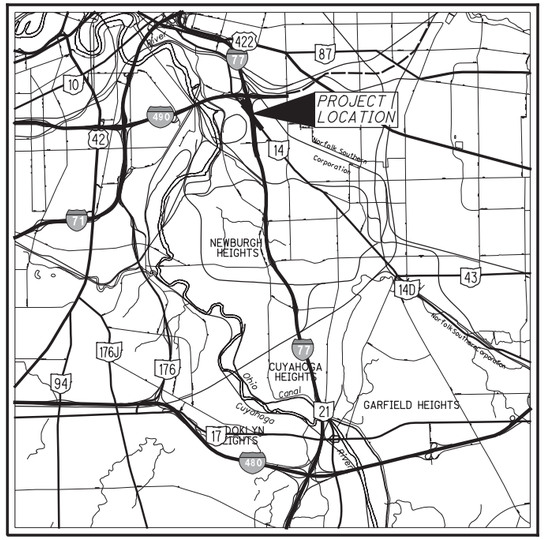

LOCATION MAP

LATITUDE: 41°28'27" LONGITUDE: 81°39'35"

SCALE IN MILES

0 1 2 3 4

N

PORTION TO BE IMPROVED
INTERSTATE HIGHWAY
FEDERAL ROUTES
STATE ROUTES
COUNTY & TOWNSHIP ROADS
OTHER ROADS

STATE OF OHIO

DEPARTMENT OF TRANSPORTATION

CUY-77-13.80 (CCG6B)
BUILDABLE UNIT 5

CITY OF CLEVELAND

CUYAHOGA COUNTY

PROJECT DESCRIPTION

REPLACEMENT OF THE CUY-77-1409 STRUCTURE.

PROJECT EARTH DISTURBED AREA: N/A ACRES
ESTIMATED CONTRACTOR EARTH DISTURBED AREA: N/A ACRES
NOTICE OF INTENT EARTH DISTURBED AREA: N/A ACRES
(SEE BU-6 FOR PROJECT EARTH DISTURBED AREA)

LIMITED ACCESS

THIS IMPROVEMENT IS ESPECIALLY DESIGNED FOR THROUGH TRAFFIC AND HAS BEEN DECLARED A LIMITED ACCESS HIGHWAY OR FREEWAY BY ACTION OF THE DIRECTOR IN ACCORDANCE WITH THE PROVISIONS OF SECTION 5511.02 OF THE OHIO REVISED CODE.

2016 SPECIFICATIONS

THE STANDARD SPECIFICATIONS OF THE STATE OF OHIO, DEPARTMENT OF TRANSPORTATION, INCLUDING CHANGES LISTED IN THE PROPOSAL SHALL GOVERN THIS IMPROVEMENT.

INDEX OF SHEETS:

TITLE SHEET	1
STRUCTURES OVER 20' CUY-77-1409	2-92
LIGHTING	93-100

DESIGN DESIGNATION

	I.R. 77 NORTH OF BROADWAY	I.R. 77 SOUTH OF BROADWAY	RAMP J5 & J6	FRONTAGE ROAD	BROADWAY AVENUE
CURRENT ADT (2017)	32,770	54,050	21,280	2,340	18,170
DESIGN YEAR ADT (2037)	41,220	63,300	22,080	2,300	18,410
DESIGN HOURLY VOLUME AM/PM (2037)	2,340/4,970	4,900/6,470	2,560/1,500	110/310	1,580/1,160
DIRECTIONAL DISTRIBUTION AM/PM	55%/61%	57%/60%	N/A	N/A	62%/65%
TRUCKS (24 HOUR B&C)	8%	8%	7%	37%	6%
DESIGN SPEED	60	60	50 (490E), 35 (490W)	40	35
LEGAL SPEED	50	60	N/A	35	35
DESIGN FUNCTIONAL CLASSIFICATION:	URBAN INTERSTATE	URBAN INTERSTATE	DIRECTIONAL RAMP	DIRECTIONAL RAMP	URBAN PRINCIPAL ARTERIAL
NHS PROJECT	YES	YES	YES	YES	YES

DESIGN EXCEPTIONS

NONE

UNDERGROUND UTILITIES

CONTACT BOTH SERVICES TWO WORKING DAYS **BEFORE YOU DIG.**

OHIO Utilities Protection SERVICE — *Call Before You Dig* **1-800-362-2764**

(Non-members must be called directly)

OIL & GAS PRODUCERS UNDERGROUND PROTECTION SERVICE **1-800-925-0988**

PLAN PREPARED BY:

E.L. ROBINSON ENGINEERING
1468 West 9th Street • Cleveland, Ohio 44113
www.elrobinsonengineering.com

kokosing CONSTRUCTION COMPANY INC.

ENGINEERS SEAL:

STATE OF OHIO — CURTIS JAMES WOOD — E-69704 — REGISTERED PROFESSIONAL ENGINEER

SIGNED: Curtis Wood
DATE: 1/15/2017

ENGINEERS SEAL:

FOR LIGHTING

STATE OF OHIO — MARK J. HUNTER — E-56376 — REGISTERED PROFESSIONAL ENGINEER

SIGNED: Mark J Hunter
DATE: 1/15/2017

STANDARD CONSTRUCTION DRAWINGS

		SUPPLEMENTAL SPECIFICATIONS	
AS-1-15	7/17/15	800	7/15/16
AS-2-15	7/17/15	832	1/17/14
SICD-1-96	7/18/14	843	1/15/16
SICD-2-14	7/18/14		
VPF-1-90	7/17/15		
HL-20.14	1/20/17		
HL-30.11	7/21/17		
HL-30.22	1/17/14		
HL-30.32	1/17/14		
HL-30.33	1/17/14		
HL-40.10	1/20/17		
HL-50.11	1/16/15		
HL-50.21	7/21/17		
HL-60.11	7/21/17		
HL-60.31	7/21/17		

SPECIAL PROVISIONS

STRUCTURE MISC.: POST-TENSIONING SYSTEM (PRECAST SEGMENTS) 1-05-18

RELEASED FOR CONSTRUCTION

BU05_2018-01-26.BU-5 RFCv2.pdf

01/29/2018 | Brian.Link

APPROVED _____
DATE _____ DISTRICT DEPUTY DIRECTOR

APPROVED _____
DATE _____ DIRECTOR, DEPARTMENT OF TRANSPORTATION

NO.	DATE	DESCRIPTION
		BU5 - CUY-77-1409
		ISSUE RECORD

FEDERAL PROJECT NO. E131(492)

PID NO. 82388

CONSTRUCTION PROJECT NO. 173001

RAILROAD INVOLVEMENT NONE

CUY-77-13.80

1/100

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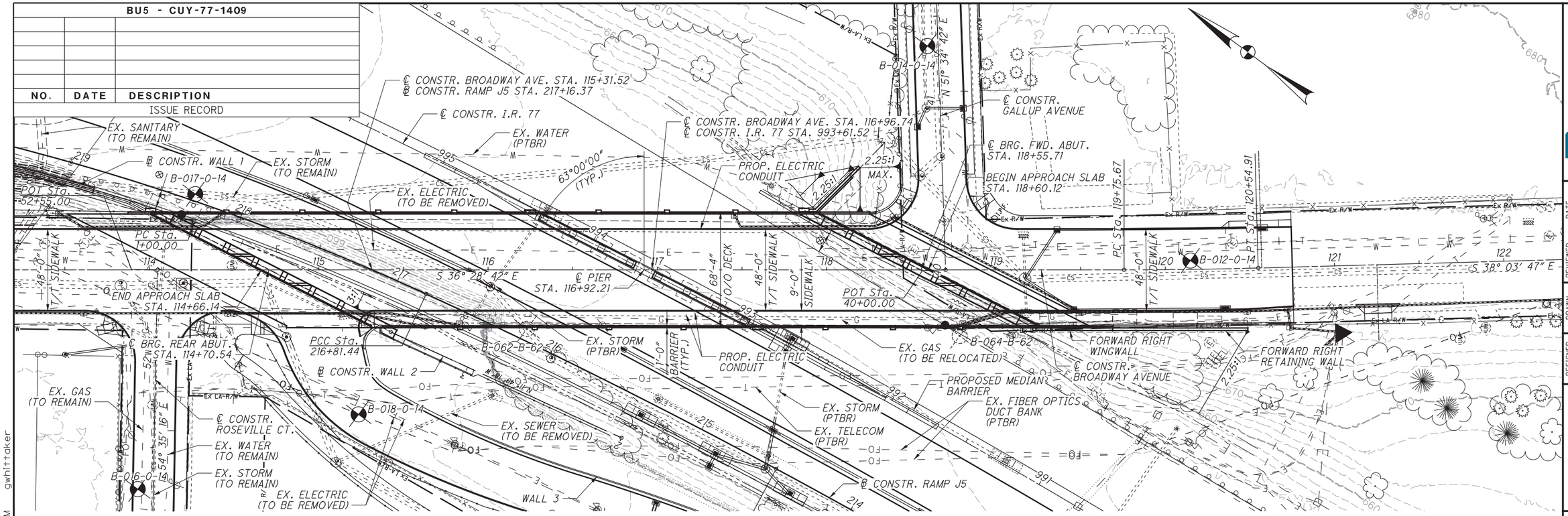
2018-01-26.BU-5 CUY-77-1409 - RFC Plans

BU5 - CUY-77-1409		
NO.	DATE	DESCRIPTION
ISSUE RECORD		



PLAN

BENCHMARK DATA

BM #6 STA. 111+14.49, ELEV. 674.58 , OFFSET 27.22' LT.
BM #7 STA. 122+58.40 , ELEV. 677.91 , OFFSET 54.44' RT.

FOR ADDITIONAL BENCHMARK INFORMATION AND CURVE DATA, SEE BU-4 ROADWAY PLANS.

NOTES

EARTHWORK LIMITS SHOWN ARE APPROXIMATE. ACTUAL SLOPES SHALL CONFORM TO PLAN CROSS SECTIONS.

DESIGN TRAFFIC:

2017 ADT = 18,170 2017 ADTT = 1090
2037 ADT = 18,410 2037 ADTT = 1105
DIRECTIONAL DISTRIBUTION AM/PM = 62%/65%

LEGEND

BORING LOCATION — HISTORIC BORING LOCATION

PTBR - PORTIONS TO BE RELOCATED

- ● - SB I.R. 77
  16.00' REQUIRED MINIMUM VERTICAL CLEARANCE
  16.50' ACTUAL MINIMUM VERTICAL CLEARANCE
  14.67' EXISTING MINIMUM VERTICAL CLEARANCE

  NB I.R. 77
  16.00' REQUIRED MINIMUM VERTICAL CLEARANCE
  16.01' ACTUAL MINIMUM VERTICAL CLEARANCE
  14.67' EXISTING MINIMUM VERTICAL CLEARANCE

- ⊗ - RAMP J5
  10.00' REQUIRED MINIMUM HORIZONTAL CLEARANCE
  10.00' ACTUAL MINIMUM HORIZONTAL CLEARANCE
  11.60' EXISTING MINIMUM HORIZONTAL CLEARANCE

  RAMP S-E
  12.00' REQUIRED MINIMUM HORIZONTAL CLEARANCE
  12.00' ACTUAL MINIMUM HORIZONTAL CLEARANCE
  12.60' EXISTING MINIMUM HORIZONTAL CLEARANCE

EXISTING STRUCTURE

TYPE: 2-SPAN STEEL BEAMS WITH REINFORCED CONCRETE DECK AND SUBSTRUCTURE.
SPANS: 172'-0"±, 123'-0"± MEASURED ALONG ℄ CONSTRUCTION BROADWAY AVENUE
ROADWAY: 46'-0"± TOE/TOE OF CURB WITH TWO 6'-2"± SIDEWALKS
LOADING: CF 400 (57); HS20-44
SKEW: 63°00'00"±
APPROACH SLABS: 40'-0"± REAR ABUT. & 50'-0"± FWD. ABUT.
WEARING SURFACE: 1" MONOLITHIC CONCRETE
ALIGNMENT: TANGENT
CROWN: 0.0156'/FT±
STRUCTURE FILE NUMBER: 1806661
DATE BUILT: 1963
DISPOSITION: TO BE REMOVED

PROPOSED STRUCTURE

TYPE: 2-SPAN PRECAST, PRE-TENSIONED, AND POST-TENSIONED CONCRETE BEAMS ON REINFORCED CONCRETE WALL TYPE SEMI-INTGRAL ABUTMENTS AND REINFORCED CONCRETE PIER.
SPANS: 221'-8" - 163'-6" C/C ABUT. BEARINGS/ ℄ PIERS MEASURED ALONG ℄ CONSTRUCTION BROADWAY AVENUE
ROADWAY: 48'-0" TOE/TOE OF CURB WITH TWO 9'-0" SIDEWALKS
LOADING: HL-93 AND 60 PSF FUTURE WEARING SURFACE
SKEW: 63°00'00"
APPROACH SLABS:
50'-0" LONG REAR (AS-1-15) (AS-2-15) (MODIFIED)
30'-0" LONG FORWARD (AS-1-15) (AS-2-15) (MODIFIED)
WEARING SURFACE: 1" MONOLITHIC CONCRETE
ALIGNMENT: TANGENT
CROWN: 0.02"/FT
COORDINATES: LATITUDE N41°28'34.96" LONGITUDE W81°39'39.30"

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DESIGNED	DRAWN	REVIEWED	DATE
GMW/CJW	DTA	RER	1/15/2017
CHECKED	REVISED	STRUCTURE FILE NUMBER	
DFT		1806663	

CUYAHOGA
STA. 114+66.14
STA. 118+60.12

SITE PLAN
BRIDGE NO. CUY-77-1409
BROADWAY AVENUE OVER IR 77

CUY-77-13.80
PID No. 82388

1 / 91
2 / 100

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BU5 - CUY-77-1409		
NO.	DATE	DESCRIPTION
ISSUE RECORD		

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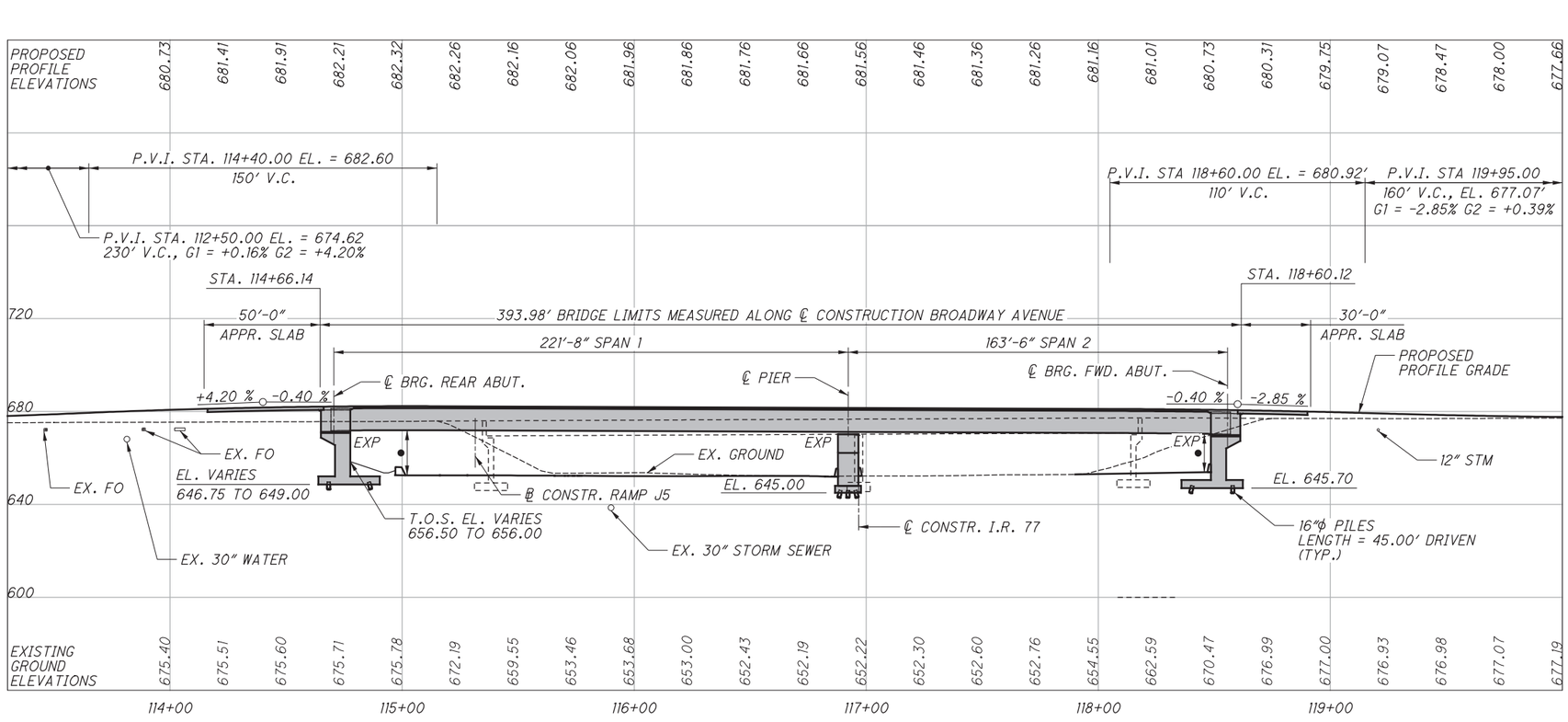

PROFILE ALONG ℄ CONSTRUCTION BROADWAY AVENUE

E.L. ROBINSON ENGINEERING
1801 Watermark Drive, Suite 310 • Columbus, Ohio 43215
www.elrobinsonengineering.com

DESIGNED	DRAWN	REVIEWED	DATE
GMW/CJW	DTA	RER	1/15/2017
CHECKED	REVISED	STRUCTURE FILE NUMBER	
DFT		1806663	

CUYAHOGA
STA. 114+66.14
STA. 118+60.12

SITE PLAN
BRIDGE NO. CUY-77-1409
BROADWAY AVENUE OVER IR 77

CUY-77-13.80
PID No. 82388

2 / 91

3 / 100

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STANDARD DRAWINGS AND SUPPLEMENTAL SPECIFICATIONS:

REFER TO THE FOLLOWING STANDARD BRIDGE DRAWINGS:

AS-1-15	REVISED 7-17-15
AS-2-15	REVISED 7-17-15
SICD-1-96	REVISED 7-18-14
SICD-2-14	REVISED 7-18-14
VPF-1-90	REVISED 7-17-15
HL-50.21	REVISED 7-21-17

REFER TO THE FOLLOWING SUPPLEMENTAL SPECIFICATIONS:

800	REVISED 7-15-16
832	DATED 1-17-14
843	DATED 1-15-16

REFER TO THE FOLLOWING SPECIAL PROVISION:

POST TENSIONING REVISED 1-05-18

DESIGN SPECIFICATIONS:

THIS STRUCTURE CONFORMS TO THE "LRFD BRIDGE DESIGN SPECIFICATIONS" ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS, 2014 - 7th EDITION INCLUDING THE 2015 AND 2016 INTERIM SPECIFICATIONS AND THE ODOT BRIDGE DESIGN MANUAL, 2007.

OPERATIONAL IMPORTANCE:

A LOAD MODIFIER OF 1.00 HAS BEEN ASSUMED FOR THE DESIGN OF THIS STRUCTURE IN ACCORDANCE WITH THE AASHTO 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.
SIDEWALK LOADING OF 0.075 KIPS/SQ. FT.

DESIGN DATA:

CONCRETE CLASS QC2 - COMPRESSIVE STRENGTH 4.5 KSI (SUPERSTRUCTURE)
CONCRETE CLASS QC1 - COMPRESSIVE STRENGTH 4.0 KSI (SUBSTRUCTURE)
CONCRETE CLASS QC1 - COMPRESSIVE STRENGTH 8.0 KSI (CLOSURE POUR FINAL)
CONCRETE CLASS QC1 - COMPRESSIVE STRENGTH 7.0 KSI (CLOSURE POUR @ POST TENSION STRESSING)
REINFORCING STEEL - MINIMUM YIELD STRENGTH 60 KSI
STRUCTURAL STEEL - ASTM A709 GRADE 50

CONCRETE FOR ALL PRESTRESSED BEAM SEGMENTS:
COMPRESSIVE STRENGTH (FINAL) - 10.0 KSI
COMPRESSIVE STRENGTH (RELEASE) - 7.0 KSI
ASSUMED CONCRETE AGES FOR DESIGN:
AT RELEASE - 1 DAY
AT ERECTION - 181 DAYS
AT POST-TENSIONING - 198 DAYS
AT DECK CASTING - 205 DAYS

WELDED WIRE FABRIC:
YIELD STRENGTH - 70 KSI

PRESTRESSING STRAND:
ASTM A416; 0.6" UNCOATED, SEVEN WIRE LOW RELAXATION; fpu = 270 KSI
AREA = 0.217 SQ. IN.
ULTIMATE STRENGTH = 270 KSI
INITIAL STRESS = 202.5 KSI (LOW RELAXATION STRANDS)

POST-TENSIONING TENDONS:
ASTM A416; 0.6" UNCOATED, SEVEN WIRE LOW RELAXATION; fpu = 270 KSI
STRAND AREA = 0.217 SQ. IN.
MODULUS OF ELASTICITY = 28,500 KSI
MAXIMUM JACKING STRESS: 81% ULTIMATE
MAXIMUM STRESS AT ANCHORAGES IMMEDIATELY AFTER ANCHOR SET: 70% ULTIMATE
MAXIMUM STRESS ELSEWHERE ALONG LENGTH OF MEMBER, IMMEDIATELY AFTER ANCHOR SET: 74% ULTIMATE
FRICTION COEFFICIENT: 0.15
WOBBLE COEFFICIENT: 0.0008 /FT
ANCHORAGE SET: 3/8"

SPECIAL DESIGN SPECIFICATIONS:

THIS BRIDGE REQUIRED THE USE OF A THREE DIMENSIONAL MODEL USING THE FINITE ELEMENT DESIGN METHOD TO ANALYZE THE STRUCTURE. THE COMPUTER PROGRAM USED FOR STRUCTURAL ANALYSIS WAS MIDAS CIVIL 2018 (v1.2). THE BRIDGE COMPONENTS DESIGNED BY THIS METHOD WERE THE POST-TENSIONED I-BEAMS.

ALL LOADS WERE DISTRIBUTED BASED ON ELEMENT STIFFNESS.

DECK PROTECTION METHOD:

EPOXY COATED REINFORCING STEEL
2 1/2" CONCRETE COVER

MONOLITHIC WEARING SURFACE:

MONOLITHIC WEARING SURFACE IS ASSUMED, FOR DESIGN PURPOSES, TO BE 1 INCH THICK.

EXISTING BRIDGE PLANS:

EXISTING PLANS MAY BE INSPECTED IN THE ODOT DISTRICT 12 OFFICE AT 5500 E. 98TH STREET, GARFIELD HEIGHTS, OH.

MAINTENANCE OF TRAFFIC:

SEE ROADWAY PLANS FOR MAINTENANCE OF TRAFFIC NOTES AND DETAILS.

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. THE FABRICATOR SHALL SHOW THE LIFTING SYSTEM ON THE SHOP DRAWINGS AND USE A FACTOR OF SAFETY OF FOUR IN THE DESIGN. REFER TO THE PCI HANDBOOK.

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.

CAST-IN-PLACE DECK CONCRETE:

EXCEPT FOR THE EXTERIOR 9" THE FABRICATOR SHALL INTENTIONALLY ROUGHEN THE SURFACE OF THE I-BEAM TOP FLANGES TO BE INCORPORATED INTO THE DECK CONCRETE BEFORE THE CONCRETE HAS REACHED ITS INITIAL SET. SEE BEAM DETAILS.

AFTER THE BEAMS HAVE BEEN ERECTED AT THE JOB SITE AND JUST PRIOR TO INSTALLATION OF THE BRIDGE DECK REINFORCEMENT, APPLY TWO COATS OF MEMBRANE CURING COMPOUND, C&MS 705.07 TYPE 1 OR 1D TO THE PORTIONS OF THE TOP SURFACE OF THE BEAMS IDENTIFIED ON "TOP FLANGE FINISHING" DETAIL, SHEET 38/91. THE CONCRETE SURFACE SHALL BE CLEAN OF LOOSE DEBRIS AND DRY FOR A MINIMUM OF 2 HOURS PRIOR TO APPLICATION OF THE CURING COMPOUND. THE TEMPERATURE OF THE CONCRETE AND AIR SHALL BE 40°F OR HIGHER AT THE TIME OF APPLICATION. THE SECOND COAT MAY IMMEDIATELY FOLLOW APPLICATION OF THE FIRST COAT. DO NOT EXPOSE COATING TO PRECIPITATION OR FOOT TRAFFIC FOR A MINIMUM PERIOD OF 4 HOURS AFTER APPLICATION.

STAY IN PLACE FORMS ARE PROHIBITED.

STRUCTURAL STEEL HARDWARE:

GALVANIZE ALL STRUCTURAL STEEL, DOWEL BARS, PIPE SLEEVES, BOLTS, STUDS, INSERTS, THREADED RODS, NUTS AND WASHERS, EMBEDDED SOLE PLATES AND BEARING LOAD PLATES ACCORDING TO 711.02.

ALL STRUCTURAL STEEL, INCLUDING BOLTS, NUTS, WASHERS AND PLATE WASHERS FOR INTERMEDIATE DIAPHRAGMS SHALL CONFORM TO THE REQUIREMENTS OF 513.

SEALING OF BEAM ENDS:

SEAL ALL STRANDS AT BEAM ENDS WITH TYPE A WATERPROOFING PER CMS 512.08. WATERPROOFING SHALL EXTEND A MINIMUM OF 2 INCHES SURROUNDING EACH STRAND LOCATION.

CONCRETE SEALING ON CITY OF CLEVELAND FACILITIES:

THE APPROACH SLABS AND SIDEWALKS FOR THE BROADWAY BRIDGE OVER IR-77 SHALL BE SEALED PER CITY OF CLEVELAND STANDARDS. SEE SECTION 8.1, GOVERNING REGULATIONS, AND APPENDIX GN-01 FOR ADDITIONAL REQUIREMENTS.

INSERTS AND HOLES:

ALL INSERTS AND HOLES REQUIRED IN CONCRETE BEAMS SHALL BE SHOWN IN FABRICATOR'S SHOP DRAWINGS. IF HOLES OR INSERTS ARE PLACED IN THE WEB THEN ADDITIONAL CRACK CONTROL REINFORCING SHALL BE SHOWN IN THE SHOP DRAWINGS. INSERTS OR HOLES ARE NOT PERMITTED IN THE BOTTOM FLANGE ALONG THE ENTIRE LENGTH OF THE BEAM.

ITEM 515, PRESTRESSED CONCRETE BRIDGE I-BEAM MEMBERS

1.0 GENERAL
ALL REQUIREMENTS OF SECTION 515 OF THE CONSTRUCTION AND MATERIALS SPECIFICATIONS APPLY TO THIS SPECIFICATION EXCEPT AS NOTED HEREIN.

2.0 PERFORMANCE
EXCEPT AS MODIFIED OR EXCEEDED BY THESE SPECIFICATIONS, ALL CAST-IN-PLACE STRUCTURAL LIGHT WEIGHT CONCRETE WORK SHALL CONFORM TO ACI 301.

3.0 MATERIALS
3.1 AGGREGATE: EXPANDED SHALE, CLAY, OR SLATE (ESCS) LIGHTWEIGHT AGGREGATE PRODUCED BY THE ROTARY KILN METHOD SHALL MEET ASTM C 330. NORMAL WEIGHT AGGREGATE SHALL MEET ASTM C 33. THE COARSE AGGREGATES SHALL BE WELL GRADED TO MEET 0C3 ON TABLE 499.03-1 OF THE 2013 ODOT CMS AND OPTIMAL 2 ON THE COARSENESS FACTOR CHART. ALL COARSE AGGREGATE SHALL HAVE AN ABSORPTION OF 1.00% OR GREATER AS DEFINED PER ASTM C127.

4.0 CONCRETE PROPERTIES
4.1 STRENGTH: MATERIALS SHALL BE PROPORTIONED TO PRODUCE CONCRETE WITH A MINIMUM COMPRESSIVE STRENGTH OF 10.0 KSI AT FINAL.
4.2 DENSITY: MATERIALS SHALL BE PROPORTIONED TO PRODUCE CONCRETE WITH A CALCULATED EQUILIBRIUM DENSITY OF 125 PCF ±3 PCF AS DETERMINED BY ASTM C 567-00, SECTION 9.2.
4.3 MIXTURE PROPORTIONS: THE CONTRACTOR SHALL FURNISH THE MIXTURE PROPORTIONS THAT WILL MEET THE STRENGTH AND FRESH AND EQUILIBRIUM DENSITY REQUIREMENTS OF THE CONCRETE SPECIFIED. THE MIXTURE PROPORTION SHALL BE PREPARED IN ACCORDANCE WITH ACI 318, AND SUBJECT TO THE APPROVAL OF THE ENGINEER.
4.4 BATCHING AND MIXING: THE CONCRETE SHALL BE BATCHED AND MIXED IN ACCORDANCE WITH THE APPLICABLE SECTION OF ACI 301 AND ASTM C 94.

5.0 FIELD CONTROL
5.1 FRESH DENSITY: THE CONCRETE SHALL HAVE A MAXIMUM FRESH DENSITY OF 135 PCF.
5.2 PUMPING: IF CONCRETE IS TO BE PUMPED, FOLLOW THE RECOMMENDATIONS OF ESCI INFORMATION SHEET 4770.1. PUMPING STRUCTURAL LIGHTWEIGHT CONCRETE - THE TEAM APPROACH AND ACI 304-2R.
5.3 CONCRETE SPECIMENS: COMPRESSIVE STRENGTH SPECIMENS SHALL BE MADE IN ACCORDANCE WITH ASTM C 31 AND TESTED IN ACCORDANCE WITH ASTM C 39. DENSITY, SLUMP, AND AIR CONTENT SHALL BE DETERMINED BY ASTM C 138, C 143, AND C 173 RESPECTIVELY. EQUILIBRIUM DENSITY SHALL BE DETERMINED BY ASTM C 567.

APPROACH SLAB CONSTRUCTION:

APPROACH SLABS SHALL BE CAST-IN-PLACE CONCRETE.

FUTURE DECK REPLACEMENT:

TEMPORARILY BRACE BEAMS AT EACH ABUTMENT. DO NOT DRILL OR PLACE ANCHORS INTO EXISTING BEAMS. REMOVE EXISTING SEMI-INTEGRAL DIAPHRAGMS WITHOUT DAMAGING EXISTING PRECAST BEAMS. BEGIN DECK REMOVAL AT THE REAR ABUTMENT AND WORK UPSTATION. DECK CONCRETE PLACEMENT SHALL BEGIN 1'-0" FROM THE FRONT FACE OF (AND PARALLEL TO) THE FORWARD ABUTMENT DIAPHRAGM AND END 1'-0" FROM THE FACE OF (AND PARALLEL TO) THE REAR ABUTMENT DIAPHRAGM. ALL DECK CONCRETE SHALL BE CAST IN A SINGLE CONTINUOS POUR. PLACE THE DIAPHRAGM CONCRETE ENCASING THE STRUCTURAL MEMBER ENDS AFTER THE DECK PLACEMENT IN THE ADJACENT SPANS IS COMPLETE.

BU5 - CUY-77-1409

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		ISSUE RECORD

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DESIGNED	DRAWN	REVIEWED	DATE
GMW/CJW	DTA	RER	1/15/2017
CHECKED	REVISED	STRUCTURE FILE NUMBER	
DFT		1806663	

GENERAL NOTES (1 OF 5)
BRIDGE NO. CUY-77-1409
BROADWAY AVENUE OVER IR 77

CUY-77-13.80
PID No. 82388

UTILITY LINES:

THE UTILITIES SHALL BEAR ALL EXPENSE INVOLVED IN RELOCATING (INSTALLING) THE AFFECTED UTILITY LINES UNLESS DETERMINED OTHERWISE BY THE ODOT UTILITY COORDINATOR. THE CONTRACTOR AND UTILITIES ARE TO COOPERATE BY ARRANGING THEIR WORK IN SUCH A MANNER THAT INCONVENIENCE TO EITHER WILL BE HELD TO A MINIMUM.

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.

FINISHING MACHINE WHEEL LOADS PLACED ABOVE THE CENTERLINE OF EXTERIOR GIRDERS.

AN EIGHT WHEEL FINISHING MACHINE WITH A MAXIMUM WHEEL LOAD OF 3.196 KIPS.

A MINIMUM OUT-TO-OUT WHEEL SPACING AT EACH END OF THE MACHINE OF 103".

A MAXIMUM SPACING OF OVERHANG FALSEWORK BRACKETS OF 48".

A MAXIMUM DISTANCE FROM THE CENTERLINE OF THE FASCIA GIRDER TO THE FACE OF THE SAFETY HANDRAIL OF 65".

PILE DESIGN LOADS (ULTIMATE BEARING VALUE):

THE ULTIMATE BEARING VALUE IS 350 KIPS PER PILE FOR THE 131 ABUTMENT PILES. THE ULTIMATE BEARING VALUE IS 350 KIPS PER PILE FOR THE 56 PIER PILES.

ABUTMENT PILES:
131 PILES 50 FEET LONG, ORDER LENGTH

PIER PILES:
56 PILES 50 FEET LONG, ORDER LENGTH

1 DYNAMIC TESTING ITEMS

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

ALL EXPOSED CONCRETE SURFACES OF THE ABUTMENT, INCLUDING WINGWALLS AND LIMITS OF THE CONCRETE SUPERSTRUCTURE, AS PER PLAN DETAILS, SHALL BE SEALED WITH AN EPOXY-URETHANE SEALER. THE COLOR OF THE COAT SHALL BE FEDERAL COLOR NO. 595B-25630 (LIGHT GREY, SEMI-GLOSS).

ITEM 203, EMBANKMENT, AS PER PLAN:

PLACE AND COMPACT EMBANKMENT MATERIAL IN 6 INCH LIFTS FOR THE CONSTRUCTION OF THE APPROACH EMBANKMENT FOR A DISTANCE OF 100'-0" BEHIND THE ABUTMENT, MEASURED ALONG THE CENTERLINE OF I.R. 77.

ITEM 503, UNCLASSIFIED EXCAVATION, AS PER PLAN:

UNCLASSIFIED EXCAVATION SHALL BE IN ACCORDANCE WITH 503 EXCEPT THAT THE BACKFILL MATERIAL PLACED IN BEHIND THE ABUTMENTS SHALL BE 703.17 MATERIAL PLACED IN 6 INCH LIFTS AS PER 304.05.

ITEM 202, PORTIONS OF STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN:

THIS WORK CONSISTS OF THE REMOVAL OF THE BRIDGE SUPERSTRUCTURE AND SUBSTRUCTURES TO A DEPTH OF 3 FEET BELOW THE PROPOSED FINAL GRADE.

ITEM 614, MAINTAINING TRAFFIC

THIS ITEM SHALL CONSIST OF MAINTENANCE OF TRAFFIC ON EXISTING ROADWAYS AND RAMPS IN ACCORDANCE WITH THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS, CURRENT EDITION, LATEST REVISION, THE SPECIFICATIONS, AND THE FOLLOWING:

1. FOR I-77 AND RAMP RESTRICTIONS, SEE BU 2.

2. ALL WORK AND TRAFFIC CONTROL DEVICES SHALL BE IN ACCORDANCE WITH C&MS 614 AND OTHER APPLICABLE PORTIONS OF THE SPECIFICATIONS, AS WELL AS THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.

BRIDGE SEAT ELEVATIONS:

BRIDGE SEAT ELEVATIONS HAVE BEEN ADJUSTED UPWARD 0.22 INCHES AT REAR ABUTMENT, 0.23 INCHES AT PIER AND 0.19 INCHES AT FORWARD ABUTMENT TO COMPENSATE FOR THE VERTICAL DEFORMATION OF THE BEARINGS.

ABUTMENT DIAPHRAGM CONCRETE:

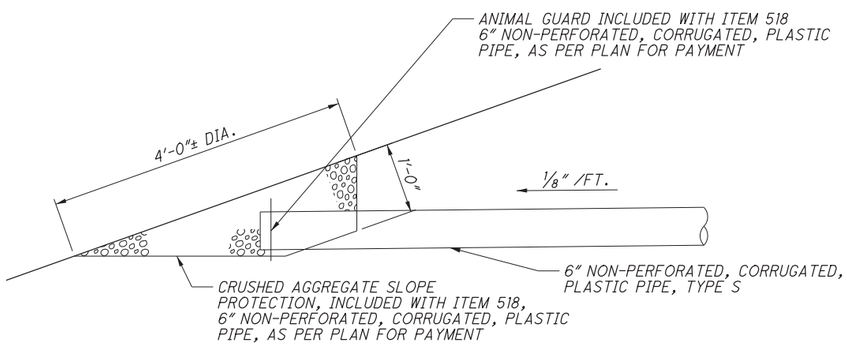
PLACE THE DIAPHRAGM CONCRETE ENCASING THE STRUCTURAL MEMBER ENDS AFTER THE DECK PLACEMENT IN THE ADJACENT SPAN IS COMPLETE. PROCEDURES THAT PLACE THE ABUTMENT DIAPHRAGM WITH THE DECK CONCRETE MAY BE APPROVED BY THE ENGINEER IF THE PLACEMENT SUBMITTAL CAN ASSURE THAT THE DECK CONCRETE IN THE ADJACENT SPAN WILL BE PLACED BEFORE CONCRETE IN THE DIAPHRAGM HAS REACHED ITS INITIAL SET.

ABUTMENT DIAPHRAGM CONCRETE:

PLACE THE DIAPHRAGM CONCRETE ENCASING THE STRUCTURAL MEMBER ENDS AFTER THE DECK PLACEMENT IN THE ADJACENT SPAN IS COMPLETE. PROCEDURES THAT PLACE THE ABUTMENT DIAPHRAGM WITH THE DECK CONCRETE MAY BE APPROVED BY THE ENGINEER IF THE PLACEMENT SUBMITTAL CAN ASSURE THAT THE DECK CONCRETE IN THE ADJACENT SPAN WILL BE PLACED BEFORE CONCRETE IN THE DIAPHRAGM HAS REACHED ITS INITIAL SET.

ABBREVIATIONS:

ABUT. - ABUTMENT
ADT - AVERAGE DAILY TRAFFIC
ADTT - AVERAGE DAILY TRUCK TRAFFIC
APPR. - APPROACH
B - BOTTOM
℄ - BASELINE
B.F. - BACK FACE
BM - BENCHMARK
BOT. OR BTM. - BOTTOM
BRG. - BEARING
BUND. - BUNDLED
℄ - CENTERLINE
C/C - CENTER TO CENTER
C.I.P. - CAST-IN-PLACE
C.J. - CONSTRUCTION JOINT
CLR. - CLEAR
CMS - CONSTRUCTION AND MATERIAL SPECIFICATIONS
CONC. - CONCRETE
CONSTR. - CONSTRUCTION
CVN - CHARPY V-NOTCH
DIA. - DIAMETER
DIM. - DIMENSION
DWG. - DRAWING
E - EAST
EB - EASTBOUND
E.F. - EACH FACE
EL. OR ELEV. - ELEVATION
EOP - EDGE OF PAVEMENT
EQ. - EQUAL
EST. - ESTIMATED
EX. - EXISTING
EXP. - EXPANSION
F.A. - FORWARD ABUTMENT
F/F - FACE TO FACE
F.F. - FRONT FACE
FT. - FOOT OR FEET
FWD. - FORWARD
HMWM - HIGH MOLECULAR WEIGHT METHACRYLATE
HW - HIGH WATER
IN. - INCH
JT. - JOINT
L.F. - LEFT FORWARD
LT. - LEFT
MAX. - MAXIMUM
MIN. - MINIMUM
MISC. - MISCELLANEOUS
MSE - MECHANICALLY STABILIZED EARTH
N - NORTH
NB - NORTHBOUND
NO. - NUMBER
N.P.C.P.P. - NON-PERFORATED CORRUGATED PLASTIC PIPE
OHWM - ORDINARY HIGH WATER MARK
O/O - OUT TO OUT
P.C.P.P. - PERFORATED CORRUGATED PLASTIC PIPE
P.E.J.F. - PREFORMED EXPANSION JOINT FILLER
PROP. - PROPOSED
PSF - POUNDS PER SQUARE FOOT
P.V.I. - POINT OF VERTICAL INTERSECTION
Q - FLOW RATE
R - RADIUS
R.A. - REAR ABUTMENT
RCP - ROCK CHANNEL PROTECTION
REQD. - REQUIRED
R.F. - RIGHT FORWARD
R.R. - RAILROAD
RT. - RIGHT
R/W - RIGHT OF WAY
S - SOUTH
SB - SOUTHBOUND
SER. - SERIES
SHLDR - SHOULDER
SPA. - SPACE OR SPACES
STA. - STATION
STD. - STANDARD
STR - STRAIGHT
T - TOP
T&B - TOP & BOTTOM
TBR - TO BE REMOVED
TEMP. - TEMPORARY
T.O.S. OR T/S - TOP OF SLOPE
T/T - TOE TO TOE
TYP. - TYPICAL
U.N.O. - UNLESS NOTED OTHERWISE
VAR. - VARIES
V - VELOCITY
W - WEST
WB - WESTBOUND
WWR - WELDED WIRE REINFORCEMENT



TERMINATION OF 6" N.P.C.P.P. DETAIL

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CHECKED	REVISED	STRUCTURE FILE NUMBER	
DFT		1806663	

GENERAL NOTES (2 OF 5)
BRIDGE NO. CUY-77-1409
BROADWAY AVENUE OVER IR 77

CUY-77-13.80
PID No. 82388

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ITEM 511 - CLASS QC2 CONCRETE, AS PER PLAN:

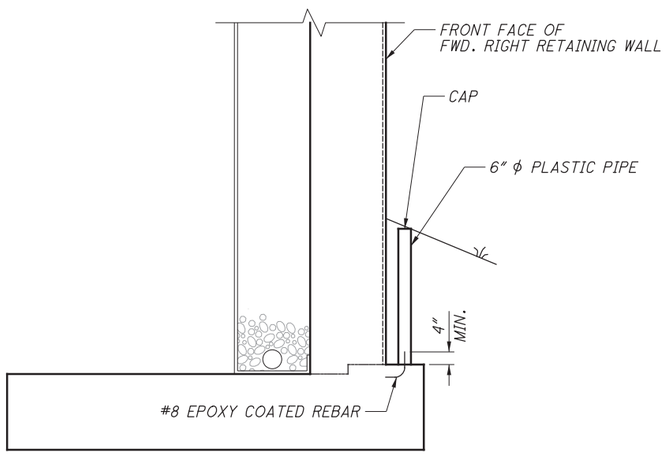
IN ADDITION TO THE REQUIREMENTS OF ITEM 511, INSTALL A REFERENCE MONUMENT AT EACH END OF EACH SPREAD FOOTING. THE REFERENCE MONUMENT SHALL CONSIST OF A #8, OR LARGER, EPOXY COATED REBAR EMBEDDED AT LEAST 6" INTO THE FOOTING AND EXTENDED VERTICALLY 4 TO 6 INCHES ABOVE THE TOP OF THE FOOTING. INSTALL A 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 BELOW.

THE ORIGINAL COMPLETED TABLES WILL BECOME PART OF THE DISTRICT'S PROJECT PLAN RECORDS.

PROJECT NUMBER: CUY-77-13.80	MAXIMUM FACTORED BEARING PRESSURE: 5.44 KSF	
FORWARD RIGHT RETAINING WALL	STRUCTURE FILE NUMBER: N/A	
BENCHMARK LOCATIONS:	BM#7: BROADWAY STA. 122+58.40. 54.4' RT., ELEV. 678.01 MONUMENT LOCATED ON THE LEFT SIDE OF 77 NB EXIT RAMP TO BROADWAY NEAR BROADWAY AVE.	
MONITORING PERIOD	LEFT MONUMENT	RIGHT MONUMENT
AFTER FOOTING CONCRETE IS PLACED:		
AFTER STEM CONCRETE IS PLACED:		
PROJECT COMPLETION:		



LEFT MONUMENT:
℄ CONSTR. BROADWAY AVE.
STA. 119+71.89
OFFSET 36.33' RT.

RIGHT MONUMENT:
℄ CONSTR. BROADWAY AVE.
STA. 120+44.88
OFFSET 37.18' RT.

FOUNDATION BEARING RESISTANCE (FORWARD RIGHT RETAINING WALL):

THE RETAINING WALL FOOTINGS, AS DESIGNED, PRODUCE THE FOLLOWING BEARING PRESSURES:

13.5' FOOTING: MAXIMUM SERVICE LOAD PRESSURE = 3.84 KSF
MAXIMUM STRENGTH LOAD PRESSURE = 5.44 KSF
FACTORED BEARING RESISTANCE = 5.63 KSF

12.0' FOOTING: MAXIMUM SERVICE LOAD PRESSURE = 3.26 KSF
MAXIMUM STRENGTH LOAD PRESSURE = 4.60 KSF
FACTORED BEARING RESISTANCE = 5.12 KSF

11.5' FOOTING: MAXIMUM SERVICE LOAD PRESSURE = 2.50 KSF
MAXIMUM STRENGTH LOAD PRESSURE = 3.49 KSF
FACTORED BEARING RESISTANCE = 3.63 KSF

9.5' FOOTING: MAXIMUM SERVICE LOAD PRESSURE = 2.01 KSF
MAXIMUM STRENGTH LOAD PRESSURE = 2.81 KSF
FACTORED BEARING RESISTANCE = 3.05 KSF

7.0' FOOTING: MAXIMUM SERVICE LOAD PRESSURE = 1.56 KSF
MAXIMUM STRENGTH LOAD PRESSURE = 2.19 KSF
FACTORED BEARING RESISTANCE = 2.21 KSF

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GENERAL NOTES (3 OF 5)
BRIDGE NO. CUY-77-1409
BROADWAY AVENUE OVER IR 77

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CITY OF CLEVELAND CONCRETE SEALING:

1. SUBMITTALS

   a. The Contractor shall submit technical information and a certified statement stating that the material to be furnished conforms to the material requirements of this section of the specifications.

   b. Copies of waybills and delivery tickets shall be submitted to the contracting officer during the progress of the work. Before final payment is allowed, the Contractor shall file with the contracting officer certified waybills and delivery tickets for all concrete sealer used in the work.

2. PORTLAND CEMENT CONCRETE SEALING TREATMENT

   a. The concrete sealer shall be an approved non-epoxy, non-silicone, non-toxic, non-hydrophobic, non-solvent material, and shall meet the following qualifications and AASHTO and ASTM test performance criteria, based in accordance with the manufacturer's recommended rate of coverage.

   b. The penetrating concrete sealer, after finished application, shall not darken, stain or discolor the treated concrete.

   c. Application of the sealer shall not alter the surface texture or form a film or coating on the surface, and shall be compatible with the concrete pavement joint materials.

   d. AASHTO T 259 Resistance of Concrete to Chloride Ion Penetration

      Sealer-treated test specimens shall exhibit the allowing average values when an average of 0.125 inches of the treated concrete specimen has been abraded from the surface to simulate 10-12 years of traffic wear. Abrasion will be performed after treatment with sealer and before ponding with chloride solution.

      SALT WATER TEST (90 DAY DURATION)

      Average Absorbed CL = 2.50 lbs per cubic yard
      Depth of Measurement = 1/16" to 1/2"*
      Testing Method: AASHTO T 259

      *Based on abraded concrete specimens

      PONDING TEST (2160 HOUR DURATION)

      Average Absorbed CL = 0.04 lbs per cubic yard
      Depth of Measurement = 1/2" to 1"
      Testing Method: AASHTO T 260

   e. ASTM C 672 Scaling Resistance of Concrete Surfaces

      Sealer-treated test specimens shall exhibit a 0 (zero) scale reading, and an improvement over untreated specimens after completion of a minimum of 50 freeze-thaw cycles; or until a difference between treated and untreated specimens develops. Example after 50 cycles:

SPECIMEN	SCALE RATING
Untreated	2+ (light to moderate scaling)
Treated	0 (no scaling)

   f. AASHTO T 161/ASTM C 666 Resistance of Concrete to Rapid Freezing and Thawing

      Treated specimens shall demonstrate equal or better durability to surface scaling than the frost resistant concrete used as a control upon completion of the test after a minimum of 300 freeze-thaw cycles.

      EXAMPLE:

CYCLES	CONTROL	TREATED
146	Slight	None
237	Slight	Slight
480	Slight	Slight

   g. ASTM C 501 Relative Resistance to Wear

      Treated test specimens shall meet or exceed the improvement percentages as specified below on nominal 3,000 psi concrete after 1,000 revolutions:

SPECIMEN	AVG. ABRASIVE WEAR INDEX	AVG. DEPTH OF WEAR	AVG. ABSOLUTE WEIGHT LOSS
Treated	27.4	.026 in	3.227 gm
Untreated	19.9	.033 in	4.525 gm
Improvement	37.7%	21.2%	28.7%

   h. ASTM C 882 Bond Strength of Epoxy-Resin Systems Used with Concrete

      Test results shall demonstrate bond strength of treated samples equal to untreated samples used as a control.

   i. Depth of Penetration

      Depth of penetration shall be a minimum of 1/8 in. as demonstrated by successful testing in accordance with AASHTO T 2590 (based on abroad specimens).

3. SURFACE PREPARATION

   The Contractor shall prepare surfaces to be sealed by thoroughly cleaning same with mechanical sweepers of an approved type and with wire brooms where necessary. To be clean, the surfaces shall be free of sand, clay, dust, salt, grease, oil and other foreign matter that might adversely affect the penetrating capability of the sealer.

4. APPLICATION OF CONCRETE SEALER

   a. Equipment to be used shall be as recommended by the manufacturer and shall include a low pressure airless or gravity type sprayer with an application pressure of approximately 40 psi, using a spray tip large enough to deliver an even fan spray without misting.

   b. Application of the concrete sealer shall be recommended by the manufacturer and in accordance with the following:

      i. The application shall consist of two coats minimum.

      ii. Each coat shall be in a light, even coat that shall be allowed to dry completely before continuing application.

      iii. If a light sheen is visible when the second coat is dry, stop sealer application, and proceed to the water spray application.

      iv. If no sheen is visible when the second coat is dry, repeat coats until a light sheen is apparent. Immediately after the final seal coat has been applied and allowed to dry, a light, even water-spray shall be applied to all treated surfaces to ensure complete penetration of the sealer.

      v. If a sheen is still visible after the water coat has dried, additional water coats shall be applied until the sheen is no longer evident and the concrete finish appears dull.

5. WEATHER LIMITATIONS

   Sealer should not be applied when temperatures are below 40 degrees F or are expected to fall below 32 degrees F within 24 hours or when rain is forecasted within 24 hours.

6. METHOD OF MEASUREMENT

   The quantity to be paid for will be measured by the actual number of square yards of accepted pavement sealed with concrete sealer in accordance with this section of the specifications.

7. PAYMENT

   The quantity as provided shall be paid for at the applicable contract price per unit of measurement, which price and payment shall be full compensation for all materials, labor, equipment, tools, and incidentals necessary to complete the work required by this section of the specifications.

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GENERAL NOTES (4 OF 5)
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ITEM 607- VANDAL PROTECTION FENCE, 6' STRAIGHT, COATED FABRIC, AS PER PLAN

THE ANCHORS SHALL BE CAST IN PLACE. THE COLOR OF THE FENCE FABRIC, RAILS, POSTS, PLATES, TIE WIRES, AND ADDITIONAL VISUAL HARDWARE AND CAULK SHALL BE BLACK.

ITEM 511 - CONCRETE, MISC.: MOCKUP, MOLDED BRICK SURFACE:

CONSTRUCT THREE MOCKUPS OF THE INSIDE OF A TYPICAL LIGHTING PILASTER AS DETAILED IN THE PLANS. CONSTRUCT MOCKUP IN A SAFE LOCATION IN THE VICINITY OF CONSTRUCTION AT BROADWAY AVENUE. START CONSTRUCTION OF MOCKUP AT LEAST 60 DAYS BEFORE PROPOSED MOLDED CONCRETE WORK BEGINS, USING SAME MATERIALS, METHODS, AND WORK FORCE THAT WILL BE USED FOR THE PROJECT. RECAST EACH MOCKUP FROM THE SAME FORM. PROCEED WITH CONSTRUCTION OF MOLDED BRICK SURFACES ONCE THE ENGINEER HAS DETERMINED THE MOLD MEETS SPECIFICATIONS AND PRODUCES SATISFACTORY RESULTS.

APPLY NON-EPOXY SEALER AND ACRYLIC STAIN IN ACCORDANCE WITH PLAN DETAILS AND MANUFACTURER'S RECOMMENDATIONS.

STAIN FIRST MOCKUP IN ACCORDANCE WITH THE PLAN DETAILS. CONFER WITH THE ENGINEER ON THE STAIN COLOR AND APPLICATION TECHNIQUE TO VERIFY THE PROCESS HAS PRODUCED A SURFACE PROVIDING THE APPEARANCE AND TEXTURE OF REAL BRICK. IF NECESSARY, STAIN SECOND AND THIRD MOCKUPS, ADJUSTING STAIN COLORS AND APPLICATION TECHNIQUES TO PROVIDE THE APPEARANCE AND TEXTURE OF REAL BRICK. ADJUST COLOR AND APPLICATION TECHNIQUES TO MEET THE APPROVAL OF THE ENGINEER. PROCEED WITH CONSTRUCTION OF MOLDED BRICK SURFACES, USING THE APPROVED MOCKUP AS A QUALITY STANDARD.
UPON COMPLETION OF PROJECT, DISPOSE OF MOCKUPS.

THE FOLLOWING QUANTITY HAS BEEN CARRIED TO THE ESTIMATED QUANTITIES TO COMPLETE THIS ITEM OF WORK.

ITEM 511 CONCRETE, MISC.: MOCKUP, MOLDED BRICK SURFACE 3 EACH

ITEM 511 CONCRETE, MISC.: MOLDED BRICK SURFACE:

1. GENERAL:
THE WORK TO BE DONE UNDER THIS ITEM SHALL INCLUDE:
1.01 CONSTRUCT TEXTURED AND COLORED CONCRETE SURFACES USING MOLDS AND COLOR STAIN SYSTEM DESIGNED TO DUPLICATE CLOSELY THE APPEARANCE AND TEXTURE OF REAL BRICK.
1.02 USE BRICK MOLDS GIVING THE APPEARANCE OF SMOOTH, NEW BRICK.
1.03 DO NOT USE MOLDS GIVING THE APPEARANCE OF ROUGH OR STRIATED BRICK.
1.04 USE MOLDS WITH BRICK DIMENSIONS OF 2 5/8" X 7 5/8" AND 1/2" GROUT LINES. THE RELIEF OF THE GROUT LINES SHALL BE AT LEAST 1/4" BUT NOT EXCEED 5/16".
1.05 USE REUSABLE, HIGH-STRENGTH URETHANE MOLDS.
1.06 NO LESS THAN 60 DAYS PRIOR TO THE CONSTRUCTION OF THE FIRST MOLDED BRICK SURFACE, SUBMIT TO THE ENGINEER A 24" SQUARE SAMPLE OF THE PROPOSED BRICK MOLD, INCLUDING MANUFACTURER'S SPECIFICATIONS AND RECOMMENDATIONS FOR ITS USE.
1.07 NO LESS THAN 30 DAYS PRIOR TO THE CONSTRUCTION OF THE FIRST MOLDED BRIDGE SURFACE, SUBMIT TO THE ENGINEER ONE COPY OF SHOP DRAWINGS SHOWING PLAN, ELEVATION, AND DETAILS TO SHOW OVERALL PATTERN, JOINT LOCATIONS, FORM TIE LOCATIONS, AND END, EDGE, AND OTHER SPECIAL CONDITIONS.
1.08 A PRE-INSTALLATION MEETING IS REQUIRED. SCHEDULE MEETING AMONG MANUFACTURER'S REPRESENTATIVES, APPROPRIATE SUBCONTRACTORS, THE DISTRICT 12 PRODUCTION ADMINISTRATOR OR HIS DESIGNEE, AND THE ENGINEER TO ASSURE UNDERSTANDING OF FORMLINER USE, STAIN APPLICATION, AND THE REQUIREMENTS OF THE MOCKUP CONSTRUCTION.

2. PRODUCTS:
2.01 SIMULATED BRICK MOLDS SHALL BE REUSABLE, MADE OF HIGH-STRENGTH URETHANE, AND EASILY ATTACHABLE TO FORMS. MOLDS SHALL NOT COMPRESS MORE THAN 1/4" WHEN CONCRETE IS POURED AT RATE OF 10 VERTICAL FEET PER HOUR. MOLDS SHALL BE REMOVABLE WITHOUT CAUSING DETERIORATION OF SURFACE OR UNDERLYING CONCRETE.
2.02 USE A RELEASE AGENT THAT IS COMPATIBLE WITH MOLDS AND WITH COLOR STAIN SYSTEM TO BE APPLIED TO SURFACE. PROVIDE THE ENGINEER WITH THE MANUFACTURER'S SPECIFICATIONS FOR PRODUCT APPLICATION.
2.03 USE FORM TIES MADE OF EITHER METAL OR FIBERGLASS. METAL TIES WHICH WILL REMAIN PERMANENTLY EMBEDDED IN THE CONCRETE SHALL BE DESIGNED TO SEPARATE AT LEAST ONE INCH BACK FROM FINISHED SURFACE, LEAVING ONLY A NEAT HOLE TO BE PLUGGED WITH PATCHING MATERIAL. SUBMIT THE TYPE OF FORM TIES TO THE ENGINEER FOR APPROVAL PRIOR TO USE.

3. EXECUTION:
3.01 CLEAN MOLDS AND MAKE FREE OF BUILDUP PRIOR TO EACH POUR. INSPECT FOR BLEMISHES OR TEARS. REPAIR IF POSSIBLE FOLLOWING MANUFACTURER'S RECOMMENDATIONS. DAMAGED MOLDS SHALL BE REPLACED AT NO ADDITIONAL CHARGE TO THE STATE.
3.02 APPLY RELEASE AGENT IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
3.03 PLACE MOLDS WITH LESS THAN 1/4" SEPARATION BETWEEN THEM. ATTACH MOLDS TO FORM SECURELY FOLLOWING MANUFACTURER'S RECOMMENDATIONS.
3.04 WHERE FORM LINERS ABUT, CAREFULLY BLEND SURFACE TO MATCH THE BALANCE OF THE BRICK PATTERN, AVOIDING VISIBLE SEAMS OR FORM MARKS.
3.05 PLACE FORM TIES AT THINNEST POINTS OF MOLDS (THE HIGH POINTS OF FINISHED SURFACE). NEATLY PATCH THE HOLE REMAINING AFTER DISENGAGING THE PROTRUDING PORTION OF THE TIE SO THAT IT WILL NOT BE VISIBLE AFTER COLORING THE CONCRETE SURFACE.

ITEM 512- SEALING OF CONCRETE SURFACES (NON-EPOXY), AS PER PLAN:

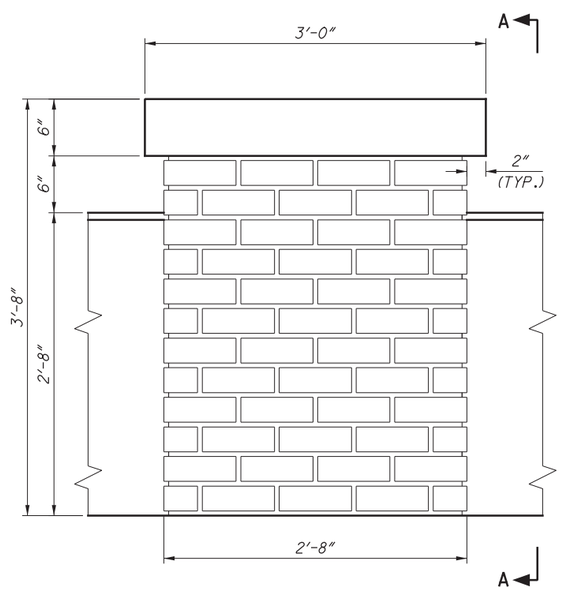
PRIOR TO APPLICATION OF ACRYLIC STAINS, APPLY NON-EPOXY CONCRETE SEALER TO MOLDED BRICK SURFACES. THE PROVISIONS OF ITEM 512 APPLY, EXCEPT AS FOLLOWS:
1. APPLY SEALER WITH A BRUSH OR ROLLER ONLY.
2. USE A CLEAR SEALER.
3. VERIFY THE PRODUCT FURNISHED IS COMPATIBLE WITH THE PROPOSED STAIN PRODUCT. PROVIDE WRITTEN VERIFICATION TO THE ENGINEER.

ITEM 511 - CONCRETE, MISC.: STAINING CONCRETE SURFACES:

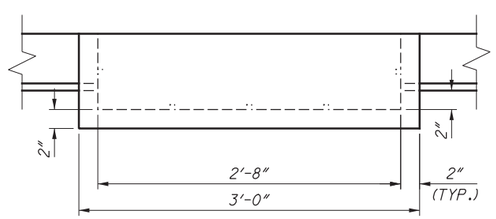
1. GENERAL:
1.01 STAIN MOLDED BRICK SURFACES USING AN ACRYLIC RESIN-BASED STAIN.

2. PRODUCTS:
2.01 PRODUCT SHALL CREATE A SURFACE FINISH THAT IS BREATHABLE (ALLOWING WATER VAPOR TRANSMISSION), AND THAT RESISTS DETERIORATION FROM WATER, ACID, ALKALI, FUNGI, SUNLIGHT OR WEATHERING.
2.02 STAIN MIX SHALL BE A WATER BORNE, LOW VOC MATERIAL (LESS THAN 289 GRAMS/LITER), AND SHALL MEET REQUIREMENTS FOR WEATHERING RESISTANCE OF 2000 HOURS ACCELERATED EXPOSURE MEASURED IN ACCORDANCE WITH ASTM G-23. SCRUB TEST 1000 REVOLUTIONS. ABRASIVE RESISTANCE (TABOR-CF-10) 500 CYCLES. ADHESION ASTM D-3359 1.00MM CROSS CUTS ON GLASS PASS 3 OR HIGHER ON A SCALE OF 1 TO 5. SUPPLY INFORMATION PERTAINING TO CHEMICAL RESISTANCE ASTM D-1308 TO 87.

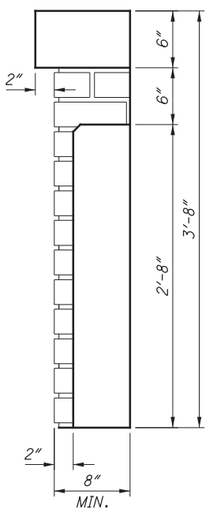
3. EXECUTION:
3.07 PROVIDE THE ENGINEER WITH THE MANUFACTURER'S SPECIFICATIONS FOR PRODUCT APPLICATION. APPLY THE PRODUCT IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS WITH EXCEPTIONS AS NOTED.
3.02 CLEAN SURFACE PRIOR TO APPLICATION OF STAIN MATERIALS BY PRESSURE WASHING WITH WATER, MINIMUM 3000 PSI (A RATE OF THREE TO FOUR GALLONS PER MINUTE), USING FAN NOZZLE PERPENDICULAR TO AND AT A DISTANCE OF ONE OR TWO FEET FROM SURFACE. COMPLETED SURFACE SHALL BE FREE OF BLEMISHES, DISCOLORATION, SURFACE VOIDS AND UNNATURAL FORM MARKS. DO NOT SANDBLAST. ETCHING IS NOT REQUIRED.
3.03 APPLY STAIN BY HAND USING A BRUSH OR ROLLER WHEN AMBIENT TEMPERATURE IS BETWEEN 50-90 DEGREES FAHRENHEIT.
3.04 USE THE FOLLOWING SHERWIN WILLIAMS STAIN COLORS OR THEIR CLOSELY MATCHED, NON-PROPRIETARY EQUIVALENTS. STAIN BRICK SURFACES USING SW 6335 (FIRED BRICK). STAIN GROUT LINES USING SW 7030 (ANEW GRAY). PROVIDE RANDOM BRICK HIGHLIGHTS USING SW 6005 (FOLKSTONE) AND SW 6258 (TRICORN BLACK). ACTUAL COLORS USED ARE SUBJECT TO CHANGE AT THE DIRECTION OF THE ENGINEER ON REVIEW OF THE APPEARANCE OF THE MOCKUPS. USE COLORS AND TECHNIQUES AS APPROVED FOR THE FINAL MOCKUP.
3.05 WHERE EXPOSED SOIL OR PAVEMENT IS ADJACENT WHICH MAY SPLATTER DIRT OR SOIL FROM RAINFALL, OR WHERE SURFACE MAY BE EXPOSED TO OVERSPRAY FROM OTHER PROCESSES, PROVIDE TEMPORARY COVER OF FINISHED WORK.



MOCK-UP WALL ELEVATION



MOCK-UP WALL PLAN VIEW



SECTION A-A

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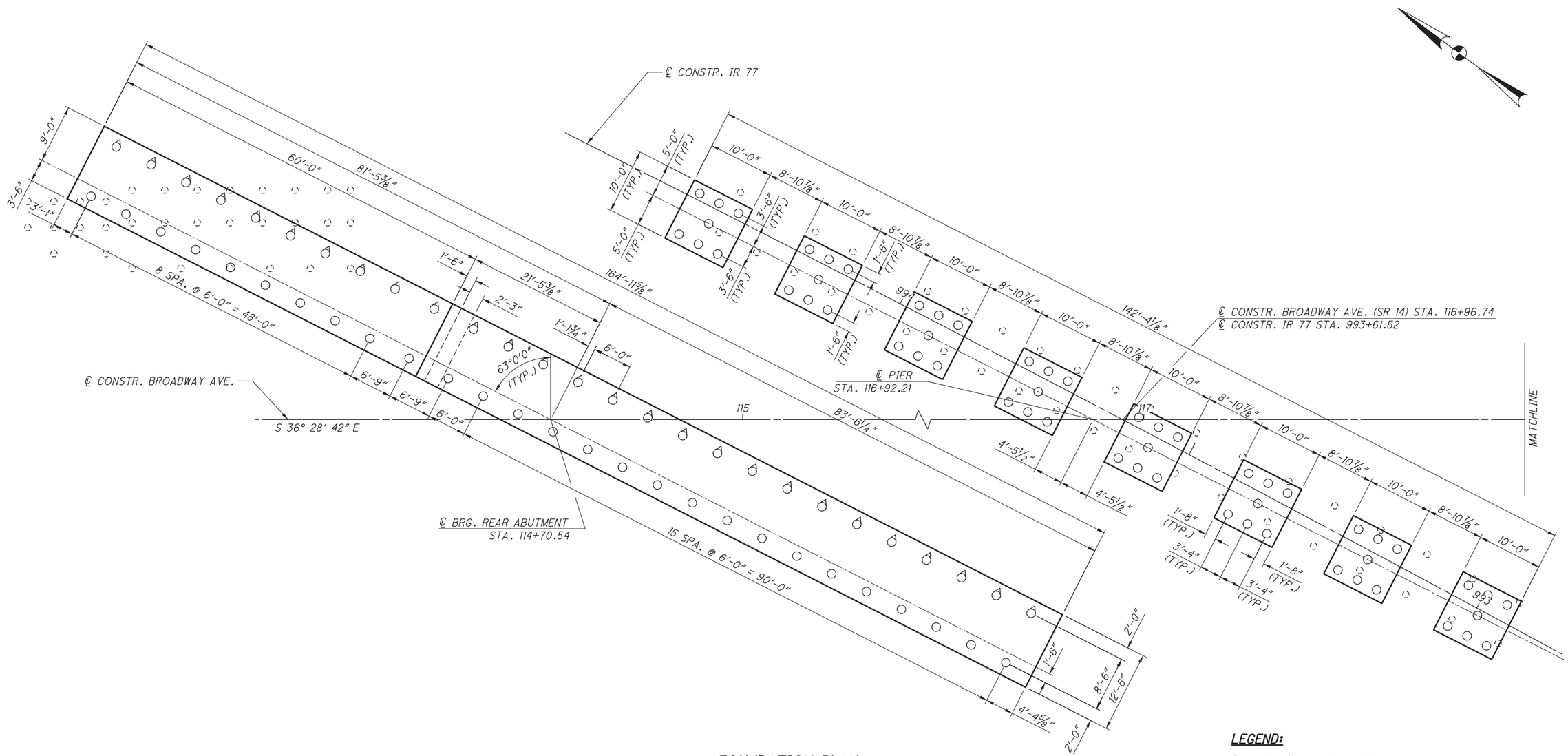
BCW		1806663	

GENERAL NOTES (5 OF 5)
BRIDGE NO. CUY-77-1409
BROADWAY AVENUE OVER IR 77

CUY-77-13.80
PID No. 82388

7 / 91

8 / 100



FOUNDATION PLAN

LEGEND:

- ○ - 16″ ϕ CAST-IN-PLACE PILES
- ○ - 16″ ϕ CAST-IN-PLACE PILES BATTERED 1:4
- ○ - EXISTING PILE

NOTES:

1. FOR PILE NUMBER DESIGNATION, SEE SHEET 10/91.
2. EXISTING PILE LOCATIONS TAKEN FROM EXISTING PLANS. REMOVE ANY EXISTING PILES THAT CONFLICT WITH PROPOSED PILES.

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DFT		1806663	

FOUNDATION PLAN (1 OF 4)
BRIDGE NO. CUY-77-1409
BROADWAY AVENUE OVER IR 77

CUY-77-13.80
PID No. 82388

8 / 91

9 / 100

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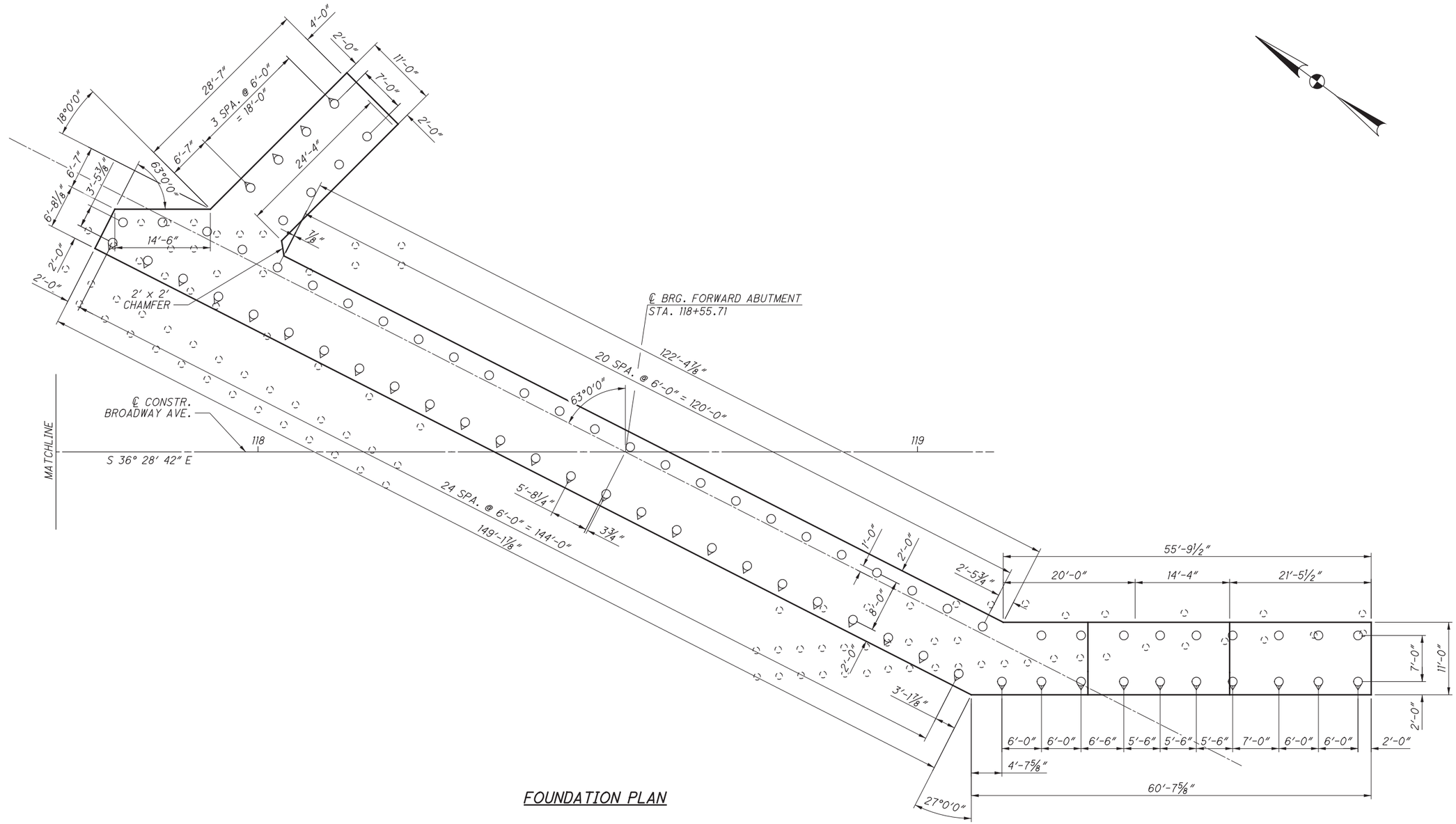

FOUNDATION PLAN

LEGEND:

- ○ - 16" ϕ CAST-IN-PLACE PILES
- ◇ - 16" ϕ CAST-IN-PLACE PILES BATTERED 1:4
- ○ - EXISTING PILE

NOTES:

1. FOR PILE NUMBER DESIGNATION, SEE SHEET 11/91.
2. EXISTING PILE LOCATIONS TAKEN FROM EXISTING PLANS. REMOVE ANY EXISTING PILES THAT CONFLICT WITH PROPOSED PILES.

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FOUNDATION PLAN (2 OF 4)
BRIDGE NO. CUY-77-1409
BROADWAY AVENUE OVER IR 77

CUY-77-13.80
PID No. 82388

9 / 91

10 / 100

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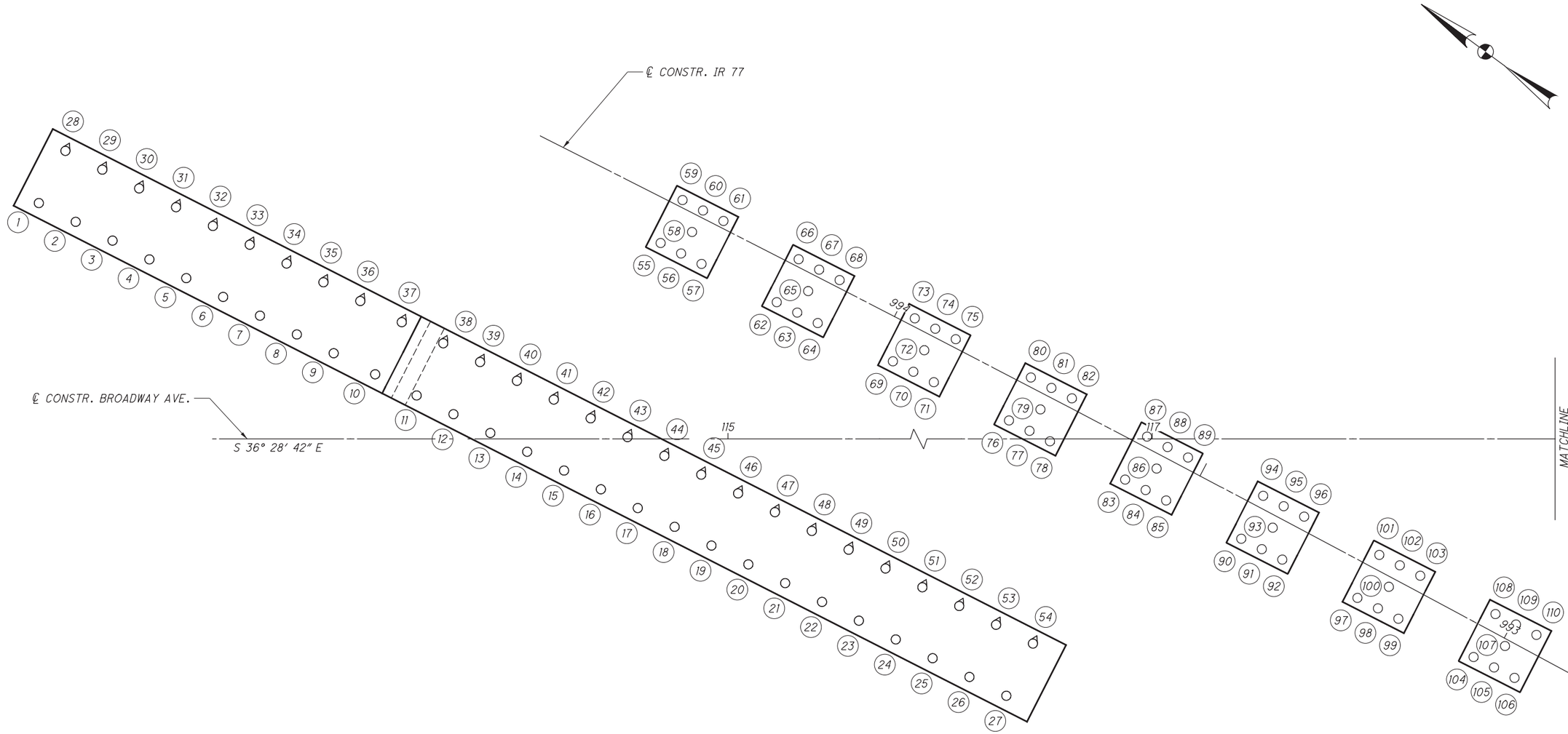

FOUNDATION PLAN

LEGEND:

- ○ - 16″ ϕ CAST-IN-PLACE PILES
- ○ - 16″ ϕ CAST-IN-PLACE PILES BATTERED 1:4
- (#) - PILE NUMBER

NOTES:

1. FOR FOUNDATION DIMENSIONS AND PILE LAYOUT, SEE 8/91.

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DFT		1806663	

FOUNDATION PLAN (3 OF 4)
BRIDGE NO. CUY-77-1409
BROADWAY AVENUE OVER IR 77

CUY-77-13.80
PID No. 82388

10 / 91

11
100

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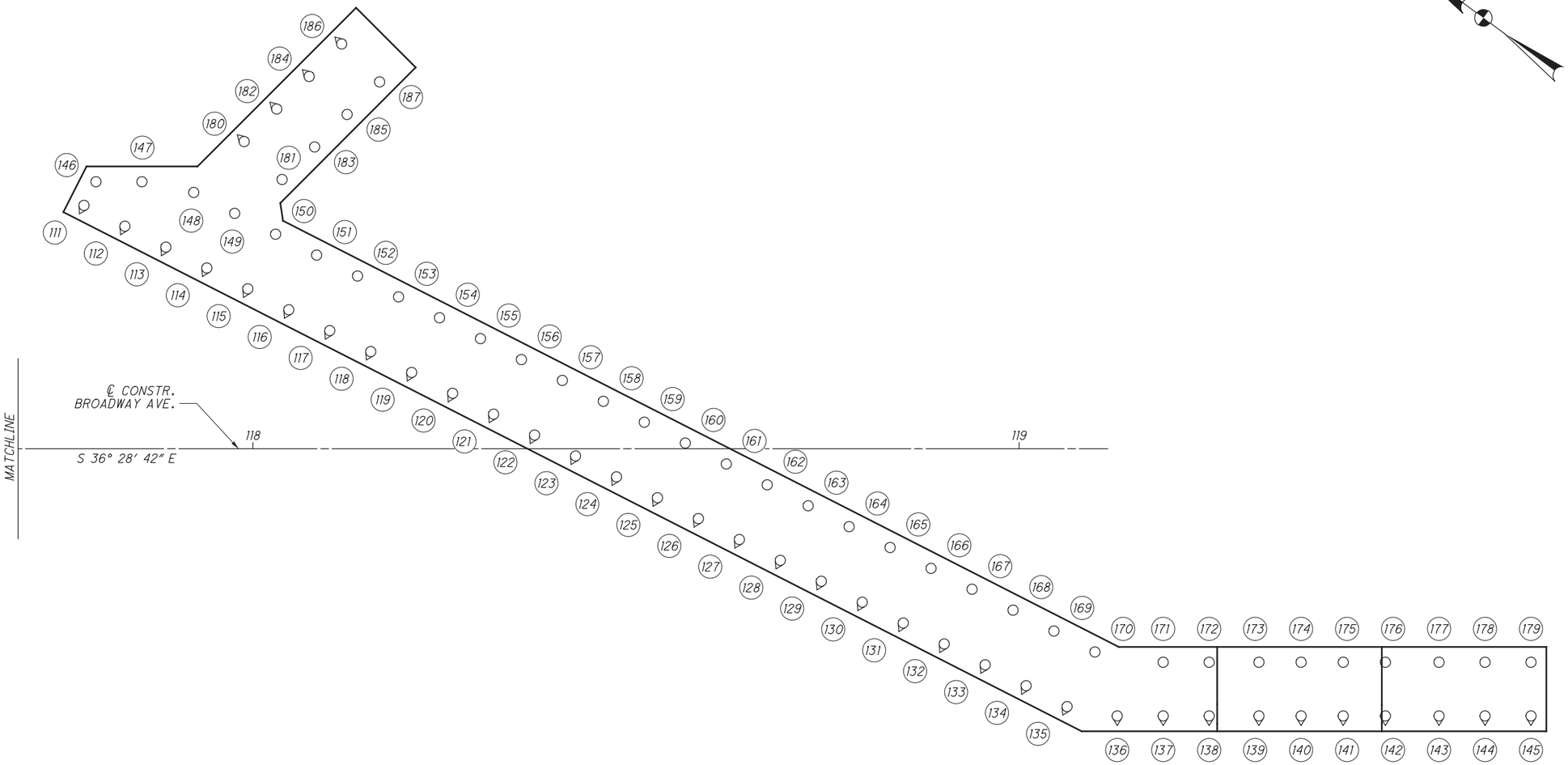

FOUNDATION PLAN

LEGEND:

- ○ - 16″ ϕ CAST-IN-PLACE PILES
- ○▷ - 16″ ϕ CAST-IN-PLACE PILES BATTERED 1:4
- (#) - PILE NUMBER

NOTE:

1. FOR FOUNDATION DIMENSIONS AND PILE LAYOUT, SEE 9/91.

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BU5 - CUY-77-1409		
NO.	DATE	DESCRIPTION
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DFT		1806663	

FOUNDATION PLAN (4 OF 4)
BRIDGE NO. CUY-77-1409
BROADWAY AVENUE OVER IR 77

CUY-77-13.80
PID No. 82388

11 / 91

12
100

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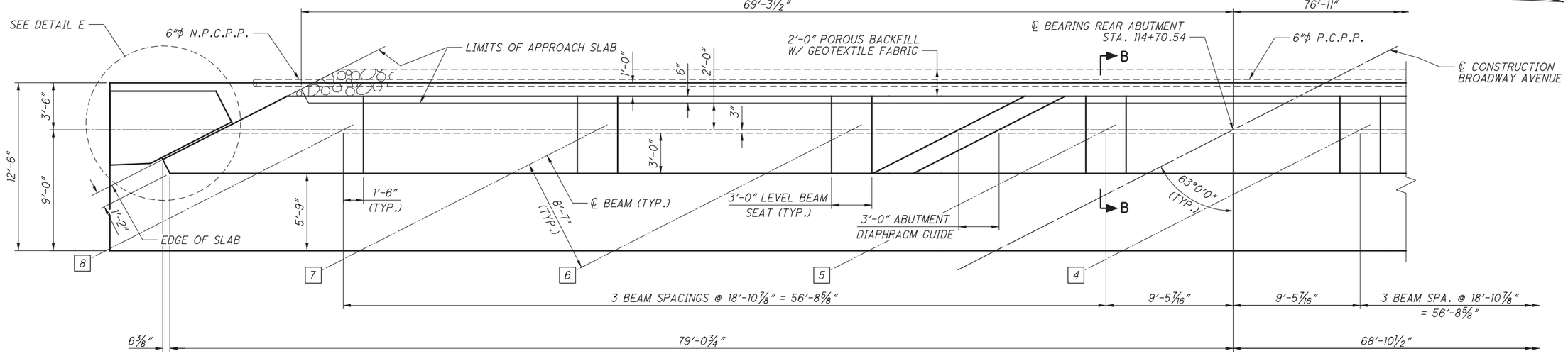
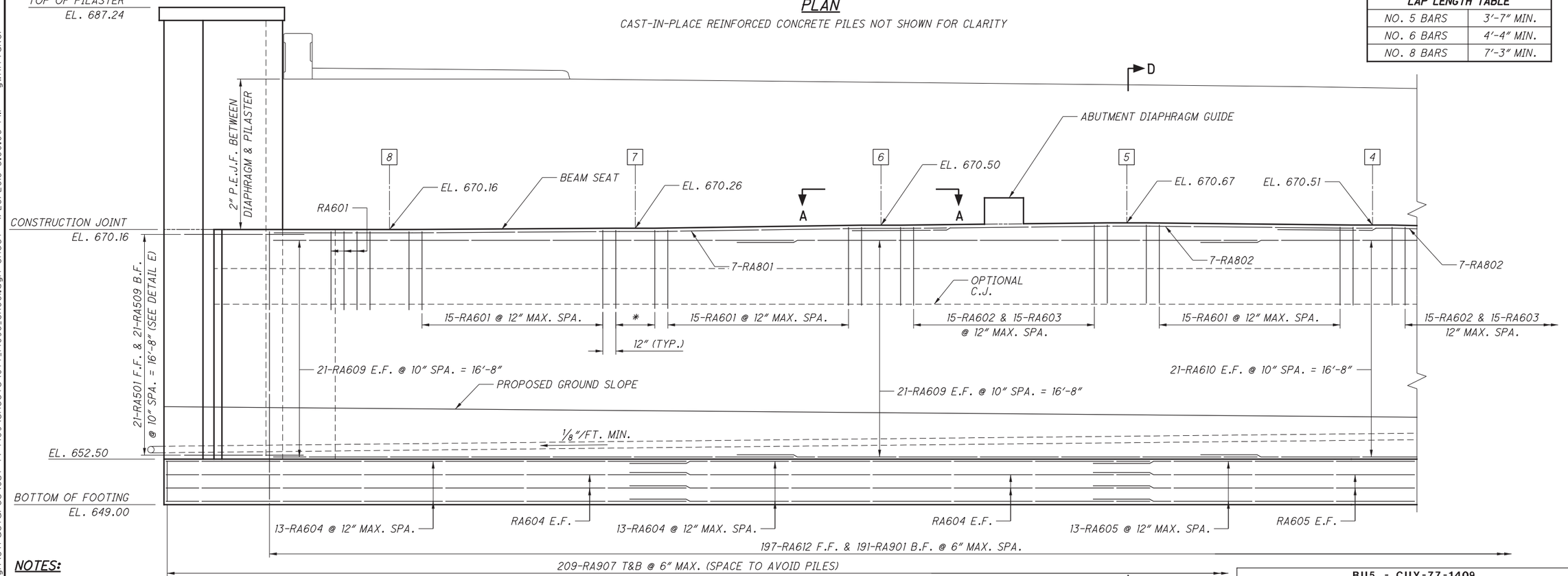


PLAN

CAST-IN-PLACE REINFORCED CONCRETE PILES NOT SHOWN FOR CLARITY

LAP LENGTH TABLE	
NO. 5 BARS	3'-7" MIN.
NO. 6 BARS	4'-4" MIN.
NO. 8 BARS	7'-3" MIN.



