



**J44-14 CONTINUOUS
CONCRETE SLAB
BRIDGE STANDARDS**

REVISED 03-2016; REVISION FOR ADDITION OF PAVING NOTCH BAR AND REFERENCE TO BR-205 STANDARD ROAD PLAN.
REVISED 08-2020; UPDATED BRIDGE ENGINEER SIGNATURE.

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GENERAL NOTES:

THE J44-14 BRIDGE STANDARDS, IF PROPERLY USED, PROVIDE THE STRUCTURAL PLANS NECESSARY TO CONSTRUCT THREE SPAN 44' ROADWAY CONTINUOUS CONCRETE SLAB BRIDGES WITH LENGTHS OF 70'-0, 80'-0, 90'-0, 100'-0, 110'-0, 120'-0, 130'-0, 140'-0 AND 150'-0.

THESE BRIDGES MAY BE BUILT ON A 0°, 15°, 30° OR 45° SKEW. THESE PLANS SHOW THE BRIDGES SKEWED IN ONE DIRECTION, BUT ALL DIMENSIONS AND DETAILS WOULD BE THE SAME FOR THE OPPOSITE SKEW.

THESE STANDARDS GIVE MOST OF THE INFORMATION NECESSARY TO BUILD THESE BRIDGES. HOWEVER, THE FOLLOWING ADDITIONAL INFORMATION IS REQUIRED FOR USE ON PRIMARY ROUTES. FOR SECONDARY ROUTES THE ENGINEER MAY NOT REQUIRE ALL SHEETS TO BE PROVIDED:

1. TITLE SHEET WITH ENGINEERS SEAL
2. ESTIMATED QUANTITIES TOTALS INCLUDING CLASS 20 EXCAVATION FOR BRIDGE
3. SITUATION PLAN LAYOUT OF BRIDGE
4. TOP OF SLAB ELEVATIONS LAYOUT
5. BOTTOM OF ABUTMENT FOOTING ELEVATIONS
6. BOTTOM OF PIER CAP ELEVATIONS
7. PILING DESIGN INFORMATION
8. SLOPE PROTECTION LAYOUT IF NEEDED
9. CONDUIT LAYOUT
10. LIGHTING LAYOUT IF NEEDED

FOR CLARITY, MOST SECTIONS SHOWN ON THE FOLLOWING SHEETS ARE DRAWN WITH BARRIER RAIL ONLY. THESE SECTIONS WILL BE IDENTICAL FOR OPEN RAIL DESIGN WITH ANY MODIFICATIONS SHOWN ON SHEET J44-48-14 AND J44-49-14.

THESE BRIDGES ARE DESIGNED FOR HL93 LOADING PLUS 20 LBS. PER SQ. FT. OF ROADWAY FOR FUTURE WEARING SURFACE. CONTROL OF CRACKING BY DISTRIBUTION OF REINFORCEMENT FOR SLAB DESIGN BASED ON PRE LRFD 2005 INTERIMS.

NOTE THAT WHEN APPROACH PAVEMENT IS TO BE PLACED, THE TEMPORARY PAVING BLOCKS SHALL BE REMOVED AND A PROPER JOINT FOR EXPANSION SHALL BE PROVIDED BETWEEN THE BRIDGE AND THE APPROACH PAVING.

THE FLOOR SLAB AS SHOWN INCLUDES ½" INTEGRAL WEARING SURFACE.

THE ABUTMENTS FOR THESE BRIDGES ARE BUILT INTEGRAL WITH THE SUPERSTRUCTURE. THEREFORE, IT IS IMPORTANT THAT A PROPER JOINT FOR EXPANSION BE PROVIDED BETWEEN THE BRIDGE AND APPROACH PAVING, WHEN APPROACH PAVING IS NEEDED.

THE ABUTMENT DESIGN UTILIZED ON THESE BRIDGES RESTRICTS THEIR USE IN THE FOLLOWING MANNER:

- (1) THESE BRIDGES ARE NOT TO BE USED WHEN POINT BEARING FOR THE ABUTMENT STEEL PILING WOULD BE OBTAINED ON ROCK AT A DISTANCE LESS THAN 15 FEET FROM THE BOTTOM OF FOOTING.
- (2) FOR THE 140 FOOT AND 150 FOOT LONG BRIDGES THE ABUTMENT PILING ARE TO BE DRIVEN THROUGH OVERSIZED HOLES PREBORED TO A MINIMUM OF 10 FEET BELOW THE BELOW THE BOTTOM OF FOOTING. THE PREBORED HOLES SHALL BE IN ACCORDANCE WITH SECTION 2501.03, Q OF THE STANDARD SPECIFICATIONS. THE ELEVATION OF THE BOTTOM OF THE PREBORED HOLE SHALL BE SHOWN ON THE PLANS.
- (3) IF ROCK IS ENCOUNTERED LESS THAN 5 FOOT BELOW THE PREBORED HOLES, A SPECIAL ANALYSIS WILL BE REQUIRED. WHEN PREBORING IS NOT REQUIRED FOR THE ABUTMENT FOOTING AND ROCK IS ENCOUNTERED LESS THAN 10 FOOT BELOW THE BOTTOM OF ABUTMENT FOOTING, A SPECIAL ANALYSIS WILL BE REQUIRED.

THE PIERS AND ABUTMENTS FOR THESE STANDARDS HAVE BEEN DESIGNED FOR THE USE OF BOTH FRICTION AND POINT BEARING PILES. IT IS NECESSARY THAT THE TYPE AND LENGTH FOR BOTH THE ABUTMENT AND PIER PILES BE DESIGNATED ON THE FRONT SHEET OF THE PLANS.

THE INTEGRAL ABUTMENTS AND PILE BENTS FOR THESE J44 STANDARDS HAVE BEEN DESIGNED FOR THE USE OF VARIOUS TYPES OF PILE FOOTINGS AS FOLLOWS.

- INTEGRAL ABUTMENTS: TIMBER PILES OR HP 10x42 PILES AT BRIDGE DESIGN MANUAL(BDM) ARTICLE 6.2.6.1 STRUCTURAL RESISTANCE LEVEL-1 (SRL-1)
- PILE BENTS: STANDARD CONCRETE-FILLED STEEL PIPE PILES (PIOL), STANDARD PRESTRESSED CONCRETE PILES (PIOL), OR STANDARD H-PILES (PIOL AND SRL-1)

BECAUSE THESE BRIDGE STANDARDS HAVE BEEN REVISED FOR LRFD BASED ON 2012-COMPLETED IOWA STATE UNIVERSITY RESEARCH, FOR PILE FOUNDATIONS THE DESIGNER WILL NEED TO DETERMINE THE CONSTRUCTION CONTROL METHOD, CONTRACT LENGTH, AND DRIVING TARGET AND GIVE THAT INFORMATION ON THE FRONT SHEET OF THE PLANS. BRIDGE DESIGN MANUAL CADD NOTES E177, E718, E719, E818, AND E819 ARE APPROPRIATE FOR THAT PURPOSE. THE NOTES, AS WELL AS THE BRIDGE DESIGN MANUAL AND DESIGN EXAMPLES, ARE AVAILABLE ON THE OFFICE OF BRIDGES AND STRUCTURES WEB SITE: [HTTP://WWW.IOWADOT.GOV/BRIDGE/INDEX.HTM](http://www.iowadot.gov/bridge/index.htm).

STRUCTURAL RESISTANCE LEVEL-1 (SRL-1) REPLACES THE 50 TON STEEL PILE DESIGNATION.

FOR MORE INFORMATION ON SRL-1, SEE THE BRIDGE DESIGN MANUAL, LOCATED ON THE IOWA DEPARTMENT OF TRANSPORTATION, OFFICE OF BRIDGES AND STRUCTURES WEB SITE.

FOR PIERS SUBJECT TO SCOUR THE DESIGN BEARING SHALL BE OBTAINED BELOW SCOUR ELEVATION. SCOUR ELEVATION SHALL BE SHOWN ON THE FRONT SHEET.

KEYWAY DIMENSIONS SHOWN ON THE PLANS ARE BASED ON NOMINAL DIMENSIONS UNLESS STATED OTHERWISE. IN ADDITION, THE BEVEL USED ON THE KEYWAY SHALL BE LIMITED TO A MAXIMUM OF 10 DEGREES FROM VERTICAL.

THESE BRIDGE PLANS LABEL ALL REINFORCING STEEL WITH ENGLISH NOTATION (5#1 IS ⅝ INCH DIAMETER BAR). ENGLISH REINFORCING STEEL RECEIVED IN THE FIELD MAY DISPLAY THE FOLLOWING "BAR DESIGNATION". THE "BAR DESIGNATION" IS THE STAMPED IMPRESSION ON THE REINFORCING BARS, AND IS EQUIVALENT TO THE BAR DIAMETER IN MILLIMETERS.

ENGLISH SIZE	3	4	5	6	7	8	9	10	11
BAR DESIGNATION	10	13	16	19	22	25	29	32	36

THE BR-205 DOUBLE REINFORCED 12" APPROACH STANDARD ROAD PLAN SHALL BE USED WITH THE J44 STANDARDS. THIS STANDARD TIES THE APPROACHES TO THE INTEGRAL (MOVABLE) ABUTMENT, AND PROVIDES EXPANSION MOVEMENT (CF JOINT) AT THE END OF THE FIRST APPROACH SLAB PANEL.

ALL REINFORCING BARS AND BARS NOTED AS DOWELS SUPPLIED FOR THIS STRUCTURE SHALL BE DEFORMED REINFORCEMENT UNLESS OTHERWISE NOTED OR SHOWN.


SPECIFICATIONS:

DESIGN: AASHTO LRFD, SERIES OF 2004 WITH INTERIM 2005.

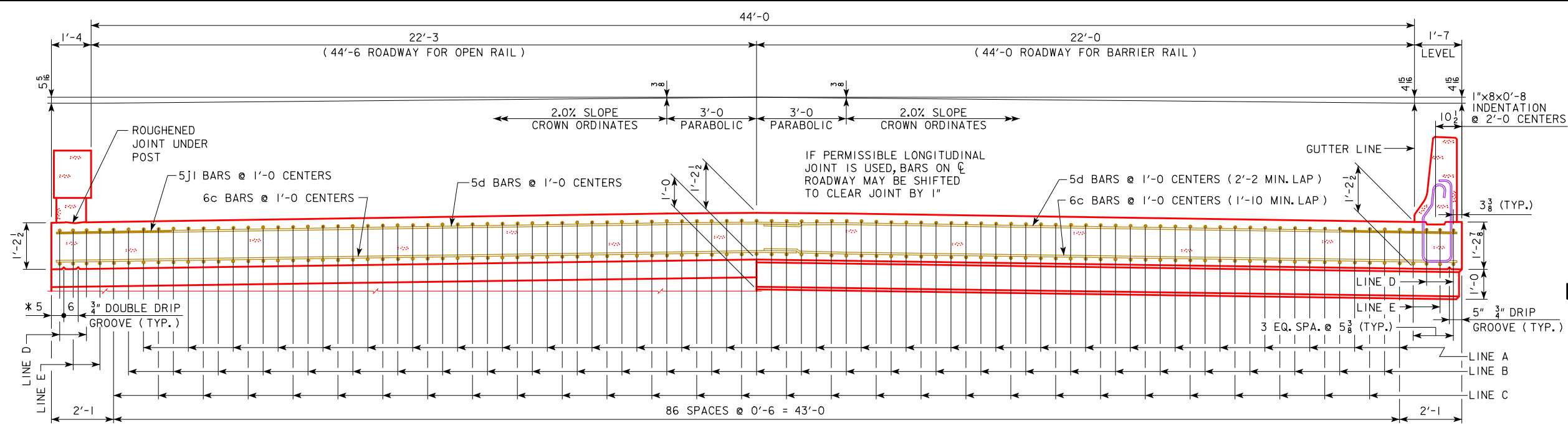
CONSTRUCTION: IOWA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR HIGHWAY AND BRIDGE CONSTRUCTION, SERIES 2012, PLUS APPLICABLE GENERAL SUPPLEMENTAL SPECIFICATIONS, DEVELOPMENTAL SPECIFICATIONS, SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS SHALL APPLY TO CONSTRUCTION WORK ON THIS PROJECT.

DESIGN STRESSES:

DESIGN STRESSES FOR THE FOLLOWING MATERIALS ARE IN ACCORDANCE WITH THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 3rd Ed, SERIES OF 2004. REINFORCING STEEL IN ACCORDANCE WITH LRFD AASHTO SECTION 5, GRADE 60. CONCRETE IN ACCORDANCE WITH LRFD AASHTO SECTION 5, $f'c = 3,500$ PSI, STRUCTURAL STEEL IN ACCORDANCE WITH LRFD AASHTO SECTION 6. ASTM A709 GRADE 36 OR GRADE 50 (AASHTO M270 GRADE 36 OR GRADE 50).
 $n = 9$ FOR TENSION STEEL
 $n = 18$ FOR COMPRESSION STEEL
 HL-93 LIVE LOAD PLUS 20 LBS. PER SQ. FT. FOR FUTURE WEARING SURFACE. END SPAN LENGTH IS USED TO CALCULATE EQUIVALENT WIDTH IN LIVE LOAD DISTRIBUTION.
 SIX FOOT OF APPROACH SLAB DEAD & LIVE LOAD INCLUDED IN ABUTMENT LOADS. CONTROL OF CRACKING BY DISTRIBUTION OF REINFORCEMENT FOR SLAB DESIGN BASED ON PRE 2005 LRFD INTERMS.

08-2020 LATEST REVISION DATE	APPROVED BY BRIDGE ENGINEER		
		STANDARD DESIGN - 44' ROADWAY, 3 SPAN BRIDGES CONTINUOUS CONCRETE SLAB BRIDGES JULY, 2014	
		INDEX AND GENERAL NOTES	J44-01-14

REVISED 08-2020: UPDATED BRIDGE ENGINEER SIGNATURE. ADDED 3/8" (TYP.) & 5/8" (TYP.) HORIZONTAL DIMENSIONS TO LONGITUDINAL SLAB REINFORCING LINE D & E IN "HALF SECTION NEAR PIER".



HALF SECTION NEAR ABUTMENT

HALF SECTION NEAR PIER

SLAB CROSS-SECTIONAL AREA FOR OPEN RAIL = 56.99 SQ. FT.

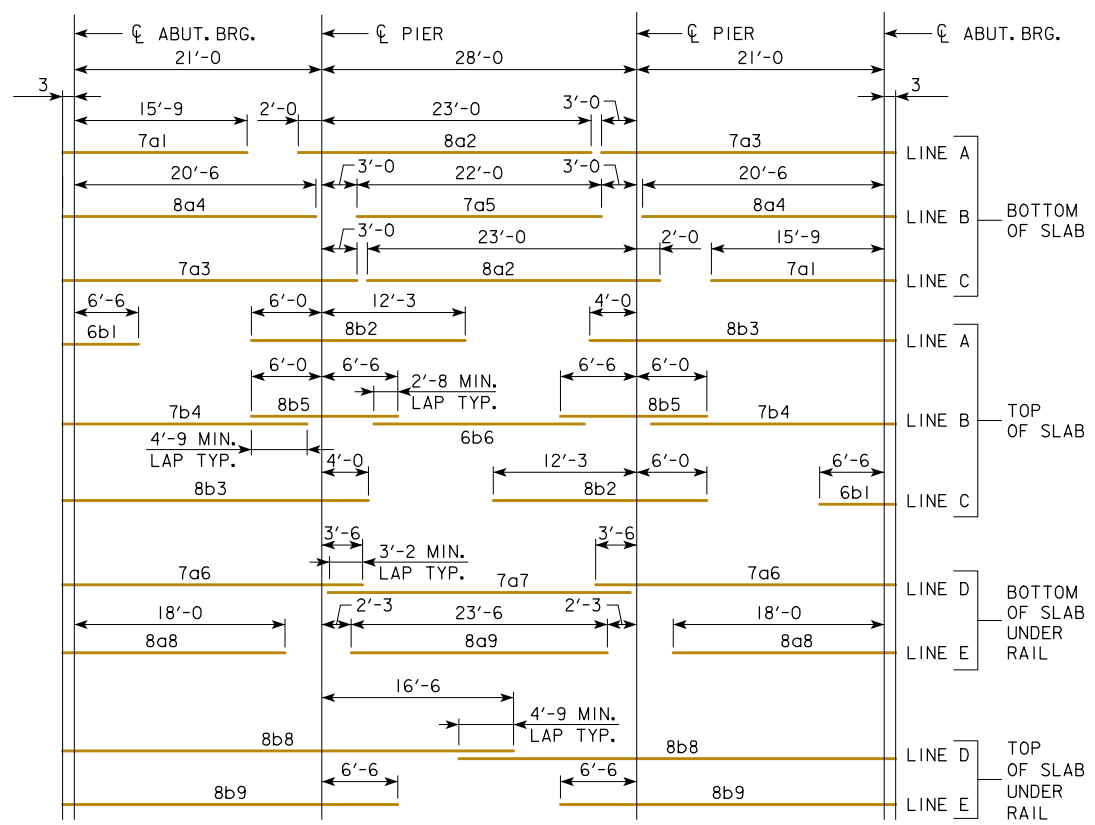
SLAB CROSS-SECTIONAL AREA FOR BARRIER RAIL = 57.04 SQ. FT.

NOTE: TOP LONGITUDINAL REINFORCING STEEL IS TO BE PARALLEL TO AND 2 1/2" CLEAR BELOW TOP OF SLAB. BOTTOM LONGITUDINAL REINFORCING STEEL IS TO BE PARALLEL TO AND 1 1/2" CLEAR ABOVE BOTTOM OF SLAB. REINFORCING STEEL IS TO BE SECURELY WIRED IN PLACE AND ADEQUATELY SUPPORTED ON BAR CHAIRS BEFORE CONCRETE IS POURED. I.M. 451.01 REQUIREMENTS SHALL APPLY FOR BAR CHAIRS.

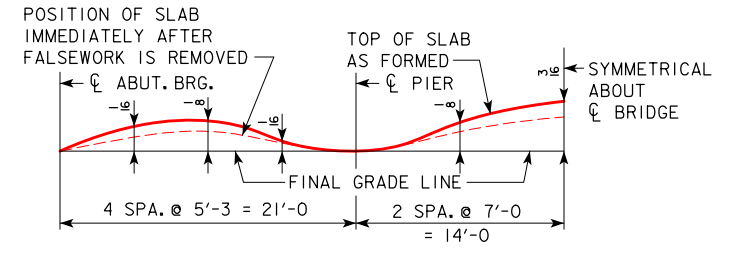
CONCRETE SEALER LIMITS FOR OPEN RAILS

CONCRETE SEALER SHALL BE APPLIED TO BOTH SIDES OF BRIDGE SLAB ON THE TOP, EDGE OF SLAB AND UNDER THE SLAB. THE CONCRETE SEALER SHALL ALSO BE APPLIED TO THE OPEN RAIL ON THE TOP, TRAFFIC FACE SIDE, BOTTOM OF RAIL, AND ON ALL SIDES OF THE OPEN RAIL POSTS.

THE CONCRETE SEALER LIMITS ARE SHOWN IN THE DETAIL AND SHALL APPLY TO THE FULL LENGTH OF BRIDGE. CONCRETE SEALER SHALL BE APPLIED IN ACCORDANCE WITH ARTICLE 2403.03, P, 3 OF THE STANDARD SPECIFICATIONS.



PLACEMENT FOR LONGITUDINAL REINFORCEMENT



FORM CAMBER DIAGRAM

THIS DIAGRAM SHOWS THE FORM CAMBER REQUIRED TO COMPENSATE FOR THE ANTICIPATED ULTIMATE DEAD LOAD DEFLECTION. THE ABOVE DIMENSIONS DO NOT INCLUDE ANY ALLOWANCE FOR FORM DEFLECTION OR FALSEWORK SETTLEMENT.

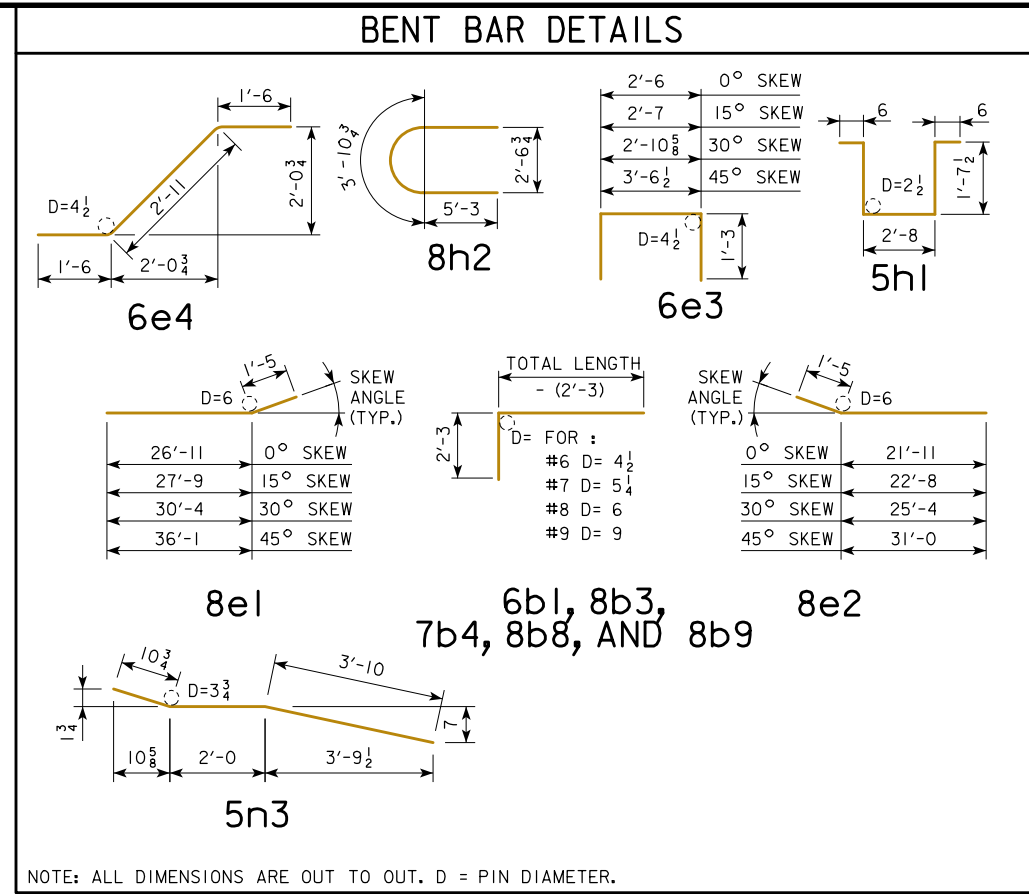
08-2020 LATEST REVISION DATE APPROVED BY BRIDGE ENGINEER	 STANDARD DESIGN - 44' ROADWAY, 3 SPAN BRIDGES CONTINUOUS CONCRETE SLAB BRIDGES JULY, 2014	
	SUPERSTRUCTURE DETAILS 70'-0 BRIDGE	J44-02-14

REVISED 09-2014; CHANGED REFERENCE TO THE BARRIER RAIL & OPEN RAIL TO THE J44-14 STANDARDS INSTEAD OF J44-06 STANDARDS.
 REVISED 03-2016; REVISION FOR ADDITION OF PAVING NOTCH BAR 8u1.
 REVISED 04-2016; REVISION TO INCLUDE PAVING NOTCH BAR 8u1 WEIGHT IN ESTIMATED QUANTITIES TABLE.
 REVISED 08-2020; UPDATED BRIDGE ENGINEER SIGNATURE.

BILL OF REINFORCING STEEL FOR SUPERSTRUCTURE - 70' BRIDGE															
LOCATION	SKEW	SHAPE	BAR	NO.	0°		15°		30°		45°		NO.	LENGTH	WEIGHT
					LENGTH	WEIGHT	NO.	LENGTH	WEIGHT	NO.	LENGTH	WEIGHT			
SLAB LONGITUDINAL BOTTOM			7a1	58	16'-0	1897	58	16'-0	1897	58	16'-0	1897	58	16'-0	1897
SLAB LONGITUDINAL BOTTOM			8a2	58	25'-0	3872	58	25'-0	3872	58	25'-0	3872	58	25'-0	3872
SLAB LONGITUDINAL BOTTOM			7a3	58	24'-3	2875	58	24'-3	2875	58	24'-3	2875	58	24'-3	2875
SLAB LONGITUDINAL BOTTOM			8a4	58	20'-9	3214	58	20'-9	3214	58	20'-9	3214	58	20'-9	3214
SLAB LONGITUDINAL BOTTOM			7a5	29	22'-0	1305	29	22'-0	1305	29	22'-0	1305	29	22'-0	1305
SLAB LONGITUDINAL BOTTOM, AT RAIL			7a6	8	24'-9	405	8	24'-9	405	8	24'-9	405	8	24'-9	405
SLAB LONGITUDINAL BOTTOM, AT RAIL			7a7	4	27'-4	224	4	27'-4	224	4	27'-4	224	4	27'-4	224
SLAB LONGITUDINAL BOTTOM, AT RAIL			8a8	8	18'-3	390	8	18'-3	390	8	18'-3	390	8	18'-3	390
SLAB LONGITUDINAL BOTTOM, AT RAIL			8a9	4	23'-6	251	4	23'-6	251	4	23'-6	251	4	23'-6	251
SLAB LONGITUDINAL TOP			6b1	58	9'-0	785	58	9'-0	785	58	9'-0	785	58	9'-0	785
SLAB LONGITUDINAL TOP			8b2	58	18'-3	2827	58	18'-3	2827	58	18'-3	2827	58	18'-3	2827
SLAB LONGITUDINAL TOP			8b3	58	27'-6	4259	58	27'-6	4259	58	27'-6	4259	58	27'-6	4259
SLAB LONGITUDINAL TOP			7b4	58	22'-3	2638	58	22'-3	2638	58	22'-3	2638	58	22'-3	2638
SLAB LONGITUDINAL TOP			8b5	58	12'-6	1936	58	12'-6	1936	58	12'-6	1936	58	12'-6	1936
SLAB LONGITUDINAL TOP			6b6	29	20'-4	886	29	20'-4	886	29	20'-4	886	29	20'-4	886
SLAB LONGITUDINAL TOP, AT RAIL			8b8	8	40'-0	855	8	40'-0	855	8	40'-0	855	8	40'-0	855
SLAB LONGITUDINAL TOP, AT RAIL			8b9	8	30'-0	641	8	30'-0	641	8	30'-0	641	8	30'-0	641
SLAB TRANSVERSE BOTTOM			6c1	67	25'-5	2558	67	26'-4	2650	56	25'-5	2138	46	25'-5	1757
SLAB TRANSVERSE BOTTOM			6c2	67	23'-3	2340	67	24'-1	2424	58	23'-3	2026	49	23'-3	1712
SLAB TRANSVERSE ENDS, BOTTOM			6c3	-	-	-	-	-	-	14	VARIABLES	303	22	VARIABLES	485
SLAB TRANSVERSE ENDS, BOTTOM			6c4	-	-	-	-	-	-	12	VARIABLES	255	22	VARIABLES	458
SLAB TRANSVERSE ENDS, BOTTOM			6c5	-	-	-	-	-	-	12	VARIABLES	208	20	VARIABLES	366
SLAB TRANSVERSE ENDS, BOTTOM			6c6	-	-	-	-	-	-	12	VARIABLES	227	19	VARIABLES	376
SLAB TRANSVERSE TOP			5d1	67	25'-9	1800	67	26'-8	1864	56	25'-9	1505	46	25'-9	1236
SLAB TRANSVERSE TOP			5d2	67	23'-3	1625	67	24'-1	1683	58	23'-3	1407	49	23'-3	1189
SLAB TRANSVERSE ENDS, TOP			5d3	-	-	-	-	-	-	14	VARIABLES	210	22	VARIABLES	337
SLAB TRANSVERSE ENDS, TOP			5d4	-	-	-	-	-	-	12	VARIABLES	177	22	VARIABLES	318
SLAB TRANSVERSE ENDS, TOP			5d5	-	-	-	-	-	-	12	VARIABLES	144	20	VARIABLES	254
SLAB TRANSVERSE ENDS, TOP			5d6	-	-	-	-	-	-	12	VARIABLES	158	19	VARIABLES	261
SLAB, TRANSVERSE AT ABUTMENT			8e1	18	28'-4	1362	18	29'-2	1402	18	31'-9	1526	18	37'-6	1803
SLAB, TRANSVERSE AT ABUTMENT			8e2	18	23'-4	1122	18	24'-1	1158	18	26'-9	1286	18	32'-5	1558
SLAB, HAIRPINS, AT ABUTMENT			6e3	100	5'-0	751	100	5'-1	764	100	5'-5	814	100	6'-1	914
SLAB, DIAGONALS, AT ABUTMENT			6e4	100	5'-11	889	100	5'-11	889	100	5'-11	889	100	5'-11	889
PIER CAP HOOPS			5h1	72	6'-11	520	72	6'-11	520	90	6'-11	650	108	6'-11	780
PIER CAP ENDS			8h2	4	14'-5	154	4	14'-5	154	4	14'-5	154	4	14'-5	154
PIER CAP, BOTTOM LONGITUDINAL			8h3	8	27'-5	586	8	28'-8	613	8	31'-8	677	8	37'-10	809
PIER CAP, BOTTOM LONGITUDINAL			8h4	8	21'-11	469	8	22'-4	478	8	24'-6	524	8	29'-8	634
PIER CAP, TOP LONGITUDINAL			8h5	4	28'-2	301	4	29'-6	316	4	32'-8	349	4	38'-11	416
PIER CAP, TOP LONGITUDINAL			8h6	4	23'-5	251	4	23'-11	256	4	26'-3	281	4	31'-6	337
TOP OF SLAB, TRANSVERSE, AT RAIL			5j1	132	8'-6	1171	132	8'-6	1171	126	8'-6	1118	124	8'-6	1100
WING, VERTICAL			5m1	40	4'-5	185	40	4'-5	185	40	4'-5	185	40	4'-5	185
WING, HORIZONTAL BACK FACE			5n1	24	6'-8	167	24	6'-8	167	24	6'-8	167	24	6'-8	167
WING, HORIZONTAL TRAFFIC FACE			5n3	24	6'-9	169	24	6'-9	169	24	6'-9	169	24	6'-9	169
SUB EPOXY COATED TOTAL - LBS.						45,680			46,123			46,807			47,924
BARRIER RAIL - SEE LIST ON RAIL SHEET J44-46-14						3220			3220			3220			3220
OPEN RAIL - SEE LIST ON RAIL SHEET J44-49-14						3266			3266			3266			3266
EPOXY COATED RAIL TOTAL - LBS.						48,900			49,343			50,027			51,144
WITH MONOLITHIC PIER CAP															
WITH BARRIER RAIL						48,900			49,343			50,027			51,144
WITH OPEN RAIL						48,946			49,389			50,073			51,190
EPOXY COATED RAIL TOTAL - LBS.						46,619			47,006			47,392			48,014
WITH NON-MONOLITHIC PIER CAP															
WITH BARRIER RAIL						46,619			47,006			47,392			48,014
SAME AS ABOVE EXCEPT ALL "h" BARS DELETED						46,665			47,052			47,438			48,060
WITH OPEN RAIL															
STAINLESS STEEL RAIL TOTAL - LBS.						1737			1737			1737			1737
WITH BARRIER RAIL						1737			1737			1737			1737
WITH OPEN RAIL						1834			1834			1834			1834

ESTIMATED QUANTITIES FOR SUPERSTRUCTURE - 70' BRIDGE										
ITEM	SKEW	WITH MONOLITHIC PIER CAP				WITH NON-MONOLITHIC PIER CAP				
		0°	15°	30°	45°	0°	15°	30°	45°	
WITH BARRIER RAIL	* STRUCTURAL CONCRETE (BRIDGE) C.Y.	183.4	184.5	188.4	196.8	177.0	177.9	181.1	187.9	
	REINF. STEEL EPOXY COATED LBS.	48,900	49,343	50,027	51,144	46,619	47,006	47,392	48,014	
	Δ REINF. STEEL STAINLESS STEEL LBS.	1982	1982	1982	1982	1982	1982	1982	1982	
CONCRETE BARRIER OR OPEN RAIL	LIN. FT.	162.0	162.2	162.9	164.5	162.0	162.2	162.9	164.5	
WITH OPEN RAIL	* STRUCTURAL CONCRETE (BRIDGE) C.Y.	183.3	184.4	188.3	196.7	176.9	177.8	180.9	187.8	
	REINF. STEEL EPOXY COATED LBS.	48,946	49,389	50,073	51,190	46,665	47,052	47,438	48,060	
	Δ REINF. STEEL STAINLESS STEEL LBS.	2079	2079	2079	2079	2079	2079	2079	2079	

* INCLUDES 4 WINGS @ 0.68 C.Y. EACH; EXCLUDES RAIL CONCRETE.
 Δ INCLUDES ABUTMENT PAVING NOTCH BAR WEIGHT.



STAINLESS STEEL REINFORCING FOR SUPERSTRUCTURE - BRIDGE

ALL SKEWS					
LOCATION	SHAPE	BAR	NO.	LENGTH	WEIGHT
ABUTMENT PAVING NOTCH BAR		8u1	44	2'-1	245

8U1 BARS SHALL BE PAID FOR UNDER THE BID ITEM "REINFORCING STEEL, STAINLESS STEEL". WEIGHT = LBS.

NOTES:
 ALL BARRIER RAIL REINFORCING STEEL IS TO BE EITHER EPOXY COATED OR STAINLESS STEEL AS SHOWN OR NOTED. THE STAINLESS STEEL REINFORCING STEEL SHALL BE DEFORMED BAR GRADE 60 MEETING THE REQUIREMENTS OF MATERIALS I.M.452.

ALL OTHER REINFORCING STEEL IS TO BE EPOXY COATED.

THE TRANSVERSE REBARS ARE DETAILED WITH A SPLICE LAP. AT THE CONTRACTOR'S OPTION, THIS LAP MAY BE ELIMINATED BY FURNISHING FULL LENGTH BARS WITH NO REDUCTION IN PAY WEIGHT FOR SAME.

08-2020
LATEST REVISION DATE

STANDARD DESIGN - 44' ROADWAY, 3 SPAN BRIDGES

CONTINUOUS CONCRETE SLAB BRIDGES

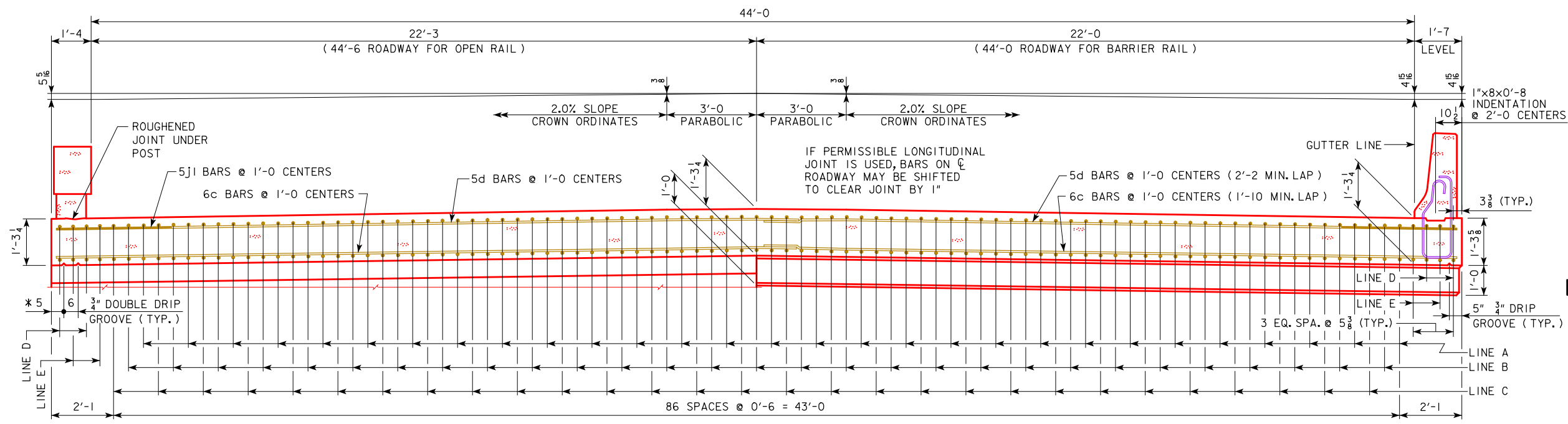
JULY, 2014

APPROVED BY BRIDGE ENGINEER

SUPERSTRUCTURE DETAILS
70'-0 BRIDGE

J44-03-14

REVISED 08-2020: UPDATED BRIDGE ENGINEER SIGNATURE. ADDED 3/8" (TYP.) HORIZONTAL DIMENSIONS TO LONGITUDINAL SLAB REINFORCING LINE D & E IN "HALF SECTION NEAR PIER".



* NOTE: DOUBLE DRIP GROOVES FOR OPEN RAIL OPTION ONLY.

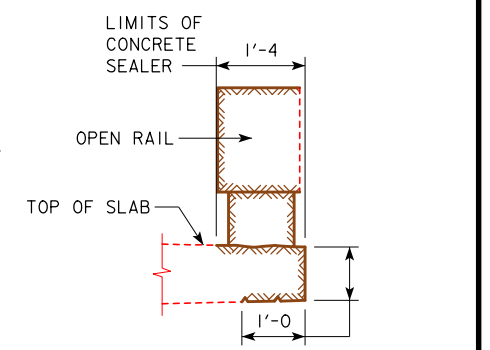
HALF SECTION NEAR ABUTMENT

SLAB CROSS-SECTIONAL AREA FOR OPEN RAIL = 59.94 SQ. FT.

NOTE: TOP LONGITUDINAL REINFORCING STEEL IS TO BE PARALLEL TO AND 2 1/2" CLEAR BELOW TOP OF SLAB. BOTTOM LONGITUDINAL REINFORCING STEEL IS TO BE PARALLEL TO AND 1 1/2" CLEAR ABOVE BOTTOM OF SLAB. REINFORCING STEEL IS TO BE SECURELY WIRED IN PLACE AND ADEQUATELY SUPPORTED ON BAR CHAIRS BEFORE CONCRETE IS POURED. I.M. 451.01 REQUIREMENTS SHALL APPLY FOR BAR CHAIRS.

HALF SECTION NEAR PIER

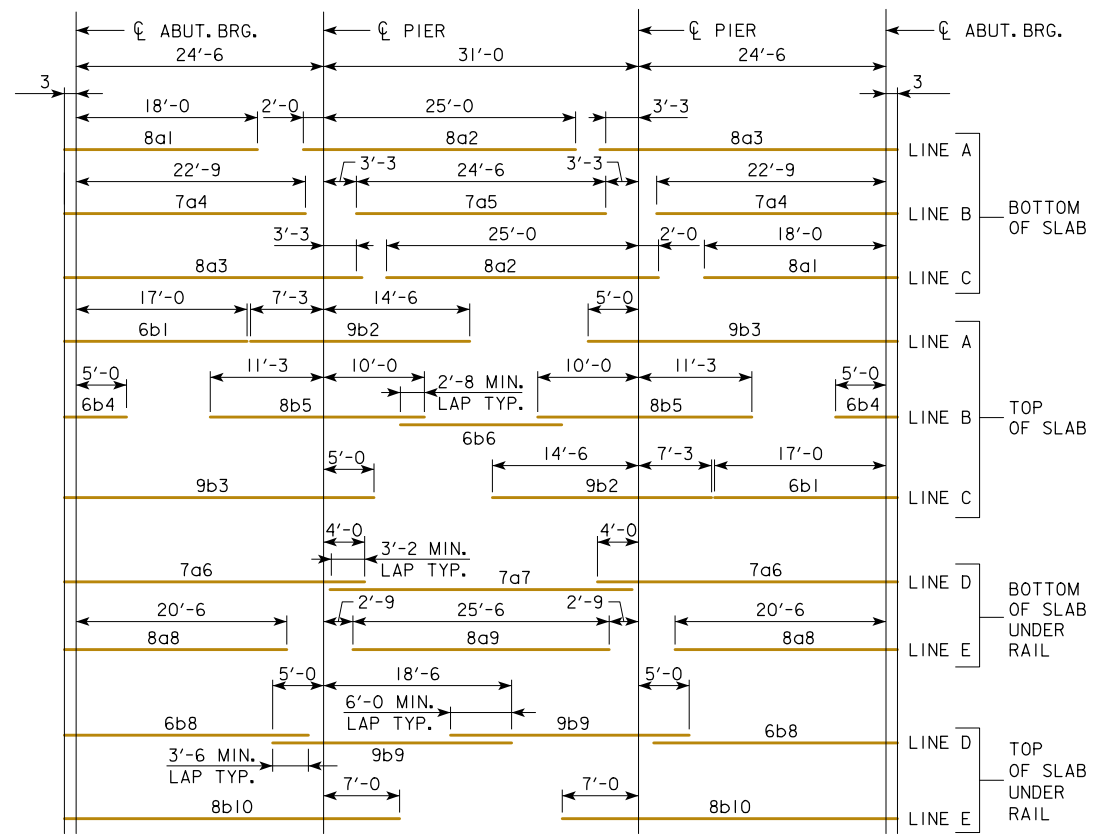
SLAB CROSS-SECTIONAL AREA FOR BARRIER RAIL = 59.99 SQ. FT.



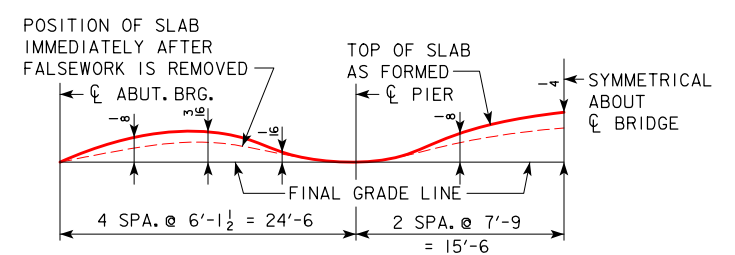
CONCRETE SEALER LIMITS FOR OPEN RAILS

CONCRETE SEALER SHALL BE APPLIED TO BOTH SIDES OF BRIDGE SLAB ON THE TOP, EDGE OF SLAB AND UNDER THE SLAB. THE CONCRETE SEALER SHALL ALSO BE APPLIED TO THE OPEN RAIL ON THE TOP, TRAFFIC FACE SIDE, BOTTOM OF RAIL, AND ON ALL SIDES OF THE OPEN RAIL POSTS.

THE CONCRETE SEALER LIMITS ARE SHOWN IN THE DETAIL AND SHALL APPLY TO THE FULL LENGTH OF BRIDGE. CONCRETE SEALER SHALL BE APPLIED IN ACCORDANCE WITH ARTICLE 2403.03, P, 3 OF THE STANDARD SPECIFICATIONS.



PLACEMENT FOR LONGITUDINAL REINFORCEMENT



FORM CAMBER DIAGRAM

THIS DIAGRAM SHOWS THE FORM CAMBER REQUIRED TO COMPENSATE FOR THE ANTICIPATED ULTIMATE DEAD LOAD DEFLECTION. THE ABOVE DIMENSIONS DO NOT INCLUDE ANY ALLOWANCE FOR FORM DEFLECTION OR FALSEWORK SETTLEMENT.

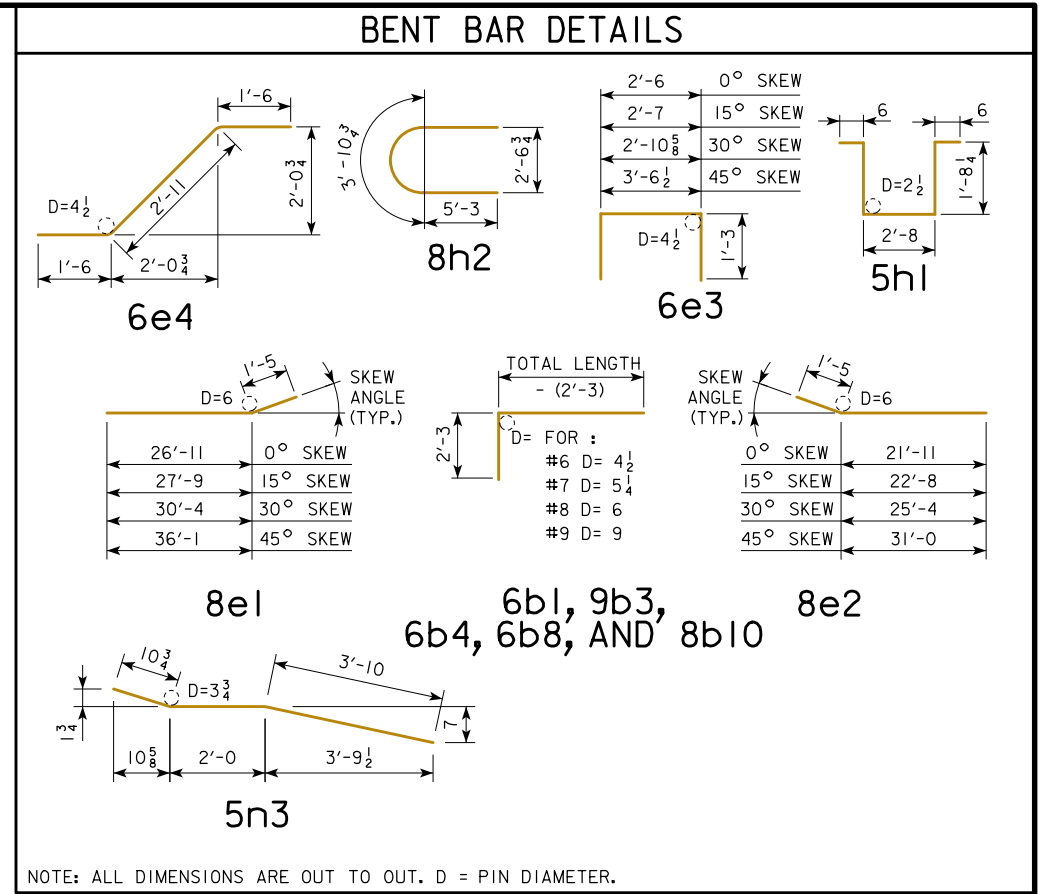
08-2020 LATEST REVISION DATE APPROVED BY BRIDGE ENGINEER		
	STANDARD DESIGN - 44' ROADWAY, 3 SPAN BRIDGES CONTINUOUS CONCRETE SLAB BRIDGES JULY, 2014	
	SUPERSTRUCTURE DETAILS 80'-0 BRIDGE	J44-04-14

REVISED 09-2014; CHANGED REFERENCE TO THE BARRIER RAIL & OPEN RAIL TO THE J44-14 STANDARDS INSTEAD OF J44-06 STANDARDS.
 REVISED 03-2016; REVISION FOR ADDITION OF PAVING NOTCH BAR 8u1.
 REVISED 04-2016; REVISION TO INCLUDE PAVING NOTCH BAR 8u1 WEIGHT IN ESTIMATED QUANTITIES TABLE.
 REVISED 08-2020; UPDATED BRIDGE ENGINEER SIGNATURE.

BILL OF REINFORCING STEEL FOR SUPERSTRUCTURE - 80' BRIDGE															
LOCATION	SKEW	SHAPE	BAR	NO.	0°		15°		30°		45°		NO.	LENGTH	WEIGHT
					LENGTH	WEIGHT	NO.	LENGTH	WEIGHT	NO.	LENGTH	WEIGHT			
SLAB LONGITUDINAL BOTTOM			8a1	58	18'-3	2827	58	18'-3	2827	58	18'-3	2827	58	18'-3	2827
SLAB LONGITUDINAL BOTTOM			8a2	58	27'-0	4182	58	27'-0	4182	58	27'-0	4182	58	27'-0	4182
SLAB LONGITUDINAL BOTTOM			8a3	58	28'-0	4337	58	28'-0	4337	58	28'-0	4337	58	28'-0	4337
SLAB LONGITUDINAL BOTTOM			7a4	58	23'-0	2727	58	23'-0	2727	58	23'-0	2727	58	23'-0	2727
SLAB LONGITUDINAL BOTTOM			7a5	29	24'-6	1453	29	24'-6	1453	29	24'-6	1453	29	24'-6	1453
SLAB LONGITUDINAL BOTTOM, AT RAIL			7a6	8	28'-9	471	8	28'-9	471	8	28'-9	471	8	28'-9	471
SLAB LONGITUDINAL BOTTOM, AT RAIL			7a7	4	29'-4	240	4	29'-4	240	4	29'-4	240	4	29'-4	240
SLAB LONGITUDINAL BOTTOM, AT RAIL			8a8	8	20'-9	444	8	20'-9	444	8	20'-9	444	8	20'-9	444
SLAB LONGITUDINAL BOTTOM, AT RAIL			8a9	4	25'-6	273	4	25'-6	273	4	25'-6	273	4	25'-6	273
SLAB LONGITUDINAL TOP			6b1	58	19'-6	1699	58	19'-6	1699	58	19'-6	1699	58	19'-6	1699
SLAB LONGITUDINAL TOP			9b2	58	21'-9	4290	58	21'-9	4290	58	21'-9	4290	58	21'-9	4290
SLAB LONGITUDINAL TOP			9b3	58	32'-0	6311	58	32'-0	6311	58	32'-0	6311	58	32'-0	6311
SLAB LONGITUDINAL TOP			6b4	58	7'-6	654	58	7'-6	654	58	7'-6	654	58	7'-6	654
SLAB LONGITUDINAL TOP			8b5	58	21'-3	3291	58	21'-3	3291	58	21'-3	3291	58	21'-3	3291
SLAB LONGITUDINAL TOP			6b6	29	16'-4	712	29	16'-4	712	29	16'-4	712	29	16'-4	712
SLAB LONGITUDINAL TOP, AT RAIL			6b8	8	25'-6	307	8	25'-6	307	8	25'-6	307	8	25'-6	307
SLAB LONGITUDINAL TOP, AT RAIL			9b9	8	23'-6	640	8	23'-6	640	8	23'-6	640	8	23'-6	640
SLAB LONGITUDINAL TOP, AT RAIL			8b10	8	34'-0	727	8	34'-0	727	8	34'-0	727	8	34'-0	727
SLAB TRANSVERSE BOTTOM			6c1	77	25'-5	2940	77	26'-4	3046	66	25'-5	2520	56	25'-5	2138
SLAB TRANSVERSE BOTTOM			6c2	77	23'-3	2689	77	24'-1	2786	68	23'-3	2375	59	23'-3	2061
SLAB TRANSVERSE ENDS, BOTTOM			6c3	-	-	-	-	-	-	14	VARIES	303	22	VARIES	485
SLAB TRANSVERSE ENDS, BOTTOM			6c4	-	-	-	-	-	-	12	VARIES	255	22	VARIES	458
SLAB TRANSVERSE ENDS, BOTTOM			6c5	-	-	-	-	-	-	12	VARIES	208	20	VARIES	366
SLAB TRANSVERSE ENDS, BOTTOM			6c6	-	-	-	-	-	-	12	VARIES	227	19	VARIES	376
SLAB TRANSVERSE TOP			5d1	77	25'-9	2069	77	26'-8	2142	66	25'-9	1773	56	25'-9	1505
SLAB TRANSVERSE TOP			5d2	77	23'-3	1868	77	24'-1	1935	68	23'-3	1649	59	23'-3	1431
SLAB TRANSVERSE ENDS, TOP			5d3	-	-	-	-	-	-	14	VARIES	210	22	VARIES	337
SLAB TRANSVERSE ENDS, TOP			5d4	-	-	-	-	-	-	12	VARIES	177	22	VARIES	318
SLAB TRANSVERSE ENDS, TOP			5d5	-	-	-	-	-	-	12	VARIES	144	20	VARIES	254
SLAB TRANSVERSE ENDS, TOP			5d6	-	-	-	-	-	-	12	VARIES	158	19	VARIES	261
SLAB, TRANSVERSE AT ABUTMENT			8e1	18	28'-4	1362	18	29'-2	1402	18	31'-9	1526	18	37'-6	1803
SLAB, TRANSVERSE AT ABUTMENT			8e2	18	23'-4	1122	18	24'-1	1158	18	26'-9	1286	18	32'-5	1558
SLAB, HAIRPINS, AT ABUTMENT			6e3	100	5'-0	751	100	5'-1	764	100	5'-5	814	100	6'-1	914
SLAB, DIAGONALS, AT ABUTMENT			6e4	100	5'-11	889	100	5'-11	889	100	5'-11	889	100	5'-11	889
PIER CAP HOOPS			5h1	72	7'-1	532	72	7'-1	532	90	7'-1	665	108	7'-1	798
PIER CAP ENDS			8h2	4	14'-5	154	4	14'-5	154	4	14'-5	154	4	14'-5	154
PIER CAP, BOTTOM LONGITUDINAL			8h3	8	27'-5	586	8	28'-8	613	8	31'-8	677	8	37'-10	809
PIER CAP, BOTTOM LONGITUDINAL			8h4	8	21'-11	469	8	22'-4	478	8	24'-6	524	8	29'-8	634
PIER CAP, TOP LONGITUDINAL			8h5	4	28'-2	301	4	29'-6	316	4	32'-8	349	4	38'-11	416
PIER CAP, TOP LONGITUDINAL			8h6	4	23'-5	251	4	23'-11	256	4	26'-3	281	4	31'-6	337
TOP OF SLAB, TRANSVERSE, AT RAIL			5j1	152	8'-6	1348	152	8'-6	1348	146	8'-6	1295	144	8'-6	1277
WING, VERTICAL			5m1	40	4'-5	185	40	4'-5	185	40	4'-5	185	40	4'-5	185
WING, HORIZONTAL BACK FACE			5n1	24	6'-8	167	24	6'-8	167	24	6'-8	167	24	6'-8	167
WING, HORIZONTAL TRAFFIC FACE			5n3	24	6'-9	169	24	6'-9	169	24	6'-9	169	24	6'-9	169
SUB EPOXY COATED TOTAL - LBS.						53,437			53,925			54,565			55,685
BARRIER RAIL - SEE LIST ON RAIL SHEET J44-46-14						3571			3571			3571			3571
OPEN RAIL - SEE LIST ON RAIL SHEET J44-49-14						3725			3725			3725			3725
EPOXY COATED RAIL TOTAL - LBS.							WITH MONOLITHIC PIER CAP								
							WITH BARRIER RAIL								
						57,008			57,496			58,136			59,256
						57,162			57,650			58,290			59,410
EPOXY COATED RAIL TOTAL - LBS.							WITH NON-MONOLITHIC PIER CAP								
						54,715			55,147			55,486			56,108
						54,869			55,301			55,640			56,262
SAME AS ABOVE EXCEPT ALL "h" BARS DELETED															
STAINLESS STEEL RAIL TOTAL - LBS.							WITH BARRIER RAIL								
						1893			1893			1893			1893
						2074			2074			2074			2074

ESTIMATED QUANTITIES FOR SUPERSTRUCTURE - 80' BRIDGE									
ITEM	SKEW	WITH MONOLITHIC PIER CAP				WITH NON-MONOLITHIC PIER CAP			
		0°	15°	30°	45°	0°	15°	30°	45°
WITH BARRIER RAIL	* STRUCTURAL CONCRETE (BRIDGE) C.Y.	212.9	214.1	217.9	226.2	206.6	207.5	210.6	217.3
	REINF. STEEL EPOXY COATED LBS.	57,008	57,496	58,136	59,256	54,715	55,147	55,486	56,108
	Δ REINF. STEEL STAINLESS STEEL LBS.	2138	2138	2138	2138	2138	2138	2138	2138
CONCRETE BARRIER OR OPEN RAIL	LIN. FT.	182.0	182.2	182.9	184.5	182.0	182.2	182.9	184.5
WITH OPEN RAIL	* STRUCTURAL CONCRETE (BRIDGE) C.Y.	212.8	213.9	217.7	226.0	206.4	207.3	210.4	217.1
	REINF. STEEL EPOXY COATED LBS.	57,162	57,650	58,290	59,410	54,869	55,301	55,640	56,262
	Δ REINF. STEEL STAINLESS STEEL LBS.	2319	2319	2319	2319	2319	2319	2319	2319

* INCLUDES 4 WINGS @ 0.68 C.Y. EACH; EXCLUDES RAIL CONCRETE.
 Δ INCLUDES ABUTMENT PAVING NOTCH BAR WEIGHT.



NOTE: ALL DIMENSIONS ARE OUT TO OUT. D = PIN DIAMETER.

STAINLESS STEEL REINFORCING FOR SUPERSTRUCTURE - BRIDGE					
LOCATION	ALL SKEWS	SHAPE	BAR	NO.	LENGTH WEIGHT
ABUTMENT PAVING NOTCH BAR			8u1	44	2'-1 245

8U1 BARS SHALL BE PAID FOR UNDER THE BID ITEM "REINFORCING STEEL, STAINLESS STEEL". WEIGHT = LBS.

NOTES:
 ALL BARRIER RAIL REINFORCING STEEL IS TO BE EITHER EPOXY COATED OR STAINLESS STEEL AS SHOWN OR NOTED. THE STAINLESS STEEL REINFORCING STEEL SHALL BE DEFORMED BAR GRADE 60 MEETING THE REQUIREMENTS OF MATERIALS I.M.452.

ALL OTHER REINFORCING STEEL IS TO BE EPOXY COATED.

THE TRANSVERSE REBARS ARE DETAILED WITH A SPLICE LAP. AT THE CONTRACTOR'S OPTION, THIS LAP MAY BE ELIMINATED BY FURNISHING FULL LENGTH BARS WITH NO REDUCTION IN PAY WEIGHT FOR SAME.

08-2020
 LATEST REVISION DATE

STANDARD DESIGN - 44' ROADWAY, 3 SPAN BRIDGES

CONTINUOUS CONCRETE SLAB BRIDGES

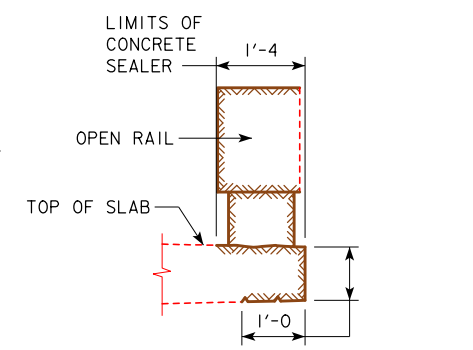
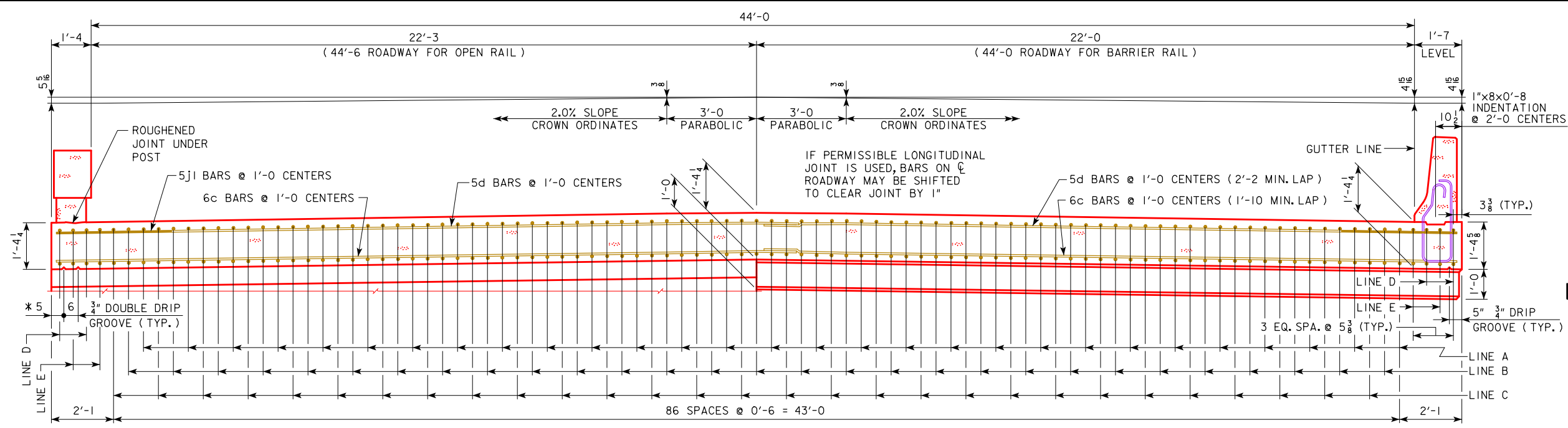
JULY, 2014

APPROVED BY BRIDGE ENGINEER

SUPERSTRUCTURE DETAILS
80'-0 BRIDGE

J44-05-14

REVISED 08-2020: UPDATED BRIDGE ENGINEER SIGNATURE. ADDED 3/8" (TYP.) HORIZONTAL DIMENSIONS TO LONGITUDINAL SLAB REINFORCING LINE D & E IN "HALF SECTION NEAR PIER".



CONCRETE SEALER LIMITS FOR OPEN RAILS

CONCRETE SEALER SHALL BE APPLIED TO BOTH SIDES OF BRIDGE SLAB ON THE TOP, EDGE OF SLAB AND UNDER THE SLAB. THE CONCRETE SEALER SHALL ALSO BE APPLIED TO THE OPEN RAIL ON THE TOP, TRAFFIC FACE SIDE, BOTTOM OF RAIL, AND ON ALL SIDES OF THE OPEN RAIL POSTS.

THE CONCRETE SEALER LIMITS ARE SHOWN IN THE DETAIL AND SHALL APPLY TO THE FULL LENGTH OF BRIDGE. CONCRETE SEALER SHALL BE APPLIED IN ACCORDANCE WITH ARTICLE 2403.03, P, 3 OF THE STANDARD SPECIFICATIONS.

* NOTE: DOUBLE DRIP GROOVES FOR OPEN RAIL OPTION ONLY.

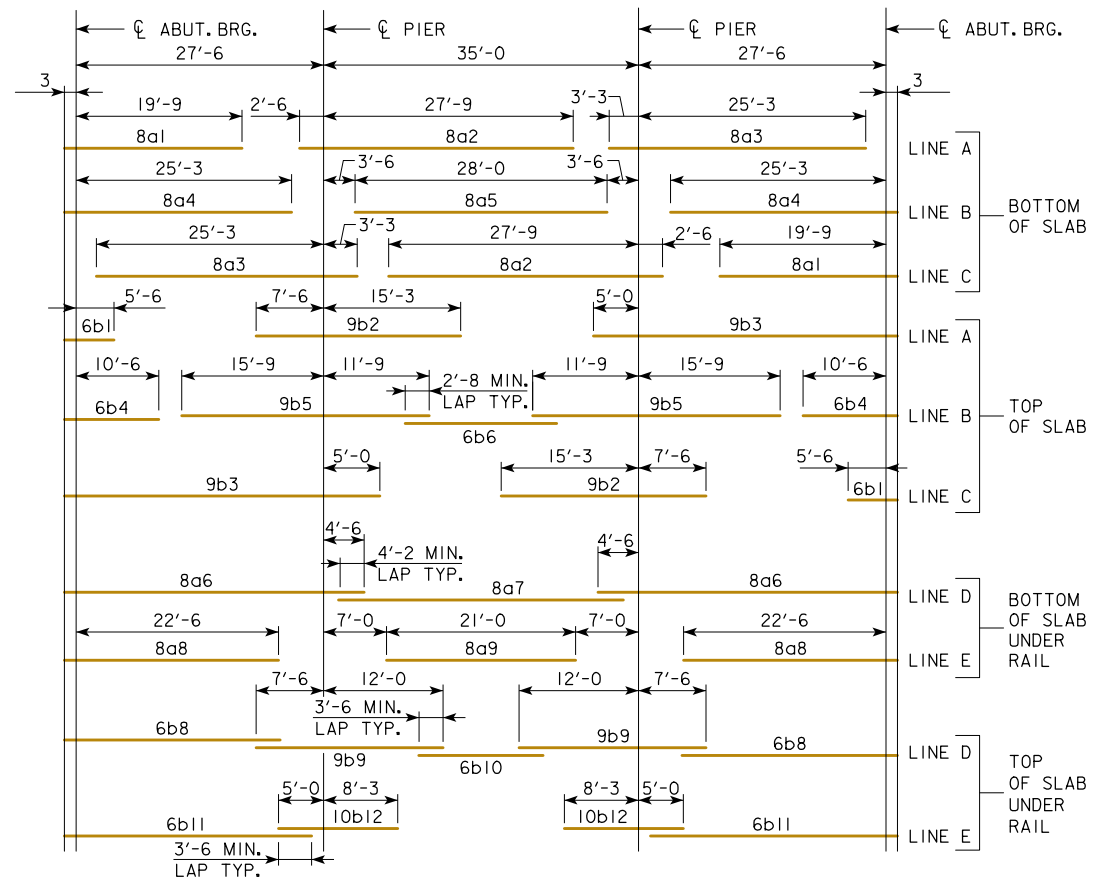
HALF SECTION NEAR ABUTMENT

SLAB CROSS-SECTIONAL AREA FOR OPEN RAIL = 63.87 SQ. FT.

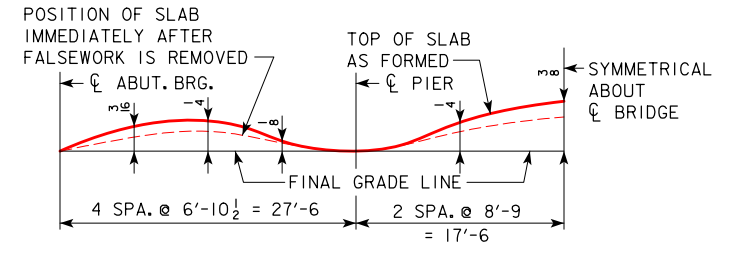
NOTE: TOP LONGITUDINAL REINFORCING STEEL IS TO BE PARALLEL TO AND 2 1/2" CLEAR BELOW TOP OF SLAB. BOTTOM LONGITUDINAL REINFORCING STEEL IS TO BE PARALLEL TO AND 1 1/2" CLEAR ABOVE BOTTOM OF SLAB. REINFORCING STEEL IS TO BE SECURELY WIRED IN PLACE AND ADEQUATELY SUPPORTED ON BAR CHAIRS BEFORE CONCRETE IS POURED. I.M. 451.01 REQUIREMENTS SHALL APPLY FOR BAR CHAIRS.

HALF SECTION NEAR PIER

SLAB CROSS-SECTIONAL AREA FOR BARRIER RAIL = 63.92 SQ. FT.



PLACEMENT FOR LONGITUDINAL REINFORCEMENT



FORM CAMBER DIAGRAM

THIS DIAGRAM SHOWS THE FORM CAMBER REQUIRED TO COMPENSATE FOR THE ANTICIPATED ULTIMATE DEAD LOAD DEFLECTION. THE ABOVE DIMENSIONS DO NOT INCLUDE ANY ALLOWANCE FOR FORM DEFLECTION OR FALSEWORK SETTLEMENT.

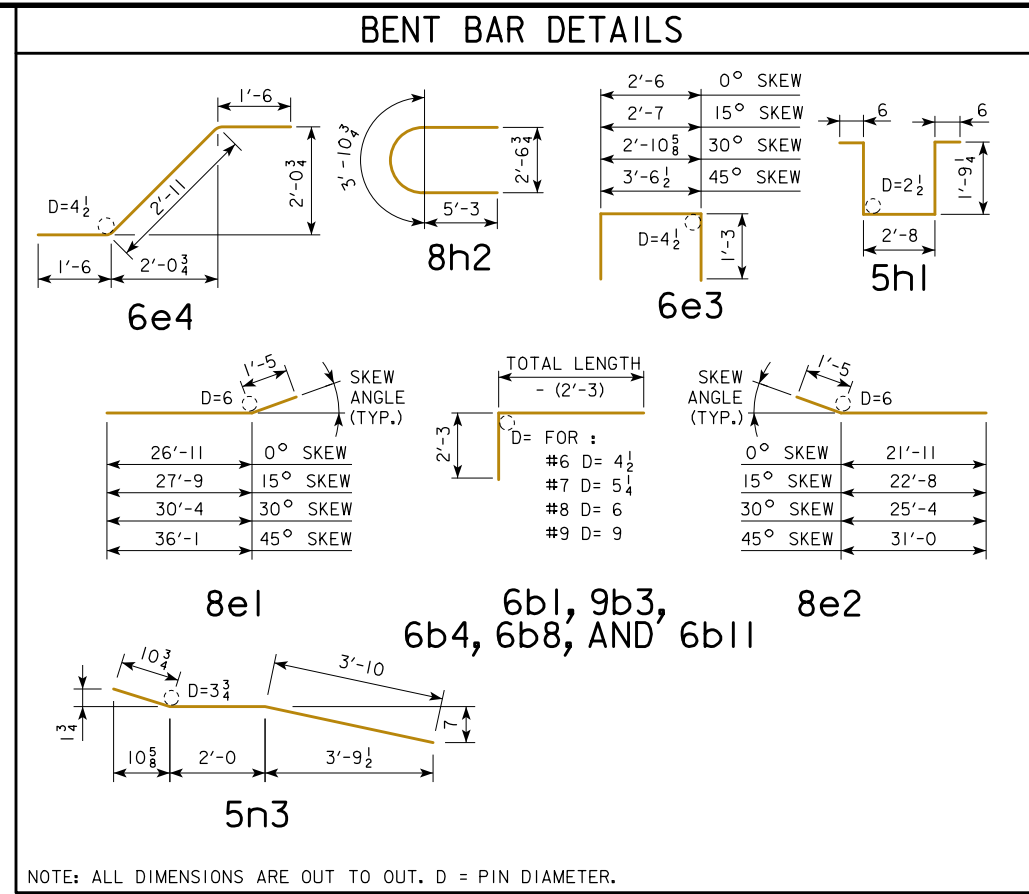
08-2020 LATEST REVISION DATE APPROVED BY BRIDGE ENGINEER	 STANDARD DESIGN - 44' ROADWAY, 3 SPAN BRIDGES CONTINUOUS CONCRETE SLAB BRIDGES JULY, 2014	
	SUPERSTRUCTURE DETAILS 90'-0 BRIDGE	J44-06-14

REVISED 09-2014: CHANGED REFERENCE TO THE BARRIER RAIL & OPEN RAIL TO THE J44-14 STANDARDS INSTEAD OF J44-06 STANDARDS.
 REVISED 03-2016: REVISION FOR ADDITION OF PAVING NOTCH BAR 8u1.
 REVISED 04-2016: REVISION TO INCLUDE PAVING NOTCH BAR 8u1 WEIGHT IN ESTIMATED QUANTITIES TABLE.
 REVISED 08-2020: UPDATED BRIDGE ENGINEER SIGNATURE.

