

SWL FEBRUARY 2015

ORDER OF SHEETS

Section No. 1	Title
Section No. 2	Typical Sections and Details
Section No. 3	Estimate of Quantities
Section No. 3	Miscellaneous Quantities
Section No. 4	Right of Way Plat
Section No. 5	Plan and Profile (Including Erosion Control)
Section No. 6	Standard Detail Drawings
Section No. 7	Sign Plates
Section No. 8	Structure Plans
Section No. 9	Computer Earthwork Data
Section No. 9	Cross Sections

TOTAL SHEETS = 40

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

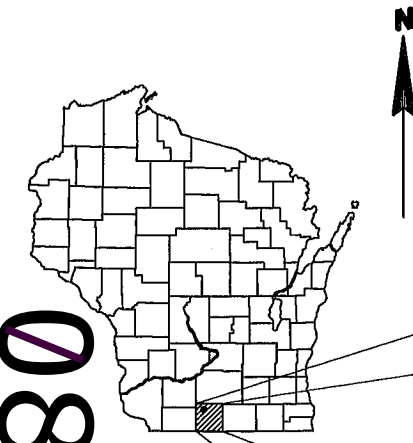
PLAN OF PROPOSED IMPROVEMENT

TOWN OF YORK, POPLAR GROVE ROAD
(HEFTY CREEK BRIDGE B-23-0174)
TOWN ROAD
GREEN COUNTY

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
5669-00-74	WISC 2015087	1

PROJECT ID: 5669-00-74

COUNTY: GREEN



DESIGN DESIGNATION

A.A.D.T. (2015)	= 125
A.A.D.T. (2035)	= 185
D.H.V.	= 10
D.D.	= 50/50
T.	= 5%
DESIGN SPEED	= 45 MPH
ESALS	= 14,600

CONVENTIONAL SYMBOLS

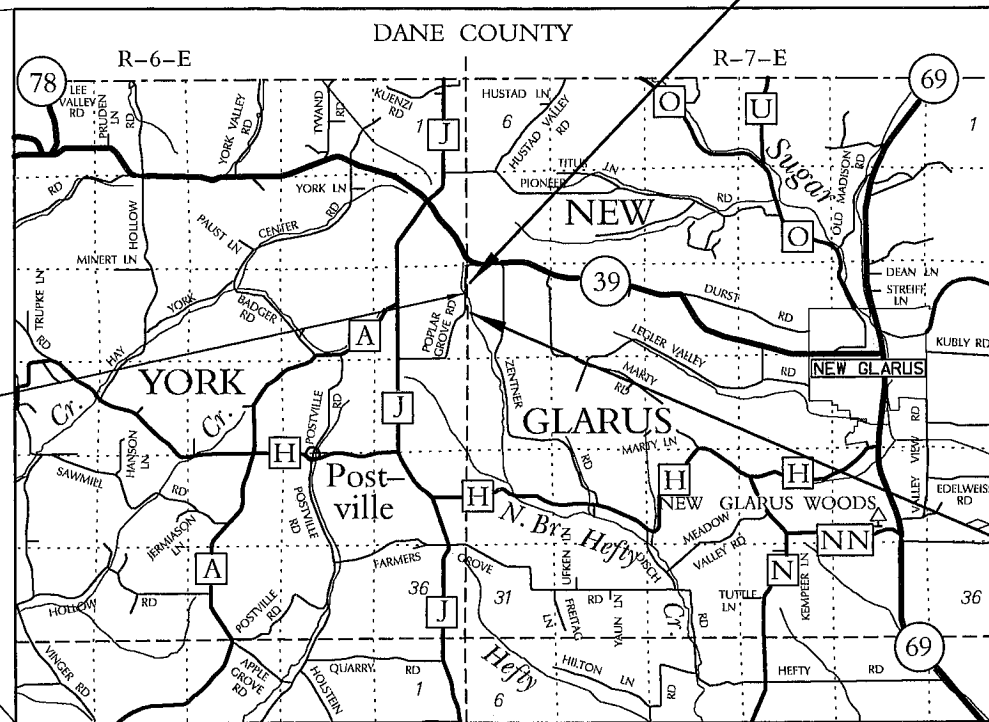
PLAN

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	
MARSH AREA	
WOODED OR SHRUB AREA	

PROFILE

GRADE LINE	
ORIGINAL GROUND	
MARSH OR ROCK PROFILE (To be noted as such)	
SPECIAL DITCH	
GRADE ELEVATION	
CULVERT (Profile View)	
UTILITIES	
ELECTRIC	
FIBER OPTIC	
GAS	
SANITARY SEWER	
STORM SEWER	
TELEPHONE	
WATER	
UTILITY PEDESTAL	
POWER POLE	
TELEPHONE POLE	

STRUCTURE
B-23-0174



LAYOUT
SCALE 0 1 MI.

TOTAL NET LENGTH OF CENTERLINE = 0.061 MI.

END PROJECT
STA. 11+50.00
Y = 589,791.022
X = 218,595.482

BEGIN PROJECT
STA. 8+30.00
Y = 589,774.271
X = 218,275.927

ACCEPTED FOR

County GREEN

8/4/2014 *[Signature]*
(Date) County Highway Commissioner

ACCEPTED FOR

Town YORK

8-4-14 *[Signature]*
(Date) Town Chairman

ORIGINAL PLANS PREPARED BY

AYRES ASSOCIATES



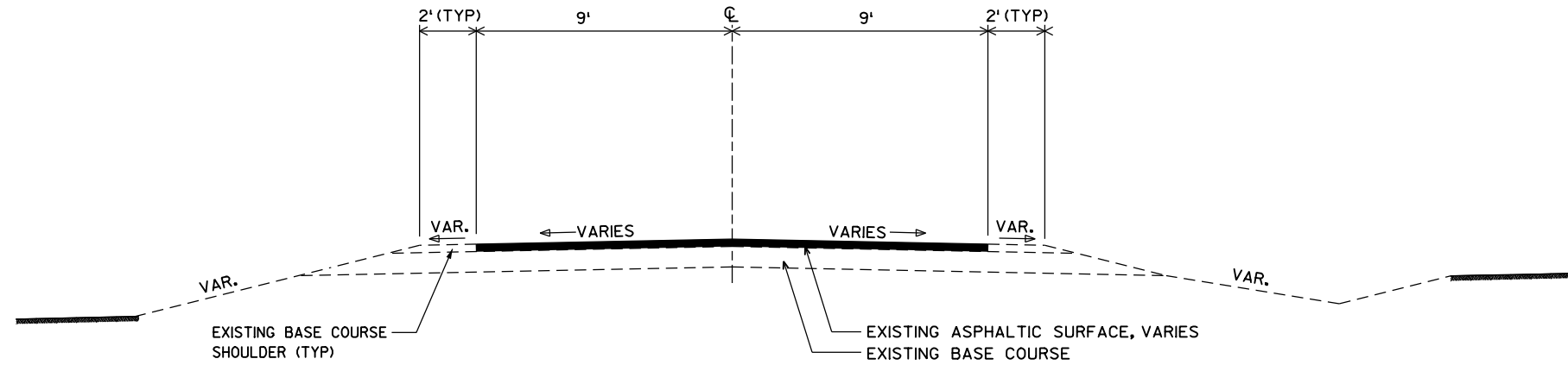
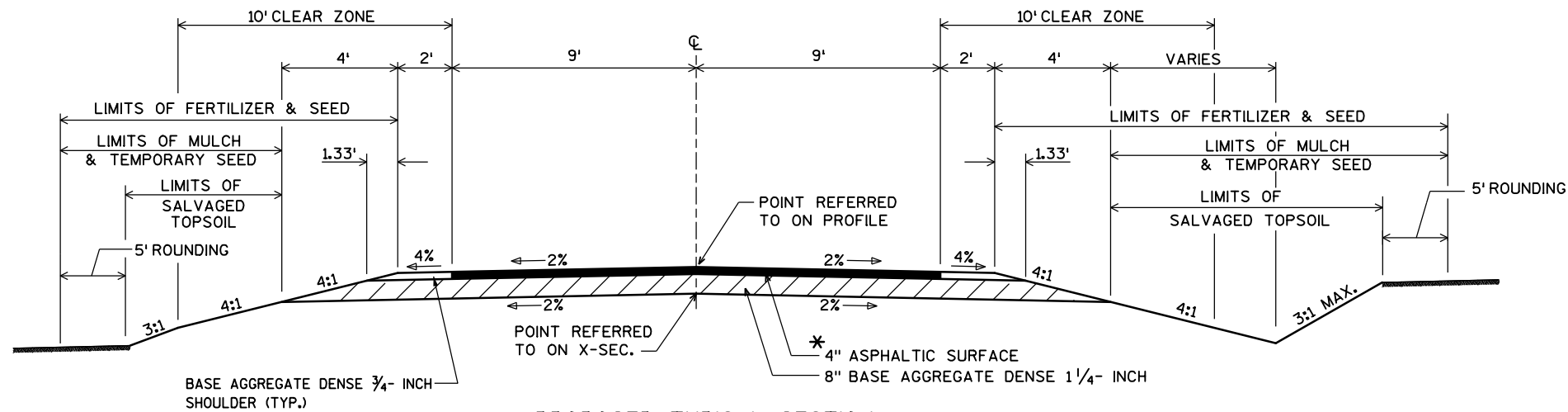
8-7-2014 *[Signature]*
(Date) (Signature)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY

Surveyor	Ayres Associates
Designer	Ayres Associates
Management Consultant	KJohnson Engineers, Inc.

APPROVED FOR THE DEPARTMENT
DATE 9/30/14 *[Signature]*
(Management Consultant Signature)

**EXISTING TYPICAL SECTION****PROPOSED TYPICAL SECTION**

HALF SECTION IN FILL

HALF SECTION IN CUT

* ASPHALT SHALL TAPER FROM THE BRIDGE
WIDTH AT THE BRIDGE TO 18' AT 50' FROM THE BRIDGE

GENERAL NOTES

EROSION CONTROL ITEMS TO BE PLACED AS SHOWN ON THE PLAN OR AS DIRECTED BY THE ENGINEER.

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

SEED MIXTURES NO. 20 AND TEMPORARY SHALL BE USED IN THE PROJECT, AND SHALL BE PLACED AS SHOWN IN THE PLANS AND/OR AS DIRECTED BY THE ENGINEER.

THE LOCATIONS OF EXISTING AND PROPOSED UTILITY INSTALLATIONS AS SHOWN ON THE PLANS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT AREA THAT ARE NOT SHOWN. THE CONTRACTOR IS RESPONSIBLE FOR FIELD LOCATING ALL UTILITIES.

COORDINATES AND BEARINGS ON THIS PLAN ARE REFERENCED TO THE WISCONSIN COUNTY COORDINATE SYSTEM (WCCS), GREEN COUNTY, NAD83 (91) ADJUSTMENT.

ASPHALTIC SURFACE LAYERS:
- UPPER: 1 3/4" (12.5mm NOMINAL AGGREGATE SIZE)
- LOWER: 2 1/4" (19.0mm NOMINAL AGGREGATE SIZE)

STANDARD ABBREVIATIONS

A.	ANNUAL	P.C.	POINT OF CURVATURE
A.A.D.T.	ANNUAL AVERAGE DAILY TRAFFIC	P.I.	POINT OF INTERSECTION
AC.	ACRES	P.K.	PARKER-KALON
B.M.	BENCH MARK	P.L.	PROPERTY LINE
C.	CENTERLINE	P.P.	POWER POLE
CONC.	CONCRETE	P.T.	POINT OF TANGENCY
COR.	CORNER	R	RADIUS
CULV.	CULVERT	R.L.	REFERENCE LINE
D.H.V.	DESIGN HOURLY VOLUME	RT.	RIGHT
EL.	ELEVATION	SEC.	SECTION
H.	HOUSE	STA.	STATION
I.P.	IRON PIPE	TYP.	TYPICAL
LT.	LEFT	X	EAST COORDINATE
MON.	MONUMENT	Y	NORTH COORDINATE

WISCONSIN DEPARTMENT OF NATURAL RESOURCES CONTACT

LAURA BUB
SOUTHWEST REGIONAL HEADQUARTERS
3911 FISH HATCHERY ROAD
FITCHBURG, WI 53711
(608) 275-3485
LAURA.BUB@WISCONSIN.GOV

DESIGNER

AYRES ASSOCIATES
DAN SYDOW
3433 OAKWOOD HILLS PARKWAY
EAU CLAIRE, WI 54701-7698
(715) 834-3161
SYDOWD@AYRESASSOCIATES.COM

TOWN OF YORK

DAN REESON, CHAIRMAN
(608) 523-1331
CHAIRMANREESON@TOWNOFYORK.ORG

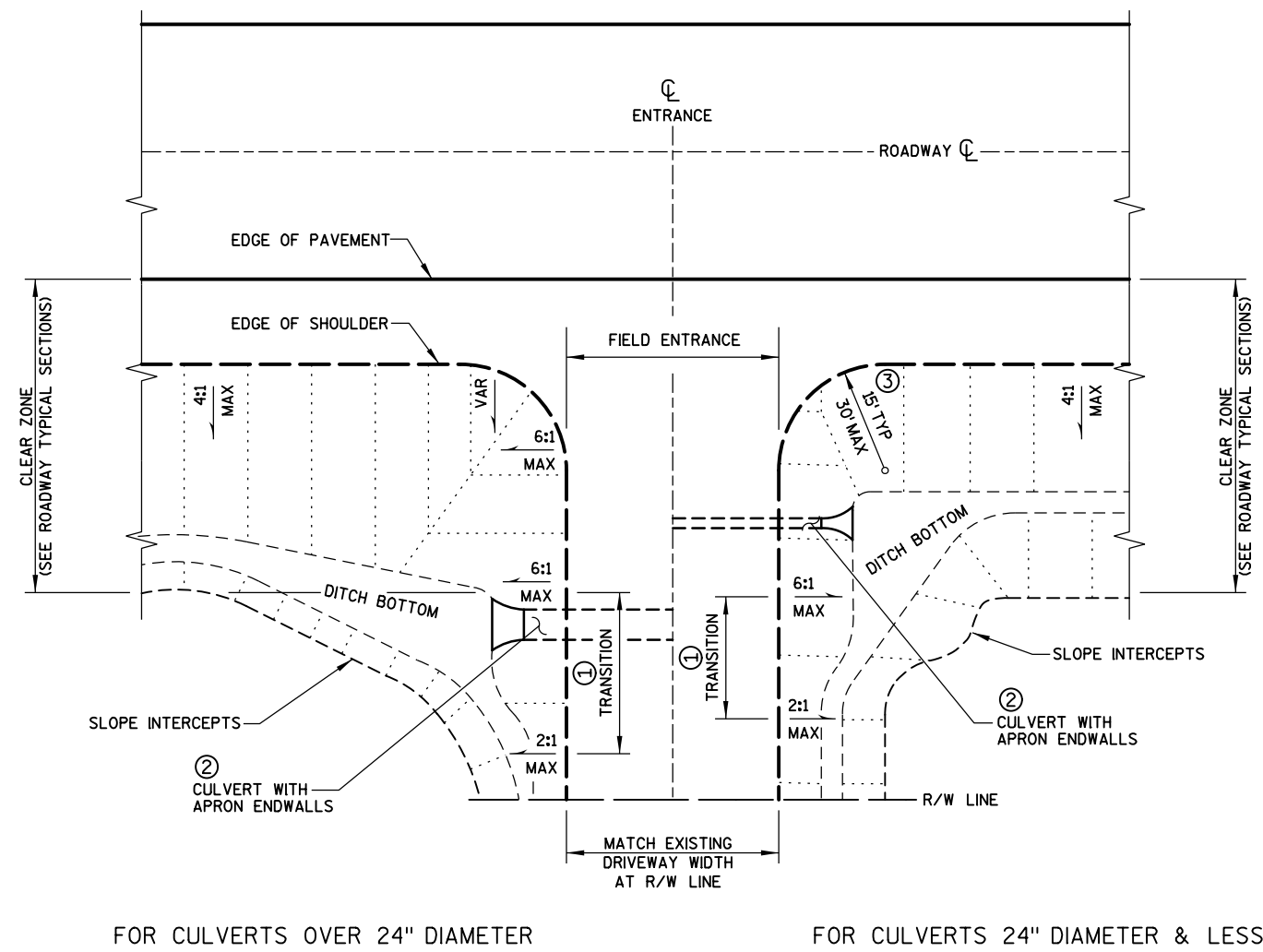
UTILITIES

ALLIANT ENERGY
STEVE LARSEN
(608) 328-5339
STEVE.LARSEN@ALLIANTENERGY.COM

TDS TELECOM
JERRY MYERS
P: (608) 664-4404
C: (608) 279-7104
JERRY.MYERS@TDS TELECOM.COM

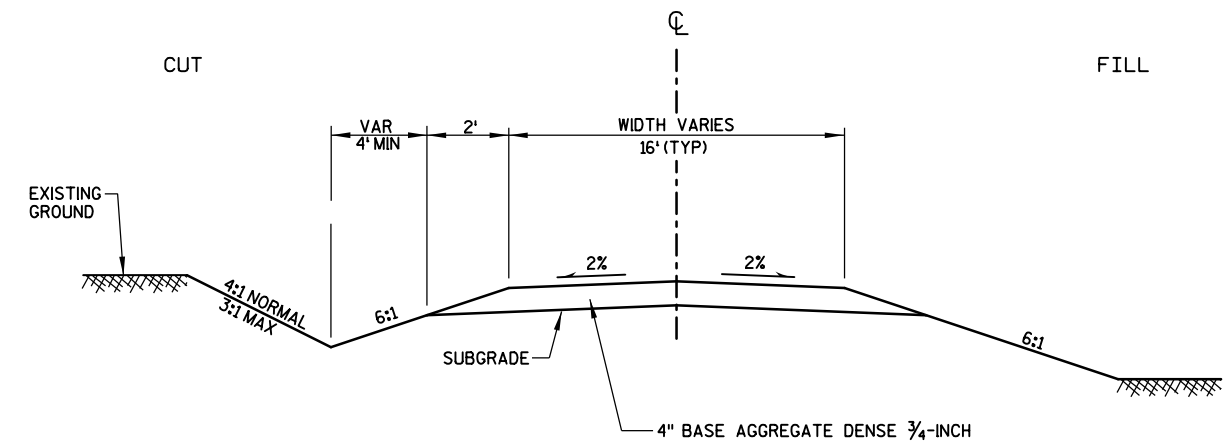
DIGGERS HOTLINE

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

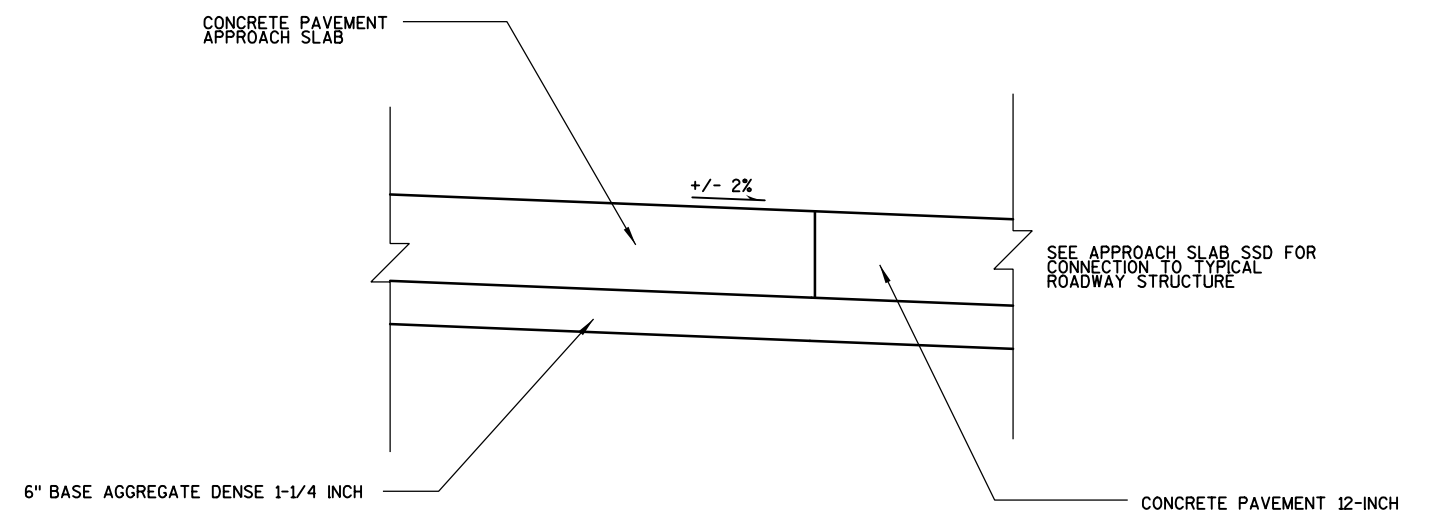


RURAL ENTRANCE GRADING DETAIL

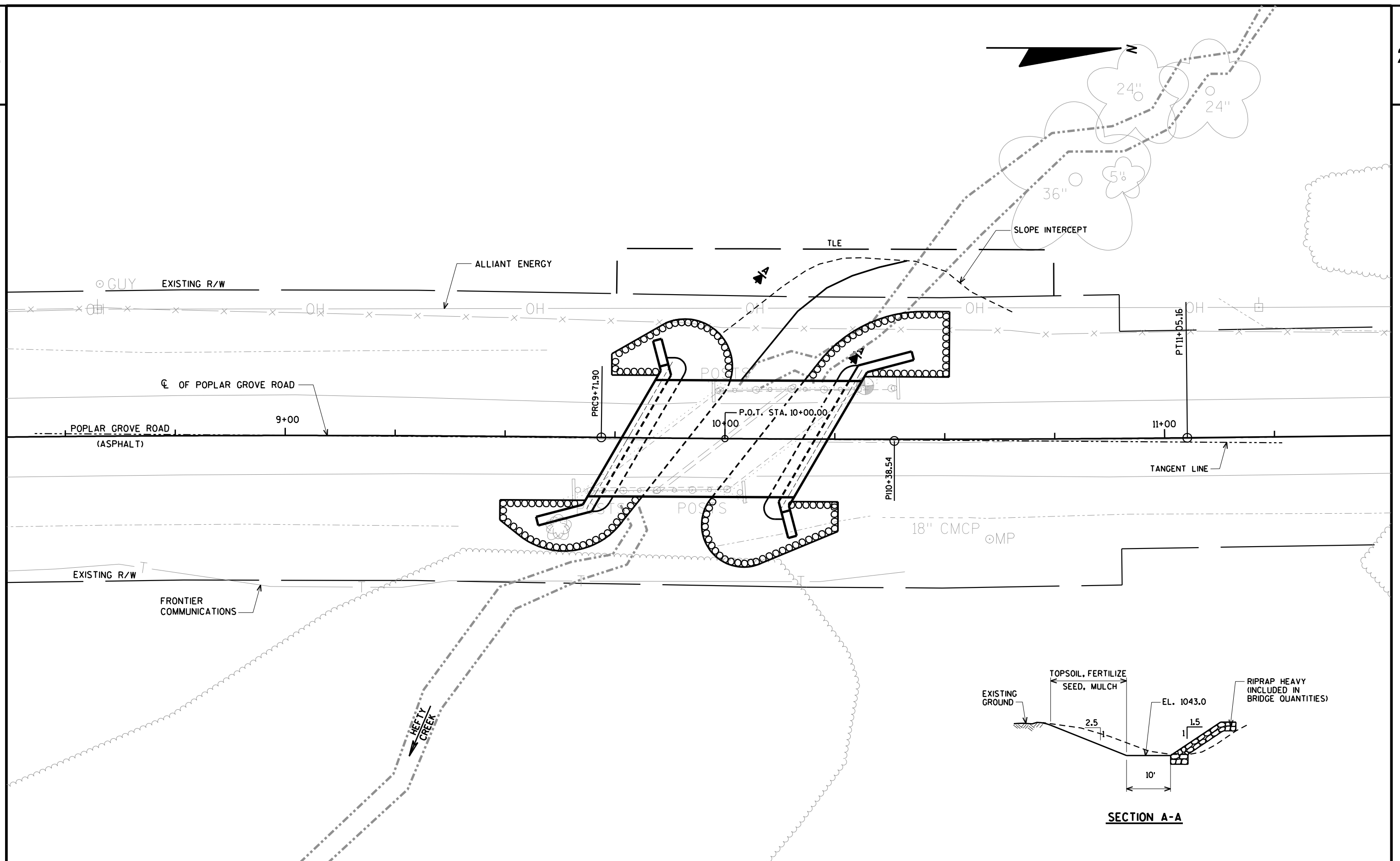
- ① TRANSITION TO BE ACCOMPLISHED WITHIN THE RIGHT OF WAY.
- ② BLEND 6 : 1 SLOPES TO MATCH APRON ENDWALLS.
- ③ USE LARGER PAVING RADIUS FOR PAVING IN HIGHER SPEED ZONES (> 40 MPH).



TYPICAL CROSS SECTION FOR FIELD ENTRANCE



SUBGRADE AT APPROACH SLABS



DATE 24NOV14			E S T I M A T E O F Q U A N T I T I E S		
LINE					5669-00-74
NUMBER	ITEM	ITEM DESCRIPTION	UNIT	TOTAL	QUANTITY
0010	201.0110	CLEARING	SY	55.000	55.000
0020	201.0210	GRUBBING	SY	55.000	55.000
0030	203.0100	REMOVING SMALL PIPE CULVERTS	EACH	1.000	1.000
0040	203.0500. S	REMOVING OLD STRUCTURE OVER WATERWAY (STATION) 01. 10+00	LS	1.000	1.000
0050	204.0180	REMOVING DELINEATORS AND MARKERS	EACH	4.000	4.000
0060	205.0100	EXCAVATION COMMON **P**	CY	170.000	170.000
0070	206.1000	EXCAVATION FOR STRUCTURES BRIDGES (STRUCTURE) 01. B-23-0174	LS	1.000	1.000
0080	208.0100	BORROW	CY	40.000	40.000
0090	210.0100	BACKFILL STRUCTURE	CY	210.000	210.000
0100	213.0100	FINISHING ROADWAY (PROJECT) 01. 5660-00-74	EACH	1.000	1.000
0110	305.0110	BASE AGGREGATE DENSE 3/4-INCH	TON	41.000	41.000
0120	305.0120	BASE AGGREGATE DENSE 1 1/4-INCH	TON	376.000	376.000
0130	415.0120	CONCRETE PAVEMENT 12-INCH	SY	32.000	32.000
0140	415.0410	CONCRETE PAVEMENT APPROACH SLAB	SY	108.000	108.000
0150	455.0605	TACK COAT	GAL	34.000	34.000
0160	465.0105	ASPHALTIC SURFACE	TON	109.000	109.000
0170	502.0100	CONCRETE MASONRY BRIDGES	CY	137.000	137.000
0180	502.3200	PROTECTIVE SURFACE TREATMENT	SY	150.000	150.000
0190	505.0405	BAR STEEL REINFORCEMENT HS BRIDGES	LB	4,790.000	4,790.000
0200	505.0605	BAR STEEL REINFORCEMENT HS COATED BRIDGES	LB	15,450.000	15,450.000
0210	513.4060	RAILING TUBULAR TYPE M (STRUCTURE) 01. B-23-0174	LS	1.000	1.000
0220	516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	20.000	20.000
0230	521.0118	CULVERT PIPE CORRUGATED STEEL 18-INCH	LF	30.000	30.000
0240	521.1018	APRON ENDWALLS FOR CULVERT PIPE STEEL 18-INCH	EACH	2.000	2.000
0250	550.0020	PRE-BORING ROCK OR CONSOLIDATED MATERIALS	LF	100.000	100.000
0260	550.1100	PILING STEEL HP 10-INCH X 42 LB	LF	120.000	120.000
0270	606.0300	RI PRAP HEAVY	CY	150.000	150.000
0280	612.0406	PIPE UNDERDRAIN WRAPPED 6-INCH	LF	160.000	160.000
0290	619.1000	MOBILIZATION	EACH	1.000	1.000
0300	625.0500	SALVAGED TOPSOIL **P**	SY	710.000	710.000
0310	627.0200	MULCHING **P**	SY	710.000	710.000
0320	628.1504	SILT FENCE	LF	755.000	755.000
0330	628.1520	SILT FENCE MAINTENANCE	LF	1,510.000	1,510.000
0340	628.1905	MOBILIZATIONS EROSION CONTROL	EACH	2.000	2.000
0350	628.1910	MOBILIZATIONS EMERGENCY EROSION CONTROL	EACH	2.000	2.000
0360	628.2027	EROSION MAT CLASS II TYPE C	SY	55.000	55.000
0370	628.6005	TURBIDITY BARRIERS	SY	130.000	130.000
0380	628.7504	TEMPORARY DITCH CHECKS	LF	50.000	50.000
0390	629.0210	FERTILIZER TYPE B **P**	CWT	5.000	5.000
0400	630.0120	SEEDING MIXTURE NO. 20 **P**	LB	20.000	20.000
0410	630.0200	SEEDING TEMPORARY **P**	LB	20.000	20.000
0420	630.0300	SEEDING BORROW PIT **P**	LB	10.000	10.000
0430	634.0612	POSTS WOOD 4X6-INCH X 12-FT	EACH	4.000	4.000
0440	637.2230	SIGNS TYPE II REFLECTIVE F	SF	12.000	12.000
0450	642.5001	FIELD OFFICE TYPE B	EACH	1.000	1.000
0460	643.0100	TRAFFIC CONTROL (PROJECT) 01. 5669-00-74	EACH	1.000	1.000
0470	645.0120	GEOTEXTILE FABRIC TYPE HR	SY	300.000	300.000
0480	650.4500	CONSTRUCTION STAKING SUBGRADE	LF	300.000	300.000

DATE 24NOV14			E S T I M A T E O F Q U A N T I T I E S			
LINE					5669-00-74	
NUMBER	ITEM	ITEM DESCRIPTION	UNIT	TOTAL	QUANTITY	
0490	650.5000	CONSTRUCTION STAKING BASE	LF	300.000	300.000	
0500	650.6000	CONSTRUCTION STAKING PIPE CULVERTS	EACH	1.000	1.000	
0510	650.6500	CONSTRUCTION STAKING STRUCTURE LAYOUT (STRUCTURE) 01. B-23-0174	LS	1.000	1.000	
0520	650.9910	CONSTRUCTION STAKING SUPPLEMENTAL CONTROL (PROJECT) 01. 5669-00-74	LS	1.000	1.000	
0530	650.9920	CONSTRUCTION STAKING SLOPE STAKES	LF	300.000	300.000	
0540	690.0150	SAWING ASPHALT	LF	36.000	36.000	
0550	715.0502	INCENTIVE STRENGTH CONCRETE STRUCTURES	DOL	822.000	822.000	

