37 NT
ENGINEER

FHWA

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

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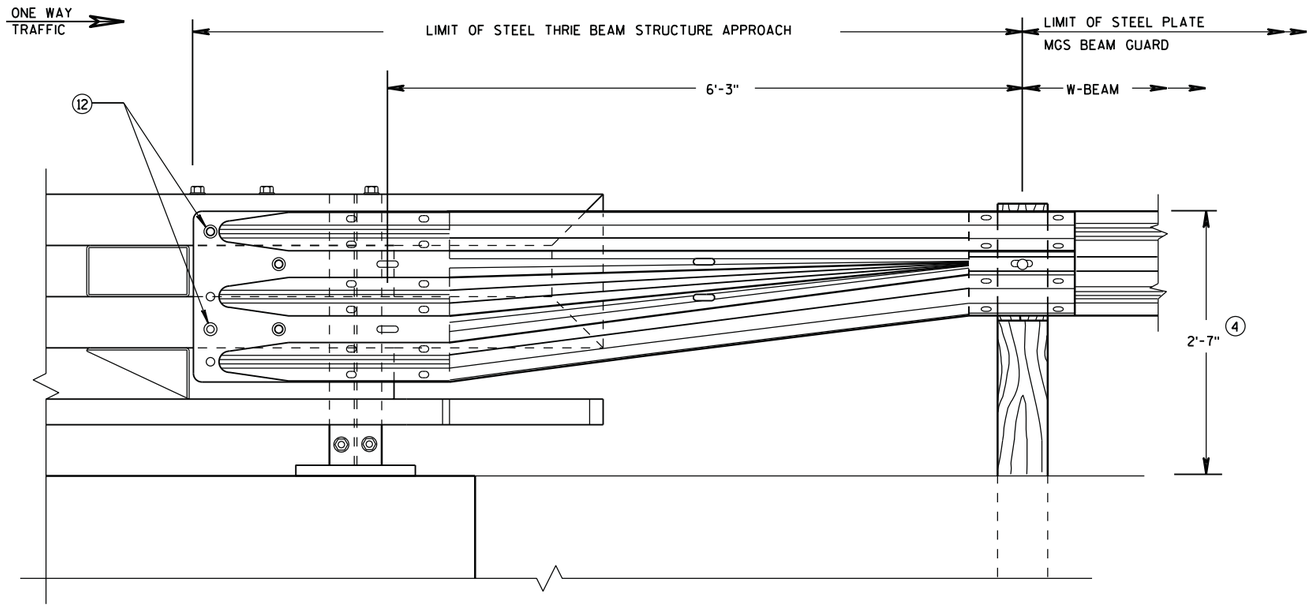
S.D.D. 14 B 45-4k



FRONT VIEW

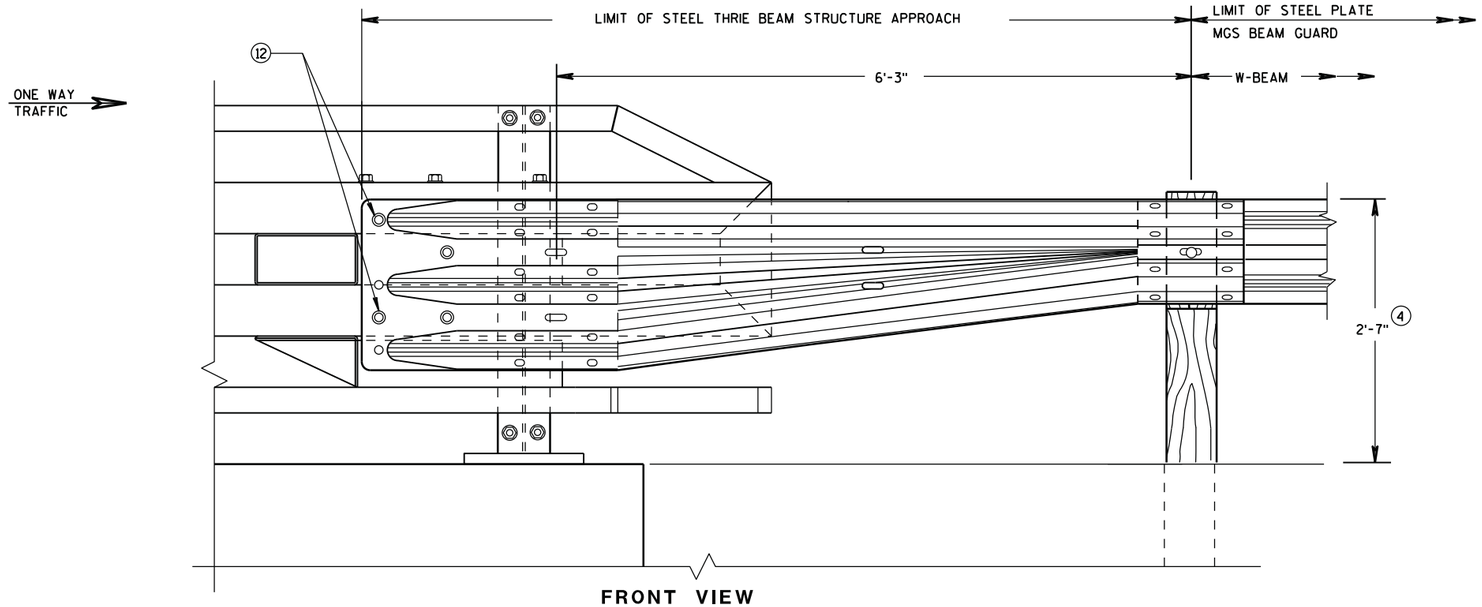
W BEAM TRANSITION AND CONNECTION TO BRIDGE RAILING TYPE "NY3"

(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 ENGINEER
FHWA

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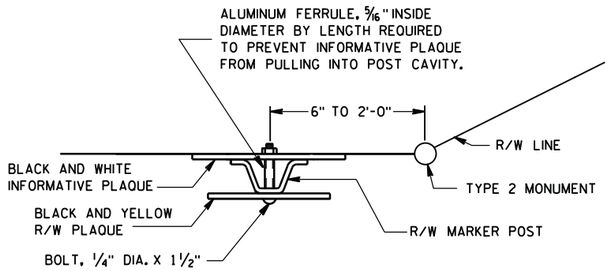
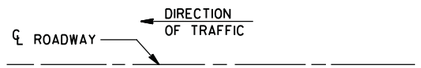
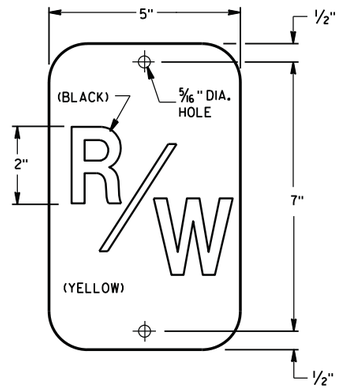
S.D.D. 14 B 45-4L



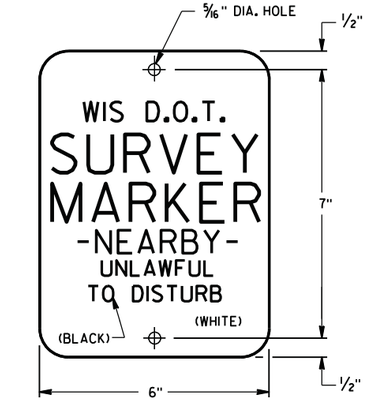


PLAN VIEW



R/W PLAQUE

THE RIGHT-OF-WAY PLAQUE AND INFORMATIVE PLAQUE WILL BE FURNISHED BY THE WISCONSIN DEPARTMENT OF TRANSPORTATION.



INFORMATIVE PLAQUE

GENERAL NOTES

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

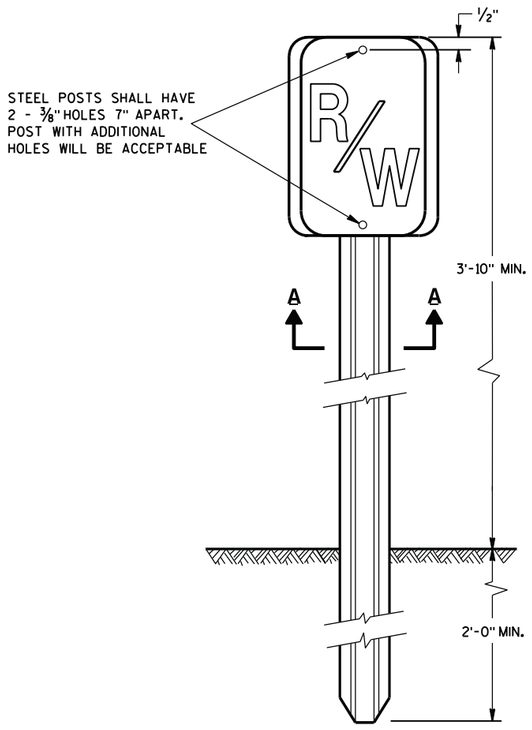
A STEEL MARKER POST FOR RIGHT-OF-WAY SHALL BE PLACED IN THE RIGHT-OF-WAY, WITH THE BACK OF THE POST ON THE LONGER RIGHT-OF-WAY TANGENT, 6 INCHES TO 24 INCHES FROM EACH TYPE 2 MONUMENT TO SERVE AS A GUARD POST, AND AT OTHER LOCATIONS AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

THE "R/W" PLAQUE SHALL FACE THE ROADWAY AND THE INFORMATIVE PLAQUE SHALL FACE AWAY FROM THE ROADWAY. R/W AND INFORMATIVE PLAQUES WILL BE FURNISHED BY THE DEPARTMENT OF TRANSPORTATION.

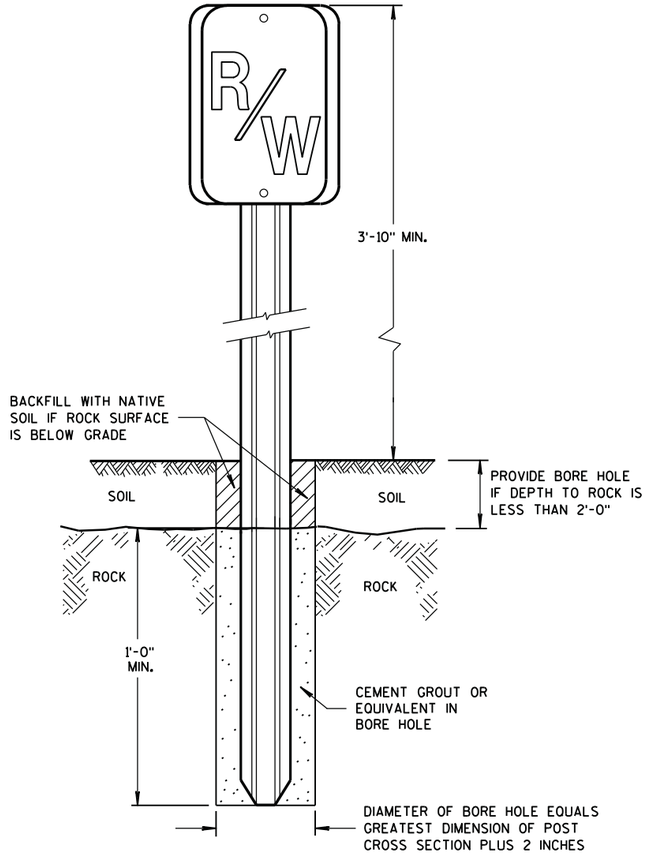
STEEL MARKER POSTS SHALL MEET THE MINIMUM MATERIAL REQUIREMENTS FOR STEEL DELINEATOR POSTS; EXCEPT POSTS PAINTED WITH FEDERAL YELLOW ENAMEL NEED NOT BE ZINC COATED.

① IN AREAS OF SOLID ROCK, DRILL A BORE HOLE 2" GREATER THAN THE WIDEST DIMENSION OF THE POST CROSS SECTION INTO THE ROCK TO A MINIMUM DEPTH OF 12 INCHES. CUT OR SPLICE THE POST SO THAT A MINIMUM LENGTH OF 3'10" PROTRUDES ABOVE THE GROUND. BLOW OUT THE BORE HOLE IN THE ROCK USING COMPRESSED AIR.

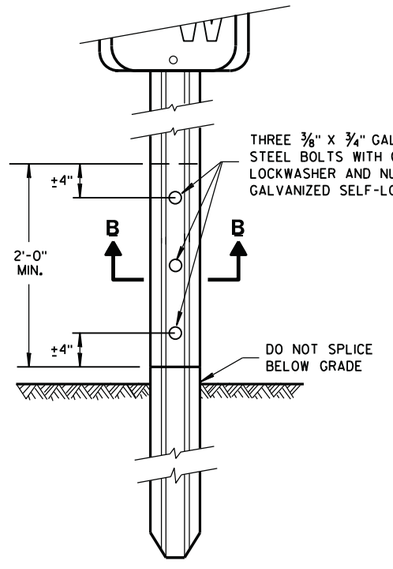
FILL THE BORE HOLE WITH CEMENT GROUT, OR EQUIVALENT. DEPENDING ON THE STABILITY OF THE ROCK.



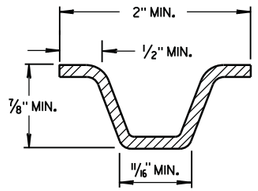
FRONT VIEW
STEEL MARKER POST



FRONT VIEW
ROCK INSTALLATION ①

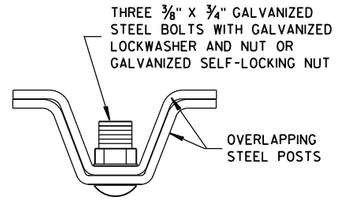


FRONT VIEW
SPLICE DETAIL



MIN. WEIGHT 1.12 LB./FT.

SECTION A-A



SECTION B-B

MARKER POST FOR RIGHT-OF-WAY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
2/18/2016 — DATE
/S/ Ray Kumapayi — CHIEF SURVEYING AND MA[illegible]INEER
FHWA

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S.D.D. 15 A 1-13a

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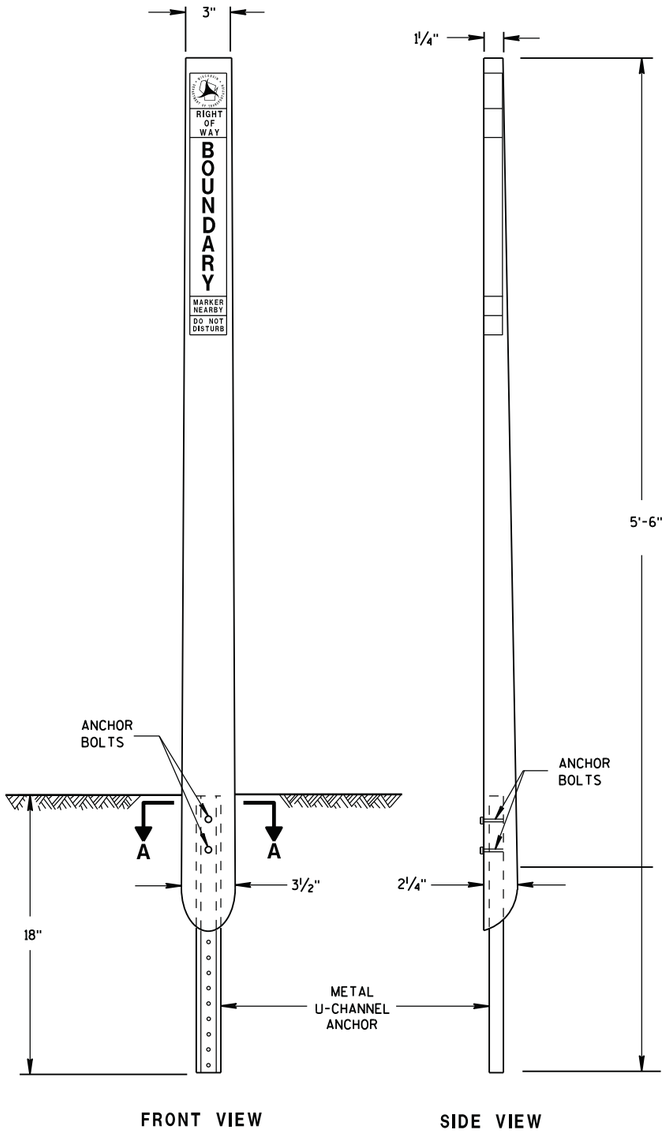
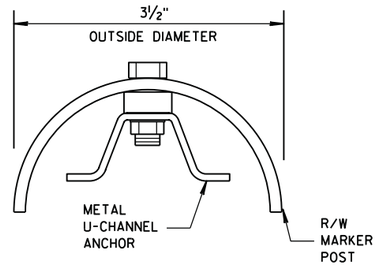
S.D.D. 15 A 1-13a

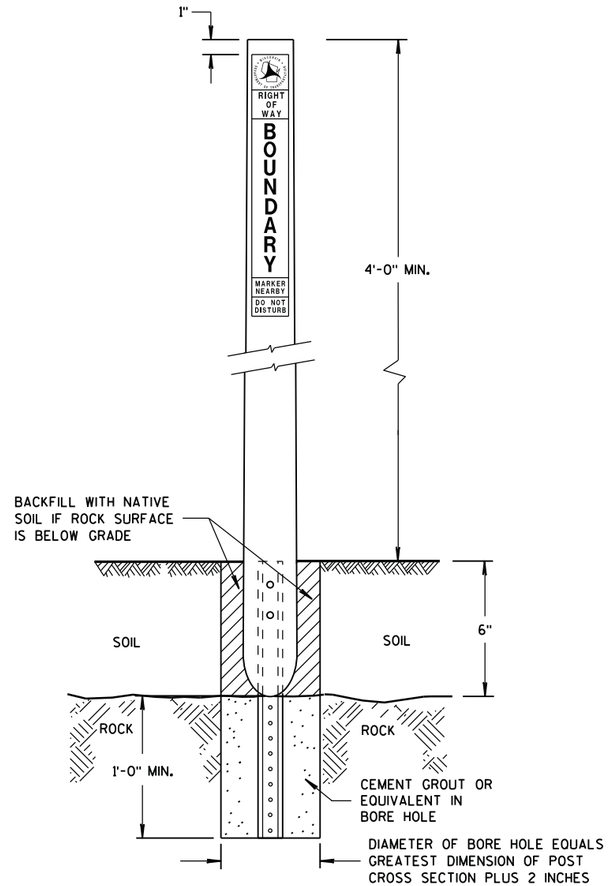


FRONT VIEW SIDE VIEW

FLEXIBLE MARKER POST FOR RIGHT-OF-WAY ①

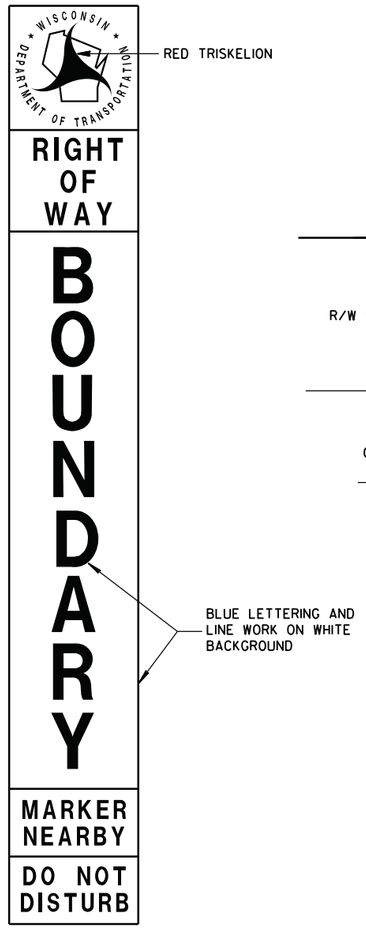


SECTION A-A



FRONT VIEW

ROCK INSTALLATION ①②



RIGHT-OF-WAY STICKER

THE RIGHT-OF-WAY STICKER SHALL BE ATTACHED 1" FROM THE TOP OF THE RIGHT-OF-WAY POST PRIOR TO DELIVERY.

GENERAL NOTES

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

A FLEXIBLE MARKER POST FOR RIGHT-OF-WAY SHALL BE PLACED IN THE RIGHT-OF-WAY, WITH THE BACK OF THE POST ON THE LONGER RIGHT-OF-WAY TANGENT, 6 INCHES TO 24 INCHES FROM EACH TYPE 2 MONUMENT TO SERVE AS A GUARD POST, AND AT OTHER LOCATIONS AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

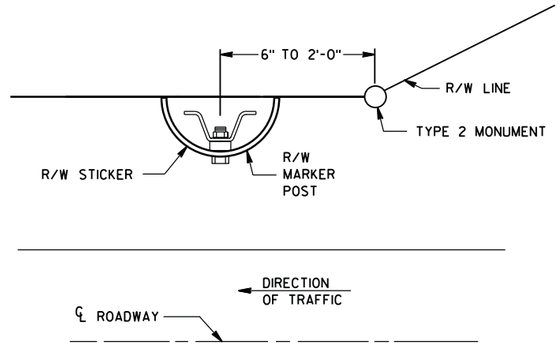
THE RIGHT-OF-WAY STICKER DIMENSIONS SHALL BE 2¼" X 17" AND THE STICKER SHALL BE MADE OF A NON-REFLECTIVE VINYL MATERIAL. THE RIGHT-OF-WAY STICKER SHALL FACE THE ROADWAY.

INSTALL PER DEPTH OF MANUFACTURER'S RECOMMENDATIONS BUT NOT LESS THAN 18 INCHES BELOW GRADE FROM THE BOTTOM OF THE METAL U-CHANNEL ANCHOR.

① FLEXIBLE MARKER POSTS SHALL BE INCLUDED IN THE APPROVED PRODUCTS LIST FOR MARKER POSTS AND SHALL BE FEDERAL YELLOW IN COLOR.

② IN AREAS OF SOLID ROCK, DRILL A BORE HOLE 2" GREATER THAN THE WIDEST DIMENSION OF THE POST CROSS SECTION INTO THE ROCK TO A MINIMUM DEPTH OF 12 INCHES. CUT OR SPLICE THE POST SO THAT A MINIMUM LENGTH OF 4'-0" PROTRUDES ABOVE THE GROUND. BLOW OUT THE BORE HOLE IN THE ROCK USING COMPRESSED AIR.

FILL THE BORE HOLE WITH CEMENT GROUT, OR EQUIVALENT, DEPENDING ON THE STABILITY OF THE ROCK.



