NO CHANGES

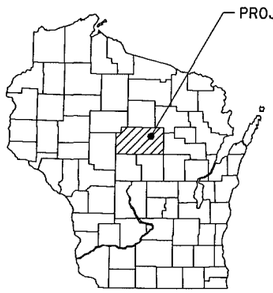
LFA 94400470

PROJECT ID: 9440-04-70
WITH: N/A

COUNTY: MARATHON

ORDER OF SHEETS

TOTAL SHEETS =



DESIGN DESIGNATION

A.A.D.T.	2012	=	1,360
A.A.D.T.	2032	=	1,500
D.H.V.		=	250
D.D.		=	62-38
T.		=	6.3%
DESIGN SPEED		=	50 MPH
ESALS		=	197,100

CONVENTIONAL SYMBOLS

PLAN

- CORPORATE LIMITS
- PROPERTY LINE (PL + 58.1)
- LOT LINE
- LIMITED HIGHWAY EASEMENT
- EXISTING RIGHT OF WAY
- PROPOSED OR NEW R/W LINE
- SLOPE INTERCEPT
- REFERENCE LINE
- EXISTING CULVERT
- PROPOSED CULVERT (Box or Pipe)
- COMBUSTIBLE FLUIDS (CAUTION)
- MARSH AREA
- WOODED OR SHRUB AREA

PROFILE

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

UTILITIES

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

WAUSAU - ANIWA

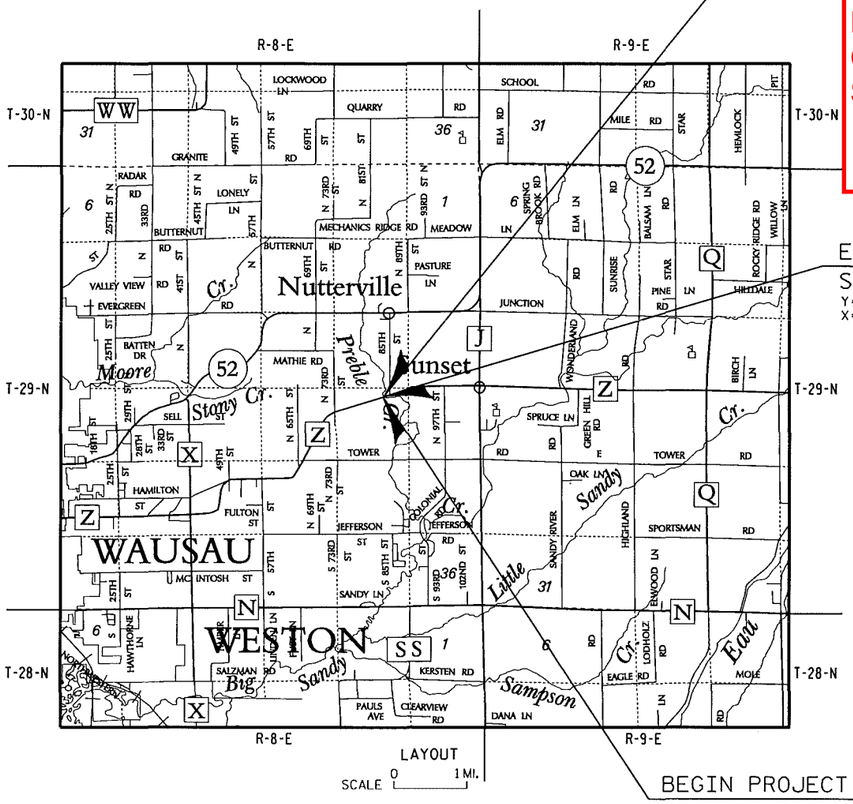
PRAHL CREEK BRIDGE, TOWN OF WAUSAU

CTH Z

MARATHON COUNTY

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
9440-04-70		

STATE PROJECT NUMBER
9440-04-70



TOTAL NET LENGTH OF CENTERLINE = 0.092 MI.

COORDINATES ON THIS PLAN ARE REFERENCED TO THE WISCONSIN COUNTY COORDINATE SYSTEM, MARATHON COUNTY.

AS-BUILT PLAN

PROJECT SUPERVISOR: Lynn Saeger, WisDOT
PROJECT ENGINEER: Mike Novey, DAAR, Inc.
PROJECT LEADER: John Mueller
Fleming, Andre & Associates, Inc.
PRIME CONTRACTOR: Marathon County Highway Department
BEGIN CONSTRUCTION: 08/07/2012
END CONSTRUCTION: 10/10/2012
FINAL CONSTRUCTION COST: $310,500.00
CONTRACT MOD'S: #1
SUBCONTRACTORS:
Ruzic Construction Company, Inc.
Rent-A-Flash of Wisconsin, Inc.

ORIGINAL PLANS PREPARED BY

AECOM

WISCONSIN
KEVIN R. HAGEN
E-38866
STEVENS POINT WI
PROFESSIONAL ENGINEER

3/14/2012 (Date) Kevin R. Hagen (Signature)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY

Surveyor	AECOM
Designer	AECOM
Management Consultant	CEDAR CORPORATION
C.O. Examiner	

APPROVED FOR THE DEPARTMENT
DATE: 4.5.12 (Management Consultant Signature)

E

UTILITY CONTACTS

FRONTIER COMMUNICATIONS (TELEPHONE & FIBER OPTIC)
ATTN: ROBERT SCHROETER
1851 N 14TH AVENUE
WAUSAU, WI 54401
(715)847-1685 (OFFICE)
(715)781-5700 (MOBILE)
robert.schroeter@ftr.com

WPS (WISCONSIN PUBLIC SERVICE CORPORATION) (ELECTRIC)
ATTN: CLAY VIRCKS
1700 SHERMAN STREET
PO BOX 1166
WAUSAU, WI 54402-1166
(715)848-7317 (OFFICE)
(715) 573-7806 (MOBILE)
chvircks@wisconsinpublicservice.com

DIGGERS HOTLINE

Call 811 3 Work Days Before You Dig
or Toll Free (800) 242-8511
Hearing Impaired TDD (800) 542-2289
www.DiggersHotline.com

** DENOTES UTILITIES THAT ARE NOT DIGGER'S HOTLINE MEMBERS

WDNR CONTACT

DEPARTMENT OF NATURAL RESOURCES
ATTN: JON SIMONSEN
107 SUTLIFF AVENUE
RHINELANDER, WI 54501
(715)-365-8916
jonathon.simonsen@wisconsin.gov

DESIGNER CONTACT

AECOM
ATTN: KEVIN HAGEN
200 INDIANA AVENUE
STEVENS POINT, WI 54481
(715)-342-3053
kevin.hagen@aecom.com
AECOM PROJECT NO. 60188814

RUNOFF COEFFICIENT TABLE

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

TOTAL PROJECT AREA = 0.92 ACRES
TOTAL AREA EXPECTED TO BE DISTURBED BY CONSTRUCTION ACTIVITIES = 0.76 ACRES
.

GENERAL NOTES

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

SEED MIXTURE SHALL BE AS SHOWN ON THE TYPICAL SECTIONS.

WHERE THE QUANTITY OF BASE AGGREGATE DENSE AND ASPHALTIC SURFACE IS MEASURED FOR PAYMENT BY THE TON, THE DEPTH OR THICKNESS OF THE COURSE, AS SHOWN ON THE PLANS, IS APPROXIMATE. THE ACTUAL THICKNESS WILL DEPEND UPON THE DISTRIBUTION OF THE MATERIAL AS DIRECTED BY THE ENGINEER.

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

EXCAVATION BELOW SUBGRADE (EBS) IS NOT USED TO BALANCE YARDAGE AND IS NOT SHOWN ON THE CROSS SECTIONS BUT IF REQUIRED, SHALL BE MEASURED AND PAID FOR AS EXCAVATION COMMON. LOCATION FOR EBS WILL BE DETERMINED BY THE ENGINEER.

SECTIONS AS SHOWN ON THE CROSS SECTION SHEETS INCLUDE THE THICKNESS OF TOPSOIL.

DISTURBED AREAS WITHIN THE RIGHT OF WAY, EXCEPT THE AREA WITHIN THE FINISHED SHOULDER POINTS, SHALL BE FERTILIZED, SEEDED AND TEMPORARY SEEDED AS DIRECTED BY THE ENGINEER.

EROSION CONTROL FEATURES AS SHOWN ON THE PLANS ARE SUGGESTED LOCATIONS. EXACT LOCATIONS WILL BE DETERMINED BY THE ENGINEER IN THE FIELD.

SILT FENCE AS SHOWN ON THE PLANS SHALL BE FIELD ADJUSTED TO FIT EXISTING CONDITIONS.

ELEVATIONS SHOWN ON THIS PLAN ARE BASED ON NAVD 88 DATUM.

DISTANCES SHOWN ON THIS PLAN ARE GROUND DISTANCES.

FILL AS SHOWN ON THE PLAN SHEETS PERTAINS TO EMBANKMENTS CONSTRUCTED FROM EXCAVATION COMMON OR BORROW. THE SHRINKAGE ALLOWANCE USED TO COMPUTE THE VOLUME OF MATERIAL NECESSARY TO COMPLETE THE FILL IS 25 PERCENT.

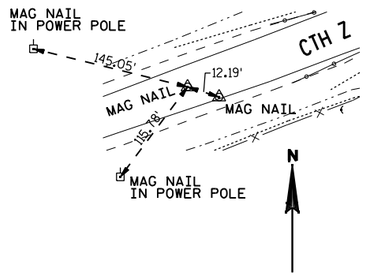
THE WISCONSIN DEPARTMENT OF TRANSPORTATION WILL FURNISH THE CONTRACTOR AN ALUMINUM MONUMENT WHICH SHALL BE SET IN THE STRUCTURE AS DESIGNATED BY THE ENGINEER.

THE 4" ASPHALTIC SURFACE SHALL CONSIST OF A 1¾- INCH UPPER LAYER & A 2¼- INCH LOWER LAYER.

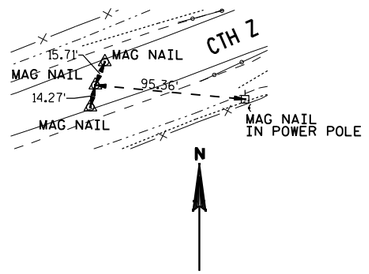
THE RUNOFF COEFFICIENTS OF SURFACE DRAINAGE AT THE PROJECT SITE WILL NOT BE CHANGED FROM BEFORE TO AFTER CONSTRUCTION. THE TOTAL AREA IS 0.92 ACRE AND THE TOTAL AREA EXPECTED TO BE DISTURBED BY CONSTRUCTION ACTIVITIES IS 0.76 ACRE.

WETLANDS ARE PRESENT WITHIN THE PROJECT LIMITS. DO NOT OPERATE OR STORE EQUIPMENT OR MATERIALS OUTSIDE THE SLOPE INTERCEPTS.

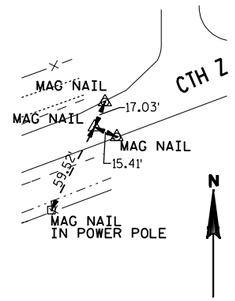
CONSTRUCTION TIES



CONTROL POINT #1
STA 7+00.77, 1.13'LT
N=211,928.15
E=309,696.03



CONTROL POINT #2
STA 8+50.38, 0.16'RT
N=211,978.56
E=309,836.91



CONTROL POINT #3
STA 12+99.83, 0.33'LT
N=212,134.08
E=310,258.58

PROJECT NUMBER: 9440-04-70	HWY: CTH Z	COUNTY: MARATHON	GENERAL NOTES, UTILITIES & CONSTRUCTION TIES	SHEET	E

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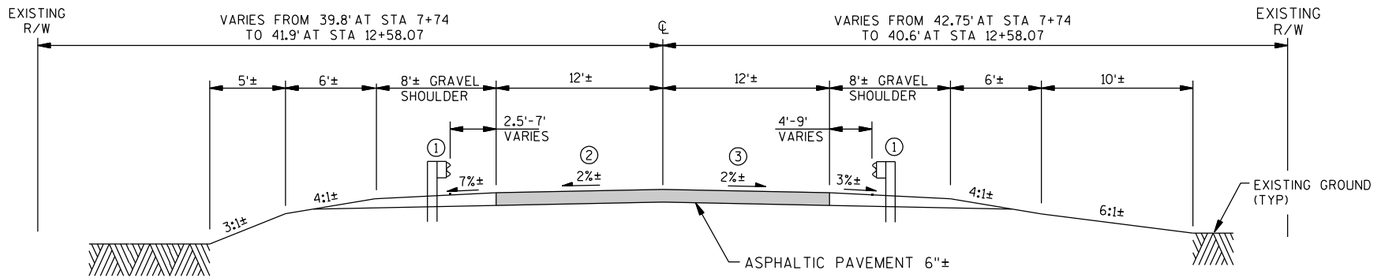
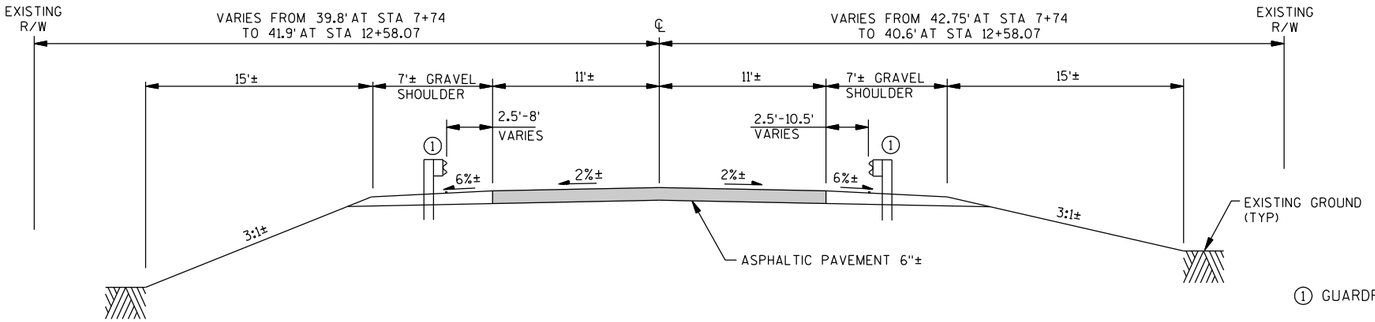
WISDOT/CADDS SHEET 42



① GUARDRAIL STA 9+11.9 - 9+84.1 LT & RT
② VARIES FROM 4%± AT STA 7+74 TO 0.9%± AT STA 9+84.1
③ VARIES FROM 0.4%± AT STA 7+74 TO 0.7%± AT STA 9+84.1

TYPICAL EXISTING SECTION

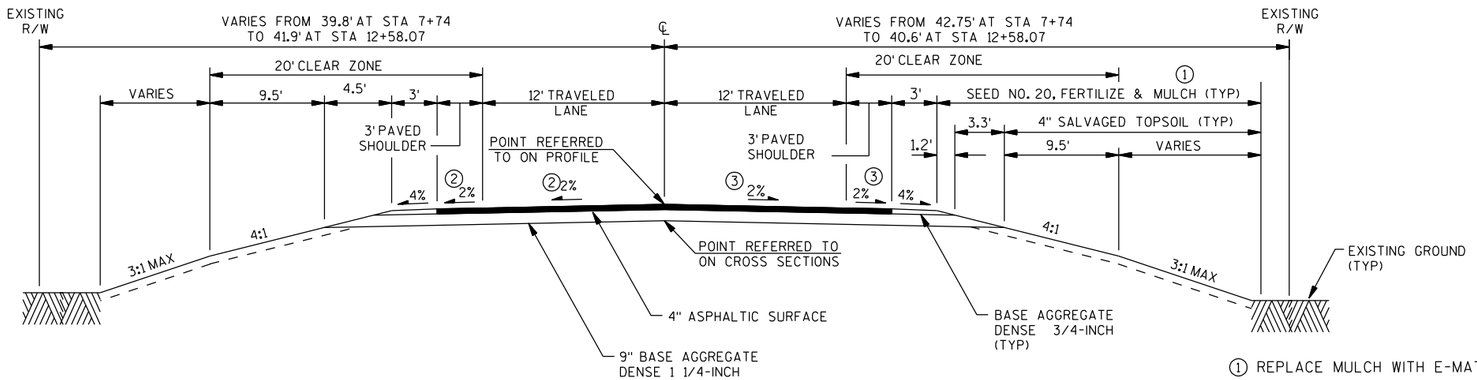
CTH Z
STA 7+74 - STA 9+84.10



① GUARDRAIL STA 10+15.9 - 10+90.4 LT & RT

TYPICAL EXISTING SECTION

CTH Z
STA 10+15.9 - STA 12+58.07



① REPLACE MULCH WITH E-MAT WHEN SLOPES ARE GREATER THAN 3:1
② VARIES FROM 4.2% AT STA 7+74 TO 2% AT STA 9+00
③ VARIES FROM 0.4% AT STA 7+74 TO 2% AT STA 9+00

TYPICAL FINISHED SECTION

STA 7+74 - STA 9+76.75
STA 10+23.25 - STA 12+58.07

PROJECT NUMBER: 9440-04-70	HWY: CTH Z	COUNTY: MARATHON	TYPICAL SECTIONS	SHEET	E

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WISDOT/CADDS SHEET 42

LEGEND

- DETOUR ROUTE
- POST MOUNTED SIGN
- TYPE III BARRICADE WITH ATTACHED SIGN
- (A) TYPE "A" LOW INTENSITY FLASHING WARNING LIGHT
- FLAGS, 16" X 16" (ORANGE)

SEE SDD "BARRICADES AND SIGNS FOR MAINLINE CLOSURES"

(A) BRIDGE OUT (A)
0.7 MILES AHEAD
R11-3C
60" X 24"

DETOUR
M4-9L
30" X 24"

(A) BRIDGE OUT (A)
1.3 MILES AHEAD
LOCAL TRAFFIC ONLY
R11-3B
60" X 30"

(A) BRIDGE OUT (A)
3.5 MILE AHEAD
LOCAL TRAFFIC ONLY
R11-3B
60" X 30"

DETOUR
M4-9R
30" X 24"

Nutterville
Moore
Stony Cr.
Preble Cr.
Sunset
WAUSAU
WESTON
Sandy Cr.
Little Sandy Cr.
Big Sandy Cr.

EVERGREEN RD
MATHIE RD
JUNCTION RD
SELL ST
HAMILTON ST
FULTON ST
TOWER RD
JEFFERSON ST
JEFFERSON RD
MC INTOSH ST
SANDY LN
SPRUCE LN
OAK LN
KERSTEN RD
SALZMAN RD
COLONIAL RD
WONDERLAND
GREEN HILL RD
SANDY RIVER RD
N 73RD ST
N 65TH ST
N 69TH ST
S 73RD ST
S 85TH ST
S 57TH ST
S 93RD ST
29TH ST N
33RD ST
18TH ST
26TH ST
49TH ST
25TH ST
SWANEE AVE
HAWTHORNE LN
TIMBER LN
LINDEN LN
FLIST LN
NORTHWESTERN

SIGN ASSEMBLY LEGEND

DETOUR EAST COUNTY Z → J3-1 24" X 69" (1)	DETOUR EAST COUNTY Z ← J3-1 24" X 69" (2)	DETOUR EAST COUNTY Z → J3-1 24" X 69" (3)	DETOUR EAST COUNTY Z ← J3-1 24" X 69" (4)
DETOUR EAST COUNTY Z ↑ J3-1 24" X 69" (5)	DETOUR EAST COUNTY Z J4-1 24" X 48" (6)	END DETOUR EAST COUNTY Z J32-1 24" X 60" (7)	
DETOUR WEST COUNTY Z → J3-1 24" X 69" (8)	DETOUR WEST COUNTY Z ← J3-1 24" X 69" (9)	DETOUR WEST COUNTY Z → J3-1 24" X 69" (10)	DETOUR WEST COUNTY Z ← J3-1 24" X 69" (11)
DETOUR WEST COUNTY Z ↑ J3-1 24" X 69" (12)	DETOUR WEST COUNTY Z J4-1 24" X 48" (13)	END DETOUR EAST COUNTY Z J32-1 24" X 60" (14)	
EAST COUNTY Z J4-1 24" X 36" DETOUR AHEAD W20-2 (15)	WEST COUNTY Z J4-1 24" X 36" DETOUR AHEAD W20-2 (16)		

PROJECT NUMBER: 9440-04-70	HWY: CTH Z	COUNTY: MARATHON	DETOUR SIGNING	SHEET E

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REMOVING GUARDRAIL

BEGIN STATION	END STATION	LOCATION	204.0165 REMOVING GUARDRAIL LF
9+13	9+80	LT	70
9+13	9+80	RT	70
10+18	10+85	LT	65
10+17	10+90	RT	75
		TOTALS	280

EARTHWORK

From/To Station	Location	Excavation Common (1) (item # 205.0100)		Salvaged/Unusable Pavement Material (4)	Available Material (5)	Marsh Excavation (6)	Reduced Marsh in Fill (7)	Expanded Marsh Backfill (8)	Unexpanded Fill	Expanded Fill (9)	Mass Ordinate +/- (10)	Waste	Borrow	Comment:
		Cut (2)	EBS Excavation (3)			(item #205.0400)	Factor 0.60	Subbase (item # 350.0102) Factor 1.50		Factor 1.25			(item #208.0100)	
7+74 - 9+77	West End	260	0	80	180	0	0	0	90	120	60	60	0	
10+23 - 12+58	East End	350	0	95	255	0	0	0	210	265	-10	-10	0	
Grand Total		610	0	175	435	0	0	0	300	385		50	0	
	Total Exc Common	610										Total Borrow	0	

1) Excavation Common is the sum of the Cut and EBS Excavation columns. *Item number 205.0100*
2) Salvaged/Unsuable Pavement Material is included in Cut.
3) EBS Excavation to be backfilled with Subbase Material
4) Salvaged/Unusable Pavement Material = Existing Asphalt
5) Available Material = Cut - Salvaged/Unusuable Pavement Material
6) Marsh Excavation - to be backfilled with Subbase Material
7) Reduced Marsh in Fill - Excavated Marsh material is usuable in Fills outside the 1:1 slope. Marsh in Fill Reduction factor = 0.6
8) Expanded Marsh Backfill - This is to be filled with Subbase Material
9) Expanded Fill. Factor = 1.25 **Expanded Fill = (Unexpanded Fill - Rock* Rock Factor - Reduced Marsh - Reduced EBS) * Fill Factor**
Depending on selections: Or Expanded Fill = (Unexpanded Fill - Rock* Rock Factor - Reduced EBS) * Fill Factor
Or Expanded Fill = (Unexpanded Fill - Rock* Rock Factor - Reduced Marsh) * Fill Factor
Or Expanded Fill = (Unexpanded Fill - Rock* Rock Factor) * Fill Factor

10) The Mass Ordinate + or - Qty calculated for the Division. Plus quantity indicates an excess of material within the Division.
Minus indicates a shortage of material within the Division.

ALL QUANTITIES CATEGORY 0010
UNLESS OTHERWISE NOTED

BASE AGGREGATE DENSE

BEGIN STATION	END STATION	LOCATION	THICKNESS INCHES	305.0110 BASE AGGREGATE DENSE 3/4-INCH (SHOULDER) TON	305.0120 BASE AGGREGATE DENSE 1 1/4-INCH (BASE) TON
7+74	9+77	WEST OF BRIDGE	9	---	550
10+23	12+58	EAST OF BRIDGE	9	---	700
7+74	9+77	WEST OF BRIDGE, SHOULDER	4	65	---
10+23	12+58	EAST OF BRIDGE, SHOULDER	4	70	---
			TOTALS	135	1,250

ASPHALT

BEGIN STATION	END STATION	LOCATION	THICKNESS INCHES	455.0605 TACK COAT GAL	465.0105 ASPHALTIC SURFACE TON
7+74	9+77	WEST OF BRIDGE	4	20	180
10+23	12+58	EAST OF BRIDGE	4	25	200
		TOTALS		45	380

WATER

	624.0100 WATER MGAL
PROJECT 9440-04-70	50

BEAM GUARD

BEGIN STATION	END STATION	LOCATION	614.2300 MGS GUARDRAIL 3 LF	614.2500 MGS THRIE BEAM TRANSITION LF	614.2610 MGS GUARDRAIL TERMINAL EAT EACH
8+74.43	9+79.42	LT	12.5	40	1
8+74.43	9+79.42	RT	12.5	40	1
10+20.58	11+38.06	LT	25	40	1
10+20.58	11+38.06	RT	25	40	1
		TOTALS	75	160	4

LANDSCAPING

BEGIN STATION	END STATION	LOCATION	625.0500 SALVAGED TOPSOIL SY	627.0200 MULCHING SY	629.0210 FERTILIZER TYPE B CWT	630.0120 SEEDING MIXTURE NO. 20 LB
7+74	9+77	LT	190	180	0.2	8
7+74	9+77	RT	70	110	0.1	5
10+23	12+58	LT	200	250	0.2	9
10+23	12+58	RT	250	300	0.3	10
		TOTALS	710	840	0.8	32

ALL QUANTITIES CATEGORY 0010
UNLESS OTHERWISE NOTED

EROSION CONTROL

BEGIN STATION	END STATION	LOCATION	628.1504 SILT FENCE LF	628.1520 SILT FENCE MAINTENANCE LF	628.1905 MOBILIZATIONS EROSION CONTROL EACH	628.1910 MOBILIZATIONS EMERGENCY EROSION CONTROL EACH	628.2008 EROSION MAT URBAN CLASS I TYPE B SY	628.6005 TURBIDITY BARRIERS SY	628.7504 TEMPORARY DITCH CHECKS LF
7+74	9+77	LT	200	200	--	--	105	--	--
7+74	9+85	RT	215	215	--	--	35	--	--
9+60	9+95	CROSS	--	--	--	--	--	80	--
10+10	10+35	CROSS	--	--	--	--	--	80	--
10+15	12+58	LT	250	250	--	--	50	--	--
10+20	12+58	RT	250	250	--	--	60	--	--
UNDISTRIBUTED			--	--	3	2	--	--	40
		TOTALS	915	915	3	2	250	160	40

TRAFFIC CONTROL

DAYS IN SERVICE	643.0420 BARRICADES TYPE III NO.	643.0420 BARRICADES TYPE III DAYS	643.0705 WARNING LIGHTS TYPE A NO.	643.0705 WARNING LIGHTS TYPE A DAYS	643.3000 DETOUR SIGNS NO.	643.3000 DETOUR SIGNS DAYS
60	14	840	18	1,080	103	6,180
TOTALS		840		1,080		6,180

PERMANENT SIGNING

STATION	LOCATION	SIGN CODE/MESSAGE	W x H	634.0612 POSTS WOOD 4x6-INCH X 12 - FEET EACH	634.0616 POSTS WOOD 4x6-INCH X 16 - FEET EACH	637.0202 SIGNS REFLECTIVE TYPE II SF	638.2602 REMOVING SIGNS TYPE II EACH	638.3000 REMOVING SMALL SIGN SUPPORTS EACH
9+80	CTH Z, RT	W5-52R/BRIDGE SIGN	36" X 12"	1	--	3.00	1	1
9+80	CTH Z, LT	W5-52L/BRIDGE SIGN	36" X 12"	1	--	3.00	1	1
10+20	CTH Z, RT	W5-52R/BRIDGE SIGN	36" X 12"	1	--	3.00	1	1
10+20	CTH Z, LT	W5-52L/BRIDGE SIGN	36" X 12"	1	--	3.00	1	1
11+70	CTH Z, RT	W14-3/NO PASSING	48" x 36"	--	1	6	1	1
		TOTALS		4	1	18	5	5

PAVEMENT MARKING

BEGIN STATION	END STATION	LOCATION	646.0106 PAVEMENT MARKING EPOXY 4-INCH (YELLOW) LF	646.0106 PAVEMENT MARKING EPOXY 4-INCH (WHITE) LF
7+74	12+58	LEFT EDGELINE	--	485
7+74	12+58	RIGHT EDGELINE	--	485
7+74	11+70	LT, NO PASSING WB	395	--
7+74	12+58	RT, SKIPS	120	--
7+74	12+58	CTH Z	--	--
		TOTALS	515	970
			1,485	

CONSTRUCTION STAKING

***

BEGIN STATION	END STATION	LOCATION	650.4500 CONSTRUCTION STAKING SUBGRADE LF	650.5000 CONSTRUCTION STAKING BASE LF	650.6500 CONSTRUCTION STAKING STRUCTURE LAYOUT LS	650.9910 CONSTRUCTION STAKING SUPPLEMENTAL CONTROL LS	650.9920 CONSTRUCTION STAKING SLOPE STAKES LF
7+74	9+77	WEST OF BRIDGE	205	205	---	---	205
10+23	12+58	EAST OF BRIDGE	235	235	---	---	235
PROJECT		ENTIRE PROJECT	---	---	1	1	---
		TOTALS	440	440	1	1	440

SAWING ASPHALT

STATION	LOCATION	690.0150 SAWING ASPHALT LF
7+74	CTH Z	25
12+58	CTH Z	25
	TOTALS	50

*** CATEGORY 0020

ALL QUANTITIES CATEGORY 0010
UNLESS OTHERWISE NOTED

BENCH MARK TABLE

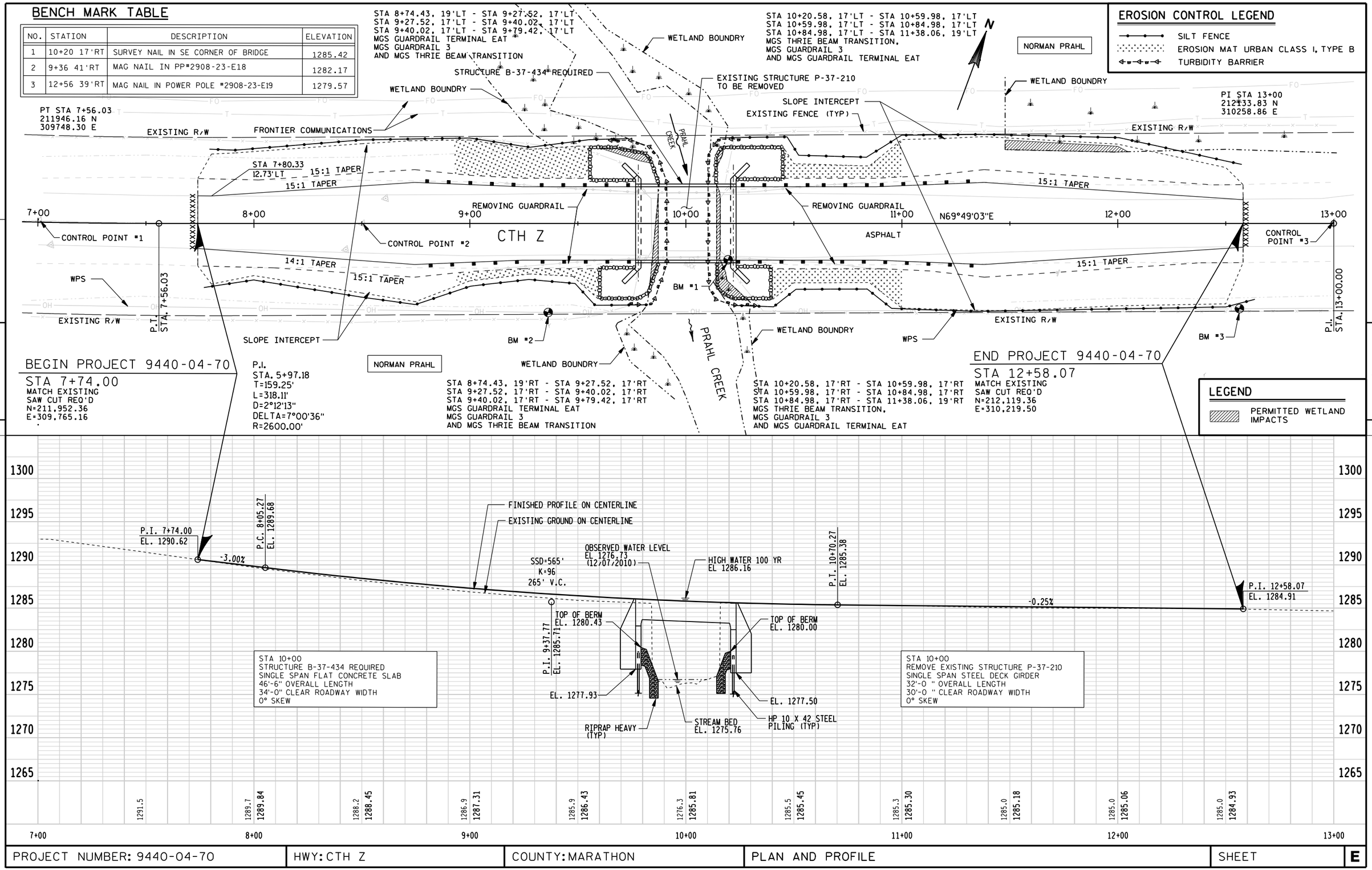
NO.	STATION	DESCRIPTION	ELEVATION
1	10+20 17'RT	SURVEY NAIL IN SE CORNER OF BRIDGE	1285.42
2	9+36 41'RT	MAG NAIL IN PP#2908-23-E18	1282.17
3	12+56 39'RT	MAG NAIL IN POWER POLE #2908-23-E19	1279.57

