NCL

FEB 2014

PROJECT ID: 6425-00-71

COUNTY: GREEN LAKE

ORDER OF SHEETS

TOTAL SHEETS = 48

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

PRINCETON - CTH F

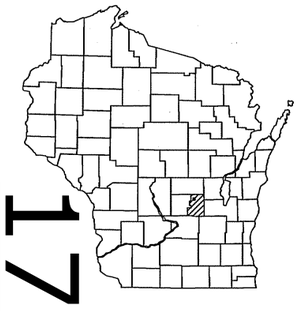
WHITE RIVER BRIDGE B-24-0041

CTH D

GREEN LAKE COUNTY

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
6425-00-71	WISC 2014057	1

STATE PROJECT NUMBER
6425-00-71



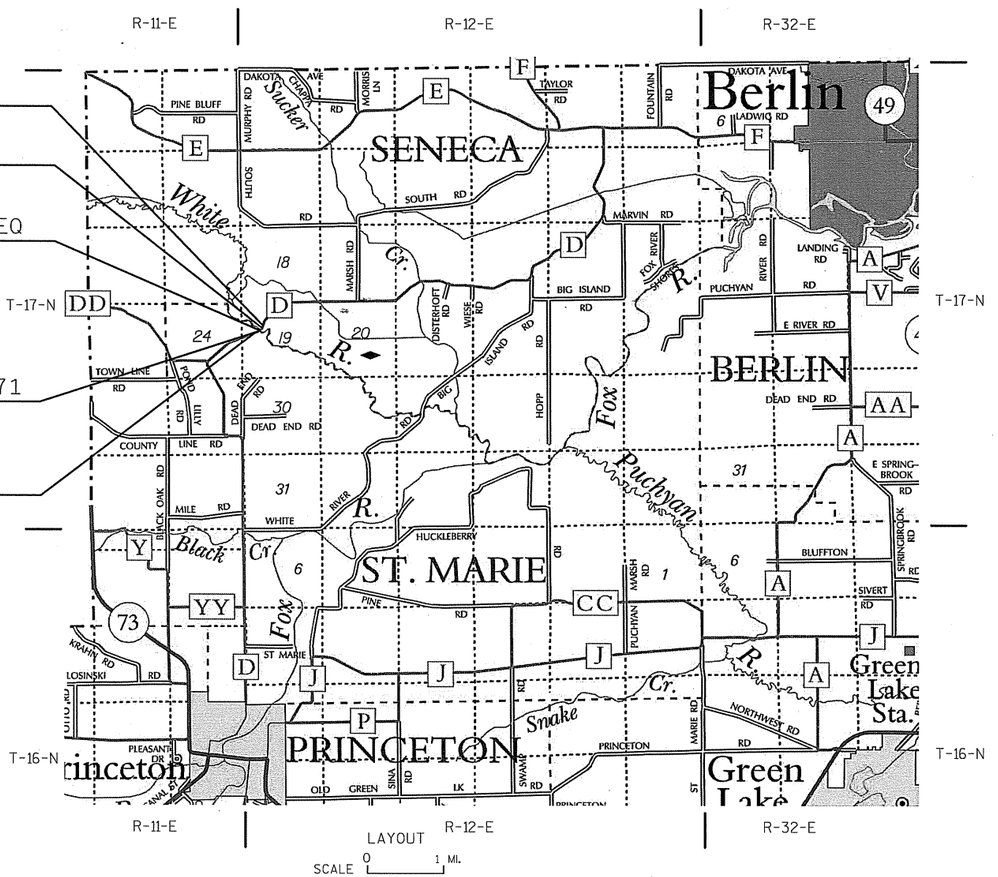
N

END CONSTRUCTION
STA 13+54.00
END PROJECT
STA 11+50.00

STRUCTURE B-24-0041 REQ
STA 10+00.00

BEGIN PROJECT 6425-00-71
STA 8+50.00
Y = 305,669.022
X = 526,013.872

BEGIN CONSTRUCTION
STA 7+25.00



LAYOUT
SCALE 0 1 MI.

TOTAL NET LENGTH OF CENTERLINE = 0.057 MI.

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

DESIGN DESIGNATION

A.A.D.T. (2014)	=	260
A.A.D.T. (2034)	=	390
D.H.V.	=	39
D.D.	=	50-50
T.	=	10%
DESIGN SPEED	=	35 MPH
ESALS	=	73,000

CONVENTIONAL SYMBOLS

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

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

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

ACCEPTED FOR
COUNTY of GREEN LAKE

10/24/13 (Date)
(Signature & Title of Official)
HWY COMMISSIONER

ORIGINAL PLANS PREPARED BY

SEH

WISCONSIN
CHRISTOPHER J. BLUM
E-33157
MADISON, WI
PROFESSIONAL ENGINEER
10-21-13

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY

Surveyor	SEH
Designer	SEH
Management Consultant	CEDAR CORPORATION

APPROVED FOR THE DEPARTMENT
DATE: 10-30-13
(Management Consultant Signature)

E

FILE NAME : P:\FJ\G\GRLKH\120611\CIVIL 3D\64250001\SHEETSPLAN\0101101_TI.DWG PLOT DATE : 10/3/2013 4:02 PM PLOT BY : SAVANNAH HALLOCK PLOT NAME : ----------

WISDOT/CADDS SHEET 15

STANDARD ABBREVIATIONS:

ABUT	ABUTMENT
AC	ACRE
AGG	AGGREGATE
AECPRC	APRON ENDWALL FOR CULVERT PIPE REINFORCED CONCRETE
ASPH	ASPHALTIC
AVG	AVERAGE
ADT	AVERAGE DAILY TRAFFIC
BF	BACK FACE
BM	BENCH MARK
BR	BRIDGE
CE	COMMERCIAL ENTRANCE
CL OR C/L OR ℄	CENTER LINE
	CENTRAL ANGLE OR DELTA
CONC	CONCRETE
CPRC	CULVERT PIPE REINFORCED CONCRETE
CPRCHE	CULVERT PIPE REINFORCED CONCRETE HORIZONTAL ELLIPTICAL
CR	CREEK
CY	CUBIC YARD
C & G	CURB AND GUTTER
D	DEGREE OF CURVE
DHV	DESIGN HOUR VOLUME
DISCH	DISCHARGE
DG	DITCH GRADE
DWY	DRIVEWAY
X	EAST GRID COORDINATE
EAT	STEEL PLATE BEAM GUARD ENERGY ABSORBING TERMINAL
EOR	END POINT OF RADIUS
EL	ELEVATION
ENT	ENTRANCE
ESALS	EQUIVALENT SINGLE AXLE LOADS
EXC	EXCAVATION
EBS	EXCAVATION BELOW SUBGRADE
EXIST	EXISTING
FC	FACE OF CURB
FF	FACE TO FACE
FERT	FERTILIZE
FE	FIELD ENTRANCE
FL	FLOW LINE
FO	FIBER OPTIC
CWT	HUNDREDWEIGHT
HYD	HYDRANT
ID	INSIDE DIAMETER
INV	INVERT
IP	IRON PIPE ON PIN
LHF	LEFT-HAND FORWARD
L	LENGTH OF CURVE
LF	LINEAR FOOT
LC	LONG CHORD OF CURVE
LS	LUMP SUM
MH	MANHOLE
MOR	MID POINT OF RADIUS
NC	NORMAL CROWN
NO	NUMBER
OBLIT	OBLITERATE
PAVT	PAVEMENT
PE	PRIVATE ENTRANCE
PVRC	POINT OF VERTICAL REVERSE CURVE
QOR	QUARTER POINT OF RADIUS
R	RADIUS
REQ'D	REQUIRED
RES	RESIDENCE OR RESIDENTIAL
RHF	RIGHT-HAND FORWARD
R/W	RIGHT-OF-WAY
R	RIVER
RDWY	ROADWAY
R/L OR ℞	REFERENCE LINE
SALV	SALVAGED
SAN	SANITARY SEWER
SF	SQUARE FEET
SY	SQUARE YARD
SDD	STANDARD DETAIL DRAWINGS
STA	STATION
SS	STORM SEWER
SSPRC	STORM SEWER PIPE REINFORCED CONCRETE
SE	SUPERELEVATION RATE
TC	TOP OF CURB
T OR TN	TOWN
T	TRUCKS (PERCENT OF)
TYP	TYPICAL
VAR	VARIABLE
VC	VERTICAL CURVE
Y	NORTH GRID COORDINATE
YD	YARD

UTILITY CONTACT LIST:

ADAMS-COLUMBIA ELECTRIC COOPERATIVE
JIM GOODMAN
PO BOX 900
WAUTOMA, WI 54982
PHONE: 608-339-3346
EMAIL: JGOODMAN@ACECWI.COM

DESIGN CONTACT:
ATTENTION: CHRIS BLUM
SHORT ELLIOTT HENDRICKSON INC.
6808 ODANA ROAD, SUITE 200
MADISON, WI 53719-1137
MAIN: 608-620-6199
DIRECT: 608-620-6192
EMAIL: CBLUM@SEHINC.COM

WDNR CONTACT:
BOBBI JO FISCHER
427 EAST TOWER DRIVE, SUITE 100
WAUTOMA, WI 54982
PHONE: 920-787-3015
EMAIL: BOBBI.FISCHER@WISCONSIN.GOV

GREEN LAKE COUNTY CONTACT:
AMY BROOKS
570 SOUTH STREET
PO BOX 159
GREEN LAKE, WI 54941-0159
PHONE: 920-294-4065
EMAIL: ABROOKS@CO.GREEN-LAKE.WI.US

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

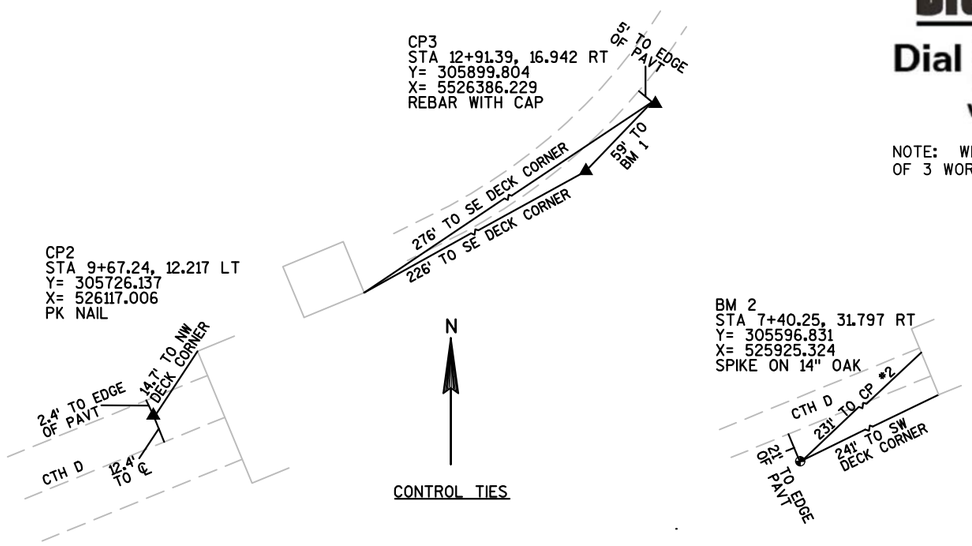
DIGGERS HOTLINE
Dial 811 or (800) 242-8511
www.DiggersHotline.com

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

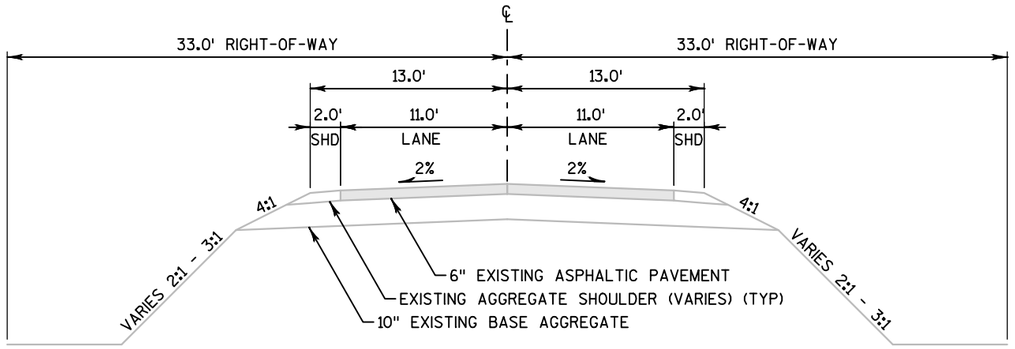
GENERAL NOTES:

1. NO TREES OR SHRUBS SHALL BE REMOVED WITHOUT APPROVAL OF THE ENGINEER.
2. THE LOCATIONS OF EXISTING UTILITY INSTALLATIONS AS SHOWN ON THE PLANS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT AREA THAT ARE NOT SHOWN.
3. THE CONTRACTOR SHALL NOTIFY DIGGERS HOTLINE AND AFFECTED UTILITIES PRIOR TO THE START OF WORK. ANY LOCAL MUNICIPAL UTILITY WHICH IS NOT A MEMBER OF THE DIGGERS HOTLINE MUST BE CONTACTED SEPARATELY.
4. WHEN THE QUANTITY OF HMA PAVEMENT OR BASE AGGREGATE IS MEASURED FOR PAYMENT BY THE TON, THE DEPTH OR THICKNESS OF THE LAYER SHOWN ON THE PLAN IS APPROXIMATE AND THE ACTUAL THICKNESS WILL DEPEND ON THE DISTRIBUTION OF THE MATERIAL AS DIRECTED BY THE ENGINEER.
5. WETLANDS, WATERWAYS, AND OTHER ENVIRONMENTALLY SENSITIVE AREAS SHALL BE PROTECTED AT ALL TIMES. DO NOT STORE EQUIPMENT OR MATERIALS NEAR THESE SITES UNLESS APPROVED BY THE ENGINEER.
6. BROKEN CONCRETE CONTAINING RE-BAR SHALL NOT BE USED AS RIPRAP.
7. CROSS SECTIONS SHOWN INCLUDE THE THICKNESS OF TOPSOIL WHERE REQUIRED. TOPSOIL SHALL BE REPLACED WITH 4-INCH TYPICAL DEPTH.
8. TRAFFIC CONTROL DEVICES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS DIRECTED BY THE ENGINEER.
9. REMOVAL OF EROSION CONTROL DEVICES IS INCLUDED IN THE COST OF THEIR RESPECTIVE BID ITEMS.
10. THE EROSION CONTROL FEATURES AS SHOWN IN THE PLANS ARE AT SUGGESTED LOCATIONS. EXACT LOCATIONS WILL BE DETERMINED BY THE ENGINEER IN THE FIELD.
11. ASPHALTIC AND CONCRETE SURFACES SHALL BE SAWCUT AT THE MATCH LINE AS SHOWN ON THE PLAN OR AS DIRECTED BY THE ENGINEER.
12. DISTURBED AREAS WITHIN THE RIGHT OF WAY, EXCEPT THE AREAS WITHIN THE FINISHED SHOULDER POINTS, SHALL BE MULCHED OR HAVE EROSION MAT PLACED, TOPSOILED, FERTILIZED AND SEEDED.
13. FERTILIZER SHALL NOT BE USED NEAR NAVIGABLE WATERWAYS OR WETLANDS.
14. STATIONING, DISTANCES AND OFFSETS FOR SIGNS SHOWN ON THE PLANS ARE APPROXIMATE AND THE LOCATIONS OF SIGNS ARE TO BE DETERMINED IN THE FIELD BY THE ENGINEER.
15. A CONVERSION FACTOR OF 2.00 TONS/CY IS USED TO ESTIMATE QUANTITIES FOR BASE AGGREGATE DENSE.
16. A CONVERSION FACTOR OF 110 LBS/IN/SY IS USED TO ESTIMATE QUANTITIES FOR HMA PAVEMENT.
17. ALL TYPES OF ASPHALTIC PAVEMENT SHALL BE CONSTRUCTED WITH THE FOLLOWING LAYERS AND GRADATIONS:

PAVEMENT TYPE	TOTAL LAYER PAVEMENT THICKNESS	LAYERS
ASPHALTIC SURFACE	4.0	2.25 1.75

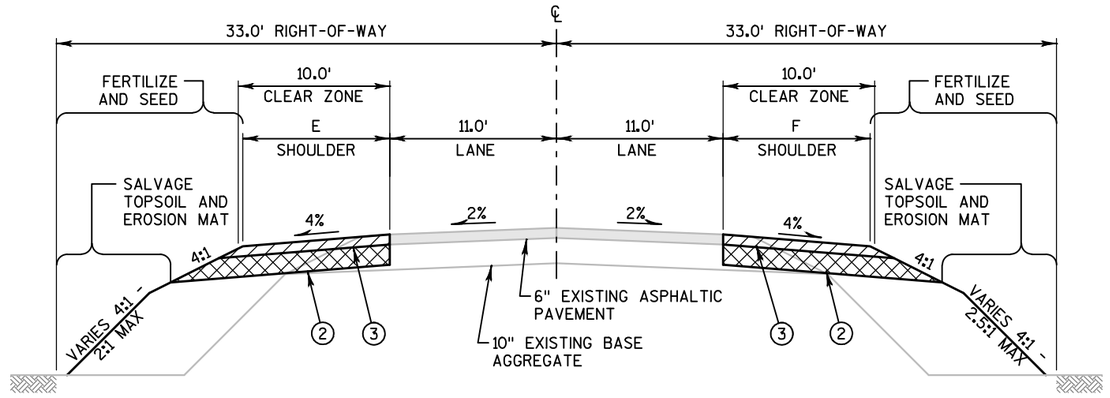


PROJECT NO: 6425-00-71	HWY: CTH D	COUNTY: GREEN LAKE	PLAN: GENERAL NOTES, CONTACT LIST, SWING TIES	SHEET 2 E



TYPICAL EXISTING SECTION

CTH D
STA 7+25.00 TO 9+73.75
STA 10+26.25 TO 13+54.00



E=VARIES 2.0'-9.7' STA 7+50, LT TO STA 8+50, LT
VARIES 11.0'-3.0' STA 11+50, LT TO STA 13+54, LT

F=VARIES 2.0'-7.9' STA 7+25, RT TO STA 8+50, RT
VARIES 7.2'-2.5' STA 11+50, RT TO STA 12+15, RT

TYPICAL FINISHED SECTION

CTH D
STA 7+25.00 TO 8+50.00
STA 11+50.00 TO 13+54.00

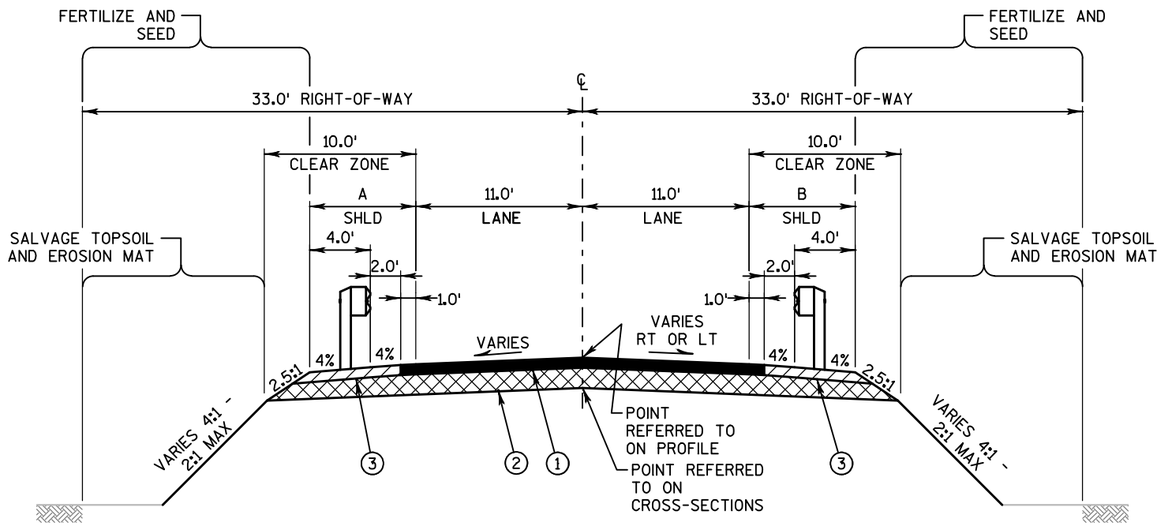
KEYED NOTE LEGEND

(1)	4.0" ASPHALTIC SURFACE
(2)	8.0" BASE AGGREGATE DENSE 1 1/4-INCH
(3)	4.0" BASE AGGREGATE DENSE 3/4-INCH

SUPER ELEVATION

STATION	TYPE	SHOULDER LEFT	LEFT LANE	RIGHT LANE	SHOULDER RIGHT
8+50.00'	MATCH EXIST	-4.00%	-2.50%	-3.11%	-4.00%
8+89.00'	END NORMAL CROWN	-4.00%	-2.00%	-2.00%	-2.00%
9+28.00'	LEVEL CROWN	-4.00%	-2.00%	0.00%	0.00%
9+67.00'	REVERSE CROWN	-2.00%	-2.00%	2.00%	2.00%
10+30.00'	BRIDGE LOCK	-2.00%	-2.00%	2.00%	2.00%
11+08.00'	BEGIN FULL SUPER	-6.00%	-6.00%	2.50%	-2.00%
11+50.00'	MATCH EXIST	-8.69%	-8.69%	2.53%	-4.00%

NOTE: DS = 35 MPH; X = 39'

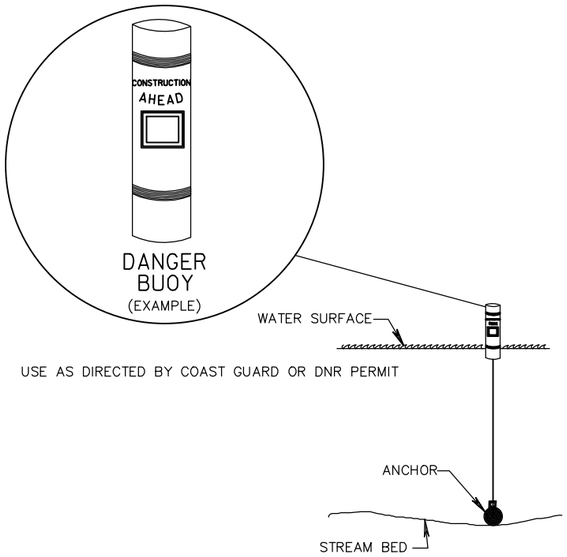


A=VARIES 3.0'-8.0' STA 8+50 TO 9+74

B=VARIES 3.0'-8.0' STA 10+26 TO 11+50

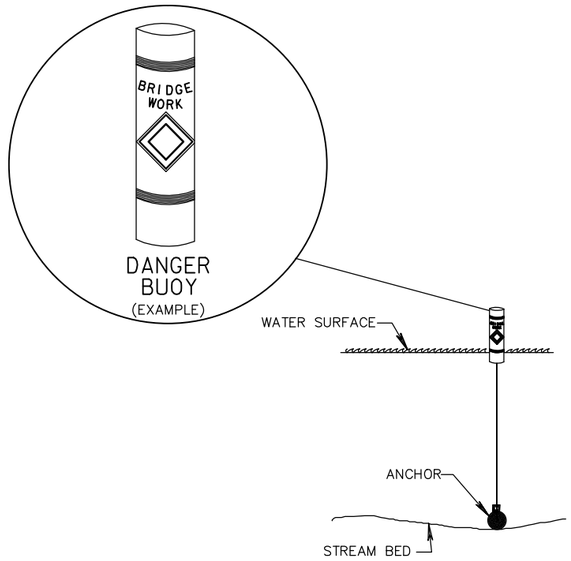
TYPICAL FINISHED SECTION

CTH D
STA 8+50.00 TO 9+73.75
STA 10+26.25 TO 11+50.00



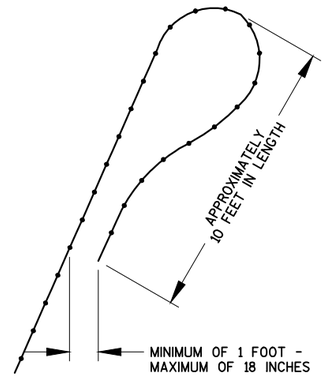
USE AS DIRECTED BY COAST GUARD OR DNR PERMIT

CONSTRUCTION AHEAD BUOY
(TO BE PLACED 200 FEET FROM BRIDGE)



BRIDGE WORK BUOY
(TO BE PLACED 100 FEET FROM BRIDGE)

DANGER BUOY PLACEMENT DETAIL
USE AS DIRECTED BY COAST GUARD OR DNR PERMIT



SILT FENCE TURN-AROUND DETAIL

SAVE FOLDER PATH: P:\FJG\GRLKH\120611\CIVIL 3D\64250001\SHEETSPLAN

PROJECT NO: 6425-00-71	HWY: CTH D	COUNTY: GREEN LAKE	CONSTRUCTION DETAIL	SHEET 4	E

FILE NAME : BOUY CONSTRUCTION DETAIL.DWG | PLOT DATE : 10/4/2013 10:16 AM | PLOT BY : ---- | LAYOUT NAME : CONSTRUCTION DETAIL | PLOT SCALE : NTS

DATE 09DEC13 E S T I M A T E O F Q U A N T I T I E S

LINE NUMBER	ITEM	ITEM DESCRIPTION	UNIT	TOTAL	6425-00-71 QUANTITY
0010	201.0105	CLEARING	STA	4.000	4.000
0020	201.0205	GRUBBING	STA	4.000	4.000
0030	203.0600.S	REMOVING OLD STRUCTURE OVER WATERWAY WITH MINIMAL DEBRIS (STATION) 01. 10+00	LS	1.000	1.000
0040	204.0165	REMOVING GUARDRAIL	LF	290.000	290.000
0050	205.0100	EXCAVATION COMMON	CY	300.000	300.000
0060	206.1000	EXCAVATION FOR STRUCTURES BRIDGES (STRUCTURE) 01. B-24-0041	LS	1.000	1.000
0070	208.0100	BORROW	CY	190.000	190.000
0080	210.0100	BACKFILL STRUCTURE	CY	170.000	170.000
0090	213.0100	FINISHING ROADWAY (PROJECT) 01. 6425-00-71	EACH	1.000	1.000
0100	305.0110	BASE AGGREGATE DENSE 3/4-INCH	TON	180.000	180.000
0110	305.0120	BASE AGGREGATE DENSE 1 1/4-INCH	TON	740.000	740.000
0120	455.0605	TACK COAT	GAL	18.000	18.000
0130	465.0105	ASPHALTIC SURFACE	TON	150.000	150.000
0140	502.0100	CONCRETE MASONRY BRIDGES	CY	202.000	202.000
0150	502.3200	PROTECTIVE SURFACE TREATMENT	SY	220.000	220.000
0160	505.0405	BAR STEEL REINFORCEMENT HS BRIDGES	LB	4,000.000	4,000.000
0170	505.0605	BAR STEEL REINFORCEMENT HS COATED BRIDGES	LB	28,590.000	28,590.000
0180	513.4060	RAILING TUBULAR TYPE M (STRUCTURE) 01. B-24-0041	LS	1.000	1.000
0190	516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	20.000	20.000
0200	550.1100	PILING STEEL HP 10-INCH X 42 LB	LF	450.000	450.000
0210	606.0200	RIPRAP MEDIUM	CY	80.000	80.000
0220	606.0300	RIPRAP HEAVY	CY	138.000	138.000
0230	612.0206	PIPE UNDERDRAIN UNPERFORATED 6-INCH	LF	60.000	60.000
0240	612.0406	PIPE UNDERDRAIN WRAPPED 6-INCH	LF	100.000	100.000
0250	614.0010	BARRIER SYSTEM GRADING SHAPING FINISHING	EACH	1.000	1.000
0260	614.2300	MGS GUARDRAIL 3	LF	100.000	100.000
0270	614.2500	MGS THRIE BEAM TRANSITION	LF	160.000	160.000
0280	614.2610	MGS GUARDRAIL TERMINAL EAT	EACH	4.000	4.000
0290	619.1000	MOBILIZATION	EACH	1.000	1.000
0300	625.0500	SALVAGED TOPSOIL	SY	390.000	390.000
0310	627.0200	MULCHING	SY	230.000	230.000
0320	628.1504	SILT FENCE	LF	1,170.000	1,170.000
0330	628.1520	SILT FENCE MAINTENANCE	LF	1,870.000	1,870.000
0340	628.1905	MOBILIZATIONS EROSION CONTROL	EACH	1.000	1.000
0350	628.1910	MOBILIZATIONS EMERGENCY EROSION CONTROL	EACH	1.000	1.000
0360	628.2008	EROSION MAT URBAN CLASS I TYPE B	SY	640.000	640.000
0370	628.6005	TURBIDITY BARRIERS	SY	370.000	370.000
0380	629.0210	FERTILIZER TYPE B	CWT	1.000	1.000
0390	630.0110	SEEDING MIXTURE NO. 10	LB	10.000	10.000
0400	630.0200	SEEDING TEMPORARY	LB	22.000	22.000
0410	630.0300	SEEDING BORROW PIT	LB	10.000	10.000
0420	634.0614	POSTS WOOD 4X6-INCH X 14-FT	EACH	4.000	4.000
0430	637.2230	SIGNS TYPE II REFLECTIVE F	SF	12.000	12.000
0440	638.2602	REMOVING SIGNS TYPE II	EACH	2.000	2.000
0450	638.3000	REMOVING SMALL SIGN SUPPORTS	EACH	2.000	2.000
0460	642.5001	FIELD OFFICE TYPE B	EACH	1.000	1.000
0470	643.0100	TRAFFIC CONTROL (PROJECT) 01. 6425-00-71	EACH	1.000	1.000
0480	645.0120	GEOTEXTILE FABRIC TYPE HR	SY	415.000	415.000
0490	646.0106	PAVEMENT MARKING EPOXY 4-INCH	LF	1,000.000	1,000.000
0500	650.4500	CONSTRUCTION STAKING SUBGRADE	LF	630.000	630.000

3

DATE 09DEC13 E S T I M A T E O F Q U A N T I T I E S

LINE NUMBER	ITEM	ITEM DESCRIPTION	UNIT	TOTAL	6425-00-71 QUANTITY
0510	650.5000	CONSTRUCTION STAKING BASE	LF	630.000	630.000
0520	650.6500	CONSTRUCTION STAKING STRUCTURE LAYOUT (STRUCTURE) 01. B-24-0041	LS	1.000	1.000
0530	650.9910	CONSTRUCTION STAKING SUPPLEMENTAL CONTROL (PROJECT) 01. 6425-00-71	LS	1.000	1.000
0540	650.9920	CONSTRUCTION STAKING SLOPE STAKES	LF	630.000	630.000
0550	690.0150	SAWING ASPHALT	LF	46.000	46.000
0560	715.0502	INCENTIVE STRENGTH CONCRETE STRUCTURES	DOL	1,212.000	1,212.000
0570	ASP.1T0A	ON-THE-JOB TRAINING APPRENTICE AT $5.00/HR	HRS	1,200.000	1,200.000
0580	ASP.1T0G	ON-THE-JOB TRAINING GRADUATE AT $5.00/HR	HRS	600.000	600.000

CLEARING & GRUBBING

STATION - STATION	201.0105 CLEARING STA	201.0205 GRUBBING STA
CTH D		
8+00 - 12+00	4	4
ITEM TOTALS	4	4

FINISHING ROADWAY

LOCATION	213.0100 EACH
PROJECT (6425-00-71)	1
	1

AGGREGATES

STATION - STATION	LOCATION	305.0120 BASE AGGREGATE DENSE 1 1/4-INCH TON	305.0110 BASE AGGREGATE DENSE 3/4-INCH TON	REMARKS
CTH D				
7+25 - 8+50	RT	50	18	SHOULDERS
7+50 - 8+50	LT	43	16	SHOULDERS
8+50 - 9+73.75	CL	267	52	MAINLINE & SHOULDERS
10+26.25 - 11+50	CL	253	45	MAINLINE & SHOULDERS
11+50 - 12+15	RT	25	9	SHOULDERS
11+50 - 12+27	LT	40	16	SHOULDERS
12+27 - END CONSTRUCTION	LT	62	24	SHOULDERS
ITEM TOTALS		740	180	

EARTHWORK DATA SUMMARY TABLE

DIVISION	STAGE	CATEGORY CODE	FROM/TO STATION	LOCATION	205.0100 COMMON EXCAVATION (1)	SALVAGED/ UNUSABLE PAVEMENT MATERIAL (4)	AVAILABLE MATERIAL (2)	UNEXPANDED FILL	EXPANDED FILL (3)	MASS ORDINATE +/- (4)	DIVISION WASTE	208.0100 DIVISION BORROW
					CUT				FACTOR 1.30			
1	1	0010	7+25 - 9+73.75	CTH D	160	50	110	189	246	-136		
		0010	10+26.25 - 11+50	CTH D	112	50	62	105	137	-75		
		0010	11+50 - 12+15	CTH D (RT)	28	0	28	6	8	20		
	STAGE 1 SUBTOTAL				300	100	200	300	390	-190	0	190
DIVISION 1 SUBTOTAL					300	100	200	300	390	-190	0	190
ITEM TOTALS					300	100	200	300	390	-190	0	190
					TOTAL COMMON EXC		300	CY				

1) COMMON EXCAVATION IS THE SUM OF THE CUT, ITEM NUMBER 205.0100.
2) AVAILABLE MATERIAL = CUT - SALVAGED/UNUSABLE PAVEMENT MATERIAL
3) EXPANDED FILL FACTOR = 1.3
4) THE MASS ORDINATE + OR - QTY CALCULATED FOR THE STAGE. PLUS QUANTITY INDICATES EXCESS OF MATERIAL WITHIN THE STAGE AND IS CATEGORIZED AT DIVISION WASTE. MINUS INDICATES A SHORTAGE OF MATERIAL WITHIN THE STAGE AND IS CATEGORIZED AS DIVISION BORROW, ITEM NUMBER 208.0100.

