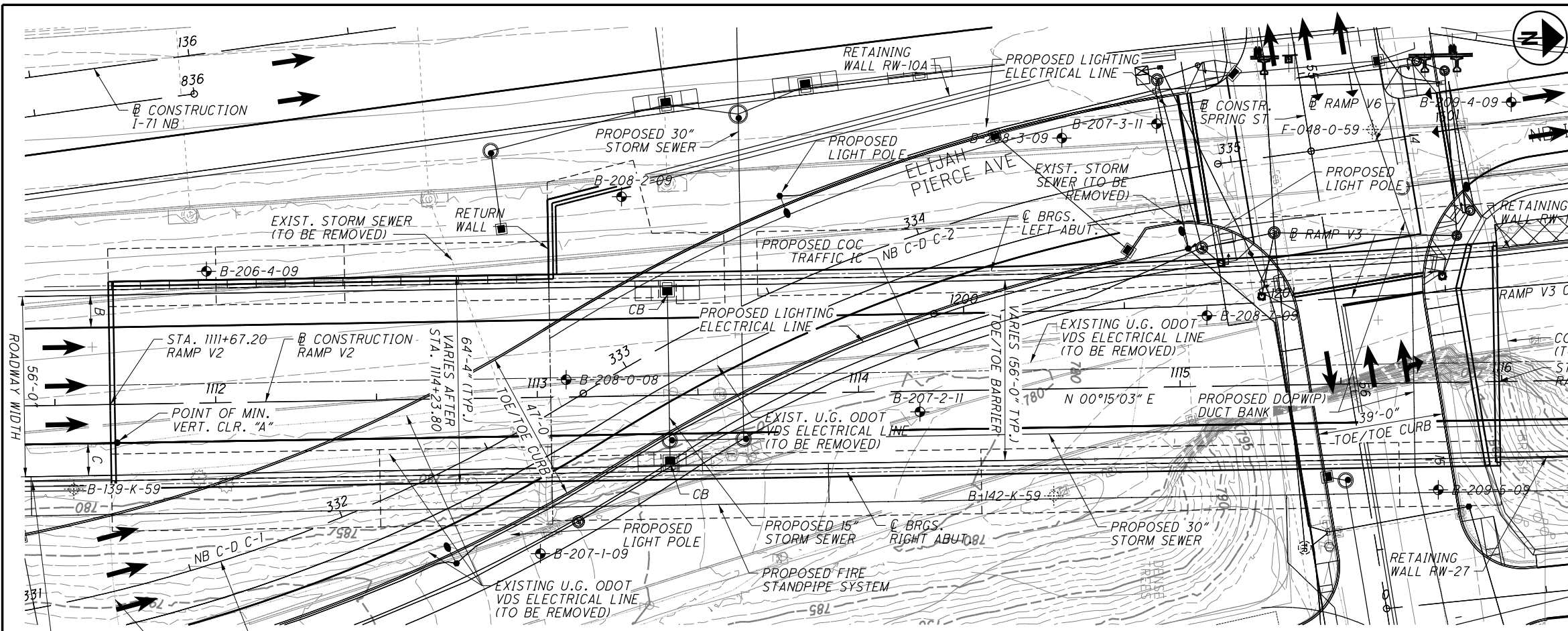


ISSUE NO.	ISSUE DATE	SHEET NO.	SHEET TITLE
12	09/04/14	87IN-1	INDEX
3	09/04/14	87B20-1	SITE PLAN
2	09/04/14	87B20-2	GENERAL PLAN I
2	09/04/14	87B20-3	GENERAL PLAN II
4	09/04/14	87B20-4	GENERAL NOTES I
2	09/04/14	87B20-5	GENERAL NOTES II
2	09/04/14	87B20-5A	STAGE CONSTRUCTION SEQUENCE
5	09/04/14	87B20-6	ESTIMATED QUANTITIES
3	09/04/14	87B20-7	LEFT ABUTMENT PLAN AND ELEVATION I
3	09/04/14	87B20-8	LEFT ABUTMENT PLAN AND ELEVATION II
3	09/04/14	87B20-9	LEFT ABUTMENT PLAN AND ELEVATION III
3	09/04/14	87B20-10	LEFT ABUTMENT FOOTING PLAN I
2	09/04/14	87B20-11	LEFT ABUTMENT FOOTING PLAN II
4	09/04/14	87B20-12	LEFT ABUTMENT DETAILS I
2	09/04/14	87B20-13	LEFT ABUTMENT DETAILS II
4	09/04/14	87B20-14	RIGHT ABUTMENT PLAN AND ELEVATION I
5	09/04/14	87B20-15	RIGHT ABUTMENT PLAN AND ELEVATION II
4	09/04/14	87B20-16	RIGHT ABUTMENT PLAN AND ELEVATION III
3	09/04/14	87B20-17	RIGHT ABUTMENT FOOTING PLAN I
4	09/04/14	87B20-18	RIGHT ABUTMENT FOOTING PLAN II
6	09/04/14	87B20-19	RIGHT ABUTMENT DETAILS I
2	09/04/14	87B20-20	RIGHT ABUTMENT DETAILS II
2	09/04/14	87B20-21	BEARING DETAILS
3	09/04/14	87B20-22	FRAMING PLAN
2	09/04/14	87B20-23	PRESTRESSED I-BEAM SECTIONS AND DETAILS
2	09/04/14	87B20-24	PRESTRESSED I-BEAM ELEVATION
2	09/04/14	87B20-25	PRESTRESSED I-BEAM DETAILS
2	09/04/14	87B20-26	LEFT ABUTMENT DIAPHRAGM DETAILS I
4	09/04/14	87B20-27	LEFT ABUTMENT DIAPHRAGM DETAILS II
3	09/04/14	87B20-28	RIGHT ABUTMENT DIAPHRAGM DETAILS I
2	09/04/14	87B20-29	RIGHT ABUTMENT DIAPHRAGM DETAILS II
4	09/04/14	87B20-30	TYPICAL UNIT 1 TRANSVERSE SECTION
4	09/04/14	87B20-31	TYPICAL UNIT 2 TRANSVERSE SECTION
2	09/04/14	87B20-32	DECK PLAN - BOTTOM REINFORCEMENT I
2	09/04/14	87B20-33	DECK PLAN - BOTTOM REINFORCEMENT II
2	09/04/14	87B20-34	DECK PLAN - TOP REINFORCEMENT I
2	09/04/14	87B20-35	DECK PLAN - TOP REINFORCEMENT II
2	09/04/14	87B20-36	DECK ELEVATIONS I
2	09/04/14	87B20-37	DECK ELEVATIONS II
2	09/04/14	87B20-38	DECK ELEVATIONS III
4	09/04/14	87B20-39	PARAPET ELEVATION AND DETAILS I
4	09/04/14	87B20-40	PARAPET ELEVATION AND DETAILS II
3	09/04/14	87B20-41	REINFORCING STEEL LIST I
3	09/04/14	87B20-42	REINFORCING STEEL LIST II AND BAR BEND DIAGRAM

NO.	DATE	DESCRIPTION
12	09/04/14	RECORD DRAWINGS
11	12/17/12	NDC 38
10	10/9/12	RFI 188
9	09/11/12	RFI 183
8	09/06/12	RFI 181
7	08/20/12	RFI 154 & RFI 164
6	08/7/12	RFI 151
5	08/1/12	RFI 145
4	07/19/12	RFI 134 & RFI 136
3	5/24/12	RFI 95
2	5/9/12	RFI 68
1	3/26/12	RFI 68
B	2/15/12	FINAL SUBMITTAL
A	12/20/11	INTERIM SUBMITTAL

ENGINEERS SEAL:

SIGNED: *Chris K*
DATE: 9/4/14



CURVE DATA - NB C-D C-1

P.I. STA. = 331+58.49
 Δ = 29°33'09" LT
 Dc = 11°28'00"
 R = 499.67'
 T = 131.80'
 L = 257.73'
 E = 17.09'

PLAN

CURVE DATA - NB C-D C-2

P.I. STA. = 333+91.70
 Δ = 24°14'09" RT
 Dc = 11°28'00"
 R = 499.67'
 T = 107.28'
 L = 211.36'
 E = 11.39'

CURVE DATA - RAMP V3 C-1

P.I. STA. = 1201+61.25
 Δ = 6°28'20.92" LT
 Dc = 1°54'00"
 R = 3015.57'
 T = 170.51'
 L = 340.66'
 E = 4.82'

SEE ROADWAY PLANS FOR HORIZONTAL ROADWAY GEOMETRY OF NORTHBOUND C-D AND SPRING STREET.

BENCHMARK DATA

BM#10: S.W. ANCHOR BOLT ON CANTILEVER SIGN FOUNDATION, EAST OF N.E. CORNER OF EXISTING BRIDGE. STA. 58+50.95, 28.05 LT. (LONG ST.), ELEV. = 799.92

BM#18: ARROW NUT ON TOP FLANGE OF FIRE HYDRANT ON N.W. CORNER OF SPRING ST. AND FIRST ALLEY WEST OF HAMILTON AVE. STA. 56+57.92, 60.10 LT. (SPRING ST.), ELEV. = 800.17

NOTES

EARTHWORK LIMITS SHALL CONFORM TO PLAN CROSS SECTIONS.

SEE ROADWAY PLANS FOR APPROACH ROADWAY TYPICAL SECTIONS.

FOR FUTURE DECK REPLACEMENT, SEE GENERAL NOTES.

COLUMBUS OVERHEAD ELECTRIC (TO BE REMOVED) STA. 1115+99.20 RAMP V2

LEGEND

● PROJECT BORING LOCATION
 ○ HISTORIC BORING LOCATION

DESIGN TRAFFIC:

ROADWAY	2015		2035		DIRECTIONAL DISTRIBUTION
	ADT	ADTT	ADT	ADTT	
SPRING ST.	10,400	210	20,600	415	N/A
NB C-D	N/A	N/A	17,900	360	N/A

TABLE OF CLEARANCES:

POINT	TYPE	MINIMUM CLEARANCE	
		REQUIRED	ACTUAL
A	VERTICAL	16'-6"	17'-2"
B	HORIZONTAL	10'-0"	10'-0"
C	HORIZONTAL	10'-0"	10'-0"

EXISTING STRUCTURE - NONE

PROPOSED STRUCTURE

TYPE: SIMPLE SPAN PRESTRESSED CONCRETE I-BEAMS WITH REINFORCED CONCRETE DECK AND SUBSTRUCTURES ON SPREAD FOOTINGS

SPANS: NORMAL TO RAMP V2:
 STA. 1111+67.20 TO STA. 1114+23.80 = 61'-10" C/C BEARINGS
 STA. 1114+23.80 TO STA. 1115+99.20 = VARIES FROM 61'-10" TO 66'-11 1/16" C/C BEARINGS

ROADWAY: 47'-0" TOE/TOE CURB (ND C-D)
 39'-0" TOE/TOE CURB (SPRING ST)

ROADWAY LOADING: HL-93
 ROADWAY FWS LOADING: 60 psf (ON ROADWAY)

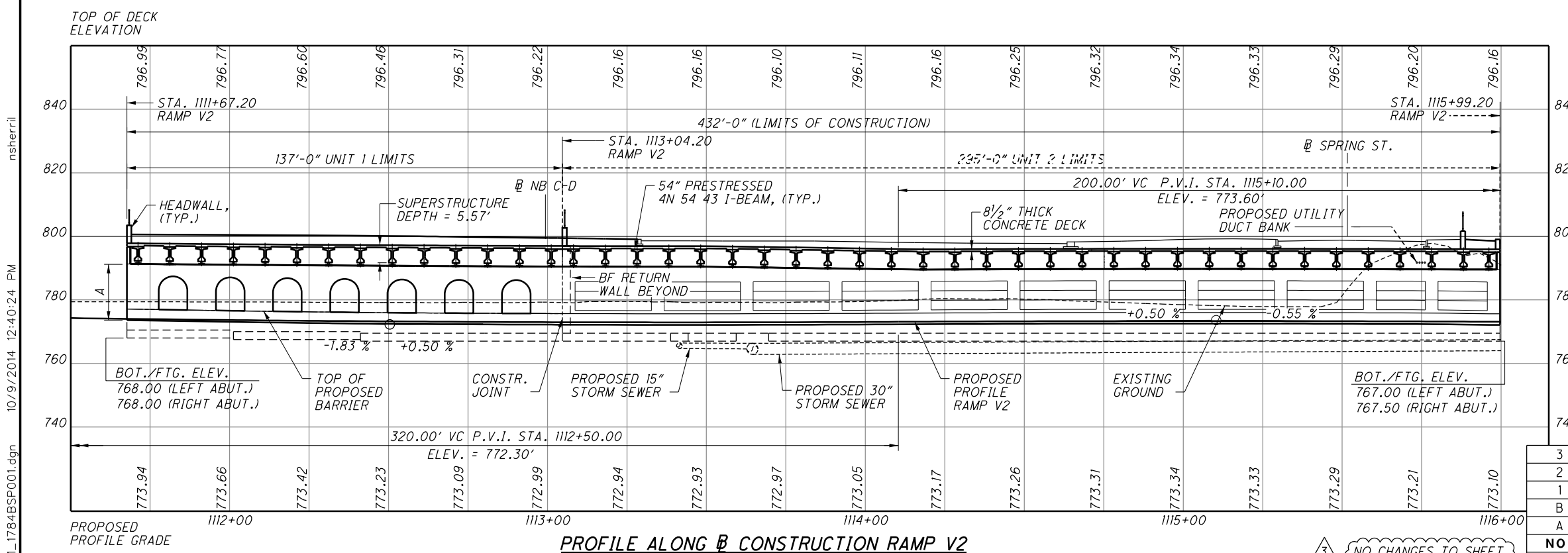
SKEW: N/A

APPROACH SLABS: NONE

ALIGNMENT: TANGENT (RAMP V2) WEARING SURFACE: N/A

CROWN: 0.016 FT/FT (SPRING ST & NB C-D)

COORDINATES: LATITUDE N39°58'03"
 LONGITUDE W82°58'58"



PROFILE ALONG B CONSTRUCTION RAMP V2

NO CHANGES TO SHEET

NO.	DATE	DESCRIPTION
3	09/04/14	RECORD DRAWINGS
2	07/19/12	RFI 134
1	3/26/12	RFC
B	2/15/12	FINAL SUBMITTAL
A	12/20/11	INTERIM SUBMITTAL
		ISSUE RECORD

DESIGN AGENCY: **CH2M HILL**
 1103 SCHROCK ROAD, SUITE 400
 COLUMBUS, OHIO 43229

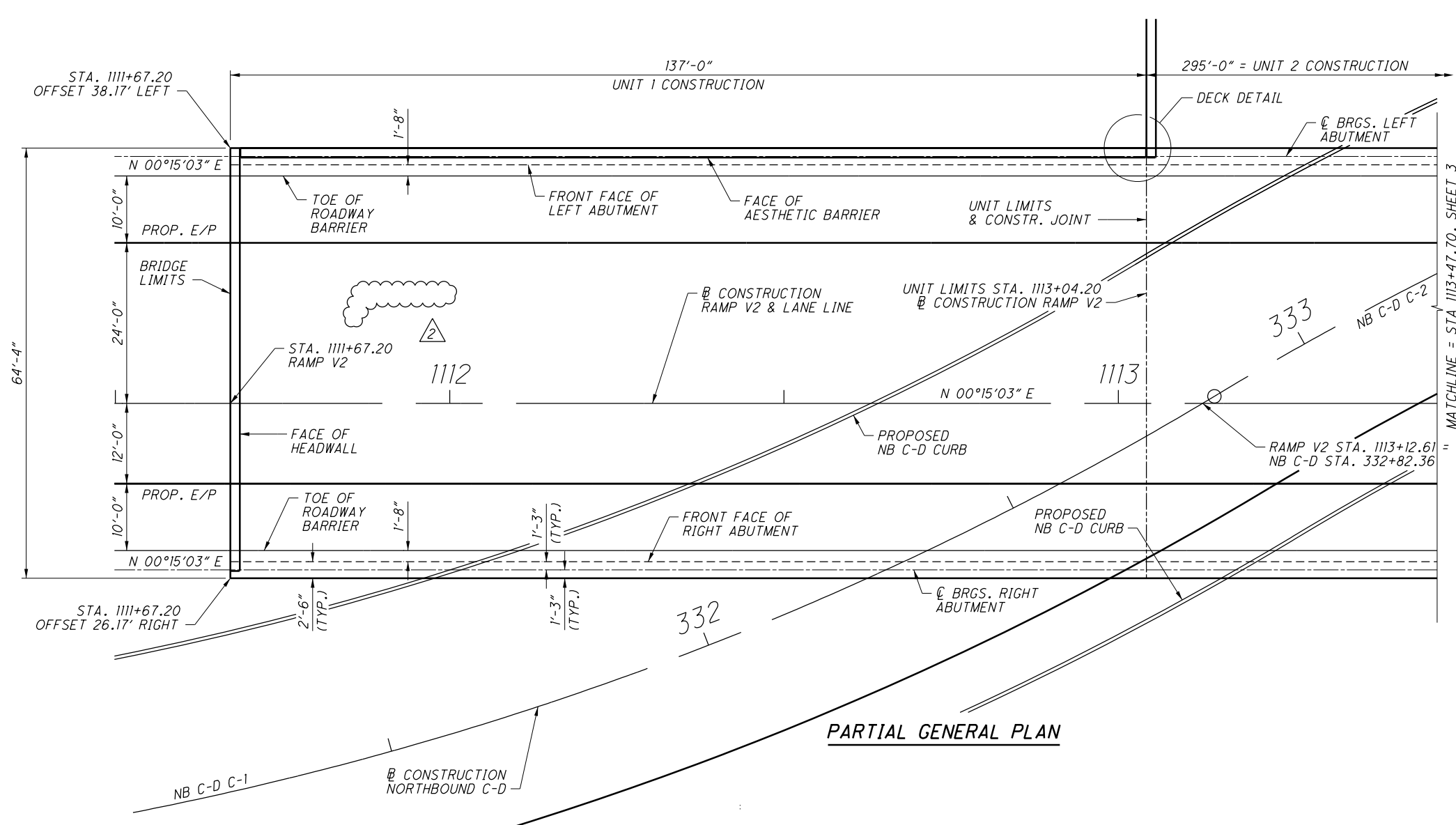
DATE: 02/12
 REVIEWED: MAM
 DRAWN: CNK
 DESIGNED: CNK
 CHECKED: DGS

FRANKLIN COUNTY
 STA. 1111+67.20
 STA. 1115+99.20

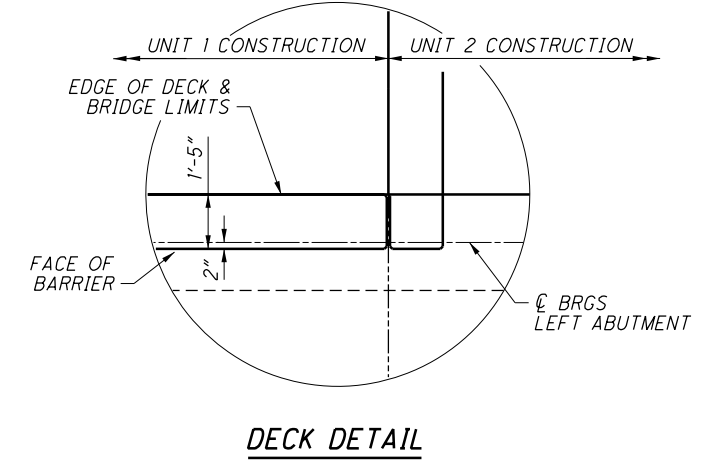
SITE PLAN
 BRIDGE NO. FRA-071-1784B
 NORTHBOUND C-D AND SPRING STREET OVER RAMP V2

87B20-1
 1935
 2744

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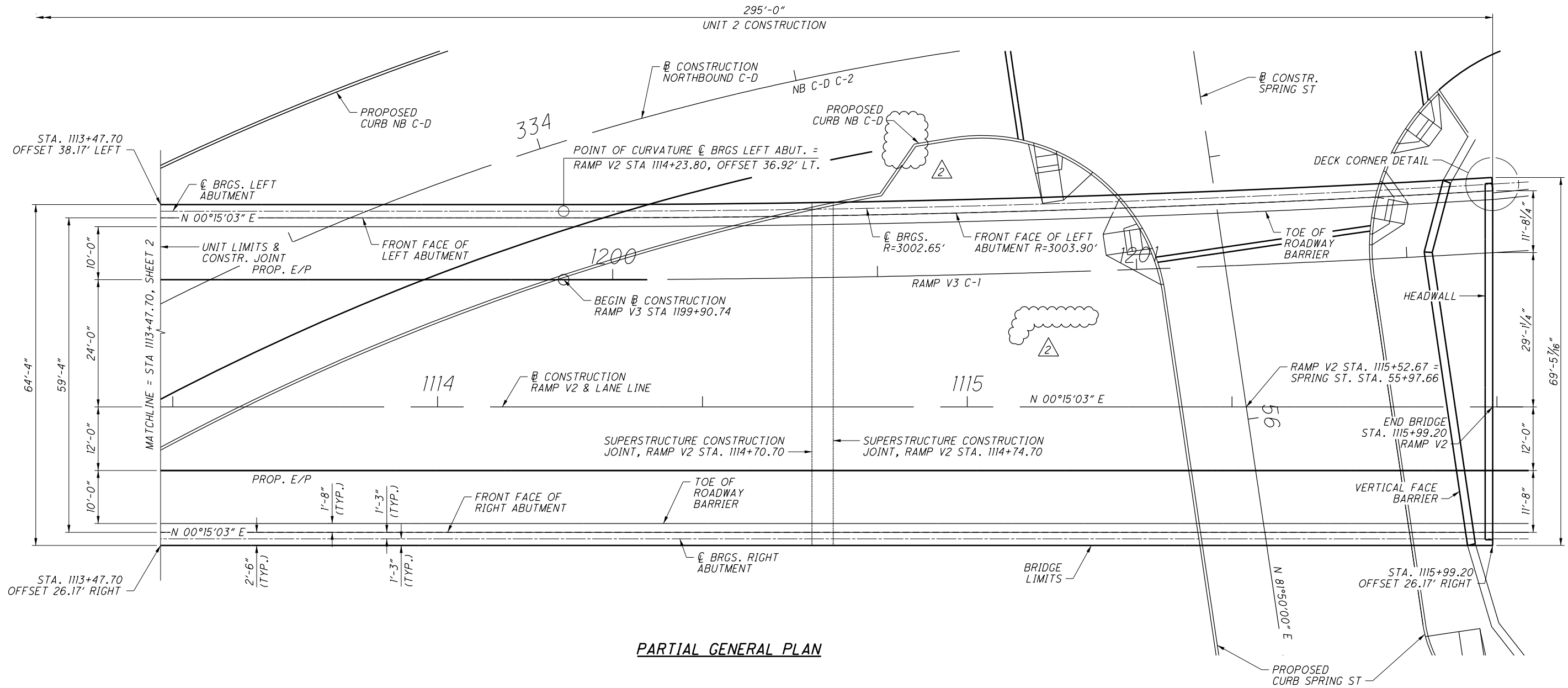


PARTIAL GENERAL PLAN

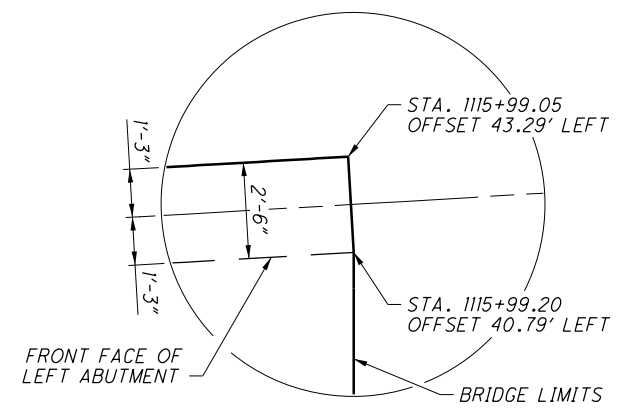


NO.	DATE	DESCRIPTION
2	09/04/14	RECORD DRAWINGS
1	3/26/12	RFC
B	2/15/12	FINAL SUBMITTAL
A	12/20/11	INTERIM SUBMITTAL
ISSUE RECORD		

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PARTIAL GENERAL PLAN



DECK CORNER DETAIL

NO.	DATE	DESCRIPTION
2	09/04/14	RECORD DRAWINGS
1	3/26/12	RFC
B	2/15/12	FINAL SUBMITTAL
A	12/20/11	INTERIM SUBMITTAL
ISSUE RECORD		

071_1784BGP002.dgn 10/9/2014 12:41:27 PM nsherril

DESIGN AGENCY: **CH2MHILL**
 1103 SCHROCK ROAD, SUITE 400
 COLUMBUS, OHIO 43229
 DATE: 02/12
 REVIEWED: MAM
 DRAWN: CNK
 DESIGNED: CNK
 CHECKED: DGS
 STRUCTURE FILE NUMBER: 2507617
 GENERAL PLAN II
 BRIDGE NO. FRA-071-1784B
 NORTHBOUND C-D AND SPRING STREET OVER RAMP V2
 FRA-71-17.76
 FRA-670-4.19
 PID No. 77369
 30820-3
 1937
 2744

GENERAL NOTES I

STANDARD DRAWINGS AND SUPPLEMENTAL SPECIFICATIONS

REFER TO THE FOLLOWING STANDARD BRIDGE DRAWING(S):
HL-50.21 REVISED 01-19-07

AND TO THE FOLLOWING SUPPLEMENTAL SPECIFICATION(S):
898 AS MODIFIED BY APPENDIX ST-01

DESIGN SPECIFICATIONS

DESIGN SPECIFICATIONS: THIS STRUCTURE CONFORMS TO THE "LRFD BRIDGE DESIGN SPECIFICATIONS" ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS, 5th EDITION, INCLUDING THE 2010 INTERIM SPECIFICATIONS AND THE ODOT BRIDGE DESIGN MANUAL, 2007.

LOAD MODIFIER FOR OPERATION IMPORTANCE

OPERATIONAL IMPORTANCE: A LOAD MODIFIER OF 1.00 HAS BEEN ASSUMED FOR THE DESIGN OF THIS STRUCTURE IN ACCORDANCE WITH THE AASTHO LRFD BRIDGE DESIGN SPECIFICATIONS, ARTICLE 1.3.5 AND THE ODOT BRIDGE DESIGN MANUAL, 2007.

DESIGN LOADING

DESIGN LOADING: HL-93
FUTURE WEARING SURFACE (FWS) OF 0.060 KIPS/SQ.FT. ON ROADWAY SECTION ABOVE STRUCTURE.
DESIGN FILL HEIGHT ON STRUCTURE: 3FT @ 140 LBS/CUBIC FT.

DESIGN DATA

CONCRETE CLASS QC/OA QSC2 - COMPRESSIVE STRENGTH
4.5 KSI (SUPERSTRUCTURE)
CONCRETE CLASS QC/OA QSC1 - COMPRESSIVE STRENGTH
5.0 KSI (SUBSTRUCTURE)
REINFORCING STEEL - MINIMUM YIELD STRENGTH 60 KSI

CONCRETE FOR PRESTRESSED BEAMS:
COMPRESSIVE STRENGTH (FINAL) - 8.0 KSI
COMPRESSIVE STRENGTH (RELEASE) - 6.5 KSI

PRESTRESSING STRAND:
AREA = 0.167 SQ.IN.
ULTIMATE STRENGTH = 270 KSI
INITIAL STRESS = 202.5 KSI (LOW RELAXATION STRANDS)

DECK PROTECTION METHOD

EPOXY COATED REINFORCING STEEL
2.5" CONCRETE COVER
WATER PROOFING

CONSTRUCTION CONSTRAINTS:

FILL THE VOID CREATED BY EXCAVATING FOR THE ABUTMENT FOOTINGS WITH TYPE B GRANULAR MATERIAL 703 16 C EXCEPT AT THE RIGHT ABUTMENT BETWEEN RAMP V2 STA. 1113+20 AND STA. 1115+30, WHERE TYPE 203 EMBANKMENT MATERIAL IS PERMISSIBLE.
AFTER THE FOOTING AND THE BREASTWALL HAVE BEEN CONSTRUCTED, FILL THE VOID BEHIND EACH ABUTMENT UP TO 6 FEET BELOW THE BEAM SEAT ELEVATION AND FROM THERE UP ON A 1:1 SLOPE TO THE SUBGRADE ELEVATION. PRIOR TO CONSTRUCTING THE EMBANKMENT ABOVE A HEIGHT OF 6 FEET BELOW THE BEAM SEAT ELEVATION, SET THE SUPERSTRUCTURE MEMBERS AND CONSTRUCT THE END DIAPHRAGMS AND DECK SLAB. THE SUPERSTRUCTURE IS DESIGNED TO ACT AS A STRUT FOR PORTIONS OF THE LATERAL EARTH PRESSURE ON THE ABUTMENT WALLS AND MUST BE IN PLACE PRIOR TO CONSTRUCTING EMBANKMENT ABOVE A HEIGHT OF 6 FEET BELOW THE BEAM SEAT ELEVATION.

FUTURE DECK REPLACEMENT:

THE SUPERSTRUCTURE IS DESIGNED AS A HORIZONTAL COMPRESSIVE STRUT BETWEEN THE ABUTMENTS FOR LATERAL EARTH LOADS 6 FEET BELOW THE ABUTMENT BEAM SEATS AND ABOVE. SEE CONSTRUCTION CONSTRAINTS NOTE. THE DECK MAY BE REPLACED IN THE FUTURE PROVIDED THE PRESTRESSED GIRDERS AND END DIAPHRAGMS REMAIN INTACT AND IN PLACE TO RESIST THE COMPRESSIVE STRUT LOAD.

FOUNDATION BEARING RESISTANCE:

ABUTMENT FOOTINGS, AS DESIGNED, PRODUCE MAXIMUM SERVICE LOAD PRESSURES, MAXIMUM STRENGTH LOAD PRESSURES (KSF), AND HAVE FACTORED BEARING RESISTANCE (KSF) AND SETTLEMENT (IN.) ACCORDING TO THE FOLLOWING TABLE:

LOCATION:	CONTACT PRESSURE (KSF)		FACTORED BEARING RESISTANCE (KSF)	SETTLEMENT (IN.)
	SERVICE-I	FACTORED MAX.		
UNIT 1, LEFT	2.9	4.4	18.5	0.81
UNIT 1, RIGHT	4.7	7.1	23.25	1.56
UNIT 2, BOTH	5.4	8.2	20.08	1.64

ITEM 512 - SEALING OF CONCRETE SURFACES (EPOXY-URETHANE)

USE THE FOLLOWING FINISH COAT COLORS:
FASCIA BEAMS: BLACK, FS-595C-17038
ABUTMENTS AND PARAPETS: LIGHT NEUTRAL, FS-595C-17778

NON-EPOXY SEALER:
NON-EPOXY SEALER SHALL BE CLEAR, 512.03.

ITEM 512 - SPECIAL - WATERPROOFING MISC.: MEMBRANE WATERPROOFING WITH PROTECTION AND DRAINAGE MAT

THIS ITEM SHALL CONSIST OF A MONOLITHIC MEMBRANE, PROTECTION MAT, FLASHING, DRAINAGE MAT, AND FILTER FABRIC AND SHALL CONFORM TO THE FOLLOWING:

RELATED WORK: THE COORDINATION OF THE CONCRETE DECK WORK DESCRIBED BELOW IS NECESSARY TO FACILITATE THE SUCCESSFUL INSTALLATION OF THE WATERPROOFING MEMBRANE.

CAST IN PLACE CONCRETE DECK:
STRENGTH/DENSITY: CONFIRM WITH BRIDGE ENGINEER AND WATERPROOFING MANUFACTURER'S REQUIREMENTS. FINISH: WOOD-FLOAT OR WOOD-TROWELED FINISH. STEEL TROWELED IS NOT DESIREABLE.

CAST IN PLACE CONCRETE DECK HYDRATION (CURE):
METHOD OF CURE: WATER CURE, WET COVERINGS, PAPER SHEETS, PLASTIC SHEETS OR APPROVED LIQUID CURING COMPOUND (SODIUM SILICATE PREFERRED). CONTACT MANUFACTURER FOR OTHER ALTERNATIVES.

CAST IN PLACE CONCRETE DECK DURATION OF CURE/DRY:
STRUCTURAL WEIGHT CONCRETE: RECOMMEND 28 DAYS, MINIMUM 14 DAYS, PRIOR TO APPLICATION OF THE MEMBRANE.
LIGHTWEIGHT STRUCTURAL CONCRETE: RECOMMEND 60 DAYS, MINIMUM 28 DAYS, PRIOR TO APPLICATION OF MEMBRANE.
VENTING OF THE DECK FROM THE UNDERSIDE IS RECOMMENDED TO FACILITATE DRYING.

THE ABOVE MINIMUM CURE/DRY TIMES ARE RECOMMENDED BASED UPON BASIC CONCRETE FUNDAMENTALS AND EXPERIENCE. DEPENDING ON CONDITIONS (I.E., AMBIENT TEMPERATURE, HUMIDITY) THE CONCRETE MAY BE DRY ENOUGH TO RECEIVE APPLICATION OF THE MEMBRANE IN LESS THAN THE 14 DAY MINIMUM RECOMMENDATION. CONSULT MANUFACTURER FOR SPECIFICS WHEN LESS THAN THE MINIMUM IS DESIRED.

SPECIAL - WATERPROOFING MISC.: MEMBRANE WATERPROOFING WITH PROTECTION AND DRAINAGE MAT, CONTINUED:

FORM RELEASE AGENTS: CONTACT MANUFACTURER
REFERENCES: AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM).

SYSTEM DESCRIPTION: FURNISH AND INSTALL A COMPLETED WATERPROOFING ASSEMBLY INCLUDING SURFACE CONDITIONER, A MONOLITHIC, RUBBERIZED ASPHALT MEMBRANE, PROTECTION COURSE, FLASHINGS, DRAINAGE MAT. TO ENSURE TOTAL SYSTEM COMPATIBILITY ALL PRODUCTS MUST BE PURCHASED FROM A SINGLE-SOURCE MANUFACTURER.

SUBMITTALS: CERTIFICATION FROM AN APPROVED INDEPENDENT TESTING LABORATORY EXPERIENCED IN TESTING THIS TYPE MATERIAL, THAT THE MATERIAL MEETS CGSB-37.50-M89 STANDARD FOR RUBBERIZED ASPHALT MEMBRANES, INCLUDING APPLICABLE ASTM PROCEDURES. TESTING SHALL BE DONE BY ORTECH INTERNATIONAL OR OTHER APPROVED NATIONAL TESTING LABORATORY. CERTIFICATION SHOWING FULL TIME QUALITY CONTROL OF PRODUCTION FACILITIES AND THAT EACH BATCH OF MATERIAL IS TESTED TO INSURE CONFORMANCE WITH THE MANUFACTURER'S PUBLISHED PHYSICAL PROPERTIES. CERTIFICATION SHOWING THAT ALL WATERPROOFING COMPONENTS ARE BEING SUPPLIED AND WARRANTED BY A SINGLE-SOURCE MANUFACTURER. THE PLANT MANUFACTURING THIS TYPE MATERIAL MUST HAVE ISO 9001-2000 APPROVAL AS EVIDENCED BY A NOTARIZED COPY OF THE OFFICIAL CERTIFICATE.

QUALITY ASSURANCE: THE WATERPROOFING CONTRACTOR SHALL DEMONSTRATE QUALIFICATIONS TO PERFORM THE WORK OF THIS SECTION BY SUBMITTING THE FOLLOWING DOCUMENTATION: CERTIFICATION OR LICENSE BY THE MEMBRANE MANUFACTURER AS A LOCALLY BASED, AUTHORIZED APPLICATOR OF THE PRODUCT THE INSTALLER INTENDS TO USE, FOR A MINIMUM OF FIVE (5) YEARS AND LIST OF AT LEAST THREE (3) PROJECTS, SATISFACTORILY COMPLETED WITHIN THE PAST FIVE (5) YEARS, OF SIMILAR SCOPE AND COMPLEXITY TO THIS PROJECT. PREVIOUS EXPERIENCE SUBMITTAL SHALL CORRESPOND TO SPECIFIC MEMBRANE SYSTEM PROPOSED FOR USE BY APPLICATOR.

REFER TO SYSTEM DESCRIPTION ARTICLE: INCLUDE SINGLE-SOURCE FOR ALL COMPONENTS FROM THE MANUFACTURER.

THE RUBBERIZED ASPHALT MEMBRANE PRODUCT SHALL CONTAIN AN INERT CLAY FILLER TO ENABLE THE PRODUCT TO BE RESISTANT TO ACIDS (FERTILIZERS, BUILDING WASHES AND ACID RAIN).

MEMBRANE MANUFACTURER SHALL HAVE AVAILABLE AN IN-HOUSE TECHNICAL STAFF TO ASSIST THE CONTRACTOR, WHEN NECESSARY, IN APPLICATION OF THE PRODUCTS AND FINAL INSPECTION OF THE ASSEMBLY.

MEMBRANE MANUFACTURER QUALIFICATION: MANUFACTURER SHALL DEMONSTRATE QUALIFICATIONS TO SUPPLY MATERIALS OF THIS SECTION BY CERTIFYING THE FOLLOWING: MEMBRANE MANUFACTURER MUST SHOW EVIDENCE THAT THE SPECIFIED RUBBERIZED ASPHALT HAS BEEN MANUFACTURED BY THE SAME SOURCE FOR FIFTEEN (15) YEARS AND SUCCESSFULLY INSTALLED ON A YEARLY BASIS FOR A MINIMUM OF FIFTEEN (15) YEARS ON PROJECTS OF SIMILAR SCOPE AND COMPLEXITY. MEMBRANE MANUFACTURER MUST NOT ISSUE WARRANTIES FOR TERMS LONGER THAN THEY HAVE BEEN MANUFACTURING THEIR HOT FLUID RUBBERIZED ASPHALT MEMBRANE.

SPECIAL - WATERPROOFING MISC.: MEMBRANE WATERPROOFING WITH PROTECTION AND DRAINAGE MAT, CONTINUED:

PRE-CONSTRUCTION CONFERENCES. THE MANUFACTURER WILL MEET WITH THE NECESSARY PARTIES AT THE JOBSITE TO REVIEW AND DISCUSS PROJECT CONDITIONS AS IT RELATES TO THE INTEGRITY OF THE WATERPROOFING ASSEMBLY.

DELIVERY, STORAGE AND HANDLING: DELIVER MATERIALS IN ORIGINAL UNOPENED CONTAINERS OF PACKAGING CLEARLY LABELED WITH MANUFACTURER'S NAME, BRAND NAME, INSTRUCTION FOR USE AND ALL IDENTIFYING NUMBERS. MATERIALS SHALL BE STORED IN A NEAT, SAFE MANNER, NOT TO EXCEED THE ALLOWABLE STRUCTURAL CAPACITY OF THE STORAGE AREA. STORE MATERIALS IN A CLEAN, DRY AREA PROTECTED FROM WATER AND DIRECT SUNLIGHT. STORE ALL ADHESIVES AT TEMPERATURES BETWEEN 60°F (15.5°C) AND 80°F (26.6°C). IF EXPOSED TO LOWER TEMPERATURES, RESTORE MATERIALS TO 60°F (15.5°C) MINIMUM TEMPERATURE BEFORE USING.

PROJECT CONDITIONS: APPLICATION OF THE MEMBRANE SHALL NOT COMMENCE NOR PROCEED DURING INCLEMENT WEATHER. ALL SURFACES TO RECEIVE THE MEMBRANE SHALL BE FREE OF WATER, DEW, FROST, SNOW AND ICE. APPLICATION OF MEMBRANE SHALL NOT COMMENCE NOR PROCEED WHEN THE AMBIENT TEMPERATURE IS BELOW 0°F (-17.7°C). PREPARATION AND APPLICATION OF MEMBRANE MUST BE CONDUCTED IN WELL VENTILATED AREAS. OVER ITS SERVICE LIFE, DO NOT EXPOSE MEMBRANE OR ACCESSORIES TO A CONSTANT TEMPERATURE IN EXCESS OF 180°F (82°C) (I.E., HOT PIPES AND VENTS OR DIRECT STEAM VENTING, ETC.). ADHESIVES CONTAIN PETROLEUM DISTILLATES AND ARE EXTREMELY FLAMMABLE. DO NOT BREATHE VAPORS OR USE NEAR AN OPEN FIRE. DO NOT USE IN CONFINED AREAS WITHOUT ADEQUATE VENTILATION. CONSULT CONTAINER OR PACKAGING LABELS AND MATERIAL SAFETY DATA SHEETS (MSDS) FOR SPECIFIC SAFETY INFORMATION. DO NOT ALLOW WASTE PRODUCTS (PETROLEUM, GREASE, OIL, SOLVENTS, VEGETABLE OR MINERAL OIL, ANIMAL FAT, ETC.) TO COME IN CONTACT WITH THE ROOF MEMBRANE. ANY EXPOSURE TO FOREIGN MATERIALS OR CHEMICAL DISCHARGES MUST BE PRESENTED TO MEMBRANE MANUFACTURER FOR EVALUATION TO DETERMINE ANY IMPACT ON THE WATERPROOF MEMBRANE ASSEMBLY PERFORMANCE. CONCRETE DECK/WALL SURFACE CONDITION: IMPORTANT - REFER TO RELATED WORK, ABOVE. DECK/WALL PREPARATION: REFER TO PREPARATION. GENERAL CONTRACTOR SHALL ASSURE ADEQUATE PROTECTION DURING INSTALLATION OF THE WATERPROOFING ASSEMBLY.

WARRANTY: UPON COMPLETION OF THE WORK, THE CONTRACTOR MUST SUPPLY THE OWNER WITH A SINGLE-SOURCE WARRANTY OF U.S. ORIGIN DIRECT FROM THE MANUFACTURER. EACH WARRANTY VARIES IN SCOPE AND TERMS, CONTACT MANUFACTURER FOR EXACT WARRANTY TERMS AND CONDITIONS TO MEET THE SPECIFIC PROJECT REQUIREMENTS.

MATERIALS: REFER TO SYSTEM DESCRIPTION. ALL COMPONENTS MUST BE OBTAINED AS A SINGLE-SOURCE FROM THE MEMBRANE MANUFACTURER TO ENSURE TOTAL SYSTEM COMPATIBILITY AND INTEGRITY.

MEMBRANE: MEMBRANE SHALL BE A HOT, FLUID APPLIED, RUBBERIZED ASPHALT MEMBRANE MEETING THE CGSB-37.50-M89 STANDARD AND OTHER PERTINENT PHYSICAL PROPERTIES GIVEN ON THE FOLLOWING SHEET:

NO.	DATE	DESCRIPTION
4	09/04/14	RECORD DRAWINGS
3	10/9/12	RFI 188
2	07/19/12	RFI 136
1	3/26/12	RFC
B	2/15/12	FINAL SUBMITTAL
ISSUE RECORD		

4 NO CHANGES TO SHEET

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DESIGN AGENCY CH2M HILL 1103 SCHROCK ROAD, SUITE 400 COLUMBUS, OHIO 43229	DATE 02/12	REVIEWED MAM	STRUCTURE FILE NUMBER 2507617	DRAWN TEK	CHECKED DGS	DESIGNED CNK	REVISIONS NONE
GENERAL NOTES I BRIDGE NO. FRA-071-1784B NORTHBOUND C-D AND SPRING STREET OVER RAMP V2							
FRA-71-17-76 FRA-670-4.19 PID No. 77369	87B20-4	(1938) 2744					

GENERAL NOTES II

SPECIAL - WATERPROOFING MISC.: MEMBRANE WATERPROOFING WITH PROTECTION AND DRAINAGE MAT, CONTINUED:

TABLE OF MEMBRANE PROPERTIES:

PROPERTY	TEST METHOD	TYPICAL RESULT
FLASH POINT	ASTM D-92 CGSB-37.50-M89	502°F (261°C)
PENETRATION	ASTM D-5329 CGSB-37.50-M89	98 MM @77°F (25°C) 187 MM @122°F (50°C)
FLOW	ASTM D-5329 CGSB-37.50-M89	1.0 MM @ 140°F (60°C)
TOUGHNESS	CGSB-37.50-M89	16.0 JOULES
RATIO OF TOUGHNESS TO PEAK LOAD	CGSB-37.50-M89	0.069
WATER VAPOR PERMEABILITY	ASTM E-96, PROCEDURE E CGSB-37.50-M89	0.3 NG/PA(S)M ²
WATER ABSORPTION	CGSB-37.50-M89	.11 GRAM WEIGHT GAIN
LOW TEMPERATURE FLEXIBILITY (-25°C)	CGSB-37.50-M89	NO DELAMINATION, ADHESION LOSS, OR CRACKING
LOW TEMPERATURE CRACK BRIDGING CAPABILITY	CGSB-37.50-M89	NO CRACKING, ADHESION LOSS, OR SPLITTING
HEAT STABILITY	CGSB-37.50-M89	NO CHANGE IN VISCOSITY, PENETRATION, FLOW OR LOW TEMPERATURE FLEXIBILITY
VISCOSITY	CGSB-37.50-M89	11.0 SECONDS
WATER RESISTANCE (5 DAYS/50°C)	CGSB-37.50-M89	NO DELAMINATION, BLISTERING, EMULSIFICATION, OR DETERIORATION
SOFTENING POINT	ASTM D-36	180°F (82°C)
ELONGATION	ASTM D-5329	1000% MINIMUM
RESILIENCY	ASTM D-3407	40% MINIMUM
BOND TO CONCRETE	ASTM D-3407	PASS 0°F (-18°C)

SURFACE CONDITIONER: ASPHALTIC SURFACE CONDITIONER FOR CONCRETE SURFACES.

FLASHING/REINFORCING: SPUNBONDED POLYESTER FABRIC (STANDARD DUTY) REINFORCING SHEET

UNIT WEIGHT: 1.35 OZ/SQ YD, PER ASTM D1910
% ELONGATION: 42 TO BREAK, PER ASTM D2523
TEAR STRENGTH: 8 LBS, PER ASTM D2263
BREAKING STRENGTH: 25 LBS, PER ASTM D2523
DE MATIA FLEX CYCLES: 100,000, PER ASTM D813

ADHESIVES/SEALANT: CONTACT ADHESIVE TO BOND ELASTOMERIC FLASHING TOGETHER. CONTACT ADHESIVE TO BOND ELASTOMERIC FLASHING TO AN APPROVED SUBSTRATE. SEALANT TO SEAL ELASTOMERIC FLASHING SEAM EDGE.

PROTECTION COURSE: A FIBERGLASS REINFORCED RUBBERIZED ASPHALT SHEET.

PREFABRICATED DRAINAGE MAT: A COMPOSITE DRAINAGE SYSTEM CONSISTING OF A THREE-DIMENSIONAL, CRUSH-PROOF, DRAINAGE CORE AND A FILTER FABRIC MEETING THE FOLLOWING PHYSICAL PROPERTIES.

PROPERTY	TEST METHOD	VALUES
CORE COMPRESSIVE STRENGTH	ASTM D-1621	30,000 PSF (14.66 KG/CM ²)
THICKNESS	ASTM D-1777	0.4 IN (1.016 CM)
FLOW, Q @ 3600PSF & HYDRAULIC GRADIENT OF 1	ASTM D-4716	24 GPM/FT WIDTH 298.00 LPM/IN WIDTH
FABRIC FLOW	ASTM D-4491	18 GPM/FT ² 733 LPM/IN ²
FABRIC PUNCTURE	ASTM D4833	120 LB
FABRIC APPARENT OPENING SIZE (EOS)	CW-02215	70 US SIEVE (.212MM)
FABRIC GRAB TENSILE	ASTM D-4632	370 LB. MD X 250 CD (1.65 KN)

ITEM 515 - PRESTRESSED CONCRETE BRIDGE I-BEAM MEMBERS, MISC: INDIANA I-BEAM 4N 54 43

FOR PRESTRESSED CONCRETE I-BEAM REQUIREMENTS, SEE SHEETS 23 - 25.

ITEM 515 - INTERMEDIATE DIAPHRAGMS, AS PER PLAN

FOR INTERMEDIATE DIAPHRAGM REQUIREMENTS, SEE SHEET 25.

ITEM 516 - ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE), AS PER PLAN

FOR BEARING REQUIREMENTS, SEE SHEET 21.

ITEM 516 - INTEGRAL ABUTMENT EXPANSION JOINT SEAL, AS PER PLAN

ITEM 516 INTEGRAL ABUTMENT EXPANSION JOINT SEAL, AS PER PLAN: INSTALL A 3 FOOT WIDE NEOPRENE SHEET AT LOCATIONS SHOWN IN THE PLANS. SECURE THE NEOPRENE SHEETING TO THE CONCRETE WITH 1/4" X #10 GAGE (LENGTH X SHANK DIAMETER) GALVANIZED BUTTON HEAD SPIKES THROUGH A 1 INCH OUTSIDE DIAMETER, #10 GAGE GALVANIZED WASHER. MAXIMUM FASTENER SPACING IS 9 INCHES. USE OF OTHER SIMILAR GALVANIZED DEVICES, WHICH WILL NOT DAMAGE EITHER THE NEOPRENE OR THE CONCRETE, WILL BE SUBJECT TO THE APPROVAL OF THE ENGINEER.

