

RHI

NOVEMBER 2018

ORDER OF SHEETS

Section No.	1	Title
Section No.	2	Typical Sections and Details (Includes Erosion Control Plans)
Section No.	3	Estimate of Quantities
Section No.	3	Miscellaneous Quantities
Section No.	4	Right of Way Plan
Section No.	5	Plan and Profile
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 = 44

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

T CRANDON, COLE ROAD

WOLF RIVER BRIDGE B-21-0028

LOC STR

FOREST COUNTY

STATE PROJECT NUMBER

9813-01-70

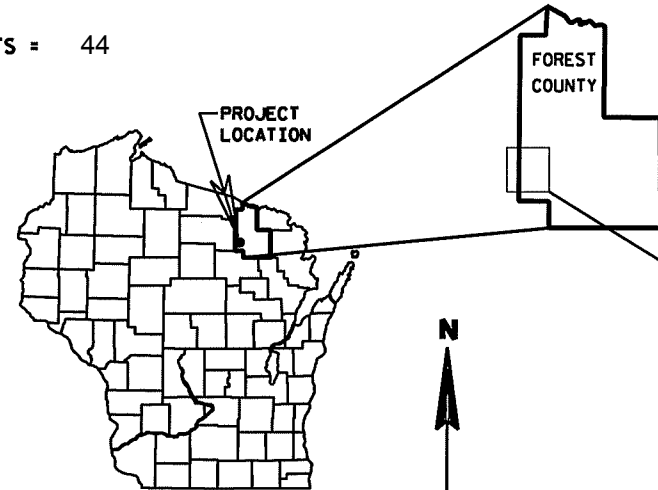
STATE PROJECT

9813-01-70

FEDERAL PROJECT

PROJECT

CONTRACT



R-11-E | R-12-E

END PROJECT

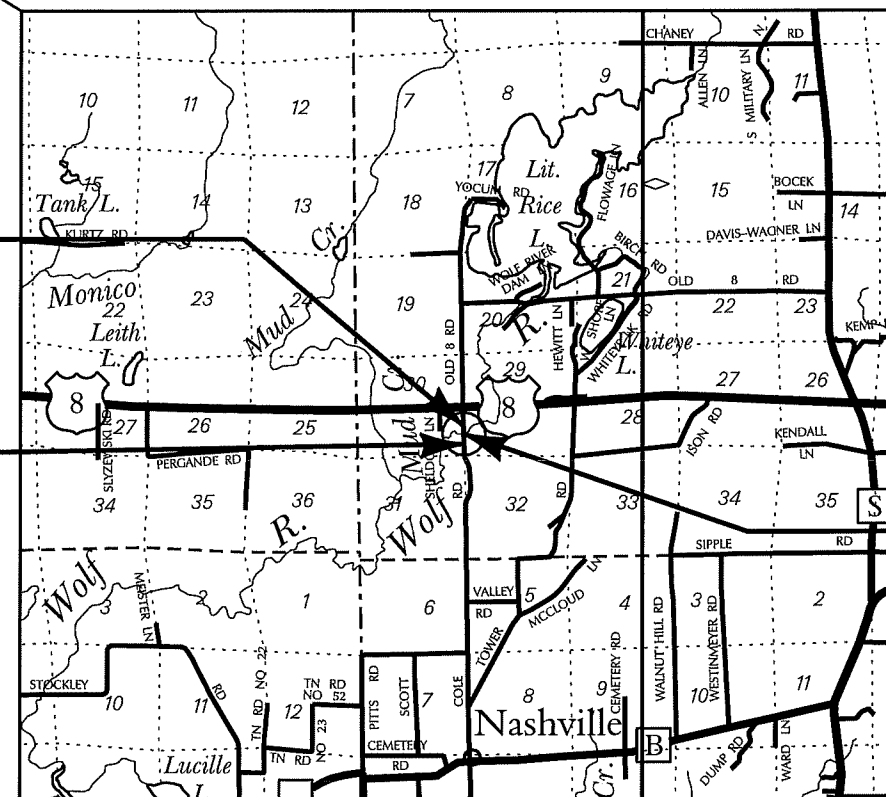
STA. 12+00

Y = 570358.55
X = 804584.18

BEGIN PROJECT

STA. 8+50

Y = 570008.57
X = 804588.32



T-36-N
T-35-N

STRUCTURE B-21-28

ONEIDA CO. | FOREST CO.

LAYOUT
SCALE 0 1 Mi.

TOTAL NET LENGTH OF CENTERLINE = 0.066 MI.

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

DESIGN DESIGNATION

A.A.D.T. (2019)	=	160
A.A.D.T. (2039)	=	215
D.H.V.	=	20
D.	=	50/50
T.	=	5%
DESIGN SPEED	=	40 MPH
ESALS	=	36,500

CONVENTIONAL SYMBOLS
PLAN

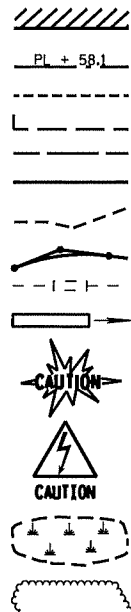
CORPORATE LIMITS
PROPERTY LINE
LOT LINE
LIMITED HIGHWAY EASEMENT
EXISTING RIGHT OF WAY
PROPOSED OR NEW R/W LINE

SLOPE INTERCEPT
REFERENCE LINE
EXISTING CULVERT
PROPOSED CULVERT
(Box or Pipe)
COMBUSTIBLE FLUIDS

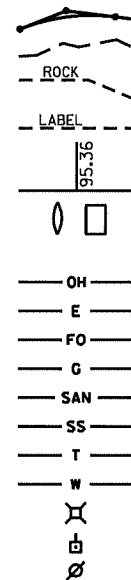
HIGH VOLTAGE

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
OVERHEAD
ELECTRIC
FIBER OPTIC
GAS
SANITARY SEWER
STORM SEWER
TELEPHONE
WATER
UTILITY PEDESTAL
POWER POLE
TELEPHONE POLE



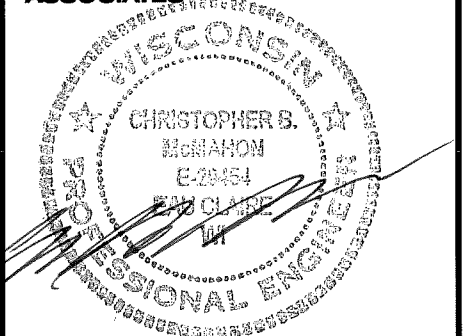
ACCEPTED FOR

Town of Crandon

3-31-18
Date
Chairman

ORIGINAL PLANS PREPARED BY

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



DATE 4/5/18

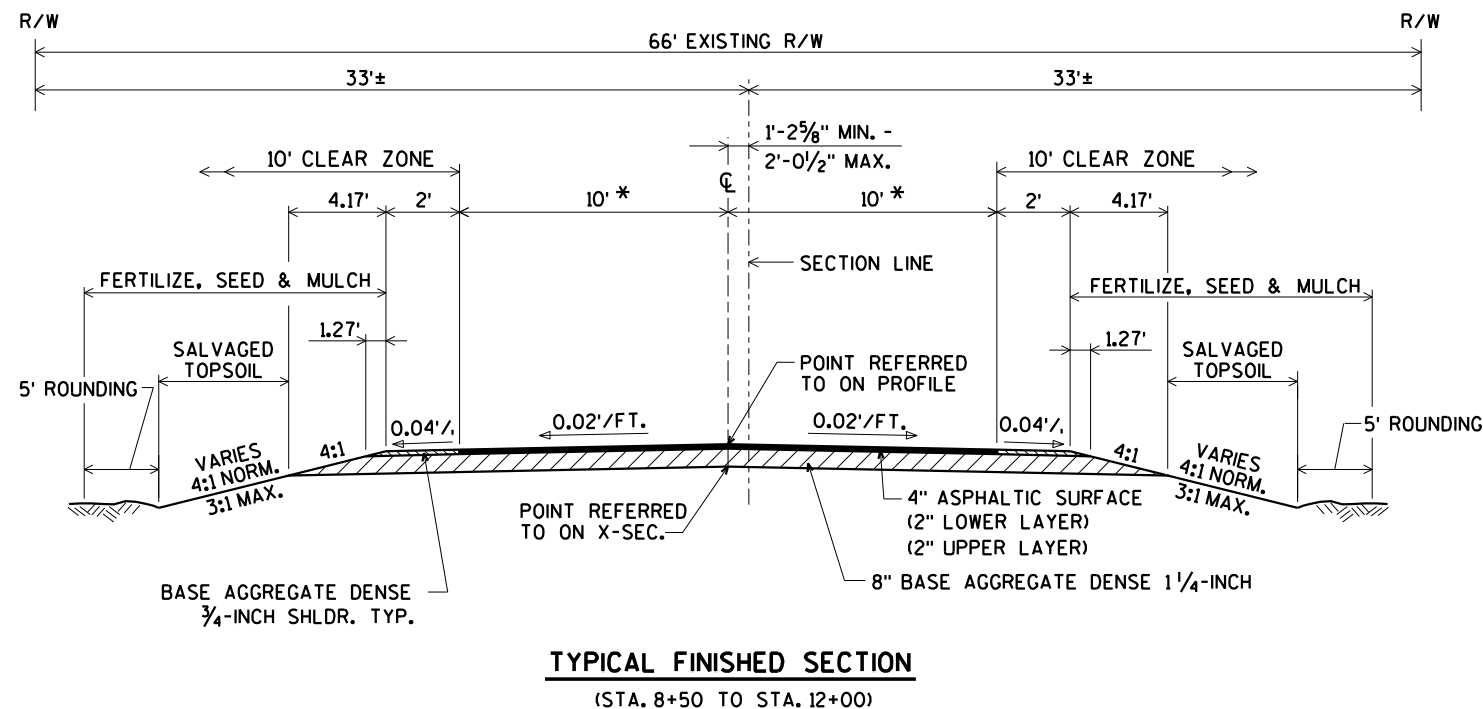
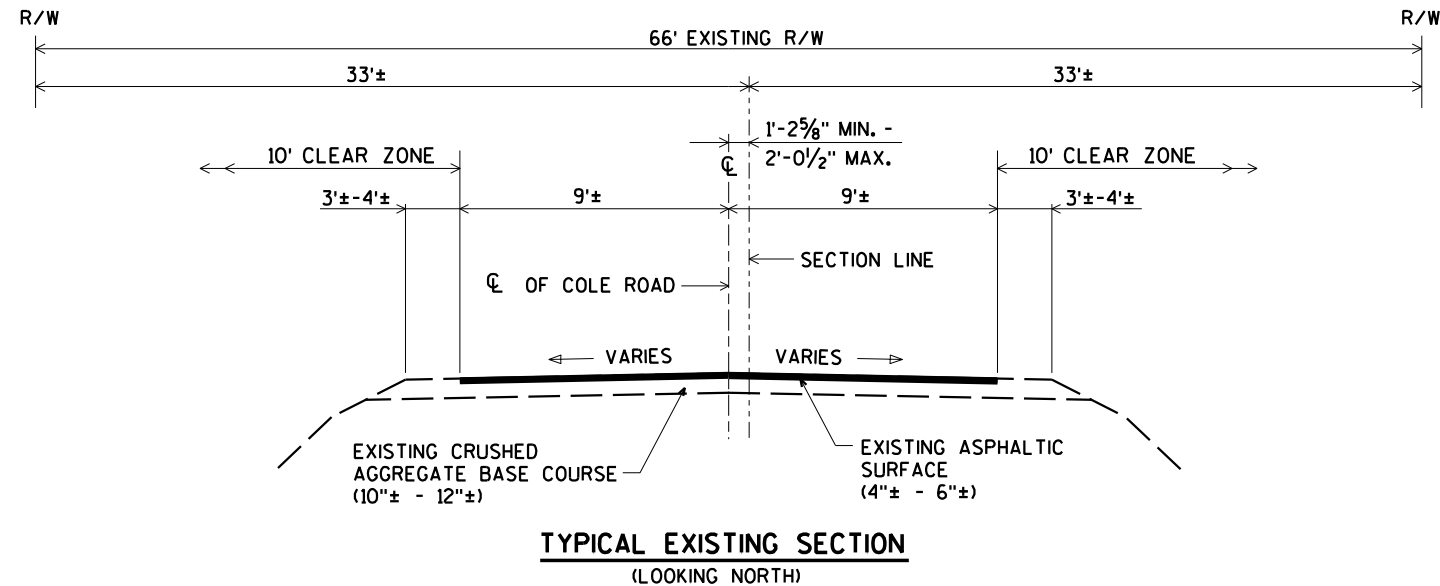
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY
Surveyor
Designer

Management Consultant CEDAR CORPORATION

APPROVED FOR THE DEPARTMENT
DATE: 4-18-2018
Management Consultant Signature

E



* THE ASPHALT SURFACE SHALL TAPER FROM 26.5 FT. WIDE AT THE ENDS OF THE BRIDGE TO 20 FT. WIDE AT 50 FT. FROM THE ENDS OF THE BRIDGE.

GENERAL NOTES

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

NO TREES AND/OR SHRUBS ARE TO BE REMOVED WITHOUT THE APPROVAL OF 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 DEPARTMENT OF TRANSPORTATION WILL FURNISH THE CONTRACTOR WITH A MONUMENT TO BE INSTALLED BY THE CONTRACTOR AS DIRECTED BY THE ENGINEER.

DISTURBED AREAS WITHIN THE RIGHT-OF-WAY, EXCLUSIVE OF THE ROADBED, SHALL BE FERTILIZED, SEEDED, AND MULCHED AS DIRECTED BY THE ENGINEER.

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

SILT FENCE IS TO BE PLACED AS SHOWN ON THE PLAN, OR AS DIRECTED BY THE ENGINEER. SILT FENCE TO BE PLACED PRIOR TO CONSTRUCTION AND IN PLACE PRIOR TO BRIDGE REMOVAL.

WHEN THE QUANTITY OF THE ITEM OF BASE LAYER OR SURFACE LAYER IS MEASURED FOR PAYMENT BY THE TON, THE DEPTH OR THICKNESS OF THE LAYER SHOWN ON THE PLANS IS APPROXIMATE AND THE ACTUAL THICKNESS WILL DEPEND ON THE DISTRIBUTION OF THE MATERIAL AS DIRECTED BY THE ENGINEER.

ASPHALTIC SURFACE SHALL USE 1/2" NOMINAL AGGREGATE SIZE.

ELEVATIONS SHOWN ON THIS PLAN ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM (NAVD) 1988.

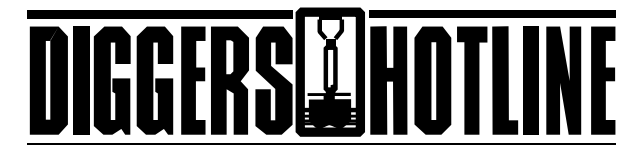
WETLAND EXIST IN THE PROJECT AREA. NO DISTURBANCE IS ALLOWED OUTSIDE OF THE SLOPE INTERCEPT.

UTILITIES

FRONTIER COMMUNICATIONS
53 NORTH STEVENS
RHINELANDER, WI 54501
ATTN: GLEN LEFEBVRE
715-365-2237
CELL: 715-493-0017
glen.lefebvre@ftr.com

WISCONSIN PUBLIC SERVICE
P.O. BOX 1166
WAUSAU, WI 54402
ATTN: DON LUTZOW
715-848-7487
CELL 715-493-7802
DALutzow@wisconsinpublicservice.com

** DENOTES UTILITIES THAT ARE NOT DIGGERS HOTLINE MEMBERS



Toll Free (800) 242-8511
Hearing Impaired TDD (800) 542-2289
www.DiggersHotline.com

TOWN CONTACT

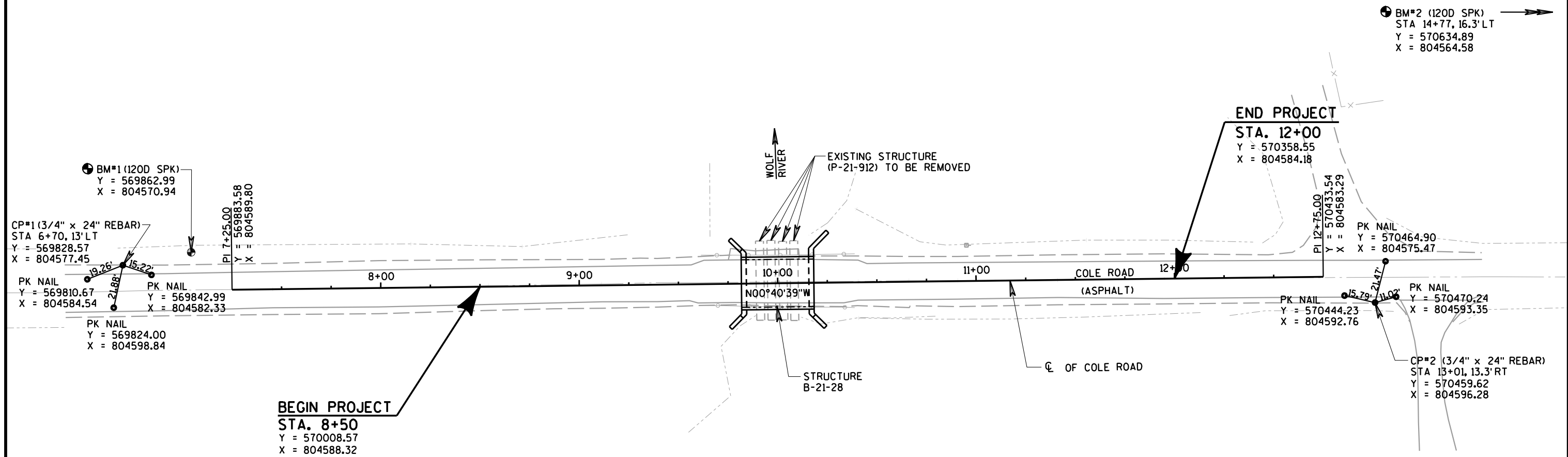
TOWN OF CRANDON, CHAIRMAN
11671 US HWY 8
CRANDON, WI 54520
ATTN: RICHARD HUBER
715-478-2077
rhuber@pompfire.com

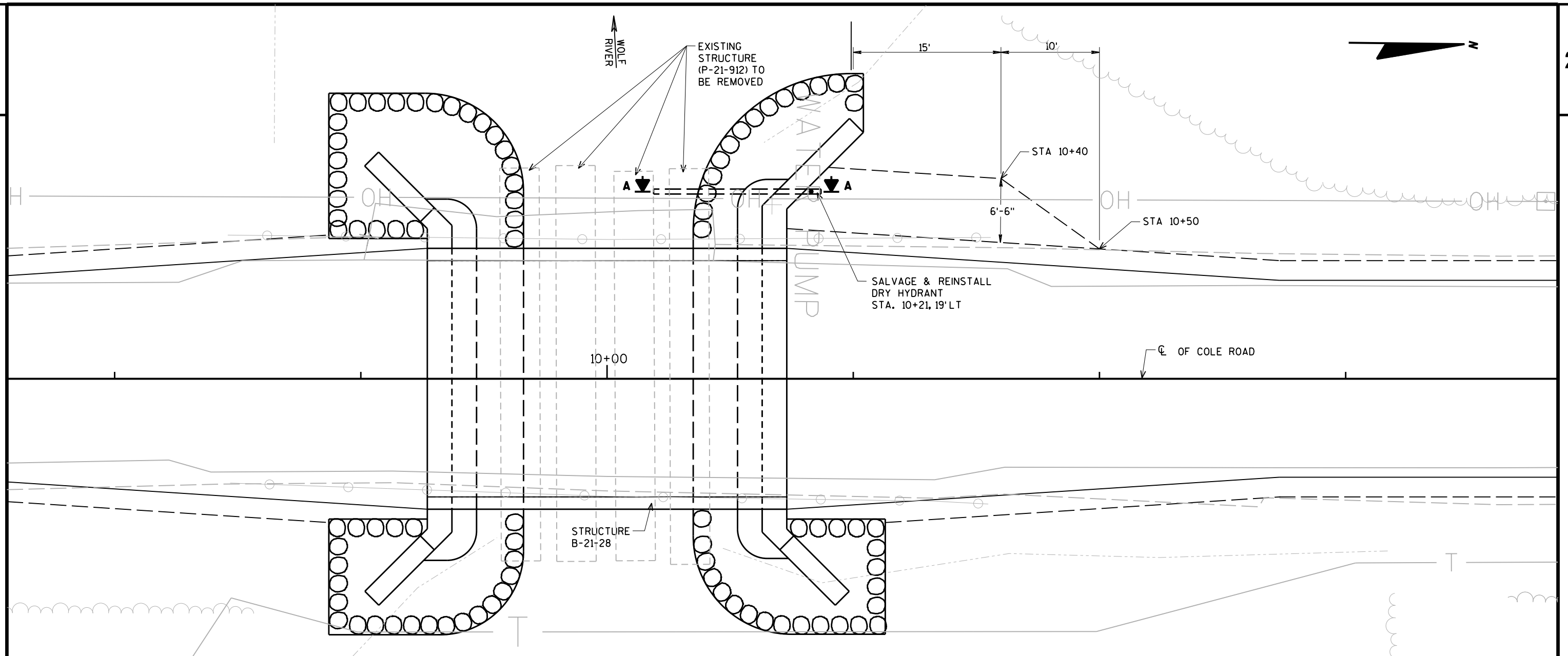
DESIGNER

AYRES ASSOCIATES
3433 OAKWOOD HILLS PARKWAY
EAU CLAIRE, WI 54701
ATTN: CHRIS McMAHON
715-834-3161
mcmahon@AyresAssociates.com

WISCONSIN DEPARTMENT OF NATURAL RESOURCES CONTACT:

JON SIMONSEN
107 SUTLIFF
RHINELANDER, WI 54501
715-367-1936
jonathan.simonsen@wisconsin.gov

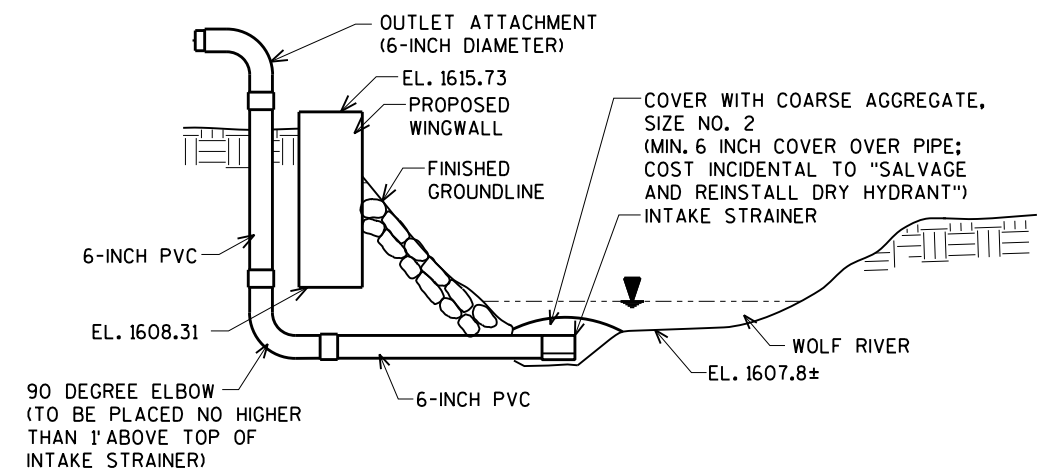




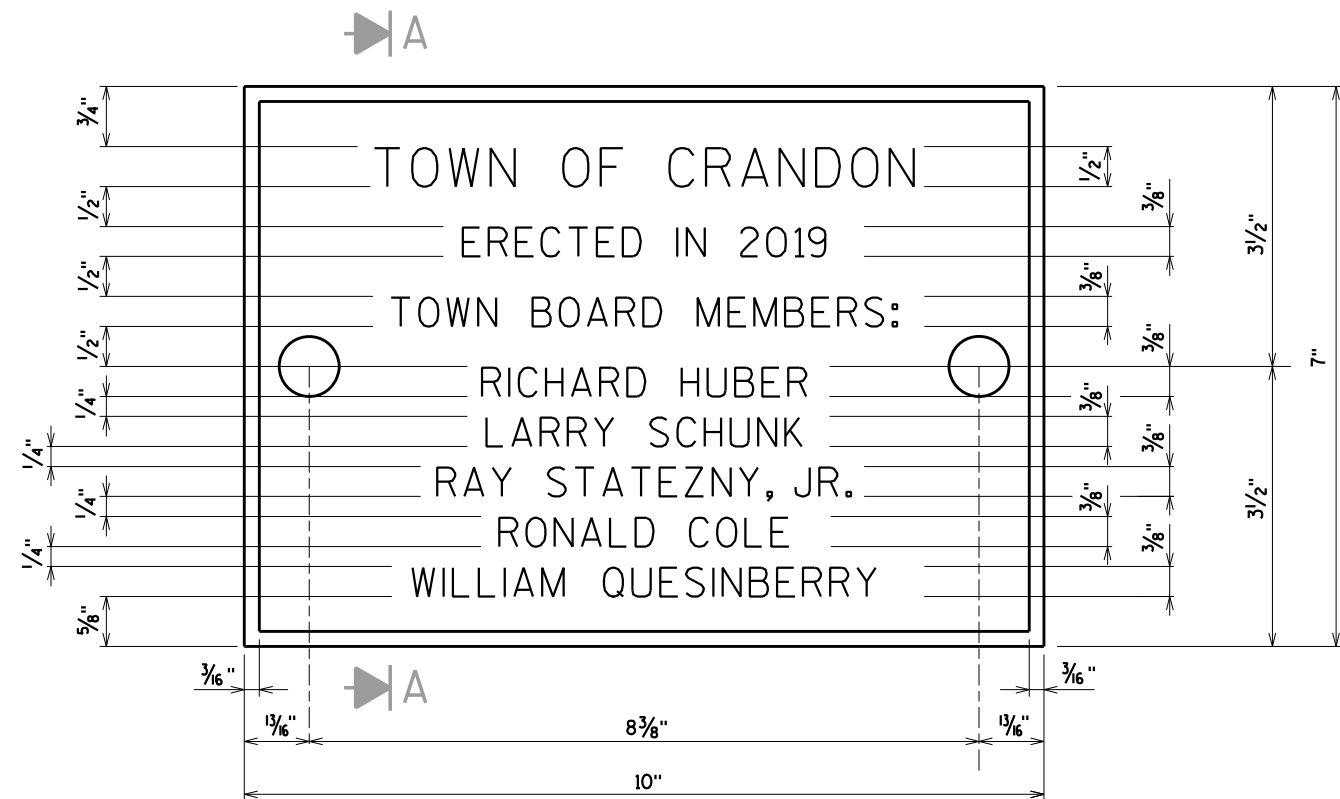
DRY HYDRANT DETAIL

STA. 10+21, 19' LT.

NOTE: SHOULDER IN NW QUADRANT WIDENED FOR DRY HYDRANT.



SECTION A-A

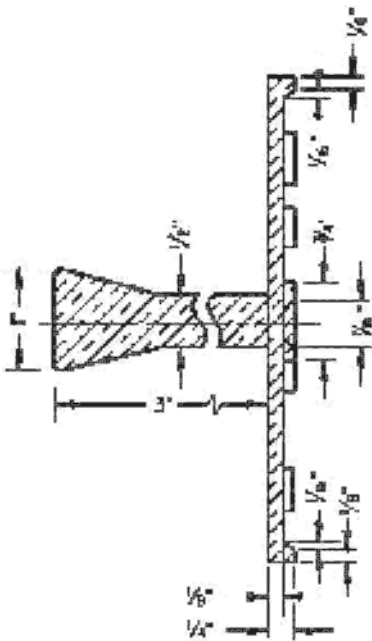


NAME PLATE DETAIL

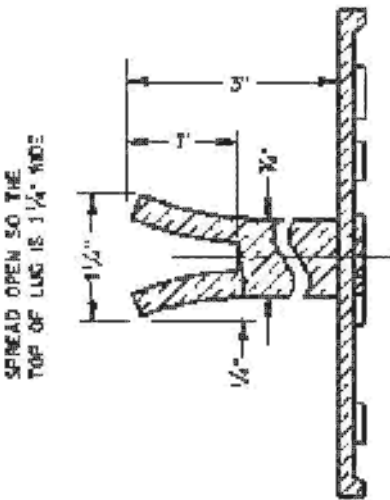
GENERAL NOTES

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

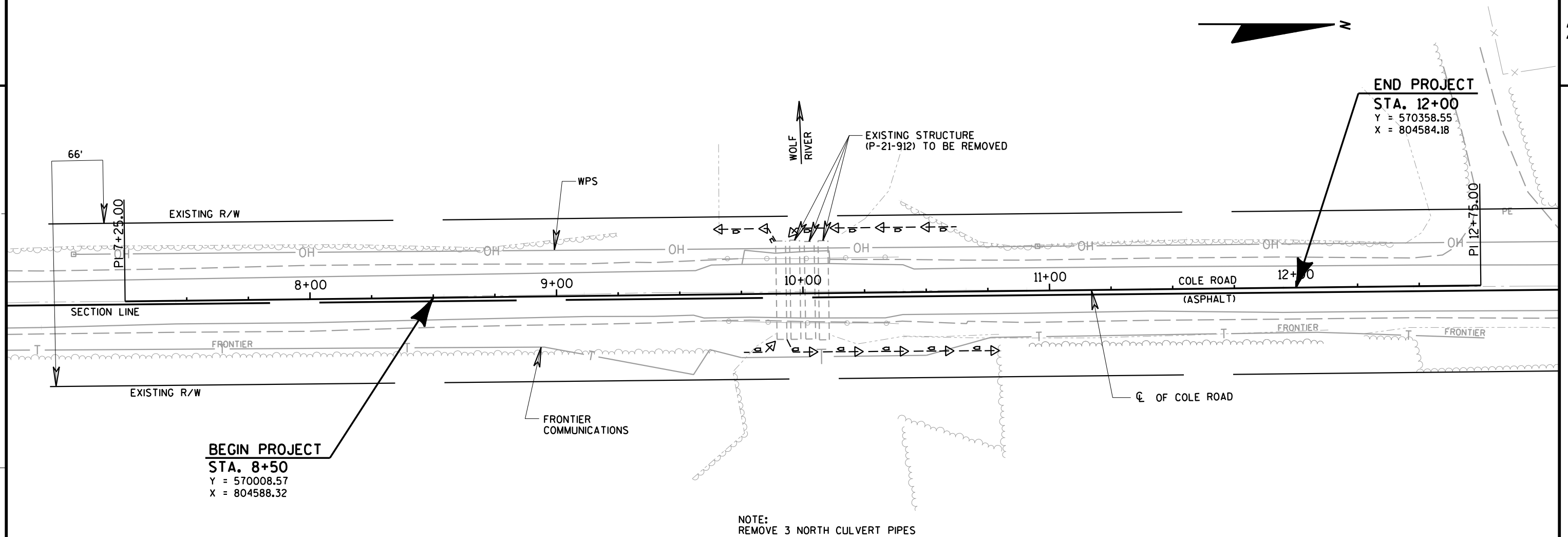
FOR MORE INFORMATION, SEE SPECIAL PROVISIONS FOR
CONCRETE MASONRY BRIDGE.