ELEVATION

CAST-IN-PLACE REINFORCED CONCRETE PILES IN FOOTING NOT SHOWN FOR CLARITY

NOTES:

1. FOR DIAPHRAGM DETAILS AND REINFORCEMENT, SEE SHEET 59/91
2. FOR VIEW A-A, SEE SHEET 13/91
3. FOR SECTION D-D, SEE SHEET 14/91
4. FOR DETAIL E, SEE SHEET 15/91
5. FOR FOOTING PLAN, SEE SHEET 8/91 THRU 11/91
6. CONNECT 6" ϕ N.P.C.P.P. TO WALL 2A DRAINAGE
7. FOR SECTION B-B, SEE SHEET 13/91

LEGEND:

[#] - BEAM DESIGNATION

* - 7-RA1001 @ 6" SPA. CENTERED ABOUT EACH BEARING (TYP. @ 8 LOCATIONS)

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		ISSUE RECORD

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REAR ABUTMENT PLAN & ELEVATION (1 OF 2)
BRIDGE NO. CUY-77-1409
BROADWAY AVENUE OVER IR 77

CUY-77-13.80
PID No. 82388

12 / 91
13 / 100

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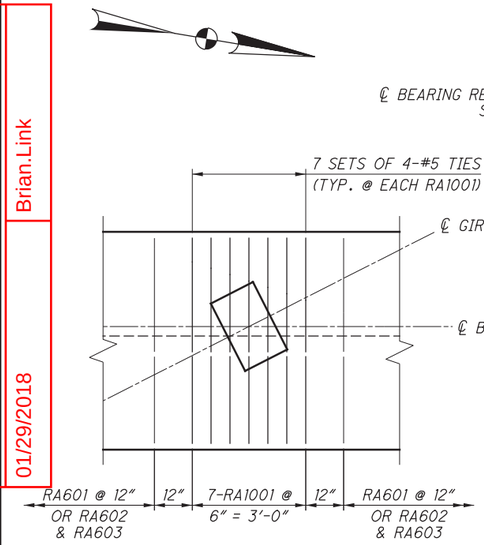
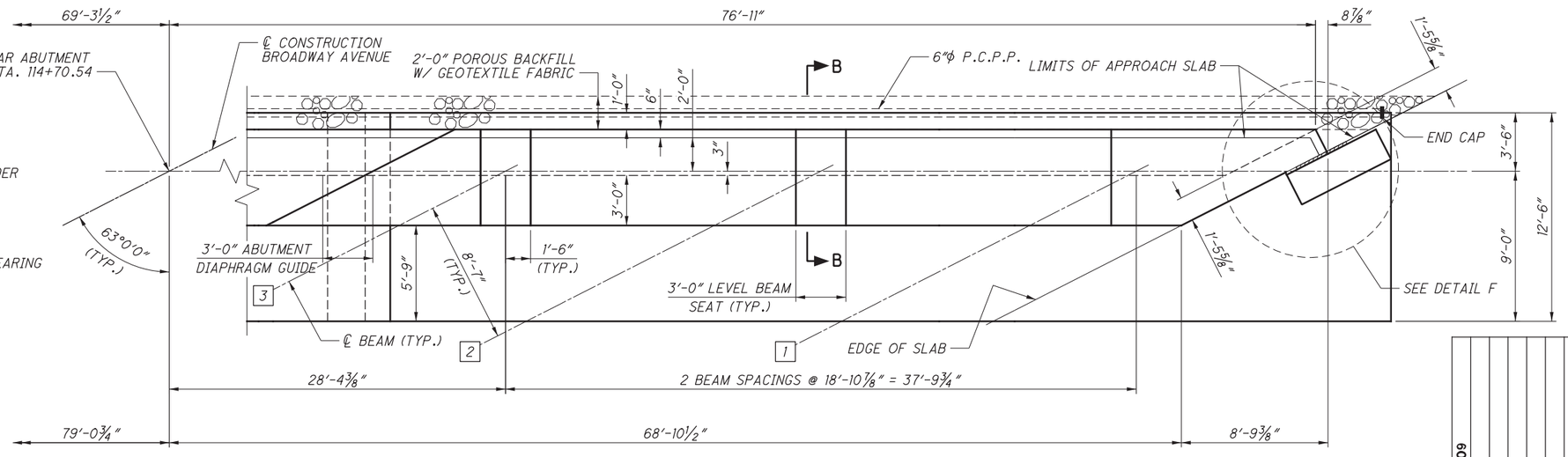


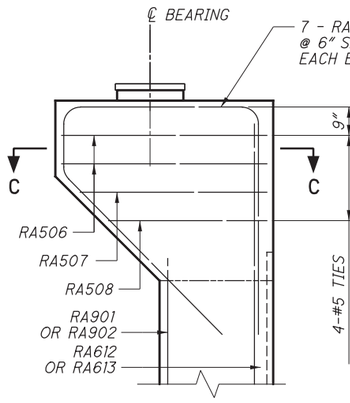
VIEW A-A

#5 TIES NOT SHOWN FOR CLARITY

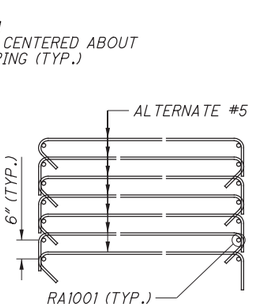


PLAN

CAST-IN-PLACE REINFORCED CONCRETE PILES NOT SHOWN FOR CLARITY

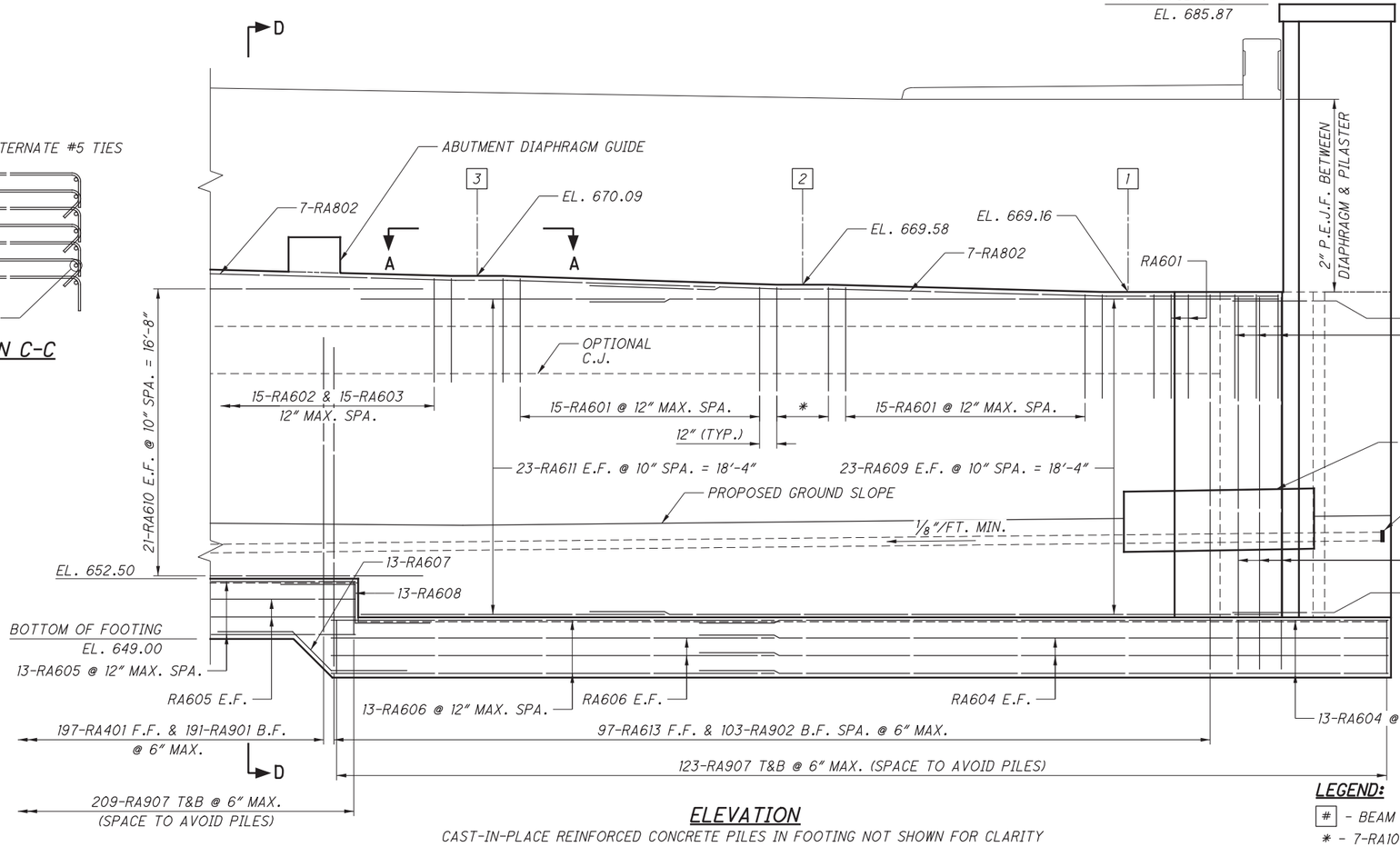


SECTION B-B



SECTION C-C

LAP LENGTH TABLE	
NO. 5 BARS	3′-7″ MIN.
NO. 6 BARS	4′-4″ MIN.
NO. 8 BARS	7′-3″ MIN.



ELEVATION

CAST-IN-PLACE REINFORCED CONCRETE PILES IN FOOTING NOT SHOWN FOR CLARITY

NOTES:

1. FOR DIAPHRAGM DETAILS AND REINFORCEMENT, SEE SHEETS 59/91 AND 60/91
2. FOR SECTION D-D, SEE SHEET 14/91
3. FOR DETAIL F, SEE SHEET 15/91
4. FOR FOOTING PLAN, SEE SHEET 8/91 THRU 11/91
5. CONNECT 6″ ϕ N.P.C.P.P. TO WALL 2A DRAINAGE

LEGEND:

[#] - BEAM DESIGNATION

* - 7-RA1001 @ 6″ SPA. CENTERED ABOUT EACH BEARING (TYP. @ 8 LOCATIONS)

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		ISSUE RECORD

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DFT		1806663	

REAR ABUTMENT PLAN & ELEVATION (2 OF 2)
BRIDGE NO. CUY-77-1409
BROADWAY AVENUE OVER IR 77

CUY-77-13.80
PID No. 82388

13 / 91
14 / 100

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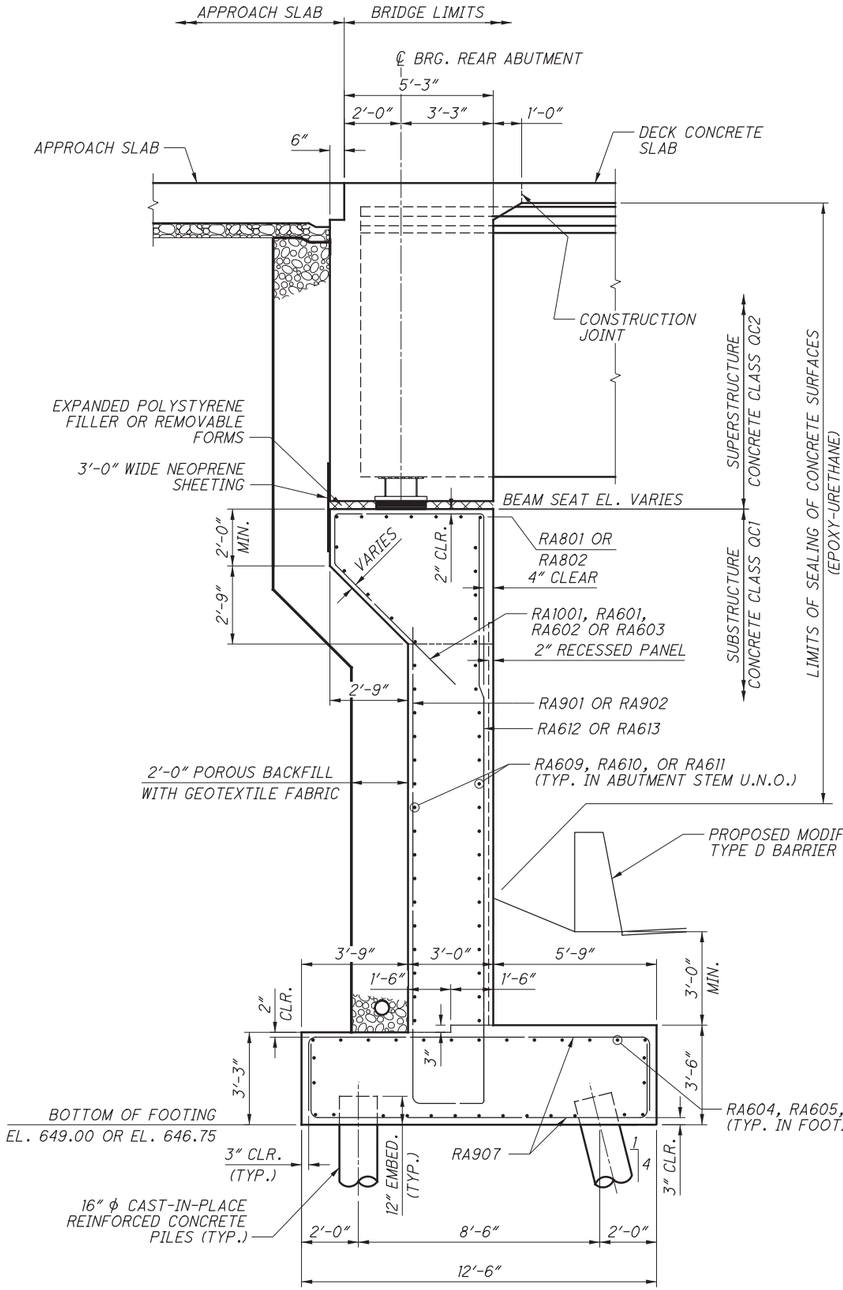
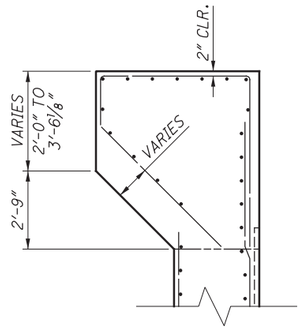
2018-01-26.BU-5 CUY-77-1409 - RFC Plans

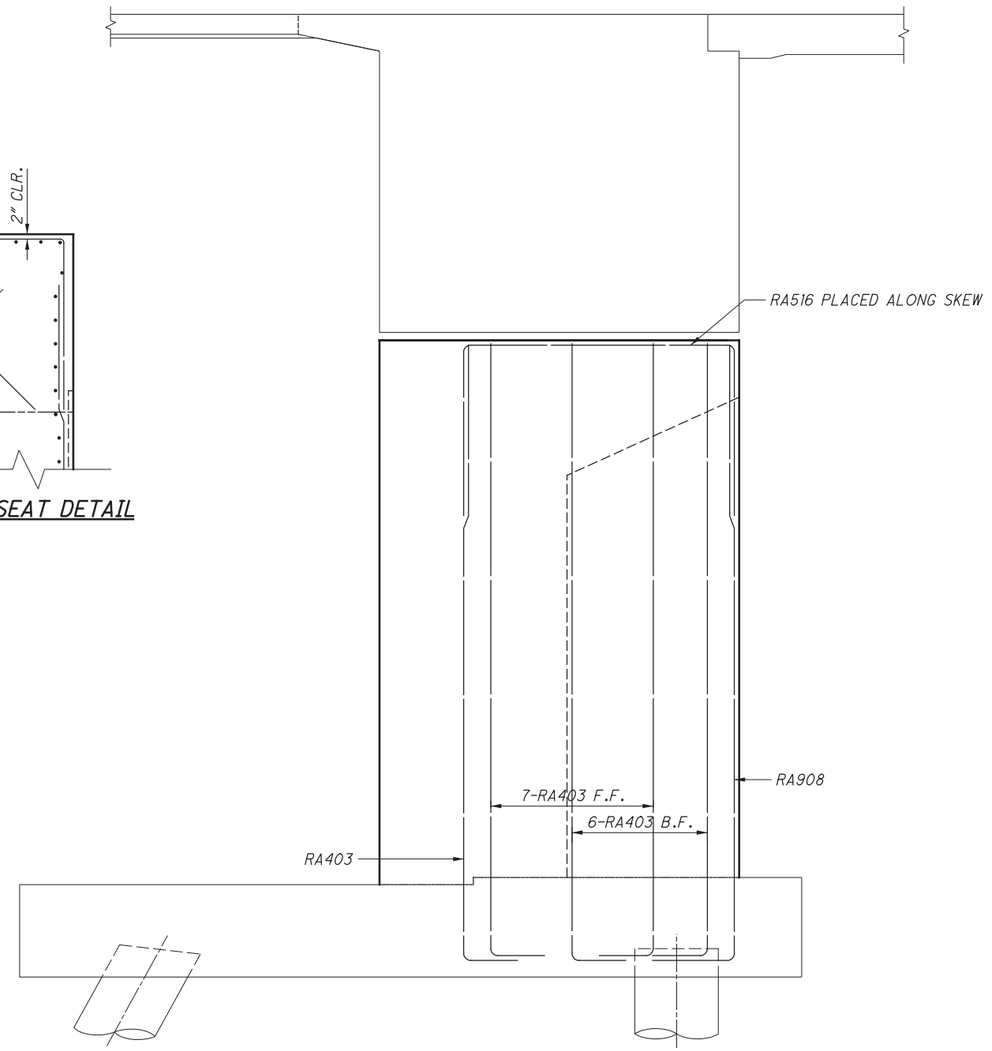


SECTION D-D

DIAPHRAGM REINFORCING NOT SHOWN FOR CLARITY



BEAM SEAT DETAIL



SECTION I-I

DIAPHRAGM AND FOOTING DETAILS NOT SHOWN FOR CLARITY
ABUTMENT STEM REINFORCEMENT NOT SHOWN FOR CLARITY

NOTES:

1. FOR DIAPHRAGM DETAILS AND REINFORCEMENT, SEE SHEETS 59/91 AND 60/91
2. FOR LOCATION OF SECTION D-D, SEE SHEETS 12/91 AND 13/91
3. FOR LOCATION OF SECTION I-I, SEE SHEET 15/91
4. FOR FOOTING PLAN, SEE SHEET 8/91 THRU 11/91.
5. BACKFILL MATERIAL BEHIND ABUTMENT AND BELOW APPROACH SLAB TO BE PER CMS 503.08

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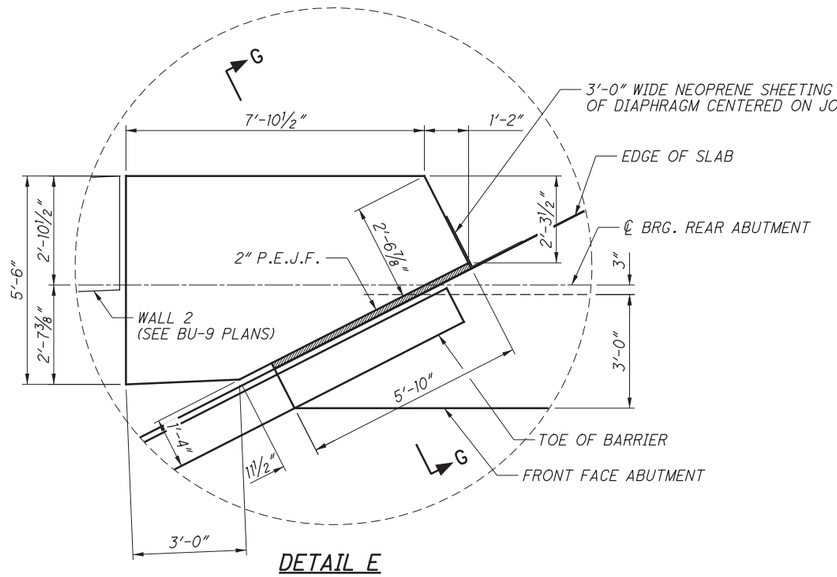
REAR ABUTMENT DETAILS
BRIDGE NO. CUY-77-1409
BROADWAY AVENUE OVER IR 77

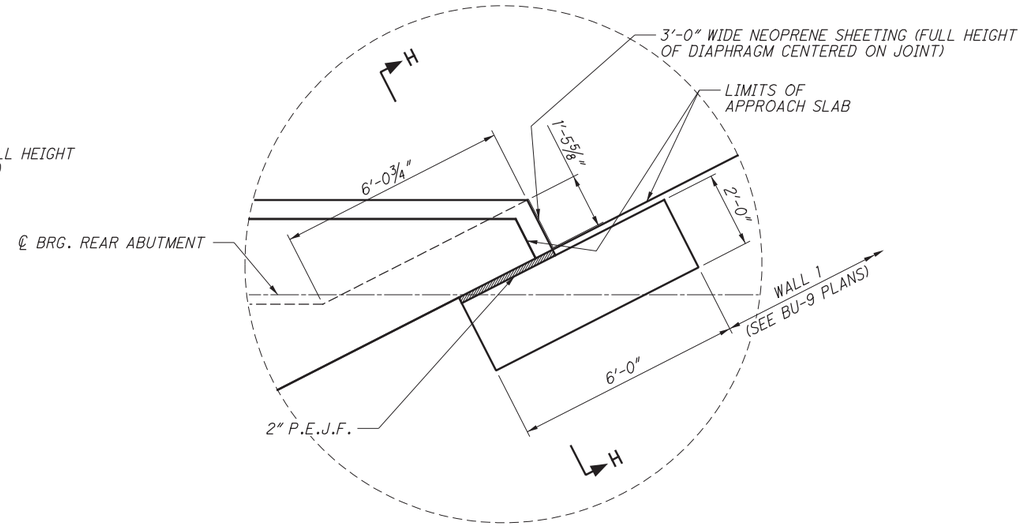
CUY-77-13.80
PID No. 82388

14 / 91

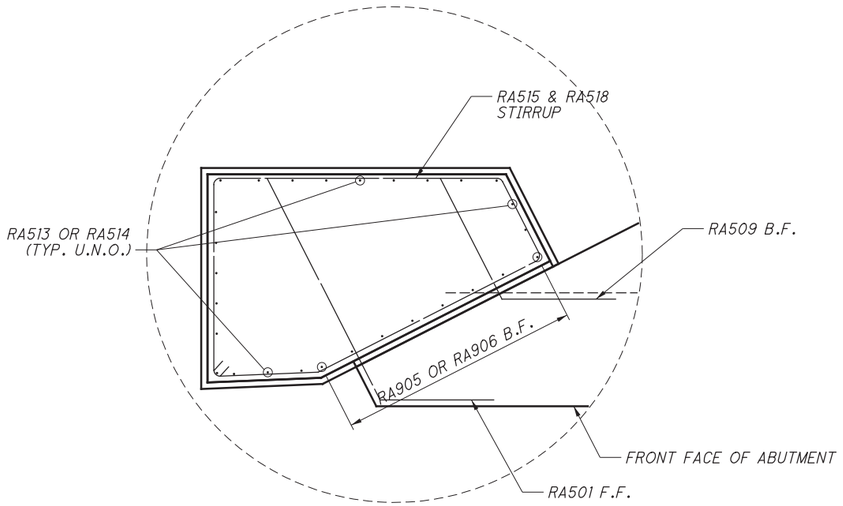
15 / 100



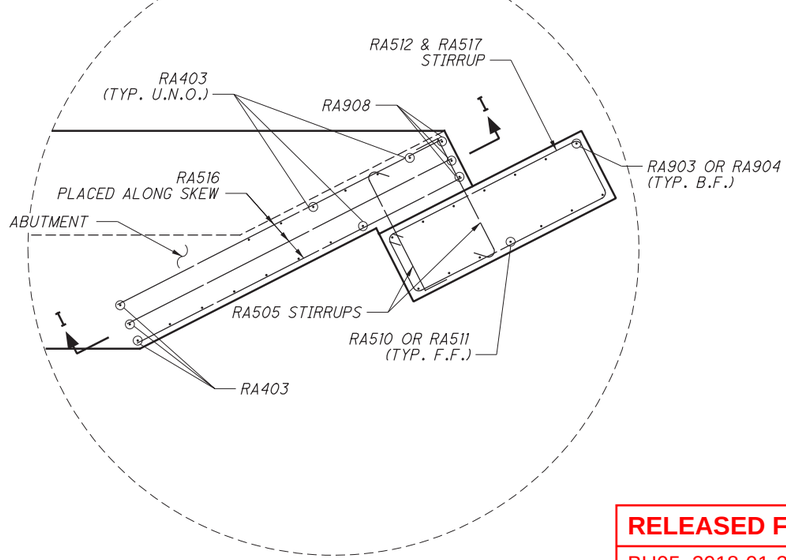
DETAIL E



DETAIL F



DETAIL E
REINFORCEMENT DETAIL



DETAIL F
REINFORCEMENT DETAIL

NOTES:

1. FOR SECTION I-I, SEE SHEET 14/91
2. FOR LOCATION OF DETAIL E, SEE SHEET 12/91
3. FOR LOCATION OF DETAIL F, SEE SHEET 13/91
4. FOR SECTIONS G-G & H-H, SEE SHEET 16/91
5. FOR FOOTING PLAN, SEE SHEET 8/91 THRU 11/91

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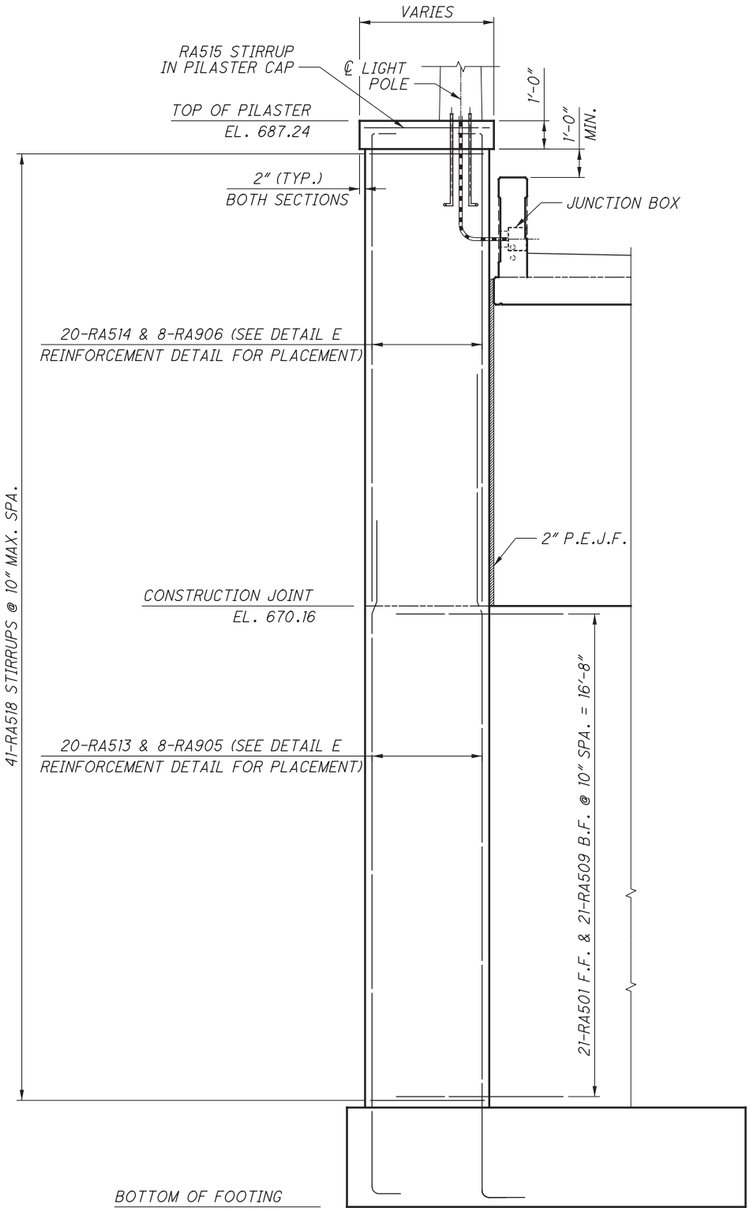
DFT		1806663	

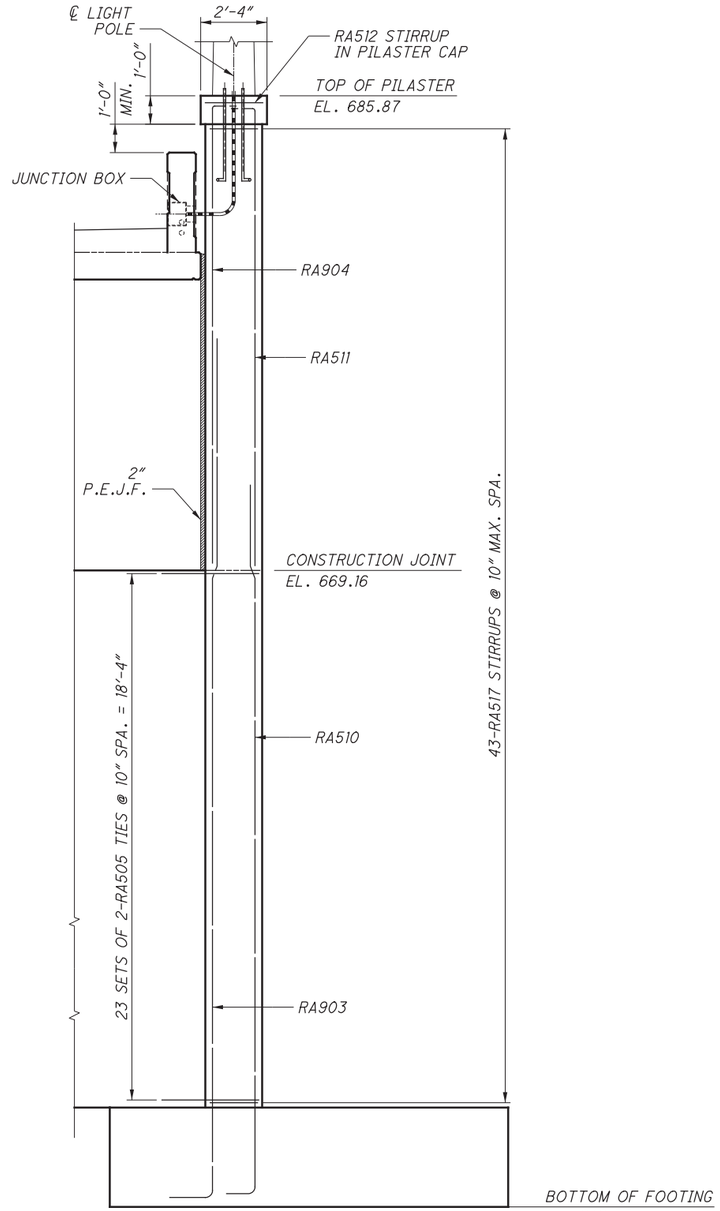
REAR ABUTMENT DETAILS
BRIDGE NO. CUY-77-1409
BROADWAY AVENUE OVER IR 77

CUY-77-13.80
PID No. 82388



SECTION G-G

FOOTING, DIAPHRAGM & ABUTMENT DETAILING
NOT SHOWN FOR CLARITY



SECTION H-H

FOOTING, DIAPHRAGM & ABUTMENT DETAILING
NOT SHOWN FOR CLARITY

LAP LENGTH TABLE	
NO. 5 BARS	2'-10" MIN.
NO. 9 BARS	8'-0" MIN.

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NOTES:

1. FOR LOCATION OF SECTION G-G & H-H, SEE SHEET 15/91
2. FOR FOOTING PLAN, SEE SHEET 8/91 THRU 11/91

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		ISSUE RECORD

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REAR ABUTMENT DETAILS
BRIDGE NO. CUY-77-1409
BROADWAY AVENUE OVER IR 77

CUY-77-13.80
PID No. 82388

16 / 91

17 / 100

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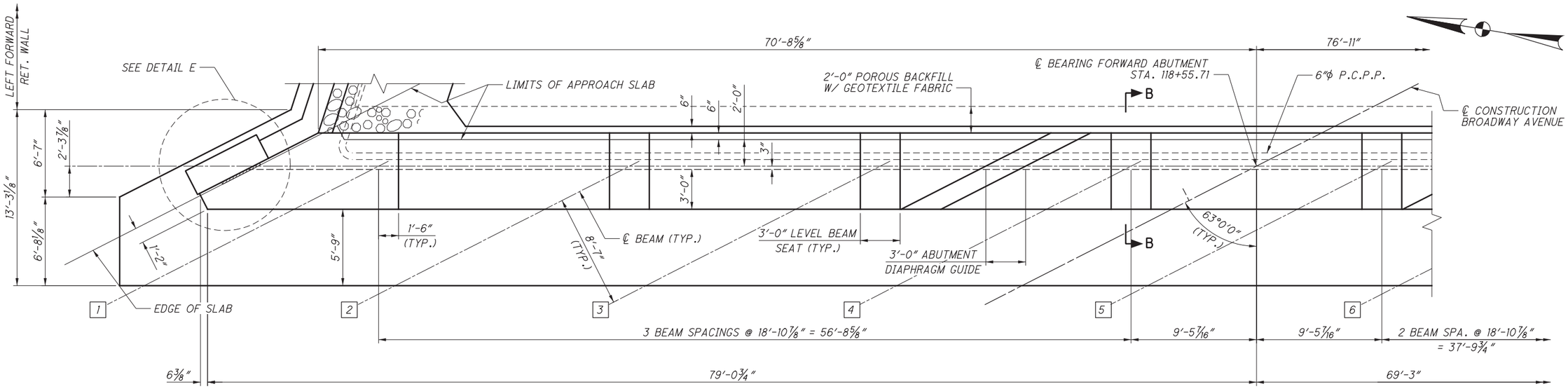


LEGEND:

[#] - BEAM DESIGNATION

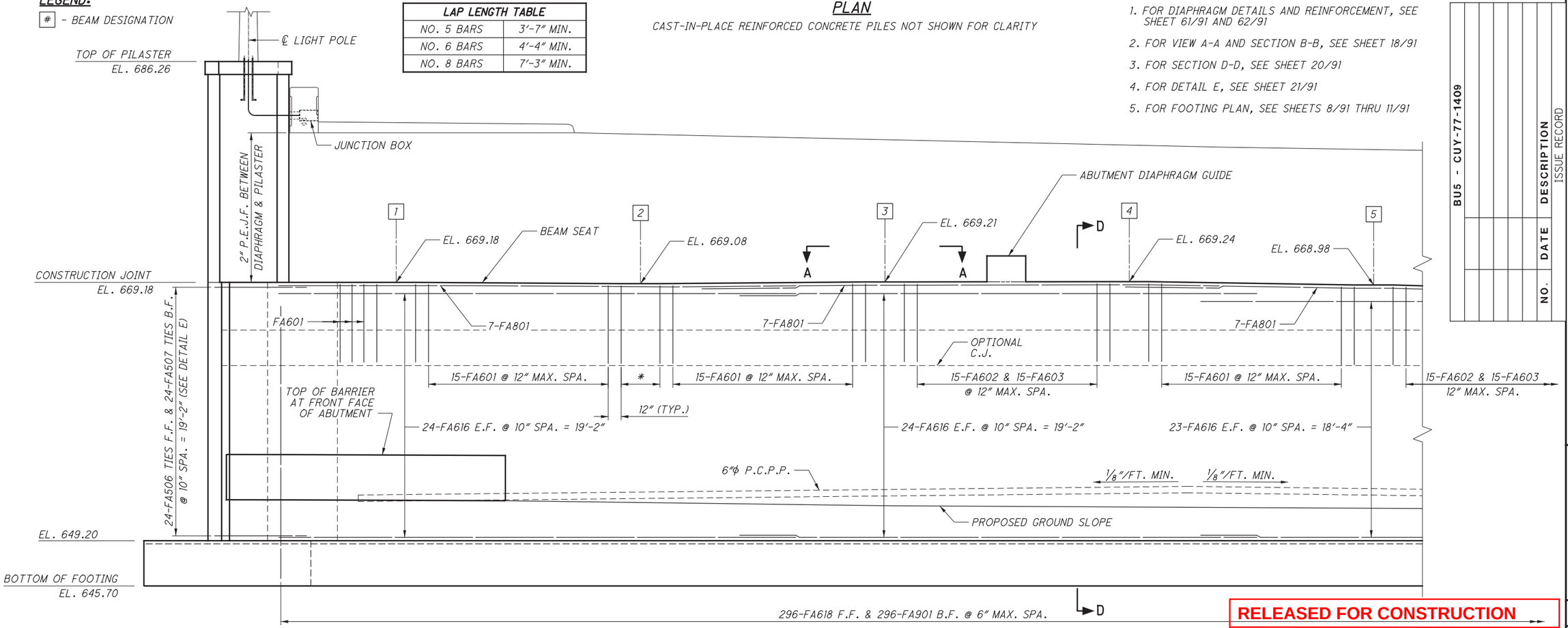
LAP LENGTH TABLE	
NO. 5 BARS	3'-7" MIN.
NO. 6 BARS	4'-4" MIN.
NO. 8 BARS	7'-3" MIN.

PLAN

CAST-IN-PLACE REINFORCED CONCRETE PILES NOT SHOWN FOR CLARITY

NOTES:

1. FOR DIAPHRAGM DETAILS AND REINFORCEMENT, SEE SHEET 61/91 AND 62/91
2. FOR VIEW A-A AND SECTION B-B, SEE SHEET 18/91
3. FOR SECTION D-D, SEE SHEET 20/91
4. FOR DETAIL E, SEE SHEET 21/91
5. FOR FOOTING PLAN, SEE SHEETS 8/91 THRU 11/91



* - 7-FA1001 @ 6" SPA. CENTERED ABOUT EACH BEARING (TYP. @ 8 LOCATIONS)

ELEVATION

CAST-IN-PLACE REINFORCED CONCRETE PILES AND FOOTING BARS NOT SHOWN FOR CLARITY

NO.	DATE	DESCRIPTION
		ISSUE RECORD

BU5 - CUY-77-1409

FORWARD ABUTMENT PLAN & ELEVATION (1 OF 2)
BRIDGE NO. CUY-77-1409
BROADWAY AVENUE OVER IR 77

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CUY-77-13.80
PID No. 82388

17 / 91
18 / 100

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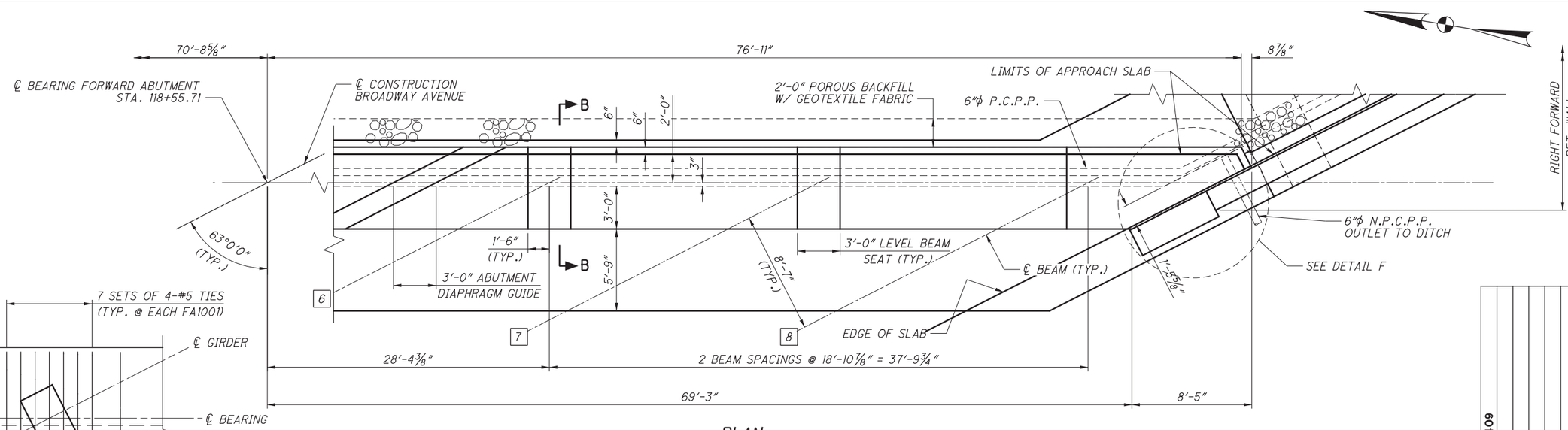
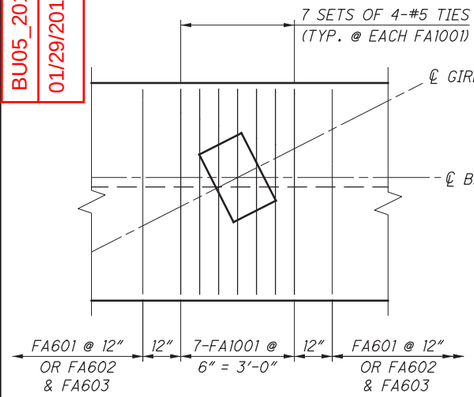


PLAN

CAST-IN-PLACE REINFORCED CONCRETE PILES NOT SHOWN FOR CLARITY



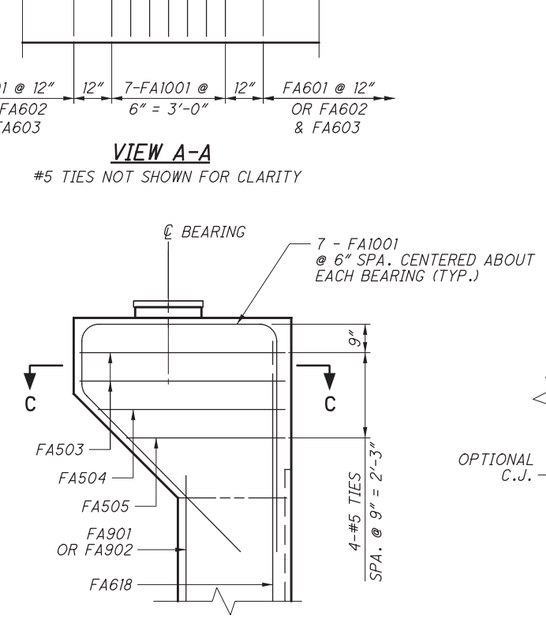
VIEW A-A

#5 TIES NOT SHOWN FOR CLARITY

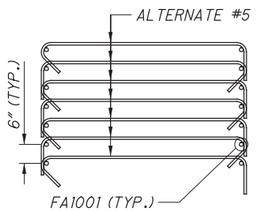
NOTES:

1. FOR DIAPHRAGM DETAILS AND REINFORCEMENT, SEE SHEET 61/91 AND 62/91
2. FOR SECTION D-D, SEE SHEET 20/91
3. FOR DETAIL F, SEE SHEET 21/91
5. FOR FOOTING PLAN, SEE SHEETS 8/91 THRU 11/91

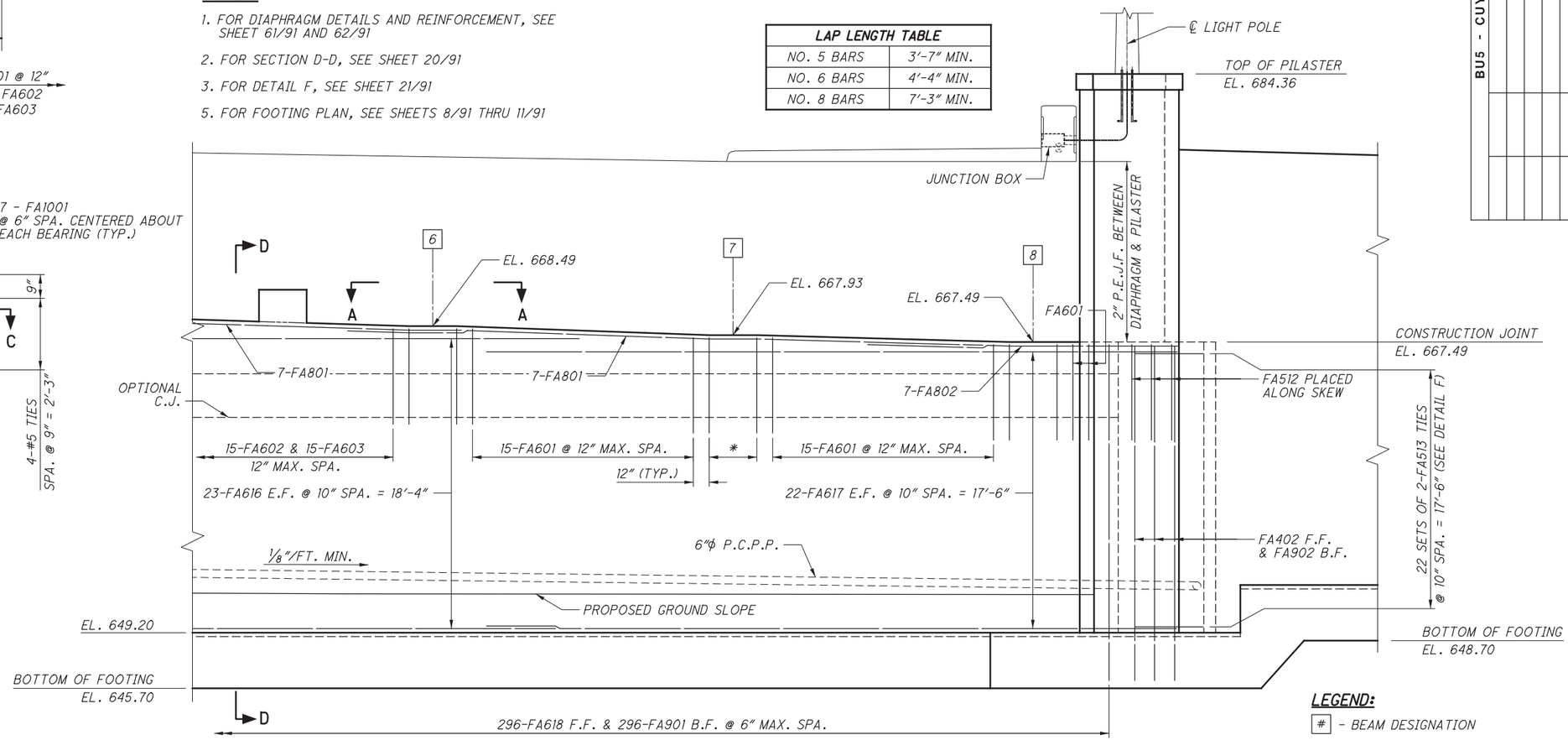
LAP LENGTH TABLE	
NO. 5 BARS	3'-7" MIN.
NO. 6 BARS	4'-4" MIN.
NO. 8 BARS	7'-3" MIN.



SECTION B-B



SECTION C-C



ELEVATION

CAST-IN-PLACE REINFORCED CONCRETE PILES AND FOOTING BARS NOT SHOWN FOR CLARITY

LEGEND:

[#] - BEAM DESIGNATION

* - 7-FA1001 @ 6" SPA. CENTERED ABOUT EACH BEARING (TYP. @ 8 LOCATIONS)

BU5 - CUY-77-1409

NO.	DESCRIPTION	DATE
	ISSUE RECORD	

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1801 Watermark Drive, Suite 310 - Columbus, Ohio 43215
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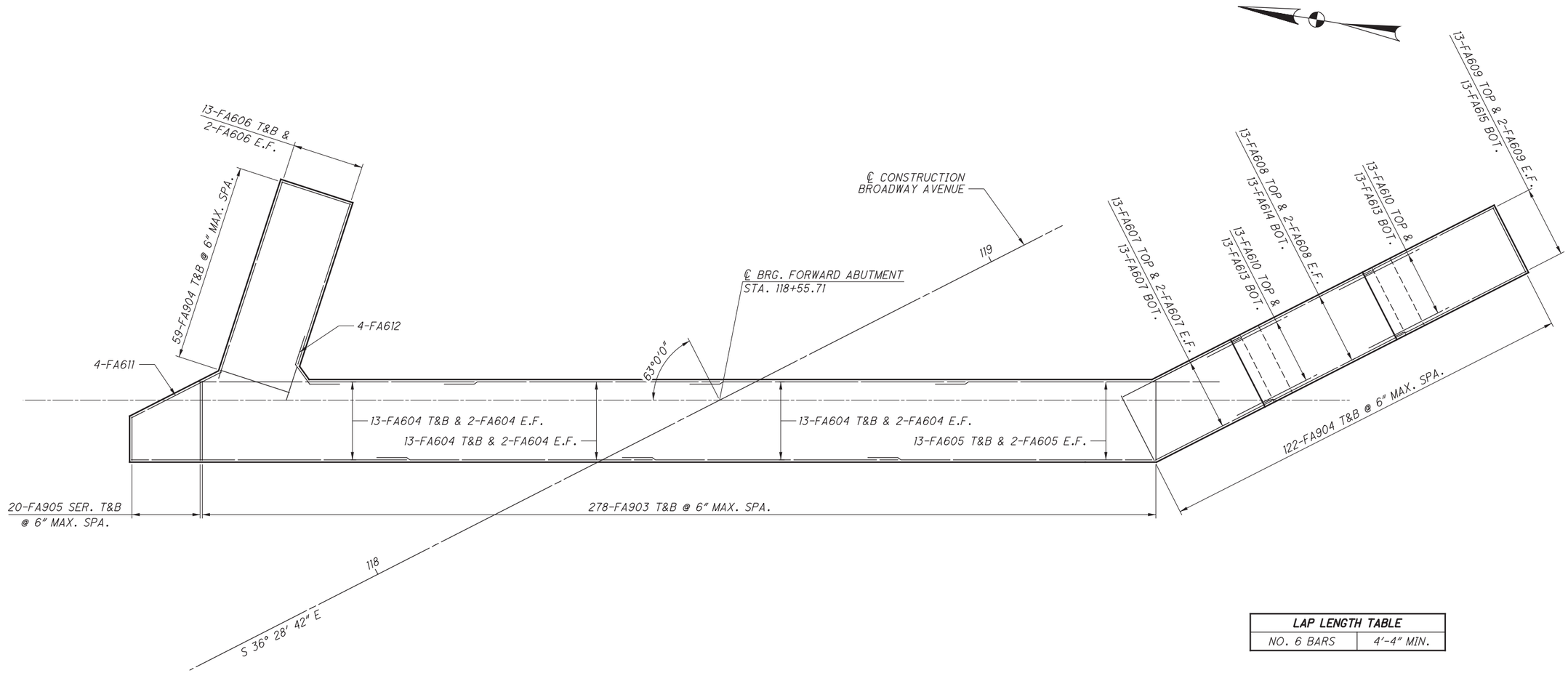
CHECKED DFT | REVISED | STRUCTURE FILE NUMBER 1806663

FORWARD ABUTMENT PLAN & ELEVATION (2 OF 2)
BRIDGE NO. CUY-77-1409
BROADWAY AVENUE OVER IR 77

CUY-77-13.80
PID No. 82388

18 / 91
19 / 100

P:\82388_CCG6B\Design\Structures\CUY-77-1409\sheets\077_1409C_SF002.dgn Sheet 1/26/2018 3:00:4 PM gwhittaker



LAP LENGTH TABLE	
NO. 6 BARS	4'-4" MIN.

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NOTES:

1. FOR FORWARD ABUTMENT FOOTING LAYOUT, SEE SHEET 9/91.
2. ALLOW CLEARANCE FROM PILES WHEN PLACING REINFORCING.

NO.	DATE	DESCRIPTION
		BU5 - CUY-77-1409
		ISSUE RECORD

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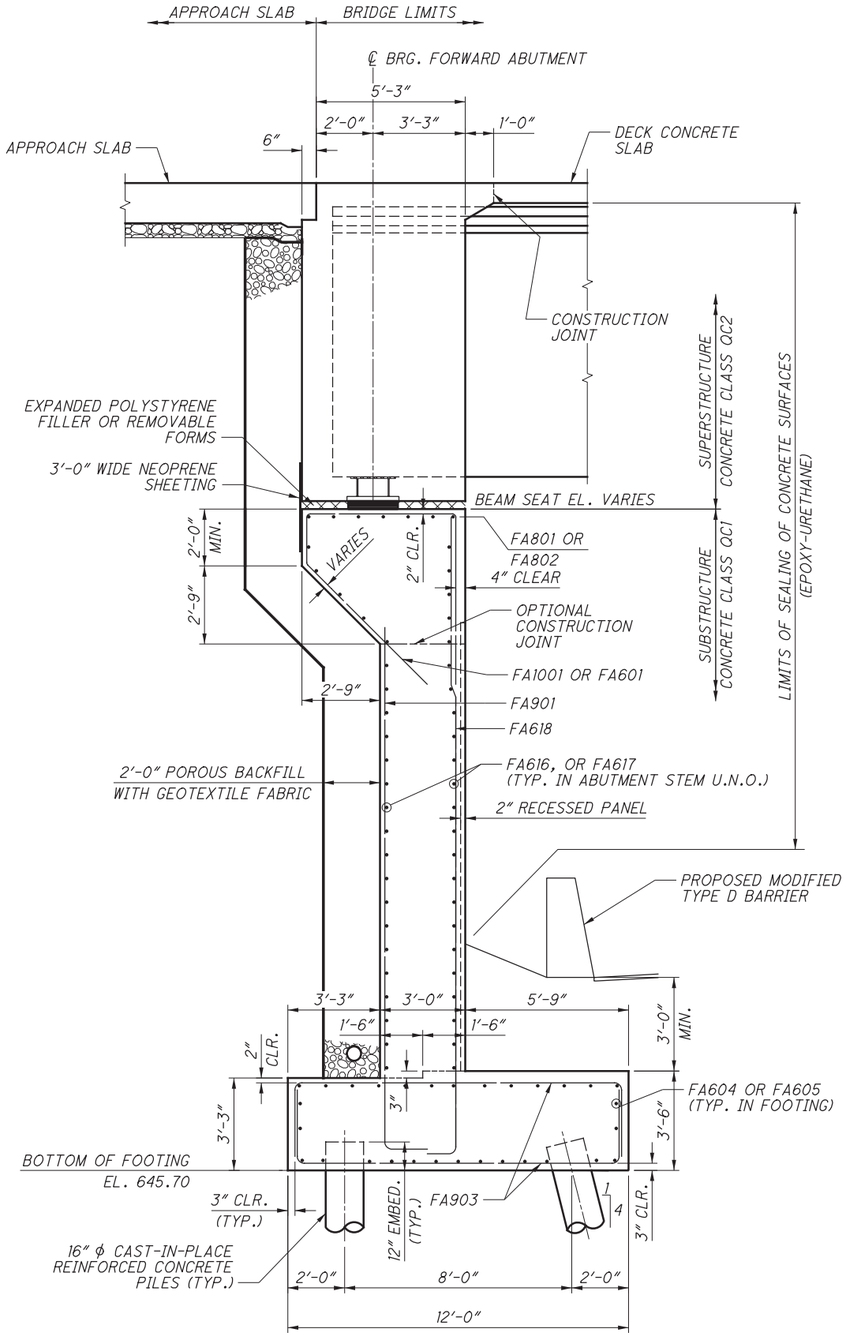
DFT		1806663	

FORWARD ABUTMENT FOOTING REINFORCING PLAN

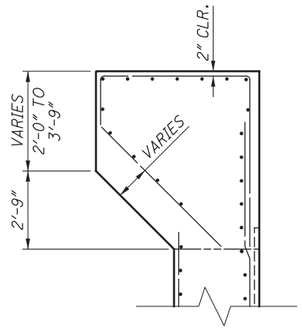
BRIDGE NO. CUY-77-1409
BROADWAY AVENUE OVER IR 77

CUY-77-13.80
PID No. 82388

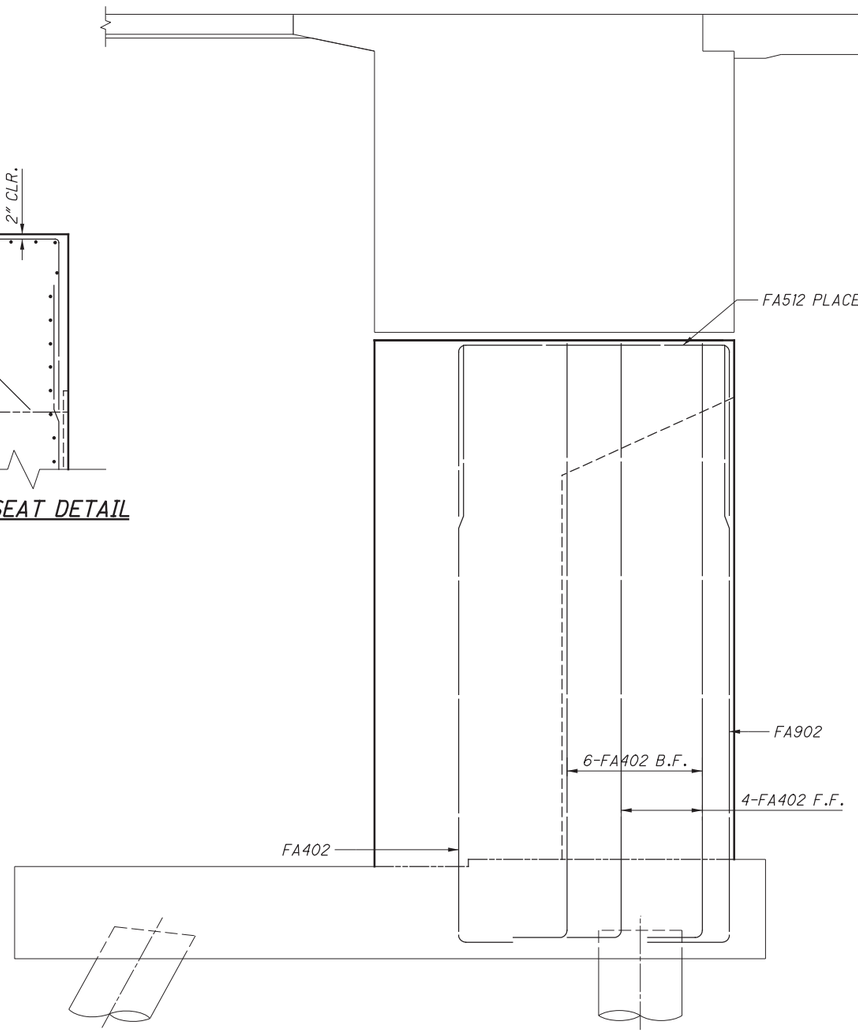


SECTION D-D

DIAPHRAGM REINFORCING NOT SHOWN FOR CLARITY



BEAM SEAT DETAIL



SECTION I-I

DIAPHRAGM AND FOOTING DETAILS NOT SHOWN FOR CLARITY
ABUTMENT STEM REINFORCEMENT NOT SHOWN FOR CLARITY

NOTES:

1. FOR DIAPHRAGM DETAILS AND REINFORCEMENT, SEE SHEET 61/91 AND 62/91
2. FOR LOCATION OF SECTION D-D, SEE SHEET 17/91 AND 18/91
3. FOR LOCATION OF SECTION I-I, SEE SHEET 21/91
4. FOR FOOTING PLAN, SEE SHEET 8/91 THRU 11/91
5. BACKFILL MATERIAL BEHIND ABUTMENT AND BELOW APPROACH SLAB TO BE PER CMS 503.08

BU5 - CUY-77-1409		
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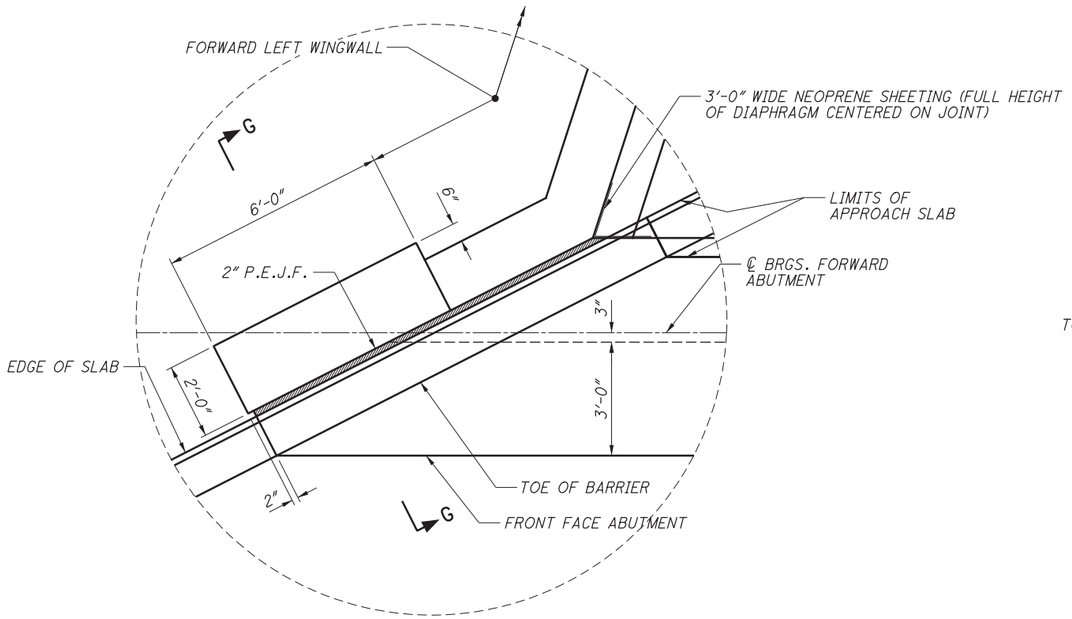
FORWARD ABUTMENT DETAILS
BRIDGE NO. CUY-77-1409
BROADWAY AVENUE OVER IR 77

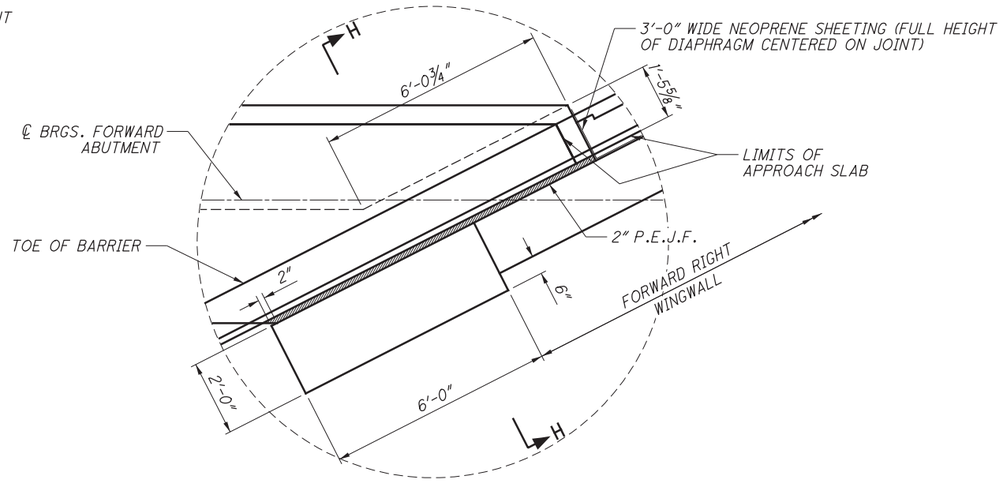
CUY-77-13.80
PID No. 82388

20 / 91

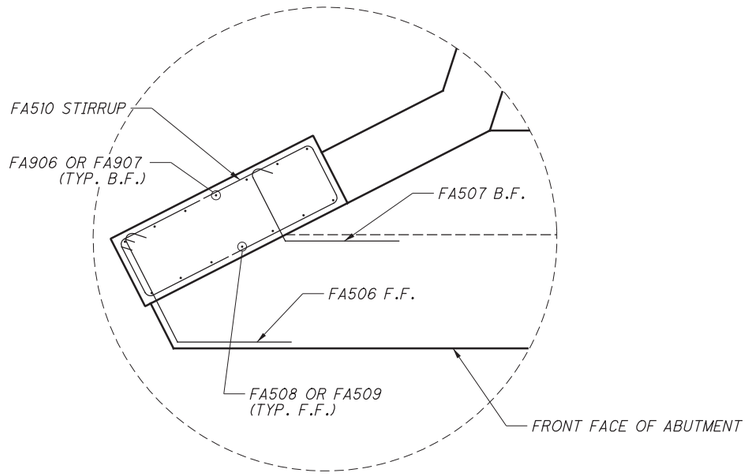
21 / 100



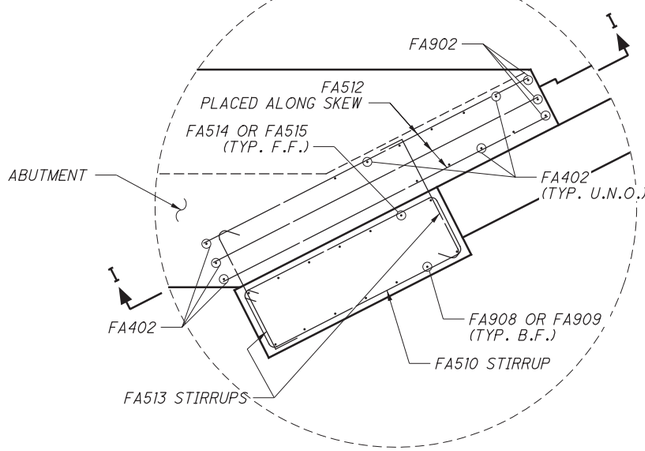
DETAIL E



DETAIL F



DETAIL E
REINFORCEMENT DETAIL



DETAIL F
REINFORCEMENT DETAIL

NOTES:

1. FOR SECTION I-I, SEE SHEET 20/91
2. FOR LOCATION OF DETAIL E, SEE SHEET 17/91
3. FOR LOCATION OF DETAIL F, SEE SHEET 18/91
4. FOR SECTIONS G-G & H-H, SEE SHEET 22/91

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CHECKED	REVISED	STRUCTURE FILE NUMBER	
DFT		1806663	

FORWARD ABUTMENT DETAILS
BRIDGE NO. CUY-77-1409
BROADWAY AVENUE OVER IR 77

CUY-77-13.80
PID No. 82388

21 / 91

22
100

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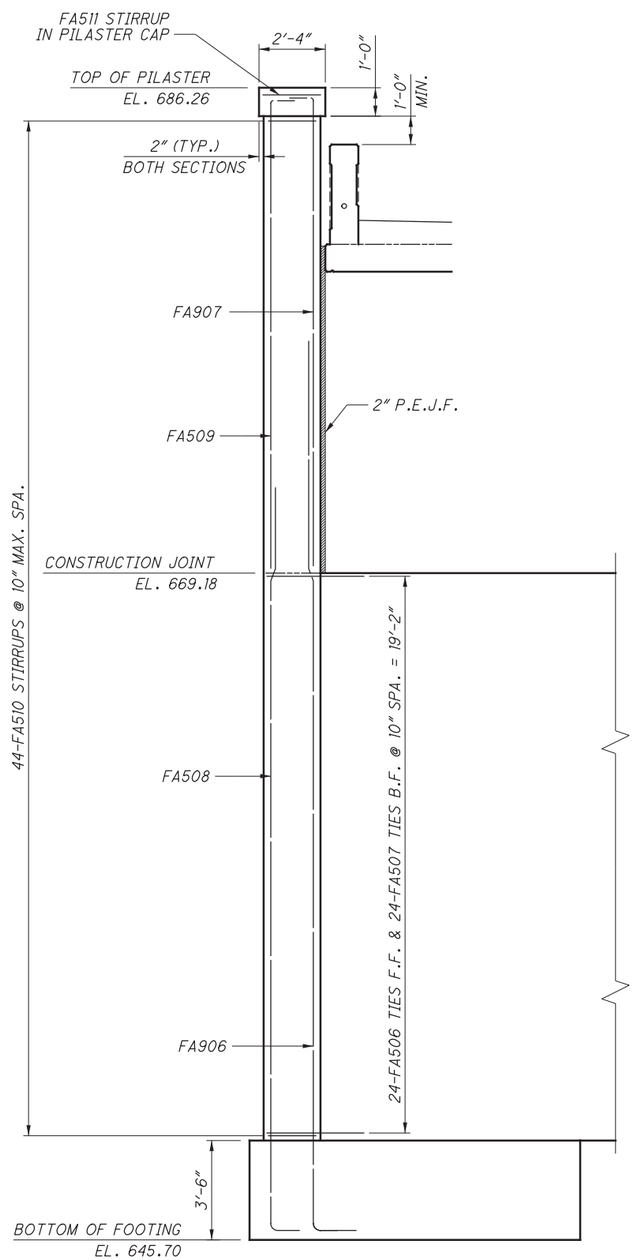
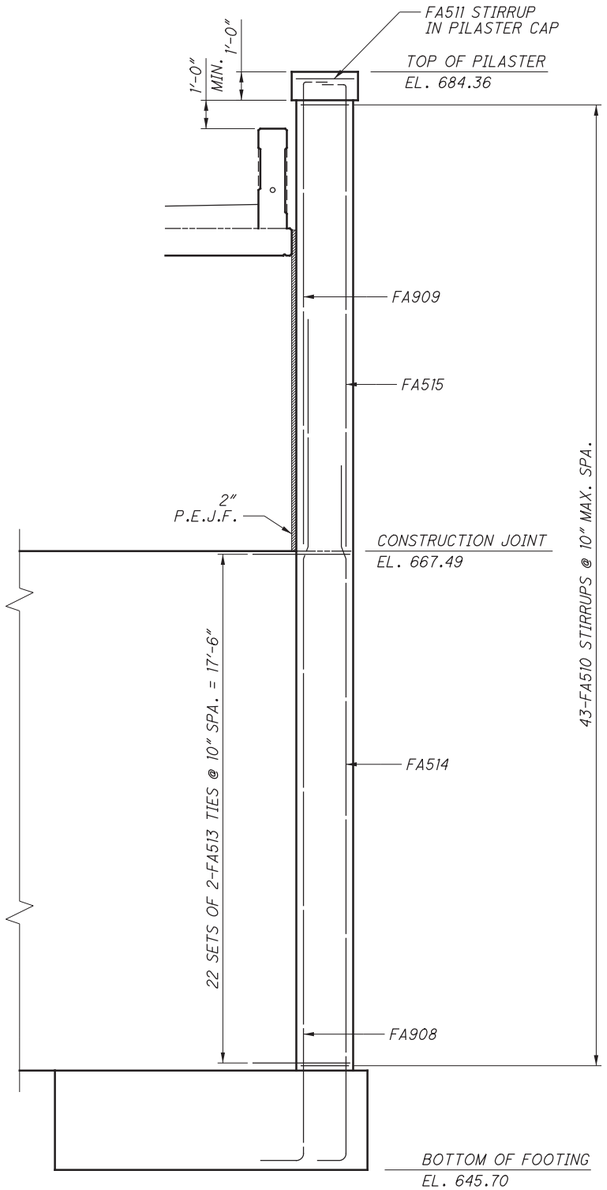


SECTION G-G

FOOTING, DIAPHRAGM & ABUTMENT DETAILING
NOT SHOWN FOR CLARITY



SECTION H-H

FOOTING, DIAPHRAGM & ABUTMENT DETAILING
NOT SHOWN FOR CLARITY

LAP LENGTH TABLE	
NO. 5 BARS	2'-10" MIN.
NO. 9 BARS	8'-0" MIN.