CENTER THE NEOPRENE STRIPS ON ALL JOINTS. FOR HORIZONTAL JOINTS, SECURE THE HORIZONTAL NEOPRENE STRIP BY USING A SINGLE LINE OF FASTENERS, STARTING AT 6 INCHES, +/-, FROM THE TOP OF THE NEOPRENE STRIP. FOR THE VERTICAL JOINTS SECURE THE VERTICAL NEOPRENE STRIP BY USING A SINGLE VERTICAL LINE OF FASTENERS, STARTING AT 6 INCHES, +/-, FROM THE VERTICAL EDGE OF THE NEOPRENE STRIP NEAREST TO THE CENTERLINE OF ROADWAY. FOR VERTICAL JOINTS, INSTALL 2 ADDITIONAL FASTENERS AT 6 INCHES, CENTER TO CENTER, ACROSS THE TOP OF THE NEOPRENE STRIP ON THE SAME SIDE OF THE VERTICAL JOINT AS THE SINGLE VERTICAL ROW OF FASTENERS IS LOCATED.

THE VERTICAL NEOPRENE STRIPS SHALL COMPLETELY OVERLAP THE HORIZONTAL STRIPS. LAP LENGTHS OF THE HORIZONTAL STRIPS THAT ARE NOT VULCANIZED OR ADHESIVE BONDED, SHALL BE AT LEAST 1 FOOT IN LENGTH, OR 6 INCHES IN LENGTH IF THE LAP IS VULCANIZED OR ADHESIVE BONDED. NO LAPS ARE ACCEPTABLE IN VERTICALLY INSTALLED NEOPRENE STRIPS. THE NEOPRENE SHEETING SHALL BE 3/32" THICK GENERAL PURPOSE, HEAVY-DUTY NEOPRENE SHEET WITH NYLON FABRIC REINFORCEMENT. THE SHEETING SHALL BE "FAIRPRENE NUMBER NN-0003", BY E. I. DUPONT DE NEMOURS AND COMPANY, INC., "WINGPRENE" BY THE GOODYEAR TIRE AND RUBBER COMPANY, OR AN APPROVED ALTERNATE. THE NEOPRENE SHEETING SHALL CONFORM TO THE FOLLOWING:

DESCRIPTION OF TEST	ASTM	REQUIREMENT
THICKNESS, INCHES	D751	0.094 +/- 0.01

BREAKING STRENGTH, GRAB, LBS, MINIMUM	D751	700 X 700 (LONG. X TRANS.)
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ADHESIVE STRIP, 1" WIDE X 2" LONG, LBS, MINIMUM	D751	9
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BURST STRENGTH, PSI, MINIMUM	D751	1400
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HEAT AGING, 70 HR, 212 OF, 1800 BEND WITHOUT CRACKING	D2136	NO CRACKING OF COATING
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INTEGRAL ABUTMENT EXPANSION JOINT SEAL, AS PER PLAN, CONTINUED:

DESCRIPTION OF TEST	ASTM	REQUIREMENT
LOW TEMP. BRITTLENESS, 1 HR, -40 DEG. F, BEND AROUND 1/4" MANDREL	D2136	NO CRACKING OF COATING

ITEM 518 - STRUCTURE DRAINAGE, MISC. DRAINAGE BOARD:

THIS WORK SHALL CONSIST OF CONSTRUCTING DRAINAGE SYSTEM WITH MIRADRAIN 6000DT OR APPROVED EQUAL. TWO WEEKS BEFORE INSTALLATION, SUBMIT MATERIAL WITH SPECIFICATION AND INSTALLATION PROCEDURE TO DEPARTMENT FOR APPROVAL.

ITEM 898 - OC/OA CONCRETE, CLASS OSC2 SUPERSTRUCTURE, AS PER PLAN, AS MODIFIED BY APPENDIX ST-01:

FURNISH POLYSTYRENE MATERIAL FOR THE INTEGRAL ABUTMENT DIAPHRAGM MEETING THE REQUIREMENTS OF ASTM C578 TYPE IV. NEATLY CUT MATERIAL AS NECESSARY TO ALLOW FOR PROPER INSTALLATION. JOINTS AT ABUTTING PIECES SHALL BE SEALED WITH DUCT TAPE.

ITEM 898 - OC/OA CONCRETE, CLASS OSC1 SUBSTRUCTURE (ABUTMENT INCLUDING FOOTING), AS PER PLAN, AS MODIFIED BY APPENDIX ST-01:

IN ADDITION TO THE REQUIREMENTS OF ITEM 898, INSTALL REFERENCE MONUMENTS AT EACH SPREAD FOOTING AT THE LOCATIONS INDICATED IN THE TABLE AT RIGHT. THE REFERENCE MONUMENT SHALL CONSIST OF A #8, OR LARGER, EPOXY COATED REBAR EMBEDDED AT LEAST 6" INTO THE FOOTING AND EXTENDED VERTICALLY 4 TO 6 INCHES ABOVE THE TOP OF THE FOOTING. INSTALL A SIX INCH DIAMETER, SCHEDULE 40, PLASTIC PIPE AROUND THE REFERENCE MONUMENT. CENTER THE PIPE ON THE REFERENCE MONUMENT AND PLACE THE PIPE VERTICAL WITH ITS TOP AT THE FINISHED GRADE. THE PIPE SHALL HAVE A REMOVABLE, SCHEDULE 40, PLASTIC CAP. PERMANENTLY ATTACH THE BOTTOM OF THE PIPE TO THE TOP OF THE FOOTING. ESTABLISH A BENCHMARK TO DETERMINE THE ELEVATIONS OF THE REFERENCE MONUMENTS AT VARIOUS MONITORING PERIODS THROUGHOUT THE LENGTH OF THE CONSTRUCTION PROJECT. THE BENCHMARK SHALL BE THE SAME THROUGHOUT THE PROJECT AND SHALL BE INDEPENDENT OF ALL STRUCTURES. RECORD THE ELEVATION OF EACH REFERENCE MONUMENT AT EACH MONITORING PERIOD SHOWN IN THE TABLE AT RIGHT. THE ORIGINAL COMPLETED TABLES WILL BECOME PART OF THE DISTRICT'S PROJECT PLAN RECORDS. SEND A COPY OF THE COMPLETED TABLES TO THE OFFICE OF STRUCTURAL ENGINEERING.

REFERENCE MONUMENT ELEVATIONS:

PROJECT NUMBER:	MAXIMUM FACTORED BEARING PRESSURE:				
BRIDGE NUMBER: FRA-071-1784B	STRUCTURE FILE NUMBER: 2507617				
BENCHMARK LOCATION:	(1-71 NB) 135+26.10 60.90 RT. EL. 775.13				
FOOTING LOCATION:	LEFT ABUTMENT RIGHT ABUTMENT				
MONITORING PERIOD					
AFTER FOOTING CONCRETE IS PLACED	770.43	769.52	769.49	769.57	769.58
BEFORE PLACEMENT OF SUPERSTRUCTURE MEMBERS	769.98	770.04	770.00	770.06	770.15
BEFORE DECK PLACEMENT	770.42	769.50	769.48	769.56	769.52
AFTER DECK PLACEMENT	769.98	770.03	770.00	770.06	770.15
PROJECT COMPLETION	770.42	769.49	769.48	769.56	769.51
	769.98	770.02	770.00	770.05	770.15
	770.40	769.49	769.47	769.54	769.50
	769.97	770.01	769.98	770.03	770.14
	770.38	769.43	769.46	769.54	769.49
	769.96	769.99	769.96	770.03	770.13



DECK PLACEMENT DESIGN ASSUMPTIONS:

THE FOLLOWING ASSUMPTIONS OF CONSTRUCTION MEANS AND METHODS WERE MADE FOR THE ANALYSIS AND DESIGN OF THE SUPERSTRUCTURE. THE CONTRACTOR IS RESPONSIBLE FOR THE DESIGN OF THE FALSEWORK SUPPORT SYSTEM WITHIN THESE PARAMETERS AND WILL ASSUME RESPONSIBILITY FOR SUPERSTRUCTURE ANALYSIS FOR DEVIATION FROM THESE DESIGN ASSUMPTIONS.

FOR UNITS 1 & 2 CONSTRUCTION: AN EIGHT WHEEL FINISHING MACHINE WITH A MAXIMUM WHEEL LOAD OF 1.6 KIPS FOR A TOTAL MACHINE LOAD OF 9.5 KIPS.

A MINIMUM OUT-TO-OUT WHEEL SPACING AT EACH END OF THE MACHINE OF 108".

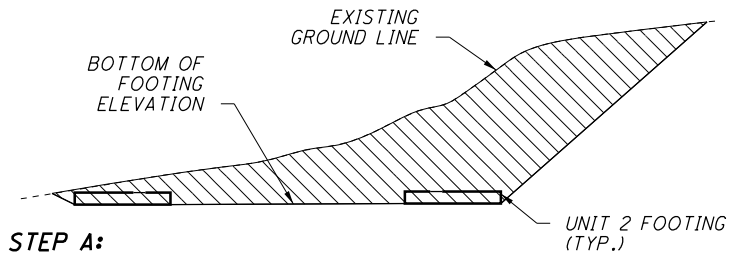
A MAXIMUM SPACING OF OVERHANG FALSEWORK BRACKETS OF 48 IN.

A MAXIMUM DISTANCE FROM THE CENTERLINE OF THE BEARINGS TO THE FACE OF THE SAFETY HANDRAIL OF 60".

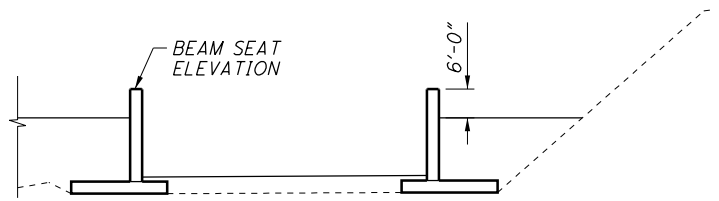
NO.	DATE	DESCRIPTION
2	09/04/14	RECORD DRAWINGS
1	3/26/12	RFC
A	2/15/12	FINAL SUBMITTAL
ISSUE RECORD		

DESIGN AGENCY: **CH2M-HILL**
 1103 SCHROCK ROAD, SUITE 400
 COLUMBUS, OHIO 43229
 DATE: 02/12
 REVIEWED: MAM
 DRAWN: TEK
 DESIGNED: CNK
 CHECKED: DGS
 STRUCTURE FILE NUMBER: 2507617
 GENERAL NOTES II
 BRIDGE NO. FRA-071-1784B
 NORTHBOUND C-D AND SPRING STREET OVER RAMP V2
 FRA-71-17.76
 FRA-670-4.19
 PID No. 77369
 87B20-5
 1939
 2744

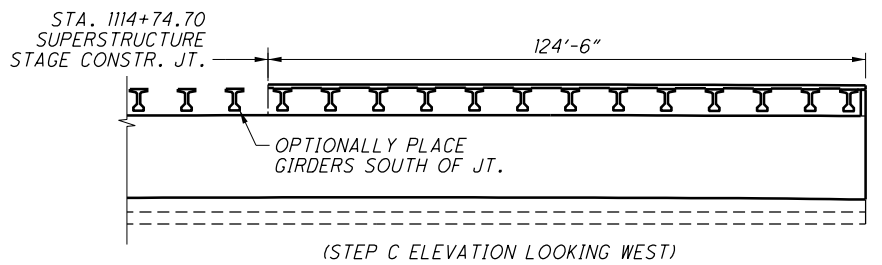
nsherrill
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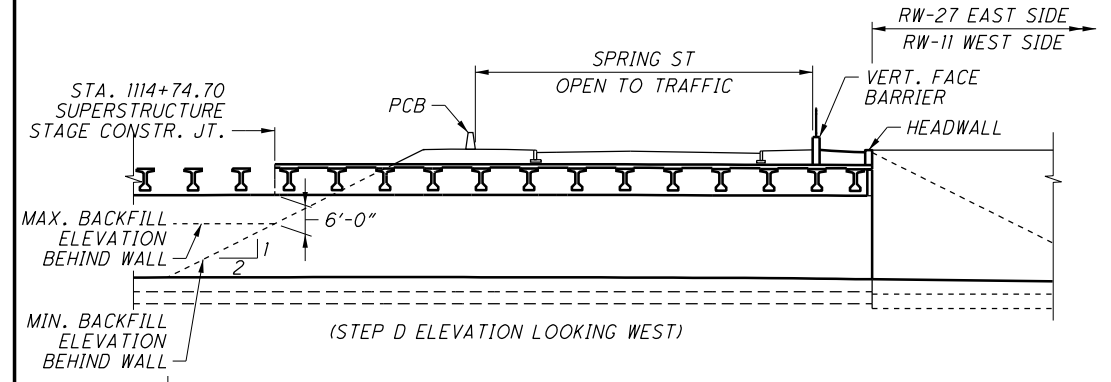
- STEP A:**
- EXCAVATE EXISTING GROUND AT PROPOSED UNIT 2 SUBSTRUCTURE LOCATIONS TO BOTTOM OF FOOTING ELEVATION.
 - CONSTRUCT UNIT 2 FOOTINGS. COORDINATE WITH FOOTING CONSTRUCTION AND INSTALL STORM DRAINAGE PIPES AND STRUCTURES WITHIN FRA-071-1784B. SEE DRAINAGE PLANS.



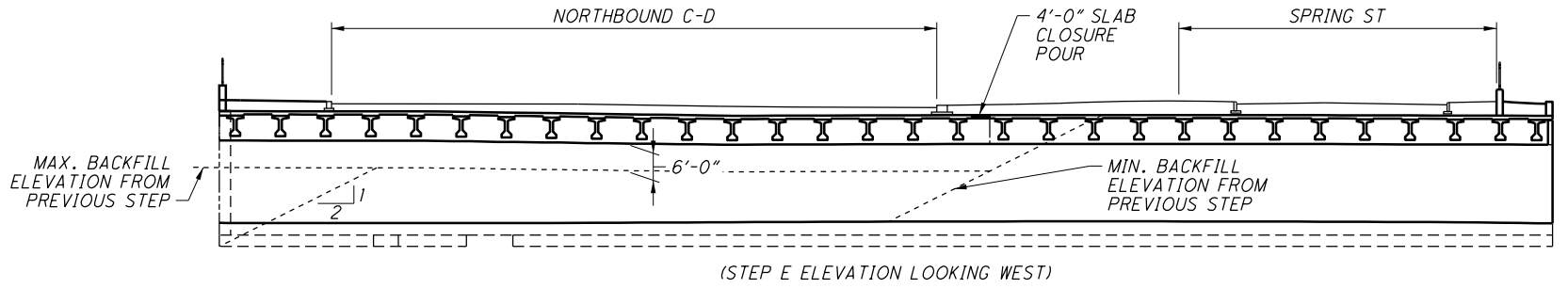
- STEP B:**
- CONSTRUCT UNIT 2 SUBSTRUCTURE ABUTMENT WALLS INCLUDING RETURN WALL AT LEFT WALL AND ABUTMENT CHEEKWALLS.
 - BACKFILL BEHIND ABUTMENT WALLS TO AN ELEVATION 6 FEET BELOW THE BEAM SEAT ELEVATION.
 - BACKFILL IN FRONT OF ABUTMENT WALLS TO TO THE SUBGRADE ELEVATION.



- STEP C:**
- PLACE AT A MINIMUM BEAMS B32 THRU B44.
 - CONSTRUCT SUPERSTRUCTURE DIAPHRAGM FROM NORTH END OF STRUCTURE THRU STAGE CONSTRUCTION JOINT.
 - CONSTRUCT DECK THRU STAGE CONSTRUCTION JOINT.
 - PROVIDE DECK CURING PER CMS.



- STEP D:**
- CONSTRUCT SPRING ST. BARRIER, PEDESTRIAN PEDESTAL FOUNDATIONS (NOT SHOWN), AND NORTH HEADWALL.
 - INSTALL MEMBRANE WATERPROOFING, PROTECTION BOARD, AND DRAINAGE MAT TO LIMITS OF STAGE CONSTRUCTION JOINT. ALLOW MINIMUM DECK DRYING PERIOD AS REQUIRED BY MANUFACTURER PRIOR TO INSTALLING TYPE 3 MEMBRANE WATERPROOFING.
 - BACKFILL BEHIND ABUTMENT WALLS AND OVER SUPERSTRUCTURE ACCORDING TO LIMITS SHOWN IN STEP D ELEVATION.
 - CONSTRUCT ROADWAY AND ASSOCIATED UTILITY FEATURES ABOVE DECK AS NECESSARY TO ALLOW COMPLETION OF SPRING ST. AND OPENING TO TRAFFIC.



- STEP E:**
- SET OUTSTANDING BEAMS IN PLACE.
 - CONSTRUCT OUTSTANDING SUPERSTRUCTURE DIAPHRAGMS.
 - CONSTRUCT OUTSTANDING DECK THRU UNIT LIMITS.
 - FOR UNIT 2 CONSTRUCTION, PLACE SLAB CLOSURE POUR AFTER COMPLETION OF STAGE 2 DECK CONSTRUCTION.
 - CONSTRUCT OUTSTANDING VERTICAL FACE BARRIER.
 - PROVIDE DECK CURING PER CMS.
 - INSTALL OUTSTANDING MEMBRANE WATERPROOFING SYSTEM THRU UNIT LIMITS.
 - BACKFILL BEHIND ABUTMENT WALLS AND OVER SUPERSTRUCTURE ACCORDING TO LIMITS SHOWN IN STEP E ELEVATION. (SEE NOTE 3 BELOW.)
 - CONSTRUCT ROADWAY AND UTILITY FEATURES AS NECESSARY TO ALLOW COMPLETION OF NORTHBOUND C-D AND OPENING TO TRAFFIC. (SEE NOTE 3 BELOW.)

NOTES:

- CONSTRUCTION SEQUENCE ELEMENTS RELATING TO LIMITS AND ORDER OF BACKFILL OPERATIONS AND SUBSEQUENT SUPERSTRUCTURE CONSTRUCTION ARE REQUIRED TO MAINTAIN INTEGRITY OF THE STRUCTURE. OTHER SEQUENCED CONSTRUCTION DETAILS ARE INTENDED TO EXPEDITE THE OPENING OF SPRING ST. TO TRAFFIC.
- THE SEQUENCE SHOWN HERE IS INTENDED AS AN OVERVIEW OF MAJOR CONSTRUCTION OPERATIONS AND DOES NOT INCLUDE ALL OPERATIONS NECESSARY TO COMPLETE THE STRUCTURE AND RELATED CONSTRUCTION. REVIEW THIS PLAN SET AND RELATED TRAFFIC SIGNAL, ROADWAY, UTILITY, DRAINAGE, LIGHTING, MAINTENANCE OF TRAFFIC, AND ALL OTHER PLAN SETS REQUIRING COORDINATION OF CONSTRUCTION ELEMENTS TO COMPLETE CONSTRUCTION IN THIS AREA.

3. THE CONSTRUCTION SEQUENCE OF UNIT 1 CONSTRUCTION MAY PROCEED GENERALLY BY FOLLOWING STEPS A, B, AND E ABOVE, AND MAY BE COMPLETED BEFORE OR AFTER UNIT 2 CONSTRUCTION. STEP E, ITEMS 8 & 9 MAY NOT BE COMPLETED FOR EITHER UNIT UNTIL BOTH UNITS HAVE BEEN CONSTRUCTED THRU STEP E, ITEM 7.

NO CHANGES TO SHEET

NO.	DATE	DESCRIPTION
2	09/04/14	RECORD DRAWINGS
1	3/26/12	RFC
ISSUE RECORD		

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DESIGN AGENCY: **CH2M HILL**
 1103 SCHROCK ROAD, SUITE 400
 COLUMBUS, OHIO 43229
 DATE: 3/12
 REVIEWED: MAM
 DRAWN: CNK
 CHECKED: DGS
 STRUCTURE FILE NUMBER: 2507617
 STAGE CONSTRUCTION SEQUENCE
 BRIDGE NO. FRA-071-1784B
 NORTHBOUND C-D AND SPRING STREET OVER RAMP V2
 FRA-71-17.76
 FRA-670-4.19
 PID No. 77369
 87B20-5A
 1940
 2744

ESTIMATED QUANTITIES

ITEM	EXTENSION	TOTAL	UNIT	DESCRIPTION	UNIT 1 CONSTRUCTION			UNIT 2 CONSTRUCTION			SHEET #
					ABUT.	SUPER.	GEN.	ABUT.	SUPER.	GEN.	
509	10000	925637	POUND	EPOXY COATED REINFORCING STEEL	228347	86814		433620	176856		
512	10100	3054	SO YD	SEALING OF CONCRETE SURFACES (EPOXY-URETHANE)	728	402		1279	645		4/42
512	55900	1	LUMP	TYPE 2 WATERPROOFING	1			1			
512	67450	1	LUMP	SPECIAL - WATERPROOFING MISC.: MEMBRANE WATERPROOFING WITH PROTECTION AND DRAINAGE MAT		1			1		4-5/42
512	10051	252	SO YD	SEALING OF CONCRETE SURFACES (NON-EPOXY), AS PER PLAN		157			95		39-40/42
515	16000	12	EACH	PRESTRESSED CONCRETE BRIDGE I-BEAM MEMBERS, MISC.: INDIANA I-BEAM 4N 54 43		14			30		4/42
515	20001	42	EACH	INTERMEDIATE DIAPHRAGMS, AS PER PLAN		13			29		4/42
516	13600	1515	SQ FT	1" PREFORMED EXPANSION JOINT FILLER	517	16		982			
516	14015	727	FT	INTEGRAL ABUTMENT EXPANSION JOINT SEAL, AS PER PLAN	137			590			4/42
516	44201	88	EACH	ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE) (8" x 2 1/8" x 1'-8" PAD WITH 9" x 2" x 1'-9" STEEL LOAD PLATE), AS PER PLAN	28			60			4/42
518	21200	1956	CU YD	POROUS BACKFILL WITH FILTER FABRIC	429			1527			
518	40000	779	FT	6" PERFORATED CORRUGATED PLASTIC PIPE	137			642			
518	40010	50	FT	6" NON-PERFORATED CORRUGATED PLASTIC PIPE, INCLUDING SPECIALS				50			
518	62600	1423	SQ FT	STRUCTURE DRAINAGE, MISC.: DRAINAGE BOARD				1423			5/42
898	10200	752	CU YD	QC/OA CONCRETE, CLASS QSC2, SUPERSTRUCTURE (DECK), AS MODIFIED BY APPENDIX ST-01		232			520		
898	11000	105	CU YD	QC/OA CONCRETE, CLASS QSC2, SUPERSTRUCTURE (PARAPET), AS MODIFIED BY APPENDIX ST-01		58			47		
898	11101	493	CU YD	QC/OA CONCRETE, CLASS QSC2, SUPERSTRUCTURE, AS PER PLAN, AS MODIFIED BY APPENDIX ST-01		156			337		
898	20161	3348	CU YD	QC/OA CONCRETE, CLASS QSC1, SUBSTRUCTURE (ABUTMENT INCLUDING FOOTING), AS PER PLAN, AS MODIFIED BY APPENDIX ST-01	1008			2340			

ABBREVIATIONS

THE FOLLOWING ABBREVIATIONS HAVE BEEN USED THROUGHOUT THESE PLANS:

& = AND
 @ = AT
 AASHTO = AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS
 ABUT. = ABUTMENT
 ADT = AVERAGE DAILY TRAFFIC
 ADTT = AVERAGE DAILY TRUCK TRAFFIC
 A.P.P. = AS PER PLAN
 APPR. = APPROACH
 ASTM = AMERICAN SOCIETY OF TESTING AND MATERIALS
 BOT. = BOTTOM
 BOT./FTG. = BOTTOM OF FOOTING
 BRGS. = BEARINGS
 B/W /BTWN. = BETWEEN

Ⓢ = CENTERLINE
 CB = CATCH BASIN
 C/C = CENTER TO CENTER
 CIP = CAST-IN-PLACE
 CJ = CONSTRUCTION JOINT
 CLR. = CLEAR
 CMS = CONSTRUCTION AND MATERIAL SPECIFICATIONS
 CONC. = CONCRETE
 CONN. = CONNECTION
 CONSTR. = CONSTRUCTION
 CPP = CORRUGATED PLASTIC PIPE
 CU = CUBIC
 DEFL. = DEFLECTION
 Ⓢ/DIA. = DIAMETER
 DL = DEAD LOAD
 DWG. = DRAWING

E = EAST
 EB = EASTBOUND
 EF = EACH FACE
 EL./ELEV. = ELEVATION
 E/P = EDGE OF PAVEMENT
 EQ. = EQUAL
 EXIST. = EXISTING
 EXP. = EXPANSION
 F = FARENHEIT
 FF = FAR FACE
 F/F = FACE TO FACE
 FT. = FEET
 FTG. = FOOTING
 FWD. = FORWARD
 FWS = FUTURE WEARING SURFACE

GEN. = GENERAL
 GR = GUARDRAIL
 HORIZ. = HORIZONTAL
 HPC = HIGH PERFORMANCE CONCRETE
 HR = HOUR
 ' = FEET
 " = INCHES
 INC. = INCREMENT
 KSI = KIPS PER SQUARE INCH
 LBS = POUNDS
 LL = LIVE LOAD
 LONG. = LONGITUDINAL
 LT. = LEFT

MAX. = MAXIMUM
 M.C. = MECHANICAL CONNECTOR
 MIN. = MINIMUM
 MISC. = MISCELLANEOUS
 MSE = MECHANICALLY STABILIZED EMBANKMENT
 N = NORTH
 NB = NORTHBOUND
 #/NO. = NUMBER
 NF = NEAR FACE
 NPCPP = NON-PERFORATED CORRUGATED PLASTIC PIPE
 O/O = OUT TO OUT
 PL = PLATE
 PEJF = PREFORMED EXPANSION JOINT FILLER

P.G. = PROFILE GRADE
 PROJ. = PROJECTION
 PSI = POUND PER SQUARE INCH
 PT. = POINT
 P.V.I. = POINT OF VERTICAL INTERSECTION
 R = RADIUS
 RDWY. = ROADWAY
 RF = RIGHT FORWARD
 REQ'D = REQUIRED
 RM = REFERENCE MONUMENT
 RT. = RIGHT
 R/W = RIGHT OF WAY
 S = SOUTH
 SB = SOUTHBOUND
 SHLDR = SHOULDER
 SPA. = SPACING

SO = SQUARE
 STA. = STATION
 STD. = STANDARD
 STR. = STRAIGHT
 SUPER. = SUPERSTRUCTURE
 T = THICKNESS
 TRANS. = TRANSVERSE
 T/S = TOP OF SLOPE
 TYP. = TYPICAL
 UBV = ULTIMATE BEARING VALUE
 U.N.O. = UNLESS NOTED OTHERWISE
 VAR. = VARIES
 V.C. = VERTICAL CURVE
 VERT. = VERTICAL
 W = WEST
 W/O = WITHOUT
 WT. = WEIGHT

5 NO CHANGES TO SHEET

NO.	DATE	DESCRIPTION
5	09/04/14	RECORD DRAWINGS
4	10/9/12	RFI 188
3	9/11/12	RFI 183
2	7/19/12	RFI 134
1	3/26/12	RFI
B	2/15/12	FINAL SUBMITTAL
ISSUE RECORD		

ESTIMATED QUANTITIES

BRIDGE NO. FRA-071-1784B
 NORTHBOUND C-D AND SPRING STREET OVER RAMP V2

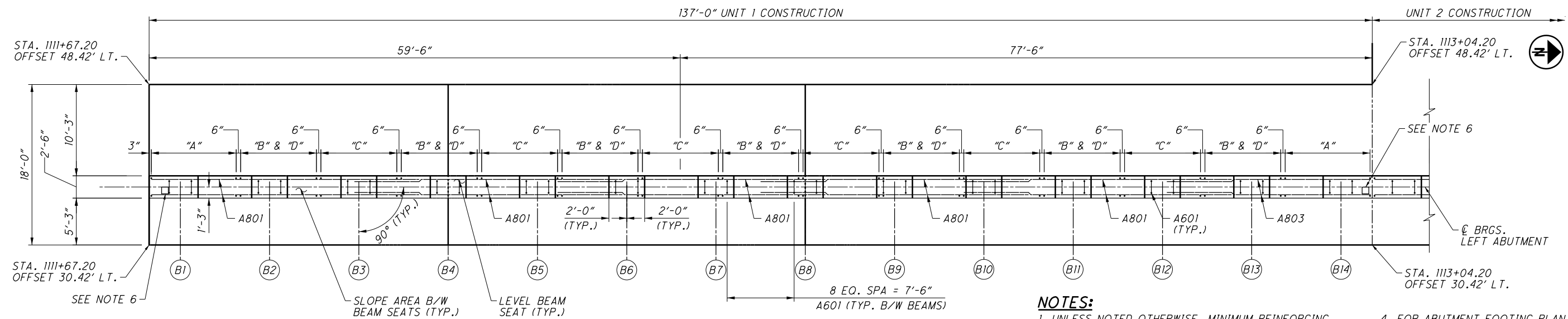
DESIGN AGENCY: **CH2M HILL**
 1103 SCHROCK ROAD, SUITE 400
 COLUMBUS, OHIO 43229

DATE: 02/12
 REVIEWED: MAM
 DRAWN: TEK
 DESIGNED: CNK
 CHECKED: DGS

STRUCTURE FILE NUMBER: 2507617

FRA-71-17.76
 FRA-670-4.19
 PID No. 77369

87B20-6
 1941
 2744



LEGEND

(B#) BEAM DESIGNATION

NPCPP - NON-PERFORATED CORRUGATED PLASTIC PIPE

UNIT 1 LEFT ABUTMENT PLAN

NOTES:

- UNLESS NOTED OTHERWISE, MINIMUM REINFORCING STEEL SPLICE LENGTHS:
NO. 5 BARS = 43"
NO. 6 BARS = 52"
NO. 8 BARS = 87"
- FOR PLAN AND ELEVATION OF UNIT 2 OF LEFT ABUTMENT, SEE SHEETS 8 & 9.
- FOR EXPANSION AND CONTRACTION JOINT DETAILS, SEE SHEET 12.
- FOR ABUTMENT FOOTING PLAN, SEE SHEETS 10 & 11.
- FOR WALL CUTOUT DETAILS, SEE SHEET 12.
- GROUNDING PLATE PER STD. DWG. HL-50.21.

H = 6 SPA. @ 8" = 4'-0"
2-A507 & 1-A509 (EF)
(TYP. 6-COLUMNS)

I = 3 ADDITIONAL A901 BARS BETWEEN FACES (TYP. AT PORTALS)

J = 2-A708 (EF) (TYP. AT PORTALS)

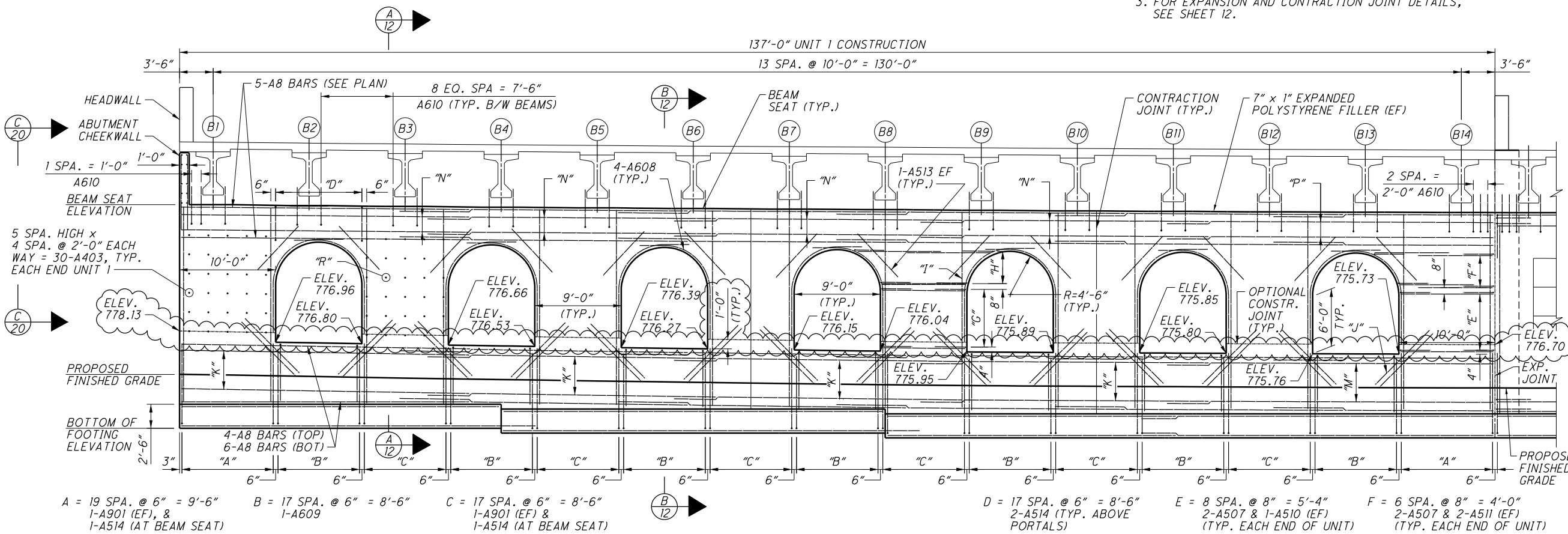
K = 6 SPA. @ 8" = 4'-0"
A602 (EF)

M = 6 SPA. @ 8" = 4'-0"
A604 (EF)

N = 3 SPA. @ 8" = 2'-0"
A602 (EF)

P = 3 SPA. @ 8" = 2'-0"
A604 (EF)

R = 5 SPA. HIGH x 4 SPA. @ 2'-0" EACH WAY = 30-A403, TYP. B/W PORTALS



UNIT 1 LEFT ABUTMENT ELEVATION

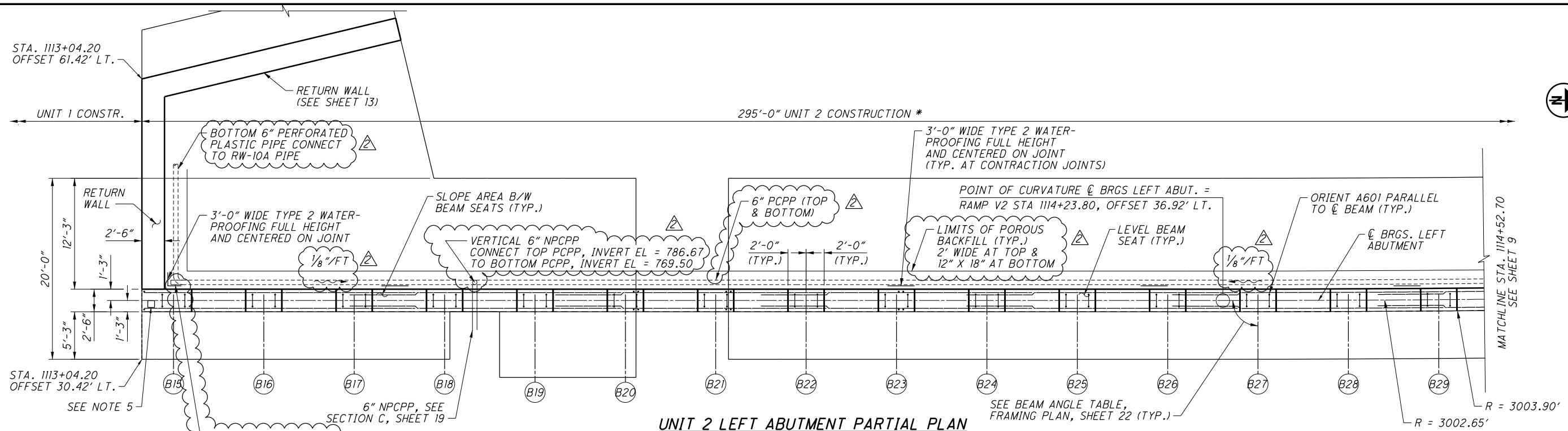
- A = 19 SPA. @ 6" = 9'-6" 1-A901 (EF), & 1-A514 (AT BEAM SEAT)
 B = 17 SPA. @ 6" = 8'-6" 1-A609
 C = 17 SPA. @ 6" = 8'-6" 1-A901 (EF) & 1-A514 (AT BEAM SEAT)
 D = 17 SPA. @ 6" = 8'-6" 2-A514 (TYP. ABOVE PORTALS)
 E = 8 SPA. @ 8" = 5'-4" 2-A507 & 1-A510 (EF) (TYP. EACH END OF UNIT)
 F = 6 SPA. @ 8" = 4'-0" 2-A507 & 2-A511 (EF) (TYP. EACH END OF UNIT)
 G = 8 SPA. @ 8" = 5'-4" 2-A507 & 1-A508 (EF) (TYP. 6-COLUMNS)

NO CHANGES TO SHEET

BEAM	BEGIN ABUT.	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12	B13	B14	END UNIT 1
RAMP V2 STA.	1111+67.20	1111+70.70	1111+80.70	1111+90.70	1112+00.70	1112+10.70	1112+20.70	1112+30.70	1112+40.70	1112+50.70	1112+60.70	1112+70.70	1112+80.70	1112+90.70	1113+00.70	1113+04.20
OFFSET	36.92' LT.	36.92' LT.	36.92' LT.	36.92' LT.	36.92' LT.	36.92' LT.	36.92' LT.	36.92' LT.	36.92' LT.	36.92' LT.	36.92' LT.	36.92' LT.	36.92' LT.	36.92' LT.	36.92' LT.	36.92' LT.
BEAM SEAT ELEV.	791.31	791.28	791.18	791.09	791.01	790.94	790.87	790.81	790.76	790.69	790.63	790.58	790.53	790.49	790.46	790.45
PROPOSED FINISHED GRADE	773.63	773.57	773.40	773.23	773.08	772.93	772.79	772.66	772.53	772.44	772.38	772.33	772.28	772.24	772.21	772.20
BOTTOM OF FOOTING ELEV.	768.00	768.00	768.00	768.00	768.00	767.50	767.50	767.50	767.50	767.00	767.00	767.00	767.00	767.00	767.00	767.00

NO.	DATE	DESCRIPTION
3	09/04/14	RECORD DRAWINGS
2	8/20/12	RFI 164
1	3/26/12	RFC
B	2/15/12	FINAL SUBMITTAL
A	12/20/11	INTERIM SUBMITTAL
ISSUE RECORD		

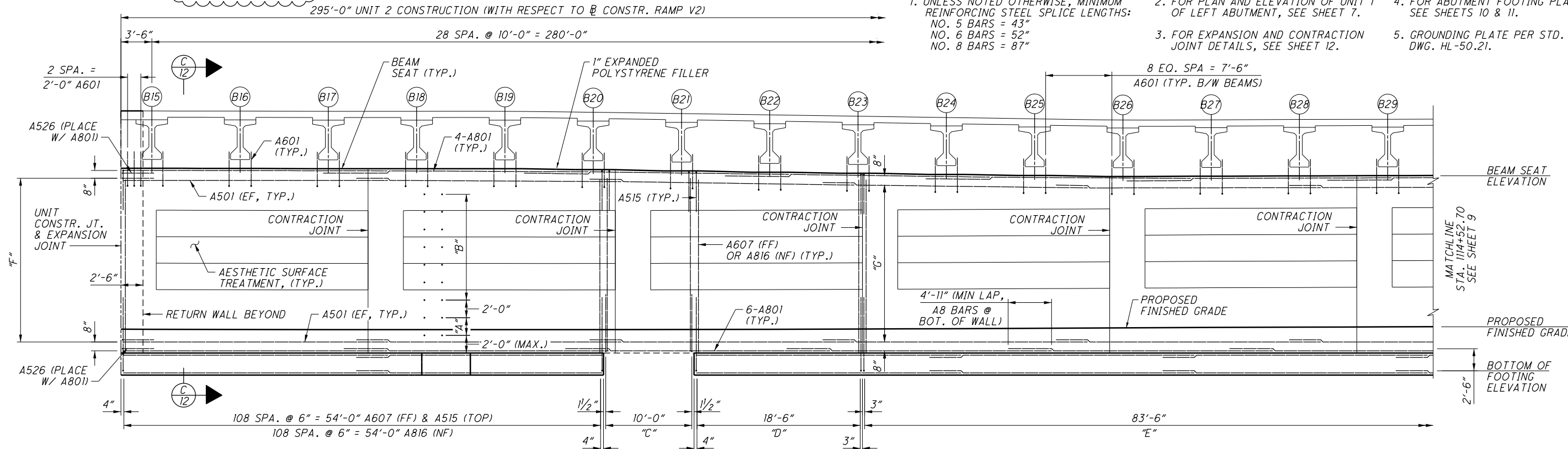
071_1784BAR001.dgn 10/9/2014 12:43:29 PM nsherril



UNIT 2 LEFT ABUTMENT PARTIAL PLAN

NOTES:

- UNLESS NOTED OTHERWISE, MINIMUM REINFORCING STEEL SPLICE LENGTHS:
NO. 5 BARS = 43"
NO. 6 BARS = 52"
NO. 8 BARS = 87"
- FOR PLAN AND ELEVATION OF UNIT 1 OF LEFT ABUTMENT, SEE SHEET 7.
- FOR EXPANSION AND CONTRACTION JOINT DETAILS, SEE SHEET 12.
- FOR ABUTMENT FOOTING PLAN, SEE SHEETS 10 & 11.
- GROUNDING PLATE PER STD. DWG. HL-50.21.



UNIT 2 LEFT ABUTMENT PARTIAL ELEVATION

- A = 1 SPA. @ 2'-0" x 2'-0" SPA. HORIZ. A403 (TYP. ENTIRE UNIT WALL LENGTH)
 B = 6 SPA. @ 2'-0" x 2'-0" SPA. HORIZ. A404 (TYP. ENTIRE UNIT WALL LENGTH)
 C = 20 SPA. @ 6" = 10'-0" A607 (FF), A515 (TOP), A816 (NF) & A819 (BOT.)
 D = 37 SPA. @ 6" = 18'-6" A607 (FF), A515 (TOP), & A816 (NF)

- E = 167 SPA. @ 6" = 83'-6" A607 (FF), A515 (TOP), & A816 (NF)
 F = 29 EQ. SPA. @ 8" (MAX.) 1-A526

- G = 29 EQ. SPA. @ 8" (MAX.) 2-A501 (EF, TYP.)

LEGEND

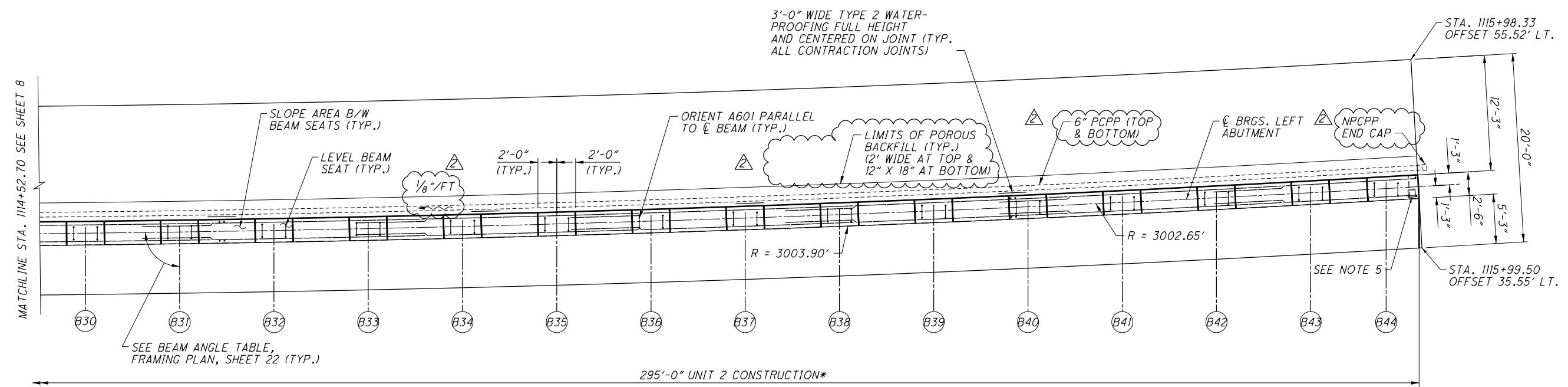
- (B#) BEAM DESIGNATION
 * = DIMENSION GIVEN WITH RESPECT TO CONSTR. RAMP V2

3 NO CHANGES TO SHEET

BEAM	BEGIN UNIT 2	B15	B16	B17	B18	B19	B20	B21	B22	B23	B24	B25	B26	B27	B28	B29
RAMP V2 STA.	1113+04.20	1113+07.70	1113+17.70	1113+27.70	1113+37.70	1113+47.70	1113+57.70	1113+67.70	1113+77.70	1113+87.70	1113+97.70	1114+07.70	1114+17.70	1114+27.70	1114+37.70	1114+47.70
OFFSET	36.92' LT.	36.92' LT.	36.92' LT.	36.92' LT.	36.92' LT.	36.92' LT.	36.92' LT.	36.92' LT.	36.92' LT.	36.92' LT.	36.92' LT.	36.92' LT.	36.92' LT.	36.92' LT.	36.95' LT.	37.01' LT.
BEAM SEAT ELEV.	790.45	790.44	790.42	790.40	790.40	790.40	790.29	790.14	790.00	789.87	789.74	789.63	789.51	789.54	789.58	789.61
PROPOSED FINISHED GRADE	772.20	772.19	772.17	772.15	772.15	772.15	772.15	772.17	772.19	772.22	772.26	772.30	772.35	772.40	772.43	772.47
BOTTOM OF FOOTING ELEV.	767.00	767.00	767.00	767.00	767.00	767.00	767.00	767.00	767.00	767.00	767.00	767.00	767.00	767.00	767.00	767.00

NO.	DATE	DESCRIPTION
3	09/04/14	RECORD DRAWINGS
2	8/20/12	RFI 154
1	3/26/12	RFI
B	2/15/12	FINAL SUBMITTAL
A	12/20/11	INTERIM SUBMITTAL
ISSUE RECORD		

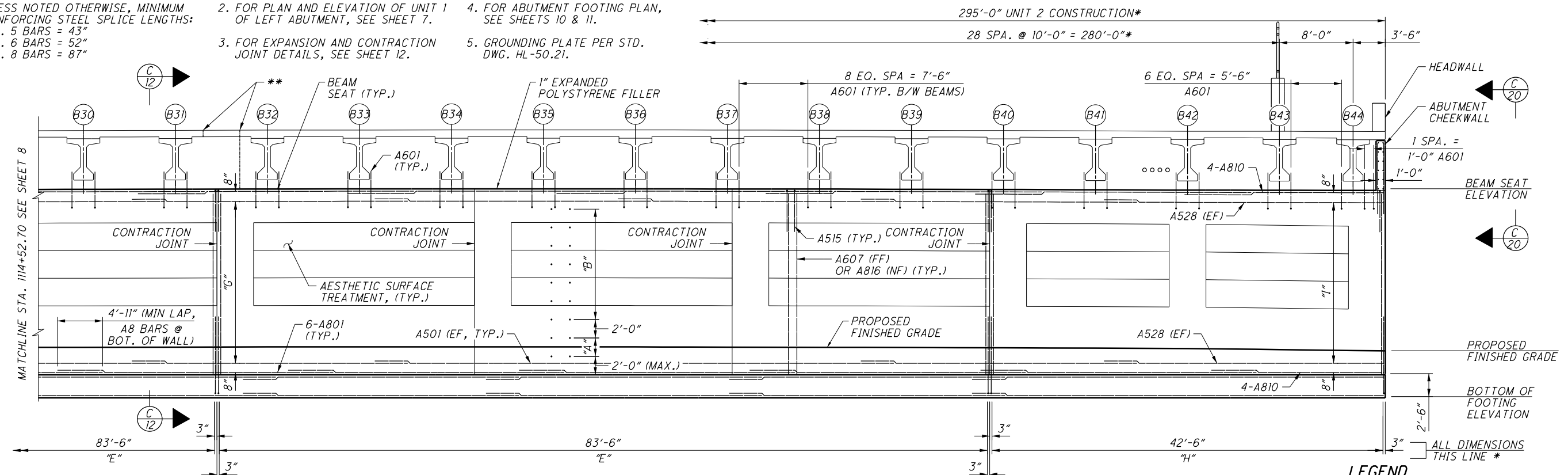
071_1784BAR002.dgn 10/9/2014 12:44:00 PM nsherrll



UNIT 2 LEFT ABUTMENT PARTIAL PLAN

NOTES:

- UNLESS NOTED OTHERWISE, MINIMUM REINFORCING STEEL SPLICE LENGTHS:
NO. 5 BARS = 43"
NO. 6 BARS = 52"
NO. 8 BARS = 87"
- FOR PLAN AND ELEVATION OF UNIT 1 OF LEFT ABUTMENT, SEE SHEET 7.
- FOR EXPANSION AND CONTRACTION JOINT DETAILS, SEE SHEET 12.
- FOR ABUTMENT FOOTING PLAN, SEE SHEETS 10 & 11.
- GROUNDING PLATE PER STD. DWG. HL-50.21.



UNIT 2 LEFT ABUTMENT PARTIAL ELEVATION

A = 1 SPA. @ 2'-0" x 2'-0" SPA. HORIZ. A403 (TYP. ENTIRE UNIT WALL LENGTH)
B = 6 SPA. @ 2'-0" x 2'-0" SPA. HORIZ. A404 (TYP. ENTIRE UNIT WALL LENGTH)

E = 167 SPA. @ 6" = 83'-6" A607 (FF), A515 (TOP), & A816 (NF)
G = 29 EQ. SPA. @ 8" (MAX.) 2-A501 (EF, TYP.)

H = 85 SPA. @ 6" = 42'-6" A607 (FF), A515 (TOP), & A816 (NF)
I = 29 EQ. SPA. @ 8" (MAX.) 1-A528 (EF)

LEGEND

- (B#) BEAM DESIGNATION
- * = DIMENSION GIVEN WITH RESPECT TO CONSTR. RAMP V2
- ** = SUPERSTRUCTURE STAGE CONSTRUCTION JOINT. SEE DIAPHRAGM AND DECK SHEETS FOR DETAILS. NO JOINT IN SUBSTRUCTURE.