SECTION A-A



ALTERNATE LUG



HIGH WATER₂ EL. 1611.3

NOTE:
NO DISTURBANCE OR TOPSOIL STOCKPILING
IS ALLOWED OUTSIDE OF THE SLOPE
INTERCEPTS. WETLANDS EXIST IN THE
PROJECT AREA.

LEGEND

-  EROSION MAT CLASS II TYPE C
-  SILT FENCE
-  TURBIDITY BARRIER
-  RIPRAP HEAVY



NOTE:
NO DISTURBANCE OR TOPSOIL STOCKPILING
IS ALLOWED OUTSIDE OF THE SLOPE
INTERCEPTS. WETLANDS EXIST IN THE
PROJECT AREA.

	EROSION MAT CLASS II TYPE C
	SILT FENCE
	TURBIDITY BARRIER
	RIPRAP HEAVY

HIGH WATER₂ EL. 1611.3

TOTAL PROJECT AREA = 0.530 ACRES
TOTAL AREA EXPECTED TO BE DISTURBED BY CONSTRUCTION ACTIVITIES = 0.369 ACRES

Estimate Of Quantities

9813-01-70

Line	Item	Item Description	Unit	Total	Qty
0002	201.0105	Clearing	STA	4.000	4.000
0004	201.0205	Grubbing	STA	4.000	4.000
0006	203.0500.S	Removing Old Structure Over Waterway (station) 01. 10+00	LS	1.000	1.000
0008	205.0100	Excavation Common	CY	148.000	148.000
0010	206.1000	Excavation for Structures Bridges (structure) 01. B-21-0028	LS	1.000	1.000
0012	208.0100	Borrow	CY	160.000	160.000
0014	210.1500	Backfill Structure Type A	TON	340.000	340.000
0016	213.0100	Finishing Roadway (project) 01. 9813-01-70	EACH	1.000	1.000
0018	305.0110	Base Aggregate Dense 3/4-Inch	TON	45.000	45.000
0020	305.0120	Base Aggregate Dense 1 1/4-Inch	TON	745.000	745.000
0022	455.0605	Tack Coat	GAL	55.000	55.000
0024	465.0105	Asphaltic Surface	TON	175.000	175.000
0026	502.0100	Concrete Masonry Bridges	CY	121.000	121.000
0028	502.3200	Protective Surface Treatment	SY	130.000	130.000
0030	505.0400	Bar Steel Reinforcement HS Structures	LB	4,370.000	4,370.000
0032	505.0600	Bar Steel Reinforcement HS Coated Structures	LB	14,150.000	14,150.000
0034	513.4061	Railing Tubular Type M 01. B-21-0028	LF	74.000	74.000
0036	516.0500	Rubberized Membrane Waterproofing	SY	19.000	19.000
0038	550.1100	Piling Steel HP 10-Inch X 42 Lb	LF	1,170.000	1,170.000
0040	606.0300	Riprap Heavy	CY	120.000	120.000
0042	612.0406	Pipe Underdrain Wrapped 6-Inch	LF	150.000	150.000
0044	618.0100	Maintenance And Repair of Haul Roads (project) 01. 9813-01-70	EACH	1.000	1.000
0046	619.1000	Mobilization	EACH	1.000	1.000
0048	624.0100	Water	MGAL	20.000	20.000
0050	625.0500	Salvaged Topsoil	SY	640.000	640.000
0052	627.0200	Mulching	SY	1,380.000	1,380.000
0054	628.1504	Silt Fence	LF	655.000	655.000
0056	628.1520	Silt Fence Maintenance	LF	1,310.000	1,310.000
0058	628.1905	Mobilizations Erosion Control	EACH	4.000	4.000
0060	628.1910	Mobilizations Emergency Erosion Control	EACH	4.000	4.000
0062	628.2027	Erosion Mat Class II Type C	SY	75.000	75.000
0064	628.6005	Turbidity Barriers	SY	520.000	520.000
0066	628.7504	Temporary Ditch Checks	LF	50.000	50.000
0068	629.0210	Fertilizer Type B	CWT	1.800	1.800
0070	630.0120	Seeding Mixture No. 20	LB	40.000	40.000
0072	630.0200	Seeding Temporary	LB	40.000	40.000
0074	634.0612	Posts Wood 4x6-Inch X 12-FT	EACH	4.000	4.000

Estimate Of Quantities

9813-01-70

Line	Item	Item Description	Unit	Total	Qty
0076	637.2230	Signs Type II Reflective F	SF	12.000	12.000
0078	638.2102	Moving Signs Type II	EACH	1.000	1.000
0080	638.2602	Removing Signs Type II	EACH	4.000	4.000
0082	638.3000	Removing Small Sign Supports	EACH	4.000	4.000
0084	638.4000	Moving Small Sign Supports	EACH	1.000	1.000
0086	642.5001	Field Office Type B	EACH	1.000	1.000
0088	643.0420	Traffic Control Barricades Type III	DAY	1,080.000	1,080.000
0090	643.0705	Traffic Control Warning Lights Type A	DAY	1,680.000	1,680.000
0092	643.0900	Traffic Control Signs	DAY	840.000	840.000
0094	643.5000	Traffic Control	EACH	1.000	1.000
0096	645.0111	Geotextile Type DF Schedule A	SY	98.000	98.000
0098	645.0120	Geotextile Type HR	SY	245.000	245.000
0100	650.4500	Construction Staking Subgrade	LF	315.000	315.000
0102	650.5000	Construction Staking Base	LF	315.000	315.000
0104	650.6500	Construction Staking Structure Layout (structure) 01. B-21-0028	LS	1.000	1.000
0106	650.9910	Construction Staking Supplemental Control (project) 01. 9813-01-70	LS	1.000	1.000
0108	650.9920	Construction Staking Slope Stakes	LF	315.000	315.000
0110	690.0150	Sawing Asphalt	LF	40.000	40.000
0112	715.0502	Incentive Strength Concrete Structures	DOL	726.000	726.000
0114	SPV.0105	Special 01. Salvage and Reinstall Dry Hydrant	LS	1.000	1.000

COLE ROAD EARTHWORK SUMMARY

From/To Station	Location	Excavation Common (1) (item # 205.0100)	Unexpanded Fill	Expanded Fill (2)	Mass Ordinate +/- (3)	Waste	Borrow (item #208.0100)	Comment:
		Cut		Factor 1.30				
8+50 - 12+00	COLE ROAD	148	237	308	-160		160	

CLEARING AND GRUBBING

				201.0105 CLEARING	201.0205 GRUBBING
STATION	TO	STATION	OFFSET	STA	STA
8+50	-	12+00	LT & RT	4	4
TOTALS				4	4

- 1) Excavation Common is the Cut. Item number 205.0100.
2) Expanded Fill. Factor = 1.30; Expanded Fill = Unexpanded Fill * Fill Factor
3) The Mass Ordinate + or - Qty calculated for the Division. Plus quantity indicates an excess of material on the project.
4) All quantities shown in CY.

FINISHING ROADWAY
(ID 9813-01-70)

LOCATION	213.0100.01 EACH
COLE RD	1
TOTAL	1

PAVING AND BASE QUANTITIES

			305.0110 BASE AGGREGATE DENSE 3/4-INCH	305.0120 BASE AGGREGATE DENSE 1 1/4-INCH	455.0605 TACK COAT	465.0105 ASPHALTIC SURFACE
STA	TO	STA	TON	TON	GAL	TON
8+50	--	9+81.75	15	295	20	70
10+18.25	--	12+00	30	415	30	95
UNDISTRIBUTED			0	35	5	10
TOTALS			45	745	55	175

MOBILIZATION

CATEGORY	619.1000 EACH
0010	0.3
0020	0.7
TOTAL	1

WATER

PURPOSE	624.0100 WATER MGAL
COMPACTION	12.0
DUST CONTROL	8.0
TOTAL	20.0

EROSION CONTROL ITEMS

				625.0500 SALVAGED TOPSOIL	627.0200 MULCHING	628.1504 SILT FENCE	628.1520 SILT FENCE MAINTENANCE	628.2027 EROSION MAT CLASS II TYPE C	629.0210 FERTILIZER TYPE B	630.0120 SEEDING MIXTURE NO. 20	630.0200 SEEDING TEMPORARY
STA	TO	STA	LOCATION	SY	SY	LF	LF	SY	CWT	LB	LB
8+50	--	9+81.75	RT	70	190	130	260	15	0.3	6	6
8+50	--	9+81.75	LT	125	240	120	240	20	0.3	7	7
10+18.25	--	12+00	RT	175	350	125	250	20	0.5	10	10
10+18.25	--	12+00	LT	140	325	150	300	10	0.4	9	9
UNDISTRIBUTED				130	275	130	260	10	0.4	8	8
TOTALS				640	1,380	655	1,310	75	1.8	40	40

MAINTENANCE AND REPAIR
OF HAUL ROADS

CATEGORY	618.0100 EACH
0030	1
TOTAL	1

ALL QUANTITIES CATEGORY 0010 UNLESS OTHERWISE NOTED

OBJECT MARKERS

EROSION CONTROL MOBILIZATION ITEMS

<u>EROSION CONTROL MOBILIZATION ITEMS</u>					634.0612	637.2230	638.2102	638.2602	638.3000	638.4000		
					POSTS WOOD	SIGNS TYPE II	MOVING SIGNS	REMOVING	REMOVING	MOVING SMALL		
					4X6-INCH X 12-FT	REFLECTIVE F	TYPE II	SIGNS TYPE II	SMALL SIGN	SIGN SUPPORTS		

TURBIDITY BARRIERS

STAGE	628.6005
	SY
1	175
2	240
UNDISTRIBUTED	105
TOTAL	520

TEMPORARY DITCH CHECKS

LOCATION	628.7504
	LF
UNDISTRIBUTED	50
TOTAL	50

FIELD OFFICE TYPE B

CATEGORY	642.5001
	EACH
0010	0.3
0020	0.7
TOTAL	1

TRAFFIC CONTROL ITEMS

		643.0420	643.0705	643.0900	643.5000		
		BARRICADES	WARNING LIGHTS	SIGNS	TRAFFIC		
		TYPE III	TYPE A		CONTROL		
LOCATION	DURATION	NO.	DAY	NO.	DAY	NO.	DAY
PER SDD 15C2	DAYS						
COLE ROAD							
TOTALS		1,080	1,680	840	1		

TRAFFIC CONTROL PLACEMENT SUBJECT TO ENGINEER APPROVAL

STAKING ITEMS

		650.4500	650.5000	650.6500.01	650.9910.01	650.9920
		CONSTRUCTION	CONSTRUCTION	CONSTRUCTION	CONSTRUCTION STAKING	CONSTRUCTION
		STAKING	STAKING	STAKING	SUPPLEMENTAL CONTROL	STAKING
		SUBGRADE	BASE	STRUCTURE LAYOUT	(ID 9813-01-70)	SLOPE
				(B-21-0028)		STAKES
CATEGORY	LOCATION	LF	LF	LS	LS	LF
0010	8+50 - 12+00	315	315	--	1	315
0020	B-21-0028	--	--	1	--	--
TOTALS		315	315	1	1	315

SAWING ASPHALT

STATION	LOCATION	690.0150
		LF
8+50	LT & RT	20
12+00	LT & RT	20
TOTAL		40

SALVAGE AND REINSTALL DRY HYDRANT

CATEGORY	LOCATION	STATION	SPV.0105.01
			LS
0030	COLE RD	10+21, 19' LT	1
TOTAL			1

ALL QUANTITIES CATEGORY 0010 UNLESS OTHERWISE NOTED

BENCH MARKS			
NO.	STA.	DESCRIPTION	ELEV.
1	7+05	RR SPIKE IN PPOL, 19' LT	1614.11
2	14+77	RR SPIKE IN PPOL, 16.3' LT	1619.85

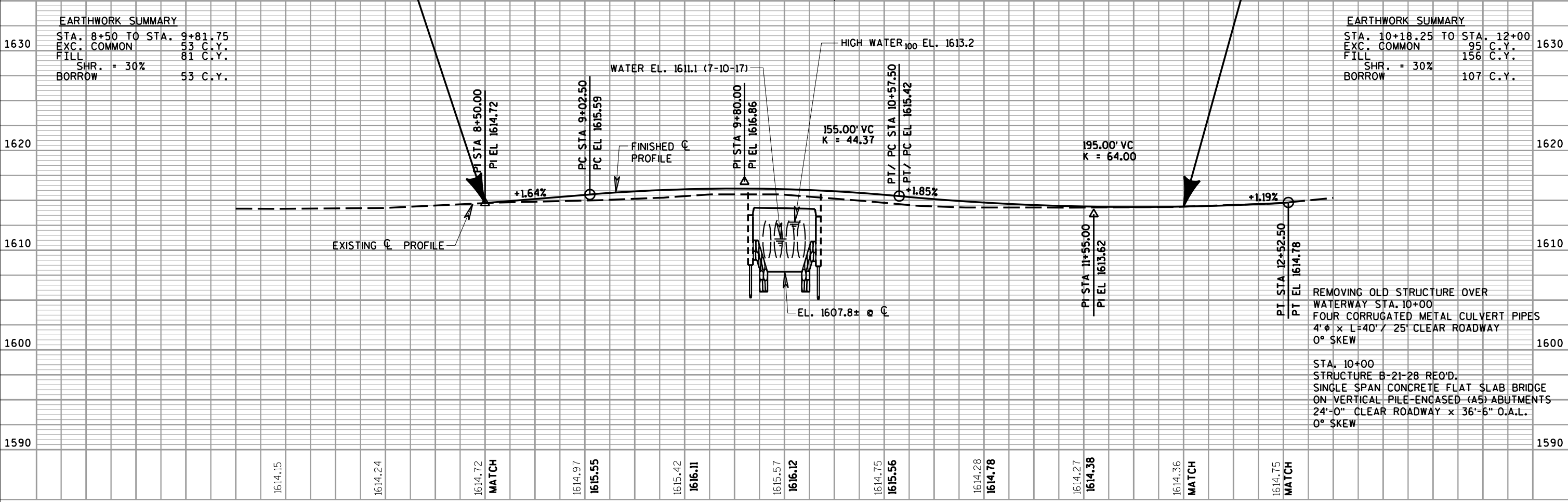
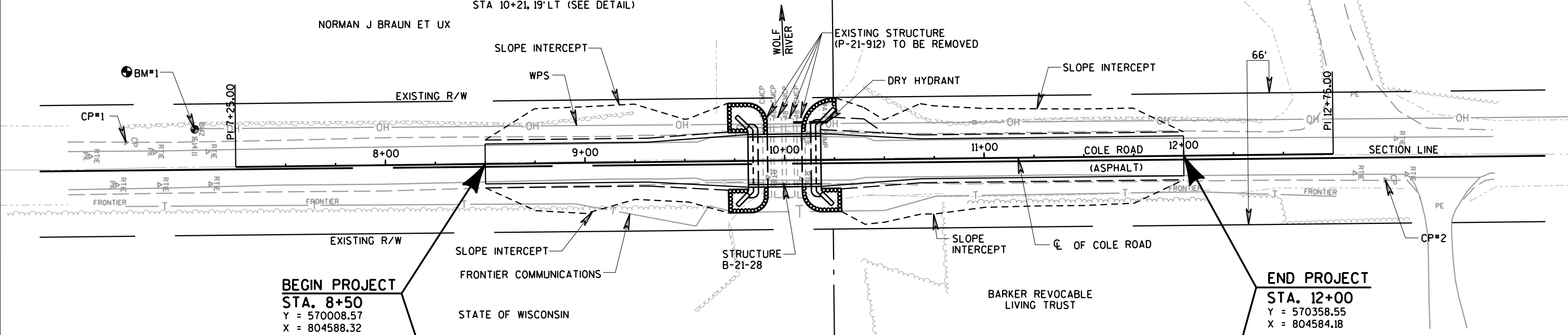
NOTE:
FOR ALIGNMENT CONTROL POINTS, BEARINGS,
AND COORDINATES, SEE "ALIGNMENT CONTROLS"
SHEET.

SHOULDER IN NW QUADRANT WIDENED FOR DRY
HYDRANT (SEE DETAIL)

SALVAGE AND REINSTALL DRY HYDRANT
STA 10+21, 19' LT (SEE DETAIL)

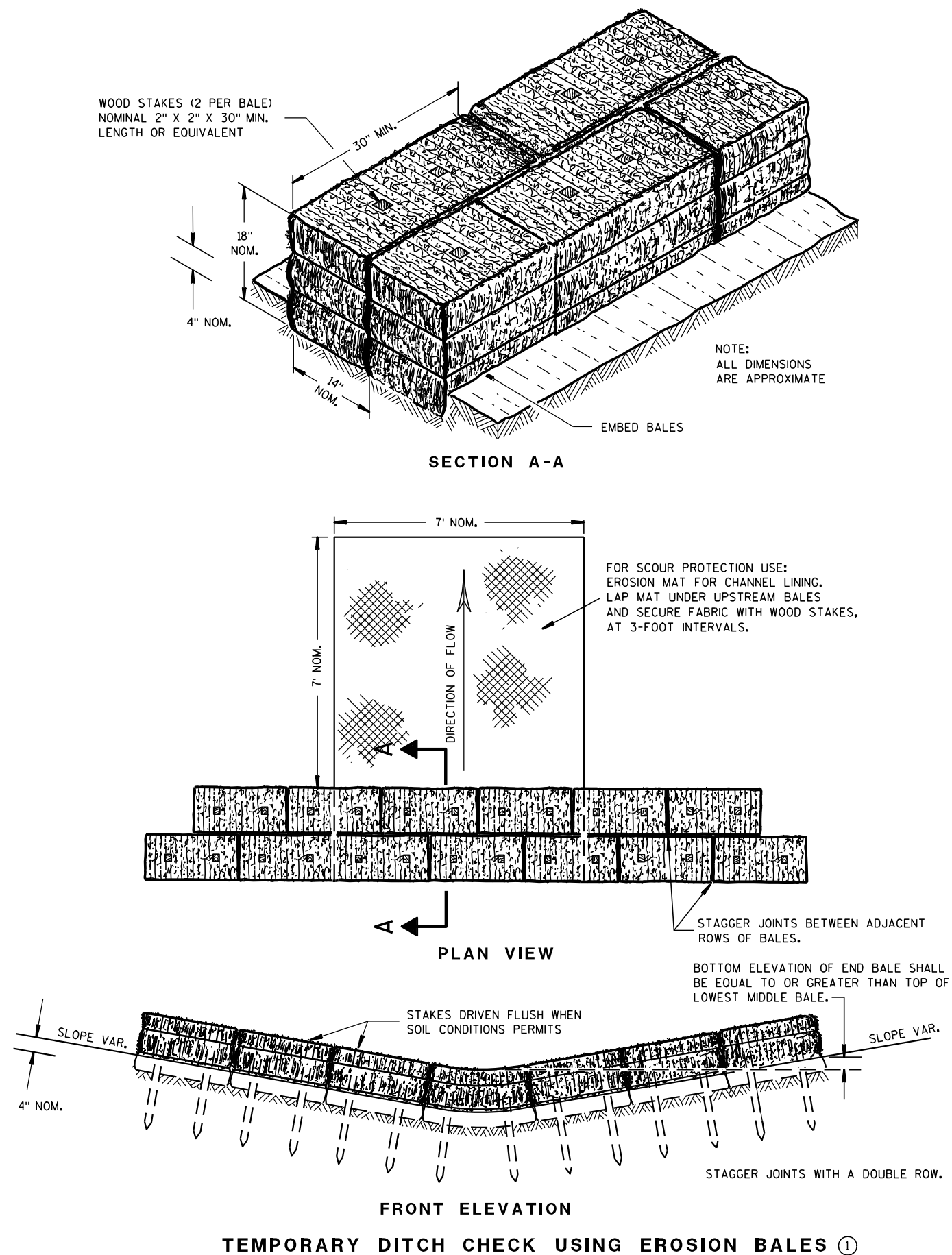
NORMAN J BRAUN ET UX

SCOTT R VAHL ET UX



Standard Detail Drawing List

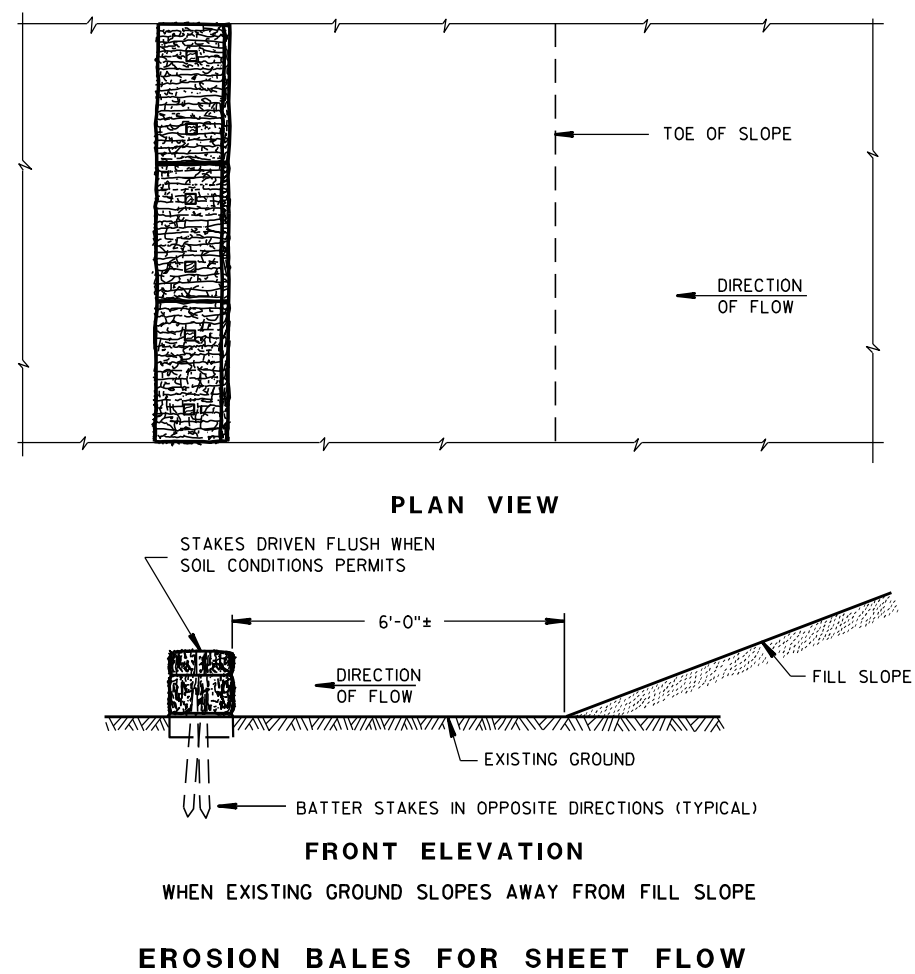
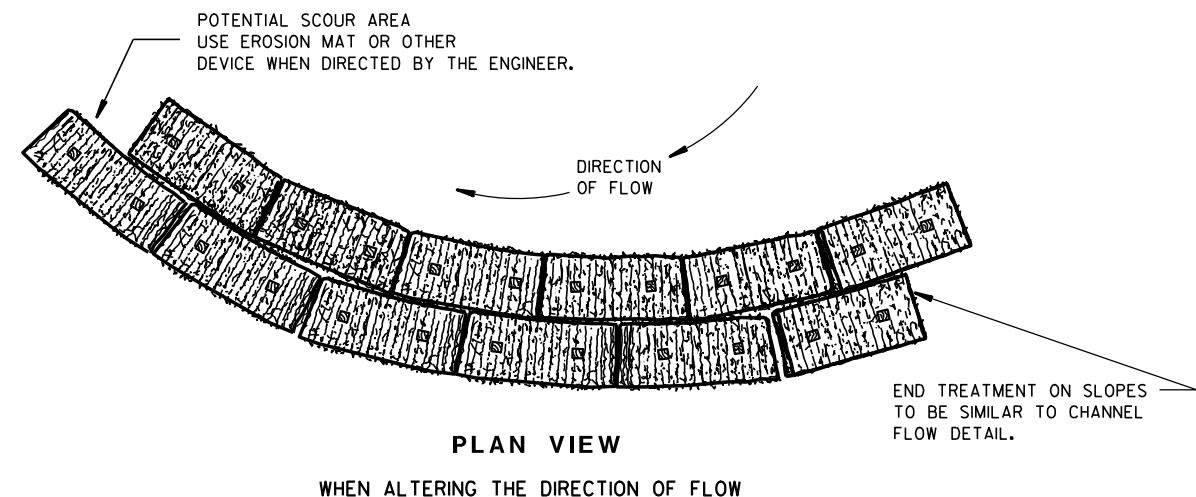
08E08-03	TYPICAL INSTALLATIONS OF EROSION BALES / TEMPORARY DITCH CHECKS
08E09-06	SILT FENCE
08E11-02	TURBIDITY BARRIER
12A03-10	NAME PLATE (STRUCTURES)
15C02-06A	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-06B	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C06-09	SIGNING & MARKING FOR TWO LANE BRIDGES
15D38-02A	TEMPORARY TRAFFIC CONTROL SIGN MOUNTING
15D38-02B	ATTACHMENT OF SIGNS TO POSTS



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

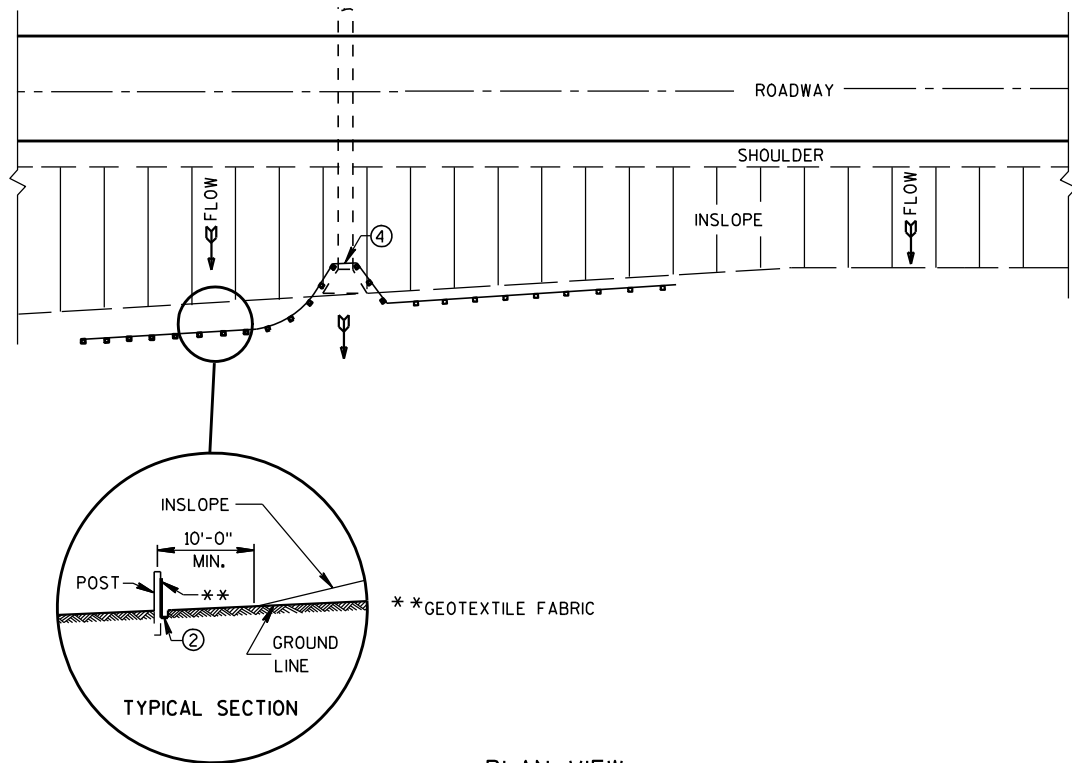
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