BILL OF REINFORCING STEEL FOR SUPERSTRUCTURE - 90' BRIDGE															
LOCATION	SKEW	SHAPE	BAR	NO.	0°		15°		30°		45°		NO.	LENGTH	WEIGHT
					LENGTH	WEIGHT	NO.	LENGTH	WEIGHT	NO.	LENGTH	WEIGHT			
SLAB LONGITUDINAL BOTTOM			8a1	58	20'-0	3098	58	20'-0	3098	58	20'-0	3098	58	20'-0	3098
SLAB LONGITUDINAL BOTTOM			8a2	58	30'-3	4685	58	30'-3	4685	58	30'-3	4685	58	30'-3	4685
SLAB LONGITUDINAL BOTTOM			8a3	58	28'-6	4414	58	28'-6	4414	58	28'-6	4414	58	28'-6	4414
SLAB LONGITUDINAL BOTTOM			8a4	58	25'-6	3949	58	25'-6	3949	58	25'-6	3949	58	25'-6	3949
SLAB LONGITUDINAL BOTTOM			8a5	29	28'-0	2169	29	28'-0	2169	29	28'-0	2169	29	28'-0	2169
SLAB LONGITUDINAL BOTTOM, AT RAIL			8a6	8	32'-3	689	8	32'-3	689	8	32'-3	689	8	32'-3	689
SLAB LONGITUDINAL BOTTOM, AT RAIL			8a7	4	34'-4	367	4	34'-4	367	4	34'-4	367	4	34'-4	367
SLAB LONGITUDINAL BOTTOM, AT RAIL			8a8	8	22'-9	486	8	22'-9	486	8	22'-9	486	8	22'-9	486
SLAB LONGITUDINAL BOTTOM, AT RAIL			8a9	4	21'-0	225	4	21'-0	225	4	21'-0	225	4	21'-0	225
SLAB LONGITUDINAL TOP			6b1	58	8'-0	697	58	8'-0	697	58	8'-0	697	58	8'-0	697
SLAB LONGITUDINAL TOP			9b2	58	22'-9	4487	58	22'-9	4487	58	22'-9	4487	58	22'-9	4487
SLAB LONGITUDINAL TOP			9b3	58	35'-0	6902	58	35'-0	6902	58	35'-0	6902	58	35'-0	6902
SLAB LONGITUDINAL TOP			6b4	58	13'-0	1133	58	13'-0	1133	58	13'-0	1133	58	13'-0	1133
SLAB LONGITUDINAL TOP			9b5	58	27'-6	5423	58	27'-6	5423	58	27'-6	5423	58	27'-6	5423
SLAB LONGITUDINAL TOP			6b6	29	16'-10	734	29	16'-10	734	29	16'-10	734	29	16'-10	734
SLAB LONGITUDINAL TOP, AT RAIL			6b8	8	26'-0	313	8	26'-0	313	8	26'-0	313	8	26'-0	313
SLAB LONGITUDINAL TOP, AT RAIL			9b9	8	19'-6	531	8	19'-6	531	8	19'-6	531	8	19'-6	531
SLAB LONGITUDINAL TOP, AT RAIL			6b10	4	18'-0	109	4	18'-0	109	4	18'-0	109	4	18'-0	109
SLAB LONGITUDINAL TOP, AT RAIL			6b11	8	28'-6	343	8	28'-6	343	8	28'-6	343	8	28'-6	343
SLAB LONGITUDINAL TOP, AT RAIL			10b12	8	13'-3	457	8	13'-3	457	8	13'-3	457	8	13'-3	457
SLAB TRANSVERSE BOTTOM			6c1	87	25'-5	3322	87	26'-4	3442	76	25'-5	2902	66	25'-5	2520
SLAB TRANSVERSE BOTTOM			6c2	87	23'-3	3039	87	24'-1	3148	78	23'-3	2724	69	23'-3	2410
SLAB TRANSVERSE ENDS, BOTTOM			6c3	-	-	-	-	-	-	14	VARIES	303	22	VARIES	485
SLAB TRANSVERSE ENDS, BOTTOM			6c4	-	-	-	-	-	-	12	VARIES	255	22	VARIES	458
SLAB TRANSVERSE ENDS, BOTTOM			6c5	-	-	-	-	-	-	12	VARIES	208	20	VARIES	366
SLAB TRANSVERSE ENDS, BOTTOM			6c6	-	-	-	-	-	-	12	VARIES	227	19	VARIES	376
SLAB TRANSVERSE TOP			5d1	87	25'-9	2337	87	26'-8	2420	76	25'-9	2042	66	25'-9	1773
SLAB TRANSVERSE TOP			5d2	87	23'-3	2110	87	24'-1	2186	78	23'-3	1892	69	23'-3	1674
SLAB TRANSVERSE ENDS, TOP			5d3	-	-	-	-	-	-	14	VARIES	210	22	VARIES	337
SLAB TRANSVERSE ENDS, TOP			5d4	-	-	-	-	-	-	12	VARIES	177	22	VARIES	318
SLAB TRANSVERSE ENDS, TOP			5d5	-	-	-	-	-	-	12	VARIES	144	20	VARIES	254
SLAB TRANSVERSE ENDS, TOP			5d6	-	-	-	-	-	-	12	VARIES	158	19	VARIES	261
SLAB, TRANSVERSE AT ABUTMENT			8e1	18	28'-4	1362	18	29'-2	1402	18	31'-9	1526	18	37'-6	1803
SLAB, TRANSVERSE AT ABUTMENT			8e2	18	23'-4	1122	18	24'-1	1158	18	26'-9	1286	18	32'-5	1558
SLAB, HAIRPINS, AT ABUTMENT			6e3	100	5'-0	751	100	5'-1	764	100	5'-5	814	100	6'-1	914
SLAB, DIAGONALS, AT ABUTMENT			6e4	100	5'-11	889	100	5'-11	889	100	5'-11	889	100	5'-11	889
PIER CAP HOOPS			5h1	80	7'-3	605	80	7'-3	605	80	7'-3	605	120	7'-3	908
PIER CAP ENDS			8h2	4	14'-5	154	4	14'-5	154	4	14'-5	154	4	14'-5	154
PIER CAP, BOTTOM LONGITUDINAL			8h3	8	27'-5	586	8	28'-8	613	8	31'-8	677	8	37'-10	809
PIER CAP, BOTTOM LONGITUDINAL			8h4	8	21'-11	469	8	22'-4	478	8	24'-6	524	8	29'-8	634
PIER CAP, TOP LONGITUDINAL			8h5	4	28'-2	301	4	29'-6	316	4	32'-8	349	4	38'-11	416
PIER CAP, TOP LONGITUDINAL			8h6	4	23'-5	251	4	23'-11	256	4	26'-3	281	4	31'-6	337
TOP OF SLAB, TRANSVERSE, AT RAIL			5j1	172	8'-6	1525	172	8'-6	1525	166	8'-6	1472	164	8'-6	1454
WING, VERTICAL			5m1	40	4'-5	185	40	4'-5	185	40	4'-5	185	40	4'-5	185
WING, HORIZONTAL BACK FACE			5n1	24	6'-8	167	24	6'-8	167	24	6'-8	167	24	6'-8	167
WING, HORIZONTAL TRAFFIC FACE			5n3	24	6'-9	169	24	6'-9	169	24	6'-9	169	24	6'-9	169
SUB EPOXY COATED TOTAL - LBS.						60,555			61,088			61,551			62,840
BARRIER RAIL - SEE LIST ON RAIL SHEET J44-46-14						3882			3882			3882			3882
OPEN RAIL - SEE LIST ON RAIL SHEET J44-49-14						4121			4121			4121			4121
EPOXY COATED RAIL TOTAL - LBS.															
WITH MONOLITHIC PIER CAP															
WITH BARRIER RAIL						64,437			64,970			65,433			66,722
WITH OPEN RAIL						64,676			65,209			65,672			66,961
EPOXY COATED RAIL TOTAL - LBS.															
WITH NON-MONOLITHIC PIER CAP															
WITH BARRIER RAIL						62,071			65,548			62,843			63,464
SAME AS ABOVE EXCEPT ALL "h" BARS DELETED						62,310			62,787			63,082			63,703
STAINLESS STEEL RAIL TOTAL - LBS.															
WITH BARRIER RAIL						2068			2068			2068			2068
WITH OPEN RAIL						2209			2209			2209			2209

ESTIMATED QUANTITIES FOR SUPERSTRUCTURE - 90' BRIDGE									
ITEM	SKEW	WITH MONOLITHIC PIER CAP				WITH NON-MONOLITHIC PIER CAP			
		0°	15°	30°	45°	0°	15°	30°	45°
* STRUCTURAL CONCRETE (BRIDGE) C.Y.		247.8	248.9	252.7	260.9	241.4	242.3	245.4	252.0
WITH BARRIER RAIL									
REINF. STEEL EPOXY COATED	LBS.	64,437	64,970	65,433	66,722	62,071	65,548	62,843	63,464
Δ REINF. STEEL STAINLESS STEEL	LBS.	2313	2313	2313	2313	2313	2313	2313	2313
CONCRETE BARRIER OR OPEN RAIL	LIN. FT.	202.0	202.2	202.9	204.5	202.0	202.2	202.9	204.5
* STRUCTURAL CONCRETE (BRIDGE) C.Y.		247.7	248.8	252.5	260.7	241.3	242.2	245.2	251.8
WITH OPEN RAIL									
REINF. STEEL EPOXY COATED	LBS.	64,676	65,209	65,672	66,961	62,310	62,787	63,082	63,703
Δ REINF. STEEL STAINLESS STEEL	LBS.	2454	2454	2454	2454	2454	2454	2454	2454

* INCLUDES 4 WINGS @ 0.68 C.Y. EACH; EXCLUDES RAIL CONCRETE.
 Δ INCLUDES ABUTMENT PAVING NOTCH BAR WEIGHT.



STAINLESS STEEL REINFORCING FOR SUPERSTRUCTURE - BRIDGE					
LOCATION	ALL SKEWS	SHAPE	BAR	NO.	LENGTH WEIGHT
ABUTMENT PAVING NOTCH BAR			8u1	44	2'-1 245

8U1 BARS SHALL BE PAID FOR UNDER THE BID ITEM "REINFORCING STEEL, STAINLESS STEEL". WEIGHT = LBS.

NOTES:
 ALL BARRIER RAIL REINFORCING STEEL IS TO BE EITHER EPOXY COATED OR STAINLESS STEEL AS SHOWN OR NOTED. THE STAINLESS STEEL REINFORCING STEEL SHALL BE DEFORMED BAR GRADE 60 MEETING THE REQUIREMENTS OF MATERIALS I.M.452.

ALL OTHER REINFORCING STEEL IS TO BE EPOXY COATED.

THE TRANSVERSE REBARS ARE DETAILED WITH A SPLICE LAP. AT THE CONTRACTOR'S OPTION, THIS LAP MAY BE ELIMINATED BY FURNISHING FULL LENGTH BARS WITH NO REDUCTION IN PAY WEIGHT FOR SAME.

08-2020
LATEST REVISION DATE

STANDARD DESIGN - 44' ROADWAY, 3 SPAN BRIDGES

CONTINUOUS CONCRETE SLAB BRIDGES

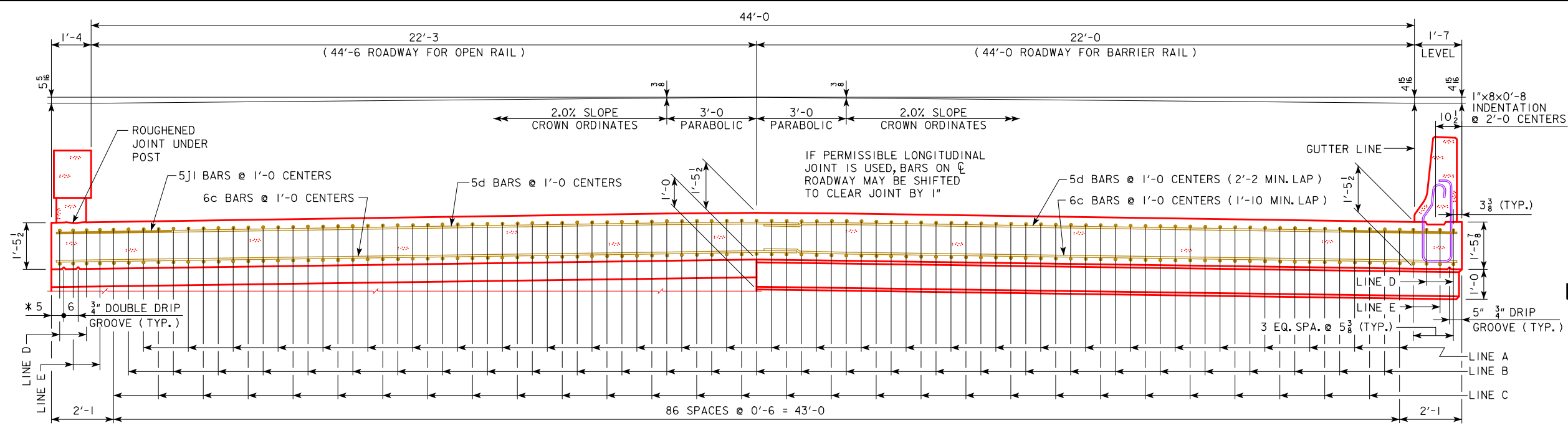
JULY, 2014

APPROVED BY BRIDGE ENGINEER

SUPERSTRUCTURE DETAILS
90'-0 BRIDGE

J44-07-14

REVISED 08-2020: UPDATED BRIDGE ENGINEER SIGNATURE. ADDED 3/8" (TYP.) & 5/8" (TYP.) HORIZONTAL DIMENSIONS TO LONGITUDINAL SLAB REINFORCING LINE D & E IN "HALF SECTION NEAR PIER".



HALF SECTION NEAR ABUTMENT

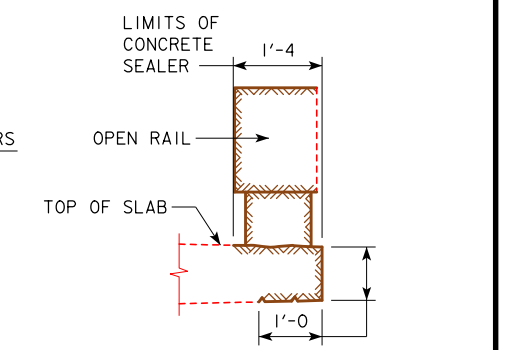
HALF SECTION NEAR PIER

SLAB CROSS-SECTIONAL AREA FOR OPEN RAIL = 68.78 SQ. FT.

NOTE: TOP LONGITUDINAL REINFORCING STEEL IS TO BE PARALLEL TO AND 2 1/2" CLEAR BELOW TOP OF SLAB. BOTTOM LONGITUDINAL REINFORCING STEEL IS TO BE PARALLEL TO AND 1 1/2" CLEAR ABOVE BOTTOM OF SLAB. REINFORCING STEEL IS TO BE SECURELY WIRED IN PLACE AND ADEQUATELY SUPPORTED ON BAR CHAIRS BEFORE CONCRETE IS POURED. I.M. 451.01 REQUIREMENTS SHALL APPLY FOR BAR CHAIRS.

SLAB CROSS-SECTIONAL AREA FOR BARRIER RAIL = 68.83 SQ. FT.

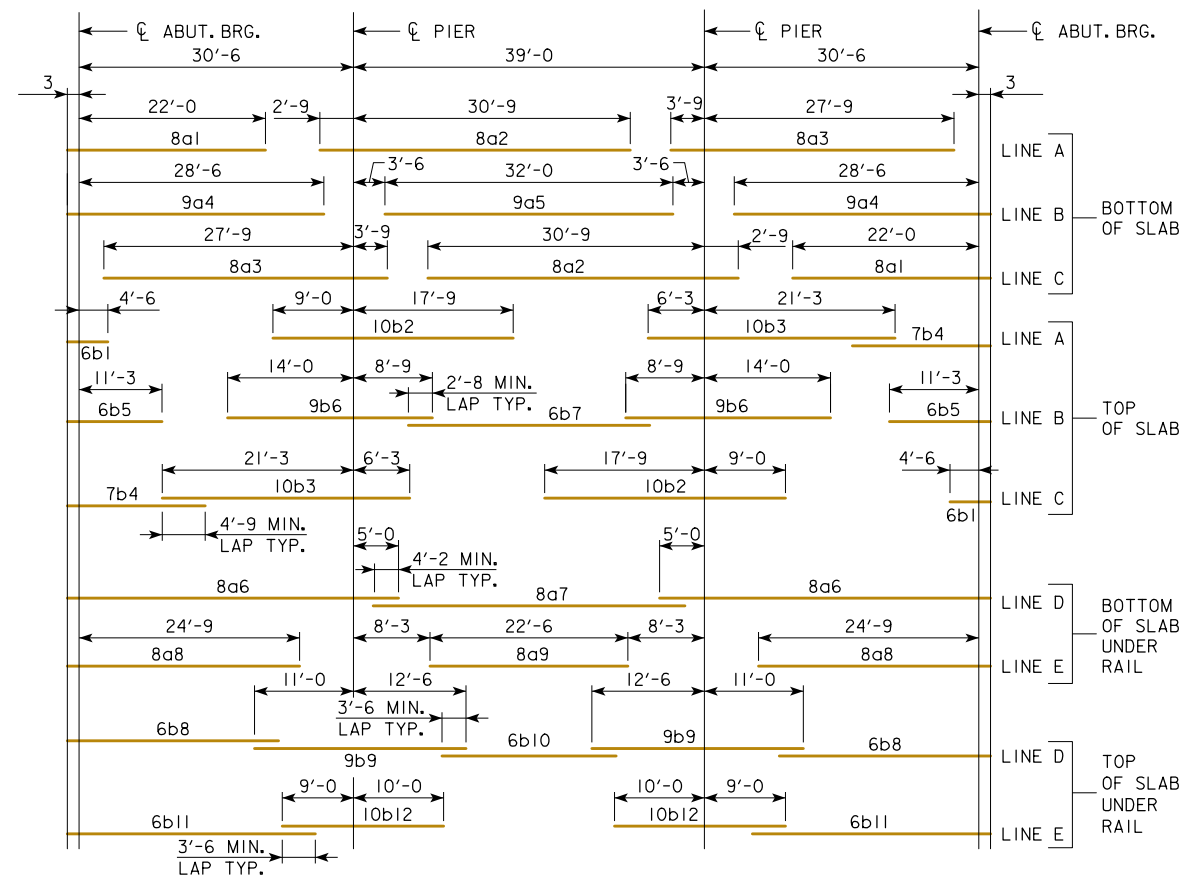
* NOTE: DOUBLE DRIP GROOVES FOR OPEN RAIL OPTION ONLY.



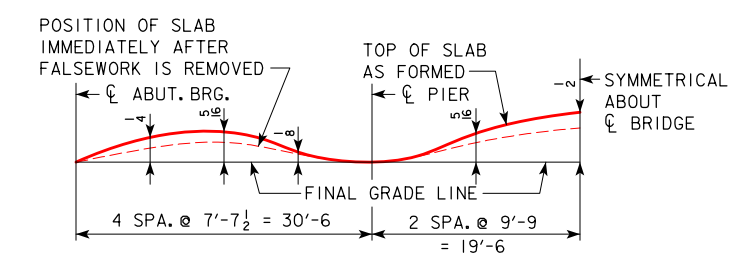
CONCRETE SEALER LIMITS FOR OPEN RAILS

CONCRETE SEALER SHALL BE APPLIED TO BOTH SIDES OF BRIDGE SLAB ON THE TOP, EDGE OF SLAB AND UNDER THE SLAB. THE CONCRETE SEALER SHALL ALSO BE APPLIED TO THE OPEN RAIL ON THE TOP, TRAFFIC FACE SIDE, BOTTOM OF RAIL, AND ON ALL SIDES OF THE OPEN RAIL POSTS.

THE CONCRETE SEALER LIMITS ARE SHOWN IN THE DETAIL AND SHALL APPLY TO THE FULL LENGTH OF BRIDGE. CONCRETE SEALER SHALL BE APPLIED IN ACCORDANCE WITH ARTICLE 2403.03, P, 3 OF THE STANDARD SPECIFICATIONS.



PLACEMENT FOR LONGITUDINAL REINFORCEMENT



FORM CAMBER DIAGRAM

THIS DIAGRAM SHOWS THE FORM CAMBER REQUIRED TO COMPENSATE FOR THE ANTICIPATED ULTIMATE DEAD LOAD DEFLECTION. THE ABOVE DIMENSIONS DO NOT INCLUDE ANY ALLOWANCE FOR FORM DEFLECTION OR FALSEWORK SETTLEMENT.

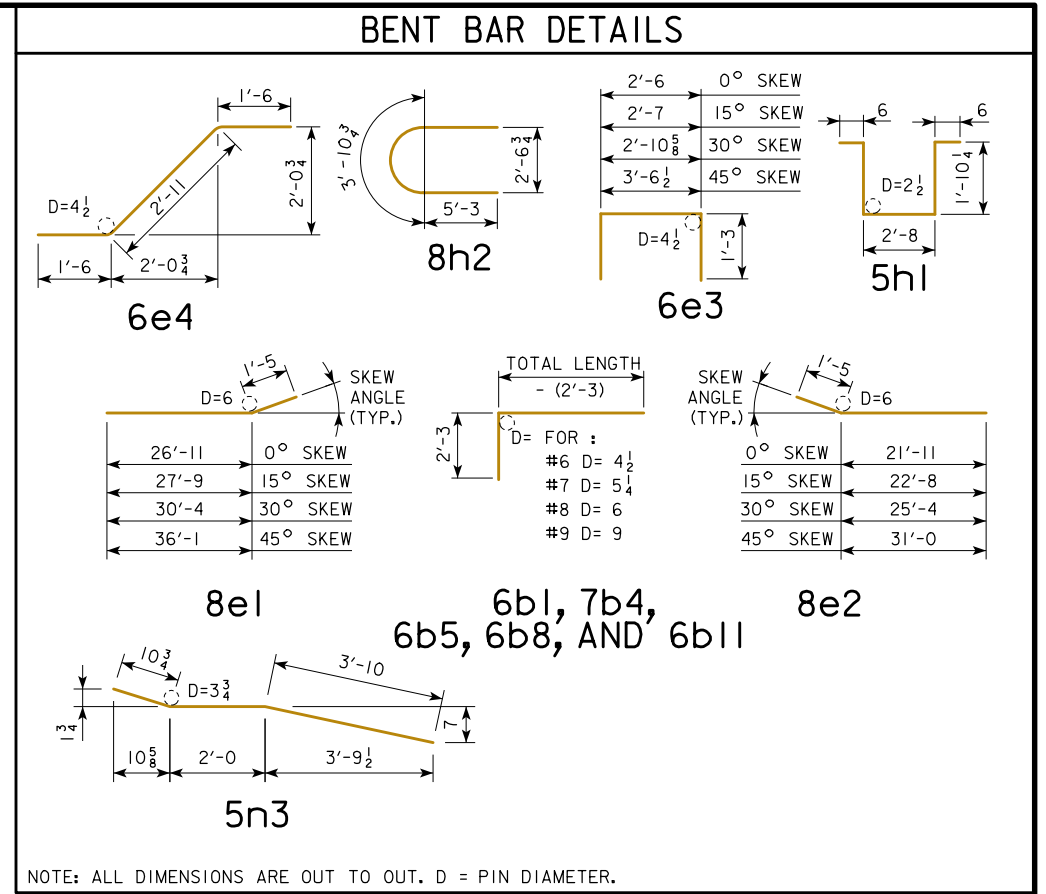
08-2020 LATEST REVISION DATE APPROVED BY BRIDGE ENGINEER	 STANDARD DESIGN - 44' ROADWAY, 3 SPAN BRIDGES CONTINUOUS CONCRETE SLAB BRIDGES JULY, 2014	
	SUPERSTRUCTURE DETAILS 100'-0 BRIDGE	J44-08-14

REVISED 09-2014; CHANGED REFERENCE TO THE BARRIER RAIL & OPEN RAIL TO THE J44-14 STANDARDS INSTEAD OF J44-06 STANDARDS.
 REVISED 03-2016; REVISION FOR ADDITION OF PAVING NOTCH BAR 8u1.
 REVISED 04-2016; REVISION TO INCLUDE PAVING NOTCH BAR 8u1 WEIGHT IN ESTIMATED QUANTITIES TABLE.
 REVISED 08-2020; UPDATED BRIDGE ENGINEER SIGNATURE.

BILL OF REINFORCING STEEL FOR SUPERSTRUCTURE - 100' BRIDGE																			
LOCATION	SKEW	SHAPE	0°				15°				30°				45°				
			BAR	NO.	LENGTH	WEIGHT	NO.	LENGTH	WEIGHT	NO.	LENGTH	WEIGHT	NO.	LENGTH	WEIGHT	NO.	LENGTH	WEIGHT	
SLAB LONGITUDINAL BOTTOM			8a1	58	22'-3	3446	58	22'-3	3446	58	22'-3	3446	58	22'-3	3446				
SLAB LONGITUDINAL BOTTOM			8a2	58	33'-6	5188	58	33'-6	5188	58	33'-6	5188	58	33'-6	5188				
SLAB LONGITUDINAL BOTTOM			8a3	58	31'-6	4879	58	31'-6	4879	58	31'-6	4879	58	31'-6	4879				
SLAB LONGITUDINAL BOTTOM			9a4	58	28'-9	5670	58	28'-9	5670	58	28'-9	5670	58	28'-9	5670				
SLAB LONGITUDINAL BOTTOM			9a5	29	32'-0	3156	29	32'-0	3156	29	32'-0	3156	29	32'-0	3156				
SLAB LONGITUDINAL BOTTOM, AT RAIL			8a6	8	35'-9	764	8	35'-9	764	8	35'-9	764	8	35'-9	764				
SLAB LONGITUDINAL BOTTOM, AT RAIL			8a7	4	37'-4	399	4	37'-4	399	4	37'-4	399	4	37'-4	399				
SLAB LONGITUDINAL BOTTOM, AT RAIL			8a8	8	25'-0	534	8	25'-0	534	8	25'-0	534	8	25'-0	534				
SLAB LONGITUDINAL BOTTOM, AT RAIL			8a9	4	22'-6	241	4	22'-6	241	4	22'-6	241	4	22'-6	241				
SLAB LONGITUDINAL TOP			6b1	58	7'-0	610	58	7'-0	610	58	7'-0	610	58	7'-0	610				
SLAB LONGITUDINAL TOP			10b2	58	26'-9	6677	58	26'-9	6677	58	26'-9	6677	58	26'-9	6677				
SLAB LONGITUDINAL TOP			10b3	58	27'-6	6864	58	27'-6	6864	58	27'-6	6864	58	27'-6	6864				
SLAB LONGITUDINAL TOP			7b4	58	16'-6	1957	58	16'-6	1957	58	16'-6	1957	58	16'-6	1957				
SLAB LONGITUDINAL TOP			6b5	58	13'-9	1198	58	13'-9	1198	58	13'-9	1198	58	13'-9	1198				
SLAB LONGITUDINAL TOP			9b6	58	22'-9	4487	58	22'-9	4487	58	22'-9	4487	58	22'-9	4487				
SLAB LONGITUDINAL TOP			6b7	29	26'-10	1169	29	26'-10	1169	29	26'-10	1169	29	26'-10	1169				
SLAB LONGITUDINAL TOP, AT RAIL			6b8	8	25'-6	307	8	25'-6	307	8	25'-6	307	8	25'-6	307				
SLAB LONGITUDINAL TOP, AT RAIL			9b9	8	23'-6	640	8	23'-6	640	8	23'-6	640	8	23'-6	640				
SLAB LONGITUDINAL TOP, AT RAIL			6b10	4	21'-0	127	4	21'-0	127	4	21'-0	127	4	21'-0	127				
SLAB LONGITUDINAL TOP, AT RAIL			6b11	8	27'-6	331	8	27'-6	331	8	27'-6	331	8	27'-6	331				
SLAB LONGITUDINAL TOP, AT RAIL			10b12	8	19'-0	655	8	19'-0	655	8	19'-0	655	8	19'-0	655				
SLAB TRANSVERSE BOTTOM			6c1	97	25'-5	3704	97	26'-4	3837	86	25'-5	3284	76	25'-5	2902				
SLAB TRANSVERSE BOTTOM			6c2	97	23'-3	3388	97	24'-1	3509	88	23'-3	3074	79	23'-3	2759				
SLAB TRANSVERSE ENDS, BOTTOM			6c3	-	-	-	-	-	-	14	VARIABLES	303	22	VARIABLES	485				
SLAB TRANSVERSE ENDS, BOTTOM			6c4	-	-	-	-	-	-	12	VARIABLES	255	22	VARIABLES	458				
SLAB TRANSVERSE ENDS, BOTTOM			6c5	-	-	-	-	-	-	12	VARIABLES	208	20	VARIABLES	366				
SLAB TRANSVERSE ENDS, BOTTOM			6c6	-	-	-	-	-	-	12	VARIABLES	227	19	VARIABLES	376				
SLAB TRANSVERSE TOP			5d1	97	25'-9	2606	97	26'-8	2698	86	25'-9	2310	76	25'-9	2042				
SLAB TRANSVERSE TOP			5d2	97	23'-3	2353	97	24'-1	2437	88	23'-3	2134	79	23'-3	1916				
SLAB TRANSVERSE ENDS, TOP			5d3	-	-	-	-	-	-	14	VARIABLES	210	22	VARIABLES	337				
SLAB TRANSVERSE ENDS, TOP			5d4	-	-	-	-	-	-	12	VARIABLES	177	22	VARIABLES	318				
SLAB TRANSVERSE ENDS, TOP			5d5	-	-	-	-	-	-	12	VARIABLES	144	20	VARIABLES	254				
SLAB TRANSVERSE ENDS, TOP			5d6	-	-	-	-	-	-	12	VARIABLES	158	19	VARIABLES	261				
SLAB, TRANSVERSE AT ABUTMENT			8e1	18	28'-4	1362	18	29'-2	1402	18	31'-9	1526	18	37'-6	1803				
SLAB, TRANSVERSE AT ABUTMENT			8e2	18	23'-4	1122	18	24'-1	1158	18	26'-9	1286	18	32'-5	1558				
SLAB, HAIRPINS, AT ABUTMENT			6e3	100	5'-0	751	100	5'-1	764	100	5'-5	814	100	6'-1	914				
SLAB, DIAGONALS, AT ABUTMENT			6e4	100	5'-11	889	100	5'-11	889	100	5'-11	889	100	5'-11	889				
PIER CAP HOOPS			5h1	66	7'-5	511	66	7'-5	511	88	7'-5	681	110	7'-5	851				
PIER CAP ENDS			8h2	4	14'-5	154	4	14'-5	154	4	14'-5	154	4	14'-5	154				
PIER CAP, BOTTOM LONGITUDINAL			8h3	8	27'-5	586	8	28'-8	613	8	31'-8	677	8	37'-10	809				
PIER CAP, BOTTOM LONGITUDINAL			8h4	8	21'-11	469	8	22'-4	478	8	24'-6	524	8	29'-8	634				
PIER CAP, TOP LONGITUDINAL			8h5	4	28'-2	301	4	29'-6	316	4	32'-8	349	4	38'-11	416				
PIER CAP, TOP LONGITUDINAL			8h6	4	23'-5	251	4	23'-11	256	4	26'-3	281	4	31'-6	337				
TOP OF SLAB, TRANSVERSE, AT RAIL			5j1	192	8'-6	1703	192	8'-6	1703	186	8'-6	1649	184	8'-6	1631				
WING, VERTICAL			5m1	40	4'-5	185	40	4'-5	185	40	4'-5	185	40	4'-5	185				
WING, HORIZONTAL BACK FACE			5n1	24	6'-8	167	24	6'-8	167	24	6'-8	167	24	6'-8	167				
WING, HORIZONTAL TRAFFIC FACE			5n3	24	6'-9	169	24	6'-9	169	24	6'-9	169	24	6'-9	169				
SUB EPOXY COATED TOTAL - LBS.						69,970							70,545					71,134	72,291
BARRIER RAIL - SEE LIST ON RAIL SHEET J44-46-14						4194							4194					4194	4194
OPEN RAIL - SEE LIST ON RAIL SHEET J44-49-14						4446							4446					4446	4446
EPOXY COATED RAIL TOTAL - LBS.			WITH MONOLITHIC PIER CAP			74,164	WITH BARRIER RAIL			74,739	WITH NON-MONOLITHIC PIER CAP			75,328				76,485	
			WITH OPEN RAIL			74,416	WITH OPEN RAIL			74,991				75,580				76,737	
EPOXY COATED RAIL TOTAL - LBS.			WITH MONOLITHIC PIER CAP			71,892	WITH BARRIER RAIL			72,411	WITH NON-MONOLITHIC PIER CAP			72,662				73,284	
SAME AS ABOVE EXCEPT ALL "h" BARS DELETED			WITH OPEN RAIL			72,144	WITH OPEN RAIL			72,663				72,914				73,536	
STAINLESS STEEL RAIL TOTAL - LBS.			WITH BARRIER RAIL			2267	WITH BARRIER RAIL			2267	WITH NON-MONOLITHIC PIER CAP			2267				2267	
			WITH OPEN RAIL			2348	WITH OPEN RAIL			2348				2348				2348	

ESTIMATED QUANTITIES FOR SUPERSTRUCTURE - 100' BRIDGE									
ITEM	SKEW	WITH MONOLITHIC PIER CAP				WITH NON-MONOLITHIC PIER CAP			
		0°	15°	30°	45°	0°	15°	30°	45°
WITH BARRIER RAIL	* STRUCTURAL CONCRETE (BRIDGE) C.Y.	289.2	290.2	293.9	302.0	282.8	283.6	286.6	293.1
	REINF. STEEL EPOXY COATED LBS.	74,164	74,739	75,328	76,485	71,892	72,411	72,662	73,284
	Δ REINF. STEEL STAINLESS STEEL LBS.	2512	2512	2512	2512	2512	2512	2512	2512
CONCRETE BARRIER OR OPEN RAIL LIN. FT.		222.0	222.2	222.9	224.5	222.0	222.2	222.9	224.5
WITH OPEN RAIL	* STRUCTURAL CONCRETE (BRIDGE) C.Y.	289.0	290.1	293.8	301.8	282.6	283.5	286.4	292.9
	REINF. STEEL EPOXY COATED LBS.	74,416	74,991	75,580	76,737	72,144	72,663	72,914	73,536
	Δ REINF. STEEL STAINLESS STEEL LBS.	2593	2593	2593	2593	2593	2593	2593	2593

* INCLUDES 4 WINGS @ 0.68 C.Y. EACH; EXCLUDES RAIL CONCRETE.
 Δ INCLUDES ABUTMENT PAVING NOTCH BAR WEIGHT.



STAINLESS STEEL REINFORCING FOR SUPERSTRUCTURE - BRIDGE						
LOCATION	SHAPE	BAR	NO.	LENGTH	WEIGHT	
ALL SKEWS						
ABUTMENT PAVING NOTCH BAR		8u1	44	2'-1	245	
8U1 BARS SHALL BE PAID FOR UNDER THE BID ITEM "REINFORCING STEEL, STAINLESS STEEL".						WEIGHT = LBS.

NOTES:
 ALL BARRIER RAIL REINFORCING STEEL IS TO BE EITHER EPOXY COATED OR STAINLESS STEEL AS SHOWN OR NOTED. THE STAINLESS STEEL REINFORCING STEEL SHALL BE DEFORMED BAR GRADE 60 MEETING THE REQUIREMENTS OF MATERIALS I.M.452.

ALL OTHER REINFORCING STEEL IS TO BE EPOXY COATED.

THE TRANSVERSE REBARS ARE DETAILED WITH A SPLICE LAP. AT THE CONTRACTOR'S OPTION, THIS LAP MAY BE ELIMINATED BY FURNISHING FULL LENGTH BARS WITH NO REDUCTION IN PAY WEIGHT FOR SAME.

08-2020
 LATEST REVISION DATE

STANDARD DESIGN - 44' ROADWAY, 3 SPAN BRIDGES

CONTINUOUS CONCRETE SLAB BRIDGES

JULY, 2014

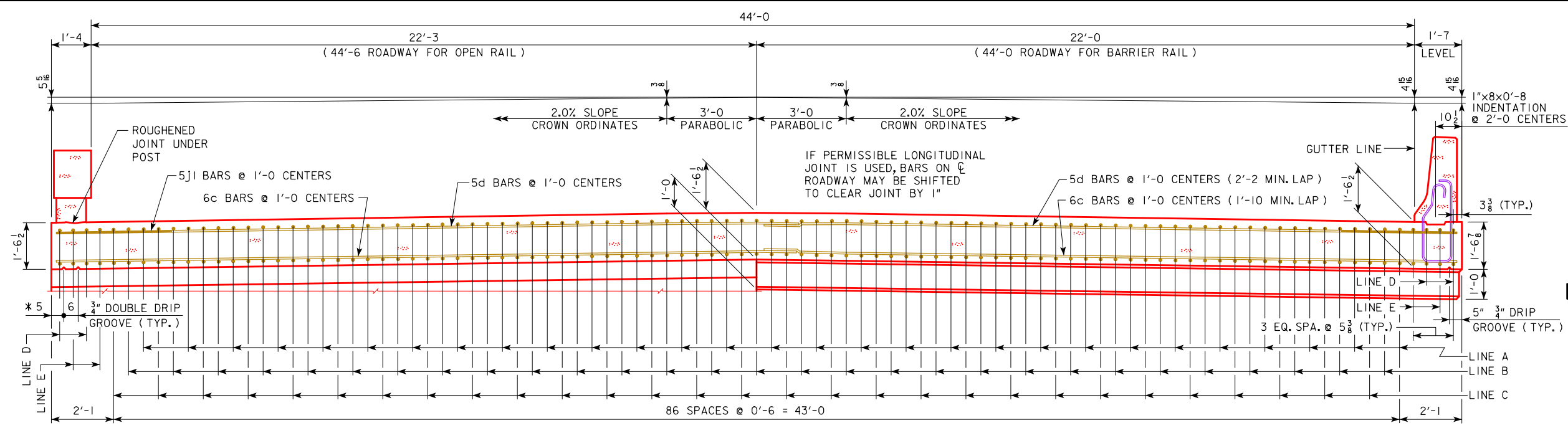
APPROVED BY BRIDGE ENGINEER

SUPERSTRUCTURE DETAILS

100'-0 BRIDGE

J44-09-14

REVISED 08-2020: UPDATED BRIDGE ENGINEER SIGNATURE. ADDED 3/8" (TYP.) & 5/8" (TYP.) HORIZONTAL DIMENSIONS TO LONGITUDINAL SLAB REINFORCING LINE D & E IN "HALF SECTION NEAR PIER".



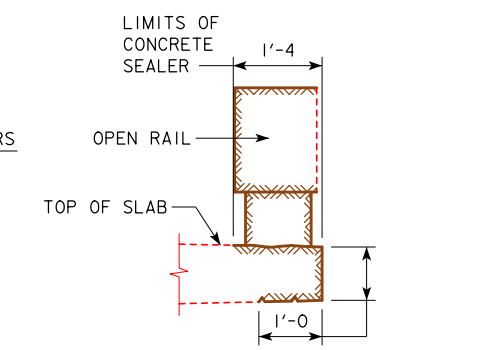
HALF SECTION NEAR ABUTMENT

HALF SECTION NEAR PIER

SLAB CROSS-SECTIONAL AREA FOR OPEN RAIL = 72.72 SQ. FT.

NOTE: TOP LONGITUDINAL REINFORCING STEEL IS TO BE PARALLEL TO AND 2 1/2" CLEAR BELOW TOP OF SLAB. BOTTOM LONGITUDINAL REINFORCING STEEL IS TO BE PARALLEL TO AND 1 1/2" CLEAR ABOVE BOTTOM OF SLAB. REINFORCING STEEL IS TO BE SECURELY WIRED IN PLACE AND ADEQUATELY SUPPORTED ON BAR CHAIRS BEFORE CONCRETE IS POURED. I.M. 451.01 REQUIREMENTS SHALL APPLY FOR BAR CHAIRS.

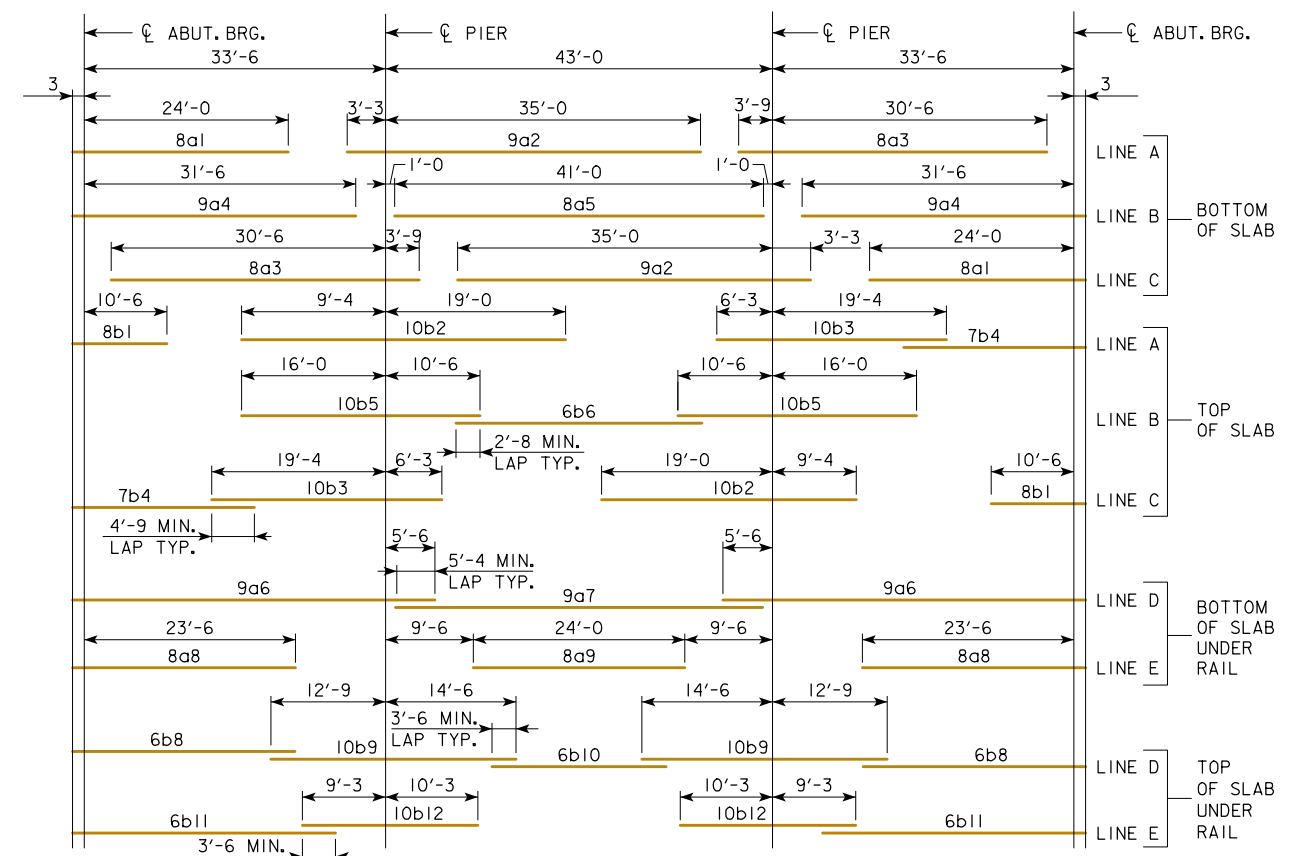
SLAB CROSS-SECTIONAL AREA FOR BARRIER RAIL = 72.76 SQ. FT.



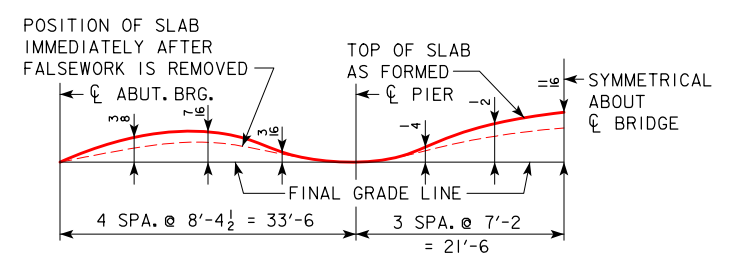
CONCRETE SEALER LIMITS FOR OPEN RAILS

CONCRETE SEALER SHALL BE APPLIED TO BOTH SIDES OF BRIDGE SLAB ON THE TOP, EDGE OF SLAB AND UNDER THE SLAB. THE CONCRETE SEALER SHALL ALSO BE APPLIED TO THE OPEN RAIL ON THE TOP, TRAFFIC FACE SIDE, BOTTOM OF RAIL, AND ON ALL SIDES OF THE OPEN RAIL POSTS.

THE CONCRETE SEALER LIMITS ARE SHOWN IN THE DETAIL AND SHALL APPLY TO THE FULL LENGTH OF BRIDGE. CONCRETE SEALER SHALL BE APPLIED IN ACCORDANCE WITH ARTICLE 2403.03, P, 3 OF THE STANDARD SPECIFICATIONS.



PLACEMENT FOR LONGITUDINAL REINFORCEMENT



FORM CAMBER DIAGRAM

THIS DIAGRAM SHOWS THE FORM CAMBER REQUIRED TO COMPENSATE FOR THE ANTICIPATED ULTIMATE DEAD LOAD DEFLECTION. THE ABOVE DIMENSIONS DO NOT INCLUDE ANY ALLOWANCE FOR FORM DEFLECTION OR FALSEWORK SETTLEMENT.

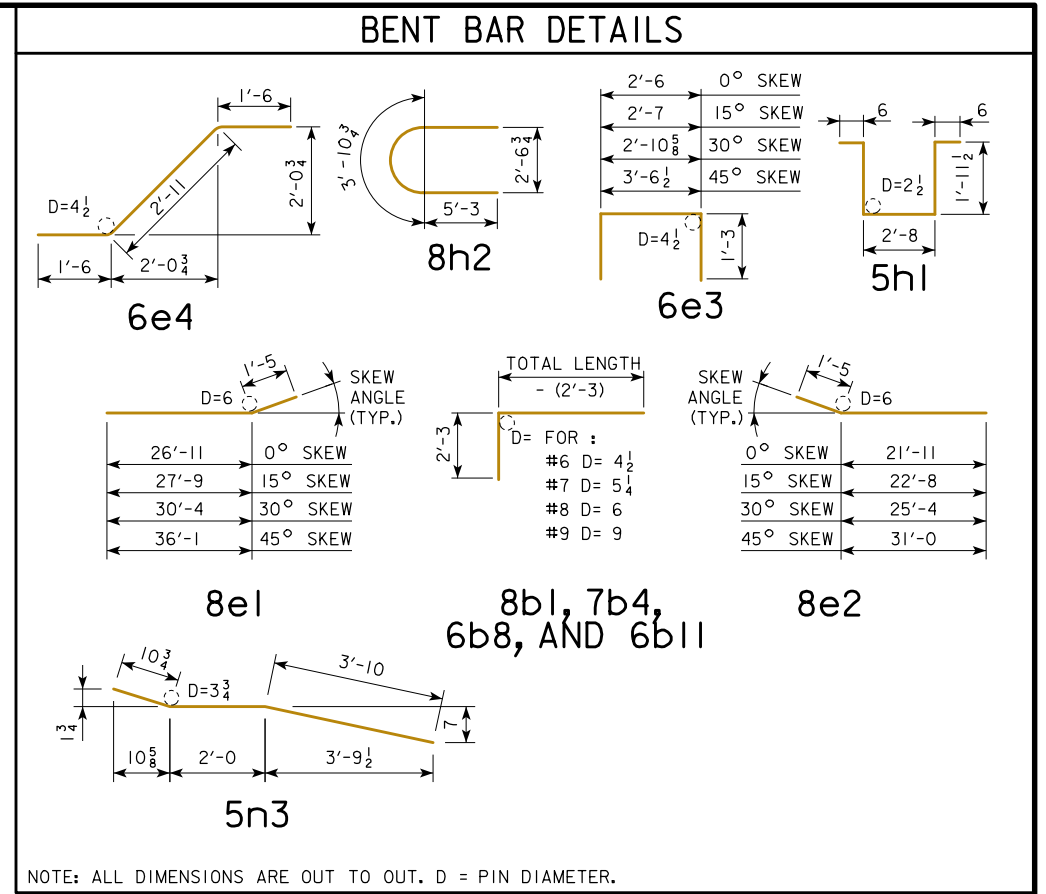
08-2020 LATEST REVISION DATE APPROVED BY BRIDGE ENGINEER	 STANDARD DESIGN - 44' ROADWAY, 3 SPAN BRIDGES CONTINUOUS CONCRETE SLAB BRIDGES JULY, 2014	
	SUPERSTRUCTURE DETAILS 110'-0" BRIDGE	J44-10-14

REVISED 09-2014; CHANGED REFERENCE TO THE BARRIER RAIL & OPEN RAIL TO THE J44-14 STANDARDS INSTEAD OF J44-06 STANDARDS.
 REVISED 03-2016; REVISION FOR ADDITION OF PAVING NOTCH BAR 8u1.
 REVISED 04-2016; REVISION TO INCLUDE PAVING NOTCH BAR 8u1 WEIGHT IN ESTIMATED QUANTITIES TABLE.
 REVISED 08-2020; UPDATED BRIDGE ENGINEER SIGNATURE.

BILL OF REINFORCING STEEL FOR SUPERSTRUCTURE - 110' BRIDGE															
LOCATION	SKEW	SHAPE	BAR	NO.	0°		15°		30°		45°		NO.	LENGTH	WEIGHT
					LENGTH	WEIGHT	NO.	LENGTH	WEIGHT	NO.	LENGTH	WEIGHT			
SLAB LONGITUDINAL BOTTOM			8a1	58	24'-3	3756	58	24'-3	3756	58	24'-3	3756	58	24'-3	3756
SLAB LONGITUDINAL BOTTOM			9a2	58	38'-3	7543	58	38'-3	7543	58	38'-3	7543	58	38'-3	7543
SLAB LONGITUDINAL BOTTOM			8a3	58	34'-3	5304	58	34'-3	5304	58	34'-3	5304	58	34'-3	5304
SLAB LONGITUDINAL BOTTOM			9a4	58	31'-9	6262	58	31'-9	6262	58	31'-9	6262	58	31'-9	6262
SLAB LONGITUDINAL BOTTOM			8a5	29	41'-0	3175	29	41'-0	3175	29	41'-0	3175	29	41'-0	3175
SLAB LONGITUDINAL BOTTOM, AT RAIL			9a6	8	39'-3	1068	8	39'-3	1068	8	39'-3	1068	8	39'-3	1068
SLAB LONGITUDINAL BOTTOM, AT RAIL			9a7	4	42'-8	581	4	42'-8	581	4	42'-8	581	4	42'-8	581
SLAB LONGITUDINAL BOTTOM, AT RAIL			8a8	8	23'-9	508	8	23'-9	508	8	23'-9	508	8	23'-9	508
SLAB LONGITUDINAL BOTTOM, AT RAIL			8a9	4	24'-0	257	4	24'-0	257	4	24'-0	257	4	24'-0	257
SLAB LONGITUDINAL TOP			8b1	58	13'-0	2014	58	13'-0	2014	58	13'-0	2014	58	13'-0	2014
SLAB LONGITUDINAL TOP			10b2	58	28'-4	7072	58	28'-4	7072	58	28'-4	7072	58	28'-4	7072
SLAB LONGITUDINAL TOP			10b3	58	25'-7	6385	58	25'-7	6385	58	25'-7	6385	58	25'-7	6385
SLAB LONGITUDINAL TOP			7b4	58	21'-5	2539	58	21'-5	2539	58	21'-5	2539	58	21'-5	2539
SLAB LONGITUDINAL TOP			10b5	58	26'-6	6614	58	26'-6	6614	58	26'-6	6614	58	26'-6	6614
SLAB LONGITUDINAL TOP			6b6	29	27'-4	1191	29	27'-4	1191	29	27'-4	1191	29	27'-4	1191
SLAB LONGITUDINAL TOP, AT RAIL			6b8	8	26'-9	322	8	26'-9	322	8	26'-9	322	8	26'-9	322
SLAB LONGITUDINAL TOP, AT RAIL			10b9	8	27'-3	939	8	27'-3	939	8	27'-3	939	8	27'-3	939
SLAB LONGITUDINAL TOP, AT RAIL			6b10	4	21'-0	127	4	21'-0	127	4	21'-0	127	4	21'-0	127
SLAB LONGITUDINAL TOP, AT RAIL			6b11	8	30'-3	364	8	30'-3	364	8	30'-3	364	8	30'-3	364
SLAB LONGITUDINAL TOP, AT RAIL			10b12	8	19'-6	672	8	19'-6	672	8	19'-6	672	8	19'-6	672
SLAB TRANSVERSE BOTTOM			6c1	107	25'-5	4085	107	26'-4	4233	96	25'-5	3665	86	25'-5	3284
SLAB TRANSVERSE BOTTOM			6c2	107	23'-3	3737	107	24'-1	3871	98	23'-3	3423	89	23'-3	3109
SLAB TRANSVERSE ENDS, BOTTOM			6c3	-	-	-	-	-	-	14	VARIABLES	303	22	VARIABLES	485
SLAB TRANSVERSE ENDS, BOTTOM			6c4	-	-	-	-	-	-	12	VARIABLES	255	22	VARIABLES	458
SLAB TRANSVERSE ENDS, BOTTOM			6c5	-	-	-	-	-	-	12	VARIABLES	208	20	VARIABLES	366
SLAB TRANSVERSE ENDS, BOTTOM			6c6	-	-	-	-	-	-	12	VARIABLES	227	19	VARIABLES	376
SLAB TRANSVERSE TOP			5d1	107	25'-9	2874	107	26'-8	2977	96	25'-9	2579	86	25'-9	2310
SLAB TRANSVERSE TOP			5d2	107	23'-3	2595	107	24'-1	2688	98	23'-3	2377	89	23'-3	2159
SLAB TRANSVERSE ENDS, TOP			5d3	-	-	-	-	-	-	14	VARIABLES	210	22	VARIABLES	337
SLAB TRANSVERSE ENDS, TOP			5d4	-	-	-	-	-	-	12	VARIABLES	177	22	VARIABLES	318
SLAB TRANSVERSE ENDS, TOP			5d5	-	-	-	-	-	-	12	VARIABLES	144	20	VARIABLES	254
SLAB TRANSVERSE ENDS, TOP			5d6	-	-	-	-	-	-	12	VARIABLES	158	19	VARIABLES	261
SLAB, TRANSVERSE AT ABUTMENT			8e1	18	28'-4	1362	18	29'-2	1402	18	31'-9	1526	18	37'-6	1803
SLAB, TRANSVERSE AT ABUTMENT			8e2	18	23'-4	1122	18	24'-1	1158	18	26'-9	1286	18	32'-5	1558
SLAB, HAIRPINS, AT ABUTMENT			6e3	100	5'-0	751	100	5'-1	764	100	5'-5	814	100	6'-1	914
SLAB, DIAGONALS, AT ABUTMENT			6e4	100	5'-11	889	100	5'-11	889	100	5'-11	889	100	5'-11	889
PIER CAP HOOPS			5h1	72	7'-7	570	72	7'-7	570	96	7'-7	760	96	7'-7	760
PIER CAP ENDS			8h2	4	14'-5	154	4	14'-5	154	4	14'-5	154	4	14'-5	154
PIER CAP, BOTTOM LONGITUDINAL			8h3	8	27'-5	586	8	28'-8	613	8	31'-8	677	8	37'-10	809
PIER CAP, BOTTOM LONGITUDINAL			8h4	8	21'-11	469	8	22'-4	478	8	24'-6	524	8	29'-8	634
PIER CAP, TOP LONGITUDINAL			8h5	4	28'-2	301	4	29'-6	316	4	32'-8	349	4	38'-11	416
PIER CAP, TOP LONGITUDINAL			8h6	4	23'-5	251	4	23'-11	256	4	26'-3	281	4	31'-6	337
TOP OF SLAB, TRANSVERSE, AT RAIL			5j1	212	8'-6	1880	212	8'-6	1880	206	8'-6	1827	204	8'-6	1809
WING, VERTICAL			5m1	40	4'-5	185	40	4'-5	185	40	4'-5	185	40	4'-5	185
WING, HORIZONTAL BACK FACE			5n1	24	6'-8	167	24	6'-8	167	24	6'-8	167	24	6'-8	167
WING, HORIZONTAL TRAFFIC FACE			5n3	24	6'-9	169	24	6'-9	169	24	6'-9	169	24	6'-9	169
SUB EPOXY COATED TOTAL - LBS.						78,840			79,463			80,027			81,014
BARRIER RAIL - SEE LIST ON RAIL SHEET J44-46-14						4504			4504			4504			4504
OPEN RAIL - SEE LIST ON RAIL SHEET J44-49-14						4770			4770			4770			4770
EPOXY COATED RAIL TOTAL - LBS.															
WITH MONOLITHIC PIER CAP															
WITH BARRIER RAIL						83,344			83,967			84,531			85,518
WITH OPEN RAIL						83,610			84,233			84,797			85,784
EPOXY COATED RAIL TOTAL - LBS.															
WITH NON-MONOLITHIC PIER CAP															
WITH BARRIER RAIL						81,013			81,580			81,786			82,408
SAME AS ABOVE EXCEPT ALL "h" BARS DELETED						81,279			81,846			82,052			82,674
STAINLESS STEEL RAIL TOTAL - LBS.															
WITH BARRIER RAIL						2458			2458			2458			2458
WITH OPEN RAIL						2491			2491			2491			2491

ESTIMATED QUANTITIES FOR SUPERSTRUCTURE - 110' BRIDGE									
ITEM	SKEW	WITH MONOLITHIC PIER CAP				WITH NON-MONOLITHIC PIER CAP			
		0°	15°	30°	45°	0°	15°	30°	45°
WITH BARRIER RAIL	* STRUCTURAL CONCRETE (BRIDGE) C.Y.	330.2	331.3	335.0	342.9	323.8	324.7	327.6	334.0
	REINF. STEEL EPOXY COATED LBS.	83,344	83,967	84,531	85,518	81,013	81,580	81,786	82,408
	Δ REINF. STEEL STAINLESS STEEL LBS.	2703	2703	2703	2703	2703	2703	2703	2703
CONCRETE BARRIER OR OPEN RAIL	LIN. FT.	242.0	242.2	242.9	244.5	242.0	242.2	242.9	244.5
WITH OPEN RAIL	* STRUCTURAL CONCRETE (BRIDGE) C.Y.	330.0	331.1	334.7	342.7	323.6	324.5	327.4	333.8
	REINF. STEEL EPOXY COATED LBS.	83,610	84,233	84,797	85,784	81,279	81,846	82,052	82,674
	Δ REINF. STEEL STAINLESS STEEL LBS.	2736	2736	2736	2736	2736	2736	2736	2736

* INCLUDES 4 WINGS @ 0.68 C.Y. EACH; EXCLUDES RAIL CONCRETE.
 Δ INCLUDES ABUTMENT PAVING NOTCH BAR WEIGHT.



STAINLESS STEEL REINFORCING FOR SUPERSTRUCTURE - BRIDGE

LOCATION	ALL SKEWS			
	SHAPE	BAR	NO.	LENGTH WEIGHT
ABUTMENT PAVING NOTCH BAR		8u1	44	2'-1 245

8U1 BARS SHALL BE PAID FOR UNDER THE BID ITEM "REINFORCING STEEL, STAINLESS STEEL". WEIGHT = LBS.

NOTES:
 ALL BARRIER RAIL REINFORCING STEEL IS TO BE EITHER EPOXY COATED OR STAINLESS STEEL AS SHOWN OR NOTED. THE STAINLESS STEEL REINFORCING STEEL SHALL BE DEFORMED BAR GRADE 60 MEETING THE REQUIREMENTS OF MATERIALS I.M.452.

ALL OTHER REINFORCING STEEL IS TO BE EPOXY COATED.

THE TRANSVERSE REBARS ARE DETAILED WITH A SPLICE LAP. AT THE CONTRACTOR'S OPTION, THIS LAP MAY BE ELIMINATED BY FURNISHING FULL LENGTH BARS WITH NO REDUCTION IN PAY WEIGHT FOR SAME.

08-2020
 LATEST REVISION DATE

STANDARD DESIGN - 44' ROADWAY, 3 SPAN BRIDGES

CONTINUOUS CONCRETE SLAB BRIDGES

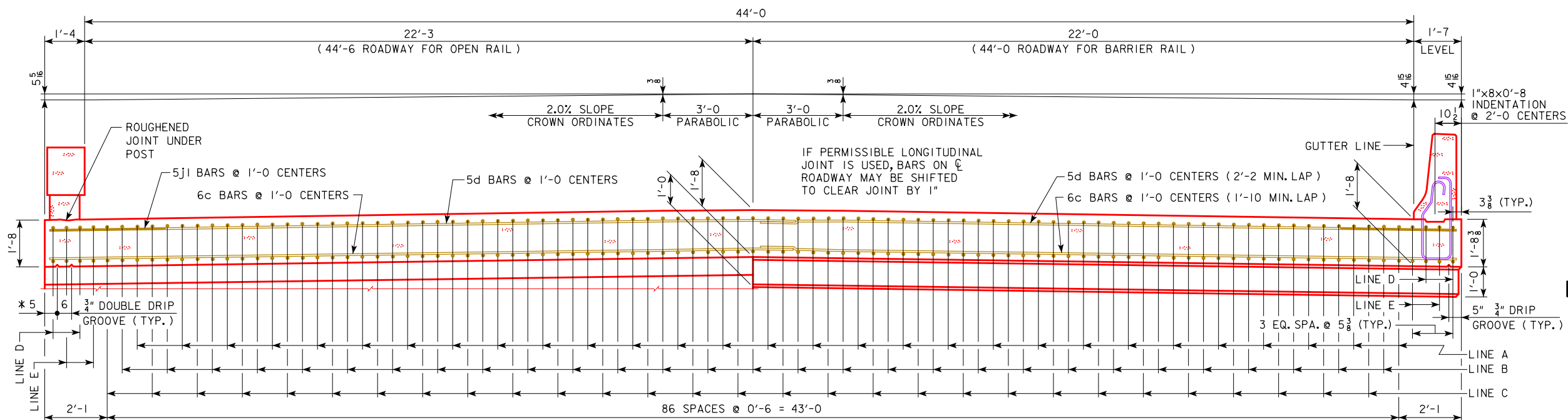
JULY, 2014

APPROVED BY BRIDGE ENGINEER

SUPERSTRUCTURE DETAILS
110'-0 BRIDGE

J44-11-14

REVISED 08-2020: UPDATED BRIDGE ENGINEER SIGNATURE. ADDED 3/8" (TYP.) & 5/8" (TYP.) HORIZONTAL DIMENSIONS TO LONGITUDINAL SLAB REINFORCING LINE D & E IN "HALF SECTION NEAR PIER".



HALF SECTION NEAR ABUTMENT

HALF SECTION NEAR PIER

SLAB CROSS-SECTIONAL AREA FOR OPEN RAIL = 78.61 SQ. FT.

NOTE: TOP LONGITUDINAL REINFORCING STEEL IS TO BE PARALLEL TO AND 2 1/2" CLEAR BELOW TOP OF SLAB. BOTTOM LONGITUDINAL REINFORCING STEEL IS TO BE PARALLEL TO AND 1 1/2" CLEAR ABOVE BOTTOM OF SLAB. REINFORCING STEEL IS TO BE SECURELY WIRED IN PLACE AND ADEQUATELY SUPPORTED ON BAR CHAIRS BEFORE CONCRETE IS POURED. I.M. 451.01 REQUIREMENTS SHALL APPLY FOR BAR CHAIRS.

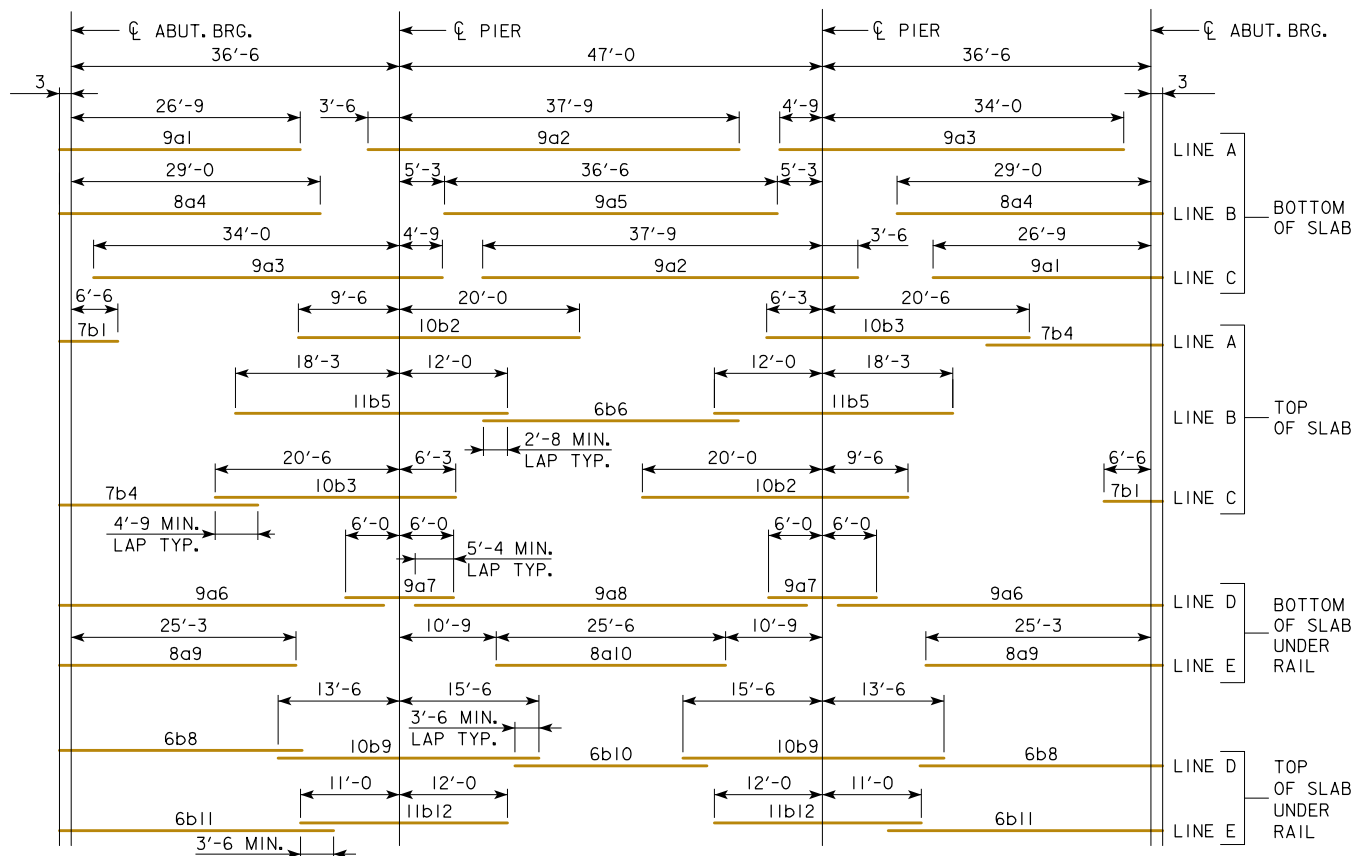
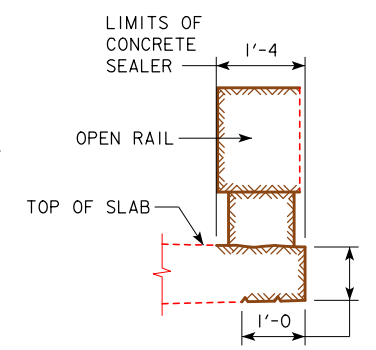
SLAB CROSS-SECTIONAL AREA FOR BARRIER RAIL = 78.66 SQ. FT.

* NOTE: DOUBLE DRIP GROOVES FOR OPEN RAIL OPTION ONLY.

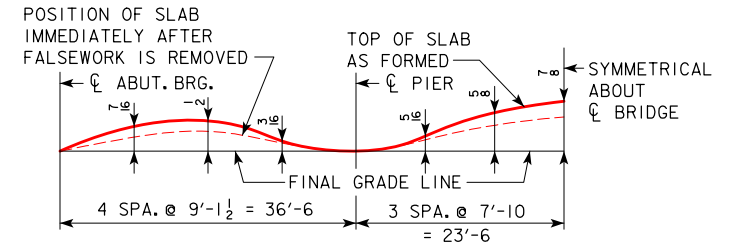
CONCRETE SEALER LIMITS FOR OPEN RAILS

CONCRETE SEALER SHALL BE APPLIED TO BOTH SIDES OF BRIDGE SLAB ON THE TOP, EDGE OF SLAB AND UNDER THE SLAB. THE CONCRETE SEALER SHALL ALSO BE APPLIED TO THE OPEN RAIL ON THE TOP, TRAFFIC FACE SIDE, BOTTOM OF RAIL, AND ON ALL SIDES OF THE OPEN RAIL POSTS.

THE CONCRETE SEALER LIMITS ARE SHOWN IN THE DETAIL AND SHALL APPLY TO THE FULL LENGTH OF BRIDGE. CONCRETE SEALER SHALL BE APPLIED IN ACCORDANCE WITH ARTICLE 2403.03, P, 3 OF THE STANDARD SPECIFICATIONS.



PLACEMENT FOR LONGITUDINAL REINFORCEMENT



FORM CAMBER DIAGRAM

THIS DIAGRAM SHOWS THE FORM CAMBER REQUIRED TO COMPENSATE FOR THE ANTICIPATED ULTIMATE DEAD LOAD DEFLECTION. THE ABOVE DIMENSIONS DO NOT INCLUDE ANY ALLOWANCE FOR FORM DEFLECTION OR FALSEWORK SETTLEMENT.

08-2020 LATEST REVISION DATE APPROVED BY BRIDGE ENGINEER		
	STANDARD DESIGN - 44' ROADWAY, 3 SPAN BRIDGES CONTINUOUS CONCRETE SLAB BRIDGES JULY, 2014	
	SUPERSTRUCTURE DETAILS 120'-0 BRIDGE	J44-12-14

REVISED 09-2014; CHANGED REFERENCE TO THE BARRIER RAIL & OPEN RAIL TO THE J44-14 STANDARDS INSTEAD OF J44-06 STANDARDS.
 REVISED 03-2016; REVISION FOR ADDITION OF PAVING NOTCH BAR 8u1.
 REVISED 04-2016; REVISION TO INCLUDE PAVING NOTCH BAR 8u1 WEIGHT IN ESTIMATED QUANTITIES TABLE.
 REVISED 08-2020; UPDATED BRIDGE ENGINEER SIGNATURE.

