SUP

PROJECT ID: 8590-01-76

WITH: N/A

COUNTY: SAWYER

47

MAY 2017

ORDER OF SHEETS

TOTAL SHEETS = 118

N

DESIGN DESIGNATION

A.A.D.T.	2017	=	1,390
A.A.D.T.	2037	=	1,590
D.H.V.	2037	=	300
D.D.		=	60/40
T.		=	11.4%
DESIGN SPEED		=	35
ESALS		=	390,000

CONVENTIONAL SYMBOLS

PLAN

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

PROFILE

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

UTILITIES

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

BRUCE - RADISSON

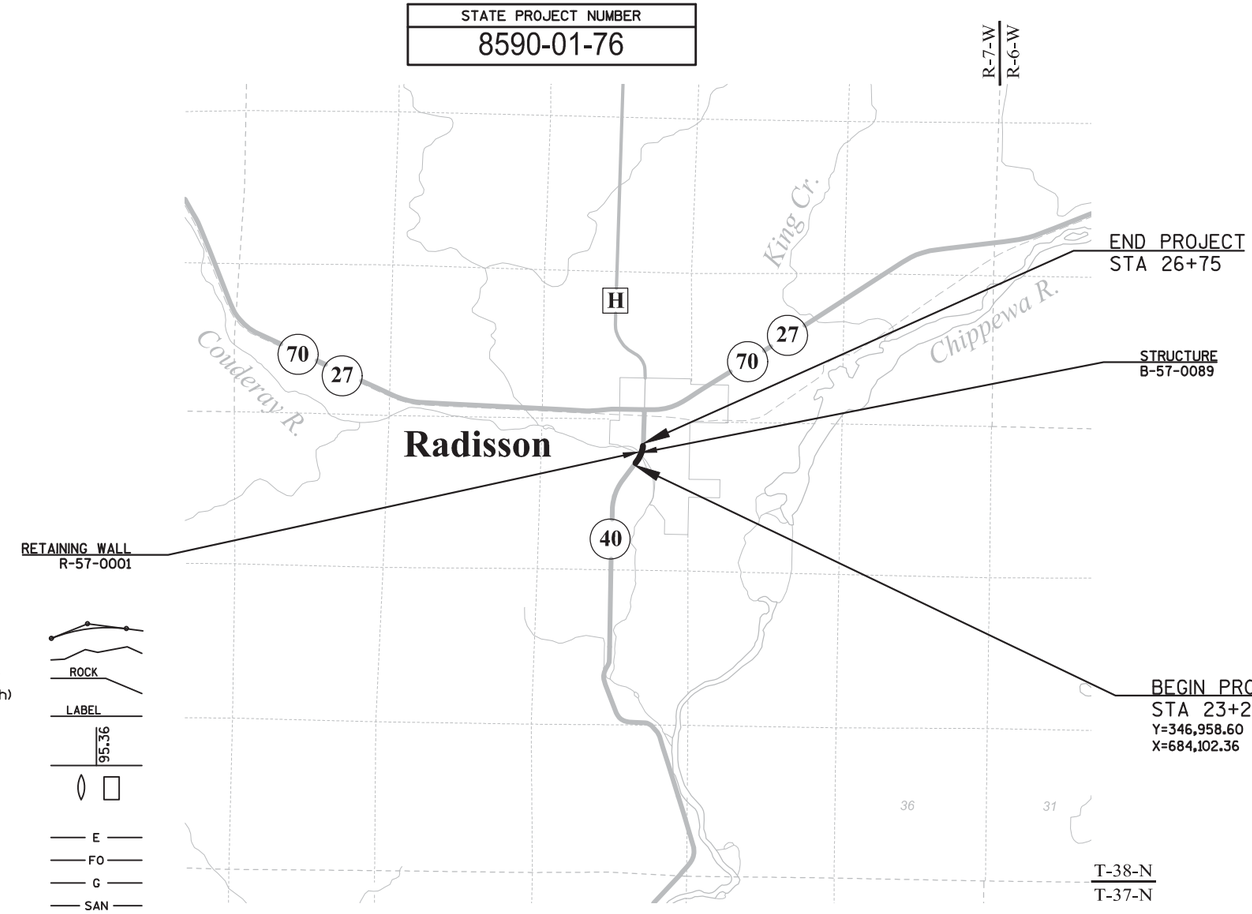
COUDERAY RIVER BRIDGE B-57-0089

STH 40

SAWYER COUNTY

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
8590-01-76	———	———

STATE PROJECT NUMBER
8590-01-76



LAYOUT

SCALE 0 1 MILE

TOTAL NET LENGTH OF CENTERLINE = 0.067

COORDINATES ON THIS PLAN ARE REFERENCED TO THE WISCONSIN COUNTY COORDINATE SYSTEM (WCCS), SAWYER COUNTY (NAD 83) 2011 ADJUSTMENT.

ALL ELEVATIONS ON THIS PROJECT ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88).

emcs inc
500 North 17th Avenue
Wausau, WI 54401
715.845.1081 Fax 715.845.1099

WISCONSIN PROFESSIONAL ENGINEER
STEPHANIE G. CHRISTENSEN
E35808
WAUSAU, WI

1/11/17 Stephanie G. Christensen
(Date) (Signature)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY

Surveyor	EMCS, INC.
Designer	EMCS, INC.
Project Manager	PHILIP KEPPERS
Regional Examiner	TOU YANG
Regional Supervisor	DAVID OSTROWSKI

APPROVED FOR THE DEPARTMENT

DATE: 1/11/2017 Philip L Keppers (Signature)

E

2

GENERAL NOTES

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

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

EXISTING RIGHT-OF-WAY SHOWN IS APPROXIMATE AND IS BASED ON AVAILABLE RIGHT-OF-WAY PLATS. NO WORK SHALL OCCUR OUTSIDE OF EXISTING RIGHT-OF-WAY.

AS-BUILTS USED FOR PLAN DEVELOPMENT

PROJECT NO: 8590-02-71 , CONSTRUCTION YEAR: 2004

ORDER OF SECTION 2 SHEETS

UTILITIES

BEVCOMM
(COMMUNICATION LINE)
RANDY MONNIER
N3767 4TH STREET
WEYERHAUSER, WI 54895
PHONE: (715) 353-2728
MOBILE: (715) 492-5029
rmonnier@bevcomm.com

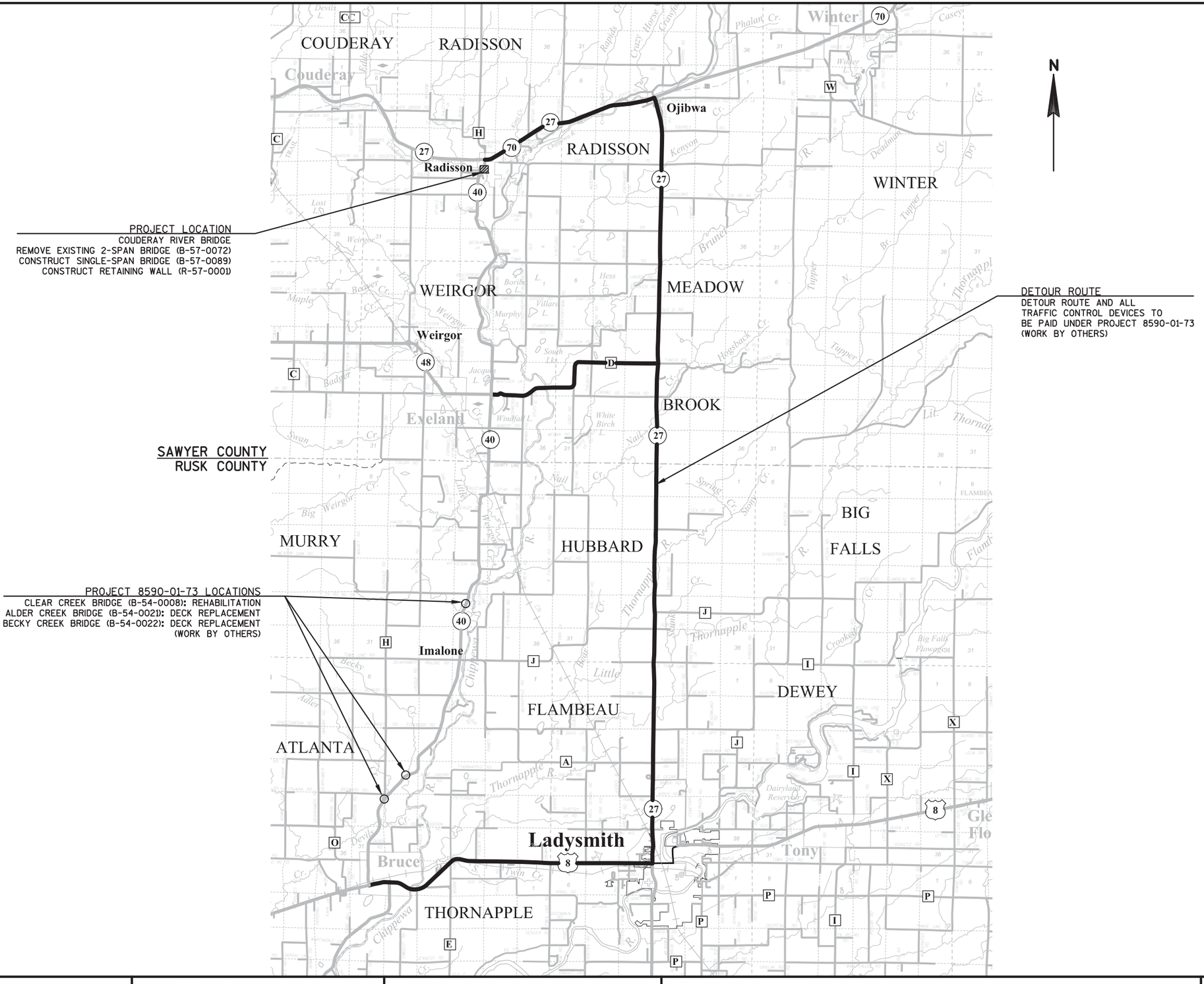
NORTH CENTRAL POWER CO INC
(ELECTRIC DISTRIBUTION)
MIKE HEATH
3661 NORTH CLARK STREET
PO BOX 68
RADISSON, WI 54867
PHONE: (715) 945-2630
MOBILE: (715) 492-6407
ncpmike85@yahoo.com

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

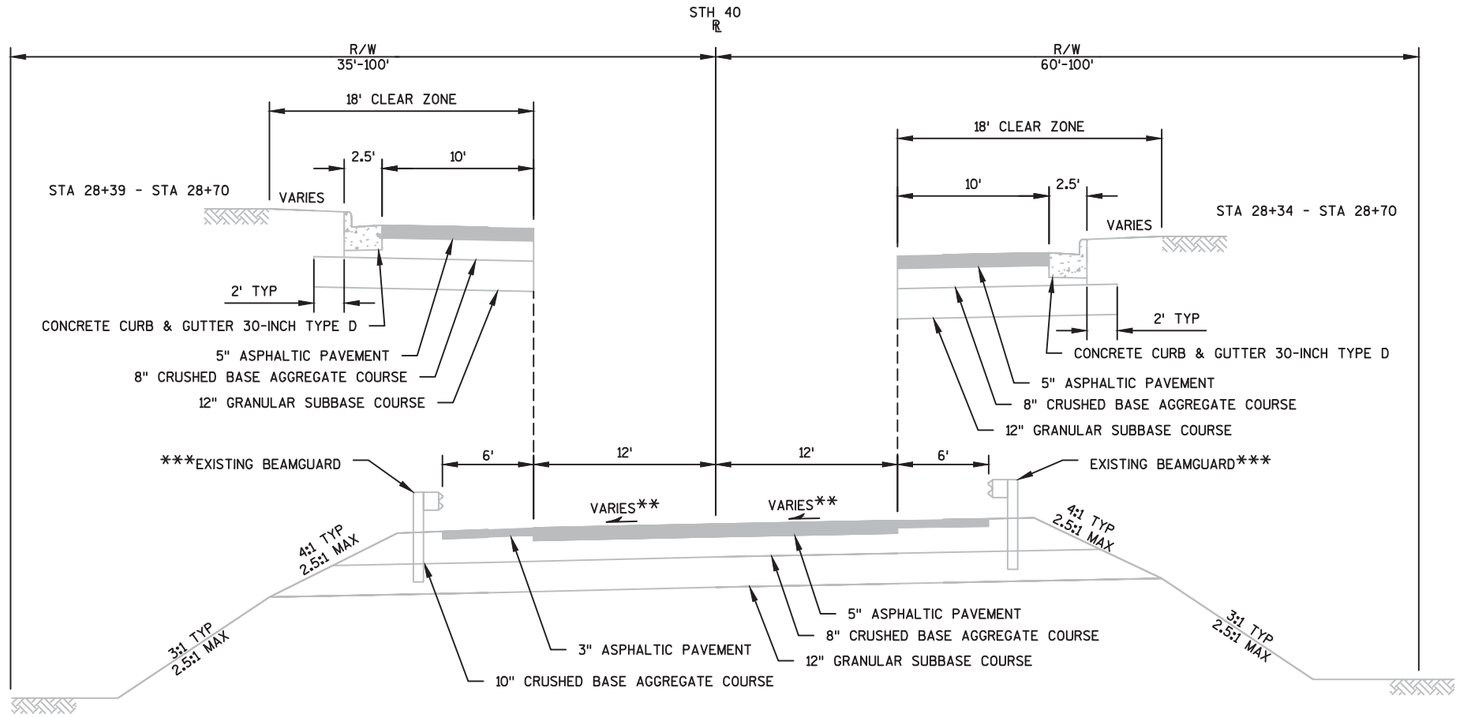
OTHER CONTACTS

DNR LIAISON
SHAWN HASELEU
810 W MAPLE ST
SPOONER, WI 54801
(715) 635-4228
SHAWN.HASELEU@WISCONSIN.GOV

US ARMY CORPS OF ENGINEERS
WILLIAM SANDE
US ARMY CORPS OF ENGINEERS
15945 RIVERS EDGE DRIVE, SUITE 240
HAYWARD, WI 54843
(715) 934-2170

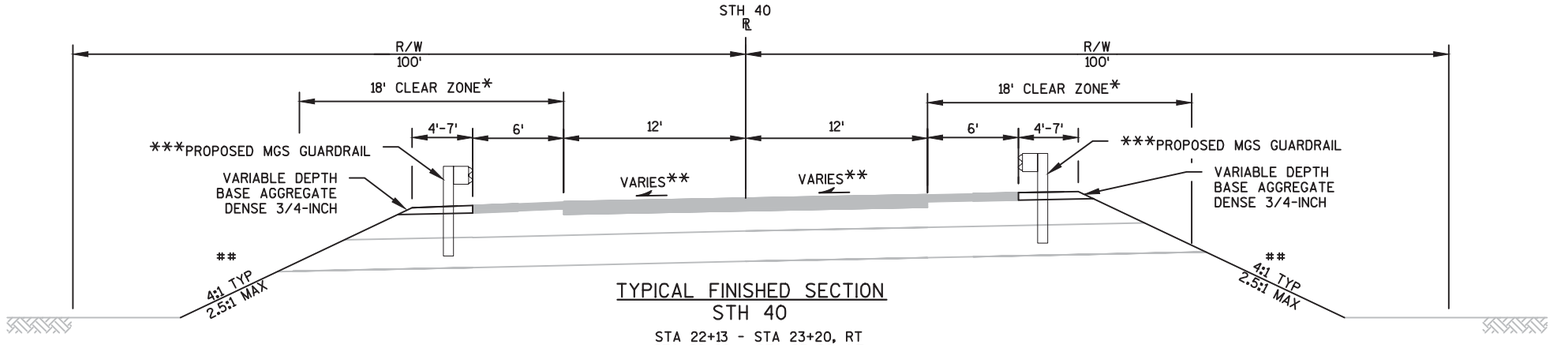


PROJECT NO: 8590-01-76	HWY: STH 40	COUNTY: SAWYER	PROJECT OVERVIEW	SHEET 3	E



TYPICAL EXISTING SECTION
STH 40

STA 22+13 - STA 24+14.91 (B-57-0072)
STA 25+96.65 (B-57-0072) - STA 28+70



TYPICAL FINISHED SECTION
STH 40

STA 22+13 - STA 23+20, RT
STA 22+26 - STA 23+20, LT
STA 26+75 - STA 27+26, RT
STA 26+75 - STA 27+75, LT

NOTES

* 18' CLEAR ZONE IN LOCATIONS WHERE GUARDRAIL IS NOT PRESENT.

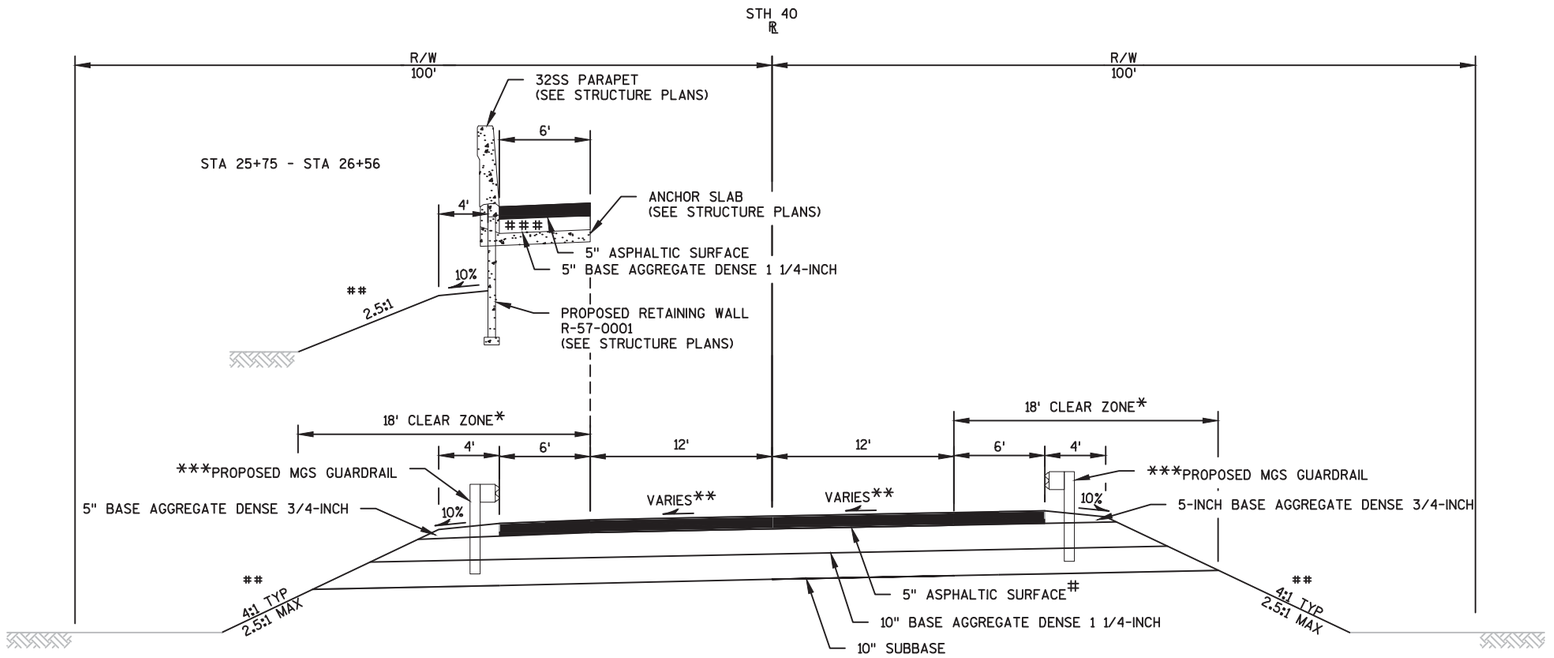
** CROSS SLOPE VARIES DUE TO SUPERELEVATION. SEE ALIGNMENT PLAN SHEET FOR ADDITIONAL INFORMATION.

*** SEE SECTION 5 PLAN SHEET FOR LIMITS OF EXISTING BEAMGUARD, PROPOSED GUARDRAIL, AND GRADING.

** TOPSOIL, SEED, FERTILIZER AND EROSION MAT OR RIPRAP. SEE SECTION 5 PLAN AND STRUCTURE PLANS FOR RIPRAP LOCATIONS.

PROJECT NO: 8590-01-76	HWY: STH 40	COUNTY: SAWYER	TYPICAL SECTIONS	SHEET 4	E

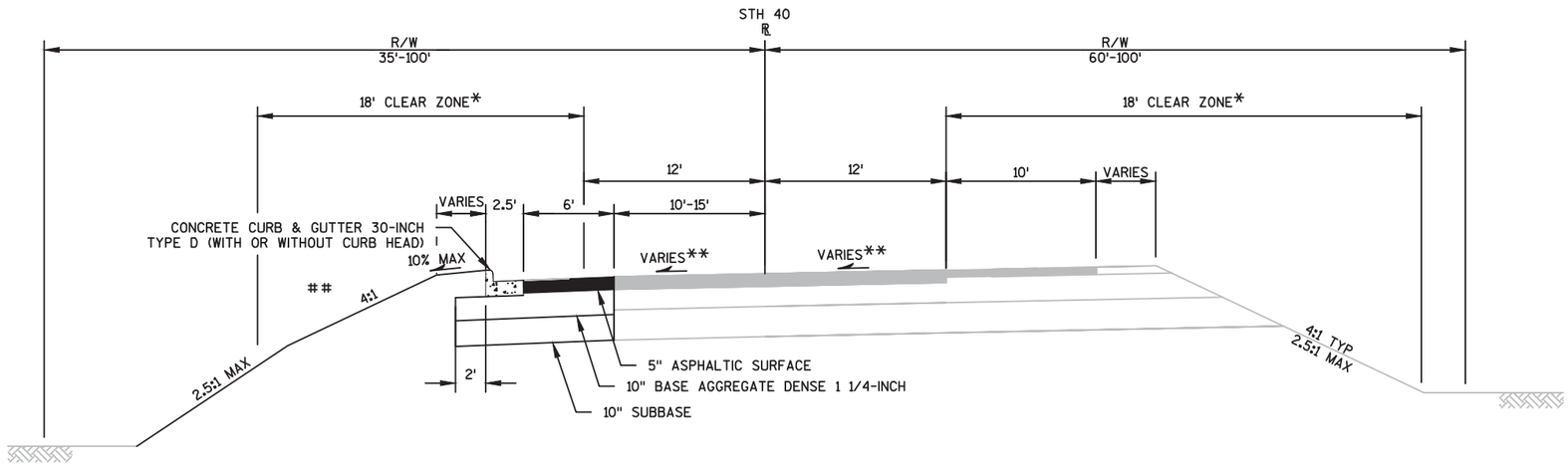
2



TYPICAL FINISHED SECTION

STH 40

STA 23+20 - STA 24+50.10 (B-57-0089)
STA 25+66.75 (B-57-0089) - STA 26+75



TYPICAL FINISHED SECTION

STH 40

STA 27+75 - STA 28+70

NOTES

* 18' CLEAR ZONE IN LOCATIONS WHERE GUARDRAIL IS NOT PRESENT.

** CROSS SLOPE VARIES DUE TO SUPERELEVATION. SEE ALIGNMENT PLAN SHEET FOR ADDITIONAL INFORMATION. PAVE SHOULDERS AT SAME CROSS SLOPE AS TRAVEL LANES.

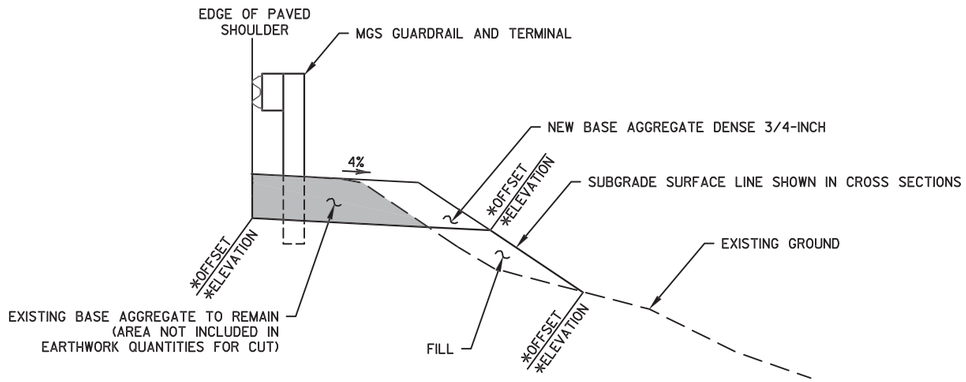
*** SEE SECTION 5 PLAN SHEET FOR LIMITS OF EXISTING BEAMGUARD, PROPOSED GUARDRAIL, AND GRADING.

\# SEE SECTION 5 PLAN SHEET AND SDD "CONCRETE BRIDGE APPROACH" FOR CONCRETE PAVEMENT APPROACH SLAB LIMITS AND ADDITIONAL INFORMATION.

TOPSOIL, SEED, FERTILIZER AND EROSION MAT OR RIPRAP. SEE SECTION 5 PLAN AND STRUCTURE PLANS FOR RIPRAP LOCATIONS.

PLACE BASE AGGREGATE DENSE 3/4-INCH UNDER CONCRETE PAVEMENT 7-INCH AND CONCRETE PAVEMENT APPROACH SLABS. SEE SECTION 5 PLAN SHEET FOR CONCRETE PAVEMENT LOCATIONS.

PROJECT NO: 8590-01-76	HWY: STH 40	COUNTY: SAWYER	TYPICAL SECTIONS	SHEET 5	E



SHOULDER WIDENING EARTHWORK & BASE AGGREGATE FOR GUARDRAIL DETAIL

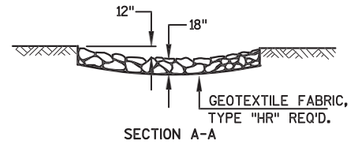
APPROACHES OUTSIDE FULL RECONSTRUCTION AREA

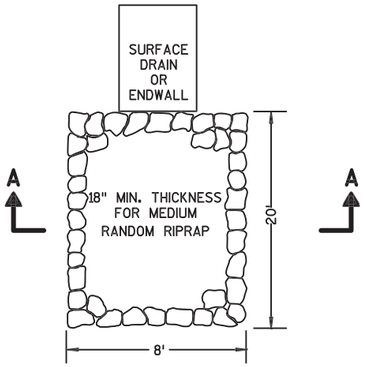
NOTES

GUARDRAIL INSTALLATION TO BE MEASURED FROM REFERENCE LINE.

BENCH FILL AS REQUIRED PER STANDARD SPECIFICATION 205.3.2(4).

* OFFSET AND ELEVATION PROVIDED TO THESE POINTS ON THE CROSS SECTIONS.





NOTE

SEE EROSION CONTROL PLANS FOR ADDITIONAL INFORMATION.

MEDIUM RANDOM RIPRAP TREATMENT AT SURFACE DRAINS AND ENDWALLS

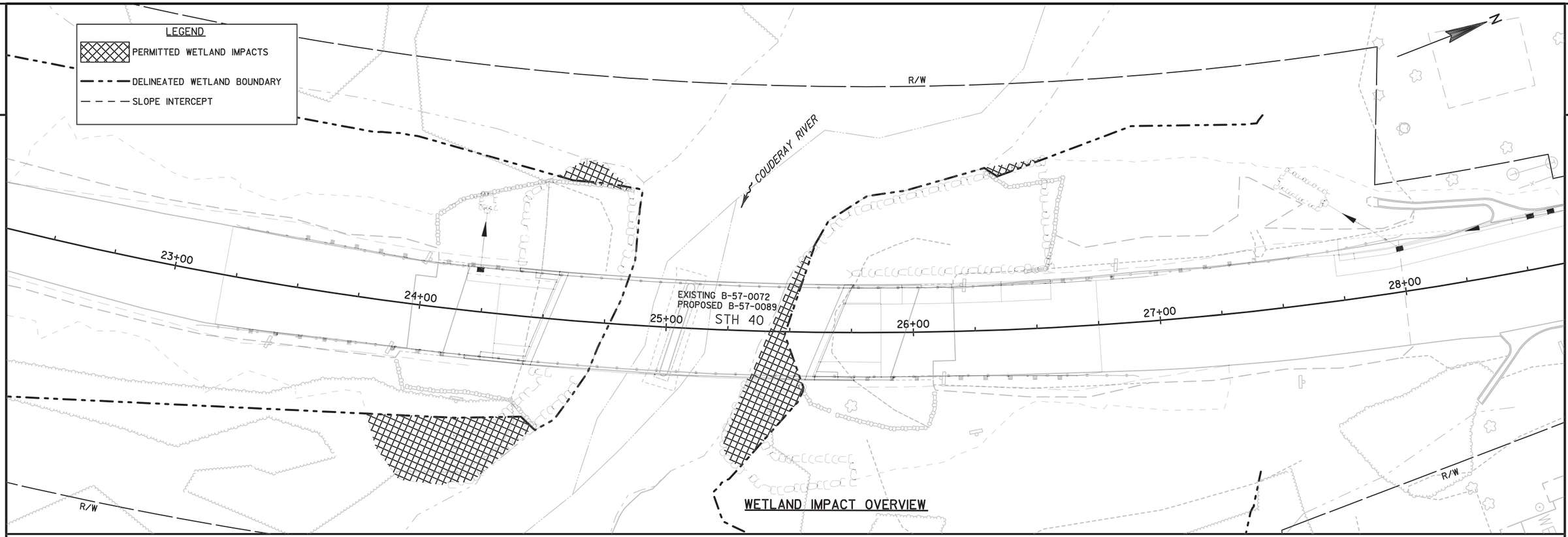
STA 24+23, LT
STA 27+70, LT

RUNOFF COEFFICIENT TABLE

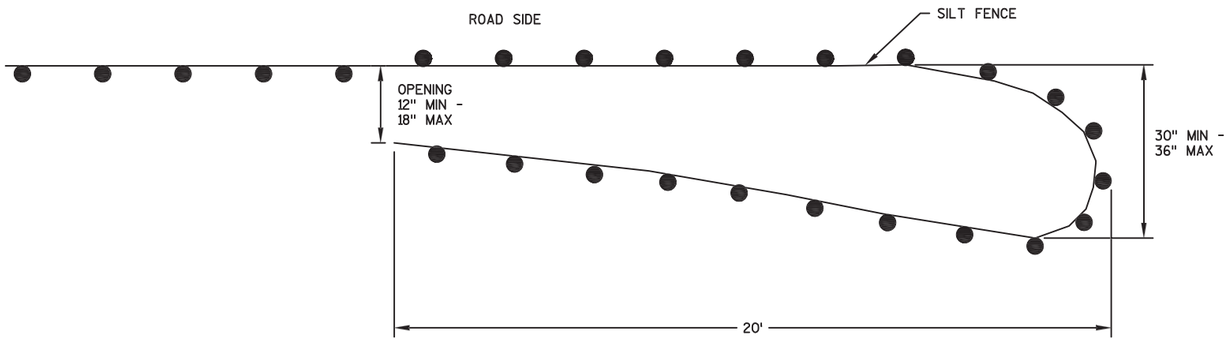
	HYDROLOGIC SOIL GROUP											
	A			B			C			D		
	SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)		
LAND USE:	0-2	2-6	6 & OVER	0-2	2-6	6 & OVER	0-2	2-6	6 & OVER	0-2	2-6	6 & OVER
ROW CROPS	.08 .22	.16 .30	.22 .38	.12 .26	.20 .34	.27 .44	.15 .30	.24 .37	.33 .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 = 2.95 ACRES
TOTAL AREA EXPECTED TO BE DISTURBED BY CONSTRUCTION ACTIVITIES = 1.02 ACRES

2



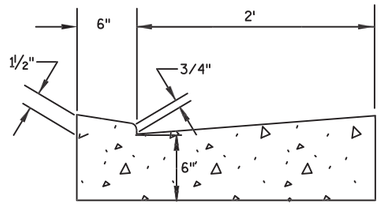
WETLAND IMPACT OVERVIEW



TEMPORARY SMALL ANIMAL TURN-AROUND

NOTE
SILT FENCE POSTS FOR THE TURN-AROUND SHOULD BE ON THE OUTSIDE OF THE TURN-AROUND AND TRENCHED IN ACCORDING TO SILT FENCE REQUIREMENTS.

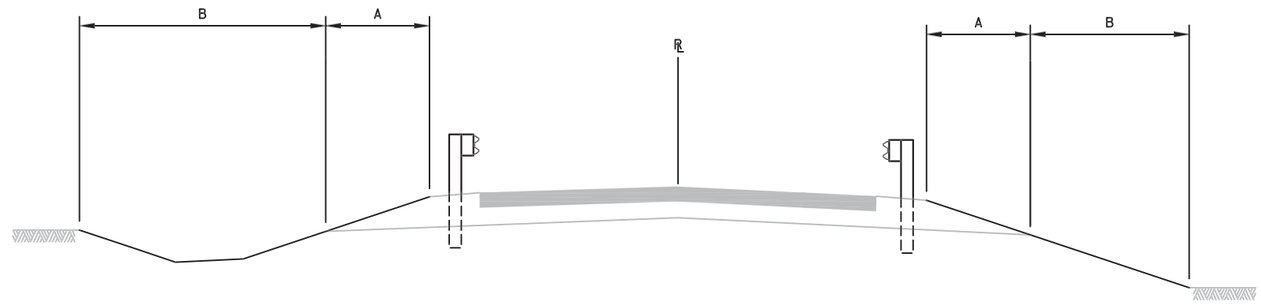
PROJECT NO: 8590-01-76	HWY: STH 40	COUNTY: SAWYER	CONSTRUCTION DETAILS	SHEET 7	E



CONCRETE CURB & GUTTER 30-INCH TYPE D WITH NO CURB

STA 28+47 TO STA 28+53, LT

CONCRETE CURB & GUTTER WITH NO CURB HEAD
TO BE PAID FOR AS CONCRETE CURB & GUTTER 30-INCH TYPE D
(FOR DETAILS NOT SHOWN, SEE "SDD CONCRETE CURB,
CONCRETE CURB & GUTTER AND TIES")



CUT

FILL

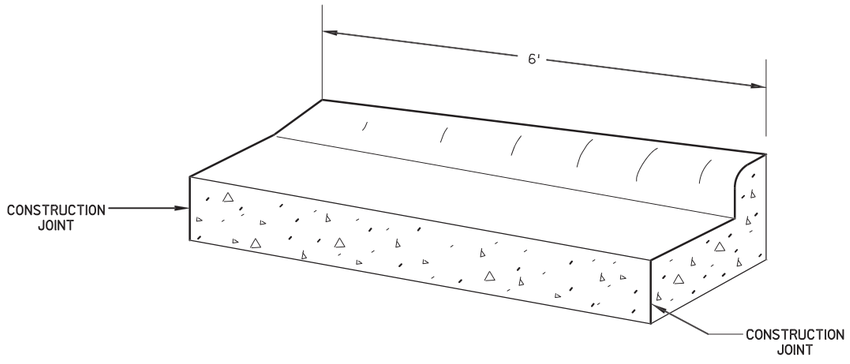
NOTES

A= FERTILIZER TYPE B & SEEDING MIXTURE NO. 30

B= TOPSOIL, FERTILIZER TYPE B, SEEDING MIXTURE NO. 30, SEEDING MIXTURE NO. 20, AND EROSION MAT

SEE EROSION CONTROL PLANS FOR ADDITIONAL INFORMATION

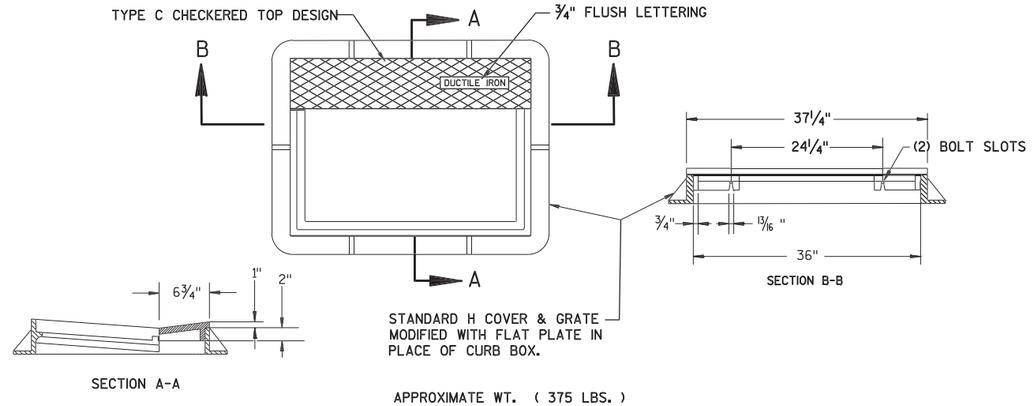
FINISHING ITEMS AT GRADING AREAS
STH 40



CURB & GUTTER TRANSITION DETAIL

CONCRETE CURB & GUTTER 30-INCH TYPE D TO CONCRETE
CURB & GUTTER 30-INCH TYPE D WITH NO CURB HEAD
(TO BE MEASURED & PAID FOR AS CONCRETE CURB & GUTTER
30-INCH TYPE D)

NOTE
FLOWLINE OFFSET REMAINS THE
SAME THROUGHOUT TRANSITION.



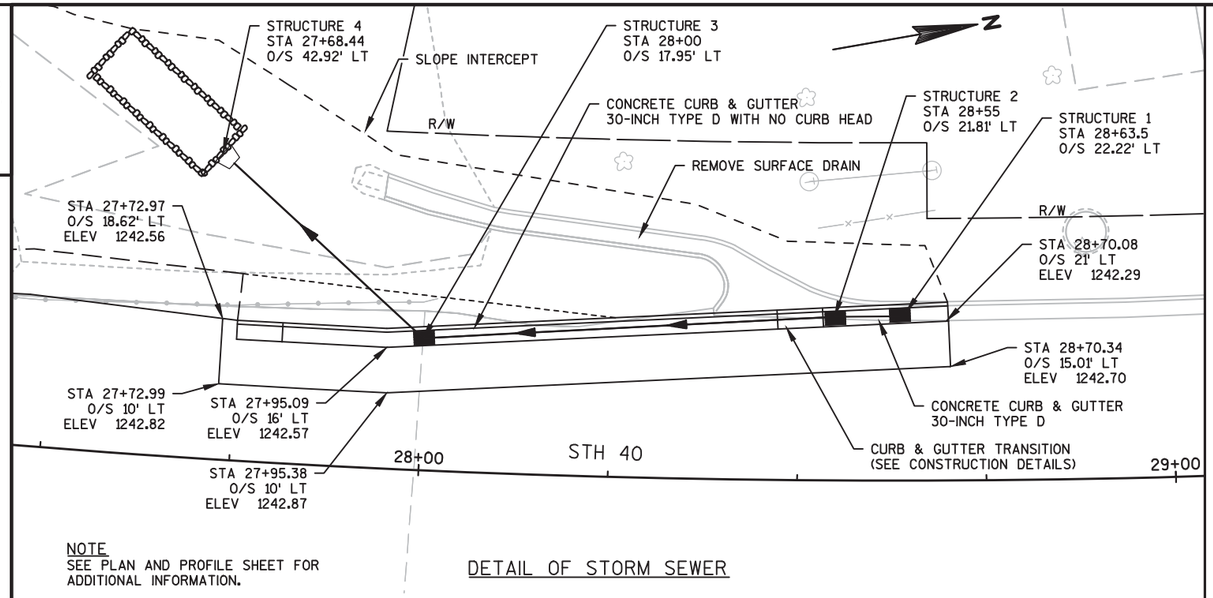
APPROXIMATE WT. (375 LBS.)

INLET COVER TYPE H-D DETAIL

(WITH MOUNTABLE CURB PLATE)
FOR PLACEMENT IN DRIVEWAYS
OR AREAS WITH NO CURB HEAD

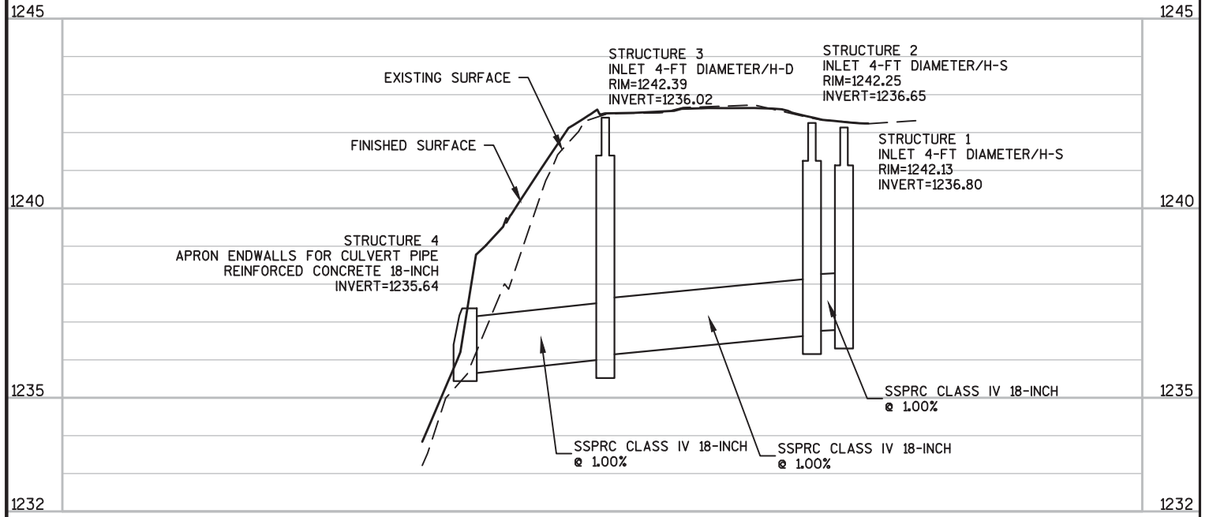
NOTE
FOR DETAILS NOT SHOW, SEE SDD FOR
INLET COVERS TYPE A, H, A-S, & H-S.

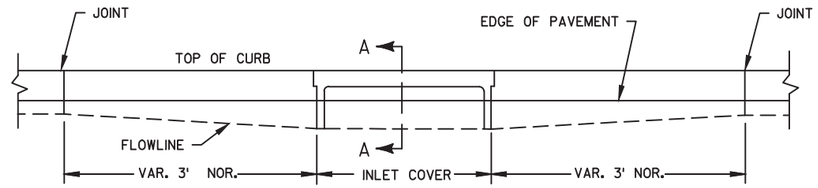
PROJECT NO: 8590-01-76	HWY: STH 40	COUNTY: SAWYER	CONSTRUCTION DETAILS	SHEET 8	E



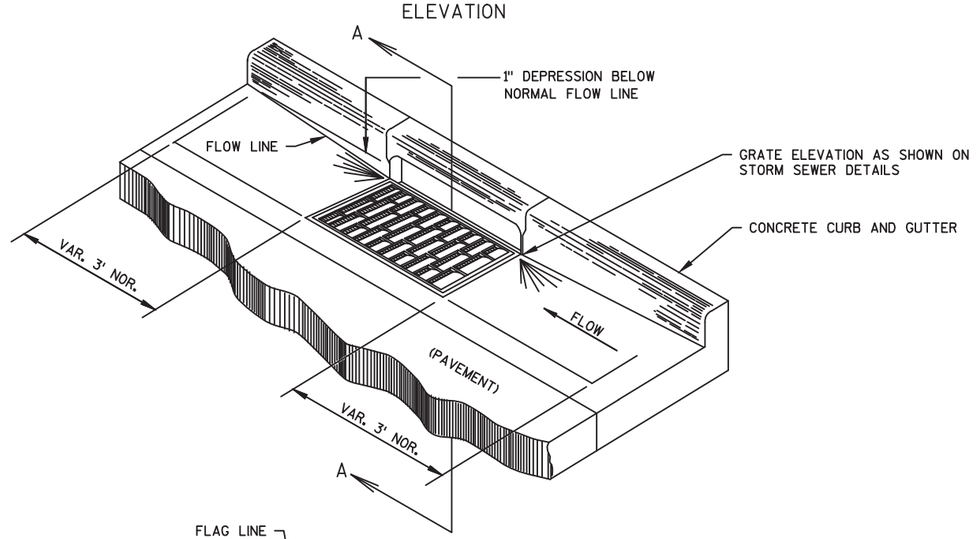
NOTE
SEE PLAN AND PROFILE SHEET FOR ADDITIONAL INFORMATION.

DETAIL OF STORM SEWER





ELEVATION



SECTION A-A

DETAIL OF CURB AND GUTTER AT INLETS

STORM SEWER SCHEDULE

STRUCT NO.	STATION	(1) OFFSET	C-C (FT)	TO STRUCT	INLET TYPE / COVER	(2) RIM/ GRATE ELEV.	(3) T.O.S. ELEV.	(4) DEPTH (FT)	DISCHARGE PIPE CLASS	DISCHARGE PIPE SIZE (IN)	DISCHARGE PIPE INLET ELEV.	DISCHARGE PIPE DISCHARGE ELEV.	(5) LENGTH (FT)	(6) SLOPE (%)	REMARKS
1	28+63.5	22.22' LT	9	2	4-FT DIAMETER / H-S	1242.13	1241.29	4.49	IV	18	1236.80	1236.75	5	1.00	
2	28+55.0	21.81' LT	55	3	4-FT DIAMETER / H-S	1242.25	1241.41	4.76	IV	18	1236.65	1236.12	53	1.00	
3	28+00.0	17.95' LT	40	4	4-FT DIAMETER / H-D	1242.39	1241.55	5.53	IV	18	1236.02	1235.64	38	1.00	
4	27+68.44	42.92' LT	—	—	—	—	—	—	—	—	—	—	—	—	APRON ENDWALL, JOINT TIES, AND MARKERS CULVERT END REQ'D, (7)
5	24+22.91	17.00' LT	25	6	2-FT X 2-FT / V	1240.94	1239.69	5.21	—	12	1234.48	1234.00	24	VARIES	SEE SDD "CONCRETE SURFACE DRAINS DROP INLET TYPE AT STRUCTURES" FOR ADDITIONAL INFORMATION
6	24+23.00	42.00' LT	—	—	—	—	—	—	—	—	—	—	—	—	APRON ENDWALL AND MARKERS CULVERT END REQ'D, (7)

(1) STRUCTURE OFFSET IS TO CENTER OF STRUCTURE
(2) RIM ELEVATION FOR INLETS 4-FT DIAMETER IS 1-INCH BELOW NORMAL CURB AND GUTTER FLOW LINE ELEVATION.
(3) TOP OF STRUCTURE ELEVATION (T.O.S.) DETERMINED BY SUBTRACTING CASTING HEIGHT AND 6-INCHES, FOR ADJUSTMENT, FROM RIM ELEVATION. A TYPE H-S AND H-D INLET CASTING IS 4 INCHES IN HEIGHT.
(4) DEPTH OF STRUCTURE MEASURED BY SUBTRACTING DISCHARGE ELEVATION FROM T.O.S.
(5) PIPE LENGTH IS MEASURED FROM INSIDE WALL OF STRUCTURE TO THE INSIDE WALL OF STRUCTURE OR END OF APRON ENDWALL, USED FOR SLOPE CALCULATION ONLY
(6) PIPE SLOPE IS CALCULATED USING PIPE LENGTH BETWEEN INSIDE WALL OF STRUCTURE TO THE INSIDE WALL OF STRUCTURE OR END OF PIPE APRON ENDWALL
(7) STATION AND OFFSET IS TO END OF APRON ENDWALL

LEGEND

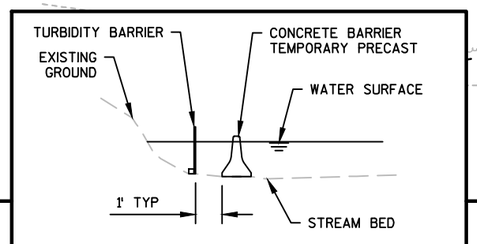
- EROSION MAT URBAN CLASS I TYPE B
- CONCRETE BARRIER TEMPORARY PRECAST (SEE DETAIL)
- SILT FENCE
- RIPRAP MEDIUM (SEE CONSTRUCTION DETAILS)
- RIPRAP HEAVY (SEE STRUCTURE PLANS)
- SLOPE INTERCEPT
- INLET PROTECTION TYPE A & C
- TEMPORARY DITCH CHECKS
- SURFACE WATER FLOW
- EROSION BALE REINFORCEMENT
- TURBIDITY BARRIER
- DELINEATED WETLAND BOUNDARY
- SMALL ANIMAL TURN AROUND

NOTES

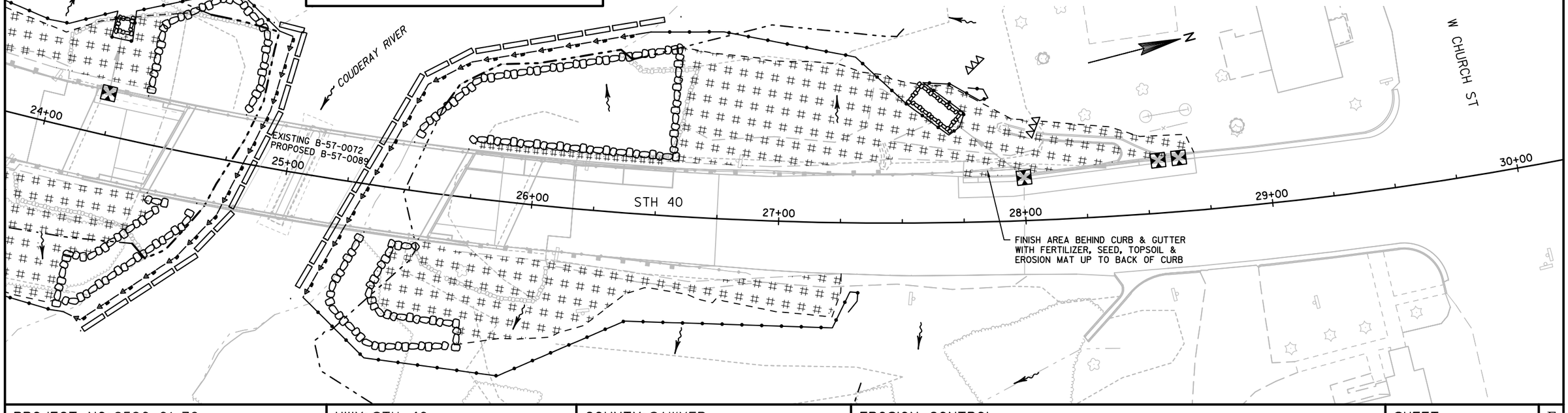
DISTURBED AREAS WITHIN THE RIGHT-OF-WAY, EXCEPT THE AREAS WITHIN THE FINISHED SHOULDER POINTS, SHALL BE FERTILIZED, SEEDED, TOPSOILED AND COVERED WITH EROSION MAT.

PLACE SILT FENCE WITHIN 1-FT TO 3-FT OF THE SLOPE INTERCEPT IN WETLAND AREAS.

INSTALL EROSION BALES DIRECTLY ADJACENT TO SILT FENCE ON THE NON-FLOW SIDE FOR SILT FENCE REINFORCEMENT. EROSION BALE INSTALLATION LENGTH IS 20' FOR EACH LOCATION OR AS DIRECTED BY THE ENGINEER. SEE DETAIL OF EROSION BALES FOR SHEET FLOW IN SDD "TYPICAL INSTALLATIONS OF EROSION BALES/TEMPORARY DITCH CHECKS" FOR ADDITIONAL INFORMATION.



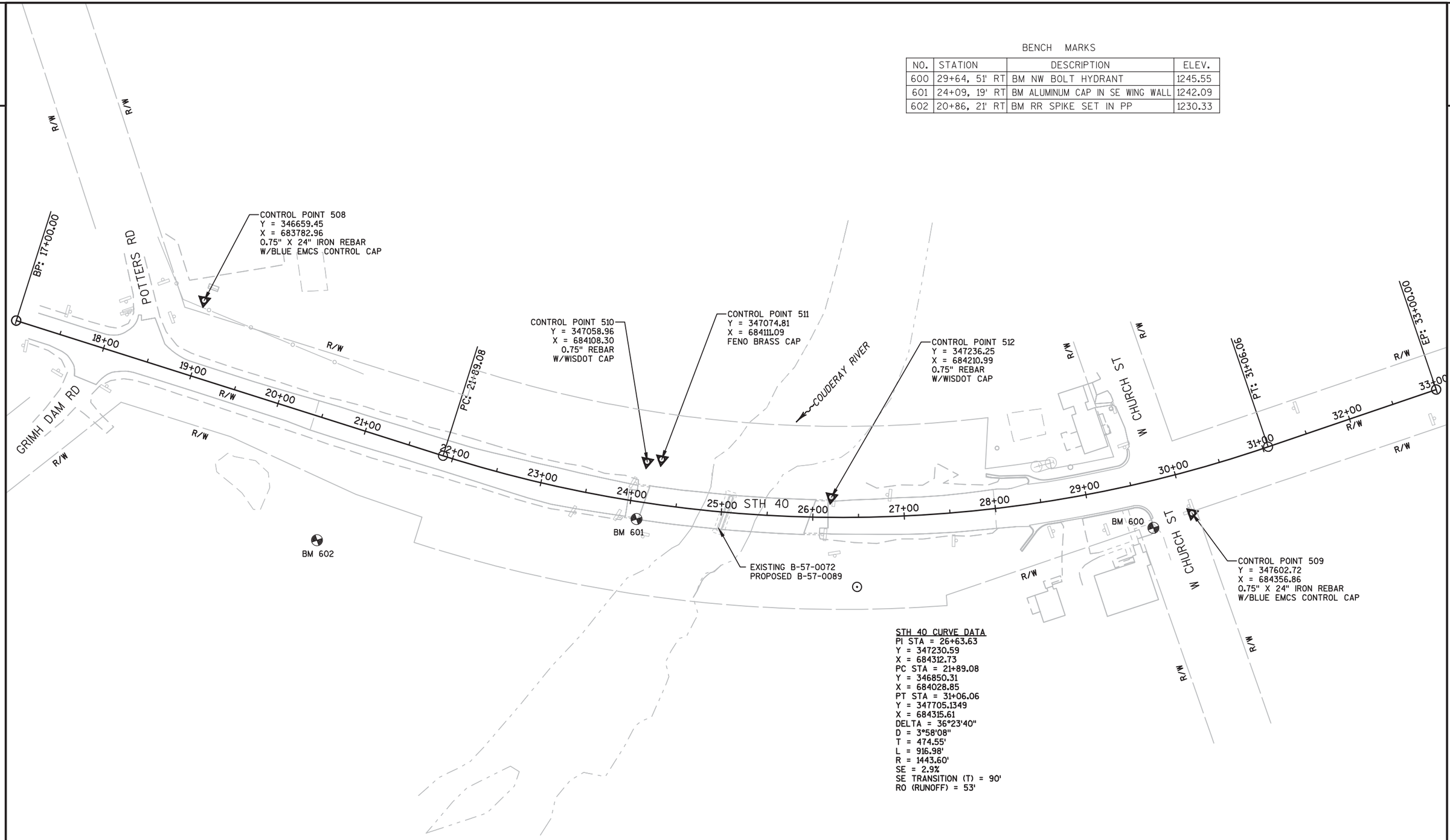
TURBIDITY BARRIER AND CONCRETE BARRIER IN RIVER DETAIL



PROJECT NO: 8590-01-76	HWY: STH 40	COUNTY: SAWYER	EROSION CONTROL	SHEET 10	E

BENCH MARKS

NO.	STATION	DESCRIPTION	ELEV.
600	29+64, 51' RT	BM NW BOLT HYDRANT	1245.55
601	24+09, 19' RT	BM ALUMINUM CAP IN SE WING WALL	1242.09
602	20+86, 21' RT	BM RR SPIKE SET IN PP	1230.33



STH 40 CURVE DATA
PI STA = 26+63.63
Y = 347230.59
X = 684312.73
PC STA = 21+89.08
Y = 346850.31
X = 684028.85
PT STA = 31+06.06
Y = 347705.1349
X = 684315.61
DELTA = 36°23'40"
D = 3°58'08"
T = 474.55'
L = 916.98'
R = 1443.60'
SE = 2.9%
SE TRANSITION (T) = 90'
RO (RUNOFF) = 53'

PROJECT NO: 8590-01-76	HWY: STH 40	COUNTY: SAWYER	ALIGNMENT PLAN	SHEET 11	E

Estimate Of Quantities

8590-01-76

Line	Item	Item Description	Unit	Total	Qty
0010	201.0105	Clearing	STA	3.000	3.000
0020	201.0205	Grubbing	STA	3.000	3.000
0030	203.0600.S	Removing Old Structure Over Waterway With Minimal Debris (station) 01. 24+50	LS	1.000	1.000
0040	204.0100	Removing Pavement	SY	140.000	140.000
0050	204.0165	Removing Guardrail	LF	440.000	440.000
0060	204.0190	Removing Surface Drains	EACH	1.000	1.000
0070	205.0100	Excavation Common	CY	815.000	815.000
0080	206.1000	Excavation for Structures Bridges (structure) 01. B-57-0089	LS	1.000	1.000
0090	206.5000	Cofferdams (structure) 01. B-57-0089	LS	1.000	1.000
0100	208.0100	Borrow	CY	1,656.000	1,656.000
0110	210.1500	Backfill Structure Type A	TON	3,450.000	3,450.000
0120	213.0100	Finishing Roadway (project) 01. 8590-01-76	EACH	1.000	1.000
0130	305.0110	Base Aggregate Dense 3/4-Inch	TON	85.000	85.000
0140	305.0120	Base Aggregate Dense 1 1/4-Inch	TON	770.000	770.000
0150	350.0104	Subbase	TON	730.000	730.000
0160	415.0070	Concrete Pavement 7-Inch	SY	50.000	50.000
0170	415.0410	Concrete Pavement Approach Slab	SY	105.000	105.000
0180	416.1010	Concrete Surface Drains	CY	3.000	3.000
0190	455.0605	Tack Coat	GAL	45.000	45.000
0200	465.0105	Asphaltic Surface	TON	245.000	245.000
0210	502.0100	Concrete Masonry Bridges	CY	303.000	303.000
0220	502.3200	Protective Surface Treatment	SY	467.000	467.000
0230	502.3210	Pigmented Surface Sealer	SY	160.000	160.000
0240	503.0155	Prestressed Girder Type I 54W-Inch	LF	575.000	575.000
0250	504.0500	Concrete Masonry Retaining Walls	CY	37.000	37.000
0260	505.0400	Bar Steel Reinforcement HS Structures	LB	6,860.000	6,860.000
0270	505.0600	Bar Steel Reinforcement HS Coated Structures	LB	44,920.000	44,920.000
0280	506.2605	Bearing Pads Elastomeric Non-Laminated	EACH	10.000	10.000
0290	506.4000	Steel Diaphragms (structure) 01. B-57-0089	EACH	8.000	8.000
0300	516.0500	Rubberized Membrane Waterproofing	SY	28.000	28.000
0310	521.1012	Apron Endwalls for Culvert Pipe Steel 12-Inch	EACH	1.000	1.000
0320	522.1018	Apron Endwalls for Culvert Pipe Reinforced Concrete 18-Inch	EACH	1.000	1.000
0330	550.0500	Pile Points	EACH	19.000	19.000
0340	550.1120	Piling Steel HP 12-Inch X 53 Lb	LF	335.000	335.000
0350	601.0411	Concrete Curb & Gutter 30-Inch Type D	LF	95.000	95.000
0360	603.8000	Concrete Barrier Temporary Precast Delivered	LF	515.000	515.000
0370	603.8125	Concrete Barrier Temporary Precast Installed	LF	515.000	515.000

8590-01-76

Line	Item	Item Description	Unit	Total	Qty
0380	606.0200	Riprap Medium	CY	18.000	18.000
0390	606.0300	Riprap Heavy	CY	1,255.000	1,255.000
0400	608.0418	Storm Sewer Pipe Reinforced Concrete Class IV 18-Inch	LF	98.000	98.000
0410	611.0639	Inlet Covers Type H-S	EACH	2.000	2.000
0420	611.0654	Inlet Covers Type V	EACH	1.000	1.000
0430	611.3004	Inlets 4-FT Diameter	EACH	3.000	3.000
0440	611.3220	Inlets 2x2-FT	EACH	1.000	1.000
0450	612.0206	Pipe Underdrain Unperforated 6-Inch	LF	88.000	88.000
0460	612.0212	Pipe Underdrain Unperforated 12-Inch	LF	22.000	22.000
0470	612.0406	Pipe Underdrain Wrapped 6-Inch	LF	200.000	200.000
0480	614.0150	Anchor Assemblies for Steel Plate Beam Guard	EACH	4.000	4.000
0490	614.2500	MGS Thrie Beam Transition	LF	157.600	157.600
0500	614.2610	MGS Guardrail Terminal EAT	EACH	4.000	4.000
0510	618.0100	Maintenance And Repair of Haul Roads (project) 01. 8590-01-76	EACH	1.000	1.000
0520	619.1000	Mobilization	EACH	1.000	1.000
0530	624.0100	Water	MGAL	22.000	22.000
0540	625.0100	Topsoil	SY	2,565.000	2,565.000
0550	628.1104	Erosion Bales	EACH	30.000	30.000
0560	628.1504	Silt Fence	LF	1,200.000	1,200.000
0570	628.1520	Silt Fence Maintenance	LF	1,200.000	1,200.000
0580	628.1905	Mobilizations Erosion Control	EACH	5.000	5.000
0590	628.1910	Mobilizations Emergency Erosion Control	EACH	4.000	4.000
0600	628.2008	Erosion Mat Urban Class I Type B	SY	2,565.000	2,565.000
0610	628.6005	Turbidity Barriers	SY	560.000	560.000
0620	628.7005	Inlet Protection Type A	EACH	5.000	5.000
0630	628.7015	Inlet Protection Type C	EACH	5.000	5.000
0640	628.7504	Temporary Ditch Checks	LF	40.000	40.000
0650	628.7570	Rock Bags	EACH	25.000	25.000
0660	629.0210	Fertilizer Type B	CWT	1.700	1.700
0670	630.0120	Seeding Mixture No. 20	LB	25.000	25.000
0680	630.0130	Seeding Mixture No. 30	LB	30.000	30.000
0690	633.5200	Markers Culvert End	EACH	2.000	2.000
0700	634.0616	Posts Wood 4x6-Inch X 16-FT	EACH	4.000	4.000
0710	637.2210	Signs Type II Reflective H	SF	18.000	18.000
0720	638.2602	Removing Signs Type II	EACH	10.000	10.000
0730	638.3000	Removing Small Sign Supports	EACH	8.000	8.000
0740	642.5001	Field Office Type B	EACH	1.000	1.000
0750	645.0115	Geotextile Type ES	SY	525.000	525.000

8590-01-76

Line	Item	Item Description	Unit	Total	Qty
0760	645.0120	Geotextile Type HR	SY	996.000	996.000
0770	646.0106	Pavement Marking Epoxy 4-Inch	LF	2,100.000	2,100.000
0780	650.4000	Construction Staking Storm Sewer	EACH	4.000	4.000
0790	650.4500	Construction Staking Subgrade	LF	333.000	333.000
0800	650.5000	Construction Staking Base	LF	295.000	295.000
0810	650.5500	Construction Staking Curb Gutter and Curb & Gutter	LF	95.000	95.000
0820	650.6500	Construction Staking Structure Layout (structure) 01. B-57-0089	LS	1.000	1.000
0830	650.6500	Construction Staking Structure Layout (structure) 02. R-57-0001	LS	1.000	1.000
0840	650.7000	Construction Staking Concrete Pavement	LF	38.000	38.000
0850	650.9910	Construction Staking Supplemental Control (project) 01. 8590-01-76	LS	1.000	1.000
0860	650.9920	Construction Staking Slope Stakes	LF	657.000	657.000
0870	690.0150	Sawing Asphalt	LF	190.000	190.000
0880	690.0250	Sawing Concrete	LF	3.000	3.000
0890	715.0415	Incentive Strength Concrete Pavement	DOL	500.000	500.000
0900	715.0502	Incentive Strength Concrete Structures	DOL	1,850.000	1,850.000
0910	SPV.0060	Special 01. Inlet Covers Type H-D	EACH	1.000	1.000
0920	SPV.0165	Special 01. Wall Concrete Panel Mechanically Stabilized Earth LRFD/QMP **P**	SF	403.000	403.000

CLEARING AND GRUBBING ITEMS

STATION - STATION	LOCATION	201.0105 CLEARING STA	201.0205 GRUBBING STA
CAT 0010			
23+00 - 26+00	RT	3	3
TOTALS		3	3

REMOVING SURFACE DRAINS

STATION	LOCATION	204.0190 EACH
CAT 0010		
28+47	LT	1
TOTAL		1

REMOVING PAVEMENT

STATION - STATION	LOCATION	204.0100 SY	COMMENTS
CAT 0010			
23+97 - 24+18	LT & RT	66	EXISTING APPROACH SLABS
25+91 - 26+17	LT & RT	74	EXISTING APPROACH SLABS
TOTAL		140	

EARTHWORK SUMMARY

DIVISION	LOCATION	EXCAVATION COMMON (NOTE 1) (ITEM *205.0100)	SALVAGED / UNUSEABLE PAVEMENT MATERIAL (NOTE 2)	AVAILABLE MATERIAL (NOTE 3)	UNEXPANDED FILL	EXPANDED FILL (NOTE 4)	MASS ORDINATE +/- (NOTE 5)	BORROW (ITEM *208.0100)
						FACTOR 1.25		
ID 8590-01-76								
1	SOUTH OF COUDERAY RIVER: STA 22+13 - STA 24+50	412	65	347	947	1,184	-837	837
1	FILL IN FRONT OF SOUTH ABUTMENT - B-57-0089 (NOTE 6)	0	0	0	144	179	-179	179
1	NORTH OF COUDERAY RIVER: STA 25+67 - STA 28+70	403	57	346	559	699	-353	353
1	FILL IN FRONT OF NORTH ABUTMENT - B-57-0089 (NOTE 6)	0	0	0	230	287	-287	287
TOTALS		815	122	693	1,879	2,349	-1,656	1,656

NOTES:
1) SALVAGED/UNSUABLE PAVEMENT MATERIAL IS INCLUDED IN CUT
2) SALVAGED/UNUSABLE PAVEMENT MATERIAL = (AREA OF PROJECT PAVEMENT REMOVAL) * (TYPICAL EXISTING PAVEMENT DEPTH)
3) AVAILABLE MATERIAL = CUT - SALVAGED/UNUSUABLE PAVEMENT MATERIAL
4) EXPANDED FILL FACTOR = (UNEXPANDED FILL) * (FILL FACTOR)
5) MASS ORDINATE = CUT - (EXPANDED FILL); PLUS INDICATES AN EXCESS OF MATERIAL
6) FILL IN FRONT OF ABUTMENT EXCLUDES STRUCTURE BACKFILL, SEE B-57-0089 PLANS FOR ADDITIONAL INFORMATION

3

BASE AGGREGATE ITEMS

STATION - STATION	LOCATION	305.0110 BASE AGGREGATE DENSE 3/4-INCH TON	305.0120 BASE AGGREGATE DENSE 1 1/4-INCH TON	350.0104 SUBBASE TON
CAT 0010				
22+13 - 23+20	LT & RT	10	--	--
23+20 - 24+50	LT & RT	33	385	374
25+67 - 26+75	LT & RT	18	272	239
26+75 - 27+75	LT & RT	24	48	62
27+75 - 28+70	LT	--	65	55
TOTALS		85	770	730

ASPHALTIC ITEMS

STATION - STATION	LOCATION	455.0605 TACK COAT GAL	465.0105 ASPHALTIC SURFACE TON
CAT 0010			
23+20 - 24+50	LT & RT	23	127
25+67 - 26+75	LT & RT	18	100
27+75 - 28+70	LT	4	18
TOTALS		45	245

CONCRETE ITEMS

STATION - STATION	LOCATION	415.0070 CONCRETE PAVEMENT 7-INCH SY	415.0410 CONCRETE PAVEMENT APPROACH SLAB SY	416.1010 CONCRETE SURFACE DRAINS CY	601.0411 CONCRETE CURB & GUTTER 30-INCH TYPE D LF
CAT 0010					
24+22 - 24+50	LT & RT	21	52	3	--
25+67 - 25+87	LT & RT	29	53	--	--
27+75 - 28+70	LT	--	--	--	95
TOTALS		50	105	3	95

RIPRAP AND GEOTEXTILE ITEMS

STATION	LOCATION	606.0200 RIPRAP MEDIUM CY	645.0120 GEOTEXTILE TYPE HR SY
CAT 0010			
24+23	LT	9	28
27+70	LT	9	28
TOTALS		18	56

NOTE: ADDITIONAL ITEMS SHOWN ON STRUCTURE PLANS

3

APRON ENDWALLS, STORM SEWER PIPE AND PIPE UNDERDRAIN ITEMS

	FROM STRUCT	TO STRUCT	521.1012 APRON ENDWALLS FOR CULVERT PIPE STEEL 12-INCH EACH	522.1018 APRON ENDWALLS FOR CULVERT PIPE REINFORCED CONCRETE 18-INCH EACH	633.5200 MARKERS CULVERT ENDS EACH	608.0418 STORM SEWER PIPE REINFORCED CONCRETE CLASS IV 18-INCH LF	612.0212 PIPE UNDERDRAIN UNPERFORATED 12-INCH LF	** PIPE JOINT TIES EACH
CAT 0010								
	1	2	--	--	--	9	--	--
	2	3	--	--	--	55	--	--
	3	4	--	1	1	34	--	6
	5	6	1	--	1	--	22	--
TOTALS			1	1	2	98	22	

** NON BID ITEM, FOR INFORMATION ONLY. TIE LAST THREE JOINTS TO APRON ENDWALL

INLETS AND INLET COVERS

	STRUCT NO.	STATION	OFFSET	611.0639 INLET COVERS TYPE H-S EACH	611.0654 INLET COVERS TYPE V EACH	611.3004 INLETS 4-FT DIAMETER EACH	611.3220 INLETS 2X2-FT EACH	SPV.0060.01 INLET COVERS TYPE H-D EACH
CAT 0010								
	1	28+63.50	22.22'LT	1	--	1	--	--
	2	28+55.00	21.81'LT	1	--	1	--	--
	3	28+00.00	17.95'LT	--	--	1	--	1
	5	24+22.91	17.00'LT	--	1	--	1	--
TOTALS				2	1	3	1	1

GUARDRAIL ITEMS

STATION - STATION	LOCATION	204.0165 REMOVING GUARDRAIL LF	614.2500 MGS THRIE BEAM TRANSITION LF	614.2610 MGS GUARDRAIL TERMINAL EAT EACH
CAT 0010				
23+15 - 24+50	RT	85	39.4	1
23+20 - 24+50	LT	85	39.4	1
25+67 - 26+88	RT	85	39.4	1
25+67 - 28+00	LT	185	39.4	1
TOTALS		440	157.6	4

WATER

LOCATION	624.0100 MGAL
CAT 0010	
PROJECT	22
TOTAL	22

NOTE: WATER PROVIDED FOR COMPACTION OF BASE AGGREGATE AND SUBBASE

EROSION CONTROL AND FINISHING ITEMS

STATION - STATION	LOCATION	603.8000 CONCRETE BARRIER TEMPORARY PRECAST DELIVERED LF	603.8125 CONCRETE BARRIER TEMPORARY PRECAST INSTALLED LF	625.0100 TOPSOIL SY	628.1104 EROSION BALES EACH	628.1504 SILT FENCE LF	628.1520 SILT FENCE MAINTENANCE LF	628.2008 EROSION MAT URBAN CLASS I TYPE B SY	628.6005 TURBIDITY BARRIERS SY	628.7005 INLET PROTECTION TYPE A EACH	628.7015 INLET PROTECTION TYPE C EACH	628.7504 TEMPORARY DITCH CHECKS LF	628.7570 ROCK BAGS EACH	629.0210 FERTILIZER TYPE B CWT	630.0120 SEEDING MIXTURE NO. 20 LB	630.0130 SEEDING MIXTURE NO. 30 LB
CAT 0010																
22+13 - 24+50	LT & RT	--	--	925	8	545	545	925	--	1	1	--	--	0.6	6	13
SOUTH ABUTMENT	LT & RT	185	185	--	--	--	--	--	205	--	--	--	--	--	--	--
NORTH ABUTMENT	LT & RT	225	225	--	--	--	--	--	250	--	--	--	--	--	--	--
25+67 - 28+70	LT & RT	--	--	1,125	8	415	415	1125	--	3	3	30	--	0.7	14	11
UNDISTRIBUTED	--	105	105	515	14	240	240	515	105	1	1	10	25	0.4	5	6
TOTALS		515	515	2,565	30	1,200	1,200	2,565	560	5	5	40	25	1.7	25	30

NOTES:
CONCRETE BARRIER TEMPORARY PRECAST ITEMS ARE TO BE PLACED IN THE RIVER IN CONJUNCTION WITH TURBIDITY BARRIERS (SEE CONSTRUCTION ETAILS)
EROSION BALES ARE FOR SILT FENCE REINFORCEMENT

MOBILIZATIONS EROSION CONTROL

LOCATION	628.1905 EACH	628.1910 EMERGENCY EACH
CAT 0010		
PROJECT	5	4
TOTALS	5	4

PAVEMENT MARKING ITEMS

STATION - STATION	LOCATION	646.0106 EPOXY 4-INCH (YELLOW) LF	646.0106 EPOXY 4-INCH (WHITE) LF
CAT 0010			
23+20 - 28+70	LT & RT	1,000	1,100
TOTALS		1,000	1,100
		2,100	

NOTE:
MATCH EXISTING PAVEMENT MARKING

3

TYPE II SIGNS AND SUPPORTS

SIGN NO.	SIGN CODE	W	X	H	637.2210 SIGNS TYPE II REFLECTIVE H SF	634.0616 POSTS WOOD 4x6x16 EACH	638.2602 REMOVING SIGNS TYPE II EACH	638.3000 REMOVING SMALL SIGN SUPPORTS EACH	COMMENTS
CAT 0010									
1	R12-1	--	X	--	--	--	1	1	
2	W5-52	--	X	--	--	--	1	1	
3	W5-52	--	X	--	--	--	1	1	
4	I3-1	54	X	24	9.00	2	--	--	COUDERAY RIVER
5	W5-52	--	X	--	--	--	1	1	
6	W5-52	--	X	--	--	--	1	1	
7	I3-1	54	X	24	9.00	2	--	--	COUDERAY RIVER
8	R12-1	--	X	--	--	--	1	1	
--	R12-55	--	X	--	--	--	1	--	50 TON BRIDGE 24 MILES AHEAD (LOCATED WEST ON USH 8)
--	M6-1	--	X	--	--	--	--	--	LEFT ARROW (LOCATED ON SAME POST AS R12-55)
--	R12-55	--	X	--	--	--	1	--	50 TON BRIDGE 24 MILES AHEAD (LOCATED EAST ON USH 8)
--	M6-1	--	X	--	--	--	--	--	RIGHT ARROW (LOCATED ON SAME POST AS R12-55)
--	R12-55	--	X	--	--	--	1	1	50 TON BRIDGE 0.4 MILES AHEAD (LOCATED WEST ON STH 70)
--	M1-6	--	X	--	--	--	--	--	STH 40 (LOCATED ON SAME POST AS R12-55)
--	R12-55	--	X	--	--	--	1	1	50 TON BRIDGE 0.4 MILES AHEAD (LOCATED EAST ON STH 70)
--	M1-6	--	X	--	--	--	--	--	STH 40 (LOCATED ON SAME POST AS R12-55)
TOTALS					18.00	4	10	8	

NOTE:
THE EXISTING WEIGHT LIMIT RELATED SIGNS ON USH 8 AND STH 70 ARE LOCATED NEAR THE INTERSECTIONS WITH STH 40

CONSTRUCTION STAKING STRUCTURE LAYOUT

STATION	LOCATION	650.6500.01 (B-57-0089) LS	650.6500.02 (R-57-0001) LS
CAT 0010			
PROJECT	LT & RT	1	--
PROJECT	LT	--	1
TOTALS		1	1

CONSTRUCTION STAKING ITEMS

STATION - STATION	LOCATION	650.4000 STORM SEWER EACH	650.4500 SUBGRADE LF	650.5000 BASE LF	650.5500 CURB GUTTER AND CURB & GUTTER LF	650.7000 CONCRETE PAVEMENT LF	650.9910.01 SUPPLEMENTAL CONTROL (8590-01-76) LS	650.9920 SLOPE STAKES LF
CAT 0010								
22+13 - 28+70	LT & RT	--	--	--	--	--	--	657
23+20 - 24+50	LT & RT	--	130	112	--	18	--	--
25+67 - 26+75	LT & RT	--	108	88	--	20	--	--
27+75 - 28+70	LT	4	95	95	95	--	--	--
PROJECT	--	--	--	--	--	--	1	--
TOTALS		4	333	295	95	38	1	657

SAWING ITEMS

STATION - STATION	LOCATION	690.0150 ASPHALT LF	690.0250 CONCRETE LF
CAT 0010			
23+20	LT & RT	40	--
26+75	LT & RT	40	--
27+75 - 28+70	LT	110	3
TOTALS		190	3

BEGIN PROJECT
STA 23+20
Y = 346958.60
X = 684102.36

BEGIN CONSTRUCTION
22+26, LT

BEGIN CONSTRUCTION
22+13, RT

BEVCOMM
(COMMUNICATIONS)

MGS THRIE BEAM TRANSITION &
MGS GUARDRAIL TERMINAL EAT;
STA 23+31 TO 24+23, RT
STA 23+48 TO 24+39, LT
STA 25+74 TO 26+65, RT
STA 26+53 TO 27+47, LT

NORTH CENTRAL POWER COMPANY INC
(ELECTRIC)

CONCRETE SURFACE DRAIN (DROP INLET TYPE)
SEE CONSTRUCTION DETAILS AND SDD "CONCRETE
SURFACE DRAINS DROP INLET TYPE AT
STRUCTURES" FOR ADDITIONAL INFORMATION

COULDERAY RIVER

COULDERAY RIVER
I3-1
54"X24"

EXISTING B-57-0072
PROPOSED B-57-0089
STH 40

RETAINING WALL
R-57-0001
STA 25+75 TO STA 26+56

END PROJECT
STA 26+75

SEE CONSTRUCTION
DETAILS FOR INLET AND
STORM SEWER INFORMATION

CONCRETE CURB & GUTTER
30-INCH TYPE D
(WITH & WITHOUT CURB HEAD,
SEE CONSTRUCTION DETAILS))

END CONSTRUCTION
27+26, RT

END CONSTRUCTION
28+70, LT

REMOVING SURFACE DRAIN

R/W

STA 23+20.00
EL 1241.10

STA 26+75.00
EL 1242.95

END PROJECT
26+75

EXISTING PROFILE

FINISHED PROFILE

0.52%

STA 25+05
REMOVE STRUCTURE B-57-0072
2 SPAN CONCRETE GIRDER AND DECK
184' OVERALL LENGTH
38.5' OVERALL WIDTH

STA 25+08
STRUCTURE B-57-0089
1 SPAN 54" PRESTRESSED CONCRETE GIRDER
36' CLEAR ROADWAY WIDTH
20' RHF

EXISTING GROUND ELEVATION AT ℄
FINISHED PROFILE ELEVATION AT ℄

LEGEND
- CONCRETE PAVEMENT APPROACH SLAB AND CONCRETE PAVEMENT 7-INCH FOR SHOULDERS
- 5-INCH ASPHALTIC SURFACE
- XXXX SAWING ASPHALT OR CONCRETE
- DELINEATED WETLAND BOUNDARY
- SLOPE INTERCEPT
- X CLEARING AND GRUBBING
- STORM SEWER PIPE REINFORCED CONCRETE
- REMOVING GUARDRAIL (S)
- RIPRAP HEAVY (SEE STRUCTURE PLANS) (H)
- RIPRAP MEDIUM (SEE CONSTRUCTION DETAILS) (M)
- X REMOVING R12-1 SIGN AND SMALL SUPPORT
- X REMOVING W5-52 SIGN AND SMALL SUPPORT
- X PLACE NEW SIGN AND WOOD POSTS

NOTES

SEE ALIGNMENT PLAN FOR ALIGNMENT, CONTROL POINT AND BENCHMARK INFORMATION.

SEE SDD "PAVEMENT MARKING (MAINLINE)" FOR PROPOSED PAVEMENT MARKING.

SEE CONSTRUCTION DETAILS FOR ADDITIONAL STORM SEWER AND CURB & GUTTER LAYOUT INFORMATION.

1240.87	1240.99	1241.05	1241.10	1241.12
1241.22	1241.25	1241.43	1241.38	1241.57
1241.51	1233.05	1241.65	1229.22	1241.78
1222.59	1241.91	1219.44	1242.04	1219.27
1242.17	1223.54	1242.30	1231.05	1242.43
1242.54	1242.56	1242.63	1242.69	1242.78
1242.82	1242.95	1242.95	1243.03	1243.10
1243.12	1243.24	1243.40	1243.61	1243.71

22+50	22+75	23+00	23+25	23+50	23+75	24+00	24+25	24+50	24+75	25+00	25+25	25+50	25+75	26+00	26+25	26+50	26+75	27+00	27+25	27+50	27+75	28+00	28+25	28+50

PROJECT NO: 8590-01-76	HWY: STH 40	COUNTY: SAWYER	PLAN AND PROFILE	SHEET 20 E

FILE NAME : P:\49XX\4917.DP.15.STH40.SAW\CADDS\85900106\SHEETSPLAN\050101-PP.DWG
LAYOUT NAME - ****

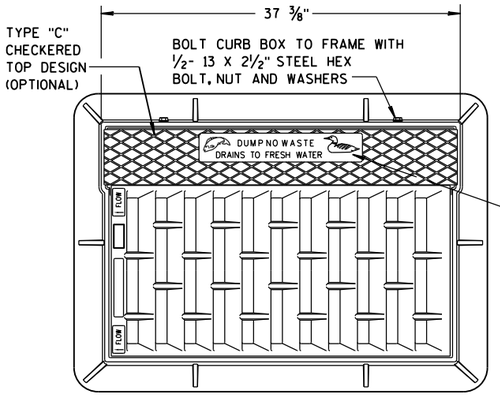
PLOT DATE : 11/29/2016 9:44 AM PLOT BY : MICHAEL HIGGINS PLOT NAME : PLOT SCALE : 1 IN:40 FT

WISDOT/CADDS SHEET 44

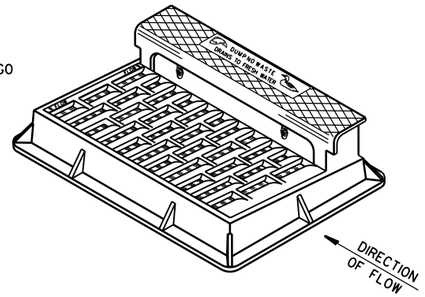
Standard Detail Drawing List

08A05-19A	INLET COVERS TYPE A, H, A-S, H-S & Z
08A05-19C	INLET COVERS TYPE F, HM, HM-S, S, T, V, HM-GJ, & HM-GJ-S
08C06-02	INLETS 3-FT AND 4-FT DIAMETER
08C07-02	INLETS 2X2-FT, 2X2.5-FT, 2X3-FT AND 2.5X3-FT
08D01-19	CONCRETE CURB, CONCRETE CURB AND GUTTER AND TIES
08D03-06	CONCRETE SURFACE DRAINS DROP INLET TYPE AT STRUCTURES
08E08-03	TYPICAL INSTALLATIONS OF EROSION BALES / TEMPORARY DITCH CHECKS
08E09-06	SILT FENCE
08E10-02	INLET PROTECTION TYPE A, B, C AND D
08E11-02	TURBIDITY BARRIER
08F01-11	APRON ENDWALLS FOR CULVERT PIPE
08F04-07	JOINT TIES FOR CONCRETE PIPE AND CONCRETE COLLAR DETAIL
12A03-10	NAME PLATE (STRUCTURES)
13B02-08A	CONCRETE PAVEMENT APPROACH SLAB
13C01-18	CONCRETE PAVEMENT LONGITUDINAL JOINTS AND TIES
14B07-14A	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-14B	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-14C	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-14D	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-14E	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-14F	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-14G	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-14H	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B42-04A	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-04B	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-04C	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B44-02A	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-02B	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-02C	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B45-04A	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04B	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04C	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04D	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04E	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04F	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04G	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04H	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04I	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04J	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04K	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04L	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
15A03-02A	FLEXIBLE MARKER POST FOR CULVERT END
15A03-02B	FLEXIBLE MARKER POST FOR CULVERT END
15C02-06A	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-06B	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C08-17A	LONGITUDINAL MARKING (MAINLINE)
15C12-05	TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATION

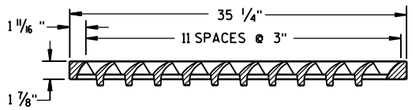
6

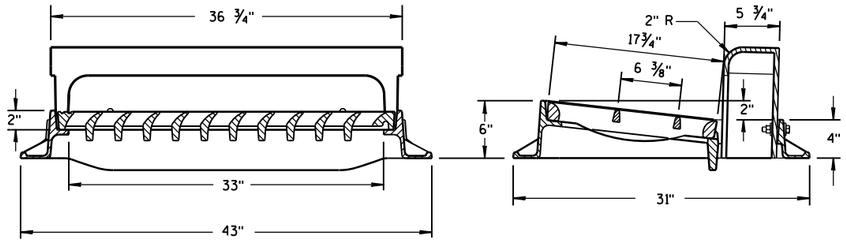


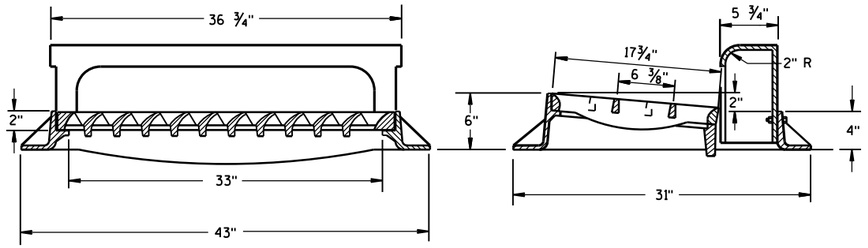
NOTE:
GRATE IS REVERSIBLE.