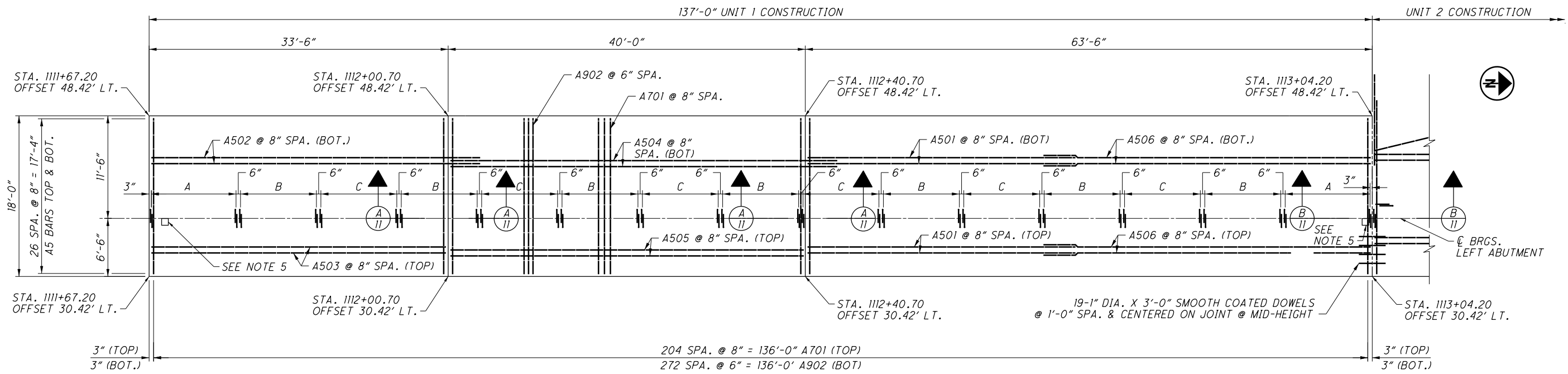
NO CHANGES TO SHEET

BEAM	B30	B31	B32	B33	B34	B35	B36	B37	B38	B39	B40	B41	B42	B43	B44	END UNIT 2
RAMP V2 STA.	1114+57.70	1114+67.70	1114+77.70	1114+87.70	1114+97.70	1115+07.70	1115+17.70	1115+27.70	1115+37.70	1115+47.70	1115+57.70	1115+67.70	1115+77.70	1115+87.70	1115+95.70	1115+99.20
OFFSET	37.11' LT.	37.24' LT.	37.40' LT.	37.60' LT.	37.83' LT.	38.09' LT.	38.38' LT.	38.71' LT.	39.08' LT.	39.47' LT.	39.90' LT.	40.36' LT.	40.86' LT.	41.39' LT.	41.84' LT.	42.04' LT.
BEAM SEAT ELEV.	789.64	789.66	789.68	789.69	789.70	789.70	789.69	789.68	789.67	789.65	789.62	789.59	789.56	789.54	789.53	789.52
PROPOSED FINISHED GRADE	772.49	772.51	772.53	772.54	772.54	772.54	772.53	772.51	772.49	772.47	772.43	772.40	772.35	772.24	772.14	772.10
BOTTOM OF FOOTING ELEV.	767.00	767.00	767.00	767.00	767.00	767.00	767.00	767.00	767.00	767.00	767.00	767.00	767.00	767.00	767.00	767.00

NO.	DATE	DESCRIPTION
3	09/04/14	RECORD DRAWINGS
2	8/20/12	RFI 154
1	3/26/12	RFI
B	2/15/12	FINAL SUBMITTAL
A	12/20/11	INTERIM SUBMITTAL
ISSUE RECORD		

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204 SPA. @ 8" = 136'-0" A701 (TOP)
272 SPA. @ 6" = 136'-0" A902 (BOT)

19-1" DIA. X 3'-0" SMOOTH COATED DOWELS @ 1'-0" SPA. & CENTERED ON JOINT @ MID-HEIGHT

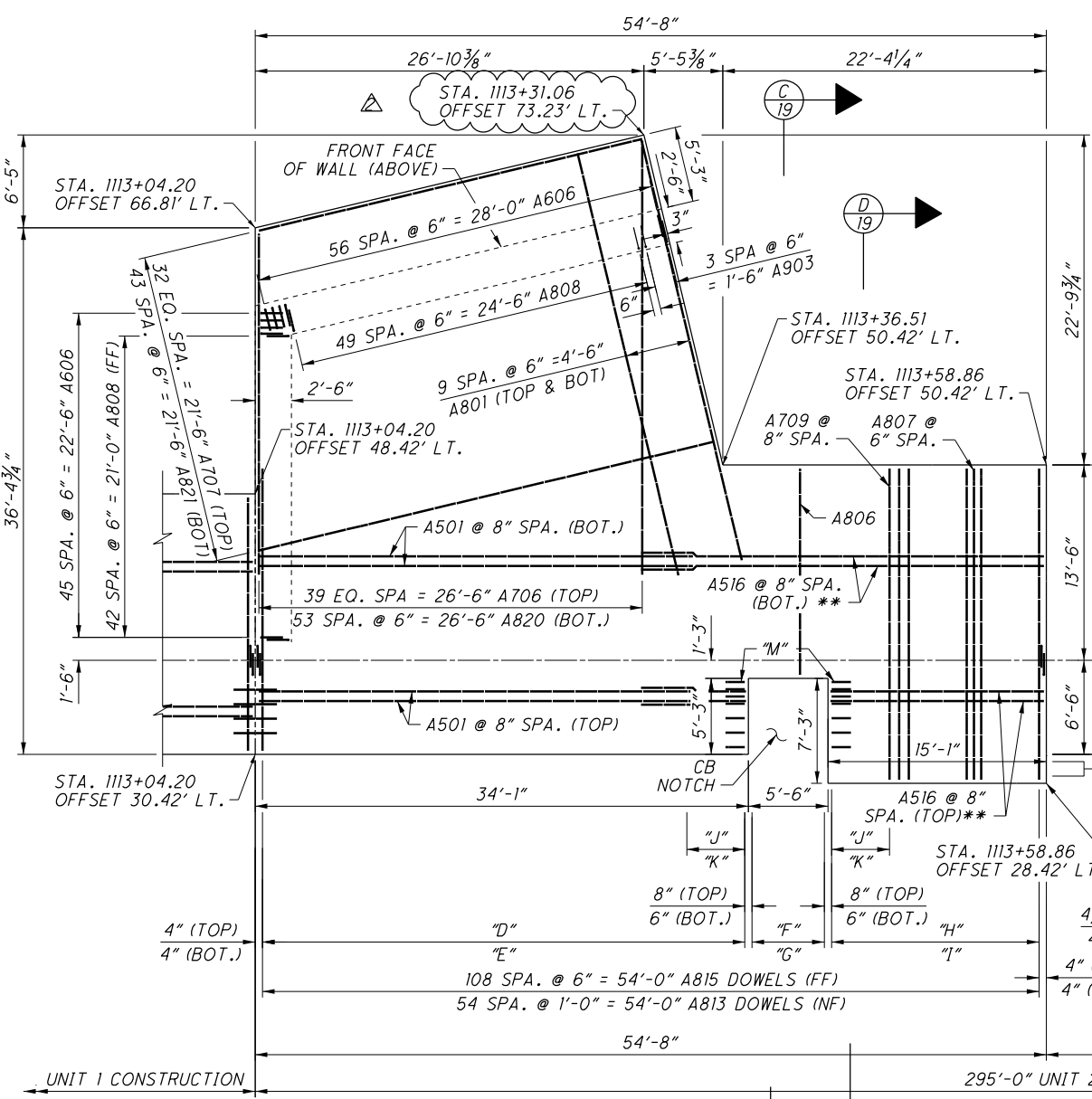
UNIT 1 LEFT FOOTING PLAN

LEGEND

- A = 19 SPA. @ 6" = 9'-6" A804 DOWELS (EF)
- B = 17 SPA. @ 6" = 8'-6" A805 DOWELS (EF) & 1-A806
- C = 17 SPA. @ 6" = 8'-6" A804 DOWELS (EF)
- D = 50 SPA. @ 8" = 33'-4" A705 (TOP)
- E = 67 SPA. @ 6" = 33'-6" A818 (BOT.)
- F = 7 SPA. @ 8" = 4'-8" A806 (TOP)
- G = 10 SPA. @ 6" = 5'-0" A806 (BOT.)
- H = 22 SPA. @ 8" = 14'-8" A709 (TOP)
- I = 29 SPA. @ 6" = 14'-6" A807 (BOT.)
- J = 4 ADDITIONAL A705 BARS @ 8" = 2'-4" BUNDLE WITH A705 OR A807
- K = 6 ADDITIONAL A818 BARS @ 6" = 3'-0" BUNDLE WITH A818 OR A807
- L = 3 SPA. @ 8" = 2'-0" A512 (TOP & BOT.)
- M = 7-A530, SEE SECTION D-19, SHEET 19.

NOTES:

1. UNLESS NOTED OTHERWISE, MINIMUM REINFORCING STEEL SPLICE LENGTHS:
NO. 5 BARS = 43"
NO. 8 BARS = 87"
 2. FOR PLAN AND ELEVATION OF LEFT ABUTMENT, SEE SHEETS 7 - 9.
 5. GROUNDING PLATE PER STD. DWG. HL-50.21.
- * = DIMENSION GIVEN WITH RESPECT TO @ CONSTR. RAMP V2
** = FIELD CUT 8-A516 (TOP) & 8-A516 (BOT) AT CB NOTCH.



UNIT 2 PARTIAL LEFT FOOTING PLAN

NO CHANGES TO SHEET

NO.	DATE	DESCRIPTION
3	09/04/14	RECORD DRAWINGS
2	5/9/12	RFI 68
1	3/26/12	RFI
A	2/15/12	FINAL SUBMITTAL
		ISSUE RECORD

LEFT ABUTMENT FOOTING PLAN I

BRIDGE NO. FRA-071-1784B
NORTHBOUND C-D AND SPRING STREET OVER RAMP V2

DESIGN AGENCY: **CH2MHILL**
1103 SCHROCK ROAD, SUITE 400
COLUMBUS, OHIO 43229

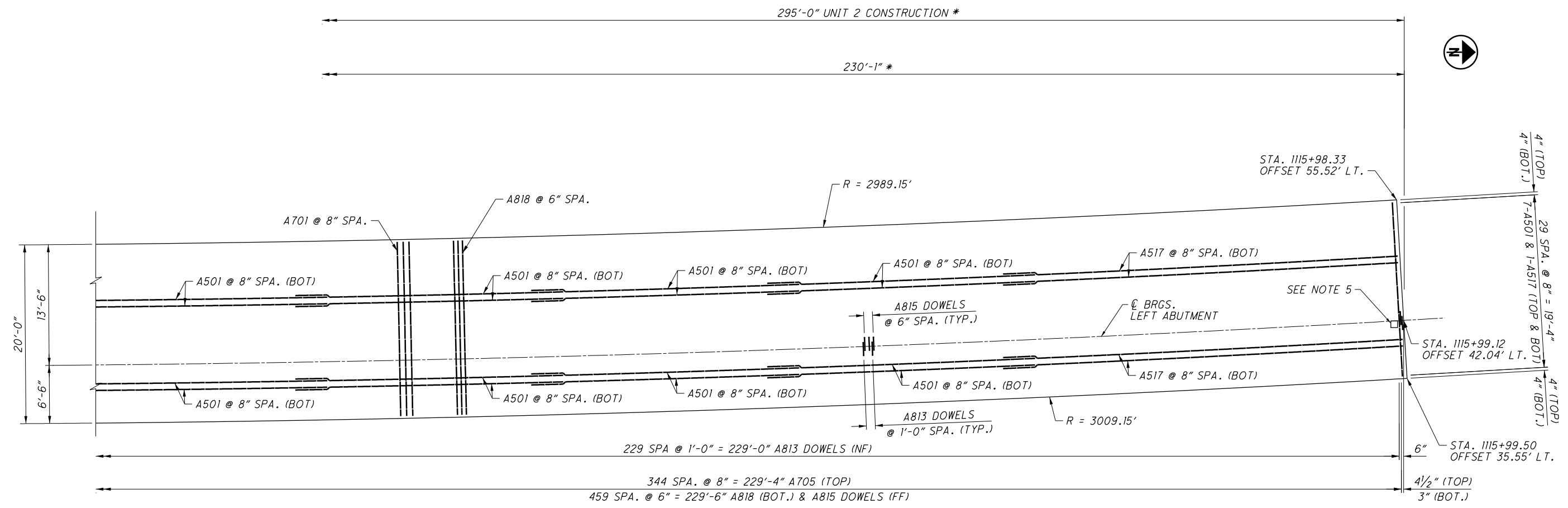
DATE: 02/12
REVIEWED: MAM
DRAWN: CNK
DESIGNED: CNK
CHECKED: DGS

STRUCTURE FILE NUMBER: 2507617

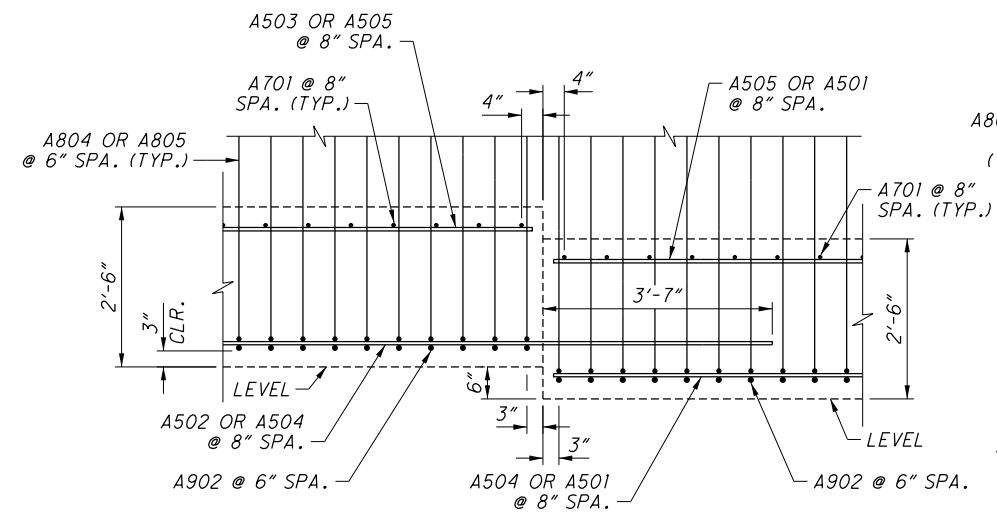
PID No. 77369

87B20-10

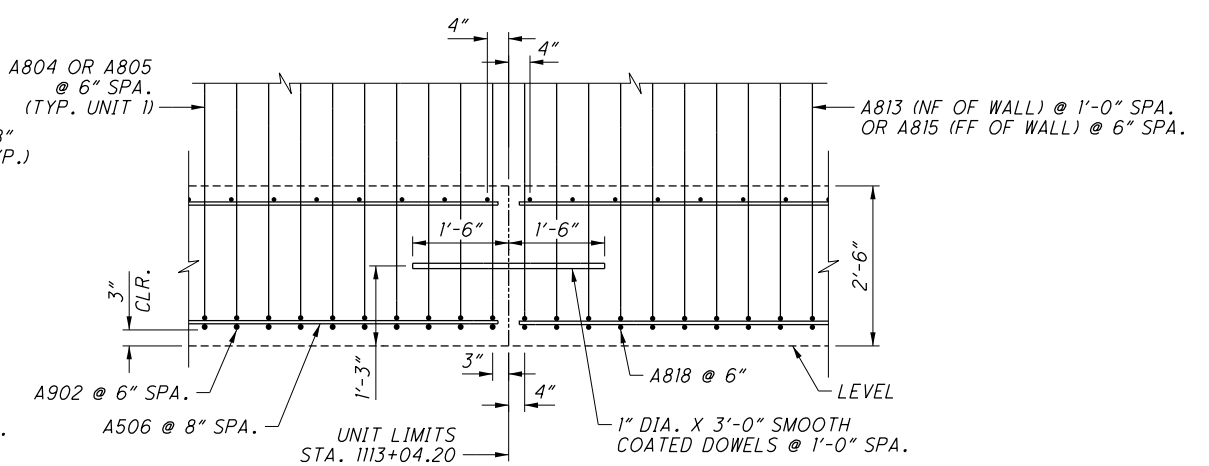
1945
2744



UNIT 2 PARTIAL LEFT FOOTING PLAN



SECTION A-A
 DETAIL AT UNIT 1 FOOTING ELEVATION CHANGES
 (RAMP V2 STA. 1112+00.70 & STA. 1112+40.70)



SECTION B-B
 DETAIL AT UNIT LIMITS
 (RAMP V2 STA. 1113+04.20)

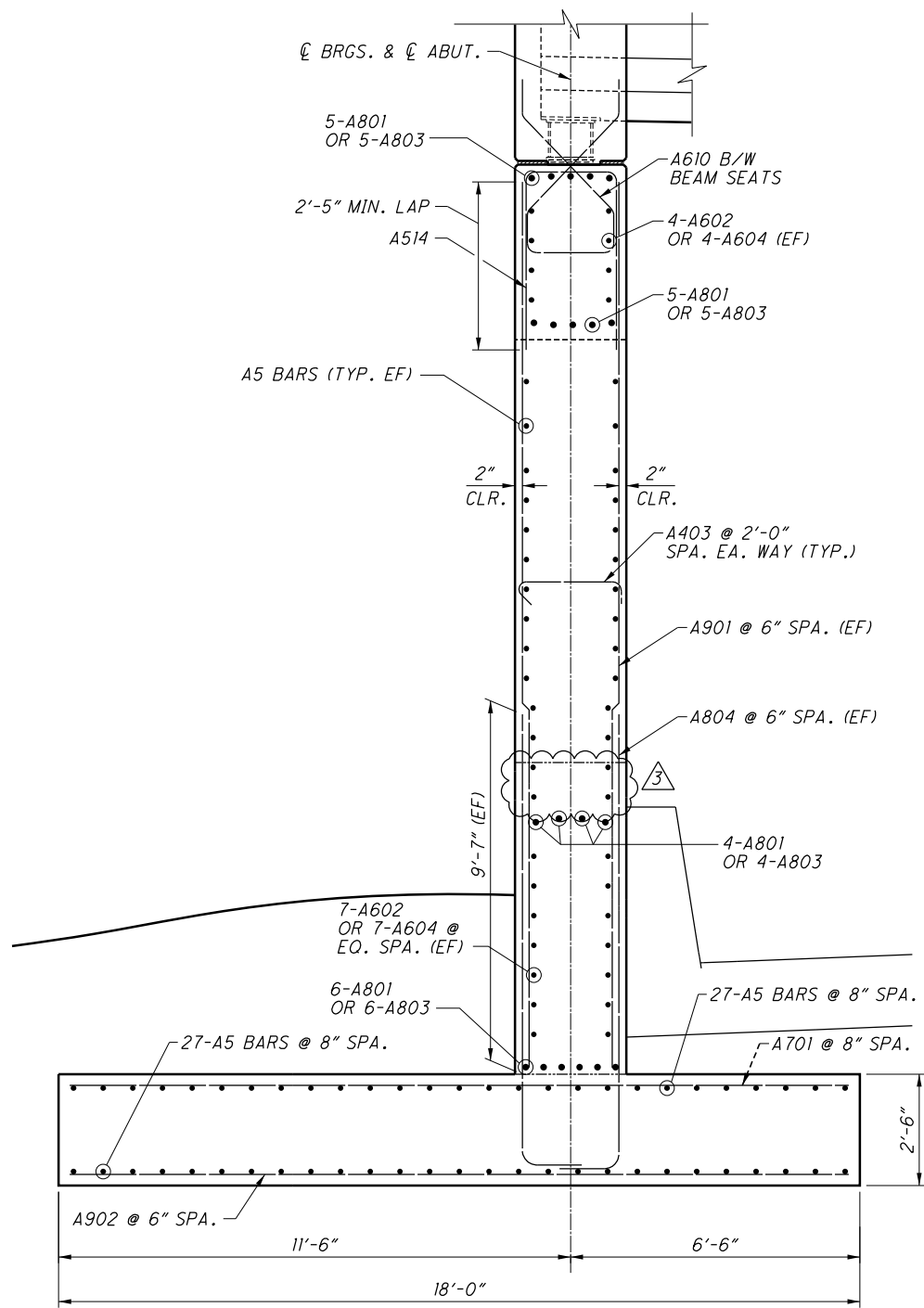
- LEGEND**
 NPCPP - NON-PERFORATED CORRUGATED PLASTIC PIPE
 * = DIMENSION GIVEN WITH RESPECT TO @ CONSTR. RAMP V2)
- NOTES:**
 1. UNLESS NOTED OTHERWISE, MINIMUM REINFORCING STEEL SPLICE LENGTHS:
 NO. 5 BARS = 43"
 NO. 8 BARS = 87"
 2. FOR PLAN AND ELEVATION OF UNIT 2 OF LEFT ABUTMENT, SEE SHEETS 8 & 9.
 5. GROUNDING PLATE PER STD. DWG. HL-50.21.

2 NO CHANGES TO SHEET

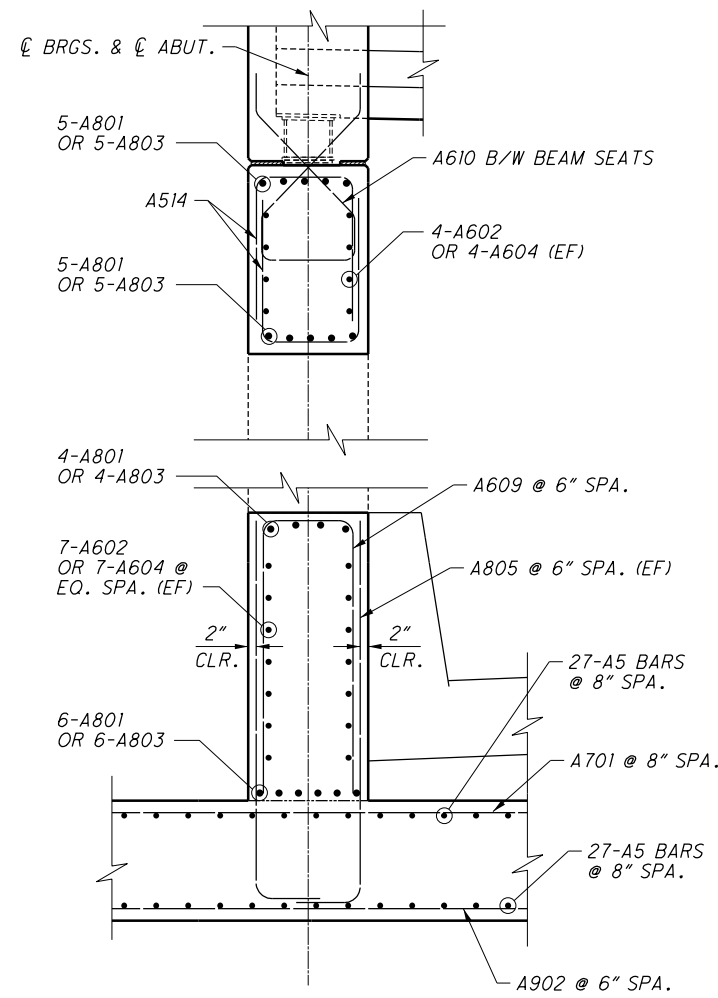
NO.	DATE	DESCRIPTION
2	09/04/14	RECORD DRAWINGS
1	3/26/12	RFC
A	2/15/12	FINAL SUBMITTAL
ISSUE RECORD		

071_1784BAR005.dgn 10/9/2014 12:45:30 PM nsherrill

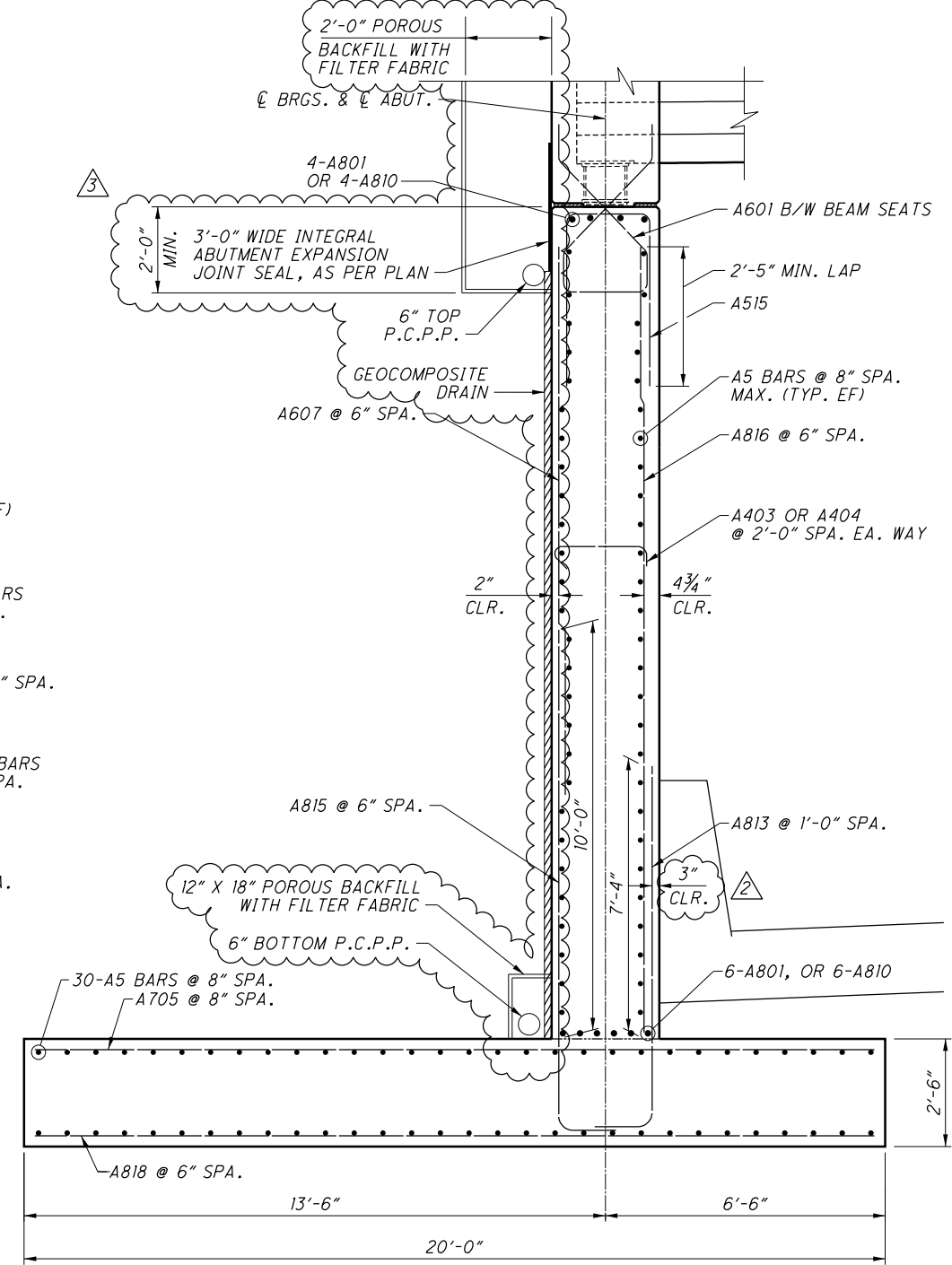
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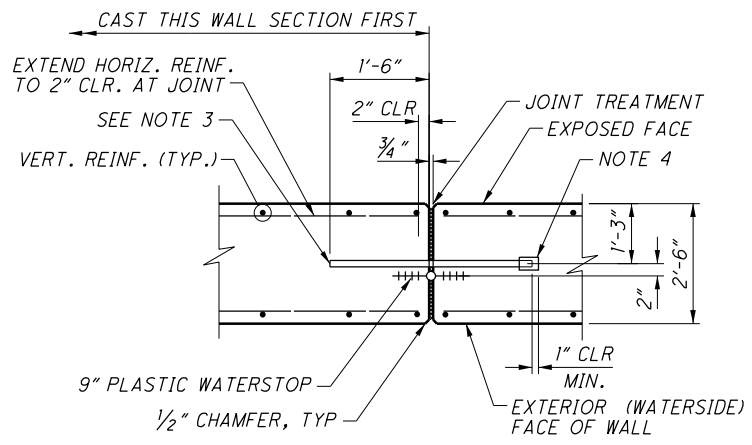
UNIT 1 LEFT ABUTMENT SECTION (A)



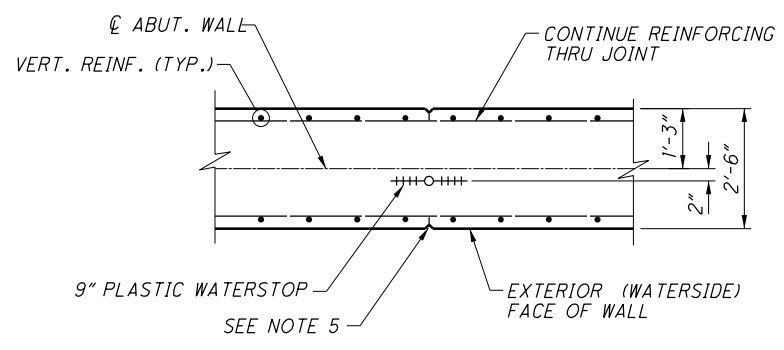
UNIT 1 LEFT ABUTMENT SECTION (B)
(SECTION THRU PORTAL)



UNIT 2 LEFT ABUTMENT SECTION (C)



WALL VERTICAL EXPANSION JOINT PLAN



WALL VERTICAL CONTRACTION JOINT PLAN

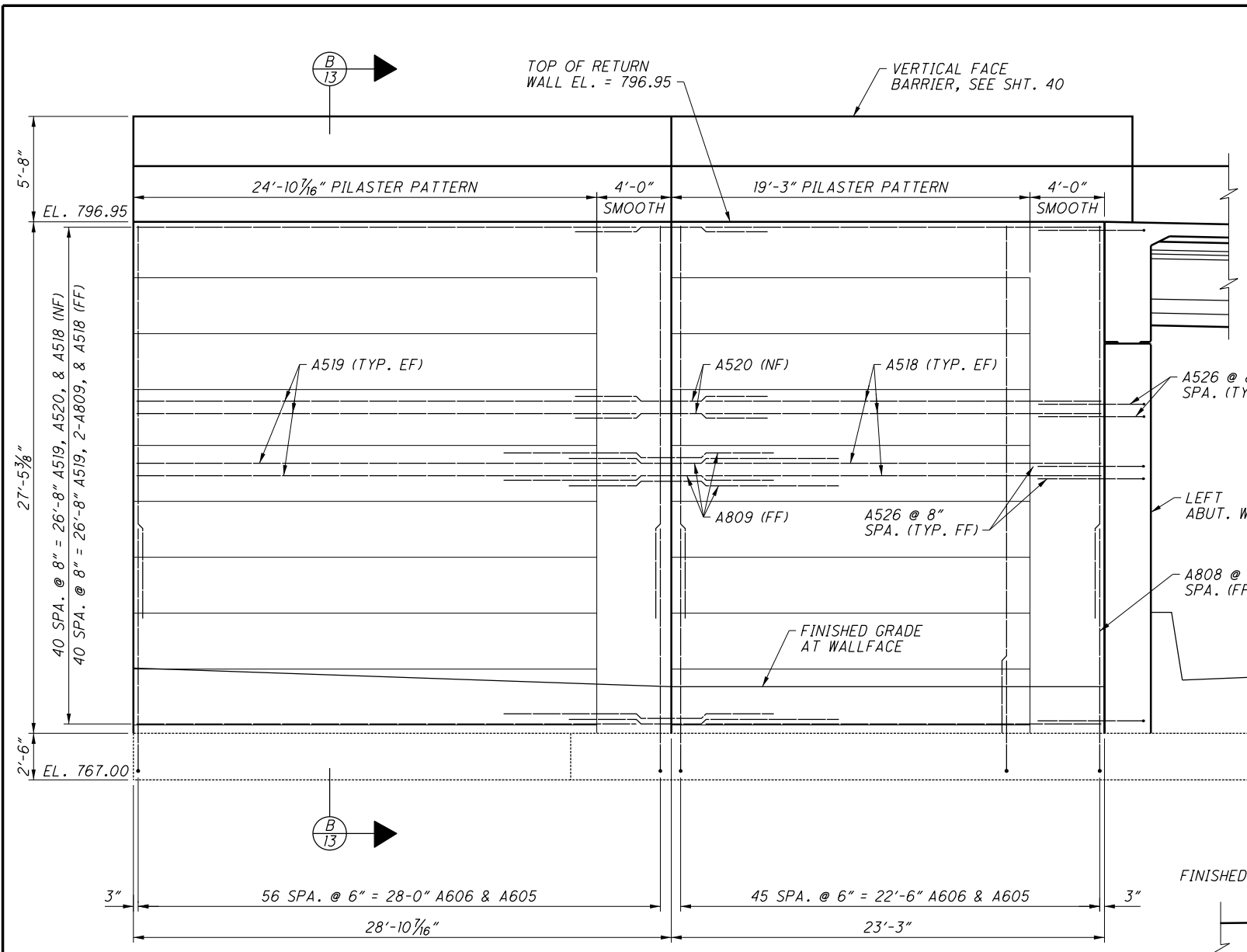
NOTES:

- UNLESS NOTED OTHERWISE, MINIMUM REINFORCING STEEL SPLICE LENGTHS:
NO. 5 BARS = 43"
NO. 6 BARS = 52"
NO. 8 BARS = 87"
SMALLER BAR CONTROLS LAP LENGTH.
- FOR PLAN AND ELEVATION OF LEFT ABUTMENT, SEE SHEETS 7-9.
- 1" DIA. x 3'-0" SMOOTH COATED BAR DOWELS. LOCATE AT 1'-0" MAX. FROM TOP AND 2'-0" FROM BOTTOM OF WALL AND AT 2'-0" MAX. SPACING. ALIGN AND TIE-IN-PLACE TO REINF. COATING SHALL CONSIST OF A CORROSION RESISTANT COATING ACCORDING TO CMS 709.13.
- 1" ID x 2" PLASTIC CAP WITH 1" POLYSTYRENE BETWEEN END OF DOWEL AND END CAP. TAPE TO BAR FORM WATERTIGHT SEAL.
- 1/4" DEEP x 1/4" RELIEF CONTINUOUS FULL HEIGHT (EF).
- FOR EMBANKMENT CONSTRUCTION, REFER TO SHEET 4, CONSTRUCTION CONSTRAINTS NOTE.

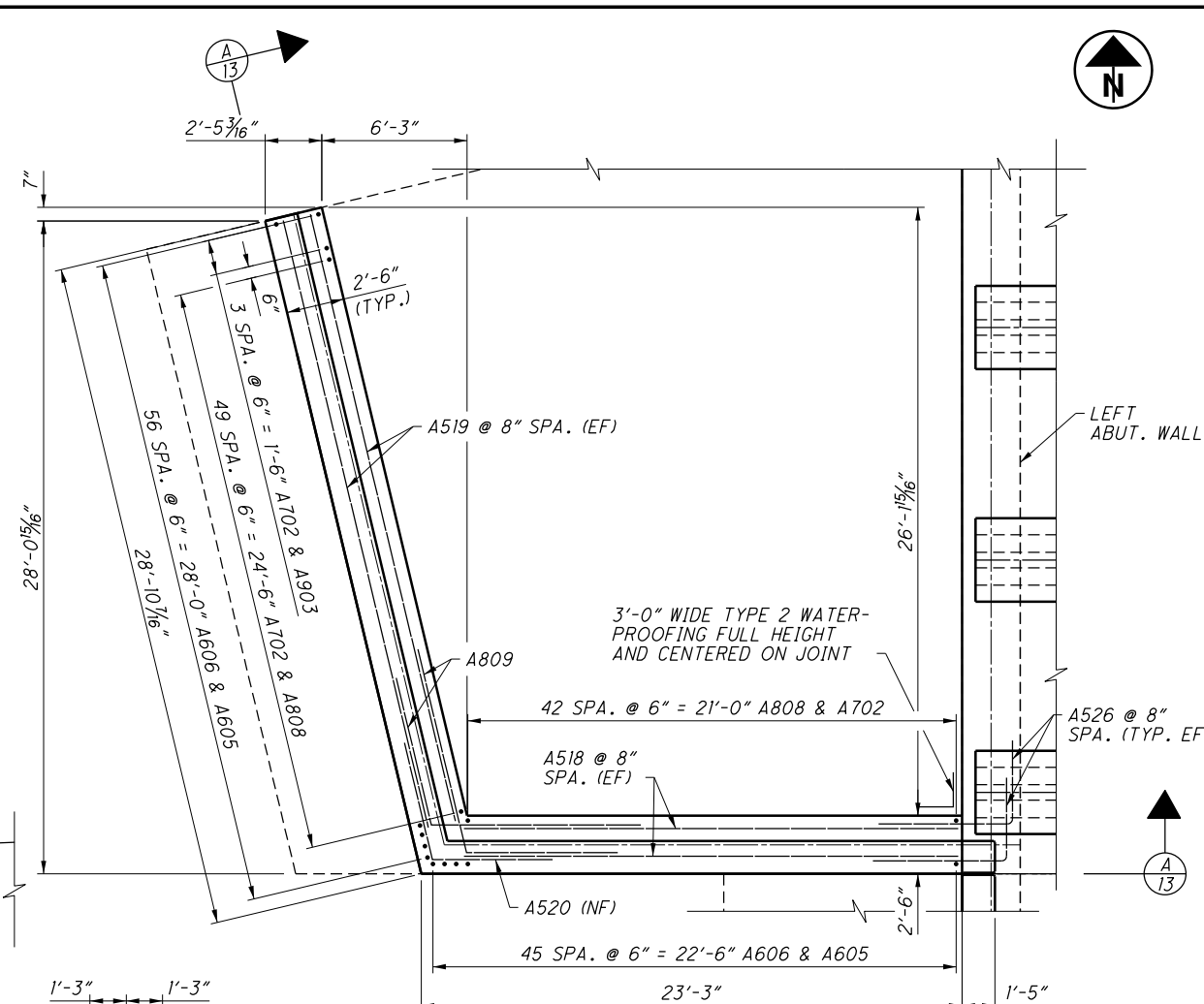
NO CHANGES TO SHEET

NO.	DATE	DESCRIPTION
4	09/04/14	RECORD DRAWINGS
3	8/20/12	RFI 154 & RFI 164
2	8/1/12	RFI 145
1	3/26/12	RFI
A	2/15/12	FINAL SUBMITTAL
ISSUE RECORD		

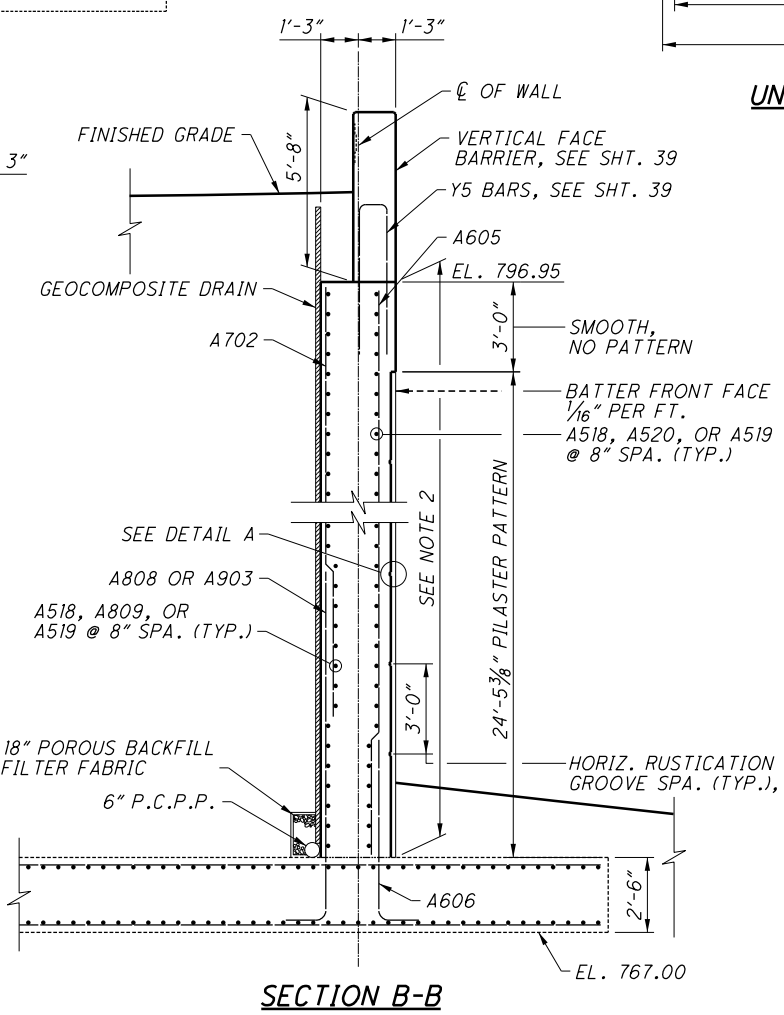
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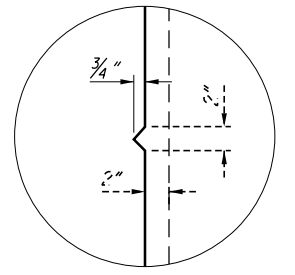
UNIT 2 RETURN WALL ELEVATION A-A



UNIT 2 RETURN WALL PLAN



SECTION B-B



DETAIL A (HORIZONTAL RUSTICATION GROOVE)

- NOTES:**
- UNLESS NOTED OTHERWISE, MINIMUM REINFORCING STEEL SLICE LENGTHS:
 NO. 5 BARS = 43"
 NO. 6 BARS = 52"
 NO. 8 BARS = 87"
 - LIMITS OF SEALING OF CONCRETE SURFACES (EPOXY URETHANE).

NO CHANGES TO SHEET

NO.	DATE	DESCRIPTION
2	09/04/14	RECORD DRAWINGS
1	3/26/12	RFC
A	2/15/12	FINAL SUBMITTAL
ISSUE RECORD		

LEFT ABUTMENT DETAILS II

BRIDGE NO. FRA-071-1784B
 NORTHBOUND C-D AND SPRING STREET OVER RAMP V2

DESIGN AGENCY: **CH2MHILL**
 1103 SCHROCK ROAD, SUITE 400
 COLUMBUS, OHIO 43229

DATE: 02/12
 REVIEWED: MAM
 DRAWN: CNK
 CHECKED: DGS

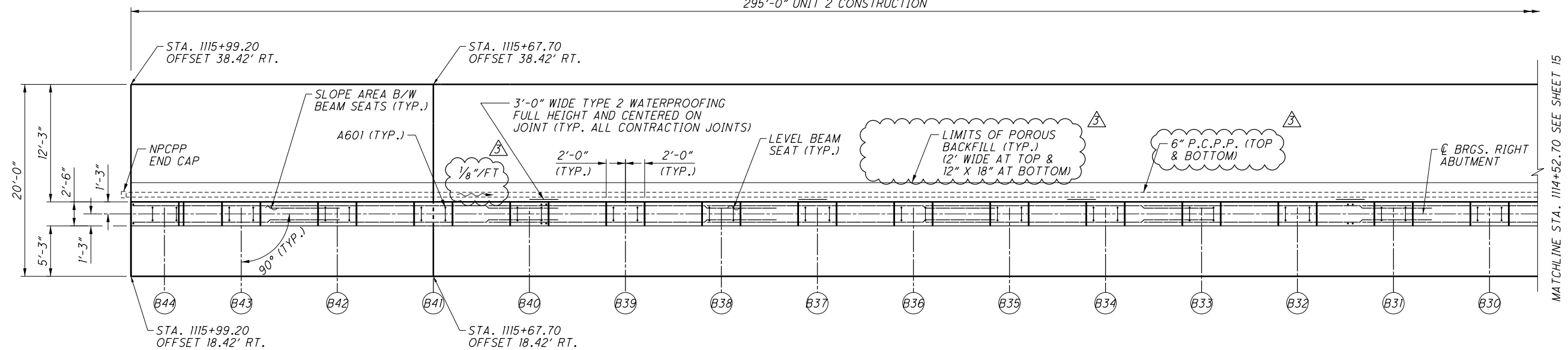
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PID No. 77369

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1948
2744

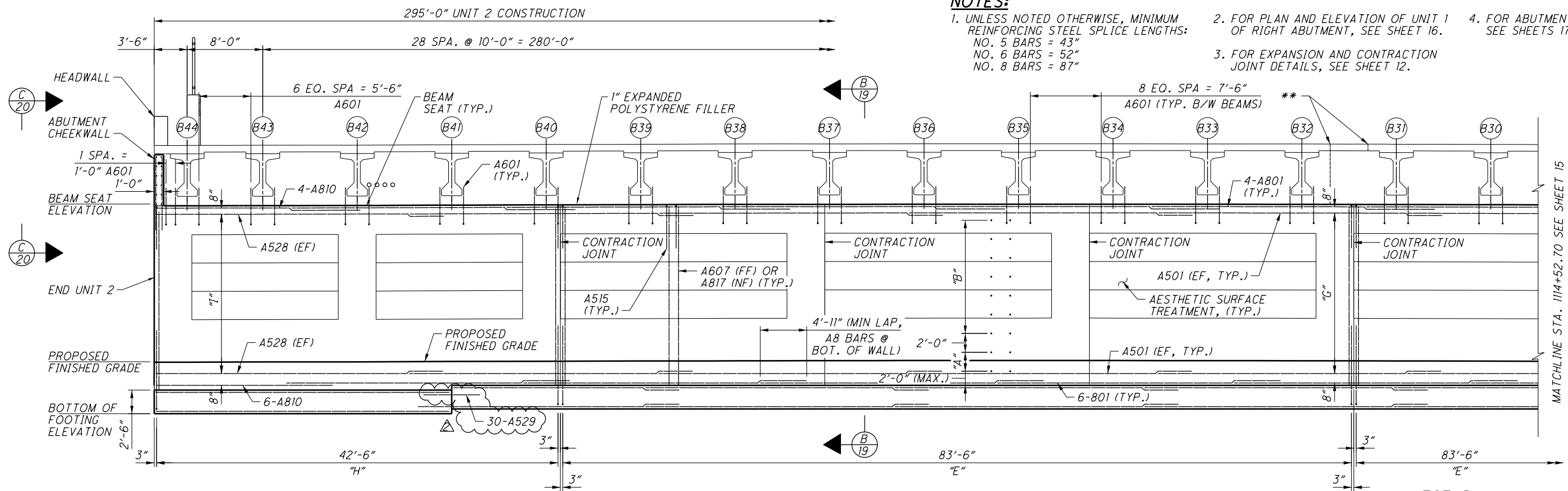
295'-0" UNIT 2 CONSTRUCTION



UNIT 2 RIGHT ABUTMENT PARTIAL PLAN

NOTES:

- UNLESS NOTED OTHERWISE, MINIMUM REINFORCING STEEL SPLICE LENGTHS:
NO. 5 BARS = 43"
NO. 6 BARS = 52"
NO. 8 BARS = 87"
- FOR PLAN AND ELEVATION OF UNIT 1 OF RIGHT ABUTMENT, SEE SHEET 16.
- FOR EXPANSION AND CONTRACTION JOINT DETAILS, SEE SHEET 12.
- FOR ABUTMENT FOOTING PLAN, SEE SHEETS 17 & 18.



UNIT 2 RIGHT ABUTMENT PARTIAL ELEVATION

A = 1 SPA. @ 2'-0" x 2'-0" SPA. HORIZ. A403 (TYP. ENTIRE UNIT WALL LENGTH)
B = 6 SPA. @ 2'-0" x 2'-0" SPA. HORIZ. A404 (TYP. ENTIRE UNIT WALL LENGTH)

E = 167 SPA. @ 6" = 83'-6" A607 (FF), A515 (TOP), & A817 (NF)
G = 29 EQ. SPA. @ 8" (MAX.) 2-A501 (EF, TYP.)

H = 85 SPA. @ 6" = 42'-6" A607 (FF), A515 (TOP), & A817 (NF)
I = 29 EQ. SPA. @ 8" (MAX.) 1-A528 (EF)

LEGEND

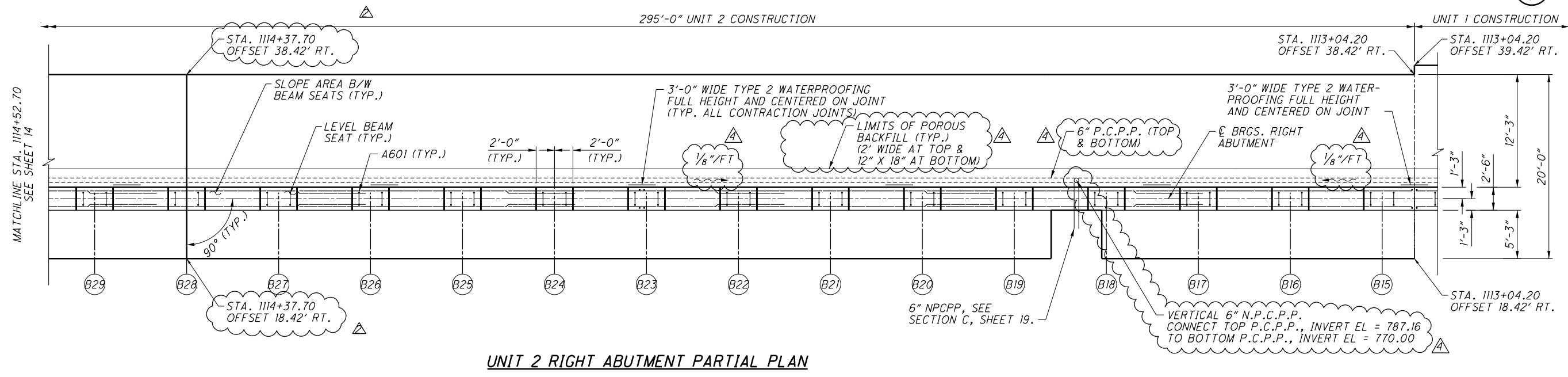
- (B#) BEAM DESIGNATION
- ** = SUPERSTRUCTURE STAGE CONSTRUCTION JOINT. SEE DIAPHRAGM AND DECK SHEETS FOR DETAILS. NO JOINT IN SUBSTRUCTURE.