BILL OF REINFORCING STEEL FOR SUPERSTRUCTURE - 120' BRIDGE

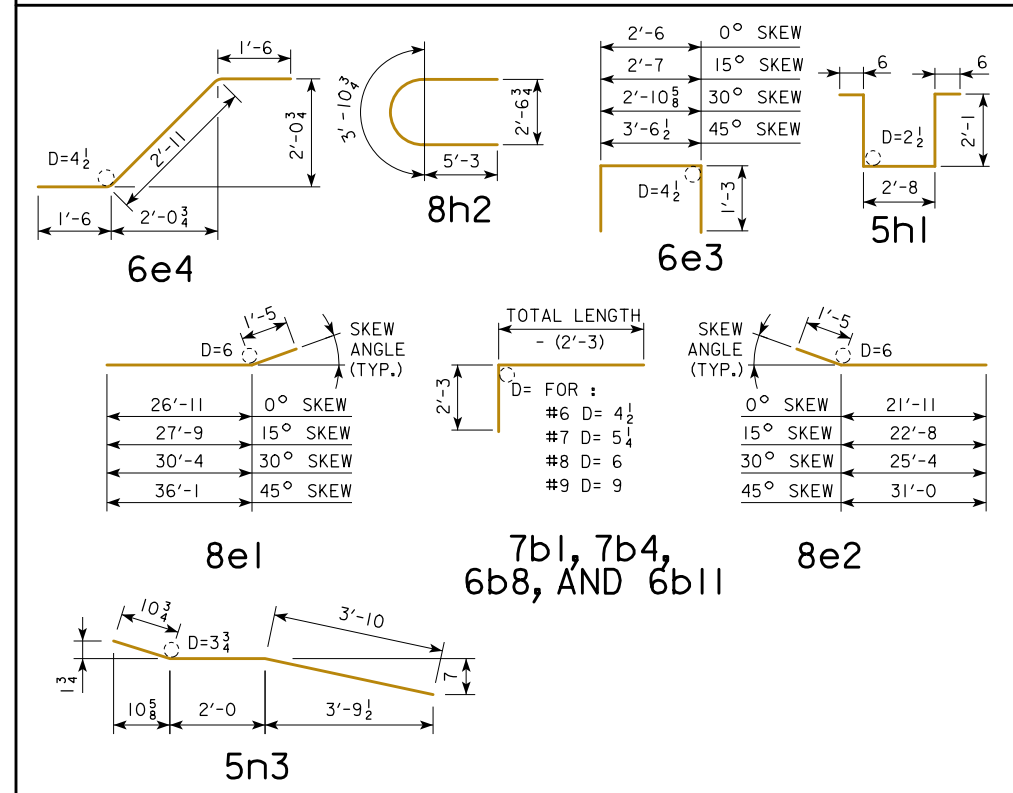
LOCATION	SKEW	SHAPE	BAR	NO.	0°		15°		30°		45°			
					LENGTH	WEIGHT	NO.	LENGTH	WEIGHT	NO.	LENGTH	WEIGHT	NO.	LENGTH
SLAB LONGITUDINAL BOTTOM			9a1	58	27'-0	5325	58	27'-0	5325	58	27'-0	5325		
SLAB LONGITUDINAL BOTTOM			9a2	58	41'-3	8135	58	41'-3	8135	58	41'-3	8135		
SLAB LONGITUDINAL BOTTOM			9a3	58	38'-9	7642	58	38'-9	7642	58	38'-9	7642		
SLAB LONGITUDINAL BOTTOM			8a4	58	29'-3	4530	58	29'-3	4530	58	29'-3	4530		
SLAB LONGITUDINAL BOTTOM			9a5	29	36'-6	3599	29	36'-6	3599	29	36'-6	3599		
SLAB LONGITUDINAL BOTTOM, AT RAIL			9a6	8	36'-1	982	8	36'-1	982	8	36'-1	982		
SLAB LONGITUDINAL BOTTOM, AT RAIL			9a7	8	12'-0	327	8	12'-0	327	8	12'-0	327		
SLAB LONGITUDINAL BOTTOM, AT RAIL			9a8	4	45'-8	622	4	45'-8	622	4	45'-8	622		
SLAB LONGITUDINAL BOTTOM, AT RAIL			8a9	8	25'-6	545	8	25'-6	545	8	25'-6	545		
SLAB LONGITUDINAL BOTTOM, AT RAIL			8a10	4	25'-6	273	4	25'-6	273	4	25'-6	273		
SLAB LONGITUDINAL TOP			7b1	58	9'-0	1067	58	9'-0	1067	58	9'-0	1067		
SLAB LONGITUDINAL TOP			10b2	58	29'-6	7363	58	29'-6	7363	58	29'-6	7363		
SLAB LONGITUDINAL TOP			10b3	58	26'-9	6677	58	26'-9	6677	58	26'-9	6677		
SLAB LONGITUDINAL TOP			7b4	58	23'-3	2757	58	23'-3	2757	58	23'-3	2757		
SLAB LONGITUDINAL TOP			11b5	58	30'-3	9322	58	30'-3	9322	58	30'-3	9322		
SLAB LONGITUDINAL TOP			6b6	29	28'-4	1235	29	28'-4	1235	29	28'-4	1235		
SLAB LONGITUDINAL TOP, AT RAIL			6b8	8	29'-0	349	8	29'-0	349	8	29'-0	349		
SLAB LONGITUDINAL TOP, AT RAIL			10b9	8	29'-0	999	8	29'-0	999	8	29'-0	999		
SLAB LONGITUDINAL TOP, AT RAIL			6b10	4	23'-0	139	4	23'-0	139	4	23'-0	139		
SLAB LONGITUDINAL TOP, AT RAIL			6b11	8	31'-6	379	8	31'-6	379	8	31'-6	379		
SLAB LONGITUDINAL TOP, AT RAIL			11b12	8	23'-0	978	8	23'-0	978	8	23'-0	978		
SLAB TRANSVERSE BOTTOM			6c1	117	25'-5	4467	117	26'-4	4628	106	25'-5	4047		
SLAB TRANSVERSE BOTTOM			6c2	117	23'-3	4086	117	24'-1	4233	108	23'-3	3772		
SLAB TRANSVERSE ENDS, BOTTOM			6c3	-	-	-	-	-	-	14	VARIES	303		
SLAB TRANSVERSE ENDS, BOTTOM			6c4	-	-	-	-	-	-	12	VARIES	255		
SLAB TRANSVERSE ENDS, BOTTOM			6c5	-	-	-	-	-	-	12	VARIES	208		
SLAB TRANSVERSE ENDS, BOTTOM			6c6	-	-	-	-	-	-	12	VARIES	227		
SLAB TRANSVERSE TOP			5d1	117	25'-9	3143	117	26'-8	3255	106	25'-9	2847		
SLAB TRANSVERSE TOP			5d2	117	23'-3	2838	117	24'-1	2939	108	23'-3	2619		
SLAB TRANSVERSE ENDS, TOP			5d3	-	-	-	-	-	-	14	VARIES	210		
SLAB TRANSVERSE ENDS, TOP			5d4	-	-	-	-	-	-	12	VARIES	177		
SLAB TRANSVERSE ENDS, TOP			5d5	-	-	-	-	-	-	12	VARIES	144		
SLAB TRANSVERSE ENDS, TOP			5d6	-	-	-	-	-	-	12	VARIES	158		
SLAB, TRANSVERSE AT ABUTMENT			8e1	18	28'-4	1362	18	29'-2	1402	18	31'-9	1526		
SLAB, TRANSVERSE AT ABUTMENT			8e2	18	23'-4	1122	18	24'-1	1158	18	26'-9	1286		
SLAB, HAIRPINS, AT ABUTMENT			6e3	100	5'-0	751	100	5'-1	764	100	5'-5	814		
SLAB, DIAGONALS, AT ABUTMENT			6e4	100	5'-11	889	100	5'-11	889	100	5'-11	889		
PIER CAP HOOPS			5h1	78	7'-10	638	78	7'-10	638	78	7'-10	638		
PIER CAP ENDS			8h2	4	14'-5	154	4	14'-5	154	4	14'-5	154		
PIER CAP, BOTTOM LONGITUDINAL			8h3	8	27'-5	586	8	28'-8	613	8	31'-8	677		
PIER CAP, BOTTOM LONGITUDINAL			8h4	8	21'-11	469	8	22'-4	478	8	24'-6	524		
PIER CAP, TOP LONGITUDINAL			8h5	4	28'-2	301	4	29'-6	316	4	32'-8	349		
PIER CAP, TOP LONGITUDINAL			8h6	4	23'-5	251	4	23'-11	256	4	26'-3	281		
TOP OF SLAB, TRANSVERSE, AT RAIL			5j1	232	8'-6	2057	232	8'-6	2057	226	8'-6	2004		
WING, VERTICAL			5m1	40	4'-5	185	40	4'-5	185	40	4'-5	185		
WING, HORIZONTAL BACK FACE			5n1	24	6'-8	167	24	6'-8	167	24	6'-8	167		
WING, HORIZONTAL TRAFFIC FACE			5n3	24	6'-9	169	24	6'-9	169	24	6'-9	169		
SUB EPOXY COATED TOTAL - LBS.						86,880			87,546			87,875		89,074
BARRIER RAIL - SEE LIST ON RAIL SHEET J44-46-14						4860			4860			4860		4860
OPEN RAIL - SEE LIST ON RAIL SHEET J44-49-14						5304			5304			5304		5304
EPOXY COATED RAIL TOTAL - LBS.														
WITH MONOLITHIC PIER CAP														
WITH BARRIER RAIL						91,740			92,406			92,735		93,934
WITH OPEN RAIL						92,184			92,850			93,179		94,378
EPOXY COATED RAIL TOTAL - LBS.						89,341			89,951			90,112		90,734
WITH MONOLITHIC PIER CAP														
WITH BARRIER RAIL						89,341			89,951			90,112		90,734
WITH OPEN RAIL						89,785			90,395			90,556		91,178
SAME AS ABOVE EXCEPT ALL "h" BARS DELETED														
STAINLESS STEEL RAIL TOTAL - LBS.														
WITH BARRIER RAIL						2676			2676			2676		2676
WITH OPEN RAIL						2757			2757			2757		2757

ESTIMATED QUANTITIES FOR SUPERSTRUCTURE - 120' BRIDGE

ITEM	SKEW	WITH MONOLITHIC PIER CAP				WITH NON-MONOLITHIC PIER CAP			
		0°	15°	30°	45°	0°	15°	30°	45°
* STRUCTURAL CONCRETE (BRIDGE) C.Y.		382.7	383.8	387.3	395.1	376.3	377.2	380.0	386.2
WITH BARRIER RAIL									
REINF. STEEL EPOXY COATED	LBS.	91,740	92,406	92,735	93,934	89,341	89,951	90,112	90,734
Δ REINF. STEEL STAINLESS STEEL	LBS.	2921	2921	2921	2921	2921	2921	2921	2921
CONCRETE BARRIER OR OPEN RAIL	LIN. FT.	262.0	262.2	262.9	264.5	262.0	262.2	262.9	264.5
* STRUCTURAL CONCRETE (BRIDGE) C.Y.		382.5	383.5	387.1	394.9	376.1	376.9	379.8	386.0
WITH OPEN RAIL									
REINF. STEEL EPOXY COATED	LBS.	92,184	92,850	93,179	94,378	89,785	90,395	90,556	91,178
Δ REINF. STEEL STAINLESS STEEL	LBS.	3002	3002	3002	3002	3002	3002	3002	3002

* INCLUDES 4 WINGS @ 0.68 C.Y. EACH; EXCLUDES RAIL CONCRETE.
 Δ INCLUDES ABUTMENT PAVING NOTCH BAR WEIGHT.

BENT BAR DETAILS



NOTE: ALL DIMENSIONS ARE OUT TO OUT. D = PIN DIAMETER.

STAINLESS STEEL REINFORCING FOR SUPERSTRUCTURE - BRIDGE

LOCATION	ALL SKEWS	SHAPE	BAR	NO.	LENGTH	WEIGHT
ABUTMENT PAVING NOTCH BAR			8u1	44	2'-1	245

8U1 BARS SHALL BE PAID FOR UNDER THE BID ITEM "REINFORCING STEEL, STAINLESS STEEL". WEIGHT = LBS.

NOTES:
 ALL BARRIER RAIL REINFORCING STEEL IS TO BE EITHER EPOXY COATED OR STAINLESS STEEL AS SHOWN OR NOTED. THE STAINLESS STEEL REINFORCING STEEL SHALL BE DEFORMED BAR GRADE 60 MEETING THE REQUIREMENTS OF MATERIALS I.M.452.

ALL OTHER REINFORCING STEEL IS TO BE EPOXY COATED.

THE TRANSVERSE REBARS ARE DETAILED WITH A SPLICE LAP. AT THE CONTRACTOR'S OPTION, THIS LAP MAY BE ELIMINATED BY FURNISHING FULL LENGTH BARS WITH NO REDUCTION IN PAY WEIGHT FOR SAME.

08-2020
LATEST REVISION DATE

STANDARD DESIGN - 44' ROADWAY, 3 SPAN BRIDGES

CONTINUOUS CONCRETE SLAB BRIDGES

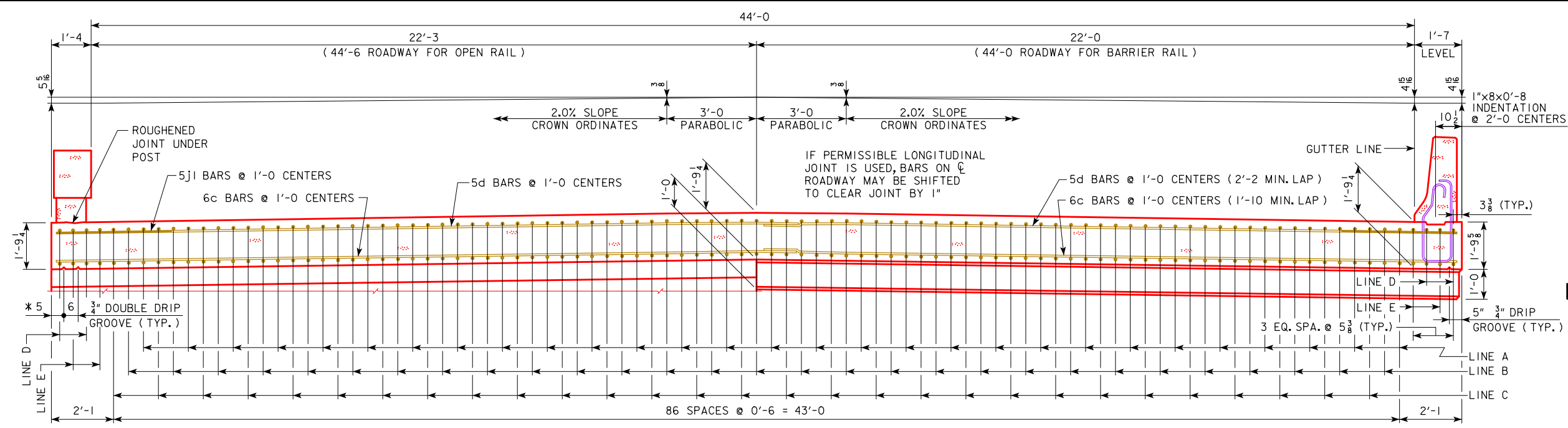
JULY, 2014

APPROVED BY BRIDGE ENGINEER

SUPERSTRUCTURE DETAILS
120'-0 BRIDGE

J44-13-14

REVISED 08-2020: UPDATED BRIDGE ENGINEER SIGNATURE. ADDED 3/8" (TYP.) HORIZONTAL DIMENSIONS TO LONGITUDINAL SLAB REINFORCING LINE D & E IN "HALF SECTION NEAR PIER".



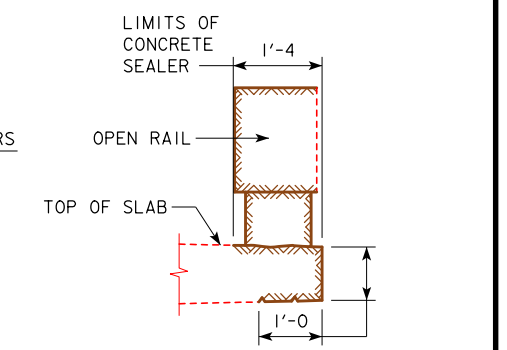
HALF SECTION NEAR ABUTMENT

HALF SECTION NEAR PIER

SLAB CROSS-SECTIONAL AREA FOR OPEN RAIL = 83.52 SQ. FT.

NOTE: TOP LONGITUDINAL REINFORCING STEEL IS TO BE PARALLEL TO AND 2 1/2" CLEAR BELOW TOP OF SLAB. BOTTOM LONGITUDINAL REINFORCING STEEL IS TO BE PARALLEL TO AND 1 1/2" CLEAR ABOVE BOTTOM OF SLAB. REINFORCING STEEL IS TO BE SECURELY WIRED IN PLACE AND ADEQUATELY SUPPORTED ON BAR CHAIRS BEFORE CONCRETE IS POURED. I.M. 451.01 REQUIREMENTS SHALL APPLY FOR BAR CHAIRS.

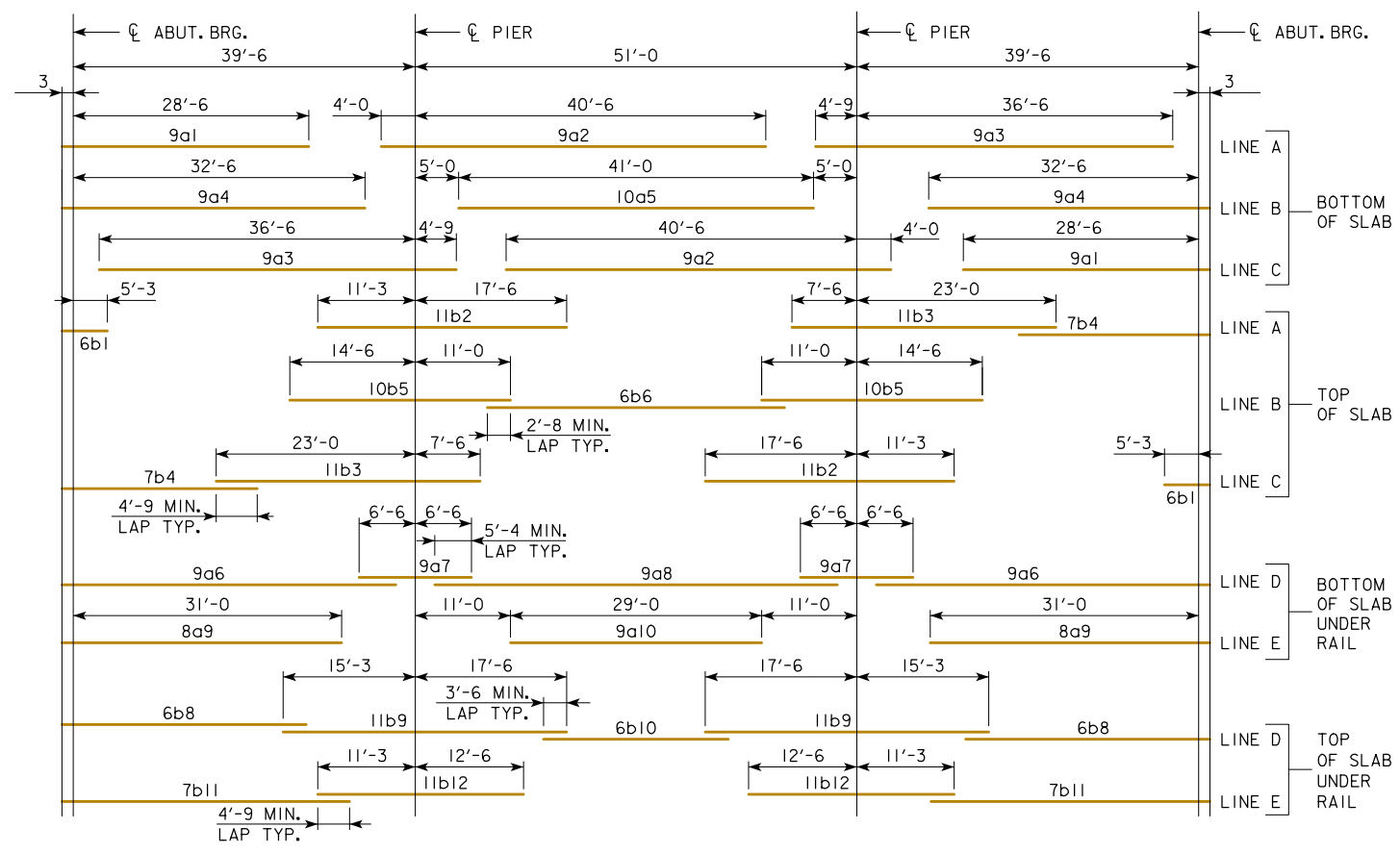
SLAB CROSS-SECTIONAL AREA FOR BARRIER RAIL = 83.57 SQ. FT.



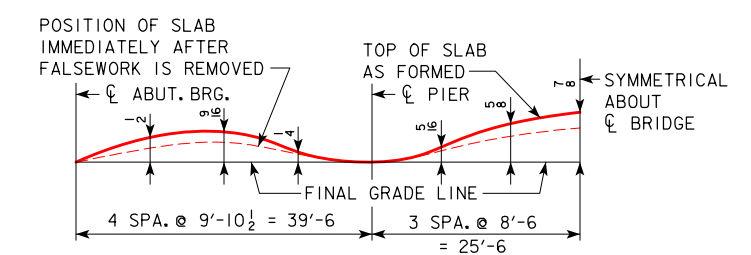
CONCRETE SEALER LIMITS FOR OPEN RAILS

CONCRETE SEALER SHALL BE APPLIED TO BOTH SIDES OF BRIDGE SLAB ON THE TOP, EDGE OF SLAB AND UNDER THE SLAB. THE CONCRETE SEALER SHALL ALSO BE APPLIED TO THE OPEN RAIL ON THE TOP, TRAFFIC FACE SIDE, BOTTOM OF RAIL, AND ON ALL SIDES OF THE OPEN RAIL POSTS.

THE CONCRETE SEALER LIMITS ARE SHOWN IN THE DETAIL AND SHALL APPLY TO THE FULL LENGTH OF BRIDGE. CONCRETE SEALER SHALL BE APPLIED IN ACCORDANCE WITH ARTICLE 2403.03, P, 3 OF THE STANDARD SPECIFICATIONS.



PLACEMENT FOR LONGITUDINAL REINFORCEMENT



FORM CAMBER DIAGRAM

THIS DIAGRAM SHOWS THE FORM CAMBER REQUIRED TO COMPENSATE FOR THE ANTICIPATED ULTIMATE DEAD LOAD DEFLECTION. THE ABOVE DIMENSIONS DO NOT INCLUDE ANY ALLOWANCE FOR FORM DEFLECTION OR FALSEWORK SETTLEMENT.

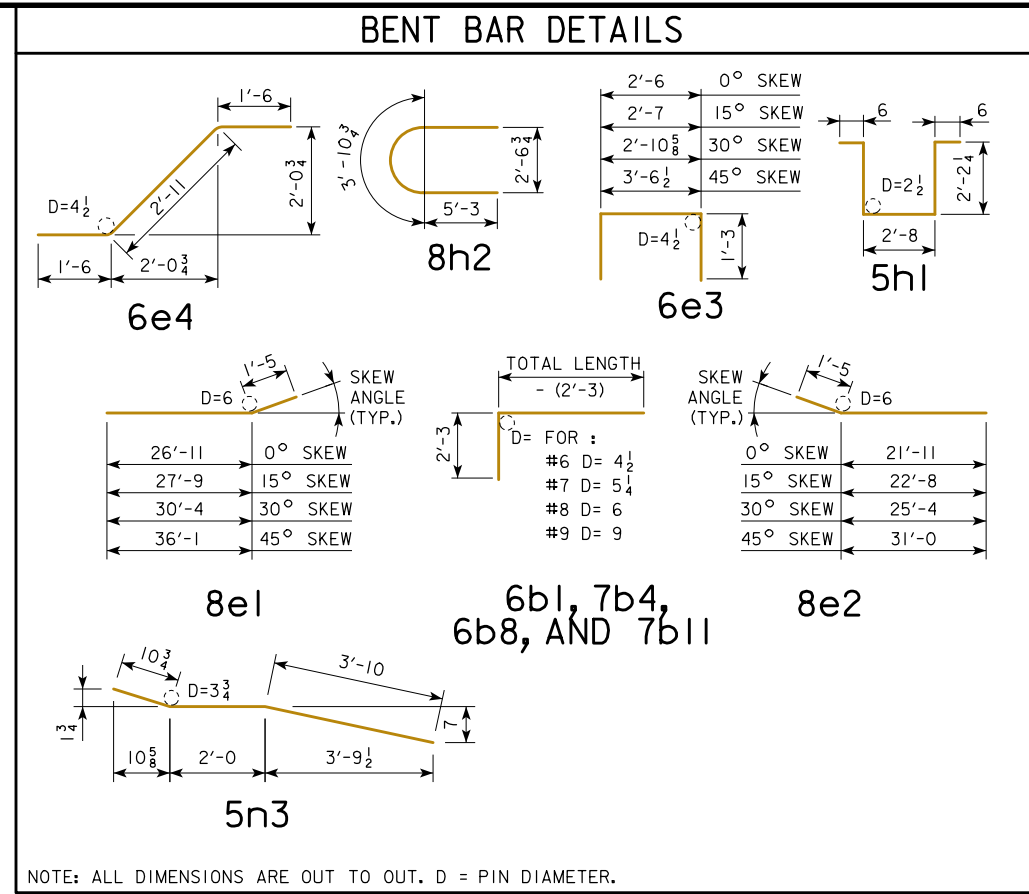
08-2020 LATEST REVISION DATE APPROVED BY BRIDGE ENGINEER	 STANDARD DESIGN - 44' ROADWAY, 3 SPAN BRIDGES CONTINUOUS CONCRETE SLAB BRIDGES JULY, 2014	
	SUPERSTRUCTURE DETAILS 130'-0 BRIDGE	J44-14-14

REVISED 09-2014: CHANGED REFERENCE TO THE BARRIER RAIL & OPEN RAIL TO THE J44-14 STANDARDS INSTEAD OF J44-06 STANDARDS.
 REVISED 03-2016: REVISION FOR ADDITION OF PAVING NOTCH BAR 8u1.
 REVISED 04-2016: REVISION TO INCLUDE PAVING NOTCH BAR 8u1 WEIGHT IN ESTIMATED QUANTITIES TABLE.
 REVISED 08-2020: UPDATED BRIDGE ENGINEER SIGNATURE.

BILL OF REINFORCING STEEL FOR SUPERSTRUCTURE - 130' BRIDGE															
LOCATION	SKEW	SHAPE	BAR	NO.	0°		15°		30°		45°		NO.	LENGTH	WEIGHT
					LENGTH	WEIGHT	NO.	LENGTH	WEIGHT	NO.	LENGTH	WEIGHT			
SLAB LONGITUDINAL BOTTOM			9a1	58	28'-9"	5670	58	28'-9"	5670	58	28'-9"	5670	58	28'-9"	5670
SLAB LONGITUDINAL BOTTOM			9a2	58	44'-6"	8776	58	44'-6"	8776	58	44'-6"	8776	58	44'-6"	8776
SLAB LONGITUDINAL BOTTOM			9a3	58	41'-3"	8135	58	41'-3"	8135	58	41'-3"	8135	58	41'-3"	8135
SLAB LONGITUDINAL BOTTOM			9a4	58	32'-9"	6459	58	32'-9"	6459	58	32'-9"	6459	58	32'-9"	6459
SLAB LONGITUDINAL BOTTOM			10a5	29	41'-0"	5117	29	41'-0"	5117	29	41'-0"	5117	29	41'-0"	5117
SLAB LONGITUDINAL BOTTOM, AT RAIL			9a6	8	38'-7"	1050	8	38'-7"	1050	8	38'-7"	1050	8	38'-7"	1050
SLAB LONGITUDINAL BOTTOM, AT RAIL			9a7	8	13'-0"	354	8	13'-0"	354	8	13'-0"	354	8	13'-0"	354
SLAB LONGITUDINAL BOTTOM, AT RAIL			9a8	4	48'-8"	662	4	48'-8"	662	4	48'-8"	662	4	48'-8"	662
SLAB LONGITUDINAL BOTTOM, AT RAIL			8a9	8	31'-3"	668	8	31'-3"	668	8	31'-3"	668	8	31'-3"	668
SLAB LONGITUDINAL BOTTOM, AT RAIL			9a10	4	29'-0"	395	4	29'-0"	395	4	29'-0"	395	4	29'-0"	395
SLAB LONGITUDINAL TOP			6b1	58	7'-9"	676	58	7'-9"	676	58	7'-9"	676	58	7'-9"	676
SLAB LONGITUDINAL TOP			11b2	58	28'-9"	8860	58	28'-9"	8860	58	28'-9"	8860	58	28'-9"	8860
SLAB LONGITUDINAL TOP			11b3	58	30'-6"	9399	58	30'-6"	9399	58	30'-6"	9399	58	30'-6"	9399
SLAB LONGITUDINAL TOP			7b4	58	23'-9"	2816	58	23'-9"	2816	58	23'-9"	2816	58	23'-9"	2816
SLAB LONGITUDINAL TOP			10b5	58	25'-6"	6365	58	25'-6"	6365	58	25'-6"	6365	58	25'-6"	6365
SLAB LONGITUDINAL TOP			6b6	29	34'-4"	1496	29	34'-4"	1496	29	34'-4"	1496	29	34'-4"	1496
SLAB LONGITUDINAL TOP, AT RAIL			6b8	8	30'-3"	364	8	30'-3"	364	8	30'-3"	364	8	30'-3"	364
SLAB LONGITUDINAL TOP, AT RAIL			11b9	8	32'-9"	1393	8	32'-9"	1393	8	32'-9"	1393	8	32'-9"	1393
SLAB LONGITUDINAL TOP, AT RAIL			6b10	4	23'-0"	139	4	23'-0"	139	4	23'-0"	139	4	23'-0"	139
SLAB LONGITUDINAL TOP, AT RAIL			7b11	8	35'-6"	581	8	35'-6"	581	8	35'-6"	581	8	35'-6"	581
SLAB LONGITUDINAL TOP, AT RAIL			11b12	8	23'-9"	1010	8	23'-9"	1010	8	23'-9"	1010	8	23'-9"	1010
SLAB TRANSVERSE BOTTOM			6c1	127	25'-5"	4849	127	26'-4"	5024	116	25'-5"	4429	106	25'-5"	4047
SLAB TRANSVERSE BOTTOM			6c2	127	23'-3"	4436	127	24'-1"	4594	118	23'-3"	4121	109	23'-3"	3807
SLAB TRANSVERSE ENDS, BOTTOM			6c3	-	-	-	-	-	-	14	VARIABLES	303	22	VARIABLES	485
SLAB TRANSVERSE ENDS, BOTTOM			6c4	-	-	-	-	-	-	12	VARIABLES	255	22	VARIABLES	458
SLAB TRANSVERSE ENDS, BOTTOM			6c5	-	-	-	-	-	-	12	VARIABLES	208	20	VARIABLES	366
SLAB TRANSVERSE ENDS, BOTTOM			6c6	-	-	-	-	-	-	12	VARIABLES	227	19	VARIABLES	376
SLAB TRANSVERSE TOP			5d1	127	25'-9"	3411	127	26'-8"	3533	116	25'-9"	3116	106	25'-9"	2847
SLAB TRANSVERSE TOP			5d2	127	23'-3"	3080	127	24'-1"	3191	118	23'-3"	2862	109	23'-3"	2644
SLAB TRANSVERSE ENDS, TOP			5d3	-	-	-	-	-	-	14	VARIABLES	210	22	VARIABLES	337
SLAB TRANSVERSE ENDS, TOP			5d4	-	-	-	-	-	-	12	VARIABLES	177	22	VARIABLES	318
SLAB TRANSVERSE ENDS, TOP			5d5	-	-	-	-	-	-	12	VARIABLES	144	20	VARIABLES	254
SLAB TRANSVERSE ENDS, TOP			5d6	-	-	-	-	-	-	12	VARIABLES	158	19	VARIABLES	261
SLAB, TRANSVERSE AT ABUTMENT			8e1	18	28'-4"	1362	18	29'-2"	1402	18	31'-9"	1526	18	37'-6"	1803
SLAB, TRANSVERSE AT ABUTMENT			8e2	18	23'-4"	1122	18	24'-1"	1158	18	26'-9"	1286	18	32'-5"	1558
SLAB, HAIRPINS, AT ABUTMENT			6e3	100	5'-0"	751	100	5'-1"	764	100	5'-5"	814	100	6'-1"	914
SLAB, DIAGONALS, AT ABUTMENT			6e4	100	5'-11"	889	100	5'-11"	889	100	5'-11"	889	100	5'-11"	889
PIER CAP HOOPS			5h1	60	8'-1"	506	60	8'-1"	506	90	8'-1"	759	90	8'-1"	759
PIER CAP ENDS			8h2	4	14'-5"	154	4	14'-5"	154	4	14'-5"	154	4	14'-5"	154
PIER CAP, BOTTOM LONGITUDINAL			8h3	8	27'-5"	586	8	28'-8"	613	8	31'-8"	677	8	37'-10"	809
PIER CAP, BOTTOM LONGITUDINAL			8h4	8	21'-11"	469	8	22'-4"	478	8	24'-6"	524	8	29'-8"	634
PIER CAP, TOP LONGITUDINAL			8h5	4	28'-2"	301	4	29'-6"	316	4	32'-8"	349	4	38'-11"	416
PIER CAP, TOP LONGITUDINAL			8h6	4	23'-5"	251	4	23'-11"	256	4	26'-3"	281	4	31'-6"	337
TOP OF SLAB, TRANSVERSE, AT RAIL			5j1	252	8'-6"	2235	252	8'-6"	2235	246	8'-6"	2181	244	8'-6"	2164
WING, VERTICAL			5m1	40	4'-5"	185	40	4'-5"	185	40	4'-5"	185	40	4'-5"	185
WING, HORIZONTAL BACK FACE			5n1	24	6'-8"	167	24	6'-8"	167	24	6'-8"	167	24	6'-8"	167
WING, HORIZONTAL TRAFFIC FACE			5n3	24	6'-9"	169	24	6'-9"	169	24	6'-9"	169	24	6'-9"	169
SUB EPOXY COATED TOTAL - LBS.						95,308			96,019			96,556			97,543
BARRIER RAIL - SEE LIST ON RAIL SHEET J44-46-14						5172			5172			5172			5172
OPEN RAIL - SEE LIST ON RAIL SHEET J44-49-14						5628			5628			5628			5628
EPOXY COATED RAIL TOTAL - LBS.						100,480			101,191			101,728			102,715
WITH MONOLITHIC PIER CAP						100,936			101,647			102,184			103,171
EPOXY COATED RAIL TOTAL - LBS.						98,213			98,868			98,984			99,606
WITH NON-MONOLITHIC PIER CAP						98,669			99,324			99,440			100,062
SAME AS ABOVE EXCEPT ALL "h" BARS DELETED															
STAINLESS STEEL RAIL TOTAL - LBS.						2882			2882			2882			2882
WITH BARRIER RAIL															
WITH OPEN RAIL						2945			2945			2945			2945

ESTIMATED QUANTITIES FOR SUPERSTRUCTURE - 130' BRIDGE										
ITEM	SKEW	WITH MONOLITHIC PIER CAP				WITH NON-MONOLITHIC PIER CAP				
		0°	15°	30°	45°	0°	15°	30°	45°	
WITH BARRIER RAIL	* STRUCTURAL CONCRETE (BRIDGE) C.Y.	435.0	436.0	439.5	447.1	428.6	429.4	432.2	438.2	
	REINF. STEEL EPOXY COATED LBS.	100,480	101,191	101,728	102,715	98,213	98,868	98,984	99,606	
	Δ REINF. STEEL STAINLESS STEEL LBS.	3127	3127	3127	3127	3127	3127	3127	3127	
CONCRETE BARRIER OR OPEN RAIL	LIN. FT.	282.0	282.2	282.9	284.5	282.0	282.2	282.9	284.5	
WITH OPEN RAIL	* STRUCTURAL CONCRETE (BRIDGE) C.Y.	434.7	435.8	439.3	446.9	428.3	429.1	431.9	438.0	
	REINF. STEEL EPOXY COATED LBS.	100,936	101,647	102,184	103,171	98,669	99,324	99,440	100,062	
	Δ REINF. STEEL STAINLESS STEEL LBS.	3190	3190	3190	3190	3190	3190	3190	3190	

* INCLUDES 4 WINGS @ 0.68 C.Y. EACH; EXCLUDES RAIL CONCRETE.
 Δ INCLUDES ABUTMENT PAVING NOTCH BAR WEIGHT.



NOTE: ALL DIMENSIONS ARE OUT TO OUT. D = PIN DIAMETER.

STAINLESS STEEL REINFORCING FOR SUPERSTRUCTURE - BRIDGE					
LOCATION	SHAPE	BAR	NO.	LENGTH	WEIGHT
ABUTMENT PAVING NOTCH BAR		8u1	44	2'-1"	245

8U1 BARS SHALL BE PAID FOR UNDER THE BID ITEM "REINFORCING STEEL, STAINLESS STEEL". WEIGHT = LBS.

NOTES:
 ALL BARRIER RAIL REINFORCING STEEL IS TO BE EITHER EPOXY COATED OR STAINLESS STEEL AS SHOWN OR NOTED. THE STAINLESS STEEL REINFORCING STEEL SHALL BE DEFORMED BAR GRADE 60 MEETING THE REQUIREMENTS OF MATERIALS I.M.452.

ALL OTHER REINFORCING STEEL IS TO BE EPOXY COATED.

THE TRANSVERSE REBARS ARE DETAILED WITH A SPLICE LAP. AT THE CONTRACTOR'S OPTION, THIS LAP MAY BE ELIMINATED BY FURNISHING FULL LENGTH BARS WITH NO REDUCTION IN PAY WEIGHT FOR SAME.

08-2020
LATEST REVISION DATE

STANDARD DESIGN - 44' ROADWAY, 3 SPAN BRIDGES

CONTINUOUS CONCRETE SLAB BRIDGES

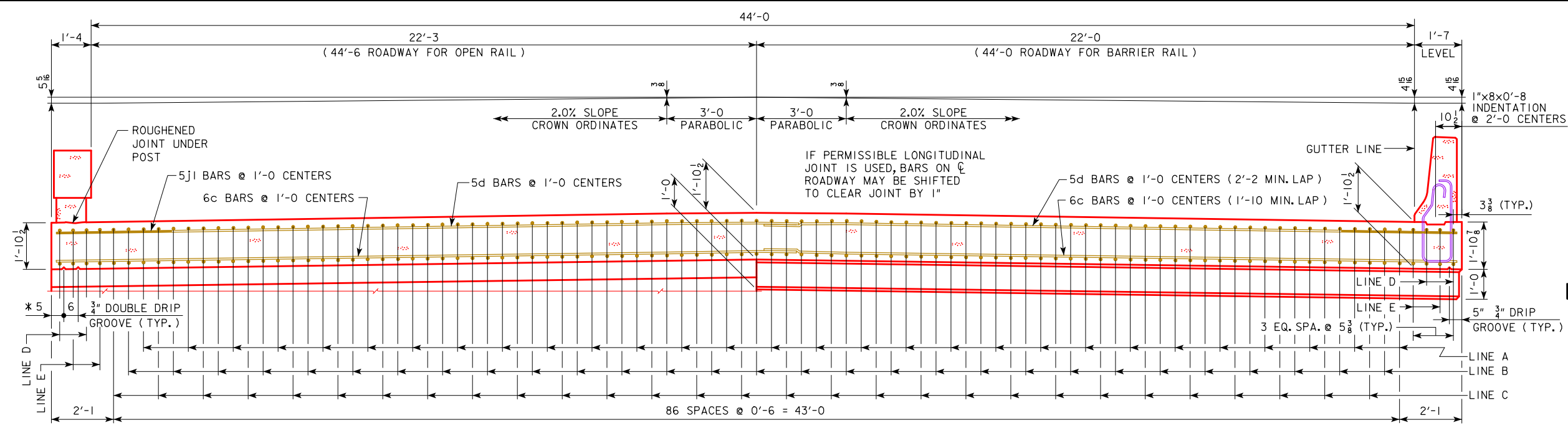
JULY, 2014

APPROVED BY BRIDGE ENGINEER

SUPERSTRUCTURE DETAILS
130'-0 BRIDGE

J44-15-14

REVISED 08-2020: UPDATED BRIDGE ENGINEER SIGNATURE. ADDED 3/8" (TYP.) HORIZONTAL DIMENSIONS TO LONGITUDINAL SLAB REINFORCING LINE D & E IN "HALF SECTION NEAR PIER".



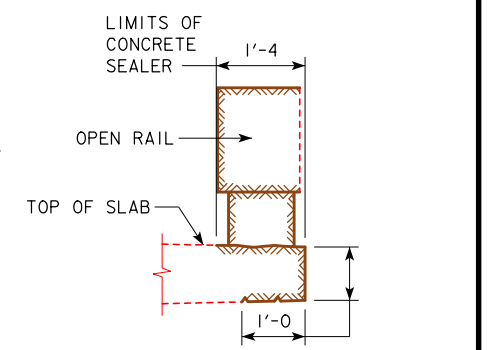
HALF SECTION NEAR ABUTMENT

HALF SECTION NEAR PIER

SLAB CROSS-SECTIONAL AREA FOR OPEN RAIL = 88.44 SQ. FT.

NOTE: TOP LONGITUDINAL REINFORCING STEEL IS TO BE PARALLEL TO AND 2 1/2" CLEAR BELOW TOP OF SLAB. BOTTOM LONGITUDINAL REINFORCING STEEL IS TO BE PARALLEL TO AND 1 1/2" CLEAR ABOVE BOTTOM OF SLAB. REINFORCING STEEL IS TO BE SECURELY WIRED IN PLACE AND ADEQUATELY SUPPORTED ON BAR CHAIRS BEFORE CONCRETE IS POURED. I.M. 451.01 REQUIREMENTS SHALL APPLY FOR BAR CHAIRS.

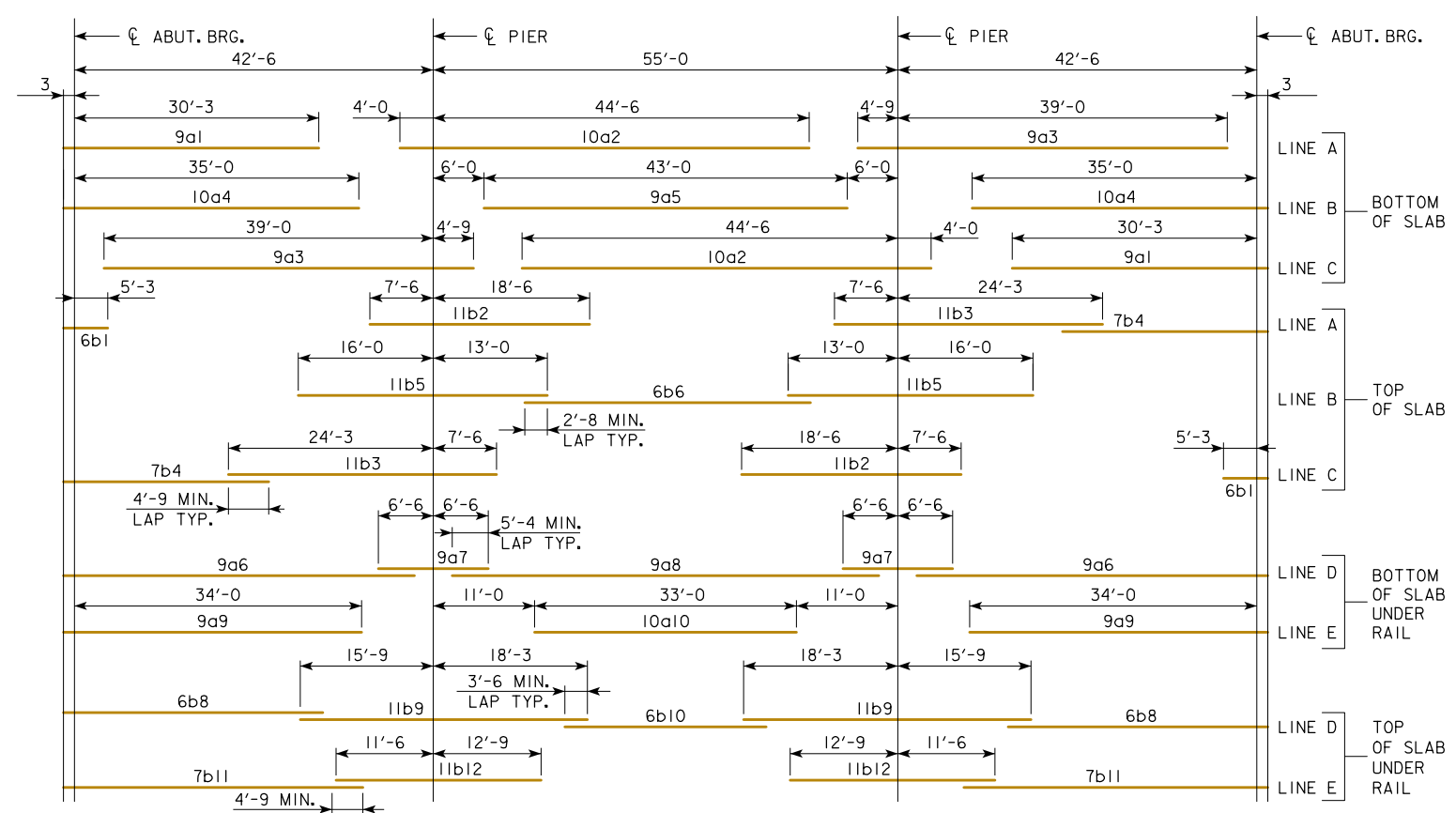
SLAB CROSS-SECTIONAL AREA FOR BARRIER RAIL = 88.49 SQ. FT.



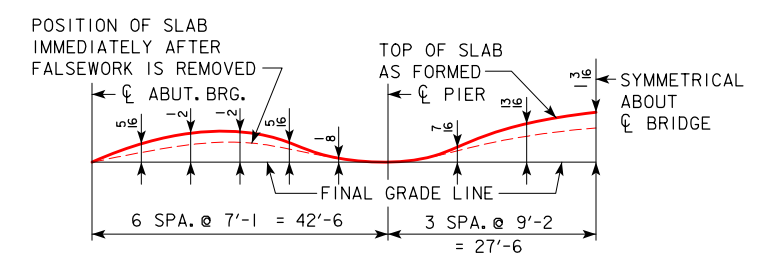
CONCRETE SEALER LIMITS FOR OPEN RAILS

CONCRETE SEALER SHALL BE APPLIED TO BOTH SIDES OF BRIDGE SLAB ON THE TOP, EDGE OF SLAB AND UNDER THE SLAB. THE CONCRETE SEALER SHALL ALSO BE APPLIED TO THE OPEN RAIL ON THE TOP, TRAFFIC FACE SIDE, BOTTOM OF RAIL, AND ON ALL SIDES OF THE OPEN RAIL POSTS.

THE CONCRETE SEALER LIMITS ARE SHOWN IN THE DETAIL AND SHALL APPLY TO THE FULL LENGTH OF BRIDGE. CONCRETE SEALER SHALL BE APPLIED IN ACCORDANCE WITH ARTICLE 2403.03, P, 3 OF THE STANDARD SPECIFICATIONS.



PLACEMENT FOR LONGITUDINAL REINFORCEMENT



FORM CAMBER DIAGRAM

THIS DIAGRAM SHOWS THE FORM CAMBER REQUIRED TO COMPENSATE FOR THE ANTICIPATED ULTIMATE DEAD LOAD DEFLECTION. THE ABOVE DIMENSIONS DO NOT INCLUDE ANY ALLOWANCE FOR FORM DEFLECTION OR FALSEWORK SETTLEMENT.

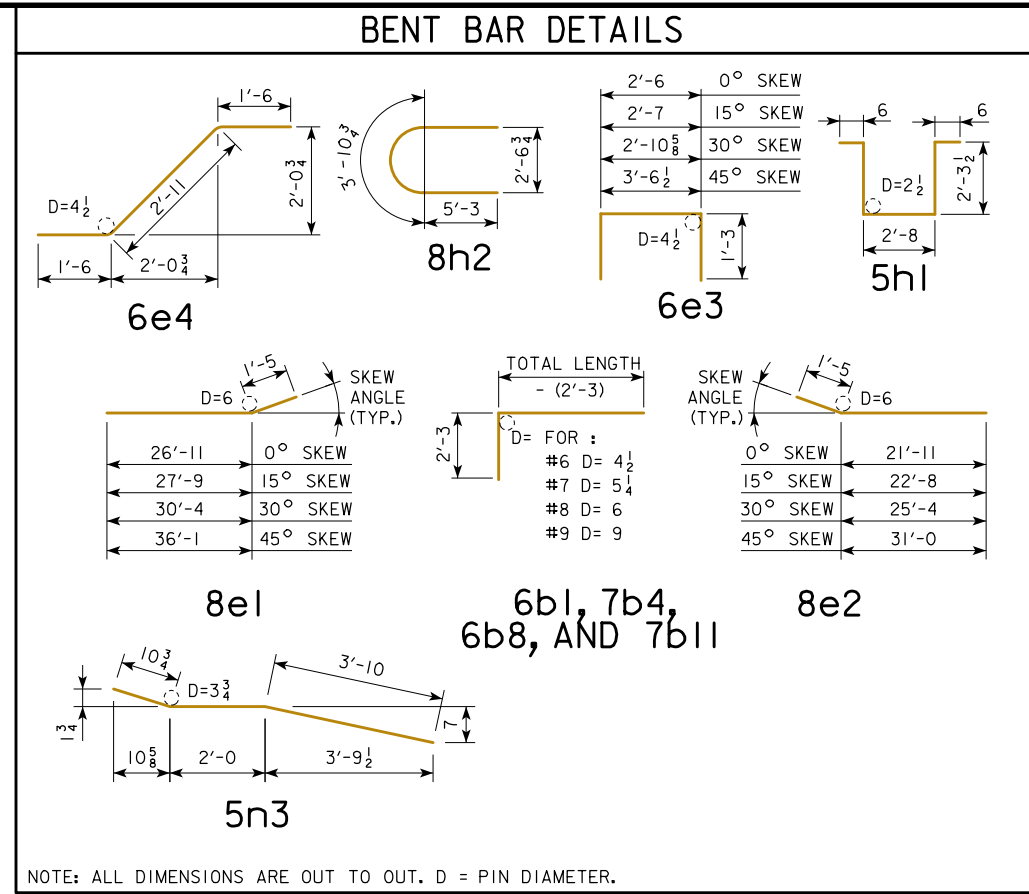
08-2020 LATEST REVISION DATE APPROVED BY BRIDGE ENGINEER	 STANDARD DESIGN - 44' ROADWAY, 3 SPAN BRIDGES CONTINUOUS CONCRETE SLAB BRIDGES JULY, 2014	
	SUPERSTRUCTURE DETAILS 140'-0 BRIDGE	J44-16-14

REVISED 09-2014: CHANGED REFERENCE TO THE BARRIER RAIL & OPEN RAIL TO THE J44-14 STANDARDS INSTEAD OF J44-06 STANDARDS.
 REVISED 03-2016: REVISION FOR ADDITION OF PAVING NOTCH BAR 8u1.
 REVISED 04-2016: REVISION TO INCLUDE PAVING NOTCH BAR 8u1 WEIGHT IN ESTIMATED QUANTITIES TABLE.
 REVISED 08-2020: UPDATED BRIDGE ENGINEER SIGNATURE.

BILL OF REINFORCING STEEL FOR SUPERSTRUCTURE - 140' BRIDGE															
LOCATION	SKEW	SHAPE	BAR	NO.	0°		15°		30°		45°		NO.	LENGTH	WEIGHT
					LENGTH	WEIGHT	NO.	LENGTH	WEIGHT	NO.	LENGTH	WEIGHT			
SLAB LONGITUDINAL BOTTOM			9a1	58	30'-6	6015	58	30'-6	6015	58	30'-6	6015	58	30'-6	6015
SLAB LONGITUDINAL BOTTOM			10a2	58	48'-6	12,105	58	48'-6	12,105	58	48'-6	12,105	58	48'-6	12,105
SLAB LONGITUDINAL BOTTOM			9a3	58	43'-9	8628	58	43'-9	8628	58	43'-9	8628	58	43'-9	8628
SLAB LONGITUDINAL BOTTOM			10a4	58	35'-3	8798	58	35'-3	8798	58	35'-3	8798	58	35'-3	8798
SLAB LONGITUDINAL BOTTOM			9a5	29	43'-0	4240	29	43'-0	4240	29	43'-0	4240	29	43'-0	4240
SLAB LONGITUDINAL BOTTOM, AT RAIL			9a6	8	41'-7	1132	8	41'-7	1132	8	41'-7	1132	8	41'-7	1132
SLAB LONGITUDINAL BOTTOM, AT RAIL			9a7	8	13'-0	354	8	13'-0	354	8	13'-0	354	8	13'-0	354
SLAB LONGITUDINAL BOTTOM, AT RAIL			9a8	4	52'-8	717	4	52'-8	717	4	52'-8	717	4	52'-8	717
SLAB LONGITUDINAL BOTTOM, AT RAIL			9a9	8	34'-3	932	8	34'-3	932	8	34'-3	932	8	34'-3	932
SLAB LONGITUDINAL BOTTOM, AT RAIL			10a10	4	33'-0	568	4	33'-0	568	4	33'-0	568	4	33'-0	568
SLAB LONGITUDINAL TOP			6b1	58	7'-9	676	58	7'-9	676	58	7'-9	676	58	7'-9	676
SLAB LONGITUDINAL TOP			11b2	58	26'-0	8013	58	26'-0	8013	58	26'-0	8013	58	26'-0	8013
SLAB LONGITUDINAL TOP			11b3	58	31'-9	9784	58	31'-9	9784	58	31'-9	9784	58	31'-9	9784
SLAB LONGITUDINAL TOP			7b4	58	25'-6	3024	58	25'-6	3024	58	25'-6	3024	58	25'-6	3024
SLAB LONGITUDINAL TOP			11b5	58	29'-0	8937	58	29'-0	8937	58	29'-0	8937	58	29'-0	8937
SLAB LONGITUDINAL TOP			6b6	29	34'-4	1496	29	34'-4	1496	29	34'-4	1496	29	34'-4	1496
SLAB LONGITUDINAL TOP, AT RAIL			6b8	8	32'-9	394	8	32'-9	394	8	32'-9	394	8	32'-9	394
SLAB LONGITUDINAL TOP, AT RAIL			11b9	8	34'-0	1446	8	34'-0	1446	8	34'-0	1446	8	34'-0	1446
SLAB LONGITUDINAL TOP, AT RAIL			6b10	4	25'-6	154	4	25'-6	154	4	25'-6	154	4	25'-6	154
SLAB LONGITUDINAL TOP, AT RAIL			7b11	8	38'-3	626	8	38'-3	626	8	38'-3	626	8	38'-3	626
SLAB LONGITUDINAL TOP, AT RAIL			11b12	8	24'-3	1031	8	24'-3	1031	8	24'-3	1031	8	24'-3	1031
SLAB TRANSVERSE BOTTOM			6c1	137	25'-5	5231	137	26'-4	5419	126	25'-5	4811	116	25'-5	4429
SLAB TRANSVERSE BOTTOM			6c2	137	23'-3	4785	137	24'-1	4956	128	23'-3	4470	119	23'-3	4156
SLAB TRANSVERSE ENDS, BOTTOM			6c3	-	-	-	-	-	-	14	VARIES	303	22	VARIES	485
SLAB TRANSVERSE ENDS, BOTTOM			6c4	-	-	-	-	-	-	12	VARIES	255	22	VARIES	458
SLAB TRANSVERSE ENDS, BOTTOM			6c5	-	-	-	-	-	-	12	VARIES	208	20	VARIES	366
SLAB TRANSVERSE ENDS, BOTTOM			6c6	-	-	-	-	-	-	12	VARIES	227	19	VARIES	376
SLAB TRANSVERSE TOP			5d1	137	25'-9	3680	137	26'-8	3811	126	25'-9	3385	116	25'-9	3116
SLAB TRANSVERSE TOP			5d2	137	23'-3	3323	137	24'-1	3442	128	23'-3	3104	119	23'-3	2886
SLAB TRANSVERSE ENDS, TOP			5d3	-	-	-	-	-	-	14	VARIES	210	22	VARIES	337
SLAB TRANSVERSE ENDS, TOP			5d4	-	-	-	-	-	-	12	VARIES	177	22	VARIES	318
SLAB TRANSVERSE ENDS, TOP			5d5	-	-	-	-	-	-	12	VARIES	144	20	VARIES	254
SLAB TRANSVERSE ENDS, TOP			5d6	-	-	-	-	-	-	12	VARIES	158	19	VARIES	261
SLAB, TRANSVERSE AT ABUTMENT			8e1	18	28'-4	1362	18	29'-2	1402	18	31'-9	1526	18	37'-6	1803
SLAB, TRANSVERSE AT ABUTMENT			8e2	18	23'-4	1122	18	24'-1	1158	18	26'-9	1286	18	32'-5	1558
SLAB, HAIRPINS, AT ABUTMENT			6e3	100	5'-0	751	100	5'-1	764	100	5'-5	814	100	6'-1	914
SLAB, DIAGONALS, AT ABUTMENT			6e4	100	5'-11	889	100	5'-11	889	100	5'-11	889	100	5'-11	889
PIER CAP HOOPS			5h1	64	8'-3	551	64	8'-3	551	96	8'-3	827	96	8'-3	827
PIER CAP ENDS			8h2	4	14'-5	154	4	14'-5	154	4	14'-5	154	4	14'-5	154
PIER CAP, BOTTOM LONGITUDINAL			8h3	8	27'-5	586	8	28'-8	613	8	31'-8	677	8	37'-10	809
PIER CAP, BOTTOM LONGITUDINAL			8h4	8	21'-11	469	8	22'-4	478	8	24'-6	524	8	29'-8	634
PIER CAP, TOP LONGITUDINAL			8h5	4	28'-2	301	4	29'-6	316	4	32'-8	349	4	38'-11	416
PIER CAP, TOP LONGITUDINAL			8h6	4	23'-5	251	4	23'-11	256	4	26'-3	281	4	31'-6	337
TOP OF SLAB, TRANSVERSE, AT RAIL			5j1	272	8'-6	2412	272	8'-6	2412	266	8'-6	2359	264	8'-6	2341
WING, VERTICAL			5m1	40	4'-5	185	40	4'-5	185	40	4'-5	185	40	4'-5	185
WING, HORIZONTAL BACK FACE			5n1	24	6'-8	167	24	6'-8	167	24	6'-8	167	24	6'-8	167
WING, HORIZONTAL TRAFFIC FACE			5n3	24	6'-9	169	24	6'-9	169	24	6'-9	169	24	6'-9	169
SUB EPOXY COATED TOTAL - LBS.						105,458		106,212		106,729		107,715			
BARRIER RAIL - SEE LIST ON RAIL SHEET J44-46-14						5483		5483		5483		5483			
OPEN RAIL - SEE LIST ON RAIL SHEET J44-49-14						5953		5953		5953		5953			
EPOXY COATED RAIL TOTAL - LBS.															
WITH MONOLITHIC PIER CAP						110,941		111,695		112,212		113,198			
WITH BARRIER RAIL															
WITH OPEN RAIL						111,411		112,165		112,682		113,668			
EPOXY COATED RAIL TOTAL - LBS.						108,629		109,327		109,400		110,021			
WITH MONOLITHIC PIER CAP															
WITH BARRIER RAIL															
WITH OPEN RAIL						109,099		109,797		109,870		110,491			
SAME AS ABOVE EXCEPT ALL "h" BARS DELETED															
STAINLESS STEEL RAIL TOTAL - LBS.						3119		3119		3119		3119			
WITH BARRIER RAIL															
WITH OPEN RAIL						3104		3104		3104		3104			

ESTIMATED QUANTITIES FOR SUPERSTRUCTURE - 140' BRIDGE									
ITEM	SKEW	WITH MONOLITHIC PIER CAP				WITH NON-MONOLITHIC PIER CAP			
		0°	15°	30°	45°	0°	15°	30°	45°
WITH BARRIER RAIL	* STRUCTURAL CONCRETE (BRIDGE) C.Y.	490.8	491.9	495.3	502.8	484.5	485.3	488.0	493.9
	REINF. STEEL EPOXY COATED LBS.	110,941	111,695	112,212	113,198	108,629	109,327	109,400	110,021
	Δ REINF. STEEL STAINLESS STEEL LBS.	3364	3364	3364	3364	3364	3364	3364	3364
CONCRETE BARRIER OR OPEN RAIL	LIN. FT.	302.0	302.2	302.9	304.5	302.0	302.2	302.9	304.5
WITH OPEN RAIL	* STRUCTURAL CONCRETE (BRIDGE) C.Y.	490.6	491.6	495.0	502.5	484.2	485.0	487.7	493.6
	REINF. STEEL EPOXY COATED LBS.	111,411	112,165	112,682	113,668	109,099	109,797	109,870	110,491
	Δ REINF. STEEL STAINLESS STEEL LBS.	3349	3349	3349	3349	3349	3349	3349	3349

* INCLUDES 4 WINGS @ 0.68 C.Y. EACH; EXCLUDES RAIL CONCRETE.
 Δ INCLUDES ABUTMENT PAVING NOTCH BAR WEIGHT.



STAINLESS STEEL REINFORCING FOR SUPERSTRUCTURE - BRIDGE

ALL SKEWS					
LOCATION	SHAPE	BAR	NO.	LENGTH	WEIGHT
ABUTMENT PAVING NOTCH BAR		8u1	44	2'-1	245

8U1 BARS SHALL BE PAID FOR UNDER THE BID ITEM "REINFORCING STEEL, STAINLESS STEEL". WEIGHT = LBS.

NOTES:
 ALL BARRIER RAIL REINFORCING STEEL IS TO BE EITHER EPOXY COATED OR STAINLESS STEEL AS SHOWN OR NOTED. THE STAINLESS STEEL REINFORCING STEEL SHALL BE DEFORMED BAR GRADE 60 MEETING THE REQUIREMENTS OF MATERIALS I.M.452.

ALL OTHER REINFORCING STEEL IS TO BE EPOXY COATED.

THE TRANSVERSE REBARS ARE DETAILED WITH A SPLICE LAP. AT THE CONTRACTOR'S OPTION, THIS LAP MAY BE ELIMINATED BY FURNISHING FULL LENGTH BARS WITH NO REDUCTION IN PAY WEIGHT FOR SAME.

08-2020
 LATEST REVISION DATE

STANDARD DESIGN - 44' ROADWAY, 3 SPAN BRIDGES

CONTINUOUS CONCRETE SLAB BRIDGES

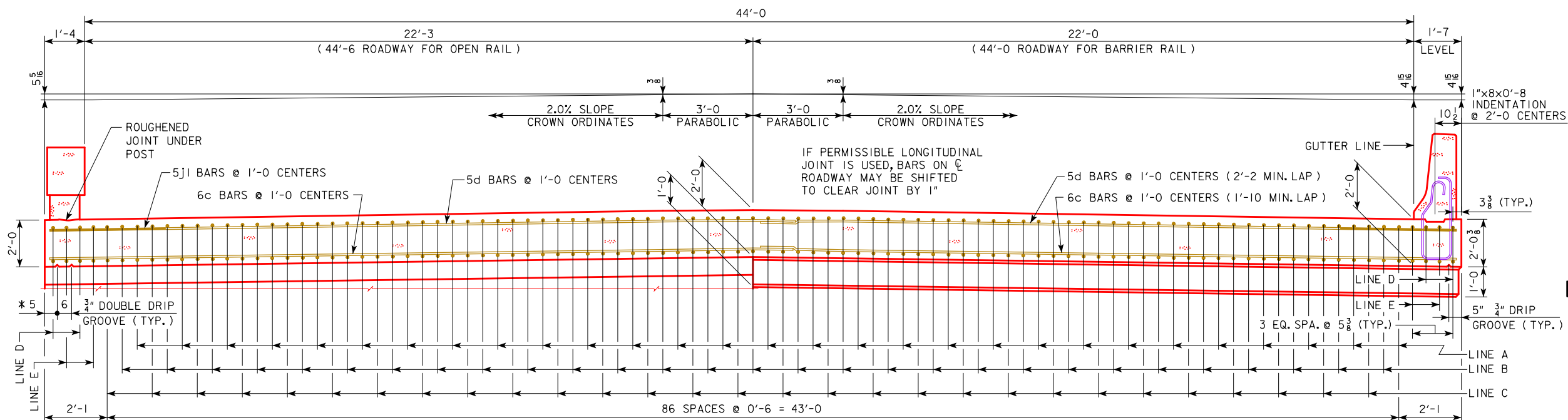
JULY, 2014

APPROVED BY BRIDGE ENGINEER

SUPERSTRUCTURE DETAILS
 140'-0 BRIDGE

J44-17-14

REVISED 08-2020: UPDATED BRIDGE ENGINEER SIGNATURE. ADDED 3/8" (TYP.) & 5/8" (TYP.) HORIZONTAL DIMENSIONS TO LONGITUDINAL SLAB REINFORCING LINE D & E IN "HALF SECTION NEAR PIER".



HALF SECTION NEAR ABUTMENT

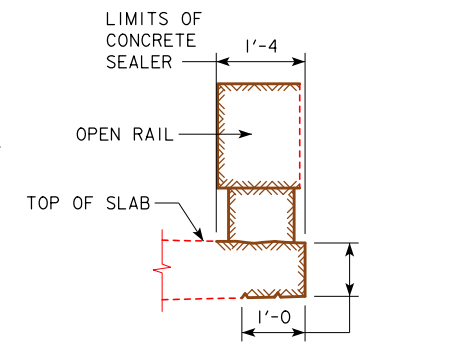
HALF SECTION NEAR PIER

SLAB CROSS-SECTIONAL AREA FOR OPEN RAIL = 94.33 SQ. FT.

NOTE: TOP LONGITUDINAL REINFORCING STEEL IS TO BE PARALLEL TO AND 2 1/2" CLEAR BELOW TOP OF SLAB. BOTTOM LONGITUDINAL REINFORCING STEEL IS TO BE PARALLEL TO AND 1 1/2" CLEAR ABOVE BOTTOM OF SLAB. REINFORCING STEEL IS TO BE SECURELY WIRED IN PLACE AND ADEQUATELY SUPPORTED ON BAR CHAIRS BEFORE CONCRETE IS POURED. I.M. 451.01 REQUIREMENTS SHALL APPLY FOR BAR CHAIRS.

SLAB CROSS-SECTIONAL AREA FOR BARRIER RAIL = 94.38 SQ. FT.

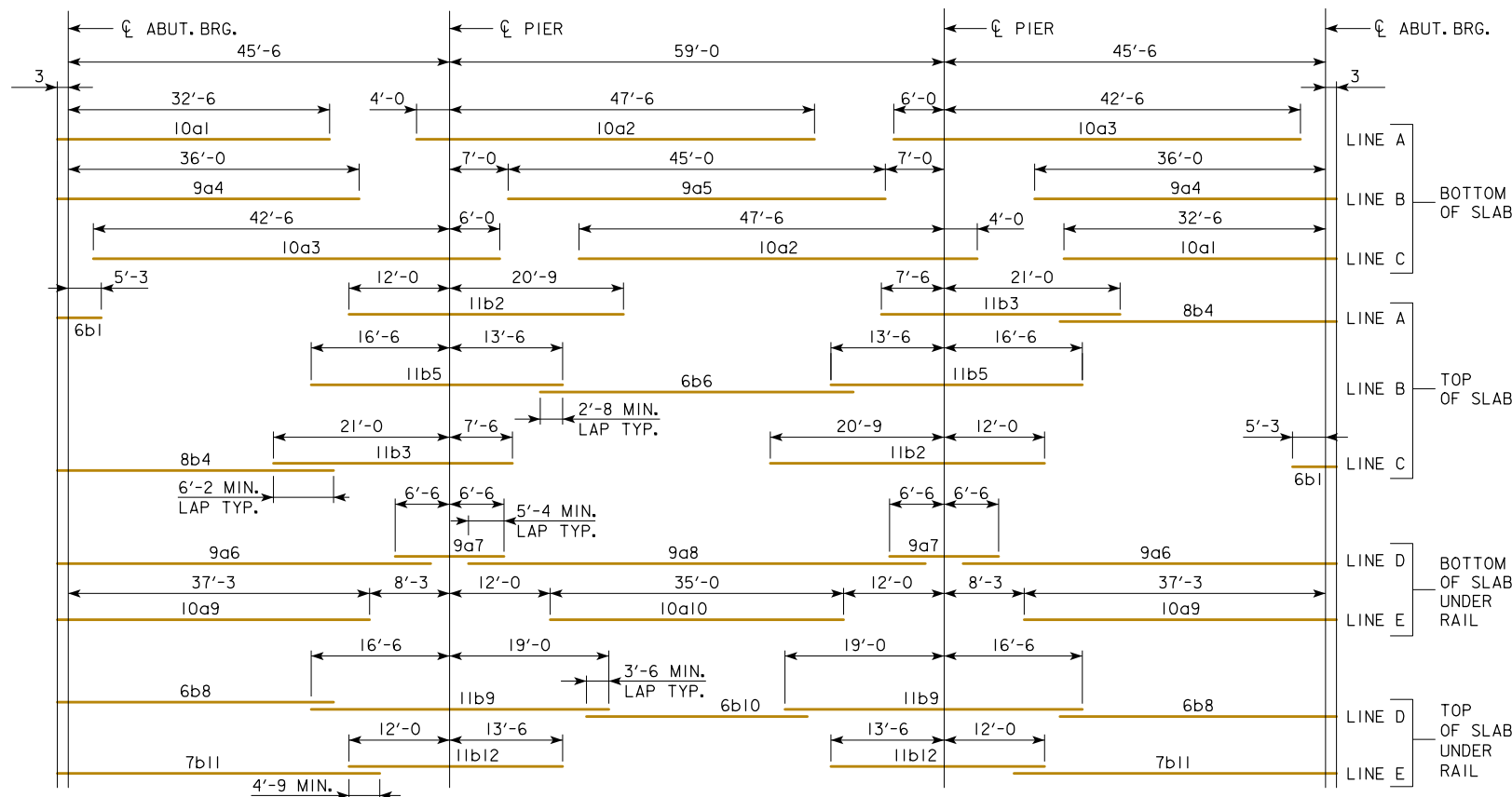
* NOTE: DOUBLE DRIP GROOVES FOR OPEN RAIL OPTION ONLY.



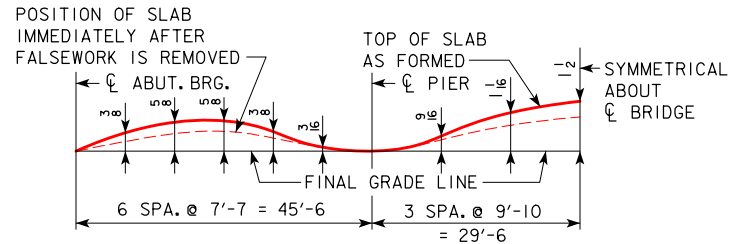
CONCRETE SEALER LIMITS FOR OPEN RAILS

CONCRETE SEALER SHALL BE APPLIED TO BOTH SIDES OF BRIDGE SLAB ON THE TOP, EDGE OF SLAB AND UNDER THE SLAB. THE CONCRETE SEALER SHALL ALSO BE APPLIED TO THE OPEN RAIL ON THE TOP, TRAFFIC FACE SIDE, BOTTOM OF RAIL, AND ON ALL SIDES OF THE OPEN RAIL POSTS.

THE CONCRETE SEALER LIMITS ARE SHOWN IN THE DETAIL AND SHALL APPLY TO THE FULL LENGTH OF BRIDGE. CONCRETE SEALER SHALL BE APPLIED IN ACCORDANCE WITH ARTICLE 2403.03, P, 3 OF THE STANDARD SPECIFICATIONS.