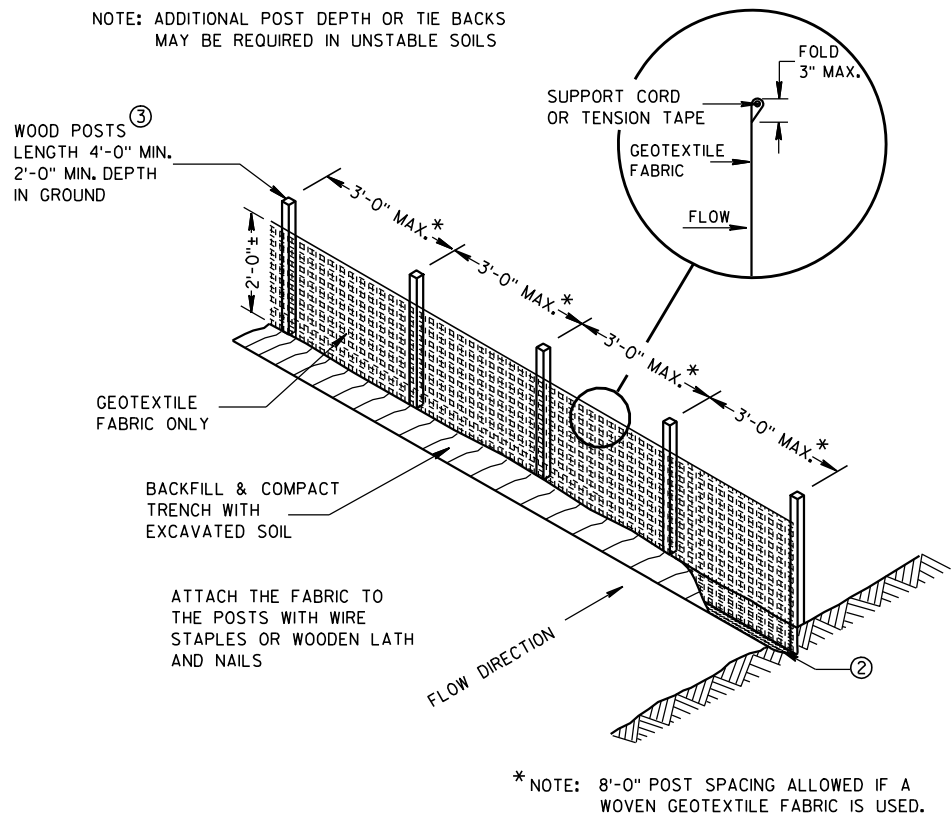
6/04/02
DATE

/S/ Beth Canestra
CHIEF ROADWAY DEVELOPMENT ENGINEER

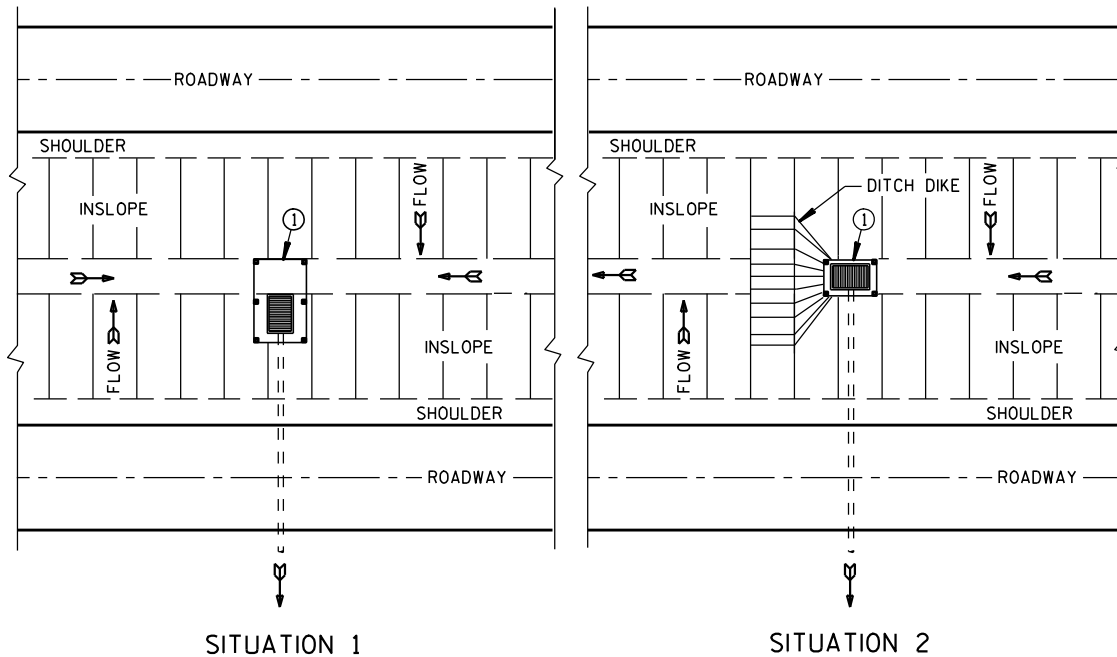
FHWA



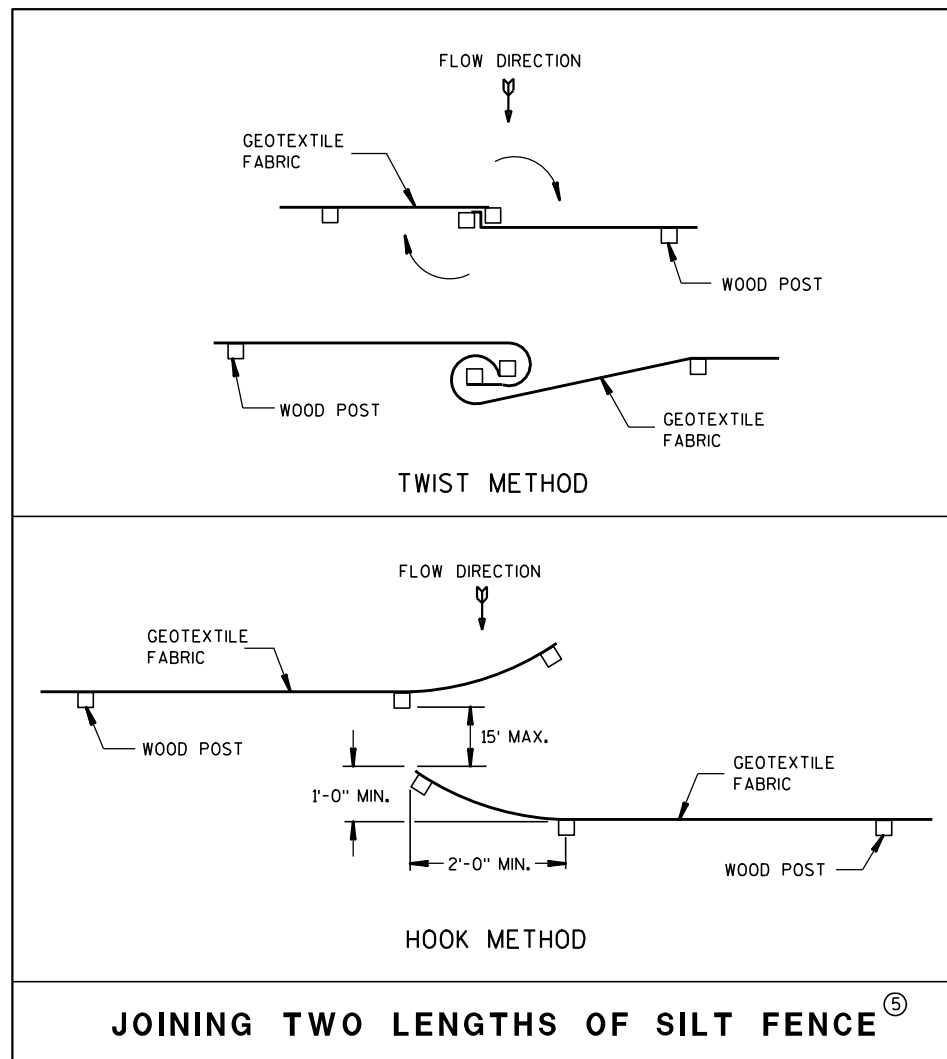
PLAN VIEW
TYPICAL APPLICATION OF SILT FENCE



SILT FENCE



PLAN VIEW
SILT FENCE AT MEDIAN SURFACE DRAINS

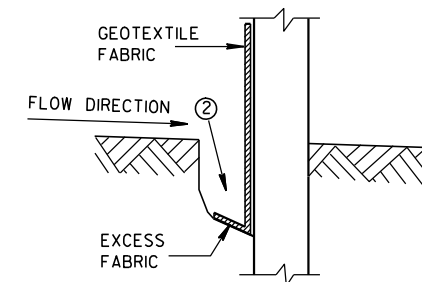


JOINING TWO LENGTHS OF SILT FENCE^⑤

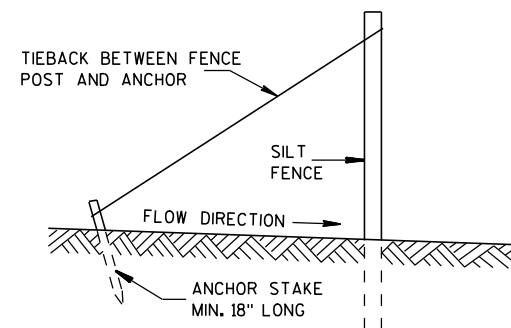
GENERAL NOTES

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 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.

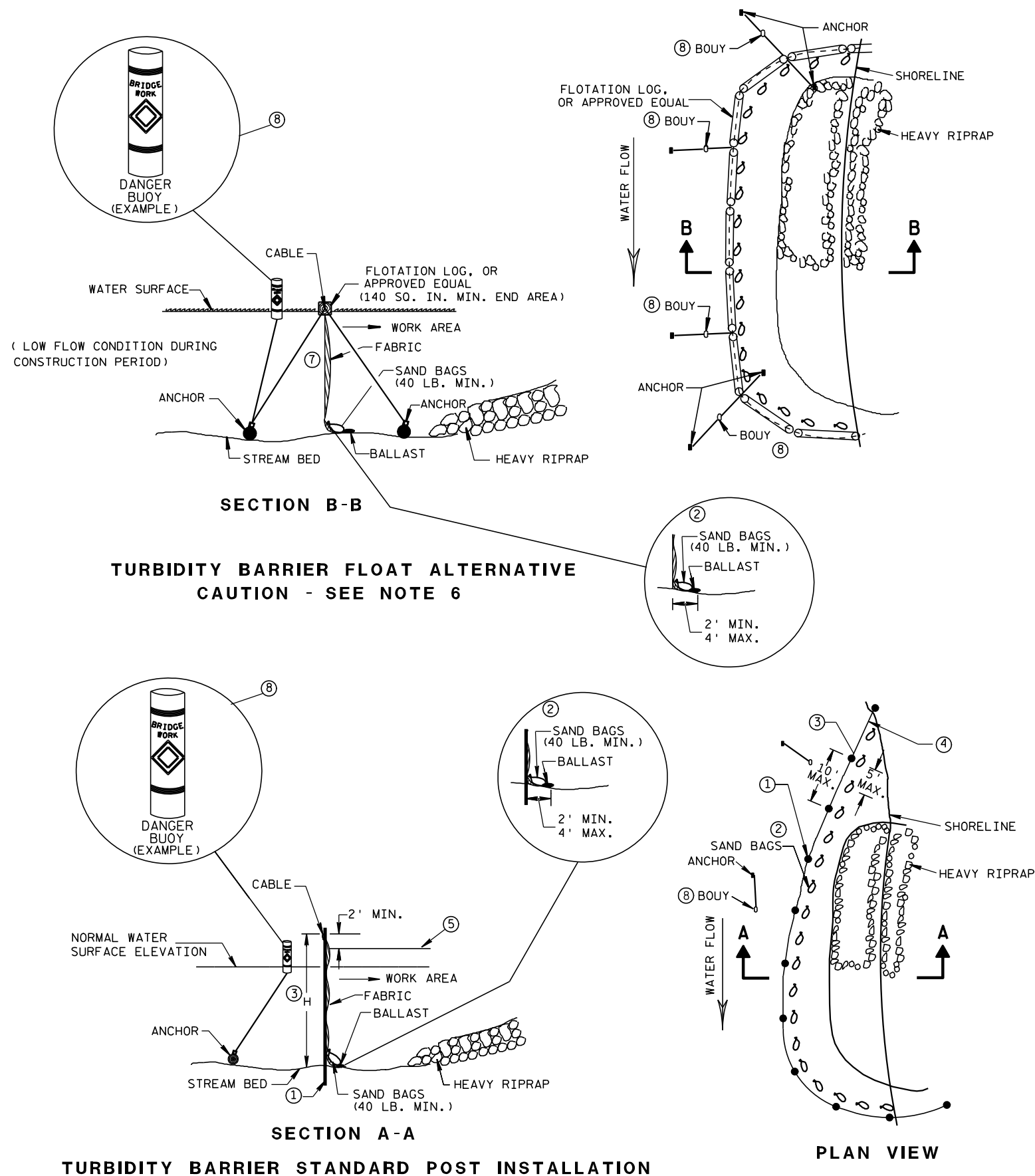


TRENCH DETAIL



SILT FENCE TIE BACK
(WHEN REQUIRED BY THE ENGINEER)

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

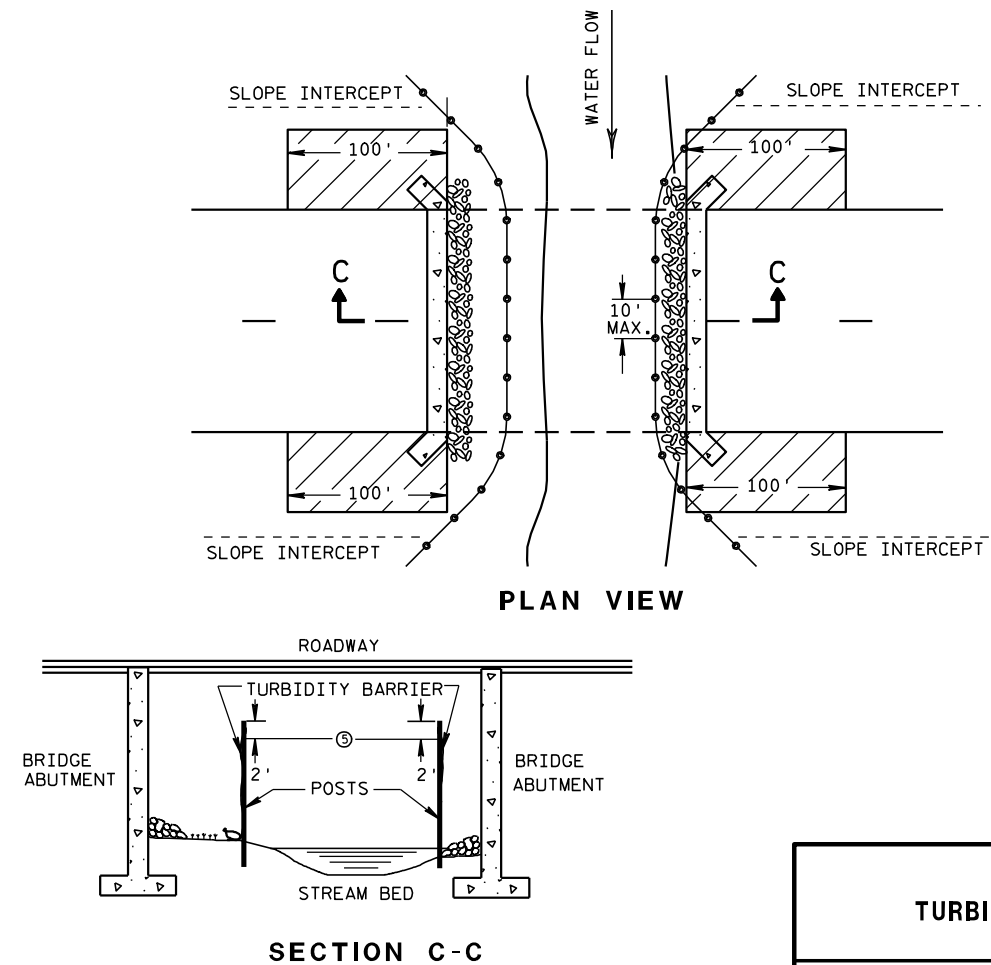


GENERAL NOTES

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

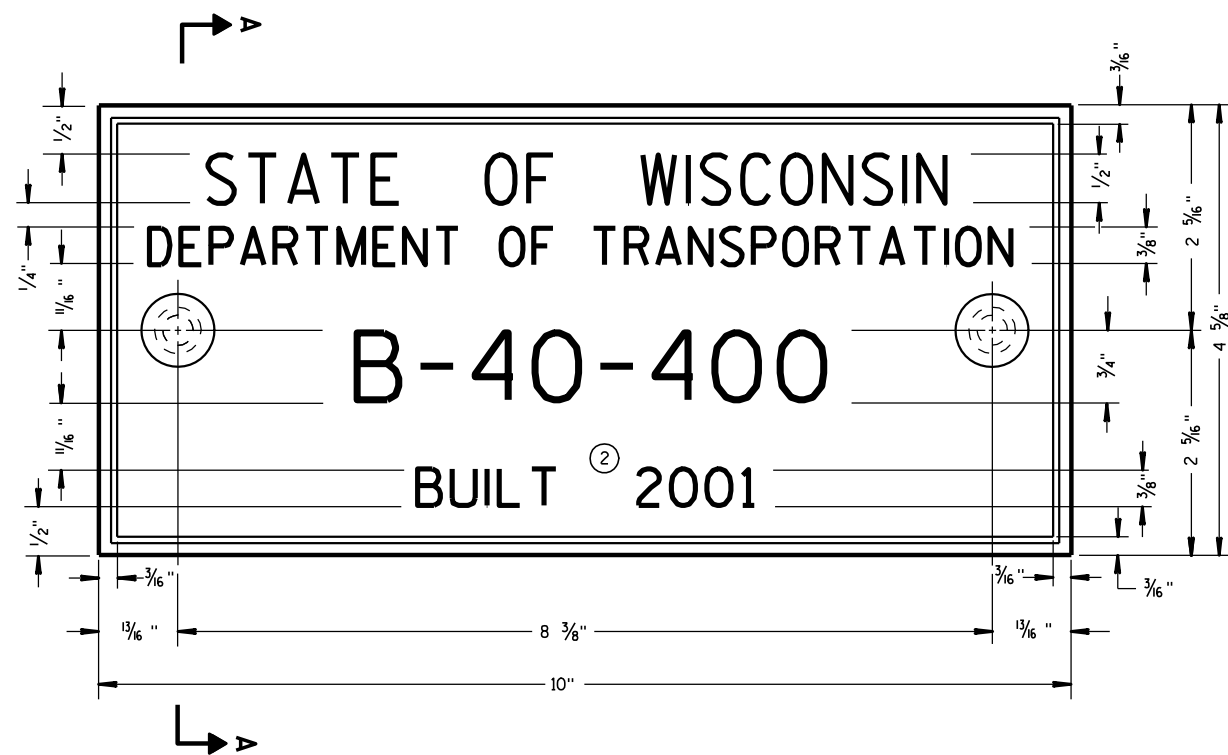
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

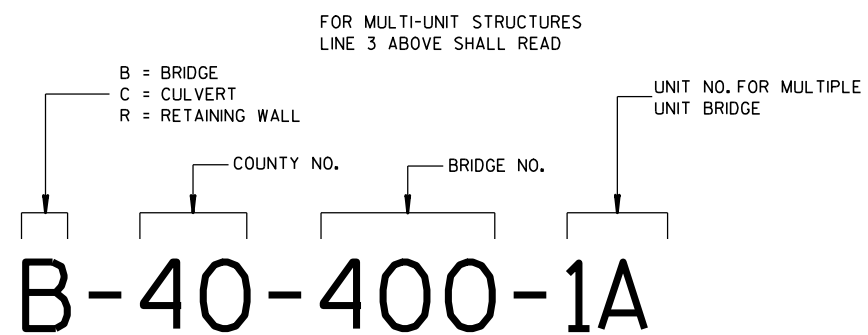
6/04/02
DATE

FHWA

/S/ Beth Canestra
CHIEF ROADWAY DEVELOPMENT ENGINEER



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



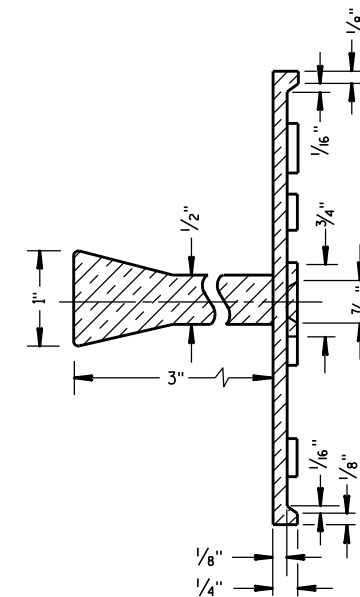
**NUMBERING DESIGNATION
MULTI-UNIT STRUCTURES**

GENERAL NOTES

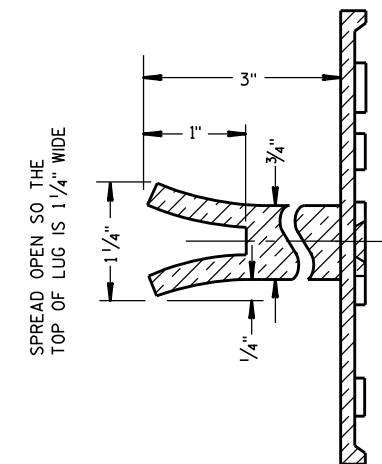
NAME PLATES TO BE INSTALLED ON BRIDGES, CULVERTS, AND RETAINING WALLS SHALL CONFORM TO THE REQUIREMENTS OF SECTION 502.3.11 OF THE STANDARD SPECIFICATIONS.

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.

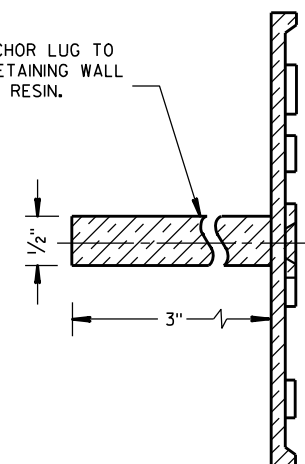


SECTION A-A



ALTERNATE LUG

- ① ADHERE ANCHOR LUG TO PRECAST RETAINING WALL WITH EPOXY RESIN.



ALTERNATE LUG
(FOR ATTACHMENT TO PRECAST STRUCTURES)

**NAME PLATE
(STRUCTURES)**

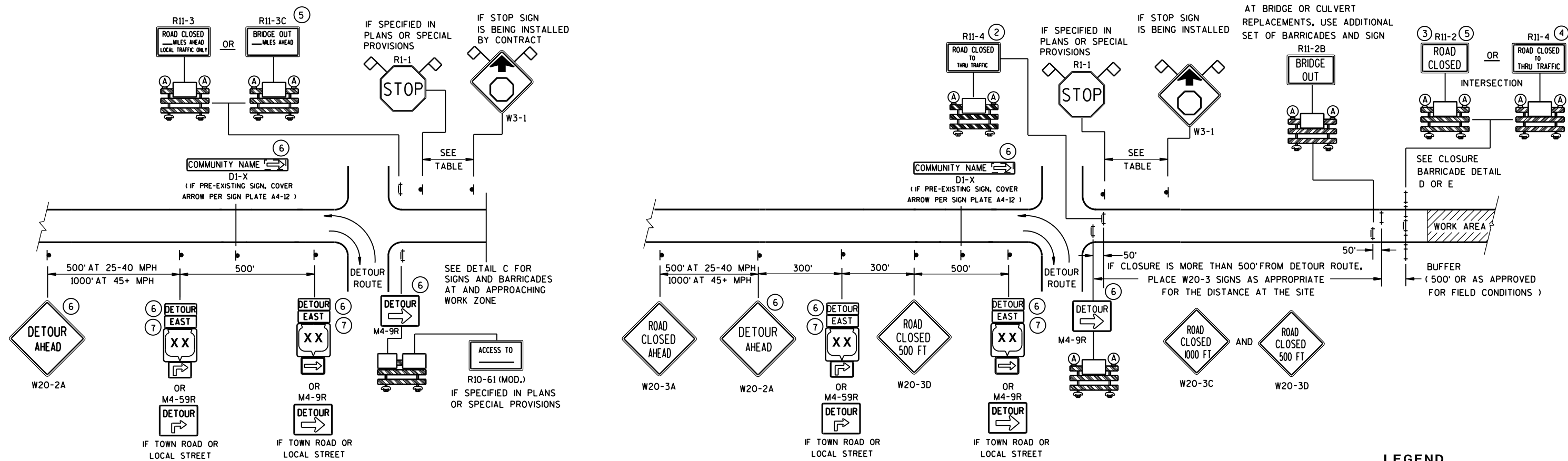
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

3/26/10
DATE

FHWA

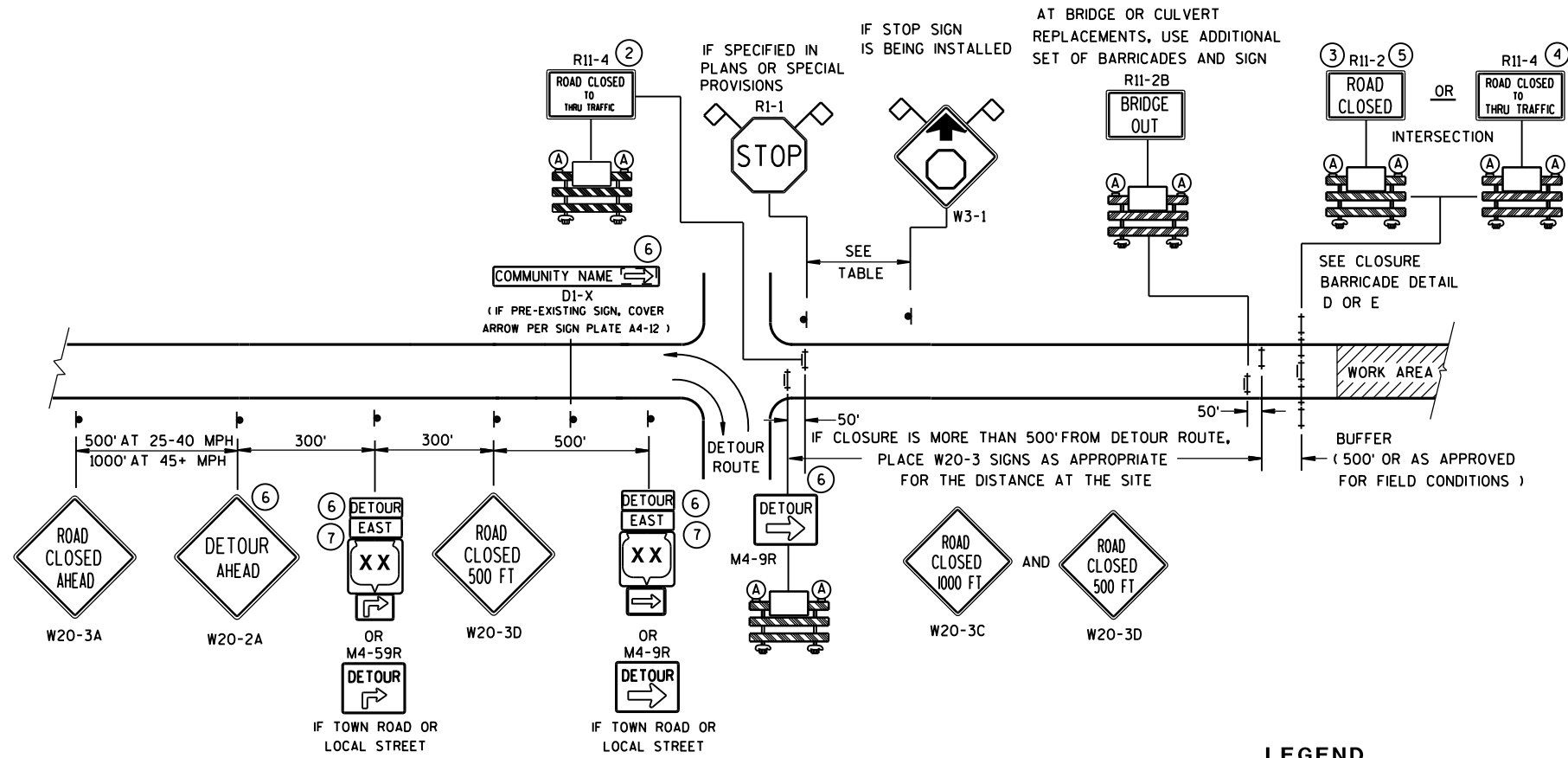
/S/ Scot Becker
CHIEF STRUCTURAL DEVELOPMENT ENGINEER