BEAM	END UNIT 2	B44	B43	B42	B41	B40	B39	B38	B37	B36	B35	B34	B33	B32	B31	B30
RAMP V2 STA.	1115+99.20	1115+95.70	1115+87.70	1115+77.70	1115+67.70	1115+57.70	1115+47.70	1115+37.70	1115+27.70	1115+17.70	1115+07.70	1114+97.70	1114+87.70	1114+77.70	1114+67.70	1114+57.70
OFFSET	24.92' RT.	24.92' RT.	24.92' RT.	24.92' RT.	24.92' RT.	24.92' RT.	24.92' RT.	24.92' RT.	24.92' RT.	24.92' RT.	24.92' RT.	24.92' RT.	24.92' RT.	24.92' RT.	24.92' RT.	24.92' RT.
BEAM SEAT ELEV.	789.52	789.53	789.54	789.56	789.59	789.62	789.65	789.67	789.68	789.69	789.70	789.70	789.69	789.68	789.66	789.64
PROPOSED FINISHED GRADE	772.96	772.96	772.98	772.99	773.03	773.06	773.08	773.10	773.12	773.13	773.13	773.13	773.12	773.11	773.09	773.07
BOTTOM OF FOOTING ELEV.	767.50	767.50	767.50	767.50	767.50	767.50	767.50	767.50	767.50	767.50	767.50	767.50	767.50	767.50	767.50	767.50

△ NO CHANGES TO SHEET

NO.	DATE	DESCRIPTION
4	09/04/14	RECORD DRAWINGS
3	8/20/12	RFI 154
2	07/19/12	RFI 134
1	3/26/12	RFC
B	2/15/12	FINAL SUBMITTAL
ISSUE RECORD		

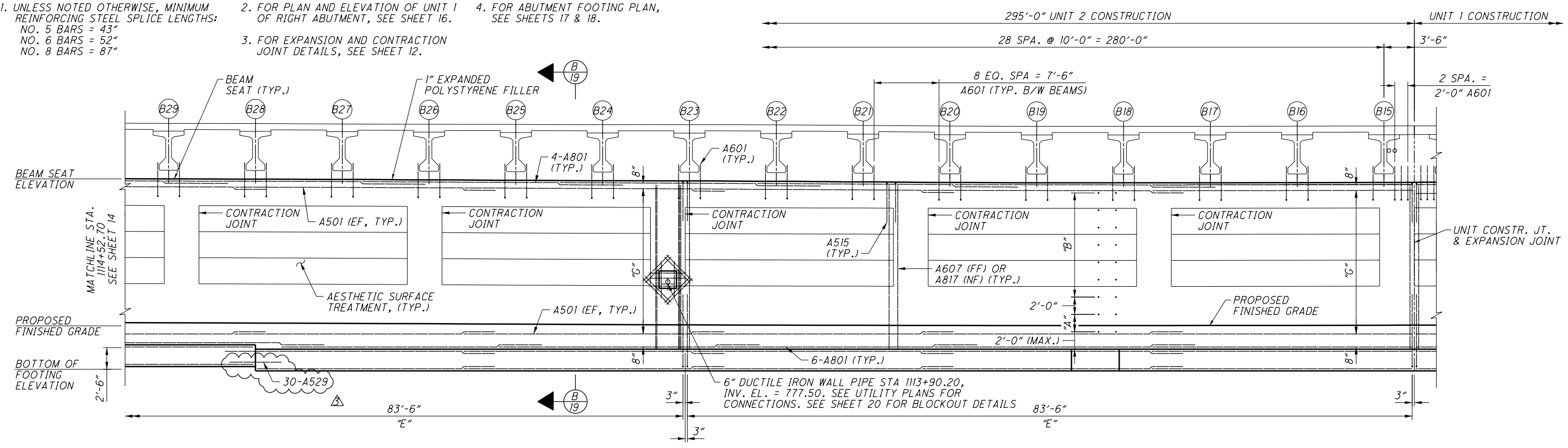
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UNIT 2 RIGHT ABUTMENT PARTIAL PLAN

NOTES:

- UNLESS NOTED OTHERWISE, MINIMUM REINFORCING STEEL SPLICE LENGTHS:
NO. 5 BARS = 43"
NO. 6 BARS = 52"
NO. 8 BARS = 87"
- FOR PLAN AND ELEVATION OF UNIT 1 OF RIGHT ABUTMENT, SEE SHEET 16.
- FOR EXPANSION AND CONTRACTION JOINT DETAILS, SEE SHEET 12.
- FOR ABUTMENT FOOTING PLAN, SEE SHEETS 17 & 18.



UNIT 2 RIGHT ABUTMENT PARTIAL ELEVATION

- A = 1 SPA. @ 2'-0" x 2'-0" SPA. HORIZ. A403 (TYP. ENTIRE UNIT WALL LENGTH)
B = 6 SPA. @ 2'-0" x 2'-0" SPA. HORIZ. A404 (TYP. ENTIRE UNIT WALL LENGTH)
E = 167 SPA. @ 6" = 83'-6" A607 (FF), A515 (TOP), & A817 (NF)
G = 29 EQ. SPA. @ 8" (MAX.) 2-A501 (EF, TYP.)

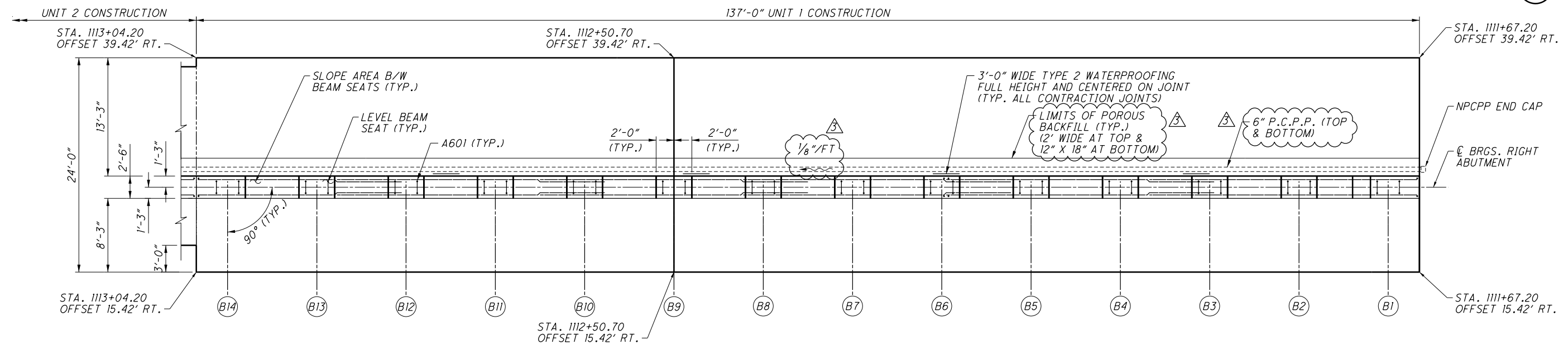
LEGEND
⊙# BEAM DESIGNATION

BEAM	B29	B28	B27	B26	B25	B24	B23	B22	B21	B20	B19	B18	B17	B16	B15	BEGIN UNIT 2
RAMP V2 STA.	1114+47.70	1114+37.70	1114+27.70	1114+17.70	1114+07.70	1113+97.70	1113+87.70	1113+77.70	1113+67.70	1113+57.70	1113+47.70	1113+37.70	1113+27.70	1113+17.70	1113+07.70	1113+04.20
OFFSET	24.92' RT.	24.92' RT.	24.92' RT.	24.92' RT.	24.92' RT.	24.92' RT.	24.92' RT.	24.92' RT.	24.92' RT.	24.92' RT.	24.92' RT.	24.92' RT.	24.92' RT.	24.92' RT.	24.92' RT.	24.92' RT.
BEAM SEAT ELEV.	789.61	789.58	789.54	789.50	789.45	789.40	789.37	789.32	789.26	789.20	789.16	789.16	789.16	789.18	789.20	789.21
PROPOSED FINISHED GRADE	773.04	773.01	772.97	772.93	772.88	772.84	772.80	772.77	772.75	772.73	772.72	772.72	772.73	772.74	772.76	772.77
BOTTOM OF FOOTING ELEV.	767.50	767.50	767.50	767.50	767.50	767.50	767.50	767.50	767.50	767.50	767.50	767.50	767.50	767.50	767.50	767.50

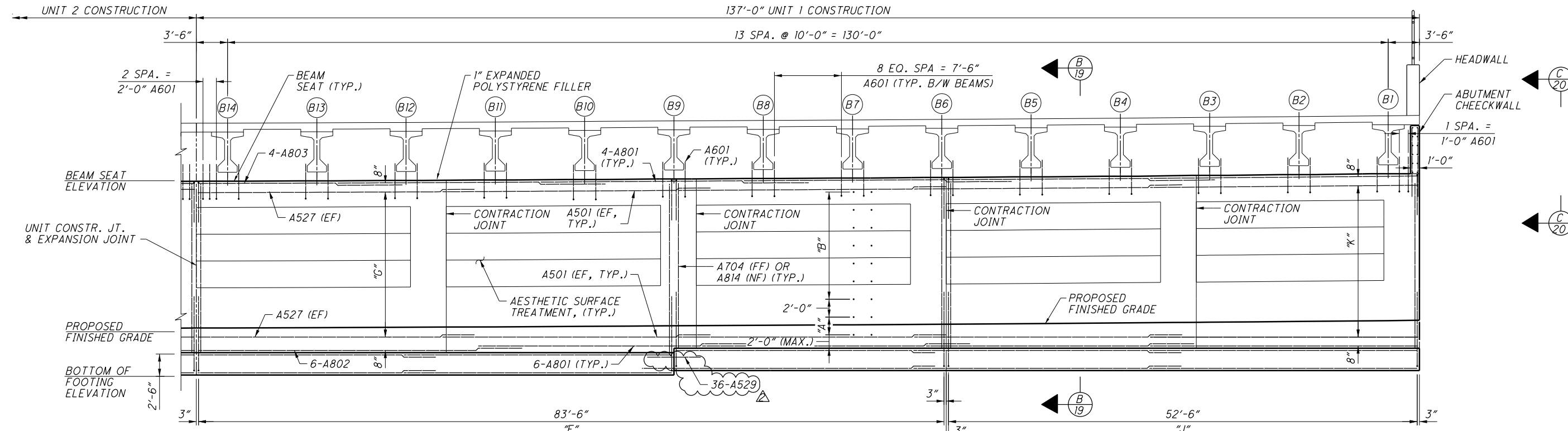
5 NO CHANGES TO SHEET

NO.	DATE	DESCRIPTION
5	09/04/14	RECORD DRAWINGS
4	8/20/12	RFI 154
3	07/19/12	RFI 134
2	5/9/12	RFI 68
1	3/26/12	RFC
B	2/15/12	FINAL SUBMITTAL
ISSUE RECORD		

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UNIT 1 RIGHT ABUTMENT PLAN



UNIT 1 RIGHT ABUTMENT ELEVATION

- A = 1 SPA. @ 2'-0" x 2'-0" SPA. HORIZ. A403 (TYP. ENTIRE UNIT WALL LENGTH)
- B = 6 SPA. @ 2'-0" x 2'-0" SPA. HORIZ. A404 (TYP. ENTIRE UNIT WALL LENGTH)
- E = 167 SPA. @ 6" = 83'-6" A704 (FF), A515 (TOP), & A814 (NF)
- G = 29 EQ. SPA. @ 8" (MAX.) 1-A527 (EF)
- J = 105 SPA. @ 6" = 52'-6" A704 (FF), A515 (TOP), & A814 (NF)
- K = 29 EQ. SPA. @ 8" (MAX.) 1-A501 (EF, TYP.)

- NOTES:**
- UNLESS NOTED OTHERWISE, MINIMUM REINFORCING STEEL SPLICE LENGTHS:
NO. 5 BARS = 43"
NO. 6 BARS = 52"
NO. 7 BARS = 58"
NO. 8 BARS = 87"
 - FOR PLAN AND ELEVATION OF UNIT 2 OF RIGHT ABUTMENT, SEE SHEETS 14-15.
 - FOR EXPANSION AND CONTRACTION JOINT DETAILS, SEE SHEET 12.
 - FOR ABUTMENT FOOTING PLAN, SEE SHEETS 17 & 18.

BEAM	END UNIT 1	B14	B13	B12	B11	B10	B9	B8	B7	B6	B5	B4	B3	B2	B1	BEGIN ABUT.
RAMP V2 STA.	1113+04.20	1113+00.70	1112+90.70	1112+80.70	1112+70.70	1112+60.70	1112+50.70	1112+40.70	1112+30.70	1112+20.70	1112+10.70	1111+00.70	1111+90.70	1111+80.70	1111+70.70	1111+67.20
OFFSET	24.92' RT.	24.92' RT.	24.92' RT.	24.92' RT.	24.92' RT.	24.92' RT.	24.92' RT.	24.92' RT.	24.92' RT.	24.92' RT.	24.92' RT.	24.92' RT.	24.92' RT.	24.92' RT.	24.92' RT.	24.92' RT.
BEAM SEAT ELEV.	789.21	789.22	789.25	789.29	789.34	789.40	789.46	789.52	789.57	789.63	789.70	789.77	789.86	789.95	790.04	790.08
PROPOSED FINISHED GRADE	772.77	772.78	772.81	772.86	772.90	772.96	773.02	773.08	773.13	773.19	773.26	773.34	773.42	773.51	773.60	773.64
BOTTOM OF FOOTING ELEV.	767.50	767.50	767.50	767.50	767.50	767.50	767.50	767.50	767.50	767.50	767.50	767.50	767.50	767.50	767.50	767.50

LEGEND

NO CHANGES TO SHEET

BEAM DESIGNATION

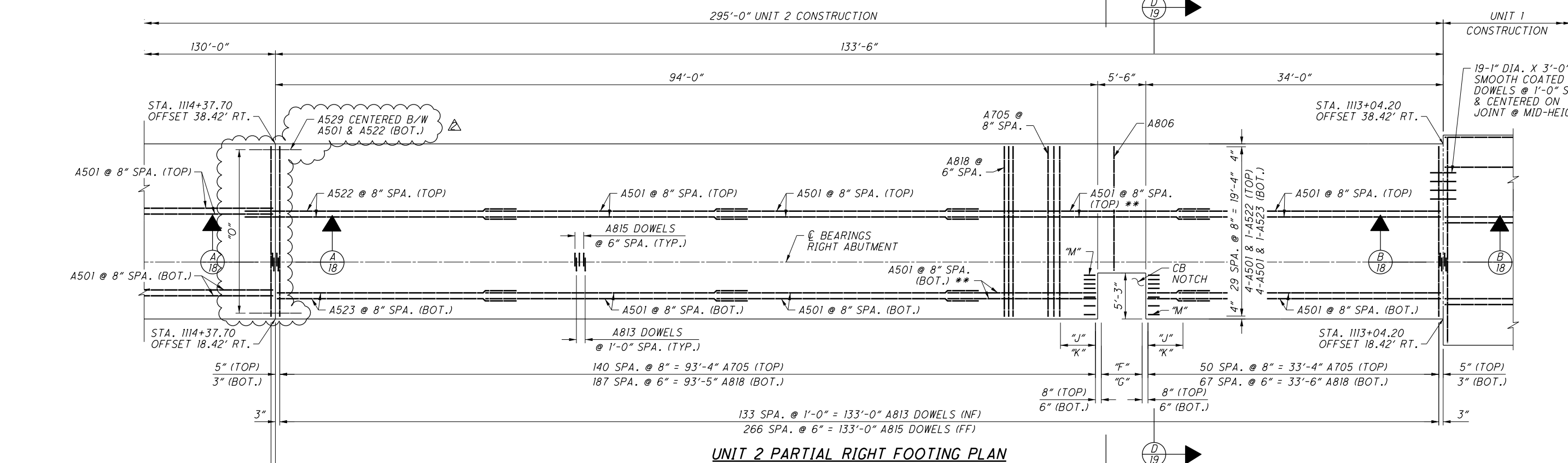
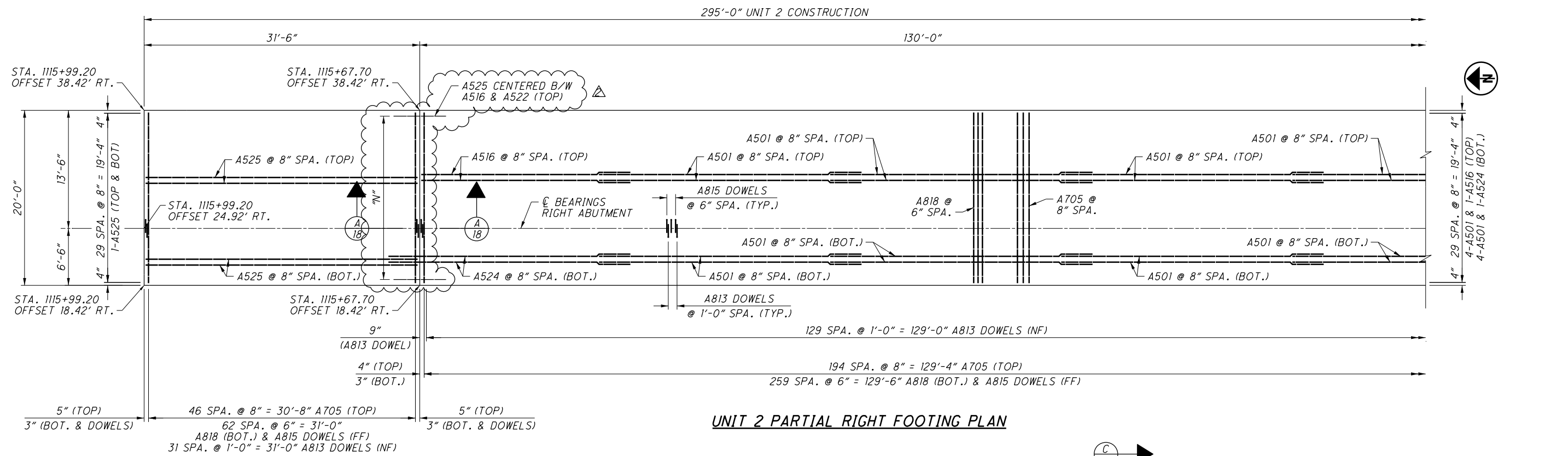
NO.	DATE	DESCRIPTION
4	09/04/14	RECORD DRAWINGS
3	8/20/12	RFI 154
2	07/19/12	RFI 134
1	3/26/12	RFC
B	2/15/12	FINAL SUBMITTAL

ISSUE RECORD

DESIGN AGENCY: **CH2MHILL**
 1103 SCHROCK ROAD, SUITE 400
 COLUMBUS, OHIO 43229
 DATE: 02/12
 REVIEWED: MAM
 DRAWN: CNK
 CHECKED: DGS
 STRUCTURE FILE NUMBER: 2507617
RIGHT ABUTMENT PLAN AND ELEVATION III
 BRIDGE NO. FRA-071-1784B
 NORTHBOUND C-D AND SPRING STREET OVER RAMP V2
FRA-71-17.76
FRA-670-4.19
 PID No. 77369
 87B20-16
 1951
 2744

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LEGEND:

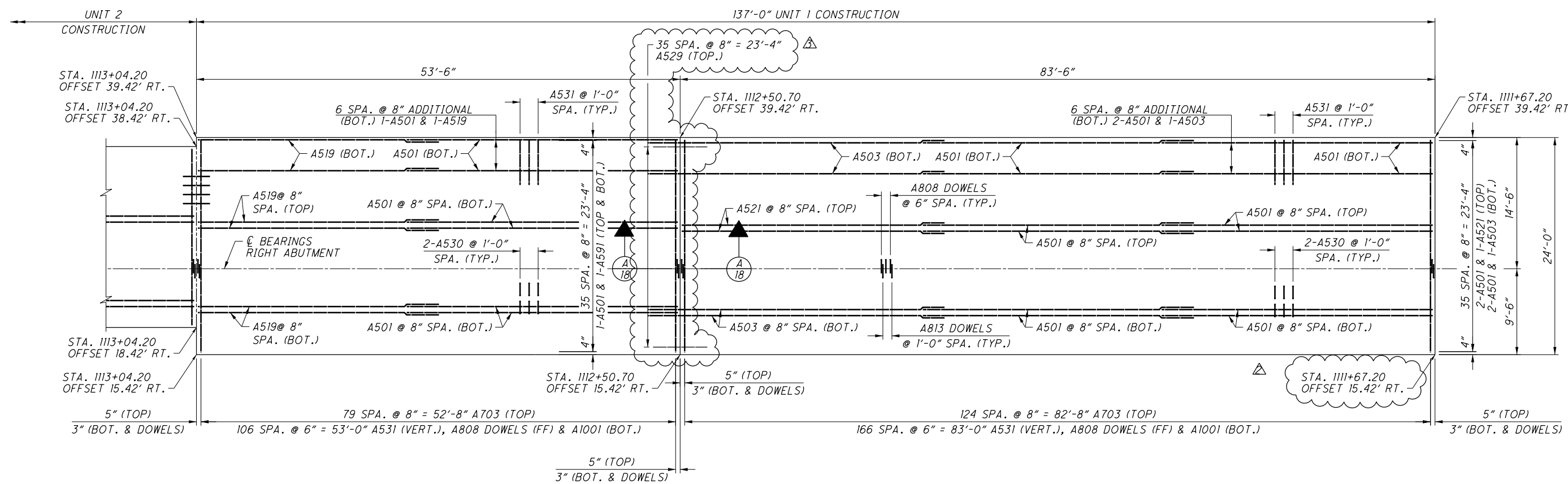
- F = 7 SPA. @ 8" = 4'-8" A806 (TOP)
- G = 10 SPA. @ 6" = 5'-0" A806 (BOT.)
- J = 4 ADDITIONAL A705 BARS @ 8" = 2'-4" BUNDLE WITH A705
- K = 6 ADDITIONAL A818 BARS @ 6" = 3'-0" BUNDLE WITH A818
- M = 7-A530, SEE SECTION D-19, SHEET 19.
- N = 29 SPA. @ 8" = 19'-4" A529 (TOP)
- O = 29 SPA. @ 8" = 19'-4" A529 (BOT.)

NOTES:

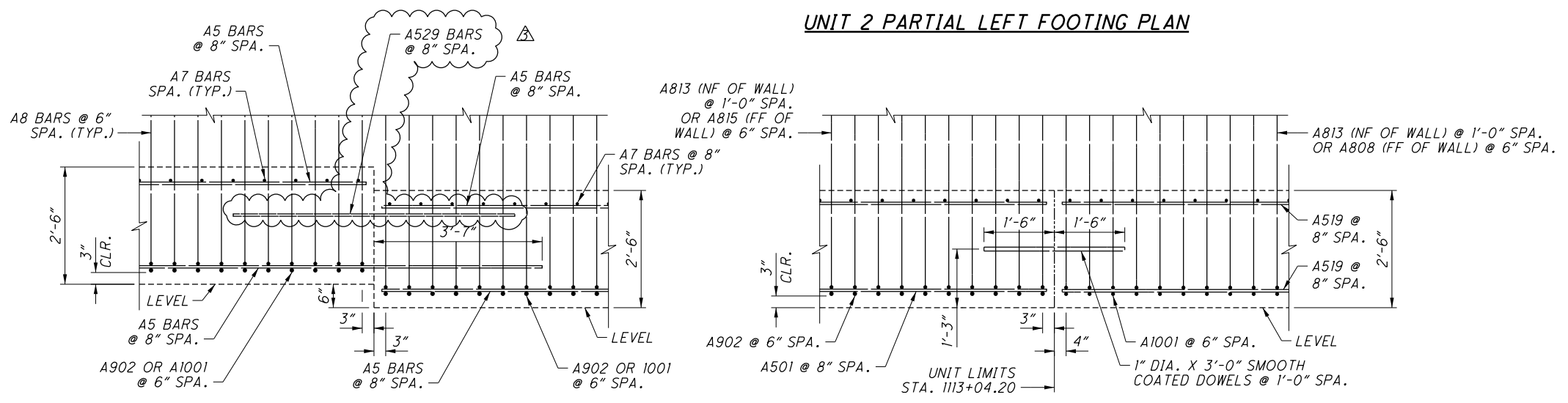
1. UNLESS NOTED OTHERWISE, MINIMUM REINFORCING STEEL SPLICE LENGTHS:
 NO. 5 BARS = 43"
 NO. 8 BARS = 87"
 2. FOR PLAN AND ELEVATION OF RIGHT ABUTMENT, SEE SHEETS 14 - 16.
- ** = FIELD CUT 8-A501 (TOP) & 8-A501 (BOT) AT CB NOTCH.

3 NO CHANGES TO SHEET

NO.	DATE	DESCRIPTION
3	06/04/14	RECORD DRAWINGS
2	07/19/12	RFC 134
1	3/26/12	RFC
A	2/15/12	FINAL SUBMITTAL
ISSUE RECORD		



UNIT 2 PARTIAL LEFT FOOTING PLAN



SECTION A-A
DETAIL AT FOOTING ELEVATION CHANGES
(RAMP V2 STA. 1112+50.70, STA. 1114+37.70
& STA. 1115+67.70)

SECTION B-B
DETAIL AT UNIT LIMITS
(RAMP V2 STA. 1113+04.20)

- NOTES:**
- UNLESS NOTED OTHERWISE, MINIMUM REINFORCING STEEL SPLICE LENGTHS:
NO. 5 BARS = 43"
NO. 8 BARS = 87"
 - FOR PLAN AND ELEVATION OF RIGHT ABUTMENT, SEE SHEETS 14 - 16.

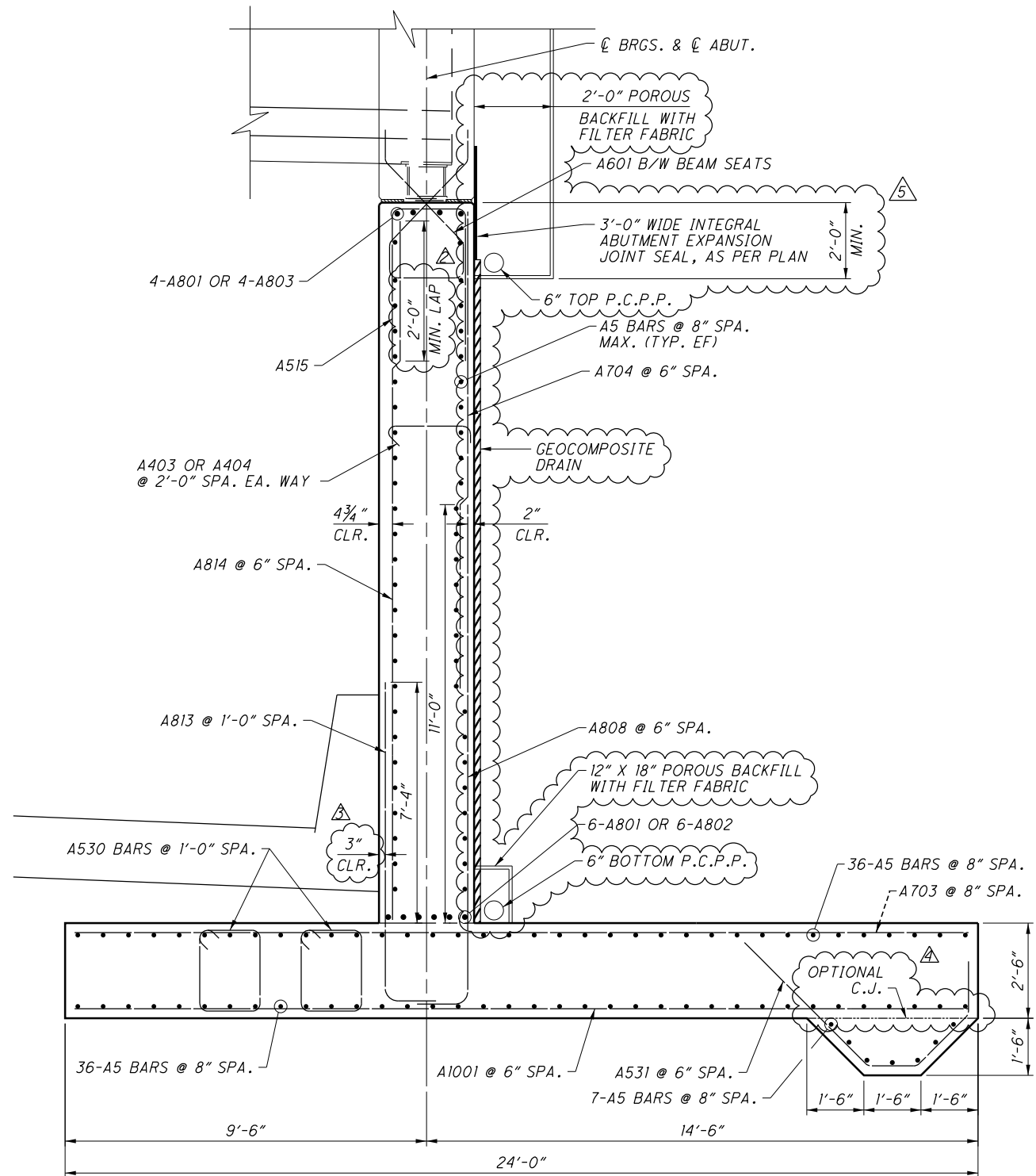
NO.	DATE	DESCRIPTION
4	09/04/14	RECORD DRAWINGS
3	7/19/12	RFI 134
2	5/9/12	RFI 68
1	3/26/12	RFC
A	2/15/12	FINAL SUBMITTAL
		ISSUE RECORD

△ NO CHANGES TO SHEET

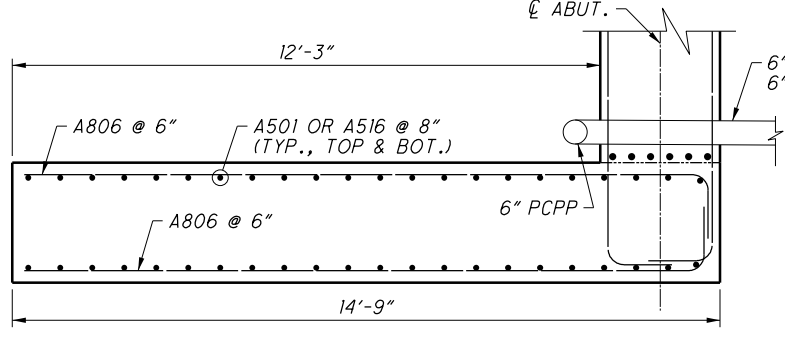
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DESIGN AGENCY: **CH2MHILL**
 1103 SCHROCK ROAD, SUITE 400
 COLUMBUS, OHIO 43229
 DATE: 02/12
 REVIEWED: MAM
 DRAWN: CNK
 DESIGNED: CNK
 CHECKED: DGS
 STRUCTURE FILE NUMBER: 2507617
RIGHT ABUTMENT FOOTING PLAN II
 BRIDGE NO. FRA-071-1784B
 NORTHBOUND C-D AND SPRING STREET OVER RAMP V2
FRA-71-17.76
FRA-670-4.19
 PID No. 77369
 87B20-18
 1953
 2744

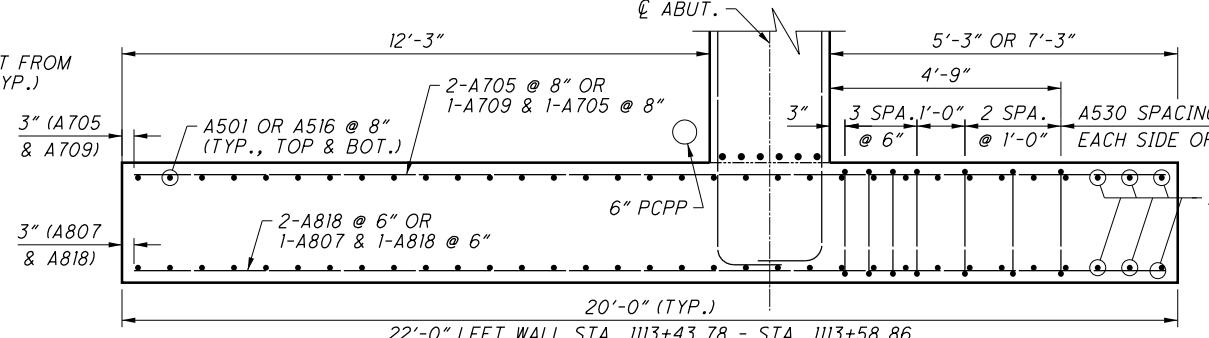
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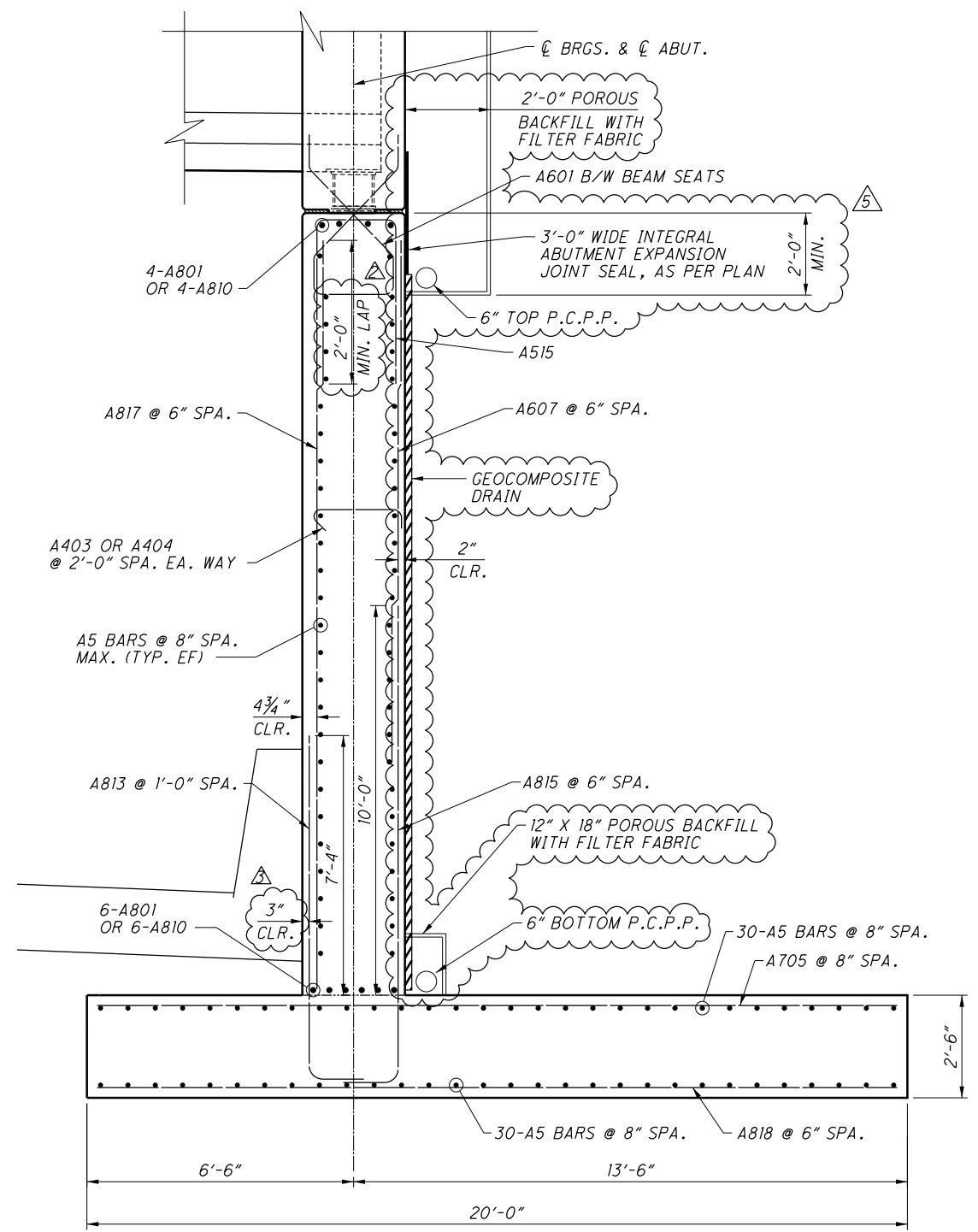
UNIT 1 RIGHT ABUTMENT SECTION (A)



SECTION AT CB NOTCH (C)



SECTION NEAR CB NOTCH (D)



UNIT 2 RIGHT ABUTMENT SECTION (B)

NOTES:

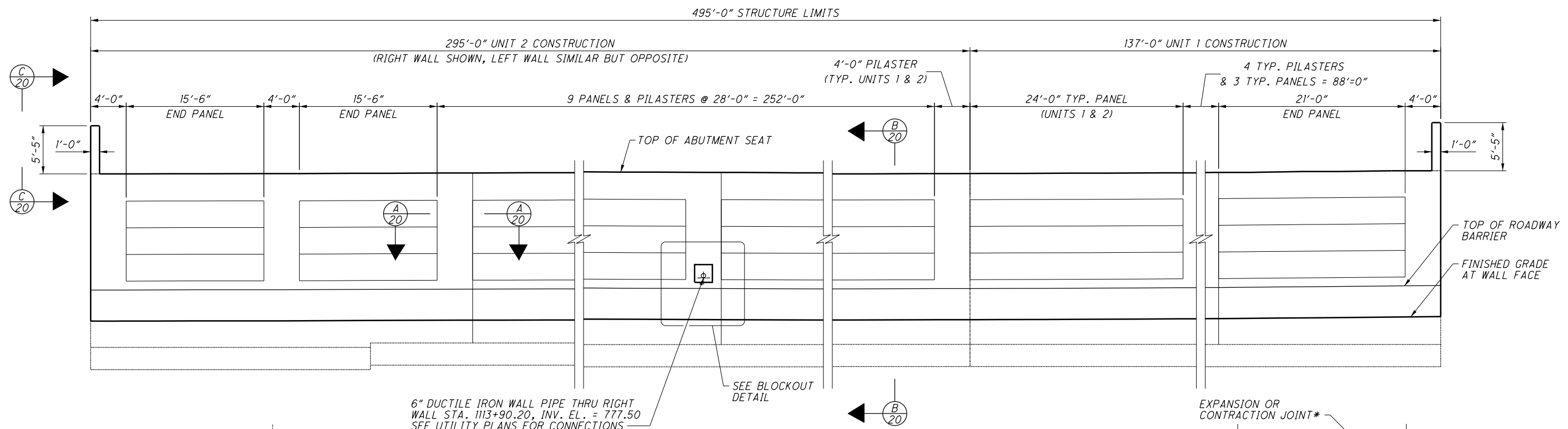
1. UNLESS NOTED OTHERWISE, MINIMUM REINFORCING STEEL SPLICE LENGTHS:
NO. 5 BARS = 43" NO. 7 BARS = 58"
NO. 6 BARS = 52" NO. 8 BARS = 87"
SMALLER BAR CONTROLS LAP LENGTH.
2. FOR PLAN AND ELEVATION OF RIGHT ABUTMENT, SEE SHEETS 14-16.
3. FOR EXPANSION AND CONTRACTION JOINT DETAILS, SEE LEFT ABUTMENT DETAILS I, SHEET 12.
4. FOR EMBANKMENT CONSTRUCTION, REFER TO SHEET 4, CONSTRUCTION CONSTRAINTS NOTE.

NO.	DATE	DESCRIPTION
6	09/04/14	RECORD DRAWINGS
5	8/20/12	RFI 154
4	8/7/12	RFI 151
3	8/1/12	RFI 145
2	07/19/12	RFI 134

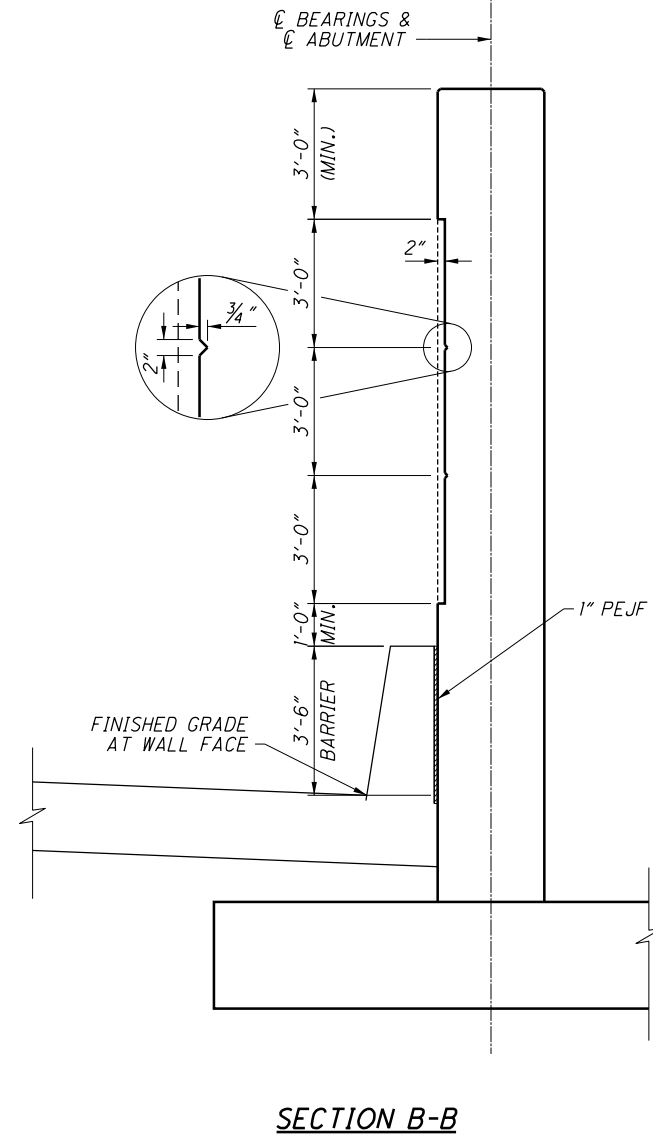
NO CHANGES TO SHEET

DESIGN AGENCY: **CH2MHILL**
 1103 SCHROCK ROAD, SUITE 400
 COLUMBUS, OHIO 43229
 DATE: 02/12
 REVIEWED: MAM
 DRAWN: TEK
 DESIGNED: CNK
 CHECKED: DGS
 STRUCTURE FILE NUMBER: 2507617
RIGHT ABUTMENT DETAILS I
 BRIDGE NO. FRA-071-1784B
 NORTHBOUND C-D AND SPRING STREET OVER RAMP V2
FRA-71-17.76
FRA-670-4.19
 PID No. 77369
 87B20-19
 1954
 2744

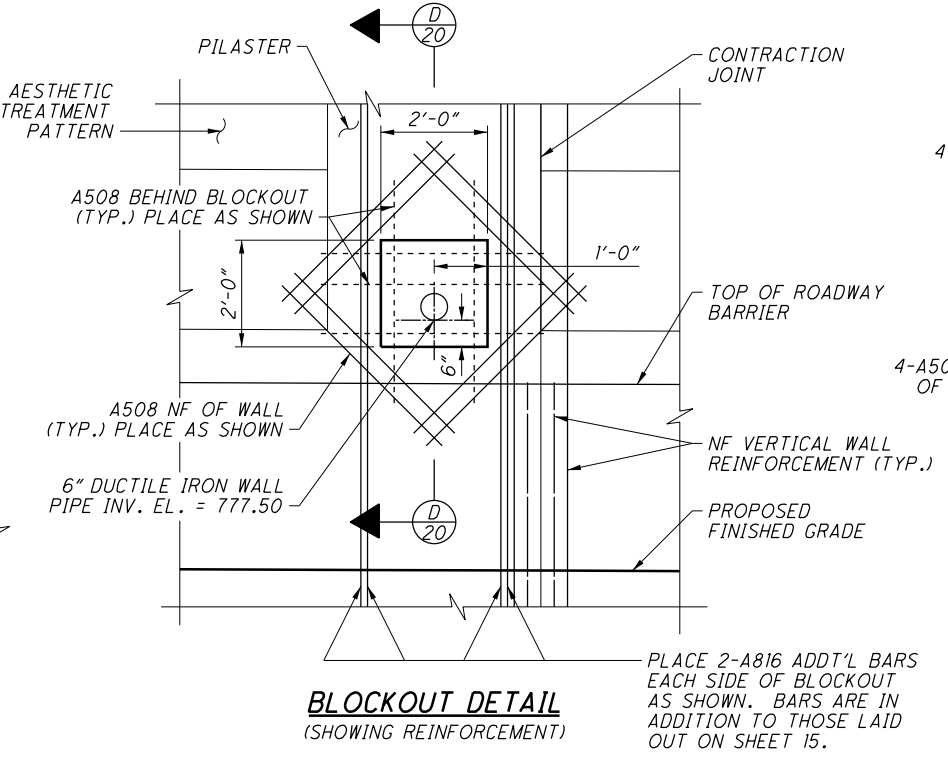
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RIGHT ABUTMENT WALL AESTHETIC RELIEF PATTERN LAYOUT

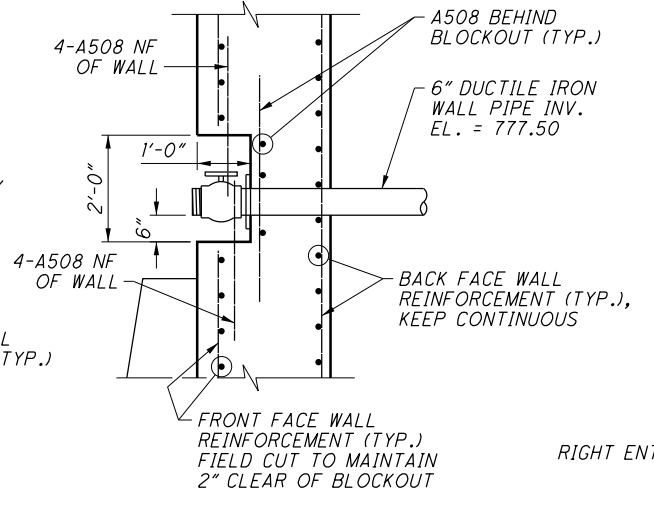


SECTION B-B



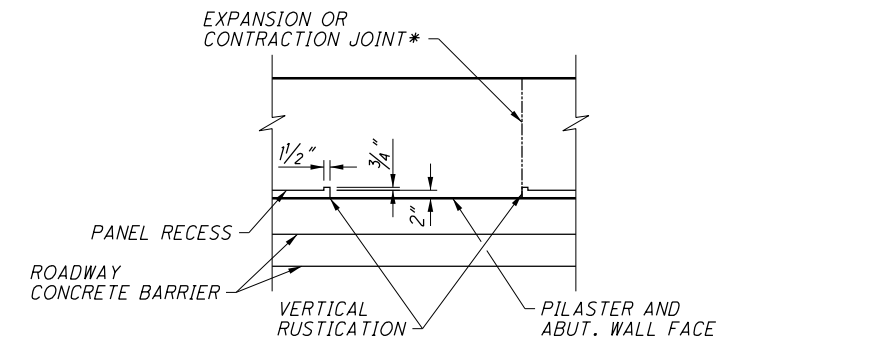
BLOCKOUT DETAIL
(SHOWING REINFORCEMENT)

PLACE 2-A816 ADDT'L BARS EACH SIDE OF BLOCKOUT AS SHOWN. BARS ARE IN ADDITION TO THOSE LAID OUT ON SHEET 15.