PLACEMENT FOR LONGITUDINAL REINFORCEMENT



FORM CAMBER DIAGRAM

THIS DIAGRAM SHOWS THE FORM CAMBER REQUIRED TO COMPENSATE FOR THE ANTICIPATED ULTIMATE DEAD LOAD DEFLECTION. THE ABOVE DIMENSIONS DO NOT INCLUDE ANY ALLOWANCE FOR FORM DEFLECTION OR FALSEWORK SETTLEMENT.

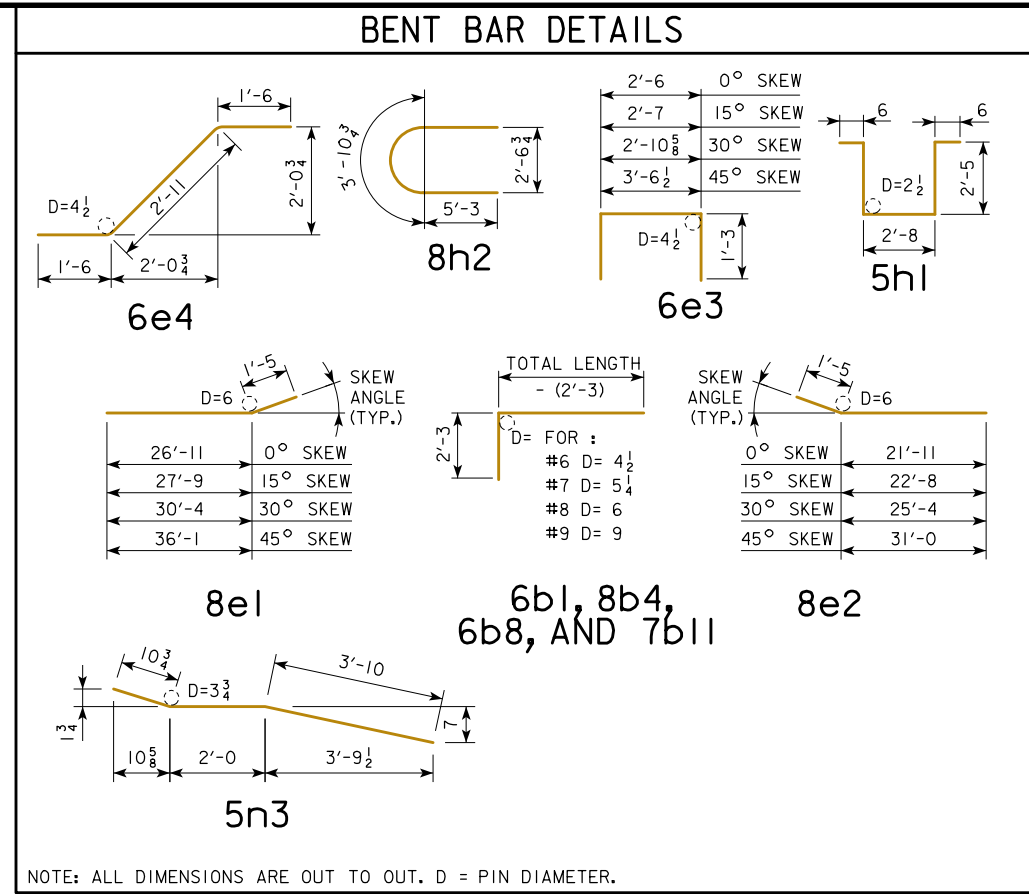
08-2020 LATEST REVISION DATE APPROVED BY BRIDGE ENGINEER	 STANDARD DESIGN - 44' ROADWAY, 3 SPAN BRIDGES CONTINUOUS CONCRETE SLAB BRIDGES JULY, 2014	J44-18-14
	SUPERSTRUCTURE DETAILS 150'-0 BRIDGE	
	SUPERSTRUCTURE DETAILS 150'-0 BRIDGE	

REVISED 09-2014; CHANGED REFERENCE TO THE BARRIER RAIL & OPEN RAIL TO THE J44-14 STANDARDS INSTEAD OF J44-06 STANDARDS.
 REVISED 03-2016; REVISION FOR ADDITION OF PAVING NOTCH BAR 8u1.
 REVISED 04-2016; REVISION TO INCLUDE PAVING NOTCH BAR 8u1 WEIGHT IN ESTIMATED QUANTITIES TABLE.
 REVISED 08-2020; UPDATED BRIDGE ENGINEER SIGNATURE.

BILL OF REINFORCING STEEL FOR SUPERSTRUCTURE - 150' BRIDGE															
LOCATION	SKEW	SHAPE	BAR	NO.	0°		15°		30°		45°				
					LENGTH	WEIGHT	NO.	LENGTH	WEIGHT	NO.	LENGTH	WEIGHT	NO.	LENGTH	WEIGHT
SLAB LONGITUDINAL BOTTOM			10a1	58	32'-9	8174	58	32'-9	8174	58	32'-9	8174	58	32'-9	8174
SLAB LONGITUDINAL BOTTOM			10a2	58	51'-6	12,854	58	51'-6	12,854	58	51'-6	12,854	58	51'-6	12,854
SLAB LONGITUDINAL BOTTOM			10a3	58	48'-6	12,105	58	48'-6	12,105	58	48'-6	12,105	58	48'-6	12,105
SLAB LONGITUDINAL BOTTOM			9a4	58	36'-3	7149	58	36'-3	7149	58	36'-3	7149	58	36'-3	7149
SLAB LONGITUDINAL BOTTOM			9a5	29	45'-0	4437	29	45'-0	4437	29	45'-0	4437	29	45'-0	4437
SLAB LONGITUDINAL BOTTOM, AT RAIL			9a6	8	44'-7	1213	8	44'-7	1213	8	44'-7	1213	8	44'-7	1213
SLAB LONGITUDINAL BOTTOM, AT RAIL			9a7	8	13'-0	354	8	13'-0	354	8	13'-0	354	8	13'-0	354
SLAB LONGITUDINAL BOTTOM, AT RAIL			9a8	4	56'-8	771	4	56'-8	771	4	56'-8	771	4	56'-8	771
SLAB LONGITUDINAL BOTTOM, AT RAIL			10a9	8	37'-6	1291	8	37'-6	1291	8	37'-6	1291	8	37'-6	1291
SLAB LONGITUDINAL BOTTOM, AT RAIL			10a10	4	35'-0	603	4	35'-0	603	4	35'-0	603	4	35'-0	603
SLAB LONGITUDINAL TOP			6b1	58	7'-9	676	58	7'-9	676	58	7'-9	676	58	7'-9	676
SLAB LONGITUDINAL TOP			11b2	58	32'-9	10,093	58	32'-9	10,093	58	32'-9	10,093	58	32'-9	10,093
SLAB LONGITUDINAL TOP			11b3	58	28'-6	8783	58	28'-6	8783	58	28'-6	8783	58	28'-6	8783
SLAB LONGITUDINAL TOP			8b4	58	33'-2	5137	58	33'-2	5137	58	33'-2	5137	58	33'-2	5137
SLAB LONGITUDINAL TOP			11b5	58	30'-0	9245	58	30'-0	9245	58	30'-0	9245	58	30'-0	9245
SLAB LONGITUDINAL TOP			6b6	29	37'-4	1627	29	37'-4	1627	29	37'-4	1627	29	37'-4	1627
SLAB LONGITUDINAL TOP, AT RAIL			6b8	8	35'-0	421	8	35'-0	421	8	35'-0	421	8	35'-0	421
SLAB LONGITUDINAL TOP, AT RAIL			11b9	8	35'-6	1509	8	35'-6	1509	8	35'-6	1509	8	35'-6	1509
SLAB LONGITUDINAL TOP, AT RAIL			6b10	4	28'-0	169	4	28'-0	169	4	28'-0	169	4	28'-0	169
SLAB LONGITUDINAL TOP, AT RAIL			7b11	8	40'-9	667	8	40'-9	667	8	40'-9	667	8	40'-9	667
SLAB LONGITUDINAL TOP, AT RAIL			11b12	8	25'-6	1084	8	25'-6	1084	8	25'-6	1084	8	25'-6	1084
SLAB TRANSVERSE BOTTOM			6c1	147	25'-5	5612	147	26'-4	5815	136	25'-5	5192	126	25'-5	4811
SLAB TRANSVERSE BOTTOM			6c2	147	23'-3	5134	147	24'-1	5318	138	23'-3	4820	129	23'-3	4505
SLAB TRANSVERSE ENDS, BOTTOM			6c3	-	-	-	-	-	-	14	VARIES	303	22	VARIES	485
SLAB TRANSVERSE ENDS, BOTTOM			6c4	-	-	-	-	-	-	12	VARIES	255	22	VARIES	458
SLAB TRANSVERSE ENDS, BOTTOM			6c5	-	-	-	-	-	-	12	VARIES	208	20	VARIES	366
SLAB TRANSVERSE ENDS, BOTTOM			6c6	-	-	-	-	-	-	12	VARIES	227	19	VARIES	376
SLAB TRANSVERSE TOP			5d1	147	25'-9	3949	147	26'-8	4089	136	25'-9	3653	126	25'-9	3385
SLAB TRANSVERSE TOP			5d2	147	23'-3	3565	147	24'-1	3693	138	23'-3	3347	129	23'-3	3129
SLAB TRANSVERSE ENDS, TOP			5d3	-	-	-	-	-	-	14	VARIES	210	22	VARIES	337
SLAB TRANSVERSE ENDS, TOP			5d4	-	-	-	-	-	-	12	VARIES	177	22	VARIES	318
SLAB TRANSVERSE ENDS, TOP			5d5	-	-	-	-	-	-	12	VARIES	144	20	VARIES	254
SLAB TRANSVERSE ENDS, TOP			5d6	-	-	-	-	-	-	12	VARIES	158	19	VARIES	261
SLAB, TRANSVERSE AT ABUTMENT			8e1	18	28'-4	1362	18	29'-2	1402	18	31'-9	1526	18	37'-6	1803
SLAB, TRANSVERSE AT ABUTMENT			8e2	18	23'-4	1122	18	24'-1	1158	18	26'-9	1286	18	32'-5	1558
SLAB, HAIRPINS, AT ABUTMENT			6e3	100	5'-0	751	100	5'-1	764	100	5'-5	814	100	6'-1	914
SLAB, DIAGONALS, AT ABUTMENT			6e4	100	5'-11	889	100	5'-11	889	100	5'-11	889	100	5'-11	889
PIER CAP HOOPS			5h1	68	8'-6	603	68	8'-6	603	68	8'-6	603	102	8'-6	905
PIER CAP ENDS			8h2	4	14'-5	154	4	14'-5	154	4	14'-5	154	4	14'-5	154
PIER CAP, BOTTOM LONGITUDINAL			8h3	8	27'-5	586	8	28'-8	613	8	31'-8	677	8	37'-10	809
PIER CAP, BOTTOM LONGITUDINAL			8h4	8	21'-11	469	8	22'-4	478	8	24'-6	524	8	29'-8	634
PIER CAP, TOP LONGITUDINAL			8h5	4	28'-2	301	4	29'-6	316	4	32'-8	349	4	38'-11	416
PIER CAP, TOP LONGITUDINAL			8h6	4	23'-5	251	4	23'-11	256	4	26'-3	281	4	31'-6	337
TOP OF SLAB, TRANSVERSE, AT RAIL			5j1	292	8'-6	2589	292	8'-6	2589	286	8'-6	2536	284	8'-6	2518
WING, VERTICAL			5m1	40	4'-5	185	40	4'-5	185	40	4'-5	185	40	4'-5	185
WING, HORIZONTAL BACK FACE			5n1	24	6'-8	167	24	6'-8	167	24	6'-8	167	24	6'-8	167
WING, HORIZONTAL TRAFFIC FACE			5n3	24	6'-9	169	24	6'-9	169	24	6'-9	169	24	6'-9	169
SUB EPOXY COATED TOTAL - LBS.						116,220			117,020			117,216			118,505
BARRIER RAIL - SEE LIST ON RAIL SHEET J44-46-14						5795			5795			5795			5795
OPEN RAIL - SEE LIST ON RAIL SHEET J44-49-14						6338			6338			6338			6338
EPOXY COATED RAIL TOTAL - LBS.															
WITH MONOLITHIC PIER CAP															
WITH BARRIER RAIL						122,015			122,815			123,011			124,300
WITH OPEN RAIL						122,558			123,358			123,554			124,843
EPOXY COATED RAIL TOTAL - LBS.															
WITH NON-MONOLITHIC PIER CAP															
WITH BARRIER RAIL						119,651			120,395			120,423			121,045
SAME AS ABOVE EXCEPT ALL "h" BARS DELETED						120,194			120,938			120,966			121,588
STAINLESS STEEL RAIL TOTAL - LBS.															
WITH BARRIER RAIL						3366			3366			3366			3366
WITH OPEN RAIL						3267			3267			3267			3267

ESTIMATED QUANTITIES FOR SUPERSTRUCTURE - 150' BRIDGE										
ITEM	SKEW	WITH MONOLITHIC PIER CAP				WITH NON-MONOLITHIC PIER CAP				
		0°	15°	30°	45°	0°	15°	30°	45°	
* STRUCTURAL CONCRETE (BRIDGE) C.Y.		555.7	556.7	560.1	567.4	549.3	550.1	552.8	558.5	
WITH BARRIER RAIL REINF. STEEL EPOXY COATED LBS.		122,015	122,815	123,011	124,300	119,651	120,395	120,423	121,045	
Δ REINF. STEEL STAINLESS STEEL LBS.		3611	3611	3611	3611	3611	3611	3611	3611	
CONCRETE BARRIER OR OPEN RAIL LIN. FT.		322.0	322.2	322.9	324.5	322.0	322.2	322.9	324.5	
* STRUCTURAL CONCRETE (BRIDGE) C.Y.		555.4	556.4	559.8	567.1	549.0	549.8	552.5	558.2	
WITH OPEN RAIL REINF. STEEL EPOXY COATED LBS.		122,558	123,358	123,554	124,843	120,194	120,938	120,966	121,588	
Δ REINF. STEEL STAINLESS STEEL LBS.		3512	3512	3512	3512	3512	3512	3512	3512	

* INCLUDES 4 WINGS @ 0.68 C.Y. EACH; EXCLUDES RAIL CONCRETE.
 Δ INCLUDES ABUTMENT PAVING NOTCH BAR WEIGHT.



STAINLESS STEEL REINFORCING FOR SUPERSTRUCTURE - BRIDGE						
LOCATION	ALL SKEWS		BAR	NO.	LENGTH	WEIGHT
	SHAPE					
ABUTMENT PAVING NOTCH BAR			8u1	44	2'-1	245

8U1 BARS SHALL BE PAID FOR UNDER THE BID ITEM "REINFORCING STEEL, STAINLESS STEEL". WEIGHT = LBS.

NOTES:
 ALL BARRIER RAIL REINFORCING STEEL IS TO BE EITHER EPOXY COATED OR STAINLESS STEEL AS SHOWN OR NOTED. THE STAINLESS STEEL REINFORCING STEEL SHALL BE DEFORMED BAR GRADE 60 MEETING THE REQUIREMENTS OF MATERIALS I.M.452.

ALL OTHER REINFORCING STEEL IS TO BE EPOXY COATED.

THE TRANSVERSE REBARS ARE DETAILED WITH A SPLICE LAP. AT THE CONTRACTOR'S OPTION, THIS LAP MAY BE ELIMINATED BY FURNISHING FULL LENGTH BARS WITH NO REDUCTION IN PAY WEIGHT FOR SAME.

08-2020
 LATEST REVISION DATE

STANDARD DESIGN - 44' ROADWAY, 3 SPAN BRIDGES

CONTINUOUS CONCRETE SLAB BRIDGES

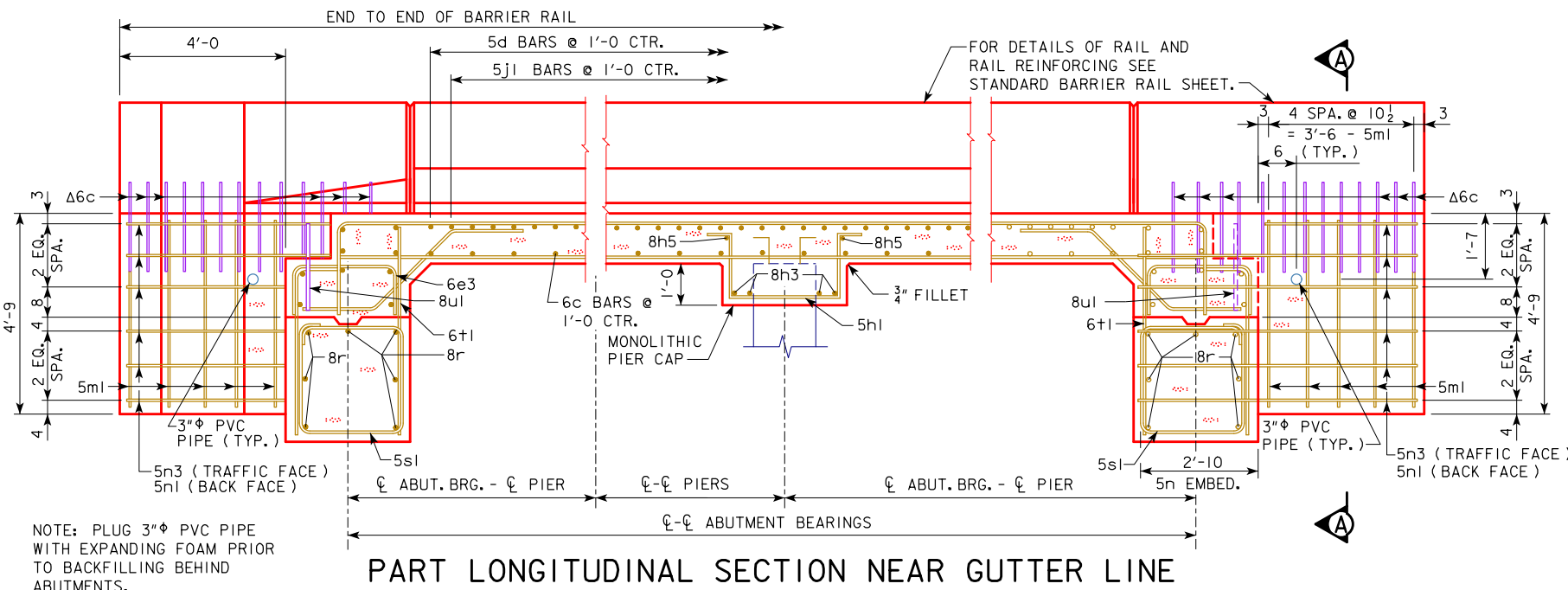
JULY, 2014

APPROVED BY BRIDGE ENGINEER

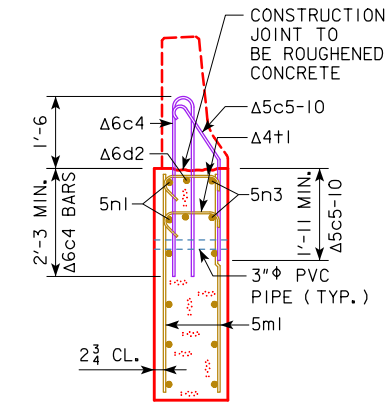
SUPERSTRUCTURE DETAILS
150'-0 BRIDGE

J44-19-14

REVISED 03-2016: REVISION FOR ADDITION OF PAVING NOTCH BAR 8ul.
 REVISED 09-2016: CORRECTED REFERENCE TO OPEN RAIL SHEET J44-48-14 (IT WAS J44-48-06 IN ERROR).
 REVISED 08-2020: UPDATED BRIDGE ENGINEER SIGNATURE. REVISED SUPERSTRUCTURE NOTES TO STATE: "SLAB FALSEWORK SHALL BE REMOVED PRIOR TO CONSTRUCTION OF THE BARRIER RAILS, UNLESS SLAB CONSTRUCTION IS STAGED."
 UNLESS SLAB CONSTRUCTION IS STAGED."



PART LONGITUDINAL SECTION NEAR GUTTER LINE

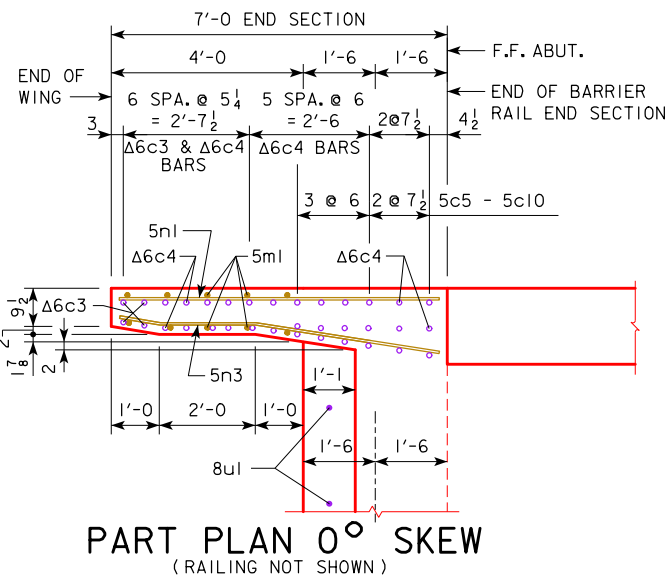


SECTION A-A

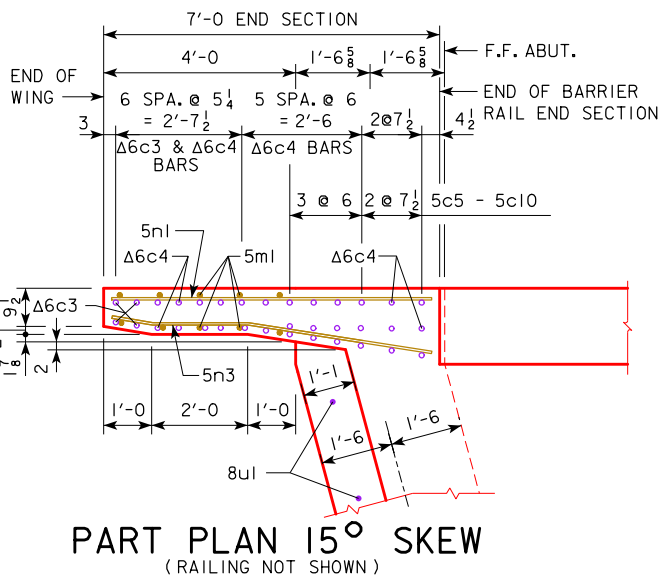
NOTE: SEE END SECTION DETAILS IN THESE PLANS FOR DETAILS OF BARRIER RAIL END SECTION. REINFORCING BARS 6c3, 6c4, 5c5-10, 6d2 & 4+1 ARE INCLUDED IN THE SUPERSTRUCTURE QUANTITIES.

NOTE: 5ml & 5n1 BARS ARE INCLUDED IN SUPERSTRUCTURE BAR LIST. 5c, 6c, 6d & 4+1 BARS ARE INCLUDED IN BARRIER RAIL BAR LIST.

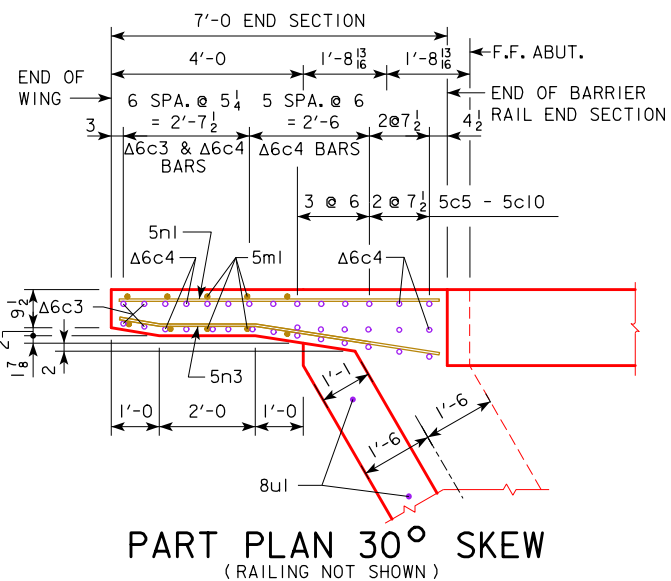
SUPERSTRUCTURE NOTES:
 THIS BRIDGE IS DESIGNED FOR HL-93 LOADING PLUS AN ALLOWANCE OF 20 POUNDS PER SQUARE FOOT OF ROADWAY FOR FUTURE WEARING SURFACE.
 THE SLAB AS SHOWN INCLUDES A 1/2 INCH INTEGRAL WEARING SURFACE.
 THE MINIMUM CLEAR DISTANCE FROM FACE OF CONCRETE TO NEAR REINFORCING BAR SHALL BE 2 INCHES UNLESS OTHERWISE NOTED OR SHOWN. ALL REINFORCING STEEL IS TO BE SECURELY WIRED IN PLACE. SEE "BAR CHAIR NOTE".
 ALL REINFORCING SHALL BE GRADE 60.
 THE CONCRETE SLAB IS TO BE PLACED WITH A MINIMUM OF CONSTRUCTION JOINTS. PROCEDURES FOR PLACING SLAB CONCRETE SHALL BE SUBMITTED FOR APPROVAL TOGETHER WITH A STATEMENT OF THE PROPOSED METHOD AND EVIDENCE THAT THE CONTRACTOR POSSESSES THE NECESSARY EQUIPMENT AND FACILITIES TO ACCOMPLISH THE REQUIRED RESULT. SLAB FALSEWORK SHALL BE REMOVED PRIOR TO CONSTRUCTION OF THE BARRIER RAILS, UNLESS SLAB CONSTRUCTION IS STAGED.
 NOTE THAT WHEN PORTLAND CEMENT APPROACH PAVEMENT IS PLACED, COMPRESSIBLE JOINT MATERIAL MUST BE USED BETWEEN PAVEMENT AND END OF BRIDGE.
 IF NECESSARY TO PREVENT DAMAGE TO THE END OF THE BRIDGE DECK OR BACKWALL FROM CONSTRUCTION EQUIPMENT, AN APPROPRIATE METHOD OF PROTECTION APPROVED BY THE ENGINEER SHALL BE PROVIDED BY THE BRIDGE CONTRACTOR AT NO EXTRA COST TO THE STATE.
 COST OF FURNISHING AND PLACING 3" DIA. PVC PIPE IN EACH WING IS INCLUDED IN THE PRICE BID FOR STRUCTURAL CONCRETE.



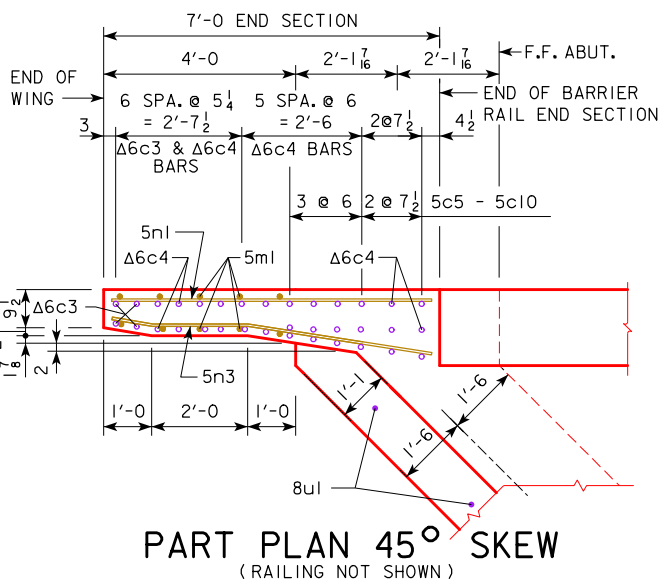
PART PLAN 0° SKEW
(RAILING NOT SHOWN)



PART PLAN 15° SKEW
(RAILING NOT SHOWN)

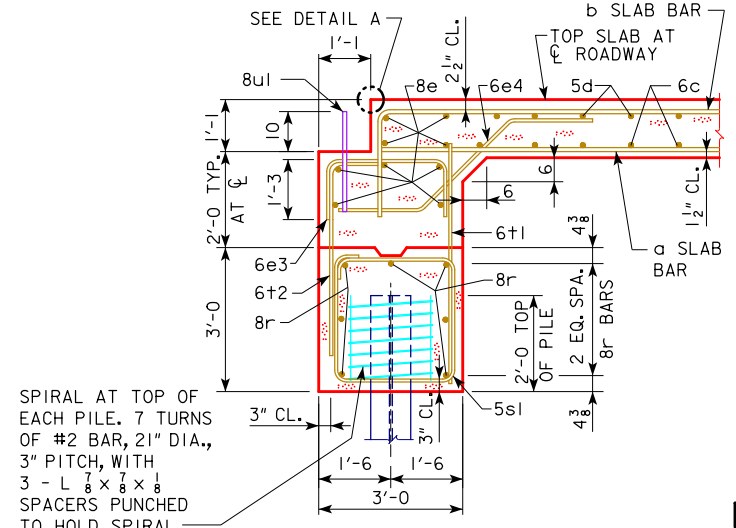


PART PLAN 30° SKEW
(RAILING NOT SHOWN)

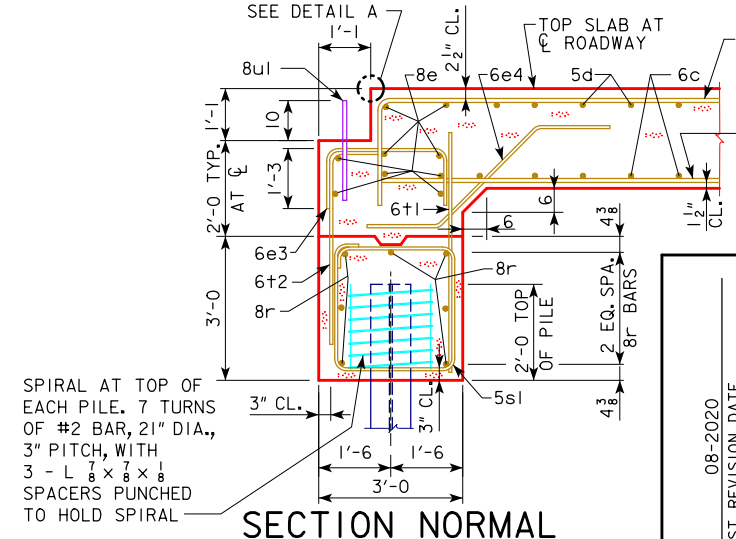


PART PLAN 45° SKEW
(RAILING NOT SHOWN)

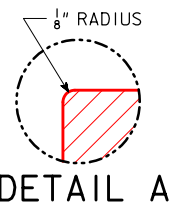
NOTE: REINFORCING LAYOUT IN PART PLANS 0°, 15°, 30° & 45° SKEWS ARE FOR BARRIER RAIL ONLY. SEE SHEET J44-48-14 FOR OPEN RAIL.



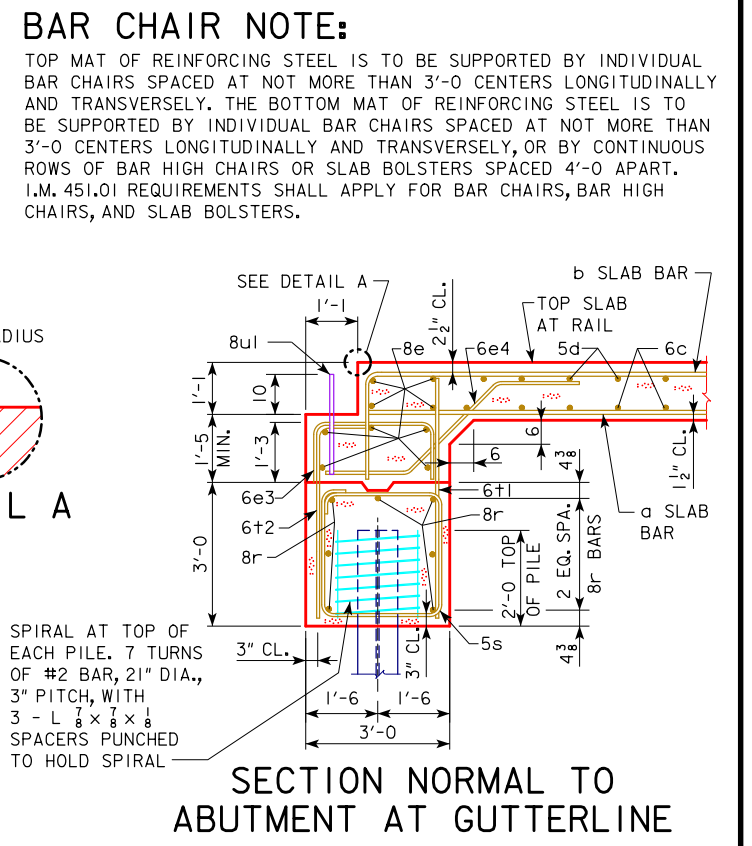
SECTION NORMAL TO ABUTMENT AT CL
(BRIDGE LENGTHS 70'-110')



SECTION NORMAL TO ABUTMENT AT CL
(BRIDGE LENGTHS 120'-150')



DETAIL A



SECTION NORMAL TO ABUTMENT AT GUTTERLINE

IOWADOT Highway Division

STANDARD DESIGN - 44' ROADWAY, 3 SPAN BRIDGES

CONTINUOUS CONCRETE SLAB BRIDGES

JULY, 2014

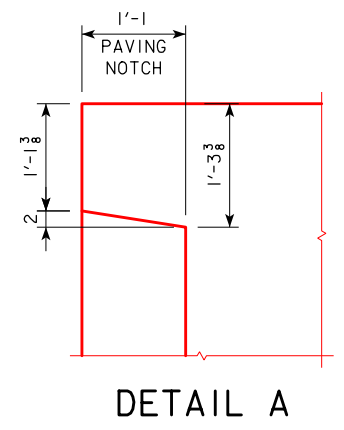
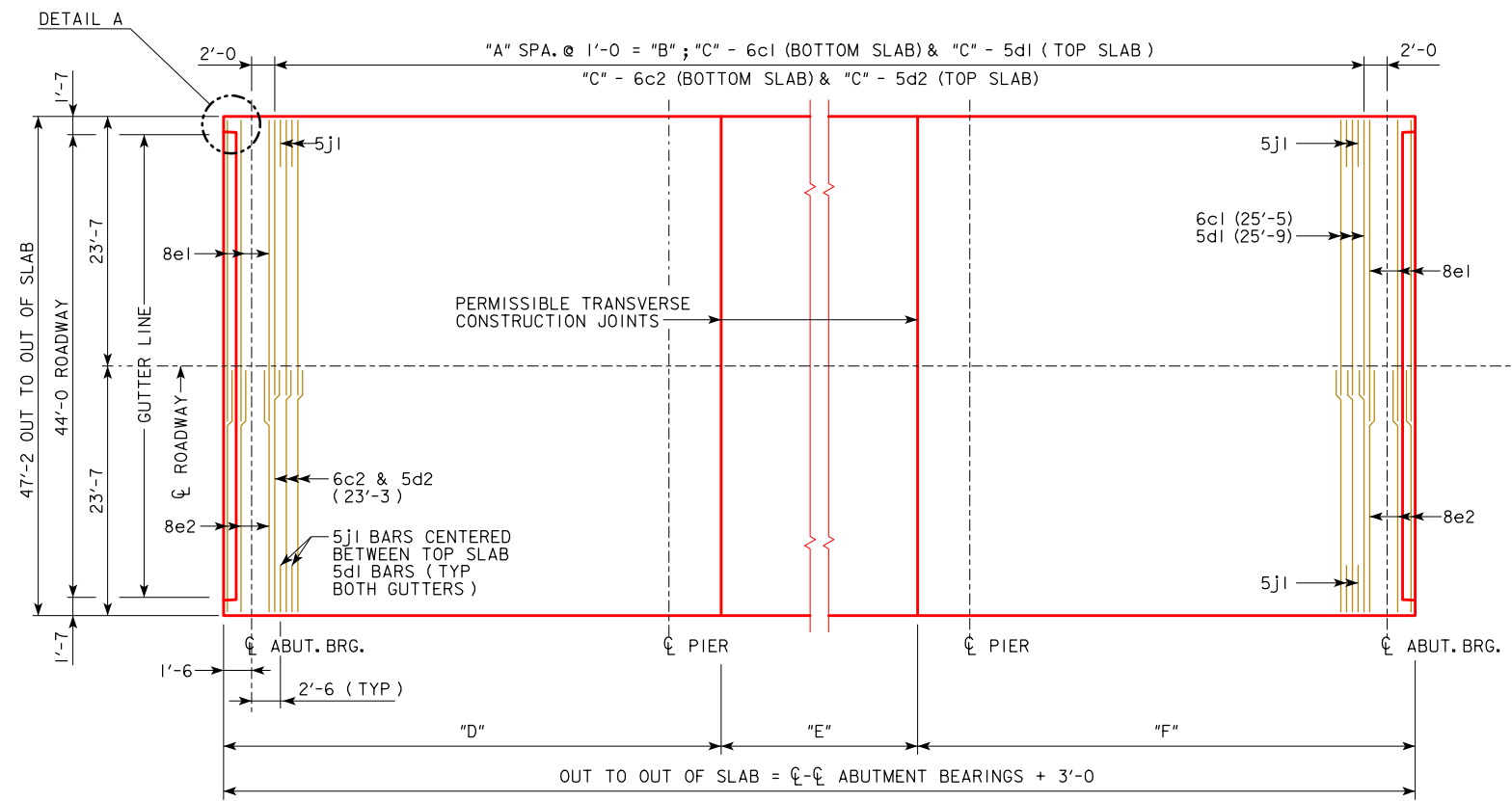
SUPERSTRUCTURE DETAILS ALL BRIDGES

J44-20-14

08-2020
LATEST REVISION DATE

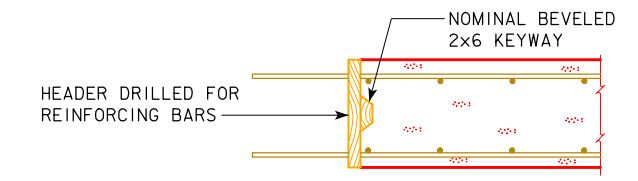
APPROVED BY BRIDGE ENGINEER

REVISED 08-2020: UPDATED BRIDGE ENGINEER SIGNATURE. CORRECTED BAR LENGTH ON 6c2 & 5d2 BAR (WAS 21'-3").

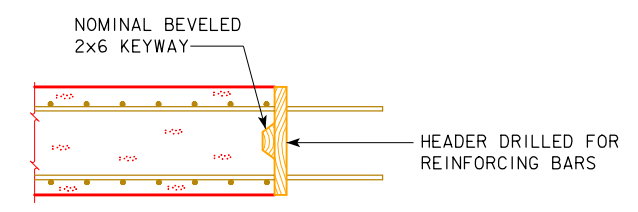


0° TRANSV. REINF. DIMENSION TABLE						
BRIDGE	"A"	"B"	"C"	"D"	"E"	"F"
70' BRIDGE	66	66'-0	67	28'-0	17'-0	28'-0
80' BRIDGE	76	76'-0	77	32'-0	19'-0	32'-0
90' BRIDGE	86	86'-0	87	36'-0	21'-0	36'-0
100' BRIDGE	96	96'-0	97	40'-0	23'-0	40'-0
110' BRIDGE	106	106'-0	107	44'-0	25'-0	44'-0
120' BRIDGE	116	116'-0	117	48'-0	27'-0	48'-0
130' BRIDGE	126	126'-0	127	52'-0	29'-0	52'-0
140' BRIDGE	136	136'-0	137	56'-0	31'-0	56'-0
150' BRIDGE	146	146'-0	147	60'-0	33'-0	60'-0

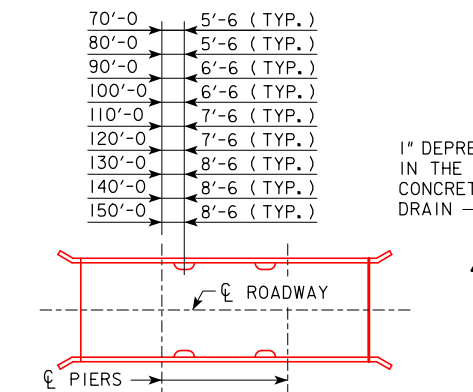
0° SKEW TRANSVERSE REINFORCING STEEL LAYOUT



TRANSVERSE CONSTR. JOINT

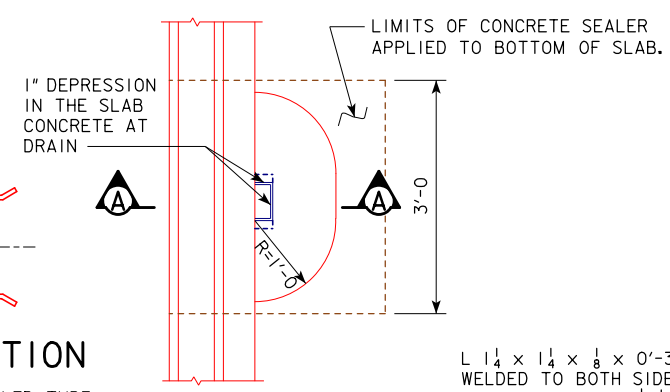


LONGITUDINAL CONSTR. JOINT



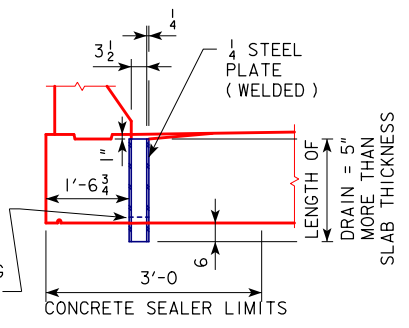
FLOOR DRAIN LOCATION

NOTE: 4" x 8" OUTSIDE DIMENSION ROLLED TUBE WITH 1/4" WALL THICKNESS MAY BE SUBSTITUTED FOR THE WELDED DRAIN SHOWN.



PART PLAN

L 1 1/4 x 1 1/4 x 1/8 x 0'-3" WELDED TO BOTH SIDES OF DRAIN WITH 2-1/4" Ø HOLES IN EACH OUTSTANDING LEG FOR NAILING TO FORMS



SECTION A-A

WEIGHT OF ONE FLOOR DRAIN			
SPAN	WEIGHT, LBS.	SPAN	WEIGHT, LBS.
70'-0	32	120'-0	41
80'-0	33	130'-0	43
90'-0	35	140'-0	45
100'-0	37	150'-0	48
110'-0	39		

08-2020
LATEST REVISION DATE
[Signature]
APPROVED BY BRIDGE ENGINEER

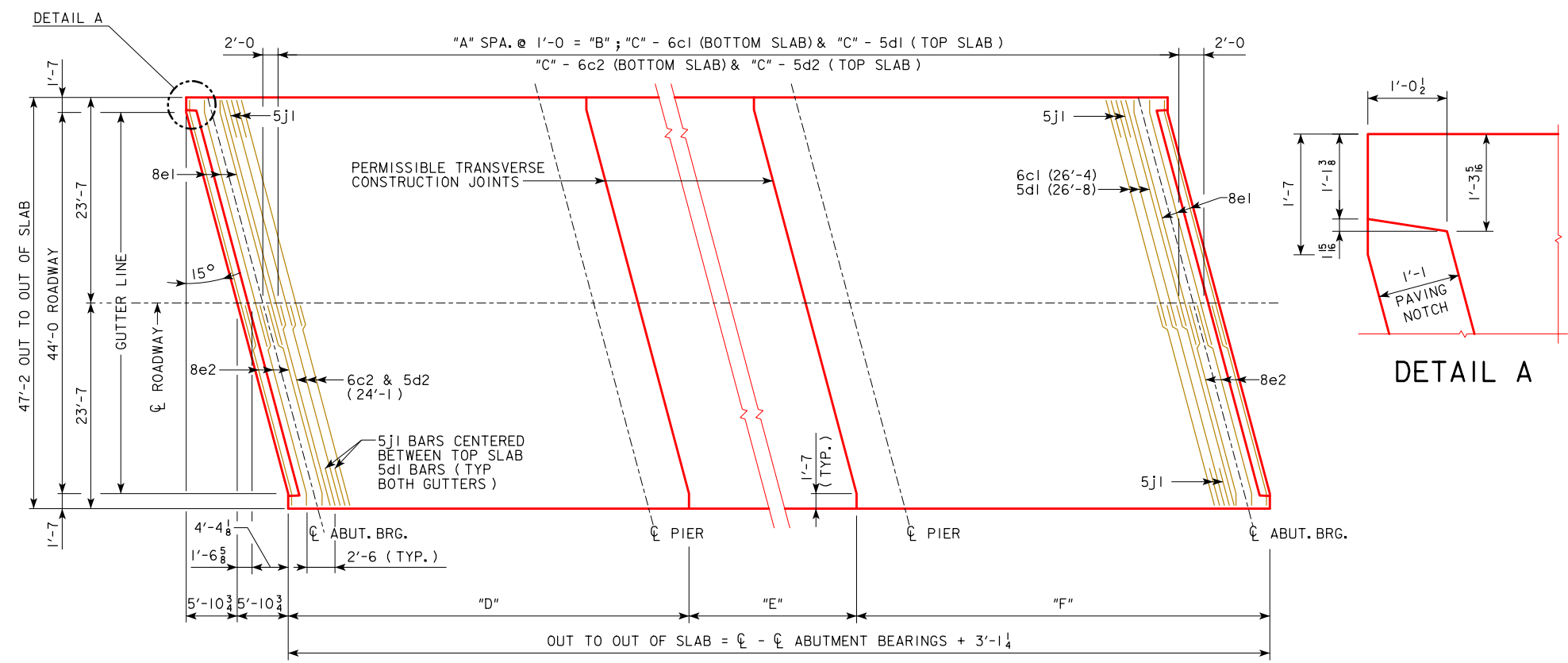
IOWADOT Highway Division
STANDARD DESIGN - 44' ROADWAY, 3 SPAN BRIDGES
CONTINUOUS CONCRETE SLAB BRIDGES
JULY, 2014

SUPERSTRUCTURE DETAILS
ALL BRIDGES
0° SKEW

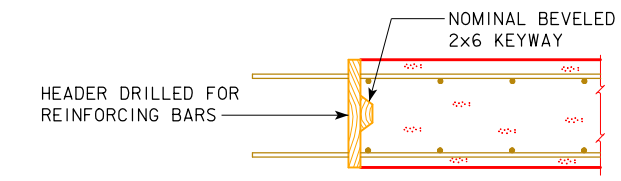
J44-21-14

15° TRANSV. REINF. DIMENSION TABLE

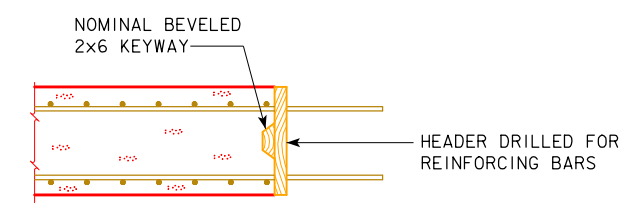
BRIDGE	"A"	"B"	"C"	"D"	"E"	"F"
70' BRIDGE	66	66'-0	67	28'-0 ⁵ / ₈	17'-0	28'-0 ⁵ / ₈
80' BRIDGE	76	76'-0	77	32'-0 ⁵ / ₈	19'-0	32'-0 ⁵ / ₈
90' BRIDGE	86	86'-0	87	36'-0 ⁵ / ₈	21'-0	36'-0 ⁵ / ₈
100' BRIDGE	96	96'-0	97	40'-0 ⁵ / ₈	23'-0	40'-0 ⁵ / ₈
110' BRIDGE	106	106'-0	107	44'-0 ⁵ / ₈	25'-0	44'-0 ⁵ / ₈
120' BRIDGE	116	116'-0	117	48'-0 ⁵ / ₈	27'-0	48'-0 ⁵ / ₈
130' BRIDGE	126	126'-0	127	52'-0 ⁵ / ₈	29'-0	52'-0 ⁵ / ₈
140' BRIDGE	136	136'-0	137	56'-0 ⁵ / ₈	31'-0	56'-0 ⁵ / ₈
150' BRIDGE	146	146'-0	147	60'-0 ⁵ / ₈	33'-0	60'-0 ⁵ / ₈



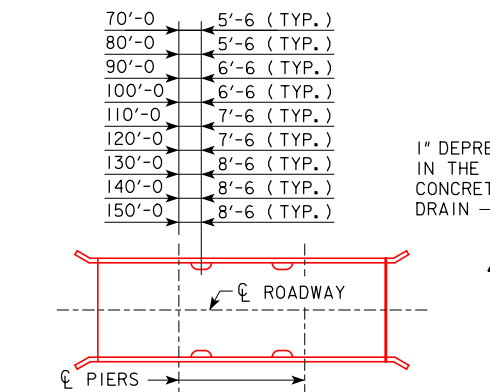
15° SKEW TRANSVERSE REINFORCING STEEL LAYOUT



TRANSVERSE CONSTR. JOINT

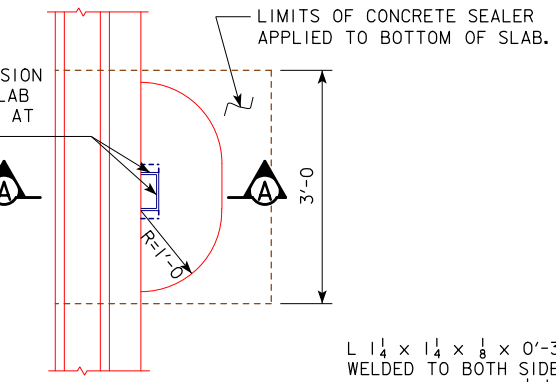


LONGITUDINAL CONSTR. JOINT



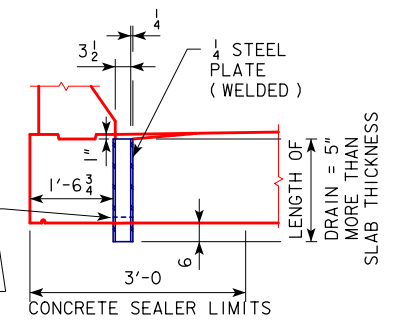
FLOOR DRAIN LOCATION

NOTE: 4" x 8" OUTSIDE DIMENSION ROLLED TUBE WITH 1/4" WALL THICKNESS MAY BE SUBSTITUTED FOR THE WELDED DRAIN SHOWN.



PART PLAN

L 1 1/4 x 1 1/4 x 1/8 x 0'-3 WELDED TO BOTH SIDES OF DRAIN WITH 2-1/4" PH HOLES IN EACH OUTSTANDING LEG FOR NAILING TO FORMS



SECTION A-A

WEIGHT OF ONE FLOOR DRAIN			
SPAN	WEIGHT, LBS.	SPAN	WEIGHT, LBS.
70'-0	32	120'-0	41
80'-0	33	130'-0	43
90'-0	35	140'-0	45
100'-0	37	150'-0	48
110'-0	39		

(USE FOR BARRIER RAIL ONLY, NOT REQUIRED FOR OPEN RAIL)
NOTE: DRAINS ARE TO BE GALVANIZED. INCLUDE COST OF DRAINS IN PRICE BID FOR "STRUCTURAL CONCRETE". 4 DRAINS REQUIRED.

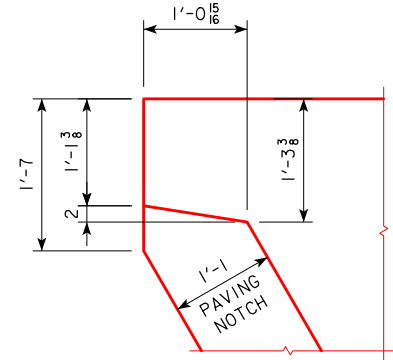
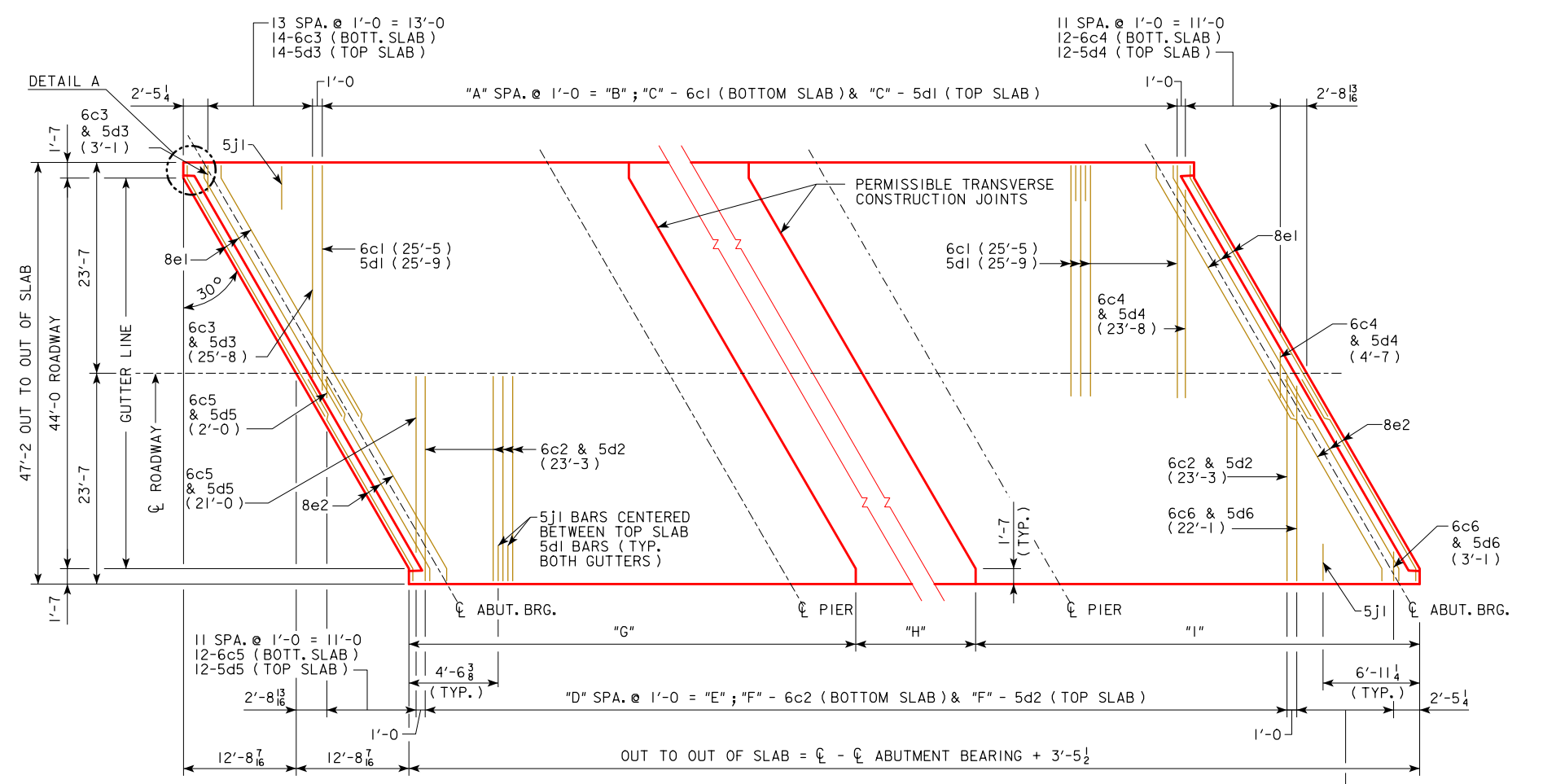
08-2020
LATEST REVISION DATE
[Signature]
APPROVED BY BRIDGE ENGINEER

IOWADOT Highway Division
STANDARD DESIGN - 44' ROADWAY, 3 SPAN BRIDGES
CONTINUOUS CONCRETE SLAB BRIDGES
JULY, 2014
SUPERSTRUCTURE DETAILS ALL BRIDGES
15° SKEW
J44-22-14

REVISED 08-2020: UPDATED BRIDGE ENGINEER SIGNATURE.

30° TRANSV. REINFORCING DIMENSION TABLE

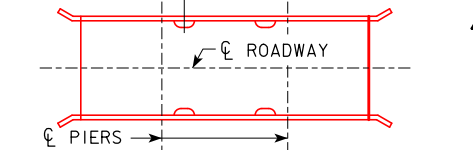
BRIDGE	"A"	"B"	"C"	"D"	"E"	"F"	"G"	"H"	"I"
70' BRIDGE	55	55'-0	56	57	57'-0	58	27'-5½	17'-0	29'-0
80' BRIDGE	65	65'-0	66	67	67'-0	68	31'-5½	19'-0	33'-0
90' BRIDGE	75	75'-0	76	77	77'-0	78	35'-5½	21'-0	37'-0
100' BRIDGE	85	85'-0	86	87	87'-0	88	39'-5½	23'-0	41'-0
110' BRIDGE	95	95'-0	96	97	97'-0	98	43'-5½	25'-0	45'-0
120' BRIDGE	105	105'-0	106	107	107'-0	108	47'-5½	27'-0	49'-0
130' BRIDGE	115	115'-0	116	117	117'-0	118	51'-5½	29'-0	53'-0
140' BRIDGE	125	125'-0	126	127	127'-0	128	55'-5½	31'-0	57'-0
150' BRIDGE	135	135'-0	136	137	137'-0	138	59'-5½	33'-0	61'-0



30° SKEW TRANSVERSE REINFORCING STEEL LAYOUT

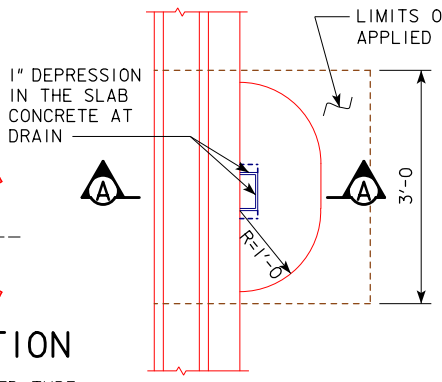
NOTE:
5d BARS ARE TO PASS UNDER
8e BARS IN CONFLICT AREAS.

70'-0	5'-6 (TYP.)
80'-0	5'-6 (TYP.)
90'-0	6'-6 (TYP.)
100'-0	6'-6 (TYP.)
110'-0	7'-6 (TYP.)
120'-0	7'-6 (TYP.)
130'-0	8'-6 (TYP.)
140'-0	8'-6 (TYP.)
150'-0	8'-6 (TYP.)



FLOOR DRAIN LOCATION

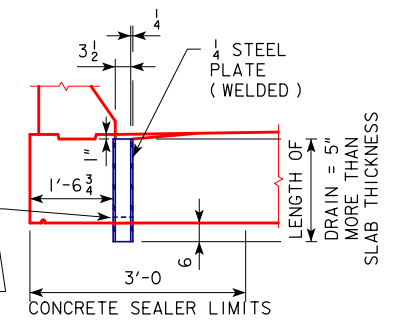
NOTE: 4" x 8" OUTSIDE DIMENSION ROLLED TUBE WITH ¼" WALL THICKNESS MAY BE SUBSTITUTED FOR THE WELDED DRAIN SHOWN.



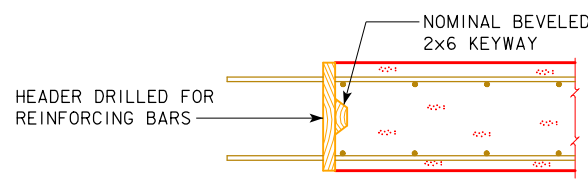
PART PLAN

FLOOR DRAIN DETAILS

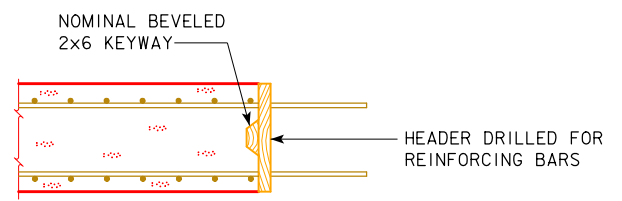
(USE FOR BARRIER RAIL ONLY, NOT REQUIRED FOR OPEN RAIL)
NOTE: DRAINS ARE TO BE GALVANIZED. INCLUDE COST OF DRAINS IN PRICE BID FOR "STRUCTURAL CONCRETE". 4 DRAINS REQUIRED.



SECTION A-A



TRANSVERSE CONSTR. JOINT



LONGITUDINAL CONSTR. JOINT

WEIGHT OF ONE FLOOR DRAIN

SPAN	WEIGHT, LBS.	SPAN	WEIGHT, LBS.
70'-0	32	120'-0	41
80'-0	33	130'-0	43
90'-0	35	140'-0	45
100'-0	37	150'-0	48
110'-0	39		

08-2020
LATEST REVISION DATE

APPROVED BY BRIDGE ENGINEER



STANDARD DESIGN - 44' ROADWAY, 3 SPAN BRIDGES

CONTINUOUS CONCRETE SLAB BRIDGES

JULY, 2014

SUPERSTRUCTURE DETAILS
ALL BRIDGES

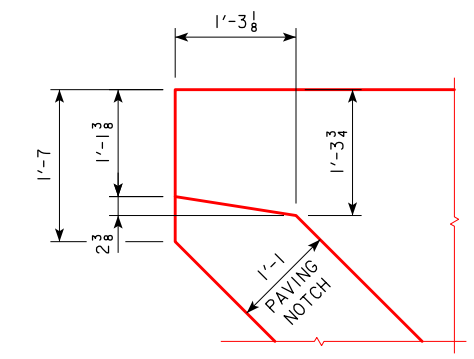
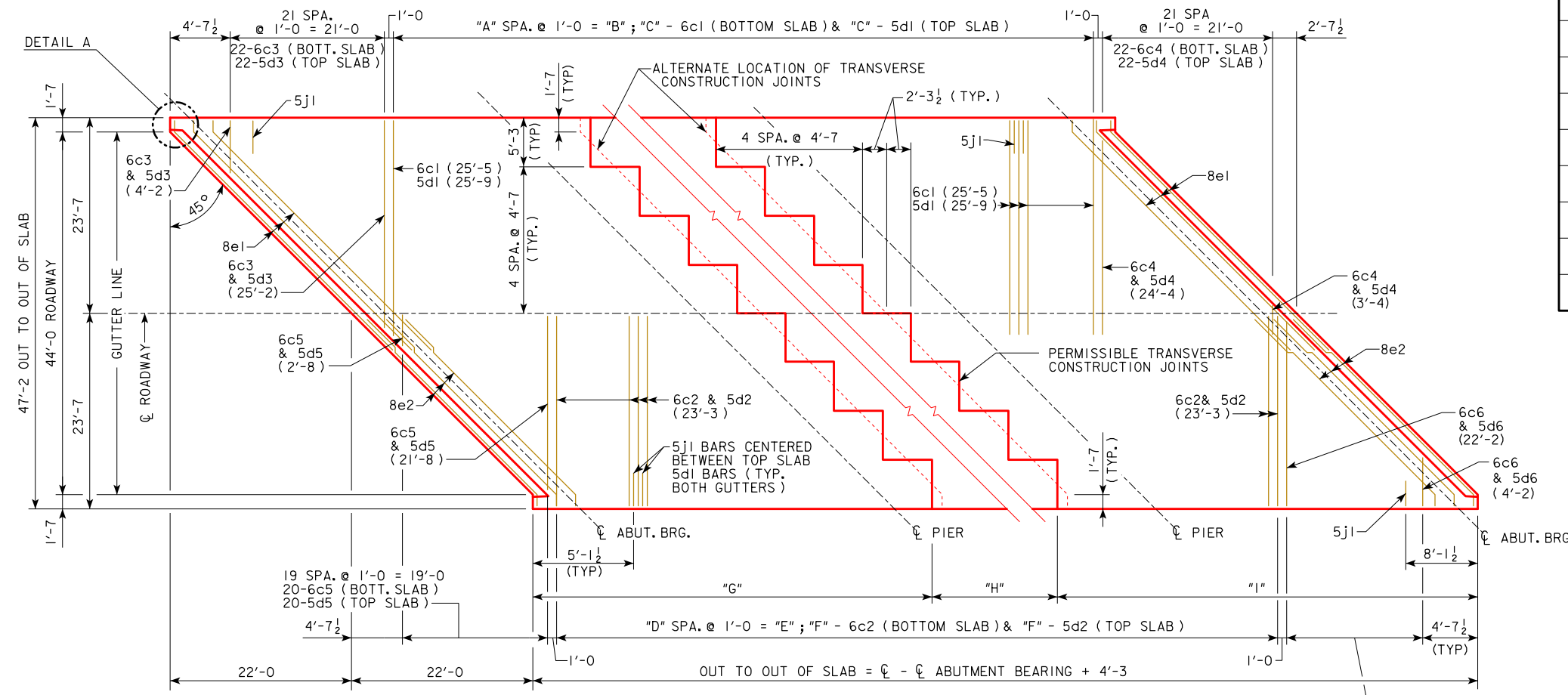
J44-23-14

30° SKEW

REVISED 08-2020: UPDATED BRIDGE ENGINEER SIGNATURE.

45° TRANSV. REINFORCING DIMENSION TABLE

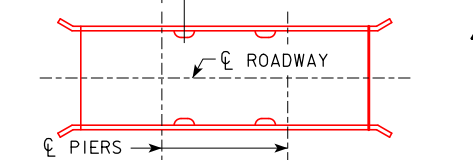
BRIDGE	"A"	"B"	"C"	"D"	"E"	"F"	"G"	"H"	"I"
70' BRIDGE	45	45'-0	46	48	48'-0	49	27'-3	17'-0	30'-0
80' BRIDGE	55	55'-0	56	58	58'-0	59	31'-3	19'-0	34'-0
90' BRIDGE	65	65'-0	66	68	68'-0	69	35'-3	21'-0	38'-0
100' BRIDGE	75	75'-0	76	78	78'-0	79	39'-3	23'-0	42'-0
110' BRIDGE	85	85'-0	86	88	88'-0	89	43'-3	25'-0	46'-0
120' BRIDGE	95	95'-0	96	98	98'-0	99	47'-3	27'-0	50'-0
130' BRIDGE	105	105'-0	106	108	108'-0	109	51'-3	29'-0	54'-0
140' BRIDGE	115	115'-0	116	118	118'-0	119	55'-3	31'-0	58'-0
150' BRIDGE	125	125'-0	126	128	128'-0	129	59'-3	33'-0	62'-0



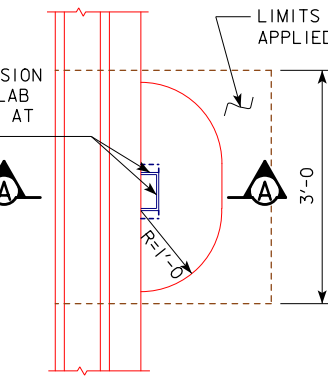
45° SKEW TRANSVERSE REINFORCING STEEL LAYOUT

NOTE: 5d BARS ARE TO PASS UNDER 8e BARS IN CONFLICT AREAS.

70'-0	5'-6 (TYP.)
80'-0	5'-6 (TYP.)
90'-0	6'-6 (TYP.)
100'-0	6'-6 (TYP.)
110'-0	7'-6 (TYP.)
120'-0	7'-6 (TYP.)
130'-0	8'-6 (TYP.)
140'-0	8'-6 (TYP.)
150'-0	8'-6 (TYP.)



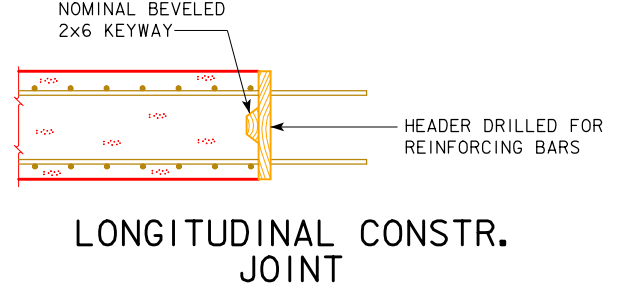
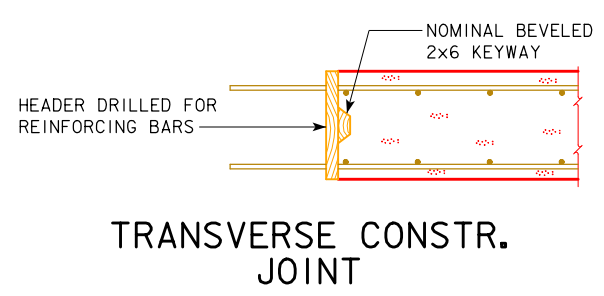
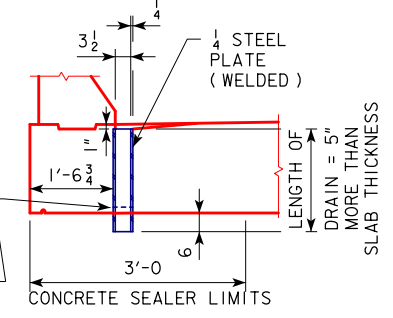
NOTE: 4" x 8" OUTSIDE DIMENSION ROLLED TUBE WITH 1/4" WALL THICKNESS MAY BE SUBSTITUTED FOR THE WELDED DRAIN SHOWN.



FLOOR DRAIN DETAILS

(USE FOR BARRIER RAIL ONLY, NOT REQUIRED FOR OPEN RAIL)
NOTE: DRAINS ARE TO BE GALVANIZED. INCLUDE COST OF DRAINS IN PRICE BID FOR "STRUCTURAL CONCRETE". 4 DRAINS REQUIRED.