NOTE: CURB BOX HEIGHT ADJUSTABLE 6" TO 9"

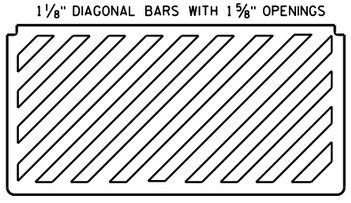






TYPE "H"

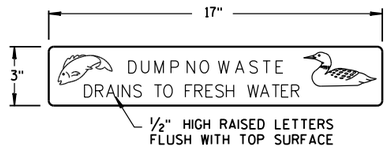
NOTE: EITHER CASTING IS ACCEPTABLE



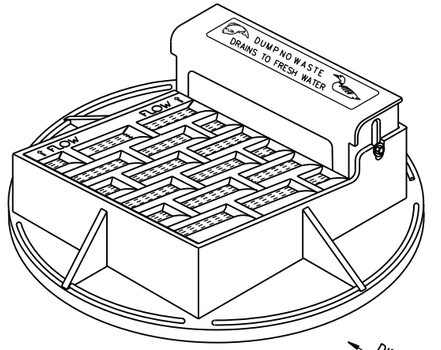
SPECIAL GRATE FOR TYPE "H" COVER

(MEASURES 35 1/4" X 17 3/4" X 2")

(NOTED AS TYPE H-S ON DRAINAGE TABLE)



LOGO DETAIL



NOTE: CURB BOX ADJUSTABLE 4" TO 9"

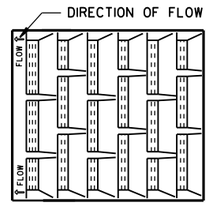
NOTE:
GRATE IS REVERSIBLE.

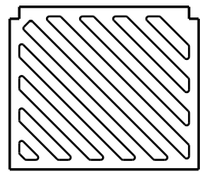
GENERAL NOTES

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

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

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

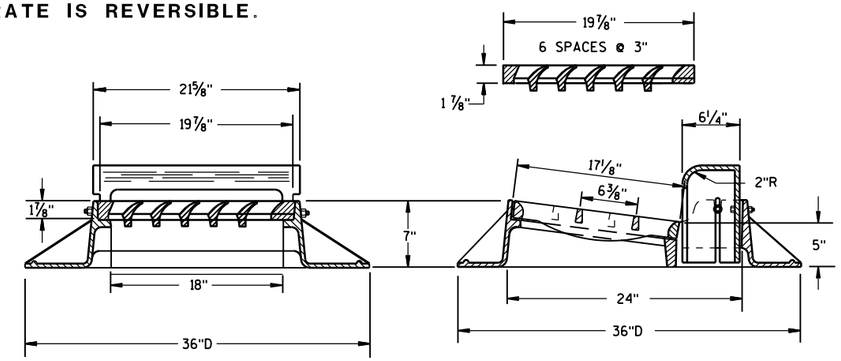




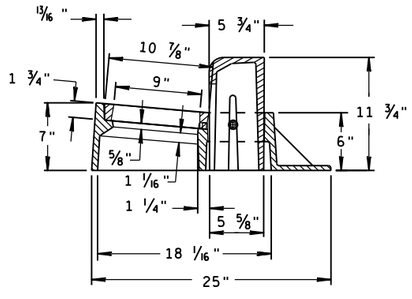
SPECIAL GRATE FOR TYPE "A" COVER

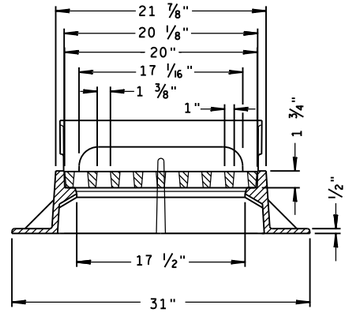
(MEASURES 19 3/4" X 17" X 1 7/8")

(NOTED AS TYPE A-S ON DRAINAGE TABLE)

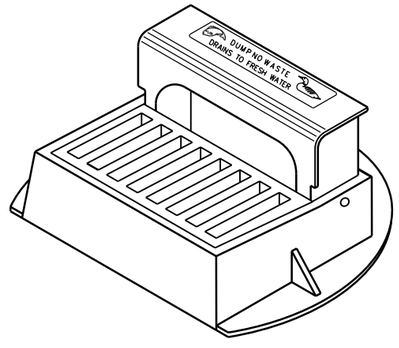


TYPE "A"





TYPE "Z"



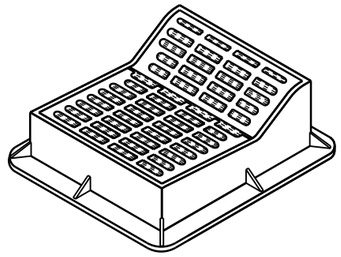
INLET COVERS
TYPE A, H, A-S, H-S & Z

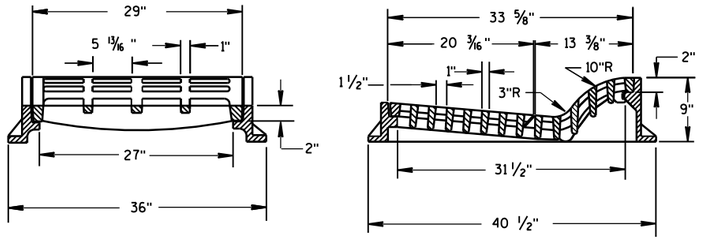
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
11-27-13 — DATE
/S/ Jerry H. Zogg — ROADWAY STANDARDS ENGINEER
FHWA

6

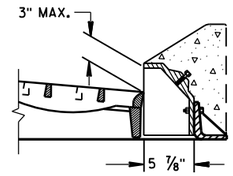
S.D.D. 8 A 5-19a





TYPE "F"

USE WITH TYPES A & D CONCRETE CURB & GUTTER, 36 INCH.



ALTERNATIVE CURB BOX FOR TYPE "HM" COVER

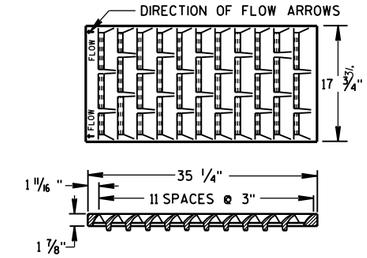
USE WITH TYPES G & J CONCRETE CURB & GUTTER, 30 INCH
NOTED AS TYPE HM-GJ ON DRAINAGE TABLE

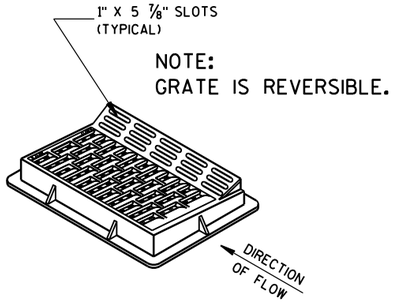
NOTE:
SPECIAL GRATE FOR THE
TYPE "H" COVER MAY ALSO BE
USED FOR THE TYPE "HM-GJ" COVER
NOTED AS TYPE HM-GJ-S ON DRAINAGE TABLE

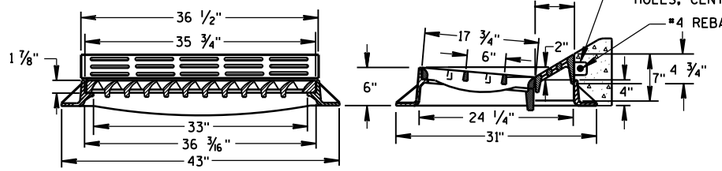
GENERAL NOTES

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

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



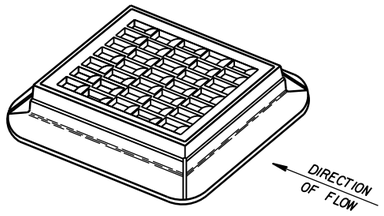


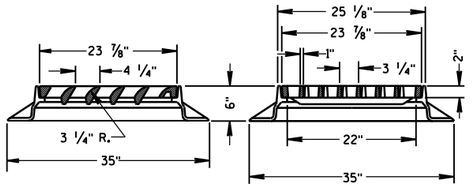


TYPE "HM"

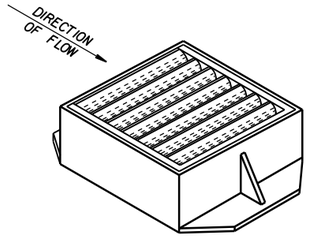
USE WITH TYPES A & D CONCRETE CURB & GUTTER, 36 INCH.

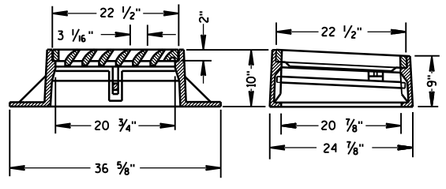
NOTE:
SPECIAL GRATE FOR THE
TYPE "H" COVER MAY ALSO BE
USED FOR THE TYPE "HM" COVER
NOTED AS TYPE HM-S ON DRAINAGE TABLE



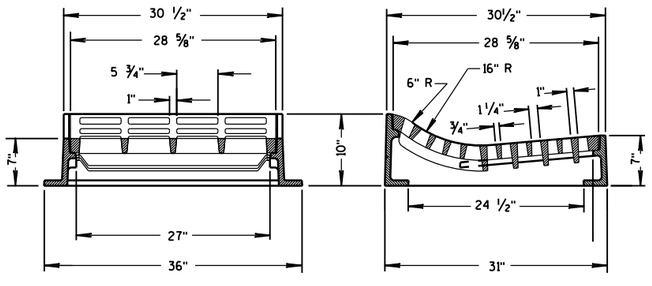


TYPE "S"



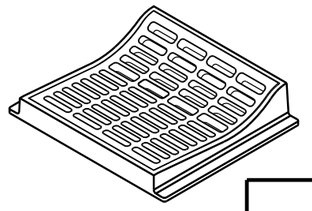


TYPE "V"



TYPE "T"

USE WITH TYPES R & T CONCRETE CURB & GUTTER, 36 INCH.



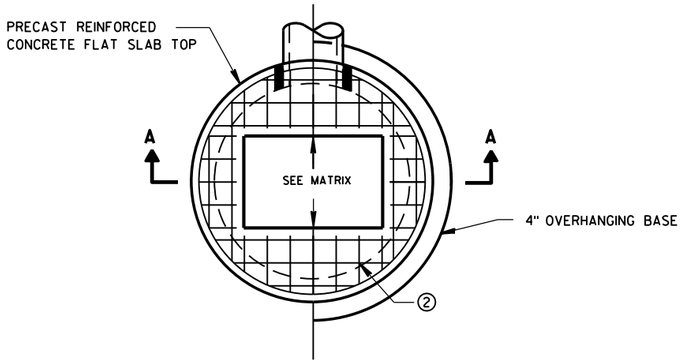
INLET COVERS
TYPE F, HM, HM-S, S, T, V, HM-GJ, & HM-GJ-S

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

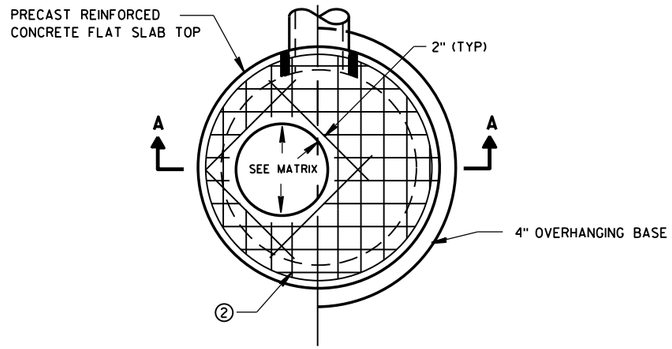
APPROVED
11/27/2013
DATE

/S/ Jerry H. Zogg
ROADWAY STANDARDS ENGINEER

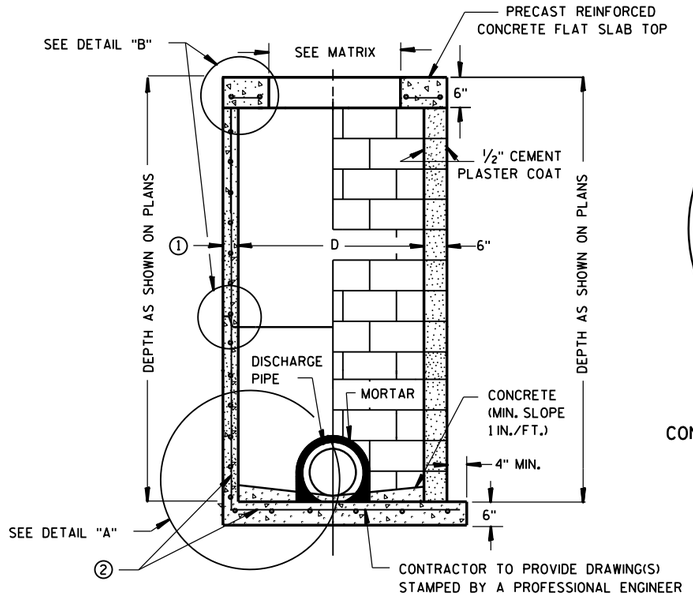
FHWA



PLAN VIEW RECTANGULAR OPENING



PLAN VIEW CIRCULAR OPENING

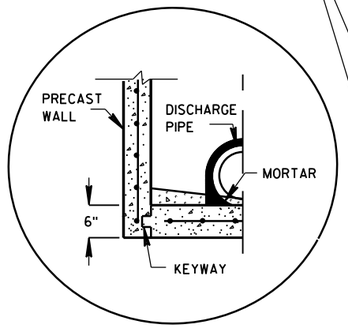


SECTION A-A

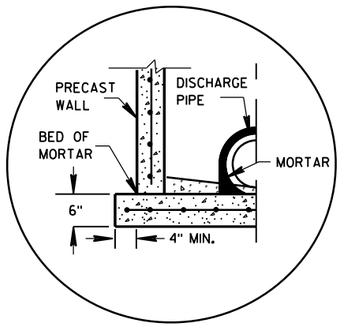
PRECAST REINFORCED CONCRETE WITH MONOLITHIC BASE

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

CIRCULAR INLETS W/ FLAT TOP

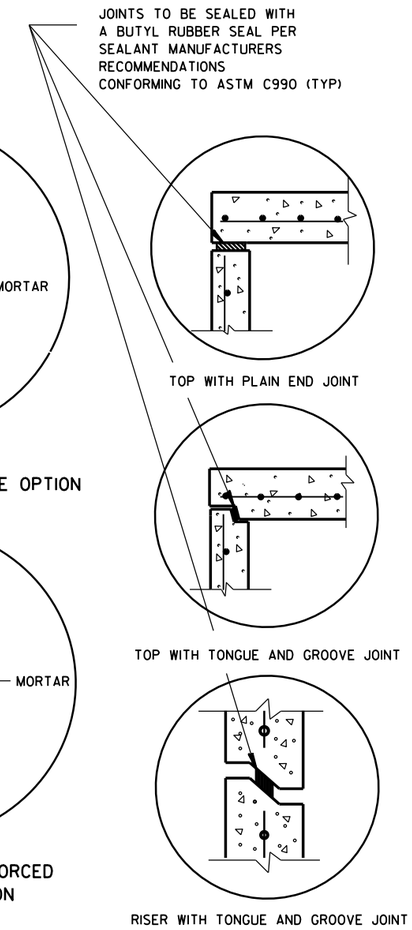


PRECAST REINFORCED CONCRETE WITH INTEGRAL BASE OPTION



SEPARATE PRECAST REINFORCED CONCRETE BASE OPTION

DETAIL "A"



TOP WITH PLAIN END JOINT

TOP WITH TONGUE AND GROOVE JOINT

RISER WITH TONGUE AND GROOVE JOINT

DETAIL "B"

GENERAL NOTES

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

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

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

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

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

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

ALL PRECAST INLET UNITS SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF AASHTO DESIGNATION M199.

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

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

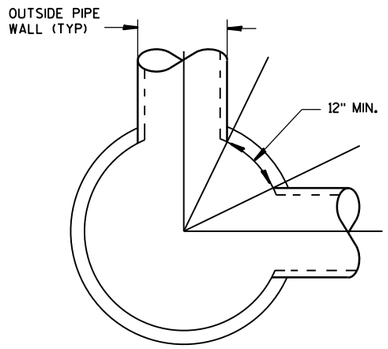
FOR ADDITIONAL CONFIGURATIONS, MAINTAIN A MINIMUM OF 12 INCHES AS MEASURED FROM THE INSIDE OF THE STRUCTURE WALL BETWEEN THE OUTSIDE PIPE WALLS OF ADJACENT PIPES. SEE DETAIL "C".

① MINIMUM WALL THICKNESS SHALL BE 4-IN FOR 3-FT DIAMETER AND 5-IN FOR 4-FT DIAMETER PRECAST INLETS.

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

INLET COVER OPENING MATRIX

	INLET COVER TYPE	ALL A'S	ALL B'S	BW	C	F	ALL H'S	S	T	V	WM	Z
INLET SIZE	OPENING SIZE (FT)											
3-FT	2 DIA.				X							X
	2X2	X	X					X		X		
4-FT	2 DIA.				X							X
	2X2	X	X					X		X		
	2X2.5			X				X	X	X	X	
	2X3						X					
	2.5X3					X						



DETAIL "C"

PIPE MATRIX

INLET SIZE	MAXIMUM INSIDE PIPE DIAMETER FOR TWO PIPES	
	180° SEPARATION (IN)	90° SEPARATION (IN)
3-FT	15	12
4-FT	24	18

INLETS 3-FT AND 4-FT DIAMETER

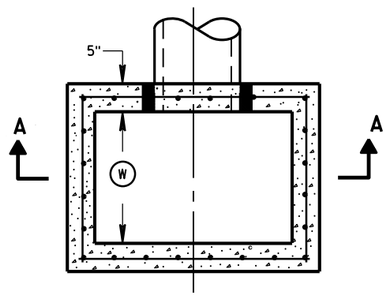
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
Sept., 2016 — /S/ Rodney Taylor
DATE — ROADWAY STANDARDS | UNIT SUPERVI ENT
FHWA

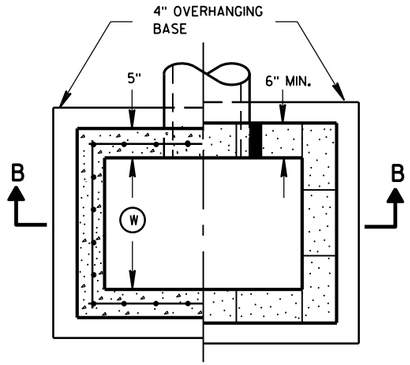
INLETS 3-FT AND 4-FT DIAMETER

6

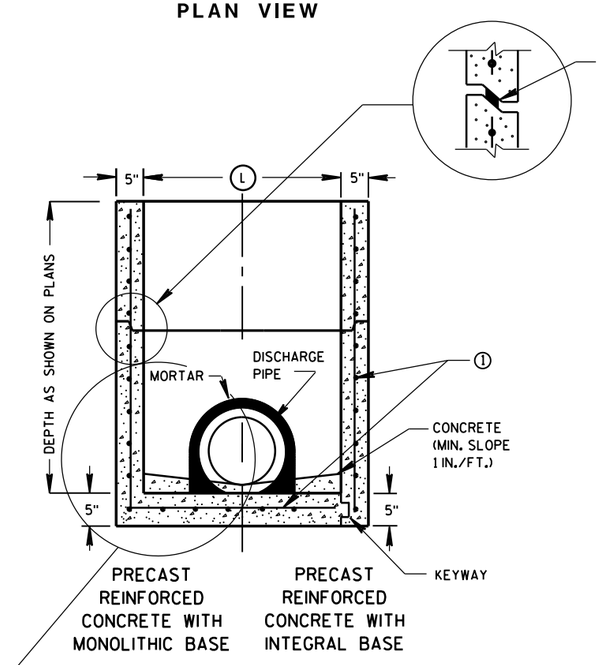
S.D.D. 8 C 6-2



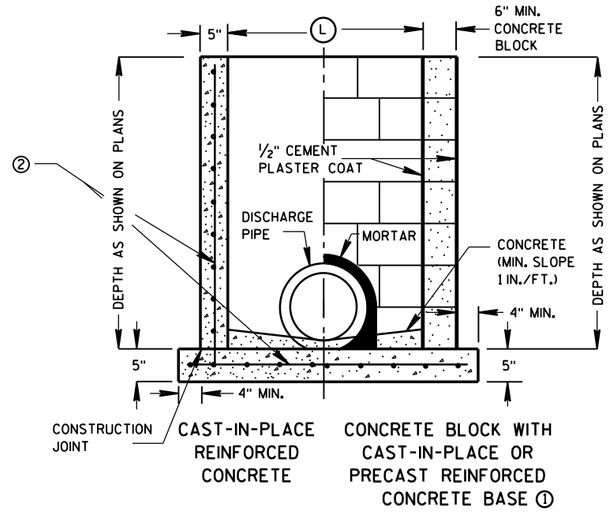
PLAN VIEW



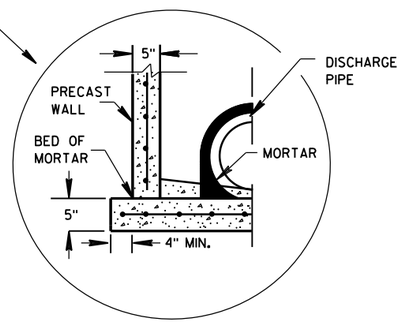
PLAN VIEW



SECTION A-A



SECTION B-B



SEPARATE PRECAST REINFORCED CONCRETE BASE OPTION

GENERAL NOTES

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

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

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

ALL PRECAST INLET UNITS SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF ASTM C 913.

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

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

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

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

4" OVERHANGING BASES ARE REQUIRED FOR CAST-IN-PLACE REINFORCED CONCRETE AND CONCRETE BLOCK INSTALLATIONS.
4" OVERHANG IS REQUIRED WHEN SEPARATE PRECAST BASE IS PROVIDED.
OVERHANG IS NOT REQUIRED ON PRECAST STRUCTURES WITH AN INTEGRAL OR MONOLITHIC BASE.

MAXIMUM INSIDE PIPE DIAMETER DETERMINED BY 3 INCH CLEARANCE ON EACH SIDE OF THE OUTSIDE WALL OF THE PIPE. SEE DETAIL "A". ASSUMES PIPE ENTERS PERPENDICULAR TO THE STRUCTURE.

① FOR PRECAST INLETS PROVIDE REINFORCING STEEL IN ACCORDANCE TO ASTM C 913.

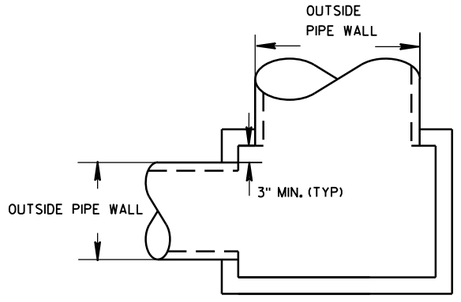
② CONTRACTOR TO PROVIDE DRAWING(S) STAMPED BY A PROFESSIONAL ENGINEER FOR STEEL REINFORCING DESIGN FOR CAST-IN-PLACE STRUCTURES.

INLET COVER MATRIX

INLET SIZE		INLET COVER TYPE	ALL A'S	ALL B'S	BW	F	ALL H'S	S	T	V	WM
	WIDTH (W) (FT)	LENGTH (L) (FT)									
2X2-FT	2	2	X	X				X		X	
2X2.5-FT	2	2.5			X			X	X	X	X
2X3-FT	2	3					X				
2.5X3-FT	2.5	3				X					

PIPE MATRIX

INLET SIZE	MAXIMUM INSIDE PIPE DIAMETER	
	WIDTH (IN)	LENGTH (IN)
2X2-FT	12	12
2X2.5-FT	12	18
2X3-FT	12	24
2.5X3-FT	18	24



DETAIL "A"

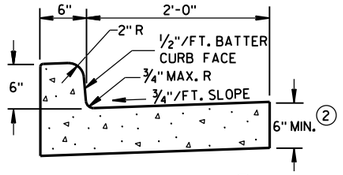
INLETS 2X2-FT, 2X2.5-FT, 2X3-FT AND 2.5X3-FT

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

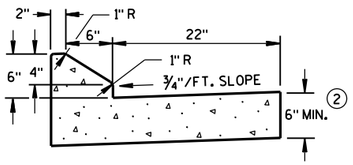
APPROVED
Sept., 2016 — DATE
/S/ Rodney Taylor
ROADWAY STANDARDS D IT UNIT SUPERVIS
FHWA

6

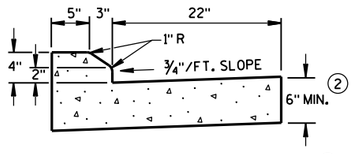
S.D.D. 8 C 7-2



TYPES A & D ①

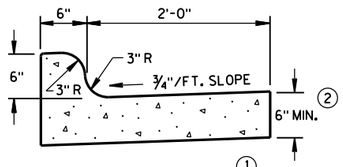


6" SLOPED CURB TYPES G & J ①

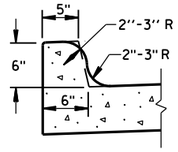


4" SLOPED CURB TYPES G & J ①

CONCRETE CURB & GUTTER 30"

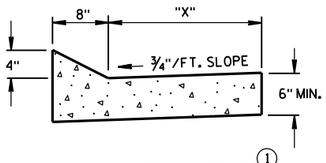


TYPES K & L ①



OPTIONAL CURB SHAPE FOR TYPES K & L ①

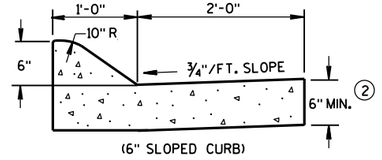
CONCRETE CURB & GUTTER 30"



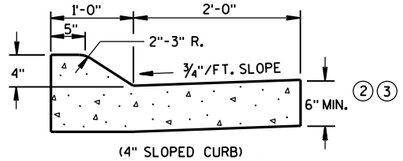
TYPES TBT & TBTT ①

CONCRETE CURB & GUTTER

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

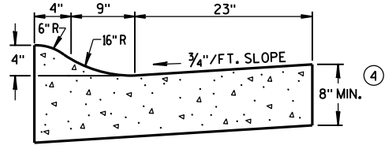


(6" SLOPED CURB)



(4" SLOPED CURB)

TYPES A & D ①



4" SLOPED CURB TYPES R & T ①⑤

CONCRETE CURB & GUTTER 36"

GENERAL NOTES

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

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

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

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

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

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

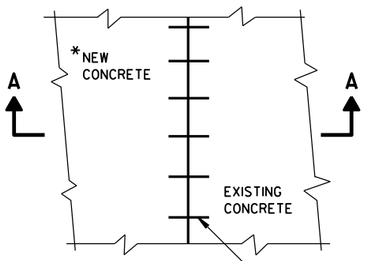
② THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 6" MINIMUM GUTTER THICKNESS IS MAINTAINED.

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

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

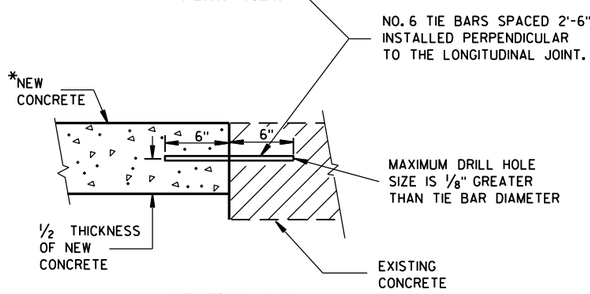
⑤ THE FACE OF CURB IS 6" FROM THE BACK OF CURB.

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



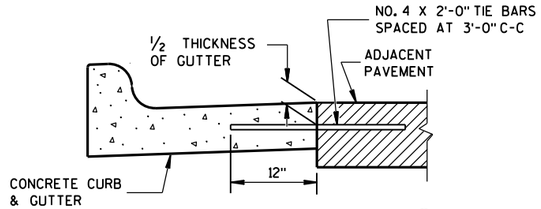
PLAN VIEW

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

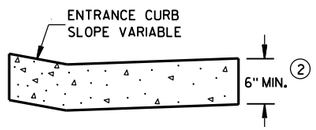


SECTION A-A

TIE BARS DRILLED INTO EXISTING PAVEMENT

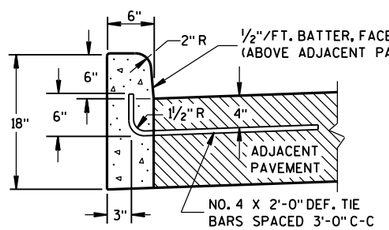


TYPICAL TIE BAR LOCATION ①

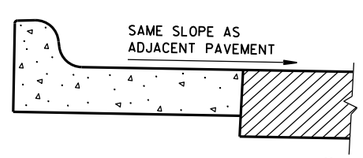


DRIVEWAY ENTRANCE CURB

(WHEN DIRECTED BY THE ENGINEER)

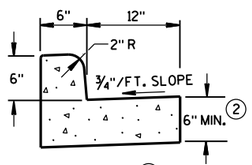


① TYPES A & D



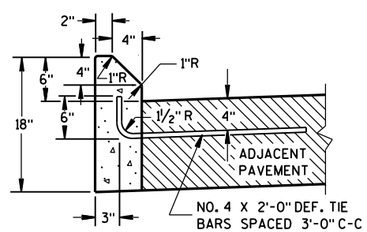
⑥ REVERSE SLOPE GUTTER

(TYPICAL FOR ALL CURB & GUTTER TYPES)



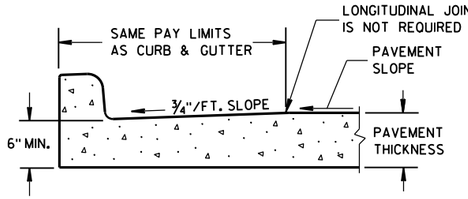
① TYPES A & D

CONCRETE CURB & GUTTER 18"

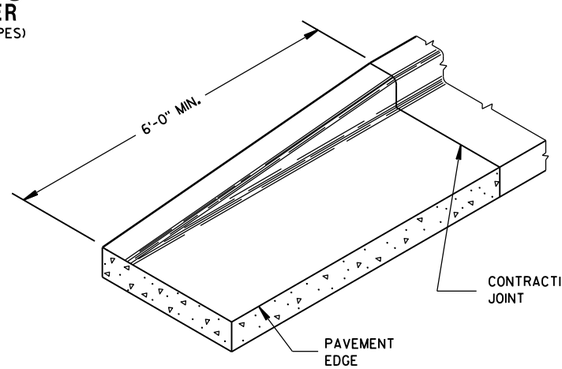


① TYPES G & J

CONCRETE CURB



PARTIAL SECTION OF PAVEMENT WITH INTEGRAL CURB & GUTTER



END SECTION CURB & GUTTER

CONCRETE CURB, CONCRETE CURB & GUTTER AND TIES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

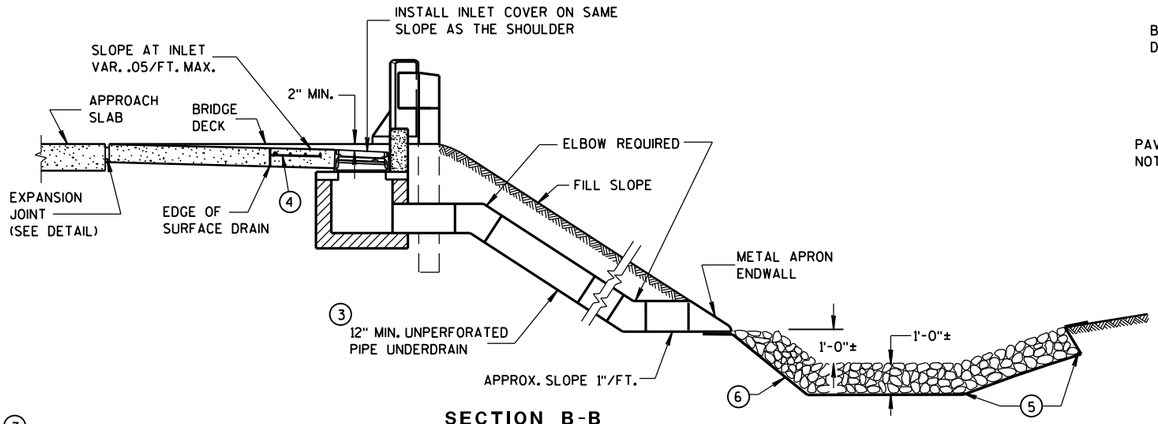
June, 2016 — DATE

/S/ Jerry H. Zogg — ROADWAY STANDARDS DEVELOPMENT ENGINEER

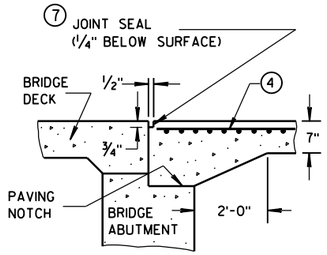
FHWA

6

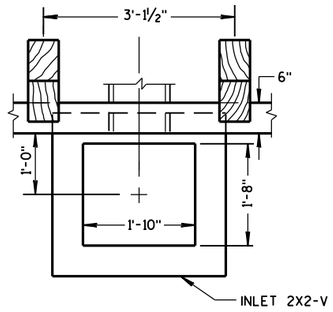
S.D.D. 8 D 1-19



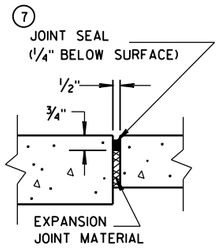
SECTION B-B



SECTION D-D

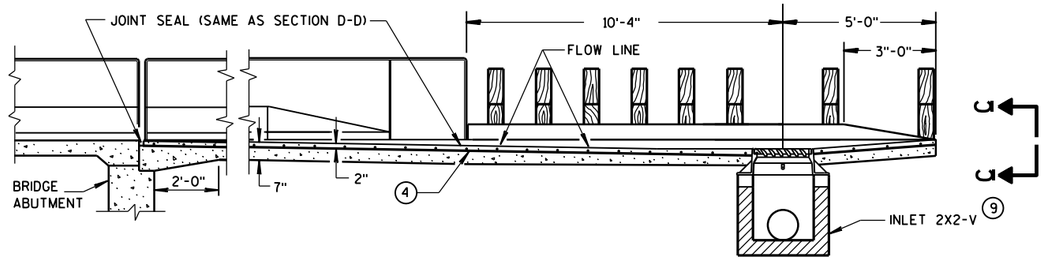


PLAN VIEW

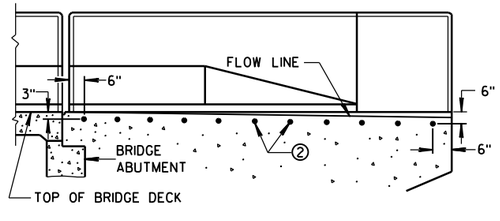


EXPANSION JOINT DETAIL

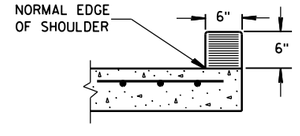
PLAN VIEW



SECTION A-A



LOCATION OF TIE BARS IN WINGWALL



SECTION C-C

GENERAL NOTES

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

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

(1) NO. 4 X 2'-0" TIE BARS SPACED AT 3'-0" CENTERS TO BE USED ONLY WHEN ADJACENT TO P.C. CONCRETE.

(2) NO. 4 X 2'-0" TIE BARS SPACED AT 12" CENTERS TO BE PLACED BY BRIDGE CONTRACTOR, OR DRILLED TIE BARS PLACED AS DIRECTED BY THE ENGINEER.

(3) THE PIPE UNDERDRAIN MAY BE ANY ONE OF THE SIX MATERIALS LISTED IN THE STANDARD SPECIFICATIONS SECTION 612.2 EXCEPT DRAIN TILE.

(4) MINIMUM REINFORCEMENT SHALL BE 6" X 6" - W4.0 X W4.0 OR NO. 3 BARS LONGITUDINAL AND TRANSVERSE SPACING 12" C-C.

(5) LIMITS OF ADDITIONAL RIPRAP WHEN SPECIAL DITCH IS REQUIRED.

(6) GEOTEXTILE FABRIC, TYPE 'R'

(7) HOT POURED SEALANT UNLESS OTHERWISE SPECIFIED.

(8) THIS DIMENSION MAY VARY DEPENDING ON THE SPACING OF POSTS FOR THE STEEL PLATE BEAM GUARD. THE TYPICAL LOCATION FOR THE SURFACE DRAIN IS WHERE THE POST SPACING WIDENS TO 3'-1½".

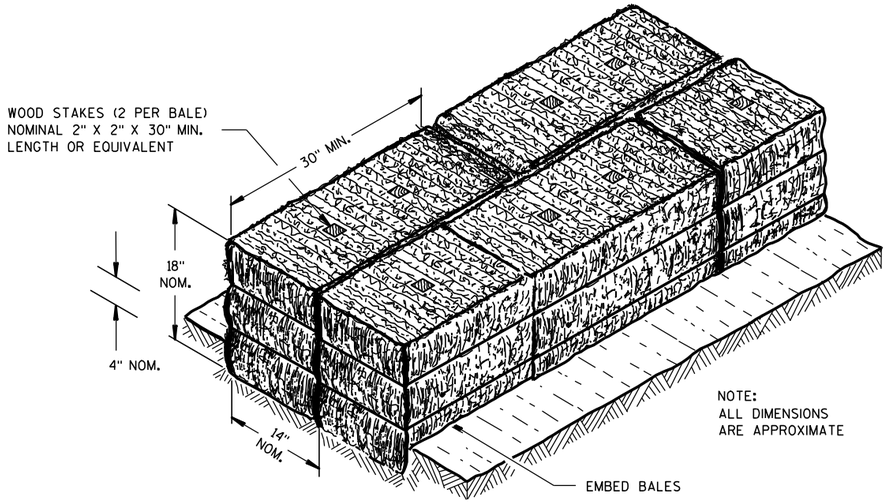
(9) SEE CURRENT STANDARD DETAIL DRAWINGS 8A5 AND 8C7 FOR DETAILS.

CONCRETE SURFACE DRAINS DROP INLET TYPE AT STRUCTURES

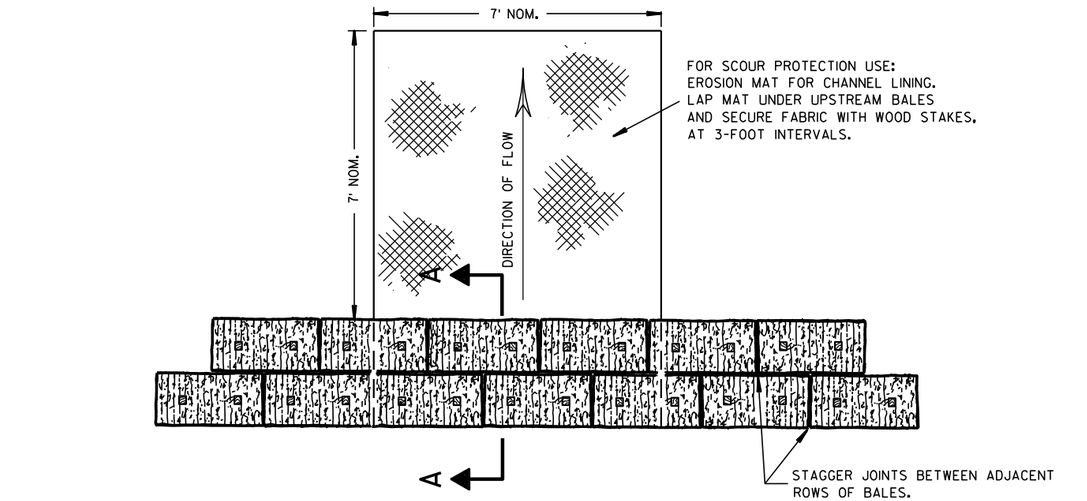
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

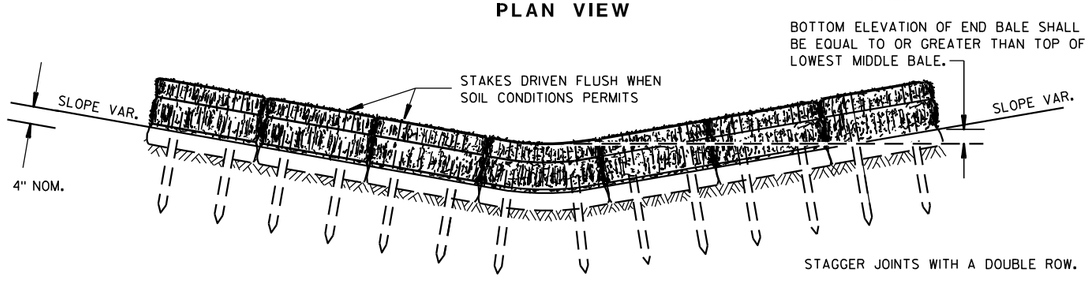
6
S.D.D. 8 D 3-6



SECTION A-A



PLAN VIEW



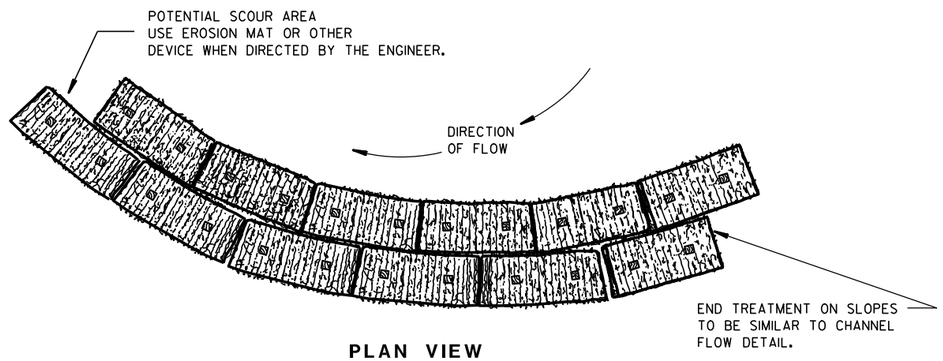
FRONT ELEVATION

TEMPORARY DITCH CHECK USING EROSION BALES ①

GENERAL NOTES

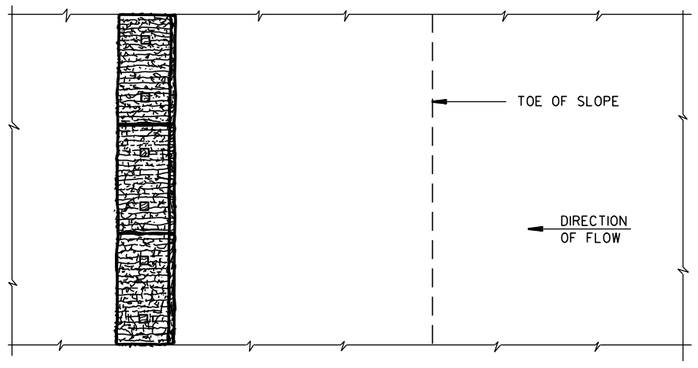
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

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

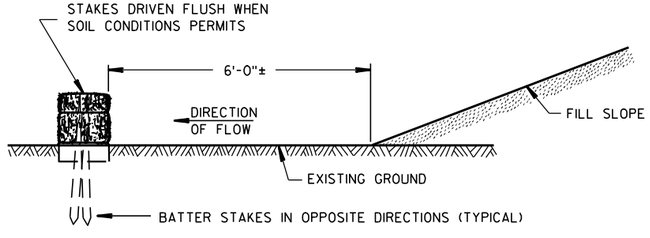


PLAN VIEW

WHEN ALTERING THE DIRECTION OF FLOW



PLAN VIEW



FRONT ELEVATION

WHEN EXISTING GROUND SLOPES AWAY FROM FILL SLOPE

EROSION BALES FOR SHEET FLOW

TYPICAL INSTALLATIONS OF EROSION BALES / TEMPORARY DITCH CHECKS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

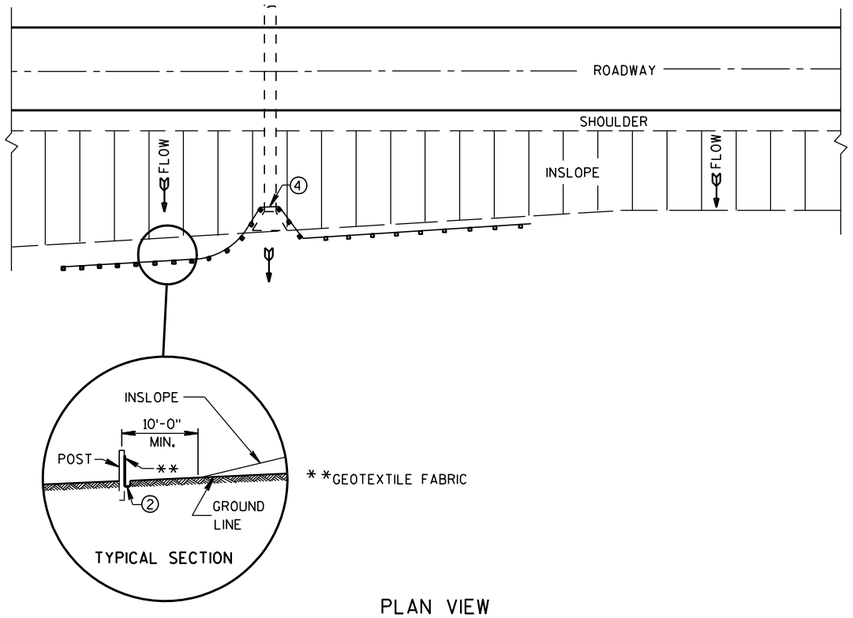
6/04/02 — DATE

/S/ Beth Cannestra — CHIEF ROADWAY DEVELOPMENT ENGINEER

FHWA

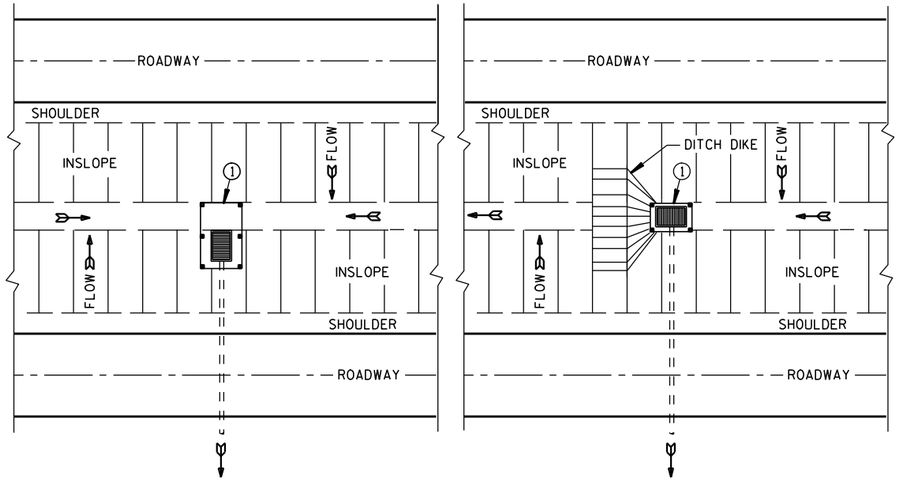
6

S.D.D. 8 E 8-3



PLAN VIEW

TYPICAL APPLICATION OF SILT FENCE



PLAN VIEW

SILT FENCE AT MEDIAN SURFACE DRAINS

GENERAL NOTES

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

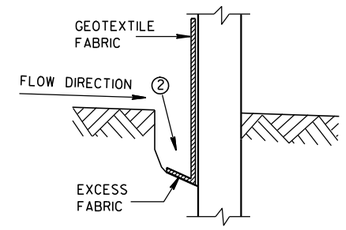
① HORIZONTAL BRACE REQUIRED WITH 2" X 4" WOODEN FRAME OR EQUIVALENT AT TOP OF POSTS.

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

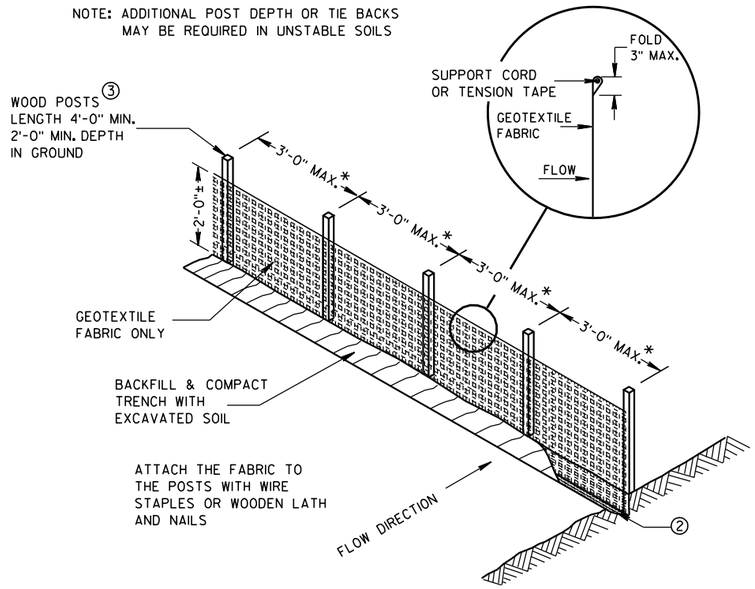
③ WOOD POSTS SHALL BE A MINIMUM SIZE OF 1⅛" X 1⅛" OF OAK OR HICKORY.

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

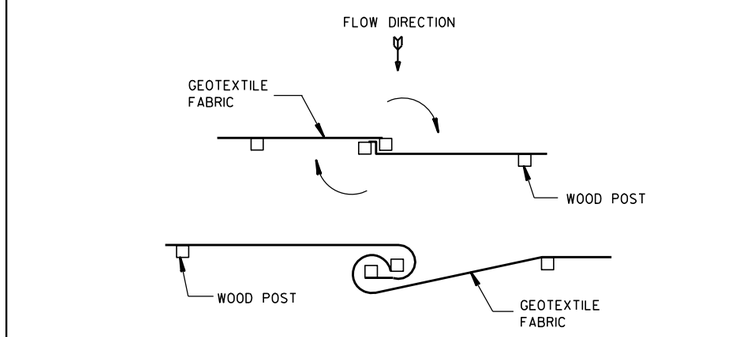
⑤ CONSTRUCT SILT FENCE FROM A CONTINUOUS ROLL IF POSSIBLE BY CUTTING LENGTHS TO AVOID JOINTS. IF A JOINT IS NECESSARY USE ONE OF THE FOLLOWING TWO METHODS; A) OVERLAP THE END POSTS AND TWIST, OR ROTATE, AT LEAST 180 DEGREES, B) HOOK THE END OF EACH SILT FENCE LENGTH.



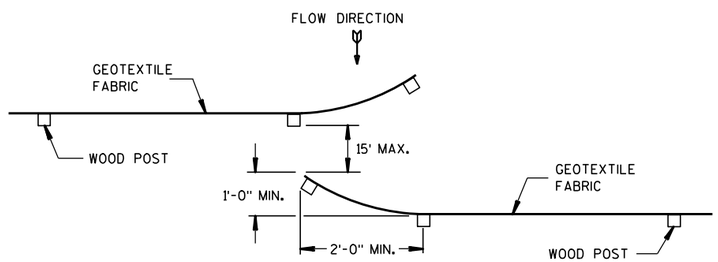
TRENCH DETAIL



SILT FENCE

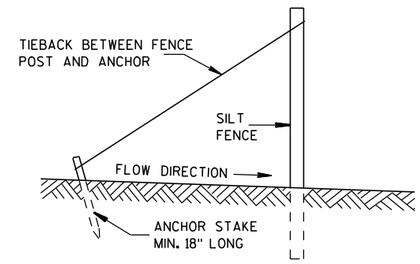


TWIST METHOD



HOOK METHOD

JOINING TWO LENGTHS OF SILT FENCE ⑤



SILT FENCE TIE BACK

(WHEN REQUIRED BY THE ENGINEER)

SILT FENCE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

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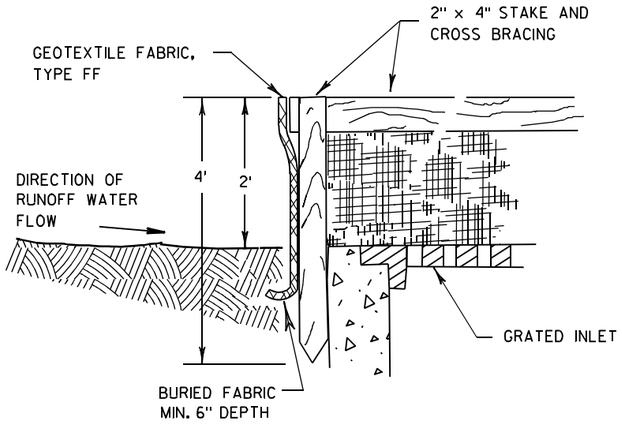
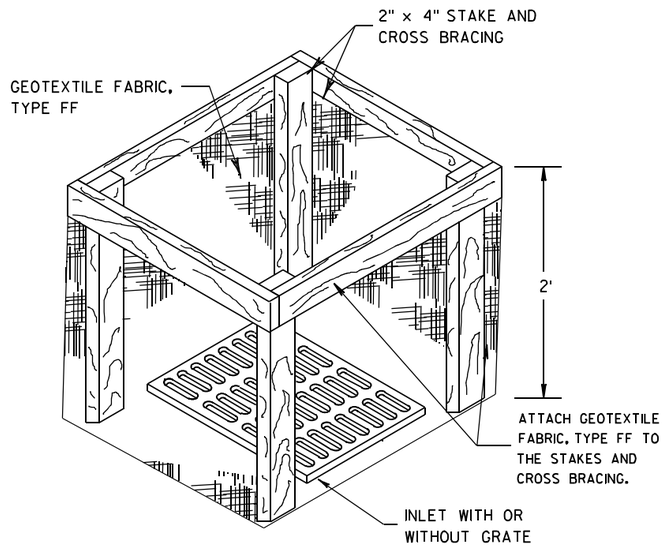
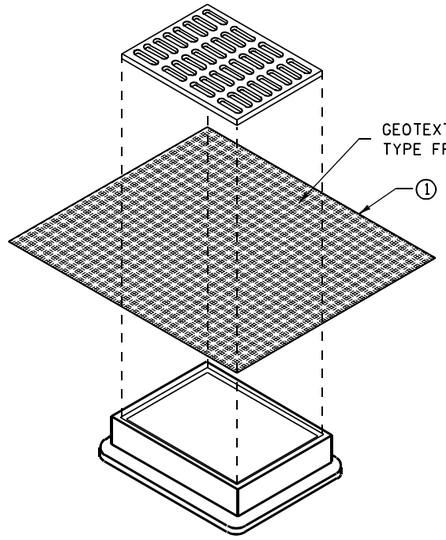


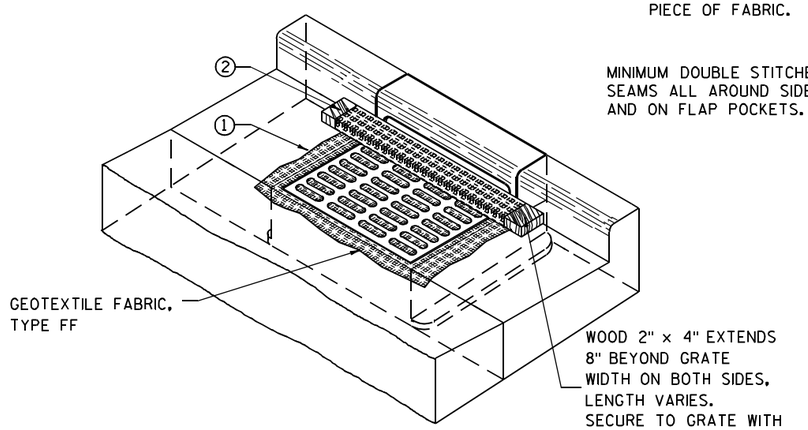


INLET PROTECTION, TYPE A

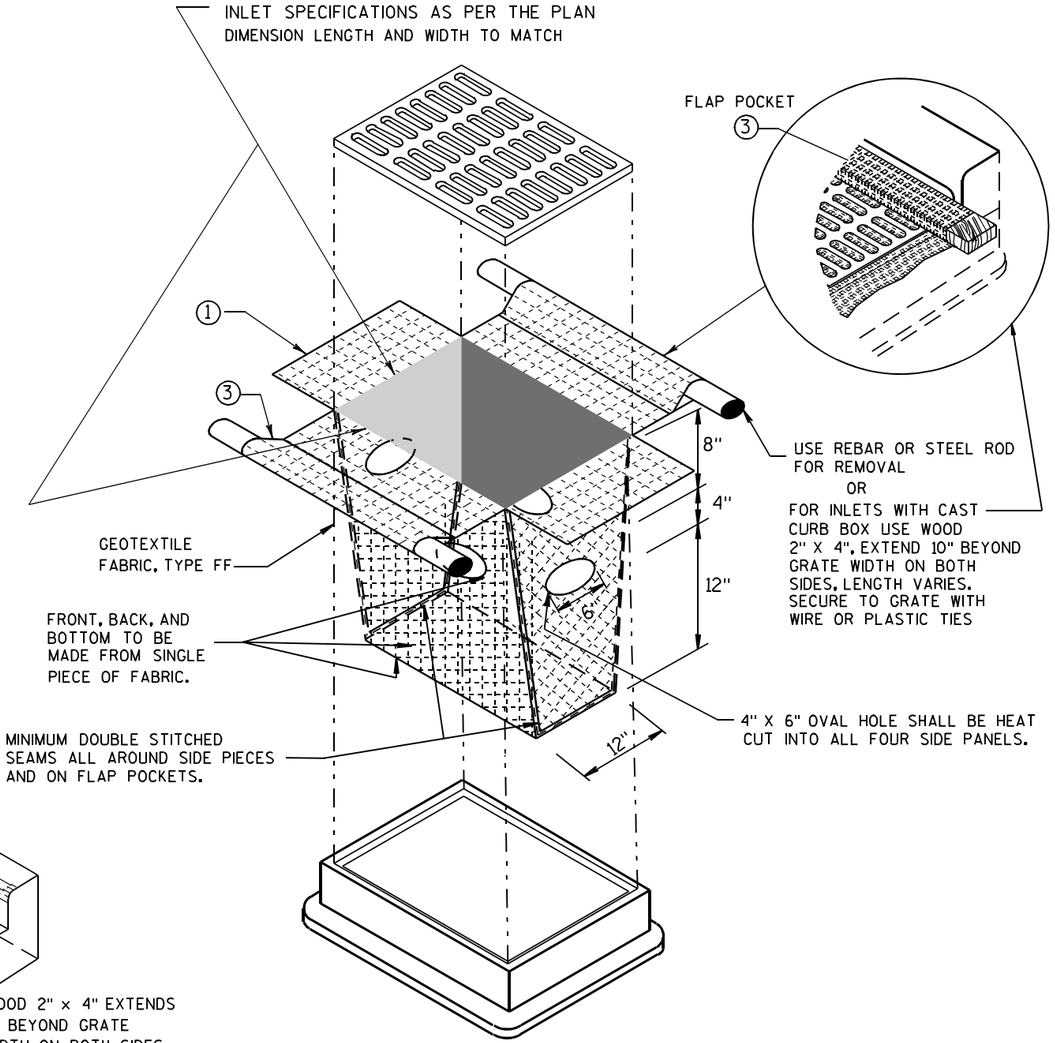


INLET PROTECTION, TYPE B
(WITHOUT CURB BOX)

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



INLET PROTECTION, TYPE C (WITH CURB BOX)



INLET PROTECTION, TYPE D

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

GENERAL NOTES

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

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

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

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

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

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

INSTALLATION NOTES

TYPE B & C

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

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

TYPE D

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

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

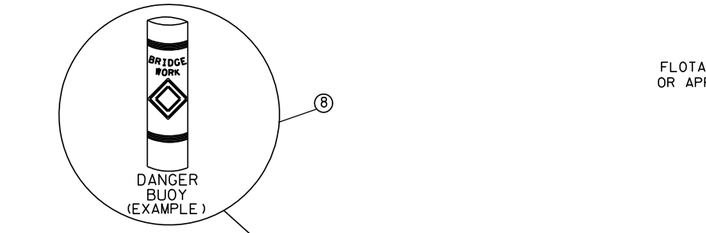
THE INSTALLED BAG SHALL HAVE A MINIMUM SIDE CLEARANCE, BETWEEN THE INLET WALLS AND THE BAG, MEASURED AT THE BOTTOM OF THE OVERFLOW HOLES, OF 3". WHERE NECESSARY THE CONTRACTOR SHALL CINCH THE BAG, USING PLASTIC ZIP TIES, TO ACHIEVE THE 3" CLEARANCE. THE TIES SHALL BE PLACED AT A MAXIMUM OF 4" FROM THE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

INLET PROTECTION
TYPE A, B, C, AND D

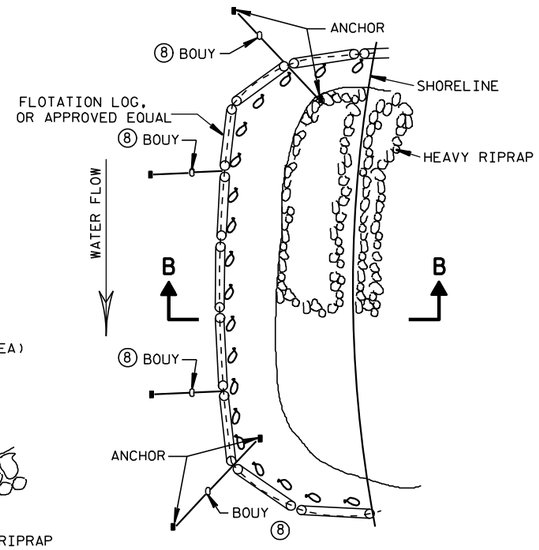
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

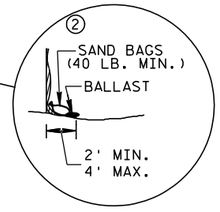
APPROVED
10/16/02
DATE
/S/ Beth Cannestra
CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA

6
S.D.D. 8 E 10-2

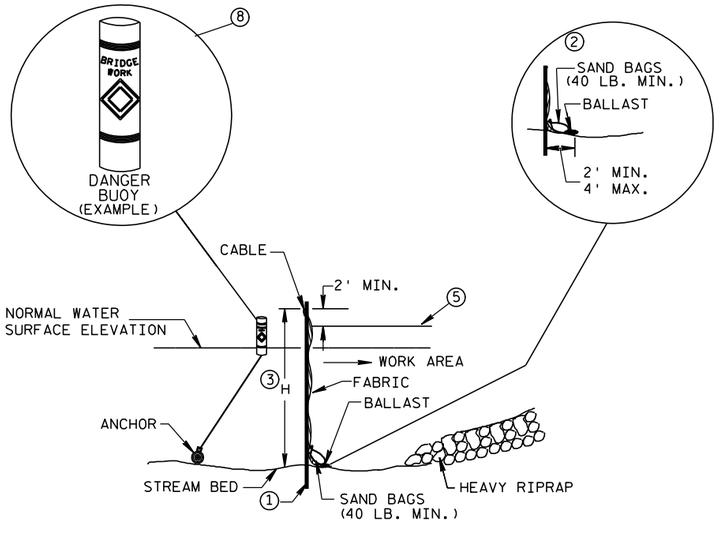


SECTION B-B

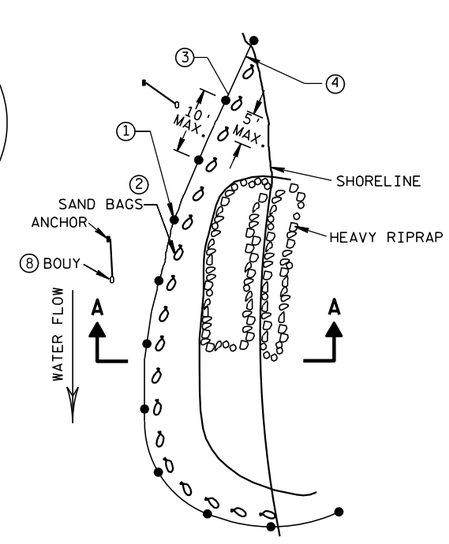




TURBIDITY BARRIER FLOAT ALTERNATIVE
CAUTION - SEE NOTE 6



SECTION A-A



PLAN VIEW

TURBIDITY BARRIER STANDARD POST INSTALLATION

TURBIDITY BARRIER PLACEMENT DETAILS

GENERAL NOTES

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

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

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

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

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

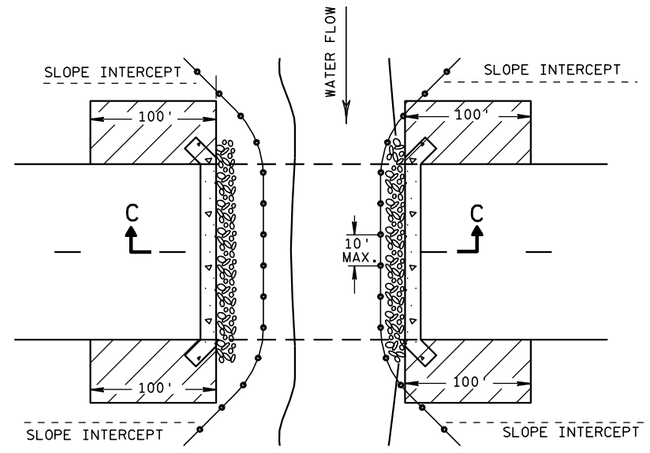
④ IN WATERWAYS SUBJECT TO FLUCTUATING WATER ELEVATIONS, PROVISIONS SHOULD BE MADE TO ALLOW THE WATER TO EQUALIZE ON EACH SIDE OF THE BARRIER. THIS MAY BE ACCOMPLISHED BY LEAVING A PORTION OF THE BARRIER OPEN ON THE UPSTREAM END.

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

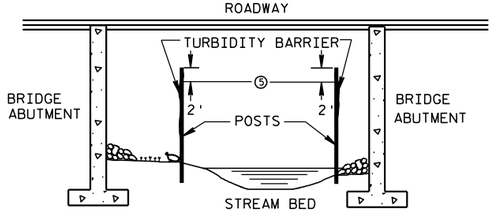
⑥ FLOAT ALTERNATIVE WILL ONLY BE ALLOWED WITH WRITTEN APPROVAL OF THE ENGINEER, AND IS MEANT FOR LOCATIONS WHERE BED ROCK PREVENTS THE INSTALLATION OF POSTS.

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

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



PLAN VIEW



SECTION C-C

TURBIDITY BARRIER DETAIL SHOWING TYPICAL PLACEMENT AT STRUCTURES

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

6

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6

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METAL APRON ENDWALLS

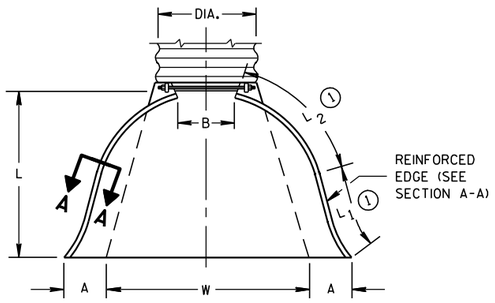
PIPE DIA. (IN.)	MIN. THICK. (Inches) STEEL	MIN. THICK. (Inches) ALUM.	DIMENSIONS (Inches) A (±1")	B (MAX.)	H (±1")	L (±1 1/2")	L1 ①	L2 ①	W (±2")	APPROX. SLOPE	BODY
12	.064	.060	6	6	6	21	12	17 1/2	24	2 1/2 to 1	1 Pc.
15	.064	.060	7	8	6	26	14	21 3/4	30	2 1/2 to 1	1 Pc.
18	.064	.060	8	10	6	31	15	28 1/4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

× EXCEPT CENTER PANEL SEE GENERAL NOTES

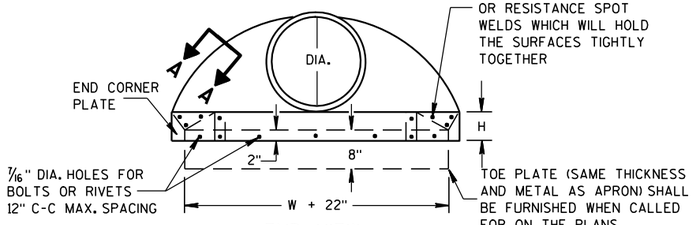
REINFORCED CONCRETE APRON ENDWALLS

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

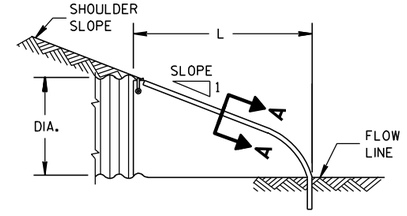
* MINIMUM
** MAXIMUM



PLAN VIEW

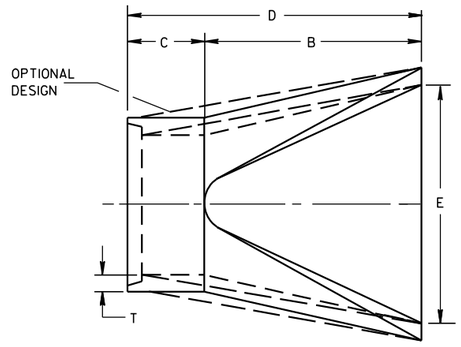


END VIEW

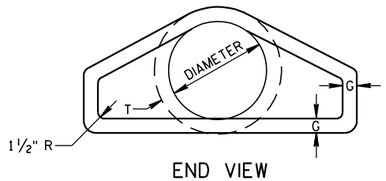


SIDE ELEVATION

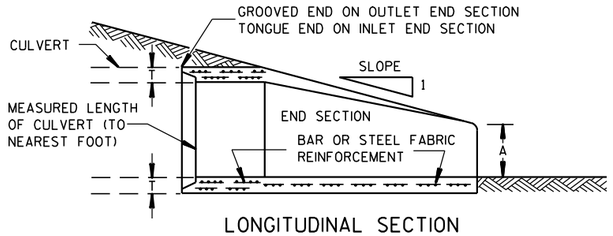
METAL ENDWALLS



PLAN

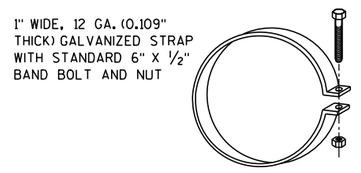


END VIEW



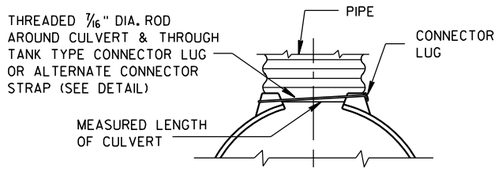
LONGITUDINAL SECTION

CONCRETE ENDWALLS

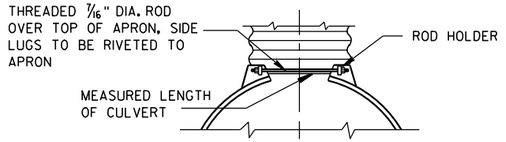


ALTERNATE FOR TYPE 1 CONNECTION

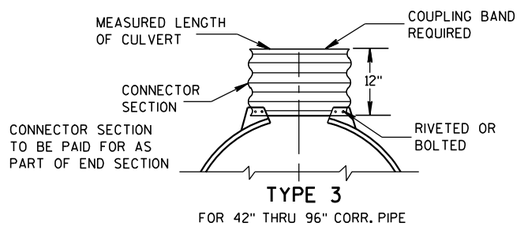
END SECTION CONNECTOR STRAP



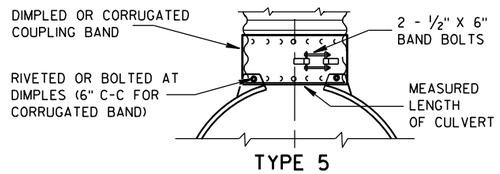
TYPE 1
FOR 12" THRU 24" CORR. PIPE



TYPE 2
FOR 30" THRU 96" CORR. PIPE



TYPE 3
FOR 42" THRU 96" CORR. PIPE



TYPE 5
ALTERNATE FOR:
ALL SIZES CORRUGATED CIRCULAR PIPE

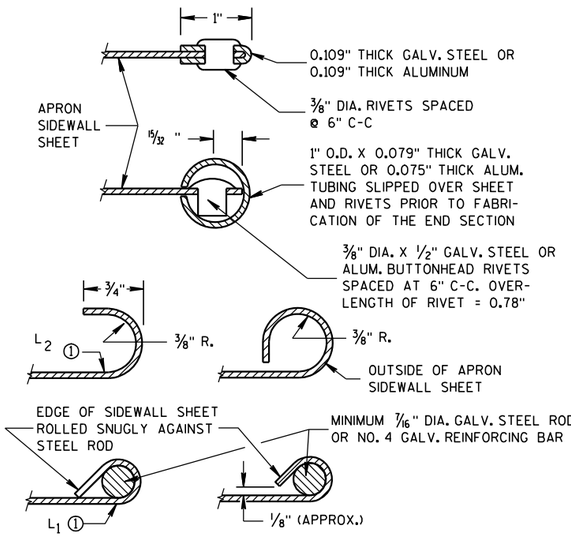
NOTE: DIMPLED BAND FITS OVER OUTSIDE OF ENDWALL. AND CORRUGATED BAND FITS INSIDE ENDWALL. DIMPLED BAND MAY BE USED WITH HELICALLY CORRUGATED PIPE.

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

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

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

CONNECTION DETAILS



SECTION A-A

GENERAL NOTES

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

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

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

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

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

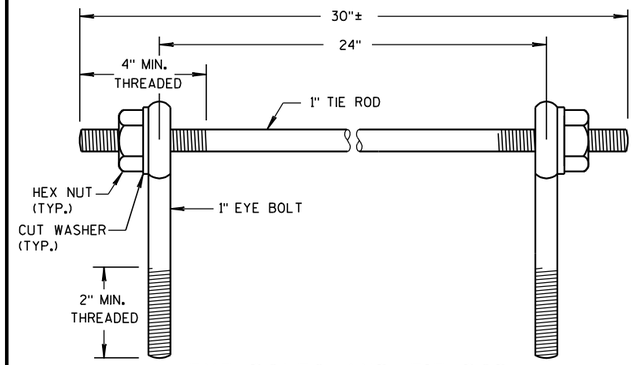
① FOR PIPE SIZES UP TO 60" DIAMETER, A 180° ROLLED EDGE MAY BE USED INSTEAD OF STEEL ROD REINFORCEMENT. SEE SECTION A-A.

APRON ENDWALLS FOR CULVERT PIPE

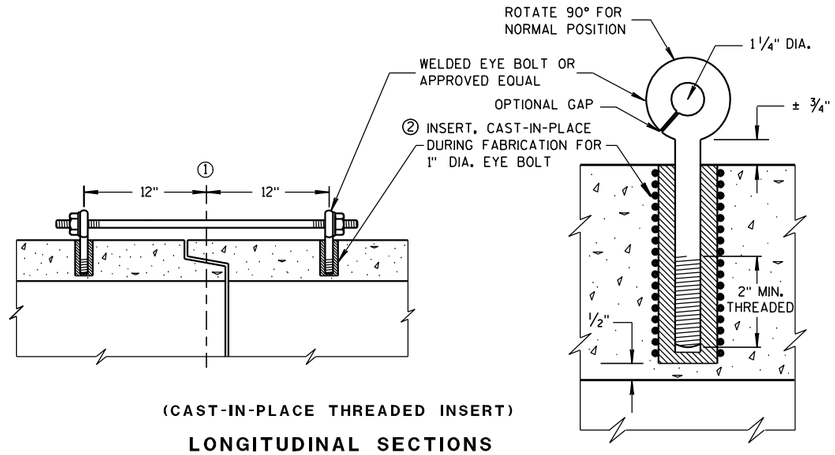
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

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



EYE BOLTS AND TIE ROD



(CAST-IN-PLACE THREADED INSERT)

LONGITUDINAL SECTIONS

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

GENERAL NOTES

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

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

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

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

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

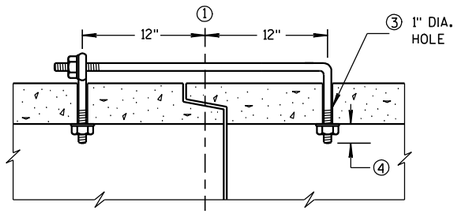
② THE INSIDE OF THE THREADED INSERTS SHALL BE CLEAN TO ALLOW THE INSERTION OF THREADED EYE BOLTS.

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

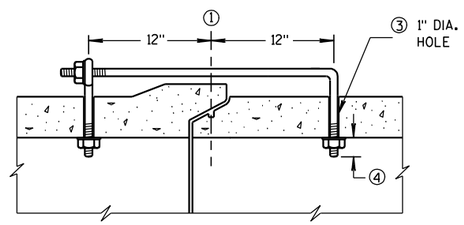
④ BOLT PROJECTION INSIDE OF PIPE SHALL NOT EXCEED 2 INCHES.

⑤ OPENING TO BE ROD DIAMETER PLUS 1 INCH.

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



(TONGUE & GROOVE PIPE)

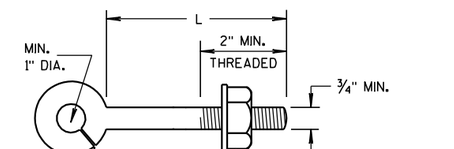


(MODIFIED BELL PIPE)

LONGITUDINAL SECTION

EYE BOLT DIMENSION TABLE

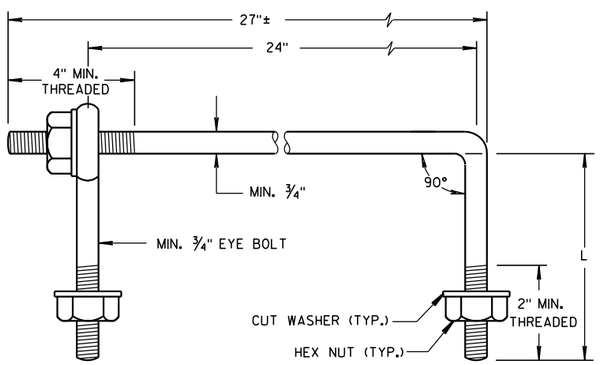
PIPE SIZE	L = LENGTH	
	TONGUE & GROOVE PIPE	MODIFIED BELL PIPE
18" TO 24"	4 1/2"	6 1/4"
30"	5"	7"
36"	5 1/2"	7"
42"	6"	
48"	6 1/2"	
60"	7 1/2"	
66"	8"	



NOTE:

EYE BOLT

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



EYE BOLT AND TIE ROD

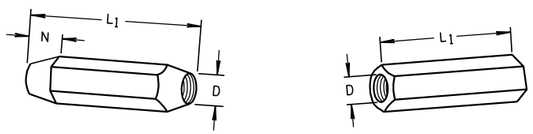
(JOINT TIES FOR 18" TO 66" DIA. CONCRETE PIPE)

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

ADJUSTABLE TIE ROD TABLE

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

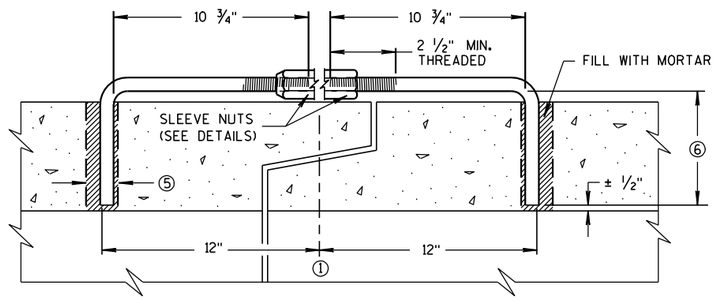
DIMENSIONS SHOWN ARE IN INCHES



TAPERED PLAIN

RIGHT AND LEFT THREADS

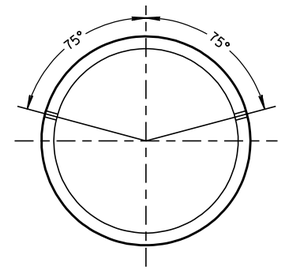
SLEEVE NUTS



LONGITUDINAL SECTION

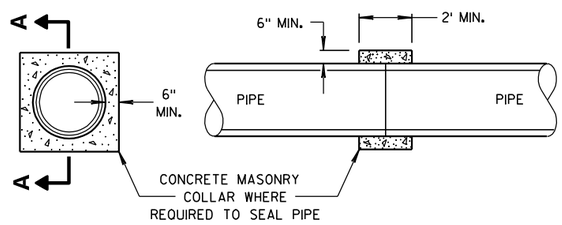
(JOINT TIES FOR 12" TO 108" DIA. CONCRETE PIPE)

ADJUSTABLE TIE ROD (ALTERNATE NO. 3)



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

TRANSVERSE SECTION



SECTION A-A

CONCRETE COLLAR DETAIL

JOINT TIES FOR CONCRETE PIPE AND CONCRETE COLLAR DETAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
6/5/2012 — DATE
/S/ Jerry H. Zogg — ROADWAY STANDARDS ENGINEER
33
FHWA

6

S.D.D. 8 F 4-7

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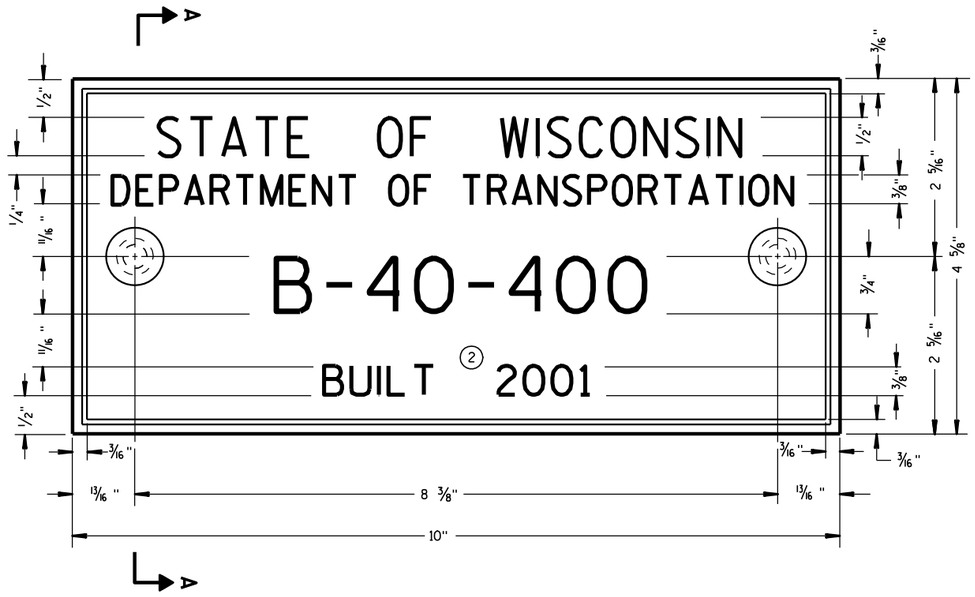
S.D.D. 8 F 4-7



TYPICAL NAME PLATE

(BRIDGES, CULVERTS, AND RETAINING WALLS)

FOR MULTI-UNIT STRUCTURES
LINE 3 ABOVE SHALL READ

B = BRIDGE
C = CULVERT
R = RETAINING WALL

COUNTY NO.

BRIDGE NO.

UNIT NO. FOR MULTIPLE UNIT BRIDGE

B-40-400-1A

NUMBERING DESIGNATION MULTI-UNIT STRUCTURES

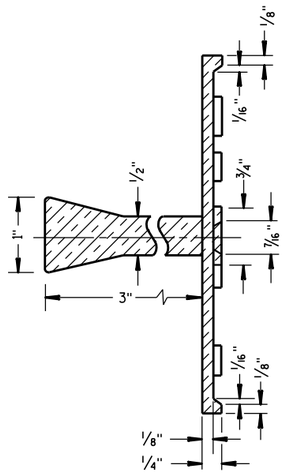
GENERAL NOTES

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

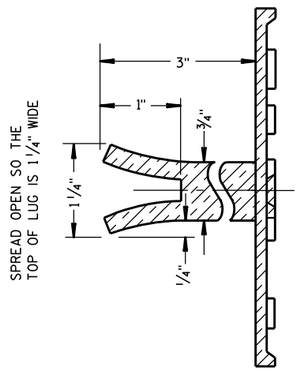
THE BRIDGE NUMBER AND YEAR BUILT SHOWN ON THIS DRAWING ARE EXAMPLES ONLY. SEE CONSTRUCTION PLANS FOR INDIVIDUAL NUMBERING AND YEAR BUILT.

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

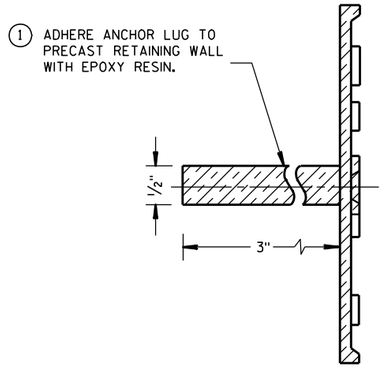
(2) REHABILITATION OF AN EXISTING STRUCTURE SHOULD USE THE DATE OF ORIGINAL STRUCTURE CONSTRUCTION.