CLEARING AND GRUBBING

STATION	TO	STATION	LOCATION	CLEARING 201.0110 SY	GRUBBING 201.0210 SY
9+25		10+25	MAINLINE	55	55
TOTALS				55	55

PIPE CULVERT UNDER FIELD ENTRANCE

LOCATION	REMOVING SMALL PIPE CULVERTS 203.0100 EACH	CULVERT PIPE CORRUGATED STEEL 18- INCH*** 521.0118 LF	APRON ENDWALLS FOR CULVERT PIPE STEEL 18- INCH 521.1018 EACH	
10+45	1	30	2	
TOTALS		1	30	2

***0.064-INCH MINIMUM THICKNESS

REMOVING DELINEATORS AND MARKERS

LOCATION	OFFSET	204.0180 EACH
NORTH ABUT	LT	1
NORTH ABUT	RT	1
SOUTH ABUT	LT	1
SOUTH ABUT	RT	1
TOTAL		4

OBJECT MARKERS

STATION	LOCATION	POSTS WOOD 4X6-INCH X 12-FT 634.0612 EACH	SIGNS TYPE II REFLECTIVE F 637.2230 SF	SIGNAGE TYPE
9+78	LT	1	3	W5-52L
9+78	RT	1	3	W5-52R
10+22	LT	1	3	W5-52L
10+22	RT	1	3	W5-52R
TOTAL		4	12	

PAVING AND BASE QUANTITIES

			BASE AGGREGATE DENSE 3/4-INCH 305.0110	BASE AGGREGATE DENSE 1 1/4-INCH 305.0120	CONCRETE PAVEMENT 12-INCH 415.0120	TACK COAT 455.0605	ASPHALTIC SURFACE 465.0105
STA	TO	STA	TONS	TONS	SY	GAL	TONS
8+30		9+78	19	201	11	18	59
10+22		11+50	23	175	21	16	50
TOTALS			41	376	32	34	109

MOBILIZATION		SAWING ASPHALT		CONCRETE PAVEMENT APPROACH SLAB					
LOCATION		619.1000 EACH	LOCATION		690.0150 LF	STA	TO	STA	415.0410 SY
PROJECT 5669-00-74		1	8+30		18	9+56		9+78	54
			11+50		18	10+21		10+44	54
TOTAL		1	TOTAL		36	TOTALS			108

EARTHWORK SUMMARY					
		EXCAVATION COMMON ** 205.0100	FILL* (C.Y.)	EXPANDED FILL (30%)* (C.Y.)	BORROW** 208.0100 (C.Y.)
STATION TO STATION	LOCATION	(C.Y.)	(C.Y.)	(C.Y.)	(C.Y.)
8+30 - 11+50	POPLAR GROVE ROAD	170	160	210	40
TOTALS		170	160	210	40

NOTES:

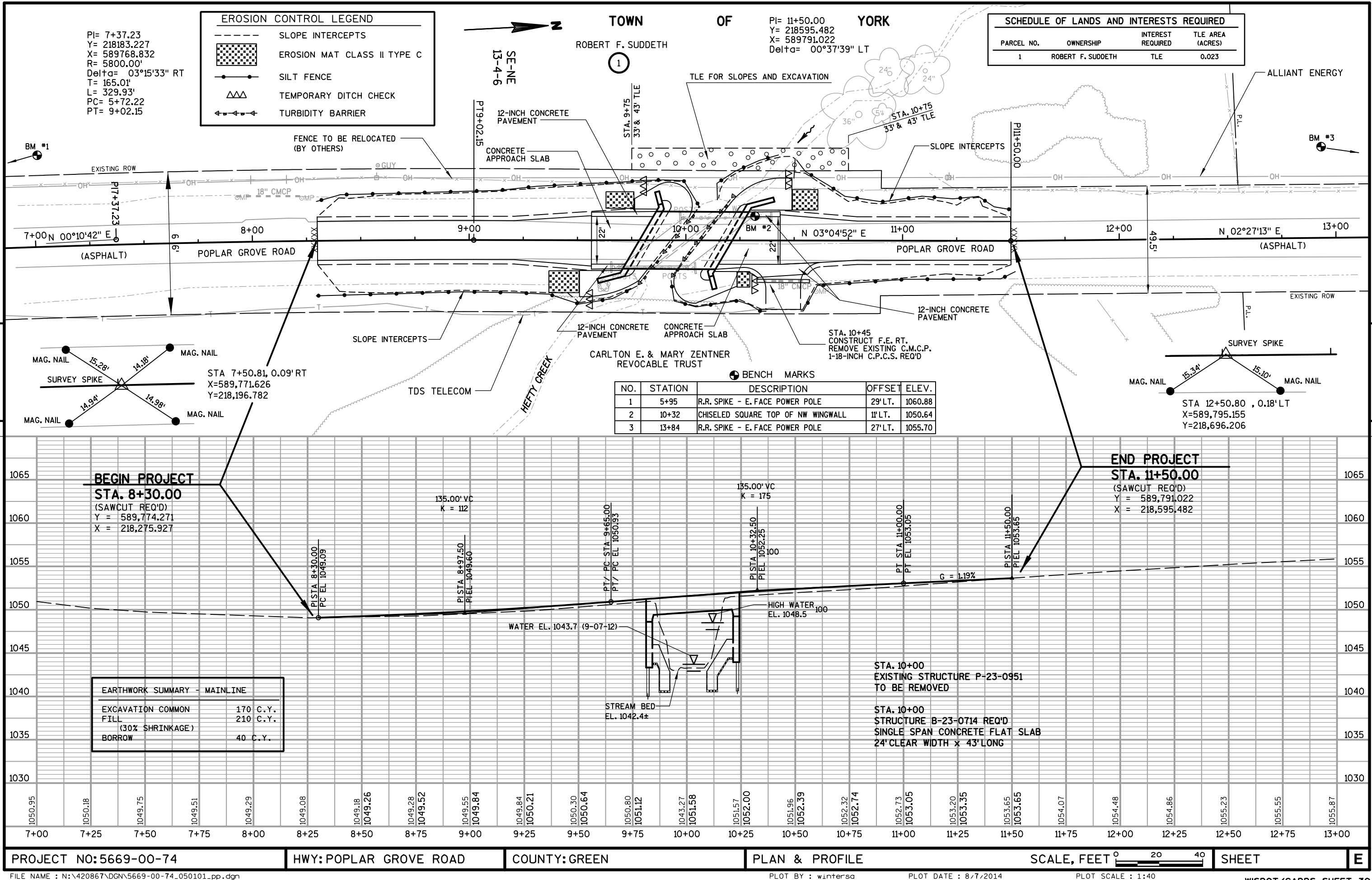
BORROW = EXPANDED FILL- EXCAVATION COMMON

EXISTING MAINLINE PAVEMENT WILL BE REMOVED AS EXCAVATION COMMON

* NON-BID ITEM

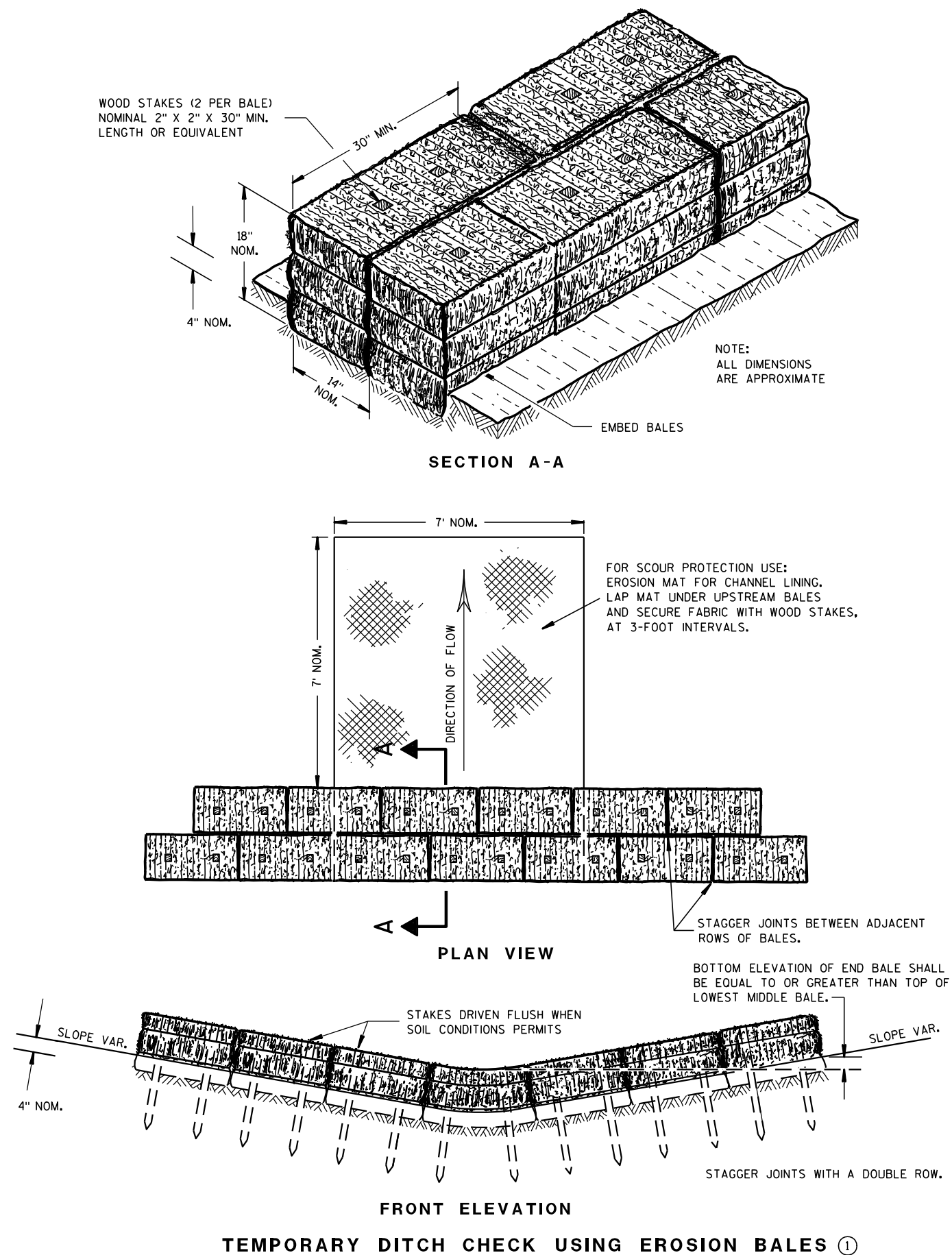
** PAY PLAN QUANTITY

ALL QUANTITIES CATEGORY 0010 UNLESS OTHERWISE NOTED



Standard Detail Drawing List

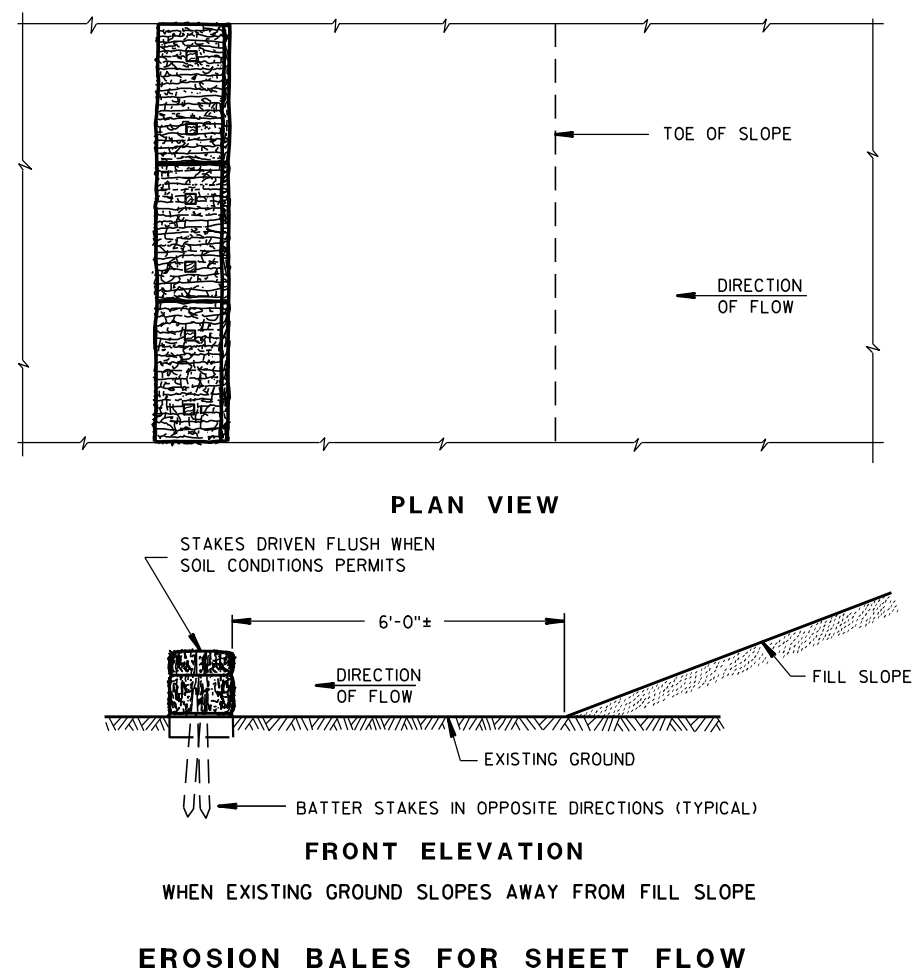
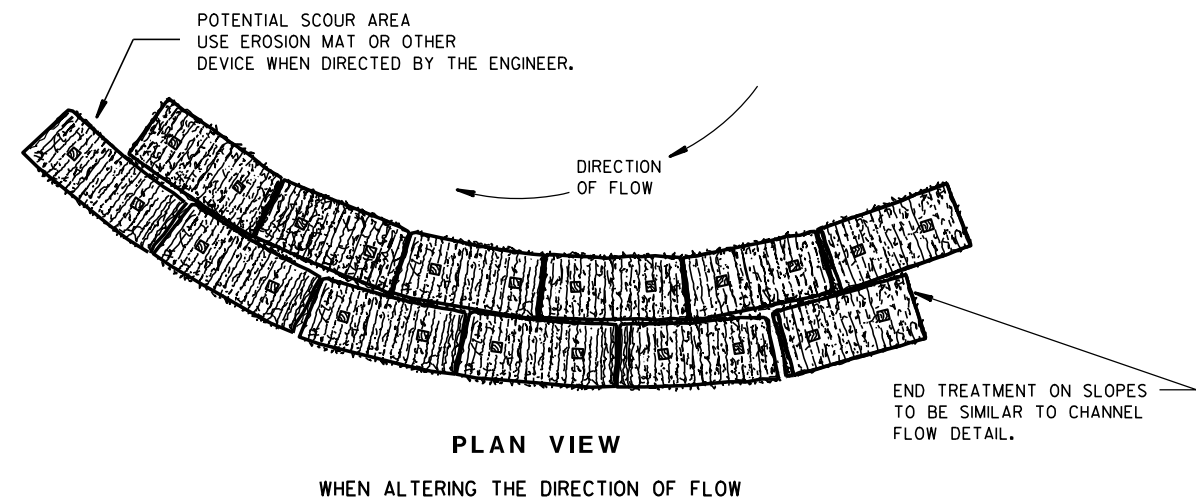
08E08-03	TYPICAL INSTALLATIONS OF EROSION BALES / TEMPORARY DITCH CHECKS
08E09-06	SILT FENCE
08E11-02	TURBIDITY BARRIER
08F01-11	APRON ENDWALLS FOR CULVERT PIPE
12A03-10	NAME PLATE (STRUCTURES)
13B02-07A	CONCRETE BRIDGE APPROACH
15C02-05A	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-05B	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C06-07	SIGNING & MARKING FOR TWO LANE BRIDGES



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.

TYPICAL INSTALLATIONS OF
EROSION BALES / TEMPORARY
DITCH CHECKS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

6/04/02
DATE/S/ Beth Canestra
CHIEF ROADWAY DEVELOPMENT ENGINEER

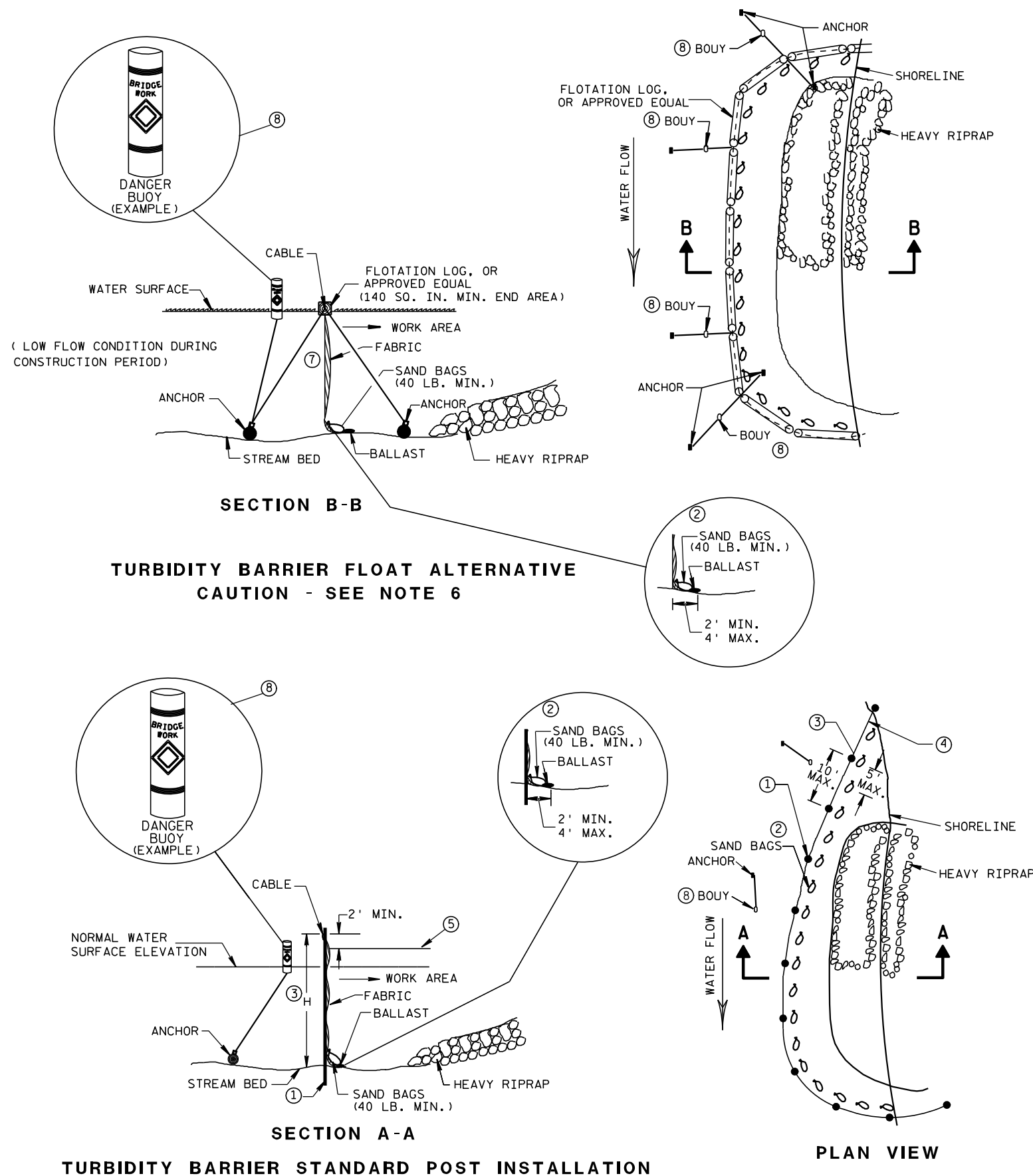
FHWA



- 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 1 1/8" X 1 1/8" 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.



<p style="text-align: center;">SILT FENCE</p>	
<p style="text-align: center;">STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION</p>	
<p>APPROVED</p> <p><u>4-29-05</u></p> <p>DATE</p>	<p><u>/S/ Beth Cannestra</u></p> <p>CHIEF ROADWAY DEVELOPMENT ENGINEER</p>
<p>FHWA</p>	

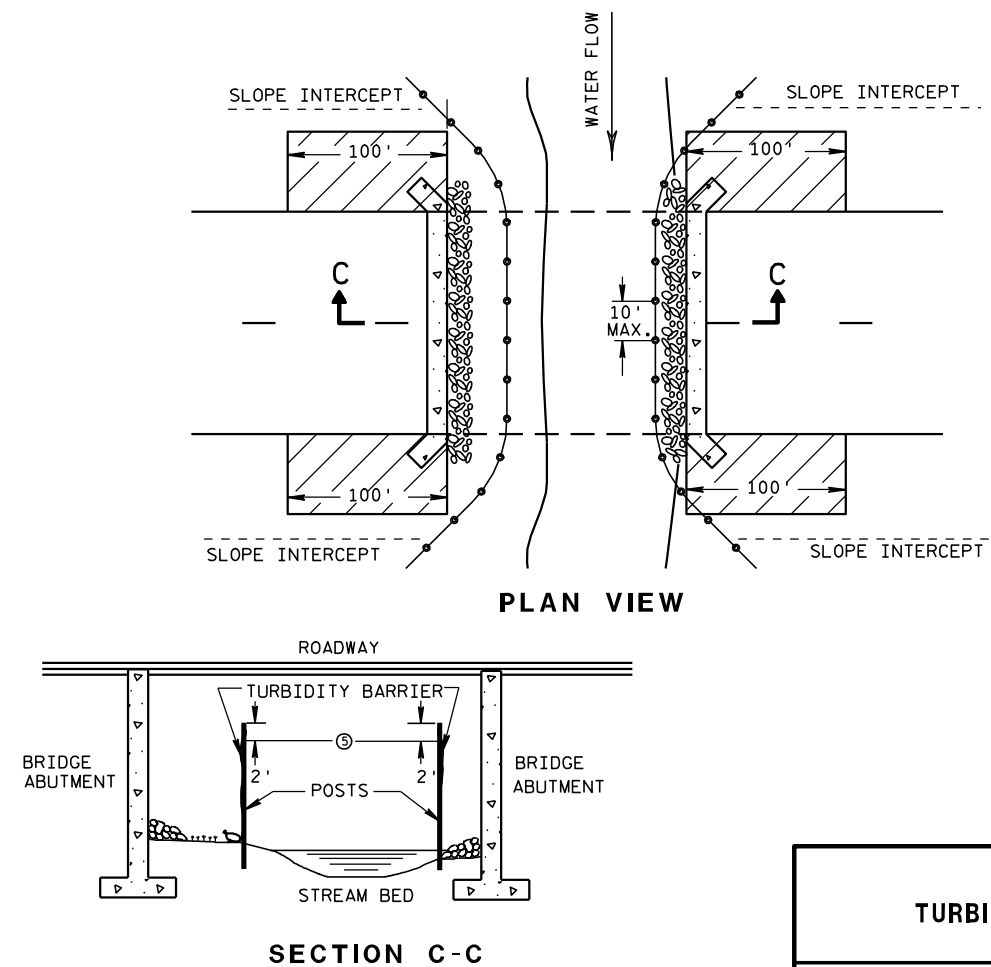


GENERAL NOTES

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. MINIMUM BARRIER HEIGHT SHALL BE 2' GREATER THAN EITHER THE 02 ELEVATION OR THE ESTIMATED HIGH WATER ELEVATION DURING CONSTRUCTION, WHICHEVER 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.



TURBIDITY BARRIER DETAIL SHOWING TYPICAL PLACEMENT AT STRUCTURES

TURBIDITY BARRIER

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

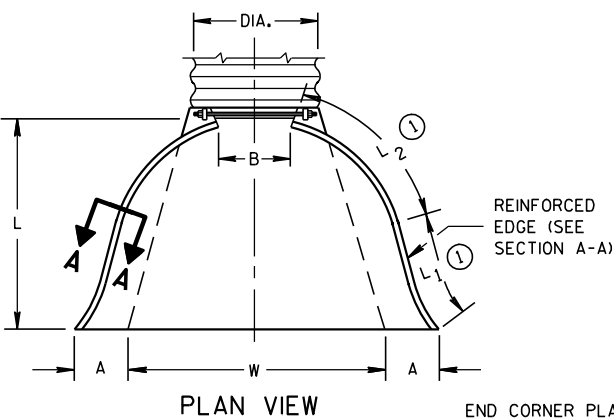
6/04/02
DATE

FHWA

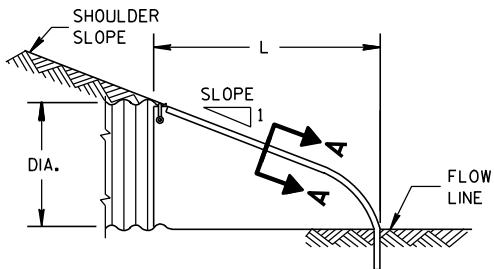
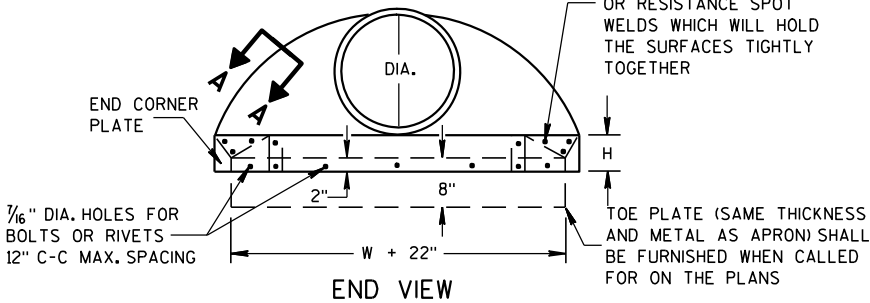
/S/ Beth Canestra
CHIEF ROADWAY DEVELOPMENT ENGINEER

METAL APRON ENDWALLS												
PIPE DIA. (IN.)	MIN. THICK. (Inches)		DIMENSIONS (Inches)							APPROX. SLOPE	BODY	
	STEEL	ALUM.	A (±1")	B (MAX.)	H (±1")	L (±1½")	L ₁ ①	L ₂ ①	W (±2")			
12	.064	.060	6	6	6	21	12	17½	24	2½ to 1	1 Pc.	
15	.064	.060	7	8	6	26	14	21¾	30	2½ to 1	1 Pc.	
18	.064	.060	8	10	6	31	15	28¼	36	2½ to 1	1 Pc.	
21	.064	.060	9	12	6	36	18	29⅝	42	2½ to 1	1 Pc.	
24	.064	.075	10	13	6	41	18	37¼	48	2½ to 1	1 Pc.	
30	.079	.075	12	16	8	51	18	52¼	60	2½ to 1	1 Pc.	
36	.079	.105	14	19	9	60	24	59¾	72	2½ to 1	2 Pc.	
42	.109	.105	16	22	11	69	24	75⅝	84	2½ to 1	2 Pc.	
48	.109	.105	18	27	12	78	24	81	90	2¼ to 1	3 Pc.	
54	.109	.105	18	30	12	84	30	85½	102	2¼ to 1	3 Pc.	
60	.109x	.105x	18	33	12	87	—	—	114	2 to 1	3 Pc.	
66	.109x	.105x	18	36	12	87	—	—	120	2 to 1	3 Pc.	
72	.109x	.105x	18	39	12	87	—	—	126	2 to 1	3 Pc.	
78	.109x	.105x	18	42	12	87	—	—	132	1½ to 1	3 Pc.	
84	.109x	.105x	18	45	12	87	—	—	138	1½ to 1	3 Pc.	
90	.109x	.105x	18	37	12	87	—	—	144	1½ to 1	3 Pc.	
96	.109x	.105x	18	35	12	87	—	—	150	1½ to 1	3 Pc.	