ASPHALTIC PAVEMENT ITEMS

STATION - STATION	LOCATION	455.0605 TACK COAT GAL	465.0105 ASPHALTIC SURFACE TON	REMARKS
CTH D				
8+50 - 9+73.75	CL	9	75	MAINLINE
10+26.25 - 11+50	CL	9	75	MAINLINE
ITEM TOTALS		18	150	

BARRIER SYSTEM GRADING SHAPING FINISHING, ITEM 614.0010

STATION - STATION	LOCATION	*COMMON EXCAVATION CY	*FILL CY	*BORROW EXCAVATION CY	*SALVAGED TOPSOIL SY	*FERTILIZER TYPE B CWT	*SEEDING LB	*MULCHING SY	EACH
11+50 - 13+54	LT	60	0	0	30	0.063	1.4	15	1
	TOTALS	60	0	0	30	0.1	1.4	15	1

* Items & Quantities listed for Bid Information Only.

MGS GUARDRAIL

STATION	LOCATION	204.0165 REMOVING GUARDRAIL LF	614.2300 MGS GUARDRAIL 3 LF	614.2500 MGS THRIE BEAM TRANSITION LF	614.2610 MGS GUARDRAIL TERMINAL EAT EACH
CTH D					
8+74.23 - 9+27.36	RT				1
8+76.23 - 9+29.36	LT				1
9+13.00 - 9+83.00	LT & RT	140			
9+27.36 - 9+66.76	RT			40	
9+29.36 - 9+68.76	LT			40	
10+17 - 10+89	LT & RT	150			
10+31.73 - 10+71.13	LT			40	
10+33.73 - 10+73.13	RT			40	
10+71.13 - 11+71.13	LT		100		
10+73.13 - 11+23.52	RT				1
11+71.13 - 12+26.72	LT				1
TOTALS		290	100	160	4

MOBILIZATIONS

LOCATION	619.1000 MOBILIZATION EACH	628.1905 MOBILIZATIONS EROSION CONTROL EACH	628.1910 MOBILIZATIONS EMERGENCY EROSION CONTROL EACH
PROJECT (6425-00-71)	1	1	1
ITEM TOTALS	1	1	1

EROSION CONTROL ITEMS

STATION	LOCATION	606.0200 RIPRAP (MEDIUM) CY	628.1504 SILT FENCE LF	628.1520 SILT FENCE MAINTANENCE LF	628.2008 EROSION MAT URBAN CLASS I TYPE B SY	628.6005 TURBIDITY BARRIER SY	*645.0120 GEOTEXTILE FABRIC TYPE HR SY
CTH D							
7+24 - 9+75	RT & LT		500	1000			
8+75 - 9+68	RT & LT				130		
9+84	RT & LT					85	
10+15	RT					85	
10+28 - 11+52	LT					124	
10+30 - 12+26	RT		220	440			
10+32 - 11+24	RT				92		
10+32 - 11+50	LT	64			57		140
11+50 - 12+27	LT				67		
11+50 - END CONSTRUCTION	LT		215	430	165		
UNDISTRIBUTED		16	234	-	129	76	35
ITEM TOTAL		80	1170	1870	640	370	175

*Additional quantities shown elsewhere

TURF ESTABLISHMENT

STATION	LOCATION	625.0500 SALVAGED TOPSOIL SY	627.0200 MULCHING SY	629.0210 FERTILIZER TYPE B CWT	630.0110 SEEDING MIXTURE NO. 10 LB	630.0200 SEEDING TEMPORARY LB	630.0300 SEEDING BORROW PIT LB
CTH D							
7+25 - 8+75	LT/RT	145	145	0.17	4	8	
8+75 - 9+68	LT/RT	65		0.08	2	4	
10+32 - 11+24	RT	70		0.06	1.5	3	
11+24 - 12+15	RT	40	40	0.05	1.5	3	
BORROW PIT							8
UNDISTRIBUTED		70	45	0.67	2	4	2
ITEM TOTAL		390	230	1.0	10	22	10

TYPE II SIGNS AND SUPPORTS

LOCATION	SIGN CODE	637.2230 SIGNS TYPE II REFLECTIVE F SIZE W X H (INCHES)	SF	634.0614 POSTS WOOD 4x6-INCH X 14-FT EACH	638.2602 REMOVING SIGNS TYPE II EACH	638.3000 REMOVING SMALL SIGN SUPPORTS EACH
CTH D	W5-52R	12X36	3	1		
CTH D	W5-52L	12X36	3	1		
CTH D	W5-52R	12X36	3	1		
CTH D	W5-52L	12X36	3	1		
CTH D	-				2	2
ITEM TOTALS			12	4	2	2

CONSTRUCTION STAKING

STATION - STATION		650.4500 SUBGRADE LF	650.5000 BASE LF	*650.6500 STRUCTURE LAYOUT (STRUCTURE) LS	650.9910 SUPPLEMENTAL CONTROL (PROJECT) LS	650.9920 SLOPE STAKES LF
CTH D					1	
7+25 - 12+27		502	502			502
9+73.75 - 10+26.25	CL			1		
12+27 - END CONSTRUCTION		128	128			128
ITEM TOTALS		630	630	1	1	630

*CATEGORY 0020.

FIELD OFFICE TYPE B

STATION	642.5001 EACH
CTH D	
7+25 - 12+27	1
	1

PAVEMENT MARKING

STATION - STATION	LOCATION	646.0106 PAVEMENT MARKING EPOXY 4-INCH EDGELINE WHITE LF	DOUBLE YELLOW LF
CTH D			
8+50 - 9+73.75	LT & RT	250	-
8+50 - 9+73.75	CL	-	250
10+26.25 - 11+50	LT & RT	250	-
10+26.25 - 11+50	CL	-	250
BID ITEM TOTAL		500	500
ITEM TOTALS		1000	

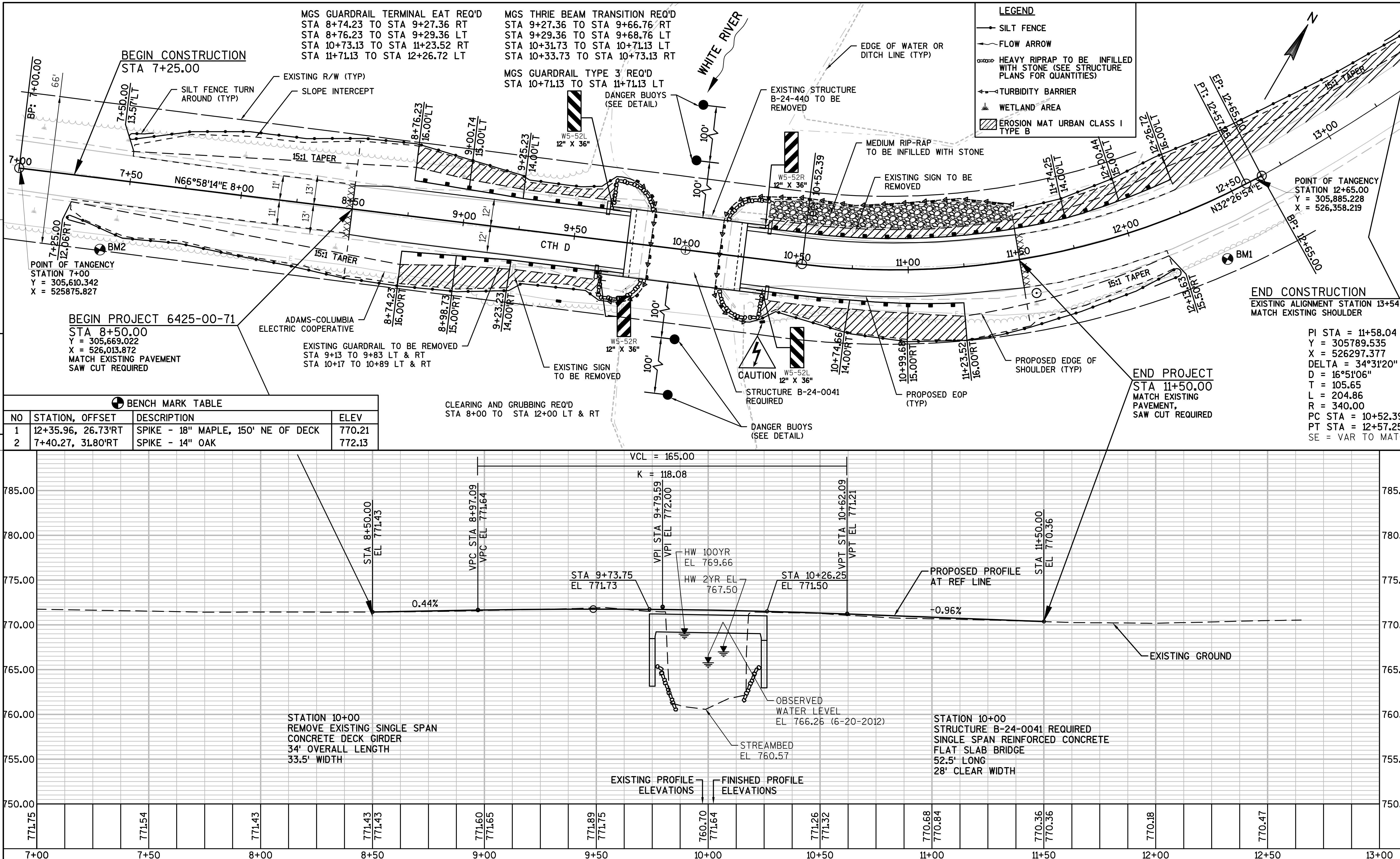
SAWING ASPHALT

LOCATION	690.0150 LF
CTH D	
8+50	22
11+50	24
TOTALS	46

INCENTIVE STRENGTH CONCRETE STRUCTURES

STATION	*715.0502 DOL
CTH D	
9+73.75 - 10+26.25	1212
	1212

* CATEGORY 0020.


MGS GUARDRAIL TERMINAL EAT REQ'D
STA 8+74.23 TO STA 9+27.36 RT
STA 8+76.23 TO STA 9+29.36 LT
STA 10+73.13 TO STA 11+23.52 RT
STA 11+71.13 TO STA 12+26.72 LT
MGS THRIE BEAM TRANSITION REQ'D
STA 9+27.36 TO STA 9+66.76 RT
STA 9+29.36 TO STA 9+68.76 LT
STA 10+31.73 TO STA 10+71.13 LT
STA 10+33.73 TO STA 10+73.13 RT
MGS GUARDRAIL TYPE 3 REQ'D
STA 10+71.13 TO STA 11+71.13 LT
WHITE RIVER
LEGEND
SILT FENCE
FLOW ARROW
HEAVY RIPRAP TO BE INFILLED WITH STONE (SEE STRUCTURE PLANS FOR QUANTITIES)
TURBIDITY BARRIER
WETLAND AREA
EROSION MAT URBAN CLASS I TYPE B
N
BEGIN CONSTRUCTION
STA 7+25.00
EXISTING R/W (TYP)
SILT FENCE TURN AROUND (TYP)
SLOPE INTERCEPT
DANGER BUOYS (SEE DETAIL)
EDGE OF WATER OR DITCH LINE (TYP)
EXISTING STRUCTURE B-24-440 TO BE REMOVED
MEDIUM RIP-RAP TO BE INFILLED WITH STONE
EXISTING SIGN TO BE REMOVED
POINT OF TANGENCY
STATION 12+65.00
Y = 305,885.228
X = 526,358.219
POINT OF TANGENCY
STATION 7+00
Y = 305,610.342
X = 525875.827
BM2
BM1
CTH D
N66°58'14"E
N32°26'54"E
15:1 TAPER
W5-52L 12" X 36"
W5-52R 12" X 36"
CAUTION
END CONSTRUCTION
EXISTING ALIGNMENT STATION 13+54
MATCH EXISTING SHOULDER
BEGIN PROJECT 6425-00-71
STA 8+50.00
Y = 305,669.022
X = 526,013.872
MATCH EXISTING PAVEMENT
SAW CUT REQUIRED
ADAMS-COLUMBIA ELECTRIC COOPERATIVE
EXISTING GUARDRAIL TO BE REMOVED
STA 9+13 TO 9+83 LT & RT
STA 10+17 TO 10+89 LT & RT
EXISTING SIGN TO BE REMOVED
STRUCTURE B-24-0041 REQUIRED
PROPOSED EOP (TYP)
PROPOSED EDGE OF SHOULDER (TYP)
END PROJECT
STA 11+50.00
MATCH EXISTING PAVEMENT,
SAW CUT REQUIRED
PI STA = 11+58.04
Y = 305789.535
X = 526297.377
DELTA = 34°31'20"
D = 16°51'06"
T = 105.65
L = 204.86
R = 340.00
PC STA = 10+52.39
PT STA = 12+57.25
SE = VAR TO MATCH
CLEARING AND GRUBBING REQ'D
STA 8+00 TO STA 12+00 LT & RT
VCL = 165.00
K = 118.08
STA 8+50.00 EL 771.43
VPC STA 8+97.09 VPC EL 771.64
VPI STA 9+79.59 VPI EL 772.00
VPT STA 10+62.09 VPT EL 771.21
STA 11+50.00 EL 770.36
STA 9+73.75 EL 771.73
STA 10+26.25 EL 771.50
HW 100YR EL 769.66
HW 2YR EL 767.50
0.44%
-0.96%
PROPOSED PROFILE AT REF LINE
EXISTING GROUND
OBSERVED WATER LEVEL EL 766.26 (6-20-2012)
STREAMBED EL 760.57
STATION 10+00
REMOVE EXISTING SINGLE SPAN
CONCRETE DECK GIRDER
34' OVERALL LENGTH
33.5' WIDTH
STATION 10+00
STRUCTURE B-24-0041 REQUIRED
SINGLE SPAN REINFORCED CONCRETE
FLAT SLAB BRIDGE
52.5' LONG
28' CLEAR WIDTH
EXISTING PROFILE ELEVATIONS
FINISHED PROFILE ELEVATIONS

BENCH MARK TABLE

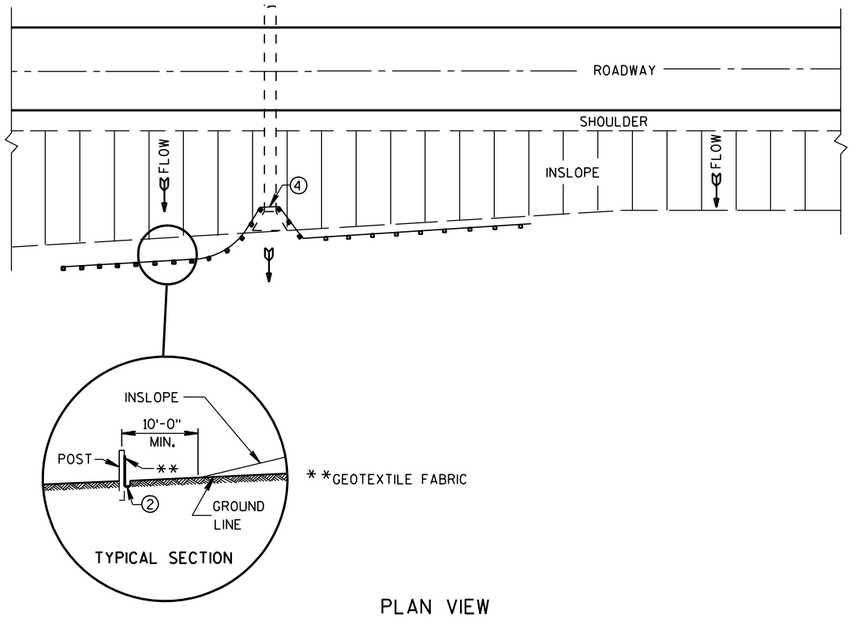
NO	STATION, OFFSET	DESCRIPTION	ELEV
1	12+35.96, 26.73'RT	SPIKE - 18" MAPLE, 150' NE OF DECK	770.21
2	7+40.27, 31.80'RT	SPIKE - 14" OAK	772.13

PROJECT NO:6425-00-71	HWY:CTH D	COUNTY:GREEN LAKE	PLAN AND PROFILE: CTH D	SHEET 9	E

FILE NAME : P:±FJ±G±GRLKH±120611±CIVIL 3D±64250001±SHEETSPLAN±050103_PP.DWG PLOT DATE : 10/28/2013 11:09 AM PLOT BY : SAVANNAH HALLOCK PLOT NAME : PLOT SCALE : 1 IN:40 FT

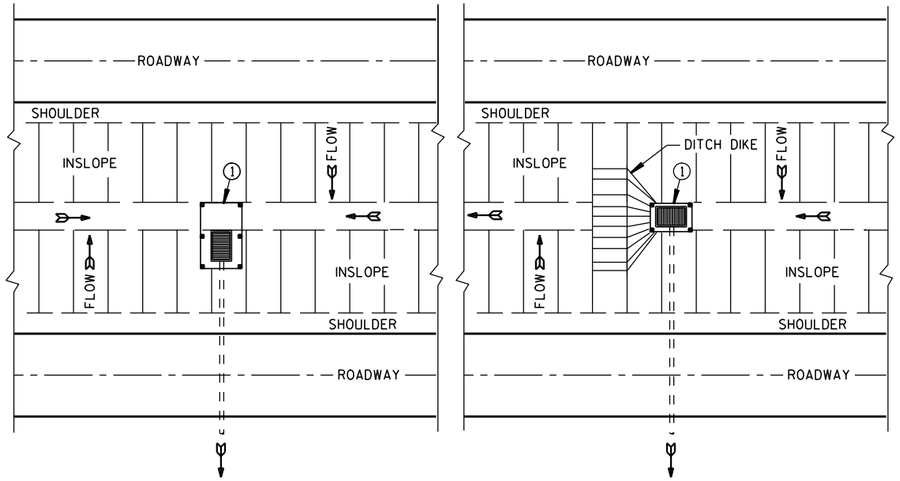
Standard Detail Drawing List

08E09-06	SILT FENCE
08E11-02	TURBIDITY BARRIER
12A03-10	NAME PLATE (STRUCTURES)
14B42-02A	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-02B	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-02C	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B44-01A	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-01B	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-01C	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B45-03A	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-03B	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-03C	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-03H	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
15C02-05A	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-05B	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C06-06	SIGNING & MARKING FOR TWO LANE BRIDGES
15C08-16A	PAVEMENT MARKING (MAINLINE)



PLAN VIEW

TYPICAL APPLICATION OF SILT FENCE



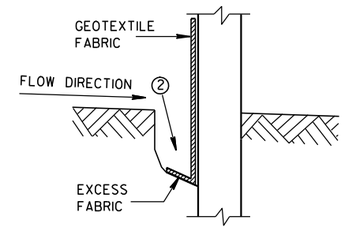
PLAN VIEW

SILT FENCE AT MEDIAN SURFACE DRAINS

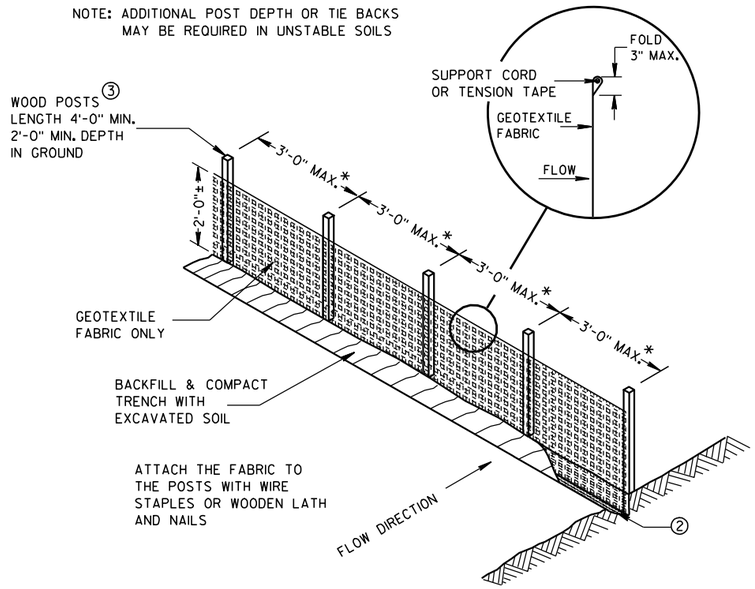
GENERAL NOTES

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.

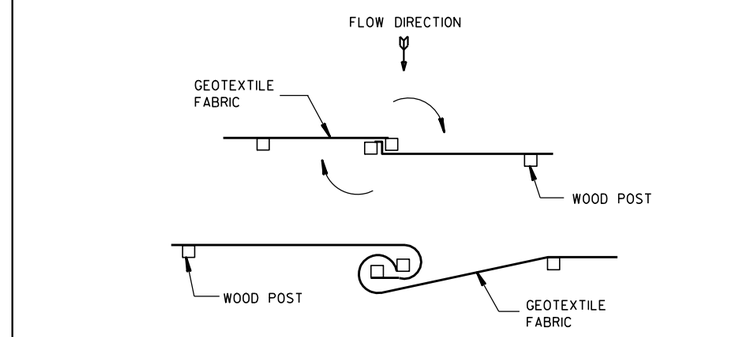


TRENCH DETAIL

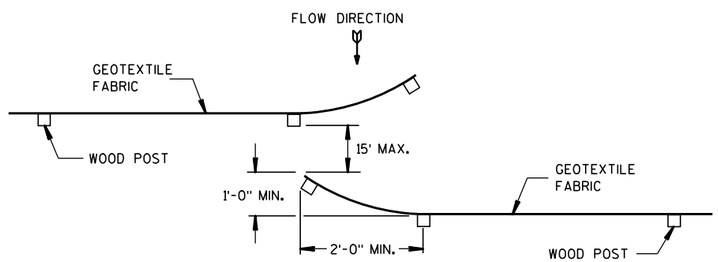


*NOTE: 8'-0" POST SPACING ALLOWED IF A WOVEN GEOTEXTILE FABRIC IS USED.

SILT FENCE

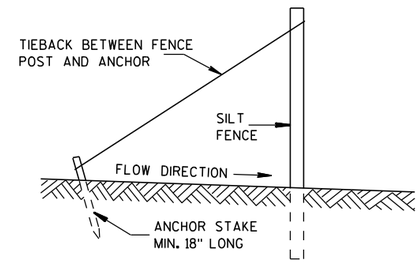


TWIST METHOD



HOOK METHOD

JOINING TWO LENGTHS OF SILT FENCE 5



SILT FENCE TIE BACK

(WHEN REQUIRED BY THE ENGINEER)

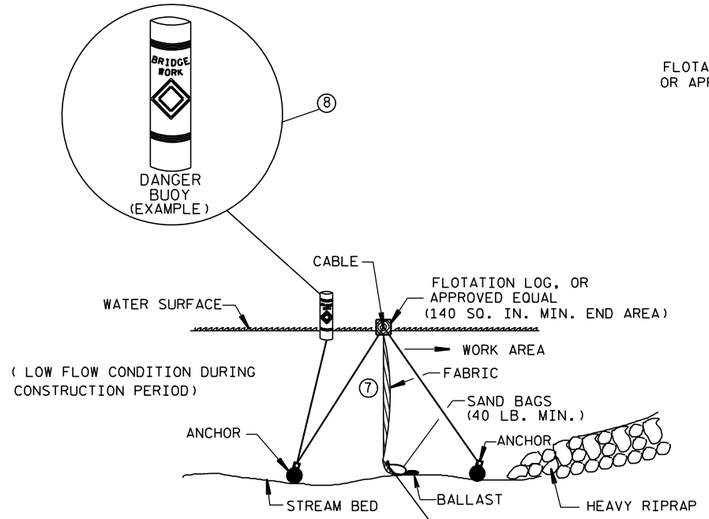
SILT FENCE	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 4-29-05 DATE	/S/ Beth Cannestra CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA	

6

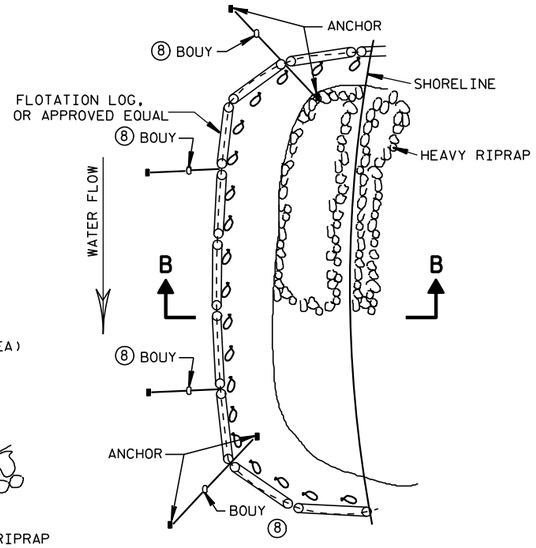
S.D.D. 8 E 9-6

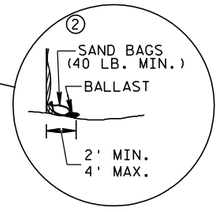
6

S.D.D. 8 E 9-6

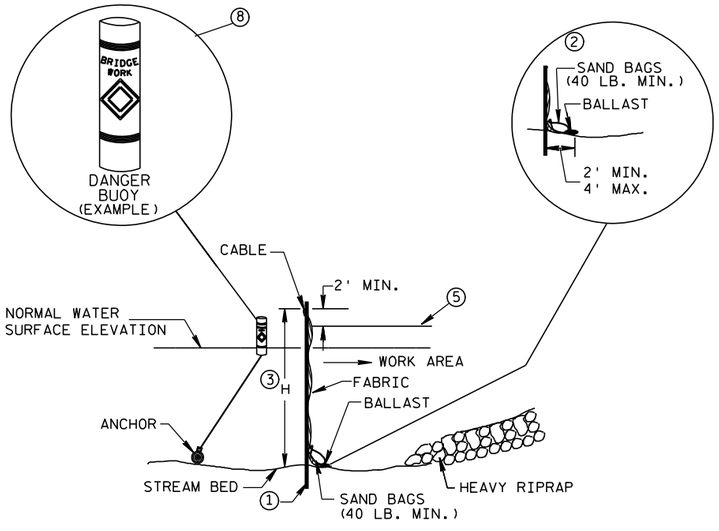


SECTION B-B

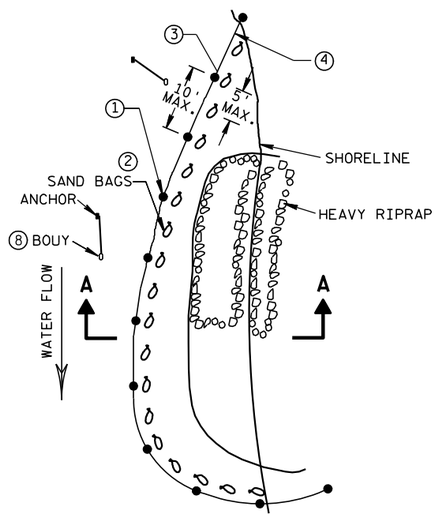




TURBIDITY BARRIER FLOAT ALTERNATIVE
CAUTION - SEE NOTE 6



SECTION A-A



PLAN VIEW

TURBIDITY BARRIER STANDARD POST INSTALLATION

TURBIDITY BARRIER PLACEMENT DETAILS

GENERAL NOTES

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

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

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

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

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

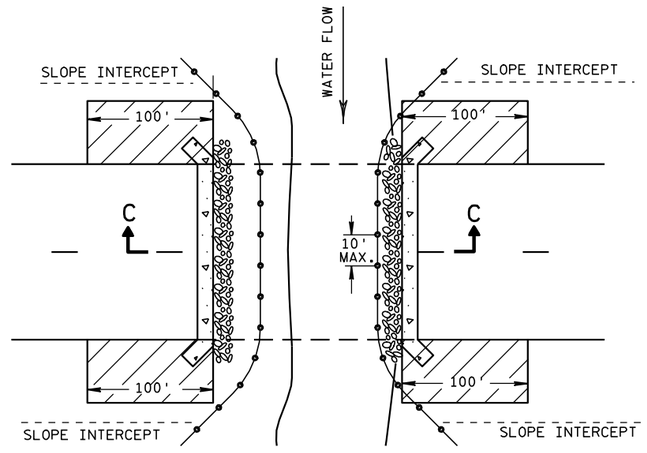
④ IN WATERWAYS SUBJECT TO FLUCTUATING WATER ELEVATIONS, PROVISIONS SHOULD BE MADE TO ALLOW THE WATER TO EQUALIZE ON EACH SIDE OF THE BARRIER. THIS MAY BE ACCOMPLISHED BY LEAVING A PORTION OF THE BARRIER OPEN ON THE UPSTREAM END.

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

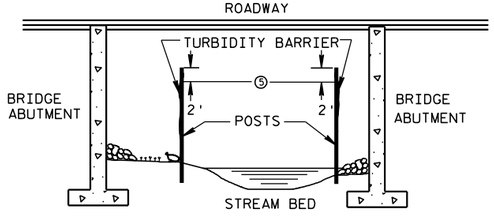
⑥ FLOAT ALTERNATIVE WILL ONLY BE ALLOWED WITH WRITTEN APPROVAL OF THE ENGINEER, AND IS MEANT FOR LOCATIONS WHERE BED ROCK PREVENTS THE INSTALLATION OF POSTS.

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

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



PLAN VIEW



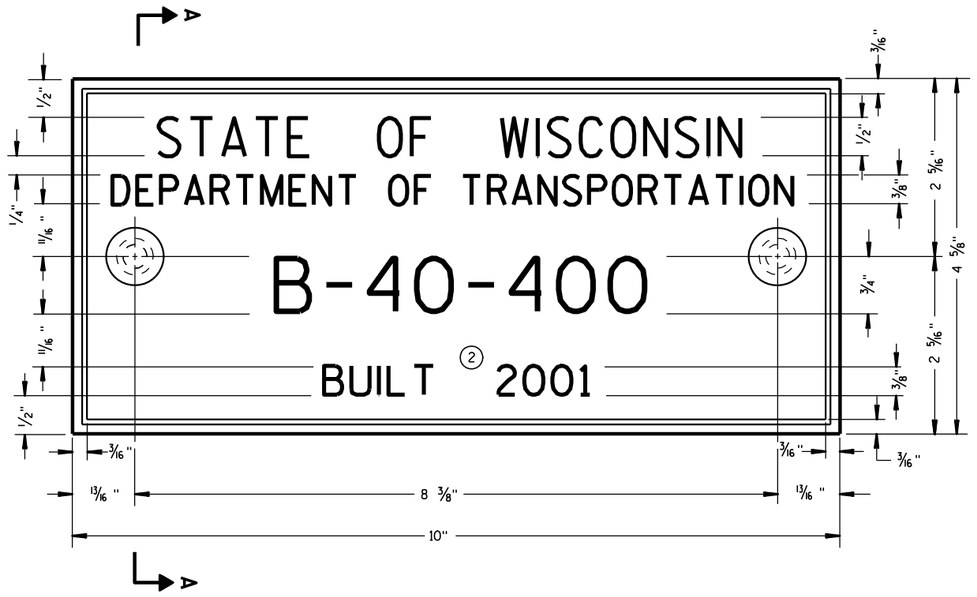
SECTION C-C

TURBIDITY BARRIER DETAIL SHOWING TYPICAL PLACEMENT AT STRUCTURES

TURBIDITY BARRIER	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED	
6/04/02 DATE	/S/ Beth Cannestra CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA	

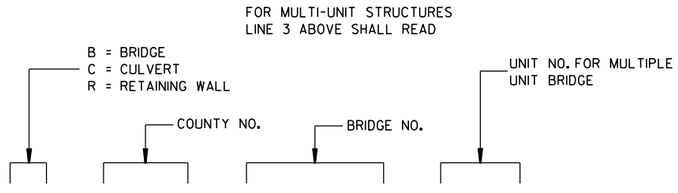
6

S.D.D. 8 E 11-2



TYPICAL NAME PLATE

(BRIDGES, CULVERTS, AND RETAINING WALLS)



NUMBERING DESIGNATION
MULTI-UNIT STRUCTURES

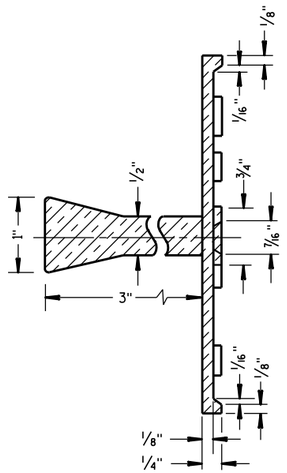
GENERAL NOTES

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.

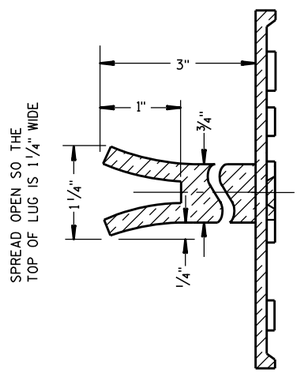
THE BRIDGE NUMBER AND YEAR BUILT SHOWN ON THIS DRAWING ARE EXAMPLES ONLY. SEE CONSTRUCTION PLANS FOR INDIVIDUAL NUMBERING AND YEAR BUILT.

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

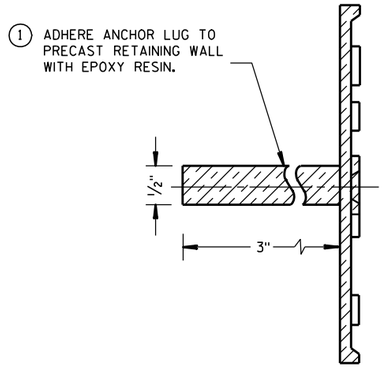
(2) REHABILITATION OF AN EXISTING STRUCTURE SHOULD USE THE DATE OF ORIGINAL STRUCTURE CONSTRUCTION.



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	

6

S.D.D. 12 A 3-10

GENERAL NOTES

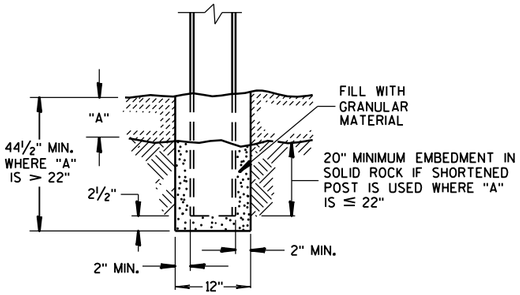
1. WOOD OR STEEL POSTS (w6X9 OR w6X8.5) MAY BE USED. DO NOT INTERMIX WOOD AND STEEL POSTS. INSTALL STEEL POSTS WITH HOLES ON APPROACHING TRAFFIC SIDE.