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NOTES:

1. FOR LOCATION OF SECTION G-G & H-H, SEE SHEET 21/91
2. FOR FOOTING PLAN, SEE SHEET 9/91

BU5 - CUY-77-1409		
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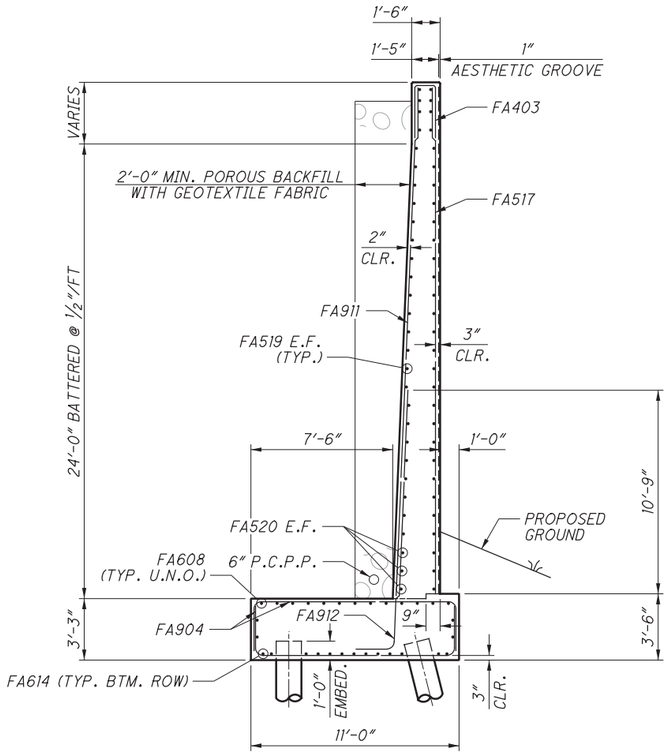
DFT		1806663	

FORWARD ABUTMENT DETAILS
BRIDGE NO. CUY-77-1409
BROADWAY AVENUE OVER IR 77

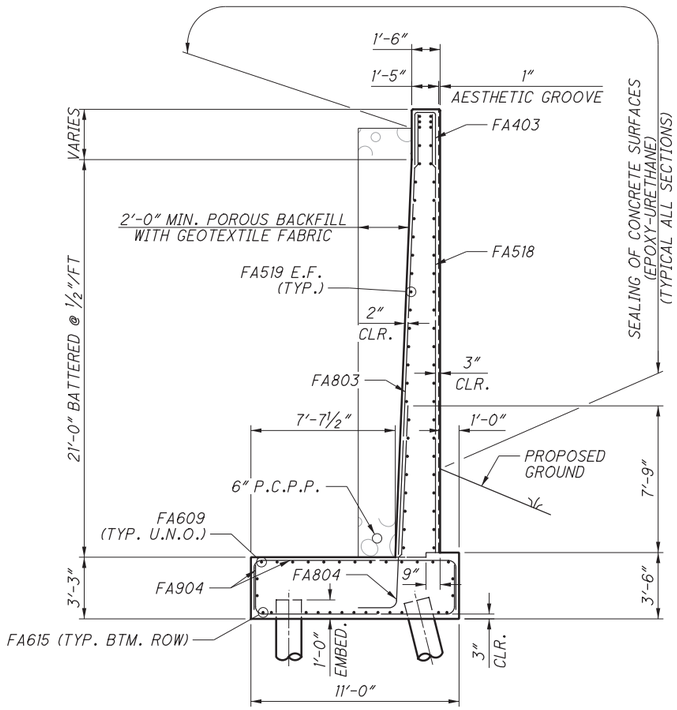
CUY-77-13.80
PID No. 82388

22 / 91

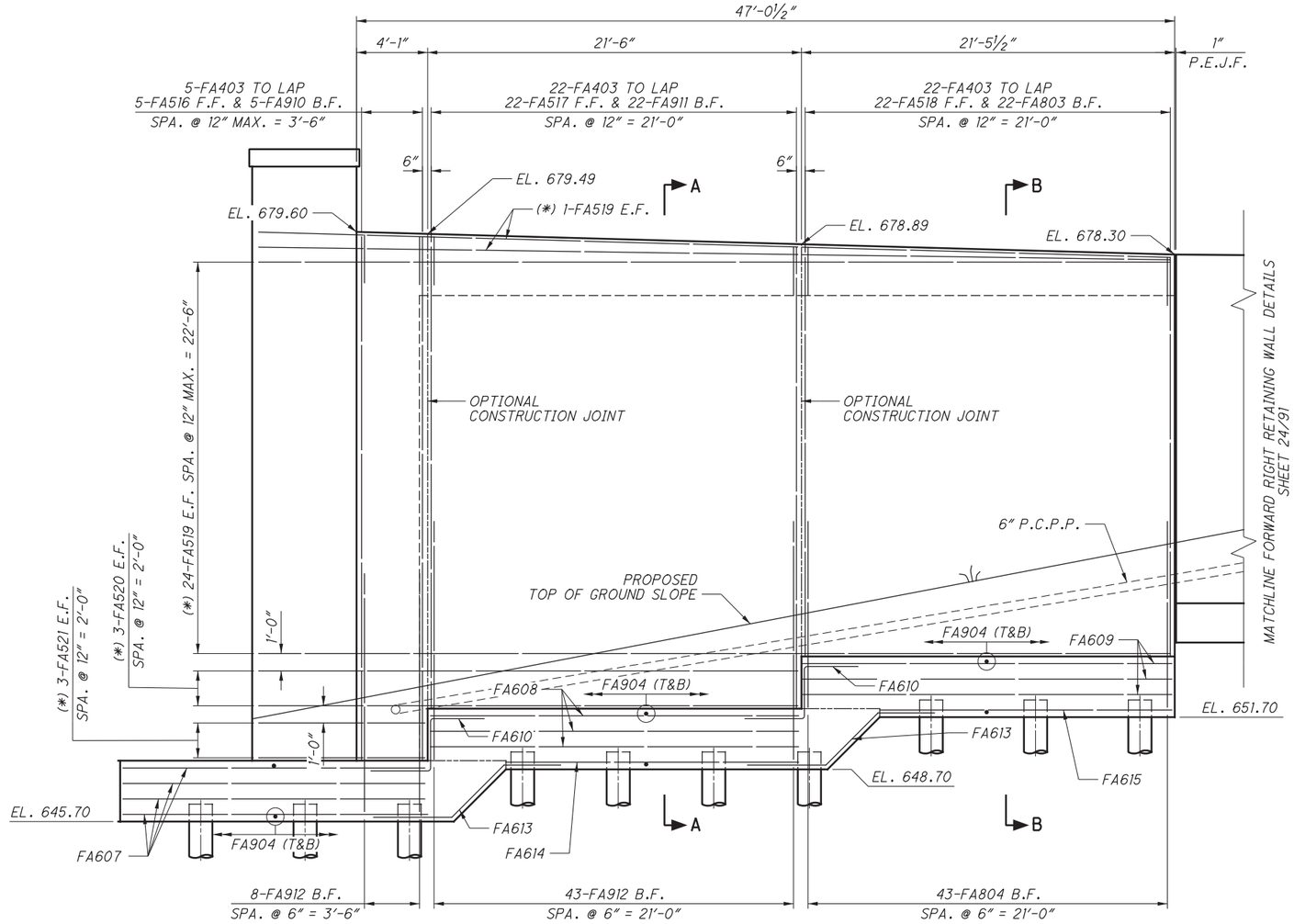
23
100



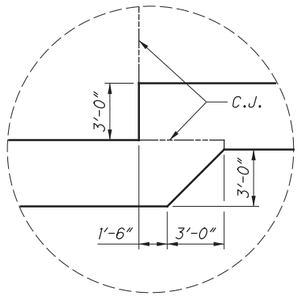
SECTION A-A



SECTION B-B



ELEVATION



TYPICAL FOOTING STEP ELEVATION

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LEGEND:

(*) - CONTRACTOR MAY USE SHORTER #5 BARS WITH 3'-1" LAP

BU5 - CUY-77-1409		
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CJW		1806663	

FORWARD RIGHT WINGWALL
BRIDGE NO. CUY-77-1409
BROADWAY AVENUE OVER IR 77

CUY-77-13.80
PID No. 82388

23 / 91

24
100

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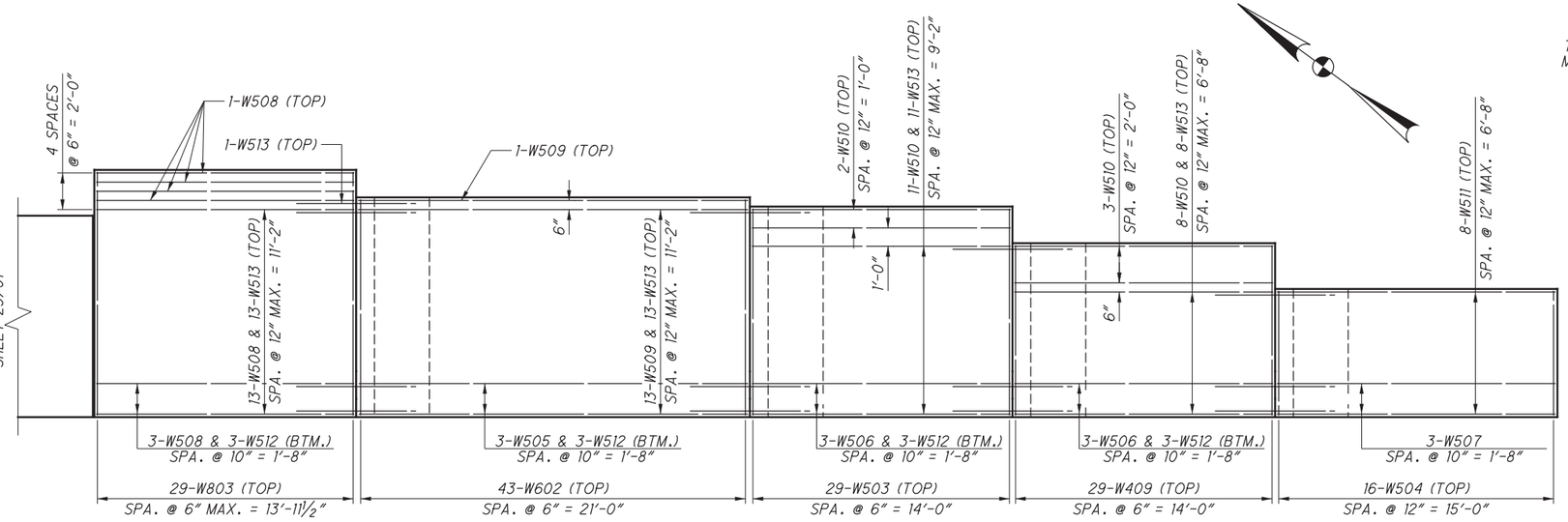
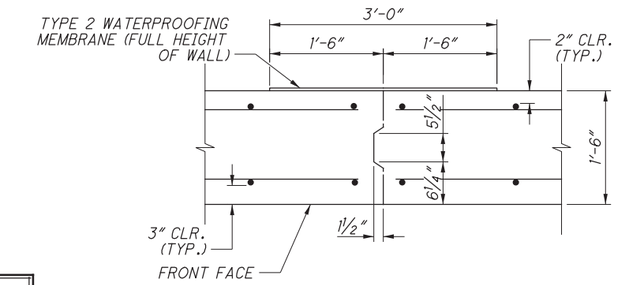
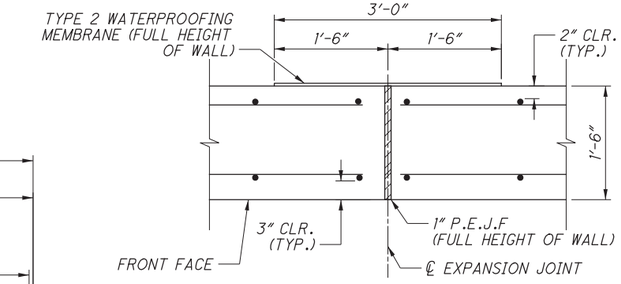
MATCHLINE FORWARD RIGHT WINGWALL DETAILS SHEET 23/91



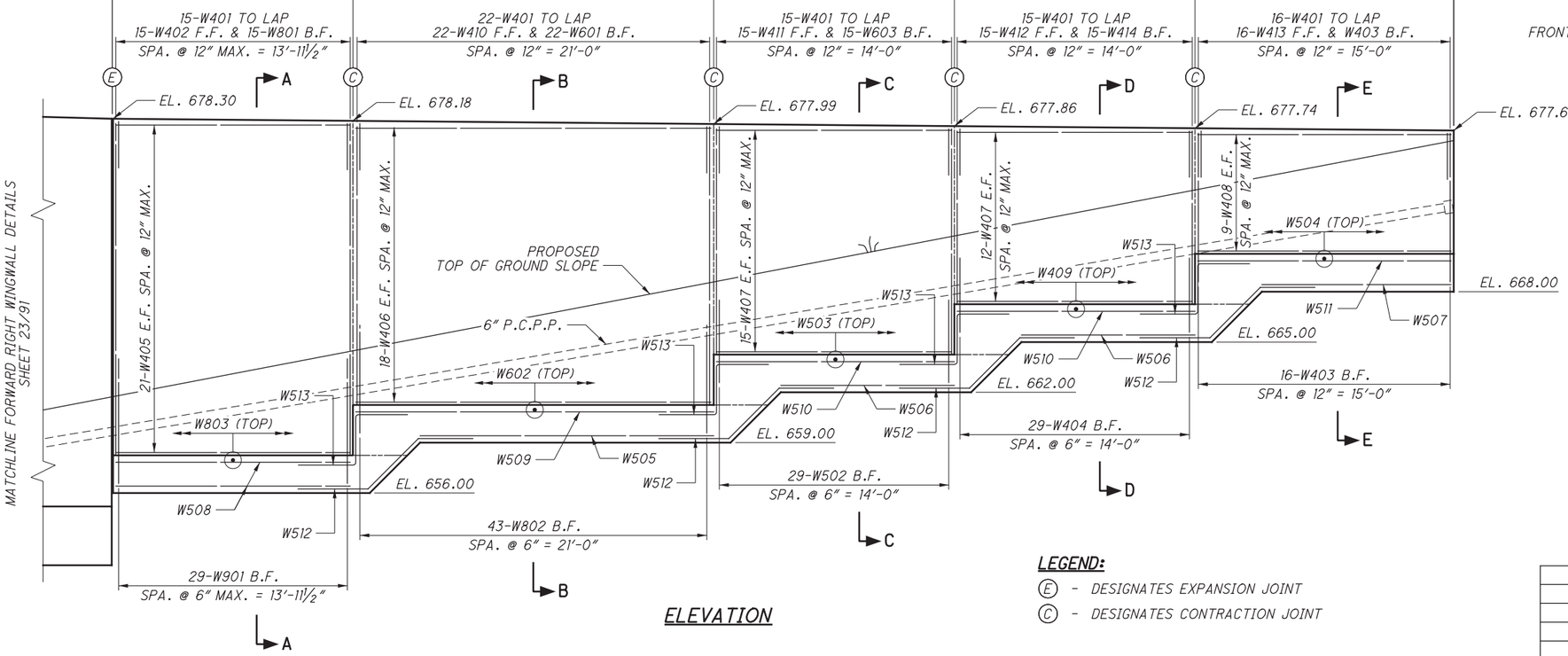
FOOTING PLAN



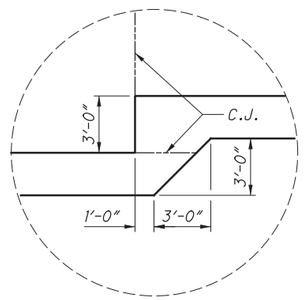
CONTRACTION JOINT DETAIL



EXPANSION JOINT DETAIL



ELEVATION



TYPICAL FOOTING STEP ELEVATION

LEGEND:

(E) - DESIGNATES EXPANSION JOINT

(C) - DESIGNATES CONTRACTION JOINT

NOTES:

1. FOR SECTIONS A-A, B-B, C-C, D-D, AND E-E, SEE SHEET 25/91.

NO.	DATE	DESCRIPTION
		BU5 - CUY-77-1409
		ISSUE RECORD

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CHECKED PAN | REVISED | STRUCTURE FILE NUMBER 1806663

FORWARD RIGHT RETAINING WALL (SHEET 1 OF 2)
BRIDGE NO. CUY-77-1409
BROADWAY AVENUE OVER IR 77

CUY-77-13.80
PID No. 82388

24 / 91

25 / 100

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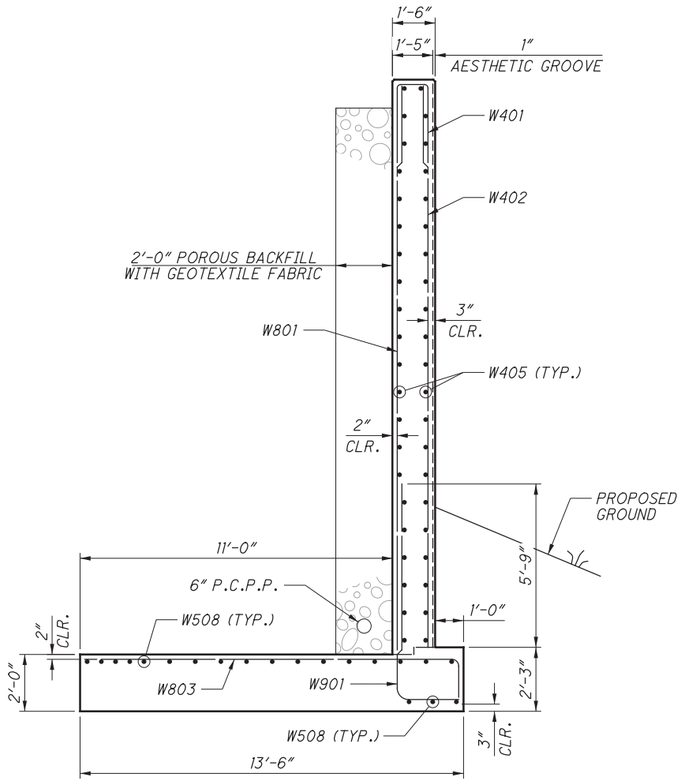
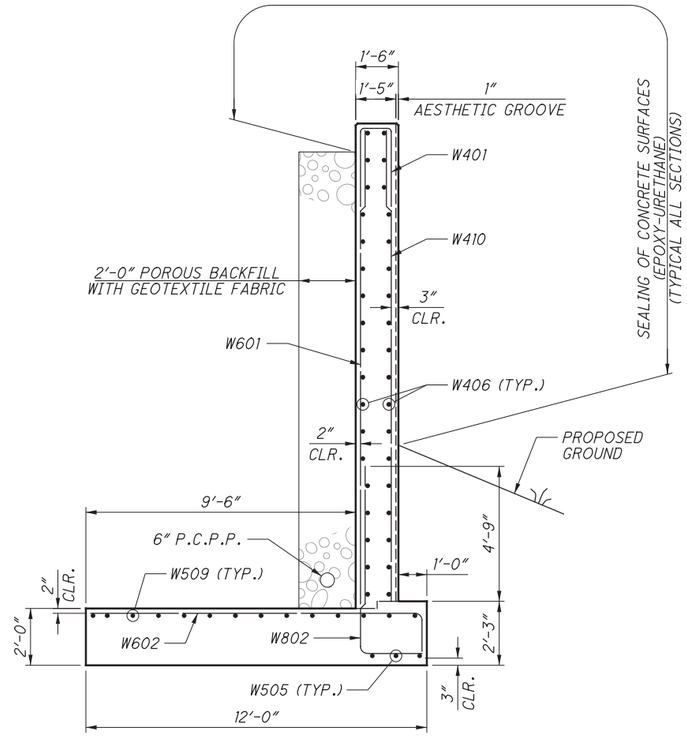
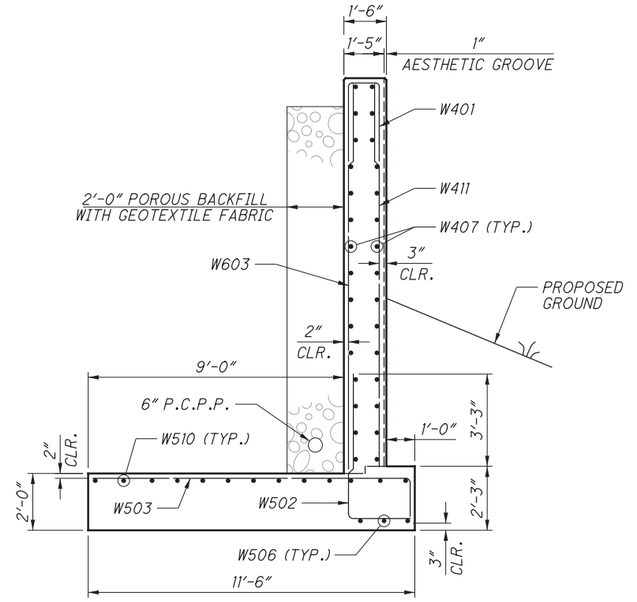


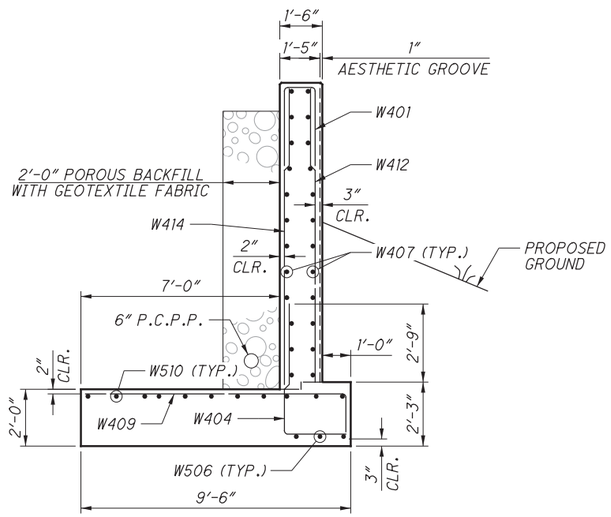
SECTION A-A



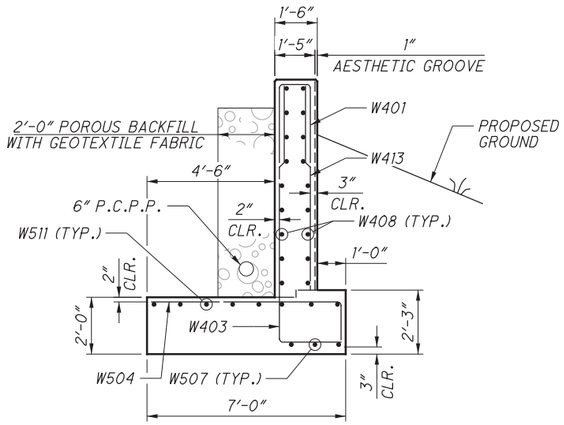
SECTION B-B



SECTION C-C



SECTION D-D



SECTION E-E

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NOTES:

1. FOR LOCATIONS OF SECTIONS A-A, B-B, C-C, D-D, AND E-E, SEE SHEET 24/91.

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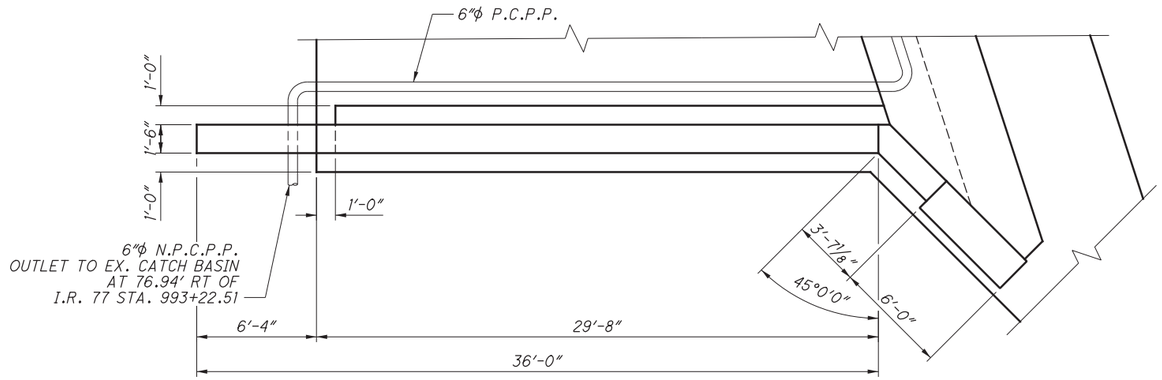
CHECKED	REVISED	STRUCTURE FILE NUMBER	
PAN		1806663	

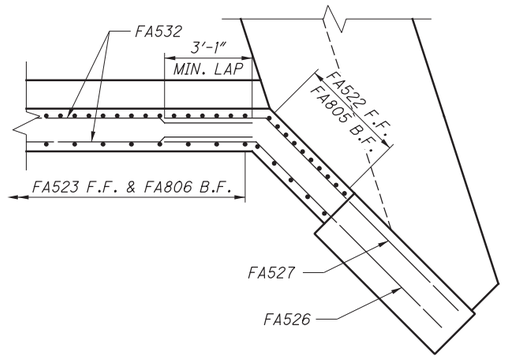
FORWARD RIGHT RETAINING WALL (SHEET 2 OF 2)
BRIDGE NO. CUY-77-1409
BROADWAY AVENUE OVER IR 77

CUY-77-13.80
PID No. 82388

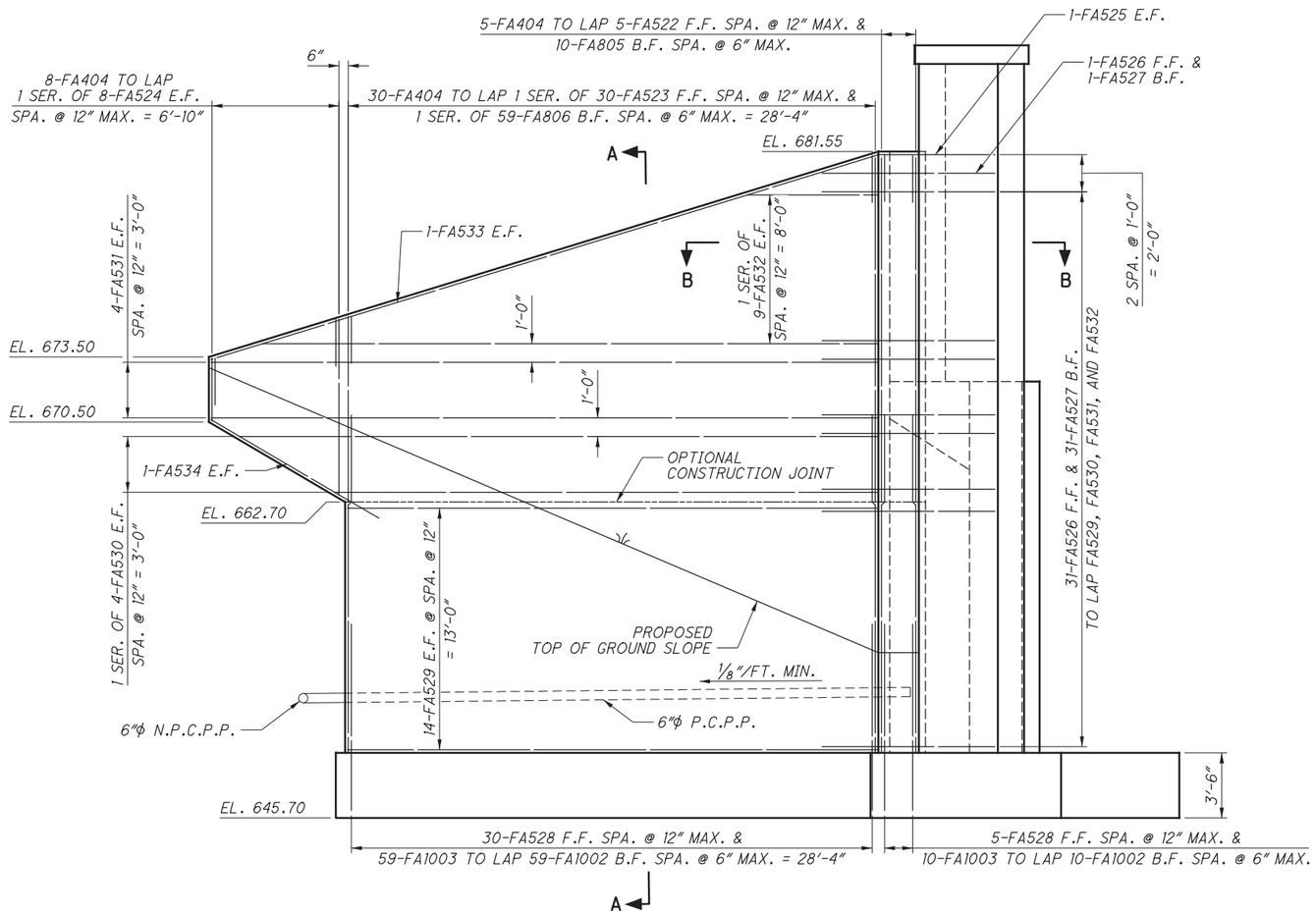


PLAN

CAST-IN-PLACE REINFORCED CONCRETE PILES AND REINFORCING STEEL NOT SHOWN FOR CLARITY

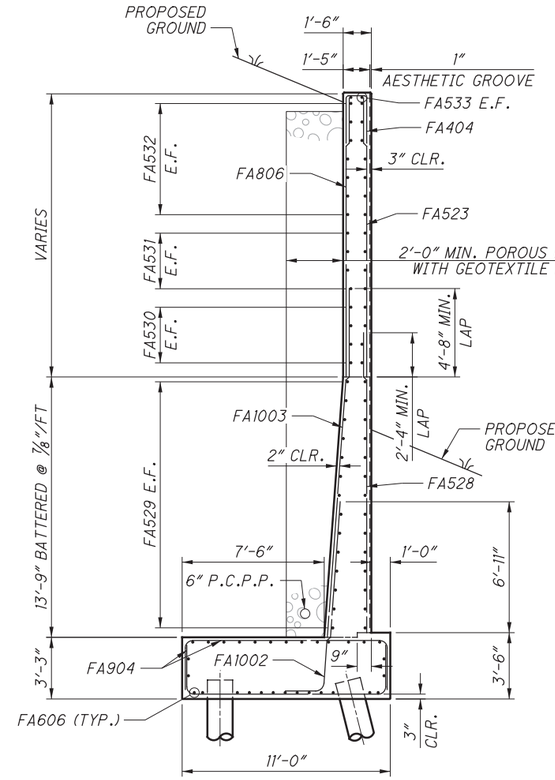


SECTION B-B



ELEVATION

CAST-IN-PLACE REINFORCED CONCRETE PILES NOT SHOWN FOR CLARITY



SECTION A-A

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BU5A - CUY-77-1409		
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DFT		1806663	

FORWARD LEFT WINGWALL
BRIDGE NO. CUY-77-1409
BROADWAY AVENUE OVER IR 77

CUY-77-13.80
PID No. 82388

26 / 91

27 / 100

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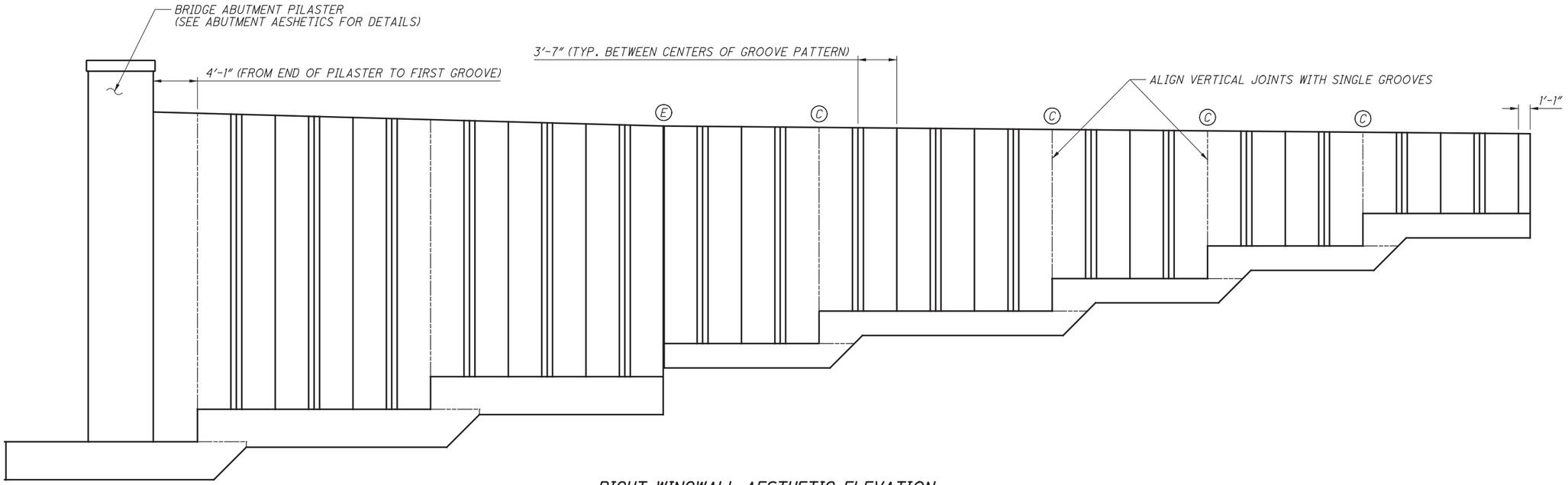
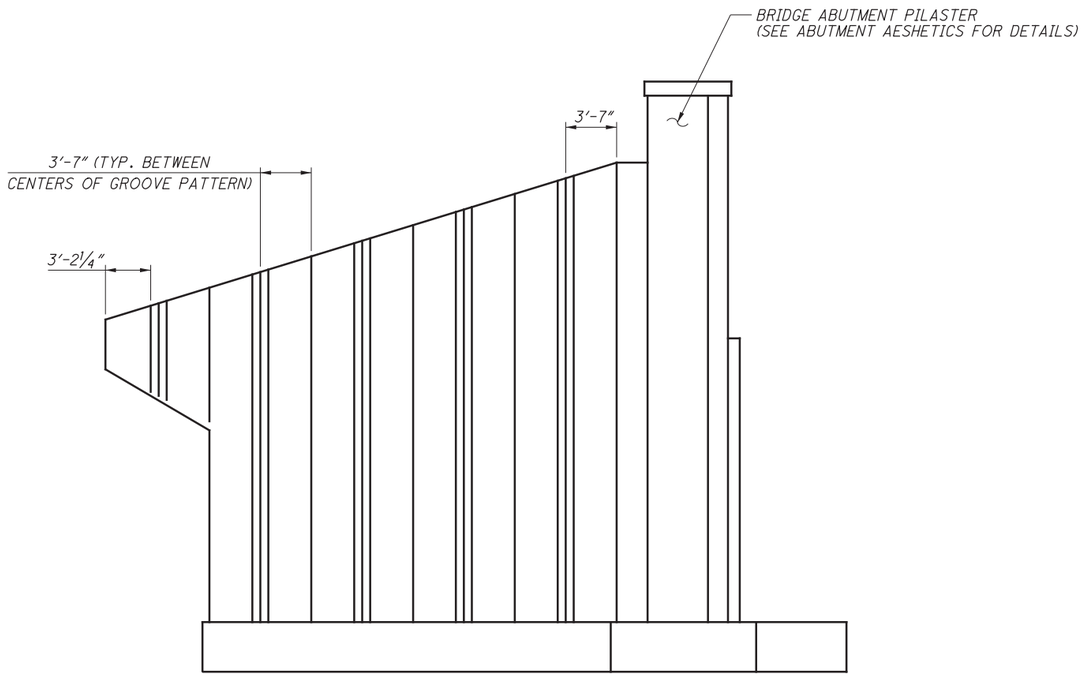
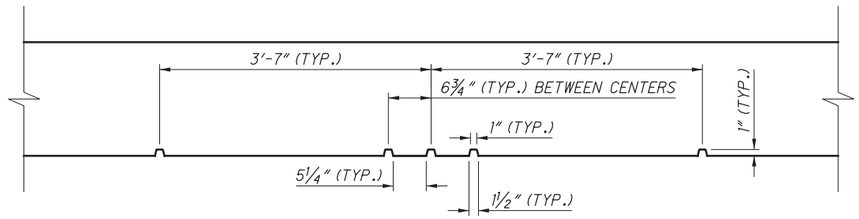


RIGHT WINGWALL AESTHETIC ELEVATION



LEFT WINGWALL AESTHETIC ELEVATION



GROOVE DETAIL

LEGEND:

(E) - DESIGNATES EXPANSION JOINT

(C) - DESIGNATES CONTRACTION JOINT

NOTES:

1. ALL EXPOSED CONCRETE SURFACES NOT RECEIVING BRICK TREATMENT SHALL BE SEALED (ITEM 512 - EPOXY URETHANE), FEDERAL COLOR NO. 595B-25630 (LIGHT GREY, SEMI GLOSS).

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PAN		1806663	

FORWARD ABUTMENT WINGWALL AESTHETIC DETAILS

BRIDGE NO. CUY-77-1409
BROADWAY AVENUE OVER IR 77

CUY-77-13.80
PID No. 82388

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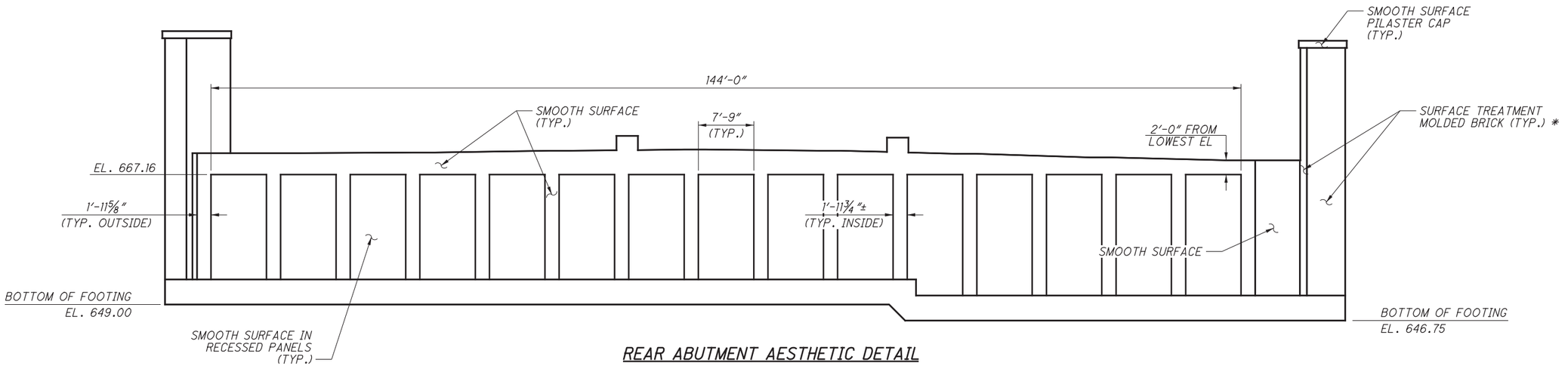
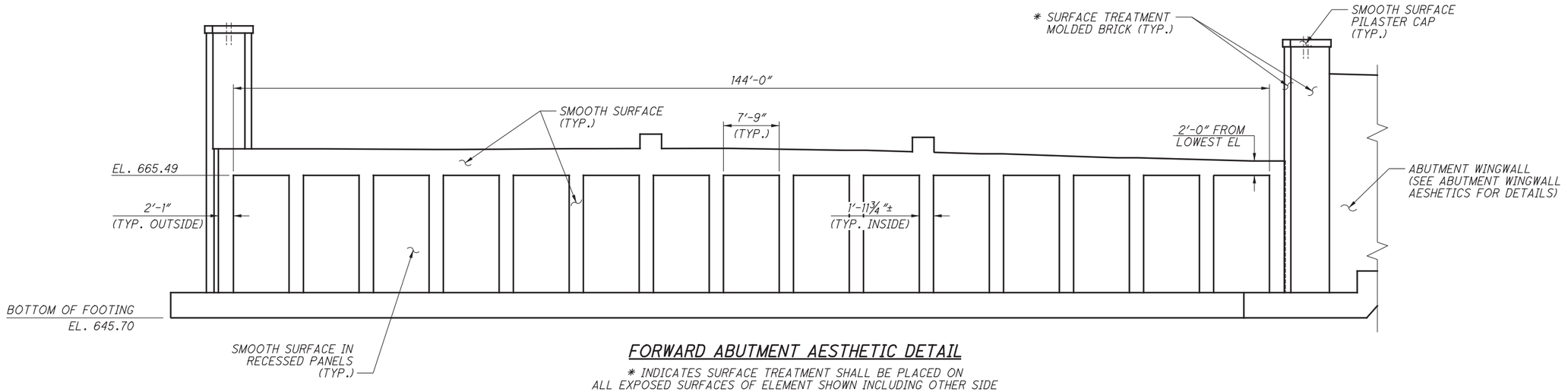


REAR ABUTMENT AESTHETIC DETAIL

* INDICATES SURFACE TREATMENT SHALL BE PLACED ON ALL EXPOSED SURFACES OF ELEMENT SHOWN INCLUDING OTHER SIDE



FORWARD ABUTMENT AESTHETIC DETAIL

* INDICATES SURFACE TREATMENT SHALL BE PLACED ON ALL EXPOSED SURFACES OF ELEMENT SHOWN INCLUDING OTHER SIDE

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ABUTMENT AESTHETIC DETAILS
BRIDGE NO. CUY-77-1409
BROADWAY AVENUE OVER IR 77

CUY-77-13.80
PID No. 82388

28 / 91

29
100

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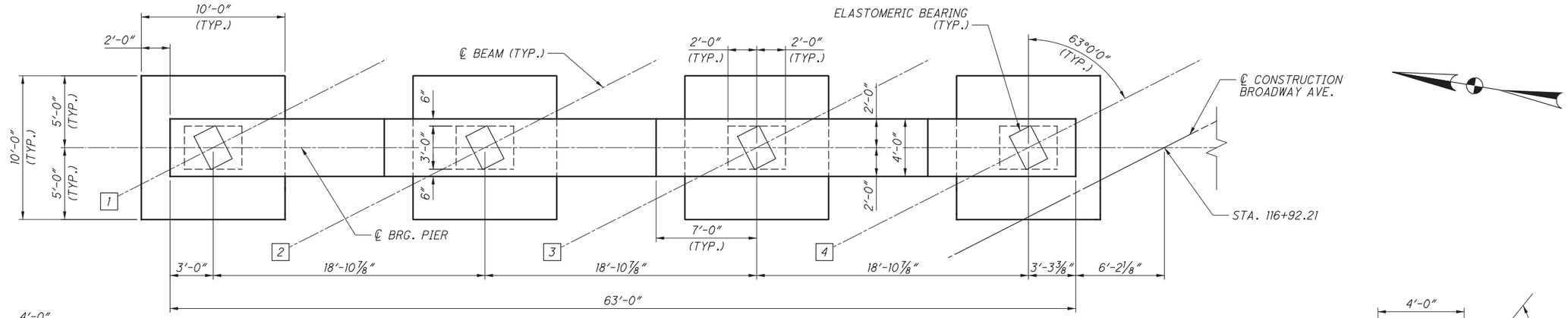
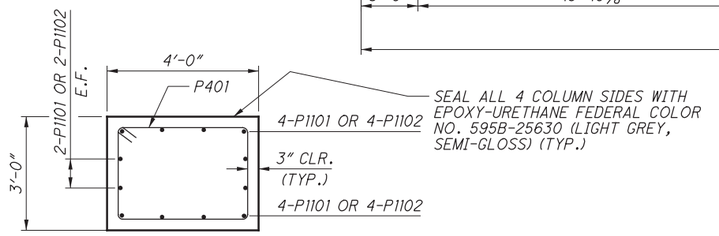
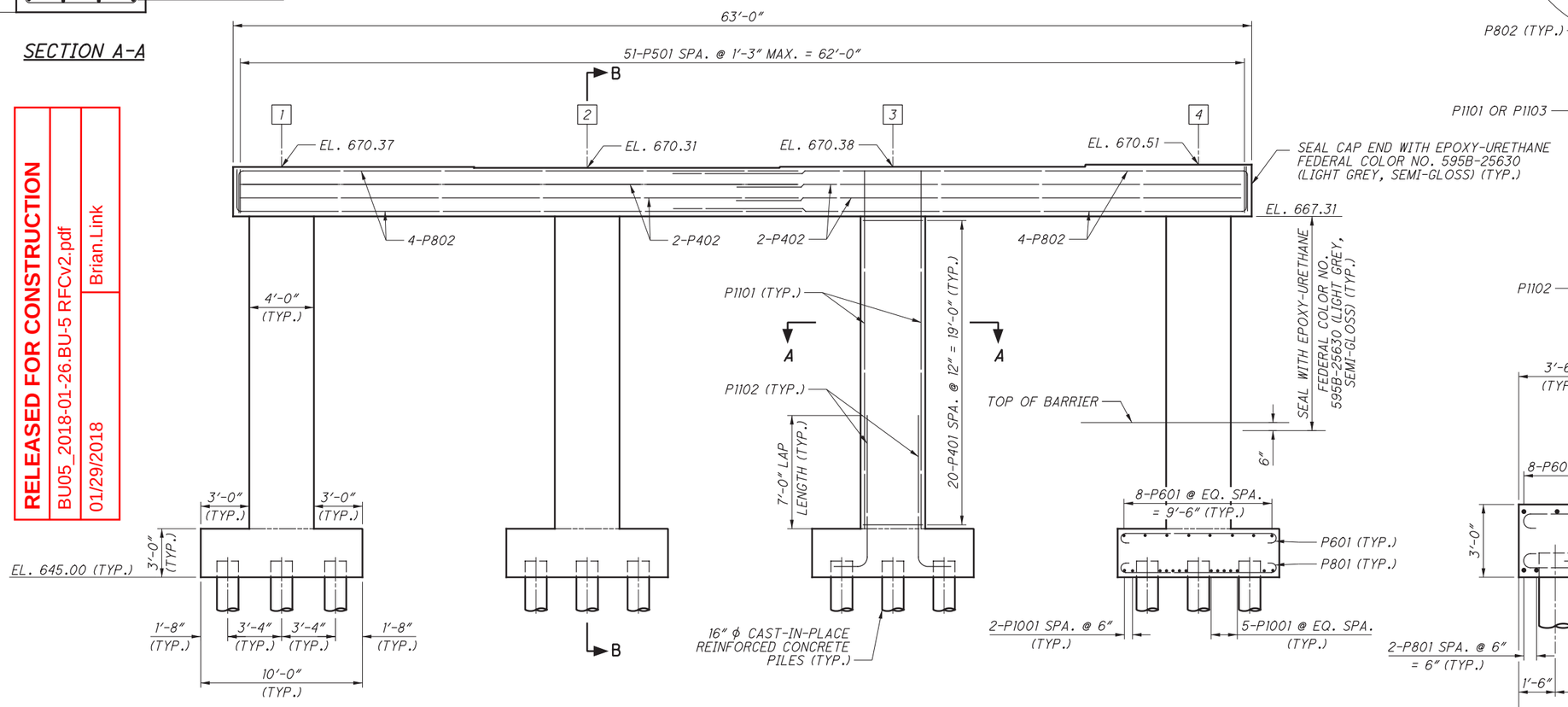


PLAN

(CIP PILES NOT SHOWN FOR CLARITY, SEE FOUNDATION PLAN)

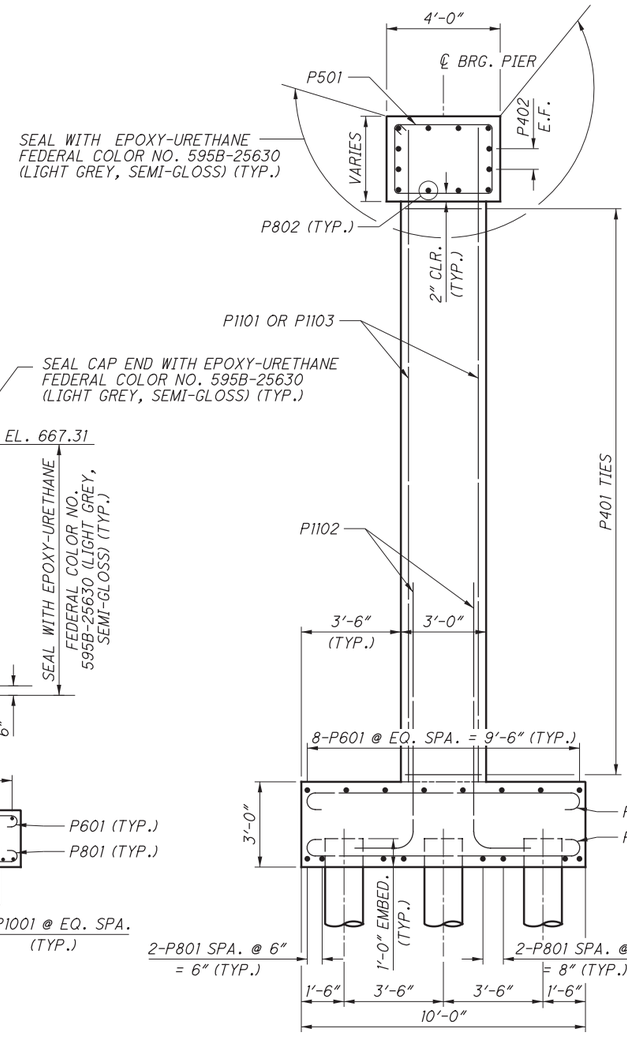


SECTION A-A



ELEVATION

(FOR PILE SPACINGS AND LAYOUT, SEE FOUNDATION PLAN)



SECTION B-B

LAP LENGTHS	
NO. 4 BARS	2'-6" MIN.
NO. 8 BARS	5'-4" MIN.
NO. 11 BARS	7'-0" MIN.

NOTES:

DO NOT SEAL TOP OF PIER CAP.

LEGEND:

[#] - BEAM LINE DESIGNATION

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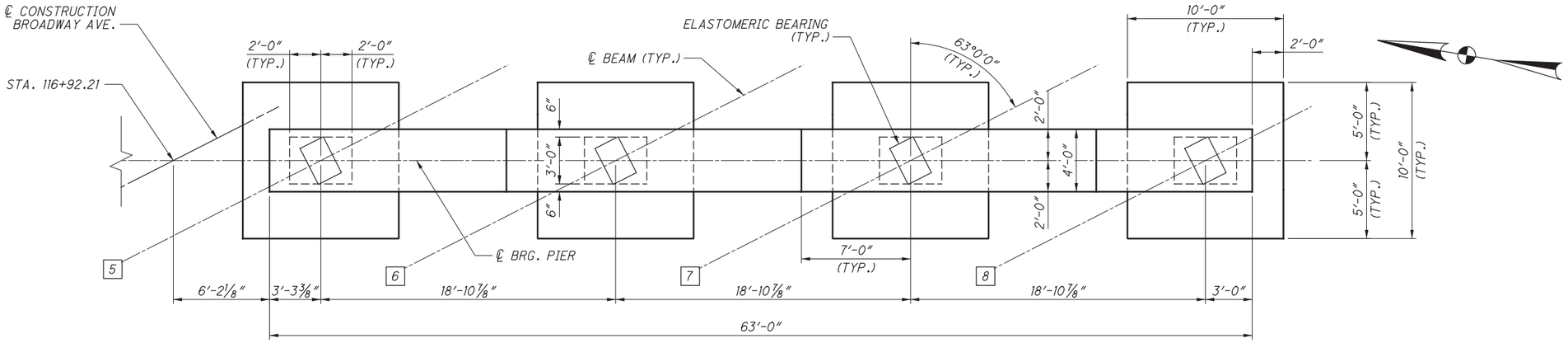
PIER DETAILS (1 OF 2)
BRIDGE NO. CUY-77-1409
BROADWAY AVENUE OVER IR 77

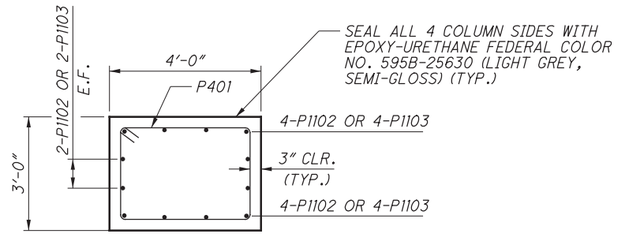
CUY-77-13.80
PID No. 82388

29 / 91
30 / 100

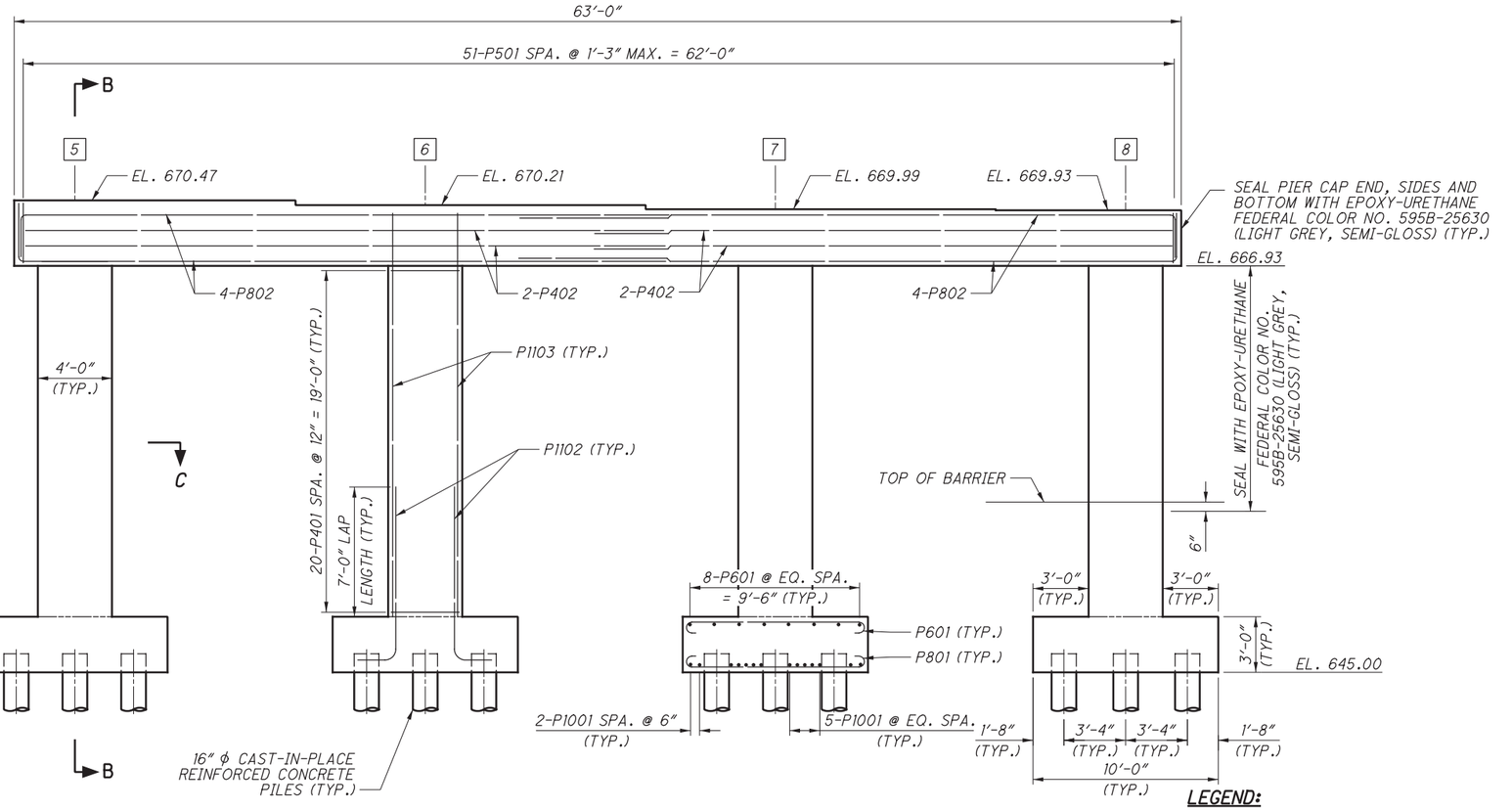


PLAN

(CIP PILES NOT SHOWN FOR CLARITY, SEE FOUNDATION PLAN)



SECTION C-C



ELEVATION

(FOR PILE SPACINGS AND LAYOUT, SEE FOUNDATION PLAN)

LAP LENGTHS	
NO. 4 BARS	2'-6" MIN.
NO. 8 BARS	5'-4" MIN.
NO. 11 BARS	7'-0" MIN.

LEGEND:

[#] - BEAM LINE DESIGNATION

NOTES:

DO NOT SEAL TOP OF PIER CAP.

NOTES:

1. FOR SECTION B-B, SEE SHEET 29/91.

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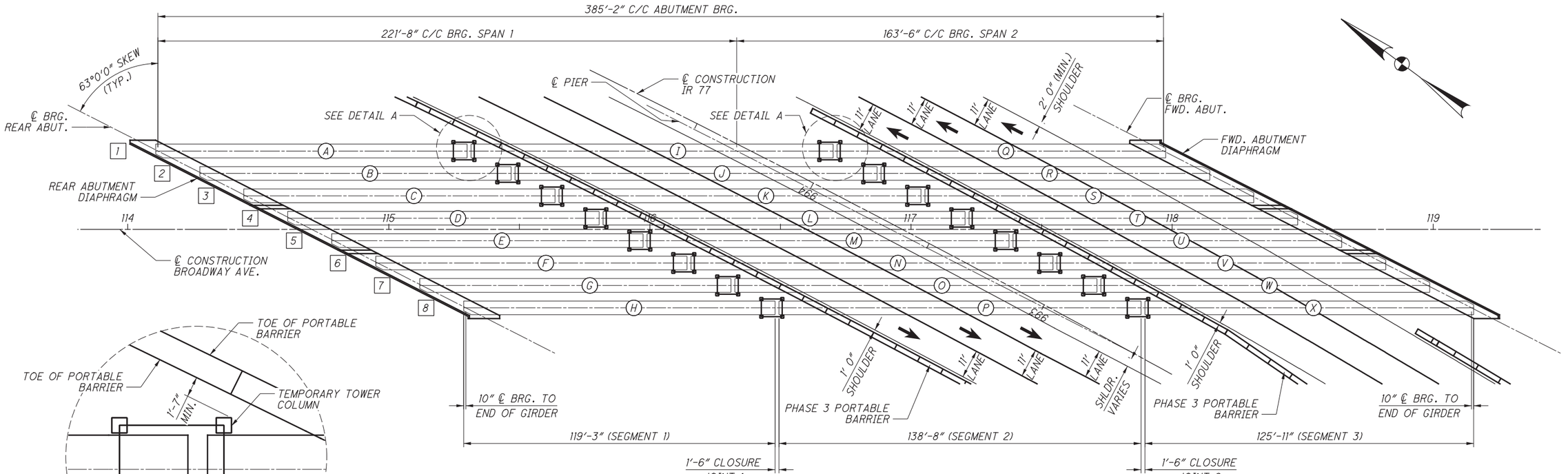
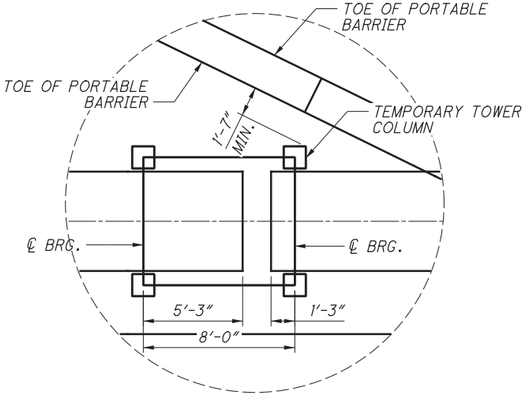
CHECKED	REVISED	STRUCTURE FILE NUMBER	
CJW/JN		1806663	

PIER DETAILS (2 OF 2)
BRIDGE NO. CUY-77-1409
BROADWAY AVENUE OVER IR 77

CUY-77-13.80
PID No. 82388

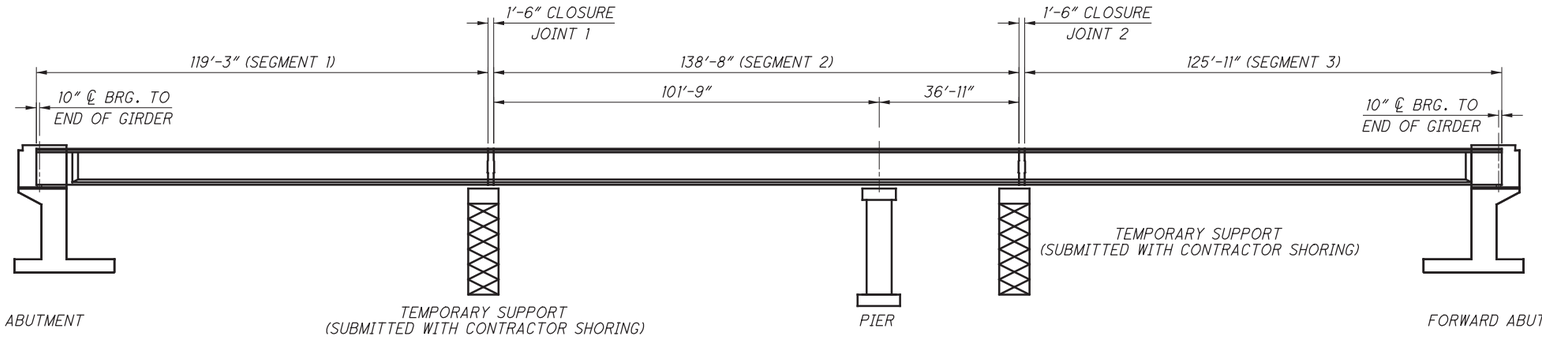




DETAIL A

(TYPICAL AT JOINT 1 AND JOINT 2)

FRAMING PLAN - PHASE 3 CONSTRUCTION



ELEVATION

ERECTION SEQUENCE:

1. AFTER PHASE 3 PORTABLE BARRIER IS INSTALLED, ERECT TEMPORARY TOWER AT CLOSURE JOINT 1 AND 2.

   * - MAINTAIN A HORIZONTAL OFFSET OF AT LEAST 19" FROM THE BACK OF THE TEMPORARY BARRIERS TO THE TEMPORARY TOWER AND MINIMUM 3" OFFSET TO THE TOWER FOUNDATION.

   * - THE TEMPORARY TOWER SHALL BE DESIGNED PER THE AASHTO GUIDE DESIGN SPECIFICATIONS FOR BRIDGE TEMPORARY WORKS - 2ND EDITION 2017, INCLUDING THE INCREASED LOAD REQUIREMENTS FOR SHORING LOCATED NEAR TRAFFIC OPENINGS. THEY SHALL BE DESIGNED TO PROVIDE NO UPLIFT RESTRAINT. CONTRACTOR SHALL SUPPLY SHIMS OR OTHER ADJUSTMENT TO ENSURE CONTACT AND ALIGNMENT IS MAINTAINED PRIOR TO POST-TENSIONING.

   * - ALL PORTABLE CONCRETE BARRIER ALONG THE TEMPORARY TOWERS (I.R. 77 STA. 993+76 TO STA. 995+76 SOUTHBOUND AND I.R. 77 STA. 992+34 TO 994+14 NORTHBOUND) SHALL BE ANCHORED WITH A MINIMUM OF 6 BOLTS PER BARRIER SEGMENT. BOLTS SHALL BE EMBEDDED A MINIMUM OF 6.5" INTO CONCRETE PAVEMENT AND SHALL BE GALVANIZED.

2. ERECT SEGMENTS 1, 2 AND 3 AND CROSSFRAMES. CONTRACTOR SHALL TEMPORARILY BRACE BEAMS AT ABUTMENTS.
3. CAST CLOSURE JOINTS 1 AND 2.
4. ONCE CLOSURE CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF 7.0 KSI, STRESS AND GROUT POST-TENSION TENDONS. THE TENDONS SHALL BE STRESSED IN THE FOLLOWING ORDER: TENDON 3 FOR ALL GIRDER LINES, TENDON 2 FOR ALL GIRDER LINES, TENDON 4 FOR ALL GIRDER LINES, AND TENDON 1 FOR ALL GIRDER LINES.
5. REMOVE TEMPORARY TOWERS.
6. CAST DECK TO WITHIN 1 FOOT OF SEMI-INTEGRAL DIAPHRAGMS AT EACH ABUTMENT. BEGIN DECK POUR AT FORWARD ABUTMENT END OF THE DECK AND MOVE DOWNSTATION.
7. CAST SEMI-INTEGRAL DIAPHRAGMS IN A MAXIMUM OF 4'-6" LIFTS.

LEGEND:

(X) - BEAM SEGMENT DESIGNATION

[#] - BEAM LINE DESIGNATION

NOTES:

1. ANY DEVIATION FROM THE PROVIDED ERECTION SEQUENCE SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.

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BEAM ERECTION SEQUENCE
BRIDGE NO. CUY-77-1409
BROADWAY AVENUE OVER IR 77

CUY-77-13.80
PID No. 82388

31 / 91

32 / 100

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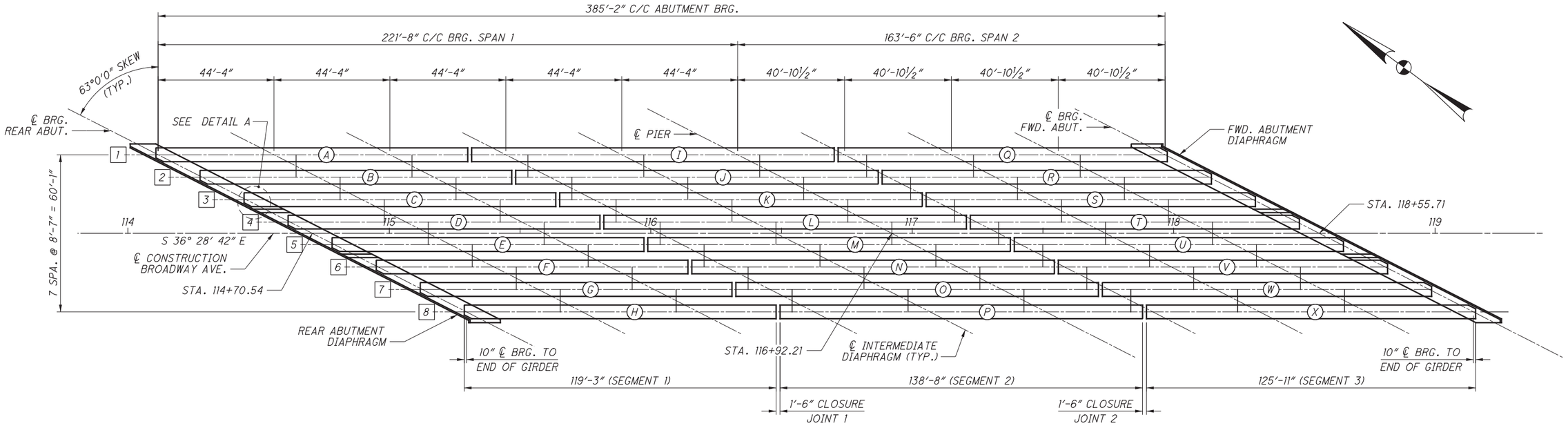
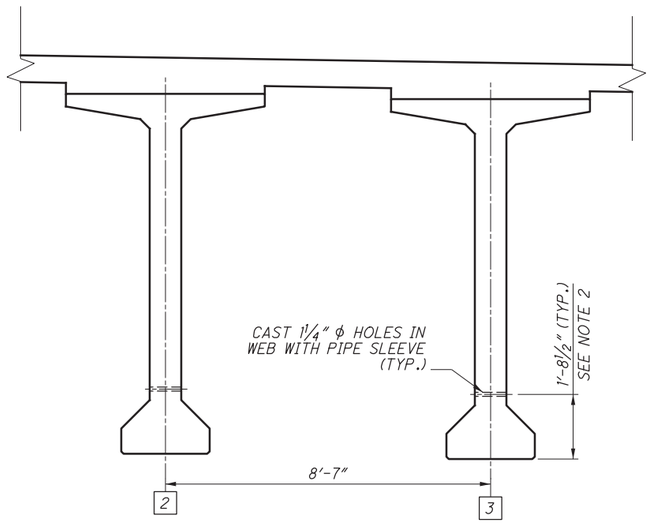
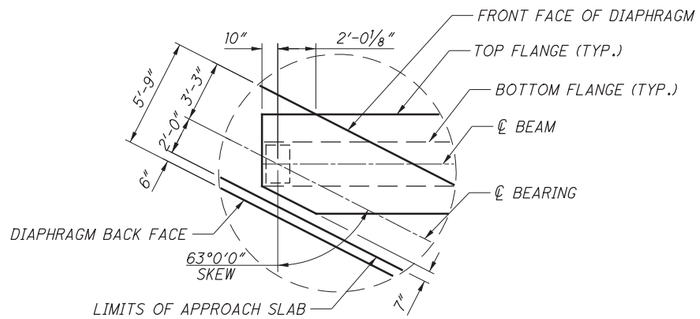


FRAMING PLAN



UTILITY INSERTS
(THIS BAY ONLY)



DETAIL A

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LEGEND:

(X) - BEAM SEGMENT DESIGNATION

[#] - BEAM LINE DESIGNATION

NOTES:

1. NO UTILITY CROSSFRAMES SHALL BE FURNISHED FOR THIS PROJECT. THE UTILITY INSERTS SHALL BE PROVIDED TO ACCOMODATE FUTURE UTILITIES.
2. ADJUST UTILITY INSERT LOCATION VERTICALLY IN THE I-BEAM WEBS AS NECESSARY TO AVOID POST-TENSION DUCTS.
3. UTILITY INSERT SIZES AND SPACINGS ARE DESIGNED FOR A UNIFORM LOAD OF 90 LB/FT. INSERT SPACING ALONG THE BEAM SHALL NOT EXCEED 12'-0". NO INSERTS SHALL BE LOCATED WITHIN 2'-8" OF THE SEGMENT ENDS OR 2'-0" OF ANY OTHER HOLES THROUGH THE BEAM WEB.

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FRAMING PLAN
BRIDGE NO. CUY-77-1409
BROADWAY AVENUE OVER IR 77

CUY-77-13.80
PID No. 82388

32 / 91

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100

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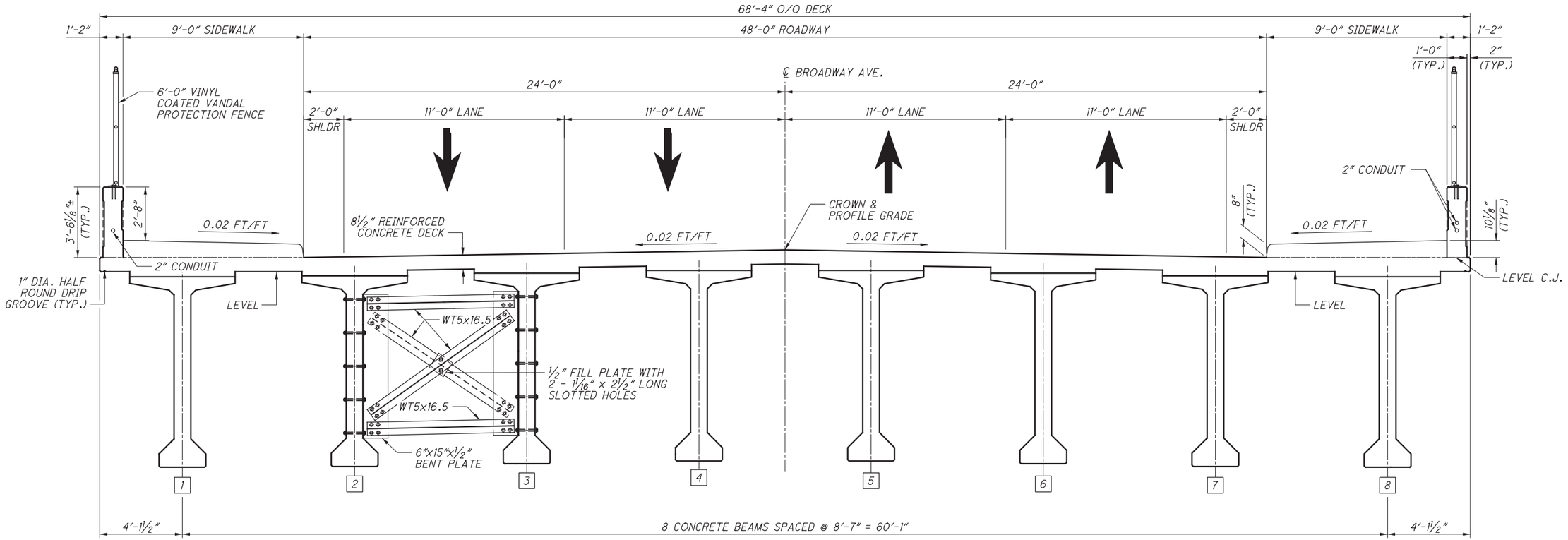
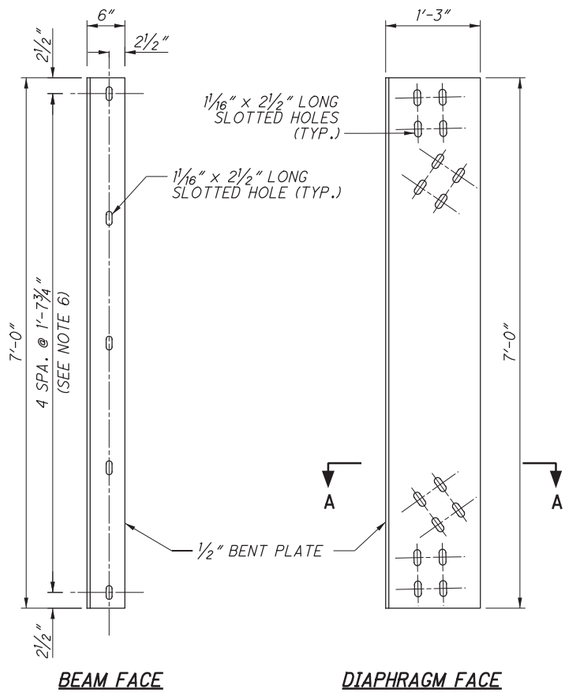
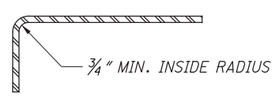


TRANSVERSE SECTION

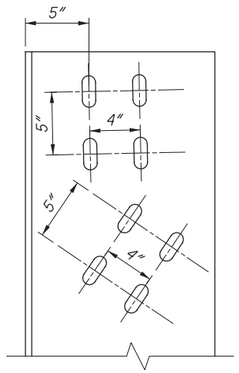


BEAM FACE **DIAPHRAGM FACE**

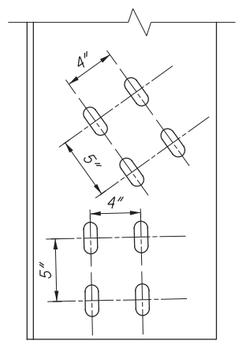
STEEL DIAPHRAGM SUPPORT



SECTION A-A



DIAPHRAGM CONNECTION - TOP



DIAPHRAGM CONNECTION - BOTTOM

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LEGEND:

[#] - BEAM LINE DESIGNATION

NOTES:

1. THE TYPICAL CROSSFRAME ASSEMBLY (FOR THE 6 BAYS NOT SHOWN) SHALL MATCH DETAILS BETWEEN GIRDER 2 AND GIRDER 3.
2. ALL STRUCTURAL STEEL, INCLUDING BOLTS, NUTS AND WASHERS, SHALL MEET THE FABRICATION AND ERECTION REQUIREMENTS SPECIFIED IN 513.
3. ALL STRUCTURAL STEEL SHALL BE ASTM A709, GRADE 50, GALVANIZED ACCORDING TO 711.02.
4. ALL BOLTS ARE 1" DIAMETER, ASTM A325, TYPE I. ALL BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED ACCORDING TO 711.02.
5. THE FABRICATOR SHALL ADJUST THE LOCATION OF THE BOLT HOLES IN THE I-BEAM WEBS AS NECESSARY TO AVOID THE POST TENSION DUCTS AND PRESTRESSING STRANDS. THE MINIMUM CLEAR DISTANCE SHALL BE 1 1/2".
6. THE HOLE SPACING IN THE BEAM FACE OF THE STEEL DIAPHRAGM SUPPORT SHALL MATCH UP WITH THE BOLT HOLES IN THE I-BEAM WEB.

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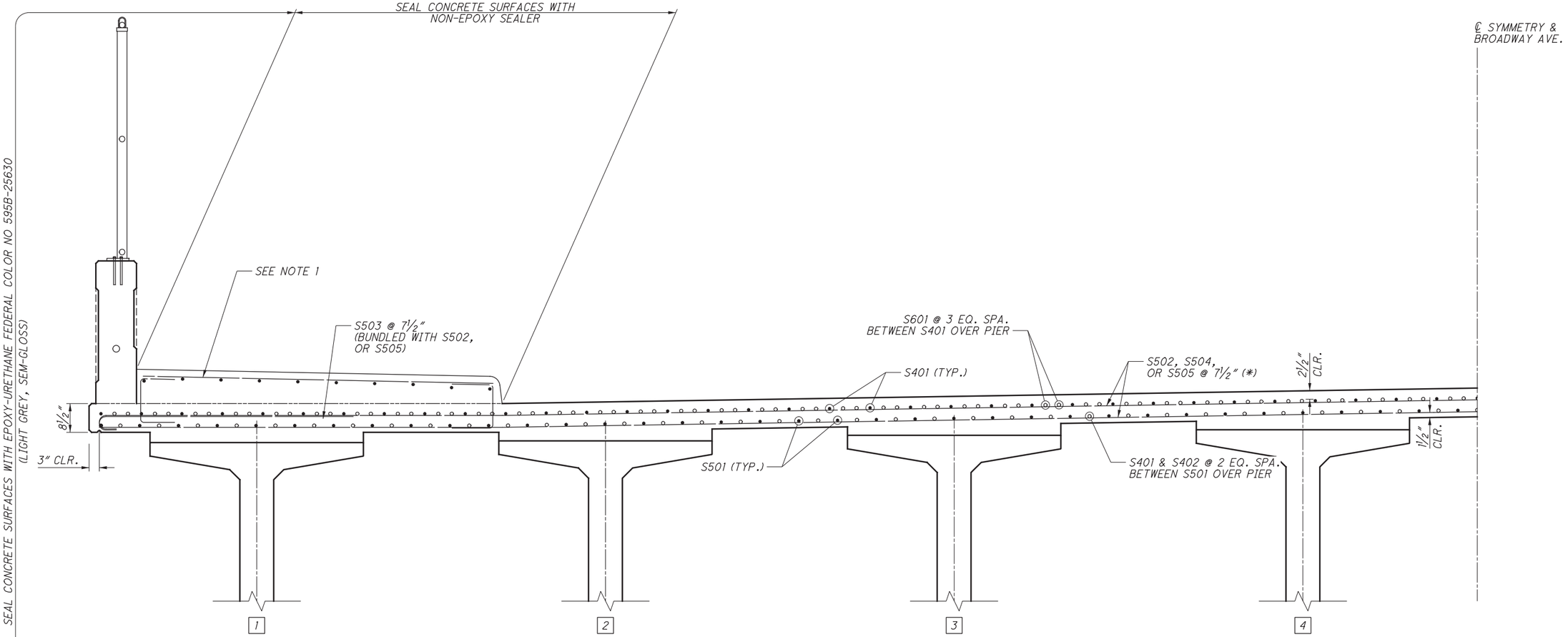
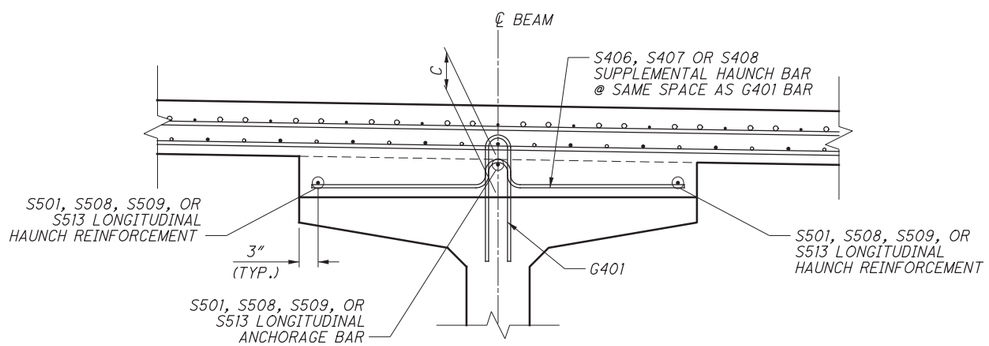
TRANSVERSE SECTION
BRIDGE NO. CUY-77-1409
BROADWAY AVENUE OVER IR 77

CUY-77-13.80
PID No. 82388



TRANSVERSE SECTION - DECK REINFORCEMENT



HAUNCH REINFORCEMENT

(THE SUPPLEMENTAL HAUNCH REINFORCING IS NOT REQUIRED WHERE C < 4")
(C = HAUNCH DEPTH MEASURED AT BEAM CENETERLINE)

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LEGEND:

(*) - FIELD BEND AS NECESSARY
[#] - BEAM LINE DESIGNATION

NOTES:

1. FOR SIDEWALK AND RAILING REINFORCING DETAILS, SEE SHEET 64/91 THRU 78/91.
2. FOR HAUNCH REINFORCING PLAN, SEE SHEET 58/91.

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TRANSVERSE SECTION - DECK REINFORCEMENT
BRIDGE NO. CUY-77-1409
BROADWAY AVENUE OVER IR 77

CUY-77-13.80
PID No. 82388

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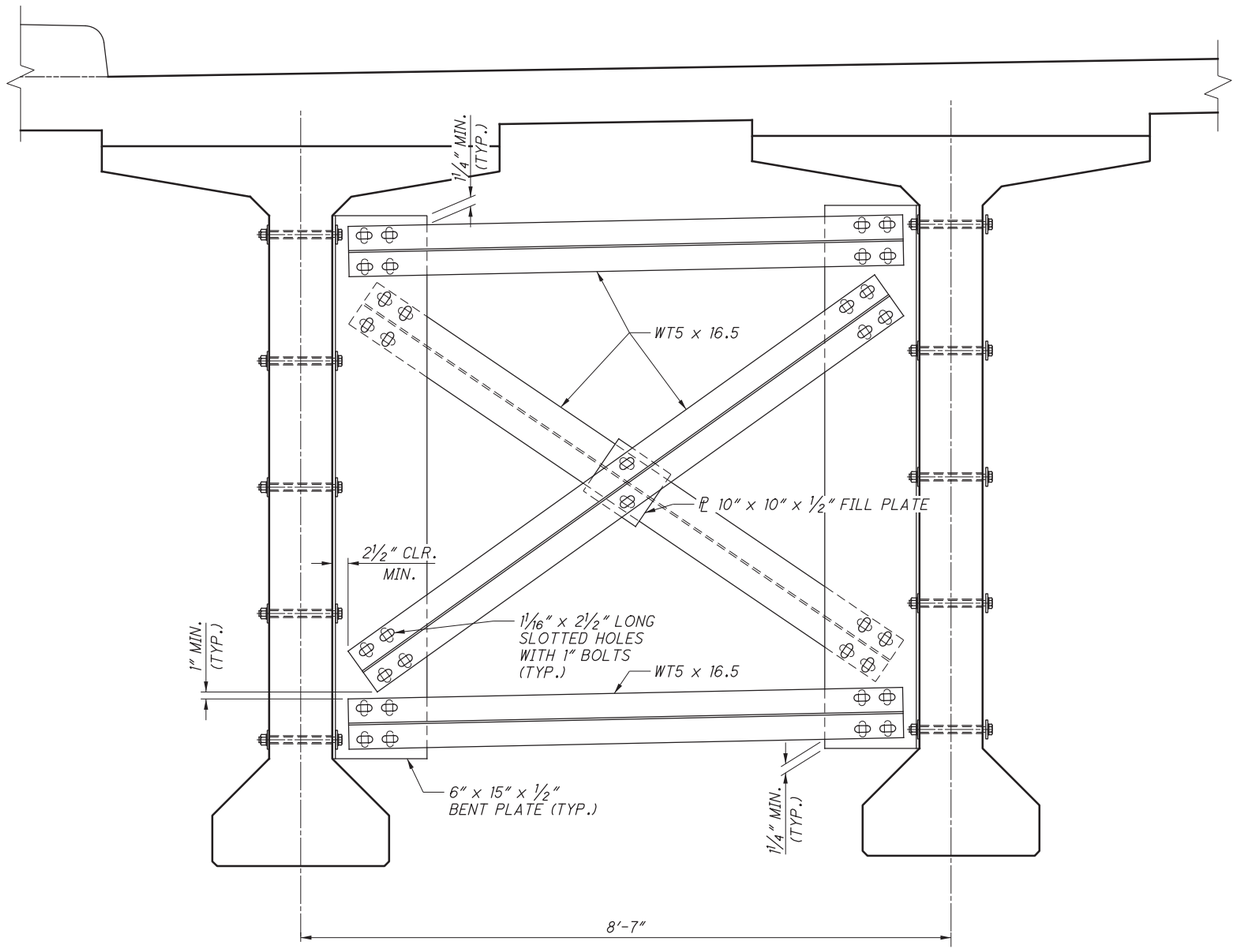
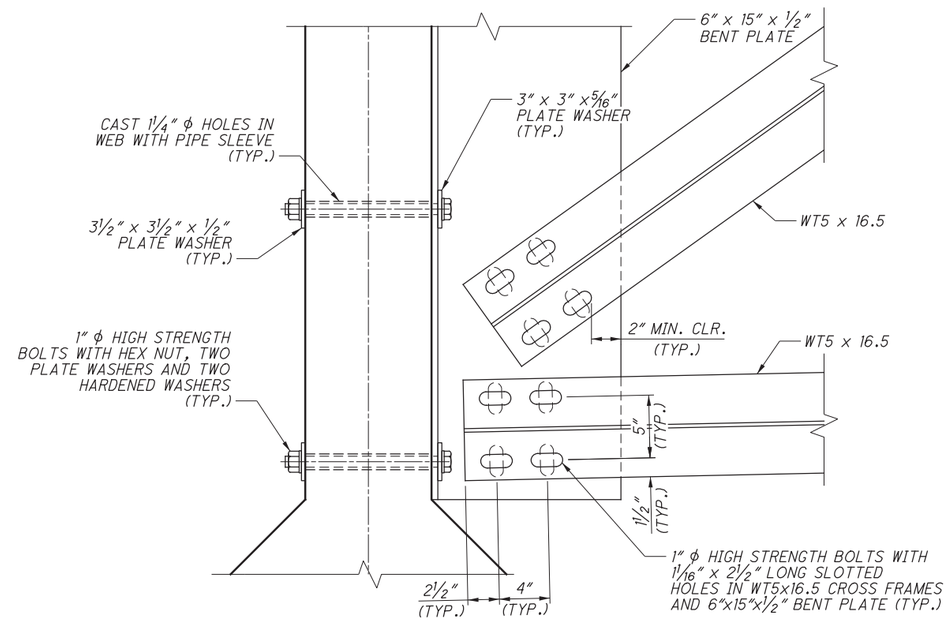


TYPICAL CROSS FRAME



CONNECTION DETAIL

(4 LOCATIONS)

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CROSS FRAME DETAILS
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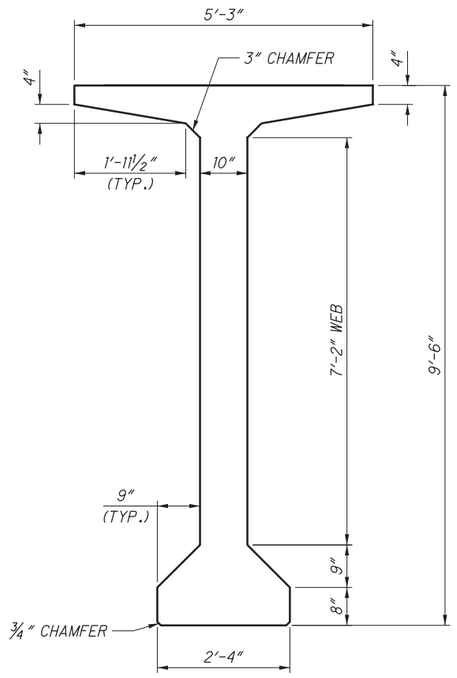
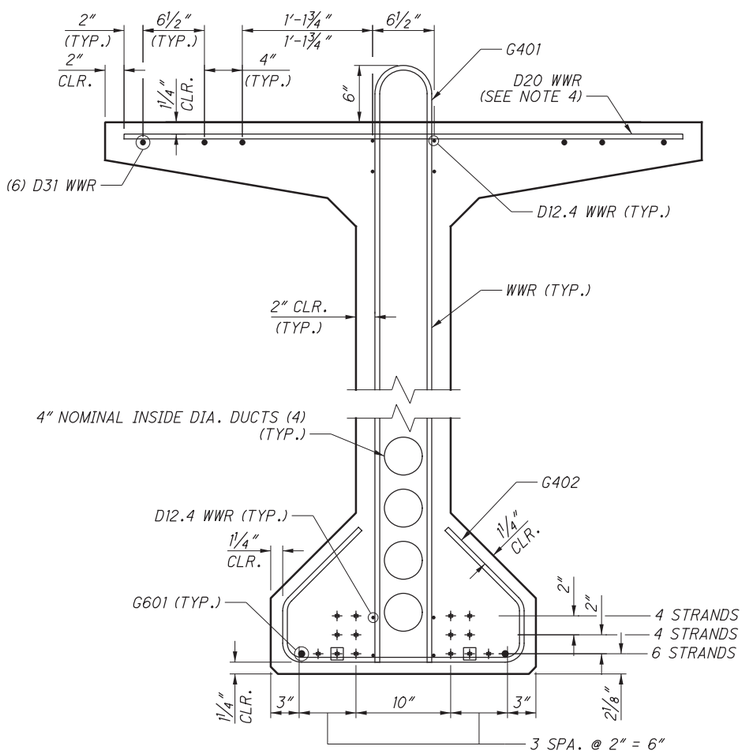
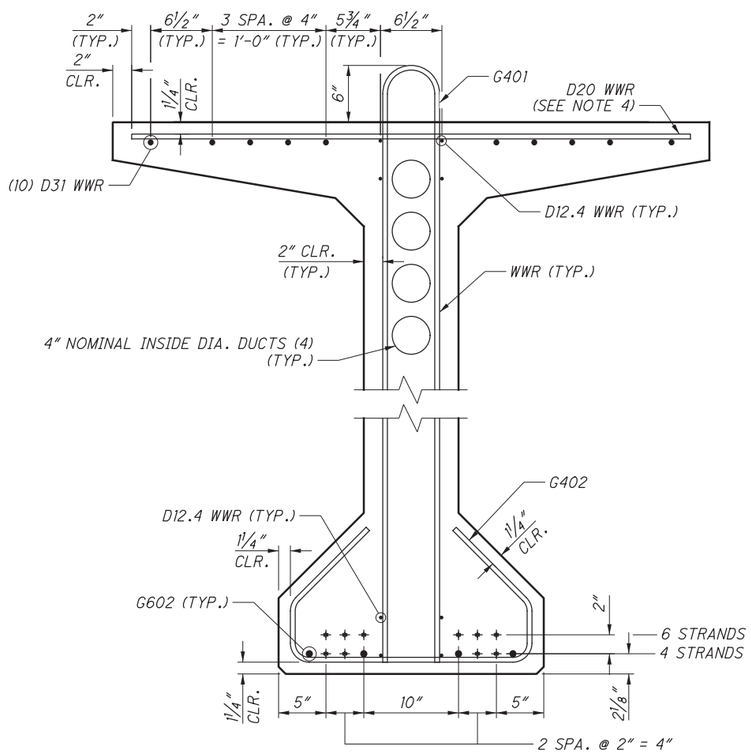


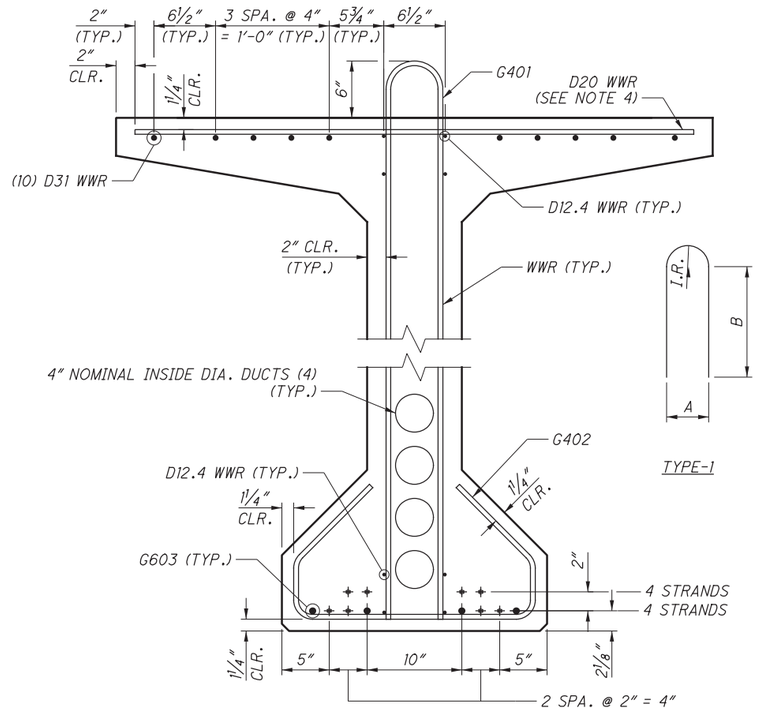
TYPICAL BEAM SECTION



SEGMENT 1 SECTION



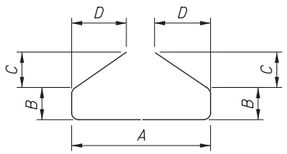
SEGMENT 2 SECTION



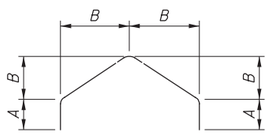
SEGMENT 3 SECTION

□ - DEBOND 6'-0"

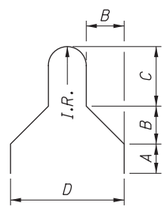
BAR BENDING DIMENSIONS						
MARK	TYPE	DIMENSIONS A	B	C	D	I.R.
G401	1	6"	1'-8"	-	-	2½"
G402	2	2'-1½"	6¼"	8"	8"	-
G403	3	6¼"	1'-0¾"	-	-	-
G414	4	5"	9¾"	1'-3"	2'-1½"	2½"



TYPE-2



TYPE-3



TYPE-4

TYPE-1

LAP LENGTH	
SIZE	LENGTH
D12.4	1'-9"
D31	2'-6"
#6	3'-0"

LEGEND:

WWR - WELDED WIRE REINFORCEMENT

NOTES:

1. ONE LONGITUDINAL BAR FROM THE BOTTOM MAT OF DECK REINFORCING SHALL BE PLACED UNDER EACH G401 BAR. THIS BAR IS INCLUDED IN PAYMENT WITH THE DECK REINFORCING STEEL AND SHALL BE EPOXY COATED.
2. THE G401 BARS SHALL BE EPOXY COATED.
3. ALL LONGITUDINAL REINFORCING STEEL SHALL BE CONTINUOUS. ANY LAPS SHALL BE AS SHOWN IN THE LAP LENGTH TABLE.
4. FOR LOCATION AND SPACING OF D20 WWR, SEE SHEET 37/91.

PRESTRESSING STEEL DATA:

AREA = 0.217 SQ. IN.
ULTIMATE STRENGTH = 270 KSI
INITIAL STRESS = 202.5 KSI (LOW RELAXATION STRANDS)

CONCRETE DATA FOR SEGMENT 1, 2 & 3:

COMPRESSIVE STRENGTH (RELEASE) - 7.0 KSI
COMPRESSIVE STRENGTH (POST-TENSION) - 10.0 KSI
UNIT WEIGHT (NO REINFORCING) - 125 PCF
UNIT WEIGHT (INCLUDING REINFORCING) - 130 PCF

POST-TENSIONING NOTES:

1. POST-TENSIONING TENDONS ARE 19-0.6"ϕ LOW RELAXATION STRANDS (EACH DUCT) CONFORMING TO THE REQUIREMENTS OF AASHTO M203, GRADE 270.
2. FOR DESIGN, THE WOBBLE COEFFICIENT IS ASSUMED TO BE 0.0008 /FT AND THE FRICTION COEFFICIENT 0.15. ASSUMED ANCHOR SET IS ⅜".
3. POST-TENSIONING TENDONS ARE TO BE STRESSED FROM THE REAR ABUTMENT END. JACKING FORCE OF 19-0.6"ϕ STRAND TENDON TO BE 870 KIPS.
4. THE ALLOWABLE CONSTRUCTION TOLERANCE FOR ALIGNMENT OF THE SEGMENT ENDS AT THE CLOSURE DIAPHRAGMS SHALL BE ¼".

