

LAX
PROJECT ID:
WITH: N/A

5057-00-70

COUNTY:
CRAWFORD

NOVEMBER 2018
ORDER OF SHEETS

Section No.	1	Title
Section No.	2	Typical Sections and Details (Incl. 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 = 56

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
PLAN OF PROPOSED IMPROVEMENT

BELL CENTER - STH 131
(KICKAPOO RIVER BRIDGE B-12-0018)
CTH S
CRAWFORD

STATE PROJECT NUMBER
5057-00-70

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
5057-00-70		

ACCEPTED FOR
COUNTY of
CRAWFORD
DATE: 9 April 2018
Daniel N. Sydow
(HIGHWAY COMMISSIONER)

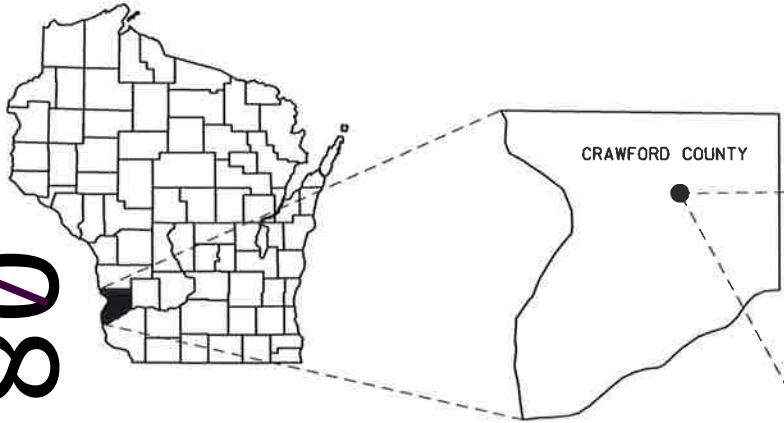
ORIGINAL PLANS PREPARED BY
AYRES ASSOCIATES

WISCONSIN
DANIEL N. SYDOW
E-38363
WI
4/13/2018

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY
Surveyor AYRES ASSOCIATES
Designer AYRES ASSOCIATES
Management Consultant KL ENGINEERING, INC.

APPROVED FOR THE DEPARTMENT
DATE: 4/24/18
Jeff McNeill
(Management Consultant Signature)

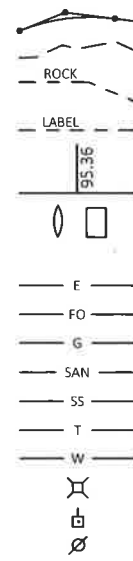


DESIGN DESIGNATION	CTH S
A.A.D.T. (2019)	= 230
A.A.D.T. (2039)	= 260
D.H.V.	= 10
D.D.	= 60/40
T.	= 5.0
DESIGN SPEED	= 30 MPH
ESALS	= 37,000

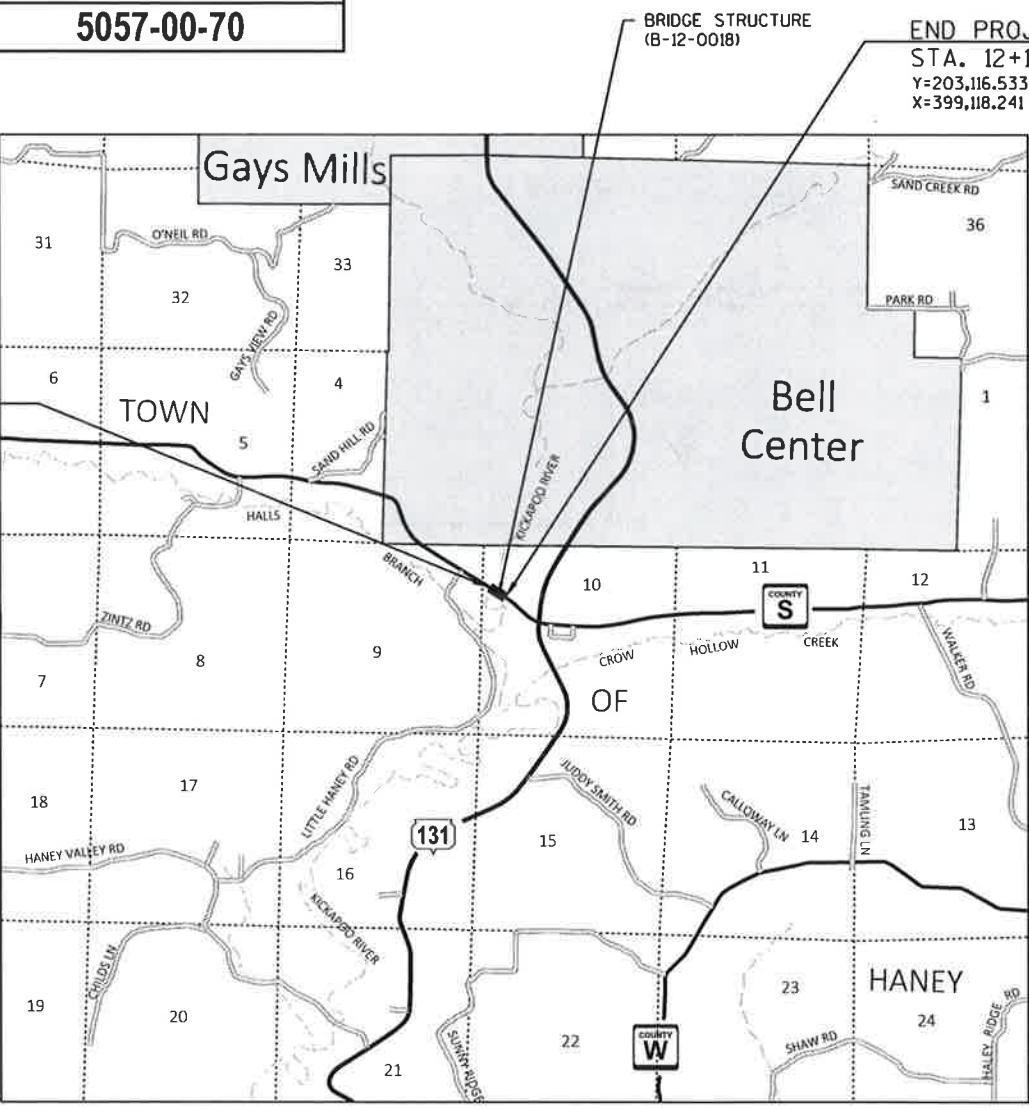
CONVENTIONAL SYMBOLS

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



BEGIN PROJECT 5057-00-70
STA. 7+90.00'
Y=203,332.850
X=398,755.900



LAYOUT
SCALE 0 1 MI
TOTAL NET LENGTH OF CENTERLINE = 0.080 MILES

HORIZONTAL POSITIONS SHOWN ON THIS PLAN ARE WISCONSIN COUNTY COORDINATES, MONROE COUNTY, NAD83 (2016), IN U.S. SURVEY FEET. VALUES ARE GRID COORDINATES, GRID BEARINGS, AND GRID DISTANCES. GRID DISTANCES MAY BE USED AS GROUND DISTANCES.
ELEVATIONS SHOWN ON THIS PLAN ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988, DAVD88 (2012).

GENERAL NOTES

NOTIFY DIGGERS HOTLINE AND AFFECTED UTILITIES PRIOR TO THE START OF WORK. ANY UTILITY WHICH IS NOT A MEMBER OF DIGGERS HOTLINE MUST BE CONTACTED SEPARATELY.

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

MAINTAIN ACCESS TO ALL DRIVEWAYS AND ALL BUSINESSES AT ALL TIMES.

A SAWED JOINT WILL BE REQUIRED WHERE NEW PAVEMENT IS TO MEET AN EXISTING PAVED SURFACE.

TRAFFIC CONTROL LOCATIONS AS SHOWN IN THE PLAN ARE SUGGESTED LOCATIONS. EXACT LOCATIONS WILL BE DETERMINED BY THE ENGINEER IN THE FIELD.

ALL SIGN LOCATIONS SHALL BE REVIEWED BY THE ENGINEER PRIOR TO INSTALLATION.

NO TREES OR SHRUBS SHALL BE REMOVED UNLESS DESIGNATED FOR REMOVAL BY THE ENGINEER.

PROTECT FROM DAMAGE AND COMPLETE SHOULDER WORK AROUND ANY EXISTING SIGNS OR MAILBOXES THAT ARE TO REMAIN IN PLACE. THE EXACT LOCATION OF PRIVATE ENTRANCES IS TO BE DETERMINED IN THE FIELD BY THE ENGINEER.

RESTORATION OF EXPOSED SLOPES AND DITCHES SHALL TAKE PLACE WITHIN 7 CALENDAR DAYS AFTER FINISHED GRADING IS COMPLETE.

WETLANDS ARE PRESENT IN THE PROJECT AREA. DO NOT DISTURB WETLANDS OUTSIDE THE PROPOSED SLOPE INTERCEPTS.

CONTACT THE PROJECT ENGINEER AT LEAST TWO WEEKS PRIOR TO WORK NEAR ANY PUBLIC SURVEY MONUMENT.

IF AN EXISTING SIGN IS TO BE REMOVED AND REPLACED WITH A NEW SIGN, DO NOT REMOVE THE EXISTING SIGN PRIOR TO INSTALLATION OF THE NEW SIGN.

THE LOCATIONS OF EROSION CONTROL ITEMS SHALL BE DETERMINED BY THE ENGINEER. ALL EROSION CONTROL MEASURES SHALL BE MAINTAINED UNTIL SUCH TIME AS THE ENGINEER DETERMINES THE MEASURE IS NO LONGER NECESSARY.

ASPHALTIC SURFACE LAYERS:

- UPPER: 1 1/2" (12.5 MM NOMINAL AGGREGATE SIZE)
- LOWER: 2 1/4" (19.0 MM NOMINAL AGGREGATE SIZE)

ABBREVIATIONS

A.D.T.	AVERAGE DAILY TRAFFIC
ATMS	ARTERIAL TRAFFIC MANAGEMENT SYSTEM
BM	BENCHMARK
BOC	BACK OF CURB
BTWN	BETWEEN
C&G	CURB AND GUTTER
C.E.	COMMERCIAL ENTRANCE
CONST	CONSTRUCTION
CP	CONTROL POINT
CTR.	CENTER
D.D.	DIRECTIONAL DISTRIBUTION
D.H.V.	DESIGN HOURLY VOLUME
DMS	DYNAMIC MESSAGE SIGN
EB	EASTBOUND
EXIST	EXISTING
GAL.V.	GALVANIZED
HMA	HOT MIX ASPHALT
H.S.	HIGH STRENGTH
ITS	INTELLIGENT TRAFFIC SYSTEM
MAX	MAXIMUM
MIN	MINIMUM
NB	NORTHBOUND
NOR	NORMAL
PC	POINT OF CURVATURE
PCC	POINT OF COMMON CURVATURE
PGL	PROFILE GRADE LINE
PI	POINT OF INTERSECTION
PRC	POINT OF REVERSE CURVATURE
PT	POINT OF TANGENCY
PVT	PAVEMENT
R/L	REFERENCE LINE
REQ'D	REQUIRED
SB	SOUTHBOUND
SYM	SYMMETRICAL
T.	PERCENT TRUCKS
TCC	TRAFFIC CONDITION CAMERA
TYP	TYPICAL
VAR	VARIABLE EXISTING R/W
WB	WESTBOUND
Wt.	WEIGHT
X-WALK	CROSS WALK

PROJECT CONTACTS

CRAWFORD COUNTY HIGHWAY DEPT.
DENNIS PELOCK
HIGHWAY COMMISSIONER
P.O. BOX 39
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C: (608) 306-4036
F: (608) 734-9502
E: DPELOCK@CRAWFORDCOUNTYWI.ORG

WISCONSIN DEPARTMENT OF NATURAL RESOURCES
KAREN KALVELAGE
WEST CENTRAL REGION
3550 MORMON COULEE ROAD
LA CROSSE, WI 54601
P: (608) 785-9115
E: KAREN.KALVELAGE@WISCONSIN.GOV

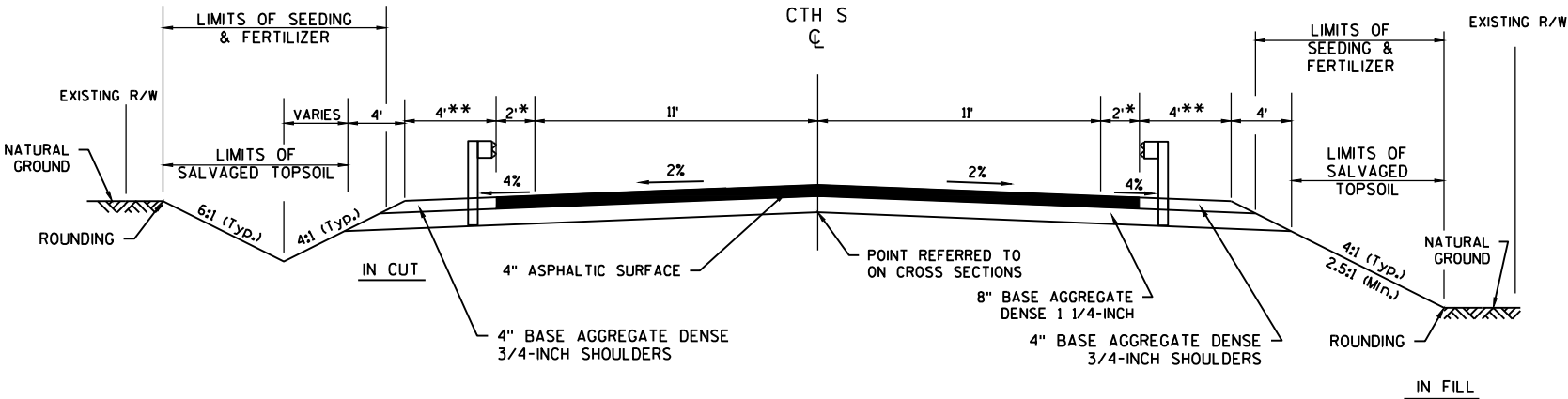
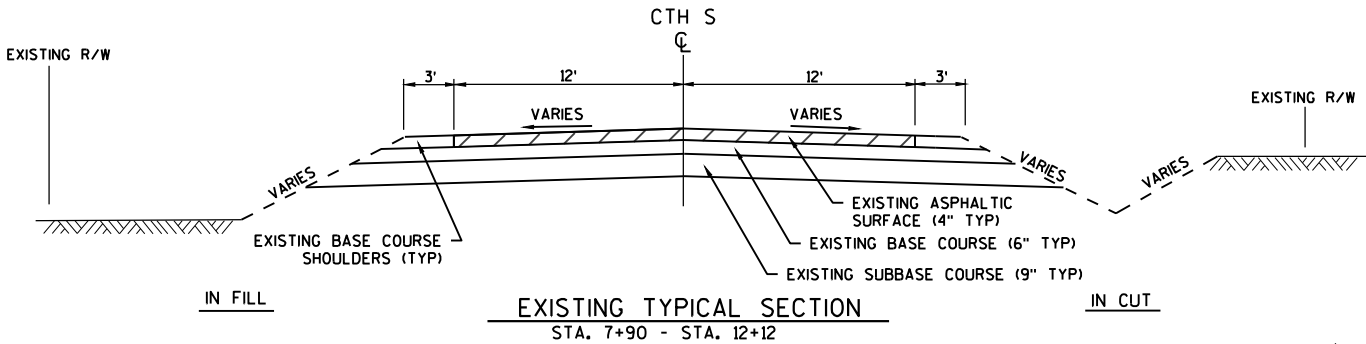
DESIGNER
DAN SYDOW, P.E.
AYRES ASSOCIATES
3433 OAKWOOD HILLS PARKWAY
EAU CLAIRE, WI 54701
P: (715) 834-3161
E: SYDOWD@AYRESASSOCIATES.COM

UTILITIES
CENTURYLINK
STEVE NELSON
333 NORTH FRONT STREET
LA CROSSE, WI 54601
P: (608) 796-7033
C: (608) 877-3942
E: STEVE.NELSON@CENTURYLINK.COM



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

** DENOTES UTILITIES THAT ARE NOT DIGGERS HOTLINE MEMBERS



*ADDITIONAL 2' OFFSET AT FACE OF RAIL AT EAT POST 1

Estimate Of Quantities

5057-00-70

Line	Item	Item Description	Unit	Total	Qty
0002	201.0105	Clearing	STA	2.000	2.000
0004	201.0205	Grubbing	STA	2.000	2.000
0006	203.0600.S	Removing Old Structure Over Waterway With Minimal Debris (station) 01. 10+00	LS	1.000	1.000
0008	205.0100	Excavation Common **P**	CY	240.000	240.000
0010	206.1000	Excavation for Structures Bridges (structure) 01. B-12-0018	LS	1.000	1.000
0012	208.0100	Borrow	CY	528.000	528.000
0014	210.1500	Backfill Structure Type A	TON	110.000	110.000
0016	213.0100	Finishing Roadway (project) 01. 5057-00-70	EACH	1.000	1.000
0018	305.0110	Base Aggregate Dense 3/4-Inch	TON	65.000	65.000
0020	305.0120	Base Aggregate Dense 1 1/4-Inch	TON	460.000	460.000
0022	455.0605	Tack Coat	GAL	46.000	46.000
0024	465.0105	Asphaltic Surface	TON	149.000	149.000
0026	502.0100	Concrete Masonry Bridges	CY	214.000	214.000
0028	502.3200	Protective Surface Treatment	SY	765.000	765.000
0030	502.4204	Adhesive Anchors No. 4 Bar	EACH	80.000	80.000
0032	502.4205	Adhesive Anchors No. 5 Bar	EACH	104.000	104.000
0034	505.0600	Bar Steel Reinforcement HS Coated Structures	LB	42,250.000	42,250.000
0036	506.2605	Bearing Pads Elastomeric Non-Laminated	EACH	30.000	30.000
0038	506.4000	Steel Diaphragms (structure) 01. B-12-0118	EACH	12.000	12.000
0040	506.7050.S	Removing Bearings (structure) 01. B-12-0018	EACH	30.000	30.000
0042	509.1500	Concrete Surface Repair	SF	20.000	20.000
0044	513.4061	Railing Tubular Type M 01. B-12-0018	LF	428.000	428.000
0046	516.0500	Rubberized Membrane Waterproofing	SY	16.000	16.000
0048	612.0406	Pipe Underdrain Wrapped 6-Inch	LF	120.000	120.000
0050	614.2500	MGS Thrie Beam Transition	LF	157.600	157.600
0052	614.2610	MGS Guardrail Terminal EAT	EACH	4.000	4.000
0054	618.0100	Maintenance And Repair of Haul Roads (project) 01. 5057-00-70	EACH	1.000	1.000
0056	619.1000	Mobilization	EACH	1.000	1.000
0058	624.0100	Water	MGAL	28.000	28.000
0060	625.0500	Salvaged Topsoil **P**	SY	1,425.000	1,425.000
0062	628.1504	Silt Fence	LF	765.000	765.000
0064	628.1520	Silt Fence Maintenance	LF	1,530.000	1,530.000
0066	628.1905	Mobilizations Erosion Control	EACH	4.000	4.000
0068	628.1910	Mobilizations Emergency Erosion Control	EACH	4.000	4.000
0070	628.2008	Erosion Mat Urban Class I Type B	SY	1,570.000	1,570.000
0072	628.7504	Temporary Ditch Checks	LF	50.000	50.000
0074	629.0210	Fertilizer Type B **P**	CWT	1.000	1.000

Estimate Of Quantities

5057-00-70

Line	Item	Item Description	Unit	Total	Qty
0076	630.0120	Seeding Mixture No. 20 **P**	LB	42.000	42.000
0078	630.0200	Seeding Temporary **P**	LB	42.000	42.000
0080	630.0300	Seeding Borrow Pit	LB	18.000	18.000
0082	634.0612	Posts Wood 4x6-Inch X 12-FT	EACH	4.000	4.000
0084	637.2230	Signs Type II Reflective F	SF	12.000	12.000
0086	638.2102	Moving Signs Type II	EACH	2.000	2.000
0088	638.2602	Removing Signs Type II	EACH	6.000	6.000
0090	638.3000	Removing Small Sign Supports	EACH	6.000	6.000
0092	638.4000	Moving Small Sign Supports	EACH	2.000	2.000
0094	642.5001	Field Office Type B	EACH	1.000	1.000
0096	643.0420	Traffic Control Barricades Type III	DAY	1,260.000	1,260.000
0098	643.0705	Traffic Control Warning Lights Type A	DAY	1,960.000	1,960.000
0100	643.0900	Traffic Control Signs	DAY	980.000	980.000
0102	643.5000	Traffic Control	EACH	1.000	1.000
0104	645.0220	Geogrid Type SR	SY	100.000	100.000
0106	646.1020	Marking Line Epoxy 4-Inch	LF	1,775.000	1,775.000
0108	650.4500	Construction Staking Subgrade	LF	210.000	210.000
0110	650.5000	Construction Staking Base	LF	210.000	210.000
0112	650.6500	Construction Staking Structure Layout (structure) 01. B-12-0018	LS	1.000	1.000
0114	650.9910	Construction Staking Supplemental Control (project) 01. 5057-00-70	LS	1.000	1.000
0116	650.9920	Construction Staking Slope Stakes	LF	210.000	210.000
0118	690.0150	Sawing Asphalt	LF	48.000	48.000
0120	715.0502	Incentive Strength Concrete Structures	DOL	1,284.000	1,284.000
0122	SPV.0060	Special 01. Precast Concrete Bearing Block	EACH	10.000	10.000
0124	SPV.0060	Special 02. Cleaning and Painting Piling	EACH	14.000	14.000
0126	SPV.0090	Special 01. Epoxy Crack Sealing	LF	60.000	60.000

CTH S EARTHWORK SUMMARY

From/To Station	Location	Common Excavation** (1) (item # 205.0100)	Unexpanded Fill	Expanded Fill (2)	Mass Ordinate +/- (3)	Waste	Borrow (item #208.0100)	Comment:
		Cut		Factor 1.30				
7+90 - 12+12	CTH S	240	591	768	-528		528	

CLEARING AND GRUBBING

				201.0105 CLEARING	201.0205 GRUBBING
STATION	TO	STATION	OFFSET	STA	STA
7+80	-	9+80	LT	2	2
TOTALS				2	2

- 1) Common Excavation 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.
**PAY PLAN QUANTITY

PAVING AND BASE QUANTITIES

MGS GUARDRAIL

FINISHING ROADWAY
(ID 5057-00-70)

213.0100.01	
LOCATION	EACH
CTH S	1
TOTAL	1

			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
7+80	--	8+94	30	220	22	70
11+05	--	12+21	30	220	22	72
UNDISTRIBUTED			5	20	2	7
TOTALS			65	460	46	149

				614.2500 MGS THRIE BEAM TRANSITION	614.2610 MGS GUARDRAIL TERMINAL EAT
STA	TO	STA	LOCATION	LF	EACH
8+05	--	8+95	RT	39.4	1
8+05	--	8+95	LT	39.4	1
11+05	--	11+95	LT	39.4	1
11+05	--	11+95	RT	39.4	1
TOTALS				157.6	4

WATER

MOBILIZATION

MAINTENANCE AND REPAIR
OF HAUL ROADS
ID 5057-00-70

618.0100.01	
CATEGORY	EACH
0030	1
TOTAL	1

619.1000	
CATEGORY	EACH
0010	0.3
0020	0.7
TOTAL	1

624.0100 WATER MGAL	
PURPOSE	
COMPACTION	8.0
DUST CONTROL	20.0
TOTAL	28.0

EROSION CONTROL ITEMS

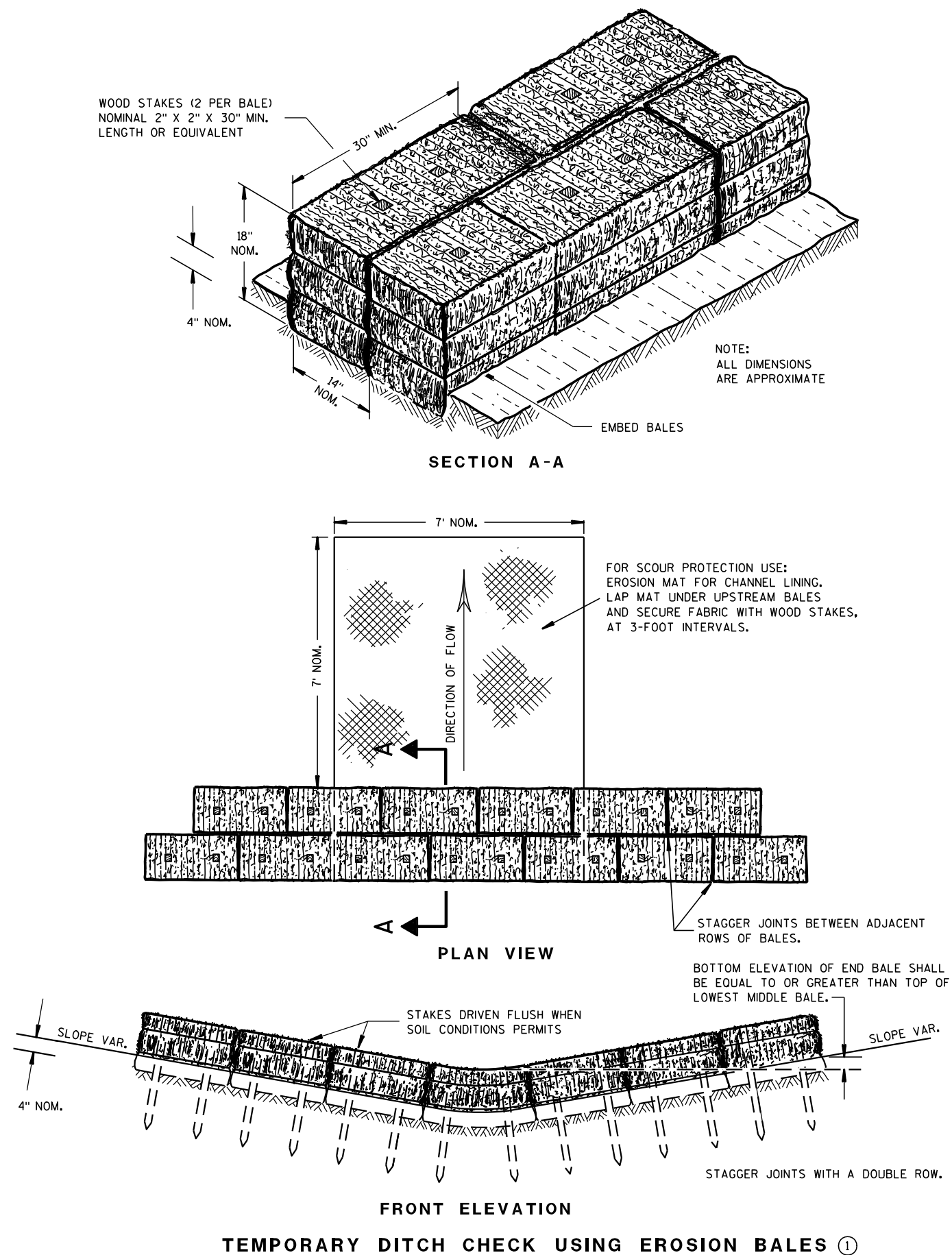
TOTAL				28.0	625.0500 SALVAGED** TOPSOIL	628.1504 SILT FENCE	628.1520 SILT FENCE MAINTENANCE	628.2008 EROSION MAT URBAN CLASS I TYPE B	629.0210 FERTILIZER** TYPE B	630.0120 SEEDING** MIXTURE NO. 20	630.0200 SEEDING** TEMPORARY	630.0300 SEEDING BORROW PIT
STA	TO	STA	LOCATION	SY	LF	LF	SY	CWT	LB	LB	LB	
7+80	--	8+94	RT	365	155	310	365	0.3	11	11	4	
7+84	--	8+94	LT	390	160	320	390	0.3	12	11	4	
11+05	--	12+21	RT	370	155	310	370	0.3	11	11	4	
11+05	--	12+14	LT	300	145	290	300	0.2	9	9	3	
UNDISTRIBUTED				--	150	300	145	--	--	--	4	
TOTALS				1,425	765	1,530	1,570	1.0	42	42	18	

ALL QUANTITIES CATEGORY 0010 UNLESS OTHERWISE NOTED

** PAY PLAN QUANTITY

Standard Detail Drawing List

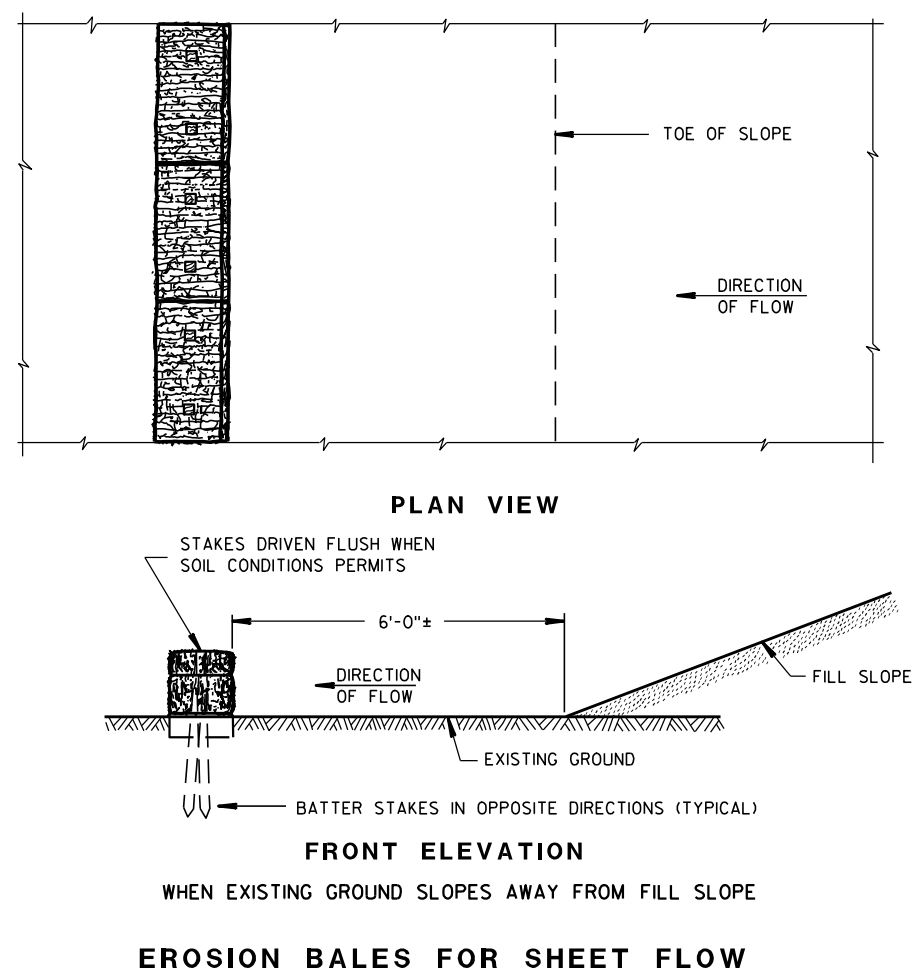
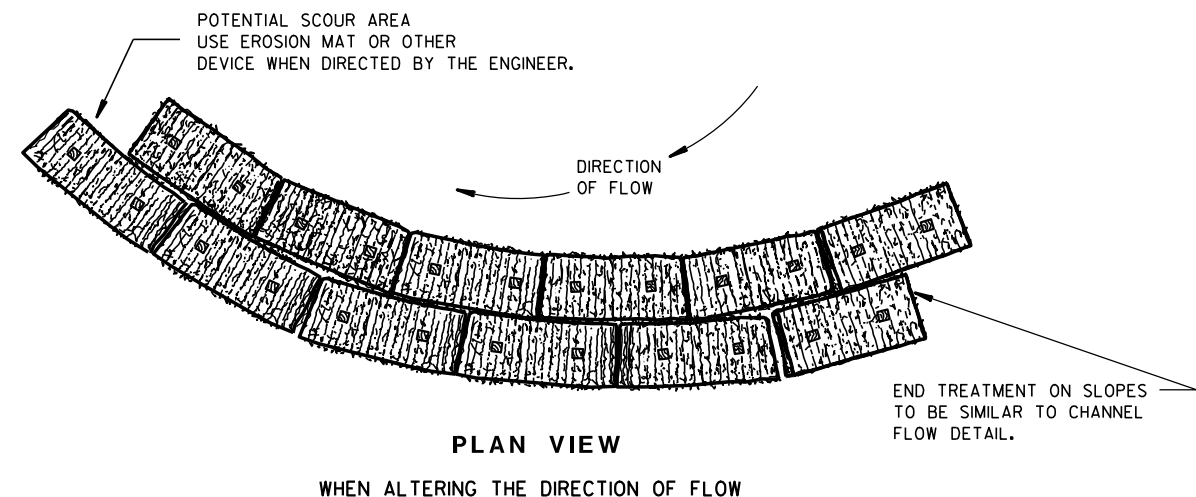
08E08-03	TYPICAL INSTALLATIONS OF EROSION BALES / TEMPORARY DITCH CHECKS
08E09-06	SILT FENCE
12A03-10	NAME PLATE (STRUCTURES)
14B42-05A	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-05B	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-05C	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-05D	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B44-03A	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-03B	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-03C	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B45-04A	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04B	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04C	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04H	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
15C02-06A	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-06B	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C06-09	SIGNING & MARKING FOR TWO LANE BRIDGES
15C08-18A	LONGITUDINAL MARKING (MAINLINE)
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

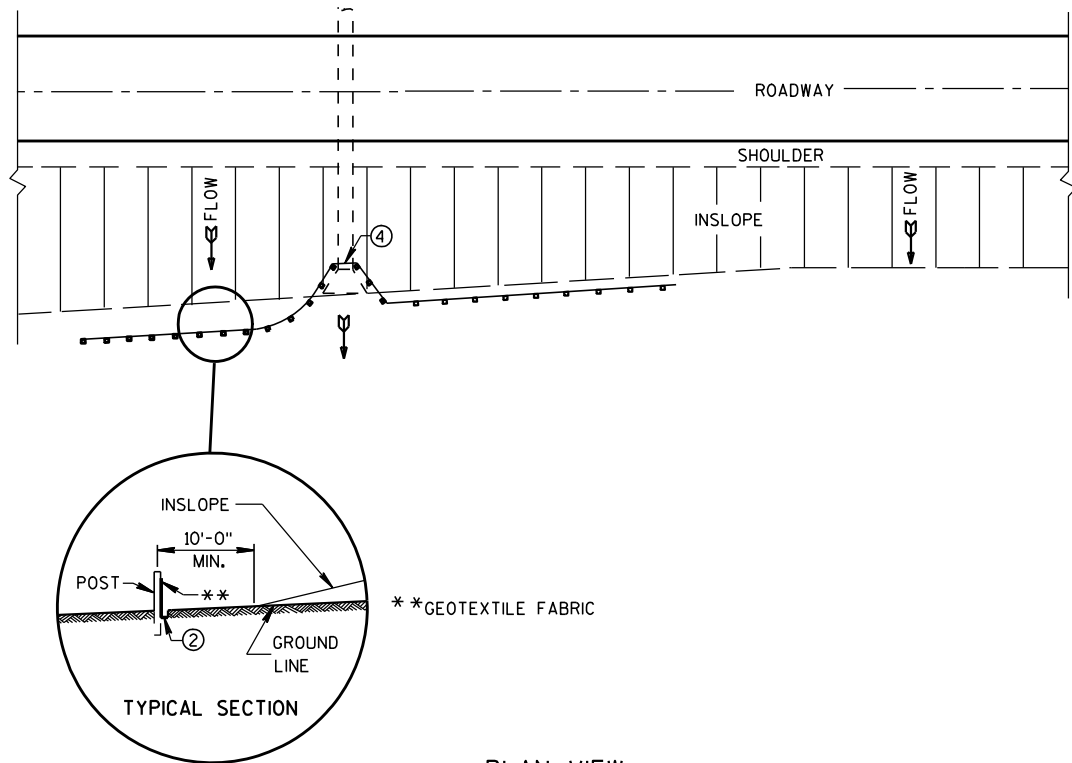
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

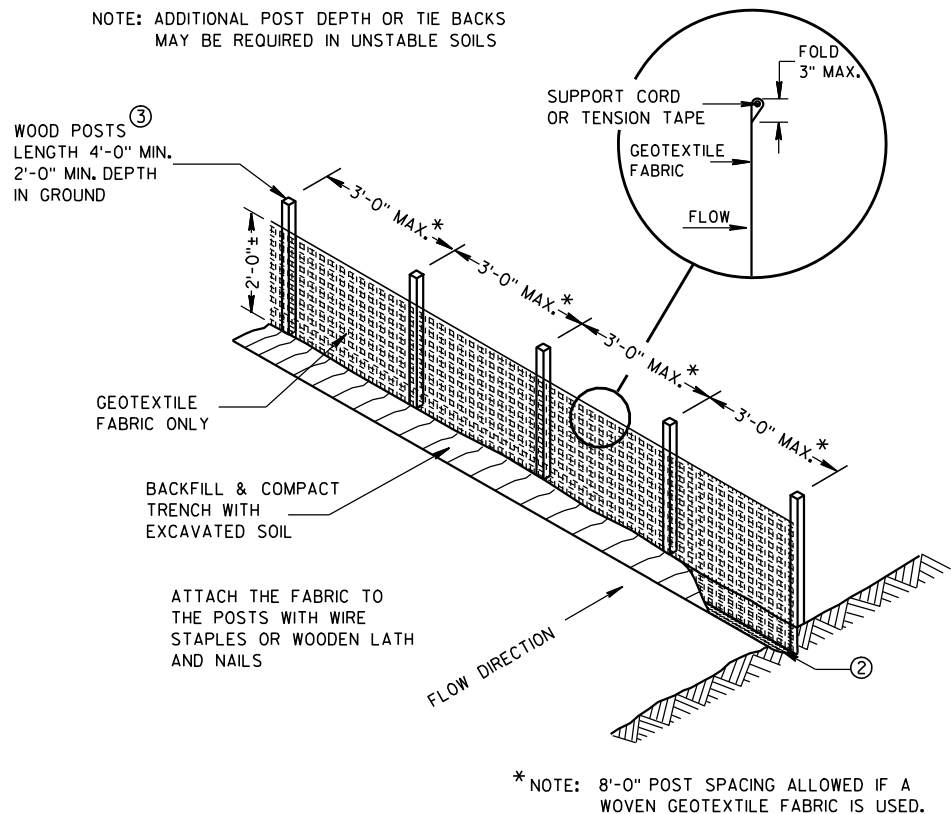
6/04/02
DATE

FHWA

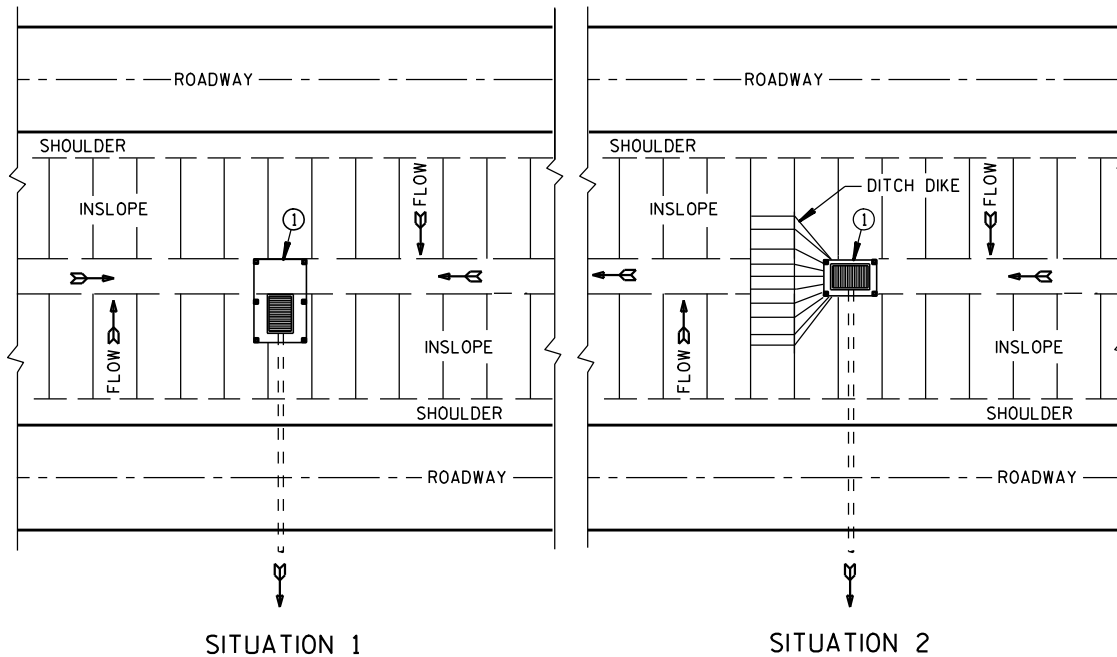
/S/ Beth Canestra
CHIEF ROADWAY DEVELOPMENT ENGINEER



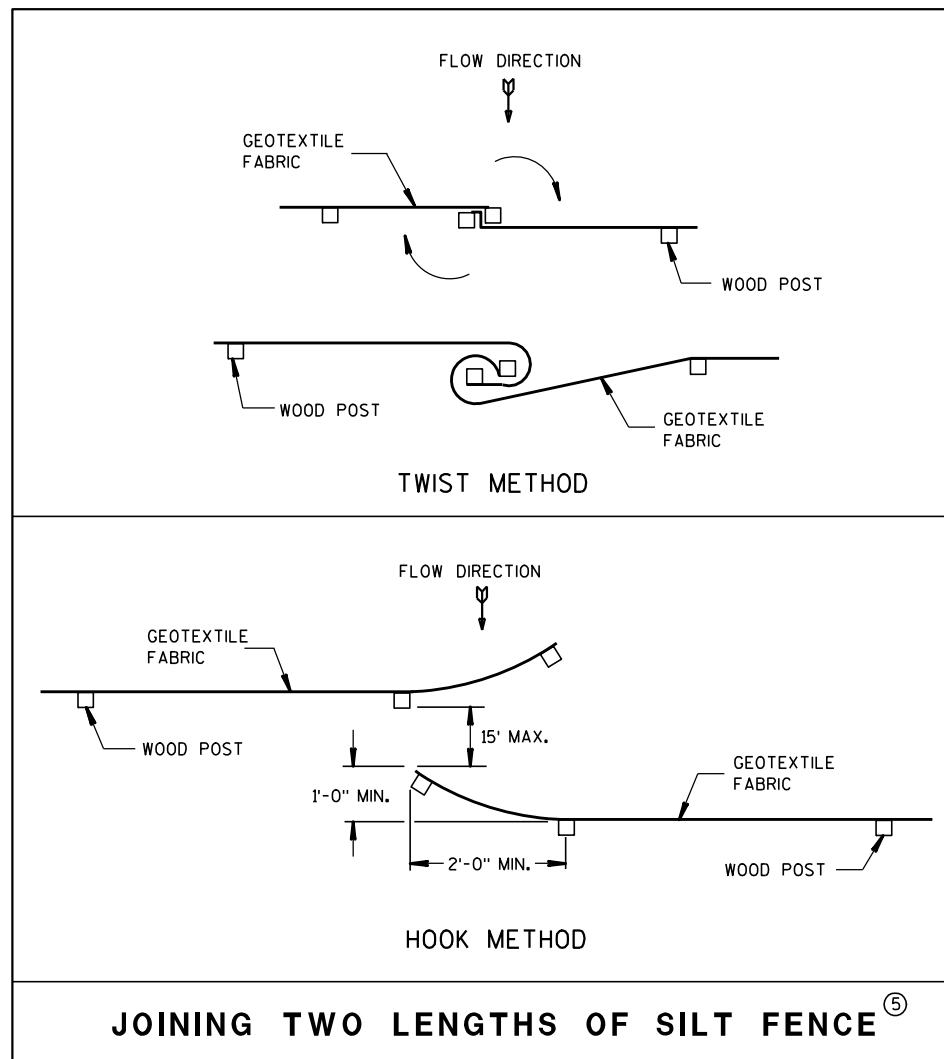
PLAN VIEW
TYPICAL APPLICATION OF SILT FENCE



SILT FENCE



PLAN VIEW
SILT FENCE AT MEDIAN SURFACE DRAINS

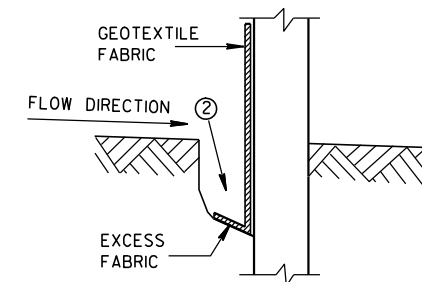


JOINING TWO LENGTHS OF SILT FENCE

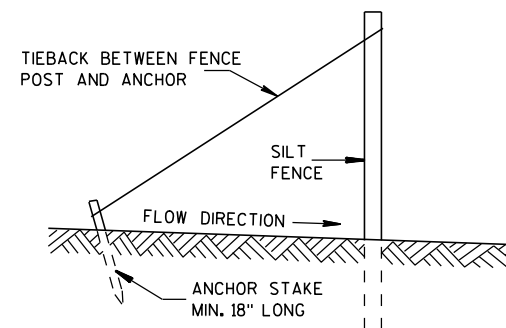
GENERAL NOTES

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.