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

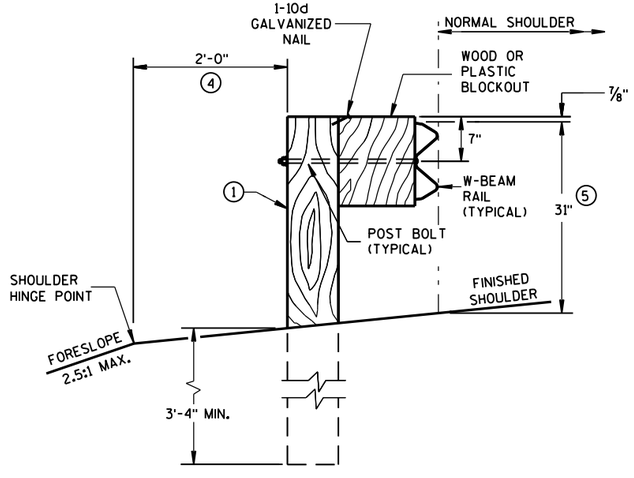
3. IF ROCK IS ENCOUNTERED DURING EXCAVATION, PROVIDE A HOLE 12 INCHES IN DIAMETER EXTENDING 20 INCHES DEEP INTO THE ROCK. PLACE APPROXIMATELY 2½INCHES OF GRANULAR MATERIAL IN THE BOTTOM OF THE HOLE. CUT THE POSTS THE TO LENGTH AMD INSTALL. BACKFILL WITH EXCAVATED MATERIAL AND COMPACT. BACKFILL IS TO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

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

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

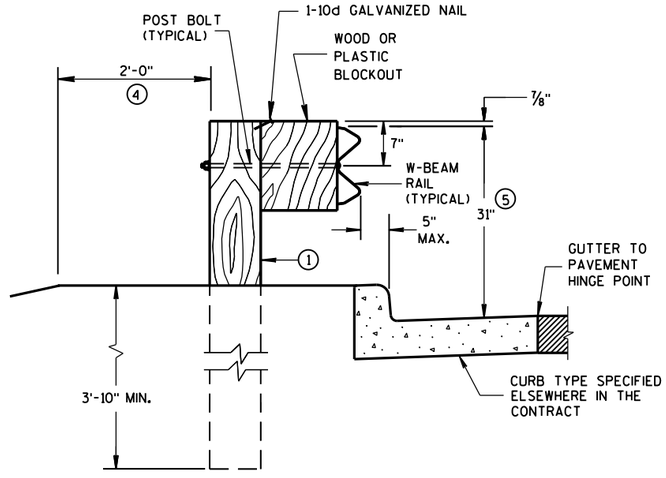


END VIEW
SETTING STEEL OR WOOD POST IN ROCK ③



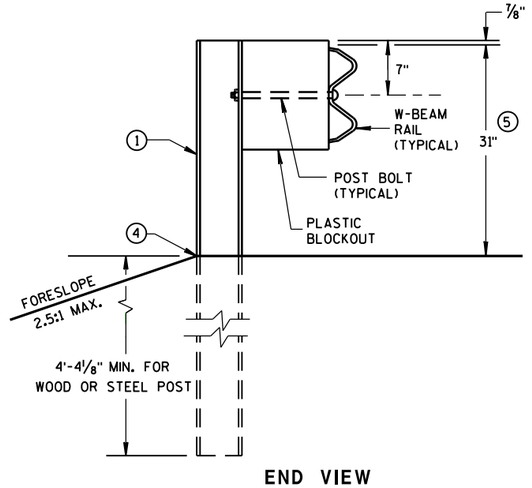
END VIEW

LOCATED ALONG A ROADWAY SHOULDER
STANDARD INSTALLATION



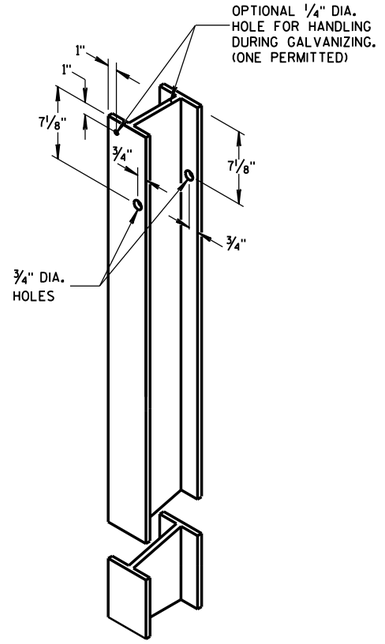
END VIEW

LOCATED ALONG A CURBED ROADWAY

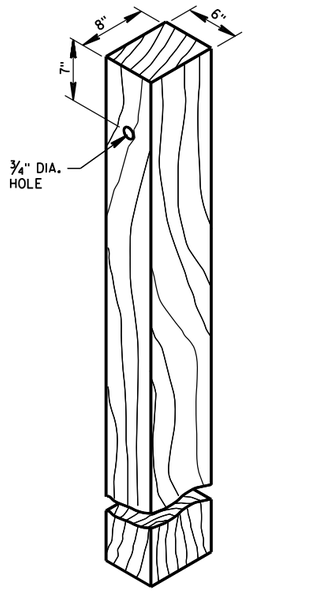


END VIEW

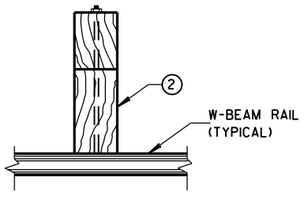
MGS LONGER POST AT HALFPOST SPACING W BEAM (K)



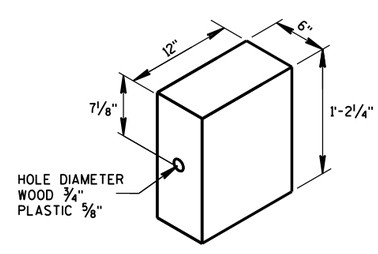
STEEL POST &
HOLE PUNCHING DETAIL
(w6X9) ①



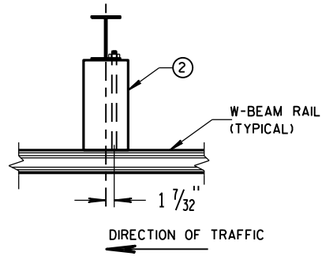
WOOD POST
(6" X 8") NOMINAL ①



PLAN VIEW
WOOD POST,
BLOCKOUT & BEAM



WOOD OR
PLASTIC BLOCKOUT ②



PLAN VIEW
STEEL POST,
PLASTIC BLOCKOUT & BEAM

MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

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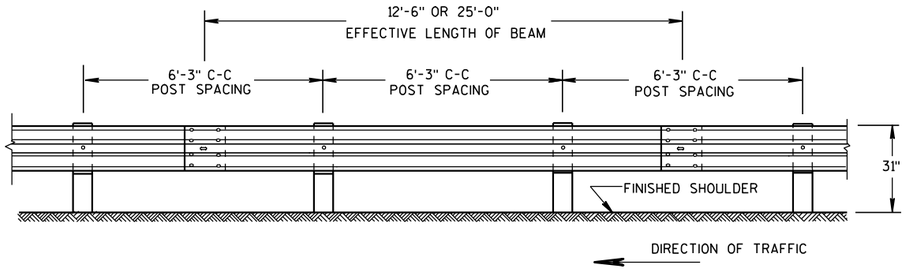
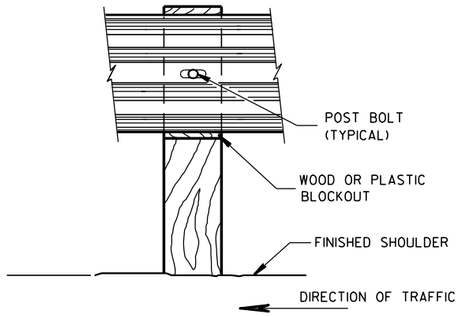
S.D.D. 14 B 42-2a



FRONT VIEW

POST SPACING STANDARD INSTALLATION



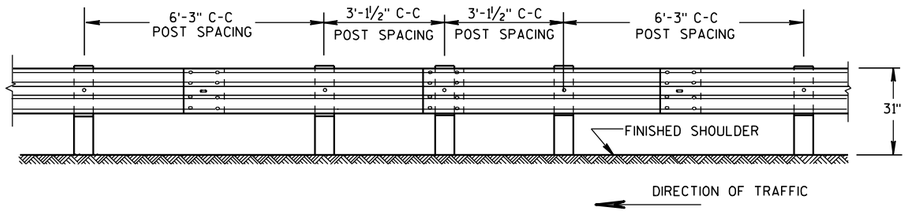
FRONT VIEW AT WOOD POST

GENERAL NOTES

1. PROVIDE TYPE "H" SILVER REFLECTIVE SHEETING ON ALL REFLECTORS EXCEPT THOSE LOCATED ALONG THE LEFT EDGE OF ONE-WAY ROADWAYS, WHICH SHALL BE PROVIDED WITH TYPE "H" YELLOW REFLECTIVE SHEETING.
2. DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL. RAIL SPLICE LOCATIONS ARE THE ONLY ACCEPTABLE LOCATIONS FOR REFLECTORS.
3. REVERSE EVERY OTHER REFLECTOR FOR 2-WAY VISIBILITY. THE CONTRACTOR MAY FURNISH TWO-SIDED REFLECTORS IN LIEU OF ONE-SIDED REFLECTORS.
4. PROVIDE AN ANGLE OF BEND OF 90° ± 1° FOR TWO-SIDED REFLECTORS.
5. 25 FEET OF HALF POST SPACING IS REQUIRED ON APPROACH AND DEPARTURE ENDS OF QUARTER POST SPACING.

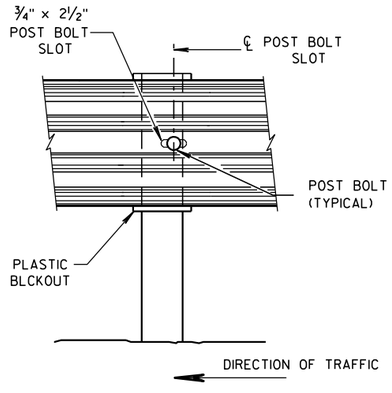
POST BOLTS ARE A 5/8" DIAMETER ASTM A307 GUARDRAIL BOLT. A POST BOLT REQUIRES 5/8" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT AND 5/8" DIAMETER F844 FLAT WASHER. POST BOLTS MAY BE LONGER IF MULTIPLE BLOCKOUTS ARE BEING USED.

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

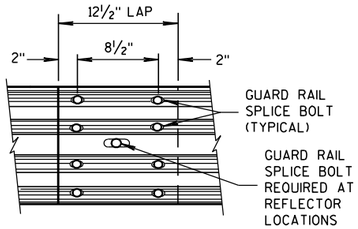


FRONT VIEW

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

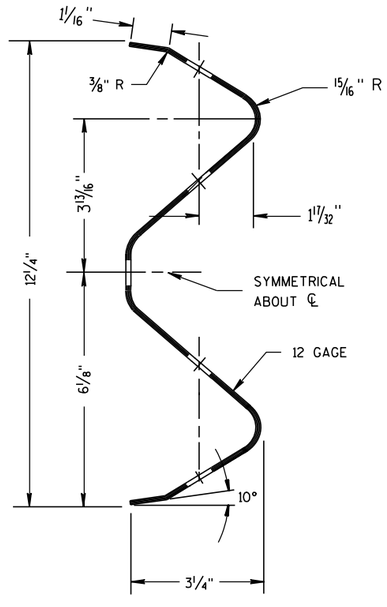


FRONT VIEW AT STEEL POST

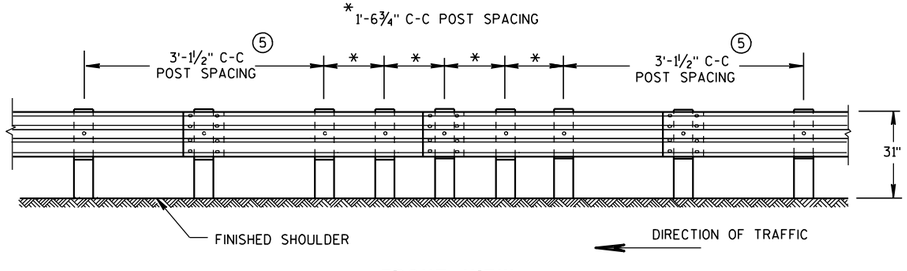


FRONT VIEW

MID-SPAN BEAM SPLICE

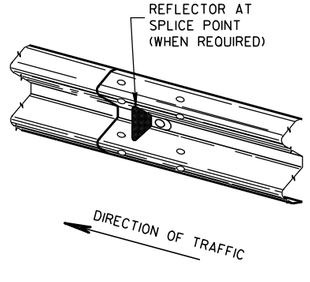


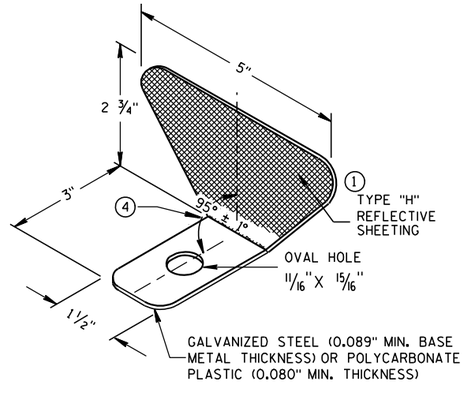
SECTION THRU W-BEAM RAIL



FRONT VIEW

QUARTER POST SPACING (QS)





ONE SIDED REFLECTOR DETAIL AND TYPICAL INSTALLATION ①

REFLECTOR SPACING ②

	BEAM GUARD LENGTH	REFLECTOR SPACING	NO. SURFACES REFLECTORIZED	MIN. NO. REFLECTORS
ONE WAY TRAFFIC	< 200' > 200'	50' C-C 100' C-C	1 1	3
TWO WAY TRAFFIC	< 200' > 200'	25' C-C 50' C-C	1 ③ 1	6
TWO WAY TRAFFIC	< 200' > 200'	50' C-C 100' C-C	2 ④ 2	3

MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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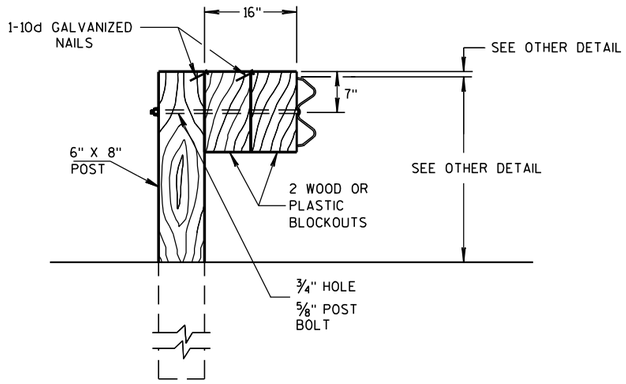
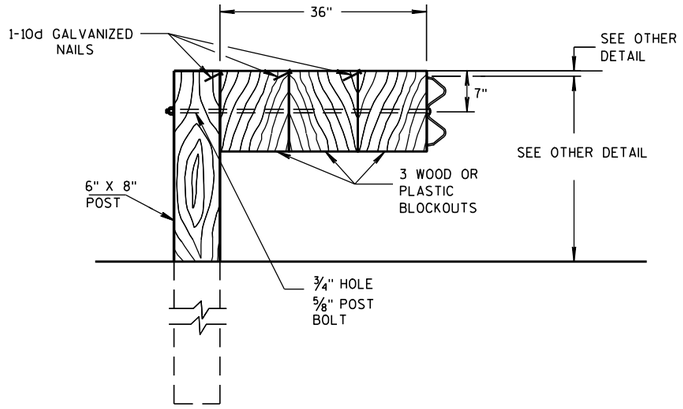


DETAIL FOR 16" BLOCKOUT DEPTH

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

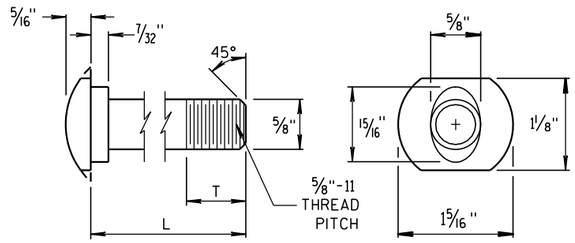


DETAIL FOR 36" BLOCKOUT DEPTH

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

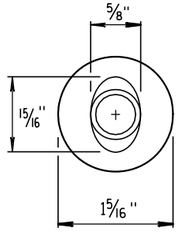
DO NOT USE 16" OR 36" BLOCKOUTS IF IT CAUSES THE POST TO BE DRIVEN BEYOND SHOULDER HINGE POINT OR CAUSES A FIXED OBJECT TO BE WITHIN THE DEFLECTION DISTANCE OF THE BARRIER.

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

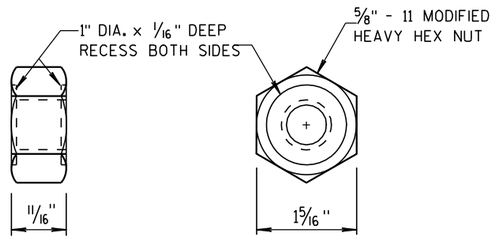


POST BOLT TABLE

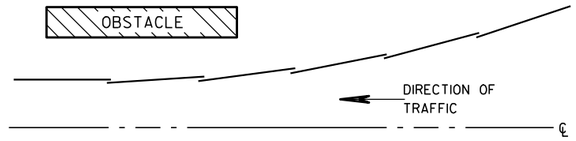
L	T (MIN.)
1 1/4"	1 1/8"
2"	1 3/4"
10"	4"
14"	4 1/16"
18"	4"
21"	4 1/16"
25"	4"



ALTERNATE BOLT HEAD

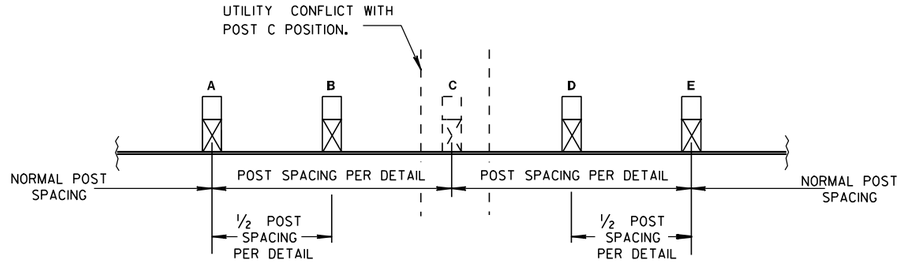


POST BOLT AND RECESS NUT

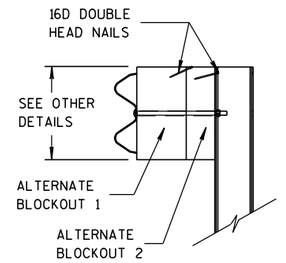


PLAN VIEW

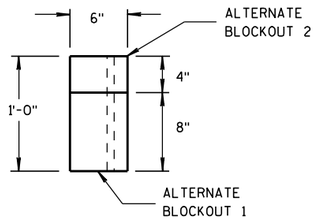
BEAM LAPPING DETAIL



POST DRIVING FOR CONTINUOUS UNDERGROUND OBSTRUCTION



SIDE VIEW



TOP VIEW

ALTERNATE WOOD BLOCKOUT DETAIL

MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

11/15/2011
DATE

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

ENT

FHWA

6
S.D.D. 14 B 42-2c

GENERAL NOTES

(A) THE SLOPE IN THE AREA BOUNDED BY THE EXTENDED VEHICLE RUNOUT PATH (EVRP), 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) SHEETING IS ATTACHED TO 0.040 ALUMINUM SHEET AND ATTACHED TO E.A.T. HEAD USING 4 STAINLESS STEEL SELF-TAPPING SCREWS. ONE SCREW PER CORNER OF E.A.T.

(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.

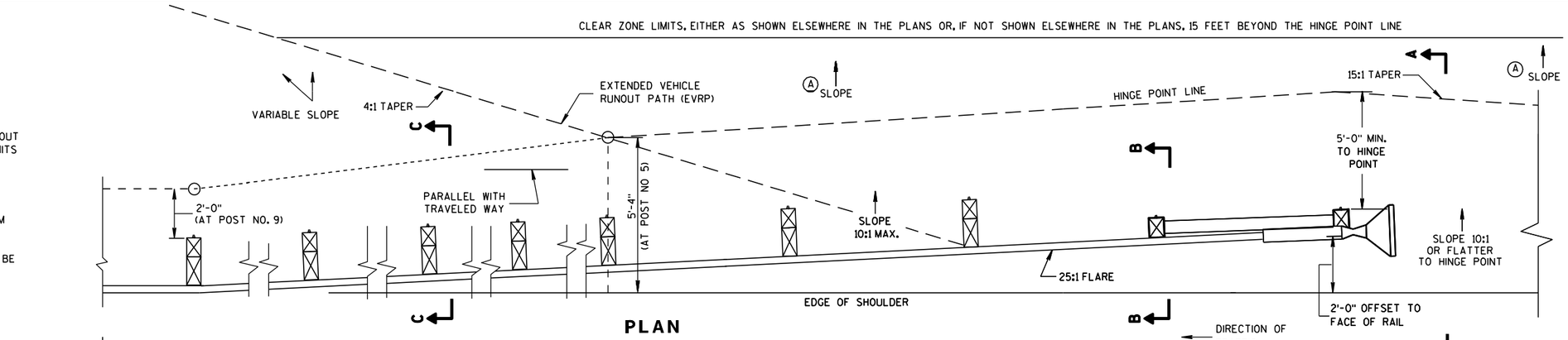
* DO NOT ATTACH BLOCKOUTS TO POSTS 1 AND 2.

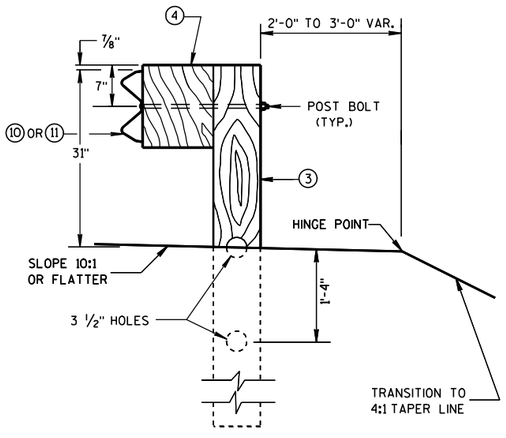
DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL.

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.

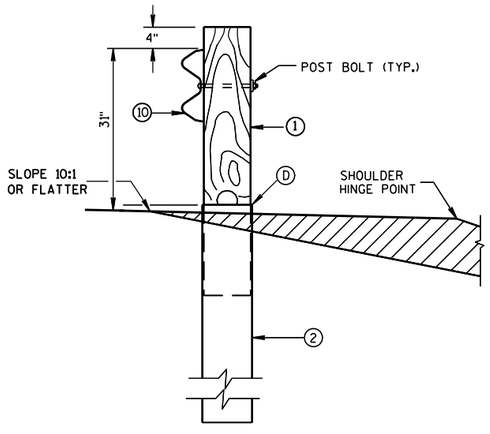
PATTERN AND COLORS ON REFLECTIVE SHEETING TYPE H ARE TO CONFORM TO OM3-L OR OM3-R OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

THE CENTER OF THE UPPER 3½" DIAMETER HOLE ON POST NUMBER 3 THROUGH POST 9 IS TO BE FLUSH WITH THE GROUND LINE (± ¾")

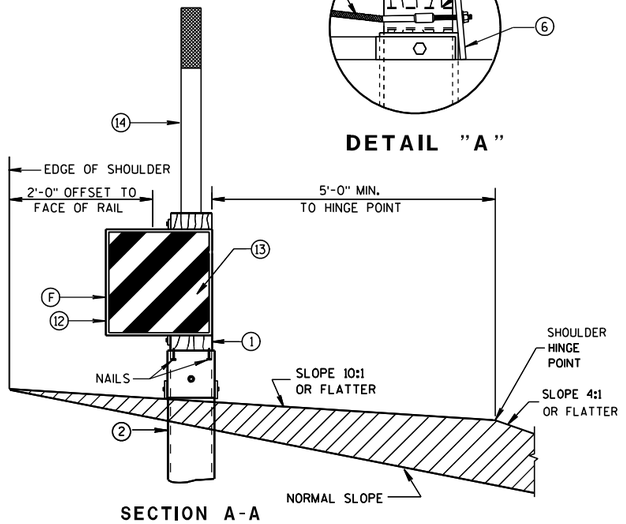




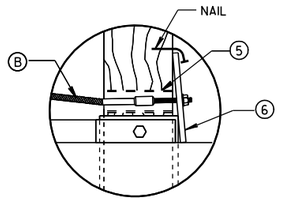
SECTION C-C
TYPICAL AT POST NOS. 3-9



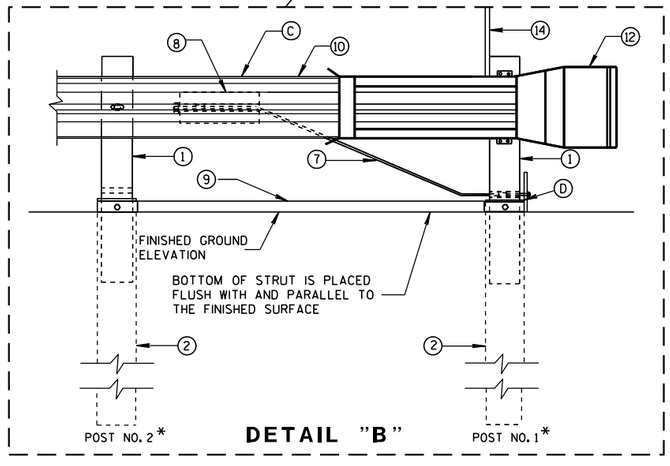
SECTION B-B
TYPICAL AT POST NO. 2*



SECTION A-A
TYPICAL AT POST NO. 1*



DETAIL "A"



DETAIL "B"

MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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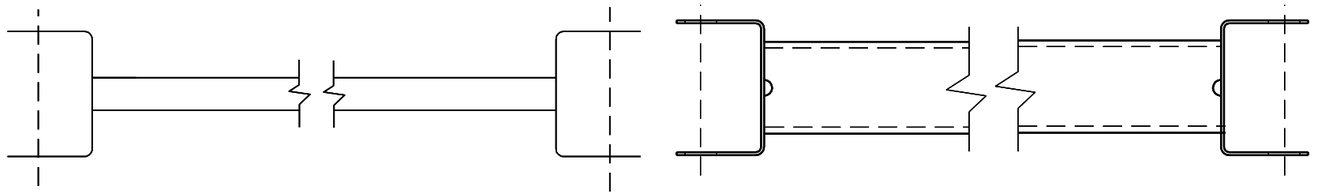
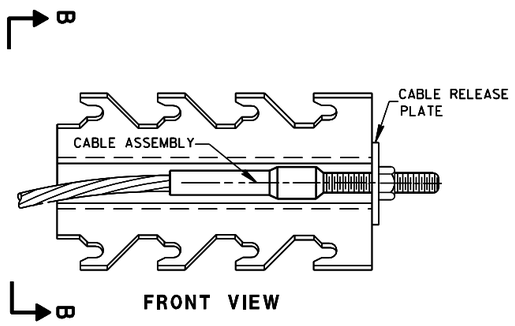


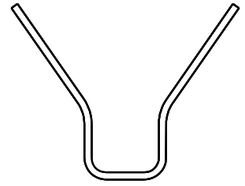
GENERIC GROUND STRUT (9) (H)

BILL OF MATERIALS

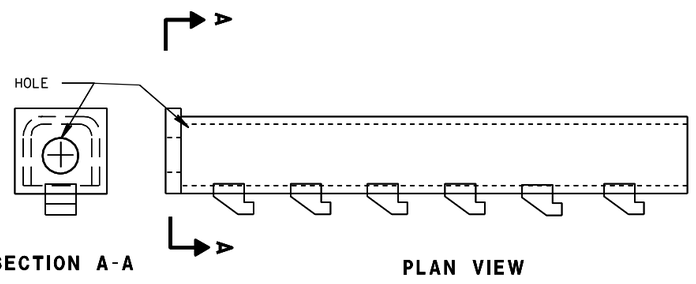
PART NO.	DESCRIPTION MATERIALS PROVIDED BY MGS EAT MANUFACTURER. SEE MANUFACTURER'S DETAILS FOR MORE INFORMATION.
(1)	WOOD BREAKAWAY POST
(2)	6" X 8" X 0.188", 6'-0" LONG FOUNDATION TUBE AT POSTS 1 AND 2
(3)	WOOD CRT
(4)	WOOD BLOCKOUT
(5)	PIPE SLEEVE
(6)	BEARING PLATE
(7)	BCT CABLE ASSEMBLY
(8)	ANCHOR 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 H (ONLY THE SHEETING IS SUPPLIED BY THE MANUFACTURER)
(14)	EAT MARKER POST - YELLOW (SEE APPROVED PRODUCTS LIST)



FRONT VIEW



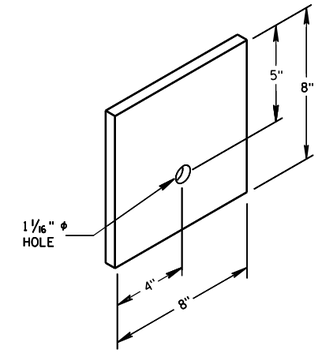
SECTION B-B



SECTION A-A

PLAN VIEW

GENERIC ANCHOR CABLE BOX (8) (H)



BEARING PLATE (6)

MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL
(MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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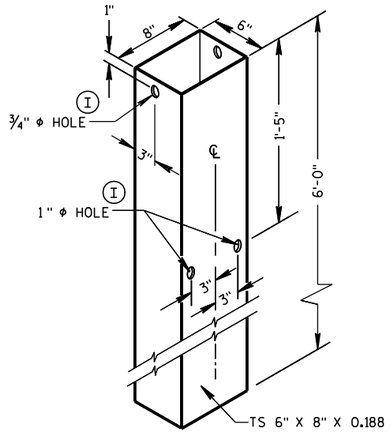
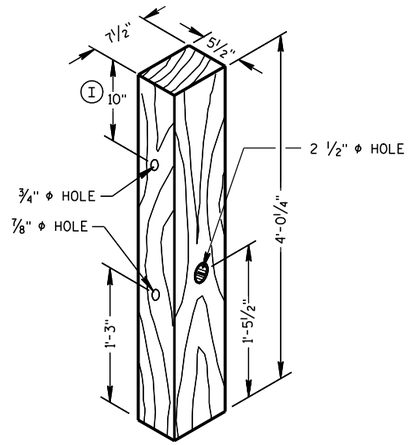
S.D.D. 14 B 44-1b

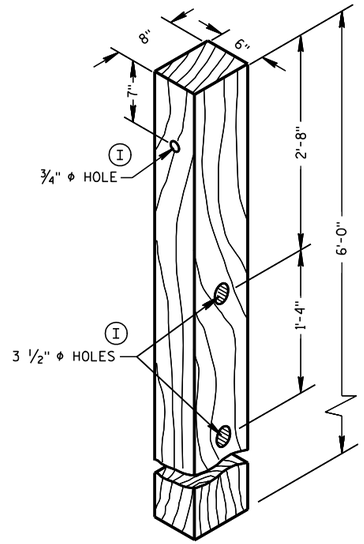


FOUNDATION TUBE (2)



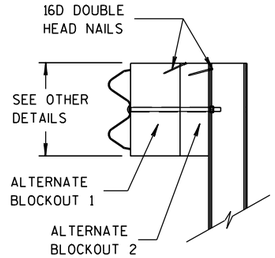
POSTS NUMBER 1 AND 2

WOOD BREAKAWAY POST (1)

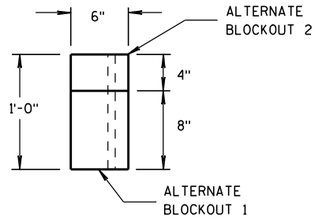


POSTS NUMBER 3-9

WOOD CRT POST (3)

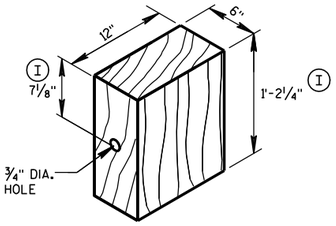


SIDE VIEW



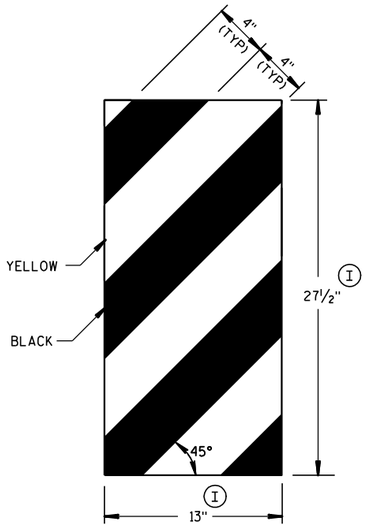
TOP VIEW

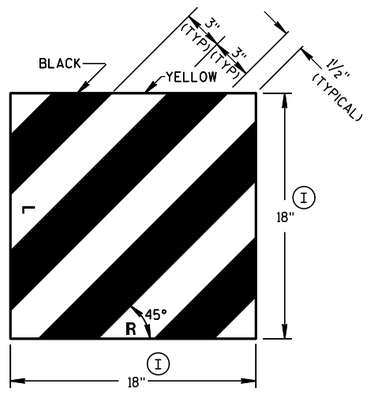
ALTERNATE WOOD BLOCKOUT DETAIL



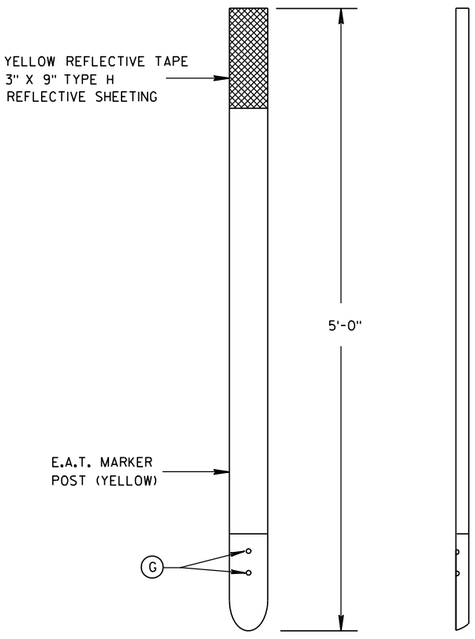
WOOD BLOCKOUT (4)

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





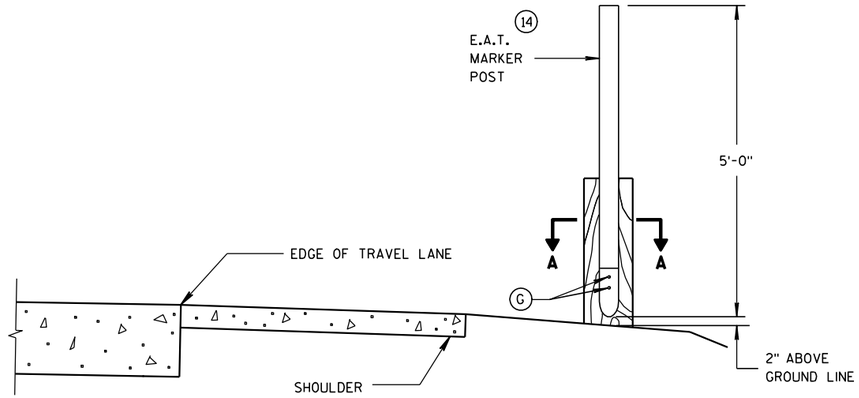
GENERIC REFLECTIVE SHEETING (13) (H)



FRONT VIEW

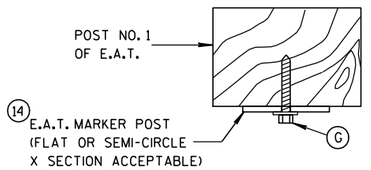
SIDE VIEW

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

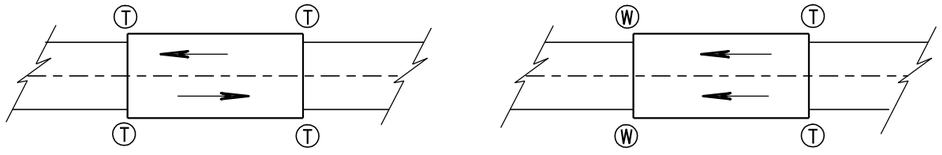
MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL
(MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
5/23/2011
DATE
/S/ Jerry H. [illegible]
ROADWAY STANDARDS ENGINEER
[illegible]TENT
FHWA

6

S.D.D. 14 B 44-1c



TWO WAY TRAFFIC

ONE WAY TRAFFIC

Ⓣ THRIE BEAM CONNECTION

Ⓦ W-BEAM CONNECTION WHEN REQUIRED

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

GENERAL NOTES

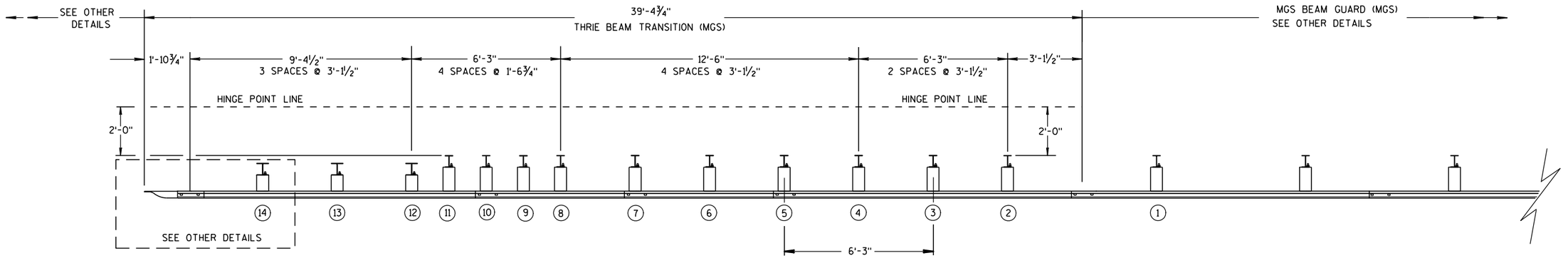
BOLT THE THRIE BEAM TO ALL POSTS AND BLOCKOUTS. DRILL OR PUNCH BOLT HOLES IN THE BEAM IF THE POST SPACING IS LESS THAN 6'-3.