SECTION A-A



ALTERNATE LUG



ALTERNATE LUG

(FOR ATTACHMENT TO PRECAST STRUCTURES)

NAME PLATE (STRUCTURES)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

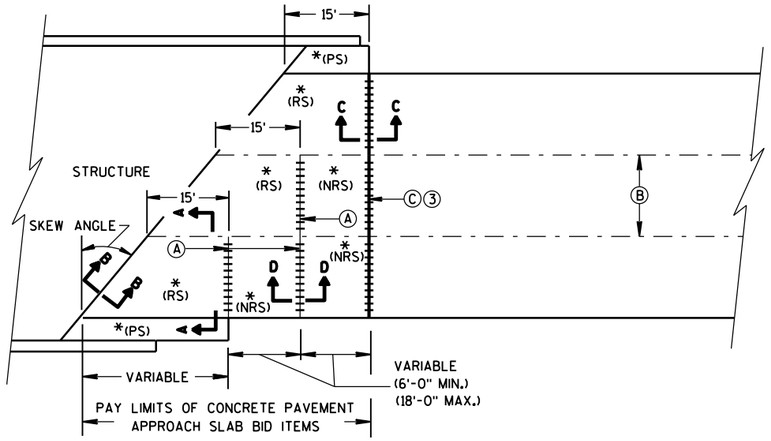
3/26/10 DATE

/S/ Scot Beck CHIEF STRUCTURAL DEVELOPMENT ENGINEER

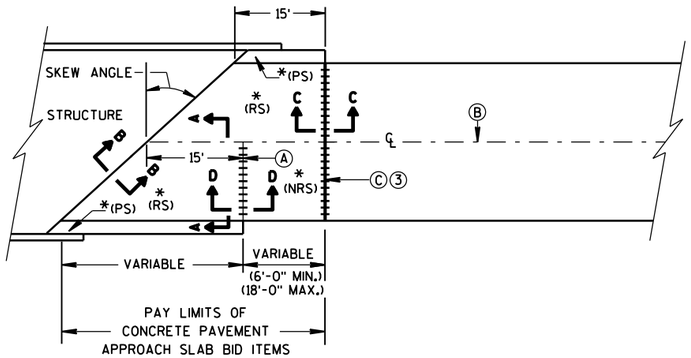
FHWA

6

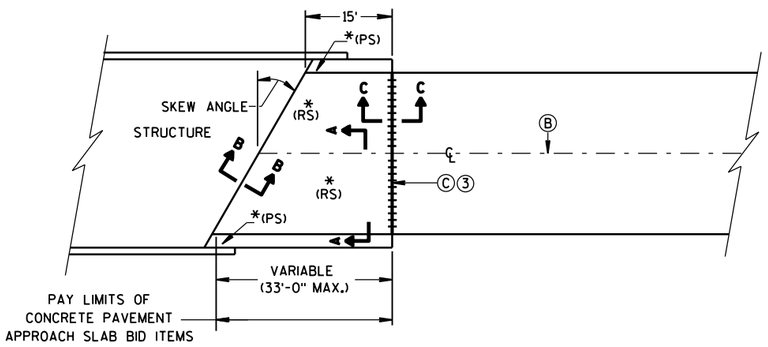
S.D.D. 12 A 3-10



SKEWED APPROACH
(PAVEMENT MORE THAN 2 LANES)



SKEWS >20°
(PAVEMENT WIDTH ≤30')



SKEWS ≤20°
(PAVEMENT WIDTH ≤30')

APPROACH SLAB AND ADJACENT PAVEMENT

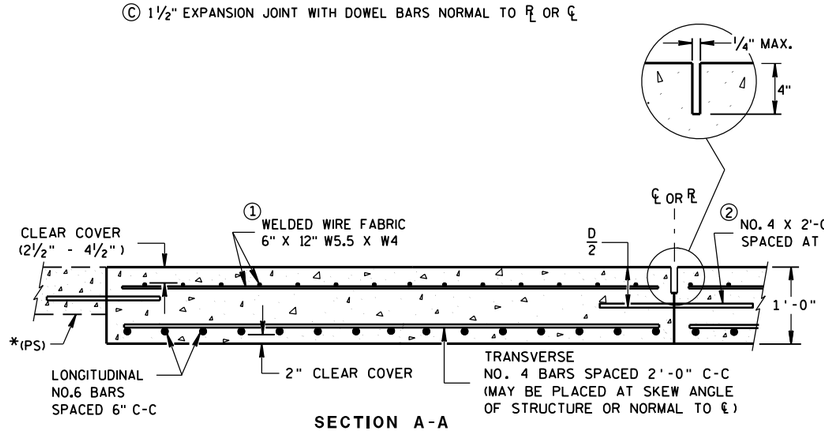
*(RS) = REINFORCED CONCRETE SLAB
*(PS) = PAVED CONCRETE SHOULDER OR CONCRETE DRAINAGE SLAB
(SEE DETAILS ELSEWHERE IN THE PLAN)
*(NRS) = NON-REINFORCED CONCRETE SLAB

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

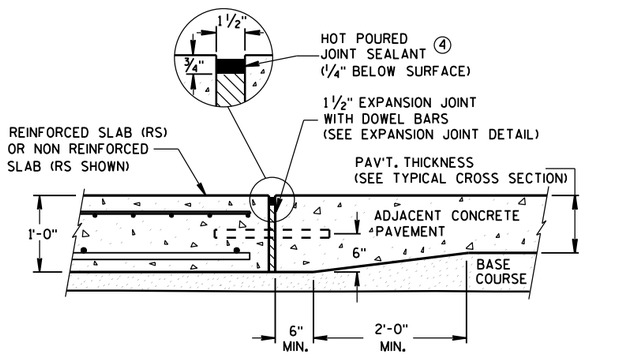
Ⓐ STANDARD CONTRACTION JOINT NORMAL TO ℄ OR ℄

Ⓑ STANDARD LONGITUDINAL JOINT WITH TIE BARS.

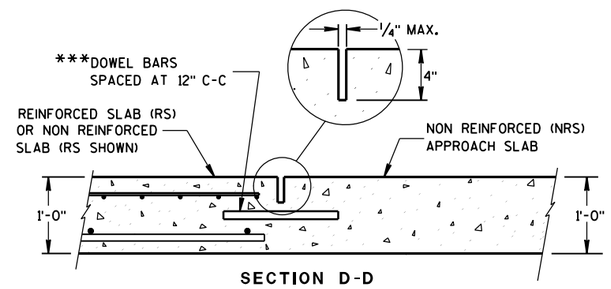
Ⓒ 1½" EXPANSION JOINT WITH DOWEL BARS NORMAL TO ℄ OR ℄



SECTION A-A
REINFORCEMENT POSITIONING DETAIL



SECTION C-C
TRANSITION DETAIL
APPROACH SLAB TO ADJACENT PAVEMENT



SECTION D-D
CONTRACTION JOINT

GENERAL NOTES

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

TACK WELD DOWEL BARS TO THE BASKETS ON ALTERNATE ENDS.

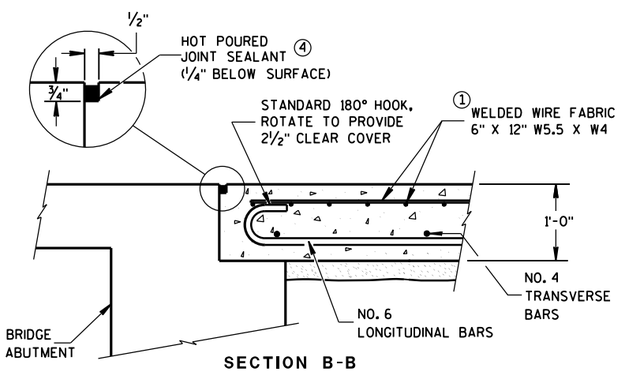
① THE CONTRACTOR MAY USE NO. 4 BARS SPACED AT 2'-0" C-C IN BOTH THE LONGITUDINAL AND TRANSVERSE DIRECTIONS FOR TOP REINFORCEMENT AS AN ALTERNATIVE TO THE WELDED WIRE FABRIC.

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

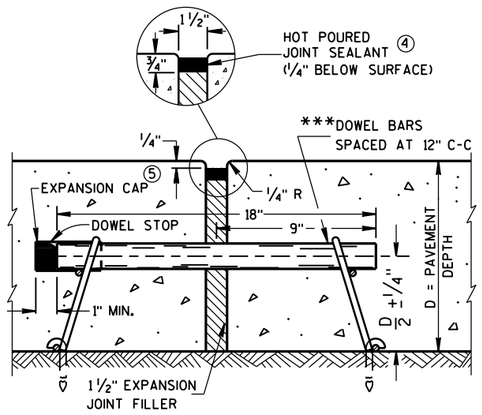
③ DO NOT CONSTRUCT AN EXPANSION JOINT OR INSTALL DOWEL BARS WHEN ABUTTING AN HMA PAVEMENT.

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

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



SECTION B-B
BEND DETAIL
BOTTOM REINFORCEMENT



EXPANSION JOINT DETAIL

CONCRETE PAVEMENT APPROACH SLAB

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

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

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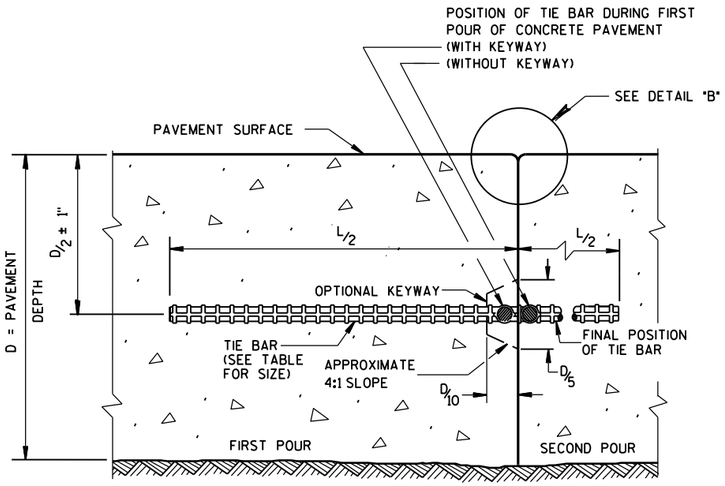
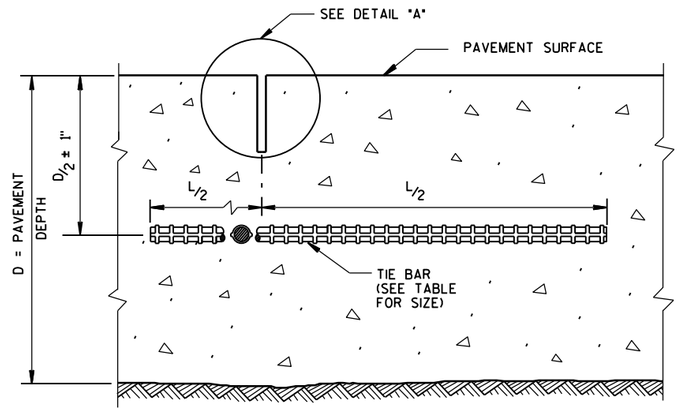
S.D.D. 13 B 2-8a



CONSTRUCTION JOINT



SAWED JOINT

GENERAL NOTES

DO NOT SEAL OR FILL LONGITUDINAL JOINTS.

CREATE A LONGITUDINAL JOINT FOR PAVEMENT WIDTHS GREATER THAN 15 FEET.

CORRELATE LONGITUDINAL JOINTS WITH LANE LINES WHEN POSSIBLE.

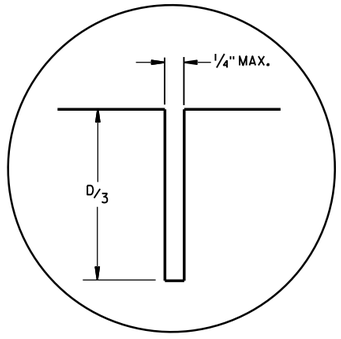
(1) ANCHOR TIE BARS INTO DRILLED HOLES WITH AN EPOXY.

(2) PAVEMENT THAT WAS IN PLACE PRIOR TO THE CONTRACT.

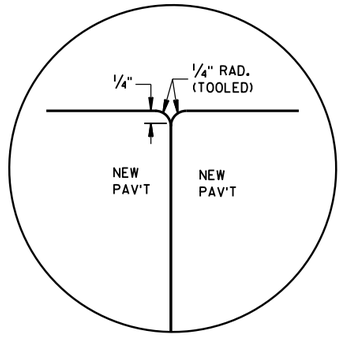
PLAN VIEW

SECTION A-A

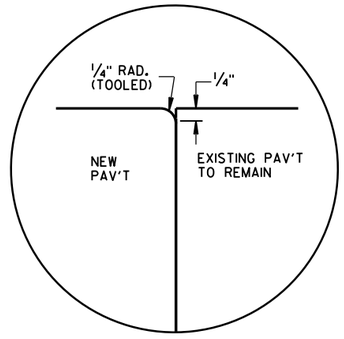
LONGITUDINAL CONSTRUCTION JOINT TIE BARS ANCHORED INTO EXISTING PAVEMENT



DETAIL "A"



DETAIL "B"



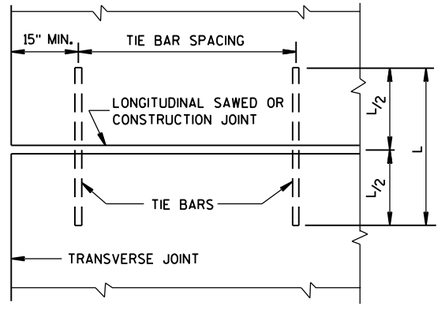
DETAIL "C"

TIE BAR TABLE

PAVEMENT DEPTH (D)	TIE BAR SIZE	TIE BAR LENGTH (L)	MAX. TIE BAR SPACING
< 10 1/2"	NO. 4	30"	36"
≥ 10 1/2"	NO. 5	36"	36"
	NO. 4 *	30"	24"**

* SUBSTITUTE BENT BARS AT LONGITUDINAL JOINTS WHEN EQUIPMENT LIMITATIONS DURING CONSTRUCTION WARRANT (e.g. AUXILIARY LANES OR TURN LANES)

** CONFORM TO 15" MINUMUM SPACING FROM TRANSVERSE JOINTS; SPACING BETWEEN TIE BARS WILL BE 30" AT TRANSVERSE JOINTS.



PLAN VIEW
SHOWING LOCATION OF TIE BARS

CONCRETE PAVEMENT LONGITUDINAL JOINTS AND TIES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

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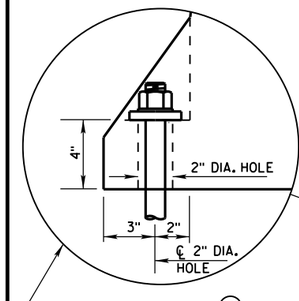
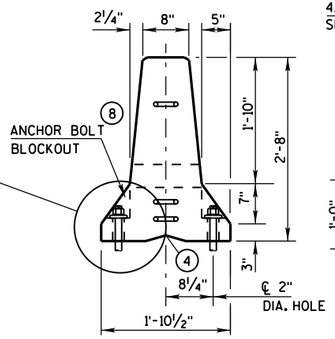
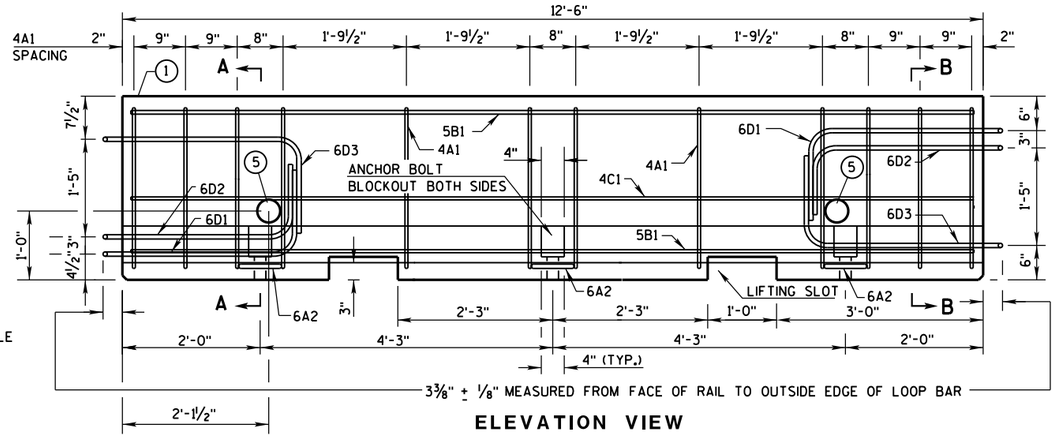
S.D.D. 13 C 1-18

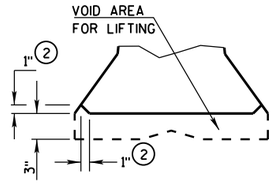




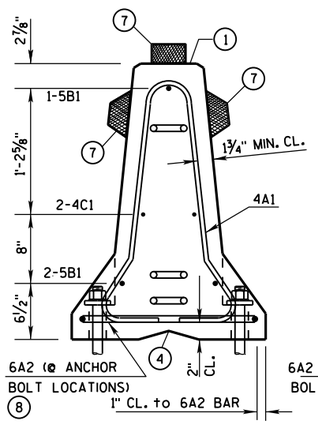
END VIEW



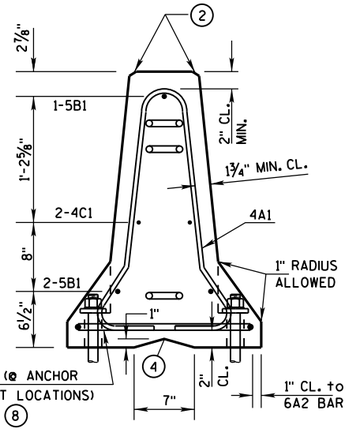
ELEVATION VIEW



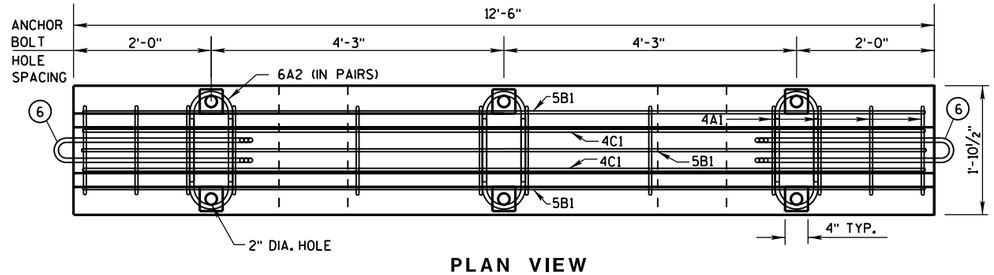
DETAIL "B"
LIFTING SLOT DETAIL



SECTION A-A
(STIRRUP PLACEMENT)

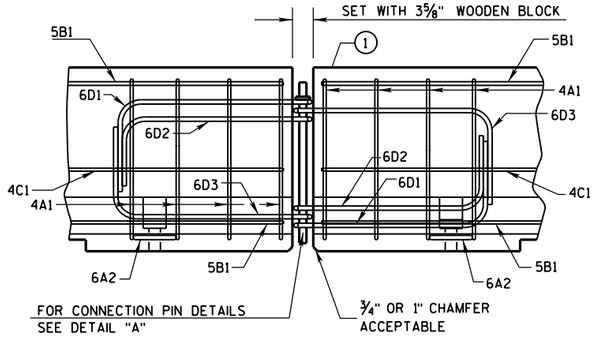


SECTION B-B
(STIRRUP PLACEMENT)

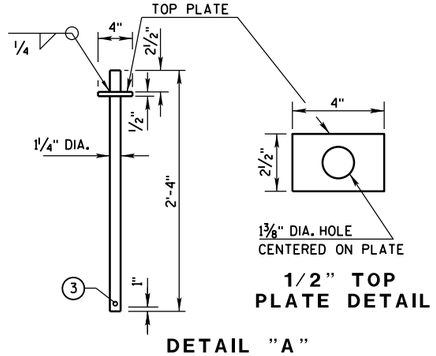


PLAN VIEW

DETAILS OF BARRIER SECTION

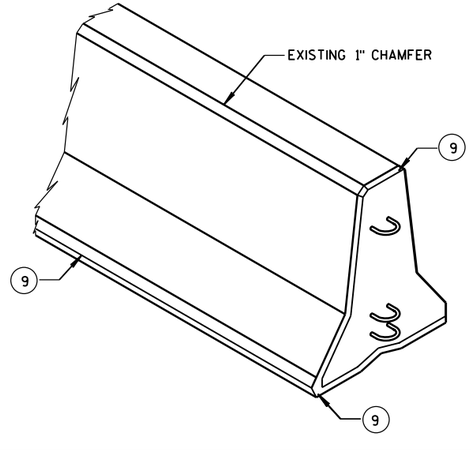


DETAILS OF BARRIER CONNECTION



1/2" TOP
PLATE DETAIL

DETAIL "A"
CONNECTION PIN
(A36 STEEL (10.9 LB EACH))



GENERAL NOTES

THESE GENERAL NOTES APPLY TO SHEETS 14B7-14(a) THRU 14B7-14(h).

DO NOT INTERMIX CONCRETE BARRIER TEMPORARY PRCAST, 12'-6" (CBTP12.5) WITH OTHER TEMPORARY CONCRETE BARRIERS.

USE ASTM A-615, GRADE 60, DEFORMED STEEL BARS FOR BARS 4A1, 6A2, 5B1 AND 4C1 IN THE BARRIER SECTION AND FOR 4V1, 4V2, 4V3, 4V4, 4V5, 4V6, 4F1, 4F2 AND 5F3 IN THE BARRIER TAPER SECTION.

LOOP BARS 6D1, 6D2 AND 6D3 SHALL BE ¾" SMOOTH STEEL BARS WITH A MINIMUM YIELD STRENGTH OF 60 KSI, A TENSILE STRENGTH OF NOT LESS THAN 1.25 TIMES THE YIELD STRENGTH BUT A MINIMUM OF 80 KSI, A MINIMUM 14% ELONGATION IN 8 INCHES AND PASSING A 180 DEGREE BEND TEST USING A 3-½" PIN BEND DIAMETER FOR BEND TESTS. THE LOOPS SHALL BE INSTALLED WITHIN ⅛" OF THE PLAN DIMENSION.

CONSTRUCT LIFTING SLOTS AS SPECIFIED ON THE PLANS TO FACILITATE THE DRAINAGE OF WATER AFTER INSTALLATION.

PLACE BARRIER ON A PAVED SURFACE. REMOVE ALL LOOSE DIRT AND SAND FROM THE ROADWAY SURFACE PRIOR TO PLACEMENT OF THE BARRIER.

INSTALL MECHANICAL OR ADHESIVE ANCHORS PER MANUFACTURER'S RECOMMENDATIONS. PROVIDE MANUFACTURER'S INFORMATION TO PROJECT ENGINEER.

(1) MARK ONE END OF EACH BARRIER PERMANENTLY BY FORMING INTO THE BARRIER THE FOLLOWING INFORMATION:
- a. TYPE: WI CBTP
- b. MANUFACTURER
- c. DATE MANUFACTURED (MONTH AND YEAR)

(2) 1" CHAMFER TO PREVENT SPALLING.

(3) A ⅜" HOLE IN THE CONNECTION PIN, AT THE LOCATION SHOWN, IS ACCEPTABLE, BUT NOT REQUIRED..

(4) "V" NOTCH IS OPTIONAL.

(5) THE 4" DIAMETER, 11 GAUGE STEEL, ROUND MECHANICAL TUBING SLEEVE FOR LIFTING (OPTIONAL).

(6) NEVER USE LOOP BARS (6D1, 6D2 OR 6D3) TO LIFT, MOVE OR REPOSITION THE BARRIER.

(7) USE DELINEATORS CONFORMING TO SECTION 633 OF THE STANDARD SPECIFICATIONS. CONTRACTOR MAY USE ALTERNATE SHAPES AND HOUSING. INSTALL DELINEATORS ACCORDING TO MANUFACTURES INSTRUCTION. INSTALL YELLOW REFLECTORS WHEN BARRIER IS LOCATED TO THE LEFT OF TRAFFIC AND WHITE REFLECTORS WHEN BARRIER IS LOCATED TO THE RIGHT OF TRAFFIC. SPACE DELINEATORS A MAXIMUM OF 25 FEET APART. PROVIDE TOP MOUNTED DELINEATORS IN ADDITION TO THE SIDE MOUNTED DELINEATORS ON ALL BARRIER INSTALLATIONS LOCATED ON A CURVED ALIGNMENT LONGER THAN 200 FEET AND ON BARRIERS USED TO SEPARATE OPPOSING TRAFFIC.

(8) SEE SHEET D FOR ANCHORING CRITERIA.

(9) 1" CHAMFER OPTIONAL.

CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

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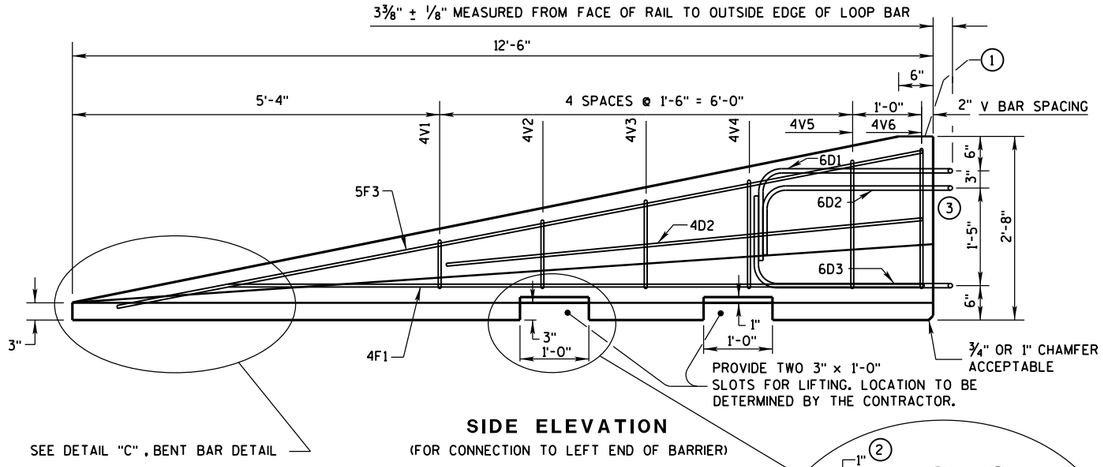
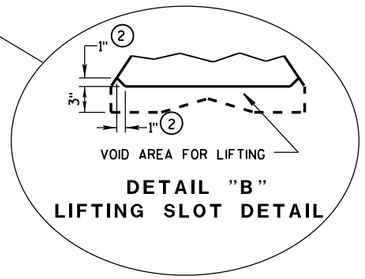
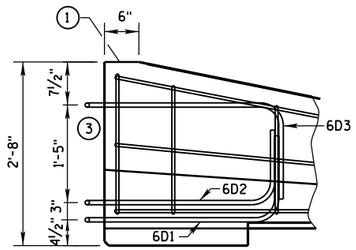
S.D.D. 14 B 7-14a



SIDE ELEVATION
(FOR CONNECTION TO LEFT END OF BARRIER)



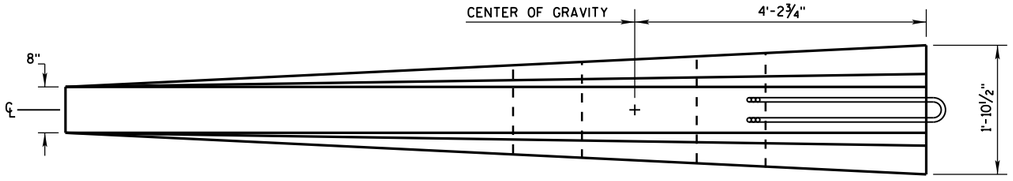
DETAIL "B"
LIFTING SLOT DETAIL



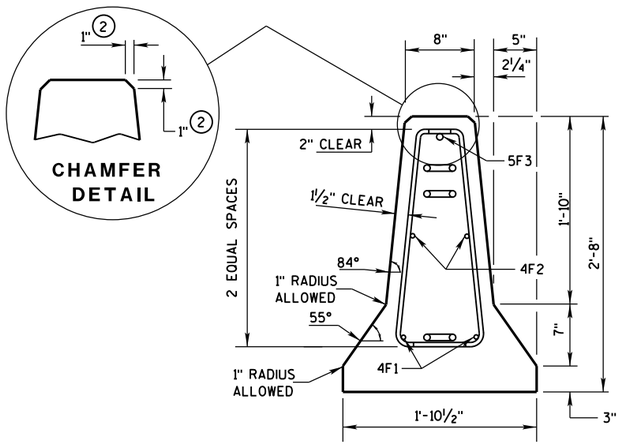
SIDE ELEVATION
LOOP BAR ASSEMBLY INVERTED
FOR OPPOSITE END.
(FOR CONNECTION TO RIGHT END OF BARRIER)

GENERAL NOTES

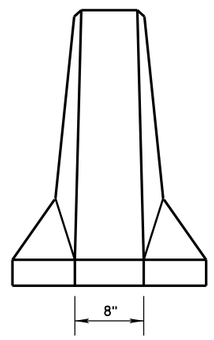
1. MARK ONE END OF EACH BARRIER PERMANENTLY BY FORMING INTO THE BARRIER THE FOLLOWING INFORMATION:
   a. TYPE WICBTP
   b. MANUFACTURER
   c. DATE MANUFACTURED (MONTH AND YEAR)
2. 1" CHAMFER TO PREVENT SPALLING.
3. NEVER USE LOOP BARS (6D1, 6D2 OR 6D3) TO LIFT, MOVE OR REPOSITION THE BARRIER.



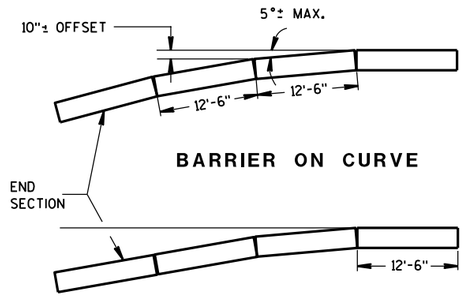
PLAN VIEW



END SECTION



FRONT ELEVATION



BARRIER ON CURVE

FLARE AT BARRIER END

POSTED SPEED, (MPH)	FLARE RATE
40 OR LESS	6:1
45 OR GREATER	8:1

DETAILS OF BARRIER TAPER SECTION

CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

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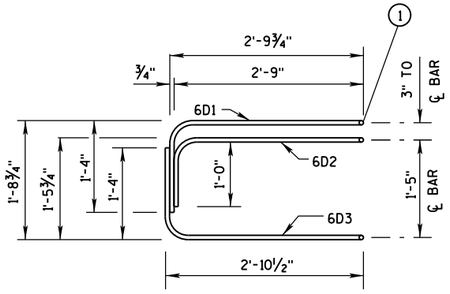
S.D.D. 14 B 7-14b

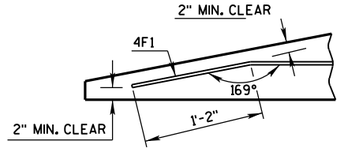
BARRIER TAPER SECTION BILL OF MATERIALS

(PER 12'-6" BARRIER TAPER SECTION)

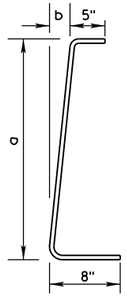
BAR	BAR SIZE	NO. OF BARS	LENGTH FT.
4V1	4	2	1'-11"
4V2	4	2	2'-2"
4V3	4	2	2'-6"
4V4	4	2	2'-9"
4V5	4	2	3'-2"
4V6	4	2	3'-4"
4F1	4	2	12'-0"
4F2	4	2	7'-6"
5F3	5	1	11'-9"
LOOP ASSEMBLY			
6D1	6	1	8'-5"
6D2	6	1	7'-7"
6D3	6	1	8'-6"



ELEVATION
LOOP BAR ASSEMBLY



DETAIL "C"
BENT BAR DETAIL



BAR	a	b
V1	10"	1"
V2	1'-1"	1¼"
V3	1'-5"	1⅝"
V4	1'-8"	1⅞"
V5	2'-0½"	2⅜"
V6	2'-3"	2¾"

4V BARS
2 AT EACH SIZE REQUIRED
FOR STIRRUP ASSEMBLY

TAPER BARRIER SECTION

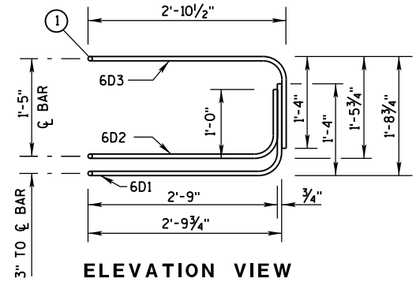
GENERAL NOTES

(1) NEVER USE LOOP BARS (6D1, 6D2 OR 6D3) TO LIFT, MOVE OR REPOSITION THE BARRIER.

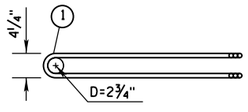
BARRIER SECTION BILL OF MATERIALS

(PER 12'-6" BARRIER SECTION)

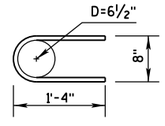
BAR	BAR SIZE	NO. OF BARS	LENGTH FT.
4A1	4	12	6'-0"
6A2	6	6	2'-11"
5B1	5	3	12'-2"
4C1	4	2	12'-2"
LOOP ASSEMBLY			
6D1	6	2	8'-5"
6D2	6	2	7'-7"
6D3	6	2	8'-6"



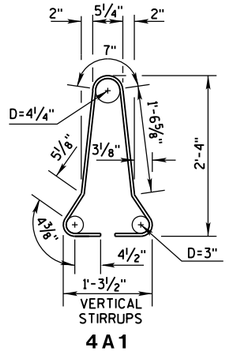
ELEVATION VIEW



PLAN VIEW
LOOP BAR ASSEMBLY
(MARKED END SHOWN, INVERT FOR OTHER END)



6A2



4A1

BARRIER SECTION

CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

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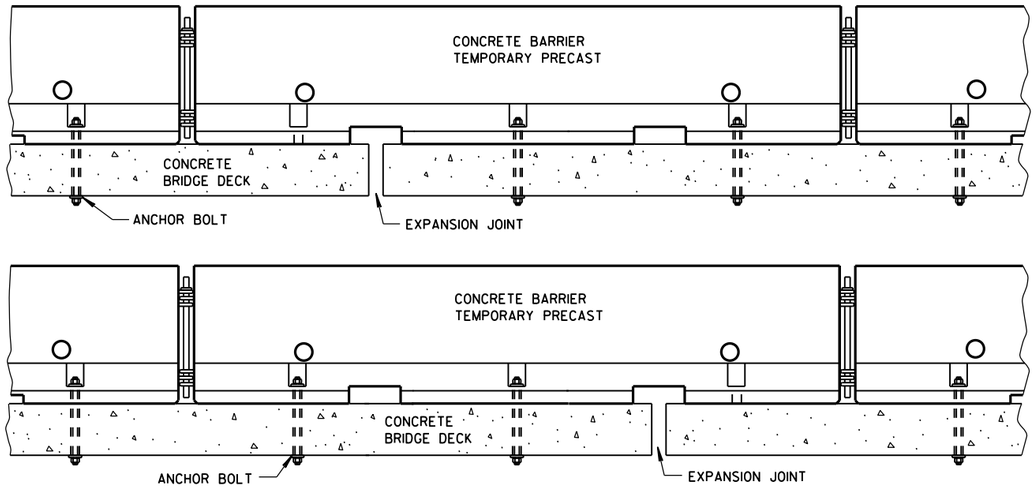
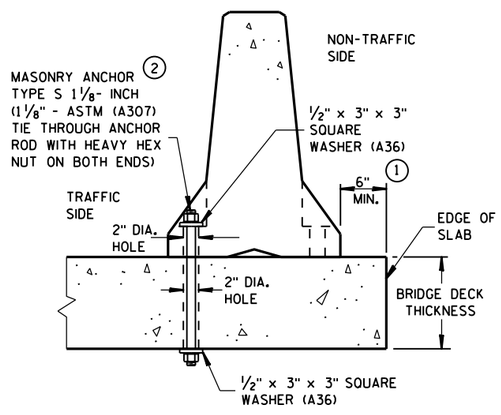
S.D.D. 14 B 7-14c



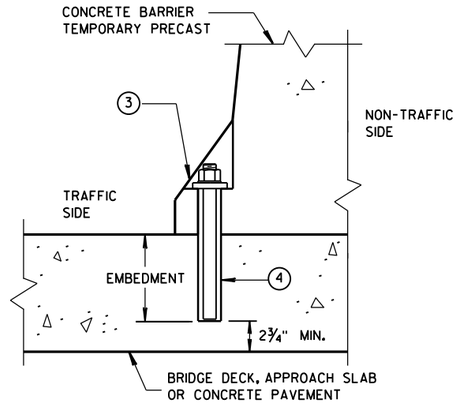
TREATMENT AT BRIDGE DECK EXPANSION JOINTS

(NO SINGLE CONCRETE BARRIER SECTION SHALL BE ANCHORED TO BOTH THE BRIDGE DECK AND THE APPROACH SLAB. ALL ANCHOR BOLT LOCATIONS SHALL BE ANCHORED TO THE DECK IN ACCORDANCE WITH THE DETAIL. NO MORE THAN ONE ANCHOR BOLT SHALL BE ELIMINATED FROM A BARRIER SECTION WHEN SPANNING AN EXPANSION JOINT.)



THROUGH BOLTED ANCHOR INSTALLATION ON BRIDGE DECK

(DO NOTUSE ON CONCRETE BRIDGE DECK WITH ASPHALT OVERLAY)



REMOVABLE ADHESIVE BONDED ANCHOR ② INSTALLATION ON CONCRETE BRIDGE DECK, CONCRETE APPROACH SLAB, OR CONCRETE PAVEMENT

(DO NOT USE ON CONCRETE WITH AN ASPHALTIC OVERLAY)

GENERAL NOTES

① CONCRETE BARRIER TEMPORARY PRECAST, 12'-6" SHALL BE ANCHORED IF:
THE DISTANCE TO A 2 FOOT OR GREATER DROPOFF THAT IS STEEPER THAN 3H : 1V, FOR EXAMPLE THE EDGE OF A BRIDGE DECK OR A DROPOFF AT THE EDGE OF PAVEMENT, IS LESS THAN 4 FEET FROM THE SIDE OF THE BARRIER CLOSEST TO THE DROPOFF AND THE POSTED SPEED IS 45 MPH OR GREATER, OR

THE DISTANCE TO A 2 FOOT OR GREATER DROPOFF THAT IS STEEPER THAN 3H : 1V, FOR EXAMPLE THE EDGE OF A BRIDGE DECK OR A DROPOFF AT THE EDGE OF PAVEMENT, IS LESS THAN 2 FEET FROM THE SIDE OF THE BARRIER CLOSEST TO THE DROPOFF AND THE POSTED SPEED IS 40 MPH OR LESS.

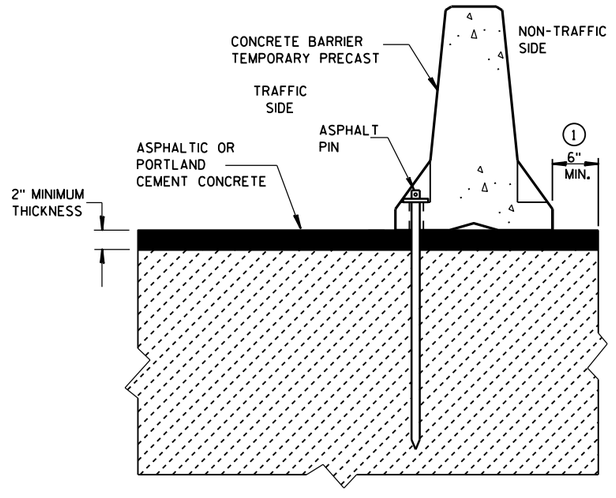
② ANCHORING IS INCIDENTAL TO CONCRETE BARRIER TEMPORARY PRECAST.

WITH THE APPROVAL OF THE ENGINEER, REMOVABLE ADHESIVE BONDED ANCHOR BOLT INSTALLATION MAY BE USED IN LIEU OF THROUGH BOLTED ANCHOR INSTALLATION. THE ADHESIVE BONDED ANCHOR BOLT MUST BE REMOVABLE. USE ASTM (A307) MASONRY ANCHORS TYPE S 1⅛-INCH, EMBEDDED TO A DEPTH SUFFICIENT TO DEVELOP THE ULTIMATE CAPACITY OF THE ANCHOR BOLT AND PROVIDE DOCUMENTATION TO CONFIRM THIS.

UPON REMOVAL OR RELOCATION OF THE BARRIER UNITS, REMOVE ALL ANCHOR BOLTS AND COMPLETELY FILL IN THE REMAINING HOLES IN CONCRETE BRIDGE DECKS, CONCRETE APPROACH SLABS AND CONCRETE PAVEMENTS THAT ARE TO REMAIN, WITH A NON-SHRINK COMMERICAL GROUT OR MATERIAL IDENTIFIED ON THE CURRENT WISDOT APPROVED PRODUCTS LIST.

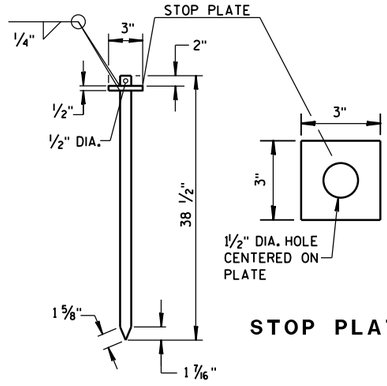
③ 1⅛" DIAMENTER A307 THREADED ROD, ½" X 3" X 3" SQUARE PLATE WASHER WITH ASTM A36 STEEL, ASTM A563A HEAVY HEX NUT.

④ ADHESIVE ANCHORS WITH A MINIMUM BOND STRENGTH OF 1,800 PSI AND 5¼" EMBEDMENT. SEE 603.2 AND 603.3.1.2 OF THE WISCONSIN STANDARD SPECIFICATIONS FOR MORE INFORMATION ON ADHESIVE ANCHORS.



STAKE DOWN INSTALLATION FOR ASPHALTIC OR PORTLAND CEMENT CONCRETE SURFACE

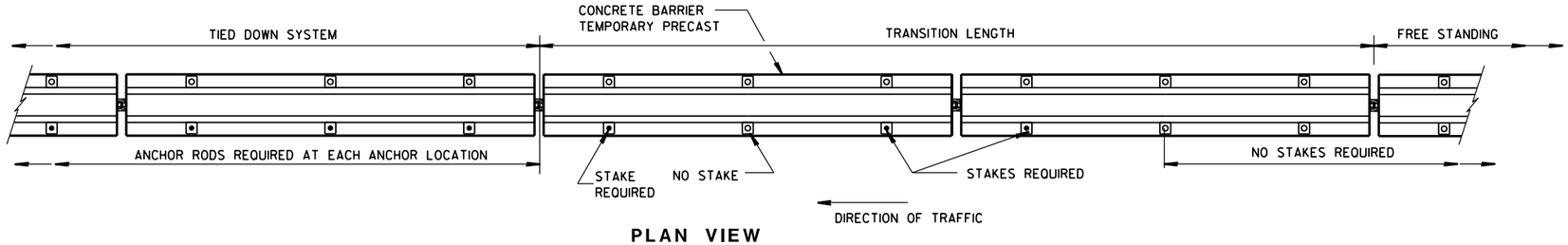
(STAKING IS INCIDENTAL TO CONCRETE BARRIER TEMPORARY PRECAST)



STOP PLATE

ASPHALT PIN

(ASTM A36 STEEL)



PLAN VIEW

FREE STANDING TRANSITION TO TIED-DOWN SYSTEM

(PLACE TRANSITION IN A TANGENT SECTION OF BARRIER PARALLEL TO THE ROADWAY. IF TRANSITION OCCURS ON STRUCTURAL SLAB, ANCHOR AS SHOWN.)

CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

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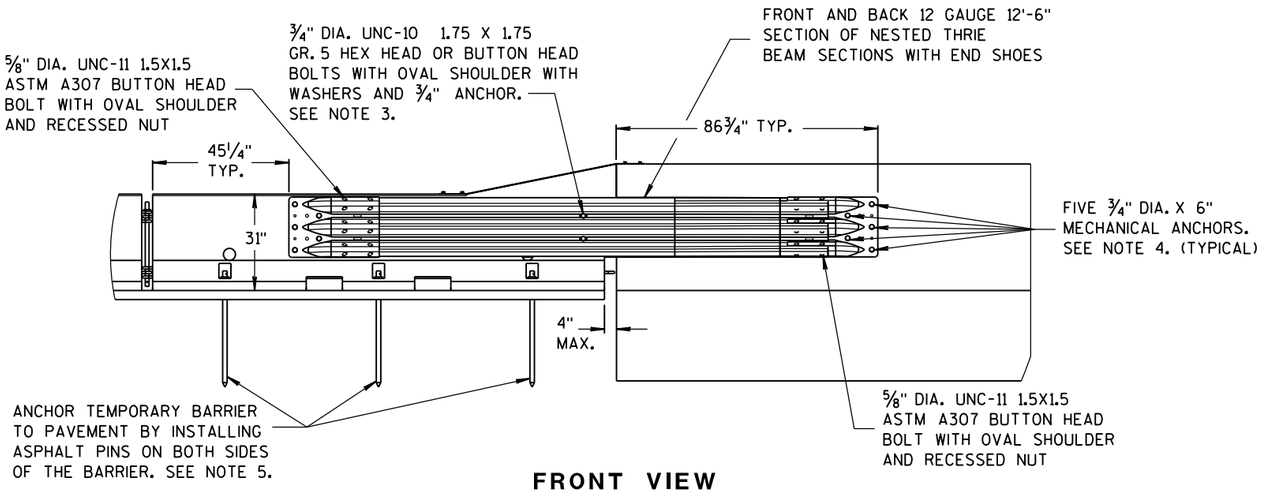
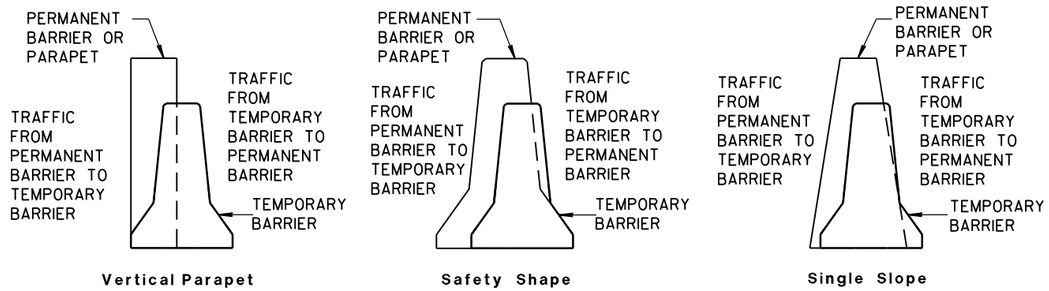
S.D.D. 14 B 7-14d



FRONT VIEW

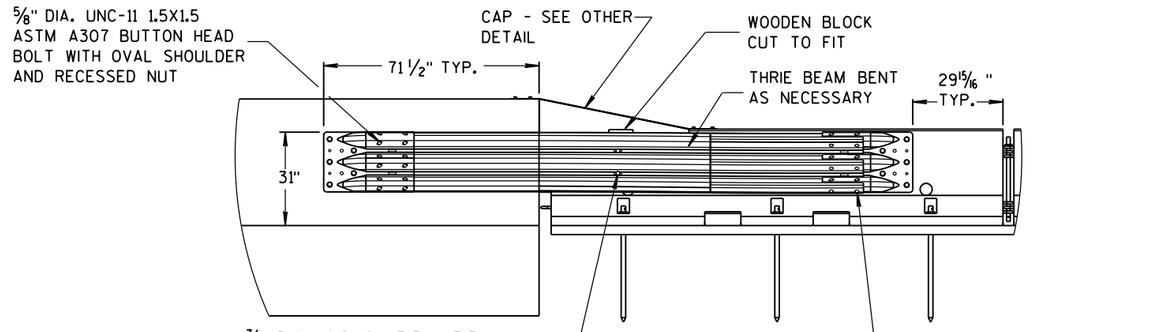


TEMPORARY BARRIER PLACEMENT FOR BI-DIRECTIONAL TRANSITION TO TIED-DOWN SYSTEM

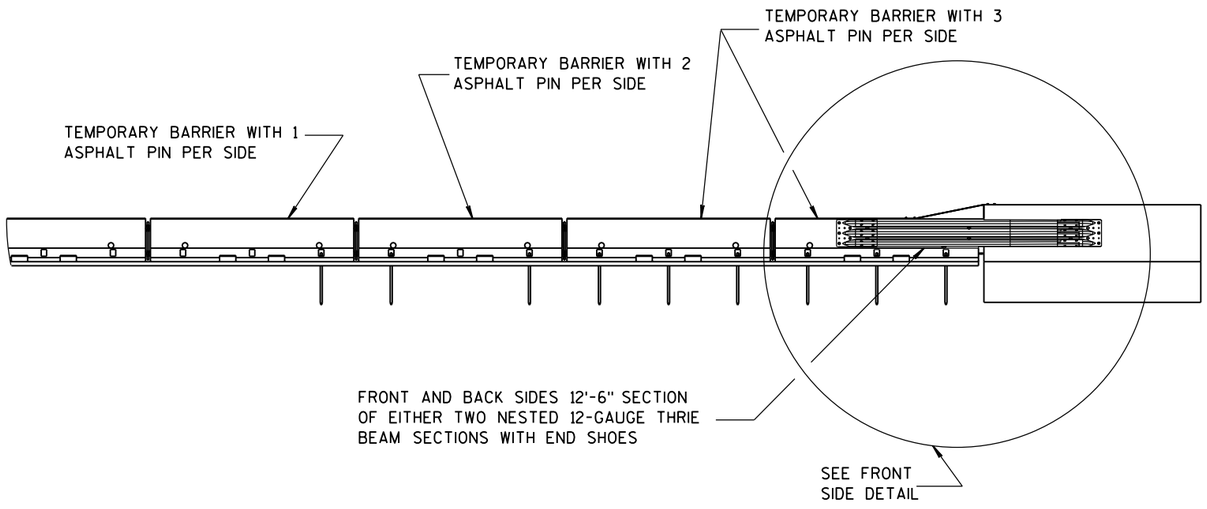
NOTES

NESTED THRIE BEAM IS REQUIRED ON BOTH SIDES OF THE TEMPORARY BARRIER FOR ALL INSTALLATIONS.

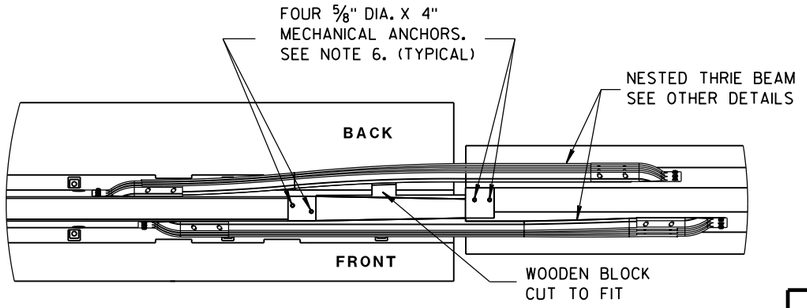
1. CAP END PLATE PLACED FLUSH WITH UPSTREAM END OF PERMANENT BARRIER OR PARAPET.
2. THRIE BEAM PIECES ARE OFFSET 15 1/4" TO PREVENT INTERFERENCE FROM THE ANCHORS ON OPPOSING SIDES.
3. MINIMUM MECHANICAL OR ADHESIVE ANCHOR STRENGTH REQUIREMENTS: ULTIMATE TENSILE LOAD 9.48 KIPS AND ULTIMATE SHEAR LOAD 10.48 KIPS.
4. MINIMUM MECHANICAL OR ADHESIVE ANCHOR STRENGTH REQUIREMENTS: ULTIMATE TENSILE LOAD 17.9 KIPS AND ULTIMATE SHEAR LOAD 21.96 KIPS.
5. MAY BE USED ON CONCRETE OR ASPHALT PAVEMENTS. ASPHALT OPTION SHOWN. FOR CONCRETE OPTION SEE OTHER DETAILS.
6. MINIMUM MECHANICAL OR ADHESIVE ANCHOR STRENGTH REQUIREMENTS: ULTIMATE TENSILE LOAD 12.14 KIPS AND ULTIMATE SHEAR LOAD 17.5 KIPS.



BACK VIEW



FRONT VIEW



PLAN VIEW

BI-DIRECTIONAL TRANSITION TO TIED-DOWN SYSTEM

CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

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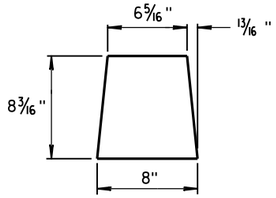
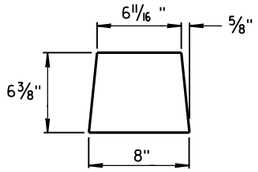
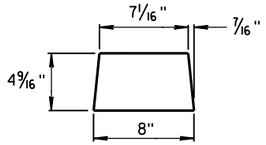
S.D.D. 14 B 7-14e



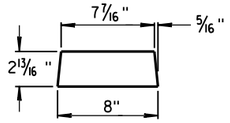
GUSSET 1



GUSSET 2

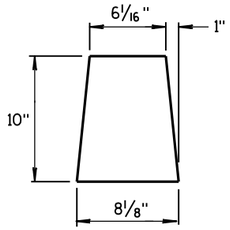


GUSSET 3

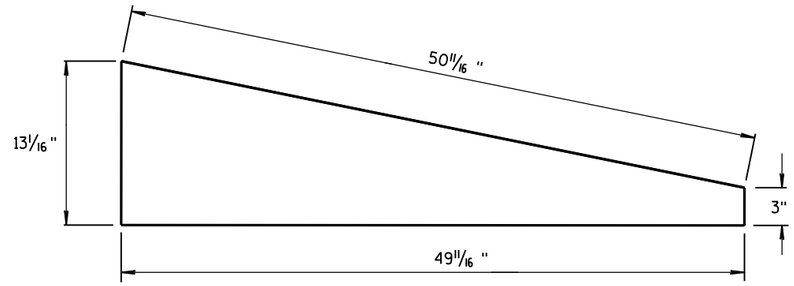


GUSSET 4

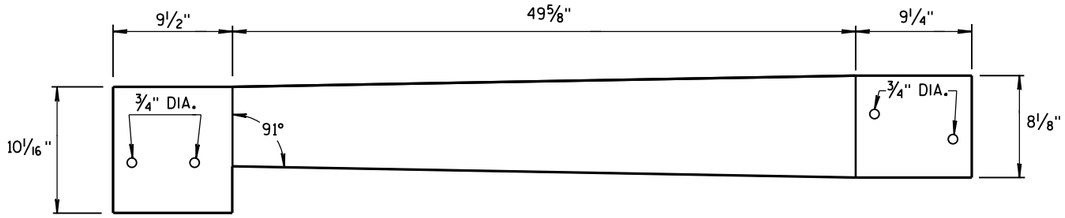
GUSSETS

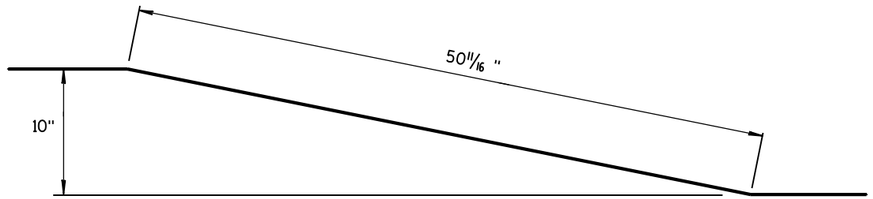


END PLATE



SIDE PLATE

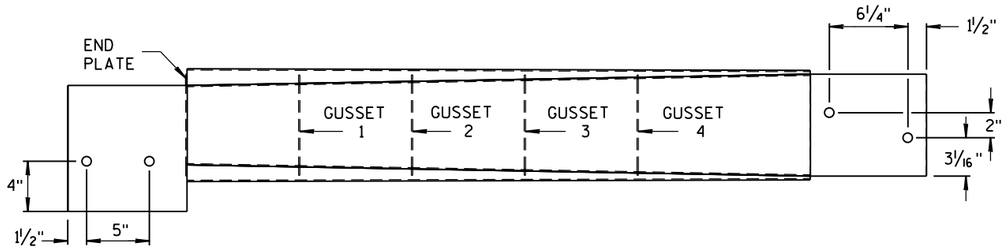


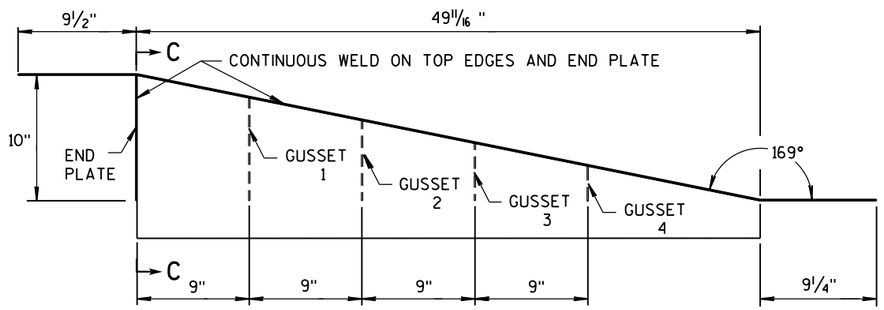


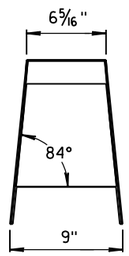
TOP PLATE

SIDE, TOP AND END PLATES FOR CAP FROM TEMPORARY CONCRETE BARRIER TO 42" PERMANENT CONCRETE BARRIER

SIDE PLATES, TOP PLATE, END PLATE AND GUSSETS ARE 12 GAUGE ASTM A36 GALVANIZED STEEL.







SECTION C-C

NOTES

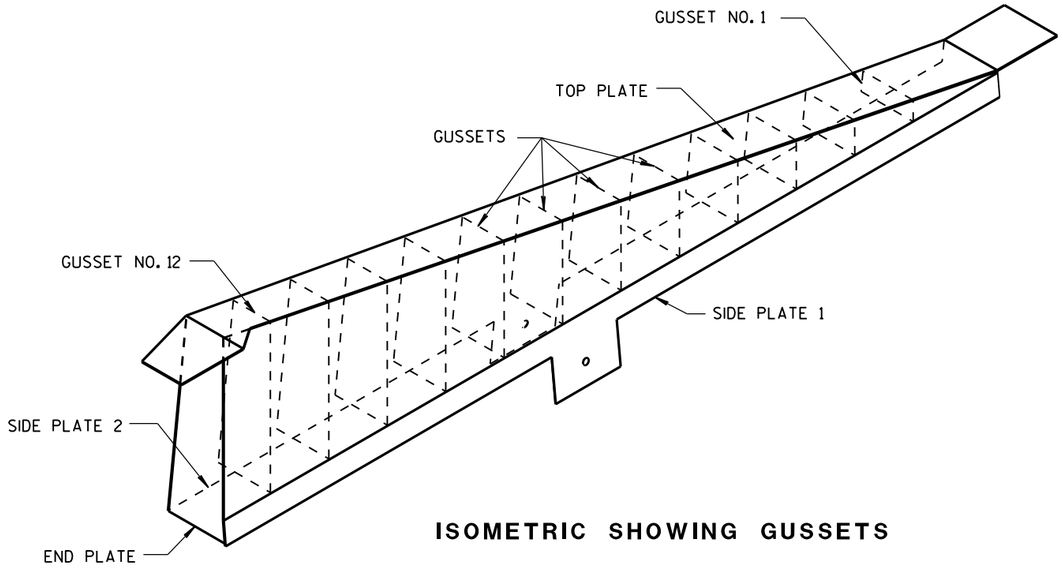
1. FOUR GUSSETS AND END PLATE ARE STITCH WELDED ON THREE SIDES.
2. TWO TRIANGULAR SIDE PLATES ARE STITCH WELDED TO TOP PLATE, END PLATE, AND GUSSETS.

CAP DETAILS FOR TEMPORARY CONCRETE BARRIER TO 42" PERMANENT CONCRETE BARRIER

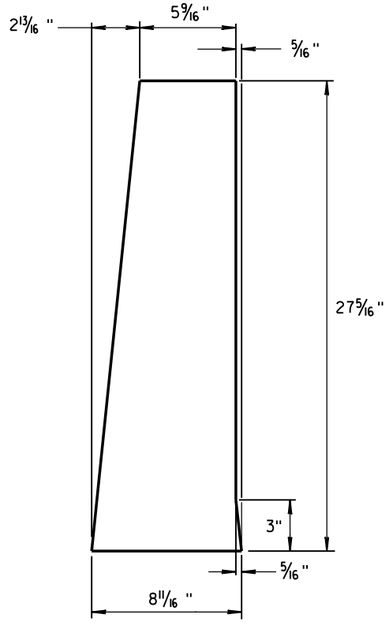
CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

6
S.D.D. 14 B 7-14f

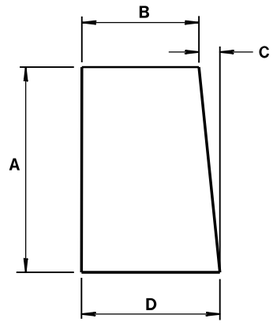


ISOMETRIC SHOWING GUSSETS



END PLATE

1/8" STEEL PLATE



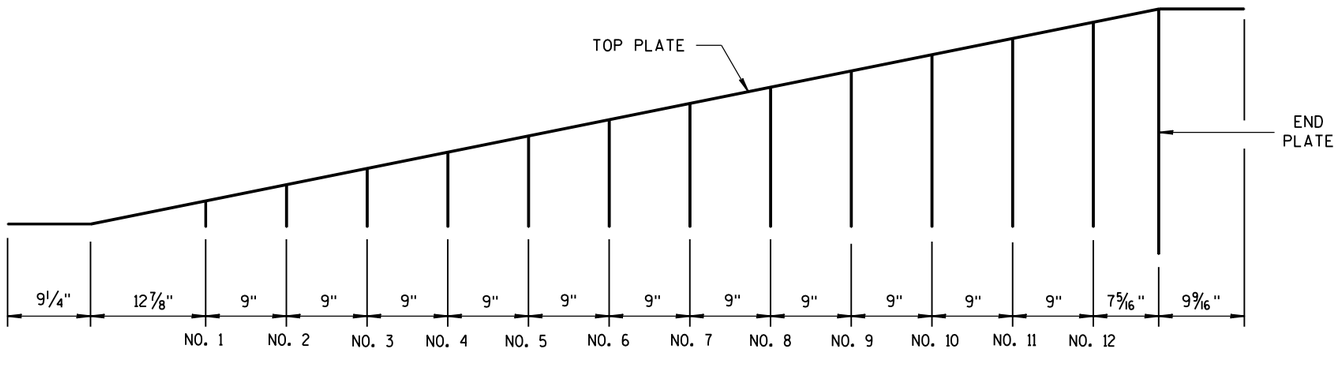
GUSSETS 1 - 12

ALL GUSSETS 1/8" STEEL PLATE

GUSSET DIMENSIONS				
GUSSET NO.	A	B	C	D
1	2 7/8"	7 3/4"	1/4"	8
2	4 11/16 "	7 9/16 "	1/2"	8
3	6 1/2"	7 3/8"	11/16 "	8 1/16 "
4	8 5/16 "	7 3/16 "	7/8"	8 1/16 "
5	10 1/8"	7"	1 1/16 "	8 1/16 "
6	11 15/16 "	6 13/16 "	1 1/4"	8 1/16 "
7	13 3/4"	6 5/8"	1 7/16 "	8 1/16 "
8	15 9/16 "	6 7/16 "	1 9/16 "	8 1/16 "
9	17 3/8"	6 1/4"	1 13/16 "	8 1/16 "
10	19 3/16 "	6 1/16 "	1 15/16 "	8 1/16 "
11	21"	5 7/8"	2 3/16 "	8 1/16 "
12	22 13/16 "	5 11/16 "	2 5/16 "	8 1/16 "

SIDE PLATES, TOP PLATE, END PLATE AND GUSSETS ARE 12 GAUGE ASTM A36 STEEL AND GALVANIZED.

GUSSETS AND END PLATE ARE STITCH WELDED ON 3 SIDES. TWO TRIANGULAR SIDE PLATES ARE STITCH WELDED TO TOP PLATE, END PLATE AND GUSSETS.



GUSSET LOCATION

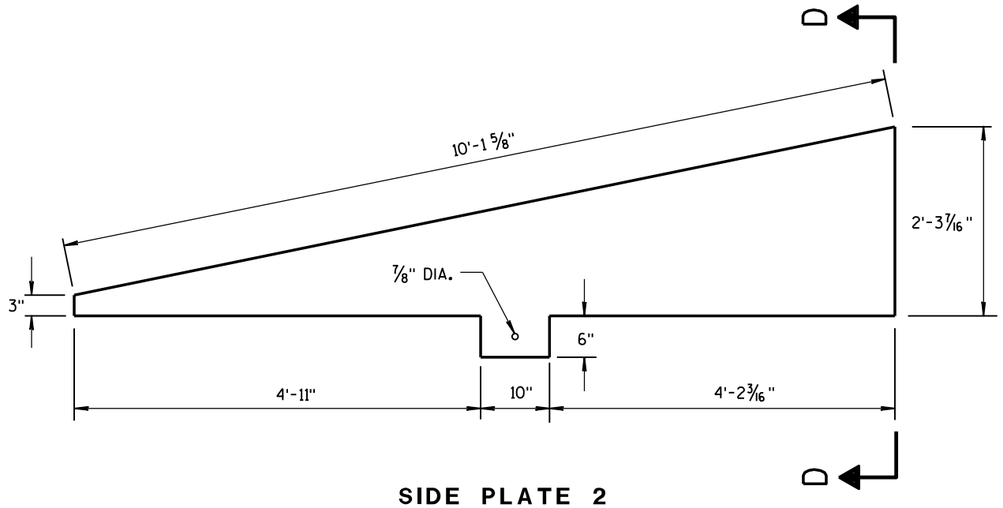
CAP DETAILS FOR TEMPORARY CONCRETE BARRIER TO 56" PERMANENT CONCRETE BARRIER

CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

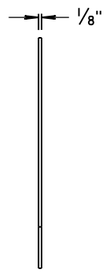
STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

6

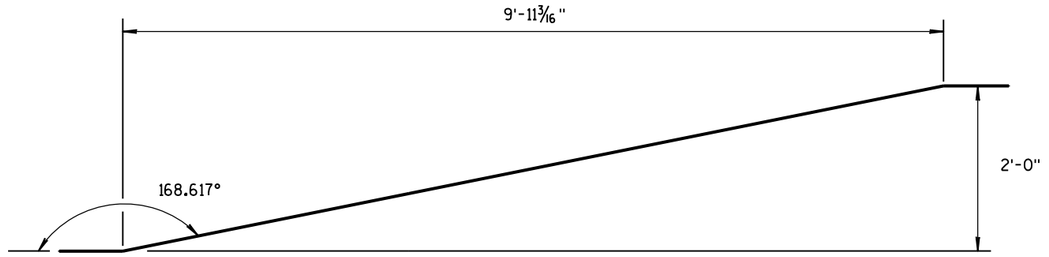
S.D.D. 14 B 7-14g



SIDE PLATE 2

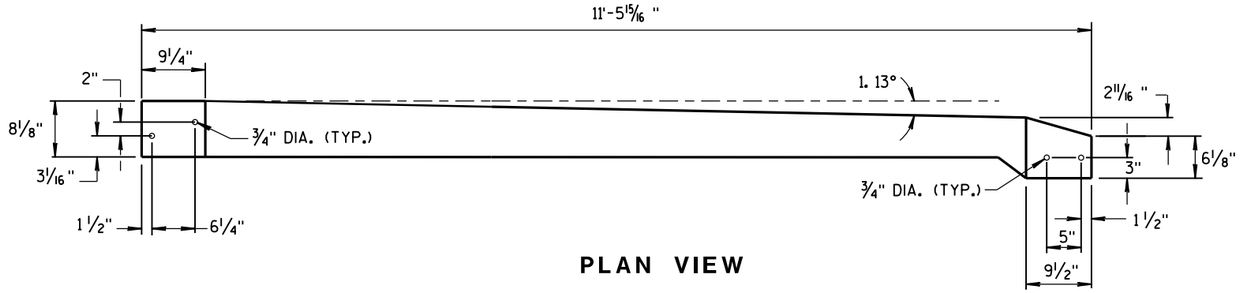


END VIEW



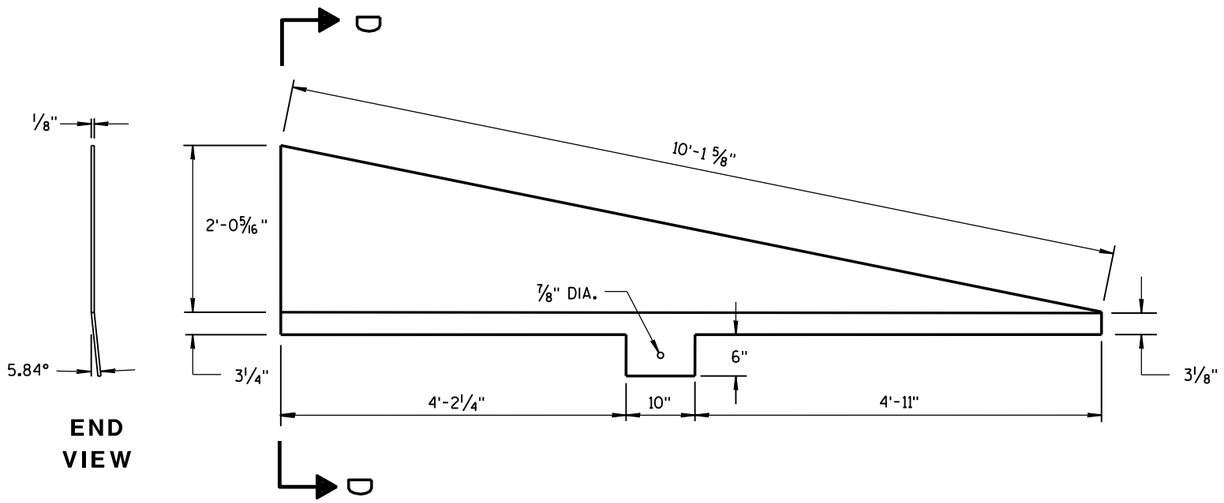
SIDE VIEW

TOP PLATE



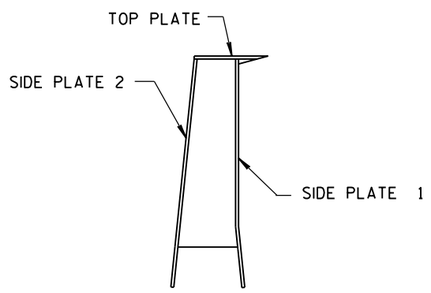
PLAN VIEW

TOP PLATE



END VIEW

SIDE PLATE 1



SECTION D-D

CAP DETAILS FOR TEMPORARY CONCRETE BARRIER TO 56" PERMANENT CONCRETE BARRIER

CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June 2014 — DATE
/S/ Jerry H. Zoda — ROADWAY STANDARD DEVELOPMENT ENGINEER
FHWA

6

S.D.D. 14 B 7-14h

6

S.D.D. 14 B 7-14h

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

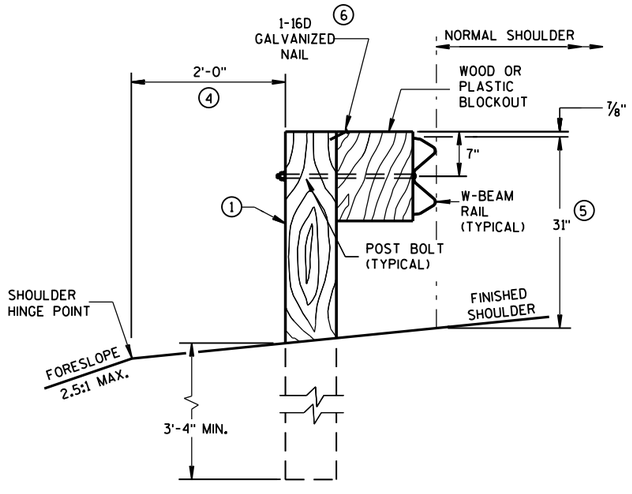
(2) USE WOOD OR APPROVED PLASTIC BLOCKOUTS. WOOD BLOCKOUTS MAY BE CONSTRUCTED OUT OF TWO OR MORE WOOD BLOCKOUTS. SEE ALTERNATE WOOD BLOCKOUT DETAIL. DIMENSIONS OF APPROVED PLASTIC BLOCKOUTS MAY VARY.

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

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

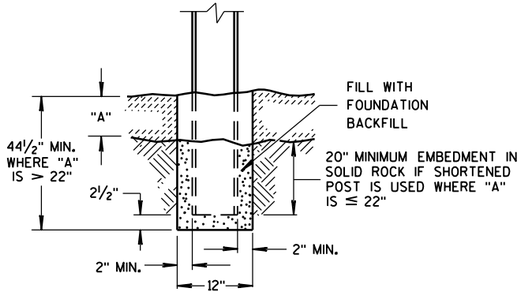
(5) FOR NEW MGS INSTALLATION TOP OF W-BEAM RAIL TOLERANCE IS ± 1". FOR EXISTING MGS INSTALLATION TOP OF W-BEAM IS BETWEEN 27¾" TO 32".

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



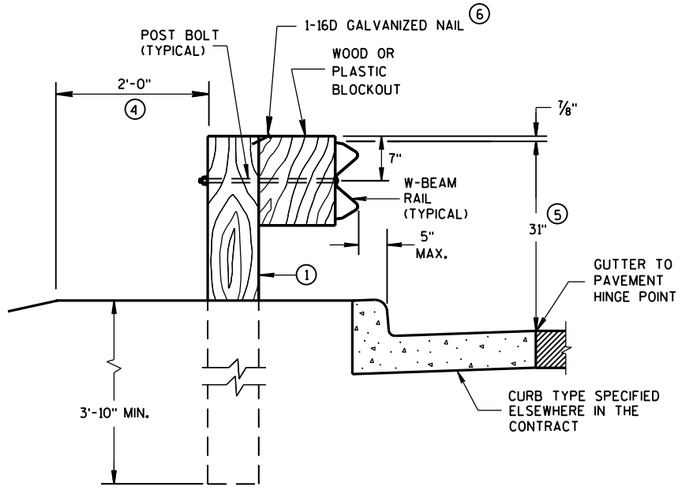
END VIEW

LOCATED ALONG A ROADWAY SHOULDER
STANDARD INSTALLATION



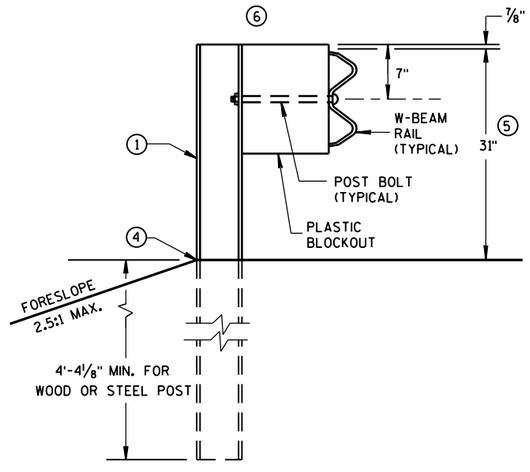
END VIEW

SETTING STEEL OR WOOD POST IN ROCK (3)



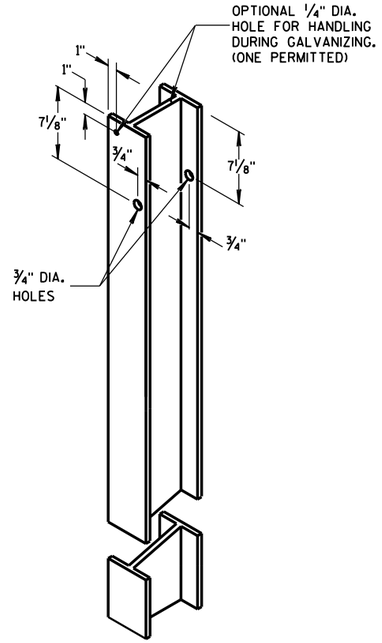
END VIEW

LOCATED ALONG A CURBED ROADWAY

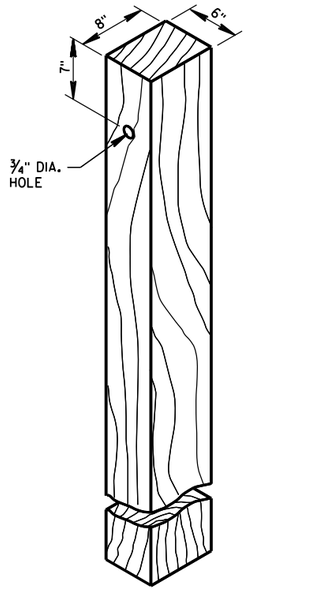


END VIEW

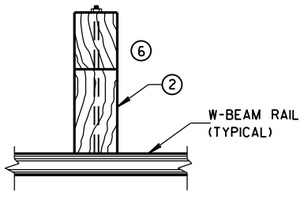
MGS LONGER POST AT HALFPOST SPACING W BEAM (K)



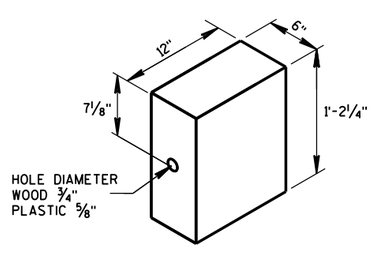
STEEL POST &
HOLE PUNCHING DETAIL
(w6X9) (1)



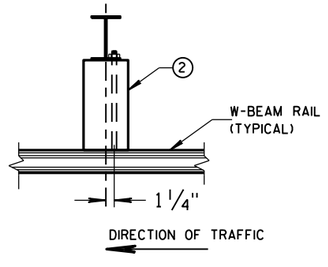
WOOD POST
(6" X 8") NOMINAL (1)



PLAN VIEW
WOOD POST,
BLOCKOUT & BEAM



WOOD OR
PLASTIC BLOCKOUT (2)



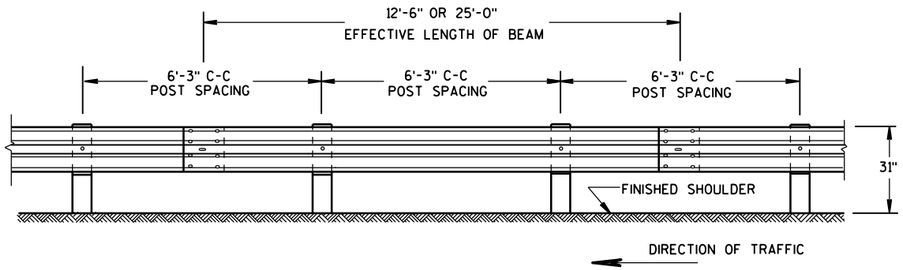
PLAN VIEW
STEEL POST,
PLASTIC BLOCKOUT & BEAM

MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

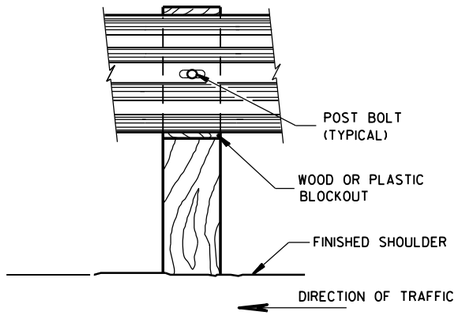
6

S.D.D. 14 B 42-4a



FRONT VIEW

POST SPACING STANDARD INSTALLATION



FRONT VIEW AT WOOD POST

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

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

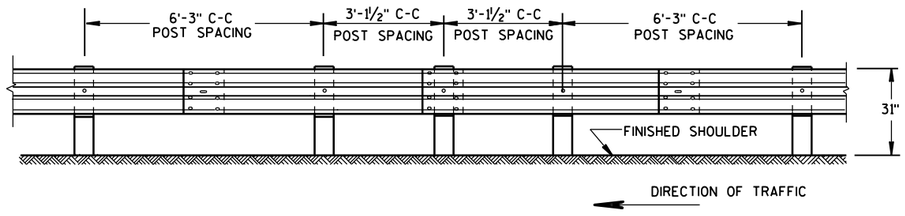
9. REVERSE EVERY OTHER REFLECTOR FOR 2-WAY VISIBILITY. THE CONTRACTOR MAY FURNISH TWO-SIDED REFLECTORS IN LIEU OF ONE-SIDED REFLECTORS.

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

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

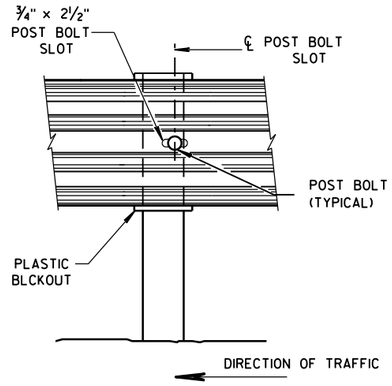
POST BOLTS ARE A 5/8" DIAMETER ASTM A307 GUARDRAIL BOLT. A POST BOLT REQUIRES 5/8" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT AND 5/8" DIAMETER F844 FLAT WASHER. POST BOLTS MAY BE LONGER IF MULTIPLE BLOCKOUTS ARE BEING USED.

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

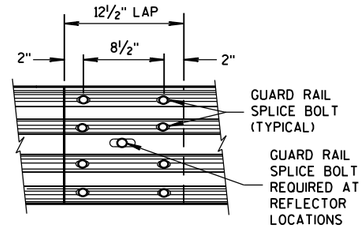


FRONT VIEW

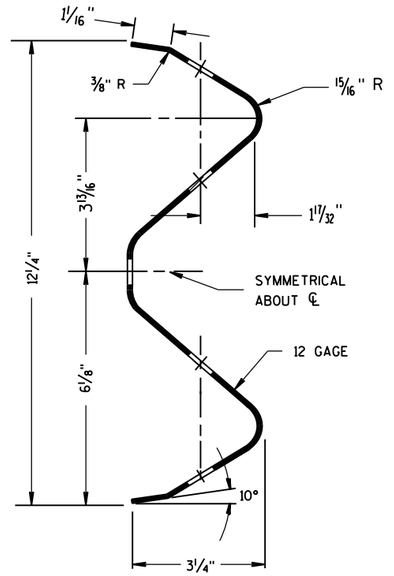
HALF POST SPACING (HS) AND HALF POST SPACING WITH LONGER POSTS (K)



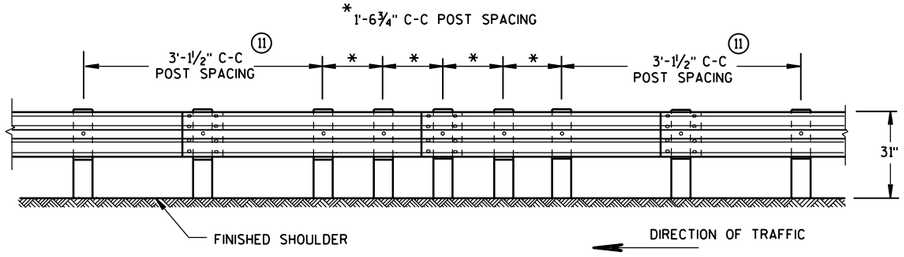
FRONT VIEW AT STEEL POST



FRONT VIEW
MID-SPAN BEAM SPLICE

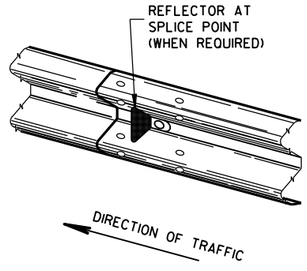


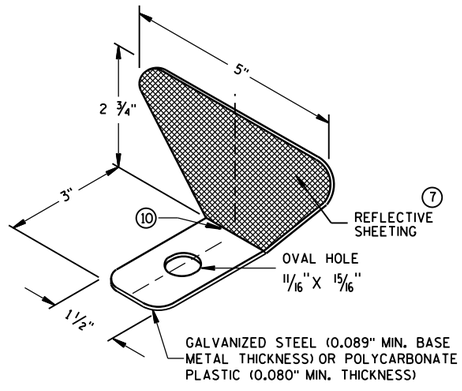
SECTION THRU W-BEAM RAIL



FRONT VIEW

QUARTER POST SPACING (QS)





REFLECTOR SPACING 8

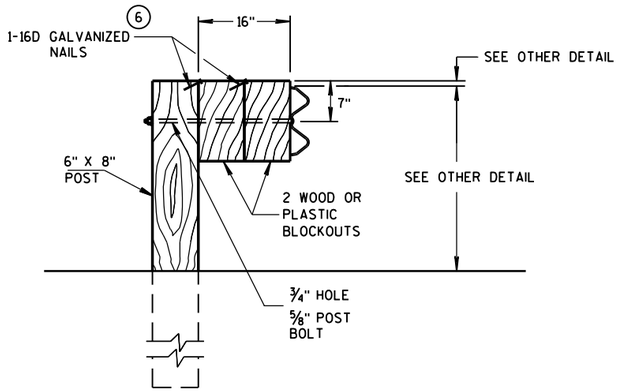
	BEAM GUARD LENGTH	REFLECTOR SPACING	NO. SURFACES REFLECTORIZED	MIN. NO. REFLECTORS
ONE WAY TRAFFIC	< 200'	50' C-C	1	3
	> 200'	100' C-C	1	
TWO WAY TRAFFIC	< 200'	25' C-C	1 9	6
	> 200'	50' C-C	1	
TWO WAY TRAFFIC	< 200'	50' C-C	2	3
	> 200'	100' C-C	2 10	

ONE SIDED REFLECTOR DETAIL AND TYPICAL INSTALLATION 7

MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL

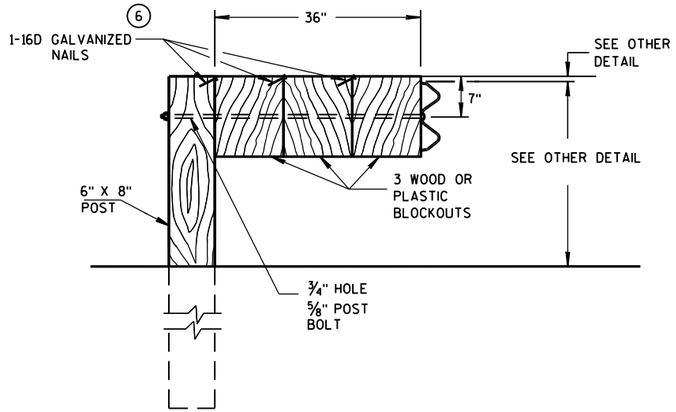
STATE OF WISCONSIN
DEPARTMENT OF TRANSPO

6
S.D.D. 14 B 42-4b



DETAIL FOR 16" BLOCKOUT DEPTH

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

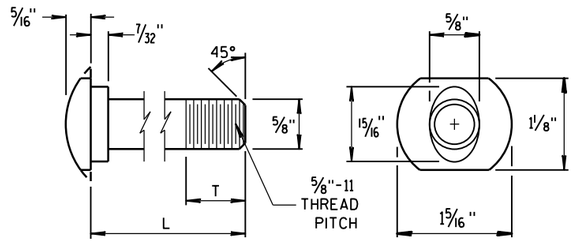


DETAIL FOR 36" BLOCKOUT DEPTH

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

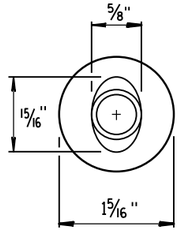
DO NOT USE 16" OR 36" BLOCKOUTS IF IT CAUSES THE POST TO BE DRIVEN BEYOND SHOULDER HINGE POINT OR CAUSES A FIXED OBJECT TO BE WITHIN THE DEFLECTION DISTANCE OF THE BARRIER.