EROSION CONTROL LEGEND

- SILT FENCE
- EROSION MAT URBAN CLASS I, TYPE B
- TURBIDITY BARRIER

LEGEND

- PERMITTED WETLAND IMPACTS



PROJECT NUMBER: 9440-04-70	HWY: CTH Z	COUNTY: MARATHON	PLAN AND PROFILE	SHEET	E

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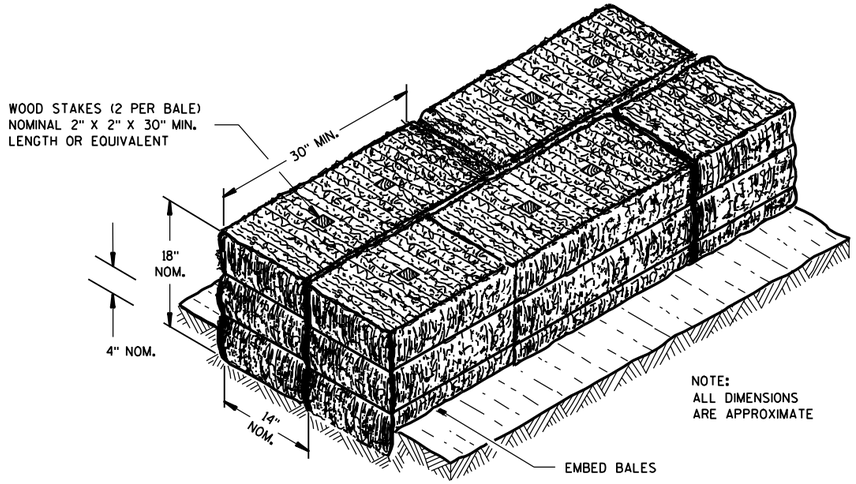
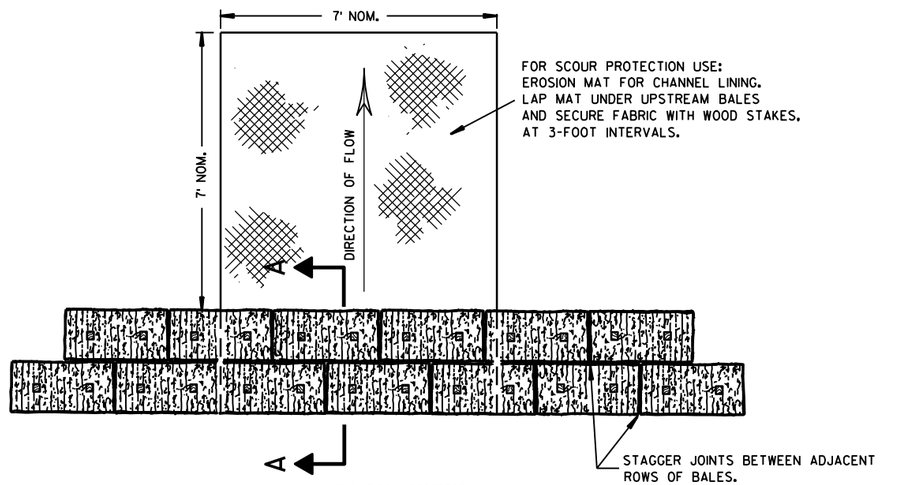
PLOT DATE: 3/20/2012
PLOT TIME: 10:57:57 AM
PLOT SCALE: 1:39.9999
WISDOT/CADDS SHEET 40

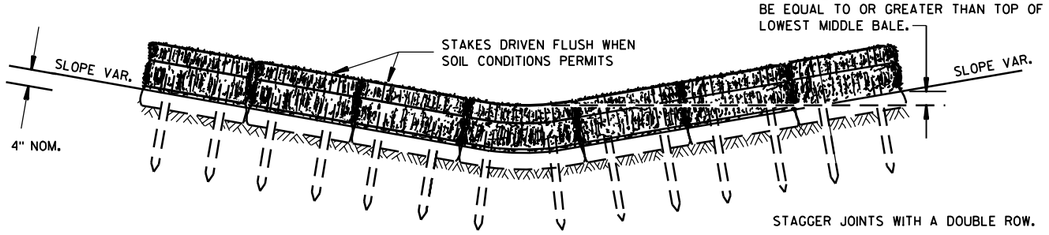
8E8: Typical Installations of Erosion Bales/Temporary Ditch Checks



SECTION A-A



PLAN VIEW



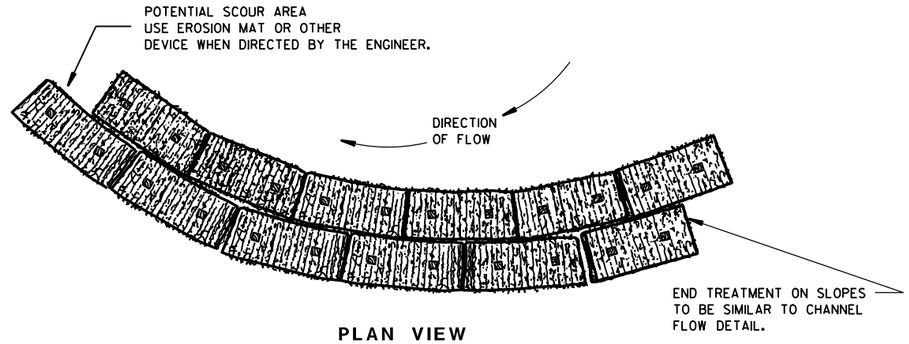
FRONT ELEVATION

TEMPORARY DITCH CHECK USING EROSION BALES ①

GENERAL NOTES

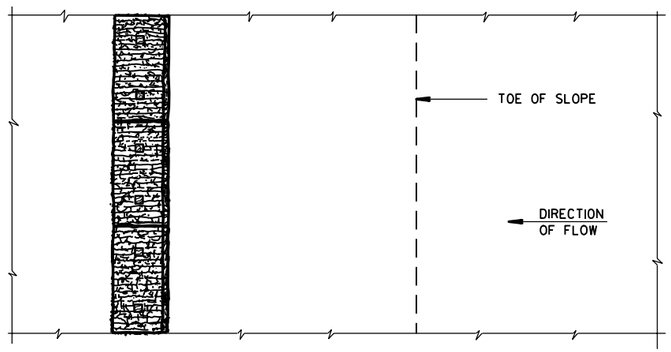
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

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

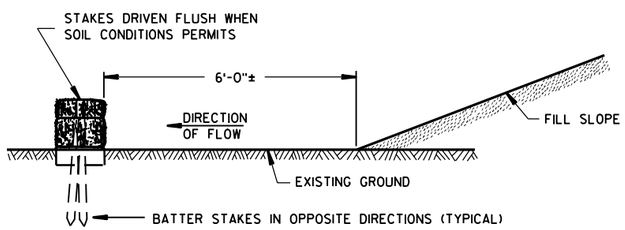


PLAN VIEW

WHEN ALTERING THE DIRECTION OF FLOW



PLAN VIEW



FRONT ELEVATION

WHEN EXISTING GROUND SLOPES AWAY FROM FILL SLOPE

EROSION BALES FOR SHEET FLOW

TYPICAL INSTALLATIONS OF EROSION BALES / TEMPORARY DITCH CHECKS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

DATE

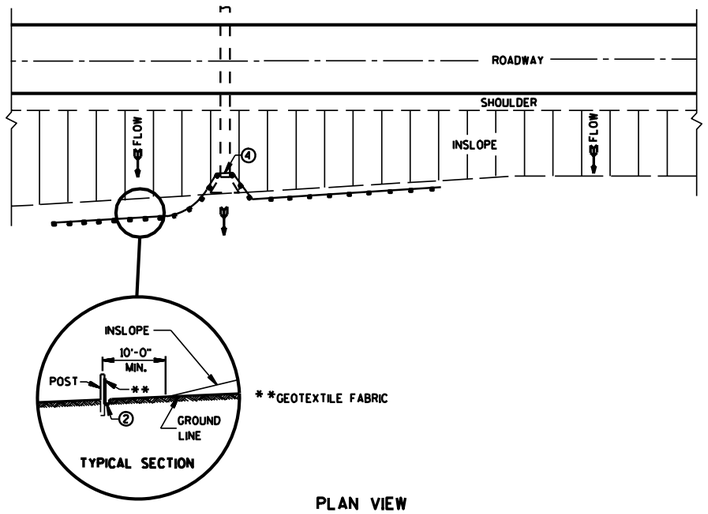
CHIEF ROADWAY DEVELOPMENT ENGINEER

FHWA

S.D.D. 8 E 8-3

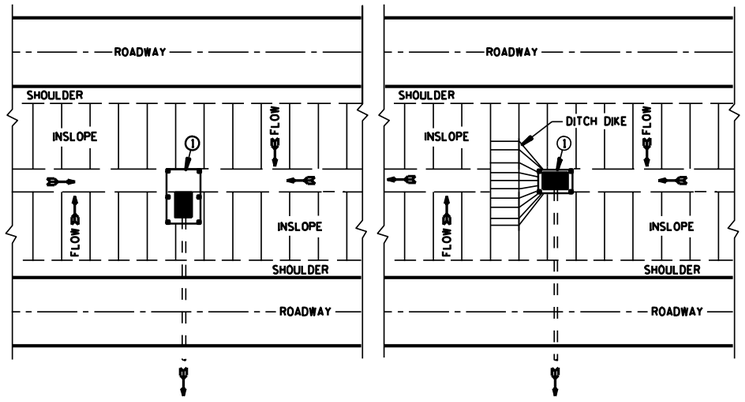
S.D.D. 8 E 8-3

8E9: Silt Fence



PLAN VIEW

TYPICAL APPLICATION OF SILT FENCE



PLAN VIEW

SILT FENCE AT MEDIAN SURFACE DRAINS

GENERAL NOTES

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

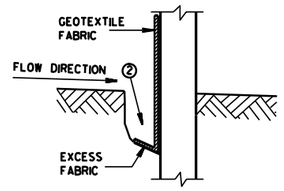
① HORIZONTAL BRACE REQUIRED WITH 2" X 4" WOODEN FRAME OR EQUIVALENT AT TOP OF POSTS.

② FOR MANUAL INSTALLATIONS THE TRENCH SHALL BE A MINIMUM OF 4" WIDE & 6" DEEP TO BURY AND ANCHOR THE GEOTEXTILE FABRIC. FOLD MATERIAL TO FIT TRENCH AND BACKFILL & COMPACT TRENCH WITH EXCAVATED SOIL.

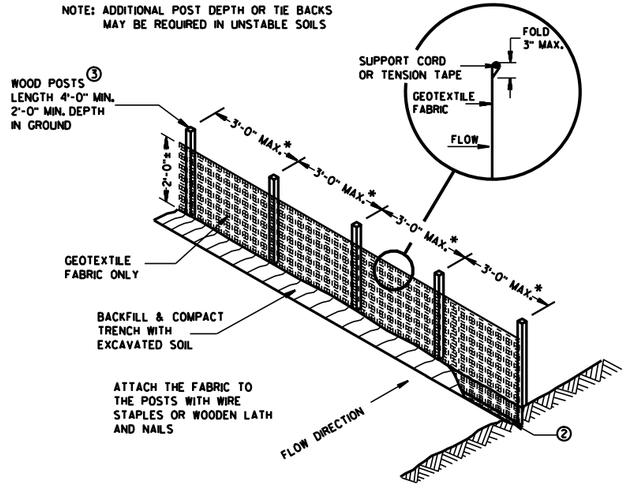
③ WOOD POSTS SHALL BE A MINIMUM SIZE OF 1⅛" X 1⅛" OF OAK OR HICKORY.

④ SILT FENCE TO EXTEND ACROSS THE TOP OF THE PIPE.

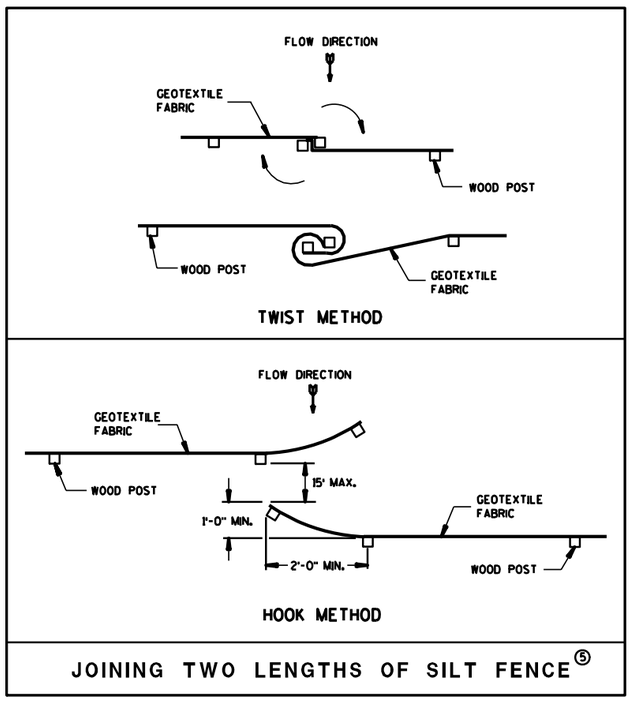
⑤ CONSTRUCT SILT FENCE FROM A CONTINUOUS ROLL IF POSSIBLE BY CUTTING LENGTHS TO AVOID JOINTS. IF A JOINT IS NECESSARY USE ONE OF THE FOLLOWING TWO METHODS: A) OVERLAP THE END POSTS AND TWIST, OR ROTATE, AT LEAST 180 DEGREES, B) HOOK THE END OF EACH SILT FENCE LENGTH.



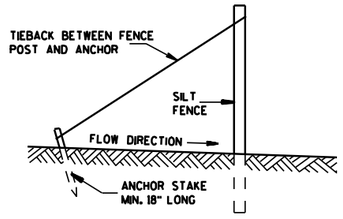
TRENCH DETAIL



SILT FENCE



JOINING TWO LENGTHS OF SILT FENCE ⑤



SILT FENCE TIE BACK
(WHEN REQUIRED BY THE ENGINEER)

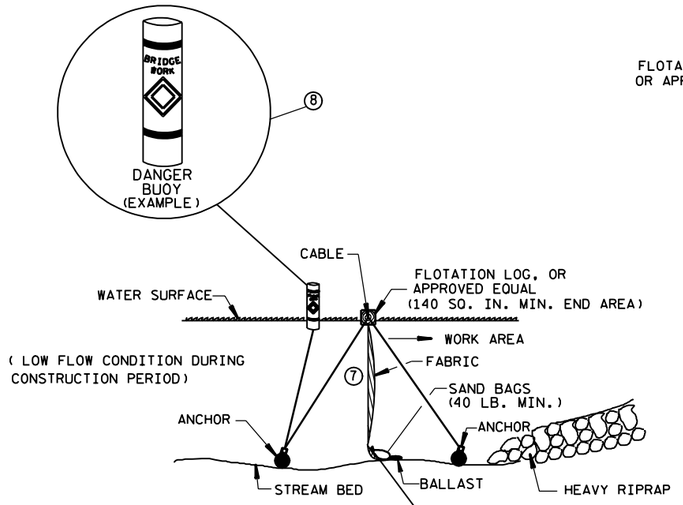
SILT FENCE	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED	
DATE	CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA	

S.D.D. 8 E 9-6

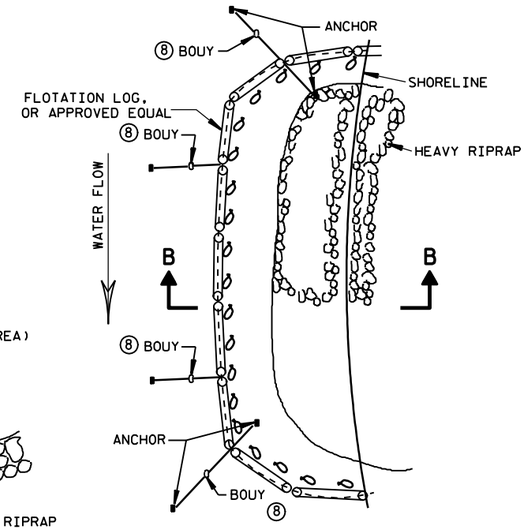
6

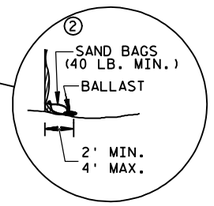
S.D.D. 8 E 9-6

8E11: Turbidity Barrier

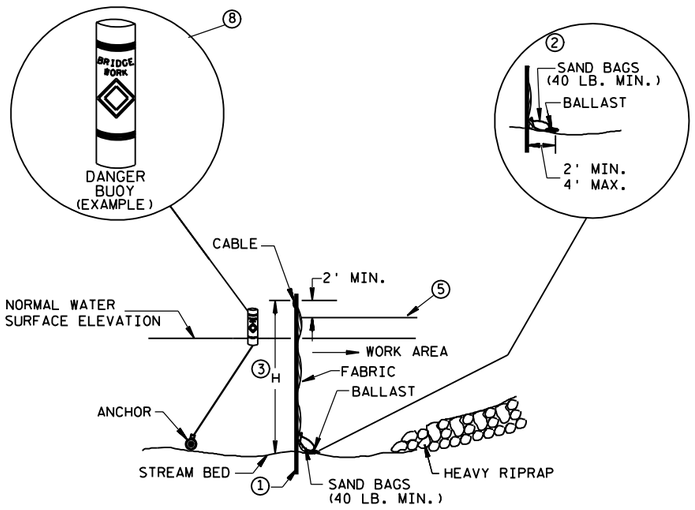


SECTION B-B

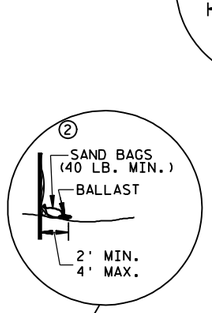


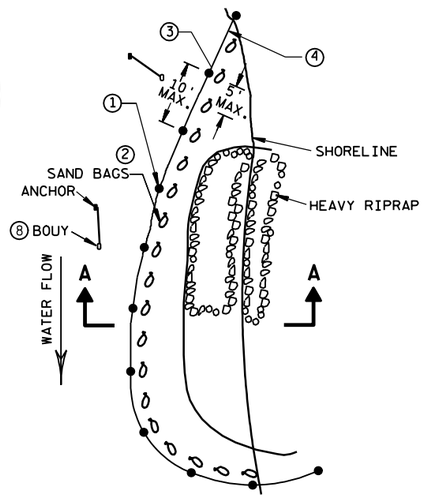


TURBIDITY BARRIER FLOAT ALTERNATIVE
CAUTION - SEE NOTE 6



SECTION A-A





PLAN VIEW

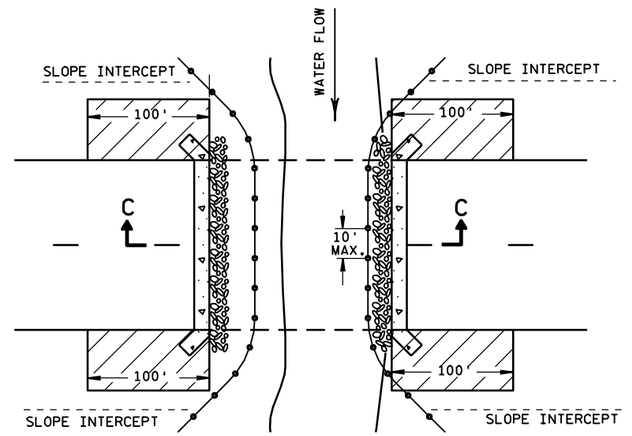
TURBIDITY BARRIER STANDARD POST INSTALLATION

GENERAL NOTES

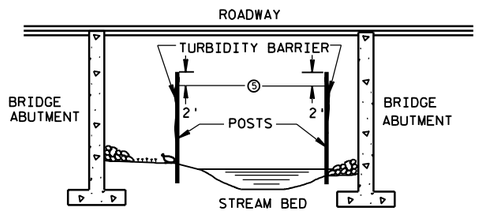
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

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 Q2 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 PLACEMENT DETAILS

TURBIDITY BARRIER

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

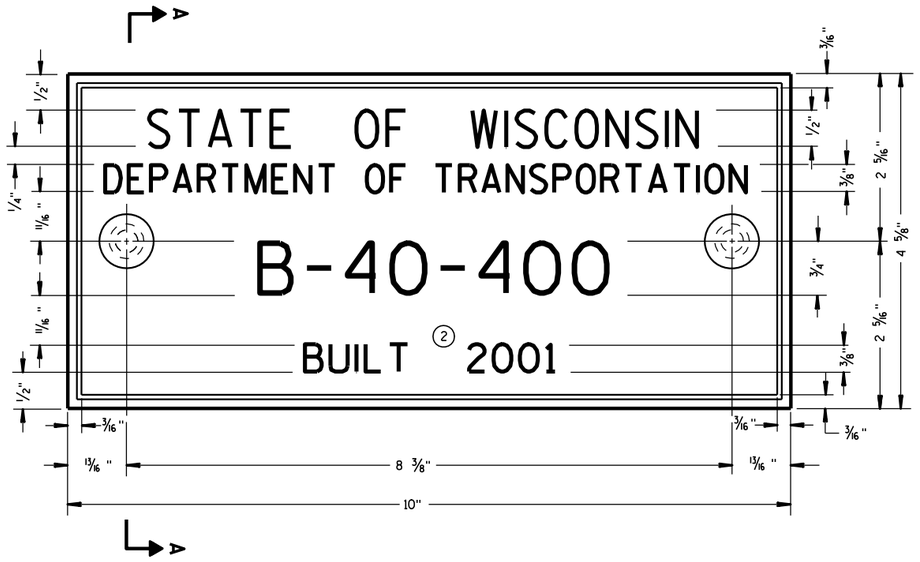
DATE

CHIEF ROADWAY DEVELOPMENT ENGINEER

FHWA

S.D.D. 8 E 11-2

S.D.D. 8 E 11-2



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

FOR MULTI-UNIT STRUCTURES
LINE 3 ABOVE SHALL READ

B = BRIDGE
C = CULVERT
R = RETAINING WALL

COUNTY NO.

BRIDGE NO.

UNIT NO. FOR MULTIPLE UNIT BRIDGE

B-40-400-1A

NUMBERING DESIGNATION
MULTI-UNIT STRUCTURES

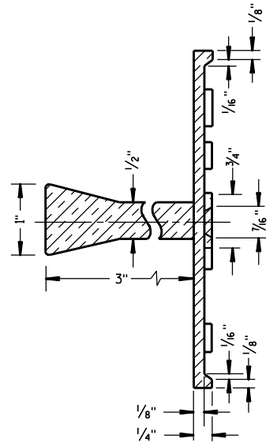
GENERAL NOTES

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

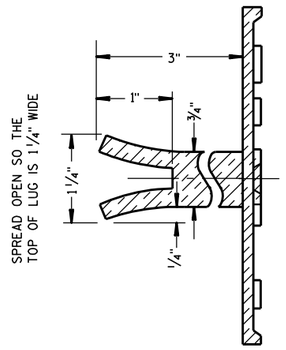
THE BRIDGE NUMBER AND YEAR BUILT SHOWN ON THIS DRAWING ARE EXAMPLES ONLY. SEE CONSTRUCTION PLANS FOR INDIVIDUAL NUMBERING AND YEAR BUILT.

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

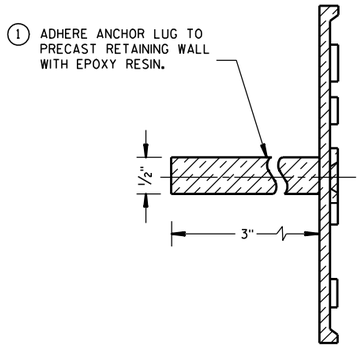
(2) REHABILITATION OF AN EXISTING STRUCTURE SHOULD USE THE DATE OF ORIGINAL STRUCTURE CONSTRUCTION.



SECTION A-A



ALTERNATE LUG



ALTERNATE LUG
(FOR ATTACHMENT TO PRECAST STRUCTURES)

NAME PLATE
(STRUCTURES)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
3/26/10 — DATE
/S/ Scot Becker — CHIEF STRUCTURAL DEVELOPMENT ENGINEER
FHWA

6

S.D.D. 12 A 3-10

6

S.D.D. 12 A 3-10

14B42 sheet a: Midwest Guardrail System (MGS) Installation Cross Sections, Post and Block Details

GENERAL NOTES

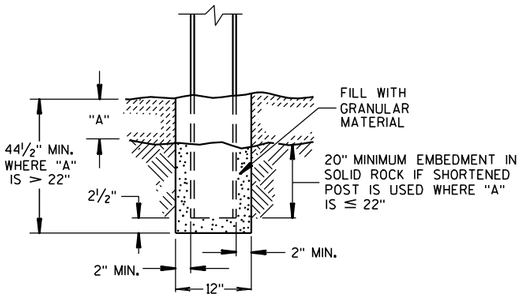
1. WOOD OR STEEL POSTS (w6X9 OR w6X8.5) MAY BE USED. DO NOT INTERMIX WOOD AND STEEL POSTS. INSTALL STEEL POSTS WITH HOLES ON APPROACHING TRAFFIC SIDE.

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.

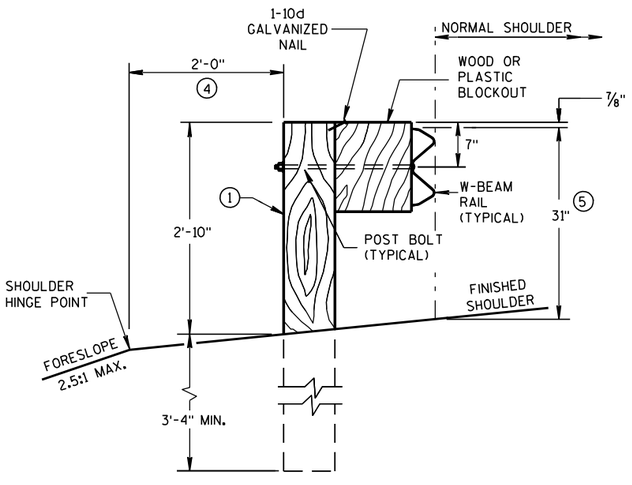
3. IF ROCK IS ENCOUNTERED DURING EXCAVATION, PROVIDE A HOLE 12 INCHES IN DIAMETER EXTENDING 20 INCHES DEEP INTO THE ROCK. PLACE APPROXIMATELY 2½INCHES OF GRANULAR MATERIAL IN THE BOTTOM OF THE HOLE. CUT THE POSTS THE TO LENGTH AMD INSTALL. BACKFILL WITH EXCAVATED MATERIAL AND COMPACT. BACKFILL IS TO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

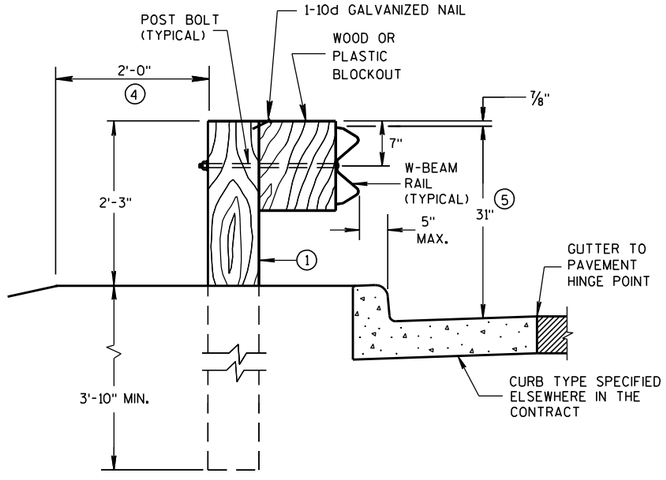
5. FOR NEW MGS INSTALLATION TOP OF W-BEAM RAIL TOLERANCE IS ± 1". FOR EXISTING MGS INSTALLATION TOP OF W-BEAM IS BETWEEN 27¾" TO 32".



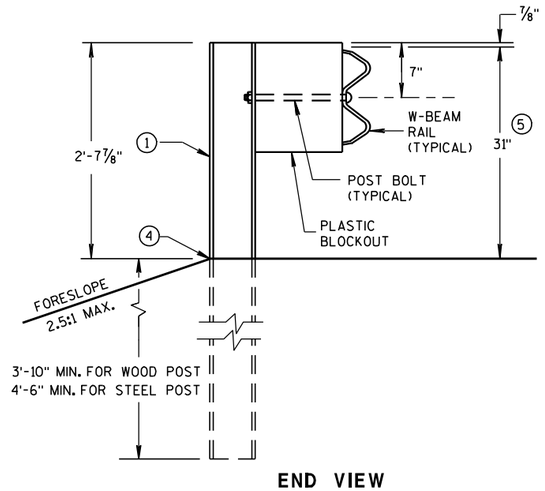
END VIEW
SETTING STEEL OR WOOD POST IN ROCK ③



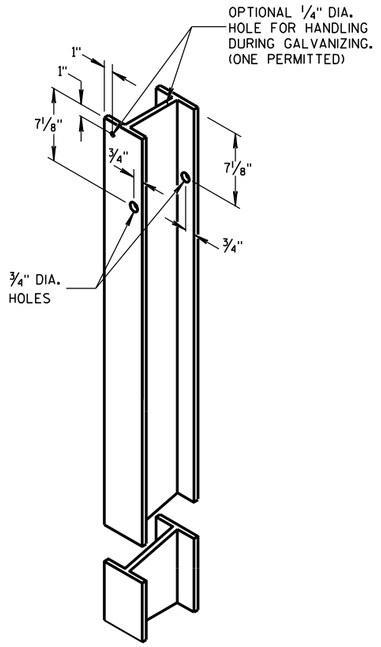
END VIEW
LOCATED ALONG A ROADWAY SHOULDER
STANDARD INSTALLATION



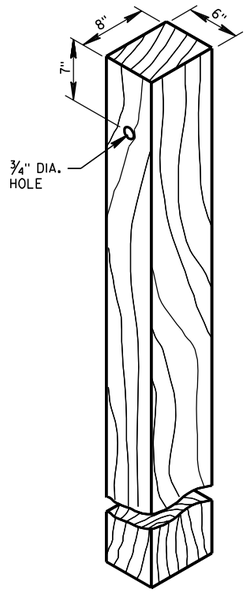
END VIEW
LOCATED ALONG A CURBED ROADWAY



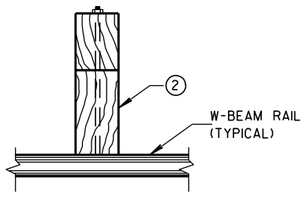
END VIEW
MGS LONGER POST AT HALFPOST SPACING W BEAM (K)



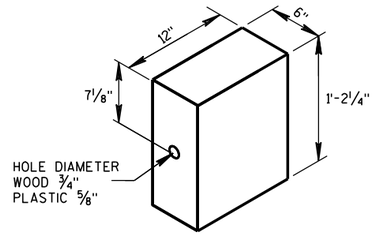
STEEL POST &
HOLE PUNCHING DETAIL
(w6X9) ①



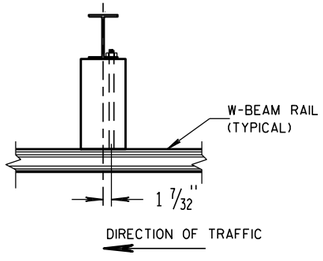
WOOD POST
(6" X 8") NOMINAL ①



PLAN VIEW
WOOD POST,
BLOCKOUT & BEAM



WOOD OR
PLASTIC BLOCKOUT ②



PLAN VIEW
STEEL POST,
PLASTIC BLOCKOUT & BEAM

MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL

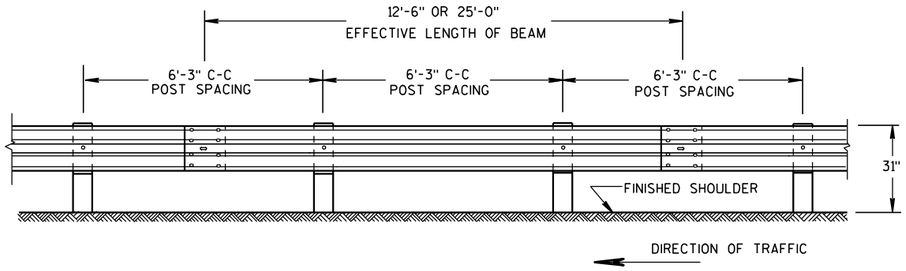
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