DETAIL A

MAINLINE CLOSURE WITH POSTED DETOUR

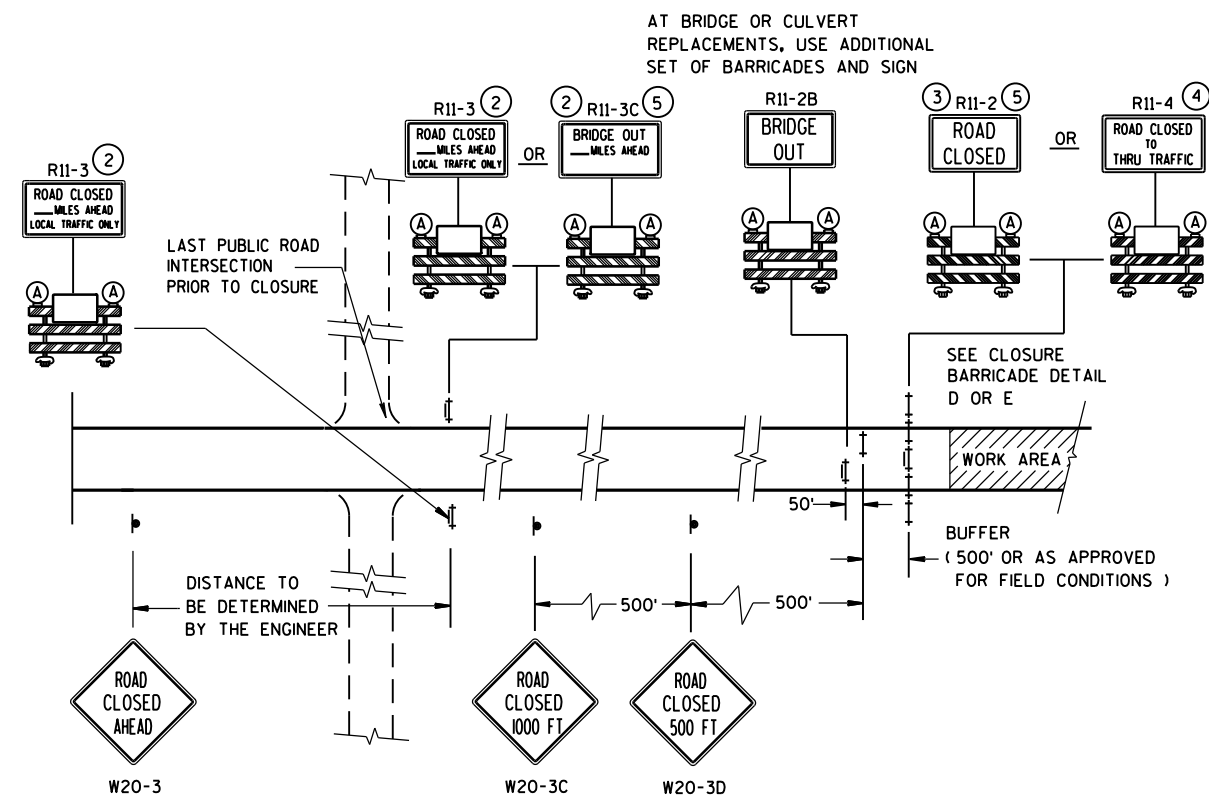
WORK ZONE GREATER THAN 1/2 MILE FROM DETOUR ROUTE (1000 FEET IF URBAN)



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

LEGEND

- | | |
|---|---------------------------------------|
|  | SIGN ON PERMANENT SUPPORT |
|  | TYPE III BARRICADE |
|  | TYPE III BARRICADE WITH ATTACHED SIGN |
|  | TYPE "A" WARNING LIGHT (FLASHING) |

 WORK AREA

DETOUR M4-8
EAST M3-X

 OR  OR 

M1-4 M1-5A M1-6

 OR 
M05-1 M06-1

 FLAGS, 16" X 16" MIN., (ORANGE)

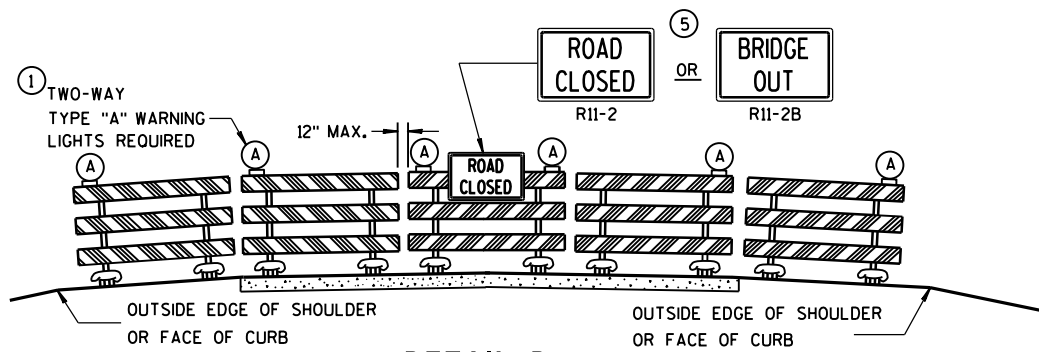
SPEED LIMIT (MPH)	"STOP AHEAD" ADVANCE WARNING DISTANCE (FT)
25	200
30	200
35	350
40	350
45	500
50	550
55	750

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

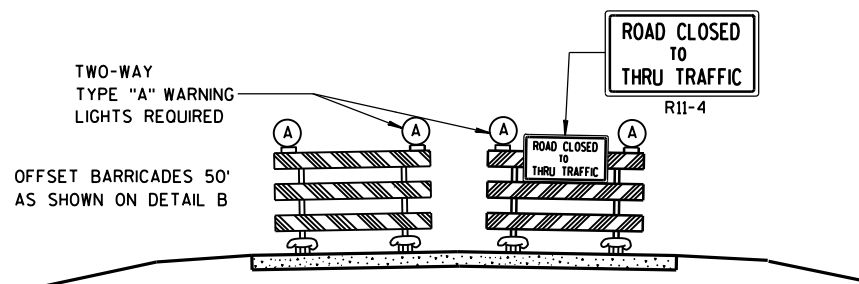
BARRICADES AND SIGNS FOR MAINLINE CLOSURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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



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:

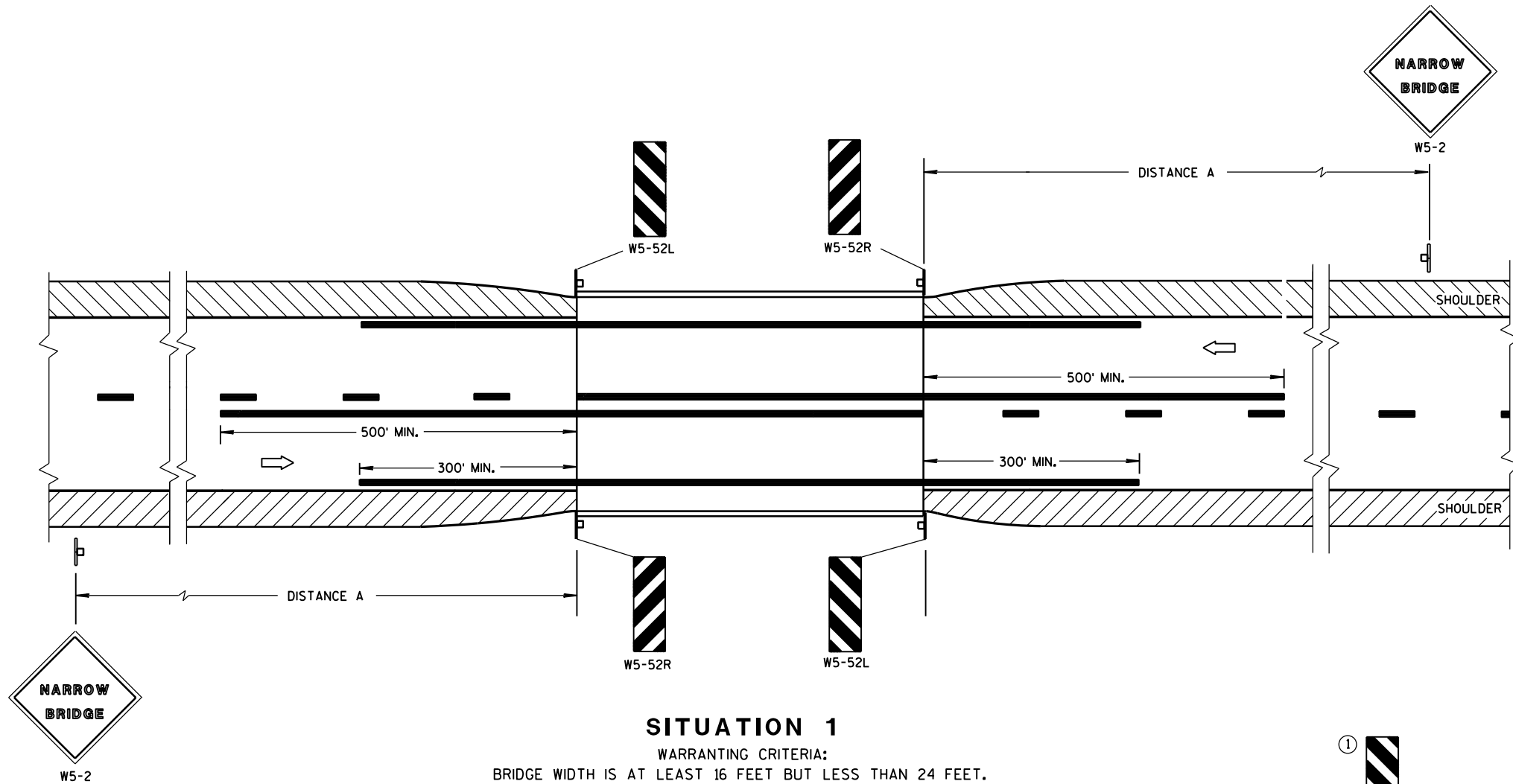
- R11-2 SHALL BE 48" X 30".
- R11-3, R11-4 AND R10-61 SHALL BE 60" X 30".
- M4-9 SHALL BE 30" X 24".
- M3-X SHALL BE 24" X 12". (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS.)
- M4-8 SHALL BE 24" X 12". (30" X 15" IF NEEDED TO MATCH EXISTING SIGNS.)
- M1-4, M1-5A, AND M1-6 SHALL BE 24" X 24". (36" X 36" 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 /S/ Peter Amokobe Atepe
DATE STATEWIDE WORK ZONE TRAFFIC
FHWA SAFETY ENGINEER



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'

GENERAL NOTES

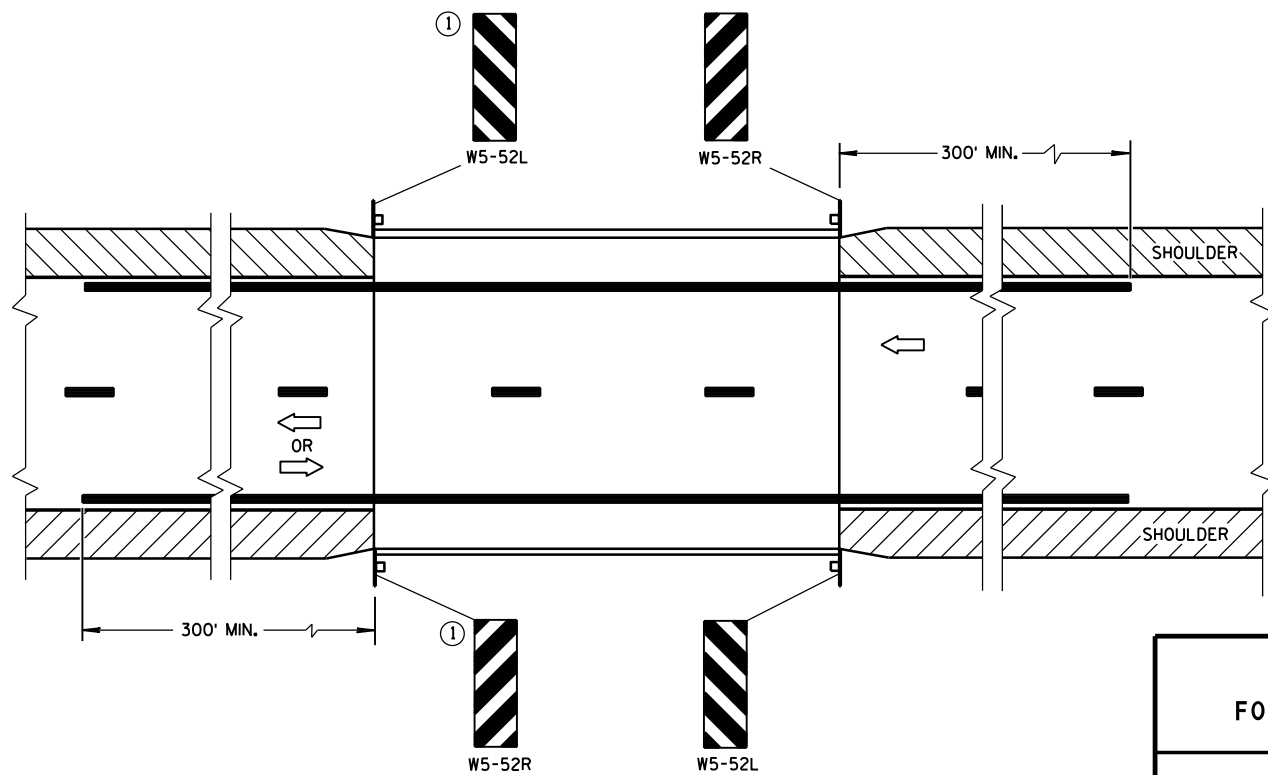
DETAILS OF TRAFFIC CONTROL DEVICES AND INSTALLATION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS, THE SPECIAL PROVISIONS, AND THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

LOCATE W5-52 SIGN POST(S) BEHIND GUARDRAIL WHEN PRESENT.

PLACE THE EDGE OF THE W5-52 SIGN IN LINE WITH FACE OF CURB OR PARAPET.

① OMIT ON ONE-WAY TRAVELLED WAYS.

➡ DIRECTION OF TRAFFIC



SITUATION 2

WARRANTING CRITERIA:
1. BRIDGE WIDTH IS AT LEAST 24 FEET AND
2. BRIDGE SHOULDER WIDTH IS LESS THAN 6 FEET.

SIGNING & MARKING FOR TWO LANE BRIDGES

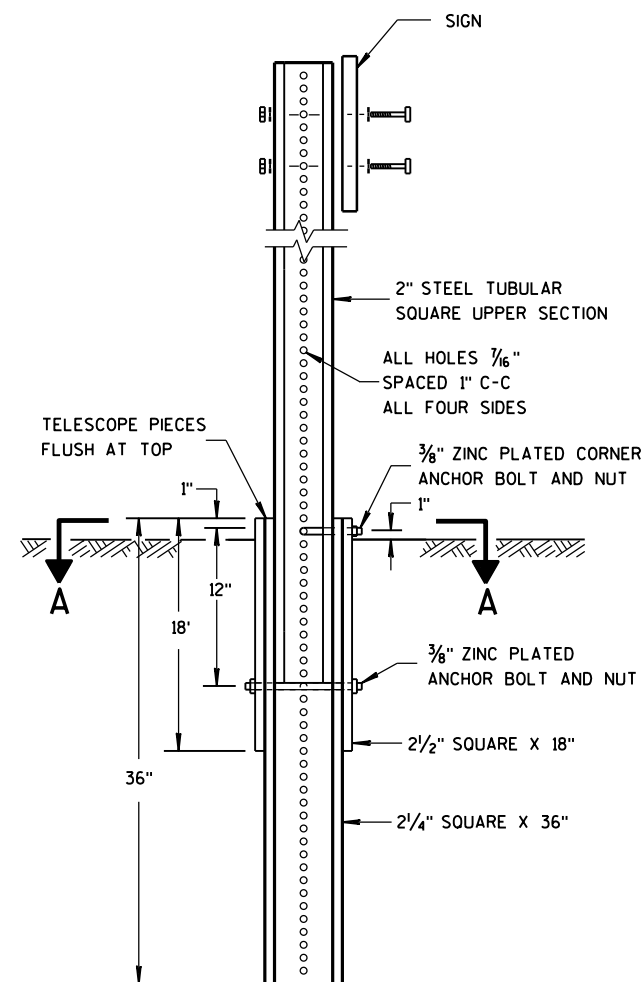
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

June 2017
DATE

/S/ Matthew R. Rauch
STATE SIGNING AND MARKING ENGINEER

FHWA

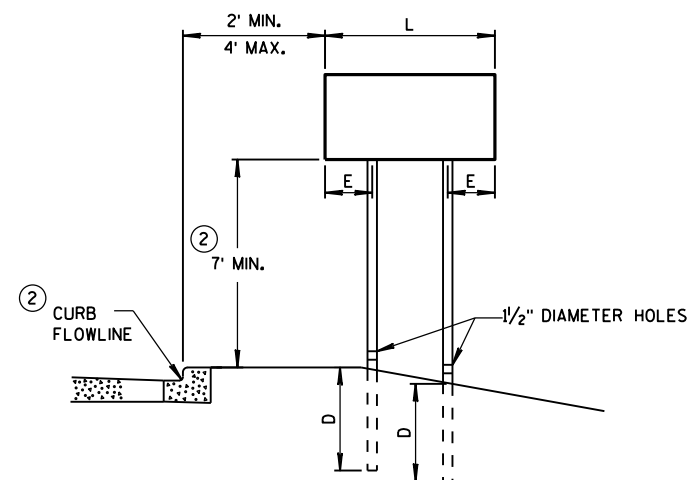
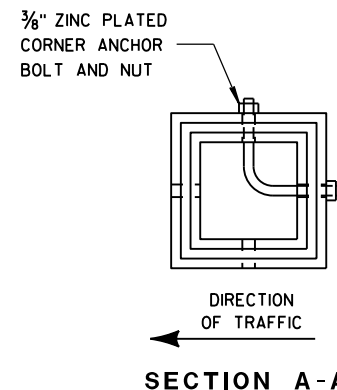


DETAIL OF TUBULAR
STEEL SIGN POST

TUBULAR STEEL POSTS

AREA OF SIGN INSTALLATION (SQ. FT.)	NUMBER OF REQUIRED TUBULAR STEEL 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

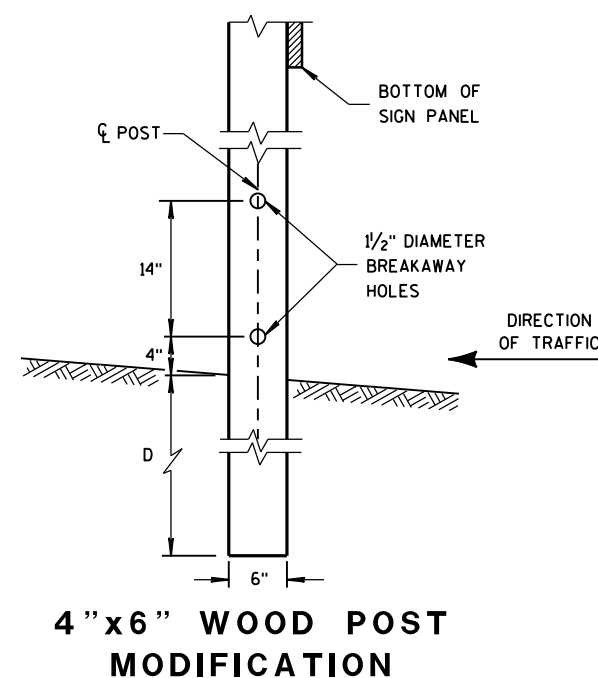
SIGNS WIDER THAN 3 FEET OR LARGER THAN 9 SQ. FT. SHALL
BE MOUNTED ON MULTIPLE POSTS (SEE ABOVE TABLE).
SIGNS LARGER THAN 27 SQ. FT. SHALL NOT BE MOUNTED
ON TUBULAR STEEL POSTS.



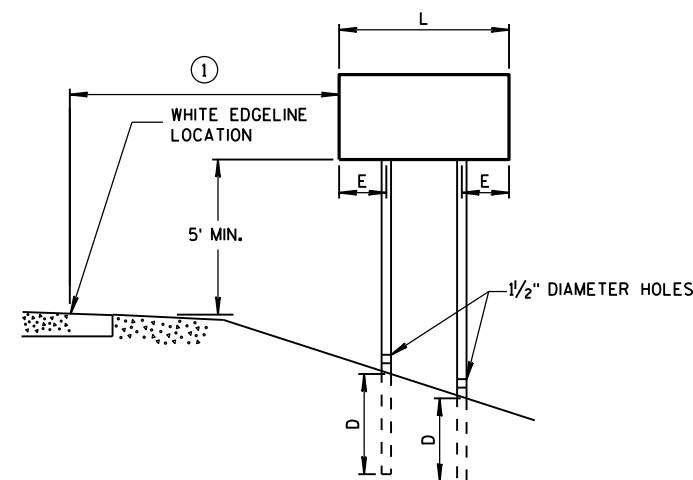
URBAN AREA

POST MOUNTING DETAIL FOR TEMPORARY TRAFFIC CONTROL FIXED MESSAGE SIGNS

WOOD POST EMBEDMENT DEPTH	
AREA OF SIGN INSTALLATION (SQ. FT.)	D (MIN)
20 OR LESS	4'
GREATER THAN 20	5'



4 "x6 " WOOD POST
MODIFICATION



RURAL AREA

POST SPACING REQUIREMENTS		NUMBER OF WOOD POSTS REQUIRED
L	E	
48" OR LESS AND LESS THAN 20 SQ. FT.	-	1
LESS THAN 60"	12"	2
60" TO 120"	L/5	2
GREATER THAN 120" LESS THAN 168"	12"	3
168" AND GREATER	12"	4

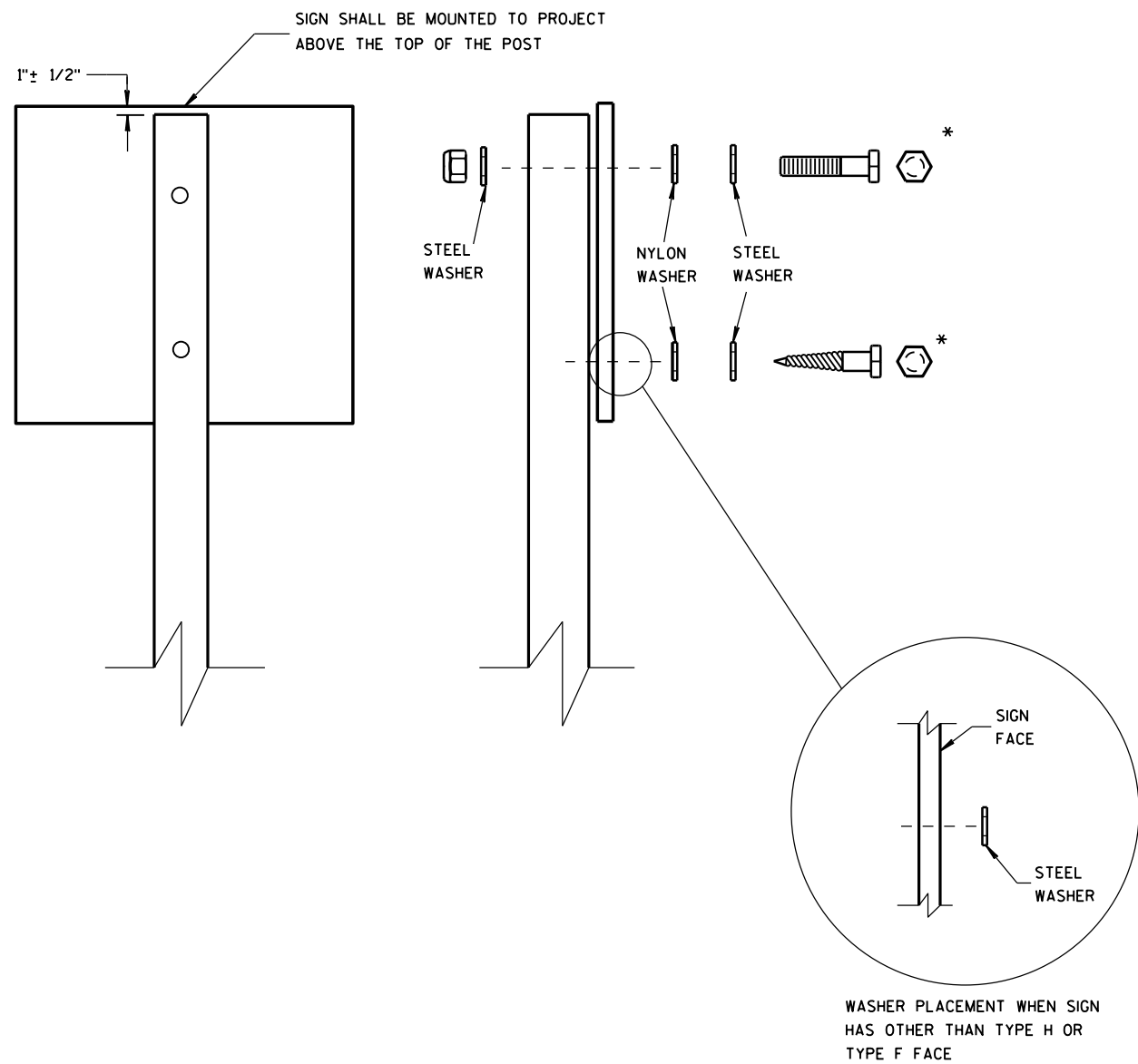
SEE NOTE ③

GENERAL NOTES

- ① 6 FEET FROM THE EDGE OF PAVEMENT (EDGE LINE LOCATION) UNLESS OTHERWISE DIRECTED BY THE PROJECT ENGINEER. LATERAL OFFSET SHOULD BE ADJUSTED TO AVOID THE DITCH FLOWLINE.
- 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. IF NO SIDEWALK AND NO PARKING, VERTICAL CLEARANCE MAY BE REDUCED TO 5 FOOT MINIMUM. OFFSET OF SIGNS IS MEASURED FROM THE CURB FLOWLINE.
- ③ FOR SIGNS REQUIRING 4 POSTS, SPACE INTERMEDIATE POSTS EVENLY.