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

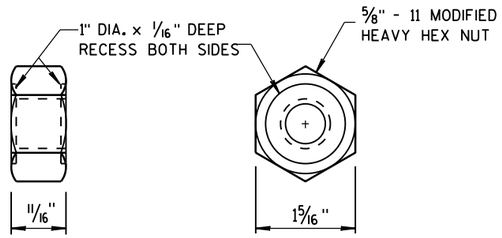


POST BOLT TABLE

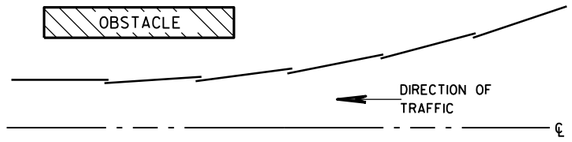
L	T (MIN.)
1 1/4"	1 1/8"
2"	1 3/4"
10"	4"
14"	4 1/16"
18"	4"
21"	4 1/16"
25"	4"



ALTERNATE BOLT HEAD

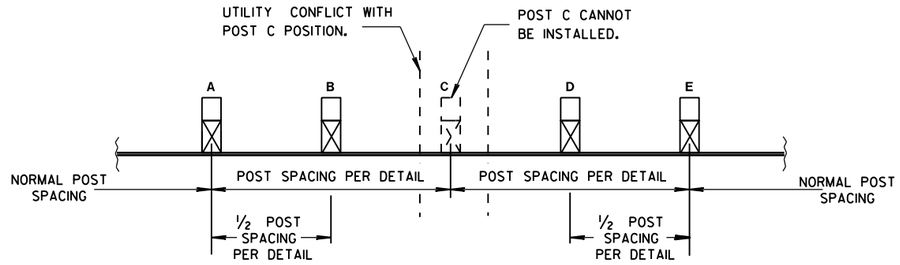


POST BOLT, SPLICE BOLT AND RECESS NUT

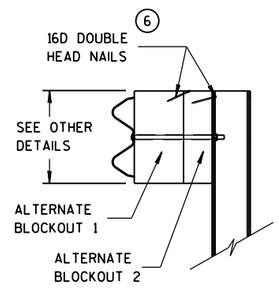


PLAN VIEW

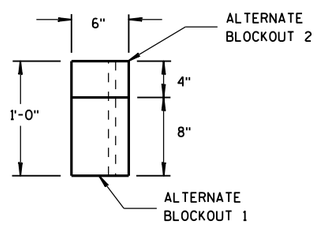
BEAM LAPPING DETAIL



POST DRIVING FOR CONTINUOUS UNDERGROUND OBSTRUCTION



SIDE VIEW



TOP VIEW

ALTERNATE WOOD BLOCKOUT DETAIL

MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

GENERAL NOTES

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

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

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

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

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

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

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

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

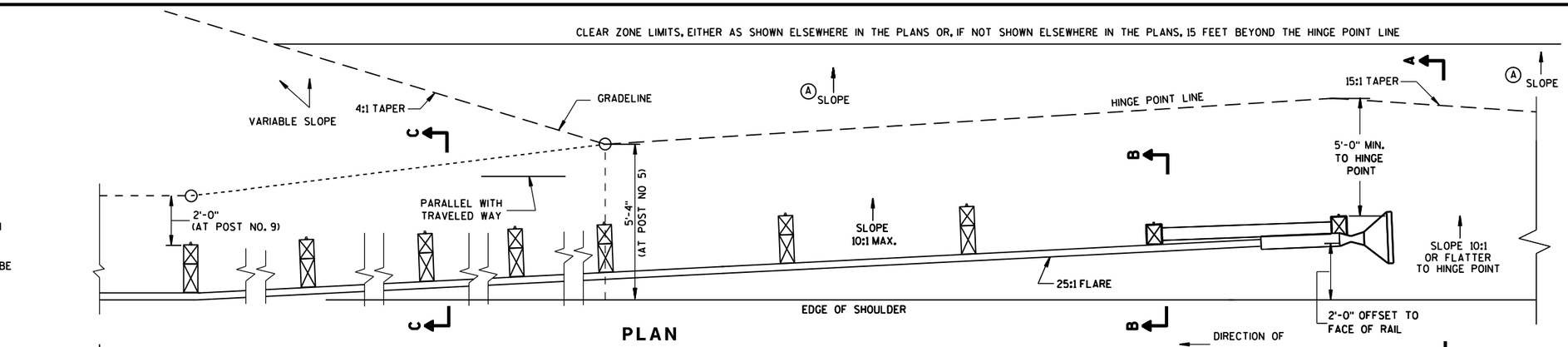
SEE SDD 14B42 FOR MORE INFORMATION.

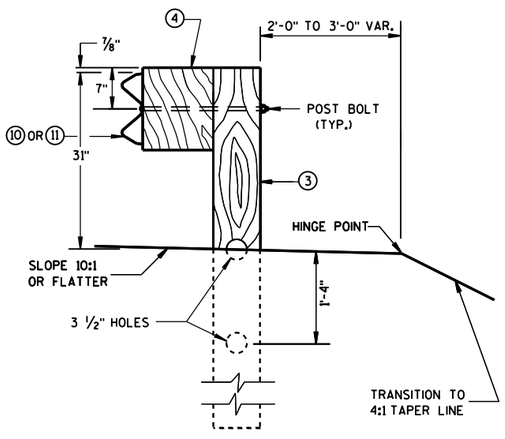
* DO NOT ATTACH BLOCKOUTS TO POSTS 1 AND 2.

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

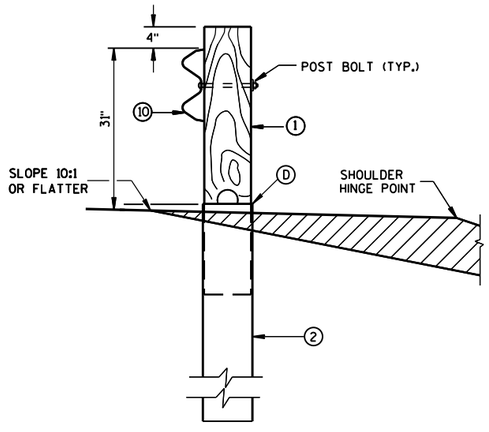
W-BEAM RAIL SPLICES ARE LOCATED AT POST NUMBER 3, AND BETWEEN POST 5 AND 6, BETWEEN POSTS 7 AND 8, AND MIDDLE OF THE SPAN AFTER POST 9.

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

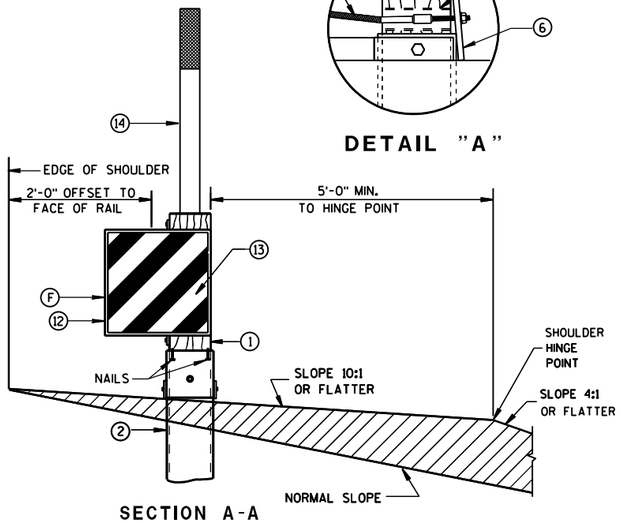




SECTION C-C
TYPICAL AT POST NOS. 3-9

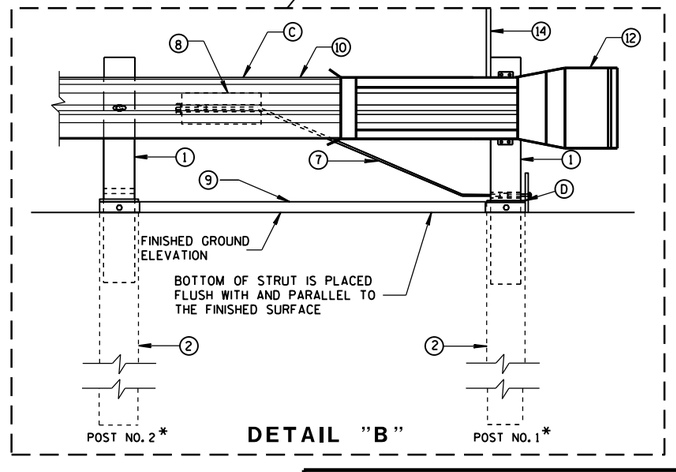


SECTION B-B
TYPICAL AT POST NO. 2*



SECTION A-A
TYPICAL AT POST NO. 1*

DETAIL "A"

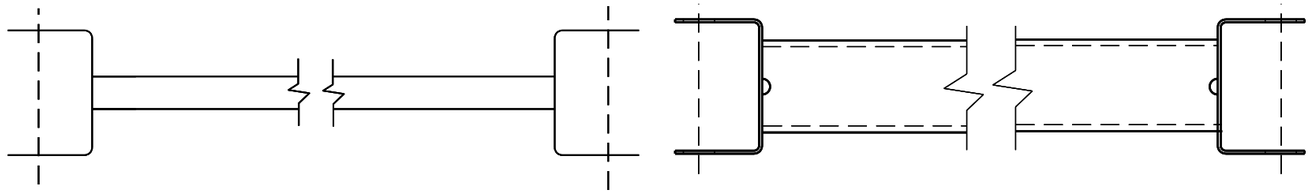


DETAIL "B"

MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPO

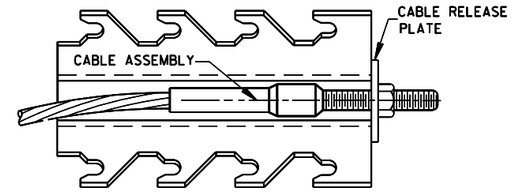
S.D.D. 14 B 44-2a



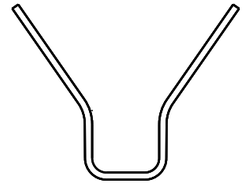
GENERIC GROUND STRUT (9) (H)

BILL OF MATERIALS

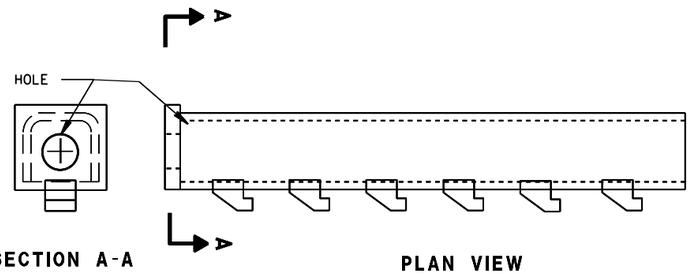
PART NO.	DESCRIPTION MATERIALS PROVIDED BY MGS EAT MANUFACTURER. SEE MANUFACTURER'S DETAILS FOR MORE INFORMATION.
(1)	WOOD BREAKAWAY POST
(2)	6" X 8" X 0.188", 6'-0" LONG FOUNDATION TUBE AT POSTS 1 AND 2
(3)	WOOD CRT
(4)	WOOD BLOCKOUT
(5)	PIPE SLEEVE
(6)	BEARING PLATE
(7)	BCT CABLE ASSEMBLY
(8)	ANCHOR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



FRONT VIEW



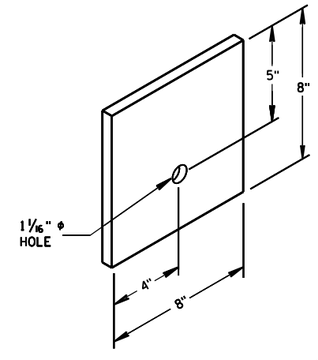
SECTION B-B



SECTION A-A

PLAN VIEW

GENERIC ANCHOR CABLE BOX (8) (H)



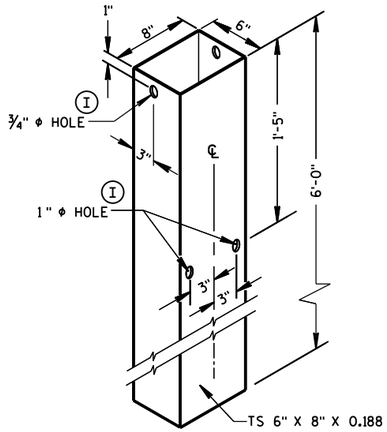
BEARING PLATE (6)

MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL
(MGS)

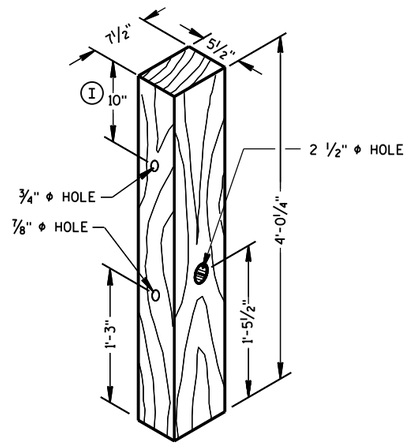
STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

6

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

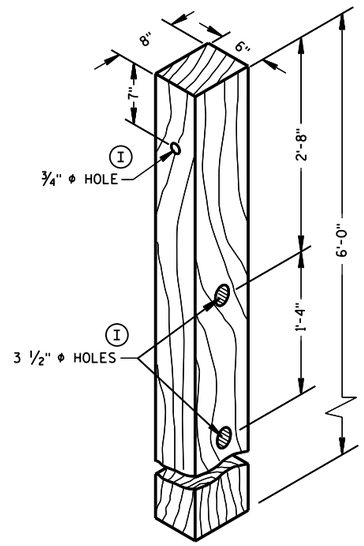


FOUNDATION TUBE (2)



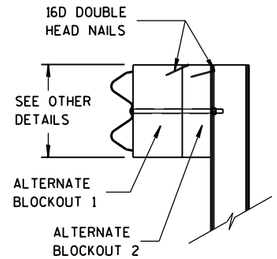
POSTS NUMBER 1 AND 2

WOOD BREAKAWAY POST (1)

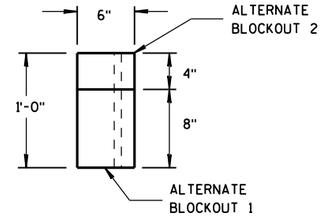


POSTS NUMBER 3-9

WOOD CRT POST (3)

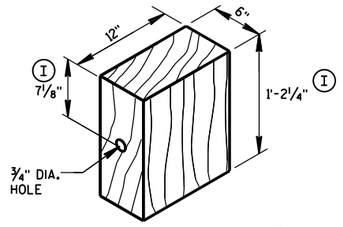


SIDE VIEW



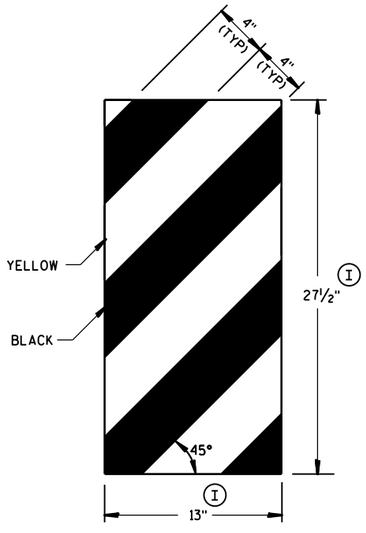
TOP VIEW

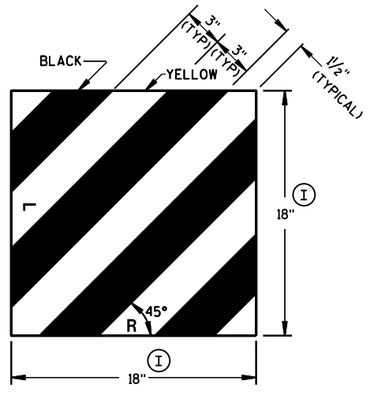
ALTERNATE WOOD BLOCKOUT DETAIL



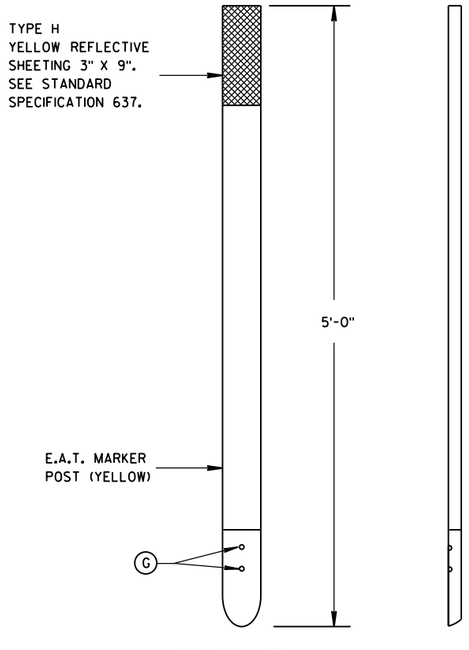
WOOD BLOCKOUT (4)

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





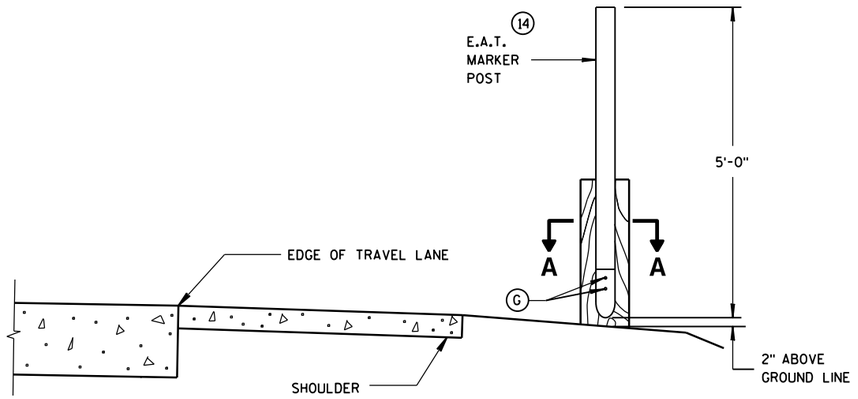
GENERIC REFLECTIVE SHEETING (13) (H)



FRONT VIEW

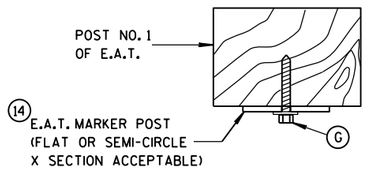
SIDE VIEW

E.A.T. MARKER POST (14)



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

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



SECTION A-A

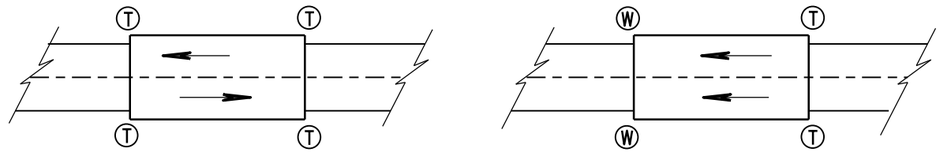
MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

6

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



TWO WAY TRAFFIC

ONE WAY TRAFFIC

Ⓣ THRIE BEAM CONNECTION

Ⓦ W-BEAM CONNECTION WHEN REQUIRED

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

GENERAL NOTES

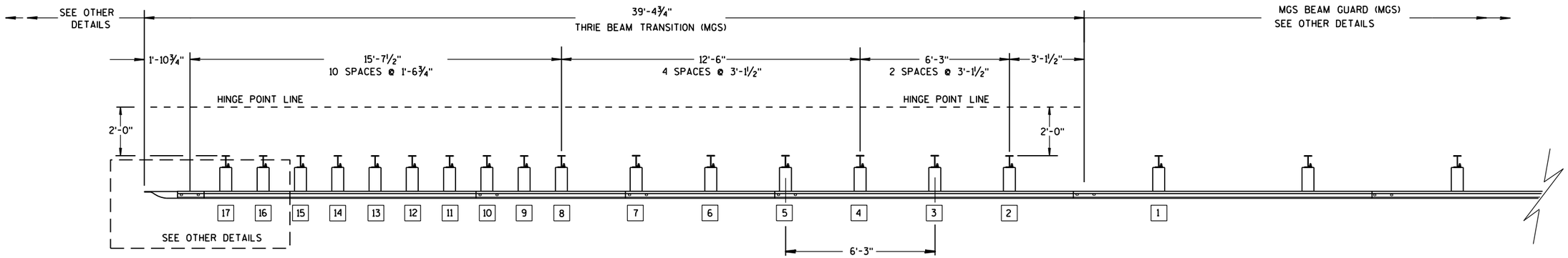
IF ROCK IS ENCOUNTERED, REMOVE ROCK TO FULL DEPTH OF POST PLUS 2½", AND 12" DIAMETER AROUND POST. SEE 14B42 FOR MORE DETAILS.

TRANSITION USES STEEL POSTS ONLY.

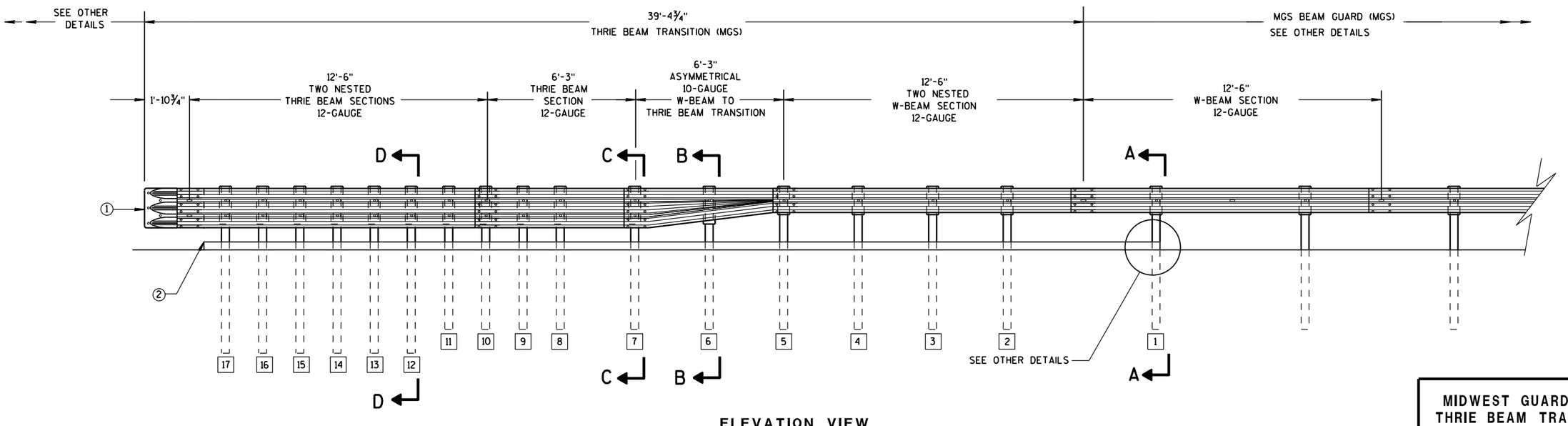
SEE STANDARD DETAIL DRAWING 14 B 42 FOR MORE INFORMATION.

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

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



PLAN VIEW



ELEVATION VIEW

MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

6

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

6

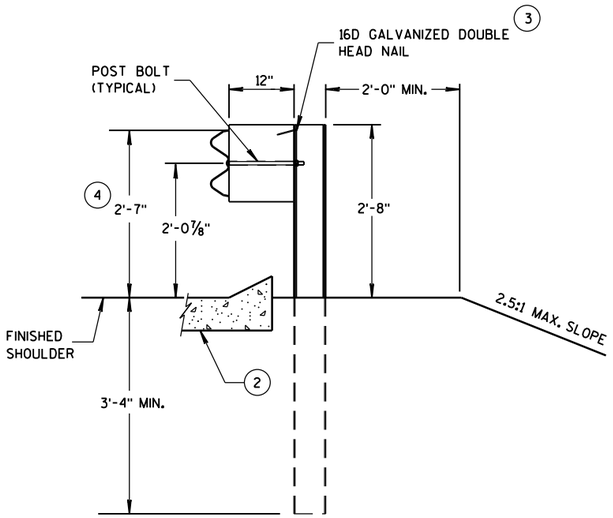
S.D.D. 14 B 45-4a

GENERAL NOTES

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

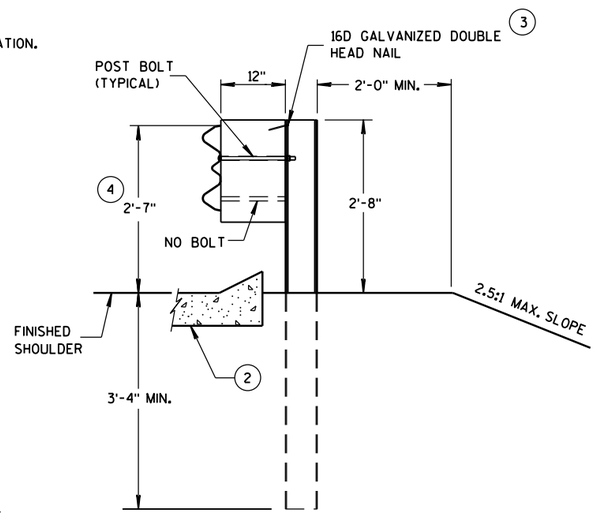
(3) WHEN USING STEEL POSTS AND WOOD BLOCKOUTS INSTALL FOUR 10D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.

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



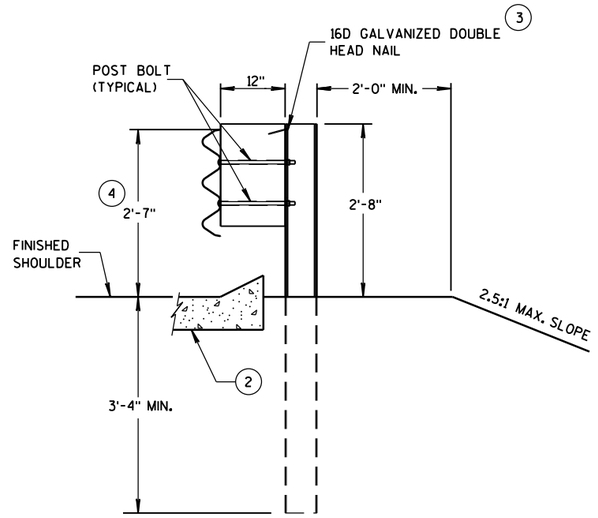
SECTION A-A

POSTS 1-5



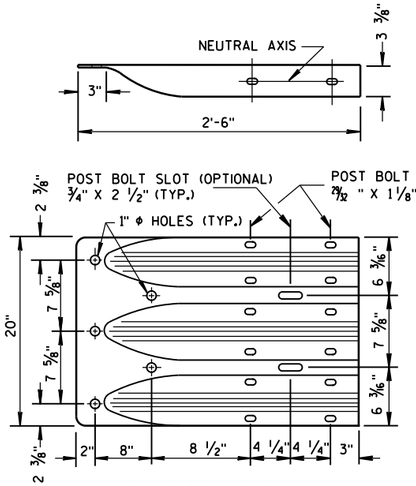
SECTION B-B

POST 6



SECTION C-C

POSTS 7-11



THRIE BEAM TERMINAL CONNECTOR

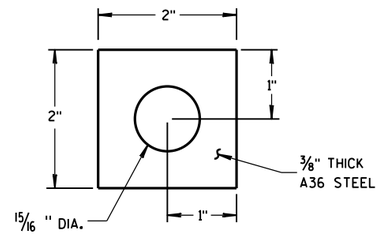
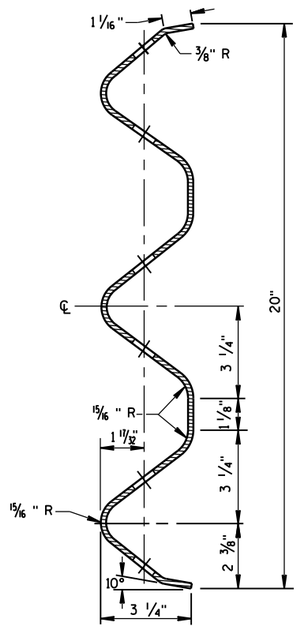
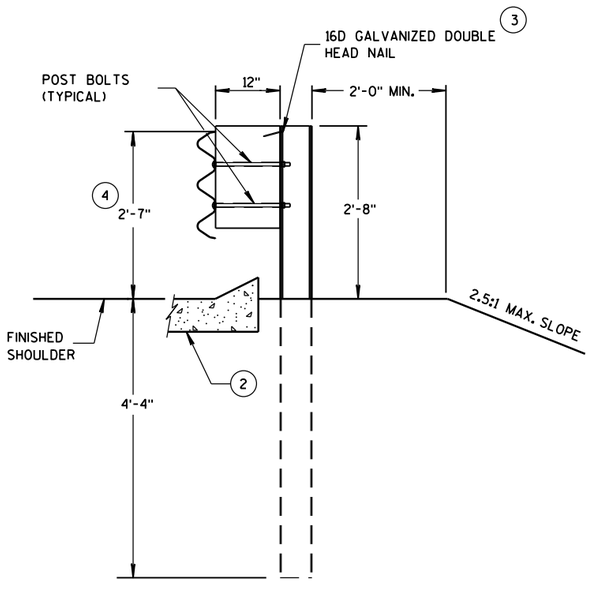


PLATE WASHER DETAIL

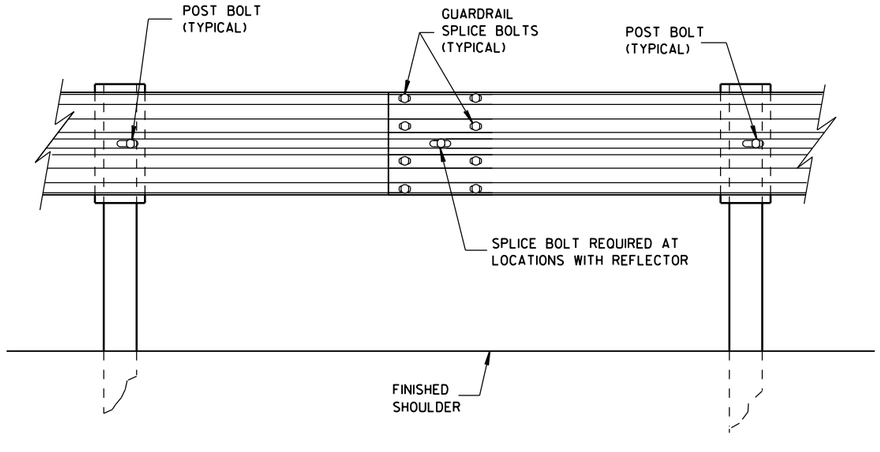


SECTION THRU THRIE BEAM RAIL ELEMENT



SECTION D-D

POSTS 12-17



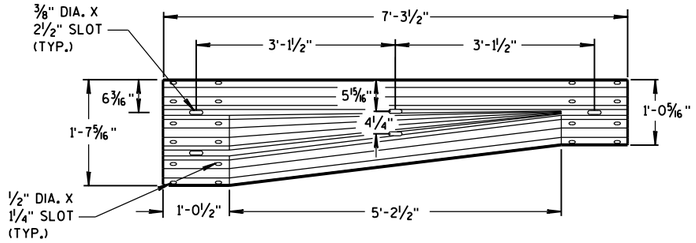
SPLICE DETAIL

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

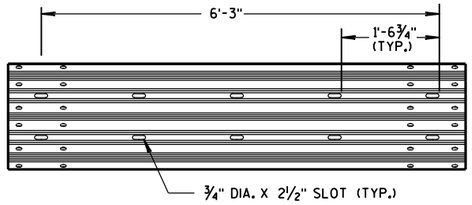
STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

6

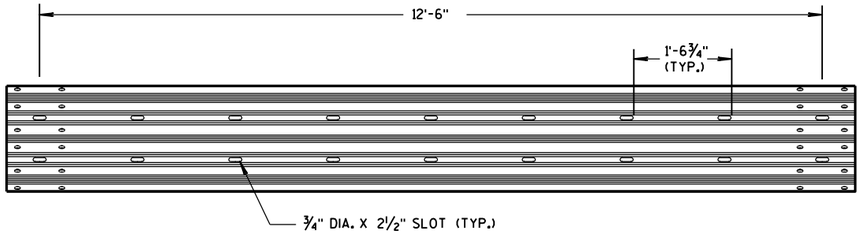
S.D.D. 14 B 45-4b



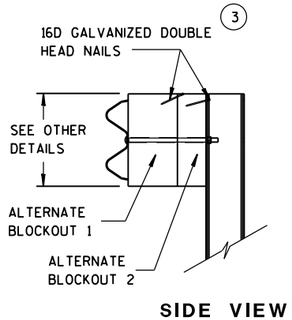
W-BEAM TO THRIE BEAM TRANSITION SECTION



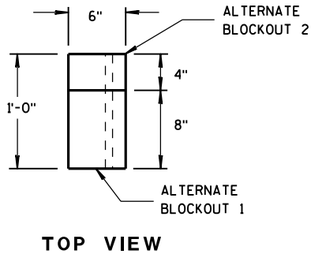
6'-3" THRIE BEAM SECTION



12'-6" THRIE BEAM SECTION

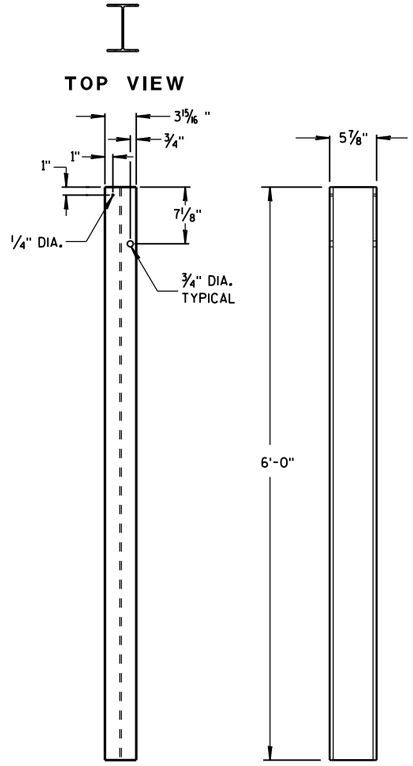


SIDE VIEW



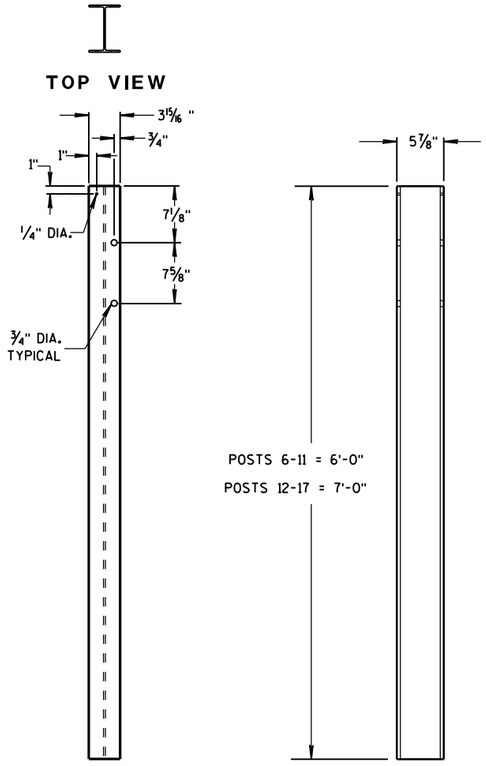
TOP VIEW

ALTERNATE WOOD BLOCKOUT DETAIL



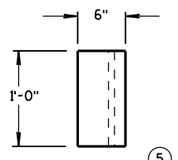
FRONT VIEW SIDE VIEW

STEEL POSTS 1-5

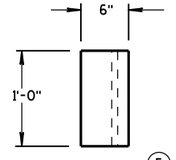


FRONT VIEW SIDE VIEW

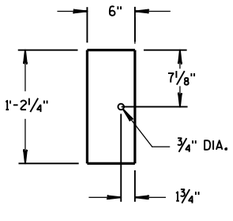
STEEL POSTS 6-17



TOP VIEW

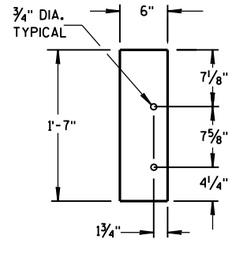


TOP VIEW



FRONT VIEW

BLOCKOUT POSTS 1-5



FRONT VIEW

BLOCKOUT POSTS 6-17

GENERAL NOTES

STEEL POSTS ARE W6X9 OR W6X8.5.

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

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

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

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

6

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

GENERAL NOTES

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

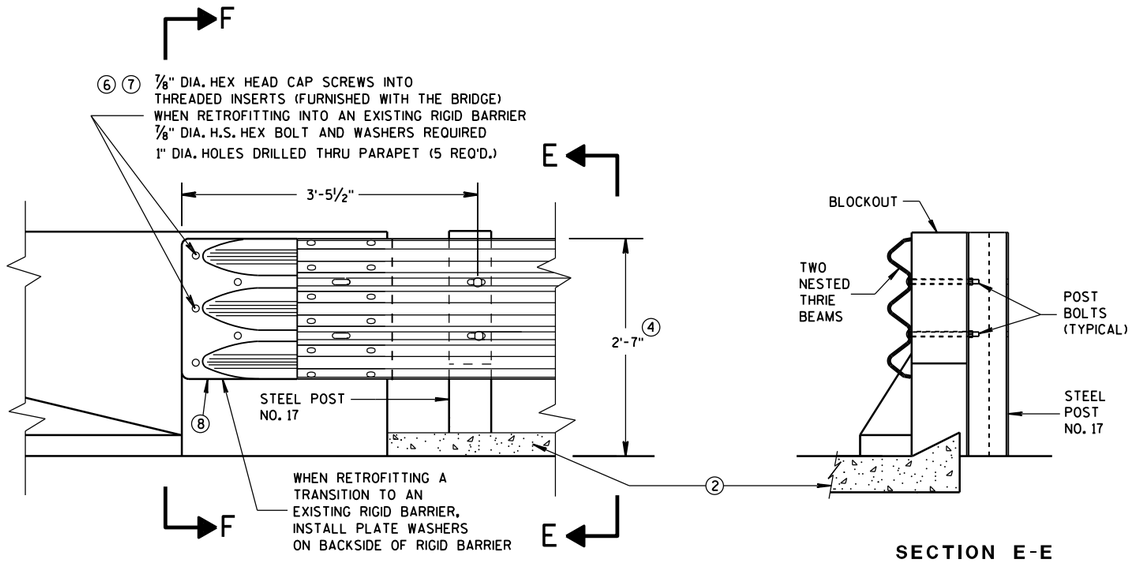
(2) OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.

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

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

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

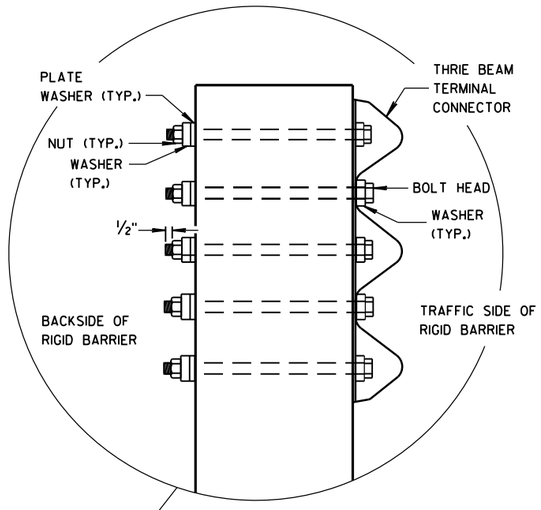
(8) THE RECESS FOR A W-BEAM CONNECTION, WHICH EXISTS ON SOME PARAPETS OF THIS TYPE, SHALL BE FILLED WITH A TREATED TIMBER BLOCKOUT. BLOCKOUT SIZE IS 1'-6" X 2'-0" X 3 1/2".

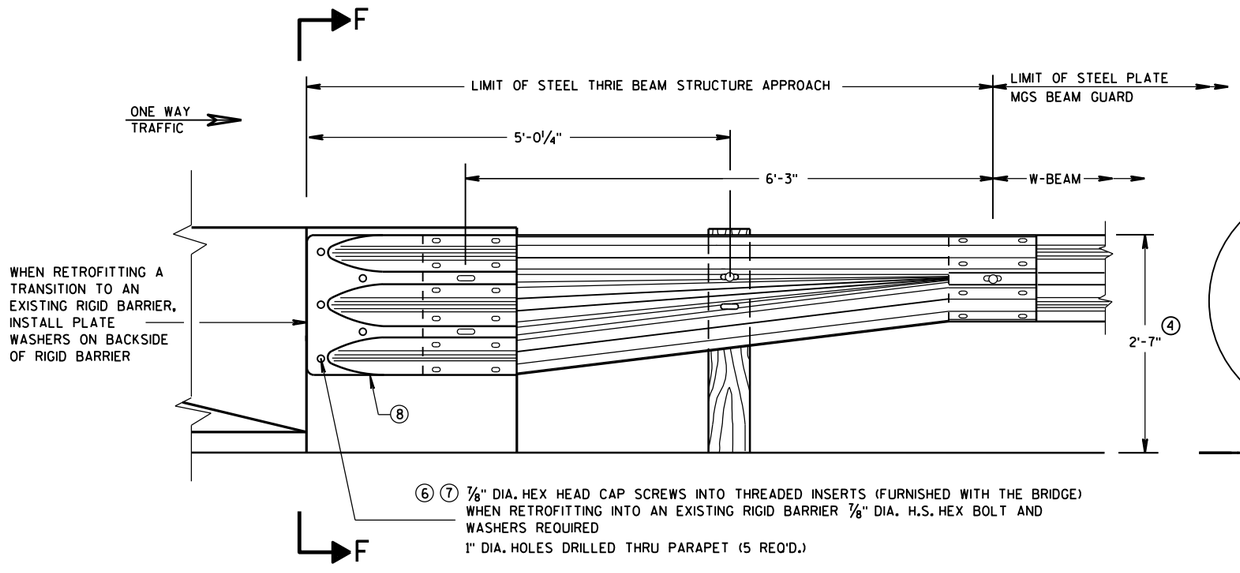


FRONT VIEW

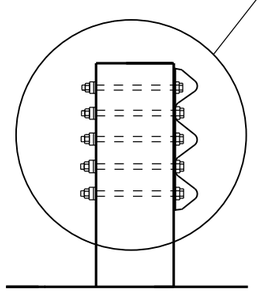
SECTION E-E

THRIE BEAM CONNECTION TO BRIDGE PARAPET WITH SQUARE ENDS

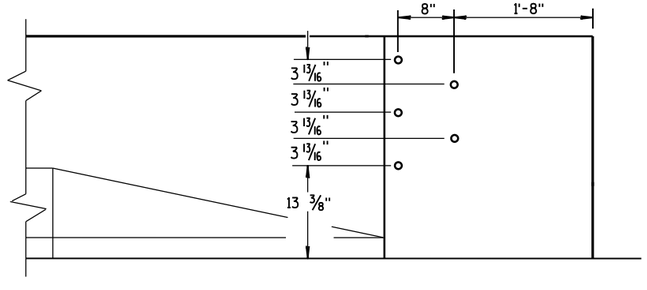




FRONT VIEW



SECTION F-F



DRILL HOLE LOCATION

W BEAM TRANSITION AND CONNECTION TO BRIDGE PARAPETS WITH SQUARE ENDS

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

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

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

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

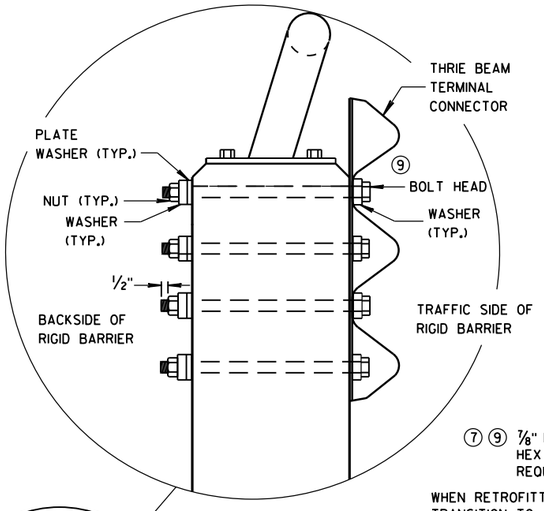
(4) TOLERANCE FOR TOP OF BEAM IS ± 1".

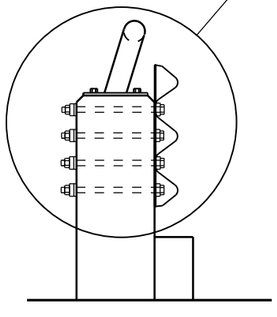
(6) DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.

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

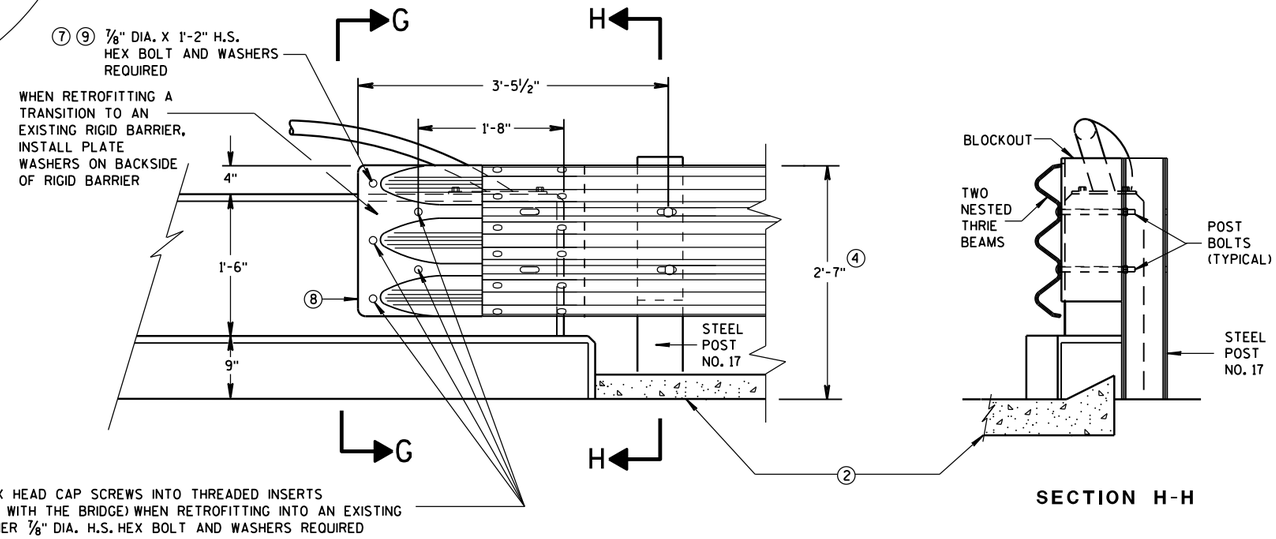
(8) THE RECESS FOR A W-BEAM CONNECTION, WHICH EXISTS ON SOME PARAPETS OF THIS TYPE, SHALL BE FILLED WITH A TREATED TIMBER BLOCKOUT. BLOCKOUT SIZE IS 1'-6" X 2'-0" X 3 1/2".

(9) BOLT, NUT AND WASHERS NOT REQUIRED FOR THIS LOCATION WHEN RETROFITTING AN EXISTING PAPAPET AND THE HOLE IS EITHER ABOVE PARAPET OR WITHIN 4 INCHES OF THE EDGE OF PARAPET.





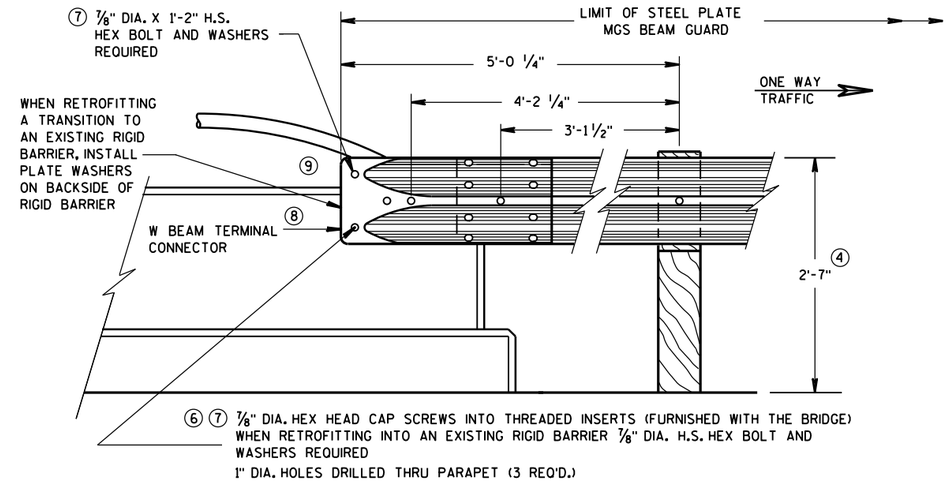
SECTION G-G



FRONT VIEW

SECTION H-H

THRIE BEAM CONNECTION TO VERTICAL FACED PARAPETS



FRONT VIEW

W BEAM CONNECTION TO VERTICAL FACE PARAPET

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

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
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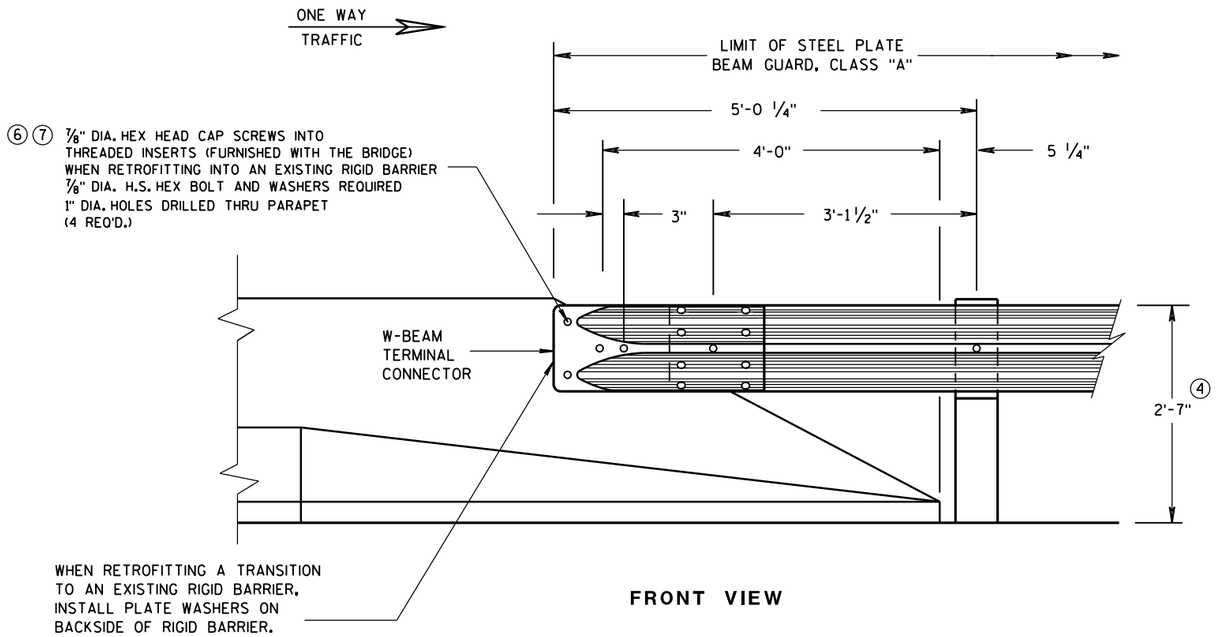


FRONT VIEW

W BEAM CONNECTION TO PARAPETS WITH SLOPED ENDS

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

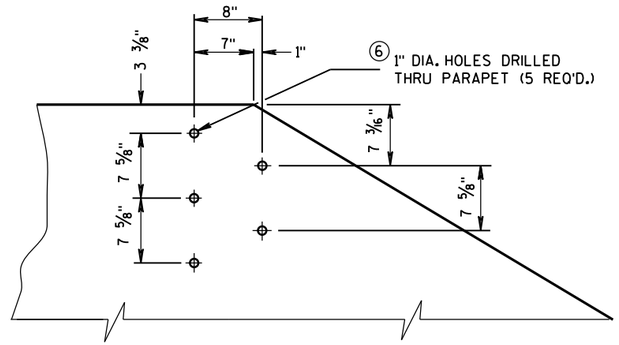
GENERAL NOTES

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

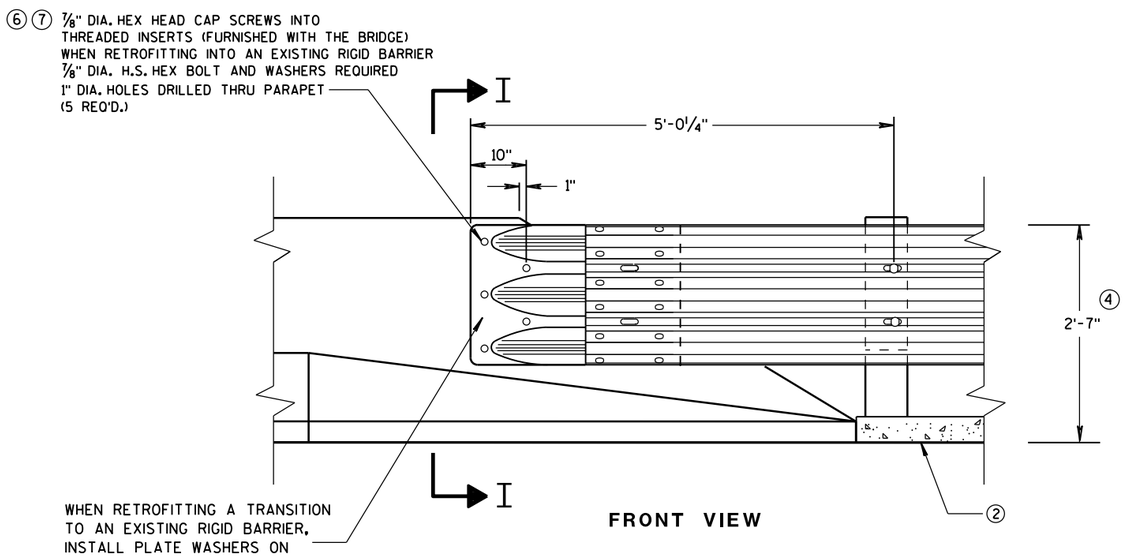
④ TOLERANCE FOR TOP OF BEAM IS ± 1".

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

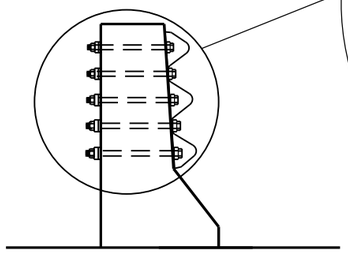
⑦ BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTOR PLATE.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



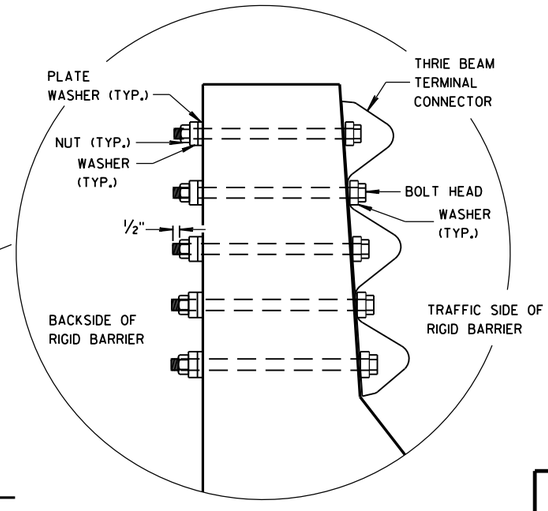
DRILL HOLE LOCATION AND PATTERN
FOR THRIE BEAM CONNECTION



FRONT VIEW



SECTION I-I



THRIE BEAM CONNECTION TO BRIDGE PARAPETS WITH SLOPED ENDS

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

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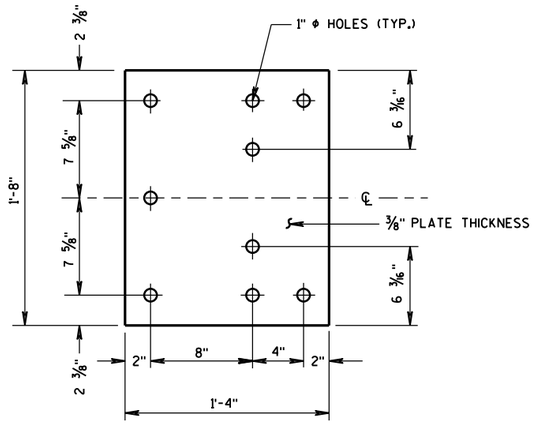
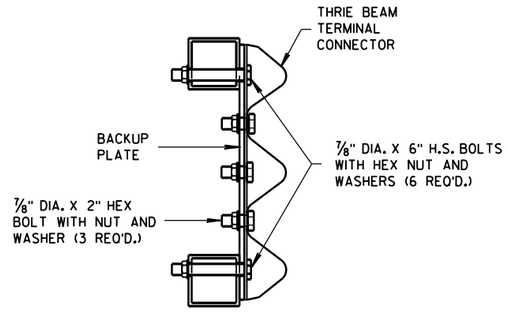
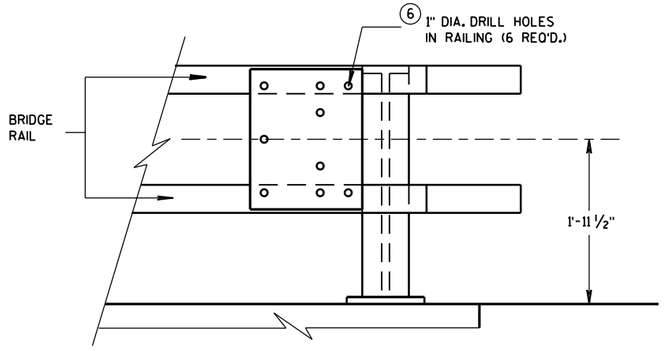


BACK-UP PLATE DETAIL



SECTION J-J

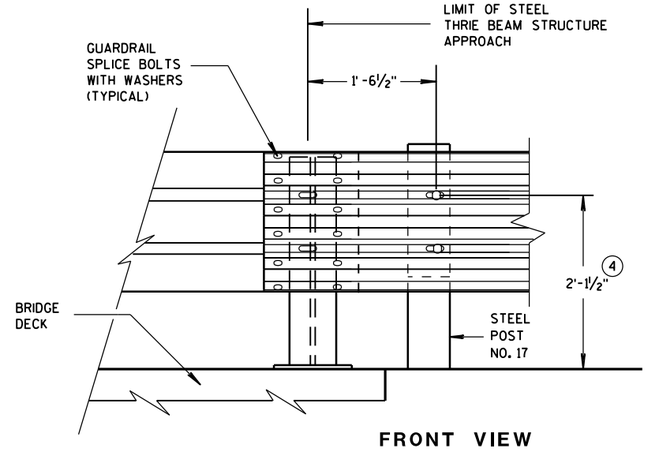


BACK-UP PLATE MOUNTING ONTO BRIDGE RAILING

GENERAL NOTES

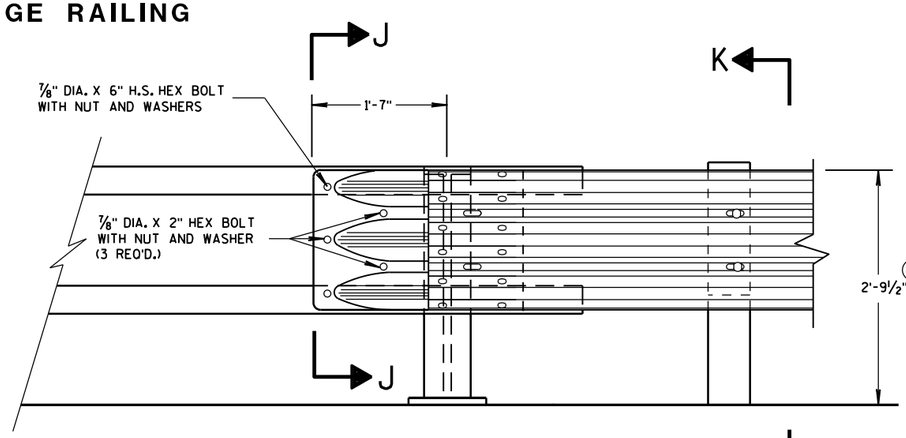
4 TOLERANCE FOR TOP OF BEAM IS ± 1".

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

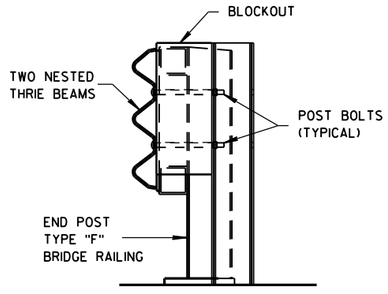


FRONT VIEW

THRIE BEAM CONNECTION TO STEEL RAILING TYPE "W"



FRONT VIEW



SECTION K-K

THRIE BEAM CONNECTION TO TUBULAR RAILING TYPE "F"

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
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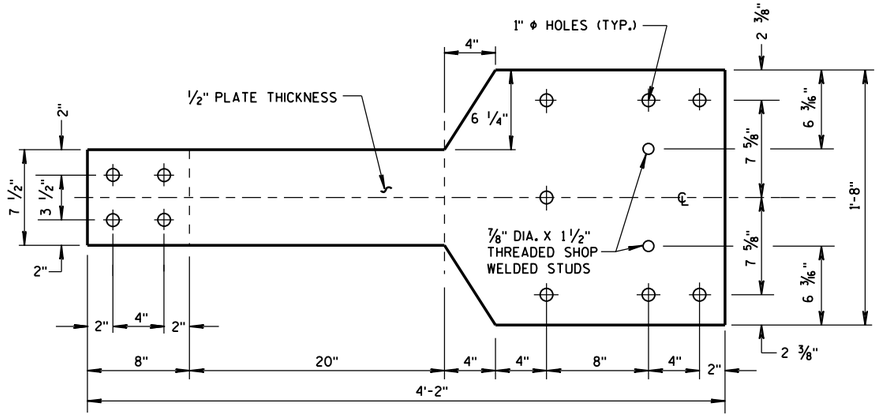
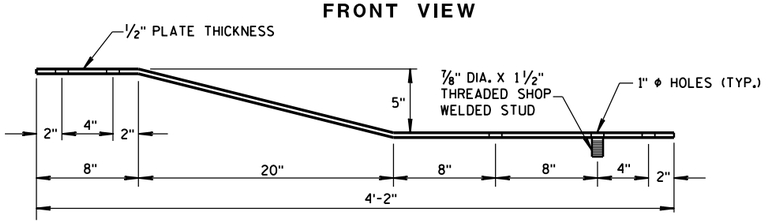
GENERAL NOTES

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

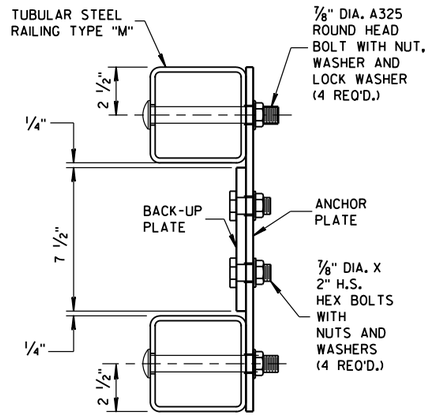


FRONT VIEW

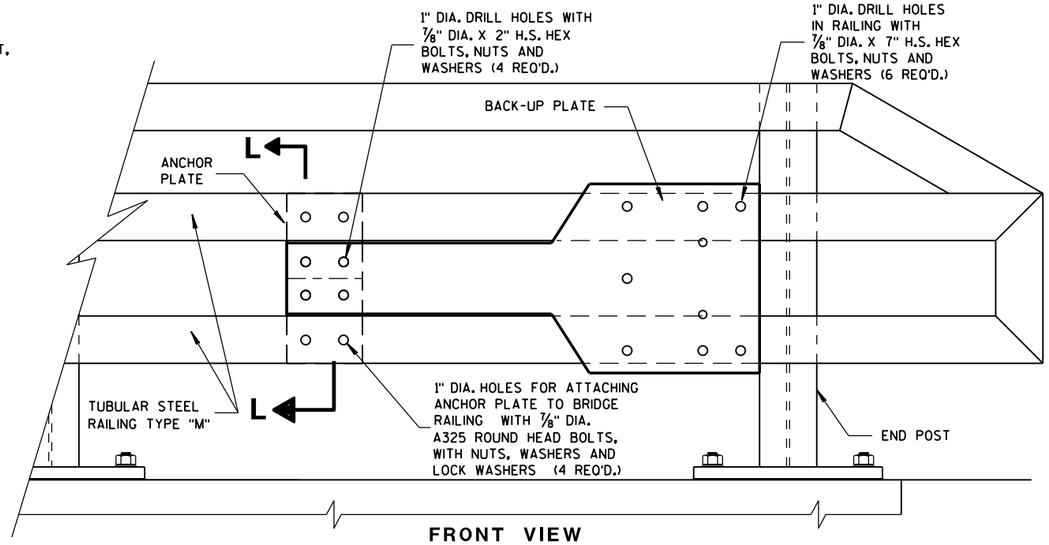


PLAN VIEW

BACK-UP PLATE DETAIL, TYPE "M"

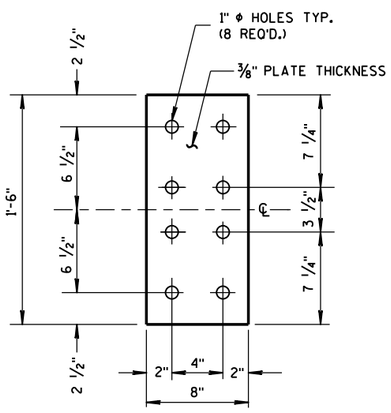


SECTION L-L



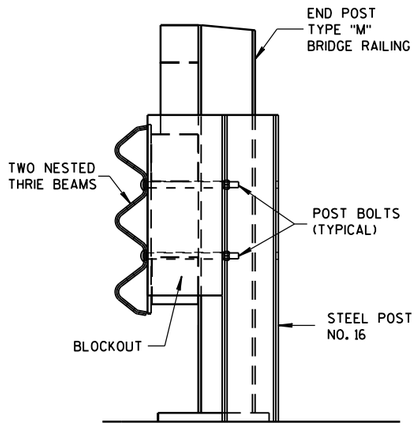
FRONT VIEW

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

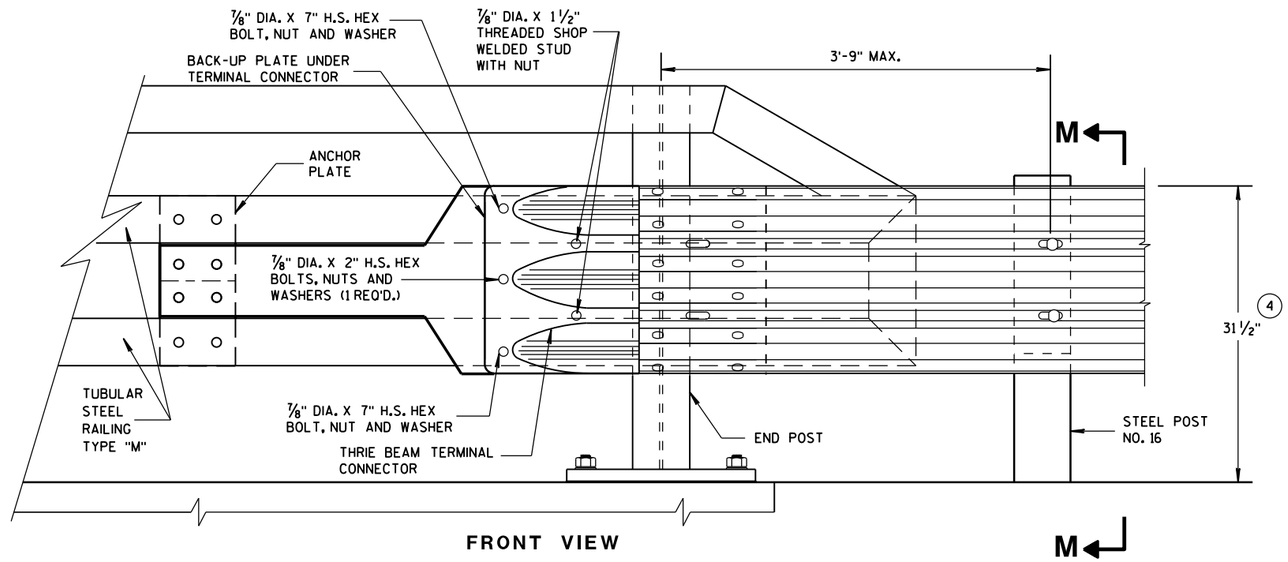


FRONT VIEW

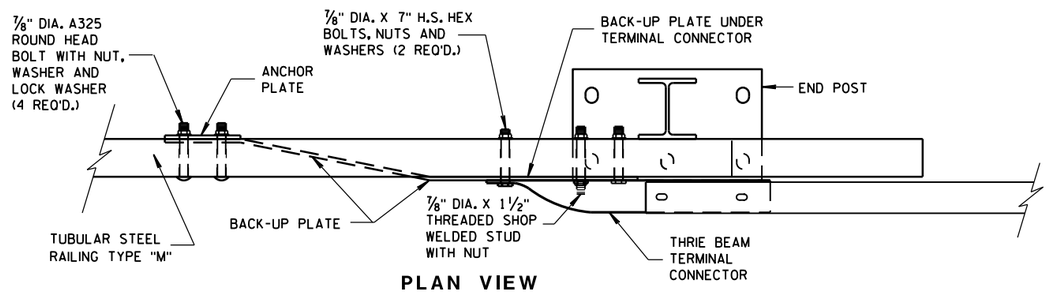
ANCHOR PLATE DETAIL, TYPE "M"



SECTION M-M



FRONT VIEW



PLAN VIEW

THRIE BEAM CONNECTION TO TUBULAR RAILING, TYPE "M"

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
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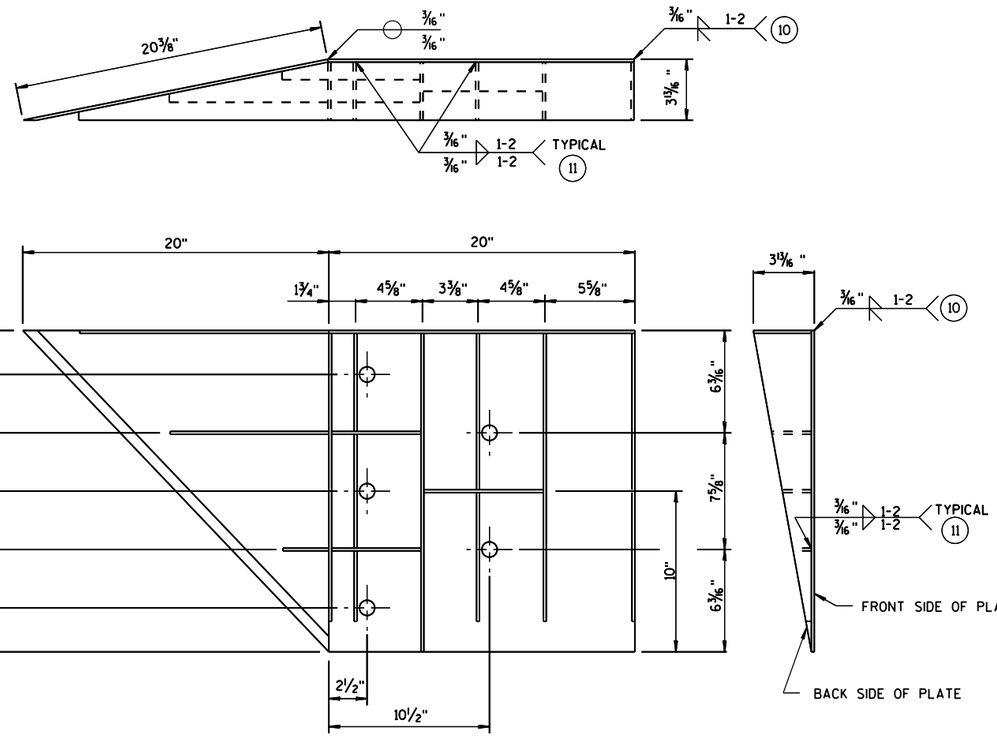

WELDING INSTRUCTION

(VIEWED FROM BACK SIDE OF PLATE)

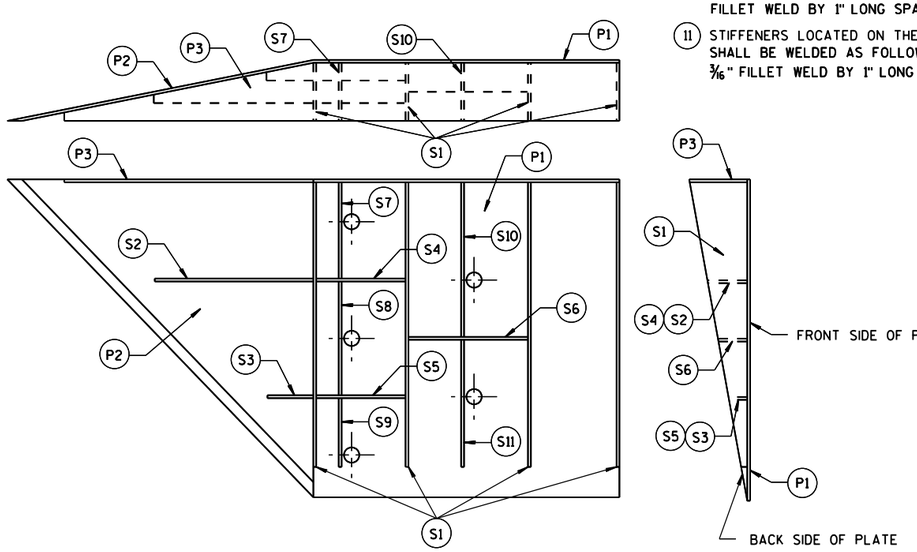

PLATE AND STIFFENER IDENTIFICATION

(VIEWED FROM BACK SIDE OF PLATE)

GENERAL NOTES

COVER PLATE PANELS ARE 3/16" THICK.

ALL STIFFENERS ARE 1/4" THICK.

CONNECTOR PLATE SHALL BE FABRICATED FROM ASTM GRADE A36 STEEL AND GALVANIZED.

FOR GALVANIZED REQUIREMENTS, SEE SECTION 614 OF THE STANDARD SPECIFICATIONS.

ALL HOLE DIAMETERS SHALL BE 1".

FOR OPPOSITE SIDE INSTALLATION MIRROR DRAWINGS.

(10) STIFFENERS LOCATED AT THE OUTSIDE EDGES OF THE COVER PLATES SHALL BE WELDED AS FOLLOWS:
SINGLE BEVEL GROOVE WELD ON EXTERNAL SIDES AND 3/16" FILLET WELD BY 1" LONG SPACED AT 2" ON INTERNAL SIDES.

(11) STIFFENERS LOCATED ON THE INSIDE OF THE COVER PLATE SHALL BE WELDED AS FOLLOWS:
3/16" FILLET WELD BY 1" LONG SPACED AT 2".

CONNECTOR PLATE DIMENSION (PER ASSEMBLY)

PLATE	QUANTITY	SHAPE	SIZE (A x B x C x D)	THICKNESS
P1	1		20" x 20"	3/16"
P2	1		20" x 20" x 28 9/16"	3/16"
P3	1		39" x 3 5/8" x 20" x 19 5/16"	3/16"
S1	4		18 7/16" x 3 3/8" x 18 3/4"	1/4"
S2	1		10 1/4" x 2 7/16" x 10 3/8" x 1/2"	1/4"
S3	1		3" x 1 1/16" x 3 1/8" x 1/2"	1/4"
S4	1		6 1/8" x 2 7/16"	1/4"
S5	1		6 1/8" x 1 1/16"	1/4"
S6	1		7 3/4" x 1 3/4"	1/4"
S7	1		2 9/16" x 6" x 3 5/8" x 5 7/8"	1/4"
S8	1		1 5/32" x 7 1/2" x 2 1/2" x 7 3/8"	1/4"
S9	1		6 1/16" x 6 3/16" x 1 1/32"	1/4"
S10	1		1 7/8" x 9 7/8" x 3 5/8" x 9 11/16"	1/4"
S11	1		8 1/2" x 8 3/4" x 1 13/16"	1/4"

SINGLE SLOPE CONNECTION PLATE

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

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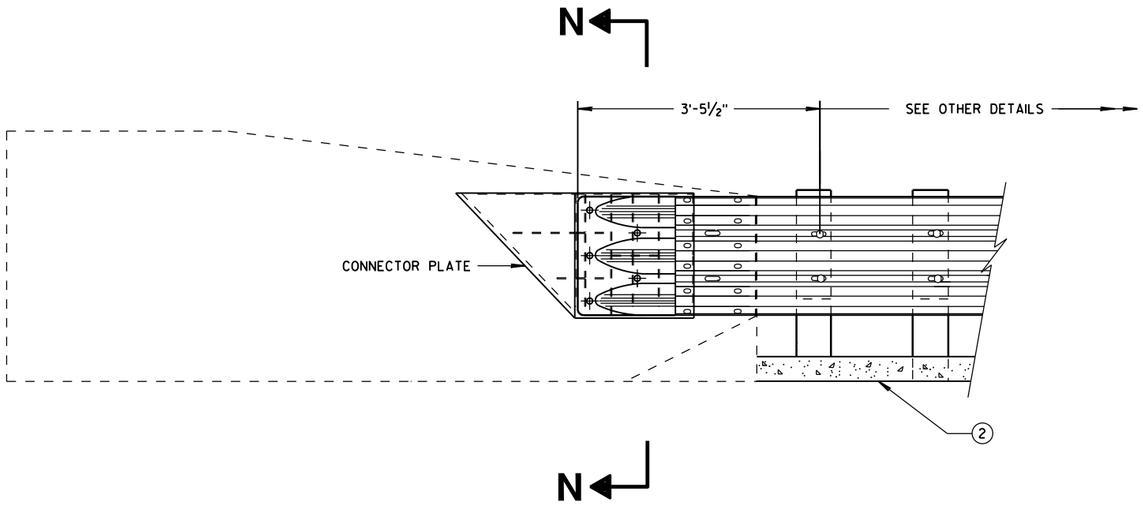
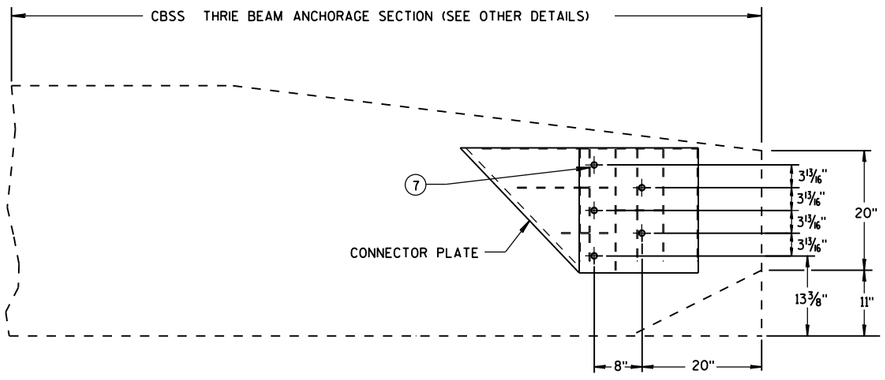


THRIE BEAM CONNECTION TO SINGLE SLOPE BARRIER



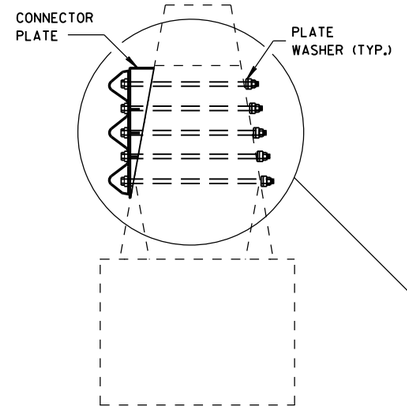
SINGLE SLOPE CONNECTION PLATE PLACEMENT

GENERAL NOTES

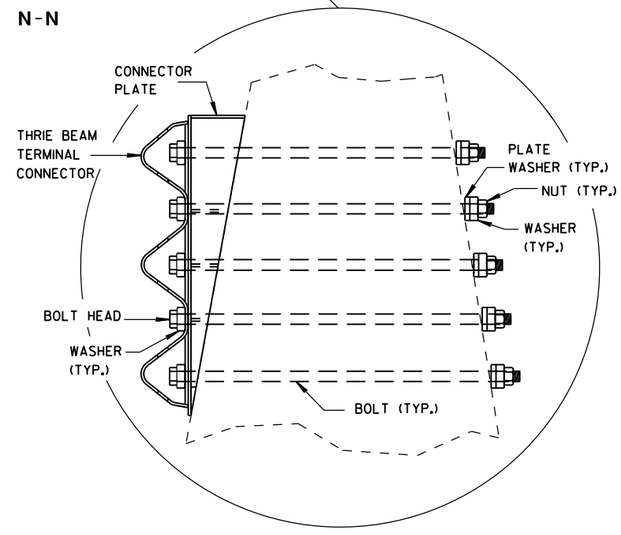
CONNECTOR PLATE, DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.