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

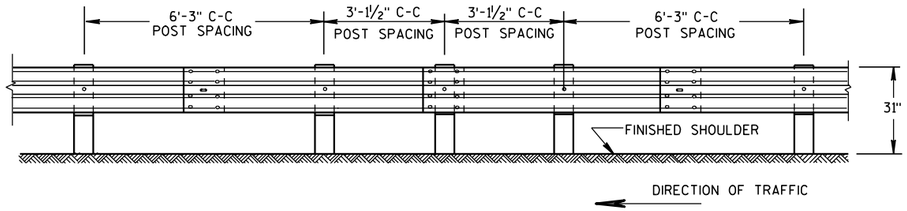
6

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



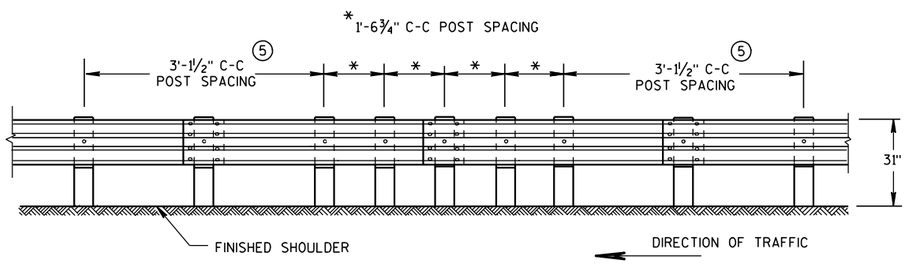
FRONT VIEW

POST SPACING STANDARD INSTALLATION



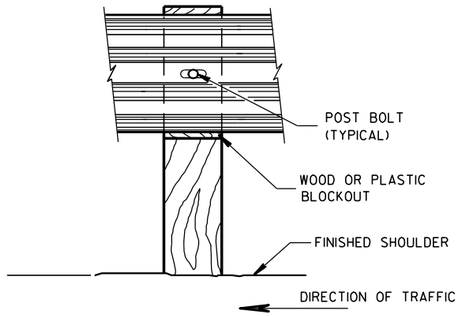
FRONT VIEW

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

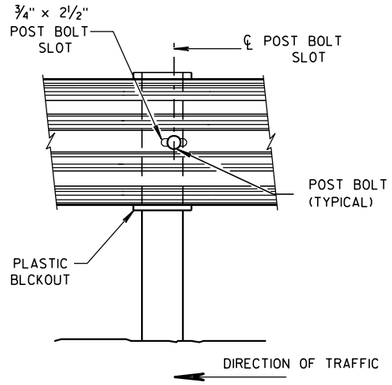


FRONT VIEW

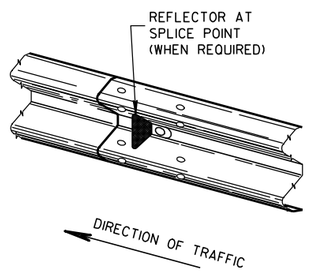
QUARTER POST SPACING (QS)

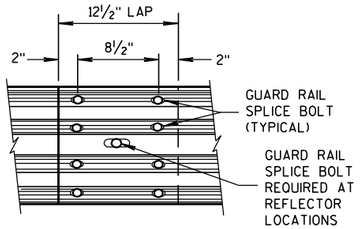


FRONT VIEW AT WOOD POST



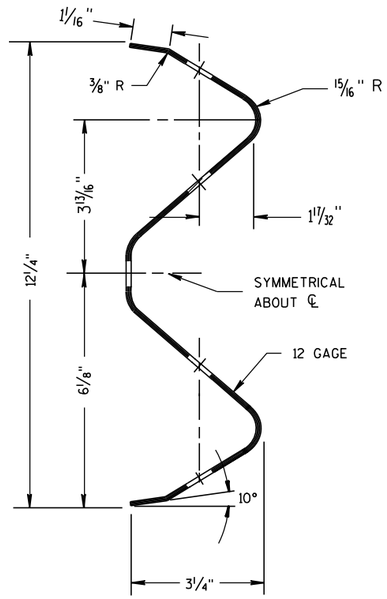
FRONT VIEW AT STEEL POST



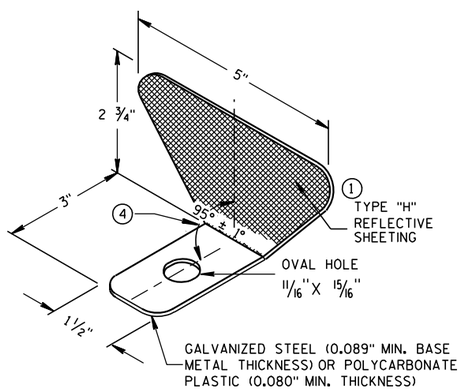


FRONT VIEW

MID-SPAN BEAM SPLICE



SECTION THRU W-BEAM RAIL



ONE SIDED REFLECTOR DETAIL AND TYPICAL INSTALLATION (1)

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

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

REFLECTOR SPACING (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 1 (3)	6
TWO WAY TRAFFIC	< 200' > 200'	50' C-C 100' C-C	2 2 (4)	3

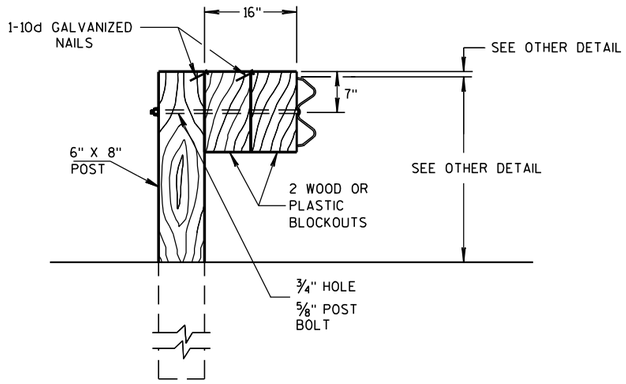
MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

6

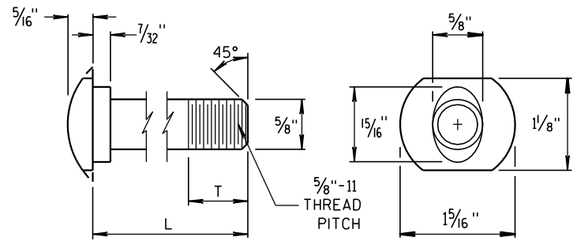
14B42 sheet c: Midwest Guardrail System (MGS) Post spacing, Reflector, W-beam rail, Bolt placement



DETAIL FOR 16" BLOCKOUT DEPTH

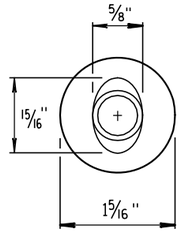
IT IS ACCEPTABLE TO USE BLOCKOUTS UP TO 16" DEEP TO INCREASE THE POST OFFSET TO AVOID UNDERGROUND OBSTACLES. THERE IS NO LIMIT TO THE NUMBER OF POSTS THAT CAN HAVE ADDITIONAL BLOCKOUTS UP TO 16" DEEP.

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.

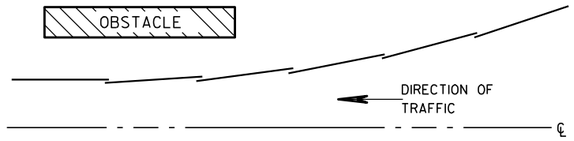


POST BOLT TABLE

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"

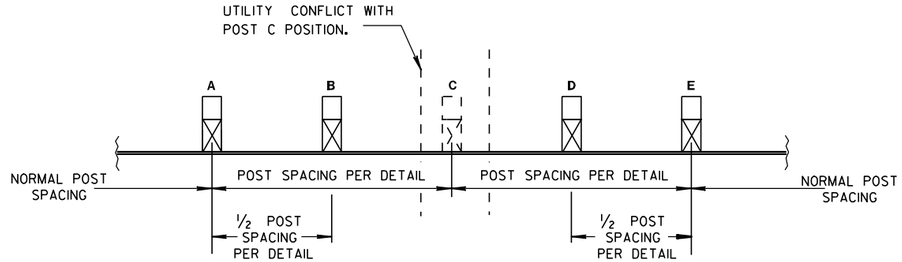


ALTERNATE BOLT HEAD

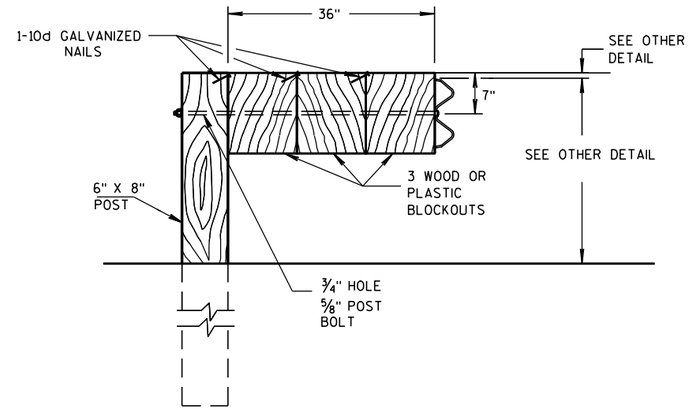


PLAN VIEW

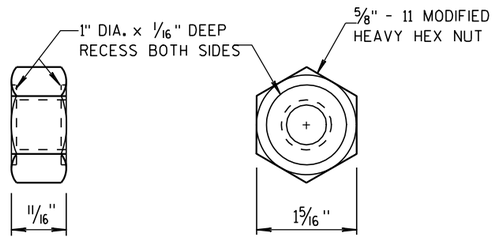
BEAM LAPPING DETAIL



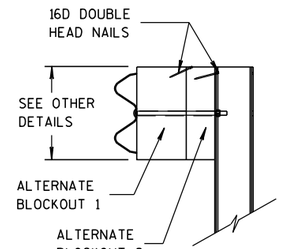
POST DRIVING FOR CONTINUOUS UNDERGROUND OBSTRUCTION



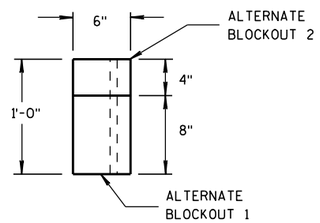
DETAIL FOR 36" BLOCKOUT DEPTH



POST BOLT AND RECESS NUT



SIDE VIEW



TOP VIEW

ALTERNATE WOOD BLOCKOUT DETAIL

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.

MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

11/15/2011
DATE

/S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT ENGINEER

FHWA

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

6

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

14B44 sheet a:

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.

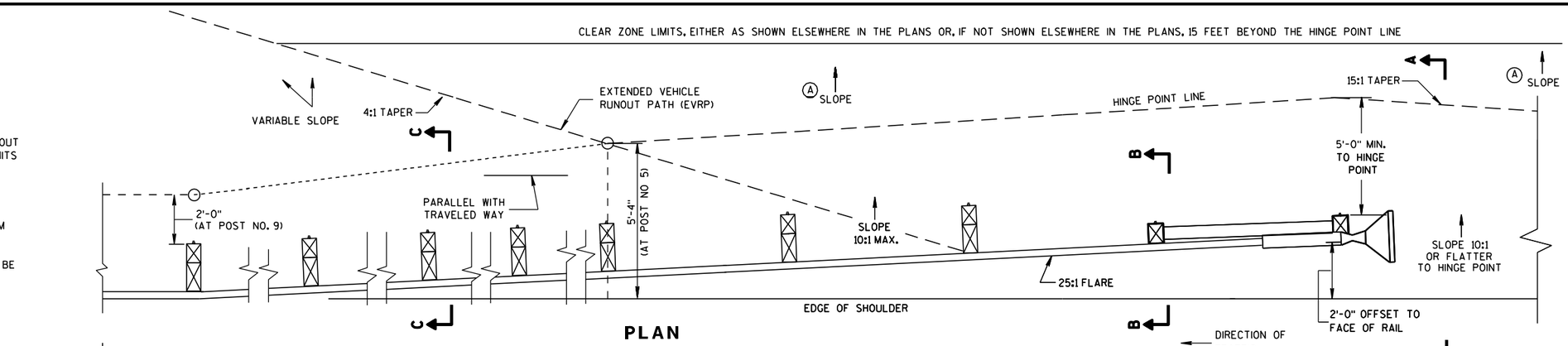
* DO NOT ATTACH BLOCKOUTS TO POSTS 1 AND 2.

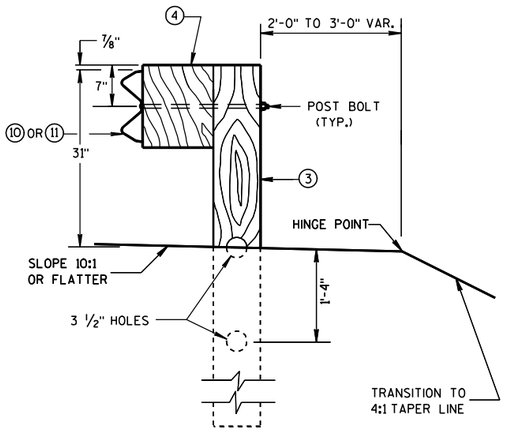
DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL.

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.

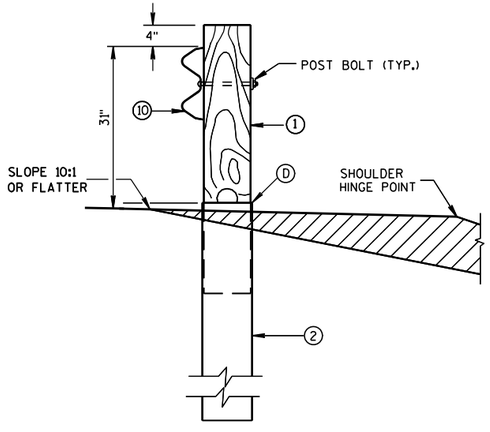
PATTERN AND COLORS ON REFLECTIVE SHEETING TYPE H ARE TO CONFORM TO OM3-L OR OM3-R OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

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

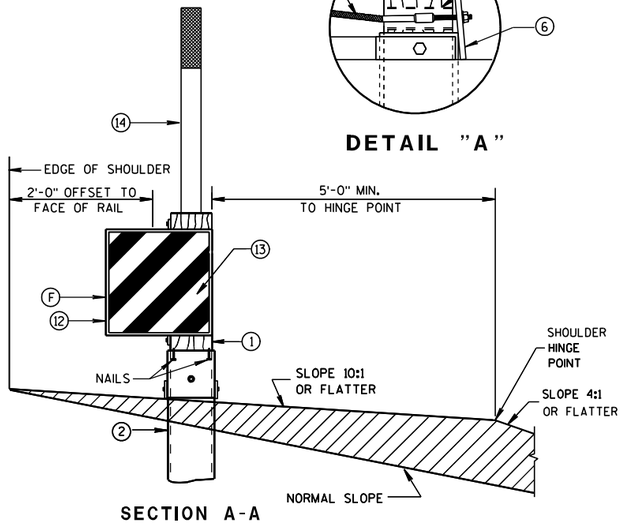




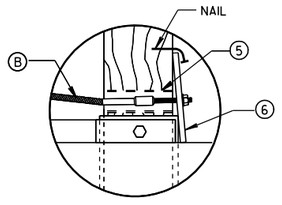
SECTION C-C
TYPICAL AT POST NOS. 3-9



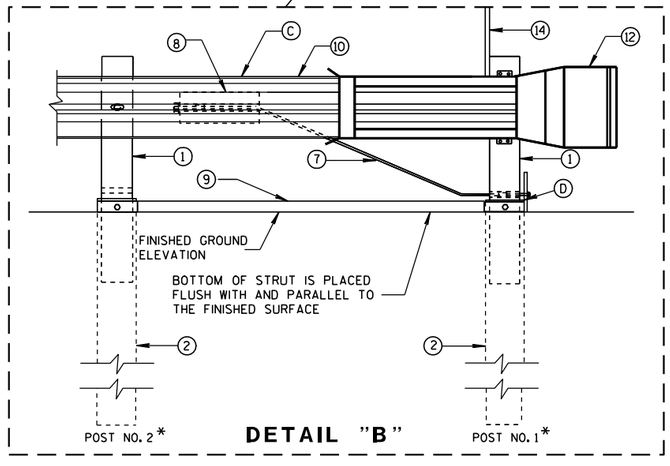
SECTION B-B
TYPICAL AT POST NO. 2*



SECTION A-A
TYPICAL AT POST NO. 1*



DETAIL "A"



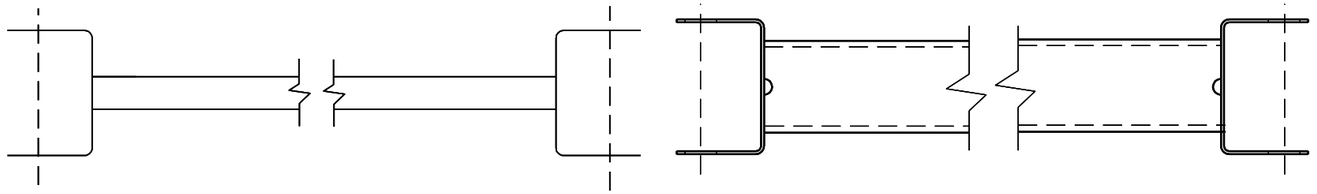
DETAIL "B"

MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

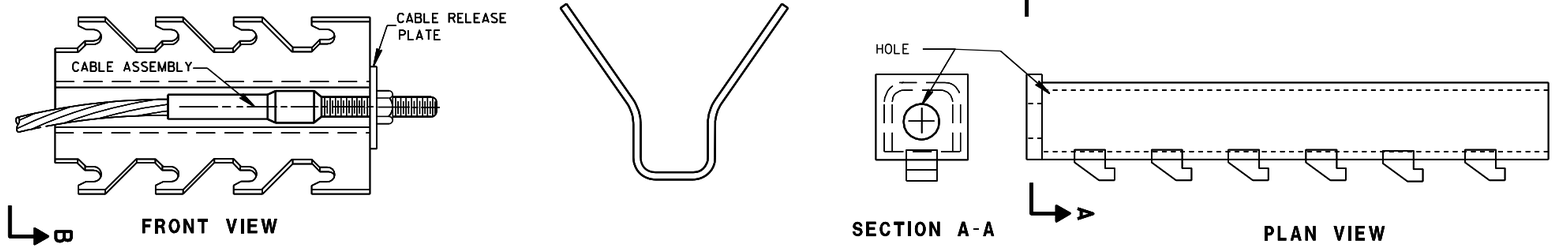
6



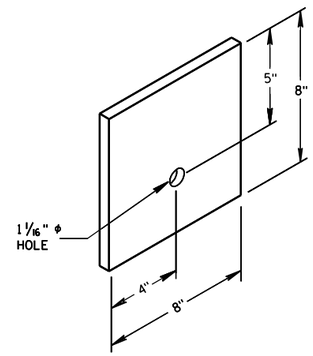
GENERIC GROUND STRUT (9) (H)

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)



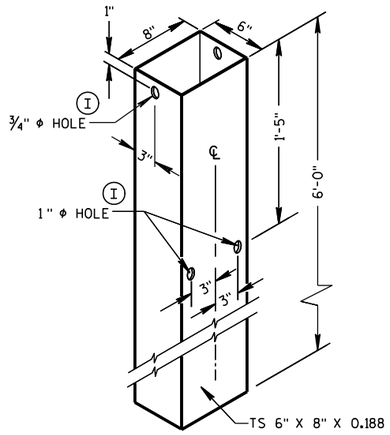
GENERIC ANCHOR CABLE BOX (8) (H)



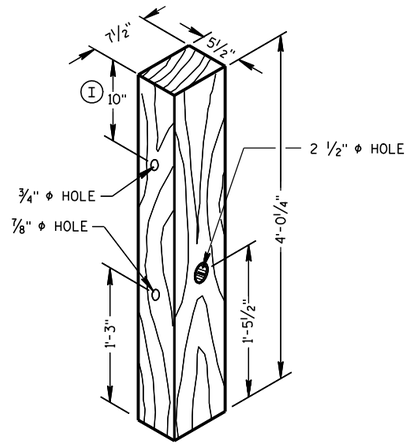
BEARING PLATE (6)

MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL
(MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

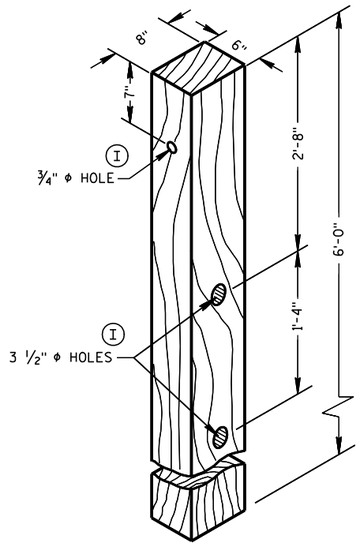


FOUNDATION TUBE (2)



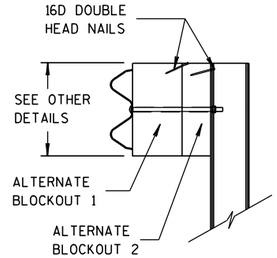
POSTS NUMBER 1 AND 2

WOOD BREAKAWAY POST (1)

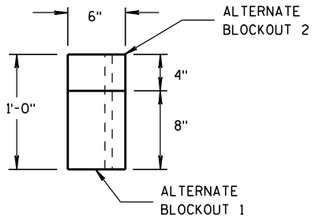


POSTS NUMBER 3-9

WOOD CRT POST (3)

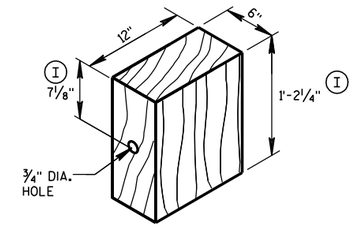


SIDE VIEW



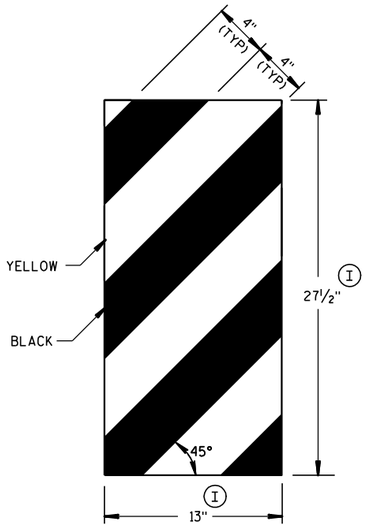
TOP VIEW

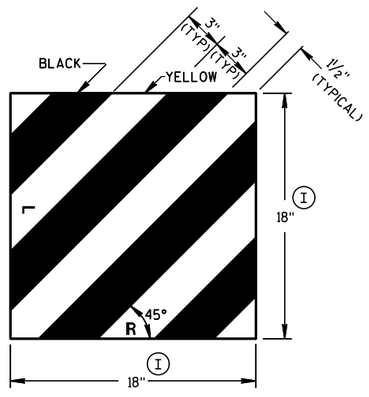
ALTERNATE WOOD BLOCKOUT DETAIL



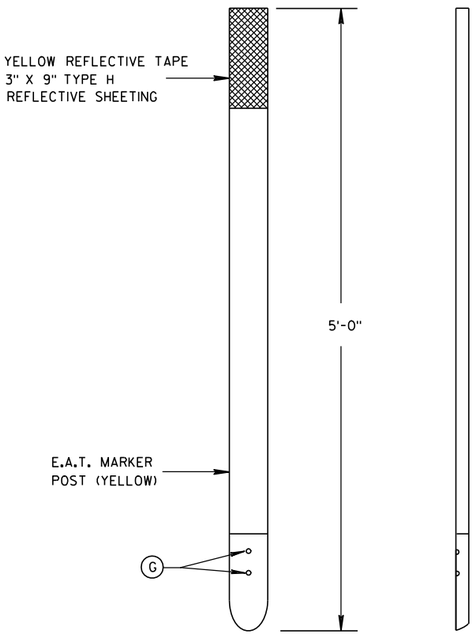
WOOD BLOCKOUT (4)

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





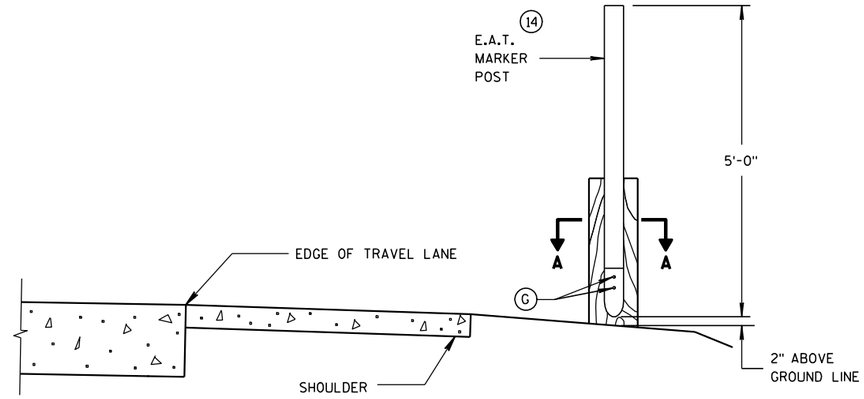
GENERIC REFLECTIVE SHEETING (13) (H)



FRONT VIEW

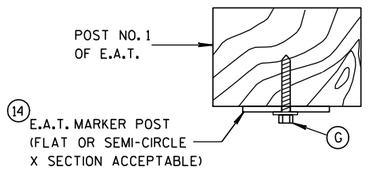
SIDE VIEW

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)



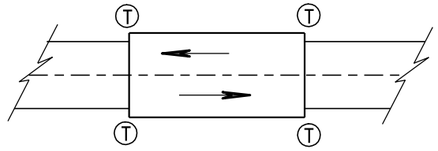
SECTION A-A

MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL
(MGS)

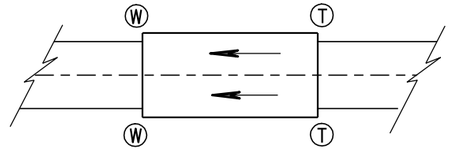
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
5/23/2011
DATE
/S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA

14B45 sheet a: Midwest Guardrail System (MGS) Thrie Beam Transition: Layout



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

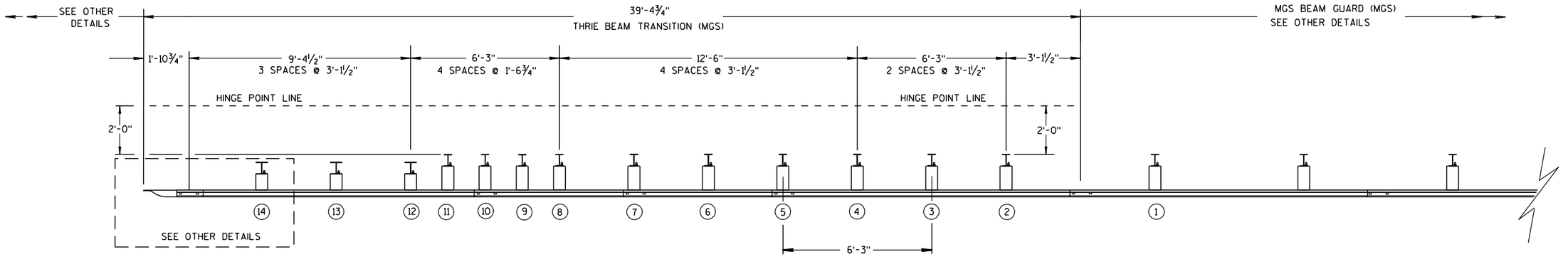
BOLT THE THRIE BEAM TO ALL POSTS AND BLOCKOUTS. DRILL OR PUNCH BOLT HOLES IN THE BEAM IF THE POST SPACING IS LESS THAN 6'-3.

IF ROCK IS ENCOUNTERED DURING EXCAVATION, SEE STANDARD DETAIL DRAWING 14 B 42.

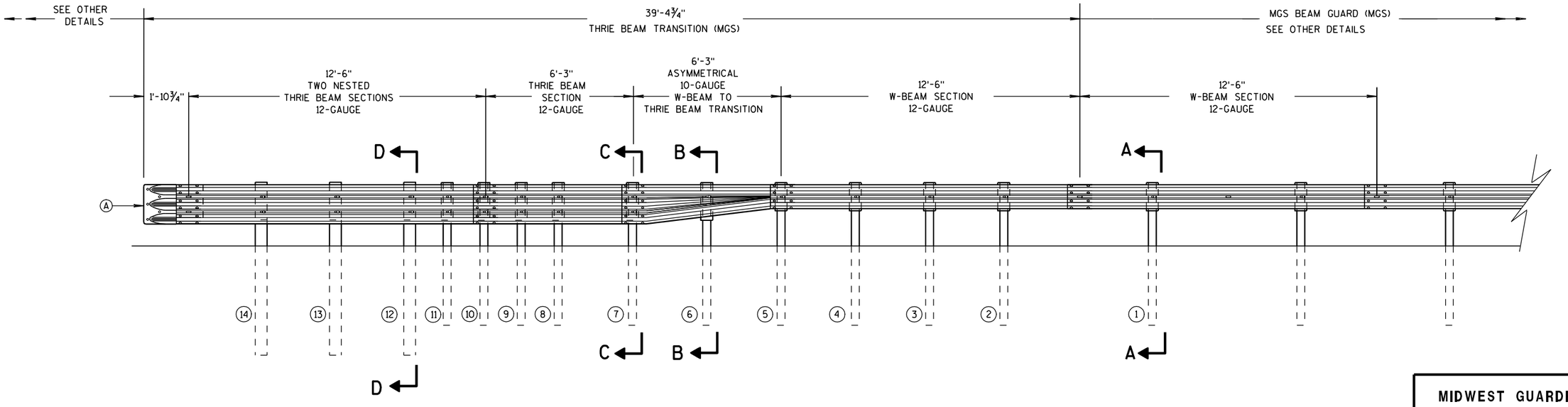
TRANSITION USES STEEL POSTS ONLY.