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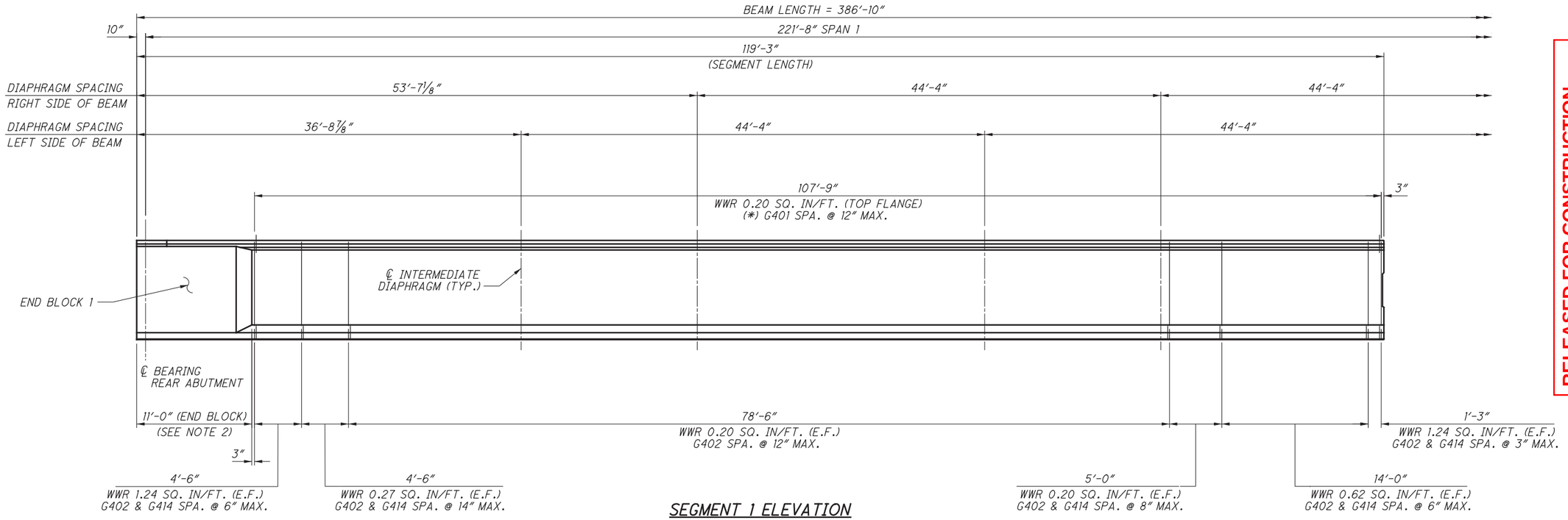
CHECKED DFT | REVISED | STRUCTURE FILE NUMBER 1806663

POST-TENSIONED I-BEAM DETAILS
BRIDGE NO. CUY-77-1409
BROADWAY AVENUE OVER IR 77

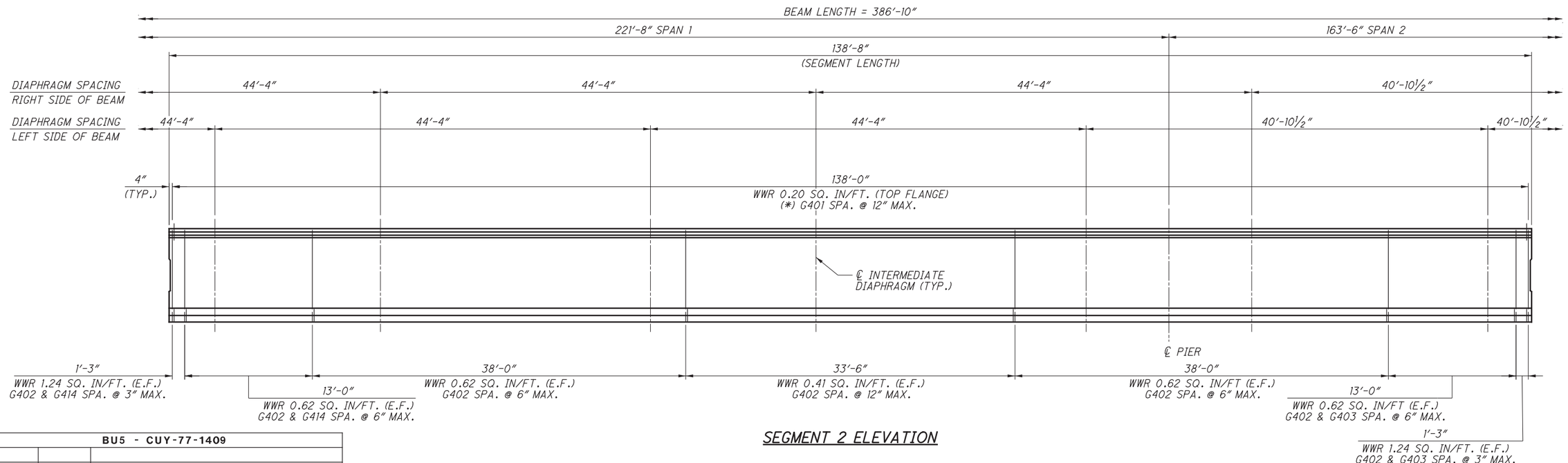
CUY-77-13.80
PID No. 82388

36 / 91
37 / 100

P:\82388_CCG6B\Design\Structures\CUY-77-1409\sheets\077_1409C_SS003.dgn Sheet 1/26/2018 3:00:37 PM gwhittaker



SEGMENT 1 ELEVATION



SEGMENT 2 ELEVATION

LEGEND:

(*) G401 BARS WITH LOCATIONS THAT CONFLICT WITH LIFT LOOP LOCATIONS SHALL BE RELOCATED. THEY SHALL BE BUNDLED WITH ADJACENT G401 BARS OR THE SPACING OF THE ADJACENT BARS SHALL BE REDUCED. THE SAME TOTAL QUANTITY OF G401 BARS SHALL BE PROVIDED.

NOTES:

1. SEE CLOSURE JOINT DETAILS FOR ADDITIONAL REBAR PROTRUDING FROM BEAM INTO CLOSURE JOINT.
2. FOR END BLOCK DETAILS, SEE SHEET 42/91
3. ALL DIMENSIONS ARE HORIZONTAL AND DO NOT ACCOUNT FOR VERTICAL CURVE OR ELASTIC SHORTENING.

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DFT		1806663	

POST-TENSIONED I-BEAM DETAILS
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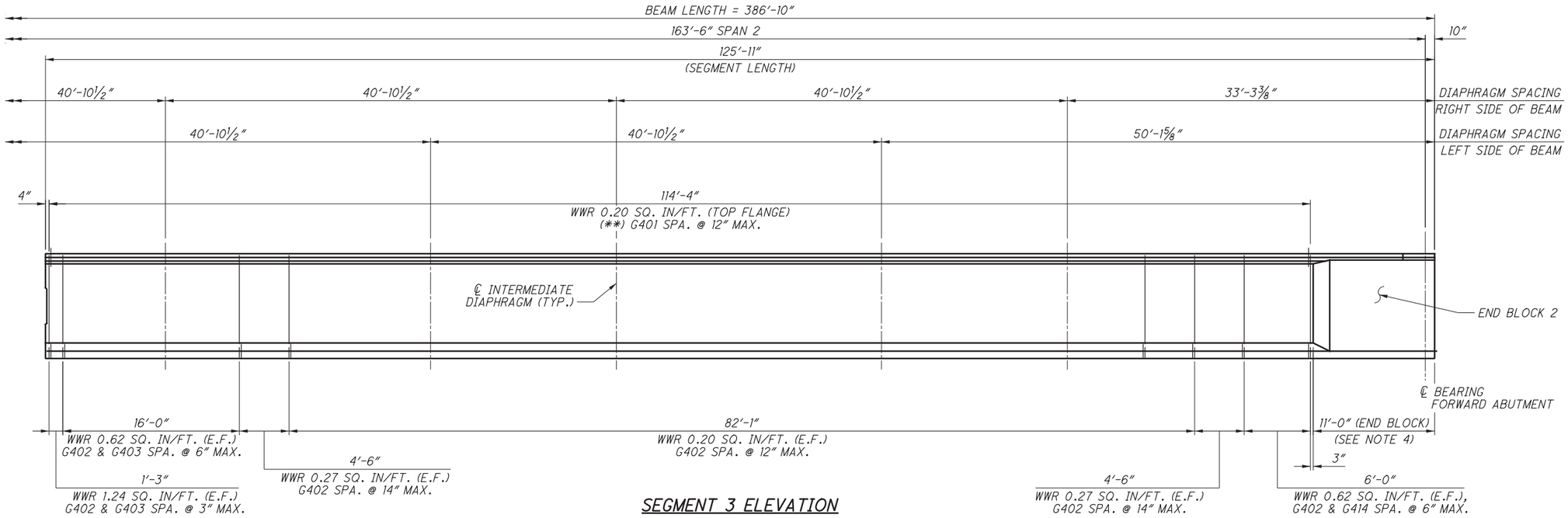
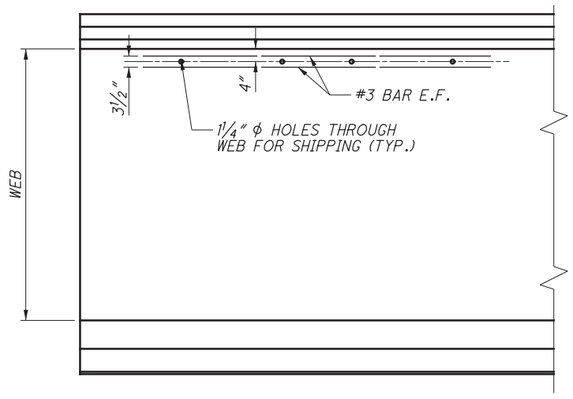
BROADWAY AVENUE OVER IR 77

CUY-77-13.80
PID No. 82388

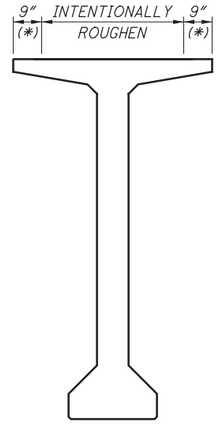
37/91
38/100



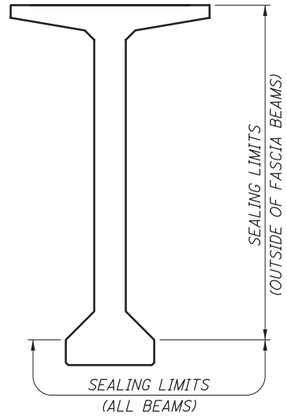
SEGMENT 3 ELEVATION



OPTIONAL SHIPPING HOLES



TOP FLANGE FINISHING



SEALING OF BEAMS

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LEGEND:

(*) SEE NOTE 2

(**) SEE NOTE 7

NOTES:

1. IF SHIPPING HOLES ARE UTILIZED, TWO #3 BARS SHALL BE ADDED ON EACH FACE OF THE WEB. THE #3 BARS SHALL BE TIED TO THE OUTSIDE FACE OF THE WWR AND EXTEND FOR A MINIMUM OF 1'-0" BEYOND THE SHIPPING HOLES.
2. TROWEL EXTERIOR 9" OF TOP FLANGE SMOOTH. APPLY TWO COATS OF C&MS 705.07, TYPE 1 OR ID MEMBRANE CURING COMPOUND WITH A ROLLER TO ACT AS A BOND BREAKER. REFER TO "CAST-IN-PLACE DECK CONCRETE" NOTE, SHEET 3/91.
3. SEE CLOSURE JOINT DETAILS FOR ADDITIONAL REBAR PROTRUDING FROM BEAM INTO CLOSURE JOINT.
4. FOR END BLOCK DETAILS, SEE SHEET 43/91
5. SEAL BEAMS WITH FEDERAL COLOR NO. 595B-26440 (GREY, SEMI-GLOSS)
6. ALL DIMENSIONS IN THE SEGMENT 3 ELEVATION ARE HORIZONTAL AND DO NOT ACCOUNT FOR VERTICAL CURVE OR ELASTIC SHORTENING.
7. G401 BARS WITH LOCATIONS THAT CONFLICT WITH LIFT LOOP LOCATIONS SHALL BE RELOCATED. THEY SHALL BE BUNDLED WITH ADJACENT G401 BARS OR THE SPACING OF THE ADJACENT BARS SHALL BE REDUCED. THE SAME TOTAL QUANTITY OF G401 BARS SHALL BE PROVIDED.

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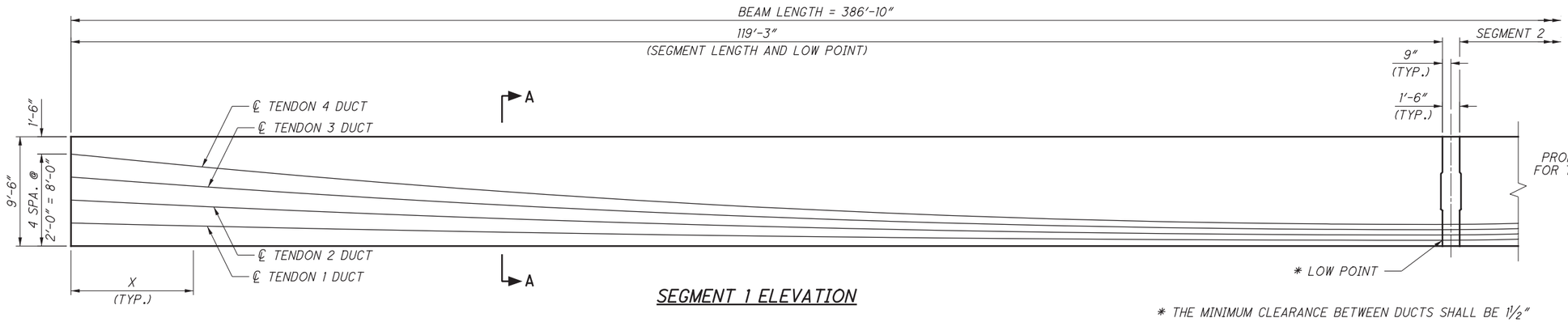
DFT		1806663	

POST-TENSIONED I-BEAM DETAILS

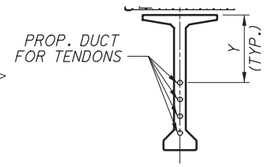
BRIDGE NO. CUY-77-1409
BROADWAY AVENUE OVER IR 77

CUY-77-13.80
PID No. 82388



SEGMENT 1 ELEVATION

* THE MINIMUM CLEARANCE BETWEEN DUCTS SHALL BE 1½"



SECTION A-A

TENDON 1 OFFSETS

POINT NO.	DIM X	DIM Y	POINT NO.	DIM X	DIM Y
1	0.000	-7.500	36	48.700	-8.556
2	0.833	-7.523	37	59.417	-8.716
3	1.000	-7.527	38	59.625	-8.719
4	1.583	-7.543	39	67.333	-8.817
5	2.547	-7.569	40	70.550	-8.854
6	3.000	-7.581	41	71.133	-8.860
7	3.056	-7.582	42	71.350	-8.863
8	5.000	-7.633	43	71.550	-8.865
9	6.000	-7.659	44	81.475	-8.962
10	6.253	-7.666	45	82.850	-8.974
11	7.958	-7.710	46	83.075	-8.976
12	9.000	-7.736	47	83.475	-8.979
13	9.500	-7.749	48	89.500	-9.024
14	11.000	-7.786	49	92.400	-9.043
15	11.083	-7.788	50	94.567	-9.055
16	11.925	-7.809	51	94.800	-9.057
17	12.550	-7.824	52	95.400	-9.060
18	12.725	-7.828	53	99.497	-9.080
19	15.253	-7.889	54	103.247	-9.096
20	15.833	-7.903	55	103.325	-9.096
21	15.925	-7.905	56	103.997	-9.098
22	16.003	-7.907	57	106.283	-9.106
23	19.753	-7.994	58	106.525	-9.107
24	23.000	-8.066	59	107.325	-9.109
25	23.850	-8.085	60	110.250	-9.116
26	24.267	-8.094	61	111.667	-9.118
27	24.450	-8.098	62	112.997	-9.121
28	26.850	-8.149	63	113.250	-9.121
29	35.775	-8.329	64	114.250	-9.122
30	35.983	-8.333	65	116.194	-9.124
31	36.175	-8.336	66	116.250	-9.124
32	37.775	-8.366	67	116.703	-9.124
33	45.167	-8.498	68	118.000	-9.125
34	47.700	-8.540	69	118.250	-9.125
35	47.900	-8.543	70	119.250	-9.125

TENDON 2 OFFSETS

POINT NO.	DIM X	DIM Y	POINT NO.	DIM X	DIM Y
1	0.000	-5.500	36	48.700	-7.518
2	0.833	-5.543	37	59.417	-7.823
3	1.000	-5.552	38	59.625	-7.828
4	1.583	-5.582	39	67.333	-8.016
5	2.547	-5.631	40	70.550	-8.086
6	3.000	-5.654	41	71.133	-8.099
7	3.056	-5.657	42	71.350	-8.103
8	5.000	-5.755	43	71.550	-8.108
9	6.000	-5.805	44	81.475	-8.293
10	6.253	-5.817	45	82.850	-8.315
11	7.958	-5.901	46	83.075	-8.319
12	9.000	-5.951	47	83.475	-8.325
13	9.500	-5.975	48	89.500	-8.411
14	11.000	-6.046	49	92.400	-8.447
15	11.083	-6.050	50	94.567	-8.471
16	11.925	-6.090	51	94.800	-8.474
17	12.550	-6.119	52	95.400	-8.480
18	12.725	-6.127	53	99.497	-8.519
19	15.253	-6.243	54	103.247	-8.548
20	15.833	-6.270	55	103.325	-8.549
21	15.925	-6.274	56	103.997	-8.553
22	16.003	-6.277	57	106.283	-8.568
23	19.753	-6.443	58	106.525	-8.569
24	23.000	-6.582	59	107.325	-8.573
25	23.850	-6.618	60	110.250	-8.587
26	24.267	-6.635	61	111.667	-8.592
27	24.450	-6.642	62	112.997	-8.596
28	26.850	-6.741	63	113.250	-8.596
29	35.775	-7.083	64	114.250	-8.599
30	35.983	-7.091	65	116.194	-8.602
31	36.175	-7.098	66	116.250	-8.602
32	37.775	-7.155	67	116.703	-8.603
33	45.167	-7.406	68	118.000	-8.604
34	47.700	-7.487	69	118.250	-8.604
35	47.900	-7.493	70	119.250	-8.604

TENDON 3 OFFSETS

POINT NO.	DIM X	DIM Y	POINT NO.	DIM X	DIM Y
1	0.000	-3.500	36	48.700	-6.479
2	0.833	-3.564	37	59.417	-6.930
3	1.000	-3.577	38	59.625	-6.938
4	1.583	-3.621	39	67.333	-7.215
5	2.547	-3.694	40	70.550	-7.319
6	3.000	-3.728	41	71.133	-7.337
7	3.056	-3.732	42	71.350	-7.344
8	5.000	-3.876	43	71.550	-7.350
9	6.000	-3.950	44	81.475	-7.623
10	6.253	-3.968	45	82.850	-7.656
11	7.958	-4.091	46	83.075	-7.662
12	9.000	-4.166	47	83.475	-7.671
13	9.500	-4.201	48	89.500	-7.798
14	11.000	-4.307	49	92.400	-7.851
15	11.083	-4.312	50	94.567	-7.887
16	11.925	-4.371	51	94.800	-7.891
17	12.550	-4.414	52	95.400	-7.900
18	12.725	-4.426	53	99.497	-7.958
19	15.253	-4.598	54	103.247	-8.001
20	15.833	-4.636	55	103.325	-8.002
21	15.925	-4.642	56	103.997	-8.008
22	16.003	-4.648	57	106.283	-8.029
23	19.753	-4.893	58	106.525	-8.031
24	23.000	-5.098	59	107.325	-8.038
25	23.850	-5.150	60	110.250	-8.057
26	24.267	-5.176	61	111.667	-8.065
27	24.450	-5.187	62	112.997	-8.071
28	26.850	-5.332	63	113.250	-8.072
29	35.775	-5.838	64	114.250	-8.075
30	35.983	-5.849	65	116.194	-8.080
31	36.175	-5.859	66	116.250	-8.080
32	37.775	-5.944	67	116.703	-8.081
33	45.167	-6.314	68	118.000	-8.083
34	47.700	-6.433	69	118.250	-8.083
35	47.900	-6.443	70	119.250	-8.083

TENDON 4 OFFSETS

POINT NO.	DIM X	DIM Y	POINT NO.	DIM X	DIM Y
1	0.000	-1.500	36	48.700	-5.441
2	0.833	-1.584	37	59.417	-6.036
3	1.000	-1.601	38	59.625	-6.047
4	1.583	-1.660	39	67.333	-6.413
5	2.547	-1.756	40	70.550	-6.551
6	3.000	-1.801	41	71.133	-6.576
7	3.056	-1.807	42	71.350	-6.584
8	5.000	-1.998	43	71.550	-6.593
9	6.000	-2.095	44	81.475	-6.954
10	6.253	-2.119	45	82.850	-6.998
11	7.958	-2.282	46	83.075	-7.005
12	9.000	-2.381	47	83.475	-7.017
13	9.500	-2.427	48	89.500	-7.185
14	11.000	-2.567	49	92.400	-7.255
15	11.083	-2.575	50	94.567	-7.303
16	11.925	-2.652	51	94.800	-7.308
17	12.550	-2.709	52	95.400	-7.320
18	12.725	-2.725	53	99.497	-7.396
19	15.253	-2.952	54	103.247	-7.453
20	15.833	-3.003	55	103.325	-7.454
21	15.925	-3.011	56	103.997	-7.463
22	16.003	-3.018	57	106.283	-7.491
23	19.753	-3.342	58	106.525	-7.494
24	23.000	-3.613	59	107.325	-7.502
25	23.850	-3.683	60	110.250	-7.528
26	24.267	-3.716	61	111.667	-7.538
27	24.450	-3.731	62	112.997	-7.546
28	26.850	-3.923	63	113.250	-7.547
29	35.775	-4.592	64	114.250	-7.552
30	35.983	-4.607	65	116.194	-7.559
31	36.175	-4.620	66	116.250	-7.559
32	37.775	-4.733	67	116.703	-7.560
33	45.167	-5.223	68	118.000	-7.562
34	47.700	-5.380	69	118.250	-7.562
35	47.900	-5.392	70	119.250	-7.563

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NOTE:

DUCTS SHALL HAVE TEMPORARY SUPPORTS AT 2'-0" CENTER/CENTER MAX.

LEGEND:

DIM X - MEASURED IN FT. FROM LEFT END OF BEAM

DIM Y - MEASURED IN FT. FROM THE TOP FLANGE TO CENTER OF DUCT

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		ISSUE RECORD

BU5 - CUY-77-1409

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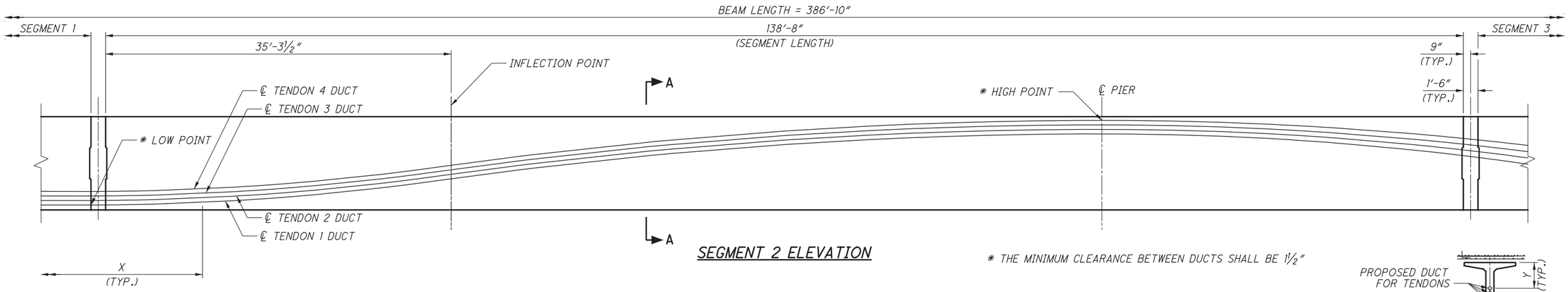
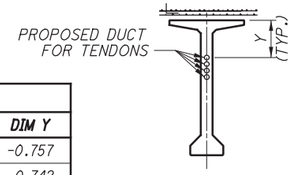


SEGMENT 2 ELEVATION

* THE MINIMUM CLEARANCE BETWEEN DUCTS SHALL BE 1½"



SECTION A-A

TENDON 1 OFFSETS

POINT NO.	DIM X	DIM Y	POINT NO.	DIM X	DIM Y
71	120.750	-9.121	108	203.323	-2.319
72	121.750	-9.113	109	203.696	-2.304
73	122.000	-9.110	110	203.746	-2.302
74	122.278	-9.107	111	203.946	-2.295
75	123.087	-9.097	112	207.073	-2.184
76	123.297	-9.093	113	208.250	-2.148
77	123.750	-9.086	114	213.000	-2.031
78	123.806	-9.085	115	215.812	-1.984
79	125.750	-9.044	116	217.312	-1.965
80	133.833	-8.715	117	217.412	-1.964
81	134.616	-8.670	118	217.812	-1.960
82	135.416	-8.622	119	221.500	-1.939
83	135.616	-8.609	120	222.500	-1.938
84	138.087	-8.441	121	223.500	-1.939
85	138.616	-8.403	122	228.678	-1.998
86	148.482	-7.479	123	230.928	-2.050
87	149.082	-7.411	124	231.078	-2.054
88	149.232	-7.393	125	231.678	-2.071
89	151.482	-7.124	126	232.000	-2.080
90	152.495	-6.996	127	236.750	-2.259
91	152.500	-6.995	128	238.850	-2.360
92	156.000	-6.525	129	241.544	-2.511
93	162.348	-5.691	130	242.073	-2.544
94	162.748	-5.641	131	244.544	-2.706
95	162.848	-5.628	132	244.744	-2.720
96	164.348	-5.445	133	245.544	-2.778
97	173.087	-4.470	134	246.250	-2.830
98	176.214	-4.160	135	254.410	-3.549
99	176.414	-4.141	136	255.199	-3.629
100	176.464	-4.136	137	256.354	-3.751
101	176.837	-4.100	138	256.410	-3.757
102	177.214	-4.065	139	256.863	-3.806
103	178.167	-3.976	140	257.073	-3.829
104	190.080	-3.028	141	257.882	-3.918
105	198.750	-2.523	142	258.160	-3.949
106	200.333	-2.447	143	258.410	-3.978
107	202.946	-2.334	144	259.410	-4.093

TENDON 2 OFFSETS

POINT NO.	DIM X	DIM Y	POINT NO.	DIM X	DIM Y
71	120.750	-8.600	108	203.323	-1.798
72	121.750	-8.592	109	203.696	-1.783
73	122.000	-8.590	110	203.746	-1.782
74	122.278	-8.587	111	203.946	-1.774
75	123.087	-8.576	112	207.073	-1.664
76	123.297	-8.573	113	208.250	-1.627
77	123.750	-8.565	114	213.000	-1.510
78	123.806	-8.564	115	215.812	-1.463
79	125.750	-8.523	116	217.312	-1.445
80	133.833	-8.195	117	217.412	-1.444
81	134.616	-8.149	118	217.812	-1.440
82	135.416	-8.101	119	221.500	-1.418
83	135.616	-8.088	120	222.500	-1.417
84	138.087	-7.921	121	223.500	-1.418
85	138.616	-7.882	122	228.678	-1.474
86	148.482	-6.958	123	230.928	-1.524
87	149.082	-6.890	124	231.078	-1.527
88	149.232	-6.873	125	231.678	-1.543
89	151.482	-6.603	126	232.000	-1.552
90	152.495	-6.475	127	236.750	-1.722
91	152.500	-6.475	128	238.850	-1.819
92	156.000	-6.004	129	241.544	-1.962
93	162.348	-5.170	130	242.073	-1.993
94	162.748	-5.120	131	244.544	-2.147
95	162.848	-5.108	132	244.744	-2.161
96	164.348	-4.924	133	245.544	-2.215
97	173.087	-3.949	134	246.250	-2.265
98	176.214	-3.639	135	254.410	-2.948
99	176.414	-3.620	136	255.199	-3.025
100	176.464	-3.615	137	256.354	-3.140
101	176.837	-3.579	138	256.410	-3.146
102	177.214	-3.544	139	256.863	-3.192
103	178.167	-3.455	140	257.073	-3.214
104	190.080	-2.507	141	257.882	-3.299
105	198.750	-2.002	142	258.160	-3.329
106	200.333	-1.926	143	258.410	-3.356
107	202.946	-1.813	144	259.410	-3.465

TENDON 3 OFFSETS

POINT NO.	DIM X	DIM Y	POINT NO.	DIM X	DIM Y
71	120.750	-8.079	108	203.323	-1.277
72	121.750	-8.071	109	203.696	-1.263
73	122.000	-8.069	110	203.746	-1.261
74	122.278	-8.066	111	203.946	-1.253
75	123.087	-8.055	112	207.073	-1.143
76	123.297	-8.052	113	208.250	-1.107
77	123.750	-8.044	114	213.000	-0.989
78	123.806	-8.043	115	215.812	-0.942
79	125.750	-8.002	116	217.312	-0.924
80	133.833	-7.674	117	217.412	-0.923
81	134.616	-7.629	118	217.812	-0.919
82	135.416	-7.580	119	221.500	-0.897
83	135.616	-7.567	120	222.500	-0.896
84	138.087	-7.400	121	223.500	-0.897
85	138.616	-7.361	122	228.678	-0.950
86	148.482	-6.437	123	230.928	-0.997
87	149.082	-6.369	124	231.078	-1.001
88	149.232	-6.352	125	231.678	-1.016
89	151.482	-6.082	126	232.000	-1.025
90	152.495	-5.954	127	236.750	-1.185
91	152.500	-5.954	128	238.850	-1.277
92	156.000	-5.483	129	241.544	-1.413
93	162.348	-4.649	130	242.073	-1.442
94	162.748	-4.599	131	244.544	-1.589
95	162.848	-4.587	132	244.744	-1.601
96	164.348	-4.404	133	245.544	-1.653
97	173.087	-3.428	134	246.250	-1.700
98	176.214	-3.118	135	254.410	-2.347
99	176.414	-3.099	136	255.199	-2.420
100	176.464	-3.094	137	256.354	-2.530
101	176.837	-3.059	138	256.410	-2.535
102	177.214	-3.023	139	256.863	-2.579
103	178.167	-2.935	140	257.073	-2.600
104	190.080	-1.986	141	257.882	-2.680
105	198.750	-1.481	142	258.160	-2.709
106	200.333	-1.406	143	258.410	-2.734
107	202.946	-1.292	144	259.410	-2.838

TENDON 4 OFFSETS

POINT NO.	DIM X	DIM Y	POINT NO.	DIM X	DIM Y
71	120.750	-7.558	108	203.323	-0.757
72	121.750	-7.551	109	203.696	-0.742
73	122.000	-7.548	110	203.746	-0.740
74	122.278	-7.545	111	203.946	-0.732
75	123.087	-7.534	112	207.073	-0.622
76	123.297	-7.531	113	208.250	-0.586
77	123.750	-7.524	114	213.000	-0.469
78	123.806	-7.523	115	215.812	-0.421
79	125.750	-7.481	116	217.312	-0.403
80	133.833	-7.153	117	217.412	-0.402
81	134.616	-7.108	118	217.812	-0.398
82	135.416	-7.059	119	221.500	-0.376
83	135.616	-7.047	120	222.500	-0.375
84	138.087	-6.879	121	223.500	-0.376
85	138.616	-6.840	122	228.678	-0.426
86	148.482	-5.916	123	230.928	-0.471
87	149.082	-5.848	124	231.078	-0.474
88	149.232	-5.831	125	231.678	-0.489
89	151.482	-5.561	126	232.000	-0.497
90	152.495	-5.433	127	236.750	-0.649
91	152.500	-5.433	128	238.850	-0.735
92	156.000	-4.962	129	241.544	-0.864
93	162.348	-4.128	130	242.073	-0.891
94	162.748	-4.078	131	244.544	-1.030
95	162.848	-4.066	132	244.744	-1.042
96	164.348	-3.883	133	245.544	-1.090
97	173.087	-2.908	134	246.250	-1.135
98	176.214	-2.597	135	254.410	-1.747
99	176.414	-2.578	136	255.199	-1.815
100	176.464	-2.573	137	256.354	-1.919
101	176.837	-2.538	138	256.410	-1.924
102	177.214	-2.502	139	256.863	-1.966
103	178.167	-2.414	140	257.073	-1.985
104	190.080	-1.465	141	257.882	-2.062
105	198.750	-0.960	142	258.160	-2.088
106	200.333	-0.885	143	258.410	-2.112
107	202.946	-0.772	144	259.410	-2.210

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NOTE:

DUCTS SHALL HAVE TEMPORARY SUPPORTS AT 2'-0" CENTER/CENTER MAX.

LEGEND:

DIM X - MEASURED IN FT. FROM LEFT END OF BEAM

DIM Y - MEASURED IN FT. FROM THE TOP FLANGE TO CENTER OF DUCT

NO.	DATE	DESCRIPTION
		ISSUE RECORD

BU5 - CUY-77-1409

E.L. ROBINSON ENGINEERING
1001 Watermark Drive, Suite 310 • Columbus, Ohio 43215
www.elrobinsongroup.com

DESIGNED GMW/CJW | DRAWN DTA | REVIEWED RER | DATE 1/15/2017 | CHECKED DFT | REVISED | STRUCTURE FILE NUMBER 1806663

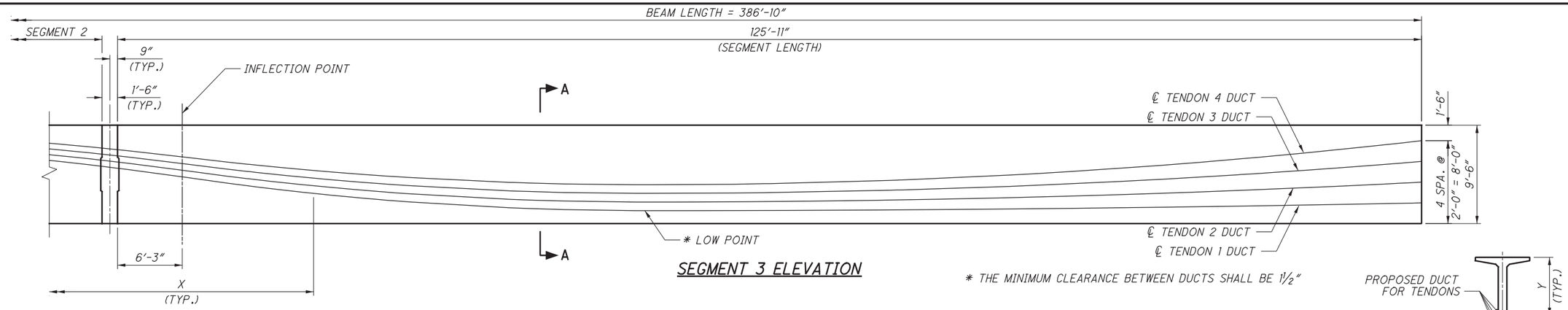
POST-TENSIONED I-BEAM DETAILS

BRIDGE NO. CUY-77-1409
BROADWAY AVENUE OVER IR 77

CUY-77-13.80
PID No. 82388

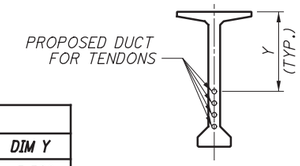
40 / 91

41 / 100



SEGMENT 3 ELEVATION

* THE MINIMUM CLEARANCE BETWEEN DUCTS SHALL BE 1½"



SECTION A-A

TENDON 1 OFFSETS					
POINT NO.	DIM X	DIM Y	POINT NO.	DIM X	DIM Y
145	260.910	-4.272	180	335.462	-8.176
146	261.910	-4.395	181	336.262	-8.170
147	262.160	-4.426	182	336.462	-8.169
148	263.163	-4.554	183	336.948	-8.166
149	263.457	-4.591	184	347.054	-8.085
150	263.910	-4.651	185	348.654	-8.069
151	263.966	-4.658	186	348.846	-8.067
152	265.910	-4.919	187	349.054	-8.065
153	271.549	-5.683	188	353.297	-8.021
154	273.502	-5.926	189	358.646	-7.958
155	274.302	-6.022	190	361.046	-7.927
156	274.544	-6.050	191	361.229	-7.925
157	277.502	-6.386	192	361.646	-7.919
158	278.163	-6.457	193	365.077	-7.872
159	278.913	-6.536	194	368.827	-7.817
160	282.663	-6.904	195	369.577	-7.805
161	286.094	-7.202	196	369.647	-7.804
162	286.694	-7.250	197	370.238	-7.795
163	286.927	-7.269	198	370.997	-7.783
164	287.899	-7.344	199	373.438	-7.744
165	289.094	-7.432	200	373.613	-7.741
166	298.500	-7.969	201	374.238	-7.731
167	298.505	-7.969	202	375.747	-7.705
168	298.686	-7.977	203	375.830	-7.704
169	299.086	-7.993	204	377.330	-7.678
170	299.311	-8.002	205	378.872	-7.651
171	300.686	-8.054	206	381.830	-7.597
172	304.248	-8.159	207	383.774	-7.560
173	311.278	-8.250	208	383.830	-7.559
174	311.478	-8.250	209	384.283	-7.550
175	311.695	-8.250	210	384.577	-7.544
176	312.278	-8.250	211	385.247	-7.531
177	320.598	-8.240	212	385.830	-7.520
178	323.870	-8.231	213	385.997	-7.517
179	324.078	-8.230	214	386.830	-7.500

TENDON 2 OFFSETS					
POINT NO.	DIM X	DIM Y	POINT NO.	DIM X	DIM Y
145	260.910	-3.635	180	335.462	-7.226
146	261.910	-3.752	181	336.262	-7.213
147	262.160	-3.782	182	336.462	-7.210
148	263.163	-3.903	183	336.948	-7.202
149	263.457	-3.939	184	347.054	-6.994
150	263.910	-3.995	185	348.654	-6.955
151	263.966	-4.002	186	348.846	-6.950
152	265.910	-4.250	187	349.054	-6.945
153	271.549	-4.977	188	353.297	-6.831
154	273.502	-5.208	189	358.646	-6.670
155	274.302	-5.299	190	361.046	-6.591
156	274.544	-5.326	191	361.229	-6.585
157	277.502	-5.645	192	361.646	-6.571
158	278.163	-5.712	193	365.077	-6.451
159	278.913	-5.787	194	368.827	-6.310
160	282.663	-6.137	195	369.577	-6.280
161	286.094	-6.421	196	369.647	-6.278
162	286.694	-6.467	197	370.238	-6.254
163	286.927	-6.484	198	370.997	-6.224
164	287.899	-6.555	199	373.438	-6.123
165	289.094	-6.639	200	373.613	-6.116
166	298.500	-7.150	201	374.238	-6.090
167	298.505	-7.150	202	375.747	-6.025
168	298.686	-7.157	203	375.830	-6.021
169	299.086	-7.172	204	377.330	-5.955
170	299.311	-7.181	205	378.872	-5.885
171	300.686	-7.230	206	381.830	-5.747
172	304.248	-7.330	207	383.774	-5.653
173	311.278	-7.416	208	383.830	-5.650
174	311.478	-7.417	209	384.283	-5.628
175	311.695	-7.417	210	384.577	-5.613
176	312.278	-7.417	211	385.247	-5.580
177	320.598	-7.391	212	385.830	-5.551
178	323.870	-7.367	213	385.997	-5.542
179	324.078	-7.366	214	386.830	-5.500

TENDON 3 OFFSETS					
POINT NO.	DIM X	DIM Y	POINT NO.	DIM X	DIM Y
145	260.910	-2.999	180	335.462	-6.277
146	261.910	-3.110	181	336.262	-6.256
147	262.160	-3.138	182	336.462	-6.251
148	263.163	-3.253	183	336.948	-6.238
149	263.457	-3.287	184	347.054	-5.903
150	263.910	-3.340	185	348.654	-5.840
151	263.966	-3.347	186	348.846	-5.832
152	265.910	-3.582	187	349.054	-5.824
153	271.549	-4.270	188	353.297	-5.641
154	273.502	-4.489	189	358.646	-5.382
155	274.302	-4.576	190	361.046	-5.256
156	274.544	-4.602	191	361.229	-5.246
157	277.502	-4.904	192	361.646	-5.223
158	278.163	-4.968	193	365.077	-5.029
159	278.913	-5.039	194	368.827	-4.803
160	282.663	-5.371	195	369.577	-4.755
161	286.094	-5.639	196	369.647	-4.751
162	286.694	-5.683	197	370.238	-4.713
163	286.927	-5.699	198	370.997	-4.664
164	287.899	-5.767	199	373.438	-4.503
165	289.094	-5.847	200	373.613	-4.491
166	298.500	-6.330	201	374.238	-4.448
167	298.505	-6.330	202	375.747	-4.344
168	298.686	-6.337	203	375.830	-4.338
169	299.086	-6.352	204	377.330	-4.232
170	299.311	-6.360	205	378.872	-4.120
171	300.686	-6.406	206	381.830	-3.897
172	304.248	-6.501	207	383.774	-3.746
173	311.278	-6.583	208	383.830	-3.742
174	311.478	-6.583	209	384.283	-3.706
175	311.695	-6.583	210	384.577	-3.683
176	312.278	-6.583	211	385.247	-3.629
177	320.598	-6.541	212	385.830	-3.582
178	323.870	-6.504	213	385.997	-3.568
179	324.078	-6.501	214	386.830	-3.500

TENDON 4 OFFSETS					
POINT NO.	DIM X	DIM Y	POINT NO.	DIM X	DIM Y
145	260.910	-2.363	180	335.462	-5.328
146	261.910	-2.467	181	336.262	-5.299
147	262.160	-2.494	182	336.462	-5.292
148	263.163	-2.603	183	336.948	-5.273
149	263.457	-2.635	184	347.054	-4.813
150	263.910	-2.685	185	348.654	-4.726
151	263.966	-2.691	186	348.846	-4.715
152	265.910	-2.914	187	349.054	-4.703
153	271.549	-3.564	188	353.297	-4.451
154	273.502	-3.771	189	358.646	-4.094
155	274.302	-3.853	190	361.046	-3.920
156	274.544	-3.877	191	361.229	-3.906
157	277.502	-4.163	192	361.646	-3.875
158	278.163	-4.223	193	365.077	-3.608
159	278.913	-4.290	194	368.827	-3.296
160	282.663	-4.604	195	369.577	-3.231
161	286.094	-4.858	196	369.647	-3.224
162	286.694	-4.899	197	370.238	-3.172
163	286.927	-4.915	198	370.997	-3.105
164	287.899	-4.979	199	373.438	-2.882
165	289.094	-5.054	200	373.613	-2.866
166	298.500	-5.511	201	374.238	-2.807
167	298.505	-5.511	202	375.747	-2.663
168	298.686	-5.517	203	375.830	-2.655
169	299.086	-5.531	204	377.330	-2.509
170	299.311	-5.539	205	378.872	-2.354
171	300.686	-5.583	206	381.830	-2.048
172	304.248	-5.673	207	383.774	-1.839
173	311.278	-5.750	208	383.830	-1.833
174	311.478	-5.750	209	384.283	-1.784
175	311.695	-5.750	210	384.577	-1.752
176	312.278	-5.750	211	385.247	-1.678
177	320.598	-5.692	212	385.830	-1.613
178	323.870	-5.641	213	385.997	-1.594
179	324.078	-5.637	214	386.830	-1.500

NOTE:

DUCTS SHALL HAVE TEMPORARY SUPPORTS AT 2'-0" CENTER/CENTER MAX.

LEGEND:

DIM X - MEASURED IN FT. FROM LEFT END OF BEAM

DIM Y - MEASURED IN FT. FROM THE TOP FLANGE TO CENTER OF DUCT

RELEASED FOR CONSTRUCTION

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01/29/2018 | Brian.Link

BU5 - CUY-77-1409		
NO.	DATE	DESCRIPTION
ISSUE RECORD		

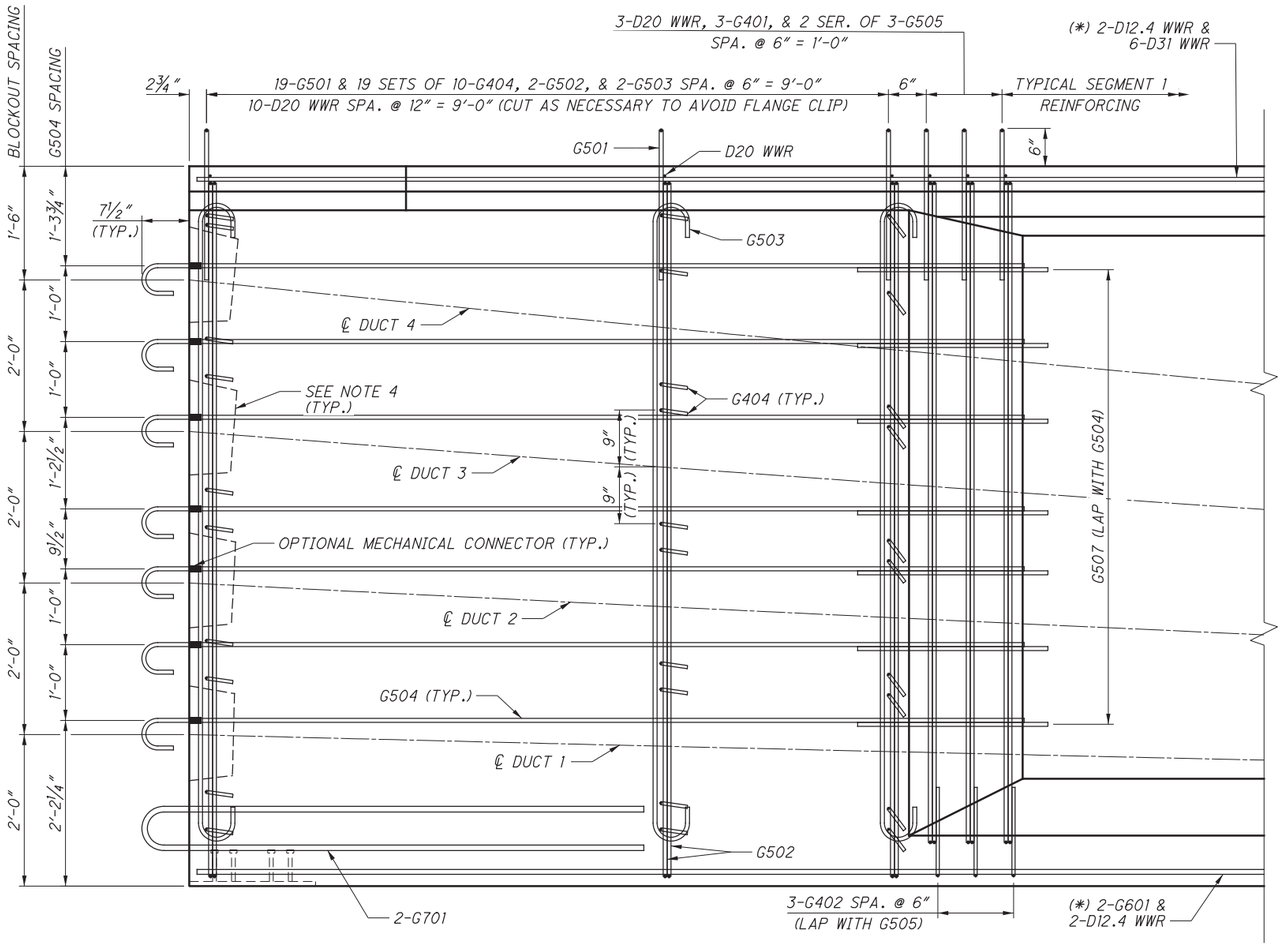
E.L. ROBINSON ENGINEERING
1001 Watermark Drive, Suite 310 • Columbus, Ohio 43215
www.elrobinsonengineering.com

DESIGNED	DRAWN	REVIEWED	DATE
GMW/CJW	DTA	RER	1/15/2017
CHECKED	REVISED	STRUCTURE FILE NUMBER	
DFT		1806663	

POST-TENSIONED I-BEAM DETAILS

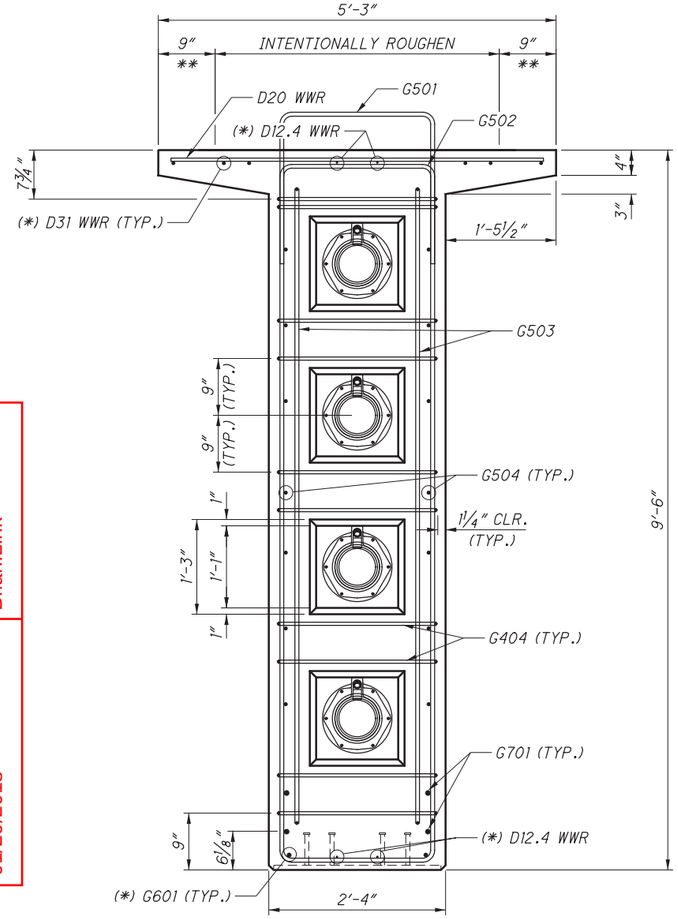
BRIDGE NO. CUY-77-1409
BROADWAY AVENUE OVER IR 77

CUY-77-13.80
PID No. 82388



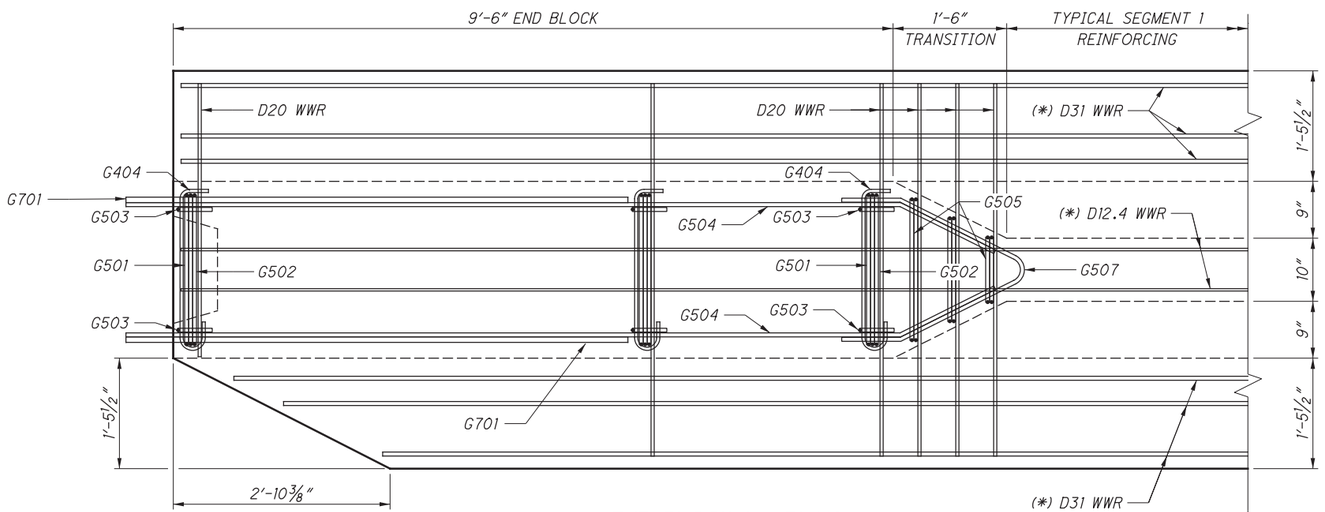
END BLOCK 1 - ELEVATION

(LOCAL ZONE REINFORCING AND PRE-TENSIONING NOT SHOWN FOR CLARITY)



END BLOCK 1 - TYPICAL SECTION

(LOCAL ZONE REINFORCING AND PRE-TENSIONING NOT SHOWN FOR CLARITY)



END BLOCK 1 - PLAN

(LOCAL ZONE REINFORCING AND PRE-TENSIONING NOT SHOWN FOR CLARITY)

RELEASED FOR CONSTRUCTION
BU05_2018-01-26.BU-5 RFCv2.pdf
01/29/2018
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LEGEND:

(*) SEE NOTE 1

(**) SEE NOTE 3

NOTES:

1. FABRICATOR SHALL EITHER CONTINUE THIS REINFORCING FROM THE TYPICAL SECTION INTO THE END BLOCK OR PROVIDE LAP SPLICE.
2. THE POST-TENSIONING ANCHORAGE SYSTEM, INCLUDING LOCAL REINFORCING, SHALL BE DSI 19-0.6" SYSTEM 100. ALL LOCAL REINFORCING, ANCHORAGE DETAILS, AND DUCT SPLICE DETAILS WILL BE INCLUDED WITH THE POST-TENSIONING SHOP DRAWING SUBMITTAL.
3. TROWEL EXTERIOR 9" OF TOP FLANGE SMOOTH. APPLY TWO COATS OF C&MS 705.07, TYPE 1 OR ID MEMBRANE CURING COMPOUND WITH A ROLLER TO ACT AS A BOND BREAKER. REFER TO "CAST-IN-PLACE DECK CONCRETE" NOTE, SHEET 3/91.
4. FOR BLOCK OUT DEPTHS, SEE SHEET 49/91.
5. ALL REINFORCING BARS EXTENDING FROM THE PRECAST BEAM SHALL BE EPOXY COATED.
6. THE G504 BARS MAY BE SPLIT INTO TWO SEPARATE BARS, MECHANICALLY CONNECTED AT THE BEAM FACE. THE ENDS OF THE SPLICING SYSTEM SHALL BE CAPPED, AND THE CAPS AND END FLANGES SHALL BE SEALED WITH TYPE A WATERPROOFING PER CMS 512.08, EXTENDING A MINIMUM OF 2" SURROUNDING EACH FLANGE LOCATION.

LAP LENGTHS	
NO. 3 BARS	2'-0" MIN.
NO. 4 BARS	2'-0" MIN.
NO. 5 BARS	2'-6" MIN.
NO. 6 BARS	3'-0" MIN.

NO.	DATE	DESCRIPTION
		BU5 - CUY-77-1409
		ISSUE RECORD

E.L. ROBINSON ENGINEERING
1001 Watermark Drive, Suite 310 - Columbus, Ohio 43215
www.elrobinsonengineering.com

DESIGNED	DRAWN	REVIEWED	DATE
GMW/CJW	GMW	RER	1/15/2017
CHECKED	REVISED	STRUCTURE FILE NUMBER	
DFT		1806663	

BEAM END BLOCK DETAILS (1 OF 3)
BRIDGE NO. CUY-77-1409
BROADWAY AVENUE OVER IR 77

CUY-77-13.80
PID No. 82388

42 / 91
43 / 100

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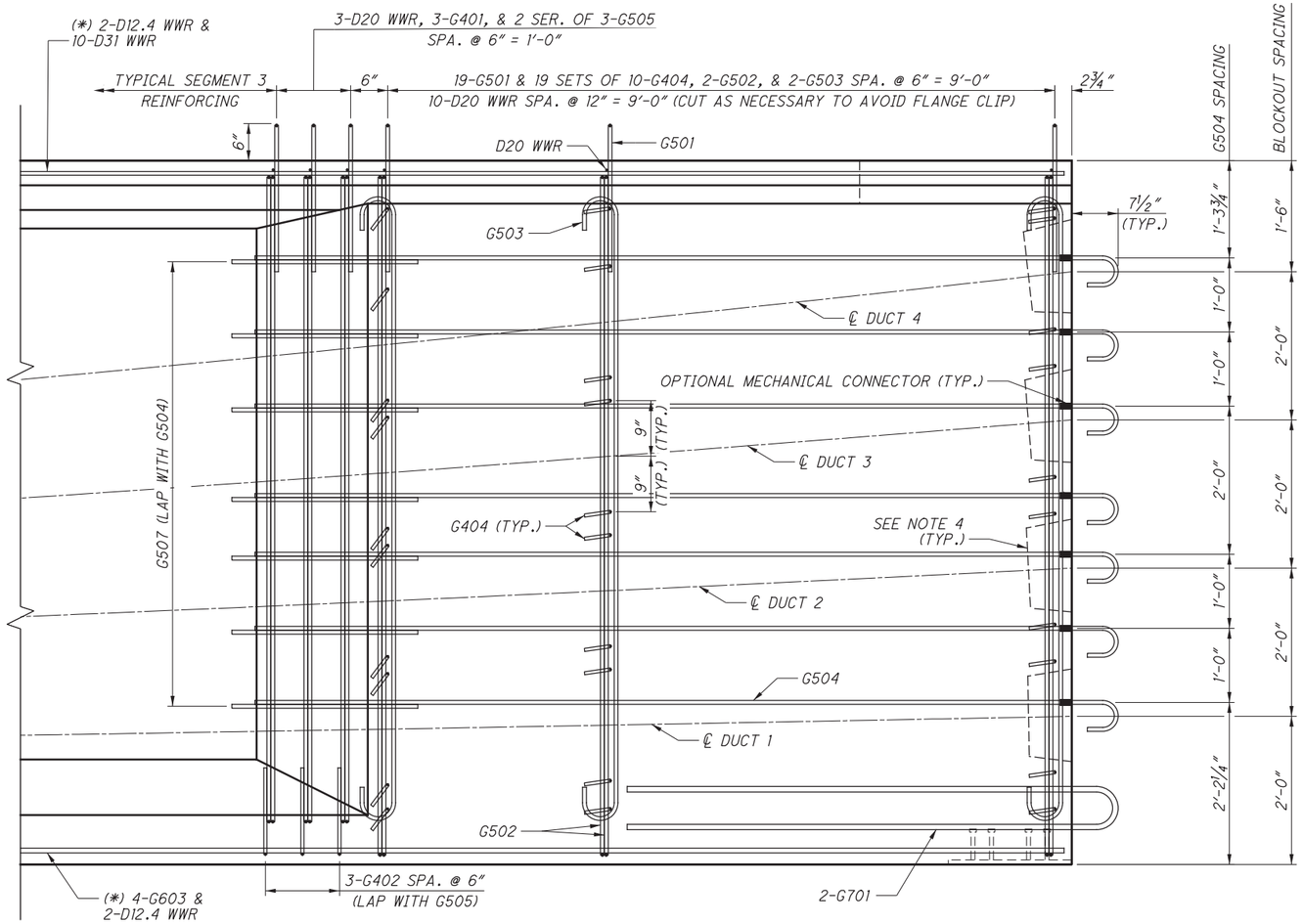
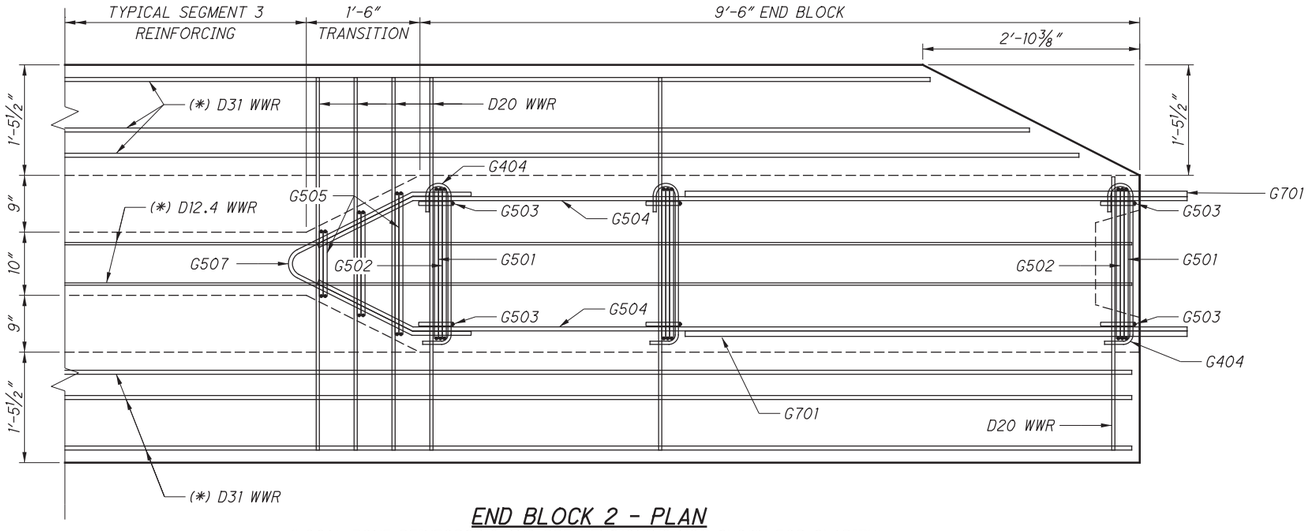


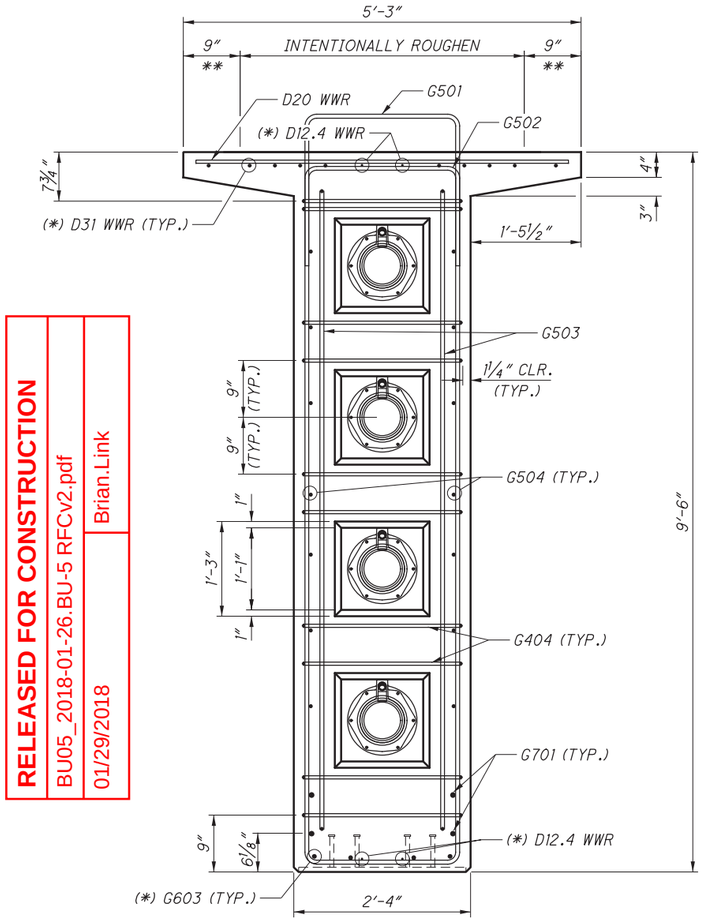
END BLOCK 2 - ELEVATION

(LOCAL ZONE REINFORCING AND PRE-TENSIONING NOT SHOWN FOR CLARITY)



END BLOCK 2 - PLAN

(LOCAL ZONE REINFORCING AND PRE-TENSIONING NOT SHOWN FOR CLARITY)



END BLOCK 2 - TYPICAL SECTION

(LOCAL ZONE REINFORCING AND PRE-TENSIONING NOT SHOWN FOR CLARITY)

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LEGEND:

(*) SEE NOTE 1

(**) SEE NOTE 3

NOTES:

1. FABRICATOR SHALL EITHER CONTINUE THIS REINFORCING FROM THE TYPICAL SECTION INTO THE END BLOCK OR PROVIDE LAP SPLICE.
2. THE POST-TENSIONING ANCHORAGE SYSTEM, INCLUDING LOCAL REINFORCING, SHALL BE DSI 19-0.6" SYSTEM 100. ALL LOCAL REINFORCING, ANCHORAGE DETAILS, AND DUCT SPLICE DETAILS WILL BE INCLUDED WITH THE POST-TENSIONING SHOP DRAWING SUBMITTAL.
3. TROWEL EXTERIOR 9" OF TOP FLANGE SMOOTH. APPLY TWO COATS OF C&MS 705.07, TYPE 1 OR 1D MEMBRANE CURING COMPOUND WITH A ROLLER TO ACT AS A BOND BREAKER. REFER TO "CAST-IN-PLACE DECK CONCRETE" NOTE, SHEET 3/91.
4. FOR BLOCK OUT DEPTHS, SEE SHEET 49/91
5. ALL REINFORCING BARS EXTENDING FROM THE PRECAST BEAM SHALL BE EPOXY COATED.
6. THE G504 BARS MAY BE SPLIT INTO TWO SEPARATE BARS, MECHANICALLY CONNECTED AT THE BEAM FACE. THE ENDS OF THE SPLICING SYSTEM SHALL BE CAPPED, AND THE CAPS AND END FLANGES SHALL BE SEALED WITH TYPE A WATERPROOFING PER CMS 512.08, EXTENDING A MINIMUM OF 2" SURROUNDING EACH FLANGE LOCATION.

LAP LENGTHS	
NO. 3 BARS	2'-0" MIN.
NO. 4 BARS	2'-0" MIN.
NO. 5 BARS	2'-6" MIN.
NO. 6 BARS	3'-0" MIN.

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		BU5 - CUY-77-1409
		ISSUE RECORD

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CHECKED	REVISED	STRUCTURE FILE NUMBER	
DFT		1806663	

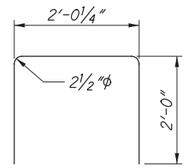
BEAM END BLOCK DETAILS
BRIDGE NO. CUY-77-1409
BROADWAY AVENUE OVER IR 77

CUY-77-13.80
PID No. 82388

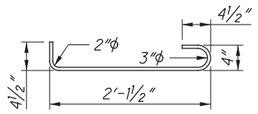
43 / 91

44 / 100

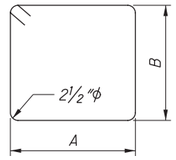
P:\82388_CG66B\Design\Structures\CUY-77-1409\sheets\077_1409c_SS015.dgn Sheet 1/26/2018 3:00:46 PM gwhittaker



G501

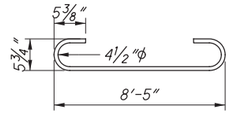


G404

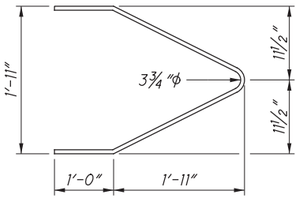


G502 & G505

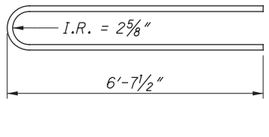
BAR	A	B
G502	2'-0 1/4"	9'-2 1/2"
G505	1'-9 5/8" TO 9 5/8"	8'-9"



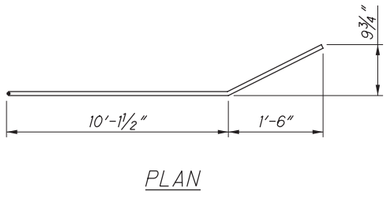
G503



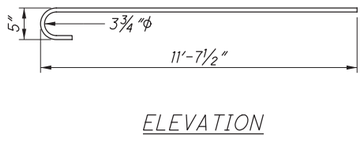
G507



G701



PLAN



ELEVATION

G504

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CHECKED	REVISED	STRUCTURE FILE NUMBER	
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BEAM END BLOCK DETAILS (3 OF 3)
BRIDGE NO. CUY-77-1409
BROADWAY AVENUE OVER IR 77

CUY-77-13.80
PID No. 82388

44 / 91

45
100

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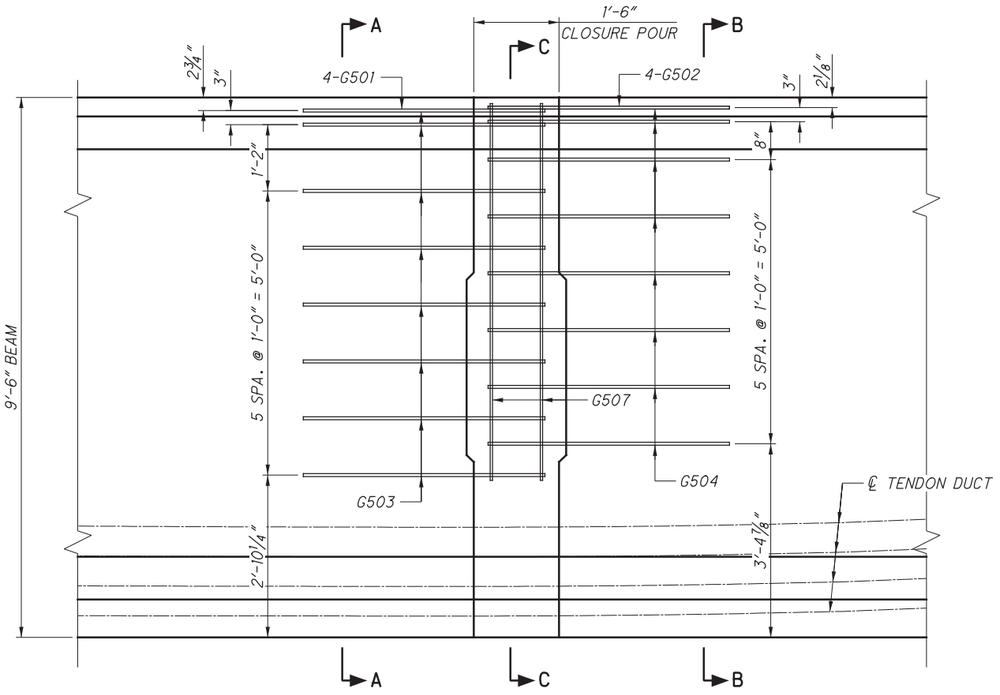
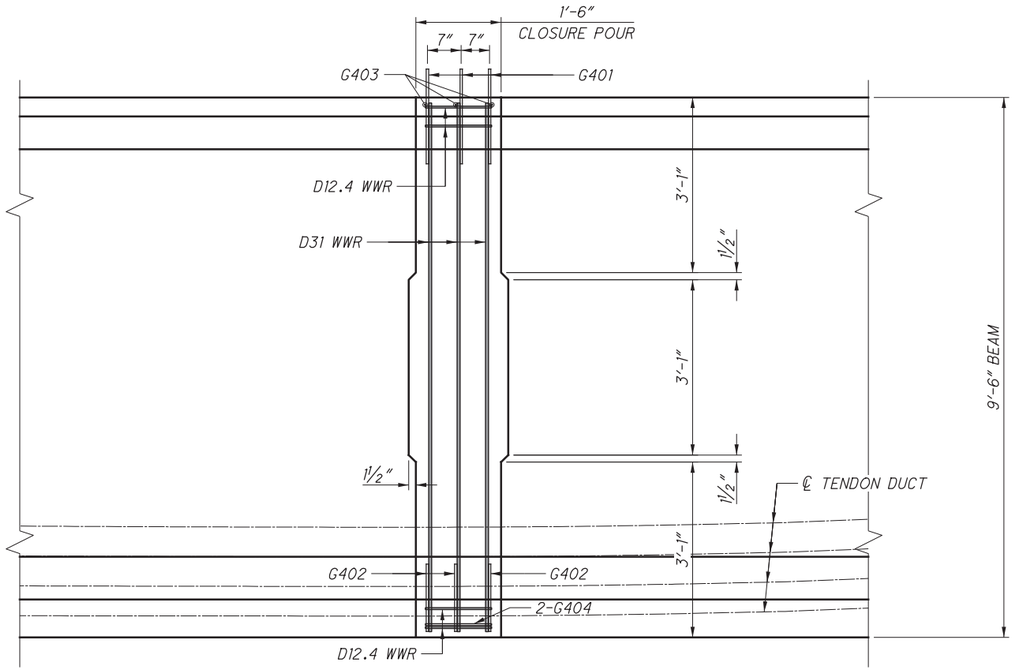


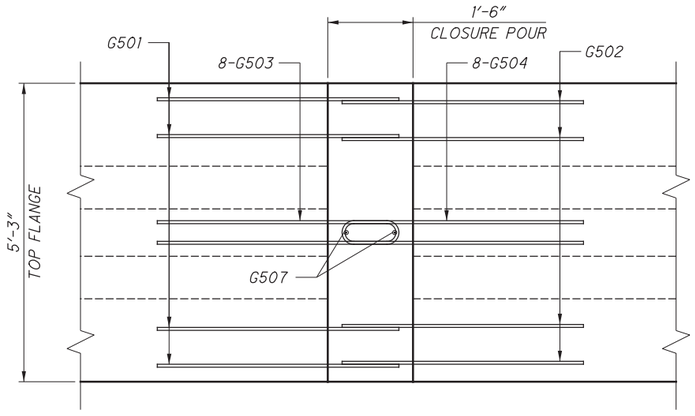
CLOSURE JOINT 1 - ELEVATION 1

(CLOSURE POUR REINFORCING NOT SHOWN FOR CLARITY)



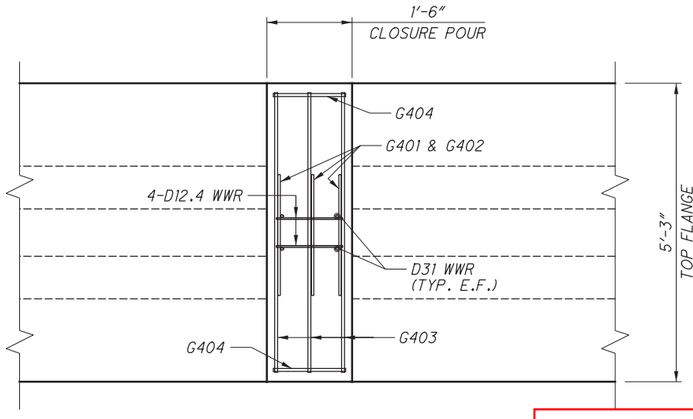
CLOSURE JOINT 1 - ELEVATION 2

(BEAM REINFORCING NOT SHOWN FOR CLARITY)



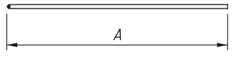
CLOSURE JOINT 1 - PLAN 1

(CLOSURE POUR REINFORCING NOT SHOWN FOR CLARITY)



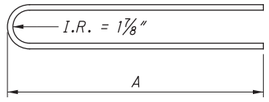
CLOSURE JOINT 1 - PLAN 2

(BEAM REINFORCING NOT SHOWN FOR CLARITY)



G501, G502, G507

BAR	A
G501	4'-3"
G502	4'-3"
G503	4'-3"
G504	4'-3"
G507	6'-8"



G503, G504

NOTES:

1. FOR SECTIONS, A-A, B-B & C-C, SEE SHEET 46/91
2. ALL DIMENSIONS GIVEN ARE TO C/C BARS.
3. ALL CLOSURE JOINT REINFORCING BARS SHALL BE EPOXY COATED OR GALVANIZED.
4. DUCTS SHALL BE PLACED ON A TANGENT BETWEEN THE UPSTATION END OF SEGMENT 1 AND DOWNSTATION END OF SEGMENT 2 AFTER BEAM ERECTION.

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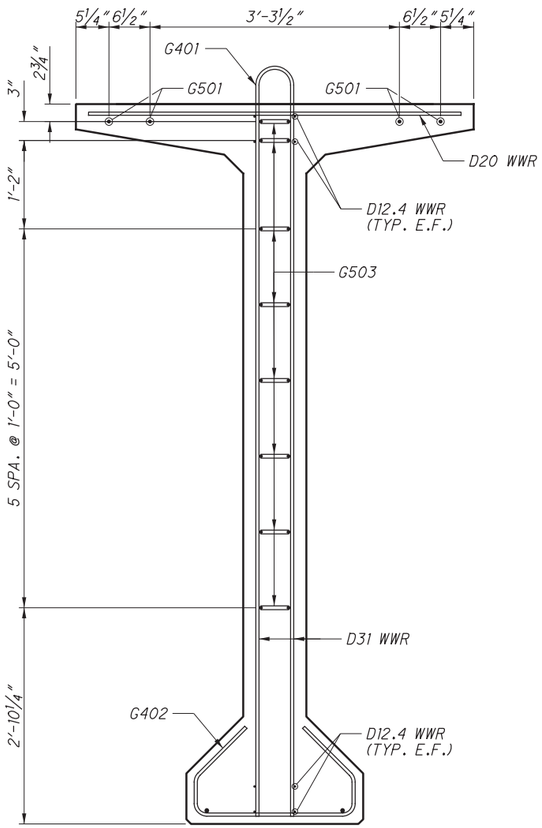
CLOSURE JOINT 1 DETAILS (1 OF 2)
BRIDGE NO. CUY-77-1409
BROADWAY AVENUE OVER IR 77

CUY-77-13.80
PID No. 82388

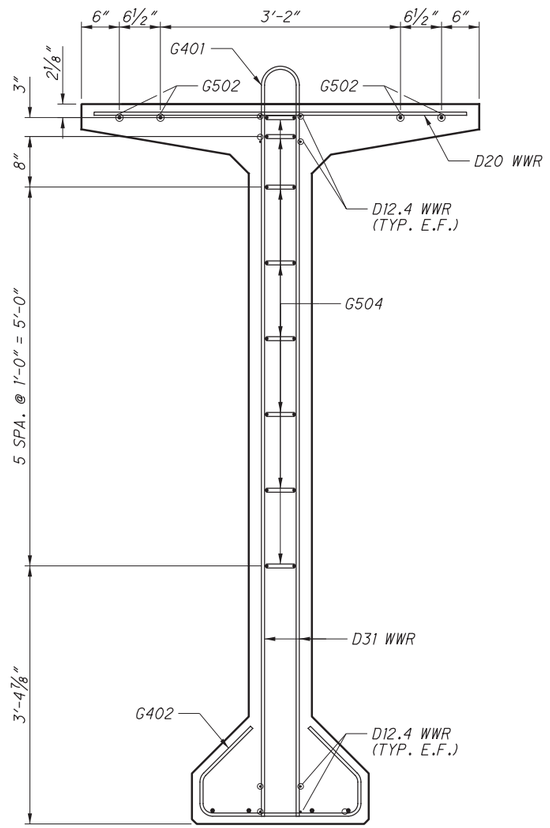
45 / 91

46 / 100

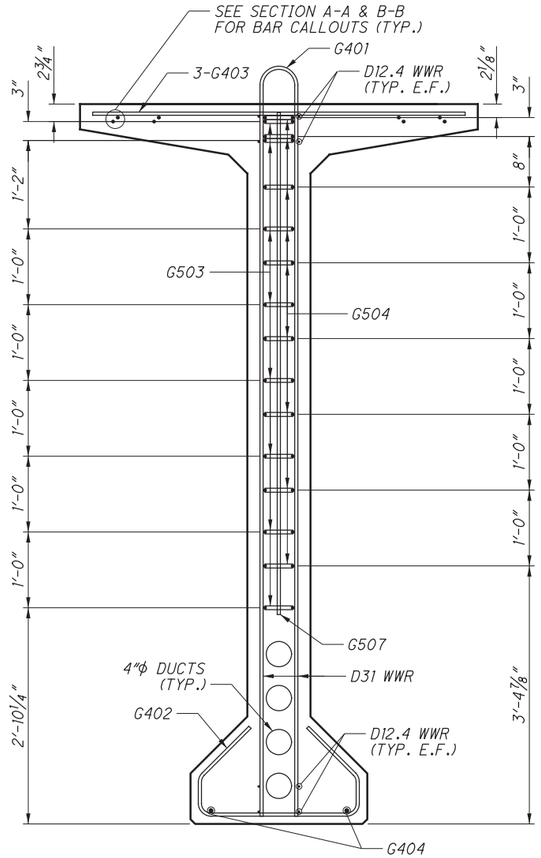
P:\82388.CCG6B\Design\Structures\CUY-77-1409\sheets\077_1409C_SS009.dgn Sheet 1/26/2018 3:00:48 PM gwhittaker



SECTION A-A
(DUCTS NOT SHOWN FOR CLARITY)



SECTION B-B
(DUCTS NOT SHOWN FOR CLARITY)



SECTION C-C
(AT CLOSURE POUR)

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NOTES:

1. FOR BEAM DIMENSIONS, SEE SHEET 36/91
2. FOR LOCATION OF SECTIONS A-A, B-B & C-C, SEE SHEET 45/91
3. FOR EXTENDED STRAND DETAILS, SEE SHEET 48/91

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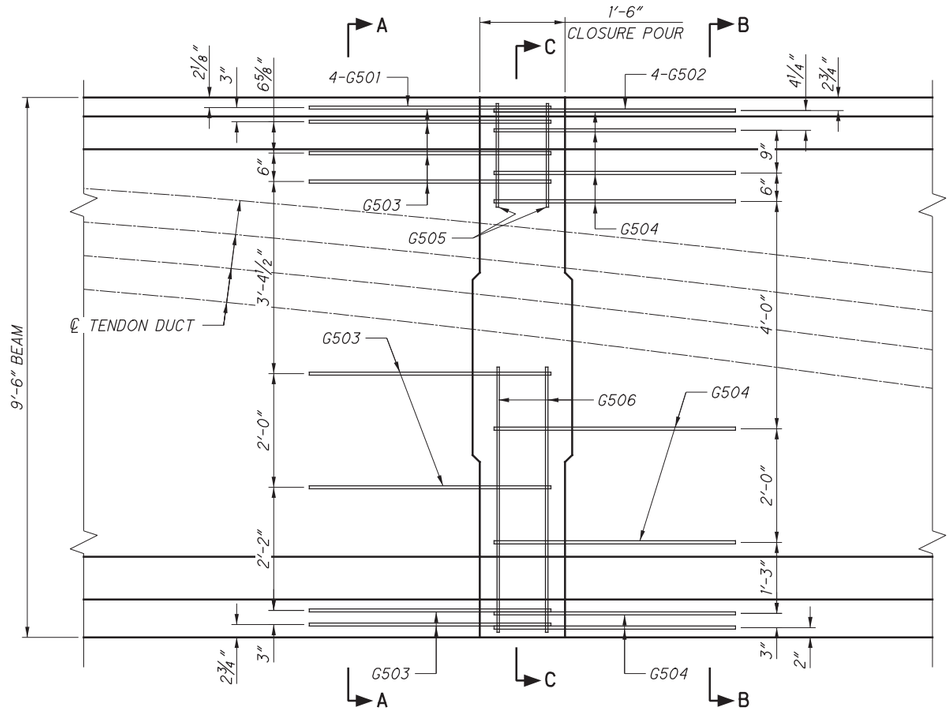
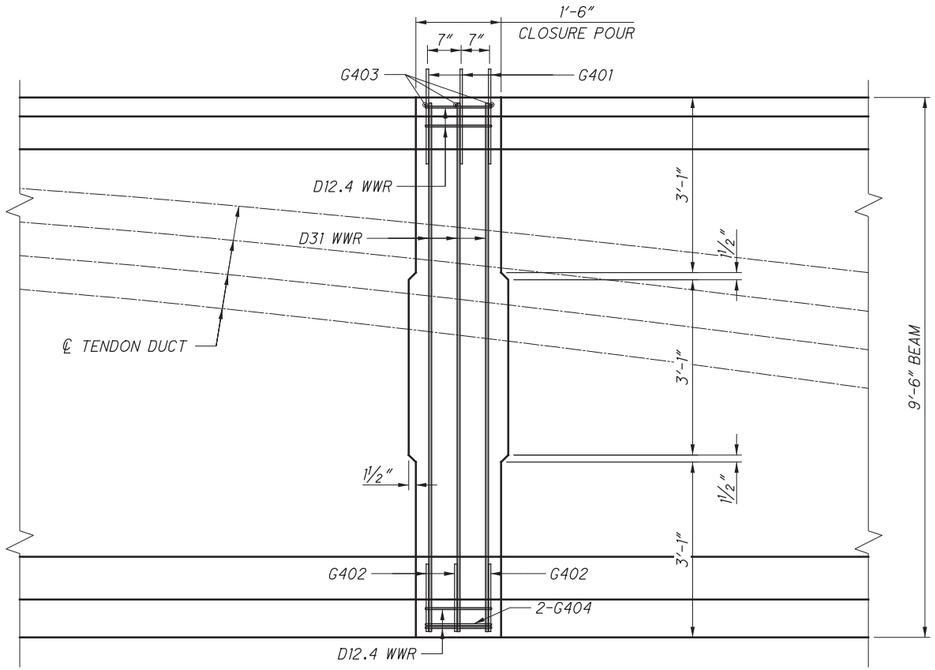
CLOSURE JOINT 1 DETAILS (2 OF 2)
BRIDGE NO. CUY-77-1409
BROADWAY AVENUE OVER IR 77

CUY-77-13.80
PID No. 82388



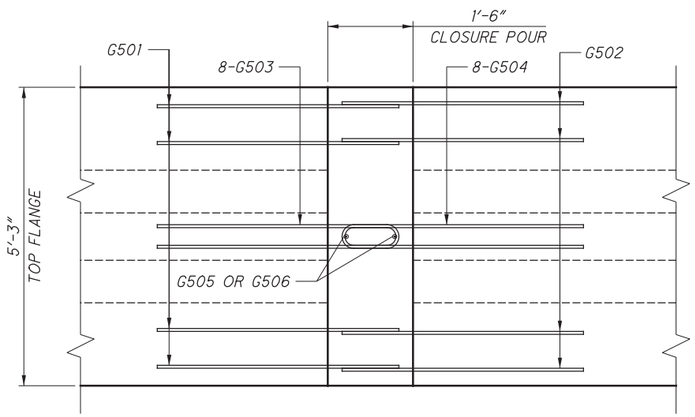
CLOSURE JOINT 2 - ELEVATION 1

(CLOSURE POUR REINFORCING NOT SHOWN FOR CLARITY)



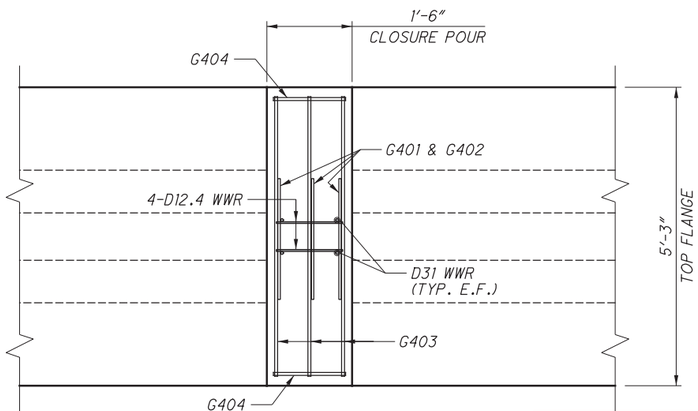
CLOSURE JOINT 2 - ELEVATION 2

(BEAM REINFORCING NOT SHOWN FOR CLARITY)



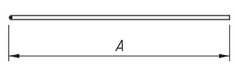
CLOSURE JOINT 2 - PLAN 1

(CLOSURE POUR REINFORCING NOT SHOWN FOR CLARITY)



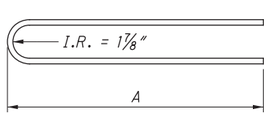
CLOSURE JOINT 2 - PLAN 2

(BEAM REINFORCING NOT SHOWN FOR CLARITY)



G501, G502, G505, G506

BAR	A
G501	4'-3"
G502	4'-3"
G503	4'-3"
G504	4'-3"
G505	1'-10"
G506	4'-8"



G503, G504

NOTES:

1. FOR SECTIONS, A-A, B-B & C-C, SEE SHEET 48/91
2. ALL DIMENSIONS GIVEN ARE TO C/C BARS
3. ALL CLOSURE JOINT REINFORCING BARS SHALL BE EPOXY COATED OR GALVANIZED.
4. DUCTS SHALL BE PLACED ON A TANGENT BETWEEN THE UPSTATION END OF SEGMENT 2 AND DOWNSTATION END OF SEGMENT 3 AFTER BEAM ERECTION.