TEMPORARY TRAFFIC CONTROL
SIGN MOUNTING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



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

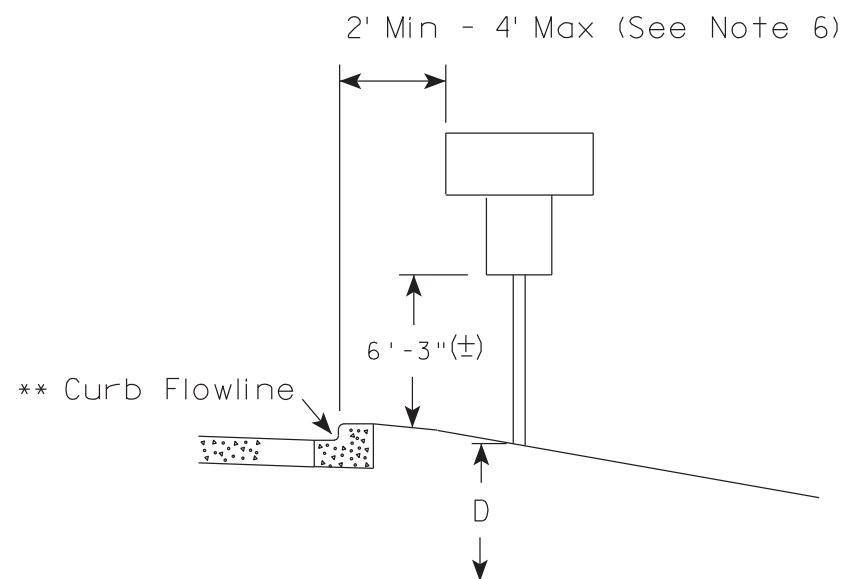
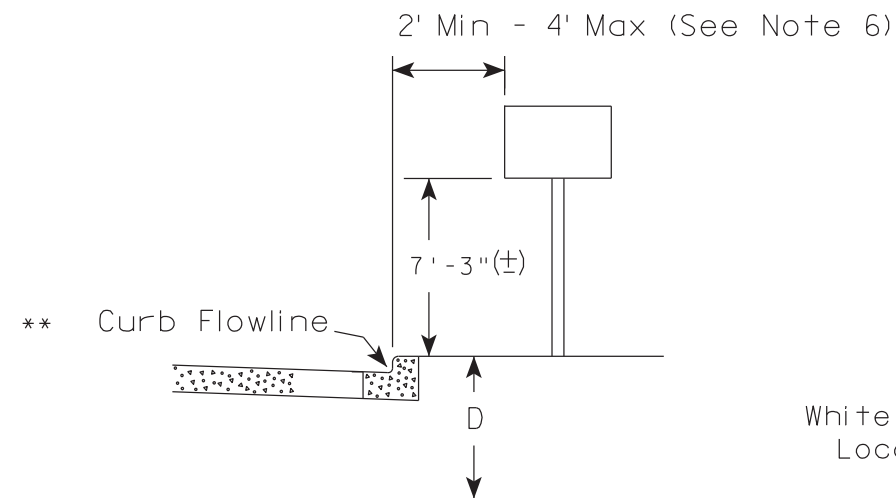
- SQUARE STEEL POSTS (2" x 2")
- MACHINE BOLTS - 3/8" x 3-1/4" LENGTH W/ NUTS
 - RIVETS - 9/32" (6605-9-6) BULB-TITE, TRI-FOLD, ALUMINUM BODY/MANDREL O.D. FLANGE .720-.765 INCH, GRIP RANGE .042-.375 INCH

- 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

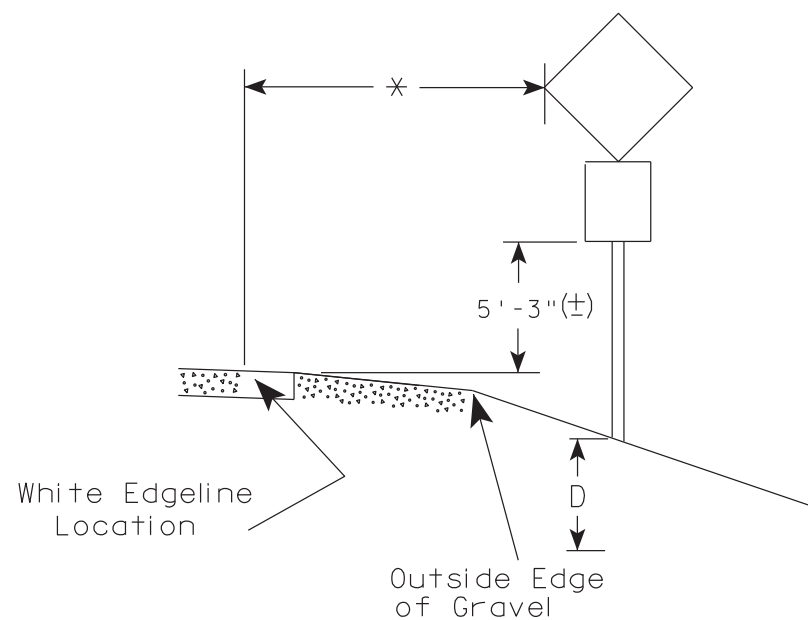
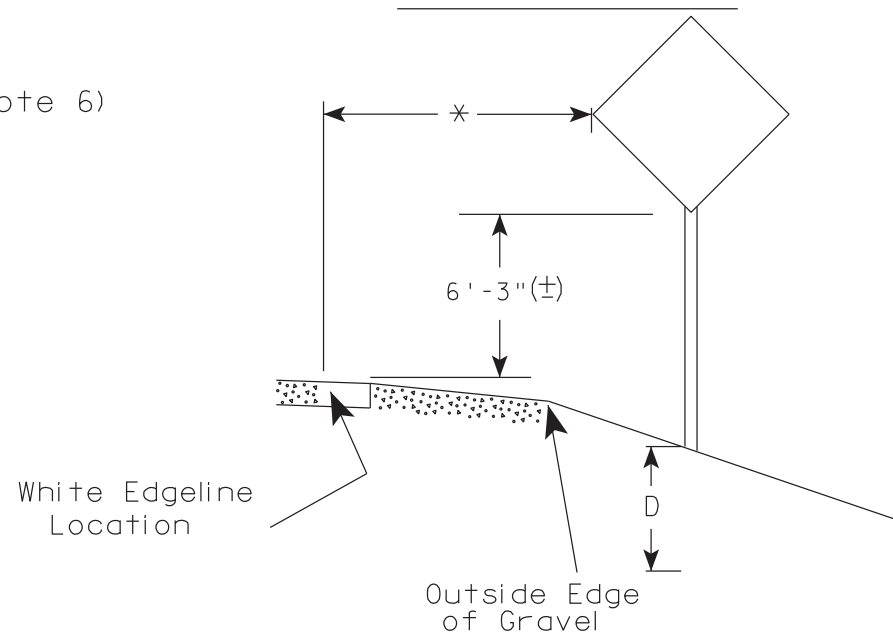
* TWO DIFFERENT FASTENING SYSTEMS ARE SHOWN FOR ILLUSTRATION PURPOSES. ON ANY INDIVIDUAL SIGN, EITHER ONE OR THE OTHER SYSTEM SHALL BE USED. ACTUAL NUMBER OF FASTENERS PER SIGN VARIES WITH THE SIGN AREA. FOR A SINGLE POST INSTALLATION, ALL SIGNS GREATER THAN 9 SQ. FT. REQUIRE THE USE OF 3 FASTENERS.

ATTACHMENT OF SIGNS TO POSTS	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED June 2017 DATE	/S/ Andrew Heldtke WORK ZONE ENGINEER
FHWA	

URBAN AREA



RURAL AREA (See Note 2)



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 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), In Road Object Markers (W5-54) & End of Road Markers (W5-56) shall be mounted at a height of 4'-3" (±).

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

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

TYPICAL INSTALLATION
OF PERMANENT TYPE II
SIGNS ON SINGLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

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

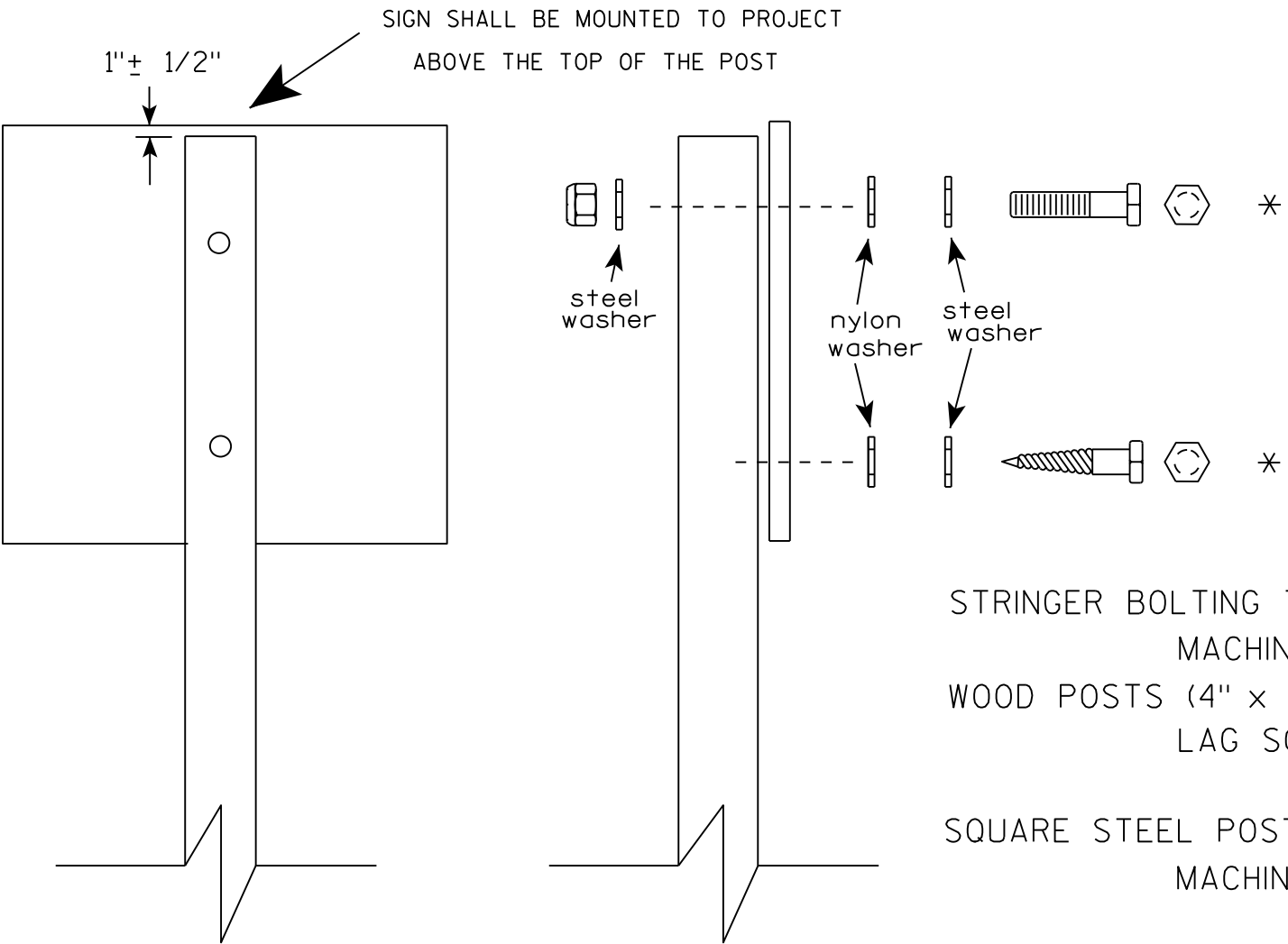
PROJECT NO: 9813-01-70

HWY: COLE ROAD

COUNTY: FOREST

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

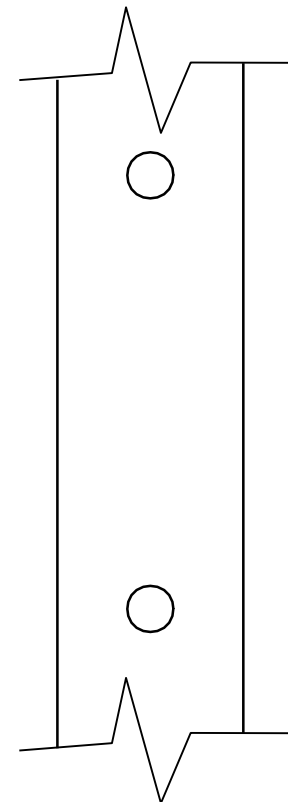
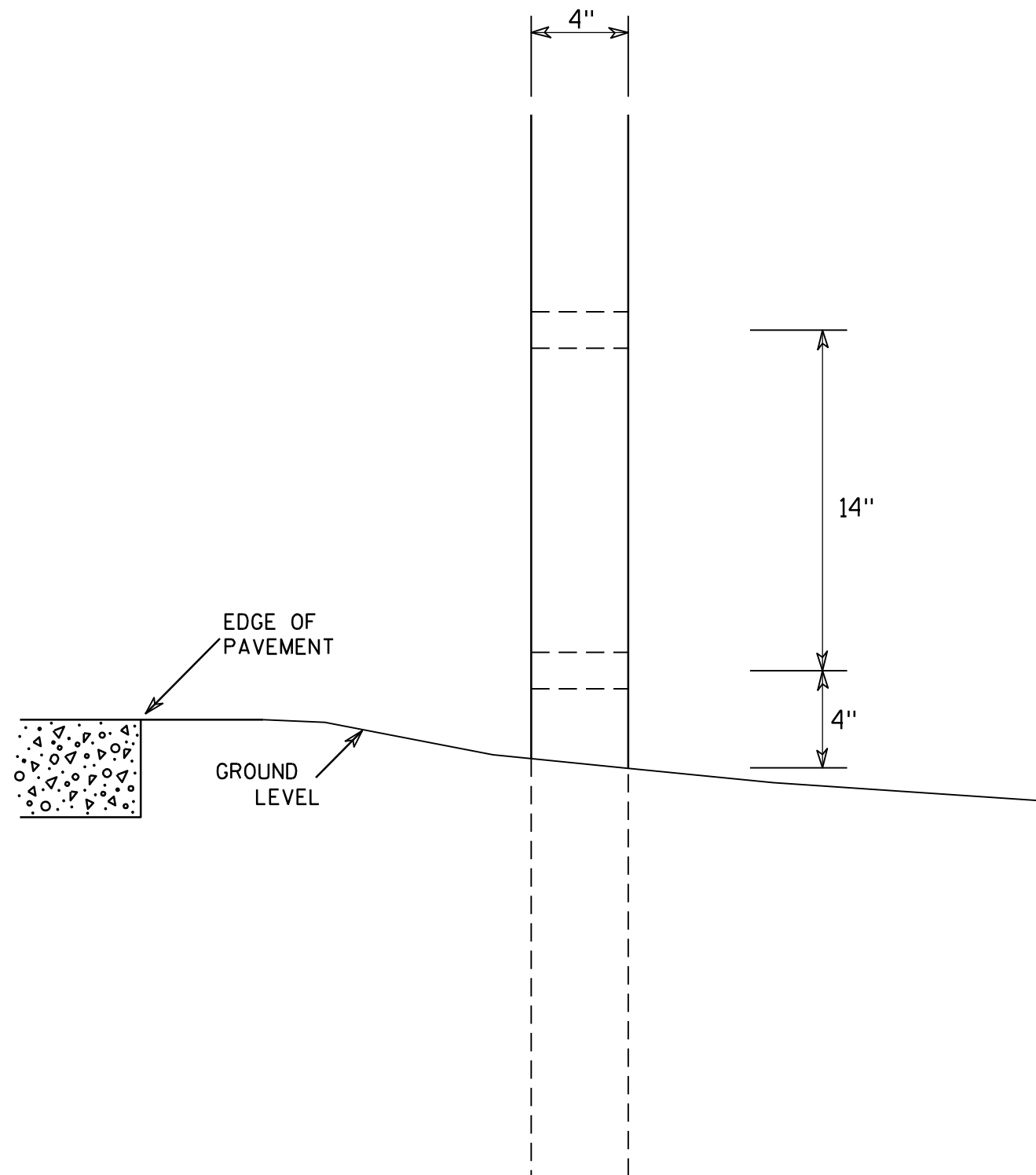
* Two different fastening systems are shown for illustration purposes. On any individual sign, either one or the other system shall be used. Actual number of fasteners per sign varies with the sign area, but normally there are two. For a single post installation, all signs greater than 9 sq. ft. require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



SIDE VIEW

GENERAL NOTES

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

4 X 6 WOOD POST MODIFICATIONS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED

Chester J. Spang
for State Traffic Engineer

DATE 3/27/97

PLATE NO. A4-11.2

PROJECT NO: 9813-01-70

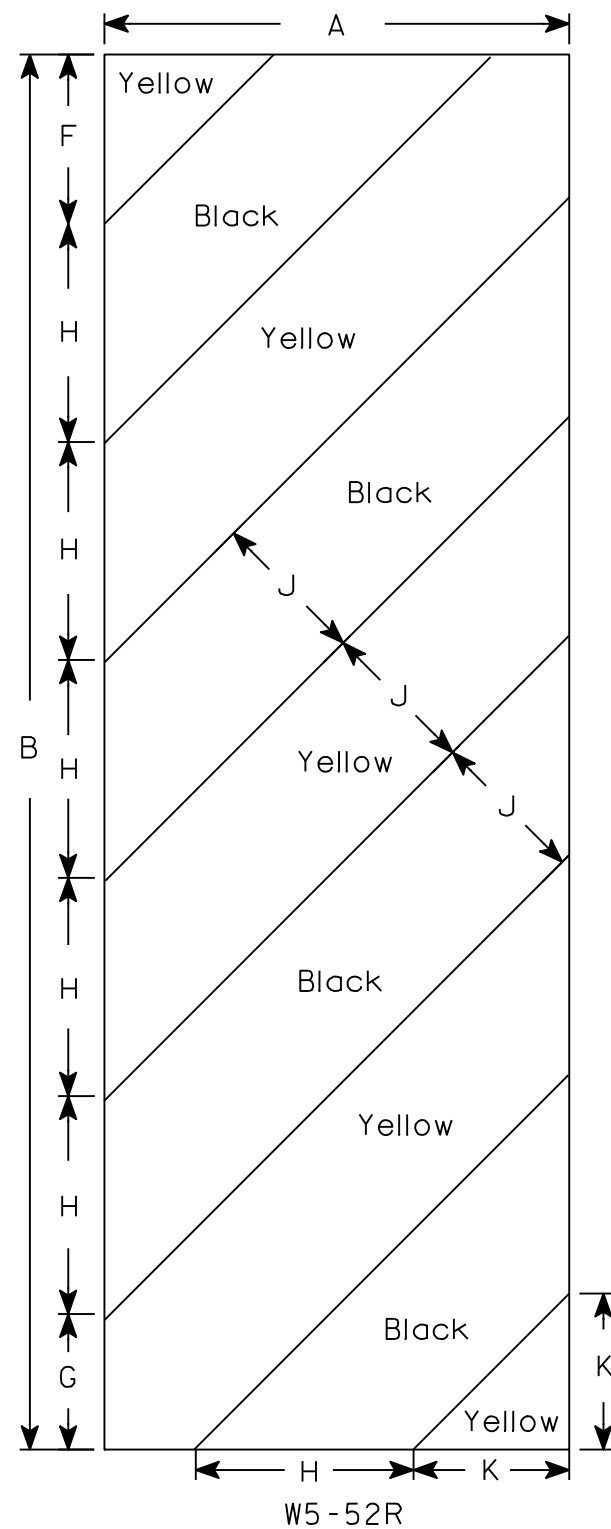
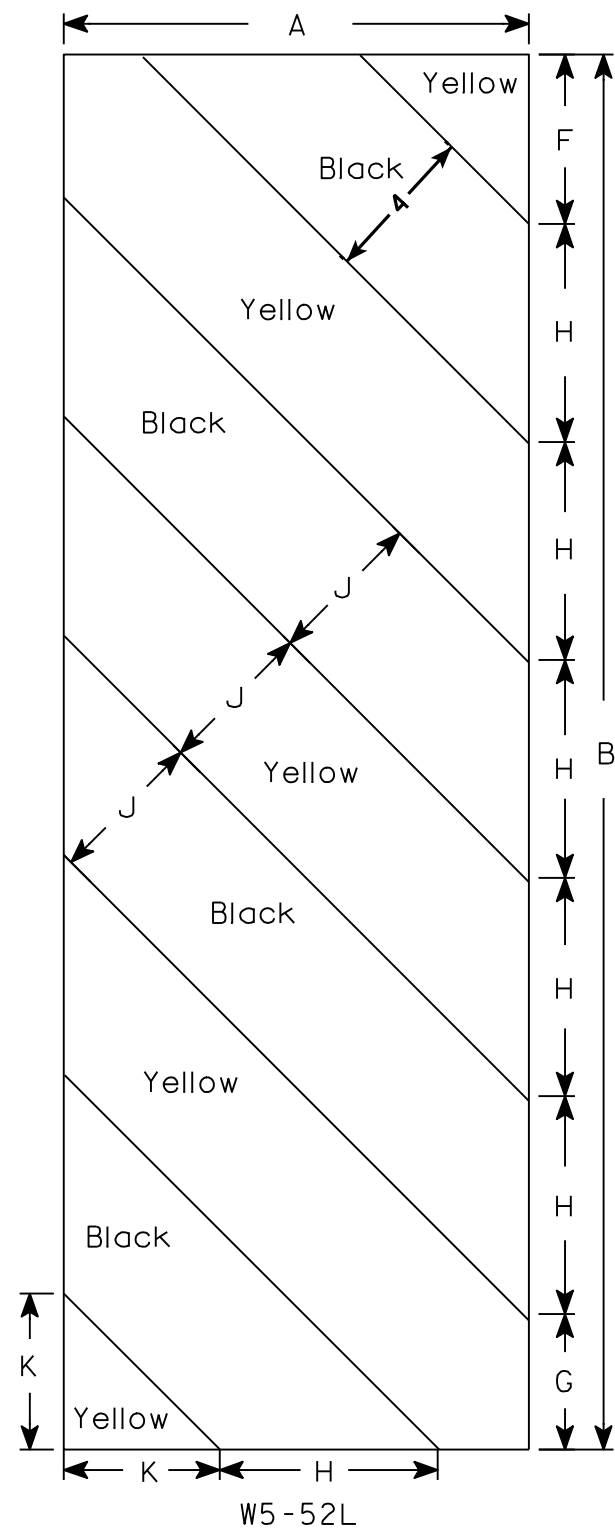
HWY: COLE ROAD

COUNTY: FOREST

SHEET NO:

E

7



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.

7

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 5⁄16																6.75
4																											
5																											

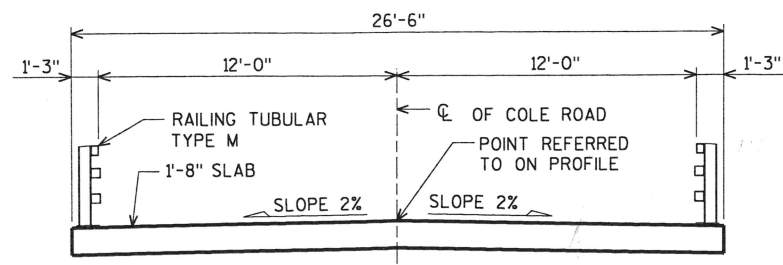
STANDARD SIGN
W5-52L & W5-52R

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

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

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



TYPICAL SECTION THRU BRIDGE

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.

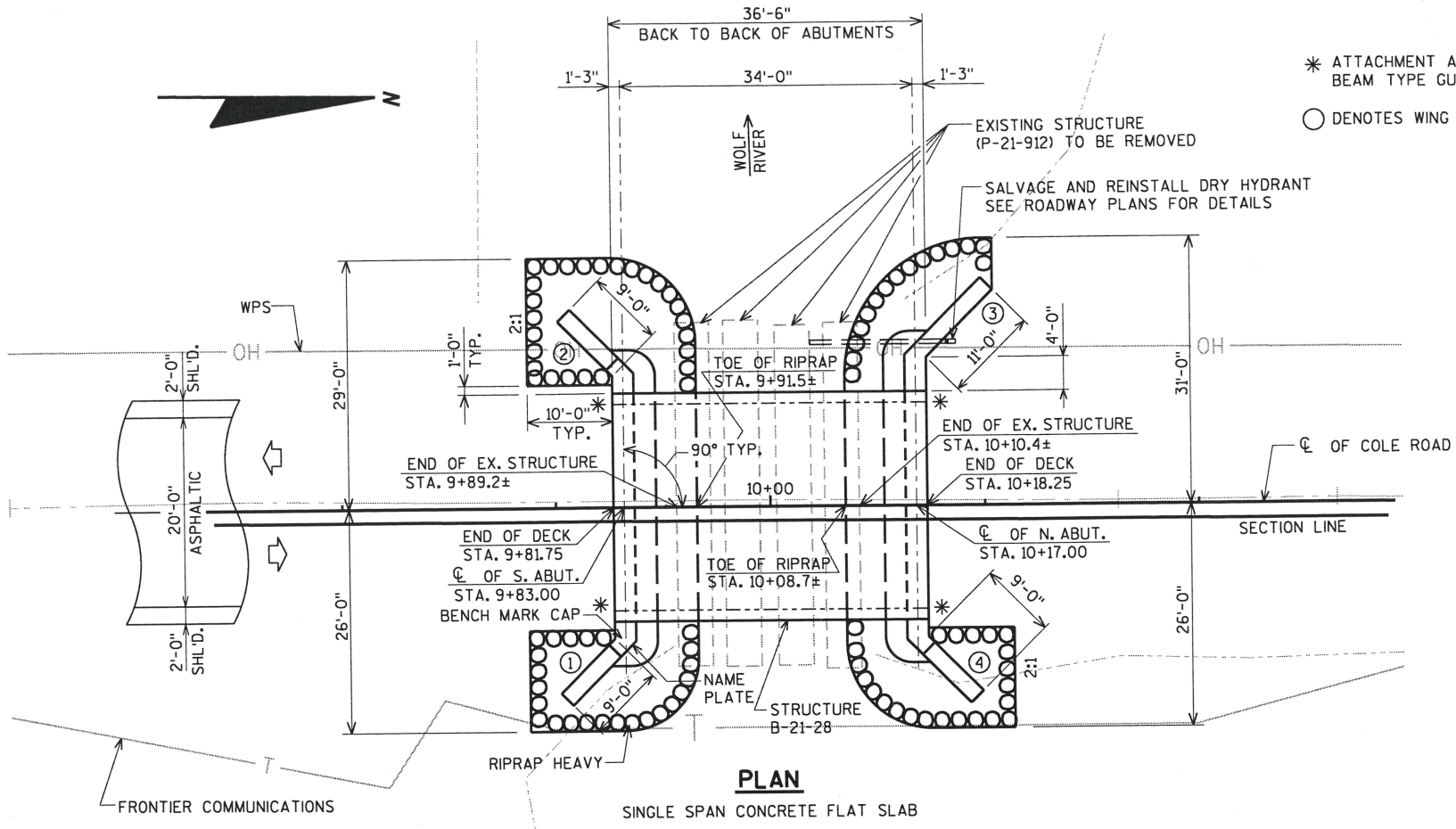
MATERIAL PROPERTIES:
CONCRETE MASONRY { SUPERSTRUCTURE f'c = 4,000 p.s.i.
ALL OTHER f'c = 3,500 p.s.i.
HIGH STRENGTH BAR STEEL REINFORCEMENT (GRADE 60) fy = 60,000 p.s.i.

HYDRAULIC DATA:
100 YEAR FREQUENCY
Q100 = 680 c.f.s.
VEL. = 8.9 f.p.s.
HW100 = EL. 1613.2
WATERWAY AREA = 76 sq. ft.
DRAINAGE AREA = 43.8 sq. mi.
SCOUR CRITICAL CODE = 8
DATUM = NAVD88 (2012)

2 YEAR FREQUENCY
Q2 = 268 c.f.s.
VEL. = 7.1 f.p.s.
HW2 = EL. 1611.3

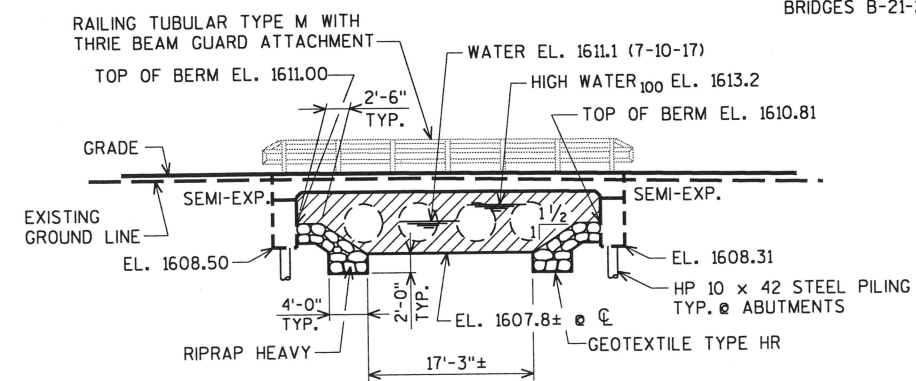
FOUNDATION DATA:
SOUTH ABUTMENT TO BE SUPPORTED ON HP 10 x 42 STEEL PILING WITH A REQUIRED DRIVING RESISTANCE OF 180 TONS ± PER PILE. ESTIMATED LENGTH OF 90'-0\"/>

TRAFFIC DATA:
A.A.D.T. = 160 (2019)
A.A.D.T. = 215 (2039)
R.D.S. = 40 M.P.H.

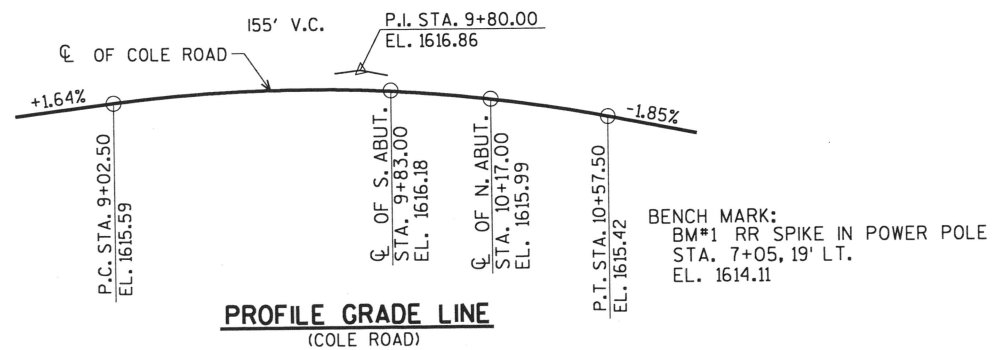


PLAN

COST OF EXCAVATION IN THE HATCHED AREAS SHALL BE INCLUDED IN THE CONTRACT LUMP SUM PRICE FOR "EXCAVATION FOR STRUCTURES BRIDGES B-21-28".