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

6

S.D.D. 14 B 45-2a

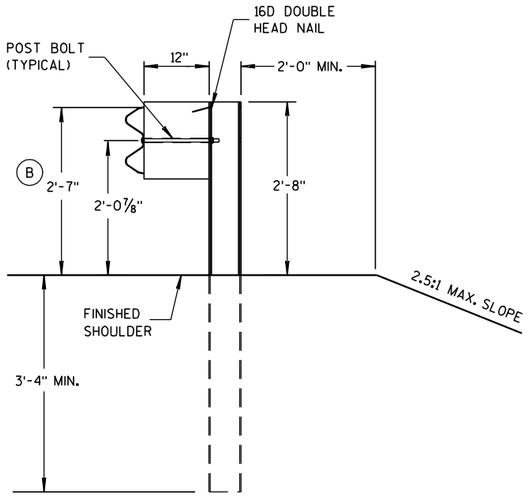
6

S.D.D. 14 B 45-2a

14B45 sheet b: Midwest Guardrail System (MGS) Thrie Beam Transition: Cross Sections, Thrie Beam Details, Splice Detail

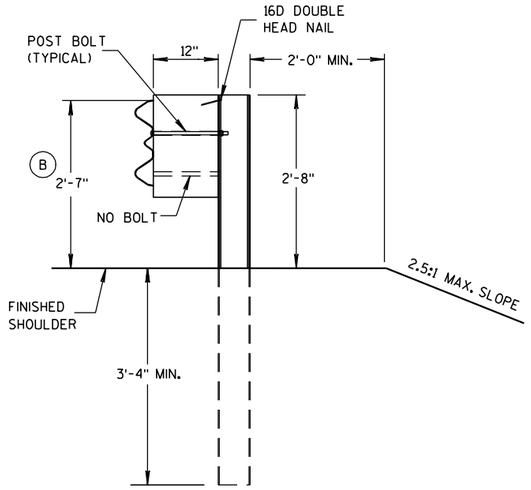
GENERAL NOTES

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



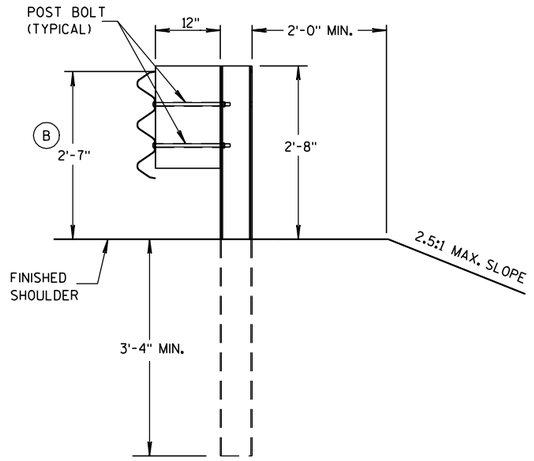
SECTION A-A

POSTS 1-5



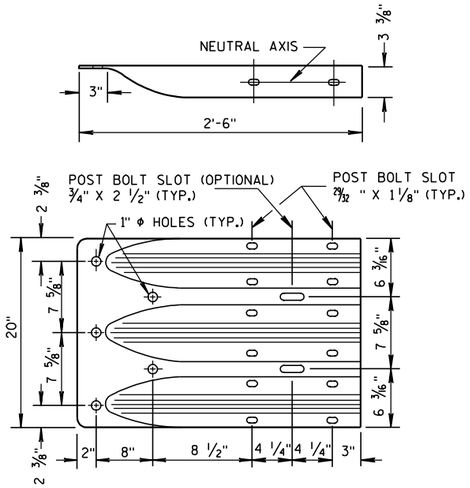
SECTION B-B

POST 6

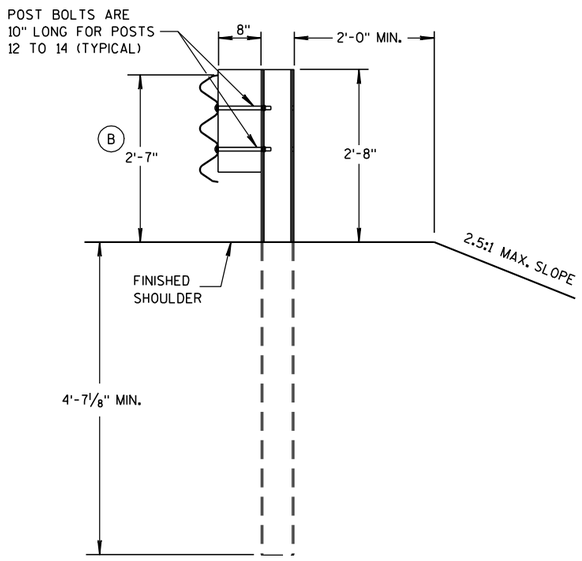


SECTION C-C

POSTS 7-11

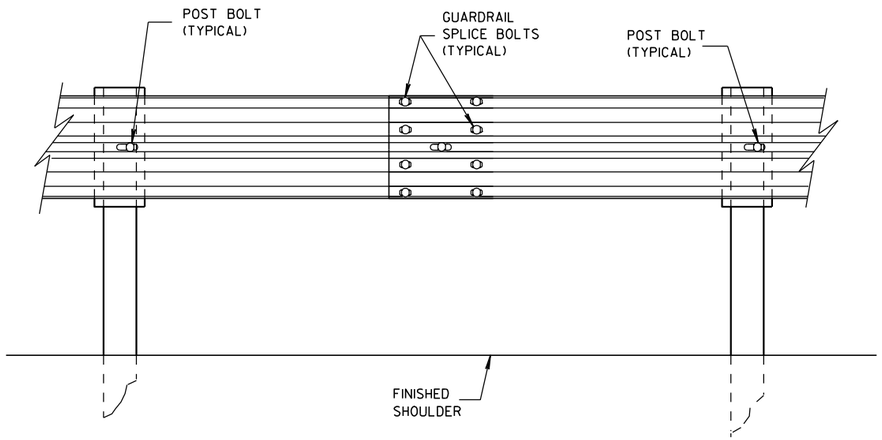


THRIE BEAM TERMINAL CONNECTOR



SECTION D-D

POSTS 12-14



SPLICE DETAIL

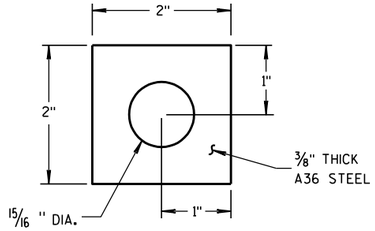
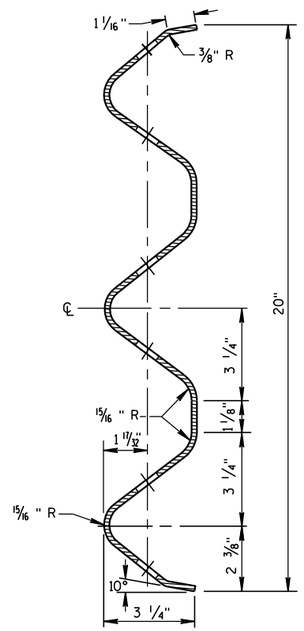


PLATE WASHER DETAIL



SECTION THRU THRIE BEAM RAIL ELEMENT

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

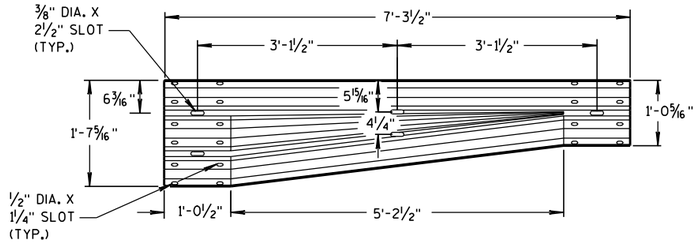
6

S.D.D. 14 B 45-2b

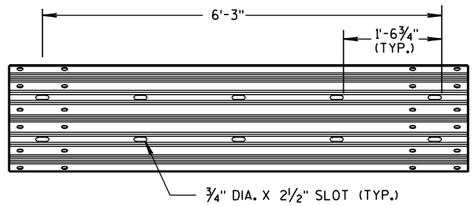
6

S.D.D. 14 B 45-2b

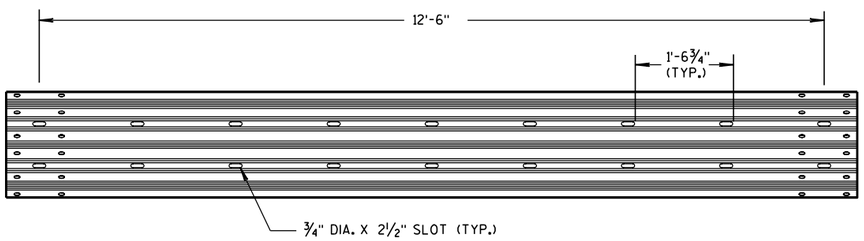
14B45 sheet c: Midwest Guardrail System (MGS) Thrie Beam Transition: Thrie Beam Details, Post Details, Block Details



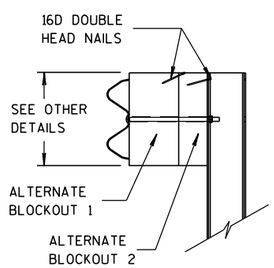
W-BEAM TO THRIE BEAM TRANSITION SECTION



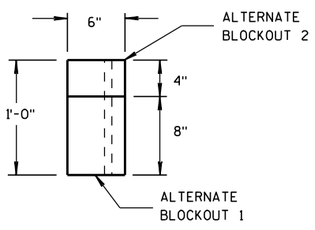
6'-3" THRIE BEAM SECTION



12'-6" THRIE BEAM SECTION

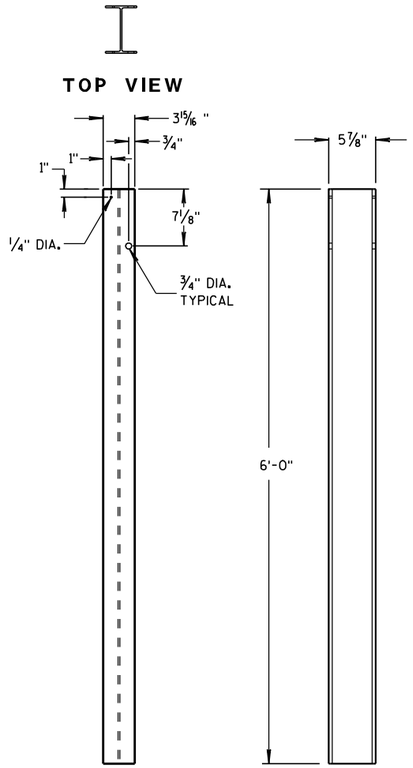


SIDE VIEW

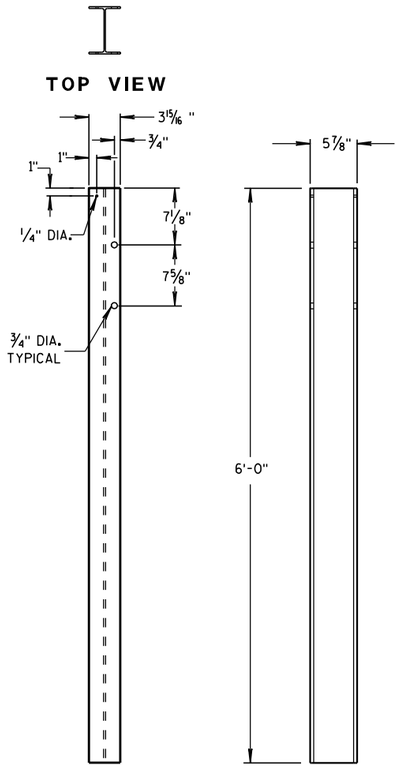


TOP VIEW

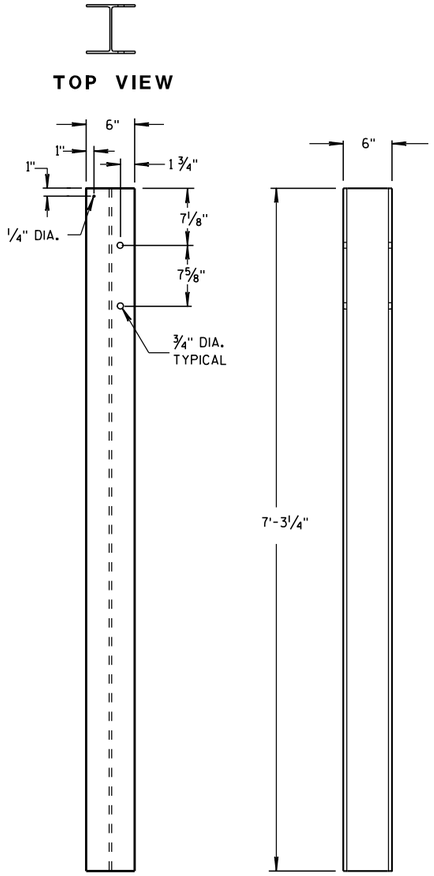
ALTERNATE WOOD BLOCKOUT DETAIL



STEEL POSTS 1-5

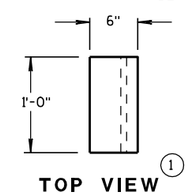


STEEL POSTS 6-11

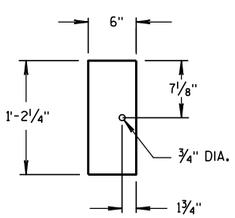


STEEL POSTS 12-14

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

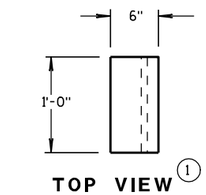


TOP VIEW (1)

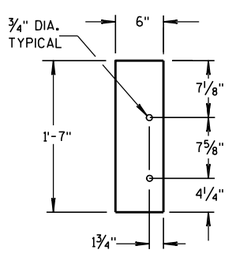


FRONT VIEW

BLOCKOUT POSTS 1-5

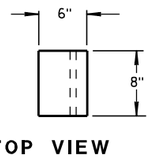


TOP VIEW (1)

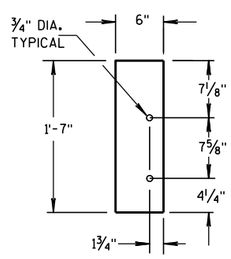


FRONT VIEW

BLOCKOUT POSTS 6-11



TOP VIEW



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 45-2c

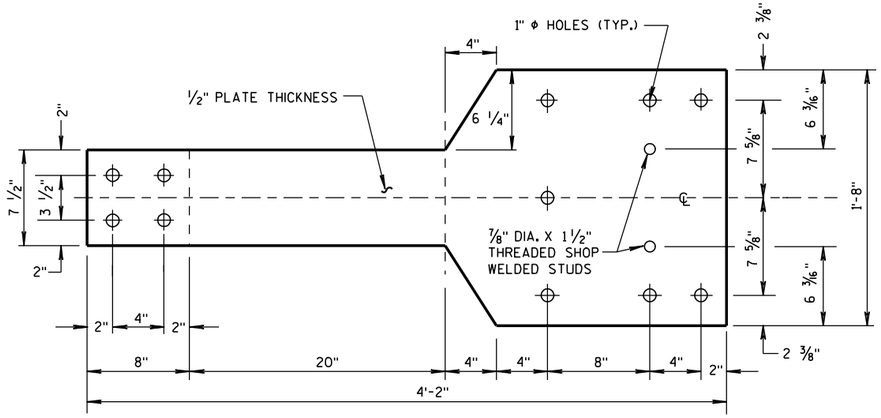
6

S.D.D. 14 B 45-2c

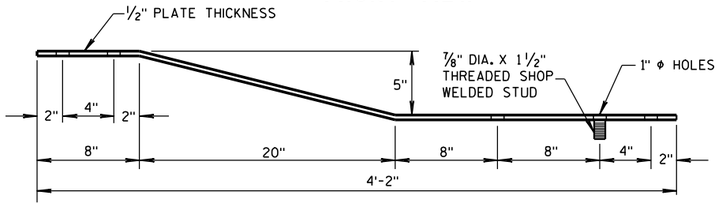
14B45 sheet h: Midwest Guardrail System (MGS) Thrie Beam Transition: Connection to M Bridge Parapet

GENERAL NOTES

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

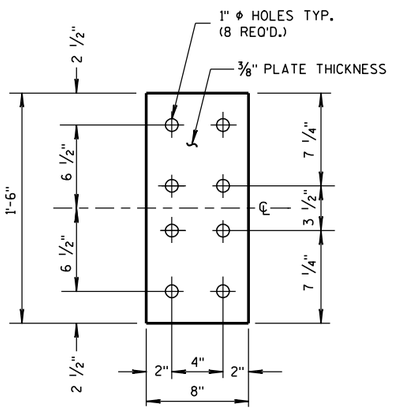


FRONT VIEW



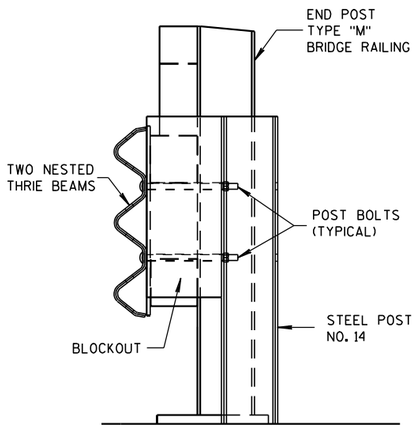
PLAN VIEW

BACK-UP PLATE DETAIL, TYPE "M"

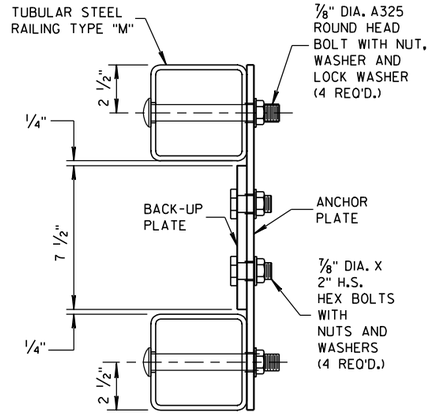


FRONT VIEW

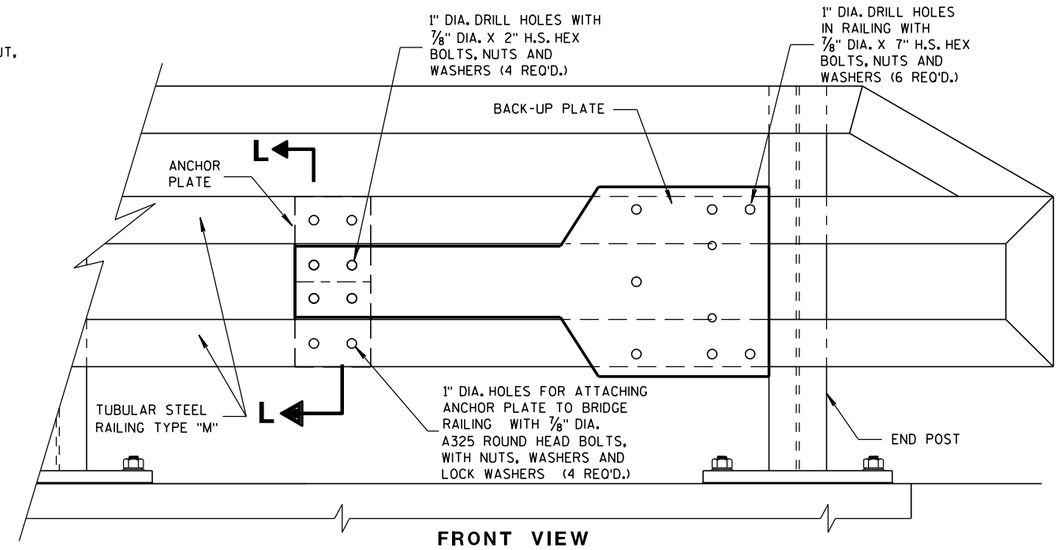
ANCHOR PLATE DETAIL, TYPE "M"



SECTION M-M

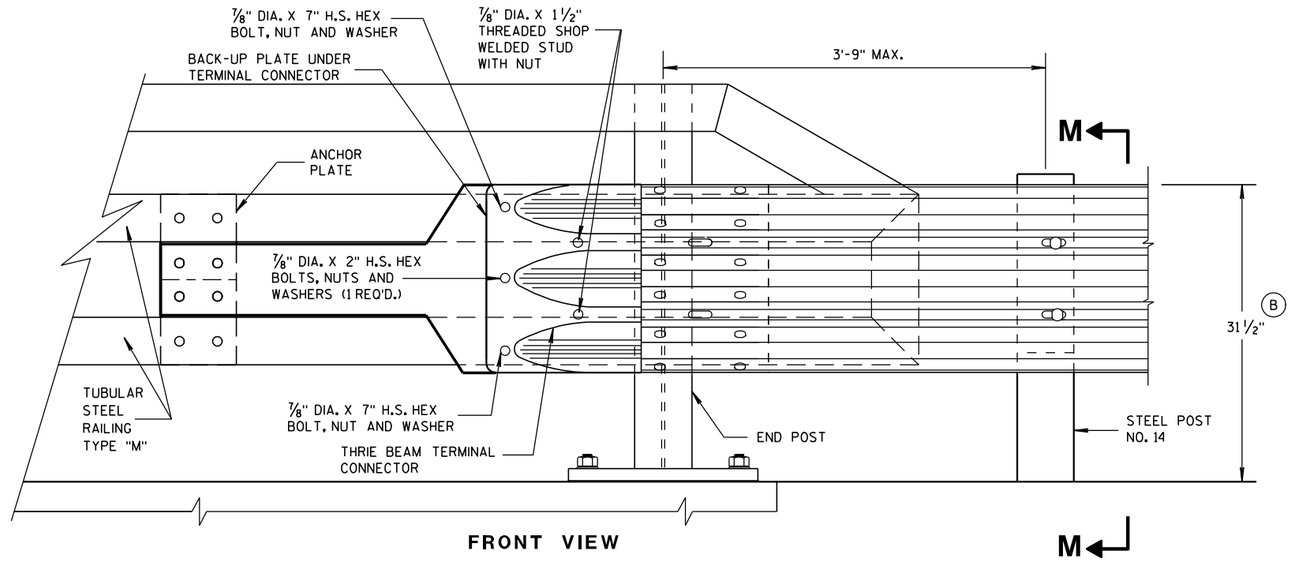


SECTION L-L

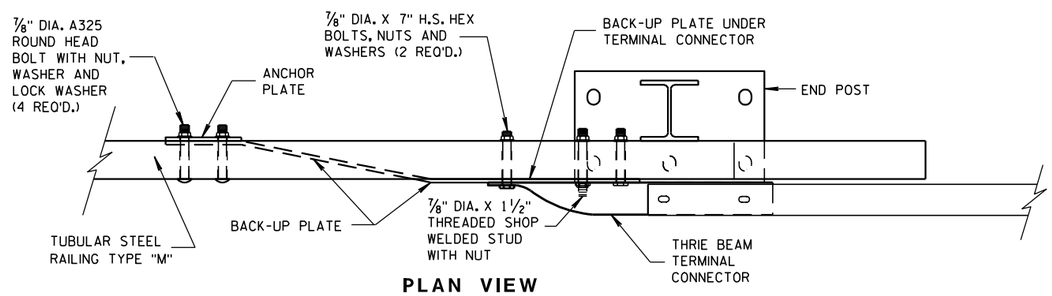


FRONT VIEW

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	
2-8-2012 DATE	/S/ Jerry H. Zogg ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA	

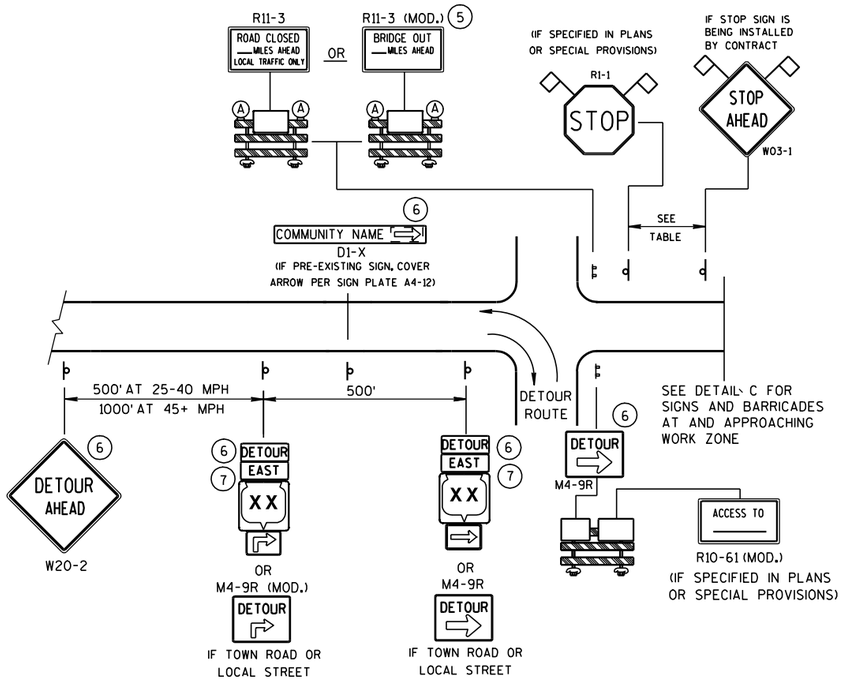
6

S.D. 14 B 45-2h

6

S.D. 14 B 45-2h

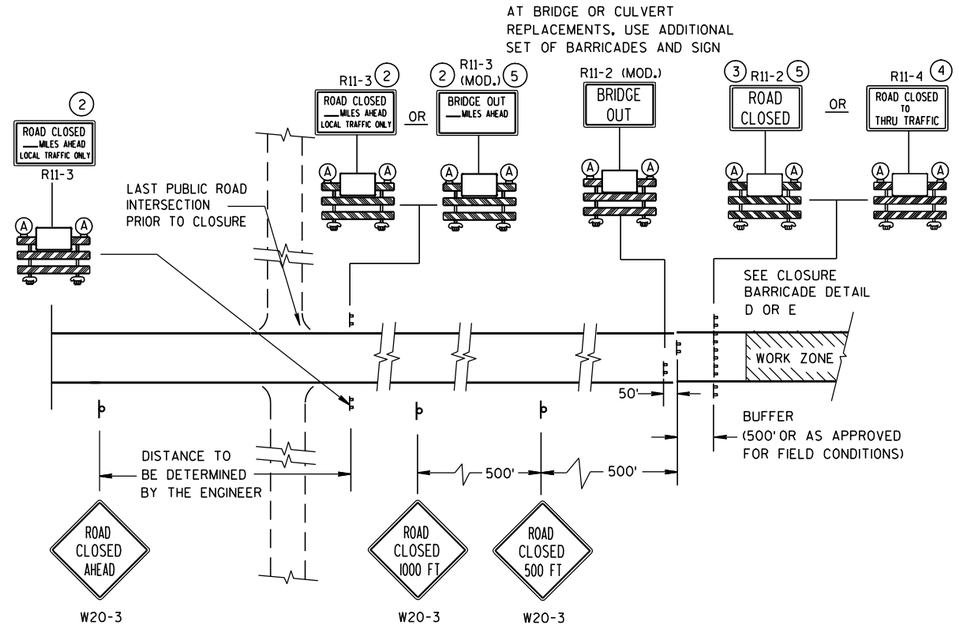
15C2 sheet a: Barricades and Signs for Mainline Closures



DETAIL A

MAINLINE CLOSURE WITH POSTED DETOUR

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

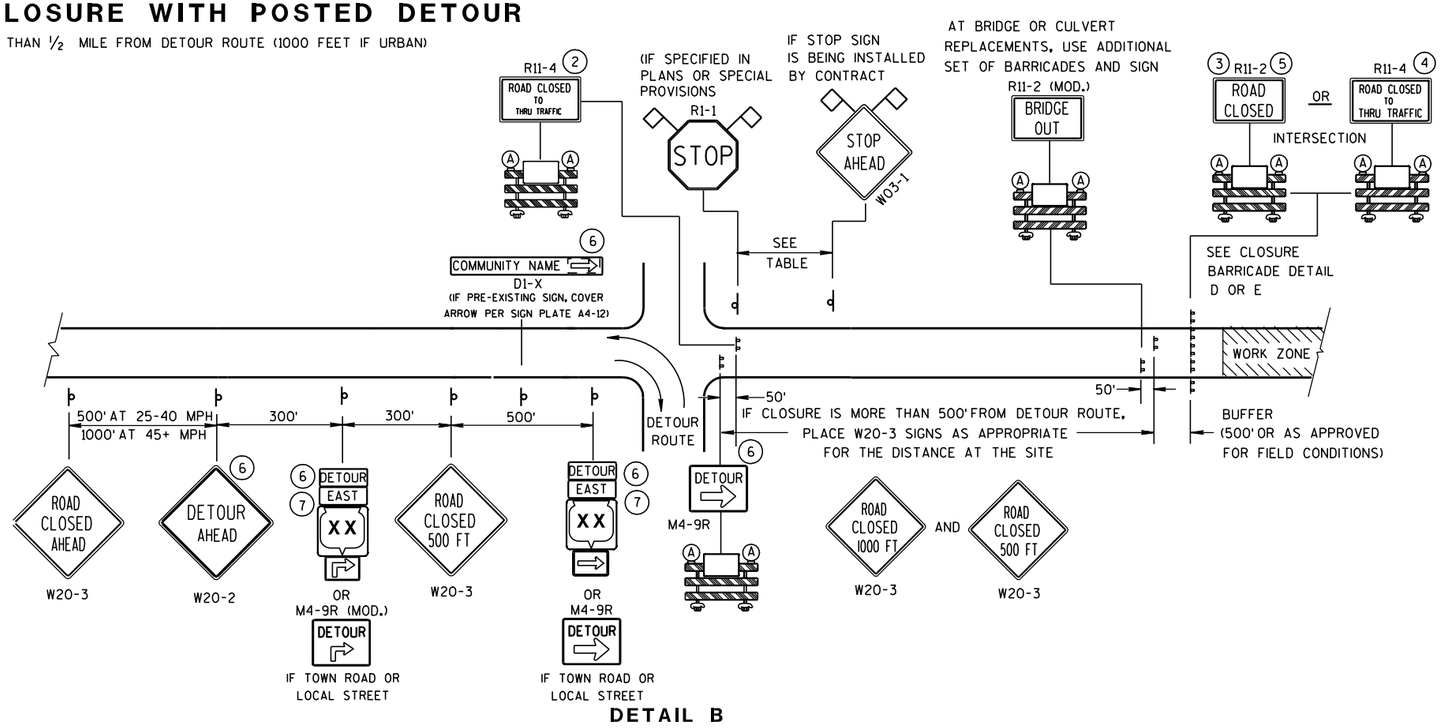


DETAIL C

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 15C2-4b
FOR GENERAL NOTES
AND FOOTNOTES ① THROUGH ⑦



DETAIL B

MAINLINE CLOSURE WITH POSTED DETOUR

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

LEGEND

- POST MOUNTED SIGN
- TYPE III BARRICADES
- (A) TYPE "A" LOW INTENSITY FLASHING WARNING LIGHT (FOR NIGHT USE)
- WORK ZONE
- DETOUR / EAST — M4-8 / M3-X
- XX — M1-4; COUNTY XX — M1-5A; XX — M1-6
- M05-1; M06-1
- FLAGS, 16" X 16" MIN., (ORANGE)

BARRICADES AND SIGNS FOR MAINLINE CLOSURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

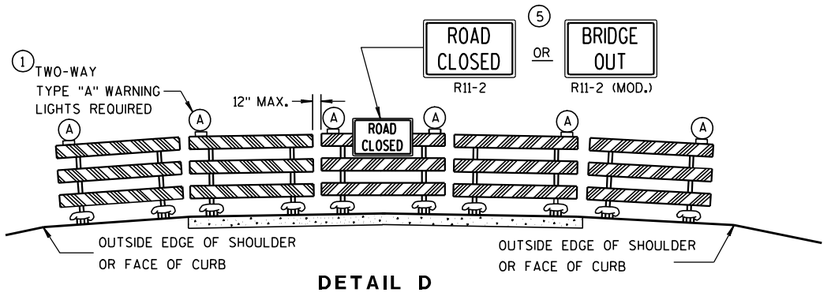
6

S.D.D. 15 C 2-4a

6

S.D.D. 15 C 2-4a

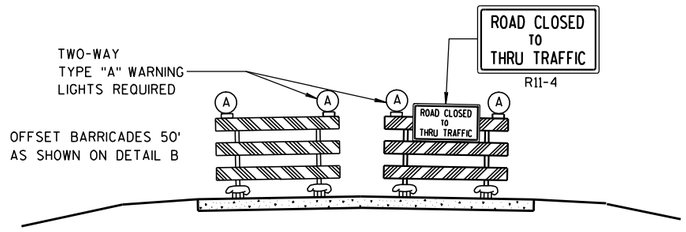
15C2 sheet b: Barricades and Signs for Mainline Closures



DETAIL D

ROAD CLOSURE BARRICADE DETAIL

APPROACH VIEW



DETAIL E

LANE CLOSURE BARRICADE DETAIL

APPROACH VIEW

SEE SDD 15C2-4a 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.

THE REFLECTIVE SHEETING USED ON R11-2, R11-3, R11-4, R10-61 AND R1-1 SIGNS SHALL COMPLY WITH SUBSECTION 637.2.2.2 OF THE STANDARD SPECIFICATIONS.

"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 AND 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

APPROVED

9/16/03
DATE

/S/ Thomas N. Notbohm
CHIEF SIGNS AND MARKING ENGINEER

FHWA

6

S.D.D. 15 C 2-4b

6

S.D.D. 15 C 2-4b

15C2 sheet c: Detour Signing for Mainline Closures

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

GENERAL NOTES

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

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

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

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

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

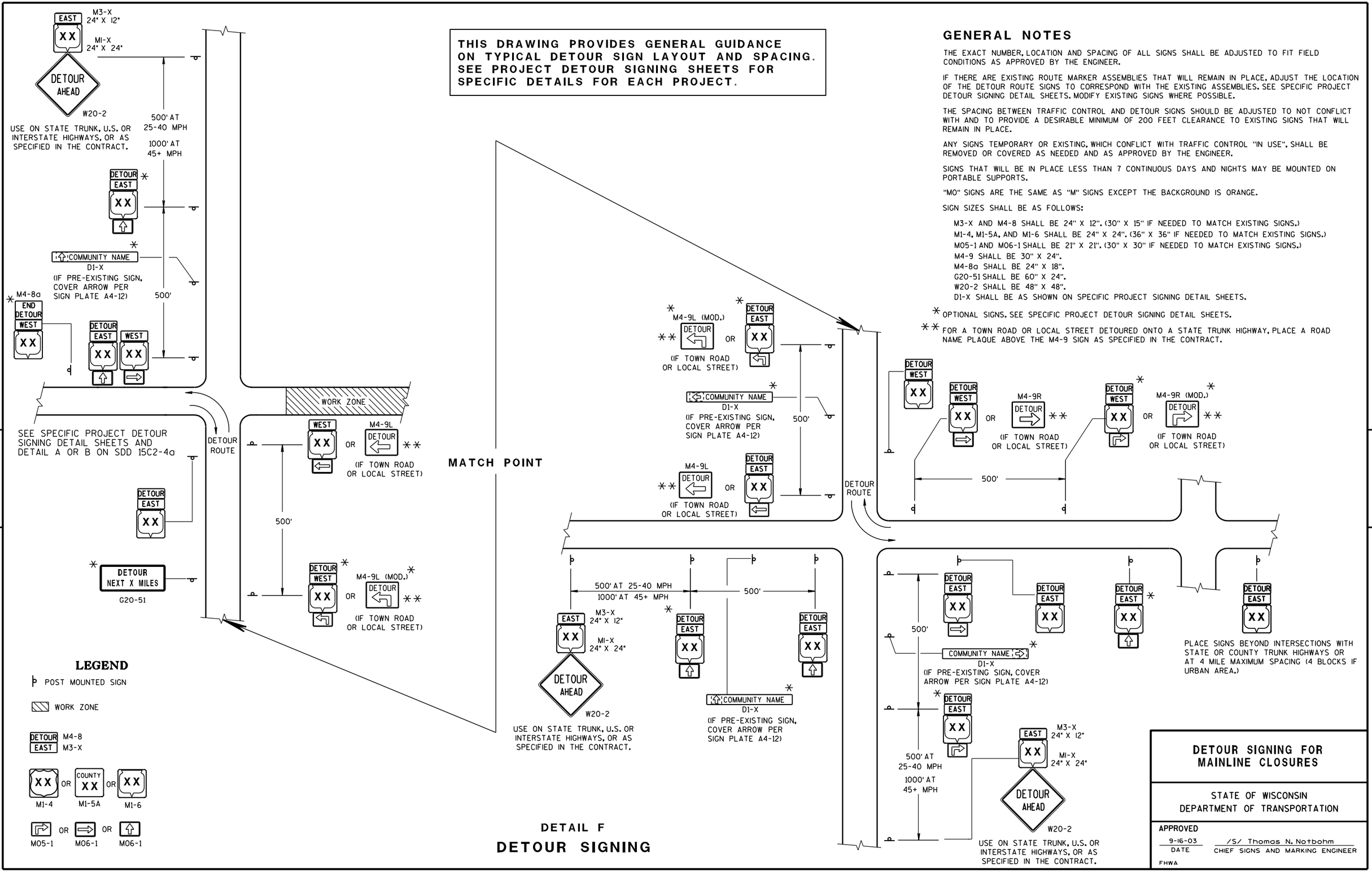
"MO" SIGNS ARE THE SAME AS "M" SIGNS EXCEPT THE BACKGROUND IS ORANGE.