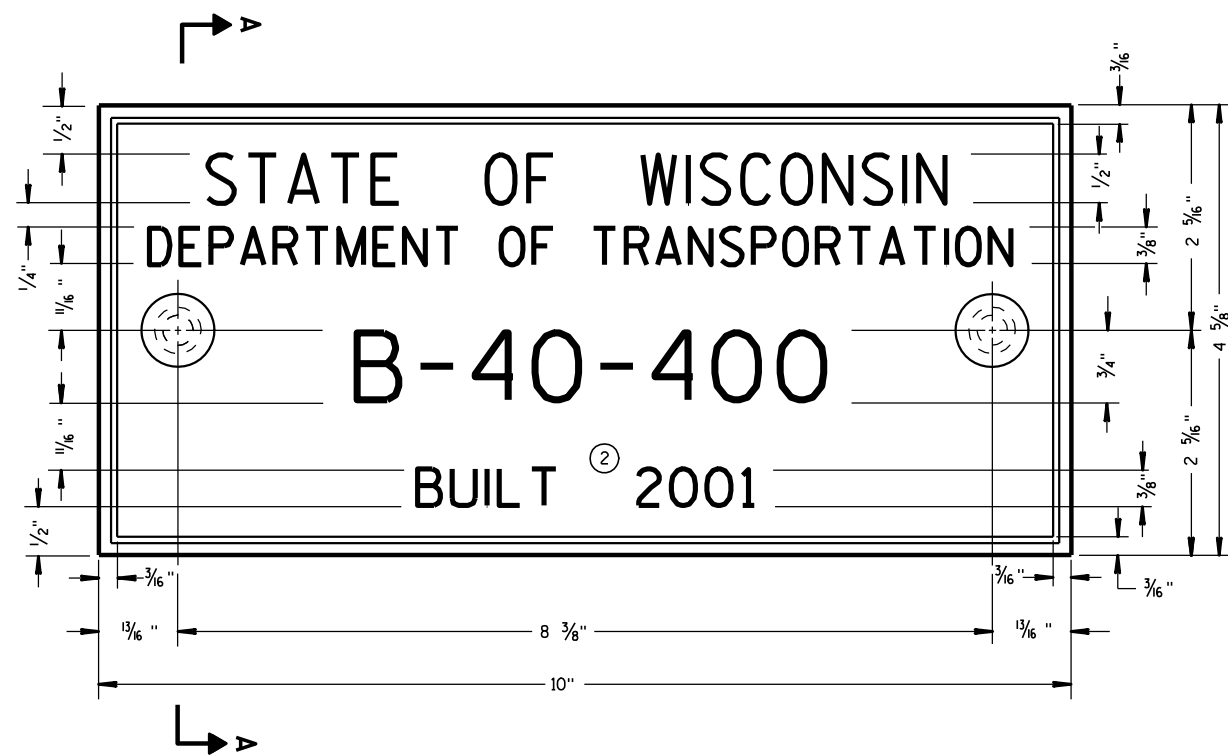


TRENCH DETAIL

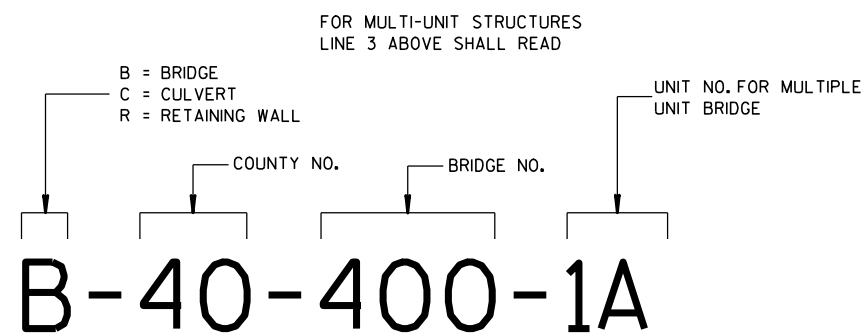


SILT FENCE TIE BACK
(WHEN REQUIRED BY THE ENGINEER)

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



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



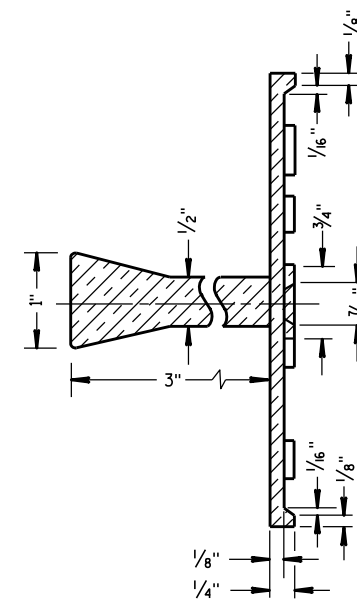
**NUMBERING DESIGNATION
MULTI-UNIT STRUCTURES**

GENERAL NOTES

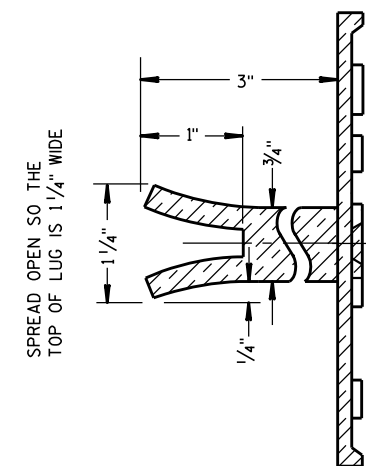
NAME PLATES TO BE INSTALLED ON BRIDGES, CULVERTS, AND RETAINING WALLS SHALL CONFORM TO THE REQUIREMENTS OF SECTION 502.3.11 OF THE STANDARD SPECIFICATIONS.

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.

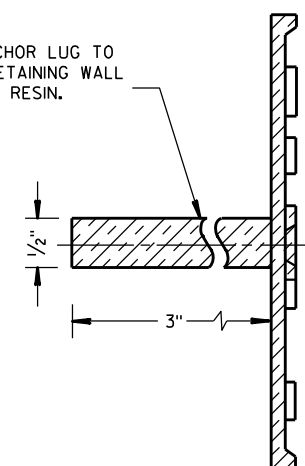


SECTION A-A



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
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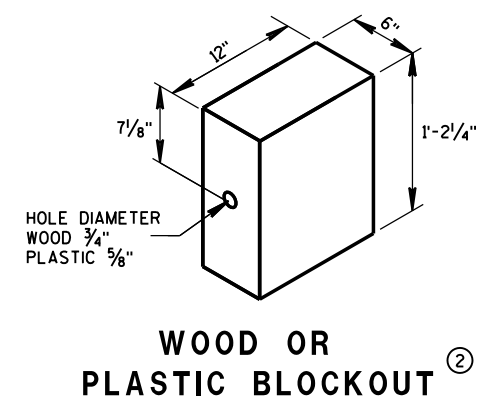
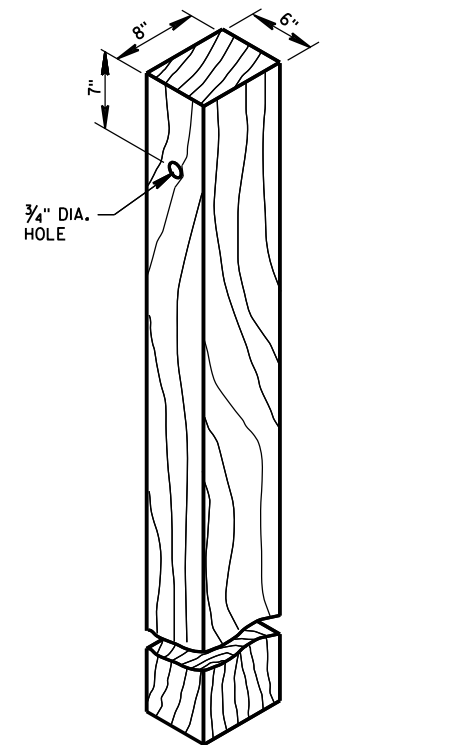
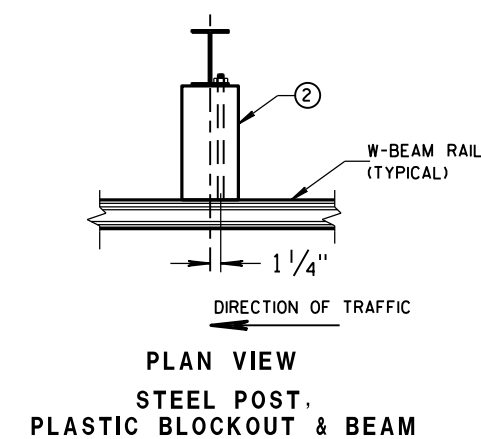
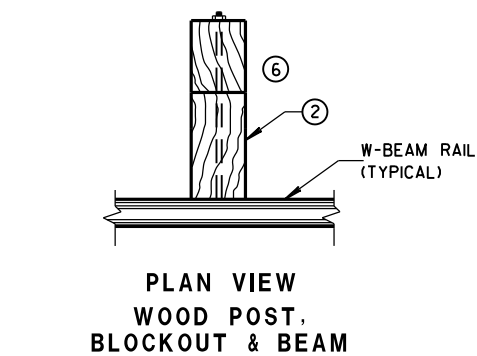
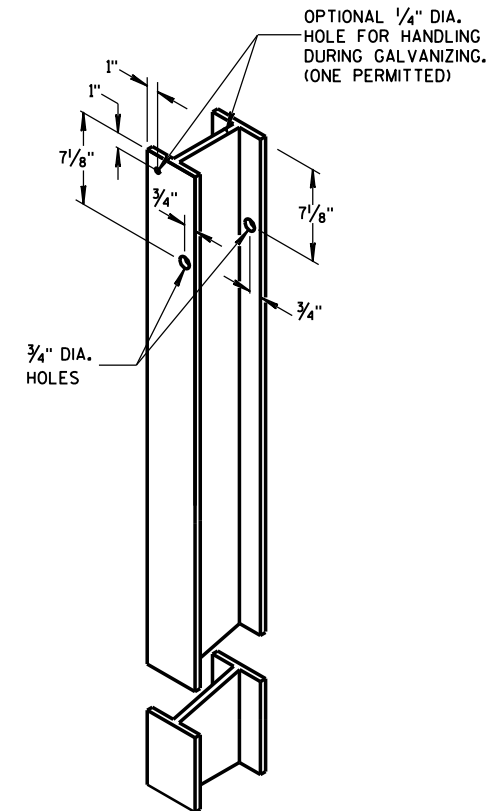
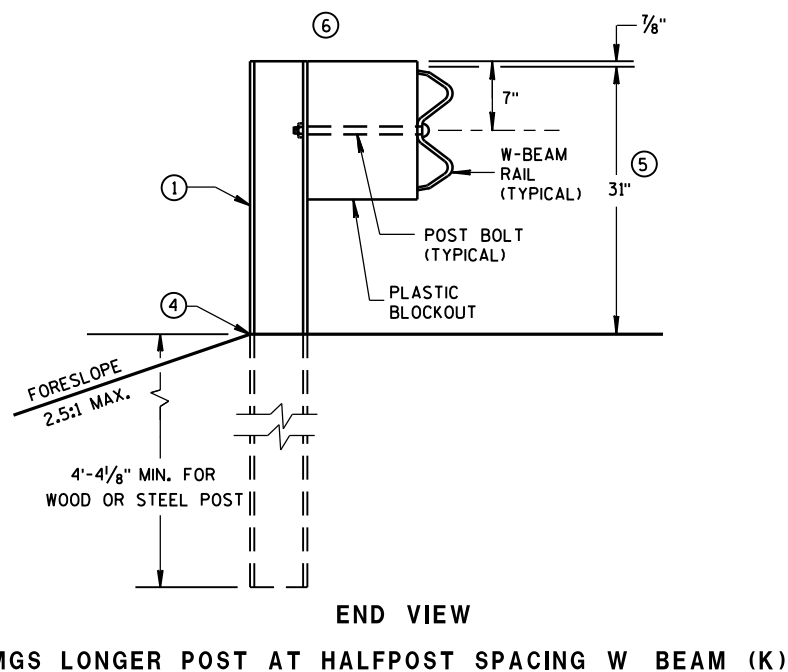
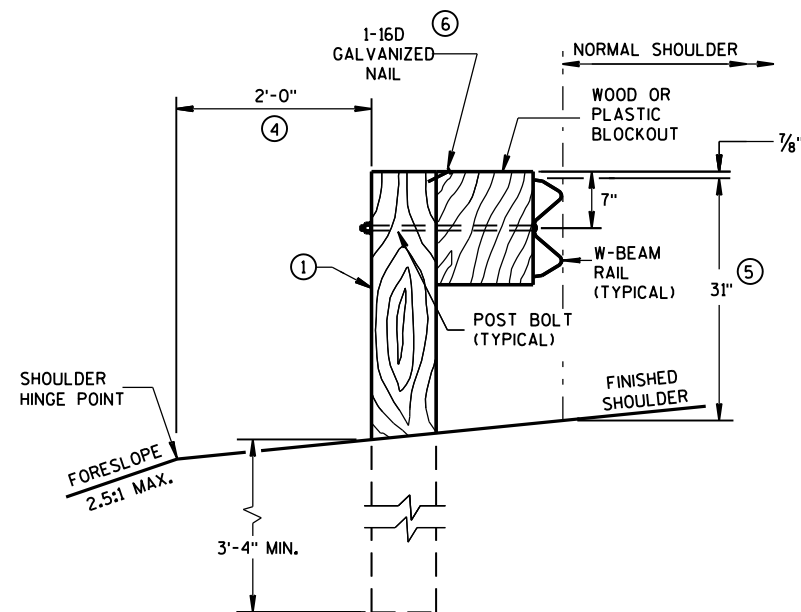
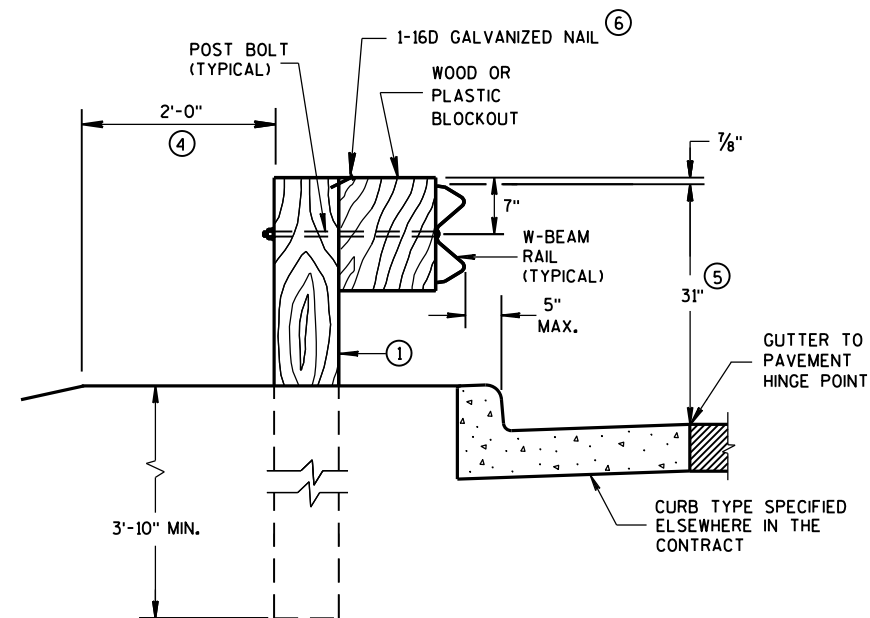
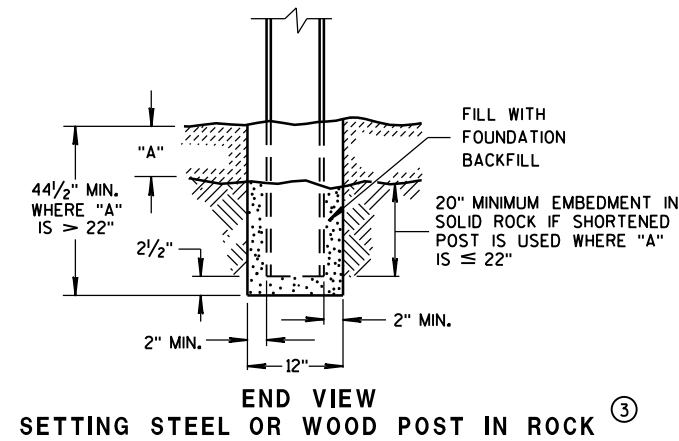
APPROVED

3/26/10
DATE

FHWA

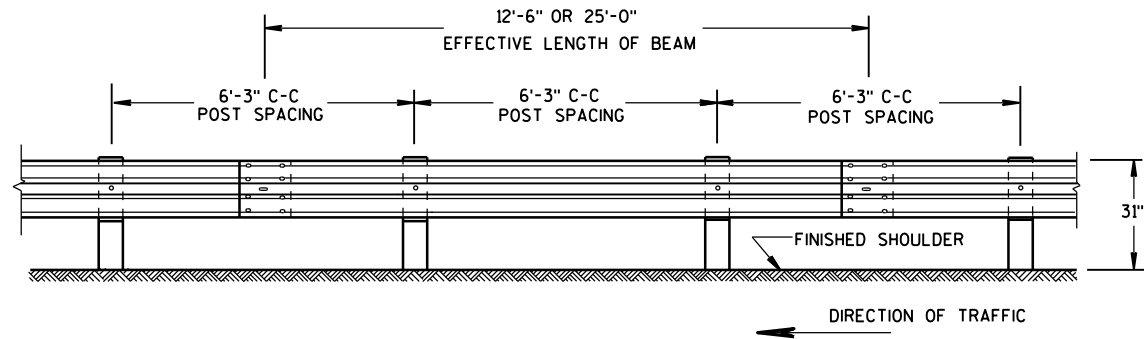
/S/ Scot Becker
CHIEF STRUCTURAL DEVELOPMENT ENGINEER

- ① WOOD OR STEEL POSTS (W6X9 OR W6X8.5) MAY BE USED. DO NOT INTERMIX WOOD AND STEEL POSTS. INSTALL STEEL POSTS WITH HOLES ON APPROACHING TRAFFIC SIDE.
- ② USE WOOD OR APPROVED PLASTIC BLOCKOUTS. WOOD BLOCKOUTS MAY BE CONSTRUCTED OUT OF TWO OR MORE WOOD BLOCKOUTS. SEE ALTERNATE WOOD BLOCKOUT DETAIL. DIMENSIONS OF APPROVED PLASTIC BLOCKOUTS MAY VARY.
- ③ IF ROCK IS ENCOUNTERED DURING EXCAVATION, PROVIDE A HOLE 12 INCHES IN DIAMETER EXTENDING 20 INCHES DEEP INTO THE ROCK. PLACE APPROXIMATELY 2½ INCHES OF GRANULAR MATERIAL IN THE BOTTOM OF THE HOLE. CUT THE POSTS TO LENGTH AND INSTALL. BACKFILL WITH EXCAVATED MATERIAL AND COMPACT. BACKFILL IS TO BE FREE OF LARGE ROCKS.
- ④ WHEN THE DISTANCE FROM BACK OF POST TO SHOULDER HINGE POINT IS LESS THAN 2 FEET INSTALL LONGER POST AT HALF POST SPACING (K).
- ⑤ FOR NEW MGS INSTALLATION TOP OF W-BEAM RAIL TOLERANCE IS ± 1". FOR EXISTING MGS INSTALLATION TOP OF W-BEAM IS BETWEEN 27¾" TO 32".
- ⑥ WHEN USING STEEL POST AND WOOD BLOCKOUTS INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.



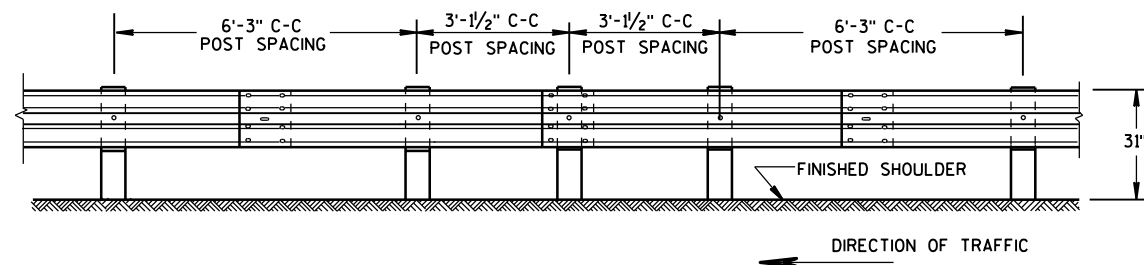
MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



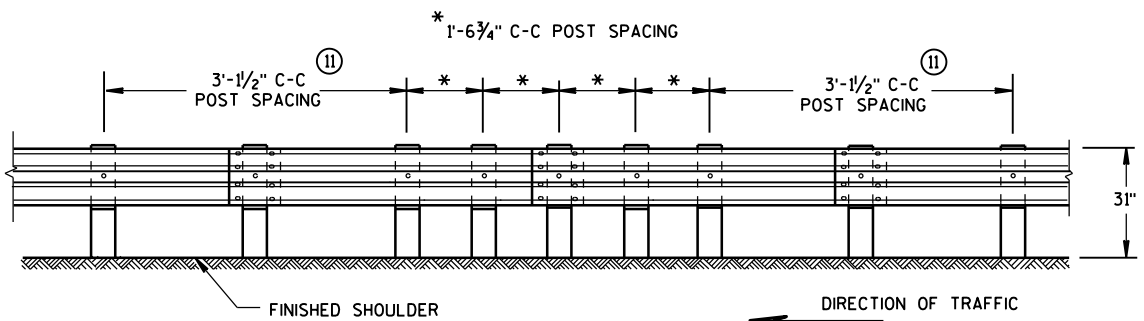
FRONT VIEW

POST SPACING STANDARD INSTALLATION



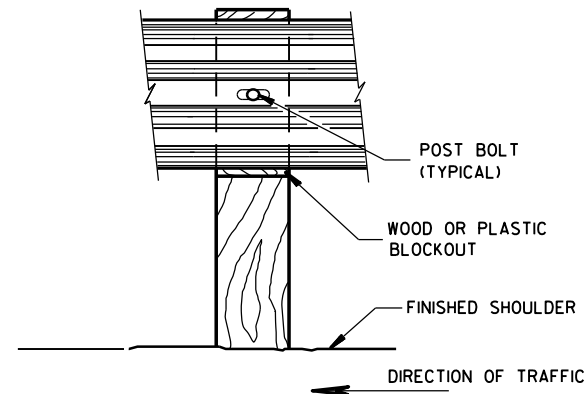
FRONT VIEW

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

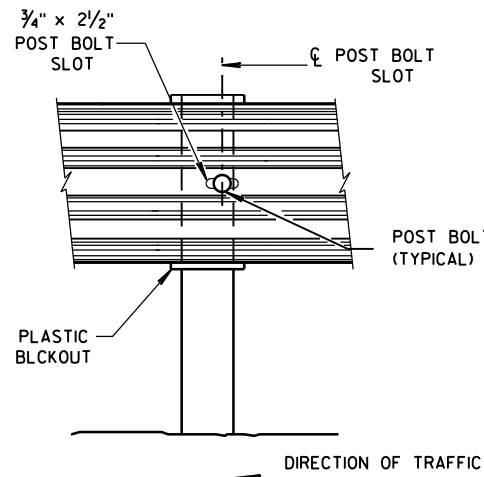


FRONT VIEW

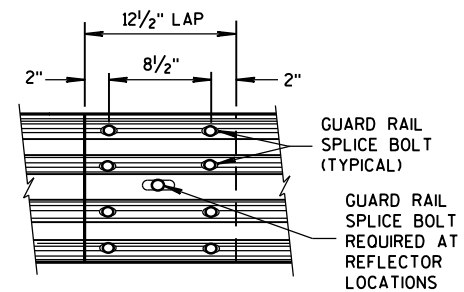
QUARTER POST SPACING (QS)



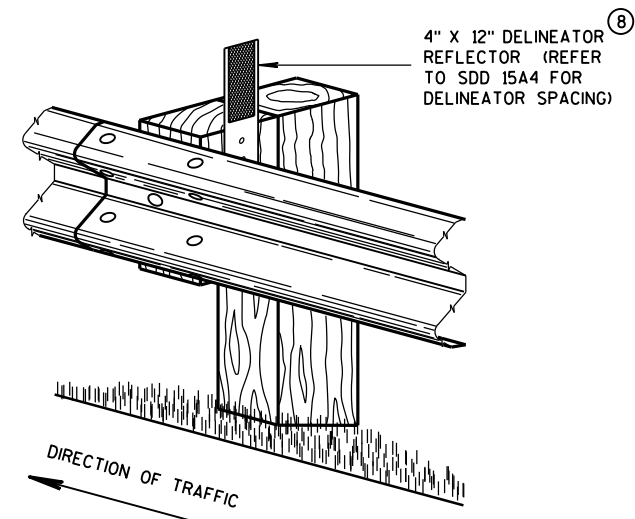
FRONT VIEW AT WOOD POST



FRONT VIEW AT STEEL POST



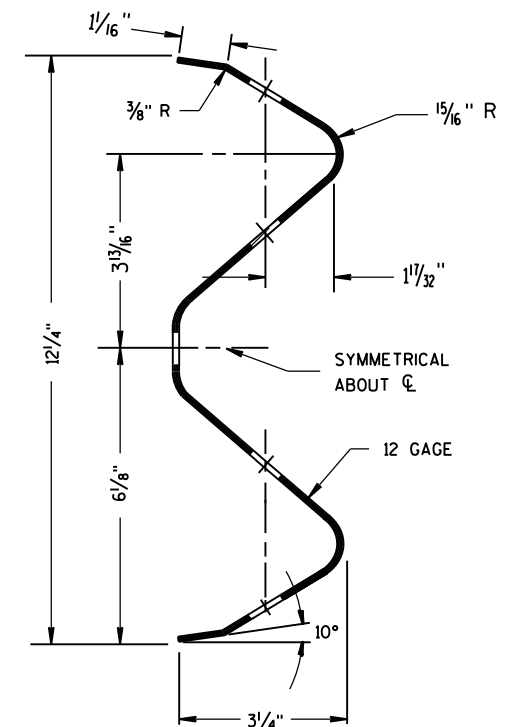
FRONT VIEW
MID-SPAN BEAM SPLICE



ONE SIDED REFLECTOR DETAIL AND TYPICAL INSTALLATION

GENERAL NOTES

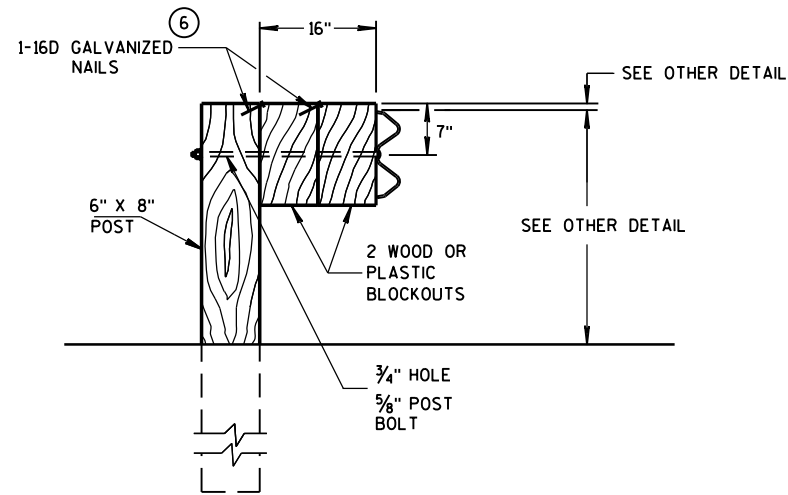
- ⑧ DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL. RAIL SPLICE LOCATIONS ARE THE ONLY ACCEPTABLE LOCATIONS FOR REFLECTORS.
 - ⑪ 25 FEET OF HALF POST SPACING IS REQUIRED ON APPROACH AND DEPARTURE ENDS OF QUARTER POST SPACING.
- POST BOLTS ARE A $\frac{5}{8}$ " DIAMETER ASTM A307 GUARDRAIL BOLT. A POST BOLT REQUIRES $\frac{5}{8}$ " DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT AND $\frac{5}{8}$ " DIAMETER F844 FLAT WASHER. POST BOLTS MAY BE LONGER IF MULTIPLE BLOCKOUTS ARE BEING USED.
- GUARD RAIL SPLICE BOLTS ARE A $\frac{5}{8}$ " DIAMETER ASTM A307 GUARDRAIL HEAD BOLT. A GUARDRAIL SPLICE BOLT REQUIRES $\frac{5}{8}$ " DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT.



SECTION THRU W-BEAM RAIL

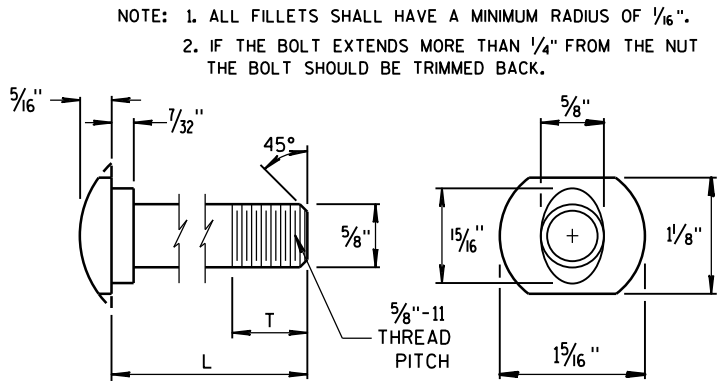
MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

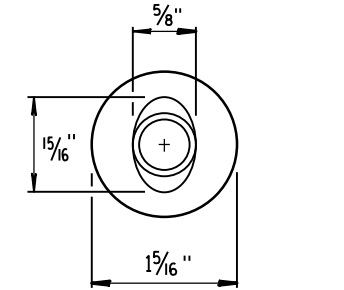


DETAIL FOR 16" BLOCKOUT DEPTH

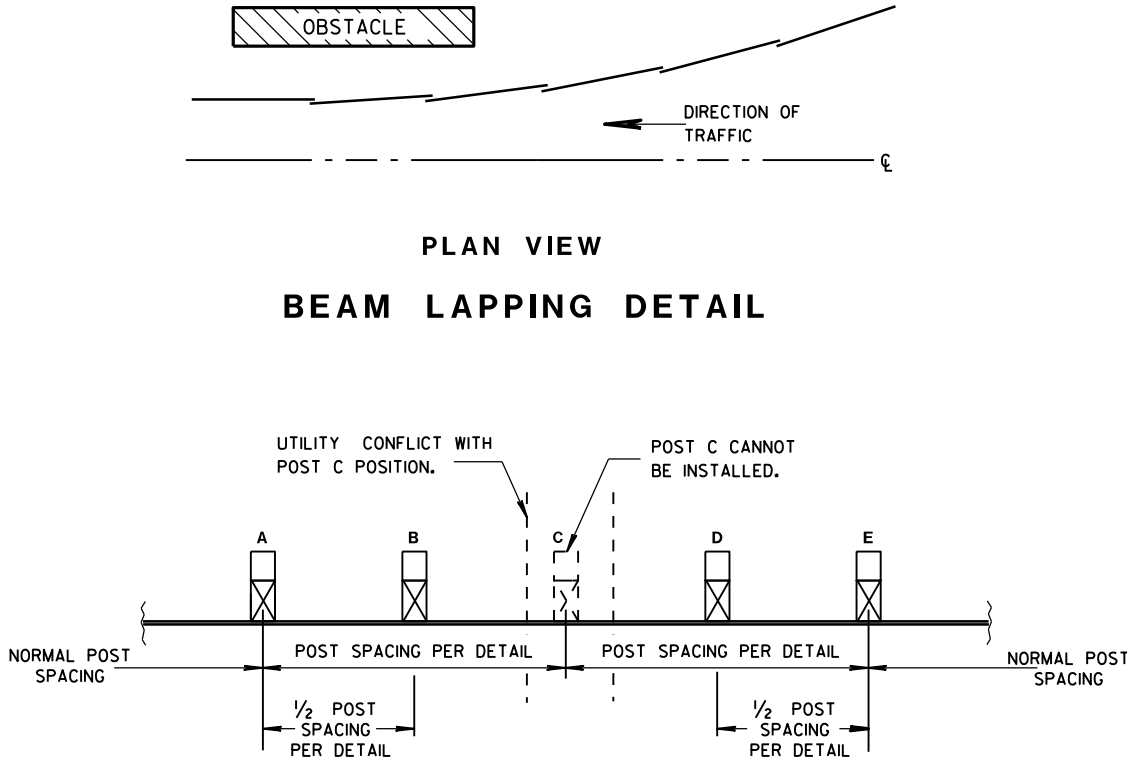
IT IS ACCEPTABLE TO USE BLOCKOUTS UP TO 16" DEEP TO INCREASE THE POST OFFSET TO AVOID UNDERGROUND OBSTACLES. THERE IS NO LIMIT TO THE NUMBER OF POSTS THAT CAN HAVE ADDITIONAL BLOCKOUTS UP TO 16" DEEP.



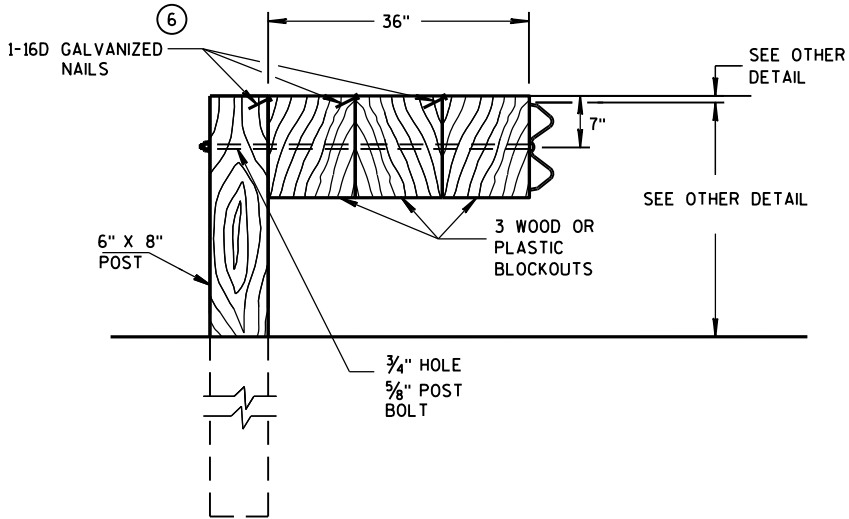
POST BOLT TABLE



ALTERNATE BOLT HEAD



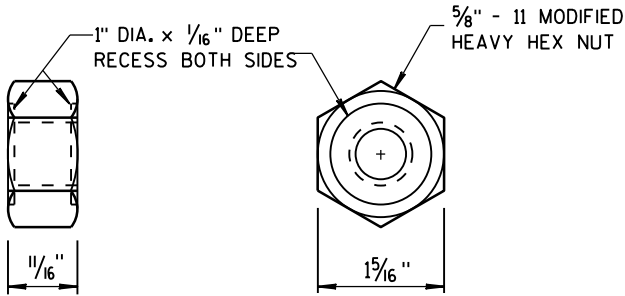
POST DRIVING FOR CONTINUOUS UNDERGROUND OBSTRUCTION



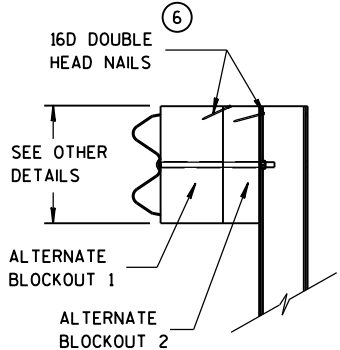
DETAIL FOR 36" BLOCKOUT DEPTH

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

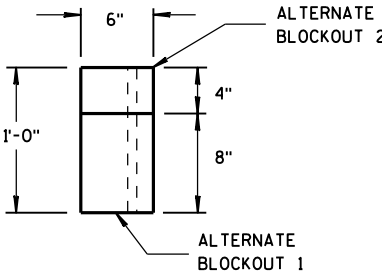
DO NOT USE 16" OR 36" BLOCKOUTS IF IT CAUSES THE POST TO BE DRIVEN BEYOND SHOULDER HINGE POINT OR CAUSES A FIXED OBJECT TO BE WITHIN THE DEFLECTION DISTANCE OF THE BARRIER.



POST BOLT, SPLICE BOLT AND RECESS NUT



SIDE VIEW

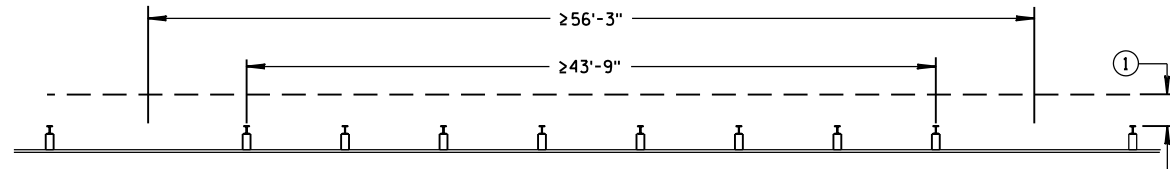


TOP VIEW

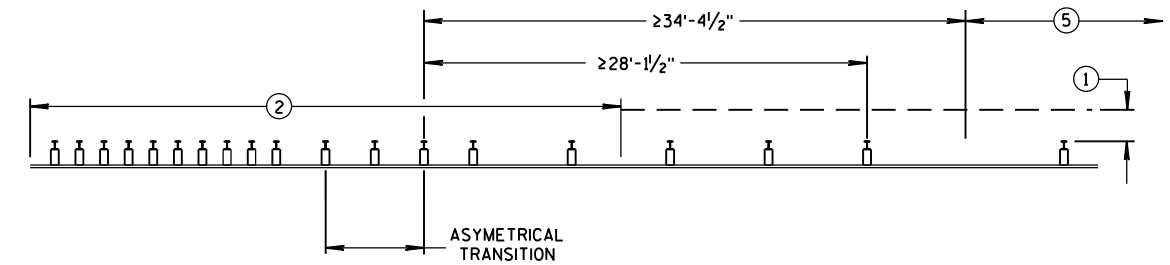
ALTERNATE WOOD BLOCKOUT DETAIL

MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL

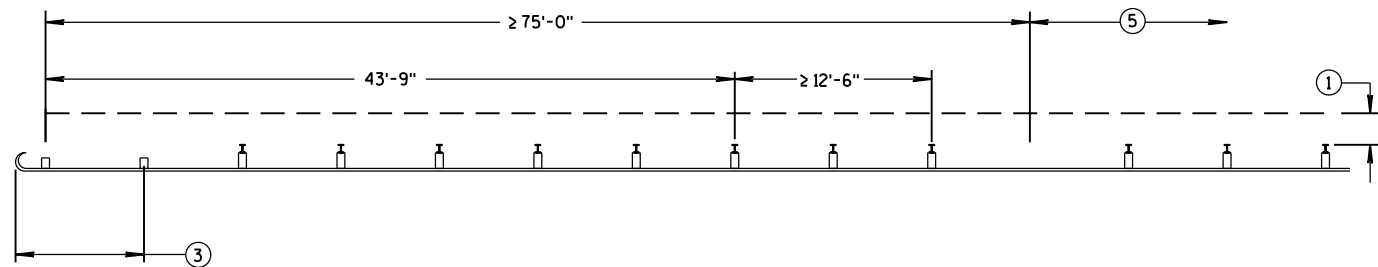
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



MISSING POST IN NORMAL BEAM GUARD RUN

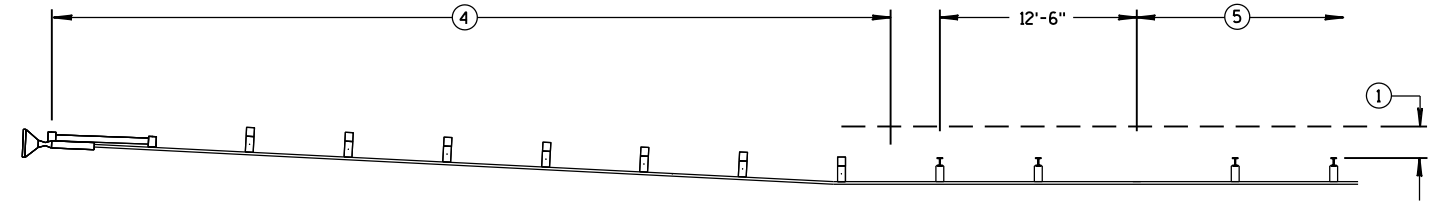


MISSING POST NEAR APPROACH THRIE BEAM TRANSITION

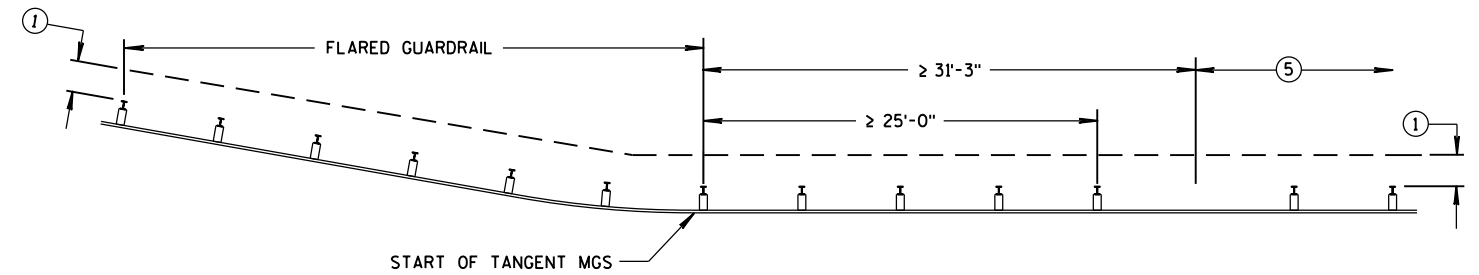


MISSING POST IN NORMAL BEAM GUARD RUN
NEAR TYPE 2 TERMINAL

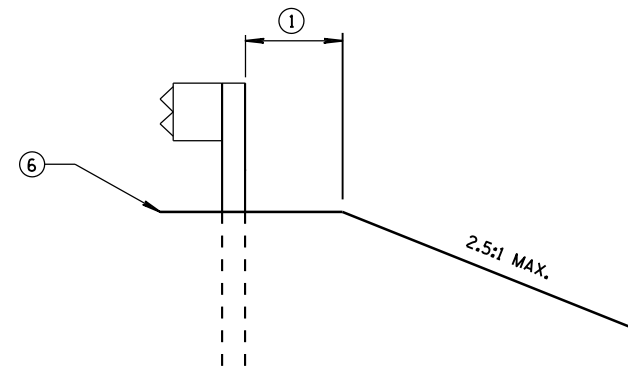
- ① MINIMUM OF 2 FEET OF GRADING BEHIND POST.
- ② SEE SDD 14B45 FOR MORE DETAILS.
- ③ SEE SDD 14B47 FOR MORE DETAILS.
- ④ SEE SDD 14B44 FOR MORE DETAILS.
- ⑤ SEE MISSING POST IN NORMAL BEAM GUARD RUN FOR DISTANCE TO NEXT MISSING POST AND AREA FOR WELL DRAINED, COMPACTED SOILS.
- ⑥ SEE PLAN FOR SHOULDER DESIGN.