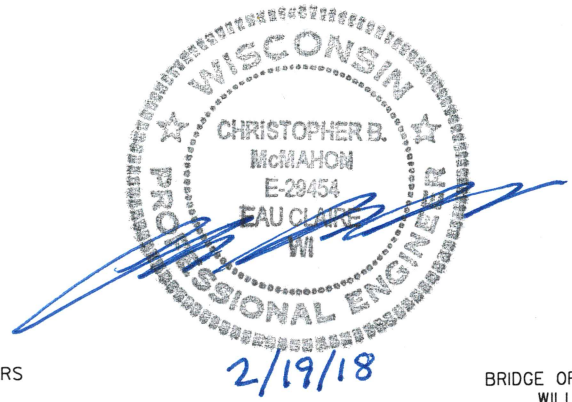
ELEVATION



PROFILE GRADE LINE
(COLE ROAD)

LIST OF DRAWINGS

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



BRIDGE OFFICE CONTACT:
WILLIAM DREHER
(608)-266-8489
CONSULTANT CONTACT:
CHRIS MCMAHON
(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> SR 05/17/18 CHIEF STRUCTURES DESIGN ENGINEER DATE			
STRUCTURE B-21-28			
COLE ROAD OVER THE WOLF RIVER			
COUNTY	FOREST	TOWN/CITY/VILLAGE	CRANDON
DESIGN SPEC. AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS			
DESIGNED BY	AEB	DESIGN CK'D. CJM	DRAWN BY CLS
GENERAL PLAN			PLANS CK'D. CBM
SHEET 1 OF 11			

\$PRNAME\$ U:\42-1084.00 - Forest Co.Cole Road over Wolf River\Structures\Find\421084 gp.dgn

DATE: DATE: DATE:
CHECKED BY: BACK CHECKED BY: CORRECTED BY:

\$PRNAME\$
U:\42-1084.00 - Forest Co. Cole Road over Wolf River\Structures\Final\421084 gp.dgn

STATE PROJECT NUMBER

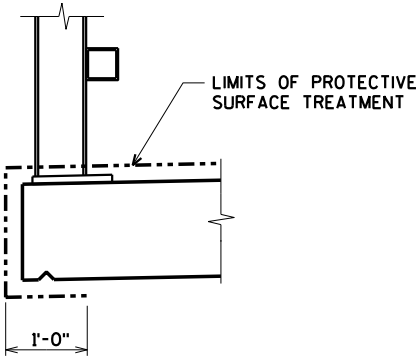
9813-01-70

TOTAL ESTIMATED QUANTITIES

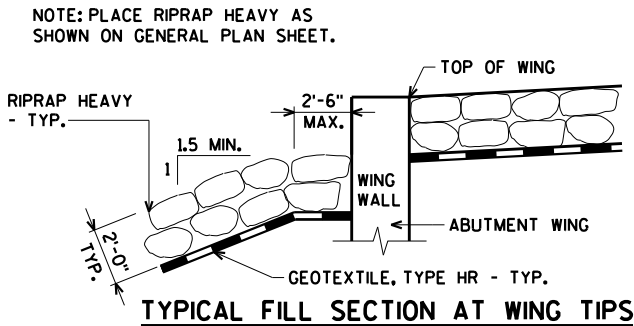
BID ITEM NUMBER	BID ITEMS	UNIT	S. ABUT.	N. ABUT.	SUPER.	TOTAL
203.0500.S	REMOVING OLD STRUCTURE OVER WATERWAY STATION 10+00	LS	-----	-----	-----	1
206.1000	EXCAVATION FOR STRUCTURES BRIDGES B-21-28	LS	-----	-----	-----	1
210.1500	BACKFILL STRUCTURE TYPE A	TON	160	180	-----	340
502.0100	CONCRETE MASONRY BRIDGES	CY	23	27	71	121
502.3200	PROTECTIVE SURFACE TREATMENT	SY	-----	-----	130	130
505.0400	BAR STEEL REINFORCEMENT HS STRUCTURES	LB	2,130	2,240	-----	4,370
505.0600	BAR STEEL REINFORCEMENT HS COATED STRUCTURES	LB	1,260	1,490	11,400	14,150
513.4061	RAILING TUBULAR TYPE M B-21-28	LF	-----	-----	74	74
516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	9	10	-----	19
550.1100	PILING STEEL HP 10-INCH x 42 LB	LF	540	630	-----	1,170
606.0300	RIPRAP HEAVY	CY	65	55	-----	120
612.0406	PIPE UNDERDRAIN WRAPPED 6-INCH	LF	73	77	-----	150
645.0111	GEOTEXTILE TYPE DF SCHEDULE A	SY	47	51	-----	98
645.0120	GEOTEXTILE TYPE HR	SY	130	115	-----	245
NON-BID ITEMS						
	FILLER	SIZE	-----	-----	-----	1/2" & 3/4"

GENERAL NOTES

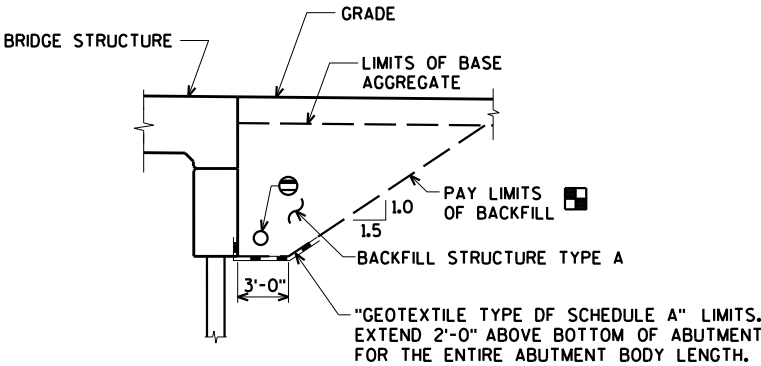
DRAWINGS SHALL NOT BE SCALED.
BAR STEEL REINFORCEMENT SHALL BE EMBEDDED 2" CLEAR UNLESS SHOWN OR NOTED OTHERWISE.
THE FIRST DIGIT OF A THREE DIGIT BAR NO. AND THE FIRST TWO DIGITS OF A FOUR DIGIT BAR NO. SIGNIFIES THE BAR SIZE.
JOINT FILLER SHALL CONFORM TO THE REQUIREMENTS OF A.A.S.H.T.O. DESIGNATION 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 TYPE HR TO THE EXTENT SHOWN ON THE GENERAL PLAN SHEET AND IN THE ABUTMENT DETAILS.
SLAB FALSEWORK SHALL BE SUPPORTED ON PILES OR THE SUBSTRUCTURE UNLESS AN ALTERNATIVE METHOD IS APPROVED BY THE ENGINEER.
THE UPPER LIMITS OF "EXCAVATION FOR STRUCTURES BRIDGES B-21-28" SHALL BE THE EXISTING GROUNDLINE.
THE EXISTING STRUCTURE, P-21-912, TO BE REMOVED, CONSISTS OF FOUR CORRUGATED METAL PIPES, 4 FT. DIA. x 40 FT. LONG WITH A 25 FT. CLEAR ROADWAY WIDTH.
AT THE BACK FACE OF ABUTMENTS, ALL VOLUME WHICH CANNOT BE PLACED BEFORE ABUTMENT CONSTRUCTION AND IS NOT OCCUPIED BY THE NEW STRUCTURE SHALL BE BACKFILLED WITH BACKFILL STRUCTURE TYPE A.
PROTECTIVE SURFACE TREATMENT IS TO BE APPLIED AS SHOWN IN DETAIL ON THIS SHEET.
BEVEL EXPOSED EDGES OF CONCRETE 3/4" UNLESS NOTED OTHERWISE.
EXCAVATION BELOW THE ABUTMENT AND ABUTMENT BEDDING MATERIALS REQUIRES ENGINEER APPROVAL. GEOTEXTILE SHALL BE SET AT THE BOTTOM OF EXCAVATION AND EXTEND 2'-0" ABOVE BOTTOM OF ABUTMENT.



PROTECTIVE SURFACE TREATMENT DETAIL

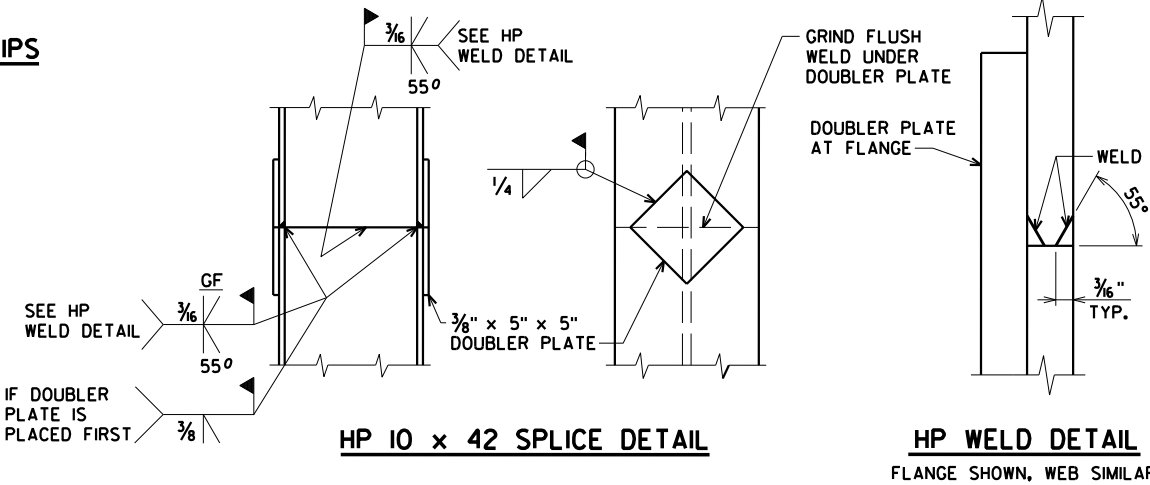


TYPICAL FILL SECTION AT WING TIPS



BACKFILL STRUCTURE LIMITS

- BACKFILL PAY LIMITS. BACKFILL BEYOND BACKFILL PAY LIMITS SHALL BE INCIDENTAL TO EXCAVATION FOR STRUCTURES. LIMITS OF EXCAVATION SHALL BE DETERMINED BY THE CONTRACTOR.
- PIPE UNDERDRAIN WRAPPED 6-INCH. SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. ATTACH RODENT SHIELD AT ENDS OF PIPE UNDERDRAIN AS DETAILED ON SHEET 5.



HP 10 x 42 SPLICE DETAIL

HP WELD DETAIL

FLANGE SHOWN, WEB SIMILAR

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-21-28			
DRAWN BY		CLS	PLANS CK'D. JLB
QUANTITIES AND NOTES		SHEET 2 OF 11	

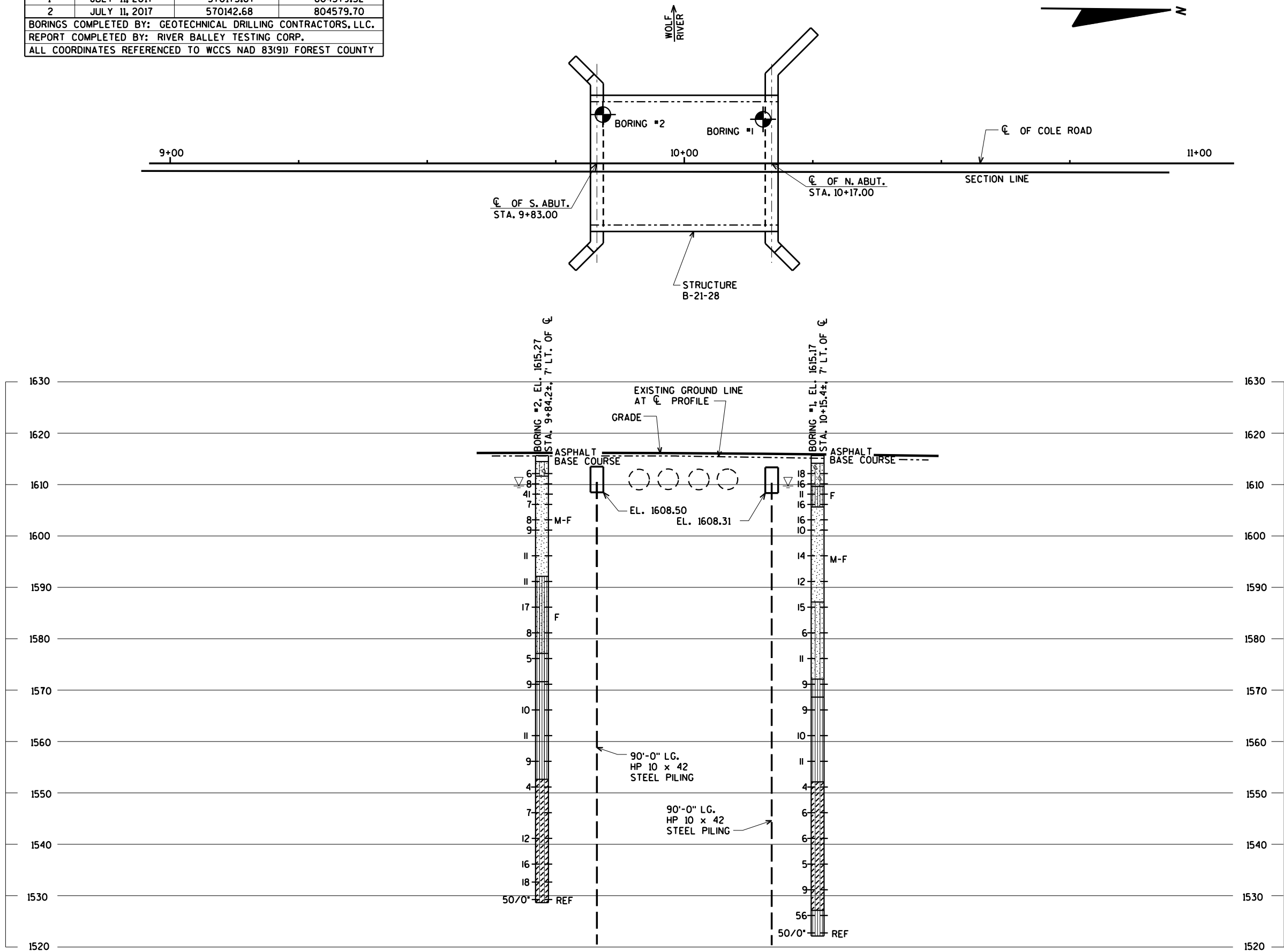
ORIGINAL PLANS PREPARED BY
AYRES ASSOCIATES
3433 Oakwood Hills Parkway
Eau Claire, WI 54701
www.AyresAssociates.com

\$PRNAME\$
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8

BORING #	DATE COMPLETED	NORTHING (Y)	EASTING (X)
1	JULY 11, 2017	570173.87	804579.52
2	JULY 11, 2017	570142.68	804579.70

BORINGS COMPLETED BY: GEOTECHNICAL DRILLING CONTRACTORS, LLC.
REPORT COMPLETED BY: RIVER VALLEY TESTING CORP.
ALL COORDINATES REFERENCED TO WCCS NAD 83(91) FOREST COUNTY



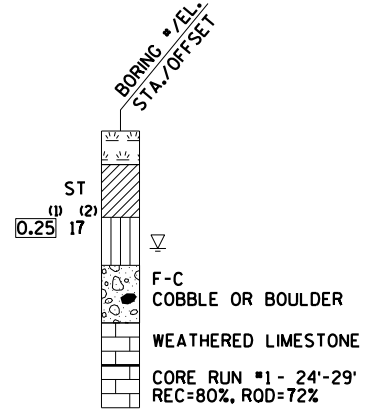
STATE PROJECT NUMBER

9813-01-70

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.

8

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-21-28			
DRAWN BY		CLS	PLANS CK'D. JLB
SUBSURFACE EXPLORATION		SHEET 3 OF 11	

Technical drawing of a bridge abutment cross-section. The drawing shows a rectangular structure with various reinforcement bars (A406, A407, A803, A502, A505, A501, A404) and a 18" rubberized membrane waterproofing. Dimensions include a total width of 2'-6" (split into two 1'-3" sections), a height of 7 SPA @ 6" = 3'-6" (plus 1'-5" and 2'-6" sections), and a 3" clearance at the base. Materials specified include 4" x 3/4" filler, 3/4" bevel, and riprap heavy. The top of the berm is at elevation 1611.00, and the top of the pile is also at elevation 1611.00. A geotextile type HR is shown at the base. A note indicates the abutment is to be supported on HP 10 x 42 steel piling driven to a required driving resistance of 140 tons per pile estimated length 90'-0".

CL OF S. ABUT.

18" RUBBERIZED MEMBRANE WATERPROOFING

A406

A407

4" x 3/4" FILLER

3/4" BEVEL

F.F. OF ABUTMENT

2'-6"

A502

A505

A501

TOP OF BERM EL. 1611.00

1/2

1

RIPRAP HEAVY

7 SPA @ 6" = 3'-6"

A502 F.F.

1'-5"

2 SPA @ 1'-0" = 2'-0" A404

A803 B.F.

A803

A404

3" CLR.

2'-6"

TOP OF PILE EL. 1611.00

GEOTEXTILE TYPE HR

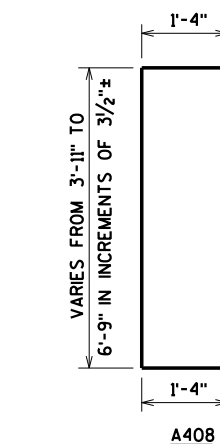
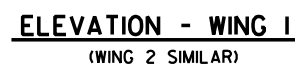
ABUTMENT TO BE SUPPORTED ON HP 10 x 42 STEEL PILING DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 140 TONS PER PILE ESTIMATED LENGTH 90'-0".

EXCAVATE OR FILL TO
BOTTOM OF ABUTMENT
BEFORE DRIVING PILES.

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

NO.	DATE	REVISION	BY
STRUCTURE B-21-28			
	DRAWN BY	CJM	PLANS CK'D. JLB
SOUTH ABUTMENT			SHEET 4 OF





THE RODENT SHIELD SHALL BE A 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 STAINLESS STEEL SHEET METAL SCREWS.

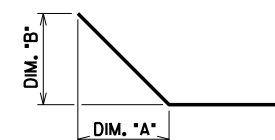
RODENT SHIELD DETAIL

BAR. NO.	COATED BAR	NO. REQ'D.	LENGTH	BENT BAR	BUNDLED	BAR SERIES	2,130" UNCOATED 1,260" COATED
							LOCATION
A501		64	5-9	X			BODY VERT. E.F.
A502		9	30-11				BODY HORIZ. F.F.
A803		18	21-9	X			BODY HORIZ. B.F.
A404		24	2-9	X			BODY TIES
A505		32	8-7	X			BODY VERT. TOP
A406		2	30-10				BODY HORIZ. TOP NOTCH
A407		19	3-5	X			BODY VERT. TOP NOTCH
A408	X	44	7-10	X		⊗	WINGS 1 & 2 VERT. E.F.
A409	X	8	9-6	X			WINGS 1 & 2 VERT. E.F.
A510	X	16	11-9	X			WINGS 1 & 2 HORIZ. F.F.
A811	X	16	13-1	X			WINGS 1 & 2 HORIZ. B.F.
A512	X	2	10-10	X			WINGS 1 & 2 HORIZ. F.F.
A813	X	2	12-2	X			WINGS 1 & 2 HORIZ. B.F.
A414	X	4	7-7				WINGS 1 & 2 HORIZ. E.F.
A415	X	4	5-11				WING 1 & 2 HORIZ. E.F.
A416	X	4	4-3				WING 1 & 2 HORIZ. E.F.
A417	X	4	10-9	X			WINGS 1 & 2 DIAG. E.F.
A418	X	8	8-4	X			WINGS 1 & 2 HORIZ.
A419	X	8	3-9				WINGS 1 & 2 VERT.

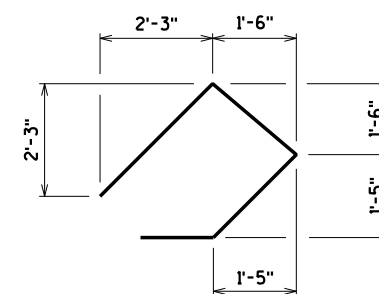
⊗ LENGTH SHOWN FOR BAR IS AN AVERAGE LENGTH AND SHOULD ONLY BE USED FOR BAR WEIGHT CALCULATIONS. SEE BAR SERIES TABLE FOR ACTUAL LENGTHS.

BAR MARK	NO REQ'D.	LENGTH
A408	4 SERIES OF 11	6'-5" TO 9'-3"

BUNDLE AND TAG EACH SERIES SEPARATELY.



BAR NO.	DIM. "A"	DIM. "B"
A803	1'-0 $\frac{3}{4}$ "	1'-0 $\frac{3}{4}$ "
A510	1'-0 $\frac{3}{4}$ "	1'-0 $\frac{3}{4}$ "
A811	1'-0 $\frac{3}{4}$ "	1'-0 $\frac{3}{4}$ "
A512	1'-0 $\frac{3}{4}$ "	1'-0 $\frac{3}{4}$ "
A813	1'-0 $\frac{3}{4}$ "	1'-0 $\frac{3}{4}$ "
A417	8'-0"	3'-2"



A418

E.F. DENOTES EACH FACE.

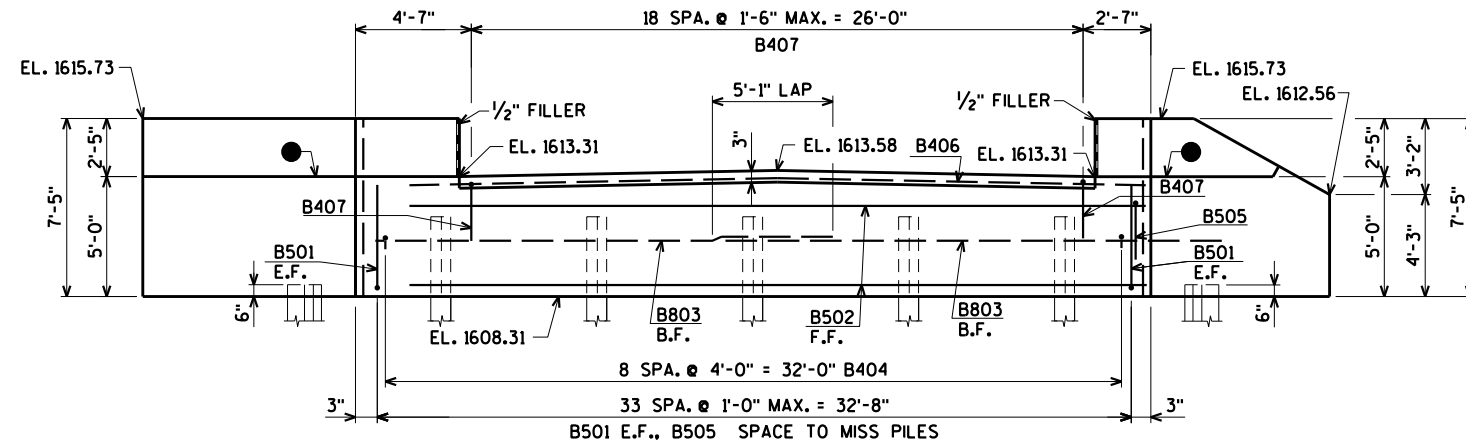
- ▲ ¾" 'V' GROOVE ON F.F. OF WINGWALL - NOT REQUIRED IF CONST. JT. IS NOT USED.
- OPT. KEYED CONST. JOINT - FORMED BY A BEVELED 2" x 6".
- ▲ 18" RUBBERIZED MEMBRANE WATERPROOFING TO EXTEND FROM BEAM SEAT TO TOP OF WINGWALL.
- 18" RUBBERIZED MEMBRANE WATERPROOFING ON BACK FACE. NOT REQUIRED IF CONST. JT. IS NOT USED.

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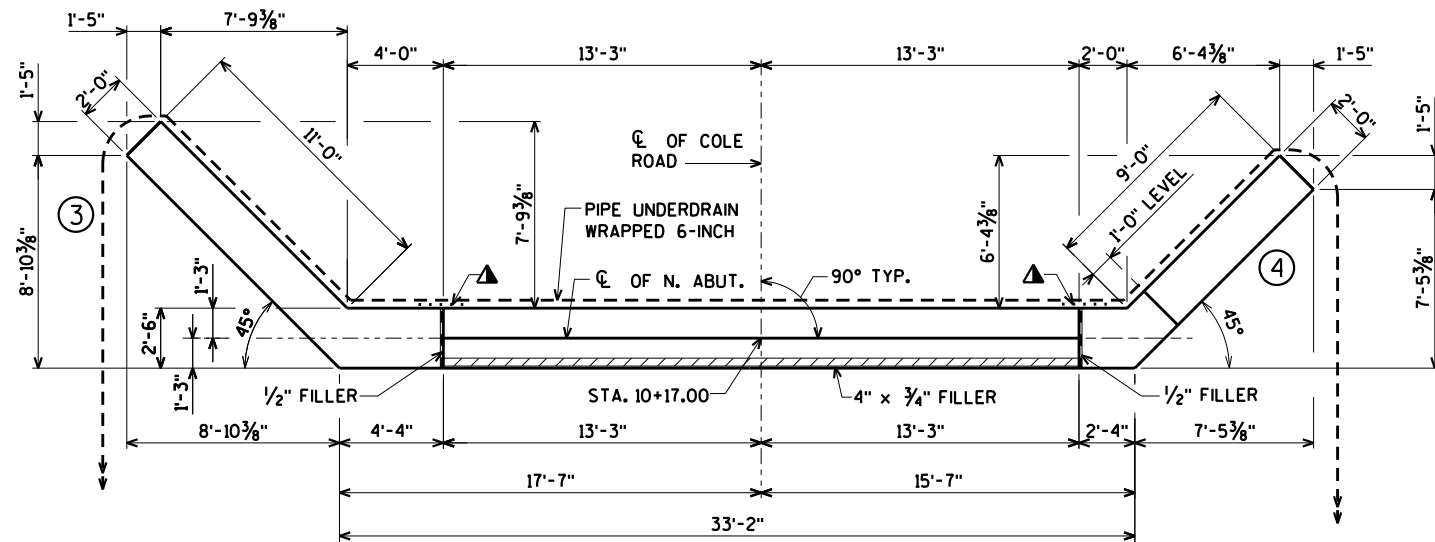
STATE PROJECT NUMBER

9813-01-70

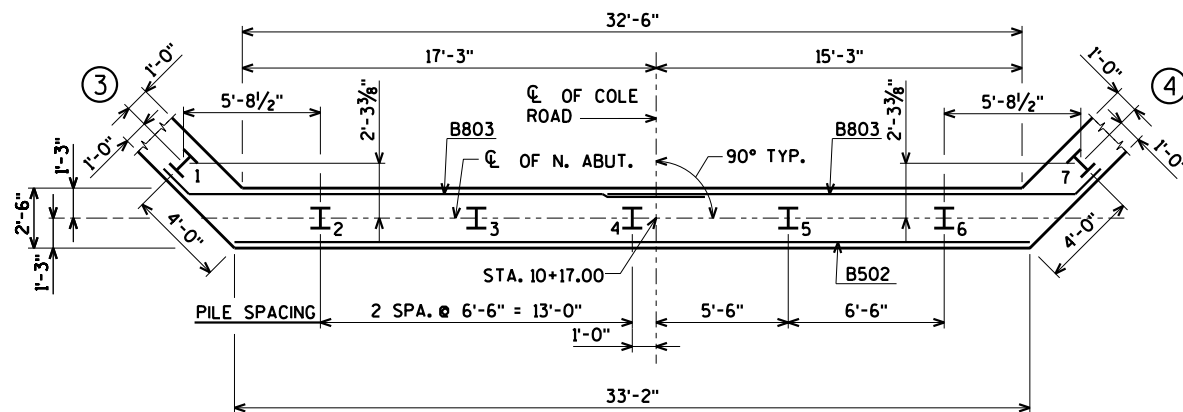
NOTE: SEAL ALL EXPOSED HORIZONTAL AND VERTICAL SURFACES OF
1/2" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT
SEALER. (1" DEEP AND HOLD 1/8" BELOW SURFACE OF CONCRETE.)



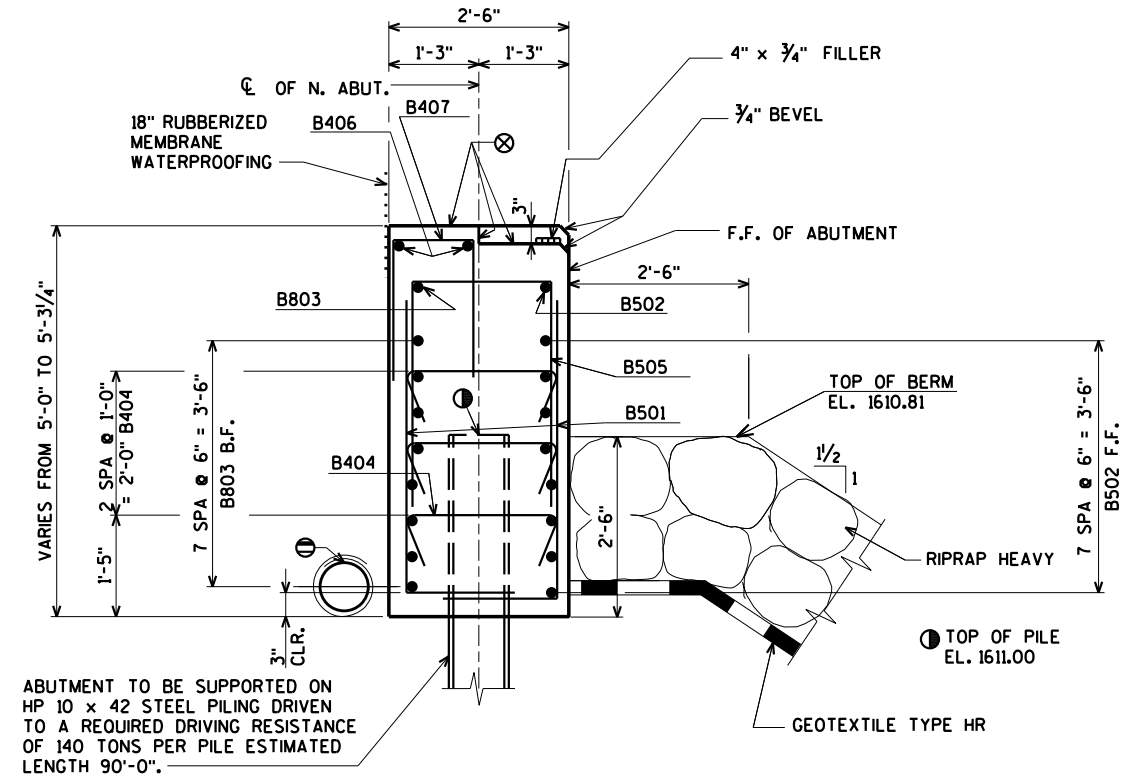
ELEVATION
(LOOKING NORTH)



PLAN



PILE LAYOUT



TYPICAL SECTION THRU BODY

NOTE: DO NOT PLACE FILL ABOVE
THREE FEET FROM BOTTOM OF
ABUTMENT UNTIL SUPERSTRUCTURE
IS IN PLACE.