PLAN VIEW

FLEXIBLE MARKER POST FOR RIGHT-OF-WAY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
2/18/2016 — DATE
/S/ Ray Kumapayi — CHIEF SURVEYING AND MAPPING ENGINEER
FHWA

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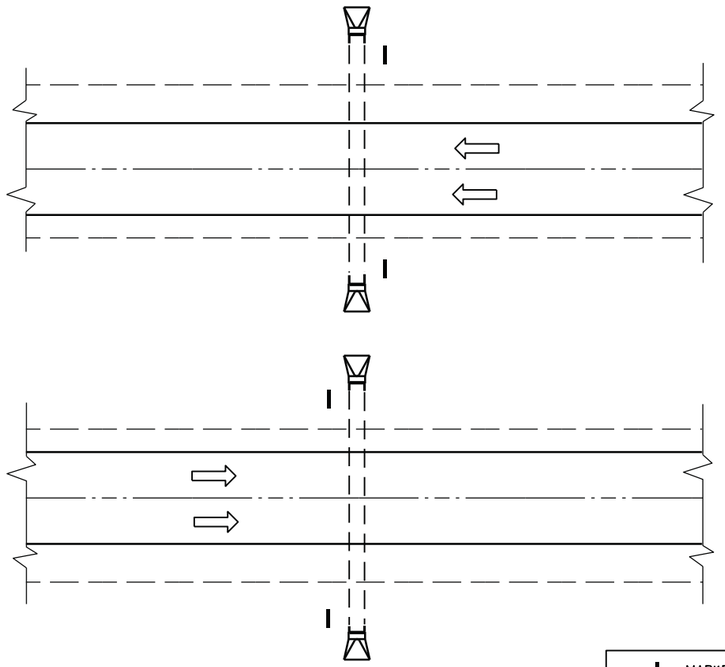
S.D.D. 15 A 1-13b

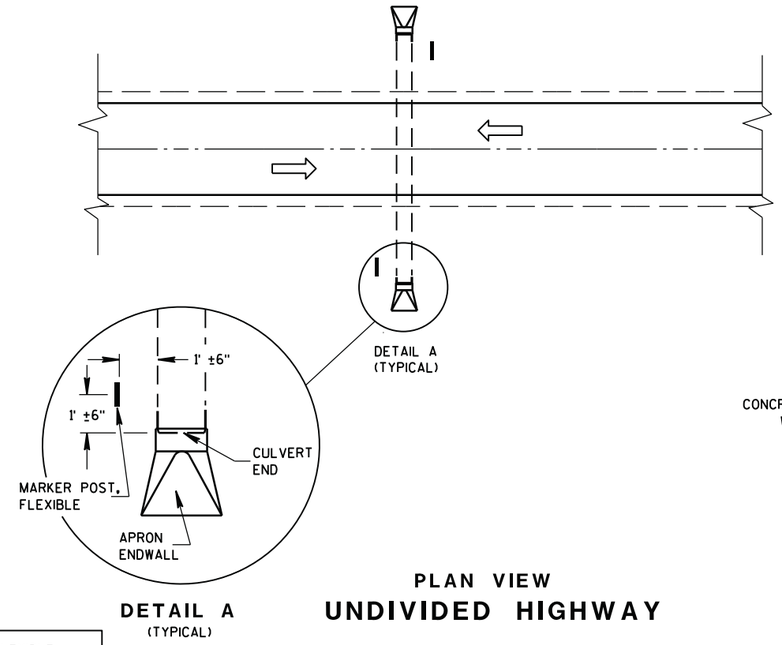
GENERAL NOTES

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

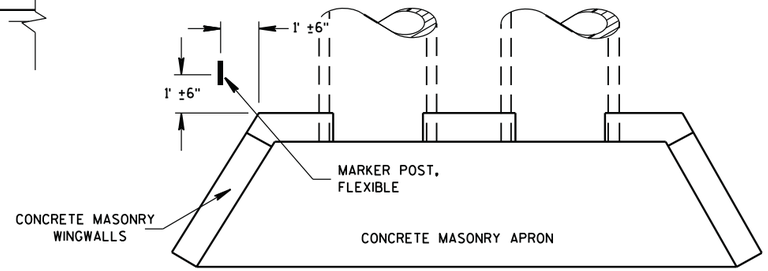
DIVIDED HIGHWAY



DETAIL A
(TYPICAL)

PLAN VIEW

UNDIVIDED HIGHWAY



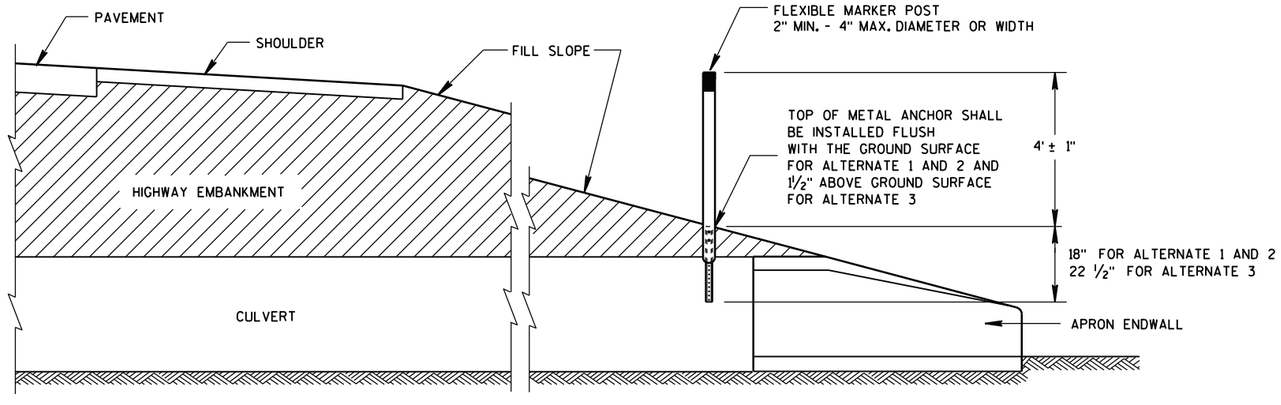
PLAN VIEW

CONCRETE MASONRY ENDWALLS FOR CULVERT PIPE AND PIPE ARCH

MARKER POST, FLEXIBLE

DIRECTION OF TRAFFIC FLOW

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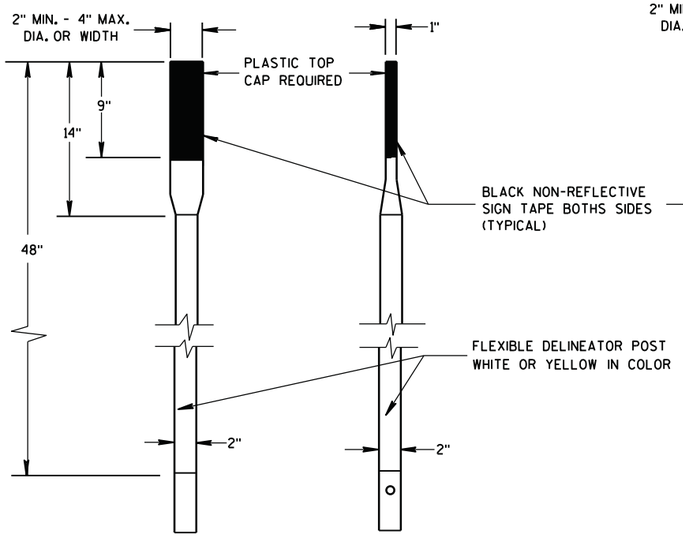
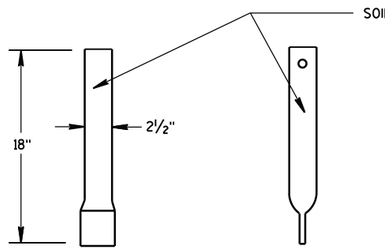
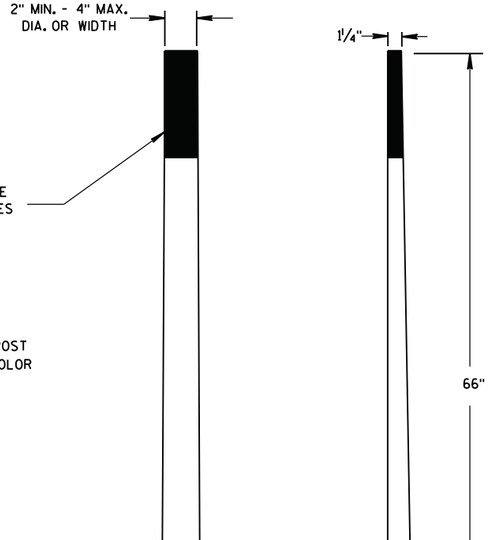
S.D.D. 15 A 3-2a





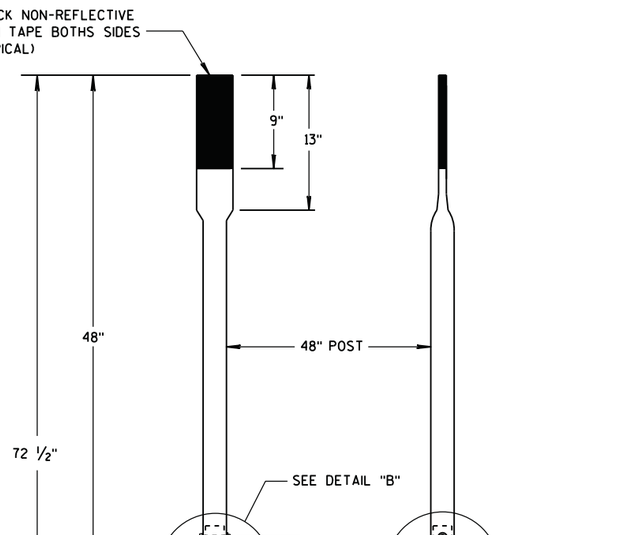
FRONT VIEW SIDE VIEW

ALTERNATE 1



FRONT VIEW SIDE VIEW

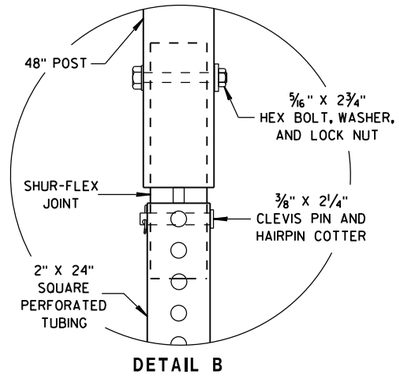
ALTERNATE 2



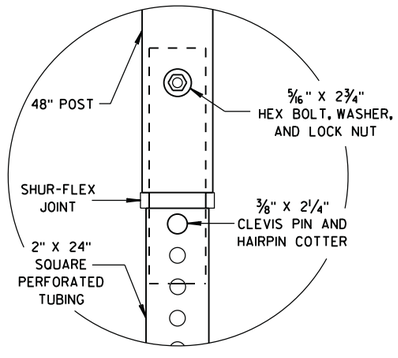
FRONT VIEW SIDE VIEW

ALTERNATE 3

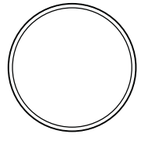
FLEXIBLE MARKER POSTS



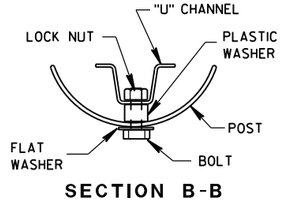
DETAIL B



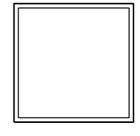
DETAIL C



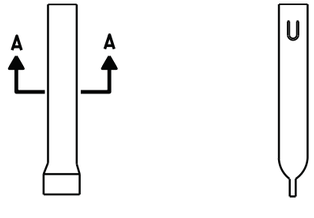
SECTION A-A



SECTION B-B

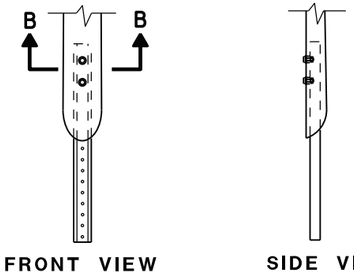


SECTION C-C



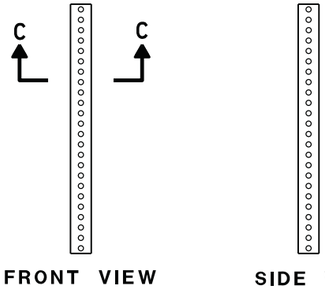
FRONT VIEW SIDE VIEW

ALTERNATE 1



FRONT VIEW SIDE VIEW

ALTERNATE 2



FRONT VIEW SIDE VIEW

ALTERNATE 3

FLEXIBLE MARKER POST ANCHORS

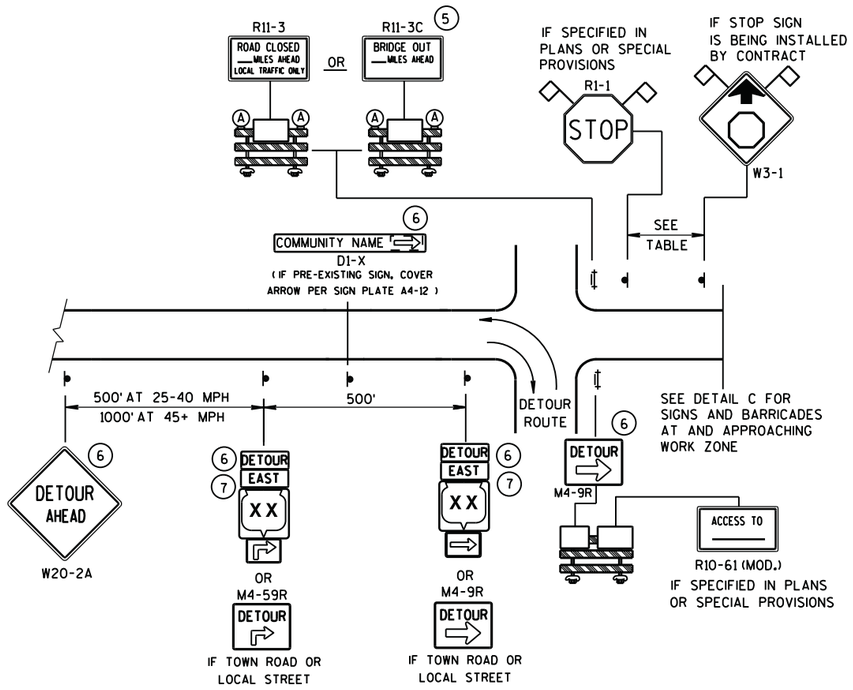
FLEXIBLE MARKER POST FOR CULVERT END	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED	
10/1/2012 DATE	/S/ Travis Feltes STATE TRAFFIC ENGINEER
FHWA	IGN

6

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

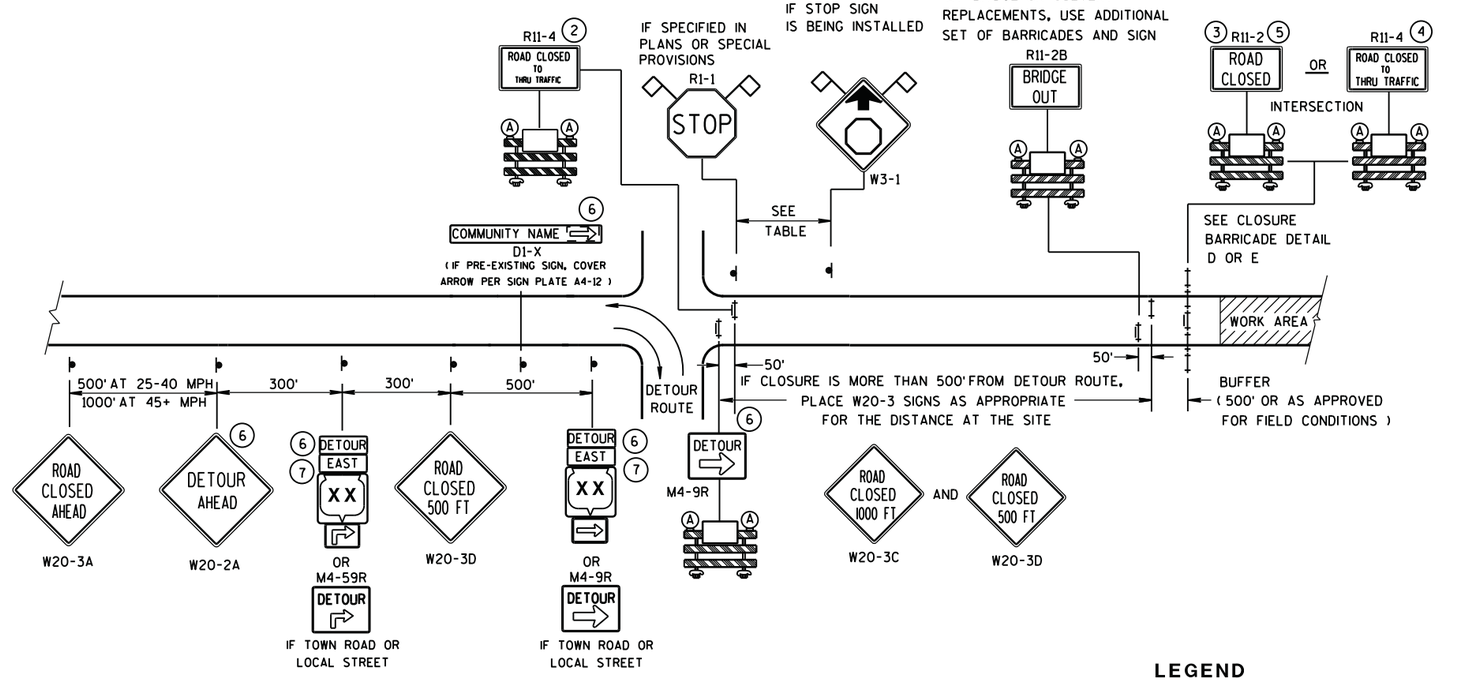
6

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



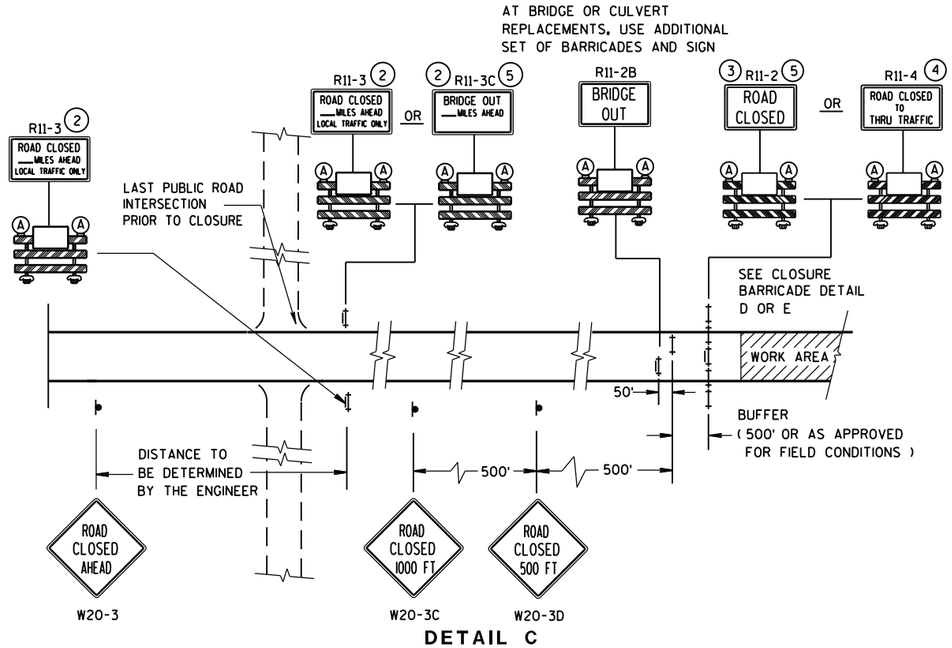
DETAIL A
MAINLINE CLOSURE WITH POSTED DETOUR

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

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)

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

BARRICADES AND SIGNS FOR MAINLINE CLOSURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

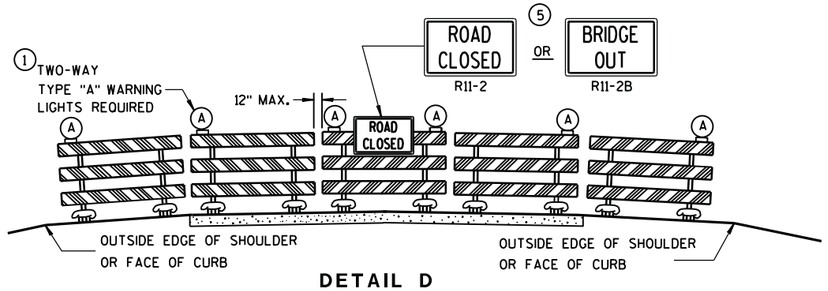
Sept. 2015 — DATE
/S/ Peter Amakobe Atepe
STATEWIDE WORK ZONE TRAFFIC SAFETY ENGINEER
FHWA

6

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

6

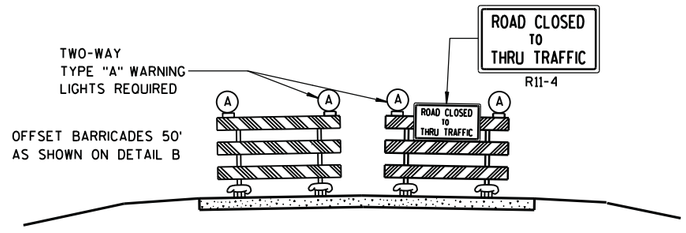
S.D.D. 15 C 2-6a



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

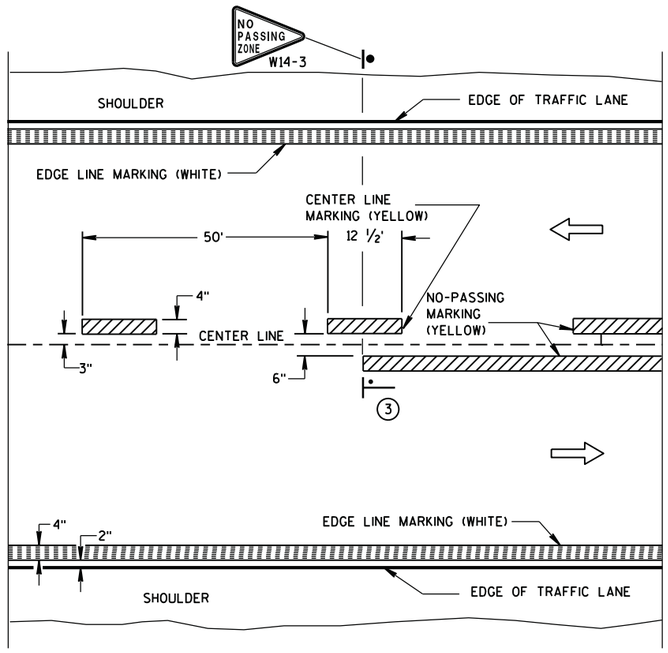
/S/ Peter Amakobe Atepe
STATEWIDE WORK ZO... SAFETY ENGI... — FHWA