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

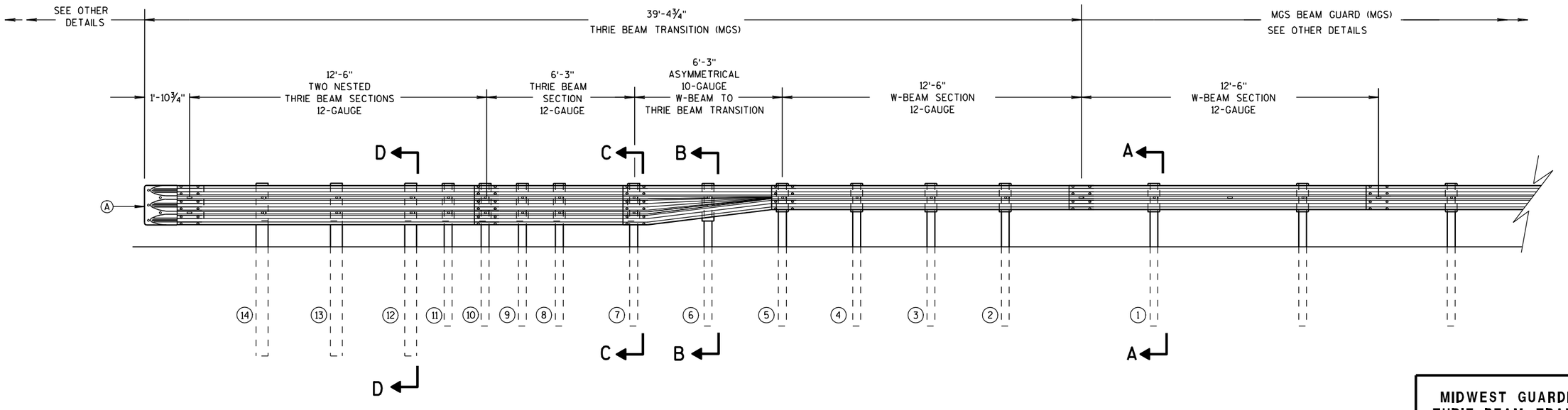
TRANSITION USES STEEL POSTS ONLY.

SEE STANDARD DETAIL DRAWING 14 B 42 FOR MORE INFORMATION.

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



PLAN VIEW



ELEVATION VIEW

MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION

MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	20

6

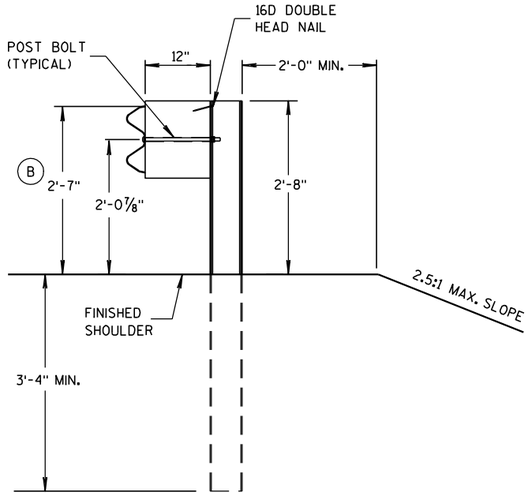
S.D.D. 14 B 45-3a

6

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

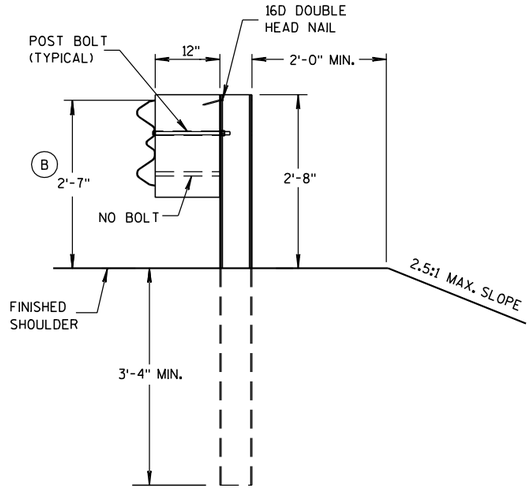
GENERAL NOTES

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



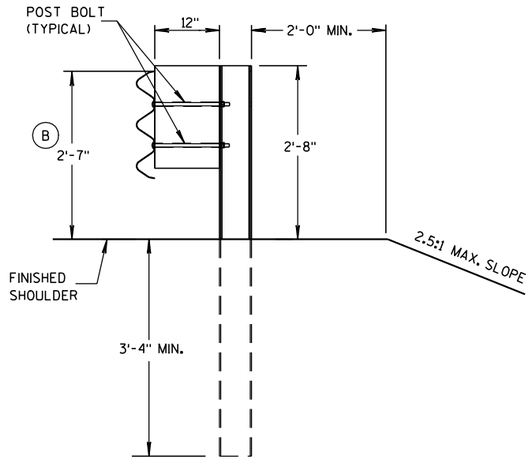
SECTION A-A

POSTS 1-5



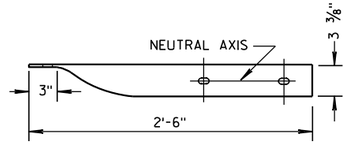
SECTION B-B

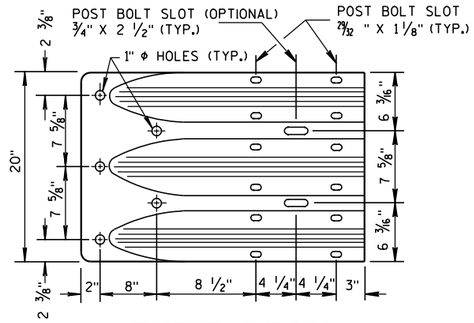
POST 6



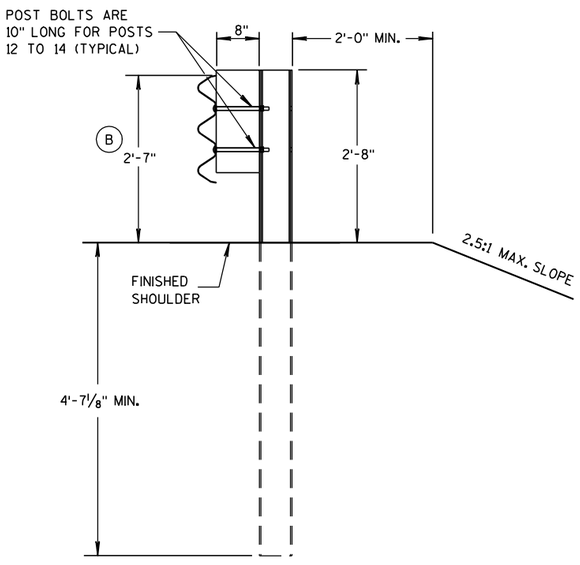
SECTION C-C

POSTS 7-11





THRIE BEAM TERMINAL CONNECTOR



SECTION D-D

POSTS 12-14

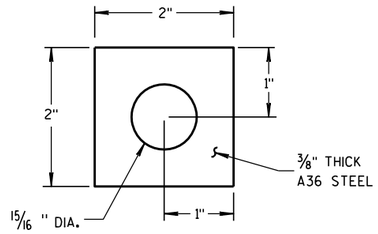
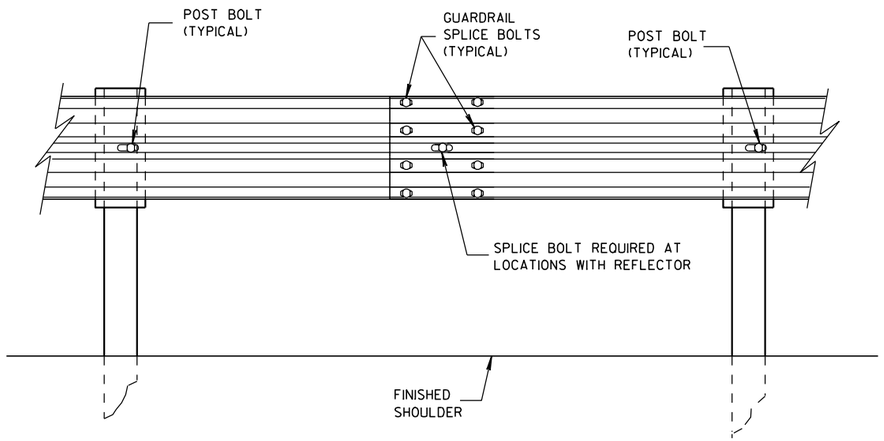
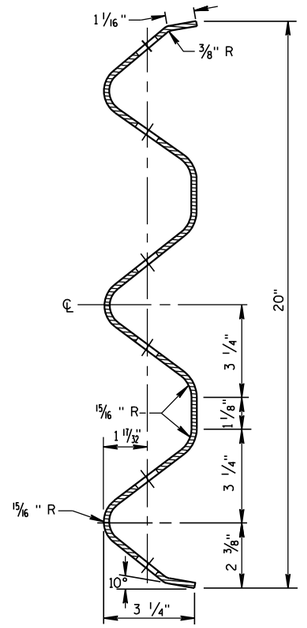


PLATE WASHER DETAIL



SPLICE DETAIL



SECTION THRU THRIE BEAM RAIL ELEMENT

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

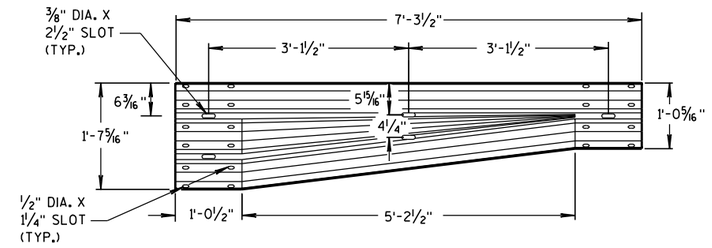
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

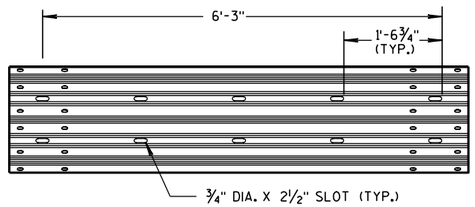
S.D.D. 14 B 45-3b

6

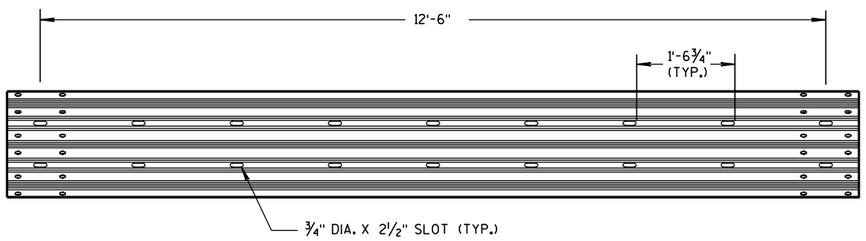
S.D.D. 14 B 45-3b



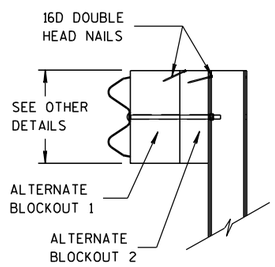
W-BEAM TO THRIE BEAM TRANSITION SECTION



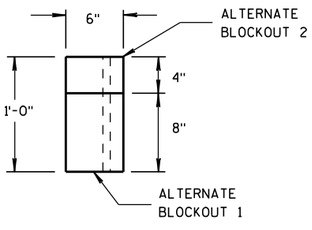
6'-3" THRIE BEAM SECTION



12'-6" THRIE BEAM SECTION

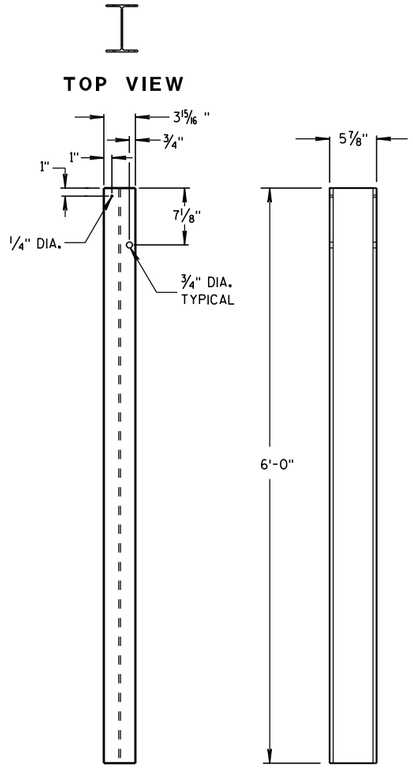


SIDE VIEW



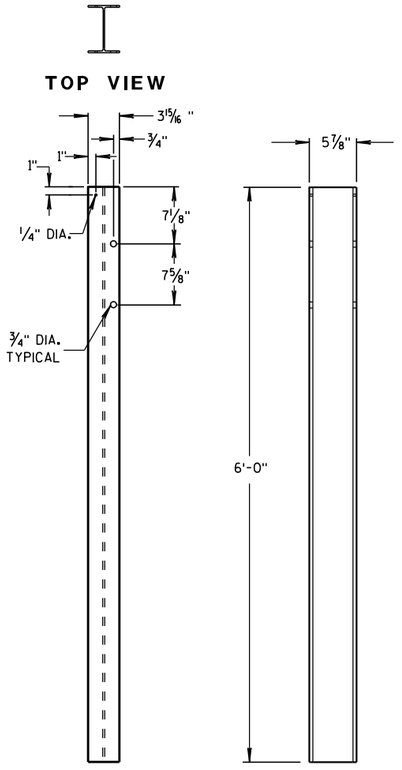
TOP VIEW

ALTERNATE WOOD BLOCKOUT DETAIL



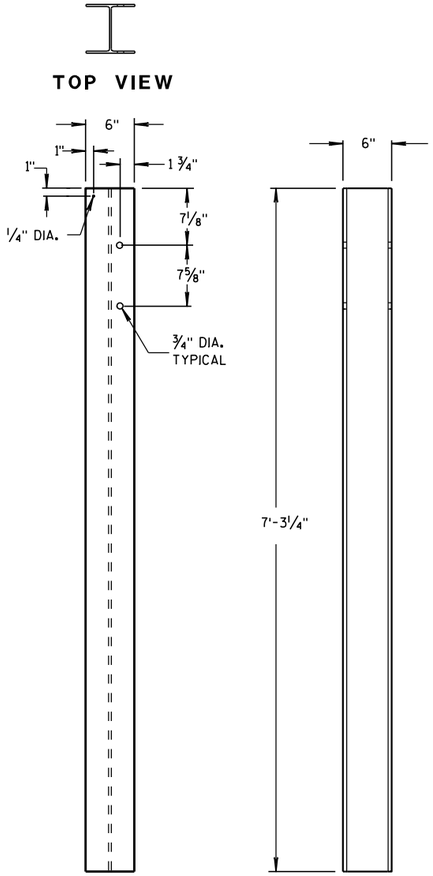
FRONT VIEW SIDE VIEW

STEEL POSTS 1-5



FRONT VIEW SIDE VIEW

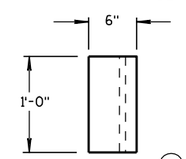
STEEL POSTS 6-11



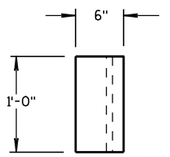
FRONT VIEW SIDE VIEW

STEEL POSTS 12-14

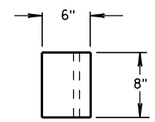
(1) WOOD BLOCKS MAY BE CONSTRUCTED OUT OF 2 WOOD BLOCKS. SEE ALTERNATE WOOD BLOCK DETAIL.



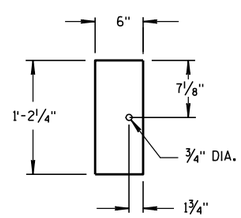
TOP VIEW (1)



TOP VIEW (1)

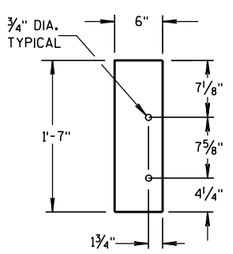


TOP VIEW



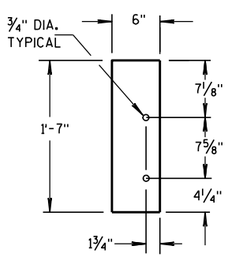
FRONT VIEW

BLOCKOUT POSTS 1-5



FRONT VIEW

BLOCKOUT POSTS 6-11



FRONT VIEW

BLOCKOUT POSTS 12-14

STEEL POST SIZES

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

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

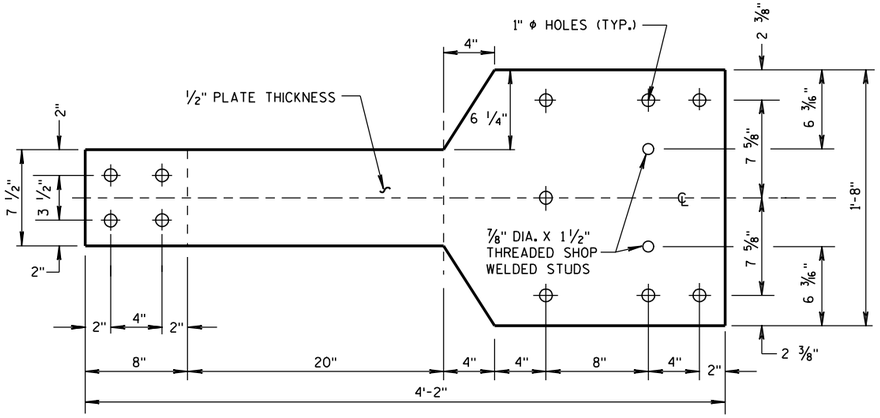
S.D.D. 14 B 45-3c

6

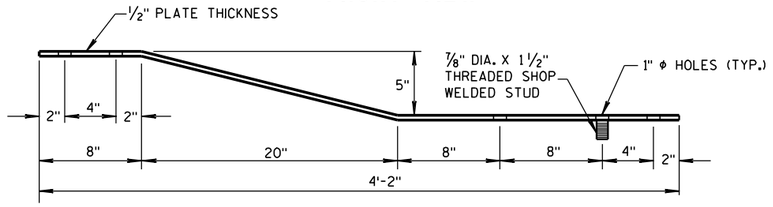
S.D.D. 14 B 45-3c

GENERAL NOTES

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

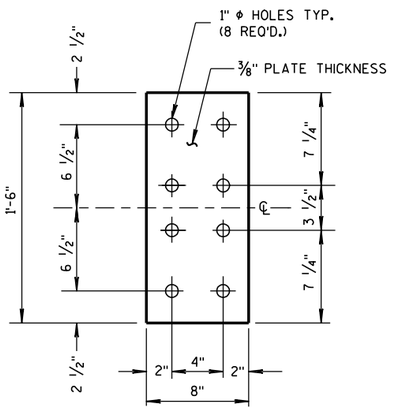


FRONT VIEW



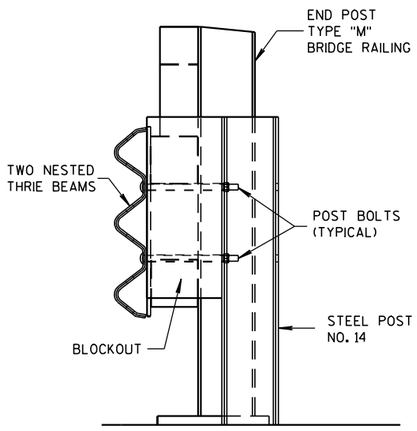
PLAN VIEW

BACK-UP PLATE DETAIL, TYPE "M"

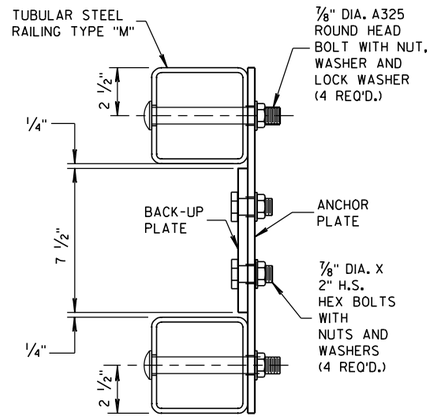


FRONT VIEW

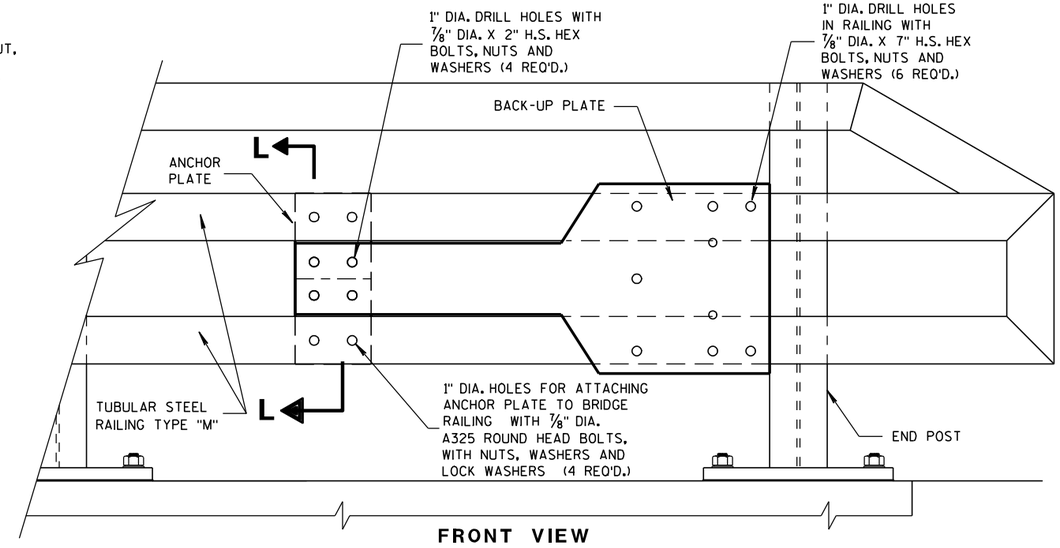
ANCHOR PLATE DETAIL, TYPE "M"



SECTION M-M

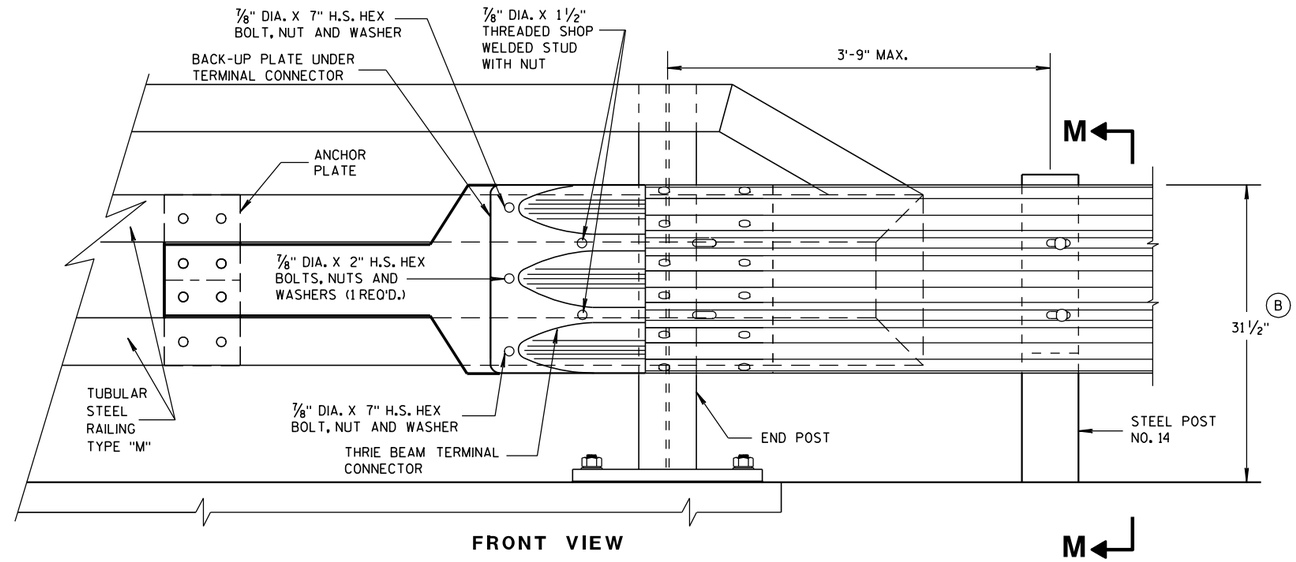


SECTION L-L

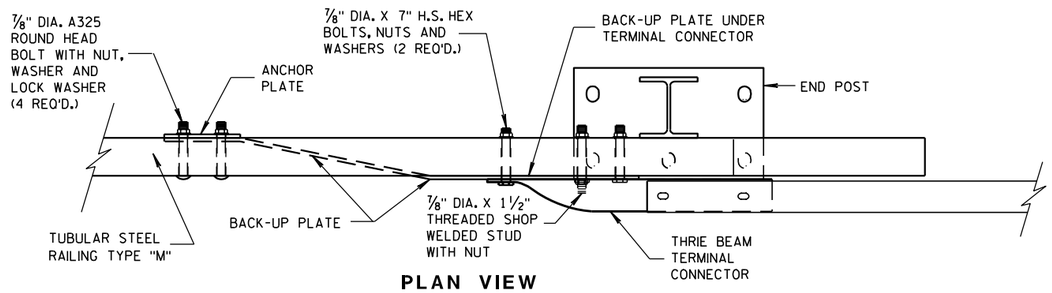


FRONT VIEW

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



FRONT VIEW



PLAN VIEW

THRIE BEAM CONNECTION TO TUBULAR RAILING, TYPE "M"

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

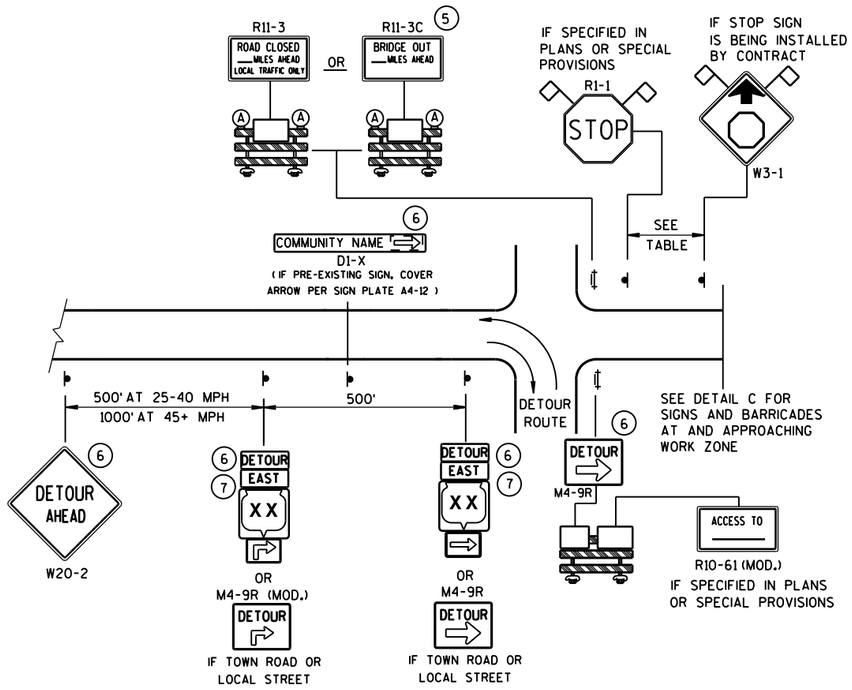
APPROVED
8-31-2012 DATE
/S/ Jerry H. [illegible] ROADWAY STANDARDS ENGINEER
23 ENT
FHWA