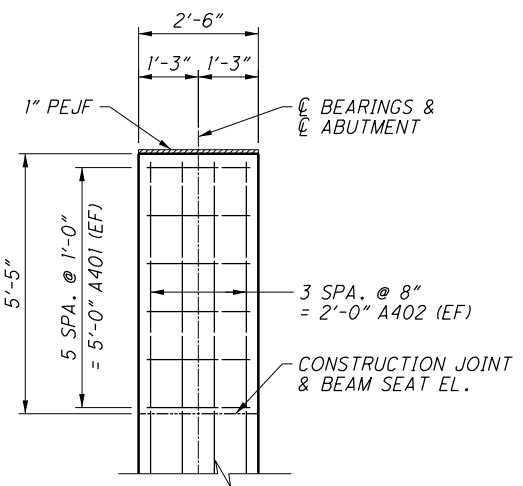
SECTION D-D
(WALL PIPE BLOCKOUT)

NO CHANGES TO SHEET



SECTION A-A

* SEE SHEETS 14-16 FOR EXPANSION AND CONTRACTION JOINT LOCATIONS



ELEVATION C-C

(RIGHT EXIT PORTAL CHEEKWALL SHOWN
RIGHT ENTRY PORTAL AND LEFT ENTRY AND EXIT PORTALS
SIMILAR BUT OPPOSITE)

NO.	DATE	DESCRIPTION
2	09/04/14	RECORD DRAWINGS
1	3/26/12	RFI
A	2/15/12	FINAL SUBMITTAL
ISSUE RECORD		

DESIGN AGENCY: **CH2MHILL**
1103 SCHROCK ROAD, SUITE 400
COLUMBUS, OHIO 43229

DATE: 02/12
REVIEWED: MAM
DRAWN: TEK
DESIGNED: CNK
CHECKED: DGS

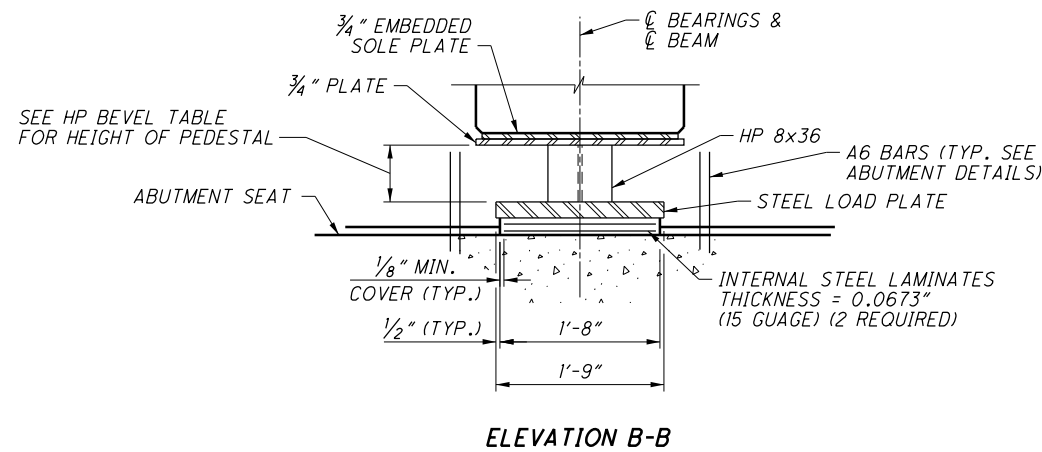
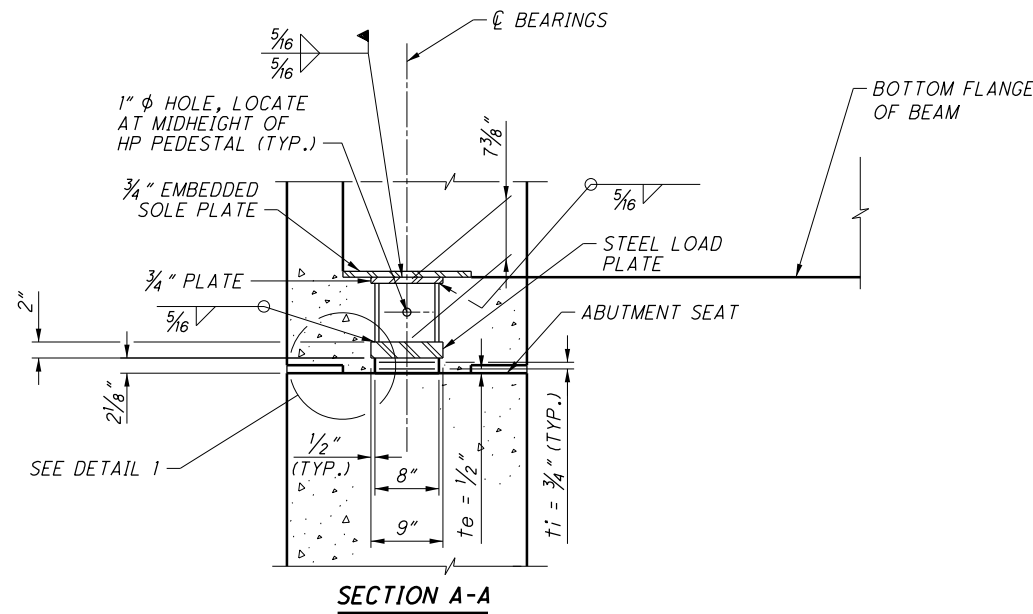
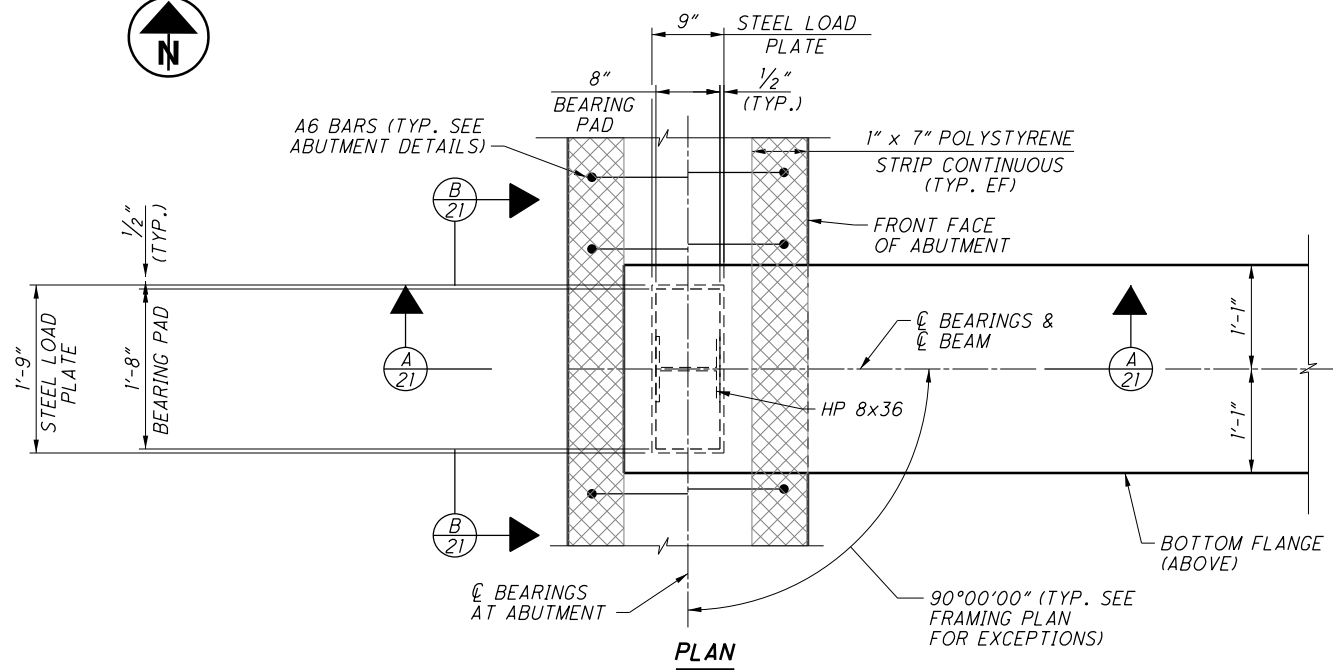
STRUCTURE FILE NUMBER: 2507617

RIGHT ABUTMENT DETAILS II
BRIDGE NO. FRA-071-1784B
NORTHBOUND C-D AND SPRING STREET OVER RAMP V2

FRA-71-17.76
FRA-670-4.19
PID No. 77369

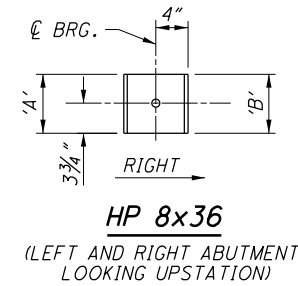
87B20-20

1955
2744

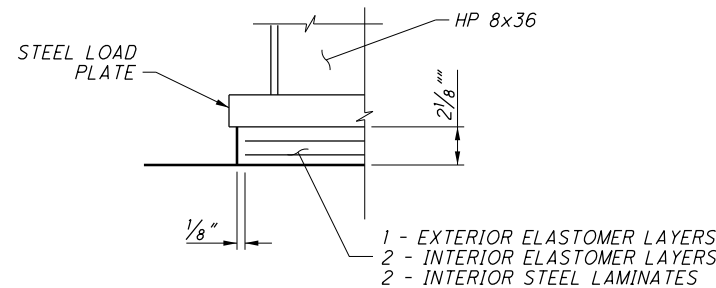


LAMINATED ELASTOMERIC EXPANSION BEARING DETAILS
LEFT ABUTMENT SHOWN, RIGHT ABUTMENT SIMILAR BUT OPPOSITE

HP 8x36 BEVEL TABLE				
BEAM	DIMENSIONS			
	LEFT		RIGHT	
	A	B	A	B
B1-B20	7 ³ / ₁₆ "	7 ¹ / ₄ "	7 ¹ / ₄ "	7 ³ / ₁₆ "
B21-B44	7 ¹ / ₈ "	7 ³ / ₁₆ "	7 ³ / ₁₆ "	7 ¹ / ₈ "



HP 8x36
(LEFT AND RIGHT ABUTMENT, LOOKING UPSTATION)



DETAIL 1

BEARING NOTES:

- ELASTOMERIC BEARINGS: THE ELASTOMER SHALL HAVE A HARDNESS OF 60 DUROMETER. THE BEARINGS WERE DESIGNED UNDER DIVISION I, SECTION 14.7.6 (METHOD A) OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS. THE LONG-TERM COMPRESSION PROOF LOAD TEST (AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, DIVISION II SECTION 18.7.2.6) IS NOT REQUIRED.
- LOAD PLATES: THE STEEL LOAD PLATE SHALL MEET THE GRADE 50 REQUIREMENTS OF STRUCTURAL STEEL ASTM A709.
- THE STEEL LOAD PLATE SHALL BE BONDED BY VULCANIZATION TO THE ELASTOMER DURING THE MOLDING PROCESS.
- WELDING: CONTROL WELDING SO THAT THE PLATE TEMPERATURE AT THE ELASTOMER BONDED SURFACE DOES NOT EXCEED 300°F AS DETERMINED BY THE USE OF PYROMETRIC STICKS OR OTHER TEMPERATURE MONITORING DEVICES.
- BEARING REPOSITIONING: IF THE BEAMS ARE ERECTED AT AN AMBIENT TEMPERATURE HIGHER THAN 80°F OR LOWER THAN 40°F AND THE BEARING SHEAR DEFLECTION EXCEEDS 1/6 OF THE BEARING HEIGHT AT 60°F (±) 10°F, THE BEAMS SHALL BE RAISED TO ALLOW THE BEARINGS TO RETURN TO THEIR UNDEFORMED SHAPE AT 60°F (±) 10°F.
LEFT ABUTMENT (BEAMS B1 THROUGH B44):
BEARING PAD: 8" x 2¹/₈" x 1'-8"
LOAD PLATE: 9" x 2" x 1'-9"
RIGHT ABUTMENT (BEAMS B1 THROUGH B44):
BEARING PAD: 8" x 2¹/₈" x 1'-8"
LOAD PLATE: 9" x 2" x 1'-9"
- THE HP 8x36 BEARING PEDESTALS SHALL MEET THE REQUIREMENTS OF STRUCTURAL STEEL ASTM A709 GRADE 50.
- ALL BEARINGS SHALL BE MARKED PRIOR TO SHIPPING. THE MARKS SHALL INCLUDE BEARING LOCATION AND DIRECTION ARROW POINTING UPSTATION. ALL MARKS SHALL BE PERMANENT AND BE VISIBLE AFTER THE BEARING IS INSTALLED
- BEARINGS SHALL BE DESIGNED FOR THE FOLLOWING LOADS:
LEFT/RIGHT ABUTMENT
MAX. DEAD LOAD = 81.1 KIPS (INCLUDING FWS)
MAX. LIVE LOAD (NO IMPACT) = 0 KIPS
TOTAL DESIGN LOAD = 81.1 KIPS (INCLUDING FWS)

LEGEND:

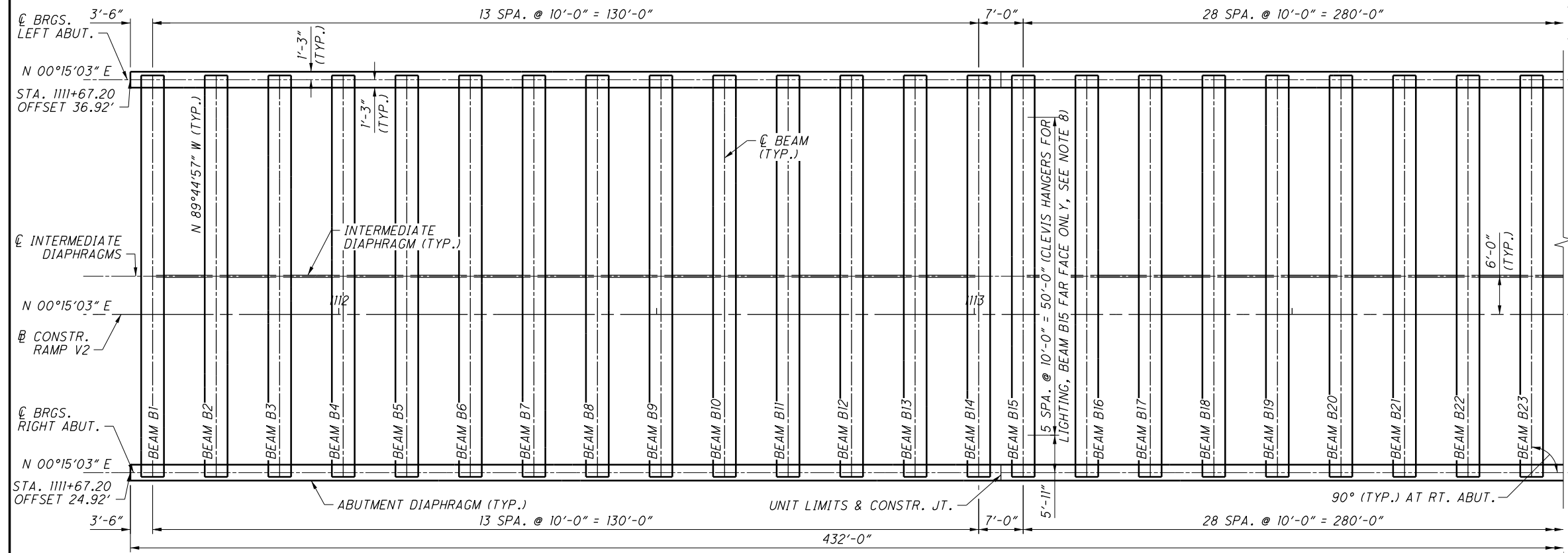
- te = THICKNESS OF EXTERNAL ELASTOMER LAYER
ti = THICKNESS OF INTERNAL ELASTOMER LAYER

NOTES:

- FOR ABUTMENT SEAT ELEVATIONS AT THE CENTERLINE OF BEARINGS, SEE SHEETS 7, 8, 9, 14, 15, AND 16.
- FOR ABUTMENT DIAPHRAGM DETAILS, SEE SHEETS 26 THROUGH 29.

2 NO CHANGES TO SHEET

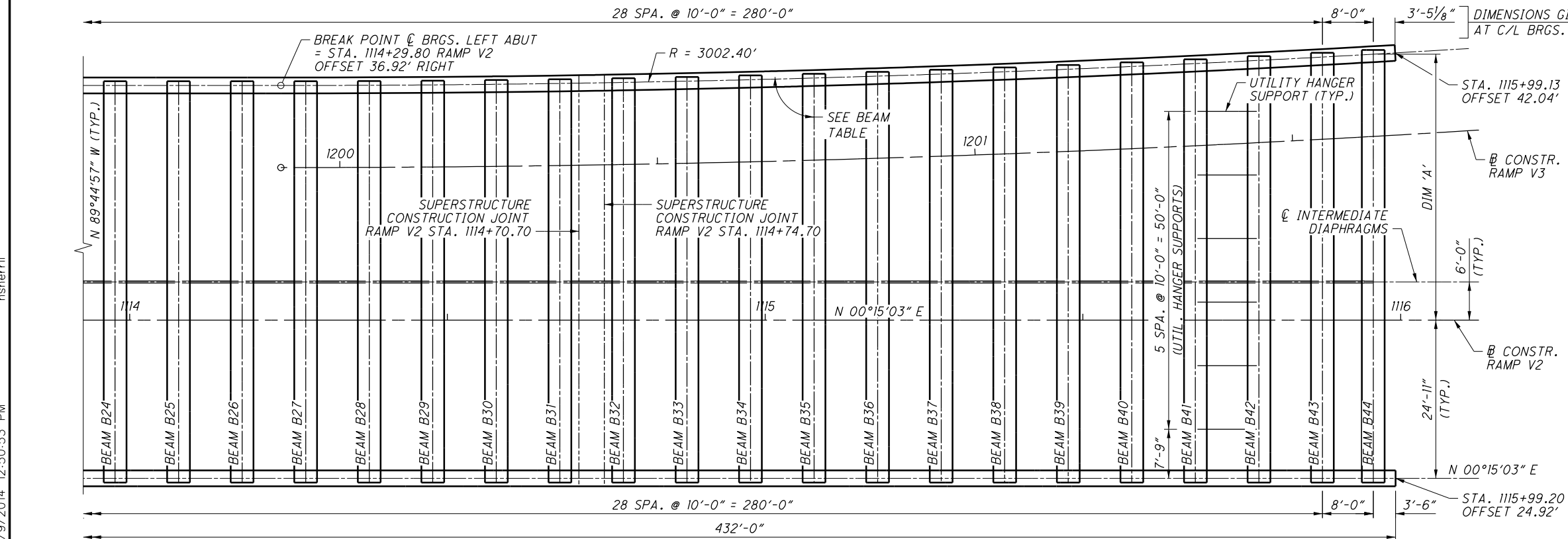
NO.	DATE	DESCRIPTION
2	09/04/14	RECORD DRAWINGS
1	3/26/12	RFC
B	2/15/12	FINAL SUBMITTAL
A	12/20/11	INTERIM SUBMITTAL
ISSUE RECORD		



- FABRICATION & CONSTR. NOTES:**
1. ERECTION PROCEDURE: THE CONTRACTOR SHALL SUBMIT PLANS FOR ERECTION AND HANDLING PROCEDURES ACCORDING TO 501.05.
 2. ERECTION AND LIFTING DEVICES: THE GIRDER FABRICATOR IS RESPONSIBLE FOR THE DESIGN OF A LIFTING SYSTEM FOR HANDLING I-BEAMS. AS A MINIMUM, THE FABRICATOR SHALL USE TWO LIFT POINTS; ONE WITHIN 5 FEET OF EACH END. THE FABRICATOR SHALL SHOW THE LIFTING SYSTEM ON THE SHOP DRAWINGS AND USE A FACTOR OF SAFETY OF FOUR IN THE DESIGN. REFER TO PART 5 OF THE PCI HANDBOOK.
 3. TEMPORARY STABILITY FOR DECK PLACEMENT: THE ERECTION PROCEDURE SHALL INCLUDE ANY ADDITIONAL TEMPORARY DIAPHRAGMS OR SUPPORTS NEEDED TO ASSURE THE I-BEAMS WILL REMAIN STABLE BEFORE, DURING AND THROUGH COMPLETION OF THE PLACEMENT OF THE CONCRETE DECK.

THE PLACEMENT OF DECK CONCRETE SHALL NOT PROCEED UNTIL ALL INTERMEDIATE DIAPHRAGMS HAVE BEEN PROPERLY INSTALLED.
 4. CAST-IN-PLACE DECK CONCRETE: THOROUGHLY CLEAN THE TOP SURFACE OF THE BEAMS OF ALL DIRT, DUST, LAITANCE OR OTHER FOREIGN MATERIALS WITH WATER, AIR UNDER PRESSURE OR ANY OTHER METHOD THAT PRODUCES SATISFACTORY RESULTS. THOROUGHLY WET THE SURFACE WITH CLEAN WATER TO A DAMP CONDITION PRIOR TO PLACING THE DECK CONCRETE.

THE FABRICATOR SHALL INTENTIONALLY ROUGHEN THE SURFACE OF THE I-BEAM TOP FLANGES TO BE INCORPORATED INTO THE DECK CONCRETE TO A DEPTH OF APPROXIMATELY 1/4" BEFORE THE CONCRETE HAS REACHED ITS INITIAL SET.



5. GALVANIZING: GALVANIZE ALL STRUCTURAL STEEL, DOWEL BARS, PIPE SLEEVES, BOLTS, STUDS, INSERTS, THREADED RODS, NUTS AND WASHERS, EMBEDDED SOLE PLATES AND BEARING LOAD PLATES (IF ANY) ACCORDING TO 711.02.
6. DIAPHRAGMS: THE FABRICATOR SHALL SHOW LOCATIONS OF INSERTS OR HOLES IN THE I-BEAMS FOR ALL DIAPHRAGM CONNECTIONS AND DETAILS FOR GALVANIZED STEEL DIAPHRAGMS IN THE SHOP DRAWINGS. ALL STRUCTURAL STEEL, INCLUDING BOLTS, NUTS, WASHERS AND PLATE WASHERS FOR INTERMEDIATE DIAPHRAGMS SHALL CONFORM TO THE REQUIREMENTS OF 513.
7. THE FABRICATOR MAY ADD SHIPPING STRANDS AT THE LOCATIONS SHOWN ON SHEET 25. THESE SHIPPING STRANDS SHALL BE DEBONDED FOR THE ENTIRE LENGTH OF THE BEAM EXCEPT FOR THE LAST 10'-0" AT EACH END. THE STRANDS SHALL BE CUT AFTER ALL HANDLING OPERATIONS ARE COMPLETE.
8. THREADED INSERTS FOR BEAM B15 SHALL BE 1/2" THREADED INSERTS MOUNTED TO THE WEB 1'-5" BELOW THE TOP OF THE GIRDER. PLACE AT SOUTH FACE OF WEB ONLY.

TABLE OF LEFT ABUTMENT BEAM GEOMETRY

BEAM	ANGLE	'A'	BEAM	ANGLE	'A'	BEAM	ANGLE	'A'	BEAM	ANGLE	'A'	BEAM	ANGLE	'A'
B1-B26	90°00'00"	36'-11"	B30	89°21'11"	37'-1 5/16"	B34	88°35'22"	37'-9 5/16"	B38	87°49'33"	39'-0 15/16"	B42	87°03'42"	40'-10 3/8"
B27	89°55'32"	36'-11"	B31	89°09'44"	37'-2 7/8"	B35	88°23'55"	38'-1 1/16"	B39	87°38'05"	39'-5 1/16"	B43	86°52'14"	41'-4 3/4"
B28	89°44'05"	36'-11 3/8"	B32	88°58'17"	37'-4 3/16"	B36	88°12'28"	38'-4 5/8"	B40	87°26'37"	39'-10 7/8"	B44	86°43'03"	41'-10 1/8"
B29	89°32'38"	37'-0 1/8"	B33	88°46'50"	37'-7 3/16"	B37	88°01'00"	38'-8 1/16"	B41	87°15'10"	40'-4 3/8"			

ALL DIMENSIONS GIVEN WITH RESPECT TO CONSTRUCTION RAMP V2 U.N.O.

NO CHANGES TO SHEET

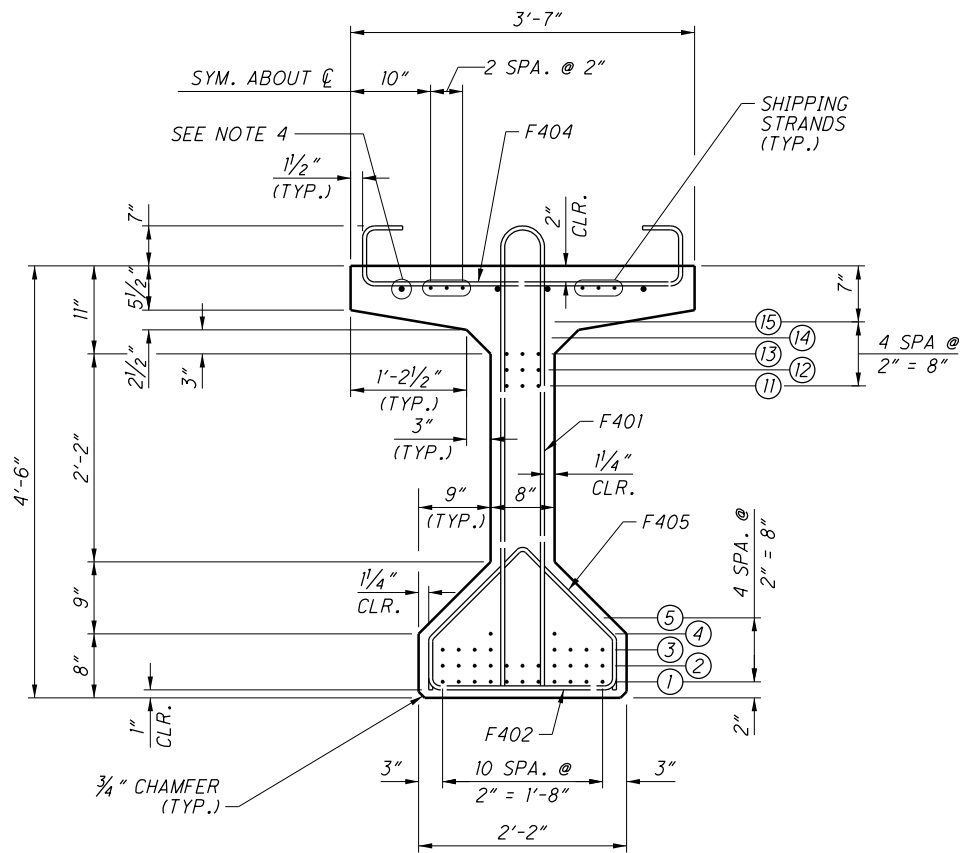
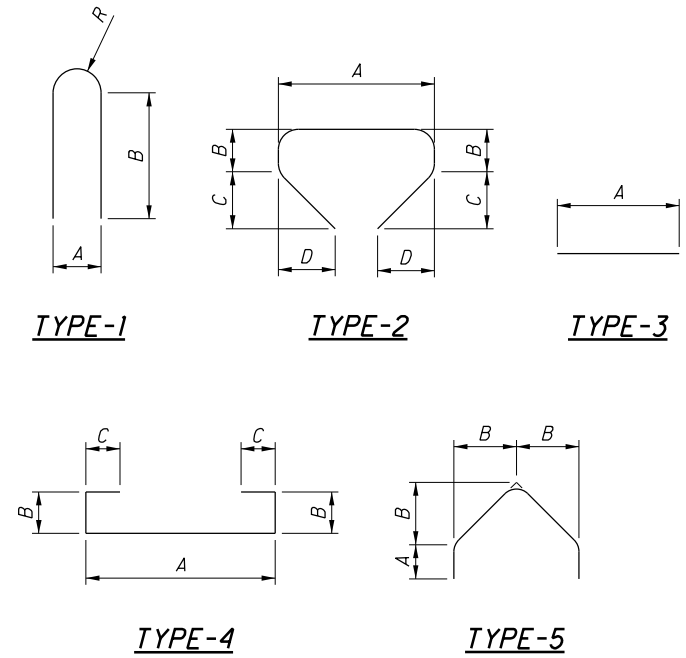
NO.	DATE	DESCRIPTION
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2	5/24/12	RFI 95
1	3/26/12	RFC
B	2/15/12	FINAL SUBMITTAL
A	12/20/11	INTERIM SUBMITTAL
		ISSUE RECORD

FRAMING PLAN

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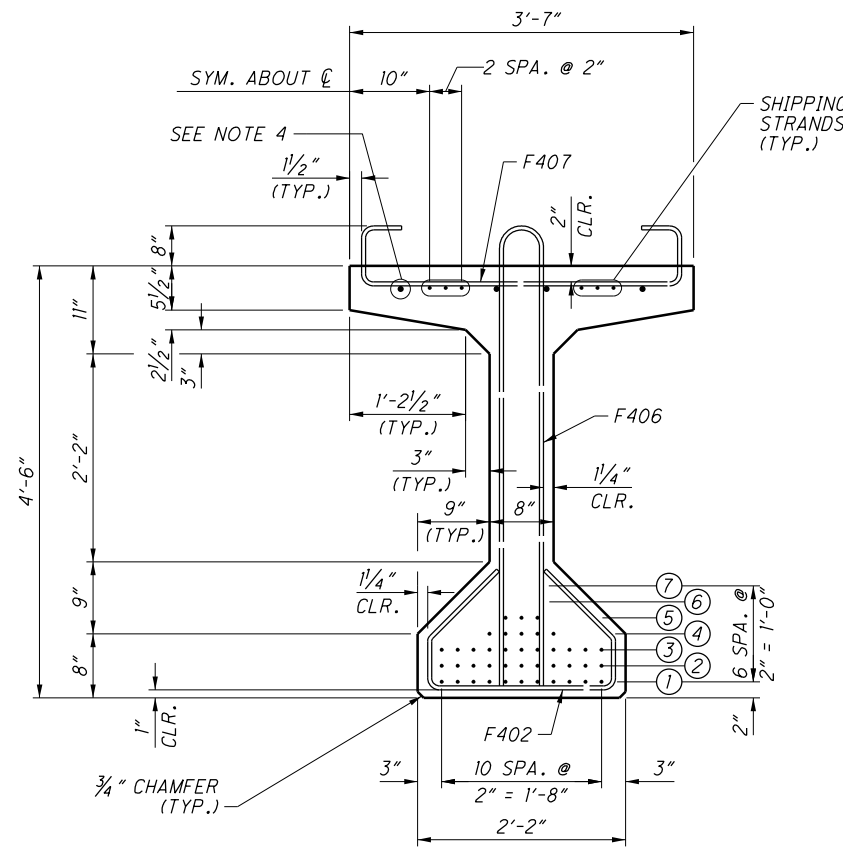
BEAM PRESTRESSING STRANDS, MATERIALS, AND REINFORCEMENT

BEAM MARK	NUMBER OF STRANDS PER ROW														TOTAL STRANDS	CONCRETE STRENGTHS		F401 BARS REQ'D	F402 BARS REQ'D	F404 BARS REQ'D	F405 BARS REQ'D	F406 BARS REQ'D	F407 BARS REQ'D			
	END SECTION							MID SECTION								f'ci	f'c									
	①	②	③	④	⑤	⑥	⑦	①	②	③	④	⑤	⑥	⑦												
B1-B27	11	11	8	2	-	3	3	3	-	-	11	11	11	5	3	-	-	41	6500 psi	8000 psi	116	121	104	26	17	17
B28	11	11	8	2	-	3	3	3	-	-	11	11	11	5	3	-	-	41	6500 psi	8000 psi	116	121	104	26	17	17
B29	11	11	8	2	-	3	3	3	-	-	11	11	11	5	3	-	-	41	6500 psi	8000 psi	116	121	104	26	17	17
B30	11	11	8	2	-	3	3	3	-	-	11	11	11	5	3	-	-	41	6500 psi	8000 psi	116	121	104	26	17	17
B31	11	11	8	2	-	3	3	3	-	-	11	11	11	5	3	-	-	41	6500 psi	8000 psi	116	121	104	26	17	17
B32	11	11	8	2	-	3	3	3	-	-	11	11	11	5	3	-	-	41	6500 psi	8000 psi	116	122	104	26	18	18
B33	11	11	8	2	-	3	3	3	-	-	11	11	11	5	3	-	-	41	6500 psi	8000 psi	116	122	104	26	18	18
B34	11	11	8	2	-	3	3	3	-	-	11	11	11	5	3	-	-	41	6500 psi	8000 psi	116	122	104	26	18	18
B35	11	11	8	6	-	-	3	3	3	-	11	11	11	9	3	-	-	45	6500 psi	8000 psi	116	122	104	26	18	18
B36	11	11	8	6	-	-	3	3	3	-	11	11	11	9	3	-	-	45	6500 psi	8000 psi	116	123	104	26	19	19
B37	11	11	8	6	-	-	3	3	3	-	11	11	11	9	3	-	-	45	6500 psi	8000 psi	116	123	104	26	19	19
B38	11	11	8	6	-	-	3	3	3	-	11	11	11	9	3	-	-	45	6500 psi	8000 psi	116	123	104	26	19	19
B39	11	11	8	6	-	-	3	3	3	-	11	11	11	9	3	-	-	45	6500 psi	8000 psi	116	124	104	26	20	20
B40	11	11	6	6	2	-	3	3	3	3	11	11	9	9	5	3	-	48	6500 psi	8000 psi	118	124	104	26	20	20
B41	11	11	6	6	2	-	3	3	3	3	11	11	9	9	5	3	-	48	6500 psi	8000 psi	118	125	104	26	21	21
B42	11	11	6	6	2	-	3	3	3	3	11	11	9	9	5	3	-	48	6500 psi	8000 psi	118	125	104	26	21	21
B43	11	11	6	6	2	-	3	3	3	3	11	11	9	9	5	3	-	48	6500 psi	8000 psi	118	126	104	26	22	22
B44	11	11	6	6	2	-	3	3	3	3	11	11	9	9	5	3	-	48	6500 psi	8000 psi	118	126	104	26	22	22



BEAMS B1 - B34

(END SECTION)
(SEE TABLE FOR B35 THRU B44 STRAND PATTERN)



BEAMS B1 - B34

(MID SECTION)
(SEE ABOVE TABLE FOR B35 THRU B44 STRAND PATTERN)

BAR BENDING DIMENSIONS						
MARK	TYPE	DIMENSIONS				
		A	B	C	D	R
F401	1	5 1/2"	4'-9 1/4"			2 3/4"
F402	2	1'-11 1/2"	6 1/2"	8 3/4"	8 3/4"	
F404	4	3'-4"	9 1/2"	5"		
F405	5	7 1/4"	11 3/4"			
F406	1	5 1/2"	4'-10 1/4"			2 3/4"
F407	4	3'-4"	10 1/2"	5"		

NOTES:

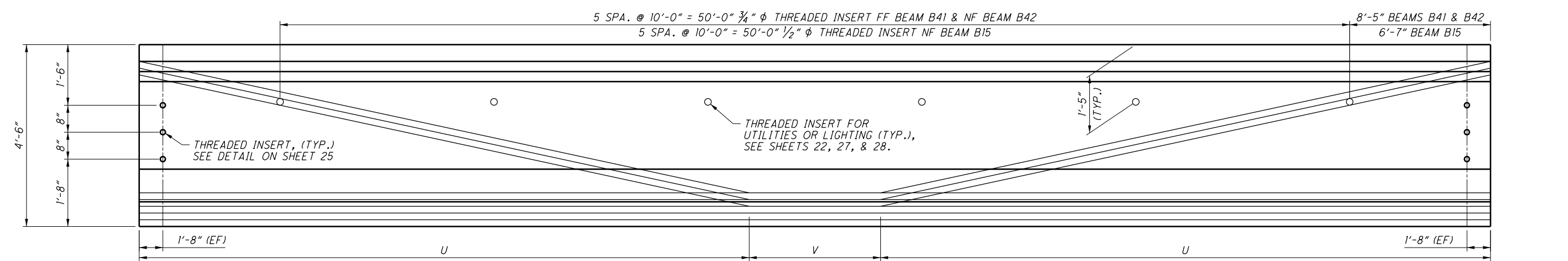
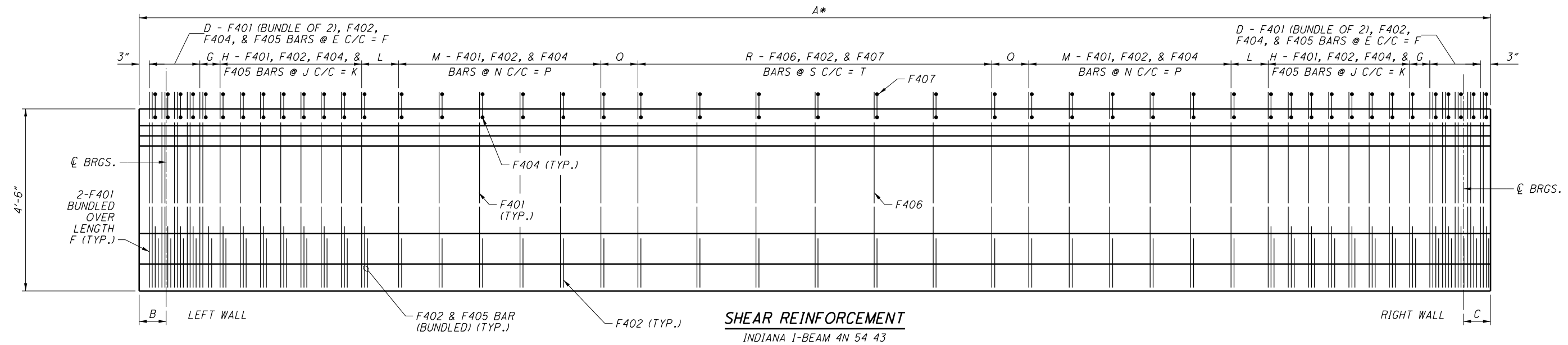
- ALL PRESTRESSED CONCRETE MEMBERS SHALL BE INDIANA I-BEAMS 4N 54 43.
- ALL PRESTRESSING STRANDS SHALL BE GRADE 270 KIPS SEVEN WIRE, UNCOATED, LOW RELAXATION STRAND, WITH A NOMINAL AREA OF 0.167 SQUARE INCHES.
- NO DEBONDING OF STRANDS IS REQUIRED.
- FOUR CONTINUOUS #6 BARS SHALL BE PROVIDED IN THE TOP FLANGE AS SHOWN FOR THE FULL LENGTH OF THE BEAMS. LAP LENGTHS FOR THE #6 LONGITUDINAL BARS SHALL BE 3'-0" MINIMUM. LONGITUDINAL BAR LENGTHS AND LAP LOCATIONS SHALL BE DETERMINED BY THE FABRICATOR.
- ALL MILD REINFORCING STEEL SHALL BE EPOXY COATED, GRADE 60.

NO CHANGES TO SHEET

NO.	DATE	DESCRIPTION
2	09/04/14	RECORD DRAWINGS
1	3/26/12	RFC
B	2/15/12	FINAL SUBMITTAL
A	12/20/11	INTERIM SUBMITTAL
ISSUE RECORD		

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DESIGN AGENCY: **CH2M HILL**
 1103 SCHROCK ROAD, SUITE 400
 COLUMBUS, OHIO 43229
 DATE: 02/12
 REVIEWED: MAM
 DRAWN: TEK
 DESIGNED: CNK
 CHECKED: DGS
 STRUCTURE FILE NUMBER: 2507617
 BRIDGE NO. FRA-071-1784B
 NORTHBOUND C-D AND SPRING ST. OVER RAMP V2
 PRESTRESSED I-BEAM SECTIONS AND DETAILS
 FRA-71-17.76
 FRA-670-4.19
 PID No. 77369
 87B20-23
 1958
 2744



TOPPING THICKNESS TABLE

BEAM MARK	W	X
B1-B22	12"	10 ⁷ / ₈ "
B23	11 ³ / ₄ "	11 ³ / ₈ "
B24	11 ³ / ₈ "	12"
B25	11 ¹ / ₈ "	12 ⁵ / ₈ "
B26	10 ³ / ₄ "	13 ¹ / ₄ "
B27-B44	10 ³ / ₄ "	13 ³ / ₈ "

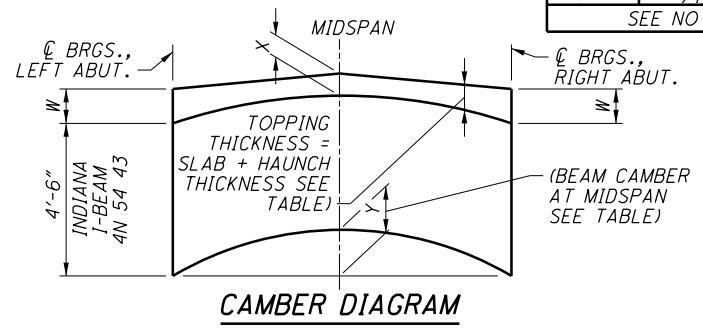
BEAM CAMBER 'Y' TABLE

BEAM MARK	AT RELEASE	AT ERECT.	LONG TERM
B1-B27	1"	1 ³ / ₄ "	2 ³ / ₈ "
B28	1"	1 ³ / ₄ "	2 ¹ / ₂ "
B29	1"	1 ³ / ₄ "	2 ¹ / ₂ "
B30	1"	1 ³ / ₄ "	2 ¹ / ₂ "
B31	1"	1 ³ / ₄ "	2 ¹ / ₂ "
B32	1"	1 ³ / ₄ "	2 ¹ / ₂ "
B33	1"	1 ³ / ₄ "	2 ¹ / ₂ "
B34	1"	1 ³ / ₄ "	2 ¹ / ₂ "
B35	1"	1 ³ / ₄ "	2 ⁵ / ₈ "
B36	1"	1 ³ / ₄ "	2 ⁵ / ₈ "
B37	1 ¹ / ₈ "	1 ⁷ / ₈ "	2 ⁵ / ₈ "
B38	1 ¹ / ₈ "	2"	2 ³ / ₄ "
B39	1 ¹ / ₈ "	2"	2 ³ / ₄ "
B40	1 ¹ / ₈ "	2"	2 ³ / ₄ "
B41	1 ¹ / ₈ "	2 ¹ / ₈ "	2 ¹ / ₈ "
B42	1 ¹ / ₄ "	2 ¹ / ₈ "	2 ¹ / ₈ "
B43	1 ¹ / ₄ "	2 ¹ / ₈ "	3"
B44	1 ¹ / ₄ "	2 ¹ / ₄ "	3"

SEE NOTE: 1. 2.

DRAPED TENDON LAYOUT
INDIANA I-BEAM 4N 54 43 (B1-B33 SHOWN)
(LOOKING NORTH)

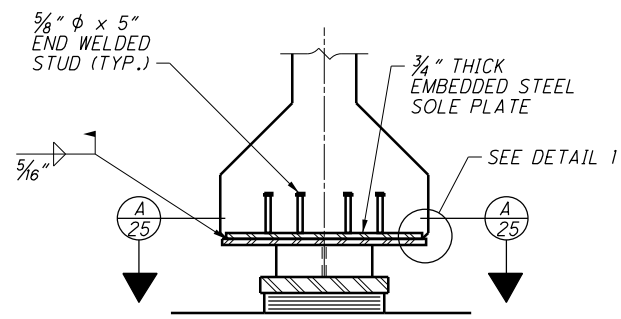
BEAM MARK	A*	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	T	U	V	WEIGHT (LBS)
B1-B27	63'-2"	8"	8"	6	3"	1'-3"	3"	7	3"	1'-6"	6"	39	6"	19'-0"	10"	17	1'-0"	16'-0"	26'-7"	10'-0"	59882
B28	63'-2 ³ / ₈ "	8"	8"	6	3"	1'-3"	3"	7	3"	1'-6"	6"	39	6"	19'-0"	10 ³ / ₁₆ "	17	1'-0"	16'-0"	26'-7 ³ / ₁₆ "	10'-0"	59912
B29	63'-3 ¹ / ₈ "	8"	8"	6	3"	1'-3"	3"	7	3"	1'-6"	6"	39	6"	19'-0"	10 ⁹ / ₁₆ "	17	1'-0"	16'-0"	26'-7 ⁹ / ₁₆ "	10'-0"	59971
B30	63'-4 ¹ / ₄ "	8"	8"	6	3"	1'-3"	3"	7	3"	1'-6"	6"	39	6"	19'-0"	11 ¹ / ₈ "	17	1'-0"	16'-0"	26'-8 ¹ / ₈ "	10'-0"	60060
B31	63'-5 ¹ / ₈ "	8"	8"	6	3"	1'-3"	3"	7	3"	1'-6"	6"	39	6"	19'-0"	11 ⁵ / ₁₆ "	17	1'-0"	16'-0"	26'-8 ⁵ / ₁₆ "	10'-0"	60188
B32	63'-7 ³ / ₄ "	8"	8"	6	3"	1'-3"	3"	7	3"	1'-6"	6"	39	6"	19'-0"	6 ¹ / ₈ "	18	1'-0"	17'-0"	26'-9 ¹ / ₈ "	10'-0"	60336
B33	63'-10 ¹ / ₈ "	8"	8"	6	3"	1'-3"	3"	7	3"	1'-6"	6"	39	6"	19'-0"	8 ¹ / ₁₆ "	18	1'-0"	17'-0"	26'-11 ¹ / ₁₆ "	10'-0"	60524
B34	64'-0 ¹ / ₈ "	8"	8"	6	3"	1'-3"	3"	7	3"	1'-6"	6"	39	6"	19'-0"	9 ¹ / ₁₆ "	18	1'-0"	17'-0"	27'-0 ¹ / ₁₆ "	10'-0"	60741
B35	64'-4 ¹ / ₈ "	8"	8"	6	3"	1'-3"	3"	7	3"	1'-6"	6"	39	6"	19'-0"	11 ¹ / ₁₆ "	18	1'-0"	17'-0"	27'-2 ¹ / ₁₆ "	10'-0"	60998
B36	64'-7 ⁵ / ₈ "	8"	8"	6	3"	1'-3"	3"	7	3"	1'-6"	6"	39	6"	19'-0"	6 ³ / ₁₆ "	19	1'-0"	18'-0"	27'-3 ³ / ₁₆ "	10'-0"	61274
B37	64'-11 ⁵ / ₁₆ "	8"	8"	6	3"	1'-3"	3"	7	3"	1'-6"	6"	39	6"	19'-0"	8 ¹³ / ₁₆ "	19	1'-0"	18'-0"	27'-5 ¹³ / ₁₆ "	10'-0"	61590
B38	65'-3 ¹ / ₈ "	8"	8"	6	3"	1'-3"	3"	7	3"	1'-6"	6"	39	6"	19'-0"	10 ¹⁵ / ₁₆ "	19	1'-0"	18'-0"	27'-7 ¹⁵ / ₁₆ "	10'-0"	61926
B39	65'-8 ³ / ₄ "	8"	8"	6	3"	1'-3"	3"	7	3"	1'-6"	6"	39	6"	19'-0"	7 ³ / ₈ "	20	1'-0"	19'-0"	27'-10 ³ / ₈ "	10'-0"	62311
B40	66'-1 ¹ / ₈ "	8"	8"	7	3"	1'-6"	3"	6	3"	1'-3"	6"	39	6"	19'-0"	9 ¹⁵ / ₁₆ "	20	1'-0"	19'-0"	28'-0 ¹⁵ / ₁₆ "	10'-0"	62716
B41	66'-7 ³ / ₈ "	8"	8"	7	3"	1'-6"	3"	6	3"	1'-3"	6"	39	6"	19'-0"	6 ¹ / ₁₆ "	21	1'-0"	20'-0"	28'-3 ¹ / ₁₆ "	10'-0"	63151
B42	67'-1 ¹ / ₁₆ "	8"	8"	7	3"	1'-6"	3"	6	3"	1'-3"	6"	39	6"	19'-0"	9 ¹¹ / ₁₆ "	21	1'-0"	20'-0"	28'-6 ¹¹ / ₁₆ "	10'-0"	63625
B43	67'-7 ³ / ₄ "	8"	8"	7	3"	1'-6"	3"	6	3"	1'-3"	6"	39	6"	19'-0"	6 ⁷ / ₈ "	22	1'-0"	21'-0"	28'-9 ⁷ / ₈ "	10'-0"	64128
B44	68'-1 ¹ / ₂ "	8"	8"	7	3"	1'-6"	3"	6	3"	1'-3"	6"	39	6"	19'-0"	9 ³ / ₄ "	22	1'-0"	21'-0"	29'-0 ³ / ₄ "	10'-0"	64583



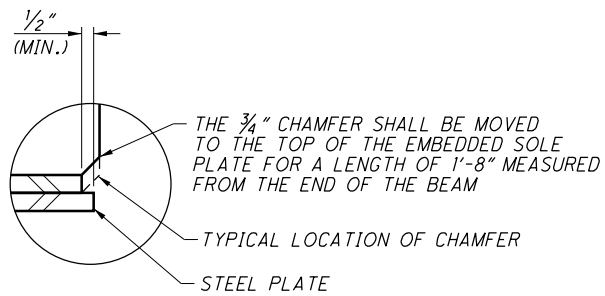
- NOTES:**
- CAMBER AT ERECTION = (1.80) (PRESTRESS CAMBER AT RELEASE) + (1.85) (BEAM SELF-WEIGHT DEFLECTION)
 - LONG TERM CAMBER = (2.45) (PRESTRESS CAMBER AT RELEASE) + (2.40) (BEAM SELF-WEIGHT DEFLECTION)
 - NOTE TO FABRICATOR: THE DIMENSIONS MEASURED ALONG THE LENGTH OF THE BEAM, MARKED WITH AN *, DO NOT CONTAIN AN ALLOWANCE FOR THE TRANSVERSE GRADE. INCLUDE PROPER ALLOWANCE FOR THESE DIMENSIONS IN THE SHOP DRAWINGS.
 - INITIAL FORCE PER STRAND = 33,818 LBS
TOTAL HOLD DOWN CAPACITY REQUIRED = 44,300 LBS
 - SEE SHEETS 22, 27 AND 28 FOR UTILITY AND LIGHTING HANGER THREADED INSERT DETAILS AND LOCATIONS.