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

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



SECTION N-N



MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

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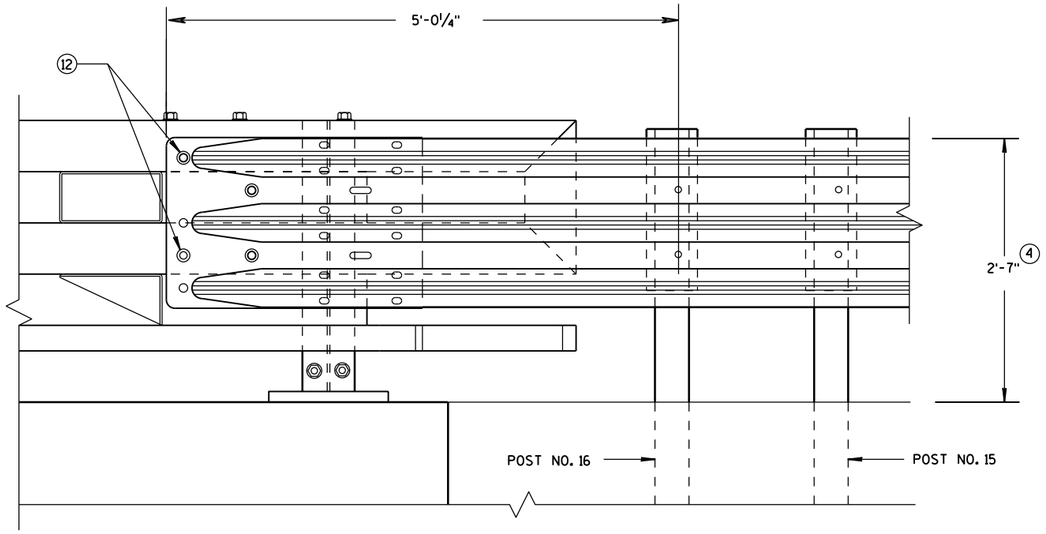
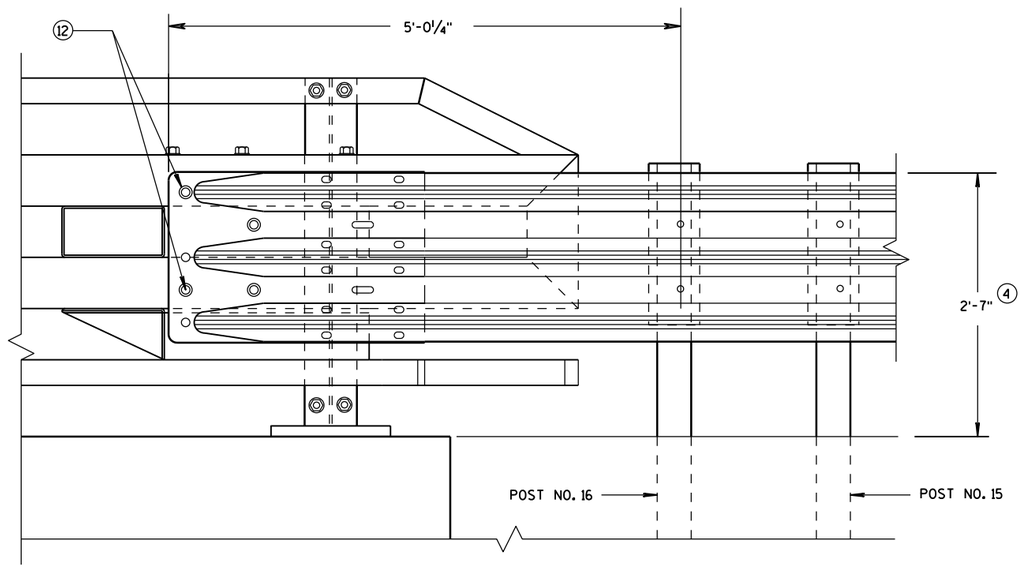


ELEVATION OF DETAIL AT NY3 END POST

THRIE BEAM RAIL ATTACHMENT



ELEVATION OF DETAIL AT NY4 END POST

THRIE BEAM RAIL ATTACHMENT

GENERAL NOTES

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

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

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

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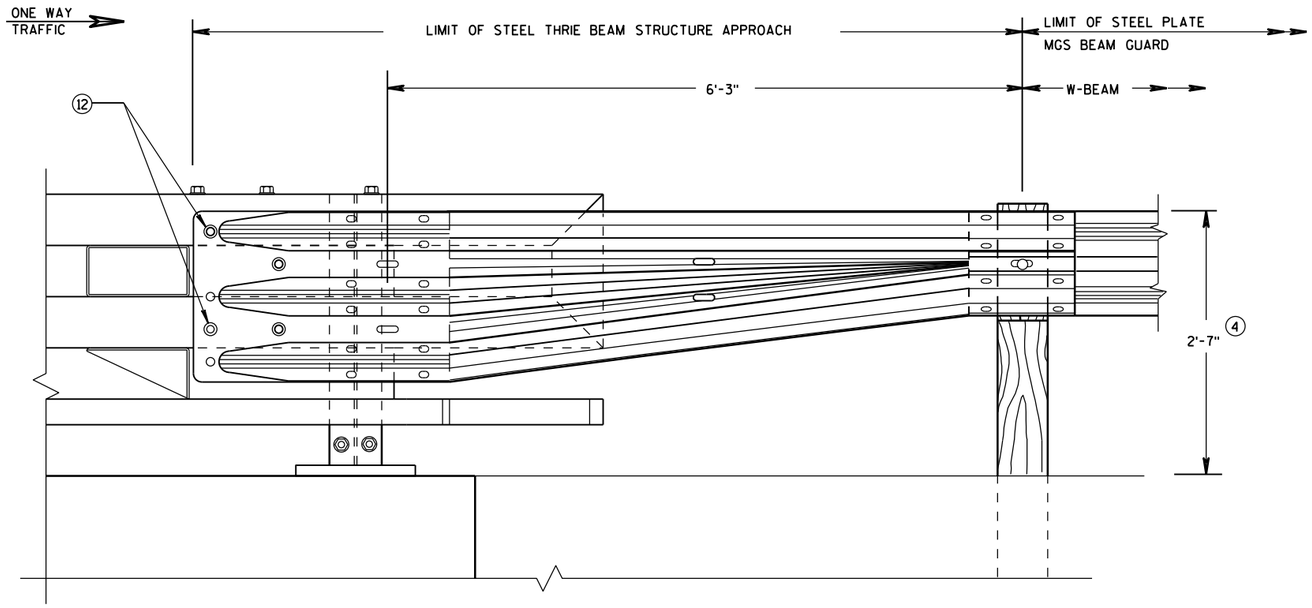
S.D.D. 14 B 45-4k



FRONT VIEW

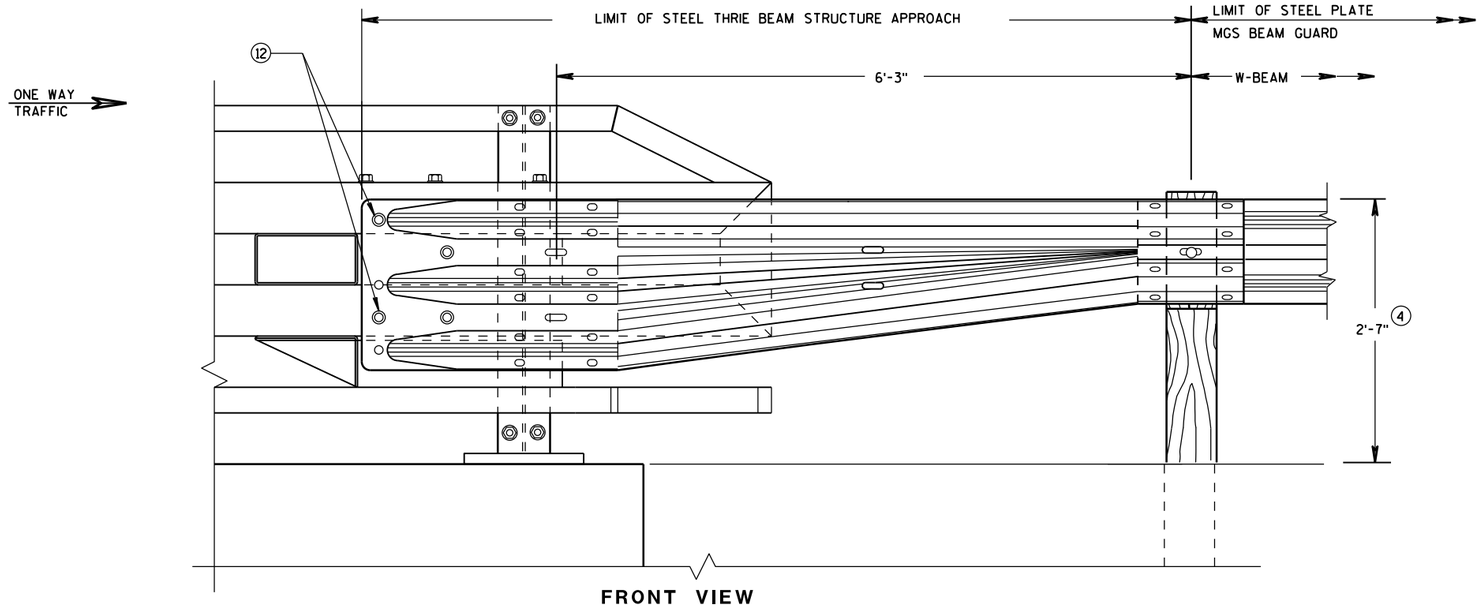
W BEAM TRANSITION AND CONNECTION TO BRIDGE RAILING TYPE "NY3"

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

GENERAL NOTES

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

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



FRONT VIEW

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

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

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

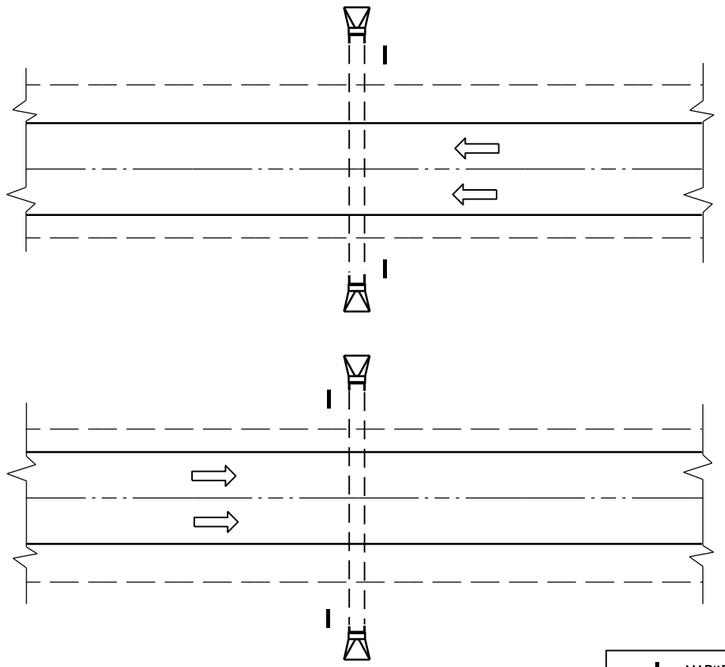
APPROVED
June, 2015 — DATE
/S/ Jerry H. Zogg — ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA

6

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

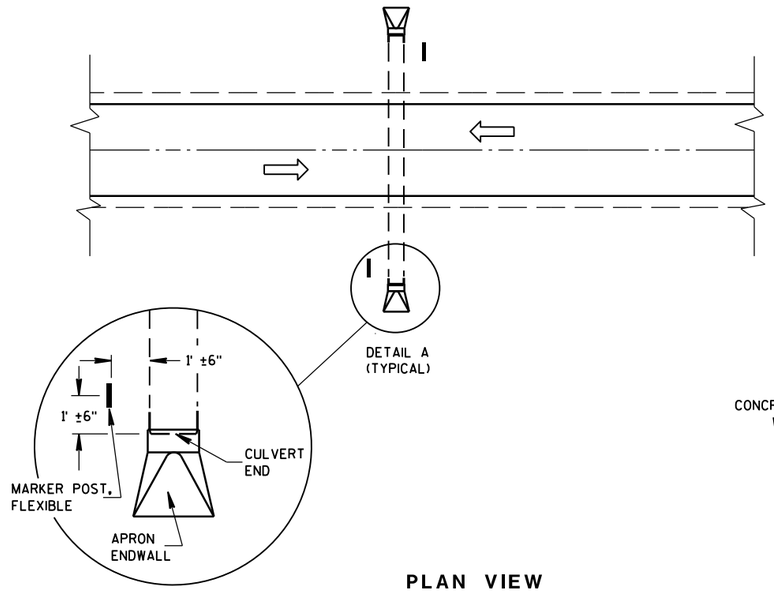
6

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



PLAN VIEW

DIVIDED HIGHWAY



DETAIL A
(TYPICAL)

PLAN VIEW

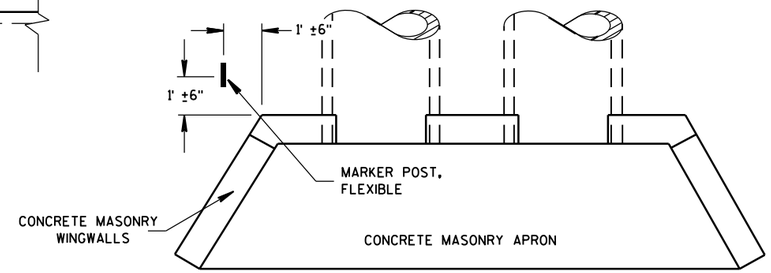
UNDIVIDED HIGHWAY

MARKER POST, FLEXIBLE

DIRECTION OF TRAFFIC FLOW

GENERAL NOTES

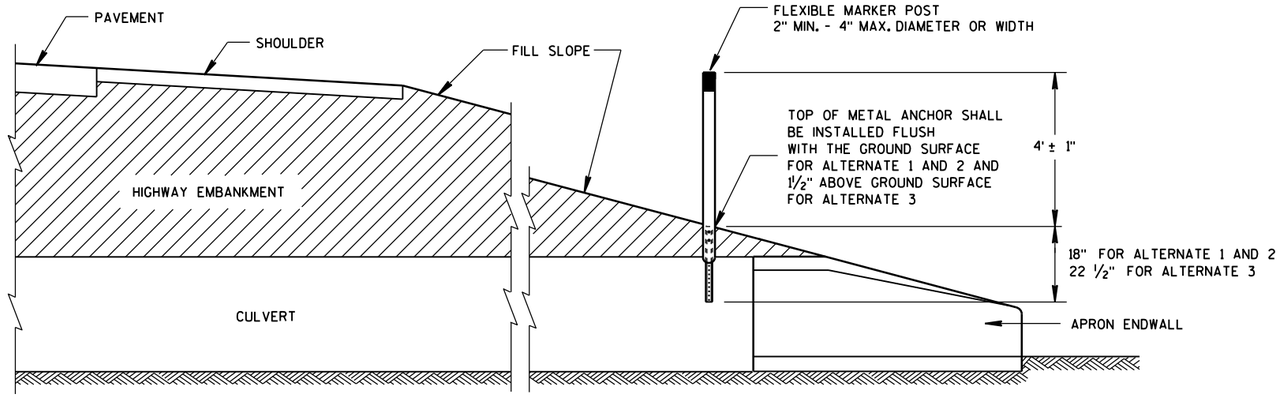
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.



PLAN VIEW

CONCRETE MASONRY ENDWALLS FOR CULVERT PIPE AND PIPE ARCH

FLEXIBLE MARKER POST LOCATION



CROSS SECTION

FLEXIBLE MARKER POST

FLEXIBLE MARKER POST FOR CULVERT END

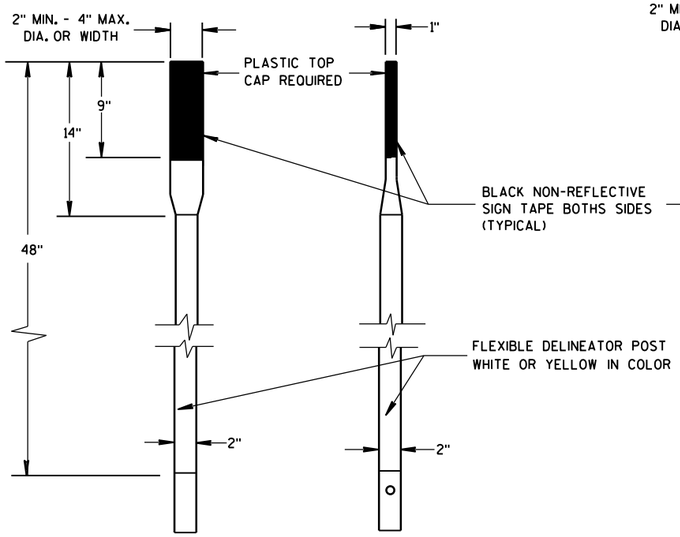
STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

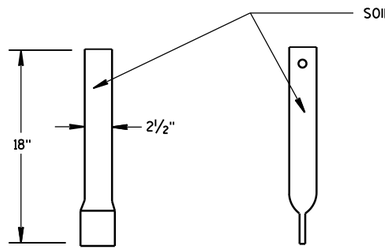
6

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

6

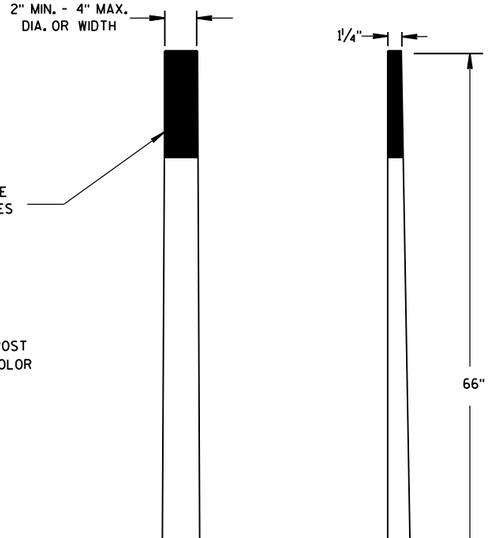
S.D.D. 15 A 3-2a





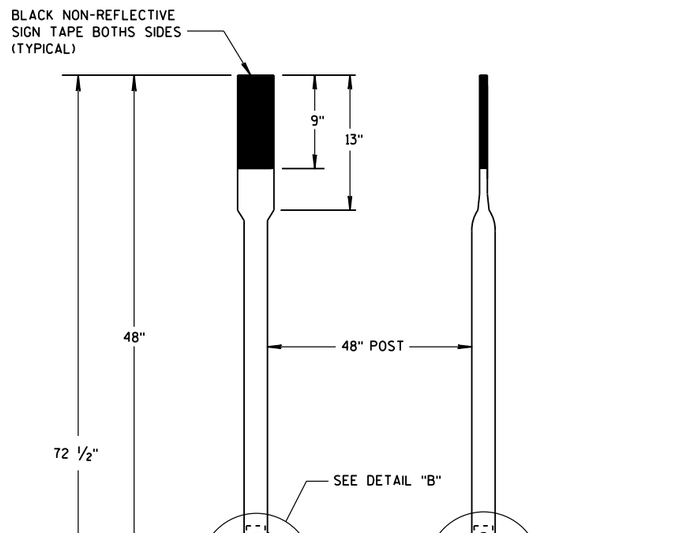
FRONT VIEW SIDE VIEW

ALTERNATE 1



FRONT VIEW SIDE VIEW

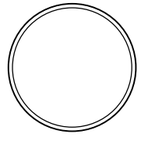
ALTERNATE 2



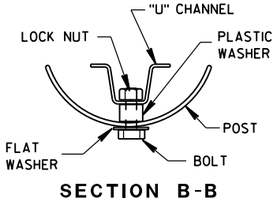
FRONT VIEW SIDE VIEW

ALTERNATE 3

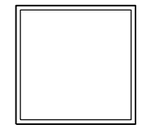
FLEXIBLE MARKER POSTS



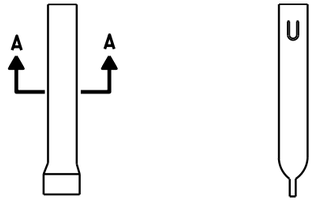
SECTION A-A



SECTION B-B

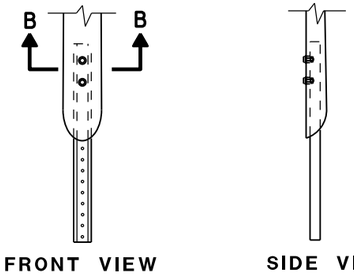


SECTION C-C



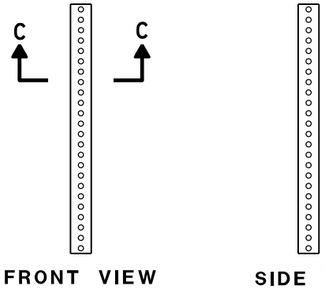
FRONT VIEW SIDE VIEW

ALTERNATE 1



FRONT VIEW SIDE VIEW

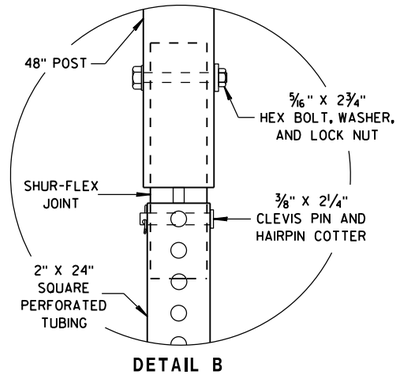
ALTERNATE 2



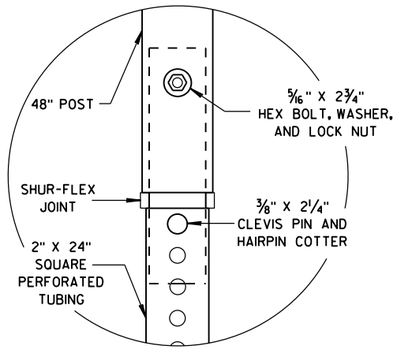
FRONT VIEW SIDE VIEW

ALTERNATE 3

FLEXIBLE MARKER POST ANCHORS



DETAIL B



DETAIL C

FLEXIBLE MARKER POST
FOR CULVERT END

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

6

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

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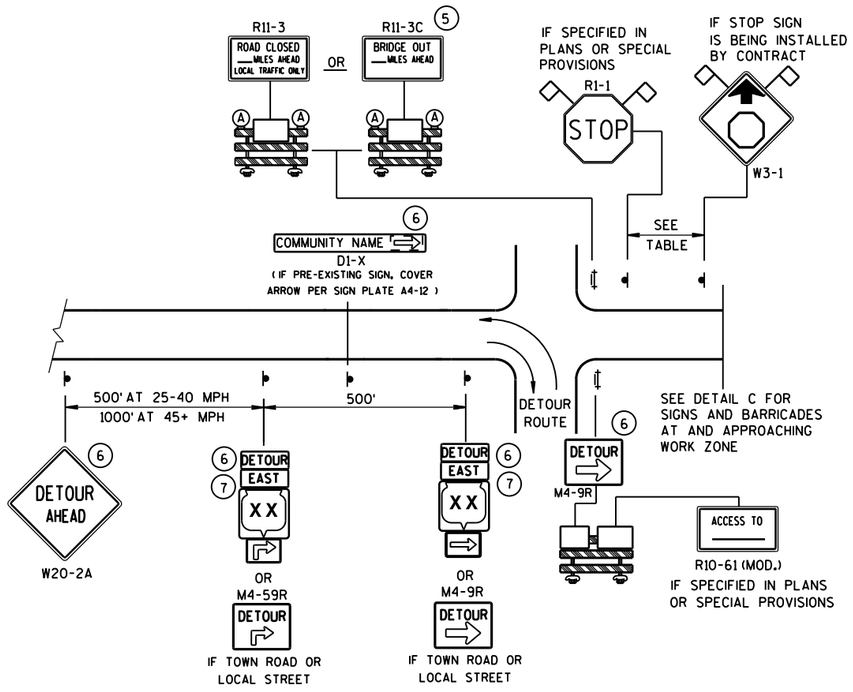
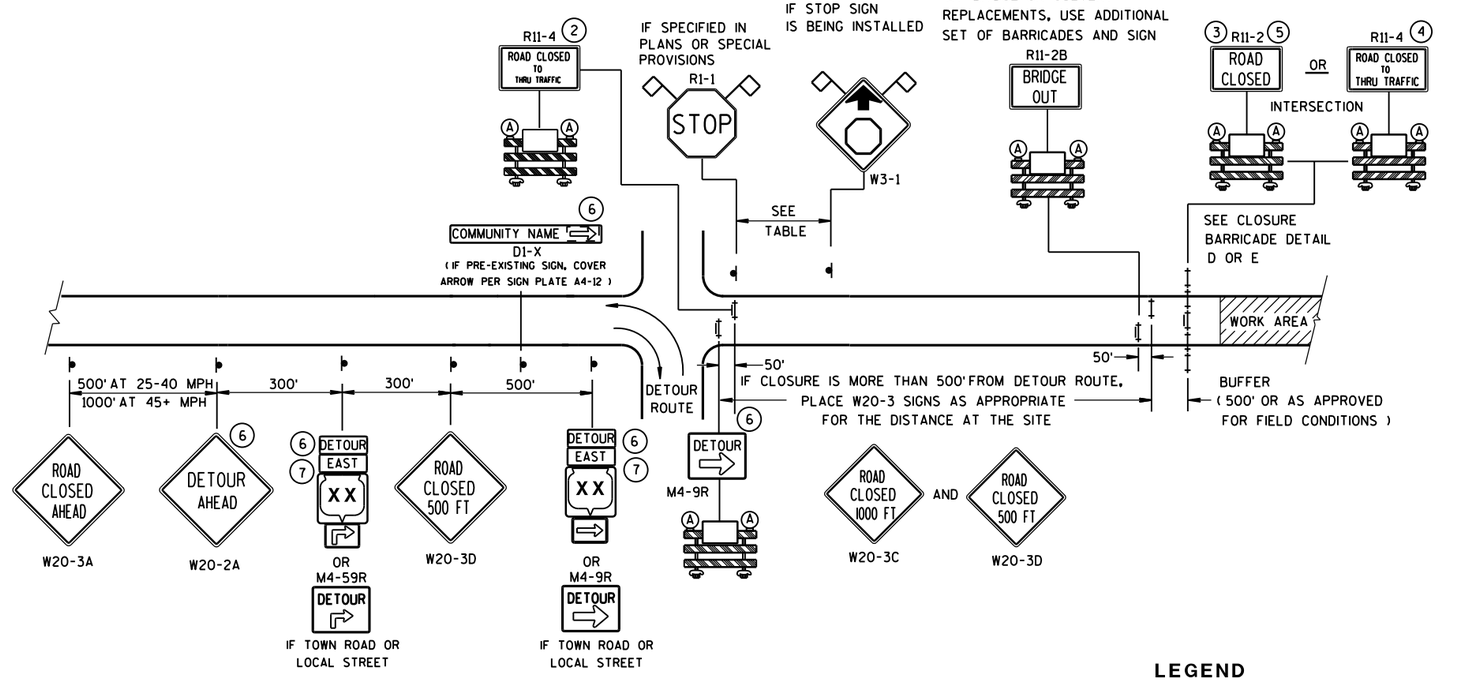
S.D.D. 15 A 3-2b



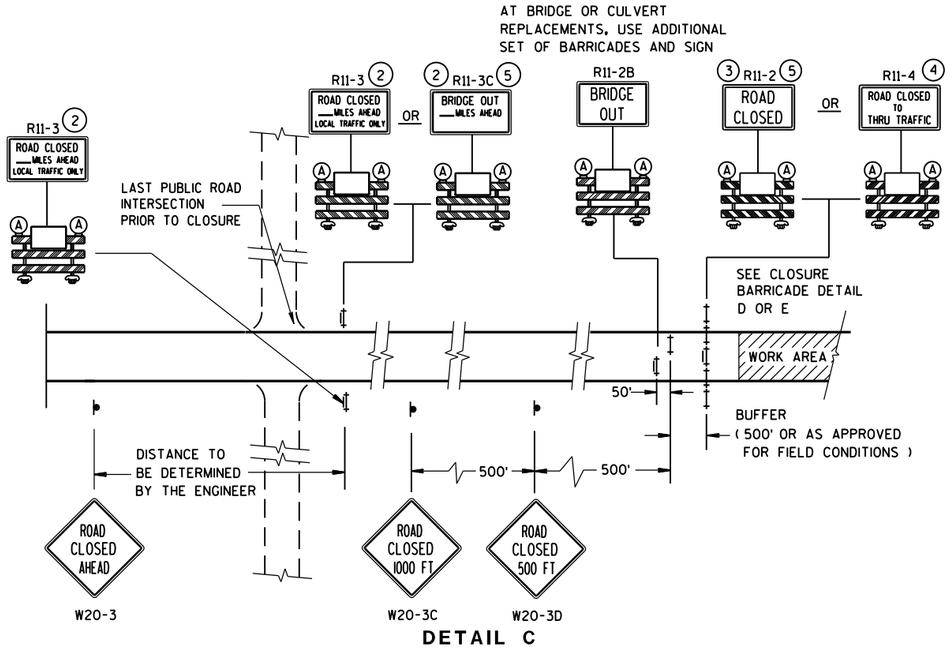
DETAIL A
MAINLINE CLOSURE WITH POSTED DETOUR

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



DETAIL B
MAINLINE CLOSURE WITH POSTED DETOUR

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



DETAIL C
MAINLINE CLOSURE, NO POSTED DETOUR

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

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

LEGEND

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

BARRICADES AND SIGNS FOR MAINLINE CLOSURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

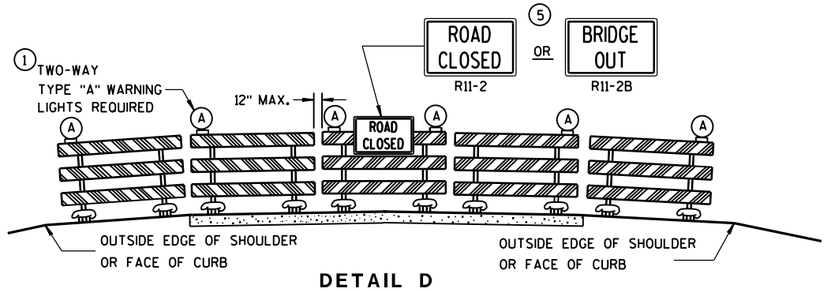
Sept. 2015 — DATE
/S/ Peter Amakobe Atepe
STATEWIDE WORK ZONE TRAFFIC SAFETY ENGINEER
FHWA

6

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

6

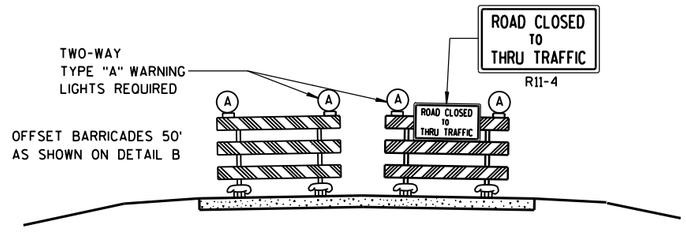
S.D.D. 15 C 2-6a



DETAIL D

ROAD CLOSURE BARRICADE DETAIL

APPROACH VIEW



DETAIL E

LANE CLOSURE BARRICADE DETAIL

APPROACH VIEW

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

GENERAL NOTES

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

BARRICADES AND SIGNS FOR MAINLINE CLOSURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

Sept. 2015 — DATE

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

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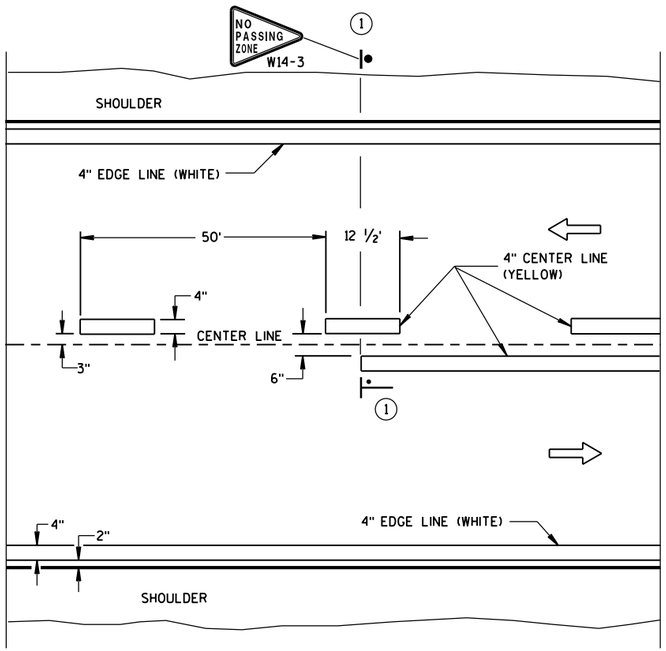
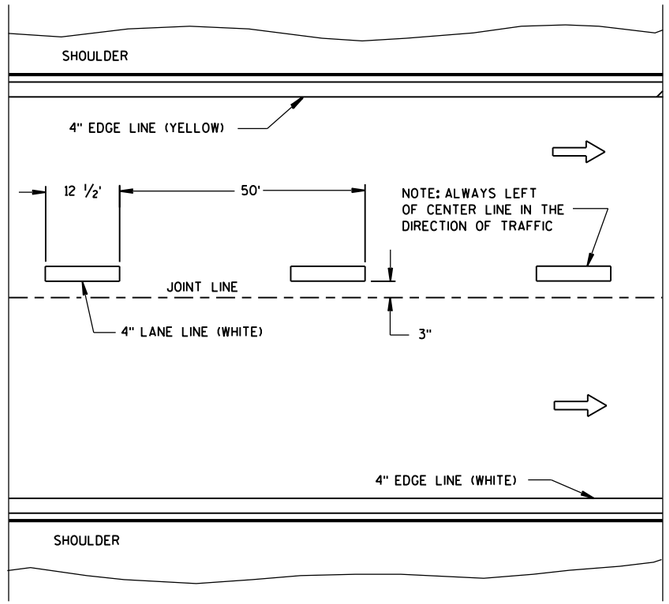
S.D.D. 15 C 2-6b



TWO WAY TRAFFIC



ONE WAY TRAFFIC

PERMANENT PAVEMENT MARKING

GENERAL NOTES

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

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

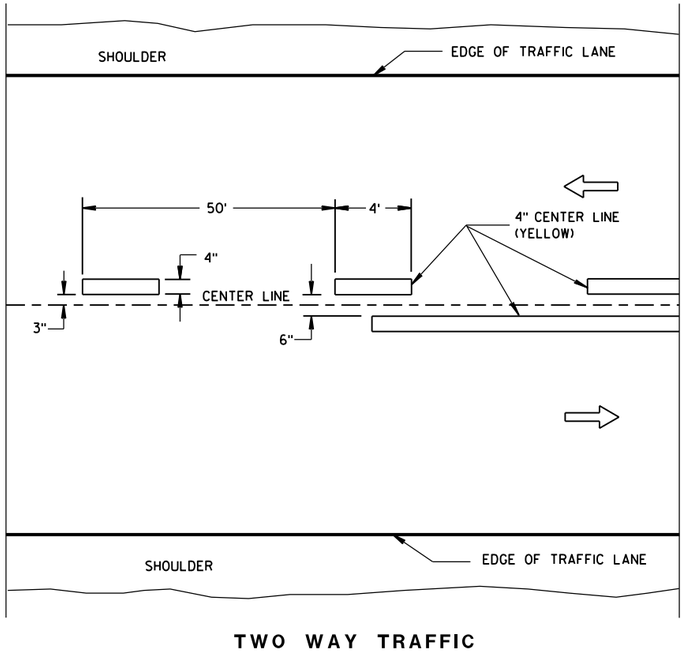
NOTE

ARROW SYMBOL (⇨) SHOWS DIRECTION OF TRAVEL

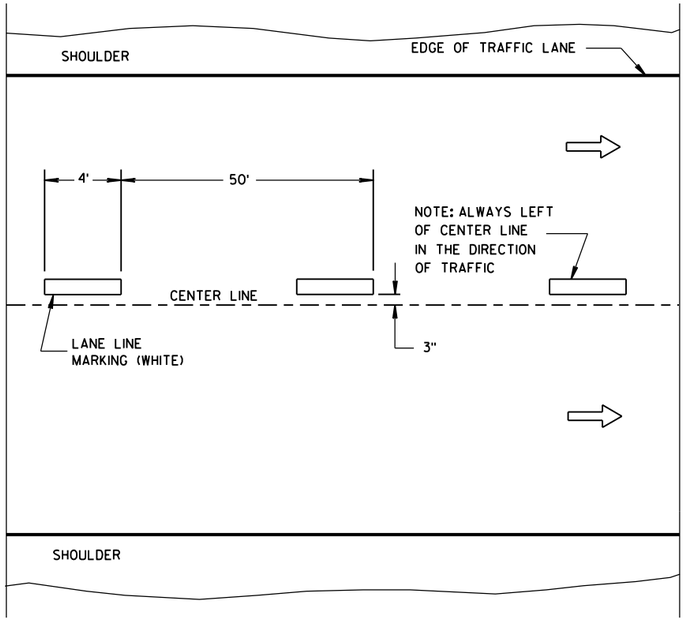
LEGEND

"T" MARKING

POST MOUNTED SIGN



TWO WAY TRAFFIC



ONE WAY TRAFFIC

TEMPORARY PAVEMENT MARKING

LONGITUDINAL MARKING (MAINLINE)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
Sept., 2016 — DATE
/S/ Matthew R. Rauch — STATE SIGNING AND MAR[illegible]INEER
FHWA

6

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

6

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

LEGEND

SIGN ON PORTABLE OR PERMANENT SUPPORT

DIRECTION OF TRAFFIC

WORK AREA

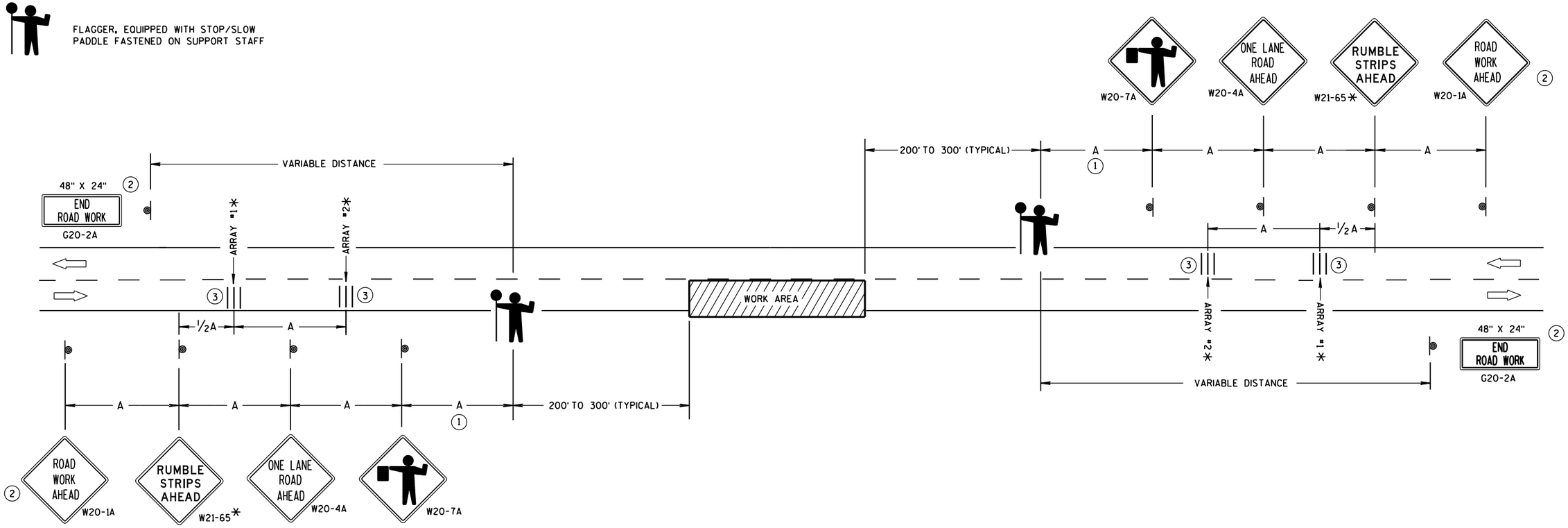
FLAGGER, EQUIPPED WITH STOP/SLOW PADDLE FASTENED ON SUPPORT STAFF

SIGN AND TEMPORARY RUMBLE STRIP ARRAY SPACING TABLE

SPEED LIMIT	SPACING A
25-35 MPH	200'
35-40 MPH	350'
45-55 MPH	500'

W03-4

USE OF THE "BE PREPARED TO STOP" SIGN IS OPTIONAL. WHEN USED, THIS SIGN SHALL BE LOCATED BETWEEN THE W20-7A AND W20-4A SIGNS, USING SPACING A.



TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATION

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.

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

THE FIRST ADVANCE WARNING SIGN SHOULD TYPICALLY BE LOCATED IN ADVANCE OF THE ANTICIPATED TRAFFIC BACKUP OR QUEUE.

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

WHEN A SIDE ROAD OR RAMP INTERSECTS THE FACILITY ON WHICH THE WORK IS BEING PERFORMED, ADDITIONAL TRAFFIC CONTROLS SHALL BE PROVIDED AS SPECIFIED IN THE PLANS AND/OR THE SPECIAL PROVISIONS OR AS APPROVED BY THE ENGINEER.

INSTALL TEMPORARY RUMBLE STRIPS PER MANUFACTURER'S RECOMMENDATIONS.

PLACE ADVANCE SIGNING PRIOR TO INSTALLING TEMPORARY RUMBLE STRIPS.

ALL SIGNS ARE 48" X 48" UNLESS OTHERWISE NOTED.

FLAGGERS SHALL BE IN SIGHT OF EACH OTHER OR IN DIRECT COMMUNICATION AT ALL TIMES. THEY SHALL BE EQUIPPED WITH STOP/SLOW PADDLES FASTENED ON SUPPORT STAFFS. WHEN THE FLAGGING OPERATION IS NOT IN EFFECT, REMOVE TEMPORARY RUMBLE STRIPS PRIOR TO COVERING OR REMOVING ALL ADVANCE SIGNING.

* UTILIZE TEMPORARY RUMBLE STRIPS WHEN FLAGGING OPERATION IS ANTICIPATED TO BE STATIONARY IN EXCESS OF TWO HOURS.

(1) FOR A MOVING WORK OPERATION, SIGNING AND TEMPORARY RUMBLE STRIPS (IF USED) SHALL BE REESTABLISHED (AS SIMULTANEOUSLY AS PRACTICAL) AT APPROXIMATELY 3,500 FOOT INTERVALS IN THE MOVING WORK OPERATION OR AS APPROVED BY THE ENGINEER.

(2) SIGN NOT REQUIRED IF FLAGGING OPERATION OCCURS WITHIN A SIGNED ROAD WORK ZONE AREA.

(3) EACH TEMPORARY RUMBLE STRIP ARRAY CONSISTS OF THREE RUMBLE STRIPS SPACED ACCORDING TO MANUFACTURER'S RECOMMENDATION, PLACED TRANSVERSE ACROSS THE LANE AT LOCATIONS SHOWN.

TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATION

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
December, 2016 — /S/ Andrew Heldtke
DATE — WORK ZONE ENG
FHWA

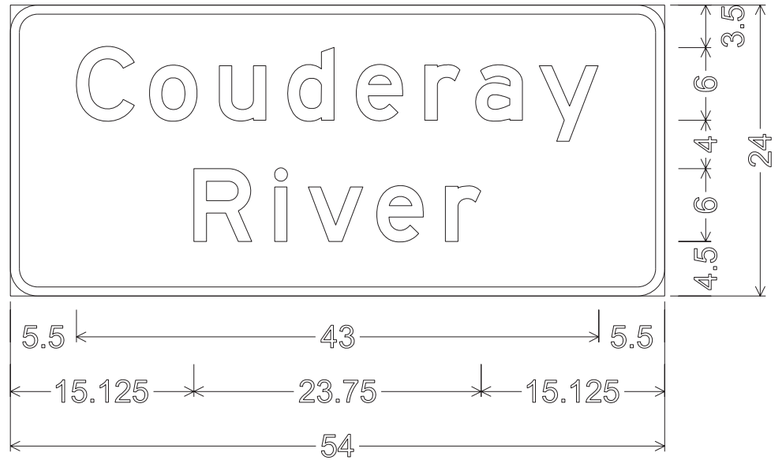
6
S.D.D. 15 C 12-5

NOTES

1. All Signs Type II - Type H Reflective
2. Color:
   Background - GREEN
   Message - WHITE
3. Message Series - E

4

7



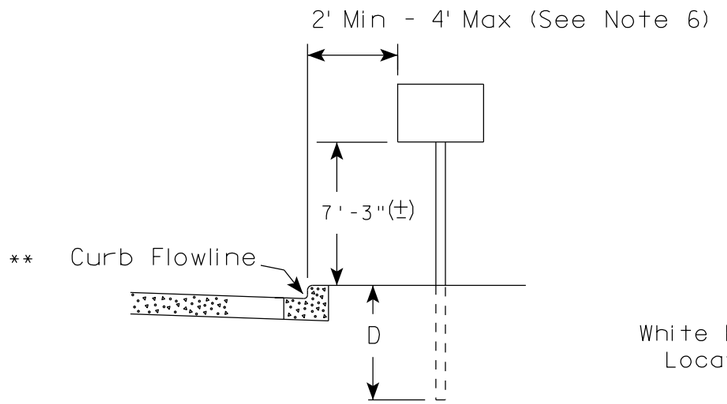
I3-1;
2.250" Radius, 0.750" Border

7

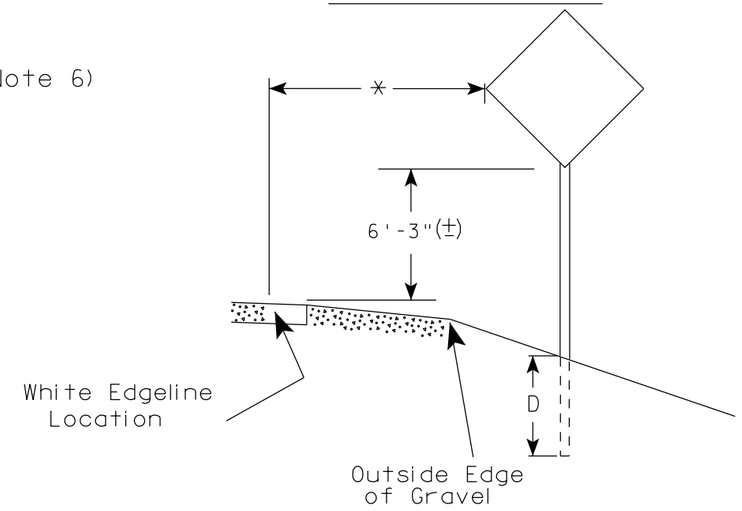
7

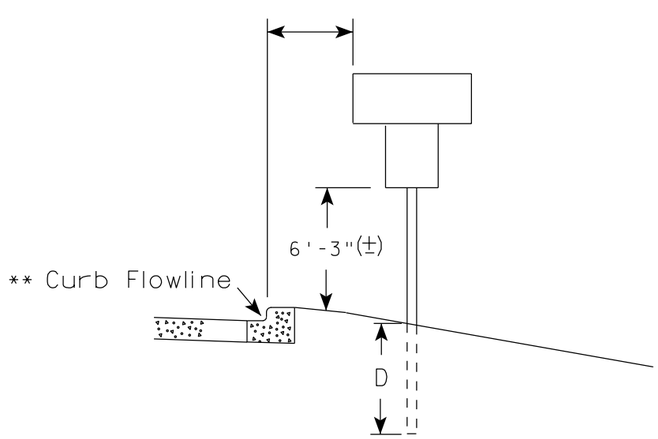
PROJECT NO: 8590-01-76	HWY: STH 40	COUNTY: SAWYER	SIGN DETAIL		SHEET 69	E

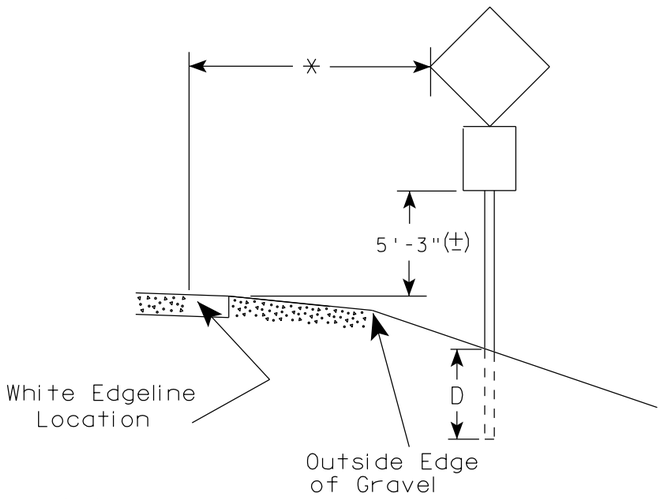
URBAN AREA



RURAL AREA (See Note 2)







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

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

POST EMBEDMENT DEPTH

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

GENERAL NOTES

1. Signs wider than 4 feet or 20 sq.ft or larger, shall be mounted on multiple posts. Refer to plate A4-4.
2. If signs are mounted on barrier wall, see A4-10 sign plate.
3. For expressways and freeways, mounting height is 7'- 3" (±) or 6'-3" (±) depending upon existence of a sub-sign.
4. Minimum mounting height for J assemblies (A2-1S) is 7'-3" (±) or 6'-3" (±) per urban or rural detail respectively.
5. Minimum mounting height for signs mounted on traffic signal poles is 5'- 3" (±).
6. Offset distance shall be consistent with existing signs or consistent throughout length of project.
7. The (±) tolerance for mounting height is 3 inches.
8. Folding signs shall be mounted at a height of 5'-3" (±) or as directd by the Engineer.
9. The Double Arrow sign (W12-1) shall be mounted at a height of 2'-3" (±). The Chevron sign (W1-8), Roundabout Chevron panel (R6-4B), Enhanced Reference Markers, Clearance Markers (W5-52), Mile Markers (D10 series), In Road Object Markers (W5-54) & End of Road Markers (W5-56) shall be mounted at a height of 4'-3" (±).

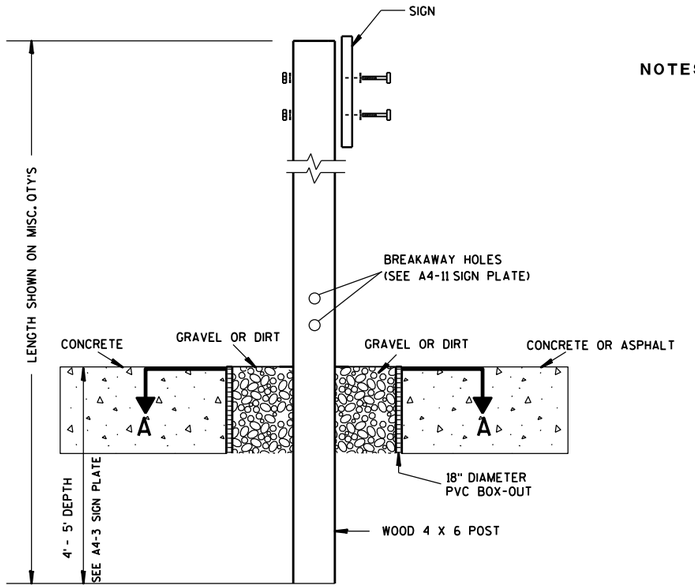
TYPICAL INSTALLATION OF PERMANENT TYPE II SIGNS ON SINGLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

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

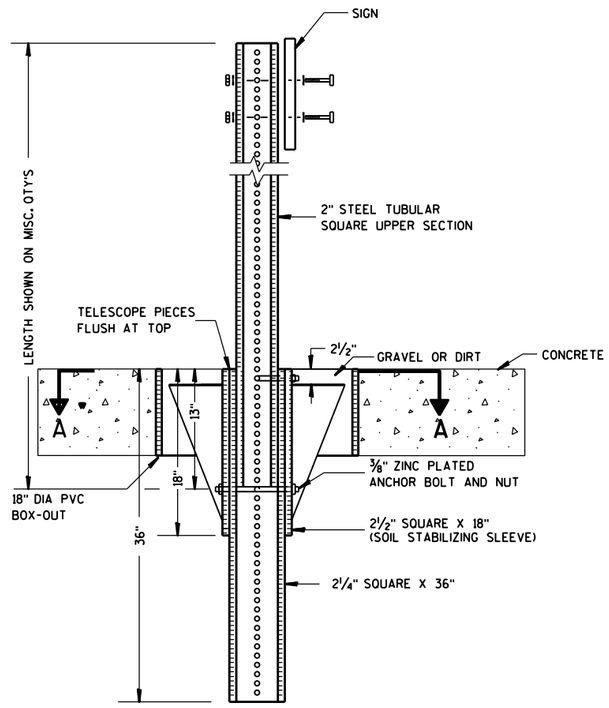
PROJECT NO:	HWY:	COUNTY:		SHEET NO:	E



ELEVATION VIEW

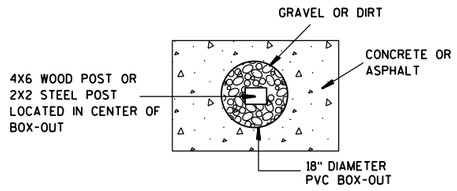
DETAIL OF WOOD 4 X 6 SIGN POST IN BOX-OUT

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



ELEVATION VIEW

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



PLAN VIEW

FOR NEW CONCRETE/ASPHALT INSTALLATIONS

SIGN POST BOX-OUTS A4-3B

WISCONSIN DEPT OF TRANSPORTATION

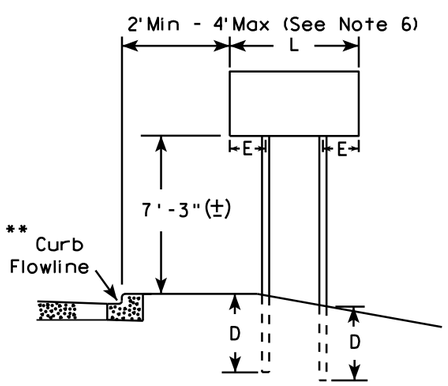
APPROVED Matthew R Rauch
for State Traffic Engineer

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

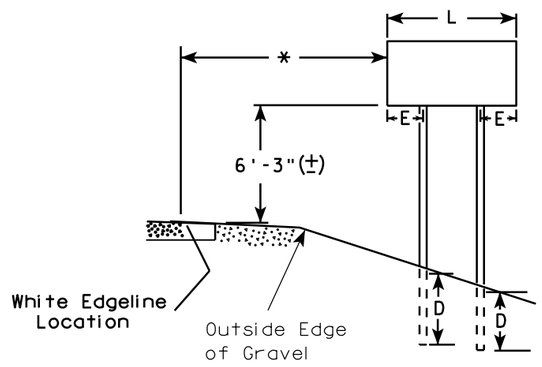
PROJECT NO:	HWY:	COUNTY:		SHEET NO:	E

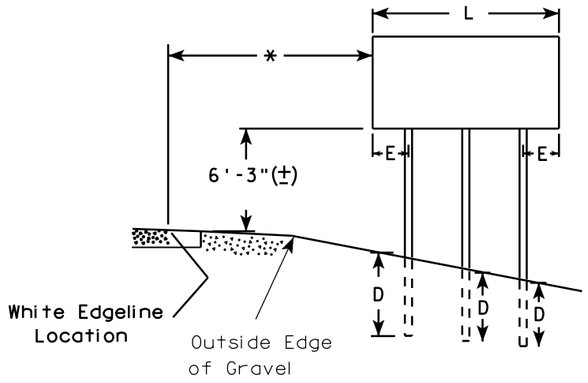
FILE NAME : C:\CAEFiles\Projects\tr_stdplate\A43B.DGN PLOT DATE : 27-JAN-2014 09:48 PLOT BY : mscsja PLOT NAME : PLOT SCALE : 13.659812:1.000000 WISDOT/CADDS SHEET 42

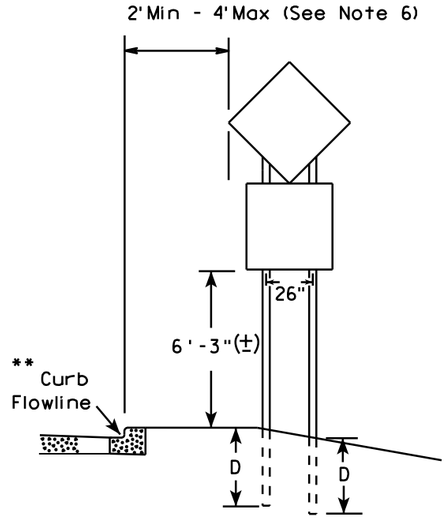
URBAN AREA



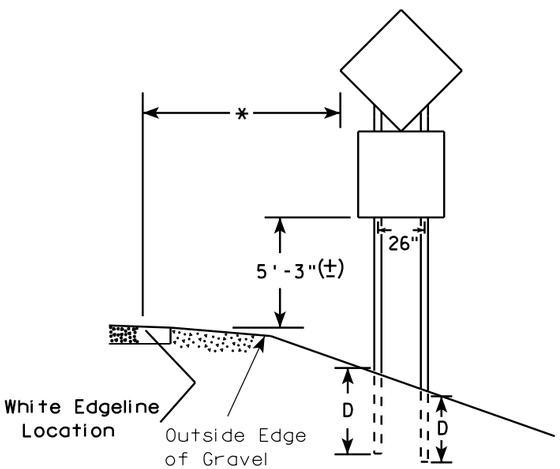
RURAL AREA (See Note 3)







48" DIAMOND WARNING SIGN



48" DIAMOND WARNING SIGN

GENERAL NOTES

1. For 3 or 4 post installations, individual post spacing shall be greater than 3'-6".
2. See tables below for required number of posts.
3. For expressways and freeways, mounting height is 7'-3" (±) or 6'-3" (±) depending upon existence of sub-sign.
4. The (±) tolerance for mounting height is 3 inches.
5. Minimum mounting height for J assemblies (A2-1S) is 7'-3" (±) or 6'-3" (±) per urban or rural detail respectively.
6. Offset distance shall be consistent with existing signs or consistent throughout length of project.
7. Folding signs shall be mounted at a height of 5'-3" (±) or as directed by the engineer.
8. The Double Arrow sign (W12-1) shall be mounted at a height of 2'-3" (±). The Chevron sign (W1-8), Roundabout Chevron panel (R6-4B), Clearance Markers (W5-52), Mile Markers (D10 series), In Road Object Markers (W5-54) & End of Road Markers (W5-56) shall be mounted at a height of 4"-3" (±).

* 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.

** 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.

*** See A4-3 sign plate for signs 4' or less in width and less than 20 S.F. in area.

***

SIGN SHAPE OTHER THAN DIAMOND (TWO POSTS REQUIRED)	
L	E
Greater than 48" Less than 60"	12"
60" to 120"	L/5

SIGN SHAPE OTHER THAN DIAMOND (THREE POSTS REQUIRED)	
L	E
Greater than 120" less than 168"	12"

SIGN SHAPE OTHER THAN DIAMOND (FOUR POSTS REQUIRED)	
L	E
168" and greater	12"

POST EMBEDMENT DEPTH

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

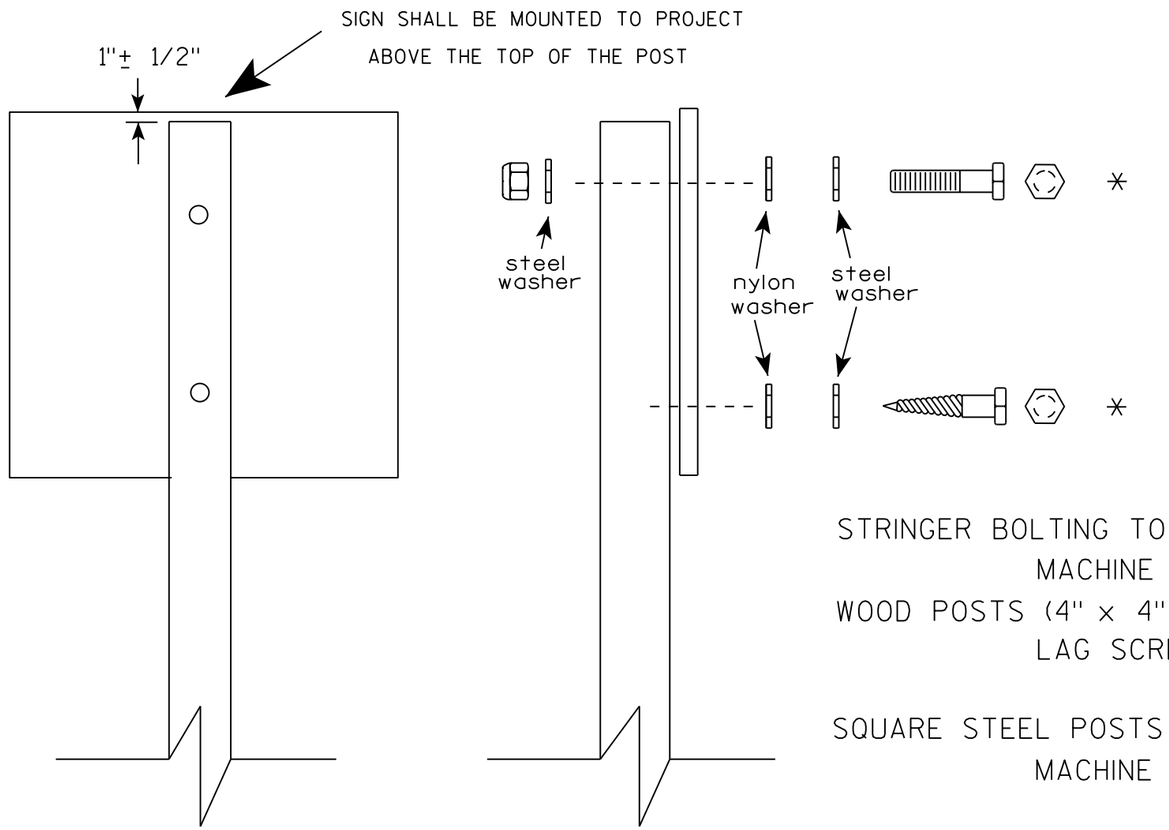
TYPICAL INSTALLATION OF TYPE II SIGNS ON MULTIPLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 7/23/15 PLATE NO. A4-4 14/72

PROJECT NO:	HWY:	COUNTY:		SHEET NO:	E



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

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

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

STRINGER BOLTING TO ALUMINUM SIGNS (SEE SIGN PLATE A4-18)
MACHINE BOLTS - 5/16" X 1-3/4" Length w/ lock nuts
WOOD POSTS (4" x 4" or 4" x 6")
LAG SCREWS - 3/8" X 3" (NO STRINGERS ON BACK OF SIGN)
3/8" X 4" (STRINGERS ON BACK OF SIGN)
SQUARE STEEL POSTS (2" x 2")
MACHINE BOLTS - 3/8" X 3-1/4" Length w/ nuts (NO STRINGER ON BACK OF SIGN)
3/8" X 5" Length w/ nuts (STRINGERS ON BACK OF SIGN)
RIVETS - 9/32 " (6605-9-6) BULB-TITE, TRI-FOLD, ALUMINUM BODY/MANDREL
O.D. FLANGE .720-.765 INCH, GRIP RANGE .042-.375 INCH
WASHERS (ALL POSTS) -
1-1/4" O.D. X 3/8" I.D. X 1/16" STEEL
1-1/4" O.D. X 3/8" I.D. X .080 NYLON

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

ATTACHMENT OF SIGNS TO POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
For State Traffic Engineer

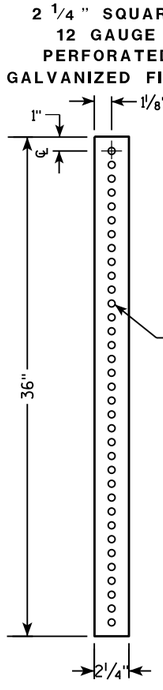
DATE 8/11/16 PLATE NO. A4-8.8

PROJECT NO: SHEET NO: E

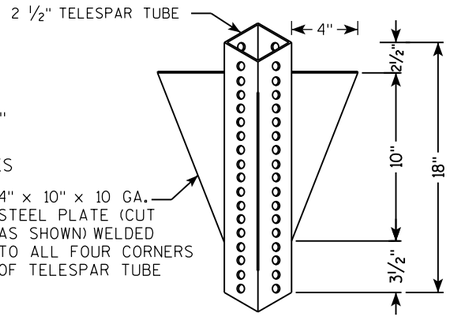
FILE NAME : C:\CADfiles\Projects\tr_stdplate\A48.DGN PLOT DATE : 11-AUG-2016 11:35 PLOT BY : $$ plotuser $$

TELESCOPIC TUBING ANCHORS
TWO PIECE SYSTEM

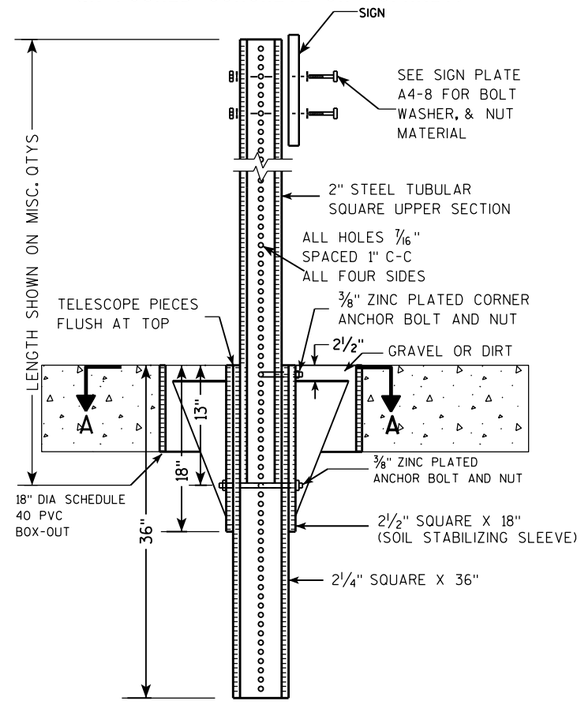
2 1/4 " SQUARE
12 GAUGE
PERFORATED
GALVANIZED FINISH



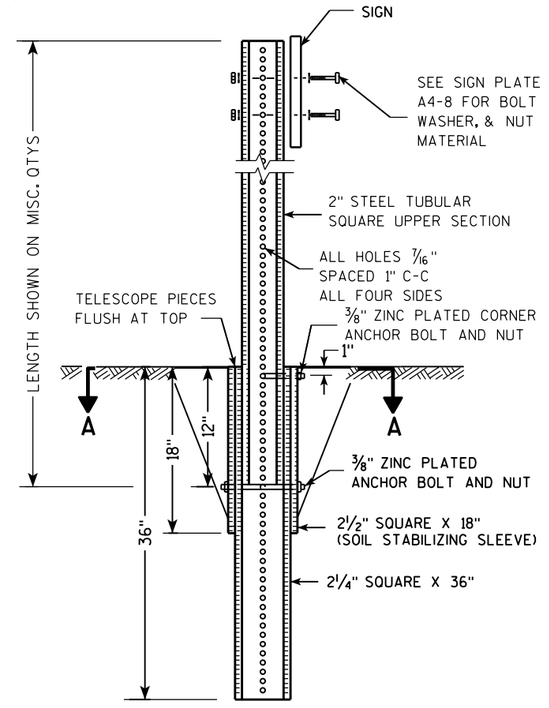
2 1/2 " SQUARE
12 GAUGE
OMNI-DIRECTIONAL
PERFORATED
SOIL STABILIZING SLEEVE
GALVANIZED FINISH

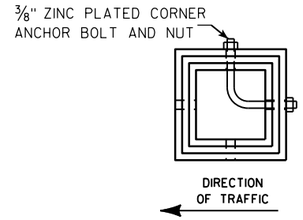


DETAIL OF TUBULAR STEEL SIGN POST
(IN POURED CONCRETE OR ASPHALT)



DETAIL OF TUBULAR STEEL SIGN POST
(IN LOCATIONS OTHER THAN POURED CONCRETE OR ASPHALT)





SECTION A-A

Area of Sign Installation (Sq. Ft.)	Number of Required Posts
9 or less	1
Greater than 9 less than or equal to 18	2
Greater than 18 less than or equal to 27	3

Signs wider than 3 feet or larger than 9 sq. ft shall be mounted on multiple posts (see above table).

TUBULAR STEEL
SIGN POST
A4-9

WISCONSIN DEPT OF TRANSPORTATION

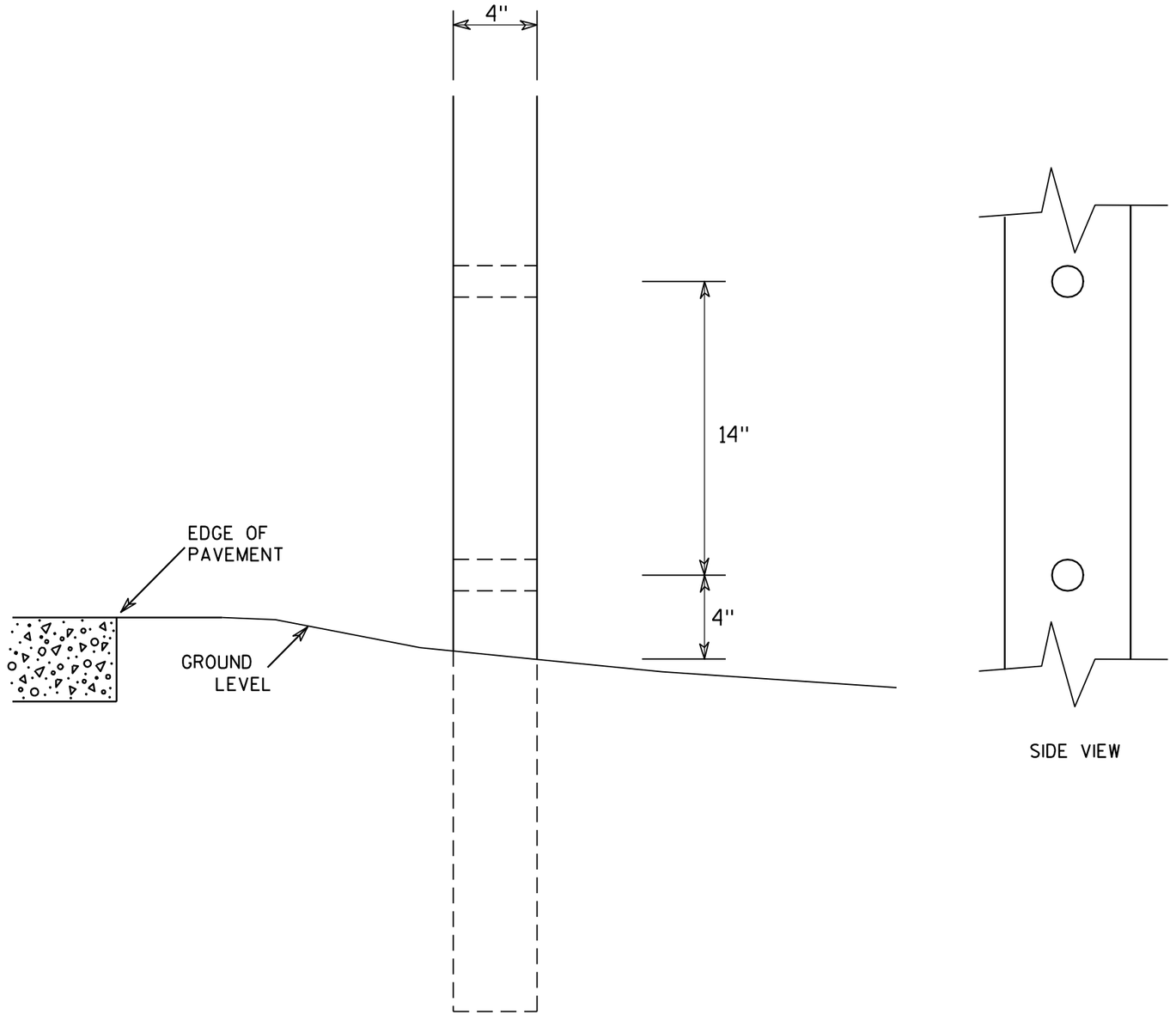
APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 2/05/15 PLATE 74 A4-9.9

PROJECT NO:	HWY:	COUNTY:		SHEET NO:	E

FILE NAME : C:\CAEFiles\Projects\tr_stdplate\A49.DGN PLOT DATE : 05-FEB-2015 17:09 PLOT BY : mscsja PLOT NAME : PLOT SCALE : 13.659812:1.000000

WISDOT/CADDS SHEET 42



SIDE VIEW

GENERAL NOTES

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

7

7

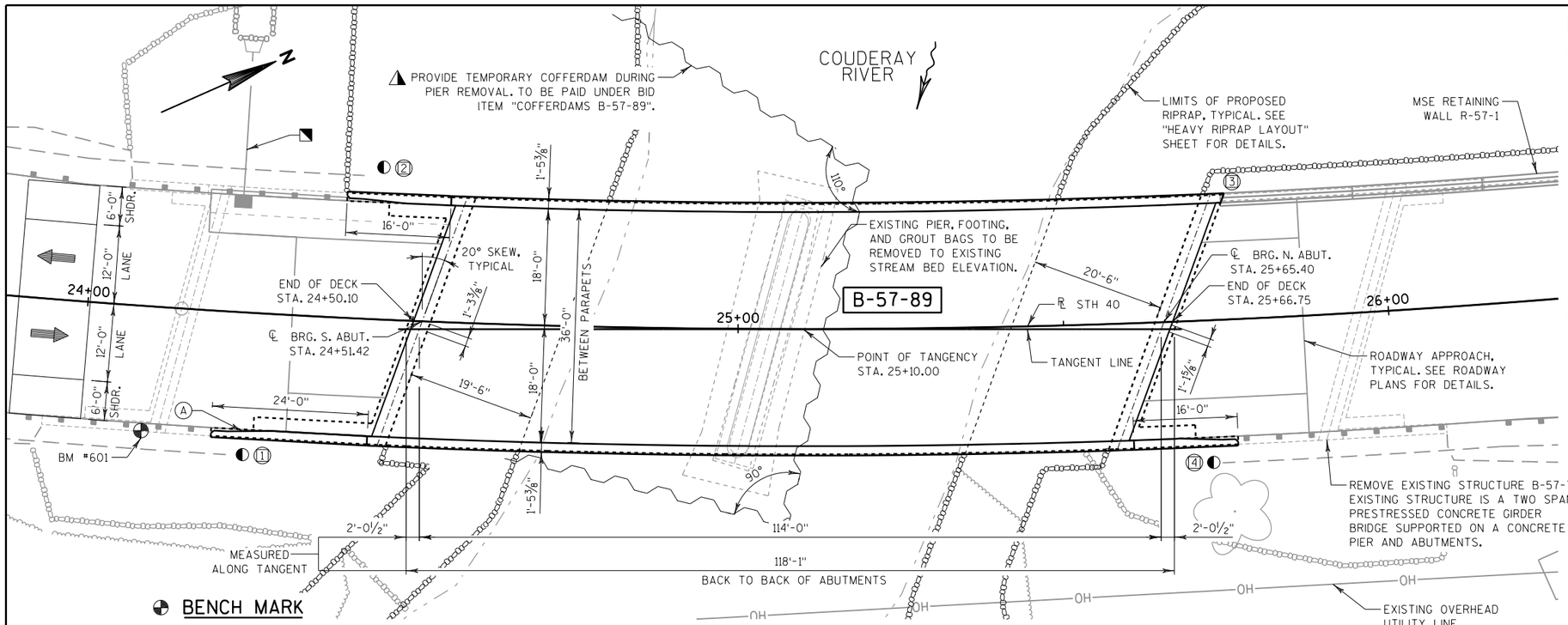
4 X 6 WOOD POST MODIFICATIONS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Chester J Spang for State Traffic Engineer

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

PROJECT NO:	HWY:	COUNTY:		SHEET NO: 75	E

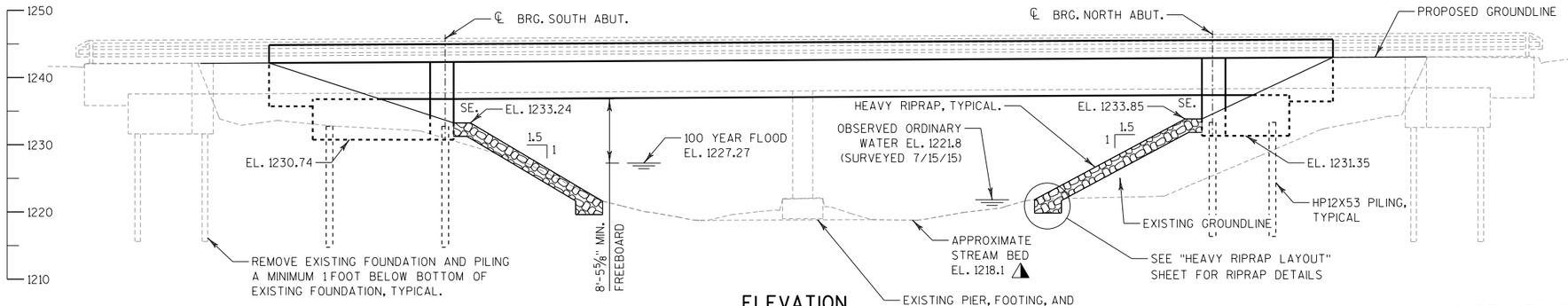


PLAN

SINGLE SPAN 54W" PRESTRESSED GIRDERS

BENCH MARK

NO.	STATION	DESCRIPTION	ELEV.
601	24+09 (RT)	ALUMINIUM DISK IN CONCRETE WINGWALL	1242.09



ELEVATION

(LOOKING UPSTREAM)

NOTES

- (A) NAME PLATE LOCATION
- (X) DENOTES WING NUMBER
- ◐ ANCHOR ASSEMBLY FOR THRIE BEAM TYPE GUARDRAIL
- ◥ DROP INLET SURFACE DRAIN PROVIDED FOR DRAINAGE. SEE ROADWAY SHEETS FOR DETAILS.
- ⚠ EXPOSED BEDROCK OBSERVED IN STREAMBED.

TANGENT OFFSET

LOCATION	TANGENT OFFSET TO ℞ STH 40 ALONG ℄ BRG.
℄ BRG. S. ABUT.	1'-3⅛"
℄ BRG. N. ABUT.	1'-1⅝"

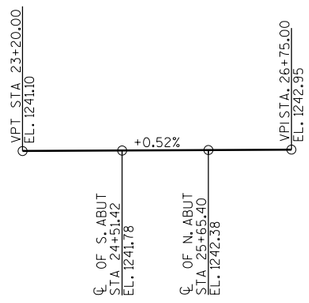
HORIZONTAL ALIGNMENT

℞ STH 40
PI STA= 26+63.63
Y = 347230.59
X = 684312.73
DELTA= 36°23'40"
D = 3°58'08"
T= 474.55'
L= 916.98'
R= 1443.60.'
PC STA.= 21+89.08
PT STA.= 31+06.06
SE = 2.9%

TRAFFIC DATA:

STH 40:

ADT = 1,390 (2017)
ADT = 1,590 (2037)
RDS = 35 MPH



PROFILE GRADE LINE - STH 40

WISCONSIN
ANTHONY J. CASTLE
E-43345-6
SOUTH MILWAUKEE, WI
PROFESSIONAL ENGINEER
11/30/16

DESIGN DATA

LIVE LOAD:

DESIGN LOADING: HL-93
INVENTORY RATING: RF = 1.12
OPERATING RATING: RF = 1.85
WISCONSIN STANDARD PERMIT VEHICLE (WIS-SPV): 250 KIPS

STRUCTURE IS DESIGNED FOR A FUTURE WEARING SURFACE OF 20 P.S.F.

MATERIAL PROPERTIES:

CONCRETE MASONRY
SUPERSTRUCTURE ..... f'c = 4,000 psi
ALL OTHER ..... f'c = 3,500 psi

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

54W-INCH PRESTRESSED GIRDERS,
CONCRETE MASONRY ..... f'c = 8,000 psi
..... f'ci = 6,800 psi

0.6" DIA. PRESTRESSING STRANDS .... f's = 270,000 psi

HYDRAULIC DATA:

100 YEAR FREQUENCY

Q(100) = 3600 C.F.S.
VEL. = 9.45 F.P.S.
HW(100) EL. = 1227.27
WATERWAY AREA = 381 SQ. FT.
DRAINAGE AREA = 201 SQ. MI.
ROADWAY OVERTOPPING FREQUENCY = N/A
SCOUR CRITICAL CODE = 8

2 YEAR FREQUENCY

Q(2) = 1544 C.F.S.
VEL. = 7.32 F.P.S.
HW(2) EL. = 1224.05

FOUNDATION DATA:

ABUTMENTS TO BE SUPPORTED ON HP 12X53 PILING DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 220 TONS * PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC EQUATION. ESTIMATED 15 FEET LONG AT NORTH ABUTMENT AND 16 FEET LONG AT SOUTH ABUTMENT.

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

LIST OF DRAWINGS

STRUCTURE DESIGN CONTACTS

BRIDGE OFFICE: WILLIAM DREHER (608) 266-8489
CONSULTANT: MIKE RADTKE (414) 347-1607

STATE PROJECT NUMBER

8590-01-76

NO.	DATE	REVISION	BY

emcs LLC
1300 W. Canal Street, Suite 200
Milwaukee, WI 53233
414.347.1607 Fax 414.347.1347

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

ACCEPTED William C. Dreher SDR 02/20/17
CHIEF STRUCTURES DESIGN ENGINEER — DATE

STRUCTURE B-57-89

STH 40 OVER COUDERAY RIVER

COUNTY	TOWN
SAWYER	RADISSON

DESIGN SPEC. AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS

DESIGNED BY	DESIGN CK'D.	DRAWN BY	PLANS CK'D.
AJC	MDR	AJC	MDR

GENERAL PLAN & ELEVATION

SHEET 1 OF 18
76

8

8

FILE NAME : P:\49xx\4917.DP.15.STH40.SAW\09 STRUCTURES\B-57-89 - STH 40 over Couderay River\Plan\080101_gp.dgn

PLOT DATE : 11/30/2016

PLOT BY : ajc

STATE PROJECT NUMBER

8590-01-76

TOTAL ESTIMATED QUANTITIES

BID ITEM NO.	BID ITEMS	UNIT	SOUTH ABUT.	NORTH ABUT.	SUPER	TOTAL
203.0600.S	REMOVING OLD STRUCTURE OVER WATERWAY WITH MINIMAL DEBRIS 24+50	LS	-	-	-	1
206.1000	EXCAVATION FOR STRUCTURES BRIDGES B-57-89	LS	-	-	-	1
206.5000	COFFERDAMS B-57-89	LS	-	-	-	1
210.1500	BACKFILL STRUCTURE TYPE A	TON	1800	1650	-	3450
502.0100	CONCRETE MASONRY BRIDGES	CY	60	40	203	303
502.3200	PROTECTIVE SURFACE TREATMENT	SY	-	-	467	467
502.3210	PIGMENTED SURFACE SEALER	SY	17	7	98	122
503.0155	PRESTRESSED GIRDER TYPE I 54W-INCH	LF	-	-	575	575
505.0400	BAR STEEL REINFORCEMENT HS STRUCTURES	LB	3950	2910	-	6860
505.0600	BAR STEEL REINFORCEMENT HS COATED STRUCTURES	LB	4020	1430	35170	40620
506.2605	BEARING PADS ELASTOMERIC NON-LAMINATED	EACH	5	5	-	10
506.4000	STEEL DIAPHRAGMS B-57-89	EACH	-	-	8	8
516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	14	10	-	24
550.0500	PILE POINTS	EACH	10	9	-	19
550.1120	PILING STEEL HP 12-INCH X 53 LB	LF	180	155	-	335
606.0300	RIPRAP HEAVY	CY	505	750	-	1255
612.0206	PIPE UNDERDRAIN UNPERFORATED 6-INCH	LF	34	34	-	68
612.0406	PIPE UNDERDRAIN WRAPPED 6-INCH	LF	68	52	-	120
614.0150	ANCHOR ASSEMBLIES FOR STEEL PLATE BEAM GUARD	EACH	2	1	-	3
645.0115	GEOTEXTILE TYPE ES	SY	270	255	-	525
645.0120	GEOTEXTILE TYPE HR	SY	370	570	-	940
	NON-BID ITEMS					
	FILLER	SIZE	-	-	-	1/2" & 3/4"

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

ALL DIMENSIONS ARE IN FEET AND INCHES UNLESS OTHERWISE NOTED.

ALL STATIONS AND ALL ELEVATIONS ARE IN FEET. ELEVATIONS ARE REFERENCED TO THE NAVD 88 DATUM.

ELASTOMERIC BEARING PADS NEED NOT BE INDIVIDUALLY MOLDED PROVIDED THE CUT EDGES ARE SMOOTH AND TRUE.

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

ALL REINFORCING BARS ARE ENGLISH DESIGNATION AND THE FIRST DIGIT OF A 3-DIGIT BAR MARK OR FIRST TWO DIGITS OF A 4-DIGIT BAR MARK SIGNIFY THE BAR SIZE.

BEVEL EXPOSED EDGES OF CONCRETE ¾" UNLESS OTHERWISE NOTED.

THE EXISTING GROUNDLINE SHALL BE THE UPPER LIMITS OF "EXCAVATION FOR STRUCTURES B-57-89".

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

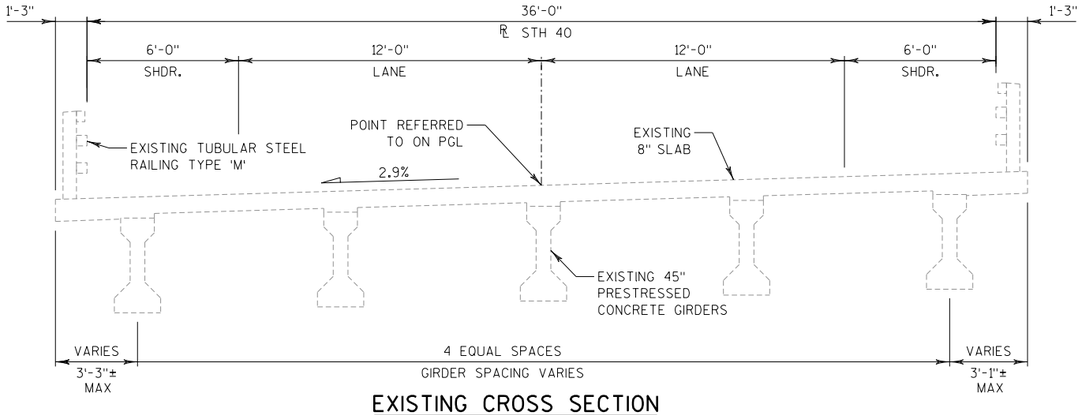
THE HAUNCH CONCRETE QUANTITY IS BASED ON THE AVERAGE HAUNCH SHOWN ON THE PRESTRESSED GIRDER DETAILS SHEET.

THE SLOPE OF THE FILL IN FRONT OF THE ABUTMENTS SHALL BE COVERED WITH HEAVY RIPRAP AND GEOTEXTILE TYPE 'HR' TO THE EXTENT SHOWN ON SHEET 18 AND IN THE ABUTMENT DETAILS.

EXISTING BRIDGE B-57-72 IS A TWO SPAN PRESTRESSED CONCRETE GIRDER BRIDGE WITH AN OVERALL WIDTH OF 38'-6" AND AN OVERALL LENGTH OF 180'-0" AND IS TO BE REMOVED PRIOR TO CONSTRUCTION OF NEW STRUCTURE. THE EXISTING PIER SHIFTED FROM ITS ORIGINAL CONSTRUCTION LOCATION.

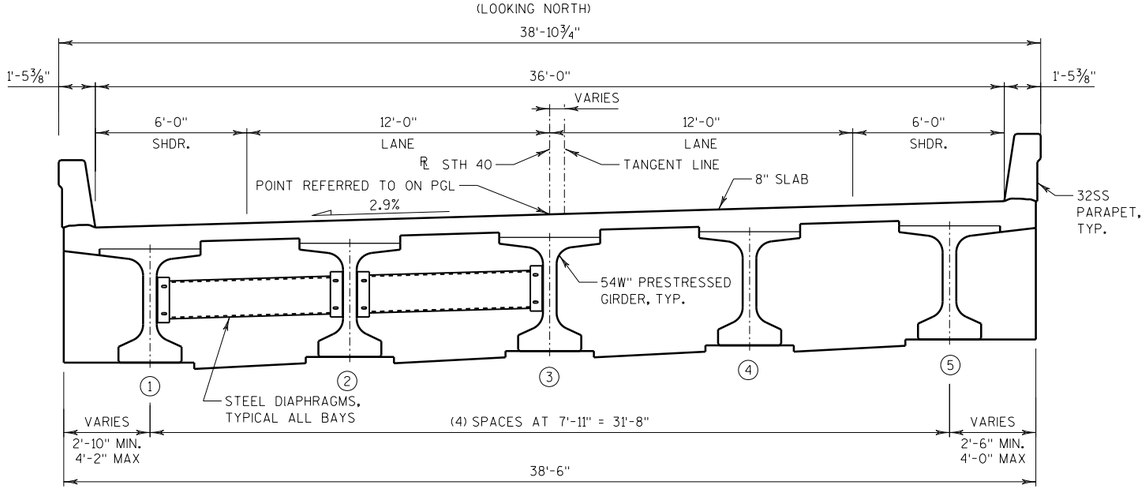
APPLY PROTECTIVE SURFACE TREATMENT TO TOP OF BRIDGE DECK AND ALL FACES OF PAVING NOTCH. APPLY PIGMENTED SURFACE SEALER TO THE TOP AND INSIDE FACES OF PARAPETS.

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

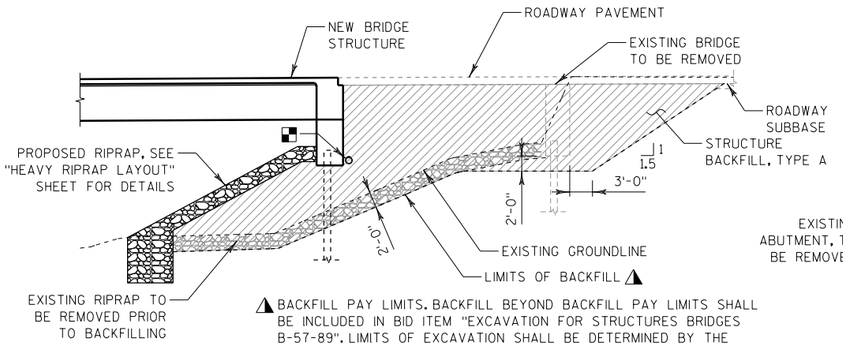


EXISTING CROSS SECTION

(LOOKING NORTH)



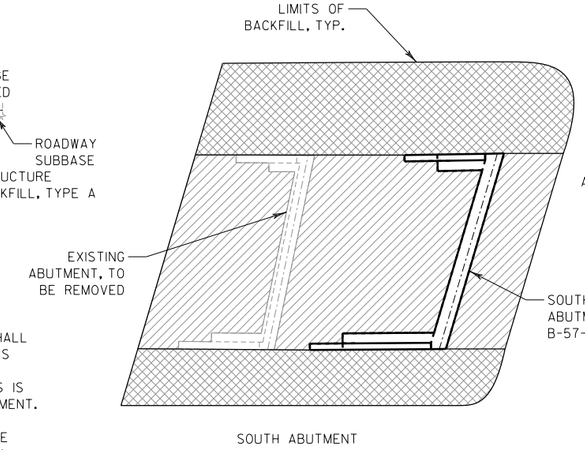
PROPOSED CROSS SECTION

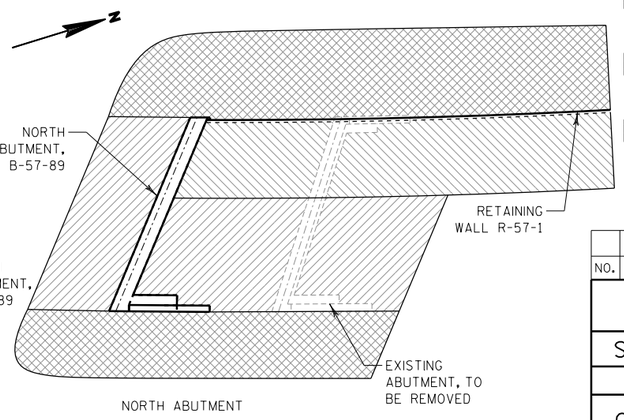


⚠ BACKFILL PAY LIMITS. BACKFILL BEYOND BACKFILL PAY LIMITS SHALL BE INCLUDED IN BID ITEM "EXCAVATION FOR STRUCTURES BRIDGES B-57-89". LIMITS OF EXCAVATION SHALL BE DETERMINED BY THE CONTRACTOR. AVERAGE BACKFILL AREA ASSUMED FOR QUANTITIES IS 600 SF AT SOUTH ABUTMENT AND 617 SF AT THE NORTH ABUTMENT.

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

TYPICAL SECTION THRU ABUTMENT





PLAN VIEW AT ABUTMENTS

(LOOKING NORTH)

▨ AREA TO BE BACKFILLED WITH STRUCTURAL BACKFILL TO BE PAID UNDER BID ITEM, "BACKFILL STRUCTURE TYPE A"

▨ AREA TO BE BACKFILLED WITH ROADWAY FILL TO BE PAID UNDER ROADWAY BID ITEMS. SEE ROADWAY PLANS FOR DETAILS.