6

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

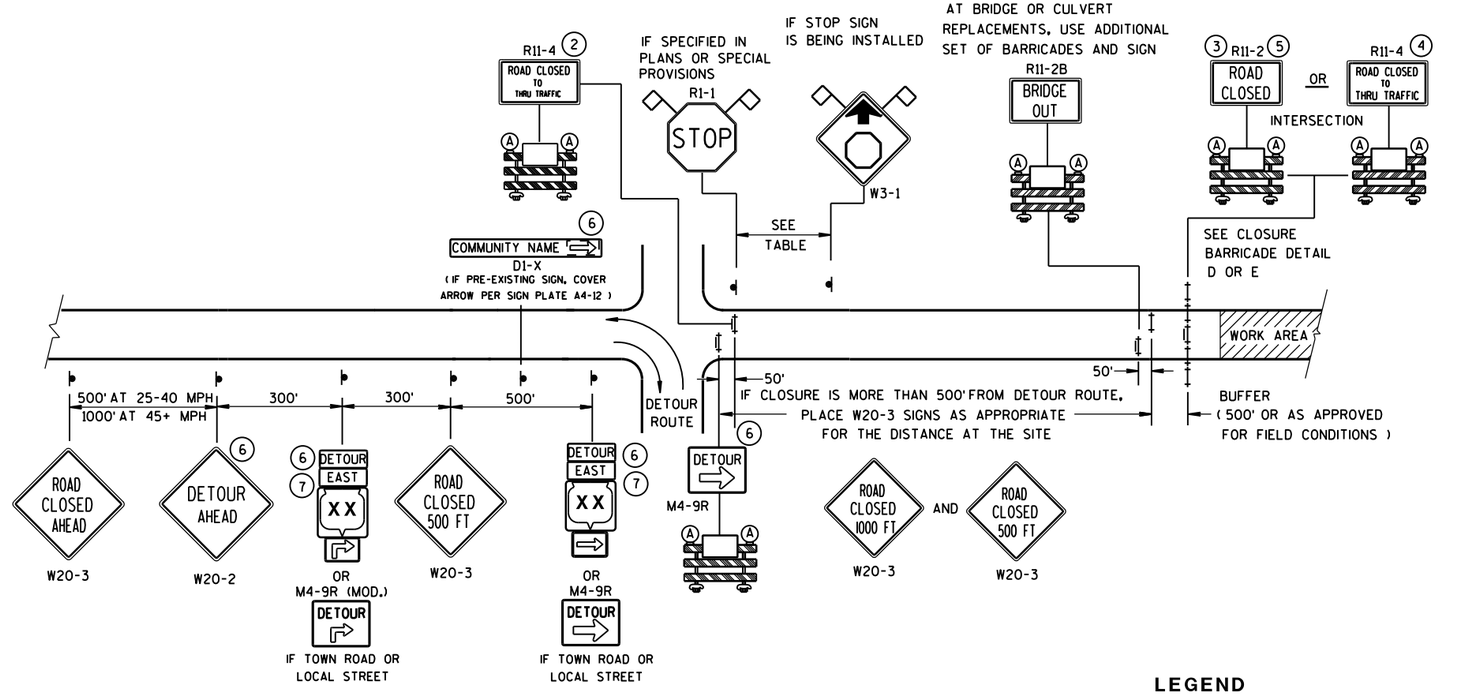
6

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



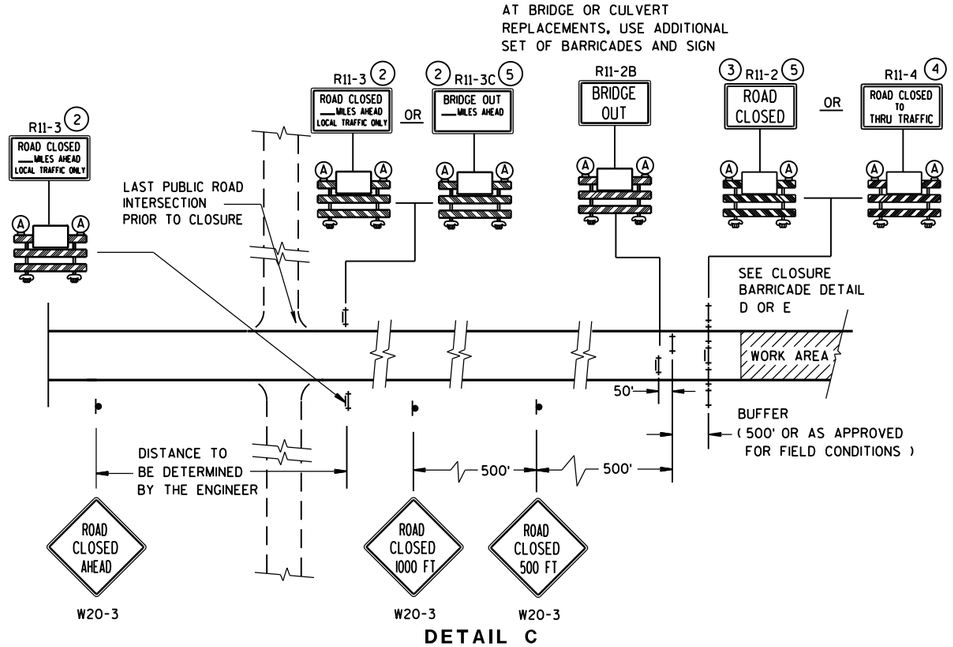
DETAIL A
MAINLINE CLOSURE WITH POSTED DETOUR

WORK ZONE GREATER THAN ½ MILE FROM DETOUR ROUTE (1000 FEET IF URBAN)



DETAIL B
MAINLINE CLOSURE WITH POSTED DETOUR

WORK ZONE LESS THAN ½ MILE FROM DETOUR ROUTE (1000 FEET IF URBAN)



DETAIL C
MAINLINE CLOSURE, NO POSTED DETOUR

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

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

LEGEND

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

BARRICADES AND SIGNS FOR MAINLINE CLOSURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

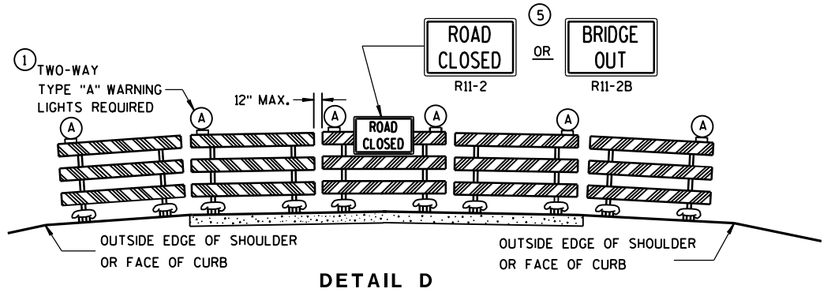
8/2013 DATE

/S/ Travis Feltes
STATE TRAFFIC ENGINEER

FHWA

6

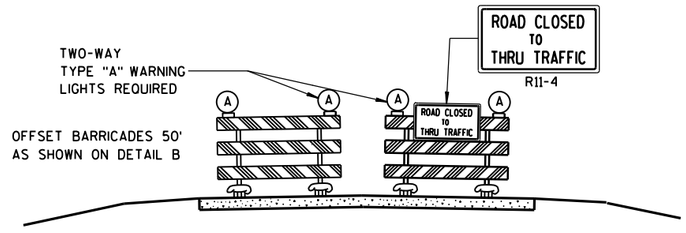
S.D.D. 15 C 2-5a



DETAIL D

ROAD CLOSURE BARRICADE DETAIL

APPROACH VIEW



DETAIL E

LANE CLOSURE BARRICADE DETAIL

APPROACH VIEW

SEE SDD 15C2-SHEET "**a**" FOR LEGEND

GENERAL NOTES

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

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

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

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

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

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

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

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

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

ALL SIGNS SHALL BE 48" X 48" UNLESS OTHERWISE NOTED BELOW:
- R11-2 SHALL BE 48" X 30".
- R11-3, R11-4 AND R10-61 SHALL BE 60" X 30".
- M4-9 SHALL BE 30" X 24".
- M3-X SHALL BE 24" X 12". (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS.)
- M4-8 SHALL BE 24" X 12". (30" X 15" IF NEEDED TO MATCH EXISTING SIGNS.)
- M1-4, M1-5A, AND M1-6 SHALL BE 24" X 24". (36" X 36" IF NEEDED TO MATCH EXISTING SIGNS.)
- M05-1 AND M06-1 SHALL BE 21" X 21". (30" X 30" IF NEEDED TO MATCH EXISTING SIGNS.)
- D1-X SHALL BE AS SHOWN ON SPECIFIC PROJECT SIGNING DETAIL SHEETS.
- R1-1 SHALL BE 36" X 36".

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

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

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

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

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

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

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

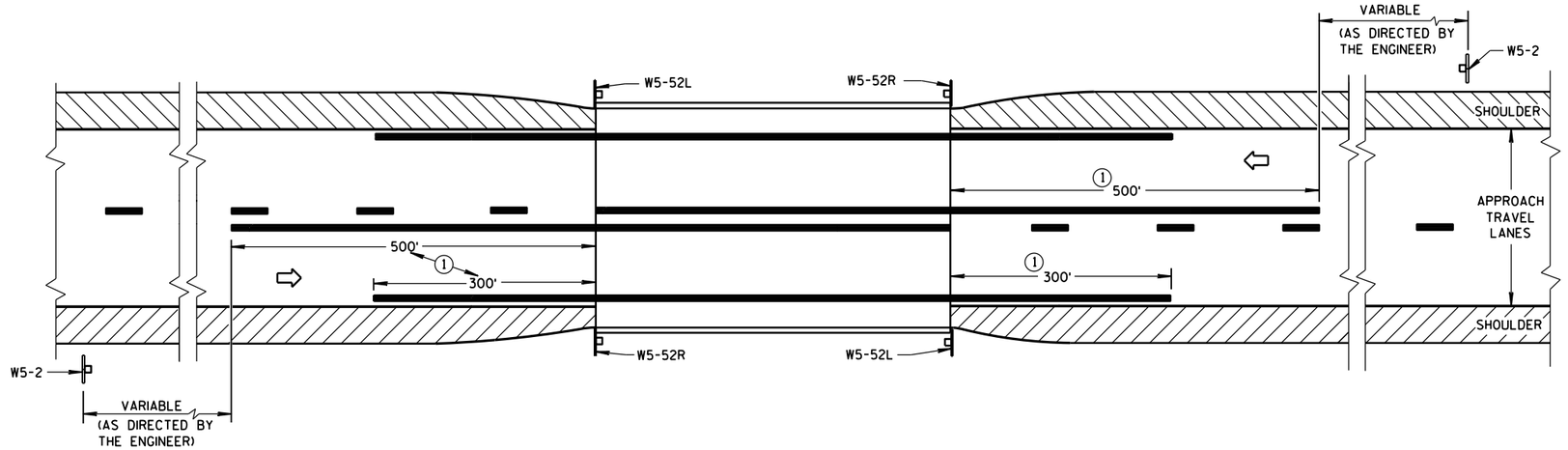
BARRICADES AND SIGNS FOR MAINLINE CLOSURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

6

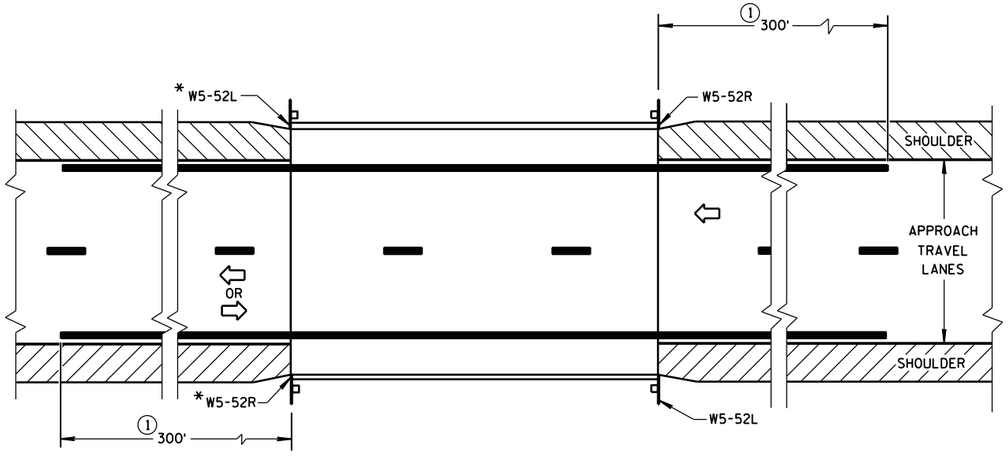
S.D.D. 15 C 2-5b



SITUATION 1

WARRANTING CRITERIA:

BRIDGE WIDTH IS AT LEAST 18 FEET BUT LESS THAN 24 FEET



*OMIT ON ONE-WAY TRAVELLED WAYS

SITUATION 2

WARRANTING CRITERIA:

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

GENERAL NOTES

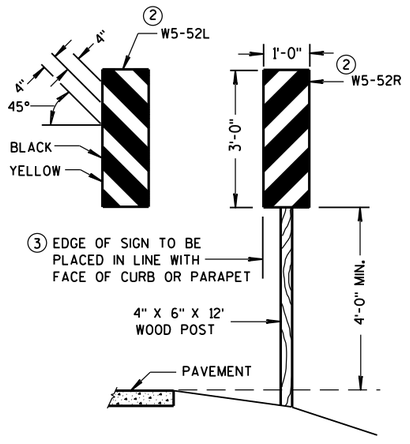
DETAILS OF TRAFFIC CONTROL DEVICES AND INSTALLATION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS, THE SPECIAL PROVISIONS, AND THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

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

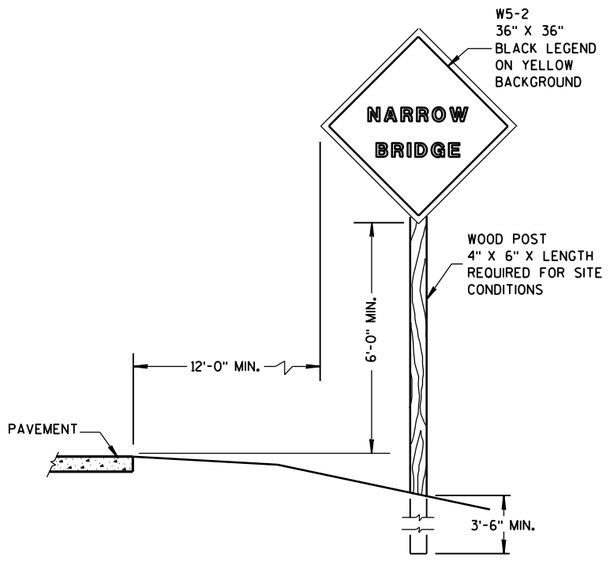
(1) MINIMUM DISTANCE UNLESS OTHERWISE SHOWN ON THE PLAN.

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

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



OBJECT MARKER PLACEMENT



SIGN PLACEMENT

SIGNING & MARKING FOR TWO LANE BRIDGES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

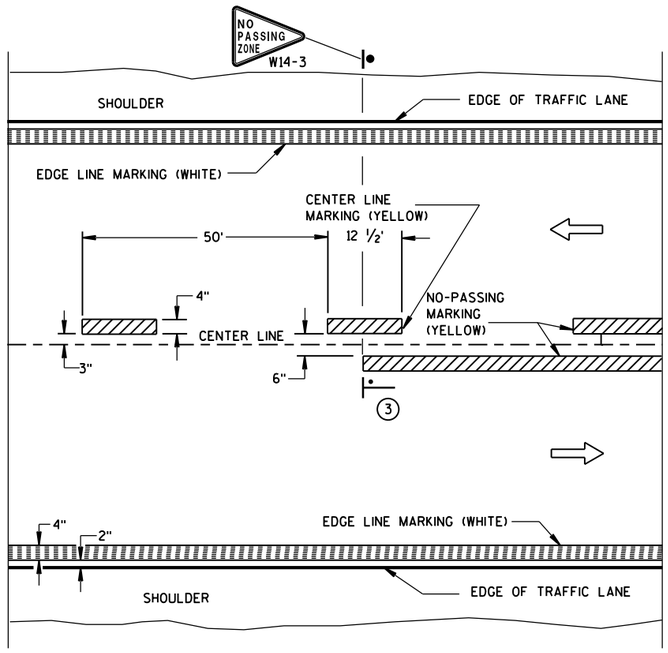
3/4/2013 — DATE

/S/ Travis Feltes — STATE TRAFFIC ENGINEER

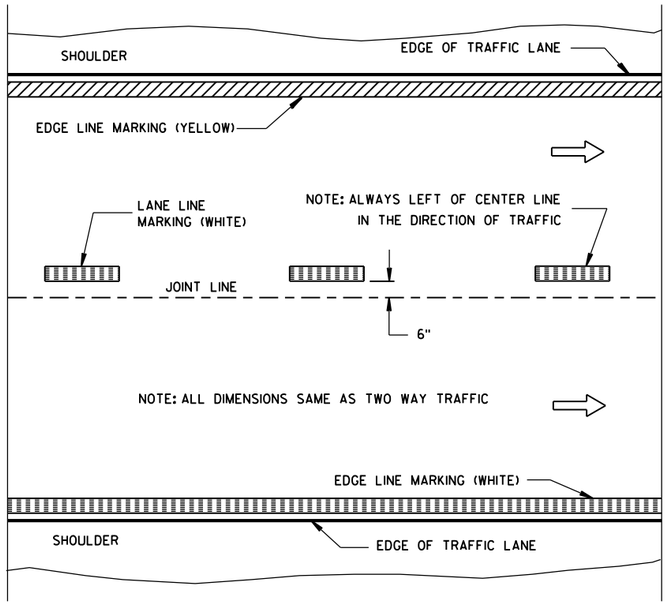
FHWA

6

S.D.D. 15 C 6-6

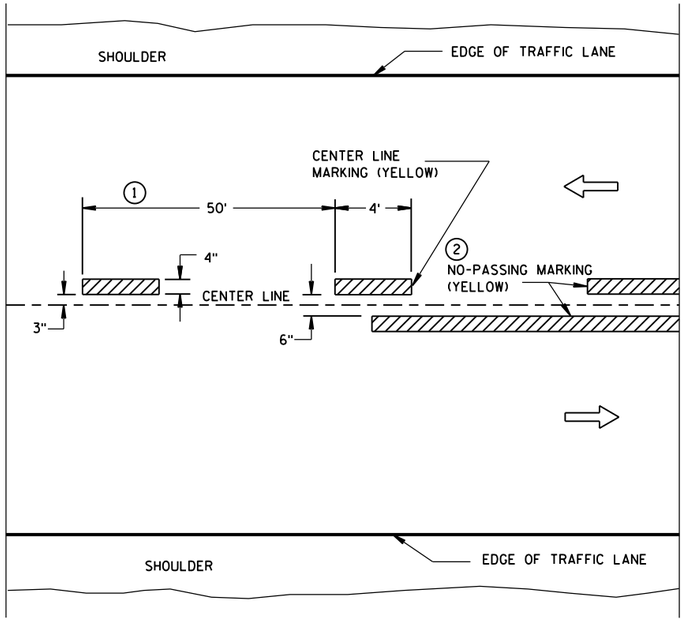


TWO WAY TRAFFIC

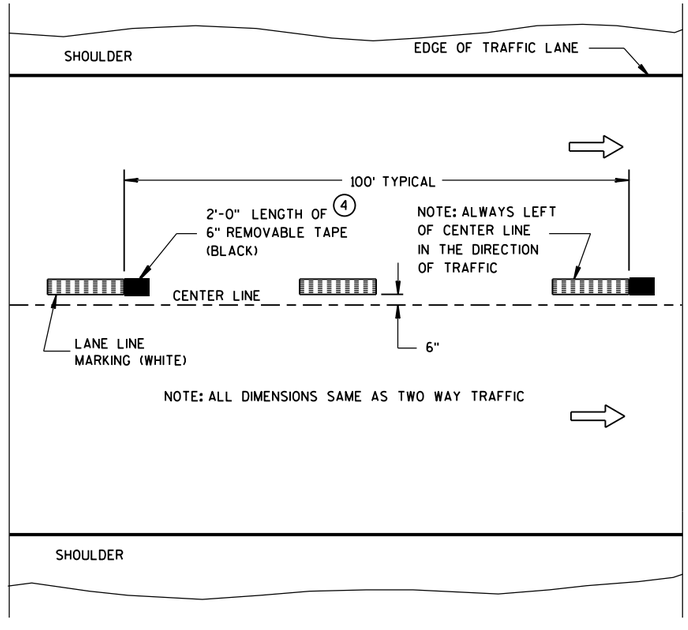


ONE WAY TRAFFIC

PERMANENT PAVEMENT MARKING



TWO WAY TRAFFIC



ONE WAY TRAFFIC

TEMPORARY (INTERMEDIATE) PAVEMENT MARKING

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

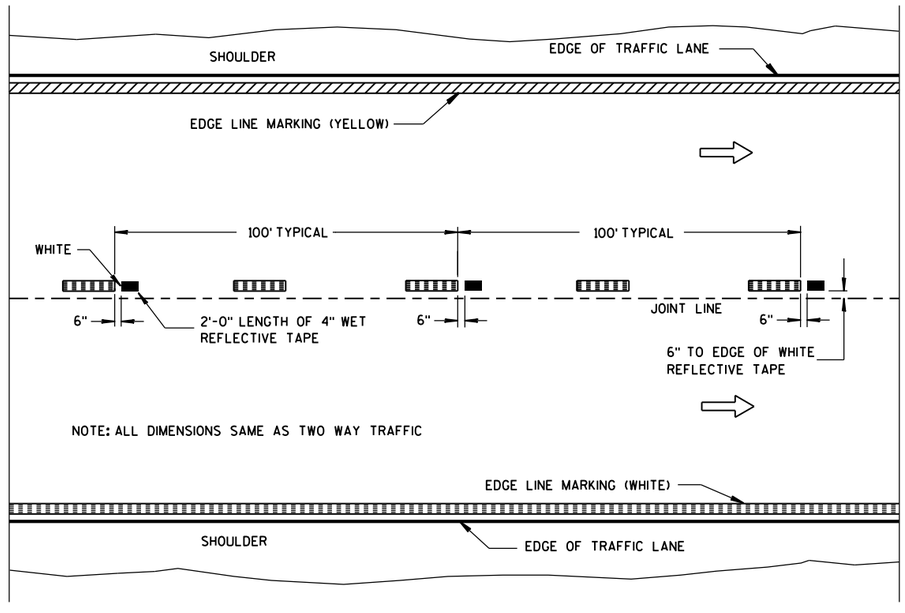
GENERAL NOTES

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

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

NOTE

ARROW SYMBOL (⇨) SHOWS DIRECTION OF TRAVEL



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

LEGEND

"T" MARKING

POST MOUNTED SIGN

PAVEMENT MARKING (MAINLINE)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

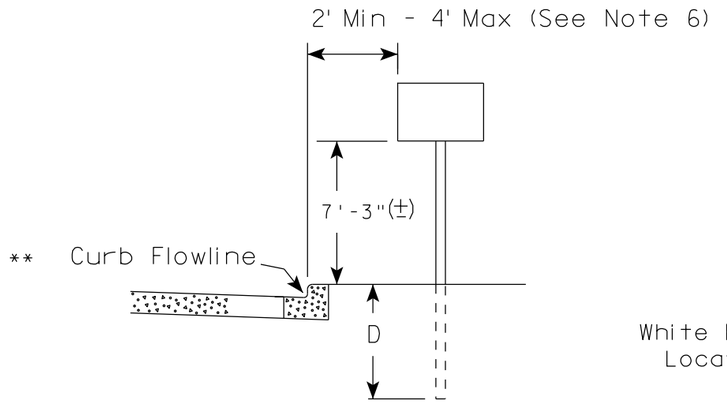
6

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

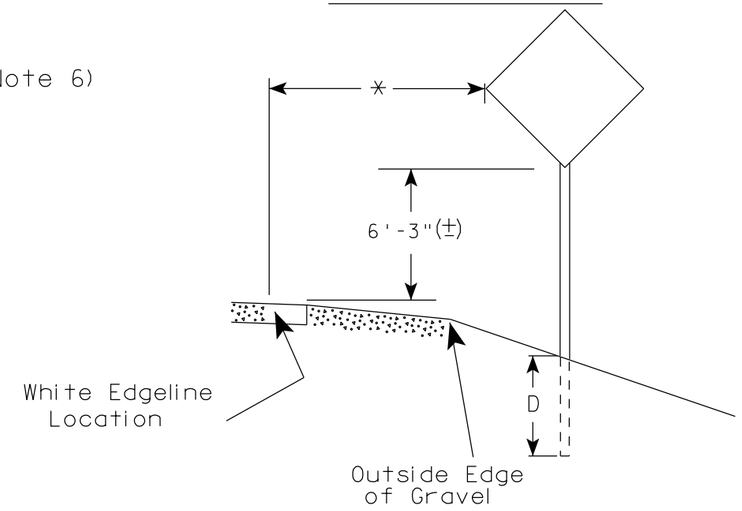
6

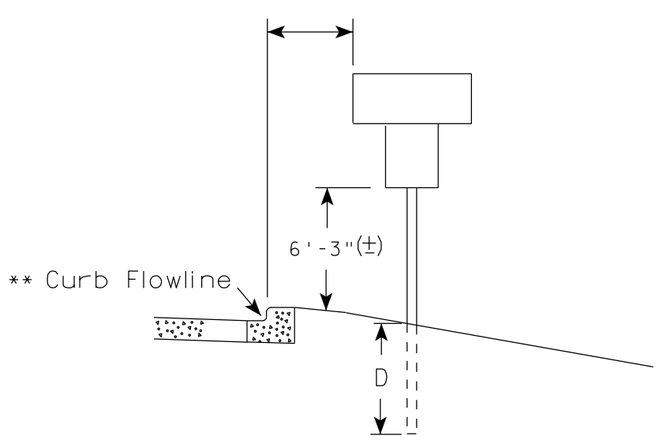
S.D.D. 15 C 8-16a

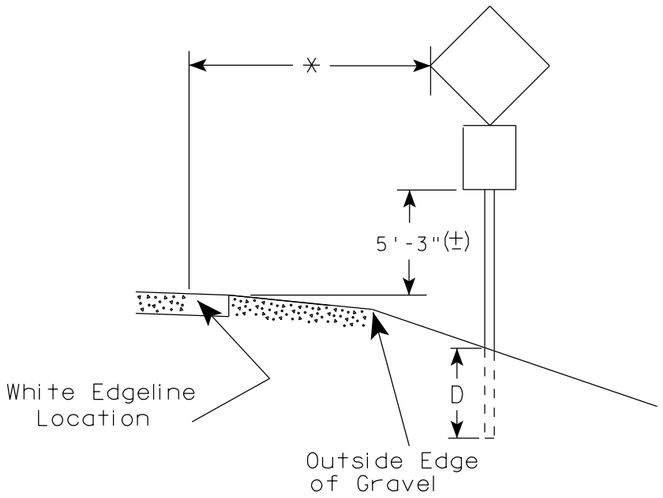
URBAN AREA



RURAL AREA (See Note 2)







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

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

GENERAL NOTES

1. Signs wider than 4 feet, 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 (A4-5) 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 stop signs (R1-1F) shall be mounted at a height of 5'-3" (±) or as directed 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) & End of Rod Markers (W5-56 & W5-56A) 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'

TYPICAL INSTALLATION OF PERMANENT TYPE II SIGNS ON SINGLE POSTS

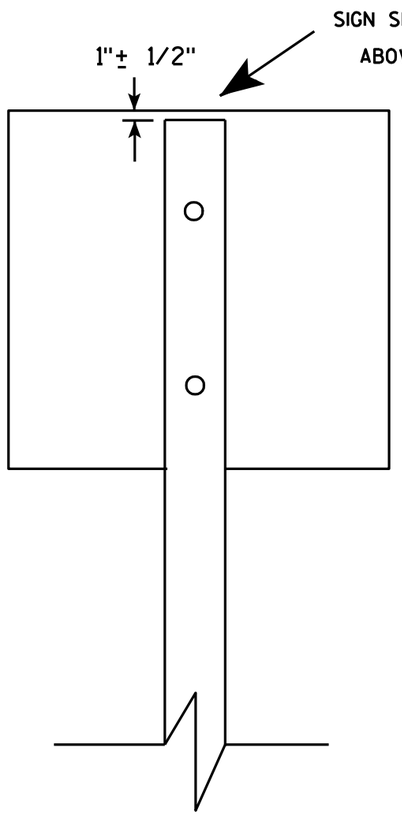
WISCONSIN DEPT OF TRANSPORTATION

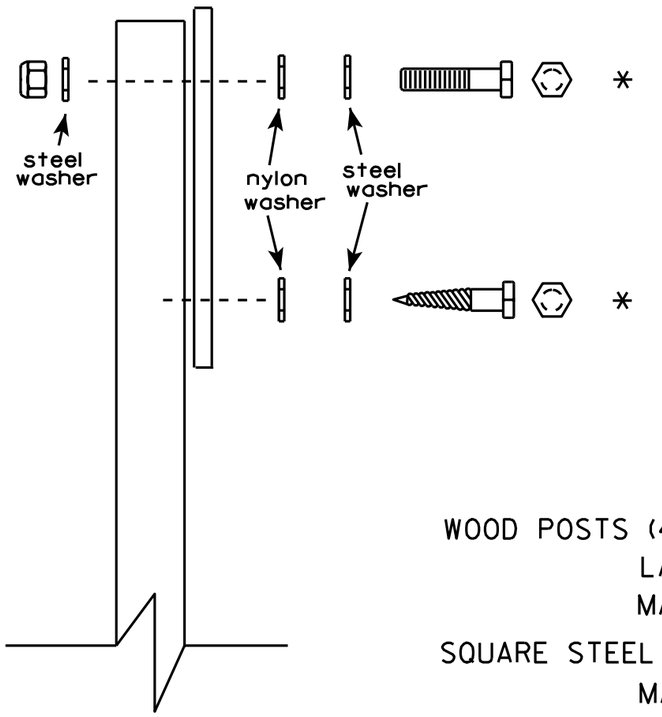
APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 9/30/13 PLATE NO. A4-3.18

PROJECT NO:	HWY:	COUNTY:		SHEET NO:	E

FILE NAME : C:\CAEfiles\Projects\tr_stdplate\A43.DGN PLOT DATE : 30-SEP-2013 13:25 PLOT BY : mscj9h PLOT NAME : PLOT SCALE : 99.237937:1.000000 WISDOT/CADDS SHEET 42





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

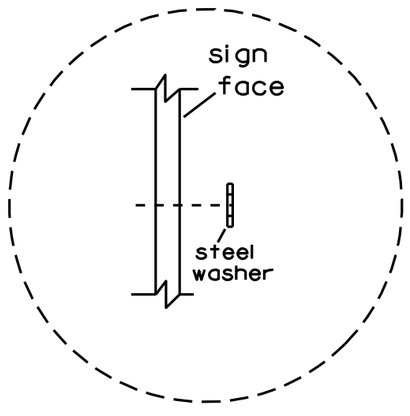
a. Hot dip galvanized in accordance with ASTM Designation: A 153, Class D, or SC 3
b. Electro-galvanized in accordance with ASTM Designation : B 633, TYPE III, SC 3.