* EXCEPT CENTER PANEL
SEE GENERAL NOTES



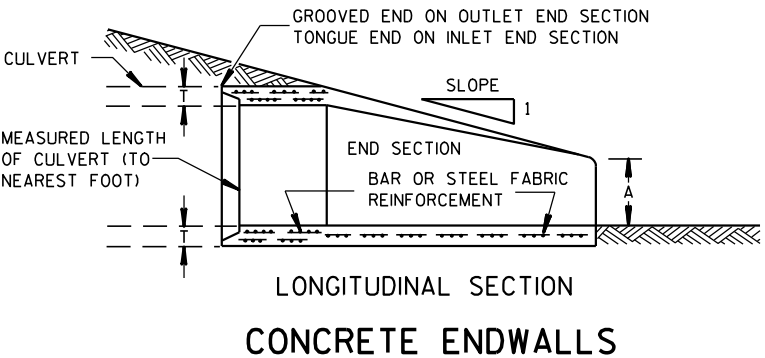
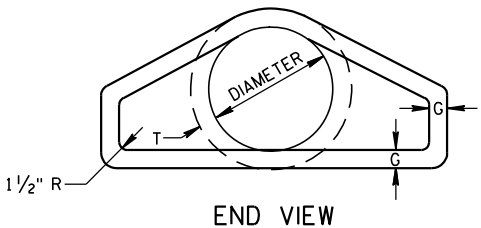
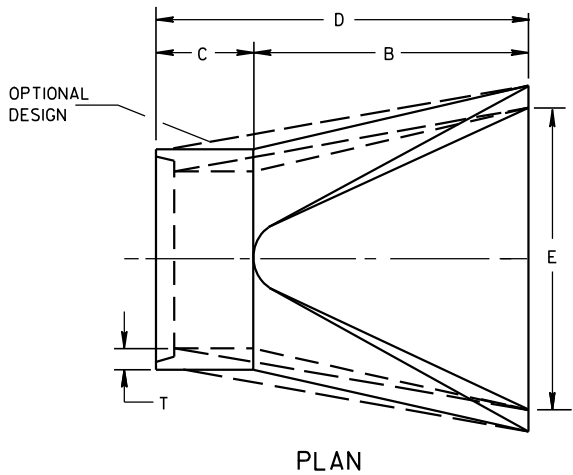
END CORNER PLATES MAY
BE FASTENED TO APRON
PROPER BY BOLTS, RIVETS,
OR RESISTANCE SPOT
WELDS WHICH WILL HOLD
THE SURFACES TIGHTLY
TOGETHER



SIDE ELEVATION
METAL ENDWALLS

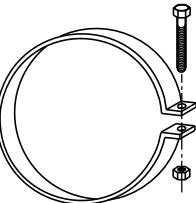
REINFORCED CONCRETE APRON ENDWALLS								
PIPE DIA. (IN.)	DIMENSIONS (Inches)							APPROX. SLOPE
	T	A	B	C	D	E	G	
12	2	4	24	48 ⁷ / ₈	72 ⁷ / ₈	24	2	3 to 1
15	2 ¹ / ₄	6	27	46	73	30	2 ¹ / ₄	3 to 1
18	2 ¹ / ₂	9	27	46	73	36	2 ¹ / ₂	3 to 1
21	2 ³ / ₄	9	36	37 ¹ / ₂	73 ¹ / ₂	42	2 ³ / ₄	3 to 1
24	3	9 ¹ / ₂	43 ¹ / ₂	30	73 ¹ / ₂	48	3	3 to 1
27	3 ¹ / ₄	10 ¹ / ₂	49 ¹ / ₂	24	73 ¹ / ₂	54	3 ¹ / ₄	3 to 1
30	3 ¹ / ₂	12	54	19 ³ / ₄	73 ¹ / ₂	60	3 ¹ / ₂	3 to 1
36	4	15	63	34 ³ / ₄	97 ³ / ₄	72	4	3 to 1
42	4 ¹ / ₂	21	63	35	98	78	4 ¹ / ₂	3 to 1
48	5	24	72	26	98	84	5	3 to 1
54	5 ¹ / ₂	27	65	33 ¹ / ₄ -35	98 ¹ / ₄ -100	90	5 ¹ / ₂	2 ¹ / ₂ 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

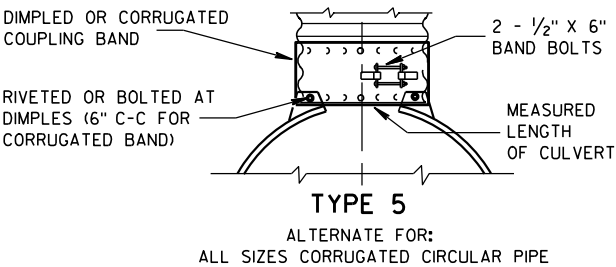
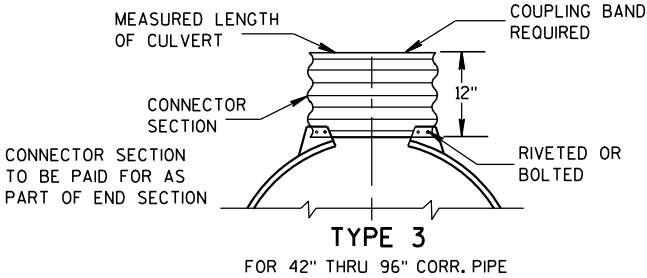
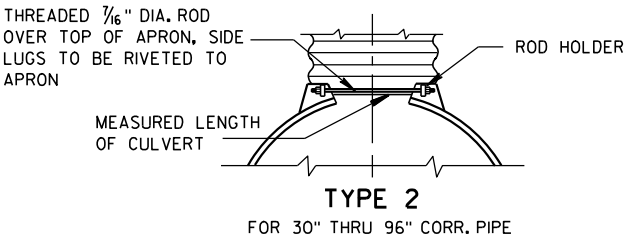
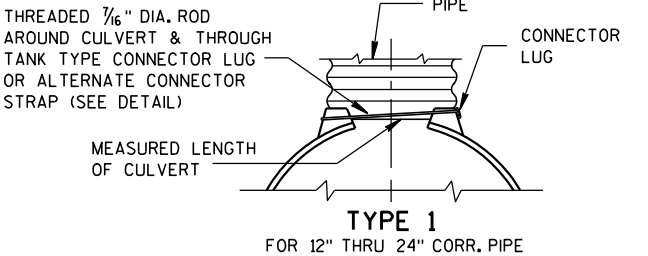


LONGITUDINAL SECTION
CONCRETE ENDWALLS

1" WIDE, 12 GA. (0.109"
THICK) GALVANIZED STRAP
WITH STANDARD 6" X 1/2"
BAND BOLT AND NUT



ALTERNATE FOR TYPE 1 CONNECTION
END SECTION CONNECTOR STRAP



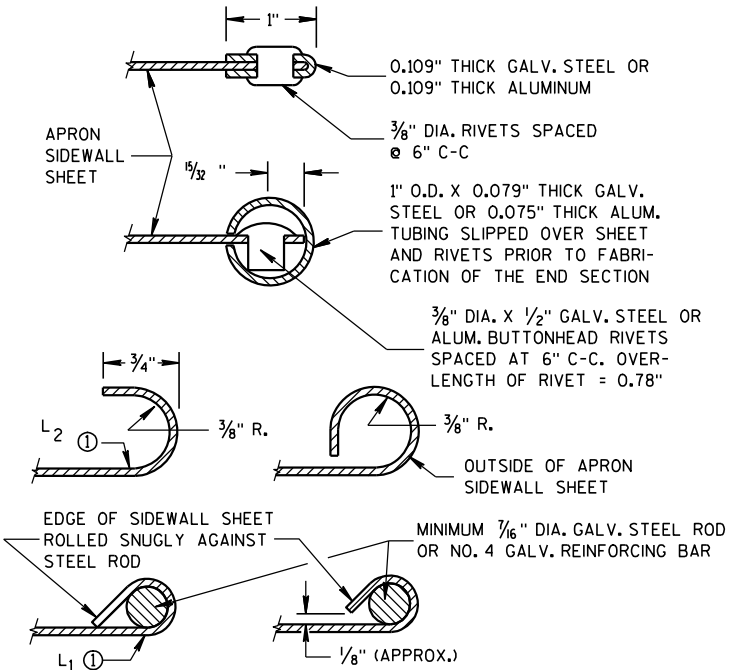
NOTE: DIMPLED BAND FITS OVER OUTSIDE OF ENDWALL,
AND CORRUGATED BAND FITS INSIDE ENDWALL.
DIMPLED BAND MAY BE USED WITH HELICALLY
CORRUGATED PIPE.

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.

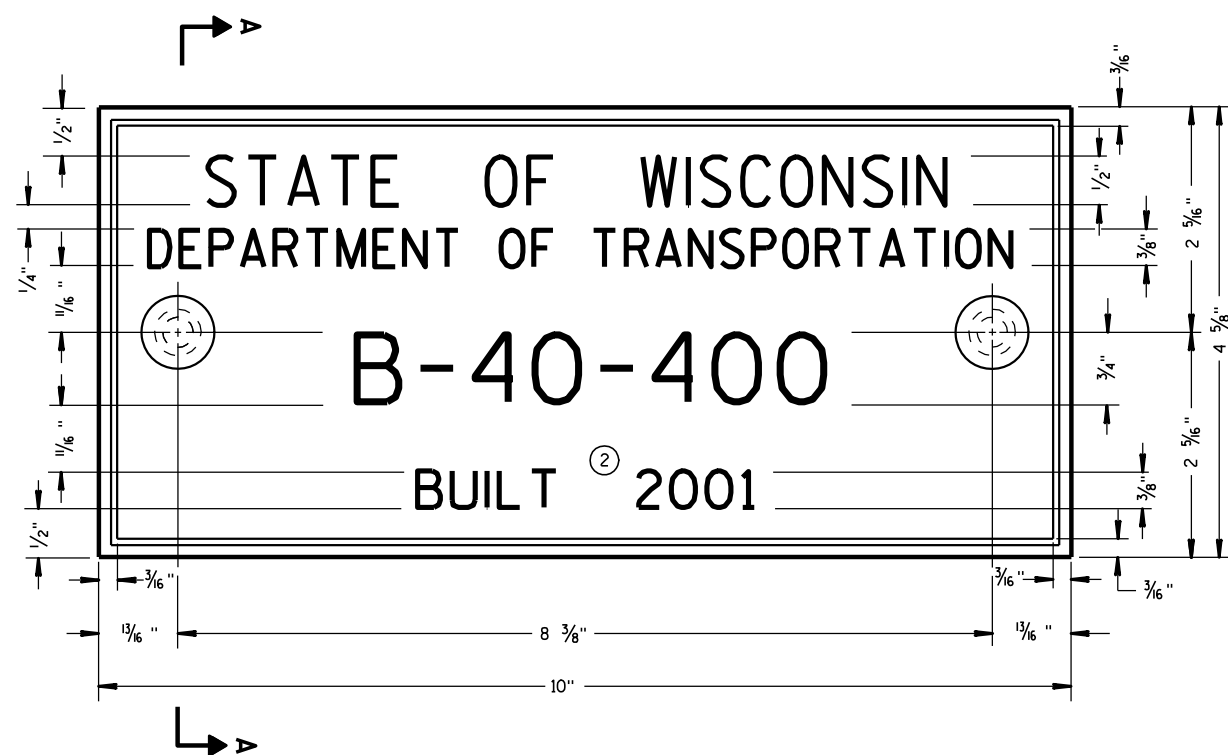
ALL THREE PIECE STEEL APRON ENDWALLS FOR 60" DIAMETER PIPE AND
LARGER SHALL HAVE 0.109" SIDES AND 0.138" CENTER PANELS. ALL
THREE PIECE ALUMINUM APRON ENDWALLS FOR 60" DIAMETER PIPE AND
LARGER SHALL HAVE 0.105" SIDES AND 0.134" CENTER PANELS. THE WIDTH
OF CENTER PANELS SHALL BE GREATER THAN 20 PERCENT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

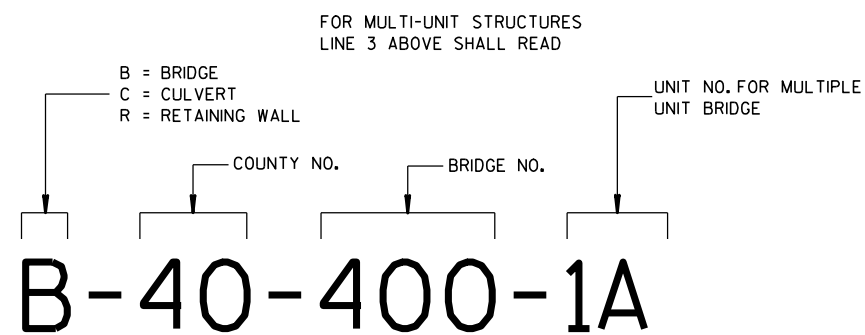
① FOR PIPE SIZES UP TO 60" DIAMETER, A 180° ROLLED EDGE MAY BE USED
INSTEAD OF STEEL ROD REINFORCEMENT. SEE SECTION A-A.

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	



TYPICAL NAME PLATE

(BRIDGES, CULVERTS, AND RETAINING WALLS)



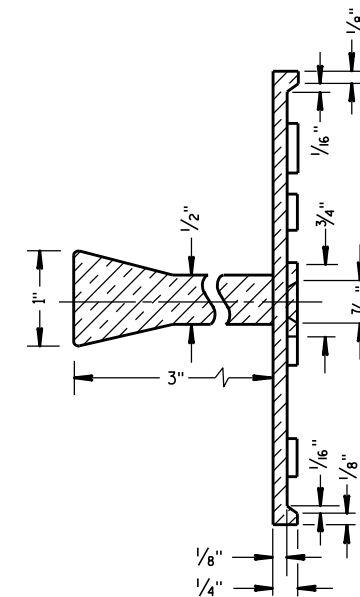
NUMBERING DESIGNATION
MULTI-UNIT STRUCTURES

GENERAL NOTES

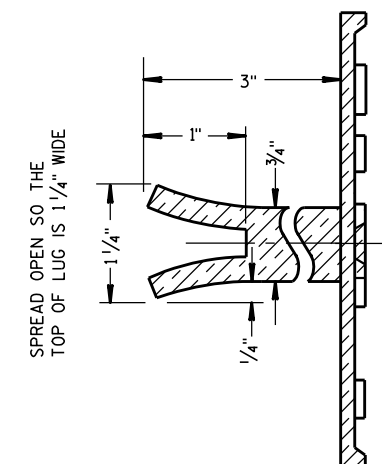
NAME PLATES TO BE INSTALLED ON BRIDGES, CULVERTS, AND RETAINING WALLS SHALL CONFORM TO THE REQUIREMENTS OF SECTION 502.3.11 OF THE STANDARD SPECIFICATIONS.

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

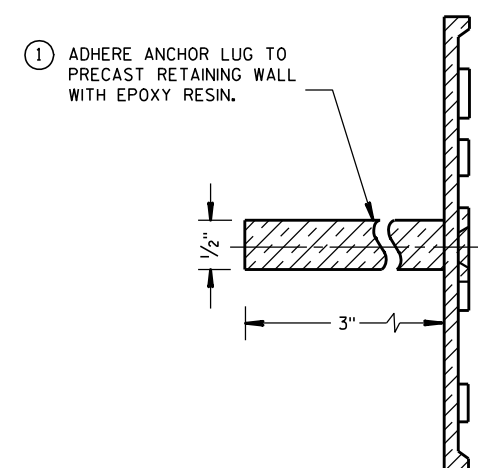
- ① EPOXY RESIN SHALL BE FROM AN APPROVED MANUFACTURER AND USED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
- ② REHABILITATION OF AN EXISTING STRUCTURE SHOULD USE THE DATE OF ORIGINAL STRUCTURE CONSTRUCTION.



SECTION A-A



ALTERNATE LUG



ALTERNATE LUG

(FOR ATTACHMENT TO PRECAST STRUCTURES)

NAME PLATE
(STRUCTURES)

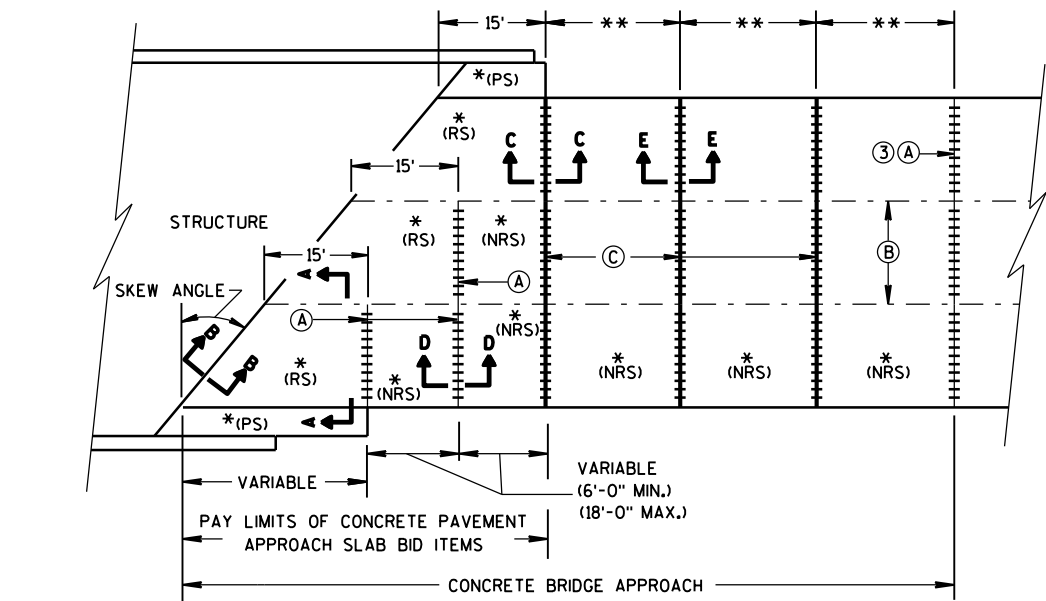
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

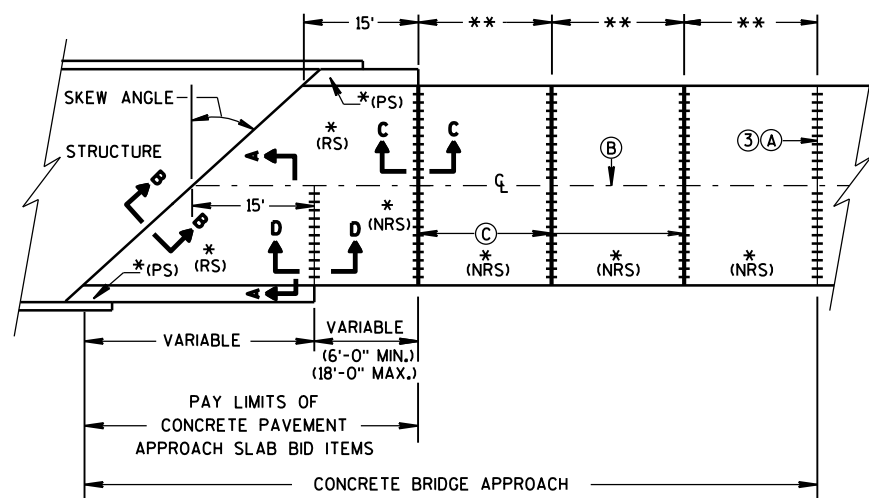
3/26/10
DATE

FHWA

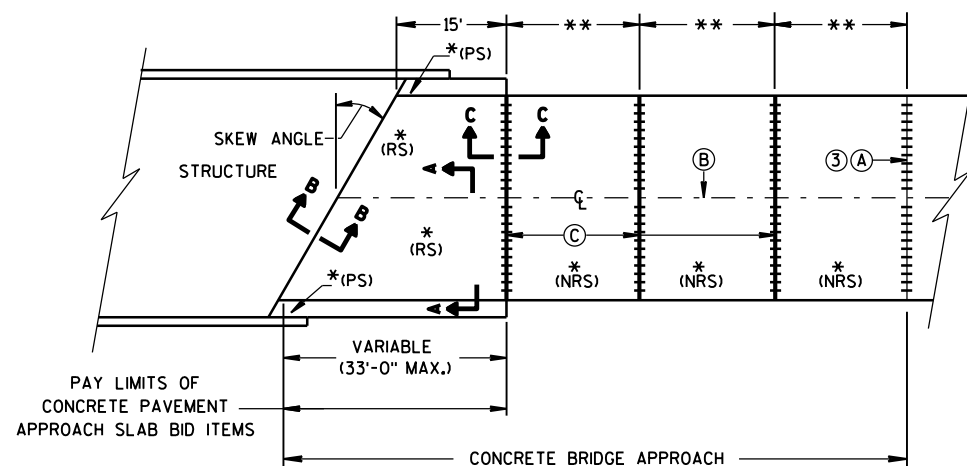
/S/ Scot Becker
CHIEF STRUCTURAL DEVELOPMENT ENGINEER



SKewed APPROACH
(PAVEMENT MORE THAN 2 LANES)



SKEWS > 30°
(PAVEMENT WIDTH ≤ 30')

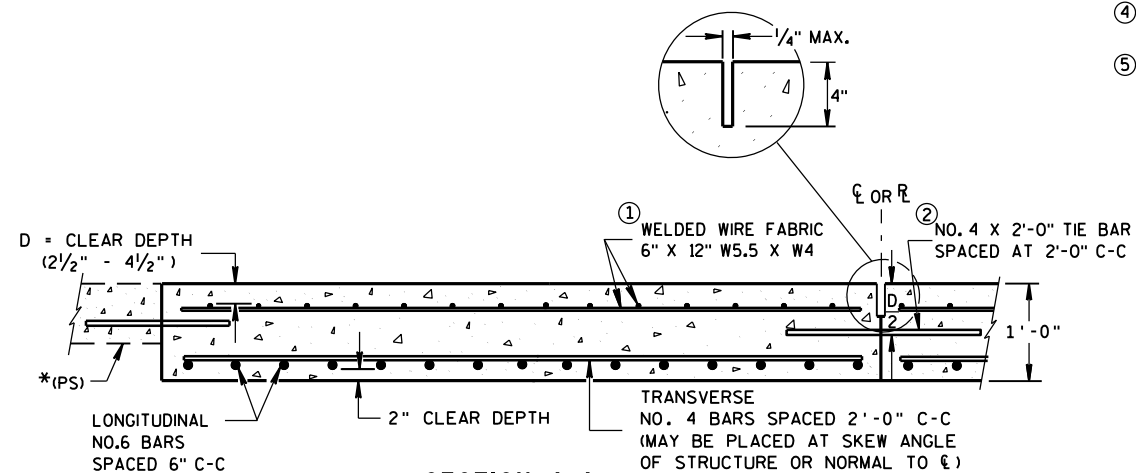


SKEWS ≤ 30°
(PAVEMENT WIDTH ≤ 30')
APPROACH SLAB AND ADJACENT PAVEMENT

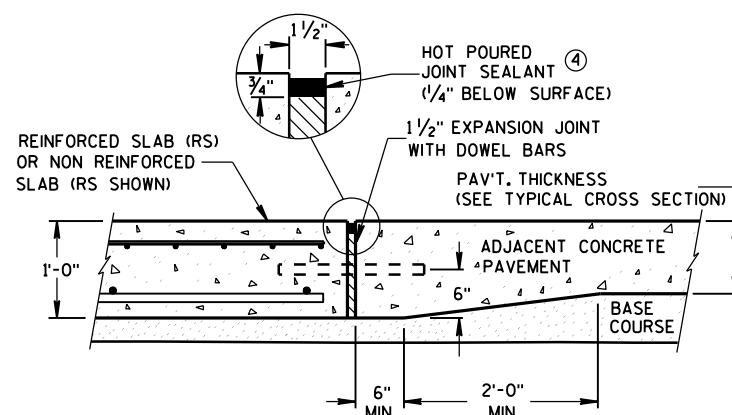
*(RS) = REINFORCED CONCRETE SLAB
*(PS) = PAVED CONCRETE SHOULDER: CONCRETE PAVEMENT, OR CONCRETE SURFACE DRAIN
(SEE DETAILS ELSEWHERE IN THE PLAN)
*(NRS) = NON-REINFORCED CONCRETE SLAB

**STANDARD TRANSVERSE JOINT SPACING
(SEE SDD 13C4, SDD 13C11, & SDD 13C13)
***STANDARD DOWEL BAR DIAMETER
(SEE SDD 13C11, & SDD 13C13)

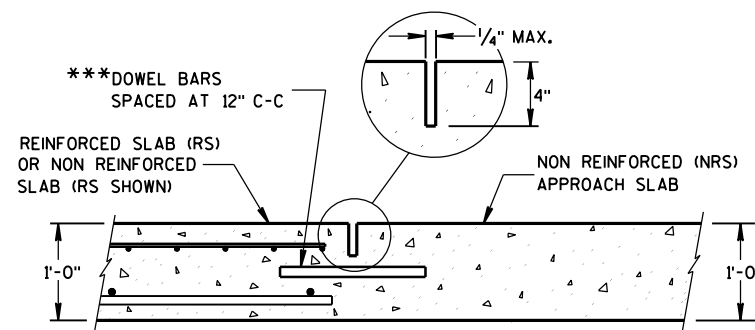
- (A) STANDARD CONTRACTION JOINT NORMAL TO R_L OR R_C
(B) STANDARD LONGITUDINAL JOINT AND TIE BARS.
(C) 1½" EXPANSION JOINT WITH DOWEL BARS NORMAL TO R_L OR R_C



SECTION A-A
REINFORCEMENT POSITIONING DETAIL



SECTION C-C
TRANSITION DETAIL
APPROACH SLAB TO ADJACENT PAVEMENT



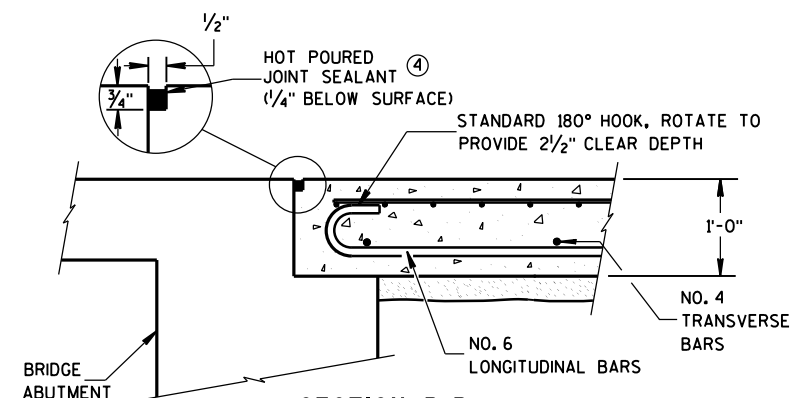
SECTION D-D
CONTRACTION JOINT

GENERAL NOTES

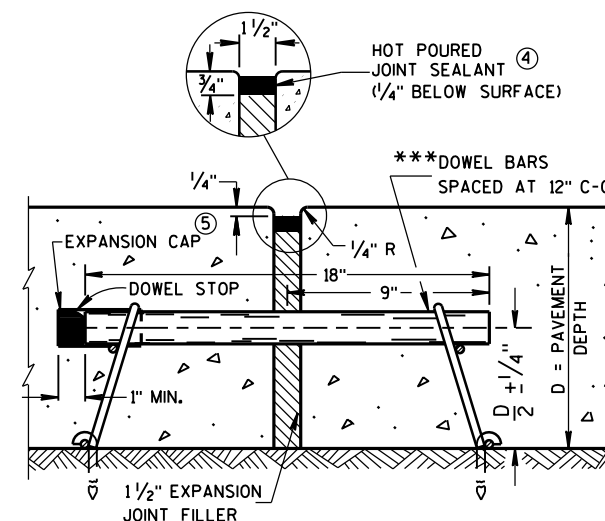
THE CONTRACTOR MAY SPLICE NO. 6 BARS IN THE APPROACH SLAB FOR SKEWED STRUCTURES ONLY. STAGGER SPLICES WITH A MAXIMUM OF ONE SPLICE PER BAR. THE LENGTH OF LAP IS 20 INCHES.

TACK WELD DOWEL BARS TO THE BASKETS ON ALTERNATE ENDS.

- 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.
- THE CONTRACTOR MAY OMIT TIE BARS BETWEEN REINFORCED SLABS WHERE SLAB REINFORCEMENT BARS EXTEND ACROSS THE CENTERLINE OR REFERENCE LINE.
- DO NOT DOWEL A CONTRACTION JOINT THAT ABUTS AN HMA PAVEMENT.
- USE A JOINT SEALANT MEETING THE REQUIREMENTS OF ASTM D6690.
- 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