MISSING POST IN NORMAL BEAM GUARD RUN NEAR EAT



MISSING POST IN NORMAL BEAM GUARD RUN
NEAR FLARED BEAM GUARD



CROSS SECTION VIEW

MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June 2017
DATE
/S/ Rodney Taylor
ROADWAY STANDARDS DEVELOPMENT
UNIT SUPERVISOR
FHWA

GENERAL NOTES

- (A) THE SLOPE IN THE AREA BOUNDED BY THE GRADELINE, THE HINGE POINT LINE (HPL), AND THE CLEAR ZONE LIMITS (CZL) SHALL BE 4:1 OR FLATTER.
- (B) AFTER FINAL ASSEMBLY, RECHECK CABLE TO BE SURE IT IS TAUT AND HAS NOT RELAXED.
- (C) DIFFERENT MANUFACTURES REQUIRE DIFFERENT PERFORATED W-BEAM RAIL END PANELS. SEE MANUFACTURES INFORMATION.
- (F) ATTACH ALUMINUM SHEET TO E.A.T. HEAD USING 4 STAINLESS STEEL SELF-TAPPING SCREWS. ONE SCREW PER CORNER.
- (H) HARDWARE VARIES BETWEEN DIFFERENT MANUFACTURES. SEE MANUFACTURE'S DRAWING FOR INFORMATION.

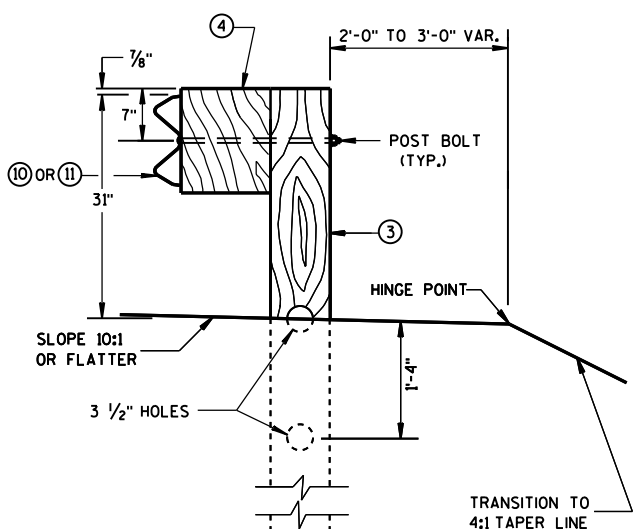
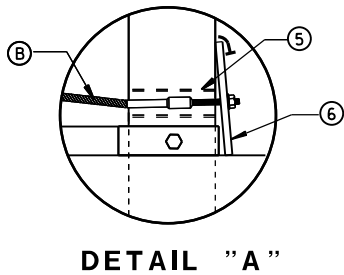
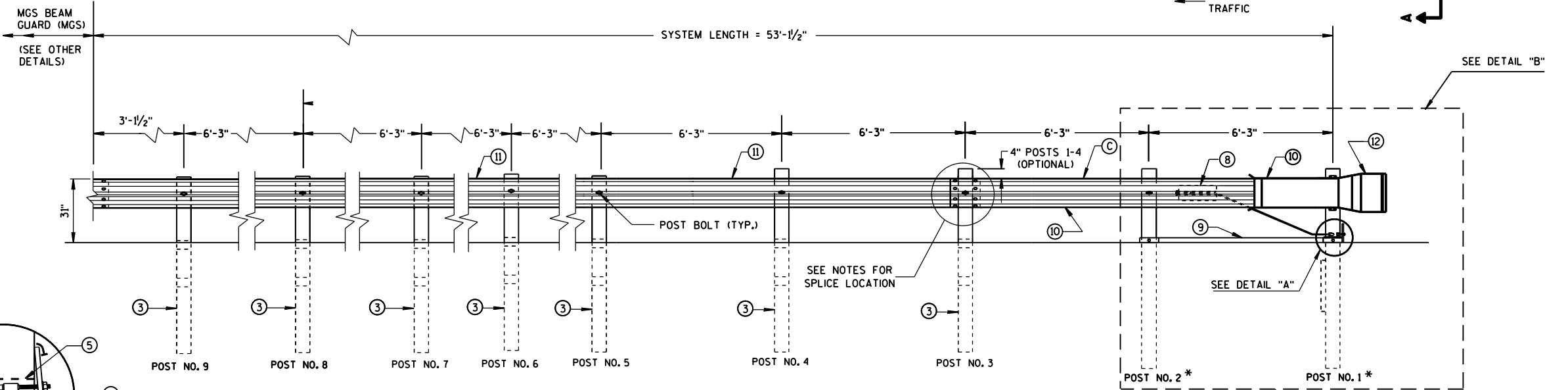
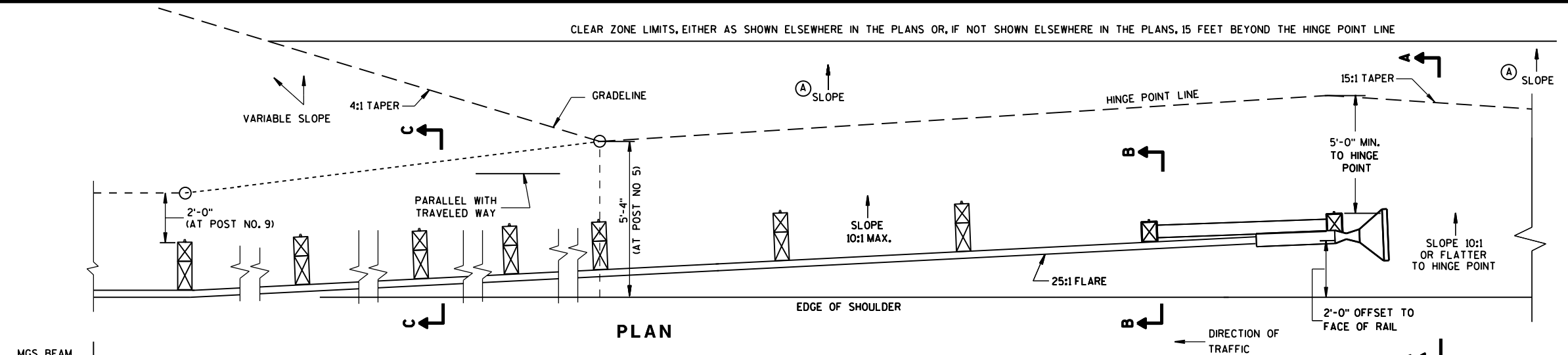
SEE SDD 14B42 FOR MORE INFORMATION.

* DO NOT ATTACH BLOCKOUTS TO POSTS 1 AND 2.

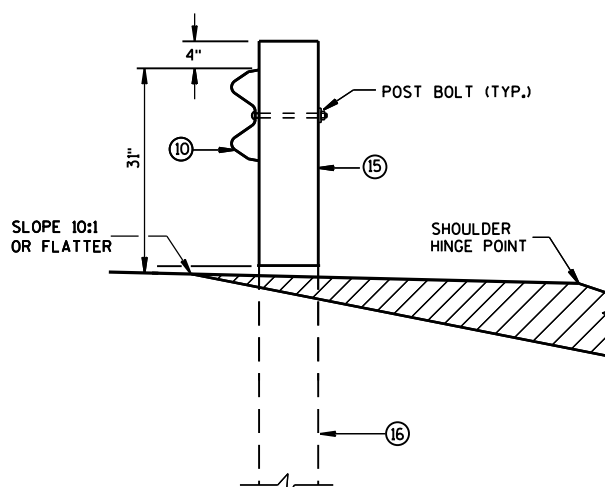
DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL.

SEE MANUFACTURER'S DRAWING FOR SPLICE LOCATION, HARDWARE DIMENSIONS AND INSTALLATION INSTRUCTIONS.

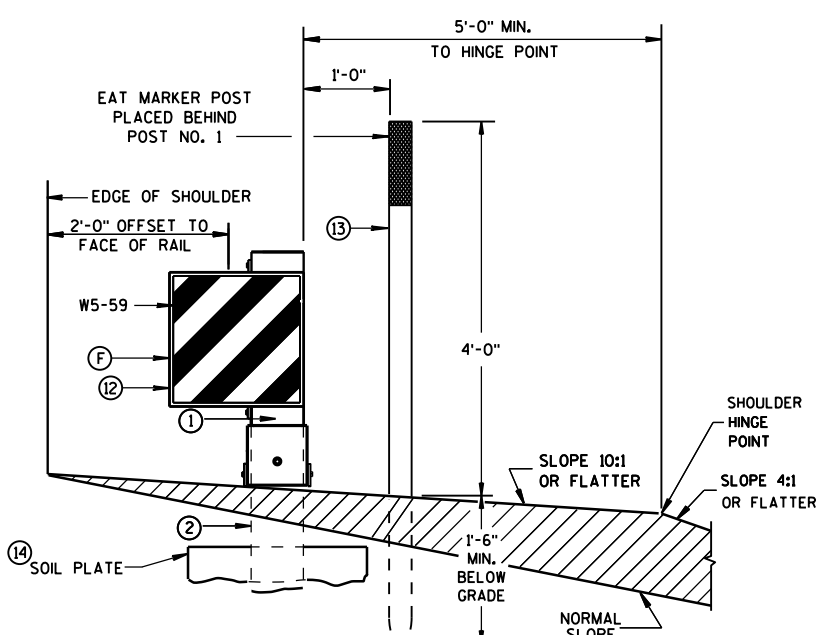
THE CENTER OF THE UPPER 3/2" DIAMETER HOLE ON POST NUMBER 3 THROUGH POST 9 IS TO BE FLUSH WITH THE GROUND LINE UP TO A MAXIMUM OF 2" ABOVE GROUND LINE.



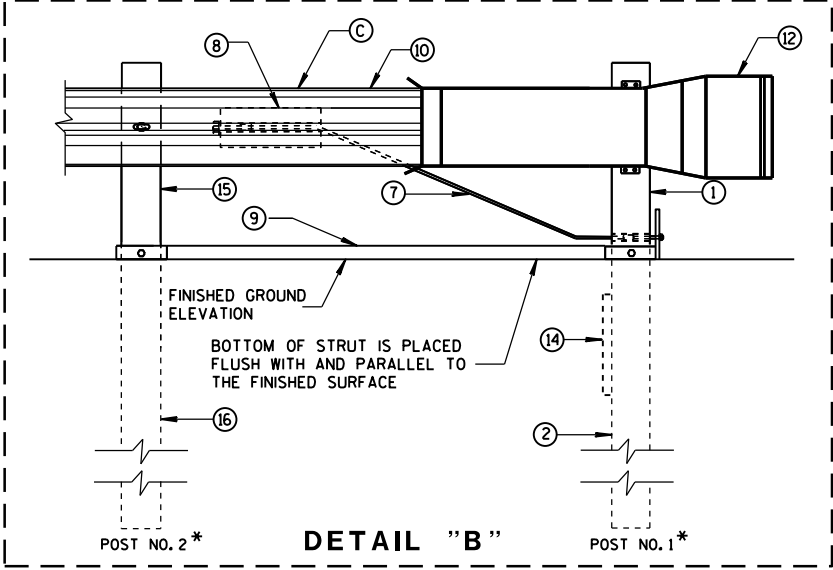
SECTION C-C
TYPICAL AT POST NOS. 3-9



SECTION B-B
TYPICAL AT POST NO. 2 *



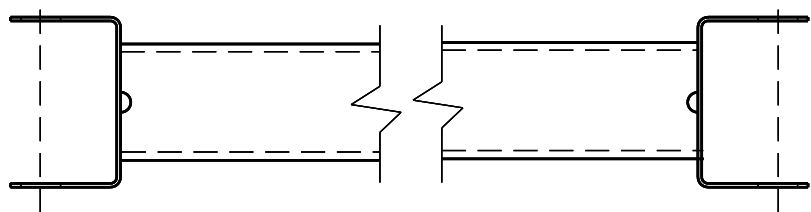
SECTION A-A
TYPICAL AT POST NO. 1 *



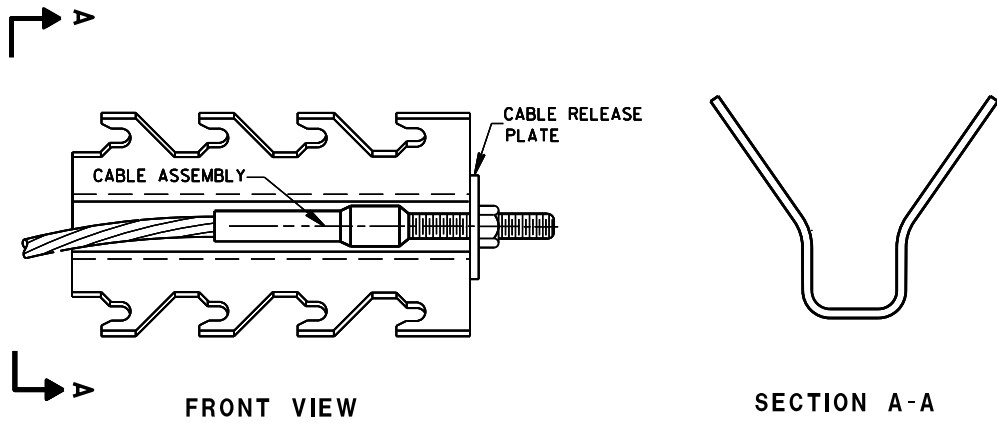
DETAIL "B"

MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL
(MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

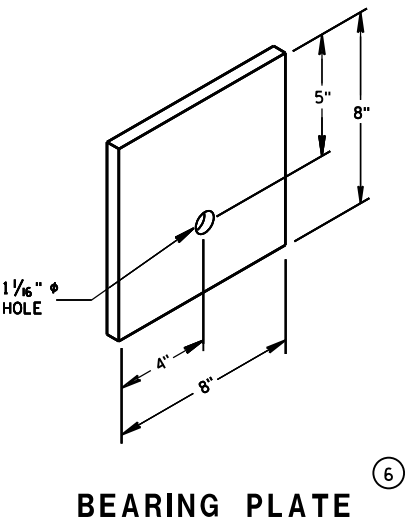


GENERIC GROUND STRUT (9) (H)

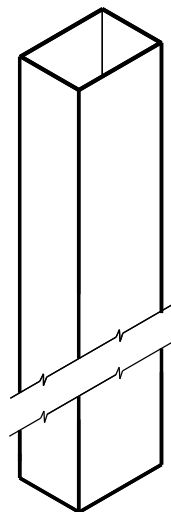


GENERIC ANCHOR CABLE BOX (8) (H)

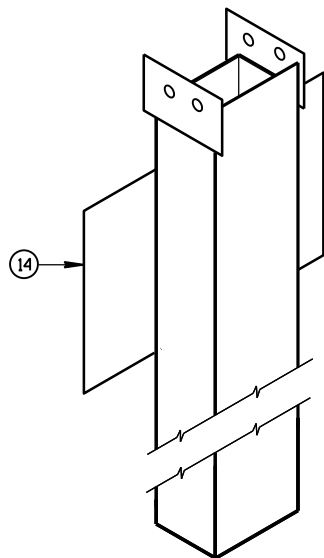
BILL OF MATERIALS	
PART NO.	DESCRIPTION
MATERIALS PROVIDED BY MGS EAT MANUFACTURER. SEE MANUFACTURER'S DETAILS FOR MORE INFORMATION.	
(1)	UPPER POST NO.1 6" X 6" TUBE
(2)	LOWER POST NO.1
(3)	WOOD CRT
(4)	WOOD BLOCKOUT
(5)	PIPE SLEEVE
(6)	BEARING PLATE
(7)	BCT CABLE ASSEMBLY
(8)	ANCHOR CABLE BOX
(9)	GROUND STRUT
(10)	PERFORATED W-BEAM RAIL END PANEL, 12'-6" LONG.
(11)	STANDARD W-BEAM RAIL. MULTIPLE SECTIONS REQUIRED. SECTIONS VARY IN LENGTH.
(12)	IMPACT HEAD
(13)	EAT MARKER POST - YELLOW (SEE APPROVED PRODUCTS LIST)
(14)	SOIL PLATE
(15)	UPPER POST NO. 2
(16)	LOWER POST NO. 2



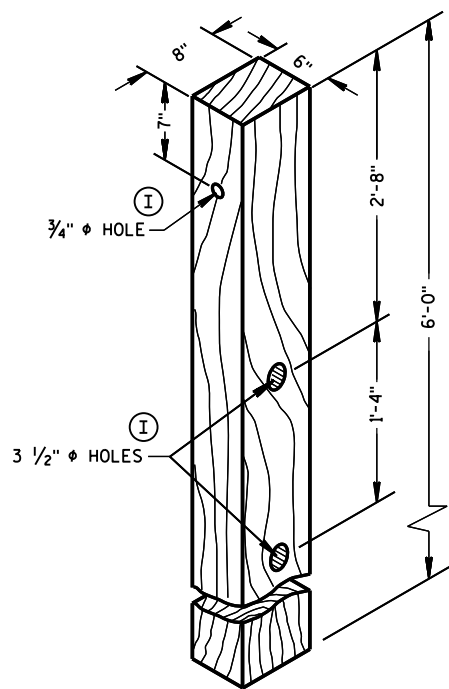
BEARING PLATE (6)



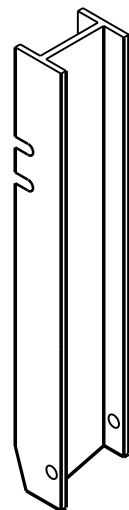
UPPER POST NO. 1⁽¹⁾



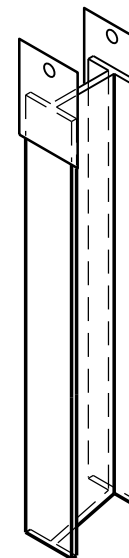
LOWER POST NO. 1⁽²⁾



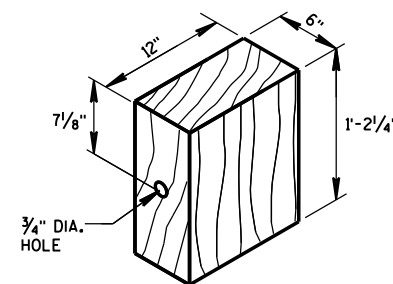
POSTS NUMBER 3-9
WOOD CRT POST⁽³⁾



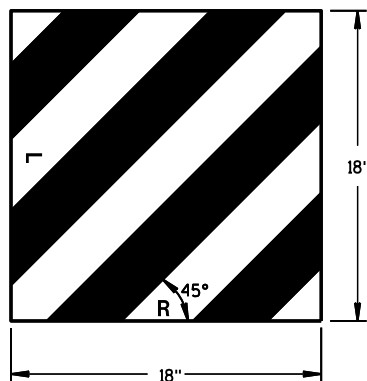
UPPER POST NO. 2⁽¹⁵⁾



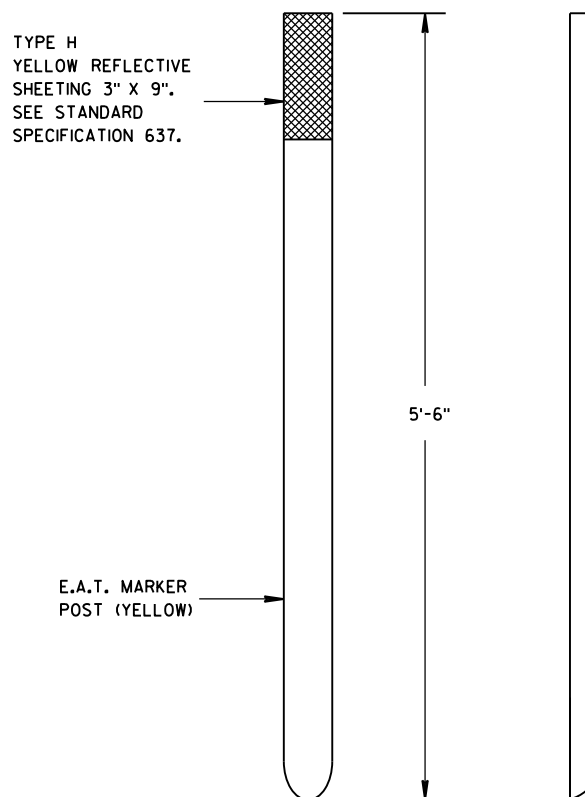
LOWER POST NO. 2⁽¹⁶⁾



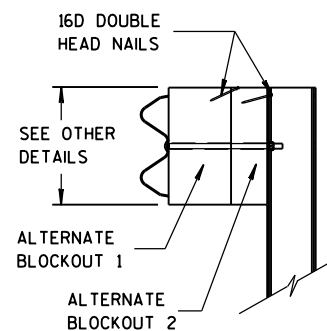
WOOD BLOCKOUT⁽⁴⁾
REQ'D. AT ALL POSTS EXCEPT POST NO'S 1 & 2



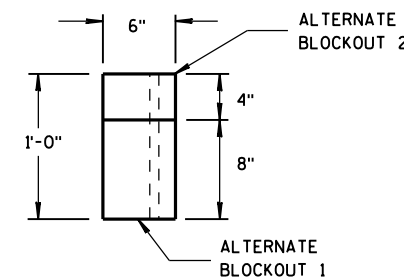
REFLECTIVE SHEETING DETAIL^(H)



FRONT VIEW
SIDE VIEW
E.A.T. MARKER POST⁽¹³⁾



SIDE VIEW



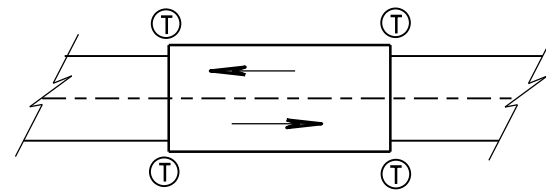
TOP VIEW

ALTERNATE WOOD
BLOCKOUT DETAIL

MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL
(MGS)

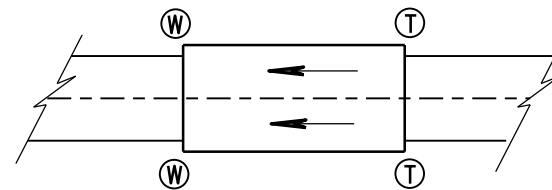
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June 2017 DATE /S/ Rodney Taylor
ROADWAY STANDARDS DEVELOPMENT
FHWA UNIT SUPERVISOR



TWO WAY TRAFFIC

Ⓣ THRIE BEAM CONNECTION



ONE WAY TRAFFIC

Ⓦ W-BEAM CONNECTION WHEN REQUIRED

GENERAL NOTES

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

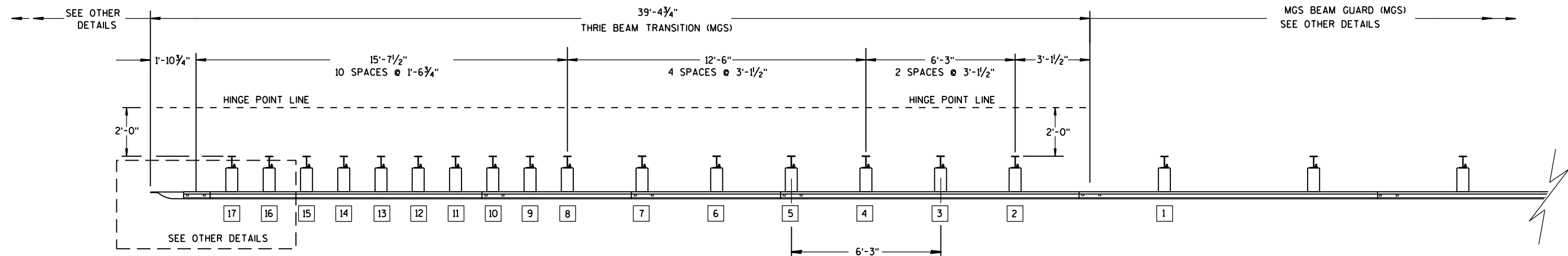
TRANSITION USES STEEL POSTS ONLY.

SEE STANDARD DETAIL DRAWING 14 B 42 FOR MORE INFORMATION.

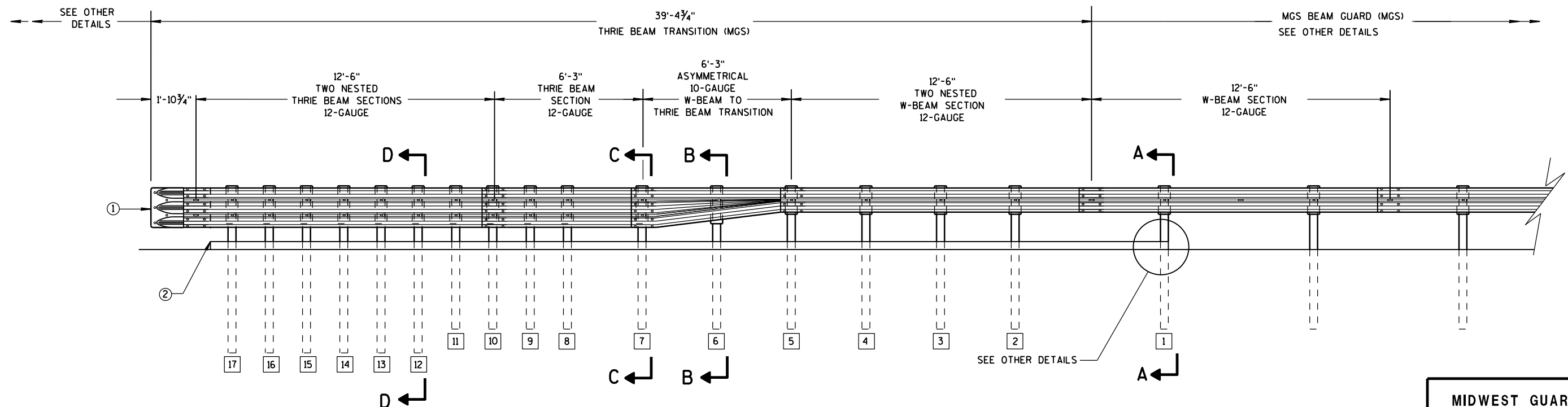
① BRIDGE RAILING TYPE "W" DOES NOT REQUIRE A TERMINAL CONNECTOR.

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

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



PLAN VIEW



ELEVATION VIEW

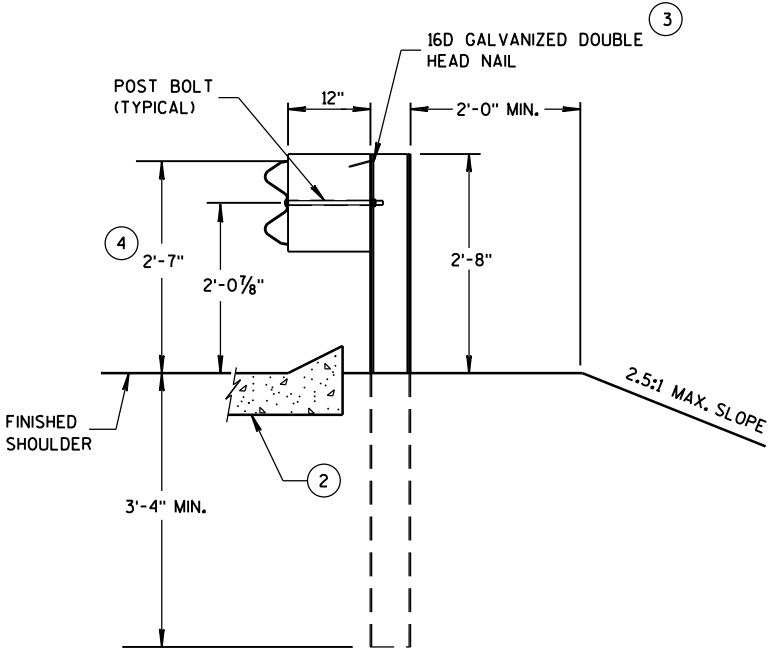
MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

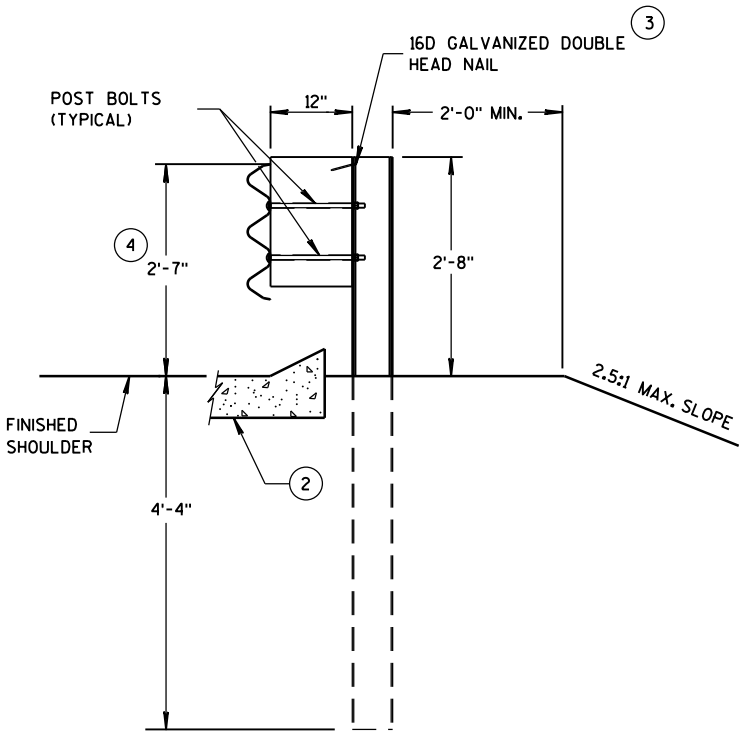
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

GENERAL NOTES

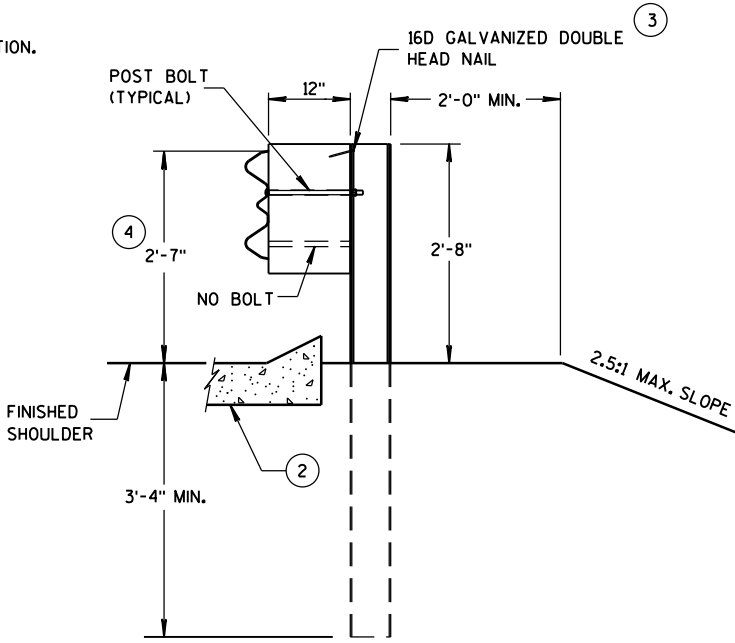
- 2 OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.
- 3 WHEN USING STEEL POSTS AND WOOD BLOCKOUTS INSTALL FOUR 10D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.
- 4 TOLERANCE FOR TOP OF W-BEAM RAIL IS $\pm 1"$.



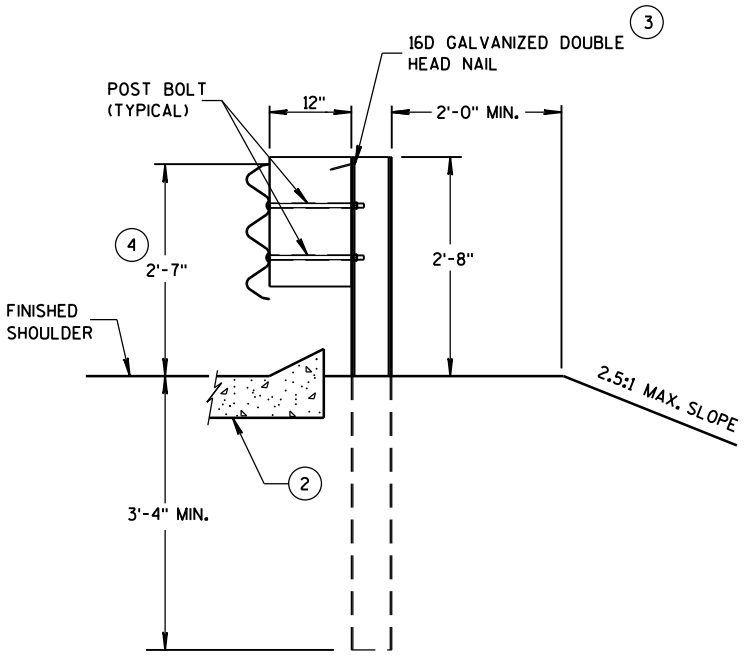
SECTION A-A
POSTS 1-5



SECTION D-D
POSTS 12-17



SECTION B-B
POST 6



SECTION C-C
POSTS 7-11

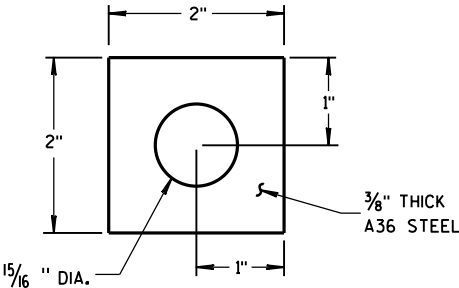
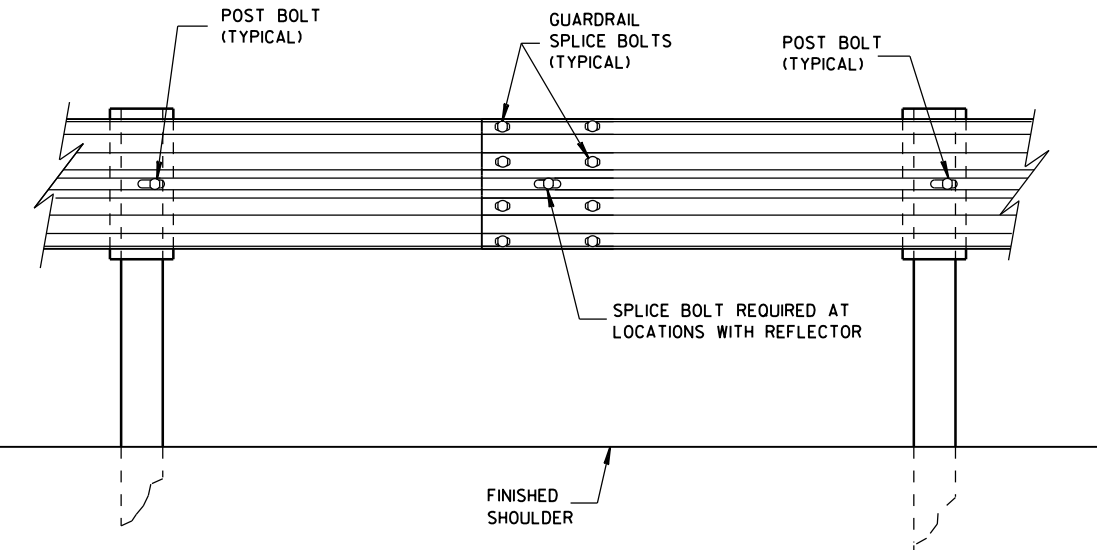
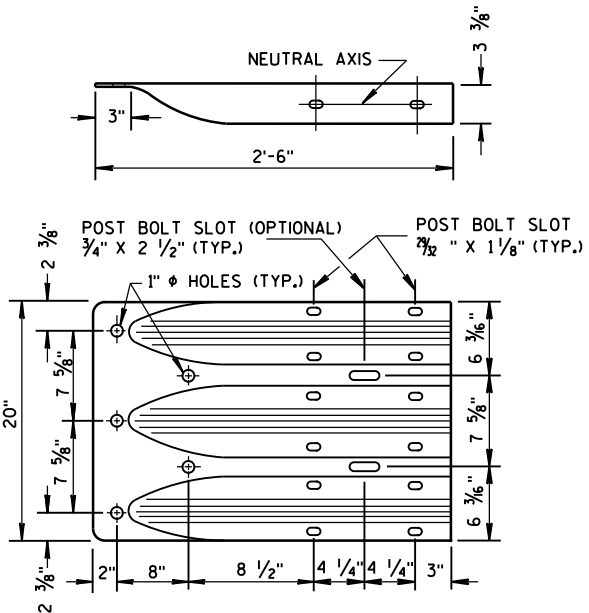


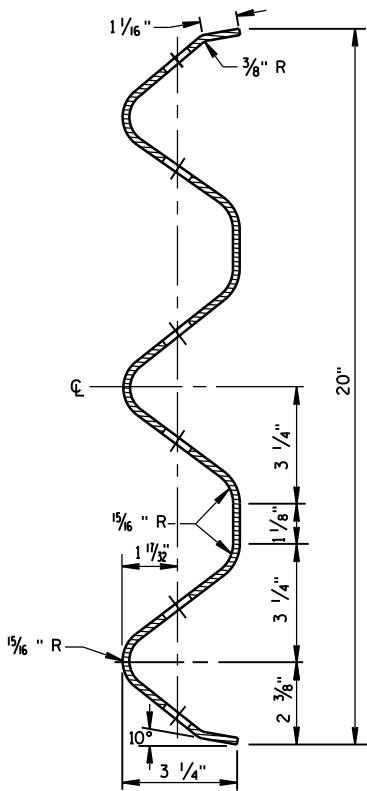
PLATE WASHER DETAIL



SPlice DETAIL



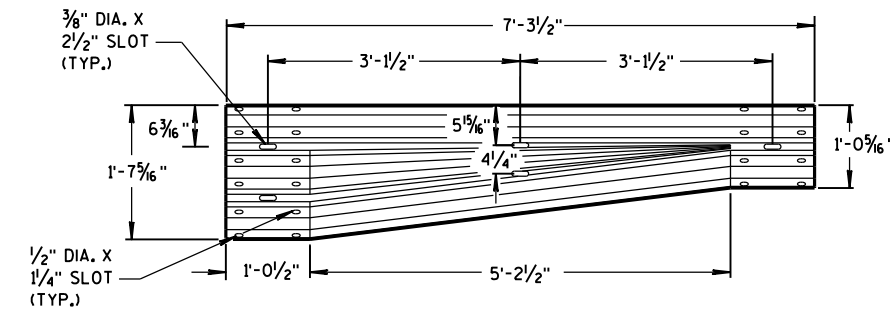
THRIE BEAM
TERMINAL CONNECTOR



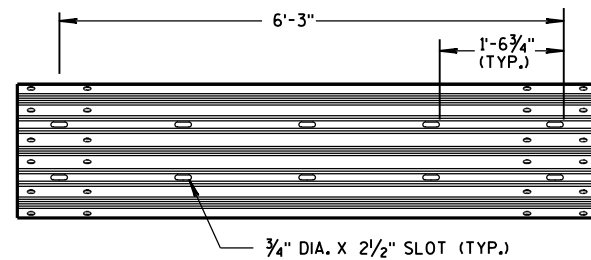
SECTION THRU THRIE
BEAM RAIL ELEMENT

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

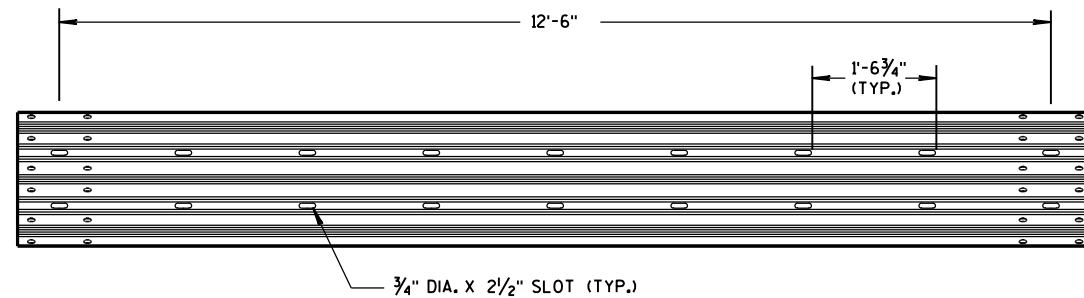
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



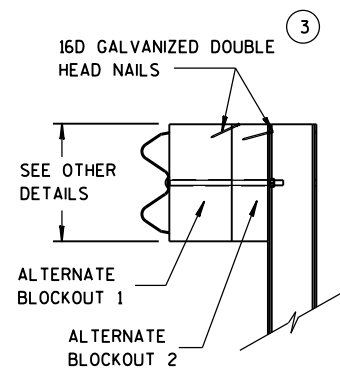
W-BEAM TO THRIE BEAM TRANSITION SECTION



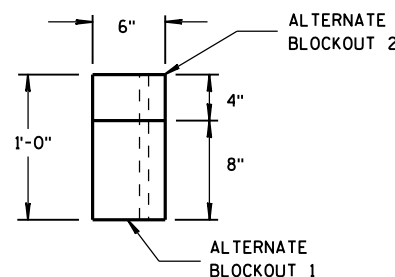
6'-3" THRIE BEAM SECTION



12'-6" THRIE BEAM SECTION

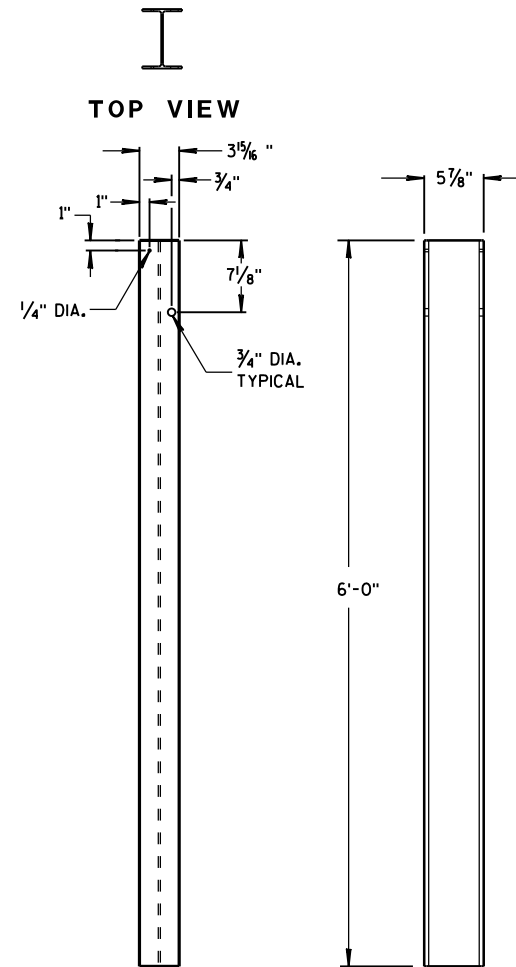


SIDE VIEW



TOP VIEW

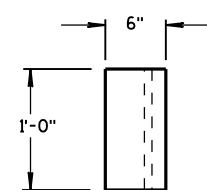
ALTERNATE WOOD BLOCKOUT DETAIL



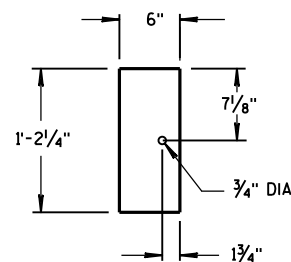
FRONT VIEW

SIDE VIEW

STEEL POSTS 1-5

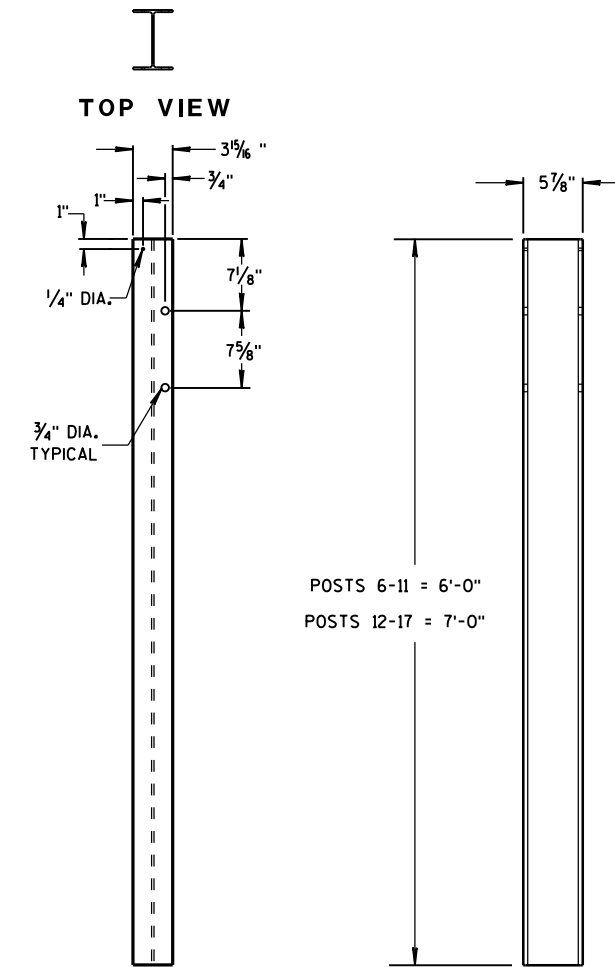


TOP VIEW



FRONT VIEW

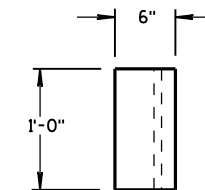
BLOCKOUT
POSTS 1-5



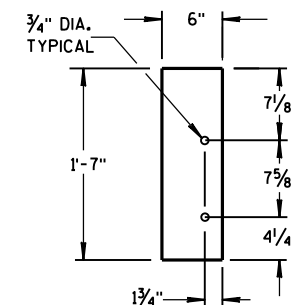
FRONT VIEW

SIDE VIEW

STEEL POSTS 6-17



TOP VIEW



FRONT VIEW

BLOCKOUT
POSTS 6-17

GENERAL NOTES

STEEL POSTS ARE W6X9 OR W6X8.5.