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CLOSURE JOINT 2 DETAILS (1 OF 2)
BRIDGE NO. CUY-77-1409
BROADWAY AVENUE OVER IR 77

CUY-77-13.80
PID No. 82388

47 / 91

48 / 100

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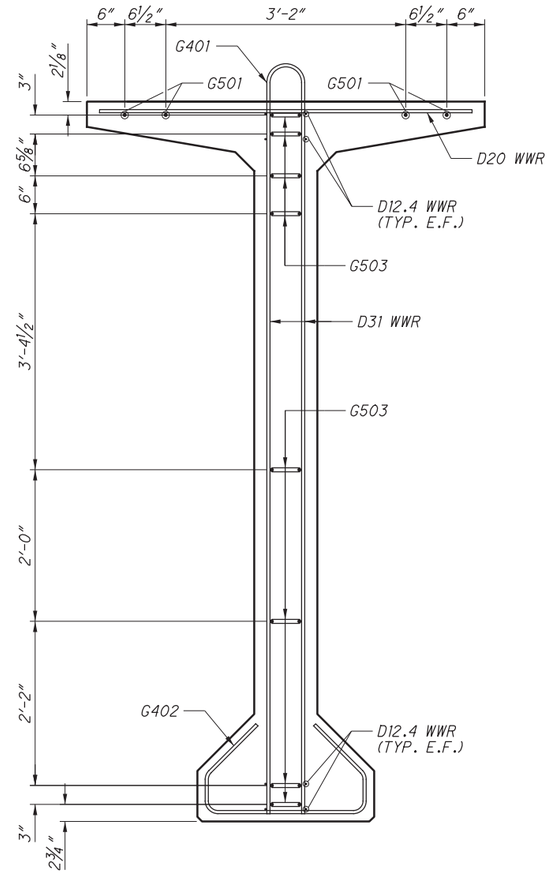
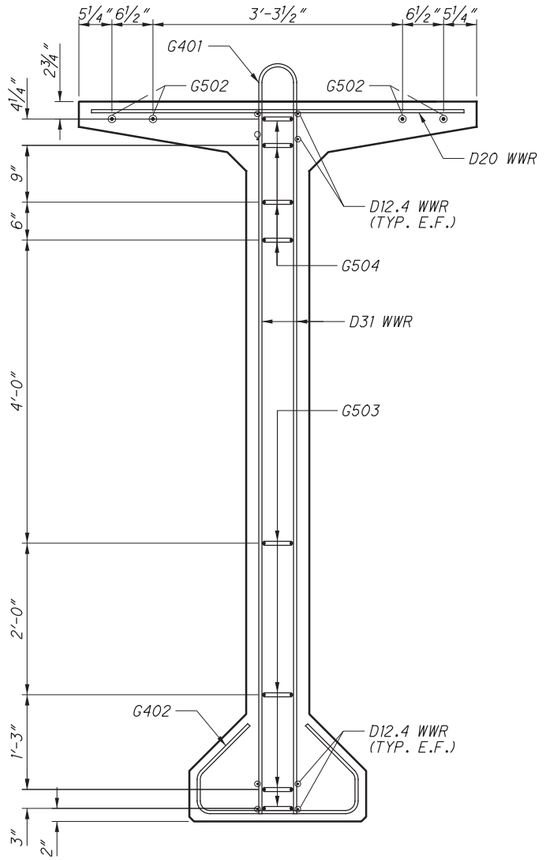
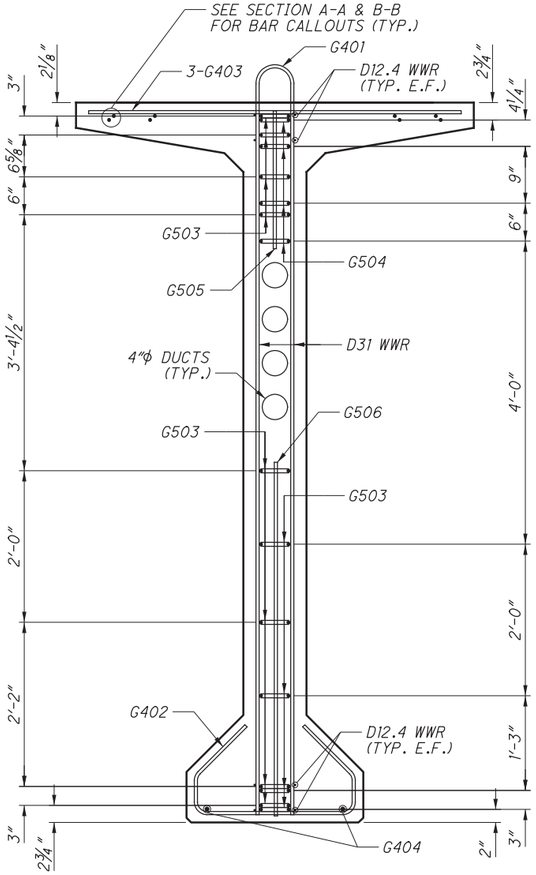


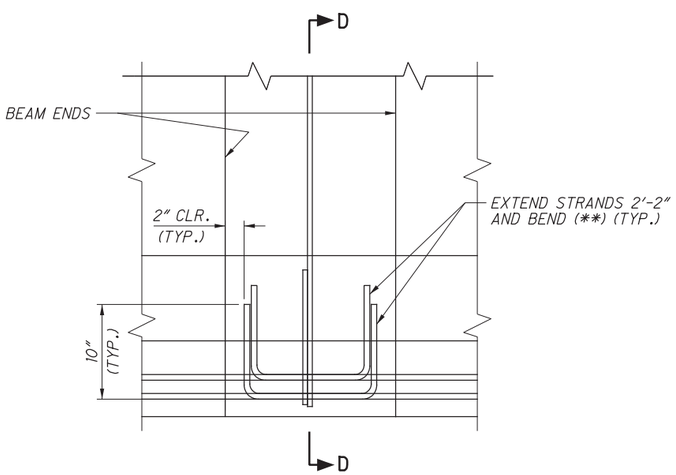
SECTION A-A
(DUCTS NOT SHOWN FOR CLARITY)



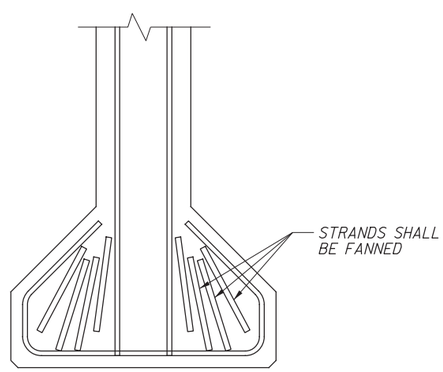
SECTION B-B
(DUCTS NOT SHOWN FOR CLARITY)



SECTION C-C
(AT CLOSURE POUR)



EXTENDED STRAND DETAIL



SECTION D-D

** - BEND UP 4 STRANDS TOTAL FROM EACH BEAM SEGMENT, 2 FROM THE BOTTOM 2 ROWS OF EACH BEAM. ALTERNATE STRANDS FROM EACH BEAM TO AVOID INTERFERENCES

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NOTES:

1. FOR BEAM DIMENSIONS, SEE SHEET 36/91
2. FOR LOCATION OF SECTIONS A-A, B-B & C-C, SEE SHEET 47/91

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CLOSURE JOINT 2 DETAILS (2 OF 2)
BRIDGE NO. CUY-77-1409
BROADWAY AVENUE OVER IR 77

CUY-77-13.80
PID No. 82388

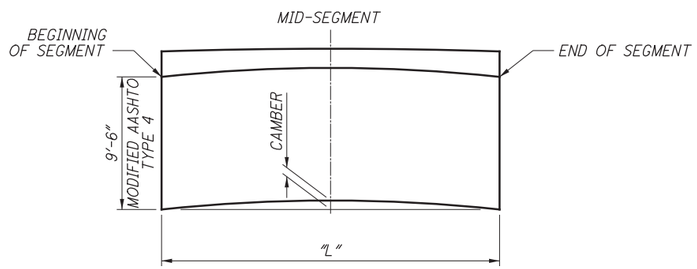
48 / 91

49
100

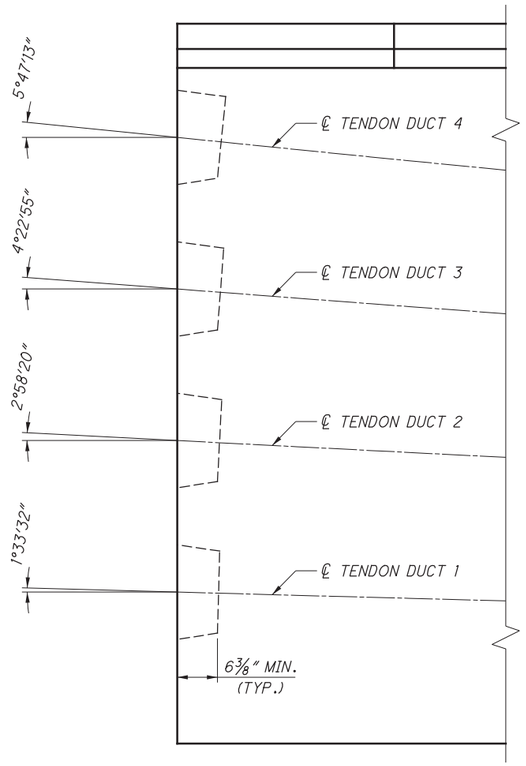
P:\82388_CCG6B\Design\Structures\CUY-77-1409\sheets\077_1409C_SS02.dgn Sheet 1/26/2018 3:00:52 PM gwhittaker

BEAM MARK	"L" (FEET)	CAMBER (INCHES)	
		AT RELEASE	AT SHIPPING (DAY 180)
A	119.25	0.165	0.184
B	119.25	0.165	0.184
C	119.25	0.165	0.184
D	119.25	0.165	0.184
E	119.25	0.165	0.184
F	119.25	0.165	0.184
G	119.25	0.165	0.184
H	119.25	0.165	0.184
I	138.667	-0.367	-0.593
J	138.667	-0.367	-0.593
K	138.667	-0.367	-0.593
L	138.667	-0.367	-0.593
M	138.667	-0.367	-0.593
N	138.667	-0.367	-0.593
O	138.667	-0.367	-0.593
P	138.667	-0.367	-0.593
Q	125.917	-0.266	-0.428
R	125.917	-0.266	-0.428
S	125.917	-0.266	-0.428
T	125.917	-0.266	-0.428
U	125.917	-0.266	-0.428
V	125.917	-0.266	-0.428
W	125.917	-0.266	-0.428
X	125.917	-0.266	-0.428

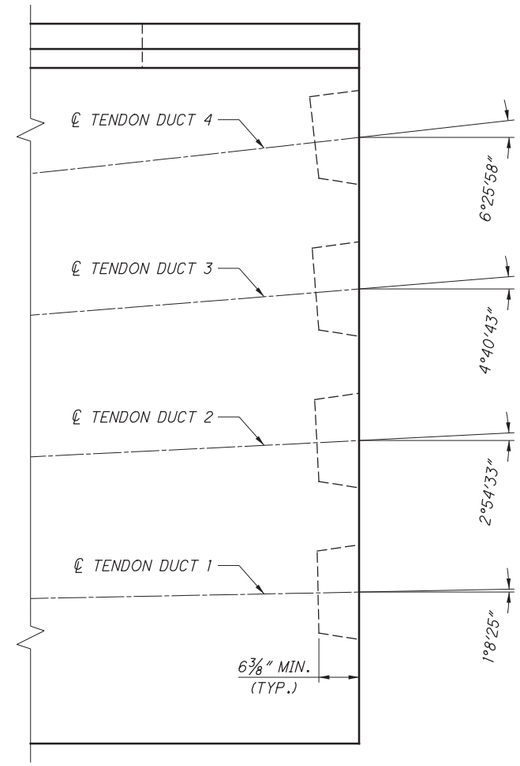
* POSITIVE CAMBER DENOTES UPWARD DEFLECTION AND NEGATIVE CAMBER DENOTES DOWNWARD DEFLECTION



CAMBER DIAGRAM
(TYPICAL EACH SEGMENT)



END BLOCK 1 BLOCK OUTS



END BLOCK 2 BLOCK OUTS

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NOTES:
1. FOR END BLOCK 1 DETAILS, SEE SHEET 42/91
2. FOR END BLOCK 2 DETAILS, SEE SHEET 43/91

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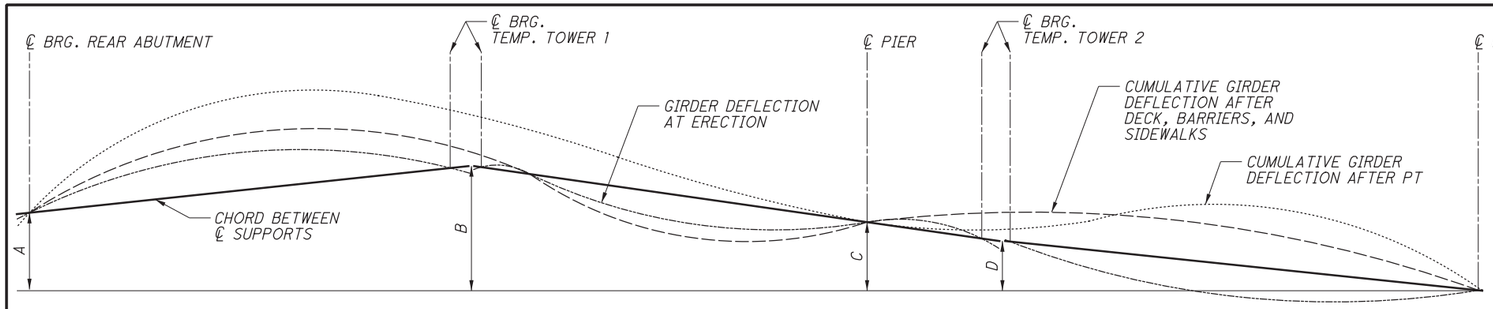
CAMBER & MISCELLANEOUS DETAILS
BRIDGE NO. CUY-77-1409
BROADWAY AVENUE OVER IR 77

CUY-77-13.80
PID No. 82388

49 / 91

50 / 100

P:\82388.CC06B\Design\Structures\CUY-77-1409\sheets\077_1409C_SS016.dgn Sheet 1/26/2018 3:00:53 PM gwhittaker



DIMENSION	GIRDER LINE #							
	1	2	3	4	5	6	7	8
A	0.25″	6.50″	11.00″	15.74″	20.78″	24.66″	28.38″	32.57″
B	12.75″	13.00″	12.50″	13.49″	15.78″	18.41″	22.63″	27.82″
C	7.25″	7.75″	7.00″	8.24″	10.78″	13.66″	17.63″	22.32″
D	5.52″	6.10″	5.27″	6.59″	9.20″	12.16″	16.05″	20.59″

BLOCKING AND CAMBER DIAGRAM

GIRDER LINE 1

LOCATION	STATION	THEORETICAL DEFLECTION (IN)			THEORETICAL TOP OF BEAM EL.		SURVEYED TOP OF BEAM EL.		HAUNCH (IN)		
		AT ERECTION	DUE TO PT	DUE TO REMAINING DL	AT ERECTION	AFTER PT	AT ERECTION	AFTER PT	ADJUSTMENT	THEORETICAL	FINAL
℄ BRG. R.A.	114+11.58	0.000	0.000	0.000	679.80	679.80				1.00	
0.10L	114+33.75	0.163	1.058	-0.967	680.02	680.10				4.77	
0.20L	114+55.92	0.201	1.957	-1.814	680.22	680.39				6.89	
0.30L	114+78.08	0.203	2.592	-2.444	680.43	680.64				7.28	
0.40L	115+00.25	0.171	2.885	-2.787	680.63	680.87				5.96	
0.50L	115+22.42	0.026	2.808	-2.808	680.82	681.06				3.09	
℄ C.J. 1	115+30.75	-0.043	2.694	-2.734	680.86	681.09				2.22	
0.60L	115+44.58	0.000	2.396	-2.517	680.79	680.99				2.56	
0.70L	115+66.75	-0.066	1.661	-1.967	680.68	680.82				2.96	
0.80L	115+88.92	-0.109	0.849	-1.257	680.58	680.65				3.26	
0.90L	116+11.08	-0.078	0.260	-0.533	680.48	680.50				3.24	
℄ PIER 1	116+33.25	0.000	0.000	0.000	680.38	680.38				3.04	
0.10L	116+49.60	0.026	-0.006	0.121	680.31	680.31				3.01	
0.20L	116+65.95	-0.005	0.185	0.091	680.23	680.25				2.99	
℄ C.J. 2	116+70.92	-0.014	0.282	0.063	680.23	680.25				2.75	
0.30L	116+82.30	-0.070	0.552	-0.020	680.20	680.24				2.37	
0.40L	116+98.65	-0.216	0.947	-0.158	680.12	680.20				2.21	
0.50L	117+15.00	-0.338	1.227	-0.279	680.05	680.16				2.11	
0.60L	117+31.35	-0.397	1.324	-0.353	679.99	680.10				2.09	
0.70L	117+47.70	-0.374	1.226	-0.361	679.93	680.03				2.12	
0.80L	117+64.05	-0.277	0.949	-0.297	679.88	679.96				2.18	
0.90L	117+80.40	-0.133	0.519	-0.168	679.83	679.87				2.28	
℄ BRG. F.A.	117+96.75	0.000	0.000	0.000	679.78	679.78				2.44	

GIRDER LINE 2

LOCATION	STATION	THEORETICAL DEFLECTION (IN)			THEORETICAL TOP OF BEAM EL.		SURVEYED TOP OF BEAM EL.		HAUNCH (IN)		
		AT ERECTION	DUE TO PT	DUE TO REMAINING DL	AT ERECTION	AFTER PT	AT ERECTION	AFTER PT	ADJUSTMENT	THEORETICAL	FINAL
℄ BRG. R.A.	114+28.43	0.000	0.000	0.000	680.22	680.22				1.63	
0.10L	114+50.60	0.162	1.068	-0.885	680.34	680.43				5.11	
0.20L	114+72.76	0.200	1.950	-1.630	680.45	680.61				6.94	
0.30L	114+94.93	0.202	2.537	-2.146	680.56	680.77				7.07	
0.40L	115+17.10	0.171	2.773	-2.390	680.66	680.89				5.52	
0.50L	115+39.26	0.027	2.654	-2.349	680.75	680.97				3.40	
℄ C.J. 1	115+47.60	-0.037	2.528	-2.264	680.77	680.98				2.79	
0.60L	115+61.43	-0.001	2.225	-2.049	680.71	680.90				2.98	
0.70L	115+83.60	-0.066	1.507	-1.554	680.61	680.73				3.36	
0.80L	116+05.76	-0.109	0.738	-0.960	680.51	680.57				3.67	
0.90L	116+27.93	-0.078	0.203	-0.391	680.41	680.43				3.70	
℄ PIER 1	116+50.10	0.000	0.000	0.000	680.32	680.32				3.53	
0.10L	116+66.45	0.026	0.026	0.084	680.26	680.26				3.46	
0.20L	116+82.80	-0.005	0.233	0.058	680.18	680.20				3.38	
℄ C.J. 2	116+87.76	-0.014	0.330	0.036	680.18	680.20				3.13	
0.30L	116+99.15	-0.070	0.595	-0.025	680.14	680.19				2.79	
0.40L	117+15.50	-0.216	0.971	-0.122	680.06	680.14				2.68	
0.50L	117+31.85	-0.339	1.224	-0.203	679.99	680.09				2.65	
0.60L	117+48.20	-0.398	1.295	-0.247	679.91	680.02				2.70	
0.70L	117+64.55	-0.376	1.185	-0.245	679.85	679.95				2.81	
0.80L	117+80.90	-0.277	0.909	-0.196	679.79	679.87				2.96	
0.90L	117+97.25	-0.134	0.495	-0.109	679.73	679.78				3.16	
℄ BRG. F.A.	118+13.60	0.000	0.000	0.000	679.68	679.68				3.33	

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NOTES:

1. NEGATIVE (-) DEFLECTION INDICATES DOWNWARD DISPLACEMENT OF THE GIRDER. POSITIVE (+) DEFLECTION IS UPWARD.
2. DEFLECTIONS, TOP OF BEAM ELEVATIONS, AND HAUNCHES ARE MEASURED AT THE ℄ OF EACH GIRDER LINE.
3. "THEORETICAL DEFLECTION AT ERECTION" IS THE CALCULATED DEFLECTION OF THE GIRDER DUE TO GIRDER SELF WEIGHT, CROSSFRAME WEIGHT, PRETENSIONING, AND CREEP/SHRINKAGE AFTER 120 DAYS OF CURING. THE SAME APPLIED LOADS ARE ASSUMED FOR THE CALCULATION OF "THEORETICAL TOP OF BEAM EL. AT ERECTION."
4. "THEORETICAL DEFLECTION DUE TO PT" IS THE CALCULATED DEFLECTION OF THE GIRDER AFTER ERECTION DUE SOLELY TO POST-TENSIONING. THIS VALUE DOES NOT INCLUDE DEFLECTION THAT OCCURRED PRIOR TO POST-TENSIONING. "THEORETICAL TOP OF BEAM EL. AFTER PT" INCLUDES THE CUMULATIVE EFFECT OF THE GIRDER DEFLECTION DUE TO GIRDER SELF WEIGHT, CROSSFRAME WEIGHT, PRETENSIONING, CREEP/SHRINKAGE AFTER 120 DAYS OF CURING, AND POST-TENSIONING.
5. "THEORETICAL REMAINING DL DEFLECTION" IS THE CALCULATED DEFLECTION OF THE GIRDER DUE TO THE WEIGHT OF THE DECK, SIDEWALKS, AND BARRIERS.
6. CONTRACTOR SHALL SURVEY TOP OF BEAMS AT ERECTION AFTER SHIPPING STRANDS HAVE BEEN RELEASED AND CROSSFRAMES INSTALLED. CONTRACTOR SHALL ALSO SURVEY TOP OF BEAMS AFTER POST-TENSIONING HAS BEEN COMPLETED, PRIOR TO GROUTING. THIS DATA SHALL BE SUPPLIED TO THE ENGINEER OF RECORD AND APPROVED PRIOR TO CASTING THE DECK.
7. "HAUNCH ADJUSTMENT" IS THE "THEORETICAL TOP OF BEAM ELEVATION AFTER PT" MINUS THE "SURVEYED TOP OF BEAM ELEVATION AFTER PT." ADDING THIS DIFFERENCE TO THE "THEORETICAL HAUNCH" YIELDS THE "FINAL HAUNCH."

BU5 - CUY-77-1409		
NO.	DATE	DESCRIPTION
		ISSUE RECORD

E.L. ROBINSON ENGINEERING
1901 Watermark Drive, Suite 310 • Columbus, Ohio 43215
www.elrobinsonengineering.com

DESIGNED GMW/CJW | DRAWN GMW | REVIEWED RER | DATE 1/15/2017 | CHECKED DFT | REVISED | STRUCTURE FILE NUMBER 1806663

CAMBER DETAILS (SHEET 1 OF 4)
BRIDGE NO. CUY-77-1409
BROADWAY AVENUE OVER IR 77

CUY-77-13.80
PID No. 82388

50 / 91

51 / 100

GIRDER LINE 3											
LOCATION	STATION	THEORETICAL DEFLECTION (IN)			THEORETICAL TOP OF BEAM EL.		SURVEYED TOP OF BEAM EL.		HAUNCH (IN)		
		AT ERECTION	DUE TO PT	DUE TO REMAINING DL	AT ERECTION	AFTER PT	AT ERECTION	AFTER PT	ADJUSTMENT	THEORETICAL	FINAL
℄ BRG. R.A.	114+45.27	0.000	0.000	0.000	680.73	680.73				1.63	
0.10L	114+67.44	0.162	1.048	-0.774	680.77	680.85				4.62	
0.20L	114+89.61	0.200	1.913	-1.427	680.79	680.95				5.99	
0.30L	115+11.77	0.201	2.485	-1.874	680.82	681.03				5.67	
0.40L	115+33.94	0.171	2.710	-2.083	680.84	681.07				4.35	
0.50L	115+56.11	0.026	2.581	-2.040	680.85	681.07				3.22	
℄ C.J. 1	115+64.44	-0.043	2.456	-1.965	680.86	681.06				2.84	
0.60L	115+78.27	0.000	2.156	-1.778	680.80	680.98				2.96	
0.70L	116+00.44	-0.066	1.445	-1.349	680.69	680.81				3.46	
0.80L	116+22.61	-0.110	0.693	-0.838	680.59	680.65				3.89	
0.90L	116+44.77	-0.078	0.182	-0.346	680.49	680.50				4.03	
℄ PIER 1	116+66.94	0.000	0.000	0.000	680.40	680.40				3.94	
0.10L	116+83.29	0.026	0.036	0.081	680.32	680.33				3.90	
0.20L	116+99.64	-0.005	0.248	0.067	680.25	680.27				3.85	
℄ C.J. 2	117+04.61	-0.014	0.346	0.052	680.24	680.27				3.59	
0.30L	117+15.99	-0.070	0.612	0.004	680.21	680.26				3.17	
0.40L	117+32.34	-0.217	0.989	-0.076	680.14	680.22				2.93	
0.50L	117+48.69	-0.340	1.241	-0.145	680.07	680.18				2.78	
0.60L	117+65.04	-0.399	1.310	-0.186	680.01	680.12				2.72	
0.70L	117+81.39	-0.376	1.195	-0.190	679.95	680.05				2.73	
0.80L	117+97.74	-0.278	0.916	-0.156	679.90	679.98				2.78	
0.90L	118+14.09	-0.134	0.499	-0.087	679.86	679.90				2.79	
℄ BRG. F.A.	118+30.44	0.000	0.000	0.000	679.81	679.81				2.22	

GIRDER LINE 4											
LOCATION	STATION	THEORETICAL DEFLECTION (IN)			THEORETICAL TOP OF BEAM EL.		SURVEYED TOP OF BEAM EL.		HAUNCH (IN)		
		AT ERECTION	DUE TO PT	DUE TO REMAINING DL	AT ERECTION	AFTER PT	AT ERECTION	AFTER PT	ADJUSTMENT	THEORETICAL	FINAL
℄ BRG. R.A.	114+62.12	0.000	0.000	0.000	681.15	681.15				1.63	
0.10L	114+84.29	0.161	1.037	-0.696	681.13	681.21				3.91	
0.20L	115+06.45	0.199	1.892	-1.290	681.09	681.25				4.59	
0.30L	115+28.62	0.201	2.458	-1.705	681.06	681.26				3.95	
0.40L	115+50.79	0.170	2.677	-1.908	681.02	681.24				3.34	
0.50L	115+72.95	0.028	2.550	-1.886	680.97	681.18				2.97	
℄ C.J. 1	115+81.29	-0.043	2.424	-1.823	680.96	681.16				2.77	
0.60L	115+95.12	-0.001	2.123	-1.659	680.91	681.09				2.80	
0.70L	116+17.29	-0.066	1.420	-1.274	680.81	680.93				3.27	
0.80L	116+39.45	-0.110	0.675	-0.800	680.71	680.76				3.68	
0.90L	116+61.62	-0.078	0.173	-0.335	680.61	680.63				3.78	
℄ PIER 1	116+83.79	0.000	0.000	0.000	680.52	680.52				3.64	
0.10L	117+00.14	0.026	0.042	0.085	680.46	680.46				3.55	
0.20L	117+16.49	-0.005	0.259	0.079	680.38	680.40				3.44	
℄ C.J. 2	117+21.45	-0.014	0.358	0.065	680.38	680.41				3.18	
0.30L	117+32.84	-0.070	0.626	0.022	680.34	680.39				2.86	
0.40L	117+49.19	-0.217	1.005	-0.054	680.25	680.34				2.78	
0.50L	117+65.54	-0.341	1.259	-0.123	680.17	680.28				2.81	
0.60L	117+81.89	-0.399	1.325	-0.166	680.09	680.20				2.93	
0.70L	117+98.24	-0.377	1.207	-0.174	680.02	680.12				3.12	
0.80L	118+14.59	-0.278	0.925	-0.145	679.96	680.04				3.23	
0.90L	118+30.94	-0.134	0.503	-0.082	679.90	679.94				2.76	
℄ BRG. F.A.	118+47.29	0.000	0.000	0.000	679.84	679.84				1.64	

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NOTES:

1. FOR BLOCKING DIAGRAM AND CAMBER NOTES, SEE SHEET 50/91.

BU5 - CUY-77-1409		
NO.	DATE	DESCRIPTION
		ISSUE RECORD

E.L. ROBINSON ENGINEERING
1801 Watermark Drive, Suite 310 • Columbus, Ohio 43215
www.elrobinsonengineering.com

DESIGNED GMW/CJW | DRAWN GMW | REVIEWED RER | DATE 1/15/2017
CHECKED DFT | REVISED | STRUCTURE FILE NUMBER 1806663

CAMBER DETAILS (SHEET 2 OF 4)
BRIDGE NO. CUY-77-1409
BROADWAY AVENUE OVER IR 77

CUY-77-13.80
PID No. 82388

51 / 91

52 / 100

GIRDER LINE 5											
LOCATION	STATION	THEORETICAL DEFLECTION (IN)			THEORETICAL TOP OF BEAM EL.		SURVEYED TOP OF BEAM EL.		HAUNCH (IN)		
		AT ERECTION	DUE TO PT	DUE TO REMAINING DL	AT ERECTION	AFTER PT	AT ERECTION	AFTER PT	ADJUSTMENT	THEORETICAL	FINAL
℄ BRG. R.A.	114+78.97	0.000	0.000	0.000	681.31	681.31				1.63	
0.10L	115+01.13	0.162	1.032	-0.664	681.24	681.33				3.05	
0.20L	115+23.30	0.200	1.883	-1.239	681.17	681.32				3.01	
0.30L	115+45.47	0.201	2.444	-1.653	681.08	681.29				2.77	
0.40L	115+67.63	0.171	2.663	-1.869	681.00	681.22				2.72	
0.50L	115+89.80	0.027	2.533	-1.866	680.91	681.12				2.90	
℄ C.J. 1	115+98.13	-0.011	2.408	-1.812	680.89	681.09				2.80	
0.60L	116+11.97	-0.001	2.109	-1.660	680.85	681.02				2.78	
0.70L	116+34.13	-0.066	1.407	-1.288	680.75	680.87				3.21	
0.80L	116+56.30	-0.110	0.666	-0.819	680.65	680.71				3.56	
0.90L	116+78.47	-0.078	0.168	-0.346	680.56	680.58				3.60	
℄ PIER 1	117+00.63	0.000	0.000	0.000	680.48	680.48				3.38	
0.10L	117+16.98	0.026	0.045	0.090	680.41	680.42				3.25	
0.20L	117+33.33	-0.005	0.265	0.087	680.34	680.36				3.09	
℄ C.J. 2	117+38.30	-0.014	0.365	0.073	680.34	680.37				2.81	
0.30L	117+49.68	-0.070	0.634	0.029	680.28	680.34				2.71	
0.40L	117+66.03	-0.217	1.015	-0.051	680.17	680.25				2.98	
0.50L	117+82.38	-0.340	1.266	-0.124	680.06	680.16				3.36	
0.60L	117+98.73	-0.399	1.331	-0.171	679.95	680.06				3.83	
0.70L	118+15.08	-0.377	1.213	-0.182	679.85	679.95				4.23	
0.80L	118+31.43	-0.278	0.928	-0.153	679.76	679.84				4.02	
0.90L	118+47.78	-0.134	0.505	-0.087	679.67	679.71				3.15	
℄ BRG. F.A.	118+64.13	0.000	0.000	0.000	679.58	679.58				1.64	

GIRDER LINE 6											
LOCATION	STATION	THEORETICAL DEFLECTION (IN)			THEORETICAL TOP OF BEAM EL.		SURVEYED TOP OF BEAM EL.		HAUNCH (IN)		
		AT ERECTION	DUE TO PT	DUE TO REMAINING DL	AT ERECTION	AFTER PT	AT ERECTION	AFTER PT	ADJUSTMENT	THEORETICAL	FINAL
℄ BRG. R.A.	114+95.81	0.000	0.000	0.000	681.14	681.14				2.50	
0.10L	115+17.98	0.162	1.032	-0.685	681.05	681.14				2.83	
0.20L	115+40.15	0.200	1.881	-1.285	680.96	681.11				2.70	
0.30L	115+62.31	0.201	2.444	-1.729	680.85	681.06				2.74	
0.40L	115+84.48	0.170	2.661	-1.970	680.75	680.97				2.96	
0.50L	116+06.65	0.026	2.531	-1.982	680.63	680.85				3.40	
℄ C.J. 1	116+14.98	-0.043	2.407	-1.930	680.61	680.81				3.39	
0.60L	116+28.81	0.000	2.108	-1.777	680.58	680.75				3.27	
0.70L	116+50.98	-0.066	1.406	-1.388	680.48	680.60				3.63	
0.80L	116+73.15	-0.110	0.665	-0.887	680.39	680.45				3.90	
0.90L	116+95.31	-0.078	0.167	-0.376	680.31	680.32				3.84	
℄ PIER 1	117+17.48	0.000	0.000	0.000	680.23	680.23				3.54	
0.10L	117+33.83	0.026	0.047	0.094	680.16	680.17				3.36	
0.20L	117+50.18	-0.005	0.269	0.084	680.10	680.12				3.17	
℄ C.J. 2	117+55.15	-0.014	0.369	0.067	680.09	680.13				2.87	
0.30L	117+66.53	-0.070	0.640	0.013	680.02	680.07				3.02	
0.40L	117+82.88	-0.217	1.021	-0.081	679.87	679.96				3.70	
0.50L	117+99.23	-0.340	1.273	-0.167	679.73	679.83				4.48	
0.60L	118+15.58	-0.398	1.338	-0.221	679.59	679.70				5.20	
0.70L	118+31.93	-0.376	1.219	-0.233	679.46	679.56				5.31	
0.80L	118+48.28	-0.278	0.933	-0.195	679.33	679.41				4.74	
0.90L	118+64.63	-0.134	0.507	-0.111	679.21	679.25				3.51	
℄ BRG. F.A.	118+80.98	0.000	0.000	0.000	679.09	679.09				1.64	

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NOTES:

1. FOR BLOCKING DIAGRAM AND CAMBER NOTES, SEE SHEET 50/91.

BU5 - CUY-77-1409		
NO.	DATE	DESCRIPTION
		ISSUE RECORD

E.L. ROBINSON ENGINEERING
1801 Watermark Drive, Suite 310 • Columbus, Ohio 43215
www.elrobinsonengineering.com

DESIGNED	DRAWN	REVIEWED	DATE
GMW/CJW	GMW	RER	1/15/2017
CHECKED	REVISED	STRUCTURE FILE NUMBER	
DFT		1806663	

CAMBER DETAILS (SHEET 3 OF 4)
BRIDGE NO. CUY-77-1409
BROADWAY AVENUE OVER IR 77

CUY-77-13.80
PID No. 82388

GIRDER LINE 7											
LOCATION	STATION	THEORETICAL DEFLECTION (IN)			THEORETICAL TOP OF BEAM EL.		SURVEYED TOP OF BEAM EL.		HAUNCH (IN)		
		AT ERECTION	DUE TO PT	DUE TO REMAINING DL	AT ERECTION	AFTER PT	AT ERECTION	AFTER PT	ADJUSTMENT	THEORETICAL	FINAL
℄ BRG. R.A.	115+12.66	0.000	0.000	0.000	680.90	680.90				3.25	
0.10L	115+34.82	0.162	1.049	-0.773	680.82	680.90				2.89	
0.20L	115+56.99	0.200	1.913	-1.454	680.73	680.89				2.73	
0.30L	115+79.16	0.202	2.482	-1.959	680.63	680.84				2.72	
0.40L	116+01.32	0.171	2.699	-2.231	680.54	680.76				2.87	
0.50L	116+23.49	0.028	2.564	-2.240	680.43	680.64				3.22	
℄ C.J. 1	116+31.82	-0.043	2.434	-2.176	680.41	680.61				3.18	
0.60L	116+45.66	-0.001	2.127	-1.996	680.37	680.55				3.09	
0.70L	116+67.82	-0.066	1.414	-1.548	680.27	680.39				3.46	
0.80L	116+89.99	-0.110	0.664	-0.979	680.18	680.23				3.72	
0.90L	117+12.16	-0.078	0.163	-0.409	680.09	680.10				3.66	
℄ PIER 1	117+34.32	0.000	0.000	0.000	680.00	680.00				3.37	
0.10L	117+50.67	0.026	0.054	0.086	679.94	679.94				3.23	
0.20L	117+67.02	-0.005	0.285	0.051	679.86	679.89				3.10	
℄ C.J. 2	117+71.99	-0.014	0.387	0.025	679.86	679.90				2.79	
0.30L	117+83.37	-0.070	0.663	-0.050	679.76	679.82				3.26	
0.40L	117+99.72	-0.216	1.048	-0.172	679.57	679.66				4.48	
0.50L	118+16.07	-0.339	1.301	-0.277	679.39	679.50				5.63	
0.60L	118+32.42	-0.398	1.366	-0.338	679.21	679.32				6.18	
0.70L	118+48.77	-0.376	1.244	-0.341	679.03	679.13				6.06	
0.80L	118+65.12	-0.277	0.952	-0.279	678.86	678.94				5.26	
0.90L	118+81.47	-0.134	0.517	-0.157	678.70	678.74				3.78	
℄ BRG. F.A.	118+97.82	0.000	0.000	0.000	678.53	678.53				1.64	

GIRDER LINE 8											
LOCATION	STATION	THEORETICAL DEFLECTION (IN)			THEORETICAL TOP OF BEAM EL.		SURVEYED TOP OF BEAM EL.		HAUNCH (IN)		
		AT ERECTION	DUE TO PT	DUE TO REMAINING DL	AT ERECTION	AFTER PT	AT ERECTION	AFTER PT	ADJUSTMENT	THEORETICAL	FINAL
℄ BRG. R.A.	115+29.50	0.000	0.000	0.000	680.80	680.80				3.00	
0.10L	115+51.67	0.163	1.132	-1.000	680.74	680.83				2.57	
0.20L	115+73.84	0.201	2.057	-1.836	680.66	680.83				2.31	
0.30L	115+96.00	0.203	2.638	-2.404	680.58	680.80				2.16	
0.40L	116+18.17	0.172	2.826	-2.662	680.50	680.74				2.13	
0.50L	116+40.34	0.027	2.632	-2.599	680.41	680.63				2.27	
℄ C.J. 1	116+48.67	-0.043	2.480	-2.500	680.39	680.60				2.17	
0.60L	116+62.50	0.000	2.134	-2.253	680.35	680.53				2.13	
0.70L	116+84.67	-0.066	1.375	-1.697	680.24	680.36				2.55	
0.80L	117+06.84	-0.109	0.607	-1.034	680.14	680.19				2.85	
0.90L	117+29.00	-0.078	0.122	-0.408	680.04	680.05				2.82	
℄ PIER 1	117+51.17	0.000	0.000	0.000	679.95	679.95				2.61	
0.10L	117+67.52	0.026	0.089	0.039	679.87	679.88				2.57	
0.20L	117+83.87	-0.005	0.351	-0.054	679.80	679.83				2.54	
℄ C.J. 2	117+88.84	-0.014	0.462	-0.098	679.80	679.84				2.22	
0.30L	118+00.22	-0.070	0.752	-0.207	679.67	679.73				3.07	
0.40L	118+16.57	-0.215	1.143	-0.360	679.43	679.52				4.74	
0.50L	118+32.92	-0.338	1.389	-0.473	679.19	679.31				5.80	
0.60L	118+49.27	-0.396	1.433	-0.520	678.96	679.08				6.21	
0.70L	118+65.62	-0.374	1.284	-0.490	678.73	678.84				5.95	
0.80L	118+81.97	-0.276	0.967	-0.382	678.52	678.60				4.99	
0.90L	118+98.32	-0.133	0.523	-0.210	678.30	678.35				3.33	
℄ BRG. F.A.	119+14.67	0.000	0.000	0.000	678.09	678.09				1.01	

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NOTES:

1. FOR BLOCKING DIAGRAM AND CAMBER NOTES, SEE SHEET 50/91.

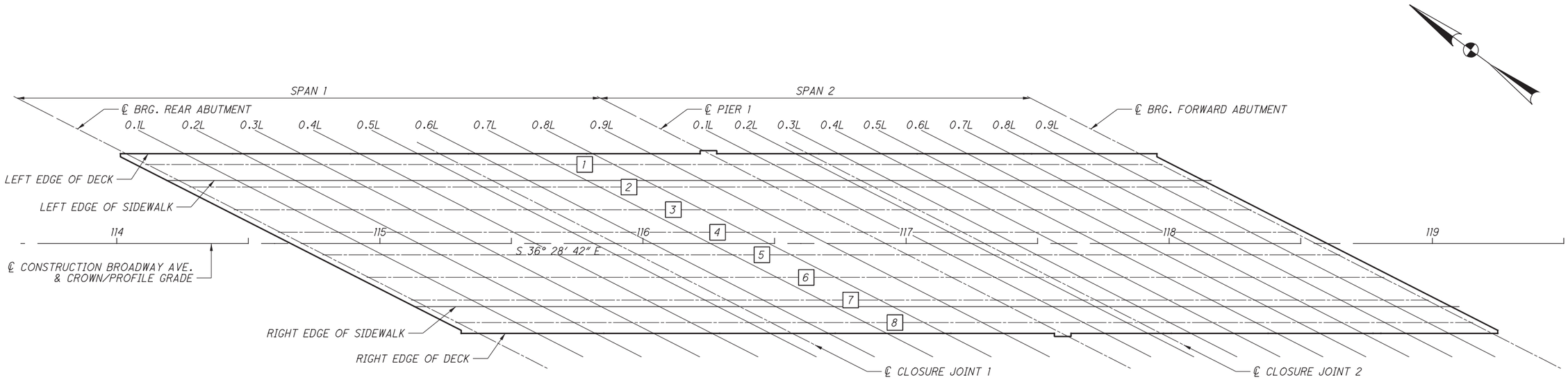
BU5 - CUY-77-1409		
NO.	DATE	DESCRIPTION
		ISSUE RECORD

E.L. ROBINSON ENGINEERING
1801 Watermark Drive, Suite 310 • Columbus, Ohio 43215
www.elrobinsonengineering.com

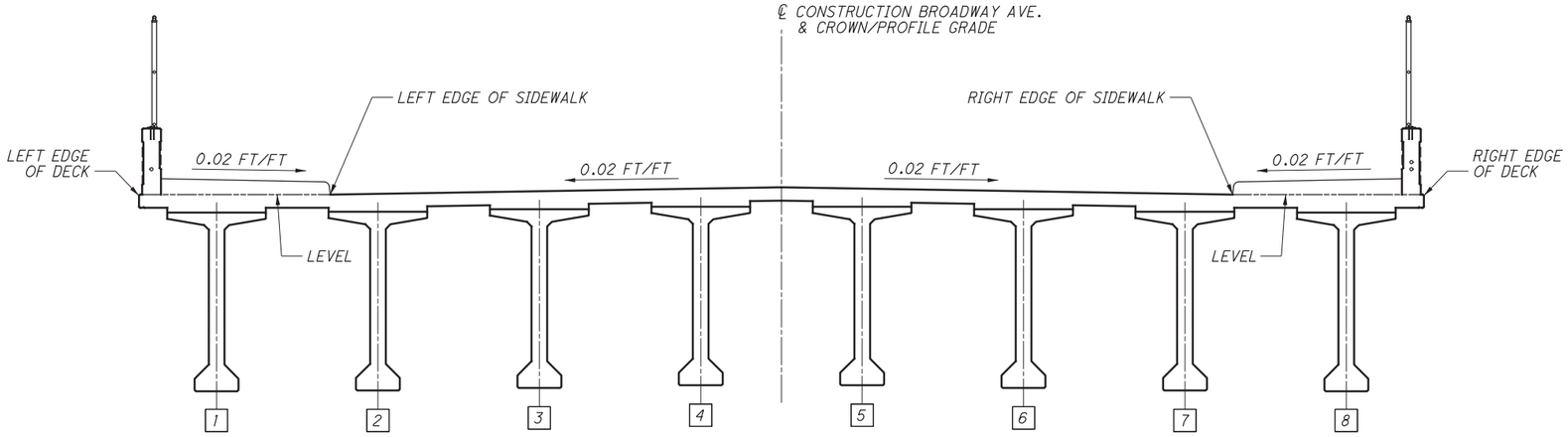
DESIGNED GMW/CJW | DRAWN GMW | REVIEWED RER | DATE 1/15/2017
CHECKED DFT | REVISED | STRUCTURE FILE NUMBER 1806663

CAMBER DETAILS (SHEET 4 OF 4)
BRIDGE NO. CUY-77-1409
BROADWAY AVENUE OVER IR 77

CUY-77-13.80
PID No. 82388



KEY PLAN



TYPICAL SECTION

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01/29/2018	Brian.Link

LEGEND:

[#] - BEAM LINE DESIGNATION

NOTES:

1. FOR SCREED, TOP OF HAUNCH, AND FINAL DECK SURFACE ELEVATIONS, SEE SHEETS 55/91 AND 56/91.

BU5 - CUY-77-1409		
NO.	DATE	DESCRIPTION
ISSUE RECORD		

E.L. ROBINSON ENGINEERING
1801 Watermark Drive, Suite 310 • Columbus, Ohio 43215
www.elrobinsonengineering.com

DESIGNED	DRAWN	REVIEWED	DATE
GMW	GMW	RER	1/15/2017
CHECKED	REVISED	STRUCTURE FILE NUMBER	
CJW		1806663	

KEY PLAN
BRIDGE NO. CUY-77-1409
BROADWAY AVENUE OVER IR 77

CUY-77-13.80
PID No. 82388

FINAL DECK SURFACE ELEVATIONS

LOCATION	LEFT EDGE OF DECK		GIRDER LINE 1		LEFT EDGE OF SIDEWALK		GIRDER LINE 2		GIRDER LINE 3		GIRDER LINE 4		CROWN	
	STATION	ELEVATION	STATION	ELEVATION	STATION	ELEVATION	STATION	ELEVATION	STATION	ELEVATION	STATION	ELEVATION	STATION	ELEVATION
℄ BRG. R.A.	114+03.49	680.36	114+11.58	680.59	114+23.44	680.90	114+28.43	681.06	114+45.27	681.57	114+62.12	681.99	114+70.54	682.17
0.10L	114+25.65	680.95	114+33.75	681.13	114+45.61	681.36	114+50.60	681.49	114+67.44	681.88	114+84.29	682.19	114+92.71	682.31
0.20L	114+47.82	681.39	114+55.92	681.52	114+67.77	681.66	114+72.76	681.76	114+89.61	682.04	115+06.45	682.23	115+14.87	682.30
0.30L	114+69.99	681.69	114+78.08	681.76	114+89.94	681.82	114+94.93	681.89	115+11.77	682.05	115+28.62	682.16	115+37.04	682.21
0.40L	114+92.15	681.83	115+00.25	681.84	115+12.11	681.83	115+17.10	681.86	115+33.94	681.96	115+50.79	682.07	115+59.21	682.12
0.50L	115+14.32	681.82	115+22.42	681.79	115+34.27	681.74	115+39.26	681.77	115+56.11	681.87	115+72.95	681.98	115+81.37	682.03
℄ C.J. 1	115+22.65	681.79	115+30.75	681.75	115+42.61	681.71	115+47.60	681.74	115+64.44	681.84	115+81.29	681.95	115+89.71	682.00
0.60L	115+36.49	681.73	115+44.58	681.70	115+56.44	681.65	115+61.43	681.68	115+78.27	681.79	115+95.12	681.89	116+03.54	681.94
0.70L	115+58.65	681.64	115+66.75	681.61	115+78.61	681.56	115+83.60	681.59	116+00.44	681.70	116+17.29	681.80	116+25.71	681.85
0.80L	115+80.82	681.55	115+88.92	681.52	116+00.77	681.47	116+05.76	681.50	116+22.61	681.61	116+39.45	681.71	116+47.87	681.77
0.90L	116+02.99	681.46	116+11.08	681.43	116+22.94	681.38	116+27.93	681.42	116+44.77	681.52	116+61.62	681.62	116+70.04	681.68
℄ PIER 1	116+25.15	681.38	116+33.25	681.34	116+45.11	681.30	116+50.10	681.33	116+66.94	681.43	116+83.79	681.54	116+92.21	681.59
0.10L	116+41.50	681.31	116+49.60	681.28	116+61.46	681.23	116+66.45	681.26	116+83.29	681.37	117+00.14	681.47	117+08.56	681.52
0.20L	116+57.85	681.25	116+65.95	681.21	116+77.81	681.17	116+82.80	681.20	116+99.64	681.30	117+16.49	681.40	117+24.91	681.46
℄ C.J. 2	116+62.82	681.23	116+70.92	681.19	116+82.77	681.15	116+87.76	681.18	117+04.61	681.28	117+21.45	681.38	117+29.88	681.44
0.30L	116+74.20	681.18	116+82.30	681.15	116+94.16	681.10	116+99.15	681.13	117+15.99	681.24	117+32.84	681.34	117+41.26	681.39
0.40L	116+90.55	681.11	116+98.65	681.08	117+10.51	681.03	117+15.50	681.07	117+32.34	681.17	117+49.19	681.27	117+57.61	681.33
0.50L	117+06.90	681.05	117+15.00	681.02	117+26.86	680.97	117+31.85	681.00	117+48.69	681.10	117+65.54	681.21	117+73.96	681.26
0.60L	117+23.25	680.98	117+31.35	680.95	117+43.21	680.90	117+48.20	680.93	117+65.04	681.04	117+81.89	681.14	117+90.31	681.20
0.70L	117+39.60	680.92	117+47.70	680.89	117+59.56	680.84	117+64.55	680.87	117+81.39	680.97	117+98.24	681.08	118+06.66	681.13
0.80L	117+55.95	680.85	117+64.05	680.82	117+75.91	680.77	117+80.90	680.80	117+97.74	680.91	118+14.59	681.00	118+23.01	681.03
0.90L	117+72.30	680.79	117+80.40	680.75	117+92.26	680.71	117+97.25	680.74	118+14.09	680.83	118+30.94	680.87	118+39.36	680.87
℄ BRG. F.A.	117+88.65	680.72	117+96.75	680.69	118+08.61	680.64	118+13.60	680.66	118+30.44	680.71	118+47.29	680.68	118+55.71	680.65

FINAL DECK SURFACE ELEVATIONS

LOCATION	GIRDER LINE 5		GIRDER LINE 6		GIRDER LINE 7		RIGHT EDGE OF SIDEWALK		GIRDER LINE 8		RIGHT EDGE OF DECK	
	STATION	ELEVATION	STATION	ELEVATION	STATION	ELEVATION	STATION	ELEVATION	STATION	ELEVATION	STATION	ELEVATION
℄ BRG. R.A.	114+78.97	682.16	114+95.81	682.06	115+12.66	681.88	115+17.65	681.81	115+29.50	681.76	115+37.60	681.73
0.10L	115+01.13	682.24	115+17.98	682.03	115+34.82	681.79	115+39.81	681.72	115+51.67	681.67	115+59.77	681.64
0.20L	115+23.30	682.18	115+40.15	681.94	115+56.99	681.70	115+61.98	681.63	115+73.84	681.58	115+81.93	681.55
0.30L	115+45.47	682.09	115+62.31	681.85	115+79.16	681.61	115+84.15	681.54	115+96.00	681.49	116+04.10	681.46
0.40L	115+67.63	682.00	115+84.48	681.76	116+01.32	681.52	116+06.31	681.45	116+18.17	681.40	116+26.27	681.37
0.50L	115+89.80	681.91	116+06.65	681.67	116+23.49	681.43	116+28.48	681.36	116+40.34	681.32	116+48.43	681.28
℄ C.J. 1	115+98.13	681.88	116+14.98	681.64	116+31.82	681.40	116+36.81	681.33	116+48.67	681.28	116+56.77	681.25
0.60L	116+11.97	681.82	116+28.81	681.58	116+45.66	681.34	116+50.65	681.27	116+62.50	681.23	116+70.60	681.19
0.70L	116+34.13	681.73	116+50.98	681.50	116+67.82	681.26	116+72.81	681.19	116+84.67	681.14	116+92.77	681.11
0.80L	116+56.30	681.65	116+73.15	681.41	116+89.99	681.17	116+94.98	681.10	117+06.84	681.05	117+14.93	681.02
0.90L	116+78.47	681.56	116+95.31	681.32	117+12.16	681.08	117+17.15	681.01	117+29.00	680.96	117+37.10	680.93
℄ PIER 1	117+00.63	681.47	117+17.48	681.23	117+34.32	680.99	117+39.31	680.92	117+51.17	680.87	117+59.27	680.84
0.10L	117+16.98	681.40	117+33.83	681.16	117+50.67	680.92	117+55.66	680.85	117+67.52	680.81	117+75.62	680.77
0.20L	117+33.33	681.34	117+50.18	681.10	117+67.02	680.86	117+72.01	680.79	117+83.87	680.74	117+91.97	680.71
℄ C.J. 2	117+38.30	681.32	117+55.15	681.08	117+71.99	680.84	117+76.98	680.77	117+88.84	680.72	117+96.93	680.69
0.30L	117+49.68	681.27	117+66.53	681.03	117+83.37	680.79	117+88.36	680.72	118+00.22	680.68	118+08.32	680.64
0.40L	117+66.03	681.21	117+82.88	680.97	117+99.72	680.73	118+04.71	680.66	118+16.57	680.60	118+24.67	680.53
0.50L	117+82.38	681.14	117+99.23	680.90	118+16.07	680.65	118+21.06	680.56	118+32.92	680.46	118+41.02	680.37
0.60L	117+98.73	681.08	118+15.58	680.82	118+32.42	680.51	118+37.41	680.41	118+49.27	680.26	118+57.37	680.14
0.70L	118+15.08	681.00	118+31.93	680.69	118+48.77	680.32	118+53.76	680.20	118+65.62	680.00	118+73.72	679.86
0.80L	118+31.43	680.87	118+48.28	680.50	118+65.12	680.06	118+70.11	679.92	118+81.97	679.69	118+90.07	679.51
0.90L	118+47.78	680.68	118+64.63	680.24	118+81.47	679.75	118+86.46	679.59	118+98.32	679.31	119+06.42	679.11
℄ BRG. F.A.	118+64.13	680.42	118+80.98	679.93	118+97.82	679.38	119+02.81	679.20	119+14.67	678.88	119+22.77	678.65

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NOTES:

1. FINAL DECK SURFACE ELEVATIONS SHOWN REPRESENT THE DECK SURFACE LOCATION AFTER ALL ANTICIPATED DEAD LOAD DEFLECTIONS HAVE OCCURRED.

BU5 - CUY-77-1409		
NO.	DATE	DESCRIPTION
ISSUE RECORD		

E.L. ROBINSON ENGINEERING
1001 Watermark Drive, Suite 310 • Columbus, Ohio 43215
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DESIGNED MGB/DTA | DRAWN GMW | CHECKED CJW | REVIEWED RER | DATE 1/15/2017 | REVISED | STRUCTURE FILE NUMBER 1806663

FINAL DECK ELEVATIONS
BRIDGE NO. CUY-77-1409
BROADWAY AVENUE OVER IR 77

CUY-77-13.80
PID No. 82388

SCREED ELEVATIONS

LOCATION	LEFT EDGE OF DECK		LEFT EDGE OF SIDEWALK		CROWN		RIGHT EDGE OF SIDEWALK		RIGHT EDGE OF DECK	
	STATION	ELEVATION	STATION	ELEVATION	STATION	ELEVATION	STATION	ELEVATION	STATION	ELEVATION
℄ BRG. R.A.	114+03.49	680.36	114+23.44	680.90	114+70.54	682.17	115+17.65	681.81	115+37.60	681.73
0.10L	114+25.65	681.03	114+45.61	681.43	114+92.71	682.37	115+39.81	681.78	115+59.77	681.72
0.20L	114+47.82	681.54	114+67.77	681.80	115+14.87	682.40	115+61.98	681.75	115+81.93	681.70
0.30L	114+69.99	681.89	114+89.94	682.00	115+37.04	682.35	115+84.15	681.70	116+04.10	681.66
0.40L	114+92.15	682.06	115+12.11	682.03	115+59.21	682.28	116+06.31	681.64	116+26.27	681.59
0.50L	115+14.32	682.05	115+34.27	681.94	115+81.37	682.19	116+28.48	681.55	116+48.43	681.50
℄ C.J. 1	115+22.65	682.01	115+42.61	681.89	115+89.71	682.15	116+36.81	681.51	116+56.77	681.46
0.60L	115+36.49	681.94	115+56.44	681.82	116+03.54	682.08	116+50.65	681.44	116+70.60	681.38
0.70L	115+58.65	681.81	115+78.61	681.69	116+25.71	681.96	116+72.81	681.31	116+92.77	681.25
0.80L	115+80.82	681.66	116+00.77	681.55	116+47.87	681.83	116+94.98	681.18	117+14.93	681.10
0.90L	116+02.99	681.51	116+22.94	681.42	116+70.04	681.70	117+17.15	681.04	117+37.10	680.96
℄ PIER 1	116+25.15	681.38	116+45.11	681.30	116+92.21	681.59	117+39.31	680.92	117+59.27	680.84
0.10L	116+41.50	681.30	116+61.46	681.22	117+08.56	681.52	117+55.66	680.85	117+75.62	680.77
0.20L	116+57.85	681.24	116+77.81	681.16	117+24.91	681.45	117+72.01	680.78	117+91.97	680.71
℄ C.J. 2	116+62.82	681.22	116+82.77	681.14	117+29.88	681.43	117+76.98	680.77	117+96.93	680.70
0.30L	116+74.20	681.18	116+94.16	681.10	117+41.26	681.39	117+88.36	680.73	118+08.32	680.66
0.40L	116+90.55	681.13	117+10.51	681.04	117+57.61	681.33	118+04.71	680.67	118+24.67	680.56
0.50L	117+06.90	681.07	117+26.86	680.99	117+73.96	681.27	118+21.06	680.59	118+41.02	680.41
0.60L	117+23.25	681.01	117+43.21	680.92	117+90.31	681.21	118+37.41	680.44	118+57.37	680.19
0.70L	117+39.60	680.95	117+59.56	680.86	118+06.66	681.14	118+53.76	680.23	118+73.72	679.90
0.80L	117+55.95	680.88	117+75.91	680.79	118+23.01	681.04	118+70.11	679.95	118+90.07	679.54
0.90L	117+72.30	680.80	117+92.26	680.72	118+39.36	680.87	118+86.46	679.60	119+06.42	679.12
℄ BRG. F.A.	117+88.65	680.72	118+08.61	680.64	118+55.71	680.65	119+02.81	679.20	119+22.77	678.65

TOP OF HAUNCH ELEVATIONS

LOCATION	GIRDER LINE 1		GIRDER LINE 2		GIRDER LINE 3		GIRDER LINE 4		GIRDER LINE 5		GIRDER LINE 6		GIRDER LINE 7		GIRDER LINE 8	
	STATION	ELEVATION	STATION	ELEVATION	STATION	ELEVATION	STATION	ELEVATION	STATION	ELEVATION	STATION	ELEVATION	STATION	ELEVATION	STATION	ELEVATION
℄ BRG. R.A.	114+11.58	679.88	114+28.43	680.36	114+45.27	680.86	114+62.12	681.29	114+78.97	681.45	114+95.81	681.35	115+12.66	681.17	115+29.50	681.05
0.10L	114+33.75	680.50	114+50.60	680.85	114+67.44	681.24	114+84.29	681.54	115+01.13	681.58	115+17.98	681.38	115+34.82	681.14	115+51.67	681.04
0.20L	114+55.92	680.96	114+72.76	681.19	114+89.61	681.45	115+06.45	681.63	115+23.30	681.57	115+40.15	681.34	115+56.99	681.11	115+73.84	681.03
0.30L	114+78.08	681.25	114+94.93	681.36	115+11.77	681.50	115+28.62	681.59	115+45.47	681.52	115+62.31	681.29	115+79.16	681.07	115+96.00	680.98
0.40L	115+00.25	681.37	115+17.10	681.35	115+33.94	681.43	115+50.79	681.52	115+67.63	681.45	115+84.48	681.22	116+01.32	681.00	116+18.17	680.92
0.50L	115+22.42	681.31	115+39.26	681.26	115+56.11	681.34	115+72.95	681.43	115+89.80	681.36	116+06.65	681.13	116+23.49	680.91	116+40.34	680.82
℄ C.J. 1	115+30.75	681.27	115+47.60	681.22	115+64.44	681.30	115+81.29	681.39	115+98.13	681.32	116+14.98	681.09	116+31.82	680.87	116+48.67	680.78
0.60L	115+44.58	681.20	115+61.43	681.14	115+78.27	681.23	115+95.12	681.32	116+11.97	681.25	116+28.81	681.02	116+45.66	680.80	116+62.50	680.71
0.70L	115+66.75	681.07	115+83.60	681.01	116+00.44	681.10	116+17.29	681.20	116+34.13	681.13	116+50.98	680.90	116+67.82	680.68	116+84.67	680.57
0.80L	115+88.92	680.92	116+05.76	680.88	116+22.61	680.97	116+39.45	681.07	116+56.30	681.01	116+73.15	680.77	116+89.99	680.54	117+06.84	680.43
0.90L	116+11.08	680.77	116+27.93	680.74	116+44.77	680.84	116+61.62	680.94	116+78.47	680.88	116+95.31	680.64	117+12.16	680.40	117+29.00	680.29
℄ PIER 1	116+33.25	680.64	116+50.10	680.62	116+66.94	680.72	116+83.79	680.83	117+00.63	680.76	117+17.48	680.52	117+34.32	680.28	117+51.17	680.16
0.10L	116+49.60	680.56	116+66.45	680.55	116+83.29	680.65	117+00.14	680.75	117+16.98	680.69	117+33.83	680.45	117+50.67	680.21	117+67.52	680.09
0.20L	116+65.95	680.50	116+82.80	680.48	116+99.64	680.59	117+16.49	680.69	117+33.33	680.62	117+50.18	680.38	117+67.02	680.15	117+83.87	680.04
℄ C.J. 2	116+70.92	680.48	116+87.76	680.47	117+04.61	680.57	117+21.45	680.67	117+38.30	680.60	117+55.15	680.36	117+71.99	680.13	117+88.84	680.02
0.30L	116+82.30	680.44	116+99.15	680.42	117+15.99	680.53	117+32.84	680.63	117+49.68	680.56	117+66.53	680.32	117+83.37	680.09	118+00.22	679.98
0.40L	116+98.65	680.39	117+15.50	680.37	117+32.34	680.47	117+49.19	680.57	117+66.03	680.50	117+82.88	680.27	117+99.72	680.03	118+16.57	679.92
0.50L	117+15.00	680.33	117+31.85	680.31	117+48.69	680.41	117+65.54	680.51	117+82.38	680.44	117+99.23	680.21	118+16.07	679.96	118+32.92	679.79
0.60L	117+31.35	680.27	117+48.20	680.25	117+65.04	680.35	117+81.89	680.45	117+98.73	680.38	118+15.58	680.13	118+32.42	679.83	118+49.27	679.60
0.70L	117+47.70	680.21	117+64.55	680.18	117+81.39	680.28	117+98.24	680.38	118+15.08	680.31	118+31.93	680.00	118+48.77	679.64	118+65.62	679.34
0.80L	117+64.05	680.14	117+80.90	680.11	117+97.74	680.21	118+14.59	680.31	118+31.43	680.17	118+48.28	679.81	118+65.12	679.38	118+81.97	679.01
0.90L	117+80.40	680.06	117+97.25	680.04	118+14.09	680.13	118+30.94	680.17	118+47.78	679.97	118+64.63	679.55	118+81.47	679.06	118+98.32	678.62
℄ BRG. F.A.	117+96.75	679.98	118+13.60	679.96	118+30.44	680.00	118+47.29	679.97	118+64.13	679.72	118+80.98	679.22	118+97.82	678.67	119+14.67	678.17

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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.

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CJW		1806663	

SCREED & TOP OF HAUNCH ELEVATIONS
BRIDGE NO. CUY-77-1409
BROADWAY AVENUE OVER IR 77

CUY-77-13.80
PID No. 82388

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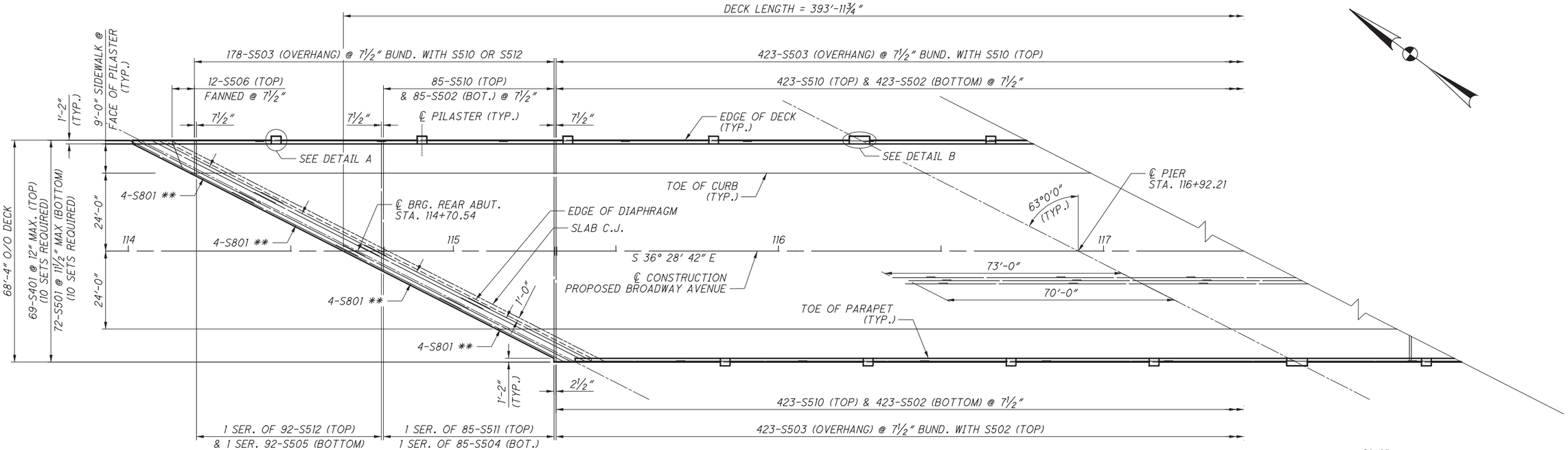
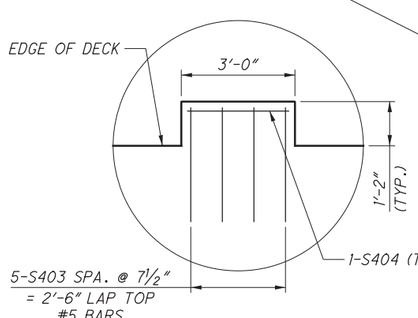
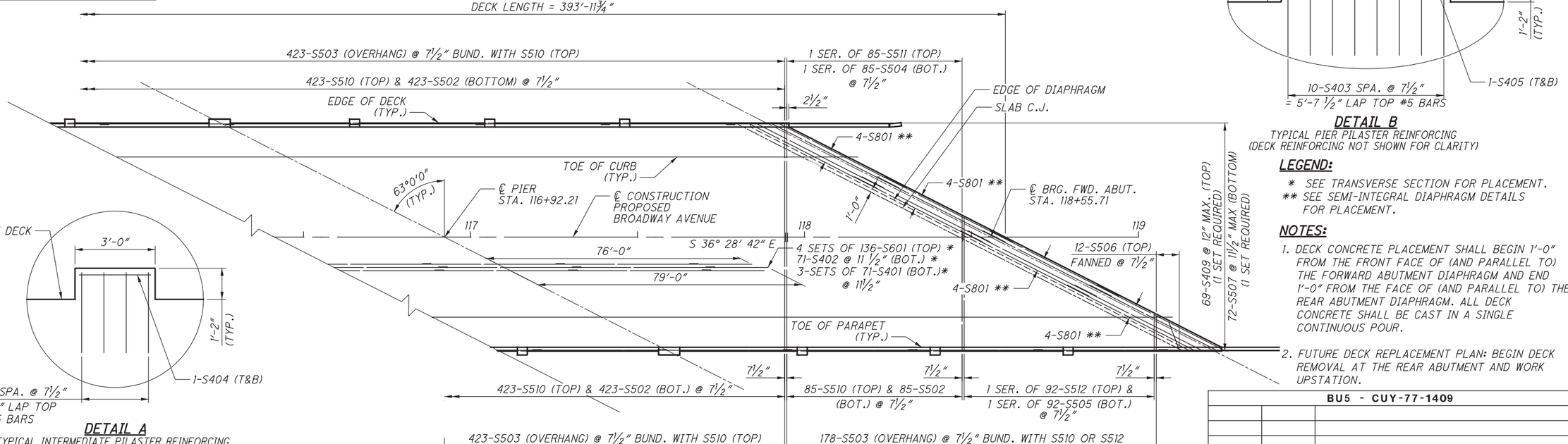


PARTIAL DECK PLAN

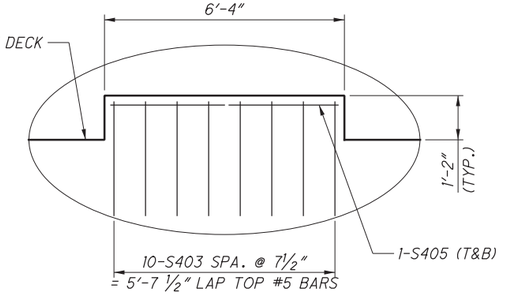
LAP LENGTH TABLE	
NO. 4 BARS	2'-0" MIN.
NO. 5 BARS	2'-6" MIN.
NO. 6 BARS	4'-0" MIN.
NO. 8 BARS	7'-3" MIN.



DETAIL A
TYPICAL INTERMEDIATE PILASTER REINFORCING
(DECK REINFORCING NOT SHOWN FOR CLARITY)



PARTIAL DECK PLAN



DETAIL B
TYPICAL PIER PILASTER REINFORCING
(DECK REINFORCING NOT SHOWN FOR CLARITY)

LEGEND:

* SEE TRANSVERSE SECTION FOR PLACEMENT.
** SEE SEMI-INTEGRAL DIAPHRAGM DETAILS FOR PLACEMENT.

NOTES:

1. DECK CONCRETE PLACEMENT SHALL BEGIN 1'-0" FROM THE FRONT FACE OF (AND PARALLEL TO) THE FORWARD ABUTMENT DIAPHRAGM AND END 1'-0" FROM THE FACE OF (AND PARALLEL TO) THE REAR ABUTMENT DIAPHRAGM. ALL DECK CONCRETE SHALL BE CAST IN A SINGLE CONTINUOUS POUR.
2. FUTURE DECK REPLACEMENT PLAN: BEGIN DECK REMOVAL AT THE REAR ABUTMENT AND WORK UPSTATION.

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DECK PLAN
BRIDGE NO. CUY-77-1409
BROADWAY AVENUE OVER IR 77

CUY-77-13.80
PID No. 82388

57 / 91
58 / 100

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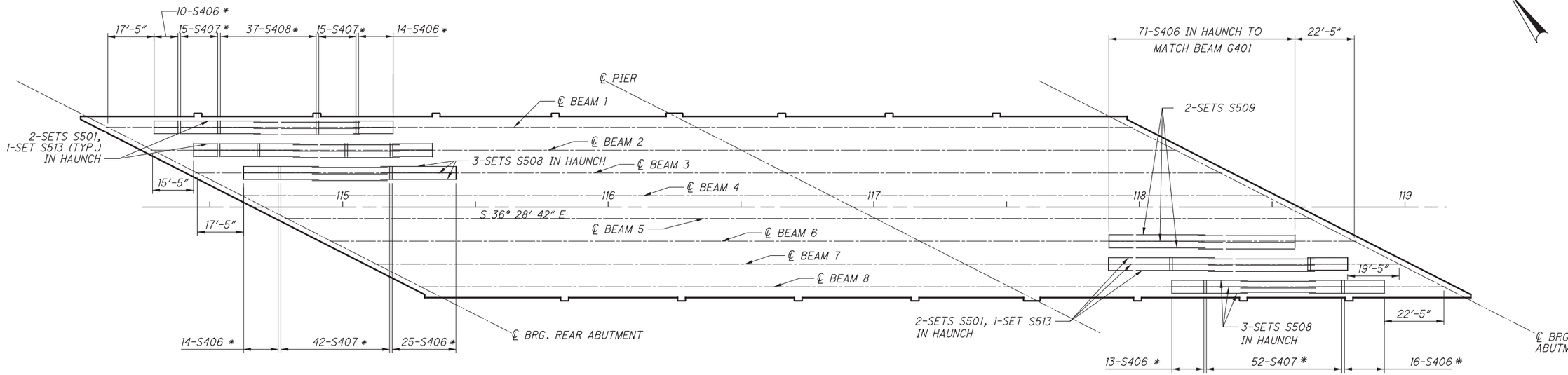

SUPPLEMENTAL HAUNCH REINFORCING PLAN

(SEE DECK PLAN FOR HAUNCH DETAIL)

BEAM 2 & 7 SUPPLEMENTAL HAUNCH REINFORCING LOCATIONS			
	S406	S407	S408
BEAM 2	STA.114+43.84 TO STA. 114+52.84	STA.114+53.84 TO STA. 114+67.84	STA.114+68.84 TO STA. 115+00.84
	STA.115+18.84 TO STA. 115+33.84	STA.115+01.84 TO STA. 115+17.84	
BEAM 7	STA.117+88.41 TO STA. 118+11.41	STA.118+12.41 TO STA. 118+63.41	
	STA.118+64.41 TO STA. 118+78.41		

LAP LENGTHS	
NO. 4 BARS	2'-0" MIN.
NO. 5 BARS	2'-6" MIN.

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NOTES:

* - TO MATCH BEAM G401

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HAUNCH REINFORCING PLAN
BRIDGE NO. CUY-77-1409
BROADWAY AVENUE OVER IR 77

CUY-77-13.80
PID No. 82388

58 / 91

59
100

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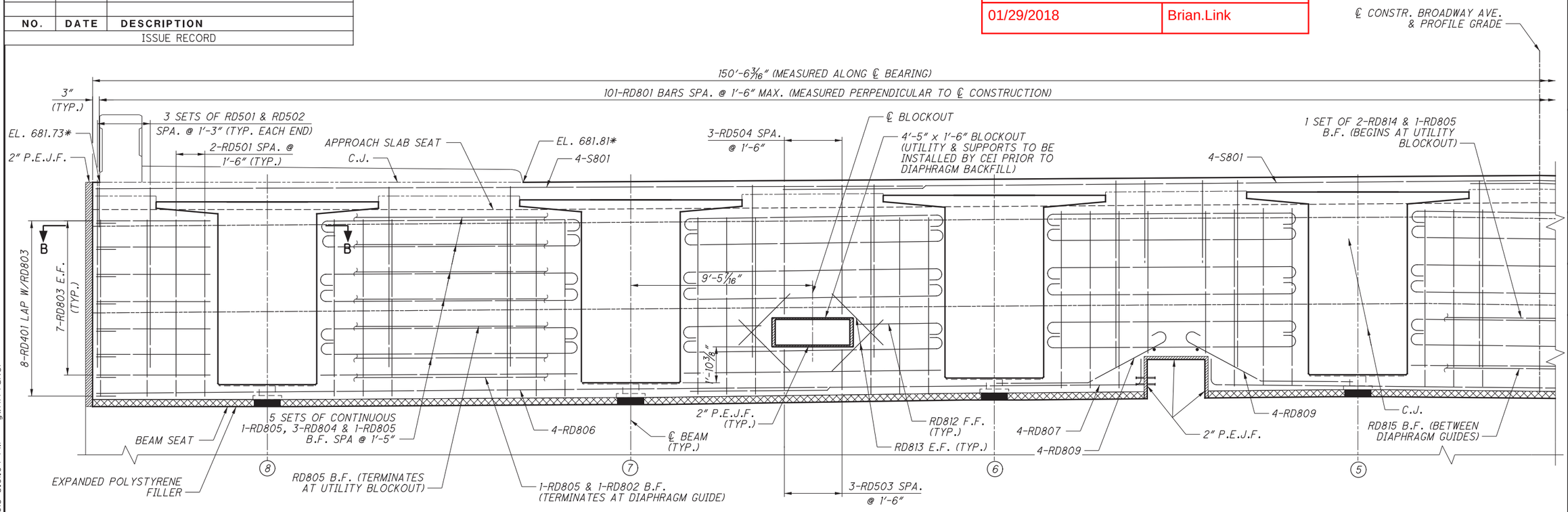

LAP LENGTH TABLE	
#5 VERTICAL	2′-7″ MIN.
#5 LONGITUDINAL	3′-10″ MIN.
#8 LONGITUDINAL	7′-3″ MIN.

LEGEND:

(#) - BEAM DESIGNATION

* - ELEVATIONS GIVEN AT ℄ BEARINGS

REAR ABUTMENT SEMI-INTEGRAL DIAPHRAGM ELEVATION

FOR RD403 BARS, SECTION A-A, AND SECTION B-B, SEE SHEET 60/91

NOTES:

1. PLACE VERTICAL BARS PARALLEL TO BEAMS. SPACINGS PROVIDED ARE MEASURED PARALLEL TO ℄ ABUTMENT BEARING.

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REAR ABUTMENT DIAPHRAGM ELEVATION
BRIDGE NO. CUY-77-1409
BROADWAY AVENUE OVER IR 77

CUY-77-13.80
PID No. 82388

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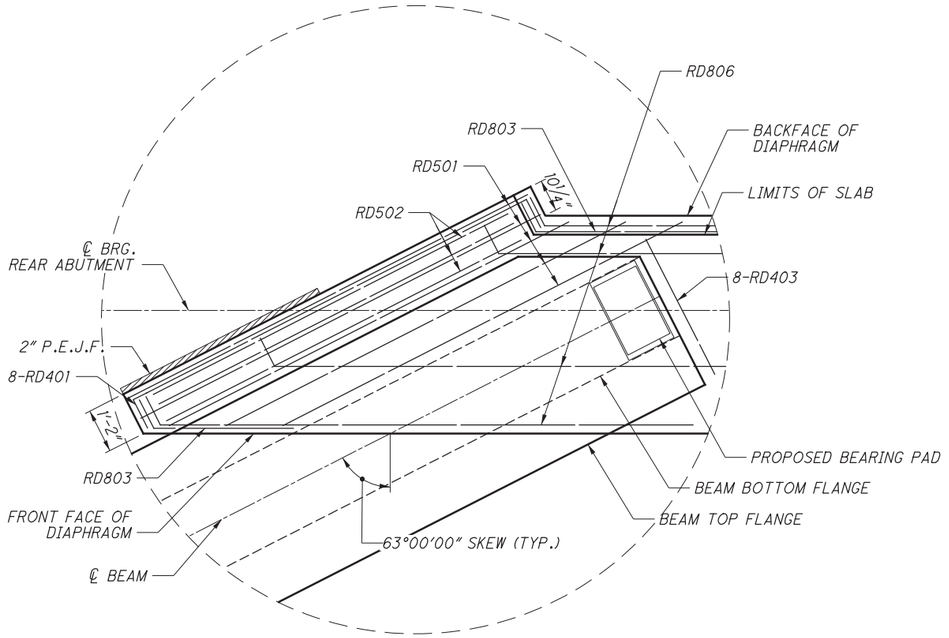
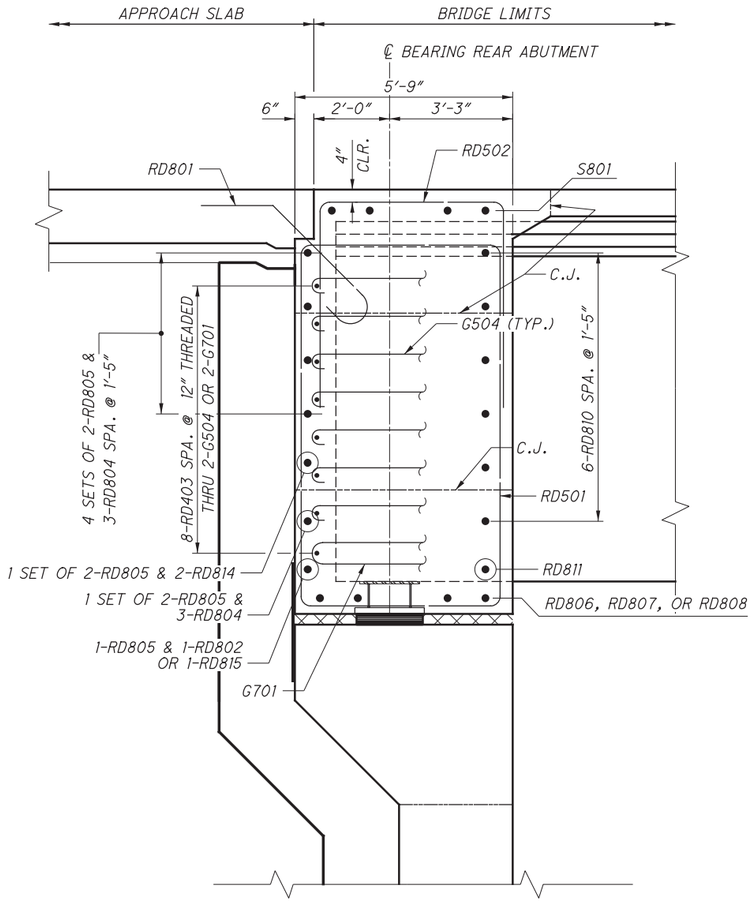


SECTION B-B

(REAR RIGHT CORNER OF REAR DIAPHRAGM SHOWN)



SECTION A-A

ABUTMENT REINFORCEMENT NOT SHOWN FOR CLARITY

LAP LENGTH TABLE	
#5 VERTICAL	2'-7" MIN.
#5 LONGITUDINAL	3'-10" MIN.
#8 LONGITUDINAL	7'-3" MIN.

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NOTES:

1. FOR LOCATIONS OF SECTIONS A-A AND B-B, SEE SHEET 59/91 .
2. FOR SUBSTRUCTURE REINFORCEMENT DETAILS, SEE SHEETS 12/91 THRU 16/91 .
3. REFER TO BEAM END BLOCK DETAILS, SHEET 42/91 , FOR G504 AND G701 BARS.
4. PLACE THE DIAPHRAGM CONCRETE ENCASING THE STRUCTURAL MEMBER ENDS AFTER THE DECK PLACEMENT IN THE ADJACENT SPAN IS COMPLETE. PROCEDURES THAT PLACE THE ABUTMENT DIAPHRAGM WITH THE DECK CONCRETE MAY BE APPROVED BY THE ENGINEER IF THE PLACEMENT SUBMITTAL CAN ASSURE THAT THE DECK CONCRETE IN THE ADJACENT SPAN WILL BE PLACED BEFORE CONCRETE IN THE DIAPHRAGM HAS REACHED ITS INITIAL SET.