SIGN SIZES SHALL BE AS FOLLOWS:

- M3-X AND 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.)
- M4-9 SHALL BE 30" X 24".
- M4-8a SHALL BE 24" X 18".
- G20-51 SHALL BE 60" X 24".
- W20-2 SHALL BE 48" X 48".
- D1-X SHALL BE AS SHOWN ON SPECIFIC PROJECT SIGNING DETAIL SHEETS.

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

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



LEGEND

- POST MOUNTED SIGN
- WORK ZONE
- DETOUR / EAST — M4-8 / M3-X
- XX OR COUNTY XX OR XX — M1-4, M1-5A, M1-6
- MO5-1 OR MO6-1 OR MO6-1

DETAIL F

DETOUR SIGNING

DETOUR SIGNING FOR MAINLINE CLOSURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

9-16-03 DATE

/S/ Thomas N. Notbohm
CHIEF SIGNS AND MARKING ENGINEER

FHWA

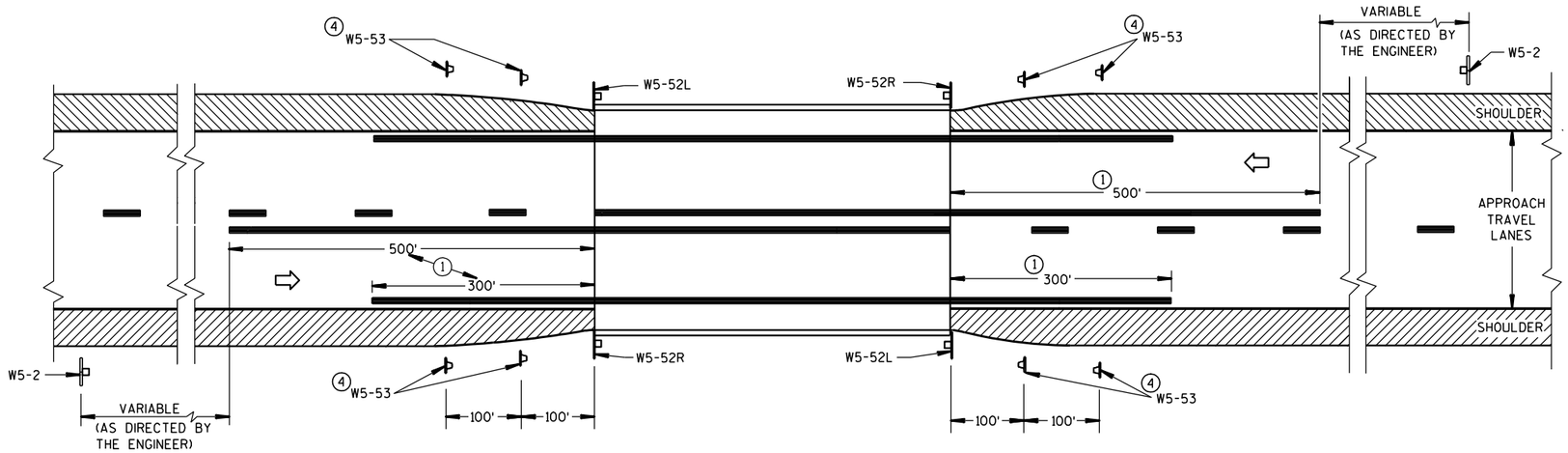
6

S.D.D. 15 C 2-4c

6

S.D.D. 15 C 2-4c

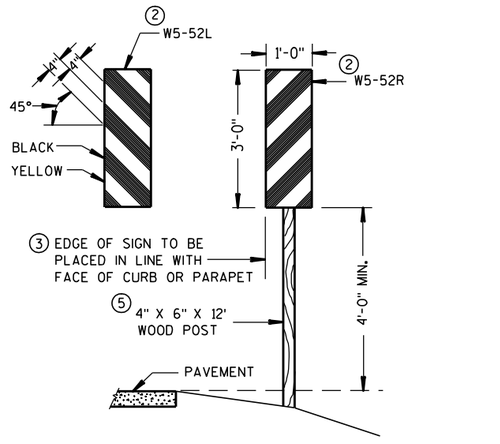
15C6: Signing & Marking for Two Lane Bridges

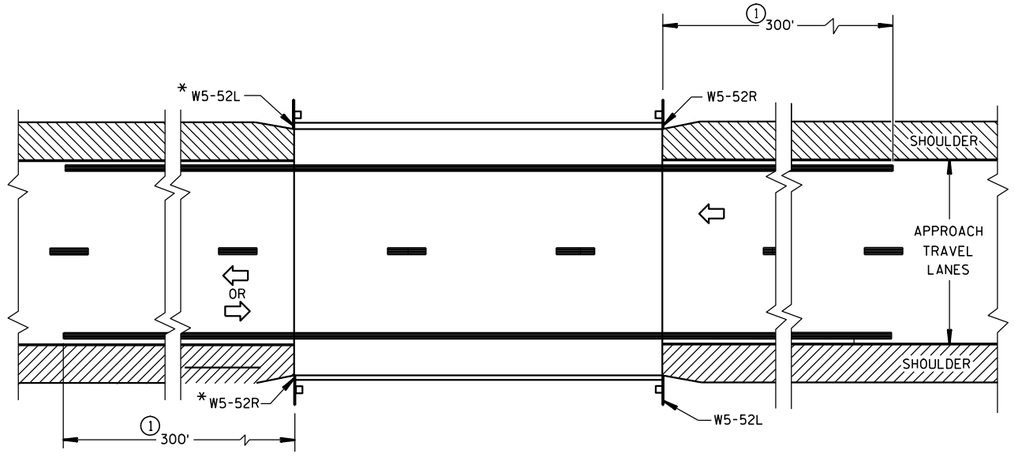


SITUATION 1

WARRANTING CRITERION:

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



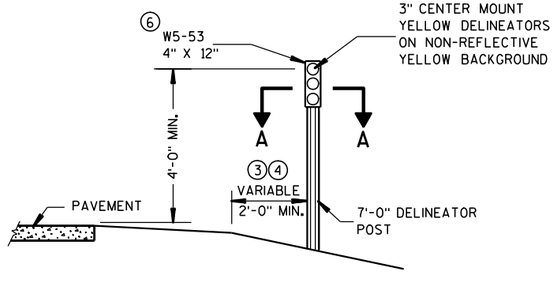


*OMIT ON ONE-WAY TRAVELLED WAYS

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.



OBJECT MARKER PLACEMENT

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.

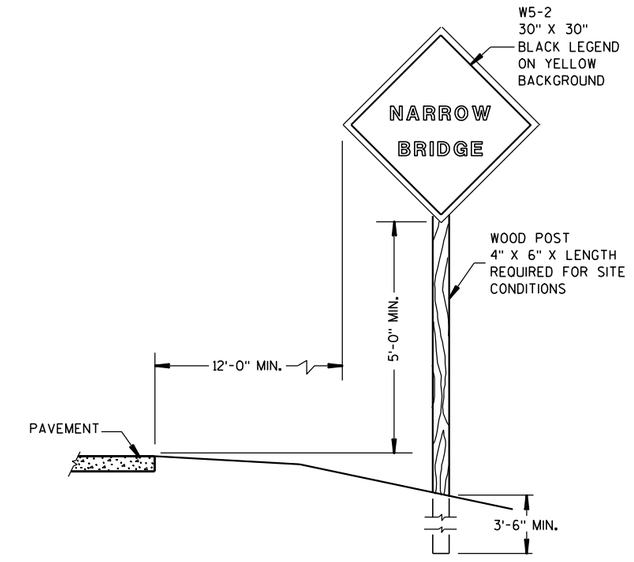
② FACE OF OBJECT MARKERS W5-52R AND W5-52L SHALL BE COVERED WITH TYPE H REFLECTIVE SHEETING.

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

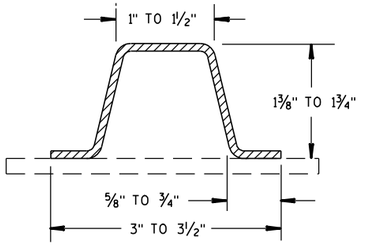
④ OBJECT MARKERS (W5-53) SHALL BE LOCATED ALONG A LINE FLARED AWAY FROM THE BRIDGE CORNER TO DELINEATE THE NARROWING OF THE SHOULDER OR BERM.

⑤ A 12 FOOT DELINEATOR POST MAY BE USED INSTEAD OF A WOOD POST.

⑥ NON-BID ITEM. INCIDENTAL TO OTHER ITEMS.



SIGN PLACEMENT



SECTION A-A

(MINIMUM WEIGHT 1.9 LBS. PER FT. AFTER GALVANIZING)

SIGNING & MARKING FOR TWO LANE BRIDGES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

9/5/06 — DATE

/S/ Thomas N. Notbohm — STATE TRAFFIC ENGINEER OF DESIGN

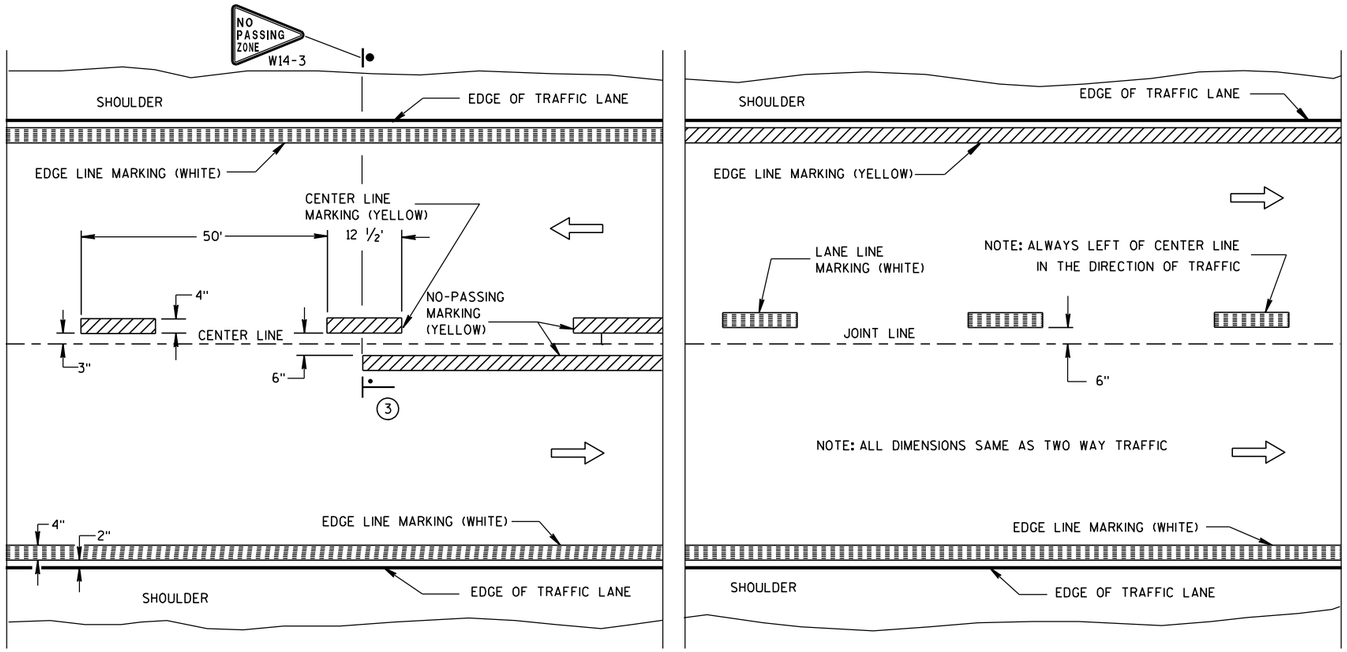
FHWA

6

S.D.D. 15 C 6-5

6

S.D.D. 15 C 6-5



TWO WAY TRAFFIC

ONE WAY TRAFFIC

PERMANENT PAVEMENT MARKING

GENERAL NOTES

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

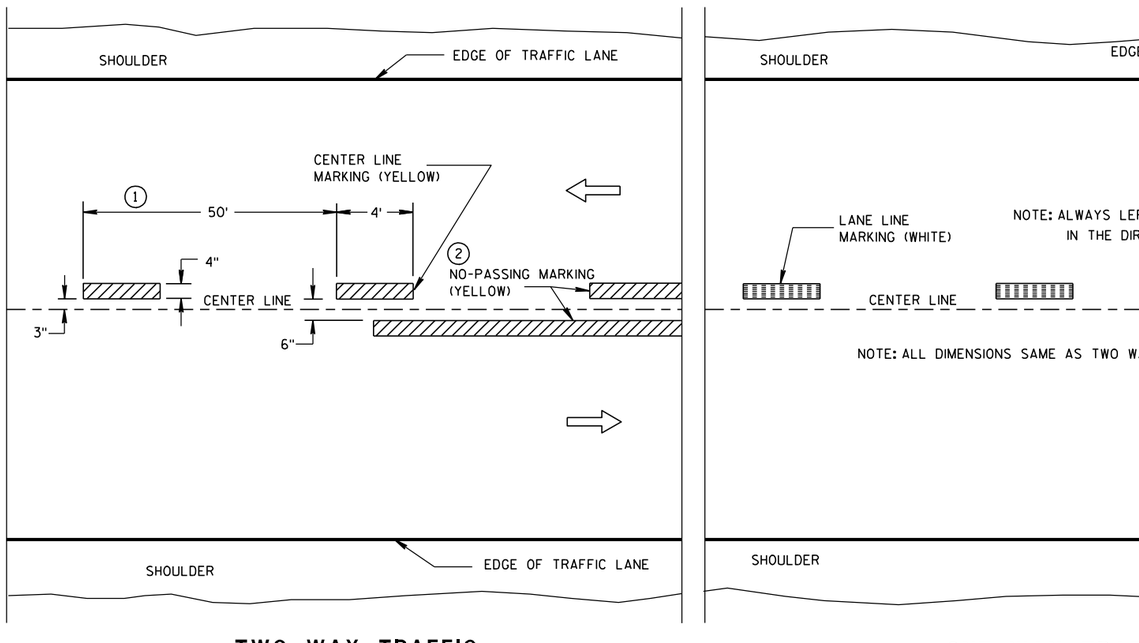
(1) HALF CYCLE LENGTHS (25'±) WITH 2' MINIMUM STRIPE LENGTHS SHALL BE PROVIDED ON ROADWAYS (INCLUDING TEMPORARY TRAVELED WAYS) WITH REVERSE CURVATURE, CURVATURE OF OVER 5 DEGREES OR WHEN DIRECTED BY THE ENGINEER TO MARK UNUSUAL ALIGNMENT OF THE TRAVELED WAY.

(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.

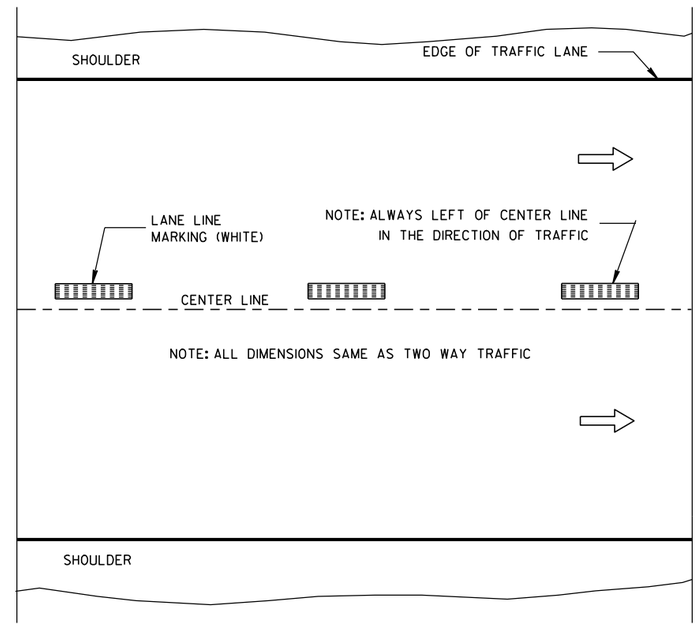
(3) NO PASSING ZONE MARKINGS ARE PLACED ACCORDING TO "T" MARKINGS. IF EXISTING NO PASSING ZONE W14-3 SIGNS ARE BEYOND 50 FEET IN EITHER DIRECTION, THE SIGNS SHALL BE MOVED TO THE "T" MARKINGS.

NOTE

ARROW SYMBOL (⇨) SHOWS DIRECTION OF TRAVEL



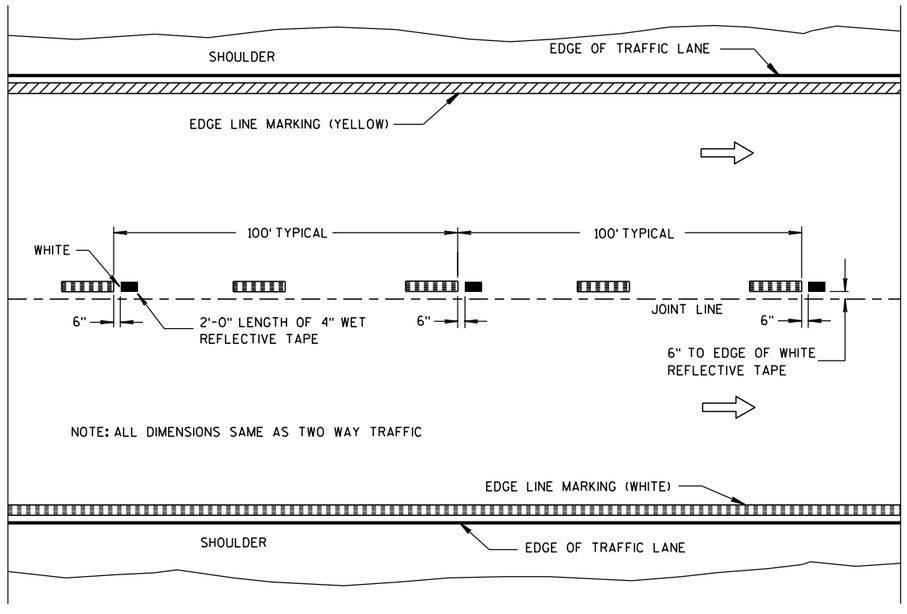
TWO WAY TRAFFIC



ONE WAY TRAFFIC

TEMPORARY (INTERMEDIATE) PAVEMENT MARKING

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



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
6-23-11 — DATE
/S/ Thomas N. Notbohm — STATE TRAFFIC ENGINEER OF DESIGN
FHWA

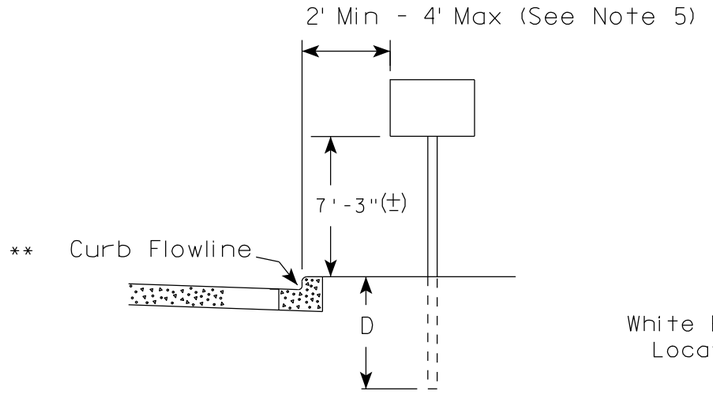
6

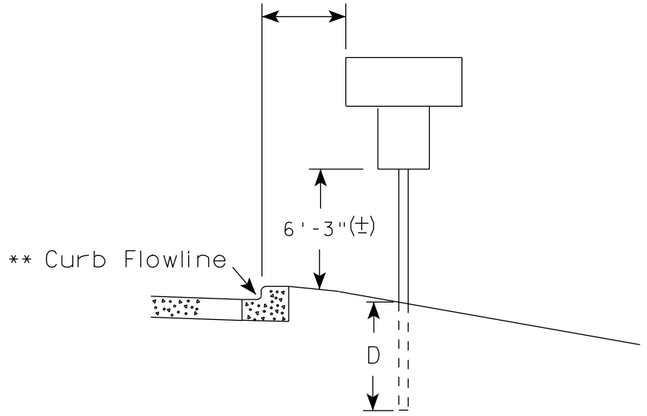
S.D.D. 15 C 8-14a

6

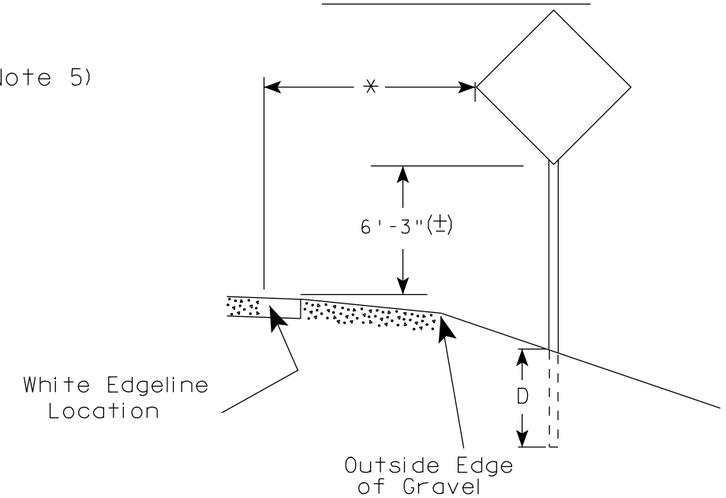
S.D.D. 15 C 8-14a

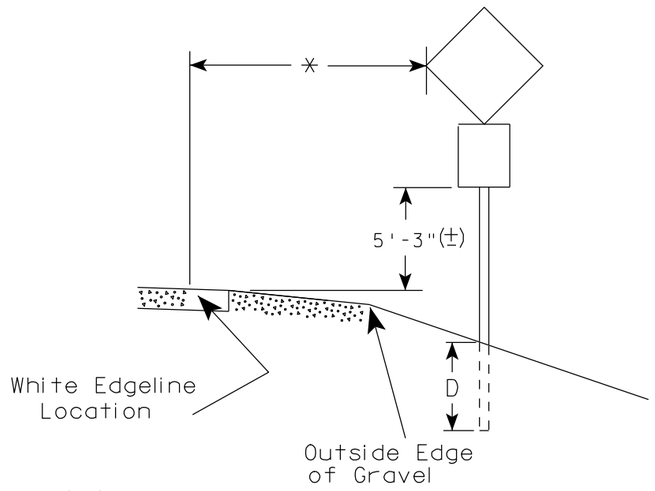
URBAN AREA





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 or larger than 20 sq. ft. 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 (W1-8A), Clearance Markers (W5-52), Mile Markers (D10 series) & End of Road 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

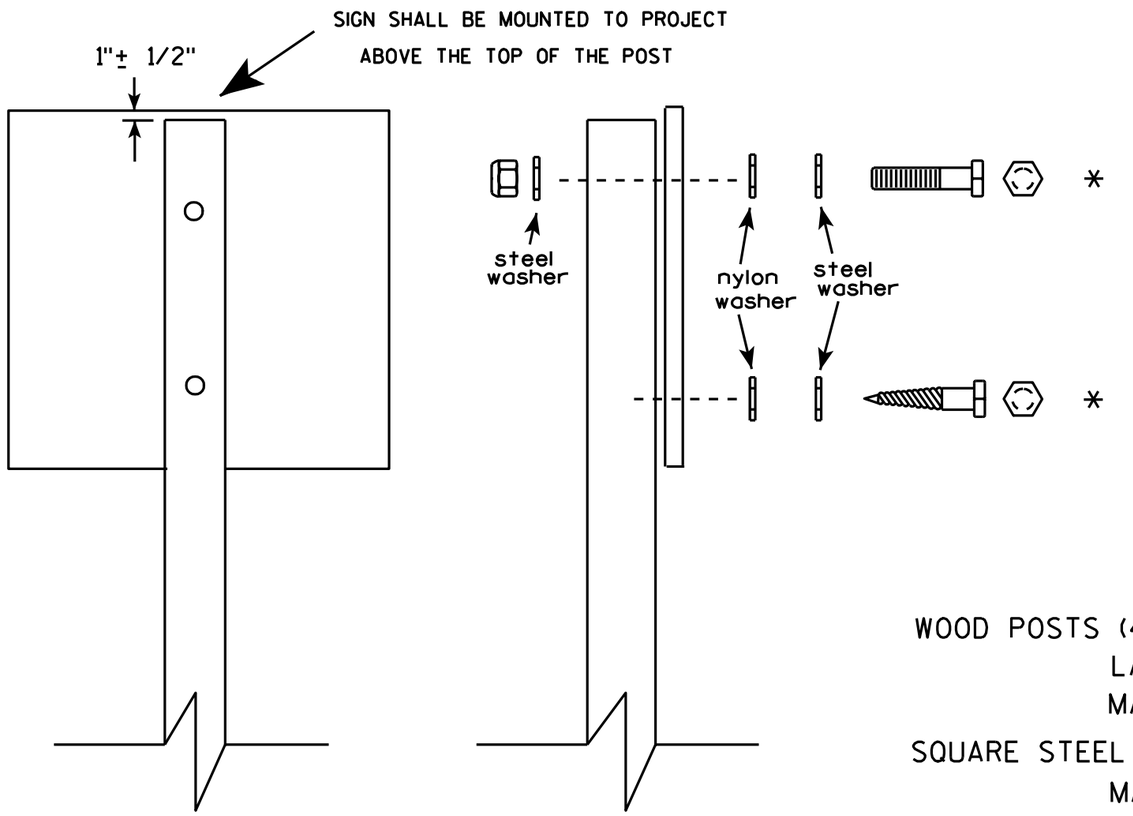
APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 9/30/09 PLATE NO. A4-3.15

7

7

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



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

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

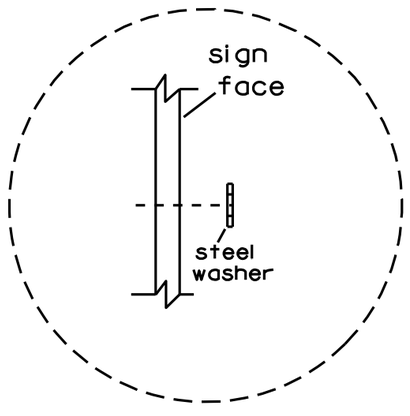
b. Electro-galvanized in accordance with ASTM Designation : B 633, TYPE III, SC 3.

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

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

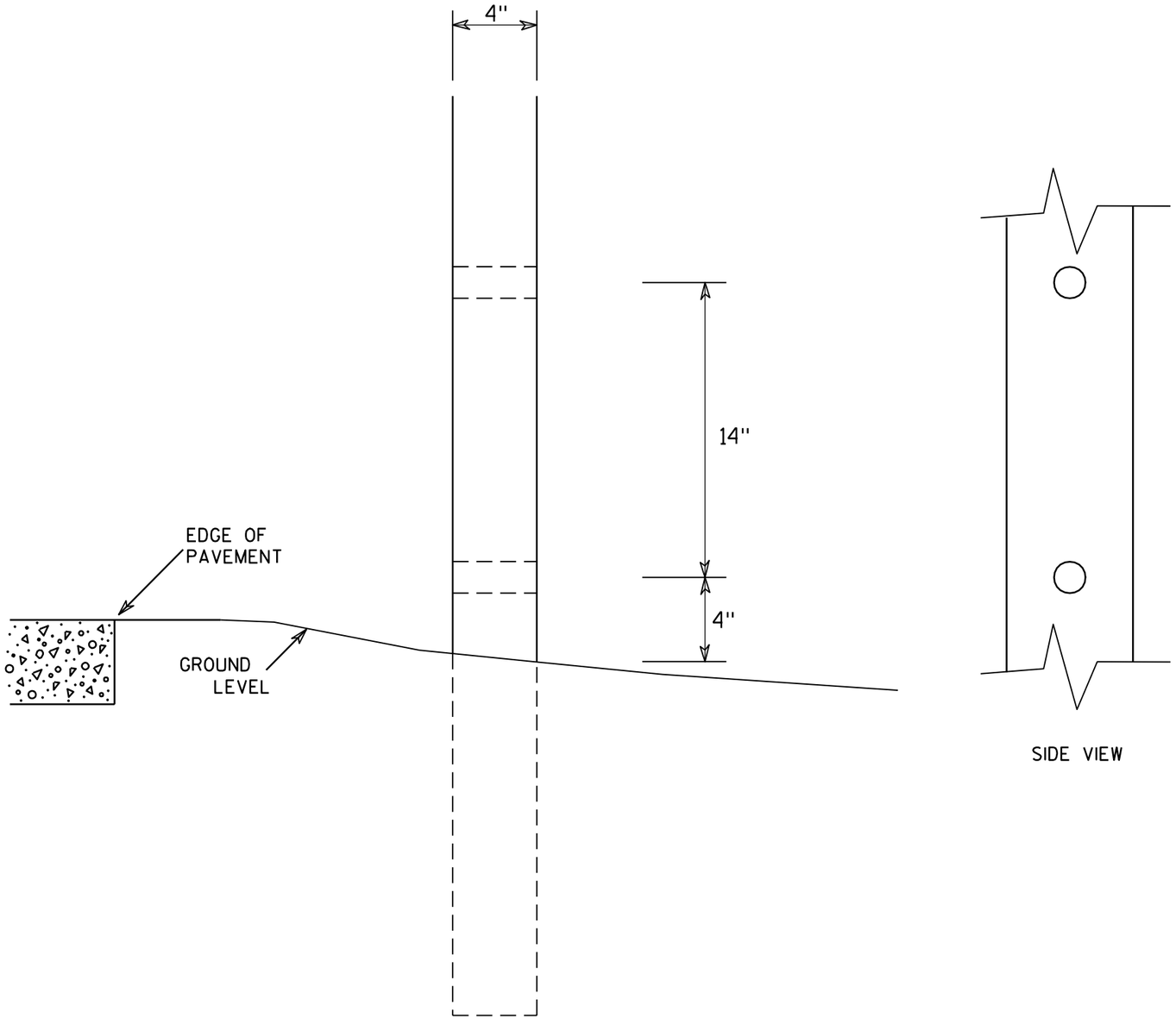
APPROVED Matthew R Rauch
for State Traffic Engineer

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

7

7

PROJECT NO: | SHEET NO: E



SIDE VIEW

GENERAL NOTES

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

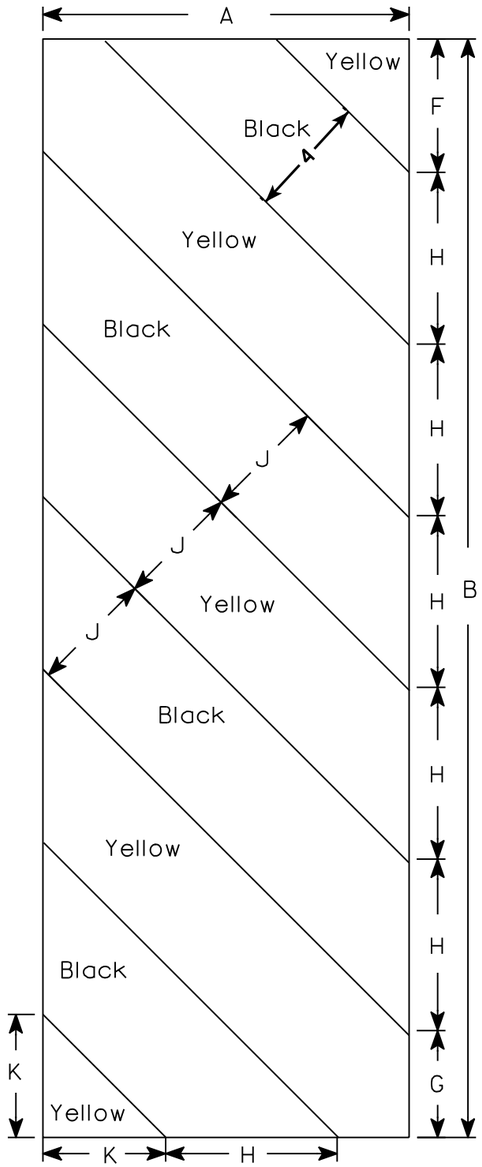
4 X 6 WOOD POST MODIFICATIONS

WISCONSIN DEPT OF TRANSPORTATION

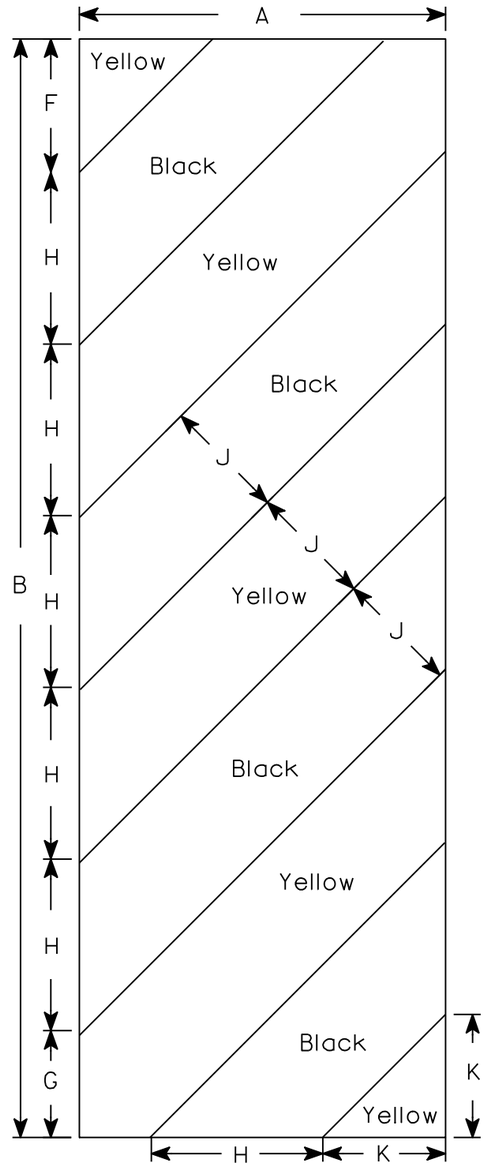
APPROVED Chester J Spang for State Traffic Engineer