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

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

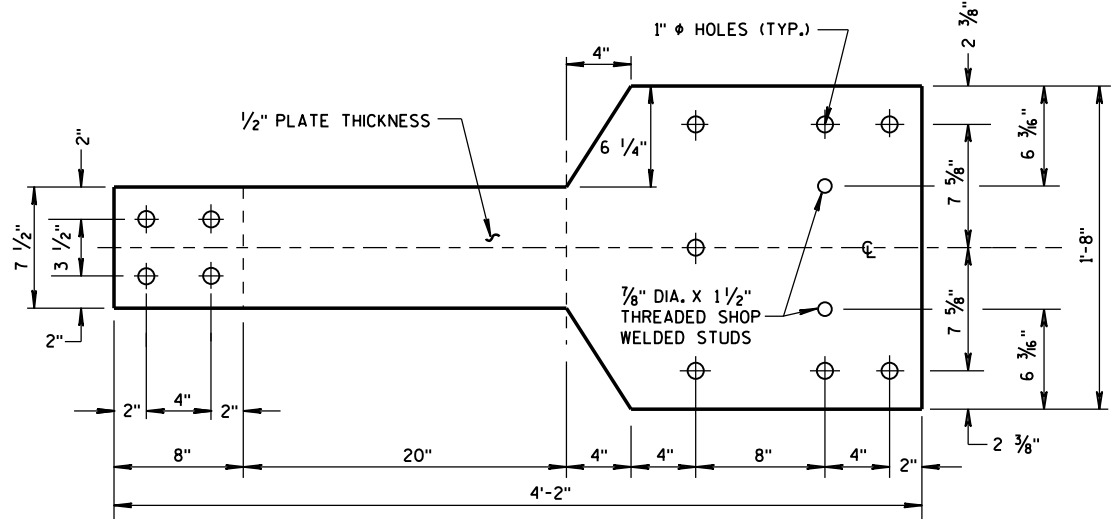
(5) WOOD BLOCKS MAY BE CONSTRUCTED OUT OF 2 WOOD BLOCKS. SEE ALTERNATE WOOD BLOCK DETAIL.

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

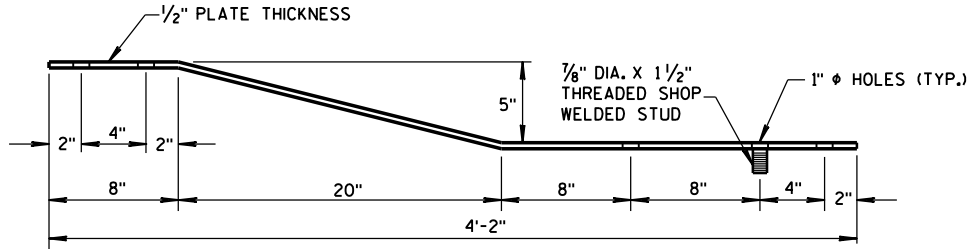
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

GENERAL NOTES

④ TOLERANCE FOR TOP OF W-BEAM RAIL IS $\pm 1"$.

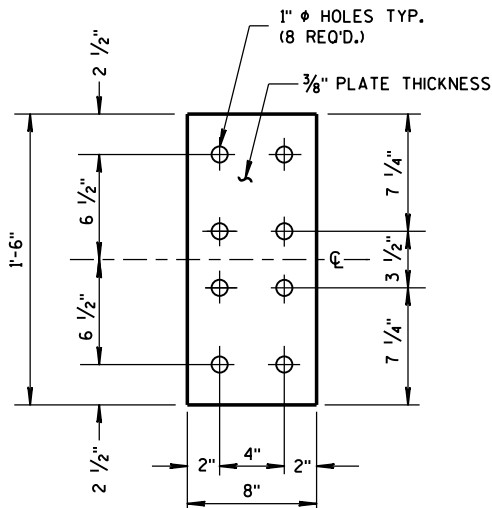


FRONT VIEW



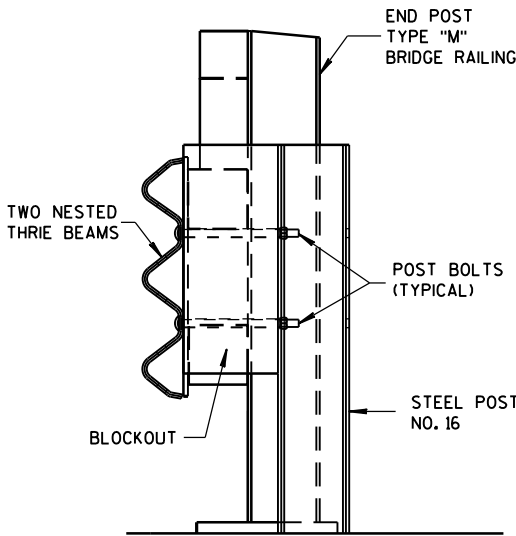
PLAN VIEW

BACK-UP PLATE DETAIL, TYPE "M"

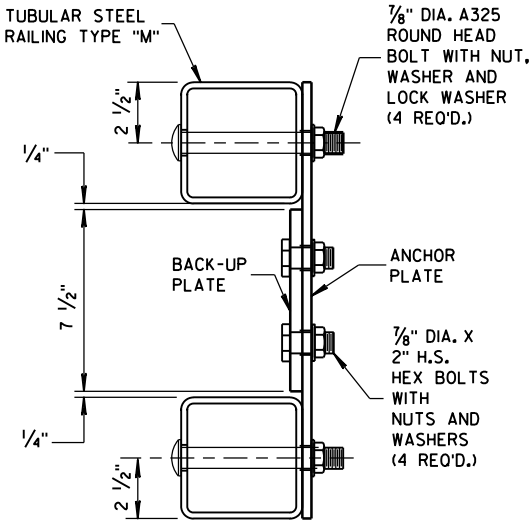


FRONT VIEW

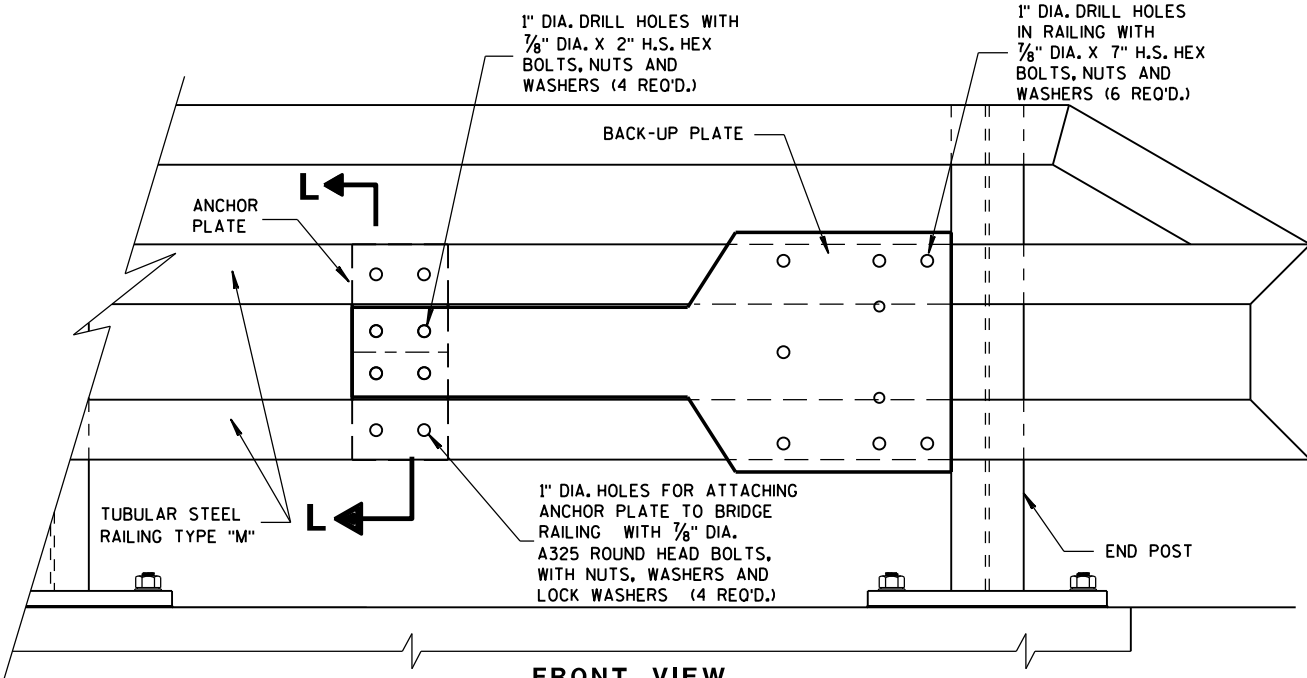
ANCHOR PLATE DETAIL, TYPE "M"



SECTION M-M

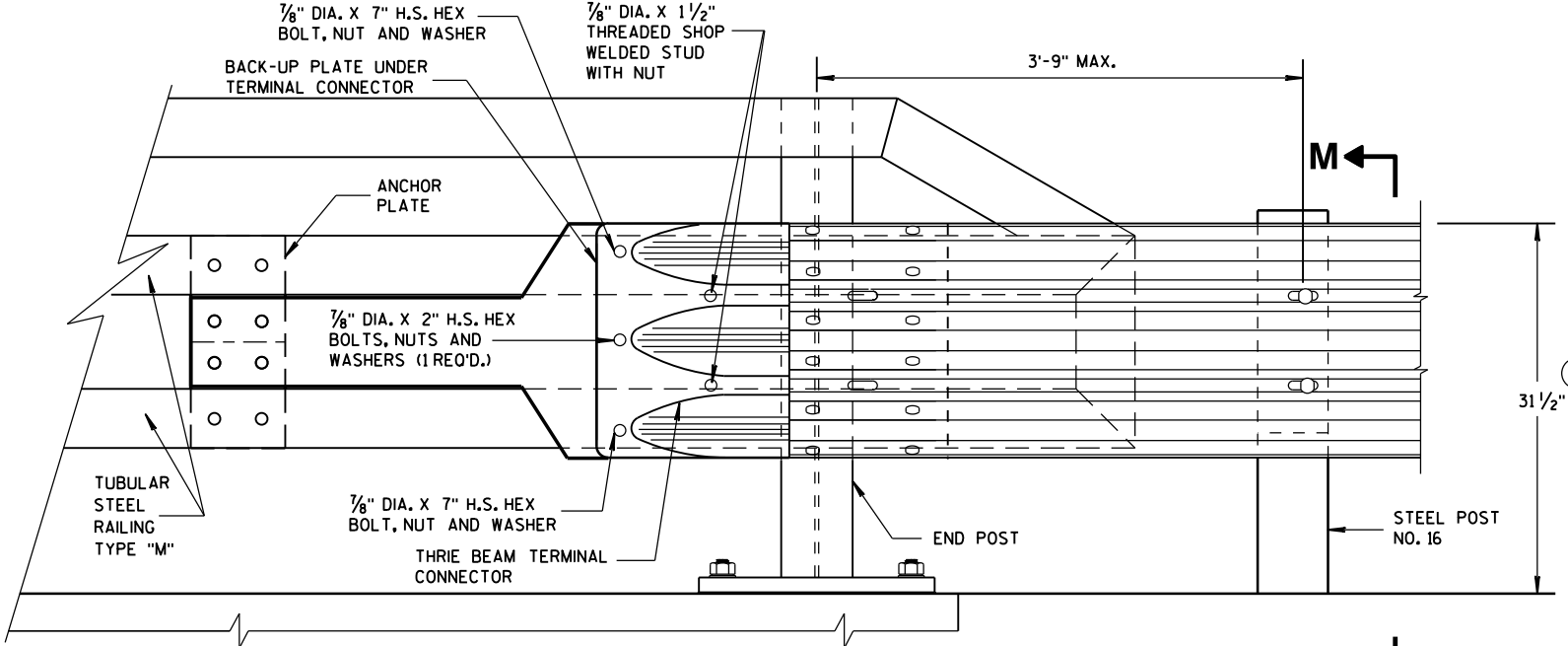


SECTION L-L

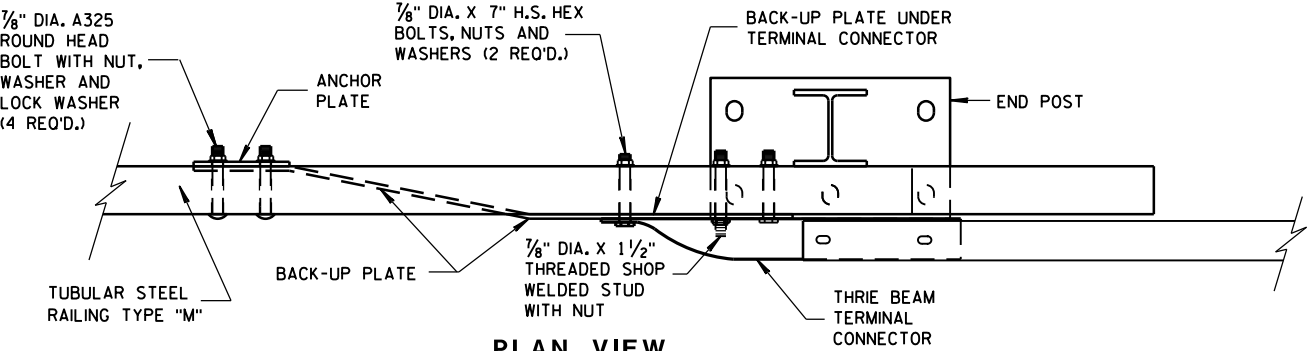


FRONT VIEW

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



FRONT VIEW



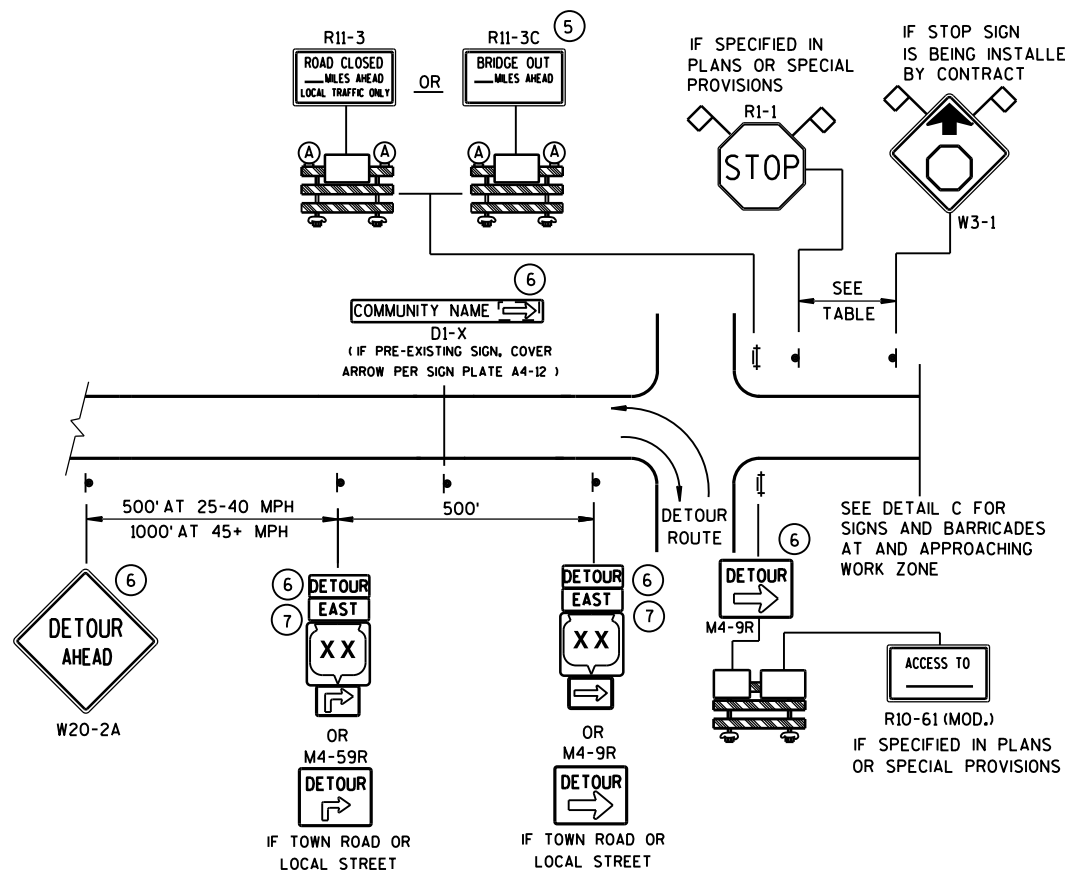
PLAN VIEW

THRIE BEAM CONNECTION TO TUBULAR RAILING, TYPE "M"

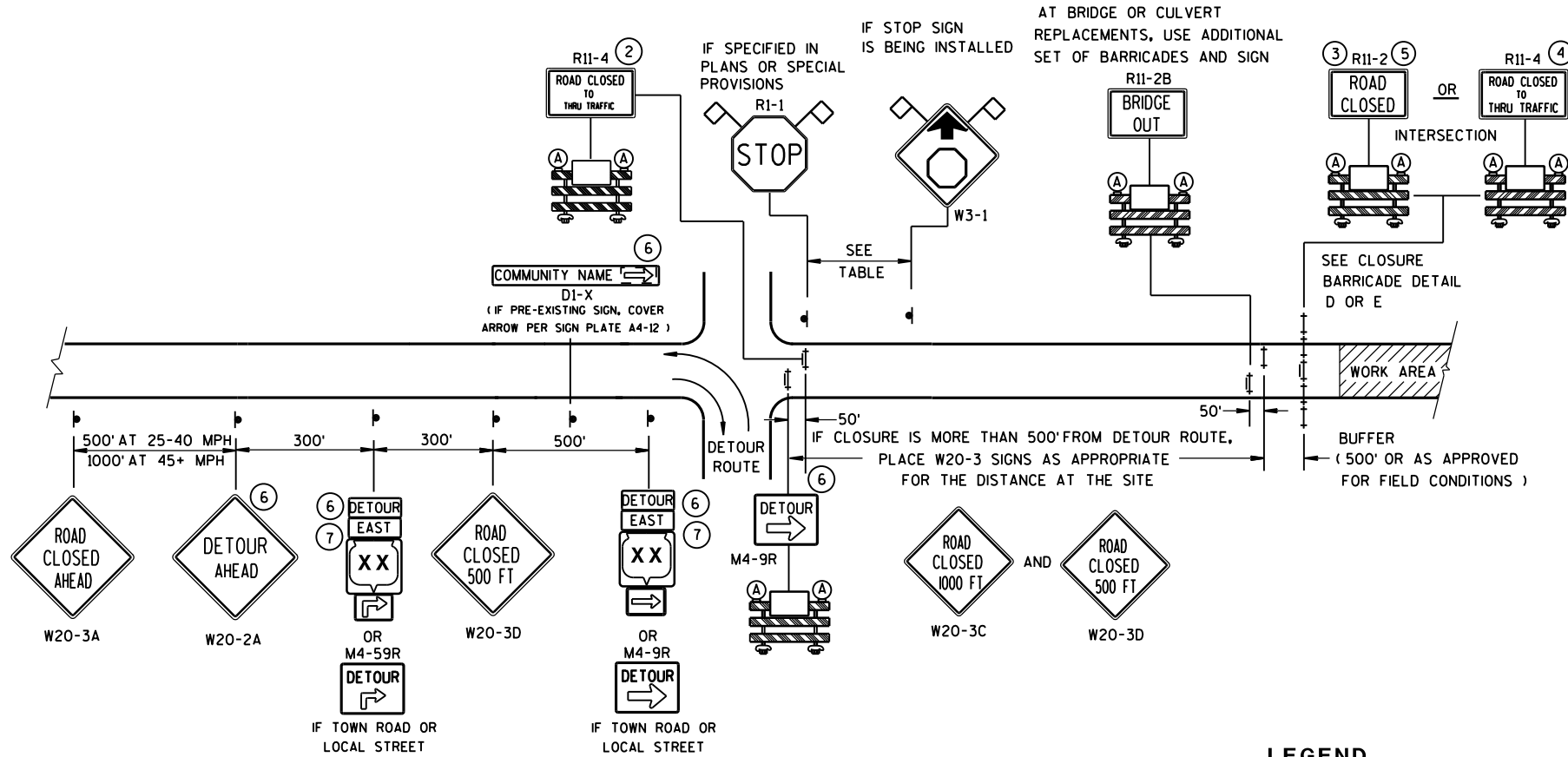
MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

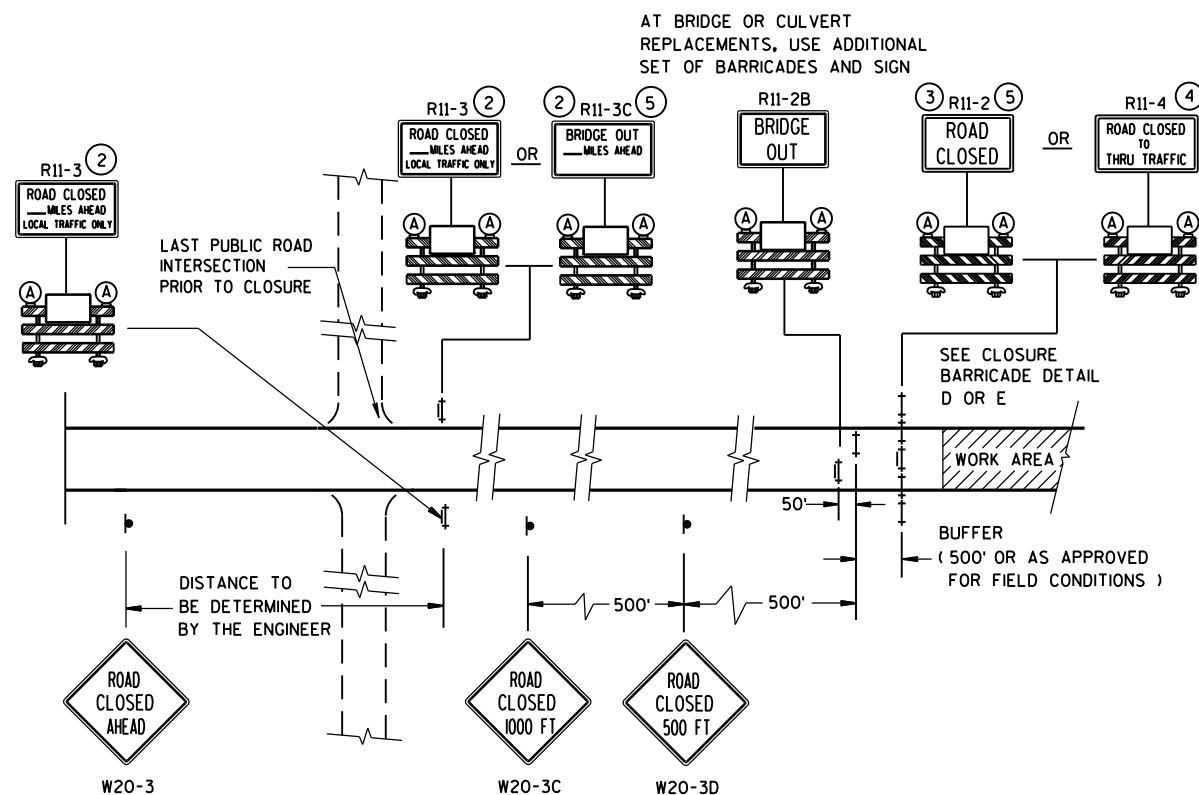
APPROVED
June, 2015
DATE
/S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT
ENGINEER
FHWA



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)

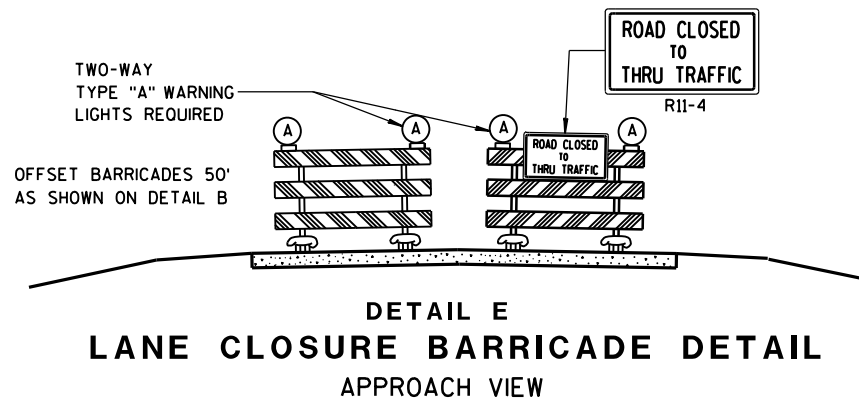
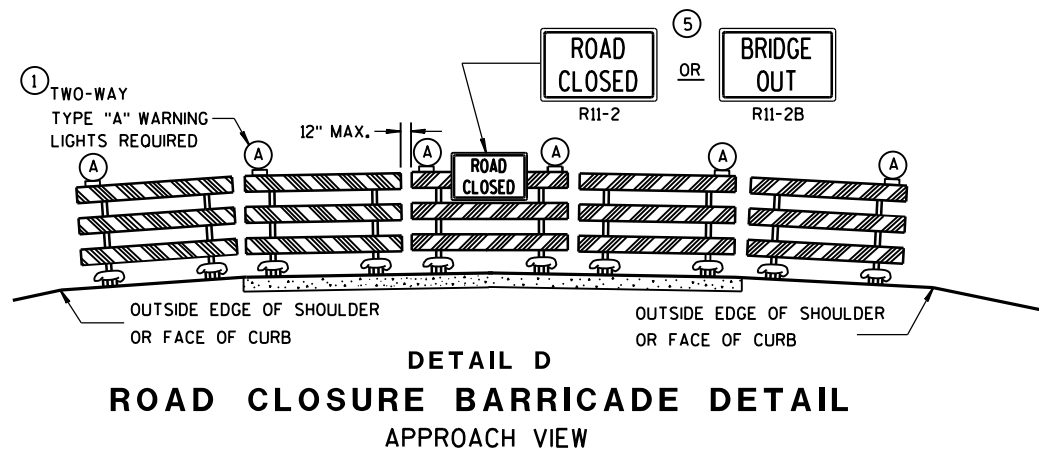


DETAIL C
MAINLINE CLOSURE, NO POSTED DETOUR

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



SEE SDD 15C2-SHEET "a" FOR LEGEND

GENERAL NOTES

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

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

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

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

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

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

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

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

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

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

R11-2 SHALL BE 48" X 30".

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

M4-9 SHALL BE 30" X 24".

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

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

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

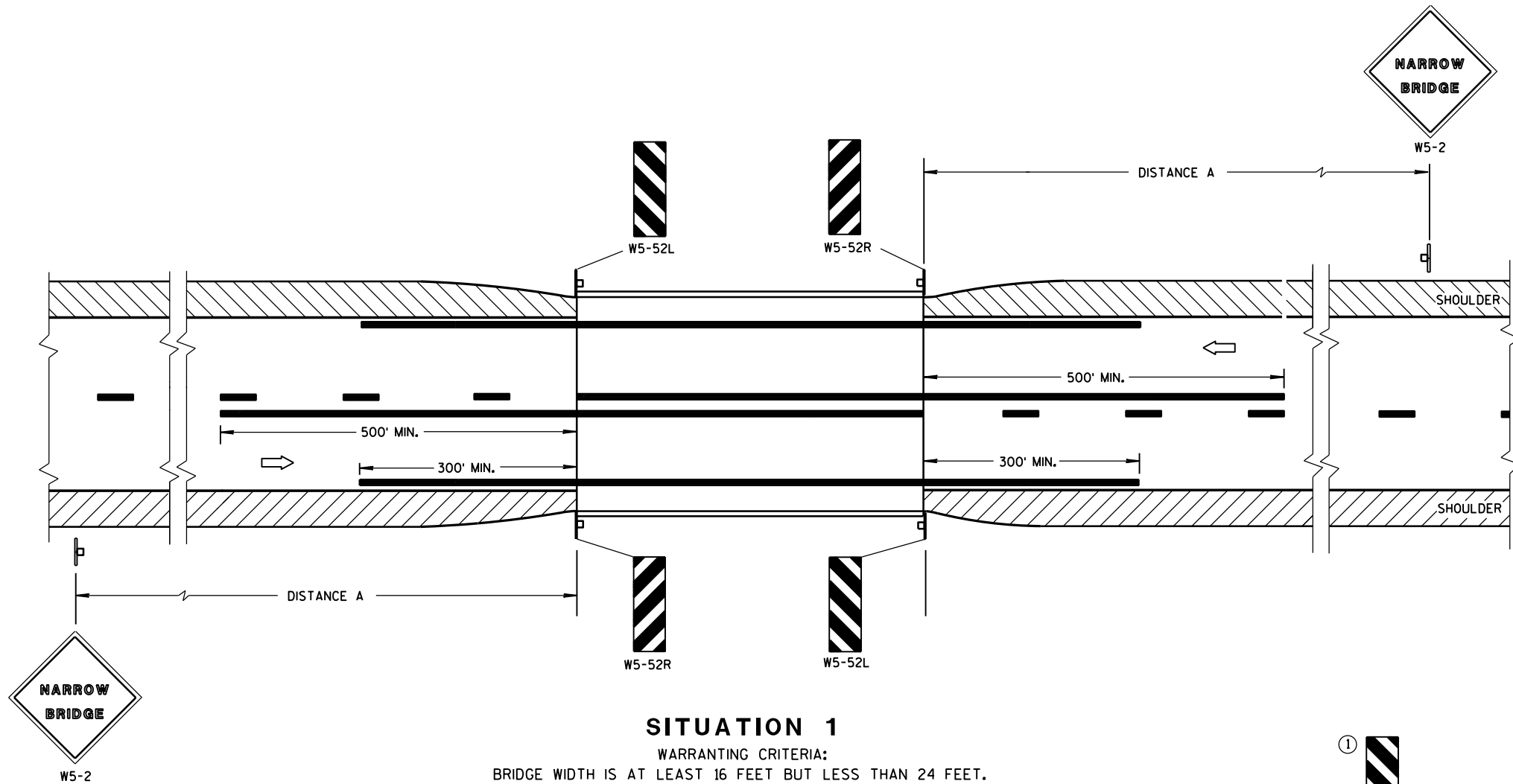
M05-1 AND M06-1 SHALL BE 21" X 21". (30" X 30" IF NEEDED TO MATCH EXISTING SIGNS.)

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

R1-1 SHALL BE 36" X 36".

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

BARRICADES AND SIGNS FOR MAINLINE CLOSURES	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
Sept. 2015 DATE	/S/ Peter Amokobe Atepe STATEWIDE WORK ZONE TRAFFIC SAFETY ENGINEER
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'

GENERAL NOTES

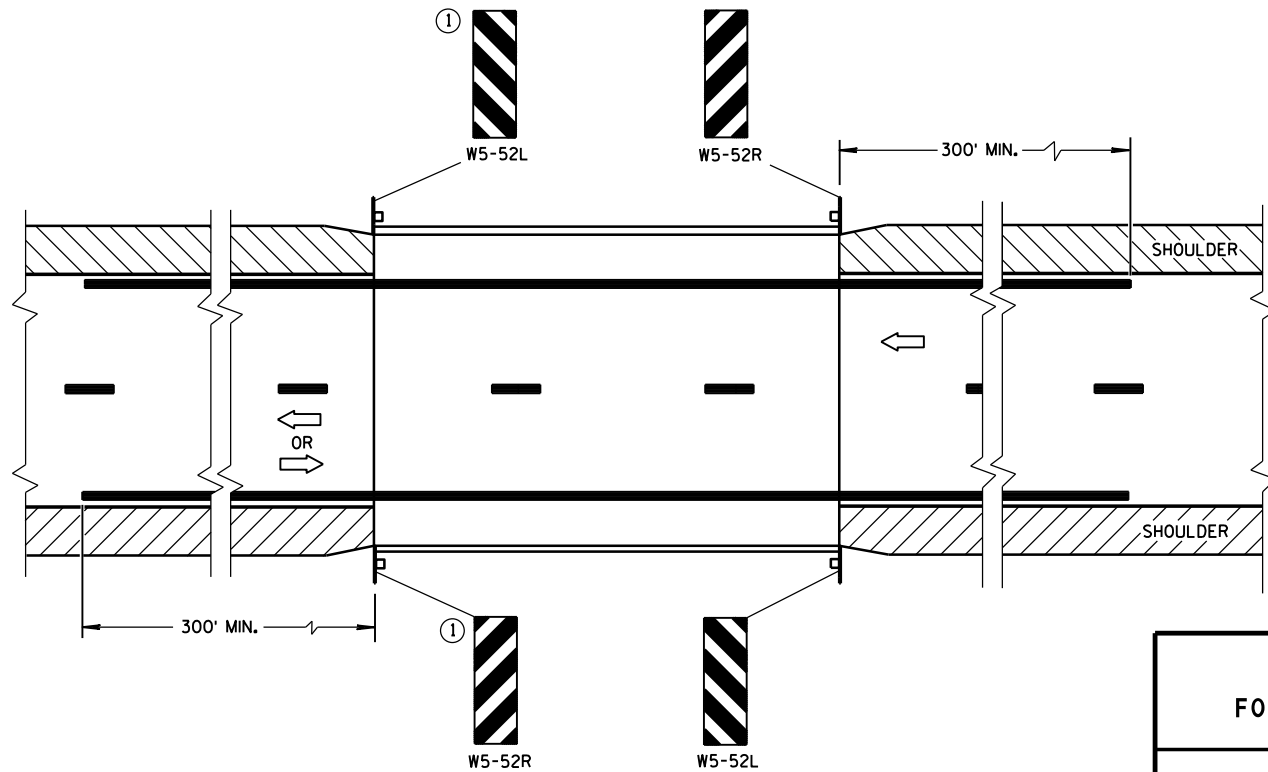
DETAILS OF TRAFFIC CONTROL DEVICES AND INSTALLATION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS, THE SPECIAL PROVISIONS, AND THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

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

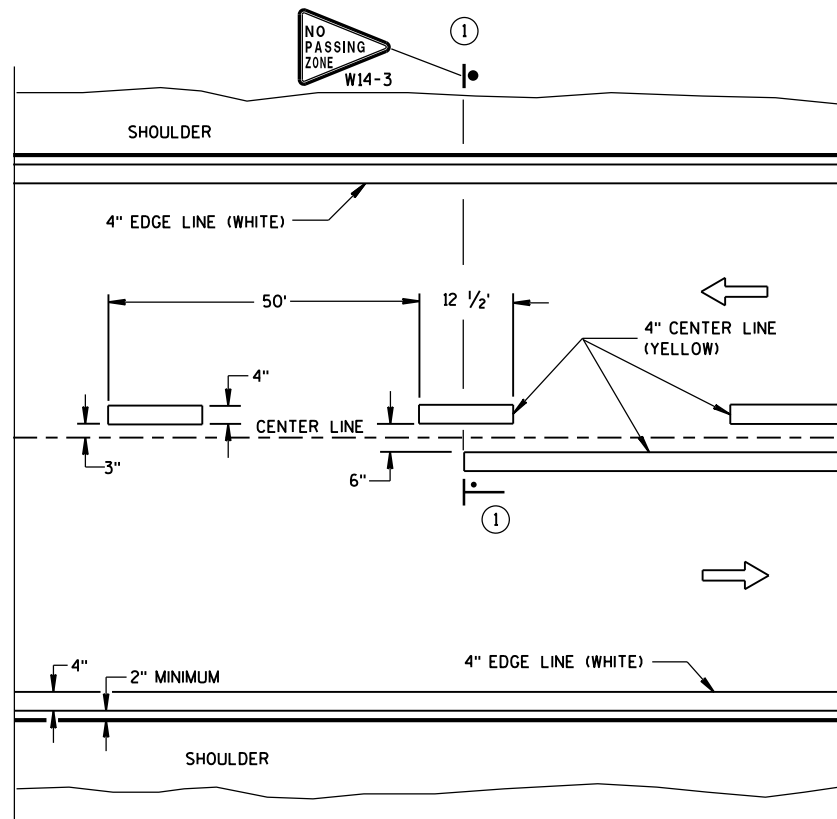
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

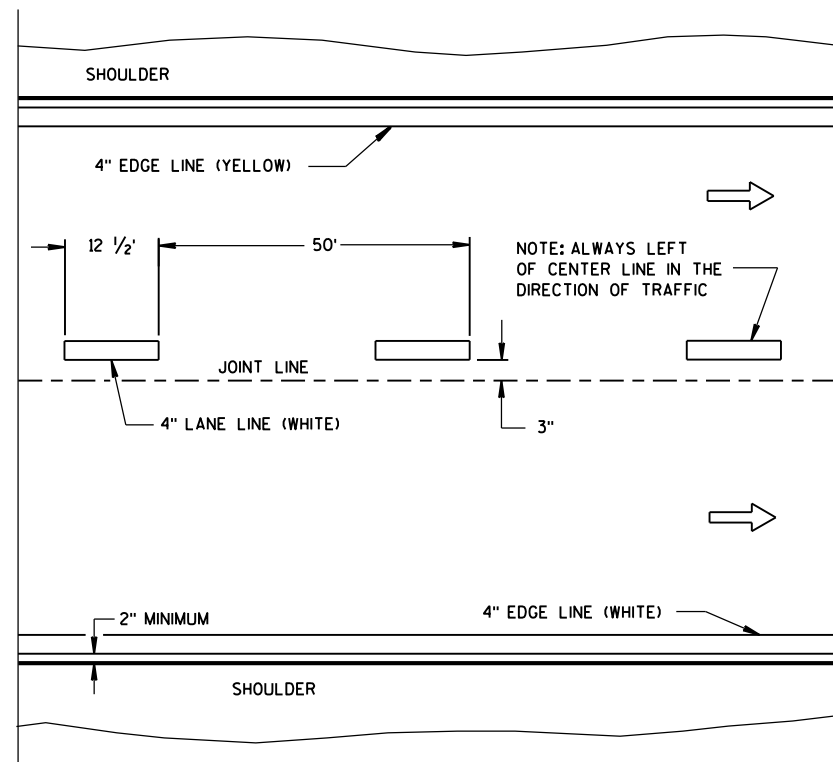
June 2017
DATE

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

FHWA

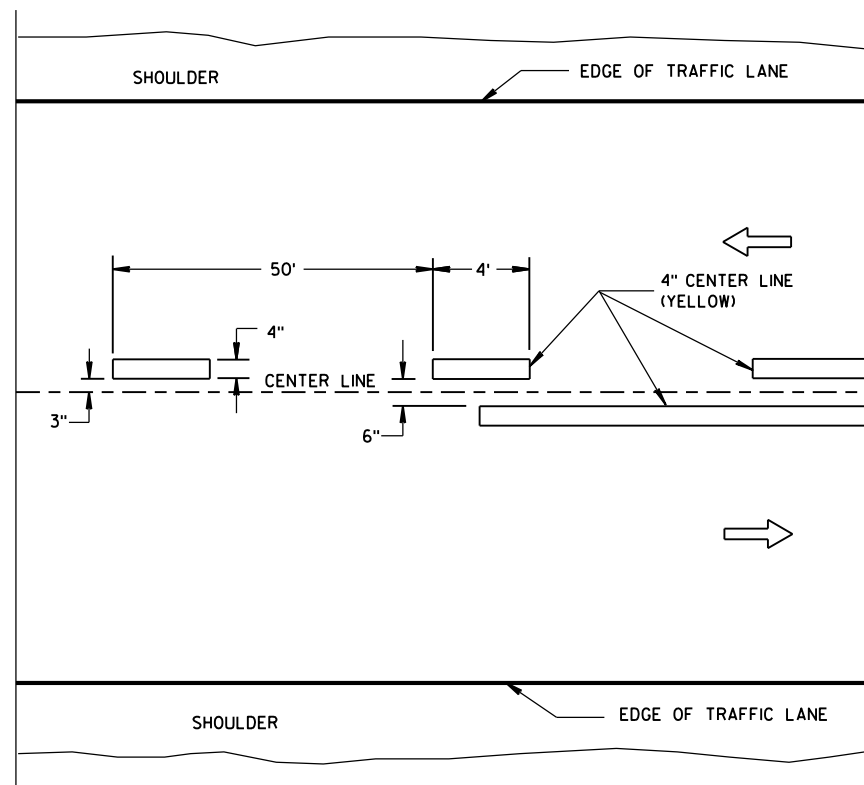


TWO WAY TRAFFIC

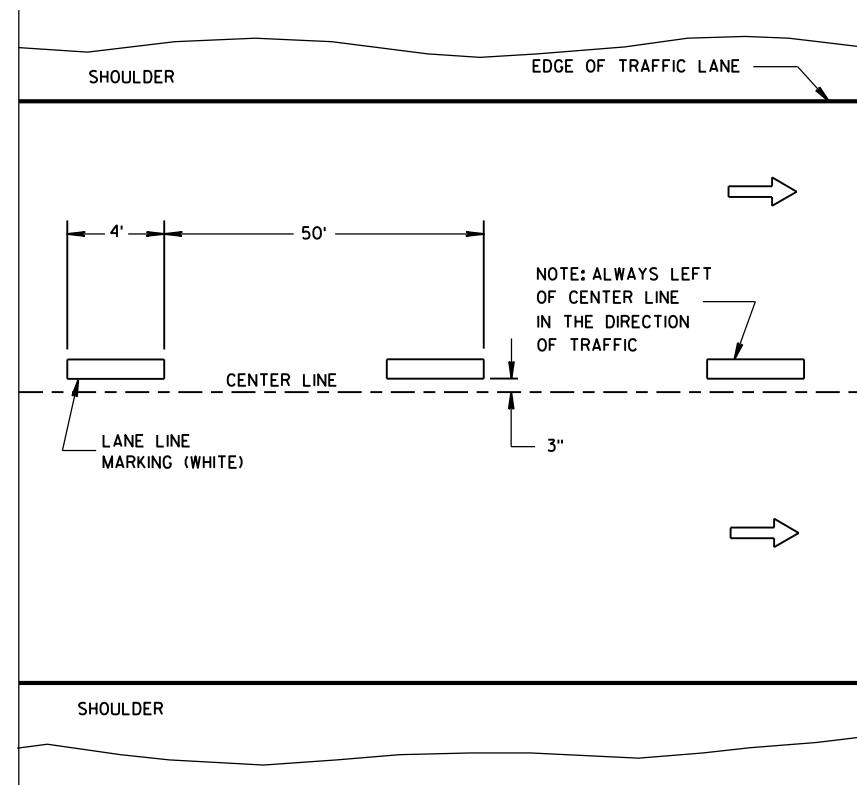


ONE WAY TRAFFIC

PERMANENT PAVEMENT MARKING



TWO WAY TRAFFIC



ONE WAY TRAFFIC

TEMPORARY PAVEMENT MARKING

GENERAL NOTES

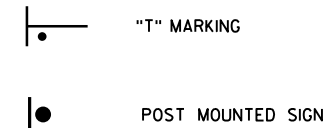
DETAILS OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO STANDARD SPECIFICATIONS AND SPECIAL PROVISIONS.