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REAR ABUTMENT DIAPHRAGM DETAILS
BRIDGE NO. CUY-77-1409
BROADWAY AVENUE OVER IR 77

CUY-77-13.80
PID No. 82388

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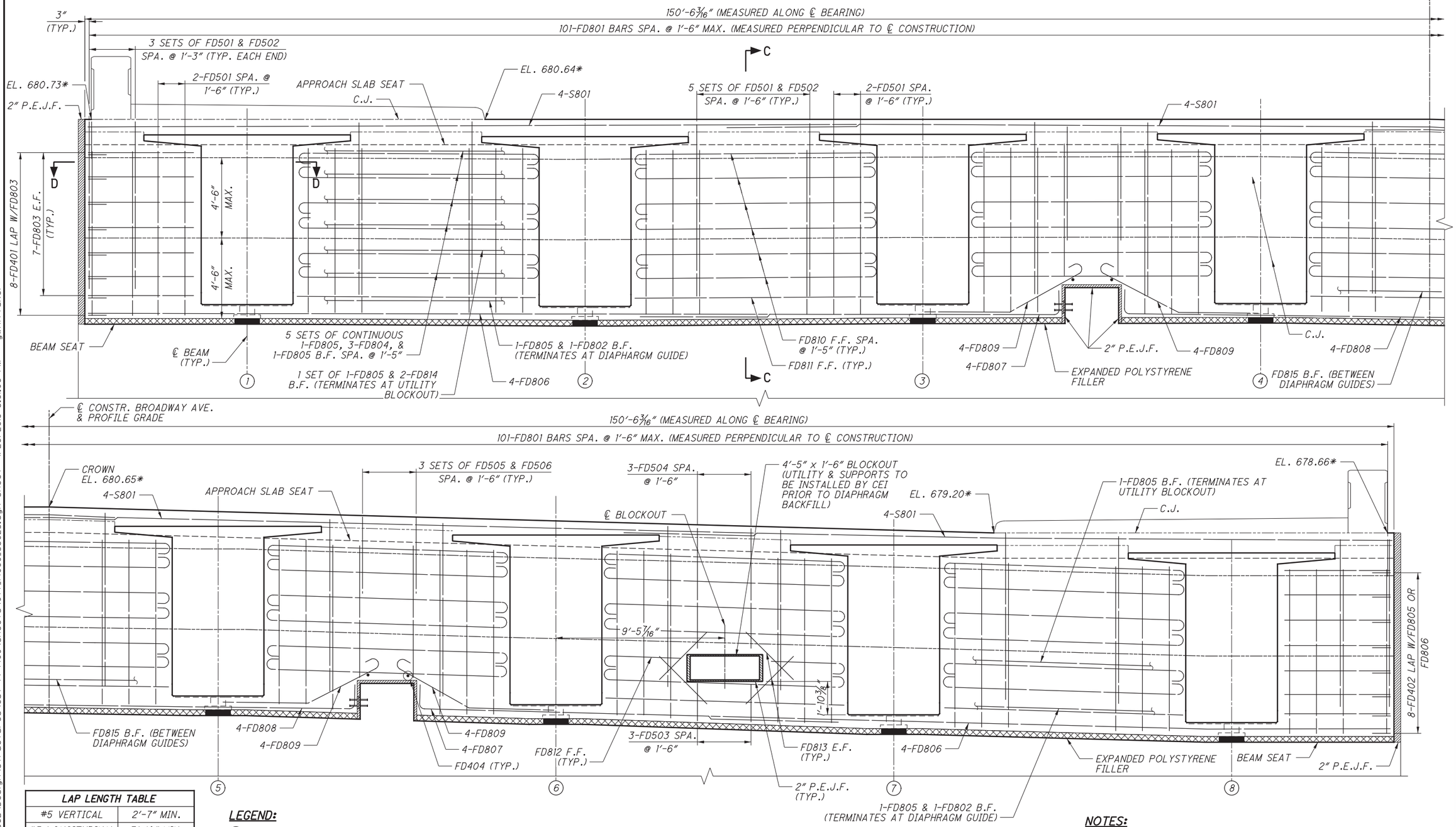

LAP LENGTH TABLE	
#5 VERTICAL	2'-7" MIN.
#5 LONGITUDINAL	3'-10" MIN.
#8 LONGITUDINAL	7'-3" MIN.

LEGEND:

(#) - BEAM DESIGNATION

* - ELEVATIONS GIVEN AT ℄ BEARINGS

FORWARD ABUTMENT SEMI-INTEGRAL DIAPHRAGM ELEVATION

FOR FD403 BARS, SECTION C-C, AND SECTION D-D, SEE SHEET 62/91

NOTES:

1. PLACE VERTICAL BARS PARALLEL TO BEAMS. SPACINGS PROVIDED ARE MEASURED PARALLEL TO ℄ ABUTMENT BEARING.

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FORWARD ABUTMENT DIAPHRAGM ELEVATION

BRIDGE NO. CUY-77-1409
BROADWAY AVENUE OVER IR 77

CUY-77-13.80
PID No. 82388

61/91

62/100

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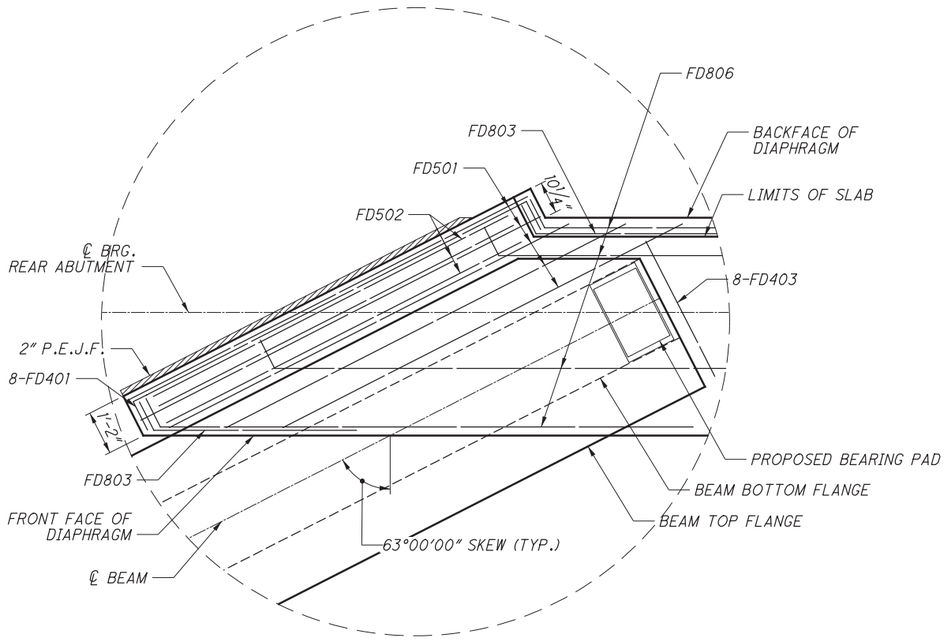
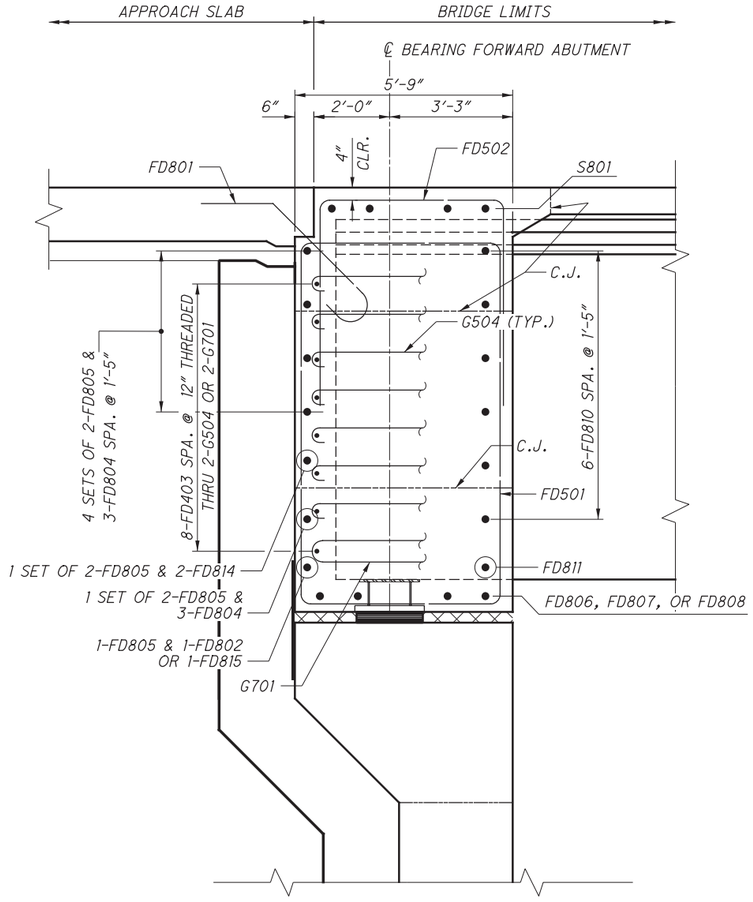


SECTION D-D

(FORWARD LEFT CORNER OF FORWARD DIAPHRAGM SHOWN)



SECTION C-C

ABUTMENT REINFORCEMENT NOT SHOWN FOR CLARITY

LAP LENGTH TABLE	
#5 VERTICAL	2'-7" MIN.
#5 LONGITUDINAL	3'-10" MIN.
#8 LONGITUDINAL	7'-3" MIN.

NOTES:

1. FOR LOCATIONS OF SECTIONS C-C AND D-D, SEE SHEET 61/91 .
2. FOR SUBSTRUCTURE REINFORCEMENT DETAILS, SEE SHEETS 17/91 THRU 22/91 .
3. REFER TO BEAM END BLOCK DETAILS, SHEET 43/91 , FOR G504 AND G701 BARS.
4. PLACE THE DIAPHRAGM CONCRETE ENCASING THE STRUCTURAL MEMBER ENDS AFTER THE DECK PLACEMENT IN THE ADJACENT SPAN IS COMPLETE. PROCEDURES THAT PLACE THE ABUTMENT DIAPHRAGM WITH THE DECK CONCRETE MAY BE APPROVED BY THE ENGINEER IF THE PLACEMENT SUBMITTAL CAN ASSURE THAT THE DECK CONCRETE IN THE ADJACENT SPAN WILL BE PLACED BEFORE CONCRETE IN THE DIAPHRAGM HAS REACHED ITS INITIAL SET.

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FORWARD ABUTMENT DIAPHRAGM DETAILS

BRIDGE NO. CUY-77-1409
BROADWAY AVENUE OVER IR 77

CUY-77-13.80
PID No. 82388

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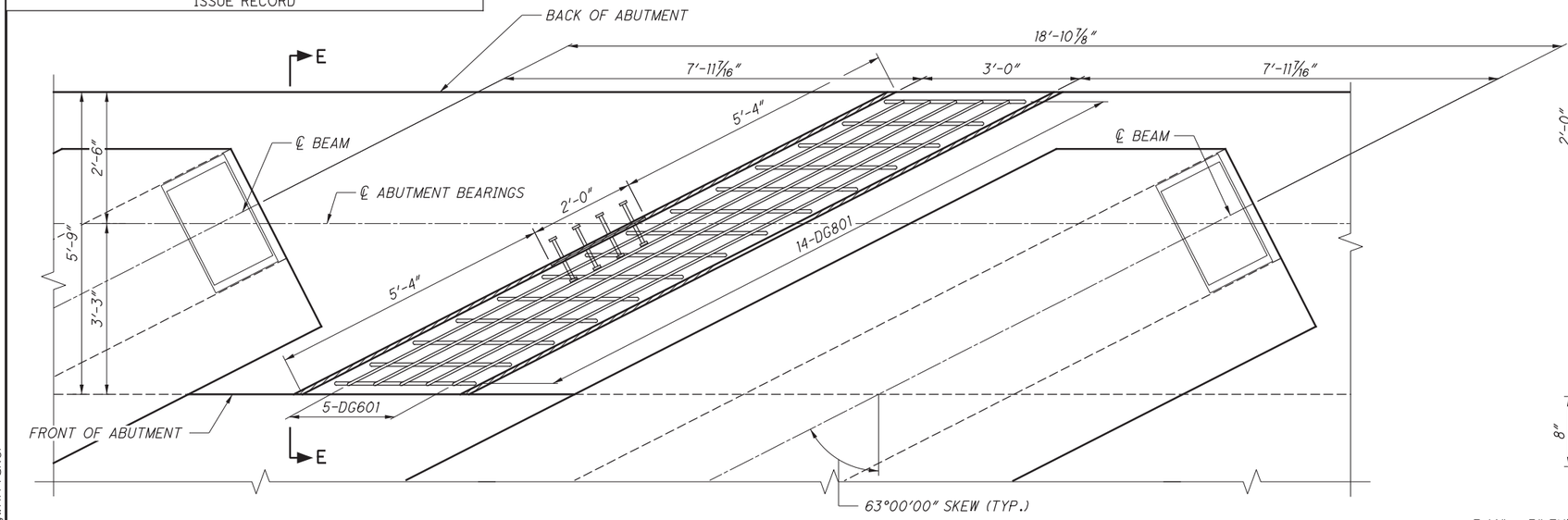
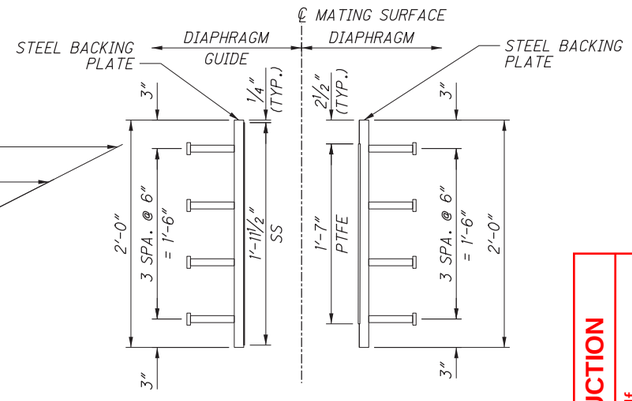
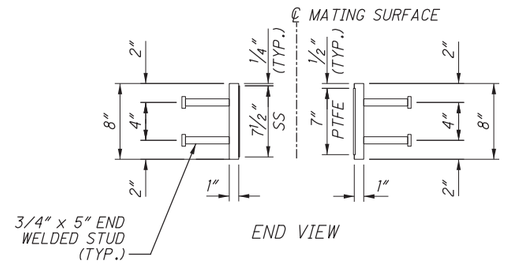


DIAPHRAGM GUIDE PLAN



TOP VIEW



END VIEW

RUB PLATE DETAILS

SS = STAINLESS STEEL
PTFE = POLYETRAFLUORETHYLENE

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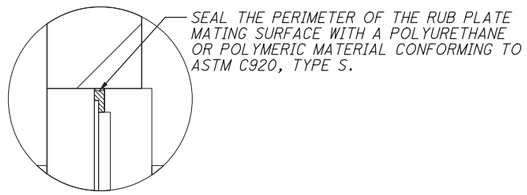
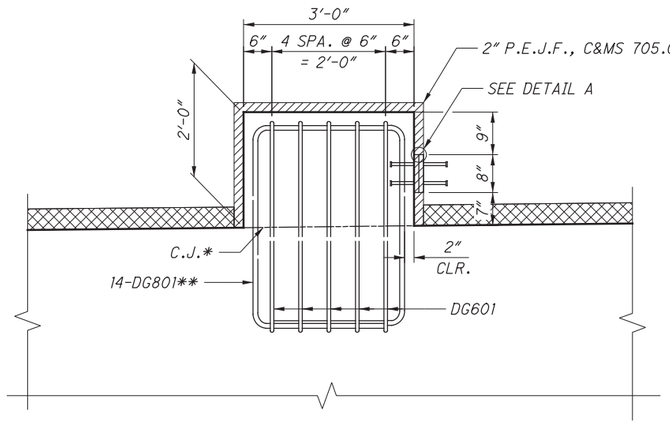
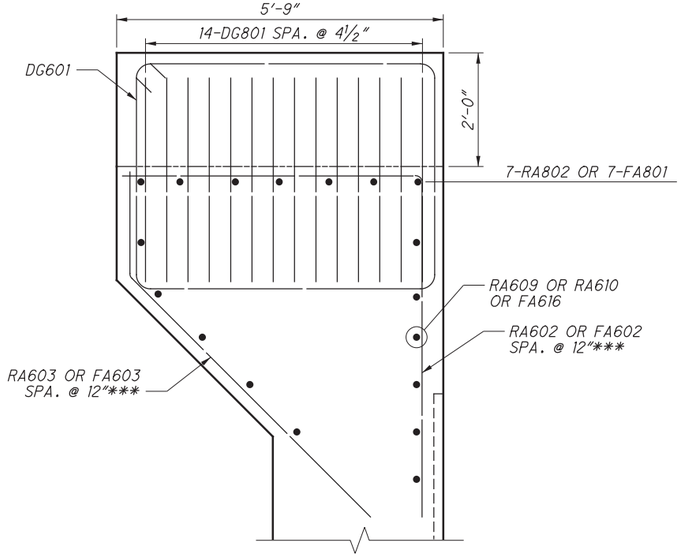


DETAIL A



DIAPHRAGM GUIDE ELEVATION



SECTION E-E

(BEAM, P.E.J.F., EXPANDED POLYSTYRENE FILLER, AND DIAPHRAGM REINFORCEMENT NOT SHOWN FOR CLARITY)

* - FINISH THE SURFACE OF THE CONSTRUCTION JOINT WITH A SERRATED TROWEL. THE SERRATIONS SHALL BE 1/4" DEEP MINIMUM.

** - PLACE TO AVOID INTERFERENCE WITH LONGITUDINAL REINFORCEMENT IN THE BEAM SEAT.

*** - ADJUST SPACING AS REQUIRED TO AVOID CONFLICTS WITH DIAPHRAGM GUIDE BARS

NOTES:

1. FOR ALL DIAPHRAGM LOCATIONS SEE SHEETS 59/91 AND 61/91 .
2. PERFORM WORK ACCORDING TO C&MS 511. USE THE SAME CLASS OF CONCRETE USED IN THE ABUTMENT. F'c = 4.0 KSI.
3. PROVIDE REINFORCEMENT ACCORDING TO C&MS 509. MIN. YIELD STRENGTH = 60 KSI.
4. PROVIDE 13 GAGE STAINLESS STEEL, TYPE 304, ASTM A167 OR A240 WITH A SURFACE FINISH OF 8.0 μ-IN OR BETTER WELDED AROUND THE ENTIRE PERIMETER TO THE 1" BACKING PLATE PER 869.12.
5. PROVIDE PTFE SHEET OR FABRIC PER SUPPLEMENTAL SPECIFICATION 869.10 AND ATTACH PER 869.11.
6. PROVIDE ASTM A709 GRADE 50 STEEL BACKING PLATES ACCORDING TO C&MS 711.01.
7. PROVIDE END WELDED STUDS IN ACCORDANCE WITH C&MS 513.22.
8. FABRICATE RUB PLATES ACCORDING TO SUPPLEMENTAL SPECIFICATION 869. SHIP AND PACKAGE FABRICATED UNITS ACCORDING TO 869.18. LEAVE WRAPPING, STRAPS OR RETAINING CLAMPS IN PLACE UNTIL BOTH SIDES OF THE UNIT ARE SECURED IN THEIR FINAL POSITION. ADDITIONAL REINFORCEMENT MAY BE INCLUDED IN THE GUIDE FOR THIS PURPOSE.
9. SHOP METALLIZE AND SEAL ALL STEEL SURFACES, EXCEPT PTFE-STAINLESS STEEL SLIDING SURFACES PER 869.13.
10. FOR ADDITIONAL INFORMATION, SEE STANDARD DRAWING SICD-2-14.

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JOL		1806663	

ABUTMENT DIAPHRAGM GUIDE DETAILS
BRIDGE NO. CUY-77-1409
BROADWAY AVENUE OVER IR 77

CUY-77-13.80
PID No. 82388

63 / 91

64 / 100

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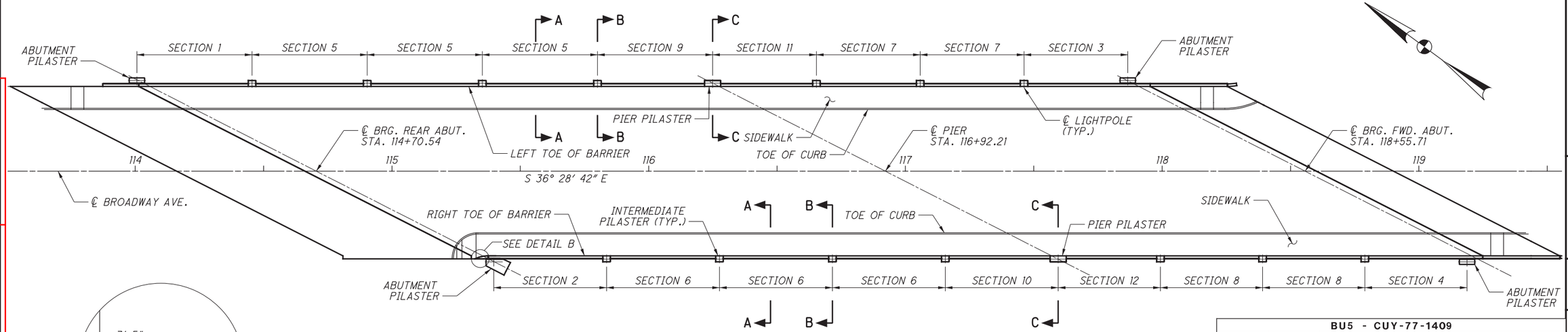
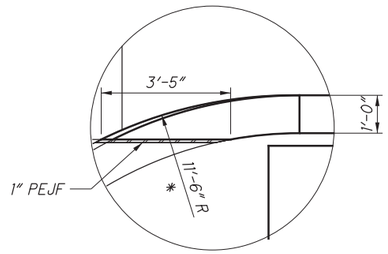


BARRIER LAYOUT KEY

ABUTMENT PILASTER LIGHTPOLE LOCATIONS	
STATION	OFFSET
114+00.65	35.33′ LT.
115+39.63	35.33′ RT.
117+86.62	35.33′ LT.
119+18.77	35.33′ RT.

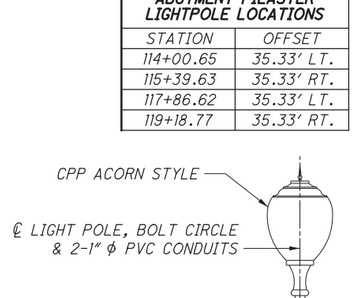
PIER PILASTER LIGHTPOLE LOCATIONS	
STATION	OFFSET
116+24.91	34.29′ LT.
117+59.51	34.29′ RT.

BU5 - CUY-77-1409		
NO.	DATE	DESCRIPTION
ISSUE RECORD		



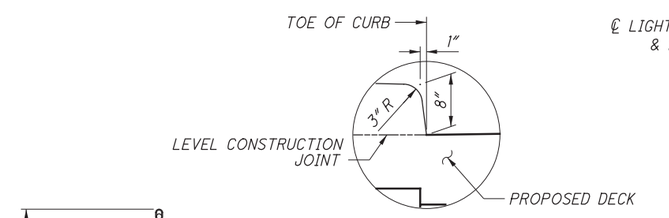
DETAIL B

* - TO TOE OF BARRIER



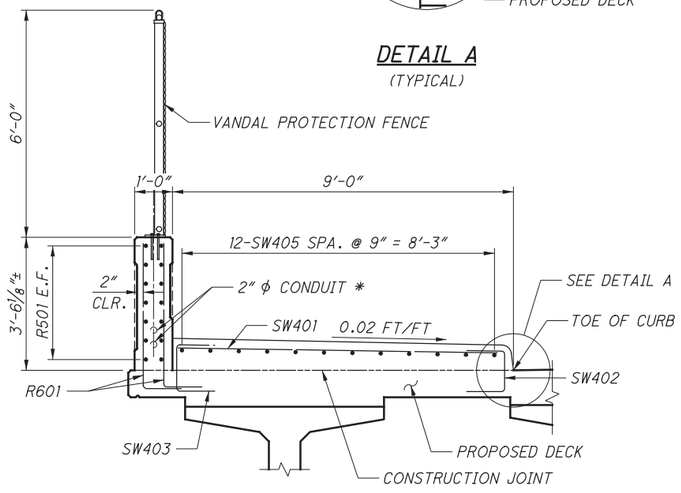
TYPICAL DEFLECTION JOINT DETAIL

(REINFORCING AND FENCE POSTS NOT SHOWN FOR CLARITY)

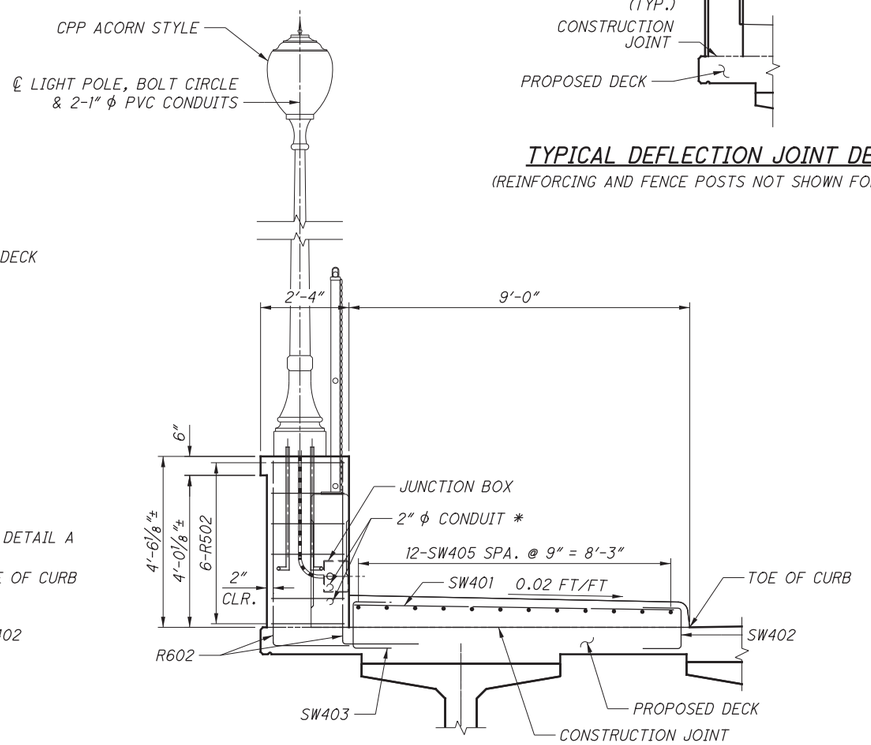


DETAIL A

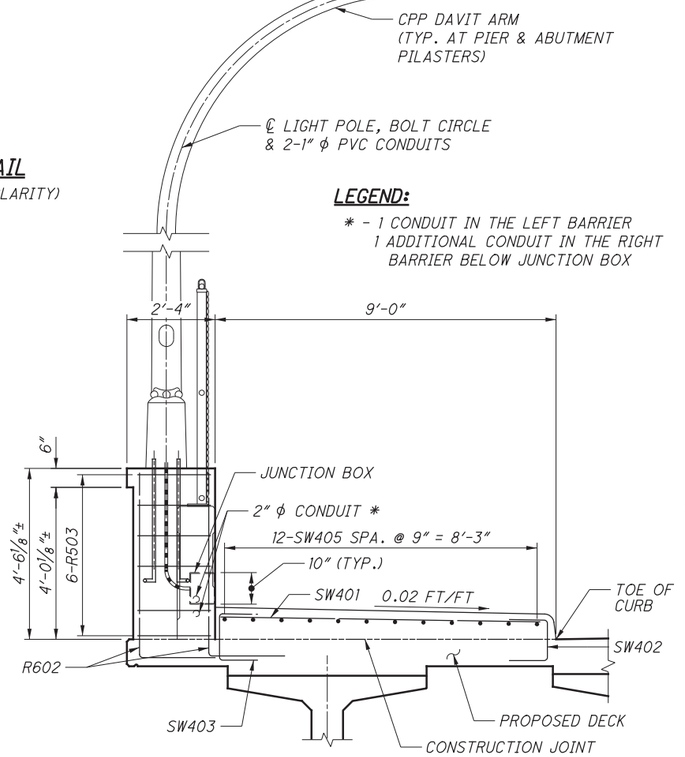
(TYPICAL)



SECTION A-A



SECTION B-B



SECTION C-C

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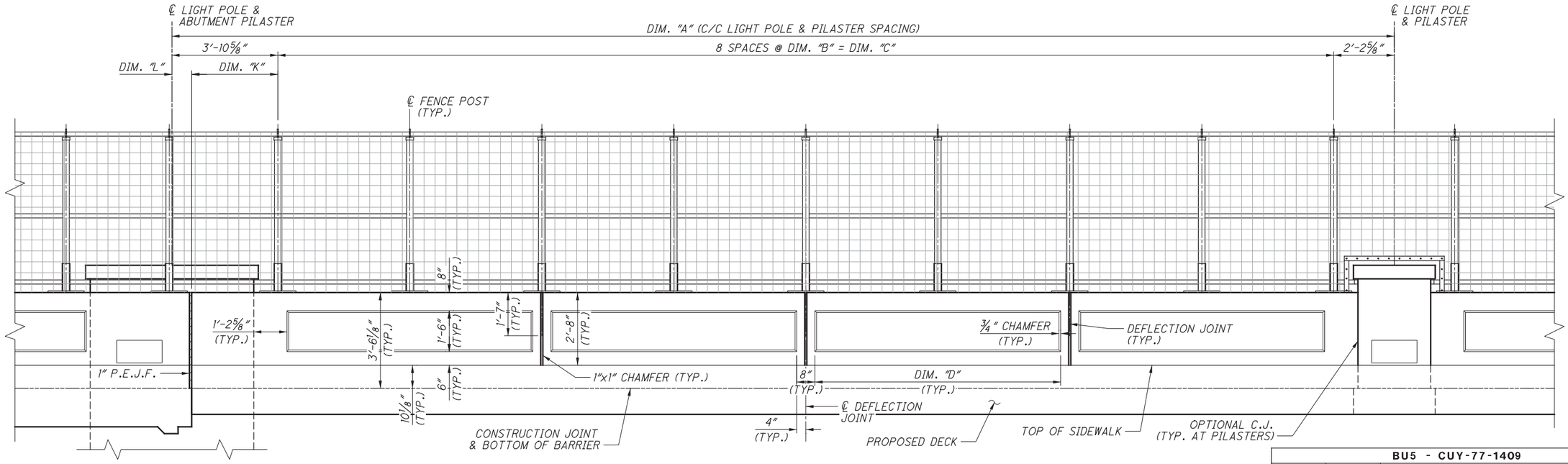
RAILING DETAILS
BRIDGE NO. CUY-77-1409
BROADWAY AVENUE OVER IR 77

CUY-77-13.80
PID No. 82388

64 / 91

65
100

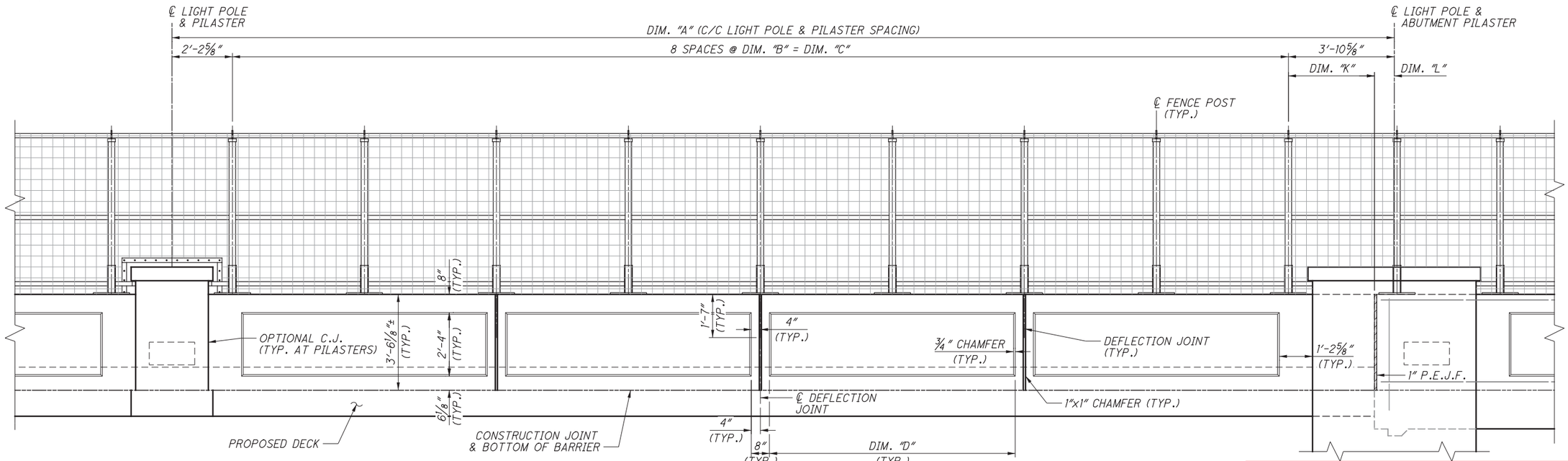


DIMENSIONS FOR ABUTMENT PILASTER SECTIONS				
DIM.	SECTION 1	SECTION 2	SECTION 3	SECTION 4
A	44'-10¼"	43'-11¾"	40'-5⅛"	39'-9¾"
B	4'-10⅛"	4'-8¾"±	4'-3 1/2"±	4'-2⅝"±
C	38'-9"	37'-10½"	34'-3⅛"	33'-8½"
D	9'-0¼"	8'-9⅝"	7'-11"	7'-9⅛"
K	3'-1⅛"	11'-3⅝" *	12'-7⅜"	10'-0"
L	9⅛"	--	10⅝"	10⅝"

* MEASURES TO THE END OF THE CURVED SECTION

TRAFFIC SIDE ELEVATION @ ABUTMENT PILASTER

(SECTION 1 SHOWN - SECTION 4 SIMILAR, SECTIONS 2 & 3 OPPOSITE HAND)



OUTSIDE ELEVATION @ ABUTMENT PILASTER

(SECTION 1 SHOWN - SECTION 4 SIMILAR, SECTIONS 2 & 3 OPPOSITE HAND)

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ISSUE RECORD		

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RAILING DETAILS
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CUY-77-13.80
PID No. 82388

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66 / 100

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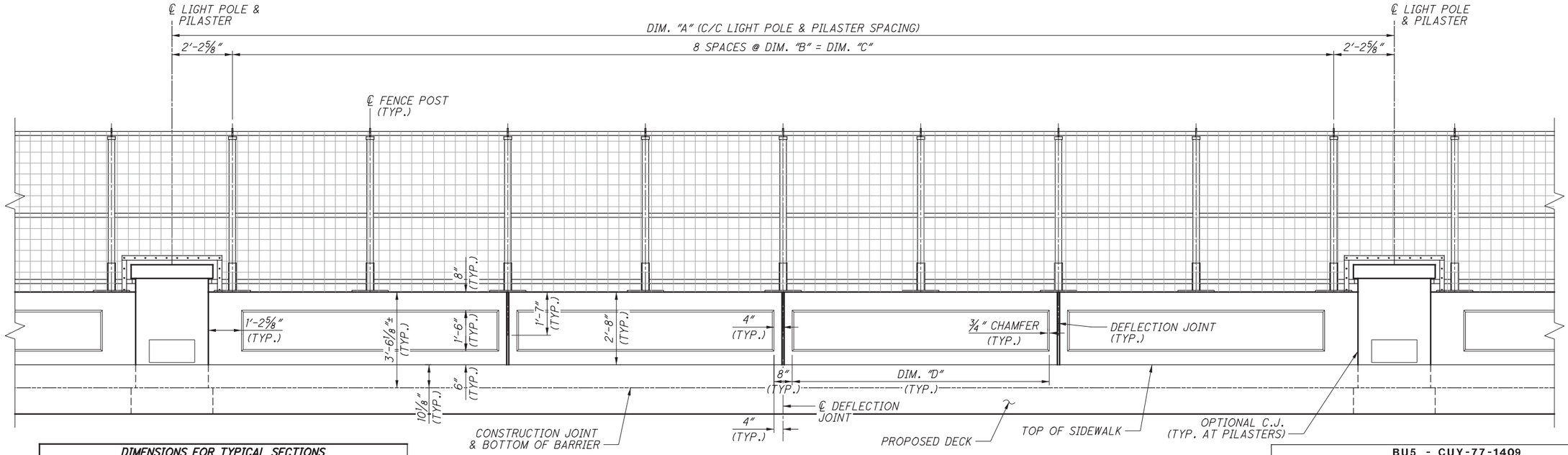

TYPICAL TRAFFIC SIDE ELEVATION

(SECTION 5 SHOWN - SECTIONS 6 THRU 8 SIMILAR)

DIMENSIONS FOR TYPICAL SECTIONS

DIM.	SECTION 5	SECTION 6	SECTION 7	SECTION 8
A	44'-10¼"	43'-11¾"	40'-5⅛"	39'-9¾"
B	5'-0⅝"	4'-11¼"±	4'-6"±	4'-5⅛"
C	40'-5"	39'-6½"	35'-11⅞"	35'-4½"
D	9'-5¼"	9'-2⅝"	8'-4"	8'-2⅛"

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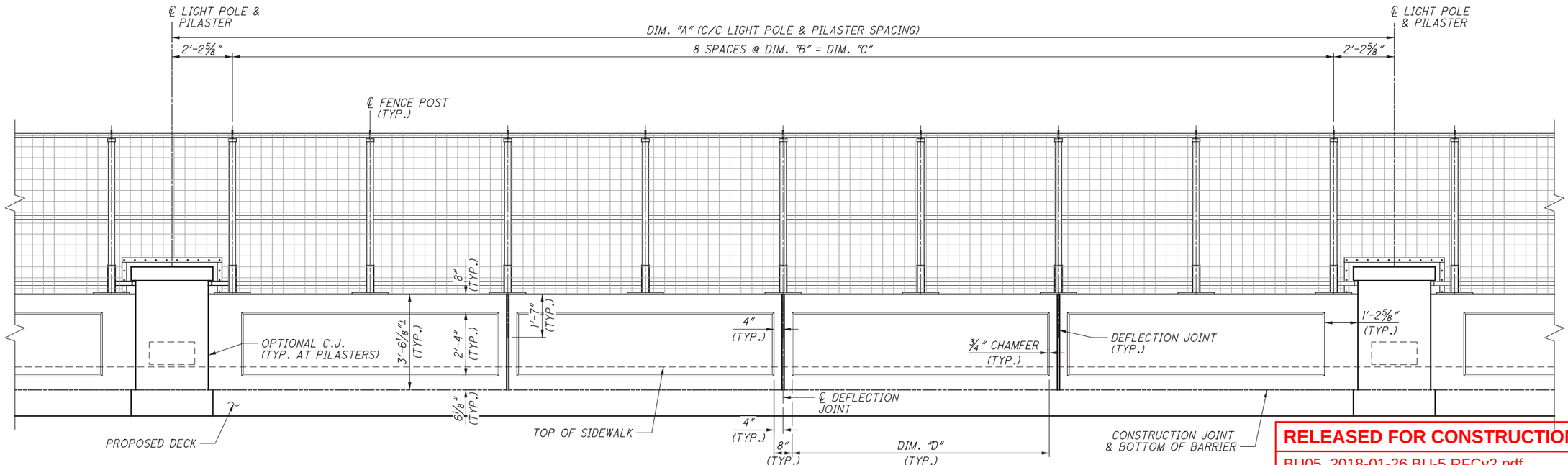
ISSUE RECORD		



TYPICAL OUTSIDE ELEVATION

(SECTION 5 SHOWN - SECTIONS 6 THRU 8 SIMILAR)

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RAILING DETAILS
BRIDGE NO. CUY-77-1409
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CUY-77-13.80
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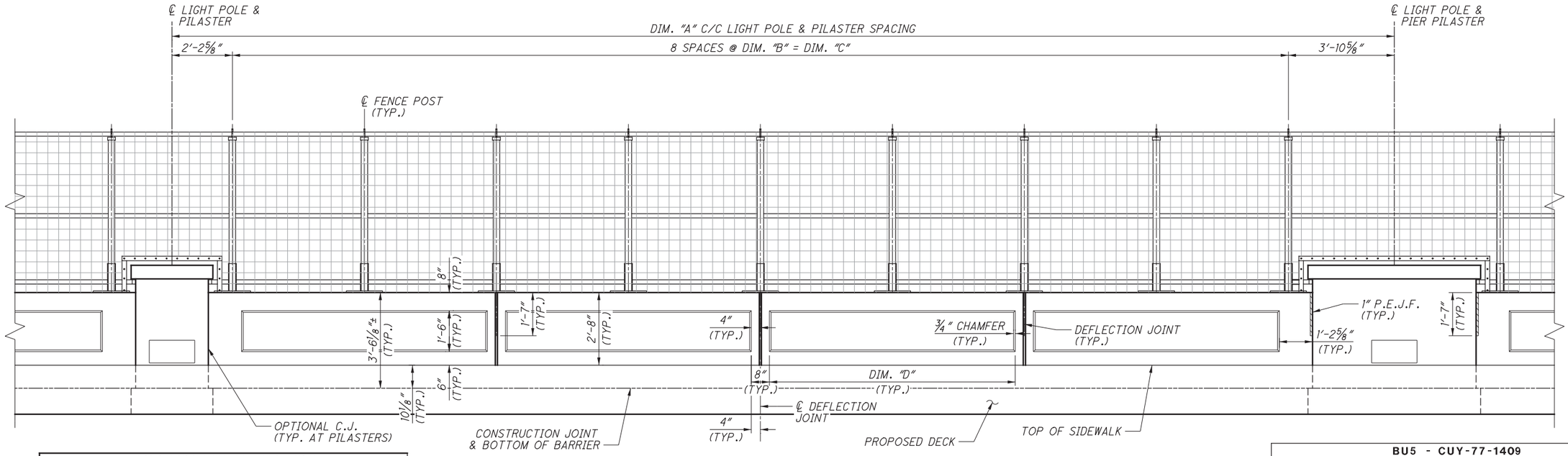

TRAFFIC SIDE ELEVATION @ PIER PILASTER

(SECTION 9 SHOWN - SECTION 12 SIMILAR, SECTIONS 10 & 11 OPPOSITE HAND)

DIMENSIONS FOR PIER SECTIONS

DIM.	SECTION 9	SECTION 10	SECTION 11	SECTION 12
A	44'-10¼"	43'-11¾"	40'-5⅛"	39'-9¾"
B	4'-10⅛"	4'-8¾"±	4'-3 1/2"±	4'-2⅝"±
C	38'-9"	37'-10½"	34'-3⅛"	33'-8½"
D	9'-0¼"	8'-9⅝"	7'-11"	7'-9⅛"

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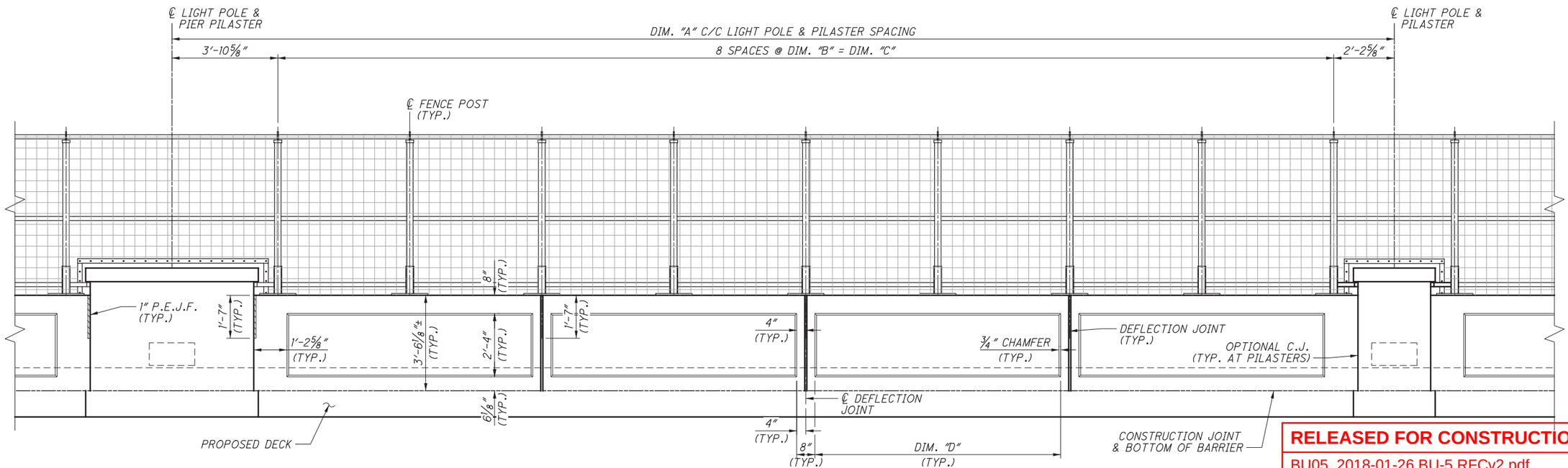
NO.	DATE	DESCRIPTION
ISSUE RECORD		



OUTSIDE ELEVATION @ PIER PILASTER

(SECTION 9 SHOWN - SECTION 12 SIMILAR, SECTIONS 10 & 11 OPPOSITE HAND)

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RAILING DETAILS

BRIDGE NO. CUY-77-1409
BROADWAY AVENUE OVER IR 77

CUY-77-13.80
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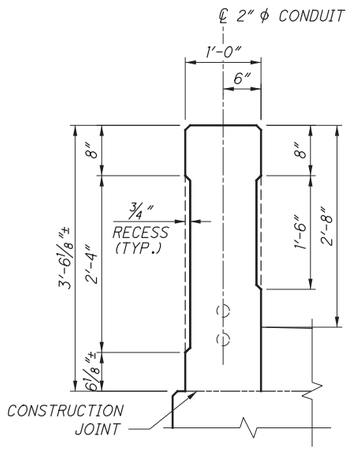
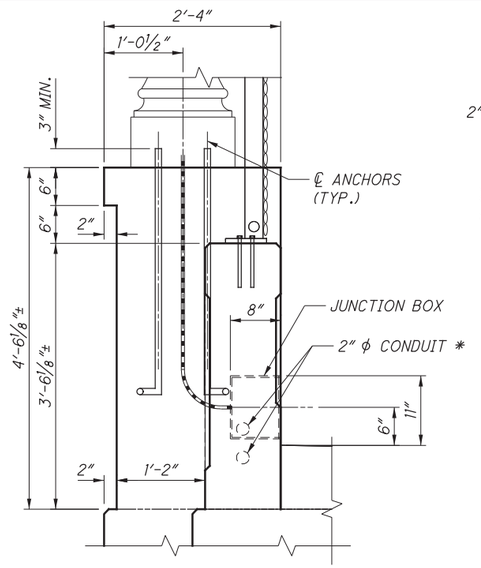
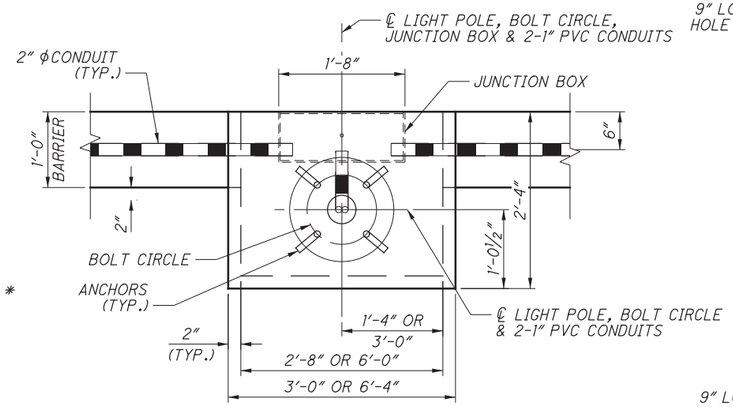


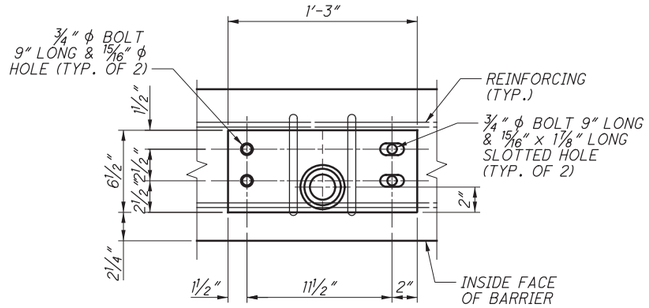
TYPICAL BARRIER SECTION



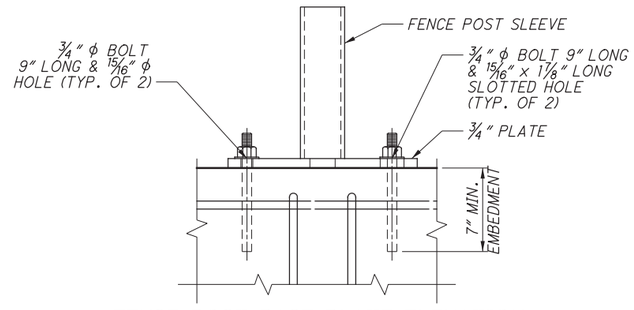
TYPICAL PILASTER SECTION



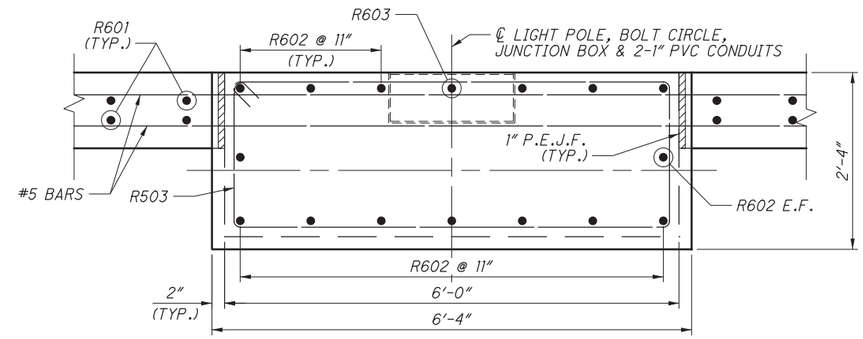
TYPICAL PILASTER PLAN



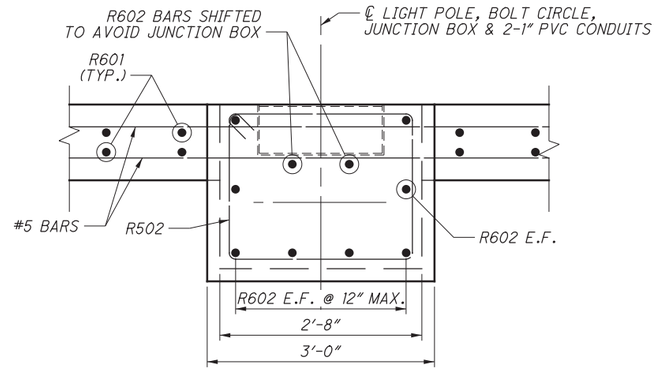
FENCE POST BASE PLATE PLAN



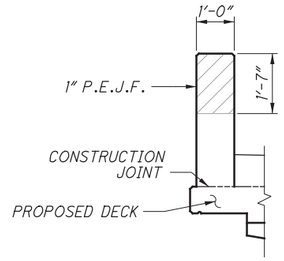
FENCE POST BASE PLATE ELEVATION



TYPICAL PIER PILASTER REINFORCING PLAN

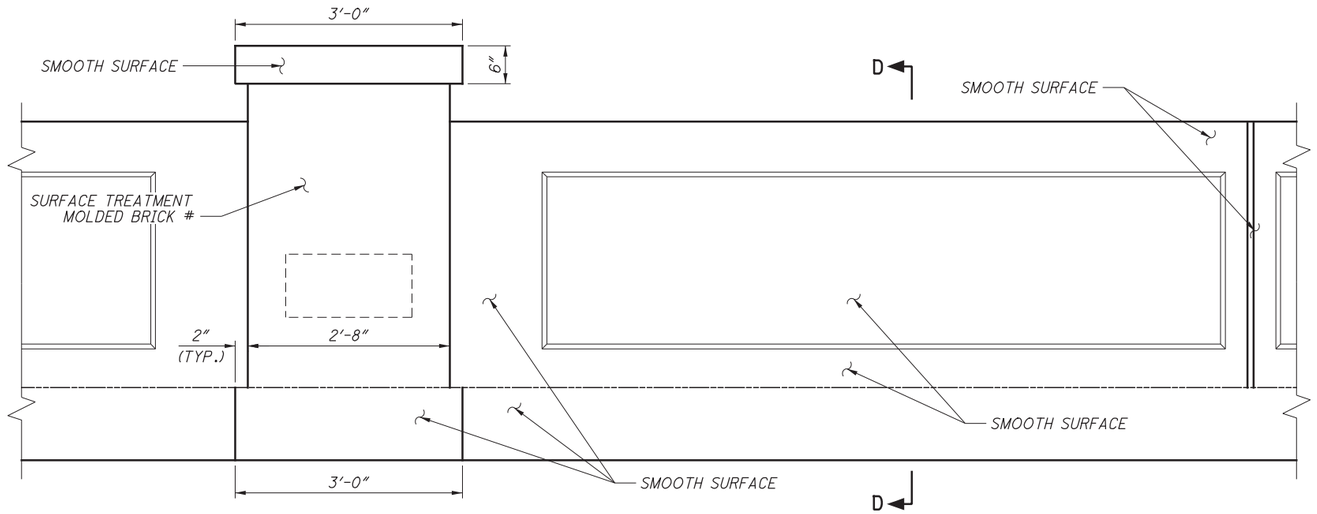


TYPICAL PILASTER REINFORCING PLAN



DEFLECTION JOINT DETAIL @ PIER PILASTER

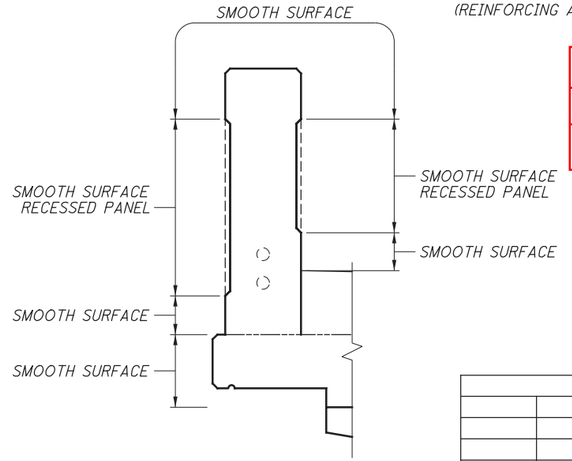
(REINFORCING AND FENCE POSTS NOT SHOWN FOR CLARITY)



TYPICAL BARRIER ELEVATION

(EXTERIOR FACE SHOWN, INTERIOR FACE SIMILAR)

# INDICATES SURFACE TREATMENT SHALL BE PLACED ON ALL EXPOSED SURFACES OF ELEMENT SHOWN INCLUDING OTHER SIDE



SECTION D-D

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BCW		1806663	

RAILING DETAILS
BRIDGE NO. CUY-77-1409
BROADWAY AVENUE OVER IR 77

CUY-77-13.80
PID No. 82388

68 / 91

69
100

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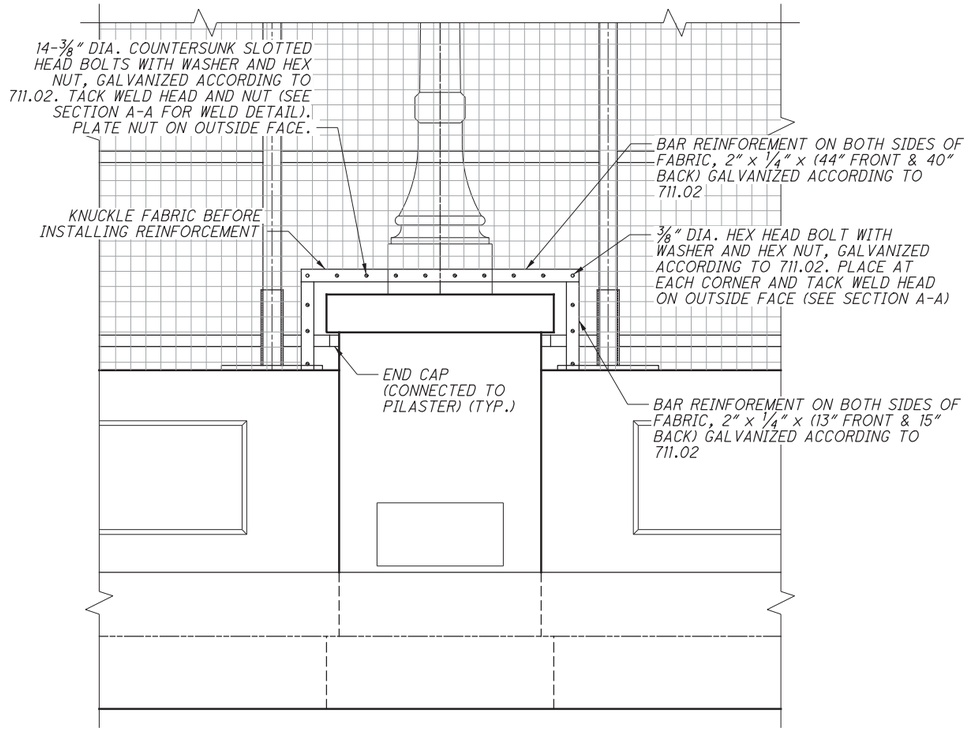
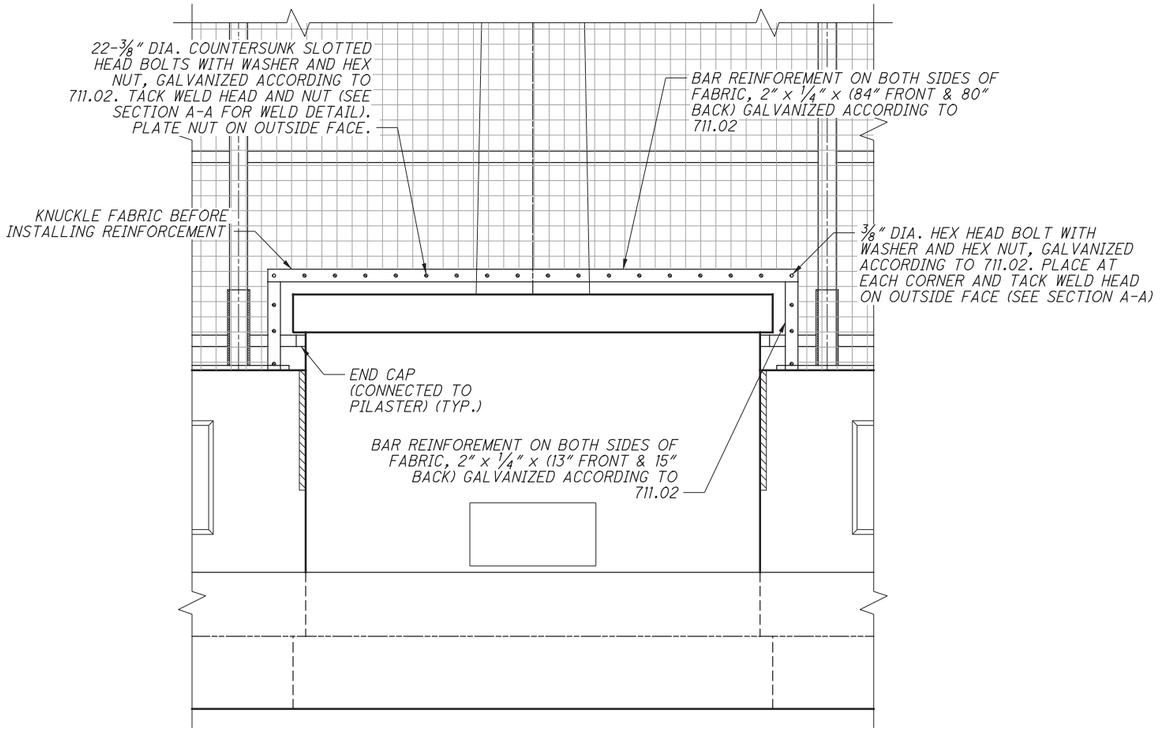


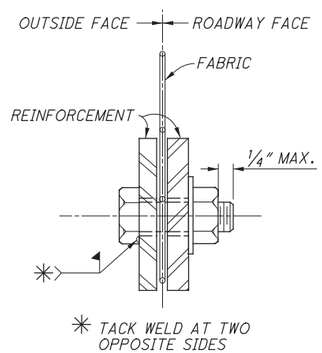
FENCE OPENING AT TYPICAL PILASTER

(VIEW FROM TRAFFIC SIDE)



FENCE OPENING AT PIER PILASTER

(VIEW FROM TRAFFIC SIDE)



SECTION A-A

(SHOWING CORNER BOLT)

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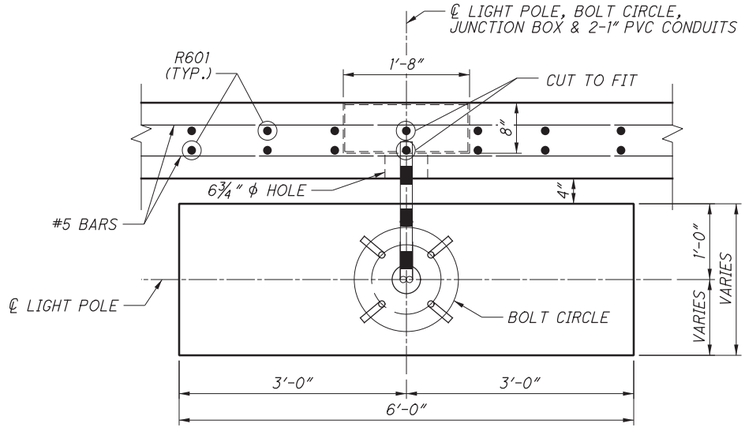
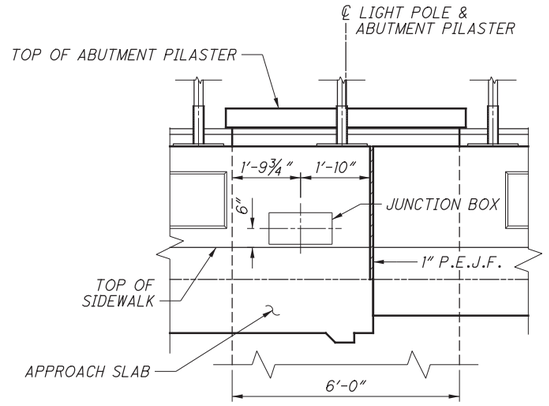
RAILING DETAILS

BRIDGE NO. CUY-77-1409
BROADWAY AVENUE OVER IR 77

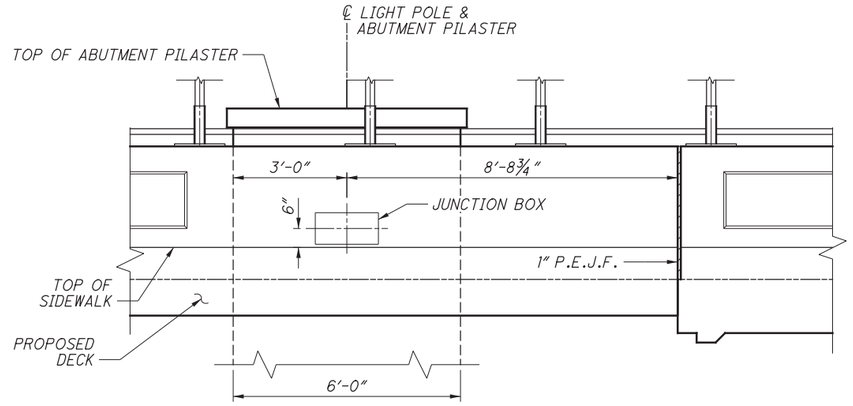
CUY-77-13.80 PID No. 82388



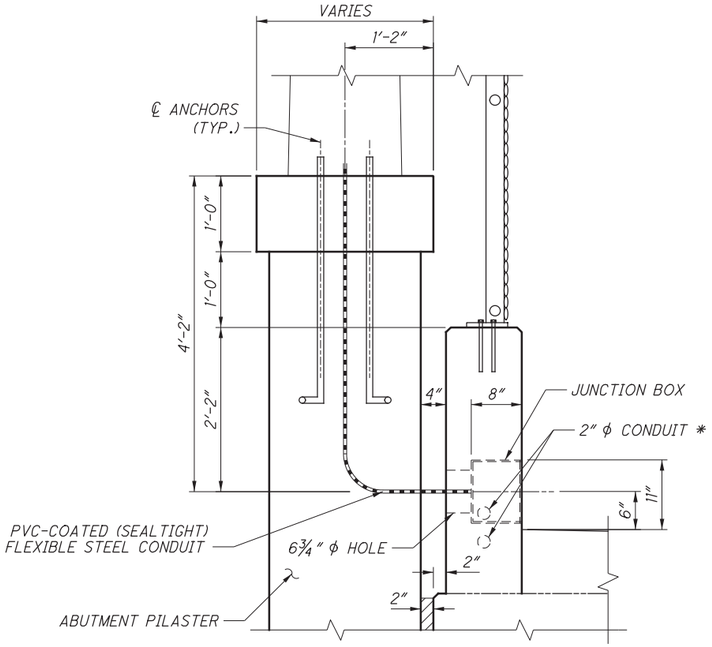
TYPICAL ABUTMENT PILASTER PLAN



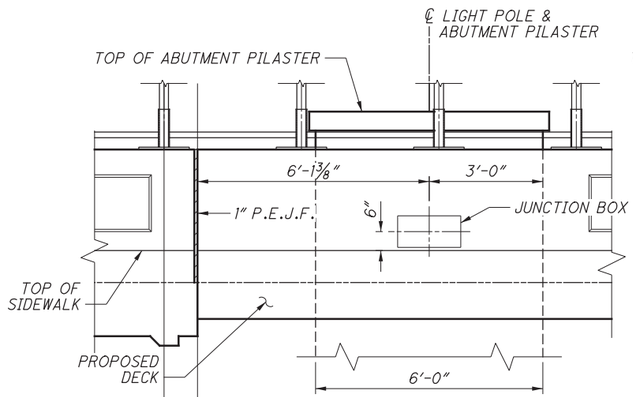
JUNCTION BOX LOCATION - LEFT REAR



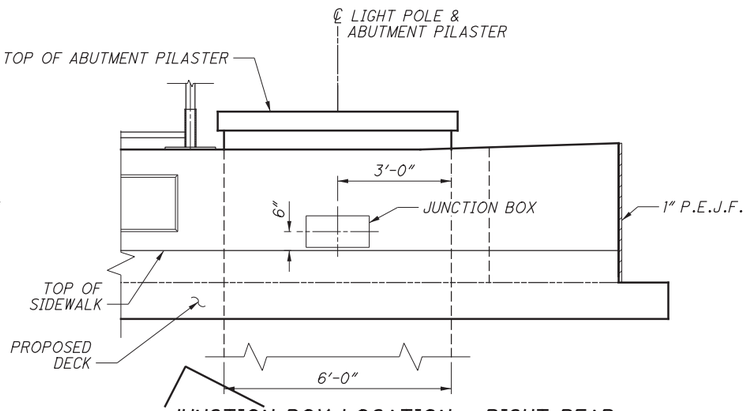
JUNCTION BOX LOCATION - LEFT FORWARD



TYPICAL ABUTMENT PILASTER SECTION



JUNCTION BOX LOCATION - RIGHT FORWARD



JUNCTION BOX LOCATION - RIGHT REAR

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LEGEND:

* - 1 CONDUIT IN THE LEFT BARRIER
1 ADDITIONAL CONDUIT IN THE RIGHT BARRIER BELOW JUNCTION BOX

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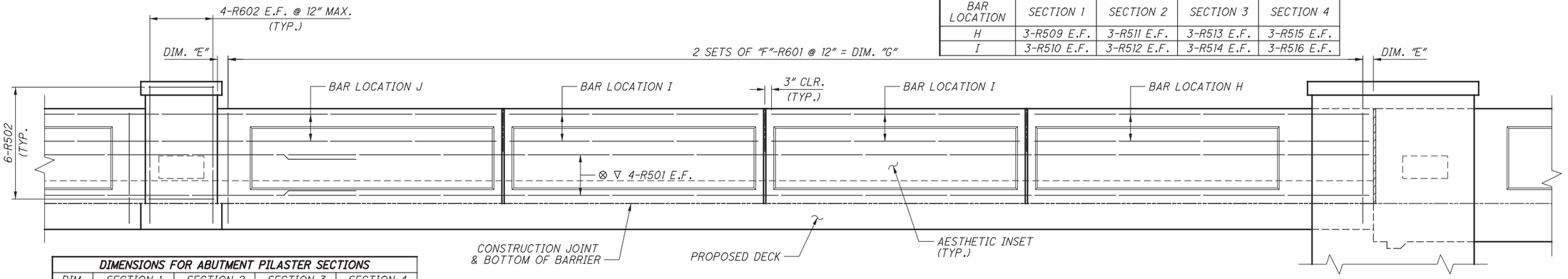
RAILING DETAILS
BRIDGE NO. CUY-77-1409
BROADWAY AVENUE OVER IR 77

CUY-77-13.80
PID No. 82388

REINFORCING BETWEEN DEFLECTION JOINTS				
BAR LOCATION	SECTION 1	SECTION 2	SECTION 3	SECTION 4
H	3-R509 E.F.	3-R511 E.F.	3-R513 E.F.	3-R515 E.F.
I	3-R510 E.F.	3-R512 E.F.	3-R514 E.F.	3-R516 E.F.

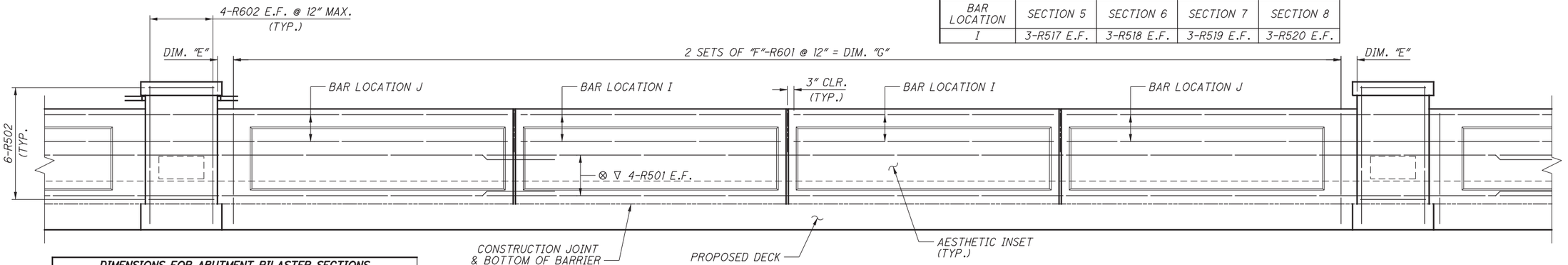


DIMENSIONS FOR ABUTMENT PILASTER SECTIONS				
DIM.	SECTION 1	SECTION 2	SECTION 3	SECTION 4
E	4¾"	6⅜"	5"	3⅝"
F	43	50	48	45
G	42'-0"	49'-0"	47'-0"	44'-0"

BARRIER REINFORCING @ ABUTMENT PILASTER

(SECTION 1 OUTSIDE SHOWN - SECTION 4 SIMILAR, SECTIONS 2 & 3 OPPOSITE HAND)

REINFORCING BETWEEN DEFLECTION JOINTS				
BAR LOCATION	SECTION 5	SECTION 6	SECTION 7	SECTION 8
I	3-R517 E.F.	3-R518 E.F.	3-R519 E.F.	3-R520 E.F.



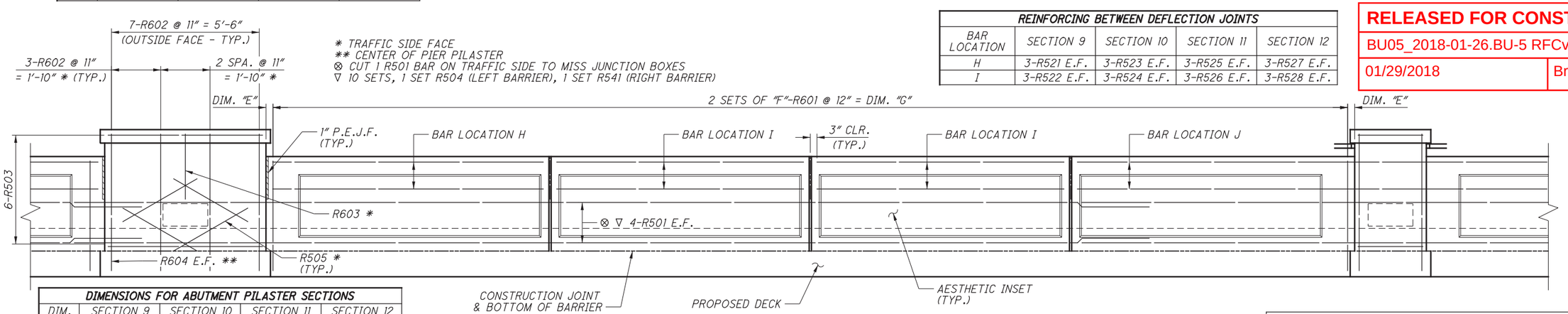
DIMENSIONS FOR ABUTMENT PILASTER SECTIONS				
DIM.	SECTION 5	SECTION 6	SECTION 7	SECTION 8
E	7⅛"	1⅞"	4⅝"	6⅞"
F	42	42	38	37
G	41'-0"	41'-0"	37'-0"	36'-0"

TYPICAL BARRIER REINFORCING

(SECTION 5 OUTSIDE SHOWN - SECTIONS 6 THRU 8 SIMILAR)

REINFORCING BETWEEN DEFLECTION JOINTS				
BAR LOCATION	SECTION 9	SECTION 10	SECTION 11	SECTION 12
H	3-R521 E.F.	3-R523 E.F.	3-R525 E.F.	3-R527 E.F.
I	3-R522 E.F.	3-R524 E.F.	3-R526 E.F.	3-R528 E.F.

* TRAFFIC SIDE FACE
** CENTER OF PIER PILASTER
⊗ CUT 1 R501 BAR ON TRAFFIC SIDE TO MISS JUNCTION BOXES
▽ 10 SETS, 1 SET R504 (LEFT BARRIER), 1 SET R541 (RIGHT BARRIER)



DIMENSIONS FOR ABUTMENT PILASTER SECTIONS				
DIM.	SECTION 9	SECTION 10	SECTION 11	SECTION 12
E	3⅛"	3⅞"	6⅝"	2⅞"
F	41	40	36	36
G	40'-0"	39'-0"	35'-0"	35'-0"

BARRIER REINFORCING @ PIER PILASTER

(SECTION 9 OUTSIDE SHOWN - SECTION 12 SIMILAR, SECTIONS 10 & 11 OPPOSITE HAND)

REINFORCING BETWEEN DEFLECTION JOINTS AT PILASTERS												
BAR LOCATION	BETWEEN SECT. 1 & 5	BETWEEN SECT. 5 & 5	BETWEEN SECT. 5 & 9	BETWEEN SECT. 2 & 6	BETWEEN SECT. 6 & 6	BETWEEN SECT. 6 & 10	BETWEEN SECT. 3 & 7	BETWEEN SECT. 7 & 7	BETWEEN SECT. 7 & 11	BETWEEN SECT. 4 & 8	BETWEEN SECT. 8 & 8	BETWEEN SECT. 8 & 12
J	3-R529 E.F.	3-R530 E.F.	3-R531 E.F.	3-R532 E.F.	3-R533 E.F.	3-R534 E.F.	3-R535 E.F.	3-R536 E.F.	3-R537 E.F.	3-R538 E.F.	3-R539 E.F.	3-R540 E.F.