NO CHANGES TO SHEET

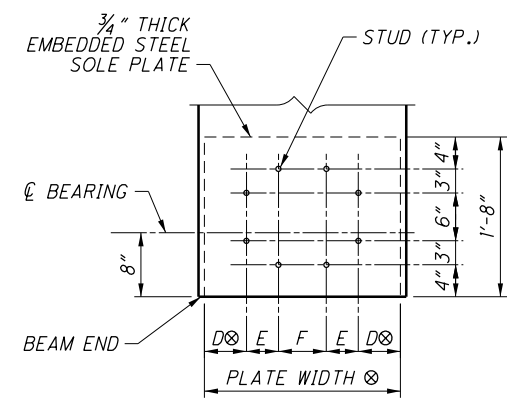
NO.	DATE	DESCRIPTION
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1	3/26/12	RFC
B	2/15/12	FINAL SUBMITTAL
A	12/20/11	INTERIM SUBMITTAL
ISSUE RECORD		



END VIEW



DETAIL 1



SECTION A

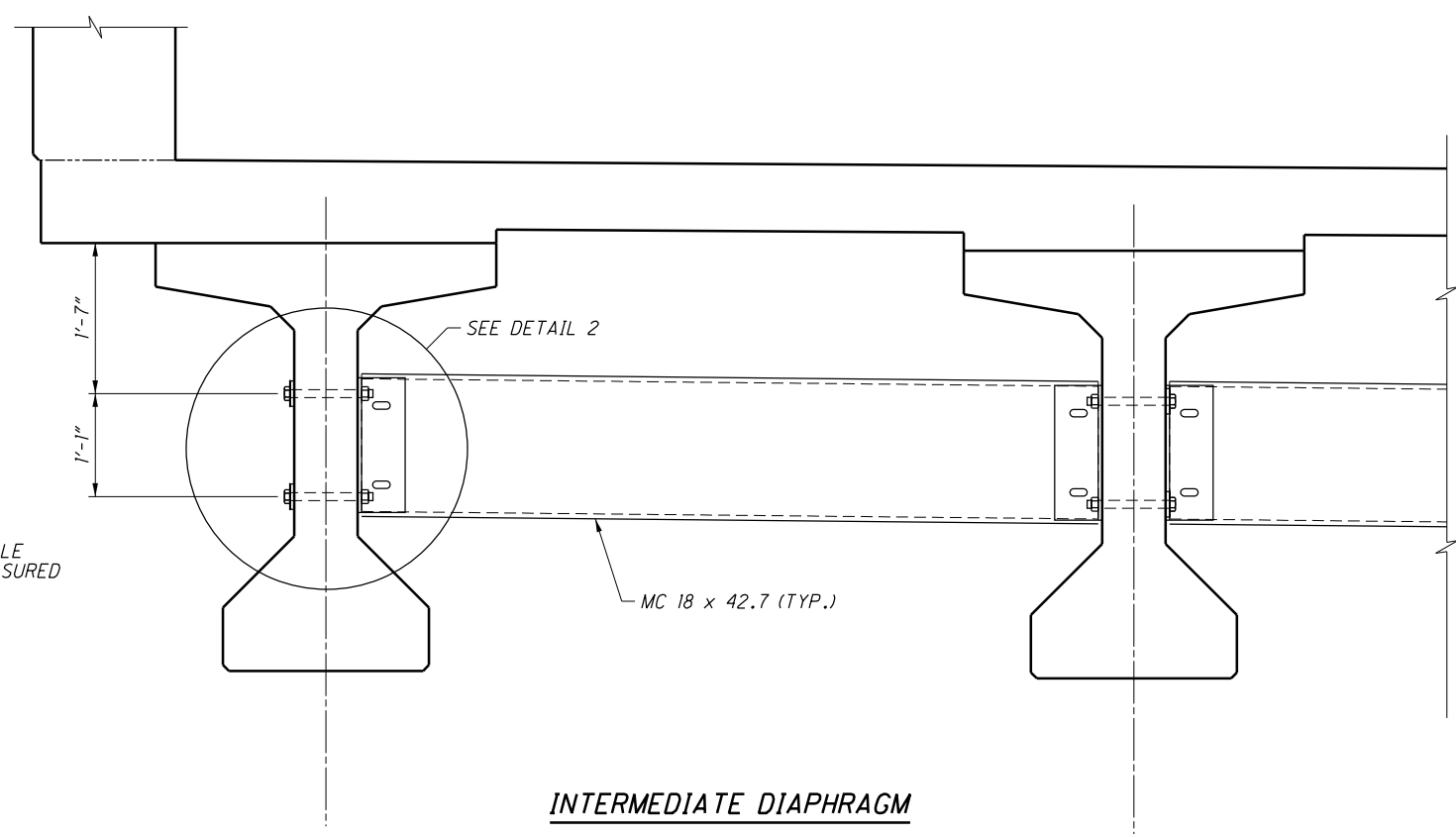
(BEARING AND LOAD PLATE NOT SHOWN)

BOTTOM FLANGE WIDTH	PLATE WIDTH	D	E	F
2'-2"	2'-0 1/2"	5 1/4"	4"	6"

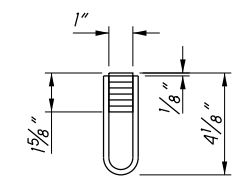
NOTE - END WELDED STUDS MAY BE MOVED SLIGHTLY IN ORDER TO AVOID REINFORCING STEEL AND PRESTRESSING STRANDS.

⊗ - IN ORDER TO ALLOW FOR FIT-UP, THE PLATE WIDTH MAY BE DECREASED BY 3/8". DIMENSION "A" SHALL BE CORRECTED ACCORDINGLY.

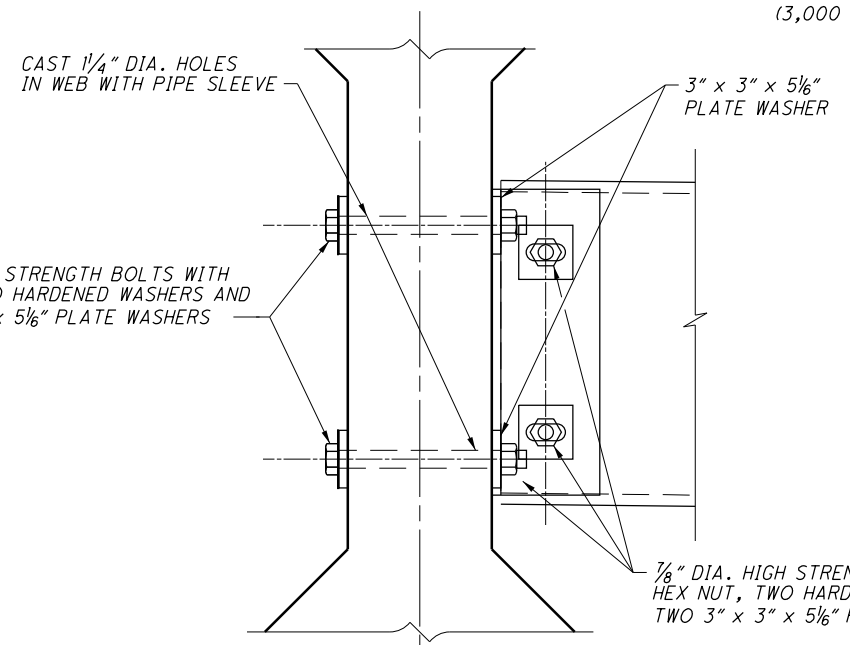
THE FABRICATOR SHALL INSTALL THE EMBEDDED SOLE PLATE TO ALLOW FOR FIELD INSTALLATION OF THE BEARING. DURING FIELD WELDING, CONTROL THE TEMPERATURE AT THE ELASTOMER BONDED SURFACE TO A MAXIMUM OF 300° F AS DETERMINED BY THE USE OF PYROMETRIC STICKS OR OTHER TEMPERATURE MONITORING DEVICES.



INTERMEDIATE DIAPHRAGM



SINGLE THREADED INSERT
(3,000 LB PROOF LOAD)

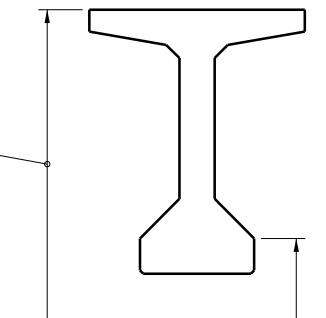


DETAIL 2

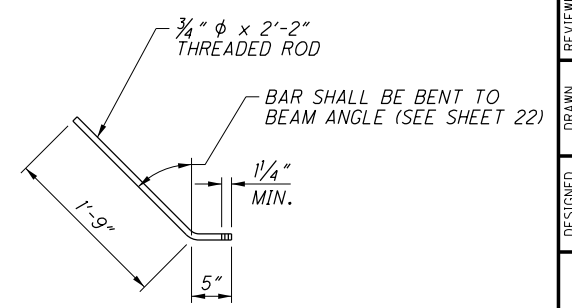
NOTES:

- ALL STRUCTURAL STEEL SHALL BE ASTM A709, GRADE 36 OR 50, GALVANIZED ACCORDING TO 711.02.
- ALL BOLTS ARE 7/8" DIA. ASTM A325, TYPE 1. ALL BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED ACCORDING TO 711.02.

SEALING LIMITS SEALER
FINISH COAT COLOR
BLACK, FS-595C-17038

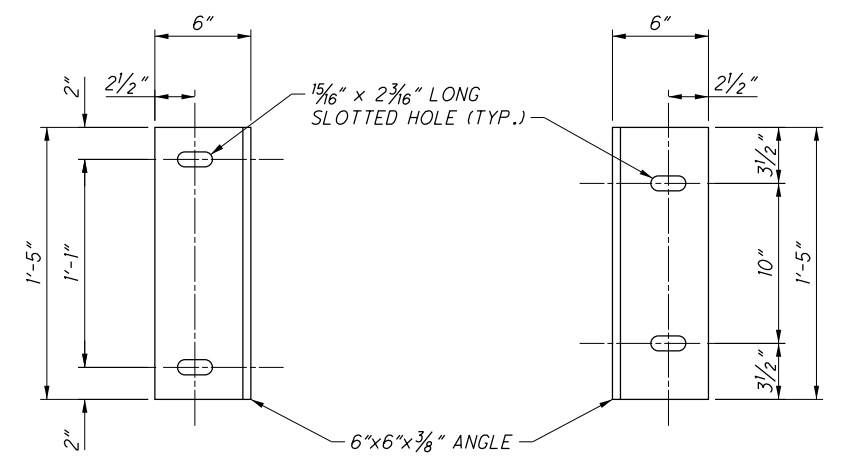


SEALING OF FASCIA BEAMS



THREADED INSERT

SHALL CONFORM TO 709.01, 709.03 OF 709.05 WITH THREADS FORMED PRIOR TO GALVANIZING.



BEAM FACE

DIAPHRAGM FACE

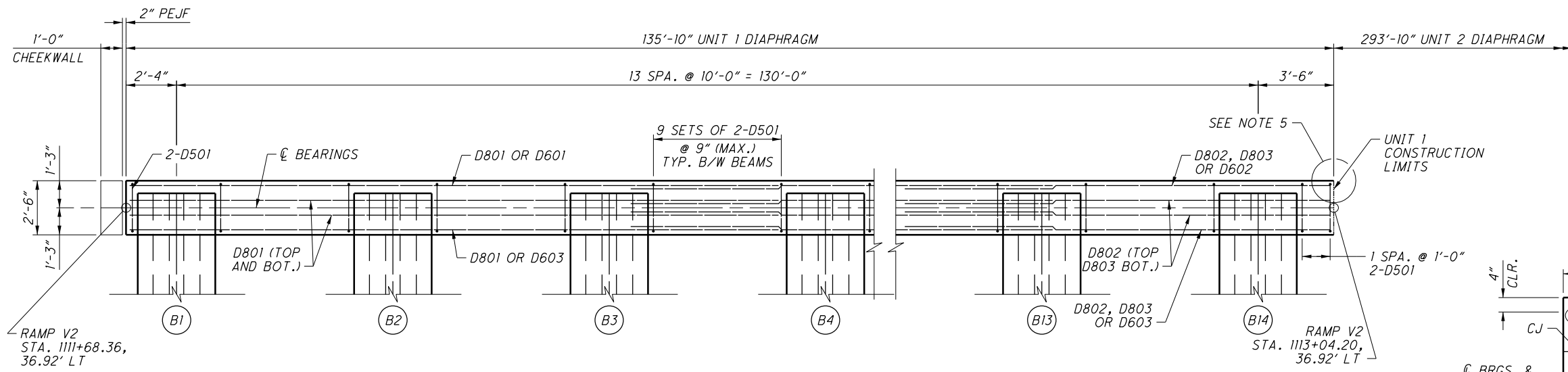
DIAPHRAGM SUPPORT

DIMENSIONS

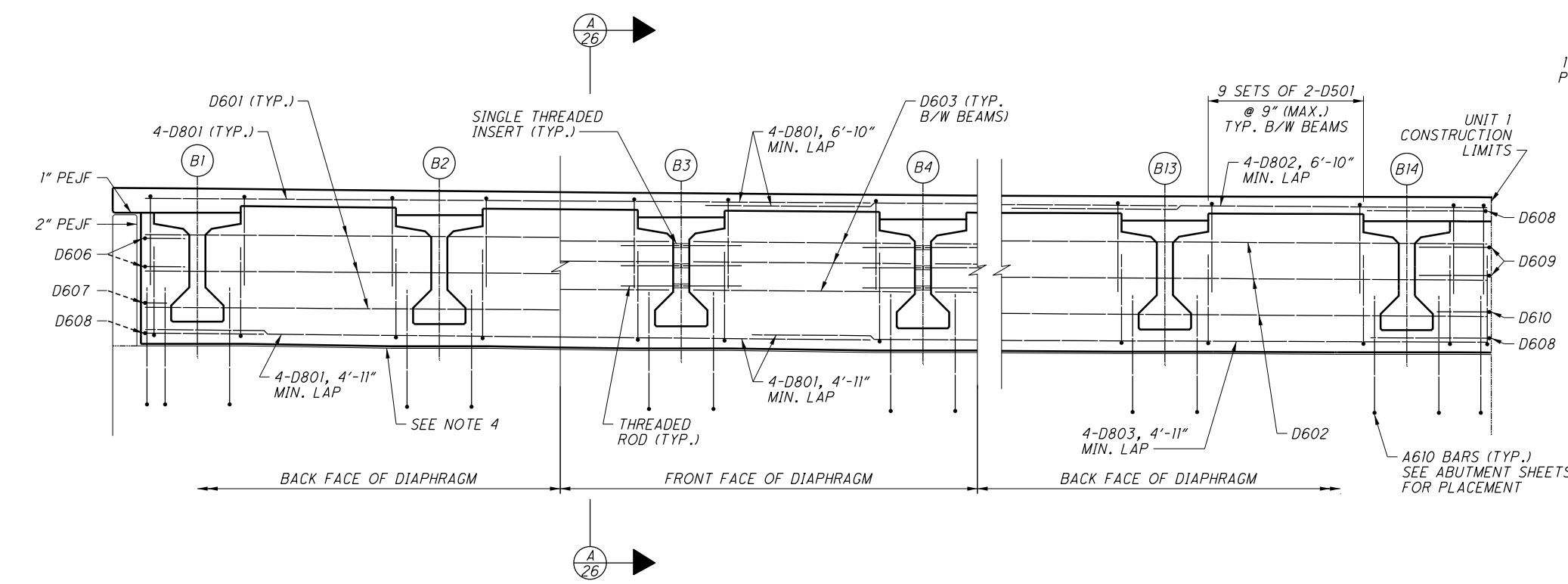
A	B	C	D	E
1'-2 1/4"	8 1/2"	2'-6 1/2"	2'-6 1/2"	2'-6 1/2"

NO CHANGES TO SHEET

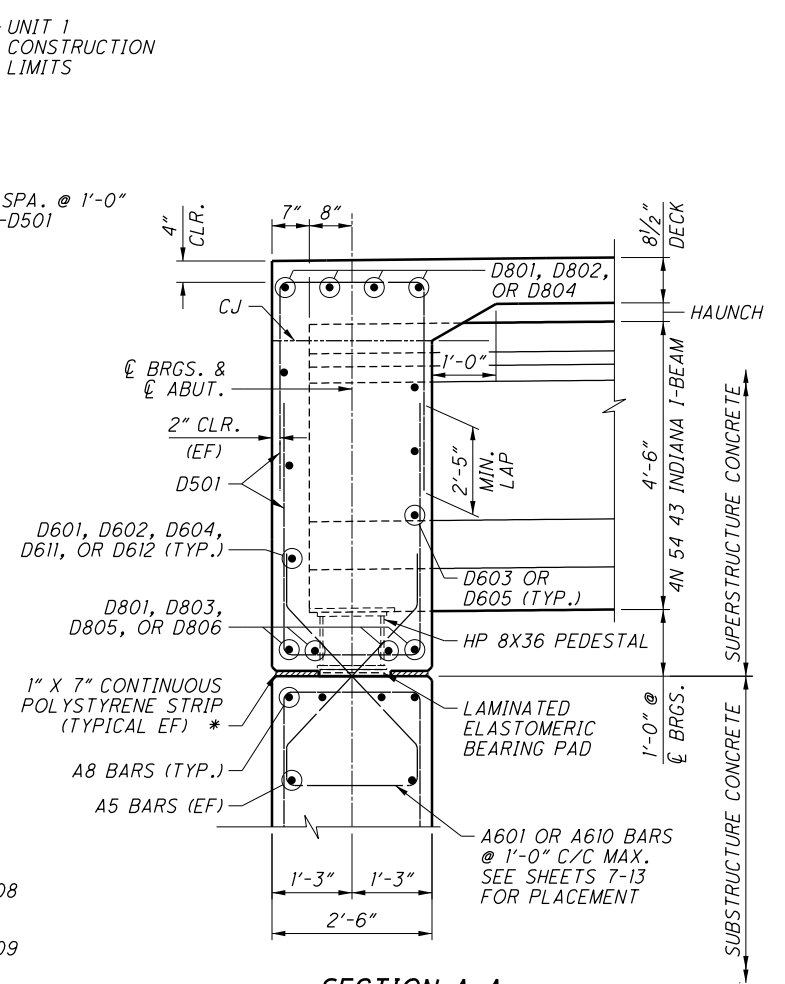
NO.	DATE	DESCRIPTION
2	09/04/14	RECORD DRAWINGS
1	3/26/12	RFC
B	2/15/12	FINAL SUBMITTAL
A	12/20/11	INTERIM SUBMITTAL
ISSUE RECORD		



UNIT 1 DIAPHRAGM PLAN



UNIT 1 DIAPHRAGM ELEVATION



SECTION A-A

(UNIT 1 SHOWN, UNIT 2 SIMILAR.
FOR UNIT 2 EXPANSION JOINT SEAL, SEE RIGHT ABUTMENT SECTION)
(DECK REINFORCEMENT NOT SHOWN FOR CLARITY.)

* FOR UNIT 1 LEFT WALL BACK FACE,
CAULK JOINT OVER POLYSTYRENE STRIP.
COLOR TO MATCH STAINING.

NOTES:

- FOR LEFT ABUTMENT PLAN AND DETAILS, INCLUDING BEARING SEAT ELEVATIONS, SEE SHEETS 7-13.
- FOR BEARING DETAILS, SEE SHEET 21.
- UNLESS NOTED OTHERWISE, MINIMUM REINFORCING SPLICE LENGTHS:
NO. 5 BARS = 29"
NO. 6 BARS = 52"
NO. 8 BARS = 82"
- 1" THICK EXPANDED POLYSTYRENE FILLER SHALL BE USED IN FORMING TO PROVIDE THE CLEARANCE REQUIRED BETWEEN THE ABUTMENT AND THE SUPERSTRUCTURE. COAT EXPOSED FACES OF FILLER TO MATCH ABUTMENT EPOXY-URETHANE SEALER COLOR.
- FOR DETAIL OF SEALING VERTICAL JOINT, SEE SHEET 10.

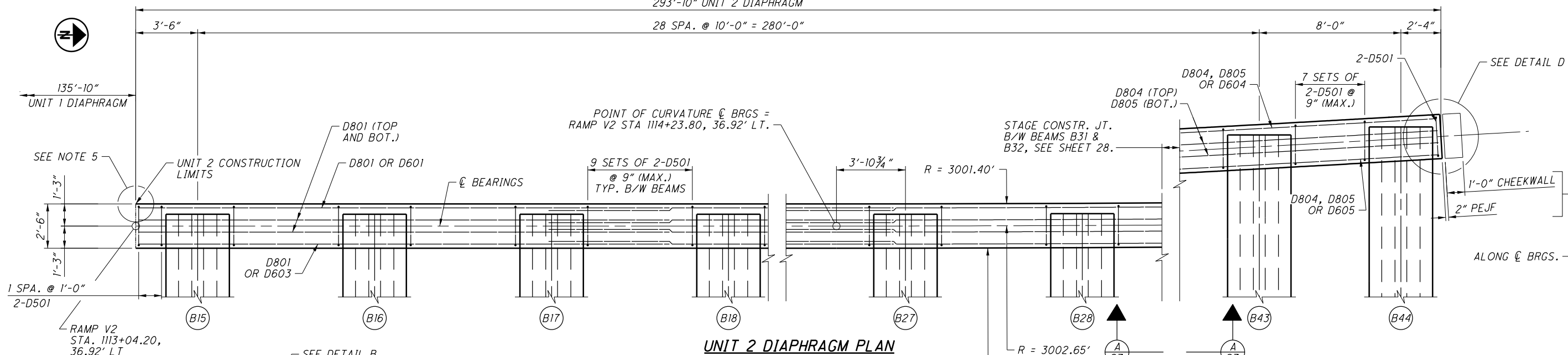
NO CHANGES TO SHEET

NO.	DATE	DESCRIPTION
2	09/04/14	RECORD DRAWINGS
1	3/26/12	RFC
A	2/15/12	FINAL SUBMITTAL
ISSUE RECORD		

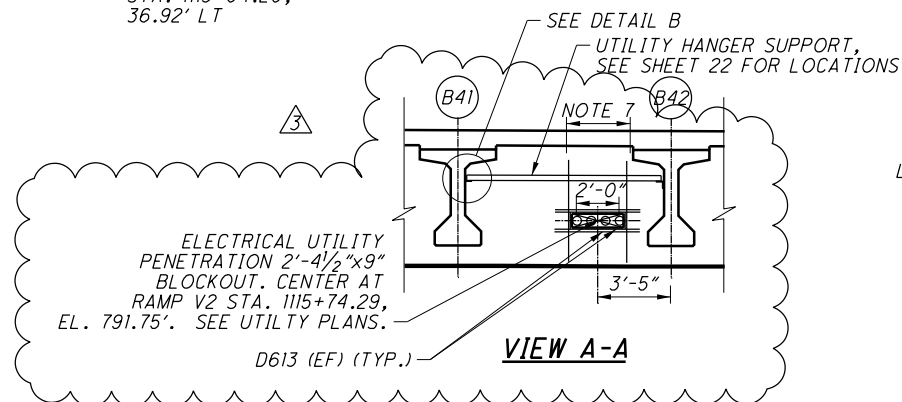
071_1784BSD005.dgn 10/9/2014 12:52:41 PM nsherril

293'-10" UNIT 2 DIAPHRAGM

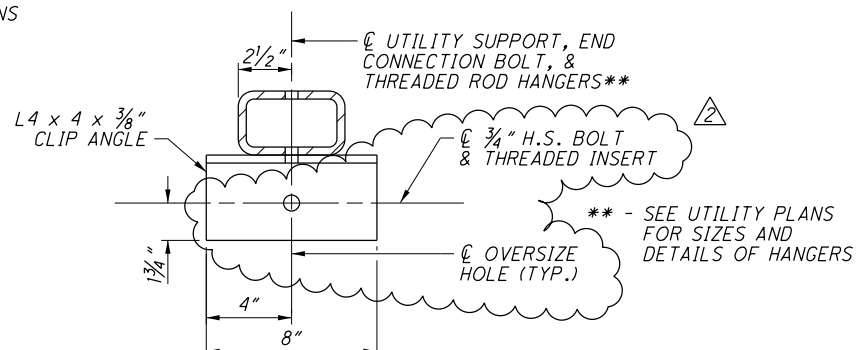
28 SPA. @ 10'-0" = 280'-0"



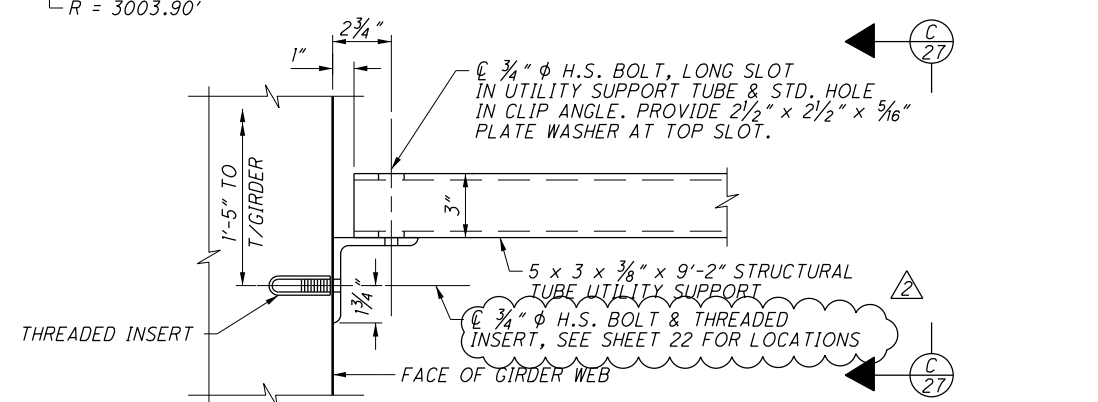
UNIT 2 DIAPHRAGM PLAN



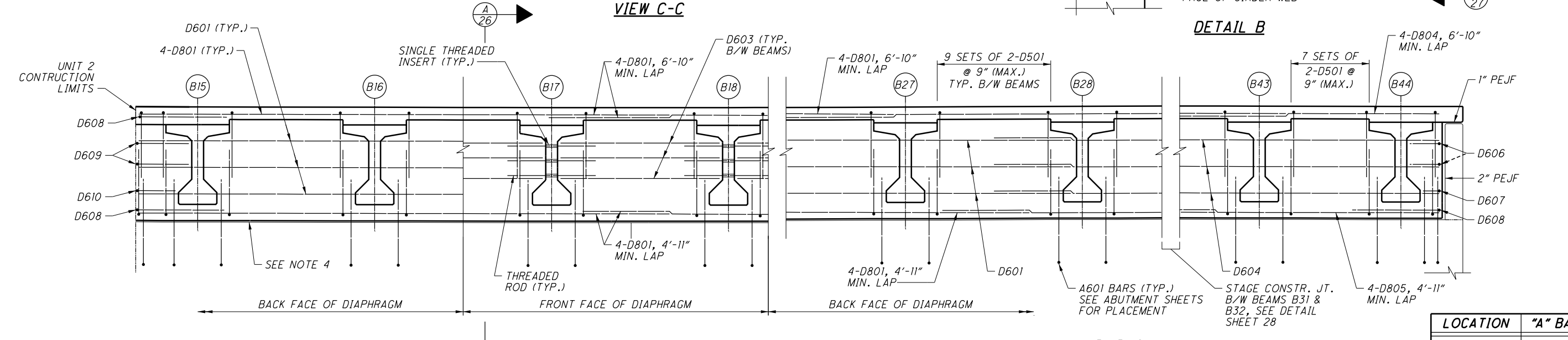
VIEW A-A



VIEW C-C



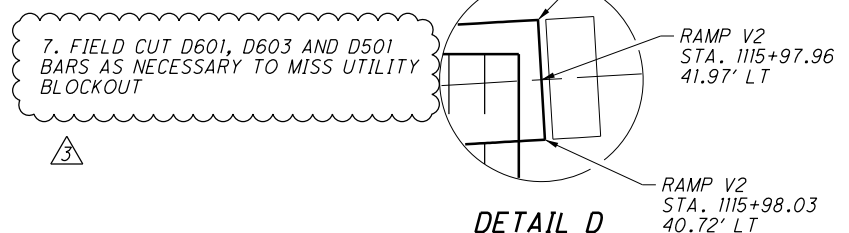
DETAIL B



UNIT 2 DIAPHRAGM ELEVATION

NOTES:

- FOR LEFT ABUTMENT PLAN AND DETAILS, INCLUDING BEARING SEAT ELEVATIONS, SEE SHEETS 7-13.
- FOR BEARING DETAILS, SEE SHEET 21.
- UNLESS NOTED OTHERWISE, MINIMUM REINFORCING SPLICE LENGTHS:
NO. 5 BARS = 29"
NO. 6 BARS = 52"
NO. 8 BARS = 82"
- 1" THICK EXPANDED POLYSTYRENE FILLER SHALL BE USED IN FORMING TO PROVIDE THE CLEARANCE REQUIRED BETWEEN THE ABUTMENT AND THE SUPERSTRUCTURE. COAT EXPOSED FACES OF FILLER TO MATCH ABUTMENT EPOXY-URETHANE SEALER COLOR.
- FOR DETAIL OF SEALING VERTICAL JOINT, SEE SHEET 10.
- DIMENSIONS GIVEN WITH RESPECT TO @ RAMP V2 U.N.O.



DETAIL D

LOCATION	"A" BARS
BAYS 15-42	D603
BAY 43	D605

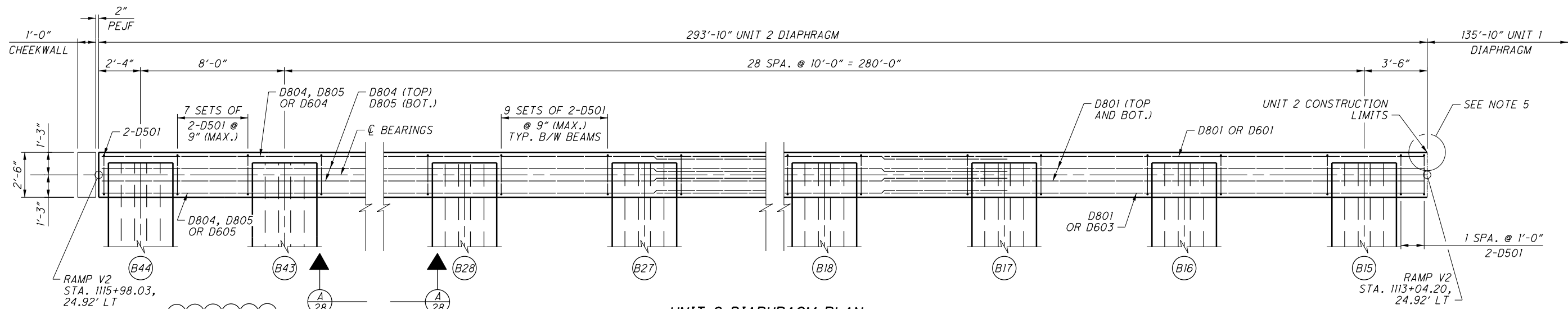
FOR BAY NUMBERING, SEE FRAMING PLAN, SHEET 22.

NO CHANGES TO SHEET

NO.	DATE	DESCRIPTION
4	09/04/14	RECORD DRAWINGS
3	9/11/12	RFI 183
2	9/06/12	RFI 181
1	3/26/12	RFC
A	2/15/12	FINAL SUBMITTAL
ISSUE RECORD		

DESIGN AGENCY: CH2MHILL
 DATE: 02/12
 REVIEWED: MAM
 DRAWN: TEK
 CHECKED: DGS
 STRUCTURE FILE NUMBER: 2507617
 BRIDGE NO. FRA-071-1784B
 NORTHBOUND C-D AND SPRING STREET OVER RAMP V2
 LEFT ABUTMENT DIAPHRAGM DETAILS II
 FRA-71-17.76
 FRA-670-4.19
 PID No. 77369
 87B20-27
 1962
 2744

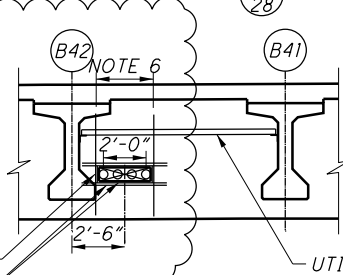
071_1784BSD006.dgn 10/9/2014 12:53:31 PM nsherril



UNIT 2 DIAPHRAGM PLAN

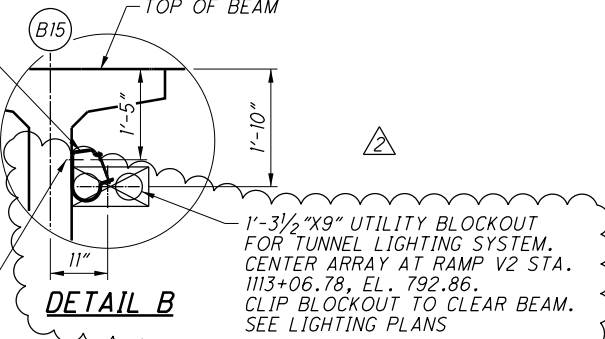
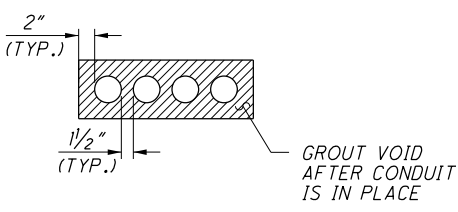
GALVANIZED CONDUIT CLEVIS HANGER AS MANUFACTURED BY ANVIL INTERNATIONAL OR EQUAL. MOUNT AT THREADED INSERTS.

ELECTRICAL UTILITY PENETRATION 2'-4 1/2" X 9" BLOCKOUT CENTER AT RAMP V2 STA. 1115+75.20, EL. 791.75'. SEE UTILITY PLANS.

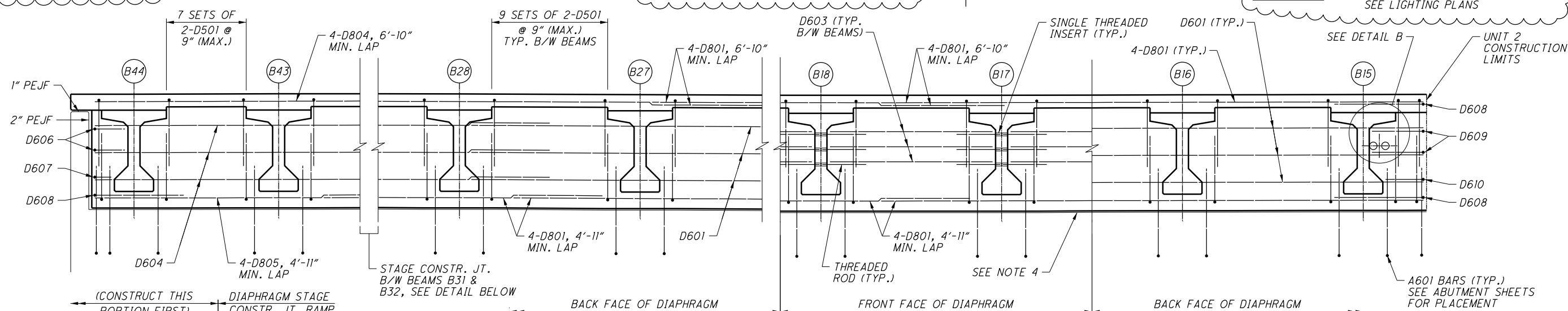


VIEW A-A

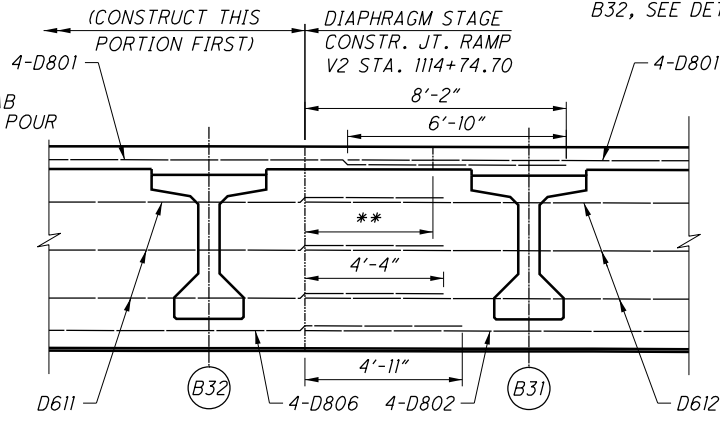
UTILITY BLOCKOUT IN ABUTMENT DIAPHRAGM



DETAIL B



UNIT 2 DIAPHRAGM ELEVATION



DIAPHRAGM STAGE CONSTRUCTION JOINT DETAIL

(RIGHT WALL SHOWN, LOOKING EAST. LEFT WALL SIMILAR BUT OPPOSITE)

NOTES:

- FOR RIGHT ABUTMENT PLAN AND DETAILS, INCLUDING BEARING SEAT ELEVATIONS, SEE SHEETS 14-20.
- FOR BEARING DETAILS, SEE SHEET 21.
- UNLESS NOTED OTHERWISE, MINIMUM REINFORCING SPLICE LENGTHS:
NO. 5 BARS = 29" NO. 8 BARS = 82"
NO. 6 BARS = 52"
- 1" THICK EXPANDED POLYSTRENE FILLER SHALL BE USED IN FORMING TO PROVIDE THE CLEARANCE REQUIRED BETWEEN THE ABUTMENT AND THE SUPERSTRUCTURE. COAT EXPOSED FACES OF FILLER TO MATCH ABUTMENT EPOXY-URETHANE SEALER COLOR.
- FOR DETAIL OF SEALING VERTICAL JOINT, SEE SHEET 17.
- FIELD CUT D601, D603 AND D501 BARS AS NECESSARY TO MISS UTILITY BLOCKOUT.

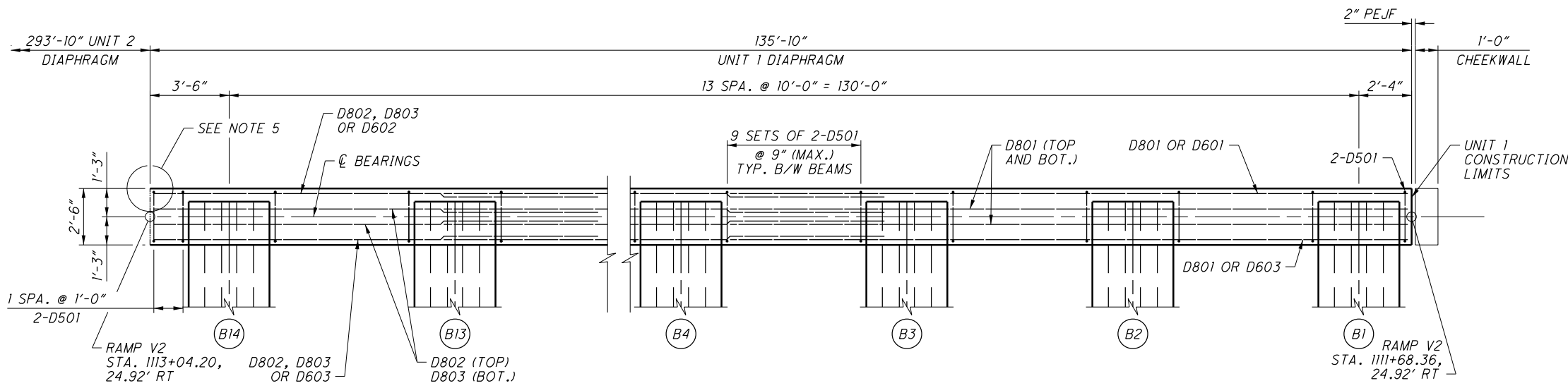
LOCATION	"A" BARS
BAYS 15-42	D603
BAY 43	D605

NO CHANGES TO SHEET FOR BAY NUMBERING, SEE FRAMING PLAN, SHEET 22.

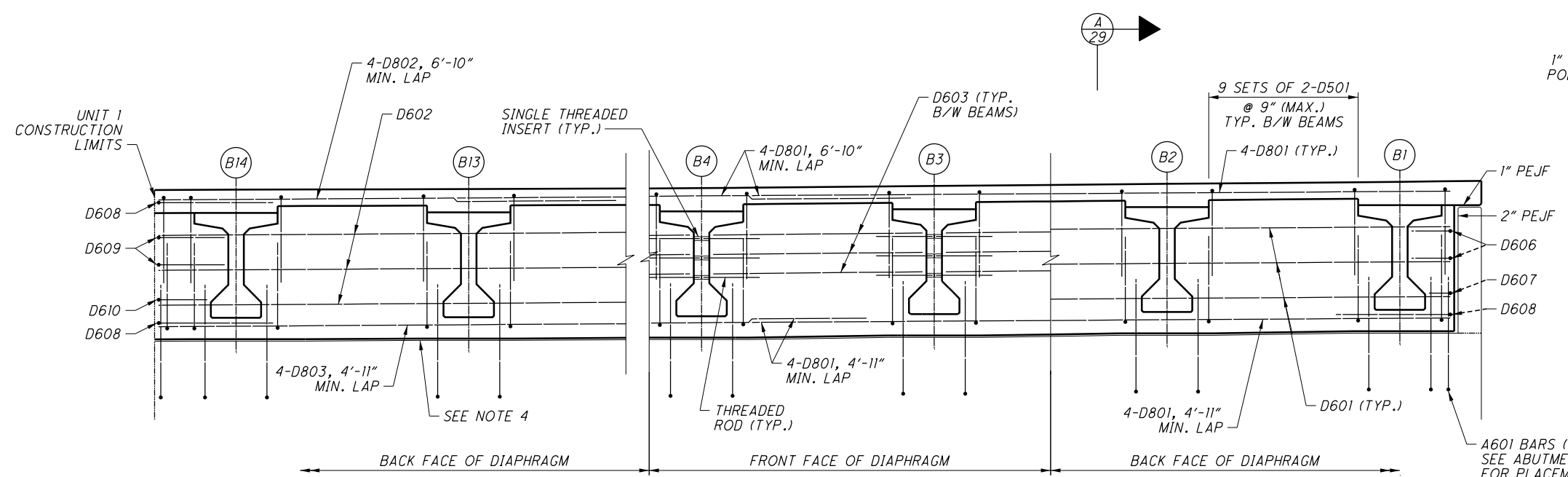
NO.	DATE	DESCRIPTION
3	09/04/14	RECORD DRAWINGS
2	9/11/12	RFI 183
1	3/26/12	RFC
B	2/15/12	FINAL SUBMITTAL
A	12/20/11	INTERIM SUBMITTAL

ISSUE RECORD

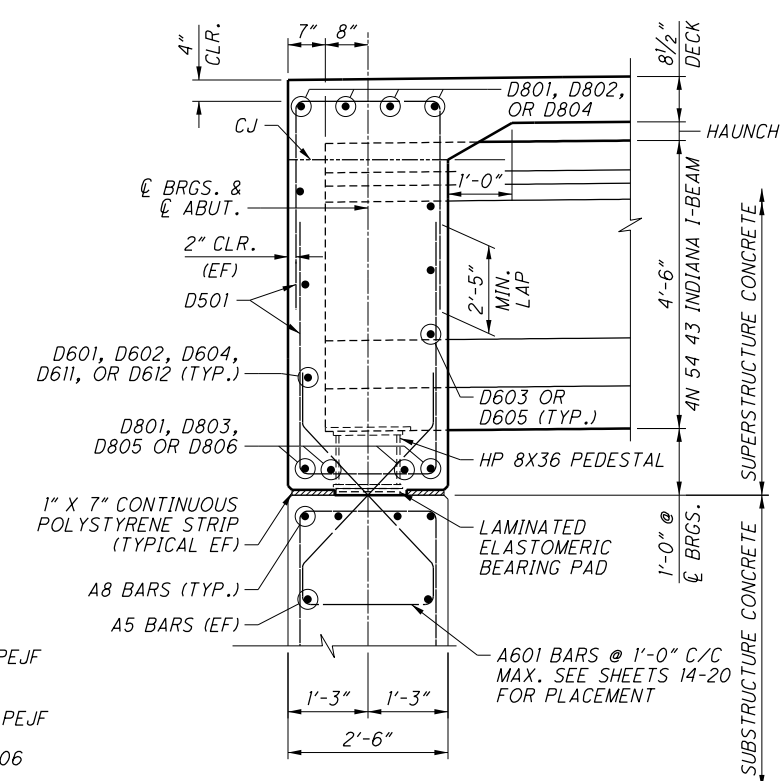
071_1784BSD007.dgn 10/9/2014 12:54:01 PM nsherril



UNIT 1 DIAPHRAGM PLAN



UNIT 1 DIAPHRAGM ELEVATION



SECTION A-A

(UNIT 1 SHOWN, UNIT 2 SIMILAR.
FOR UNIT 2 EXPANSION JOINT SEAL, SEE RIGHT ABUTMENT SECTION)
(DECK REINFORCEMENT NOT SHOWN FOR CLARITY.)

NOTES:

- FOR RIGHT ABUTMENT PLAN AND DETAILS, INCLUDING BEARING SEAT ELEVATIONS, SEE SHEETS 14-20.
- FOR BEARING DETAILS, SEE SHEET 21.
- UNLESS NOTED OTHERWISE, MINIMUM REINFORCING SPLICE LENGTHS:
NO. 5 BARS = 29"
NO. 6 BARS = 52"
NO. 8 BARS = 82"
- 1" THICK EXPANDED POLYSTYRENE FILLER SHALL BE USED IN FORMING TO PROVIDE THE CLEARANCE REQUIRED BETWEEN THE ABUTMENT AND THE SUPERSTRUCTURE. COAT EXPOSED FACES OF FILLER TO MATCH ABUTMENT EPOXY-URETHANE SEALER COLOR.
- FOR DETAIL OF SEALING VERTICAL JOINT, SEE SHEET 17.