- ① LOCATE THE NO PASSING ZONE W14-3 SIGN WITHIN 50 FEET OF THE "T" MARKING.

NOTE

ARROW SYMBOL () SHOWS DIRECTION OF TRAVEL

LEGEND



LONGITUDINAL MARKING (MAINLINE)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June 2017 /S/ Matthew R. Rauch
DATE STATE SIGNING AND MARKING ENGINEER
FHWA

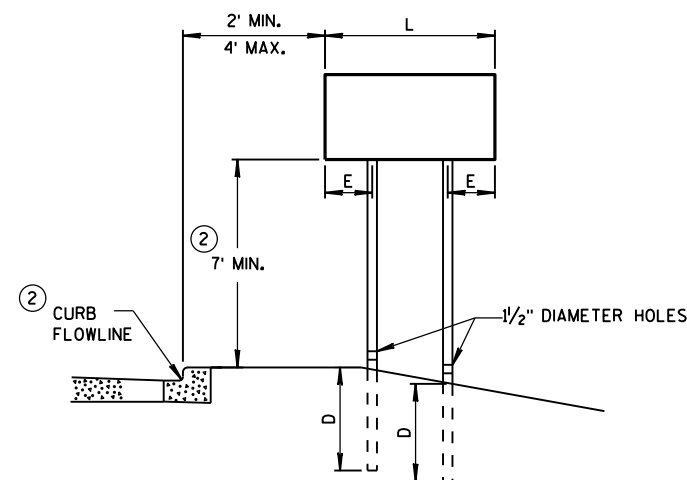
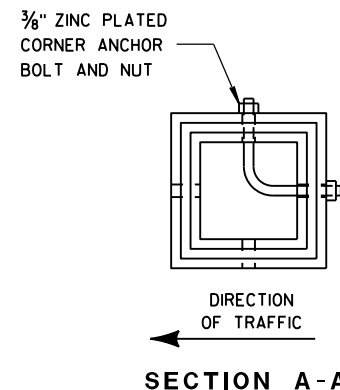


DETAIL OF TUBULAR
STEEL SIGN POST

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

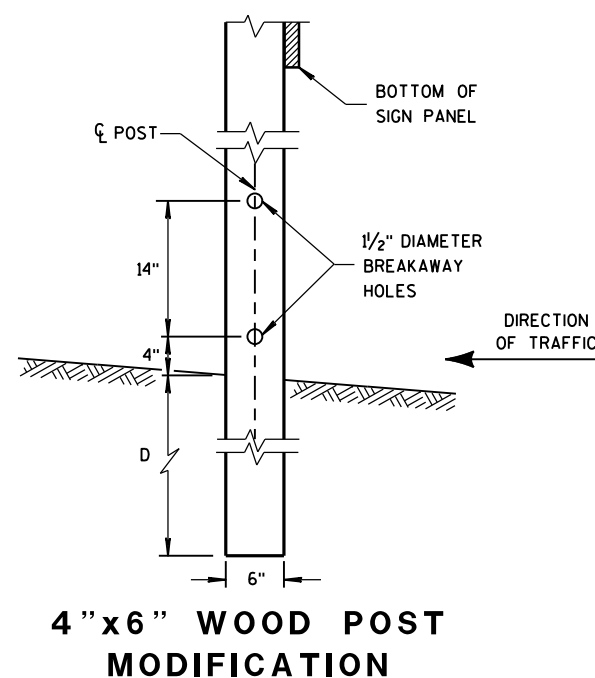
SIGNS WIDER THAN 3 FEET OR LARGER THAN 9 SQ. FT. SHALL
BE MOUNTED ON MULTIPLE POSTS (SEE ABOVE TABLE).
SIGNS LARGER THAN 27 SQ. FT. SHALL NOT BE MOUNTED
ON TUBULAR STEEL POSTS.



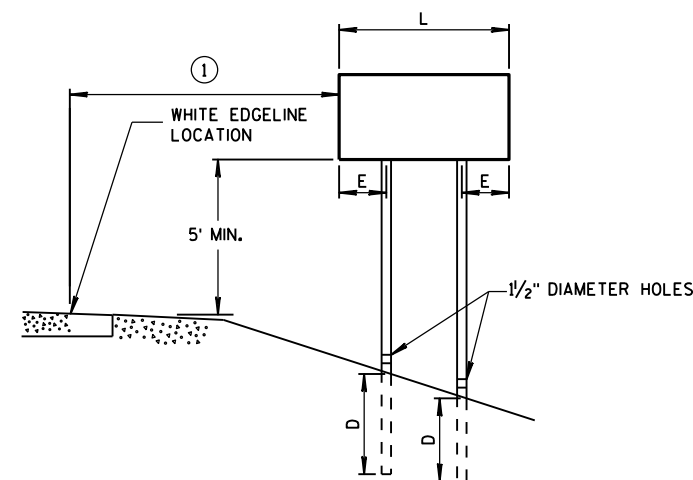
URBAN AREA

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

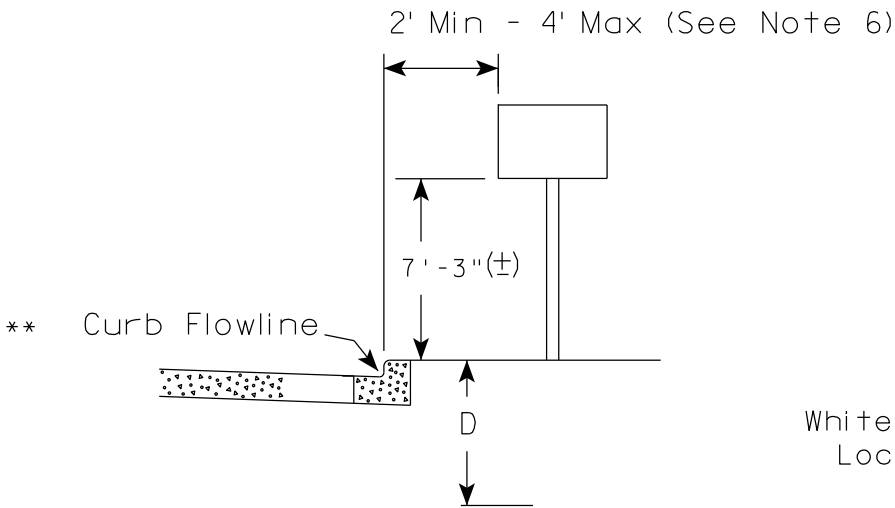
- SQUARE STEEL POSTS (2" x 2")
- MACHINE BOLTS - 3/8" X 3-1/4" LENGTH W/ NUTS
 - RIVETS - 9/32" (6605-9-6) BULB-TITE, TRI-FOLD, ALUMINUM BODY/MANDREL O.D. FLANGE .720-.765 INCH, GRIP RANGE .042-.375 INCH

- 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

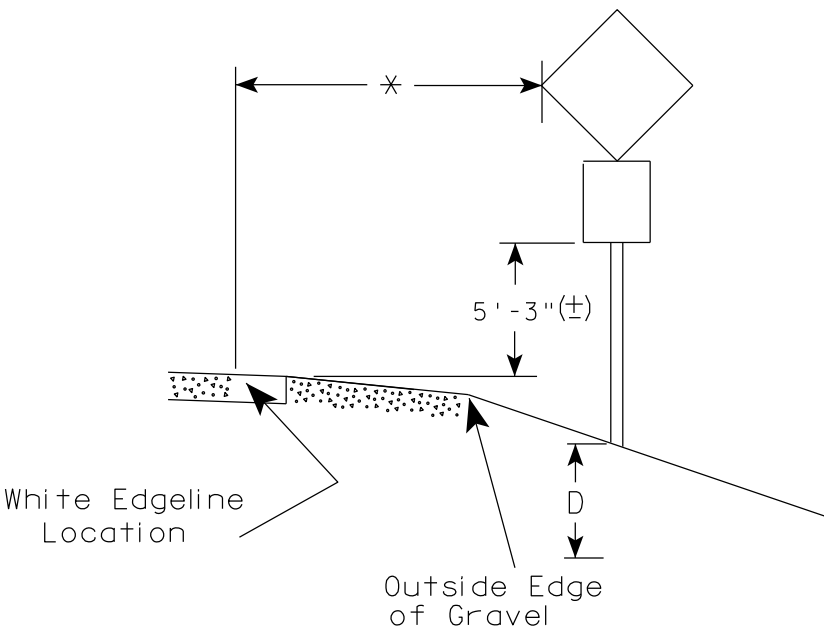
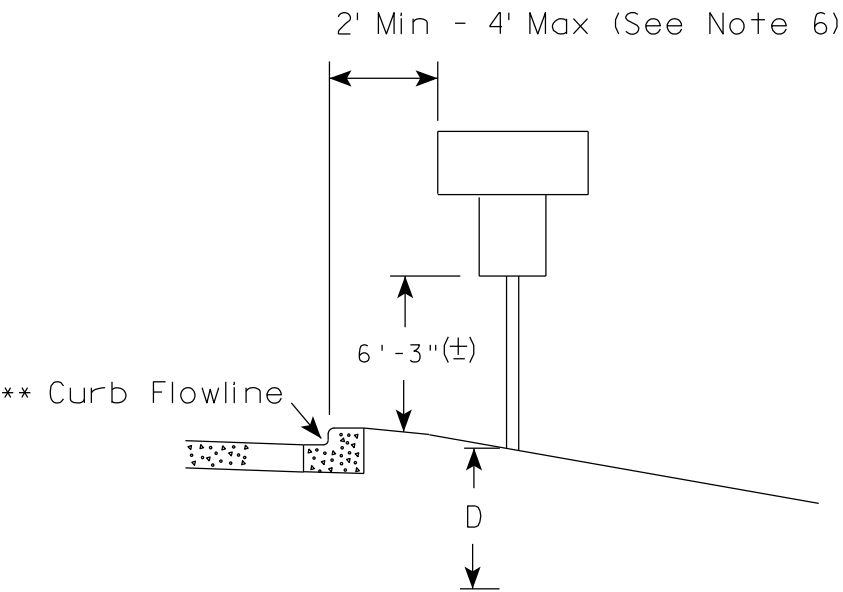
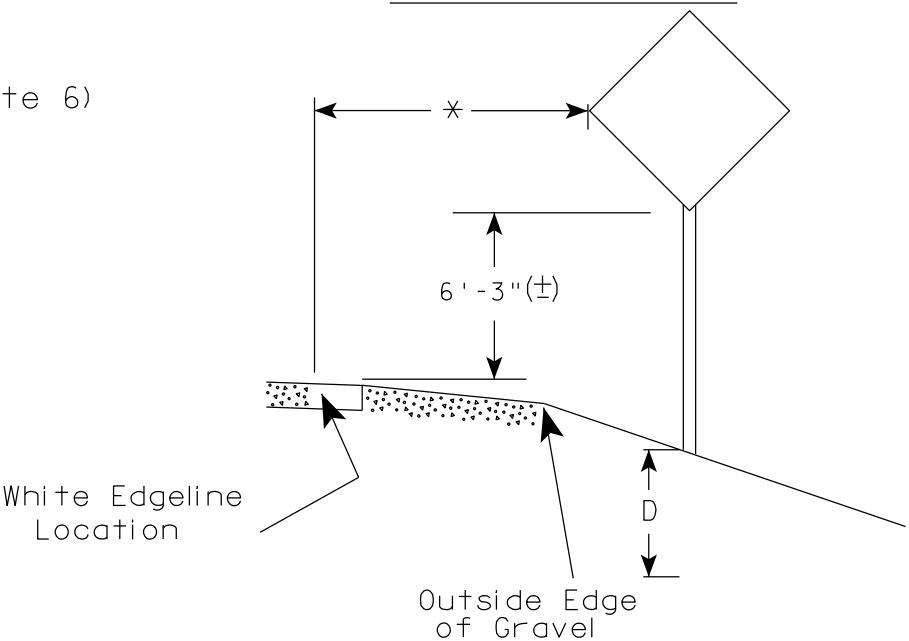
* TWO DIFFERENT FASTENING SYSTEMS ARE SHOWN FOR ILLUSTRATION PURPOSES. ON ANY INDIVIDUAL SIGN, EITHER ONE OR THE OTHER SYSTEM SHALL BE USED. ACTUAL NUMBER OF FASTENERS PER SIGN VARIES WITH THE SIGN AREA. FOR A SINGLE POST INSTALLATION, ALL SIGNS GREATER THAN 9 SQ. FT. REQUIRE THE USE OF 3 FASTENERS.

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

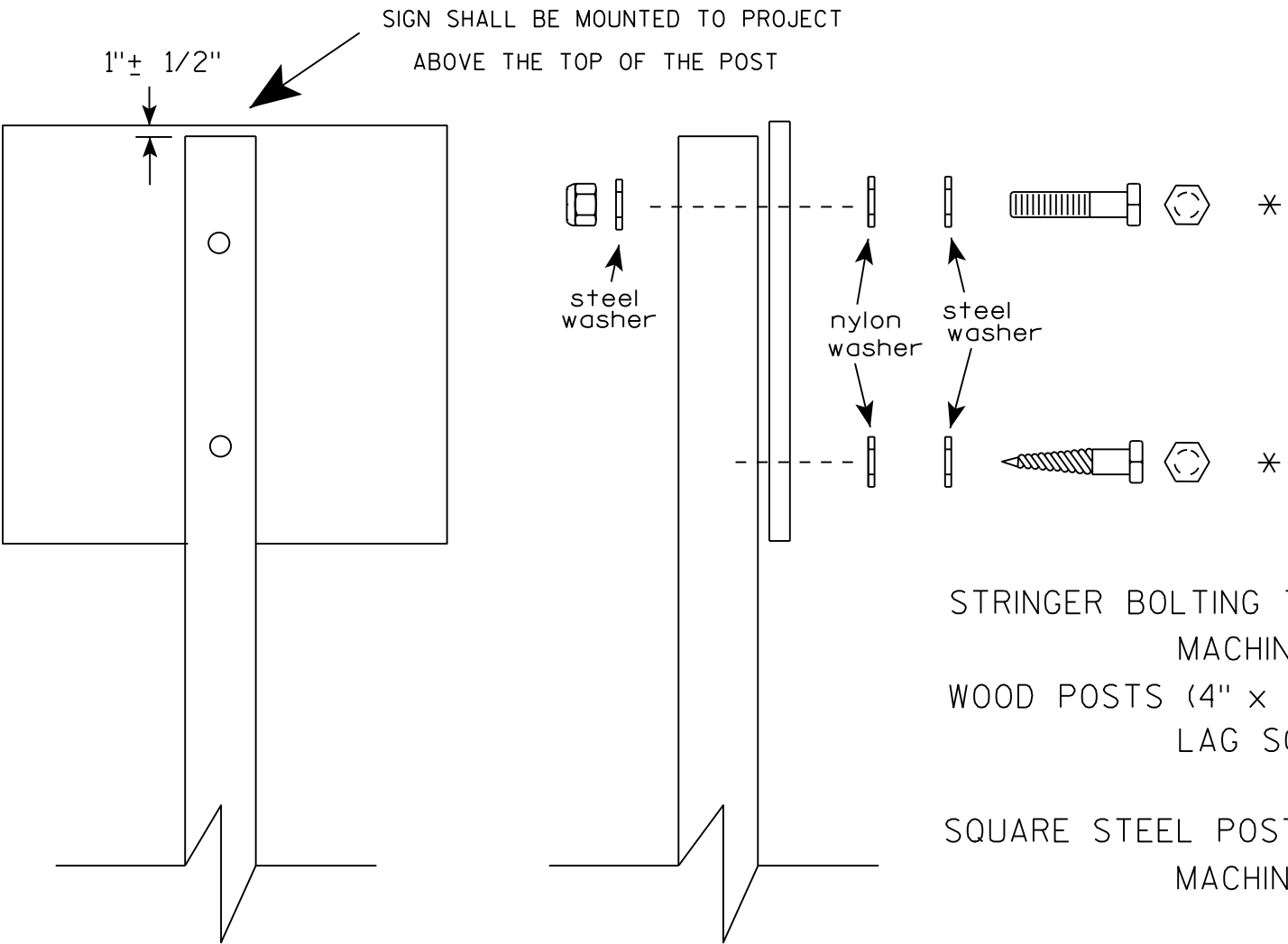
WISCONSIN DEPT OF TRANSPORTATION

APPROVED

Matthew R. Rauch
for State Traffic Engineer

DATE 7/23/15

PLATE NO. A4-3.20



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

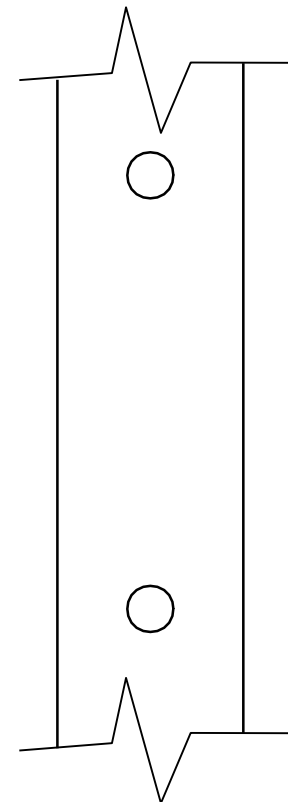
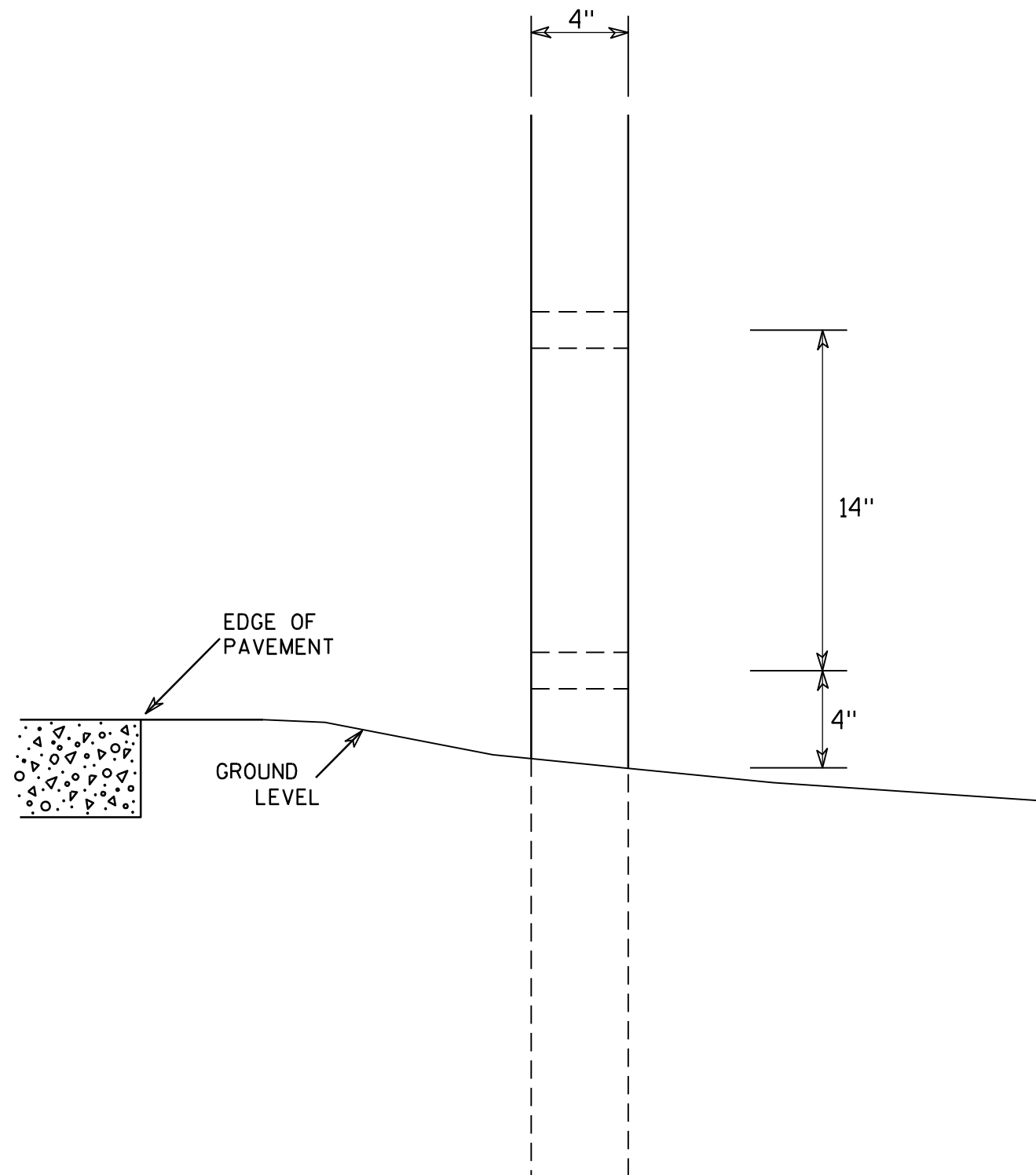
* Two different fastening systems are shown for illustration purposes. On any individual sign, either one or the other system shall be used. Actual number of fasteners per sign varies with the sign area, but normally there are two. For a single post installation, all signs greater than 9 sq. ft. require 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 1 1/2" 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

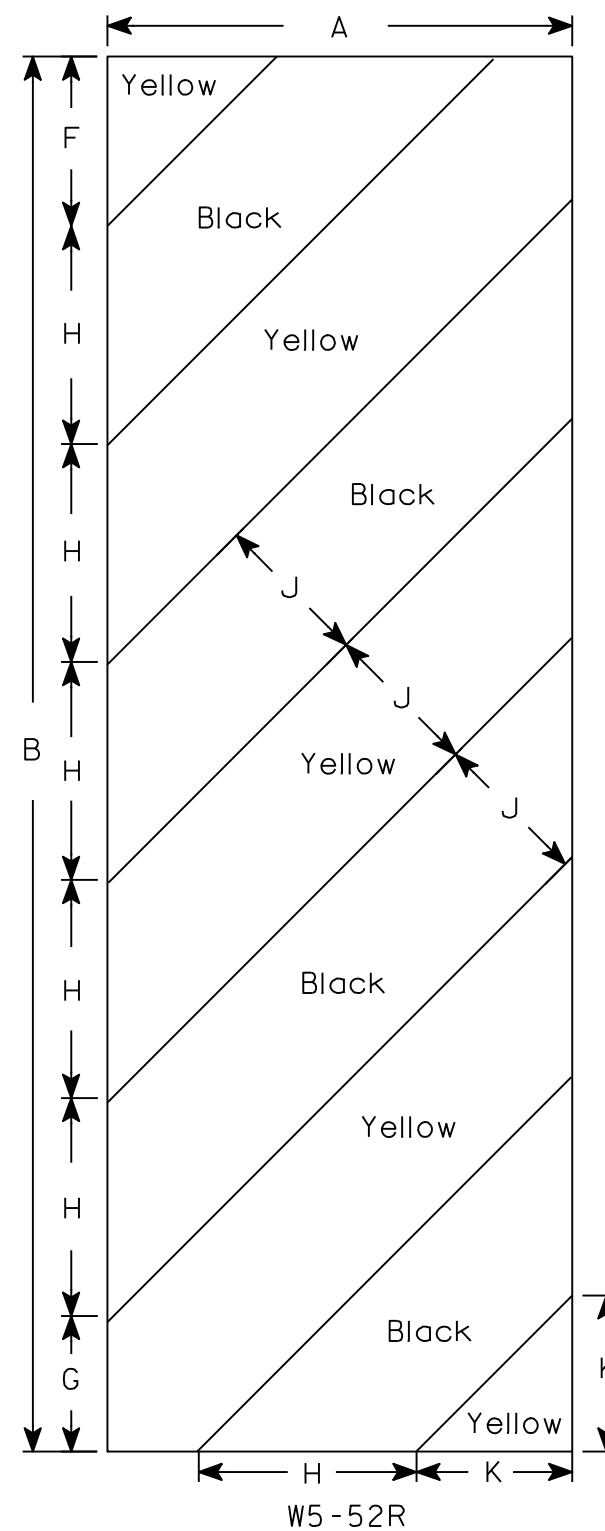
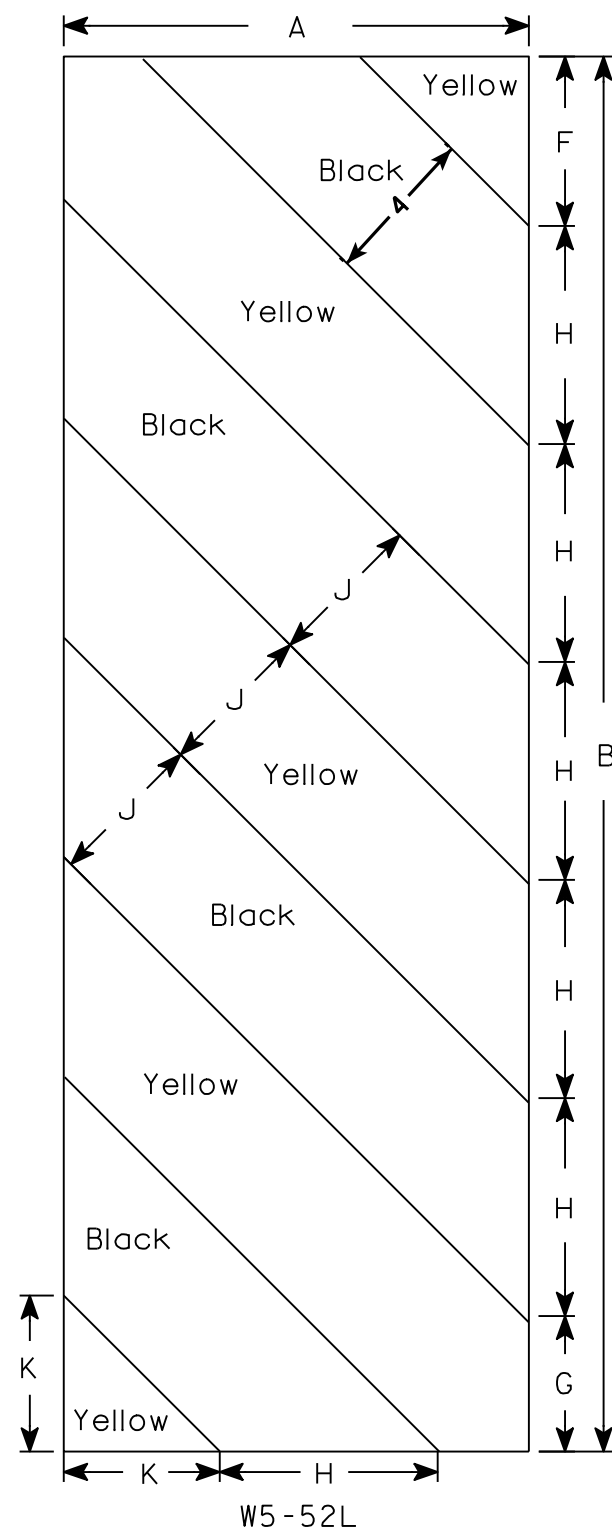
PROJECT NO: 5126-00-72

HWY: CTH M

COUNTY: MONROE

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.

[illegible]

STANDARD SIGN
W5-52L & W5-52R

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer
DATE 5/29/12 PLATE NO. W5-52.9

PROJECT NO: 5126-00-72

HWY: CTH M

COUNTY: MONROE

SHEET NO:

E

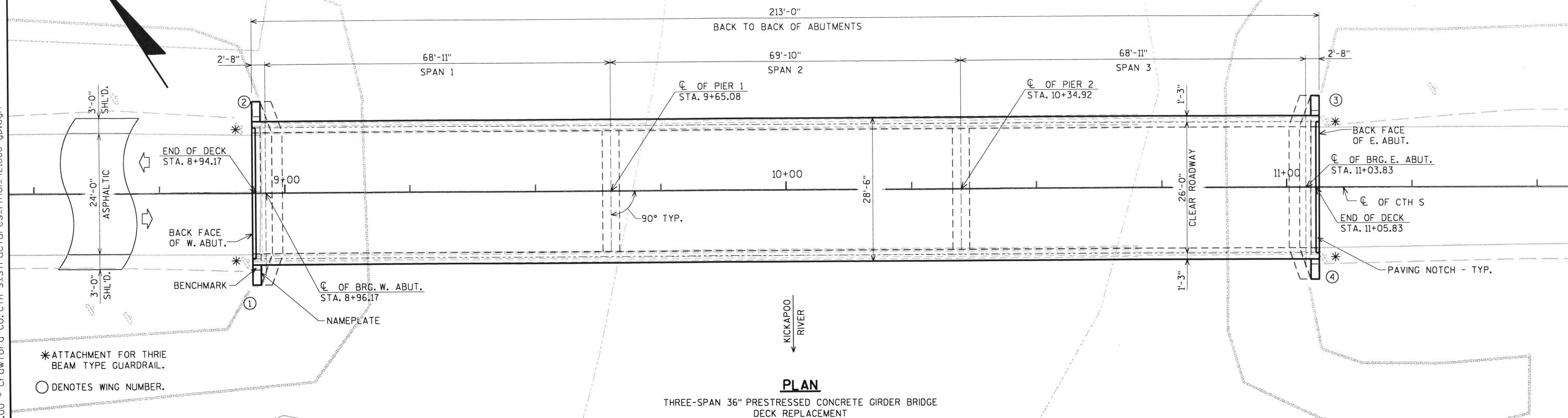
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U:\42-1068.00 - Crawford Co.CTH S+Structures\Final\421068 gp.dgn

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

8

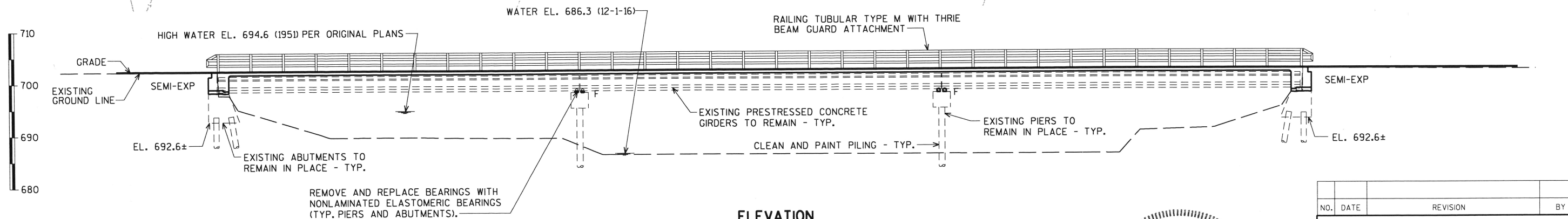
STATE PROJECT NUMBER

5057-00-70



PLAN

THREE-SPAN 36" PRESTRESSED CONCRETE GIRDER BRIDGE
DECK REPLACEMENT



ELEVATION

DESIGN DATA

LIVE LOAD:

DESIGN LOADING: HS-20
INVENTORY RATING: HS-16
OPERATING RATING: HS-32
WISCONSIN STANDARD PERMIT VEHICLE (WIS-SPV) = 220 KIPS

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

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) $f_y =$ 60,000 p.s.i.

TRAFFIC DATA:

A.D.T. = 230 (2019)
A.D.T. = 260 (2039)
R.D.S. = 30 M.P.H.

LIST OF DRAWINGS

1. GENERAL PLAN
2. TYPICAL SECTION, QUANTITIES, AND NOTES
3. WEST ABUTMENT
4. WEST ABUTMENT DETAILS
5. EAST ABUTMENT
6. EAST ABUTMENT DETAILS
7. BEARING DETAILS
8. INTERMEDIATE STEEL DIAPHRAGMS
9. SUPERSTRUCTURE
10. SUPERSTRUCTURE DETAILS
11. PIER DIAPHRAGM DETAILS
12. DECK ELEVATIONS
13. RAILING TUBULAR TYPE M



FOR TYPICAL SECTION,
AND GENERAL NOTES,
SEE SHEET 2

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> SDR CHIEF STRUCTURES DESIGN ENGINEER		05/08/18 DATE	
STRUCTURE B-12-18			
CTH S OVER KICKAPOO RIVER			
COUNTY	CRAWFORD	TOWN/CITY/VILLAGE	HANEY
DESIGN SPEC. REHABILITATION N/A			
DESIGNED BY	JLB	DESIGN CK'D.	AEB
DRAWN BY	CJM/CLS	PLANS CK'D.	BNS
GENERAL PLAN			SHEET 1 OF 13

8

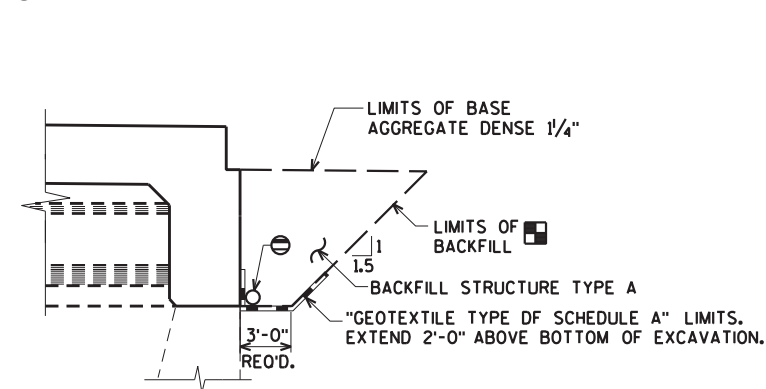
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TOTAL ESTIMATED QUANTITIES

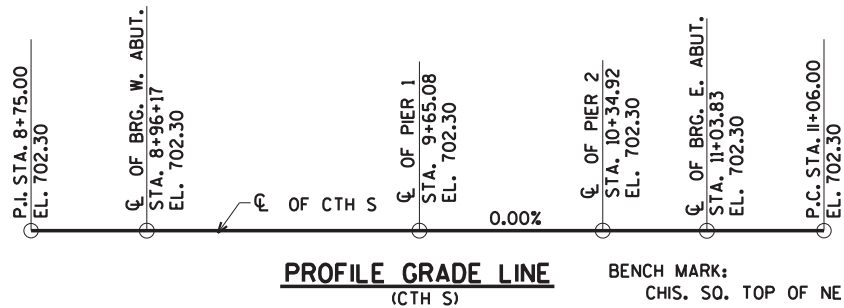
BID ITEM NUMBER	BID ITEMS	UNIT	W. ABUT.	PIER 1	PIER 2	E. ABUT.	SUPER.	TOTAL
203.0600.S	REMOVING OLD STRUCTURE OVER WATERWAY WITH MINIMAL DEBRIS STATION 10+00	LS	-----	-----	-----	-----	-----	1
206.1000	EXCAVATION FOR STRUCTURES BRIDGES B-12-18	LS	-----	-----	-----	-----	-----	1
210.1500	BACKFILL STRUCTURE TYPE A	TON	55	-----	-----	55	-----	110
502.0100	CONCRETE MASONRY BRIDGES	CY	2	-----	-----	2	210	214
502.3200	PROTECTIVE SURFACE TREATMENT	SY	-----	-----	-----	-----	765	765
502.4204	ADHESIVE ANCHORS NO. 4 BARS	EACH	40	-----	-----	40	-----	80
502.4205	ADHESIVE ANCHORS NO. 5 BARS	EACH	32	20	20	32	-----	104
505.0600	BAR STEEL REINFORCEMENT HS COATED STRUCTURES	LB	260	-----	-----	260	41,730	42,250
506.2605	BEARING PADS ELASTOMERIC NON-LAMINATED	EACH	5	10	10	5	-----	30
506.4000	STEEL DIAPHRAGMS B-12-18	EACH	-----	-----	-----	-----	12	12
506.7050.S	REMOVING BEARINGS B-12-18	EACH	5	10	10	5	-----	30
① 509.1500	CONCRETE SURFACE REPAIR	SF	-----	-----	-----	-----	-----	20
513.4061	RAILING TUBULAR TYPE M B-12-18	LF	-----	-----	-----	-----	428	428
516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	8	-----	-----	8	-----	16
612.0406	PIPE UNDERDRAIN WRAPPED 6-INCH	LF	60	-----	-----	60	-----	120
SPV.0060.01	PRECAST CONCRETE BEARING BLOCK	EACH	5	-----	-----	5	-----	10
② SPV.0060.02	CLEANING AND PAINTING PILING	EACH	-----	7	7	-----	-----	14
③ SPV.0090.01	EPOXY CRACK SEALING	LF	-----	-----	-----	-----	60	60
	NON-BID ITEMS							
	FILLER	SIZE	-----	-----	-----	-----	-----	1/2" & 3/4"
	NAME PLATE							

- ① UNDISTRIBUTED FOR GIRDERS, ABUTMENTS, AND PIERS AS DIRECTED BY THE ENGINEER.
- ② REPAINT PIER PILES.
- ③ UNDISTRIBUTED FOR CONCRETE GIRDER ENDS.



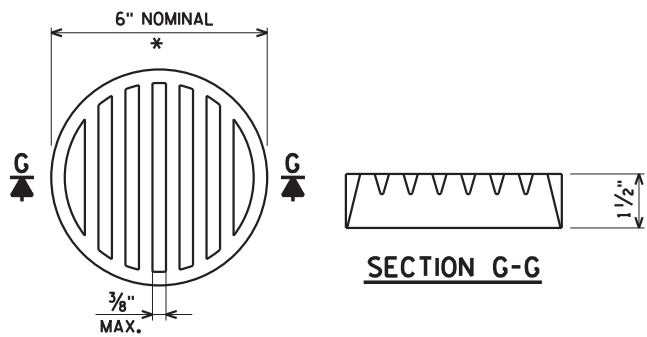
BACKFILL STRUCTURE LIMITS
AT ABUTMENT BACKWALLS

- 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 THIS SHEET.



PROFILE GRADE LINE
(CTH S)

BENCH MARK:
CHIS. SO. TOP OF NE WINGWALL
STA. 11+05, 15' L.T.
EL. 702.88

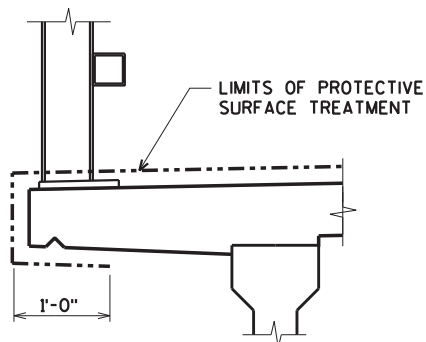


* DIMENSIONS ARE APPROXIMATE. THE GRATE IS SIZED TO FIT INTO A PIPE COUPLING. ORIENT SO SLOTS ARE VERTICAL.

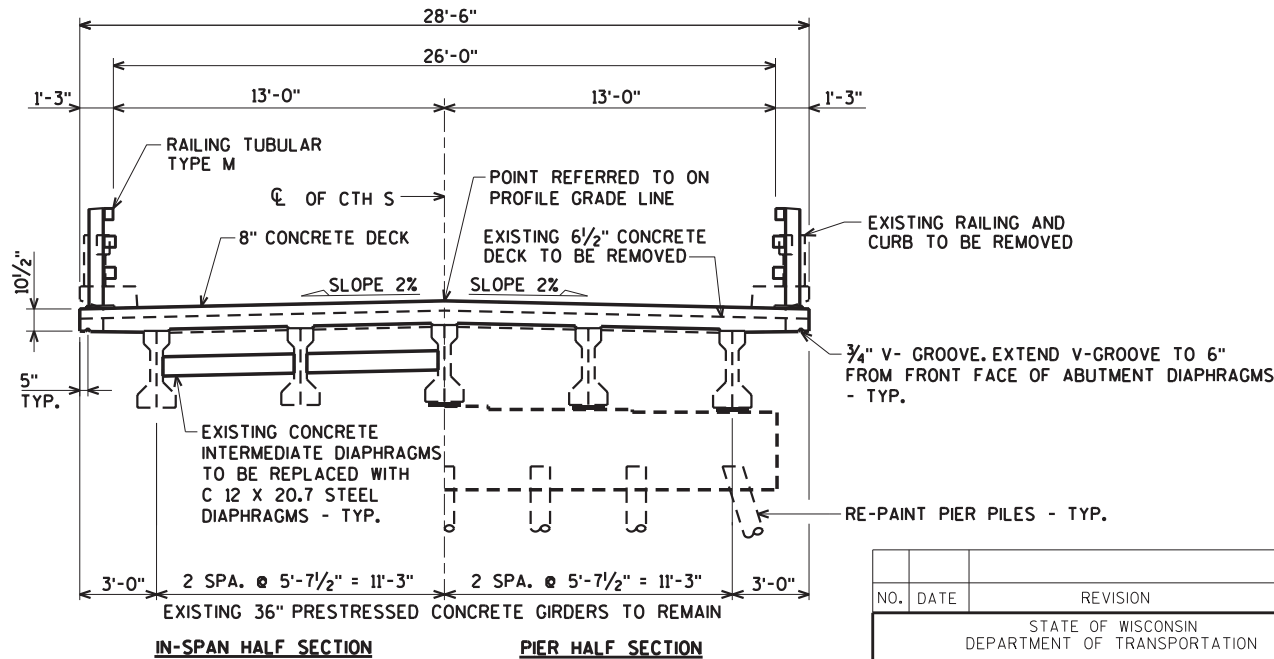
THE RODENT SHIELD, PIPE COUPLING AND SCREWS SHALL BE CONSIDERED INCIDENTAL TO THE BID ITEM "PIPE UNDERDRAIN WRAPPED 6-INCH".