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REVISED
DESIGNED CJW
CHECKED BCW

RAILING DETAILS
BRIDGE NO. CUY-77-1409
BROADWAY AVENUE OVER IR 77

CUY-77-13.80
PID No. 82388

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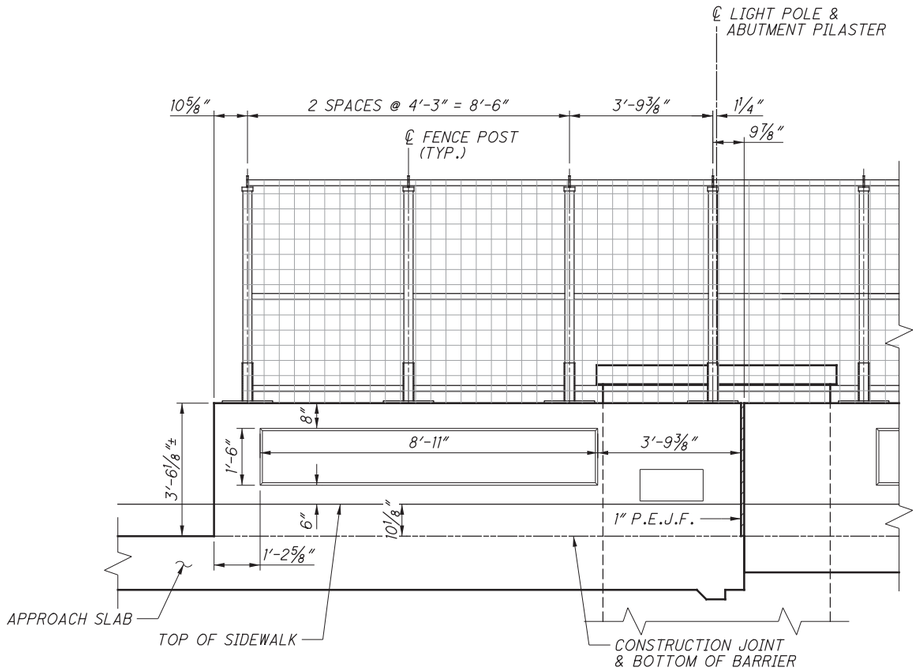
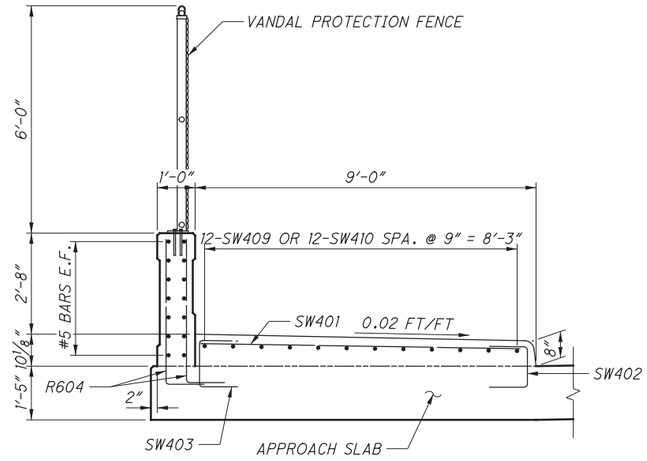
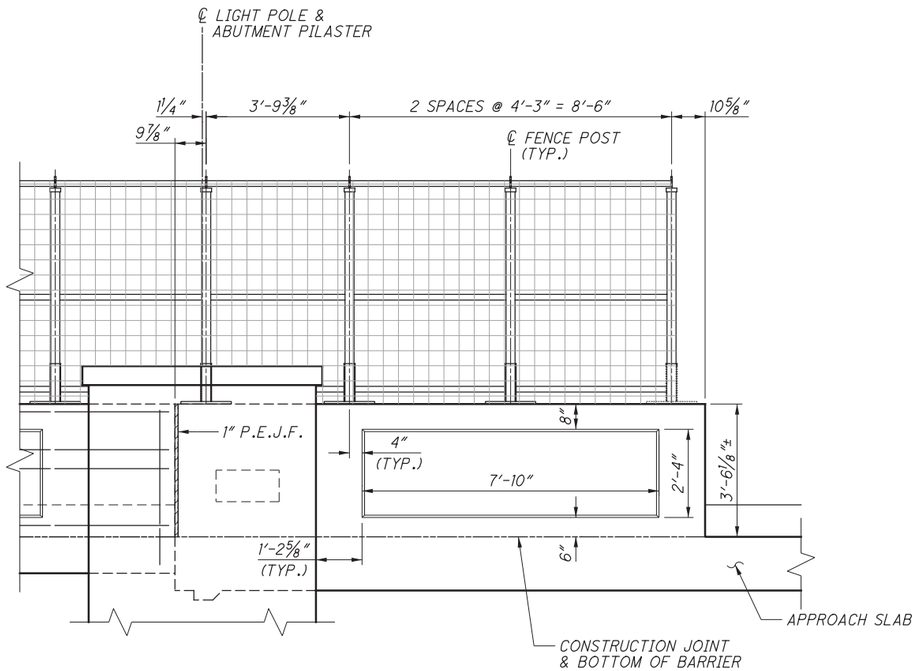


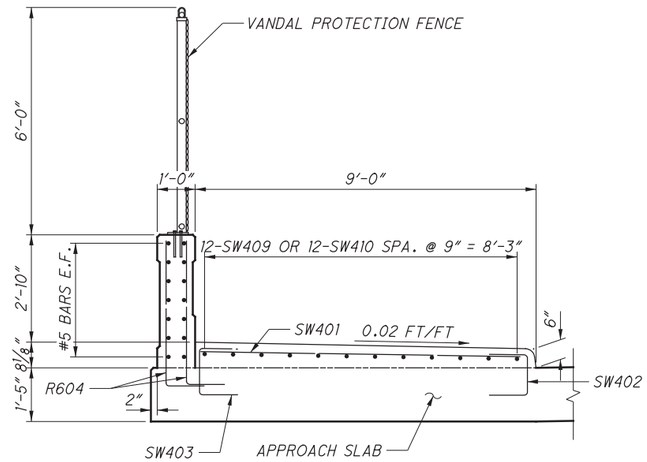
TRAFFIC SIDE ELEVATION - LEFT REAR APPROACH



TYPICAL RAILING SECTION WITH 8″ CURB



OUTSIDE ELEVATION - LEFT REAR APPROACH



TYPICAL RAILING SECTION WITH 6″ CURB

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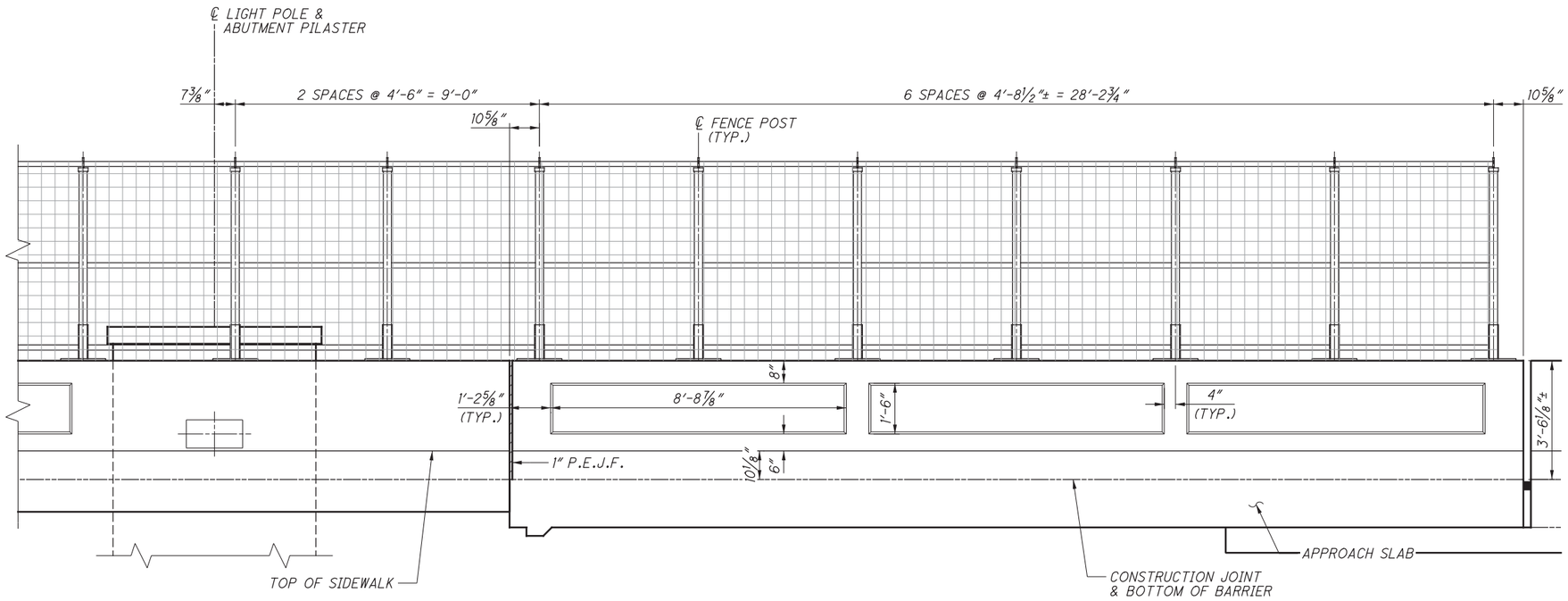
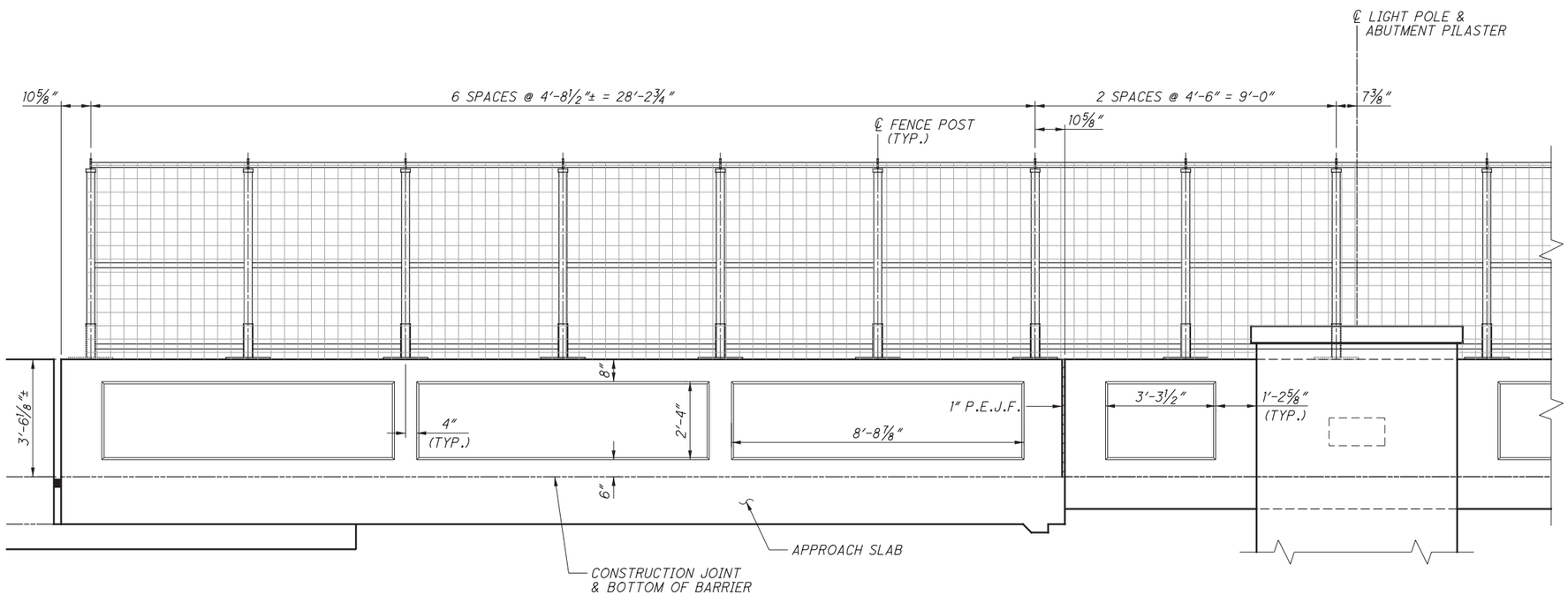
APPROACH SLAB RAILING DETAILS
BRIDGE NO. CUY-77-1409
BROADWAY AVENUE OVER IR 77

CUY-77-13.80
PID No. 82388



TRAFFIC SIDE ELEVATION - LEFT FORWARD APPROACH



OUTSIDE ELEVATION - LEFT FORWARD APPROACH

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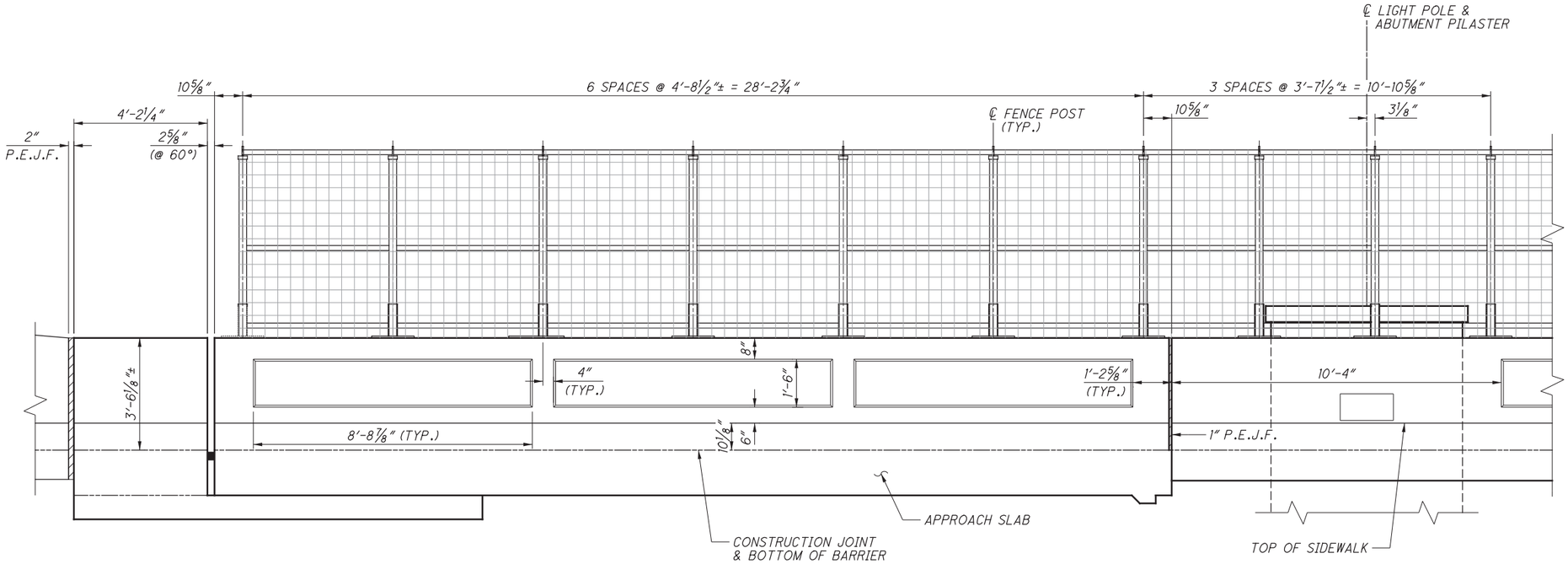
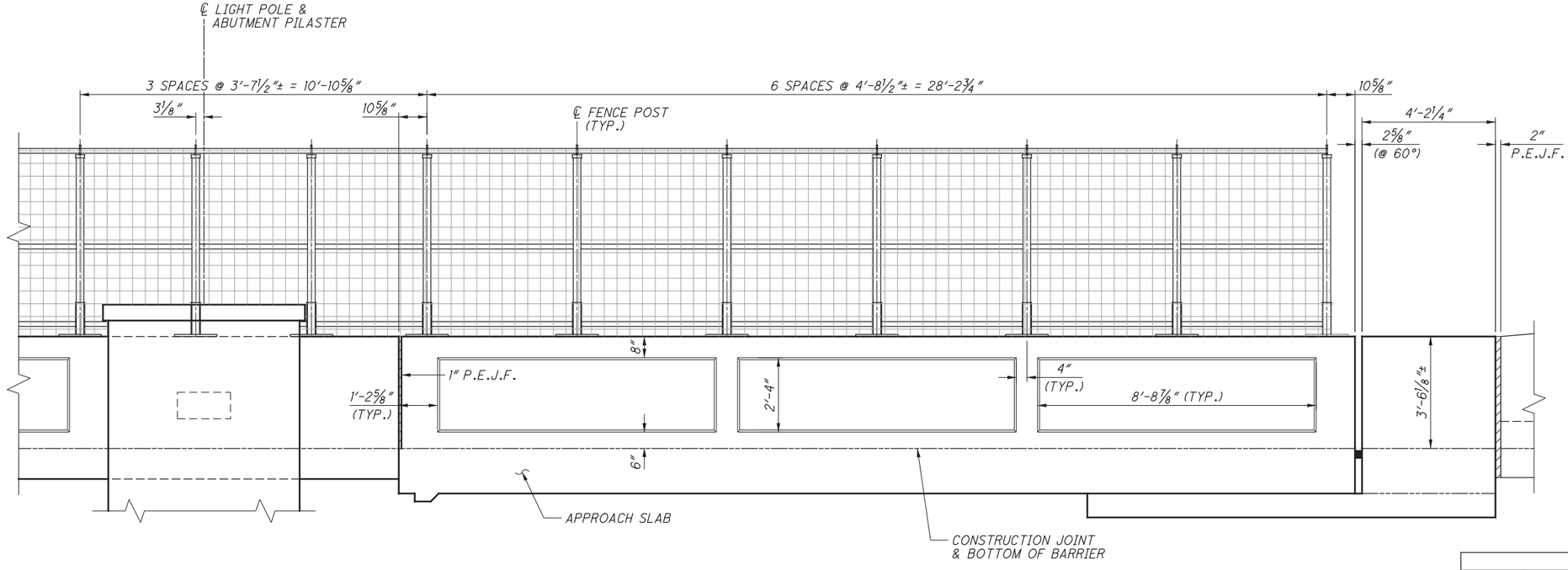
APPROACH SLAB RAILING DETAILS
BRIDGE NO. CUY-77-1409
BROADWAY AVENUE OVER IR 77

CUY-77-13.80
PID No. 82388



TRAFFIC SIDE ELEVATION - RIGHT FORWARD APPROACH



OUTSIDE ELEVATION - RIGHT FORWARD APPROACH

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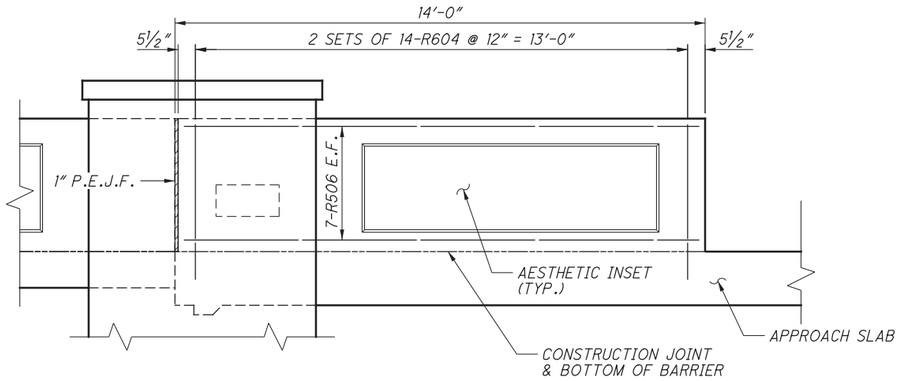
APPROACH SLAB RAILING DETAILS
BRIDGE NO. CUY-77-1409
BROADWAY AVENUE OVER IR 77

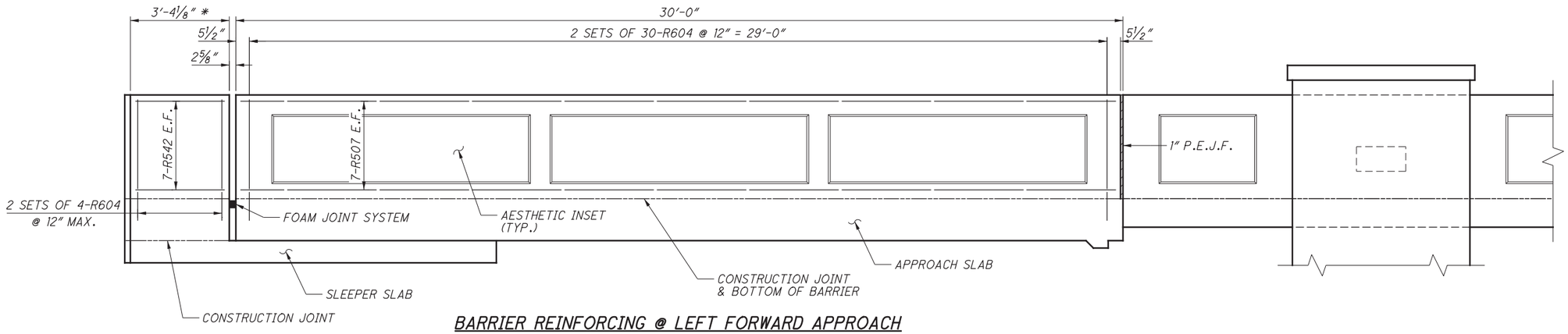
CUY-77-13.80
PID No. 82388

74 / 91
75 / 100



BARRIER REINFORCING @ LEFT REAR APPROACH

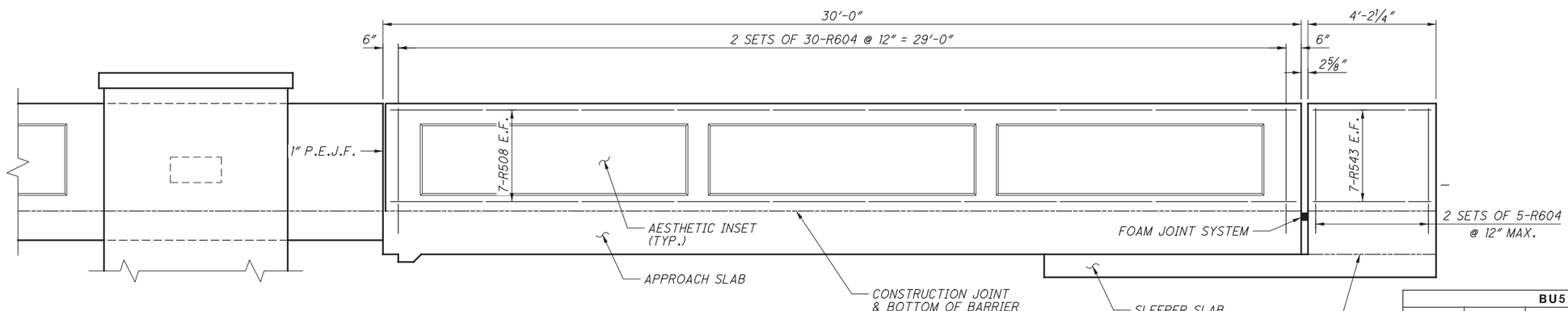
OUTSIDE VIEW
(VANDAL PROTECTION FENCE NOT SHOWN FOR CLARITY)



BARRIER REINFORCING @ LEFT FORWARD APPROACH

OUTSIDE VIEW
(VANDAL PROTECTION FENCE NOT SHOWN FOR CLARITY)

* MEASURED ALONG THE CURVE



BARRIER REINFORCING @ RIGHT FORWARD APPROACH

OUTSIDE VIEW
(VANDAL PROTECTION FENCE NOT SHOWN FOR CLARITY)

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APPROACH SLAB RAILING DETAILS
BRIDGE NO. CUY-77-1409
BROADWAY AVENUE OVER IR 77

CUY-77-13.80
PID No. 82388

75 / 91
76 / 100

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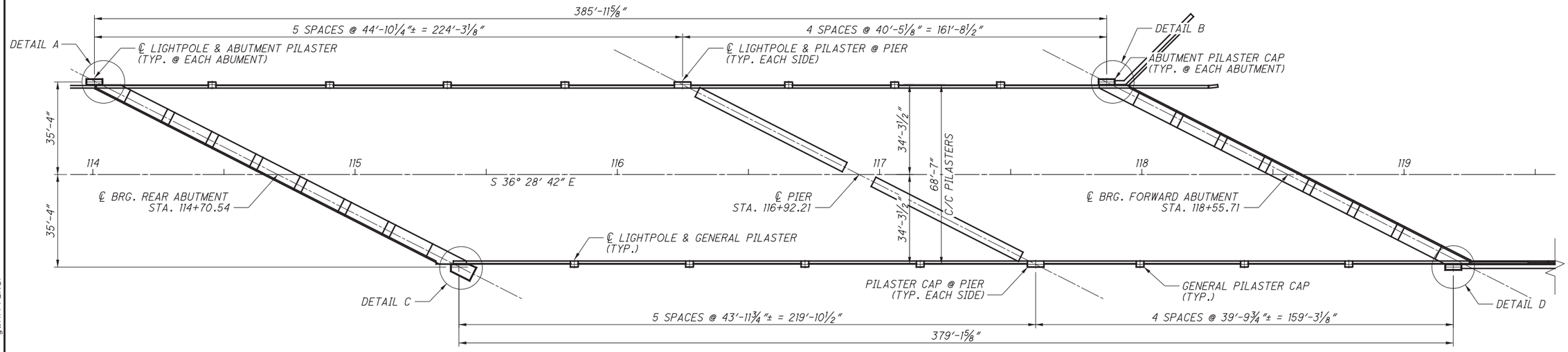
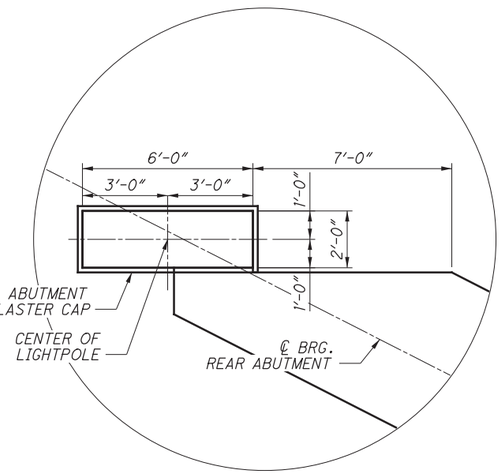
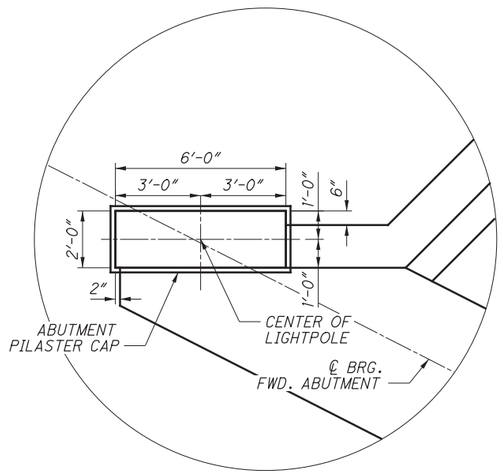


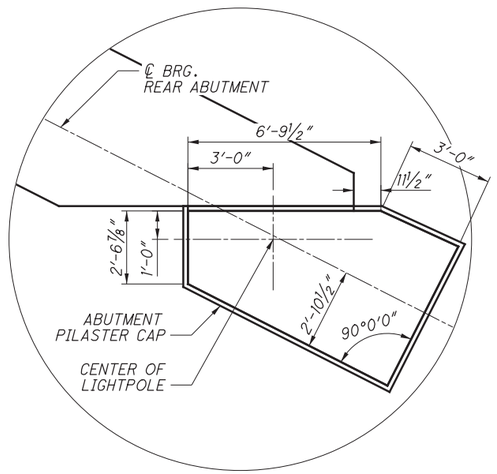
PILASTER LAYOUT



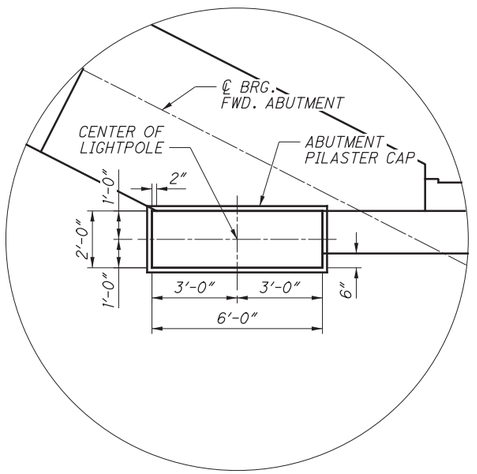
DETAIL A



DETAIL B



DETAIL C



DETAIL D

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PILASTER PLAN
BRIDGE NO. CUY-77-1409
BROADWAY AVENUE OVER IR 77

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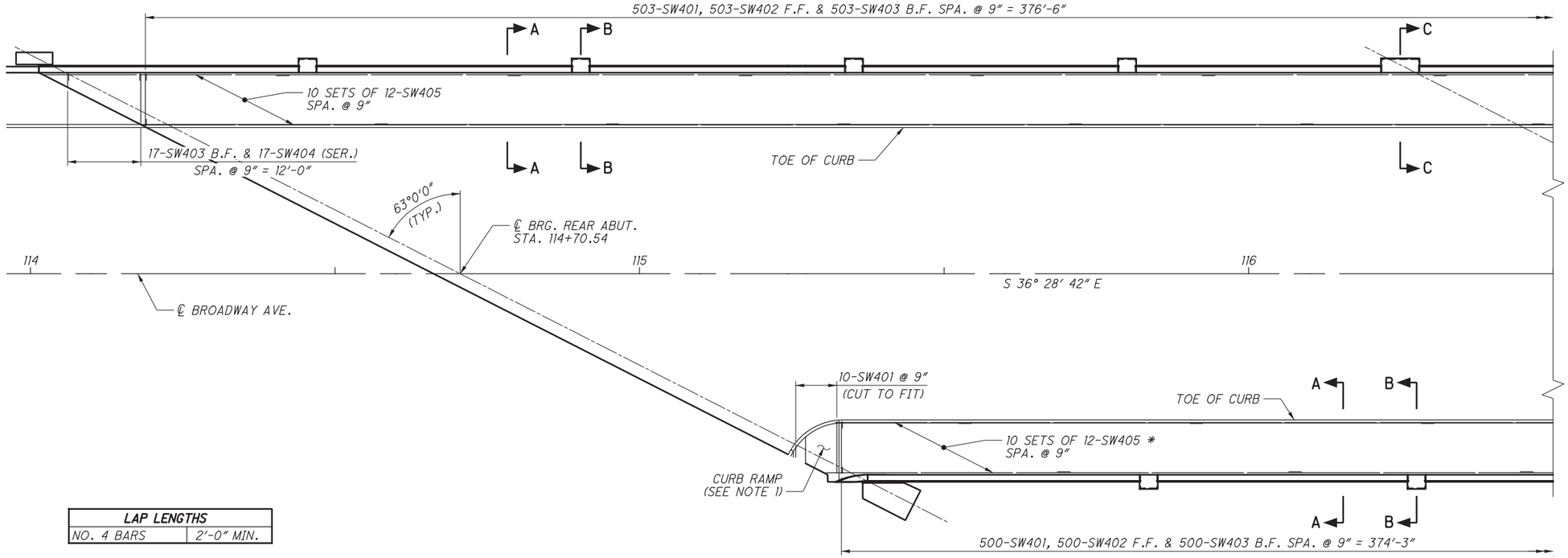

LAP LENGTHS	
NO. 4 BARS	2'-0" MIN.

SIDEWALK REINFORCING PARTIAL PLAN

* BEND OR CUT SW405 BARS TO FIT THE CURB RAMP

NOTES:

1. FOR CURB RAMP DETAILS, SEE BU3 SHEET 86.
2. FOR SECTIONS A-A, B-B & C-C, SEE SHEET 64/91.

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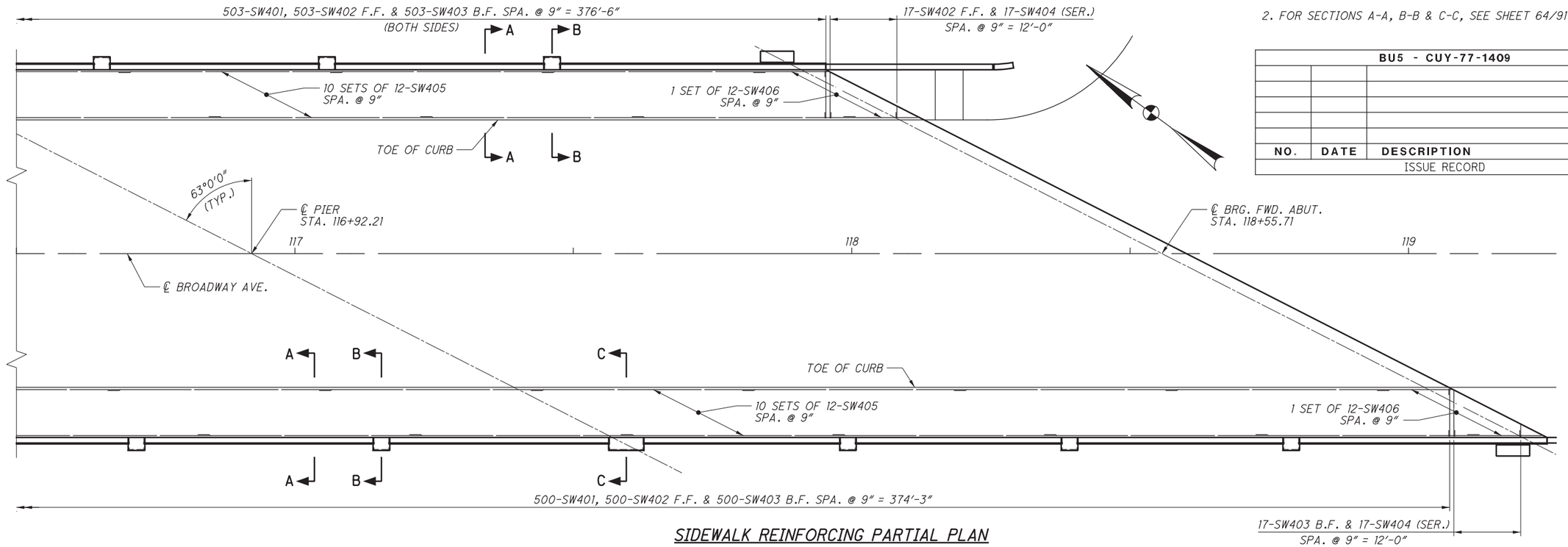

SIDEWALK REINFORCING PARTIAL PLAN

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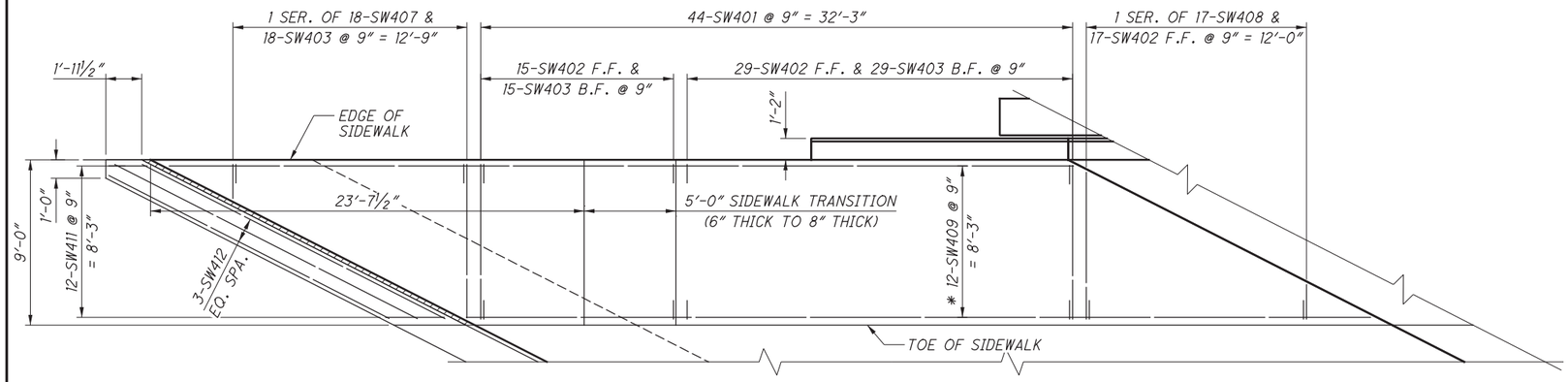
SIDEWALK REINFORCING PLAN
BRIDGE NO. CUY-77-1409
BROADWAY AVENUE OVER IR 77

CUY-77-13.80
PID No. 82388

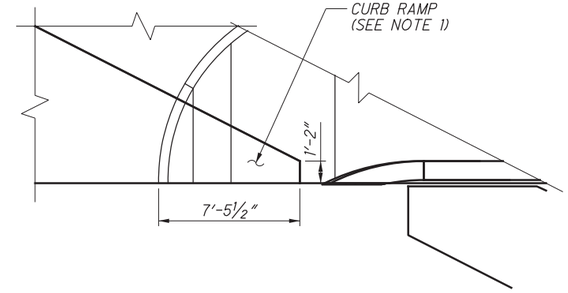
77 / 91

78 / 100



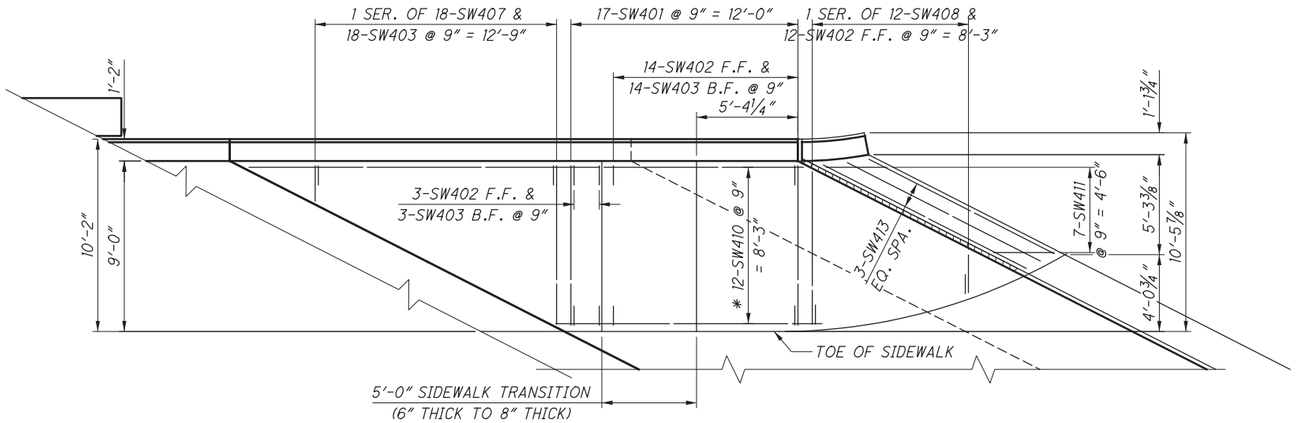
APPROACH SLAB SIDEWALK DETAILS - LEFT REAR

* BEND SW409 BARS TO FIT THE SIDEWALK TRANSITION
** TRIM SW412 BARS TO FIT SIDEWALK



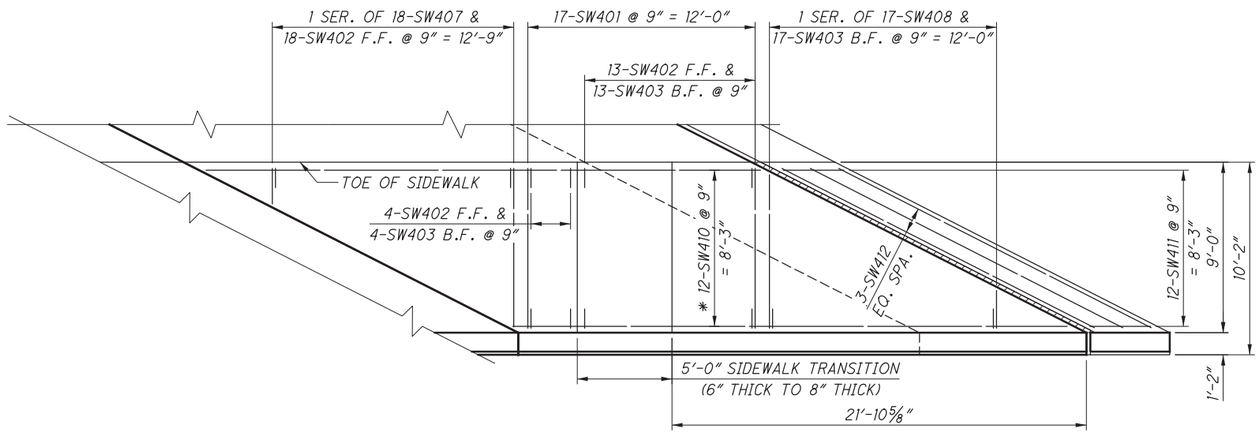
APPROACH SLAB SIDEWALK DETAILS - RIGHT REAR

(THERE IS NO REINFORCING IN THE CURB RAMP ON THE APPROACH SLAB)



APPROACH SLAB SIDEWALK DETAILS - LEFT FORWARD

* BEND SW410 BARS TO FIT THE SIDEWALK TRANSITION &
TRIM THE SW410 BARS TO FIT THE CURVED SIDEWALK
** TRIM SW413 BARS TO FIT SIDEWALK



APPROACH SLAB SIDEWALK DETAILS - RIGHT FORWARD

* BEND SW410 BARS TO FIT THE SIDEWALK TRANSITION

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NOTES:

1. FOR CURB RAMP DETAILS, SEE BU3 SHEET 86.

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APPROACH SLAB SIDEWALK DETAILS
BRIDGE NO. CUY-77-1409
BROADWAY AVENUE OVER IR 77

CUY-77-13.80
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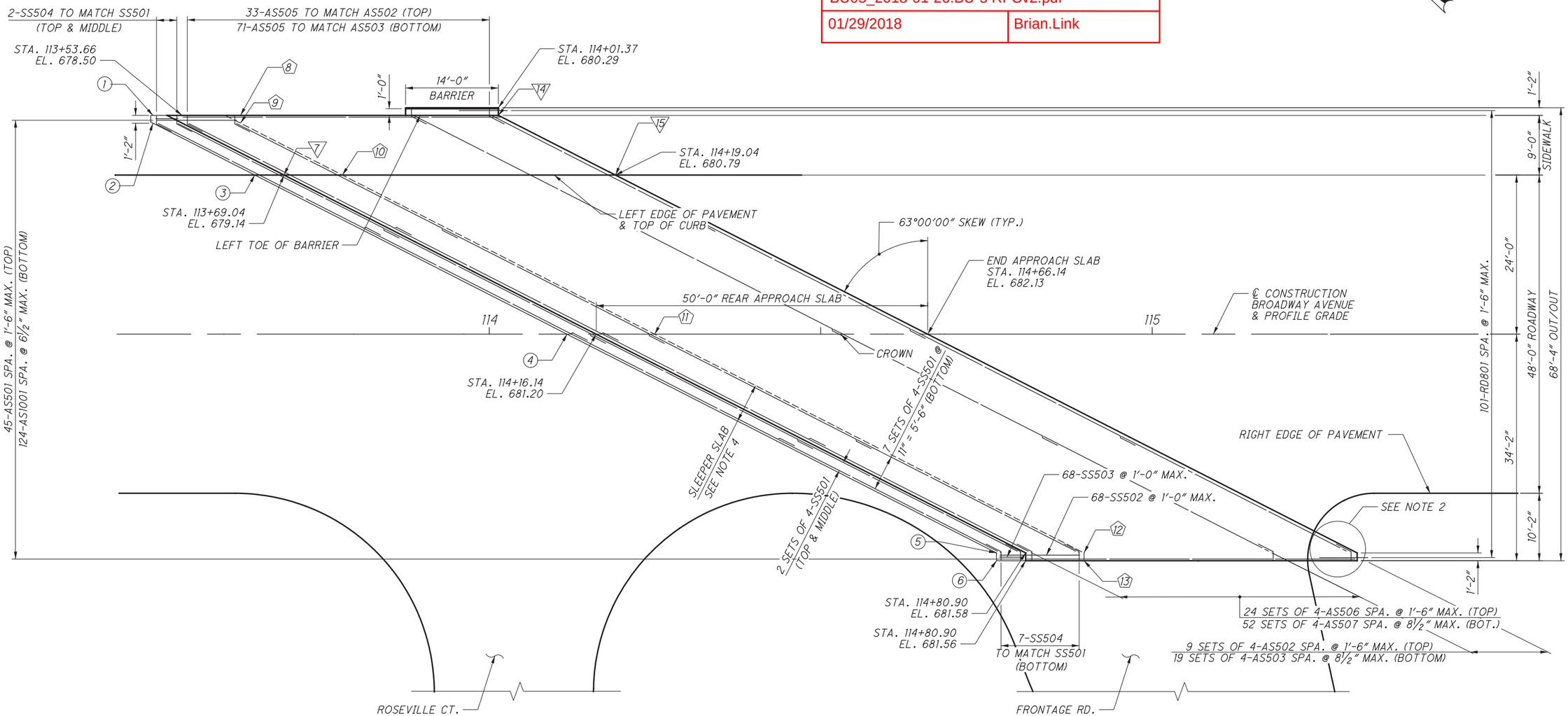

REAR APPROACH SLAB PLAN

SLEEPER SLAB SURFACE ELEVATIONS AT ROADWAY & UNDER SIDEWALK		
	STATION	ELEVATION
①	113+49.26	678.33
②	113+49.26	678.33
③	113+64.63	678.95
④	114+11.73	681.08
⑤	114+76.50	681.52
⑥	114+76.50	681.50

SLEEPER SLAB SURFACE ELEVATIONS UNDER APPROACH SLAB		
	STATION	ELEVATION
⑧	113+62.47	677.45
⑨	113+62.47	677.45
⑩	113+77.85	678.07
⑪	114+24.95	680.00
⑫	114+89.71	680.19
⑬	114+89.71	680.17

TOP OF SIDEWALK ELEVATIONS		
	STATION	ELEVATION
⑦	113+69.03	679.80
⑭	114+01.37	681.14
⑮	114+19.04	681.47

REQUIRED LAP LENGTHS	
NO. 5 BARS	2'-6" MIN.

NOTES:

1. FOR FORWARD APPROACH SLAB PLAN, SEE SHEET 80/91 .
2. SEE BU3 PLANS, CURB RAMP DETAILS FOR ELEVATIONS AND ADDITIONAL INFORMATION.
3. SEE BU3 PLANS, INTERSECTION DETAIL AT FRONTAGE RD. AND BROADWAY AVENUE FOR ADDITIONAL ELEVATIONS AND INFORMATION.
4. TYPE C SLEEPER SLAB INSTALLATION AS PER AS-2-15.
5. FOR BARRIER DETAILS, SEE SHEETS 72/91 THRU 75/91 .
6. APPROACH SLABS (THICKNESS = 17") SHALL BE CONSTRUCTED PER CMS ITEM 526.

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REAR APPROACH SLAB PLAN
BRIDGE NO. CUY-77-1409
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CUY-77-13.80
PID No. 82388

79 / 91

80 / 100

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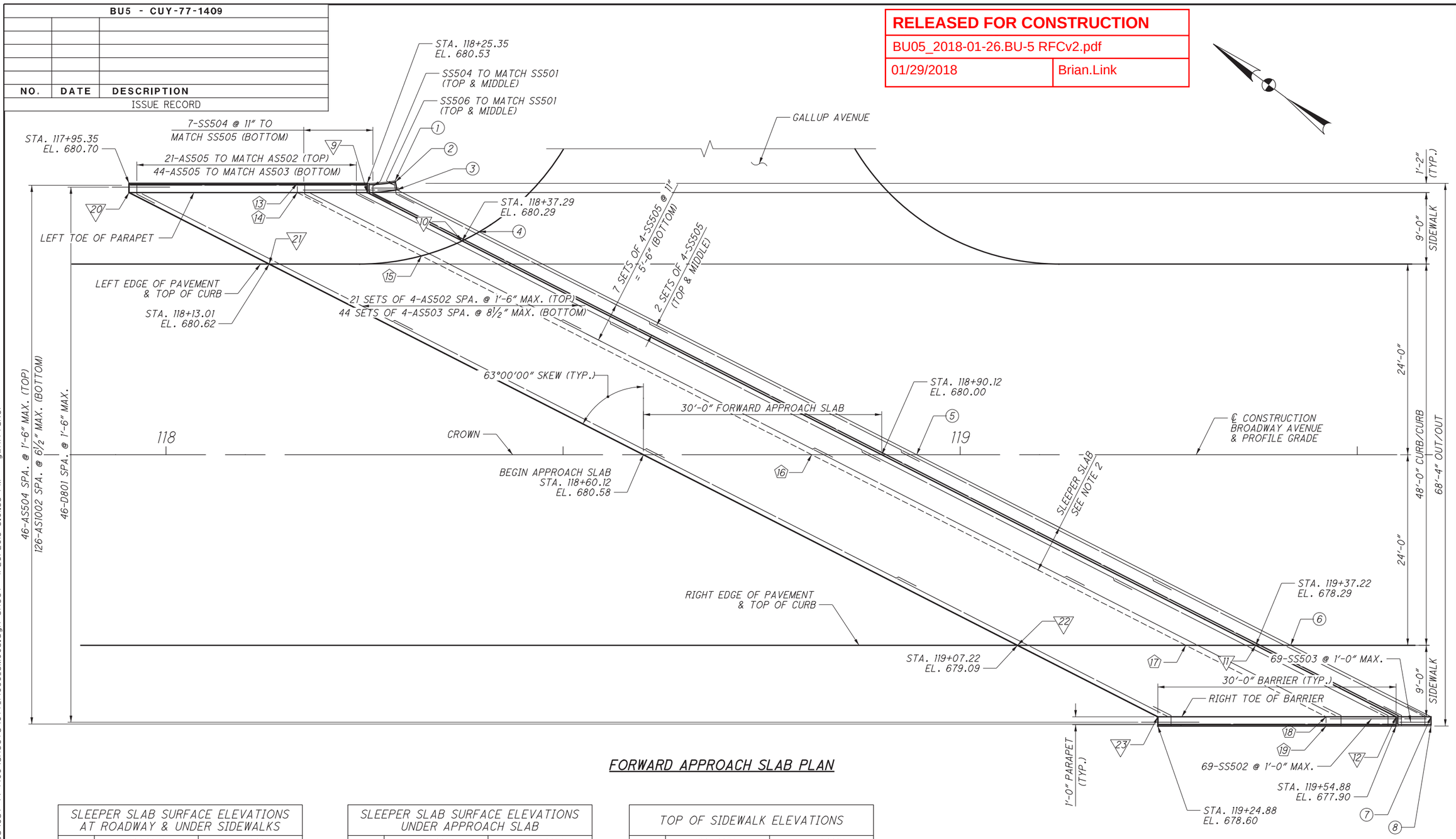

FORWARD APPROACH SLAB PLAN

SLEEPER SLAB SURFACE ELEVATIONS AT ROADWAY & UNDER SIDEWALKS		
	STATION	ELEVATION
1	118+28.86	680.41
2	118+28.89	680.41
3	118+29.08	680.41
4	118+39.45	680.23
5	118+94.52	679.89
6	119+41.62	678.18
7	119+59.29	677.81
8	119+59.29	677.81

SLEEPER SLAB SURFACE ELEVATIONS UNDER APPROACH SLAB		
	STATION	ELEVATION
13	118+16.54	679.17
14	118+16.54	679.17
15	118+32.18	678.99
16	118+81.30	678.76
17	119+28.41	677.09
18	119+46.07	676.67
19	119+46.07	676.67

TOP OF SIDEWALK ELEVATIONS		
	STATION	ELEVATION
9	118+25.35	681.36
10	118+37.29	680.96
11	119+37.22	678.96
12	119+54.88	678.73
20	117+95.35	681.54
21	118+13.01	681.29
22	119+07.22	679.75
23	119+24.88	679.44

REQUIRED LAP LENGTHS	
NO. 5 BARS	2'-6" MIN.

NOTES:

1. FOR REAR APPROACH SLAB PLAN, SEE SHEET 79/91 .
2. TYPE C SLEEPER SLAB INSTALLATION AS PER AS-2-15.
3. FOR BARRIER DETAILS, SEE SHEETS 72/91 THRU 75/91 .
4. APPROACH SLABS (THICKNESS = 17") SHALL BE CONSTRUCTED PER CMS ITEM 526.

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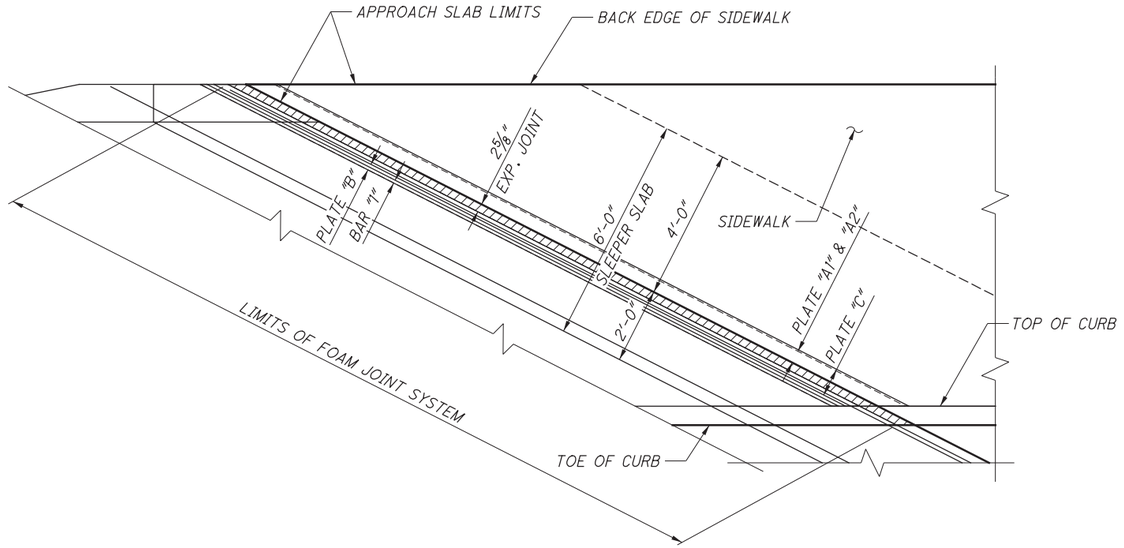
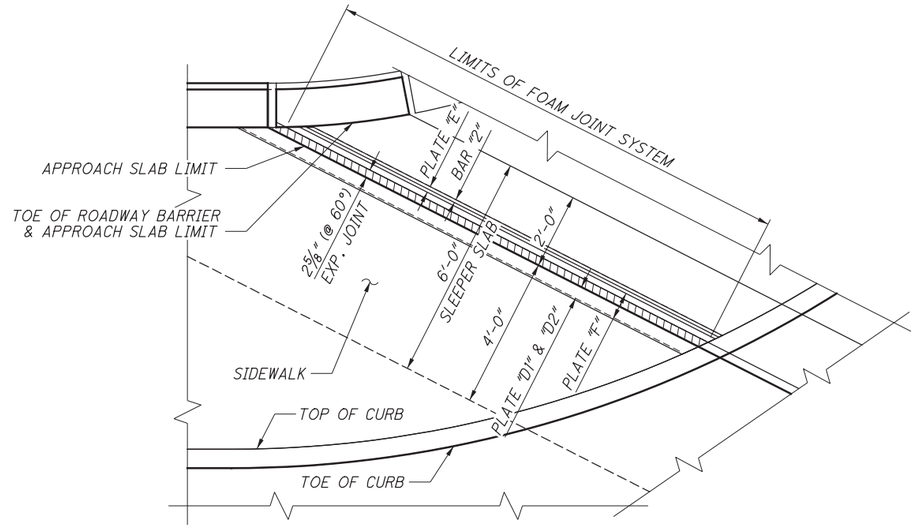
80/91

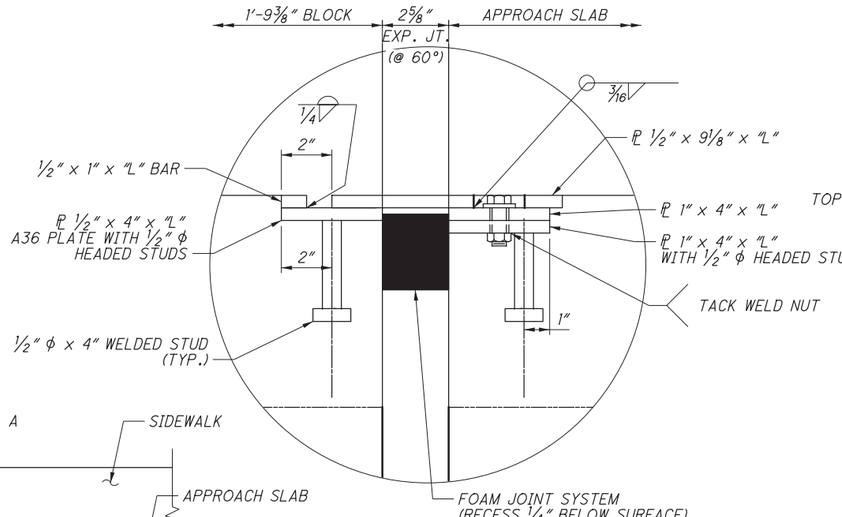
81/100



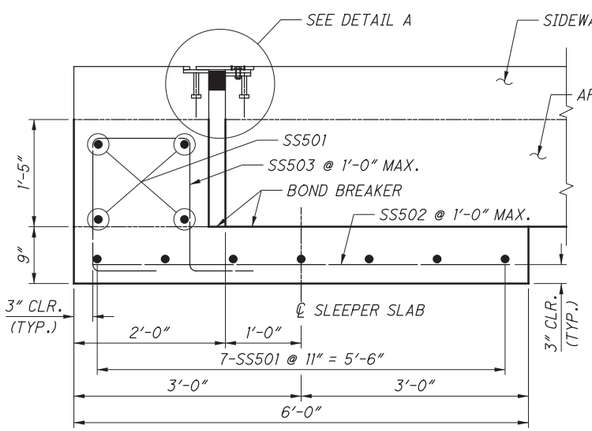
EXPANSION JOINT DETAIL - LEFT REAR



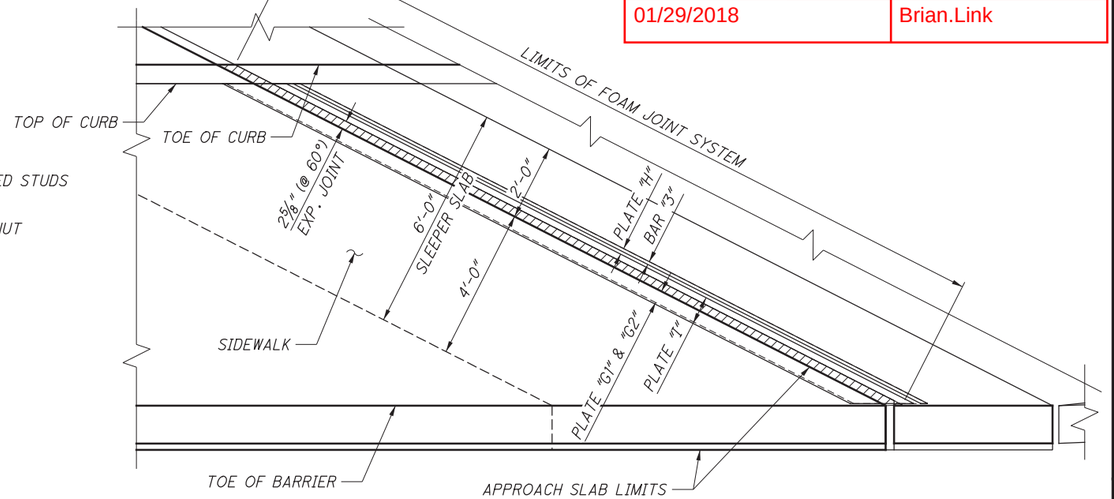
EXPANSION JOINT DETAIL - LEFT FORWARD



DETAIL A



APPROACH SLAB JOINT TYPICAL SECTION



EXPANSION JOINT DETAIL - RIGHT FORWARD

RELEASED FOR CONSTRUCTION

BU05_2018-01-26.BU-5 RFCv2.pdf

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NOTES:

1. FOR PLATE DETAILS, SEE 82/91.

NO.	DATE	DESCRIPTION
		ISSUE RECORD

BU5 - CUY-77-1409

E.L. ROBINSON ENGINEERING
1501 Watermark Drive, Suite 310 • Columbus, Ohio 43215
www.elrobinsonengineering.com

DESIGNED	DRAWN	REVIEWED	DATE
DTA	DTA	RER	1/15/2017
CHECKED	REVISED	STRUCTURE FILE NUMBER	
CJW		1806663	

SIDEWALK SLIDING PLATE DETAILS
BRIDGE NO. CUY-77-1409
BROADWAY AVENUE OVER IR 77

CUY-77-13.80
PID No. 82388

81 / 91

82 / 100

P:\82388_CCGBA\Design\Structures\CUY-77-1409\sheets\077_1409C_SA015.dgn Sheet 1/26/2018 3:01:34 PM gwhittaker

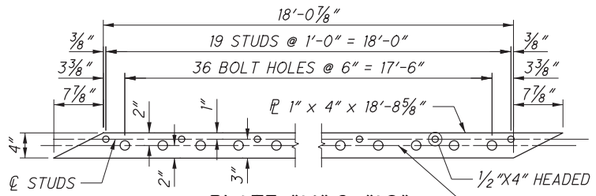


PLATE "A1" & "A2"

(PLATE "A1" SHOWN, PLATE "A2" IS SAME DIMENSIONS WITHOUT STUDS)

℄ 5/8" ϕ x 2" BOLTS, ATSM A307 WITH HEX NUTS AND WASHER GALVANIZED PER 711.02. DRILL 3/4" ϕ HOLES IN 1" x 4" BAR.

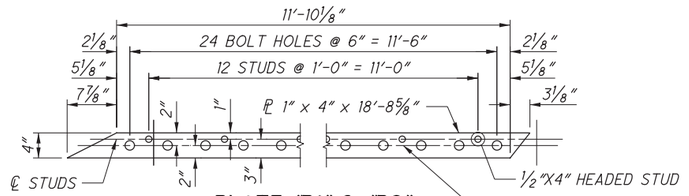


PLATE "D1" & "D2"

(PLATE "D1" SHOWN, PLATE "D2" IS SAME DIMENSIONS WITHOUT STUDS)

℄ 5/8" ϕ x 2" BOLTS, ATSM A307 WITH HEX NUTS AND WASHER GALVANIZED PER 711.02. DRILL 3/4" ϕ HOLES IN 1" x 4" BAR.

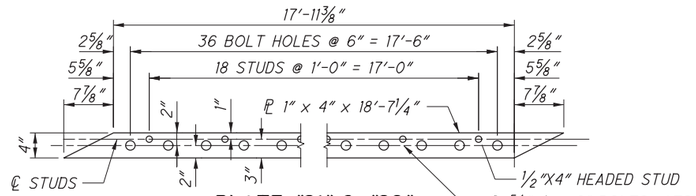


PLATE "G1" & "G2"

(PLATE "G1" SHOWN, PLATE "G2" IS SAME DIMENSIONS WITHOUT STUDS)

℄ 5/8" ϕ x 2" BOLTS, ATSM A307 WITH HEX NUTS AND WASHER GALVANIZED PER 711.02. DRILL 3/4" ϕ HOLES IN 1" x 4" BAR.

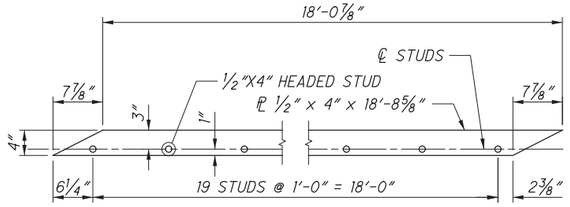


PLATE "B"

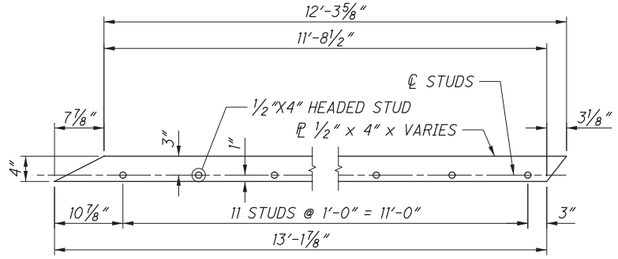
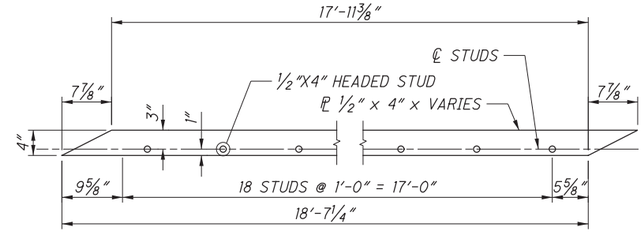


PLATE "E"



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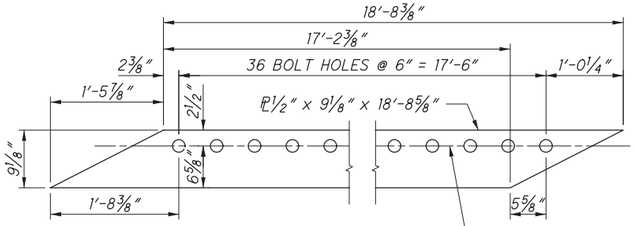


PLATE "C"

℄ 5/8" ϕ x 2" BOLTS, ATSM A307 WITH HEX NUTS AND WASHER GALVANIZED PER 711.02. DRILL 3/4" ϕ HOLES IN 1" x 4" BAR.

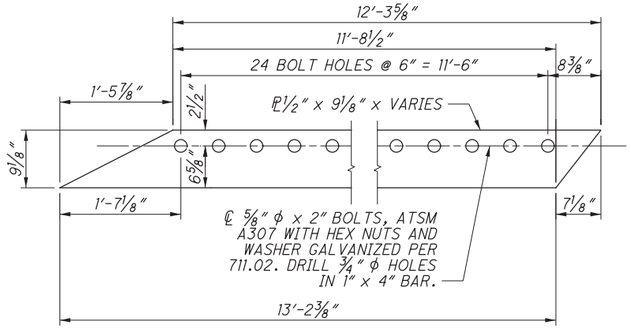


PLATE "F"

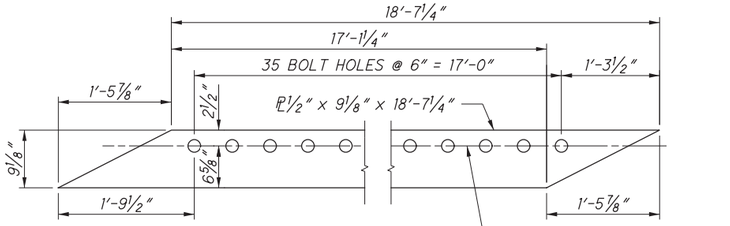
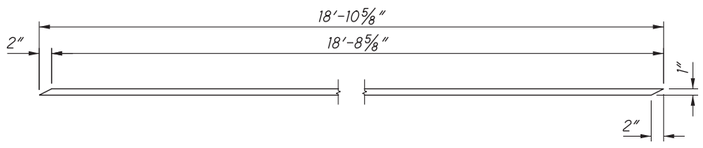
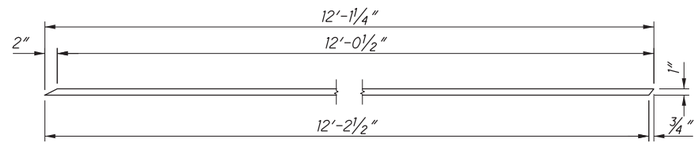


PLATE "I"

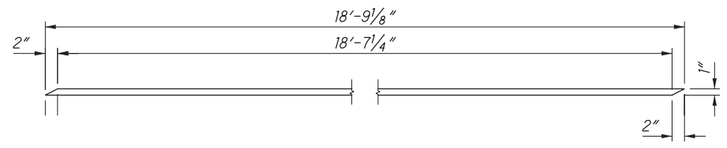
℄ 5/8" ϕ x 2" BOLTS, ATSM A307 WITH HEX NUTS AND WASHER GALVANIZED PER 711.02. DRILL 3/4" ϕ HOLES IN 1" x 4" BAR.



BAR "1"



BAR "2"



BAR "3"

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01/29/2018	Brian.Link

NOTES:

1. FOR PLATE LOCATIONS, SEE 81/91.

BU5 - CUY-77-1409		
NO.	DATE	DESCRIPTION
ISSUE RECORD		

E.L. ROBINSON ENGINEERING
1801 Watermark Drive, Suite 310 - Columbus, Ohio 43215
www.elrobinsonengineering.com

DESIGNED	DRAWN	REVIEWED	DATE
DTA	DTA	RER	1/15/2017
CHECKED	REVISED	STRUCTURE FILE NUMBER	
CJW		1806663	

SIDEWALK SLIDING PLATE DETAILS
BRIDGE NO. CUY-77-1409
BROADWAY AVENUE OVER IR 77

CUY-77-13.80
PID No. 82388

82 / 91

83
100

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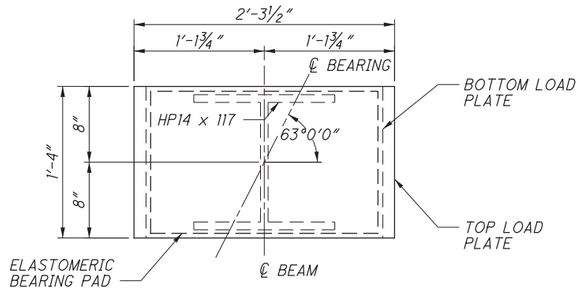
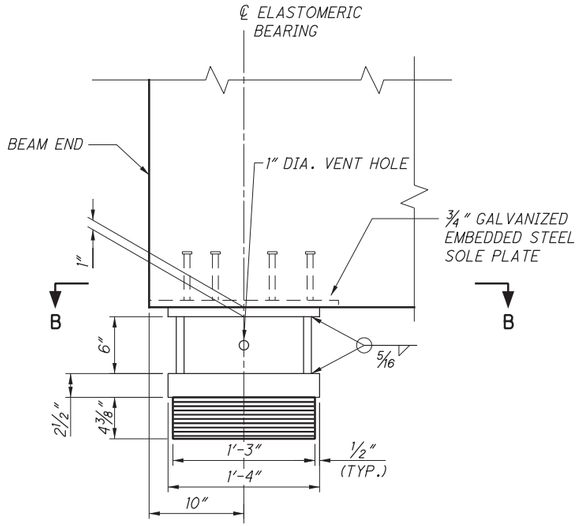
2018-01-26.BU-5 CUY-77-1409 - RFC Plans



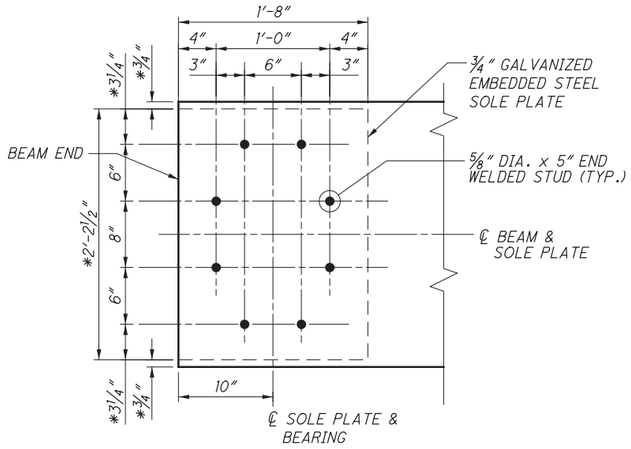
SECTION A-A

LAMINATED ELASTOMERIC BEARINGS AT REAR ABUTMENT										
BEARING DIMENSIONS					REACTIONS		MAXIMUM DESIGN LOAD	UNFACTORED ROTATIONS		
ti	*te*	*T*	*n*	*N*	*DL*	*LL W/O IMPACT*		*Max.* θ_{FWS}	*Max.* $\theta_{DC1 + DC2}$	θ_{LL}
0.375"	0.25"	4.375"	9	9	585 K	167 K	785 K	0.03312°	0.5266°	0.04973°

ti = THICKNESS OF INTERNAL LAYER
te = THICKNESS OF EXTERNAL LAYER
T = TOTAL THICKNESS OF ELASTOMERIC BEARING
n = NUMBER OF INTERNAL ELASTOMER LAYERS
N = NO. OF STEEL LAMINATES
INTERNAL STEEL LAMINATE THICKNESS = 0.0747"
DUROMETER OF ELASTOMER = 60 DUROMETER

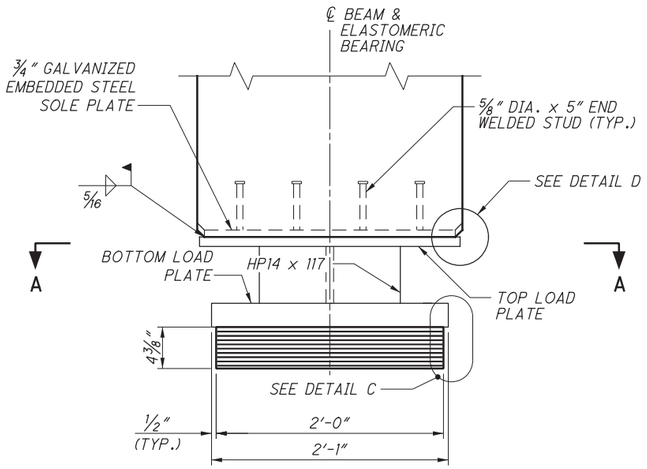


SIDE VIEW



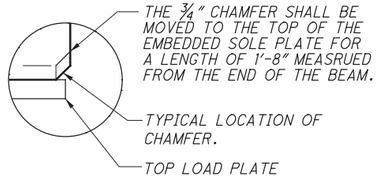
SECTION B-B

(TOP LOAD PLATE NOT SHOWN)

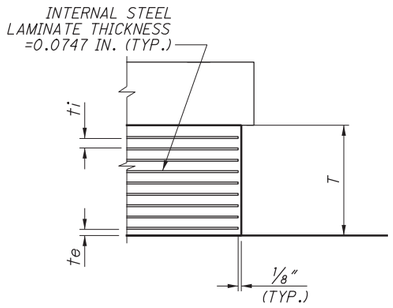


END VIEW

ELASTOMERIC EXPANSION BEARING



DETAIL D



DETAIL C

RELEASED FOR CONSTRUCTION

BU05_2018-01-26.BU-5 RFCv2.pdf	
01/29/2018	Brian.Link

LEGEND:

* THE SOLE PLATE WIDTH MAY BE DECREASED BY ⅜" TO ALLOW FOR FIT-UP. THE 3¼" DIMENSION SHOULD BE ADJUSTED ACCORDINGLY.

NOTES:

1. ELASTOMERIC BEARINGS: THE ELASTOMER SHALL HAVE A HARDNESS OF 60 DUROMETER. THE BEARINGS WERE DESIGNED IN ACCORDANCE WITH SECTION 14.7.5 (METHOD B) OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS. PERFORM THE LONG-TERM COMPRESSIVE PROOF LOAD TEST IN ACCORDANCE WITH THE AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, DIVISION II, SECTION 18.7.2.6 AND 18.7.4.5.

2. BEARING ASSEMBLIES SHALL HAVE ADEQUATE BLOCKING PLACED TO STABILIZE THE BEAM DURING ERECTION AND PLACEMENT OF THE CONCRETE DECK. THIS BLOCKING SHALL BE REMOVED ONCE THE CONCRETE DECK HAS HARDENED TO LIMITS ESTABLISHED IN CMS 511.14.

3. STEEL LOAD PLATES: 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.

4. THE STEEL LOAD PLATES AND HP14 x 117 SHALL CONFORM TO THE REQUIREMENTS ASTM A709 GRADE 50 STEEL AND SHALL BE GALVANIZED PER CMS 711.02. THE STEEL LOAD PLATES SHALL BE BONDED BY VULCANIZATION TO THE ELASTOMER DURING THE MOLDING PROCESS.

NO.	DATE	DESCRIPTION
		ISSUE RECORD

E.L. ROBINSON ENGINEERING
1001 Watermark Drive, Suite 310 • Columbus, Ohio 43215
www.elrobinsonengineering.com

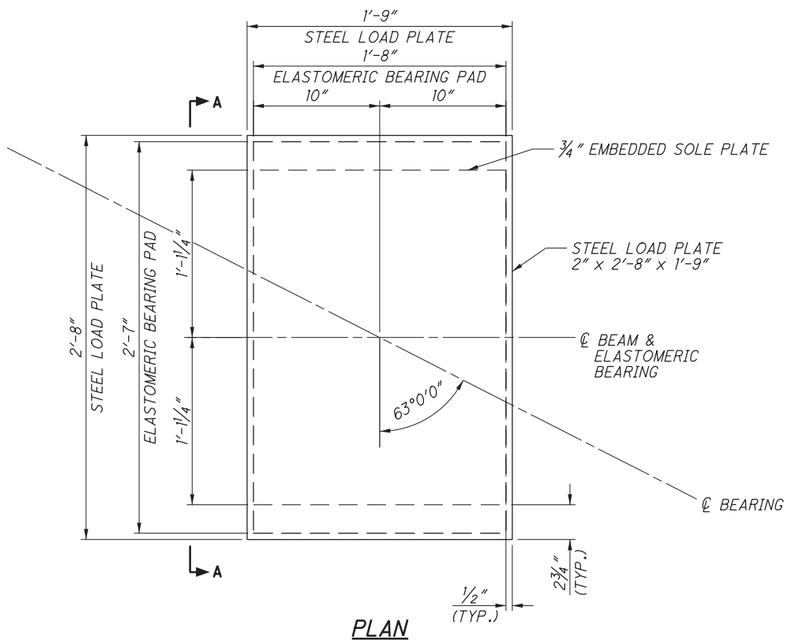
DESIGNED CJW | DRAWN MGB | REVIEWED RER | DATE 1/15/2017
CHECKED DFT | REVISED | STRUCTURE FILE NUMBER 1806663

BEARING DETAILS - REAR ABUTMENT
BRIDGE NO. CUY-77-1409
BROADWAY AVENUE OVER IR 77

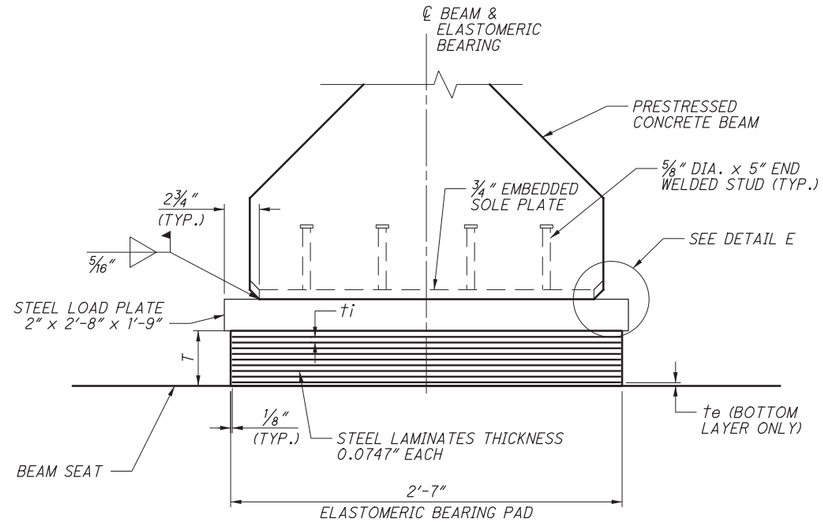
CUY-77-13.80
PID No. 82388

LAMINATED ELASTOMERIC BEARINGS AT PIER										
BEARING DIMENSIONS					REACTIONS		MAXIMUM DESIGN LOAD	UNFACTORED ROTATIONS		
t_i	t_e	T	n	N	DL	LL W/O IMPACT		$Max.\theta_{FWS}$	$Max.\theta_{DC1+DC2}$	θ_{LL}
0.375″	0.25″	4.375″	9	9	972 K	273 K	1244 K	0.01375°	0.1797°	0.00573°

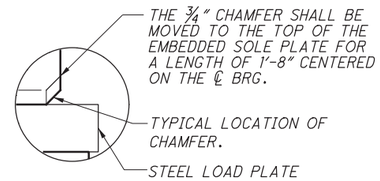
t_i = THICKNESS OF INTERNAL LAYER
t_e = THICKNESS OF EXTERNAL LAYER
T = TOTAL THICKNESS OF ELASTOMERIC BEARING
n = NUMBER OF INTERNAL ELASTOMER LAYERS
N = NO. OF STEEL LAMINATES
INTERNAL STEEL LAMINATE THICKNESS = 0.0747″
DUROMETER OF ELASTOMER = 60 DUROMETER



PLAN



SECTION A-A



DETAIL E

RELEASED FOR CONSTRUCTION

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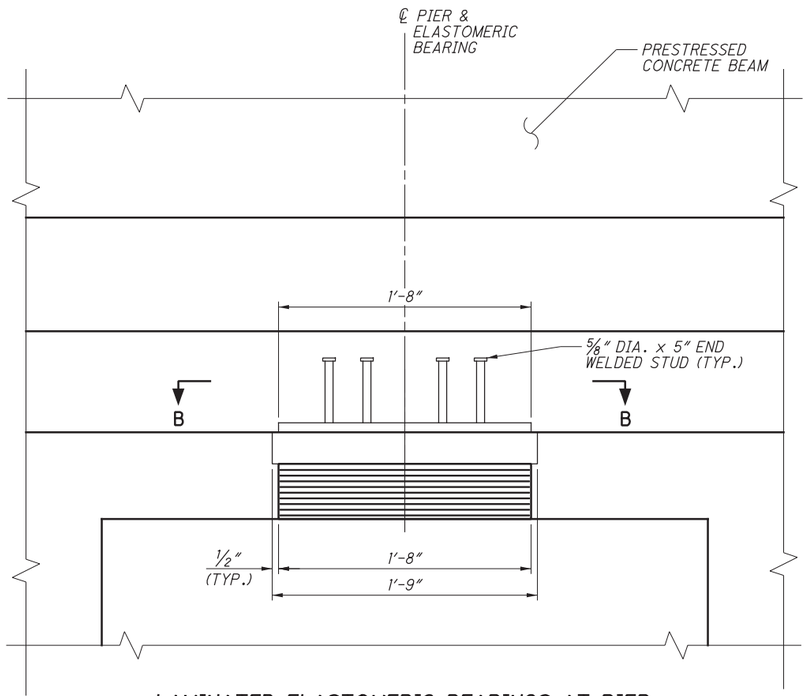
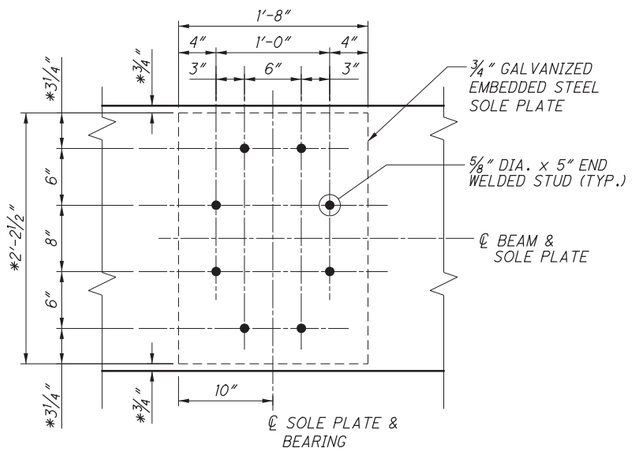
01/29/2018	Brian.Link



LAMINATED ELASTOMERIC BEARINGS AT PIER



SECTION B-B
(TOP LOAD PLATE NOT SHOWN)

LEGEND:

* THE SOLE PLATE WIDTH MAY BE DECREASED BY ⅜″ TO ALLOW FOR FIT-UP. THE 3¼″ DIMENSION SHOULD BE ADJUSTED ACCORDINGLY.

NOTES:

1. ELASTOMERIC BEARINGS: THE ELASTOMER SHALL HAVE A HARDNESS OF 60 DUROMETER. THE BEARINGS WERE DESIGNED IN ACCORDANCE WITH SECTION 14.7.5 (METHOD B) OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS. PERFORM THE LONG-TERM COMPRESSIVE PROOF LOAD TEST IN ACCORDANCE WITH THE AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, DIVISION II, SECTION 18.7.2.6 AND 18.7.4.5.
2. STEEL LOAD PLATES: 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.
3. THE STEEL LOAD PLATES SHALL MEET THE GRADE 50 REQUIREMENTS OF STRUCTURAL STEEL ASTM A709 AND SHALL BE GALVANIZED PER CMS 711.02.
4. THE STEEL LOAD PLATE SHALL BE BONDED BY VULCANIZATION TO THE ELASTOMER DURING THE MOLDING PROCESS.
5. ALL BEARINGS SHALL BE MARKED PRIOR TO SHIPPING. THE MARKS SHALL INCLUDE THE BEARING LOCATION ON THE BRIDGE, AND A DIRECTION ARROW THAT POINTS UP-STATION. ALL MARKS SHALL BE PERMANENT AND BE VISIBLE AFTER THE BEARING IS INSTALLED.
6. TOTAL DESIGN LOAD FOR BEARINGS EQUALS THE SUM OF THE DEAD LOADS AND LIVE LOADS TABULATED IN THE BEARING TABLE. IMPACT IS NOT INCLUDED. LOADS ARE UNFACTORED.

BU5 - CUY-77-1409		
NO.	DATE	DESCRIPTION
ISSUE RECORD		

E.L. ROBINSON ENGINEERING
1801 Watermark Drive, Suite 310 - Columbus, Ohio 43215
www.elrobinsonengineering.com

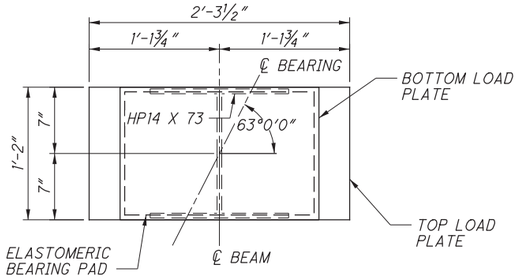
DESIGNED	DRAWN	REVIEWED	DATE
CJW	MGB	RER	1/15/2017
CHECKED	REVISED	STRUCTURE FILE NUMBER	
DFT		1806663	

BEARING DETAILS - PIER
BRIDGE NO. CUY-77-1409
BROADWAY AVENUE OVER IR 77

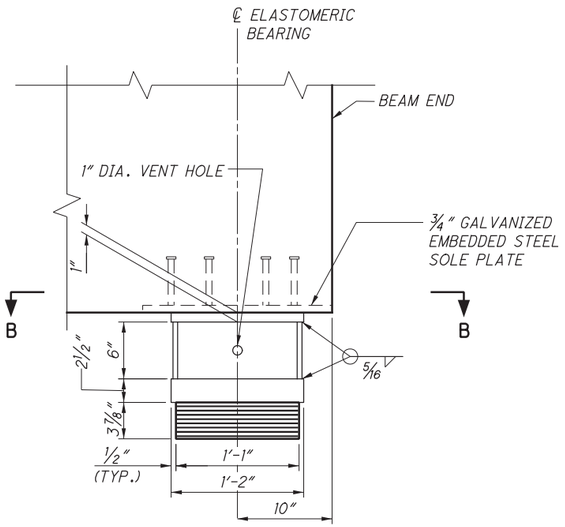
CUY-77-13.80
PID No. 82388

LAMINATED ELASTOMERIC BEARINGS AT FORWARD ABUTMENT										
BEARING DIMENSIONS					REACTIONS		MAXIMUM DESIGN LOAD	UNFACTORED ROTATIONS		
t_i	t_e	T	n	N	DL	LL W/O IMPACT		$Max.\theta_{FWS}$	$Max.\theta_{DC1+DC2}$	θ_{LL}
0.375"	0.25"	3.875"	8	8	363 K	138 K	508 K	0.00997°	0.12834°	0.0628°

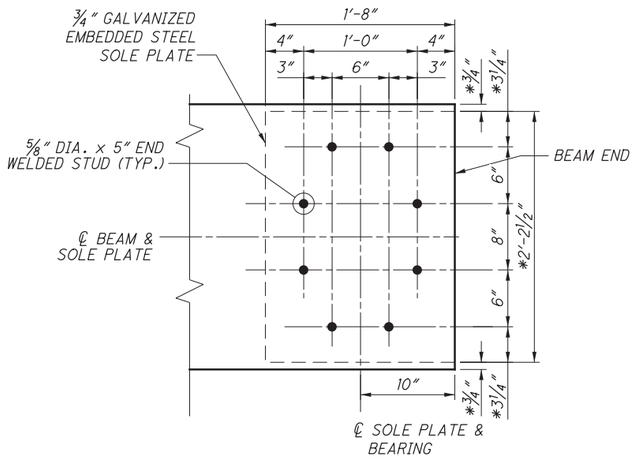
t_i = THICKNESS OF INTERNAL LAYER
t_e = THICKNESS OF EXTERNAL LAYER
T = TOTAL THICKNESS OF ELASTOMERIC BEARING
n = NUMBER OF INTERNAL ELASTOMER LAYERS
N = NO. OF STEEL LAMINATES
INTERNAL STEEL LAMINATE THICKNESS = 0.0747"
DUROMETER OF ELASTOMER = 60 DUROMETER



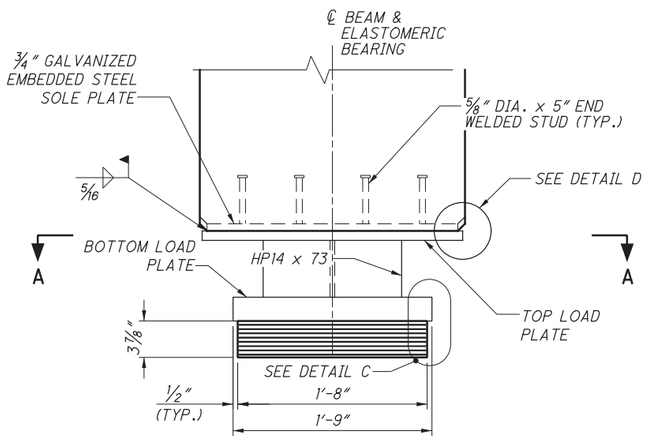
SECTION A-A



SIDE VIEW

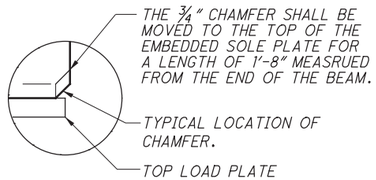


SECTION B-B
(TOP LOAD PLATE NOT SHOWN)

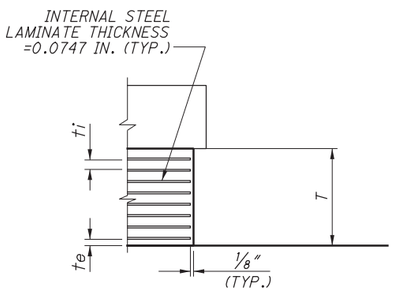


END VIEW

ELASTOMERIC EXPANSION BEARING



DETAIL D



DETAIL C

RELEASED FOR CONSTRUCTION

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01/29/2018	Brian.Link

LEGEND:

* THE SOLE PLATE WIDTH MAY BE DECREASED BY ⅜" TO ALLOW FOR FIT-UP. THE 3¼" DIMENSION SHOULD BE ADJUSTED ACCORDINGLY.

NOTES:

1. ELASTOMERIC BEARINGS: THE ELASTOMER SHALL HAVE A HARDNESS OF 60 DUROMETER. THE BEARINGS WERE DESIGNED IN ACCORDANCE WITH SECTION 14.7.5 (METHOD B) OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS. PERFORM THE LONG-TERM COMPRESSIVE PROOF LOAD TEST IN ACCORDANCE WITH THE AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, DIVISION II, SECTION 18.7.2.6 AND 18.7.4.5.

2. BEARING ASSEMBLIES SHALL HAVE ADEQUATE BLOCKING PLACED TO STABILIZE THE BEAM DURING ERECTION AND PLACEMENT OF THE CONCRETE DECK. THIS BLOCKING SHALL BE REMOVED ONCE THE CONCRETE DECK HAS HARDENED TO LIMITS ESTABLISHED IN CMS 511.14.

3. STEEL LOAD PLATES: 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.

4. THE STEEL LOAD PLATES AND HP14 x 73 SHALL CONFORM TO THE REQUIREMENTS ASTM A709 GRADE 50 STEEL AND SHALL BE GALVANIZED PER CMS 711.02. THE STEEL LOAD PLATES SHALL BE BONDED BY VULCANIZATION TO THE ELASTOMER DURING THE MOLDING PROCESS.