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

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

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

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



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

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

ATTACHMENT OF SIGNS TO POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

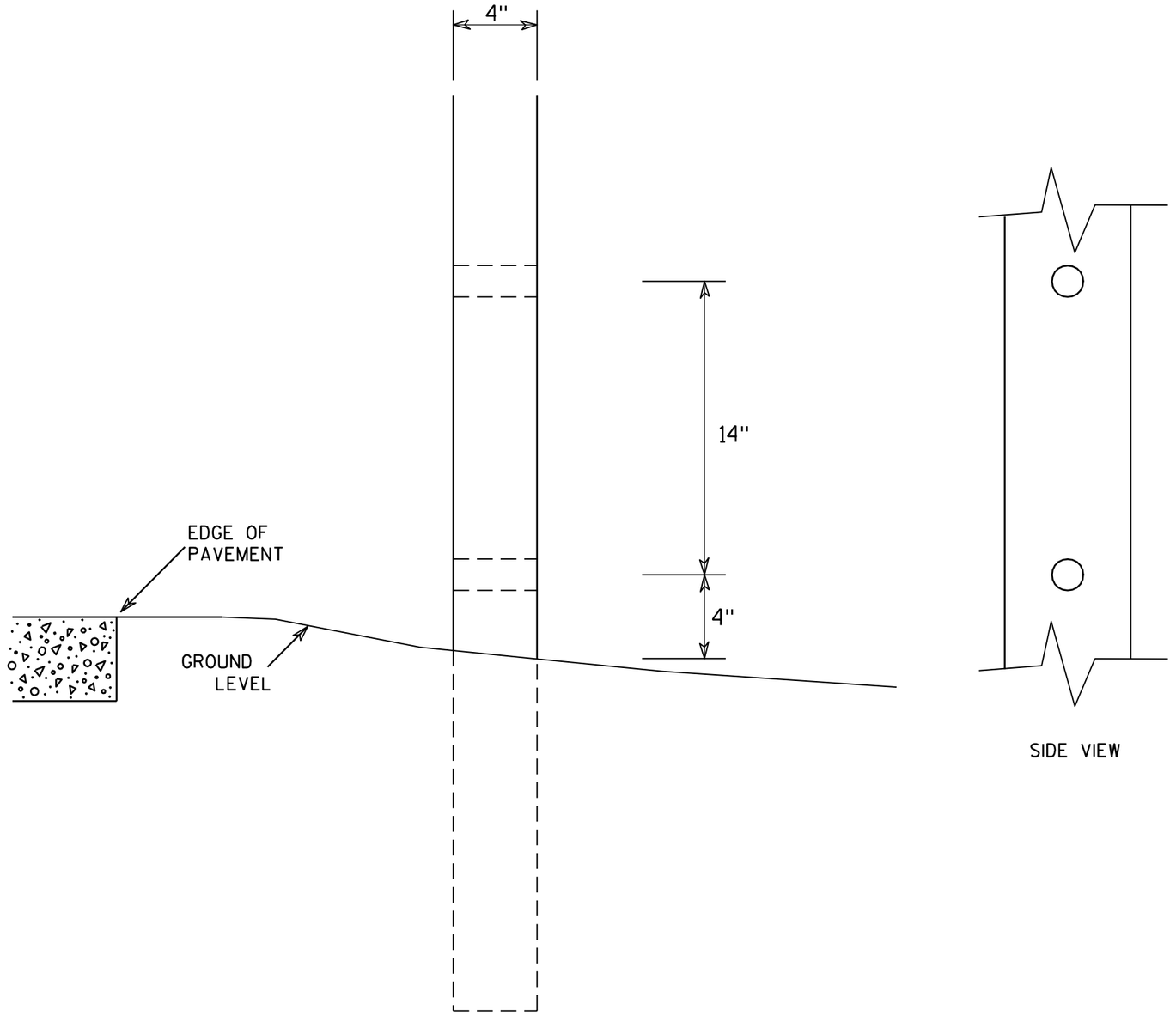
DATE 3/23/10 PLATE NO. A4-8.7

7

7

PROJECT NO:

SHEET NO: 29 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

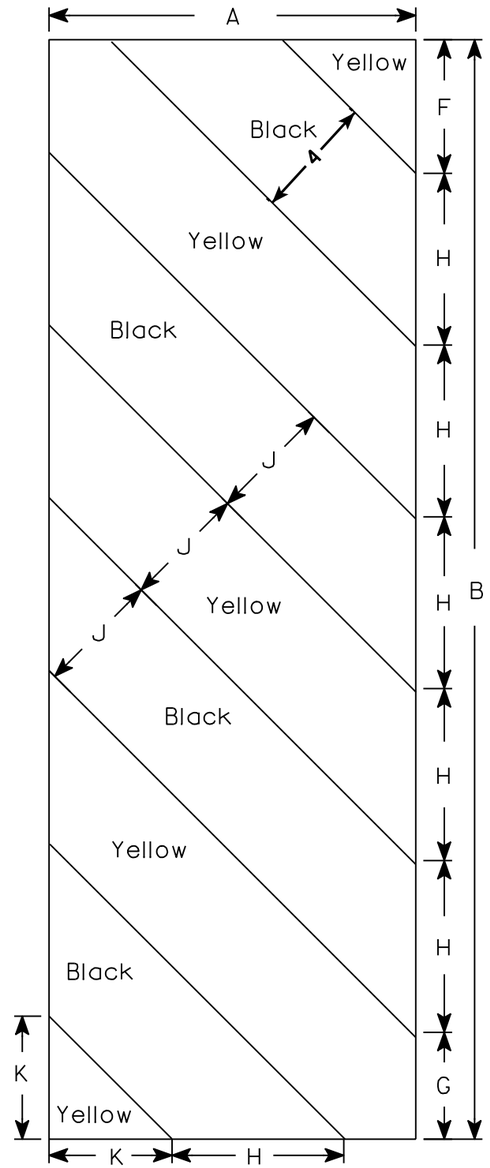
4 X 6 WOOD POST MODIFICATIONS

WISCONSIN DEPT OF TRANSPORTATION

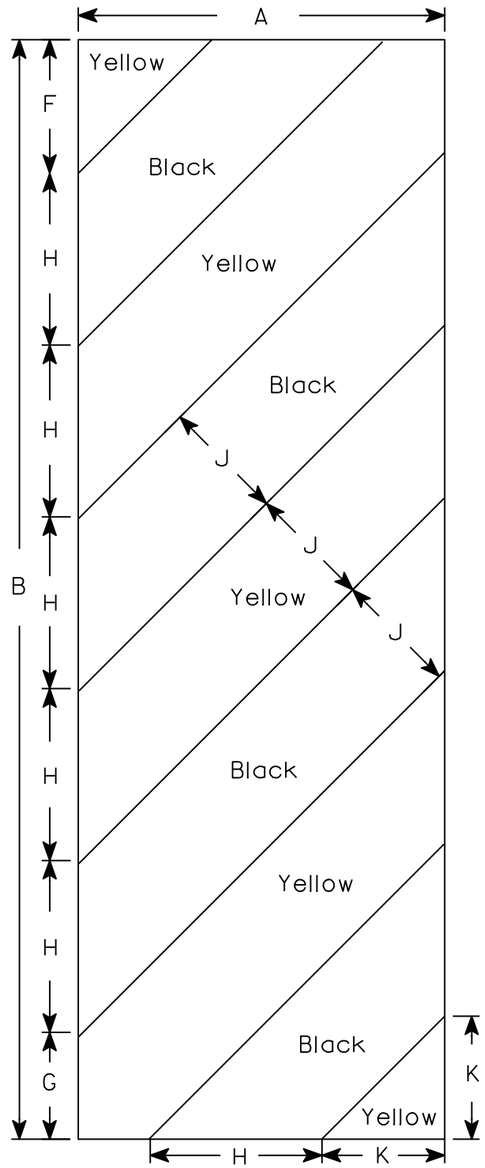
APPROVED Chester J Spang for State Traffic Engineer

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

PROJECT NO:	HWY:	COUNTY:		SHEET NO: 30	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

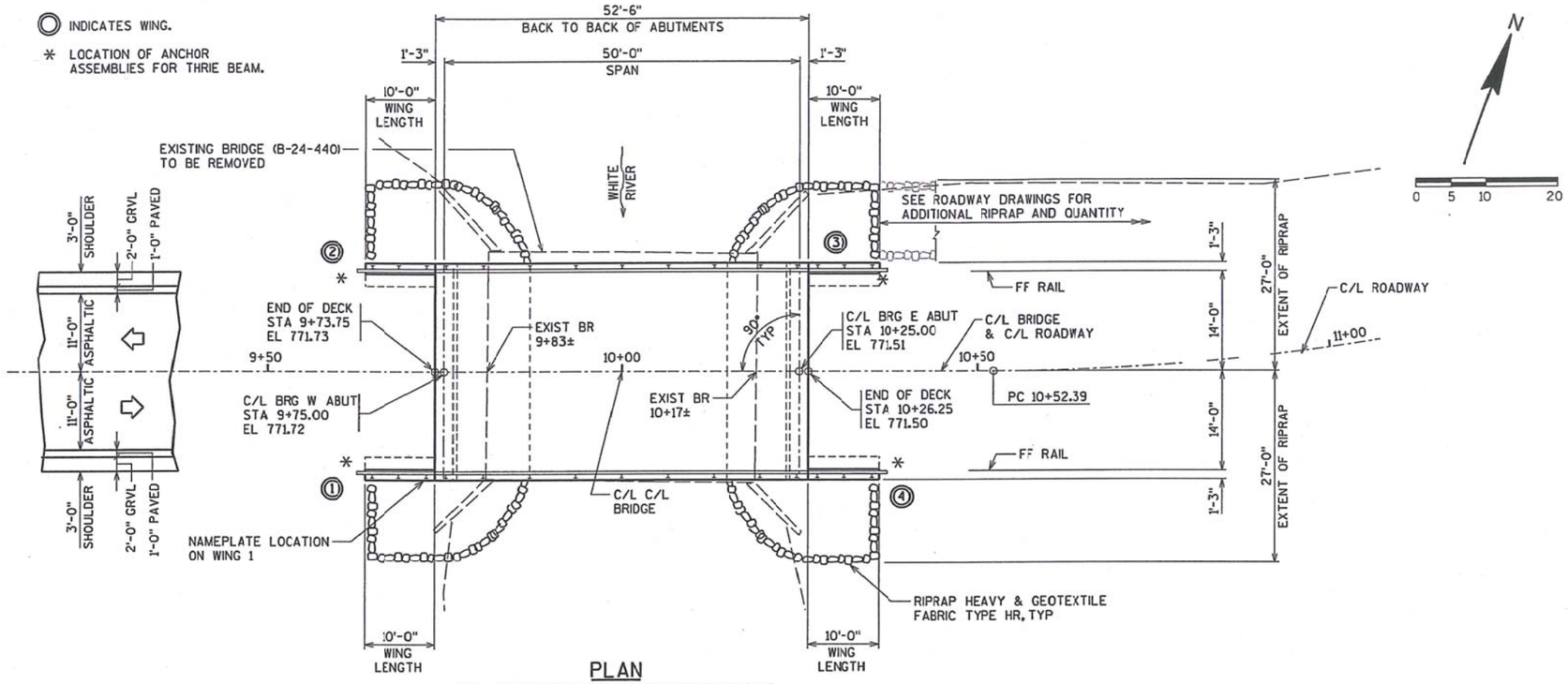
APPROVED Matthew R Rauch
for State Traffic Engineer

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

PROJECT NO: | HWY: | COUNTY: | SHEET NO: 31 | E

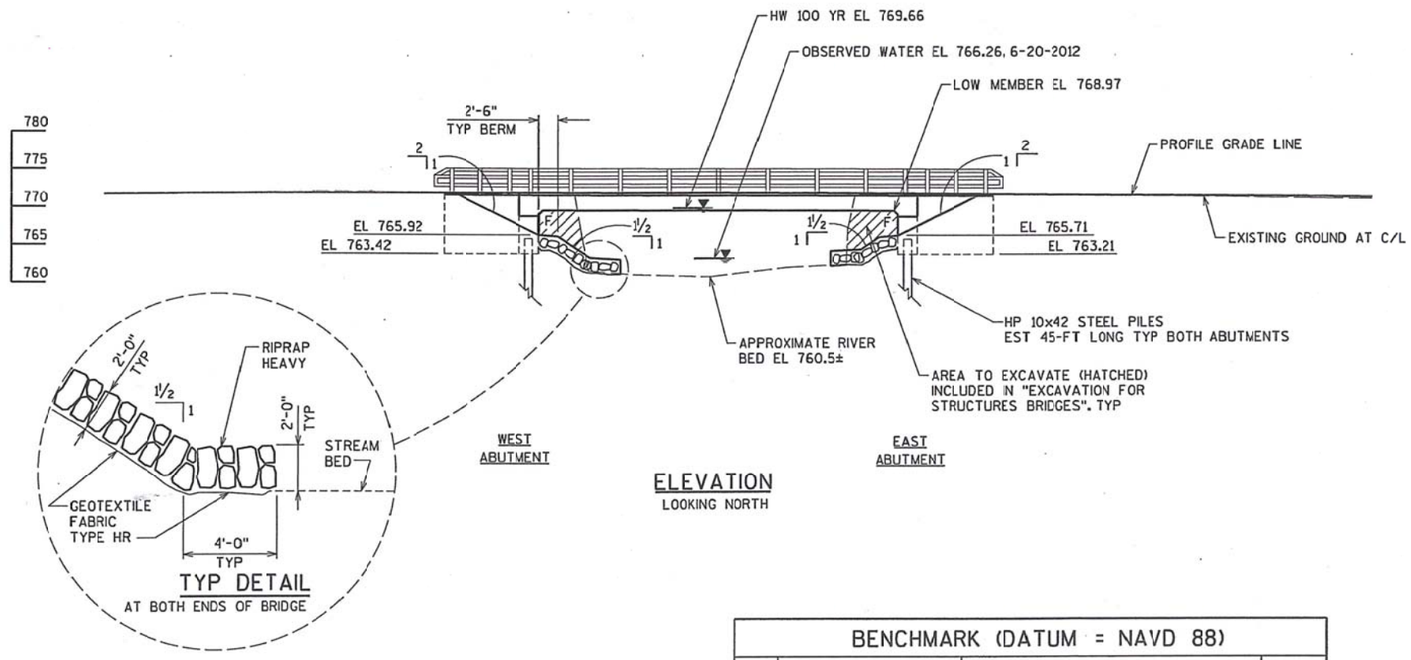
STATE PROJECT NUMBER

6425-00-71



PLAN

SINGLE-SPAN REINFORCED CONCRETE FLAT SLAB



ELEVATION

LOOKING NORTH

TYP DETAIL

AT BOTH ENDS OF BRIDGE

DESIGN DATA

LIVE LOAD:

DESIGN RATING = HL93
INVENTORY RATING = 1.10
OPERATING RATING = 1.42
WISCONSIN STANDARD PERMIT VEHICLE LOAD = 250 KIPS

STRUCTURE IS DESIGNED FOR A FUTURE WEARING SURFACE OF 20 PSF

INVENTORY AND OPERATING RATINGS DO NOT INCLUDE FUTURE WEARING SURFACE.

ULTIMATE DESIGN STRESSES:

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

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

FOUNDATION DATA

ABUTMENTS TO BE SUPPORTED ON HP 10X42 STEEL PILING WITH A REQUIRED DRIVING RESISTANCE OF 180 TONS* PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC EQUATION. ESTIMATED 45 FEET LONG AT EACH ABUTMENT.

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

HYDRAULIC DATA

100 YEAR FREQUENCY		
Q_{100}	1200	CFS
Q_{100} THRU BRIDGE	1200	CFS
VELOCITY	4.6	FPS
HIGH WATER EL	769.66	FT
WATERWAY AREA	260	SQ FT
DRAINAGE AREA	129.6	SQ MI
2 YEAR FREQUENCY		
Q_2	490	CFS
HIGH WATER EL	767.50	FT
SCOUR CODE	8	

TRAFFIC DATA

ADT (2014) = 260
ADT (2034) = 390
DHV = 39
D = 50 %
T = 10 %
DESIGN SPEED = 40 MPH

LIST OF DRAWINGS

BENCHMARK (DATUM = NAVD 88)

NO	STATION	DESCRIPTION	ELEV
1	12+35.96, 26.73' RT	60d SPK IN 18" MAPLE	770.21
2	7+40.27, 31.80' RT	60d SPK IN 14" OAK	772.13

WISCONSIN
CHRISTOPHER J. BLUM
E-33157
MADISON
WI
PROFESSIONAL ENGINEER

9.6.13

NO.	DATE	REVISION	BY

SEH
SHORT ELLIOTT HENDRICKSON INC.

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

ACCEPTED William C. Dreher KAR 11/21/13
CHIEF STRUCTURES DESIGN ENGINEER DATE

STRUCTURE B-24-41

CTH D OVER WHITE RIVER

COUNTY	TOWN ~~CITY/VILLAGE~~
GREEN LAKE	SENECA

DESIGN SPEC.
AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS

DESIGNED BY	DESIGN CK'D.	DRAWN BY	PLANS CK'D.
CJB	CJB	DLF	CJB

GENERAL PLAN

SHEET 1 OF 8

32

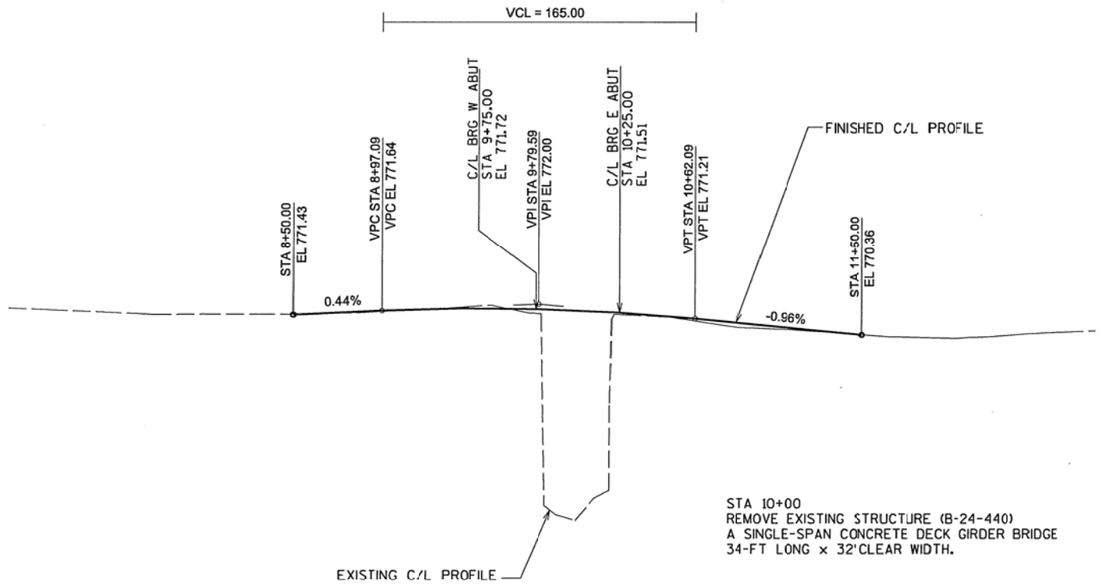
SEH CONTACT: CHRIS BLUM, PE, 608.620.6192
WISDOT BRIDGE OFFICE CONTACT: BILL DREHER, PE, 608.266.8489

8

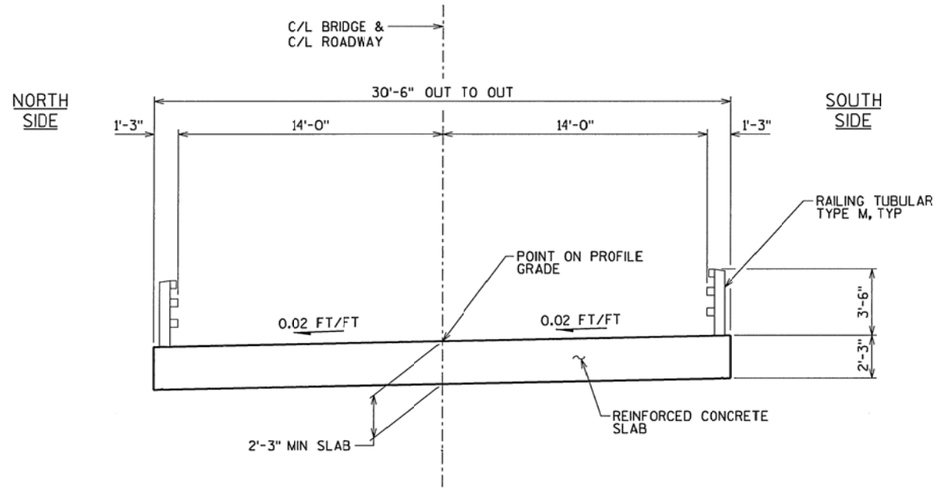
8

PLOT DATE: 9/5/2013 PLOT TIME: 1:57:02 PM

FILE NAME : S:\FJG\Grikh\2061N5-final-dsgn\51-drawings\20-Struct\50 ft bridge\bridge\b2404gl.dgn



PROFILE GRADE LINE



CROSS SECTION THRU BRIDGE
(LOOKING EAST)

TOTAL ESTIMATED QUANTITIES - B-24-41

BID ITEM NUMBER	BID ITEMS	UNIT	WEST ABUT	EAST ABUT	SUPER	TOTALS
203.0600.S	REMOVING OLD STRUCTURE OVER WATERWAY WITH MINIMAL DEBRIS (STATION) 10+00	LS	-	-	-	1
206.1000	EXCAVATION FOR STRUCTURES BRIDGES B-24-41	LS	-	-	-	1
210.0100	BACKFILL STRUCTURE	CY	85	85	-	170
502.0100	CONCRETE MASONRY BRIDGES	CY	32	32	138.0	202
502.3200	PROTECTIVE SURFACE TREATMENT	SY	-	-	220	220
505.0405	BAR STEEL REINFORCEMENT HS BRIDGES	LB	2,000	2,000	-	4,000
505.0605	BAR STEEL REINFORCEMENT HS COATED BRIDGES	LB	1,500	1,500	25,590	28,590
513.4060	RAILING TUBULAR TYPE M B-24-41	LS	-	-	-	1
516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	10	10	-	20
550.1100	PILING STEEL HP 10-INCH x 42 LB	LF	225	225	-	450
606.0300	RIPRAP HEAVY	CY	73	65	-	138
(1) 612.0206	PIPE UNDERDRAIN UNPERFORATED 6-INCH	LF	30	30	-	60
612.0406	PIPE UNDERDRAIN WRAPPED 6-INCH	LF	50	50	-	100
645.0120	GEOTEXTILE FABRIC TYPE HR	SY	125	115	-	240
	NON-BID ITEMS					
	FILLER	SIZE	———	———	———	1/2 & 3/4

(1) INCLUDES REINFORCED CONCRETE APRON ENDWALL AND RODENT SHIELD PER SDD REINFORCED CONCRETE APRON ENDWALL FOR PIPE UNDERDRAIN.

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

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

SEE ROADWAY PLANS FOR EXISTING UTILITY LOCATIONS.

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

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

SEAL ALL EXPOSED HORIZONTAL AND VERTICAL SURFACES OF 1/2" FILLER WITH NON-STAINING GRAY NON-ASPHALTIC JOINT SEALER (1" DEEP & HOLD 1/8" BELOW SURFACE OF CONCRETE).

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

AT ABUTMENTS, ALL SPACES EXCAVATED AND NOT OCCUPIED BY THE NEW STRUCTURE SHALL BE BACKFILLED WITH STRUCTURE BACKFILL UNLESS OTHERWISE NOTED.

FILLER SHALL CONFORM TO THE REQUIREMENTS OF AASHTO DESIGNATION :M153 TYPE 1, 2, OR 3 OR AASHTO DESIGNATION :M213.

COAT WITH "PROTECTIVE SURFACE TREATMENT" PER THE STANDARD SPECIFICATIONS AND THE SUPERSTRUCTURE DETAILS SHEET.

FOR EXISTING STRUCTURE SEE PROFILE GRADE LINE THIS SHEET.

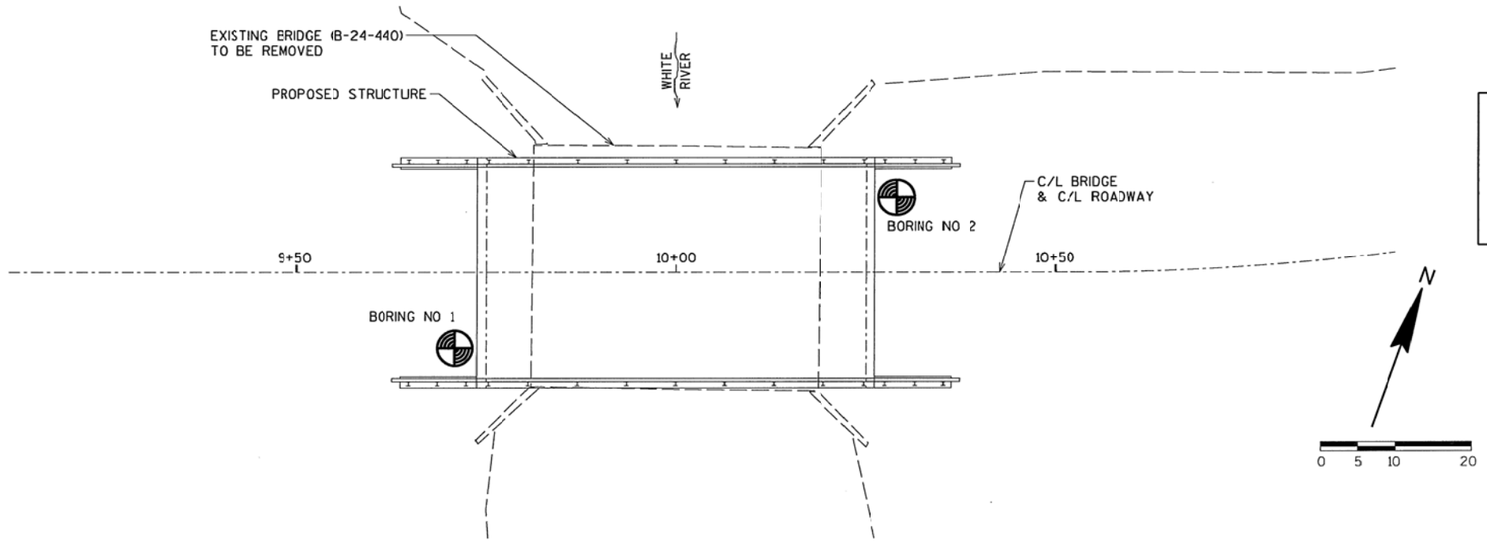
NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-24-41

DRAWN BY DLF | PLANS CK'D. CJB

CROSS SECTION AND QUANTITIES



SOIL BORINGS PERFORMED BY:

MIDWEST ENGINEERING SERVICES, INC
821 CORPORATE COURT
WAUKESHA, WI 53189-5010
PH:262.521.2125 FAX:262.521.2471

REPORT BY:
BRADLEY J BROBACK, P.E.
PROJECT ENGINEER

STATE PROJECT NUMBER

6425-00-71

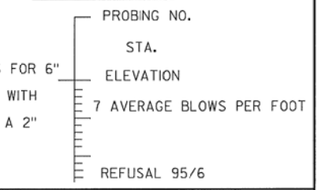
ABBREVIATIONS

F — FINE M — MEDIUM C — COARSE
WS — WEATHERED SO — SOUND

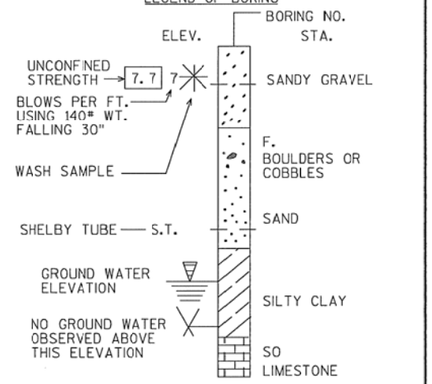
MATERIAL SYMBOLS

TOPSOIL, SILT, SANDSTONE, SAND, PEAT, LIMESTONE, GRAVEL, CLAY, IGNEOUS ROCK

LEGEND OF PROBING



LEGEND OF BORING



UNLESS OTHERWISE SPECIFIED, THE BLOWS PER FOOT AT THE LOCATIONS INDICATED ARE BASED ON DRIVING A 2" O.D. X 1.4" I.D. SPLIT SPOON SAMPLER WITH A 140# HAMMER HAVING A FREE FALL OF 30". THE BLOW COUNT IS TAKEN IN UNDISTURBED SOIL IMMEDIATELY BELOW A CASED OR OPEN HOLE ELIMINATING SIDE FRICTION ON THE DRIVE PIPE.

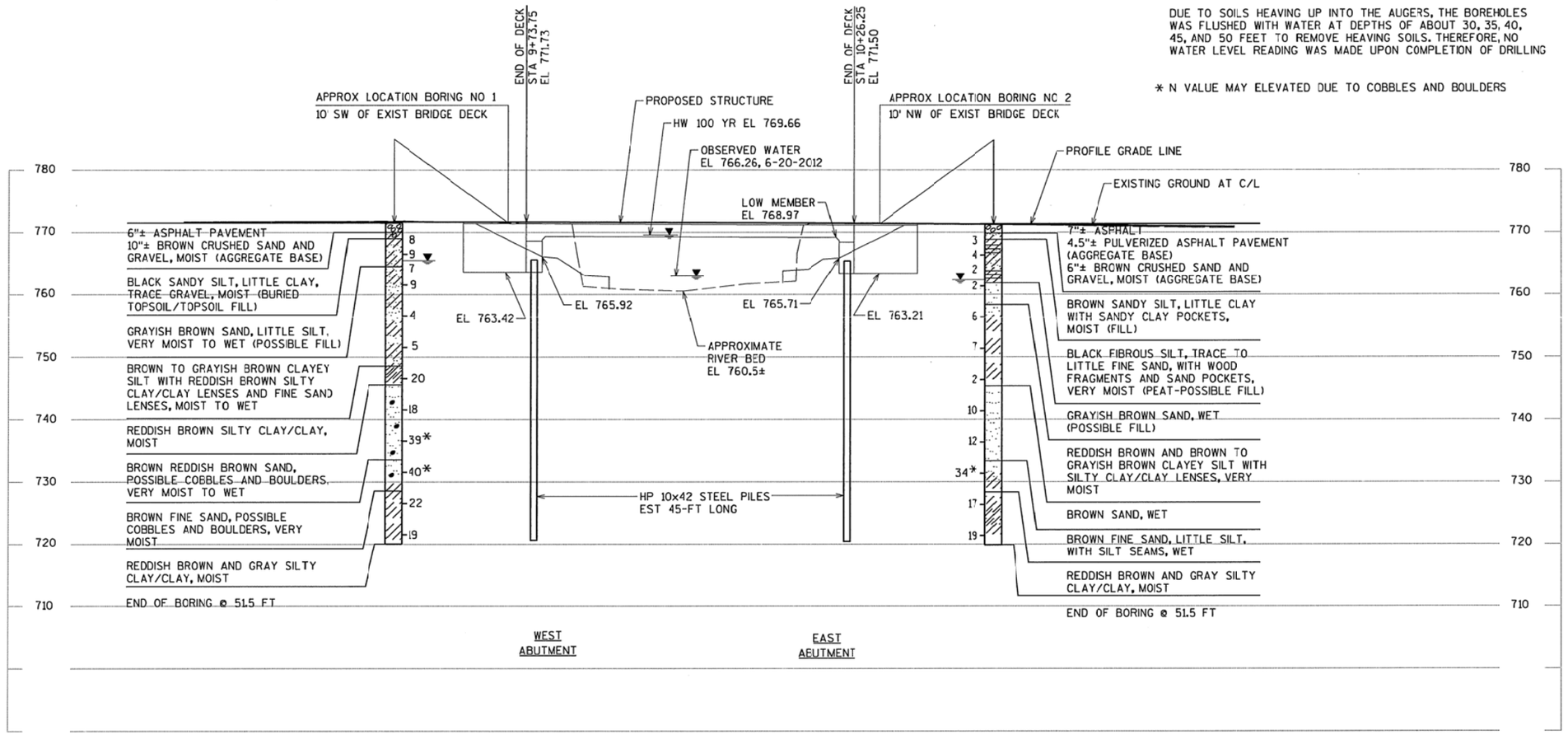
SUBSURFACE EXPLORATION FOR FOUNDATION DESIGN AND BIDDERS INFORMATION

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 WISCONSIN DEPARTMENT OF TRANSPORTATION DOES NOT WARRANT CONDITIONS BELOW THE DEPTHS INVESTIGATED OR THAT THE CLASSIFICATION OF MATERIAL ENCOUNTERED IN THESE INVESTIGATIONS IS NECESSARILY TYPICAL OF THE ENTIRE SITE.

NOTES:

DUE TO SOILS HEAVING UP INTO THE AUGERS, THE BOREHOLES WAS FLUSHED WITH WATER AT DEPTHS OF ABOUT 30, 35, 40, 45, AND 50 FEET TO REMOVE HEAVING SOILS. THEREFORE, NO WATER LEVEL READING WAS MADE UPON COMPLETION OF DRILLING

* N VALUE MAY ELEVATED DUE TO COBBLES AND BOULDERS



NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-24-41

DRAWN BY DLF | PLANS CK'D. CJB

SUBSURFACE EXPLORATION

SHEET 3 OF 8

34

8

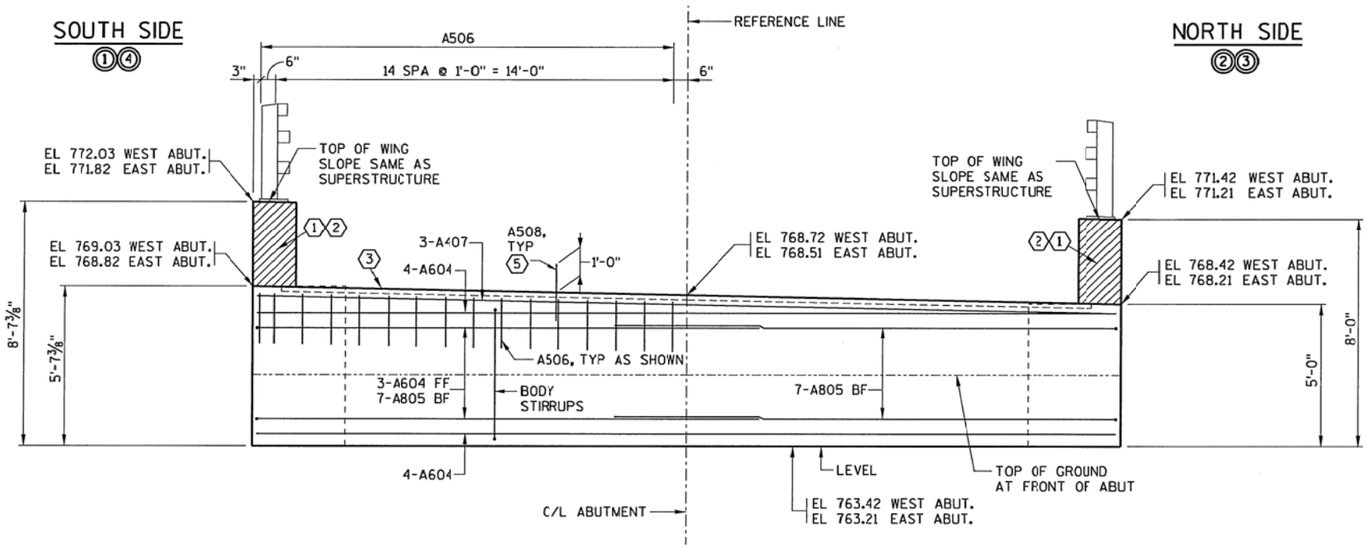
8

PLOT DATE: 9/6/2013 PLOT TIME: 10:15:21 AM

FILE NAME : S:\FJN\Grikh\12061N5-final-dsgn\5l-drawings\20-Struct\50 ft bridge\br\bridge\b2404bi.dgn

STATE PROJECT NUMBER

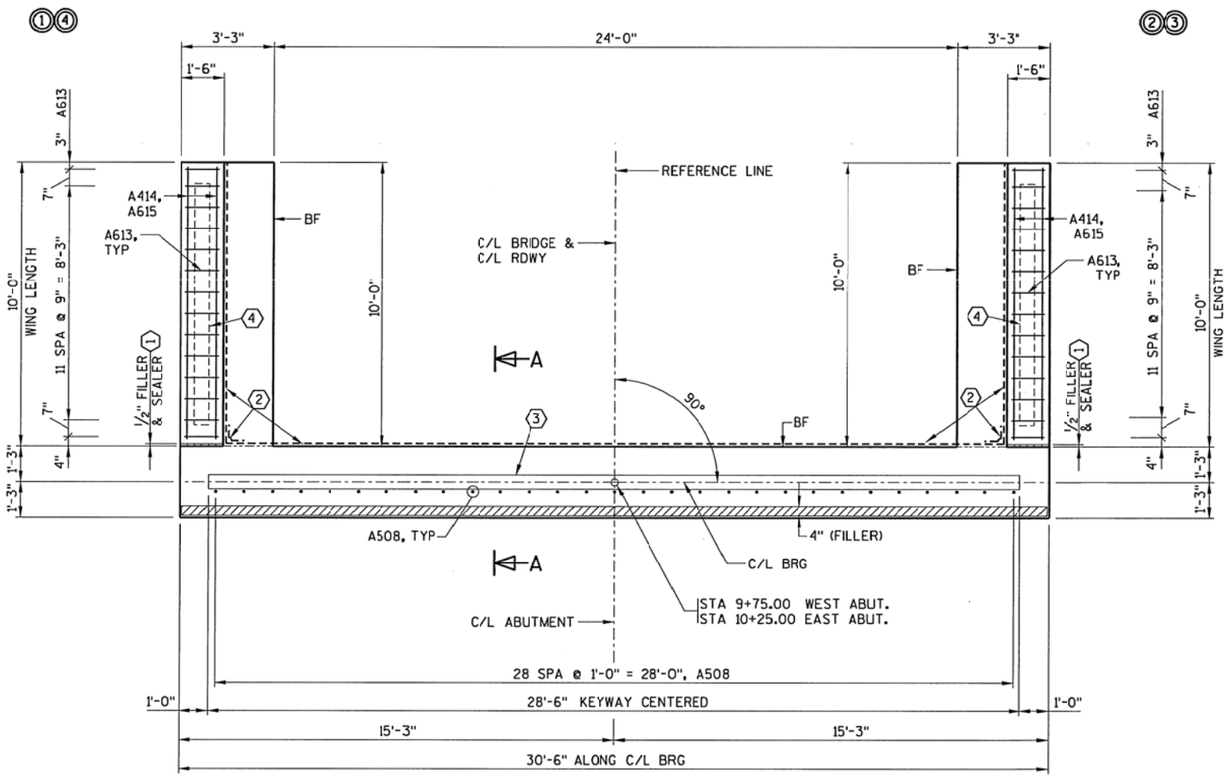
6425-00-71



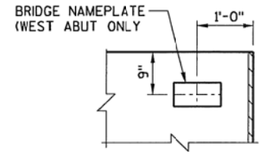
FRONT ELEVATION

(PILES NOT SHOWN FOR CLARITY)

(WEST ABUTMENT SHOWN, EAST ABUTMENT SIMILAR EXCEPT ORIENTATION)

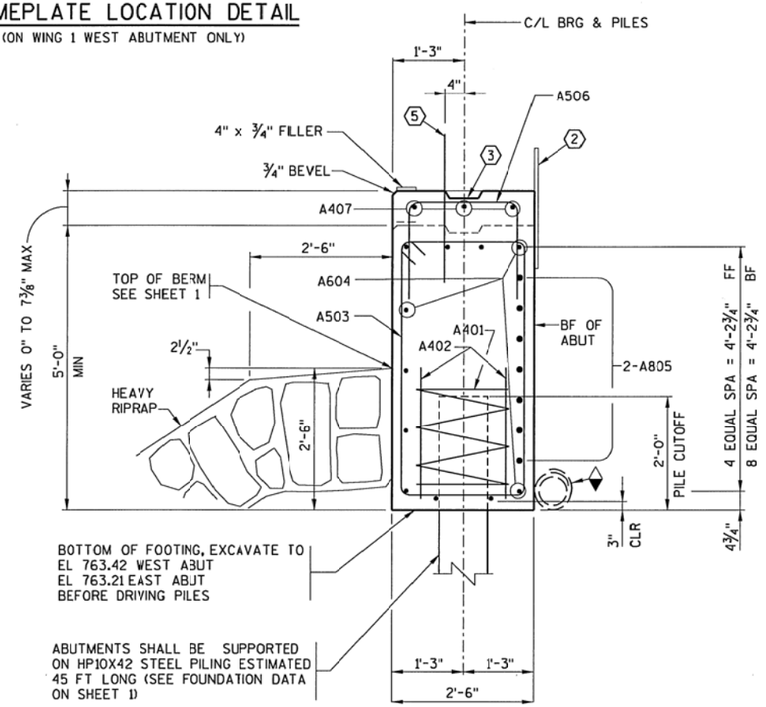


PLAN



NAMEPLATE LOCATION DETAIL

(ON WING 1 WEST ABUTMENT ONLY)



TYPICAL SECTION A-A THRU BODY

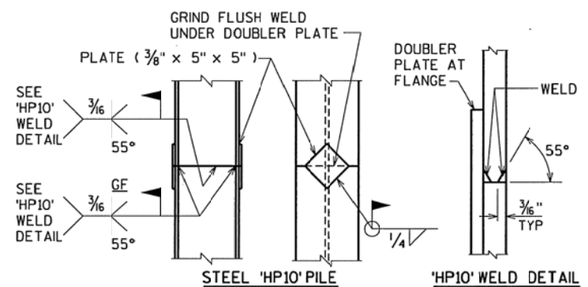
ALL HORIZ BARS TO BE A604 UNLESS OTHERWISE SHOWN OF NOTED

FF = FRONT FACE
BF = BACK FACE
EF = EACH FACE

ABUTMENT NOTES

1. SEAL ALL EXPOSED HORIZ. AND VERTICAL SURFACES OF ½" FILLER WITH NON-STAINING GRAY NON-ASPHALTIC JOINT SEALER. (1" DEEP AND HOLD ⅛" BELOW SURFACE). FILLER INCLUDED IN WING LENGTH.
2. 18" RUBBERIZED MEMBRANE WATERPROOFING. SEAL ALL HORIZ & VERT JOINTS ON BACKFACE. VERTICAL WATERPROOFING TO EXTEND FROM BRIDGE SEAT TO TOP OF WING.
3. KEYED CONSTRUCTION JOINT FORMED BY A BEVELED 2" X 6".
4. OPTIONAL KEYED CONSTRUCTION JOINT FORMED BY A BEVELED 2" X 6" WITH MEMBRANE ON BACKFACE.
5. A508 BARS MAY BE PLACED AFTER CONC HAS BEEN POURED BUT BEFORE INITIAL SET HAS TAKEN PLACE.