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



PROTECTIVE SURFACE TREATMENT DETAIL



TYPICAL SECTION THRU BRIDGE

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-12-18			
	DRAWN BY	CJM	PLANS CK'D. DNS
TYPICAL SECTION, QUANTITIES, AND NOTES			SHEET 2 OF 13

GENERAL NOTES

- DRAWINGS SHALL NOT BE SCALED.
- DIMENSIONS SHOWN ARE BASED ON ORIGINAL STRUCTURE PLANS.
- BAR STEEL SHALL BE EMBEDDED 2 INCHES 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.
- REMOVE EXISTING FLOOR DRAINS AND DOWN SPOUTS, INCLUDED IN BID ITEM "REMOVING OLD STRUCTURE OVER WATERWAY WITH MINIMAL DEBRIS".
- ALL CONCRETE REMOVAL SHALL BE DEFINED BY A 1" DEEP SAW CUT.
- THE CONTRACTOR SHALL SUPPLY A NEW NAME PLATE IN ACCORDANCE WITH SECTION 502.3.11 OF THE STANDARD SPECIFICATIONS AND THE STANDARD DETAIL DRAWINGS. NAME PLATE TO SHOW THE ORIGINAL CONSTRUCTION YEAR OF 1958.
- AT THE BACKFACE OF ABUTMENTS ALL VOLUME WHICH CANNOT BE PLACED BEFORE ABUTMENT CONSTRUCTION AND IS NOT OCCUPIED BY THE NEW STRUCTURE SHALL BE BACKFILLED WITH BACKFILL STRUCTURE.
- VARIATIONS TO THE NEW GRADE LINE OVER 1/4" MUST BE SUBMITTED BY THE FIELD ENGINEER TO THE STRUCTURES DESIGN SECTION FOR REVIEW.
- PROTECTIVE SURFACE TREATMENT IS TO BE APPLIED AS SHOWN IN DETAIL ON THIS SHEET.
- UTILIZE EXISTING BAR STEEL REINFORCEMENT WHERE SHOWN AND EXTEND 24 BAR DIAMETERS INTO NEW WORK, UNLESS SPECIFIED OTHERWISE.
- THE EXISTING GROUNDLINE SHALL BE THE UPPER LIMIT FOR EXCAVATION FOR STRUCTURES.
- 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 LAUNCH CONCRETE QUANTITY IS BASED ON THE AVERAGE HAUNCH SHOWN ON SHEET 12.
- ELASTOMERIC BEARING PADS NEED NOT BE INDIVIDUALLY MOLDED PROVIDED THE CUT EDGES ARE SMOOTH AND TRUE.
- BEVEL EXPOSED EDGES OF CONCRETE 3/4" UNLESS NOTED OTHERWISE.
- PAIN ON PILING TO BE LIGHT GRAY (FEDERAL COLOR NUMBER *26293).
- THE BACKFILL QUANTITIES ARE BASED ON THE PAY LIMITS SHOWN ON THE PLANS AND MAY NOT REFLECT ACTUAL PLACED QUANTITIES.
- "BACKFILL STRUCTURE TYPE A" REQUIRED DIRECTLY BEHIND ABUTMENTS AND ABUTMENT WINGS FOR 3 FEET. BACKFILL PLACED BEYOND PAY LIMITS OR EXCEEDING PLAN QUANTITIES SHALL BE INCIDENTAL TO EXCAVATION FOR STRUCTURES.
- 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 EXCAVATION.

\$PRJNAME\$
U:\42-1068.00 - Crawford Co.CTH S±Structures\Final\421068 ABUT.DGN

STATE PROJECT NUMBER

5057-00-70

BILL OF BARS

BAR NO.	COATED BAR	NO. REQ'D.	LENGTH	BENT BAR	BUNDLED	BAR SERIES	260° COATED
							LOCATION
A401	X	2	11'-4"	X			WINGS 1 & 2 VERT.
A402	X	8	9'-8"	X	⊗		WINGS 1 & 2 VERT.
A403	X	20	2'-6"				WINGS 1 & 2 VERT. DOWELS E.F.
A404	X	12	3'-8"				WINGS 1 & 2 HORIZ. E.F.
A405	X	4	3'-0"				WINGS 1 & 2 HORIZ. E.F.
A406	X	4	3'-11"	X			WINGS 1 & 2 DIAG. E.F.
A507	X	30	2'-10"	X			BODY AT SEMI-EXP. BLOCK VERT.
A508	X	10	2'-0"				BODY AT SEMI-EXP. BLOCK HORIZ.

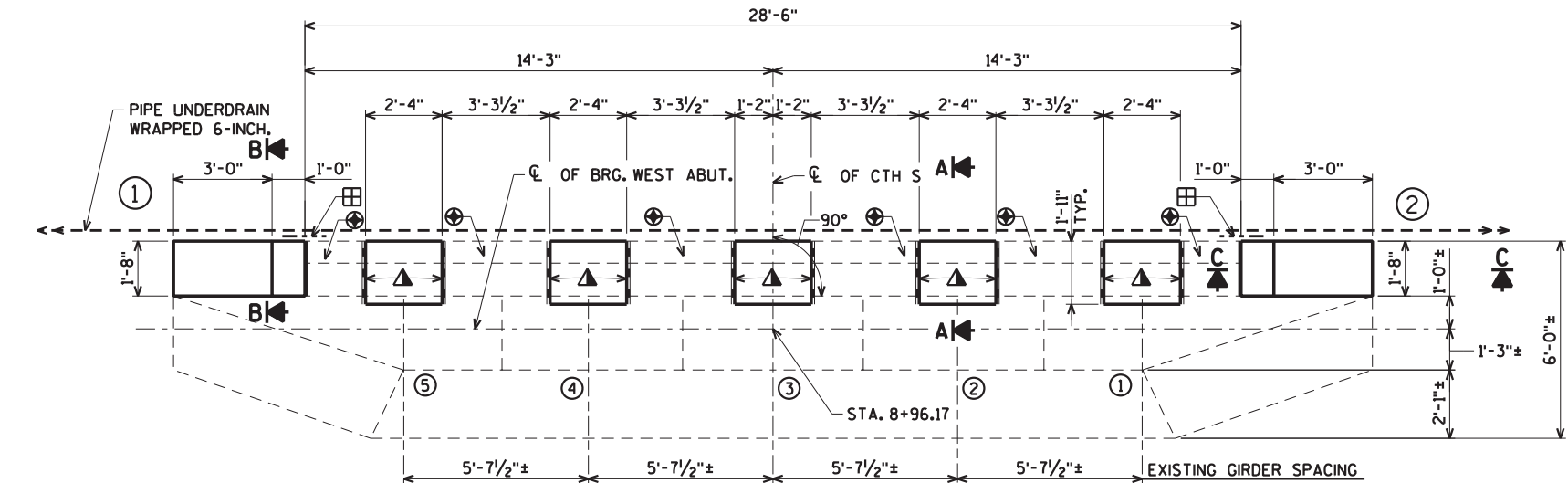
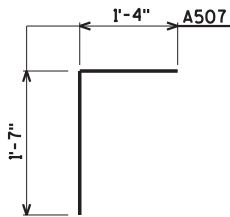
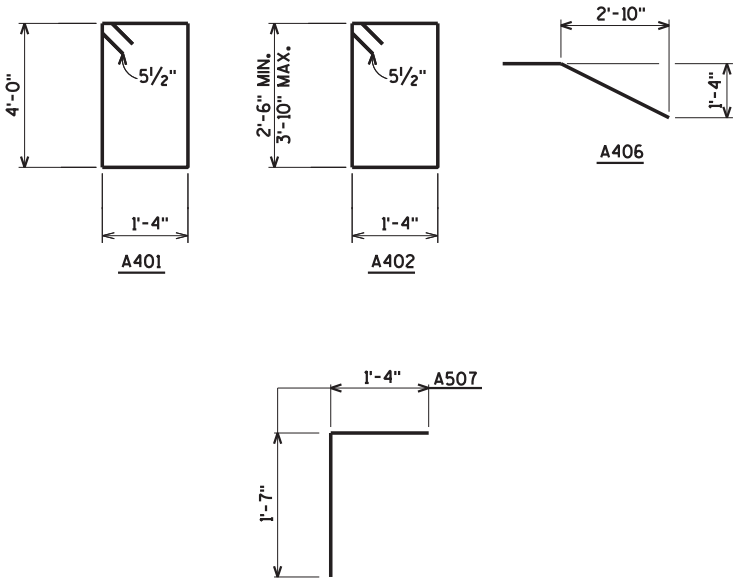
BENDING DIMENSIONS ARE OUT TO OUT OF BARS.

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

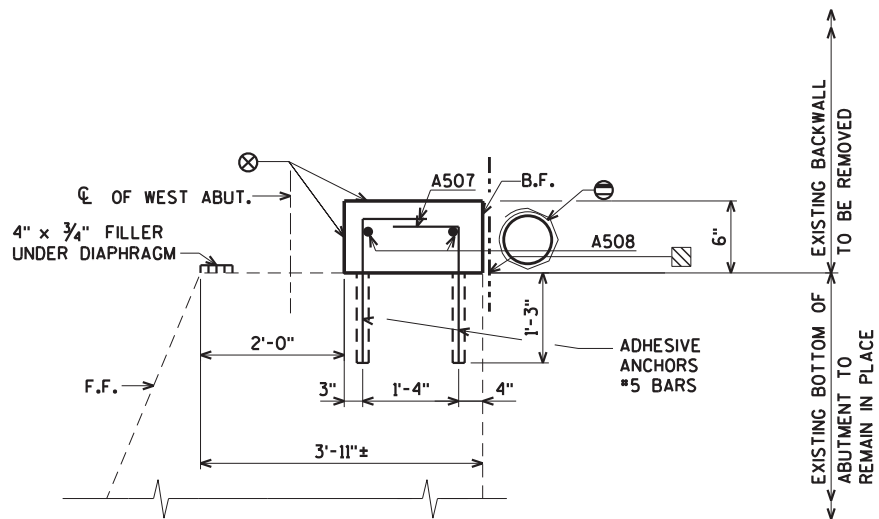
BAR SERIES TABLE

BAR MARK	NO REQ'D.	LENGTH
A402	2 SERIES OF 4	8'-4" TO 11'-0"

BUNDLE AND TAG EACH SERIES SEPARATELY.



PLAN



SECTION A

⊗ STEEL TROWEL TOP SURFACE OF ABUTMENT. PLACE MULTIPLE LAYERS OF POLYETHYLENE SHEETS OVER ENTIRE ABUTMENT TOP AFTER PLACING PRECAST CONCRETE BEARING BLOCKS, AND PRIOR TO PLACING BEARING PADS AND SUPERSTRUCTURE. TOTAL THICKNESS OF SHEETS SHALL BE AT LEAST 0.03".

⊗ GRIND SMOOTH TOP OF ABUTMENT AFTER REMOVING BACKWALL.

▲ 3/4" CORK FILLER ON VERTICAL FACES THAT RUN PARALLEL WITH GIRDER.

▨ 18" RUBBERIZED MEMBRANE WATERPROOFING SEAL ALL HORIZONTAL AND VERTICAL JOINTS ON BACK FACE OF ABUTMENT.

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

B.F. DENOTES BACK FACE

F.F. DENOTES FRONT FACE

E.F. DENOTES EACH FACE

SEE SHEET 4 FOR SECTIONS B AND C.

⊞ PIPE UNDERDRAIN WRAPPED 6-INCH. SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. ATTACH RODENT SHIELD AT ENDS OF PIPE UNDERDRAIN. SEE DETAIL ON SHEET 2.

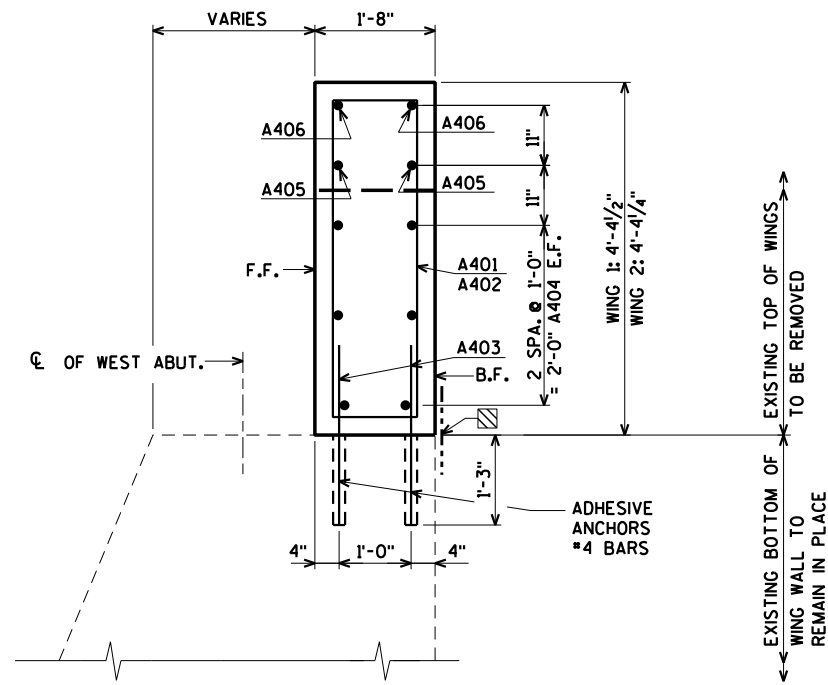
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-12-18			
DRAWN BY		CJM	PLANS CK'D. DNS
WEST ABUTMENT		SHEET 3 OF 13	

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

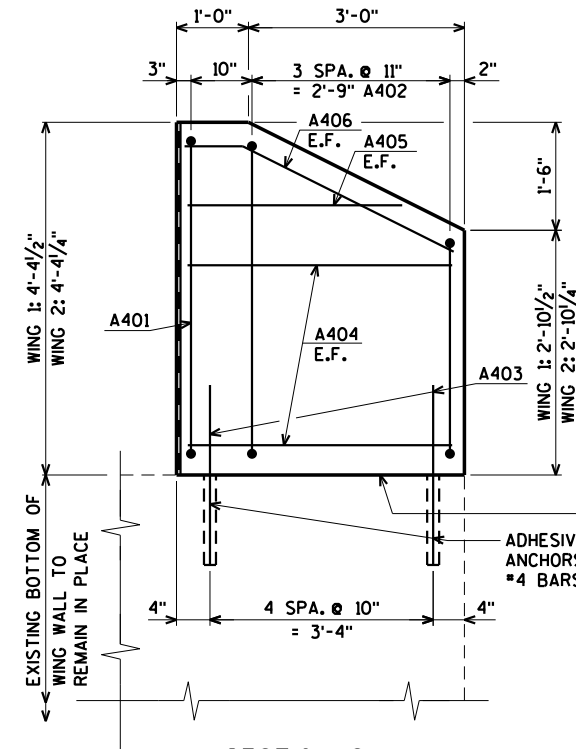
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U:\42-1068.00 - Crawford Co. CTH S\Structures\Final\421068 ABUT.DGN

STATE PROJECT NUMBER

5057-00-70

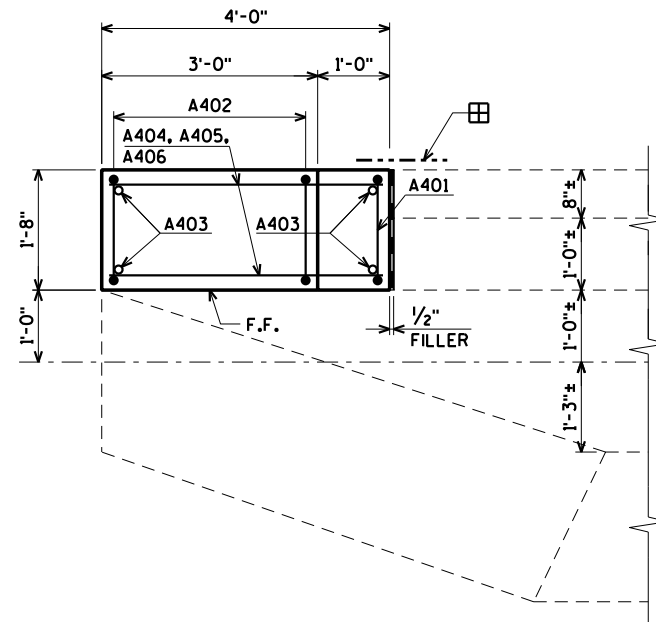


SECTION B
(WING 1 SHOWN, WING 2 SIMILAR)
FOR LOCATION OF SECTION B,
SEE SHEET 3



SECTION C
(WING 2 SHOWN, WING 1 SIMILAR)
FOR LOCATION OF SECTION C,
SEE SHEET 3

REMOVE EXISTING
TOP OF WINGWALL AT
EXIST. CONST. JT.



PLAN - WING 1
(WING 1 SHOWN, WING 2 SIMILAR)

18" RUBBERIZED MEMBRANE WATERPROOFING
SEAL ALL HORIZONTAL AND VERTICAL JOINTS
ON BACK FACE OF ABUTMENT.

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

B.F. DENOTES BACK FACE

F.F. DENOTES FRONT FACE

E.F. DENOTES EACH FACE

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-12-18			
DRAWN BY		CJM	PLANS CK'D. DNS
WEST ABUTMENT DETAILS		SHEET 4 OF 13	

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

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U:\42-1068.00 - Crawford Co. CTH Structures\Final\421068 ABUT.DGN

STATE PROJECT NUMBER

5057-00-70

BILL OF BARS

BAR NO.	COATED BAR	NO. REQ'D.	LENGTH	BENT BAR	BUNDLED	BAR SERIES	260° COATED
							LOCATION
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B403	X	20	2'-6"				WINGS 3 & 4 VERT. DOWELS E.F.
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B507	X	30	2'-10"	X			BODY AT SEMI-EXP. BLOCK VERT.
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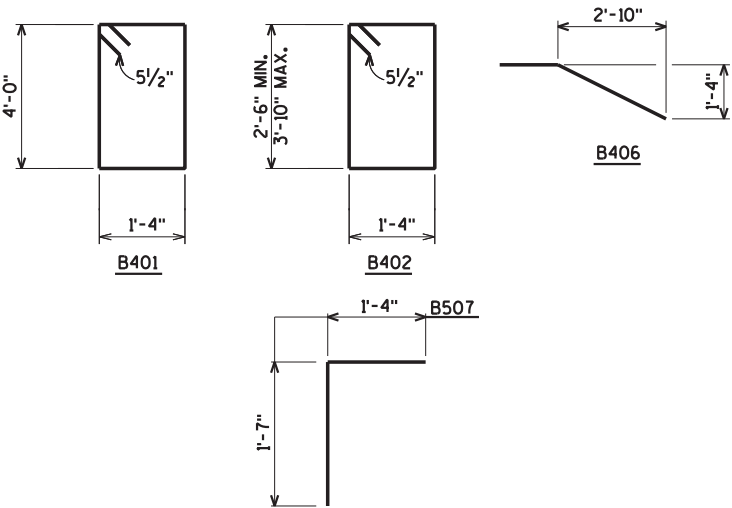
BENDING DIMENSIONS ARE OUT TO OUT OF BARS.

⊗ 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
B402	2 SERIES OF 4	8'-4" TO 11'-0"

BUNDLE AND TAG EACH SERIES SEPARATELY.



⊗ GRIND SMOOTH TOP OF ABUTMENT AFTER REMOVING BACKWALL.

▲ 3/4" CORK FILLER ON VERTICAL FACES THAT RUN PARALLEL WITH GIRDER.

▨ 18" RUBBERIZED MEMBRANE WATERPROOFING SEAL ALL HORIZONTAL AND VERTICAL JOINTS ON BACK FACE OF ABUTMENT.

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

⊞ PIPE UNDERDRAIN WRAPPED 6-INCH. SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. ATTACH RODENT SHIELD AT ENDS OF PIPE UNDERDRAIN. SEE DETAIL ON SHEET 2.

B.F. DENOTES BACK FACE

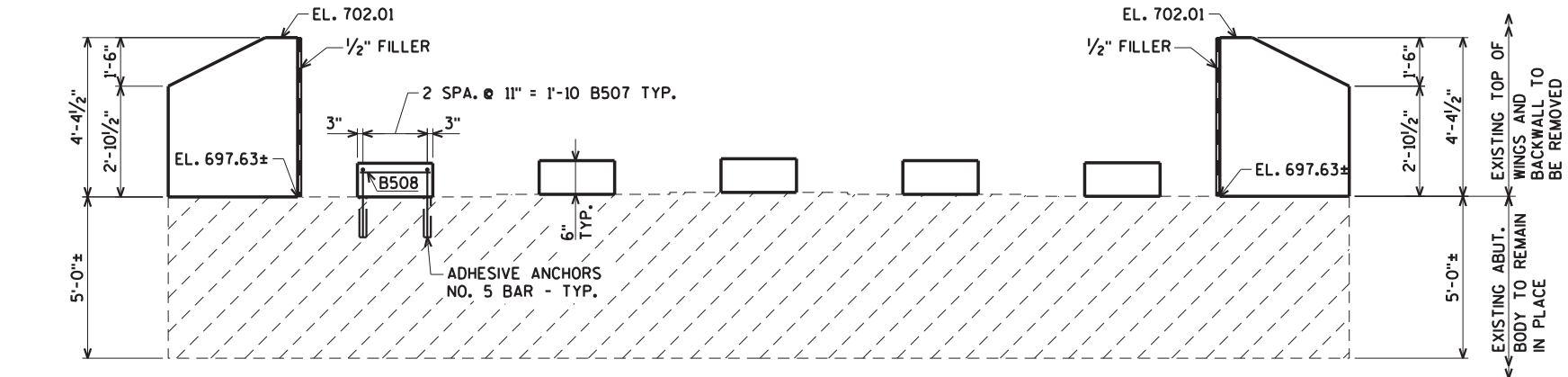
F.F. DENOTES FRONT FACE

E.F. DENOTES EACH FACE

SEE SHEET 6 FOR SECTIONS B AND C.

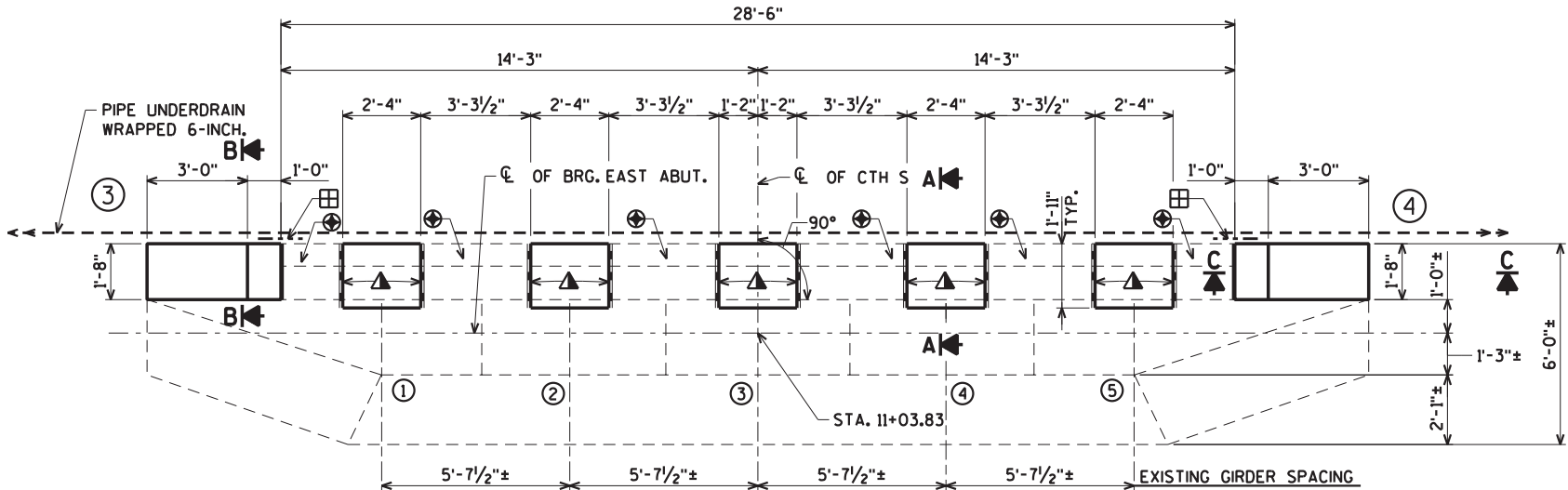
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STRUCTURE B-12-18			
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EAST ABUTMENT		SHEET 5 OF 13	

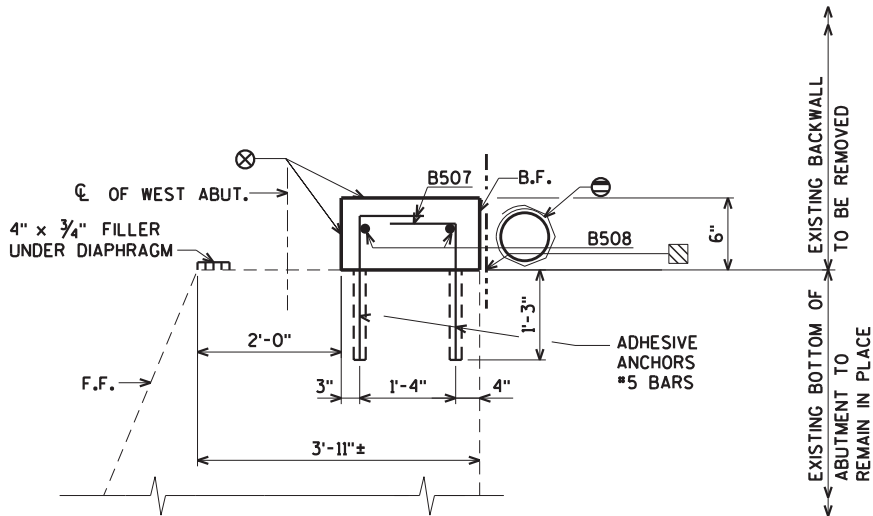


NOTE:
SEAL ALL EXPOSED HORIZONTAL AND VERTICAL SURFACES OF 1/2" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD 1/8" BELOW SURFACE OF CONCRETE.)

ELEVATION
(LOOKING EAST)



PLAN



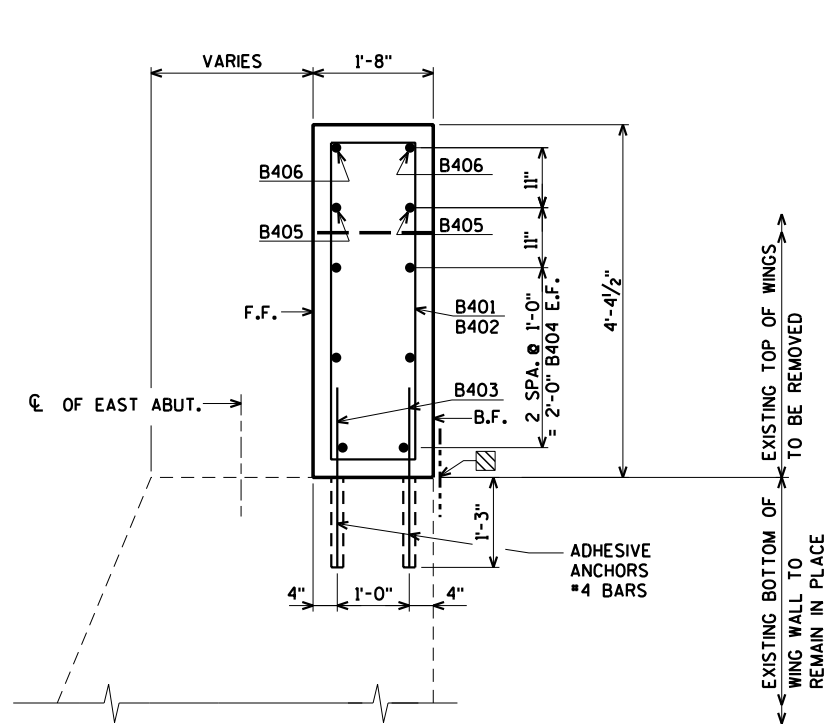
SECTION A

⊗ STEEL TROWEL TOP SURFACE OF ABUTMENT. PLACE MULTIPLE LAYERS OF POLYETHYLENE SHEETS OVER ENTIRE ABUTMENT TOP AFTER PLACING PRECAST CONCRETE BEARING BLOCKS, AND PRIOR TO PLACING BEARING PADS AND SUPERSTRUCTURE. TOTAL THICKNESS OF SHEETS SHALL BE AT LEAST 0.03".

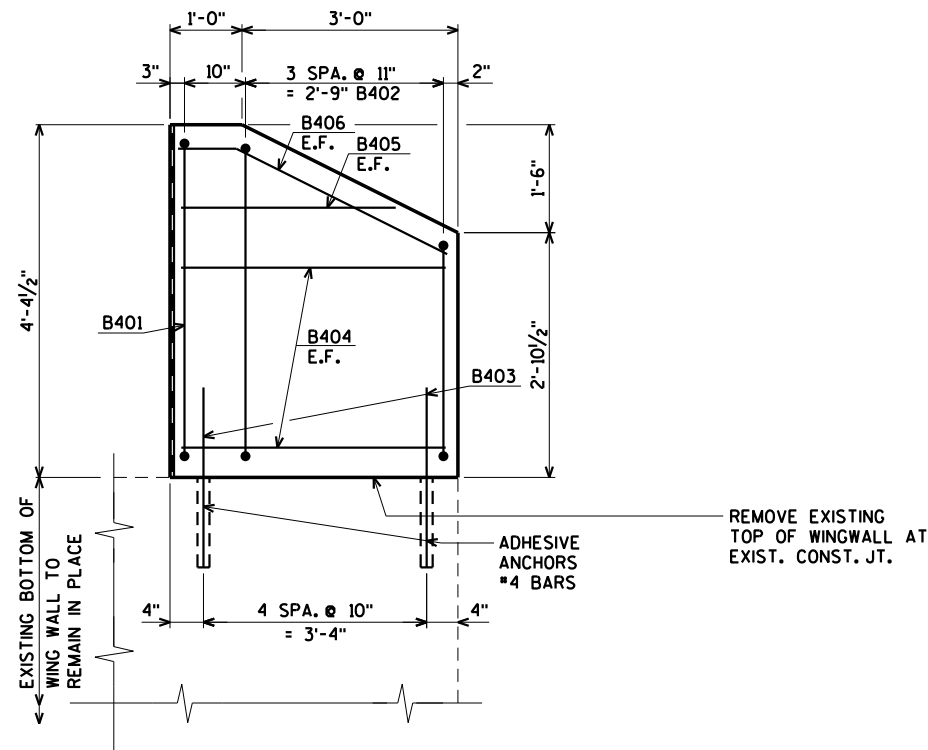
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STATE PROJECT NUMBER

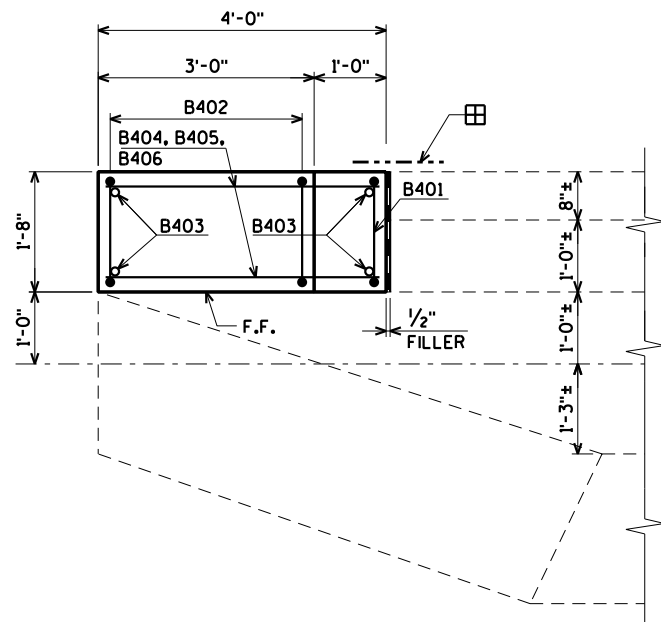
5057-00-70



SECTION B
(WING 3 SHOWN, WING 4 SIMILAR)
FOR LOCATION OF SECTION B,
SEE SHEET 5



SECTION C
(WING 4 SHOWN, WING 3 SIMILAR)
FOR LOCATION OF SECTION C,
SEE SHEET 5



PLAN - WING 3
(WING 3 SHOWN, WING 4 SIMILAR)

18" RUBBERIZED MEMBRANE WATERPROOFING
SEAL ALL HORIZONTAL AND VERTICAL JOINTS
ON BACK FACE OF ABUTMENT.

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

B.F. DENOTES BACK FACE

F.F. DENOTES FRONT FACE

E.F. DENOTES EACH FACE

NO.	DATE	REVISION	BY
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STATE OF WISCONSIN
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STRUCTURE B-12-18

DRAWN BY CJM PLANS CK'D. DNS

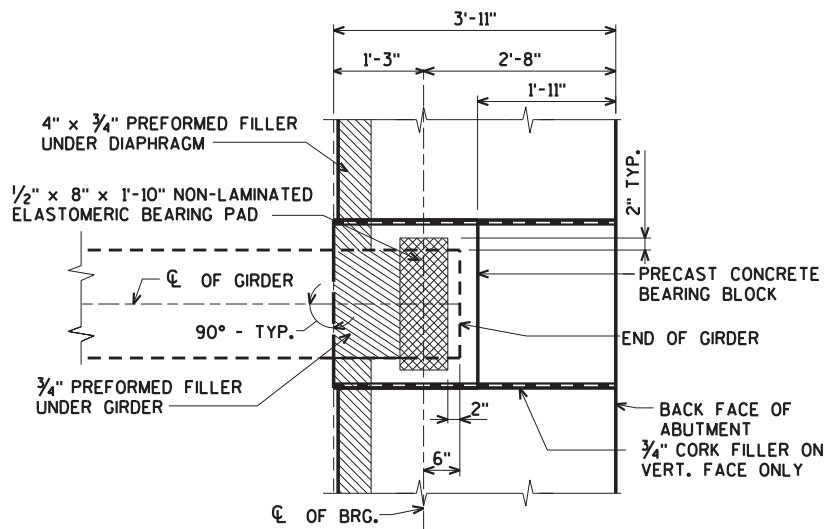
**EAST
ABUTMENT
DETAILS**

SHEET 6 OF 13

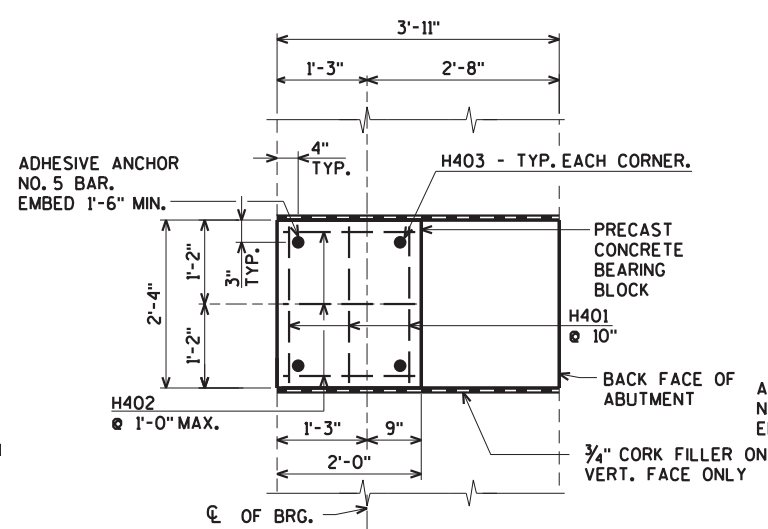
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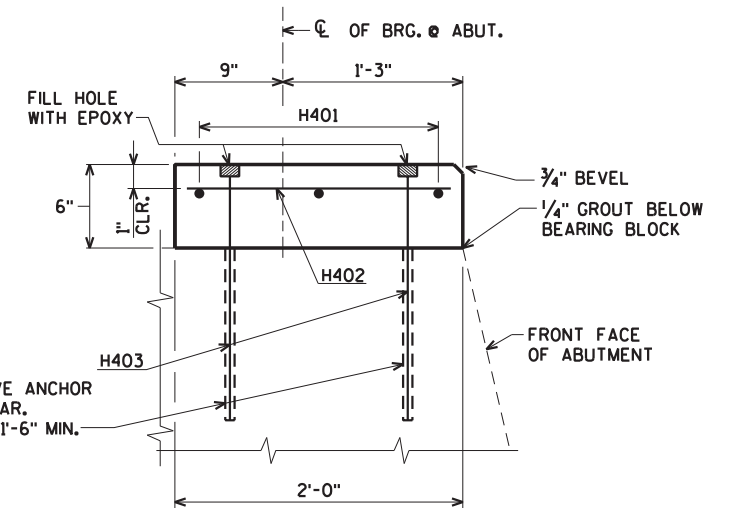
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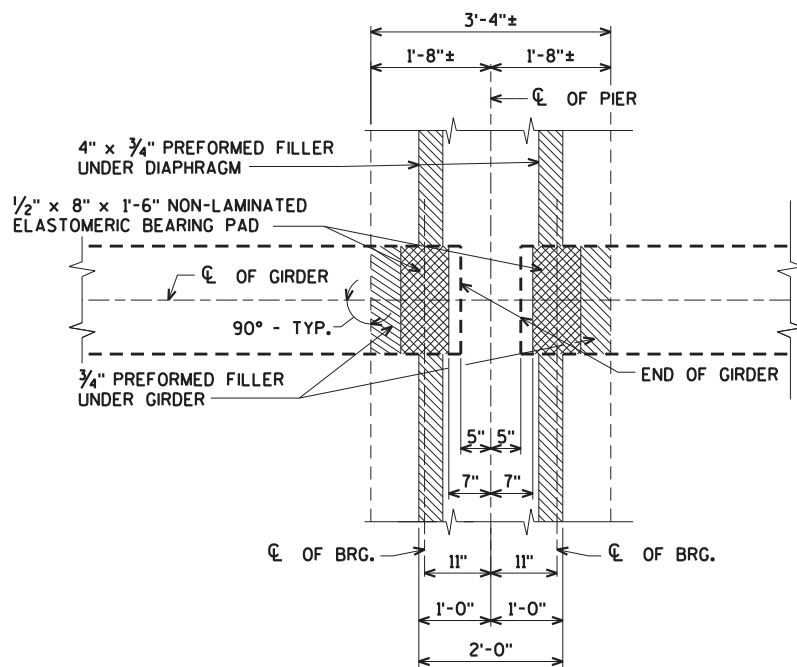
BEARING PAD DETAILS AT ABUTMENTS



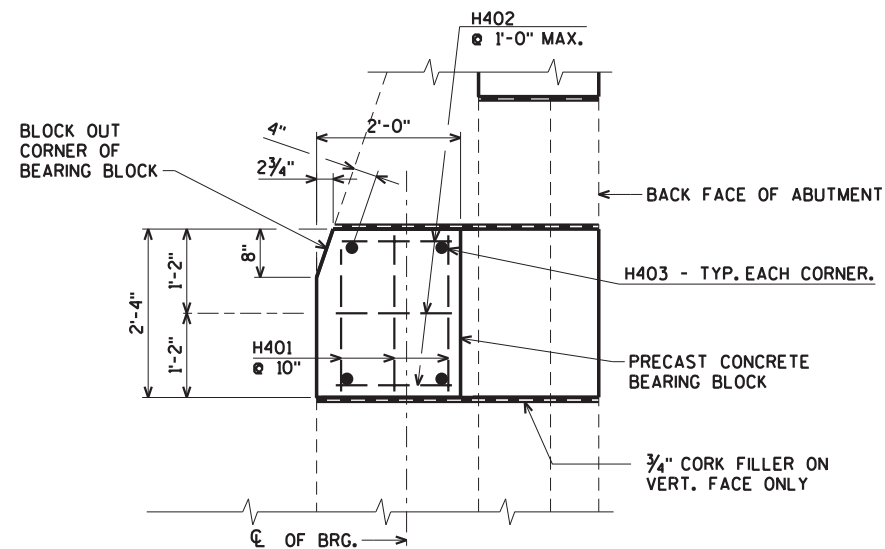
BEARING BLOCK PLAN AT INTERIOR GIRDERS



**SECTION THRU PRECAST CONCRETE BEARING BLOCK
(AT ABUTMENT)**



BEARING PAD DETAILS AT PIERS



BEARING BLOCK PLAN AT EXTERIOR GIRDERS

STATE PROJECT NUMBER

5057-00-70

BILL OF BARS

BAR NO.	COATED BAR	NO. REQ'D.	LENGTH	BENT BAR	BUNDLED	BAR SERIES	150# COATED *	LOCATION
H401	X	30	3-6					ABUT. BLOCK
H402	X	30	1-8					ABUT. BLOCK
H403	X	40	1-11					VERT.

* BAR STEEL TO BE INCLUDED IN THE BID PRICE FOR PRECAST CONCRETE BEARING BLOCKS. BENDING DIMENSIONS ARE OUT TO OUT OF BARS.

** CUT BARS AS NEEDED TO MAINTAIN 2" CLEAR AT BLOCK OUT AT EXTERIOR GIRDERS.

NOTES:
BURN EXISTING ANCHOR BOLTS OFF FLUSH WITH BEAM SEAT.

CONTRACTOR MAY PROPOSE A CAST-IN-PLACE ALTERNATE SUBJECT TO REVIEW AND APPROVAL BY THE BUREAU OF STRUCTURES.