SECTION E-E
EXPANSION JOINT

CONCRETE BRIDGE
APPROACH

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

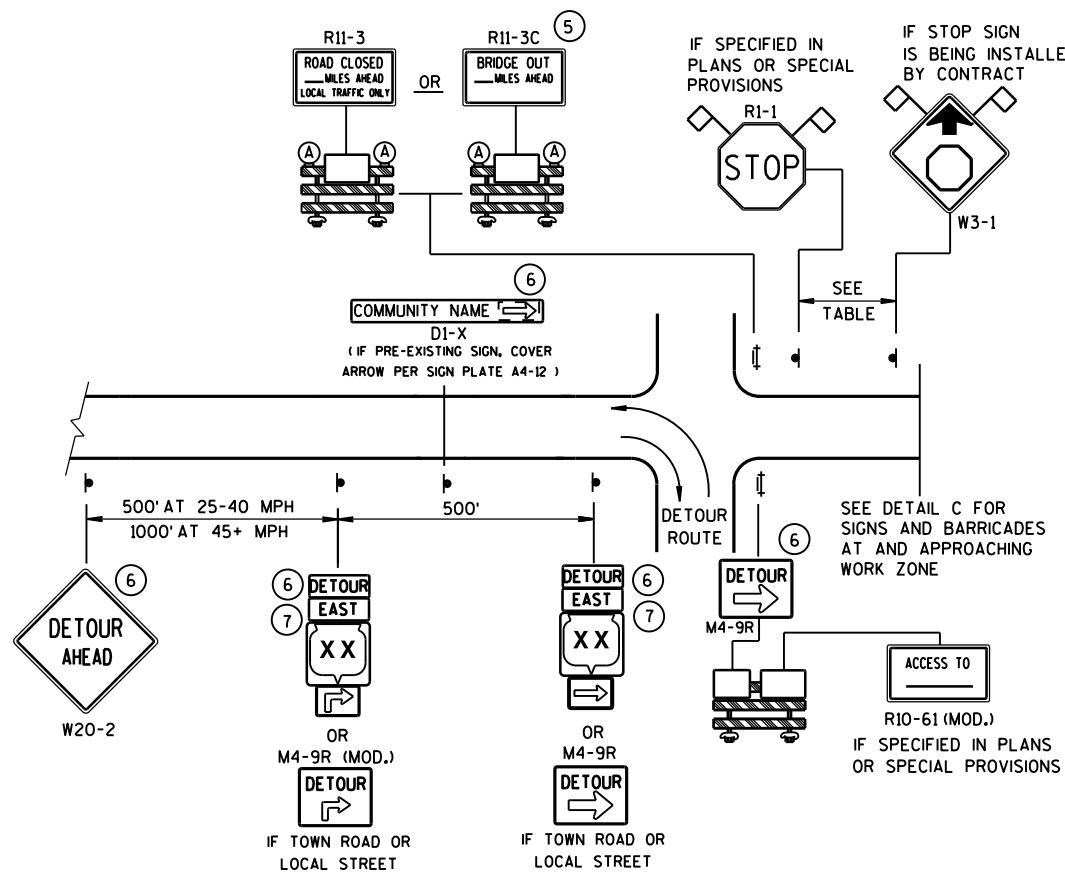
APPROVED

June, 2014

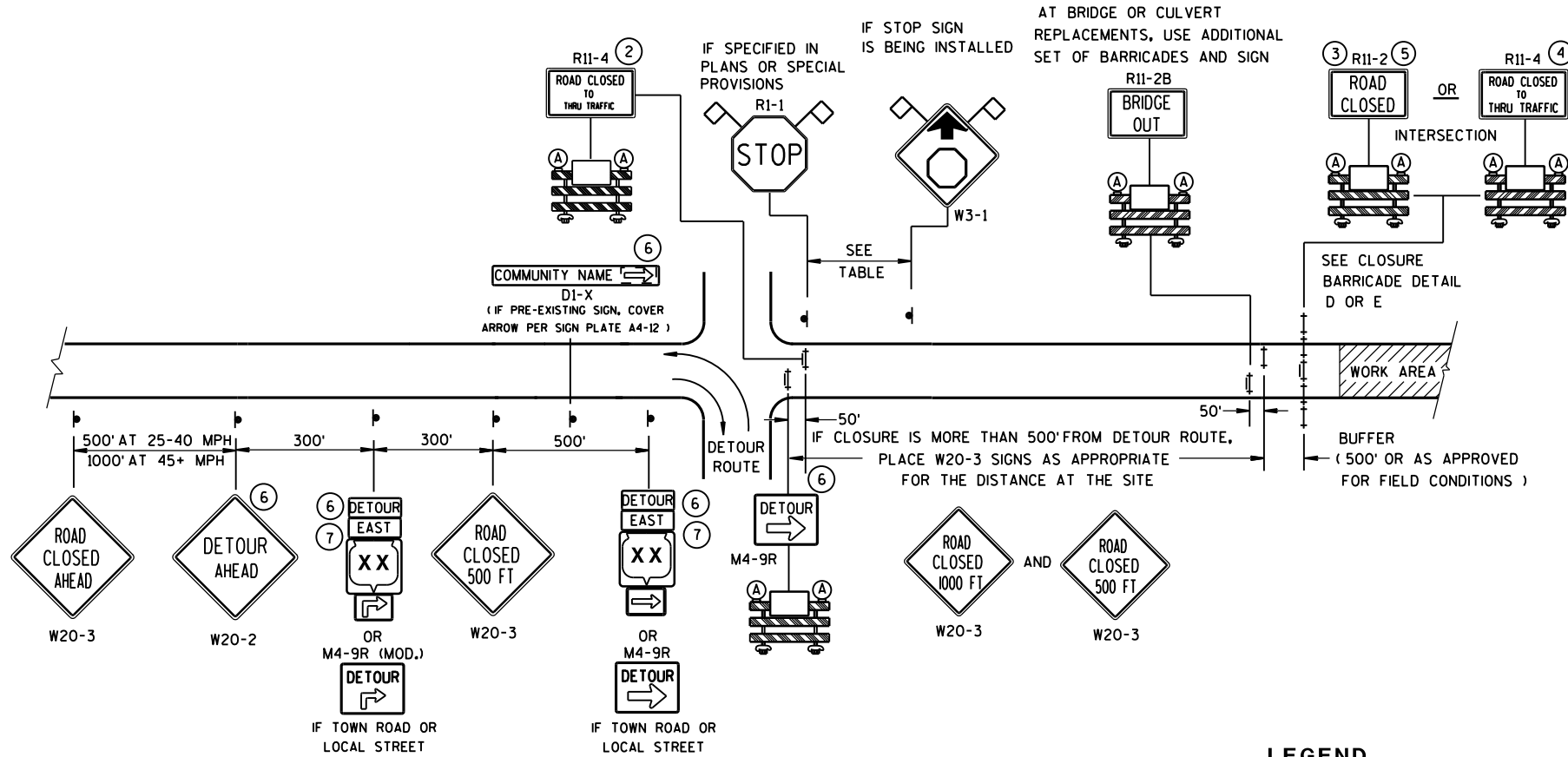
DATE

FHWA

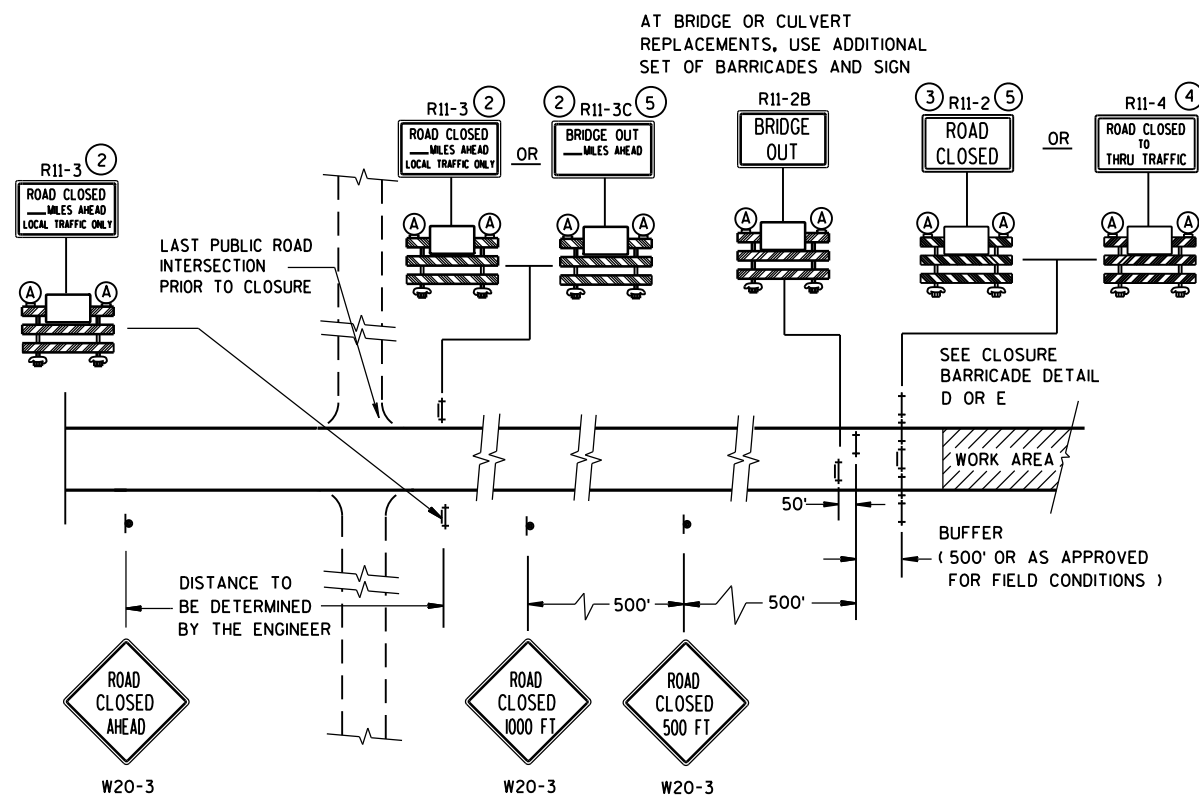
/S/ Deb Bischoff
PAVEMENT POLICY & DESIGN ENGINEER



DETAIL A
MAINLINE CLOSURE WITH POSTED DETOUR
WORK ZONE GREATER THAN 1/2 MILE FROM DETOUR ROUTE (1000 FEET IF URBAN)



DETAIL B
MAINLINE CLOSURE WITH POSTED DETOUR
WORK ZONE LESS THAN 1/2 MILE FROM DETOUR ROUTE (1000 FEET IF URBAN)

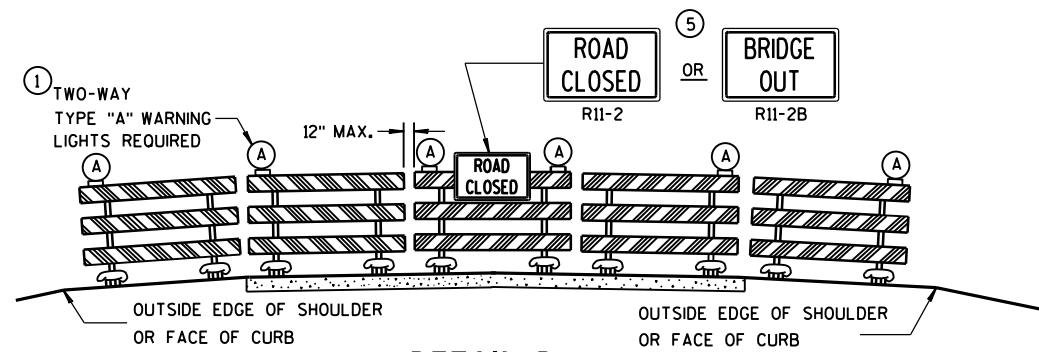


DETAIL C
MAINLINE CLOSURE, NO POSTED DETOUR

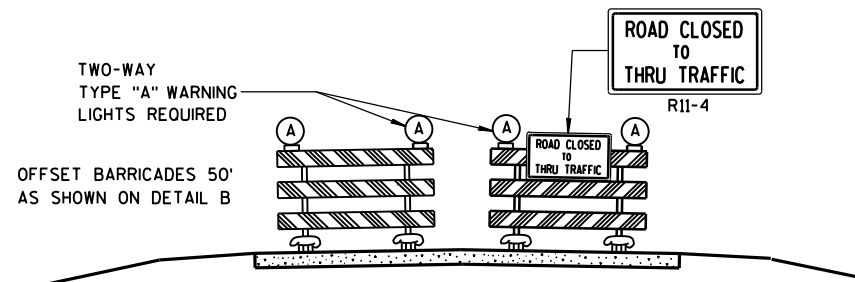
SPEED LIMIT (MPH)	"STOP AHEAD" ADVANCE WARNING DISTANCE (FT)
25	200
30	200
35	350
40	350
45	500
50	550
55	750

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

BARRICADES AND SIGNS FOR MAINLINE CLOSURES	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
8/2013 DATE	/S/ Travis Feltes STATE TRAFFIC ENGINEER OF DESIGN
FHWA	



DETAIL D
ROAD CLOSURE BARRICADE DETAIL
APPROACH VIEW



DETAIL E
LANE CLOSURE BARRICADE DETAIL
APPROACH VIEW

SEE SDD 15C2-SHEET "a" FOR LEGEND

GENERAL NOTES

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

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

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

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

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

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

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

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

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

ALL SIGNS SHALL BE 48" X 48" UNLESS OTHERWISE NOTED BELOW:

R11-2 SHALL BE 48" X 30".

R11-3, R11-4 AND R10-61 SHALL BE 60" X 30".

M4-9 SHALL BE 30" X 24".

M3-X SHALL BE 24" X 12". (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS.)

M4-8 SHALL BE 24" X 12". (30" X 15" IF NEEDED TO MATCH EXISTING SIGNS.)

M1-4, M1-5A, AND M1-6 SHALL BE 24" X 24". (36" X 36" IF NEEDED TO MATCH EXISTING SIGNS.)

M05-1 AND M06-1 SHALL BE 21" X 21". (30" X 30" IF NEEDED TO MATCH EXISTING SIGNS.)

D1-X SHALL BE AS SHOWN ON SPECIFIC PROJECT SIGNING DETAIL SHEETS.

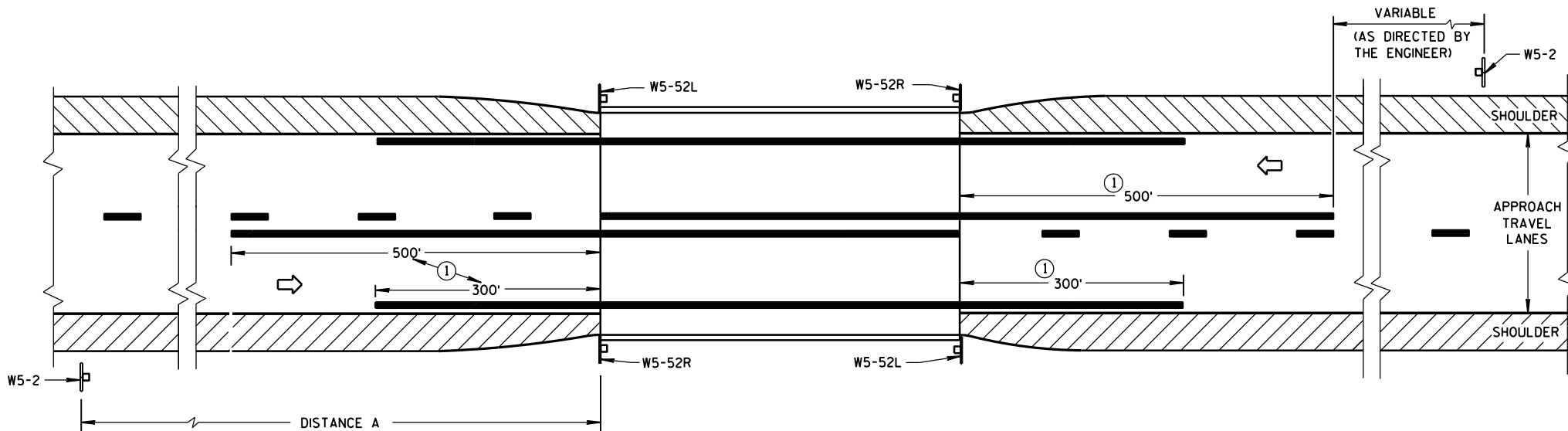
R1-1 SHALL BE 36" X 36".

- 1 TWO WARNING LIGHTS SHALL BE PROVIDED ON THE CENTER BARRICADE AND A MINIMUM OF ONE WARNING LIGHT SHALL BE PROVIDED ON EACH OF THE OTHER BARRICADES WITHIN THE ROADWAY LIMITS. SPACING OF THE WARNING LIGHTS SHALL BE UNIFORM TO THE EDGE OF ROADWAY AS SHOWN (APPROX. 8-FOOT LIGHT SPACING).
- 2 THESE SIGNS AND BARRICADES ARE NOT REQUIRED IF ROAD CLOSURE BEGINS AT INTERSECTION.
- 3 FOR ROAD CLOSURE WITHOUT LOCAL ACCESS TO PROJECT, SEE ROAD CLOSURE BARRICADE DETAIL D.
- 4 FOR ROAD CLOSURE WITH LOCAL ACCESS TO PROJECT, SEE LANE CLOSURE BARRICADE DETAIL E.
- 5 FOR BRIDGE OR CULVERT REPLACEMENTS, SUBSTITUTE "BRIDGE OUT" INSTEAD OF "ROAD CLOSED" ON R11-2 AND R11-3 SIGNS.
- 6 INSTALL DETOUR AND COMMUNITY GUIDE SIGNS AND ARROWS ONLY IF SPECIFIED IN THE CONTRACT. IF THERE ARE EXISTING ROUTE MARKER ASSEMBLIES THAT WILL REMAIN IN PLACE, ADJUST THE LOCATION OF THE DETOUR ROUTE SIGNS TO CORRESPOND WITH THE EXISTING ASSEMBLIES. MODIFY EXISTING SIGNS WHERE POSSIBLE. SEE SPECIFIC PROJECT DETOUR SIGNING DETAIL SHEETS. IF DETOUR SIGNS ARE BEING INSTALLED BY OTHERS, PLACE THE CONTRACTED TRAFFIC CONTROL SIGNS TO ALLOW FOR PLACEMENT OF ALL WARNING, DETOUR AND GUIDE SIGNS AS SHOWN.
- 7 "EAST" CARDINAL DIRECTION MARKERS AND RIGHT TURN ARROWS ARE SHOWN. USE OTHER CARDINAL DIRECTIONS AND ARROWS AS APPROPRIATE.

BARRICADES AND SIGNS FOR MAINLINE CLOSURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

8/2013 /S/ Travis Feltes
DATE STATE TRAFFIC ENGINEER OF DESIGN
FHWA



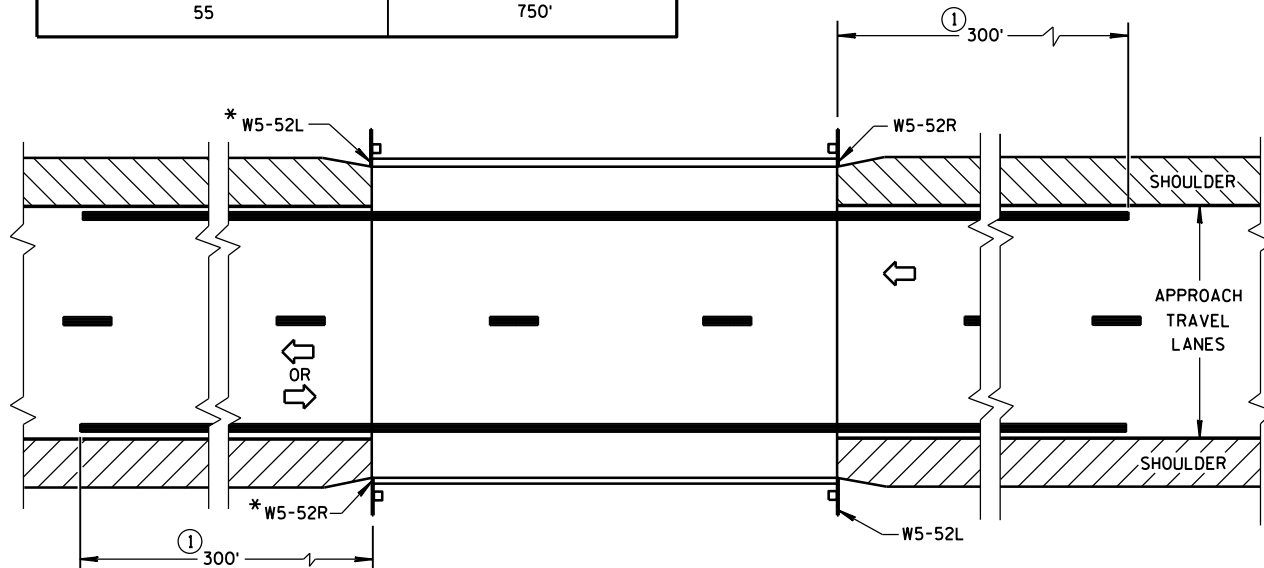
SITUATION 1

WARRANTING CRITERIA:

BRIDGE WIDTH IS AT LEAST 16 FEET BUT LESS THAN 24 FEET

DISTANCE TABLE

POSTED OR 85th PERCENTILE SPEED	DISTANCE "A"
25	150'
30	200'
35	250'
40	300'
45	400'
50	550'
55	750'

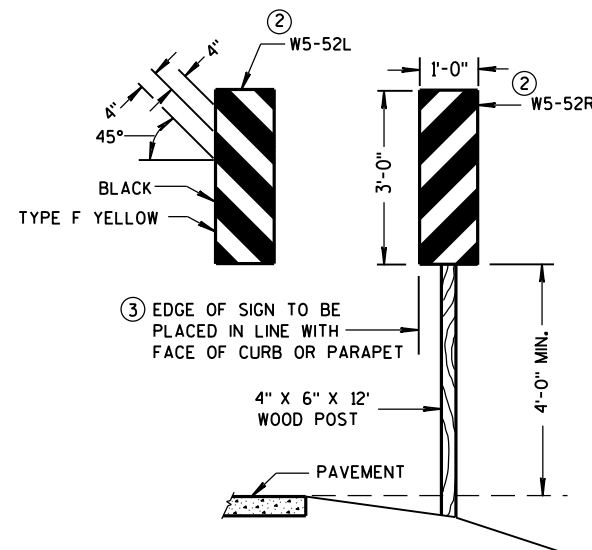


*OMIT ON ONE-WAY TRAVELLED WAYS

SITUATION 2

WARRANTING CRITERIA:

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



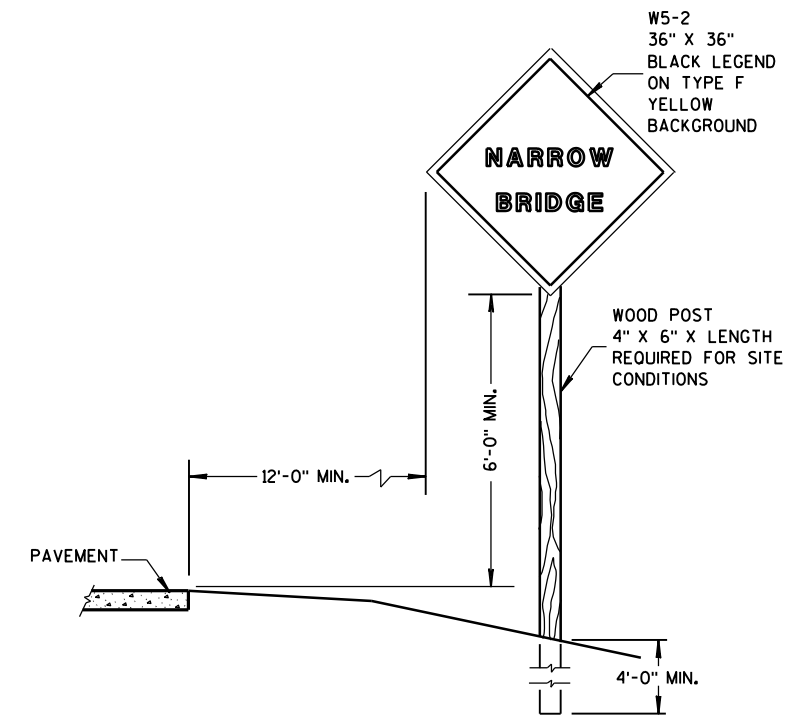
OBJECT MARKER PLACEMENT

GENERAL NOTES

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

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

- ① MINIMUM DISTANCE UNLESS OTHERWISE SHOWN ON THE PLAN.
- ② FACE OF OBJECT MARKERS W5-52R, AND W5-52L SHALL BE COVERED WITH TYPE F REFLECTIVE SHEETING.
- ③ LOCATE OBJECT MARKER POST(S) BEHIND GUARDRAIL WHEN PRESENT.



SIGN PLACEMENT

SIGNING & MARKING FOR TWO LANE BRIDGES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

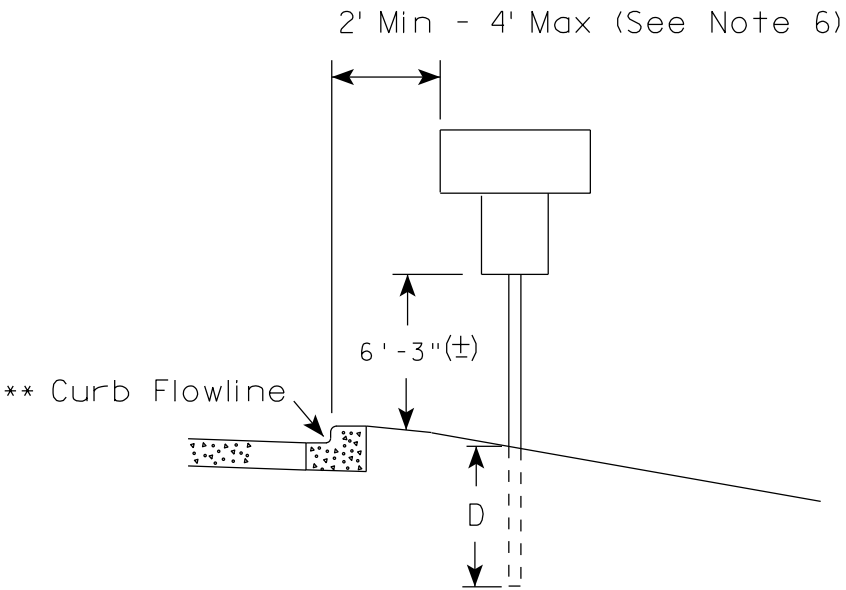
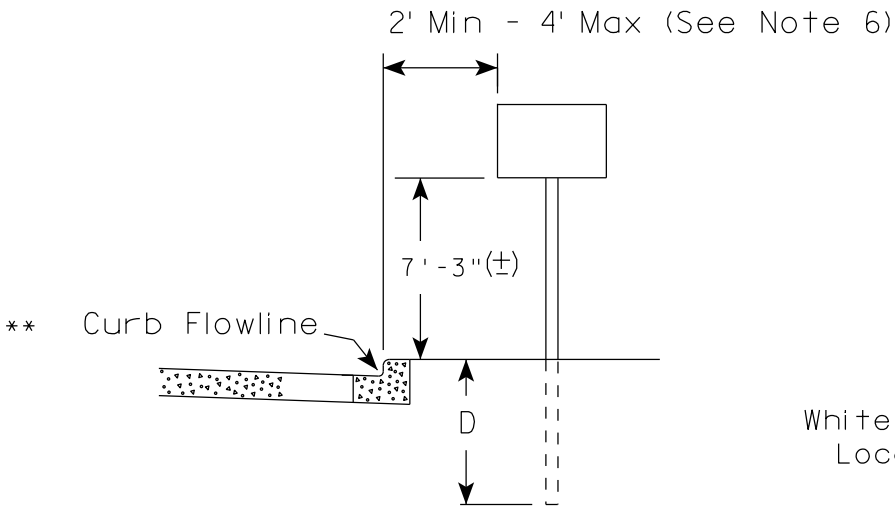
APPROVED

3-2014
DATE

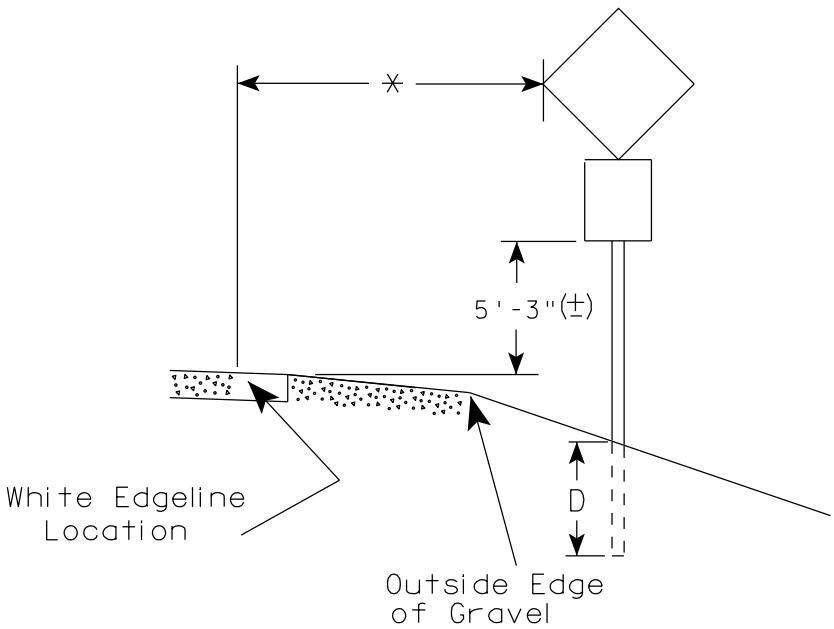
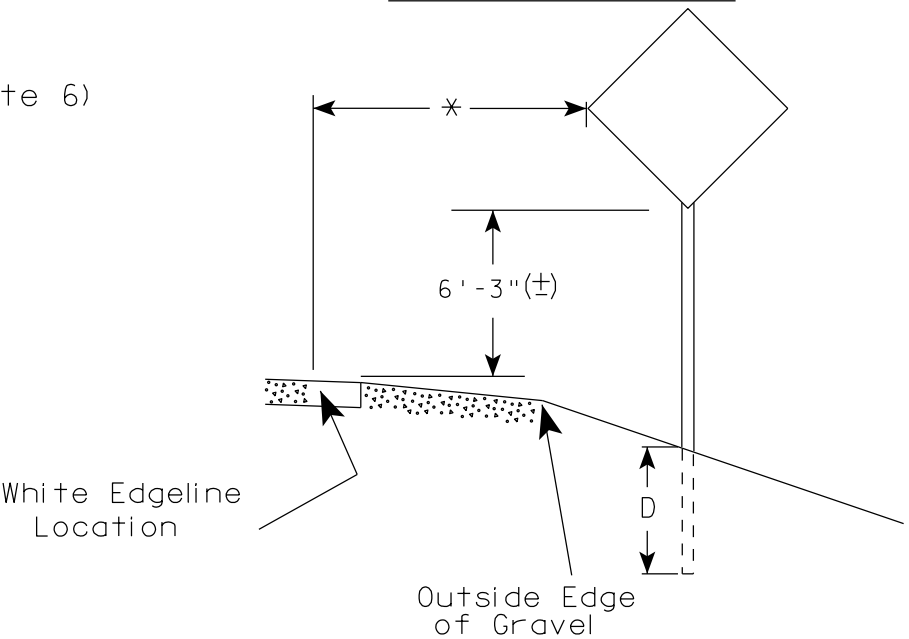
FHWA

/S/ Travis Fettes
STATE TRAFFIC ENGINEER OF DESIGN

URBAN AREA



RURAL AREA (See Note 2)



GENERAL NOTES

1. Signs wider than 4 feet, 20 sq.ft or larger, shall be mounted on multiple posts. Refer to plate A4-4.
2. If signs are mounted on barrier wall, see A4-10 sign plate.
3. For expressways and freeways, mounting height is 7'- 3" (±) or 6'-3" (±) depending upon existence of a sub-sign.
4. Minimum mounting height for J assemblies (A4-5) is 7'-3" (±) or 6'-3" (±) per urban or rural detail respectively.
5. Minimum mounting height for signs mounted on traffic signal poles is 5'- 3" (±).
6. Offset distance shall be consistent with existing signs or consistent throughout length of project.
7. The (±) tolerance for mounting height is 3 inches.
8. Folding stop signs (R1-1F) shall be mounted at a height of 5'-3" (±) or as directed by the Engineer.
9. The Double Arrow sign (W12-1) shall be mounted at a height of 2'-3" (±). The Chevron sign (W1-8), Roundabout Chevron panel (R6-4B), Enhanced Reference Markers, Clearance Markers (W5-52), Mile Markers (D10 series) & End of Rod Markers (W5-56 & W5-56A) shall be mounted at a height of 4'-3" (+).