6

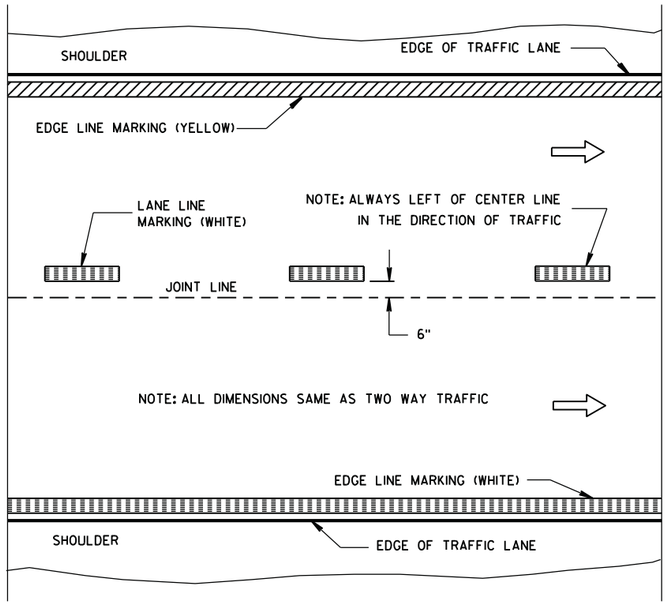
S.D.D. 15 C 2-6b

6

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

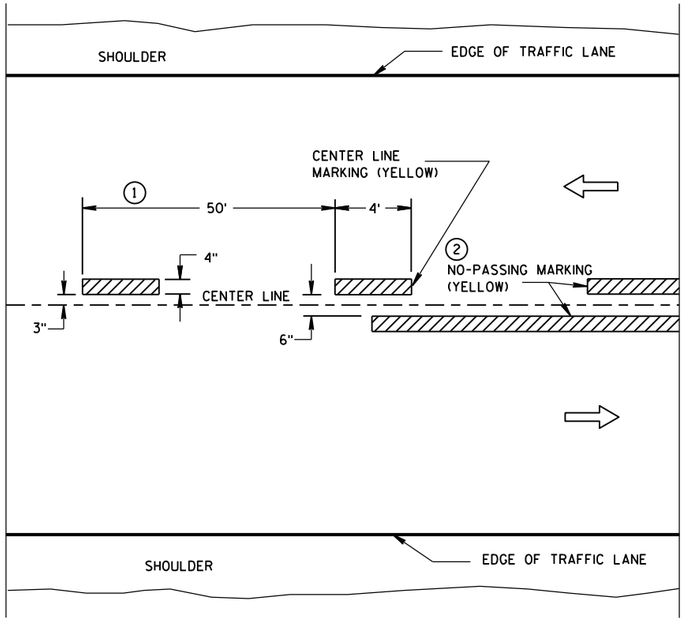


TWO WAY TRAFFIC

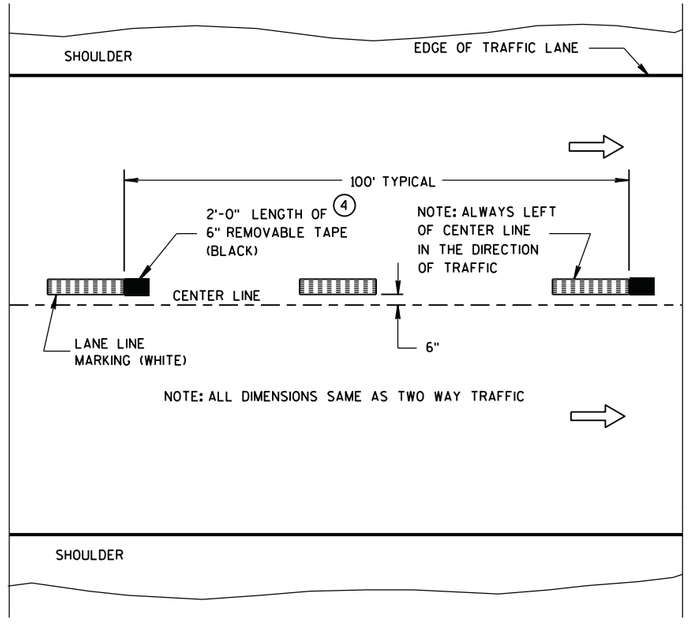


ONE WAY TRAFFIC

PERMANENT PAVEMENT MARKING



TWO WAY TRAFFIC



ONE WAY TRAFFIC

TEMPORARY (INTERMEDIATE) PAVEMENT MARKING

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

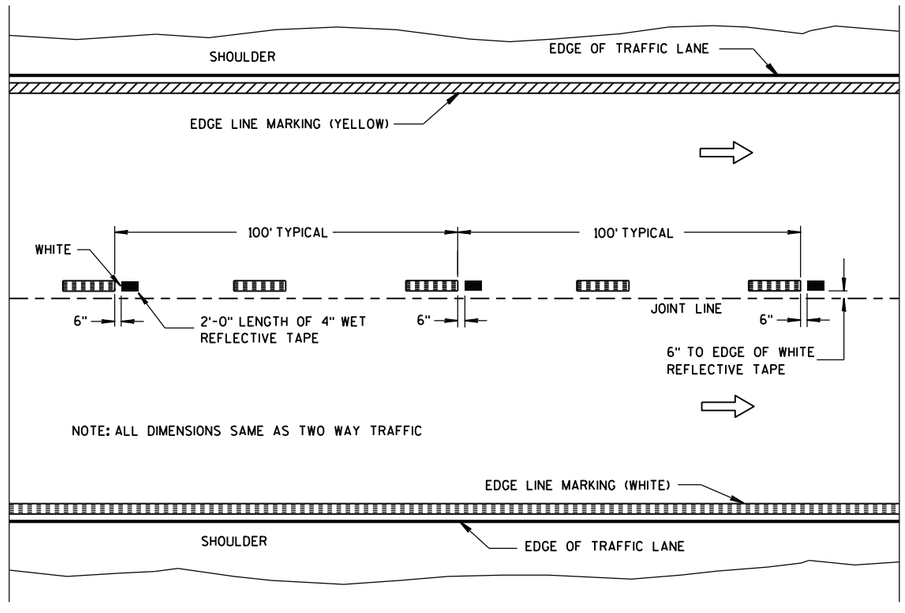
GENERAL NOTES

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

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

NOTE

ARROW SYMBOL (⇨) SHOWS DIRECTION OF TRAVEL



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

LEGEND

"T" MARKING

POST MOUNTED SIGN

PAVEMENT MARKING (MAINLINE)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

5-13-2013
DATE

/S/ Travis Feltes
STATE TRAFFIC E

FHWA

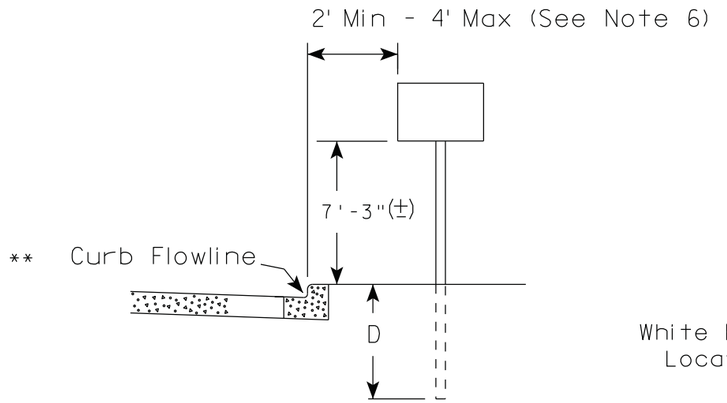
6

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

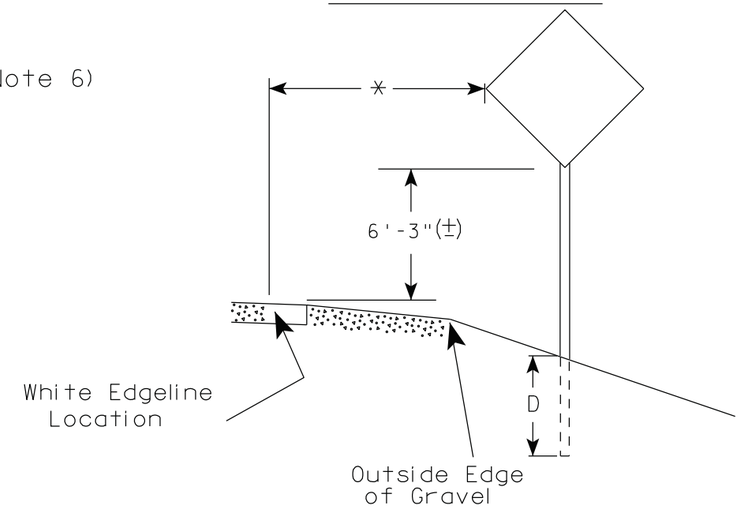
6

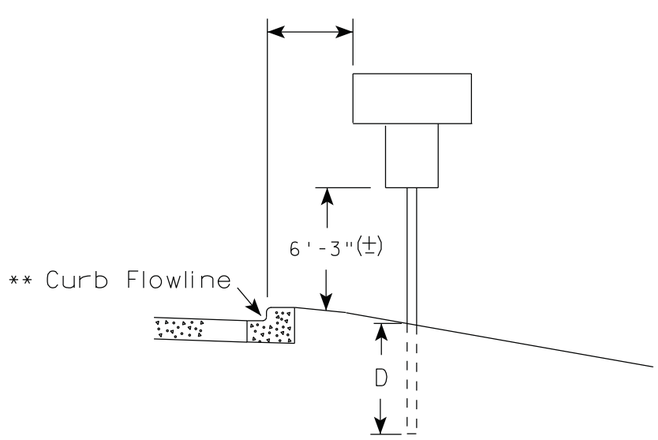
S.D.D. 15 C 8-16a

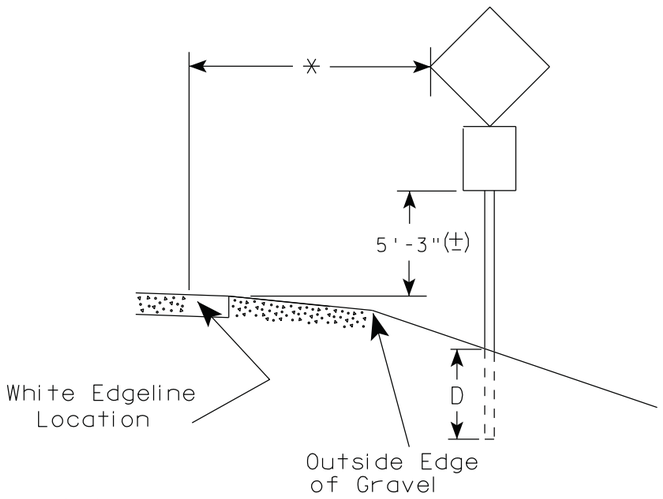
URBAN AREA



RURAL AREA (See Note 2)







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" (±).

POST EMBEDMENT DEPTH

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

** 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.

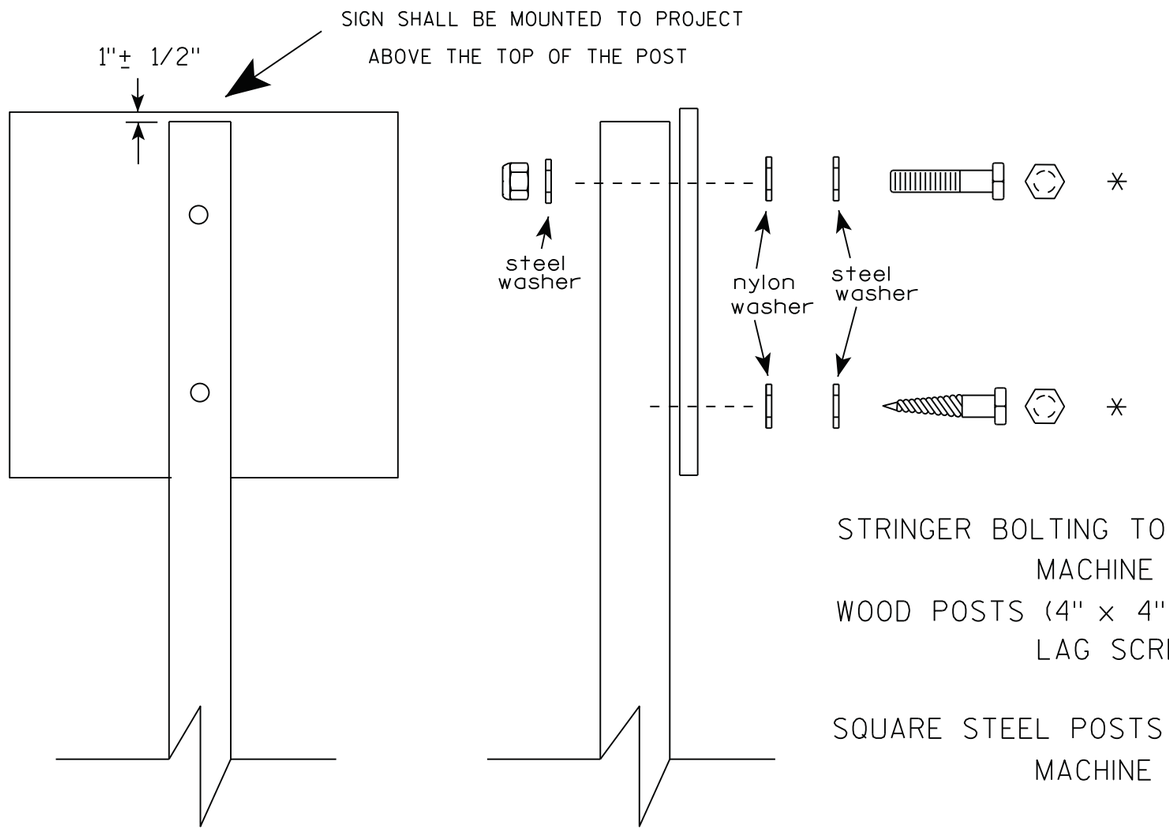
TYPICAL INSTALLATION OF PERMANENT TYPE II SIGNS ON SINGLE POSTS

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:	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.

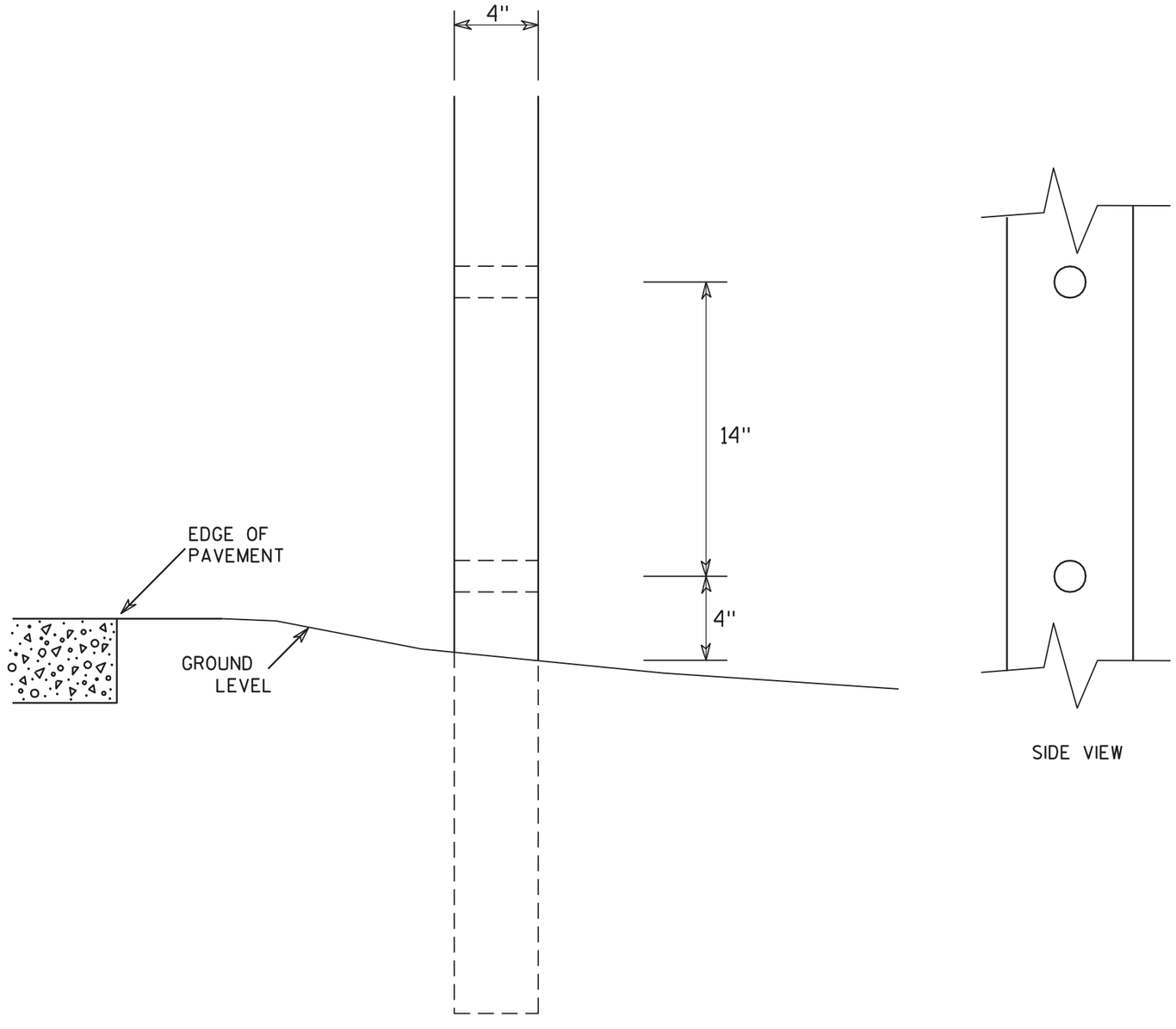
ATTACHMENT OF SIGNS TO POSTS

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: 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.

7

7

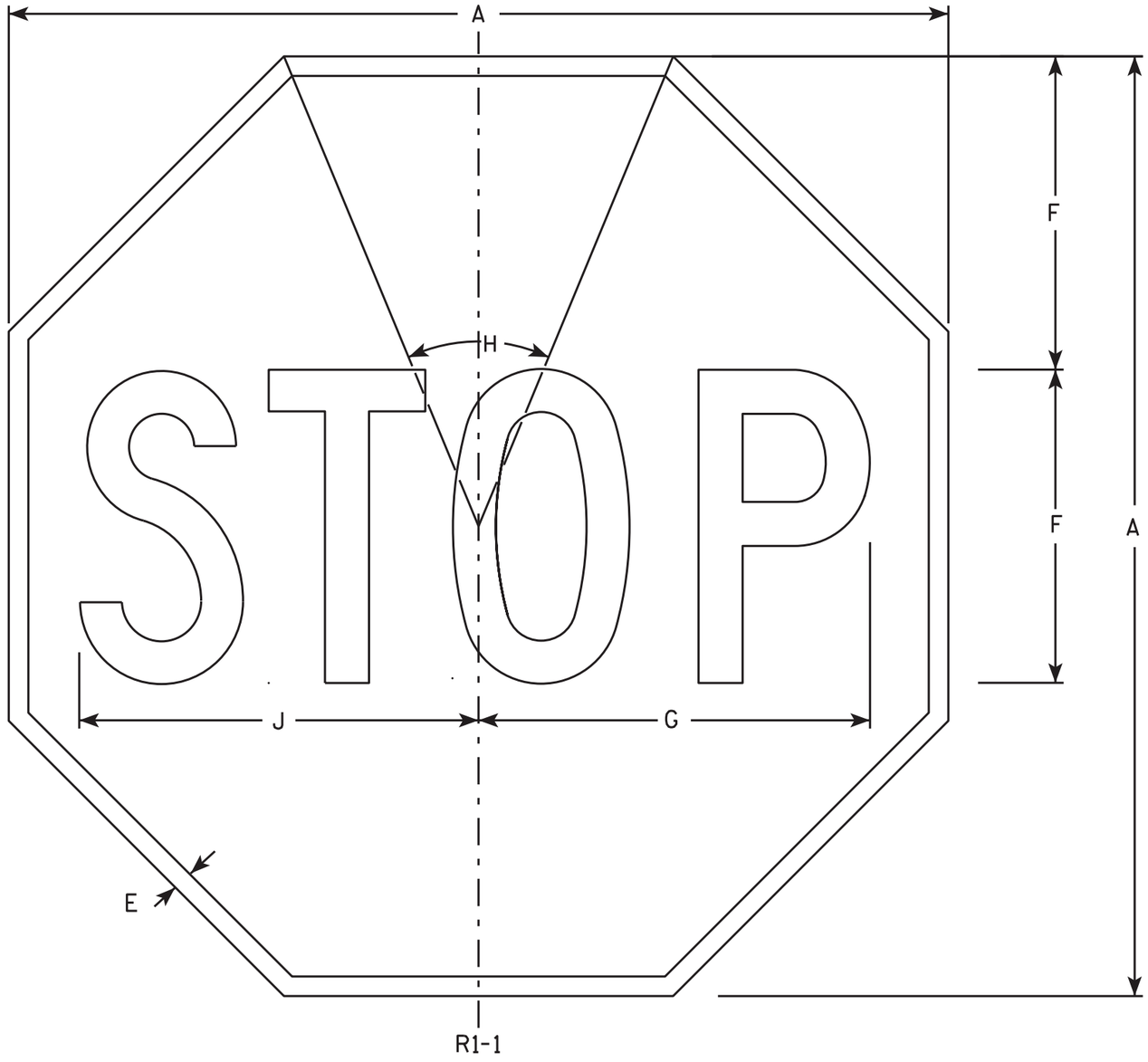
4 X 6 WOOD POST MODIFICATIONS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Chester J Spang for State Traffic Engineer

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

PROJECT NO:	HWY:	COUNTY:		SHEET NO: 48	E



NOTES

1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - Red
   Message - White
3. Message Series - C

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	30				5/8	10	12 1/2	45°		12 3/4																	5.18
2S	30				5/8	10	12 1/2	45°		12 3/4																	5.18
2M	36				3/4	12	15	45°		15 3/8																	7.46
3	36				3/4	12	15	45°		15 3/8																	7.46
4	48				1	16	20	45°		20 1/2																	13.25
5	48				1	16	20	45°		20 1/2																	13.25
6	18				3/8	6	7 3/4	45°		7 3/4																	1.86
7	12				1/4	4	5	45°		5 1/8																	0.78

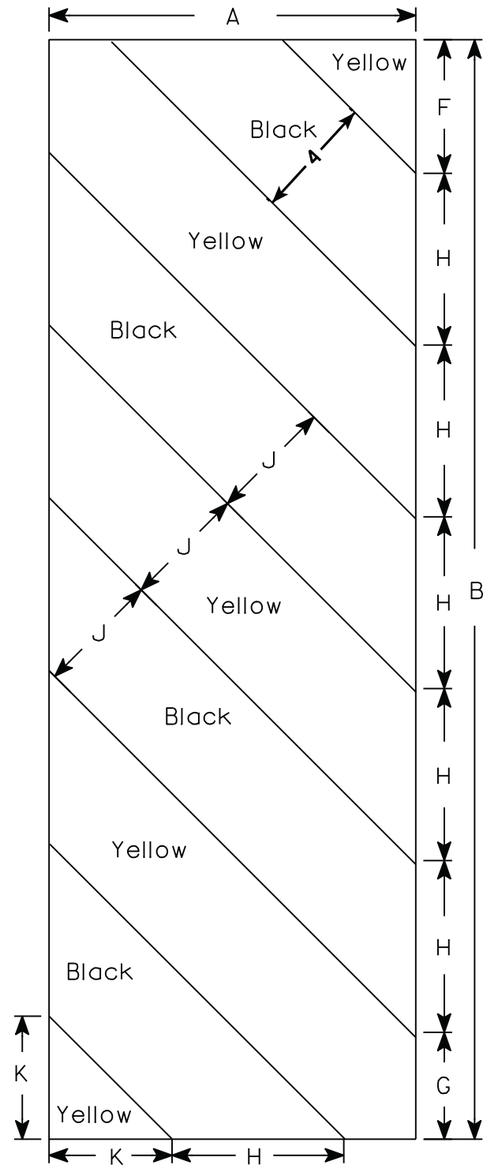
STANDARD SIGN
R1-1

WISCONSIN DEPT OF TRANSPORTATION

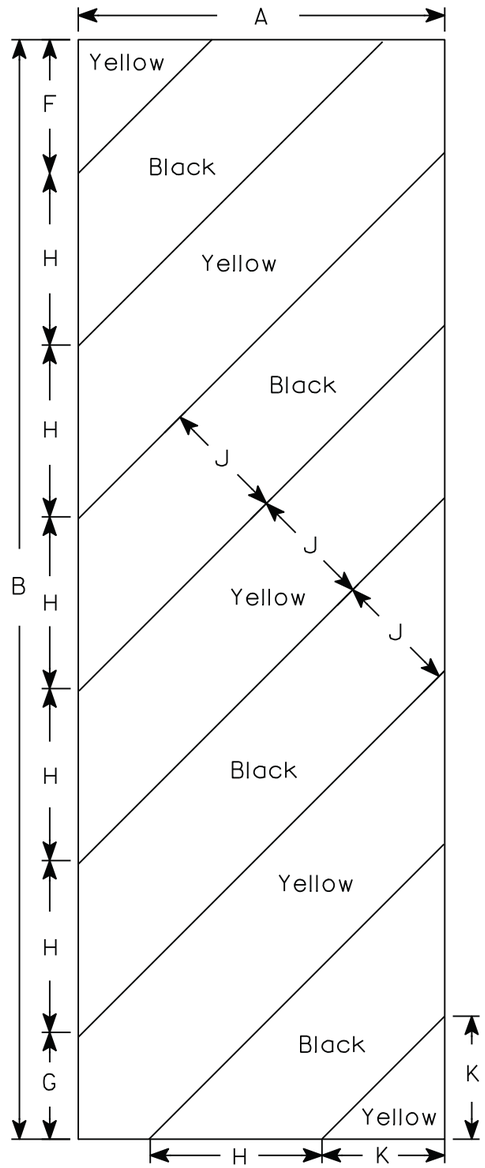
APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 11/12/15 PLATE NO. R1-1.12