▨ AREA TO BE BACKFILLED WITH MSE BACKFILL TO BE PAID UNDER BID ITEM, "WALL CONCRETE PANEL MECHANICALLY STABILIZED EARTH LRFD/OMP". SEE R-57-1 PLANS FOR DETAILS.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-57-89

DRAWN BY AJC | PLANS CK'D. MDR

CROSS SECTION AND QUANTITIES

SHEET 2 OF 18
77

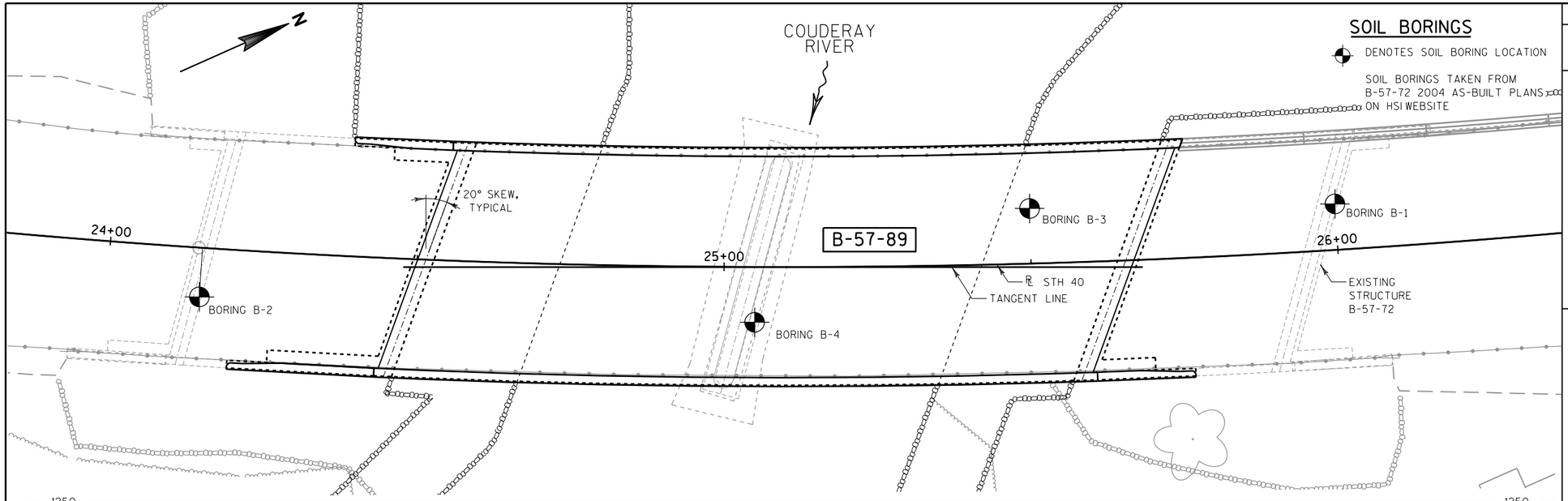
8

8

FILE NAME : P:\49xx\4917.DP.15.STH40.SAW\09 STRUCTURES\B-57-89 - STH 40 over Couderay River\Plan\080102_ts.dgn

PLOT DATE : 11/29/2016

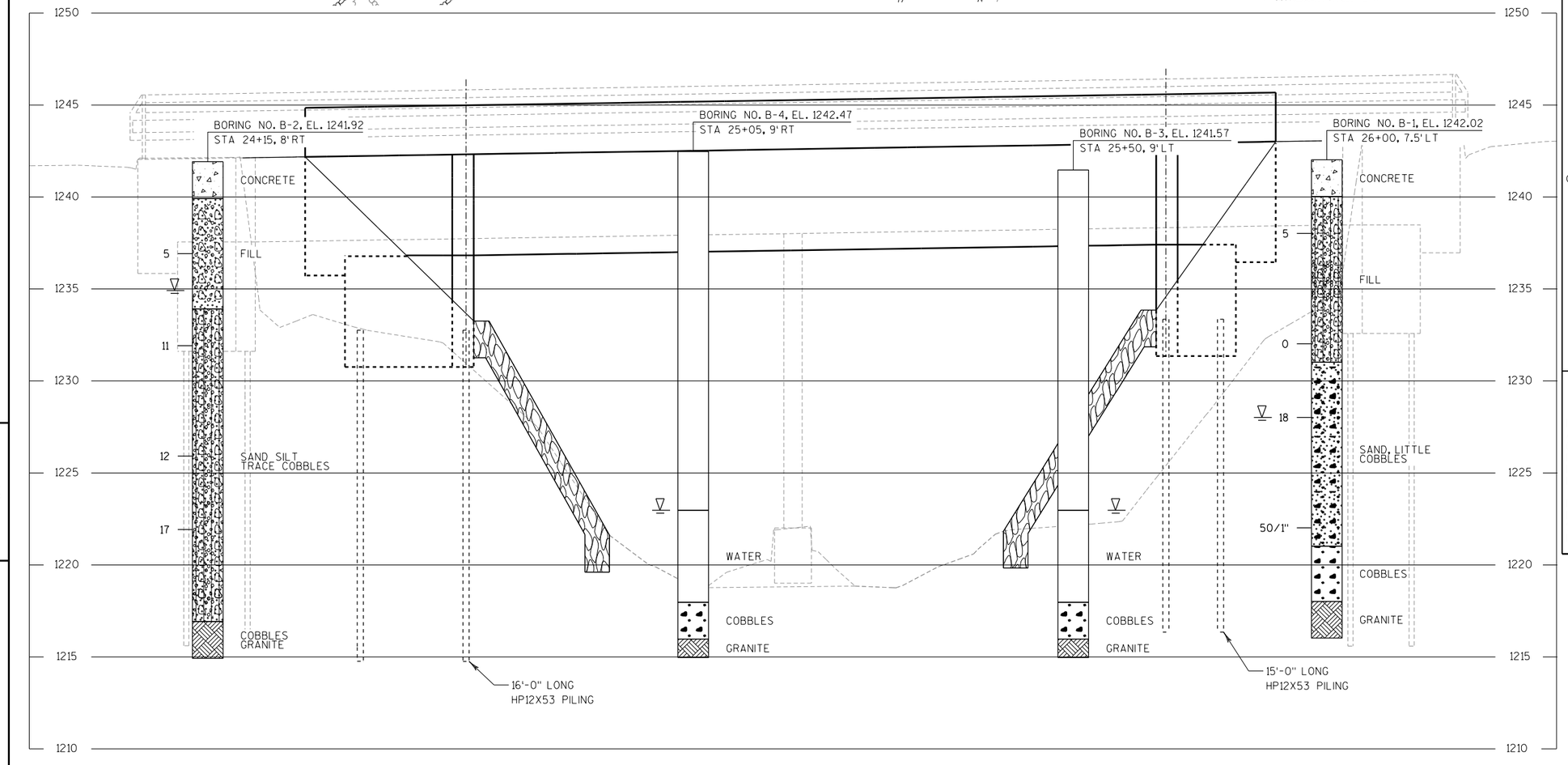
PLOT BY : ajc



SOIL BORINGS

DENOTES SOIL BORING LOCATION

SOIL BORINGS TAKEN FROM B-57-72 2004 AS-BUILT PLANS ON HSI WEBSITE



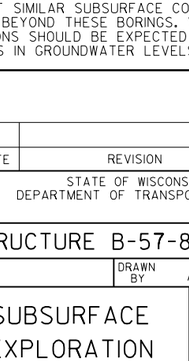
STATE PROJECT NUMBER

8590-01-76

MATERIAL SYMBOLS

ASPHALT	TOPSOIL	PEAT
CONCRETE	FILL	GRAVEL
SAND	CLAY	SILT
BOULDERS OR COBBLES	LIMESTONE	BEDROCK (UNKNOWN)
SHALE	SANDSTONE	IGNEOUS/ META

LEGEND OF BORING



(1) UNCONFINED STRENGTH, AS DETERMINED BY A POCKET PENETROMETER (TSF)

(2) UNLESS OTHERWISE, SPECIFIED THE SPT 'N' VALUE IS BASED ON AASHTO T-206, STANDARD PENETRATION TEST. THE SPT 'N' VALUE PRESENTED HAS NOT BEEN CORRECTED FOR OVERBURDEN PRESSURE OR HAMMER EFFICIENCY.

GROUND WATER ELEVATION

- AT TIME OF DRILLING
- END OF DRILLING
- AFTER DRILLING

ABBREVIATIONS

F-FINE M-MEDIUM C-COARSE ST-SHELBY TUBE

SUBSURFACE EXPLORATION FOR FOUNDATION DESIGN AND BIDDERS INFORMATION

BORINGS WERE COMPLETED AT POINTS APPROXIMATELY AS INDICATED ON THIS DRAWING TO OBTAIN INFORMATION CONCERNING THE CHARACTER OF SUBSURFACE MATERIALS FOUND AT THE SITE. BECAUSE THE INVESTIGATED DEPTHS ARE LIMITED AND THE AREA OF THE BORINGS IS VERY SMALL IN RELATION TO THE ENTIRE SITE, THE WISCONSIN DEPARTMENT OF TRANSPORTATION DOES NOT WARRANT SIMILAR SUBSURFACE CONDITIONS BELOW, BETWEEN, OR BEYOND THESE BORINGS. VARIATIONS IN SOIL CONDITIONS SHOULD BE EXPECTED AND FLUCTUATIONS IN GROUNDWATER LEVELS MAY OCCUR.

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STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-57-89

DRAWN BY AJC | PLANS CK'D. MDR

SUBSURFACE EXPLORATION

SHEET 3 OF 18
78

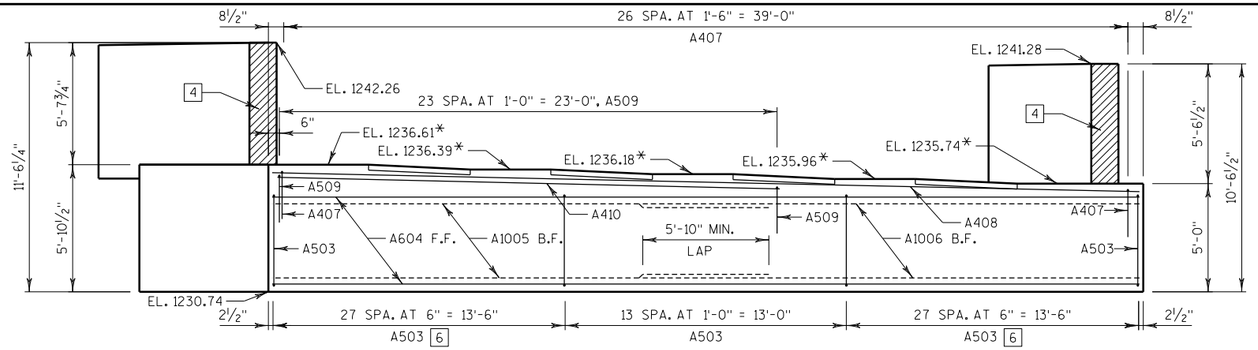
8

8

FILE NAME : P:\49xx\4917.DP.15.STH40.SAW\09 STRUCTURES\B-57-89 - STH 40 over Couderay River\Plan\080103_se.dgn

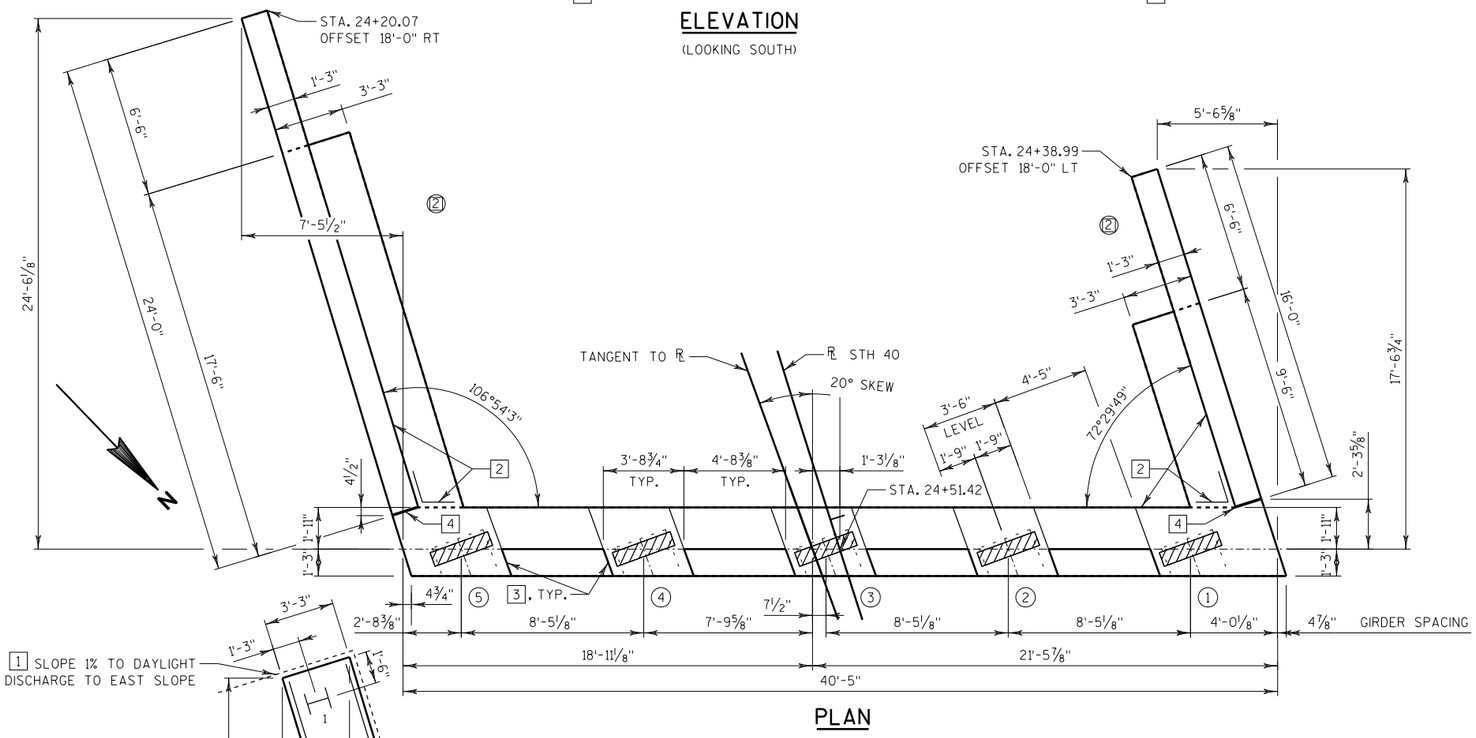
PLOT DATE : 11/29/2016

PLOT BY : ajc

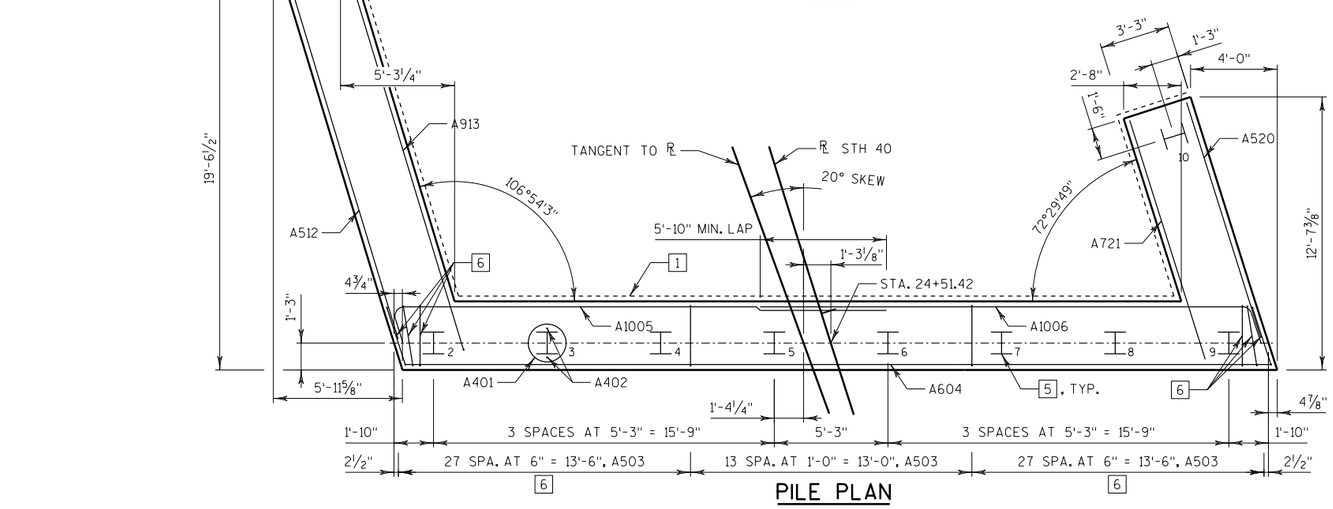


ELEVATION

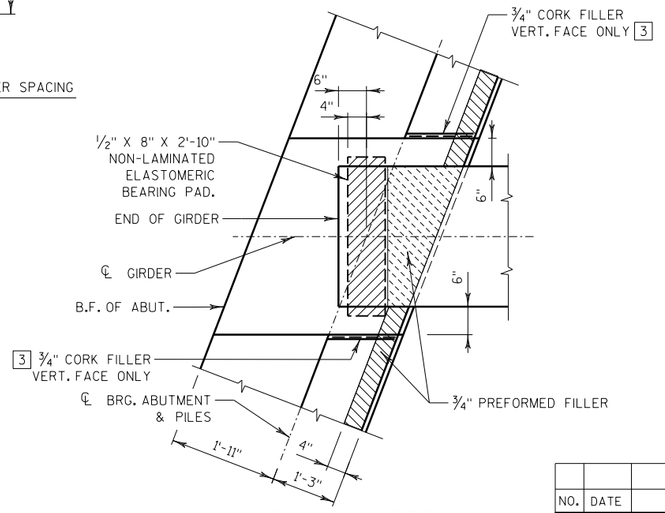
(LOOKING SOUTH)



PLAN



PILE PLAN



BEARING PAD DETAIL

STATE PROJECT NUMBER

8590-01-76

GENERAL NOTES

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

F.F. DENOTES FRONT FACE.

B.F. DENOTES BACK FACE.

SEE SHEET 6 FOR TYPCIAL SECTION OF ABUTMENT.

FOR PILE SPLICE DETAIL SEE SHEET 6.

(X) INDICATES GIRDER NUMBER.

(X) INDICATES WINGWALL NUMBER.

1 INDICATES PILE NUMBER

[1] PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE AS DIRECTED BY THE ENGINEER. ATTACH RODENT SHIELD AT ENDS OF PIPE UNDERDRAIN AS DETAILED ON SHEET 6. RODENT SHIELD TO BE INCLUDED IN BID PRICE OF "PIPE UNDERDRAIN WRAPPED 6-INCH".

[2] 18" RUBBERIZED MEMBRANE WATERPROOFING. SEAL ALL VERTICAL AND HORIZONTAL JOINTS ON BACK FACE.

[3] ¾" CORK FILLER ON VERTICAL BEAM SEAT FACES THAT RUN PARALLEL WITH GIRDER.

[4] ½" FILLER - EXTEND FROM BEAM SEAT TO TOP OF CONCRETE PARAPET. INCLUDED IN WINGWALL LENGTH.

[5] SUPPORT ABUTMENT ON HP 12x53 STEEL PILING, ESTIMATED 16'-0" LONG WITH A REQUIRED DRIVING RESISTANCE OF 220 TONS PER PILE.

[6] ROTATE AND FAN OUT REINFORCING BARS AS NEEDED AT SKEWED ENDS.

* ELEVATIONS AND DIMENSIONS TAKEN AT ℄ OF BRG. & PILES S. ABUT.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-57-89

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SOUTH ABUTMENT

SHEET 4 OF 18
79

8

8

STATE PROJECT NUMBER

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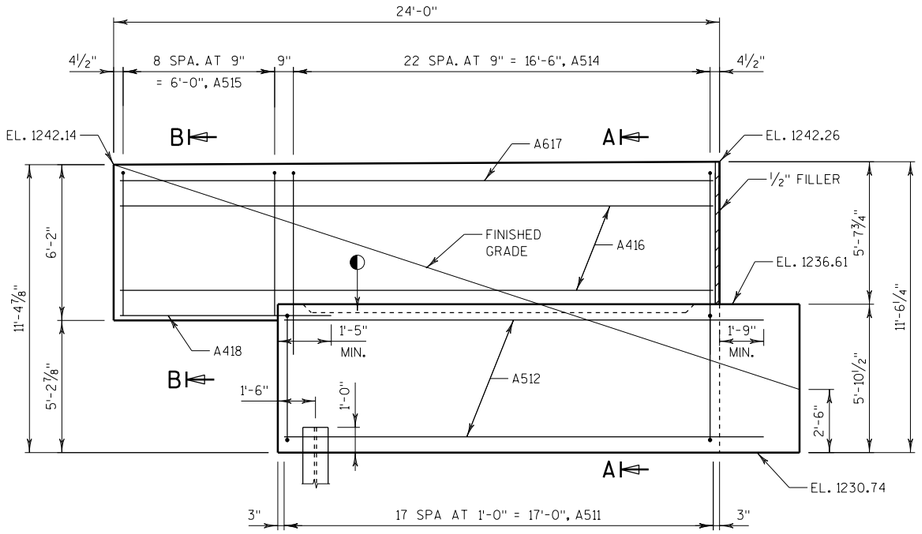
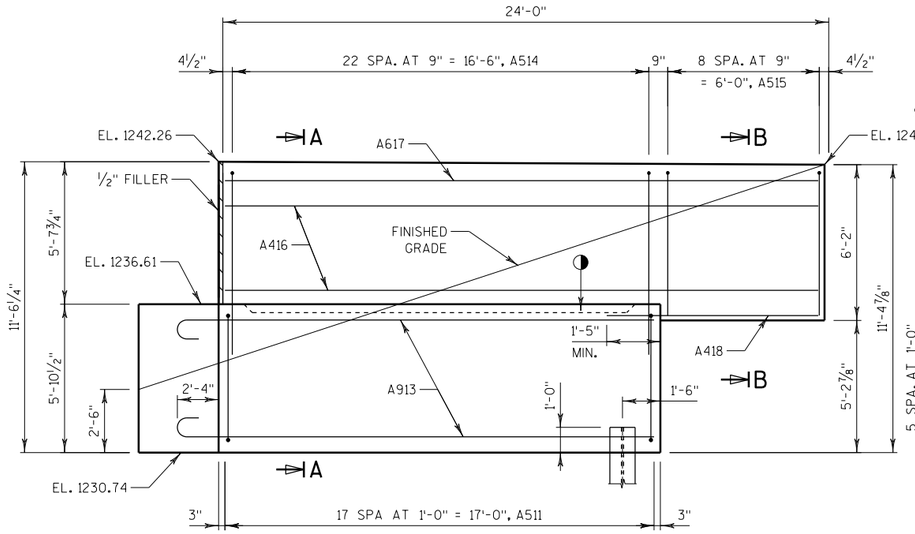


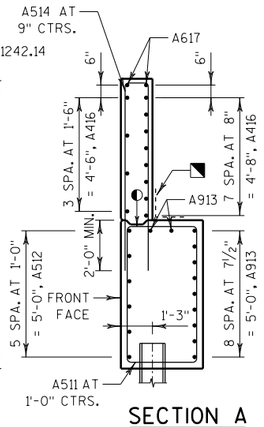
WING 1 ELEVATION

(FRONT FACE)

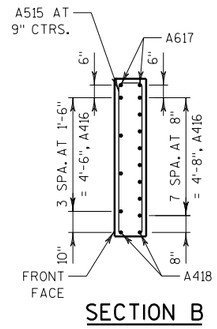


WING 1 ELEVATION

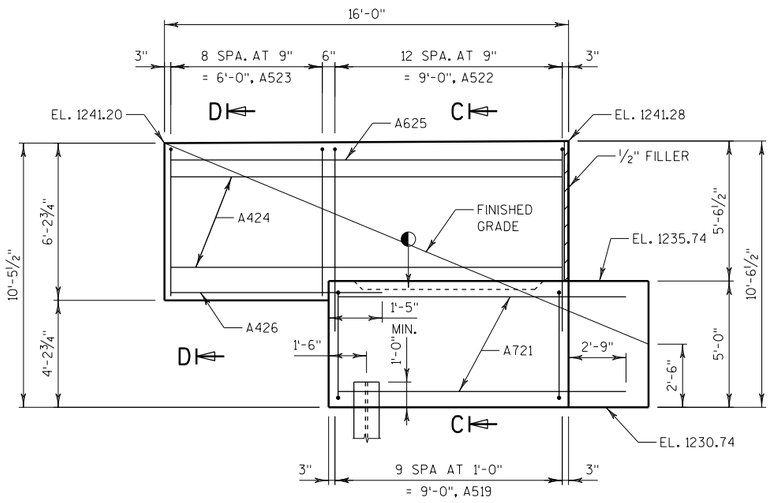
(BACK FACE)



SECTION A

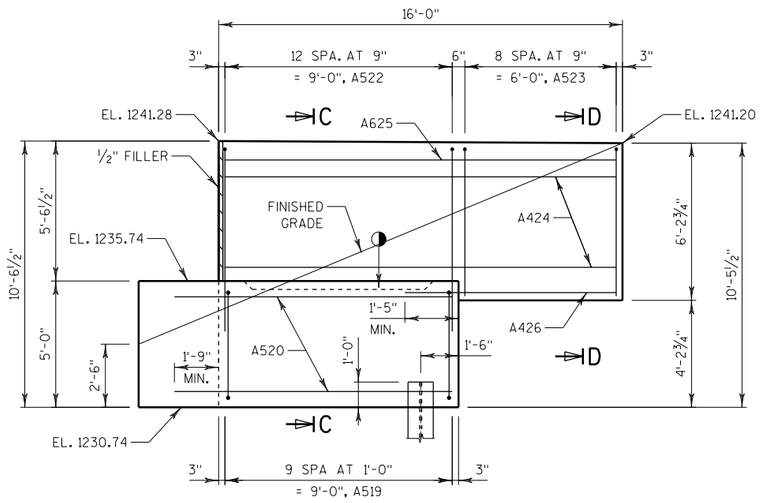


SECTION B



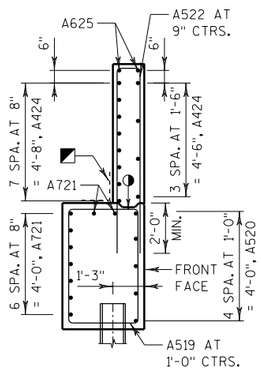
WING 2 ELEVATION

(BACK FACE)

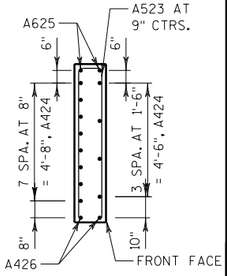


WING 2 ELEVATION

(FRONT FACE)



SECTION C



SECTION D

◐ OPTIONAL KEYED CONST. JOINT - FORMED BY A SURFACE BEVELED 2"x6.

◥ 18" RUBBERIZED MEMBRANE WATERPROOFING. SEAL ALL HORIZ. AND VERT. JOINTS ON BACKFACE OF ABUTMENT

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STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-57-89

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SOUTH ABUTMENT WING DETAILS

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8

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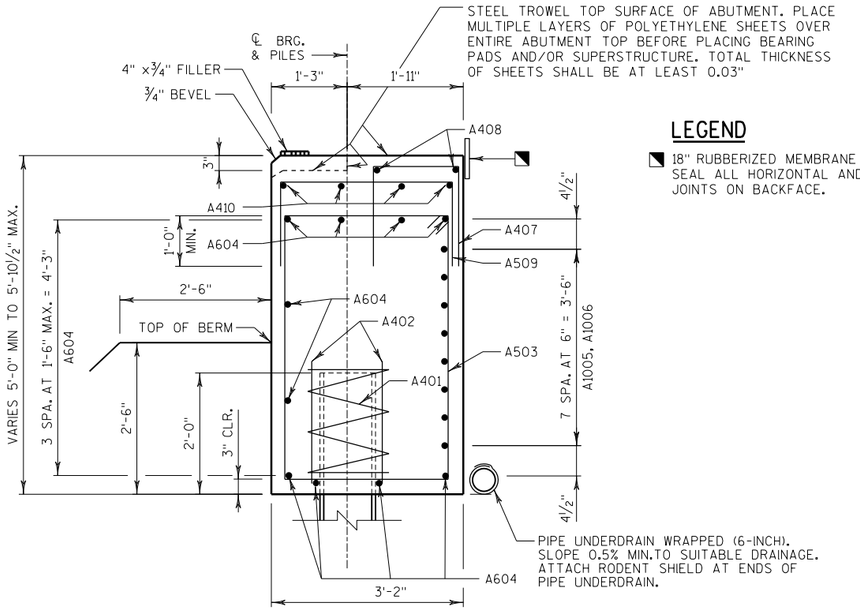


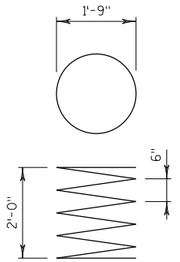
TYPICAL SECTION AT ABUTMENT

LEGEND

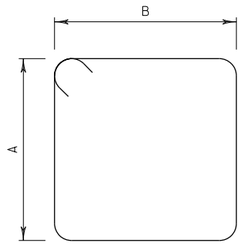
▩ 18" RUBBERIZED MEMBRANE WATERPROOFING. SEAL ALL HORIZONTAL AND VERTICAL JOINTS ON BACKFACE.

SOUTH ABUTMENT BILL OF BARS

BAR MARK	COAT	NO.	LENGTH	BENT	LOCATION
A401		10	28'-0"	X	ABUT. BODY AT PILES
A402		20	2'-3"		ABUT. BODY AT PILES
A503		68	15'-0"	X	ABUT. BODY VERT.
A604		10	40'-1"		ABUT. BODY HORIZ. F.F.
A1005		8	24'-6"	X	ABUT. BODY HORIZ. B.F.
A1006		8	24'-6"	X	ABUT. BODY HORIZ. B.F.
A407		27	5'-3"	X	ABUT. BODY VERT.
A408		2	40'-1"		ABUT. BODY HORIZ.
A509		24	6'-5"	X	ABUT. BODY VERT.
A410		4	23'-0"		ABUT. BODY HORIZ.
A511	X	18	17'-4"	X	WING 1 VERT.
A512	X	6	18'-9"		WING 1 HORIZ. F.F.
A913	X	11	21'-5"	X	WING 1 HORIZ. B.F.
A514	X	23	15'-8"	X	WING 1 VERT.
A515	X	9	12'-2"	X	WING 1 VERT.
A416	X	12	23'-8"		WING 1 HORIZ.
A617	X	2	23'-8"		WING 1 HORIZ.
A418	X	2	7'-9"		WING 1 HORIZ.
A519	X	10	15'-8"	X	WING 2 VERT.
A520	X	5	11'-6"		WING 2 HORIZ. F.F.
A721	X	9	11'-7"		WING 2 HORIZ. B.F.
A522	X	13	15'-4"	X	WING 2 VERT.
A523	X	9	12'-4"	X	WING 2 VERT.
A424	X	12	15'-8"		WING 2 HORIZ.
A625	X	2	15'-8"		WING 2 HORIZ.
A426	X	2	7'-9"		WING 2 HORIZ.

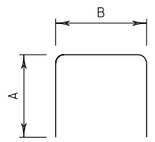


A401

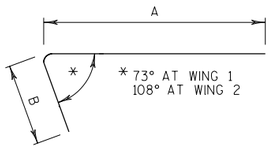


A503, A511, A519

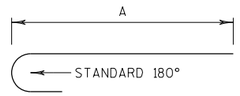
BAR MARK	A	B
A503	4'-4"	2'-10"
A1005	23'-0"	1'-10"
A1006	23'-0"	1'-10"
A407	1'-11"	1'-7"
A509	1'-11"	2'-10"
A511	5'-5"	2'-11"
A913	20'-2"	-
A514	7'-6"	11"
A515	5'-9"	11"
A519	4'-7"	2'-11"
A522	7'-4"	11"
A523	5'-10"	11"



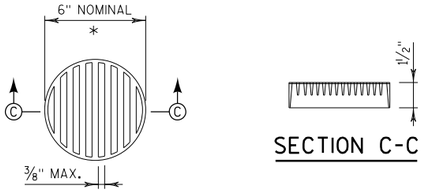
A407, A509, A514, A515, A522, A523



A1005, A1006



A913



RODENT SHIELD

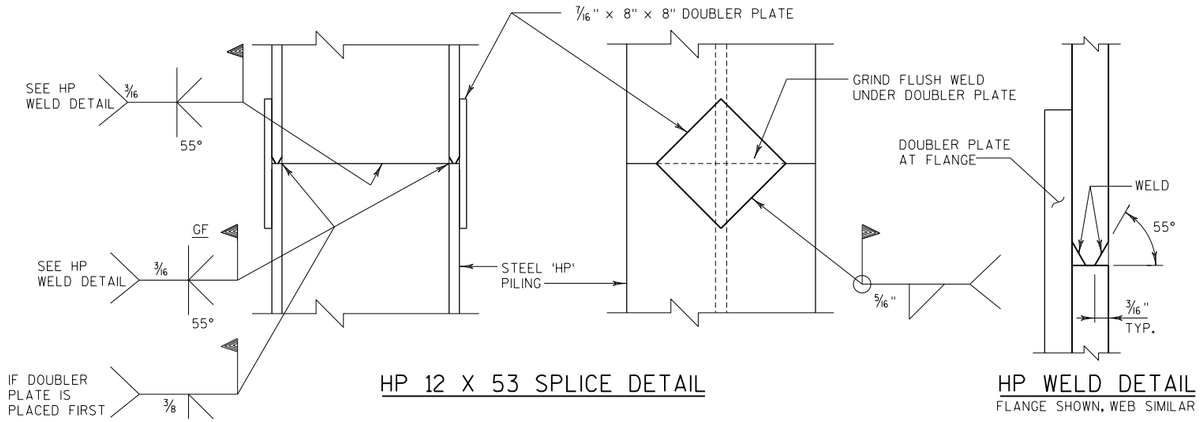
SECTION C-C

NOTES:

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

THE RODENT SCREEN, PIPE COUPLING AND SCREWS SHALL BE INCIDENTAL TO THE BID ITEM "PIPE UNDERDRAIN WRAPPED 6-INCH"

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



HP 12 X 53 SPLICE DETAIL

HP WELD DETAIL
FLANGE SHOWN, WEB SIMILAR

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-57-89

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SOUTH ABUTMENT DETAILS

SHEET 6 OF 18
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STATE PROJECT NUMBER

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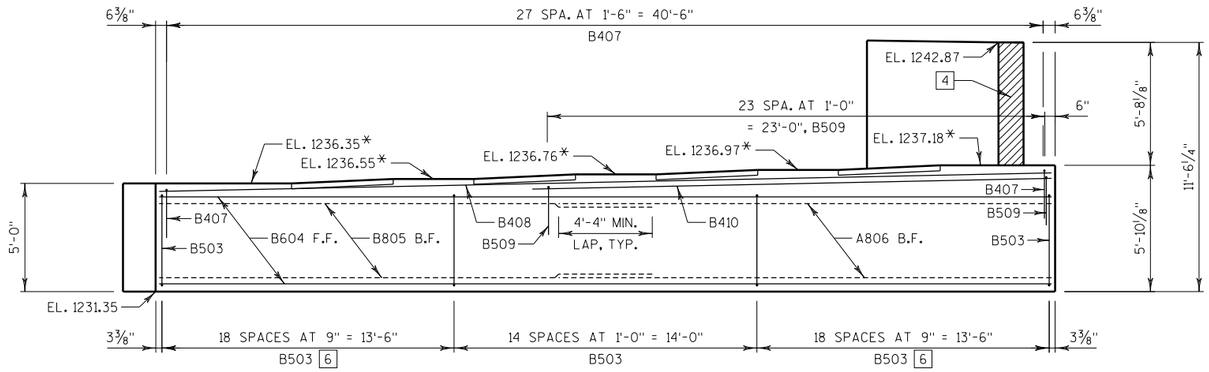
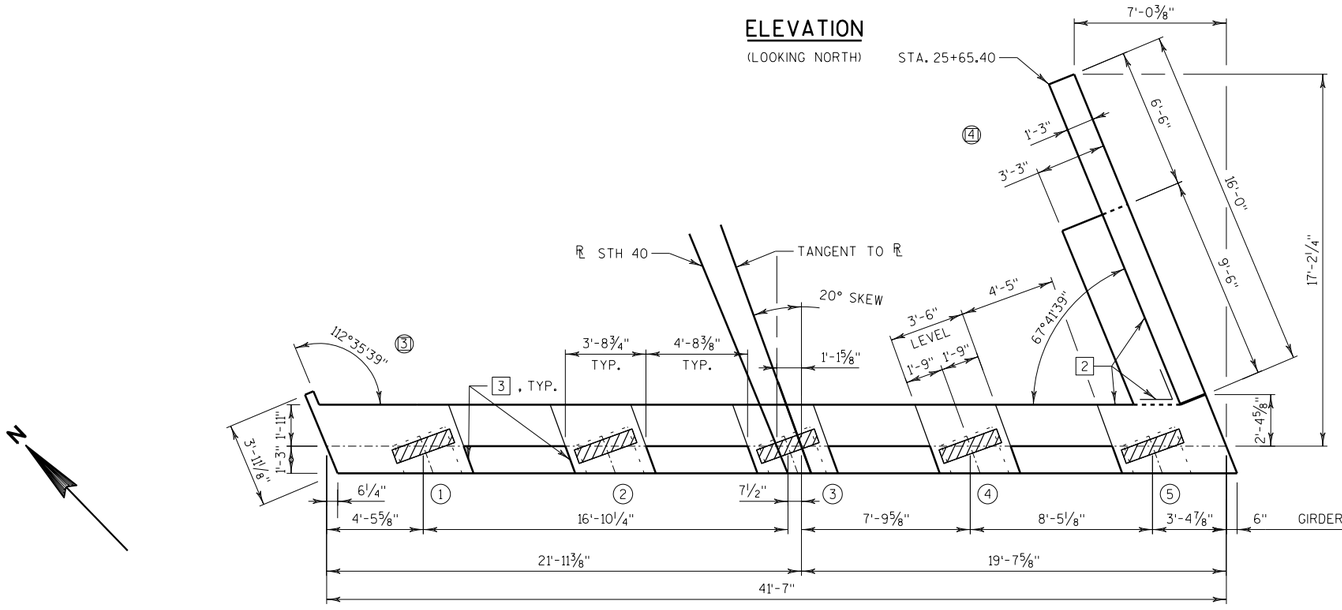
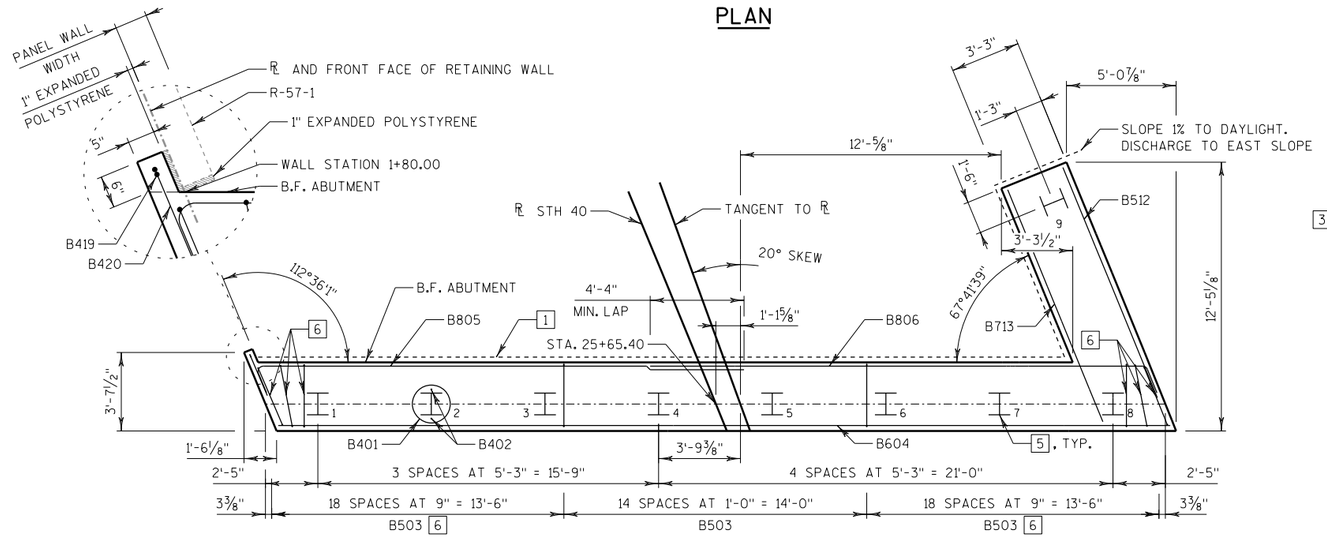


ELEVATION

(LOOKING NORTH)



PLAN



PILE PLAN

GENERAL NOTES

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

F.F. DENOTES FRONT FACE.

B.F. DENOTES BACK FACE.

SEE SHEET 8 FOR TYPCIAL SECTION OF ABUTMENT.

FOR PILE SPLICE DETAIL SEE SHEET 6.

(X) INDICATES GIRDER NUMBER.

(X) INDICATES WINGWALL NUMBER.

1 INDICATES PILE NUMBER

[1] PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE AS DIRECTED BY THE ENGINEER. ATTACH RODENT SHIELD AT ENDS OF PIPE UNDERDRAIN AS DETAILED ON SHEET 6. RODENT SHIELD TO BE INCLUDED IN BID PRICE OF "PIPE UNDERDRAIN WRAPPED 6-INCH".

[2] 18" RUBBERIZED MEMBRANE WATERPROOFING. SEAL ALL VERTICAL AND HORIZONTAL JOINTS ON BACK FACE.

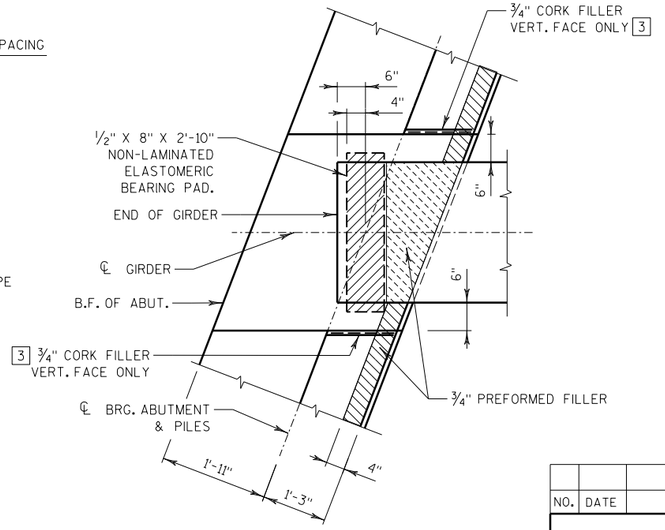
[3] 3/4" CORK FILLER ON VERTICAL BEAM SEAT FACES THAT RUN PARALLEL WITH GIRDER.

[4] 1/2" FILLER - EXTEND FROM BEAM SEAT TO TOP OF CONCRETE PARAPET. INCLUDED IN WINGWALL LENGTH.

[5] SUPPORT ABUTMENT ON HP 12x53 STEEL PILING, ESTIMATED 15'-0" LONG WITH A REQUIRED DRIVING RESISTANCE OF 220 TONS PER PILE.

[6] ROTATE AND FAN OUT REINFORCING BARS AS NEEDED AT SKEWED ENDS.

* ELEVATIONS AND DIMENSIONS TAKEN AT ℄ OF BRG. & PILES S. ABUT.



BEARING PAD DETAIL

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STRUCTURE B-57-89

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NORTH ABUTMENT

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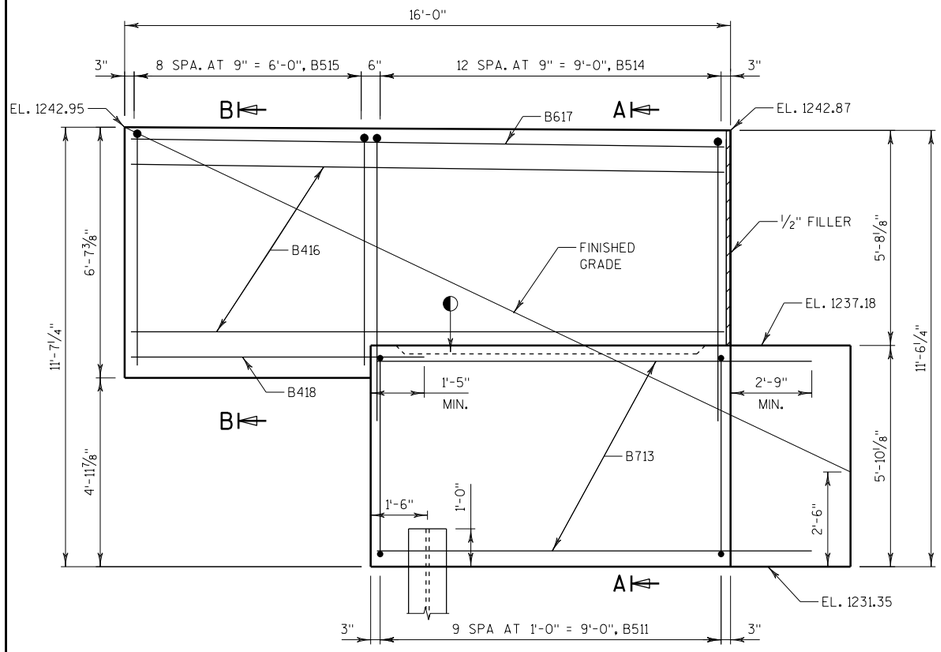
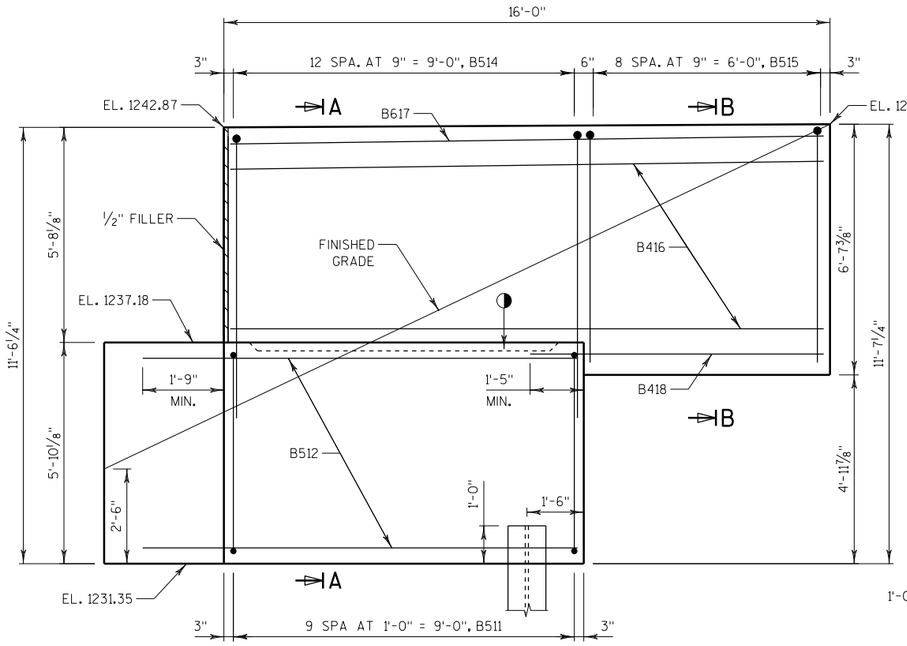


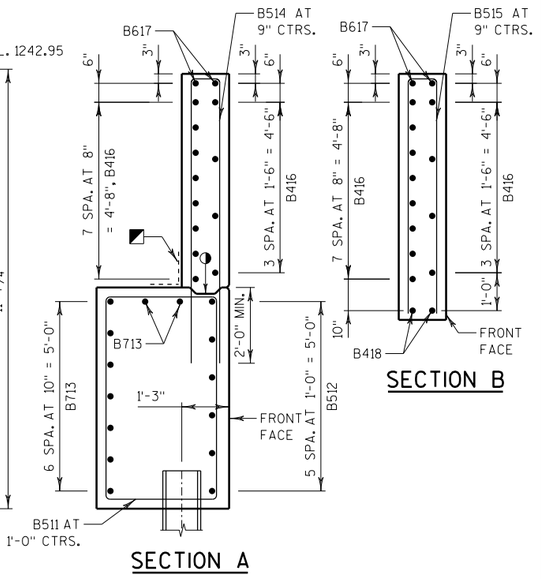
WING 4 ELEVATION

(BACK FACE)



WING 4 ELEVATION

(FRONT FACE)

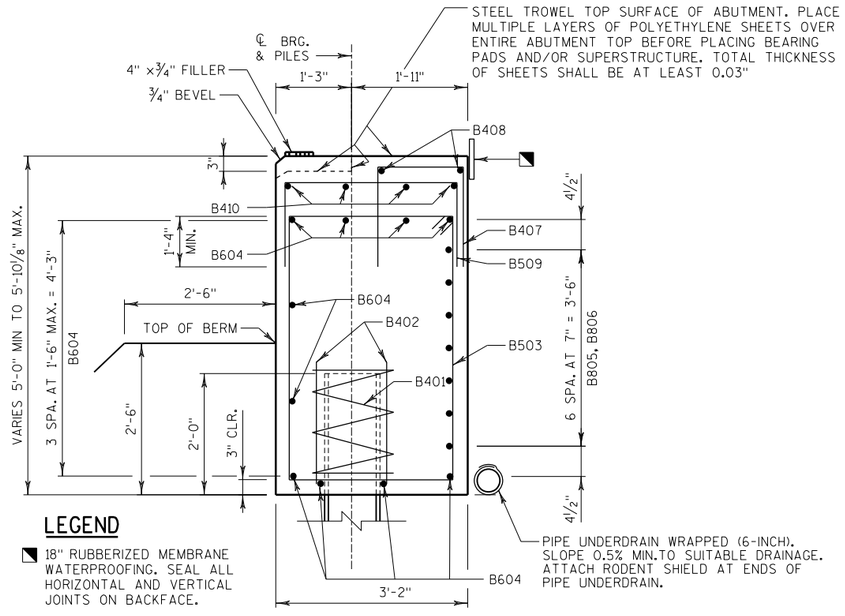


SECTION A

SECTION B

◐ OPTIONAL KEYED CONST. JOINT - FORMED BY A SURFACE BEVELED 2"x6.

◥ 18" RUBBERIZED MEMBRANE WATERPROOFING. SEAL ALL HORIZ. AND VERT. JOINTS ON BACKFACE OF ABUTMENT



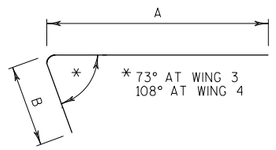
LEGEND

◥ 18" RUBBERIZED MEMBRANE WATERPROOFING. SEAL ALL HORIZONTAL AND VERTICAL JOINTS ON BACKFACE.

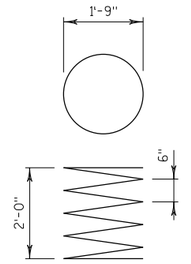
TYPICAL SECTION AT ABUTMENT

NORTH ABUTMENT BILL OF BARS

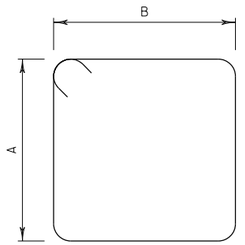
BAR MARK	COAT	NO.	LENGTH	BENT	LOCATION
B401		9	28'-0"	X	ABUT. BODY AT PILES
B402		18	2'-3"		ABUT. BODY AT PILES
B503		51	15'-0"	X	ABUT. BODY VERT.
B604		10	41'-2"		ABUT. BODY HORIZ. F.F.
B805		7	24'-0"	X	ABUT. BODY HORIZ. B.F.
B806		7	24'-0"	X	ABUT. BODY HORIZ. B.F.
B407		28	5'-3"	X	ABUT. BODY VERT.
B408		2	41'-2"		ABUT. BODY HORIZ.
B509		24	6'-5"	X	ABUT. BODY VERT.
B410		4	24'-0"		ABUT. BODY HORIZ.
B511	X	10	17'-4"	X	WING 4 VERT.
B512	X	6	11'-6"		WING 4 HORIZ. F.F.
B713	X	9	11'-5"		WING 4 HORIZ. B.F.
B514	X	13	15'-8"	X	WING 4 VERT.
B515	X	9	13'-0"	X	WING 4 VERT.
B416	X	12	15'-8"		WING 4 HORIZ.
B617	X	2	15'-8"		WING 4 HORIZ.
B418	X	2	7'-9"		WING 4 HORIZ.
B419	X	1	6'-8"		CHEEK WALL VERT.
B420		4	4'-10"	X	CHEEK WALL HORIZ.



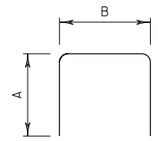
B805, B806



B401



B503, B511



B407, B509, B514, B515, B420

BAR MARK	A	B
B503	4'-4"	2'-10"
B805	22'-10"	1'-4"
B806	22'-10"	1'-4"
B407	1'-11"	1'-7"
B509	1'-11"	2'-10"
B511	5'-5"	2'-11"
B514	7'-6"	11"
B515	6'-2"	11"
B420	2'-0"	1'-0"

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STRUCTURE B-57-89

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NORTH ABUTMENT WING DETAILS

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FILE NAME : P:\49xx\4917.DP.15.STH40.SAW\09 STRUCTURES\B-57-89 - STH 40 over Couderay River\Plan\080108_nw.dgn

PLOT DATE : 11/29/2016

PLOT BY : ajc

STATE PROJECT NUMBER

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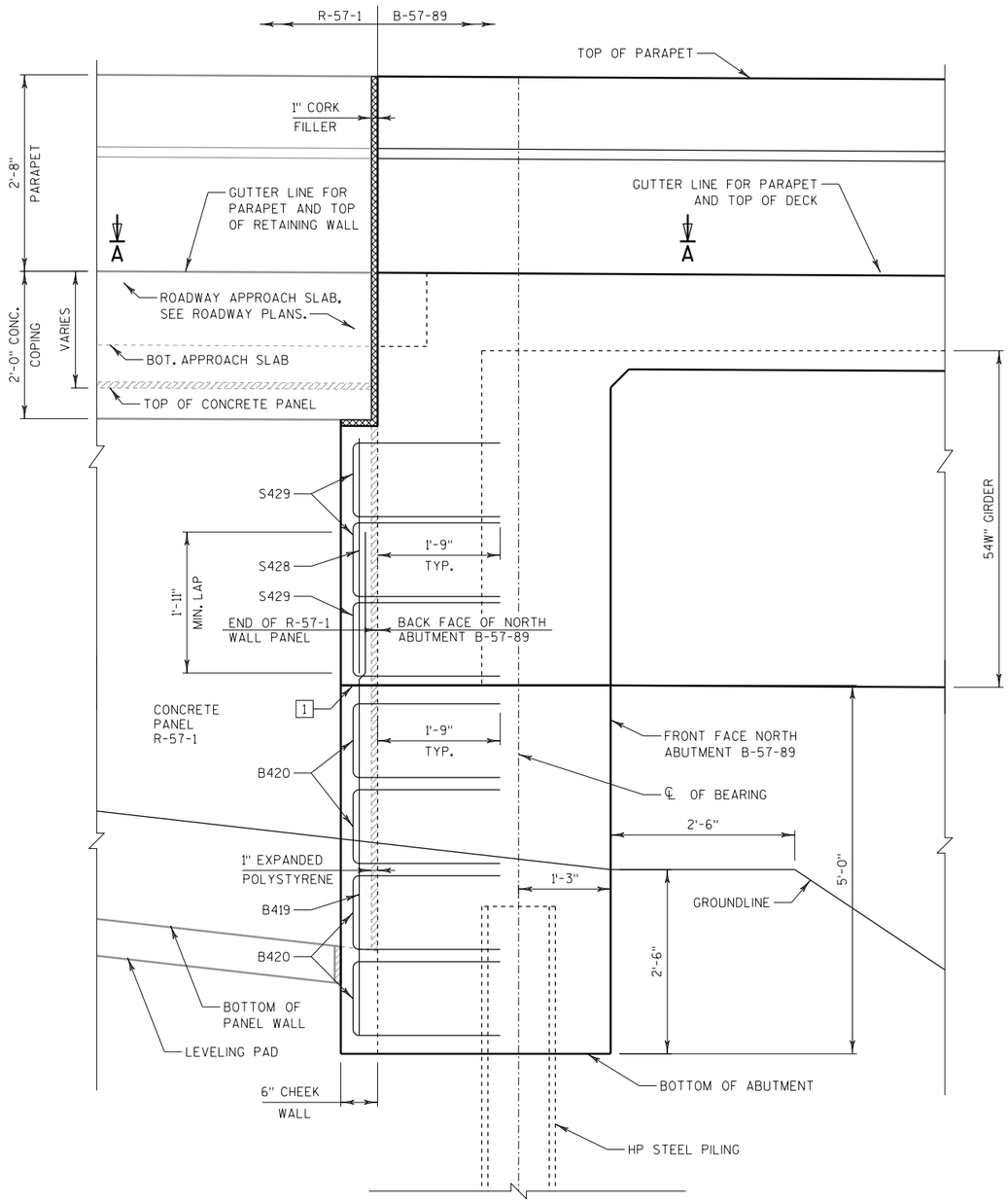
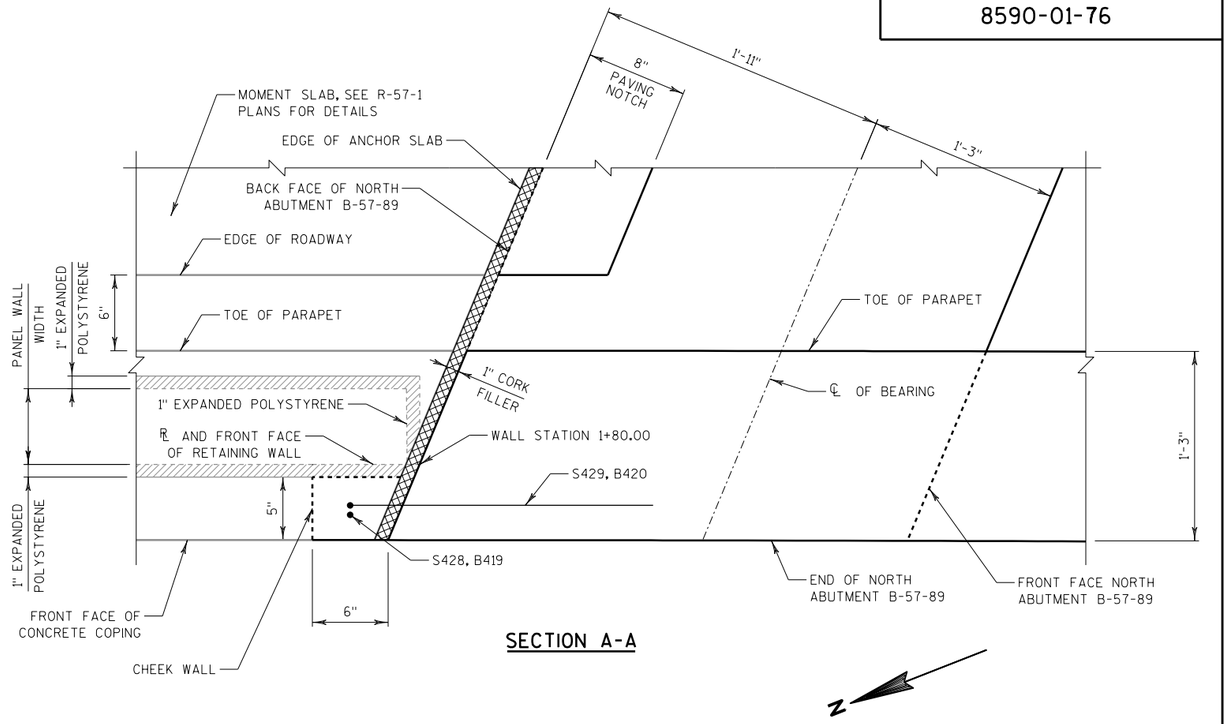


PARTIAL ELEVATION AT WINGWALL 3



SECTION A-A

1 STEEL TROWEL TOP SURFACE OF ABUTMENT INCLUDING AT CHEEK WALL. PLACE MULTIPLE LAYERS OF POLYETHYLENE SHEETS OVER ENTIRE ABUTMENT TOP BEFORE PLACING BEARING PADS AND/OR SUPERSTRUCTURE. TOTAL THICKNESS OF SHEETS SHALL BE AT LEAST 0.03"

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STRUCTURE B-57-89

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NORTH ABUTMENT DETAILS

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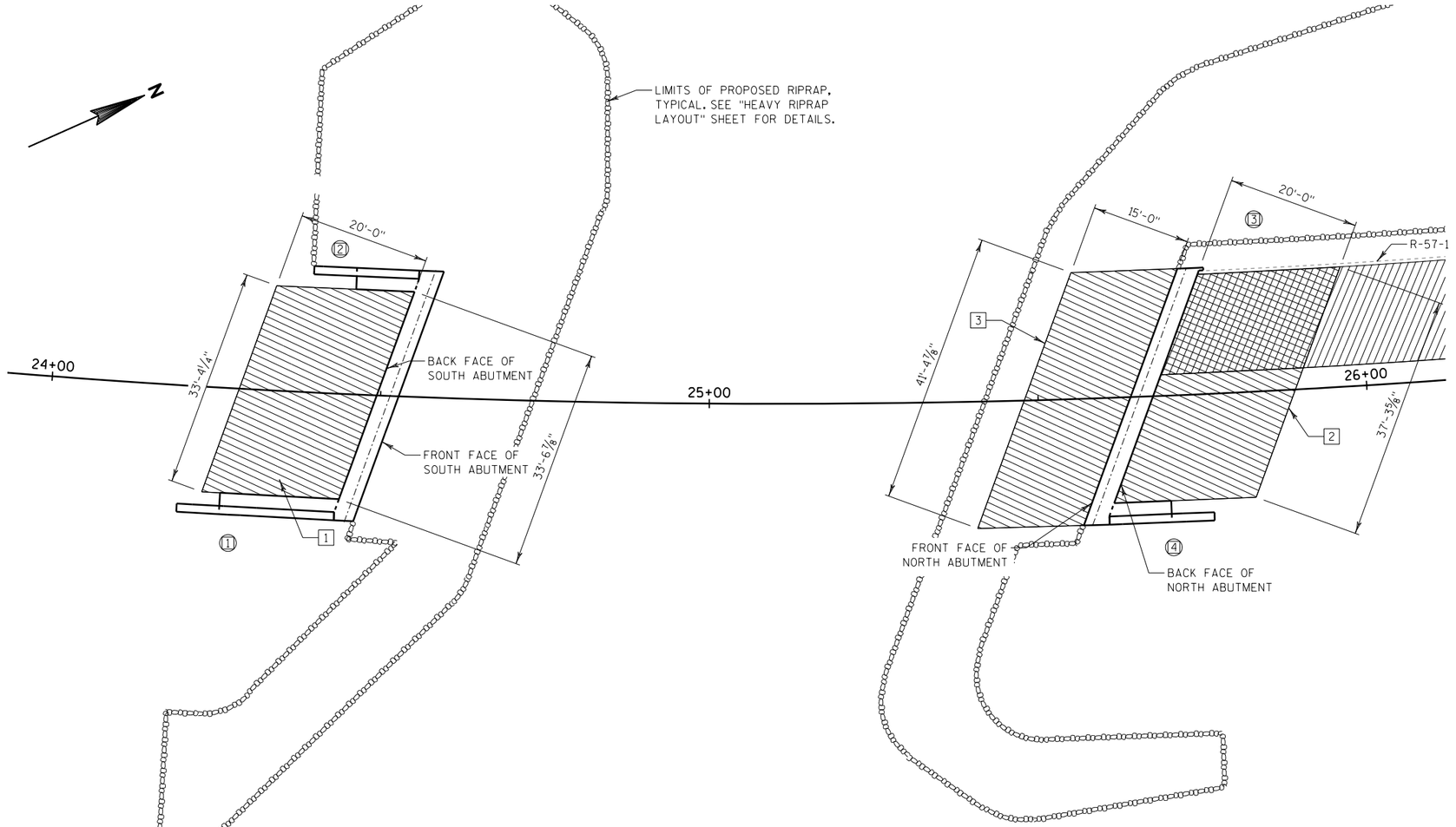
8590-01-76



PLAN

NOTES

(1) DENOTES WING NUMBER

GEOTEXTILE TYPE ES, MACHINE DIRECTION PARALLEL TO TRAFFIC

MSE BACKFILL AND WALL REINFORCEMENT, SEE R-57-1 PLANS FOR DETAILS

AREA WHERE GEOTEXTILE TYPE ES AND MSE WALL REINFORCEMENT ARE INTERLACED. COORDINATE GEOTEXTILE PLACEMENT WITH WALL REINFORCEMENT TO AVOID INTERFERENCE. BACKFILL IN THIS AREA SHALL MEET THE REQUIREMENTS OF AND BE PAID UNDER RETAINING WALL BID ITEM "WALL CONCRETE PANEL MECHANICALLY STABILIZED EARTH LRFD/OMP".

AREA BACKFILLED WITH STRUCTURAL BACKFILL TO BE PAID UNDER BID ITEM "BACKFILL STRUCTURE TYPE A".

[1] PROVIDE THREE LAYERS OF GEOTEXTILE TYPE ES 20 FEET MINIMUM BEHIND SOUTH ABUTMENT. THE LOWEST OF THE THREE LAYERS SHOULD BE PLACED AT ELEVATION 1231. VERTICALLY SPACE THE LAYERS 3 FEET APART. LAYERS SHOULD START WITHIN 12 INCHES OF THE BACK FACE OF ABUTMENT.

[2] PROVIDE TWO LAYERS OF GEOTEXTILE TYPE ES 20 FEET MINIMUM BEHIND NORTH ABUTMENT. THE LOWEST OF THE TWO LAYERS SHOULD BE PLACED AT ELEVATION 1234. VERTICALLY SPACE THE LAYERS 3 FEET APART. ELEVATION OF LAYERS CAN BE ADJUSTED BY UP TO 6 INCHES TO ALLOW A MINIMUM OF 8 INCHES OF VERTICAL SEPARATION BETWEEN GEOTEXTILE REINFORCEMENT FOR THE BRIDGE ABUTMENT AND THE STEEL STRIP REINFORCEMENT FOR THE MSE WALL. LAYERS SHOULD START WITHIN 12 INCHES OF THE BACK FACE OF ABUTMENT.

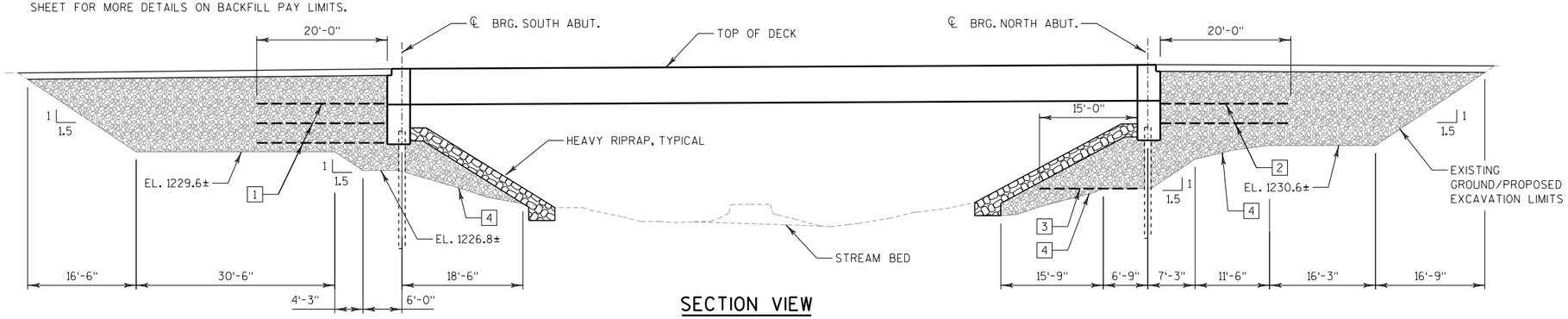
[3] PROVIDE ONE LAYER OF GEOTEXTILE TYPE ES 15 FEET MINIMUM IN FRONT OF NORTH ABUTMENT. GEOTEXTILE SHOULD BE PLACED AT AN ELEVATION OF 1224. ANY EXCAVATION REQUIRED TO PLACE GEOTEXTILE WILL BE INCLUDED IN BID ITEM "EXCAVATION FOR STRUCTURES BRIDGES B-57-89".

[4] LINE REPRESENTS BOTTOM OF EXISTING RIPRAP/TOP OF EXISTING GROUND. EXISTING RIPRAP IS ASSUMED TO BE 2 FEET DEEP PER AS-BUILT PLANS.

SUPERSTRUCTURE NOT SHOWN IN PLAN VIEW FOR CLARITY. PARAPET NOT SHOWN IN SECTION VIEW FOR CLARITY.

SEE TYPICAL SECTION THROUGH ABUTMENT DETAIL ON SHEET 2 FOR MORE DETAILS.

NOTE: SECTION VIEW IS TAKEN ALONG ℄. DIMENSIONS SHOWN VARY AT OTHER LOCATIONS. EXACT LIMITS OF EXCAVATION SHALL BE DETERMINED BY THE FIELD ENGINEER. SEE "TYPICAL SECTION THROUGH ABUTMENT" DETAIL ON "CROSS SECTION AND QUANTITIES" SHEET FOR MORE DETAILS ON BACKFILL PAY LIMITS.



SECTION VIEW

(LOOKING UPSTREAM)

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STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-57-89

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GEOTEXTILE REINFORCEMENT DETAILS

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FILE NAME : P:\49xx\4917.DP.15.STH40.SAW\09 STRUCTURES\B-57-89 - STH 40 over Couderay River\Plan\080110_gr.dgn

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PLOT BY : ajc

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NOTES

TOP OF GIRDER TO BE ROUGH FLOATED AND BROOMED TRANSVERSELY, EXCEPT THE OUTSIDE 15" OF GIRDER, WHICH SHALL RECEIVE A SMOOTH FINISH. AN APPROVED CONCRETE SEALER SHALL BE APPLIED TO ALL SMOOTH SURFACES INCLUDING THE OUTSIDE 15" OF THE TOP FLANGE.

DO NOT APPLY CONCRETE SEALER TO SURFACES RECEIVING APPLICATION OF CONCRETE STAINING.

THE GIRDERS SHALL BE PROVIDED WITH A SUITABLE LIFTING DEVICE FOR HANDLING AND ERECTING THE GIRDERS. SEE SECTION 503.3.3 OF STANDARD SPECIFICATION FOR GUIDANCE.

STRANDS SHALL BE FLUSH WITH END OF GIRDER. FOR GIRDER ENDS EMBEDDED COMPLETELY IN CONCRETE, END OF STRANDS SHALL BE COATED WITH NON-BITUMINOUS JOINT SEALER. FOR GIRDER ENDS THAT ARE FINALLY EXPOSED, COAT THE GIRDER ENDS, EXPOSED STRAND ENDS AND ALL NON-BONDING SURFACES WITHIN 2 FEET OF THE GIRDER ENDS WITH A NON-PIGMENTED EPOXY CONFORMING TO AASHTO M-235 TYPE III, GRADE 2, CLASS B OR C. THE EPOXY SHALL BE APPLIED AT LEAST 3 DAYS AFTER MOIST CURING HAS CEASED AND PRIOR TO THE APPLICATION OF THE SEALER.

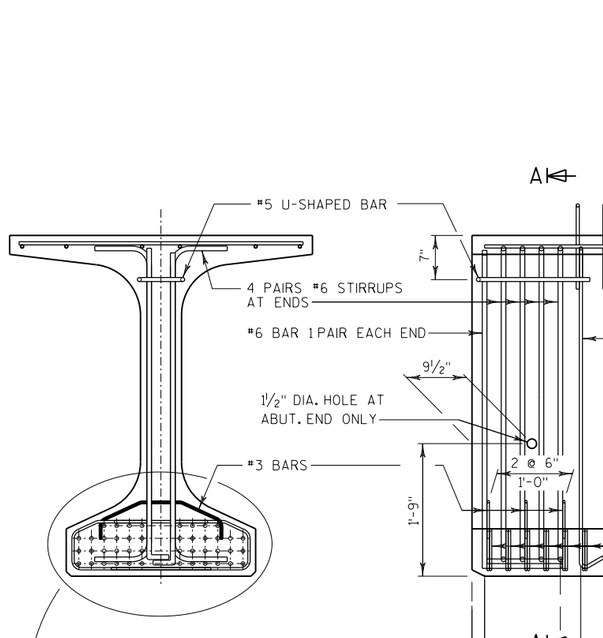
ALL GIRDERS SHALL BE CAST FULL LENGTH AS SHOWN.

SPACING SHOWN FOR #4 STIRRUPS IS FOR GRADE 60 REINFORCEMENT.

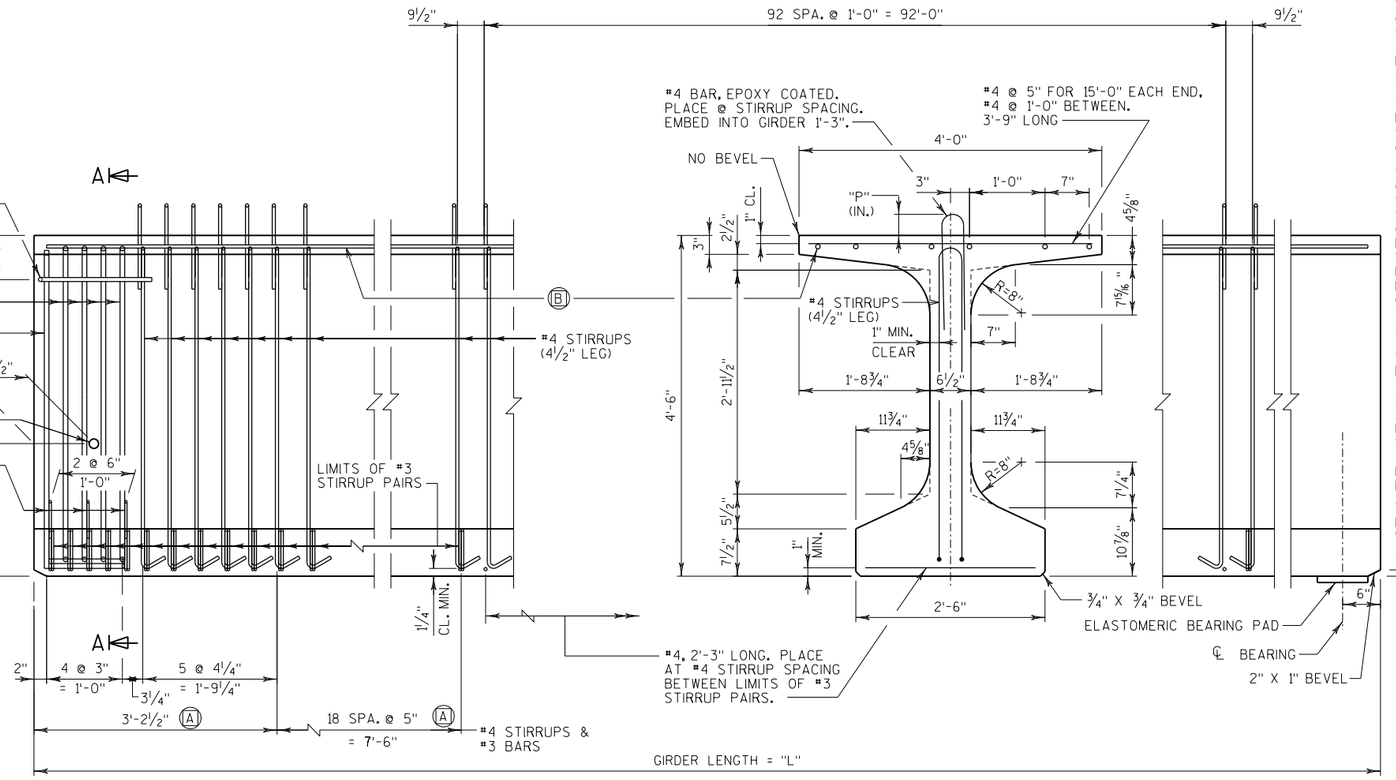
AN ALTERNATE EQUIVALENT OF WELDED WIRE FABRIC (WWF) ASTM A497 MAY BE SUBSTITUTED FOR THE STIRRUP REINFORCEMENT SHOWN, UPON APPROVAL OF THE STRUCTURES DEVELOPMENT SECTION.

PRESTRESSING STRANDS SHALL BE (0.6" DIA.)-7 WIRE LOW-RELAXATION STRANDS WITH AN ULTIMATE STRENGTH OF 270,000 PSI.

FOR DIAPHRAGM INSERT & CONNECTION DETAILS SEE "STEEL DIAPHRAGM" SHEET.



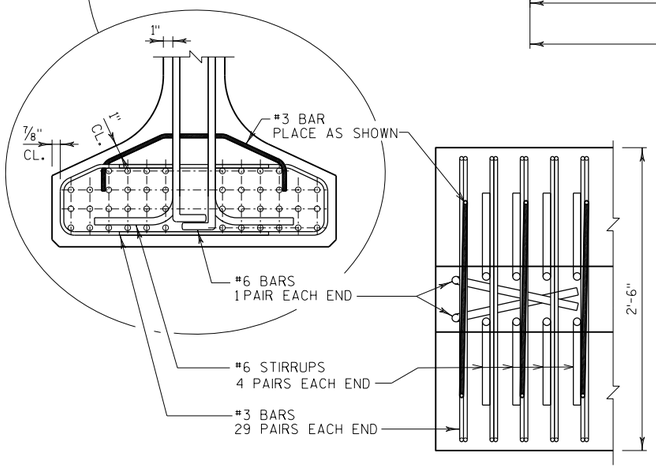
SECTION A-A



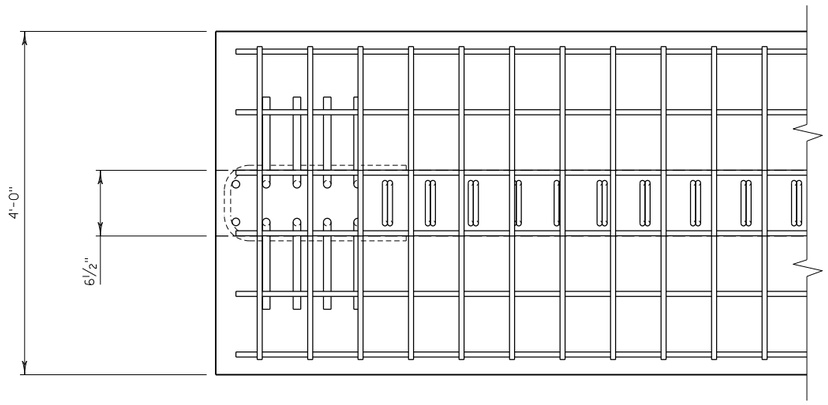
SIDE VIEW & TYP. SECTION IN SPAN

Ⓐ DETAIL TYP. AT EACH END

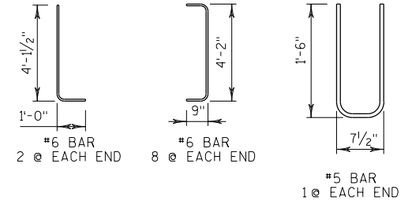
Ⓑ 6 #4 BARS, FULL LENGTH, MIN. LAP = 2'-6"

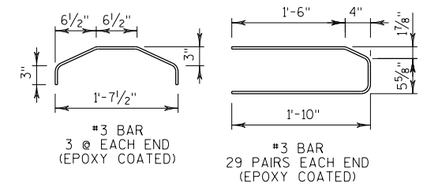


BOTTOM FLANGE



TOP FLANGE





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STRUCTURE B-57-89

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54W" PRESTRESSED GIRDER

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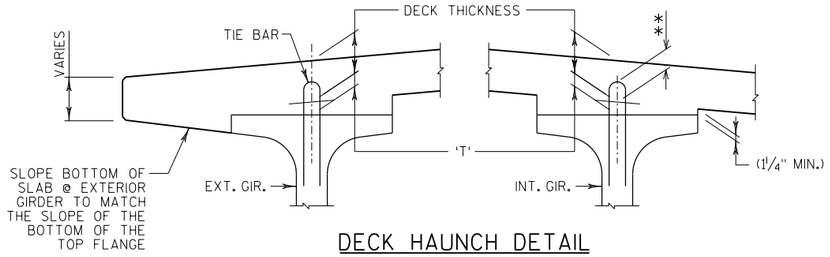


DECK HAUNCH DETAIL

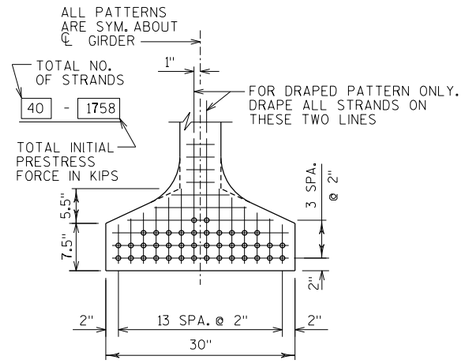
IF 1¼" MINIMUM HAUNCH HEIGHT AT EDGE OF GIRDER CANNOT BE MAINTAINED, THE GRADE LINE MAY BE REVISED BY THE ENGINEER AT THE OPTION OF THE CONTRACTOR, THE PLAN DECK THICKNESS SHALL BE HELD. NOTIFY THE STRUCTURES SECTION IF THE GRADE LINE IS RAISED FROM THE PLAN PROFILE BY MORE THAN ½" OR,

** IF 3" MINIMUM DECK EMBEDMENT OF TIE BAR CANNOT BE OBTAINED.

TO DETERMINE 'T', ELEV. OF TOP OF GIRDERS AT ℄ OF SUBSTRUCTURE UNITS & AT 1/10 POINTS OF EACH SPAN SHALL BE TAKEN. THEN FOLLOW THIS PROCESS:

TOP OF DECK ELEV. AT FINAL GRADE
\- TOP OF GIRDER ELEVATION
\+ DEAD LOAD DEFLECTION
\- DECK THICKNESS
= HAUNCH HEIGHT 'T'

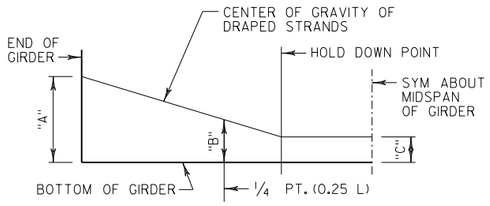
NOTE: AN AVERAGE HAUNCH ('T') OF 3" WAS USED IN THE QUANTITY "CONCRETE MASONRY BRIDGES".



TYPICAL STRAND PATTERN

GIRDER DATA																					
SPAN	GIRDER	GIRDER LENGTH "L"	DEAD LOAD DEFL. (IN)									CONC. STRGTH. f'c (psi)	"P" FIRST 1/3 OF GIRDER	"P" MID 1/3 OF GIRDER	"P" END 1/3 OF GIRDER	DIA. OF STRAND (IN.)	DRAPED PATTERN				
			1/10	2/10	3/10	4/10	5/10	6/10	7/10	8/10	9/10						TOTAL NO. OF STRANDS	f'ci (psi) ☆	(IN.) "A"	"B" MIN.	"B" MAX"	"C"
1	1,5	115'-0"	0.6	1.1	1.5	1.7	1.8	1.7	1.5	1.1	0.6	8,000	8.00	7.00	8.00	0.6	40	6,800	49	16	19	5
1	2-4	115'-0"	0.5	1.0	1.4	1.7	1.8	1.7	1.4	1.0	0.5	8,000	8.00	7.00	8.00	0.6	40	6,800	49	16	19	5

☆ MINIMUM CYLINDER STRENGTH OF CONCRETE @ TIME OF TRANSFER OF PRESTRESS FORCE.



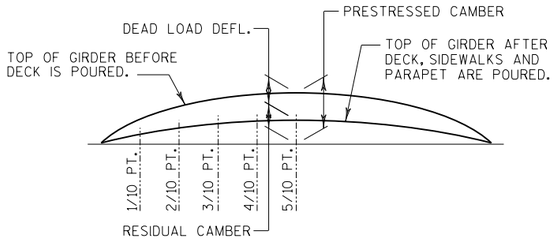
DRAPED STRAND PROFILE

*THE THEORETICAL INITIAL CAMBER VALUE AT THE TIME OF STRAND RELEASE AT MIDSPAN MULTIPLIED BY A FACTOR OF 1.4 TO ACCOUNT FOR CAMBER GROWTH FROM THE TIME OF STRAND RELEASE TO JOBSITE PLACEMENT.

SPAN	CAMBER (IN.) *
1	4.09"

THESE VALUES ARE NOT TO BE USED IN DETERMINING 'T', USE ACTUAL GIRDER SHOTS.

THESE VALUES ARE FOR INFORMATIONAL PURPOSES ONLY.