POST EMBEDMENT DEPTH

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

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

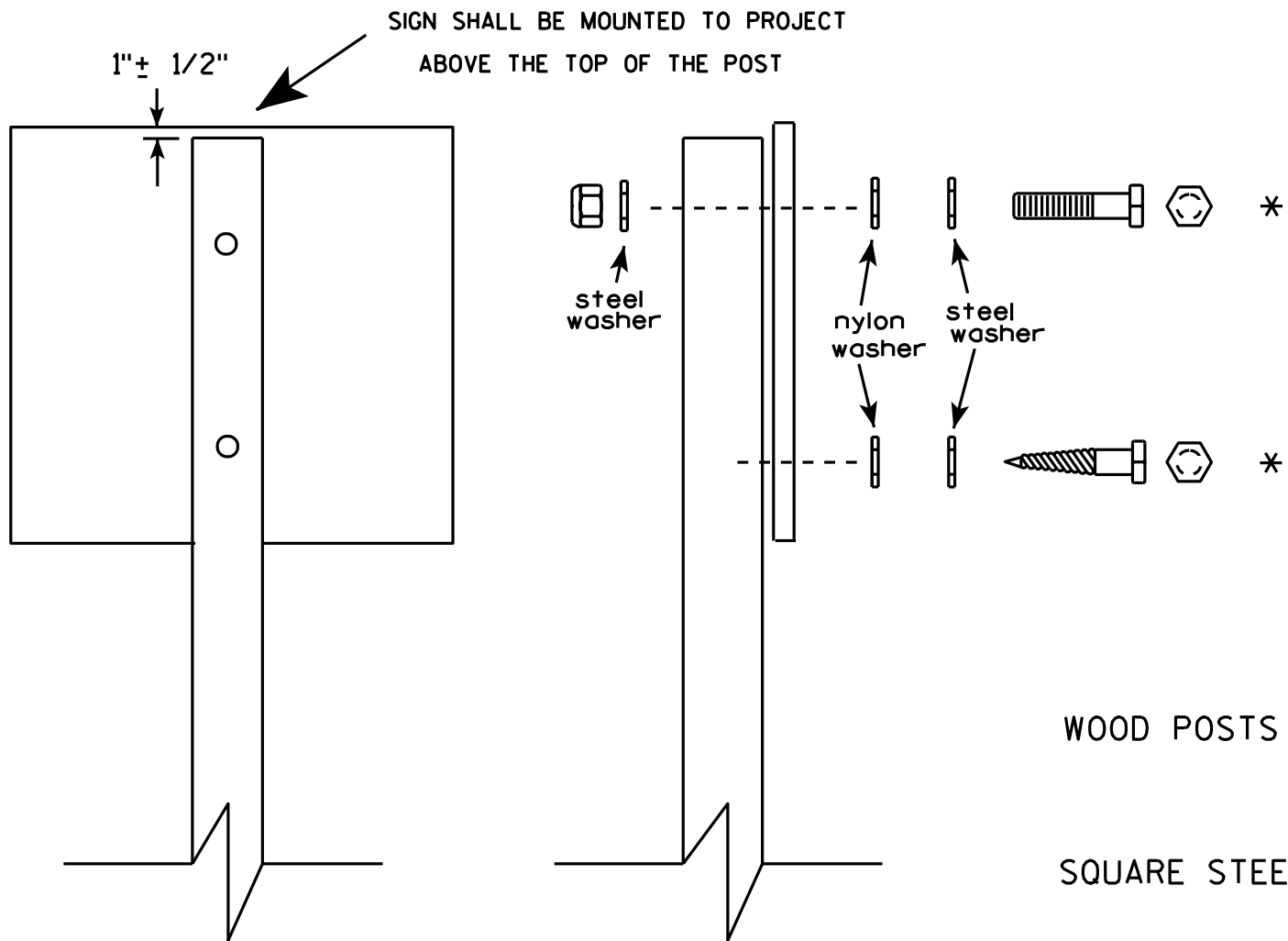
* 6 feet from edge of a paved shoulder or 12 feet from the edge of pavement (edge line location) or 2 feet from outside edge of gravel, whichever is greater unless directed by project engineer.

TYPICAL INSTALLATION
OF PERMANENT TYPE II
SIGNS ON SINGLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED
Matthew R. Rauch
for State Traffic Engineer

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

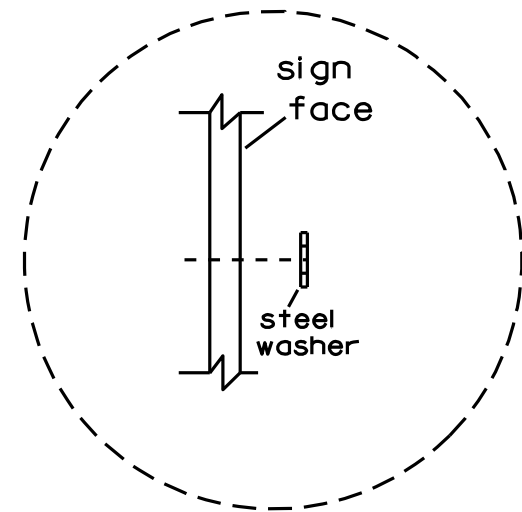


Nuts, bolts and lags used for mounting signs shall have hexagonal heads and shall be either :

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

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

- WOOD POSTS (4" x 4" or 4" x 6")
LAG SCREWS - 3/8" X 3"
MACHINE BOLTS - 5/16" X 6-1/2" or 7" Length w/ nuts
- SQUARE STEEL POSTS (2" x 2")
MACHINE BOLTS - 3/8" X 3-1/4" Length w/ nuts
RIVETS - 9/32" (6605-9-6) BULB-TITE, TRI-FOLD, ALUMINUM BODY/MANDREL
O.D. FLANGE .720-.765 INCH, GRIP RANGE .042-.375 INCH
- WASHERS (ALL POSTS) -
1-1/4" O.D. X 3/8" I.D. X 1/16" STEEL
1-1/4" O.D. X 3/8" I.D. X .080 NYLON for all Type H signs.

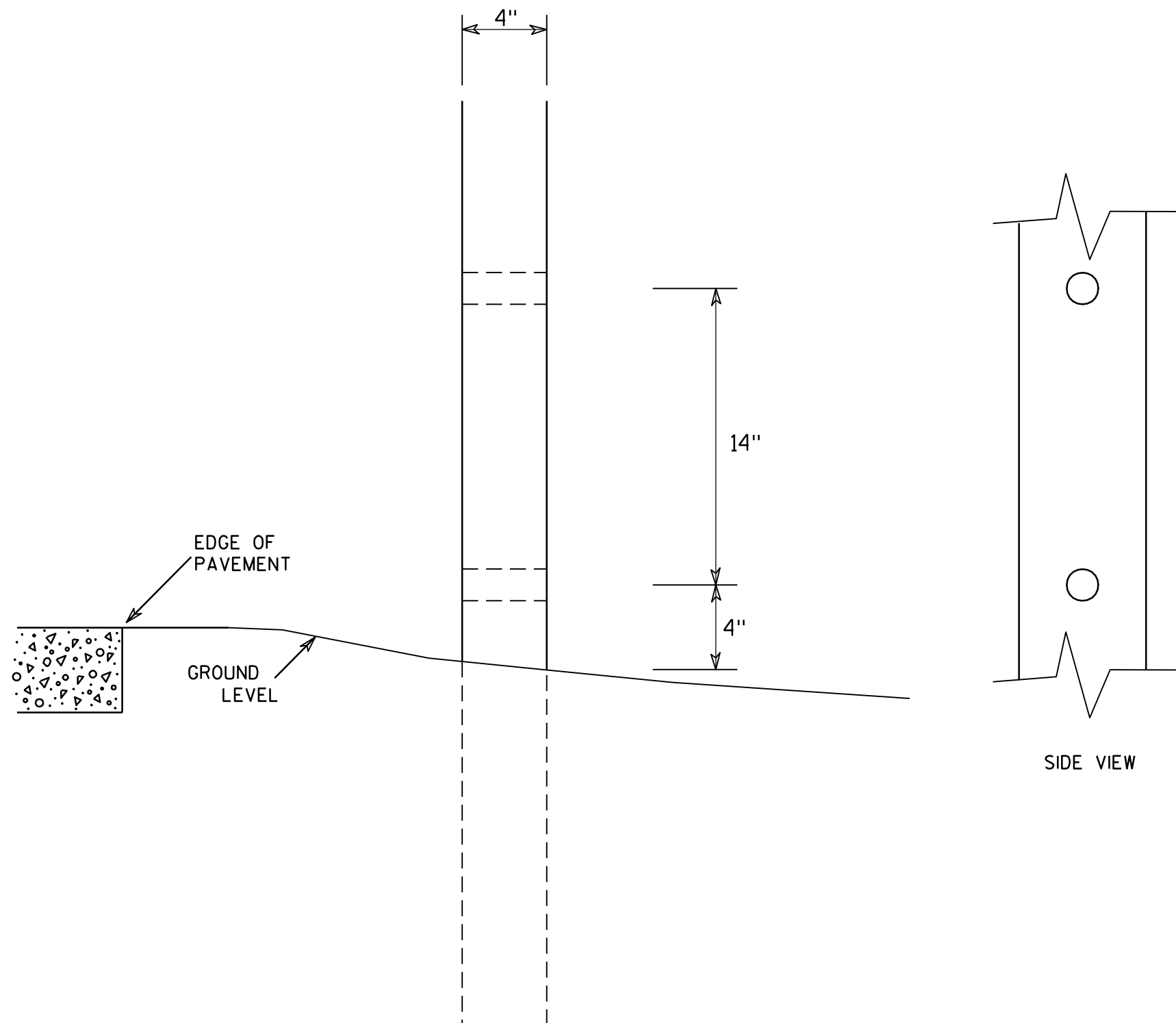


Washer Placement when Sign Has Other Than Type H or Type F Face

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

ATTACHMENT OF SIGNS TO POSTS	
WISCONSIN DEPT OF TRANSPORTATION	
APPROVED	<i>Matthew R. Rauch</i> For State Traffic Engineer
DATE 3/23/10	PLATE NO. A4-8.7

7

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

**4 X 6 WOOD POST
MODIFICATIONS**

WISCONSIN DEPT OF TRANSPORTATION

APPROVED

Chester J. Spang
for State Traffic Engineer

DATE 3/27/97

PLATE NO. A4-11.2

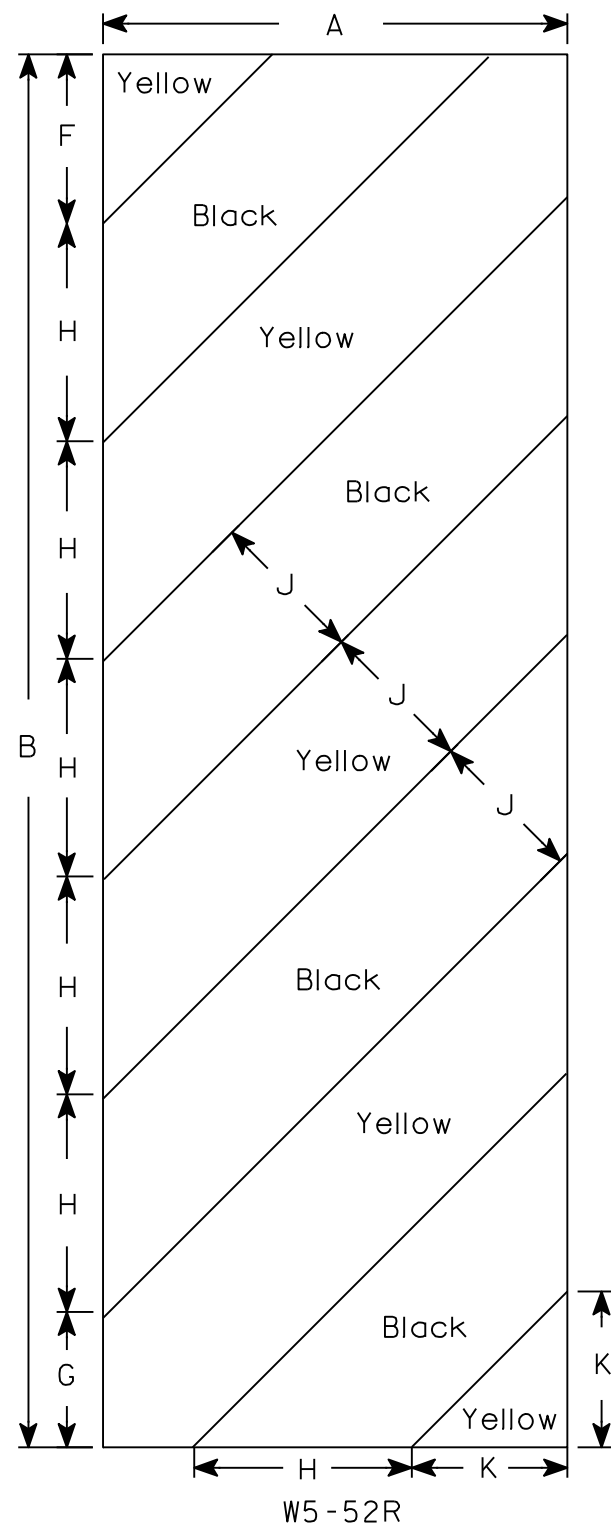
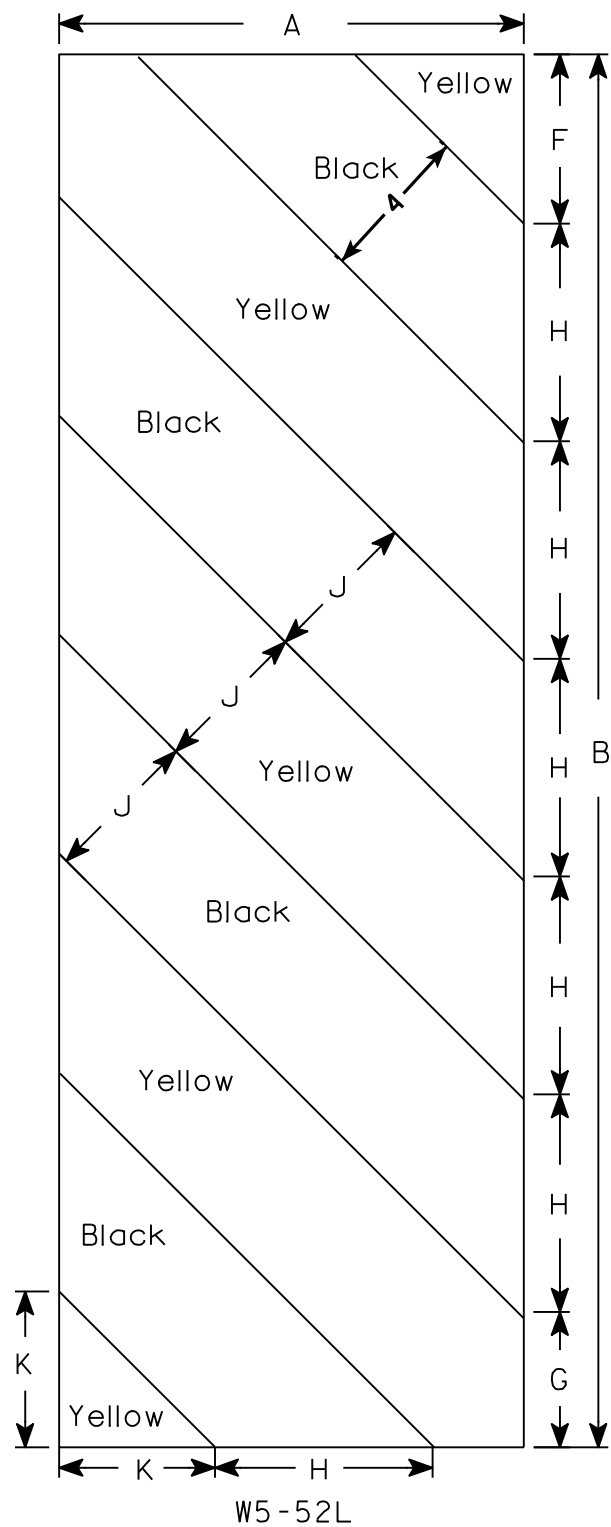
PROJECT NO:

HWY:

COUNTY:

SHEET NO:

E



NOTES

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

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

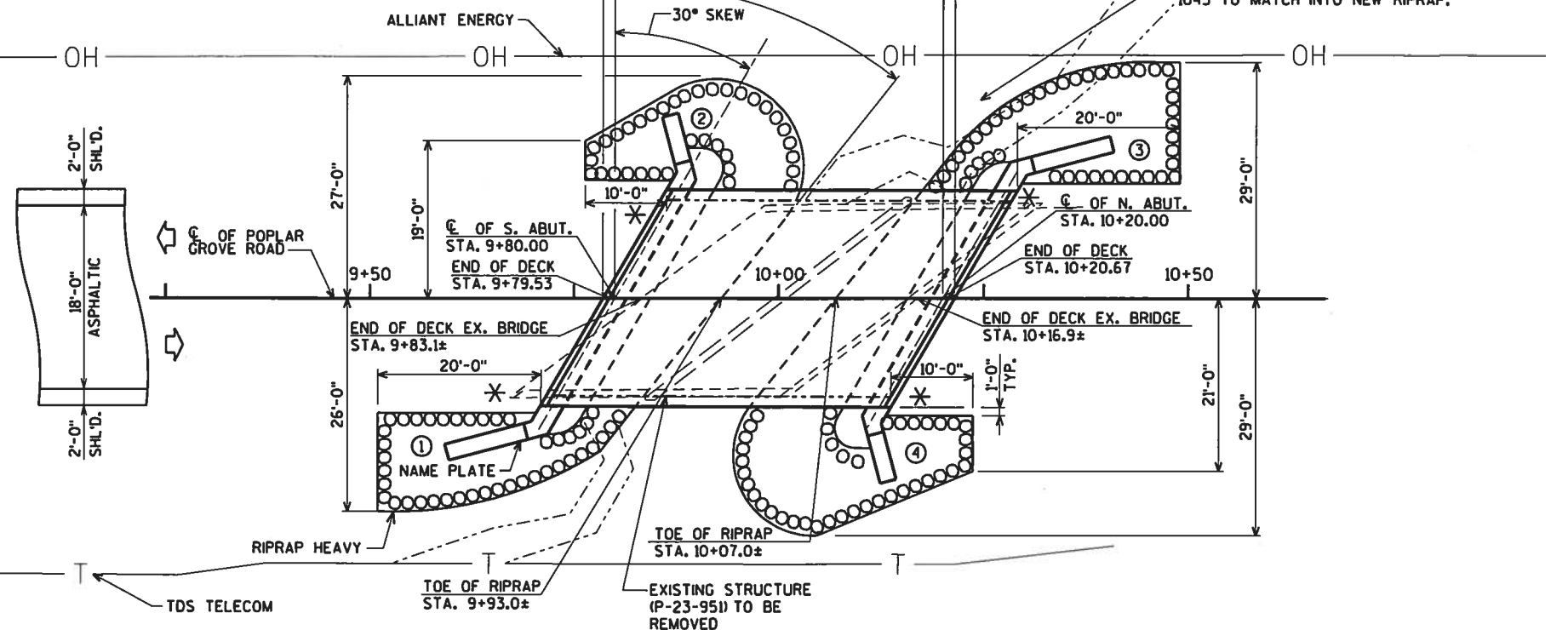
STANDARD SIGN
W5-52L & W5-52R

WISCONSIN DEPT OF TRANSPORTATION

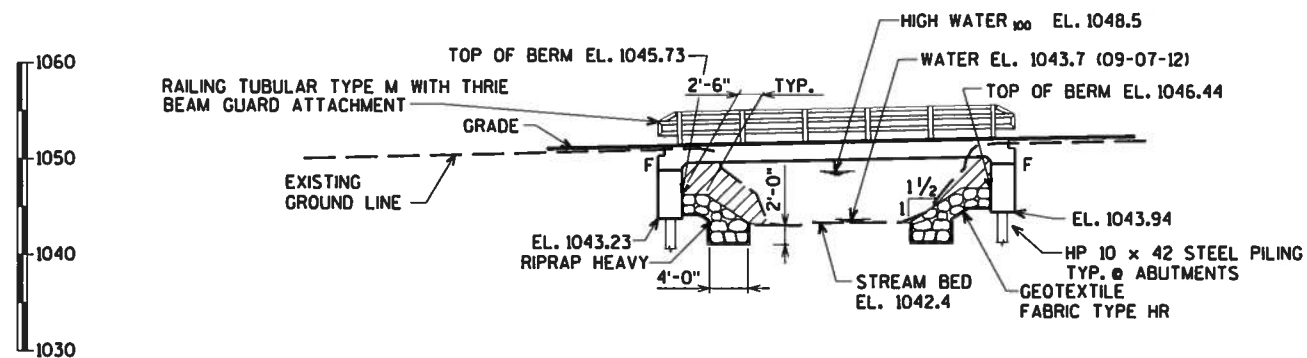
APPROVED *Matthew R. Rauch*
for State Traffic Engineer

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

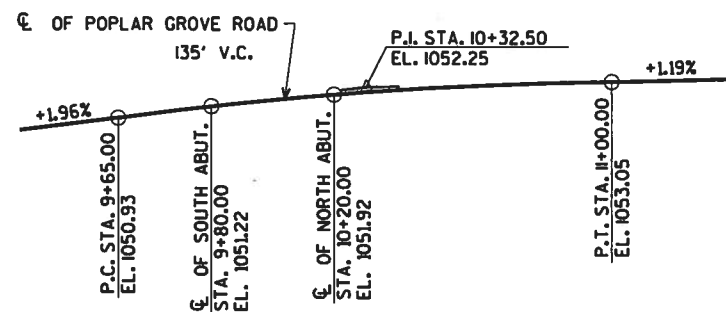
- * ANCHOR ASSEMBLY FOR THRIE BEAM TYPE GUARDRAIL.
 ○ DENOTES WING NUMBER



PLAN
SINGLE SPAN CONCRETE BRIDGE



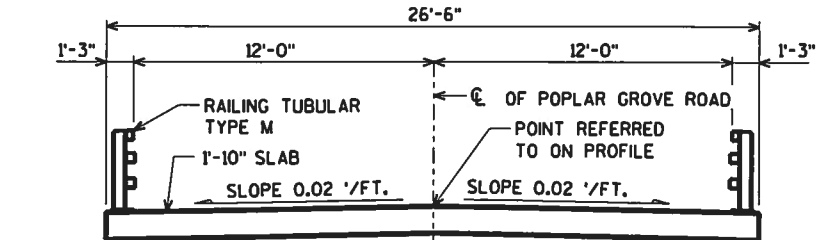
ELEVATION
(NORMAL TO CREEK)



PROFILE GRADE LINE
(POPLAR GROVE ROAD)

BENCH MARK:
CHISEL SQUARE IN TOP OF NW WINGWALL
STA. 10+33, 12' LT.
EL. 1050.64

COST OF EXCAVATION IN THE HATCHED AREAS SHALL BE INCLUDED IN THE CONTRACT LUMP SUM PRICE FOR "EXCAVATION FOR STRUCTURES BRIDGES B-23-0174".



SECTION THRU STRUCTURE

DESIGN DATA

LIVE LOAD:

DESIGN LOADING: HL-93
 INVENTORY RATING FACTOR: 1.11
 OPERATING RATING FACTOR: 1.44
 WISCONSIN STANDARD PERMIT VEHICLE (WIS-SPV) = 250 KIPS

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

ULTIMATE DESIGN STRESSES:

CONCRETE MASONRY { SLAB f'_c = 4,000 p.s.i.
 ALL OTHER f'_c = 3,500 p.s.i.
 HIGH STRENGTH BAR STEEL REINFORCEMENT (GRADE 60) f_y = 60,000 p.s.i.

HYDRAULIC DATA:

100 YEAR FLOOD

DRAINAGE AREA = 0.9 sq. mi.
 WATERWAY AREA = 49 sq. ft.
 $V = 7.0$ f.p.s.
 $Q_{100} = 340$ c.f.s.
 HIGH WATER₁₀₀ EL. 1048.5
 HIGH WATER₂ EL. 1045.7
 RDWY. OVERFLOW = N/A
 SCOUR CRITICAL CODE = 8
 DATUM = NAVD88 (2007)

FOUNDATION DATA:

ABUTMENTS TO BE SUPPORTED ON PRE-BORED HP 10 x 42 STEEL PILING DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 135+TONS PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA. ESTIMATED LENGTH 12'-0".

*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.

TRAFFIC DATA:

A.D.T. = 125 (2015)
 A.D.T. = 185 (2035)
 R.D.S. = 45 M.P.H.

LIST OF DRAWINGS

1. GENERAL PLAN
2. QUANTITIES AND NOTES
3. SUBSURFACE EXPLORATION
4. SOUTH ABUTMENT
5. SOUTH ABUTMENT WING 1 DETAILS
6. SOUTH ABUT. WING 2 DETAILS & BILL OF BARS
7. NORTH ABUTMENT
8. NORTH ABUTMENT WING 3 DETAILS
9. NORTH ABUT. WING 4 DETAILS & BILL OF BARS
10. SUPERSTRUCTURE DETAILS
11. SUPERSTRUCTURE DETAILS
12. RAILING TUBULAR TYPE M



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

CONSULTANT CONTACT:
DAN SYDOW
(715)-834-3161

NO.	DATE	REVISION	BY
ORIGINAL PLANS PREPARED BY AYRES ASSOCIATES 3433 Oakwood Hills Parkway Eau Claire, WI 54701 www.AyresAssociates.com			
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
ACCEPTED <i>William C. Dreher</i> KAR		DATE 08/22/14	
CHIEF STRUCTURES DESIGN ENGINEER			
STRUCTURE B-23-0174			
POPLAR GROVE ROAD OVER HEFTY CREEK			
COUNTY	GREEN	TOWN/VILLAGE	YORK
DESIGN SPEC. AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS			
DESIGNED BY	JCK	DESIGN CK'D.	CJM
DRAWN BY	CJM	PLANS CK'D.	JCK
GENERAL PLAN			SHEET 1 OF 12

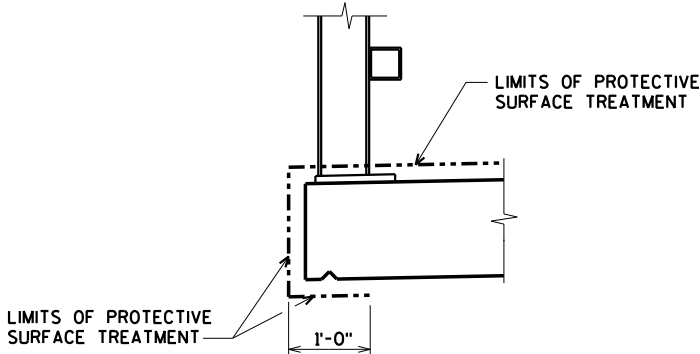
\$PRFNAME\$
U:\42-0867.00 - Green Co. Poplar Grove Rd. over Hefty Creek\BRIDGE\420867gp.DGN

STATE PROJECT NUMBER

5669-00-74

TOTAL ESTIMATED QUANTITIES

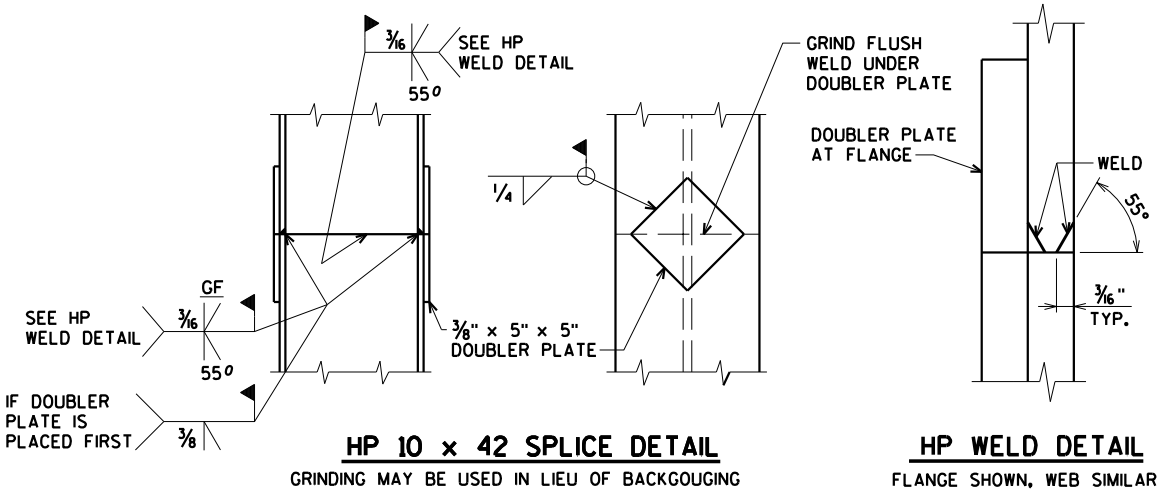
BID ITEM NUMBER	BID ITEMS	UNIT	S. ABUT.	N. ABUT.	SUPER.	TOTAL
203.0500.S	REMOVING OLD STRUCTURE OVER WATERWAY STATION 10+00	LS	-----	-----	-----	1
206.1000	EXCAVATION FOR STRUCTURES BRIDGES B-23-0174	LS	-----	-----	-----	1
210.0100	BACKFILL STRUCTURE	CY	105	105	-----	210
502.0100	CONCRETE MASONRY BRIDGES	CY	28	28	81	137
502.3200	PROTECTIVE SURFACE TREATMENT	SY	-----	-----	150	150
505.0405	BAR STEEL REINFORCEMENT HS BRIDGES	LB	2,410	2,380	-----	4,790
505.0605	BAR STEEL REINFORCEMENT HS COATED BRIDGES	LB	790	780	13,880	15,450
513.4060	RAILING TUBULAR TYPE M B-23-0174	LS	-----	-----	-----	1
516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	10	10	-----	20
550.0020	PRE-BORING ROCK OR CONSOLIDIDATED MATERIAL	LF	50	50	-----	100
550.1100	PILING STEEL HP 10-INCH x 42 LB	LF	60	60	-----	120
606.0300	RIPRAP HEAVY	CY	70	80	-----	150
612.0406	PIPE UNDERDRAIN WRAPPED 6-INCH	LF	80	80	-----	160
645.0120	GEOTEXTILE FABRIC TYPE HR	SY	140	160	-----	300
	NON-BID ITEMS					
	FILLER	SIZE	-----	-----	-----	1/2" & 3/4"



PROTECTIVE SURFACE TREATMENT DETAIL

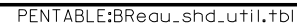
GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.
BAR STEEL REINFORCEMENT SHALL BE EMBEDDED 2" CLEAR UNLESS SHOWN OR NOTED OTHERWISE.
THE FIRST DIGIT OF A THREE DIGIT BAR NO. AND THE FIRST TWO DIGITS OF A FOUR DIGIT BAR NO. SIGNIFIES THE BAR SIZE.
JOINT FILLER SHALL CONFORM TO THE REQUIREMENTS OF A.A.S.H.T.O. DESIGNATION M 153, TYPE I, II OR III OR A.A.S.H.T.O. DESIGNATION M 213.
THE SLOPE OF THE FILL IN FRONT OF THE ABUTMENTS SHALL BE COVERED WITH RIPRAP HEAVY AND GEOTEXTILE FABRIC TYPE HR TO THE EXTENT SHOWN ON THE GENERAL PLAN SHEET AND IN THE ABUTMENT DETAILS.
SLAB FALSEWORK SHALL BE SUPPORTED ON PILES UNLESS OTHERWISE APPROVED BY THE ENGINEER.
THE EXISTING GROUND LINE SHALL BE THE UPPER LIMIT FOR EXCAVATION FOR STRUCTURES.
THE EXISTING STRUCTURE, P-23-951, TO BE REMOVED, IS A TWIN-CELL CONCRETE BOX CULVERT, 40 FEET LONG WITH TWO 9-FOOT WIDE BY 6-FOOT TALL CELLS.
AT BACKFACE OF ABUTMENTS ALL EXCAVATED VOLUME NOT OCCUPIED BY THE NEW STRUCTURE SHALL BE BACKFILLED WITH BACKFILL STRUCTURE.
PROTECTIVE SURFACE TREATMENT IS TO BE APPLIED AS SHOWN IN DETAIL ON THIS SHEET.



NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-23-0174			
DRAWN BY CJM		PLANS CK'D. JCK	
QUANTITIES AND NOTES			SHEET 2 OF 12

ORIGINAL PLANS PREPARED BY
AYRES ASSOCIATES
3433 Oakwood Hills Parkway
Eau Claire, WI 54701
www.AyresAssociates.com

8 |

Plan view of the bridge structure showing dimensions, centerlines, and materials. The bridge is 35'-3" wide. The main span is 29'-0" long, composed of 29 spans of 1'-0" each, using A506 material. The bridge is skewed at 30°. The centerline of the bridge is labeled "CL OF S. ABUT." and the centerline of Poplar Grove Road is labeled "CL OF POPLAR GROVE ROAD". The bridge is supported by two abutments, each with a 1'-0" level. The bridge is constructed with 4" x 3/4" filler and 1/2" filler. The bridge is labeled "STA. 9+80.00". The bridge is labeled "PIPE UNDERDRAIN WRAPPED (6-INCH)". The bridge is labeled "1'-0\"

[illegible]

- OPT. KEYED CONST. JOINT - FORMED BY A BEVELED 2" x 6" WITH RUBBERIZED MEMBRANE WATERPROOFING ON B.F.
- ① KEYED CONST. JOINT - FORMED BY A BEVELED 2" x 6".
- VERTICAL 18" RUBBERIZED MEMBRANE WATERPROOFING TO EXTEND FROM BRIDGE SEAT TO TOP OF WING WALL.

FOR PILE SPLICE DETAIL SEE SHEET 2.

B.F. DENOTES BACK FACE
F.F. DENOTES FRONT FACE

NO.	DATE	REVISION	BY
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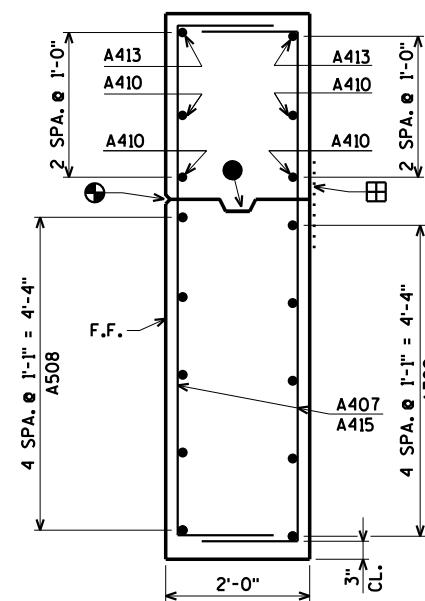
STRUCTURE B-23-0174

SOUTH
ABUTMENT

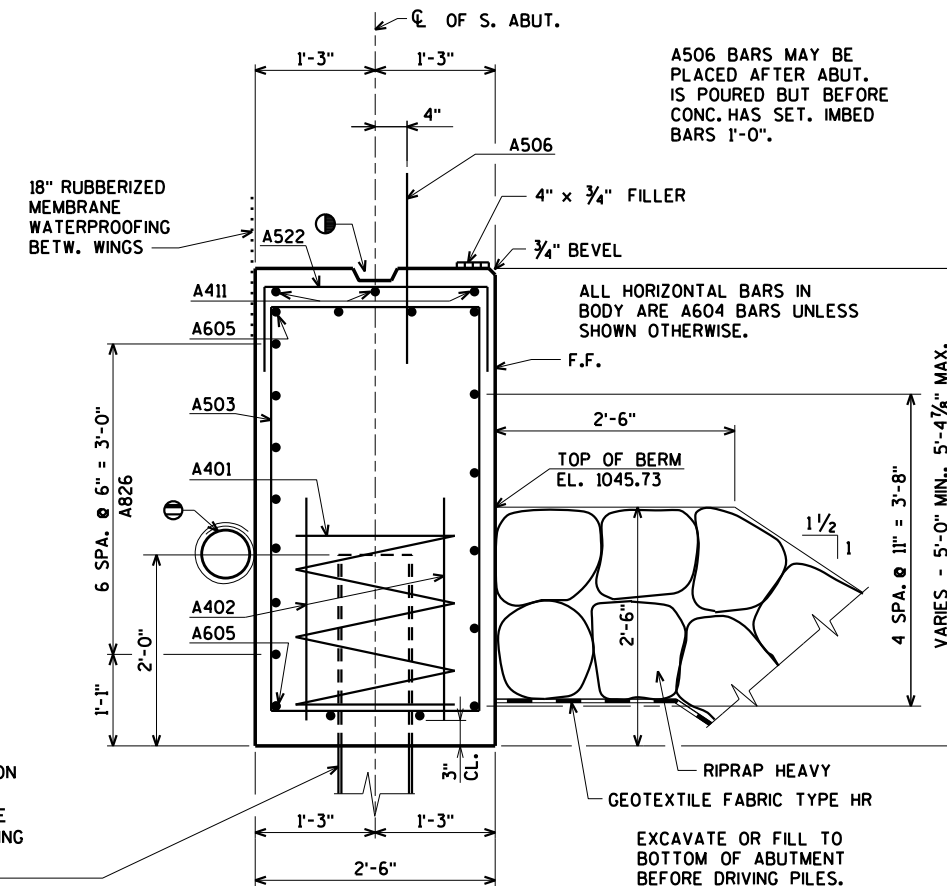
ORIGINAL PLANS PREPARED BY

AVRES
ASSOCIATES

**3433 Oakwood Hills Parkway
Eau Claire, WI 54701
www.AyresAssociates.com**

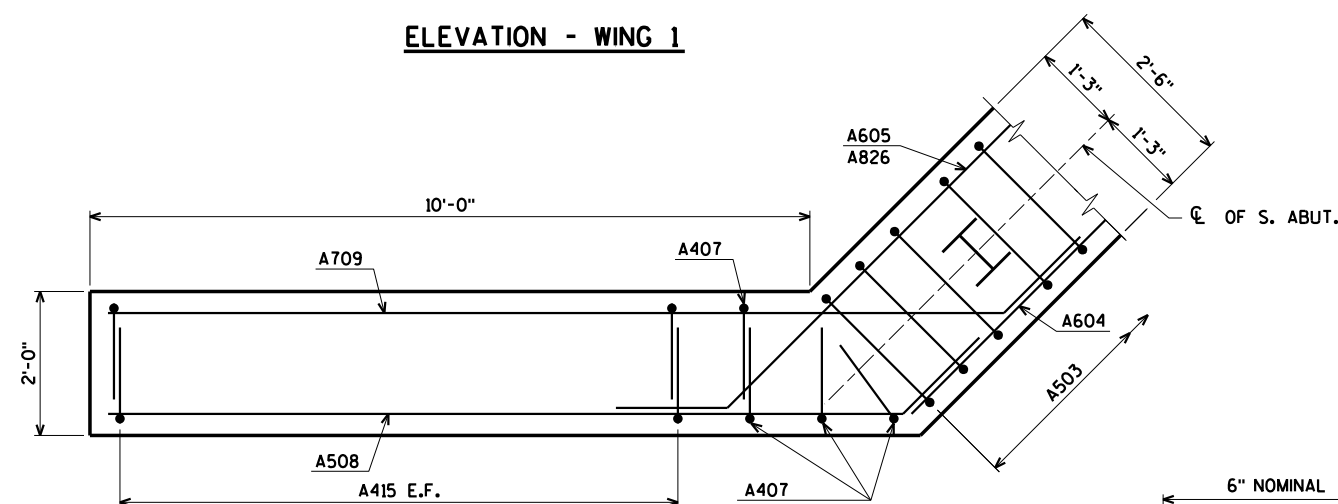


SECTION A

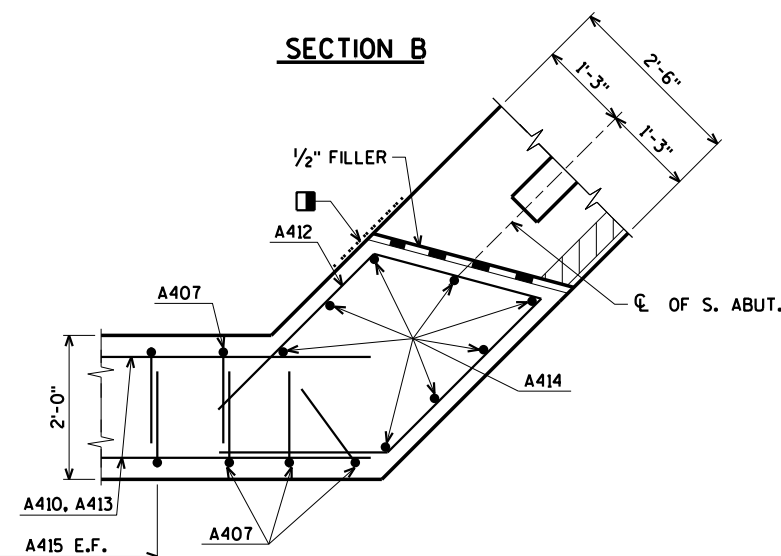


TYPICAL SECTION THRU BODY

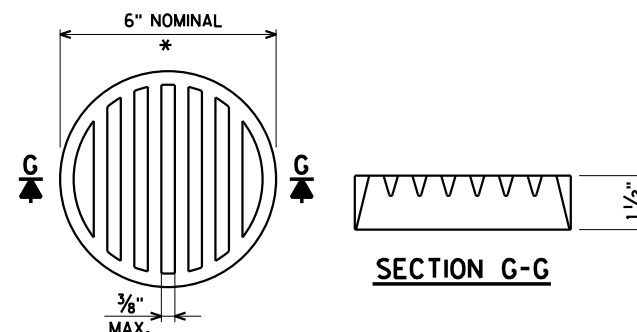
ABUTMENT TO BE SUPPORTED ON
HP 10 x 42 STEEL PILING WITH
A REQUIRED DRIVING RESISTANCE
OF 135 TONS PER PILE. PREBORING
OF 10'-0" MIN. IS REQUIRED.
ESTIMATED LENGTH 12'-0". _____



SECTION B



SECTION C



SECTION G-G

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

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

THE RODENT SHIELD SHALL BE PVC GRATE SIMILAR TO THIS DETAIL. THE GRATE IS COMMERCIALY 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 SHEET METAL SCREWS.

RODENT SHIELD DETAIL

⊖ PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. ATTACH RODENT SHIELD AT ENDS OF PIPE UNDERDRAIN. RODENT SHIELD TO BE INCLUDED IN BID PRICE OF "PIPE UNDERDRAIN WRAPPED 6-INCH".

① KEYED CONST. JOINT - FORMED BY A BEVELED 2" x 6".

18" RUBBERIZED MEMBRANE WATERPROOFING
ON BACK FACE. NOT REQUIRED IF CONST.
JT. IS NOT USED.

● OPT. KEYED CONST. JOINT - FORMED BY A BEVELED 2" x 6" WITH RUBBERIZED MEMBRANE WATERPROOFING ON B.F.

⊕ 3/4" 'V' GROOVE ON F.F. OF WING WALL
NOT REQUIRED IF CONST. JT. IS NOT USED.

■ VERTICAL 18" RUBBERIZED MEMBRANE WATERPROOFING TO EXTEND FROM BRIDGE SEAT TO TOP OF WING WALL.

FOR PILE SPLICE DETAIL SEE SHEET 2.

B.F. DENOTES BACK FACE

E.F. DENOTES EACH FACE

F.F. DENOTES FRONT FACE

WORK THIS SHEET WITH SHEETS 4 & 6

NO.	DATE	REVISION	BY
-----	------	----------	----

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-23-0174

DRAWN BY	CJM	PLANS CHK'D.	JCK
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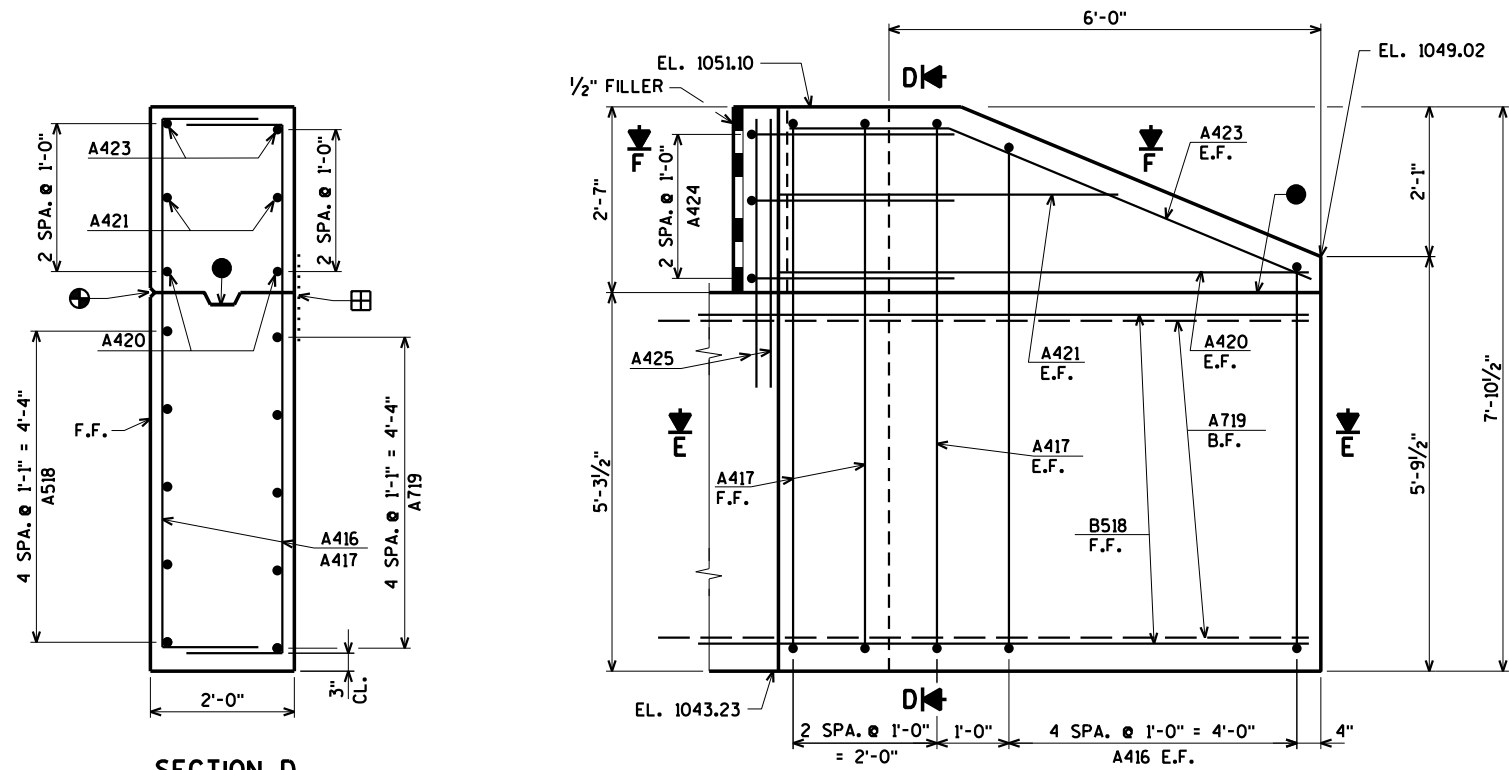
SOUTH ABUTMENT
WING 1 DETAILS

SHEET 5 OF 12

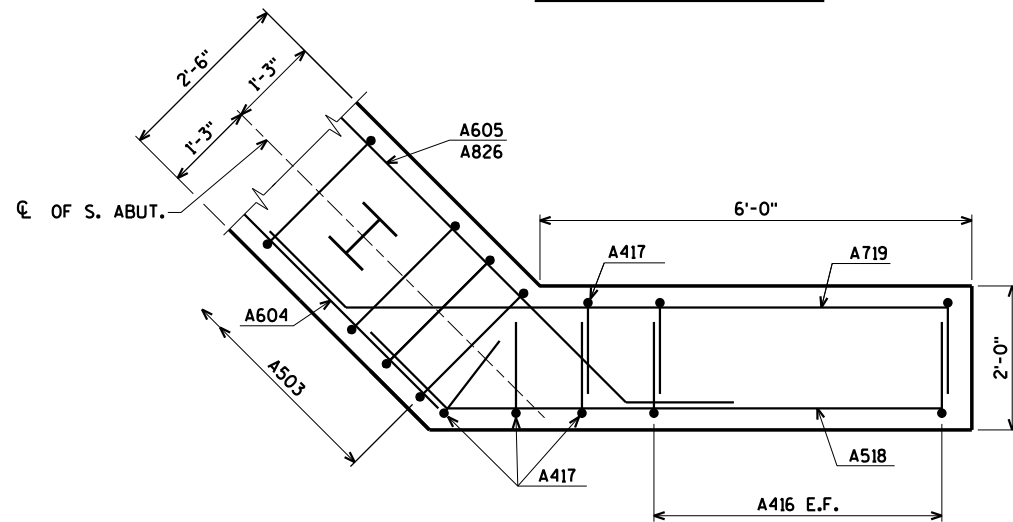
\$PRNAME\$
U:\42-0867.00 - Green Co. Poplar Grove Rd. over Hefty Creek\BRIDGE\420867SA.dgn

STATE PROJECT NUMBER

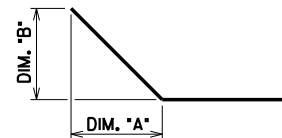
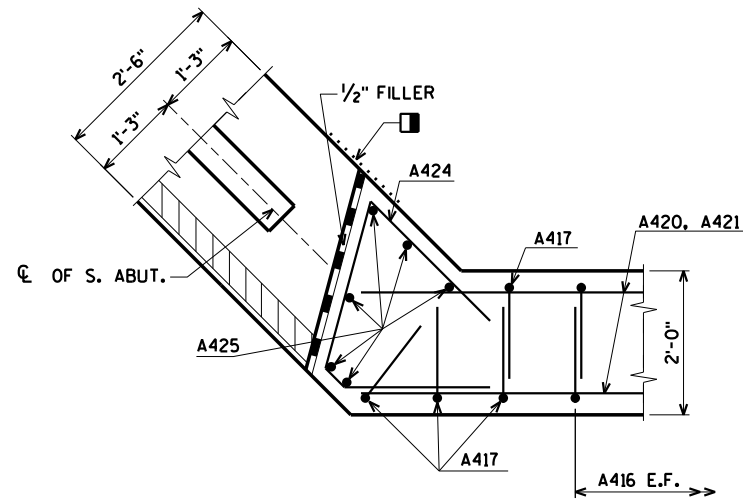
5669-00-74



SECTION D



SECTION F



BAR NO.	DIM. "A"	DIM. "B"
A605	1'-0 3/4"	1'-0 3/4"
A508	1'-0 3/4"	1'-0 3/4"
A709	1'-0 3/4"	1'-0 3/4"
A413	8'-10"	1'-1"
A518	1'-0 3/4"	1'-0 3/4"
A719	1'-0 3/4"	1'-0 3/4"
A423	4'-10"	2'-1"
A826	1'-0 3/4"	1'-0 3/4"

18" RUBBERIZED MEMBRANE WATERPROOFING ON BACK FACE. NOT REQUIRED IF CONST. JT. IS NOT USED.

OPT. KEYED CONST. JOINT - FORMED BY A BEVELED 2" x 6" WITH RUBBERIZED MEMBRANE WATERPROOFING ON B.F.

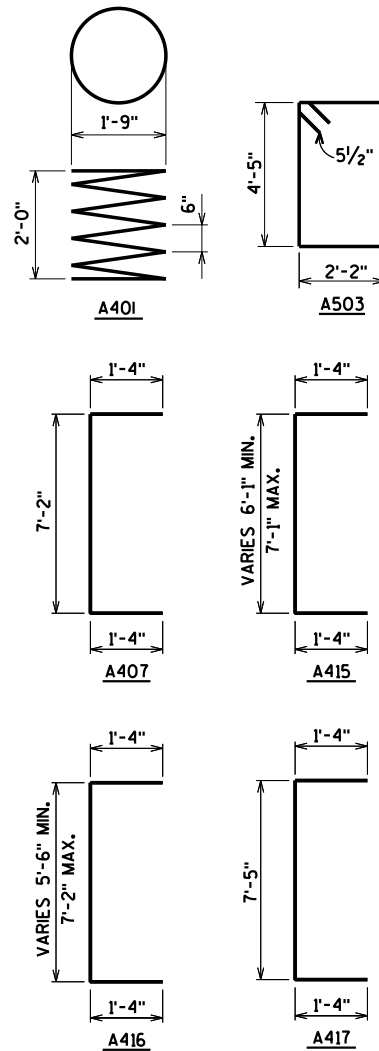
3/4" 'V' GROOVE ON F.F. OF WING WALL NOT REQUIRED IF CONST. JT. IS NOT USED.

VERTICAL 18" RUBBERIZED MEMBRANE WATERPROOFING TO EXTEND FROM BRIDGE SEAT TO TOP OF WING WALL.

B.F. DENOTES BACK FACE

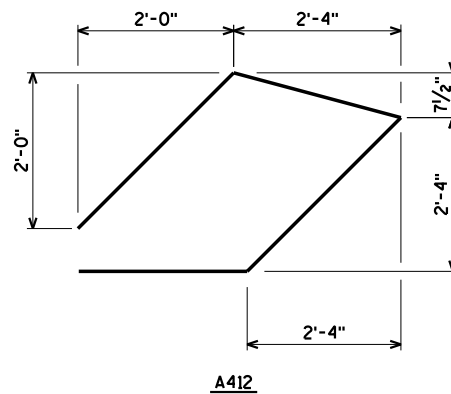
E.F. DENOTES EACH FACE

F.F. DENOTES FRONT FACE



BILL OF BARS

BAR NO.	COATED BAR	NO. REQ'D.	LENGTH	BENT BAR	BUNDLE	BAR SERIES	2,410* UNCOATED 790 * COATED	
							LOCATION	
A401		5	28-0	X			BODY @ PILES	
A402		10	2-3				BODY @ PILES	
A503		43	13-8	X			BODY VERT.	
A604		10	34-11				BODY HORIZ. F.F.	
A605		4	22-7	X			BODY HORIZ. B.F.	
A506	X	30	2-0				BODY DOWELS	
A407	X	4	9-8	X			WING 1 VERT. E.F.	
A508	X	5	12-9	X			WING 1 HORIZ. F.F.	
A709	X	5	14-4	X			WING 1 HORIZ. B.F.	
A410	X	4	11-2				WING 1 HORIZ. E.F.	
A411		3	18-0				BODY TOP HORIZ.	
A412	X	3	9-6	X			WING 1 HORIZ.	
A413	X	2	10-3	X			WING 1 DIAG. E.F.	
A414	X	8	3-11				WING 1 VERT.	
A415	X	18	9-1	X			WING 1 VERT. E.F.	
A416	X	10	8-10	X			WING 2 VERT. E.F.	
A417	X	4	9-11	X			WING 2 VERT. E.F.	
A518	X	5	8-7	X			WING 2 HORIZ. F.F.	
A719	X	5	10-4	X			WING 2 HORIZ. B.F.	
A420	X	2	7-4				WING 2 HORIZ. E.F.	
A421	X	2	5-5				WING 2 HORIZ. E.F.	
A522		19	4-9	X			BODY TOP VERT.	
A423	X	2	7-7	X			WING 2 DIAG. E.F.	
A424	X	3	6-7	X			WING 2 HORIZ.	
A425	X	6	3-10				WING 2 VERT.	
A826		14	24-0	X			BODY HORIZ. B.F.	



BAR SERIES TABLE

BAR MARK	NO REQ'D.	LENGTH
A415	2 SERIES OF 9	8'-7" TO 9'-7"
A416	2 SERIES OF 5	8'-0" TO 9'-8"

BUNDLE AND TAG EACH SERIES SEPARATELY.

WORK THIS SHEET WITH SHEETS 4 & 5

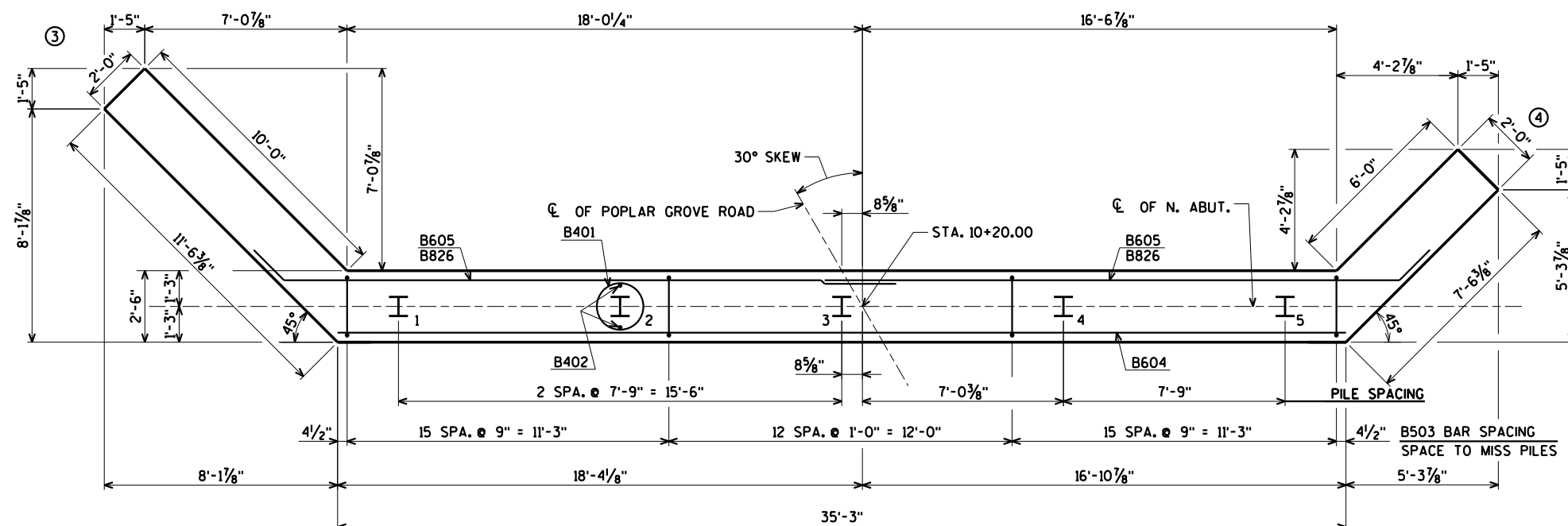
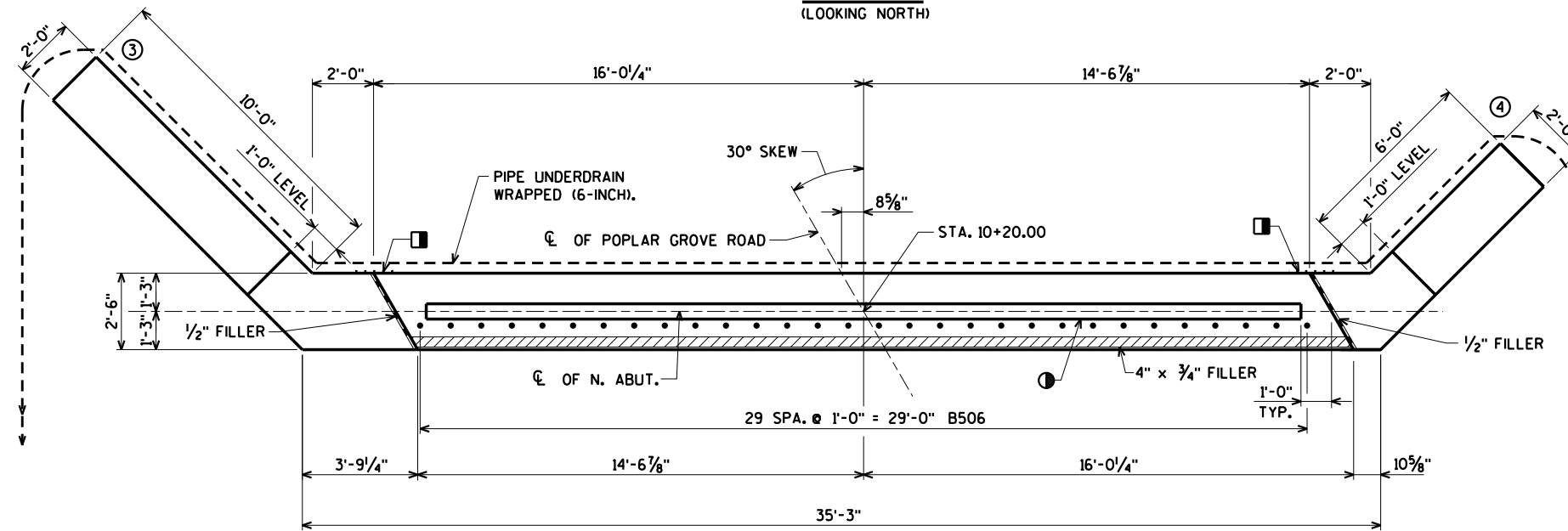
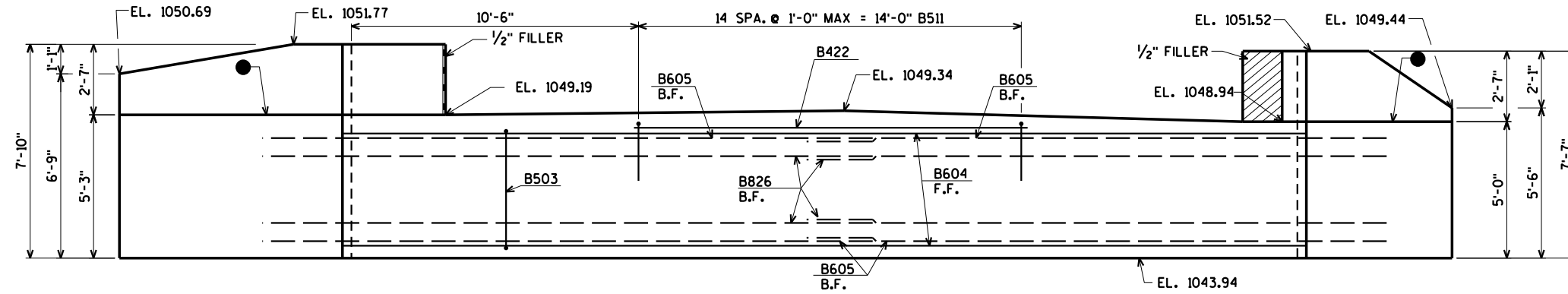
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-23-0174			
DRAWN BY CJM		PLANS CK'D. JCK	
SOUTH ABUT. WING 2 DETAILS & BILL OF BARS		SHEET 6 OF 12	

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U:\42-0867.00 - Green Co. Poplar Grove Rd. over Hefty Creek\BRIDGE\420867NA.dgn

NOTE: 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.)