PROJECT NO:	HWY:	COUNTY:		SHEET NO:	E



W5-52L



W5-52R

NOTES

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

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	12	36				4 3/8	3 1/2	5 5/8	45°	4	4																3.0
2M	12	36				4 3/8	3 1/2	5 5/8	45°	4	4																3.0
3	18	54				6	5 1/2	8 1/2	45°	6	6 9/16																6.75
4																											
5																											

STANDARD SIGN

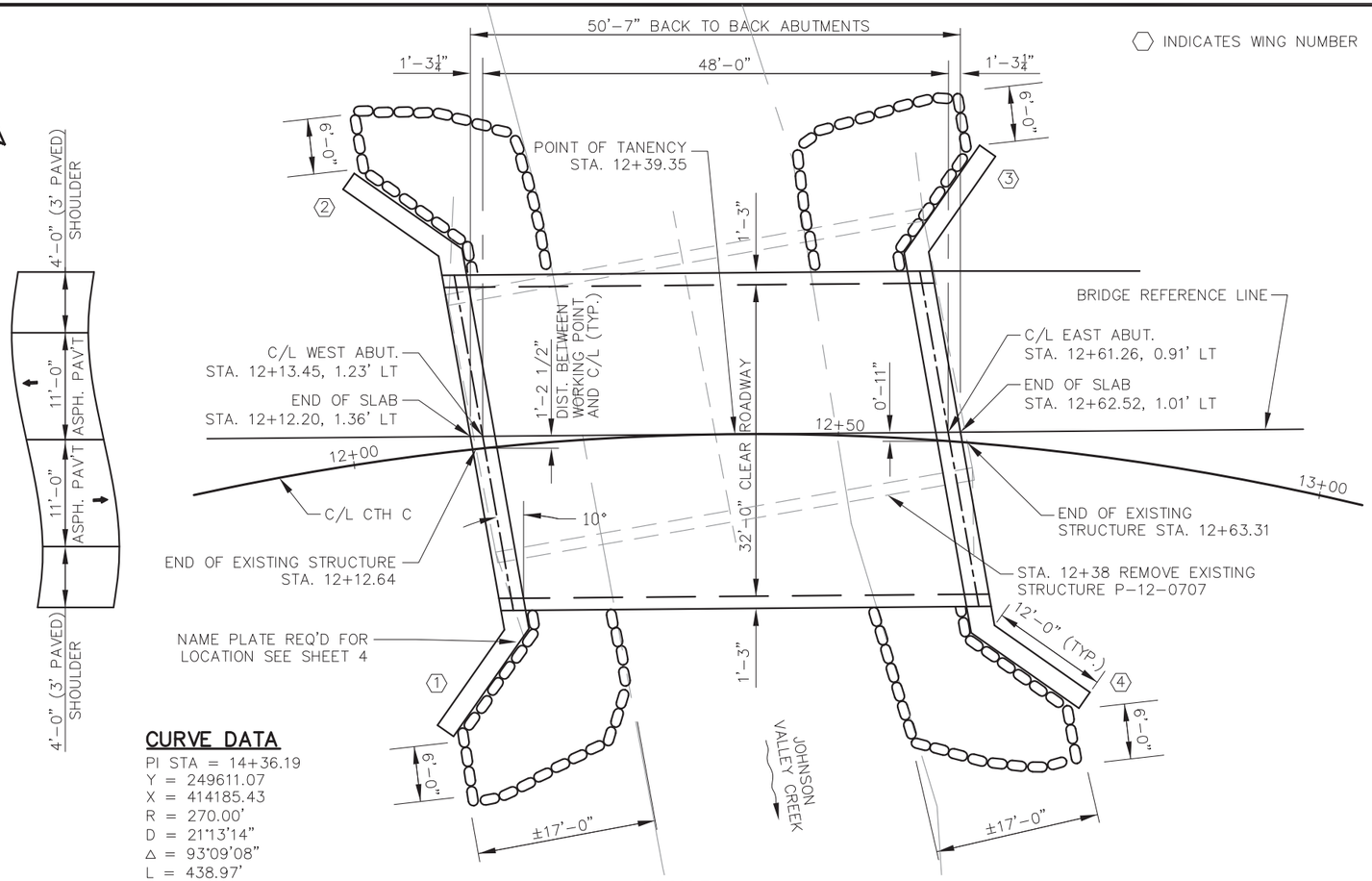
W5-52L & W5-52R

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

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

PROJECT NO:	HWY:	COUNTY:		SHEET NO: 50	E

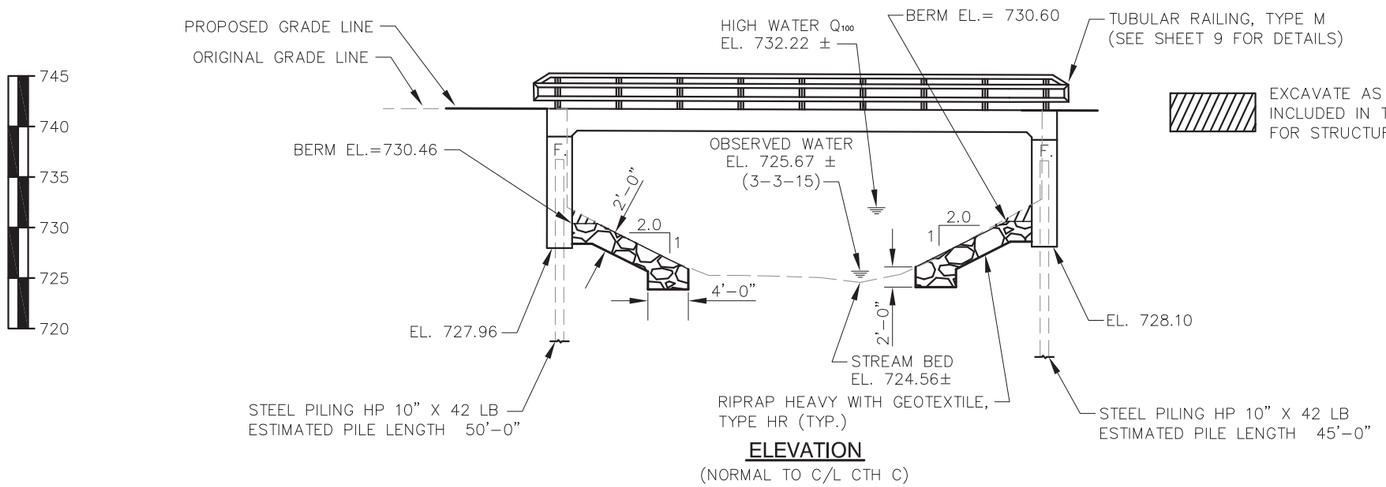


CURVE DATA

PI STA = 14+36.19
Y = 249611.07
X = 414185.43
R = 270.00'
D = 21°13'14"
Δ = 93°09'08"
L = 438.97'
T = 285.28'
C = 392.20'

PLAN B-12-181

(SINGLE SPAN REINFORCED CONCRETE FLAT SLAB)



ELEVATION

(NORMAL TO C/L CTH C)

EXCAVATE AS INDICATED, TO BE INCLUDED IN THE BID ITEM "EXCAVATION FOR STRUCTURES BRIDGES B-12-181"

DESIGN DATA

LIVE LOAD:
- DESIGN LOAD — HL-93
- INVENTORY RATING FACTOR — 1.25
- OPERATING RATING FACTOR — 1.61
- WISCONSIN STANDARD PERMIT VEHICLE RATING — 250 KIPS

STRUCTURE IS DESIGNED FOR A FUTURE WEARING SURFACE OF 20 POUNDS PER SQUARE FOOT.

MATERIAL PROPERTIES:
- CONCRETE MASONRY SUPERSTRUCTURE — f'c = 4,000 p.s.i
- CONCRETE MASONRY SUBSTRUCTURE — f'c = 3,500 p.s.i
- BAR STEEL REINFORCEMENT, GRADE 60 — fy = 60,000 p.s.i

FOUNDATION DATA:

ABUTMENTS SHALL BE SUPPORTED ON PILING STEEL 10-INCH X 42 LB. PILE DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 140 TONS PER PILE IN THE ABUTMENTS AND 95 TONS IN THE WINGS AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA. ESTIMATE 50 FT PILE LENGTHS AT WEST ABUTMENT BODY, 42 FT AT WINGS, AND 45 FT PILE LENGTHS AT EAST ABUTMENT BODY, 37 FT AT WINGS..

**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 THE MODIFIED GATES DYNAMIC FORMULA TO DETERMINE THE DRIVEN PILE CAPACITY.

TRAFFIC DATA:
- A.A.D.T (2017) — 360
- A.A.D.T (2037) — 400
- DESIGN SPEED — 40 M.P.H.

HYDRAULIC DATA:
- Q_{100} — 1,390 c.f.s.
- Q_{100} (THRU BRIDGE) — 1,390 c.f.s.
- Q_{100} (ROAD) — N/A c.f.s.
- DRAINAGE AREA — 4.86 SQ. MI.
- WATERWAY AREA @ Q_{100} — 236 SQ. FT.
- VELOCITY — 5.90 f.p.s.
- HIGH WATER $_{100}$ ELEVATION — 732.22 FT.
- SCOUR CRITICAL CODE — 8
- Q_2 — 249 c.f.s.
- Q_2 ELEVATION — 728.46 FT.

LIST OF DRAWINGS

BRIDGE OFFICE CONTACT:
WILLIAM DREHER
(608) 266-8489

CONSULTANT CONTACT:
JEREMY KRACHEY, P.E.
(608) 875-5075

WISCONSIN PROFESSIONAL ENGINEER
JEREMY F. KRACHEY
E-37258
WAUZEKA
WIS.

05-01-2017

NO	DATE	REVISION	BY

ORIGINAL PLANS PREPARED BY: TEAM ENGINEERING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORATION

ACCEPTED William C. Dreher SDR 05/17/17
CHIEF STRUCTURES DESIGN ENGINEER DATE

STATE PROJECT NUMBER
5001-00-70

STRUCTURE B-12-181

CTH C OVER JOHNSON VALLEY CREEK

COUNTY	CRAWFORD	VILLAGE	SOLDIERS GROVE

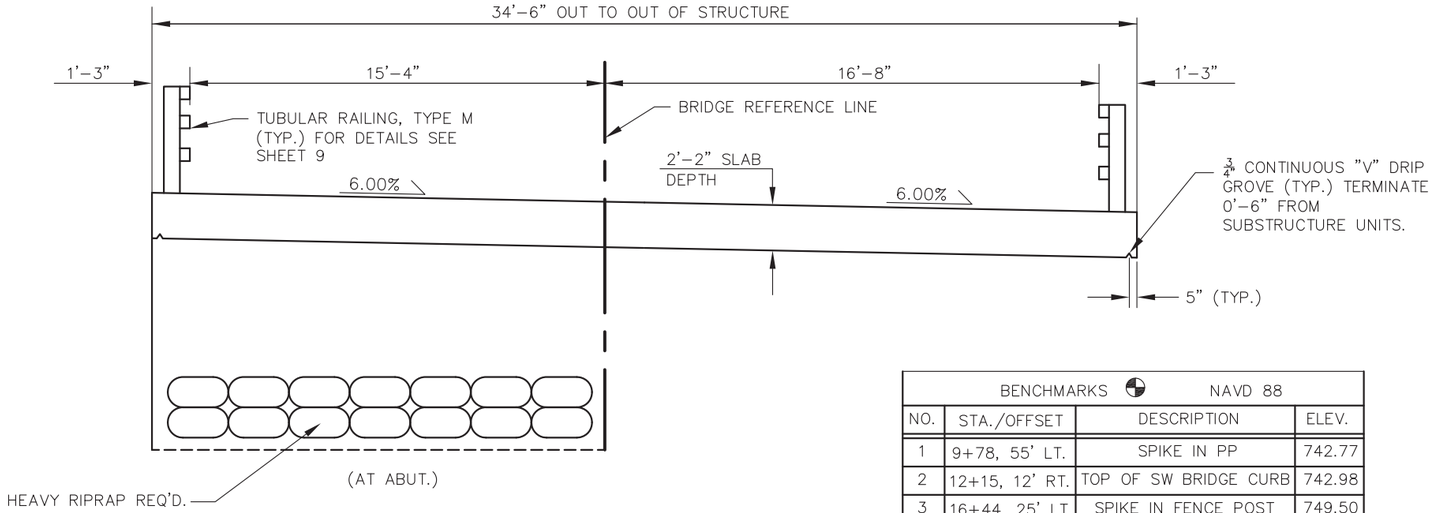
DESIGN SPEC. AASHTO LRFD BRIDGE DESIGN SPEC.

DESIGNED BY	JFK	DESIGN CHECKED	TJK	DRAWN BY	BAS	PLANS CHECKED	JFK

GENERAL PLAN

SHEET 1 OF 9

STATE PROJECT NUMBER
5001-00-70



CROSS SECTION THRU ROADWAY

(LOOKING EAST)

BENCHMARKS ⊕ NAVD 88			
NO.	STA./OFFSET	DESCRIPTION	ELEV.
1	9+78, 55' LT.	SPIKE IN PP	742.77
2	12+15, 12' RT.	TOP OF SW BRIDGE CURB	742.98
3	16+44, 25' LT.	SPIKE IN FENCE POST	749.50

GENERAL NOTES

DRAWING 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 SUBSTRUCTURE UNLESS AN ALTERNATE METHOD IS APPROVED BY THE ENGINEER.

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

THE SLOPE OF THE FILL IN FRONT OF THE ABUTMENTS SHALL BE COVERED WITH HEAVY RIPRAP AND GEOTEXTILE FABRIC TO THE EXTENT SHOWN ON SHEET 1 AND IN THE ABUTMENT DETAILS.

THE EXISTING GROUND LINE SHALL BE THE UPPER LIMITS OF EXCAVATION FOR SUBSTRUCTURES.

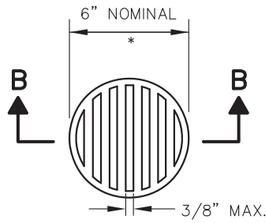
AT THE BACKFACE OF THE ABUTMENT ALL VOLUME WHICH CANNOT BE PLACED BEFORE ABUTMENT CONSTRUCTION AND IS NOT OCCUPIED BY THE NEW STRUCTURE SHALL BE BACKFILLED WITH BACKFILL STRUCTURE.

THE EXISTING STRUCTURE (P–12–0707) IS A TWO SPAN CONCRETE DECK, STEEL GIRDER STRUCTURE ON TIMBER ABUTMENTS AND A TIMBER PIER. THE OVERALL LENGTH IS 50.2' AND THE OVERALL WIDTH IS 28'.

ABUTMENTS NOT TO BE BACKFILLED UNTIL SUPERSTRUCTURE IS IN PLACE.

TOTAL ESTIMATED QUANTITIES

BID ITEM NUMBER	BID ITEMS	UNIT	W. ABUT.	E. ABUT.	SUPER.	TOTALS
203.0600.S	REMOVING OLD STRUCTURE OVER WATERWAY WITH MINIMAL DEBRIS STATION 12+38	LS	–	–	–	1
206.1000	EXCAVATION FOR STRUCTURE BRIDGES B–12–181	LS	–	–	–	1
210.1500	BACKFILL STRUCTURE TYPE A	TON	464	464	–	928
502.0100	CONCRETE MASONRY BRIDGES	CY	72	72	147	291
502.3200	PROTECTIVE SURFACE TREATMENT	SY	–	–	226	226
505.0400	BAR STEEL REINFORCEMENT HS STRUCTURES	LB	3250	3250	–	6500
505.0600	BAR STEEL REINFORCEMENT HS COATED STRUCTURES	LB	2208	2208	24944	29360
513.4061	RAILING TUBULAR TYPE M (B–12–181)	LF	–	–	106	106
516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	8	8	–	16
550.1100	PILING STEEL HP 10–INCH X 42 LB	LF	468	418	–	886
606.0300	RIPRAP HEAVY	CY	53	57	–	110
612.0406	PIPE UNDERDRAIN WRAPPED 6–INCH	LF	100	100	–	200
645.0120	GEOTEXTILE TYPE HR	SY	120	130	–	250
645.0111	GEOTEXTILE TYPE DF SCHEDULE A	SY	22	22	–	44
	NON–BID ITEMS					
	FILLER	SIZE				½" & ¾"

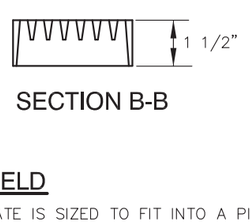


RODENT SHIELD

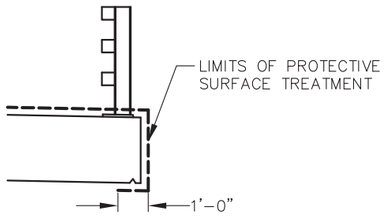
* NOTE: DIMENSIONS ARE APPROXIMATE. THE GRATE IS SIZED TO FIT INTO A PIPE COUPLING, ORIENT SO SLOTS ARE VERITCAL.

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

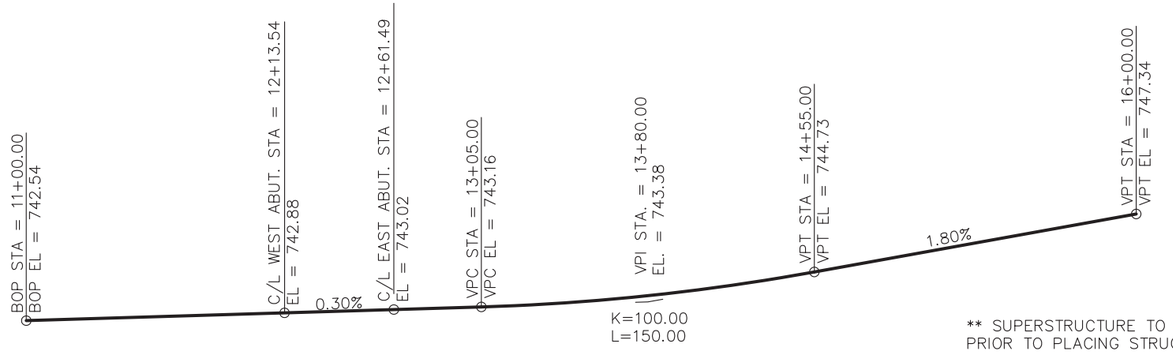
THE RODENT SHIELD SHALL BE A PVC GRATE SIMILAR TO THIS DETAIL. THE GRATE IS COMMERCIALLY AVAILABLE AS A FLOOR STRAINER. A PIPE COUPLING IS REQUIRED FOR THE ATTACHMENT OF THIS SHIELD TO THE EXPOSED END OF THE PIPE UNDERDRAIN. THE SHIELD SHALL BE FASTENED TO THE PIPE COUPLING WITH TWO OR MORE NO. 10 X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



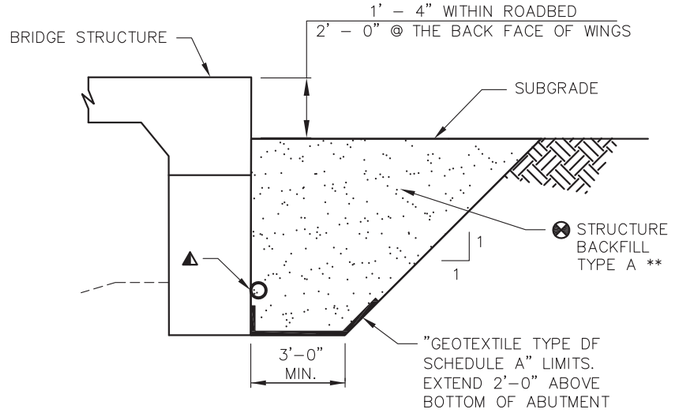
SECTION B-B



PROTECTIVE SURFACE TREATMENT DETAIL



PROFILE GRADE LINE, C/L CTH C



STRUCTURE BACKFILL DETAIL

(TYPICAL AT BOTH ABUTMENTS)

** SUPERSTRUCTURE TO BE IN PLACE PRIOR TO PLACING STRUCTURE BACKFILL TYPE A ABOVE ELEV. 730.60

▲ PIPE UNDERDRAIN WRAPPED (6–INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. ATTACH RODENT SHIELD AT ENDS OF PIPE UNDERDRAIN.

⊗ BACKFILL PAY LIMITS. BACKFILL BEYOND BACKFILL PAY LIMITS SHALL BE INCIDENTAL TO EXCAVATION FOR STRUCTURES. LIMITS OF EXCAVATION SHALL BE DETERMINED BY THE CONTRACTOR.