DEAD LOAD DEFLECTION DIAGRAM

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STRUCTURE B-57-89

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54W" PRESTRESSED GIRDER DETAILS

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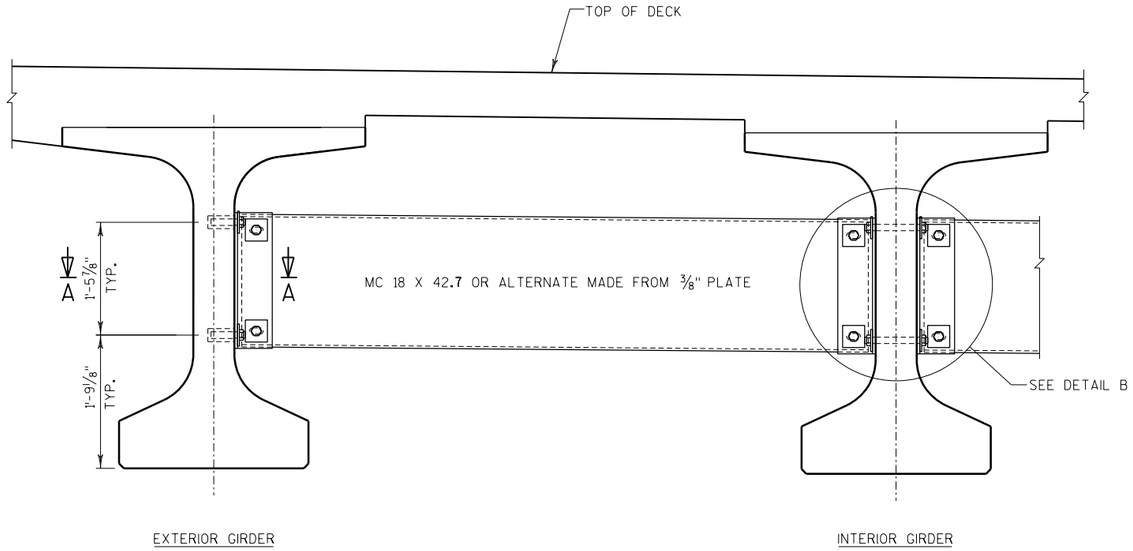
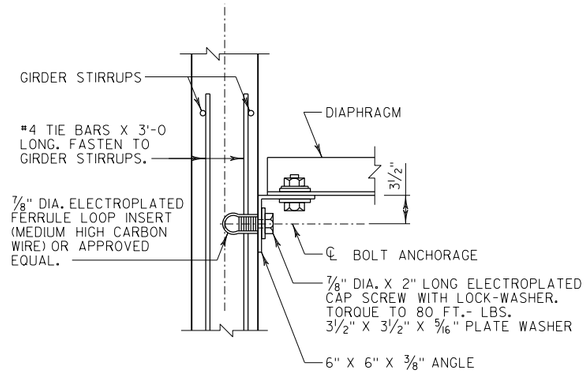


PART TRANSVERSE SECTION AT DIAPHRAGM



SECTION A-A

(FOR EXTERIOR ATTACHMENT)

NOTES

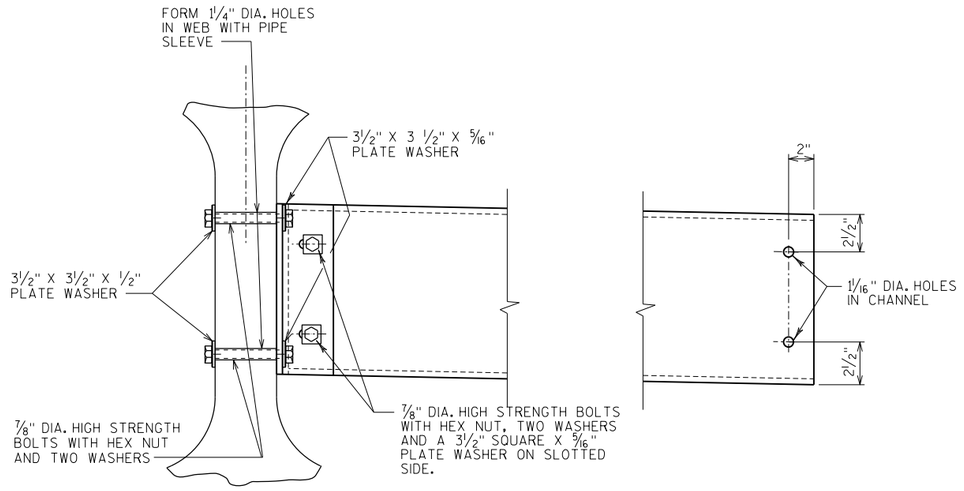
ALL DIAPHRAGM MATERIAL NOT EMBEDDED IN THE CONCRETE GIRDER SHALL BE PAID FOR AT THE UNIT PRICE BID FOR "STEEL DIAPHRAGMS B-57-89", EACH.

EACH DIAPHRAGM BETWEEN GIRDERS SHALL CONSTITUTE ONE UNIT.

ALL DIAPHRAGM STRUCTURAL STEEL SHALL BE ASTM A709 GRADE 36.

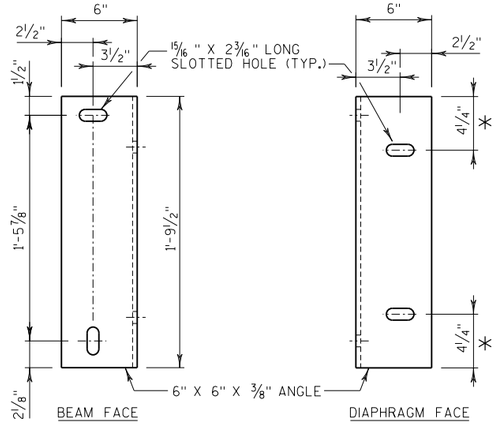
ALL DIAPHRAGM MATERIAL INCLUDING BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED AFTER FABRICATION.

STEEL DIAPHRAGM TO CONCRETE WEB CONNECTION SHALL BE SNUG-TIGHT PLUS ¼ TURN, UNLESS NOTED OTHERWISE. HIGH STRENGTH BOLTS FOR WEB CONNECTION SHALL MEET THE REQUIREMENTS FOR ASTM A325 OR ASTM A449.



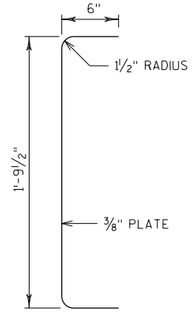
(FOR STAGGERED DIAPHRAGM)

DETAIL B



DIAPHRAGM SUPPORT

* 2½" FOR ALTERNATE PLATE DIAPHRAGM



SECTION THRU ALTERNATE DIAPHRAGM

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-57-89

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STEEL DIAPHRAGM

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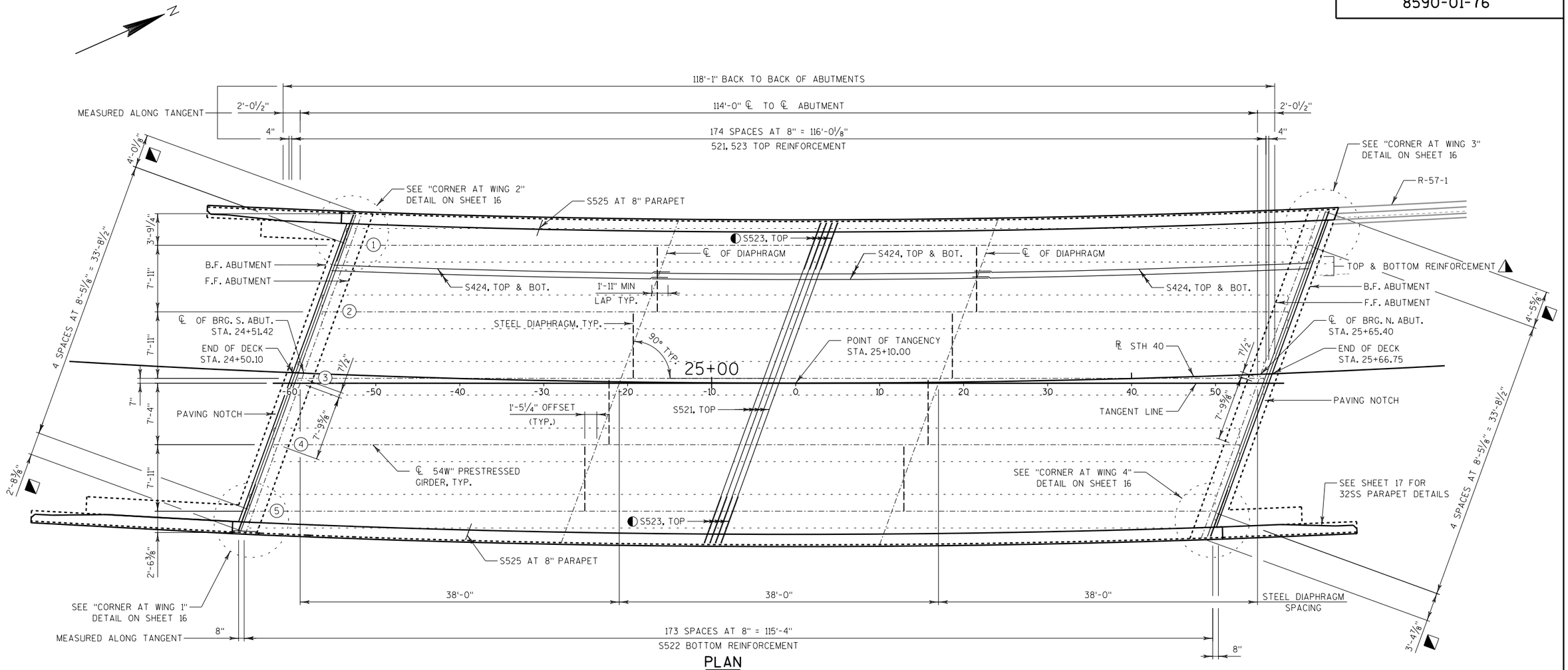
FILE NAME : P:\49xx\4917.DP.15.STH40.SAW\09 STRUCTURES\B-57-89 - STH 40 over Couderay River\Plan\080113_sd.dgn

PLOT DATE : 11/29/2016

PLOT BY : ajc

STATE PROJECT NUMBER
8590-01-76



PLAN

TOP OF DECK ELEVATIONS

LOCATION	S ABUT	0.1 PT	0.2 PT	0.3 PT	0.4 PT	0.5 PT	0.6 PT	0.7 PT	0.8 PT	0.9 PT	N ABUT
WEST FLOW LINE	1241.29	1241.35	1241.41	1241.47	1241.53	1241.60	1241.66	1241.72	1241.78	1241.84	1241.90
GIRDER 1	1241.36	1241.41	1241.46	1241.52	1241.58	1241.64	1241.70	1241.76	1241.83	1241.90	1241.97
GIRDER 2	1241.58	1241.63	1241.68	1241.73	1241.79	1241.85	1241.91	1241.98	1242.04	1242.11	1242.18
GIRDER 3	1241.80	1241.85	1241.90	1241.95	1242.01	1242.06	1242.12	1242.19	1242.25	1242.32	1242.39
GIRDER 4	1242.02	1242.07	1242.12	1242.17	1242.22	1242.28	1242.34	1242.40	1242.47	1242.53	1242.60
GIRDER 5	1242.24	1242.29	1242.33	1242.38	1242.44	1242.49	1242.55	1242.61	1242.68	1242.74	1242.81
EAST FLOW LINE	1242.28	1242.34	1242.39	1242.45	1242.51	1242.57	1242.63	1242.69	1242.75	1242.81	1242.86

TABLE OF TANGENT OFFSETS*

DIST.	A	B	C
-60	1'-3"	N/A	18'-0-1/4"
-50	10-3/8"	20'-1-1/2"	18'-4-3/4"
-40	6-5/8"	19'-9-3/4"	18'-8-1/2"
-30	3-3/4"	19'-6-3/4"	18'-11-1/4"
-20	1-5/8"	19'-4-5/8"	19'-1-3/8"
-10	1/2"	19'-3-1/2"	19'-2-1/2"
0	0"	19'-3"	19'-3"
10	1/2"	19'-3-1/2"	19'-2-1/2"
20	1-5/8"	19'-4-5/8"	19'-1-3/8"
30	3-3/4"	19'-6-3/4"	18'-11-1/4"
40	6-5/8"	19'-9-3/4"	18'-8-1/2"
50	10-3/8"	20'-1-1/2"	18'-4-3/4"
60	1'-3"	20'-6-1/8"	N/A

*OFFSETS NORMAL TO TANGENT LINE. "A" IS DISTANCE BETWEEN TANGENT AND ℞. "B" IS DISTANCE FROM TANGENT TO WEST EDGE OF DECK. "C" IS DISTANCE BETWEEN TANGENT AND EAST EDGE OF DECK

LEGEND:

◐ LAP S523 ONTO EVERY TRANSVERSE BAR IN THE TOP MAT AS SHOWN.

(1) DENOTES GIRDER NUMBER.

◥ MEASURED TO EDGE OF DECK ALONG ℄ BEARING.

◭ ALIGN PARALLEL TO ℞

NOTES:

THE BOTTOM TRANSVERSE BAR STEEL REINFORCEMENT SHALL BE SUPPORTED BY CONTINUOUS BAR CHAIRS WITH A CENTER TO CENTER SPACING NOT TO EXCEED 4'-0". ONE LINE OF CONTINUOUS BAR CHAIRS SHALL BE PLACED NEAR EACH EDGE OF SLAB TO SUPPORT THE ENDS OF THE BOTTOM TRANSVERSE BAR STEEL.

THE TOP LONGITUDINAL BAR STEEL REINFORCEMENT SHALL BE SUPPORTED BY CONTINUOUS BAR CHAIRS IN TRANSVERSE DIRECTION ON 4'-0" CENTERS.

GIRDERS ARE PARALLEL WITH TANGENT.

TRANSVERSE DECK REINFORCEMENT IS PARALLEL WITH SUBSTRUCTURE UNITS.

LONGITUDINAL REINFORCEMENT IS PARALLEL WITH ℞ STH 40.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-57-89

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SUPERSTRUCTURE PLAN

SHFFT 14 OF 18
89

8

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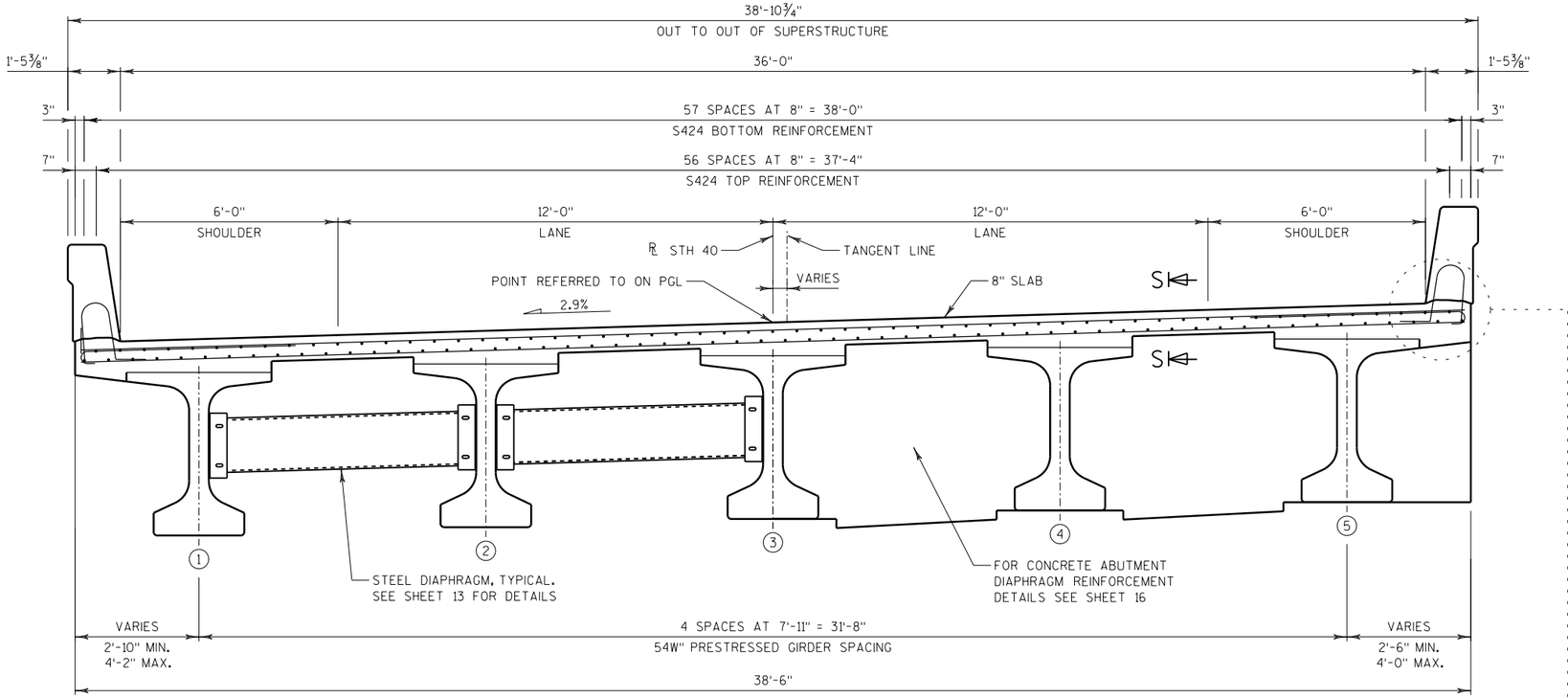
STATE PROJECT NUMBER

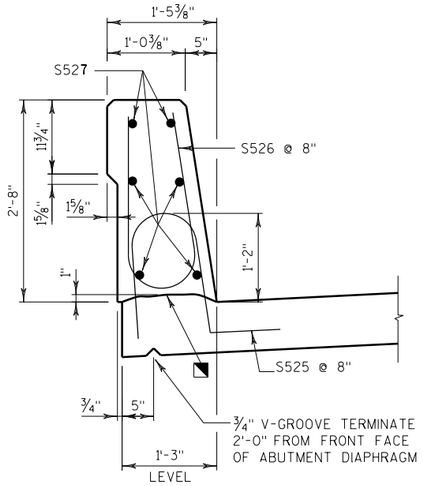
8590-01-76



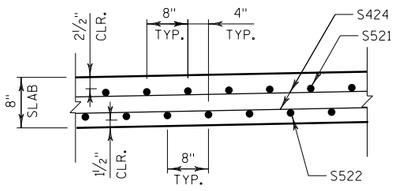
IN SPAN AT ABUTMENT

TYPICAL CROSS SECTION THRU DECK

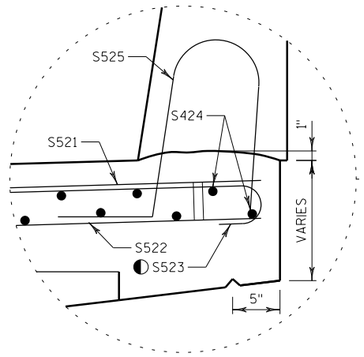
(LOOKING NORTH)



SECTION THRU PARAPET ON BRIDGE



SECTION S-S



LEGEND:

◐ LAP S523 ONTO EVERY TRANSVERSE BAR IN THE TOP MAT AS SHOWN.

◥ CONST. JOINT - STRIKE OFF AS SHOWN.

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STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-57-89

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SUPERSTRUCTURE CROSS SECTION

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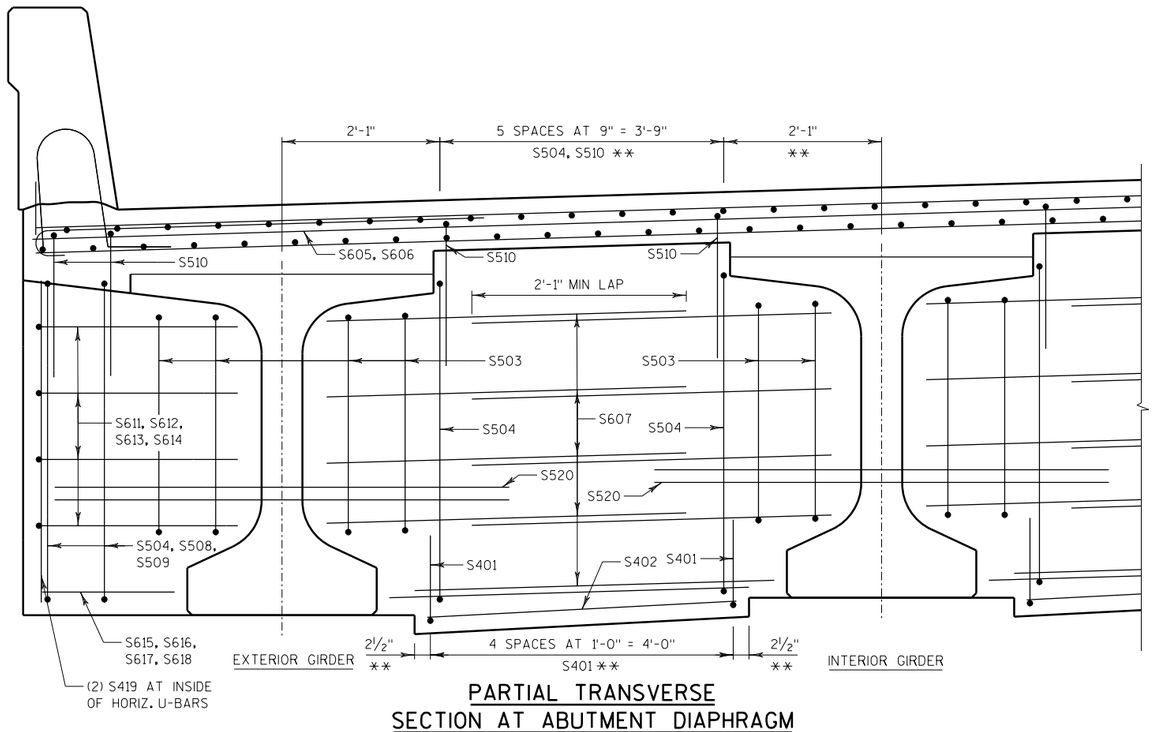
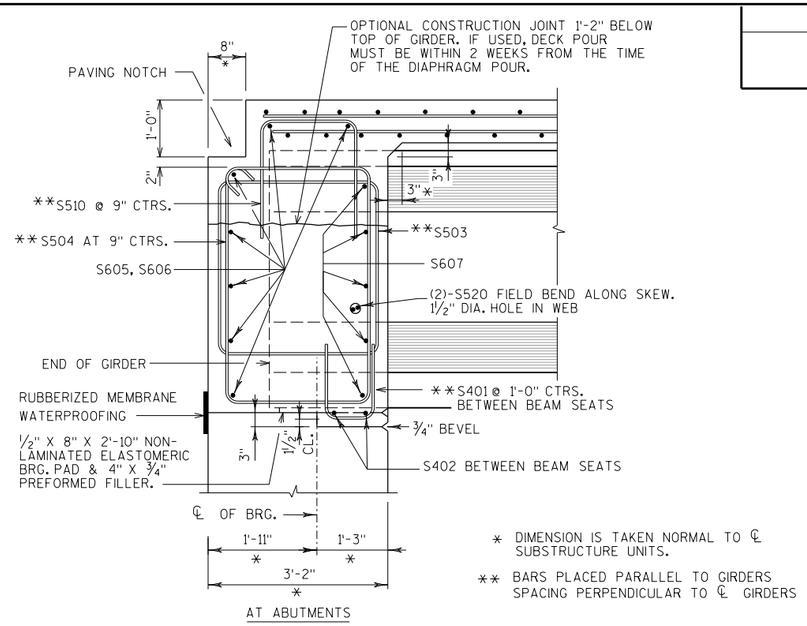
STATE PROJECT NUMBER

8590-01-76



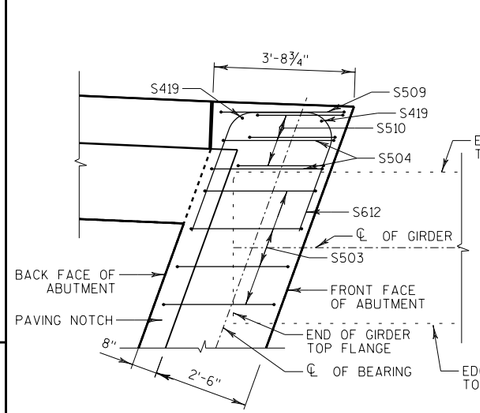
PARTIAL TRANSVERSE SECTION AT ABUTMENT DIAPHRAGM



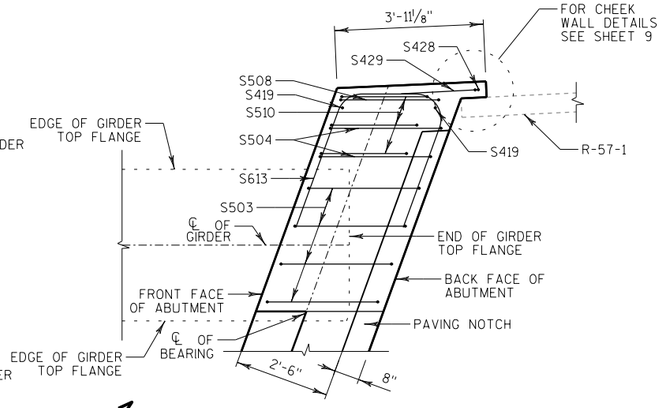
AT ABUTMENT DIAPHRAGM

SUPERSTRUCTURE BILL OF BARS

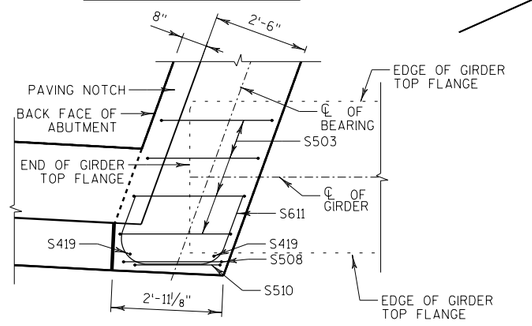
BAR MARK	COAT	NO.	LENGTH	BENT	BAR SERIES	LOCATION
S401	X	40	3'-1"	X		ABUT. DIAPHRAGM VERT.
S402	X	16	4'-4"			ABUT. DIAPHRAGM HORIZ.
S503	X	40	12'-6"	X		ABUT. DIAPHRAGM STIRRUP
S504	X	53	15'-2"	X		ABUT. DIAPHRAGM STIRRUP
S605	X	7	40'-1"			S. ABUT. DIAPHRAGM HORIZ.
S606	X	7	41'-2"			N. ABUT. DIAPHRAGM HORIZ.
S607	X	80	5'-0"			ABUT. DIAPHRAGM HORIZ. F.F.
S508	X	2	14'-6"	X		ABUT. DIA. STIRRUP AT CORNER WING 1 &
S509	X	2	15'-10"	X		ABUT. DIA. STIRRUP AT CORNER WING 2 &
S510	X	57	5'-11"	X		ABUT. DIAPHRAGM VERT.
S611	X	4	5'-11"	X		ABUT. DIAPHRAGM END HORIZ. WING 1
S612	X	4	8'-9"	X		ABUT. DIAPHRAGM END HORIZ. WING 2
S613	X	4	9'-7"	X		ABUT. DIAPHRAGM END HORIZ. WING 3
S614	X	4	7'-5"	X		ABUT. DIAPHRAGM END HORIZ. WING 4
S615	X	2	1'-0"			S. ABUT. DIAPHRAGM HORIZ. AT WING 1
S616	X	2	2'-4"			S. ABUT. DIAPHRAGM HORIZ. AT WING 2
S617	X	2	2'-9"			N. ABUT. DIAPHRAGM HORIZ. AT WING 3
S618	X	2	1'-8"			N. ABUT. DIAPHRAGM HORIZ. AT WING 4
S419	X	8	4'-3"			ABUT. DIAPHRAGM END VERT.
S520	X	20	6'-0"			ABUT. DIAPH. HORIZ. THRU GIRDERS
S521	X	175	40'-7"		X	SLAB TRANS. TOP
S522	X	174	40'-7"		X	SLAB TRANS. BOT.
S523	X	350	6'-6"	X		SLAB TRANS. TOP AT OVERHANGS
S424	X	345	40'-1"			SLAB LONG. TOP AND BOT.
S525	X	356	4'-5"	X		PARAPET VERT.
S526	X	356	5'-0"	X		PARAPET VERT.
S527	X	36	41'-3"			PARAPET HORIZ.
B428	X	1	5'-5"			CHEEK WALL VERT.
B429	X	3	4'-10"	X		CHEEK WALL HORIZ.



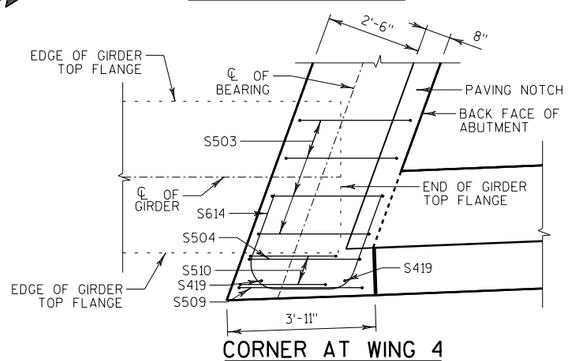
CORNER AT WING 2



CORNER AT WING 3



CORNER AT WING 1

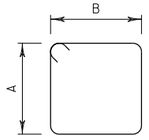


CORNER AT WING 4

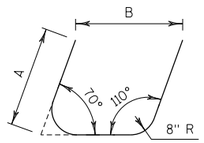
BAR MARK	A	B
S401	1'-2"	11"
S503	2'-11"	3'-0"
S504	4'-3"	3'-0"
S508	4'-3"	2'-8"
S509	4'-3"	3'-4"
S510	1'-11"	2'-4"
S611	1'-11"	2'-10"
S612	3'-4"	2'-10"
S613	3'-9"	2'-10"
S614	2'-8"	2'-10"
S429	2'-0"	1'-0"

BAR SERIES

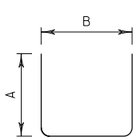
BAR MARK	NO. REQ'D	LENGTHS FOR EACH SERIES
S521	1 SERIES OF 175	40'-0" TO 41'-2"
S522	1 SERIES OF 174	40'-0" TO 41'-2"



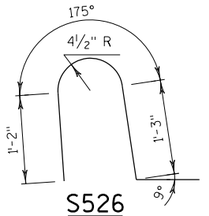
S503, S504, S508, S509



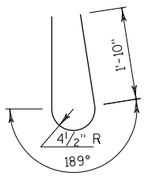
S611, S612, S613, S614



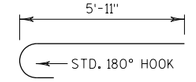
S401, S510, S429



S526



S527



S523

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-57-89

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SUPERSTRUCTURE DETAILS

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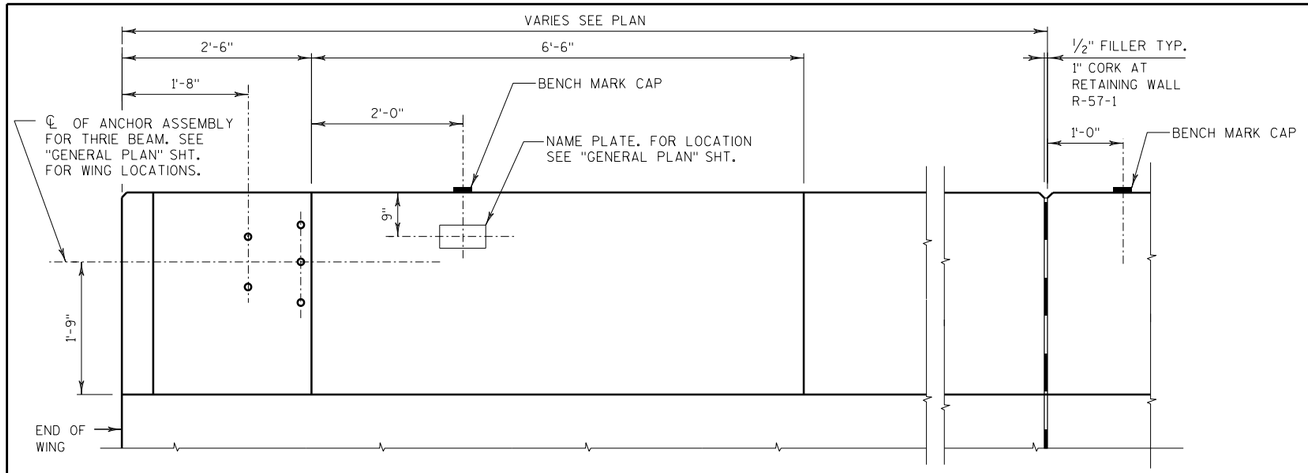
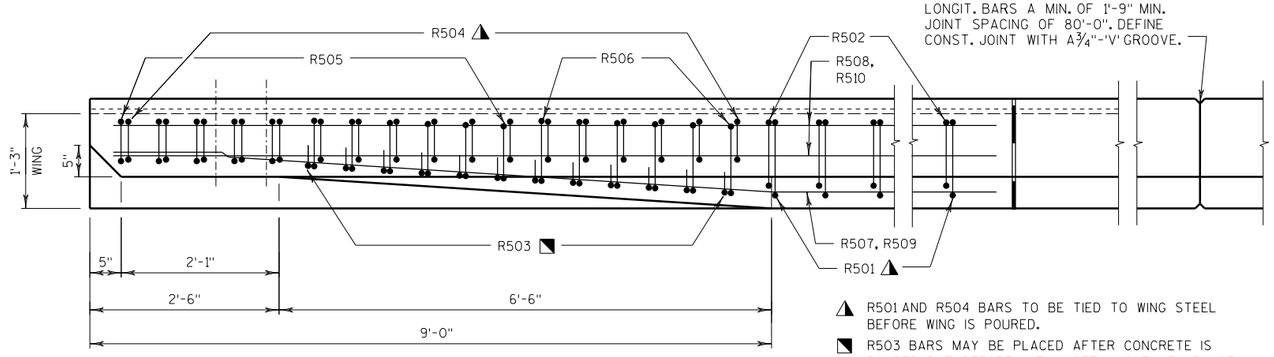


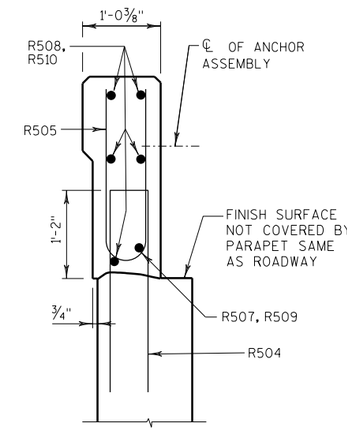
INSIDE ELEVATION



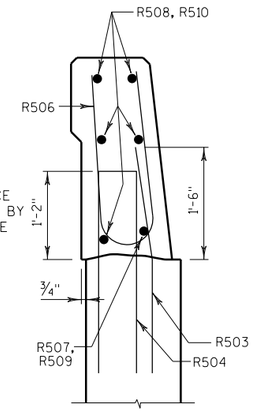
PLAN

◭ R501 AND R504 BARS TO BE TIED TO WING STEEL BEFORE WING IS POURED.

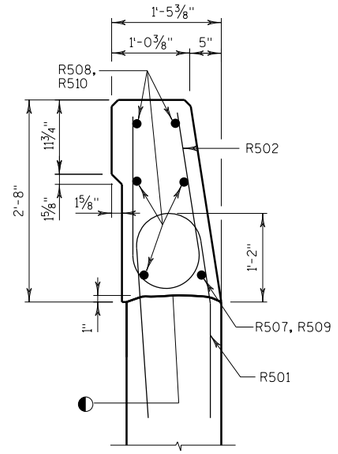
◹ R503 BARS MAY BE PLACED AFTER CONCRETE IS POURED BUT BEFORE INITIAL SET HAS TAKEN PLACE. USE CARE TO PLACE R503 BARS CORRECTLY ALONG TRANSITION OF PARAPET.



SECTION A



SECTION B

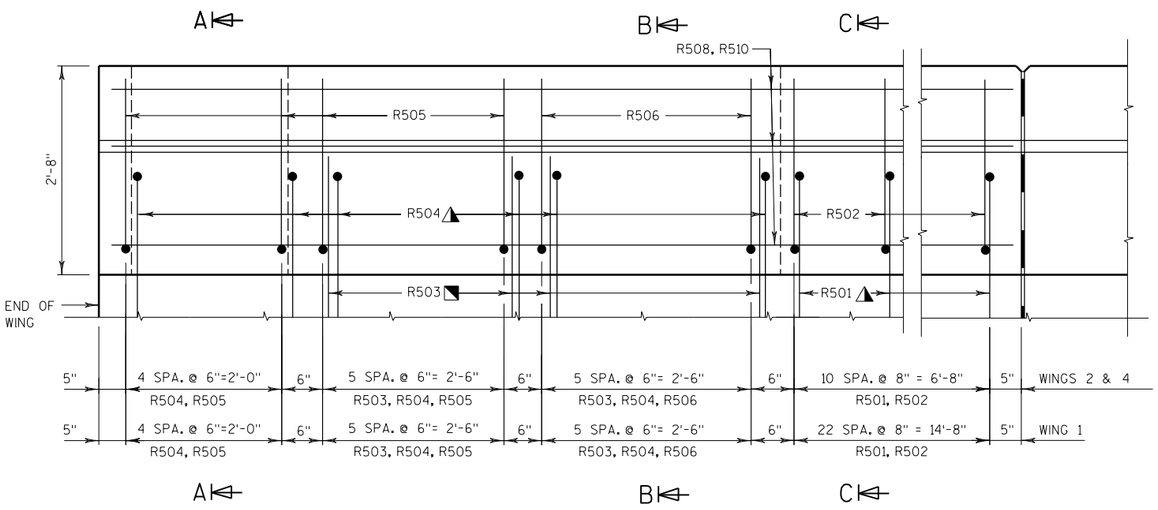


◐ CONST. JOINT - STRIKE OFF AS SHOWN.

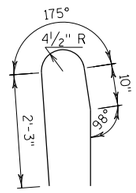
SECTION C

BILL OF BARS

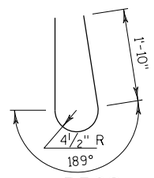
BAR MARK	COAT	NO. S. ABUT.	NO. N. ABUT.	LENGTH	BENT	LOCATION
R501	X	34	11	5'-10"	X	PARAPET - VERT.
R502	X	34	11	5'-0"	X	PARAPET - VERT.
R503	X	24	12	3'-0"	X	PARAPET - VERT.
R504	X	34	17	5'-7"	X	PARAPET - VERT.
R505	X	22	11	4'-9"	X	PARAPET - VERT.
R506	X	12	6	4'-10"	X	PARAPET - VERT.
R507	X	1	1	15'-6"	X	PARAPET - HORIZ.
R508	X	5	5	15'-6"		PARAPET - HORIZ.
R509	X	1	-	23'-6"	X	PARAPET - HORIZ.
R501C	X	5	-	23'-6"		PARAPET - HORIZ.



OUTSIDE ELEVATION



R501



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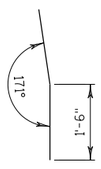
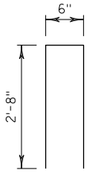


R503



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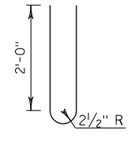

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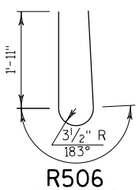
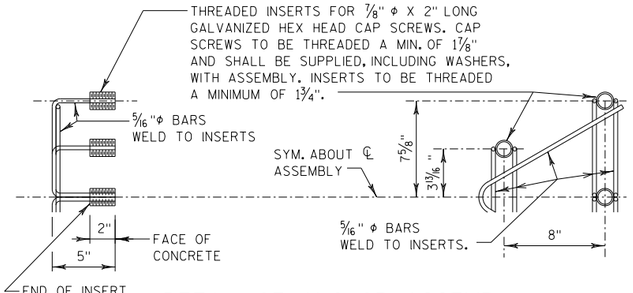


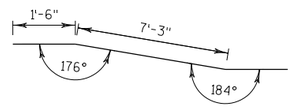
R506



DETAIL OF ANCHOR ASSEMBLY

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

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



R507, R509

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-57-89

DRAWN BY PLR | PLANS CK'D. AJC

SINGLE SLOPE PARAPET 32SS

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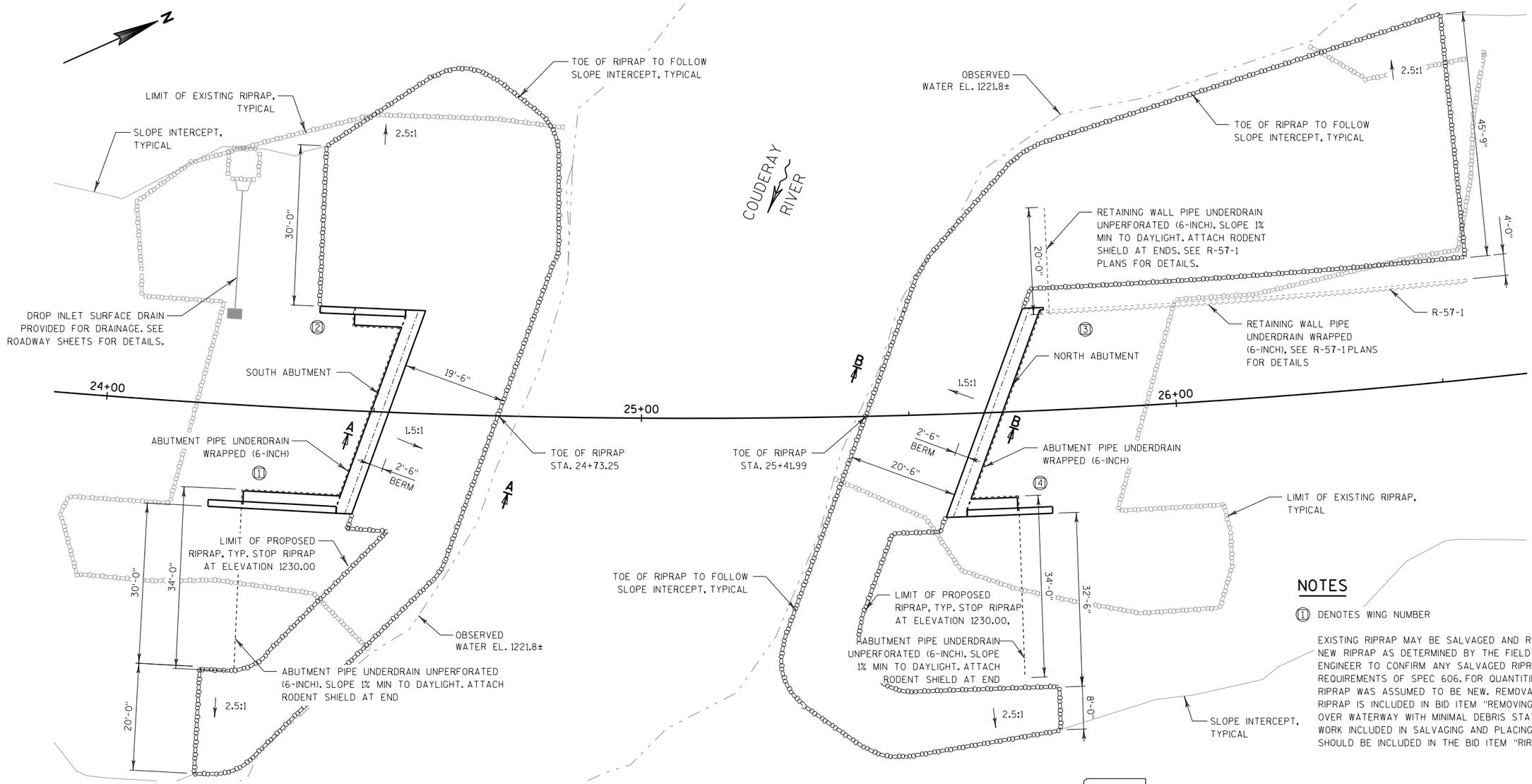
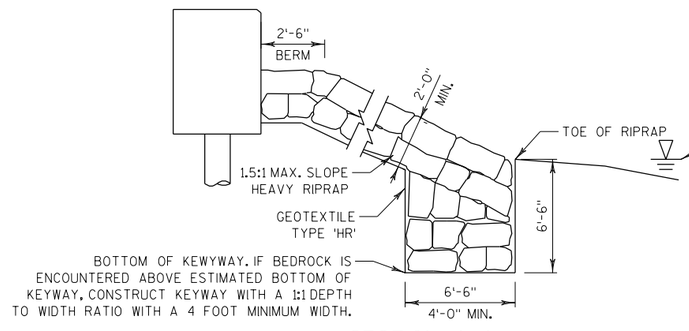


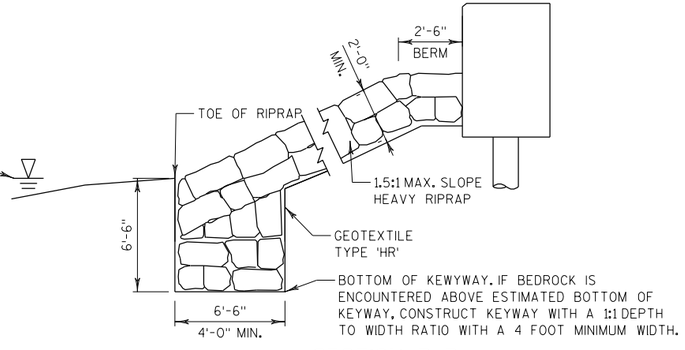
NOTES

(1) DENOTES WING NUMBER

EXISTING RIPRAP MAY BE SALVAGED AND REUSED IN LIEU OF NEW RIPRAP AS DETERMINED BY THE FIELD ENGINEER. FIELD ENGINEER TO CONFIRM ANY SALVAGED RIPRAP MEETS REQUIREMENTS OF SPEC 606. FOR QUANTITIES, ALL PROPOSED RIPRAP WAS ASSUMED TO BE NEW. REMOVAL OF EXISTING RIPRAP IS INCLUDED IN BID ITEM "REMOVING OLD STRUCTURE OVER WATERWAY WITH MINIMAL DEBRIS STATION 24+50". ANY WORK INCLUDED IN SALVAGING AND PLACING SALVAGED RIPRAP SHOULD BE INCLUDED IN THE BID ITEM "RIRAP HEAVY".



SECTION A-A



SECTION B-B

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-57-89

DRAWN BY PLR | PLANS CK'D. AJC

HEAVY RIPRAP LAYOUT

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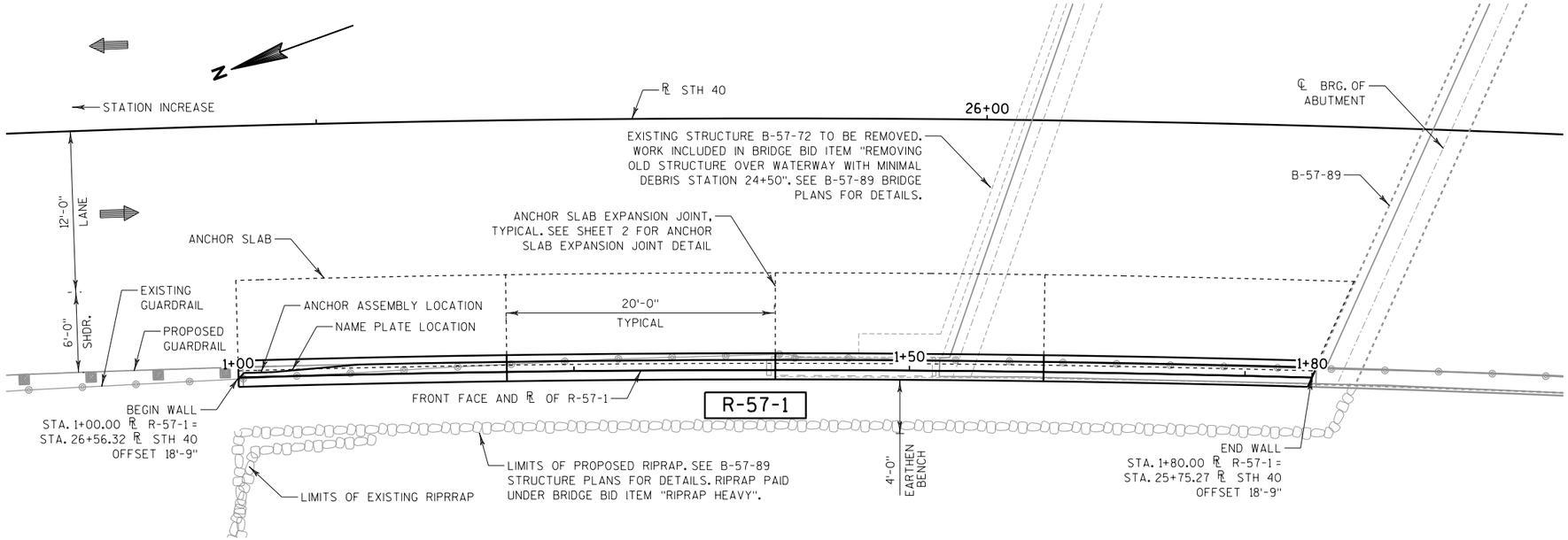
FILE NAME : P:\49xx\4917.DP.15.STH40.SAW\09 STRUCTURES\B-57-89 - STH 40 over Couderay River\Plan\080118_rr.dgn

PLOT DATE : 11/29/2016

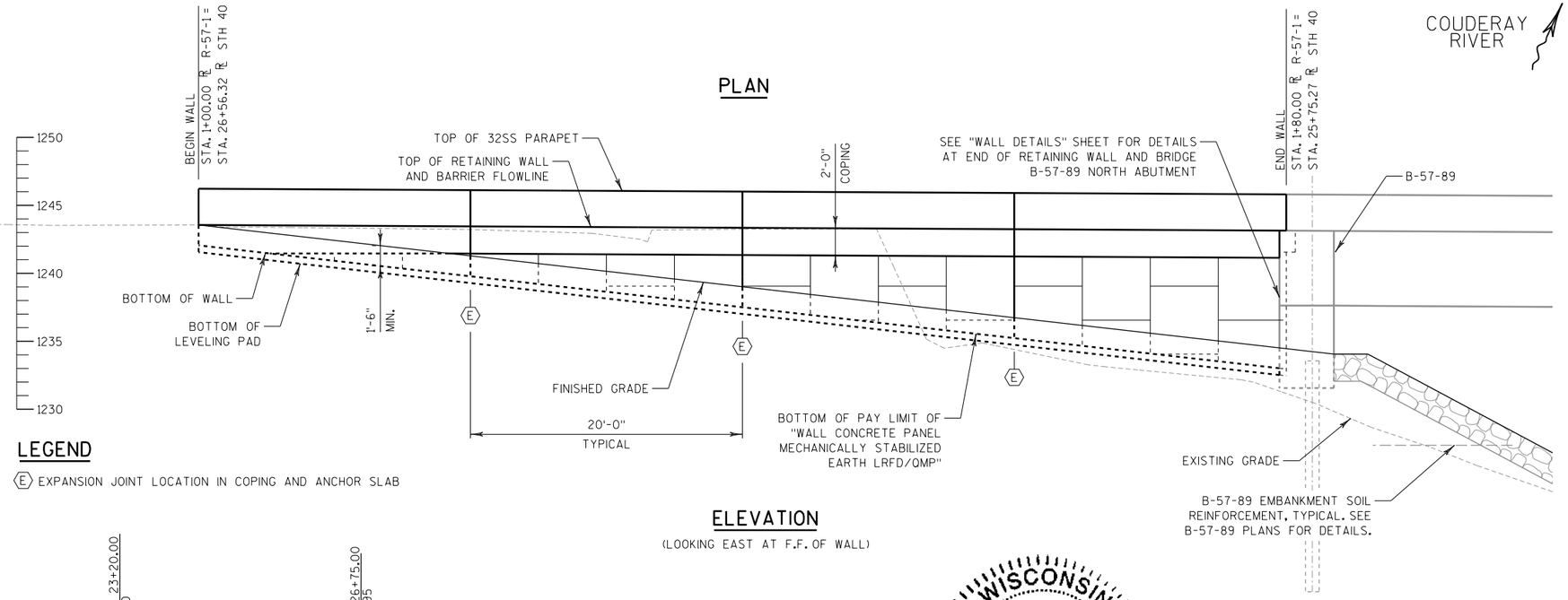
PLOT BY : ajc

STATE PROJECT NUMBER

8590-01-76



PLAN

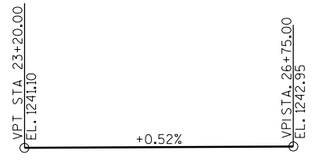


LEGEND

(E) EXPANSION JOINT LOCATION IN COPING AND ANCHOR SLAB

ELEVATION

(LOOKING EAST AT F.F. OF WALL)



PROFILE GRADE LINE - STH 40

BENCH MARK

NO.	STATION	DESCRIPTION	ELEV.
601	24+09 (RT)	ALUMINIUM DISK IN CONCRETE WINGWALL	1242.09

HORIZONTAL ALIGNMENT

℄ STH 40
PI STA= 26+63.63
Y = 347230.59
X = 684312.73
DELTA= 36°23'40"
D = 3°58'08"
T= 474.55'
L= 916.98'
R= 1443.60.'
PC STA.= 21+89.08
PT STA.= 31+06.06

WISCONSIN
ANTHONY J. CASTLE
E-43345-6
SOUTH MILWAUKEE, WI
PROFESSIONAL ENGINEER
1/19/17

DESIGN DATA

LIVE LOAD SURCHARGE (ROADWAY) = 240 PSF

MATERIAL PROPERTIES:

CONCRETE MASONRY
PARAPET, COPING, ANCHOR SLAB ..... f'c = 4,000 psi
LEVELING PAD ..... f'c = 3,500 psi

PRECAST CONCRETE WALL PANEL ..... f'c = 4,000 psi

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

THE CONTRACTOR SHALL PROVIDE COMPLETE DESIGN, PLANS, DETAILS, SPECIFICATIONS, AND SHOP DRAWINGS FOR THE RETAINING WALLS IN ACCORDANCE WITH THE SPECIAL PROVISIONS. THE RETAINING WALL MANUFACTURER SHALL PROVIDE TECHNICAL ASSISTANCE TO THE CONTRACTOR DURING CONSTRUCTION. THE COST OF FURNISHING THESE ITEMS SHALL BE INCLUDED IN THE BID ITEM "WALL CONCRETE PANEL MECHANICALLY STABILIZED EARTH LRFD/QMP".

PLANS, ELEVATIONS AND DETAILS SHOWN ON THESE DRAWINGS ARE INTENDED TO INDICATE WALL LOCATIONS, LENGTHS, HEIGHTS, AND DETAILS COMMON TO THE WALL SYSTEM SELECTED. THE CONTRACTOR SHALL VERIFY THAT THE WALL SYSTEM SELECTED WILL CONFORM TO THE REQUIRED ALIGNMENTS AND DETAILS.

THE RETAINING WALL IS TO BE DESIGNED USING THE ELEVATIONS GIVEN IN THESE DRAWINGS.

DESIGN FOR THE RETAINING WALL TO PROVIDE FOR FINISHED GRADE SLOPED BEHIND WALL AS SHOWN ON PLANS AND ROADWAY CROSS SECTIONS.

MINIMUM LENGTH OF SOIL REINFORCEMENT MUST BE 70% THE TOTAL WALL HEIGHT (EXPOSED HEIGHT PLUS EMBEDMENT DEPTH) OR 8.0 FEET, WHICHEVER IS GREATER. SOIL REINFORCEMENT MUST EXTEND A MINIMUM OF 3.0 FEET BEYOND THE FAILURE PLANE FOR INTERNAL STABILITY AS DEFINED BY AASHTO SPECIFICATIONS.

FOUNDATION DATA

ALLOWABLE SOIL BEARING CAPACITY - SEE TABLE ON SHEET 2

TRAFFIC DATA

STH 40:

ADT = 1,390 (2017)
ADT = 1,590 (2037)
RDS = 35 MPH

LIST OF DRAWINGS

STRUCTURE DESIGN CONTACTS

BRIDGE OFFICE: WILLIAM DREHER (608) 266-8489
CONSULTANT: MIKE RADTKE (414) 347-1607

NO.	DATE	REVISION	BY

emcs LLC
1300 W. Canal Street, Suite 200
Milwaukee, WI 53233
414.347.1607 Fax 414.347.1347

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
ACCEPTED William C. Dreher SDR 01/19/17
CHIEF STRUCTURES DESIGN ENGINEER — DATE

STRUCTURE R-57-1

STH 40 - NW CORNER COUDERAY RIVER BRIDGE

COUNTY	TOWN
SAWYER	RADISSON

DESIGN SPEC. AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS

DESIGNED BY	DESIGN CK'D.	DRAWN BY	PLANS CK'D.
AJC	MDR	AJC	MDR

GENERAL PLAN & ELEVATION

SHEET 1 OF 6
94

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FILE NAME : P:\49xx\4917.DP.15.STH40.SAW\09 STRUCTURES\R-57-0001_MSE Retaining Wall\Plan\080201_gp.dgn

PLOT DATE : 1/19/2017

PLOT BY : ajc

STATE PROJECT NUMBER

8590-01-76

TOTAL ESTIMATED QUANTITIES

ITEM NO.	BID ITEMS	UNIT	TOTAL
502.3210	PIGMENTED SURFACE SEALER	SY	38
504.0500	CONCRETE MASONRY RETAINING WALLS	CY	37
505.0600	BAR STEEL REINFORCEMENT HS COATED STRUCTURES	LB	4300
516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	4
612.0206	PIPE UNDERDRAIN UNPERFORATED 6-INCH	LF	20
612.0406	PIPE UNDERDRAIN WRAPPED 6-INCH	LF	80
614.0150	ANCHOR ASSEMBLIES FOR STEEL PLATE BEAM GUARD	EACH	1
SPV.0165	WALL CONCRETE PANEL MECHANICALLY STABILIZED EARTH LRFD/QMP	SF	403
	NON-BID ITEMS		
	EXPANDED POLYSTYRENE, CORK FILLER	SIZE	1"
	NON-STAINING, NON-BITUMINOUS JOINT SEALER		

GEOMETRY TABLE

WALL STATION	STH 40 STATION	OFFSET TO F.F.	LOCATION	TOP OF WALL	FINISHED GRADE
1+00.00	26+56.32	18'-9"	BEGIN WALL	1242.33	1242.33
1+20.00	26+36.06	18'-9"	JOINT	1242.22	1240.50
1+40.00	26+15.79	18'-9"	JOINT	1242.12	1238.60
1+60.00	25+95.53	18'-9"	JOINT	1242.01	1236.69
1+80.00	25+75.27	18' 9"	END WALL	1241.91	1234.76

WALL EXTERNAL & OVERALL STABILITY EVALUATION

DIMENSIONS	EVALUATED LOCATIONS
WALL HEIGHT (FEET)	9.0
EXPOSED WALL HEIGHT (FEET)	7.2
MINIMUM LENGTH OF REINFORCEMENT (FEET) ☆	14.4
WALL STATION	1+00 TO 1+80
BORING USED	B-1 AND B-3
CAPACITY TO DEMAND RATIO (CDR)	
SLIDING (CDR>1.0)	1.63
ECCENTRICITY (CDR>1.0)	2.85
BEARING (CDR>1.0)	1.26
BEARING RESISTANCE (CDR>1.0)	3,500
GLOBAL STABILITY ANALYSIS	
FACTOR OF SAFETY	1.70
CAPACITY TO DEMAND (CDR>1.0)	1.27

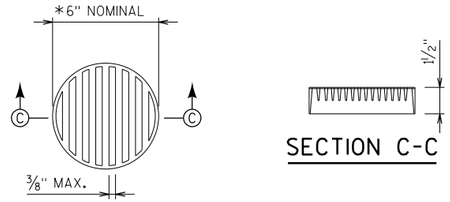
ALL SAFETY FACTORS ARE CALCULATED FOR THE WALL HEIGHTS AND REINFORCEMENT LENGTHS SHOWN IN THE TABLE. SEE GEOTECH REPORT FOR FURTHER INFORMATION.

☆ FINAL DESIGN FOR INTERNAL STABILITY AND EXTERNAL SLIDING AND STABILITY IS THE RESPONSIBILITY OF THE CONTRACTOR'S WALL DESIGNER. MINIMUM LENGTH OF REINFORCEMENT VALUE SHOWN IN TABLE IS BASED ON MAXIMUM WALL HEIGHT MULTIPLIED BY THE REINFORCEMENT LENGTH TO WALL HEIGHT RATIO AS SPECIFIED IN GEOTECHNICAL REPORT. CONTRACTOR MAY VARY REINFORCEMENT LENGTH BASED ON THIS RATIO. A MINIMUM REINFORCEMENT LENGTH OF 8 FEET SHOULD BE USED EVEN IF IT IS NOT REQUIRED FOR THE HEIGHT.

SOIL PARAMETERS

STRATUM LOCATIONS & SOIL DESCRIPTIONS	TOTAL UNIT WEIGHT (PCF)	FRICTION ANGLE (DEGREES)	COHESION (PSF)
WALL FILL	125	30	0
EL. 1240 TO 12321 (EXISTING FILL)	120	28	0
EL. 1231 - EL. 1223 (SAND WITH GRAVEL)	125	30	0
EL. 1223 - EL. 1217 (COBBLES AND BOULDERS)	140	38	0
EL. 1217 AND BELOW (BEDROCK)	145	-	200,000
EL. 1224 WATER LEVEL	-	-	-

VALUES LISTED IN THE SOILS PARAMETERS TABLE REPRESENT DRAINED AND UNDRAINED CONDITIONS.



RODENT SHIELD

NOTES:

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

THE RODENT SCREEN, PIPE COUPLING AND SCREWS SHALL BE INCIDENTAL TO THE BID ITEM "PIPE UNDERDRAIN WRAPPED 6-INCH"

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

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

THE PLAN QUANTITY FOR THE BID ITEM "WALL CONCRETE PANEL MECHANICALLY STABILIZED EARTH LRFD/QMP" IS BASED ON A WALL HEIGHT MEASURED FROM THE TOP OF WALL TO A CONSTANT DEPTH OF 1'-6" BELOW FINISHED GRADE.

ALL DIMENSIONS ARE IN FEET AND INCHES UNLESS OTHERWISE NOTED.

ALL STATIONS AND ALL ELEVATIONS ARE IN FEET. ELEVATIONS ARE REFERENCED TO THE NAVD 88 DATUM.

ALL STATIONS AND DIMENSIONS ARE ALONG ℞ R-57-1 (THE FRONT FACE OF WALL) UNLESS NOTED OTHERWISE.

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

ALL REINFORCING BARS ARE ENGLISH DESIGNATION AND THE FIRST DIGIT OF A 3-DIGIT BAR MARK OR FIRST TWO DIGITS OF A 4-DIGIT BAR MARK SIGNIFY THE BAR SIZE.

BEVEL EXPOSED EDGES OF CONCRETE 3/4 " UNLESS OTHERWISE NOTED.

THE EXISTING GROUNDLINE SHALL BE THE UPPER LIMITS OF EXCAVATION. WORK TO BE INCLUDED UNDER BID ITEM "WALL CONCRETE PANEL MECHANICALLY STABILIZED EARTH LRFD/QMP".

EXISTING BRIDGE B-57-72 IS A TWO SPAN PRESTRESSED CONCRETE GIRDER BRIDGE WITH AN OVERALL WIDTH OF 38'-6" AND AN OVERALL LENGTH OF 180'-0" AND IS TO BE REMOVED PRIOR TO CONSTRUCTION OF NEW STRUCTURE B-57-89 AND WALL R-57-1. COORDINATE THE CONSTRUCTION OF WALL R-57-1 WITH NEW BRIDGE ABUTMENT B-57-89.

APPLY PIGMENTED SURFACE SEALER TO THE TOP AND INSIDE FACES OF PARAPETS AND TOP OF EXPOSED 6" SECTION OF ANCHOR SLAB ADJACENT TO PARAPET.

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

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

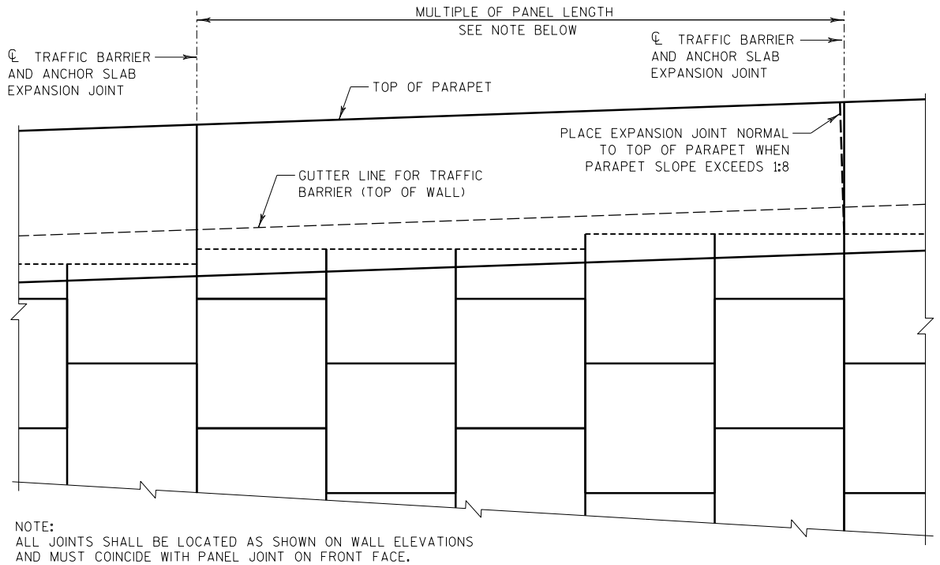
THE COST OF FURNISHING AND PLACING THE LEVELING PAD CONCRETE UNDER THE MSE WALL PANELS IS INCLUDED IN THE BID ITEM "WALL CONCRETE PANEL MECHANICALLY STABILIZED EARTH LRFD/QMP".

THE COST OF FURNISHING AND PLACING BACKFILL WITHIN THE REINFORCED SOIL ZONE IS TO BE INCLUDED IN THE BID ITEM "WALL CONCRETE PANEL MECHANICALLY STABILIZED EARTH LRFD/QMP".

THE MAXIMUM VALUE OF THE ANGLE OF INTERNAL FRICTION OF THE WALL BACKFILL MATERIAL IN THE REINFORCED ZONE SHALL BE ASSUMED TO BE 30° WITHOUT CERTIFIED TEST VALUES.

SUPPLY AND INSTALL A NAME PLATE IN ACCORDANCE WITH SECTION 502.3.11 OF THE STANDARD SPECIFICATIONS.

THE PLANS AND DETAILS ARE BASED ON A NOMINAL PRECAST PANEL WIDTH OF 5'-0". IF THE FABRICATED PANEL SIZES DIFFER FROM PLAN DIMENSIONS THE CONTRACTOR IS RESPONSIBLE TO COORDINATE REVISED JOINT LOCATIONS, REINFORCEMENT LENGTHS AND ALL OTHER REVISIONS ASSOCIATED WITH USING A DIFFERENT PANEL SIZE.



NOTE:
ALL JOINTS SHALL BE LOCATED AS SHOWN ON WALL ELEVATIONS AND MUST COINCIDE WITH PANEL JOINT ON FRONT FACE.

CAST-IN-PLACE TRAFFIC BARRIER AND WALL PARTIAL ELEVATION

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE R-57-1

DRAWN BY AJC | PLANS CK'D. MDR

GENERAL NOTES, QUANTITIES, & GEOMETRY

SHEET 2 OF 6
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FILE NAME : P:\49xx\4917.DP.15.STH40.SAW\09 STRUCTURES\R-57-0001_MSE Retaining Wall\Plan\080202_qu.dgn

PLOT DATE : 1/19/2017

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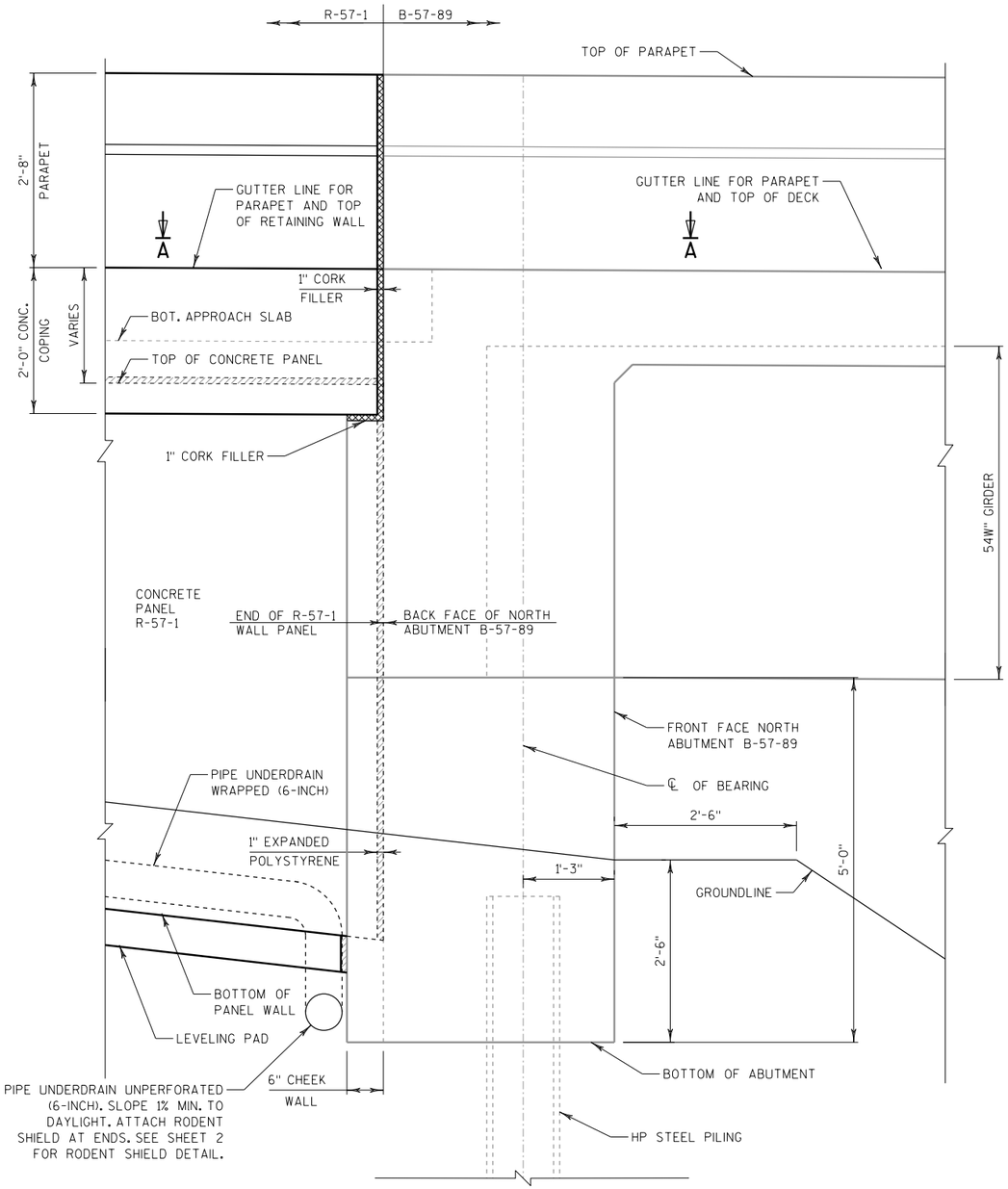
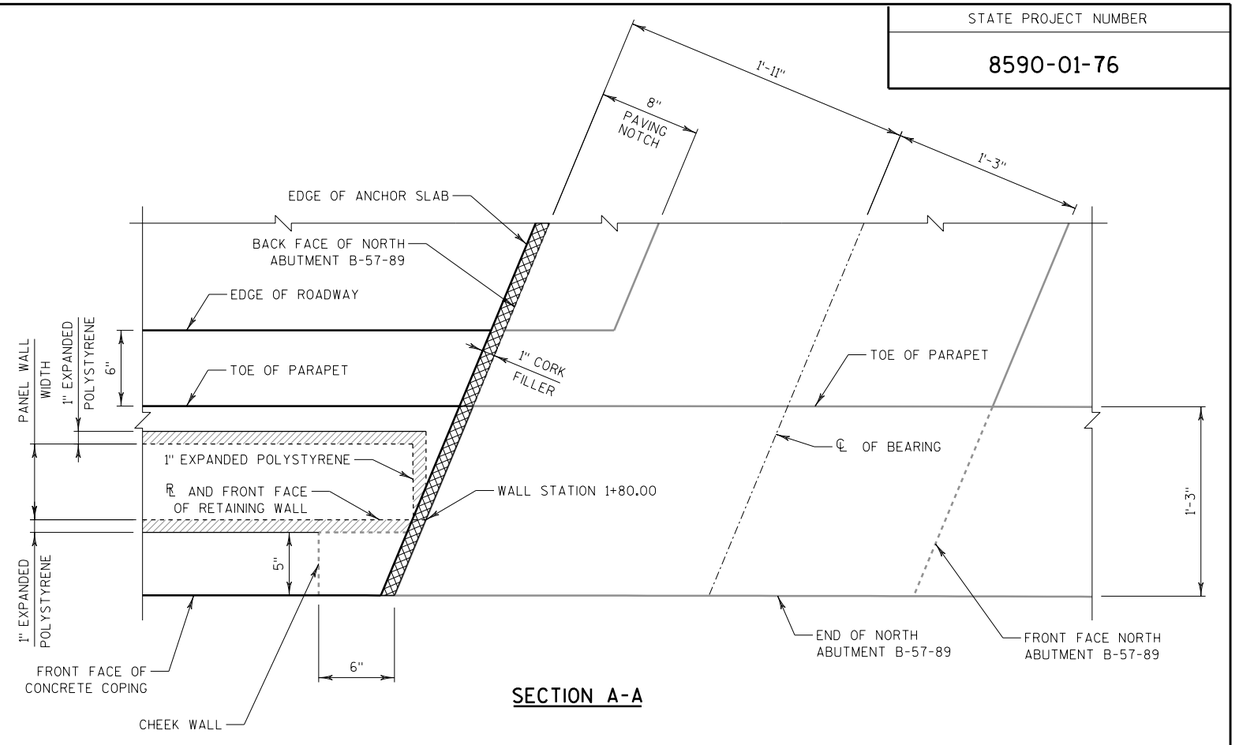
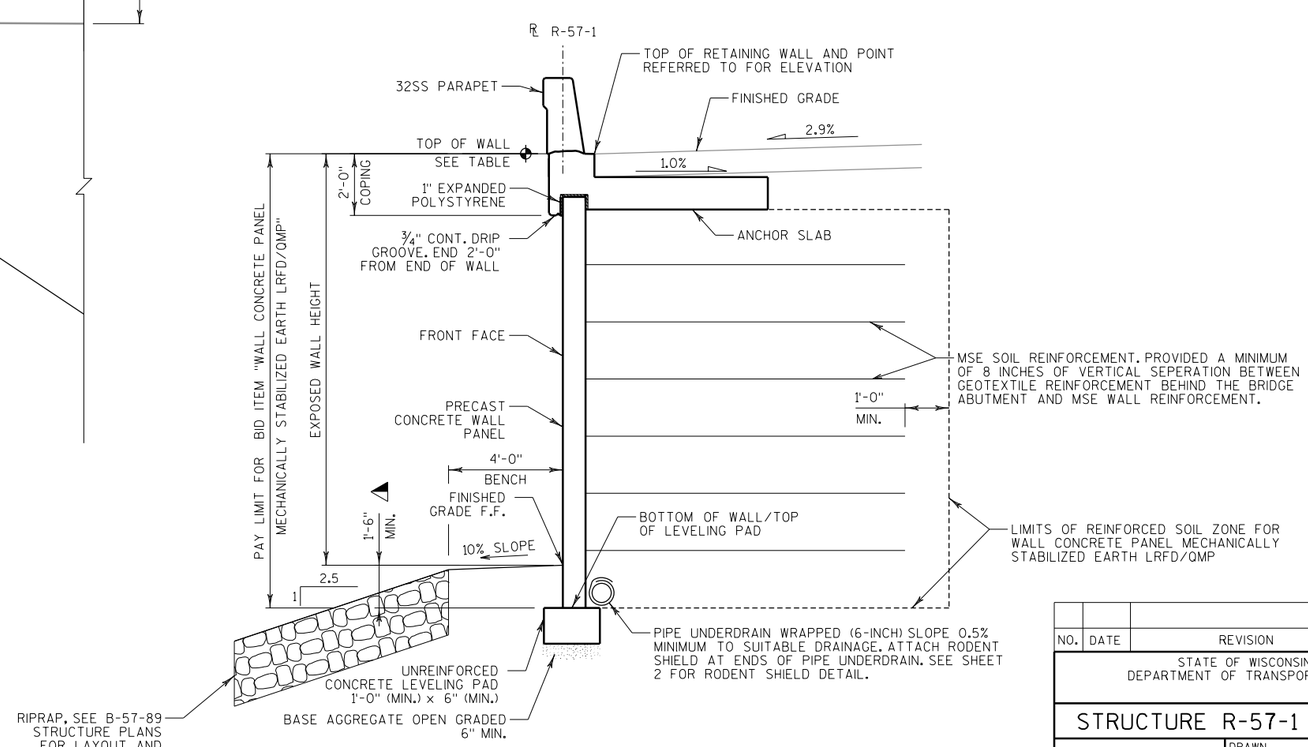


PARTIAL ELEVATION AT WINGWALL 3



SECTION A-A



TYPICAL SECTION THRU RETAINING WALL

LOOKING NORTH

⚠ MINIMUM EMBEDMENT BASED ON SITE SPECIFIC PARAMETERS. FIELD EMBEDMENTS SHALL MEET OR EXCEED THE MINIMUM EMBEDMENT. FIELD EMBEDMENTS SHALL NOT BE INCLUDED IN THE PAY LIMITS.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE R-57-1

DRAWN BY AJC | PLANS CK'D. MDR

WALL DETAILS

SHEET 3 OF 6
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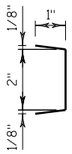
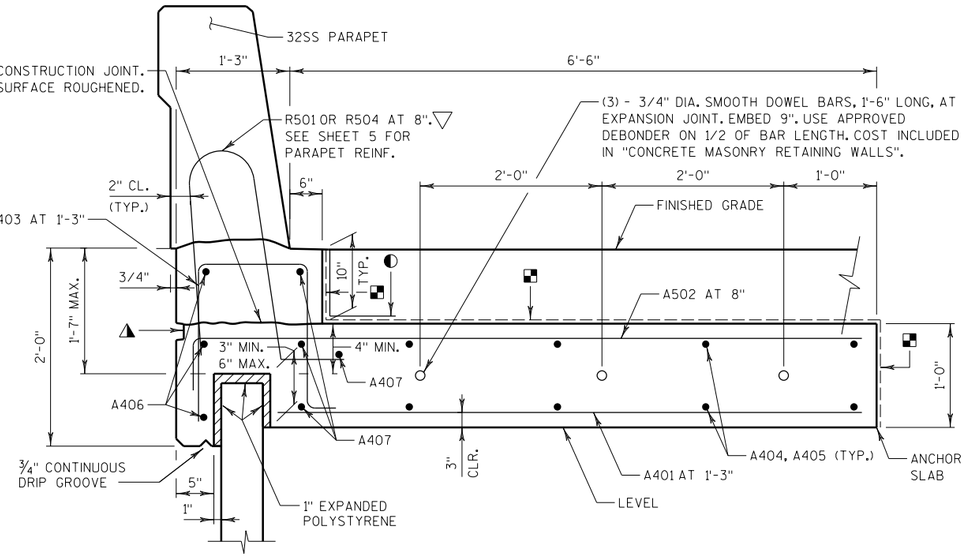
▪ 18" RUBBERIZED MEMBRANE WATERPROOFING TO BE PLACED ON THESE SURFACES AT EACH JOINT.

◐ IF THE OPTIONAL CONSTRUCTION JOINT IS USED, PLACE 18" MEMBRANE WATERPROOFING ALONG THE ENTIRE LONGITUDINAL JOINT. THE MEMBRANE WATERPROOFING SEALING FOR THE OPTIONAL CONSTRUCTION JOINT IS INCLUDED IN THE BID ITEM "CONCRETE MASONRY RETAINING WALLS" BID ITEM.



◭ RUSTICATION DETAIL

PROVIDE RUSTICATION IF OPTIONAL CONSTRUCTION JOINT IS USED



CAST-IN-PLACE CONCRETE TRAFFIC BARRIER DETAIL FOR PRECAST WALL PANELS

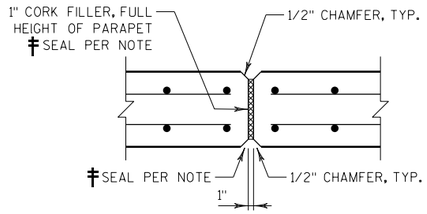
OPTIONAL CONSTRUCTION JOINTS IN THE PARAPET AND ANCHOR SLAB BETWEEN EXPANSION JOINTS MAY BE USED. RUN BAR REINFORCEMENT THRU THE JOINT. DEFINE CONSTRUCTION JOINT WITH A 3/4" "V" GROOVE.

LAP LONGITUDINAL #4 BARS A MINIMUM 1'-0". LAP LONGITUDINAL #5 BARS A MINIMUM 1'-9".

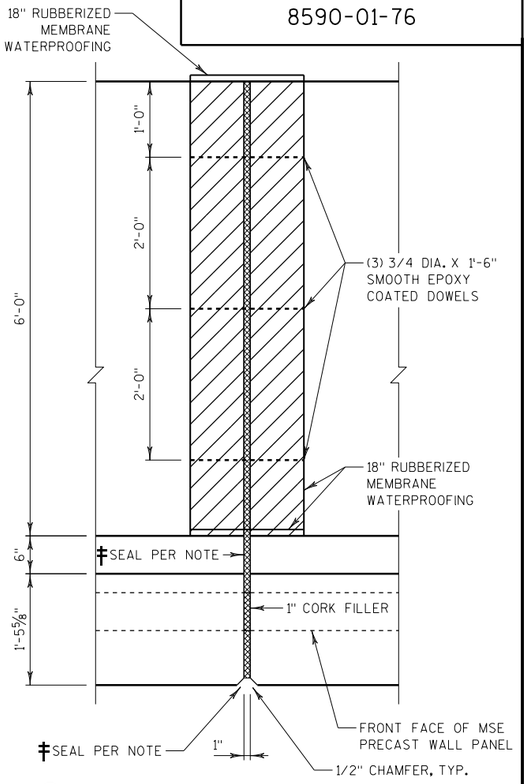
CONCRETE QUANTITY BASED ON 3" PANEL EMBEDMENT.

✻ EXPANSION JOINTS TO BE SPACED AT A MINIMUM OF 20' AND A MAXIMUM OF 30'. LOCATE EXPANSION JOINTS OVER WALL JOINTS. DO NOT RUN BAR STEEL THRU JOINT. EXCEPT FOR DOWEL BARS. JOINT TO EXTEND FULL DEPTH OF PARAPET AND ANCHOR SLAB.

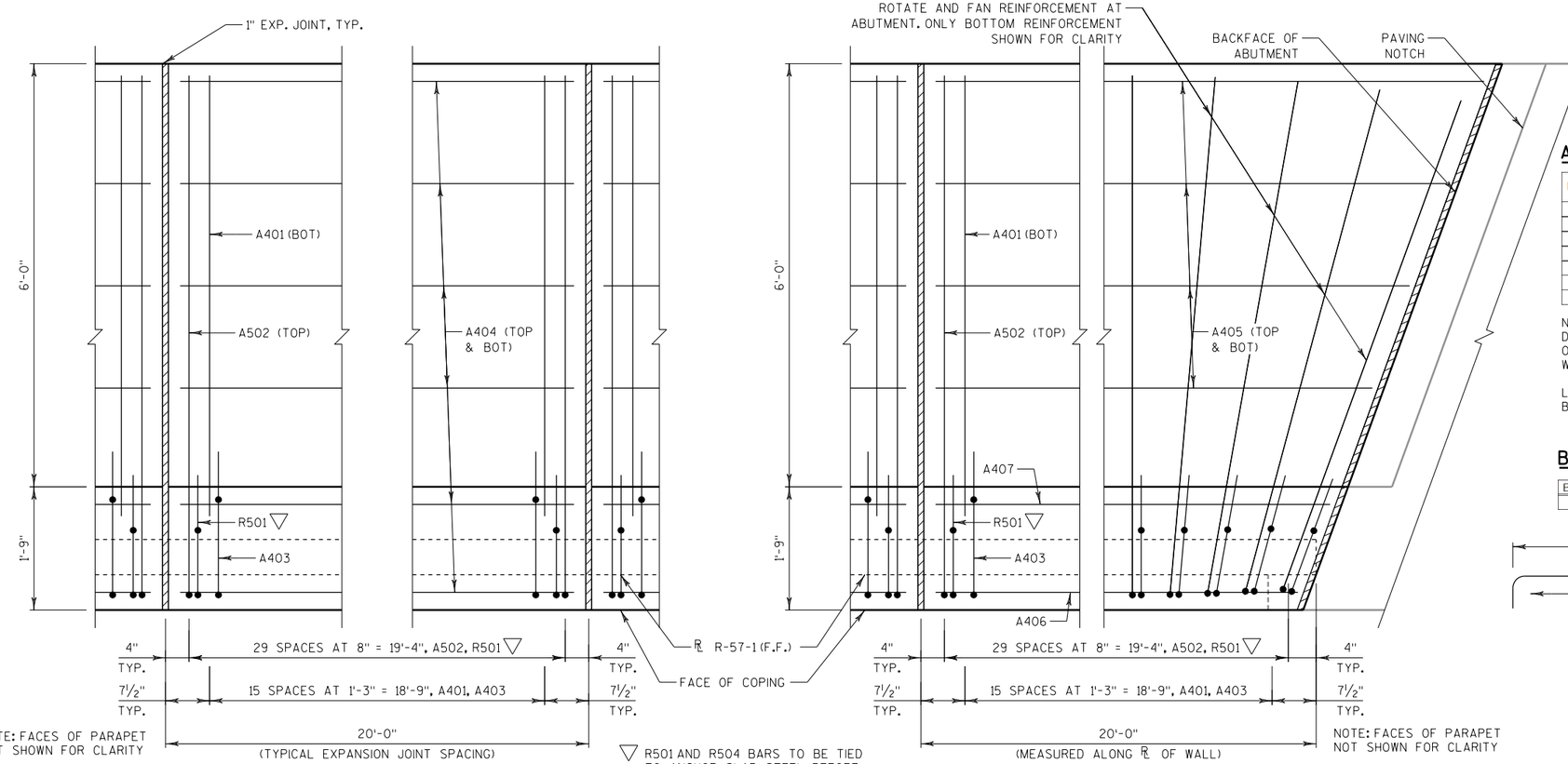
‡ SEAL ALL EXPOSED HORIZ. AND VERT. SURFACES OF FILLER WITH NON-STAINING, GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD 1/8" BELOW SURFACE OF CONC.)



✻ TRAFFIC BARRIER EXPANSION JOINT DETAIL



✻ ANCHOR SLAB EXPANSION JOINT DETAIL



TYPICAL ANCHOR SLAB REINFORCING PLAN

ANCHOR SLAB REINFORCING PLAN AT BRIDGE ABUTMENT

ANCHOR SLAB BILL OF BARS

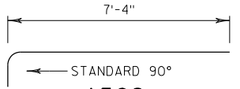
BAR MARK	COAT	NO.	LENGTH	BENT	BAR SERIES	LOCATION
A401	X	64	6'-4"			ANCHOR SLAB - TRANS. BOTTOM
A502	X	120	8'-1"	X		ANCHOR SLAB - TRANS. TOP
A403	X	64	4'-10"	X		ANCHOR SLAB - VERTICAL
A404	X	45	19'-8"			ANCHOR SLAB - LONG. T & B
A405	X	8	21'-7"		X	ANCHOR SLAB - LONG. T & B
A406	X	3	19'-5"			ANCHOR SLAB - LONG.
A407	X	4	20'-1"			ANCHOR SLAB - LONG.

NUMBER REQUIRED AND LENGTH SHOWN FOR QUANTITY PURPOSES ONLY. CONTRACTOR TO DETERMINE ACTUAL LENGTHS AND NUMBER OF BARS AFTER MSE PANELS HAVE BEEN LAID OUT BY THE WALL SUPPLIER. THE PARAPET AND ANCHOR SLAB JOINTS MUST COINCIDE WITH PANEL JOINT ON FRONT FACE. PROVIDE 2" CLEAR COVER AT EXPANSION JOINTS.