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

PROJECT NO:	HWY:	COUNTY:		SHEET NO:	E



W5-52L



W5-52R

NOTES

1. Sign is Type II - Type H 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

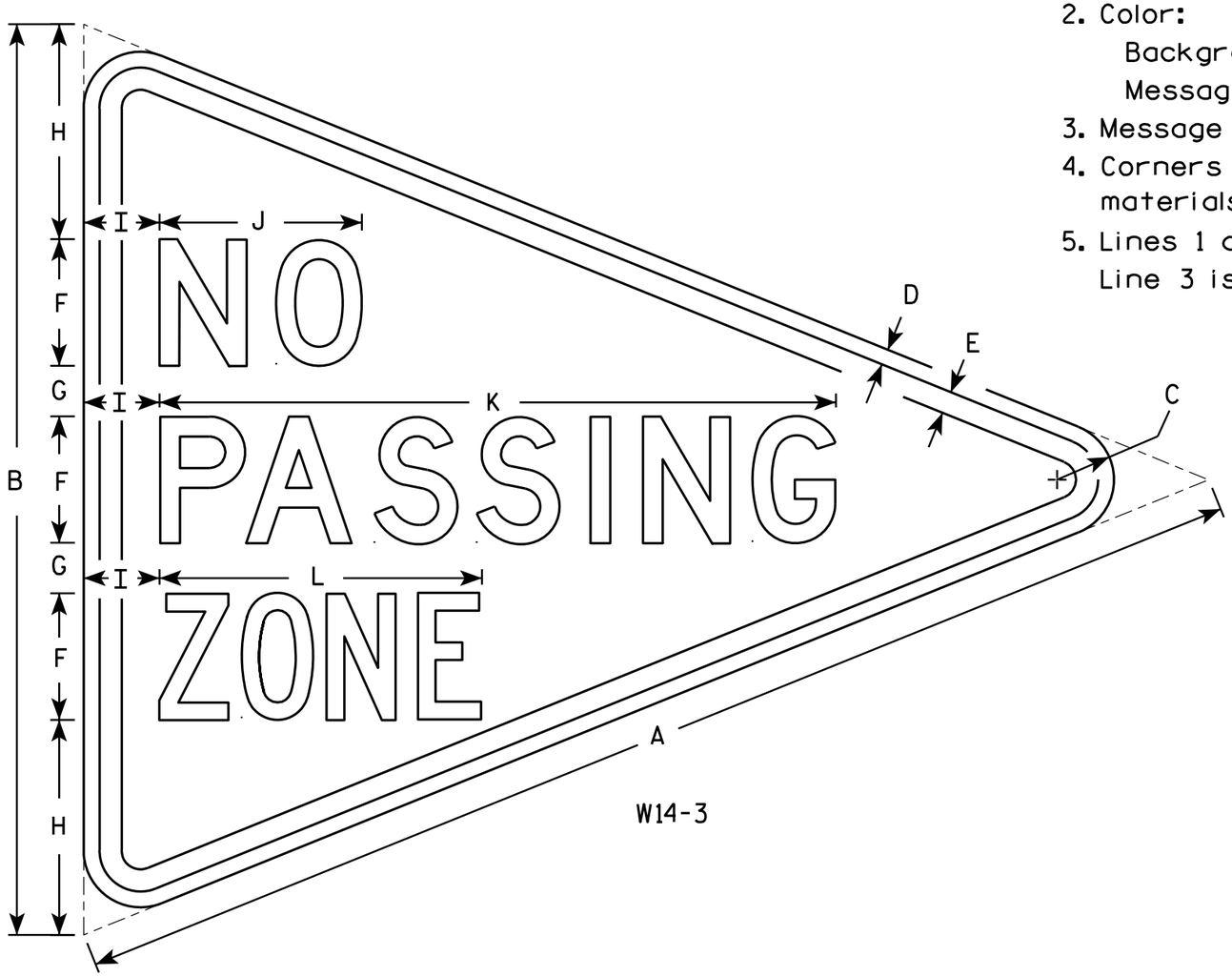
APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 3/22/11 PLATE NO. W5-52.8

PROJECT NO:	HWY:	COUNTY:		SHEET NO:	E

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. Message Series - See note 5
4. Corners and borders shall be rounded on all base materials for this sign.
5. Lines 1 and 2 are Series D.
   Line 3 is series C.



W14-3

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	O	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	48	36	2 1/4	5/8	7/8	5	2	8 1/2	3	8	26 3/4	12 3/4															6.0
2M	48	36	2 1/4	5/8	7/8	5	2	8 1/2	3	8	26 3/4	12 3/4															6.0
3	64	48	3	3/4	1 1/4	6	3	12	4	10 3/4	33 5/8	16 1/2															10.7
4																											
5																											

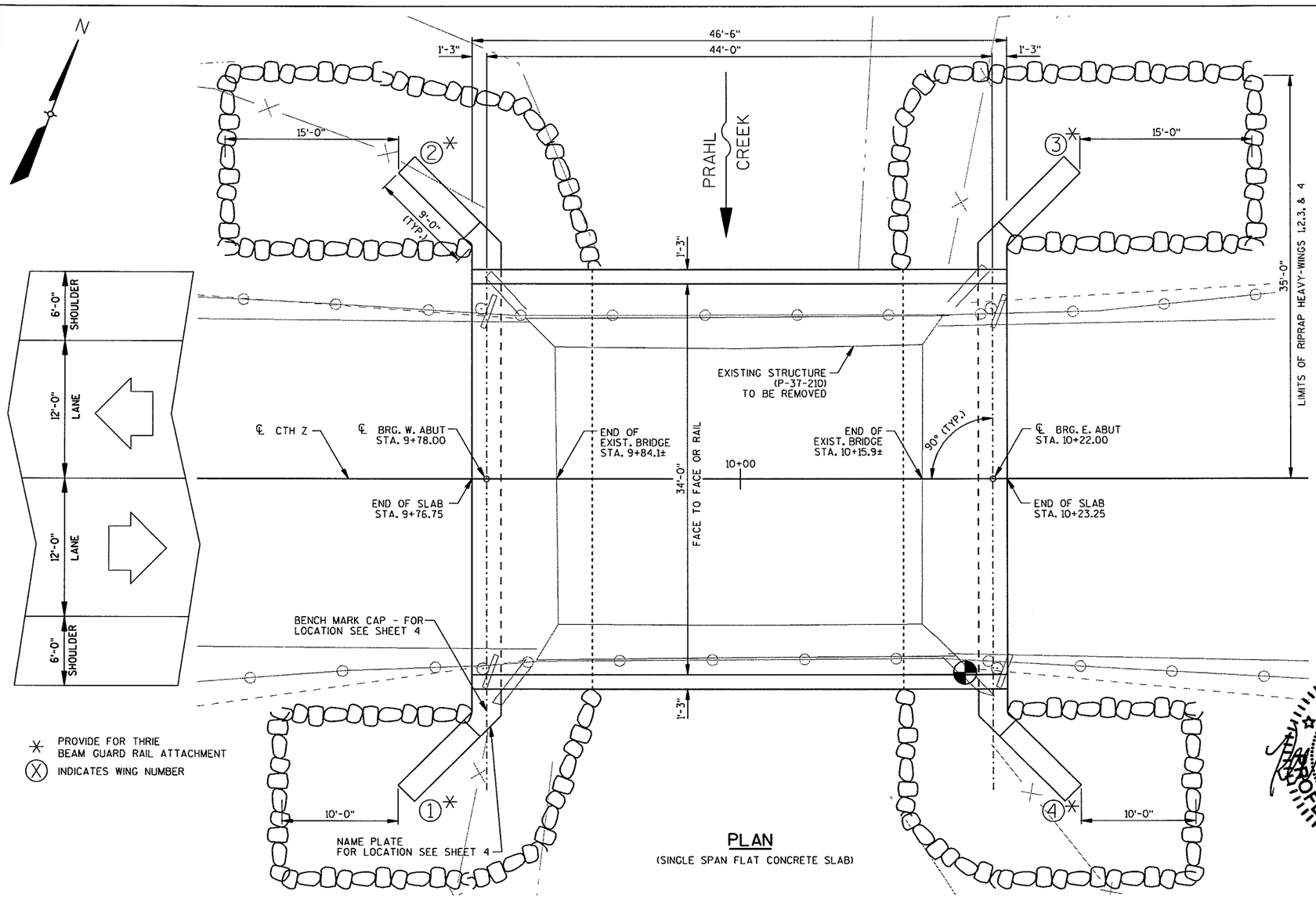
STANDARD SIGN
W14-3

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 6/7/10 PLATE NO. W14-3.9

PROJECT NO:	HWY:	COUNTY:		SHEET NO:	E

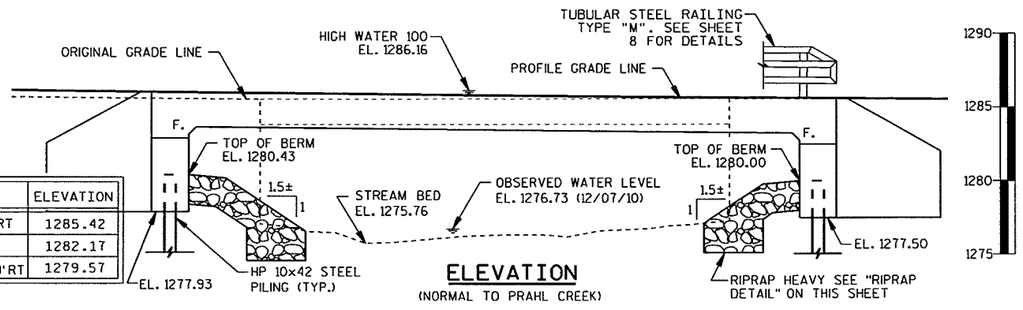


PLAN
(SINGLE SPAN FLAT CONCRETE SLAB)

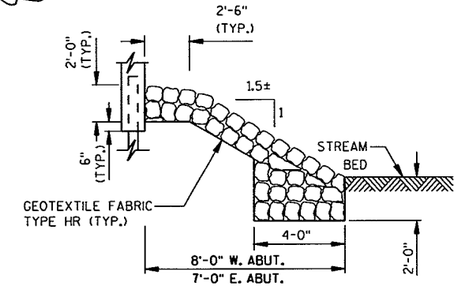
BENCH MARK TABLE

NO.	STATION	DESCRIPTION	ELEVATION
1	10+20	SURVEY NAIL IN SE CORNER OF BRIDGE 17'RT	1285.42
2	9+36	MAG NAIL IN PP*2908-23-E18 41' RT	1282.17
3	12+56	MAG NAIL IN POWER POLE *2908-23-E19 39'RT	1279.57

ELEVATIONS SHOWN ON THIS PLAN ARE NAVD 88



ELEVATION
(NORMAL TO PRAHL CREEK)



RIPRAP DETAIL

DESIGN DATA

LIVE LOAD:

DESIGN LOADING: HL-93
INVENTORY RATING FACTOR = 1.37
OPERATIONAL RATING FACTOR = 1.78
MAXIMUM STANDARD PERMIT VEHICLE LOAD = 250 KIPS

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

ULTIMATE DESIGN STRESSES:

CONCRETE MASONRY - SLAB —— f'c = 4,000 P.S.I. ALL OTHER —— f'c = 3,500 P.S.I.

BAR STEEL REINFORCEMENT, GRADE 60 —— fy = 60,000 P.S.I.

FOUNDATION DATA

ABUTMENTS TO BE SUPPORTED ON HP10x42 STEEL PILING. PILING DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 180 TONS** PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA. ESTIMATED 20'-0" LONG FOR THE WEST ABUTMENT AND 15'-0" LONG FOR THE EAST 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 THE MODIFIED GATE DYNAMIC FORMULA TO DETERMINE DRIVEN PILE CAPACITY.

TRAFFIC VOLUME

CTH Z

A.D.T. (2012) = 1360
A.D.T. (2032) = 1500
DESIGN SPEED = 50 MPH

HYDRAULIC DATA

100 YEAR FREQUENCY

Q100 —— 2,990 CFS
VELOCITY —— 9.0 FPS
HIGH WATER ELEVATION —— 1286.16±
WATERWAY AREA —— 255 SQ. FT.
DRAINAGE AREA —— 9.2 SQ. MI.
ROAD OVERTOPPING —— N/A
SCOUR CRITICAL CODE —— 8

2 YEAR FREQUENCY

Q2 —— 590 CFS
HIGH WATER 2 ELEVATION —— 1280.47±

LIST OF DRAWINGS

UTILITIES

FRONTIER COMMUNICATIONS (TELEPHONE & FIBER OPTIC)
ATTN: ROBERT SCHROETER
1851 N 14TH AVENUE
WAUSAU, WI 54401
715-847-1685 (OFFICE)
715-781-5700 (MOBILE)

WISCONSIN PUBLIC SERVICE CORP. (ELECTRIC)
ATTN: CLAY VIRCKS
715-848-7317 (OFFICE)
715-573-7806 (MOBILE)

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

CONSULTANT CONTACT:
KEVIN HAGEN (715) 342-3053
AECOM PROJECT NO. 60188814

WISCONSIN KEVIN R. HAGEN E-38668 STEVENS POINT WI PROFESSIONAL ENGINEER 3/14/2012

NO.	DATE	REVISION	BY

AECOM

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
ACCEPTED William R. Dreher KAR 04/09/12
CHIEF STRUCTURES DESIGN ENGINEER DATE

STATE PROJECT NUMBER
9440-04-70

STRUCTURE B-37-434

CTH Z OVER PRAHL CREEK

COUNTY MARATHON TOWN/CITY/VILLAGE WAUSAU

DESIGN SPEC. AASHTO LRFD DESIGN SPEC. 5th EDITION

DESIGNED BY	EAB	DESIGN CK'D.	KRH	DRAWN BY	ALB	PLANS CK'D.	KRH

GENERAL PLAN

SHEET 1 OF 8

8

8

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PLOT DATE: 3/5/2012
PLOT TIME: 8:34:56 AM
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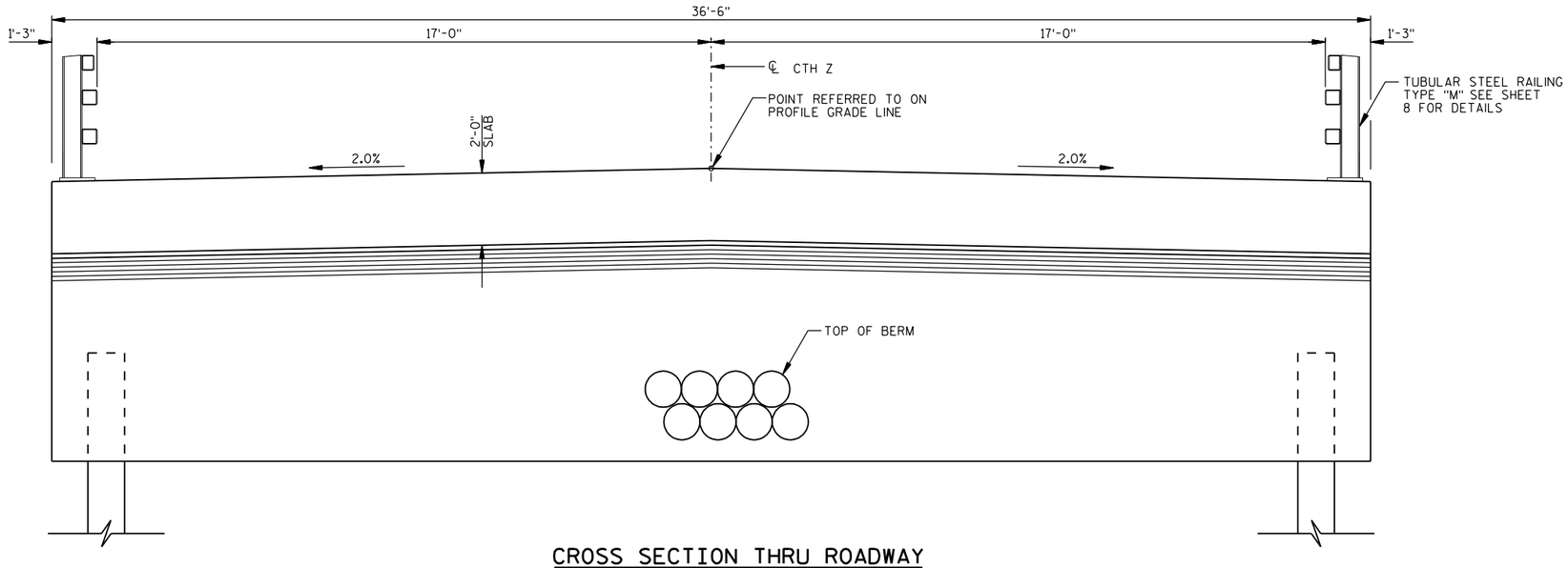
OF



CROSS SECTION THRU ROADWAY
(LOOKING EAST)

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

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

FILLER SHALL CONFORM TO THE REQUIREMENTS OF A.A.S.H.T.O. DESIGNATION M153, TYPES I, II OR III, OR M213.

THE SLOPE OF THE FILL IN FRONT OF THE ABUTMENTS SHALL BE COVERED WITH RIPRAP HEAVY AND GEOTEXTILE FABRIC TYPE 'HR' WITHIN THE LIMITS SHOWN ON SHEET 1, ON THE ABUTMENT SHEETS OR AS DIRECTED BY THE ENGINEER.

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

THE EXISTING STRUCTURE (P-37-210) IS A SINGLE SPAN STEEL DECK GIRDER BRIDGE, 32.0' LONG x 30.0' WIDE, TO BE REMOVED.

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

ALL REQUIRED REMOVAL OF THE EXISTING SUBSTRUCTURES IS INCLUDED IN THE BID ITEM "REMOVING OLD STRUCTURE OVER WATERWAY WITH MINIMAL DEBRIS, STATION 10+00."

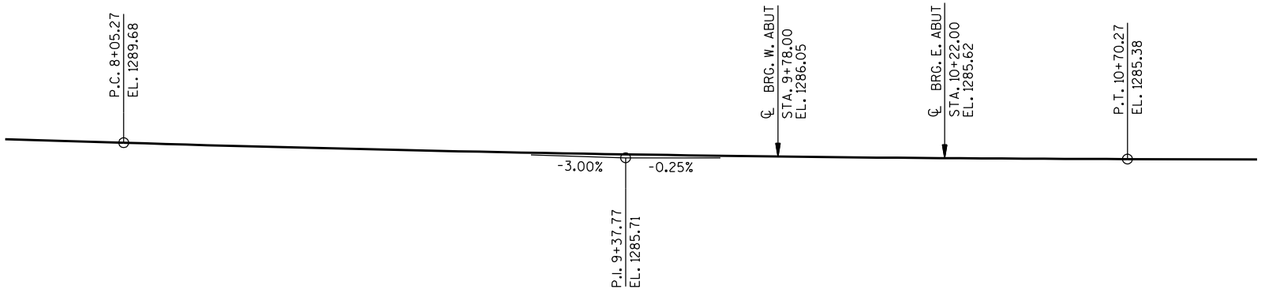
SLAB FALSEWORK SHALL BE SUPPORTED ON PILES OR THE SUBSTRUCTURE UNLESS AN ALTERNATIVE METHOD IS APPROVED BY THE ENGINEER.

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

EXCAVATION REQUIRED UNDER THE BID ITEM "EXCAVATION FOR STRUCTURES BRIDGES B-37-434" IS NOT USED TO BALANCE THE EARTHWORK.

TOTAL ESTIMATED QUANTITIES

ITEM NUMBER	BID ITEM	UNIT	WEST ABUTMENT	EAST ABUTMENT	SUPER.	TOTAL
203.0600.S.01	REMOVING OLD STRUCTURE OVER WATERWAY WITH MINIMAL DEBRIS, STATION 10+00	LS	——	——	——	1
206.1000	EXCAVATION FOR STRUCTURES BRIDGES, B-37-434	LS	——	——	——	1
210.0100	BACKFILL STRUCTURE	CY	150	150	——	300
502.0100	CONCRETE MASONRY BRIDGES	CY	31	31	132	194
505.0405	BAR STEEL REINFORCEMENT HS BRIDGES	LB	2,700	2,700	——	5,400
505.0605	BAR STEEL REINFORCEMENT HS COATED BRIDGES	LB	1,440	1,440	24,740	27,620
513.4060	RAILING TUBULAR TYPE M, B-37-434	LS	——	——	——	1
516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	10	10	——	20
550.1100.S	PILING STEEL HP 10-INCH X 42 LB	LF	160	120	——	280
606.0300	RIPRAP HEAVY	CY	100	90	——	190
612.0206	PIPE UNDERDRAIN UNPERFORATED 6-INCH	LF	10	10	——	20
612.0406	PIPE UNDERDRAIN WRAPPED 6-INCH	LF	60	60	——	120
612.0806	APRON END WALLS FOR UNDERDRAIN REINFORCED CONCRETE 6-INCH	EACH	1	1	——	2
645.0120	GEOTEXTILE FABRIC TYPE HR	SY	175	170	——	345
	NON-BID ITEMS					
	FILLER	SIZE				1/2" & 3/4"



PROFILE GRADE LINE, CTH Z

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-37-434

DRAWN BY KAM | PLANS CK'D. EAB

CROSS SECTION & QUANTITIES

SHEET 2 OF 8

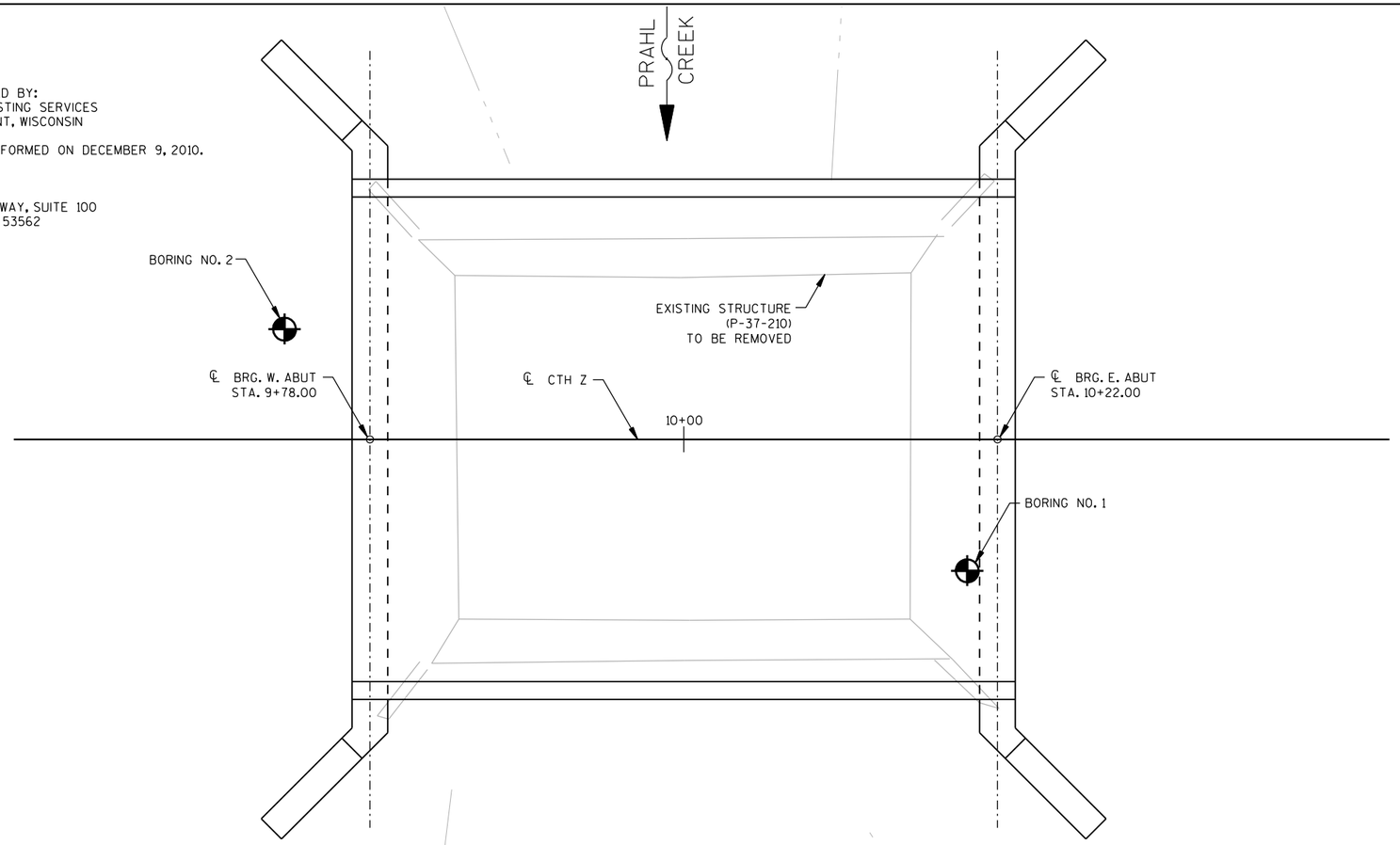
8

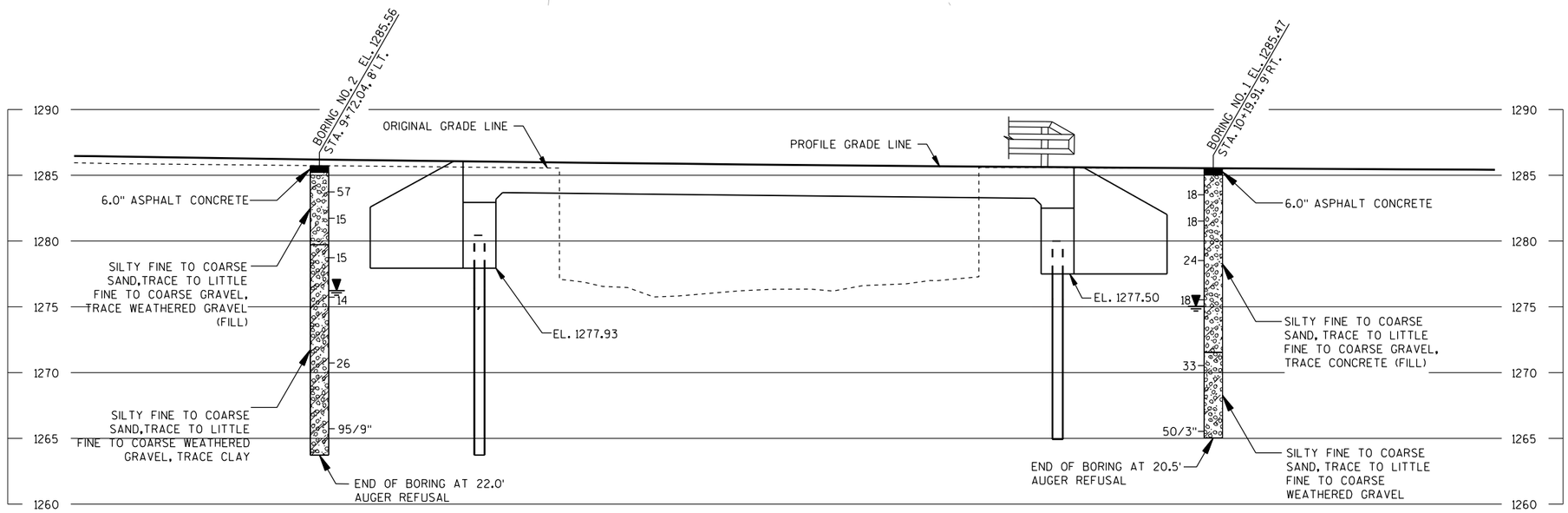
8

BORINGS PREFORMED BY:
NUMMELIN TESTING SERVICES
STEVENS POINT, WISCONSIN

BORINGS WERE PERFORMED ON DECEMBER 9, 2010.

REPORT BY:
AECOM
1350 DEMING WAY, SUITE 100
MIDDLETON, WI 53562





STATE PROJECT NUMBER

9440-04-70

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

PROBING NO.
STA.
ELEVATION
7 AVERAGE BLOWS PER FOOT
REFUSAL 95/6

95/6=95 BLOWS FOR 6" PENETRATION
PROBING TAKEN WITH A 350# WT. FALLING 18" ON A 2" O.D. POINT.