L 1 1/4 x 1 1/4 x 1/8 x 0'-3 WELDED TO BOTH SIDES OF DRAIN WITH 2-1/4" HOLES IN EACH OUTSTANDING LEG FOR NAILING TO FORMS



WEIGHT OF ONE FLOOR DRAIN

SPAN	WEIGHT, LBS.	SPAN	WEIGHT, LBS.
70'-0	32	120'-0	41
80'-0	33	130'-0	43
90'-0	35	140'-0	45
100'-0	37	150'-0	48
110'-0	39		

08-2020
LATEST REVISION DATE

APPROVED BY BRIDGE ENGINEER



STANDARD DESIGN - 44' ROADWAY, 3 SPAN BRIDGES

CONTINUOUS CONCRETE SLAB BRIDGES

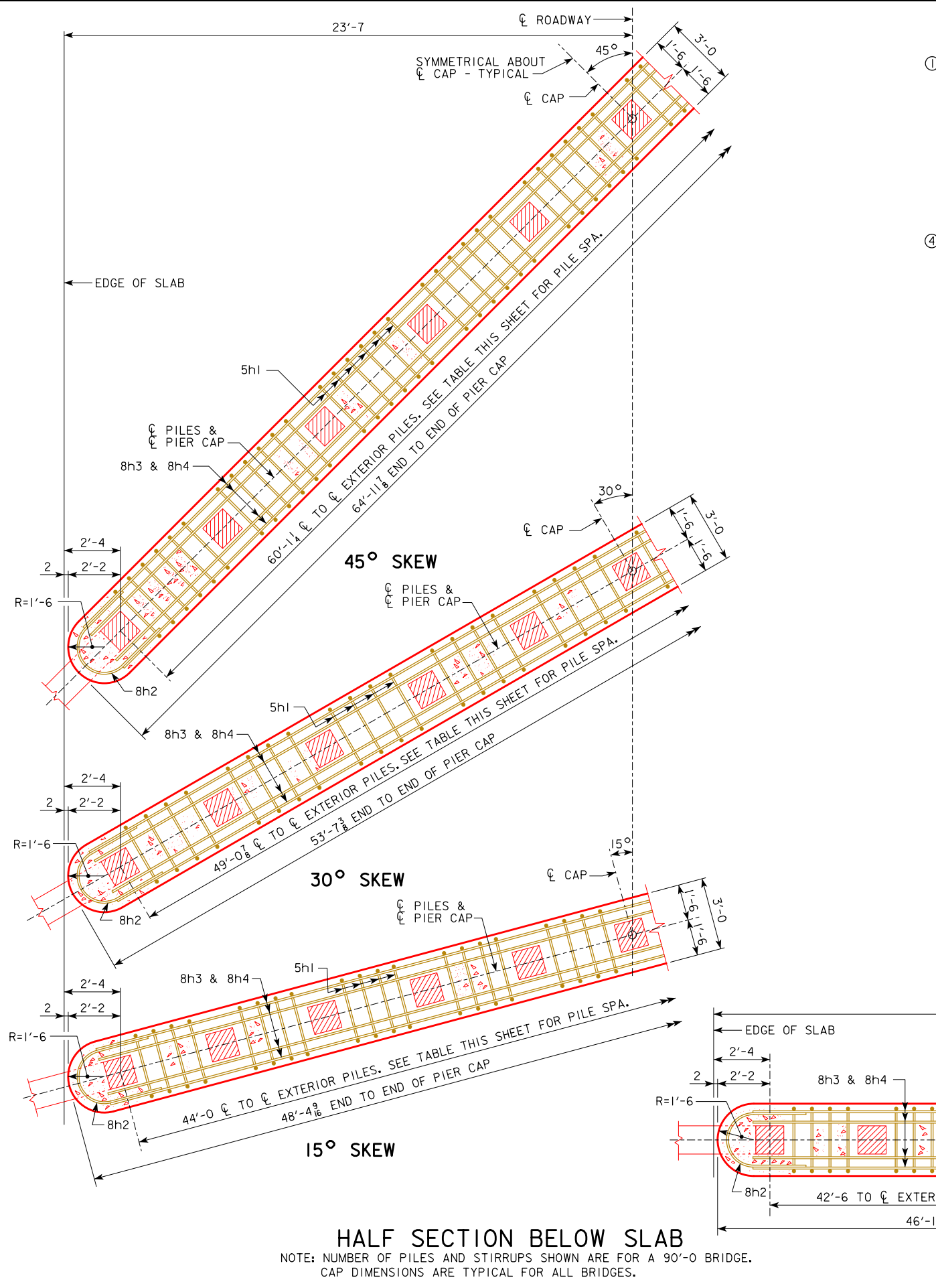
JULY, 2014

SUPERSTRUCTURE DETAILS
ALL BRIDGES

J44-24-14

45° SKEW

REVISED 08-2020: UPDATED BRIDGE ENGINEER SIGNATURE.



TYPICAL NUMBERS OF PILES AND SPACINGS AND FACTORED PIER LOADS									
BRIDGE LENGTH	70'-0	80'-0	90'-0	100'-0	110'-0	120'-0	130'-0	140'-0	150'-0
① TYP. NO. OF PILES	10	10	11	12	13	14	16	17	18
TYP. PILE SPACES @ 0°	9 SPA. @ ABOUT 4'-9	9 SPA. @ ABOUT 4'-9	10 SPA. @ 4'-3	11 SPA. @ ABOUT 3'-10	12 SPA. @ ABOUT 3'-6	② 13 SPA. @ ABOUT 3'-3	③ 15 SPA. @ 2'-10	③ 16 SPA. @ ABOUT 2'-8	③ 17 SPA. @ 2'-6
TYP. PILE SPACES @ 15°	9 SPA. @ ABOUT 4'-11	9 SPA. @ ABOUT 4'-11	10 SPA. @ ABOUT 4'-5	11 SPA. @ 4'-0	12 SPA. @ 3'-8	13 SPA. @ ABOUT 3'-5	② 15 SPA. @ ABOUT 2'-11	③ 16 SPA. @ 2'-9	③ 17 SPA. @ ABOUT 2'-7
TYP. PILE SPACES @ 30°	9 SPA. @ ABOUT 5'-5	9 SPA. @ ABOUT 5'-5	10 SPA. @ ABOUT 4'-11	11 SPA. @ ABOUT 4'-6	12 SPA. @ ABOUT 4'-1	13 SPA. @ ABOUT 3'-9	② 15 SPA. @ ABOUT 3'-3	② 16 SPA. @ ABOUT 3'-1	② 17 SPA. @ ABOUT 2'-11
TYP. PILE SPACES @ 45°	9 SPA. @ ABOUT 6'-8	9 SPA. @ ABOUT 6'-8	10 SPA. @ ABOUT 6'-0	11 SPA. @ ABOUT 5'-6	12 SPA. @ ABOUT 5'-0	13 SPA. @ ABOUT 4'-7	15 SPA. @ ABOUT 4'-0	16 SPA. @ ABOUT 3'-9	17 SPA. @ ABOUT 3'-6
④ PU, STRENGTH I DESIGN LOAD FOR PIER (KIPS)	848 KIPS	942 KIPS	1049 KIPS	1166 KIPS	1280 KIPS	1415 KIPS	1549 KIPS	1689 KIPS	1846 KIPS

- ① THIS TYPICAL NUMBER OF PILES MAY NEED TO BE MODIFIED DEPENDING ON SELECTED PILE TYPE AND SIZE, HEIGHT, AND RESISTANCE. IF THE NUMBER OF PILES IS DIFFERENT THAN IN THE TABLE FOR THE BRIDGE LENGTH, THE NUMBER OF 5h1 BARS AND OTHER QUANTITIES NEED TO BE CHECKED AND ADJUSTED AS NEEDED. PILES 10 INCHES AND 12 INCHES IN SIZE MUST BE SPACED 2'-6 OR MORE, PILES 14 INCHES IN SIZE MUST BE SPACED 2'-11 OR MORE, AND PILES 16 INCHES IN SIZE MUST BE SPACED 3'-4 OR MORE.
- ② MAXIMUM PILE SIZE AT THIS SPACING IS 14 INCHES.
- ③ MAXIMUM PILE SIZE AT THIS SPACING IS 12 INCHES.
- ④ STRENGTH I PIER DESIGN LOAD INCLUDES DYNAMIC LOAD ALLOWANCE (1M), AND PIER CAP WEIGHT IS BASED ON 45° SKEW. USE THIS PU FOR DETERMINING NUMBER OF PILES AND PILE LENGTH.

PIER NOTES:

ALL MONOLITHIC PIER CAP REINFORCING AND CONCRETE IS INCLUDED IN SUPERSTRUCTURE ESTIMATE OF QUANTITIES.

THE MINIMUM CLEAR DISTANCE FROM THE FACE OF THE CONCRETE TO NEAR REINFORCING BAR IS TO BE 2" UNLESS OTHERWISE NOTED OR SHOWN.

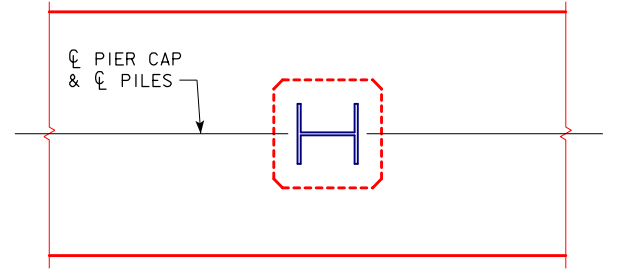
THE PIER PILES ARE TO BE DRIVEN TO FULL PENETRATION, IF PRACTICABLE, BUT IN NO CASE TO A BEARING VALUE LESS THAN THE PILE BEARING REQUIRED FOR EACH BRIDGE LENGTH AS SHOWN ON THIS SHEET. ADDITIONAL DRIVING CAPACITY MAY BE REQUIRED THROUGH SCOURABLE LAYERS. REFER TO GENERAL PLAN NOTES FOR ADDITIONAL INFORMATION.

CAP STEEL AS DETAILED ON PILE STANDARD PILE DRAWING IS REQUIRED FOR MONOLITHIC PIER CAPS.

THE CONCRETE QUANTITIES ARE BASED ON THE USE OF TYPE 3 PILING. IF TYPE 1 OR TYPE 2 IS USED, THE CONCRETE QUANTITIES MAY BE ADJUSTED TO ACCOUNT FOR THE CONCRETE DISPLACED BY THE PILING.

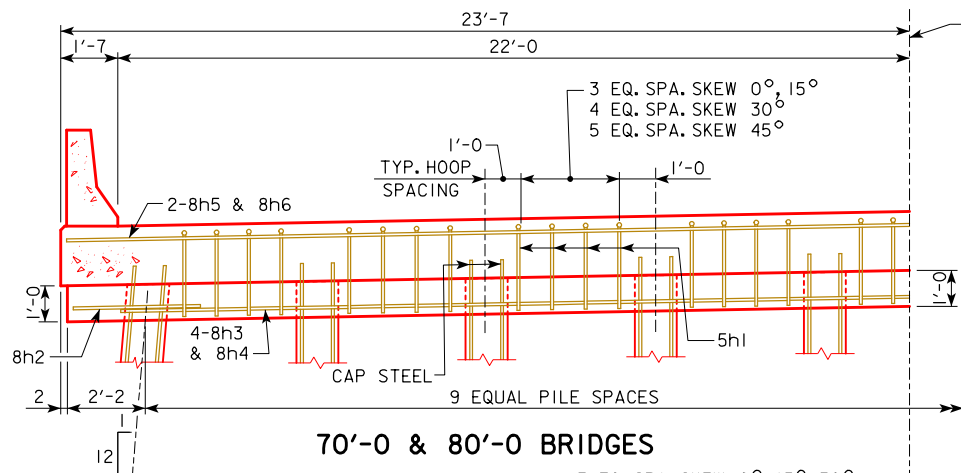
ALL REINFORCING STEEL IS TO BE GRADE 60.

PIER PILING WAS DESIGNED FOR HL-93 LOADING WITH AN ALLOWANCE FOR 20 PSF FUTURE WEARING SURFACE.

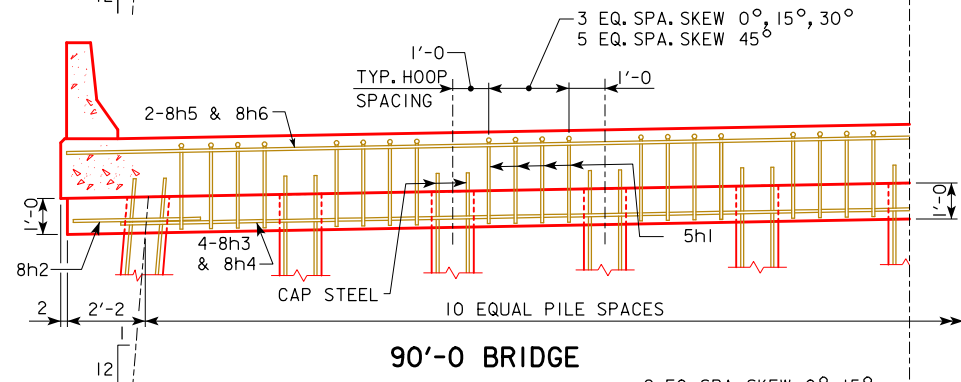


PILE ORIENTATION DETAIL FOR TYPE 3 TRESTLE BENT PILES

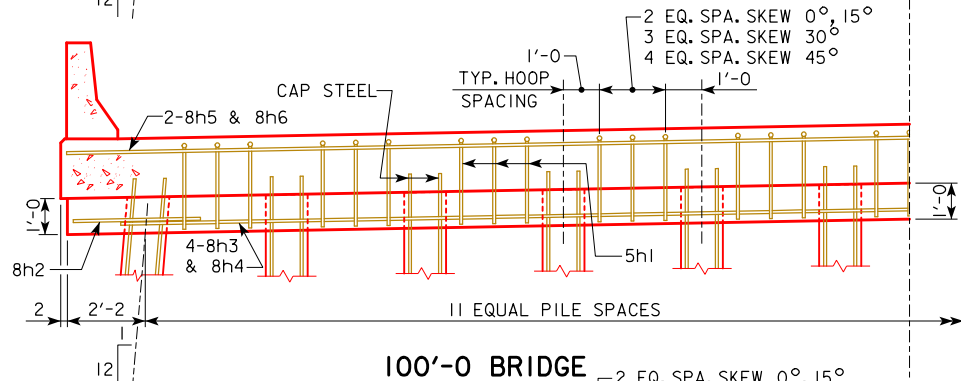
08-2020 LATEST REVISION DATE APPROVED BY BRIDGE ENGINEER		
	STANDARD DESIGN - 44' ROADWAY, 3 SPAN BRIDGES CONTINUOUS CONCRETE SLAB BRIDGES JULY, 2014	
	MONOLITHIC PIER CAP DETAILS ALL BRIDGES	J44-25-14



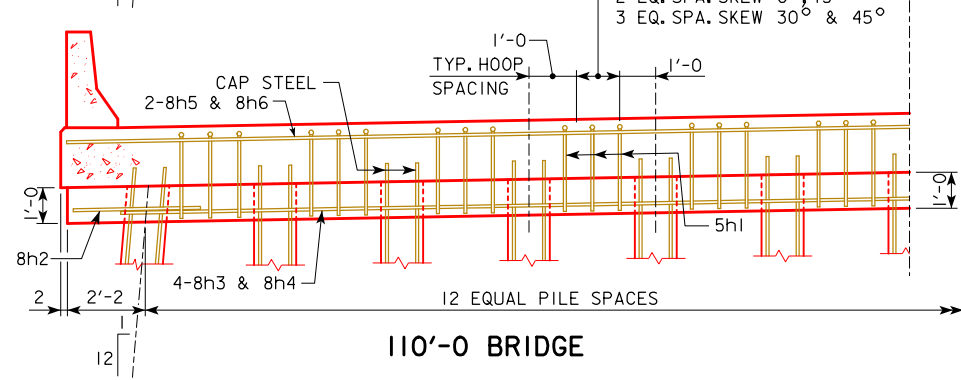
70'-0 & 80'-0 BRIDGES



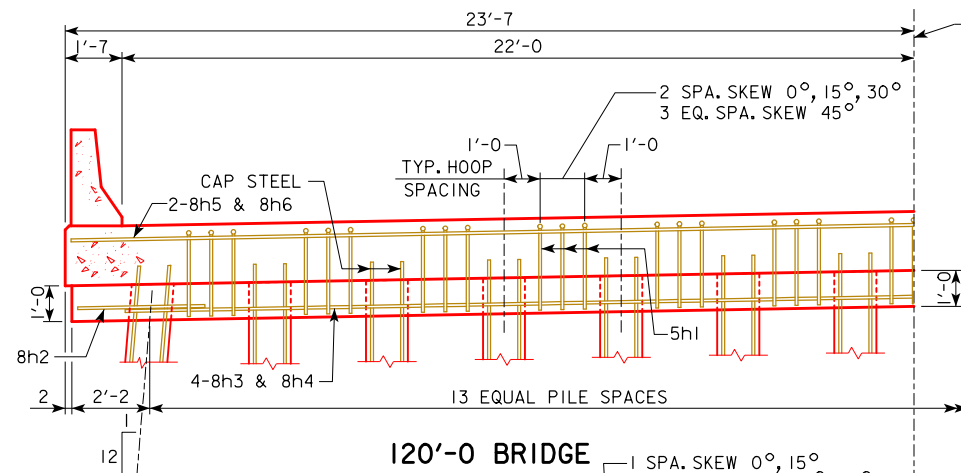
90'-0 BRIDGE



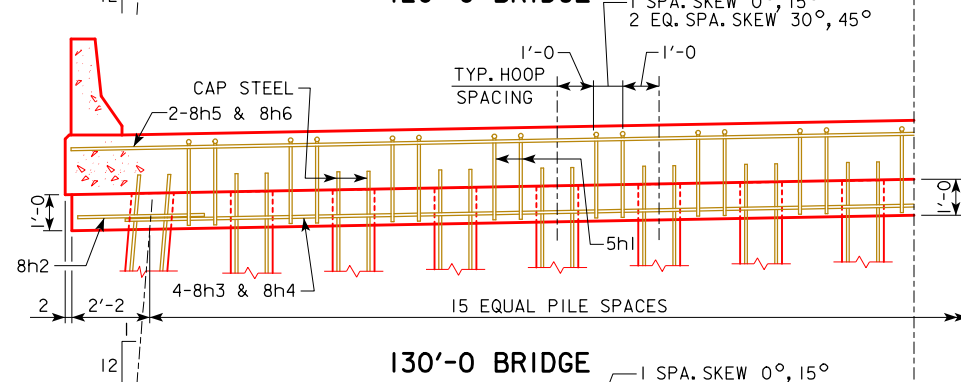
100'-0 BRIDGE



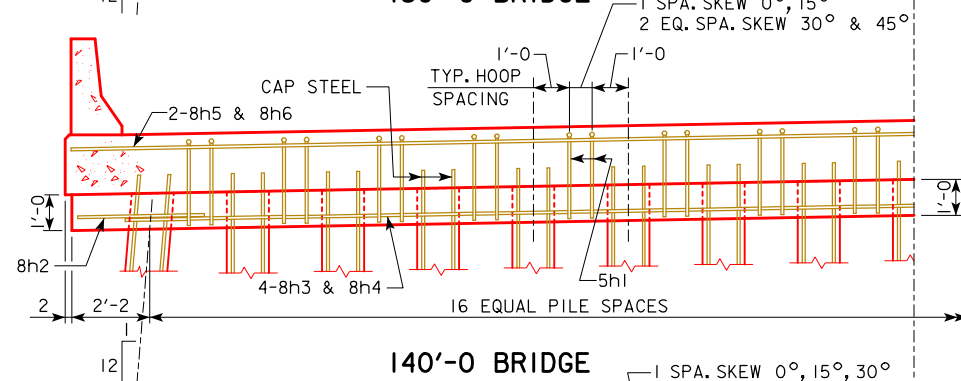
110'-0 BRIDGE



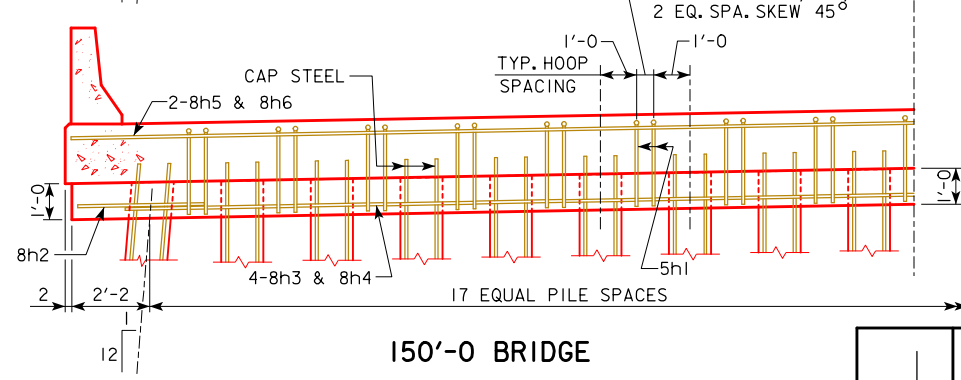
120'-0 BRIDGE



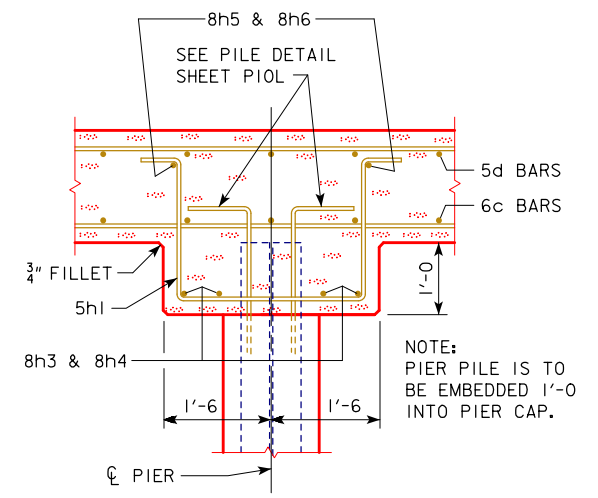
130'-0 BRIDGE



140'-0 BRIDGE



150'-0 BRIDGE



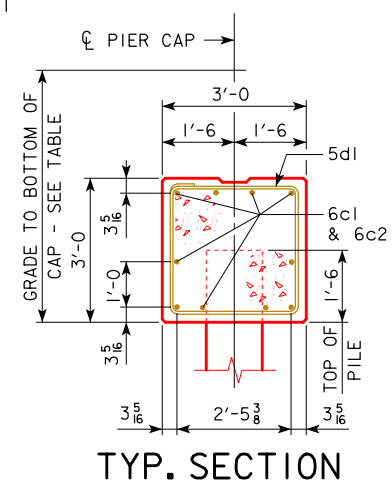
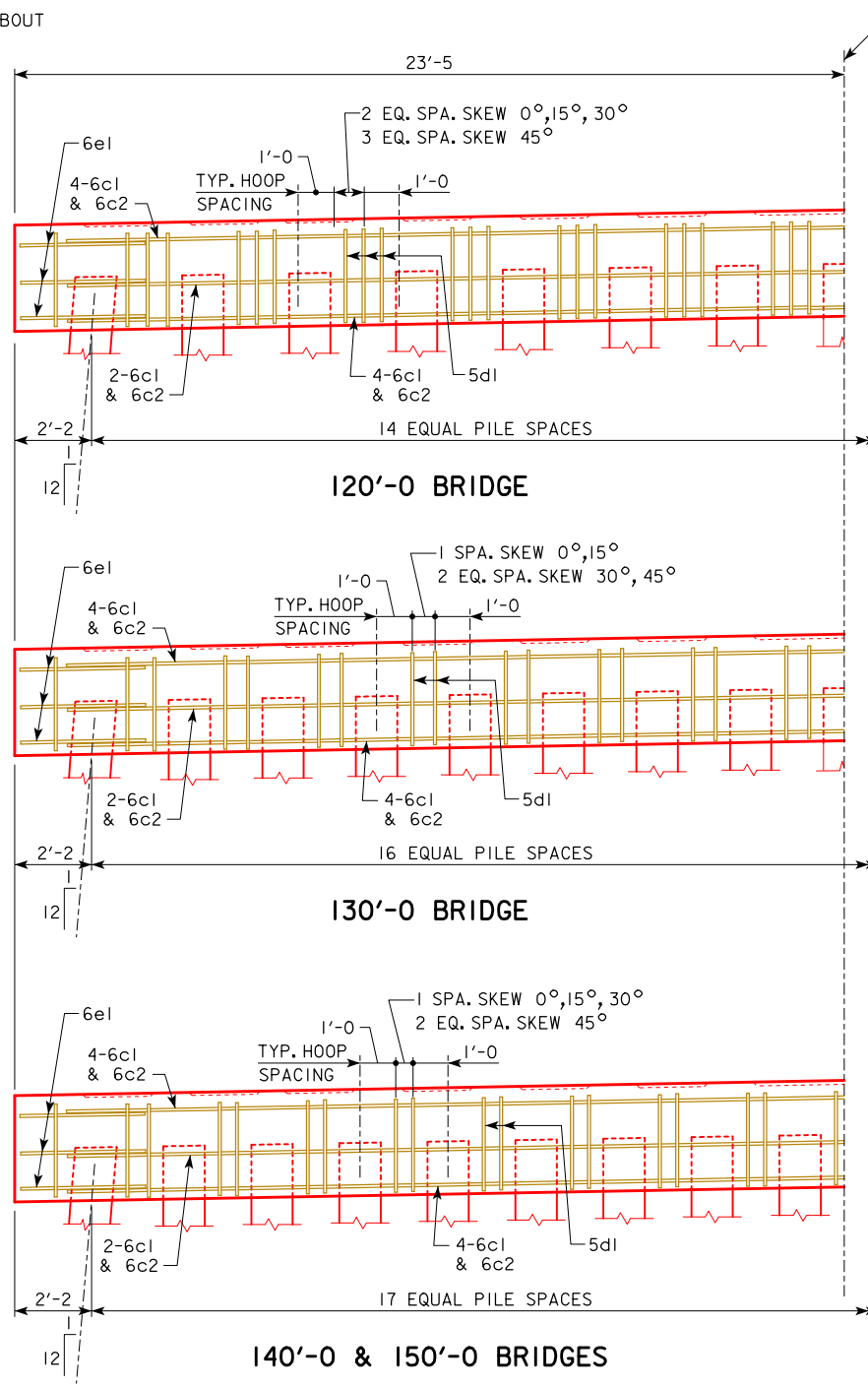
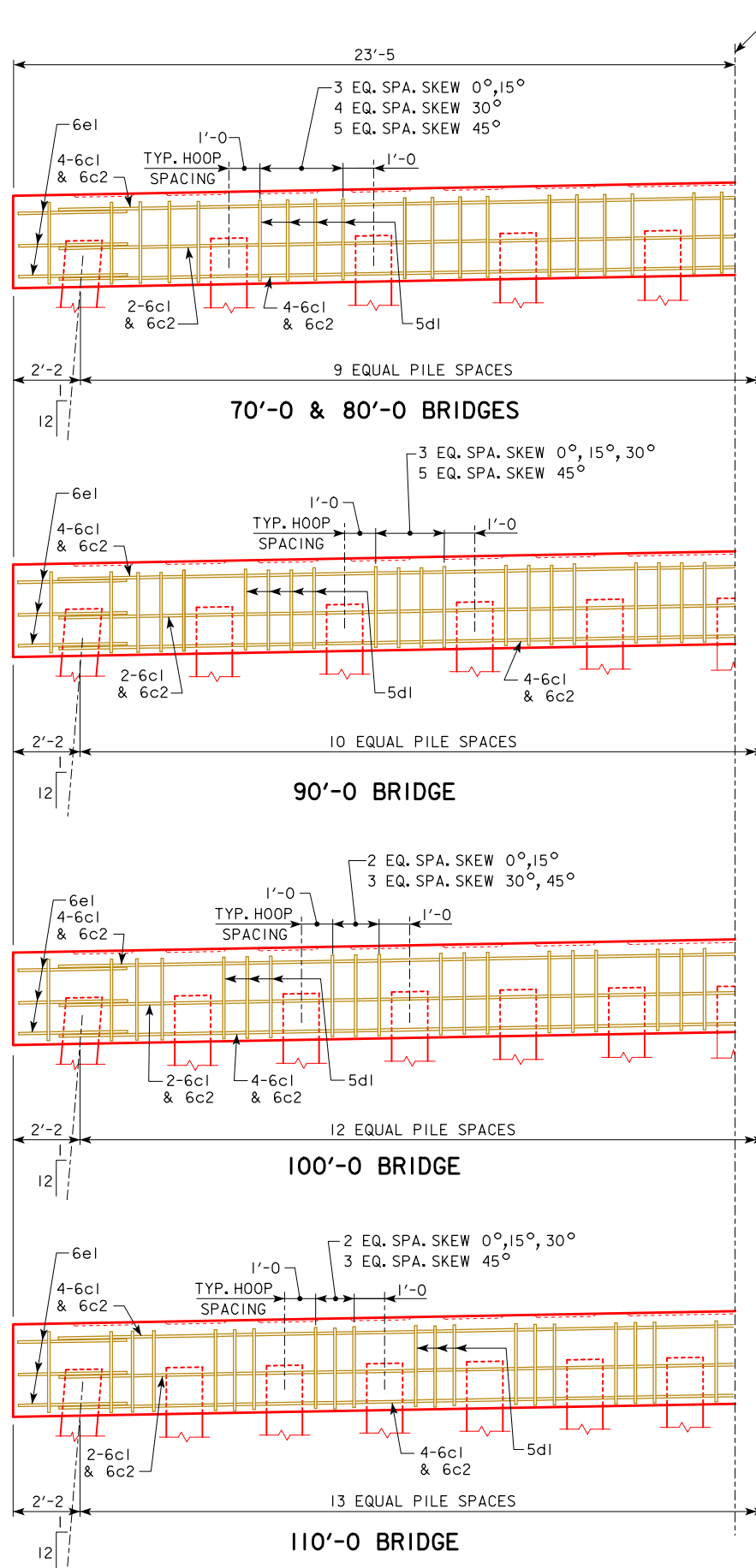
TYPICAL CAP SECTION

HALF SECTION NEAR PIER

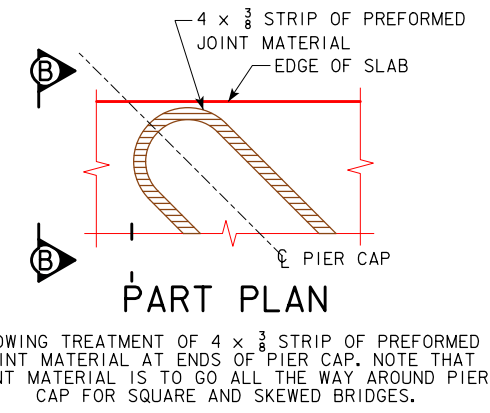
SHOWING STIRRUP SPACING AND NUMBER OF PILING
 NOTE: BOTTOM OF CAP ELEVATIONS WILL BE REQUIRED AT THE CL OF ROADWAY AND AT EACH EXTERIOR PILE.

REVISED 08-2020: UPDATED BRIDGE ENGINEER SIGNATURE.

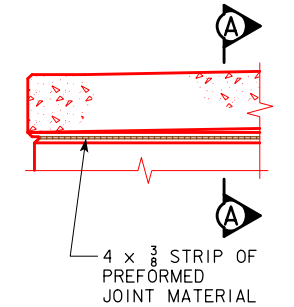
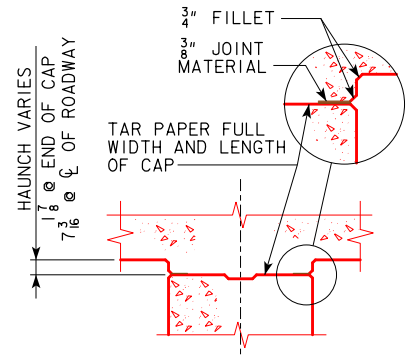
08-2020 LATEST REVISION DATE APPROVED BY BRIDGE ENGINEER		
	STANDARD DESIGN - 44' ROADWAY, 3 SPAN BRIDGES CONTINUOUS CONCRETE SLAB BRIDGES JULY, 2014	
	MONOLITHIC PIER CAP DETAILS ALL BRIDGES	J44-26-14



GRADE TO BOTTOM OF CAP DIMENSION	
70'-0 BRIDGE	4'-9 ¹¹ / ₁₆
80'-0 BRIDGE	4'-10 ⁷ / ₁₆
90'-0 BRIDGE	4'-11 ⁷ / ₁₆
100'-0 BRIDGE	5'-0 ¹¹ / ₁₆
110'-0 BRIDGE	5'-1 ¹¹ / ₁₆
120'-0 BRIDGE	5'-3 ³ / ₁₆
130'-0 BRIDGE	5'-4 ⁷ / ₁₆
140'-0 BRIDGE	5'-5 ¹¹ / ₁₆
150'-0 BRIDGE	5'-7 ³ / ₁₆



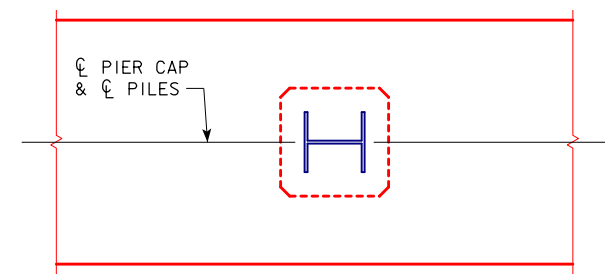
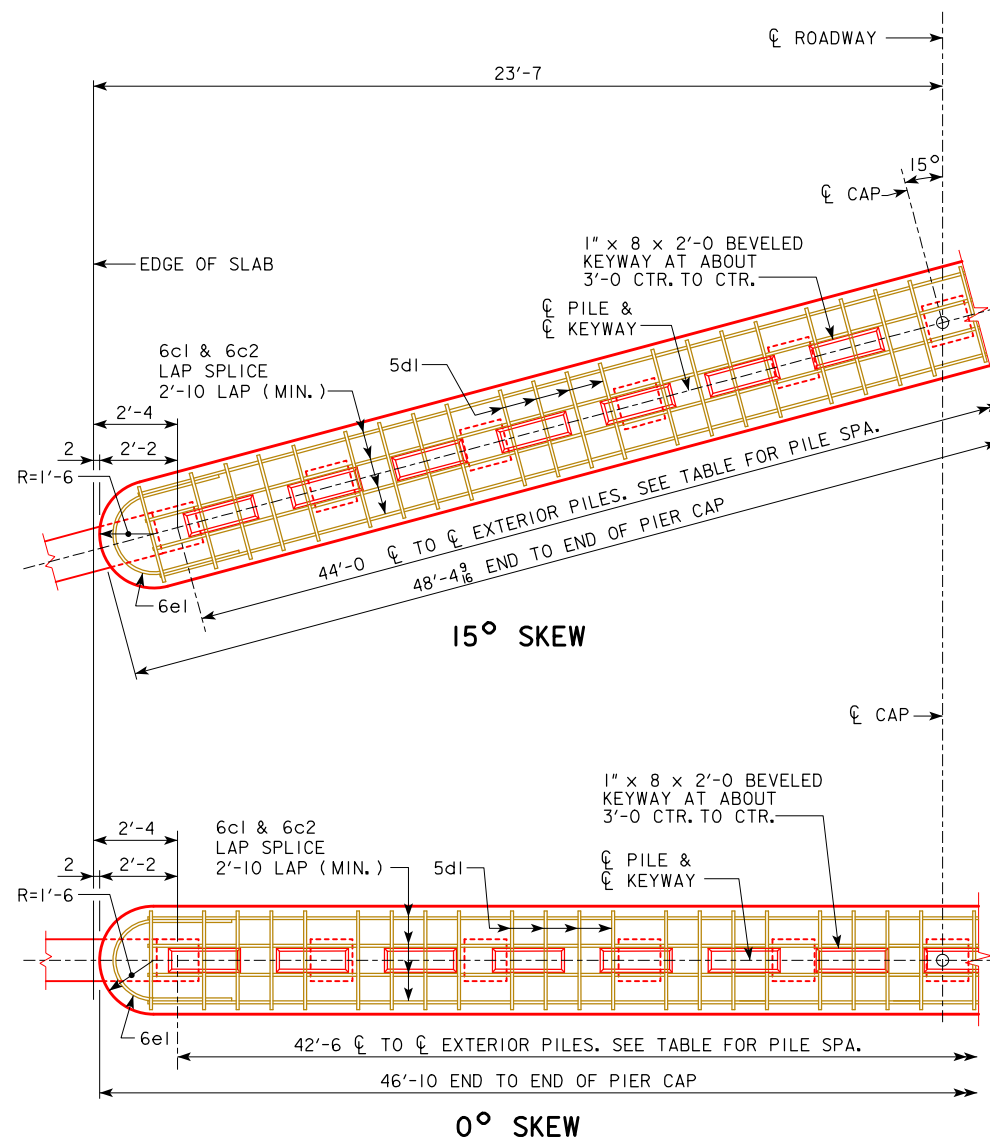
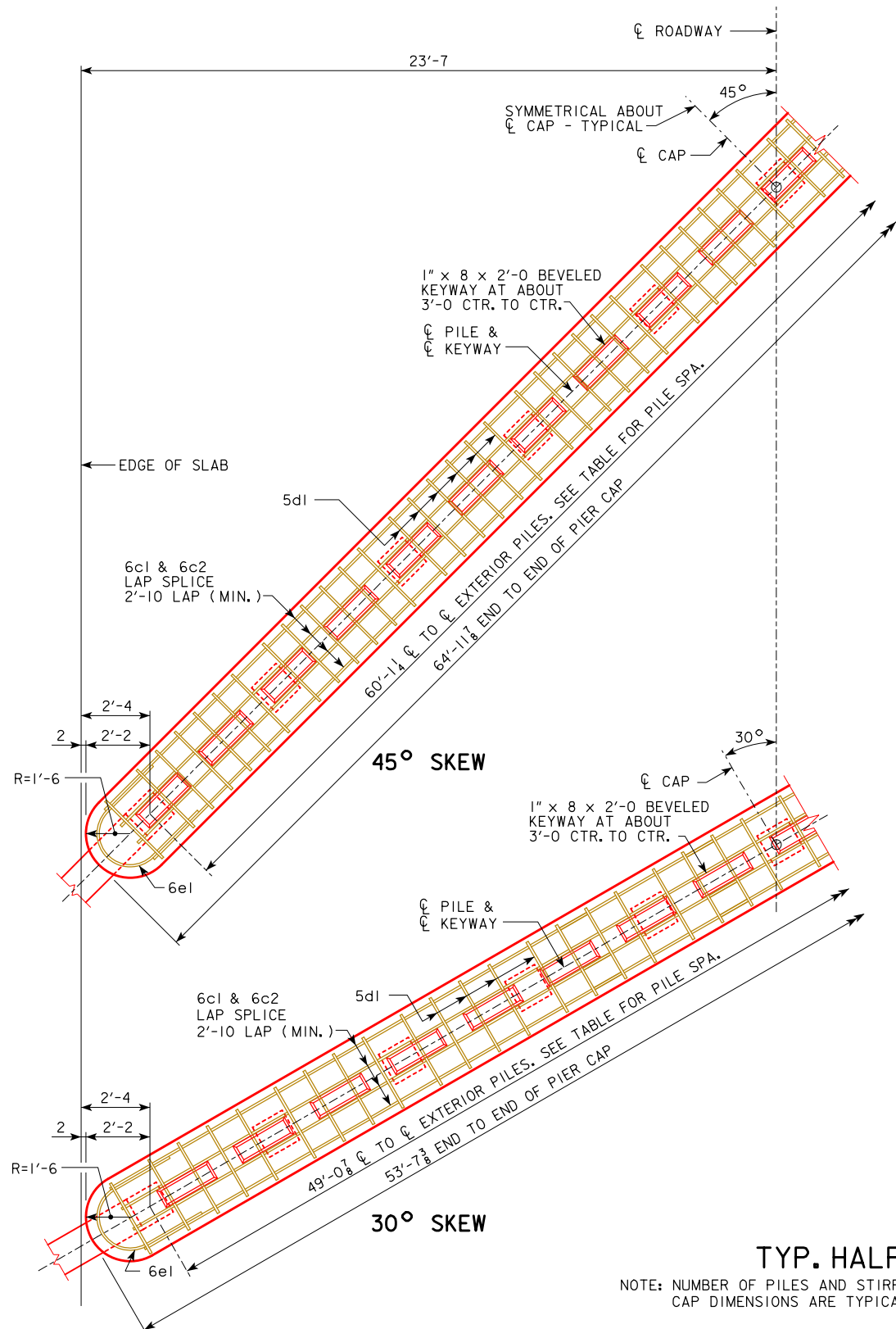
SHOWING TREATMENT OF 4 x 3/8 STRIP OF PREFORMED JOINT MATERIAL AT ENDS OF PIER CAP. NOTE THAT JOINT MATERIAL IS TO GO ALL THE WAY AROUND PIER CAP FOR SQUARE AND SKEWED BRIDGES.



TYP. HALF ELEVATION PIER CAP
(LOOKING PARALLEL TO ϕ ROADWAY)

REVISED 08-2020: UPDATED BRIDGE ENGINEER SIGNATURE.

08-2020 LATEST REVISION DATE APPROVED BY BRIDGE ENGINEER	 STANDARD DESIGN - 44' ROADWAY, 3 SPAN BRIDGES CONTINUOUS CONCRETE SLAB BRIDGES JULY, 2014	J44-27-14
	NON-MONOLITHIC PIER CAP DETAILS ALL BRIDGES	
	08-2020	



PILE ORIENTATION DETAIL FOR TYPE 3 TRESTLE BENT PILES

TYP. HALF PLAN VIEW

NOTE: NUMBER OF PILES AND STIRRUPS SHOWN ARE FOR A 90'-0 BRIDGE. CAP DIMENSIONS ARE TYPICAL FOR ALL BRIDGES.

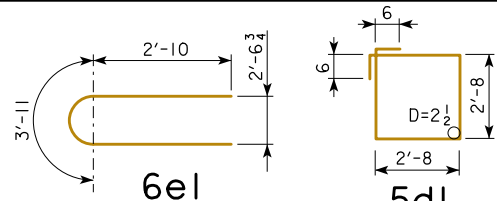
REVISED 08-2020. UPDATED BRIDGE ENGINEER SIGNATURE.

08-2020 LATEST REVISION DATE APPROVED BY BRIDGE ENGINEER		
	STANDARD DESIGN - 44' ROADWAY, 3 SPAN BRIDGES CONTINUOUS CONCRETE SLAB BRIDGES JULY, 2014	
	NON-MONOLITHIC PIER CAP DETAILS ALL BRIDGES	J44-28-14

BILL OF EPOXY REINFORCING STEEL - ONE PIER

BRIDGE LENGTH		70'-0 BRIDGE			80'-0 BRIDGE			90'-0 BRIDGE			100'-0 BRIDGE			110'-0 BRIDGE			120'-0 BRIDGE			130'-0 BRIDGE			140'-0 BRIDGE			150'-0 BRIDGE			
MARK	SKW	SHAPE	NO.	LENGTH	WEIGHT	NO.	LENGTH	WEIGHT	NO.	LENGTH	WEIGHT	NO.	LENGTH	WEIGHT	NO.	LENGTH	WEIGHT	NO.	LENGTH	WEIGHT	NO.	LENGTH	WEIGHT	NO.	LENGTH	WEIGHT			
6c1	0°	---	10	25'-0	376	10	25'-0	376	10	25'-0	376	10	25'-0	376	10	25'-0	376	10	25'-0	376	10	25'-0	376	10	25'-0	376			
	15°	---	10	25'-9	387	10	25'-9	387	10	25'-9	387	10	25'-9	387	10	25'-9	387	10	25'-9	387	10	25'-9	387	10	25'-9	387			
	30°	---	10	28'-4	426	10	28'-4	426	10	28'-4	426	10	28'-4	426	10	28'-4	426	10	28'-4	426	10	28'-4	426	10	28'-4	426			
	45°	---	10	34'-0	511	10	34'-0	511	10	34'-0	511	10	34'-0	511	10	34'-0	511	10	34'-0	511	10	34'-0	511	10	34'-0	511			
6c2	0°	---	10	21'-11	330	10	21'-11	330	10	21'-11	330	10	21'-11	330	10	21'-11	330	10	21'-11	330	10	21'-11	330	10	21'-11	330			
	15°	---	10	22'-8	341	10	22'-8	341	10	22'-8	341	10	22'-8	341	10	22'-8	341	10	22'-8	341	10	22'-8	341	10	22'-8	341			
	30°	---	10	25'-4	381	10	25'-4	381	10	25'-4	381	10	25'-4	381	10	25'-4	381	10	25'-4	381	10	25'-4	381	10	25'-4	381			
5d1	0°	---	38	11'-8	463	38	11'-8	463	42	11'-8	512	38	11'-8	463	41	11'-8	499	44	11'-8	536	34	11'-8	414	36	11'-8	439	36	11'-8	439
	15°	---	38	11'-8	463	38	11'-8	463	42	11'-8	512	38	11'-8	463	41	11'-8	499	44	11'-8	536	34	11'-8	414	36	11'-8	439	36	11'-8	439
	30°	---	47	11'-8	572	47	11'-8	572	42	11'-8	512	50	11'-8	609	41	11'-8	499	44	11'-8	536	50	11'-8	609	36	11'-8	439	36	11'-8	439
	45°	---	56	11'-8	682	56	11'-8	682	62	11'-8	755	50	11'-8	609	54	11'-8	658	58	11'-8	706	50	11'-8	609	53	11'-8	645	53	11'-8	645
6e1	ALL	---	6	9'-7	86	6	9'-7	86	6	9'-7	86	6	9'-7	86	6	9'-7	86	6	9'-7	86	6	9'-7	86	6	9'-7	86	6	9'-7	86

BENT BAR DETAILS



ESTIMATED QUANTITIES - ONE PIER

BRIDGE LENGTH	SKW	70'-0	80'-0	90'-0	100'-0	110'-0	120'-0	130'-0	140'-0	150'-0
STRUCTURAL CONCRETE (CU. YDS.)	0°	15.4	15.4	15.4	15.4	15.4	15.4	15.4	15.4	15.4
	15°	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0
	30°	17.7	17.7	17.7	17.7	17.7	17.7	17.7	17.7	17.7
	45°	21.5	21.5	21.5	21.5	21.5	21.5	21.5	21.5	21.5
REINFORCING STEEL EPOXY COATED (LBS.)	0°	1255	1255	1304	1255	1291	1328	1206	1231	1231
	15°	1277	1277	1326	1277	1313	1350	1228	1253	1253
	30°	1465	1465	1405	1502	1392	1429	1502	1332	1332
	45°	1745	1745	1818	1672	1721	1769	1672	1708	1708
④ PILING (NO.)	ALL	10	10	11	13	14	15	17	18	18

NOTE: DIMENSIONS ARE OUT TO OUT. D = PIN DIAMETER

TYPICAL NUMBERS OF PILES AND SPACINGS AND FACTORED PIER LOADS

BRIDGE LENGTH	70'-0	80'-0	90'-0	100'-0	110'-0	120'-0	130'-0	140'-0	150'-0
① TYP. NO. OF PILES	10	10	11	13	14	15	17	18	18
TYP. PILE SPACES @ 0°	9 SPA. @ ABOUT 4'-9	9 SPA. @ ABOUT 4'-9	10 SPA. @ 4'-3	12 SPA. @ ABOUT 3'-6	② 13 SPA. @ ABOUT 3'-3	② 14 SPA. @ ABOUT 3'-0	③ 16 SPA. @ ABOUT 2'-8	③ 17 SPA. @ 2'-6	③ 17 SPA. @ 2'-6
TYP. PILE SPACES @ 15°	9 SPA. @ ABOUT 4'-11	9 SPA. @ ABOUT 4'-11	10 SPA. @ ABOUT 4'-5	12 SPA. @ 3'-8	13 SPA. @ ABOUT 3'-5	② 14 SPA. @ ABOUT 3'-2	③ 16 SPA. @ 2'-9	③ 17 SPA. @ ABOUT 2'-7	③ 17 SPA. @ ABOUT 2'-7
TYP. PILE SPACES @ 30°	9 SPA. @ ABOUT 5'-5	9 SPA. @ ABOUT 5'-5	10 SPA. @ ABOUT 4'-11	12 SPA. @ ABOUT 4'-1	13 SPA. @ ABOUT 3'-9	14 SPA. @ ABOUT 3'-6	② 16 SPA. @ ABOUT 3'-1	② 17 SPA. @ ABOUT 2'-11	② 17 SPA. @ ABOUT 2'-11
TYP. PILE SPACES @ 45°	9 SPA. @ ABOUT 6'-8	9 SPA. @ ABOUT 6'-8	10 SPA. @ ABOUT 6'-0	12 SPA. @ ABOUT 5'-0	13 SPA. @ ABOUT 4'-7	14 SPA. @ ABOUT 4'-4	16 SPA. @ ABOUT 3'-9	17 SPA. @ ABOUT 3'-6	17 SPA. @ ABOUT 3'-6
④ PU, STRENGTH I DESIGN LOAD FOR PIER (KIPS)	934 KIPS	1028 KIPS	1135 KIPS	1252 KIPS	1366 KIPS	1502 KIPS	1635 KIPS	1776 KIPS	1933 KIPS

- ① THIS TYPICAL NUMBER OF PILES MAY NEED TO BE MODIFIED DEPENDING ON SELECTED P10L PILE TYPE AND SIZE, HEIGHT, AND RESISTANCE. IF THE NUMBER OF PILES IS DIFFERENT THAN IN THE TABLE FOR THE BRIDGE LENGTH, THE NUMBER OF 5d1 BARS AND OTHER QUANTITIES NEED TO BE CHECKED AND ADJUSTED AS NEEDED. PILES 10 INCHES AND 12 INCHES IN SIZE MUST BE SPACED 2'-6 OR MORE, PILES 14 INCHES IN SIZE MUST BE SPACED 2'-11 OR MORE, AND PILES 16 INCHES IN SIZE MUST BE SPACED 3'-4 OR MORE.
- ② MAXIMUM P10L PILE SIZE AT THIS SPACING IS 14 INCHES.
- ③ MAXIMUM P10L PILE SIZE AT THIS SPACING IS 12 INCHES.
- ④ STRENGTH I PIER DESIGN LOAD INCLUDES DYNAMIC LOAD ALLOWANCE (IM), AND PIER CAP WEIGHT IS BASED ON 45° SKW. USE THIS PU FOR DETERMINING NUMBER OF PILES AND PILE LENGTH.

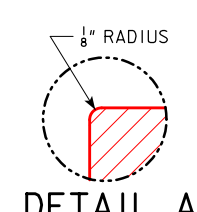
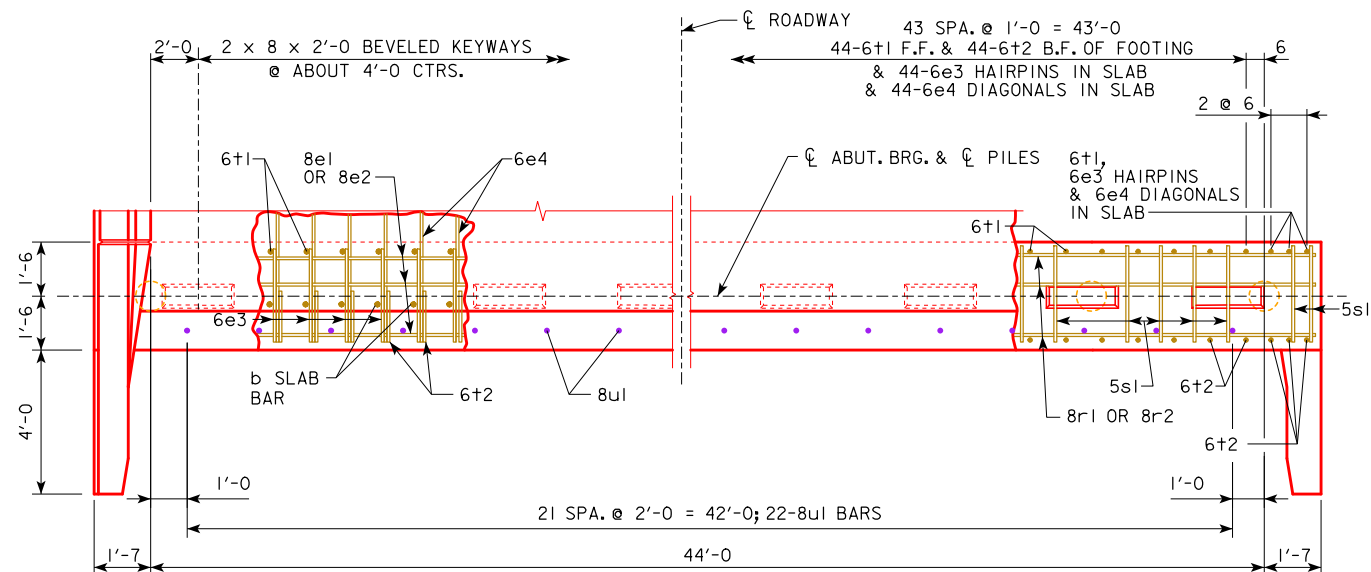
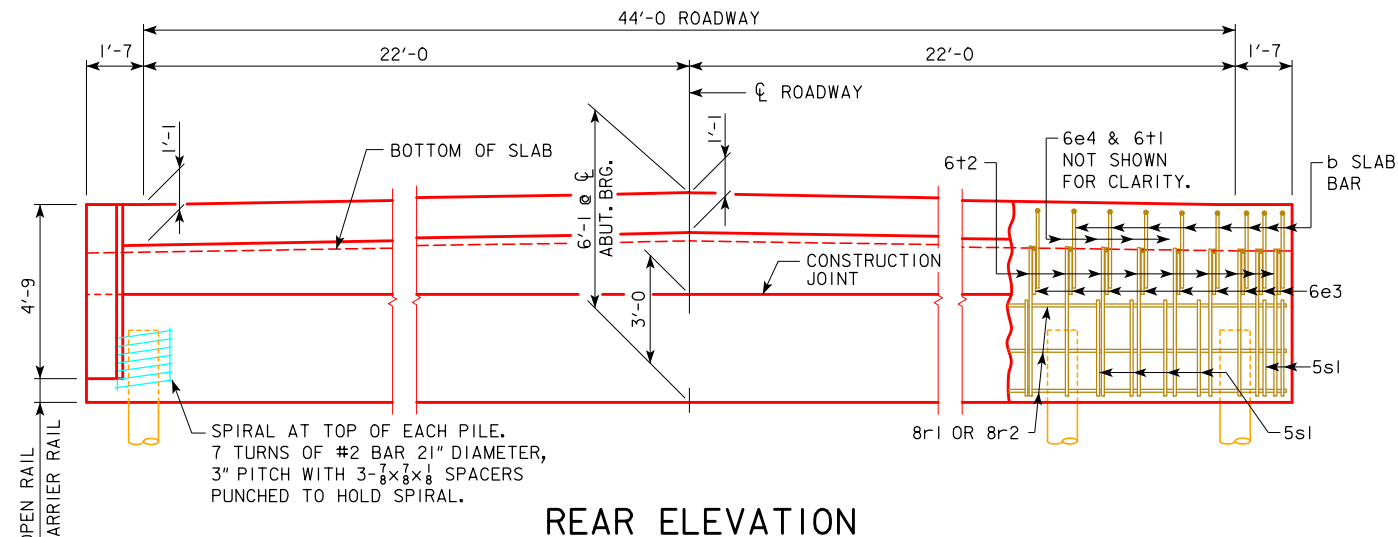
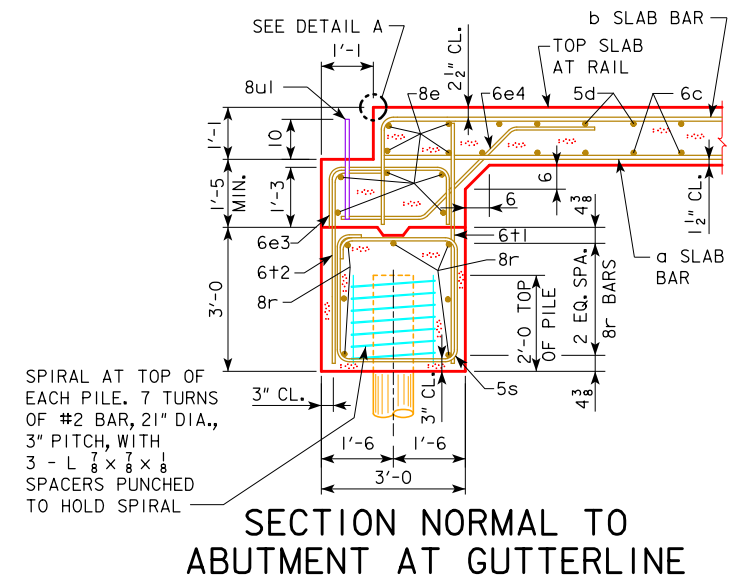
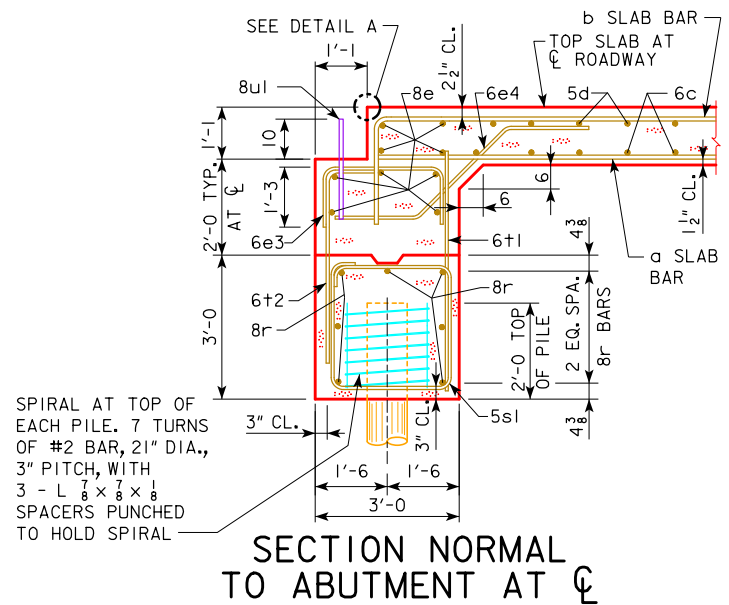
PIER NOTES:

- FOR SKEWED BRIDGES BOTTOM OF PIER CAP IS TO BE SLOPED TO COMPENSATE FOR GRADE. THEREFORE BOTTOM OF CAP ELEVATIONS WILL BE REQUIRED AT THE C OF ROADWAY AND AT EACH EXTERIOR PILE.
- THE MINIMUM CLEAR DISTANCE FROM THE FACE OF THE CONCRETE TO NEAR REINFORCING BAR IS TO BE 2 INCHES UNLESS OTHERWISE NOTED OR SHOWN.
- THE PIER PILES ARE TO BE DRIVEN TO FULL PENETRATION, IF PRACTICABLE, BUT IN NO CASE TO A BEARING VALUE LESS THAN THE PILE BEARING REQUIRED FOR EACH BRIDGE LENGTH AS SHOWN ON THIS SHEET.
- THE CONCRETE QUANTITIES ARE BASED ON THE USE OF TYPE 3 PILING. IF TYPE 1 OR TYPE 2 IS USED, THE CONCRETE QUANTITIES MAY BE ADJUSTED TO ACCOUNT FOR THE CONCRETE DISPLACED BY THE PILING.
- ALL REINFORCING STEEL IS TO BE GRADE 60.
- PIER PILING WAS DESIGNED FOR HL-93 LOADING WITH AN ALLOWANCE FOR 20 LBS. PER SQ. FT. FUTURE WEARING SURFACE.

REVISED 08-2020. UPDATED BRIDGE ENGINEER SIGNATURE.

08-2020 LATEST REVISION DATE	 APPROVED BY BRIDGE ENGINEER	STANDARD DESIGN - 44' ROADWAY, 3 SPAN BRIDGES <h2 style="margin: 0;">CONTINUOUS CONCRETE SLAB BRIDGES</h2> JULY, 2014 NON-MONOLITHIC PIER CAP DETAILS ALL BRIDGES	J44-29-14
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REVISED 03-2016: REVISION FOR ADDITION OF PAVING NOTCH BAR 8u1.
REVISED 08-2020: UPDATED BRIDGE ENGINEER SIGNATURE.



ABUTMENT NOTES:

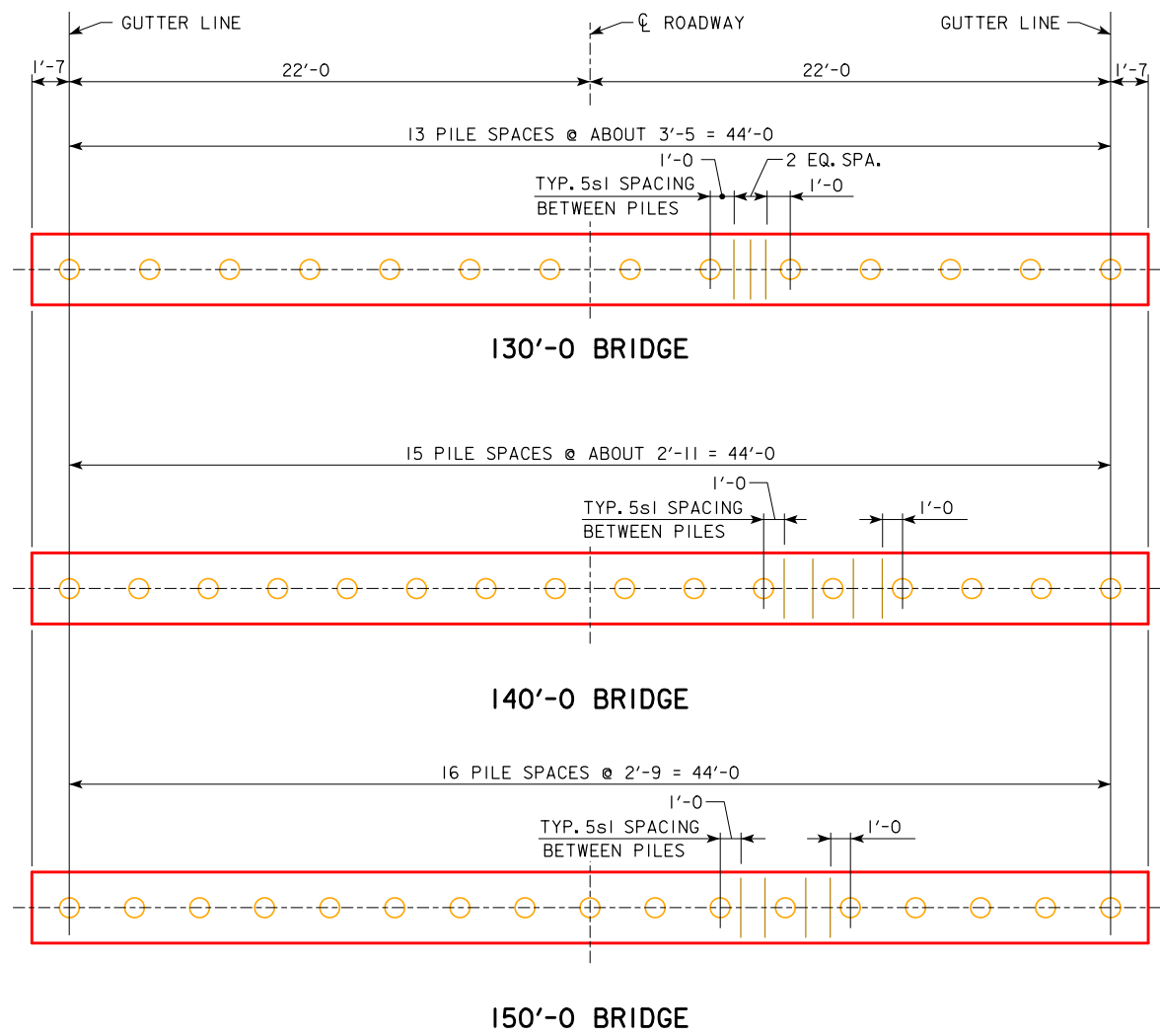
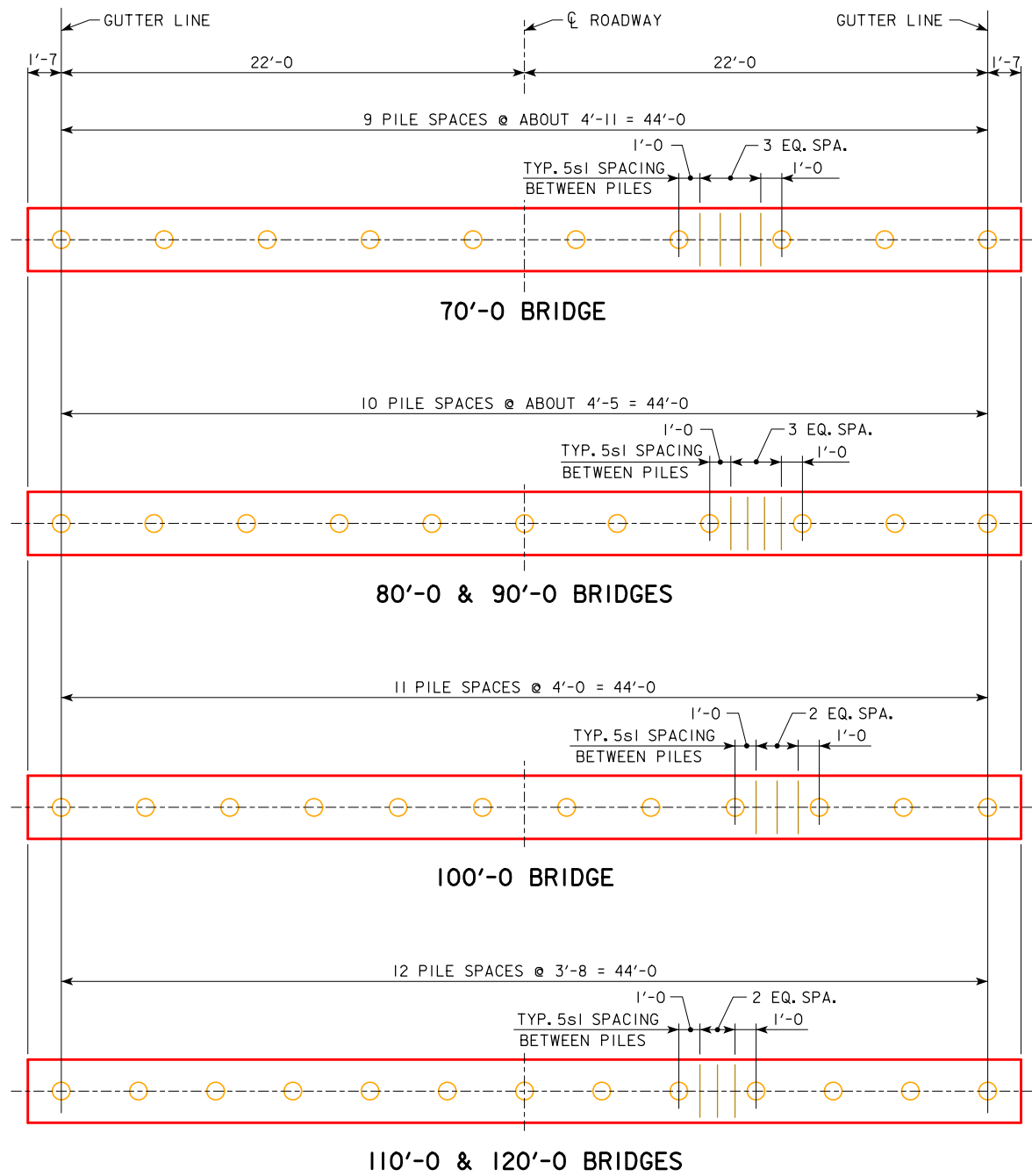
- THE CONCRETE AND REINFORCING STEEL FOR THE WINGS IS INCLUDED WITH THE SUPERSTRUCTURE.
- DETAILS ON THIS SHEET ARE TO BE USED ONLY WHEN ABUTMENTS ARE PLACED ON TIMBER PILES.
- THE MINIMUM CLEAR DISTANCE FROM THE FACE OF THE CONCRETE TO NEAR REINFORCING BAR IS TO BE 2 INCHES UNLESS OTHERWISE NOTED OR SHOWN.
- TIMBER PILES SHALL BE DRIVEN TO FULL PENETRATION IF PRACTICABLE BUT IN NO CASE TO A BEARING VALUE LESS THAN SHOWN IN DESIGN PLANS. TIMBER PILES SHALL NOT BE DRIVEN TO MORE THAN 160 TONS.
- ALL REINFORCING STEEL IS TO BE GRADE 60.
- ABUTMENT PILING WAS DESIGNED FOR HL-93 LOADING WITH AN ALLOWANCE FOR 20 LBS. PER SQ. FT. FUTURE WEARING SURFACE.

NUMBER OF PILES AND ABUTMENT DESIGN LOADS									
BRIDGE LENGTH	70'-0	80'-0	90'-0	100'-0	110'-0	120'-0	130'-0	140'-0	150'-0
PILING - NUMBER	10	11	11	12	13	13	14	16	17
PU, STRENGTH I DESIGN LOAD - KIPS	504	539	571	613	653	699	744	Δ 869	Δ 922

Δ INCLUDES DYNAMIC LOAD ALLOWANCE
NOTE: PU, STRENGTH I DESIGN LOAD (KIPS) IS NOT THE VALUE USED IN THE FIELD FOR DRIVING PILES.

NOTE: WING REINFORCING AND RAIL NOT SHOWN.
6e3, 6e4, AND 8e ARE INCLUDED WITH SUPERSTRUCTURE QUANTITIES.