◆ PIPE UNDERDRAIN WRAPPED (6-INCH) SLOPE 0.5% MIN BEHIND ABUTMENT BODY AND WINGS. PIPE UNDERDRAIN UNPERFORATED TO BE PLACED OUTSIDE WINGS.



STEEL 'HP10' PILE — 'HP10' WELD DETAIL

PILE SPLICE DETAIL

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-24-41

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WEST & EAST ABUTMENT DETAILS

SHEET 4 OF 8

35

8

8

PLOT TIME: 15:55:55 PM

PLOT DATE: 9/5/2013

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PLOT DATE: 9/5/2013
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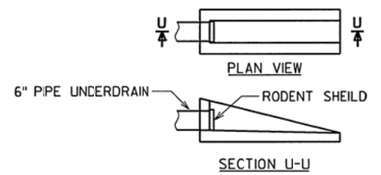
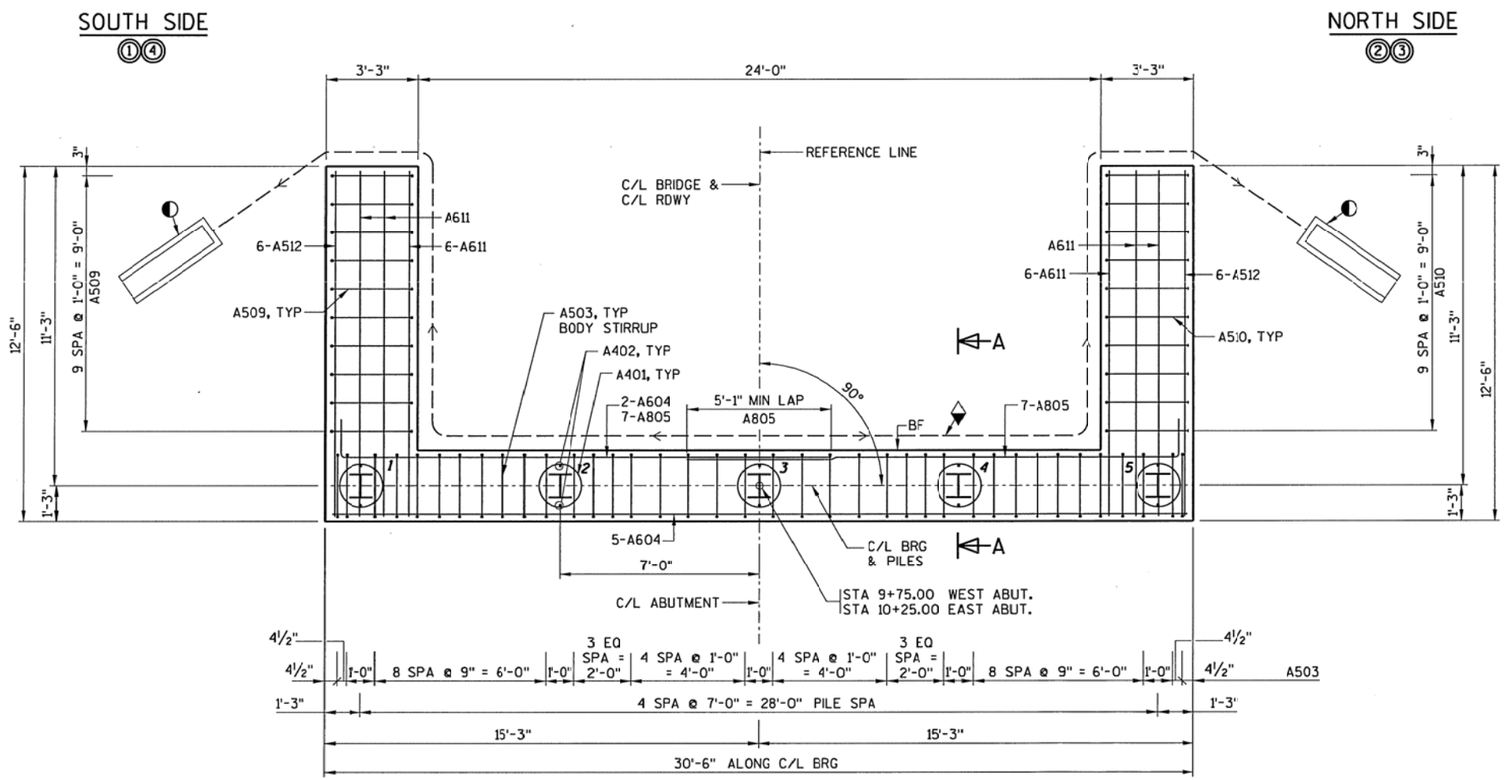
STATE PROJECT NUMBER
6425-00-71



NOTE:
SEE S.D.D.8F6: REINFORCED CONCRETE APRON ENDWALL FOR PIPE UNDERDRAIN.

◐ CONCRETE APRON ENDWALL FOR UNDERDRAIN

ATTACH RODENT SHIELD PER SDD REINFORCED CONCRETE APRON ENDWALL FOR PIPE UNDERDRAIN. COST OF CONCRETE APRON ENDWALL AND RODENT SHIELD INCIDENTAL TO "PIPE UNDERDRAIN UNPERFORATED".



FOOTING LAYOUT

ABUTMENT NOTES

SEE SHEET 4 FOR SECTION A-A.

FOR PILE SPLICE DETAIL SEE SHEET 4.

◆ SEE ABUTMENT NOTES ON SHEET 4.

FF = FRONT FACE
BF = BACK FACE
EF = EACH FACE

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-24-41

DRAWN BY DLF | PLANS CK'D. CJB

WEST & EAST ABUTMENT DETAILS

SHEET 5 OF 8

PLOT DATE: 9/5/2013 PLOT TIME: 1:55:37 PM
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STATE PROJECT NUMBER

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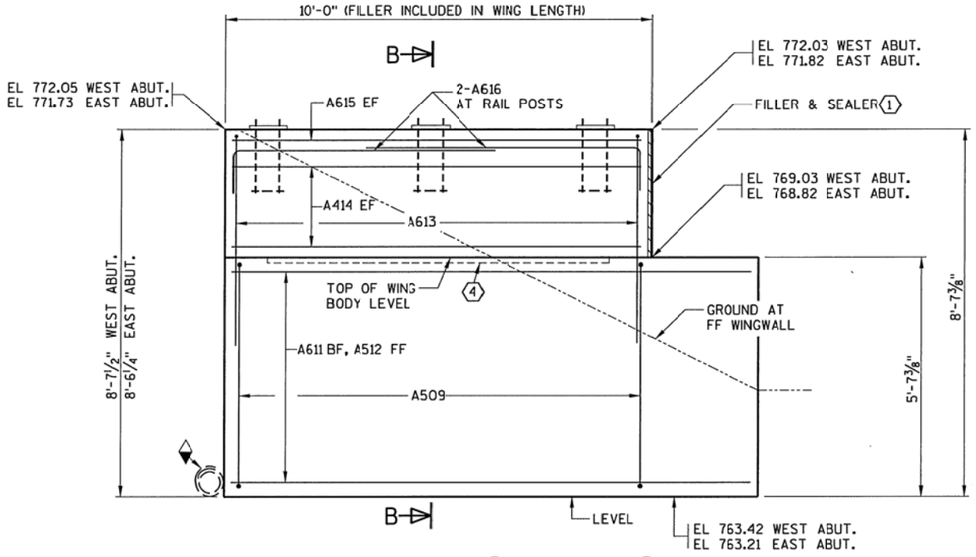
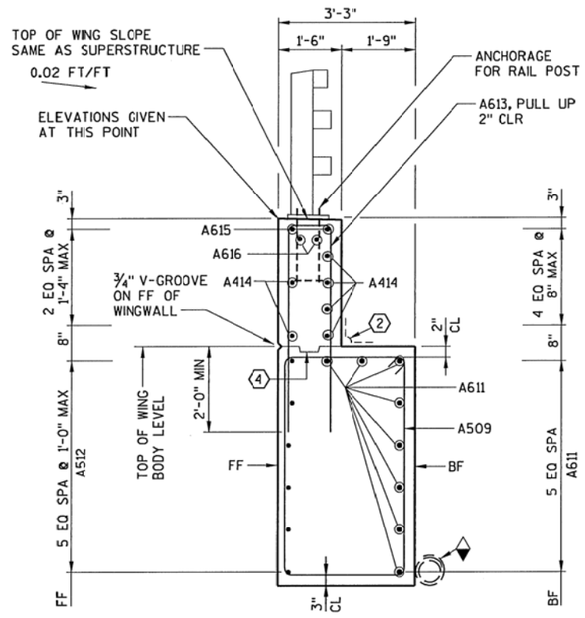


WING ① & WING ④
ELEVATION

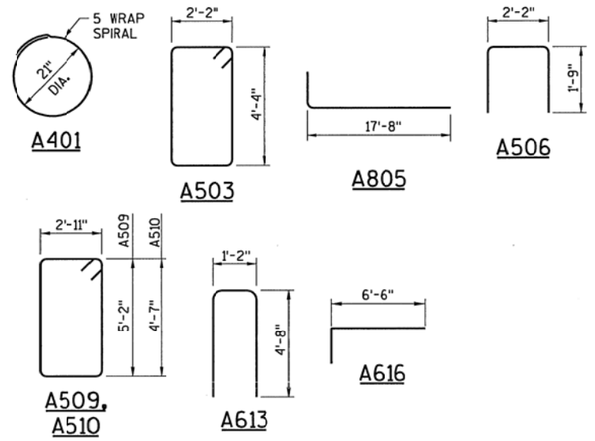


SECTION B-B

BILL OF BARS						FOR TWO ABUTMENTS
BAR MARK	COAT	NO. REQ'D.	LENGTH (FT-IN)	BAR SERIES	BENT	LOCATION
A401		10	28 - 0		X	BODY AT PILES
A402		20	2 - 3			BODY AT PILES
A503		76	13 - 7		X	BODY STIRRUPS
A604		22	30 - 2			BODY HORIZ
A805		28	18 - 10		X	BODY HORIZ BF
A506		32	5 - 5		X	BODY TOP TIE
A407		6	30 - 2			BODY HORIZ TOP
A508	X	58	2 - 0			BODY DOWELS
A509	X	20	16 - 9		X	WING STIRRUPS
A510	X	20	15 - 7		X	WING STIRRUPS
A611	X	32	12 - 2			WING HORIZ BF & TOP
A512	X	24	12 - 2			WING HORIZ FF
A613	X	56	10 - 2		X	WING VERT
A414	X	24	9 - 7			WING HORIZ EF
A615	X	8	9 - 7			WING HORIZ EF TOP
A616	X	16	7 - 8		X	WING RAIL POST

NOTE: THE FIRST DIGIT OF THE BAR MARK SIGNIFIES THE ENGLISH BAR DIAMETER SIZE.

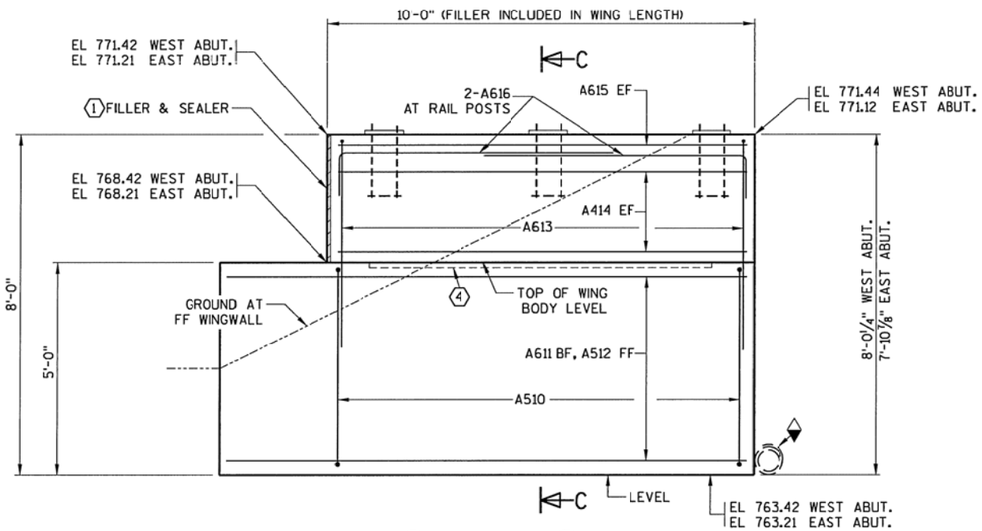
DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT.



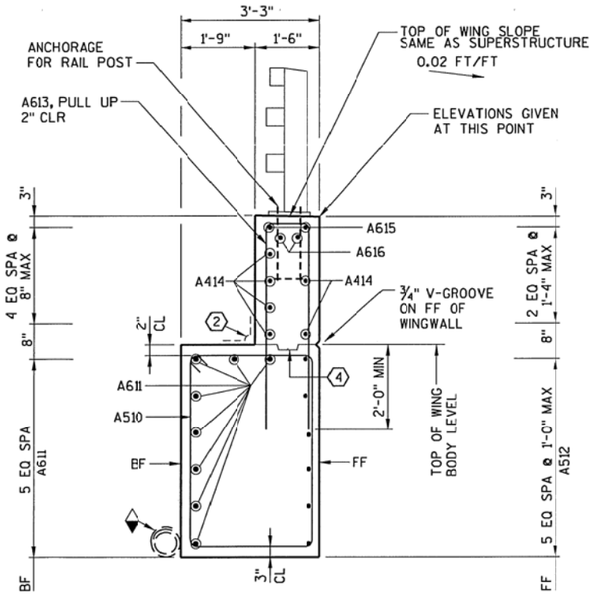
ABUTMENT NOTES

①②④◆ = SEE ABUTMENT NOTES ON SHEET 4.

FF = FRONT FACE
BF = BACK FACE
EF = EACH FACE



WING ② & WING ③
ELEVATION



SECTION C-C

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-24-41

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WEST & EAST ABUTMENT DETAILS

SHEET 6 OF 8

37

8

PLOT TIME: 1:54:40 PM
PLOT DATE: 9/5/2013
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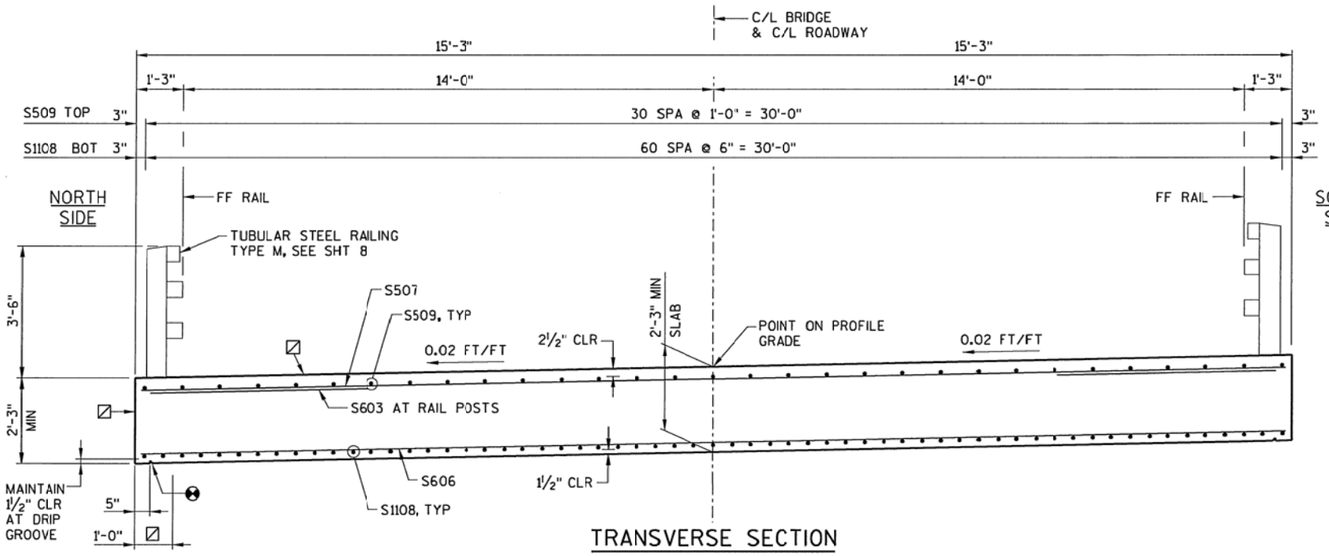
STATE PROJECT NUMBER

6425-00-71



TRANSVERSE SECTION

SUPERSTRUCTURE NOTES:

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

TRANSVERSE BARS SHALL BE PLACED PLACED PARALLEL TO THE C/L OF SUBSTRUCTURE UNITS.

TOP TRANSVERSE BARS IN SLAB SHALL BE SUPPORTED BY INDIVIDUAL BAR CHAIRS AT APPROXIMATELY 3'-0" CENTERS EACH WAY. BOTTOM LONGITUDINAL BARS SHALL BE SUPPORTED ON CONTINUOUS BAR CHAIRS APPROXIMATELY 4'-0" CENTERS.

PRIOR TO RELEASING SLAB FALSEWORK, TAKE TOP OF SLAB ELEVATIONS AT THE CENTERLINE OF ABUTMENTS, THE CENTERLINE OF THE PIERS AND AT 5/10 PTS. TO VERIFY CAMBER, TAKE ELEVATIONS ALONG GUTTER LINES AND CROWN OR CENTERLINE.

⊖ ¾" V-GROOVE, EXTEND V-GROOVE TO THE FILLET ADJACENT TO THE ABUTMENTS.

☑ COAT WITH "PROTECTIVE SURFACE TREATMENT" PER THE STANDARD SPECIFICATIONS.

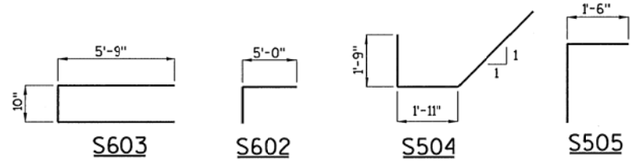
FF = FRONT FACE
BF = BACK FACE
EF = EACH FACE

NOTE: THE FIRST ONE OR TWO DIGITS OF THE BAR MARK SIGNIFIES THE ENGLISH BAR DIAMETER SIZE.

DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT.

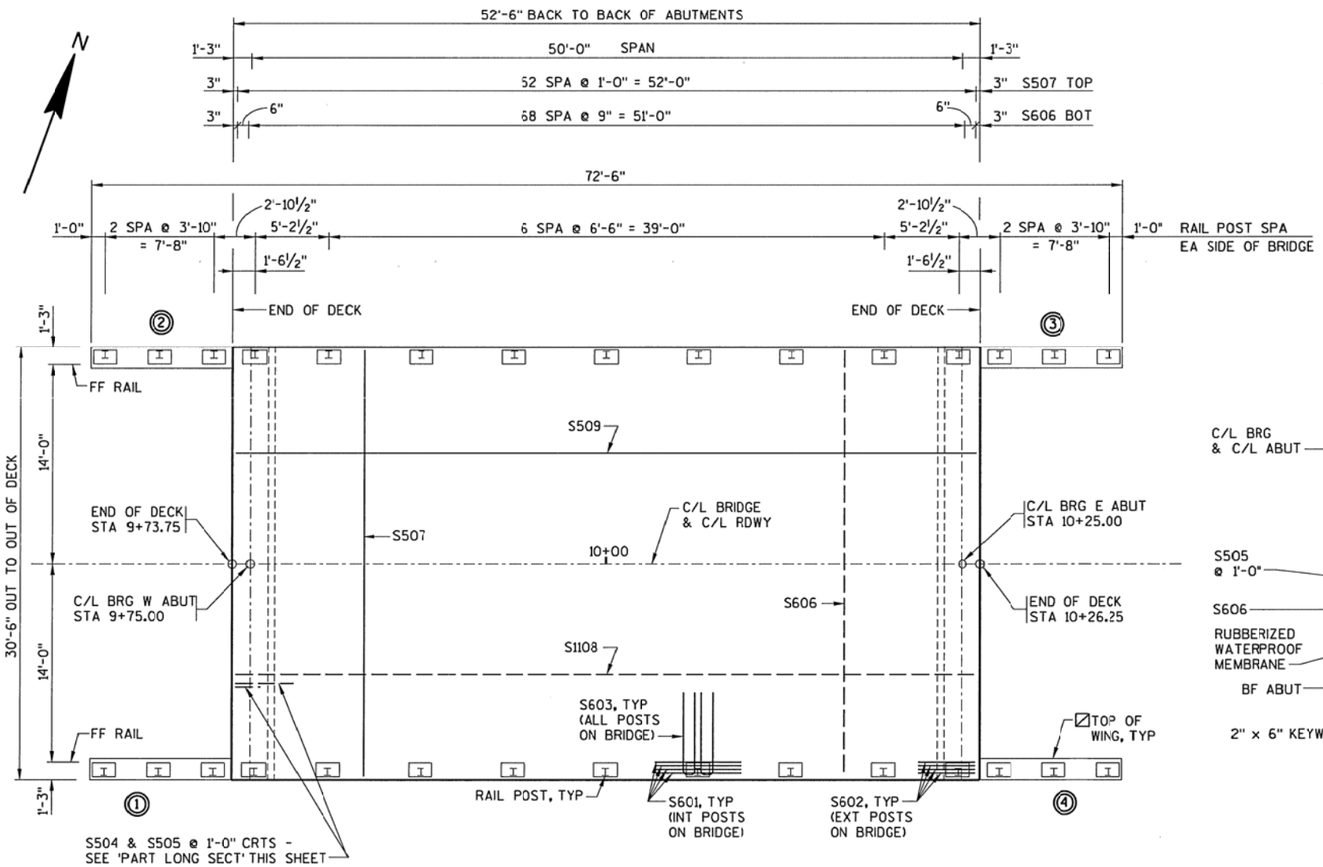
BILL OF BARS — SUPERSTRUCTURE

BAR MARK	COAT	NO. REQ'D.	LENGTH (FT-IN)	BAR SERIES	BENT	LOCATION
S601	X	56	6 - 0			RAIL POST
S602	X	16	6 - 0		X	RAIL POST
S603	X	36	12 - 0		X	RAIL POST
S504	X	62	6 - 3		X	END OF DECK
S505	X	62	3 - 6		X	END OF DECK
S606	X	75	30 - 2			BOT TRANS
S507	X	53	30 - 2			TOP TRANS
S1108	X	61	52 - 2			BOT LONG
S509	X	31	52 - 2			TOP LONG



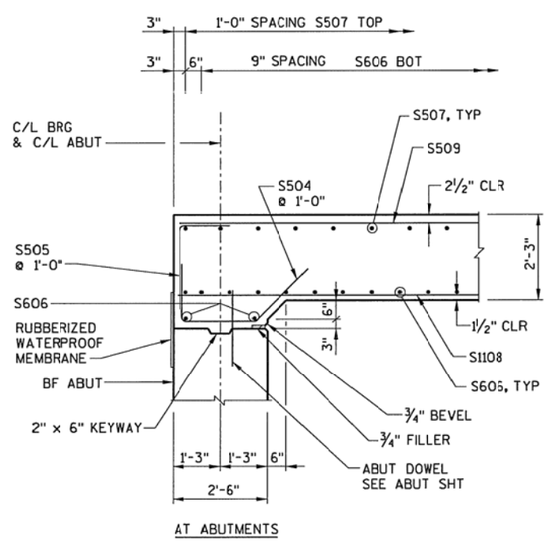
FINAL TOP OF DECK ELEVATIONS

	W ABUT	.1	.2	.3	.4	.5	.6	.7	.8	.9	E ABUT
NORTH EDGE OF DECK	771.42	771.41	771.39	771.37	771.36	771.34	771.31	771.29	771.26	771.23	771.20
C/L	771.72	771.71	771.70	771.68	771.66	771.64	771.62	771.59	771.57	771.54	771.51
SOUTH EDGE OF DECK	772.03	772.02	772.00	771.98	771.97	771.95	771.92	771.90	771.87	771.84	771.81

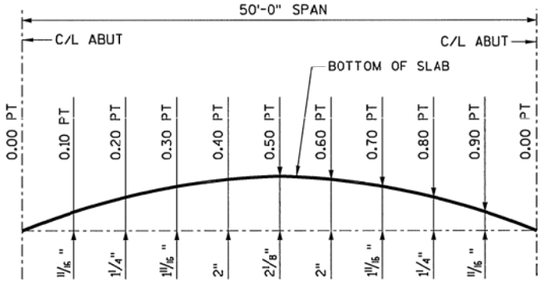


DECK PLAN

——— INDICATES TOP BAR STEEL REINFORCEMENT
– – – – INDICATES BOTTOM BAR STEEL REINFORCEMENT



PARTIAL LONGITUDINAL SECTION



CAMBER DIAGRAM

CAMBER SPAN AS SHOWN TO PROVIDE FOR DEAD LOAD DEFLECTION & FUTURE CREEP. CAMBER DOES NOT INCLUDE VERTICAL ROADWAY PROFILE OR ALLOWANCE FOR FORM SETTLEMENT. DEAD LOAD DEFLECTION ONLY EQUALS APPROXIMATELY 1/3 OF CAMBER VALUES SHOWN.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-24-41

DRAWN BY DLF | PLANS CK'D. CJB

SUPERSTRUCTURE DETAILS

SHEET 7 OF 8

38

8

PLOT DATE: 9/5/2013 PLOT TIME: 1:54:11 PM
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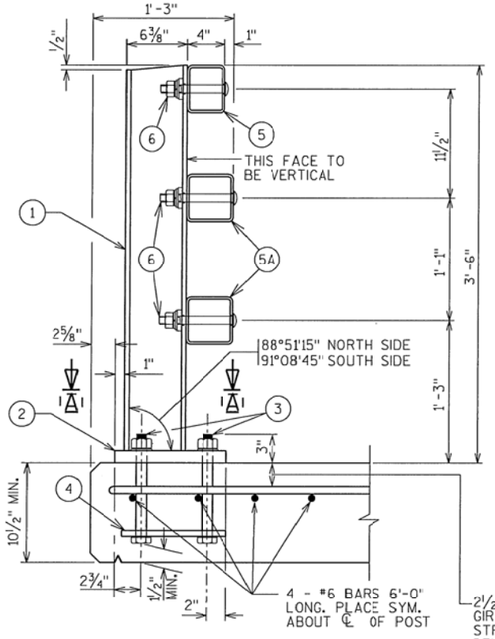
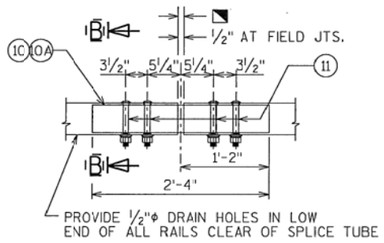
STATE PROJECT NUMBER

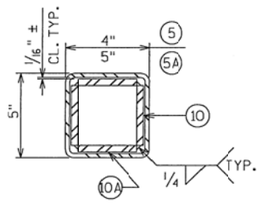
6425-00-71



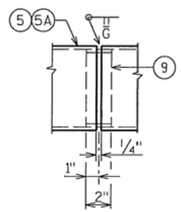
SECTION THRU RAILING ON DECK



FIELD ERECTION JOINT DETAIL

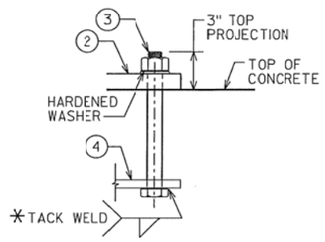


SECTION B-B

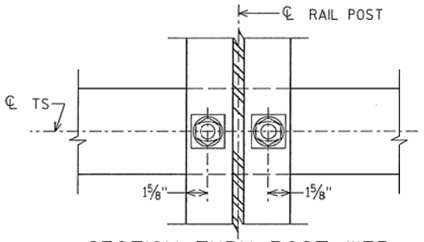


SHOP RAIL SPLICE DETAIL

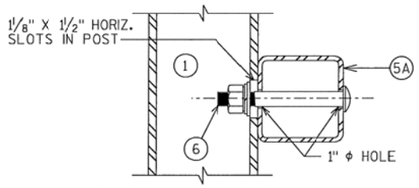
LOCATION MUST BE SHOWN ON SHOP DRAWINGS



ANCHOR BOLTS



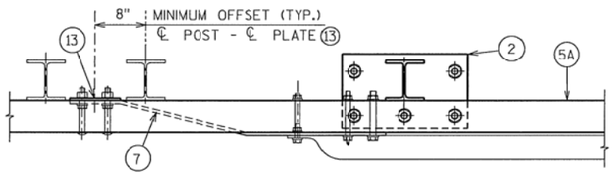
SECTION THRU POST WEB



SECTION THRU RAIL

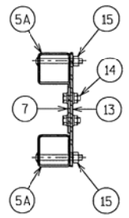
NOTE: CONNECTIONS AT LOWER RAILS SHOWN. CONNECTIONS AT TOP RAIL SIMILAR.