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STRUCTURE B-12-18			
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BEARING DETAILS		SHEET 7 OF 13	

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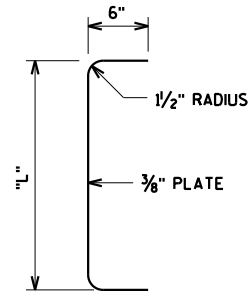
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STATE PROJECT NUMBER

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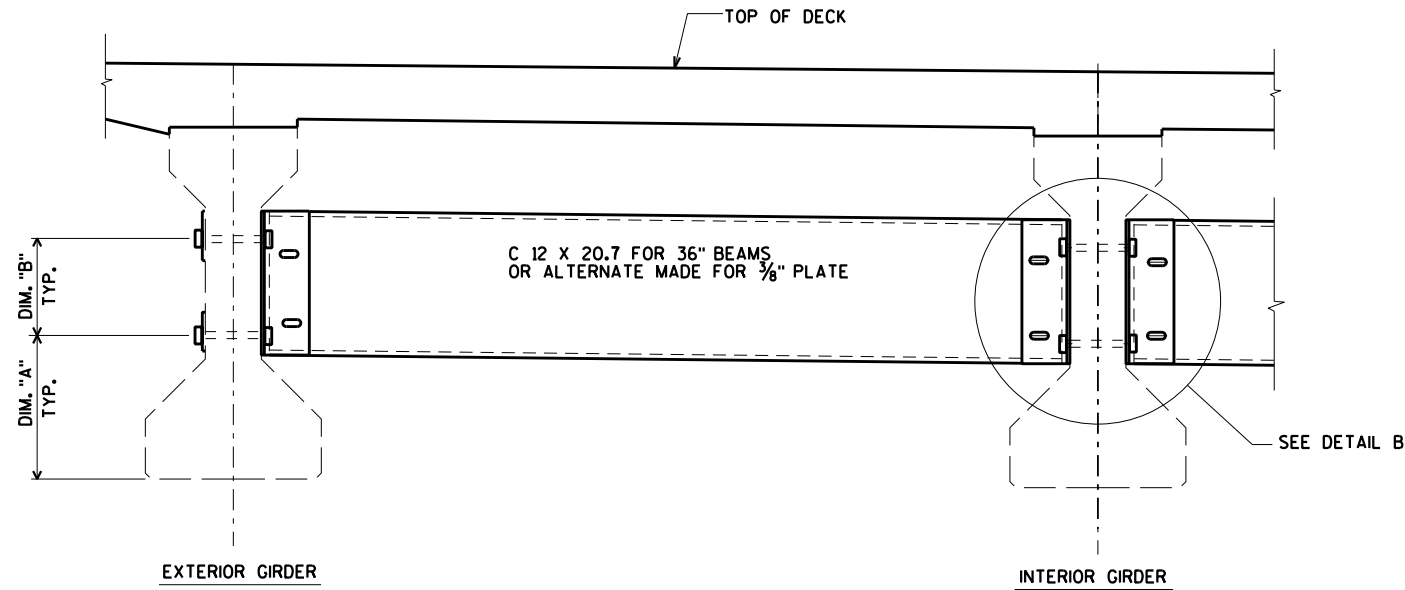
TABLE

GIRDER HEIGHT	DIM. "A"	DIM. "B"	DIM. "L"	* DIM. "X"
36"	1'-2 ⁷ / ₈ "	9 ⁷ / ₈ "	1'-1 ¹ / ₂ "	3/4"

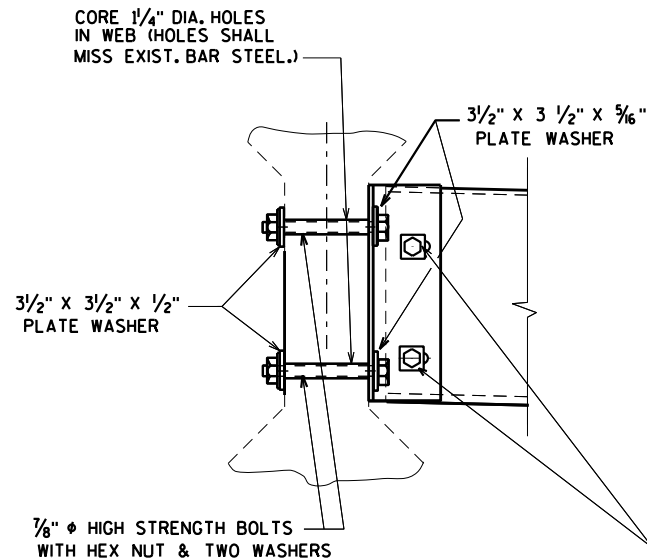


SECTION THRU ALTERNATE DIAPHRAGM

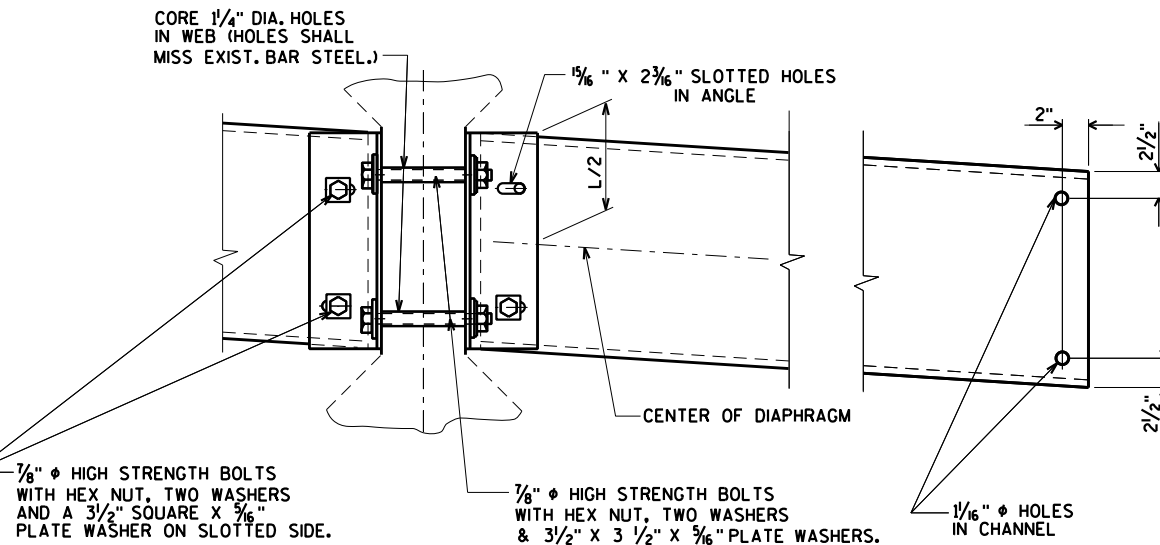
*DIM "X" = 2¹/₂" FOR ALTERNATE PLATE DIAPHRAGM



PART TRANSVERSE SECTION AT DIAPHRAGM

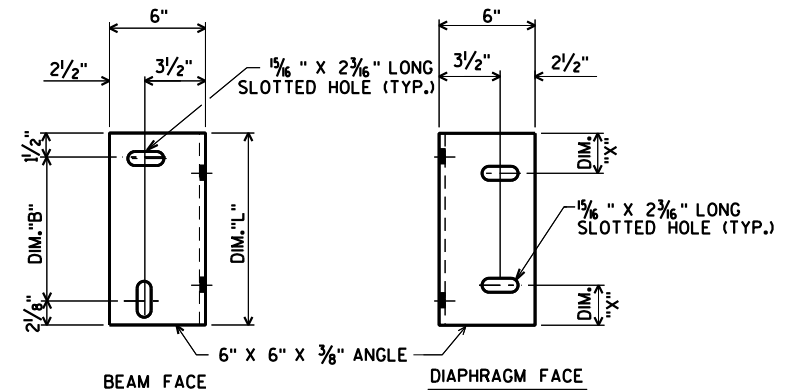


(FOR EXTERIOR GIRS.)



DETAIL B

(FOR CONTINUOUS LINE OF DIAPHRAGMS)



DIAPHRAGM SUPPORT

NOTES

ALL DIAPHRAGM MATERIAL NOT EMBEDDED IN THE CONCRETE GIRDER SHALL BE PAID FOR AT THE UNIT PRICE BID FOR "STEEL DIAPHRAGMS B-12-18", EACH.

EACH DIAPHRAGM BETWEEN GIRDERS SHALL CONSTITUTE ONE UNIT.

ALL DIAPHRAGM STRUCTURAL STEEL SHALL BE ASTM A709 GRADE 36.

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

STEEL DIAPHRAGM TO CONCRETE WEB CONNECTION SHALL BE SNUG-TIGHT PLUS 1/4 TURN, UNLESS NOTED OTHERWISE. HIGH STRENGTH BOLTS FOR WEB CONNECTION SHALL MEET THE REQUIREMENTS FOR ASTM A325 OR ASTM A449.

CORING HOLES IN EXISTING GIRDERS SHALL BE CONSIDERED INCIDENTAL TO "STEEL DIAPHRAGMS B-12-18".

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NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-12-18			
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INTERM. STEEL DIAPH. DETAILS			SHEET 8 OF 13

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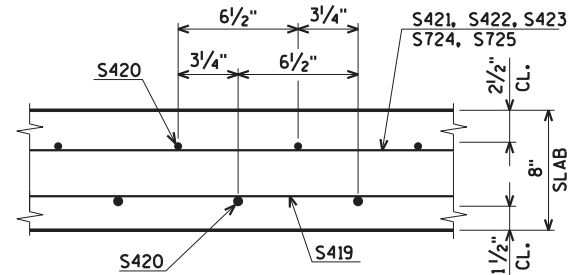
STATE PROJECT NUMBER

5057-00-70

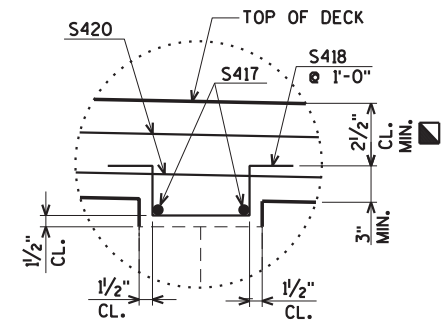
BILL OF BARS

BAR NO.	COATED BAR	NO. REQ'D.	LENGTH	BENT BAR	BUNDLE BAR SERIES	41,730# COATED
						LOCATION
S501	X	40	13-5	X		DIAPH. @ ABUT. VERT. BETW. GRD.
S602	X	16	2-11			DIAPH. @ ABUT. HORIZ. BETW. GRD.
S503	X	4	12-1	X		DIAPH. @ ABUT. ENDS VERT.
S504	X	20	12-5	X		DIAPH. @ ABUT. VERT. AT GRD.
S505	X	4	12-11	X		DIAPH. @ ABUT. ENDS VERT.
S506	X	52	7-4	X		DIAPH. @ ABUT. VERT. BETW. GRD.
S507	X	30	9-3	X		DIAPH. @ ABUT. VERT. @ GRD.
S608	X	40	2-4			DIAPH. @ ABUT. HORIZ.
S609	X	12	28-2			DIAPH. @ ABUT. HORIZ. B.F.
S610	X	32	3-9			DIAPH. @ ABUT. HORIZ. F.F. INT.
S611	X	16	2-4			DIAPH. @ ABUT. HORIZ. F.F. ENDS
S512	X	20	6-0			DIAPH. @ ABUT. HORIZ. THRU GDRS.
S513	X	40	2-0			DIAPH. @ PIERS DOWEL
S514	X	40	9-6	X		DIAPH. @ PIERS VERT
S415	X	96	3-9			DIAPH. @ PIERS HORIZ.
S416	X	40	8-8	X		DIAPH. @ PIERS LONG.
S417	X	50	43-8			SLAB LONG. BOT. @ HAUNCHES
S418	X	1060	2-9	X		SLAB @ GIRDER HAUNCHES
S419	X	195	43-8			SLAB LONG. BOT.
S420	X	781	28-2			SLAB TRANS. TOP & BOT.
S421	X	80	27-6			SLAB LONG. TOP SPANS 1 & 3
S422	X	80	29-9			SLAB LONG. TOP SPANS 1 & 3
S423	X	39	43-4			SLAB LONG. TOP SPAN 2
S724	X	40	31-10			SLAB LONG. TOP @ PIERS
S725	X	40	31-10			SLAB LONG. TOP @ PIERS
S626	X	136	12-0	X		SLAB @ RAIL POSTS
S627	X	256	6-0			SLAB @ INT. RAIL POSTS
S628	X	16	6-0	X		SLAB @ END RAIL POSTS

BENDING DIMENSIONS ARE OUT TO OUT OF BARS.



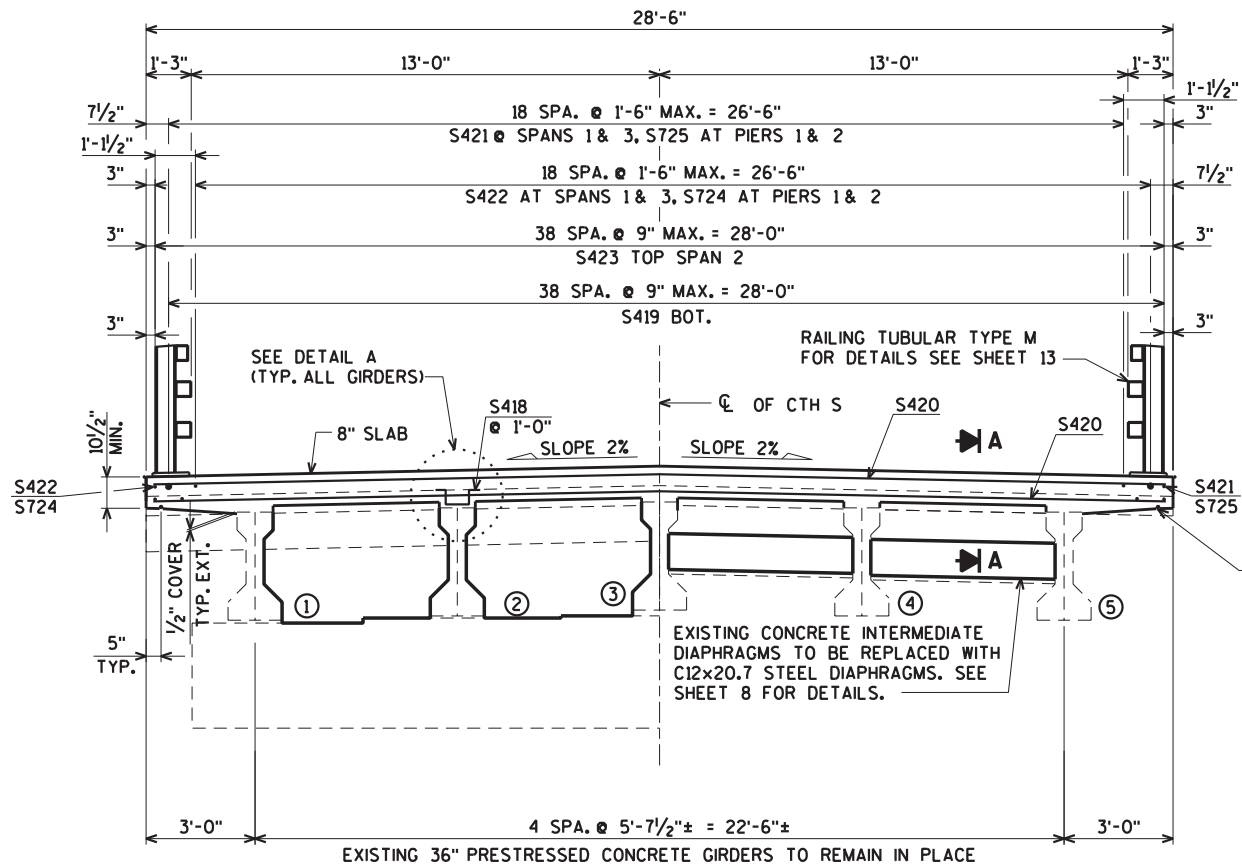
SECTION A



DETAIL A

TILT S418 BARS AS REQ'D. TO MAINTAIN 2 1/2" CLEAR

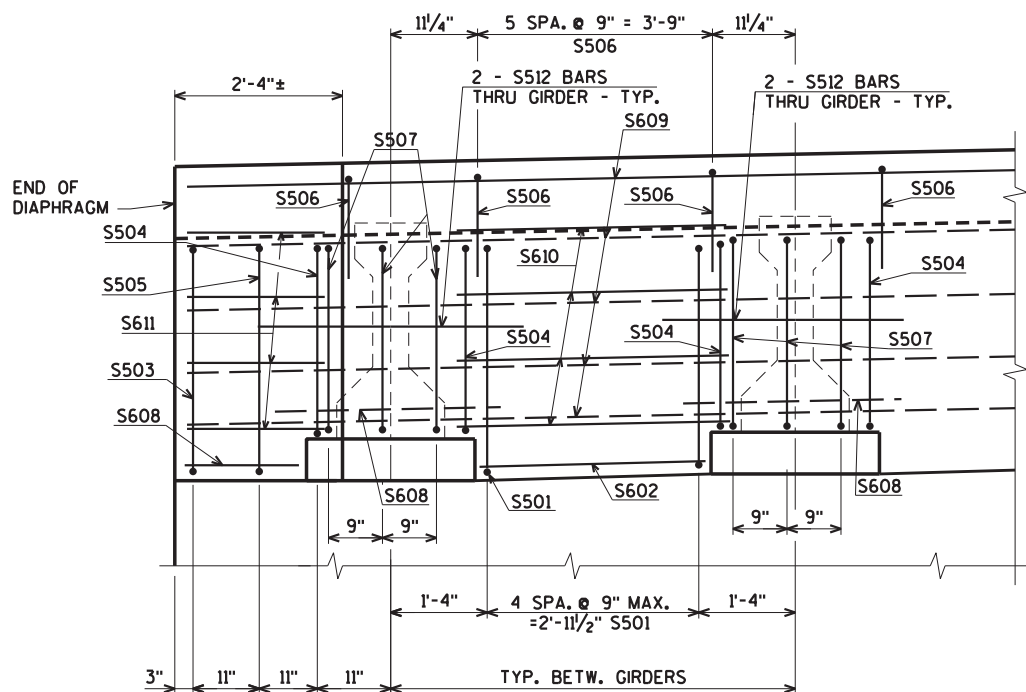
3/4" V - GROOVE. EXTEND V - GROOVE TO 6" FROM FRONT FACE OF ABUTMENT DIAPHRAGMS - TYP.



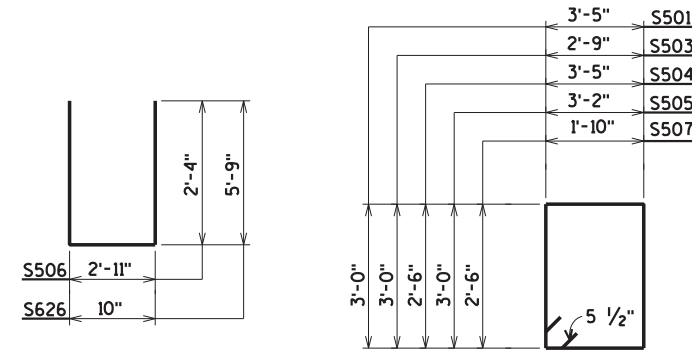
AT PIER

IN SPAN

TYPICAL CROSS SECTION THRU ROADWAY



PART ELEVATION AT ABUTMENT



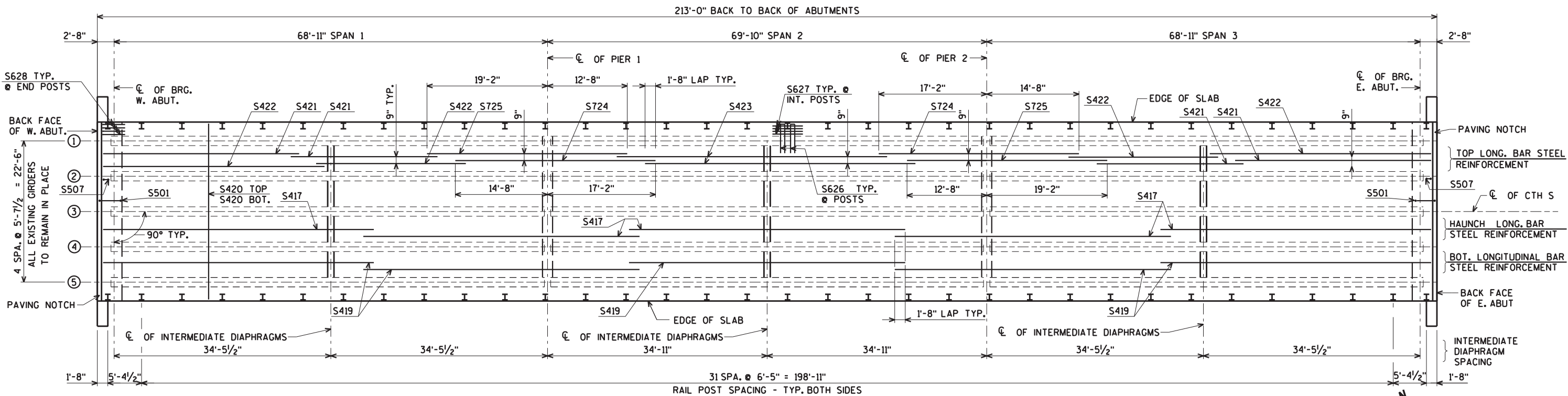
ABUTMENT DIAPH. PLAN AT WINGS

NOTE:

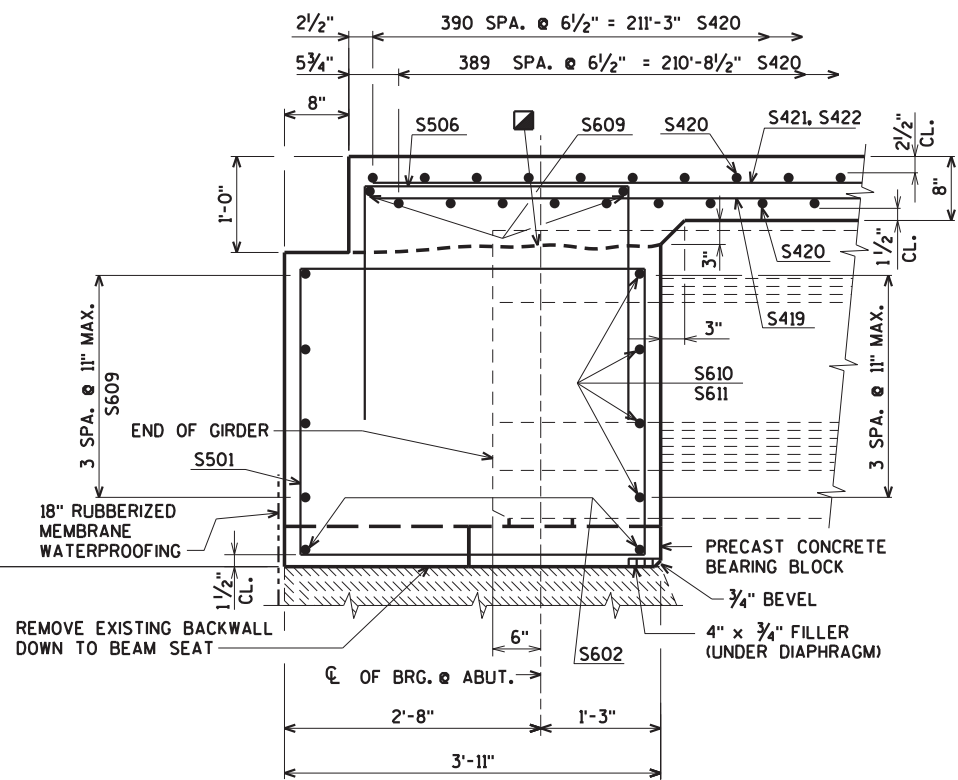
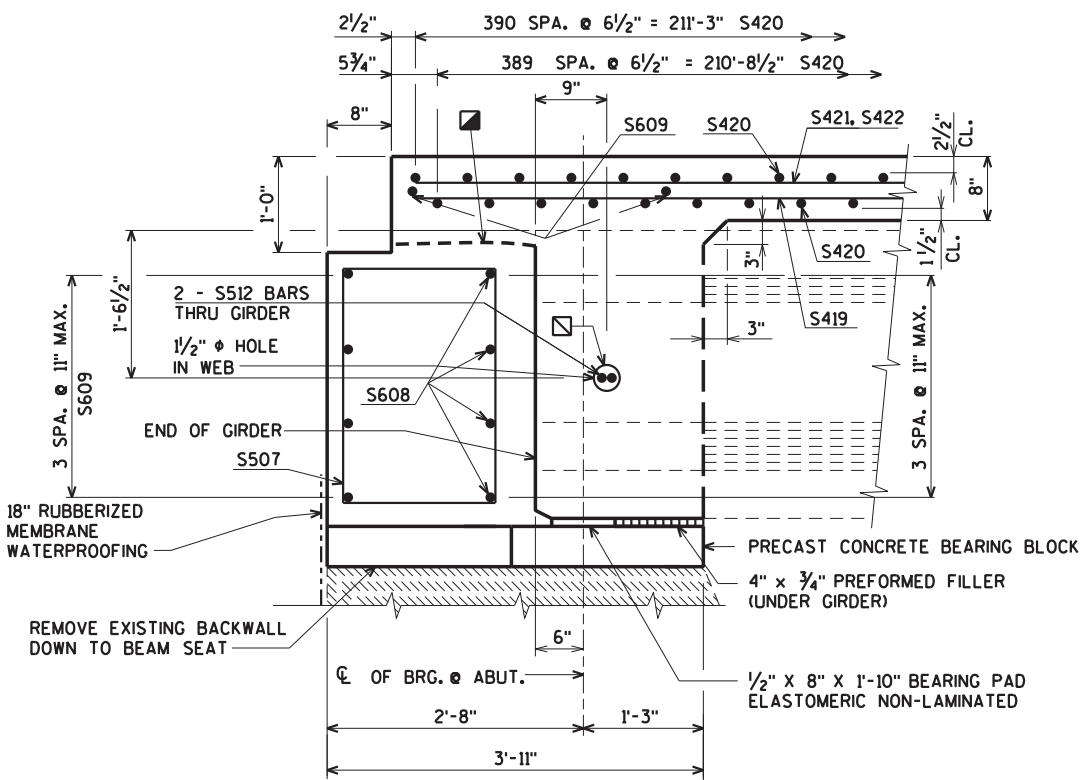
DAMAGE TO THE EXISTING GIRDERS CAUSED DURING DECK REMOVAL OPERATIONS SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.

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STRUCTURE B-12-18			
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SUPERSTRUCTURE			SHEET 9 OF 13



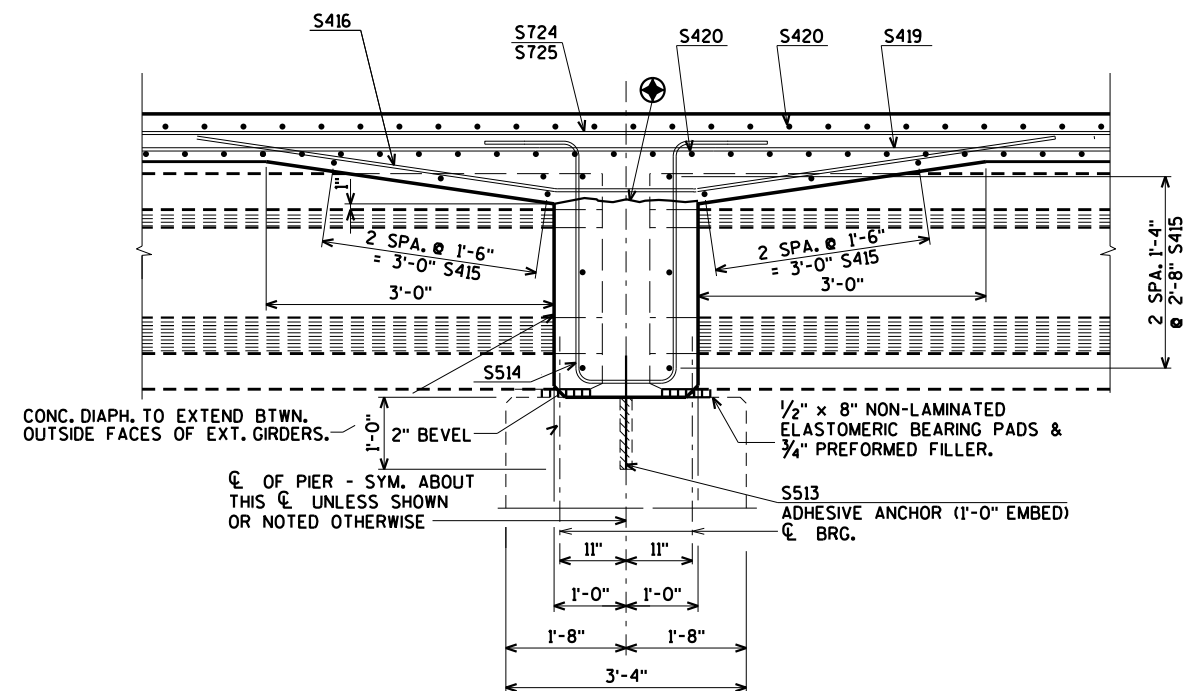
PLAN

PART LONGITUDINAL SECTION AT ABUTMENT
(TYP. BETWEEN GIRDERS)PART LONGITUDINAL SECTION AT ABUTMENT
(TYP. AT GIRDERS)

- OPTIONAL CONSTRUCTION JOINT, IF USED, DECK POUR MUST BE WITHIN 2 WEEKS FROM THE TIME OF THE DIAPHRAGM POUR.
- FIELD DRILL 1 1/2" HOLE IN WEB OF EXISTING GIRDERS FOR 2 S512 BARS. FIELD DRILLING INCLUDED IN BID ITEM "CONCRETE MASONRY BRIDGES".

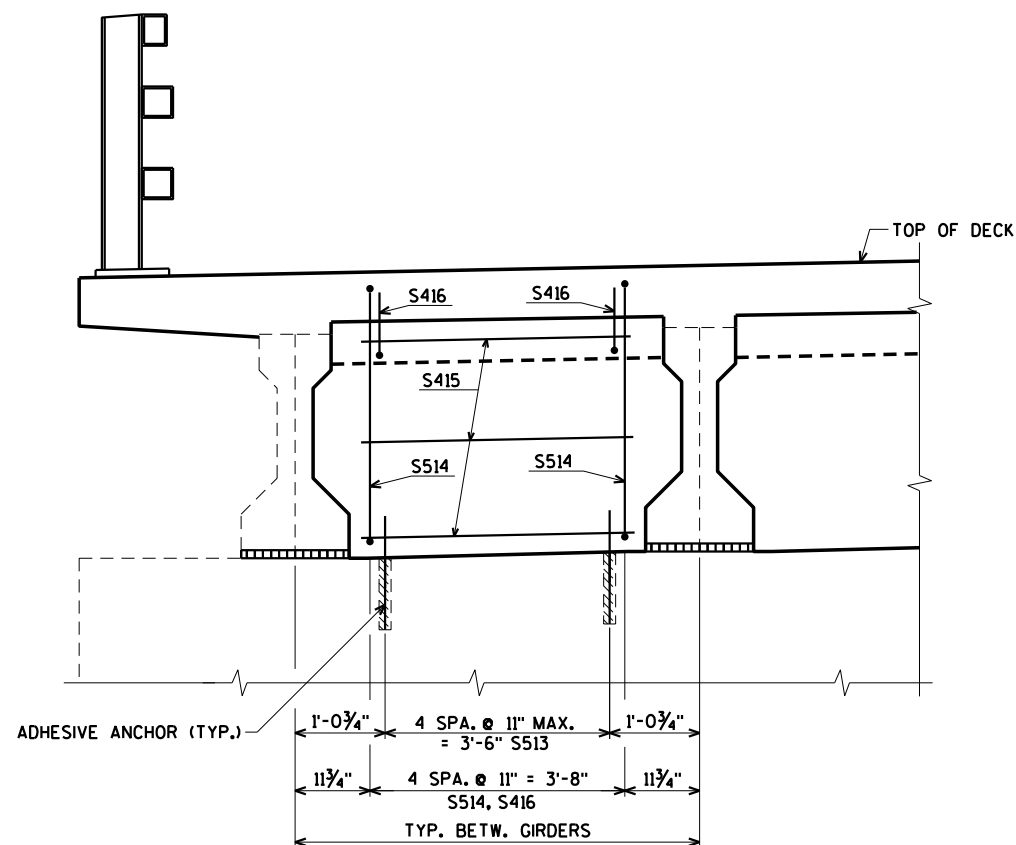
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SUPERSTRUCTURE DETAILS		SHEET 10 OF 13	

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PART LONGITUDINAL SECTION AT PIERS

OPTIONAL CONSTRUCTION JOINT. IF USED, DECK POUR MUST BE WITHIN 2 WEEKS FROM THE TIME OF THE DIAPHRAGM POUR.



DIAPHRAGM DETAIL AT PIERS

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PIER DIAPHRAGM DETAILS			SHEET 11 OF 13

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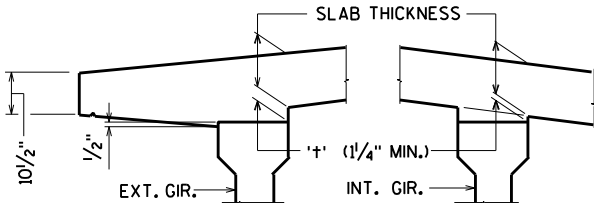
TOP OF DECK ELEVATIONS

SPAN 1											
	℄ OF BRG. WEST 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 PIER 1
NORTH EDGE OF DECK	702.01	702.01	702.01	702.01	702.01	702.01	702.01	702.01	702.01	702.01	702.01
GIRDER 1	702.08	702.08	702.08	702.08	702.08	702.08	702.08	702.08	702.08	702.08	702.08
GIRDER 2	702.19	702.19	702.19	702.19	702.19	702.19	702.19	702.19	702.19	702.19	702.19
℄ OF CTH S/GIRDER 3	702.30	702.30	702.30	702.30	702.30	702.30	702.30	702.30	702.30	702.30	702.30
GIRDER 4	702.19	702.19	702.19	702.19	702.19	702.19	702.19	702.19	702.19	702.19	702.19
GIRDER 5	702.08	702.08	702.08	702.08	702.08	702.08	702.08	702.08	702.08	702.08	702.08
SOUTH EDGE OF DECK	702.01	702.01	702.01	702.01	702.01	702.01	702.01	702.01	702.01	702.01	702.01

SPAN 2											
	℄ OF PIER 1	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 PIER 2
NORTH EDGE OF DECK	702.01	702.01	702.01	702.01	702.01	702.01	702.01	702.01	702.01	702.01	702.01
GIRDER 1	702.08	702.08	702.08	702.08	702.08	702.08	702.08	702.08	702.08	702.08	702.08
GIRDER 2	702.19	702.19	702.19	702.19	702.19	702.19	702.19	702.19	702.19	702.19	702.19
℄ OF CTH S/GIRDER 3	702.30	702.30	702.30	702.30	702.30	702.30	702.30	702.30	702.30	702.30	702.30
GIRDER 4	702.19	702.19	702.19	702.19	702.19	702.19	702.19	702.19	702.19	702.19	702.19
GIRDER 5	702.08	702.08	702.08	702.08	702.08	702.08	702.08	702.08	702.08	702.08	702.08
SOUTH EDGE OF DECK	702.01	702.01	702.01	702.01	702.01	702.01	702.01	702.01	702.01	702.01	702.01

SPAN 3											
	℄ OF PIER 2	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 BRG. EAST ABUT.
NORTH EDGE OF DECK	702.01	702.01	702.01	702.01	702.01	702.01	702.01	702.01	702.01	702.01	702.01
GIRDER 1	702.08	702.08	702.08	702.08	702.08	702.08	702.08	702.08	702.08	702.08	702.08
GIRDER 2	702.19	702.19	702.19	702.19	702.19	702.19	702.19	702.19	702.19	702.19	702.19
℄ OF CTH S/GIRDER 3	702.30	702.30	702.30	702.30	702.30	702.30	702.30	702.30	702.30	702.30	702.30
GIRDER 4	702.19	702.19	702.19	702.19	702.19	702.19	702.19	702.19	702.19	702.19	702.19
GIRDER 5	702.08	702.08	702.08	702.08	702.08	702.08	702.08	702.08	702.08	702.08	702.08
SOUTH EDGE OF DECK	702.01	702.01	702.01	702.01	702.01	702.01	702.01	702.01	702.01	702.01	702.01

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



SLAB HAUNCH DETAIL

IF 1/4" MINIMUM HAUNCH HEIGHT AT EDGE OF GIRDER CANNOT BE MAINTAINED, THE GRADE LINE MAY BE REVISED BY THE ENGINEER AT THE OPTION OF THE CONTRACTOR. THE PLAN SLAB THICKNESS SHALL BE HELD. NOTIFY THE STRUCTURES SECTION IF THE GRADE LINE IS RAISED FROM THE PLAN AND PROFILE BY MORE THAN 1/2".

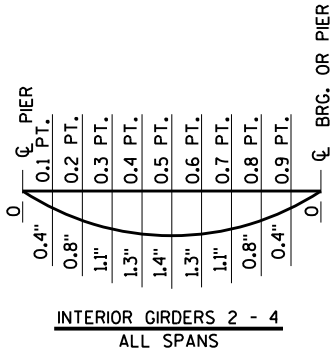
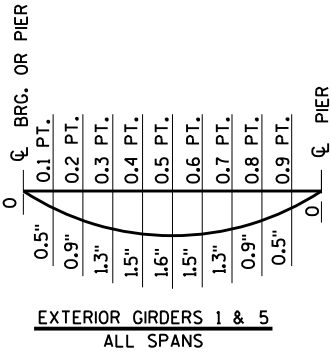
TO DETERMINE 'T', ELEV. OF TOP OF GIRDERS AT ℄ OF SUBSTRUCTURE UNITS AND AT 1/10 POINTS OF EACH SPAN SHALL BE TAKEN. THEN FOLLOW THIS PROCESS:

TOP OF DECK ELEV. AT FINAL GRADE
- TOP OF GIRDER ELEVATION
+ DEADLOAD DEFLECTION
- SLAB THICKNESS
= HAUNCH HEIGHT 'T'

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

STATE PROJECT NUMBER

5057-00-70



ESTIMATED BEAM DEAD LOAD DEFLECTION DIAGRAM

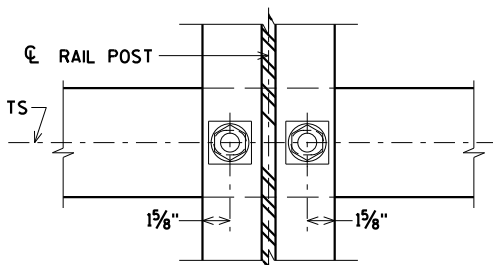
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DECK ELEVATIONS		SHEET 12 OF 13	

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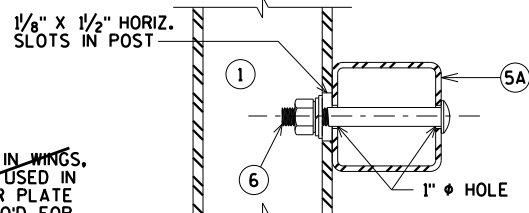
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LEGEND

- ① 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.
- ② 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.
- ③ 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.)~~
- ④ 5/8" x 11" x 1'-8" ANCHOR PLATE (GALVANIZED) WITH 1 5/8" DIA. HOLES FOR ANCHOR BOLTS NO. 3
- ⑤ TS 5 x 4 x 0.25 STRUCTURAL TUBING. ATTACH TO NO. 1 WITH NO. 6.
- ⑤A TS 5 x 5 x 0.25 STRUCTURAL TUBING. ATTACH TO NO. 1 WITH NO. 6.
- ⑥ 7/8" DIA. A325 SLOTTED ROUND HEAD BOLT WITH NUT, 3/8" x 1 5/8" x 1 5/8" WASHER, AND LOCK WASHER (2 REQ'D. AT EACH RAIL TO POST LOCATION.)
- ⑦ 1/2" THK. BACK-UP PLATE WITH 2 - 7/8" x 1/2" THREADED SHOP WELDED STUDS (NO. 12). BOLT TO RAIL AS SHOWN IN DETAIL. REQUIRED AT THRIE BEAM GUARD RAIL ATTACHMENTS ONLY. PLACE SYMMETRICALLY ABOUT TUBES NO. 5A.
- ⑧ 1" DIA. HOLES IN PLATE NO. 7 & TUBES NO. 5A FOR 7/8" DIA. A325 BOLTS WITH HEX NUTS AND WASHERS. 6 HOLES IN TUBES AND PLATE NO. 7.
- ⑨ SPLICE SLEEVE FABRICATED FROM 1/4" PLATE. PROVIDE "SLIDING FIT".
- ⑩ 3/8" x 3 5/8" x 2'-4" PLATE. 2 PER RAIL. USED IN NO. 5 & 5A.
- ⑩A 3/8" x 2 5/8" x 2'-4" PLATE USED IN NO. 5. 3/8" x 3 5/8" x 2'-4" PLATE USED IN NO. 5A. 2 PER RAIL.
- ⑪ 7/8" φ A325 ROUND HEAD BOLT WITH NUT, WASHER, AND LOCK WASHER. USE 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.~~
- ⑫ 7/8" DIA. x 1/2" LONG THREADED SHOP WELDED STUDS (2 REQ'D.)
- ⑬ 3/8" x 8" x 1'-6" PLATE. BOLT TO RAIL AS SHOWN IN DETAIL. REQ'D. AT THRIE BEAM GUARD RAIL ATTACHMENTS ONLY. PLACE SYM. ABOUT TUBES NO. 5A.
- ⑭ 7/8" DIA. x 2" LONG A325 HEX BOLT WITH NUT AND WASHER (5 REQ'D.).
- ⑮ 1" φ HOLES IN TUBES NO. 5A FOR 7/8" DIA. A325 ROUND HEAD BOLT WITH NUT, WASHER AND LOCK WASHER (4 REQ'D.). 4 HOLES IN TUBES.



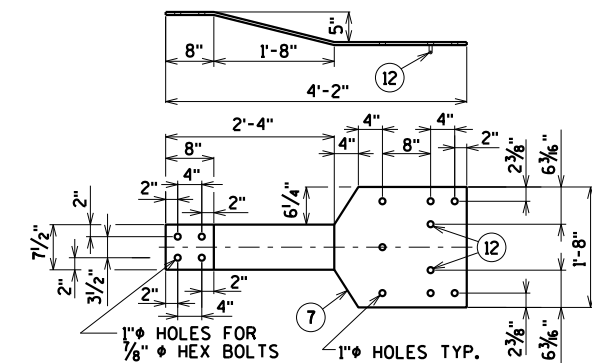
SECTION THRU POST WEB



SECTION THRU RAIL

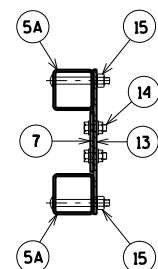
NOTE: CONNECTIONS AT LOWER RAILS SHOWN. CONNECTIONS AT TOP RAIL SIMILAR.