STATE PROJECT NUMBER

5669-00-74



- OPT. KEYED CONST. JOINT - FORMED BY A BEVELED 2" x 6" WITH RUBBERIZED MEMBRANE WATERPROOFING ON B.F.
 - ① KEYED CONST. JOINT - FORMED BY A BEVELED 2" x 6".
 - VERTICAL 18" RUBBERIZED MEMBRANE WATERPROOFING TO EXTEND FROM BRIDGE SEAT TO TOP OF WING WALL.
- FOR PILE SPLICE DETAIL SEE SHEET 2.
- B.F. DENOTES BACK FACE
F.F. DENOTES FRONT FACE

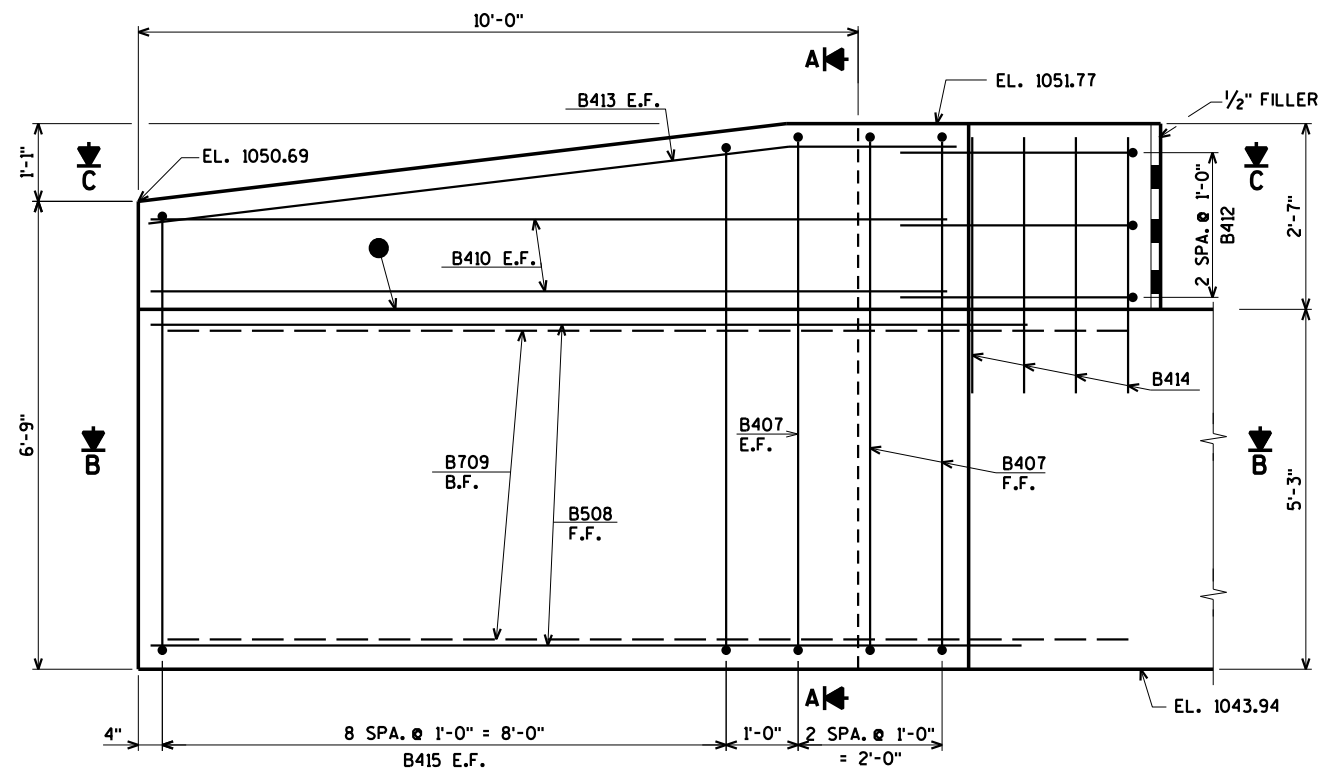
WORK THIS SHEET WITH SHEETS 8 & 9

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-23-0174			
DRAWN BY CJM		PLANS CK'D. JCK	
NORTH ABUTMENT		SHEET 7 OF 12	

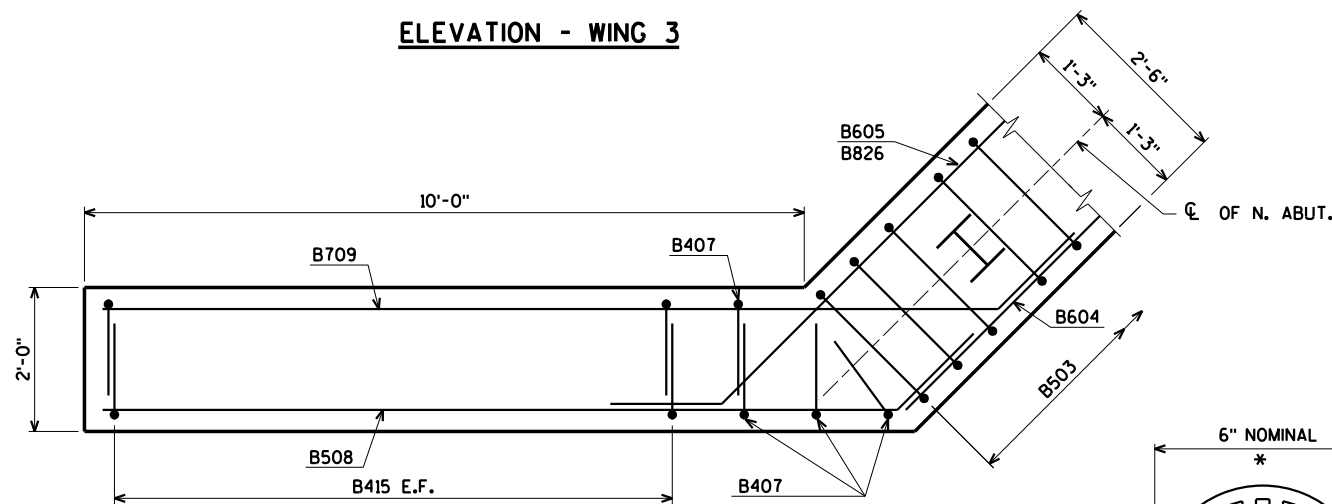
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U:\42-0867.00 - Green Co. Poplar Grove Rd. over Heffy Creek\BRIDGE\420867NA.dgn

STATE PROJECT NUMBER

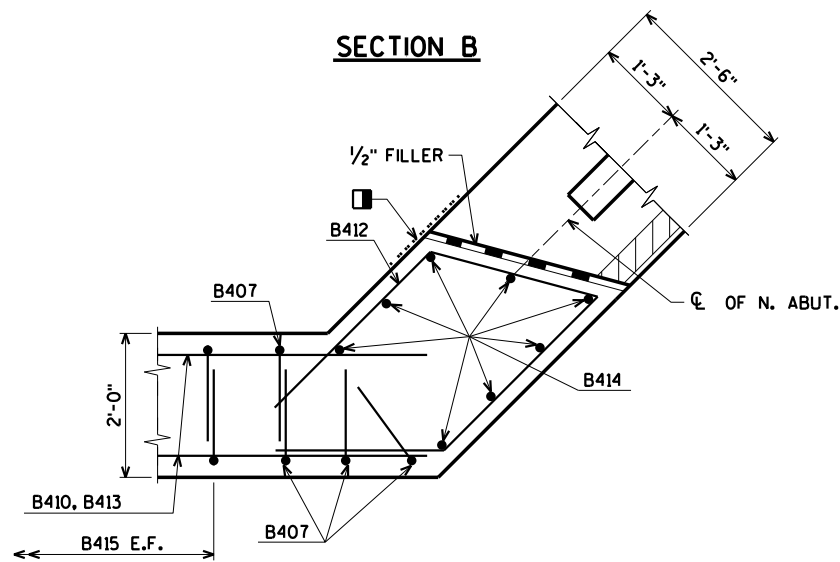
5669-00-74



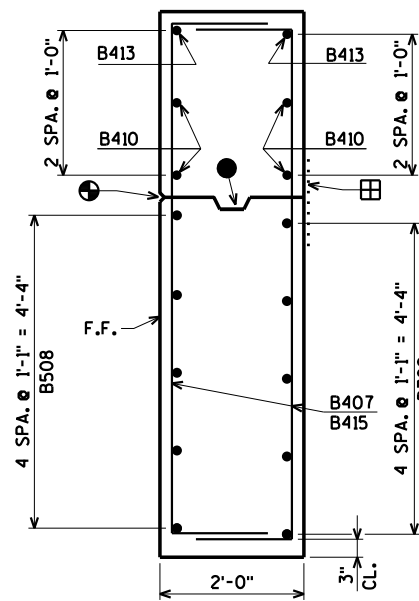
ELEVATION - WING 3



SECTION B

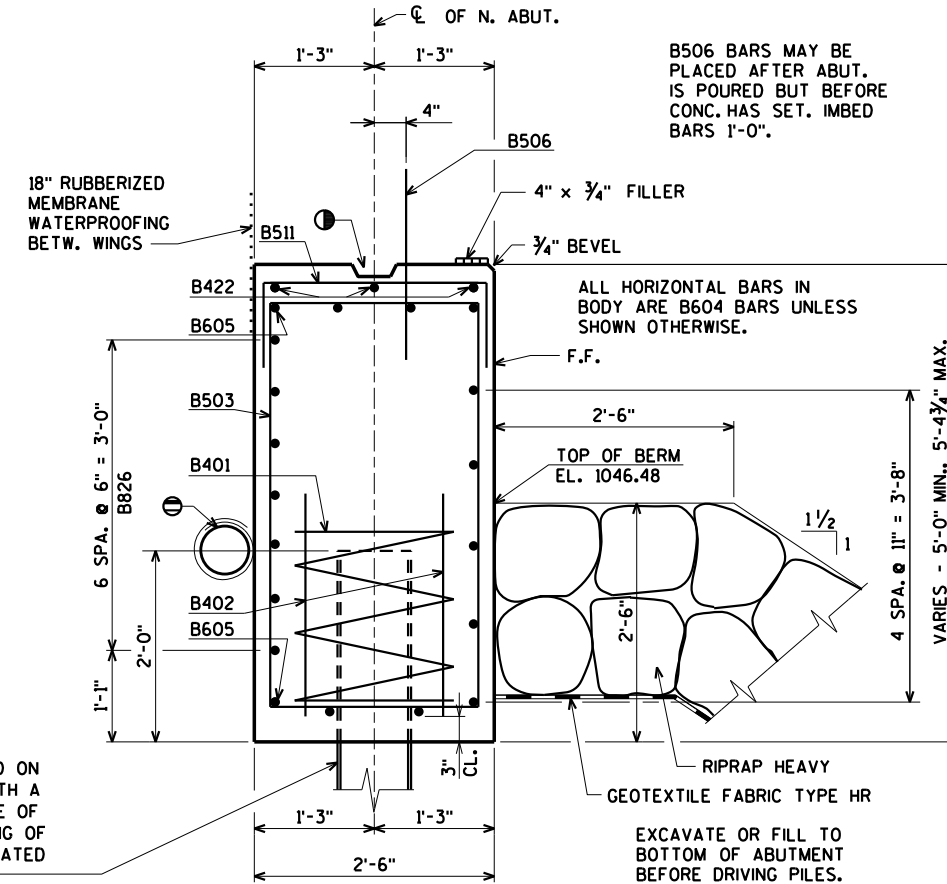


SECTION C



SECTION A

ABUTMENT TO BE SUPPORTED ON HP 10 x 42 STEEL PILING WITH A REQUIRED DRIVING RESISTANCE OF 135 TONS PER PILE. PREBORING OF 10'-0" MIN. IS REQUIRED. ESTIMATED LENGTH 12'-0".



TYPICAL SECTION THRU BODY

PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. ATTACH RODENT SHIELD AT ENDS OF PIPE UNDERDRAIN. RODENT SHIELD TO BE INCLUDED IN BID PRICE OF "PIPE UNDERDRAIN WRAPPED 6-INCH".

KEYED CONST. JOINT - FORMED BY A BEVELED 2" x 6".

18" RUBBERIZED MEMBRANE WATERPROOFING ON BACK FACE. NOT REQUIRED IF CONST. JT. IS NOT USED.

OPT. KEYED CONST. JOINT - FORMED BY A BEVELED 2" x 6" WITH RUBBERIZED MEMBRANE WATERPROOFING ON B.F.

3/4" V-GROOVE ON F.F. OF WING WALL NOT REQUIRED IF CONST. JT. IS NOT USED.

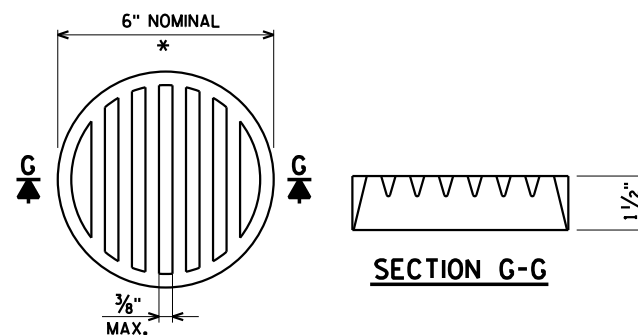
VERTICAL 18" RUBBERIZED MEMBRANE WATERPROOFING TO EXTEND FROM BRIDGE SEAT TO TOP OF WING WALL.

FOR PILE SPLICE DETAIL SEE SHEET 2.

B.F. DENOTES BACK FACE

E.F. DENOTES EACH FACE

F.F. DENOTES FRONT FACE



SECTION G-G

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

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

THE RODENT SHIELD SHALL BE PVC GRATE SIMILAR TO THIS DETAIL. THE GRATE IS COMMERCIALY 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 SHEET METAL SCREWS.

RODENT SHIELD DETAIL

ORIGINAL PLANS PREPARED BY
AYRES ASSOCIATES
3433 Oakwood Hills Parkway
Eau Claire, WI 54701
www.AyresAssociates.com

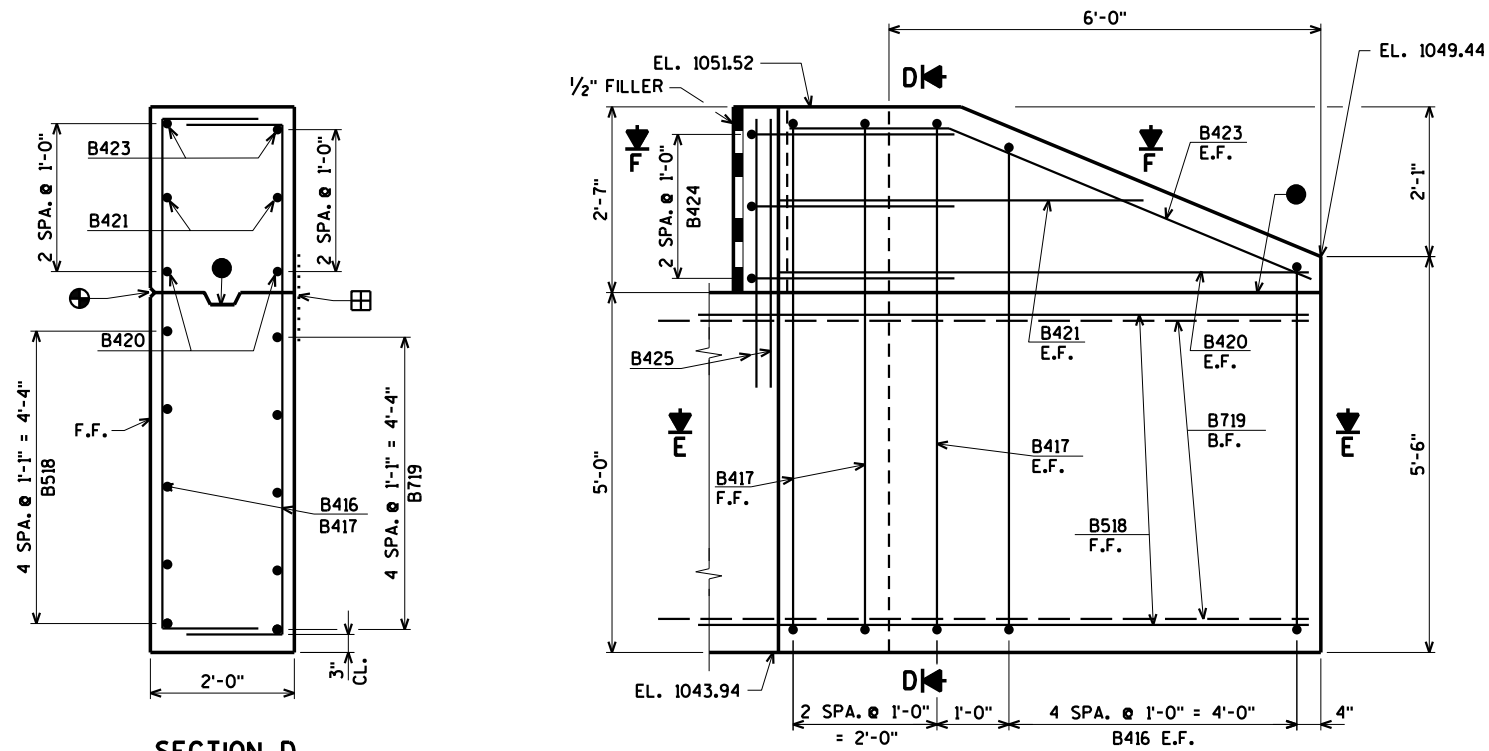
WORK THIS SHEET WITH SHEETS 7 & 9

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-23-0174			
DRAWN BY CJM		PLANS CK'D. JCK	
NORTH ABUTMENT WING 3 DETAILS			SHEET 8 OF 12

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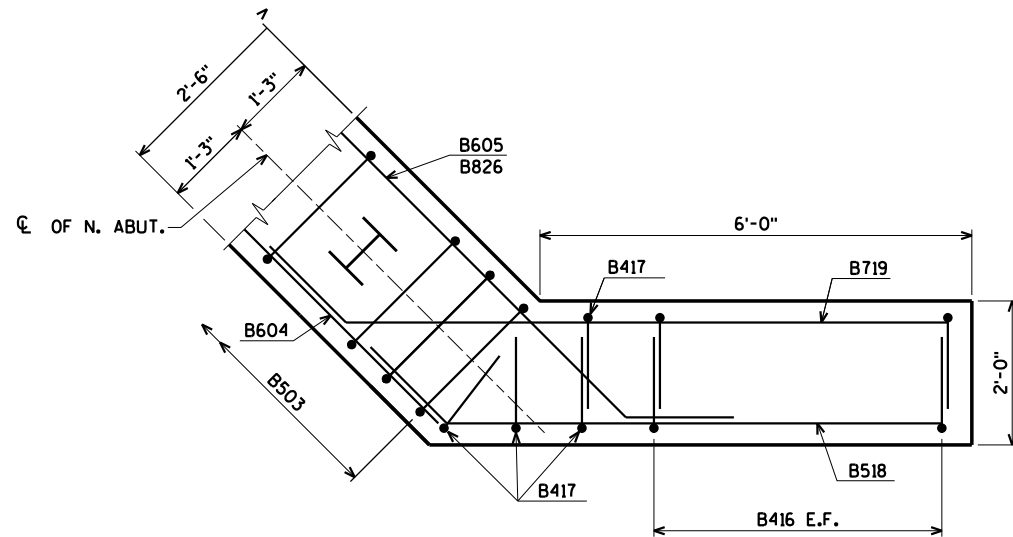
STATE PROJECT NUMBER

5669-00-74

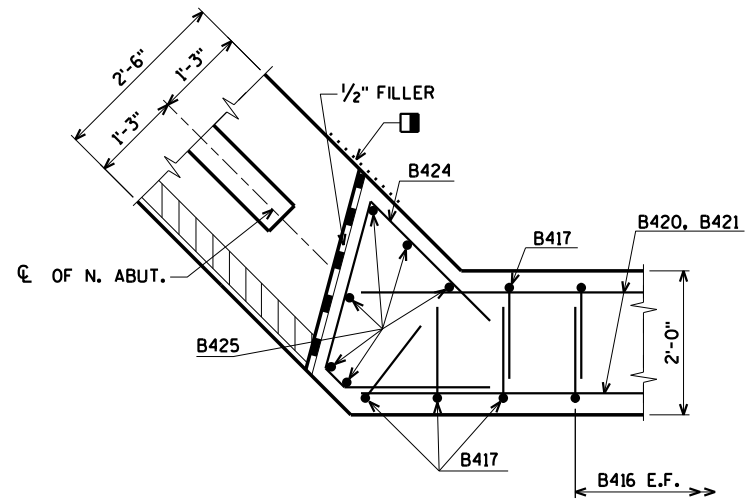


SECTION D

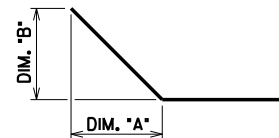
ELEVATION - WING 4



SECTION E



SECTION F



BAR NO.	DIM. "A"	DIM. "B"
B605	1'-0 3/4"	1'-0 3/4"
B508	1'-0 3/4"	1'-0 3/4"
B709	1'-0 3/4"	1'-0 3/4"
B413	8'-10"	1'-1"
B518	1'-0 3/4"	1'-0 3/4"
B719	1'-0 3/4"	1'-0 3/4"
B423	4'-10"	2'-1"
B826	1'-0 3/4"	1'-0 3/4"

18" RUBBERIZED MEMBRANE WATERPROOFING ON BACK FACE. NOT REQUIRED IF CONST. JT. IS NOT USED.

OPT. KEYED CONST. JOINT - FORMED BY A BEVELED 2" x 6" WITH RUBBERIZED MEMBRANE WATERPROOFING ON B.F.

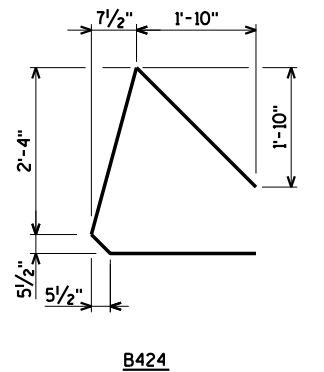
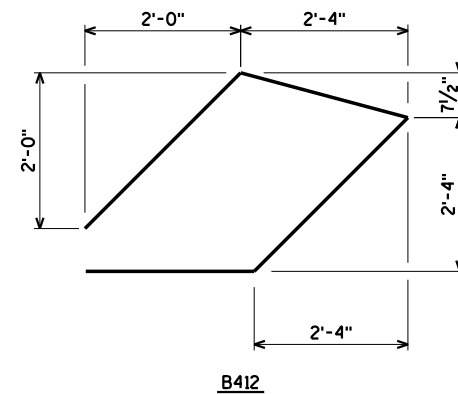
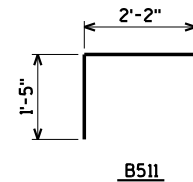
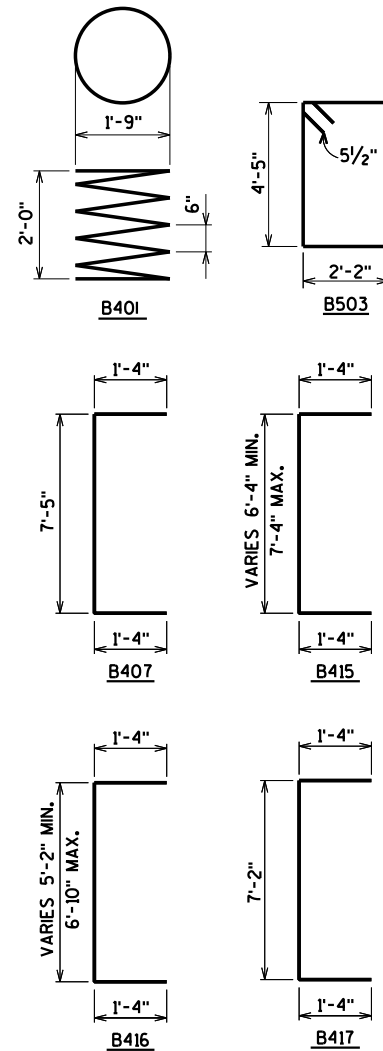
3/4" 'V' GROOVE ON F.F. OF WING WALL NOT REQUIRED IF CONST. JT. IS NOT USED.

VERTICAL 18" RUBBERIZED MEMBRANE WATERPROOFING TO EXTEND FROM BRIDGE SEAT TO TOP OF WING WALL.

B.F. DENOTES BACK FACE

E.F. DENOTES EACH FACE

F.F. DENOTES FRONT FACE



BILL OF BARS

BAR NO.	COATED BAR	NO. REQ'D.	LENGTH	BENT BAR	BUNDLE	BAR SERIES	2,380* UNCOATED 780 * COATED
							LOCATION
B401		5	28-0	X			BODY @ PILES
B402		10	2-3				BODY @ PILES
B503		43	13-8	X			BODY VERT.
B604		10	34-11				BODY HORIZ. F.F.
B605		4	22-7	X			BODY HORIZ. B.F.
B506	X	30	2-0				BODY DOWELS
B407	X	4	9-11	X			WING 3 VERT. E.F.
B508	X	5	12-9	X			WING 3 HORIZ. F.F.
B709	X	5	13-10	X			WING 3 HORIZ. B.F.
B410	X	4	11-2				WING 3 HORIZ. E.F.
B511		15	4-9	X			BODY TOP VERT.
B412	X	3	9-6	X			WING 3 HORIZ.
B413	X	2	10-3	X			WING 3 DIAG. E.F.
B414	X	8	3-10				WING 3 VERT.
B415	X	18	9-4	X			WING 3 VERT. E.F.
B416	X	10	8-6	X			WING 4 VERT. E.F.
B417	X	4	9-8	X			WING 4 VERT. E.F.
B518	X	5	8-8	X			WING 4 HORIZ. F.F.
B719	X	5	10-4	X			WING 4 HORIZ. B.F.
B420	X	2	7-2				WING 4 HORIZ. E.F.
B421	X	2	5-5				WING 4 HORIZ. E.F.
B422		3	14-0				BODY TOP HORIZ.
B423	X	2	7-7	X			WING 4 DIAG. E.F.
B424	X	3	6-7	X			WING 4 HORIZ.
B425	X	6	3-11				WING 4 VERT.
B826		14	24-0	X			BODY HORIZ. B.F.

BENDING DIMENSIONS ARE OUT TO OUT OF BARS.
⊗ LENGTH SHOWN FOR BAR IS AN AVERAGE LENGTH AND SHOULD ONLY BE USED FOR BAR WEIGHT CALCULATIONS. SEE BAR SERIES TABLE FOR ACTUAL LENGTHS.

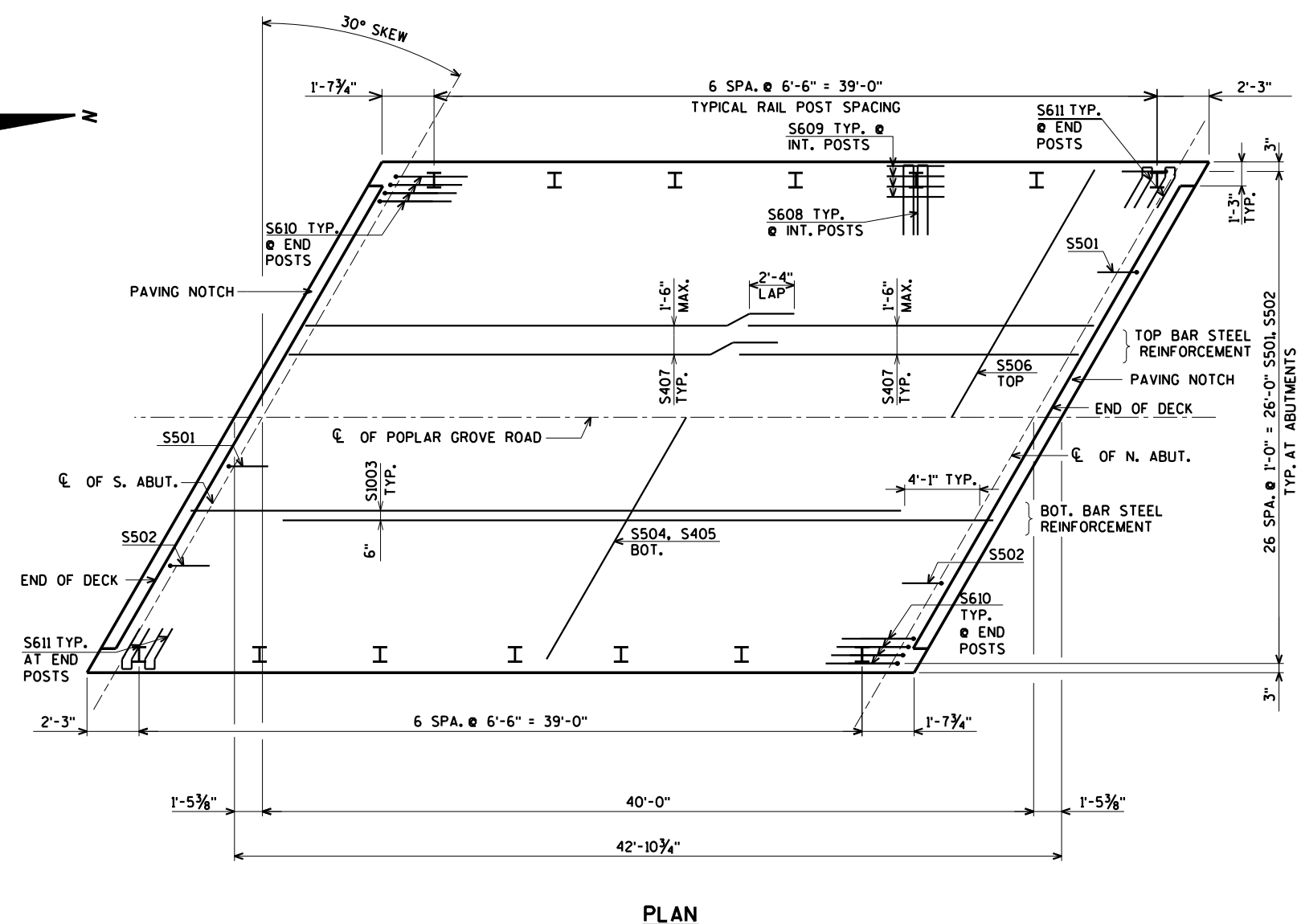
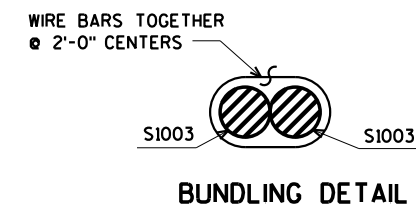
BAR SERIES TABLE

BAR MARK	NO REQ'D.	LENGTH
B415	2 SERIES OF 9	8'-10" TO 9'-10"
B416	2 SERIES OF 5	7'-8" TO 9'-4"

BUNDLE AND TAG EACH SERIES SEPARATELY.