NO CHANGES TO SHEET

NO.	DATE	DESCRIPTION
2	09/04/14	RECORD DRAWINGS
1	3/26/12	RFC
A	2/15/12	FINAL SUBMITTAL
ISSUE RECORD		

DESIGN AGENCY
CH2MHILL
 1103 SCHROCK ROAD, SUITE 400
 COLUMBUS, OHIO 43229

DATE
 02/12
 REVIEWED
 MAM
 STRUCTURE FILE NUMBER
 2507617

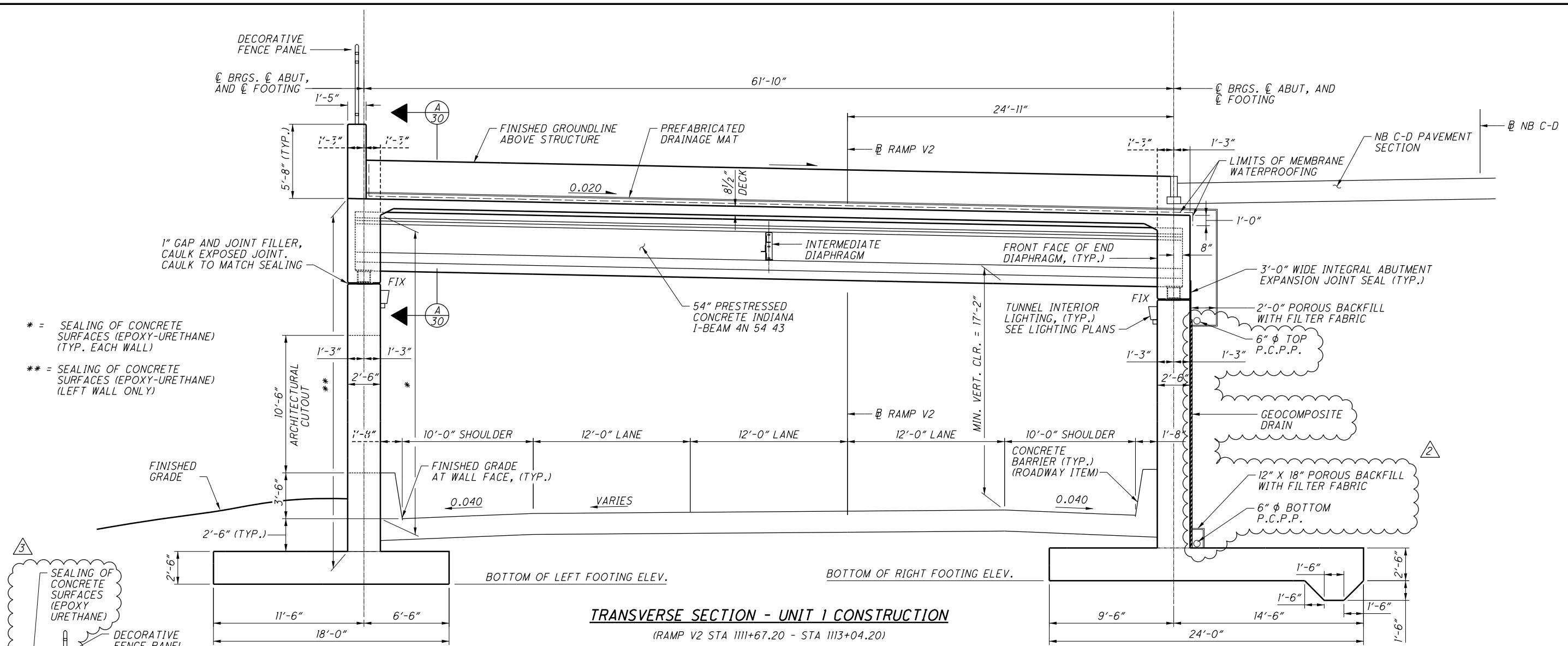
DRAWN
 TEK
 CHECKED
 DGS

RIGHT ABUTMENT DIAPHRAGM DETAILS II
 BRIDGE NO. FRA-071-1784B
 NORTHBOUND C-D AND SPRING STREET OVER RAMP V2

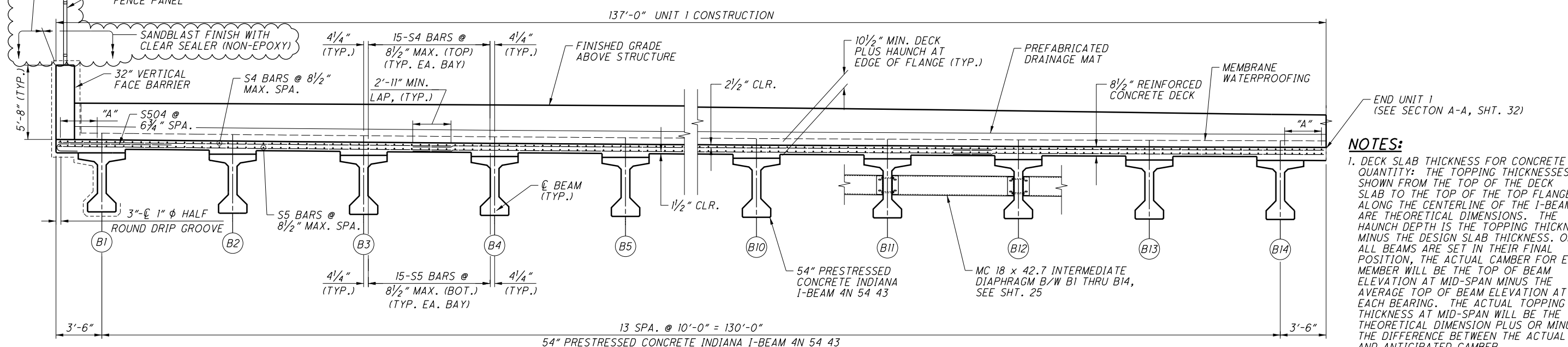
FRA-71-17.76
FRA-670-4.19
 PID No. 77369

87B20-29
 1964
 2744

nsherrll
 10/9/2014 12:54:29 PM
 071_1784BSD008.dgn



TRANSVERSE SECTION - UNIT 1 CONSTRUCTION
 (RAMP V2 STA 1111+67.20 - STA 1113+04.20)



LONGITUDINAL VIEW A-A - UNIT 1 CONSTRUCTION
 (RAMP V2 STA 1111+67.20 - STA 1113+04.20)
 (DIMENSIONS GIVEN @ WALL FACE AS PROJECTIONS ALONG @ CONSTR. RAMP V2)

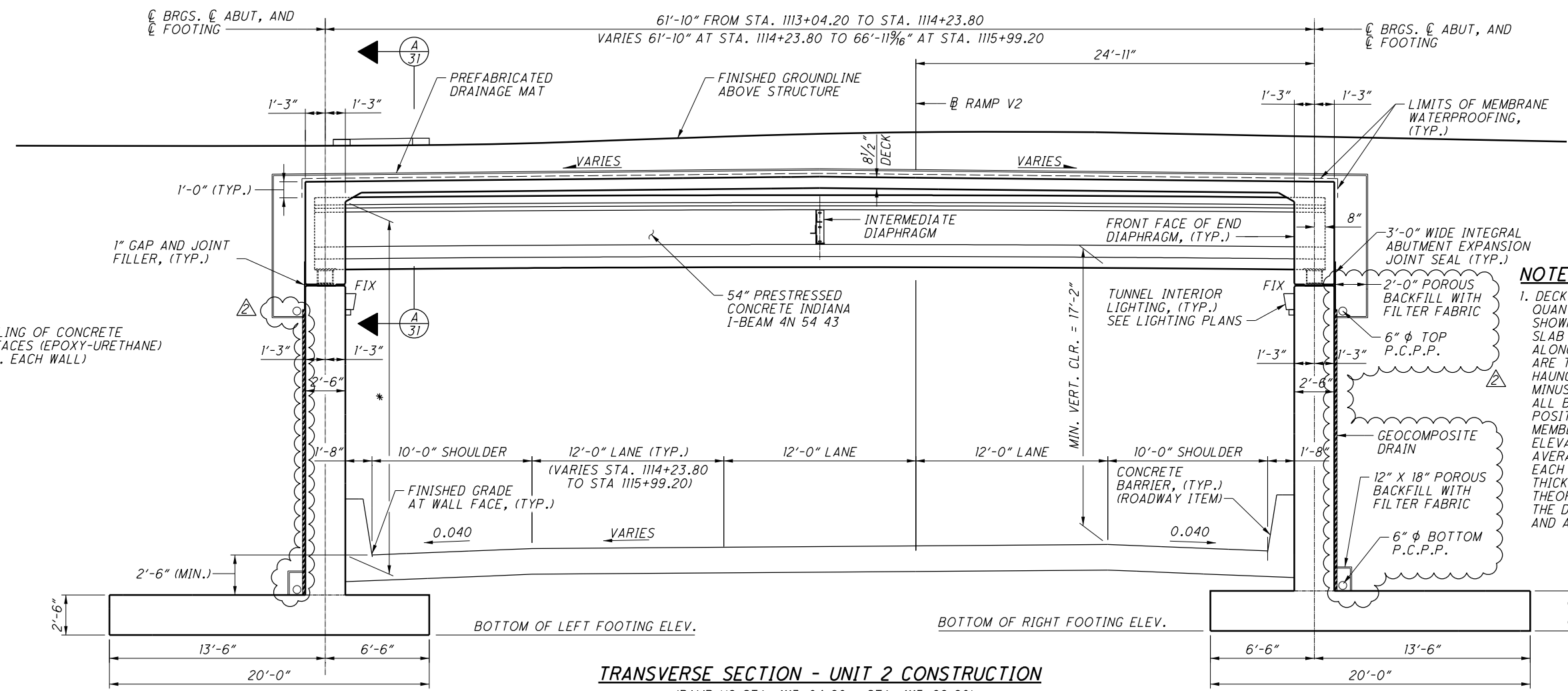
NOTES:
 1. DECK SLAB THICKNESS FOR CONCRETE QUANTITY: THE TOPPING THICKNESSES SHOWN FROM THE TOP OF THE DECK SLAB TO THE TOP OF THE TOP FLANGE ALONG THE CENTERLINE OF THE I-BEAM ARE THEORETICAL DIMENSIONS. THE HAUNCH DEPTH IS THE TOPPING THICKNESS MINUS THE DESIGN SLAB THICKNESS. ONCE ALL BEAMS ARE SET IN THEIR FINAL POSITION, THE ACTUAL CAMBER FOR EACH MEMBER WILL BE THE TOP OF BEAM ELEVATION AT MID-SPAN MINUS THE AVERAGE TOP OF BEAM ELEVATION AT EACH BEARING. THE ACTUAL TOPPING THICKNESS AT MID-SPAN WILL BE THE THEORETICAL DIMENSION PLUS OR MINUS THE DIFFERENCE BETWEEN THE ACTUAL AND ANTICIPATED CAMBER.

"A" = 6-S4 BARS (TOP) & 6-S5 BARS (BOT.) @ 8 1/2" MAX.

NO.	DATE	DESCRIPTION
4	09/04/14	RECORD DRAWINGS
3	10/9/12	RFI 188
2	8/20/12	RFI 154
1	3/26/12	RFC
B	2/15/12	FINAL SUBMITTAL
		ISSUE RECORD

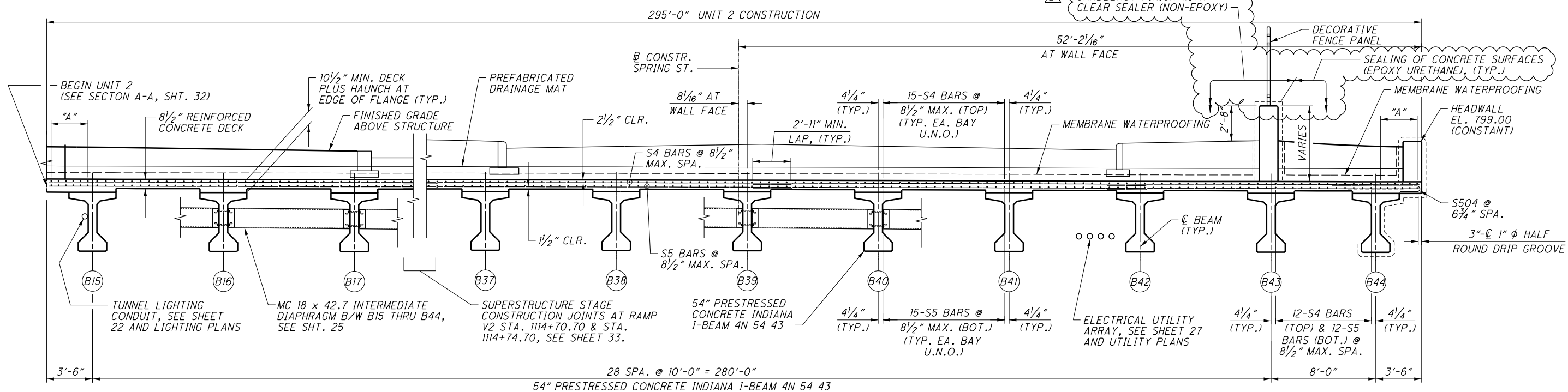
NO CHANGES TO SHEET

071_1784BTS001.dgn 10/9/2014 12:54:59 PM nsherrill



TRANSVERSE SECTION - UNIT 2 CONSTRUCTION
(RAMP V2 STA. 1113+04.20 - STA. 1115+99.20)

NOTES:
1. DECK SLAB THICKNESS FOR CONCRETE QUANTITY: THE TOPPING THICKNESSES SHOWN FROM THE TOP OF THE DECK SLAB TO THE TOP OF THE TOP FLANGE ALONG THE CENTERLINE OF THE I-BEAM ARE THEORETICAL DIMENSIONS. THE HAUNCH DEPTH IS THE TOPPING THICKNESS MINUS THE DESIGN SLAB THICKNESS. ONCE ALL BEAMS ARE SET IN THEIR FINAL POSITION, THE ACTUAL CAMBER FOR EACH MEMBER WILL BE THE TOP OF BEAM ELEVATION AT MID-SPAN MINUS THE AVERAGE TOP OF BEAM ELEVATION AT EACH BEARING. THE ACTUAL TOPPING THICKNESS AT MID-SPAN WILL BE THE THEORETICAL DIMENSION PLUS OR MINUS THE DIFFERENCE BETWEEN THE ACTUAL AND ANTICIPATED CAMBER.



LONGITUDINAL VIEW A-A - UNIT 2 CONSTRUCTION
(RAMP V2 STA. 1113+04.20 - STA. 1115+99.20)
(DIMENSIONS GIVEN @ WALL FACE AS PROJECTIONS ALONG @ CONSTR. RAMP V2)

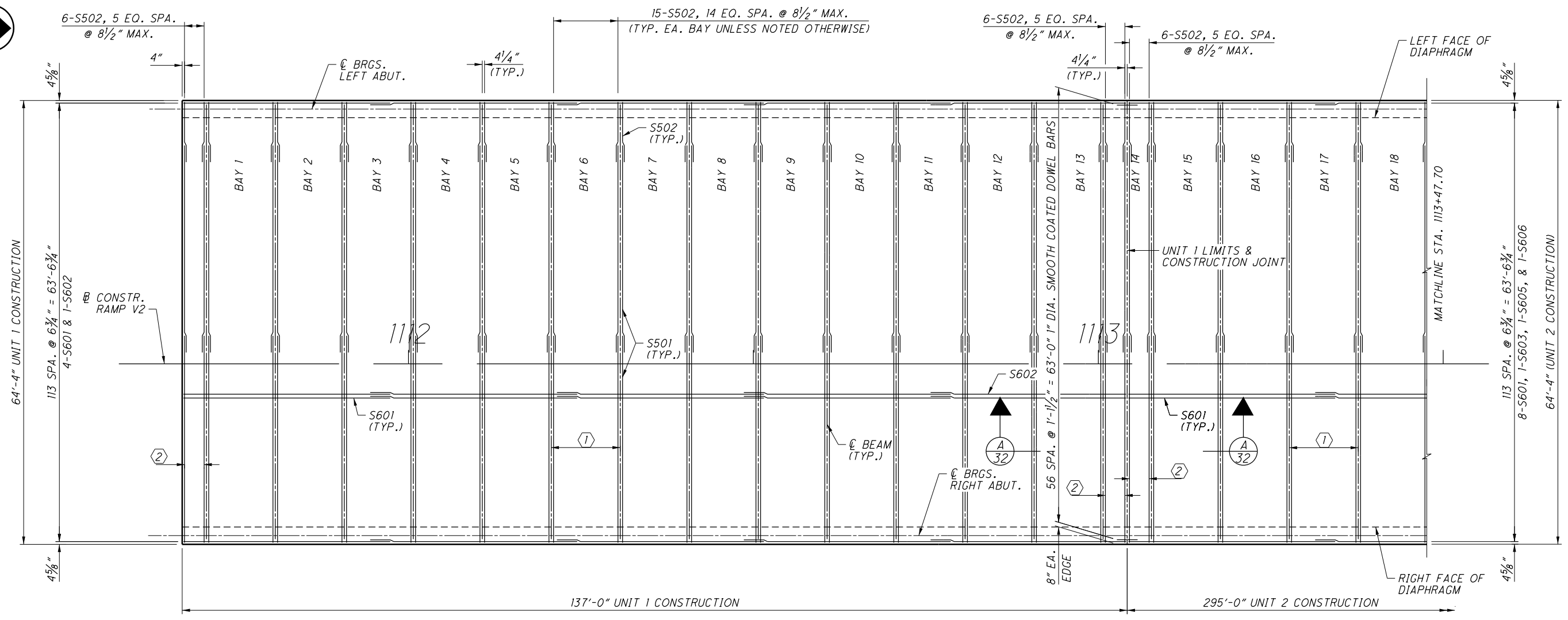
"A" = 6-S4 BARS (TOP) & 6-S5 BARS (BOT.) @ 8 1/2" MAX.

NO CHANGES TO SHEET

NO.	DATE	DESCRIPTION
4	09/04/14	RECORD DRAWINGS
3	10/9/12	RFI 188
2	8/20/12	RFI 154
1	3/26/12	RFI
B	2/15/12	FINAL SUBMITTAL
ISSUE RECORD		

DESIGN AGENCY: **CH2MHILL**
 1103 SCHROCK ROAD, SUITE 400
 COLUMBUS, OHIO 43229
 DATE: 02/12
 REVIEWED: MAM
 DRAWN: CNK
 DESIGNED: CNK
 CHECKED: DGS
 STRUCTURE FILE NUMBER: 2507617
 TYPICAL UNIT 2 TRANSVERSE SECTION
 BRIDGE NO. FRA-071-1784B
 NORTHBOUND C-D AND SPRING STREET OVER RAMP V2
 FRA-71-17.76
 FRA-670-4.19
 PID No. 77369
 87B20-31
 1966
 2744

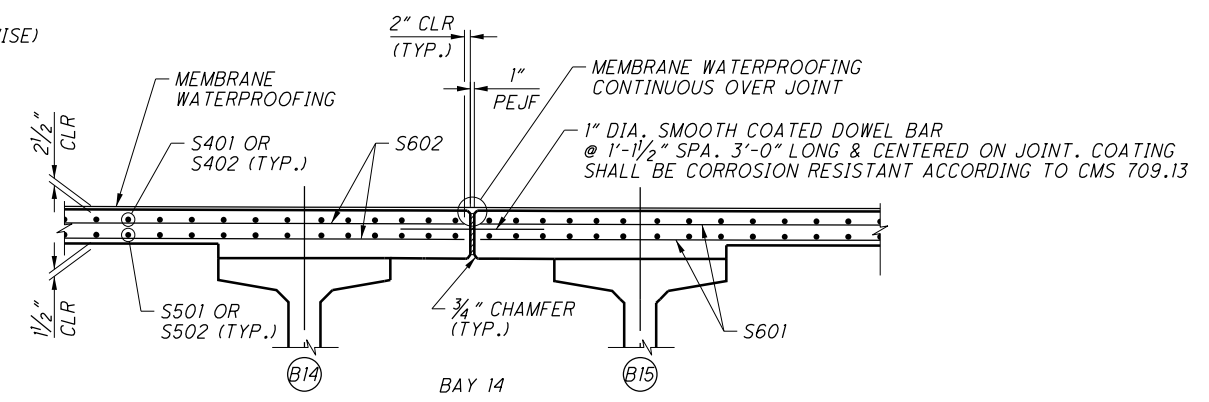
071_1784BTS002.dgn 10/9/2014 12:55:29 PM nsherrill



PARTIAL PLAN

BOTTOM DECK REINFORCEMENT

- ① 15-S501, 14 EQ. SPA. @ 8 1/2" MAX. (TYP. EA. BAY UNLESS NOTED OTHERWISE)
- ② 6-S501, 5 EQ. SPA. @ 8 1/2" MAX.



SECTION A-A

(LOOKING WEST)
(SEE SHEETS 30 & 31 FOR ADDITIONAL SECTIONS)

NOTES:

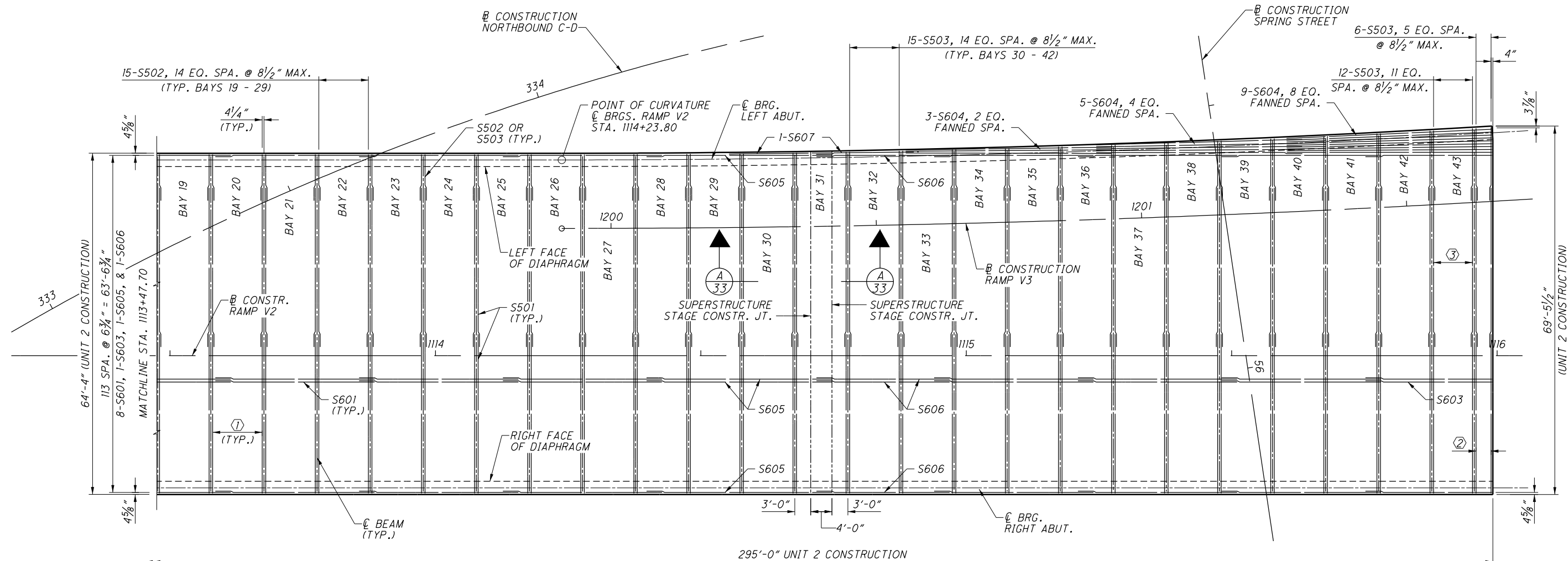
1. MINIMUM REINFORCING STEEL SPLICE LENGTHS:
NO. 5 BARS = 29"
NO. 6 BARS = 35"
2. FOR TOP DECK REINFORCEMENT, SEE SHEETS 34 & 35.
3. FOR TYPICAL SECTIONS, SEE SHEETS 30 & 31.
4. FOR PARAPET DETAILS, SEE SHEETS 39 & 40.

② NO CHANGES TO SHEET

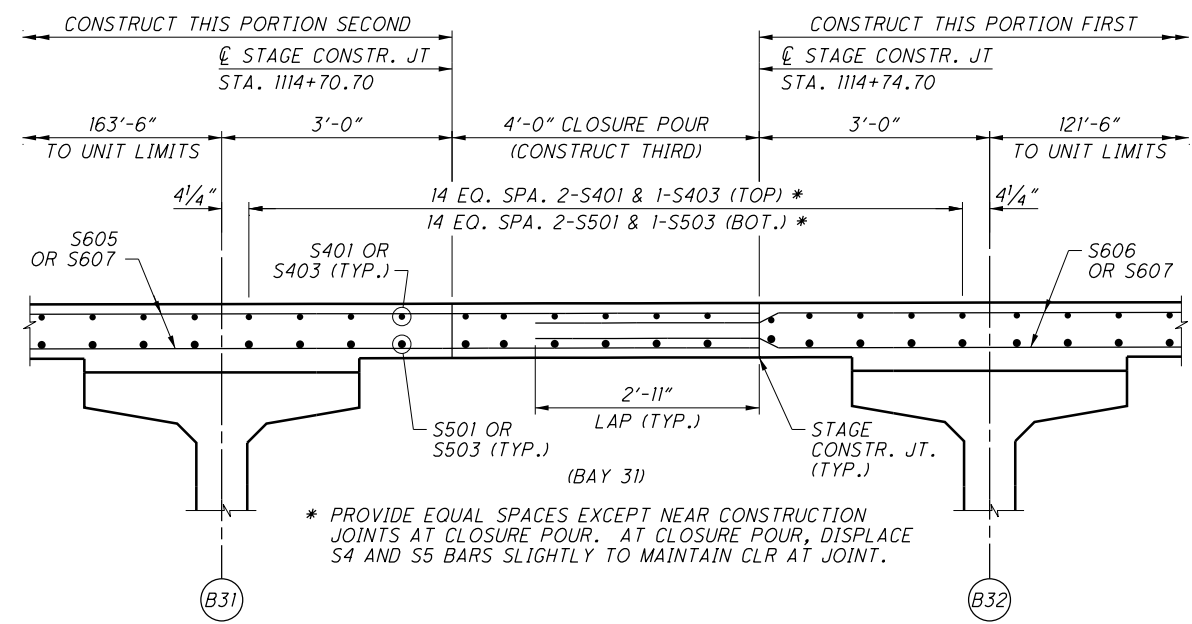
NO.	DATE	DESCRIPTION
2	09/04/14	RECORD DRAWINGS
1	3/26/12	RFC
B	2/15/12	FINAL SUBMITTAL
A	12/20/11	INTERIM SUBMITTAL
ISSUE RECORD		

071_1784BDP001.dgn 10/9/2014 12:55:57 PM nsherril

DESIGN AGENCY: **CH2M HILL**
 1103 SCHROCK ROAD, SUITE 400
 COLUMBUS, OHIO 43229
 DATE: 02/12
 REVIEWED: MAM
 DRAWN: TEK
 DESIGNED: CNK
 CHECKED: DGS
 STRUCTURE FILE NUMBER: 2507617
DECK PLAN - BOTTOM REINFORCEMENT I
 BRIDGE NO. FRA-071-1784B
 NORTHBOUND C-D AND SPRING STREET OVER RAMP V2
FRA-71-17.76
FRA-670-4.19
 PID No. 77369
 87B20-32
 1967
 2744



PARTIAL PLAN
BOTTOM DECK REINFORCEMENT



SUPERSTRUCTURE STAGE CONSTRUCTION JOINT
(SECTION A-A)

NOTES:

1. MINIMUM REINFORCING STEEL SPLICE LENGTHS:
NO. 5 BARS = 29"
NO. 6 BARS = 35"
 2. FOR TOP DECK REINFORCEMENT, SEE SHEETS 34 & 35.
 3. FOR TYPICAL SECTIONS, SEE SHEETS 30 & 31.
 4. FOR PARAPET DETAILS, SEE SHEETS 39 & 40.
- ① 15-S501, 14 EQ. SPA. @ 8 1/2" MAX. (TYP. EA. BAY UNLESS NOTED OTHERWISE)
② 6-S501, 5 EQ. SPA. @ 8 1/2" MAX.
③ 12-S501, 11 EQ. SPA. @ 8 1/2" MAX.

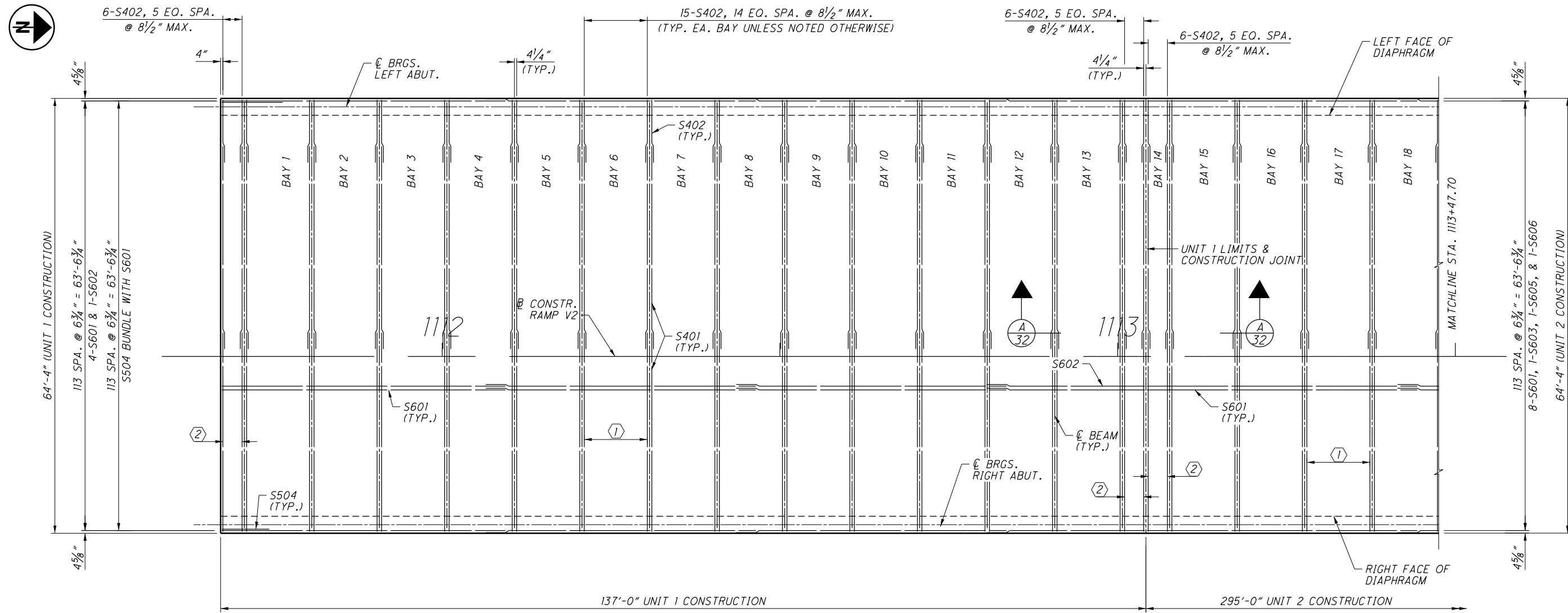
NO.	DATE	DESCRIPTION
2	09/04/14	RECORD DRAWINGS
1	3/26/12	RFC
B	2/15/12	FINAL SUBMITTAL
A	12/20/11	INTERIM SUBMITTAL
ISSUE RECORD		

NO CHANGES TO SHEET

071_1784BDP002.dgn 10/9/2014 12:56:20 PM nsherrill

DESIGN AGENCY: **CH2M HILL**
 1103 SCHROCK ROAD, SUITE 400
 COLUMBUS, OHIO 43229
 DATE: 02/12
 REVIEWED: MAM
 DRAWN: TEK
 DESIGNED: CNK
 CHECKED: DGS
 STRUCTURE FILE NUMBER: 2507617
DECK PLAN - BOTTOM REINFORCEMENT II
 BRIDGE NO. FRA-071-1784B
 NORTHBOUND C-D AND SPRING STREET OVER RAMP V2
FRA-71-17.76
FRA-670-4.19
 PID No. 77369
 87B20-33
 1968
 2744

071_1784BDP003.dgn 10/9/2014 12:56:47 PM nsherrll



PARTIAL PLAN
TOP DECK REINFORCEMENT

- ① 15-S401, 14 EQ. SPA. @ 8 1/2" MAX. (TYP. EA. BAY UNLESS NOTED OTHERWISE)
- ② 6-S401, 5 EQ. SPA. @ 8 1/2" MAX.

NOTES:

1. MINIMUM REINFORCING STEEL SPLICE LENGTHS:
NO. 4 BARS = 23"
NO. 5 BARS = 29"
NO. 6 BARS = 35"
2. FOR BOTTOM DECK REINFORCEMENT, SEE SHEETS 32 & 33.
3. FOR TYPICAL SECTIONS, SEE SHEETS 30 & 31.
4. FOR PARAPET DETAILS, SEE SHEETS 39 & 40.

② NO CHANGES TO SHEET

NO.	DATE	DESCRIPTION
2	09/04/14	RECORD DRAWINGS
1	3/26/12	RFC
B	2/15/12	FINAL SUBMITTAL
A	12/20/11	INTERIM SUBMITTAL
ISSUE RECORD		

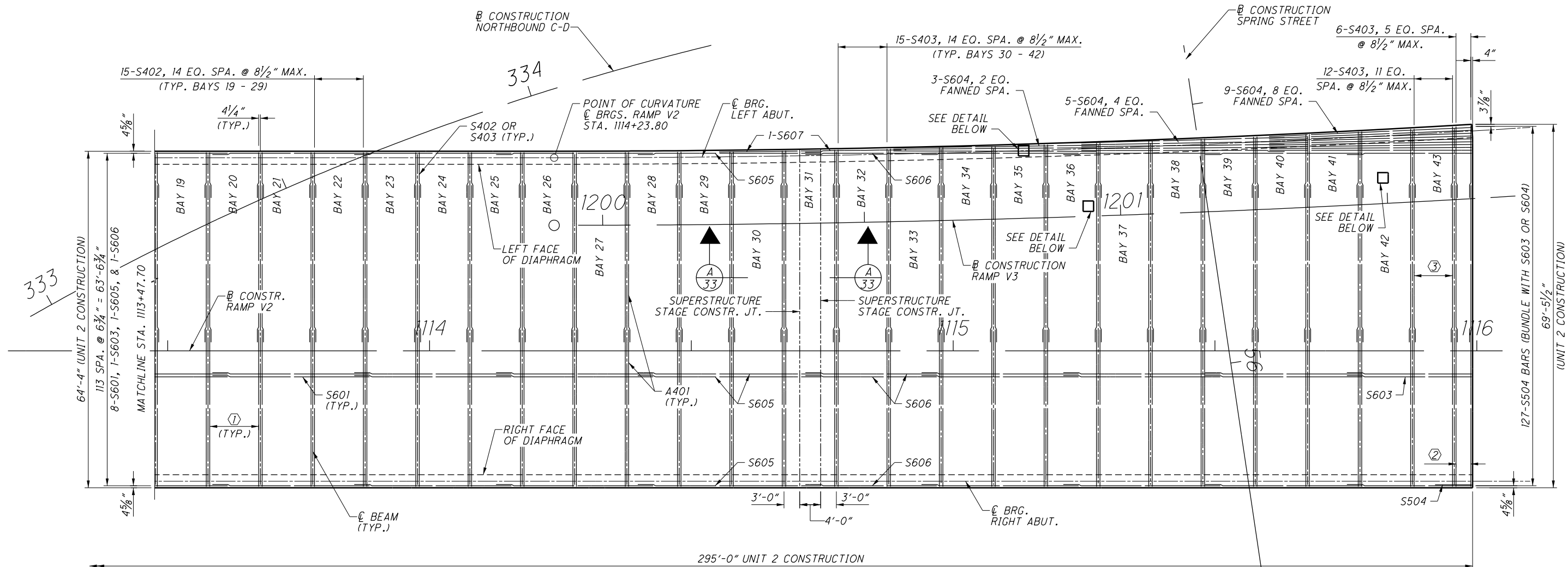
DESIGN AGENCY
CH2MHILL
 1103 SCHROCK ROAD, SUITE 400
 COLUMBUS, OHIO 43229

DATE: 02/12
 REVIEWED: MAM
 DRAWN: TEK
 DESIGNED: CNK
 CHECKED: DGS

FRA-71-17.76
FRA-670-4.19
 PID No. 77369

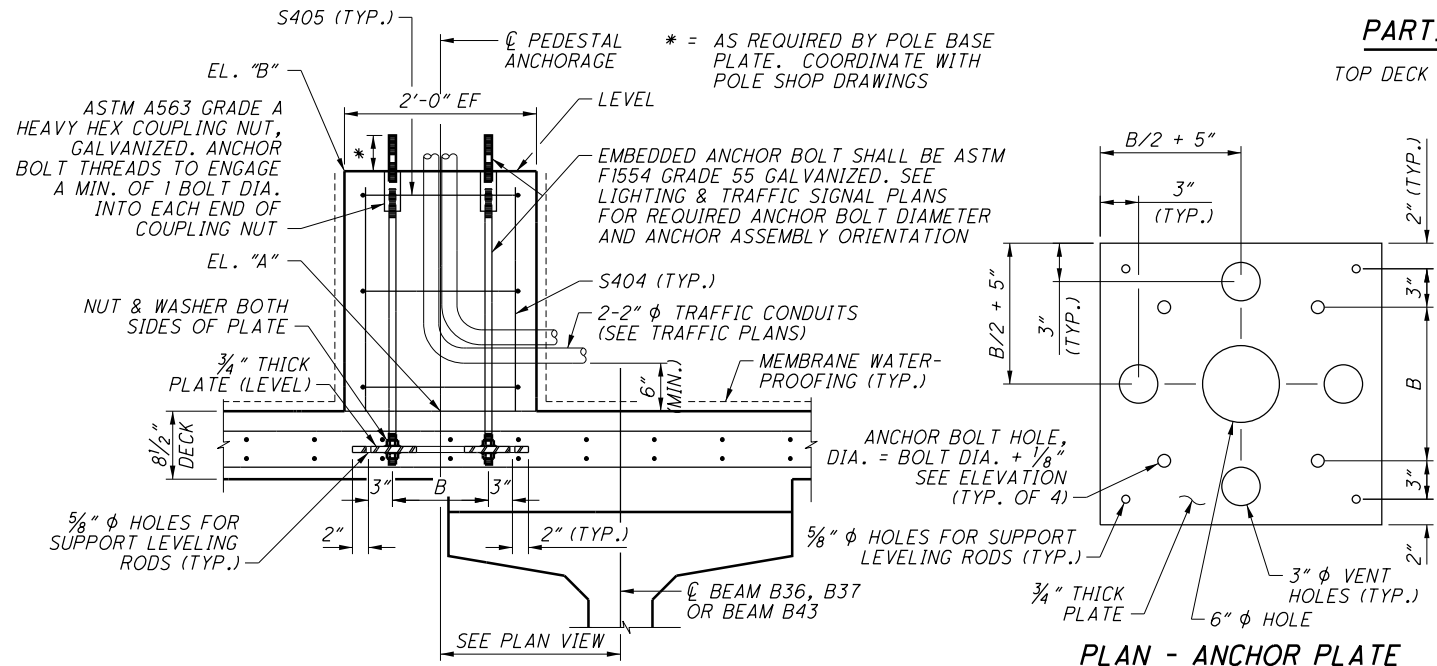
BRIDGE NO. FRA-071-1784B
 NORTHBOUND C-D AND SPRING STREET OVER RAMP V2

87B20-34
 1969
 2744



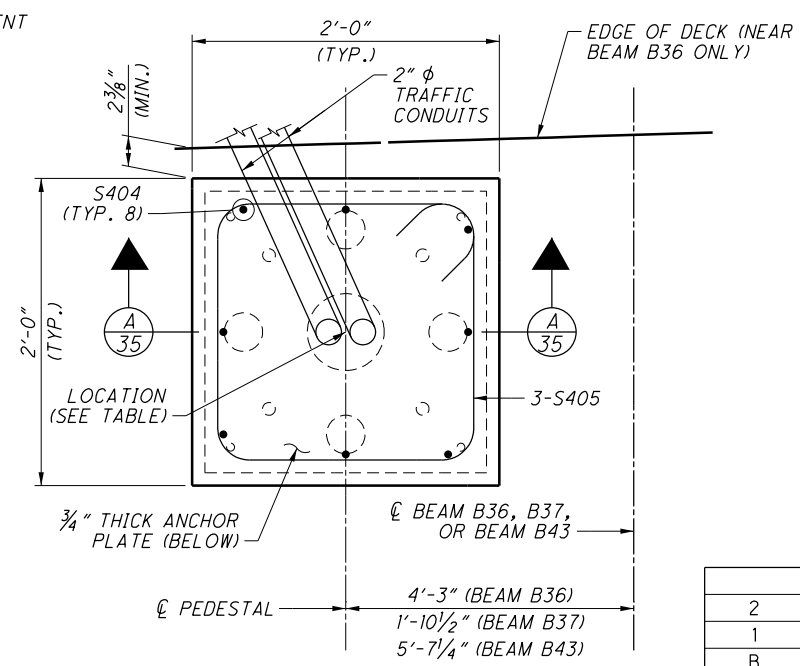
PARTIAL PLAN

TOP DECK REINFORCEMENT



PEDESTAL ANCHORAGE SECTION A-A

LOCATION	STATION	OFFSET	ELEV. "A"	ELEV. "B"
BEAM B36	1115+13.44	38.28' LT	796.09	799.09
BEAM B37	1115+25.82	27.67' LT	796.19	799.05
BEAM B43	1115+82.09	33.07' LT	796.03	798.75



PEDESTAL PLAN DETAIL

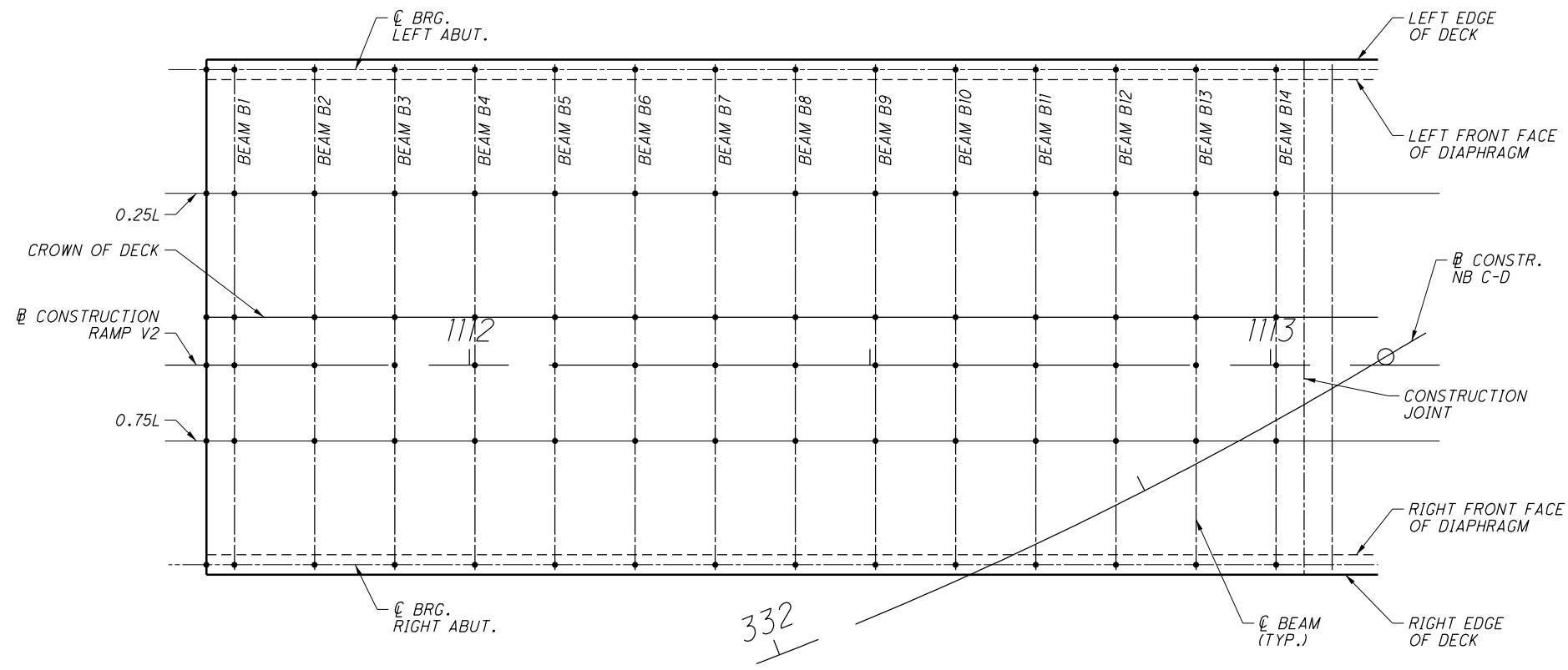
NOTES:

- MINIMUM REINFORCING STEEL SPLICE LENGTHS:
NO. 4 BARS = 23"
NO. 6 BARS = 35"
 - FOR BOTTOM DECK REINFORCEMENT, SEE SHEETS 32 & 33.
 - FOR TYPICAL SECTIONS, SEE SHEETS 30 & 31.
 - FOR PARAPET DETAILS, SEE SHEETS 39 & 40.
 - GALVANIZE ANCHOR BOLT ASSEMBLY INCLUDING PLATE AFTER FABRICATION IN ACCORDANCE WITH CMS 711.02.
 - SEE SHEET 33 FOR SUPERSTRUCTURE STAGE CONSTRUCTION JOINT DETAILS.
- ① 15-S401, 14 EQ. SPA. @ 8 1/2" MAX. (TYP. EA. BAY UNLESS NOTED OTHERWISE)
② 6-S401, 5 EQ. SPA. @ 8 1/2" MAX.
③ 12-S401, 11 EQ. SPA. @ 8 1/2" MAX.

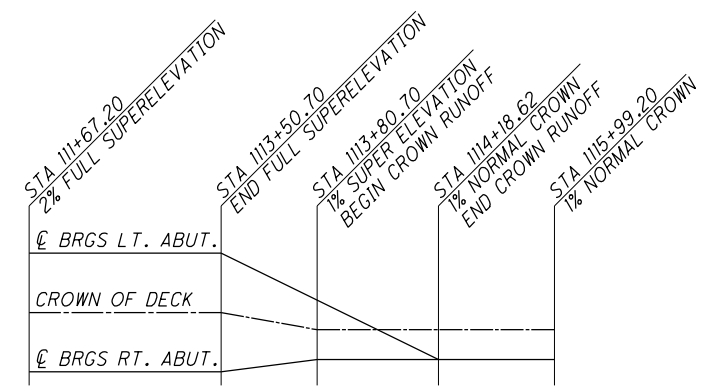
NO.	DATE	DESCRIPTION
2	09/04/14	RECORD DRAWINGS
1	3/26/12	RFC
B	2/15/12	FINAL SUBMITTAL
A	12/20/11	INTERIM SUBMITTAL
		ISSUE RECORD

NO CHANGES TO SHEET

071_1784BDP004.dgn 10/9/2014 12:57:26 PM nsherrill



UNIT 1 DECK ELEVATION LAYOUT



SUPERELEVATION DIAGRAM

NOTES:

- SCREED ELEVATIONS SHOWN REPRESENT THE THEORETICAL DECK SURFACE LOCATION PRIOR TO DEFLECTIONS CAUSED BY DECK PLACEMENT AND OTHER ANTICIPATED DEAD LOADS.
- TOP OF HAUNCH ELEVATIONS SHOWN REPRESENT THE THEORETICAL LOCATION OF THE BOTTOM OF THE DECK ABOVE THE BEAM HAUNCH PRIOR TO DEFLECTIONS CAUSED BY DECK PLACEMENT AND OTHER ANTICIPATED DEAD LOADS.
- FINAL DECK ELEVATIONS SHOWN REPRESENT THE DECK SURFACE LOCATIONS AFTER ALL ANTICIPATED DEAD LOAD DEFLECTIONS HAVE OCCURRED.

DECK ELEVATIONS

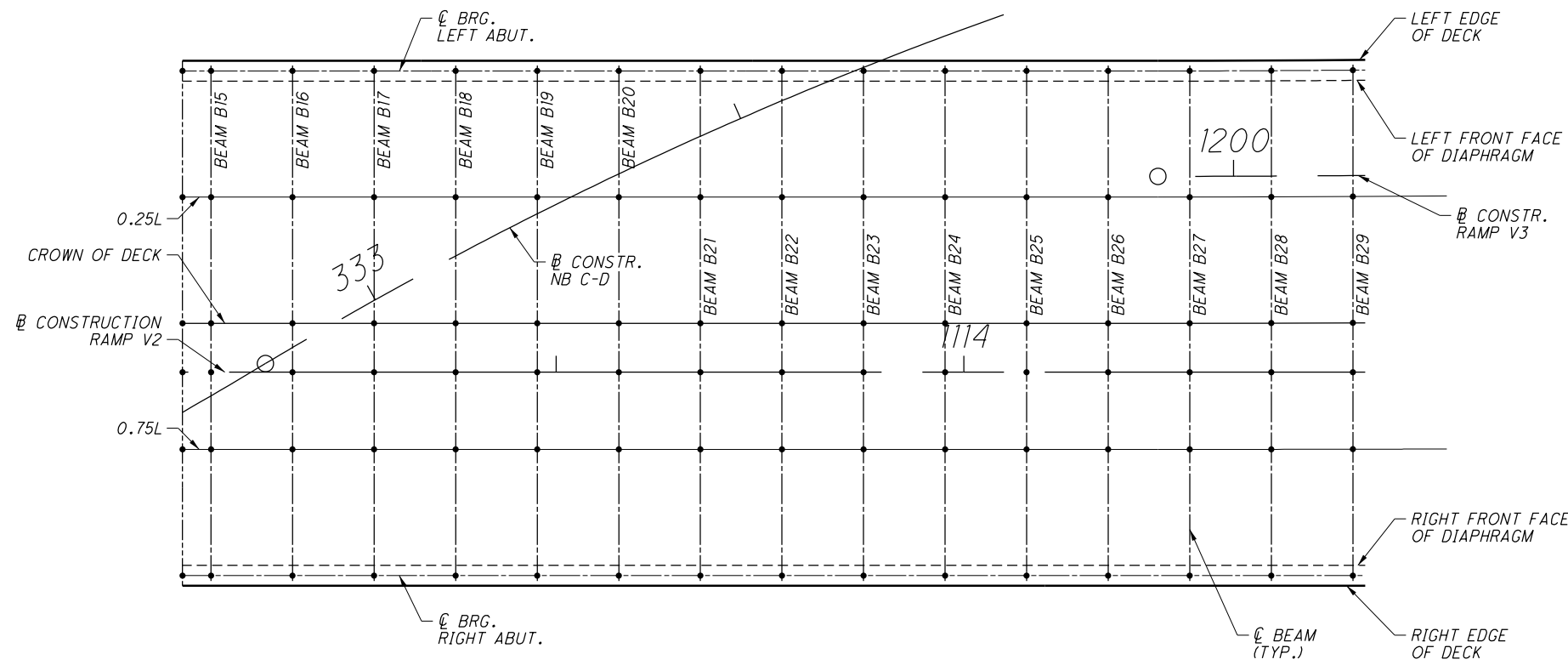
		REAR EDGE OF DECK	BEAM B1	BEAM B2	BEAM B3	BEAM B4	BEAM B5	BEAM B6	BEAM B7	BEAM B8	BEAM B9	BEAM B10	BEAM B11	BEAM B12	BEAM B13	BEAM B14	END UNIT 1 CONSTR. JT.
LEFT EDGE OF DECK	STATION	1111+67.20	1111+70.70	1111+80.70	1111+90.70	1112+00.70	1112+10.70	1112+20.70	1112+30.70	1112+40.70	1112+50.70	1112+60.70	1112+70.70	1112+80.70	1112+90.70	1113+00.70	1113+04.20
	FINAL DECK ELEV.	797.84	797.80	797.71	797.62	797.54	797.46	797.39	797.33	797.28	797.22	797.16	797.10	797.05	797.01	796.98	796.97
	SCREED ELEV.	797.84	797.80	797.71	797.62	797.54	797.46	797.39	797.33	797.28	797.22	797.16	797.10	797.05	797.01	796.98	796.97
C BRGS. LEFT ABUT.	STATION	1111+67.20	1111+70.70	1111+80.70	1111+90.70	1112+00.70	1112+10.70	1112+20.70	1112+30.70	1112+40.70	1112+50.70	1112+60.70	1112+70.70	1112+80.70	1112+90.70	1113+00.70	1113+04.20
	FINAL DECK ELEV.	797.81	797.78	797.68	797.59	797.51	797.44	797.37	797.31	797.26	797.19	797.13	797.08	797.03	796.99	796.96	796.95
	TOP OF HAUNCH ELEV.	797.10	797.07	796.97	796.88	796.80	796.73	796.66	796.60	796.55	796.49	796.42	796.37	796.32	796.28	796.25	796.24
0.25L	STATION	1111+67.20	1111+70.70	1111+80.70	1111+90.70	1112+00.70	1112+10.70	1112+20.70	1112+30.70	1112+40.70	1112+50.70	1112+60.70	1112+70.70	1112+80.70	1112+90.70	1113+00.70	1113+04.20
	FINAL DECK ELEV.	797.50	797.47	797.37	797.28	797.20	797.13	797.06	797.00	796.95	796.89	796.82	796.77	796.72	796.68	796.65	796.64
	TOP OF HAUNCH ELEV.	796.86	796.83	796.73	796.64	796.56	796.49	796.42	796.36	796.31	796.25	796.18	796.13	796.08	796.04	796.01	796.00
CROWN/ 0.50L	STATION	1111+67.20	1111+70.70	1111+80.70	1111+90.70	1112+00.70	1112+10.70	1112+20.70	1112+30.70	1112+40.70	1112+50.70	1112+60.70	1112+70.70	1112+80.70	1112+90.70	1113+00.70	1113+04.20
	FINAL DECK ELEV.	797.19	797.16	797.06	796.97	796.89	796.82	796.75	796.69	796.64	796.58	796.51	796.46	796.41	796.37	796.34	796.33
	SCREED ELEV.	797.29	797.25	797.16	797.07	796.98	796.91	796.84	796.78	796.73	796.67	796.61	796.55	796.50	796.46	796.43	796.42
B CONSTR. RAMP V2	STATION	1111+67.20	1111+70.70	1111+80.70	1111+90.70	1112+00.70	1112+10.70	1112+20.70	1112+30.70	1112+40.70	1112+50.70	1112+60.70	1112+70.70	1112+80.70	1112+90.70	1113+00.70	1113+04.20
	FINAL DECK ELEV.	797.07	797.04	796.94	796.85	796.77	796.70	796.63	796.57	796.52	796.46	796.39	796.34	796.29	796.25	796.22	796.21
	SCREED ELEV.	797.16	797.13	797.03	796.94	796.86	796.79	796.72	796.66	796.61	796.55	796.48	796.43	796.38	796.34	796.31	796.30
0.75L	STATION	1111+67.20	1111+70.70	1111+80.70	1111+90.70	1112+00.70	1112+10.70	1112+20.70	1112+30.70	1112+40.70	1112+50.70	1112+60.70	1112+70.70	1112+80.70	1112+90.70	1113+00.70	1113+04.20
	FINAL DECK ELEV.	796.88	796.85	796.75	796.67	796.58	796.51	796.44	796.38	796.33	796.27	796.20	796.15	796.10	796.06	796.03	796.02
	TOP OF HAUNCH ELEV.	796.25	796.21	796.12	796.03	795.94	795.87	795.80	795.74	795.69	795.63	795.57	795.51	795.46	795.42	795.39	795.38
C BRGS. RIGHT ABUT.	STATION	1111+67.20	1111+70.70	1111+80.70	1111+90.70	1112+00.70	1112+10.70	1112+20.70	1112+30.70	1112+40.70	1112+50.70	1112+60.70	1112+70.70	1112+80.70	1112+90.70	1113+00.70	1113+04.20
	FINAL DECK ELEV.	796.58	796.54	796.45	796.36	796.27	796.20	796.13	796.07	796.02	795.96	795.90	795.84	795.79	795.75	795.72	795.71
	TOP OF HAUNCH ELEV.	795.87	795.83	795.74	795.65	795.57	795.49	795.42	795.36	795.31	795.25	795.19	795.13	795.08	795.04	795.01	795.00
RIGHT EDGE OF DECK	STATION	1111+67.20	1111+70.70	1111+80.70	1111+90.70	1112+00.70	1112+10.70	1112+20.70	1112+30.70	1112+40.70	1112+50.70	1112+60.70	1112+70.70	1112+80.70	1112+90.70	1113+00.70	1113+04.20
	FINAL DECK ELEV.	796.55	796.52	796.42	796.33	796.25	796.17	796.11	796.05	796.00	795.93	795.87	795.82	795.77	795.73	795.69	795.68
	SCREED ELEV.	796.55	796.52	796.42	796.33	796.25	796.17	796.11	796.05	796.00	795.93	795.87	795.82	795.77	795.73	795.69	795.68

NO CHANGES TO SHEET

NO.	DATE	DESCRIPTION
2	09/04/14	RECORD DRAWINGS
1	3/26/12	RFC
B	2/15/12	FINAL SUBMITTAL
A	12/20/11	INTERIM SUBMITTAL
ISSUE RECORD		

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DESIGN AGENCY: CH2M HILL
 1103 SCHROCK ROAD, SUITE 400
 COLUMBUS, OHIO 43229
 DATE: 02/12
 REVIEWED: MAM
 DRAWN: TEK
 DESIGNED: CNK
 CHECKED: DGS
 STRUCTURE FILE NUMBER: 2507617
 BRIDGE NO.: FRA-071-1784B
 NORTHBOUND C-D AND SPRING STREET OVER RAMP V2
 DECK ELEVATIONS 1
 FRA-71-17.76
 FRA-670-4.19
 PID No. 77369
 87820-36
 1971
 2744



UNIT 2 PARTIAL DECK ELEVATION LAYOUT

- NOTES:**
1. SCREED ELEVATIONS SHOWN REPRESENT THE THEORETICAL DECK SURFACE LOCATION PRIOR TO DEFLECTIONS CAUSED BY DECK PLACEMENT AND OTHER ANTICIPATED DEAD LOADS.
 2. TOP OF HAUNCH ELEVATIONS SHOWN REPRESENT THE THEORETICAL LOCATION OF THE BOTTOM OF THE DECK ABOVE THE BEAM HAUNCH PRIOR TO DEFLECTIONS CAUSED BY DECK PLACEMENT AND OTHER ANTICIPATED DEAD LOADS.
 3. FINAL DECK ELEVATIONS SHOWN REPRESENT THE DECK SURFACE LOCATIONS AFTER ALL ANTICIPATED DEAD LOAD DEFLECTIONS HAVE OCCURRED.