EXCAVATE OR FILL TO
BOTTOM OF ABUTMENT
BEFORE DRIVING PILES.

⊗ STEEL TROWEL TOP SURFACE OF ABUTMENT.
PLACE MULTIPLE LAYERS OF POLYETHYLENE
SHEETS OVER ENTIRE ABUTMENT TOP BEFORE
PLACING SUPERSTRUCTURE. TOTAL THICKNESS
OF SHEETS SHALL BE AT LEAST 0.03".

⊖ PIPE UNDERDRAIN WRAPPED 6-INCH. SLOPE 0.5%
MIN. TO SUITABLE DRAINAGE. ATTACH RODENT
SHIELD AT ENDS OF PIPE UNDERDRAIN. FOR
RODENT SHIELD DETAIL SEE SHEET 5.

● OPT. KEYED CONST. JOINT - FORMED
BY A BEVELED 2' x 6'.

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

FOR PILE SPLICE DETAIL SEE SHEET 3.

B.F. DENOTES BACK FACE.

F.F. DENOTES FRONT FACE.

E.F. DENOTES EACH FACE.

ORIGINAL PLANS PREPARED BY

AYRES
ASSOCIATES

3433 Oakwood Hills Parkway
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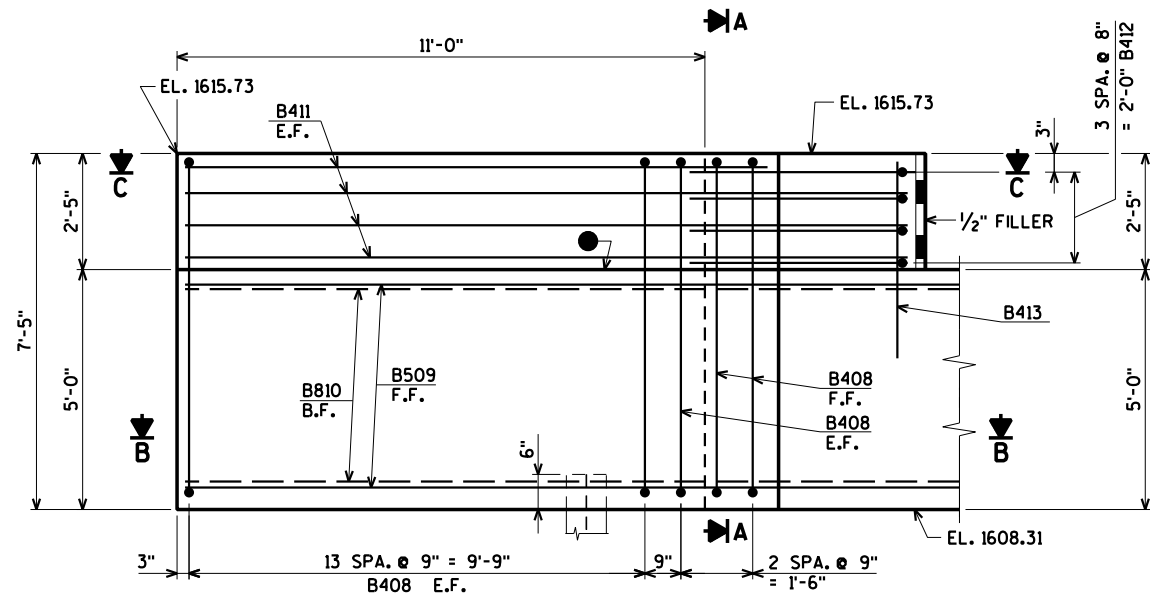
NO.	DATE	REVISION	BY
STRUCTURE B-21-28			
DRAWN BY CJM		PLANS CK'D. JLB	
NORTH ABUTMENT		SHEET 6 OF 11	

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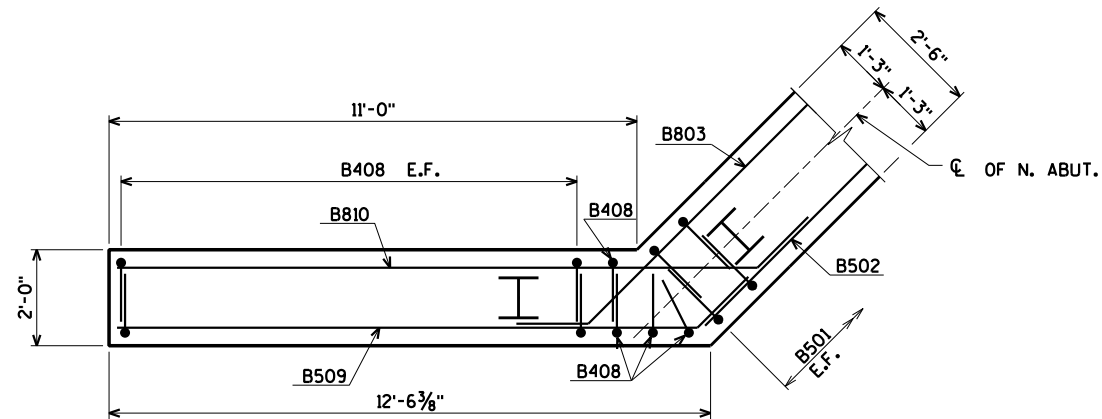
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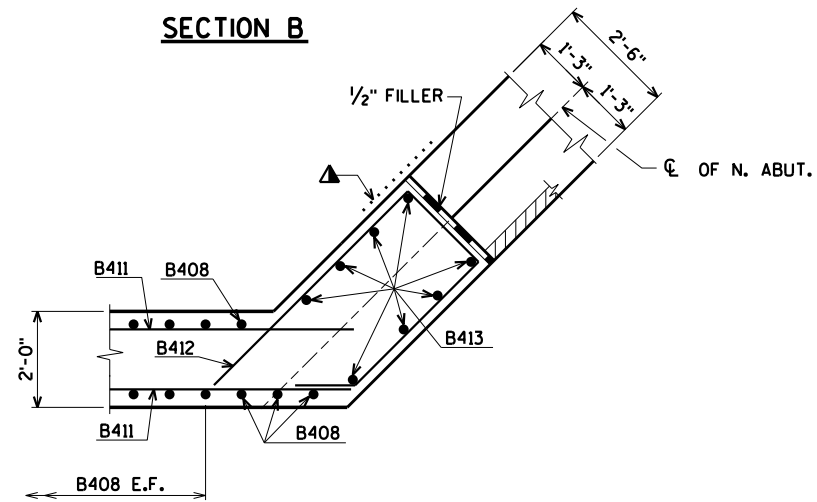
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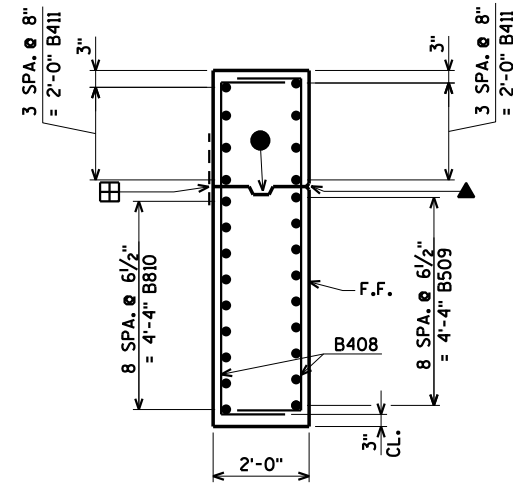
ELEVATION - WING 3



SECTION B



SECTION C



SECTION A

- ▲ 3/4" 'V' GROOVE ON F.F. OF WINGWALL - NOT REQUIRED IF CONST. JT. IS NOT USED.
 - OPT. KEYED CONST. JOINT - FORMED BY A BEVELED 2" x 6".
 - ▲ 18" RUBBERIZED MEMBRANE WATERPROOFING TO EXTEND FROM BEAM SEAT TO TOP OF WINGWALL.
 - 18" RUBBERIZED MEMBRANE WATERPROOFING ON BACK FACE. NOT REQUIRED IF CONST. JT. IS NOT USED.
- FOR PILE SPLICE DETAIL SEE SHEET 3.
- B.F. DENOTES BACK FACE.
- F.F. DENOTES FRONT FACE.
- E.F. DENOTES EACH FACE.

8

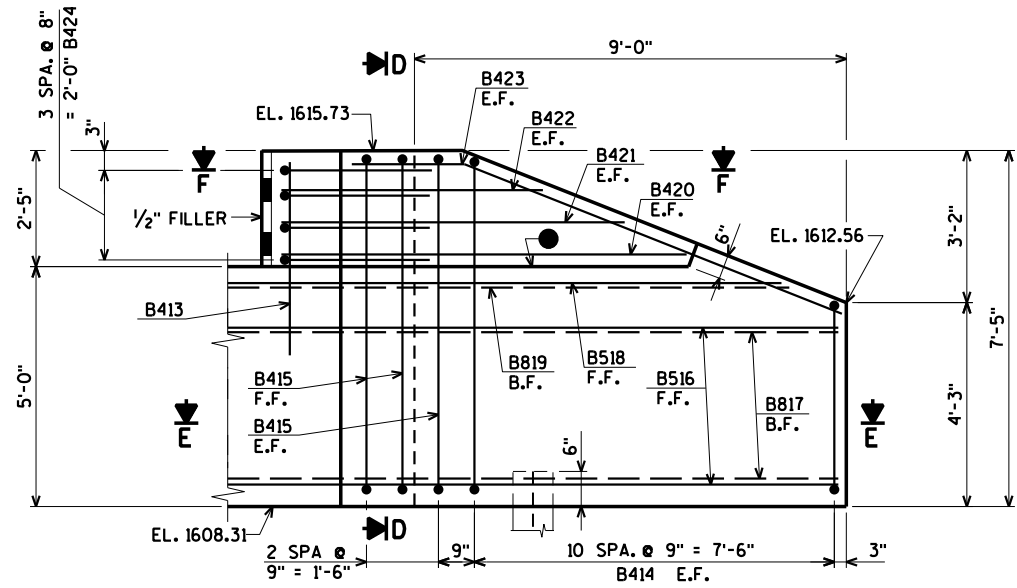
NO.	DATE	REVISION	BY
STRUCTURE B-21-28			
DRAWN BY		CJM	PLANS CK'D. JLB
NORTH ABUTMENT WING 3 DETAILS			SHEET 7 OF 11

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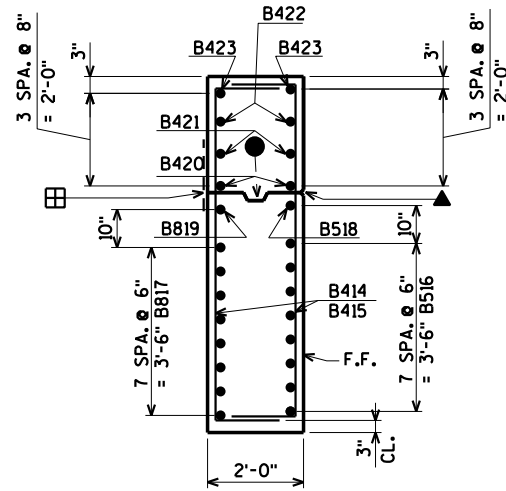
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Ut42-1084.00 - Forest Co. Cole Road over Wolf River Structures#Find421084 na.dgn

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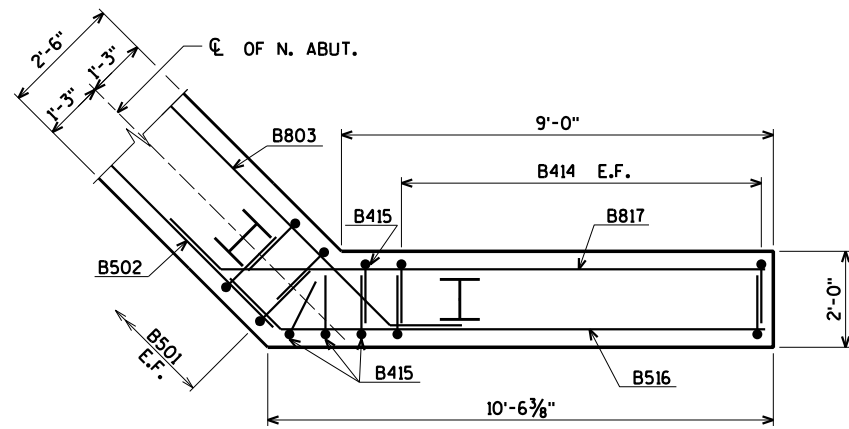
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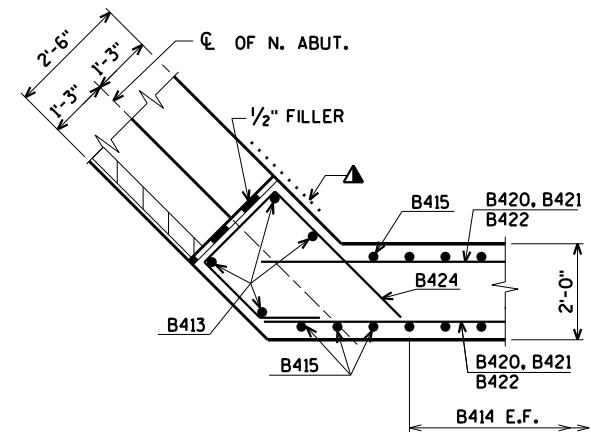
ELEVATION - WING 4



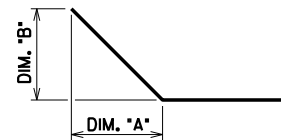
SECTION D



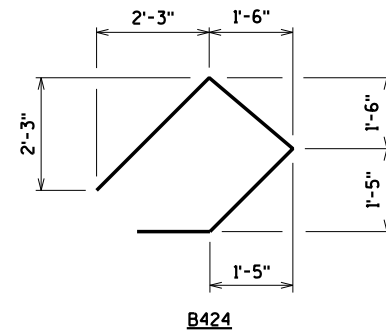
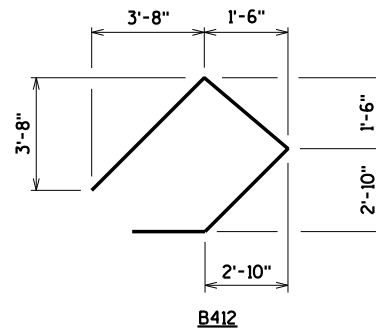
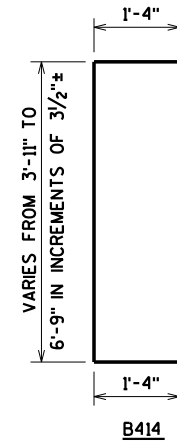
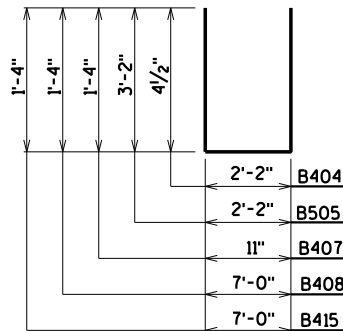
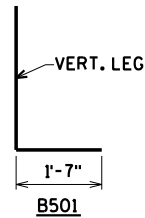
SECTION E



SECTION F



BAR NO.	DIM. "A"	DIM. "B"
B803	1'-0 3/4"	1'-0 3/4"
B509	1'-0 3/4"	1'-0 3/4"
B810	1'-0 3/4"	1'-0 3/4"
B516	1'-0 3/4"	1'-0 3/4"
B517	1'-0 3/4"	1'-0 3/4"
B818	1'-0 3/4"	1'-0 3/4"
B519	1'-0 3/4"	1'-0 3/4"
B423	8'-0"	3'-2"



BILL OF BARS

BAR NO.	COATED BAR	NO. REQ'D.	LENGTH	BENT BAR	BUNDLE	BAR SERIES	2,240# UNCOATED 1,490# COATED
							LOCATION
B501		68	5-9	X			BODY VERT. E.F.
B502		9	32-11				BODY HORIZ. F.F.
B803		18	22-9	X			BODY HORIZ. B.F.
B404		27	2-9	X			BODY TIES
B505		34	8-3	X			BODY VERT. TOP
B406		2	32-10				BODY HORIZ. TOP NOTCH
B407		19	3-5	X			BODY VERT. TOP NOTCH
B408	X	32	9-6	X			WING 3 VERT. E.F.
B509	X	9	13-9	X			WING 3 HORIZ. F.F.
B810	X	9	15-5	X			WING 3 HORIZ. B.F.
B411	X	12	12-2				WING 3 HORIZ. E.F.
B412	X	4	12-4	X			WING 3 HORIZ.
B413	X	12	3-9				WINGS 3 & 4 VERT.
B414	X	22	7-10	X	⊗		WING 4 VERT. E.F.
B415	X	4	9-6	X			WING 4 VERT. E.F.
B516	X	8	11-9	X			WING 4 HORIZ. F.F.
B817	X	8	13-1	X			WING 4 HORIZ. B.F.
B518	X	1	10-10	X			WING 4 HORIZ. F.F.
B819	X	1	12-2	X			WING 4 HORIZ. B.F.
B420	X	2	7-7				WING 4 HORIZ. E.F.
B421	X	2	5-11				WING 4 HORIZ. E.F.
B422	X	2	4-3				WING 4 HORIZ. E.F.
B423	X	2	10-9	X			WING 4 DIAG. E.F.
B424	X	4	8-4	X			WING 4 HORIZ.

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
B414	2 SERIES OF 11	6'-5" TO 9'-3"

BUNDLE AND TAG EACH SERIES SEPARATELY.

▲ 3/4" 'V' GROOVE ON F.F. OF WINGWALL - NOT REQUIRED IF CONST. JT. IS NOT USED.

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

▲ 18" RUBBERIZED MEMBRANE WATERPROOFING TO EXTEND FROM BEAM SEAT TO TOP OF WINGWALL.

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

FOR PILE SPLICE DETAIL SEE SHEET 3.

B.F. DENOTES BACK FACE.

F.F. DENOTES FRONT FACE.

E.F. DENOTES EACH FACE.

NO.	DATE	REVISION	BY
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STRUCTURE B-21-28

DRAWN BY CJM PLANS CK'D. JLB

NORTH ABUTMENT
WING 4 DETAILS
& BILL OF BARS

SHEET 8 OF 11

ORIGINAL PLANS PREPARED BY
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Eau Claire, WI 54701
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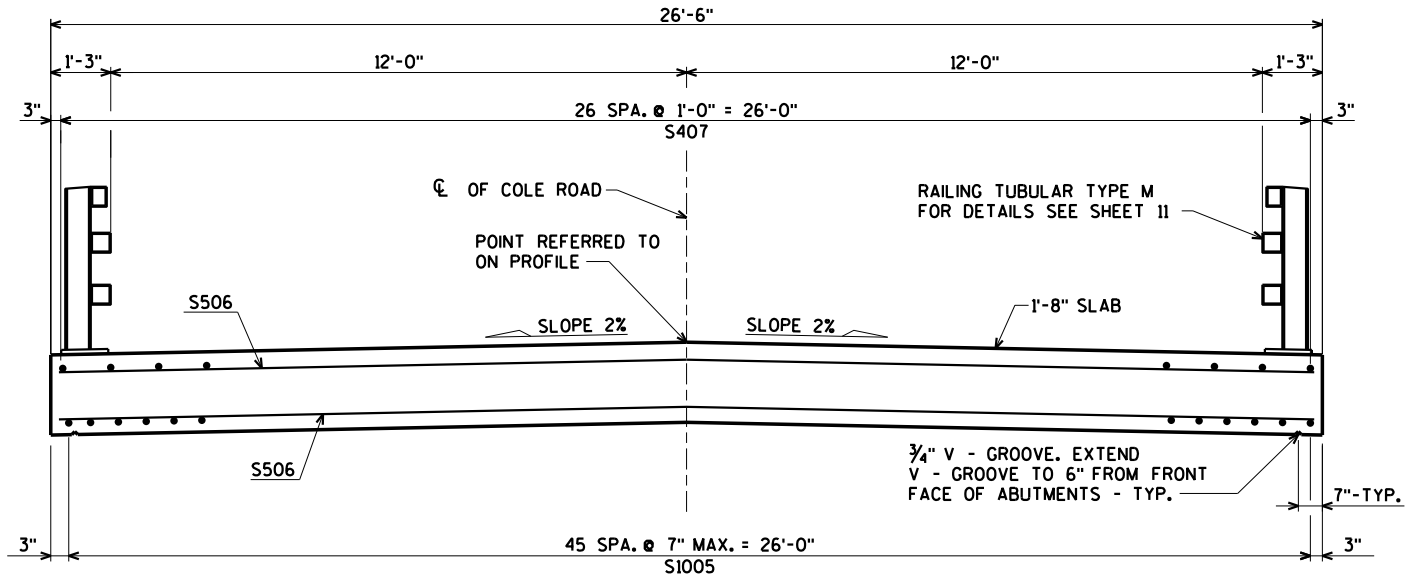
BILL OF BARS

BAR. NO.	COATED BAR	NO. REQ'D.	LENGTH	BENT BAR	BUNDLED BAR SERIES	11,400* COATED
						LOCATION
S401	X	54	3-3	X		SLAB VERT. @ ABUT. NOTCH
S402	X	4	26-2			SLAB TRANS. @ ABUT. NOTCH
S503	X	54	6-0	X		SLAB VERT. @ ABUT.
S504	X	54	3-5	X		SLAB VERT. @ ABUT.
S1005	X	46	31-6			SLAB LONG. BOT.
S506	X	102	26-2			SLAB TRANS. BOT. & TOP
S407	X	27	36-2			SLAB LONG. TOP
S608	X	28	12-0	X		SLAB @ RAIL POSTS
S609	X	40	6-0			SLAB @ INT. RAIL POSTS
S610	X	16	6-0	X		SLAB @ END RAIL POSTS

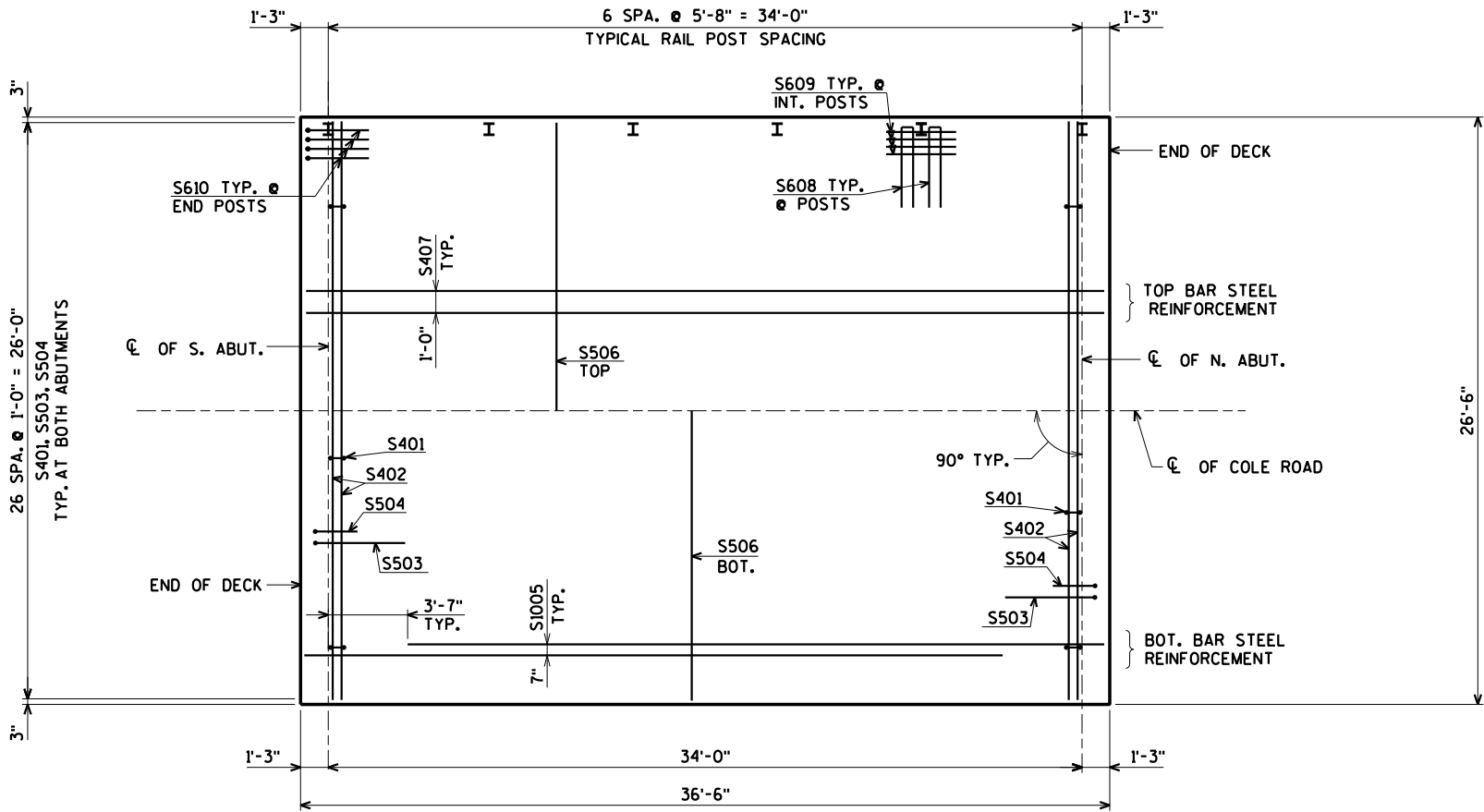
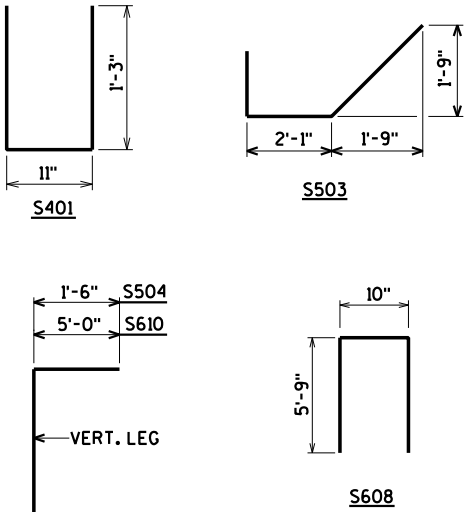
BENDING DIMENSIONS ARE OUT TO OUT OF BARS.

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

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



CROSS SECTION THRU BRIDGE
(LOOKING NORTH)



PLAN

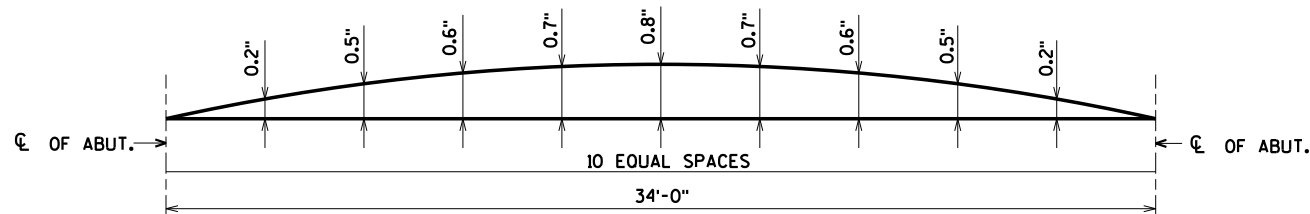
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-21-28			
DRAWN BY CJM		PLANS CK'D. JLB	
SUPERSTRUCTURE			SHEET 9 OF 11

ORIGINAL PLANS PREPARED BY
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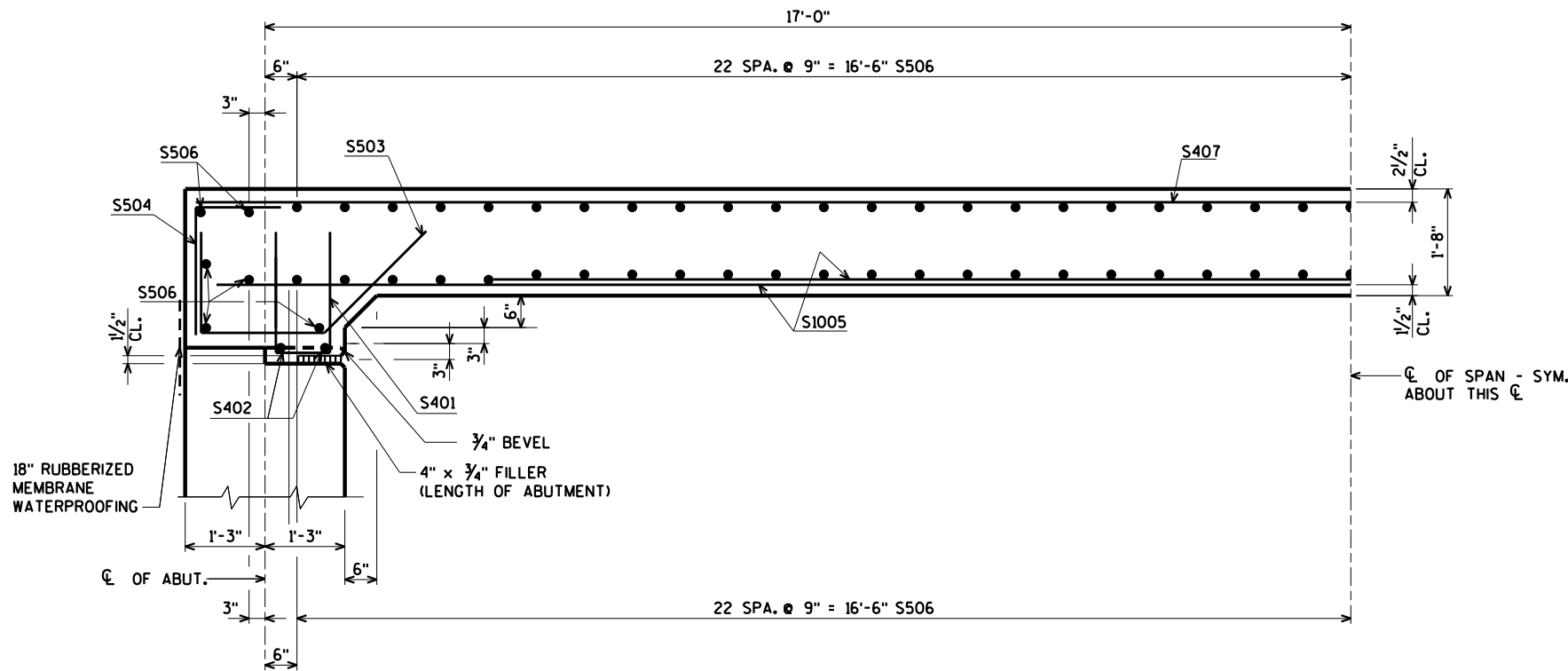
9813-01-70



CAMBER DIAGRAM

CAMBER SPANS 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 CL OF ABUTMENTS, AND AT 1/2 PT. TO VERIFY CAMBER, TAKE ELEVATIONS ALONG EDGE OF SLAB AND CROWN OR CL.