LEGEND OF BORING

BORING NO.
ELEV.
STA.
UNCONFINED STRENGTH → 7.7
BLOWS PER FT. USING 140# WT. FALLING 30"
WASH SAMPLE
SHELBY TUBE — S.T.
GROUND WATER ELEVATION
NO GROUND WATER OBSERVED ABOVE THIS ELEVATION
SANDY GRAVEL
F. BOULDERS OR COBBLES
SAND
SILTY CLAY
SO LIMESTONE

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.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-37-434

DRAWN BY ALB | PLANS CK'D. KRH

SUBSURFACE EXPLORATION

SHEET 3 OF 8

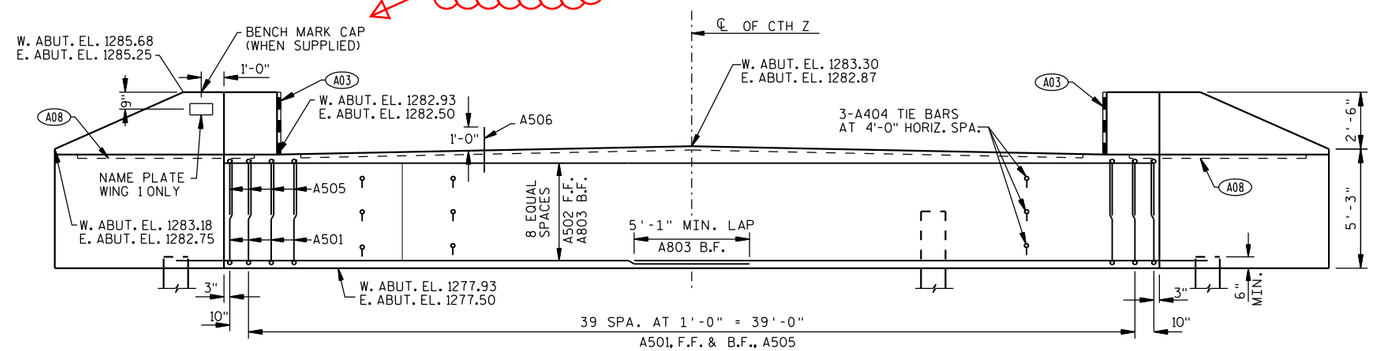
8

8

STATE PROJECT NUMBER

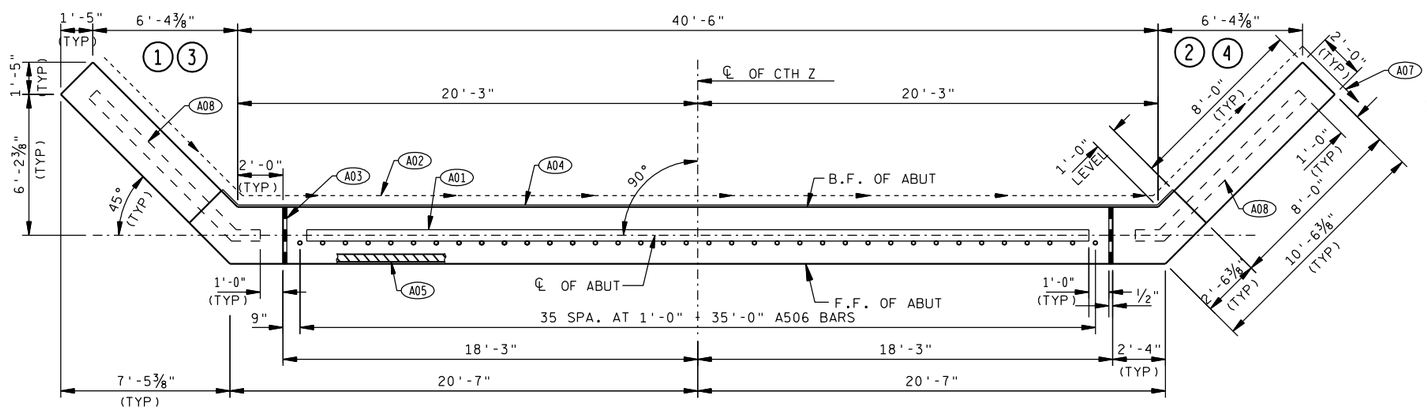
9440-04-70

NO CAP SET



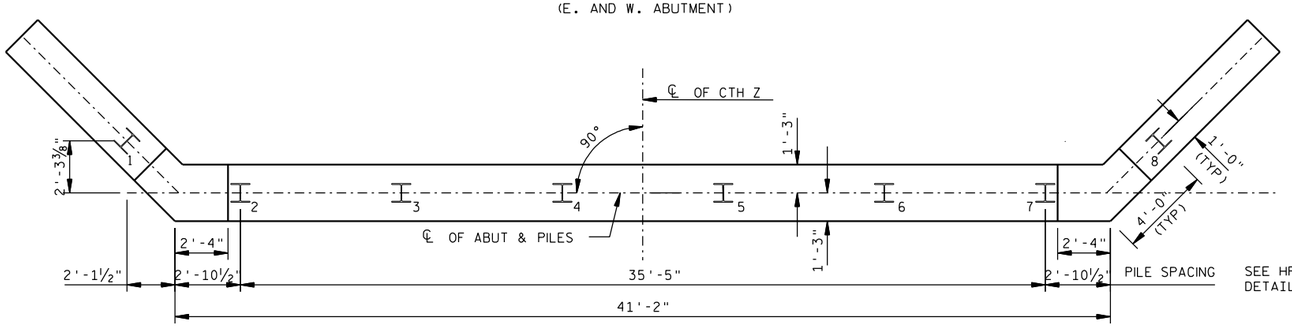
ELEVATION

(LOOKING EAST AT E. ABUTMENT, LOOKING WEST AT W. ABUTMENT)



PLAN

(E. AND W. ABUTMENT)



PILE PLAN

(E. AND W. ABUTMENT)

PILE PENETRATION BELOW GROUND WEST ABUTMENT 13.3' TO 14.2'

PILE PENETRATION BELOW GROUND EAST ABUTMENT 11.0' TO 14.6'

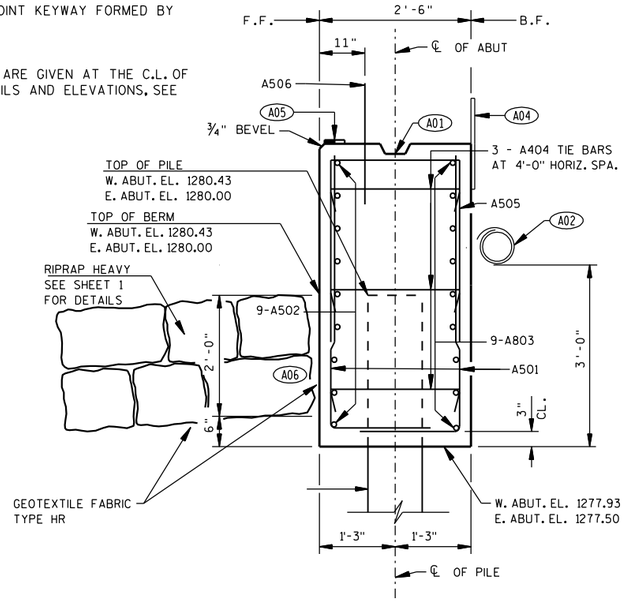
LEGEND

- (A01) KEYED CONSTRUCTION JOINT: FORMED BY A SURFACED, BEVELED 2" X 6".
- (A02) PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE.
- (A03) ½" FILLER TO EXTEND AS SHOWN. SEAL ALL EXPOSED HORIZONTAL AND VERTICAL SURFACES OF FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD ⅛" BELOW SURFACE OF CONCRETE.)
- (A04) 18" RUBBERIZED MEMBRANE WATERPROOFING. SEAL ALL HORIZONTAL AND VERTICAL JOINTS ON BACK FACE.
- (A05) ¾" x 4" FILLER - TO EXTEND BETWEEN EDGES OF SLAB.
- (A06) ABUTMENT TO BE SUPPORTED ON HP 10 X 42 STEEL PILING DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 180 TONS PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA. ESTIMATED 20'-0" LONG FOR THE WEST ABUTMENT AND 15'-0" LONG FOR THE EAST ABUTMENT.
- (A07) PIPE UNDERDRAIN, UNPERFORATED, 6-INCH FROM BACK OF WING TO DISCHARGE. ATTACH RODENT SHIELD AT ENDS OF PIPE UNDERDRAIN AS DETAILED ON SDD REINFORCED CONCRETE APRON END WALL FOR PIPE UNDERDRAIN. DISCHARGE LOCATION TO BE DETERMINED BY ENGINEER IN THE FIELD.
- (A08) OPTIONAL CONSTRUCTION JOINT KEYWAY FORMED BY A BEVELED 2" X 6".
- ✳ ELEVATIONS & DIMENSIONS ARE GIVEN AT THE C.L. OF ABUTMENT. FOR WING DETAILS AND ELEVATIONS, SEE SHEET 5.
- (X) INDICATES WING NUMBER

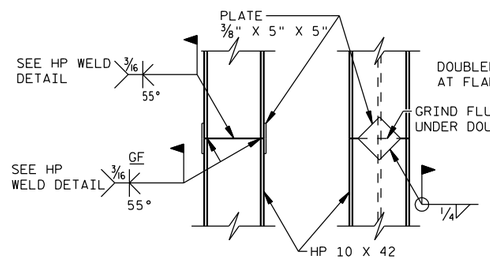
NOTES

A506 BARS MAY BE PLACED AFTER CONCRETE IS POURED, BUT BEFORE INITIAL SET HAS TAKEN PLACE.

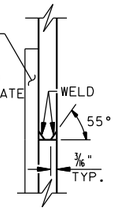
DO NOT PLACE FILL ABOVE 3'-0" FROM BOTTOM OF ABUTMENT UNTIL SUPERSTRUCTURE IS IN PLACE.



TYPICAL SECTION THRU BODY



PILE SPLICE DETAIL



HP WELD DETAIL

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-37-434

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ABUTMENTS

SHEET 4 OF 8

8

8

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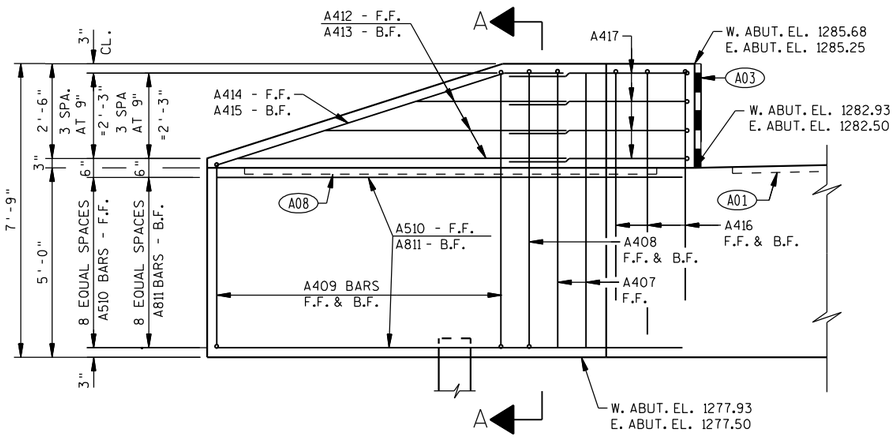
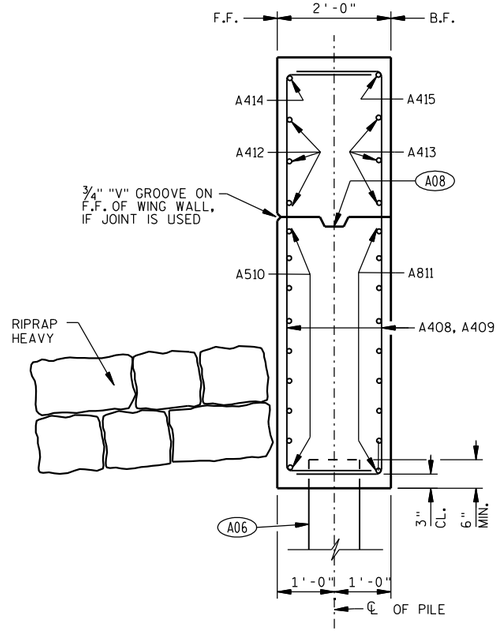
STATE PROJECT NUMBER

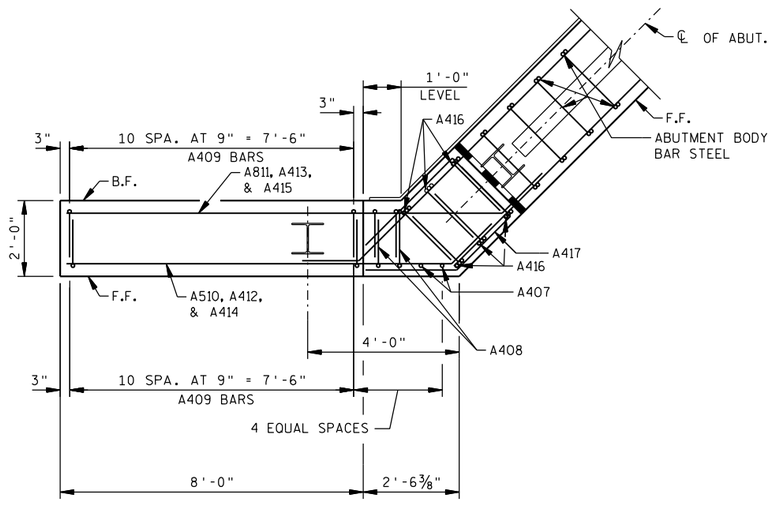
9440-04-70



ELEVATION



SECTION A-A



PLAN

LEGEND

A01 KEYED CONSTRUCTION JOINT: FORMED BY A SURFACED, BEVELED 2" X 6".

A03 ½" FILLER TO EXTEND AS SHOWN. SEAL ALL EXPOSED HORIZONTAL AND VERTICAL SURFACES OF FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD ⅛" BELOW SURFACE OF CONCRETE.)

A06 ABUTMENT TO BE SUPPORTED ON HP 10 X 42 STEEL PILING DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 180 TONS PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA. ESTIMATED 20'-0" LONG FOR THE WEST ABUTMENT AND 15'-0" LONG FOR THE EAST ABUTMENT.

A08 OPTIONAL CONSTRUCTION JOINT KEYWAY FORMED BY A BEVELED 2" X 6".

* ELEVATIONS & DIMENSIONS ARE GIVEN AT THE ℄ OF ABUTMENT.

BILL OF BARS

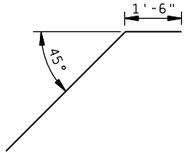
DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT OF BAR.
BOTH ABUTMENTS ARE INCLUDED IN THIS BILL OF BARS.

MARK	NO. REQ'D	LENGTH	BENT	BAR SERIES	LOCATION	
NON-COATED BARS						TOTAL WEIGHT = 5,400 LBS
A501	168	6 - 1	X		BODY, STIRRUP	VERT.
A502	18	41 - 2			BODY, FRONT FACE	HORIZ.
A803	36	26 - 11	X		BODY, BACK FACE	HORIZ.
A404	66	2 - 9	X		BODY, TIE BARS	HORIZ.
A505	84	9 - 5	X		BODY, FRONT FACE/TOP/BACK FACE	VERT.
COATED BARS						TOTAL WEIGHT = 2,880 LBS
A506	72	2 - 0			BODY, DOWEL TO SLAB	VERT.
A407	8	7 - 3			WING, FRONT FACE	VERT.
A408	16	9 - 9	X		WING, STIRRUP	VERT.
A409	88	8 - 6	X	X	WING, STIRRUP	VERT.
A510	36	11 - 8	X		WING, FRONT FACE	HORIZ.
A811	36	13 - 3	X		WING, BACK FACE	HORIZ.
A412	12	7 - 2		X	WING, FRONT FACE	HORIZ.
A413	12	8 - 10		X	WING, BACK FACE	HORIZ.
A414	4	10 - 6	X		WING, FRONT FACE	HORIZ.
A415	4	12 - 2	X		WING, BACK FACE	HORIZ.
A416	24	6 - 3	X		WING, STIRRUP	VERT.
A417	16	9 - 4	X		WING, BODY TIE	HORIZ.

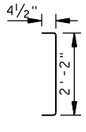
BAR SERIES

MARK	NO. REQ'D	LENGTH
A409	8 SERIES OF 11	7'-4" TO 9'-8"
A412	4 SERIES OF 3	4'-10" TO 9'-7"
A413	4 SERIES OF 3	6'-6" TO 11'-3"

A501



A803, A510 & A811



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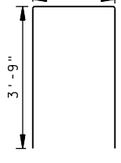

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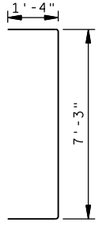

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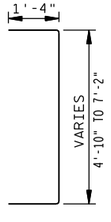

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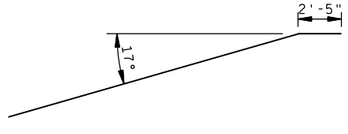

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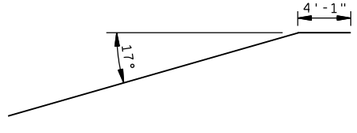

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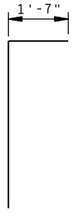

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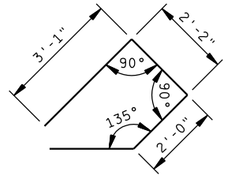

A417

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-37-434

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ABUTMENT DETAILS

SHEET 5 OF 8

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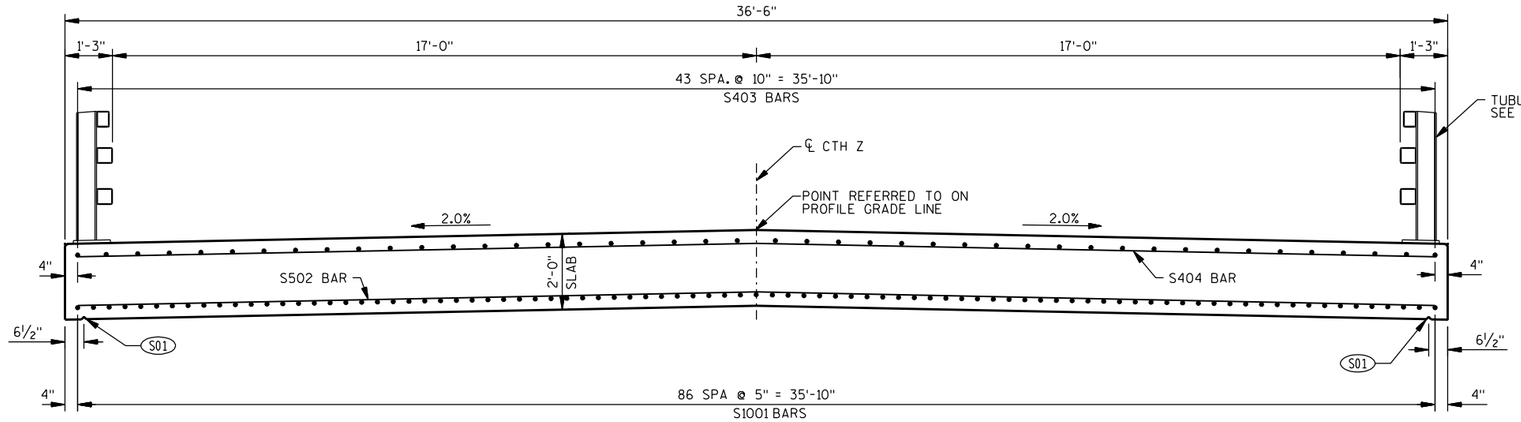
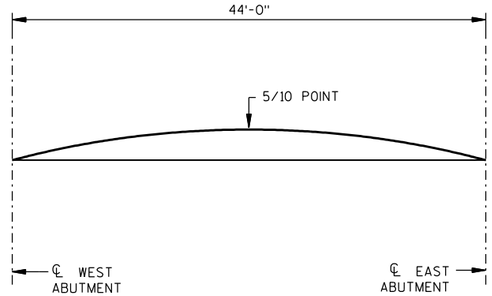
STATE PROJECT NUMBER
9440-04-70

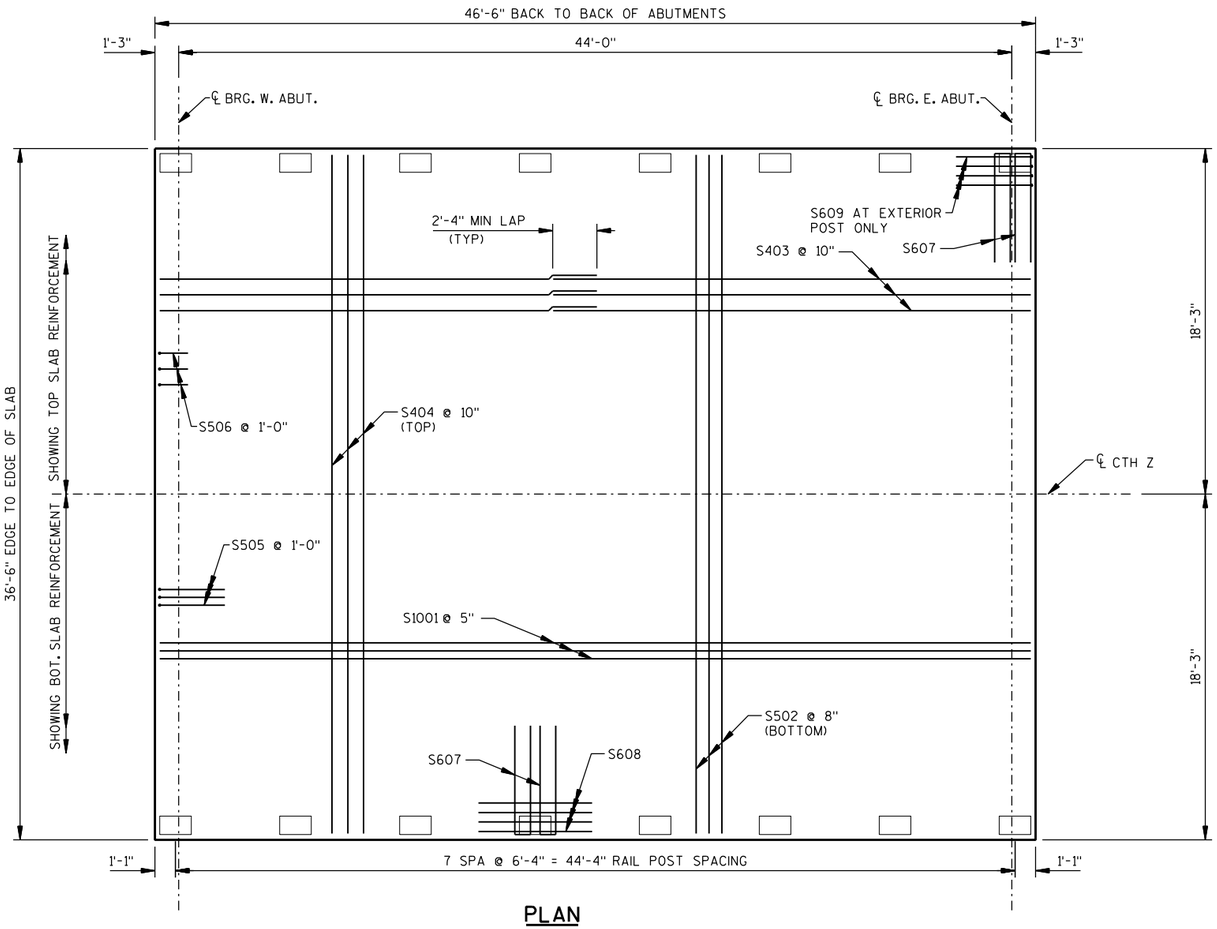


CROSS SECTION THRU BRIDGE
(LOOKING EAST)



CAMBER DIAGRAM

	℄ BRG. W. ABUT.	1/10 PT.	2/10 PT.	3/10 PT.	4/10 PT.	5/10 PT.	6/10 PT.	7/10 PT.	8/10 PT.	9/10 PT.	℄ BRG. E. ABUT.
CAMBER (IN.)	0.0	0.5	1.0	1.3	1.6	1.6	1.6	1.3	1.0	0.5	0.0



PLAN

NOTES

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

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

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

LEGEND

(S01) ¾" CONTINOUS V-DRIP GROOVE (TYP.) END 2'-0" FROM FACE OF ABUTMENT.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-37-434

DRAWN BY KAM | PLANS CK'D. EAB

SUPERSTRUCTURE

SHEET 6 OF 8

8

8

STATE PROJECT NUMBER

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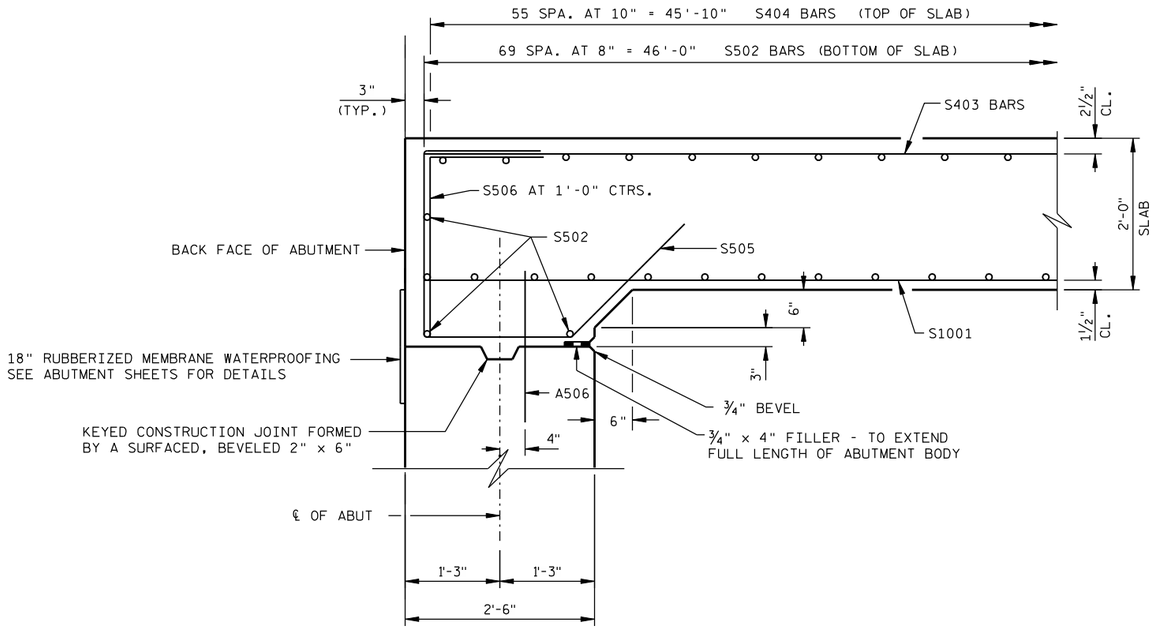


PART LONGITUDINAL SECTION

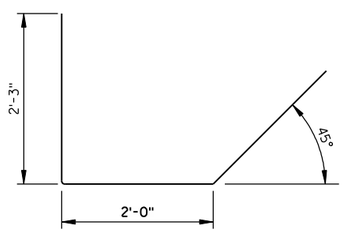
BILL OF BARS

DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT OF BAR.

MARK	NO. REQ'D	LENGTH	BENT	BAR SERIES	LOCATION	
COATED BARS						TOTAL WEIGHT = 24,740 LBS
S1001	87	46 - 0			SLAB, BOTTOM	LONGIT.
S502	76	36 - 0			SLAB, BOTTOM	TRANS.
S403	88	24 - 2			SLAB, TOP	LONGIT.
S404	56	36 - 0			SLAB, TOP	TRANS.
S505	74	6 - 4	X		SLAB, ABUTMENTS TIES	LONGIT.
S506	74	3 - 8	X		SLAB, ABUTMENTS TIES	VERT.
S607	32	12 - 0	X		SLAB AT RAIL POSTS - 2 PER POST	TRANS.
S608	48	6 - 0			SLAB AT INTERIOR POSTS - 4 PER POST	LONGIT.
S609	16	4 - 10	X		SLAB AT EXTERIOR POSTS - 4 PER POST	LONGIT.

TOP OF DECK ELEVATIONS

	CL BRG. W. ABUT.	1/10 PT.	2/10 PT.	3/10 PT.	4/10 PT.	5/10 PT.	6/10 PT.	7/10 PT.	8/10 PT.	9/10 PT.	CL BRG. E. ABUT.
NORTH EDGE OF DECK	1285.68	1285.63	1285.58	1285.53	1285.48	1285.44	1285.40	1285.36	1285.32	1285.28	1285.25
CL OF DECK	1286.05	1286.00	1285.95	1285.90	1285.85	1285.81	1285.77	1285.73	1285.69	1285.65	1285.62
SOUTH EDGE OF DECK	1285.68	1285.63	1285.58	1285.53	1285.48	1285.44	1285.40	1285.36	1285.32	1285.28	1285.25



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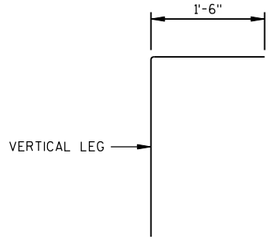

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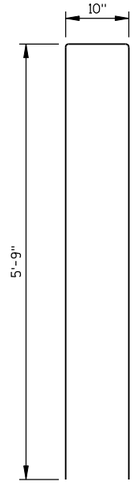

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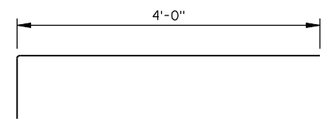

S609

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-37-434

DRAWN BY KAM | PLANS CK'D. EAB

SUPERSTRUCTURE DETAILS

SHEET 7 OF 8

8

8

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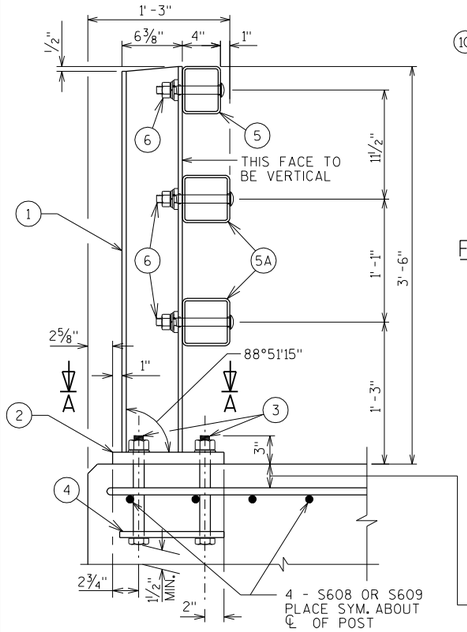
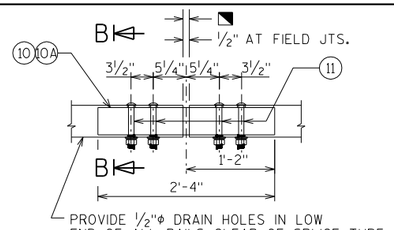
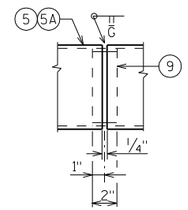
STATE PROJECT NUMBER
9440-04-70



SECTION THRU RAILING ON DECK

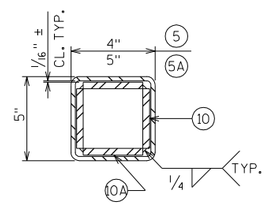


FIELD ERECTION JOINT DETAIL

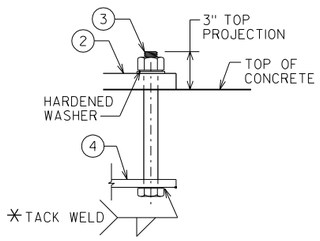


SHOP RAIL SPLICE DETAIL

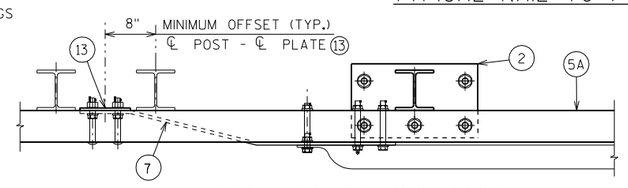
LOCATION MUST BE SHOWN ON SHOP DRAWINGS



SECTION B-B

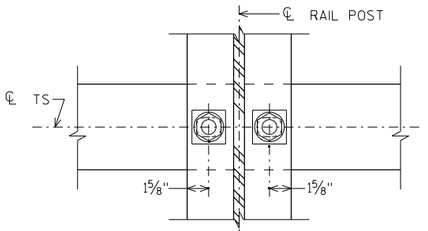


ANCHOR BOLTS

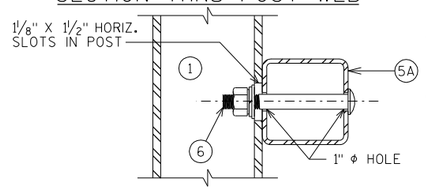


TOP VIEW AT END POST

THRIE BEAM RAIL ATTACHMENT



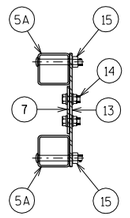
SECTION THRU POST WEB



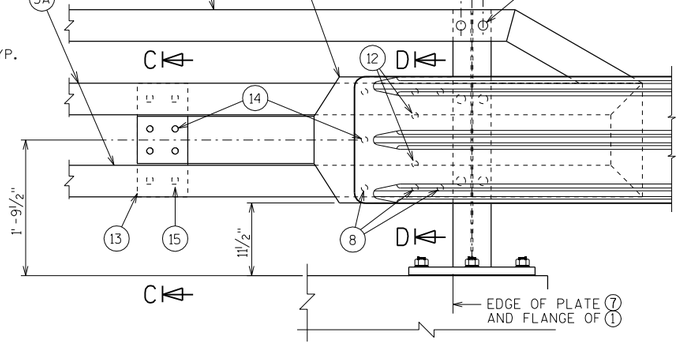
SECTION THRU RAIL

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

TYPICAL RAIL TO POST CONNECTIONS

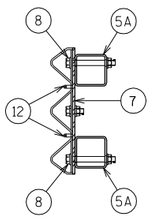


SECTION C-C

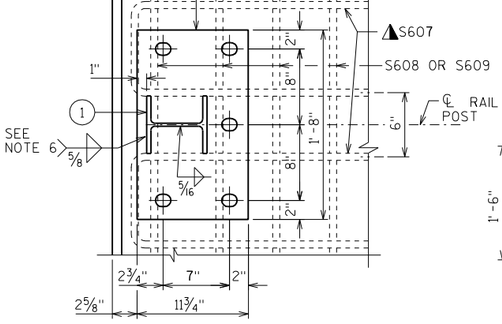


DETAIL AT END POST

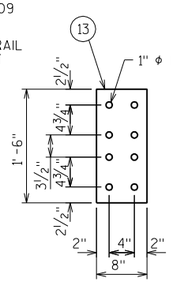
THRIE BEAM RAIL ATTACHMENT



SECTION D-D

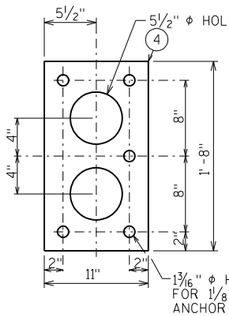


SECTION A-A



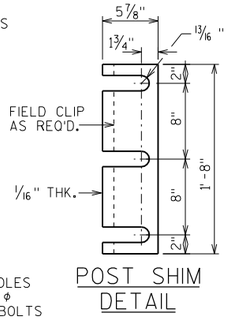
ANCHOR PLATE

AT BEAM GUARD ATTACHMENT

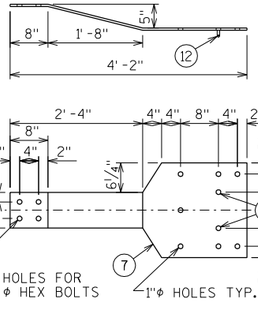


ANCHOR PLATE

AT RAIL TO DECK CONNECTION

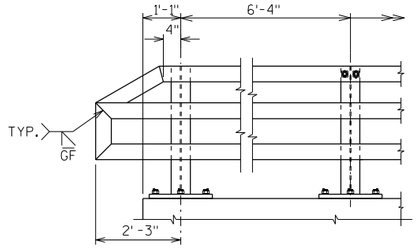


POST SHIM DETAIL



BACK-UP PLATE DETAIL

AT BEAM GUARD ATTACHMENT



PART ELEVATION OF RAILING

LEGEND

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

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

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

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

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

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

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

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

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

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

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

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

⑪ ⅞" Φ A325 ROUND HEAD BOLT WITH NUT, WASHER, AND LOCK WASHER. USE 1⅝" X 1¼" LONGIT. SLOTTED HOLES AT FIELD JOINTS AND 1⅝" X 2¼" MIN. LONGIT. SLOTTED HOLES AT EXP. JOINTS IN PLATE NO. 10A.