WORK THIS SHEET WITH SHEETS 7 & 8

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-23-0174			
DRAWN BY CJM		PLANS CK'D. JCK	
NORTH ABUT. WING 4 DETAILS & BILL OF BARS		SHEET 9 OF 12	



NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-23-0174			
		DRAWN BY	CJM
		PLANS CK'D.	JCK
SUPERSTRUCTURE		SHEET 10 OF 12	

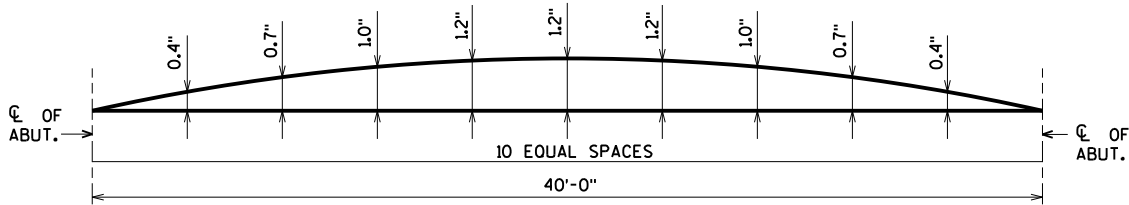
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8

TOP OF DECK ELEVATIONS

LOCATION	℄ OF 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.	℄ OF N. ABUT.
WEST EDGE OF SLAB	1051.09	1051.17	1051.24	1051.31	1051.38	1051.45	1051.52	1051.58	1051.65	1051.72	1051.78
℄ OF POPLAR GROVE RD.	1051.22	1051.29	1051.37	1051.44	1051.51	1051.58	1051.65	1051.72	1051.79	1051.86	1051.92
EAST EDGE OF SLAB	1050.81	1050.88	1050.96	1051.03	1051.11	1051.18	1051.25	1051.32	1051.39	1051.46	1051.53

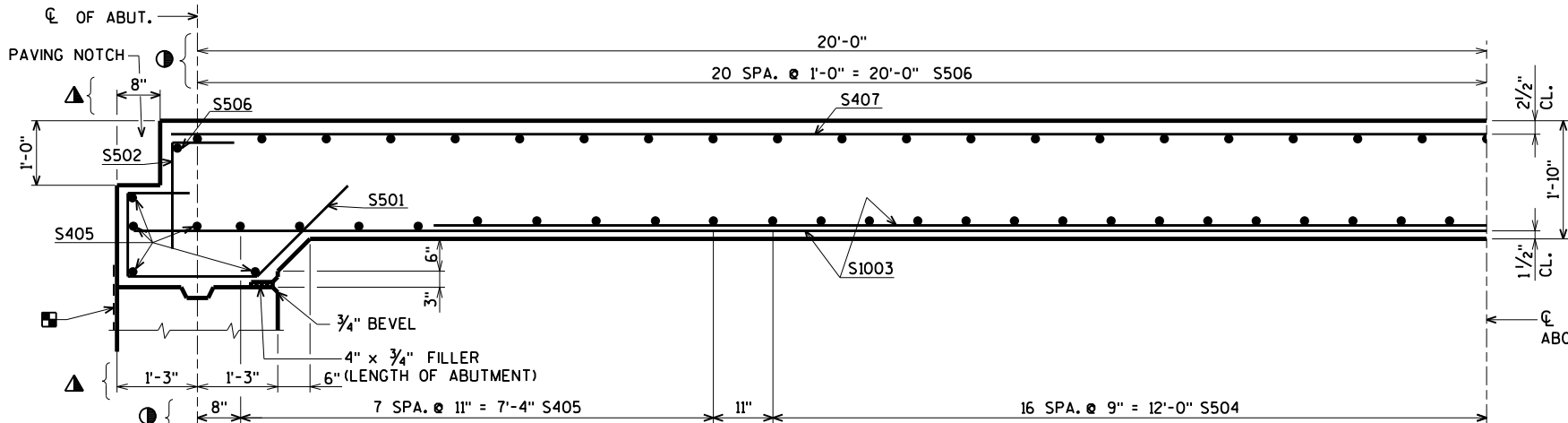
ELEVATIONS SHOWN ARE FINISHED DECK AND DO NOT INCLUDE ALLOWANCES OF DEAD LOAD DEFLECTION AND FUTURE CREEP.



CAMBER DIAGRAM

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

PRIOR TO RELEASING SLAB FALSEWORK, TAKE TOP OF SLAB ELEVATIONS AT THE CENTERLINE OF ABUTMENTS AND AT 1/2 POINT TO VERIFY CAMBER. TAKE ELEVATIONS AT EDGES OF SLAB AND AT CENTERLINE OF ROAD.



PART LONGITUDINAL SECTION WITH PAVING NOTCH

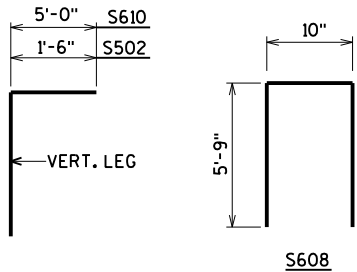
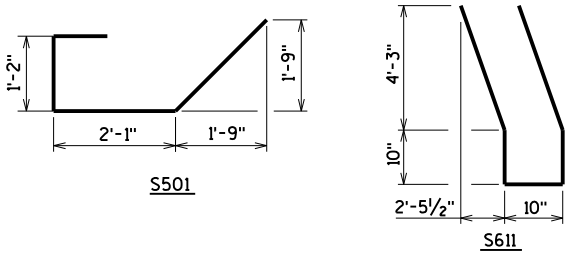
STATE PROJECT NUMBER

5669-00-74

BILL OF BARS

BAR. NO.	COATED BAR	NO. REQ'D.	LENGTH	BENT BAR	BUNDLED BAR SERIES	13,880# COATED
						LOCATION
S501	X	54	6-9	X		SLAB @ ABUT.
S502	X	54	3-9	X		SLAB @ ABUT.
S1003	X	55	37-3	X		SLAB LONG. BOT.
S504	X	33	30-2			SLAB TRANS. BOT.
S405	X	26	30-2			SLAB TRANS. BOT.
S506	X	43	30-2			SLAB TRANS. TOP
S407	X	38	21-6			SLAB LONG. TOP
S608	X	20	12-0	X		SLAB @ INT. RAIL POSTS
S609	X	40	6-0			SLAB @ INT. RAIL POSTS
S610	X	16	6-0	X		SLAB @ END RAIL POSTS
S611	X	8	12-0	X		SLAB @ END RAIL POSTS

BENDING DIMENSIONS ARE OUT TO OUT OF BARS.



▲ DIMENSIONS MEASURED NORMAL TO ℄ OF SUBSTRUCTURE.

● DIMENSIONS ARE MEASURED ALONG POPLAR GROVE ROAD.

℄ OF SPAN - SYM. ABOUT THIS ℄ 18" RUBBERIZED MEMBRANE WATERPROOFING

8

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-23-0174			
DRAWN BY CJM		PLANS CK'D. JCK	
SUPERSTRUCTURE DETAILS			SHEET 11 OF 12

ORIGINAL PLANS PREPARED BY
AYRES ASSOCIATES
3433 Oakwood Hills Parkway
Eau Claire, WI 54701
www.AyresAssociates.com

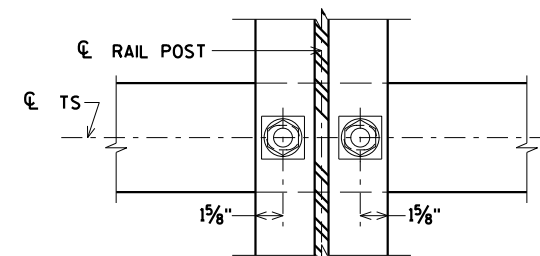
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U:\42-0867,00 - Green Co.Poplar Grove Rd. over Heffy Creek\BRIDGE\420867_Mrail.dgn

STATE PROJECT NUMBER

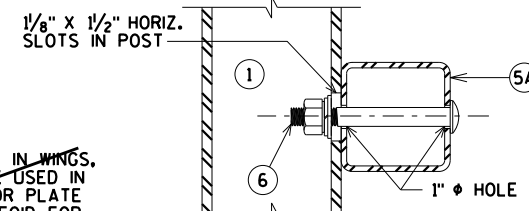
5669-00-74

LEGEND

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



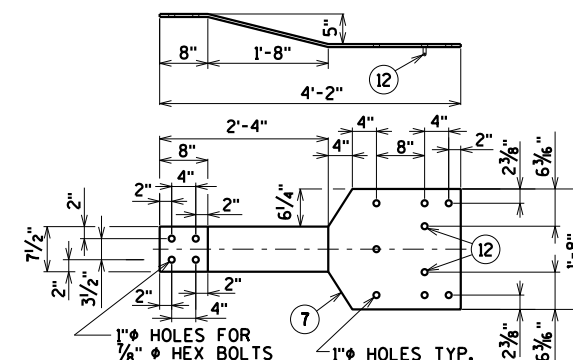
SECTION THRU POST WEB



SECTION THRU RAIL

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

TYPICAL RAIL TO POST CONNECTIONS



BACK-UP PLATE DETAIL

(AT BEAM GUARD ATTACHMENT)

GENERAL NOTES

BID ITEM SHALL BE "RAILING TUBULAR TYPE M B-23-0174" WHICH INCLUDES ALL ITEMS SHOWN.

RAIL POST AND BASE PLATES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A709 GRADE 50. HOLLOW RAILING STRUCTURAL TUBING SHALL CONFORM TO THE REQUIREMENTS OF ASTM A500 GRADE B OR C WITH A CERTIFIED FY = 50 KSI. ANCHOR PLATES, AND SPLICE TUBE PLATES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A709 GRADE 36.

THE NUT SECURING THE POST BASE PLATE TO THE CONCRETE SHALL BE TIGHTENED TO A SNUG FIT AND GIVEN AN ADDITIONAL 1/8 TURN.

RAILS SHALL BE CONTINUOUS OVER A MINIMUM OF THREE (3) POSTS WITHOUT SPLICES WHERE POSSIBLE. RAILS SHALL BE SPLICED IN A PANEL OVER EXPANSION JOINTS.

ENDS OF TUBE SECTIONS SHALL BE SAWED. GRIND SMOOTH EXPOSED EDGES. ALL CUT ENDS SHALL BE TRUE AND SMOOTH.

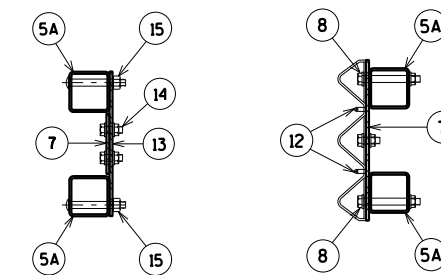
WELD IS THE SAME ON BOTH FLANGES. FLANGE WELD DOES NOT REQUIRE MAGNETIC PARTICLE TESTING.

FILL BOLT SLOT OPENINGS IN POST SHIMS AND PLATE NO. 2 AND CAULK AROUND PERIMETER OF PLATE NO. 2 WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. STEEL POST SHIMS MAY BE USED UNDER POSTS WHERE REQ'D. FOR ALIGNMENT.

POST BASE PLATES SHALL BE FLAT WITH ALL SURFACES SMOOTH AND FREE FROM WARP AND ALL EDGES SMOOTH, STRAIGHT AND VERTICAL. ALL PLATE CUTS SHALL BE MACHINE OR MACHINE FLAME CUT.

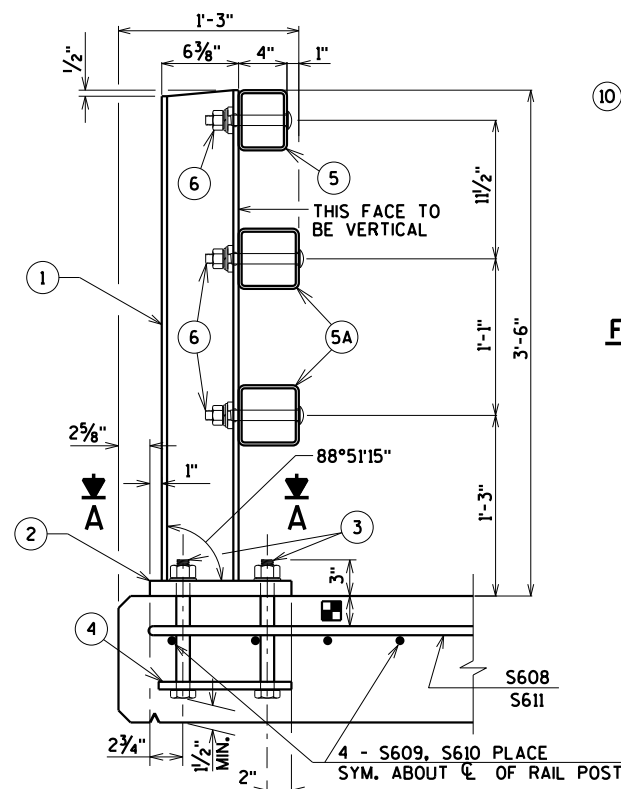
ALL MATERIAL SHALL BE GALVANIZED AFTER FABRICATION. PRIOR TO GALVANIZING, ALL STEEL RAILING POSTS & STEEL TUBING SHALL BE GIVEN A NO. 6 BLAST CLEANING BY S.S.P.C. SPECIFICATIONS.

THIS RAILING MEETS NCHRP REPORT 350 EVALUATION CRITERIA FOR TEST LEVEL 4 (TL-4).



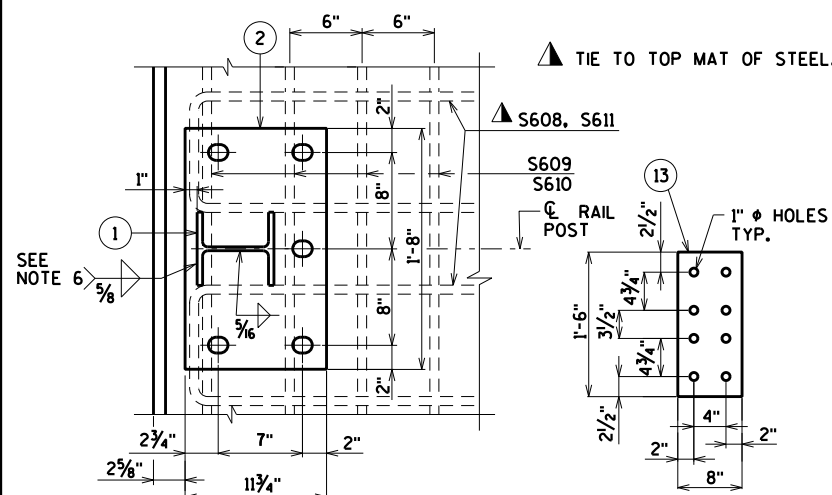
SECTION C

SECTION D



SECTION THRU RAILING ON DECK

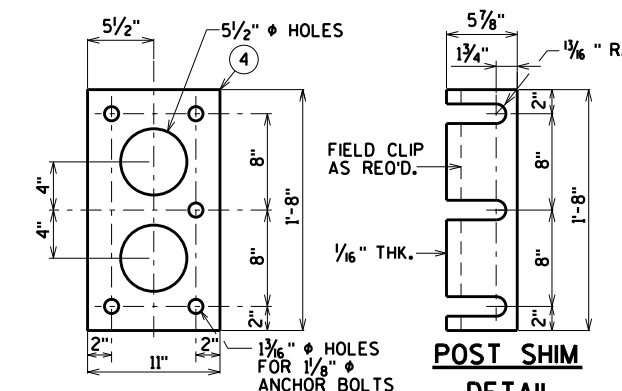
PLACE BELOW TOP MAT SLAB REINFORCEMENT.



SECTION A

ANCHOR PLATE

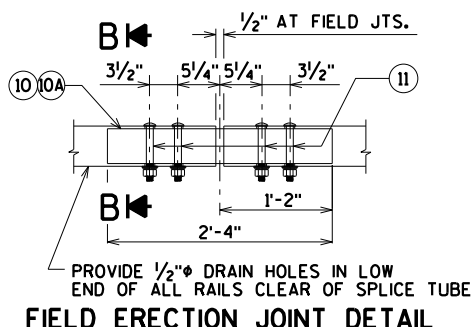
(AT BEAM GUARD ATTACHMENT)



ANCHOR PLATE

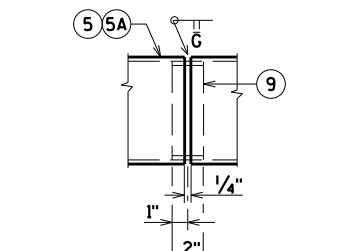
(AT RAIL TO DECK CONNECTION)

POST SHIM
DETAIL



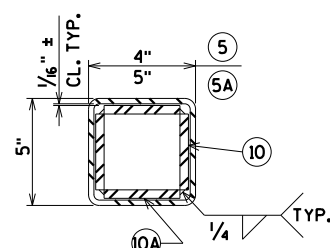
FIELD ERECTION JOINT DETAIL

PROVIDE 1/2" DIA. DRAIN HOLES IN LOW END OF ALL RAILS CLEAR OF SPLICE TUBE

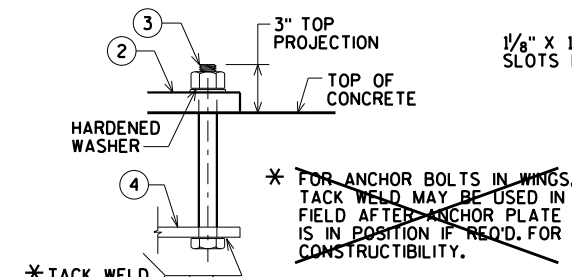


SHOP RAIL SPLICE DETAIL

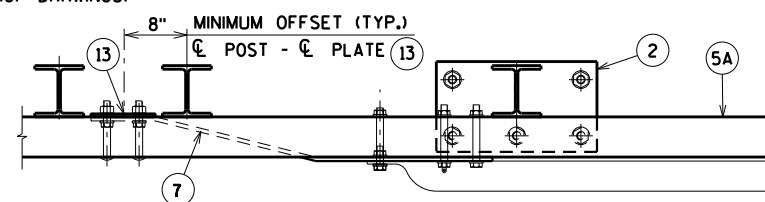
(LOCATION MUST BE SHOWN ON THE SHOP DRAWINGS)



SECTION B

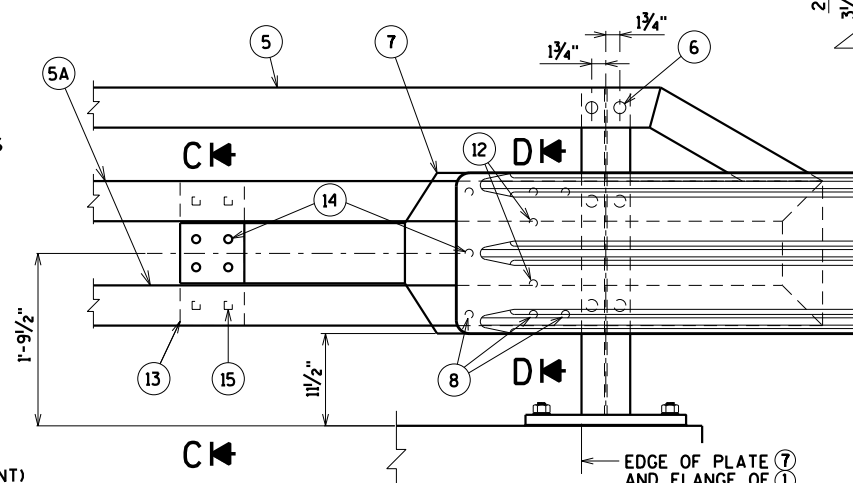


ANCHOR BOLTS



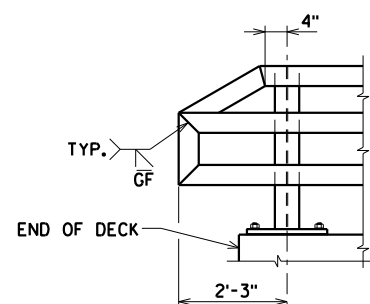
TOP VIEW AT END POST

(THRIE BEAM RAIL ATTACHMENT)



DETAIL AT END POST

(THRIE BEAM RAIL ATTACHMENT)



PART VIEW OF RAILING

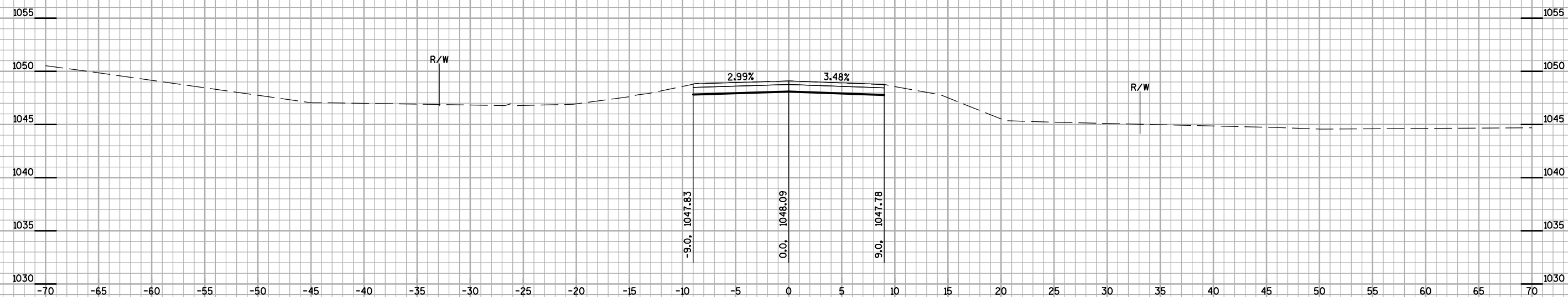
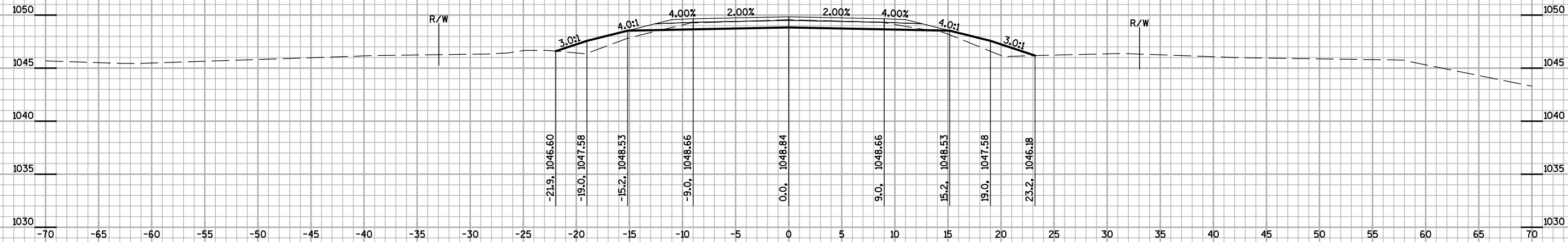
ORIGINAL PLANS PREPARED BY

AYRES
ASSOCIATES

3433 Oakwood Hills Parkway
Eau Claire, WI 54701
www.AyresAssociates.com

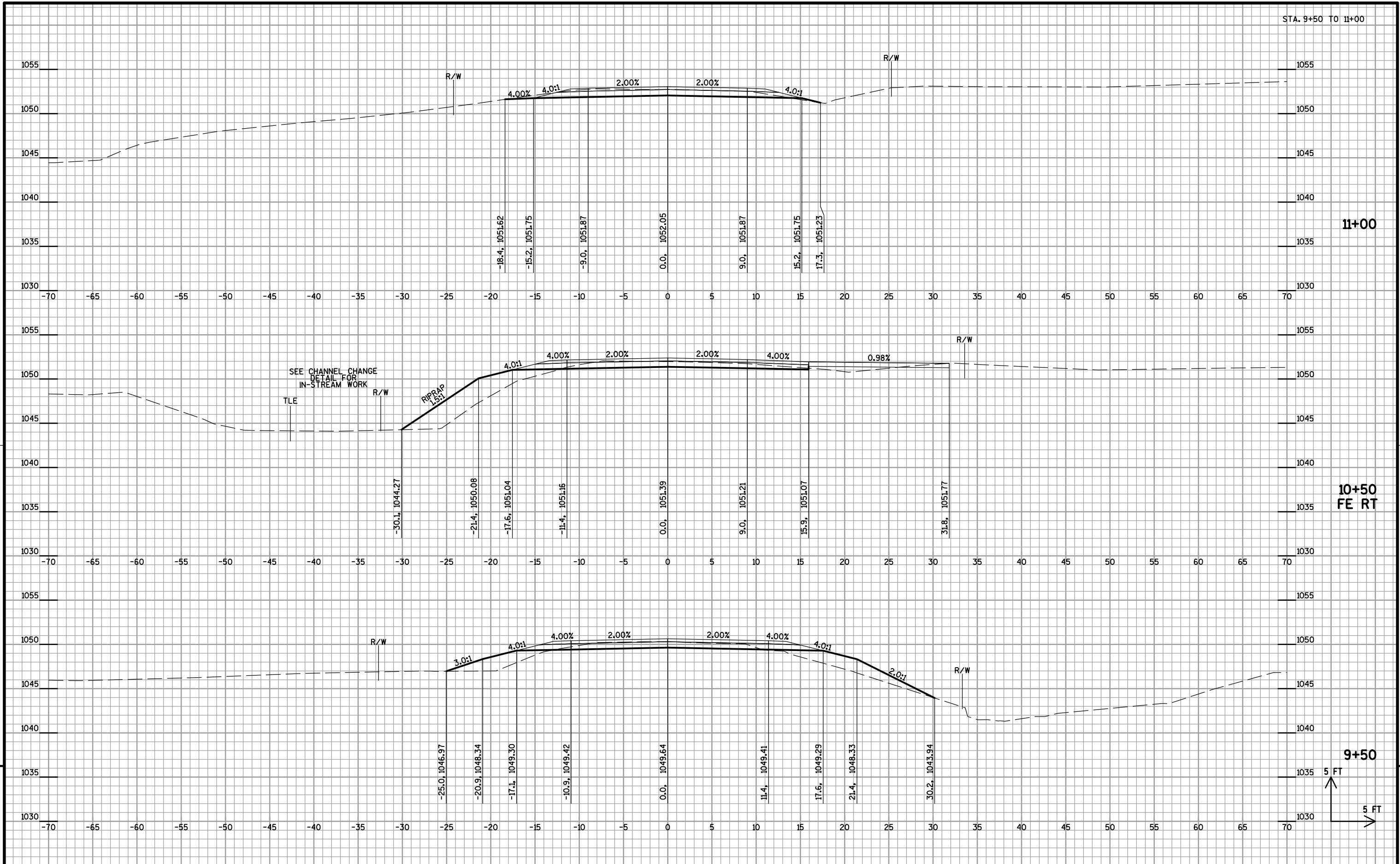
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-23-0174			
DRAWN BY CJM		PLANS CK'D. JCK	
RAILING TUBULAR TYPE M			SHEET 12 OF 12

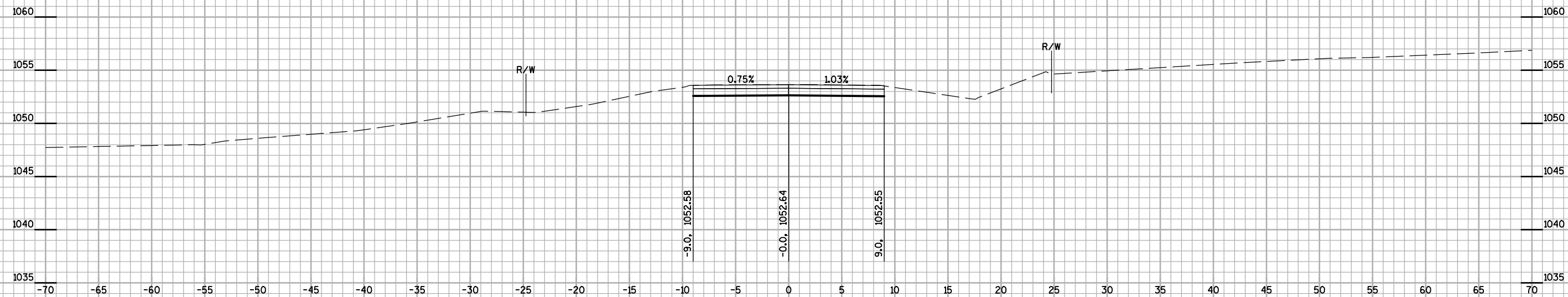
	AREA CUT	AREA FILL	VOLUME CUT	VOLUME FILL	EXPANDED FILL	CUM. VOL. CUT	CUM. VOL. FILL
STATION	(S.F.)	(S.F.)	(C.Y.)	(C.Y.)	(C.Y.)	(C.Y.)	(C.Y.)
8+30	17.95	0.00					
			13.5	3.2	4.1	13.5	4.1
8+50	19.31	8.76					
			31.3	19.6	25.4	44.8	29.6
9+00	14.45	12.36					
			25.8	37.0	48.1	70.6	77.6
9+50	13.45	27.58					
			13.9	28.6	37.2	84.5	114.8
9+78	13.45	27.58					
B-23-0174							
10+22	16.15	38.14					
			16.8	39.6	51.4	101.3	166.2
10+50	16.15	38.14					
			32.8	35.6	46.3	134.1	212.6
11+00	19.22	0.35					
			34.7	0.3	0.4	168.8	213.0
11+50	18.31	0.00					
TOTALS			170	160	210		



8+30

5 FT
5 FT





9

9



Wisconsin Department of Transportation

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<http://www.dot.wisconsin.gov>