PART LONGITUDINAL SECTION

TOP OF DECK ELEVATIONS

LOCATION	CL OF S. ABUT.	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	CL OF N. ABUT.
W. EDGE OF SLAB	1615.92	1615.91	1615.90	1615.89	1615.87	1615.85	1615.83	1615.81	1615.79	1615.76	1615.73
CL OF COLE ROAD	1616.18	1616.17	1616.16	1616.15	1616.14	1616.12	1616.10	1616.08	1616.15	1616.02	1615.99
E. EDGE OF SLAB	1615.92	1615.91	1615.90	1615.89	1615.87	1615.85	1615.83	1615.81	1615.79	1615.76	1615.73

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

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NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-21-28			
DRAWN BY CJM		PLANS CK'D. JLB	
SUPERSTRUCTURE DETAILS			SHEET 10 OF 11

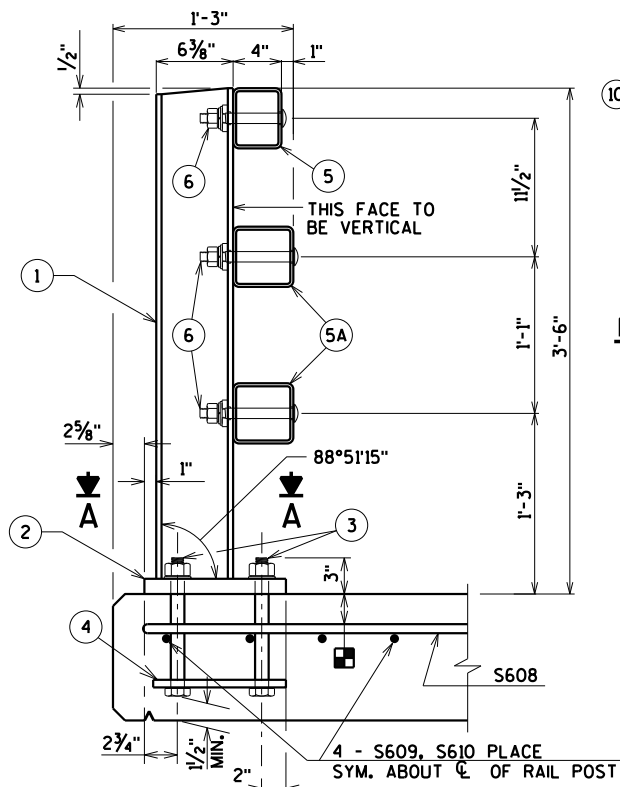
\$PRJNAME\$ Ut42-1084.00 - Forest Co. Cole Road over Wolf River Structures Final 421084 rail.dgn

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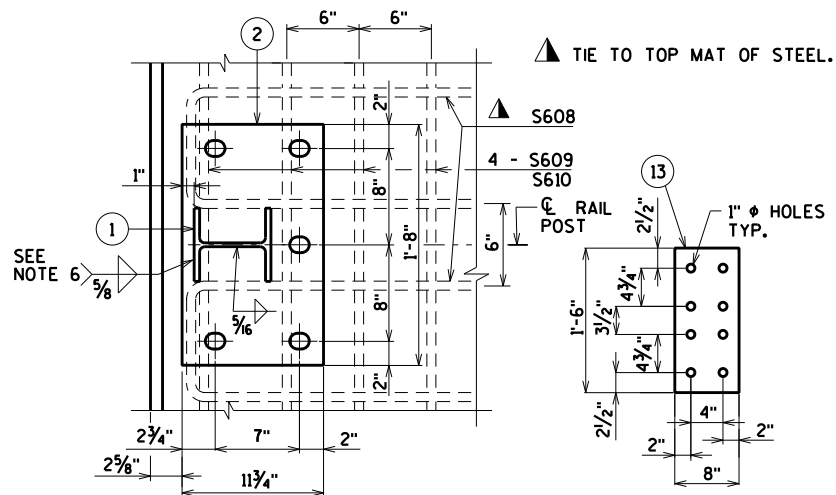
LEGEND

- 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" A325 ROUND HEAD BOLT WITH NUT, WASHER, AND LOCK WASHER. USE 1 5/8" x 1/4" LONGIT. SLOTTED HOLES AT FIELD JOINTS ~~AND 1 5/8" x 2 1/4" MIN. LONGIT. SLOTTED HOLES AT EXP. JOINTS IN PLATE NO. 10A.~~
- 7/8" DIA. x 1 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" 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.

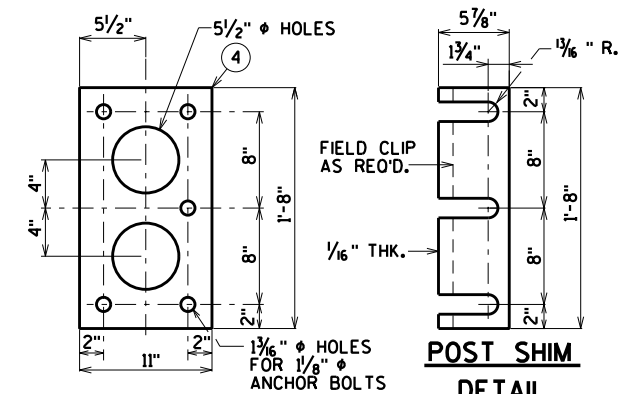


SECTION THRU RAILING ON DECK

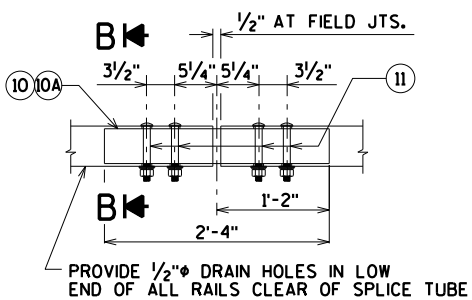
PLACE BELOW TOP MAT SLAB REINFORCEMENT.



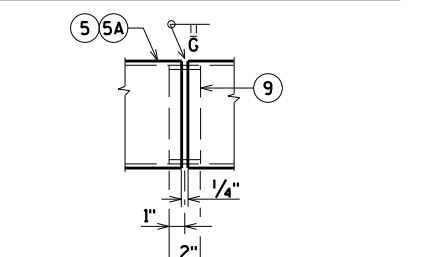
SECTION A



ANCHOR PLATE (AT RAIL TO DECK CONNECTION)

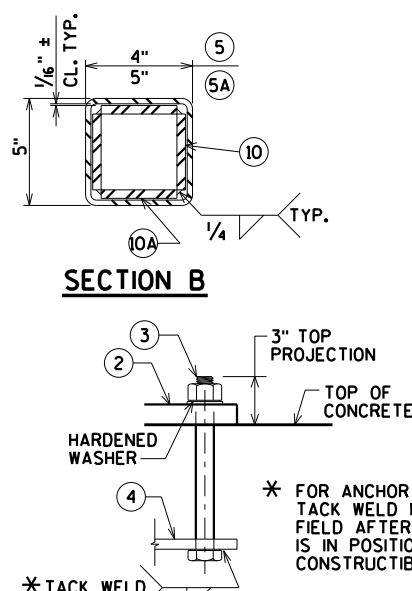


FIELD ERECTION JOINT DETAIL

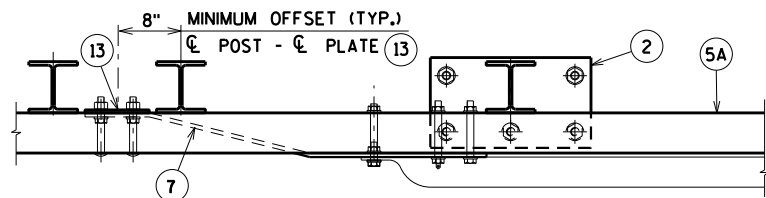


SHOP RAIL SPICE DETAIL

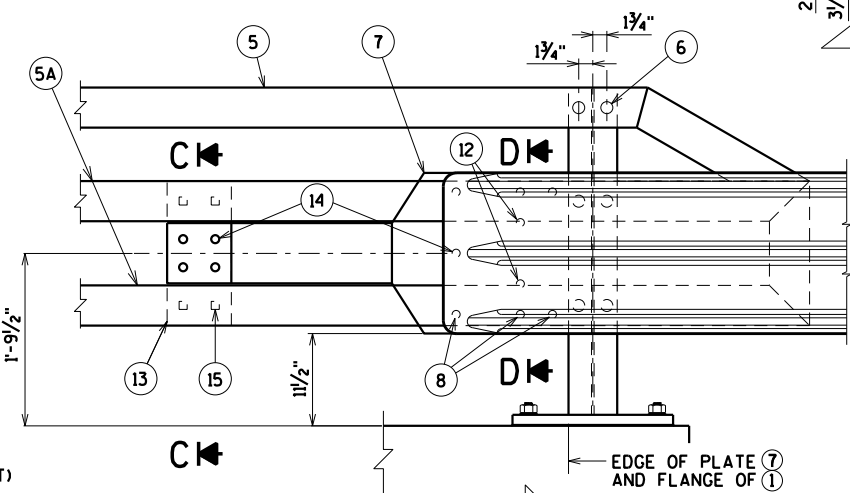
(LOCATION MUST BE SHOWN ON THE SHOP DRAWINGS)



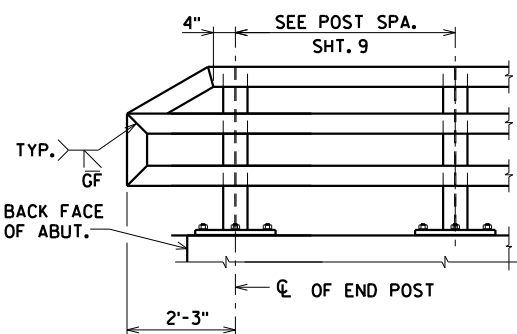
ANCHOR BOLTS



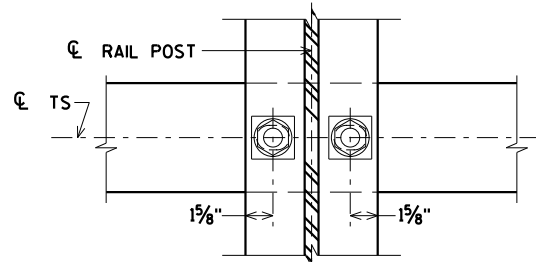
TOP VIEW AT END POST (THRIE BEAM RAIL ATTACHMENT)



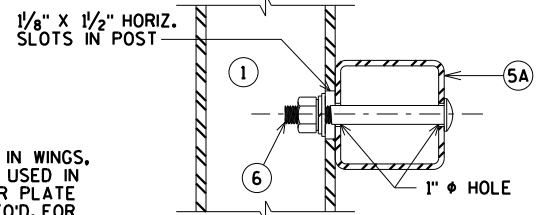
DETAIL AT END POST (THRIE BEAM RAIL ATTACHMENT)



PART ELEVATION OF RAILING



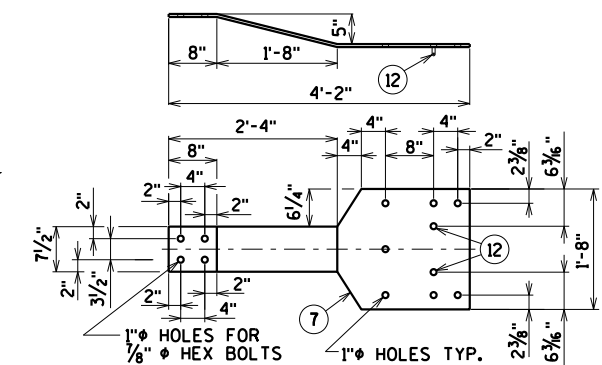
SECTION THRU POST WEB



SECTION THRU RAIL

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

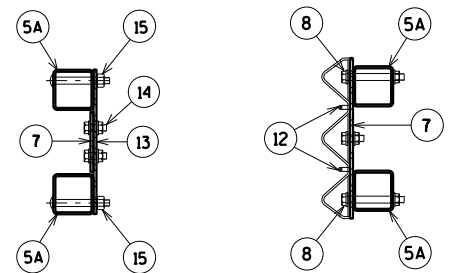
TYPICAL RAIL TO POST CONNECTIONS



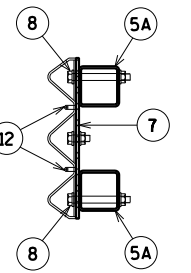
BACK-UP PLATE DETAIL (AT BEAM GUARD ATTACHMENT)

GENERAL NOTES

- BID ITEM SHALL BE "RAILING TUBULAR TYPE M B-21-28" 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.
- WHEN PAINTING IS REQUIRED, ALL MATERIAL EXCEPT ANCHORAGE DETAIL (NO. 3 & 4) SHALL BE PAINTED OVER GALVANIZING WITH APPROVED TIE COAT AND TOP COAT.
- SEE BRIDGE MANUAL 30.2 FOR ALLOWED USE.
- PLACE FIRST BOTTOM LONGITUDINAL BAR CLEAR OF DRIP GROOVE.



SECTION C



SECTION D

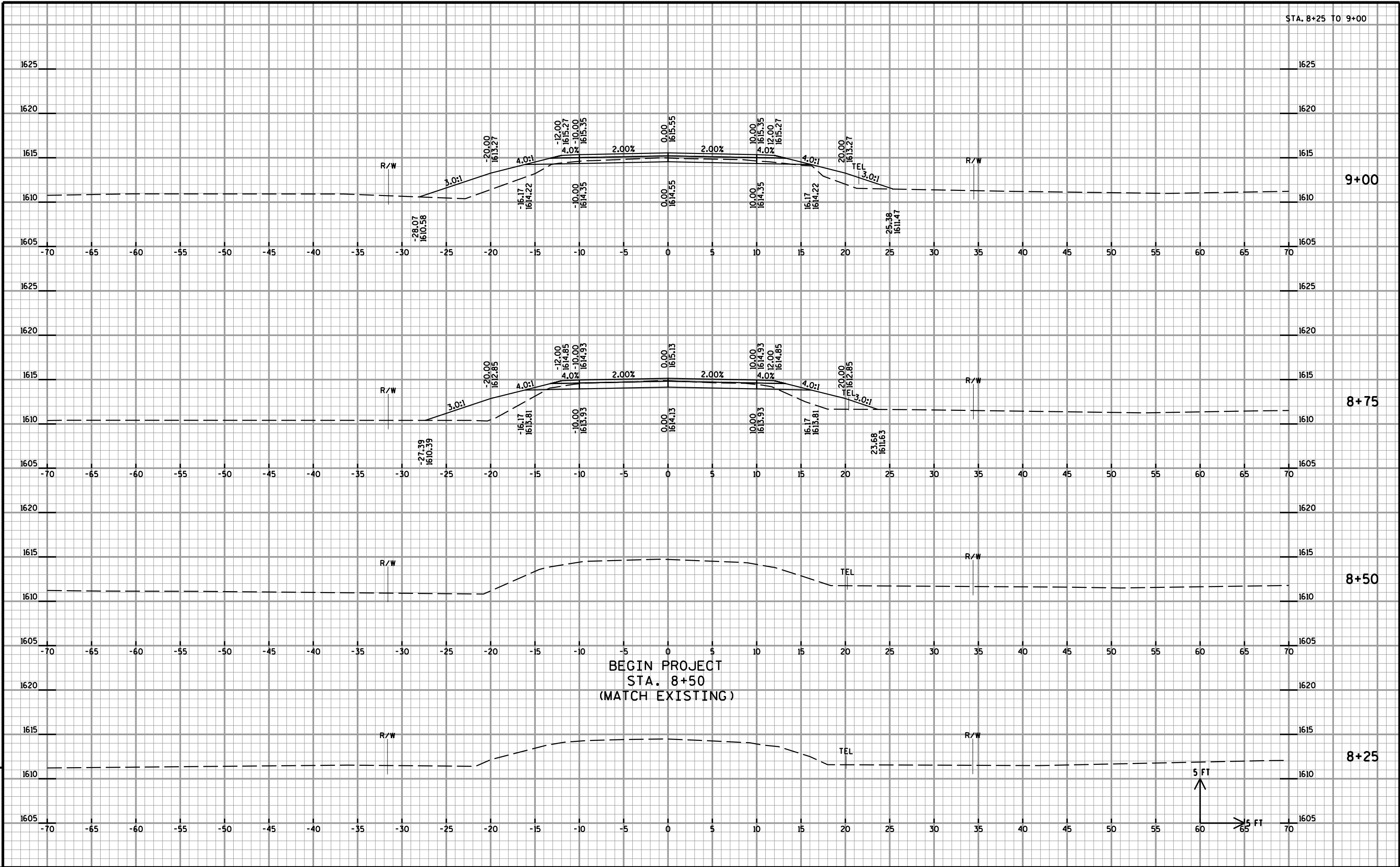
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-21-28			
DRAWN BY		CJM	PLANS CK'D. JLB
RAILING TUBULAR TYPE M		SHEET 11 OF 11	

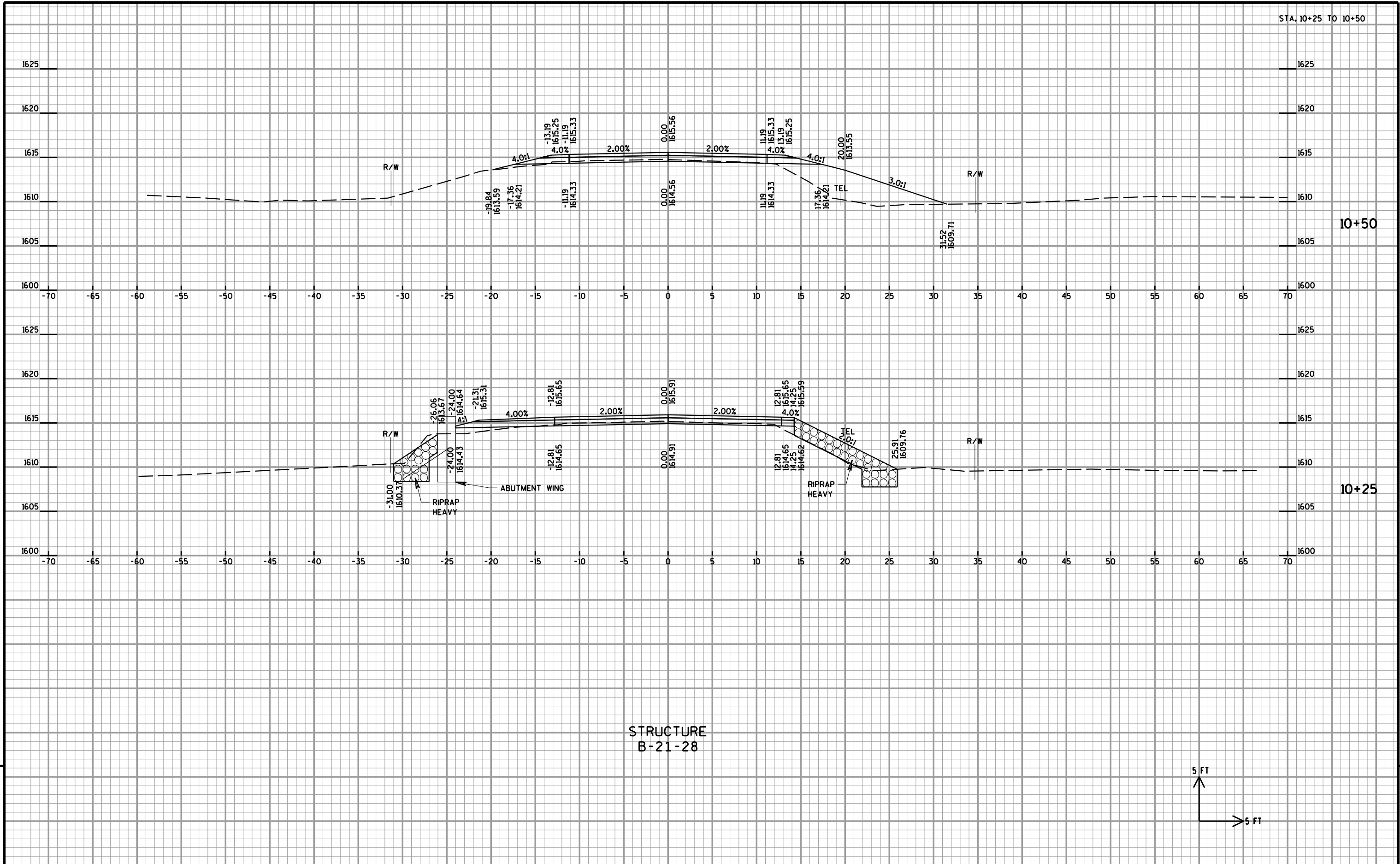
ORIGINAL PLANS PREPARED BY
AYRES ASSOCIATES
3433 Oakwood Hills Parkway
Eau Claire, WI 54701
www.AyresAssociates.com

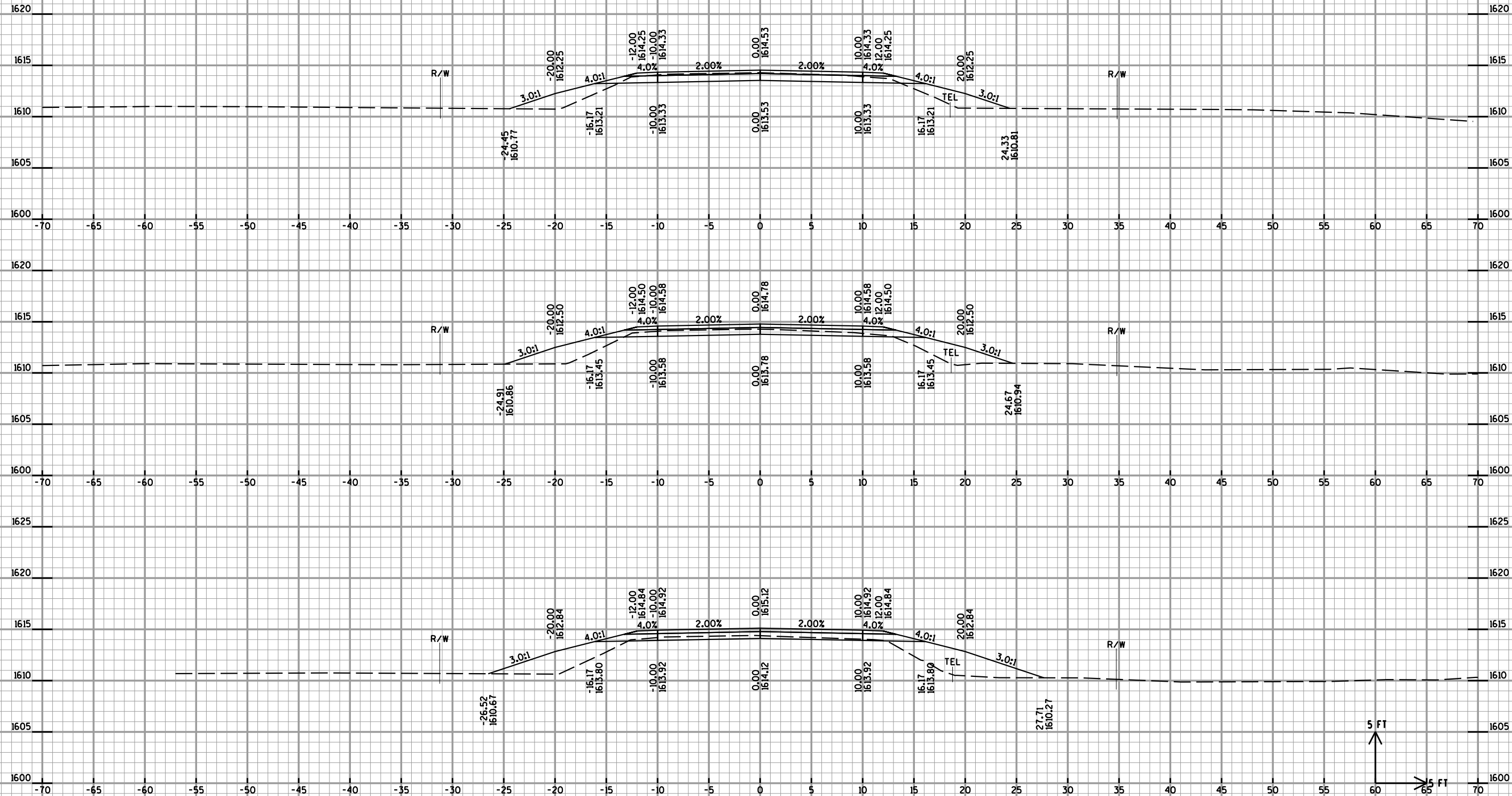
COLE ROAD COMPUTER EARTHWORK

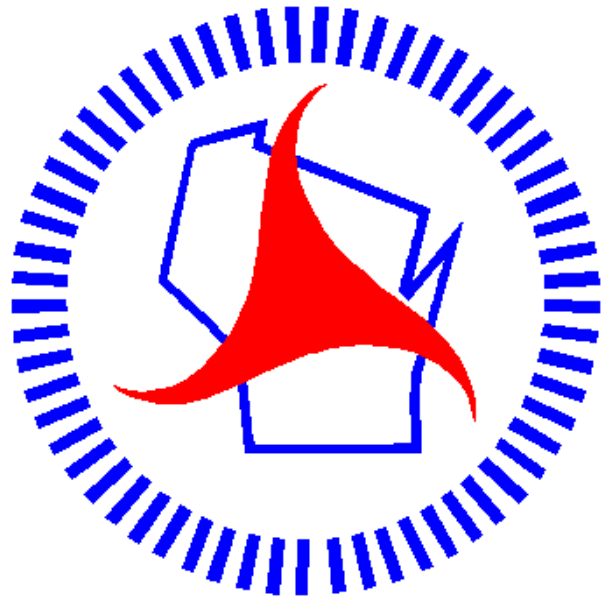
Station	Distance	Area (SF)		Incremental Vol (CY) (Unadjusted)		Cumulative Vol (CY)		Mass Ordinate
		Cut	Fill	Cut	Fill	Cut 1.00	Expanded	
							Fill 1.30	
				Note 1	Note 2	Note 1		Note 3
8+50	--	24.9	0.0					
8+75	25	15.3	29.3	19	14	19	18	1
9+00	25	8.7	27.1	11	26	30	52	-22
9+25	25	4.8	18.1	6	21	36	79	-43
9+50	25	6.8	4.7	5	11	41	93	-51
9+71.75	22	11.2	17.3	7	9	49	104	-55
9+75	3	11.2	0.0	1	1	50	105	-55
9+81.75	7	11.2	0.0	3	0	53	105	-53
B-21-0028	--	--	--	--	--	--	--	--
10+18.25	--	6.9	3.9	--	--	--	--	--
10+25	7	6.9	3.9	2	1	55	107	-52
10+28.25	3	6.9	24.1	1	2	55	109	-53
10+50	22	4.2	39.6	4	26	60	142	-82
10+75	25	5.6	40.0	5	37	64	190	-126
11+00	25	11.2	24.7	8	30	72	229	-157
11+25	25	18.0	19.1	14	20	86	255	-170
11+50	25	22.1	17.6	19	17	104	277	-173
11+75	25	23.2	16.4	21	16	125	298	-173
12+00	25	26.1	0.0	23	8	148	308	-160
				148	237			

Note 1 - Cut	Cut includes existing asphalt pavement. Assumed to be reused as fill outside the 1:1 road core.
Note 2 - Fill	Volume needed to be filled.
Note 3 - Mass Ordinate	(Cut) - (Fill * 1.30)









Wisconsin Department of Transportation

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