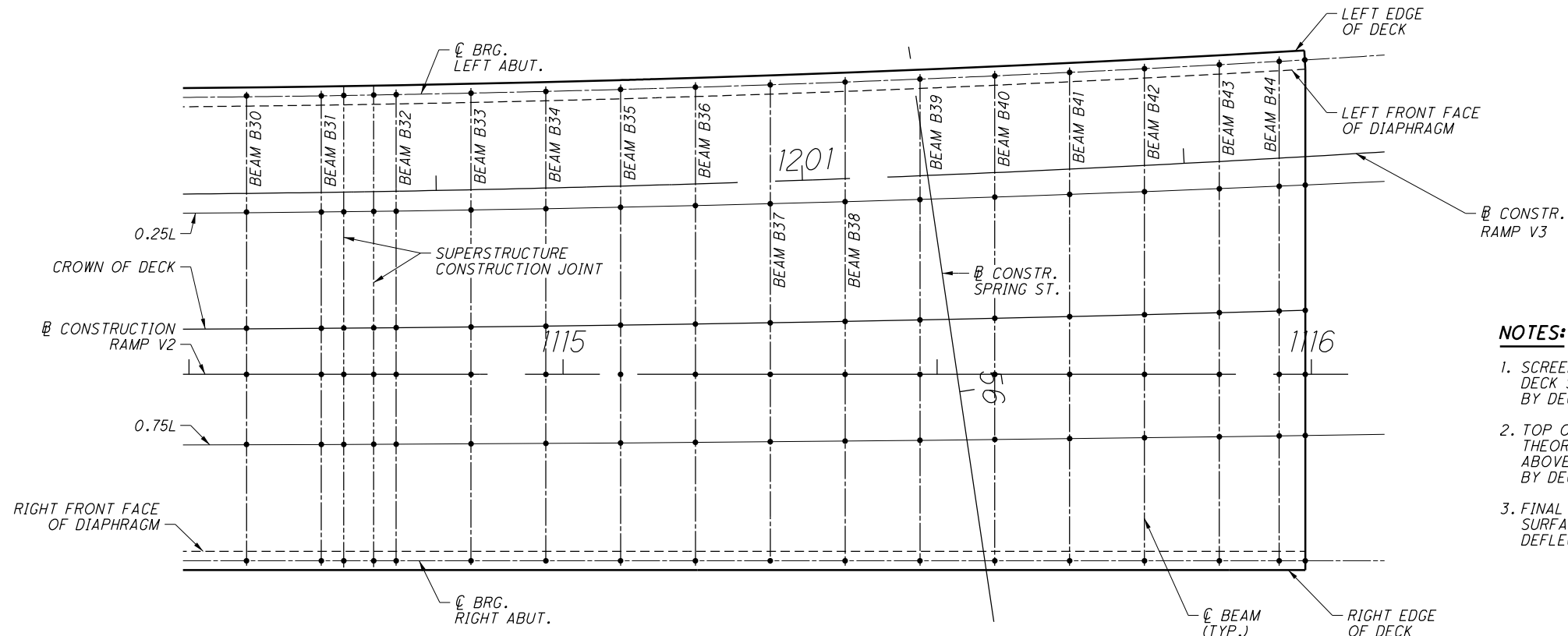
DECK ELEVATIONS

		BEGIN UNIT 2 CONSTR.	BEAM B15	BEAM B16	BEAM B17	BEAM B18	BEAM B19	BEAM B20	BEAM B21	BEAM B22	BEAM B23	BEAM B24	BEAM B25	BEAM B26	BEAM B27	BEAM B28	BEAM B29
LEFT EDGE OF DECK	STATION	1113+04.20	1113+07.70	1113+17.70	1113+27.70	1113+37.70	1113+47.70	1113+57.70	1113+67.70	1113+77.70	1113+87.70	1113+97.70	1114+07.70	1114+17.70	1114+27.70	1114+37.70	1114+47.70
	FINAL DECK ELEV.	796.97	796.96	796.94	796.93	796.92	796.92	796.81	796.66	796.52	796.36	796.20	796.04	795.89	795.92	795.96	795.99
	SCREED ELEV.	796.97	796.96	796.94	796.93	796.92	796.92	796.81	796.66	796.52	796.36	796.20	796.04	795.89	795.92	795.96	795.99
C BRGS. LEFT ABUT.	STATION	1113+04.20	1113+07.70	1113+17.70	1113+27.70	1113+37.70	1113+47.70	1113+57.70	1113+67.70	1113+77.70	1113+87.70	1113+97.70	1114+07.70	1114+17.70	1114+27.70	1114+37.70	1114+47.70
	FINAL DECK ELEV.	796.95	796.94	796.92	796.90	796.90	796.90	796.79	796.64	796.50	796.35	796.20	796.05	795.91	795.93	795.97	796.00
	TOP OF HAUNCH ELEV.	796.24	796.23	796.21	796.19	796.19	796.19	796.08	795.93	795.79	795.64	795.49	795.34	795.20	795.22	795.26	795.29
0.25L	STATION	1113+04.20	1113+07.70	1113+17.70	1113+27.70	1113+37.70	1113+47.70	1113+57.70	1113+67.70	1113+77.70	1113+87.70	1113+97.70	1114+07.70	1114+17.70	1114+27.70	1114+37.70	1114+47.70
	FINAL DECK ELEV.	796.64	796.63	796.61	796.59	796.59	796.59	796.52	796.42	796.33	796.25	796.18	796.11	796.05	796.09	796.12	796.16
	TOP OF HAUNCH ELEV.	796.00	795.99	795.97	795.95	795.95	795.95	795.88	795.78	795.69	795.61	795.54	795.48	795.41	795.45	795.49	795.52
CROWN/ 0.50L	STATION	1113+04.20	1113+07.70	1113+17.70	1113+27.70	1113+37.70	1113+47.70	1113+57.70	1113+67.70	1113+77.70	1113+87.70	1113+97.70	1114+07.70	1114+17.70	1114+27.70	1114+37.70	1114+47.70
	FINAL DECK ELEV.	796.33	796.32	796.30	796.28	796.28	796.28	796.24	796.20	796.16	796.15	796.16	796.18	796.20	796.24	796.28	796.31
	SCREED ELEV.	796.42	796.41	796.39	796.38	796.37	796.37	796.34	796.29	796.25	796.25	796.26	796.27	796.29	796.33	796.37	796.40
B CONSTR. RAMP V2	STATION	1113+04.20	1113+07.70	1113+17.70	1113+27.70	1113+37.70	1113+47.70	1113+57.70	1113+67.70	1113+77.70	1113+87.70	1113+97.70	1114+07.70	1114+17.70	1114+27.70	1114+37.70	1114+47.70
	FINAL DECK ELEV.	796.21	796.20	796.18	796.16	796.16	796.16	796.14	796.11	796.10	796.09	796.10	796.12	796.14	796.18	796.22	796.25
	SCREED ELEV.	796.30	796.29	796.27	796.25	796.25	796.25	796.23	796.20	796.19	796.18	796.19	796.21	796.23	796.27	796.31	796.34
0.75L	STATION	1113+04.20	1113+07.70	1113+17.70	1113+27.70	1113+37.70	1113+47.70	1113+57.70	1113+67.70	1113+77.70	1113+87.70	1113+97.70	1114+07.70	1114+17.70	1114+27.70	1114+37.70	1114+47.70
	FINAL DECK ELEV.	796.02	796.01	795.99	795.97	795.97	795.97	795.97	795.98	795.99	796.00	796.01	796.03	796.05	796.09	796.12	796.16
	TOP OF HAUNCH ELEV.	795.38	795.37	795.35	795.33	795.33	795.33	795.33	795.34	795.35	795.36	795.37	795.39	795.41	795.45	795.49	795.52
C BRGS. RIGHT ABUT.	STATION	1113+04.20	1113+07.70	1113+17.70	1113+27.70	1113+37.70	1113+47.70	1113+57.70	1113+67.70	1113+77.70	1113+87.70	1113+97.70	1114+07.70	1114+17.70	1114+27.70	1114+37.70	1114+47.70
	FINAL DECK ELEV.	795.71	795.70	795.68	795.66	795.66	795.66	795.70	795.76	795.82	795.85	795.85	795.87	795.89	795.93	795.97	796.00
	TOP OF HAUNCH ELEV.	795.00	794.99	794.97	794.96	794.95	794.95	794.99	795.05	795.11	795.14	795.15	795.16	795.18	795.22	795.26	795.29
RIGHT EDGE OF DECK	STATION	1113+04.20	1113+07.70	1113+17.70	1113+27.70	1113+37.70	1113+47.70	1113+57.70	1113+67.70	1113+77.70	1113+87.70	1113+97.70	1114+07.70	1114+17.70	1114+27.70	1114+37.70	1114+47.70
	FINAL DECK ELEV.	795.68	795.67	795.65	795.64	795.63	795.63	795.68	795.74	795.81	795.83	795.84	795.86	795.88	795.92	795.96	795.99
	SCREED ELEV.	795.68	795.67	795.65	795.64	795.63	795.63	795.68	795.74	795.81	795.83	795.84	795.86	795.88	795.92	795.96	795.99

NO CHANGES TO SHEET

NO.	DATE	DESCRIPTION
2	09/04/14	RECORD DRAWINGS
1	3/26/12	RFCD
B	2/15/12	FINAL SUBMITTAL
A	12/20/11	INTERIM SUBMITTAL
ISSUE RECORD		

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NOTES:

1. SCREED ELEVATIONS SHOWN REPRESENT THE THEORETICAL DECK SURFACE LOCATION PRIOR TO DEFLECTIONS CAUSED BY DECK PLACEMENT AND OTHER ANTICIPATED DEAD LOADS.
2. TOP OF HAUNCH ELEVATIONS SHOWN REPRESENT THE THEORETICAL LOCATION OF THE BOTTOM OF THE DECK ABOVE THE BEAM HAUNCH PRIOR TO DEFLECTIONS CAUSED BY DECK PLACEMENT AND OTHER ANTICIPATED DEAD LOADS.
3. FINAL DECK ELEVATIONS SHOWN REPRESENT THE DECK SURFACE LOCATIONS AFTER ALL ANTICIPATED DEAD LOAD DEFLECTIONS HAVE OCCURRED.

UNIT 2 PARTIAL DECK ELEVATION LAYOUT

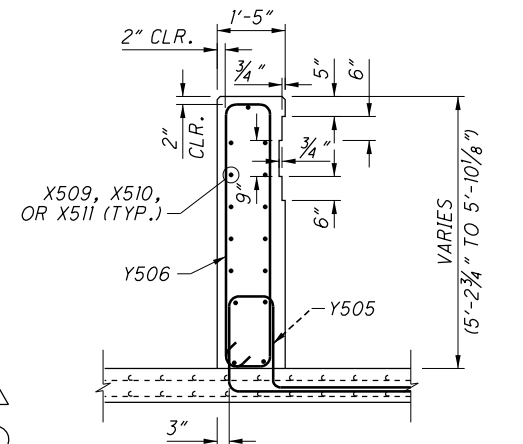
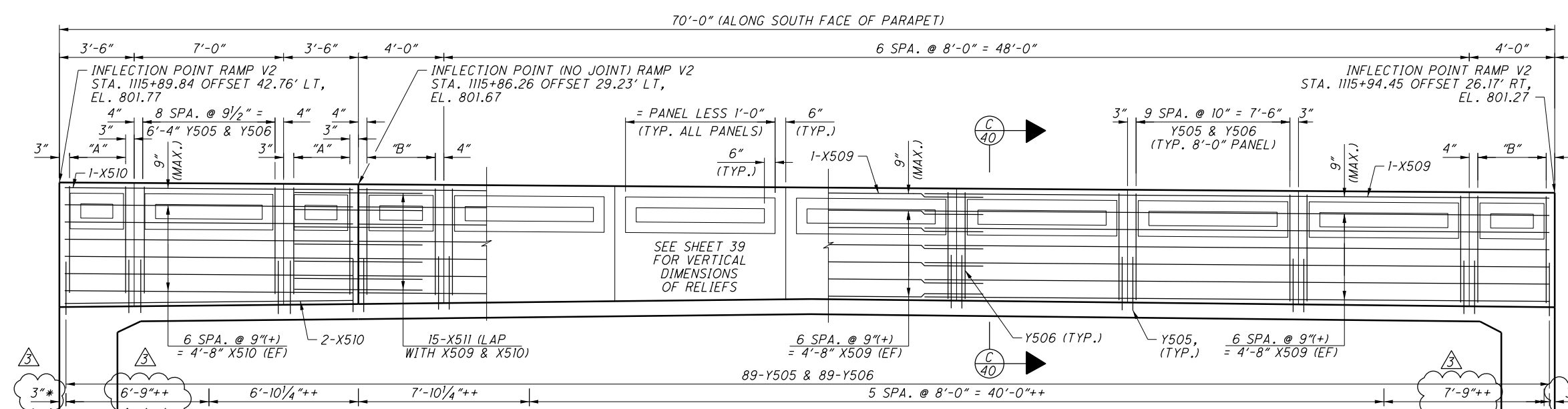
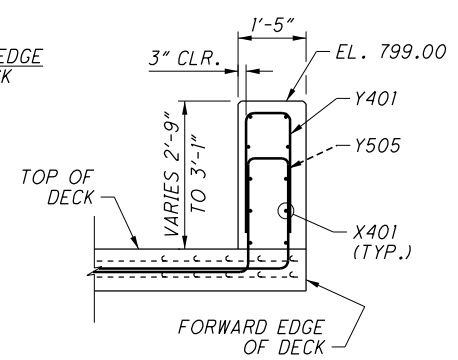
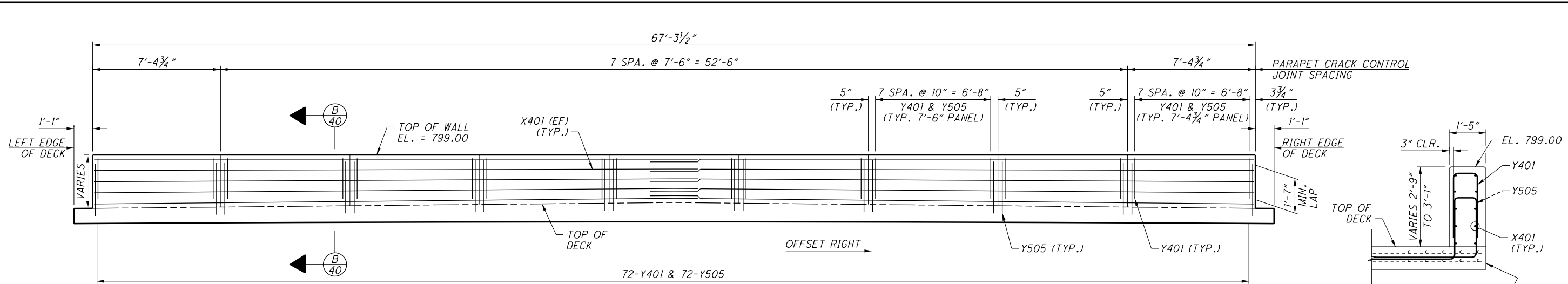
DECK ELEVATIONS																				
		BEAM B30	BEAM B31	SUPER- STRUCTURE CONSTR. JOINT	SUPER- STRUCTURE CONSTR. JOINT	BEAM B32	BEAM B33	BEAM B34	BEAM B35	BEAM B36	BEAM B37	BEAM B38	BEAM B39	BEAM B40	BEAM B41	BEAM B42	BEAM B43	BEAM B44	FWD. EDGE OF DECK	
LEFT EDGE OF DECK	STATION	1114+57.70	1114+67.70	1114+70.70	1114+74.70	1114+77.70	1114+87.70	1114+97.70	1115+07.70	1115+17.70	1115+27.70	1115+37.70	1115+47.70	1115+57.70	1115+67.70	1115+77.70	1115+87.70	1115+95.70	1115+99.20	
	FINAL DECK ELEV.	796.02	796.04	796.05	796.05	796.06	796.07	796.08	796.08	796.07	796.06	796.05	796.03	796.00	795.97	795.94	795.93	795.91	795.90	
	SCREED ELEV.	796.02	796.04	796.05	796.05	796.06	796.07	796.08	796.08	796.08	796.07	796.06	796.05	796.03	796.00	795.97	795.94	795.93	795.91	795.90
C BRGS. LEFT ABUT.	STATION	1114+57.70	1114+67.70	1114+70.70	1114+74.70	1114+77.70	1114+87.70	1114+97.70	1115+07.70	1115+17.70	1115+27.70	1115+37.70	1115+47.70	1115+57.70	1115+67.70	1115+77.70	1115+87.70	1115+95.70	1115+99.20	
	FINAL DECK ELEV.	796.03	796.05	796.06	796.06	796.07	796.08	796.09	796.09	796.09	796.08	796.06	796.04	796.02	795.99	795.95	795.94	795.92	795.92	
	TOP OF HAUNCH ELEV.	795.32	795.34	795.35	795.35	795.36	795.37	795.38	795.38	795.38	795.37	795.35	795.33	795.31	795.28	795.24	795.23	795.21	795.21	
0.25L	STATION	1114+57.70	1114+67.70	1114+70.70	1114+74.70	1114+77.70	1114+87.70	1114+97.70	1115+07.70	1115+17.70	1115+27.70	1115+37.70	1115+47.70	1115+57.70	1115+67.70	1115+77.70	1115+87.70	1115+95.70	1115+99.20	
	FINAL DECK ELEV.	796.19	796.21	796.22	796.22	796.23	796.24	796.25	796.25	796.24	796.24	796.22	796.20	796.18	796.15	796.12	796.10	796.09	796.08	
	TOP OF HAUNCH ELEV.	795.55	795.57	795.58	795.58	795.59	795.60	795.61	795.61	795.61	795.60	795.59	795.57	795.55	795.52	795.49	795.48	795.46	795.46	
CROWN/ 0.50L	STATION	1114+57.70	1114+67.70	1114+70.70	1114+74.70	1114+77.70	1114+87.70	1114+97.70	1115+07.70	1115+17.70	1115+27.70	1115+37.70	1115+47.70	1115+57.70	1115+67.70	1115+77.70	1115+87.70	1115+95.70	1115+99.20	
	FINAL DECK ELEV.	796.34	796.36	796.37	796.37	796.38	796.39	796.40	796.40	796.40	796.39	796.38	796.36	796.34	796.31	796.28	796.27	796.26	796.25	
	SCREED ELEV.	796.43	796.46	796.47	796.47	796.48	796.49	796.50	796.50	796.50	796.49	796.48	796.47	796.45	796.42	796.39	796.38	796.37	796.36	
E CONSTR. RAMP V2	STATION	1114+57.70	1114+67.70	1114+70.70	1114+74.70	1114+77.70	1114+87.70	1114+97.70	1115+07.70	1115+17.70	1115+27.70	1115+37.70	1115+47.70	1115+57.70	1115+67.70	1115+77.70	1115+87.70	1115+95.70	1115+99.20	
	FINAL DECK ELEV.	796.28	796.30	796.31	796.31	796.32	796.33	796.34	796.34	796.33	796.33	796.31	796.29	796.27	796.24	796.20	796.19	796.17	796.16	
	SCREED ELEV.	796.37	796.39	796.4	796.4	796.41	796.42	796.43	796.43	796.43	796.42	796.41	796.39	796.37	796.33	796.30	796.29	796.28	796.27	
0.75L	STATION	1114+57.70	1114+67.70	1114+70.70	1114+74.70	1114+77.70	1114+87.70	1114+97.70	1115+07.70	1115+17.70	1115+27.70	1115+37.70	1115+47.70	1115+57.70	1115+67.70	1115+77.70	1115+87.70	1115+95.70	1115+99.20	
	FINAL DECK ELEV.	796.19	796.21	796.22	796.22	796.23	796.24	796.25	796.25	796.24	796.22	796.20	796.18	796.15	796.12	796.10	796.09	796.08		
	TOP OF HAUNCH ELEV.	795.55	795.57	795.58	795.58	795.59	795.60	795.61	795.61	795.61	795.60	795.59	795.57	795.55	795.52	795.49	795.48	795.46	795.46	
C BRGS. RIGHT ABUT.	STATION	1114+57.70	1114+67.70	1114+70.70	1114+74.70	1114+77.70	1114+87.70	1114+97.70	1115+07.70	1115+17.70	1115+27.70	1115+37.70	1115+47.70	1115+57.70	1115+67.70	1115+77.70	1115+87.70	1115+95.70	1115+99.20	
	FINAL DECK ELEV.	796.03	796.05	796.06	796.06	796.07	796.08	796.09	796.09	796.09	796.08	796.06	796.04	796.02	795.99	795.95	795.94	795.92	795.92	
	TOP OF HAUNCH ELEV.	795.32	795.34	795.35	795.35	795.36	795.37	795.38	795.38	795.38	795.37	795.35	795.33	795.31	795.28	795.24	795.23	795.21	795.21	
RIGHT EDGE OF DECK	STATION	1114+57.70	1114+67.70	1114+70.70	1114+74.70	1114+77.70	1114+87.70	1114+97.70	1115+07.70	1115+17.70	1115+27.70	1115+37.70	1115+47.70	1115+57.70	1115+67.70	1115+77.70	1115+87.70	1115+95.70	1115+99.20	
	FINAL DECK ELEV.	796.02	796.04	796.05	796.05	796.06	796.07	796.08	796.08	796.08	796.07	796.06	796.05	796.03	796.00	795.97	795.94	795.93	795.91	795.90
	SCREED ELEV.	796.02	796.04	796.05	796.05	796.06	796.07	796.08	796.08	796.08	796.07	796.06	796.05	796.03	796.00	795.97	795.94	795.93	795.91	795.90

2 NO CHANGES TO SHEET

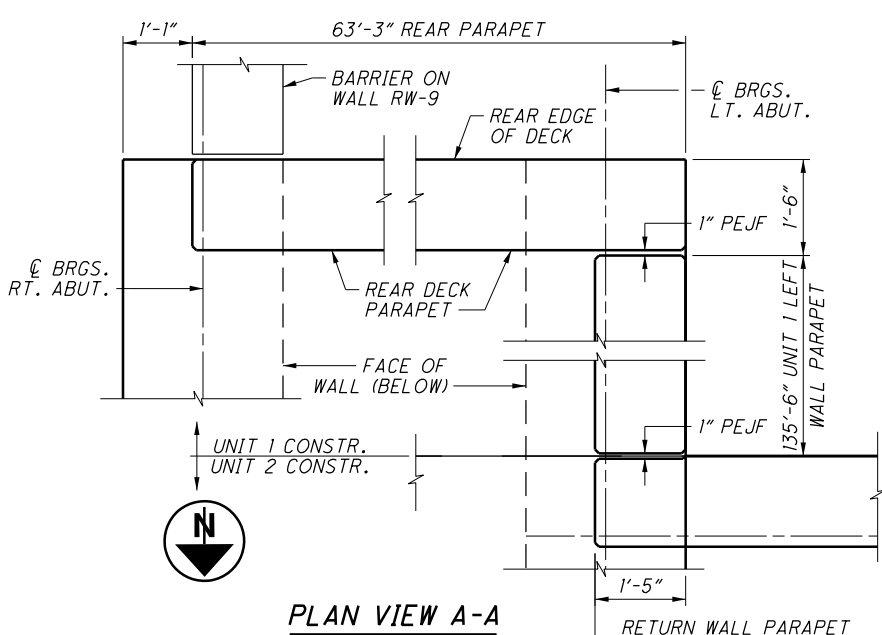
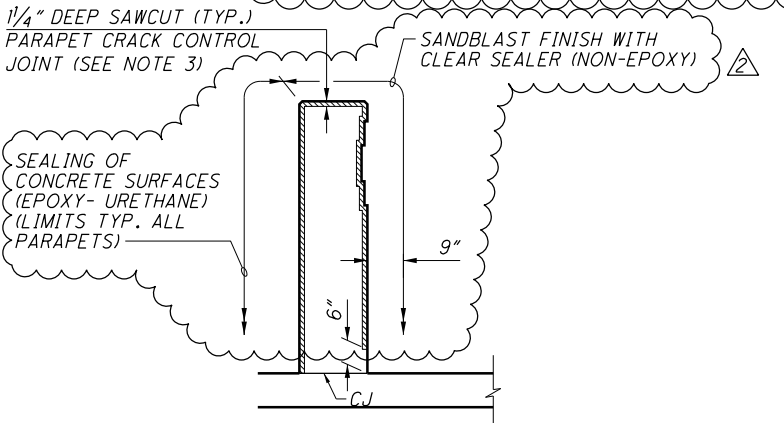
NO.	DATE	DESCRIPTION
2	09/04/14	RECORD DRAWINGS
1	3/26/12	RFC
B	2/15/12	FINAL SUBMITTAL
A	12/20/11	INTERIM SUBMITTAL
ISSUE RECORD		

071_1784BDP007.dgn 10/9/2014 12:58:48 PM nsherril

DESIGN AGENCY: **CH2M HILL**
 1103 SCHROCK ROAD, SUITE 400
 COLUMBUS, OHIO 43229
 DATE: 02/12
 REVIEWED: MAM
 DRAWN: TEK
 DESIGNED: CNK
 CHECKED: DGS
 STRUCTURE FILE NUMBER: 2507617
 DECK ELEVATIONS III
 BRIDGE NO. FRA-071-1784B
 NORTHBOUND C-D AND SPRING STREET COVER RAMP V2
 FRA-71-17.76
 FRA-670-4.19
 PID No. 77369
 87B20-38
 1973
 2744



A = 4 SPA. @ 9" = 3'-0" Y505 & Y506
 B = 4 SPA. @ 10" = 3'-4" Y505 & Y506
 ++ = DECORATIVE FENCE POST SPACING (POSTS NOT SHOWN, SEE AESTHETIC ENHANCEMENT PLANS FOR DETAILS.) DIMENSION GIVEN AT CENTER OF BARRIER AND C OF FENCE POST.
 * FOR TERMINAL FENCE POST DETAIL, SEE DETAIL 4A ON SHEET I29C-81 OF AESTHETIC ENHANCEMENT PLANS.



- NOTES:**
- REINFORCING STEEL LAP LENGTHS:
 NO. 4 BARS = 27"
 NO. 5 BARS = 33"
 FOR REINFORCING STEEL LIST, SEE SHEETS 41 AND 42.
 - ALL REINFORCING STEEL SHALL BE EPOXY COATED CONFORMING TO ITEM 509.
 - CONCRETE PARAPETS: AS SOON AS A CONCRETE SAW CAN BE OPERATED WITHOUT DAMAGING THE FRESHLY PLACED CONCRETE, SAWCUT 1/4" DEEP CONTROL JOINTS INTO THE PERIMETER OF THE CONCRETE PARAPET STARTING AND ENDING AT THE ELEVATION OF THE CONCRETE DECK. USE AN EDGE GUIDE, FENCE, OR JIG TO ENSURE THAT THE CUT JOINT IS STRAIGHT, TRUE, AND ALIGNED ON ALL FACES OF THE PARAPET. THE JOINT WIDTH SHALL BE THE WIDTH OF THE SAW BLADE, A NOMINAL WIDTH OF 1/4 INCH. SEAL THE PERIMETER OF THE DEFLECTION CONTROL JOINT TO A MINIMUM DEPTH OF 1 INCH WITH A POLYURETHANE OR POLYMERIC MATERIAL CONFORMING TO ASTM C920, TYPE S. LEAVE THE BOTTOM 1/2 INCH OF BOTH THE INSIDE AND OUTSIDE FACES UNSEALED TO ALLOW WATER TO ESCAPE.
 - REFER TO AESTHETIC ENHANCEMENT PLANS FOR FENCE DETAILS INCLUDING POST ANCHORAGE AND CONNECTION DETAILS.

NO.	DATE	DESCRIPTION
4	09/04/14	RECORD DRAWINGS
3	12/17/12	NDC 38
2	10/9/12	RFI 188
1	3/26/12	RFC
A	2/15/12	FINAL SUBMITTAL
		ISSUE RECORD

071_1784BRA002.dgn 10/9/2014 12:59:48 PM nsherrill

071_1784BR001.dgn 10/9/2014 1:00:06 PM nsherril

MARK	LEFT ABUT.		RIGHT ABUT.		TOTAL		LENGTH	WEIGHT TOTAL		TYPE	DIMENSIONS (SEE NOTE 2)						
	UNIT 1	UNIT 2	UNIT 1	UNIT 2	UNIT 1	UNIT 2		UNIT 1	UNIT 2		A	B	C	D	E	R	INC.
SUBSTRUCTURE - ABUTMENTS																	
A401	10	10	10	10	20	20	2'-0"	27	27	STR							
A402	8	8	8	8	16	16	7'-10"	84	84	STR							
A403	240	294	136	294	376	588	3'-2"	796	1244	36	2'-2"						
A404		1029	476	1029	476	2058	3'-2"	1007	4354	36	2'-0"						
A501	54	1080	477	1080	531	2160	30'-0"	16615	67587	STR							
A502	27				27		36'-10"	1038		STR							
A503	27		43		70		33'-0"	2410		STR							
A504	27				27		43'-5"	1223		STR							
A505	27				27		39'-6"	1113		STR							
A506	54				54		36'-8"	2066		STR							
A507	256				256		8'-3"	2203		2	3'-3"	2'-0"	3'-3"				
A508				13		13	4'-3"		58	STR							
A509	276				276		8'-8"	2495		STR							
A510	36				36		9'-8"	363		STR							
A511	56				56		7'-10"	458		STR							
A512		6				6	14'-7"		92	STR							
A513	28				28		6'-3"	183		STR							
A514	400				400		8'-9"	3651		2	3'-5"	2'-2"	3'-5"				
A515		590	274	590	274	1180	8'-7"	2453	10564	2	3'-5"	2'-0"	3'-5"				
A516		60		30		90	27'-10"		2613	STR							
A517		60				60	44'-9"		2801	STR							
A518		82				82	21'-3"		1818	STR							
A519		82	79		79	82	26'-10"	2211	2295	STR							
A520		41			41		10'-3"		439	19	5'-2"	1'-2"	5'-1"				
A521			36		36		29'-1"	1093		STR							
A522				30		30	31'-2"		976	STR							
A523				30		30	27'-5"		858	STR							
A524				30		30	23'-11"		749	STR							
A525				60		60	31'-1"		1946	STR							
A526			64		64		9'-3"	618		1	5'-9"	3'-7"					
A527			60		60		31'-0"	1940		STR							
A528		60		60		120	30'-5"		3807	STR							
A529		36	60	36	60	60	6'-0"	225	376	STR							
A530		14	276	14	276	28	7'-4"	2112	215	3	1'-5"	2'-0"					
A531			274		274		9'-2"	2620		37	1'-4"	3'-3"					
A601		265	122	265	122	530	10'-9"	1970	8558	35	2'-0"	8"	2'-2"	10"	1'-0"		
A602	88				88		30'-0"	3966		STR							
A603																	
A604	22				22		34'-0"	1124		STR							
A605		103			103		27'-3"	4216		STR							
A606		103			103		6'-10"	1058		1	1'-0"	6'-0"					
A607		590		590		1180	14'-8"	25995		STR							
A608	56				56		15'-1"	1269		38	5'-0"	4'-9"	7'-4"		4'-9"		
A609	126				126		13'-6"	2555		2	5'-10"	2'-2"	5'-10"				
A610	122				122		10'-11"	2001		35	2'-2"	8"	2'-2"	10"	1'-1"		
A701	205				205		17'-6"	7333		STR							
A702		97			97		21'-1"	4181		STR							
A703			205		205		23'-6"	9847		STR							
A704			274		274		14'-4"	8028		STR							
A705		404		443		847	19'-6"	33760		STR							
A706		1 SERIES			1 SERIES		22'-9"	2123	34	40	22'-9"	29'-2"				1 1/16"	
		OF			OF		TO										
		40			40		29'-2"										
A707		1 SERIES			1 SERIES		27'-2"	2004	34	33	27'-2"	32'-3"				1 1/16"	
		OF			OF		TO										
		33			33		32'-3"										
A708	56				56		8'-0"	916		STR							
A709		23			23		21'-6"	1011		STR							
A801	100	114	44	114	144	228	30'-0"	11535	18263	STR							
A802			6		6		36'-4"	583		STR							
A803	20		4		24		22'-11"	1469		STR							
A804	296				296		12'-10"	10143		1	1'-4"	11'-8"					
A805	252				252		9'-1"	6112		1	1'-4"	7'-11"					

MARK	LEFT ABUT.		RIGHT ABUT.		TOTAL		LENGTH	WEIGHT TOTAL		TYPE	DIMENSIONS (SEE NOTE 2)						
	UNIT 1	UNIT 2	UNIT 1	UNIT 2	UNIT 1	UNIT 2		UNIT 1	UNIT 2		A	B	C	D	E	R	INC.
SUBSTRUCTURE - ABUTMENTS																	
A806		19		19		38	15'-4"		1556	1	1'-4"	14'-3"					
A807		30				30	21'-6"		1723	STR							
A808		93	274		274	93	14'-3"	10426	3539	1	1'-4"	13'-1"					
A809		82				82	15'-6"		3394	19	9'-0"	1'-6"	6'-4"				
A810		10		10		20	21'-8"		1157	STR							
A811							-			-							
A812							-			-							
A813		285	138	295	138	580	10'-7"	3900	16390	1	1'-4"	9'-5"					
A814			274		274		19'-3"	14083		STR							
A815		570		590		1160	13'-3"	41038		1	1'-4"	12'-1"					
A816		590				590	19'-10"	31244		STR							
A817				594		594	18'-11"	30002		STR							
A818		540		591		1131	19'-6"	58886		STR							
A819		21				21	14'-7"	818		2	6'-6"	2'-0"	6'-6"				
A820		1 SERIES			1 SERIES		23'-7"	3863	34	54	23'-7"	30'-0"				1 1/16"	
		OF			OF		TO										
		54			54		30'-0"										
A821		1 SERIES			1 SERIES		27'-2"	3491	34	44	27'-2"	32'-3"				1 1/16"	
		OF			OF		TO										
		44			44		32'-3"										
A901	338				338		20'-4"	23368		STR							
A902	274				274		17'-6"	16303		STR							
A903		4				4	14'-4"	195		1	1'-6"	13'-1"					
A1001				274		274	23'-6"	27708		STR							
SUBTOTAL								213643	401368								

3 NO CHANGES TO SHEET

- NOTES:
1. THE BAR SIZE IS SPECIFIED ON THE PLANS IN THE BAR MARK COLUMN. THE FIRST NUMBER INDICATES THE BAR SIZE NUMBER.
 2. ALL DIMENSIONS ARE MEASURED OUT-TO-OUT OF BAR UNLESS NOTED OTHERWISE.
 3. RADIUS DIMENSION "R" IS TO THE OUTSIDE OF BAR. RADIUS DIMENSION "I.R." IS TO THE INSIDE OF BAR.
 4. FOR STANDARD HOOK DIMENSIONS, SEE SECTION 509.05 OF THE SPECIFICATIONS.
 5. ALL REINFORCING STEEL SHALL BE EPOXY COATED, GRADE 60.
 6. FOR BAR BENDING DIAGRAMS, SEE SHEET 42.

NO.	DATE	DESCRIPTION
3	09/04/14	RECORD DRAWINGS
2	07/19/12	RFI 134
1	3/26/12	RFC
B	2/15/12	FINAL SUBMITTAL
A	12/20/11	INTERIM SUBMITTAL

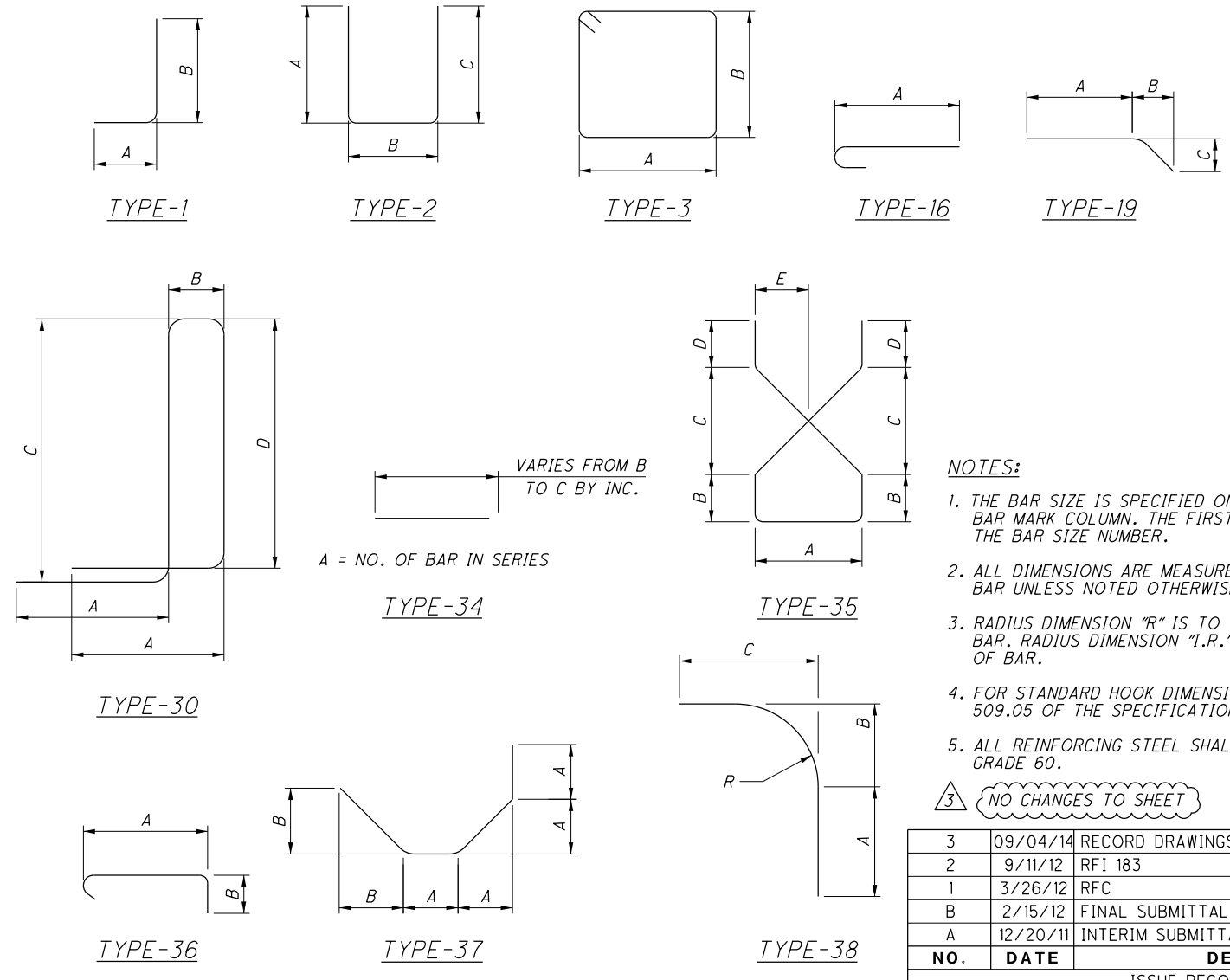
DESIGN AGENCY: CH2M HILL
 1103 SCHROCK ROAD, SUITE 400
 COLUMBUS, OHIO 43229
 DATE: 02/12
 REVIEWED: MAM
 DRAWN: TEK
 DESIGNED: CNK
 CHECKED: DGS
 STRUCTURE FILE NUMBER: 2507617
 REINFORCING STEEL LIST I
 BRIDGE NO. FRA-071-1784B
 NORTHBOUND C-D AND SPRING STREET OVER RAMP V2
 FRA-71-17.76
 FRA-670-4.19
 PID No. 77369
 87B20-41
 1976
 2744

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MARK	LEFT ABUT.		RIGHT ABUT.		TOTAL		LENGTH	WEIGHT TOTAL		TYPE	DIMENSIONS (SEE NOTE 2)						
	UNIT 1	UNIT 2	UNIT 1	UNIT 2	UNIT 1	UNIT 2		UNIT 1	UNIT 2		A	B	C	D	E	R	INC.
SUBSTRUCTURE - ABUTMENT DIAPHRAGMS																	
D501	240	526	240	526	480	1052	10'-3"	5132	11247	2	4'-2"	2'-2"	4'-2"				
D601	12	24	12	24	24	48	30'-0"	1082	2163	STR							
D602	3		3		6		33'-0"	298		STR							
D603	39	84	39	84	78	168	9'-1"	1065	2293	STR							
D604		3		3		6	37'-0"		334	STR							
D605		3		3		6	7'-1"		64	STR							
D606	2	2	2	2	4	4	5'-4"	33	33	2	1'-9"	2'-2"	1'-9"				
D607	1	1	1	1	2	2	3'-10"	12	12	2	1'-0"	2'-2"	1'-0"				
D608	3	3	3	3	6	6	9'-2"	83	83	2	4'-4"	2'-2"	4'-4"				
D609	2	2	2	2	4	4	7'-8"	47	47	2	2'-11"	2'-2"	2'-11"				
D610	1	1	1	1	2	2	6'-2"	19	19	2	2'-2"	2'-2"	2'-2"				
D611		3		3		6	18'-0"		163	STR							
D612		3		3		6	42'-0"		379	STR							
D613		8		8		16	6'-7"		158	STR							
D801	36	84	36	84	72	168	30'-0"	5768	13457	STR							
D802	4	4	4	4	8	8	19'-10"	424	424	STR							
D803	4		4		8		34'-8"	741		STR							
D804		4		4		8	15'-8"		335	STR							
D805		4		4		8	16'-0"		342	STR							
D806		4		4		8	40'-2"		858	STR							
SUB-TOTAL								14704	32410								

MARK	NUMBER		LENGTH	WEIGHT		TYPE	DIMENSIONS (SEE NOTE 2)									
	UNIT 1	UNIT 2		UNIT 1	UNIT 2		A	B	C	D	E	R	INC.			
SUPERSTRUCTURE - DECK																
S401	414	888	30'-0"	8297	17796	STR										
S402	207	231	8'-0"	1107	1235	STR										
S403		213	13'-0"		1850	STR										
S404		24	2'-3"		37	STR										
S405		9	7'-2"		44	3	1'-8"	1'-8"								
S501	414	888	30'-0"	12955	27786	STR										
S502	207	231	9'-0"	1944	2169	STR										
S503	213		14'-0"		3111	STR										
S504	114	127	9'-7"	1140	1270	16	9'-0"									
S601	912	1824	30'-0"	41095	82190	STR										
S602	228		28'-8"		9818	STR										
S603		228	24'-6"		8391	STR										
S604		34	39'-0"		1992	STR										
S605		228	34'-11"		11958	STR										
S606		228	25'-1"		8590	STR										
S607		4	19'-4"		117	STR										
SUB-TOTAL				76356	168536											

MARK	NUMBER		LENGTH	WEIGHT		TYPE	DIMENSIONS (SEE NOTE 2)									
	UNIT 1	UNIT 2		UNIT 1	UNIT 2		A	B	C	D	E	R	INC.			
SUPERSTRUCTURE - PARAPET																
X401		20	34'-8"		464	STR										
X501	30		32'-11"	1030		STR										
X502	60		30'-0"	1878		STR										
X503	15		26'-0"	407		STR										
X504		15	23'-3"		364	STR										
X505		15	27'-9"		435	STR										
X506		7	6'-2"		46	2	2'-9"	11"	2'-9"							
X507		15	7'-4"		115	19	3'-8"	10"	3'-7"							
X509		30	29'-3"		916	STR										
X510		17	13'-6"		240	STR										
X511		15	6'-0"		94	19	3'-0"	2'-9"	1'-2"							
Y401		72	5'-9"		277	2	2'-6"	11"	2'-6"							
Y501	249		14'-3"	3701		30	4'-11"	11"	2'-0"	2'-0"						
Y502	249	64	13'-3"	3442	885	3	11"	5'-5"								
Y503		3	13'-0"		41	3	11"	5'-4"								
Y504		64	8'-8"		579	2	4'-0"	11"	4'-0"							
Y505		161	15'-3"		2561	30	4'-11"	11"	2'-6"	2'-6"						
Y506		89	12'-4"		1145	3	11"	5'-0"								
SUB-TOTAL				10458	8162											



- NOTES:**
1. THE BAR SIZE IS SPECIFIED ON THE PLANS IN THE BAR MARK COLUMN. THE FIRST NUMBER INDICATES THE BAR SIZE NUMBER.
 2. ALL DIMENSIONS ARE MEASURED OUT-TO-OUT OF BAR UNLESS NOTED OTHERWISE.
 3. RADIUS DIMENSION "R" IS TO THE OUTSIDE OF BAR. RADIUS DIMENSION "I.R." IS TO THE INSIDE OF BAR.
 4. FOR STANDARD HOOK DIMENSIONS, SEE SECTION 509.05 OF THE SPECIFICATIONS.
 5. ALL REINFORCING STEEL SHALL BE EPOXY COATED, GRADE 60.

NO CHANGES TO SHEET

NO.	DATE	DESCRIPTION
3	09/04/14	RECORD DRAWINGS
2	9/11/12	RFI 183
1	3/26/12	RFC
B	2/15/12	FINAL SUBMITTAL
A	12/20/11	INTERIM SUBMITTAL
ISSUE RECORD		