TYPICAL RAIL TO POST CONNECTIONS



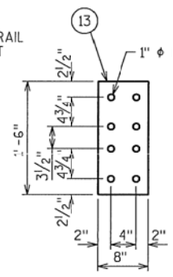
TOP VIEW AT END POST

THRIE BEAM RAIL ATTACHMENT



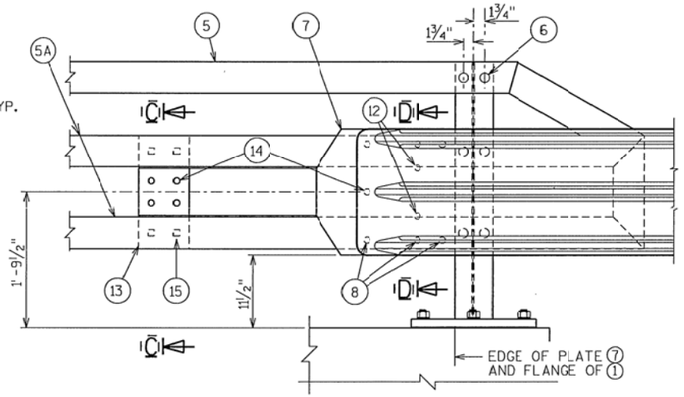
SECTION C-C

SECTION A-A



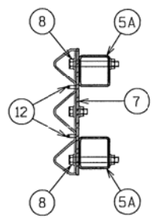
ANCHOR PLATE

AT BEAM GUARD ATTACHMENT

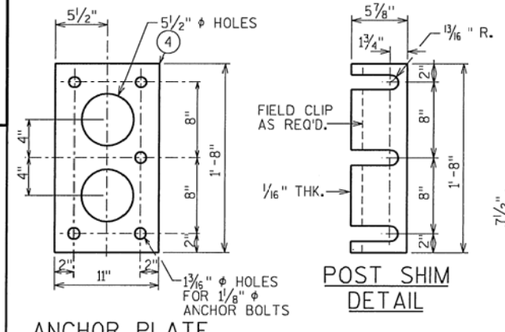


DETAIL AT END POST

THRIE BEAM RAIL ATTACHMENT



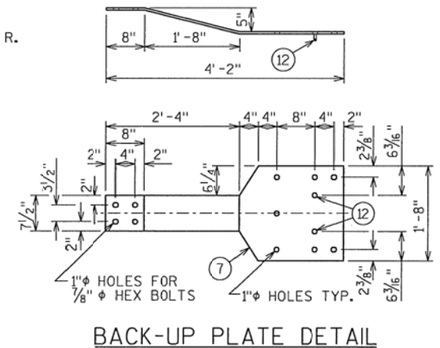
SECTION D-D



ANCHOR PLATE

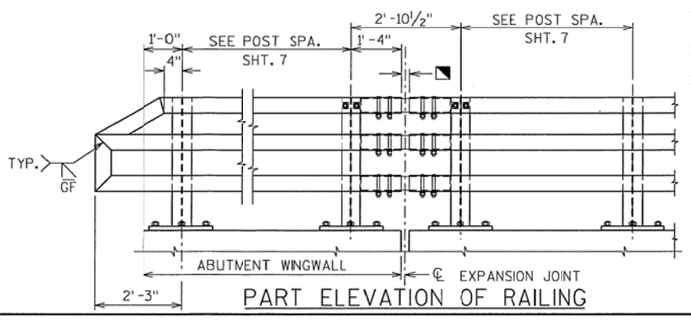
AT RAIL TO DECK CONNECTION

POST SHIM DETAIL



BACK-UP PLATE DETAIL

AT BEAM GUARD ATTACHMENT



PART ELEVATION OF RAILING

LEGEND

(1) W6 x 25 WITH 1 1/8" X 1 1/2" HORIZ. SLOTS ON EACH SIDE OF POST FOR BOLT NO. 6. CUT BOTTOM OF POST TO MATCH CROSS SLOPE OF ROADWAY. PLACE POST VERTICAL. PLACE POSTS NORMAL TO GRADE LINE.

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

(3) ASTM A449 - 1 1/8" DIA. ANCHOR BOLTS WITH NUT AND HARDENED WASHER (ALL GALVANIZED). 5 REQ'D. PER POST. THREAD 3" AND PLACE NORMAL TO PLATE NO. 2. CHAMFER TOP OF BOLTS BEFORE THREADING. USE 1'-9" LONG IN ABUTMENT WINGS. AT POSTS ON CONCRETE SLAB SUPERSTRUCTURES WHERE THE SLAB THICKNESS IS > 15" USE 1'-3" LONG. USE 10 3/4" LONG AT ALL OTHER LOCATIONS. (AN EQUIVALENT THREADED ROD WITH NUTS AND HARDENED WASHERS MAY BE SUBSTITUTED FOR ANCHOR BOLTS IN WINGS IF REQ'D. FOR CONSTRUCTIBILITY.)

(4) 5/8" x 11" x 1'-8" ANCHOR PLATE (GALVANIZED) WITH 13/16" DIA. HOLES FOR ANCHOR BOLTS NO. 3

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

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

(6) 7/8" DIA. A325 SLOTTED ROUND HEAD BOLT WITH NUT, 3/16" X 1 5/8" X 1 5/8" WASHER, AND LOCK WASHER (2 REQ'D. AT EACH RAIL TO POST LOCATION.)

(7) 1/2" THK. BACK-UP PLATE WITH 2 - 7/8" X 1 1/2" THREADED SHOP WELDED STUDS (NO. 12). BOLT TO RAIL AS SHOWN IN DETAIL. REQUIRED AT THRIE BEAM GUARD RAIL ATTACHMENTS ONLY. PLACE SYMMETRICALLY ABOUT TUBES NO. 5A.

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

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

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

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

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

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

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

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

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

GENERAL NOTES

1. BID ITEM SHALL BE "RAILING TUBULAR TYPE M B-24-41" WHICH INCLUDES ALL ITEMS SHOWN.
2. RAIL POST AND BASE PLATES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A709 GRADE 50. HOLLOW RAILING STRUCTURAL TUBING SHALL CONFORM TO THE REQUIREMENTS OF ASTM A500 GRADE B OR C WITH A CERTIFIED FY = 50 KSI. ANCHOR PLATES, AND SPLICE TUBE PLATES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A709 GRADE 36.
3. THE NUT SECURING THE POST BASE PLATE TO THE CONCRETE SHALL BE TIGHTENED TO A SNUG FIT AND GIVEN AN ADDITIONAL 1/8 TURN.
4. RAILS SHALL BE CONTINUOUS OVER A MINIMUM OF THREE (3) POSTS WITHOUT SPLICES WHERE POSSIBLE. RAILS SHALL BE SPLICED IN A PANEL OVER EXPANSION JOINTS.
5. ENDS OF TUBE SECTIONS SHALL BE SAWED. GRIND SMOOTH EXPOSED EDGES. ALL CUT ENDS SHALL BE TRUE AND SMOOTH.
6. WELD IS THE SAME ON BOTH FLANGES. FLANGE WELD DOES NOT REQUIRE MAGNETIC PARTICLE TESTING.
7. FILL BOLT SLOT OPENINGS IN POST SHIMS AND PLATE NO. 2 AND CAULK AROUND PERIMETER OF PLATE NO. 2 WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. STEEL POST SHIMS MAY BE USED UNDER POSTS WHERE REQ'D. FOR ALIGNMENT.
8. POST BASE PLATES SHALL BE FLAT WITH ALL SURFACES SMOOTH AND FREE FROM WARP AND ALL EDGES SMOOTH, STRAIGHT AND VERTICAL. ALL PLATE CUTS SHALL BE MACHINE OR MACHINE FLAME CUT.
9. ALL MATERIAL SHALL BE GALVANIZED AFTER FABRICATION. PRIOR TO GALVANIZING, ALL STEEL RAILING POSTS & STEEL TUBING SHALL BE GIVEN A NO. 6 BLAST CLEANING BY SSPC SPECIFICATIONS.
10. WHEN PAINTING IS REQUIRED, ALL MATERIAL EXCEPT ANCHORAGE DETAIL (NO. 3 & 4) SHALL BE PAINTED OVER GALVANIZING WITH 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 2 1/2" MIN. FOR STRIP SEAL EXP. JOINT & 1/2" OPENING FOR A1 ABUTMENT.

SEE SHEET 7 FOR RAIL POST SPACING.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-24-41

DRAWN BY DLF | PLANS CK'D. CJB

TUBULAR STEEL RAILING TYPE M

SHEET 8 OF 8

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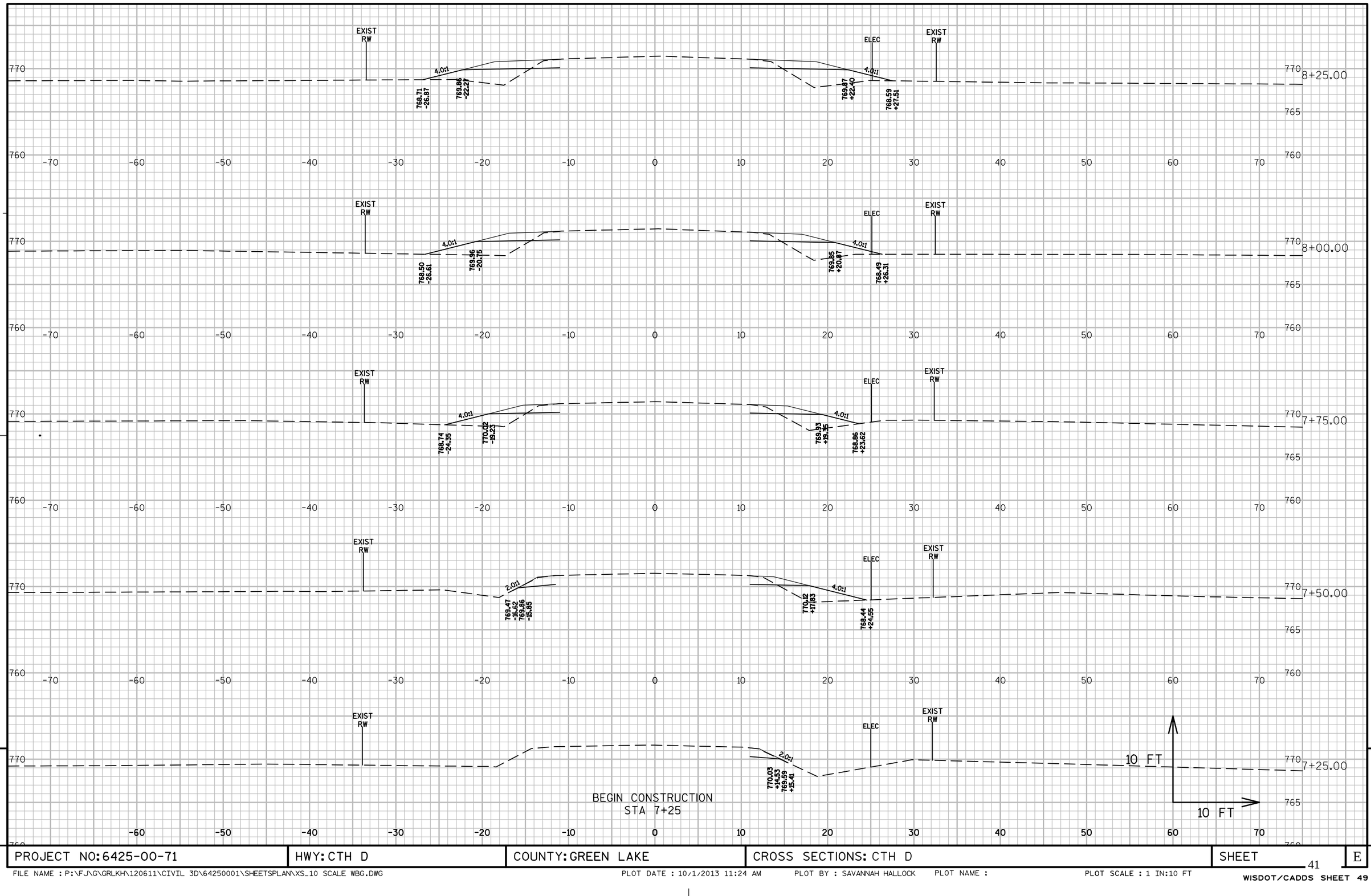
RAILM

CTH D, GREEN LAKE
COUNTY

STATION	END AREA CUT (SF)	END AREA FILL (SF)	VOLUME CUT (CY)	VOLUME *FILL (CY)	CUMULATIVE VOLUME CUT (CY)	CUMULATIVE VOLUME FILL (CY)	MASS HAUL (CY)
7+25.000	2.16	0.01	0	0	0	0	0
7+50.000	5.26	10.1	3.44	6.09	3.44	6.09	-2.65
7+75.000	4.95	17.7	4.73	16.74	8.17	22.83	-14.66
8+00.000	4.91	25.46	4.57	25.98	12.74	48.81	-36.07
8+25.000	5.05	27.8	4.61	32.06	17.35	80.87	-63.52
8+50.000	27.22	37.78	14.94	39.47	32.29	120.34	-88.05
8+74.231	25.2	41.1	23.52	46.01	55.81	166.35	-110.54
8+75.000	25.16	40.92	0.72	1.52	56.53	167.87	-111.34
8+76.259	25.09	40.64	1.17	2.47	57.7	170.34	-112.64
8+98.731	25.05	29.28	20.87	37.82	78.57	208.16	-129.59
9+00.000	25.1	28.43	1.18	1.76	79.75	209.92	-130.17
9+00.745	25.12	27.94	0.69	1.01	80.44	210.93	-130.49
9+23.231	26.69	8.49	21.58	19.72	102.02	230.65	-128.63
9+25.000	26.86	4.59	1.75	0.56	103.77	231.21	-127.44
9+25.231	26.88	4.5	0.23	0.05	104	231.26	-127.26
9+50.000	31.88	1.14	26.95	3.36	130.95	234.62	-103.67
9+73.750	26.54	13.97	25.69	8.64	156.64	243.26	-86.62
STRUCTURE B-24-0041	0	0	0	0	156.64	243.26	-86.62
10+26.250	29.63	14.4	0	0	156.64	243.26	-86.62
10+50.000	24.1	6.25	23.63	10.56	180.27	253.82	-73.55
10+75.000	19.99	23.71	20.3	18.41	200.57	272.23	-71.66
10+75.768	19.9	24.58	0.57	0.89	201.14	273.12	-71.98
10+99.678	20.69	37.73	17.86	37.16	219	310.28	-91.28
11+00.000	20.74	37.75	0.25	0.59	219.25	310.87	-91.62
11+23.521	24.84	33	19.78	41.54	239.03	352.41	-113.38
11+25.000	25.19	31.96	1.37	2.31	240.4	354.72	-114.32
11+50.000	32.94	6.7	26.86	24.18	267.26	378.9	-111.64
11+74.248	5.56	1.31	17.36	4.93	284.62	383.83	-99.21
11+75.000	5.57	1.31	0.15	0.05	284.77	383.88	-99.11
12+00.000	5.07	1.39	5.13	1.73	289.9	385.61	-95.71
12+00.443	5.05	1.41	0.08	0.03	289.98	385.64	-95.66
12+14.546	3.92	0	2.43	0.51	292.41	386.15	-93.74
12+15.000	0	0	0.78	0	293.19	386.15	-92.96

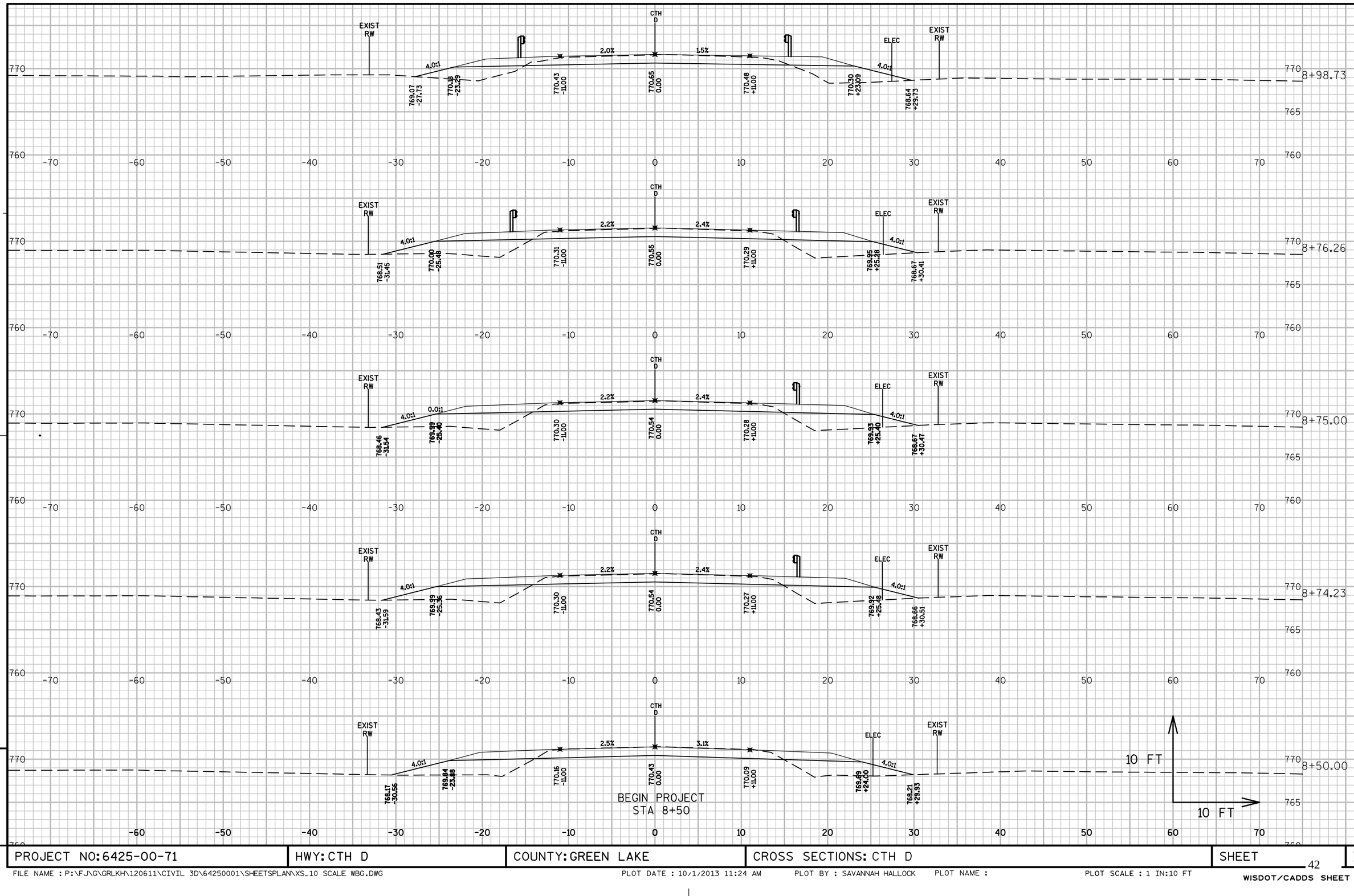
*EXPANDED 30%



9

9

PROJECT NO: 6425-00-71	HWY: CTH D	COUNTY: GREEN LAKE	CROSS SECTIONS: CTH D	SHEET 41	E



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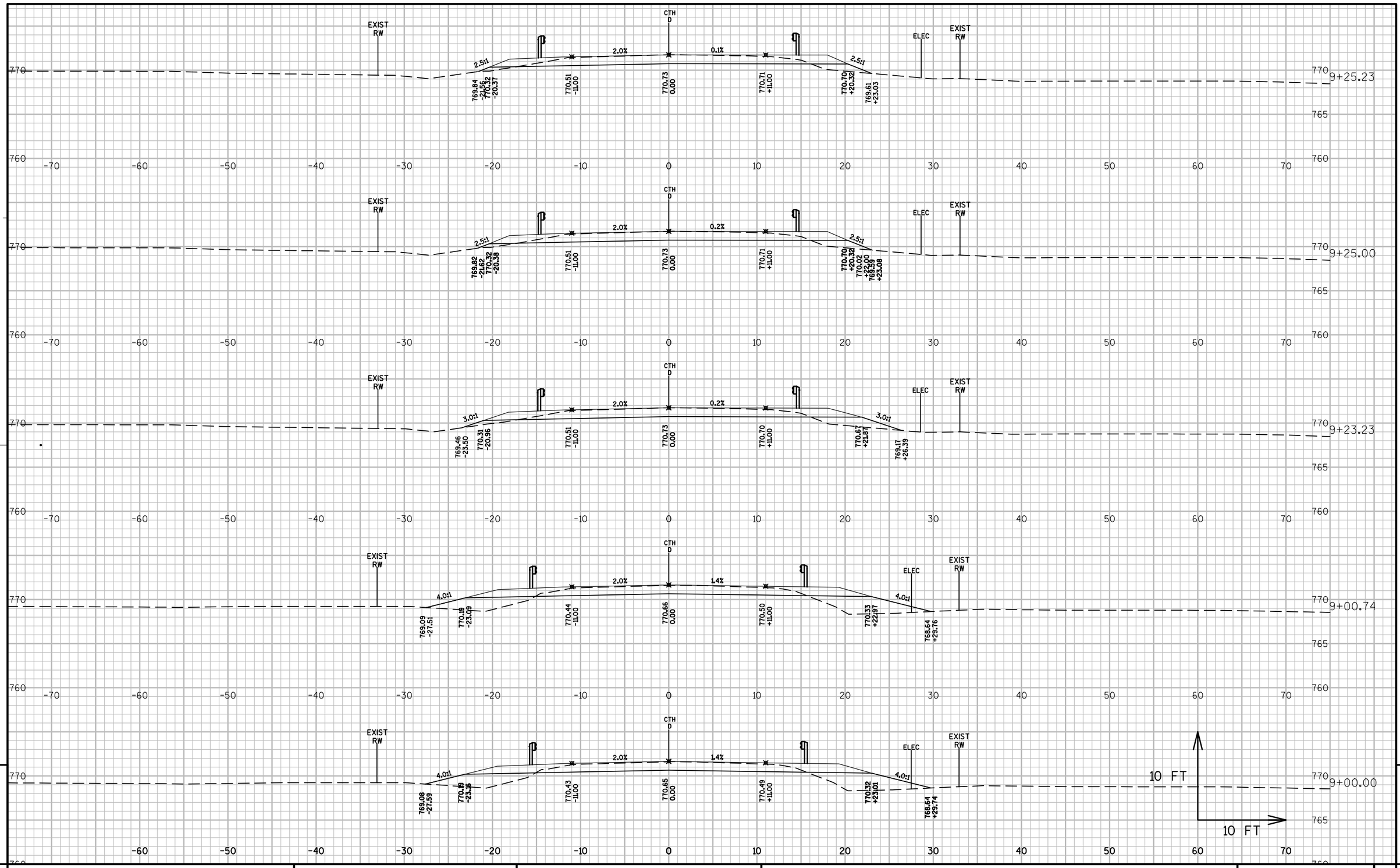

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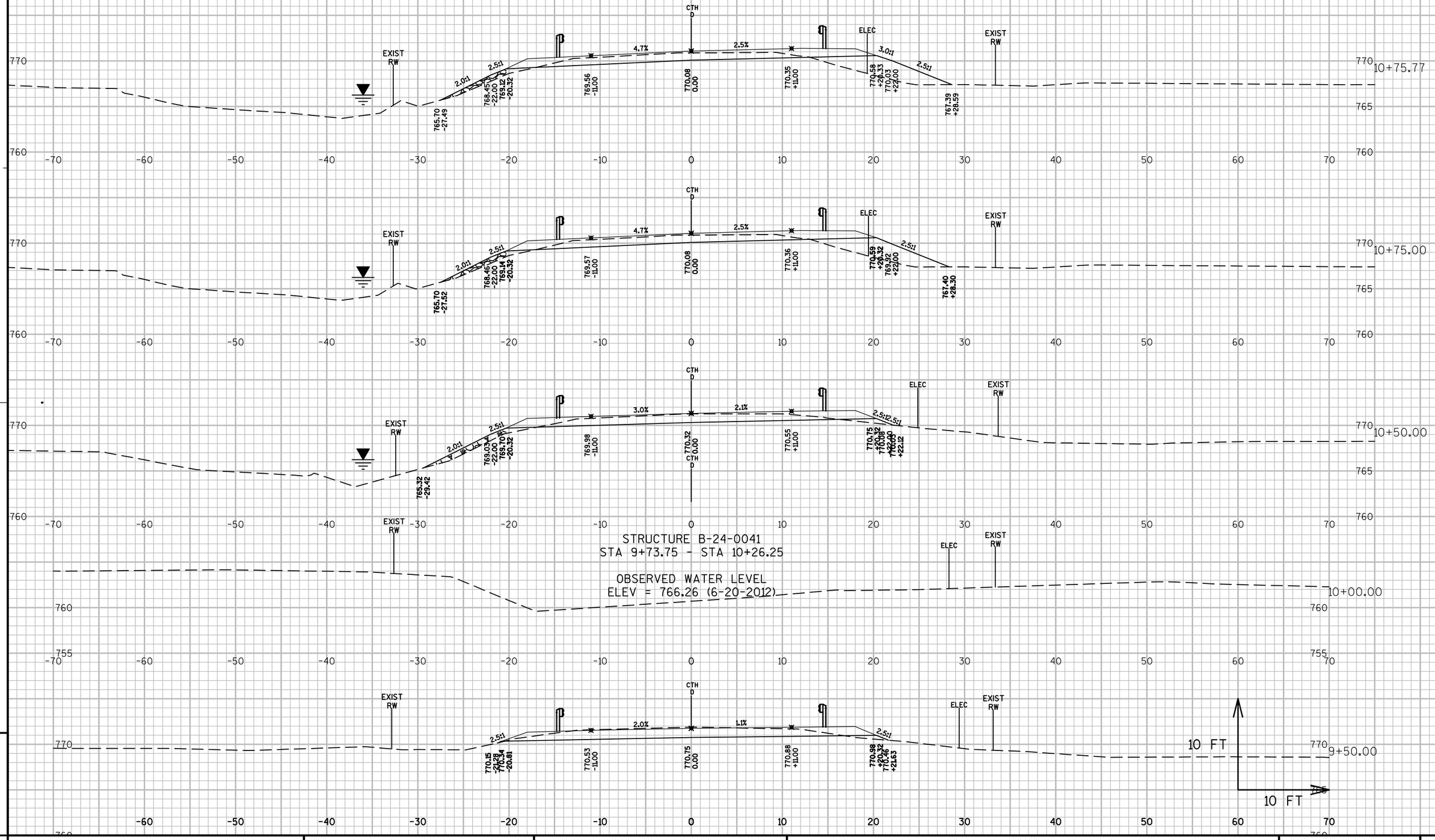

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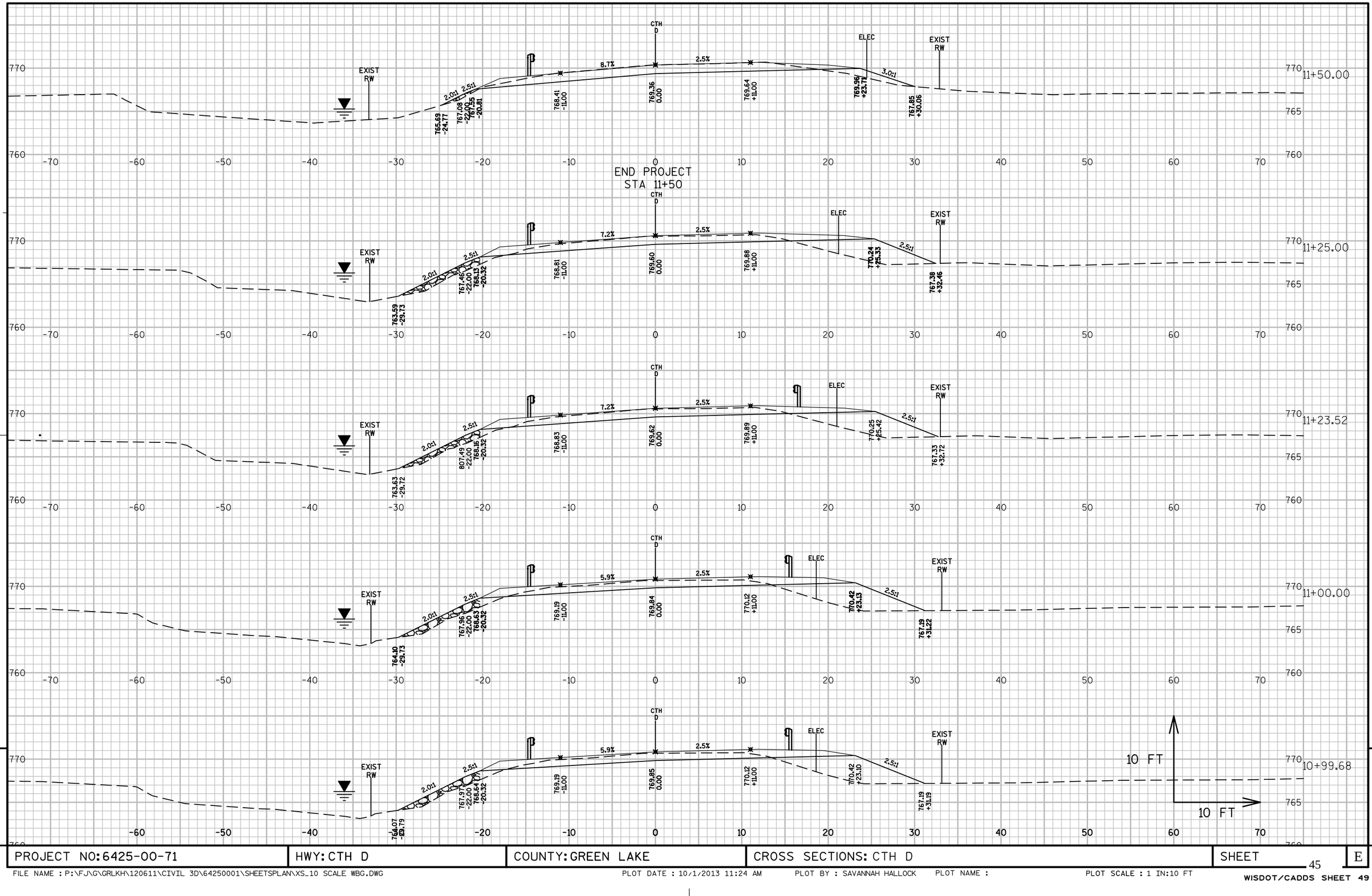
FILE NAME : P:\FJ\G\GRLKH\120611\CIVIL 3D\64250001\SHEETSPLAN\XS_10 SCALE WBG.DWG PLOT DATE : 10/1/2013 11:24 AM PLOT BY : SAVANNAH HALLOCK PLOT NAME : PLOT SCALE : 1 IN:10 FT

WISDOT/CADDS SHEET 49



PROJECT NO: 6425-00-71	HWY: CTH D	COUNTY: GREEN LAKE	CROSS SECTIONS: CTH D	SHEET 45	E

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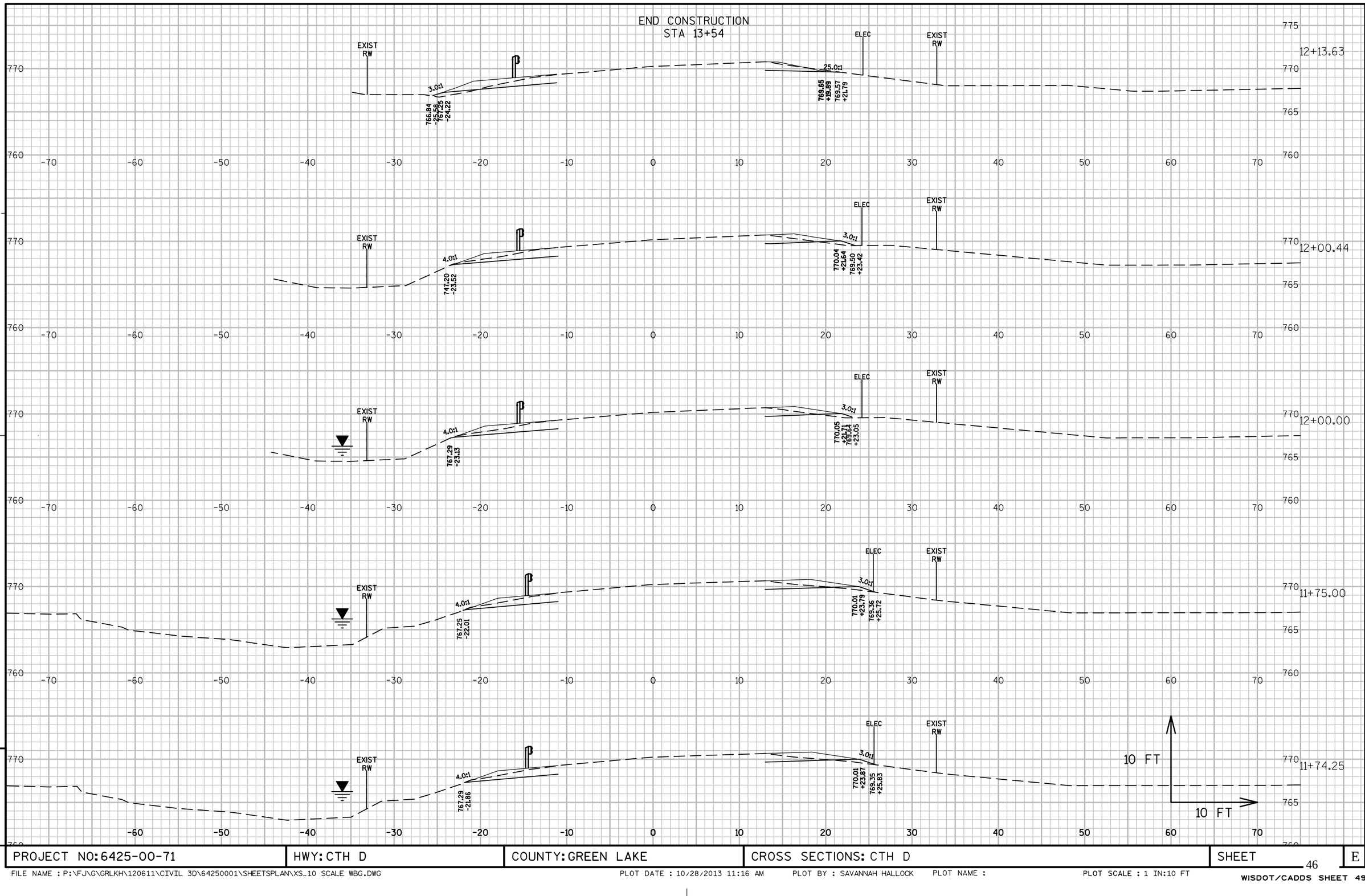
WISDOT/CADDS SHEET 49

END CONSTRUCTION
STA 13+54



PROJECT NO: 6425-00-71	HWY: CTH D	COUNTY: GREEN LAKE	CROSS SECTIONS: CTH D	SHEET	E

FILE NAME : P:\FJ\G\GRLKH\120611\CIVIL 3D\64250001\SHEETSPLAN\XS_10 SCALE WBG.DWG
PLOT DATE : 10/28/2013 11:16 AM
PLOT BY : SAVANNAH HALLOCK
PLOT NAME :
PLOT SCALE : 1 IN:10 FT

Notes

Wisconsin Department of Transportation

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through innovation and exceptional service.

http://www.dot.wisconsin.gov