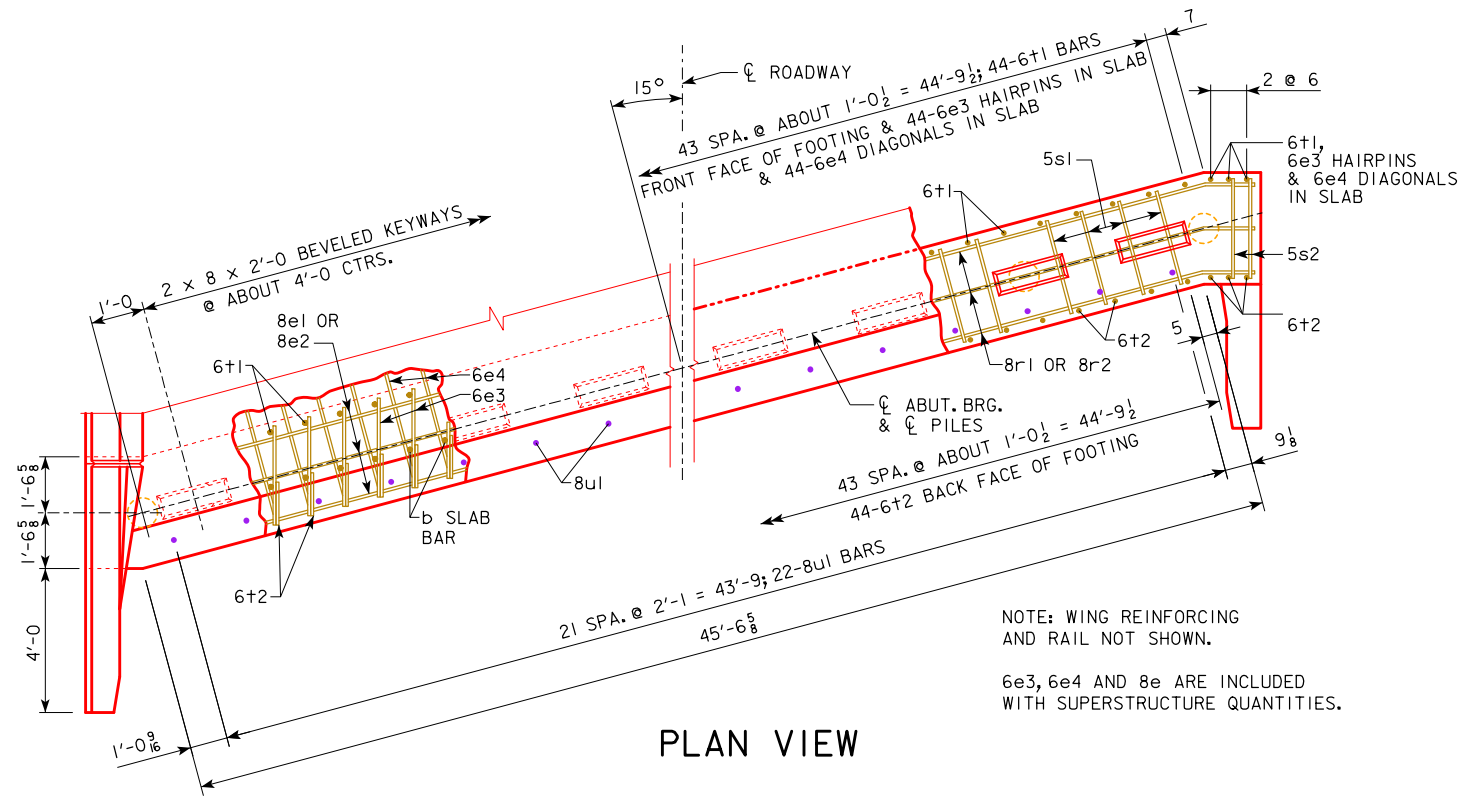
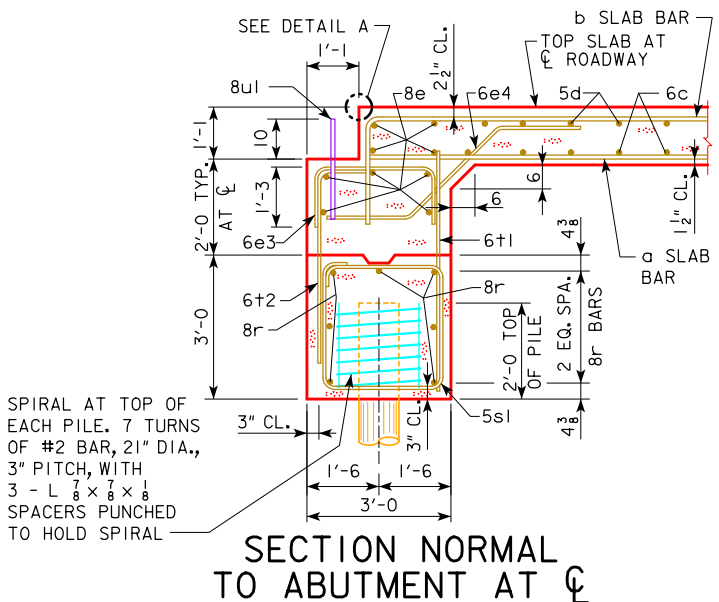
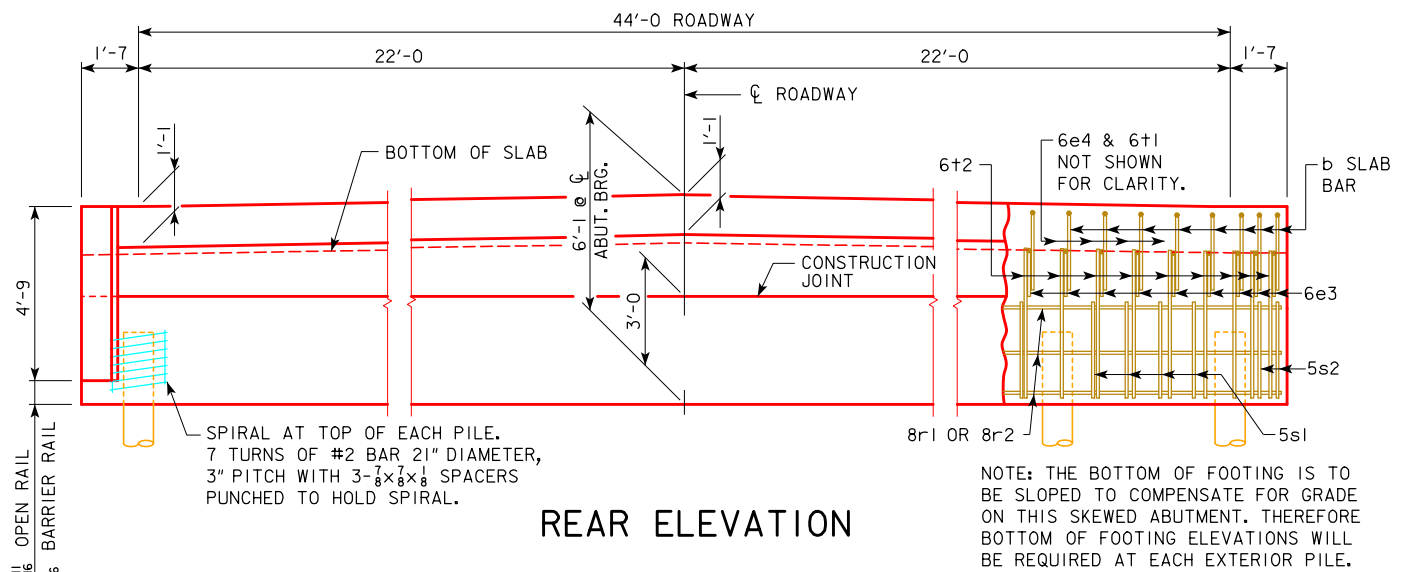
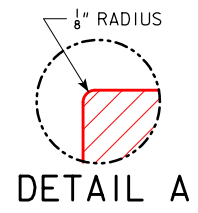
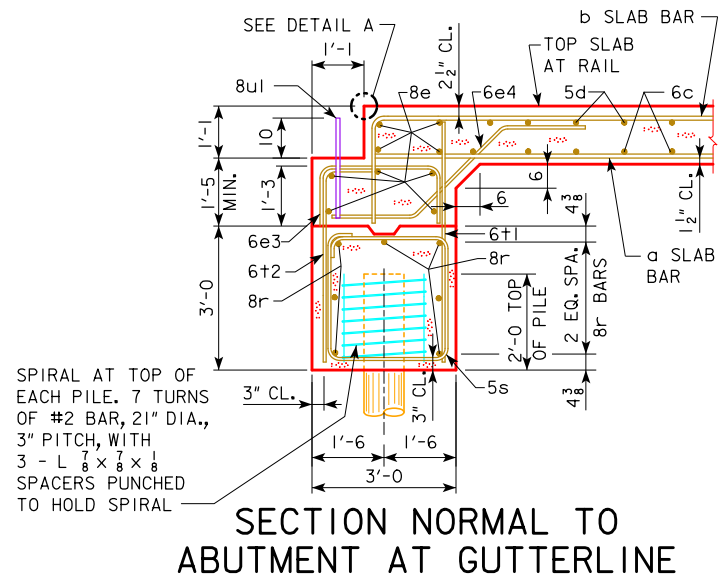
08-2020 LATEST REVISION DATE APPROVED BY BRIDGE ENGINEER	 STANDARD DESIGN - 44' ROADWAY, 3 SPAN BRIDGES CONTINUOUS CONCRETE SLAB BRIDGES JULY, 2014
	0° ABUTMENT DETAILS SKEW - TIMBER PILING
	J44-30-14



PILE PLAN - 0° SKEW
WOOD PILING

08-2020 LATEST REVISION DATE	APPROVED BY BRIDGE ENGINEER <i>[Signature]</i>		
		STANDARD DESIGN - 44' ROADWAY, 3 SPAN BRIDGES CONTINUOUS CONCRETE SLAB BRIDGES JULY, 2014	
		0° ABUTMENT DETAILS SKEW - TIMBER PILING	J44-31-14

REVISED 08-2020: UPDATED BRIDGE ENGINEER SIGNATURE.



ABUTMENT NOTES:

THE CONCRETE AND REINFORCING STEEL FOR THE WINGS IS INCLUDED WITH THE SUPERSTRUCTURE.

DETAILS ON THIS SHEET ARE TO BE USED ONLY WHEN ABUTMENTS ARE PLACED ON TIMBER PILES.

THE MINIMUM CLEAR DISTANCE FROM THE FACE OF THE CONCRETE TO NEAR REINFORCING BAR IS TO BE 2 INCHES UNLESS OTHERWISE NOTED OR SHOWN.

TIMBER PILES SHALL BE DRIVEN TO FULL PENETRATION IF PRACTICABLE BUT IN NO CASE TO A BEARING VALUE LESS THAN SHOWN IN DESIGN PLANS. TIMBER PILES SHALL NOT BE DRIVEN TO MORE THAN 160 TONS.

ALL REINFORCING STEEL IS TO BE GRADE 60.

ABUTMENT PILING WAS DESIGNED FOR HL-93 LOADING WITH AN ALLOWANCE FOR 20 LBS. PER SQ. FT. FUTURE WEARING SURFACE.

NUMBER OF PILES AND ABUTMENT DESIGN LOADS										
BRIDGE LENGTH	70'-0	80'-0	90'-0	100'-0	110'-0	120'-0	130'-0	140'-0	150'-0	
PILING - NUMBER	10	11	11	12	13	13	14	16	17	
PU, STRENGTH I DESIGN LOAD - KIPS	509	544	577	618	658	705	749	Δ 875	Δ 927	

Δ INCLUDES DYNAMIC LOAD ALLOWANCE
NOTE: PU, STRENGTH I DESIGN LOAD (KIPS) IS NOT THE VALUE USED IN THE FIELD FOR DRIVING PILES.



STANDARD DESIGN - 44' ROADWAY, 3 SPAN BRIDGES

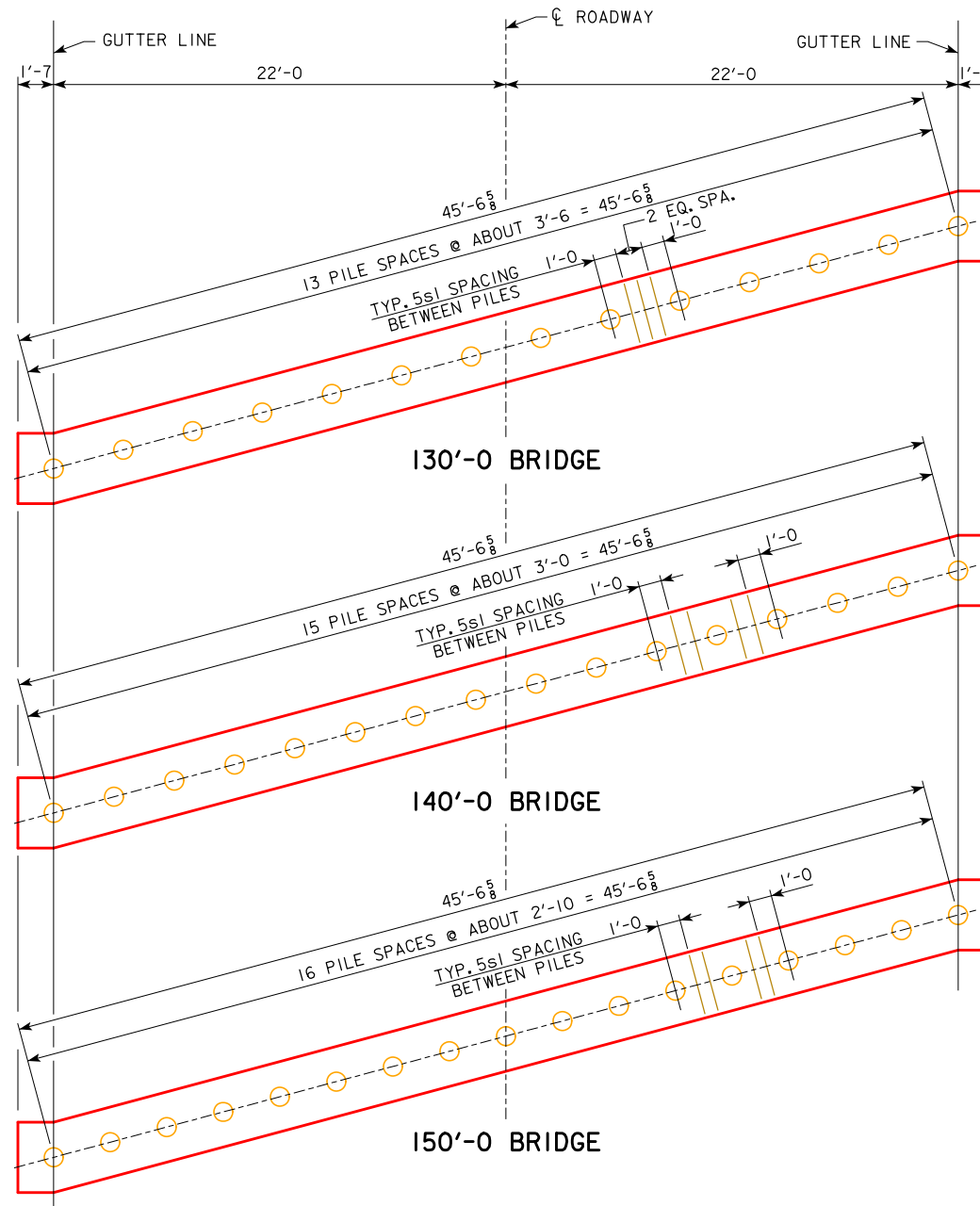
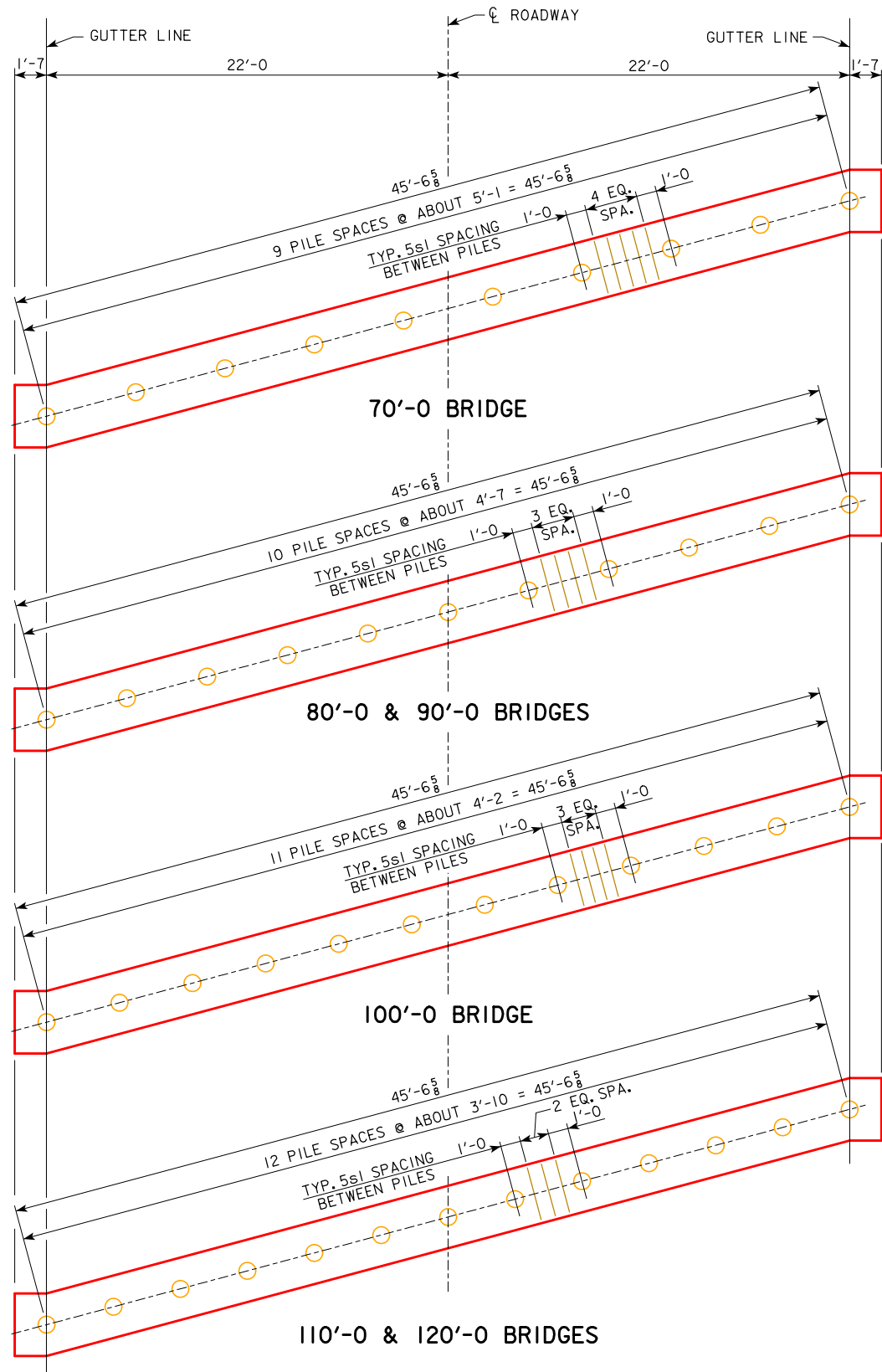
CONTINUOUS CONCRETE SLAB BRIDGES

JULY, 2014

**ABUTMENT DETAILS
15° SKEW - TIMBER PILING**

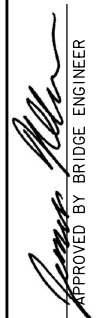

J44-32-14

REVISED 03-2016; REVISION FOR ADDITION OF PAVING NOTCH BAR 8u1. REVISED 08-2020; UPDATED BRIDGE ENGINEER SIGNATURE.

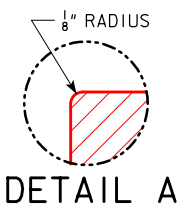
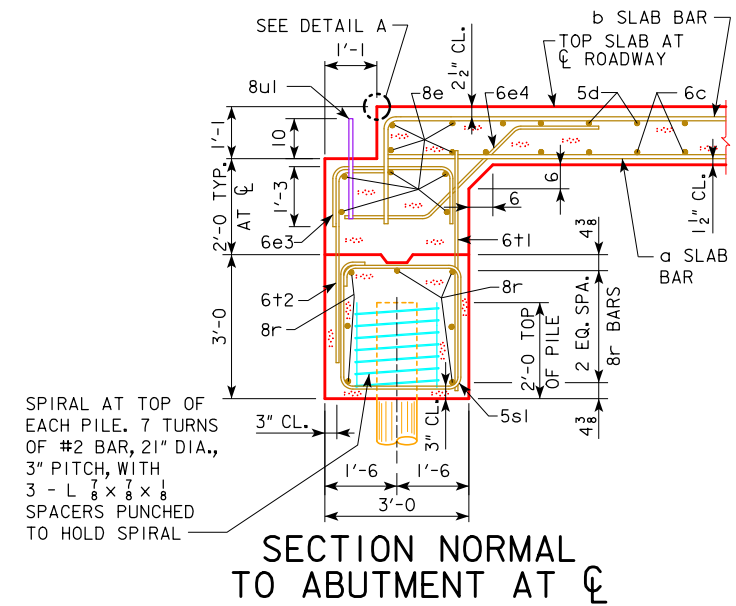
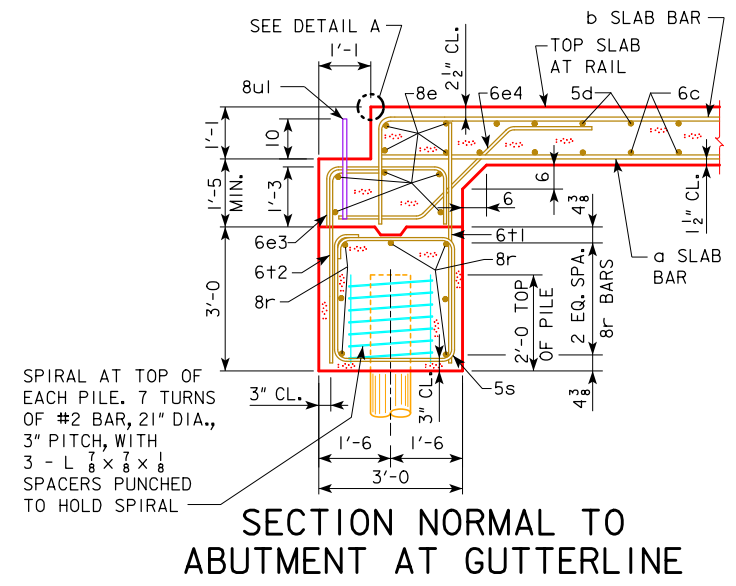
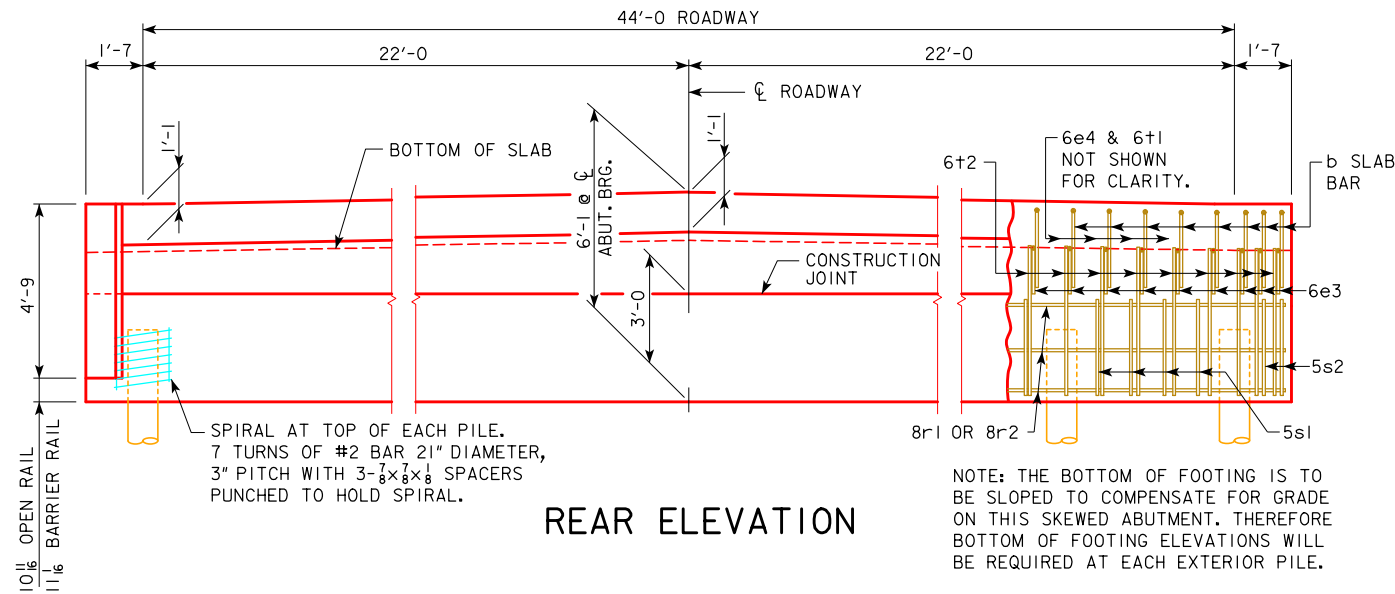


PILE PLAN - 15° SKEW WOOD PILING

REVISED 08-2020: UPDATED BRIDGE ENGINEER SIGNATURE.

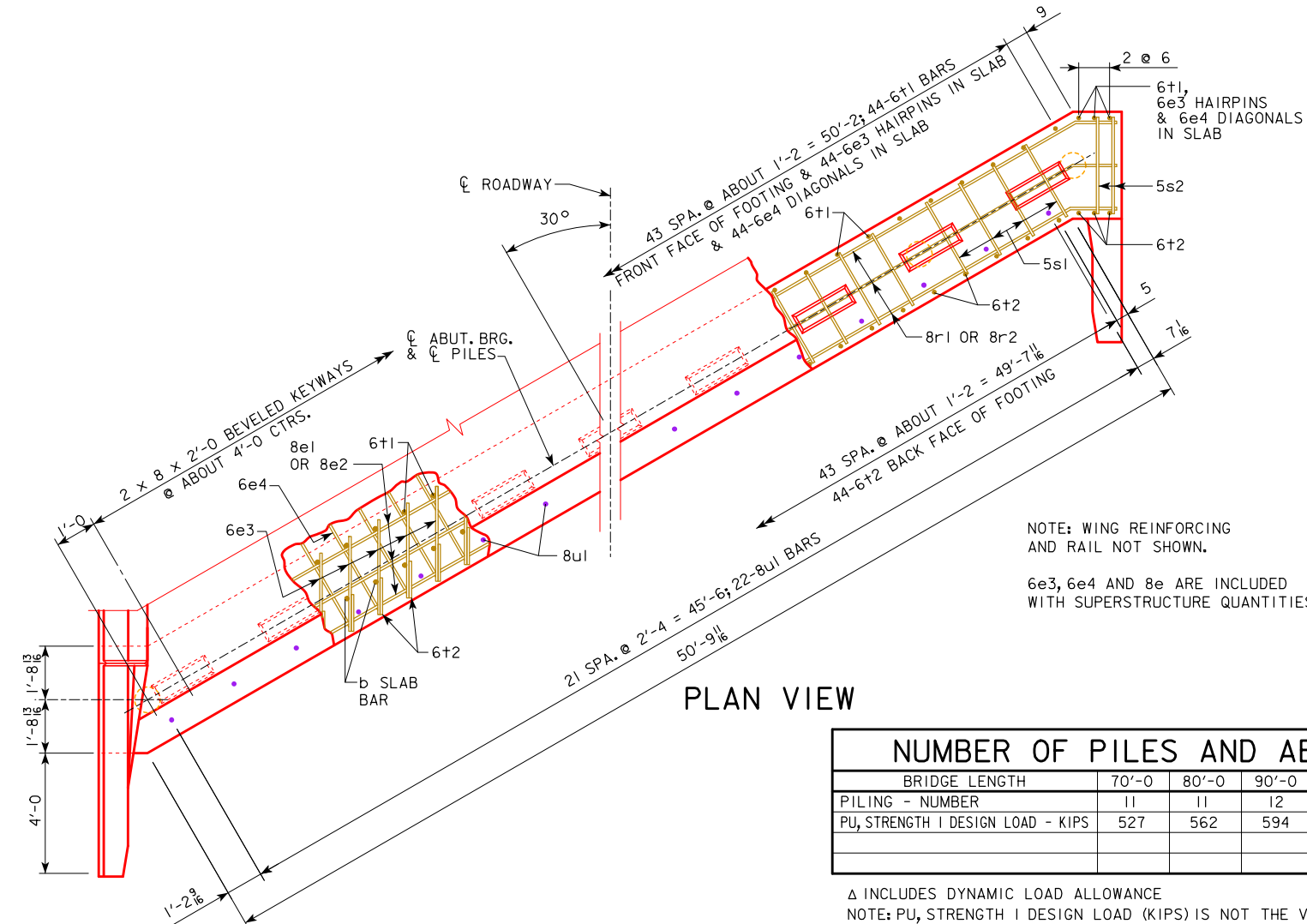
08-2020 LATEST REVISION DATE  APPROVED BY BRIDGE ENGINEER	
	STANDARD DESIGN - 44' ROADWAY, 3 SPAN BRIDGES CONTINUOUS CONCRETE SLAB BRIDGES JULY, 2014
	ABUTMENT DETAILS 15° SKEW - TIMBER PILING

J44-33-14



ABUTMENT NOTES:

- THE CONCRETE AND REINFORCING STEEL FOR THE WINGS IS INCLUDED WITH THE SUPERSTRUCTURE.
- DETAILS ON THIS SHEET ARE TO BE USED ONLY WHEN ABUTMENTS ARE PLACED ON TIMBER PILES.
- THE MINIMUM CLEAR DISTANCE FROM THE FACE OF THE CONCRETE TO NEAR REINFORCING BAR IS TO BE 2 INCHES UNLESS OTHERWISE NOTED OR SHOWN.
- TIMBER PILES SHALL BE DRIVEN TO FULL PENETRATION IF PRACTICABLE BUT IN NO CASE TO A BEARING VALUE LESS THAN SHOWN IN DESIGN PLANS. TIMBER PILES SHALL NOT BE DRIVEN TO MORE THAN 160 TONS.
- ALL REINFORCING STEEL IS TO BE GRADE 60.
- ABUTMENT PILING WAS DESIGNED FOR HL-93 LOADING WITH AN ALLOWANCE FOR 20 LBS. PER SQ. FT. FUTURE WEARING SURFACE.



NUMBER OF PILES AND ABUTMENT DESIGN LOADS									
BRIDGE LENGTH	70'-0	80'-0	90'-0	100'-0	110'-0	120'-0	130'-0	140'-0	150'-0
PILING - NUMBER	11	11	12	12	13	14	15	17	18
PU, STRENGTH I DESIGN LOAD - KIPS	527	562	594	636	676	723	768	Δ 893	Δ 946

Δ INCLUDES DYNAMIC LOAD ALLOWANCE
NOTE: PU, STRENGTH I DESIGN LOAD (KIPS) IS NOT THE VALUE USED IN THE FIELD FOR DRIVING PILES.

REVISED 03-2016; REVISION FOR ADDITION OF PAVING NOTCH BAR 8u1.
REVISED 08-2020; UPDATED BRIDGE ENGINEER SIGNATURE.

IOWA DOT Highway Division

STANDARD DESIGN - 44' ROADWAY, 3 SPAN BRIDGES

**CONTINUOUS CONCRETE
SLAB BRIDGES**

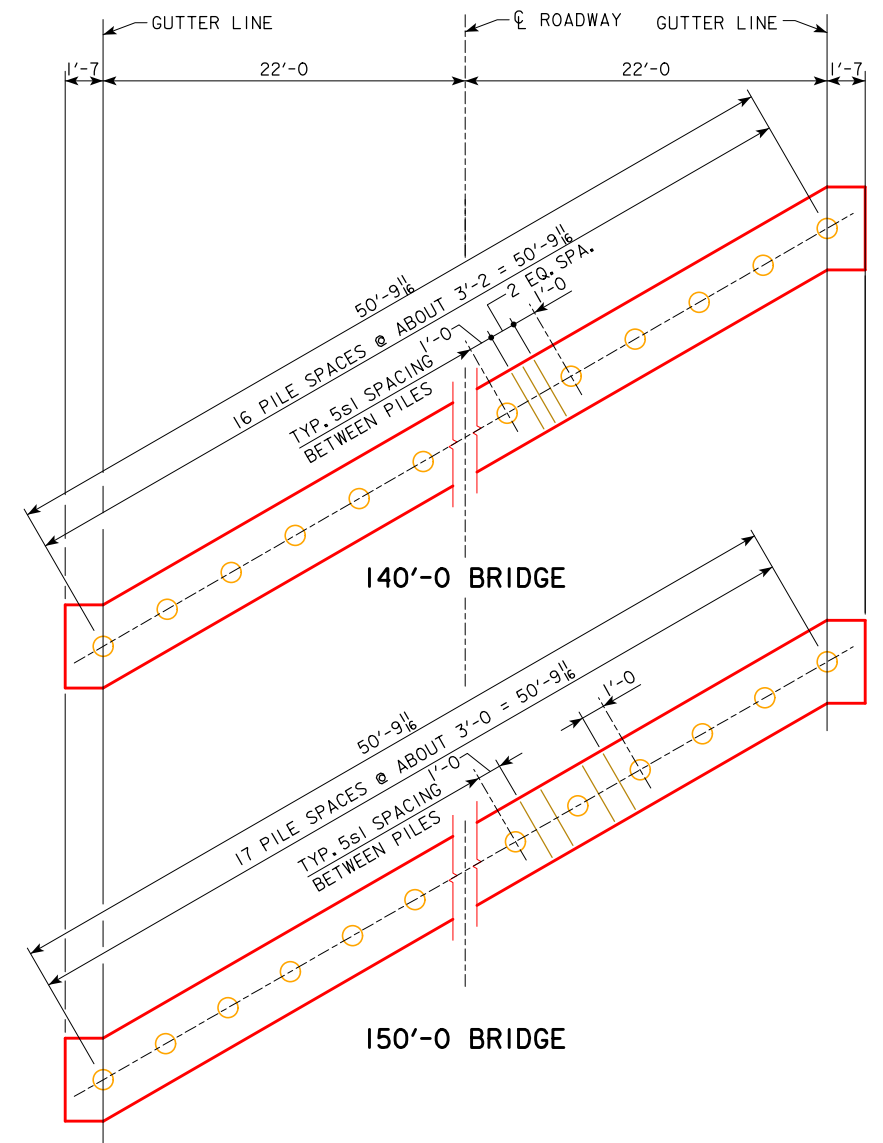
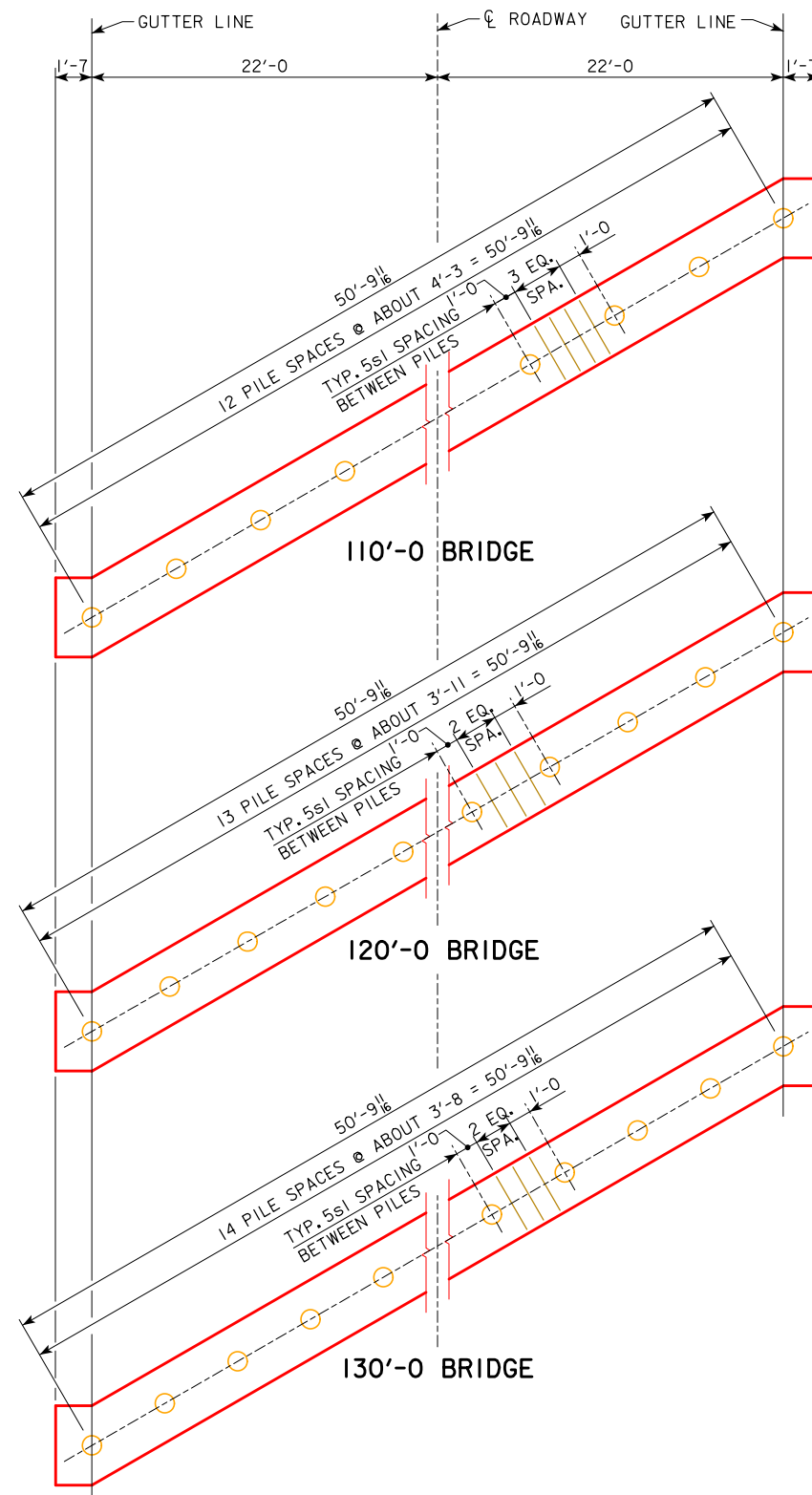
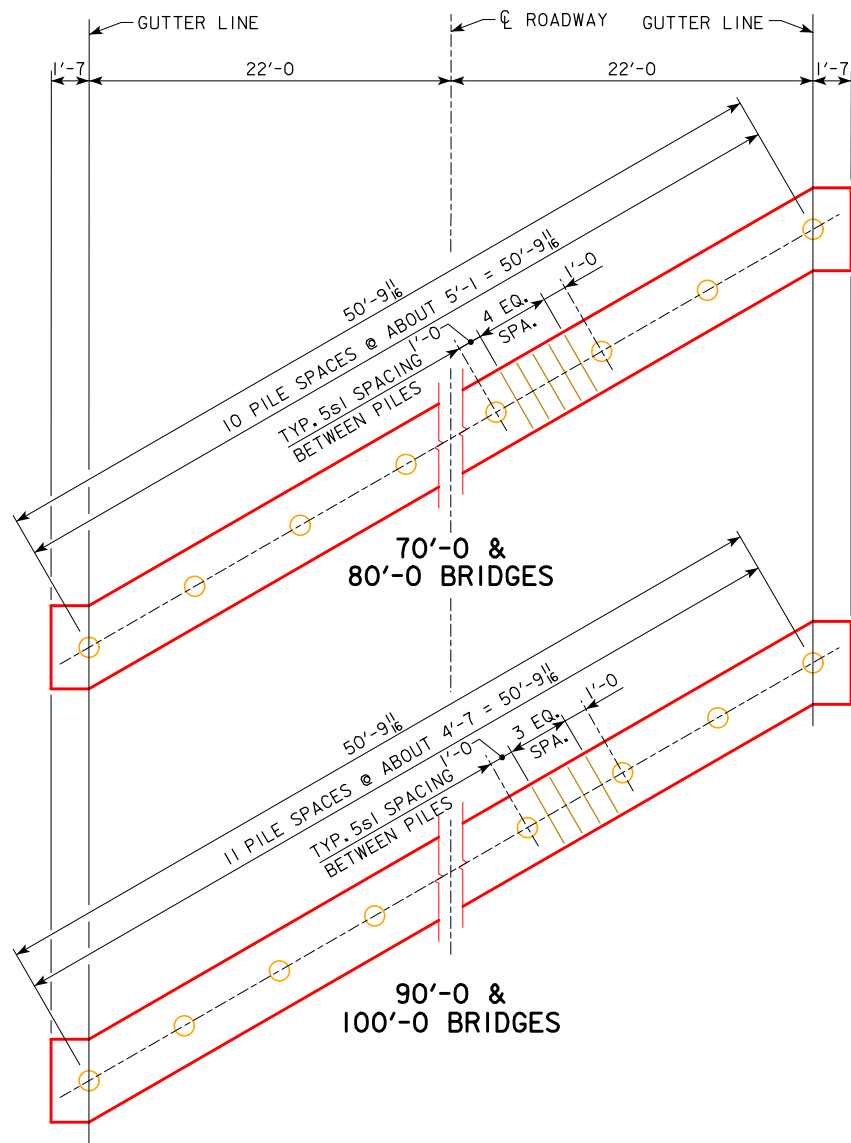
JULY, 2014

08-2020
LATEST REVISION DATE

APPROVED BY BRIDGE ENGINEER

**30° ABUTMENT DETAILS
SKEW - TIMBER PILING**

J44-34-14

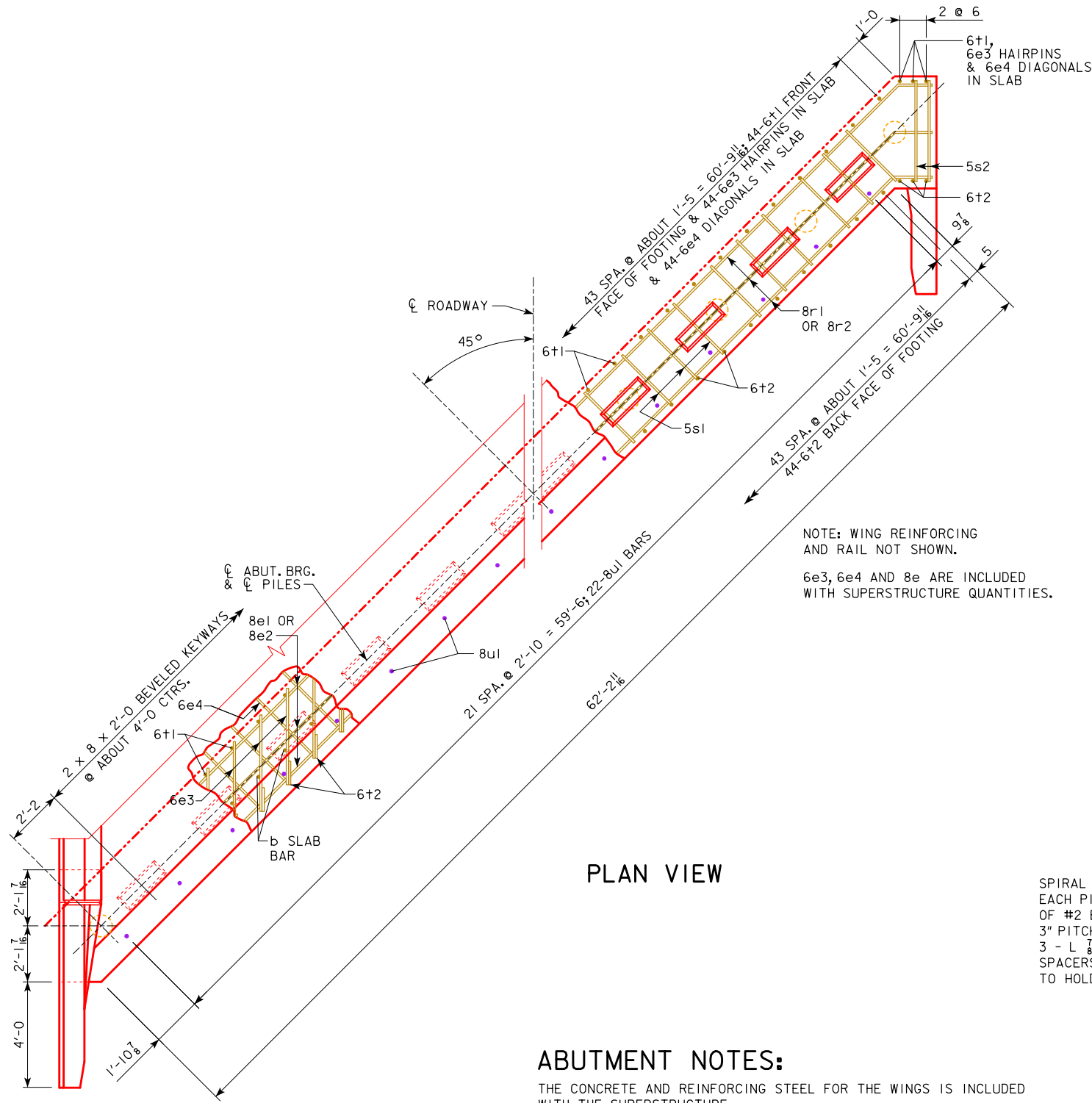


PILE PLAN - 30° SKEW
WOOD PILING

08-2020 LATEST REVISION DATE APPROVED BY BRIDGE ENGINEER		
	STANDARD DESIGN - 44' ROADWAY, 3 SPAN BRIDGES CONTINUOUS CONCRETE SLAB BRIDGES JULY, 2014	
	30° ABUTMENT DETAILS SKEW - TIMBER PILING	J44-35-14

REVISED 08-2020: UPDATED BRIDGE ENGINEER SIGNATURE.

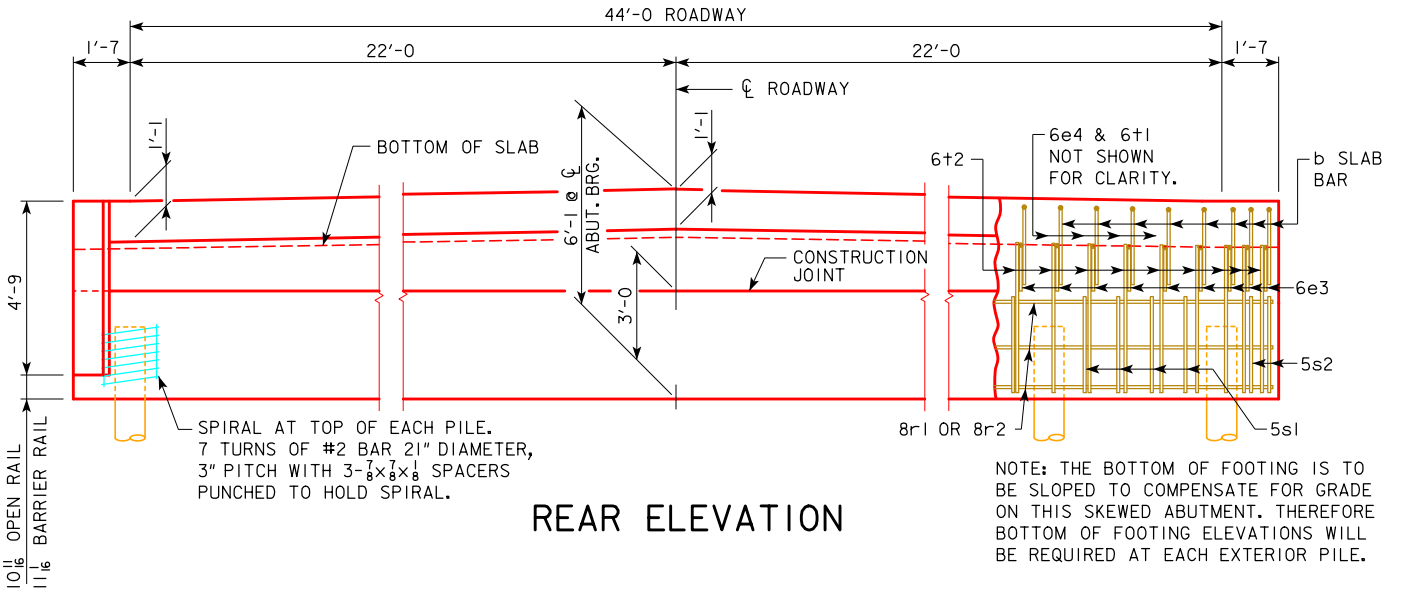
REVISED 03-2016; REVISION FOR ADDITION OF PAVING NOTCH BAR 8u1.
 REVISED 08-2020; UPDATED BRIDGE ENGINEER SIGNATURE.



PLAN VIEW

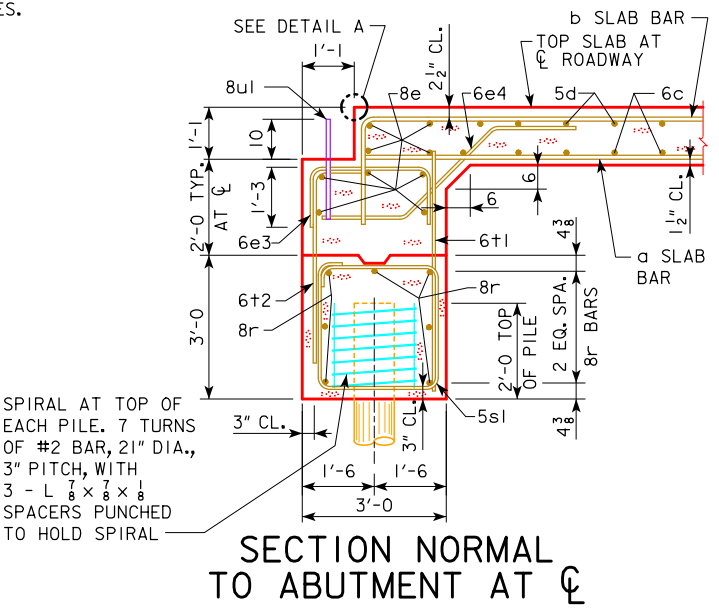
NOTE: WING REINFORCING AND RAIL NOT SHOWN.
 6e3, 6e4 AND 8e ARE INCLUDED WITH SUPERSTRUCTURE QUANTITIES.

ABUTMENT NOTES:
 THE CONCRETE AND REINFORCING STEEL FOR THE WINGS IS INCLUDED WITH THE SUPERSTRUCTURE.
 DETAILS ON THIS SHEET ARE TO BE USED ONLY WHEN ABUTMENTS ARE PLACED ON TIMBER PILES.
 THE MINIMUM CLEAR DISTANCE FROM THE FACE OF THE CONCRETE TO NEAR REINFORCING BAR IS TO BE 2 INCHES UNLESS OTHERWISE NOTED OR SHOWN.
 TIMBER PILES SHALL BE DRIVEN TO FULL PENETRATION IF PRACTICABLE BUT IN NO CASE TO A BEARING VALUE LESS THAN SHOWN IN DESIGN PLANS. TIMBER PILES SHALL NOT BE DRIVEN TO MORE THAN 160 TONS.
 ALL REINFORCING STEEL IS TO BE GRADE 60.
 ABUTMENT PILING WAS DESIGNED FOR HL-93 LOADING WITH AN ALLOWANCE FOR 20 LBS. PER SQ. FT. FUTURE WEARING SURFACE.

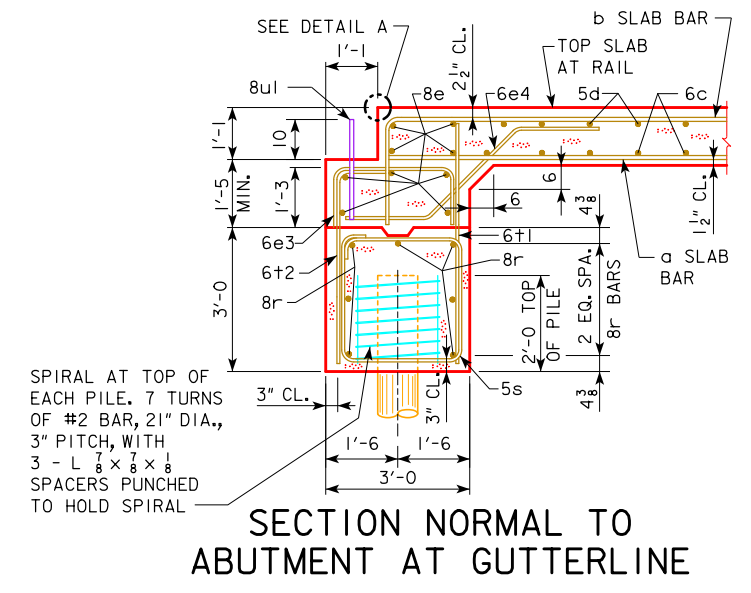


REAR ELEVATION

NOTE: THE BOTTOM OF FOOTING IS TO BE SLOPED TO COMPENSATE FOR GRADE ON THIS SKEWED ABUTMENT. THEREFORE BOTTOM OF FOOTING ELEVATIONS WILL BE REQUIRED AT EACH EXTERIOR PILE.



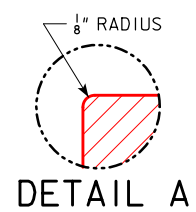
SECTION NORMAL TO ABUTMENT AT CL





SECTION NORMAL TO ABUTMENT AT GUTTERLINE

SPIRAL AT TOP OF EACH PILE. 7 TURNS OF #2 BAR, 21" DIA., 3" PITCH, WITH 3 - L 7/8 x 7/8 x 1/8 SPACERS PUNCHED TO HOLD SPIRAL

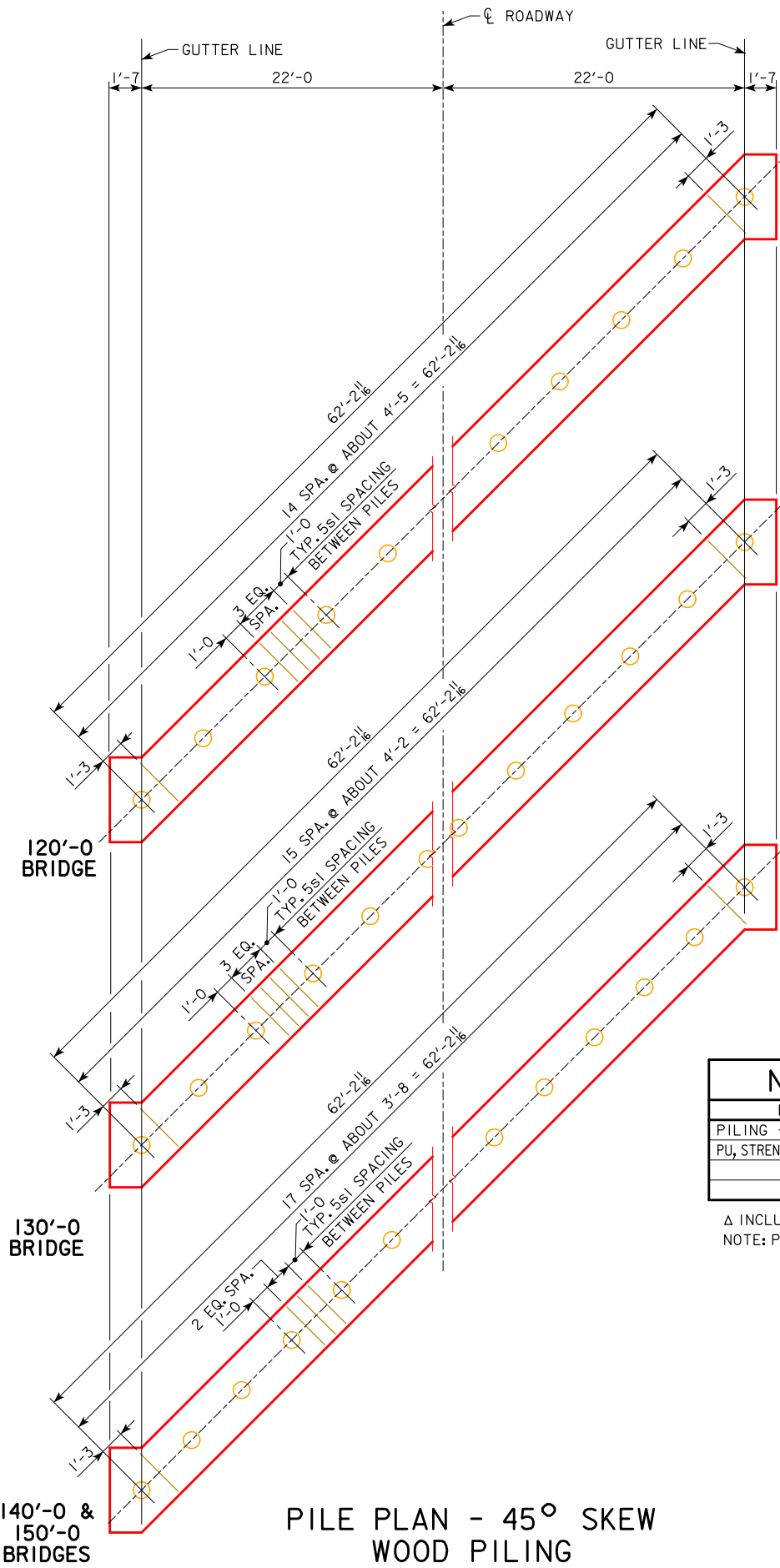
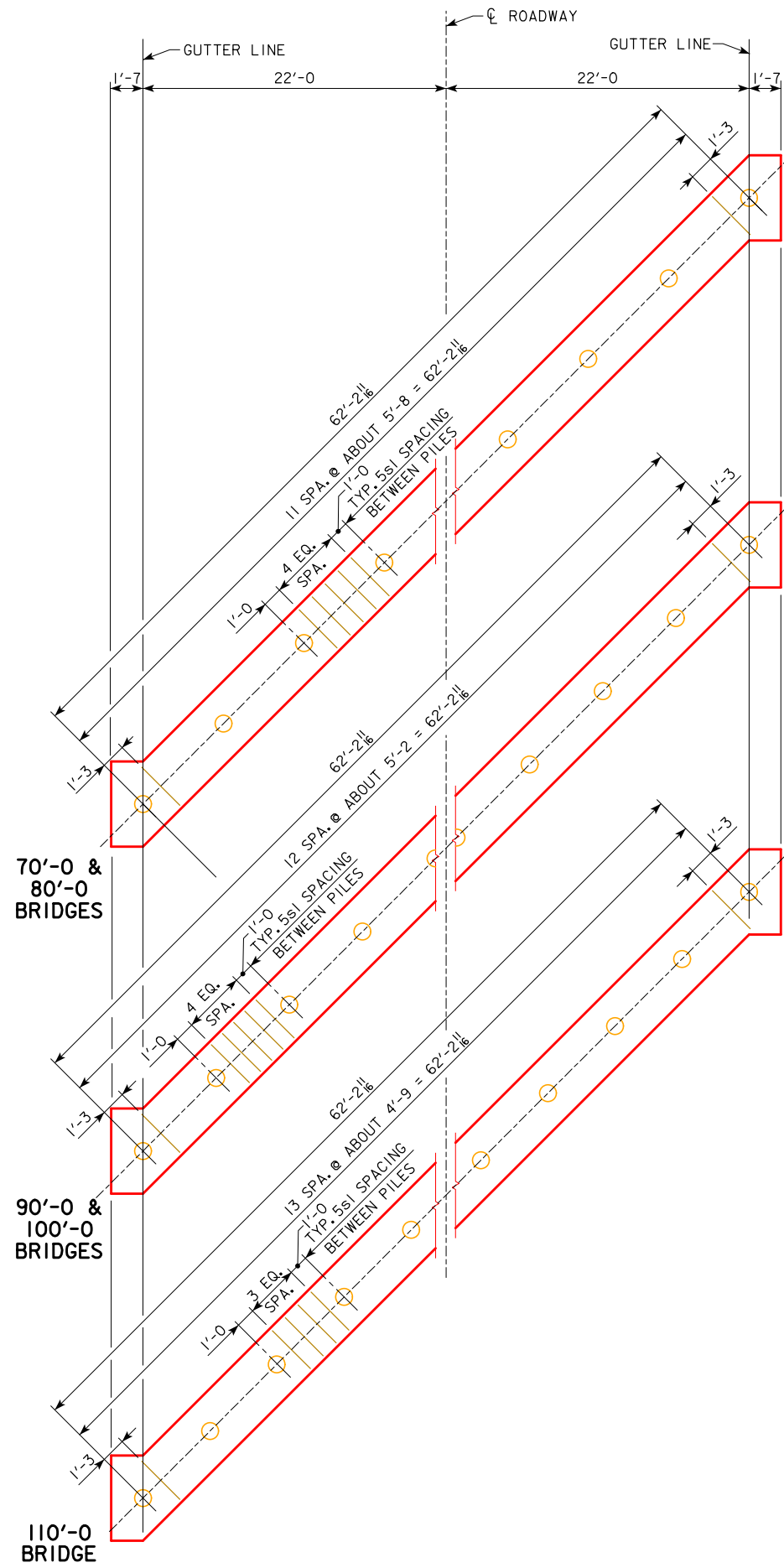
SPIRAL AT TOP OF EACH PILE. 7 TURNS OF #2 BAR, 21" DIA., 3" PITCH, WITH 3 - L 7/8 x 7/8 x 1/8 SPACERS PUNCHED TO HOLD SPIRAL



DETAIL A

08-2020 LATEST REVISION DATE  APPROVED BY BRIDGE ENGINEER	 STANDARD DESIGN - 44' ROADWAY, 3 SPAN BRIDGES CONTINUOUS CONCRETE SLAB BRIDGES JULY, 2014	J44-36-14
	45° ABUTMENT DETAILS SKEW - TIMBER PILING	
	08-2020 LATEST REVISION DATE	

REVISED 08-2020: UPDATED BRIDGE ENGINEER SIGNATURE.



PILE PLAN - 45° SKEW
WOOD PILING

NUMBER OF PILES AND ABUTMENT DESIGN LOADS									
BRIDGE LENGTH	70'-0	80'-0	90'-0	100'-0	110'-0	120'-0	130'-0	140'-0	150'-0
PILING - NUMBER	12	12	13	13	14	15	16	18	18
PU, STRENGTH I DESIGN LOAD - KIPS	566	599	632	674	715	762	807	Δ 933	Δ 986

Δ INCLUDES DYNAMIC LOAD ALLOWANCE
NOTE: PU, STRENGTH I DESIGN LOAD (KIPS) IS NOT THE VALUE USED IN THE FIELD FOR DRIVING PILES.

08-2020 LATEST REVISION DATE APPROVED BY BRIDGE ENGINEER	 STANDARD DESIGN - 44' ROADWAY, 3 SPAN BRIDGES CONTINUOUS CONCRETE SLAB BRIDGES JULY, 2014	
	45° ABUTMENT DETAILS 45° SKEW - TIMBER PILING	J44-37-14

BILL OF REINFORCING STEEL - ONE ABUTMENT - 0° SKEW

BRIDGE LENGTH		70'-0	80'-0	90'-0	100'-0	110'-0	120'-0	130'-0	140'-0	150'-0		
MARK	LOCATION	SHAPE	LENGTH	NO.	WEIGHT	NO.	WEIGHT	NO.	WEIGHT	NO.	WEIGHT	
8r1	ABUTMENT FOOTING LONGITUDINAL	—	28'-4	7	530	7	530	7	530	7	530	
8r2	ABUTMENT FOOTING LONGITUDINAL	—	23'-4	7	436	7	436	7	436	7	436	
5s1	ABUTMENT FOOTING HOOPS	□	11'-0	40	459	44	505	37	425	40	459	
6+1	FOOTING TO SLAB BARS	—	5'-0	50	376	50	376	50	376	50	376	
6+2	FOOTING TO SLAB BARS	—	5'-7	50	419	50	419	50	419	50	419	
#2	PILE SPIRAL	⌀	38'-6	10	64	11	71	11	71	12	77	
	SPIRAL SPACERS, L 1/8"x1/8"x1/8"x 0.70	—	1'-10	30	39	33	42	33	42	36	46	
REINFORCING STEEL EPOXY COATED - TOTAL (LBS.)				2323	2379	2379	2309	2354	2354	2398	2316	2348

BILL OF REINFORCING STEEL - ONE ABUTMENT - 15° SKEW

BRIDGE LENGTH		70'-0	80'-0	90'-0	100'-0	110'-0	120'-0	130'-0	140'-0	150'-0		
MARK	LOCATION	SHAPE	LENGTH	NO.	WEIGHT	NO.	WEIGHT	NO.	WEIGHT	NO.	WEIGHT	
8r1	ABUTMENT FOOTING LONGITUDINAL	—	29'-2	7	545	7	545	7	545	7	545	
8r2	ABUTMENT FOOTING LONGITUDINAL	—	24'-1	7	450	7	450	7	450	7	450	
5s1	ABUTMENT FOOTING HOOPS	□	11'-0	45	516	40	459	44	505	36	413	
5s2	ABUTMENT FOOTING HOOPS	□	11'-3	4	47	4	47	4	47	4	47	
6+1	FOOTING TO SLAB BARS	—	5'-0	50	376	50	376	50	376	50	376	
6+2	FOOTING TO SLAB BARS	—	5'-7	50	419	50	419	50	419	50	419	
#2	PILE SPIRAL	⌀	38'-6	10	64	11	71	11	71	12	77	
	SPIRAL SPACERS, L 1/8"x1/8"x1/8"x 0.70	—	1'-10	30	39	33	42	33	42	36	46	
REINFORCING STEEL EPOXY COATED - TOTAL (LBS.)				2456	2409	2409	2465	2384	2384	2428	2346	2378

BILL OF REINFORCING STEEL - ONE ABUTMENT - 30° SKEW

BRIDGE LENGTH		70'-0	80'-0	90'-0	100'-0	110'-0	120'-0	130'-0	140'-0	150'-0		
MARK	LOCATION	SHAPE	LENGTH	NO.	WEIGHT	NO.	WEIGHT	NO.	WEIGHT	NO.	WEIGHT	
8r1	ABUTMENT FOOTING LONGITUDINAL	—	31'-9	7	593	7	593	7	593	7	593	
8r2	ABUTMENT FOOTING LONGITUDINAL	—	26'-9	7	500	7	500	7	500	7	500	
5s1	ABUTMENT FOOTING HOOPS	□	11'-0	50	574	50	574	44	505	48	551	
5s2	ABUTMENT FOOTING HOOPS	□	11'-11	4	50	4	50	4	50	4	50	
6+1	FOOTING TO SLAB BARS	—	5'-0	50	376	50	376	50	376	50	376	
6+2	FOOTING TO SLAB BARS	—	5'-7	50	419	50	419	50	419	50	419	
#2	PILE SPIRAL	⌀	38'-6	11	71	11	71	12	77	13	84	
	SPIRAL SPACERS, L 1/8"x1/8"x1/8"x 0.70	—	1'-10	33	42	33	42	36	46	39	50	
REINFORCING STEEL EPOXY COATED - TOTAL (LBS.)				2625	2625	2566	2566	2623	2529	2574	2663	2513

BILL OF REINFORCING STEEL - ONE ABUTMENT - 45° SKEW

BRIDGE LENGTH		70'-0	80'-0	90'-0	100'-0	110'-0	120'-0	130'-0	140'-0	150'-0		
MARK	LOCATION	SHAPE	LENGTH	NO.	WEIGHT	NO.	WEIGHT	NO.	WEIGHT	NO.	WEIGHT	
8r1	ABUTMENT FOOTING LONGITUDINAL	—	37'-6	7	701	7	701	7	701	7	701	
8r2	ABUTMENT FOOTING LONGITUDINAL	—	32'-5	7	606	7	606	7	606	7	606	
5s1	ABUTMENT FOOTING HOOPS	□	11'-0	55	631	55	631	60	688	60	688	
5s2	ABUTMENT FOOTING HOOPS	□	13'-6	4	56	4	56	4	56	4	56	
6+1	FOOTING TO SLAB BARS	—	5'-0	50	376	50	376	50	376	50	376	
6+2	FOOTING TO SLAB BARS	—	5'-7	50	419	50	419	50	419	50	419	
#2	PILE SPIRAL	⌀	38'-6	12	77	12	77	13	84	14	90	
	SPIRAL SPACERS, L 1/8"x1/8"x1/8"x 0.70	—	1'-10	36	46	36	46	39	50	39	50	
REINFORCING STEEL EPOXY COATED - TOTAL (LBS.)				2912	2912	2980	2980	2899	2954	3011	2928	2928

ESTIMATED QUANTITIES - ONE ABUT. - 0° SKEW

LOCATION	UNIT	70'-0	80'-0	90'-0	100'-0	110'-0	120'-0	130'-0	140'-0	150'-0
BRIDGE LENGTH										
STRUCTURAL CONCRETE (BRIDGE)	C.Y.	15.1	15.1	15.1	15.0	14.9	14.9	14.9	14.8	14.8
REINFORCING STEEL EPOXY COATED	LBS.	2323	2379	2379	2309	2354	2354	2398	2316	2348
WOOD PILES (TREATED)	NO.	10	11	11	12	13	13	14	16	17
PREBORE HOLES	FT.	-	-	-	-	-	-	-	160	170

ESTIMATED QUANTITIES - ONE ABUT. - 15° SKEW

LOCATION	UNIT	70'-0	80'-0	90'-0	100'-0	110'-0	120'-0	130'-0	140'-0	150'-0
BRIDGE LENGTH										
STRUCTURAL CONCRETE (BRIDGE)	C.Y.	15.7	15.7	15.7	15.6	15.5	15.5	15.5	15.4	15.3
REINFORCING STEEL EPOXY COATED	LBS.	2456	2409	2409	2465	2384	2384	2428	2346	2378
WOOD PILES (TREATED)	NO.	10	11	11	12	13	13	14	16	17
PREBORE HOLES	FT.	-	-	-	-	-	-	-	160	170

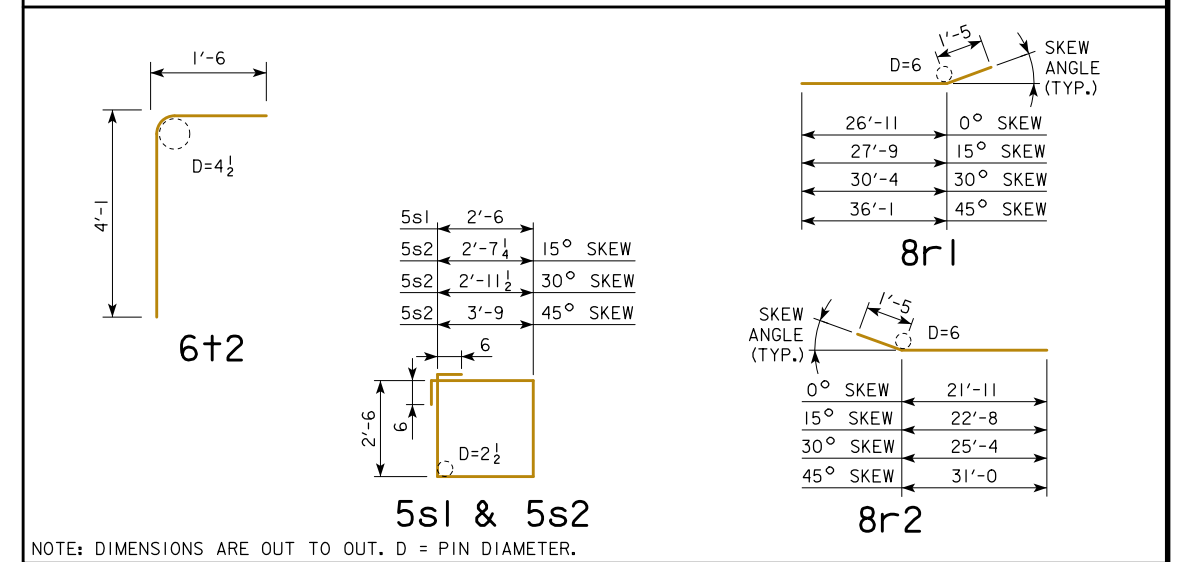
ESTIMATED QUANTITIES - ONE ABUT. - 30° SKEW

LOCATION	UNIT	70'-0	80'-0	90'-0	100'-0	110'-0	120'-0	130'-0	140'-0	150'-0
BRIDGE LENGTH										
STRUCTURAL CONCRETE (BRIDGE)	C.Y.	17.6	17.6	17.5	17.5	17.4	17.4	17.3	17.2	17.2
REINFORCING STEEL EPOXY COATED	LBS.	2625	2625	2566	2566	2623	2529	2574	2663	2513
WOOD PILES (TREATED)	NO.	11	11	12	12	13	14	15	17	18
PREBORE HOLES	FT.	-	-	-	-	-	-	-	170	180

ESTIMATED QUANTITIES - ONE ABUT. - 45° SKEW

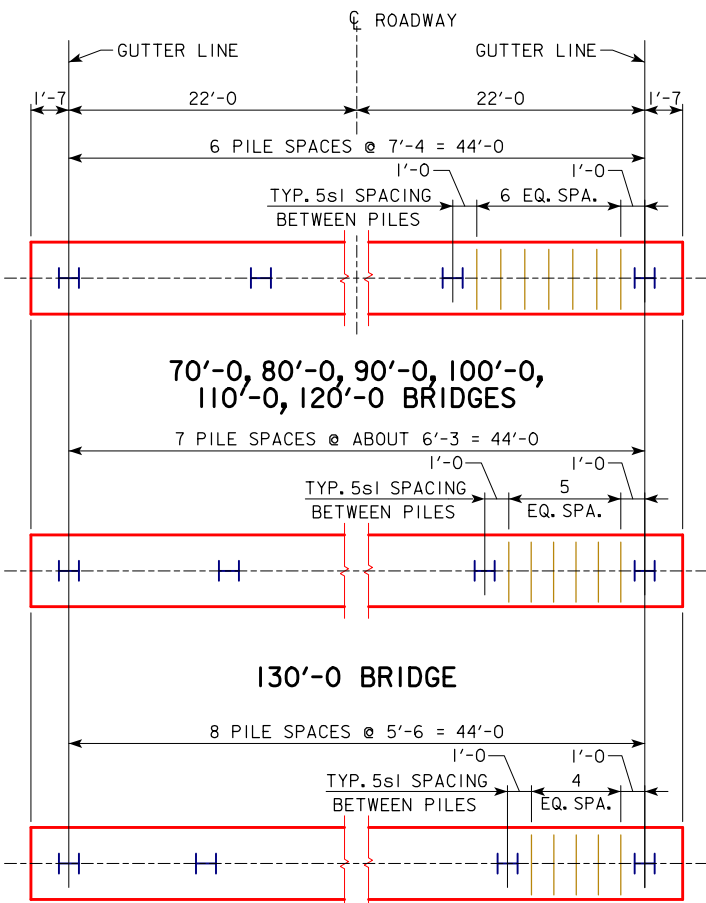
LOCATION	UNIT	70'-0	80'-0	90'-0	100'-0	110'-0	120'-0	130'-0	140'-0	150'-0
BRIDGE LENGTH										
STRUCTURAL CONCRETE (BRIDGE)	C.Y.	21.6	21.6	21.5	21.5	21.5	21.4	21.3	21.2	21.2
REINFORCING STEEL EPOXY COATED	LBS.	2912	2912	2980	2980	2899	2954	3011	2928	2928
WOOD PILES (TREATED)	NO.	12	12	13	13	14	15	16	18	18
PREBORE HOLES	FT.	-	-	-	-	-	-	-	180	180

BENT BAR DETAILS



REVISED 08-2020: UPDATED BRIDGE ENGINEER SIGNATURE.