TYPICAL RAIL TO POST CONNECTIONS

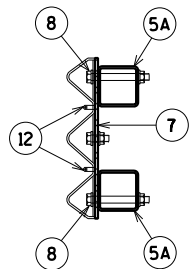
BACK-UP PLATE DETAIL
(AT BEAM GUARD ATTACHMENT)

GENERAL NOTES

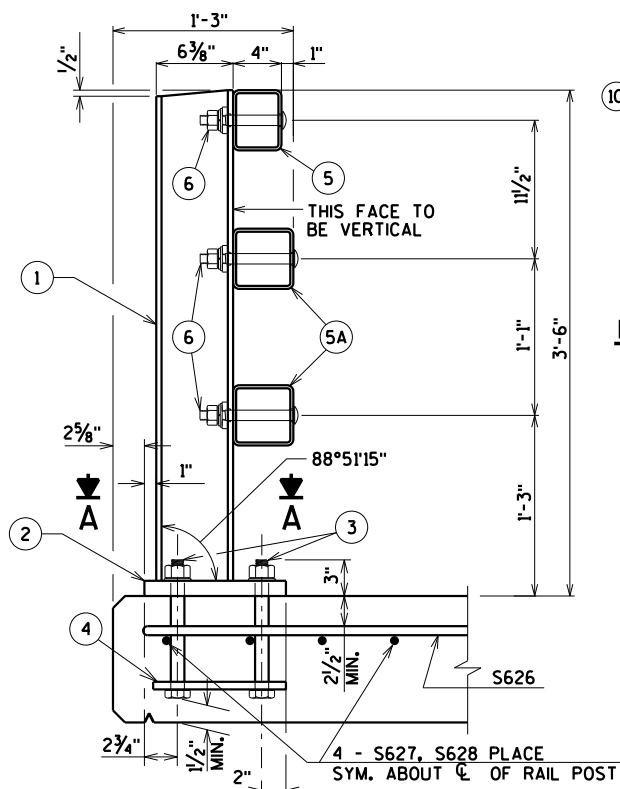
1. BID ITEM SHALL BE "RAILING TUBULAR TYPE M B-12-18" WHICH INCLUDES ALL ITEMS SHOWN.
2. RAIL POST AND BASE PLATES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A709 GRADE 50. HOLLOW RAILING STRUCTURAL TUBING SHALL CONFORM TO THE REQUIREMENTS OF ASTM A500 GRADE B OR C WITH A CERTIFIED FY = 50 KSI. ANCHOR PLATES, AND SPLICE TUBE PLATES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A709 GRADE 36.
3. THE NUT SECURING THE POST BASE PLATE TO THE CONCRETE SHALL BE TIGHTENED TO A SNUG FIT AND GIVEN AN ADDITIONAL 1/8 TURN.
4. RAILS SHALL BE CONTINUOUS OVER A MINIMUM OF THREE (3) POSTS WITHOUT SPLICES WHERE POSSIBLE. RAILS SHALL BE SPLICED IN A PANEL OVER EXPANSION JOINTS.
5. ENDS OF TUBE SECTIONS SHALL BE SAWED. GRIND SMOOTH EXPOSED EDGES. ALL CUT ENDS SHALL BE TRUE AND SMOOTH.
6. WELD IS THE SAME ON BOTH FLANGES. FLANGE WELD DOES NOT REQUIRE MAGNETIC PARTICLE TESTING.
7. FILL BOLT SLOT OPENINGS IN POST SHIMS AND PLATE NO. 2 AND CAULK AROUND PERIMETER OF PLATE NO. 2 WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. STEEL POST SHIMS MAY BE USED UNDER POSTS WHERE REQ'D. FOR ALIGNMENT.
8. POST BASE PLATES SHALL BE FLAT WITH ALL SURFACES SMOOTH AND FREE FROM WARP AND ALL EDGES SMOOTH, STRAIGHT AND VERTICAL. ALL PLATE CUTS SHALL BE MACHINE OR MACHINE FLAME CUT.
9. ALL MATERIAL SHALL BE GALVANIZED AFTER FABRICATION. PRIOR TO GALVANIZING, ALL STEEL RAILING POSTS & STEEL TUBING SHALL BE GIVEN A NO. 6 BLAST CLEANING BY S.S.P.C. SPECIFICATIONS.
10. ~~WHEN PAINTING IS REQUIRED, ALL MATERIAL EXCEPT ANCHORAGE DETAIL (NO. 3 & 4) SHALL BE PAINTED OVER GALVANIZING WITH APPROVED TIE COAT AND TOP COAT.~~



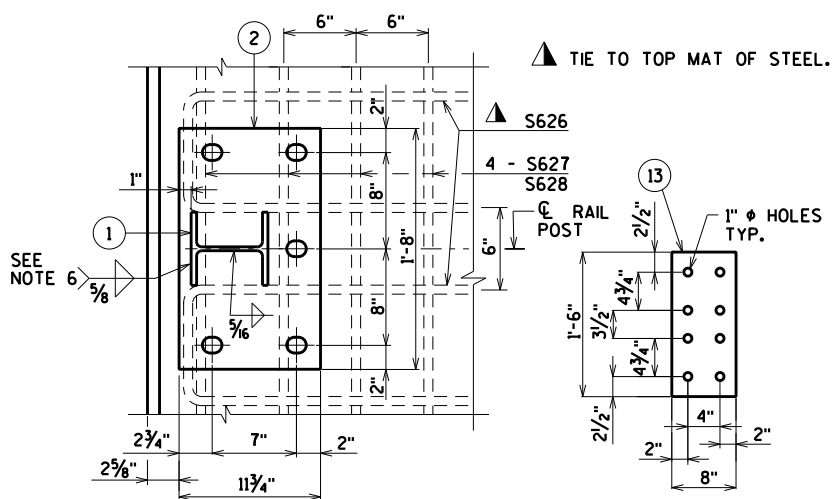
SECTION C



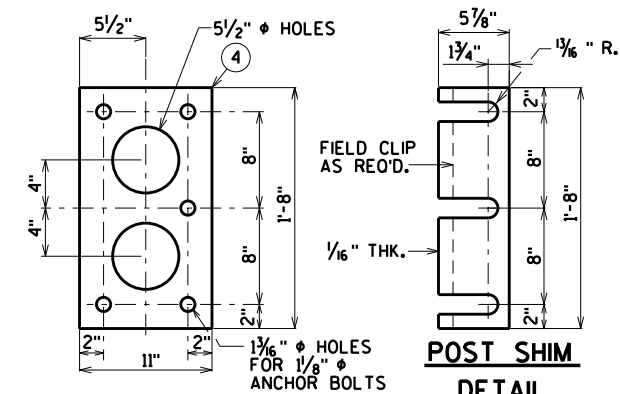
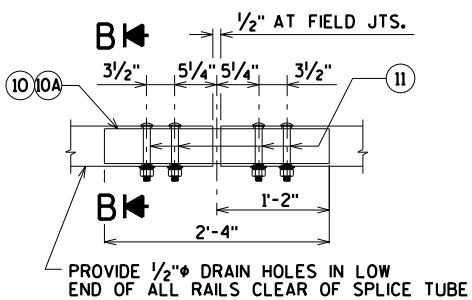
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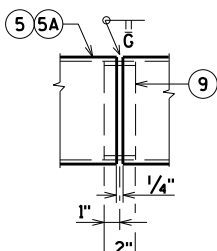
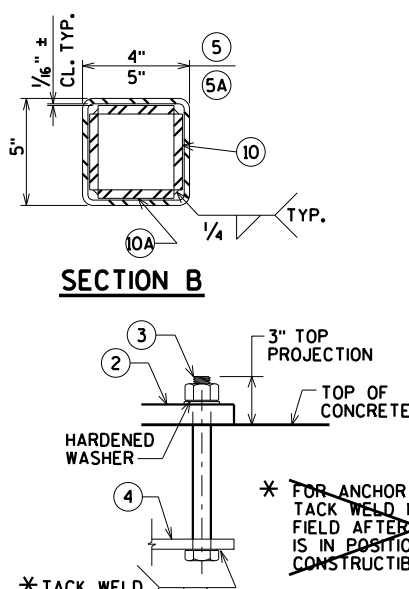
SECTION THRU RAILING ON DECK



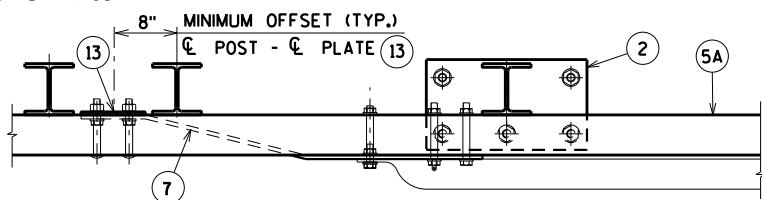
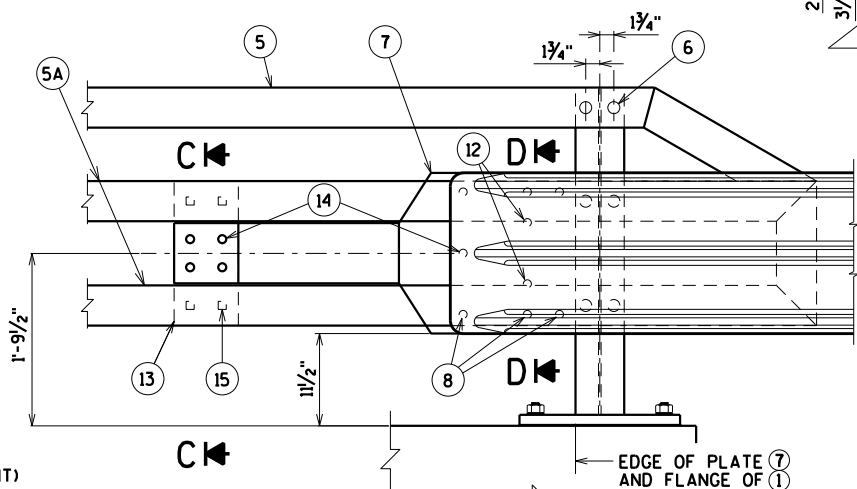
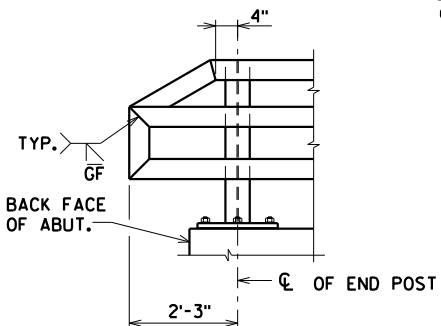
SECTION A

ANCHOR PLATE
(AT RAIL TO DECK CONNECTION)

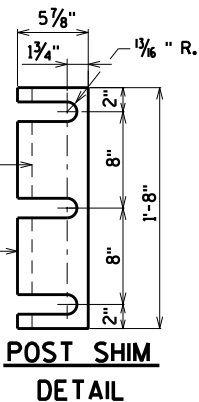
FIELD ERECTION JOINT DETAIL

SHOP RAIL SPLICE 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)

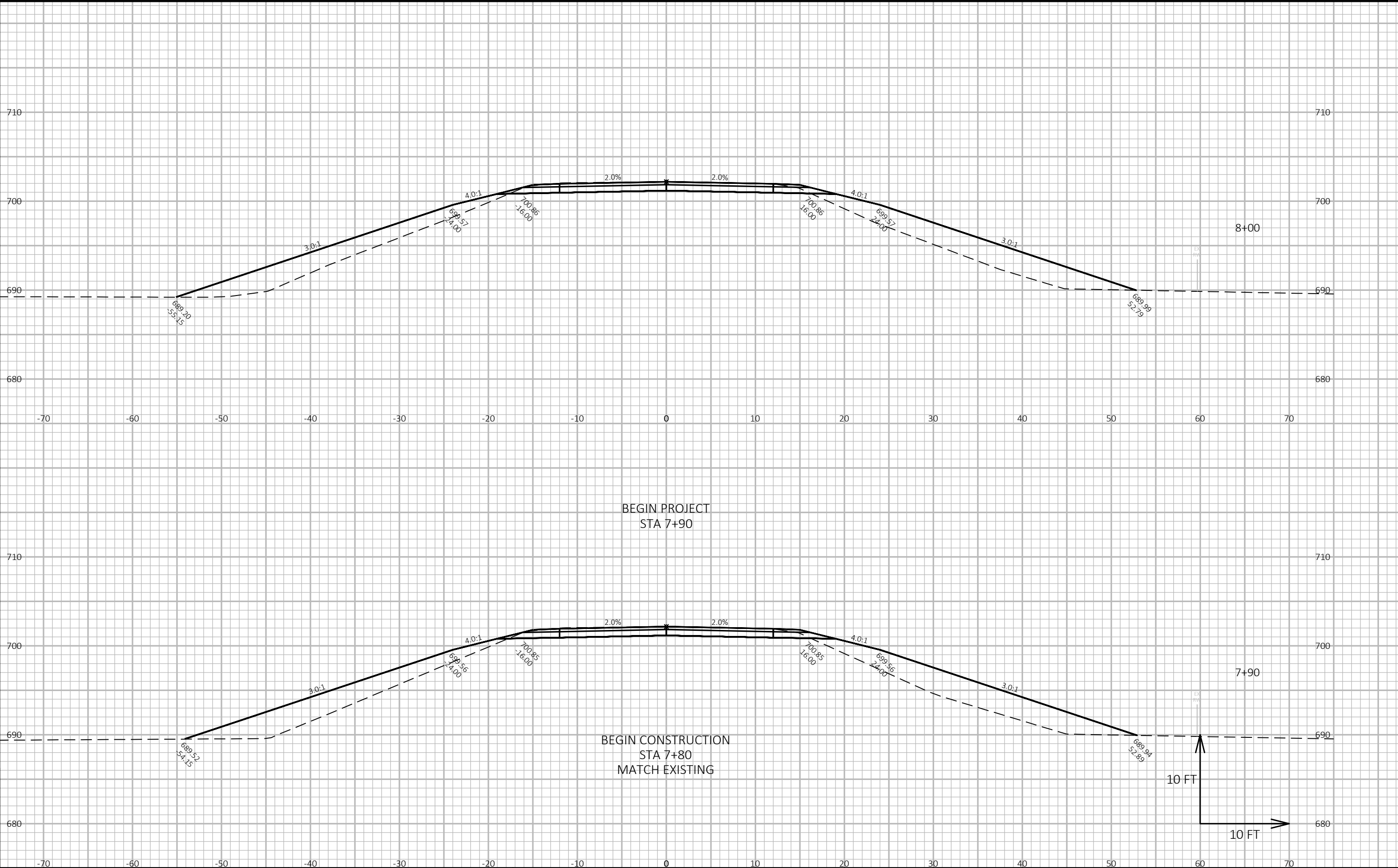
PART ELEVATION OF RAILING

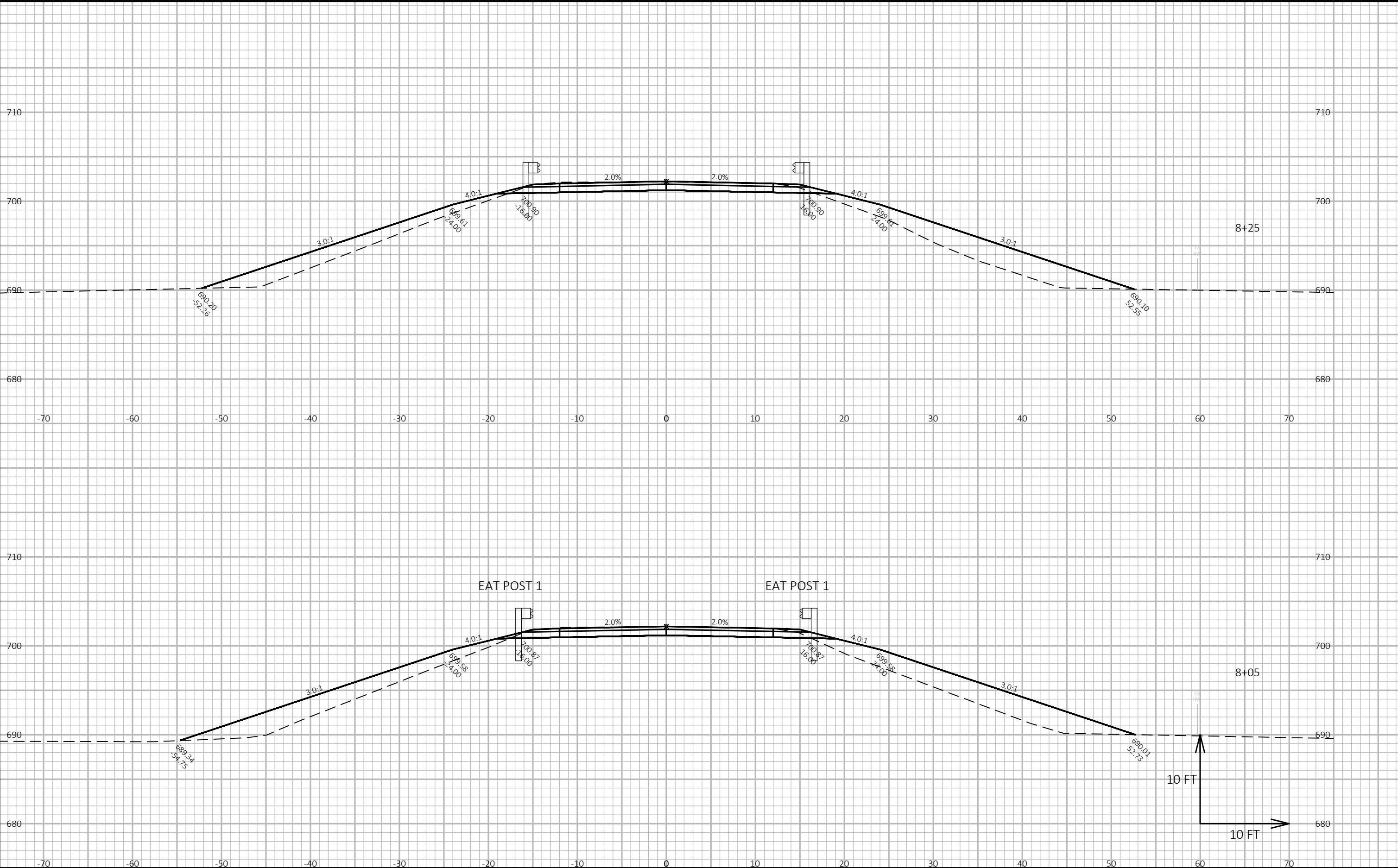
ANCHOR PLATE
(AT BEAM GUARD ATTACHMENT)POST SHIM
DETAIL

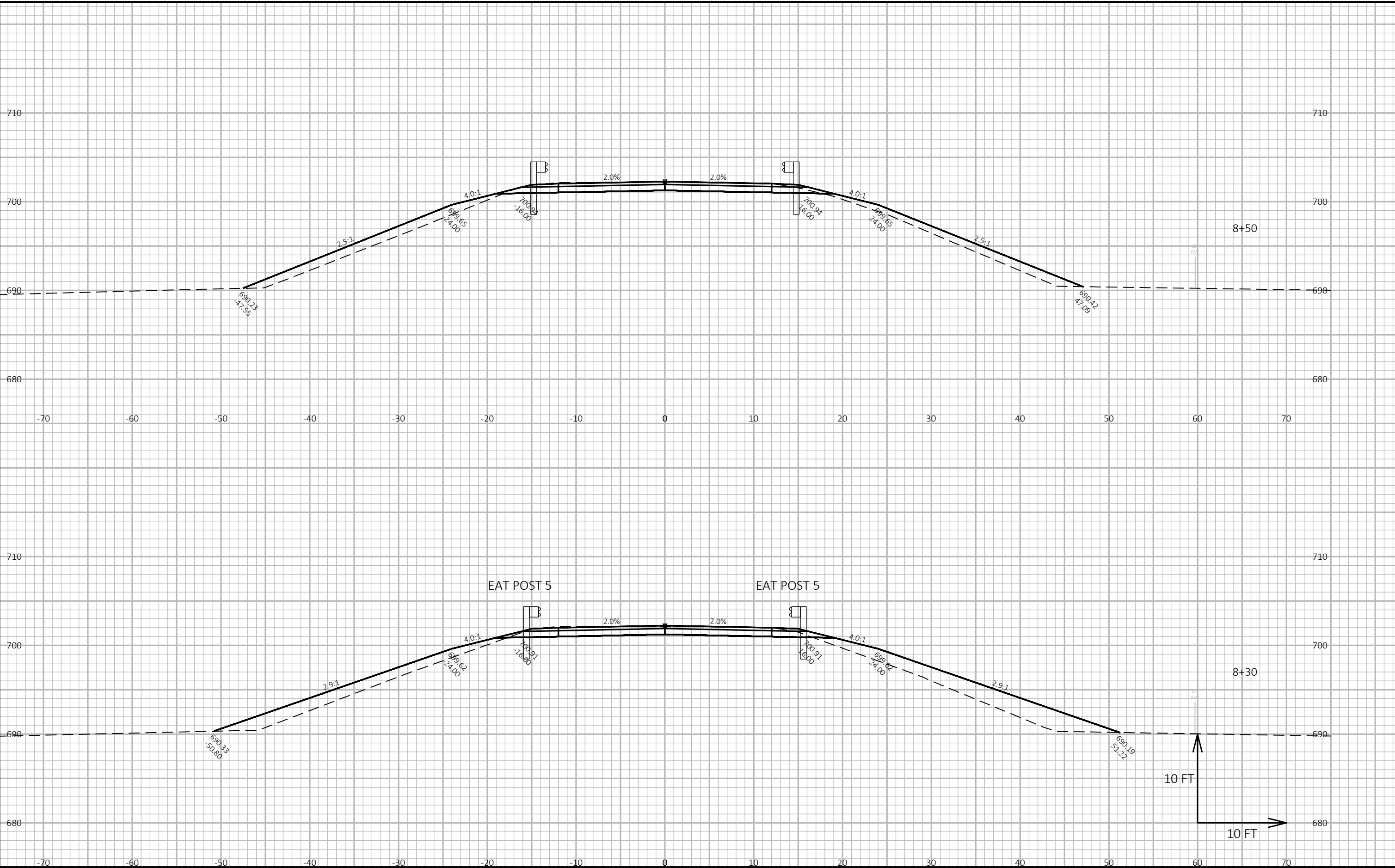
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-12-18			
DRAWN BY C/JM		PLANS CK'D. DNS	
RAILING TUBULAR TYPE M			SHEET 13 OF 13

CTH S 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	
7+90	--	31.3	142.6					
8+00	10	31.3	135.1	12	51	12	67	-55
8+05	5	31.3	128.0	6	24	17	99	-81
8+25	20	31.3	107.7	23	87	41	212	-171
8+30	5	31.2	86.6	6	18	46	235	-189
8+50	20	31.9	49.2	23	50	70	301	-231
8+55	5	32.3	43.5	6	9	76	312	-236
8+75	20	29.9	51.1	23	35	99	358	-259
8+94	19	29.9	51.1	21	36	120	404	-285
B-12-0018	--	--	--	--	--	--	--	--
11+05	--	26.9	55.7	--	--	--	--	--
11+25	20	26.9	55.7	20	41	140	458	-318
11+45	20	29.4	57.6	21	42	161	512	-352
11+50	5	30.3	53.1	6	10	166	526	-360
11+70	20	30.7	77.9	23	49	189	589	-400
11+75	5	31.3	88.6	6	15	194	609	-414
11+95	20	34.1	92.0	24	67	219	696	-477
12+00	5	34.1	91.1	6	17	225	718	-493
12+12	12	34.1	82.1	15	38	240	768	-528
				240	591			

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)



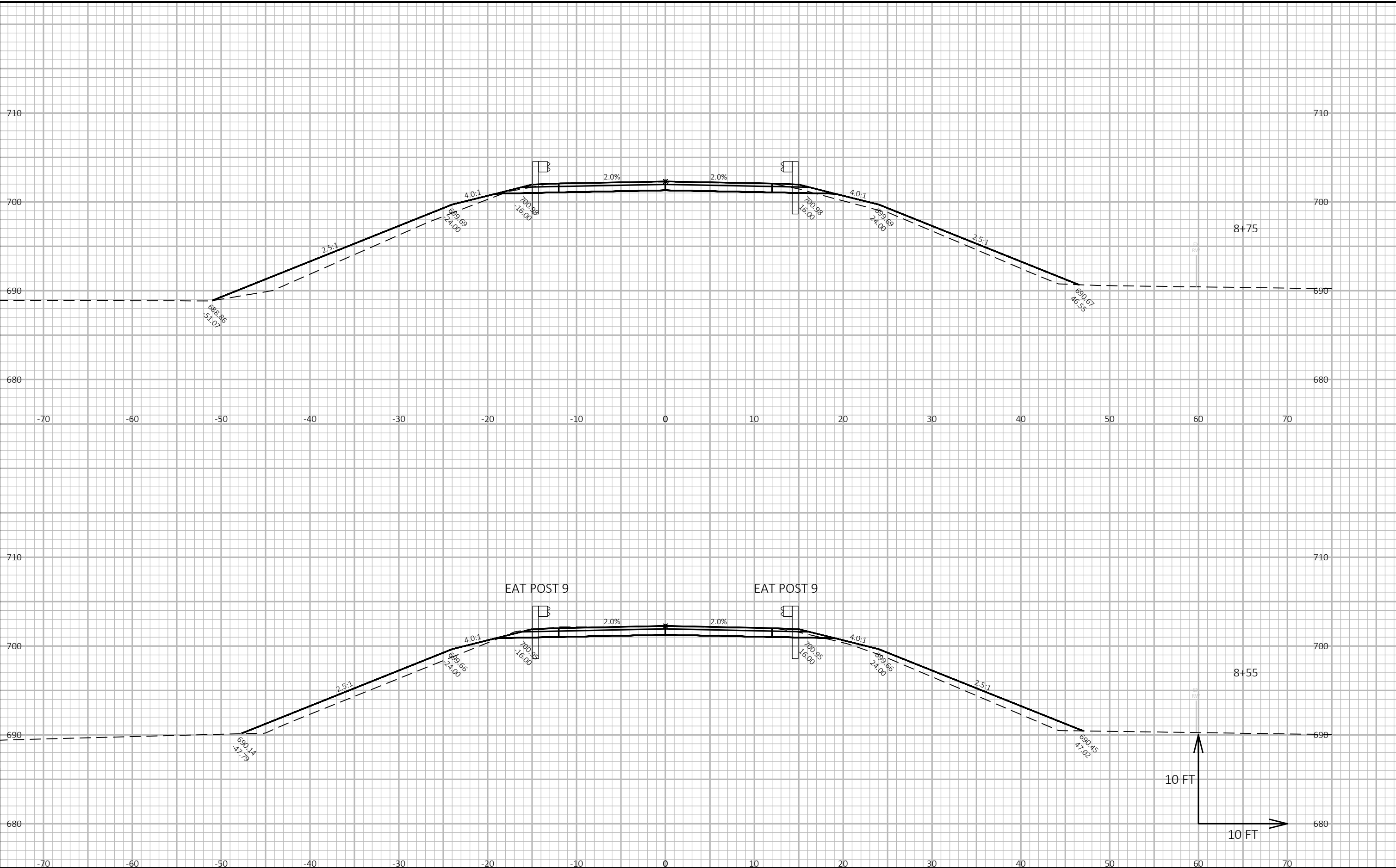


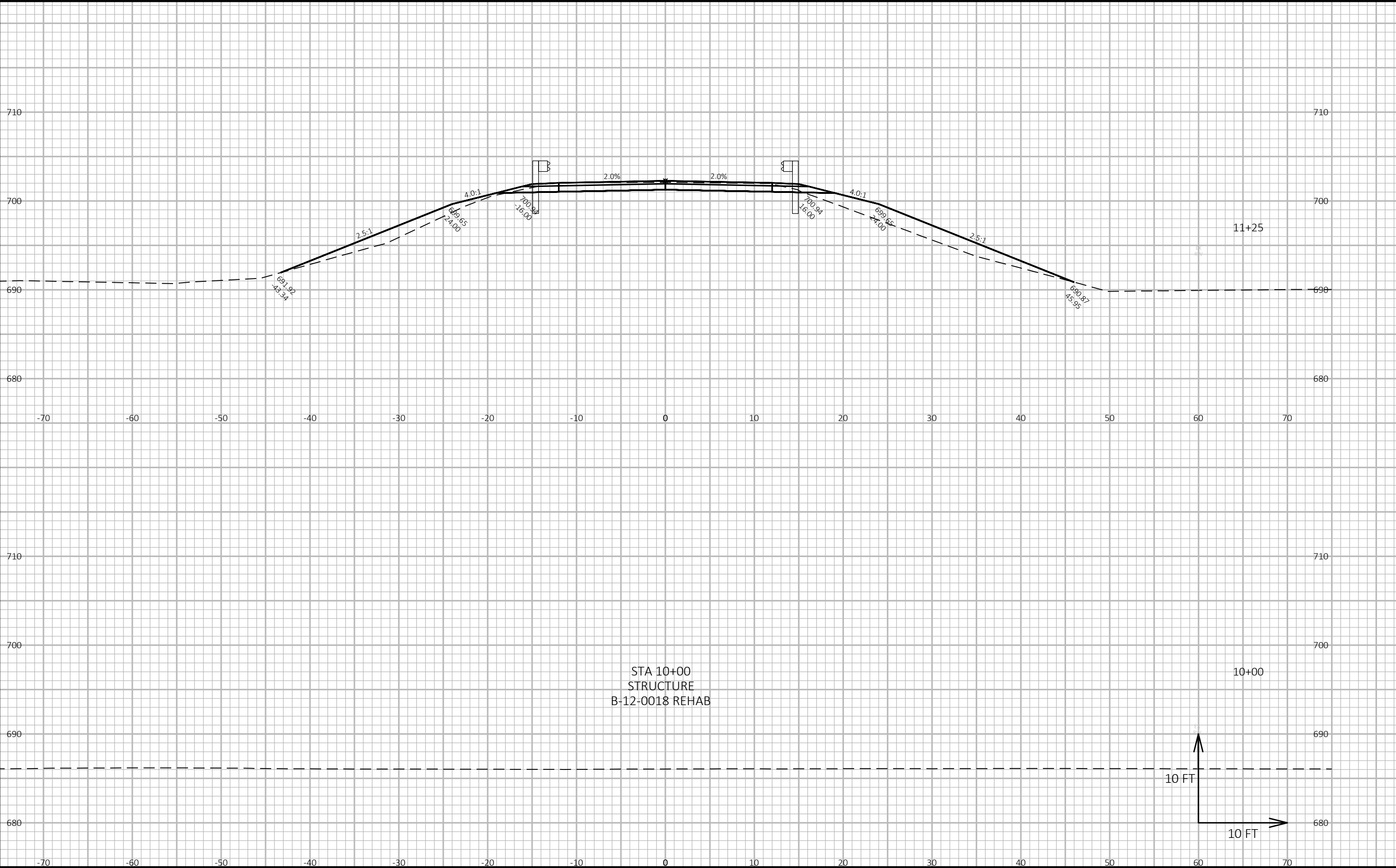


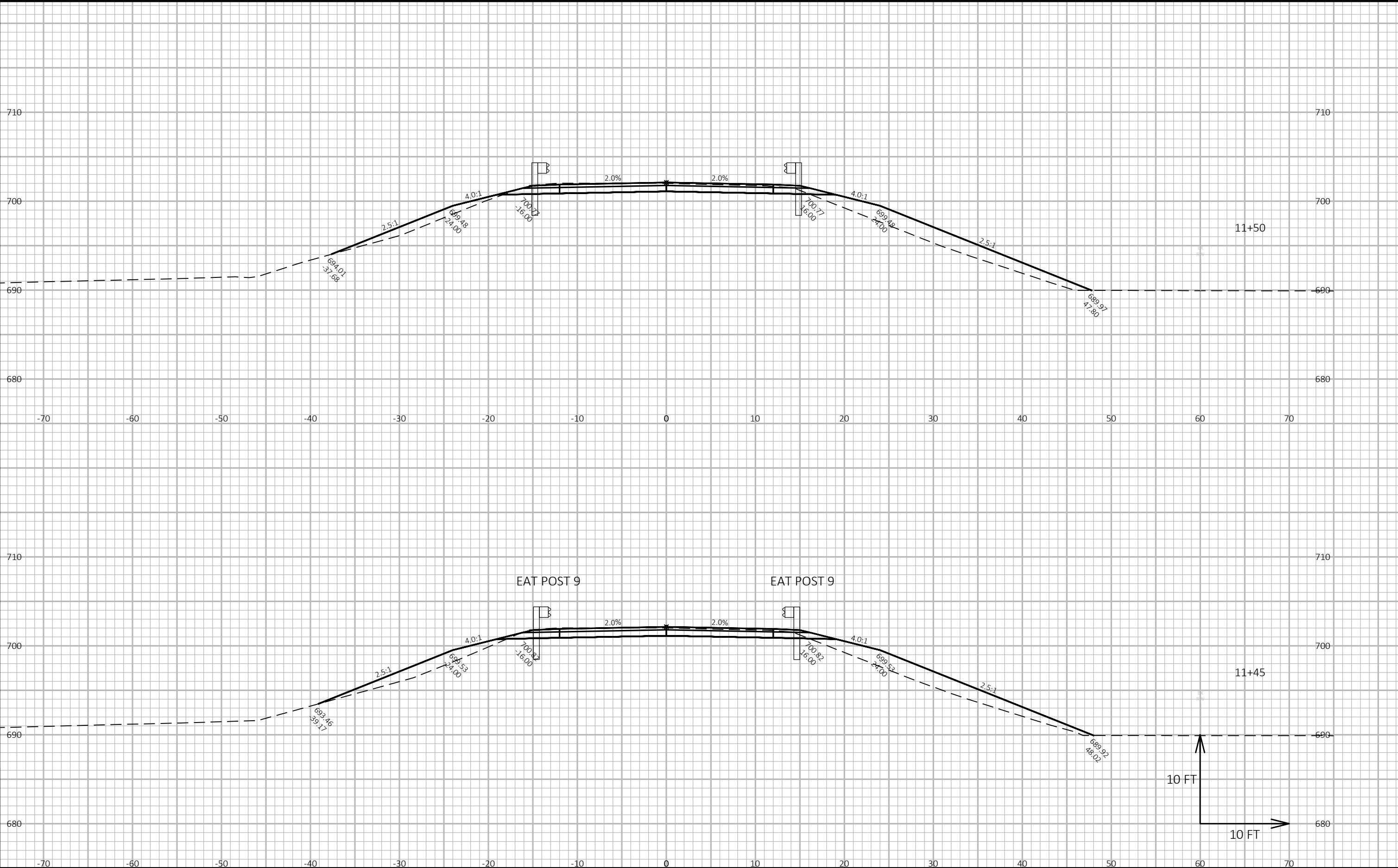
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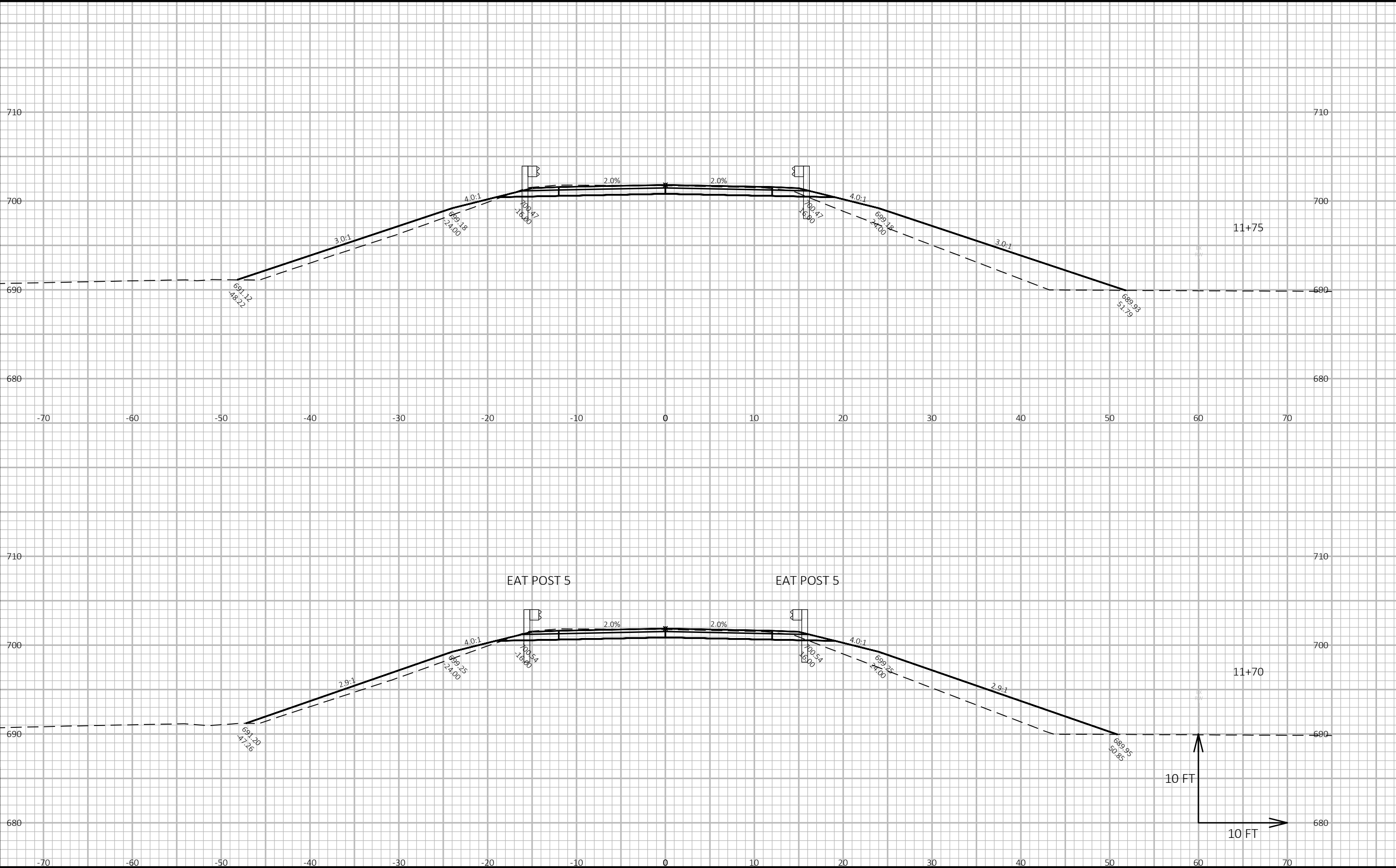
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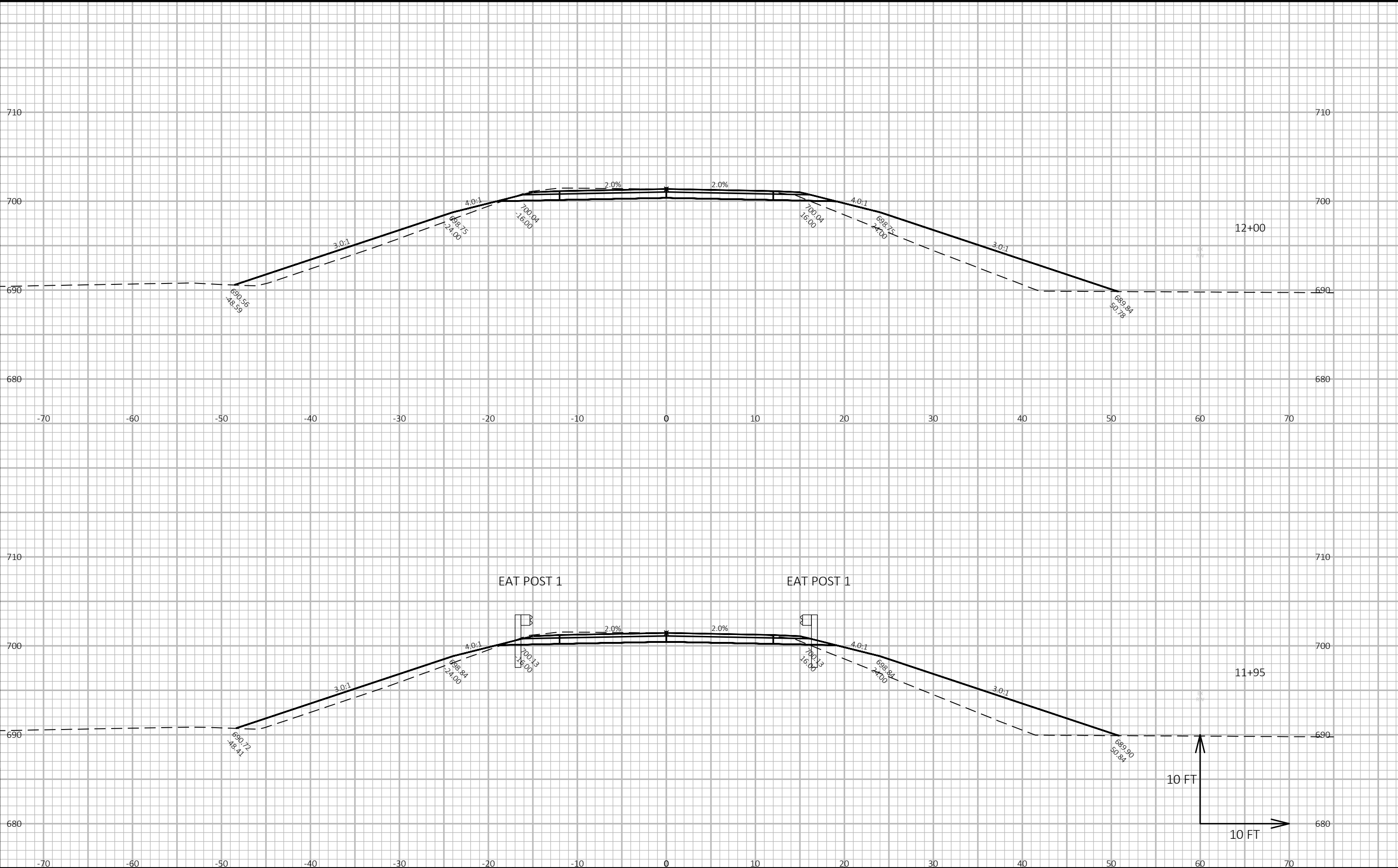
PROJECT NO: 5057-00-70	HWY: CTH S	COUNTY: CRAWFORD	CROSS SECTIONS: CTH S	SHEET E
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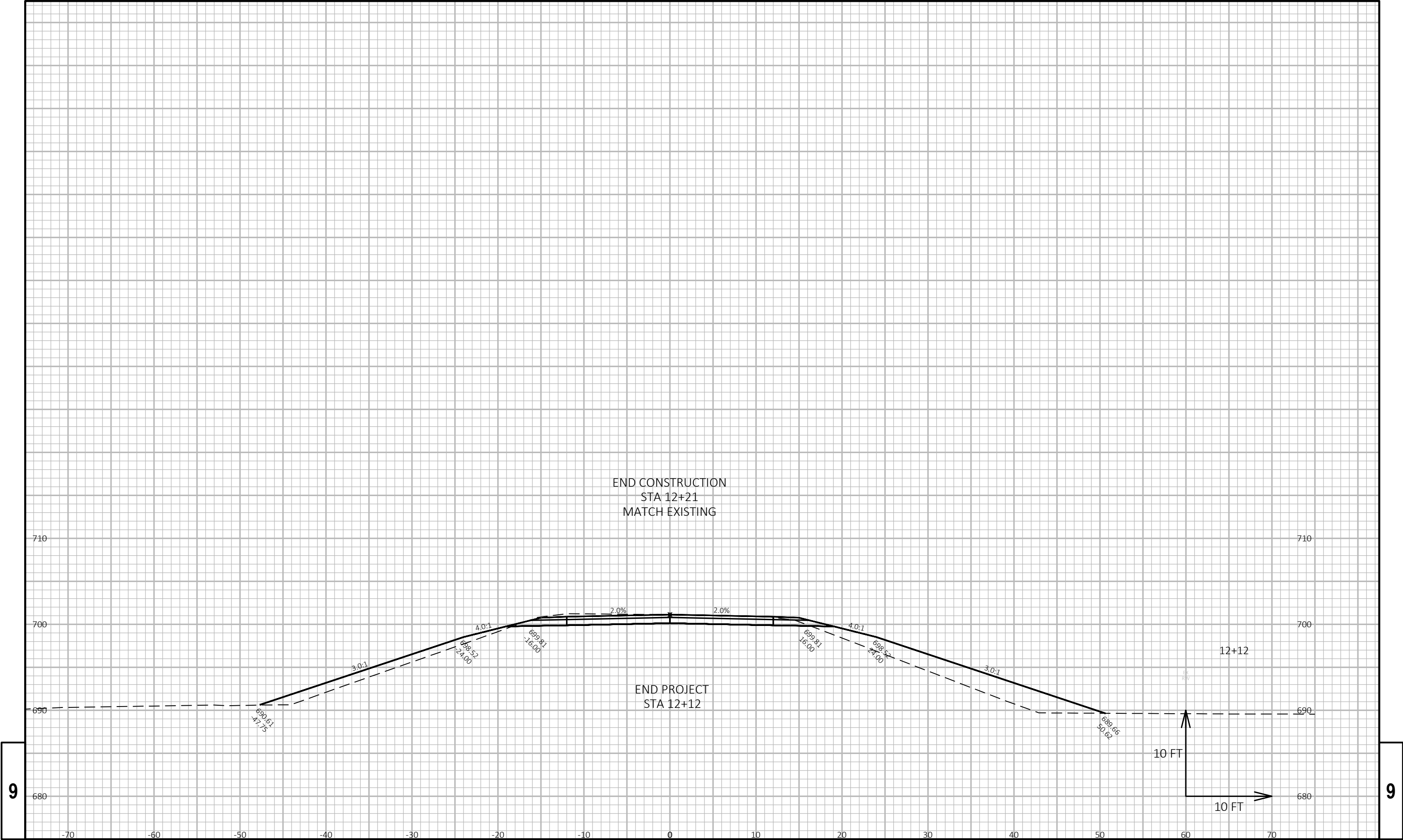












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through innovation and exceptional service.

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