NO	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORATION
STRUCTURES DESIGN SECTION

STRUCTURE B-12-181

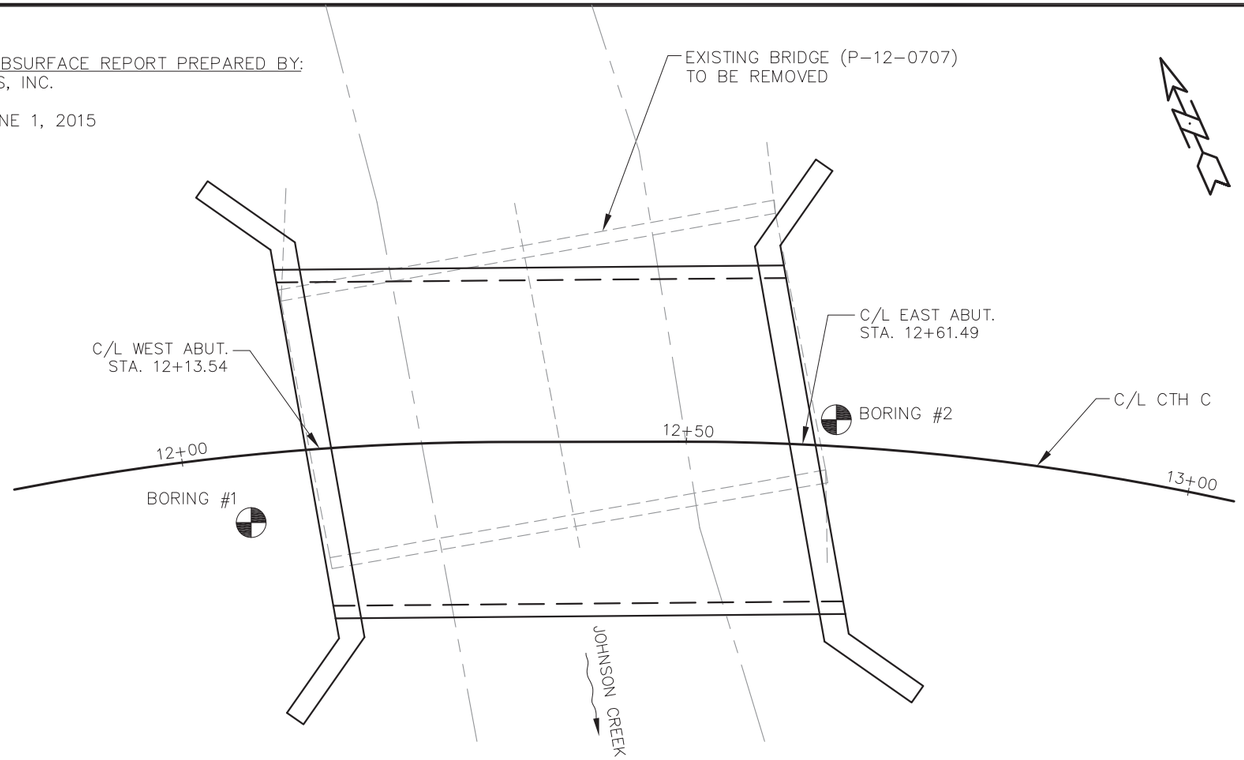
DRAWN BY BAS | PLANS CHECKED JFK

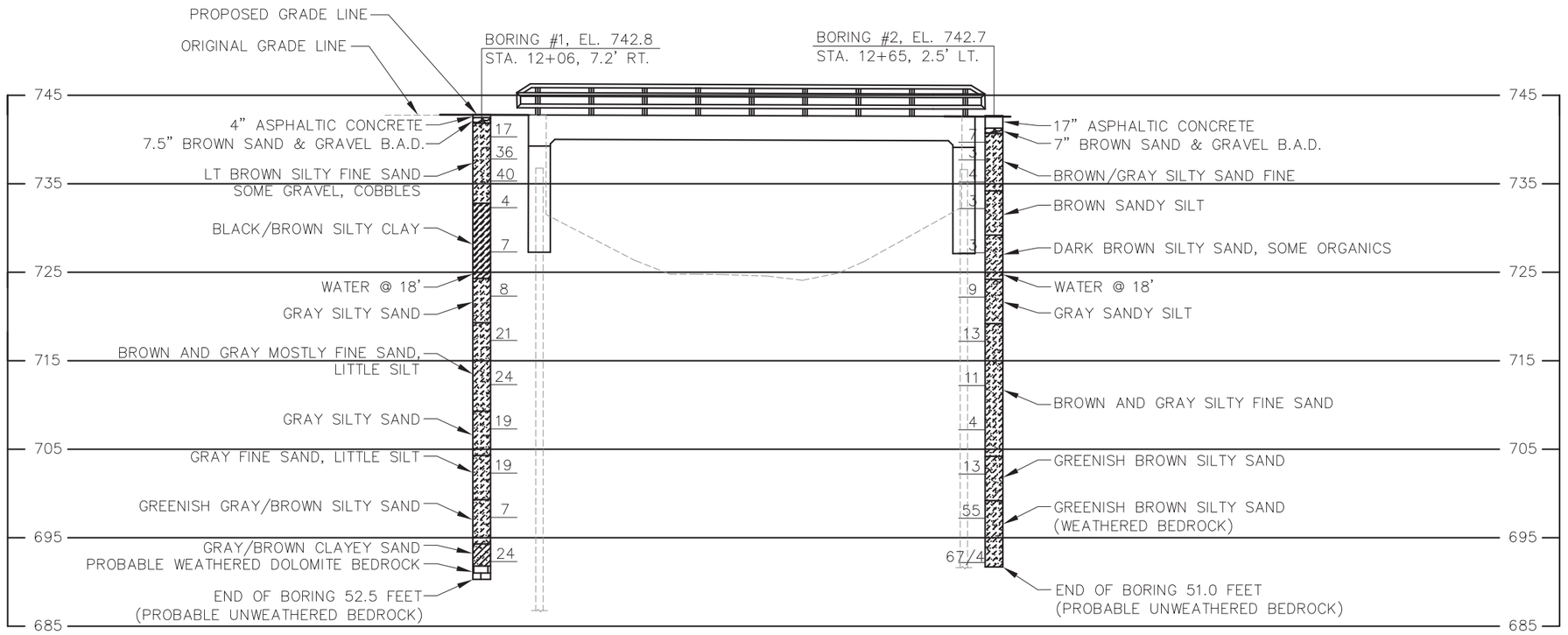
CROSS SECTION & QUANTITIES

SHEET 2 OF 9

BORINGS PERFORMED BY AND SUBSURFACE REPORT PREPARED BY:
NUMMELIN TESTING SERVICES, INC.
WAUNAKEE, WISCONSIN
BORINGS COMPLETED ON JUNE 1, 2015

PLANS PREPARED BY:
TEAM ENGINEERING, INC.
LOGANVILLE, WISCONSIN





STATE PROJECT NUMBER

5001-00-70

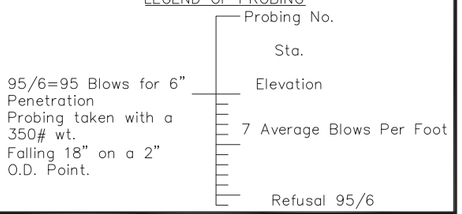
ABBREVIATIONS

VF – Very Fine F – Fine M – Medium C – Coarse
Ws – Weathered So – Sound

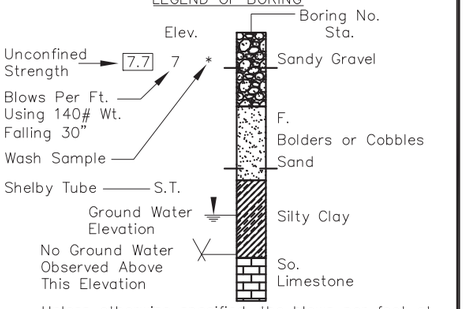
MATERIAL SYMBOLS

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# hammer having a free fall of 30". The blow count is taken in undisturbed soil immediately below a cased or open hole eliminating side fraiction on the drive pipe.

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 Division of Highways does not warrant conditions below the depths investigated or that the classification of material encountered in these investigations is necessarily typical of the entire site.

NO	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORATION
STRUCTURES DESIGN SECTION

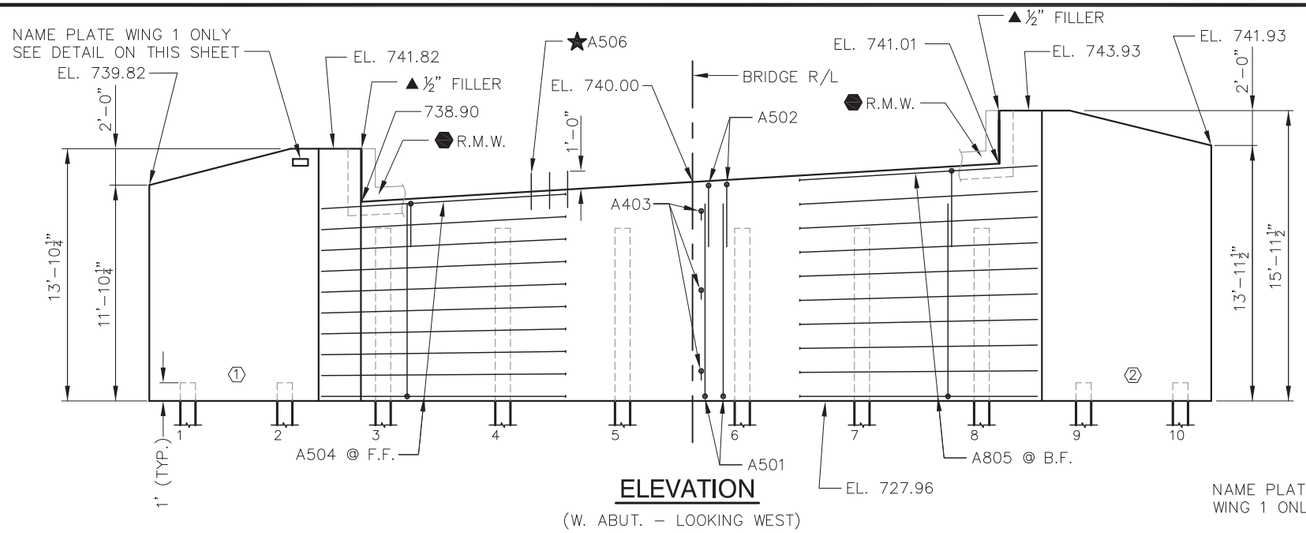
STRUCTURE B-12-181

DRAWN BY BAS | PLANS CHECKED JLB

SUBSURFACE EXPLORATION

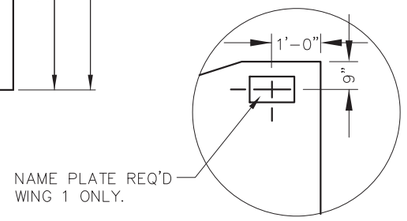
SHEET 3 OF 9

STATE PROJECT NUMBER
5001-00-70



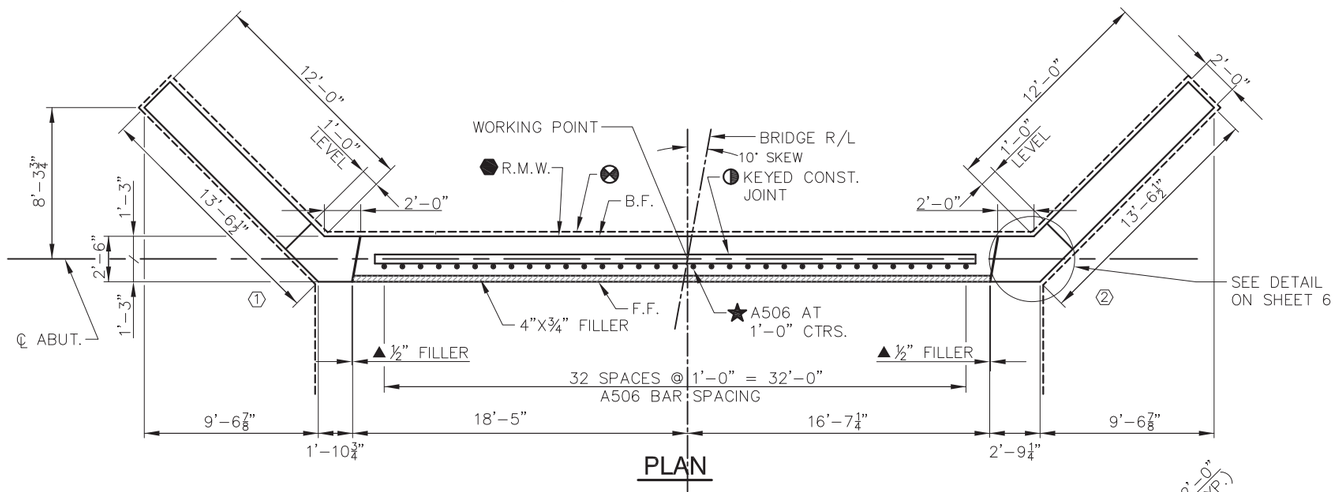
ELEVATION

(W. ABUT. – LOOKING WEST)

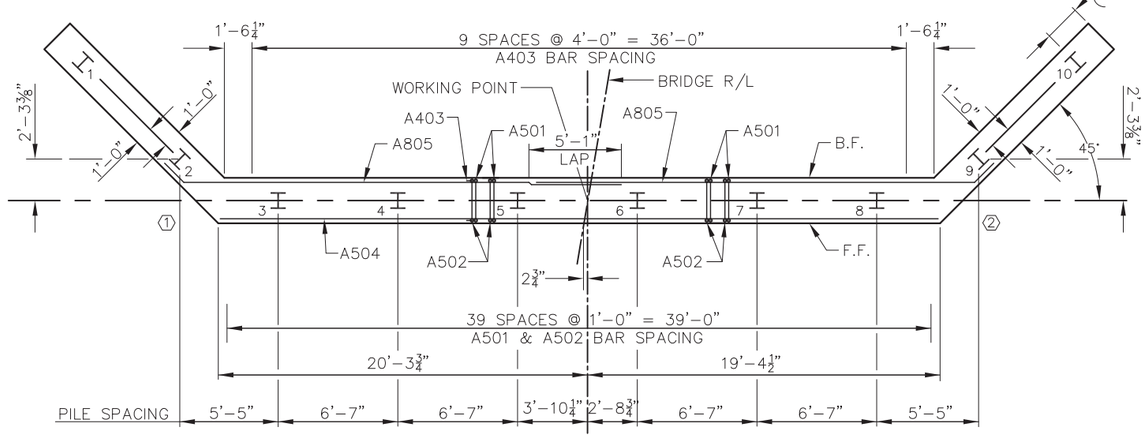


NAME PLATE DETAIL

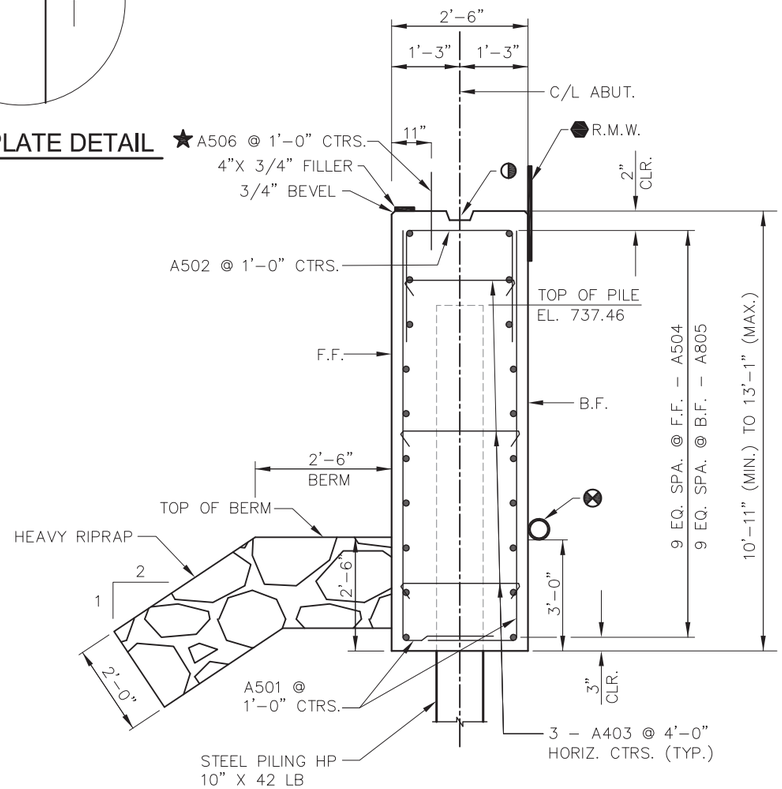
- KEYED CONSTRUCTION JOINT FORMED BY A SURFACED, BEVELED 2"X6"
- 18" RUBBERIZED MEMBRANE WATERPROOFING (HORIZONTAL)
- ▲ 1/2" FILLER EXTEND AS SHOWN. SEAL ALL EXPOSED HORIZ. & VERT. SURFACES OF FILLER WITH NON–STAINING GRAY, NON–BITUMINUOS JOINT SEALER. (1" DEEP & HOLD 1/8" BELOW SURFACE OF CONCRETE)
- ★ A506 BARS MAY BE PLACED AFTER CONCRETE IS POURED BUT BEFORE IT HAS TAKEN ITS INITIAL SET. EMBED BAR 1'–0".
- ⊗ PIPE UNDERDRAIN WRAPPED (6–INCH). EXTEND THRU GEOTEXTILE FABRIC AT FACE OF RIPRAP HEAVY. SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. PROVIDE RODENT PROTECTION AT ENDS OF PIPE.



PLAN



LAYOUT



TYPICAL SECTION THROUGH ABUTMENT BODY

NO	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORATION
STRUCTURES DESIGN SECTION

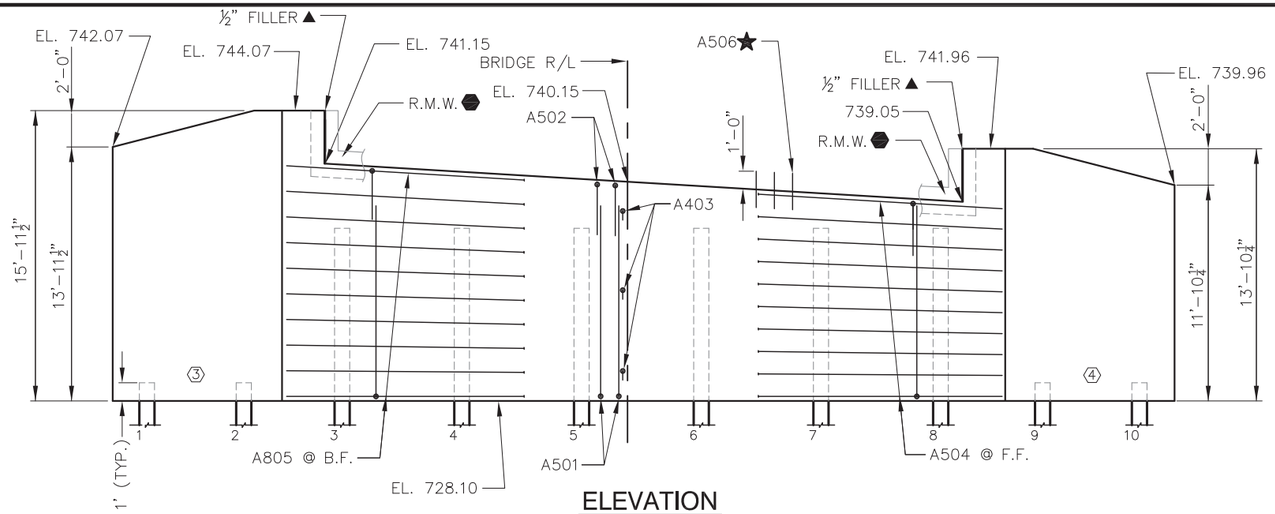
STRUCTURE B-12-181

DRAWN BY BAS | PLANS CHECKED JFK

WEST ABUTMENT

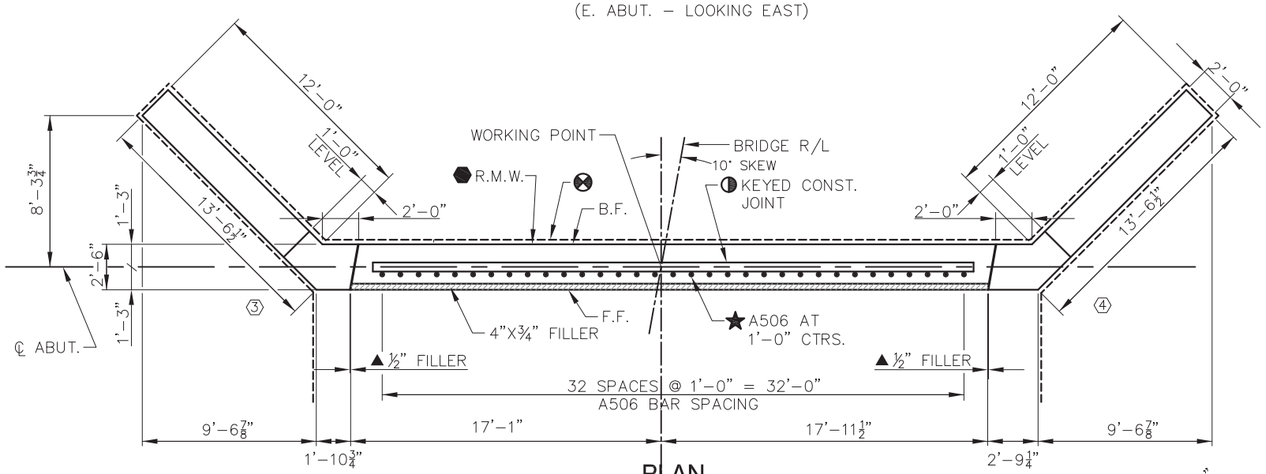
SHEET 4 OF 9

STATE PROJECT NUMBER
5001-00-70

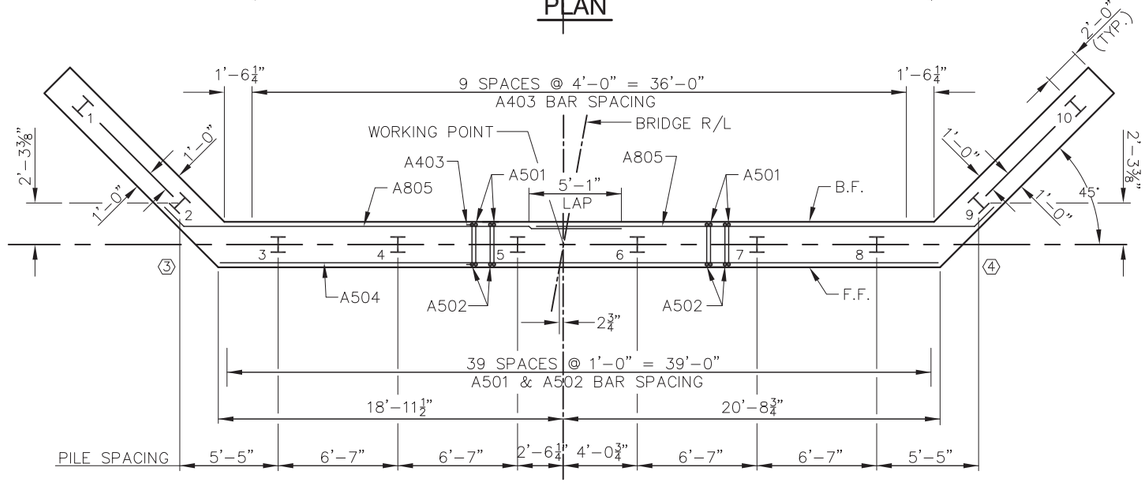


ELEVATION

(E. ABUT. – LOOKING EAST)

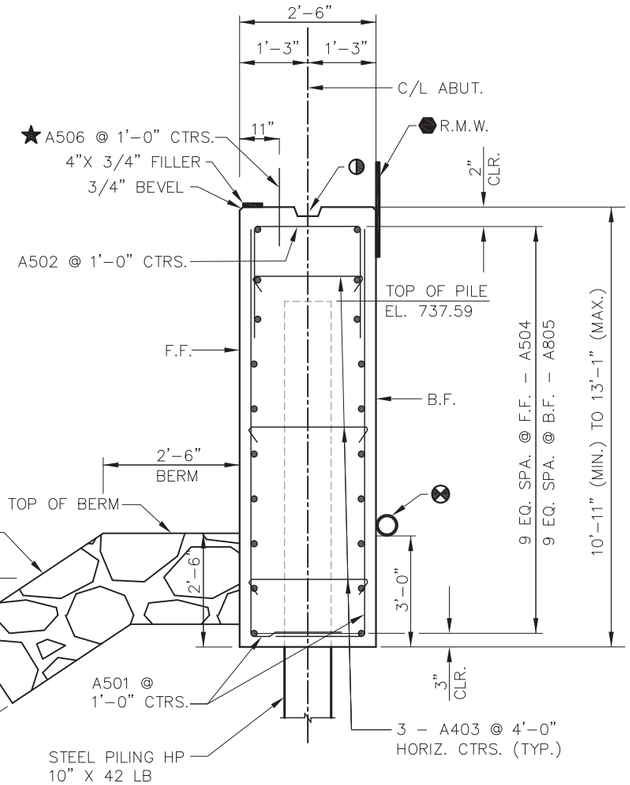


PLAN



LAYOUT

- ◑ KEYED CONSTRUCTION JOINT FORMED BY A SURFACED, BEVELED 2"X6"
- ⬢ 18" RUBBERIZED MEMBRANE WATERPROOFING (HORIZONTAL)
- ▲ 1/2" FILLER EXTEND AS SHOWN. SEAL ALL EXPOSED HORIZ. & VERT. SURFACES OF FILLER WITH NON–STAINING GRAY, NON–BITUMINUOS JOINT SEALER. (1" DEEP & HOLD 1/8" BELOW SURFACE OF CONCRETE)
- ★ A506 BARS MAY BE PLACED AFTER CONCRETE IS POURED BUT BEFORE IT HAS TAKEN ITS INITIAL SET. EMBED BAR 1'–0".
- ⊗ PIPE UNDERDRAIN WRAPPED (6–INCH). EXTEND THRU GEOTEXTILE FABRIC AT FACE OF RIPRAP HEAVY. SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. PROVIDE RODENT PROTECTION AT ENDS OF PIPE.