08-2020 LATEST REVISION DATE APPROVED BY BRIDGE ENGINEER	
	STANDARD DESIGN - 44' ROADWAY, 3 SPAN BRIDGES CONTINUOUS CONCRETE SLAB BRIDGES JULY, 2014
	<div style="text-align: center;"> ABUTMENT DETAILS TIMBER PILING </div> <div style="text-align: center;"> J44-38-14 </div>

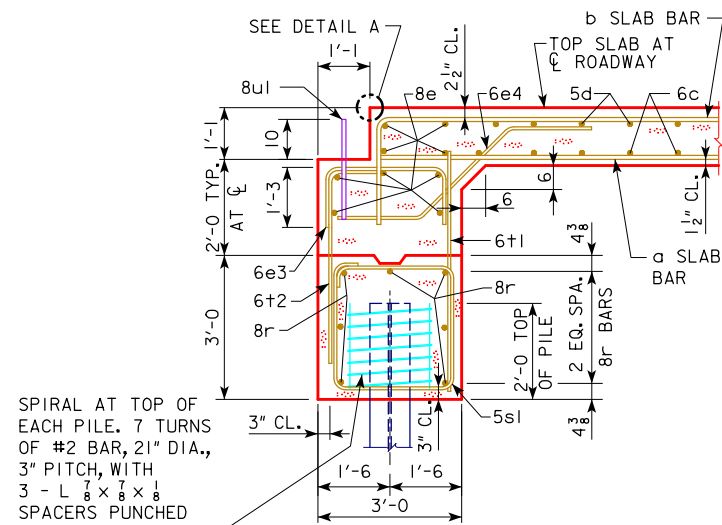


70'-0, 80'-0, 90'-0, 100'-0, 110'-0, 120'-0 BRIDGES

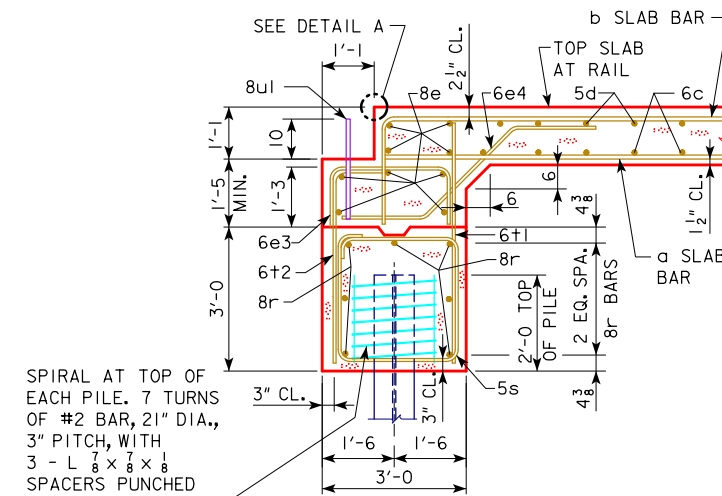
130'-0 BRIDGE

140'-0 & 150'-0 BRIDGES

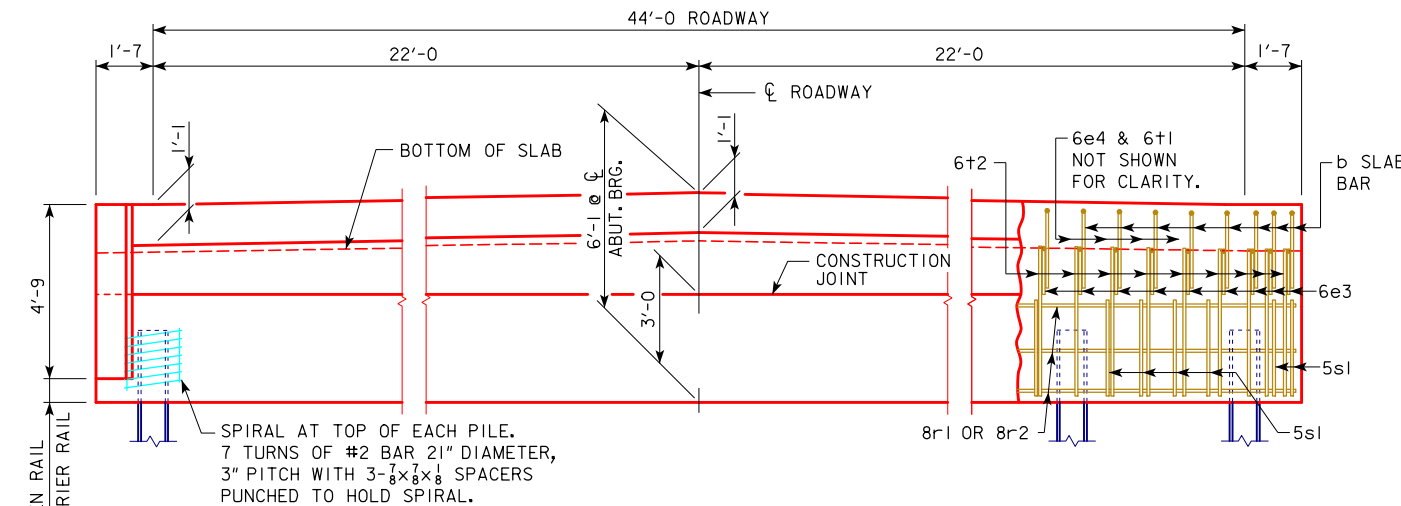
PILE PLAN - 0° SKEW STEEL PILING



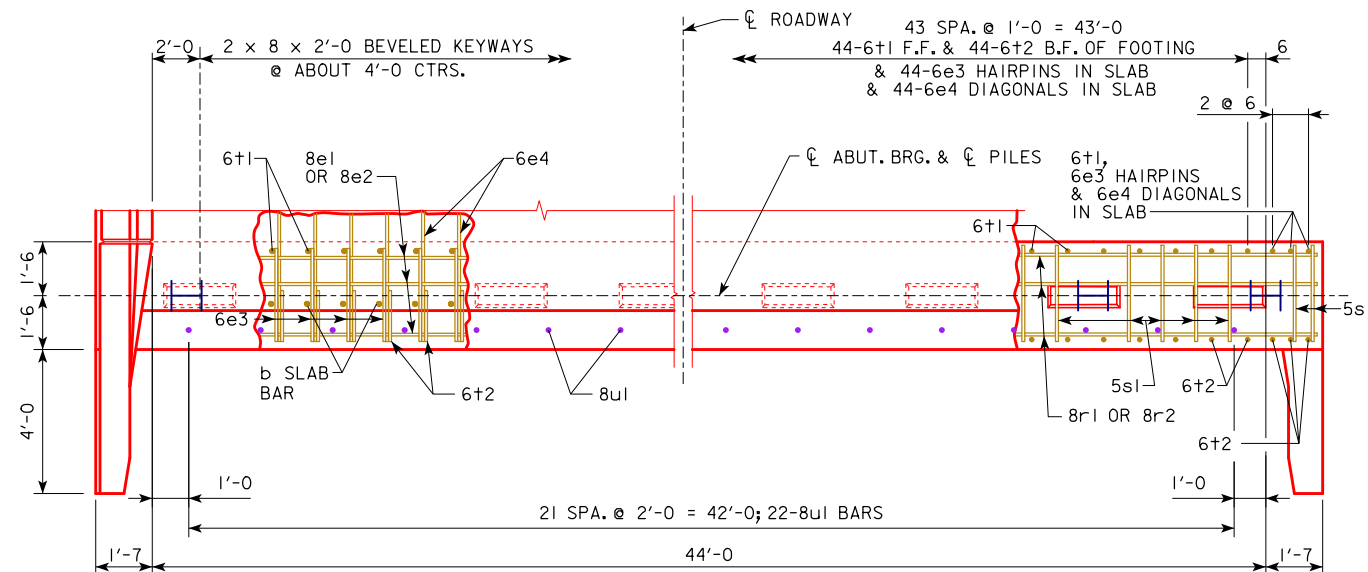
SECTION NORMAL TO ABUTMENT AT ROADWAY



SECTION NORMAL TO ABUTMENT AT GUTTERLINE

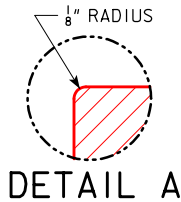


REAR ELEVATION



PLAN VIEW

NOTE: WING REINFORCING AND RAIL NOT SHOWN.
6e3, 6e4 AND 8e ARE INCLUDED WITH SUPERSTRUCTURE QUANTITIES.



DETAIL A

ABUTMENT NOTES:

- ALL PILING HP 10x42.
- THE CONCRETE AND REINFORCING STEEL FOR THE WINGS IS INCLUDED WITH THE SUPERSTRUCTURE.
- DETAILS ON THIS SHEET ARE TO BE USED ONLY WHEN ABUTMENTS ARE PLACED ON STEEL PILES. IF ROCK IS ENCOUNTERED CLOSER THAN 12' BELOW ABUTMENT FOOTING, SPECIAL ANALYSIS MAY BE REQUIRED.
- THE MINIMUM CLEAR DISTANCE FROM THE FACE OF THE CONCRETE TO NEAR REINFORCING BAR IS TO BE 2 INCHES UNLESS OTHERWISE NOTED OR SHOWN.
- STEEL ABUTMENT PILES SHALL BE DRIVEN TO FULL PENETRATION IF PRACTICABLE BUT IN NO CASE TO A BEARING VALUE LESS THAN SHOWN IN DESIGN PLANS.
- ALL REINFORCING STEEL IS TO BE GRADE 60.
- ABUTMENT PILING WAS DESIGNED FOR HL-93 LOADING WITH AN ALLOWANCE FOR 20 LBS. PER SQ. FT. FUTURE WEARING SURFACE.

NUMBER OF PILES AND ABUTMENT DESIGN LOADS									
BRIDGE LENGTH	70'-0	80'-0	90'-0	100'-0	110'-0	120'-0	130'-0	140'-0	150'-0
PILING - NUMBER	7	7	7	7	7	7	8	9	9
PU, STRENGTH I DESIGN LOAD - KIPS	504	539	571	613	653	699	744	Δ 869	Δ 922

Δ INCLUDES DYNAMIC LOAD ALLOWANCE
NOTE: PU, STRENGTH I DESIGN LOAD (KIPS) IS NOT THE VALUE USED IN THE FIELD FOR DRIVING PILES.

08-2020
LATEST REVISION DATE

[Signature]
APPROVED BY BRIDGE ENGINEER

STANDARD DESIGN - 44' ROADWAY, 3 SPAN BRIDGES

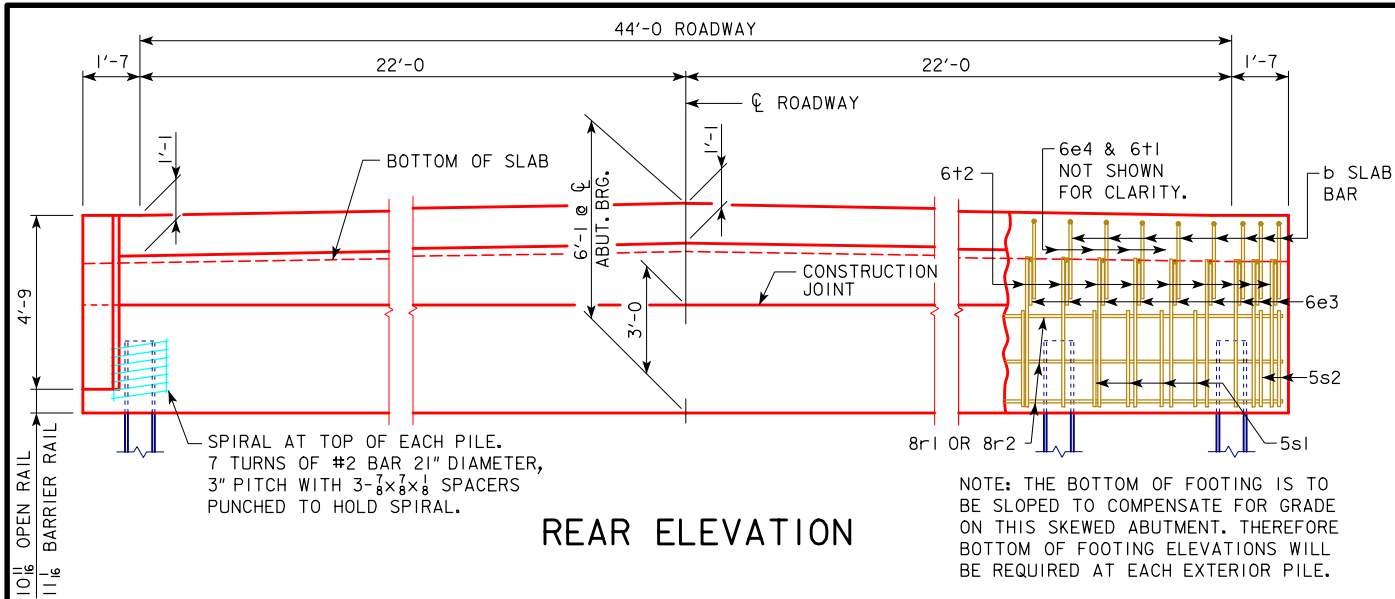
CONTINUOUS CONCRETE SLAB BRIDGES

JULY, 2014

ABUTMENT DETAILS
0° SKEW - STEEL PILING

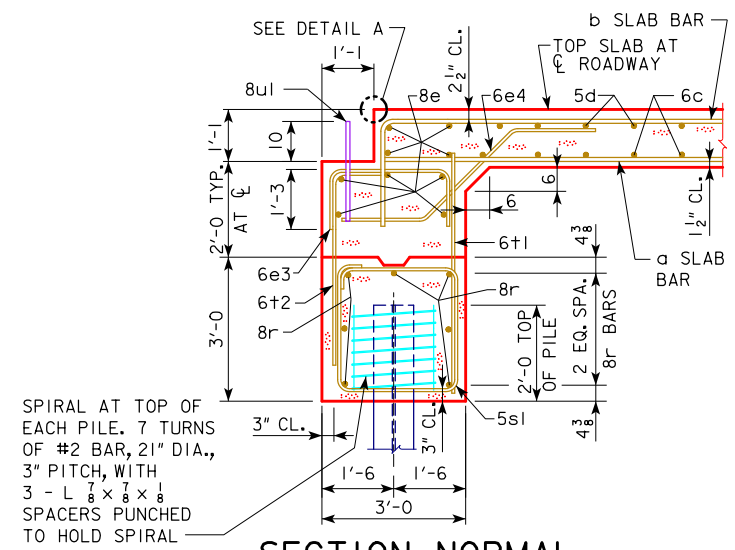
J44-39-14

REVISED 03-2016: REVISION FOR ADDITION OF PAVING NOTCH BAR 8U1.
REVISED 08-2020: UPDATED BRIDGE ENGINEER SIGNATURE.



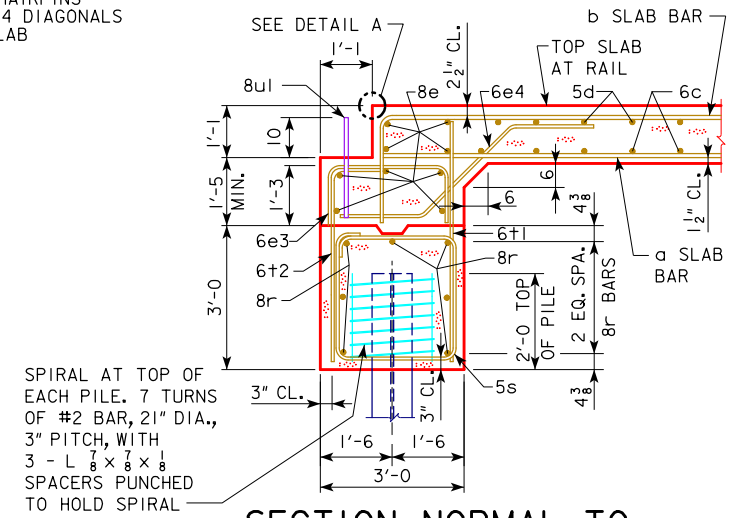
REAR ELEVATION

NOTE: THE BOTTOM OF FOOTING IS TO BE SLOPED TO COMPENSATE FOR GRADE ON THIS SKEWED ABUTMENT. THEREFORE BOTTOM OF FOOTING ELEVATIONS WILL BE REQUIRED AT EACH EXTERIOR PILE.



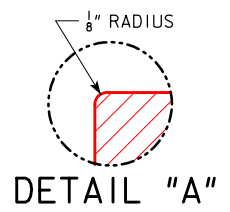
SECTION NORMAL TO ABUTMENT AT ROADWAY CL

SPIRAL AT TOP OF EACH PILE. 7 TURNS OF #2 BAR, 21\"/>

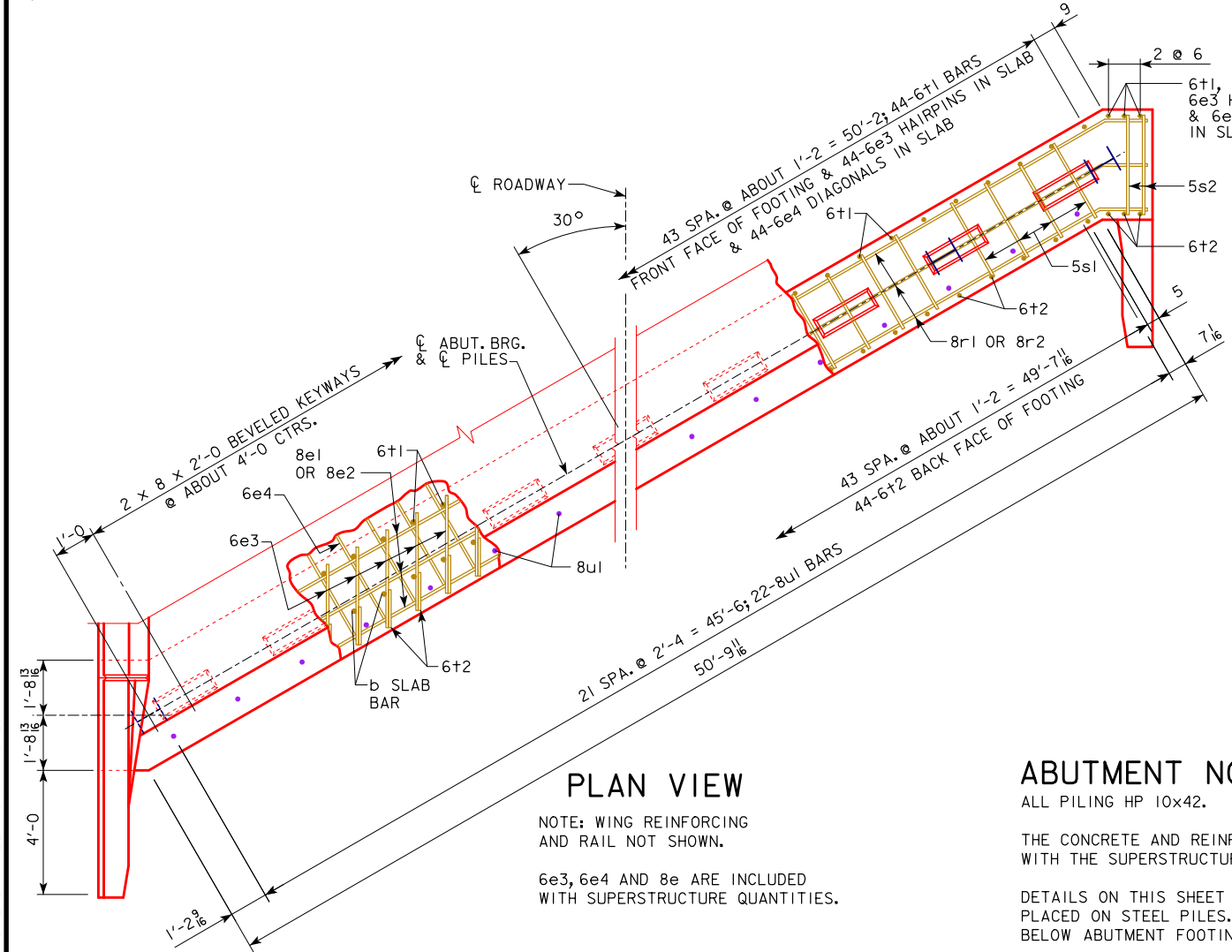


SECTION NORMAL TO ABUTMENT AT GUTTERLINE

SPIRAL AT TOP OF EACH PILE. 7 TURNS OF #2 BAR, 21\"/>

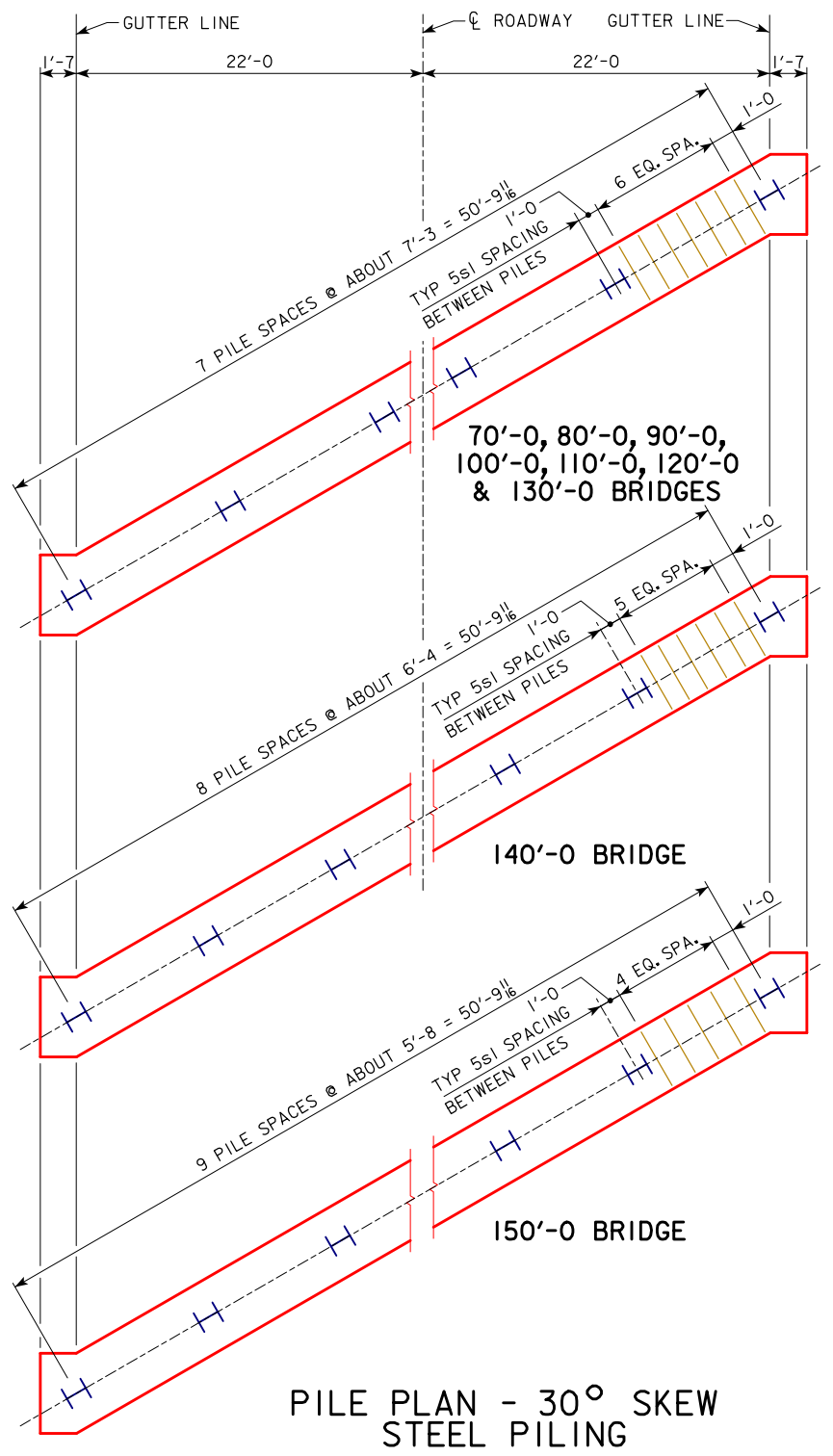


DETAIL "A"



PLAN VIEW

NOTE: WING REINFORCING AND RAIL NOT SHOWN.
6e3, 6e4 AND 8e ARE INCLUDED WITH SUPERSTRUCTURE QUANTITIES.



PILE PLAN - 30° SKEW STEEL PILING

ABUTMENT NOTES:

- ALL PILING HP 10x42.
- THE CONCRETE AND REINFORCING STEEL FOR THE WINGS IS INCLUDED WITH THE SUPERSTRUCTURE.
- DETAILS ON THIS SHEET ARE TO BE USED ONLY WHEN ABUTMENTS ARE PLACED ON STEEL PILES. IF ROCK IS ENCOUNTERED CLOSER THAN 12' BELOW ABUTMENT FOOTING, SPECIAL ANALYSIS MAY BE REQUIRED.
- THE MINIMUM CLEAR DISTANCE FROM THE FACE OF THE CONCRETE TO NEAR REINFORCING BAR IS TO BE 2 INCHES UNLESS OTHERWISE NOTED OR SHOWN.
- STEEL ABUTMENT PILES SHALL BE DRIVEN TO FULL PENETRATION IF PRACTICABLE BUT IN NO CASE TO A BEARING VALUE LESS THAN SHOWN IN DESIGN PLANS.
- ALL REINFORCING STEEL IS TO BE GRADE 60.
- ABUTMENT PILING WAS DESIGNED FOR HL-93 LOADING WITH AN ALLOWANCE FOR 20 LBS. PER SQ. FT. FUTURE WEARING SURFACE.

NUMBER OF PILES AND ABUTMENT DESIGN LOADS

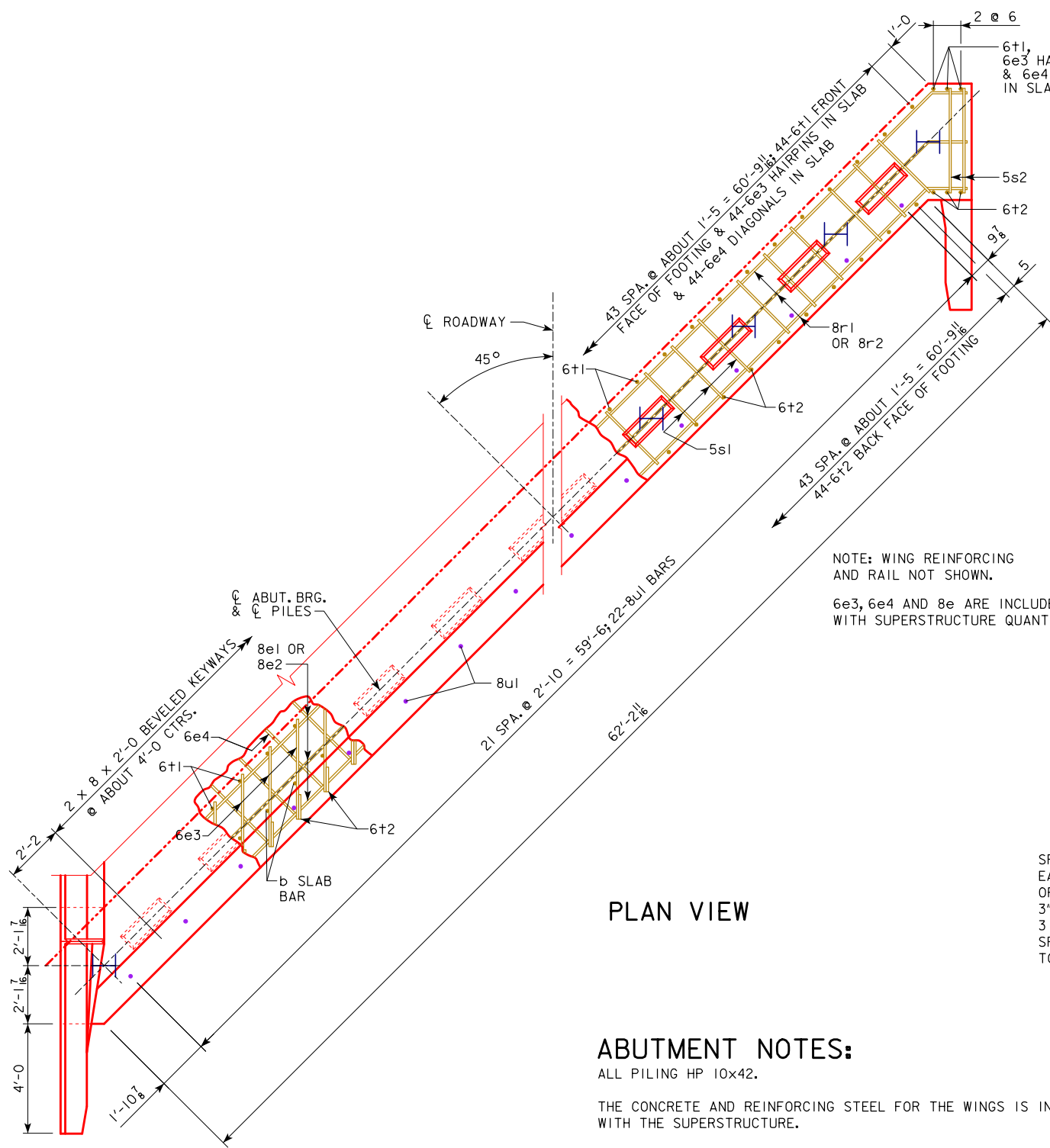
BRIDGE LENGTH	70'-0"	80'-0"	90'-0"	100'-0"	110'-0"	120'-0"	130'-0"	140'-0"	150'-0"
PILING - NUMBER	8	8	8	8	8	8	8	9	10
PU, STRENGTH I DESIGN LOAD - KIPS	527	562	594	636	676	723	768	Δ 893	Δ 946

Δ INCLUDES DYNAMIC LOAD ALLOWANCE
NOTE: PU, STRENGTH I DESIGN LOAD (KIPS) IS NOT THE VALUE USED IN THE FIELD FOR DRIVING PILES.

REVISED 03-2016; REVISION FOR ADDITION OF PAVING NOTCH BAR 8u1. REVISED 08-2020; UPDATED BRIDGE ENGINEER SIGNATURE.

08-2020 LATEST REVISION DATE APPROVED BY BRIDGE ENGINEER	 STANDARD DESIGN - 44' ROADWAY, 3 SPAN BRIDGES CONTINUOUS CONCRETE SLAB BRIDGES JULY, 2014	
	30° ABUTMENT DETAILS 30° SKEW - STEEL PILING	J44-41-14

REVISED 03-2016: REVISION FOR ADDITION OF PAVING NOTCH BAR 8u1.
REVISED 08-2020: UPDATED BRIDGE ENGINEER SIGNATURE.

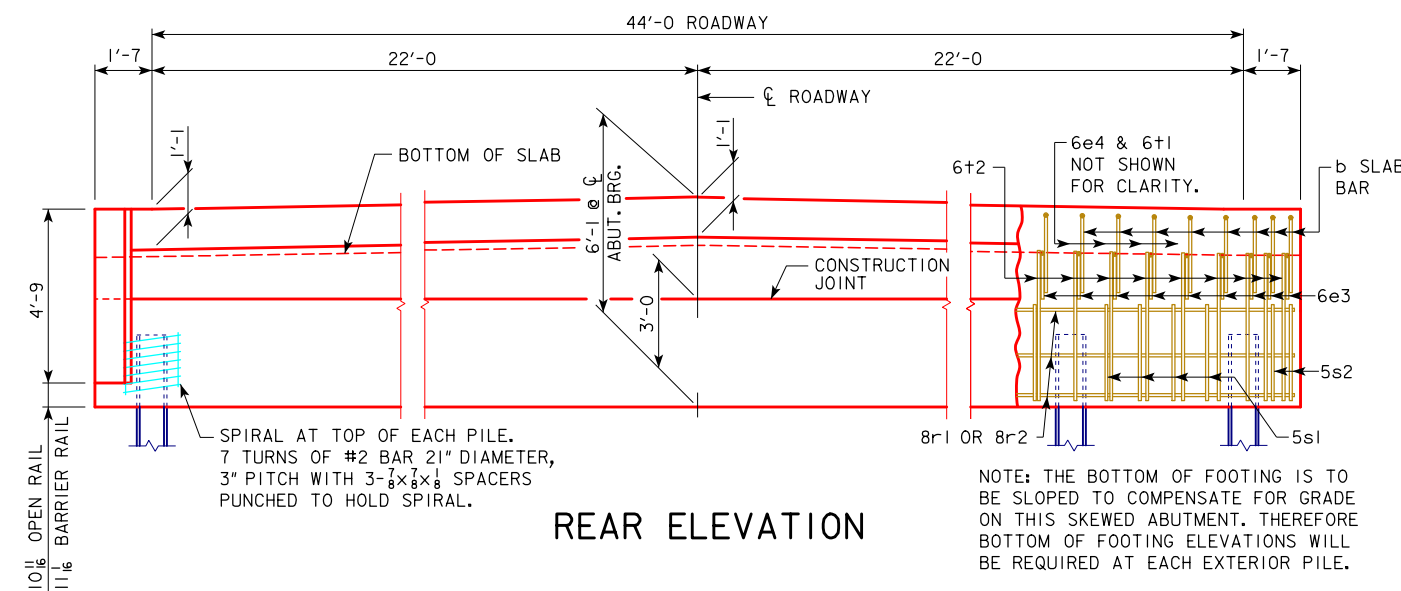


PLAN VIEW

NOTE: WING REINFORCING AND RAIL NOT SHOWN.
6e3, 6e4 AND 8e ARE INCLUDED WITH SUPERSTRUCTURE QUANTITIES.

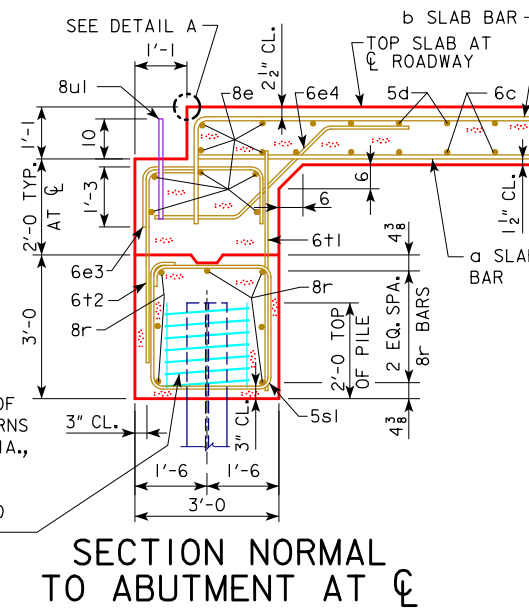
ABUTMENT NOTES:

- ALL PILING HP 10x42.
- THE CONCRETE AND REINFORCING STEEL FOR THE WINGS IS INCLUDED WITH THE SUPERSTRUCTURE.
- DETAILS ON THIS SHEET ARE TO BE USED ONLY WHEN ABUTMENTS ARE PLACED ON STEEL PILES. IF ROCK IS ENCOUNTERED CLOSER THAN 12' BELOW ABUTMENT FOOTING, SPECIAL ANALYSIS MAY BE REQUIRED.
- THE MINIMUM CLEAR DISTANCE FROM THE FACE OF THE CONCRETE TO NEAR REINFORCING BAR IS TO BE 2 INCHES UNLESS OTHERWISE NOTED OR SHOWN.
- STEEL ABUTMENT PILES SHALL BE DRIVEN TO FULL PENETRATION IF PRACTICABLE BUT IN NO CASE TO A BEARING VALUE LESS THAN SHOWN IN DESIGN PLANS.
- ALL REINFORCING STEEL IS TO BE GRADE 60.
- ABUTMENT PILING WAS DESIGNED FOR HL-93 LOADING WITH AN ALLOWANCE FOR 20 LBS. PER SQ. FT. FUTURE WEARING SURFACE.

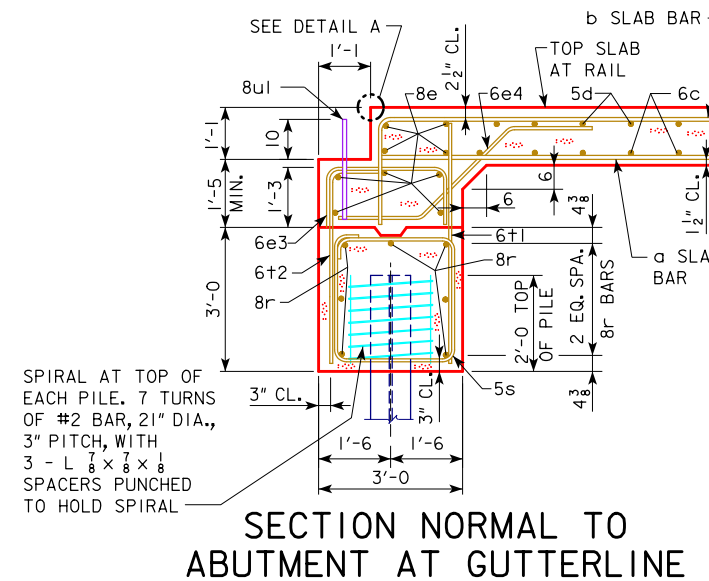


REAR ELEVATION

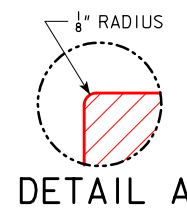
NOTE: THE BOTTOM OF FOOTING IS TO BE SLOPED TO COMPENSATE FOR GRADE ON THIS SKEWED ABUTMENT. THEREFORE BOTTOM OF FOOTING ELEVATIONS WILL BE REQUIRED AT EACH EXTERIOR PILE.



SECTION NORMAL TO ABUTMENT AT ROADWAY CENTERLINE

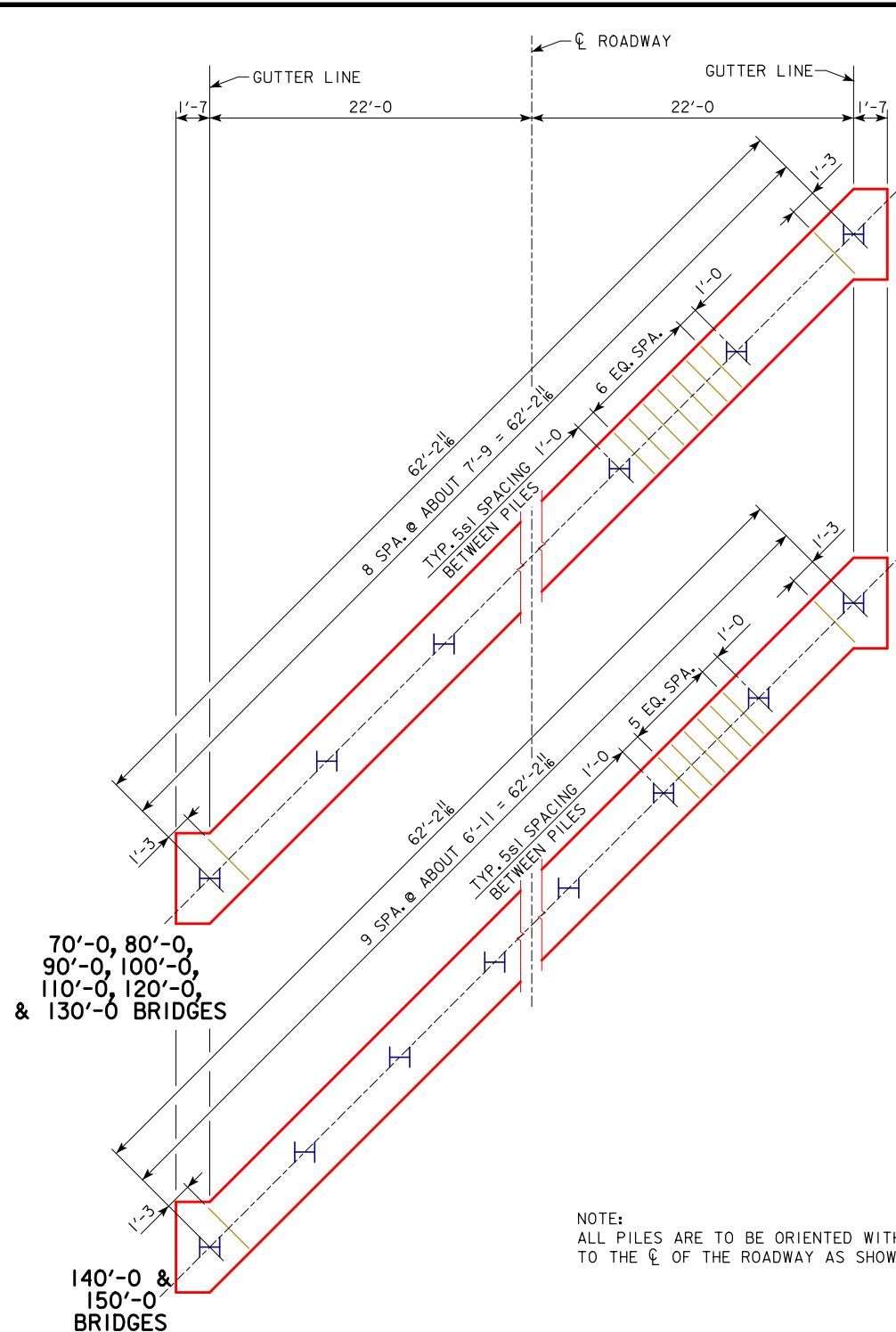


SECTION NORMAL TO ABUTMENT AT GUTTERLINE



DETAIL A

<p>08-2020 LATEST REVISION DATE</p>	<p><i>James Miller</i> APPROVED BY BRIDGE ENGINEER</p>	<p>IOWADOT Highway Division</p> <p>STANDARD DESIGN - 44' ROADWAY, 3 SPAN BRIDGES</p> <p>CONTINUOUS CONCRETE SLAB BRIDGES</p> <p>JULY, 2014</p>
<p>45° ABUTMENT DETAILS SKEW - STEEL PILING</p>		<p>J44-42-14</p>



70'-0, 80'-0,
90'-0, 100'-0,
110'-0, 120'-0,
& 130'-0 BRIDGES

140'-0 &
150'-0
BRIDGES

NOTE:
ALL PILES ARE TO BE ORIENTED WITH WEBS PERPENDICULAR
TO THE CL OF THE ROADWAY AS SHOWN.

PILE PLAN - 45° SKEW
STEEL PILING

NUMBER OF PILES AND ABUTMENT DESIGN LOADS									
BRIDGE LENGTH	70'-0	80'-0	90'-0	100'-0	110'-0	120'-0	130'-0	140'-0	150'-0
PILING - NUMBER	9	9	9	9	9	9	9	10	10
PU, STRENGTH I DESIGN LOAD - KIPS	565	599	632	674	715	762	807	Δ 933	Δ 986

Δ INCLUDES DYNAMIC LOAD ALLOWANCE
NOTE: PU, STRENGTH I DESIGN LOAD (KIPS) IS NOT THE VALUE USED IN THE FIELD FOR DRIVING PILES.

REVISED 08-2020: UPDATED BRIDGE ENGINEER SIGNATURE.

08-2020 LATEST REVISION DATE APPROVED BY BRIDGE ENGINEER	 STANDARD DESIGN - 44' ROADWAY, 3 SPAN BRIDGES CONTINUOUS CONCRETE SLAB BRIDGES JULY, 2014
	45° ABUTMENT DETAILS SKEW - STEEL PILING
	J44-43-14

BILL OF REINFORCING STEEL - ONE ABUTMENT - 0° SKEW

BRIDGE LENGTH		70'-0	80'-0	90'-0	100'-0	110'-0	120'-0	130'-0	140'-0	150'-0	
MARK	LOCATION	SHAPE	LENGTH	NO.	WEIGHT	NO.	WEIGHT	NO.	WEIGHT	NO.	WEIGHT
8r1	ABUTMENT FOOTING LONGITUDINAL	—	28'-4	7	530	7	530	7	530	7	530
8r2	ABUTMENT FOOTING LONGITUDINAL	—	23'-4	7	436	7	436	7	436	7	436
5s1	ABUTMENT FOOTING HOOPS	□	11'-0	46	528	46	528	46	528	44	505
6+1	FOOTING TO SLAB BARS	—	5'-0	50	376	50	376	50	376	50	376
6+2	FOOTING TO SLAB BARS	—	5'-7	50	419	50	419	50	419	50	419
#2	PILE SPIRAL	⌀	38'-6	7	45	7	45	7	45	8	51
	SPIRAL SPACERS, L 1/8" x 1/8" x 1/8" x 0.70	—	1'-10	21	27	21	27	21	27	24	31
REINFORCING STEEL EPOXY COATED - TOTAL (LBS.)				2361	2361	2361	2361	2361	2371	2359	2359

BILL OF REINFORCING STEEL - ONE ABUTMENT - 15° SKEW

BRIDGE LENGTH		70'-0	80'-0	90'-0	100'-0	110'-0	120'-0	130'-0	140'-0	150'-0	
MARK	LOCATION	SHAPE	LENGTH	NO.	WEIGHT	NO.	WEIGHT	NO.	WEIGHT	NO.	WEIGHT
8r1	ABUTMENT FOOTING LONGITUDINAL	—	29'-2	7	545	7	545	7	545	7	545
8r2	ABUTMENT FOOTING LONGITUDINAL	—	24'-1	7	450	7	450	7	450	7	450
5s1	ABUTMENT FOOTING HOOPS	□	11'-0	42	482	42	482	42	482	40	459
5s2	ABUTMENT FOOTING HOOPS	□	11'-3	4	47	4	47	4	47	4	47
6+1	FOOTING TO SLAB BARS	—	5'-0	50	376	50	376	50	376	50	376
6+2	FOOTING TO SLAB BARS	—	5'-7	50	419	50	419	50	419	50	419
#2	PILE SPIRAL	⌀	38'-6	7	45	7	45	7	45	8	51
	SPIRAL SPACERS, L 1/8" x 1/8" x 1/8" x 0.70	—	1'-10	21	27	21	27	21	27	24	31
REINFORCING STEEL EPOXY COATED - TOTAL (LBS.)				2391	2391	2391	2391	2391	2401	2389	2389

BILL OF REINFORCING STEEL - ONE ABUTMENT - 30° SKEW

BRIDGE LENGTH		70'-0	80'-0	90'-0	100'-0	110'-0	120'-0	130'-0	140'-0	150'-0	
MARK	LOCATION	SHAPE	LENGTH	NO.	WEIGHT	NO.	WEIGHT	NO.	WEIGHT	NO.	WEIGHT
8r1	ABUTMENT FOOTING LONGITUDINAL	—	31'-9	7	593	7	593	7	593	7	593
8r2	ABUTMENT FOOTING LONGITUDINAL	—	26'-9	7	500	7	500	7	500	7	500
5s1	ABUTMENT FOOTING HOOPS	□	11'-0	49	562	49	562	49	562	48	551
5s2	ABUTMENT FOOTING HOOPS	□	11'-11	4	50	4	50	4	50	4	50
6+1	FOOTING TO SLAB BARS	—	5'-0	50	376	50	376	50	376	50	376
6+2	FOOTING TO SLAB BARS	—	5'-7	50	419	50	419	50	419	50	419
#2	PILE SPIRAL	⌀	38'-6	8	51	8	51	8	51	9	58
	SPIRAL SPACERS, L 1/8" x 1/8" x 1/8" x 0.70	—	1'-10	24	31	24	31	24	31	27	35
REINFORCING STEEL EPOXY COATED - TOTAL (LBS.)				2582	2582	2582	2582	2582	2582	2582	2557

BILL OF REINFORCING STEEL - ONE ABUTMENT - 45° SKEW

BRIDGE LENGTH		70'-0	80'-0	90'-0	100'-0	110'-0	120'-0	130'-0	140'-0	150'-0	
MARK	LOCATION	SHAPE	LENGTH	NO.	WEIGHT	NO.	WEIGHT	NO.	WEIGHT	NO.	WEIGHT
8r1	ABUTMENT FOOTING LONGITUDINAL	—	37'-6	7	701	7	701	7	701	7	701
8r2	ABUTMENT FOOTING LONGITUDINAL	—	32'-5	7	606	7	606	7	606	7	606
5s1	ABUTMENT FOOTING HOOPS	□	11'-0	56	642	56	642	56	642	54	620
5s2	ABUTMENT FOOTING HOOPS	□	13'-6	4	56	4	56	4	56	4	56
6+1	FOOTING TO SLAB BARS	—	5'-0	50	376	50	376	50	376	50	376
6+2	FOOTING TO SLAB BARS	—	5'-7	50	419	50	419	50	419	50	419
#2	PILE SPIRAL	⌀	38'-6	9	58	9	58	9	58	10	64
	SPIRAL SPACERS, L 1/8" x 1/8" x 1/8" x 0.70	—	1'-10	27	35	27	35	27	35	30	39
REINFORCING STEEL EPOXY COATED - TOTAL (LBS.)				2893	2893	2893	2893	2893	2893	2881	2881

ESTIMATED QUANTITIES - ONE ABUT. - 0° SKEW

LOCATION	UNIT	70'-0	80'-0	90'-0	100'-0	110'-0	120'-0	130'-0	140'-0	150'-0
BRIDGE LENGTH		70'-0	80'-0	90'-0	100'-0	110'-0	120'-0	130'-0	140'-0	150'-0
STRUCTURAL CONCRETE (BRIDGE)	C.Y.	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7
REINFORCING STEEL EPOXY COATED	LBS.	2361	2361	2361	2361	2361	2371	2359	2359	2359
STEEL PILING HP 10x42	NO.	7	7	7	7	7	8	9	9	9
PREBORE HOLES	FT.	-	-	-	-	-	-	90	90	90

ESTIMATED QUANTITIES - ONE ABUT. - 15° SKEW

LOCATION	UNIT	70'-0	80'-0	90'-0	100'-0	110'-0	120'-0	130'-0	140'-0	150'-0
BRIDGE LENGTH		70'-0	80'-0	90'-0	100'-0	110'-0	120'-0	130'-0	140'-0	150'-0
STRUCTURAL CONCRETE (BRIDGE)	C.Y.	16.3	16.3	16.3	16.3	16.3	16.3	16.3	16.3	16.3
REINFORCING STEEL EPOXY COATED	LBS.	2391	2391	2391	2391	2391	2401	2389	2389	2389
STEEL PILING HP 10x42	NO.	7	7	7	7	7	8	9	9	9
PREBORE HOLES	FT.	-	-	-	-	-	-	90	90	90

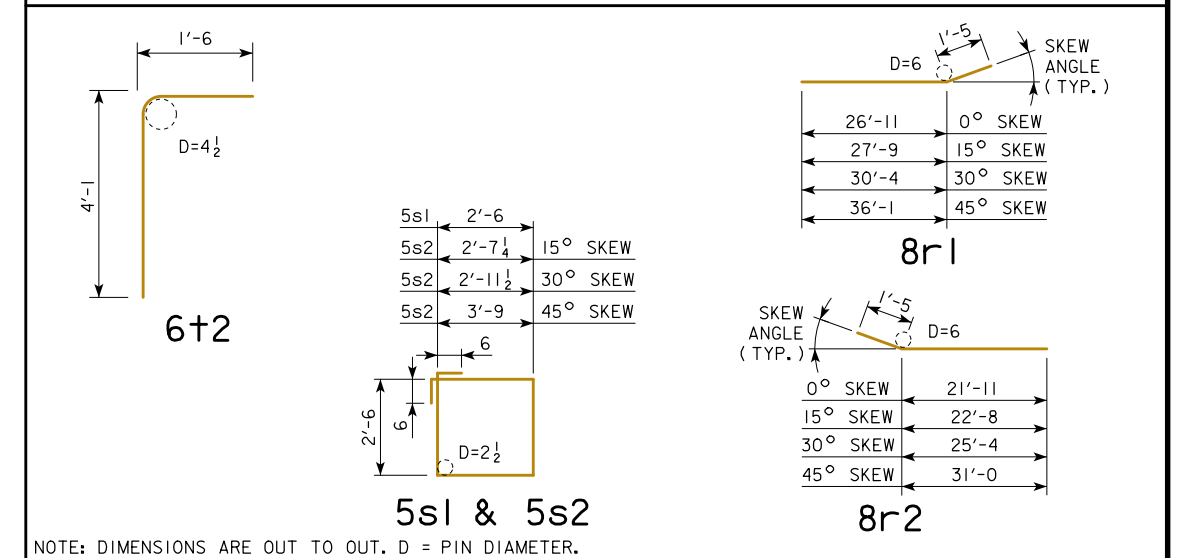
ESTIMATED QUANTITIES - ONE ABUT. - 30° SKEW

LOCATION	UNIT	70'-0	80'-0	90'-0	100'-0	110'-0	120'-0	130'-0	140'-0	150'-0
BRIDGE LENGTH		70'-0	80'-0	90'-0	100'-0	110'-0	120'-0	130'-0	140'-0	150'-0
STRUCTURAL CONCRETE (BRIDGE)	C.Y.	18.2	18.2	18.2	18.2	18.2	18.2	18.2	18.2	18.2
REINFORCING STEEL EPOXY COATED	LBS.	2582	2582	2582	2582	2582	2582	2582	2582	2557
STEEL PILING HP 10x42	NO.	8	8	8	8	8	8	9	10	10
PREBORE HOLES	FT.	-	-	-	-	-	-	90	100	100

ESTIMATED QUANTITIES - ONE ABUT. - 45° SKEW

LOCATION	UNIT	70'-0	80'-0	90'-0	100'-0	110'-0	120'-0	130'-0	140'-0	150'-0
BRIDGE LENGTH		70'-0	80'-0	90'-0	100'-0	110'-0	120'-0	130'-0	140'-0	150'-0
STRUCTURAL CONCRETE (BRIDGE)	C.Y.	22.3	22.3	22.3	22.3	22.3	22.3	22.3	22.3	22.3
REINFORCING STEEL EPOXY COATED	LBS.	2893	2893	2893	2893	2893	2893	2893	2881	2881
STEEL PILING HP 10x42	NO.	9	9	9	9	9	9	10	10	10
PREBORE HOLES	FT.	-	-	-	-	-	-	100	100	100

BENT BAR DETAILS



REVISED 08-2020: UPDATED BRIDGE ENGINEER SIGNATURE.

08-2020 LATEST REVISION DATE APPROVED BY BRIDGE ENGINEER	 STANDARD DESIGN - 44' ROADWAY, 3 SPAN BRIDGES CONTINUOUS CONCRETE SLAB BRIDGES JULY, 2014
	ABUTMENT DETAILS STEEL PILING
	J44-44-14

TABLE OF BARRIER RAIL DIMENSIONS AND NUMBERS

BRIDGE LENGTH	70'-0				80'-0				90'-0				100'-0				110'-0				120'-0				130'-0				140'-0				150'-0			
	SKEW	0°	15°	30°	45°	0°	15°	30°	45°	0°	15°	30°	45°	0°	15°	30°	45°	0°	15°	30°	45°	0°	15°	30°	45°	0°	15°	30°	45°	0°	15°	30°	45°	0°	15°	30°
A (FT.-IN.)	81'-0	81'-1 $\frac{1}{4}$	81'-5 $\frac{1}{2}$	82'-3	91'-0	91'-1 $\frac{1}{4}$	91'-5 $\frac{1}{2}$	92'-3	101'-0	101'-1 $\frac{1}{4}$	101'-5 $\frac{1}{2}$	102'-3	111'-0	111'-1 $\frac{1}{4}$	111'-5 $\frac{1}{2}$	112'-3	121'-0	121'-1 $\frac{1}{4}$	121'-5 $\frac{1}{2}$	122'-3	131'-0	131'-1 $\frac{1}{4}$	131'-5 $\frac{1}{2}$	132'-3	141'-0	141'-1 $\frac{1}{4}$	141'-5 $\frac{1}{2}$	142'-3	151'-0	151'-1 $\frac{1}{4}$	151'-5 $\frac{1}{2}$	152'-3	161'-0	161'-1 $\frac{1}{4}$	161'-5 $\frac{1}{2}$	162'-3
B (FT.-IN.)	67'-0	67'-1 $\frac{1}{4}$	67'-5 $\frac{1}{2}$	68'-3	77'-0	77'-1 $\frac{1}{4}$	77'-5 $\frac{1}{2}$	78'-3	87'-0	87'-1 $\frac{1}{4}$	87'-5 $\frac{1}{2}$	88'-3	97'-0	97'-1 $\frac{1}{4}$	97'-5 $\frac{1}{2}$	98'-3	107'-0	107'-1 $\frac{1}{4}$	107'-5 $\frac{1}{2}$	108'-3	117'-0	117'-1 $\frac{1}{4}$	117'-5 $\frac{1}{2}$	118'-3	127'-0	127'-1 $\frac{1}{4}$	127'-5 $\frac{1}{2}$	128'-3	137'-0	137'-1 $\frac{1}{4}$	137'-5 $\frac{1}{2}$	138'-3	147'-0	147'-1 $\frac{1}{4}$	147'-5 $\frac{1}{2}$	148'-3
C	66	66	66	67	76	76	76	77	86	86	86	87	96	96	96	97	106	106	106	107	116	116	116	117	126	126	126	127	136	136	136	137	146	146	146	147
D (FT.-IN.)	66'-0	66'-0	66'-0	67'-0	76'-0	76'-0	76'-0	77'-0	86'-0	86'-0	86'-0	87'-0	96'-0	96'-0	96'-0	97'-0	106'-0	106'-0	106'-0	107'-0	116'-0	116'-0	116'-0	117'-0	126'-0	126'-0	126'-0	127'-0	136'-0	136'-0	136'-0	137'-0	146'-0	146'-0	146'-0	147'-0
E	67	67	67	68	77	77	77	78	87	87	87	88	97	97	97	98	107	107	107	108	117	117	117	118	127	127	127	128	137	137	137	138	147	147	147	148
F (IN.)	6	6 $\frac{5}{8}$	8 $\frac{3}{4}$	7 $\frac{1}{2}$	6	6 $\frac{5}{8}$	8 $\frac{3}{4}$	7 $\frac{1}{2}$	6	6 $\frac{5}{8}$	8 $\frac{3}{4}$	7 $\frac{1}{2}$	6	6 $\frac{5}{8}$	8 $\frac{3}{4}$	7 $\frac{1}{2}$	6	6 $\frac{5}{8}$	8 $\frac{3}{4}$	7 $\frac{1}{2}$	6	6 $\frac{5}{8}$	8 $\frac{3}{4}$	7 $\frac{1}{2}$	6	6 $\frac{5}{8}$	8 $\frac{3}{4}$	7 $\frac{1}{2}$	6	6 $\frac{5}{8}$	8 $\frac{3}{4}$	7 $\frac{1}{2}$	6	6 $\frac{5}{8}$	8 $\frac{3}{4}$	7 $\frac{1}{2}$

BARRIER RAIL NOTES:

MINIMUM CLEAR DISTANCE FROM FACE OF CONCRETE TO NEAR REINFORCING BAR IS TO BE 2" UNLESS OTHERWISE NOTED OR SHOWN.

THE PERMISSIBLE CONSTRUCTION JOINTS ARE TO BE PLACED BETWEEN VERTICAL BARS AT A MINIMUM SPACING OF 20 FEET. CONSTRUCTION JOINT CONTACT SURFACES ARE TO BE COATED WITH AN APPROVED BOND BREAKER.

COST OF THE JOINT SEALER AND BOND BREAKER SHALL BE CONSIDERED INCIDENTAL TO OTHER CONSTRUCTION.

THE CONCRETE BARRIER RAIL IS TO BE BID ON A LINEAL FOOT BASIS. THE NUMBER OF LINEAL FEET OF BARRIER RAIL INSTALLED WILL BE PAID FOR AT THE CONTRACT PRICE PER LINEAL FOOT BASED ON PLAN QUANTITIES. PRICE BID FOR "CONCRETE BARRIER RAILING" SHALL BE FULL COMPENSATION FOR FURNISHING ALL MATERIAL, EXCLUDING REINFORCING STEEL, AND ALL OF THE EQUIPMENT AND LABOR REQUIRED TO ERECT THE RAIL IN ACCORDANCE WITH THESE PLANS AND CURRENT SPECIFICATIONS.

IF CONDUIT IS REQUIRED IN THIS PLAN THE RIGID STEEL CONDUIT, JUNCTION BOXES AND FITTINGS INCLUDING LABOR AND ANY ADDITIONAL WORK TO DO THE INSTALLATION IS CONSIDERED INCIDENTAL TO THE COST OF THE RAILING.

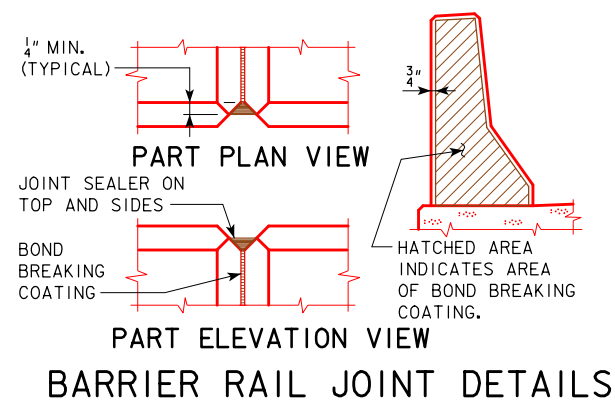
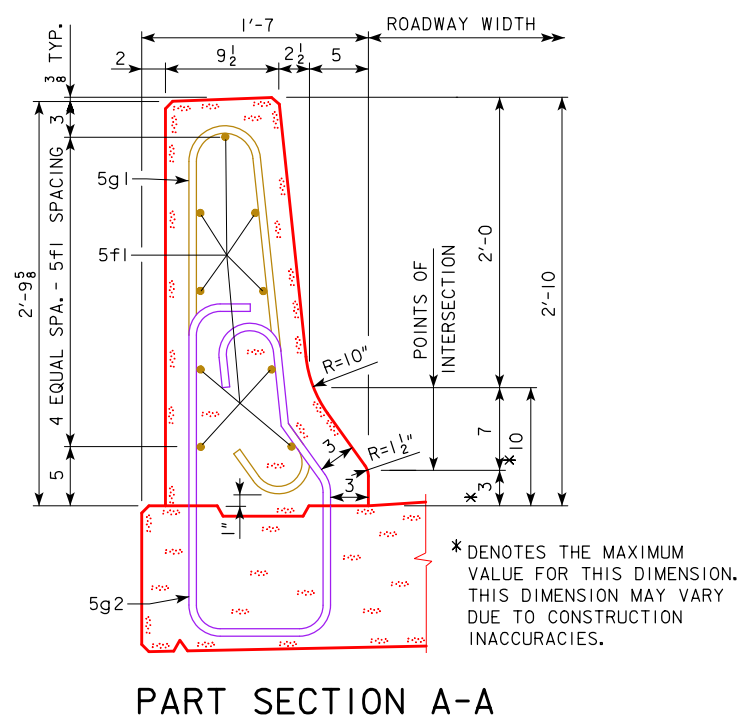
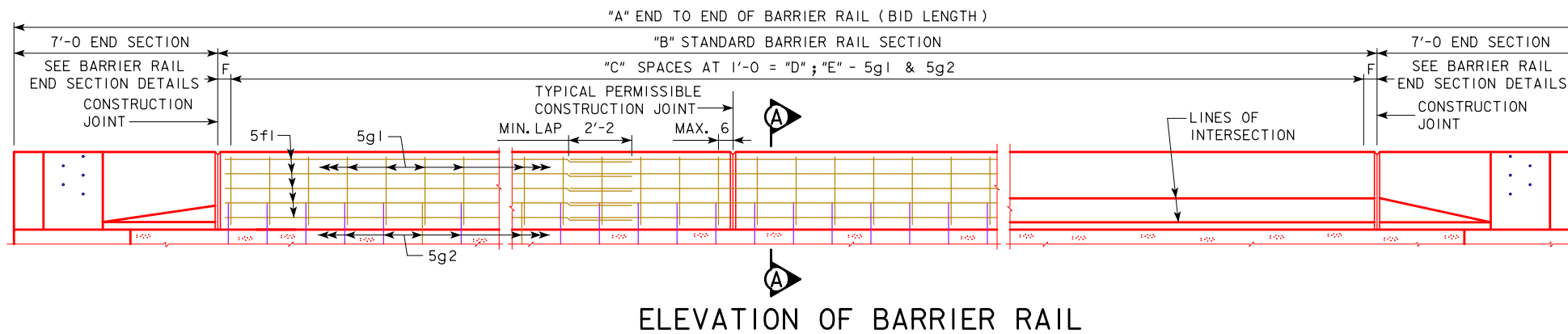
THE JOINT SEALER SHALL BE LIGHT GRAY NONSAG LATEX CAULKING SEALER MARKETED FOR OUTDOOR USE. NO TESTING OR CERTIFICATION IS REQUIRED.

TOP OF THE BARRIER RAIL IS TO BE PARALLEL TO THE THEORETICAL $\frac{1}{2}$ GRADE.

CROSS SECTIONAL AREA OF THE STANDARD SECTION OF THE BARRIER RAIL = 2.84 SQUARE FEET.

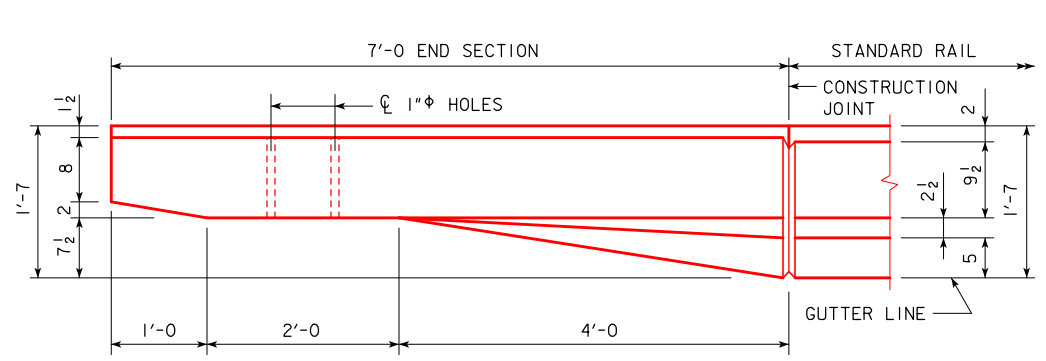
ALL BARRIER RAIL REINFORCING STEEL IS TO BE EITHER EPOXY COATED OR STAINLESS STEEL AS SHOWN OR NOTED. THE STAINLESS STEEL REINFORCING STEEL SHALL BE DEFORMED BAR GRADE 60 MEETING THE REQUIREMENTS OF MATERIALS I.M.452.

CONCRETE BARRIER RAILS PLACED USING THE SLIPFORM METHOD WILL REQUIRE THE USE OF A CLASS BR CONCRETE IN ACCORDANCE WITH ARTICLE 2513.03, A, 2, OF THE STANDARD SPECIFICATION. CAST-IN-PLACE BARRIER RAILS SHALL USE CLASS C MIX. CLASS D CONCRETE IS NOT PERMITTED FOR CONCRETE BARRIER RAILS (CAST-IN-PLACE OR SLIPFORMED METHOD).

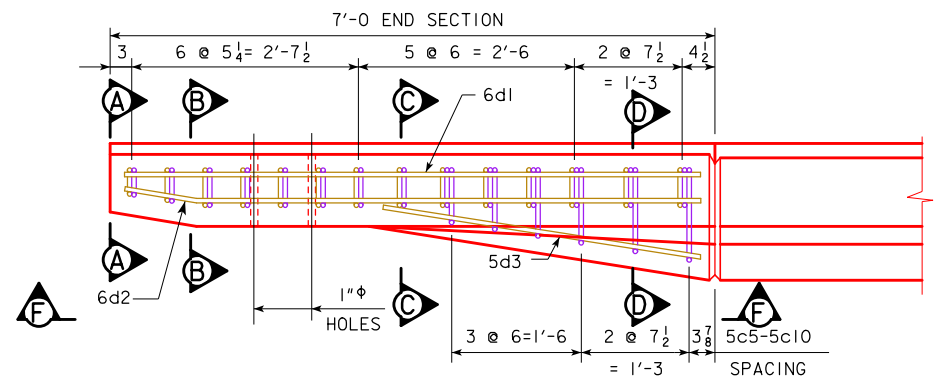


08-2020 LATEST REVISION DATE	APPROVED BY BRIDGE ENGINEER <i>[Signature]</i>		
		STANDARD DESIGN - 44' ROADWAY, 3 SPAN BRIDGES CONTINUOUS CONCRETE SLAB BRIDGES JULY, 2014	
		BARRIER RAIL DETAILS	J44-45-14

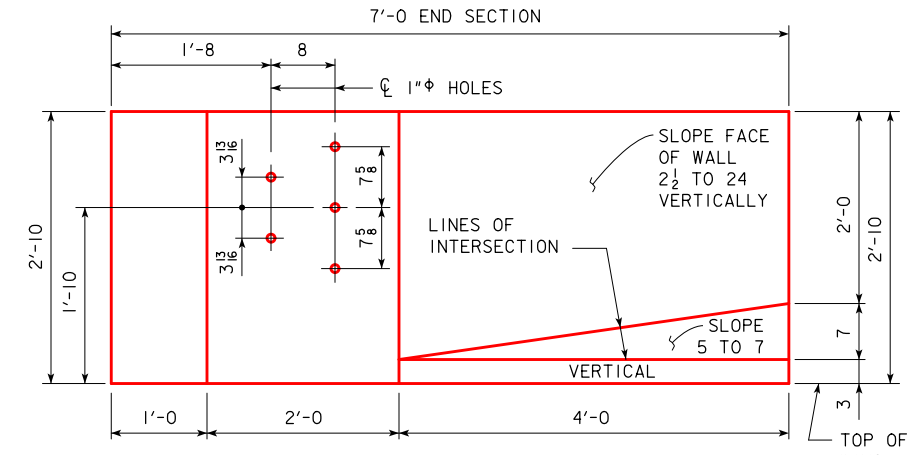
REVISED 03-2016: REFERENCE TO "1" PVC PIPE" WAS CHANGED FROM "1" PVC PIPE TO "1" PVC PIPE.
 REVISED 09-2016: REMOVED "NOTE: REINFORCING STEEL QUANTITIES ARE INCLUDED ON THE SUMMARY QUANTITIES SHEET."
 REVISED 08-2020: UPDATED BRIDGE ENGINEER SIGNATURE. CHANGED SECTION A-A (WAS VIEW A-A).