BU5 - CUY-77-1409		
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DESIGNED CJW | DRAWN MGB | REVIEWED RER | DATE 1/15/2017
CHECKED DFT | REVISED | STRUCTURE FILE NUMBER 1806663

BEARING DETAILS - FORWARD ABUTMENT
BRIDGE NO. CUY-77-1409
BROADWAY AVENUE OVER IR 77

CUY-77-13.80
PID No. 82388

MARK	NUMBER TOTAL	LENGTH	WEIGHT	TYPE	DIMENSIONS A	B	C	D	E	R	INC
REAR ABUTMENT											
RA401	NOT USED										
RA402	NOT USED										
RA403	16	23'-5"	250	1	1'-10"	21'-8"					
RA501	21	9'-7"	210	19	3'-0"	3'-0"	5'-11"				
RA502	NOT USED										
RA503	NOT USED										
RA504	NOT USED										
RA505	46	4'-8"	224	40	3'-3"	8"					
RA506	112	7'-0"	818	40	5'-5"	1'-0"					
RA507	56	6'-6"	380	40	4'-11"	1'-0"					
RA508	56	5'-9"	336	40	4'-2"	1'-0"					
RA509	21	6'-6"	142	19	3'-0"	1'-8"	3'-2"				
RA510	7	25'-11"	189	1	1'-0"	25'-1"					
RA511	7	16'-9"	122	1	10"	16'-1"					
RA512	1	16'-8"	17	3	6'-0"	2'-0"					
RA513	20	24'-8"	515	1	1'-0"	23'-10"					
RA514	20	17'-2"	358	1	10"	16'-6"					
RA515	1	26'-3"	27	42	7'-10"	2'-7"	6'-9"	3'-0"	5'-6"		
RA516	3	21'-4"	67	2	6'-0"	9'-7"	6'-0"				
RA517	43	15'-4"	688	3	5'-8"	1'-8"					
RA518	41	24'-8"	1,055	42	7'-6"	2'-2"	6'-5"	2'-10"	5'-2"		
RA601	80	18'-7"	2,233	12	4'-2"	4'-2"	1'-9"	5'-3"	6'-0"		
RA602	30	11'-1"	499	1	5'-3"	6'-0"					
RA603	30	7'-7"	342	19	1'-9"	4'-2"	4'-2"				
RA604	90	40'-0"	5,407	STR							
RA605	30	33'-2"	1,494	STR							
RA606	30	25'-9"	1,160	STR							
RA607	13	11'-11"	233	41	4'-4"	2'-3"	2'-3"	4'-5"			
RA608	13	10'-7"	207	8	4'-4"	2'-3"	4'-4"				
RA609	130	40'-0"	7,810	STR							
RA610	42	29'-0"	1,829	STR							
RA611	46	17'-8"	1,221	STR							
RA612	197	21'-5"	6,337	1	1'-0"	20'-7"					
RA613	97	22'-6"	3,278	1	1'-0"	21'-8"					
RA801	7	51'-9"	967	STR							
RA802	21	40'-0"	2,243	STR							
RA901	191	18'-10"	12,230	1	1'-10"	17'-3"					
RA902	103	20'-5"	7,150	1	1'-10"	18'-10"					
RA903	7	31'-10"	758	1	1'-10"	30'-3"					
RA904	7	16'-8"	397	1	10"	16'-1"					
RA905	8	30'-7"	832	1	1'-10"	29'-0"					
RA906	8	17'-1"	465	1	10"	16'-6"					
RA907	664	16'-7"	37,439	2	2'-7"	12'-0"	2'-7"				
RA908	3	23'-1"	235	1	1'-10"	21'-6"					
RA1001	56	18'-2"	4,378	12	4'-2"	4'-2"	1'-9"	5'-3"	6'-0"		
		SUBTOTAL	104,542								

MARK	NUMBER TOTAL	LENGTH	WEIGHT	TYPE	DIMENSIONS A	B	C	D	E	R	INC
FORWARD ABUTMENT											
FA401	NOT USED										
FA402	13	21'-11"	190	1	1'-0"	21'-0"					
FA501	NOT USED										
FA502	NOT USED										
FA503	112	6'-11"	808	40	5'-5"	1'-0"					
FA504	56	6'-5"	375	40	4'-11"	1'-0"					
FA505	56	5'-8"	331	40	4'-2"	1'-0"					
FA506	24	6'-8"	167	44	3'-2"	1'-4"	2'-8"				
FA507	24	5'-7"	140	44	2'-1"	1'-4"	2'-8"				
FA508	7	27'-0"	197	1	1'-0"	26'-2"					
FA509	7	17'-2"	125	1	10"	16'-6"					
FA510	87	15'-4"	1,391	3	5'-8"	1'-8"					
FA511	2	16'-8"	35	3	6'-0"	2'-0"					
FA512	3	21'-4"	67	2	6'-0"	9'-7"	6'-0"				
FA513	44	4'-7"	210	40	3'-3"	8"					
FA514	7	25'-4"	185	1	1'-0"	24'-6"					
FA515	7	16'-11"	124	1	10"	16'-3"					
FA601	80	18'-7"	2,233	12	4'-2"	4'-2"	1'-9"	5'-3"	6'-0"		
FA602	30	11'-1"	499	1	5'-3"	6'-0"					
FA603	30	7'-7"	342	19	1'-9"	4'-2"	4'-2"				
FA604	90	40'-0"	5,407	STR							
FA605	30	41'-3"	1,859	STR							
FA606	30	30'-0"	1,352	STR							
FA607	30	18'-11"	852	STR							
FA608	17	21'-2"	540	STR							
FA609	17	21'-3"	543	STR							
FA610	26	9'-2"	358	8	3'-5"	3'-0"	3'-1"				
FA611	4	14'-8"	88	STR							
FA612	4	12'-1"	73	20	3'-6"	2'-7"	3'-6"	2'-7"	3'-6"		
FA613	26	12'-2"	475	41	3'-3"	3'-0"	3'-0"	4'-6"			
FA614	13	18'-6"	361	STR							
FA615	13	16'-10"	329	STR							
FA616	142	40'-0"	8,531	STR							
FA617	44	43'-7"	2,880	STR							
FA618	296	22'-3"	9,892	1	1'-0"	21'-5"					
FA801	28	40'-0"	2,990	STR							
FA802	7	19'-6"	364	STR							
FA901	296	19'-11"	20,044	1	1'-10"	18'-4"					
FA902	3	23'-6"	240	1	2'-11"	20'-10"					
FA903	556	16'-7"	31,349	2	2'-10"	11'-6"	2'-10"				
FA904	360	15'-7"	19,074	2	2'-10"	10'-6"	2'-10"				
FA905	2 SR OF 20	11'-4" TO 16'-6"	1,893	2	2'-10"	6'-3" TO 11'-5"	2'-10"				3 1/4"
FA906	7	32'-11"	783	1	1'-10"	31'-4"					
FA907	7	17'-1"	407	1	10"	16'-6"					
FA908	7	31'-2"	742	1	1'-10"	29'-7"					
FA909	7	16'-10"	401	1	10"	16'-3"					
FA1001	56	18'-2"	4,378	12	4'-2"	4'-2"	1'-9"	5'-3"	6'-0"		
		SUBTOTAL	123,624								

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BRIDGE NO. CUY-77-1409
BROADWAY AVENUE OVER IR 77

CUY-77-13.80
PID No. 82388

MARK	NUMBER TOTAL	LENGTH	WEIGHT	TYPE	DIMENSIONS A	B	C	D	E	R	INC
FWD. LEFT WINGWALL											
FA404	43	5'-11"	170	2	2'-6"	1'-1"	2'-6"				
FA522	5	18'-8"	97	STR							
FA523	1 SR OF 30	9'-10" TO 18'-7"	445	STR							3 5/8"
FA524	2 SR OF 8	3'-3" TO 9'-4"	105	STR							10 3/8"
FA525	2	9'-2"	19	STR							
FA526	32	12'-4"	412	19	3'-2"	6'-6"	6'-6"				
FA527	32	13'-3"	442	19	3'-7"	6'-10"	6'-10"				
FA528	35	15'-10"	578	STR							
FA529	28	28'-6"	832	STR							
FA530	2 SR OF 4	29'-3" TO 34'-4"	265	STR							1'-8 3/8"
FA531	8	35'-10"	299	STR							
FA532	2 SR OF 9	7'-1" TO 33'-2"	378	STR							3'-3 1/8"
FA533	2	37'-3"	78	STR							
FA534	2	10'-6"	22	STR							
FA805	10	18'-8"	498	STR							
FA806	1 SR OF 59	9'-11" TO 18'-5"	2,232	STR							1 3/4"
FA1002	69	11'-9"	3,489	19	2'-0"	9"	10'-0"				
FA1003	69	18'-6"	5,493	STR							
		SUBTOTAL	15,854								

MARK	NUMBER TOTAL	LENGTH	WEIGHT	TYPE	DIMENSIONS A	B	C	D	E	R	INC
FWD. RIGHT WINGWALL											
FA403	49	6'-5"	210	2	2'-9"	1'-1"	2'-9"				
FA516	5	30'-1"	157	STR							
FA517	22	26'-6"	608	STR							
FA518	22	22'-11"	526	STR							
FA519	52	52'-6"	2,847	STR							
FA520	6	31'-1"	195	STR							
FA521	6	9'-6"	59	STR							
FA803	22	23'-2"	1,361	STR							
FA804	43	12'-10"	1,473	19	2'-0"	6"	11'-0"				
FA910	5	30'-4"	516	STR							
FA911	22	26'-9"	2,001	STR							
FA912	51	15'-9"	2,731	19	2'-0"	7"	14'-0"				
		SUBTOTAL	12,684								

MARK	NUMBER TOTAL	LENGTH	WEIGHT	TYPE	DIMENSIONS A	B	C	D	E	R	INC
FWD. RIGHT RETAINING WALL											
W401	83	6'-5"	356	2	2'-9"	1'-1"	2'-9"				
W402	15	19'-9"	198	STR							
W403	16	11'-2"	119	1	2'-2"	9'-1"					
W404	29	6'-10"	132	1	2'-2"	4'-9"					
W405	42	13'-11"	390	STR							
W406	36	21'-2"	509	STR							
W407	54	14'-0"	505	STR							
W408	18	15'-1"	181	STR							
W409	29	10'-7"	205	1	1'-6"	9'-2"					
W410	22	16'-6"	242	STR							
W411	15	13'-5"	134	STR							
W412	15	10'-3"	103	STR							
W413	16	7'-2"	77	STR							
W501	15	10'-6"	164	STR							
W502	29	7'-3"	219	1	2'-2"	5'-3"					
W503	29	12'-6"	378	1	1'-6"	11'-2"					
W504	16	8'-0"	134	1	1'-6"	6'-8"					
W505	3	17'-4"	54	STR							
W506	6	10'-2"	64	STR							
W507	3	11'-3"	35	STR							
W508	20	13'-11"	290	STR							
W509	14	21'-2"	309	STR							
W510	24	14'-0"	350	STR							
W511	8	15'-1"	126	STR							
W512	12	11'-7"	145	41	4'-2"	3'-0"	3'-0"	3'-3"	0"	0"	
W513	46	9'-4"	448	8	3'-6"	3'-0"	3'-1"				
W601	22	16'-9"	553	STR							
W602	43	13'-0"	840	1	1'-6"	11'-8"					
W603	15	13'-8"	308	STR							
W801	15	20'-0"	801	STR							
W802	43	8'-9"	1,005	1	2'-2"	6'-9"					
W803	29	14'-6"	1,123	1	1'-6"	13'-2"					
W901	29	9'-8"	953	1	2'-2"	7'-9"					
		SUBTOTAL	11,450								

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REINFORCING LIST

BRIDGE NO. CUY-77-1409
BROADWAY AVENUE OVER IR 77

CUY-77-13.80
PID No. 82388

MARK	NUMBER TOTAL	LENGTH	WEIGHT	TYPE	DIMENSIONS A	B	C	D	E	R	INC
REAR DIAPHRAGM											
RD401	8	13'-2"	70	2	10"	11'-8"	10"				
RD402	8	10'-4"	55	1	1'-0"	9'-5"					
RD403	64	4'-0"	171	STR							
RD404	4	12'-0"	32	STR							
RD501	64	42'-10"	2,859	3	11'-11"	9'-2"					
RD502	32	28'-3"	943	2	9'-0"	10'-6"	9'-0"				
RD503	3	28'-6"	89	3	11'-11"	2'-0"					
RD504	3	23'-7"	74	2	6'-8"	10'-6"	6'-8"				
RD505	6	39'-2"	245	3	11'-11"	7'-4"					
RD506	6	18'-9"	117	2	4'-3"	10'-6"	4'-3"				
RD801	101	8'-5"	2,270	18	6'-3"	1'-0"	1'-0"				
RD802	2	27'-9"	148	STR							
RD803	28	4'-4"	324	19	3'-7"	5"	9"				
RD804	15	36'-7"	1,465	STR							
RD805	14	33'-1"	1,237	19	32'-4"	5"	9"				
RD806	8	38'-9"	828	19	38'-0"	5"	9"				
RD807	8	24'-7"	525	1	23'-5"	1'-4"					
RD808	4	35'-7"	380	2	1'-4"	33'-4"	1'-4"				
RD809	16	9'-6"	406	18	4'-0"	4'-2"	2'-2"				
RD810	41	14'-8"	1,606	17	13'-0"						
RD811	5	13'-0"	174	STR							
RD812	2	4'-10"	26	16	4'-0"						
RD813	8	3'-9"	80	STR							
RD814	2	45'-2"	241	STR							
RD815	1	33'-0"	88	STR							
SUBTOTAL			14,453								

MARK	NUMBER TOTAL	LENGTH	WEIGHT	TYPE	DIMENSIONS A	B	C	D	E	R	INC
FORWARD DIAPHRAGM											
FD401	8	13'-2"	70	2	10"	11'-8"	10"				
FD402	8	10'-4"	55	1	1'-0"	9'-5"					
FD403	64	4'-0"	171	STR							
FD404	4	12'-0"	32	STR							
FD501	64	42'-10"	2,859	3	11'-11"	9'-2"					
FD502	32	28'-3"	943	2	9'-0"	10'-6"	9'-0"				
FD503	3	28'-6"	89	3	11'-11"	2'-0"					
FD504	3	23'-7"	74	2	6'-8"	10'-6"	6'-8"				
FD505	6	39'-2"	245	3	11'-11"	7'-4"					
FD506	6	18'-9"	117	2	4'-3"	10'-6"	4'-3"				
FD801	101	8'-5"	2,270	18	6'-3"	1'-0"	1'-0"				
FD802	2	27'-9"	148	STR							
FD803	28	4'-4"	324	19	3'-7"	5"	9"				
FD804	15	36'-7"	1,465	STR							
FD805	14	33'-1"	1,237	19	32'-4"	5"	9"				
FD806	8	38'-9"	828	19	38'-0"	5"	9"				
FD807	8	24'-7"	525	1	23'-5"	1'-4"					
FD808	4	35'-7"	380	2	1'-4"	33'-4"	1'-4"				
FD809	16	9'-6"	406	18	4'-0"	4'-2"	2'-2"				
FD810	41	14'-8"	1,606	17	13'-0"						
FD811	5	13'-0"	174	STR							
FD812	2	4'-10"	26	16	4'-0"						
FD813	8	3'-9"	80	STR							
FD814	2	45'-2"	241	STR							
FD815	1	33'-0"	88	STR							
SUBTOTAL			14,453								

MARK	NUMBER TOTAL	LENGTH	WEIGHT	TYPE	DIMENSIONS A	B	C	D	E	R	INC
DIAPHRAGM GUIDE											
DG601	20	32'-2"	966	3	11'-11"	3'-9"					
DG801	56	13'-8"	2,043	5	2'-8"	3'-7"	2'-4"				
SUBTOTAL			3,009								

MARK	NUMBER TOTAL	LENGTH	WEIGHT	TYPE	DIMENSIONS A	B	C	D	E	R	INC
PIER											
P401	160	12'-5"	1,327	3	3'-6"	2'-6"					
P402	16	32'-7"	348	STR							
P501	102	13'-4"	1,418	3	3'-8"	2'-8"					
P601	128	11'-0"	2,115	17	9'-8"						
P801	64	11'-4"	1,937	17	9'-8"						
P802	32	36'-4"	3,104	1	2'-6"	34'-0"					
P1001	112	12'-6"	6,024	17	9'-8"						
P1101	48	22'-1"	5,632	STR							
P1102	96	11'-3"	5,738	1	9'-7"	2'-0"					
P1103	48	21'-8"	5,526	STR							
SUBTOTAL			33,169								

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REINFORCING LIST
BRIDGE NO. CUY-77-1409
BROADWAY AVENUE OVER IR 77

CUY-77-13.80
PID No. 82388

88 / 91

89 / 100

MARK	NUMBER TOTAL	LENGTH	WEIGHT	TYPE	DIMENSIONS A	B	C	D	E	R	INC
SUPERSTRUCTURE											
S401	903	40'-0"	24,128	STR							
S402	71	35'-0"	1,660	STR							
S403	80	3'-8"	196	16	3'-2"						
S404	28	2'-6"	47	STR							
S405	4	5'-10"	16	STR							
S406	228	5'-9 5/8"	884	45	2'-3 1/2"	4"	7 1/8"			1 1/2"	
S407	208	6'-0 3/8"	838	45	2'-3 1/2"	4"	8 1/2"			1 1/2"	
S408	70	6'-3"	292	45	2'-3 1/2"	4"	9 7/8"			1 1/2"	
S409	69	14'-0"	645	STR							
S501	738	40'-0"	30,789	STR							
S502	1016	35'-2"	37,266	STR							
S503	1202	6'-10"	8,567	16	6'-3"						
S504	2 SR OF 85	7'-3" TO 34'-0"	3,657	STR							3 7/8"
S505	2 SR OF 92	10'-8" TO 39'-8"	4,830	STR							3 7/8"
S506	24	10'-4"	259	STR							
S507	72	19'-0"	1,427	STR							
S508	54	27'-11"	1,572	STR							
S509	6	36'-3"	227	STR							
S510	1016	35'-9"	37,884	16	35'-2"						
S511	2 SR OF 85	7'-10" TO 34'-7"	3,760	16	7'-3" TO 34'-0"						3 7/8"
S512	2 SR OF 92	11'-3" TO 40'-3"	4,942	16	10'-8" TO 39'-8"						3 7/8"
S513	9	15'-0"	141	STR							
S601	544	40'-3"	32,888	STR							
S801	32	43'-0"	3,674	STR							
		SUBTOTAL	200,589								

MARK	NUMBER TOTAL	LENGTH	WEIGHT	TYPE	DIMENSIONS A	B	C	D	E	R	INC
SUPERSTRUCTURE - SIDEWALK											
SW401	1013	8'-5"	5,695	STR							
SW402	1020	2'-9"	1,874	2	1'-0"	11"	1'-0"				
SW403	1037	2'-11"	2,020	2	1'-0"	1'-1"	1'-0"				
SW404	3 SR OF 17	2'-0" TO 8'-1"	172	STR							4 5/8"
SW405	240	40'-0"	6,413	STR							
SW406	24	13'-3"	212	STR							
		SUBTOTAL	16,386								

MARK	NUMBER TOTAL	LENGTH	WEIGHT	TYPE	DIMENSIONS A	B	C	D	E	R	INC
APPROACH SLAB SIDWALK											
SW401	78	8'-5"	439	STR							
SW402	130	2'-9"	239	2	1'-0"	11"	1'-0"				
SW403	131	2'-11"	255	2	1'-0"	1'-1"	1'-0"				
SW407	3 SR OF 18	1'-10" TO 8'-4"	183	STR							4 5/8"
SW408	3 SR OF 17	1'-10" TO 7'-11"	166	STR							4 5/8"
SW409	12	49'-6"	397	STR							
SW410	24	29'-6"	473	STR							
SW411	31	3'-2"	66	STR							
SW412	6	18'-6"	74	STR							
SW413	3	12'-0"	24	STR							
		SUBTOTAL	2,316								

MARK	NUMBER TOTAL	LENGTH	WEIGHT	TYPE	DIMENSIONS A	B	C	D	E	R	INC
REAR APPROACH SLAB											
AS501	45	49'-6"	2,323	STR							
AS502	36	38'-3"	1,436	STR							
AS503	76	38'-1"	3,019	STR							
AS505	208	3'-8"	795	19	2'-6"	7"	1'-1"				
AS506	96	37'-8"	3,771	STR							
AS507	208	37'-6"	8,135	STR							
AS1001	124	50'-11"	27,168	16	49'-6"						
		SUBTOTAL	46,647								
REAR SLEEPER SLAB											
SS501	44	37'-8"	1,729	STR							
SS502	68	12'-1"	857	STR							
SS503	68	7'-7"	538	43	10"	10"	1'-9"	2'-11"			
SS504	22	3'-8"	84	19	2'-6"	7"	1'-1"				
		SUBTOTAL	3,208								

RELEASED FOR CONSTRUCTION

BU05_2018-01-26.BU-5 RFCv2.pdf

01/29/2018 | Brian.Link

NO.	DATE	DESCRIPTION
		ISSUE RECORD

BU5 - CUY-77-1409

E.L. ROBINSON ENGINEERING
1801 Watermark Drive, Suite 310 - Columbus, Ohio 43215
www.elrobinsonengineering.com

DESIGNED CJW | DRAWN MGB | REVIEWED RER | DATE 1/15/2017
CHECKED DFT | REVISED | STRUCTURE FILE NUMBER 1806663

REINFORCING LIST
BRIDGE NO. CUY-77-1409
BROADWAY AVENUE OVER IR 77

CUY-77-13.80
PID No. 82388

MARK	NUMBER TOTAL	LENGTH	WEIGHT	TYPE	DIMENSIONS A	B	C	D	E	R	INC
FORWARD APPROACH SLAB											
AS502	84	38'-3"	3,351	STR							
AS503	176	38'-1"	6,991	STR							
AS504	46	29'-6"	1,415	STR							
AS505	130	3'-8"	497	19	2'-6"	7"	1'-1"				
AS1002	126	30'-11"	16,762	16	29'-6"						
		SUBTOTAL	29,016								
FORWARD SLEEPER SLAB											
SS502	69	12'-1"	870	STR							
SS503	69	7'-7"	546	43	10"	10"	1'-9"	2'-11"			
SS504	20	3'-8"	77	19	2'-6"	7"	1'-1"				
SS505	44	38'-3"	1,755	STR							
SS506	2	4'-1"	9	19	2'-6"	11"	1'-3"				
		SUBTOTAL	3,255								

MARK	NUMBER TOTAL	LENGTH	WEIGHT	TYPE	DIMENSIONS A	B	C	D	E	R	INC
RAILING											
R501	160	40'-0"	6,675	STR							
R502	84	9'-0"	789	3	2'-4"	1'-10"					
R503	12	15'-8"	196	3	5'-8"	1'-10"					
R504	8	18'-8"	156	STR							
R505	8	3'-2"	26	STR							
R506	14	13'-7"	198	STR							
R507	14	29'-7"	432	STR							
R508	14	29'-7"	432	STR							
R509	6	12'-5"	78	STR							
R510	12	9'-2"	115	STR							
R511	6	20'-4"	127	STR							
R512	12	8'-11"	112	STR							
R513	6	20'-9"	130	STR							
R514	12	8'-1"	101	STR							
R515	6	18'-0"	113	STR							
R516	12	7'-11"	99	STR							
R517	12	9'-7"	120	STR							
R518	12	9'-4"	117	STR							
R519	12	8'-6"	106	STR							
R520	12	8'-4"	104	STR							
R521	6	10'-0"	63	STR							
R522	12	9'-2"	115	STR							
R523	6	9'-10"	62	STR							
R524	12	8'-11"	112	STR							
R525	6	8'-11"	56	STR							
R526	12	8'-1"	101	STR							
R527	6	8'-9"	55	STR							
R528	12	7'-11"	99	STR							
R529	6	23'-9"	149	STR							
R530	12	24'-1"	301	STR							
R531	6	23'-8"	148	STR							
R532	6	23'-3"	145	STR							
R533	12	23'-8"	296	STR							
R534	6	23'-3"	145	STR							
R535	6	21'-6"	135	STR							
R536	6	21'-11"	137	STR							
R537	6	21'-6"	135	STR							
R538	6	21'-2"	132	STR							
R539	6	21'-7"	135	STR							
R540	6	21'-2"	132	STR							
R541	8	12'-1"	101	STR							
R542	14	3'-0"	44	STR							
R543	14	3'-10"	56	STR							
R601	1476	4'-8"	10,346	1	1'-0"	3'-10"					
R602	170	6'-8"	1,702	1	2'-0"	4'-10"					
R603	2	2'-5"	7	STR							
R604	166	4'-11"	1,226	1	1'-0"	4'-1"					
		SUBTOTAL	26,361								

RELEASED FOR CONSTRUCTION

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01/29/2018 | Brian.Link

BU5 - CUY-77-1409		
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E.L. ROBINSON ENGINEERING
1001 Watermark Drive, Suite 310 • Columbus, Ohio 43215
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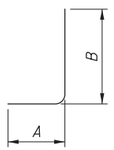
REINFORCING LIST
BRIDGE NO. CUY-77-1409
BROADWAY AVENUE OVER IR 77

CUY-77-13.80
PID No. 82388

RELEASED FOR CONSTRUCTION
BU05_2018-01-26.BU-5 RFCv2.pdf
01/29/2018
Brian.Link

P:\82388_CC66B\Design\Structures\CUY-77-1409\sheets\077_1409C_SL002.dgn Sheet 1/26/2018 3:01:46 PM gwhittaker



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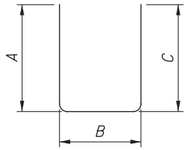

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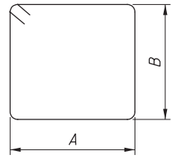

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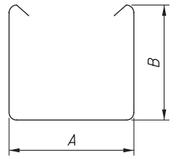

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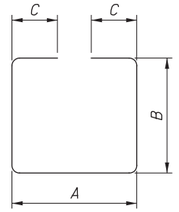

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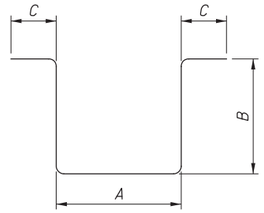

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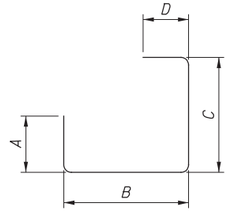

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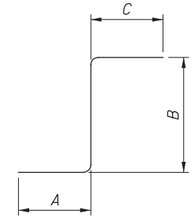

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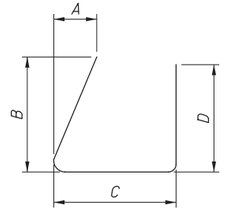

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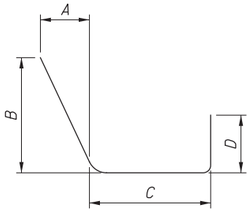

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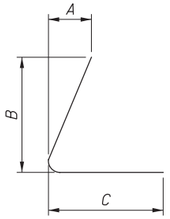

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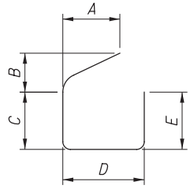

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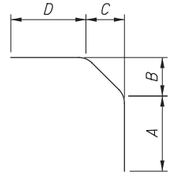

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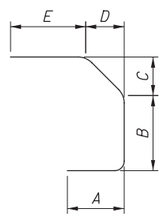

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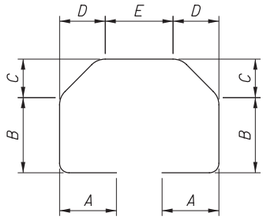

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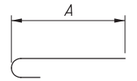

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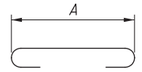

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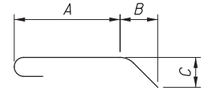

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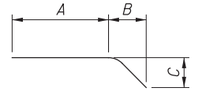

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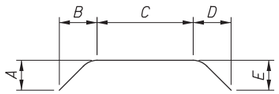

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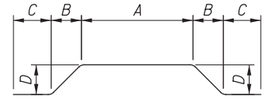

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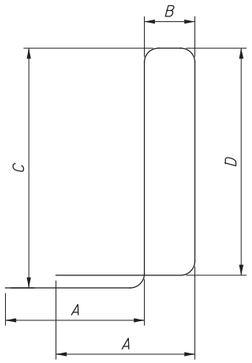

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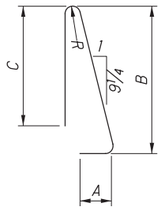

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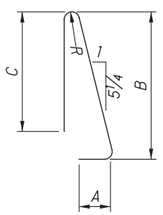

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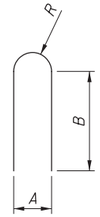

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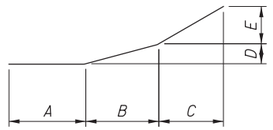

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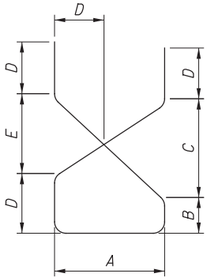

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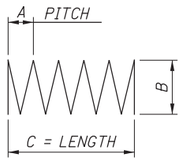

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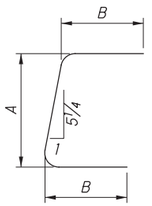

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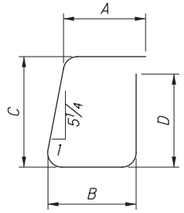

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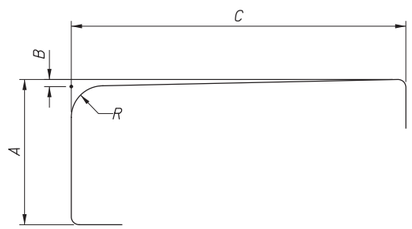

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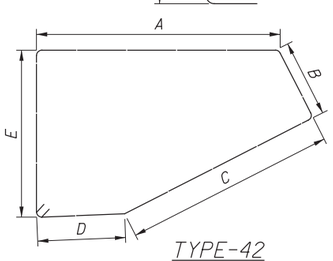

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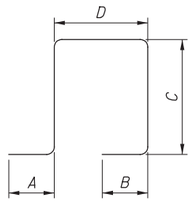

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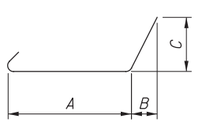

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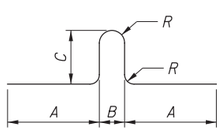

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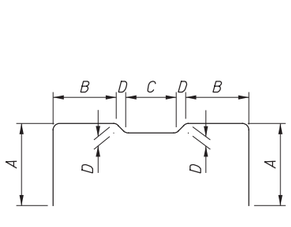

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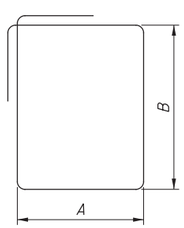

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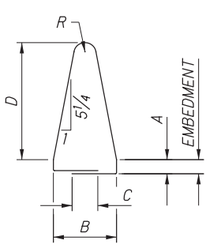

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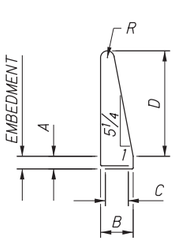

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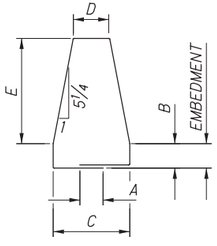

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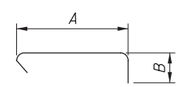

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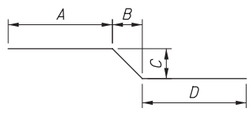

TYPE-41

NOTES:

1. THE BAR SIZE NUMBER IS SPECIFIED ON THE PLANS IN THE BAR MARK COLUMN. THE FIRST DIGIT WHERE THREE DIGITS ARE USED, AND THE FIRST TWO DIGITS WHERE FOUR ARE USED, INDICATES THE BAR SIZE NUMBER. FOR EXAMPLE, P601 IS A NO. 6 BAR. BAR DIMENSIONS SHOWN ARE OUT TO OUT UNLESS OTHERWISE INDICATED. R INDICATES INSIDE RADIUS, UNLESS OTHERWISE NOTED. "STD." WRITTEN IN PLACE OF A DIMENSION INDICATES A STANDARD BEND AT THE END OF THE BAR.

2. ALL REINFORCING STEEL IS TO BE EPOXY COATED.

E.L. ROBINSON ENGINEERING
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www.elrobinsonengineering.com

DESIGNED	DRAWN	REVIEWED	DATE
CJW	MGB	RER	1/15/2017
CHECKED	REVISED	STRUCTURE FILE NUMBER	
DFT		1806663	

REINFORCING LIST
BRIDGE NO. CUY-77-1409
BROADWAY AVENUE OVER IR 77

CUY-77-13.80
PID No. 82388

ITEM 625 POST TOP LIGHT POLE, 14' TALL

FIBERGLASS, FLUTED, TAPERED LAMP POSTS (CPP DRAWING #9441)
THE FIBERGLASS LAMP POSTS SHALL BE ROUND, HOLLOW, 14' IN HEIGHT (INCLUDING BASE) TO THE BOTTOM OF THE POST TOP TENON AND HAVE A UNIFORMLY TAPERED SHAFT WITH 16 FLUTES. POSTS SHALL BE NON-CONDUCTIVE AND CHEMICALLY INERT.

THE LAMP POST TOP DIAMETER SHALL BE A MINIMUM OF 4.5" D.D. AND POST SHALL HAVE A POST TOP TRANSITION. POST SHALL BE W.J. WHATLEY, INC. ALLENTOWN SERIES 406, OR EQUAL.

POST SHAFT CONSTRUCTION
THE ONE-PIECE POST SHAFT SHALL BE COMPRISED OF A FILAMENT-WOUND INNER CORE, A POLYMER CONCRETE CENTER SECTION AND A LAMINATED FIBERGLASS FLUTED OUTER SHELL.

OUTER FLUTED SHELL: THE OUTER FLUTED SHELL WILL BE CONSTRUCTED OF ADVANCED RP/C COMPOSITES.

INNER STRUCTURAL MEMBER: THE POST INNER STRUCTURAL MEMBER SHALL BE CONSTRUCTED FROM CONTINUOUS FIBERGLASS FILAMENTS COMBINED WITH THERMOSETTING POLYESTER RESIN. THE STRUCTURAL MEMBER SHALL HAVE A MINIMUM WALL THICKNESS OF 5/32" AND SHALL BE REINFORCED.

THE FIBERGLASS AND RESIGN RATIO OF THE INNER STRUCTURAL MEMBER WILL CONTAIN AT LEAST 65% GLASS, THE BALANCE POLYESTER RESIN.

THE GLASS FILAMENT WILL BE HELICALLY WOUND UNDER TENSION, FIRST AT A RELATIVELY HIGH ANGLE (65-85 DEGREES) TO THE LONGITUDINAL AXIS OF THE STRUCTURAL MEMBER, WITH ALTERNATE LAYERS OF FILAMENTS IN OPPOSITE DIRECTIONS FOR MAXIMUM CIRCUMFERENTIAL (COMPRESSIVE) STRENGTH.

WIND LOADING
THE POLES FURNISHED AS PART OF THIS SPECIFICATION SHALL BE DESIGNED IN ACCORDANCE WITH 90 MPH (30% GUST FACTOR) AASHTO WIND LOADING. CERTIFIED MATHEMATICAL WIND LOAD CALCULATIONS MUST BE SUBMITTED AND APPROVED PRIOR TO FABRICATION.

PERFORMANCE CRITERIA
THE POST SHALL BE DESIGNED WITH A MINIMUM SAFETY FACTOR OF 2 AND HAVE NO MORE THAN A 10% DEFLECTION AT FULL WIND LOADING. THE POST SHALL DEFLECT NO MORE THAN 2.5% OF THE ABOVE GROUND LENGTH WITH 100 POUNDS OF LATERAL TOP LOAD. THE POST SHALL WITHSTAND 550 POUNDS OF TOP LOAD BEFORE FAILURE.

POST TOP
A 3" O.D. X 3" LONG GALVANIZED STEEL TENON SHALL BE FIRMLY BONDED TO THE POST FOR MOUNTING A POST TOP LUMINAIRE. THE TENON SHALL BE STRAIGHT WITH NO TAPER AND SHALL BE COATED WITH MATCHING URETHANE FINISH.

WIRE ENTRANCE
THE WIRE ENTRANCE HOLE SHALL BE 4" I.D. FOR THE ANCHOR BASE POST AND 2" X 5" FOR THE DIRECT EMBEDDED POST.

SURFACE FINISH
THE POLE EXTERIOR SURFACE SHALL BE UNIFORM AND CONSISTENT FOR THE ENTIRE LENGTH OF THE POST. THE RESIN SHALL CONTAIN PIGMENT TO IMPROVE ULTRAVIOLET RESISTANCE. RESIN PIGMENT SHALL BE URETHANE FINISH CAPABLE OF WITHSTANDING EXPOSURE TO ULTRAVIOLET, CHEMICALS AND EXTREME WEATHER CONDITIONS. THE SURFACE COATING SHALL BE A MINIMUM DRY FILM THICKNESS OF 1-1/2 MILLS. COLOR SHALL BE BLACK, PEBBLE-GRAINED WITH FEEL AND TEXTURE OF CAST IRON.

HANDHOLE
THE HANDHOLE SHALL BE 2-1/2"x 4". THE HANDHOLE COVER SHALL BE NON-CORROSIVE METAL OR FIBERGLASS AND PAINTED TO MATCH THE POST. THE HANDHOLE COVER SHALL BE CONCEALED BY THE SLIP-OVER BASE COVER ON THE ORNAMENTAL POSTS AND BY THE CLAM-SHELL STYLE BASE COVER ON THE EUCLID AVENUE HISTORIC REPRODUCTION POSTS.

ANCHOR BASES AND ANCHOR BOLTS
ANCHOR BASE POSTS SHALL HAVE ELECTRO-GALVANIZED STEEL ANCHOR BASES. THE ANCHOR BASE SHALL BE BONDED TO THE POST WITH HIGH-STRENGTH EPOXY ADHESIVE AND COATED WITH MATCHING URETHANE FINISH. THE ANCHOR BASE PLATE SHALL ACCOMMODATE FOUR (4) ONE INCH ANCHOR BOLTS FORTY (40) INCHES (36 X 4) IN LENGTH SUPPLIED WITH THE POLE. ANCHOR BOLTS SHALL CONFORM TO THE LATEST ASTM SPECIFICATION FOR HIGH STRENGTH, GALVANIZED ANCHOR BOLTS, 50,000 PSI MINIMUM. THE ANCHOR BASE SHALL ACCOMMODATE BOLT CIRCLES FROM 11" TO 15".

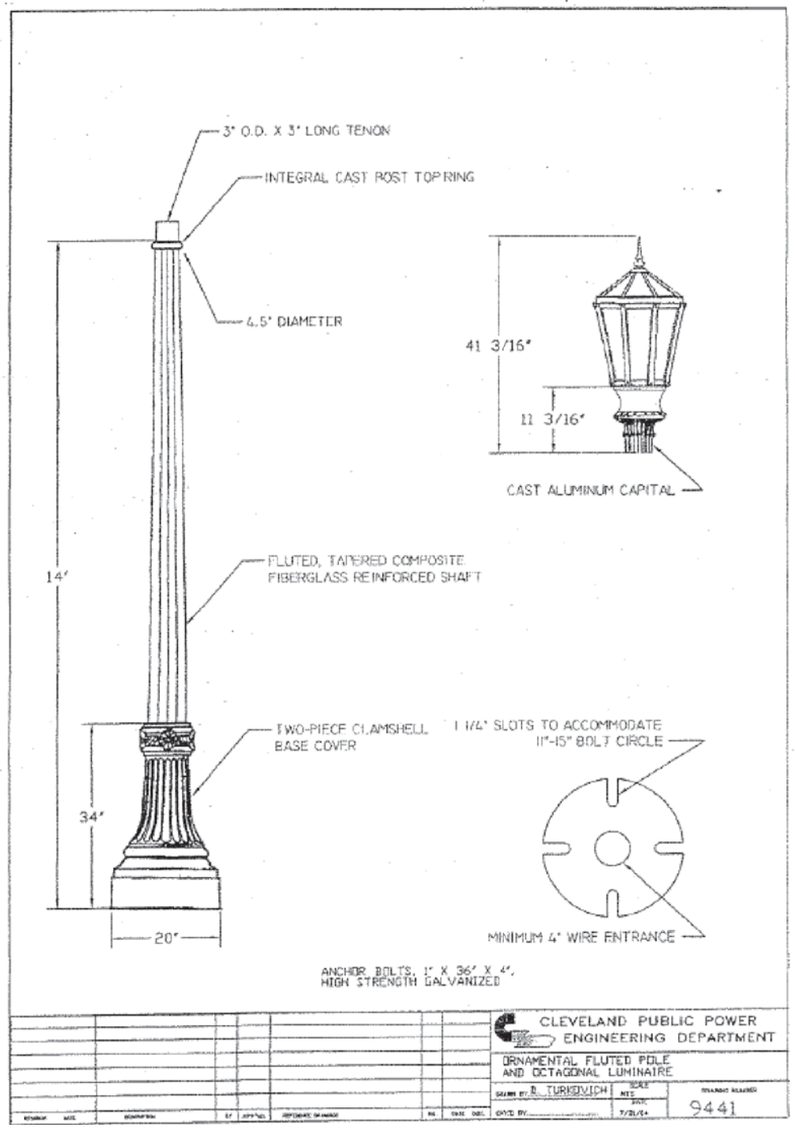
ORNAMENTAL BASE COVER
A DECORATIVE COVER OF THE SAME COLOR AS THE POLE SHALL BE PROVIDED THAT COMPLETELY SURROUNDS THE BASE. THE BASE COVER SHALL ALSO FIT COMPLETELY ON THE BRIDGE PEDESTALS, WITH A 20" (MAXIMUM) OUTSIDE DIAMETER. THE COVER SHALL BE A TWO-PIECE CLAM SHELL TYPE ELTOMERIC URETHANE DESIGN. THE COVER HALVES SHALL ATTACH TO EACH OTHER WITH STAINLESS STEEL SCREWS.

SAMPLES
A SAMPLE COMPOSITE BASE COVER AND A SAMPLE CUT-AWAY COMPOSITE SHAFT SECTION MUST BE SUBMITTED FOR APPROVAL. THE SAMPLE WILL BE RETURNED.

INVENTORY IDENTIFICATION
ALL POLES AND BASES SHALL BE PERMANENTLY MARKED WITH THE INVENTORY CODES SUPPLIED AT THE TIE OF ORDER. MARKINGS SHALL BE SUCH THAT THEY CAN NOT BE REMOVED BY HAND OR FADED OR OTHERWISE OBLITERATED BY RAIN, SNOW, WIND, SUN OR OTHER WEATHER CONDITIONS ENCOUNTERED IN OUTDOOR STORAGE.

ITEM 625, LUMINAIRE, POST TOP, AS PER PLAN

IN ADDITION TO THE REQUIREMENTS OF ODOT'S CONSTRUCTION AND MATERIALS SPECIFICATION, LUMINAIRES SHALL BE COOPER STREETWORKS LED ACORN STYLE LUMINAIRES, PRODUCT NUMBER CLB-080-D-U-33-X-1-X-BK-4N7.



CLEVELAND PUBLIC POWER
ENGINEERING DEPARTMENT
ORNAMENTAL FLUTED POLE AND OCTAGONAL LUMINAIRE
DRAWN BY: B. TURKEVICH | SCALE: NTS | DRAWING NUMBER: 9441
CHKD BY: | DATE: 7/21/14

CALCULATED MJH | CHECKED KAE

LIGHTING PLAN GENERAL NOTES

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ITEM 625 - LIGHT POLE, DAVIT STYLE, 30' TALL

ALL POLES SHALL BE A HOLLOW, TRUNCATED CONE OF SUITABLE WALL THICKNESS AND TAPER. THE TAPER SHALL BE UNIFORM FROM TOP TO BOTTOM (ANY SECTION SHALL BE CIRCULAR). NORTH COAST HARBOR STREET LIGHT POLES SHALL HAVE A TOP DIAMETER (O.D.) OF 7.1" AND A DIAMETER (O.D.) OF 10.5" AT THE BUTT END.

ALL POLES PROVIDED SHALL NOT WEIGH LESS THAN 95% OF THE MANUFACTURER'S ADVERTISED OR SPECIFIED WEIGHT.

FIBERGLASS POLES SHALL BE CAPABLE OF BEING FITTED AS FOLLOWS:
1) ROADWAY LUMINAIRE ON A 4' DAVIT ARM AT THE TOP OF THE POLE;
2) BAND MOUNTED BANNER UTILIZING BANNER SAVER BRACKETS (MAX 20 SQUARE FEET FOR A SINGLE BANNER, 30 SQUARE FEET FOR DOUBLE BANNERS) LOCATED IN AN AREA BETWEEN FIFTEEN (15) AND TWENTY-THREE (23) FEET ABOVE THE BASE OF THE POLE.

POLE TOP
THE POLE TOP FOR THE NORTH COAST HARBOR STREETLIGHT POLES SHALL BE 6-1/2" O.D. X 10" LONG TENON. THE TENON SHALL BE ALUMINUM OR STEEL PERMANENTLY ATTACHED TO THE POLE SHAFT. THE TENON SHALL BE STRAIGHT WITH NO TAPER AND COATED WITH MATCHING URETHANE FINISH.

DAVIT ARM
THE NORTH COAST HARBOR STREET LIGHT POLES SHALL BE SUPPLIED WITH A FOUR FOOT DAVIT ARM. THE DAVIT ARM SHALL BE MADE OF ALUMINUM, 0.188" NOMINAL WALL THICKNESS. THE ARM SHALL BE SIX FEET IN HEIGHT WITH HORIZONTAL REACH OF FOUR FEET. THE ARM SHALL TAPER FROM TOP OF POLE TO 3-1/2" DIAMETER AT THE POINT OF CURVATURE. CURVATURE RADIUS SHALL BE 24". THE HORIZONTAL END OF THE DAVIT ARM SHALL BE A 2-3/8" DIAMETER TENON, SIX INCHES IN LENGTH. THE ARM SHALL BE SECURED IN PLACE BY MEANS OF A THROUGH BOLT WITH SELF LOCKING NUT TO PREVENT LOOSENING BY VIBRATION OR OTHER FACTORS. THE STANDARD ARM SHALL FIT THE 6-1/2" O.D. X 10" LONG TENNON.

PULL WIRES
EACH POLE SHALL BE FURNISHED WITH A PULL WIRE INSTALLED TO FACILITATE INSTALLATION OF CONDUCTORS.

HAND HOLE
EACH POLE SHALL HAVE A HAND HOLE WITH A NON-METALIC, REMOVABLE, LOCKABLE COVER AND SEAL. THE COVER SHALL BE THE SAME COLOR AND TEXTURE AS THE POLE. THE HANDHOLE SHALL BE 2-1/2" X 5".

SHIPPING
EACH POLE SHALL BE INDIVIDUALLY WRAPPED WITH PLASTIC SHRINK FILM OR POLY-BAGGED FOR PROTECTION DURING SHIPPING AND STORAGE.

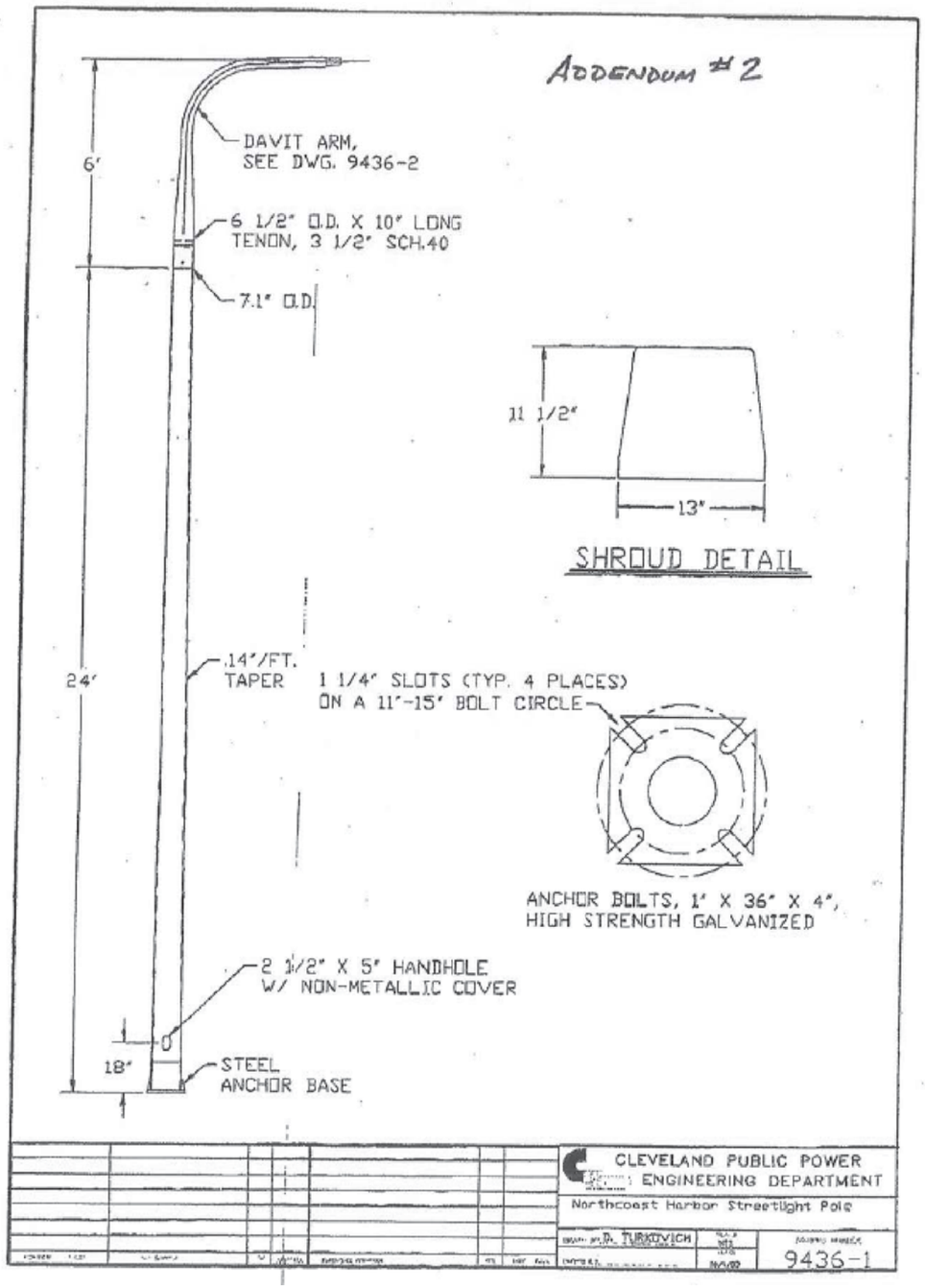
INVENTORY IDENTIFICATION
ALL POLES AND BASES SHALL BE PERMANENTLY MARKED WITH THE INVENTORY CODES SUPPLIED AT THE TIE OF ORDER. MARKINGS SHALL BE SUCH THAT THEY CAN NOT BE REMOVED BY HAND OR FADED OR OTHERWISE OBLITERATED BY RAIN, SNOW, WIND, SUN OR OTHER WEATHER CONDITIONS ENCOUNTERED IN OUTDOOR STORAGE.

DAVIT ARM COLOR
ALL ARMS SHALL BE FURNISHED FULLY PAINTED WITH ONE COAT OF GRAY EPOXY MASTIC ALUMINUM PRIMER (SHERWIN WILLIAMS MC-56 E37, OR EQUAL) AND A FINISH COAT OF HIGH-SOLIDS POLYURETHANE (SHERWIN WILLIAMS MC-56 E37, OR EQUAL). THE COLOR SHALL BE BLACK.

ITEM 625, LUMINAIRE, POST TOP, AS PER PLAN

IN ADDITION TO THE REQUIREMENTS OF ODOT'S CONSTRUCTION AND MATERIALS SPECIFICATION, LUMINAIRES SHALL BE COOPER STREETWORKS LED ACORN STYLE LUMINAIRES, PRODUCT NUMBER CLB-080-D-U-33-X-1-X-BK-4N7.

ADDENDUM #2



SHROUD DETAIL

CLEVELAND PUBLIC POWER
ENGINEERING DEPARTMENT
Northcoast Harbor Streetlight Pole
DRWN. M.D. TURKOVICH
9436-1

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CALCULATED MJH
CHECKED KAE

LIGHTING PLAN GENERAL NOTES

CUY-77-13.80

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2018-01-26.BU-5 CUY-77-1409 - RFC Plans

PADLOCKS AND KEYS

PADLOCKS FURNISHED FOR ODOT CONTROL CENTERS SHALL BE EITHER BRASS OR BRONZE, EQUAL TO MASTER NO. 4BKA OR WILSON BOHANNAN 660A, AND SHALL BE KEYED IN ACCORDANCE WITH CMS 631.06. PAYMENT SHALL BE INCLUDED IN THE BID FOR THE ITEMS BEING LOCKED.

ITEM 625 - LUMINAIRE, UNDERPASS, AS PER PLAN: LED, TYPE III

IN ADDITION TO THE REQUIREMENTS OF ODOT'S CONSTRUCTION AND MATERIALS SPECIFICATIONS, LUMINAIRES FOR UNDERPASS LIGHTING SHALL BE AS FOLLOWS: LUMINAIRES SHALL BE ELECTRO-MATIC AR SERIES, OR EQUAL AS APPROVED BY THE ENGINEER.

IES DISTRIBUTION OF THE LUMINAIRE SHALL BE TYPE II. LUMINAIRES SHALL BE WALL-MOUNT, THE THRU-WIRING REQUIREMENT OF 725.11.F BEING WAIVED FOR THIS UNDERPASS APPLICATION; TOP-ENTRY SHALL BE THE WIRING METHOD USED, UNLESS SHOWN OTHERWISE IN THE PLAN DETAILS.

LUMINAIRE LED DRIVERS SHALL BE COMPATIBLE WITH 480VAC INPUT AS SHOWN IN THE PLANS, MODULAR, HAVE THE MANUFACTURER NAME AND PART NUMBER CLEARLY MARKED ON THE DRIVER ENCLOSURE, AND SHALL CARRY A MINIMUM 5-YEAR REPLACEMENT WARRANTY. EACH LUMINAIRE SHALL INCLUDE AN INTEGRAL LINE FUSE.

THE LED EMITTER ASSEMBLY SHALL CARRY A MINIMUM 5-YEAR REPLACEMENT WARRANTY, 10-YEAR STANDARD MANUFACTURER LIMITED WARRANTY. THE LUMINAIRE ENCLOSURE SHALL BE RATED IP65, MINIMUM, AS PER IEC 60529, AND SHALL CARRY A MINIMUM 5-YEAR REPLACEMENT WARRANTY WITH 10-YEAR STANDARD MANUFACTURER LIMITED WARRANTY.

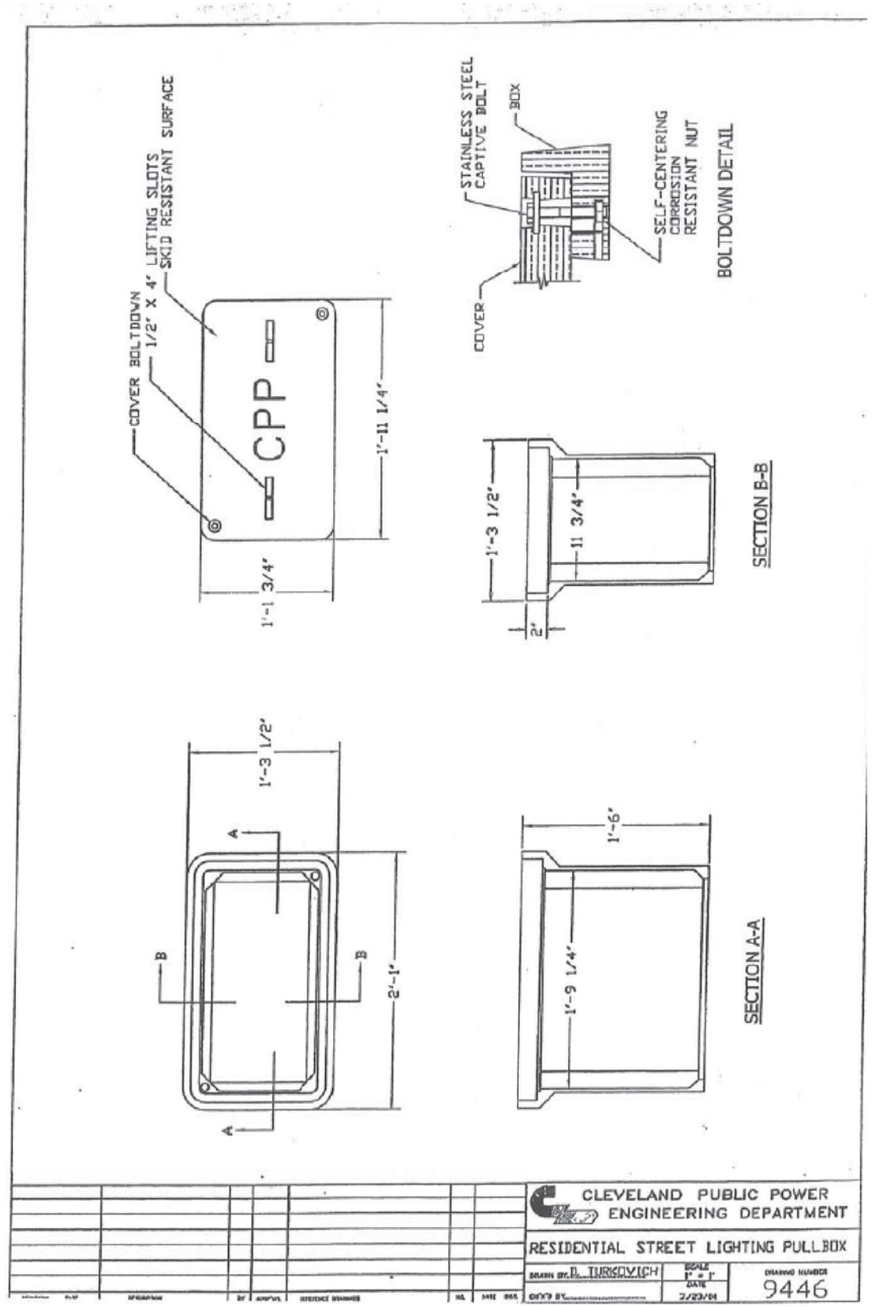
A WRITTEN WARRANTY STATEMENT, SPARE PARTS LIST, AND MANUAL FROM THE LED SUPPLIER SHALL BE SUPPLIED TO THE ENGINEER BEFORE LUMINAIRES SHALL BE ACCEPTED BY ODOT.

SURGE PROTECTION SHALL BE 10KV/5KA MINIMUM, PER ANSI C62.41.2, AND THE MODULAR PACKAGE SHALL BE CLEARLY MARKED WITH THE MANUFACTURER AND PART NUMBER. COLOR TEMPERATURE SHALL BE 4000K +/- 400K UNLESS APPROVED OTHERWISE BY THE ENGINEER.

PAYMENT SHALL BE MADE AT THE UNIT BID PRICE, UNDER CMS ITEM 625, "LUMINAIRE, UNDERPASS, AS PER PLAN: LED, TYPE III", (WITH TYPE III DISTRIBUTION) FOR EACH LUMINAIRE WHICH SHALL BE FULL COMPENSATION FOR ALL LABOR, MATERIAL AND INCIDENTALS REQUIRED TO COMPLETE THIS ITEM IN A SATISFACTORY AND WORKMANLIKE MANNER.

ITEM 625 - PULL BOX, AS PER PLAN

PULL BOXES INSTALLED FOR CPP LIGHTING CIRCUITS SHALL BE PROVIDED AND INSTALLED PER CPP DRAWING 9446.



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CHECKED KAE

LIGHTING PLAN GENERAL NOTES

CUY-77-13.80

LIGHT POLE LEGEND

1. 30' DAVIT ARM STREETLIGHT POLE
2. 14' LIGHT POLE WITH ACORN FIXTURE

MOUNT DECORATIVE LIGHT POLES TO BRIDGE PILASTERS. SEE BRIDGE PLANS FOR ADDITIONAL MOUNTING DETAILS.

NOTES:
1) ARRANGE POWER SERVICE TO PROPOSED LIGHTING CONTROL CENTER WITH CPP.

2) PLACE 2" CONDUIT FOR TRAFFIC SIGNAL INTERCONNECT (SEE BUILDABLE #3 FOR ROUTE DETAILS) IN THE SAME TRENCH AS THE LIGHTING CONDUIT. THE TRAFFIC SIGNAL CONDUIT SHALL NOT CONNECT TO LIGHTING PULL BOXES. THE LIGHTING CONDUIT SHALL NOT CONNECT TO TRAFFIC SIGNAL PULL BOXES.

3) PROVIDE 3-CABLE SPLICE KITS IN PULL BOX.

4) INSTALL 2" CONDUIT RISER ON CPP WOOD POLE.

5) SEE NEXT SHEET FOR DETAILS FOR ROUTING CONDUITS ONTO THE BRIDGE.

6) PROVIDE 2" EMPTY CONDUIT.

NB I-77

SB I-77

BROADWAY AVE

GALLUP AVE

ROSEVILLE CT

C/D ROAD

PULL BOX, CPP (PB-4)
STA 113+45, 34' LT

PROVIDE STRUCTURE GROUNDING

SEE NOTE 6.

PULL BOX, CPP (PB-3)
STA 118+40.5, 31' LT

SEE NOTE 5.

2" CONDUIT W/(3)-
#4 AWG DIST. CABLE

PULL BOX, CPP (PB-1)
STA 120+72, 25' RT

LIGHTING CONTROL CENTER
STA 120+72, 38' RT

SEE NOTES 5/6

TRAFFIC SIGNAL INTERCONNECT

SEE NOTE 5.

SEE NOTE 2.

TRAFFIC SIGNAL INTERCONNECT

2" CONDUIT W/(3)-
#4 AWG DIST. CABLE

PULL BOX, CPP (PB-5)
STA 114+50, 26' RT

SEE NOTES 5/6

SEE NOTE 6.

PULL BOX, CPP (PB-2)
STA 119+51, 25' RT
(SEE NOTE 3.)

PROPOSED POWER SERVICE POLE E-12
(SEE NOTES 1 AND 4.)

2" CONDUIT W/ SERVICE CABLE

Ex R/W

Ex LA-R/W

TMP

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NO.	DATE	DESCRIPTION
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HORIZONTAL SCALE IN FEET
0 15 30 60

CALCULATED MJH
CHECKED KAE

LIGHTING PLAN - BROADWAY AVE
STA 113+00 TO END PROJECT

CUY-77-13.80

96
100

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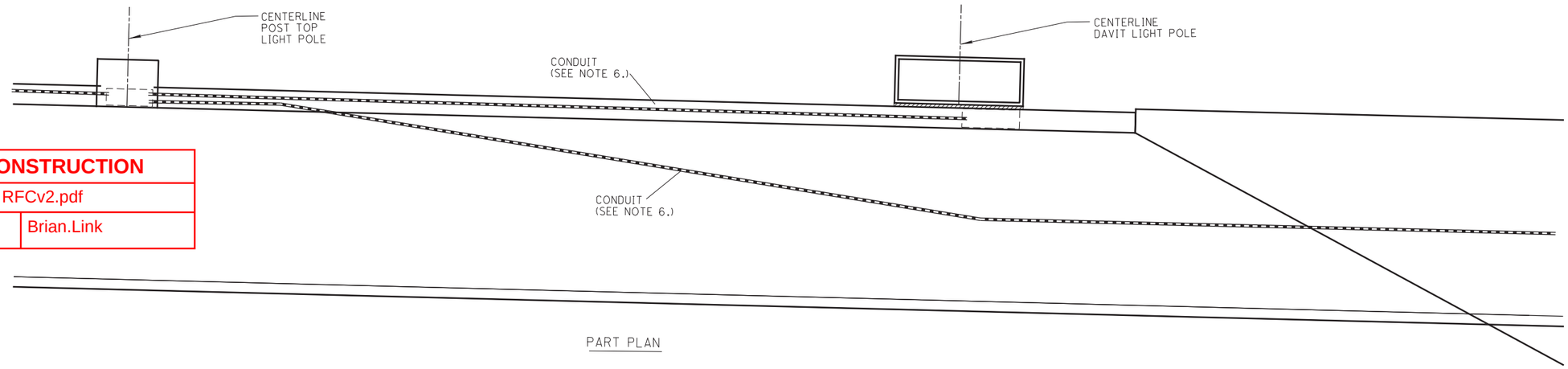
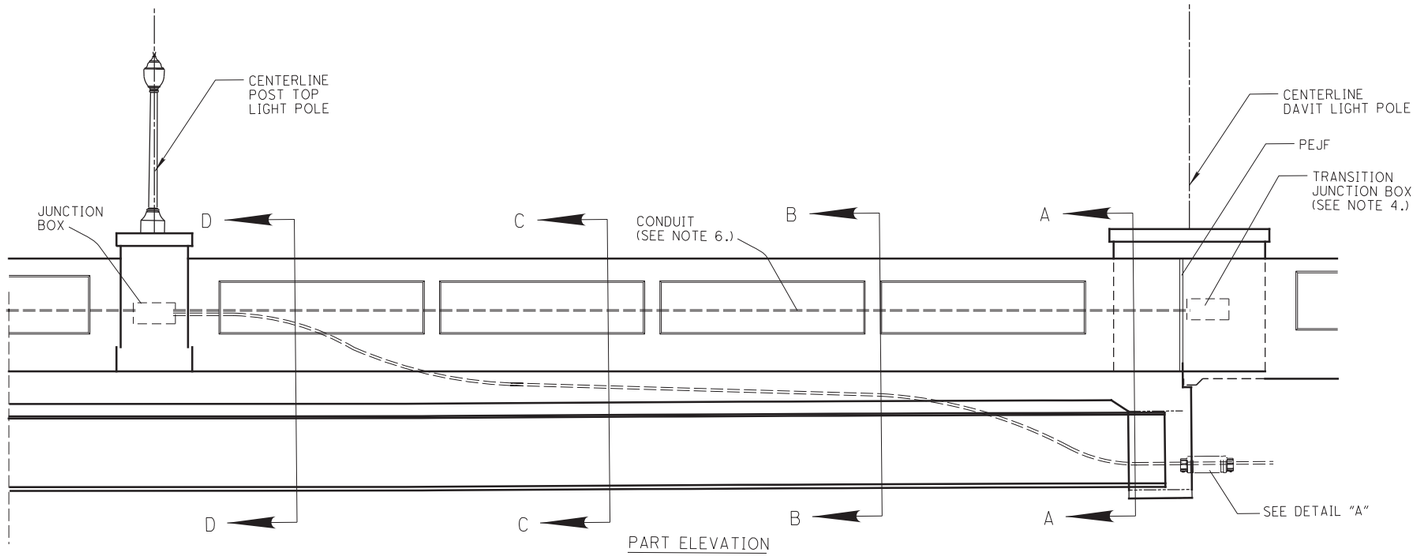
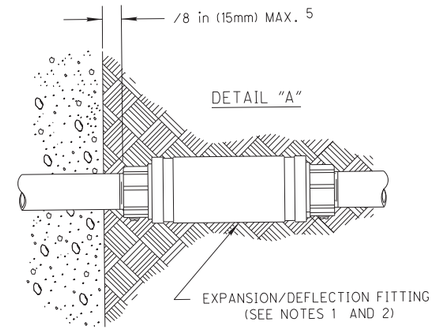
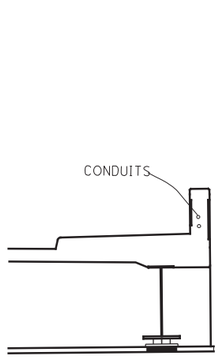


PART PLAN

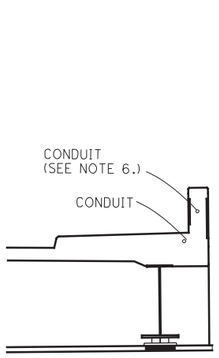


PART ELEVATION

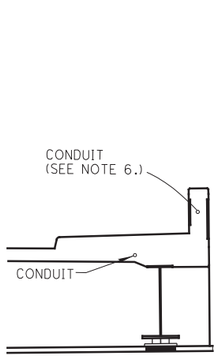




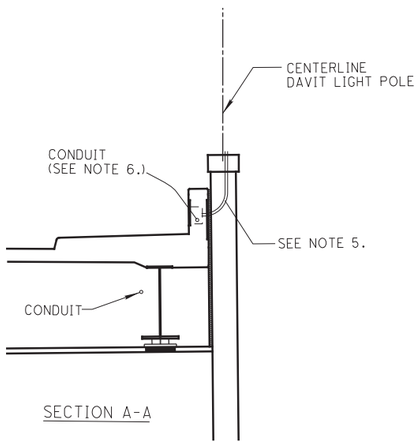
SECTION D-D



SECTION C-C



SECTION B-B



SECTION A-A

NOTES

1. The expansion/deflection fitting (NEMA 4 rating) shall consist of iron or bronze end couplings in a heavy duty neoprene sleeve held in place by stainless steel bands. A copper braid bonding jumper shall be installed inside the sleeve between the end couplings for grounding continuity.
2. At the end of the abutment, place conduit in concrete with threads only exposed, compact backfill up to level of conduit, then attach expansion/deflection fitting along with remaining conduit and complete compaction of backfill.
3. Junction box shall conform to 725.10.
4. Place transition junction box on the road side or bridge side of the PEJF, depending on which side has the most space available. Provide 6-¾" opening in the back and the side of each transition junction box.
5. Connect two (2)- 1" conduits from the transition junction box to the pilaster mounted decorative light pole.
6. Conduits from off of the bridge will connect to the second junction box. A separate conduit will connect from the second junction box back to the first junction box.

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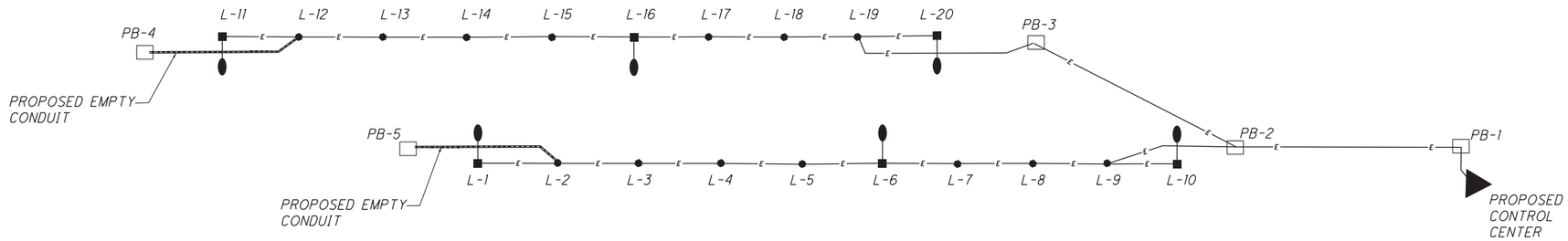
LIGHTING PLAN STRUCTURE CONDUIT DETAILS

CUY-77-13.80



CONTROL CENTER DATA - PROPOSED CABINET - CITY										
CONTROL CENTER	LINE VOLTS	CONNECTED LOAD KVA	SERVICE ENTRANCE CONDUCTOR SIZE - AWG	ENCLOSURE RATING (AMPS)	CIRCUIT NUMBER	CIRCUIT LOAD AMPS	CIRCUIT FUSE SIZE AMPS	CIRCUIT CABLE SIZE (AWG)	MAINTAINING AGENCY	POWER SERVICE AGENCY
CC	240	3.14	4	60	1	13.1	30	4 AWG	CPP	CPP
					-	-	-	-		

WIRING DIAGRAM LEGEND

- PROPOSED UNDERGROUND CIRCUIT (SEE LIGHTING PLANS)
- PROPOSED CONTROL CENTER
- PROPOSED PULL BOX
- PROPOSED DAVIT STYLE LIGHT POLE
- PROPOSED POST TOP LIGHT POLE

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LIGHTING PLAN GENERAL NOTES

CUY-77-13.80

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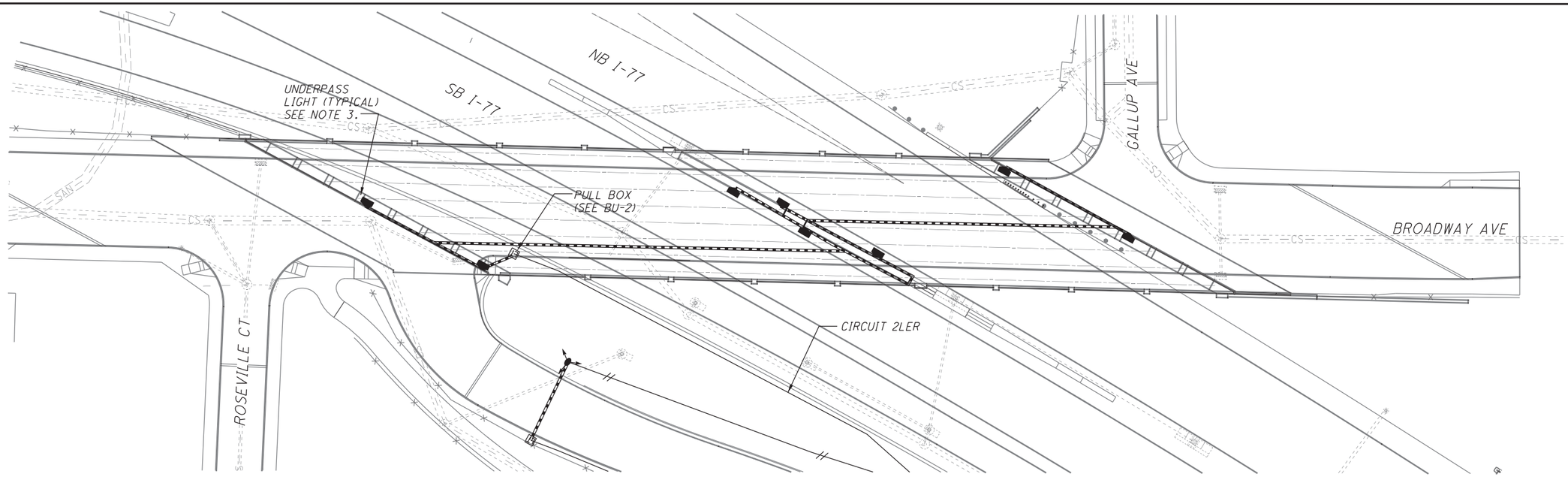
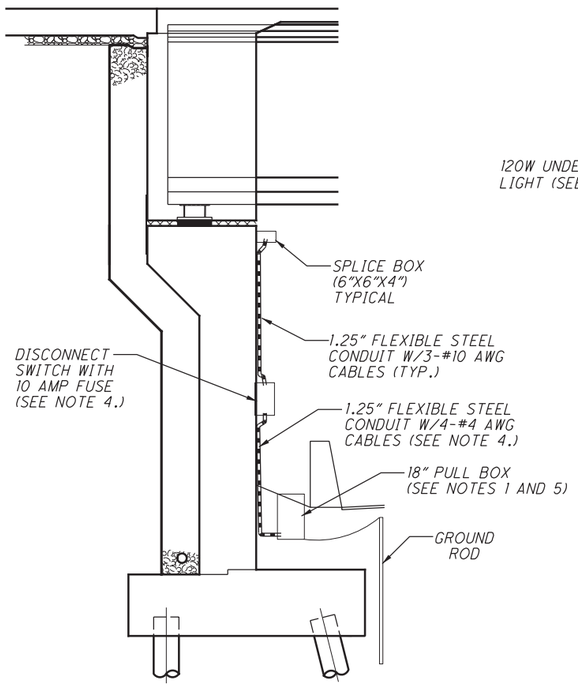
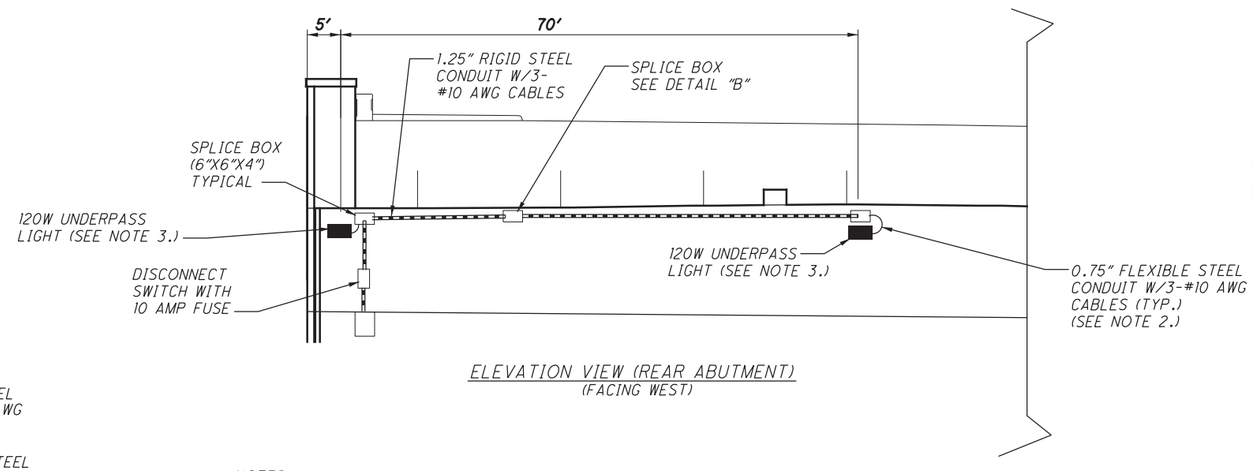


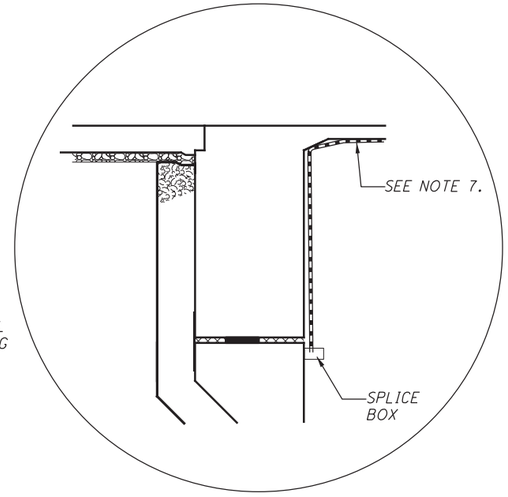
PLAN VIEW



DETAIL A



ELEVATION VIEW (REAR ABUTMENT)
(FACING WEST)



DETAIL B

NOTES:
1) PULL BOX FOR UNDERPASS LIGHTING CONDUIT RISER AND DISCONNECT SWITCH. SEE BU-2 FOR LIGHTING PLAN AND ADDITIONAL CIRCUIT INFORMATION.

2) PROVIDE 0.75" PVC-COATED (SEALTIGHT) FLEXIBLE STEEL CONDUIT FROM SPLICE BOX TO UNDERPASS LIGHTING FIXTURE.

3) MOUNT UNDERPASS LIGHT 1.5' FROM TOP OF PIER OR ABUTMENT. PROVIDE A 10 DEGREE DOWNWARD TILT ON EACH FIXTURE.

4) PROVIDE #4-AWG GROUNDING CABLE FROM DISCONNECT SWITCH, AND BOND TO GROUND ROD UNDER PULL BOX.

5) PROVIDE 18" PULL BOX WITH GROUND ROD.

NOTES:
6) MOUNT DISCONNECT SWITCH ON THE FACE OF THE REAR ABUTMENT.

7) ATTACH 0.75" PVC-COATED (SEALTIGHT) FLEXIBLE STEEL CONDUIT FROM SPLICE BOX TO THE BOTTOM OF THE BRIDGE DECK. CARRY UNDERPASS LIGHTING CIRCUIT TO CENTER BRIDGE PIER (SEE NEXT SHEET).

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HORIZONTAL SCALE IN FEET
0 15 30 60

CALCULATED MJH
CHECKED KAE

LIGHTING PLAN - BROADWAY AVE UNDERPASS LIGHTING PLAN

CUY-77-13.80

99
100

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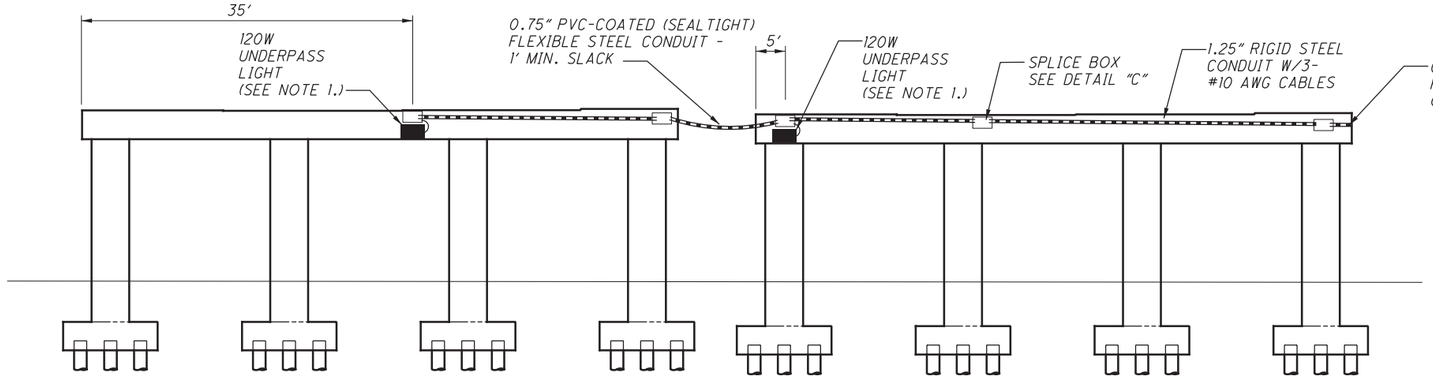
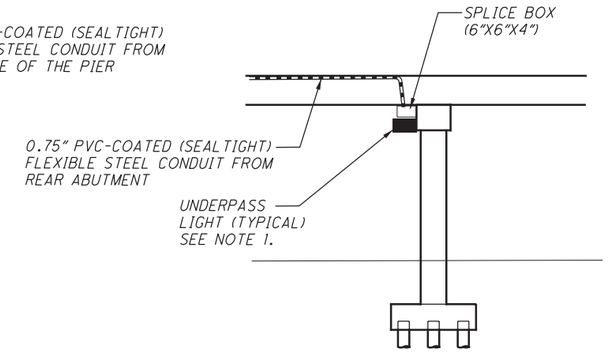
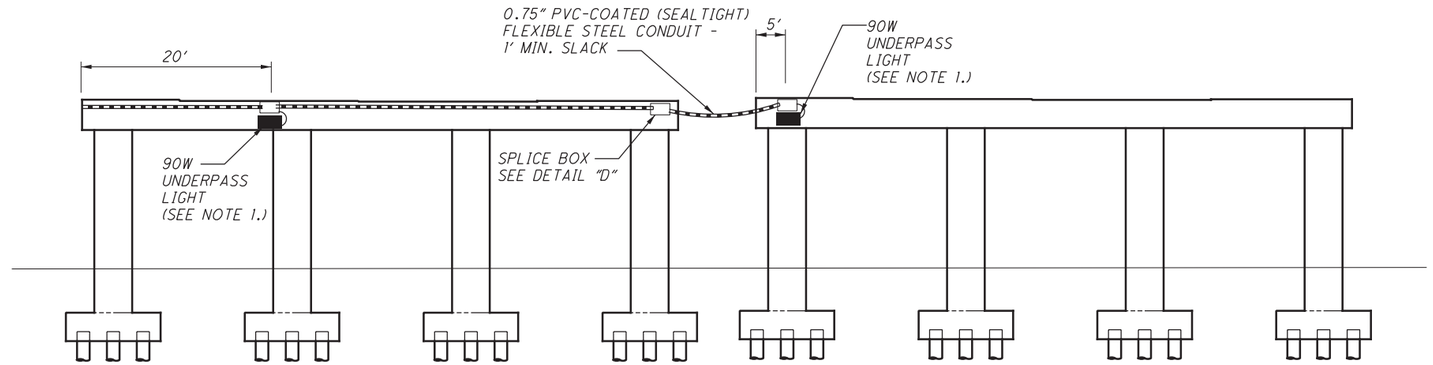


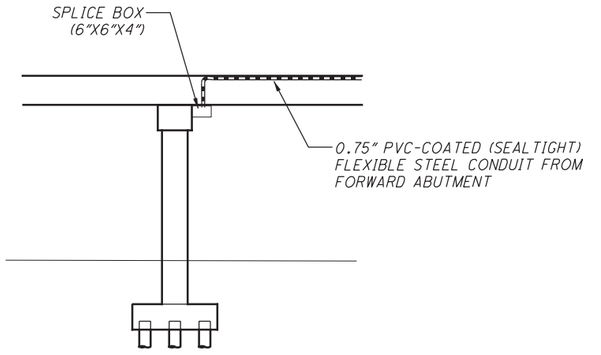
ELEVATION VIEW
(FACING EAST)



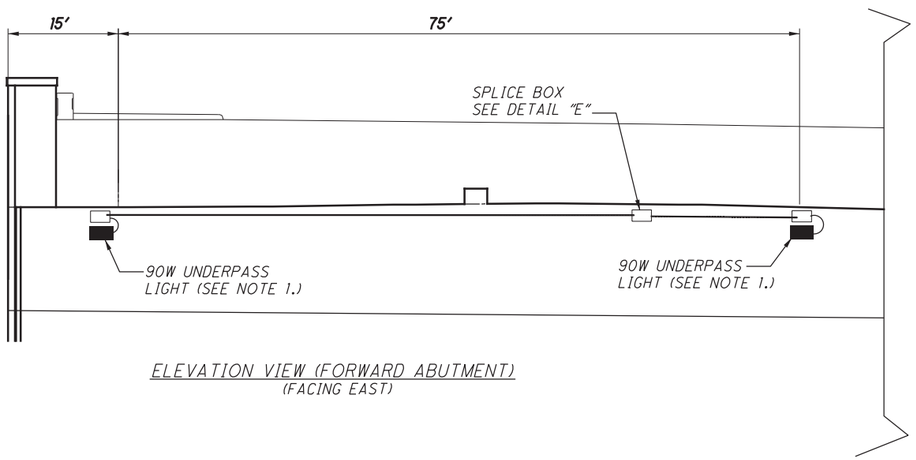
DETAIL C



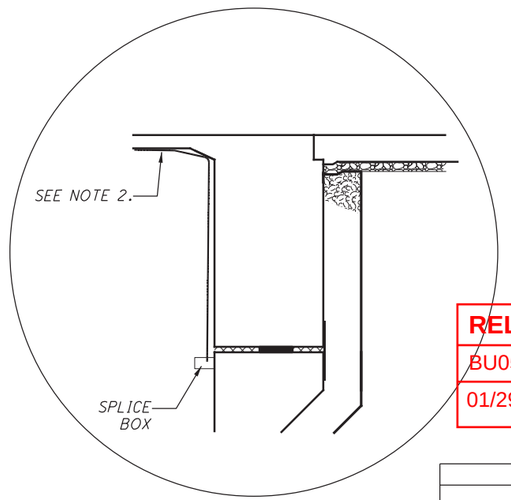
ELEVATION VIEW
(FACING WEST)



DETAIL D



ELEVATION VIEW (FORWARD ABUTMENT)
(FACING EAST)



DETAIL E

NOTES:
1) MOUNT UNDERPASS LIGHT 1.5' FROM TOP OF PIER OR ABUTMENT. PROVIDE A 10 DEGREE DOWNWARD TILT ON EACH FIXTURE.

2) ATTACH 0.75" PVC-COATED (SEALTIGHT) FLEXIBLE STEEL CONDUIT FROM SPLICE BOX TO THE BOTTOM OF THE BRIDGE DECK. CARRY UNDERPASS LIGHTING CIRCUIT TO CENTER BRIDGE PIER.

RELEASED FOR CONSTRUCTION

BU05_2018-01-26.BU-5 RFCv2.pdf	
01/29/2018	Brian.Link

BU5 - CUY-77-1409		
NO.	DATE	DESCRIPTION
ISSUE RECORD		

CALCULATED MJH
CHECKED KAE

LIGHTING PLAN
UNDERPASS LIGHTING DETAILS

CUY-77-13.80

100
100

C:\EEC\Projects\CCG66\(ELR)\CADD\Design\lighting\sheets\100-82388LD3004-underpass2.dgn Sheet 1/15/2018 4:41:44 PM mhunter