TYPICAL SECTION THROUGH ABUTMENT BODY

NO	DATE	REVISION	BY

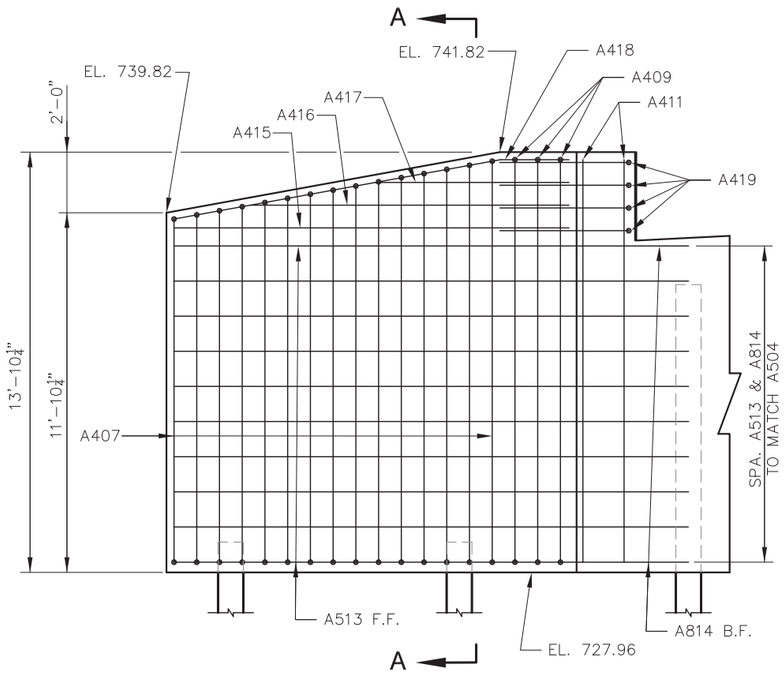
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORATION
STRUCTURES DESIGN SECTION

STRUCTURE B-12-181

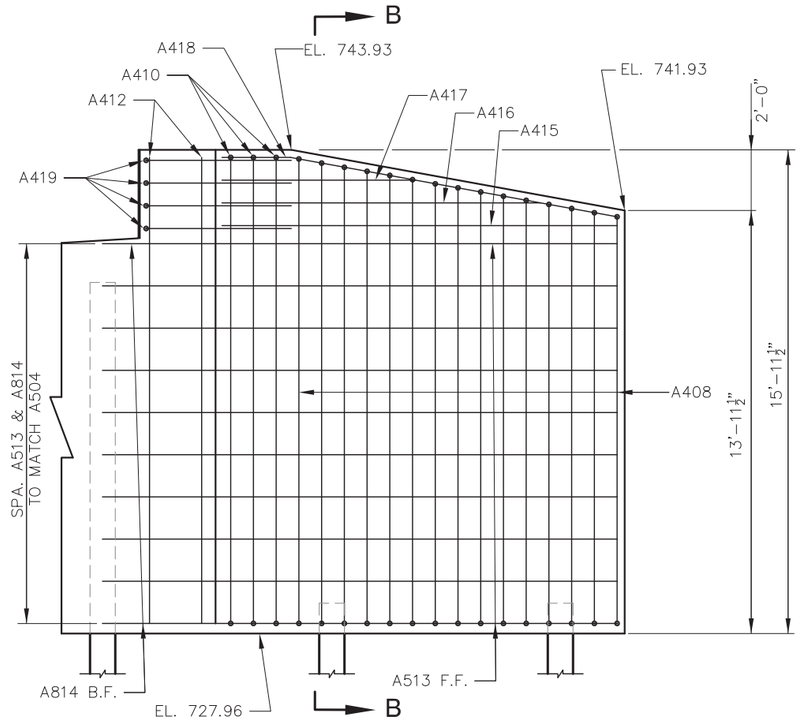
DRAWN BY BAS | PLANS CHECKED JFK

EAST ABUTMENT

SHEET 5 OF 9

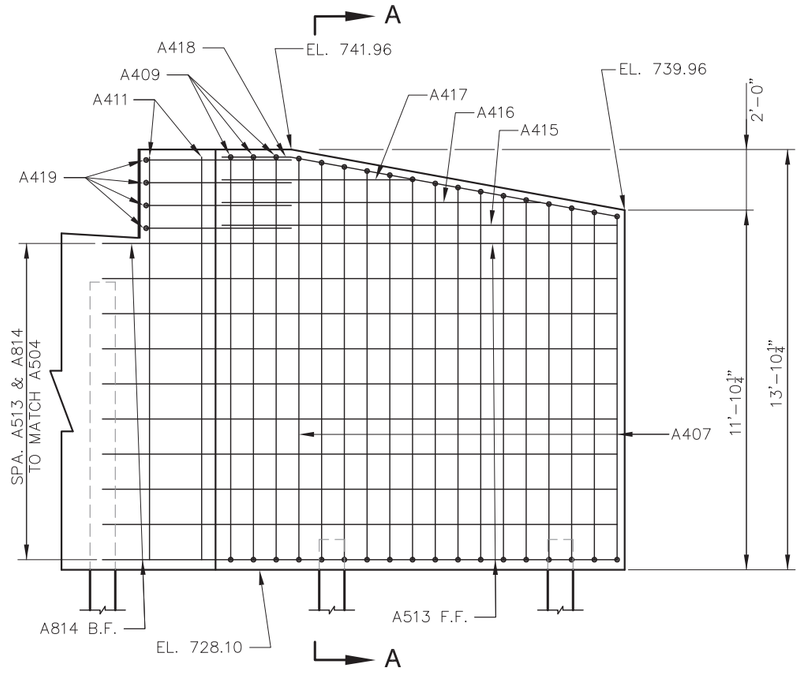


F.F. ELEVATION - WING 1

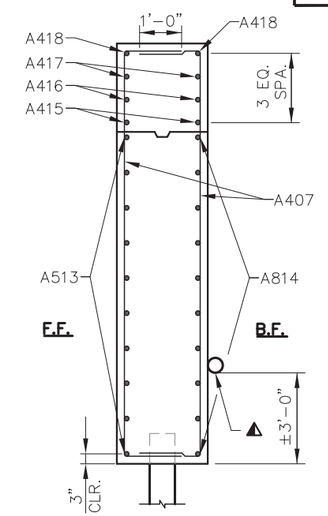


F.F. ELEVATION - WING 2

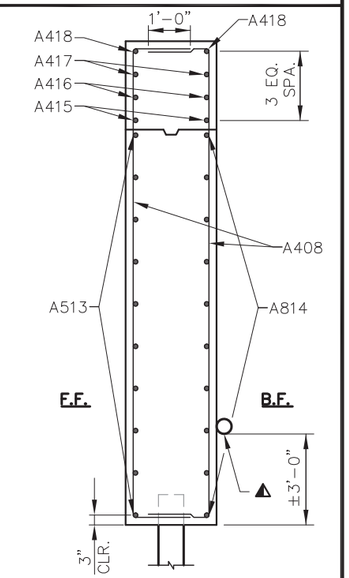
F.F. ELEVATION - WING 3



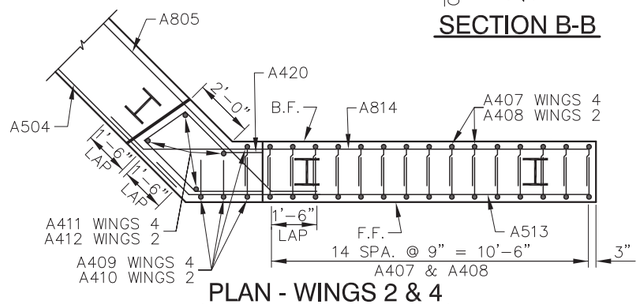
F.F. ELEVATION - WING 4



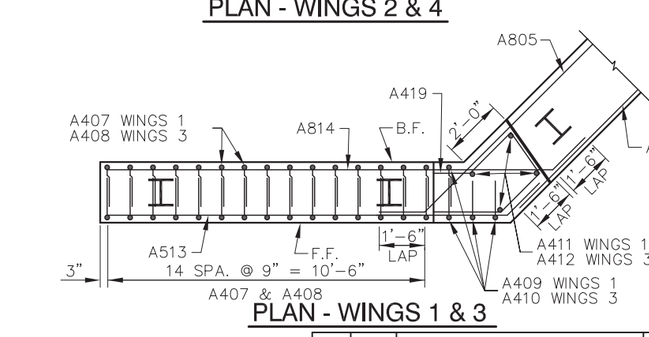
SECTION A-A



SECTION B-B



PLAN - WINGS 2 & 4



PLAN - WINGS 1 & 3

▲ PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. ATTACH RODENT SHIELD AT ENDS OF PIPE UNDERDRAIN.

NO	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORATION
STRUCTURES DESIGN SECTION

STRUCTURE B-12-181

DRAWN BY BAS | PLANS CHECKED JFK

ABUTMENT DETAILS

SHEET 6 OF 9

STATE PROJECT NUMBER

5001-00-70

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

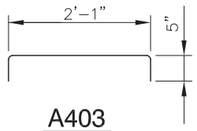
ALL BAR BEND DIMENSIONS ARE OUT TO OUT OF BAR.

BILL OF BARS (ABUTMENTS)

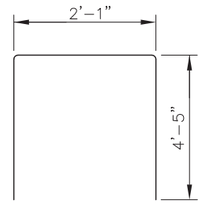
COATED 4,416 LBS.
UNCOATED 6,500 LBS.

MARK	NO. REQ'D	COAT	LENGTH	BENT	LENGTH
A501	160		11'–9"	X	BODY F.F. & B.F. – VERT.
A502	80		10'–8"	X	BODY TIES @ TOP. – VERT.
A403	60		2'–9"	X	BODY TIES – HORIZ.
A504	20		39'–5"		BODY F.F. – HORIZ.
A805	40		25'–5"	X	BODY B.F. – HORIZ.
A506	66	X	2'–0"		BODY – F.F. – DOWELS – VERT.
◨ A407	60	X	14'–10"	X	WINGS 1 & 4 – STIRRUPS – VERT.
◨ A408	60	X	16'–10"	X	WINGS 2 & 3 – STIRRUPS – VERT.
A409	8	X	15'–10"	X	WINGS 1 & 4 – F.F. & B.F. – VERT.
A410	8	X	17'–10"	X	WINGS 2 & 3 – F.F. & B.F. – VERT.
A411	8	X	13'–4"		WINGS 1 & 4 – F.F. & B.F. – VERT.
A412	8	X	15'–4"		WINGS 2 & 3 – F.F. & B.F. – VERT.
A513	40	X	14'–8"	X	WINGS 1 THRU 4 – F.F. – HORIZ.
A814	40	X	16'–3"	X	WINGS 1 THRU 4 – B.F. – HORIZ.
A415	8	X	13'–1"		WINGS 1 THRU 4 – F.F. & B.F. – HORIZ.
A416	8	X	10'–6"		WINGS 1 THRU 4 – F.F. & B.F. – HORIZ.
A417	8	X	6'–5"		WINGS 1 THRU 4 – F.F. & B.F. – HORIZ.
A418	8	X	13'–2"	X	WINGS 1 THRU 4 – HORIZ.
A419	8	X	8'–10"	X	WINGS 1 & 3 – HORIZ.
A420	8	X	9'–7"	X	WINGS 2 & 4 – HORIZ.

◨ LENGTH SHOWN FOR BAR IS AN AVERAGE LENGTH AND SHOULD ONLY BE USED FOR BAR WEIGHT CALCULATIONS. SEE BAR SERIES TABLE FOR ACTUAL LENGTHS.



A403



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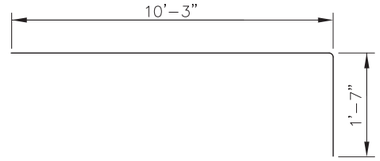

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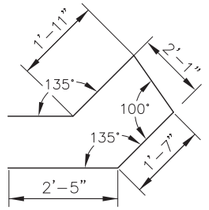

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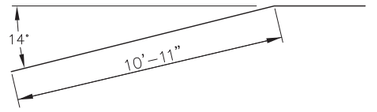
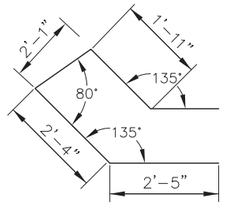


A418

A805, A513, A814



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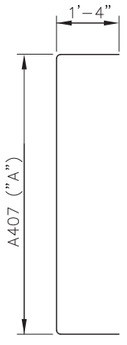
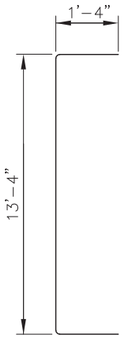


MARK	"A"
A407	11'–4"
	11'–6"
	11'–7"
	11'–9"
	11'–11"
	12'–0"
	12'–2"
	12'–4"
	12'–5"
	12'–7"
	12'–8"
	12'–10"
	13'–0"
	13'–1"
	13'–3"

A407

MARK	"A"
A408	13'–4"
	13'–6"
	13'–7"
	13'–9"
	13'–11"
	14'–0"
	14'–2"
	14'–4"
	14'–5"
	14'–7"
	14'–9"
	14'–10"
	15'–1"
	15'–2"
	15'–3"

A408



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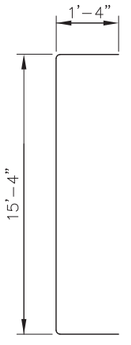

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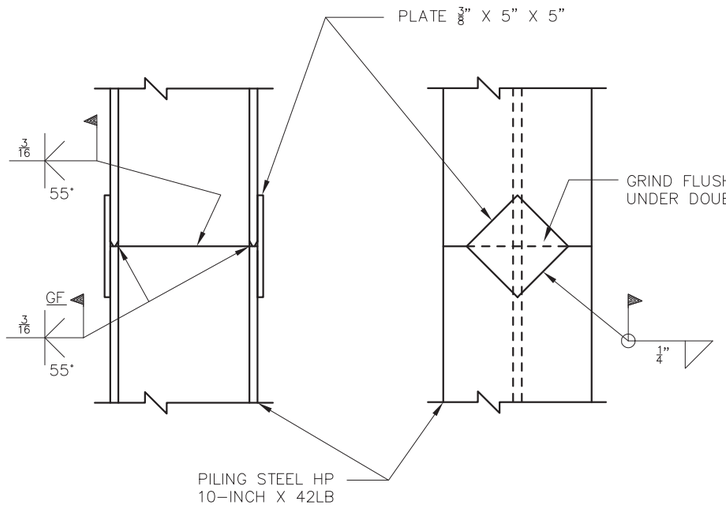
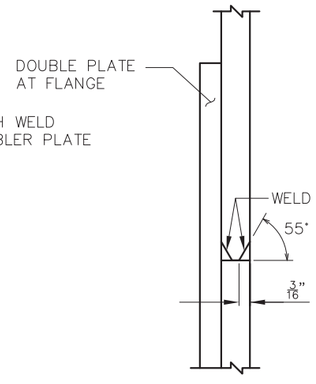


PILE SPLICE DETAIL



HP WELD DETAIL

FLANGE SHOWN, WEB SIMILAR

BAR SERIES TABLE

MARK	NO. REQ'D	LENGTH
A407	2 SERIES OF 15	13'–10" TO 15'–9"
A408	2 SERIES OF 15	15'–10" TO 17'–9"

NO	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORATION
STRUCTURES DESIGN SECTION

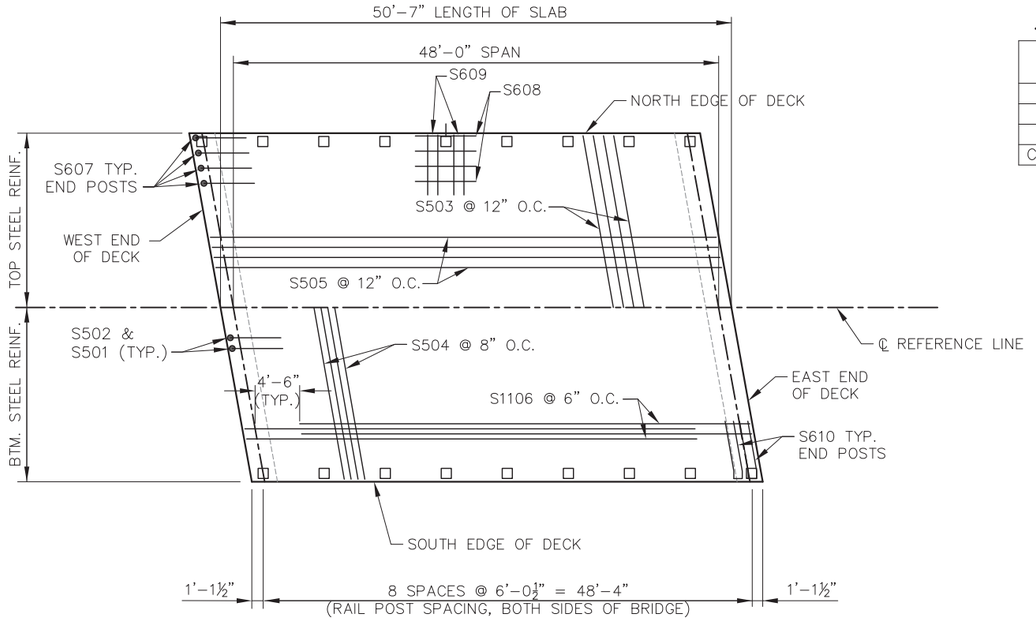
STRUCTURE B-12-181

DRAWN BY BAS | PLANS CHECKED JFK

ABUTMENT DETAILS

SHEET 7 OF 9

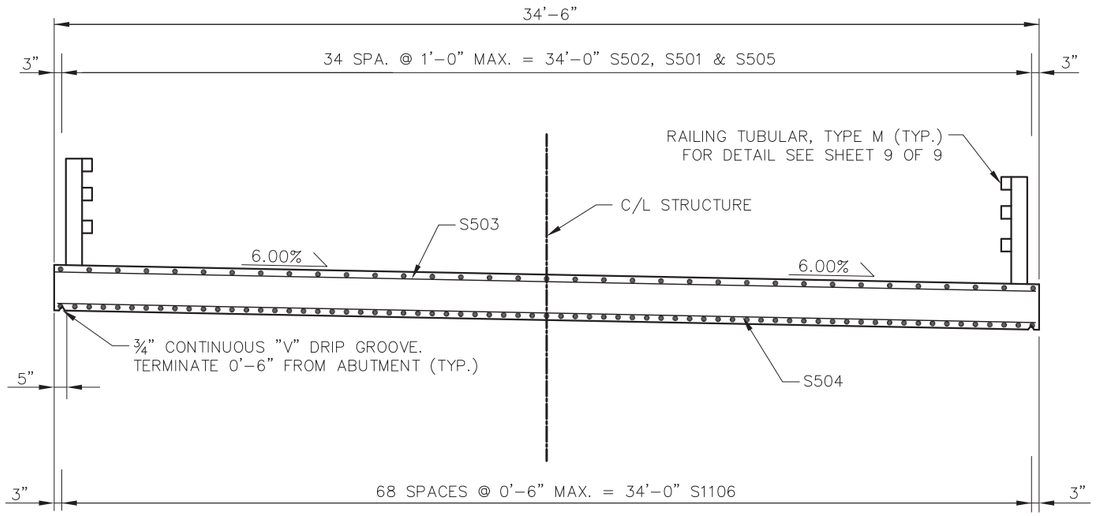
STATE PROJECT NUMBER
5001-00-70



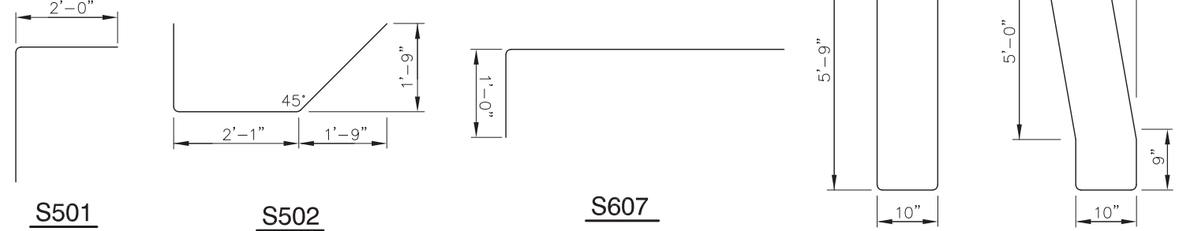
PLAN

TOP OF DECK ELEVATIONS

	℄ BRG. W. ABUT.	0.1 PT.	0.2 PT.	0.3 PT.	0.4 PT.	0.5 PT.	0.6 PT.	0.7 PT.	0.8 PT.	0.9 PT.	℄ BRG. E. ABUT.
L/E.O.D.	743.92	743.93	743.95	743.96	743.98	743.99	744.01	744.02	744.04	744.05	744.06
℄ CTH C	742.88	742.89	742.91	742.92	742.94	742.95	742.97	742.98	743.00	743.01	743.02
R/E.O.D.	741.84	741.85	741.87	741.88	741.90	741.91	741.93	741.94	741.96	741.97	741.98
CAMBER(IN.)	0	⅝"	1 ⅛"	1 ½"	1 ¾"	1 ⅞"	1 ¾"	1 ½"	1 ⅛"	⅝"	0



CROSS SECTION THRU ROADWAY

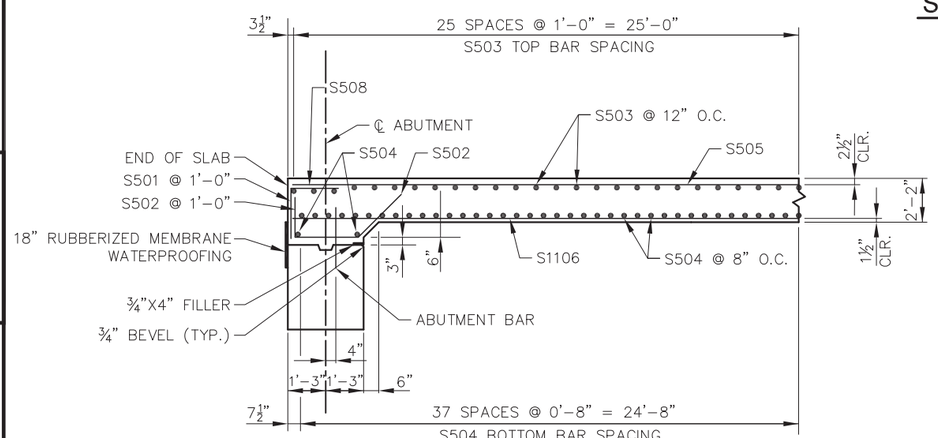


BILL OF BARS (SUPERSTRUCTURE) COATED 24,944 LBS.

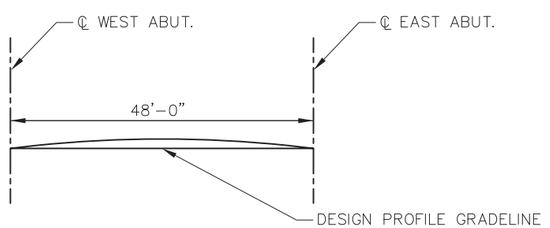
MARK	NO. REQ'D	LENGTH	BENT	DESCRIPTION
S501	70	4'–5"	X	SLAB AT END OF DECK
S502	70	5'–10"	X	SLAB AT END OF DECK
S503	51	34'–8"		SLAB TOP TRANSVERSE
S504	79	34'–8"		SLAB BOTTOM TRANSVERSE
S505	35	50'–3"		SLAB TOP LONGIT.
S1106	69	44'–7"		SLAB BOTTOM LONGIT.
S607	16	6'–0"	X	AT END RAIL POSTS
S608	56	6'–0"		AT INTERIOR RAIL POSTS
S609	28	12'–4"	X	AT INTERIOR RAIL POSTS
S610	8	12'–4"	X	AT CORNER RAIL POSTS

THE FIRST DIGIT OF A 3 DIGIT MARK OR THE FIRST TWO DIGITS OF A 4 DIGIT MARK SIGNIFIES THE BAR SIZE

ALL BAR BEND DIMENSIONS ARE OUT TO OUT OF BAR.