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

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

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

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

GENERAL NOTES

1. BID ITEM SHALL BE "RAILING TUBULAR TYPE M B-37-434" WHICH INCLUDES ALL ITEMS SHOWN.
2. RAIL POST AND BASE PLATES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A709 GRADE 50. HOLLOW RAILING STRUCTURAL TUBING SHALL CONFORM TO THE REQUIREMENTS OF ASTM A500 GRADE B OR C WITH A CERTIFIED FY = 50 KSI. ANCHOR PLATES, AND SPLICE TUBE PLATES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A709 GRADE 36.
3. THE NUT SECURING THE POST BASE PLATE TO THE CONCRETE SHALL BE TIGHTENED TO A SNUG FIT AND GIVEN AN ADDITIONAL ⅛ TURN.
4. RAILS SHALL BE CONTINUOUS OVER A MINIMUM OF THREE (3) POSTS WITHOUT SPLICES WHERE POSSIBLE. RAILS SHALL BE SPLICED IN A PANEL OVER EXPANSION JOINTS.
5. ENDS OF TUBE SECTIONS SHALL BE SAWED. GRIND SMOOTH EXPOSED EDGES. ALL CUT ENDS SHALL BE TRUE AND SMOOTH.
6. WELD IS THE SAME ON BOTH FLANGES. FLANGE WELD DOES NOT REQUIRE MAGNETIC PARTICLE TESTING.
7. FILL BOLT SLOT OPENINGS IN POST SHIMS AND PLATE NO. 2 AND CAULK AROUND PERIMETER OF PLATE NO. 2 WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. STEEL POST SHIMS MAY BE USED UNDER POSTS WHERE REQ'D. FOR ALIGNMENT.
8. POST BASE PLATES SHALL BE FLAT WITH ALL SURFACES SMOOTH AND FREE FROM WARP AND ALL EDGES SMOOTH, STRAIGHT AND VERTICAL. ALL PLATE CUTS SHALL BE MACHINE OR MACHINE FLAME CUT.
9. ALL MATERIAL SHALL BE GALVANIZED AFTER FABRICATION. PRIOR TO GALVANIZING, ALL STEEL RAILING POSTS & STEEL TUBING SHALL BE GIVEN A NO. 6 BLAST CLEANING BY SSPC SPECIFICATIONS.
10. WHEN PAINTING IS REQUIRED, ALL MATERIAL EXCEPT ANCHORAGE DETAIL (NO. 3 & 4) SHALL BE PAINTED OVER GALVANIZING WITH APPROVED TIE COAT AND TOP COAT.
11. THIS RAILING MEETS NCHRP REPORT 350 EVALUATION CRITERIA FOR TEST LEVEL 4 (TL-4).
12. PLACE FIRST BOTTOM LONGITUDINAL BAR CLEAR OF DRIP GROOVE.

▲ TIE TO TOP MAT OF STEEL.

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

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-37-434

DRAWN BY KAM | PLANS CK'D. EAB

TUBULAR STEEL RAILING TYPE M

SHEET 8 OF 8

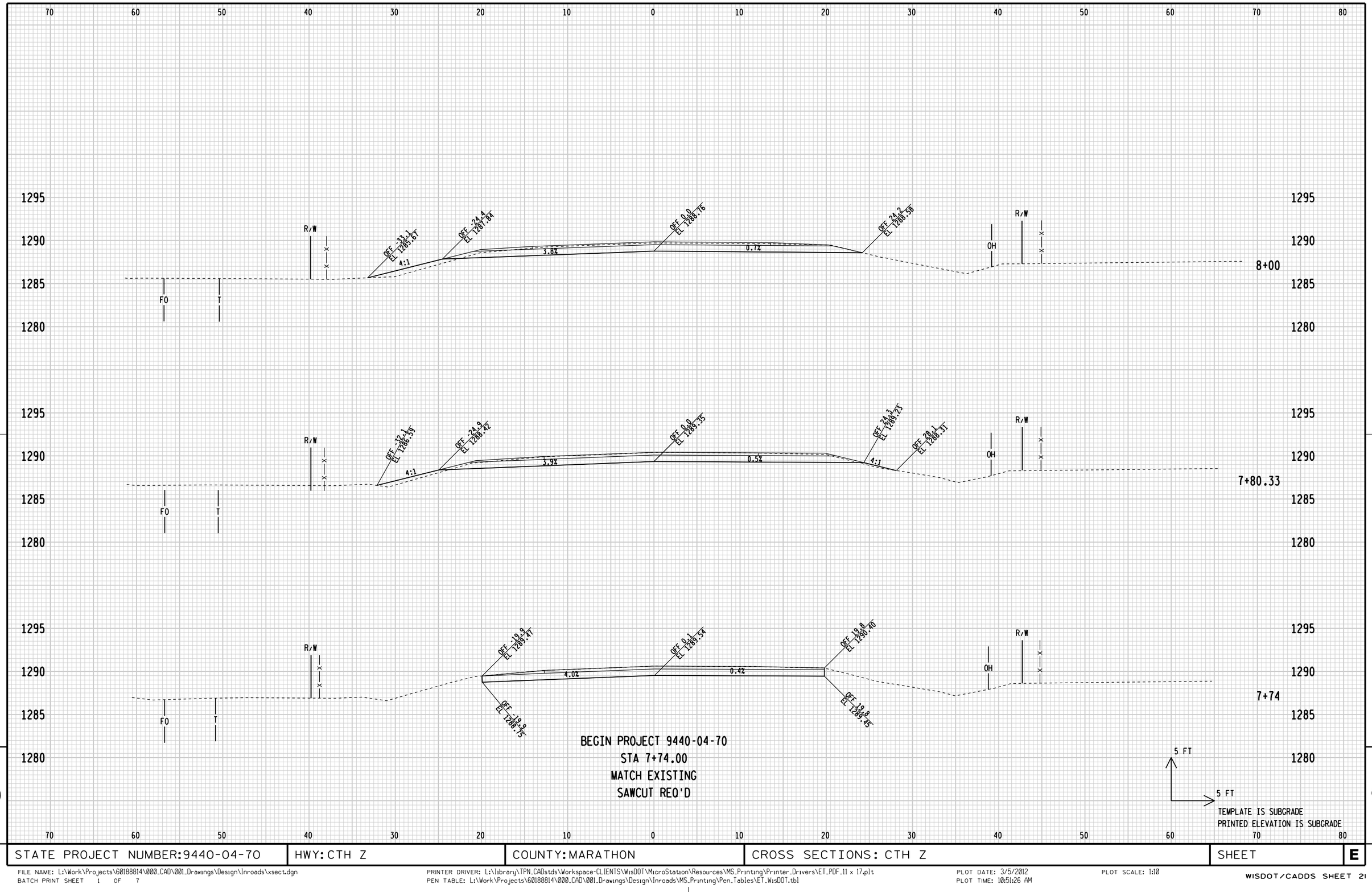
8

8

STATION	Real Station	Distance	AREA (SF) Cut	Salvaged/Unusable Pavement Material	Fill	Marsh Exc	Rock Exc	EBS	Incremental Vol (CY) (Unadjusted) Cut Note 1	Salvaged/Unusable Pavement Material Note 2	Fill Note 3	Marsh Exc	Rock Exc	EBS	Cumulative Vol (CY) Cut 1.00 Note 1	Expanded Fill 1.25	Expanded Marsh Backfill 1.50 Note 4	Expanded Rock 1.10	Expanded EBS Backfill 1.30 Note 5	Reduced Marsh in Fill 0.60 Note 6	Reduced EBS In Fill 0.80 Note 7	Mass Ordinate Note 8
7+74.00	774		41.04	11	0.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7+80.33	780	6	41.37	11	4.24	0	0	0	9	2	0	0	0	0	9	1	0	0	0	0	0	6
8+00.00	800	20	39.51	11	4.52	0	0	0	30	8	3	0	0	0	39	5	0	0	0	0	0	24
8+50.00	850	50	35.35	11	14.49	0	0	0	69	20	18	0	0	0	108	27	0	0	0	0	0	51
8+74.43	874	24	31.41	11	26.54	0	0	0	30	10	18	0	0	0	138	49	0	0	0	0	0	48
9+00.00	900	26	29.30	11	23.56	0	0	0	29	11	24	0	0	0	167	80	0	0	0	0	0	36
9+27.52	928	28	22.92	11	9.58	0	0	0	27	11	17	0	0	0	194	101	0	0	0	0	0	31
9+50.00	950	22	21.03	11	12.07	0	0	0	18	9	9	0	0	0	212	112	0	0	0	0	0	29
9+76.75	977	27	71.01	11	1.37	0	0	0	46	11	7	0	0	0	258	120	0	0	0	0	0	60
					West End Sub-Totals				260	80	90	0	0	0								

STATION	Real Station	Distance	AREA (SF) Cut	Salvaged/Unusable Pavement Material	Fill	Marsh Exc	Rock Exc	EBS	Incremental Vol (CY) (Unadjusted) Cut Note 1	Salvaged/Unusable Pavement Material Note 2	Fill Note 3	Marsh Exc	Rock Exc	EBS	Cumulative Vol (CY) Cut 1.00 Note 1	Expanded Fill 1.25	Expanded Marsh Backfill 1.50 Note 4	Expanded Rock 1.10	Expanded EBS Backfill 1.30 Note 5	Reduced Marsh in Fill 0.60 Note 6	Reduced EBS In Fill 0.80 Note 7	Mass Ordinate Note 8
10+23.25	1023		76.18	11	0.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10+50.00	1050	27	41.69	11	2.06	0	0	0	59	11	1	0	0	0	59	2	0	0	0	0	0	46
10+84.97	1085	35	41.71	11	1.80	0	0	0	54	14	3	0	0	0	113	5	0	0	0	0	0	83
11+00.00	1100	15	41.24	11	27.08	0	0	0	23	6	8	0	0	0	136	15	0	0	0	0	0	90
11+38.06	1138	38	36.44	11	57.69	0	0	0	55	15	60	0	0	0	191	89	0	0	0	0	0	55
11+50.00	1150	12	35.32	11	53.07	0	0	0	16	5	25	0	0	0	207	120	0	0	0	0	0	35
12+00.00	1200	50	36.27	11	28.43	0	0	0	66	20	75	0	0	0	273	214	0	0	0	0	0	-14
12+50.00	1250	50	38.72	11	12.30	0	0	0	69	20	38	0	0	0	342	262	0	0	0	0	0	-12
12+58.07	1258	8	37.07	11	0.00	0	0	0	11	3	2	0	0	0	354	264	0	0	0	0	0	-10
					East End Sub-Totals				350	95	210	0	0	0								

Notes:		
1 - Cut	Cut includes Salvaged/Unusable Pavement material	
2 - Salvaged/Unusable Pavement Material	This does not show up in cross sections	
3 - Fill	Does not include Unusable Pavement Exc volume	
4 - Expanded Marsh Backfill	Will be backfilled with Granular Backfill (or Cut, or Borrow)	Note 4 - Select one based on input dialog selection
5 - Expanded EBS	Will be backfilled with Granular Backfill (or Cut, or Borrow)	Note 5 - Select one based on input dialog selection
6 - Reduced Marsh in Fill	Reduced Marsh Excavation that can be used in Fill	Note 6 - If excavated Marsh can be used in Fill
7 - Reduced EBS in Fill	Reduced EBS Excavation that can be used in Fill	Note 7 - If excavated EBS can be used in Fill
8 - Mass Ordinate	If Marsh or EBS to be backfilled with Cut or Borrow: [(Cut + Marsh Exc + EBS) - ((Fill - Reduced Marsh in Fill) - (Reduced EBS in Fill) - Expanded Rock) * Fill Factor)]	Note 8 - Select one based on mass haul input dialog selection. EBS and Marsh Exc used outside 1:1 in fill slopes
8 - Mass Ordinate	If Marsh and EBS to be backfilled with Granular: [(Cut + EBS + Marsh Exc) - ((Fill - (Reduced Marsh in Fill) - (Reduced EBS in Fill) - (Expanded Rock)) * Fill Factor))]	EBS and Marsh Exc used outside 1:1 in fill slopes
8 - Mass Ordinate	If Marsh and EBS to be backfilled with Granular: [(Cut) - ((Fill - Expanded Rock) * Fill Factor))]	Marsh and EBS are not usable outside the 1:1 slopes
8 - Mass Ordinate	If Marsh and EBS to be backfilled with Cut or Borrow: [(Cut) - ((Fill - Expanded Rock) * Fill Factor))]	Marsh and EBS are not usable outside the 1:1 slopes



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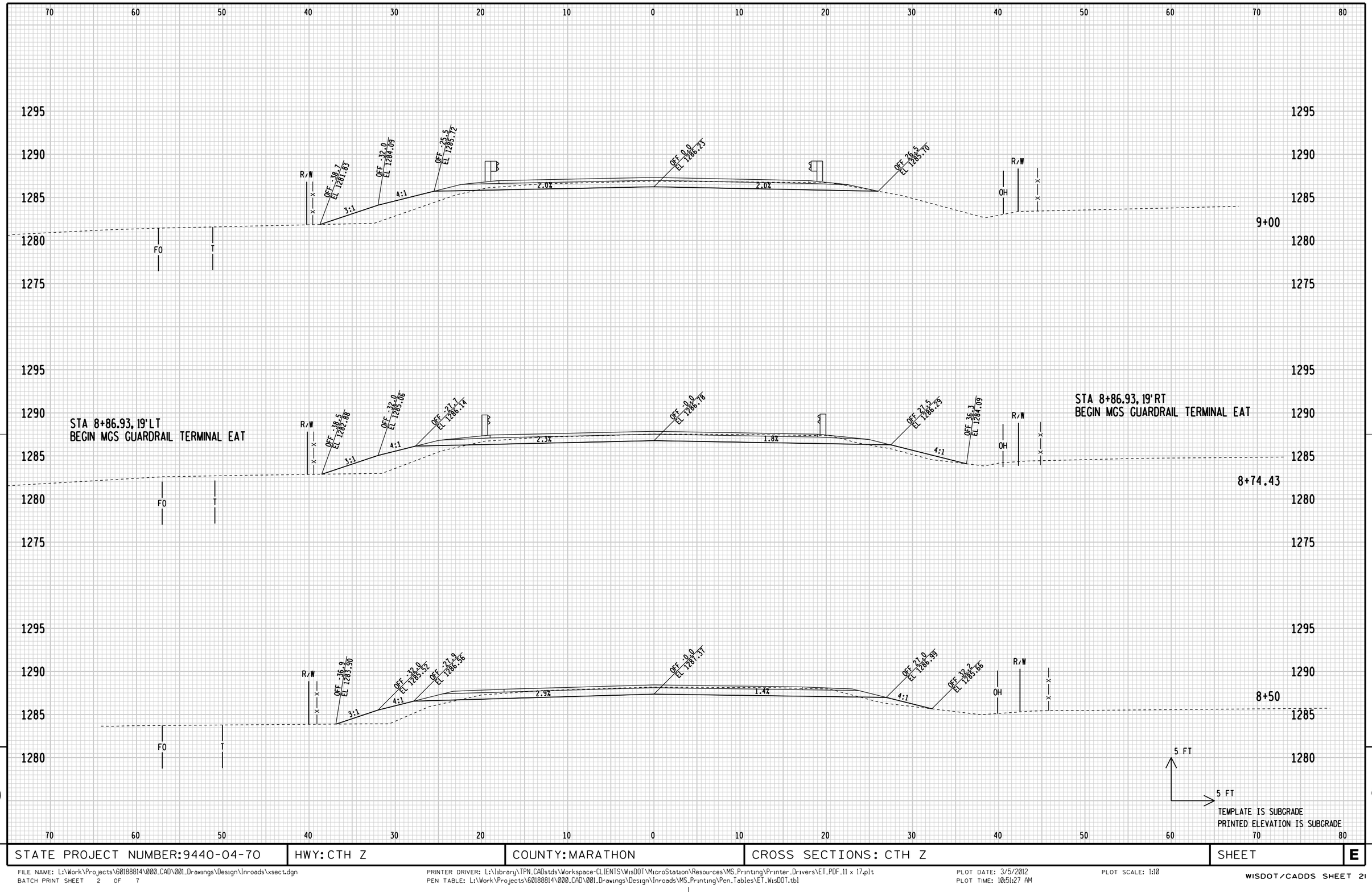

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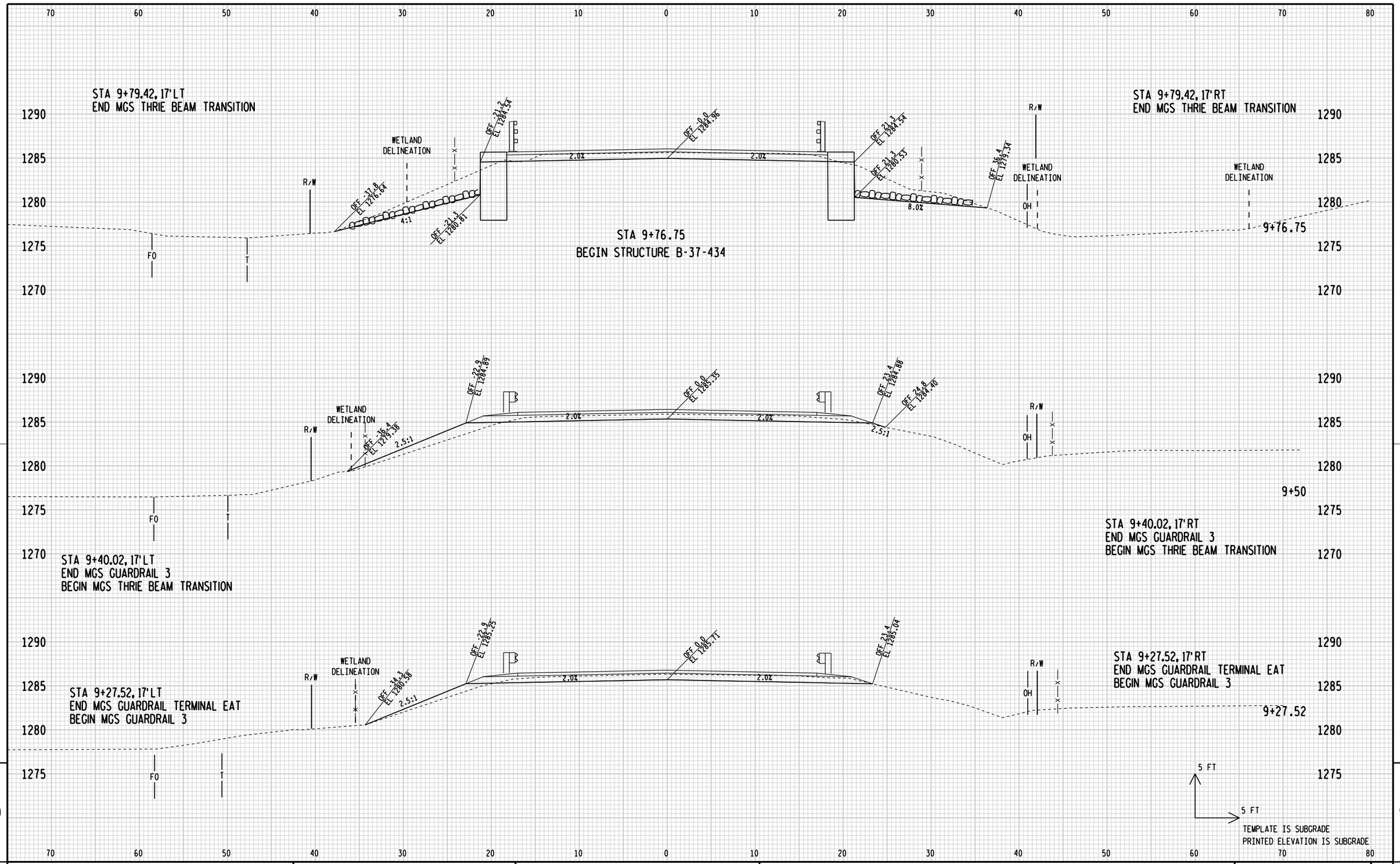

STATE PROJECT NUMBER: 9440-04-70	HWY: CTH Z	COUNTY: MARATHON	CROSS SECTIONS: CTH Z	SHEET	E

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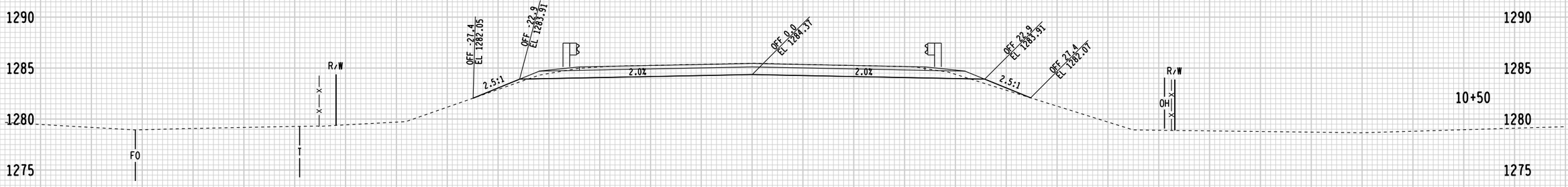
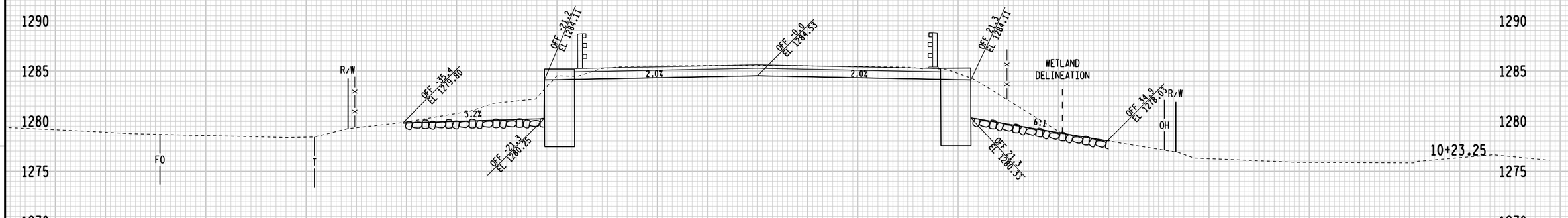
WISDOT/CADDS SHEET 21

STA 10+59.98, 17' RT
END MGS THRIE BEAM TRANSITION
BEGIN MGS GUARDRAIL 3

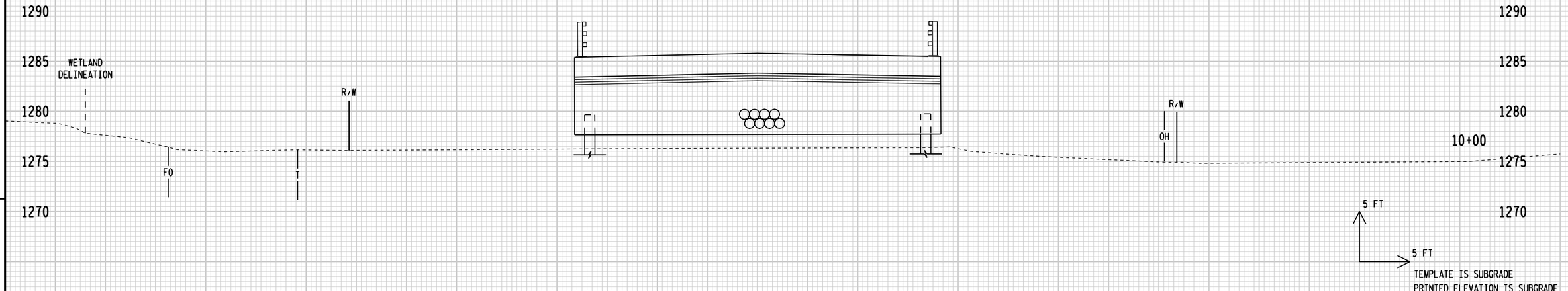


STA 10+23.25
END STRUCTURE B-37-434



STA 10+20.58, 17' LT
BEGIN MGS THRIE BEAM TRANSITION

STA 10+20.58, 17' RT
BEGIN MGS THRIE BEAM TRANSITION



STATE PROJECT NUMBER: 9440-04-70	HWY: CTH Z	COUNTY: MARATHON	CROSS SECTIONS: CTH Z	SHEET	E

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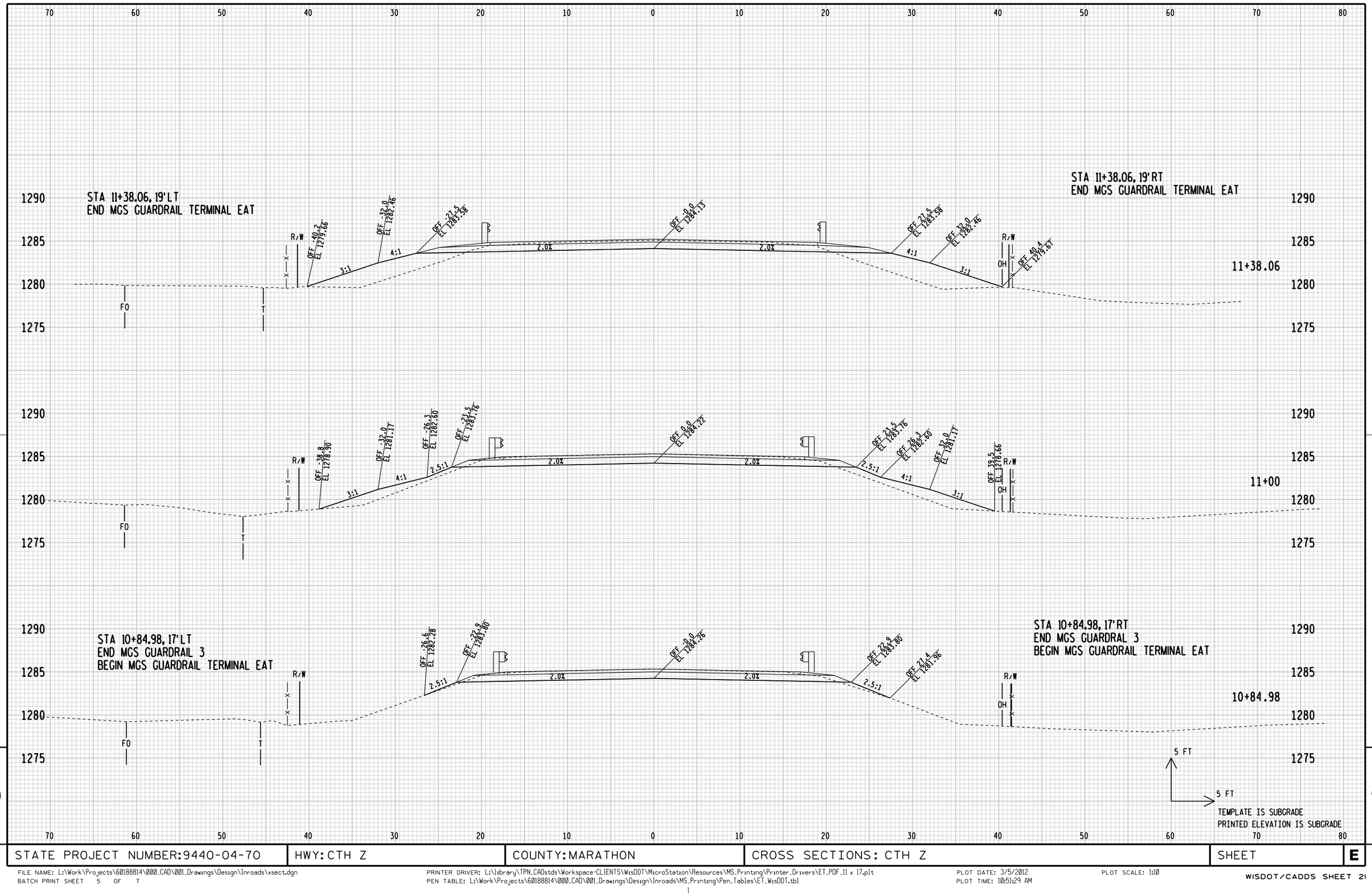
WISDOT/CADDS SHEET 21



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BATCH PRINT SHEET 5 OF 7
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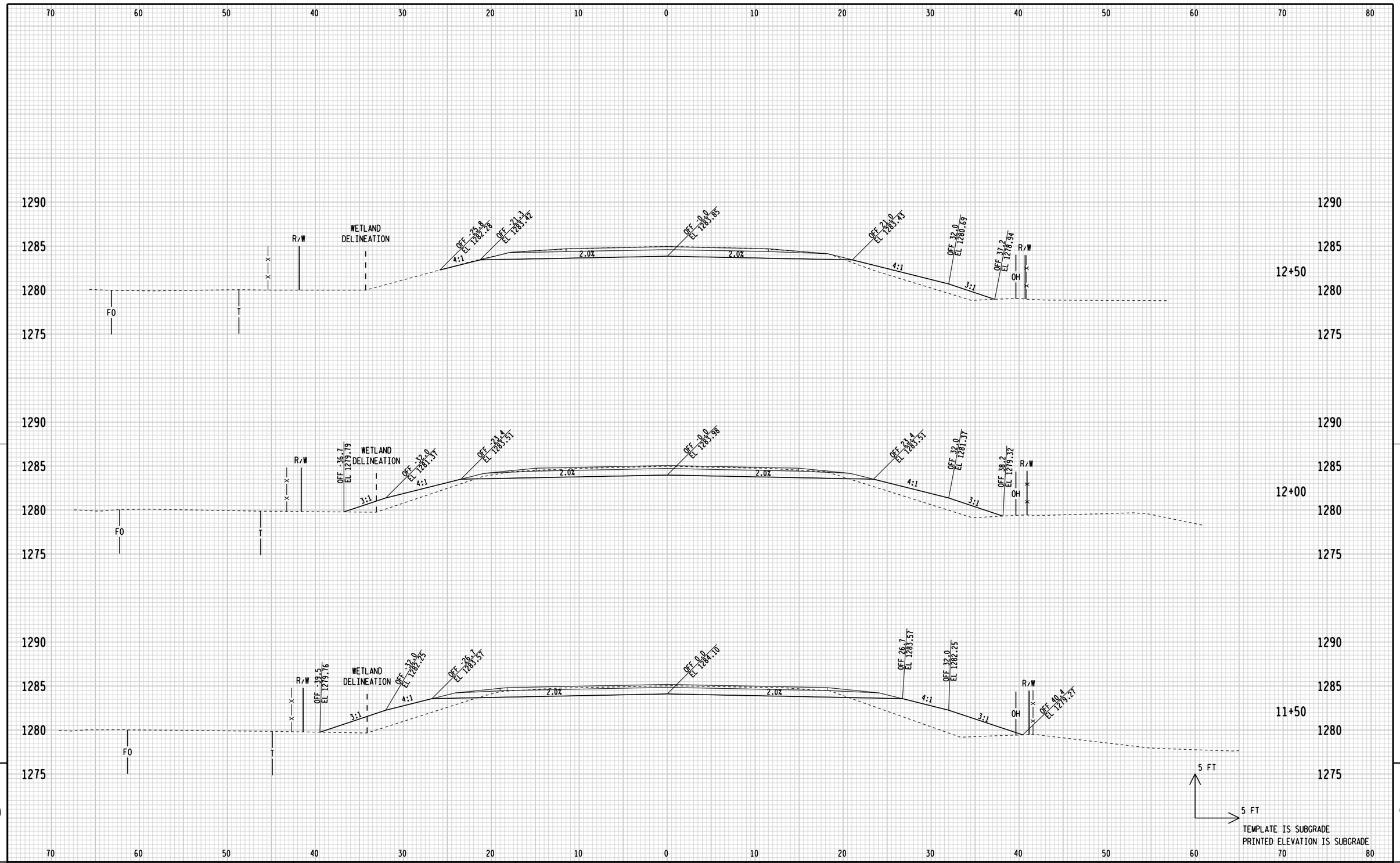
WISDOT/CADDS SHEET 21



STATE PROJECT NUMBER:9440-04-70	HWY:CTH Z	COUNTY:MARATHON	CROSS SECTIONS: CTH Z	SHEET	E

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BATCH PRINT SHEET 6 OF 7
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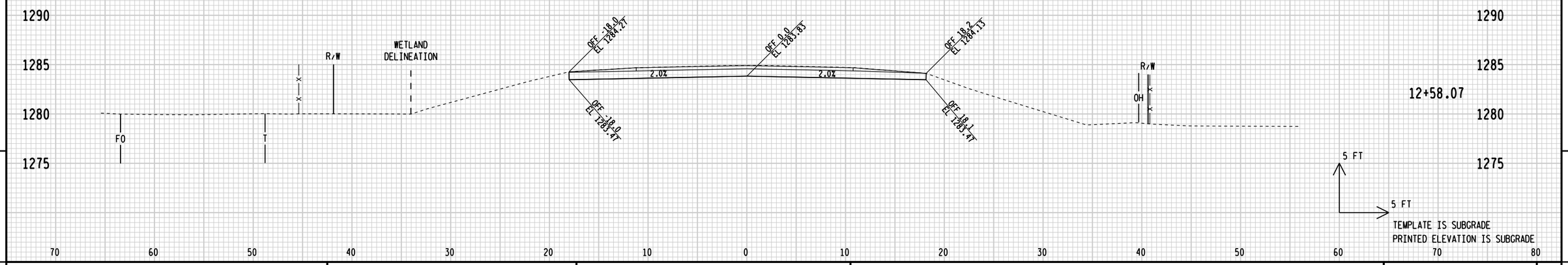
WISDOT/CADDS SHEET 21

END PROJECT 9440-04-70
STA 12+58.07
MATCH EXISTING
SAW CUT REQUIRED



STATE PROJECT NUMBER:9440-04-70	HWY: CTH Z	COUNTY: MARATHON	CROSS SECTIONS: CTH Z	SHEET	E

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BATCH PRINT SHEET 7 OF 7

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WISDOT/CADDS SHEET 21