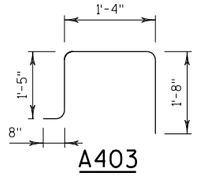
LENGTH SHOWN FOR BAR A405 IS AN AVERAGE LENGTH AND SHOULD ONLY BE USED FOR BAR WEIGHT CALCULATIONS. SEE BAR SERIES TABLE FOR ACTUAL LENGTHS.

BAR SERIES TABLE

BAR MARK	NO. REQ'D	LENGTHS FOR EACH SERIES
A405	2 SERIES OF 4	20'-8" TO 22'-6"



A502



A403

NO.	DATE	REVISION	BY

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STRUCTURE R-57-1

DRAWN BY AJC | PLANS CK'D. MDR

ANCHOR SLAB DETAILS

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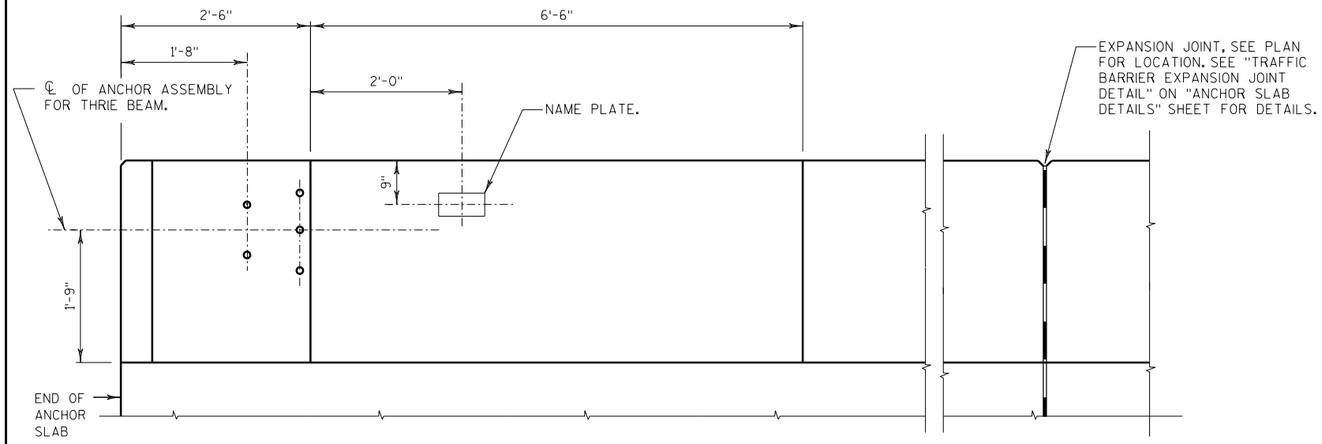
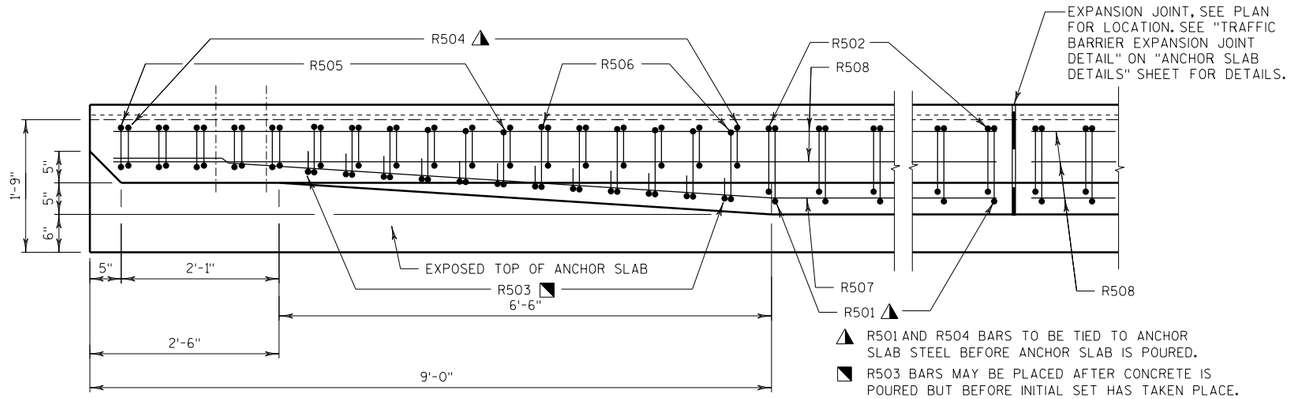


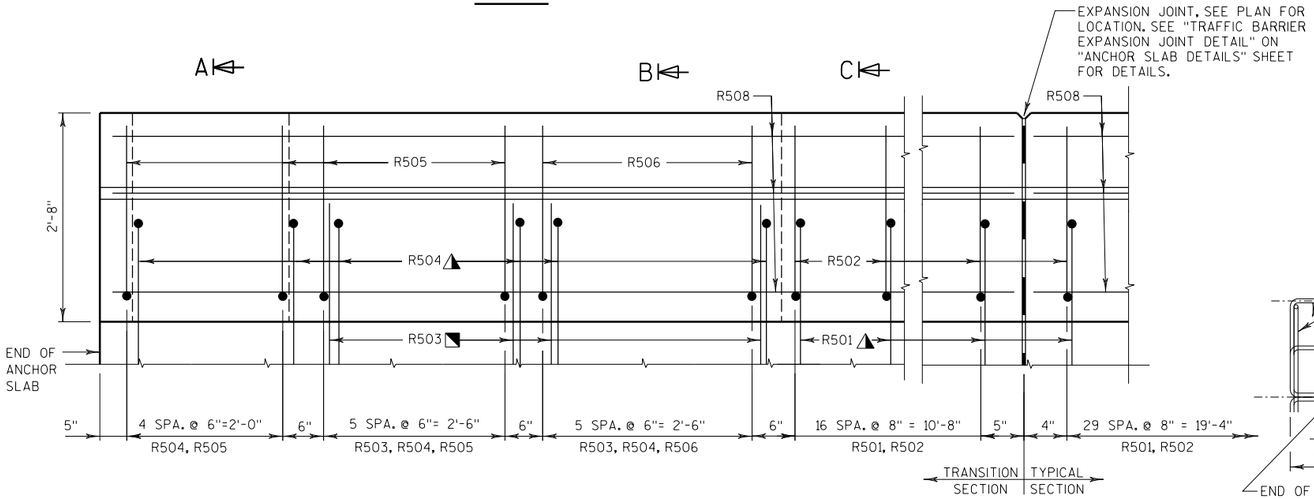
INSIDE ELEVATION



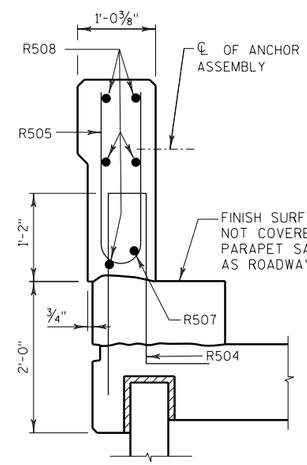
PLAN

△ R501 AND R504 BARS TO BE TIED TO ANCHOR SLAB STEEL BEFORE ANCHOR SLAB IS POURED.

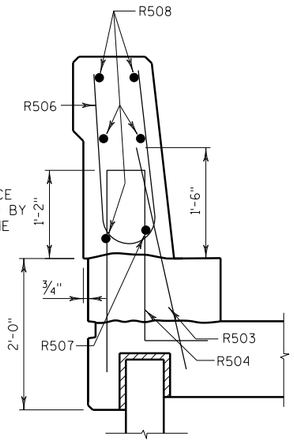
◹ R503 BARS MAY BE PLACED AFTER CONCRETE IS POURED BUT BEFORE INITIAL SET HAS TAKEN PLACE. USE CARE TO PLACE R503 BARS CORRECTLY ALONG TRANSITION OF PARAPET.



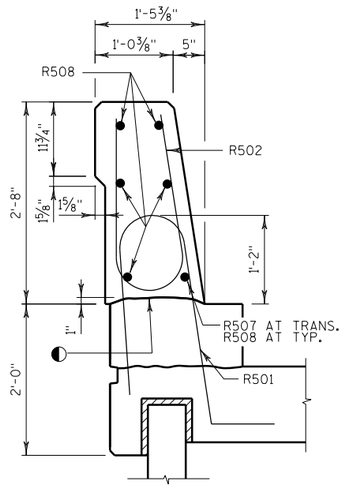
OUTSIDE ELEVATION



SECTION A



SECTION B

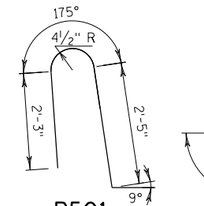


SECTION C

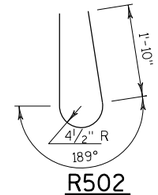
◐ CONST. JOINT - STRIKE OFF AS SHOWN.

BILL OF BARS

BAR MARK	COAT	NO.	LENGTH	BENT	LOCATION
R501	X	107	6'-7"	X	PARAPET VERT.
R502	X	107	5'-0"	X	PARAPET VERT.
R503	X	12	3'-0"		PARAPET VERT.
R504	X	17	5'-10"	X	PARAPET VERT.
R505	X	11	4'-9"	X	PARAPET VERT.
R506	X	6	4'-10"	X	PARAPET VERT.
R507	X	1	19'-8"	X	PARAPET HORIZ.
R508	X	23	19'-8"		PARAPET HORIZ.



R501



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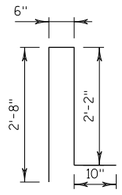

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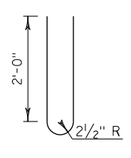
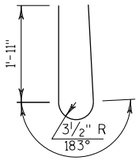


R505



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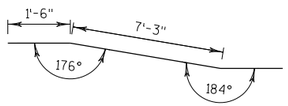
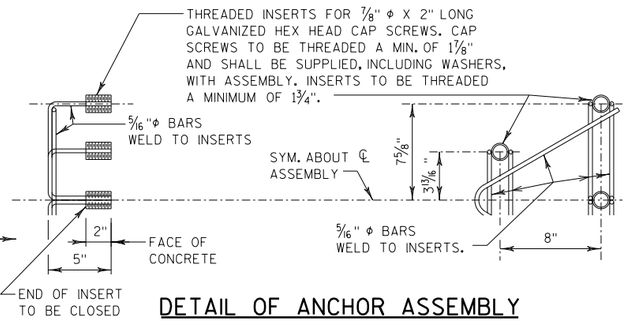


R507



DETAIL OF ANCHOR ASSEMBLY

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

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

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE R-57-1

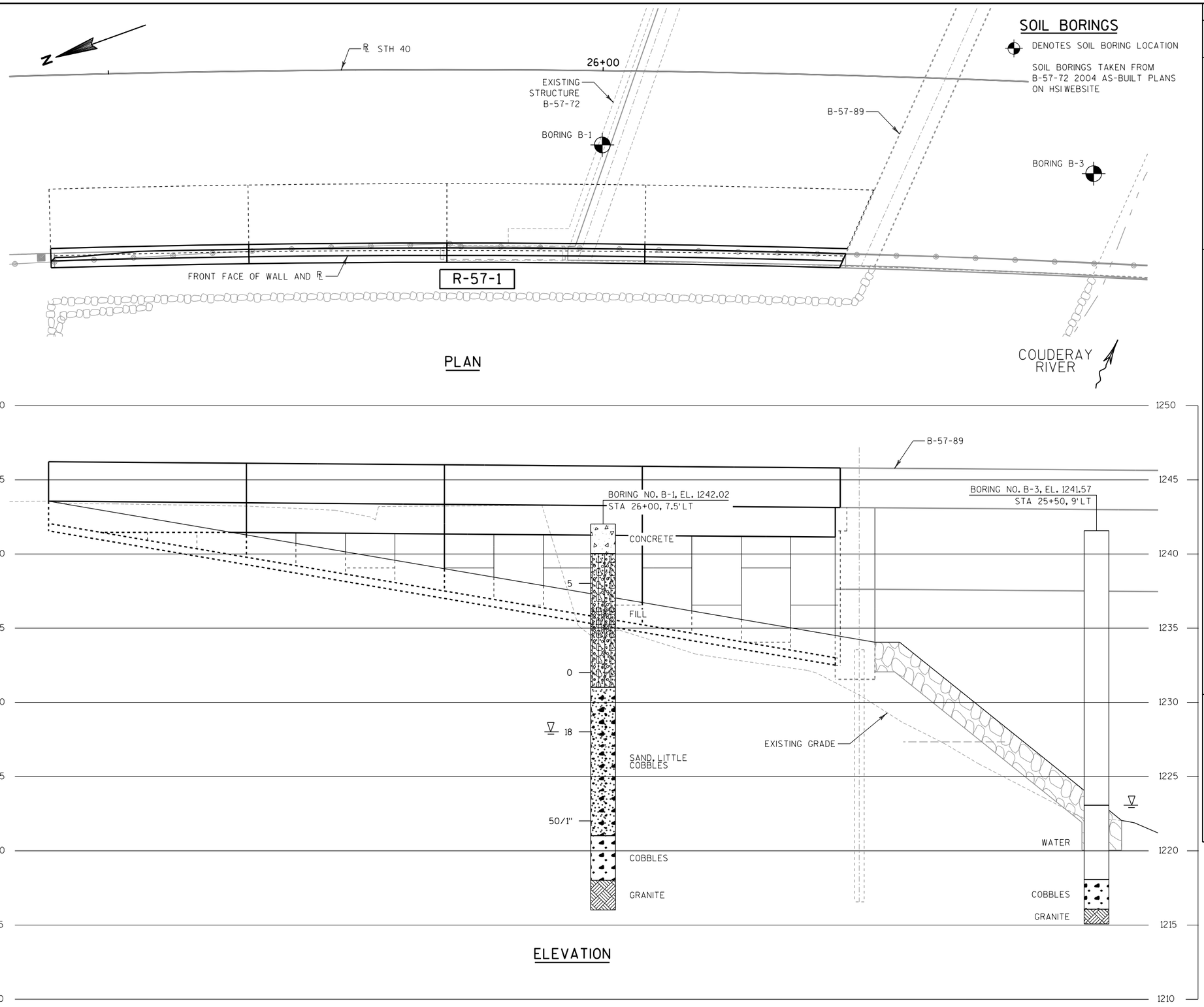
DRAWN BY AJC | PLANS CK'D. MDR

SINGLE SLOPE PARAPET 32SS

SHEET 5 OF 6
98

8

8



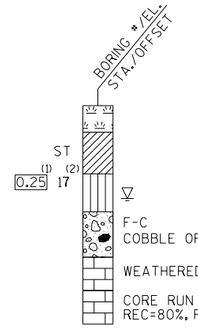
STATE PROJECT NUMBER

8590-01-76

MATERIAL SYMBOLS

ASPHALT	TOPSOIL	PEAT
CONCRETE	FILL	GRAVEL
SAND	CLAY	SILT
BOULDERS OR COBBLES	LIMESTONE	BEDROCK (UNKNOWN)
SHALE	SANDSTONE	IGNEOUS/ META

LEGEND OF BORING



(1) UNCONFINED STRENGTH, AS DETERMINED BY A POCKET PENETROMETER (TSF)

(2) UNLESS OTHERWISE, SPECIFIED THE SPT 'N' VALUE IS BASED ON AASHTO T-206, STANDARD PENETRATION TEST. THE SPT 'N' VALUE PRESENTED HAS NOT BEEN CORRECTED FOR OVERBURDEN PRESSURE OR HAMMER EFFICIENCY.

GROUND WATER ELEVATION

- AT TIME OF DRILLING
- END OF DRILLING
- AFTER DRILLING

ABBREVIATIONS

F-FINE M-MEDIUM C-COARSE ST-SHELBY TUBE

SUBSURFACE EXPLORATION FOR FOUNDATION DESIGN AND BIDDERS INFORMATION

BORINGS WERE COMPLETED AT POINTS APPROXIMATELY AS INDICATED ON THIS DRAWING TO OBTAIN INFORMATION CONCERNING THE CHARACTER OF SUBSURFACE MATERIALS FOUND AT THE SITE. BECAUSE THE INVESTIGATED DEPTHS ARE LIMITED AND THE AREA OF THE BORINGS IS VERY SMALL IN RELATION TO THE ENTIRE SITE, THE WISCONSIN DEPARTMENT OF TRANSPORTATION DOES NOT WARRANT SIMILAR SUBSURFACE CONDITIONS BELOW, BETWEEN, OR BEYOND THESE BORINGS. VARIATIONS IN SOIL CONDITIONS SHOULD BE EXPECTED AND FLUCTUATIONS IN GROUNDWATER LEVELS MAY OCCUR.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE R-57-1

DRAWN BY AJC | PLANS CK'D. MDR

SUBSURFACE EXPLORATION

SHEET 6 OF 6
99

8

8

FILE NAME : P:\49xx\4917.DP.15.STH40.SAW\09 STRUCTURES\R-57-0001_MSE Retaining Wall\Plan\080206_se.dgn

PLOT DATE : 1/19/2017

PLOT BY : ajc

SOUTH OF COUDERAY RIVER

STATION	DISTANCE	AREA (SF)		INCREMENTAL VOL (CY) (UNADJUSTED)		CUMULATIVE VOL (CY)		MASS ORDINATE
		CUT	FILL	CUT NOTE 1	FILL NOTE 2	CUT 1.00 NOTE 1	EXPANDED FILL 1.25 NOTE 3	NOTE 4
22+13		0	0	0	0	0	0	0
22+32	19	3	0	1	0	1	0	1
22+50	18	10	0	5	0	6	0	6
23+00	50	3	1	12	1	18	1	18
23+20	20	108	1	41	0	60	1	58
23+31	11	107	2	45	1	104	2	102
23+48	17	105	4	65	2	169	4	165
23+50	2	106	4	8	0	178	5	173
23+56	6	107	7	23	1	201	6	195
23+73	17	108	4	69	3	270	11	260
23+81	8	107	4	31	1	301	12	289
23+98	17	95	74	66	25	367	43	324
24+00	2	94	87	5	5	372	49	323
24+23	23	0	349	39	182	412	277	135
24+39	41	0	276	0	469	412	862	-451
24+50	28	0	228	0	257	412	1184	-772
			COLUMN TOTALS	412	947			

NORTH OF COUDERAY RIVER

STATION	DISTANCE	AREA (SF)		INCREMENTAL VOL (CY) (UNADJUSTED)		CUMULATIVE VOL (CY)		MASS ORDINATE
		CUT	FILL	CUT NOTE 1	FILL NOTE 2	CUT 1.00 NOTE 1	EXPANDED FILL 1.25 NOTE 3	NOTE 4
25+67		0	282	0	0	0	0	0
25+75	8	10	315	2	91	2	113	-112
25+91	16	9	364	6	203	7	367	-360
25+96	4	36	240	4	50	11	429	-418
26+00	4	62	130	8	31	19	468	-448
26+15	15	86	26	41	44	60	522	-462
26+16	1	87	24	3	1	63	523	-460
26+36	20	91	1	67	9	130	535	-405
26+40	4	90	4	14	0	144	535	-391
26+50	10	89	48	33	9	176	547	-371
26+51	1	89	51	3	2	179	549	-370
26+56	5	99	47	19	10	198	561	-363
26+65	9	103	0	32	8	230	571	-340
26+75	10	107	0	38	0	269	571	-302
26+82	7	17	0	17	0	286	571	-285
27+00	18	20	17	12	6	298	578	-280
27+26	26	12	25	15	20	313	603	-290
27+50	24	11	29	10	24	323	633	-310
27+75	25	21	25	15	25	338	665	-327
27+95	20	21	23	16	18	353	687	-334
28+00	5	21	8	4	3	357	690	-333
28+25	25	21	2	20	5	377	697	-320
28+47	22	21	1	17	1	394	698	-304
28+70	23	0	0	9	0	403	699	-296
			COLUMN TOTALS	403	559			

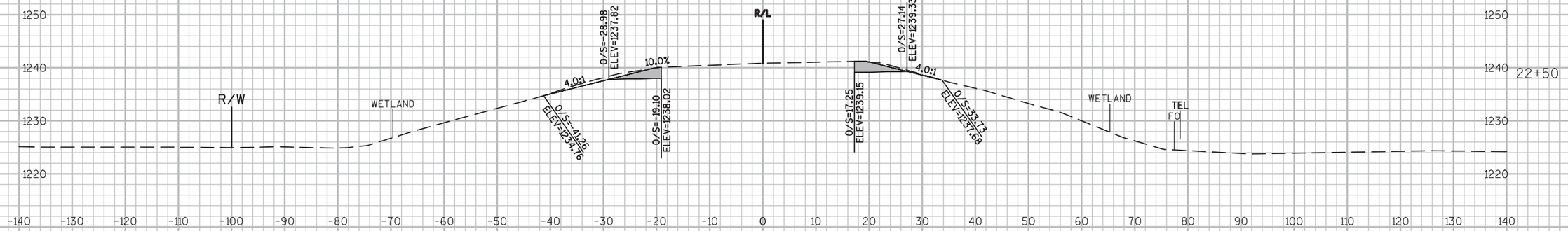
NOTES:	
1 - CUT	CUT INCLUDES SALVAGED/UNUSABLE PAVEMENT MATERIAL. SALVAGED/UNUSABLE PAVEMENT MATERIAL
2 - FILL	DOES NOT INCLUDE UNUSABLE PAVEMENT EXC VOLUME. SALVAGED/UNUSABLE PAVEMENT MATERIAL IS CALCULATED ON THE SUMMARY SHEET.
3 - EXPANDED FILL	(UNEXPANDED FILL)*(FILL FACTOR)
4 - MASS ORDINATE	CUT - (EXPANDED FILL); PLUS INDICATES AN EXCESS OF MATERIAL

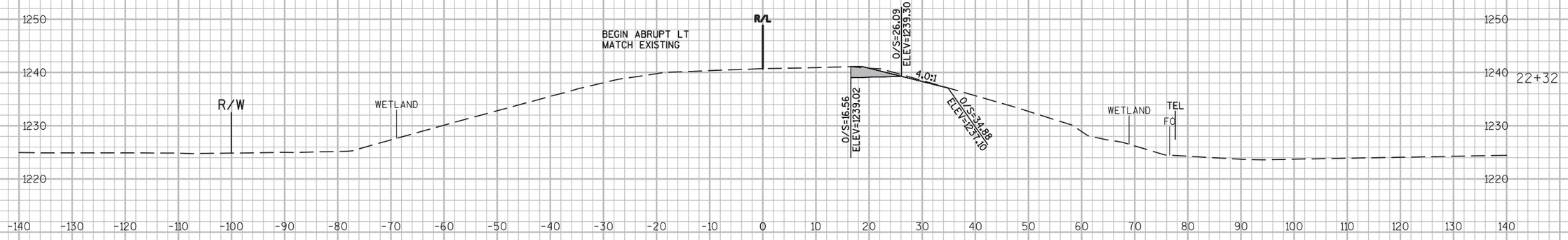
9

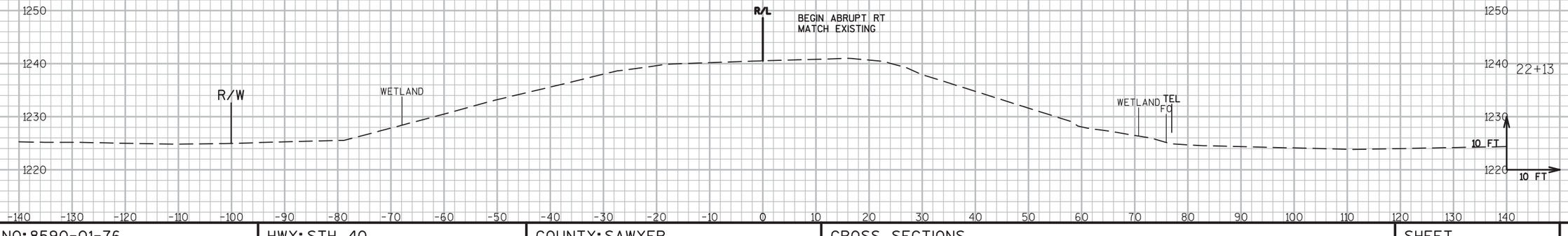
9

LEGEND

EXISTING BASE AGGREGATE DENSE TO REMAIN







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9

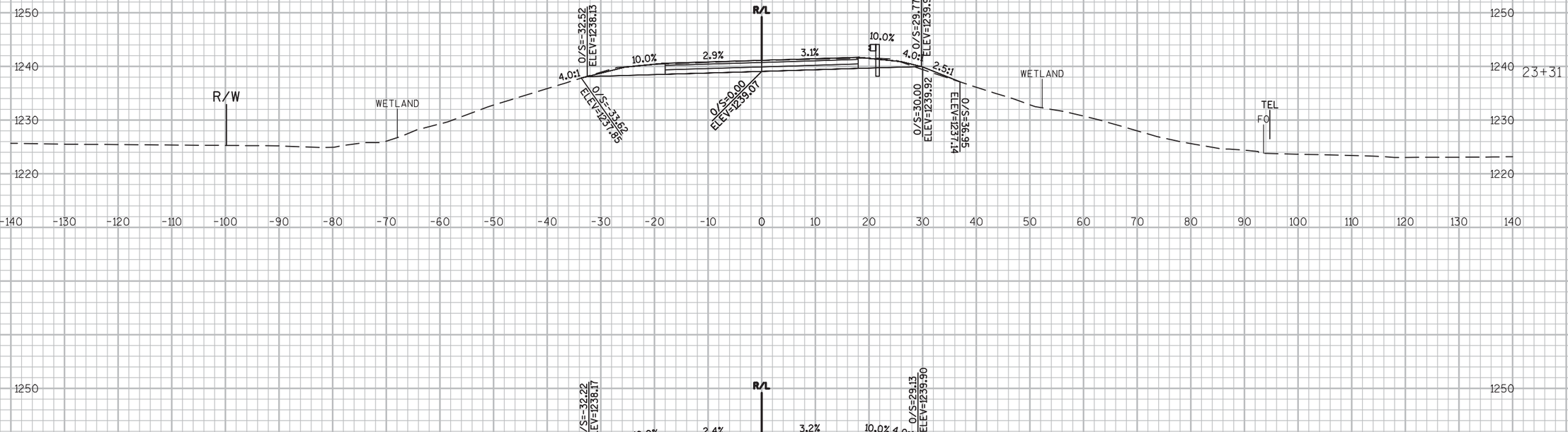
PROJECT NO: 8590-01-76	HWY: STH 40	COUNTY: SAWYER	CROSS SECTIONS	SHEET 101	E

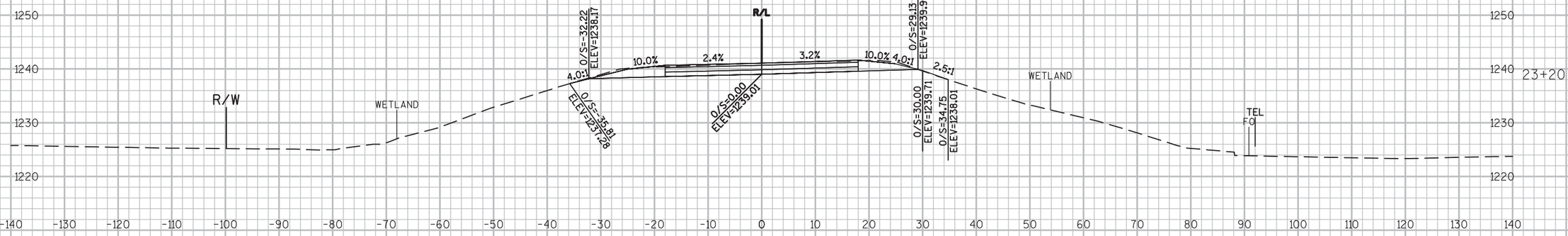
FILE NAME : P:\49XX\4917.DP.15.STH40.SAW\CADDS\85900106\SHEETSPLAN\090201-XS.DWG
LAYOUT NAME - SECTION SHEET - (1)

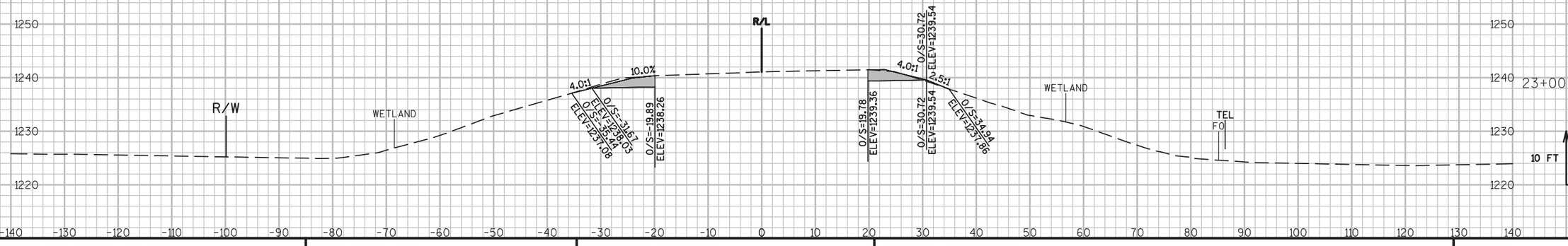
PLOT DATE : 11/29/2016 9:44 AM PLOT BY : MICHAEL HIGGINS PLOT NAME : PLOT SCALE : 1 IN:20 FT

LEGEND

EXISTING BASE AGGREGATE DENSE TO REMAIN







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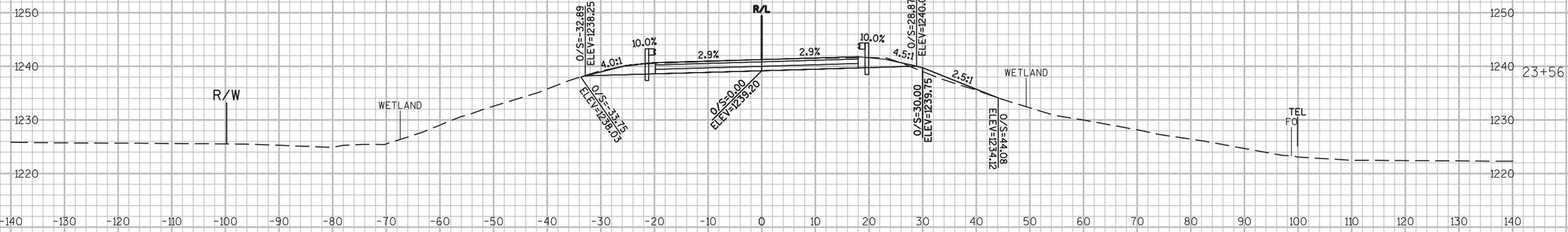
9

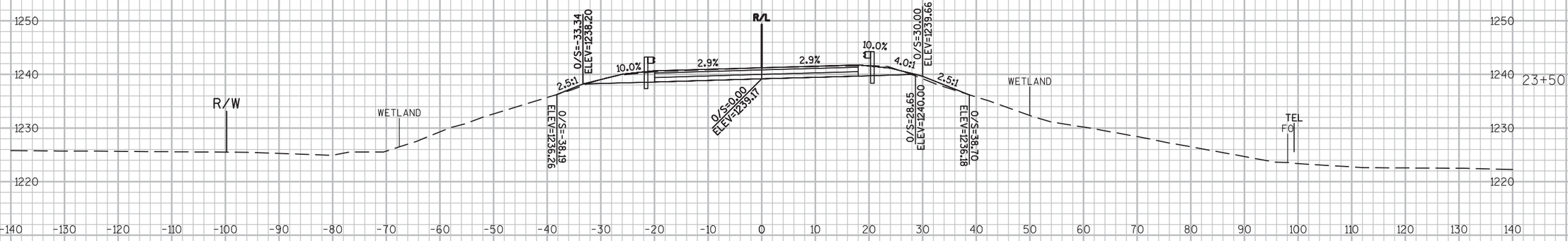
PROJECT NO: 8590-01-76	HWY: STH 40	COUNTY: SAWYER	CROSS SECTIONS	SHEET 102	E

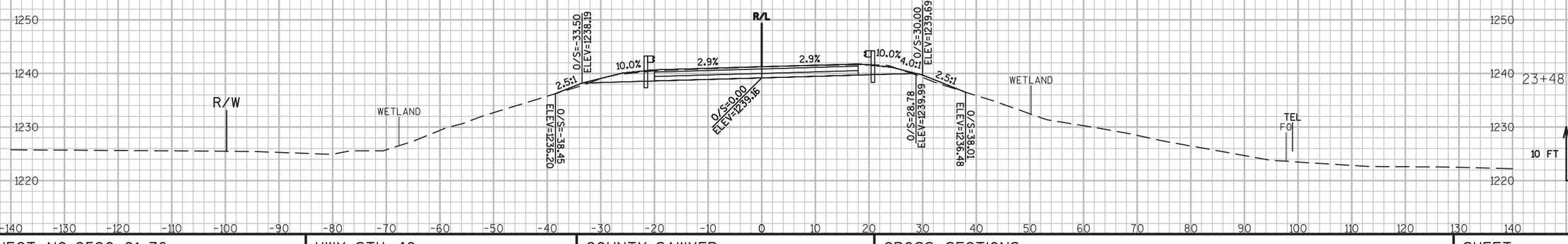
FILE NAME : P:\49XX\4917.DP.15.STH40.SAW\CADDS\85900106\SHEETSPLAN\090201-XS.DWG
LAYOUT NAME - SECTION SHEET - (2)

PLOT DATE : 11/29/2016 9:45 AM PLOT BY : MICHAEL HIGGINS PLOT NAME :

WISDOT/CADDS SHEET 49







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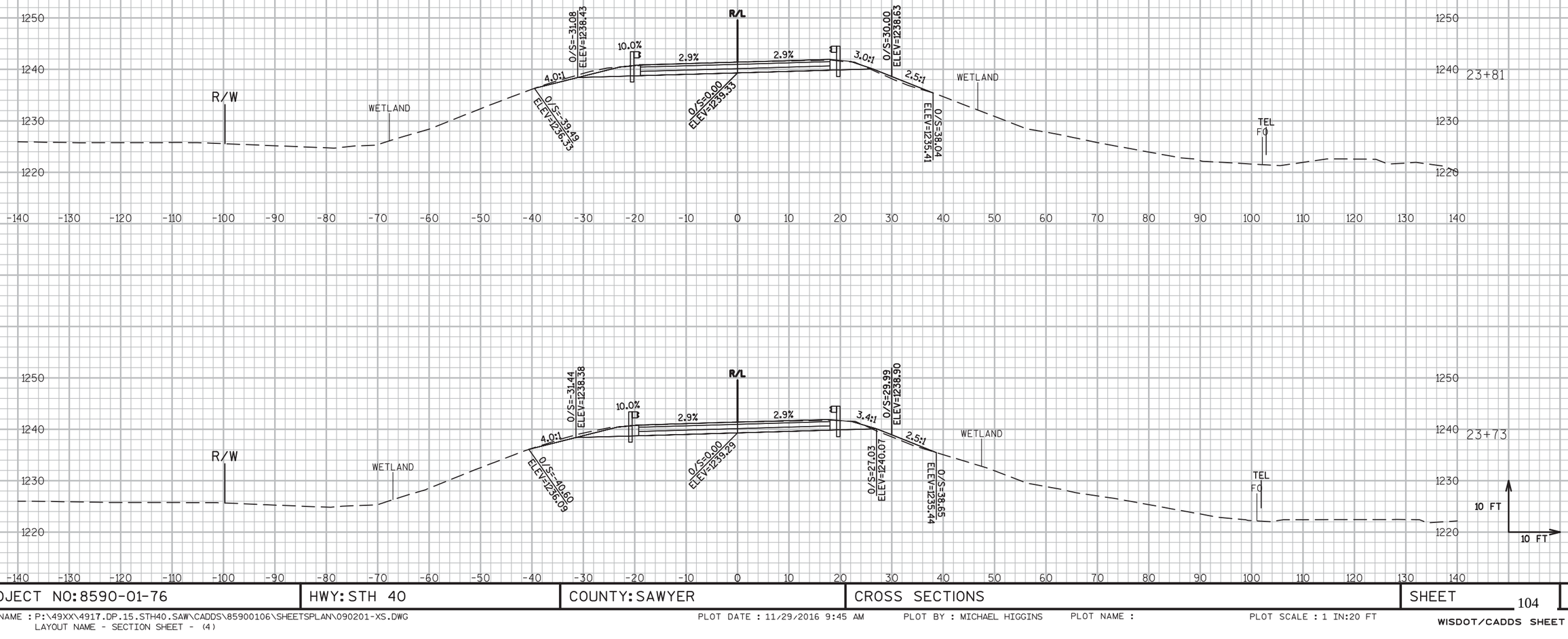
9

PROJECT NO: 8590-01-76	HWY: STH 40	COUNTY: SAWYER	CROSS SECTIONS	SHEET 103	E

FILE NAME : P:\49XX\4917.DP.15.STH40.SAW\CADDS\85900106\SHEETSPLAN\090201-XS.DWG
LAYOUT NAME - SECTION SHEET - (3)

PLOT DATE : 11/29/2016 9:45 AM PLOT BY : MICHAEL HIGGINS PLOT NAME : 1 IN:20 FT

WISDOT/CADDS SHEET 49



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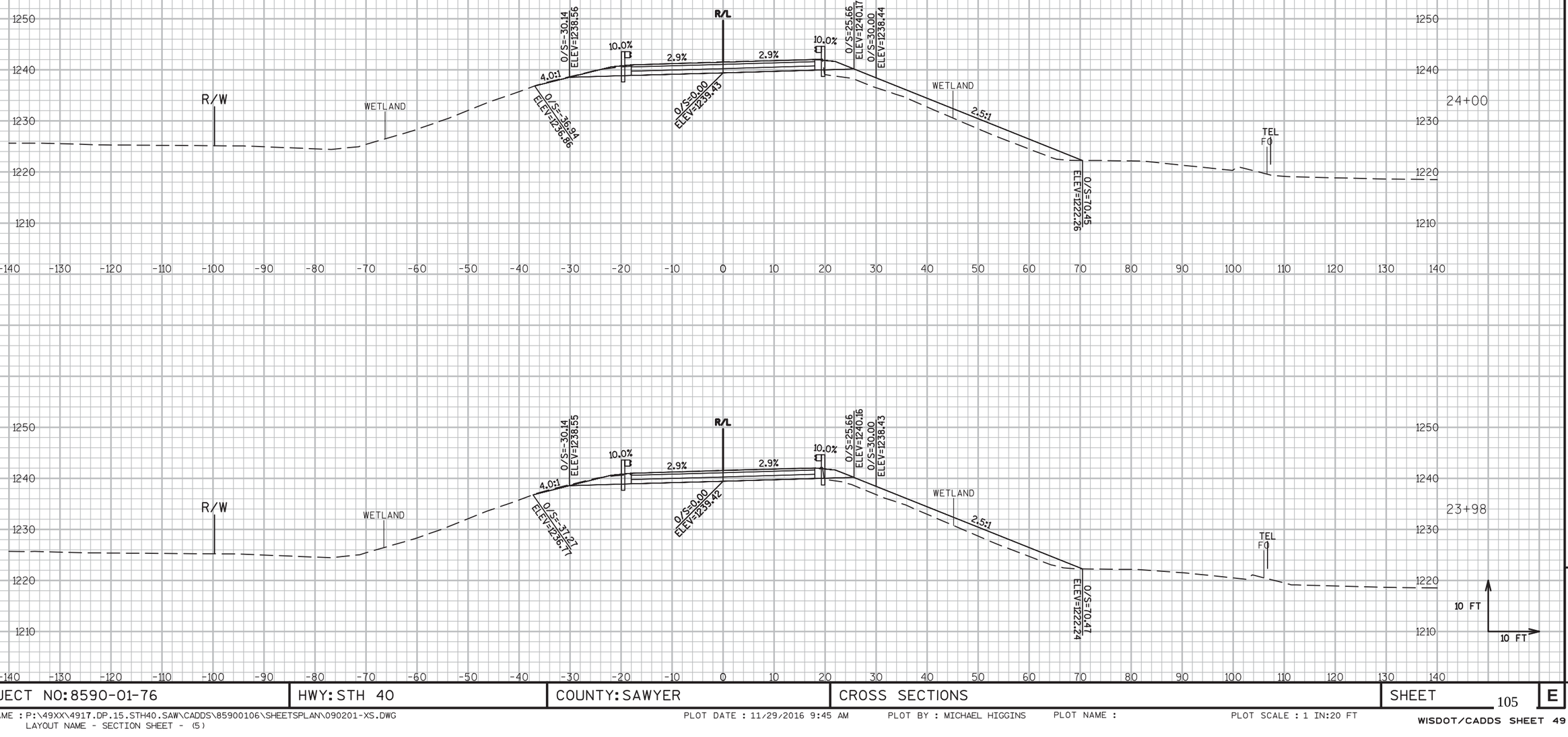
PROJECT NO: 8590-01-76	HWY: STH 40	COUNTY: SAWYER	CROSS SECTIONS	SHEET 104 E

FILE NAME : P:\49XX\4917.DP.15.STH40.SAW\CADDS\85900106\SHEETSPLAN\090201-XS.DWG
LAYOUT NAME - SECTION SHEET - (4)

PLOT DATE : 11/29/2016 9:45 AM PLOT BY : MICHAEL HIGGINS PLOT NAME : PLOT SCALE : 1 IN:20 FT

WISDOT/CADDS SHEET 49



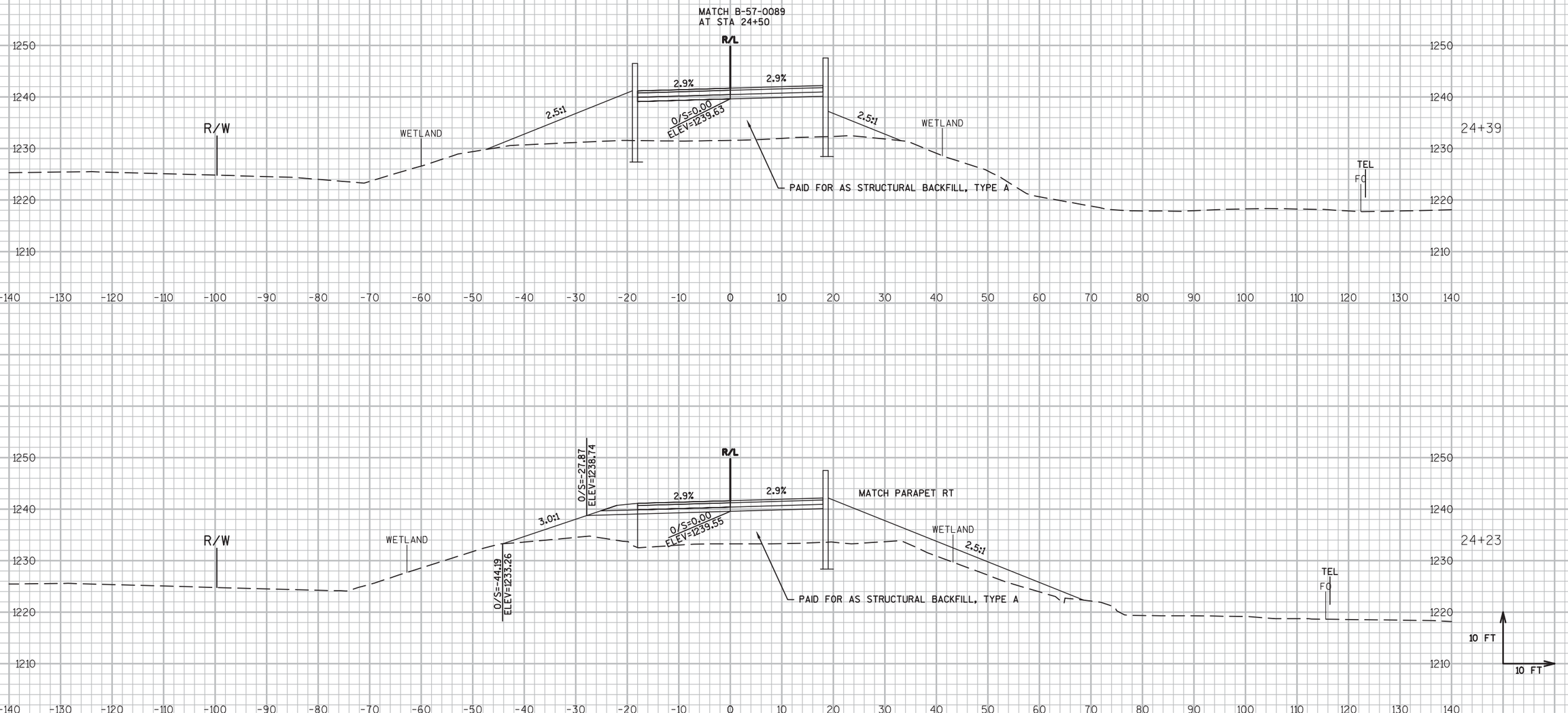
9 9

PROJECT NO: 8590-01-76	HWY: STH 40	COUNTY: SAWYER	CROSS SECTIONS	SHEET 105	E

FILE NAME : P:\49XX\4917.DP.15.STH40.SAW\CADDS\85900106\SHEETSPLAN\090201-XS.DWG
LAYOUT NAME - SECTION SHEET - (5)

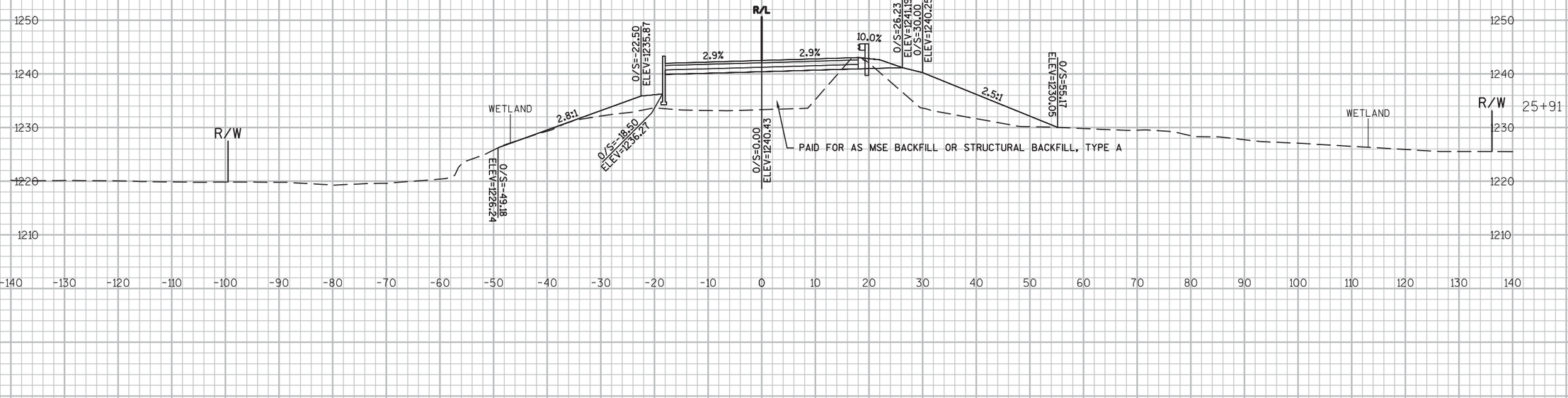
PLOT DATE : 11/29/2016 9:45 AM PLOT BY : MICHAEL HIGGINS PLOT NAME : PLOT SCALE : 1 IN:20 FT

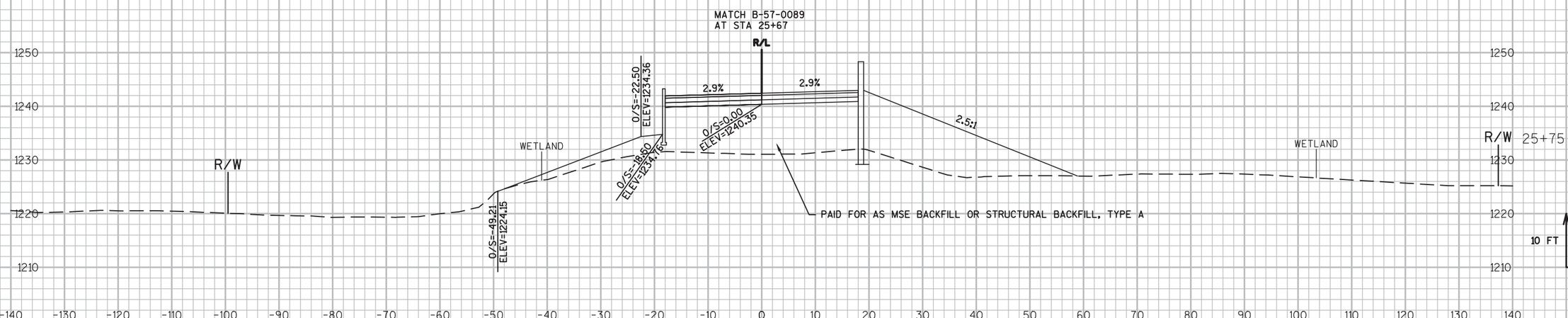
WISDOT/CADDS SHEET 49



9 9

PROJECT NO: 8590-01-76	HWY: STH 40	COUNTY: SAWYER	CROSS SECTIONS	SHEET 106	E





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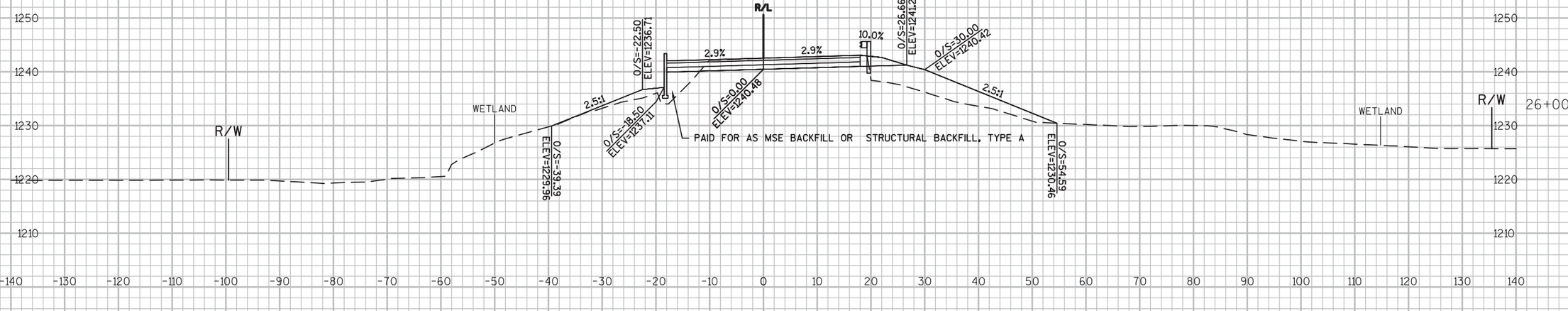
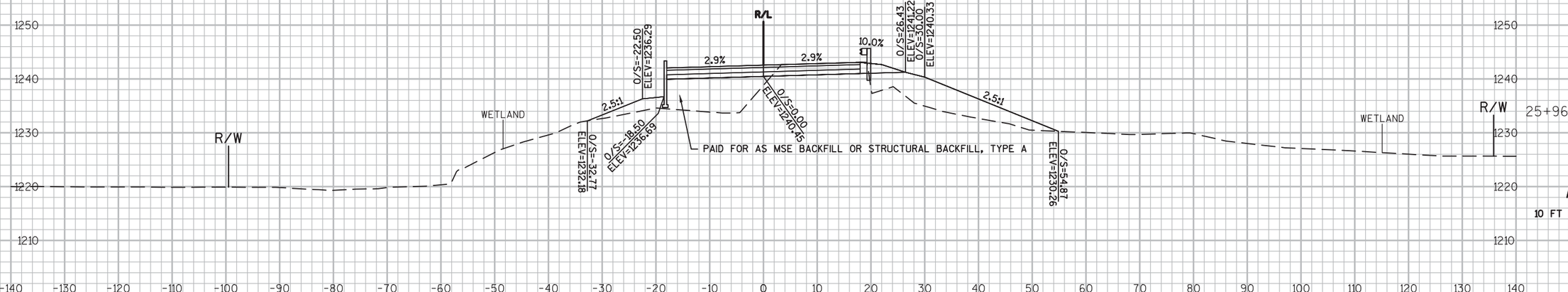
PROJECT NO: 8590-01-76	HWY: STH 40	COUNTY: SAWYER	CROSS SECTIONS	SHEET 107	E

FILE NAME : P:\49XX\4917.DP.15.STH40.SAW\CADDS\85900106\SHEETSPLAN\090201-XS.DWG
LAYOUT NAME - SECTION SHEET - (7)

PLOT DATE : 11/30/2016 8:44 AM PLOT BY : MICHAEL HIGGINS PLOT NAME : PLOT SCALE : 1 IN:20 FT

WISDOT/CADDS SHEET 49





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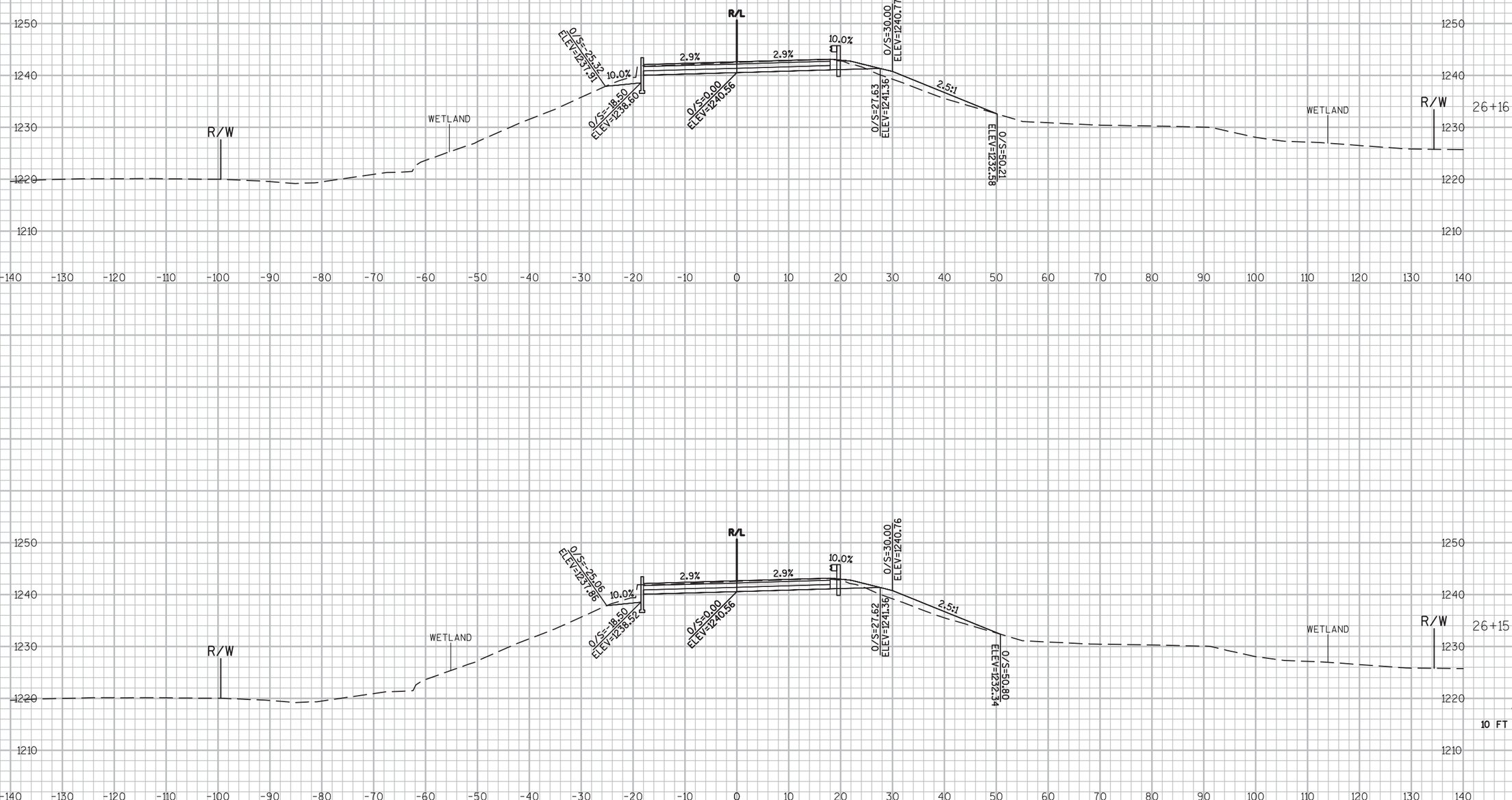
9

PROJECT NO: 8590-01-76	HWY: STH 40	COUNTY: SAWYER	CROSS SECTIONS	SHEET 108	E

FILE NAME : P:\49XX\4917.DP.15.STH40.SAW\CADDS\85900106\SHEETSPLAN\090201-XS.DWG
LAYOUT NAME - SECTION SHEET - (8)

PLOT DATE : 11/29/2016 9:45 AM PLOT BY : MICHAEL HIGGINS PLOT NAME : PLOT SCALE : 1 IN:20 FT

WISDOT/CADDS SHEET 49



9

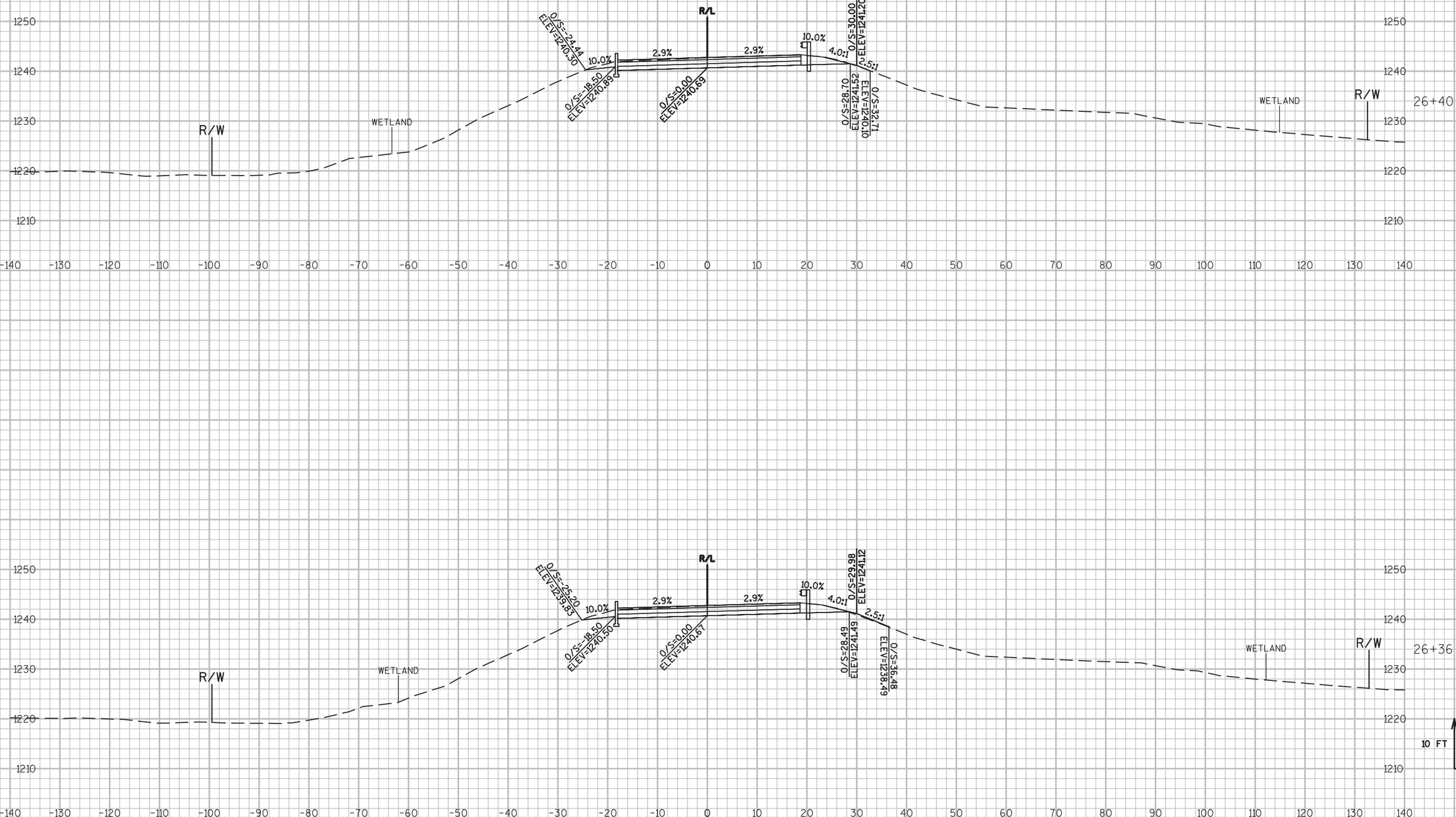
9

PROJECT NO: 8590-01-76	HWY: STH 40	COUNTY: SAWYER	CROSS SECTIONS	SHEET 109	E

FILE NAME : P:\49XX\4917.DP.15.STH40.SAW\CADDS\85900106\SHEETSPLAN\090201-XS.DWG
LAYOUT NAME - SECTION SHEET - (9)

PLOT DATE : 11/29/2016 9:45 AM PLOT BY : MICHAEL HIGGINS PLOT NAME : PLOT SCALE : 1 IN:20 FT

WISDOT/CADDS SHEET 49



9

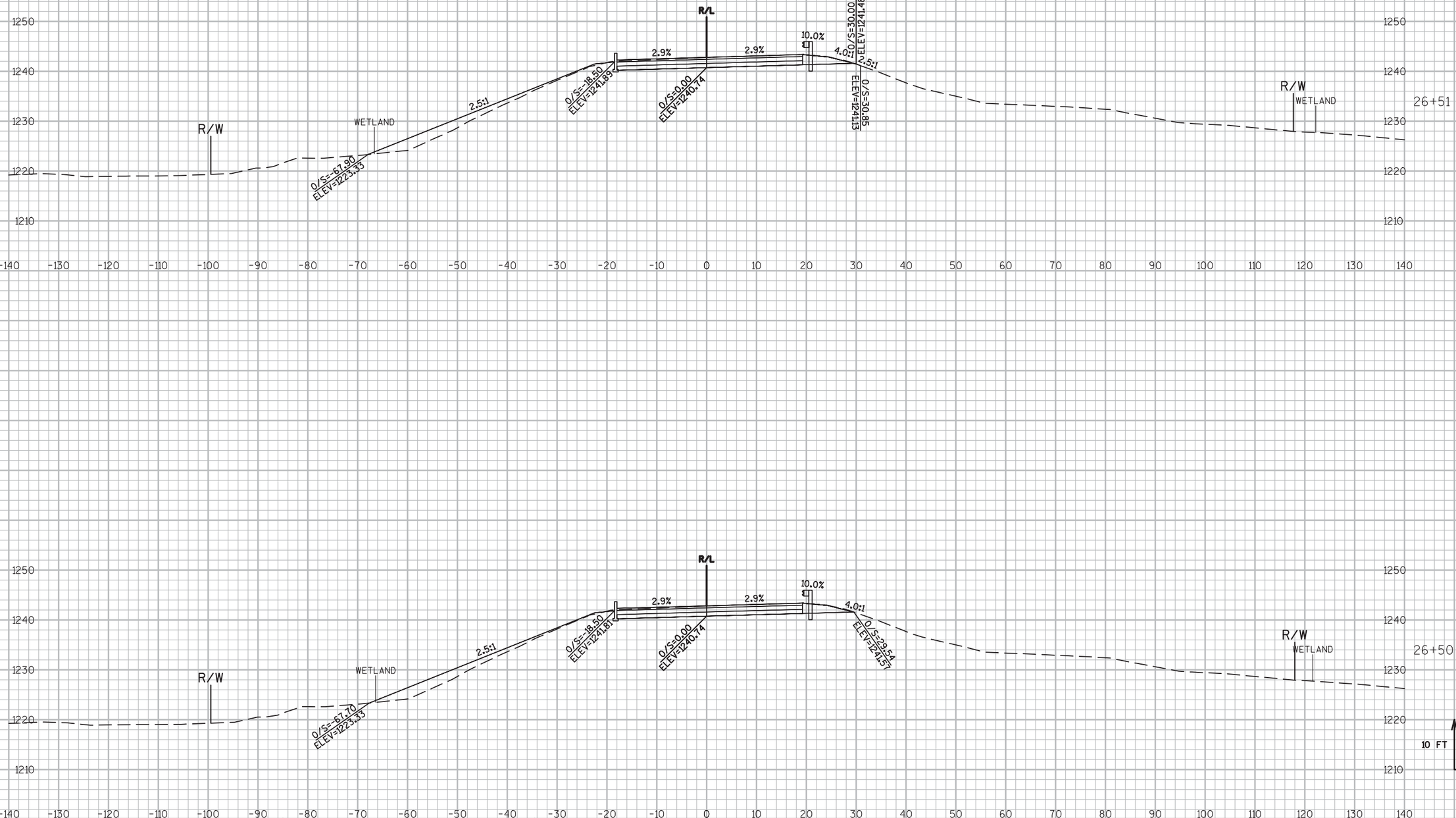
9

PROJECT NO: 8590-01-76	HWY: STH 40	COUNTY: SAWYER	CROSS SECTIONS	SHEET 110	E

FILE NAME : P:\49XX\4917.DP.15.STH40.SAW\CADDS\85900106\SHEETSPLAN\090201-XS.DWG
LAYOUT NAME - SECTION SHEET - (10)

PLOT DATE : 11/29/2016 9:45 AM PLOT BY : MICHAEL HIGGINS PLOT NAME : PLOT SCALE : 1 IN:20 FT

WISDOT/CADDS SHEET 49



9

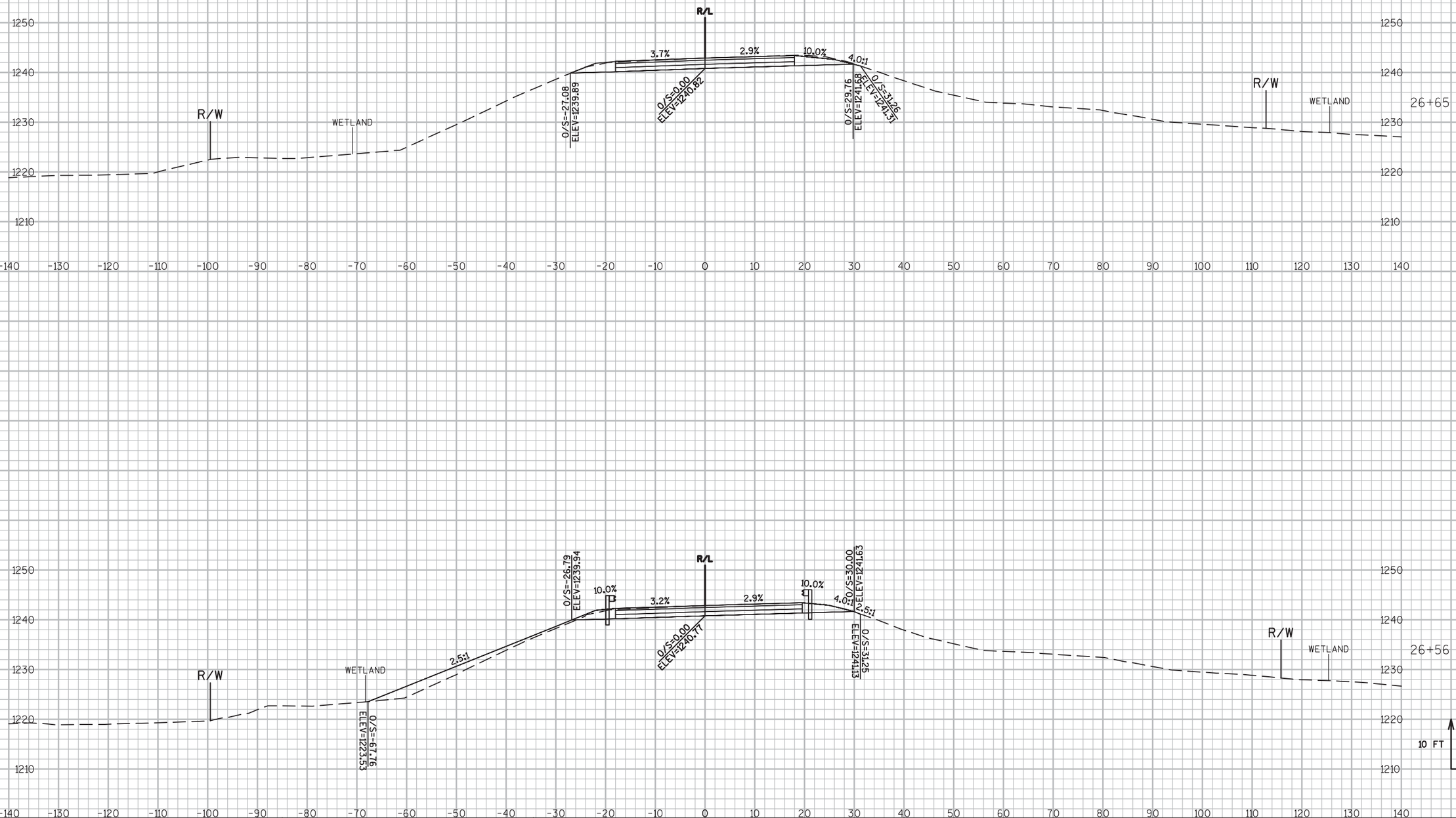
9

PROJECT NO: 8590-01-76	HWY: STH 40	COUNTY: SAWYER	CROSS SECTIONS	SHEET 111	E

FILE NAME : P:\49XX\4917.DP.15.STH40.SAW\CADDS\85900106\SHEETSPLAN\090201-XS.DWG
LAYOUT NAME - SECTION SHEET - (11)

PLOT DATE : 11/29/2016 9:46 AM PLOT BY : MICHAEL HIGGINS PLOT NAME : PLOT SCALE : 1 IN:20 FT

WISDOT/CADDS SHEET 49

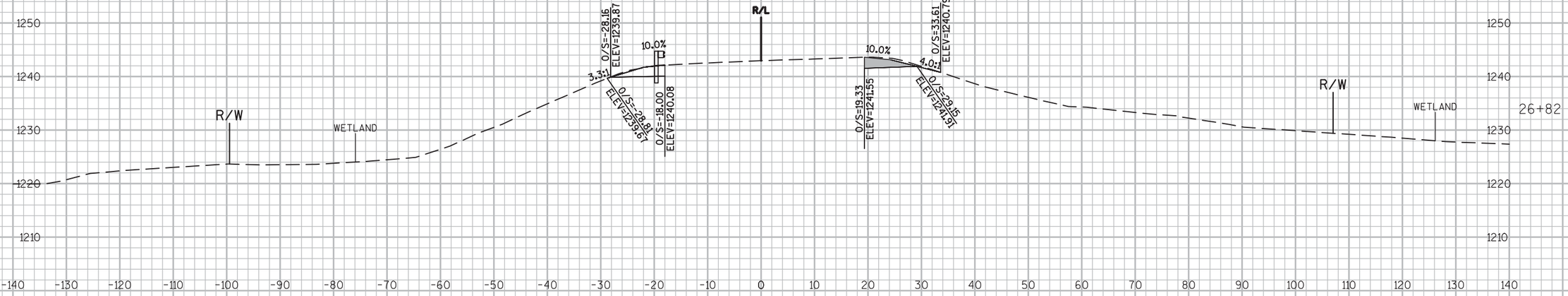


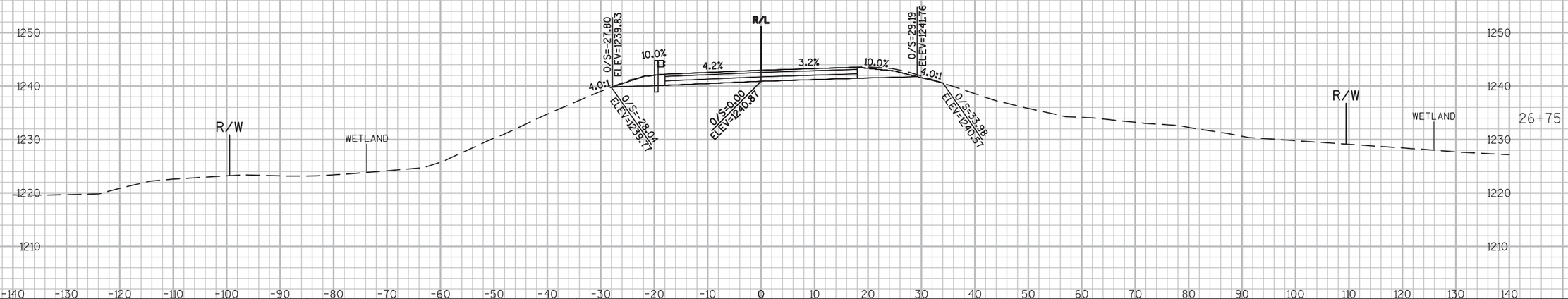
9 9

PROJECT NO: 8590-01-76	HWY: STH 40	COUNTY: SAWYER	CROSS SECTIONS	SHEET 112 E

LEGEND

EXISTING BASE AGGREGATE DENSE TO REMAIN





9 9

PROJECT NO: 8590-01-76	HWY: STH 40	COUNTY: SAWYER	CROSS SECTIONS	SHEET 113 E

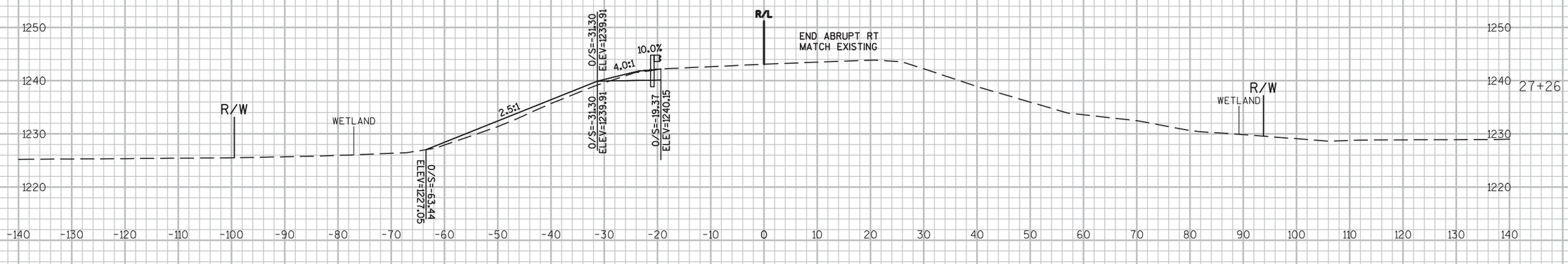
FILE NAME : P:\49XX\4917.DP.15.STH40.SAW\CADDS\85900106\SHEETSPLAN\090201-XS.DWG
LAYOUT NAME - SECTION SHEET - (12)

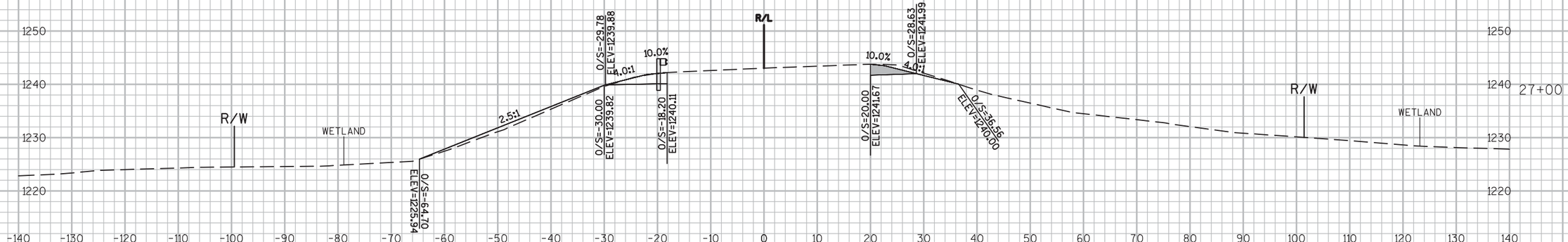
PLOT DATE : 11/29/2016 9:46 AM PLOT BY : MICHAEL HIGGINS PLOT NAME : PLOT SCALE : 1 IN:20 FT

WISDOT/CADDS SHEET 49

LEGEND

EXISTING BASE AGGREGATE DENSE TO REMAIN





9 9

PROJECT NO: 8590-01-76	HWY: STH 40	COUNTY: SAWYER	CROSS SECTIONS	SHEET 114 E

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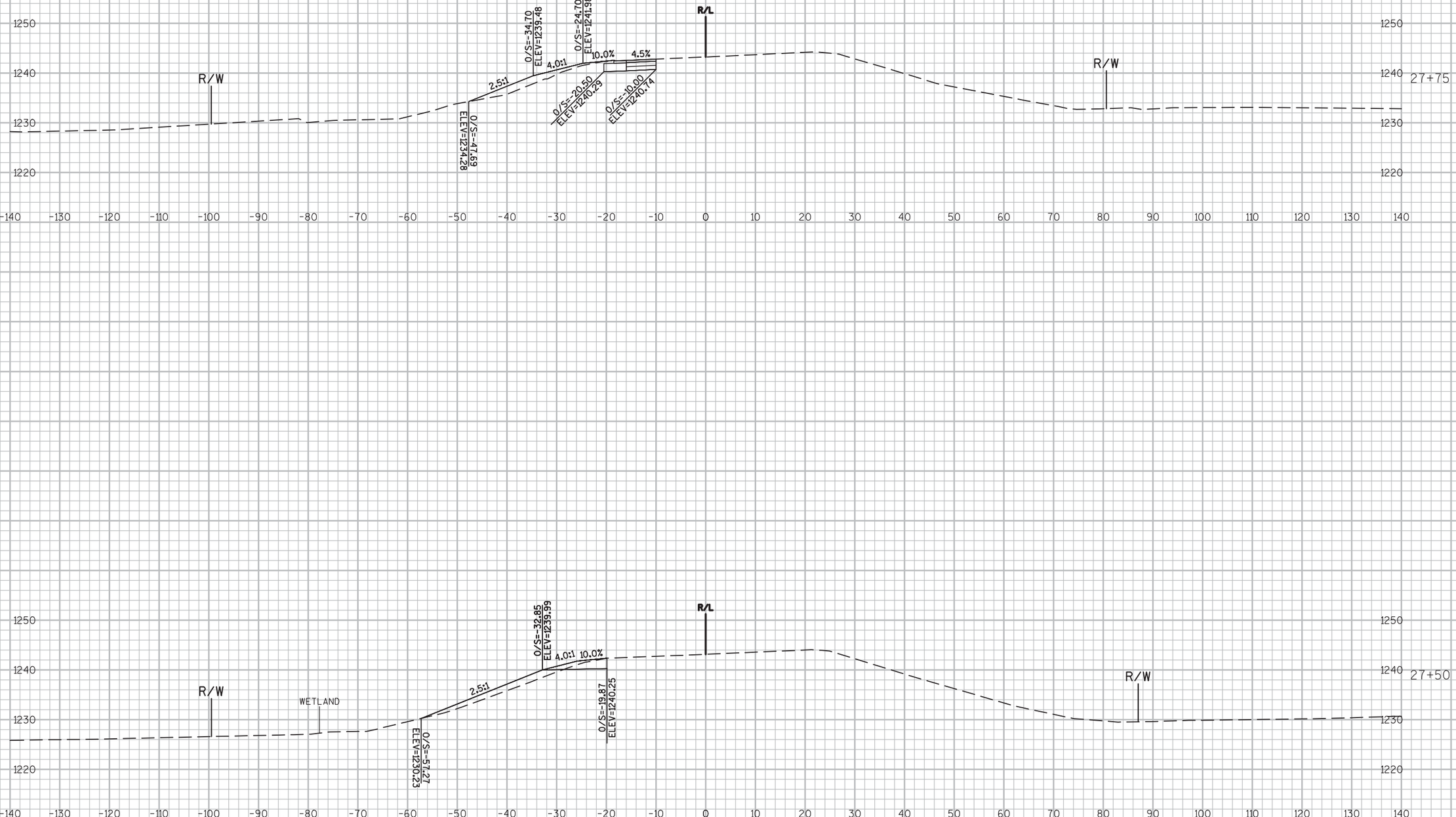
LAYOUT NAME - SECTION SHEET - (12)

PLOT DATE : 11/29/2016 9:46 AM PLOT BY : MICHAEL HIGGINS PLOT NAME : PLOT SCALE : 1 IN:20 FT

WISDOT/CADDS SHEET 49



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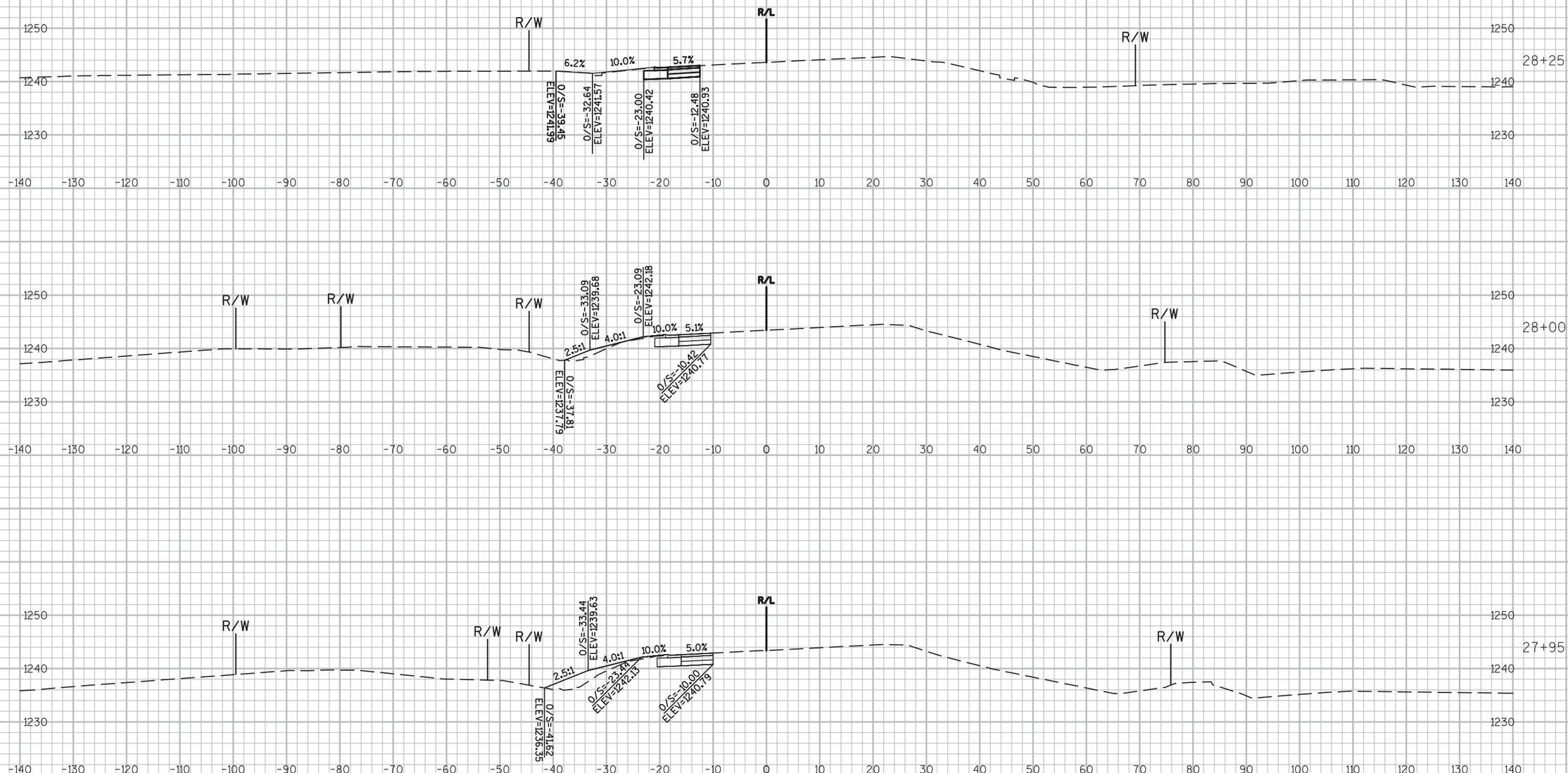
PROJECT NO: 8590-01-76	HWY: STH 40	COUNTY: SAWYER	CROSS SECTIONS	SHEET 115 E



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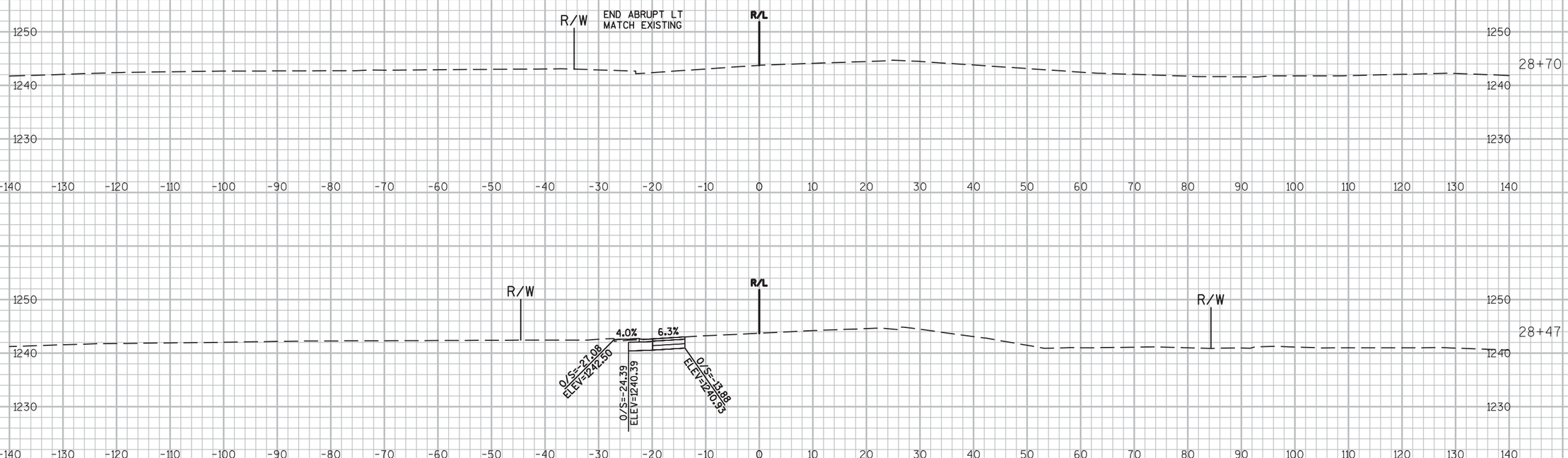
PROJECT NO: 8590-01-76	HWY: STH 40	COUNTY: SAWYER	CROSS SECTIONS	SHEET 116 E



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PROJECT NO: 8590-01-76	HWY: STH 40	COUNTY: SAWYER	CROSS SECTIONS	SHEET 117 E

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