PARTIAL LONGITUDINAL SECTION



SLAB CAMBER DIAGRAM

CAMBER SPAN AS SHOWN TO PROVIDE FOR DEAD LOAD DEFLECTION AND FUTURE CREEP. CAMBER DOES NOT INCLUDE ALLOWANCE FOR FORM SETTLEMENT.

TOP TRANSVERSE BARS IN SLAB SHALL BE SUPPORTED BY INDIVIDUAL BAR CHAIRS AT APPROXIMATELY 3'–0" CENTERS.

BOTTOM LONGITUDINAL BARS SHALL BE SUPPORTED BY CONTINUOUS BAR CHAIRS AT APPROXIMATELY 4'–0" CENTERS.

ALL SLAB THICKNESS DIMENSIONS ARE MINIMUM ANY TOLERANCES NECESSARY TO CORRECT CONSTRUCTION DISCREPENCES ARE TO BE PLUS (+).

NO	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORATION
STRUCTURES DESIGN SECTION

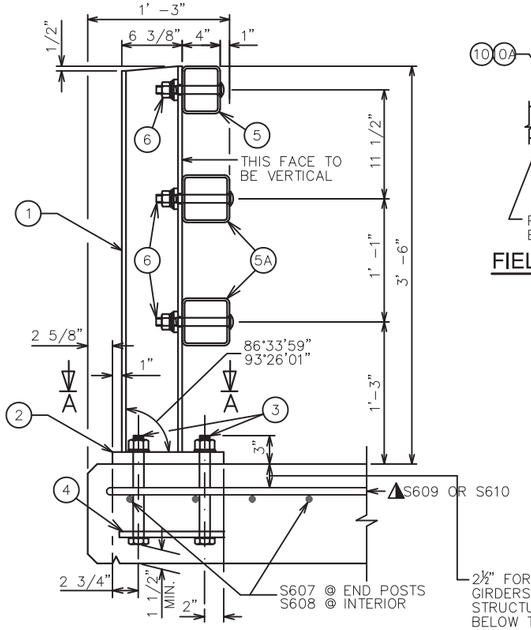
STRUCTURE B-12-181

DRAWN BY BAS | PLANS CHECKED JFK

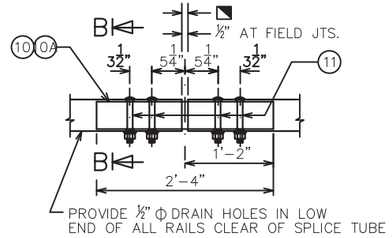
SUPERSTRUCTURE

SHEET 8 OF 9

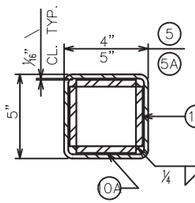
STATE PROJECT NUMBER
5001-00-70



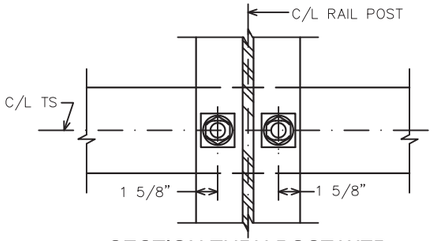
SECTION THRU RAILING ON DECK



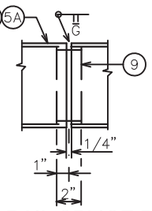
FIELD ERECTION JOINT DETAIL



SECTION B-B

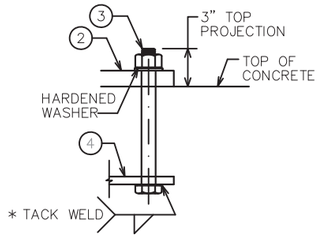


SECTION THRU POST WEB

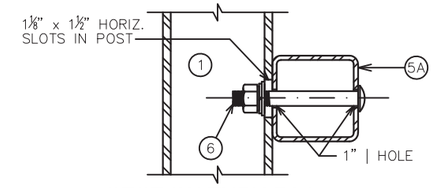


SHOP RAIL SPLICE DETAIL

LOCATION MUST BE SHOWN ON SHOP DRAWINGS



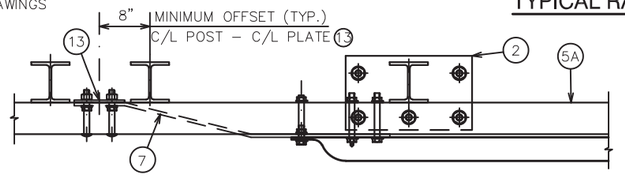
ANCHOR BOLTS



SECTION THRU RAIL

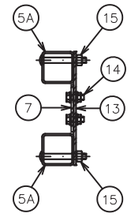
NOTE: CONNECTIONS AT LOWER RAILS SHOWN. CONNECTIONS AT TOP RAIL SIMILAR.

TYPICAL RAIL TO POST CONNECTIONS



TOP VIEW AT END POST

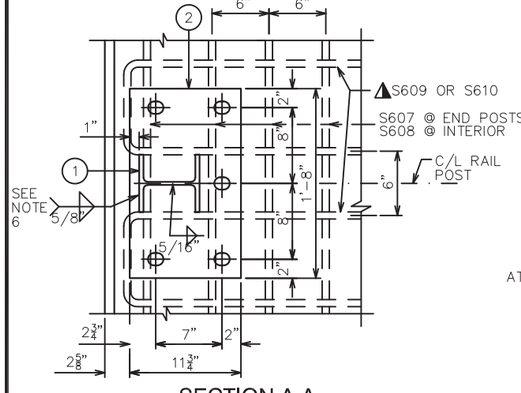
THRIE BEAM RAIL ATTACHMENT



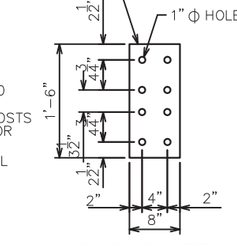
SECTION C-C

LEGEND

1. W6 x 25 WITH 1⅛" X 1½" HORIZ. SLOTS ON EACH SIDE OF POST FOR BOLT NO. 6. CUT BOTTOM OF POST TO MATCH CROSS SLOPE OF ROADWAY. PLACE POST VERTICAL. PLACE POSTS NORMAL TO GRADE LINE.
2. PLATE 1¼" x 11¾" x 1'–8" WITH 1⅜6" X 1⅝" SLOTTED HOLES FOR ANCHOR BOLTS NO. 3. WELD TO NO. 1 AS SHOWN. SLOTS PARALLEL TO SHORT SIDE OF PLATE.
3. ASTM A449 – 1⅛" DIA. ANCHOR BOLTS WITH NUT AND HARDENED WASHER (ALL GALVANIZED). 5 REQ'D. PER POST. THREAD 3" AND PLACE NORMAL TO PLATE NO. 2. CHAMFER TOP OF BOLTS BEFORE THREADING. USE 1'–9" LONG IN ABUTMENT WINGS. AT POSTS ON CONCRETE SLAB SUPERSTRUCTURES WHERE THE SLAB THICKNESS IS > 16" USE 1'–3" LONG. USE 10¾" LONG AT ALL OTHER LOCATIONS. (AN EQUIVALENT THREADED ROD WITH NUTS AND HARDENED WASHERS MAY BE SUBSTITUTED FOR ANCHOR BOLTS IN WINGS IF REQ'D. FOR CONSTRUCTIBILITY.)
4. ⅝" x 11" x 1'–8" ANCHOR PLATE (GALVANIZED) WITH 1⅜6" DIA. HOLES FOR ANCHOR BOLTS NO. 3
5. TS 5 x 4 x 0.25 STRUCTURAL TUBING. ATTACH TO NO. 1 WITH NO. 6.
5A. TS 5 x 5 x 0.25 STRUCTURAL TUBING. ATTACH TO NO. 1 WITH NO. 6.
6. ⅞" DIA. A325 SLOTTED ROUND HEAD BOLT WITH NUT, 3⁄16" X 1⅝" X 1⅝" WASHER, AND LOCK WASHER (2 REQ'D. AT EACH RAIL TO POST LOCATION.)
7. ½" THK. BACK–UP PLATE WITH 2 – ⅞" X 1½" THREADED SHOP WELDED STUDS (NO. 12). BOLT TO RAIL AS SHOWN IN DETAIL. REQUIRED AT THRIE BEAM GUARD RAIL ATTACHMENTS ONLY. PLACE SYMMETRICALLY ABOUT TUBES NO. 5A.
8. 1" DIA. HOLES IN PLATE NO. 7 & TUBES NO. 5A FOR ⅞" DIA. A325 BOLTS WITH HEX NUTS AND WASHERS. 6 HOLES IN TUBES AND PLATE NO. 7.
9. SPLICE SLEEVE FABRICATED FROM ¼" PLATE. PROVIDE "SLIDING FIT".
10. ⅜" X 3⅝" X 2'–4" PLATE. 2 PER RAIL. USED IN NO. 5 & 5A.
10A. ⅜" X 2⅝" X 2'–4" PLATE USED IN NO. 5, ⅜" X 3⅝" X 2'–4" PLATE USED IN NO. 5A. 2 PER RAIL.
11. ⅞" | A325 ROUND HEAD BOLT WITH NUT, WASHER, AND LOCK WASHER. USE 15⁄16" X 1¼" LONGIT. SLOTTED HOLES AT FIELD JOINTS AND 15⁄16" X 2¼" MIN. LONGIT. SLOTTED HOLES AT EXP. JOINTS IN PLATE NO. 10A.
12. ⅞" DIA. X 1½" LONG THREADED SHOP WELDED STUDS (2 REQ'D).
13. ⅜" X 8" X 1'–6" PLATE. BOLT TO RAIL AS SHOWN IN DETAIL. REQ'D. AT THRIE BEAM GUARD RAIL ATTACHMENTS ONLY. PLACE SYM. ABOUT TUBES NO. 5A.
14. ⅞" DIA. X 2" LONG A325 HEX BOLT WITH NUT AND WASHER (5 REQ'D.).
15. 1" | HOLES IN TUBES NO. 5A FOR ⅞" DIA. A325 ROUND HEAD BOLT WITH NUT, WASHER AND LOCK WASHER (4 REQ'D.). 4 HOLES IN TUBES.

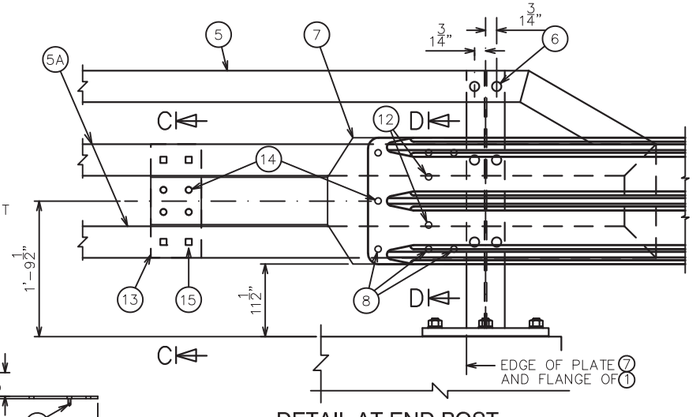


SECTION A-A



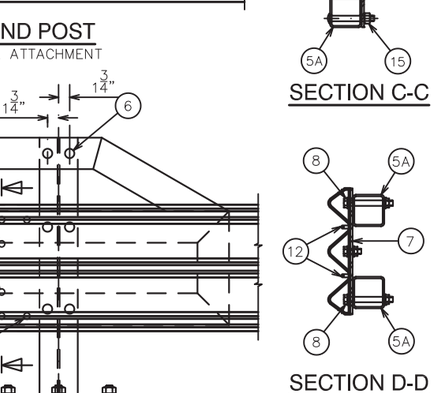
ANCHOR PLATE

AT BEAM GUARD ATTACHMENT

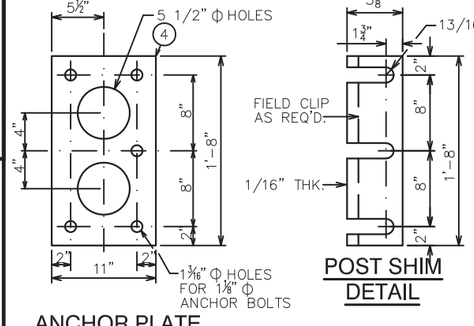


DETAIL AT END POST

THRIE BEAM RAIL ATTACHMENT



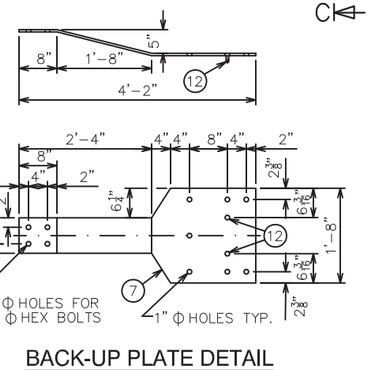
SECTION D-D



ANCHOR PLATE

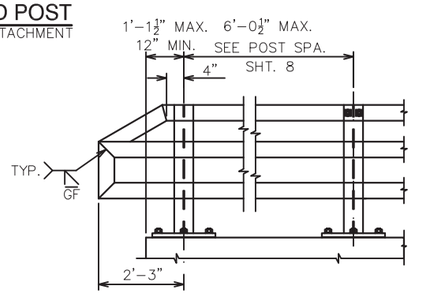
AT RAIL TO DECK CONNECTION

POST SHIM DETAIL



BACK-UP PLATE DETAIL

AT BEAM GUARD ATTACHMENT



PART ELEVATION OF RAILING

GENERAL NOTES

1. BID ITEM SHALL BE "RAILING TUBULAR TYPE M B–12–0181" WHICH INCLUDES ALL ITEMS SHOWN.
2. RAIL POST AND BASE PLATES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A709 GRADE 50. HOLLOW RAILING STRUCTURAL TUBING SHALL CONFORM TO THE REQUIREMENTS OF ASTM A500 GRADE B OR C WITH A CERTIFIED FY = 50 ksi. ANCHOR PLATES, AND SPLICE TUBE PLATES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A709 GRADE 36.
3. THE NUT SECURING THE POST BASE PLATE TO THE CONCRETE SHALL BE TIGHTENED TO A SNUG FIT AND GIVEN AN ADDITIONAL ⅛ TURN.
4. RAILS SHALL BE CONTINUOUS OVER A MINIMUM OF THREE (3) POSTS WITHOUT SPLICES WHERE POSSIBLE. RAILS SHALL BE SPLICED IN A PANEL OVER EXPANSION JOINTS.
5. ENDS OF TUBE SECTIONS SHALL BE SAWED. GRIND SMOOTH EXPOSED EDGES. ALL CUT ENDS SHALL BE TRUE AND SMOOTH.
6. WELD IS THE SAME ON BOTH FLANGES. FLANGE WELD DOES NOT REQUIRE MAGNETIC PARTICLE TESTING.
7. FILL BOLT SLOT OPENINGS IN POST SHIMS AND PLATE NO. 2 AND CAULK AROUND PERIMETER OF PLATE NO. 2 WITH NON–STAINING GRAY NON–BITUMINOUS JOINT SEALER. STEEL POST SHIMS MAY BE USED UNDER POSTS WHERE REQ'D. FOR ALIGNMENT.
8. POST BASE PLATES SHALL BE FLAT WITH ALL SURFACES SMOOTH AND FREE FROM WARP AND ALL EDGES SMOOTH, STRAIGHT AND VERTICAL. ALL PLATE CUTS SHALL BE MACHINE OR MACHINE FLAME CUT.
9. ALL MATERIAL SHALL BE GALVANIZED AFTER FABRICATION. PRIOR TO GALVANIZING, ALL STEEL RAILING POSTS & STEEL TUBING SHALL BE GIVEN A NO. 6 BLAST CLEANING BY SSPC SPECIFICATIONS.
10. WHEN PAINTING IS REQUIRED, ALL MATERIAL EXCEPT ANCHORAGE DETAIL (NO. 3 & 4) SHALL BE PAINTED OVER GALVANIZING WITH APPROVED TIE COAT AND TOP COAT.
11. THIS RAILING MEETS NCHRP REPORT 350 EVALUATION CRITERIA FOR TEST LEVEL 4 (TL–4).
12. PLACE FIRST BOTTOM LONGITUDINAL BAR CLEAR OF DRIP GROOVE.

⚠ TIE TO TOP MAT OF STEEL.

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

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

NO	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORATION
STRUCTURES DESIGN SECTION

STRUCTURE B-12-181

DRAWN BY BAS | PLANS CHECKED JFK

TUBULAR STEEL RAILING TYPE M

SHEET 9 OF 9

CTH C

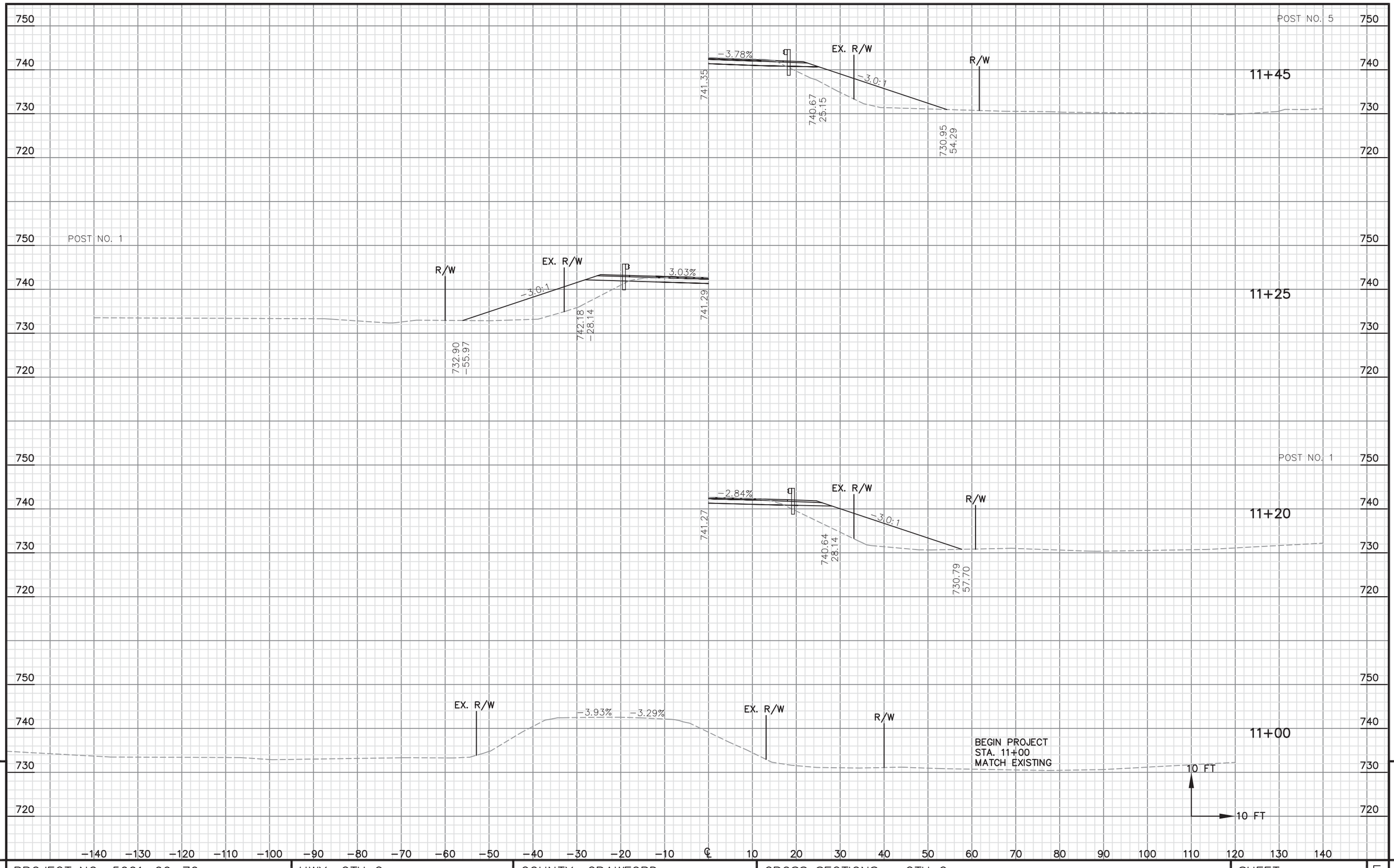
STATION		AREA (SF)		INCREMENTAL VOL (CY)		CUMULATIVE VOL (CY)		MASS HAUL
	FEET	COMMON	FILL	COMMON	FILL	COMMON	FILL*	
11+00		0.0	0.0					
	50.0			34.3	143.5	34.3	172.2	-137.9
11+50		37.0	155.0					
	50.0			68.5	380.6	102.8	628.9	-526.1
12+00		37.0	256.0					
	8.0			10.1	85.8	112.9	731.9	-619.0
12+08		31.0	323.0					
				112.9	609.9			

STATION		AREA (SF)		INCREMENTAL VOL (CY)		CUMULATIVE VOL (CY)		MASS HAUL
	FEET	COMMON	FILL	COMMON	FILL	COMMON	FILL*	
12+66		27.0	285.0					
	34.0			43.4	348.8	43.4	418.6	-375.2
13+00		42.0	269.0					
	50.0			67.6	496.3	111.0	1014	-903.0
13+50		31.0	267.0					
	50.0			48.1	520.4	159.1	1639	-1480
14+00		21.0	295.0					
	50.0			73.1	472.2	232.2	2205	-1973
14+50		58.0	215.0					
	50.0			125.0	393.5	357.2	2677	-2320
15+00		77.0	210.0					
	50.0			122.2	425.9	479.4	3188	-2709
15+50		55.0	250.0					
	50.0			50.9	231.5	530.5	3466	-2935
16+00		0.0	0.0					
				530.5	2888			