PART PLAN VIEW

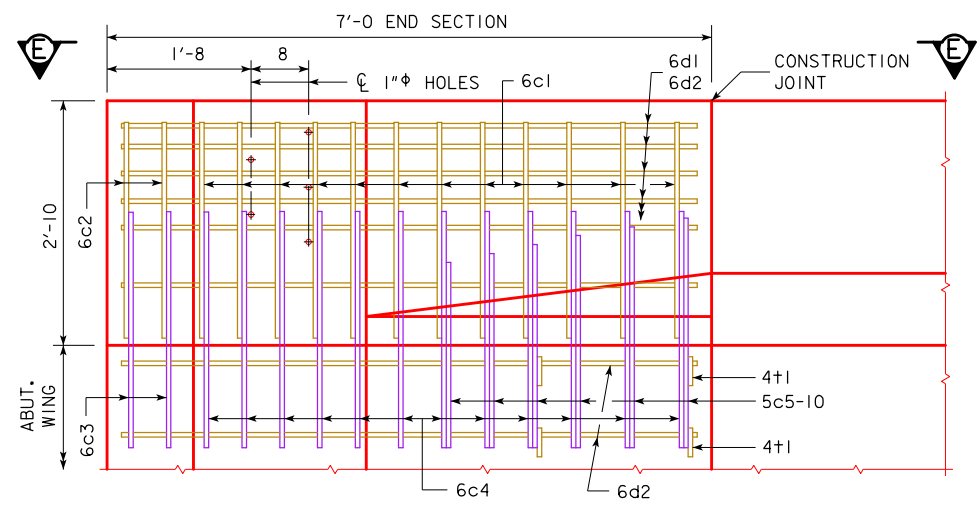


PART VIEW E-E

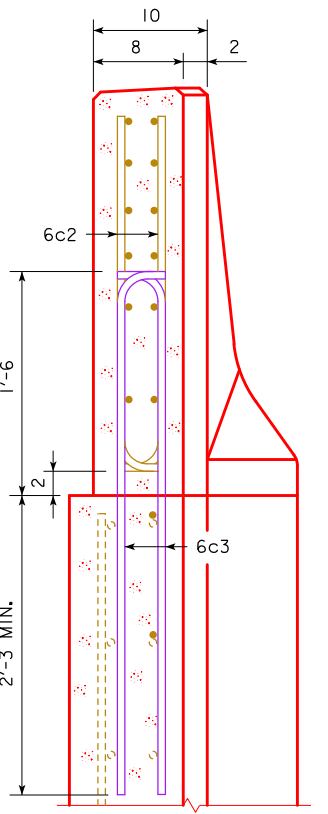


PART ELEVATION VIEW

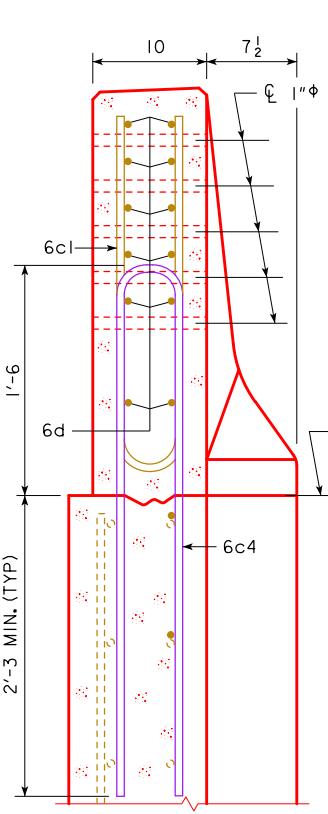
PROVIDE 5 HOLES FORMED WITH 1" PVC PIPE. COST TO BE INCLUDED IN PRICE BID FOR CONCRETE BARRIER RAILING.



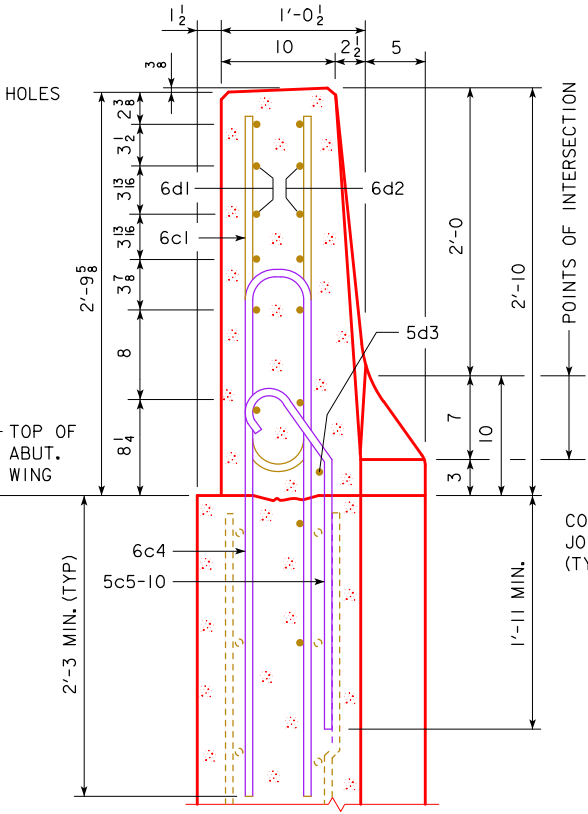
PART VIEW F-F



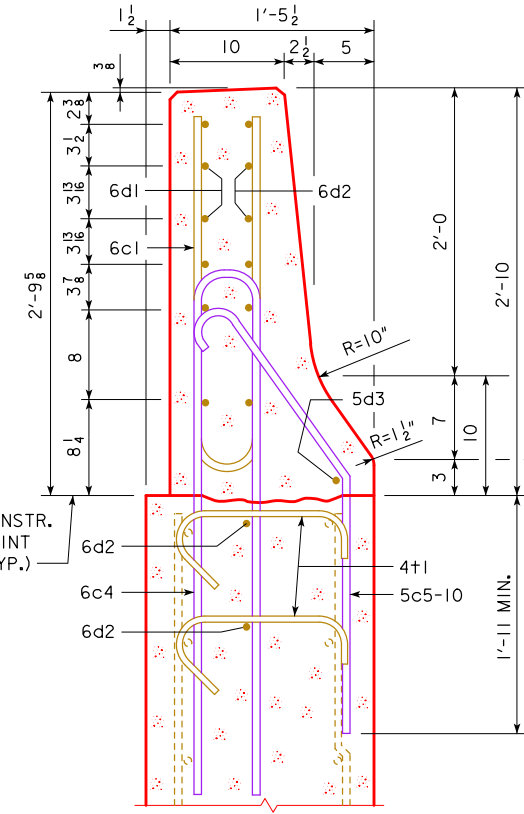
SECTION A-A



SECTION B-B



SECTION C-C



SECTION D-D

NOTE:
 4+1 PLACEMENT - 2 BARS EACH LEVEL OF 6d2 IN WING FOOTING.

NOTE:
 CONSTRUCTION JOINT BETWEEN TOP OF WING AND BARRIER RAIL IS ROUGHENED CONCRETE.

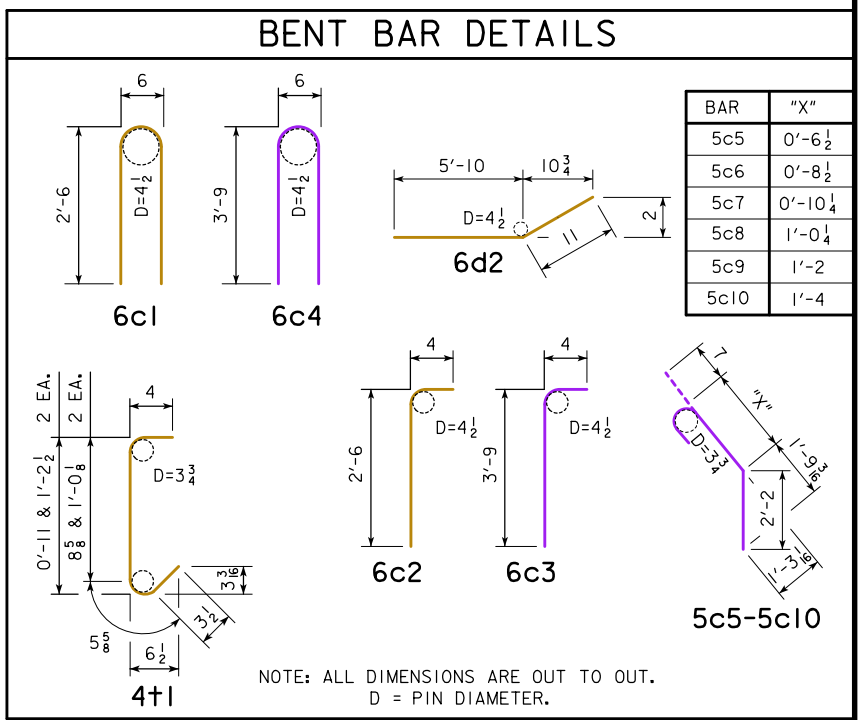
NOTE:
 THE 10" RADIUS AND 1 1/2" RADIUS ARE TYPICAL AND SHALL BE USED WHEN CONSTRUCTING THE CORNERS FOR VIEW A-A, SECTION B-B, SECTION C-C AND SECTION D-D.

NOTE:
 DASHED LINES BELOW THE TOP OF WING ARE THE ABUTMENT WING REINFORCING STEEL. SEE WING ABUTMENT SHEET FOR PLACEMENT.

EPOXY COATED REINF. STEEL - ONE END SECT.					
BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT
6c1	RAIL, VERTICAL	U	12	5'-6	99
6c2	RAIL, VERTICAL	U	4	2'-10	17
6d1	RAIL, HORIZONTAL	—	6	6'-8	60
6d2	RAIL, HORIZONTAL	—	8	6'-9	81
5d3	RAIL, HORIZONTAL	—	1	3'-9	4
4+1	RAIL, ABUTMENT WING TIE BARS	—	4	VARIES	5
EPOXY REINF. TOTAL WEIGHT (LBS.)					266

STAINLESS STEEL REINF. STEEL - ONE END SECT.					
BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT
6c3	RAIL, VERTICAL	U	4	4'-1	25
6c4	RAIL, VERTICAL	U	12	8'-0	144
5c5-10	RAIL, VERTICAL	U	6	VARIES	23
STAINLESS STEEL TOTAL WEIGHT (LBS.)					192

CONCRETE PLACEMENT SUMMARY	
SECTION	TOTAL
BARRIER RAIL ONE END SECTION	0.65 CU. YD.



08-2020
 LATEST REVISION DATE

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IOWADOT Highway Division

STANDARD DESIGN - 44' ROADWAY, 3 SPAN BRIDGES

CONTINUOUS CONCRETE SLAB BRIDGES

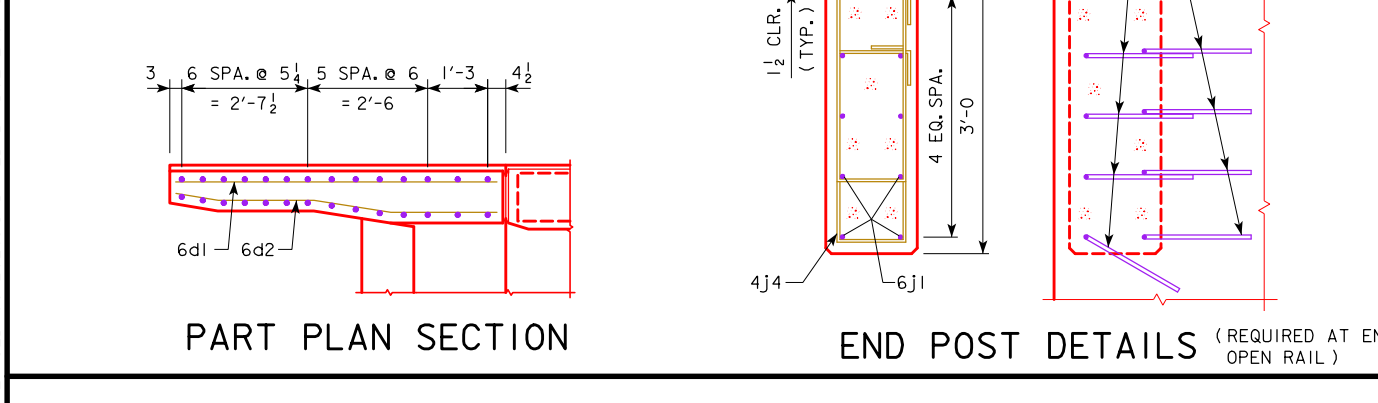
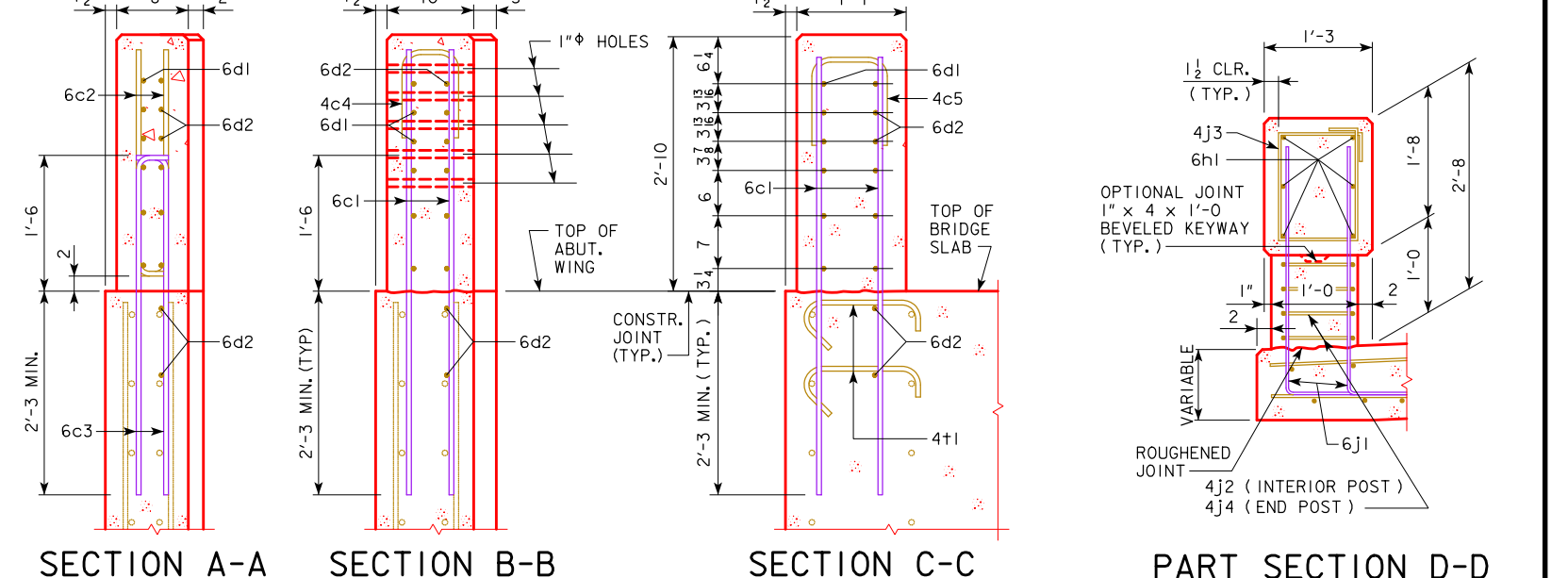
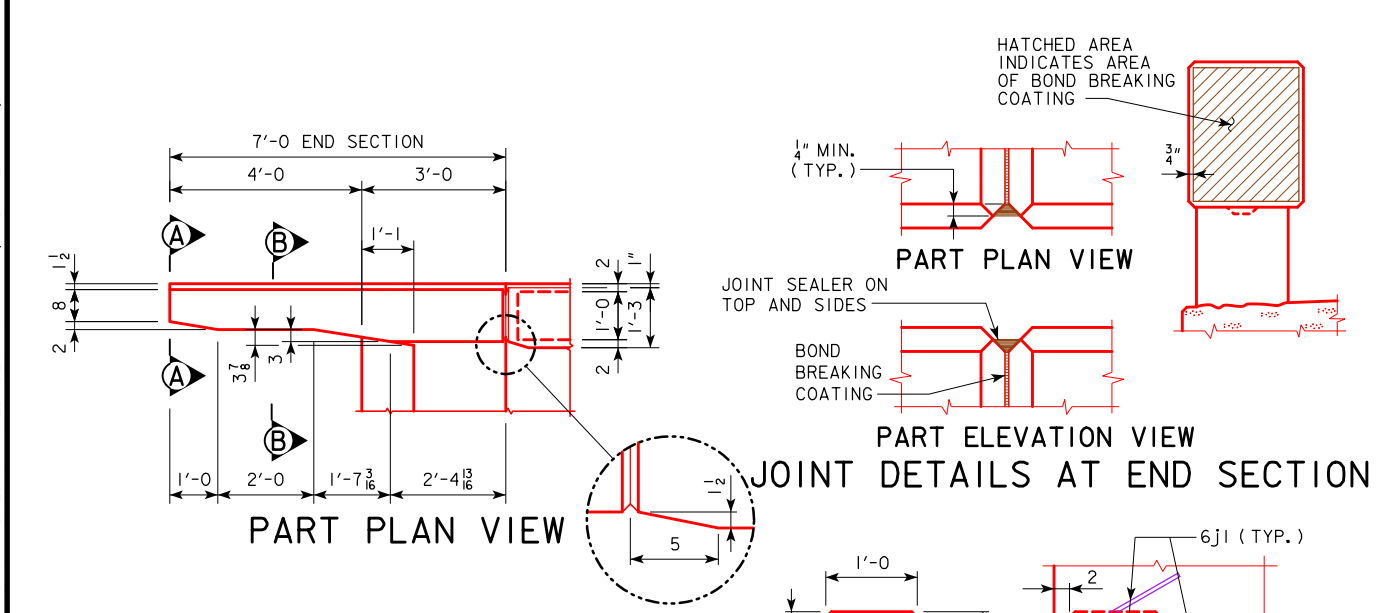
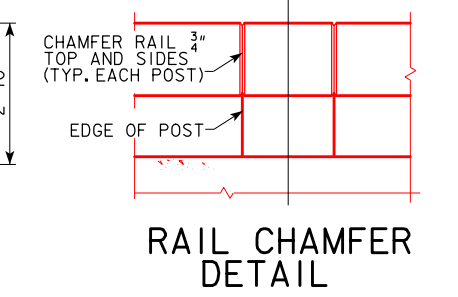
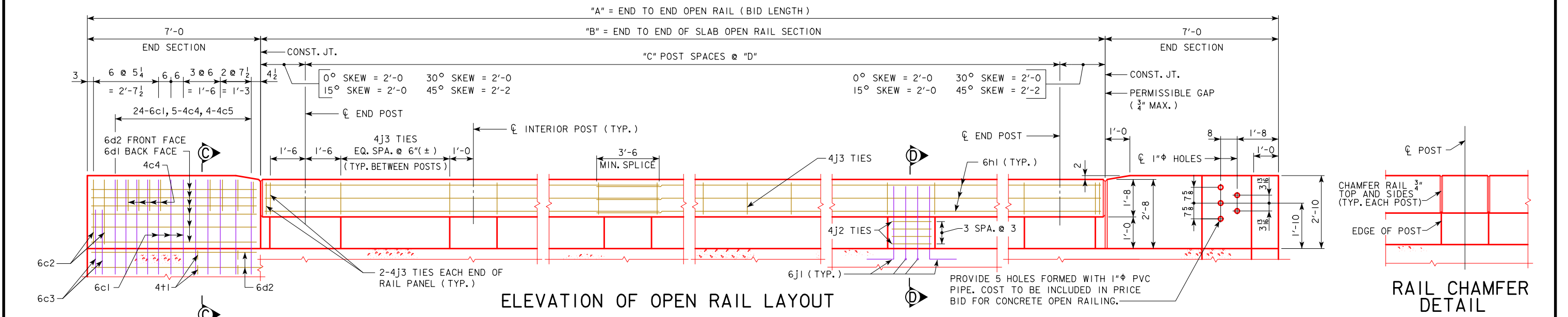
JULY, 2014

BARRIER RAIL END SECTION

J44-47-14

TABLE OF OPEN RAIL DIMENSIONS AND NUMBERS

CL-CL ABUT. BRG		70'-0				80'-0				90'-0				100'-0				110'-0				120'-0				130'-0				140'-0				150'-0			
SKEW		0°	15°	30°	45°	0°	15°	30°	45°	0°	15°	30°	45°	0°	15°	30°	45°	0°	15°	30°	45°	0°	15°	30°	45°	0°	15°	30°	45°	0°	15°	30°	45°	0°	15°	30°	45°
DIMENSION OR NUMBER	A (FT.-IN.)	81'-0	81'-1 1/4	81'-5 1/2	82'-3	91'-0	91'-1 1/4	91'-5 1/2	92'-3	101'-0	101'-1 1/4	101'-5 1/2	102'-3	111'-0	111'-1 1/4	111'-5 1/2	112'-3	121'-0	121'-1 1/4	121'-5 1/2	122'-3	131'-0	131'-1 1/4	131'-5 1/2	132'-3	141'-0	141'-1 1/4	141'-5 1/2	142'-3	151'-0	151'-1 1/4	151'-5 1/2	152'-3	161'-0	161'-1 1/4	161'-5 1/2	162'-3
	B (FT.-IN.)	67'-0	67'-1 1/4	67'-5 1/2	68'-3	77'-0	77'-1 1/4	77'-5 1/2	78'-3	87'-0	87'-1 1/4	87'-5 1/2	88'-3	97'-0	97'-1 1/4	97'-5 1/2	98'-3	107'-0	107'-1 1/4	107'-5 1/2	108'-3	117'-0	117'-1 1/4	117'-5 1/2	118'-3	127'-0	127'-1 1/4	127'-5 1/2	128'-3	137'-0	137'-1 1/4	137'-5 1/2	138'-3	147'-0	147'-1 1/4	147'-5 1/2	148'-3
	C	8	8	8	8	10	10	10	10	11	11	11	11	12	12	12	12	13	13	13	13	15	15	15	15	16	16	16	16	17	17	17	17	18	18	18	18
	D (FT.-IN.)	7'-10 1/2	7'-10 11/16	7'-11 3/8	7'-11 7/8	7'-3 5/8	7'-3 3/4	7'-4 3/16	7'-4 11/16	7'-6 3/16	7'-6 11/16	7'-7 1/16	7'-7 9/16	7'-9	7'-9 1/8	7'-9 7/16	7'-9 15/16	7'-11 1/16	7'-11 3/16	7'-11 1/2	7'-11 5/8	7'-6 3/8	7'-6 1/2	7'-6 3/4	7'-7 1/8	7'-8 1/4	7'-8 5/16	7'-8 5/8	7'-8 15/16	7'-9 7/8	7'-9 15/16	7'-10 3/16	7'-10 1/2	7'-11 5/16	7'-11 3/8	7'-11 5/8	7'-11 15/16



08-2020
LATEST REVISION DATE

[Signature]
APPROVED BY BRIDGE ENGINEER

STANDARD DESIGN - 44' ROADWAY, 3 SPAN BRIDGES

CONTINUOUS CONCRETE SLAB BRIDGES

JULY, 2014

OPEN RAIL DETAILS (TL-4)

J44-48-14

REVISED 03-2016: REFERENCE TO "1" φ PVC PIPE" WAS CHANGED FROM "1" φ PLASTIC CONDUIT".
 REVISED 08-2020: UPDATED BRIDGE ENGINEER SIGNATURE. CHANGED SECTION A-A (WAS VIEW A-A).

EPOXY REINFORCING STEEL-TWO OPEN RAILS

BRIDGE LENGTH			70'-0			80'-0			90'-0			100'-0			110'-0			120'-0			130'-0			140'-0			150'-0		
BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT	NO.	LENGTH	WEIGHT	NO.	LENGTH	WEIGHT	NO.	LENGTH	WEIGHT	NO.	LENGTH	WEIGHT	NO.	LENGTH	WEIGHT	NO.	LENGTH	WEIGHT	NO.	LENGTH	WEIGHT			
6c2	VERTICAL		16	2'-10	68	16	2'-10	68	16	2'-10	68	16	2'-10	68	16	2'-10	68	16	2'-10	68	16	2'-10	68	16	2'-10	68			
4c4	VERTICAL HOOPS		20	2'-10	38	20	2'-10	38	20	2'-10	38	20	2'-10	38	20	2'-10	38	20	2'-10	38	20	2'-10	38	20	2'-10	38			
4c5	VERTICAL HOOPS		16	3'-1	33	16	3'-1	33	16	3'-1	33	16	3'-1	33	16	3'-1	33	16	3'-1	33	16	3'-1	33	16	3'-1	33			
6d1	HORIZONTAL		24	6'-8	240	24	6'-8	240	24	6'-8	240	24	6'-8	240	24	6'-8	240	24	6'-8	240	24	6'-8	240	24	6'-8	240			
6d2	HORIZONTAL		32	6'-9	324	32	6'-9	324	32	6'-9	324	32	6'-9	324	32	6'-9	324	32	6'-9	324	32	6'-9	324	32	6'-9	324			
6h1	LONGITUDINAL OPEN RAIL		24	35'-9	1289	36	28'-4	1532	36	31'-8	1712	36	35'-0	1893	36	38'-4	2073	48	32'-2	2319	48	34'-8	2499	48	37'-2	2680	60	32'-5	2921
4j2	HOOPS INTERIOR POSTS		112	4'-8	349	144	4'-8	449	160	4'-8	499	176	4'-8	549	192	4'-8	599	224	4'-8	698	240	4'-8	748	256	4'-8	798	272	4'-8	848
4j3	HOOPS OPEN RAIL		212	5'-5	767	244	5'-5	883	290	5'-5	1049	316	5'-5	1143	342	5'-5	1237	394	5'-5	1426	420	5'-5	1520	446	5'-5	1614	472	5'-5	1708
4j4	HOOPS END POSTS		32	6'-5	137	32	6'-5	137	32	6'-5	137	32	6'-5	137	32	6'-5	137	32	6'-5	137	32	6'-5	137	32	6'-5	137	32	6'-5	137
4t1	WING FOOTING TIE BARS		16	VARIABLES	21	16	VARIABLES	21	16	VARIABLES	21	16	VARIABLES	21	16	VARIABLES	21	16	VARIABLES	21	16	VARIABLES	21	16	VARIABLES	21	16	VARIABLES	21
(INCLUDE WITH SUPERSTRUCTURE REINFORCING)			TOTAL (LBS.)			3266		3725		4121		4446		4770		5304		5628		5953		6338							

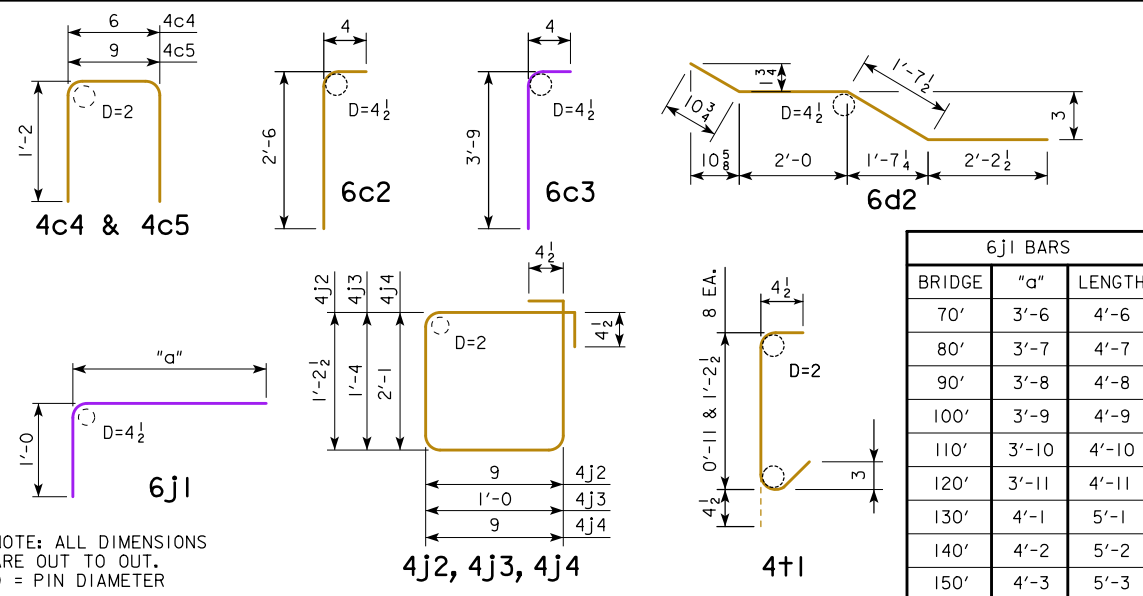
REINFORCING QUANTITIES SHOWN ARE BASED ON 45° SKEW BID LENGTHS.

STAINLESS STEEL REINFORCING STEEL-TWO OPEN RAILS

BRIDGE LENGTH			70'-0			80'-0			90'-0			100'-0			110'-0			120'-0			130'-0			140'-0			150'-0		
BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT	NO.	LENGTH	WEIGHT	NO.	LENGTH	WEIGHT	NO.	LENGTH	WEIGHT	NO.	LENGTH	WEIGHT	NO.	LENGTH	WEIGHT	NO.	LENGTH	WEIGHT	NO.	LENGTH	WEIGHT			
6c1	VERTICAL		96	4'-11	709	96	4'-11	709	96	4'-11	709	96	4'-11	709	96	4'-11	709	96	4'-11	709	96	4'-11	709	96	4'-11	709			
6c3	VERTICAL		16	4'-1	98	16	4'-1	98	16	4'-1	98	16	4'-1	98	16	4'-1	98	16	4'-1	98	16	4'-1	98	16	4'-1	98			
6j1	VERTICAL DOWELS OPEN RAIL		152	4'-6	1027	184	4'-7	1267	200	4'-8	1402	216	4'-9	1541	232	4'-10	1684	264	4'-11	1950	280	5'-1	2138	296	5'-2	2297	312	5'-3	2460
(INCLUDE WITH SUPERSTRUCTURE REINFORCING)			TOTAL (LBS.)			1834		2074		2209		2348		2491		2757		2945		3104		3267							

REINFORCING QUANTITIES SHOWN ARE BASED ON 45° SKEW BID LENGTHS.

BENT BAR DETAILS



OPEN RAIL NOTES:

- MINIMUM CLEAR DISTANCE FROM FACE OF CONCRETE TO NEAR REINFORCING BAR IS TO BE 2" UNLESS OTHERWISE NOTED OR SHOWN.
- COST OF THE JOINT SEALER AND BOND BREAKER SHALL BE CONSIDERED INCIDENTAL TO OTHER CONSTRUCTION.
- THE CONCRETE OPEN RAIL IS TO BE BID ON A LINEAL FOOT BASIS MEASURED FROM END TO END OF RAIL. THE NUMBER OF LINEAL FEET OF OPEN RAIL INSTALLED WILL BE PAID FOR AT THE CONTRACT PRICE PER LINEAL FOOT. PRICE BID FOR "CONCRETE OPEN RAILING, TL-4" SHALL BE FULL COMPENSATION FOR FURNISHING ALL MATERIAL, EXCLUDING REINFORCING STEEL, AND ALL OF THE EQUIPMENT AND LABOR REQUIRED TO CONSTRUCT THE RAIL IN ACCORDANCE WITH THESE PLANS AND CURRENT SPECIFICATIONS.
- ALL OPEN RAIL REINFORCING STEEL IS TO BE INCLUDED WITH THE SUPERSTRUCTURE REINFORCING STEEL.
- ALL OPEN RAIL CONCRETE IS TO BE CLASS C.

- ALL BARRIER RAIL REINFORCING STEEL IS TO BE EITHER EPOXY COATED OR STAINLESS STEEL AS SHOWN OR NOTED. THE STAINLESS STEEL REINFORCING STEEL SHALL BE DEFORMED BAR GRADE 60 MEETING THE REQUIREMENTS OF MATERIALS I.M.452.
- THE JOINT SEALER SHALL BE LIGHT GRAY NONSAG LATEX CAULKING SEALER MARKETED FOR OUTDOOR USE. NO TESTING OR CERTIFICATION IS REQUIRED.
- TOP OF THE OPEN RAIL IS TO BE PARALLEL TO THEORETICAL $\frac{1}{2}$ GRADE.
- IF CONDUIT IS REQUIRED IN THIS PLAN THE RIGID STEEL CONDUIT, JUNCTION BOXES AND FITTINGS INCLUDING LABOR AND ANY ADDITIONAL WORK TO DO THE INSTALLATION IS CONSIDERED INCIDENTAL TO THE COST OF THE RAILING.

CONCRETE PLACEMENT QUANTITIES NOTE: THESE VALUES TO BE USED FOR ALL SKEWS.

BRIDGE LENGTH	70'-0	80'-0	90'-0	100'-0	110'-0	120'-0	130'-0	140'-0	150'-0
*STANDARD SECTION CU. YDS.	12.2	14.0	15.7	17.4	19.1	21.0	22.7	24.4	26.0
END SECTION 4 @ 0.687 CU. YDS.	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8
TOTAL CU. YDS.	15.0	16.8	18.5	20.2	21.9	23.8	25.5	27.2	28.8

* CONCRETE QUANTITIES SHOWN ARE BASED ON 45° SKEW BID LENGTHS.

CONCRETE OPEN RAIL QUANTITIES

BRIDGE LENGTH		UNIT	70'-0	80'-0	90'-0	100'-0	110'-0	120'-0	130'-0	140'-0	150'-0
CONCRETE OPEN RAILING, TL-4	0° SKEW	L.F.	162.0	182.0	202.0	222.0	242.0	262.0	282.0	302.0	322.0
CONCRETE OPEN RAILING, TL-4	15° SKEW	L.F.	162.2	182.2	202.2	222.2	242.2	262.2	282.2	302.2	322.2
CONCRETE OPEN RAILING, TL-4	30° SKEW	L.F.	162.9	182.9	202.9	222.9	242.9	262.9	282.9	302.9	322.9
CONCRETE OPEN RAILING, TL-4	45° SKEW	L.F.	164.5	184.5	204.5	224.5	244.5	264.5	284.5	304.5	324.5

08-2020
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STANDARD DESIGN - 44' ROADWAY, 3 SPAN BRIDGES

CONTINUOUS CONCRETE SLAB BRIDGES

JULY, 2014

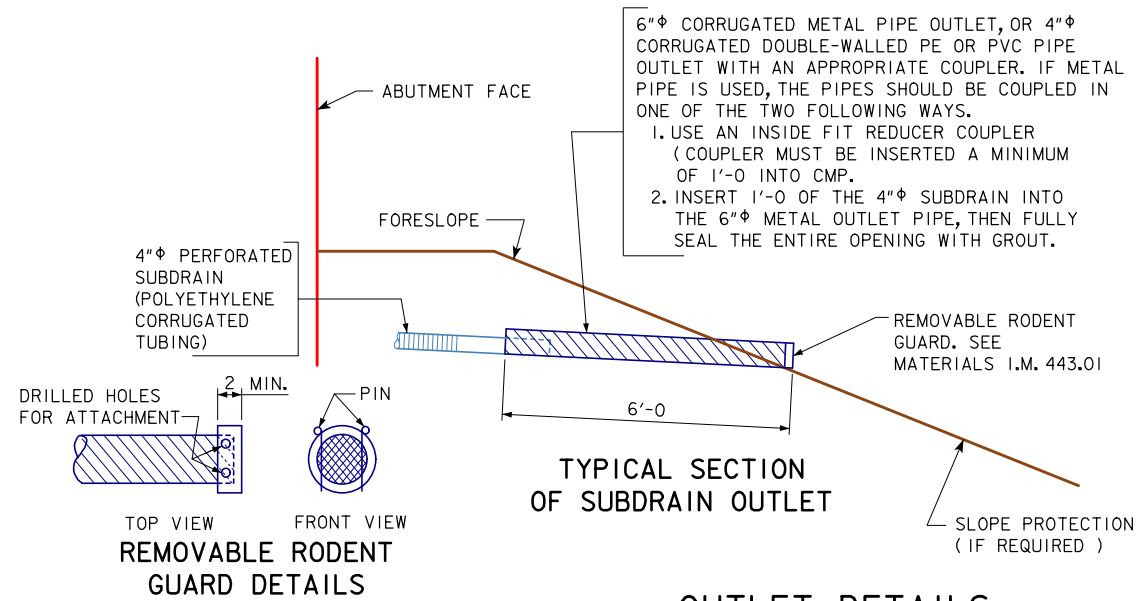
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OPEN RAIL DETAILS
(TL-4)

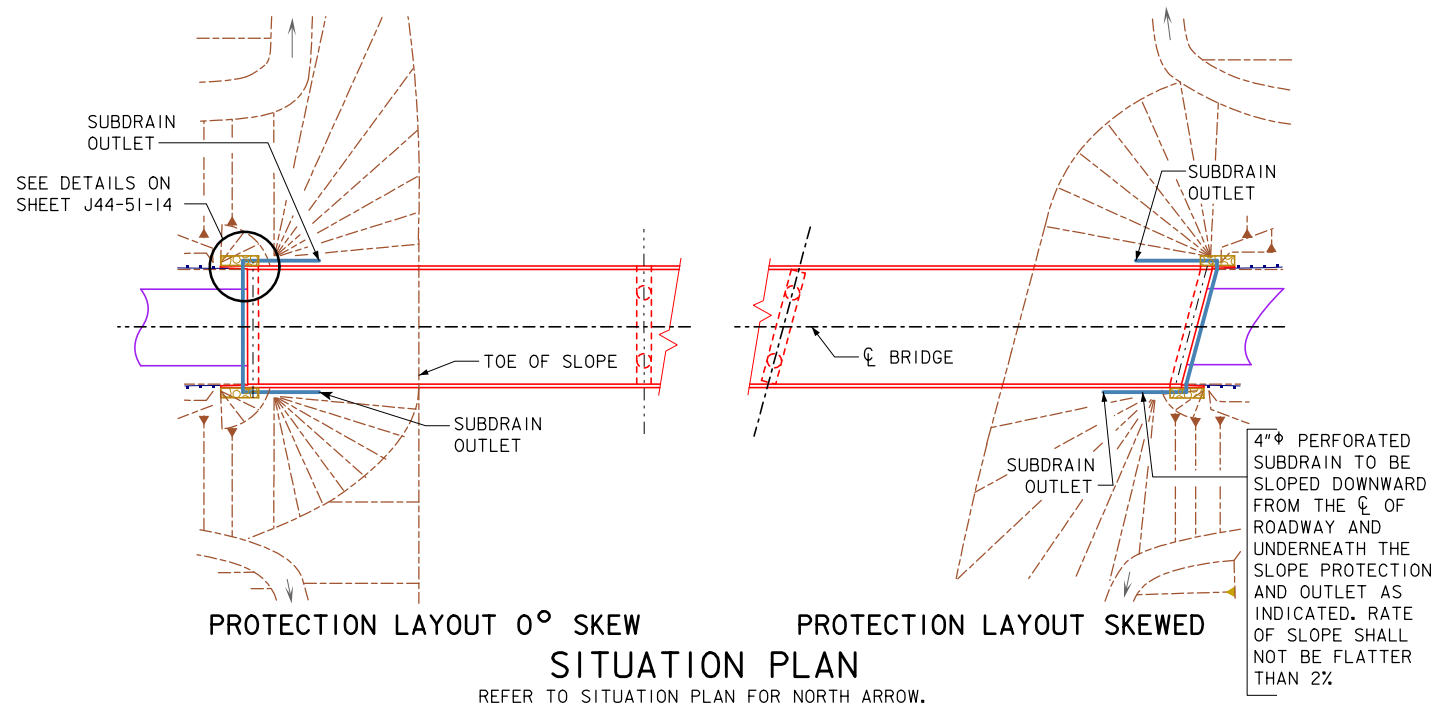
J44-49-14

REVISED 08-2020. UPDATED BRIDGE ENGINEER SIGNATURE.

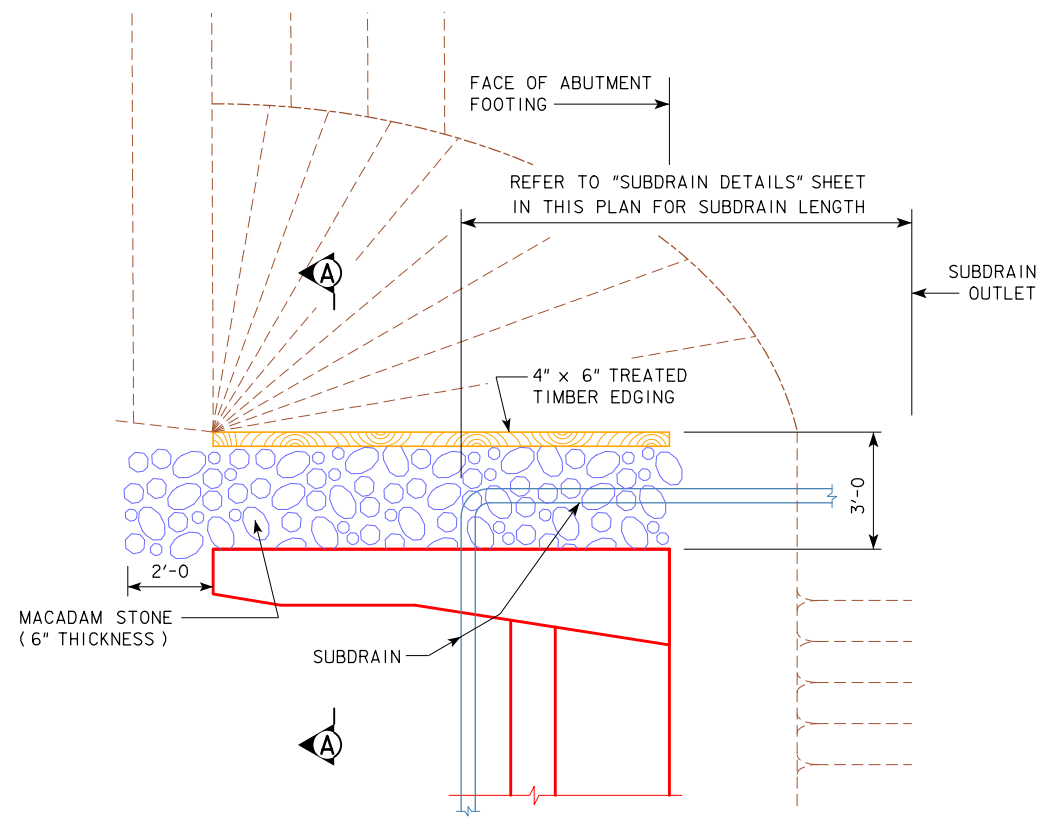
REVISED 09-2014: CHANGED REFERENCE TO THE J44-51-14 STANDARD INSTEAD OF J44-51-06 STANDARD.
 REVISED 08-2020: UPDATED BRIDGE ENGINEER SIGNATURE.



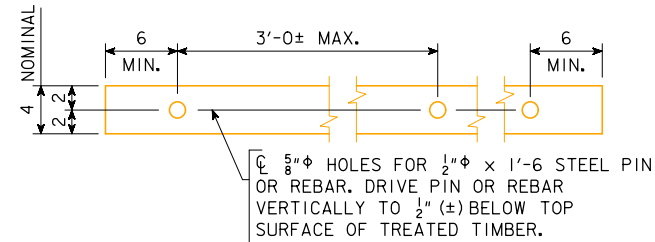
OUTLET DETAILS



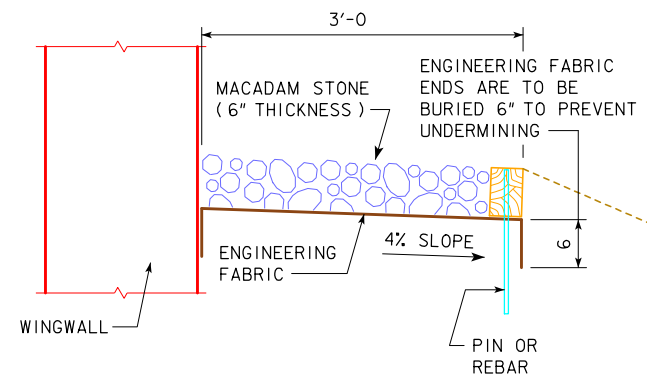
08-2020 LATEST REVISION DATE	 APPROVED BY BRIDGE ENGINEER		
		STANDARD DESIGN - 44' ROADWAY, 3 SPAN BRIDGES CONTINUOUS CONCRETE SLAB BRIDGES JULY, 2014	
		SUBDRAIN DETAILS	J44-50-14



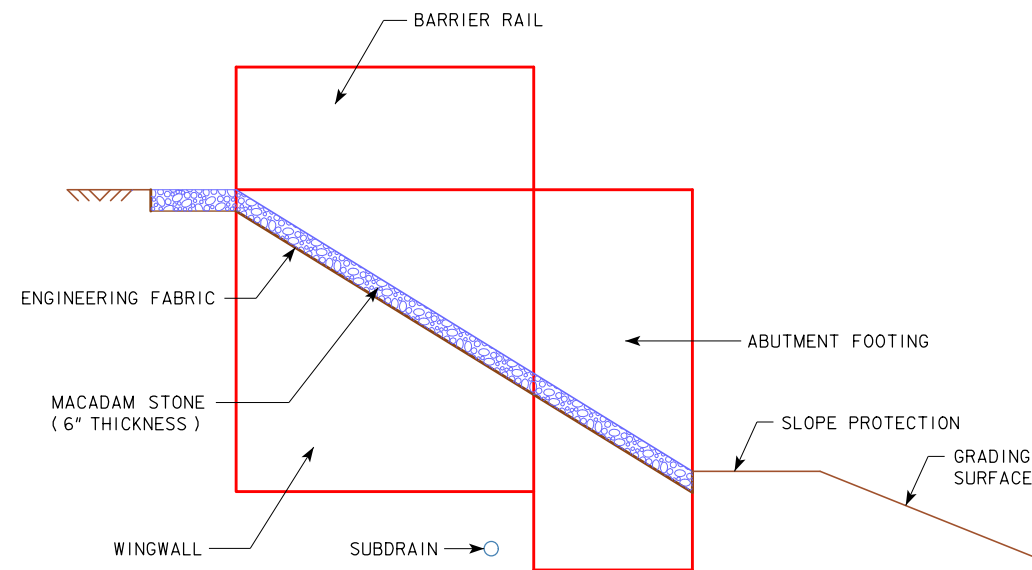
TOP VIEW OF WING ARMORING



4" x 6" TREATED TIMBER EDGING DETAILS



SECTION A-A



PROFILE VIEW OF WING ARMORING

SUBDRAIN NOTES:

SEE J44-50-14 AND "SITUATION PLAN" SHEETS FOR DETAILS OF PLACING ALL SUBDRAINS AND SUBDRAIN OUTLETS REQUIRED FOR THIS STRUCTURE.

THE BRIDGE CONTRACTOR IS TO INSTALL SUBDRAINS BEHIND THE ABUTMENT. THE SUBDRAINS SHALL BE 4" IN DIAMETER AND BE IN ACCORDANCE WITH ARTICLE 4143.01, B, OF THE STANDARD SPECIFICATIONS. THE SUBDRAIN OUTLET SHALL CONSIST OF A 6'-0 LENGTH OF PIPE WITH A REMOVABLE RODENT GUARD.

THE DIMENSIONS SHOWN FOR THE PROPOSED SUBDRAINS ARE BASED ON THE PROPOSED GRADING LAYOUT OF BRIDGE BERMS. THE DIMENSIONS SHOWN ARE FOR ESTIMATING ONLY. REQUIRED LENGTHS AND GENERAL LOCATIONS OF SUBDRAINS ARE SUBJECT TO CHANGE DUE TO FIELD ADJUSTMENTS OF THE GRADING LAYOUT.

THE COST OF FURNISHING AND PLACING SUBDRAIN (INCLUDING EXCAVATION), GRANULAR BACKFILL, POROUS BACKFILL, AND SUBDRAIN OUTLET IS TO BE INCLUDED IN THE PRICE BID FOR "STRUCTURAL CONCRETE (BRIDGE)". NO EXTRA PAYMENT WILL BE MADE.

MACADAM STONE WING ARMORING NOTES:

MACADAM STONE SHALL BE PLACED ALONG THE SIDE OF THE WING AND ABUTMENT FOOTING. THIS IS TYPICAL AT EACH CORNER OF THE BRIDGE UNLESS OTHERWISE NOTED IN THE PLANS. THE MACADAM STONE AT THESE LOCATIONS SHALL BE UNDERLAYED WITH ENGINEERING FABRIC AND BE IN ACCORDANCE WITH ARTICLE 4196.01, B, 3, OF THE STANDARD SPECIFICATIONS.

THE BRIDGE BERM FORESLOPE SHALL BE COMPACTED AND SHAPED AS SHOWN ON THESE PLANS, THE SITUATION PLAN AND AS DIRECTED BY THE ENGINEER. THE BERM FORESLOPE SHALL BE FIRM WHEN THE ENGINEERING FABRIC AND MACADAM STONE ARE PLACED.

THE ENGINEERING FABRIC SHALL BE IN ACCORDANCE WITH ARTICLE 4196.01, B, 3, OF THE STANDARD SPECIFICATIONS. IF THE ENGINEERING FABRIC IS LAPPED THE LAPS SHALL BE A MINIMUM OF ONE FOOT IN LENGTH, SHINGLE FASHION WITH UP SLOPE LAP PIECE ON TOP AND STAPLED FOR CONTINUITY.

THE MACADAM STONE SHALL BE IN ACCORDANCE WITH ARTICLE 4122.02, OF THE STANDARD SPECIFICATIONS FOR COARSE MATERIAL (NO CHOKE STONE IS ALLOWED).

WOOD PRESERVATIVE TREATMENT FOR THE TIMBER EDGING SHALL MEET THE REQUIREMENTS FOR GUARDRAIL POSTS, SAWED FOUR SIDES, AND BE IN ACCORDANCE WITH SECTION 4161, OF THE STANDARD SPECIFICATIONS.

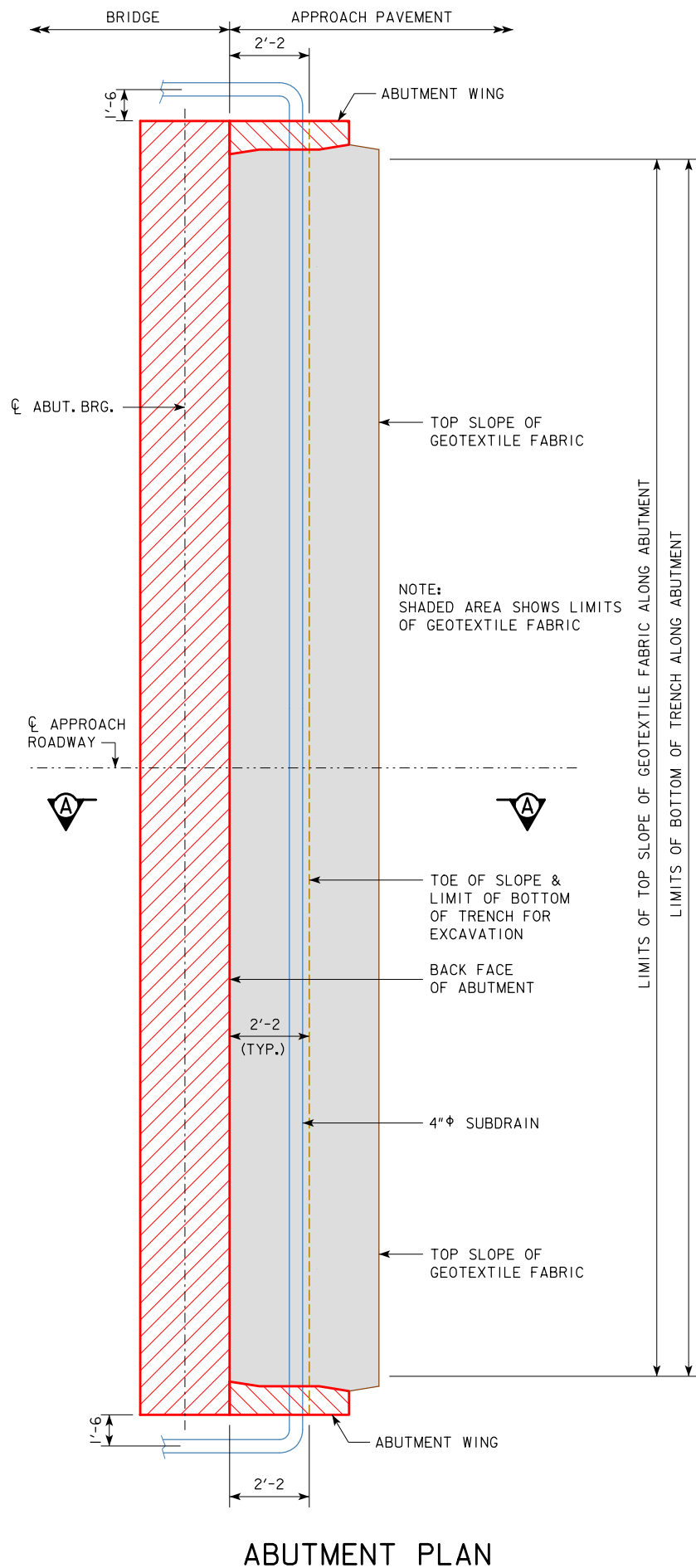
THE MACADAM STONE SHALL BE DEPOSITED, SPREAD, CONSOLIDATED AND SHAPED BY MECHANICAL OR HAND METHODS THAT WILL PROVIDE UNIFORM DEPTH AND DENSITY AND PROVIDE UNIFORM SURFACE APPEARANCE.

PAYMENT FOR THE BRIDGE WING ARMORING SHALL BE INCIDENTAL TO THE BID ITEM "STRUCTURAL CONCRETE (BRIDGE)" AND SHALL INCLUDE COSTS OF ALL MATERIAL AND LABOR TO CONSTRUCT THE WING ARMORING AS SHOWN ON THESE PLANS.

REVISED 08-2020. UPDATED BRIDGE ENGINEER SIGNATURE.

08-2020 LATEST REVISION DATE	 APPROVED BY BRIDGE ENGINEER		
		STANDARD DESIGN - 44' ROADWAY, 3 SPAN BRIDGES	
		CONTINUOUS CONCRETE SLAB BRIDGES JULY, 2014	
WING ARMORING DETAILS		J44-51-14	

REVISED 09-2014: THE TECHNICAL DATA INFORMATION TABLE WAS REMOVED AND A NOTE ADDED TO REFER TO THE STANDARDS SPECIFICATIONS FOR THIS INFORMATION.
 REVISED 09-2016: CHANGED THE BRIDGE APPROACH PAVEMENT STANDARD TO "BR" (WAS "RK-20").
 REVISED 08-2020: UPDATED BRIDGE ENGINEER SIGNATURE.



ABUTMENT BACKFILL PROCESS:

THE BASE OF THE EXCAVATION SUBGRADE BEHIND THE ABUTMENT IS TO BE GRADED WITH A 4% SLOPE AWAY FROM THE ABUTMENT FOOTING AND A 2% CROSS SLOPE IN THE DIRECTION OF THE SUBDRAIN OUTLET. THIS EXCAVATION SHAPING IS TO BE DONE PRIOR TO BEGINNING INSTALLATION OF THE GEOTEXTILE AND BACKFILL MATERIAL.

AFTER THE SUBGRADE HAS BEEN SHAPED, THE GEOTEXTILE FABRIC SHALL BE INSTALLED IN ACCORDANCE WITH THE DETAILS SHOWN. THE FABRIC IS INTENDED TO BE INSTALLED IN THE BASE OF THE EXCAVATION AND EXTENDED VERTICALLY UP THE ABUTMENT BACKWALL, ABUTMENT WING WALLS, AND EXCAVATION FACE TO A HEIGHT THAT WILL BE APPROXIMATELY 1 TO 2 FOOT HIGHER THAN THE HEIGHT OF THE POROUS BACKFILL PLACEMENT AS SHOWN IN THE "BACKFILL DETAILS" ON THIS SHEET. THE STRIPS OF THE FABRIC PLACED SHALL OVERLAP APPROXIMATELY 1 FOOT AND SHALL BE PINNED IN PLACE. THE FABRIC SHALL BE ATTACHED TO THE ABUTMENT BY USING LATH FOLDED IN THE FABRIC AND SECURED TO THE CONCRETE WITH SHALLOW CONCRETE NAILS. THE FABRIC PLACED AGAINST THE EXCAVATION FACE SHALL BE PINNED.

WHEN THE FABRIC IS IN PLACE, THE SUBDRAIN SHALL BE INSTALLED DIRECTLY ON THE FABRIC AT THE TOE OF THE REAR EXCAVATION SLOPE. A SLOT WILL NEED TO BE CUT IN THE FABRIC AT THE POINT WHERE THE SUBDRAIN EXITS THE FABRIC NEAR THE END OF THE ABUTMENT WING WALL.

POROUS BACKFILL IS THEN PLACED AND LEVELED, NO COMPACTION IS REQUIRED.

THE REMAINING WORK INVOLVES BACKFILLING WITH FLOODABLE BACKFILL, SURFACE FLOODING, AND VIBRATORY COMPACTION. THE FLOODABLE BACKFILL MATERIAL SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS. THE FLOODABLE BACKFILL SHALL BE PLACED IN INDIVIDUAL LIFTS, SURFACE FLOODED, AND COMPACTED WITH VIBRATORY COMPACTION TO ENSURE FULL CONSOLIDATION. LIMIT THE LOOSE LIFTS TO NO MORE THAN 2 FEET OF THICKNESS.

START SURFACE FLOODING FOR EACH FLOODABLE BACKFILL LIFT AT THE HIGH POINT OF THE SUBDRAIN AND PROGRESS TO THE LOW POINT WHERE THE SUBDRAIN EXITS THE FABRIC. TO ENSURE UNIFORM SURFACE FLOODING, WATER RUNNING FULL IN A 2-INCH DIAMETER HOSE SHOULD BE SPRAYED IN SUCCESSIVE 6-FOOT TO 8-FOOT INCREMENTS FOR 3 MINUTES WITHIN EACH INCREMENT.

FLOODABLE BACKFILL LIFT PLACEMENT, FLOODING, AND COMPACTION SHALL PROGRESS UNTIL THE REQUIRED FULL THICKNESS OF THE ABUTMENT BACKFILL HAS BEEN COMPLETED.

WATER REQUIRED FOR FLOODING, SUBDRAINS, POROUS BACKFILL, FLOODABLE BACKFILL, AND GEOTEXTILE FABRIC FURNISHED AT THE BRIDGE ABUTMENTS WILL NOT BE MEASURED SEPARATELY FOR PAYMENT.

THE COST OF WATER REQUIRED FOR FLOODING, SUBDRAINS, POROUS BACKFILL, FLOODABLE BACKFILL, AND GEOTEXTILE FABRIC FURNISHED AT THE BRIDGE ABUTMENTS SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE BID FOR STRUCTURAL CONCRETE.

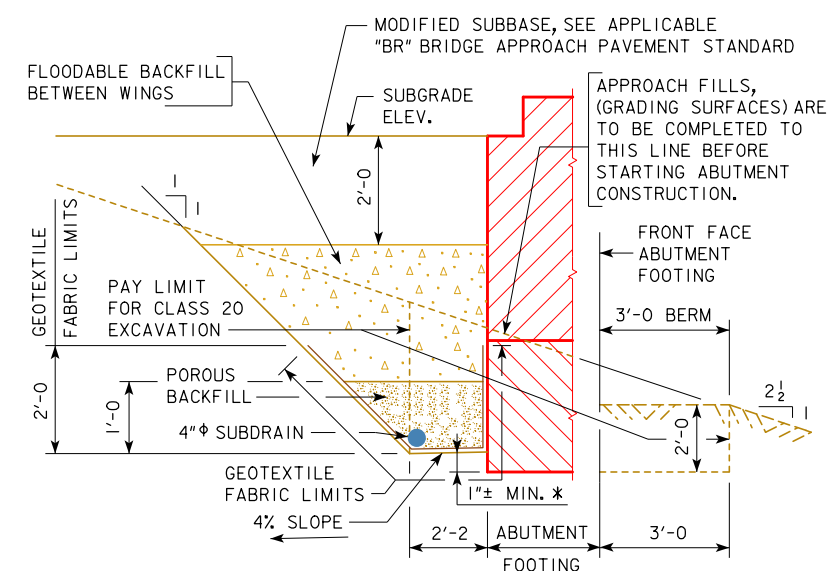
NOTE:
SEE SUBDRAIN DETAILS SHEET FOR DETAILS NOT SHOWN ON THIS SHEET WHICH ARE PERTINENT TO THIS STRUCTURE.

NOTE:

SUBDRAIN SHALL SLOPE DOWNWARD 2% FROM CL APPROACH ROADWAY WHEN OUTLETTING BOTH SIDES OF THE ABUTMENT.

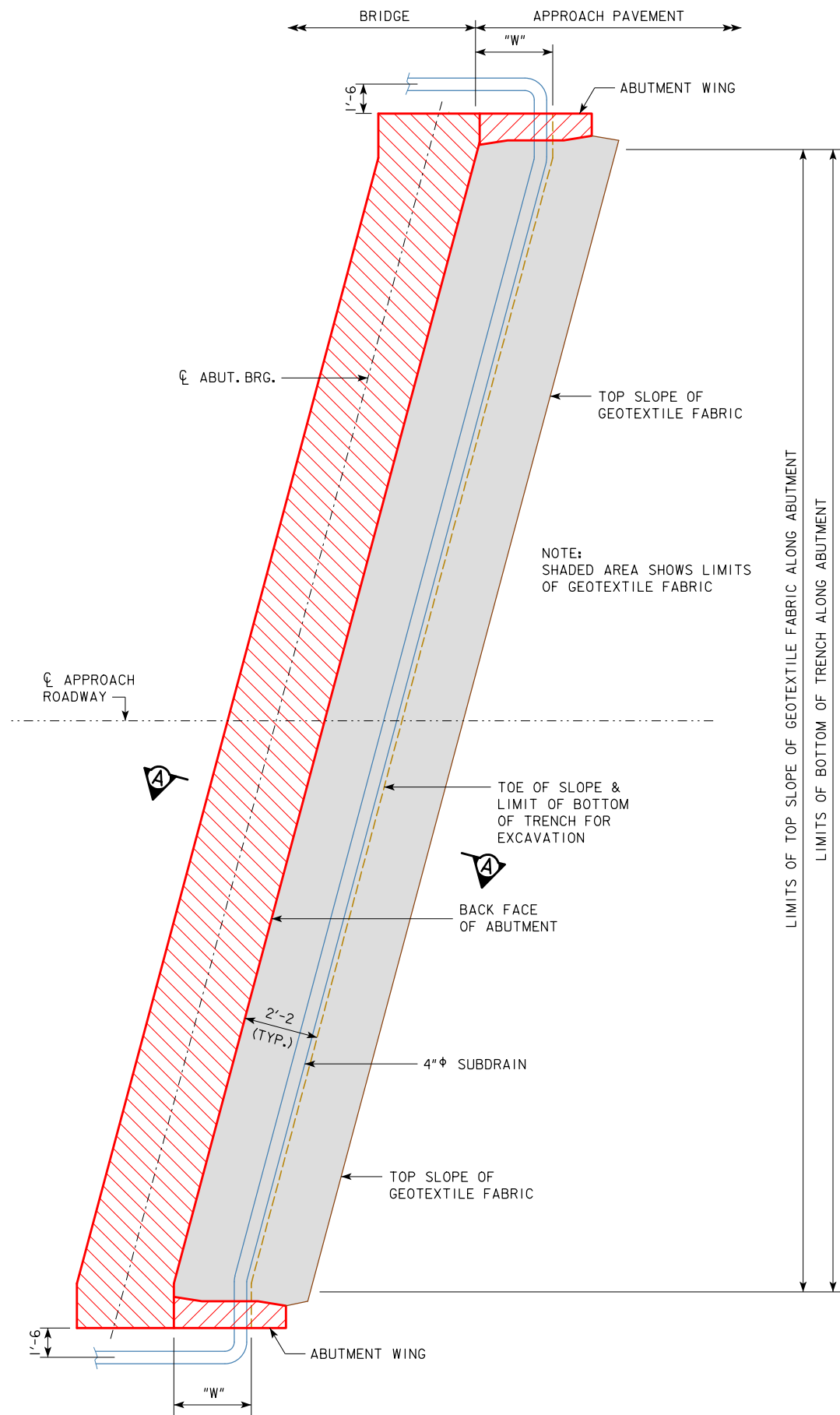
SUBDRAIN SHALL SLOPE DOWNWARD 2% FROM HIGH END WHEN OUTLETTING AT ONE END OF THE ABUTMENT.

THE GEOTEXTILE FABRIC SHALL BE IN ACCORDANCE WITH ARTICLE 4196.01, B, 6 OF THE STANDARD SPECIFICATIONS. IF THE ENGINEERING FABRIC IS LAPPED THE LAPS SHALL BE A MINIMUM OF ONE FOOT IN LENGTH, SHINGLE FASHION WITH UP SLOPE LAP PIECE ON TOP AND STAPLED FOR CONTINUITY.



08-2020 LATEST REVISION DATE APPROVED BY BRIDGE ENGINEER	 STANDARD DESIGN - 44' ROADWAY, 3 SPAN BRIDGES CONTINUOUS CONCRETE SLAB BRIDGES JULY, 2014	
	ABUTMENT BACKFILL DETAILS FOR 0° SKEWS	J44-52-14

REVISED 09-2014: THE TECHNICAL DATA INFORMATION TABLE WAS REMOVED AND A NOTE ADDED TO REFER TO THE STANDARDS SPECIFICATIONS FOR THIS INFORMATION.
 REVISED 09-2016: CHANGED THE BRIDGE APPROACH PAVEMENT STANDARD TO "BR" (WAS "RK-20").
 REVISED 08-2020: UPDATED BRIDGE ENGINEER SIGNATURE.



ABUTMENT PLAN WITHOUT WING EXTENSIONS

"W" DIMENSION	
SKEW	DIMENSION
15°	2'-2 ⁷ / ₈
30°	2'-6
45°	3'-0 ³ / ₄

ABUTMENT BACKFILL PROCESS:

THE BASE OF THE EXCAVATION SUBGRADE BEHIND THE ABUTMENT IS TO BE GRADED WITH A 4% SLOPE AWAY FROM THE ABUTMENT FOOTING AND A 2% CROSS SLOPE IN THE DIRECTION OF THE SUBDRAIN OUTLET. THIS EXCAVATION SHAPING IS TO BE DONE PRIOR TO BEGINNING INSTALLATION OF THE GEOTEXTILE AND BACKFILL MATERIAL.

AFTER THE SUBGRADE HAS BEEN SHAPED, THE GEOTEXTILE FABRIC SHALL BE INSTALLED IN ACCORDANCE WITH THE DETAILS SHOWN. THE FABRIC IS INTENDED TO BE INSTALLED IN THE BASE OF THE EXCAVATION AND EXTENDED VERTICALLY UP THE ABUTMENT BACKWALL, ABUTMENT WING WALLS, AND EXCAVATION FACE TO A HEIGHT THAT WILL BE APPROXIMATELY 1 TO 2 FOOT HIGHER THAN THE HEIGHT OF THE POROUS BACKFILL PLACEMENT AS SHOWN IN THE "BACKFILL DETAILS" ON THIS SHEET. THE STRIPS OF THE FABRIC PLACED SHALL OVERLAP APPROXIMATELY 1 FOOT AND SHALL BE PINNED IN PLACE. THE FABRIC SHALL BE ATTACHED TO THE ABUTMENT BY USING LATH FOLDED IN THE FABRIC AND SECURED TO THE CONCRETE WITH SHALLOW CONCRETE NAILS. THE FABRIC PLACED AGAINST THE EXCAVATION FACE SHALL BE PINNED.

WHEN THE FABRIC IS IN PLACE, THE SUBDRAIN SHALL BE INSTALLED DIRECTLY ON THE FABRIC AT THE TOE OF THE REAR EXCAVATION SLOPE. A SLOT WILL NEED TO BE CUT IN THE FABRIC AT THE POINT WHERE THE SUBDRAIN EXITS THE FABRIC NEAR THE END OF THE ABUTMENT WING WALL.

POROUS BACKFILL IS THEN PLACED AND LEVELED, NO COMPACTION IS REQUIRED.

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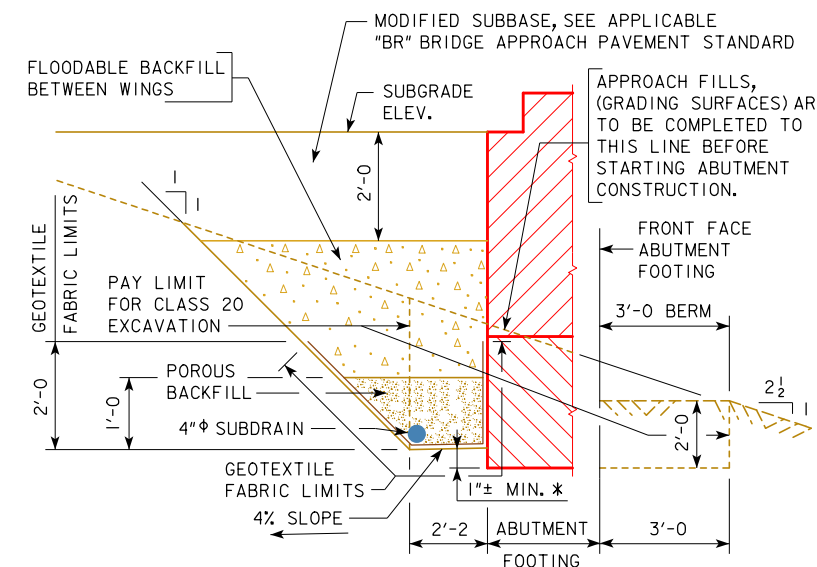
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SECTION A-A
 BACKFILL DETAILS

NOTE: GEOTEXTILE FABRIC WILL BE ATTACHED TO FACE OF ABUTMENT FOOTING AND WINGS.

* DIMENSION VARIES DUE TO 2% SUBDRAIN SLOPE.

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