* EXPANDED FILL FACTOR = 1.20

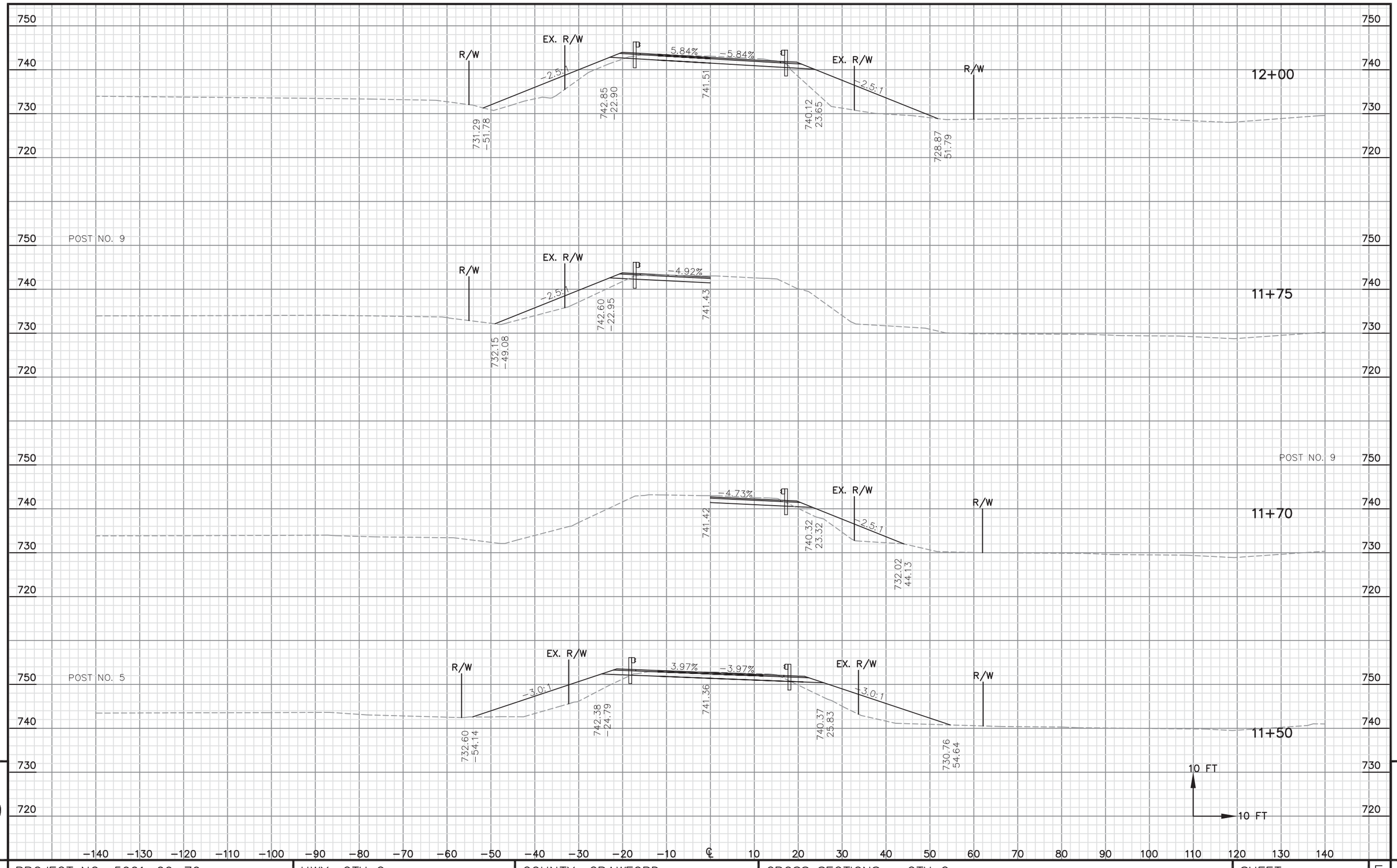
NORWEGIAN HOLLOW ROAD

STATION		AREA (SF)		INCREMENTAL VOL (CY)		CUMULATIVE VOL (CY)		MASS HAUL
	FEET	COMMON	FILL	COMMON	FILL	COMMON	FILL*	
30+25		156	0.0					
	25.0			111.6	0.0	111.6	0.0	111.6
30+50		85.0	0.0					
	25.0			61.1	0.0	172.7	0.0	172.7
30+75		47.0	0.0					
	25.0			38.0	0.0	210.7	0.0	210.7
31+00		35.0	0.0					
	25.0			16.2	0.0	226.9	0.0	226.9
31+25		0.0	0.0					
				226.9	0.0			



PROJECT NO: 5001-00-70	HWY: CTH C	COUNTY: CRAWFORD	CROSS SECTIONS – CTH C	SHEET 61 E

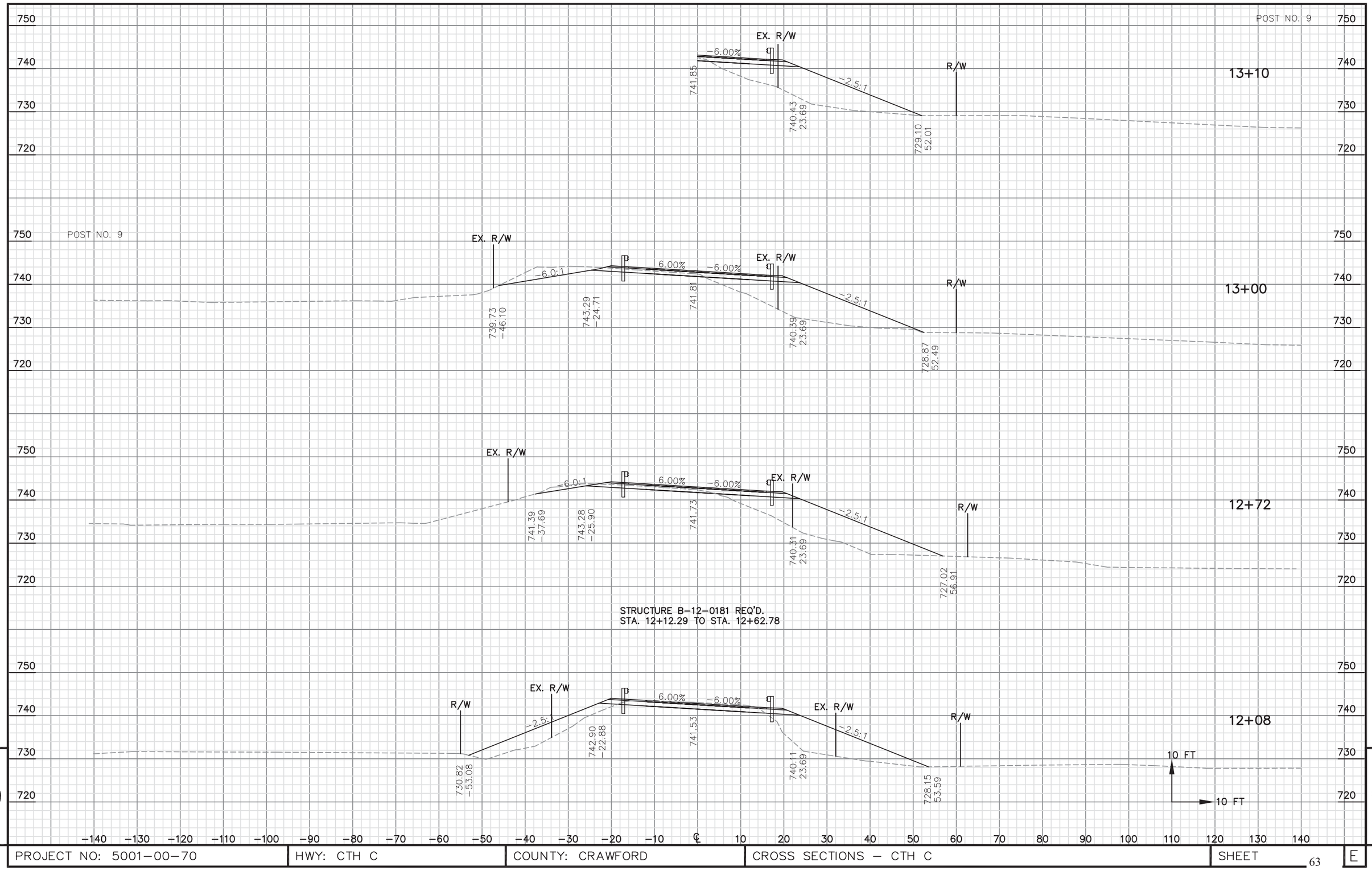
9 9



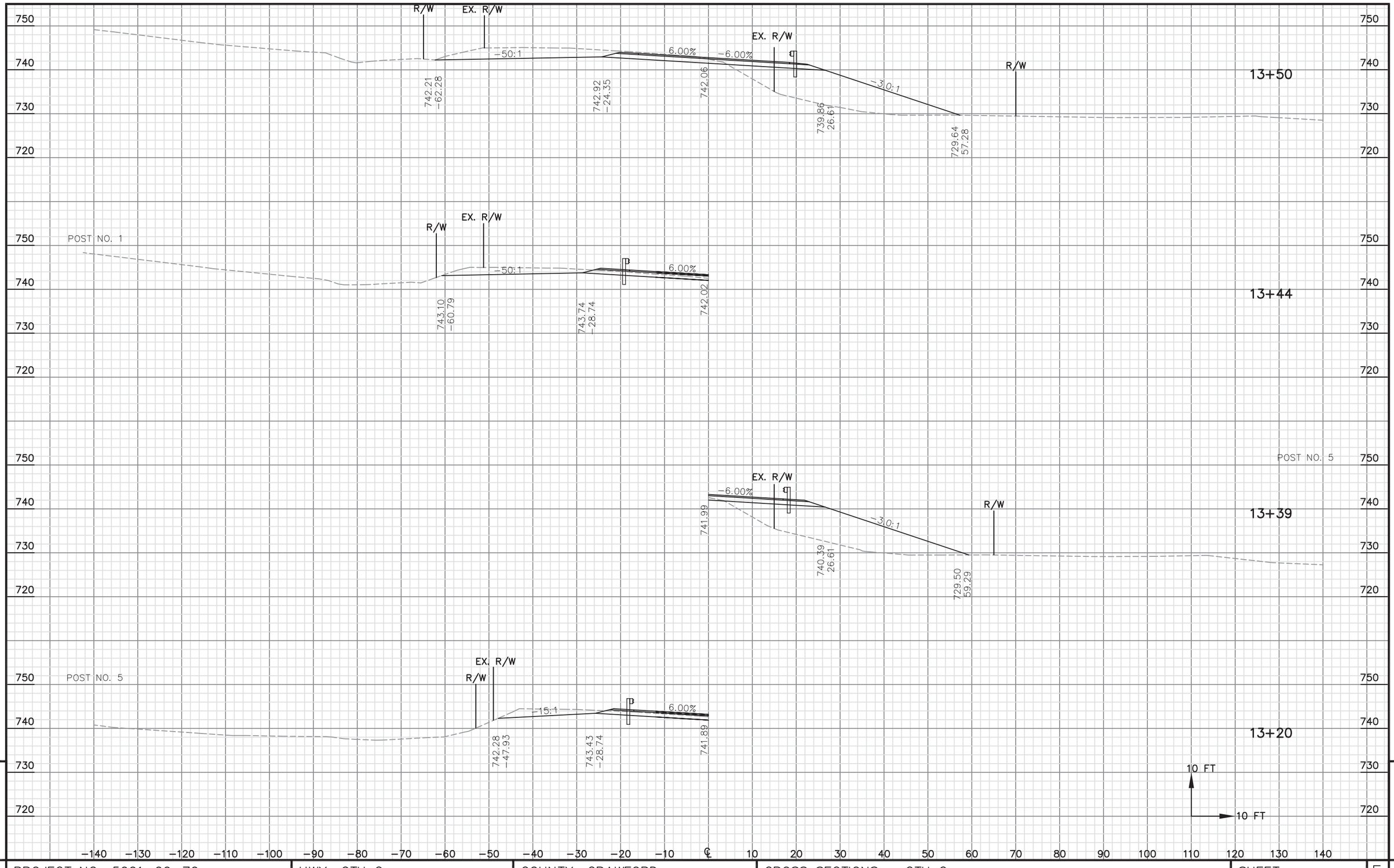
9

PROJECT NO: 5001-00-70	HWY: CTH C	COUNTY: CRAWFORD	CROSS SECTIONS – CTH C	SHEET 62 E

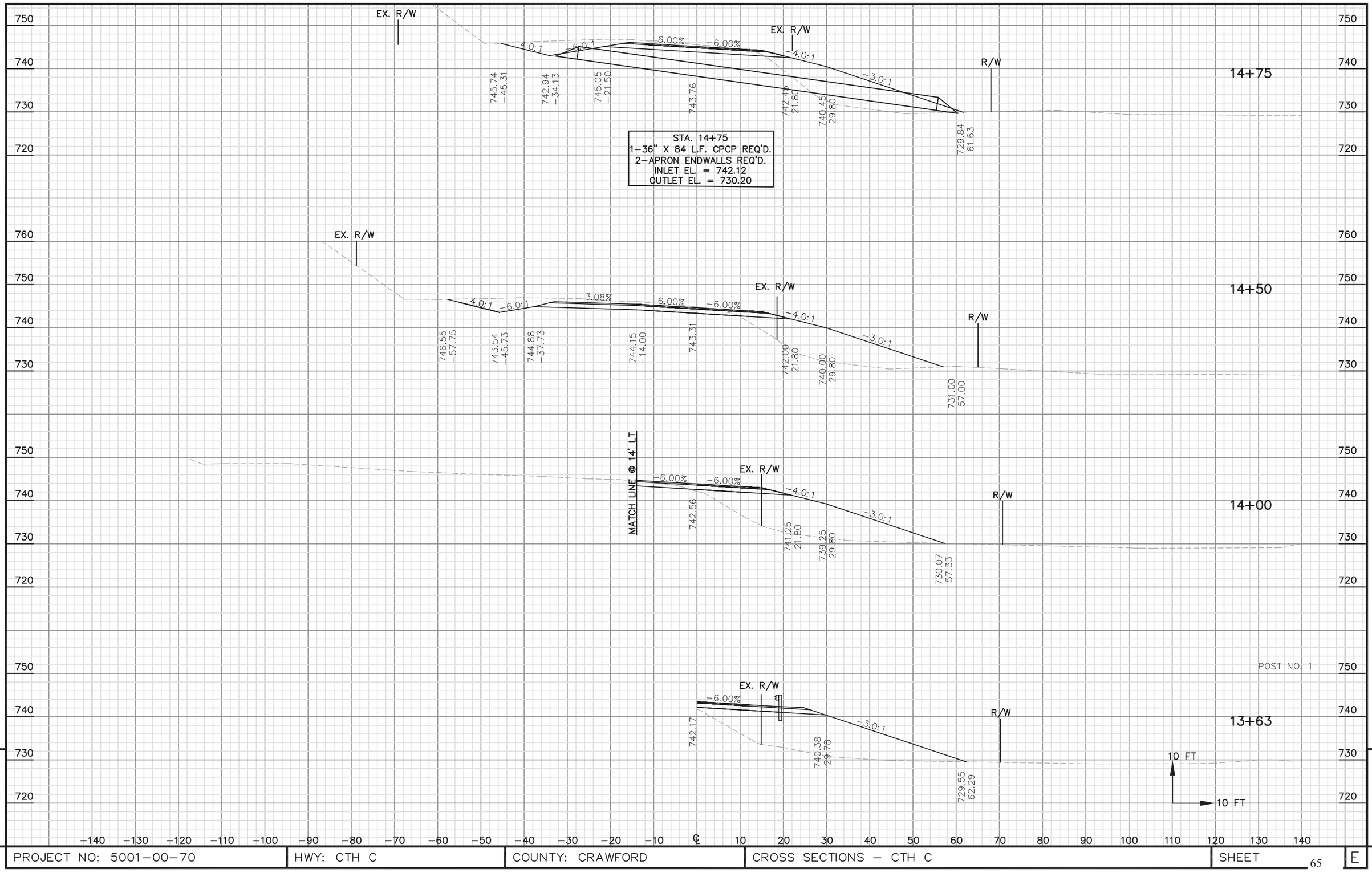
9



PROJECT NO: 5001-00-70	HWY: CTH C	COUNTY: CRAWFORD	CROSS SECTIONS - CTH C	SHEET 9 E



PROJECT NO: 5001-00-70	HWY: CTH C	COUNTY: CRAWFORD	CROSS SECTIONS – CTH C	SHEET 64 E



9

PROJECT NO: 5001-00-70	HWY: CTH C	COUNTY: CRAWFORD	CROSS SECTIONS - CTH C	SHEET 65	E

9

760
750
740
730
720

END PROJECT
STA. 16+00
MATCH EXISTING

2.20%
-3.80%

16+00

760
750
740
730
720

EX. R/W

2.5:1
4.0:1
5.50%
-5.50%
4.0:1
EX. R/W
3.0:1
R/W

749.17
-33.10
745.16
-23.24
746.17
-19.24
745.11
743.92
21.62
741.92
29.62
727.40
73.20

15+50

760
750
740
730
720

EX. R/W
745.53
-37.07
4.0:1
4.0:1
6.00%
-6.00%
EX. R/W
4.0:1
3.0:1
R/W

743.45
-28.74
745.45
-26.74
744.21
742.90
21.80
740.90
29.80
728.71
66.37

15+00

10 FT
10 FT

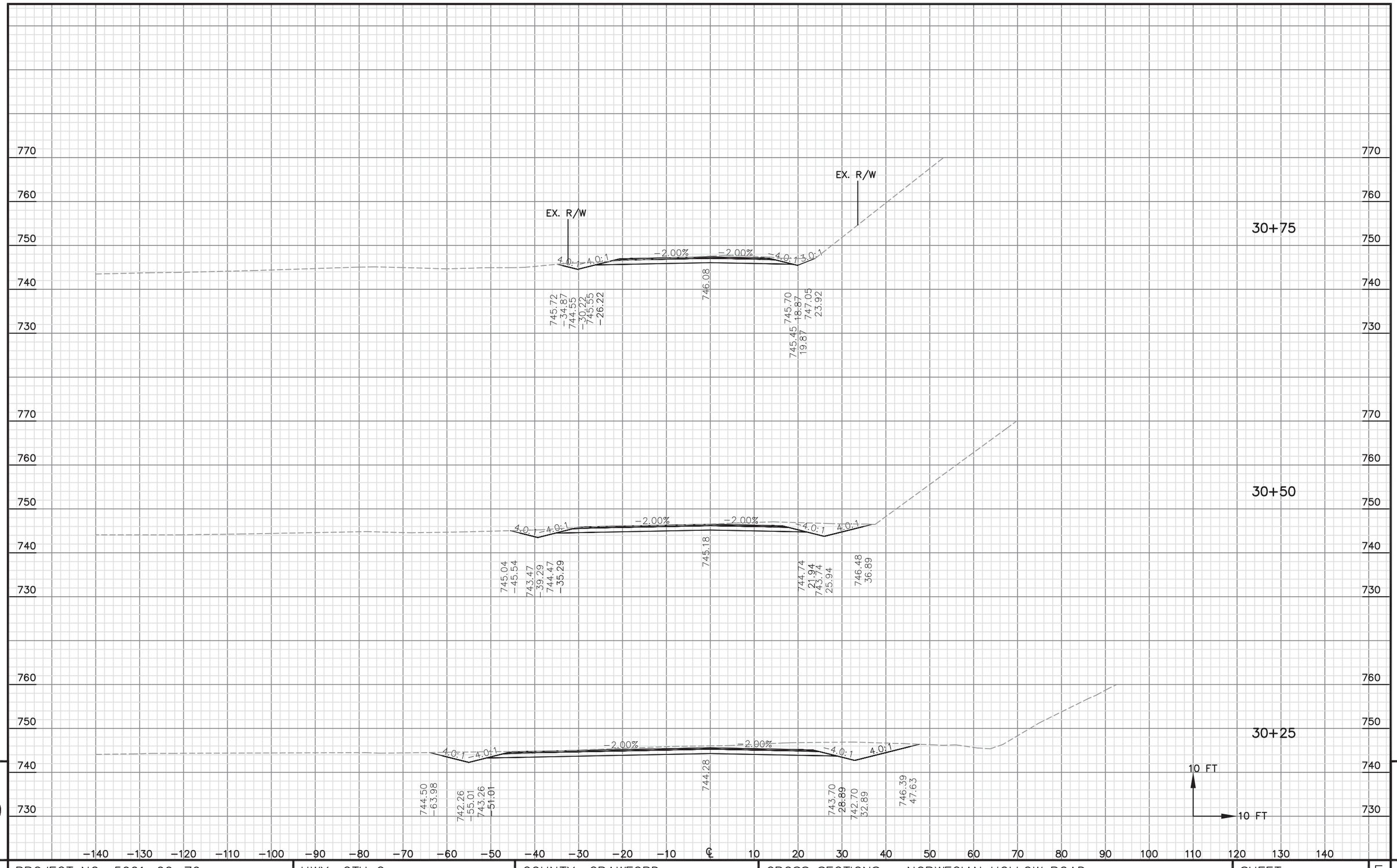
760
750
740
730
720

-140 -130 -120 -110 -100 -90 -80 -70 -60 -50 -40 -30 -20 -10 ℄ 10 20 30 40 50 60 70 80 90 100 110 120 130 140

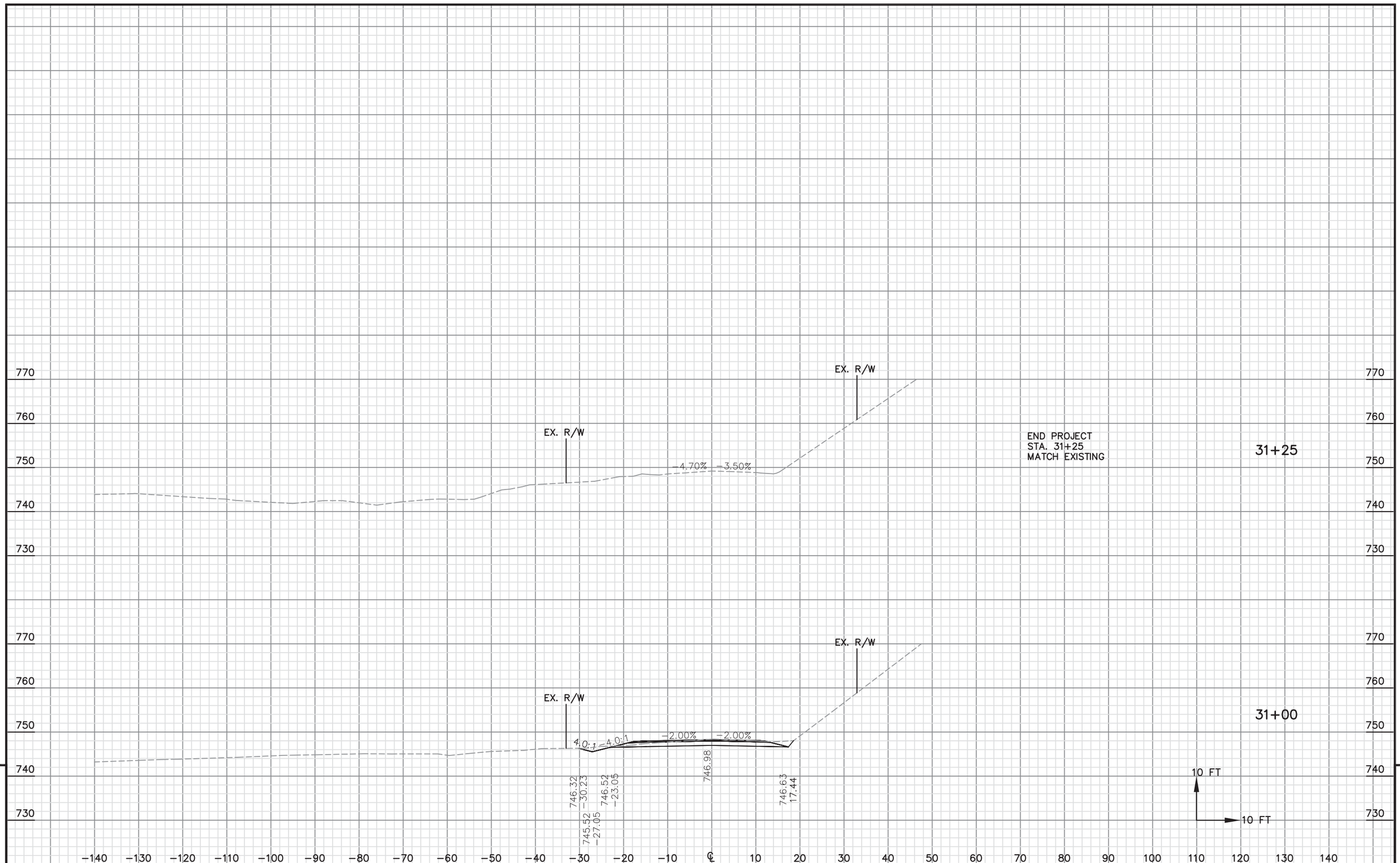
9

9

PROJECT NO: 5001-00-70	HWY: CTH C	COUNTY: CRAWFORD	CROSS SECTIONS – CTH C	SHEET E



PROJECT NO: 5001-00-70	HWY: CTH C	COUNTY: CRAWFORD	CROSS SECTIONS – NORWEGIAN HOLLOW ROAD	SHEET E



PROJECT NO: 5001-00-70	HWY: CTH C	COUNTY: CRAWFORD	CROSS SECTIONS – NORWEGIAN HOLLOW ROAD	SHEET 68 E

Wisconsin Department of Transportation

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