OS-600 (10-08)

pennsylvania
DEPARTMENT OF TRANSPORTATION
www.dot.state.pa.us

MAY 6, 2014

Lackawanna County
City of Scranton
SR 6011, Section 273
DOT # 264077 S
PUC No. A-2012-2330212
ECMS # 7838

Ms. Chiavetta, Secretary
Pennsylvania Public Utility Commission
PO Box 3265
Harrisburg, PA 17105-3265

Dear Secretary Chiavetta:

Attached for approval is one (1) half size copy of the final signed Structure Plans for State Route 6011, Section 273 (S-33152) consisting of sheets 1 through 76 of 76.

The Department of Transportation hereby avers that a complete set of the aforesaid final Structure Plans (S-33152) are being sent to the following parties of record for examination simultaneously with this submission to the Public Utility Commission:

Mr. Mark Chappell, P.E., Unit Chief
Utilities Right of Way Division
400 North Street/P O Box 3161
Keystone Building
Harrisburg, Pa. 17105-3161

Susan Hazelton, P.E., Acting ADE-Design
Pa. Department of Transportation
55 Keystone Industrial Park Road
Dunmore, Pa. 18512

John Pocius, Scranton City Engineer
CECO Associates
101 Poplar Street
Scranton, Pa. 18509

Terry Baumgardner
PPL Electric Utilities Corporation
600 Larch Street
Scranton, Pa. 18509

Lorie Ransom
Delaware-Lackawanna Railway Company
200 Cliff Street
Scranton, Pa. 18509

Gary Cavill, Lackawanna County Engineer
Greenman-Peterson
50 Glenmaura National Boulevard
Moosic, Pa. 18507

Charlene Doyle
PNERRA
200 Cliff Street
Scranton, Pa. 18509

Elmer Day
Comcast
1 Comcast Way
Duryea, Pa. 18642

Pete Sarmonis
Pennsylvania Amerian Water Company, Inc.
100 North Pennsyvlania Avenue
Wilkes-Barre Pa. 18701

Gene Skelton
Scranton Sewer Authority
312 Adams Avenue
Scranton, Pa. 18503

Ed Dunlap
UGI Penn Antural Gas
One UGI Center
Wilkes-Barre Pa. 18711-0601

Kevin Schlosser
Verizon Pennsylvania Inc.
121 Adams Avenue
Scrnton, Pa. 18503

We respectfully request the approval of these plans and the subsequent issuance of a PUC Order. Should you have any questions or concerns, please do not hesitate to contact me at 570.963.4995.

Sincerely,

Joseph Strok, Jr.
GRADE CROSSING ADMINISTRATOR
Engineering District 4-0
Department of Transportation

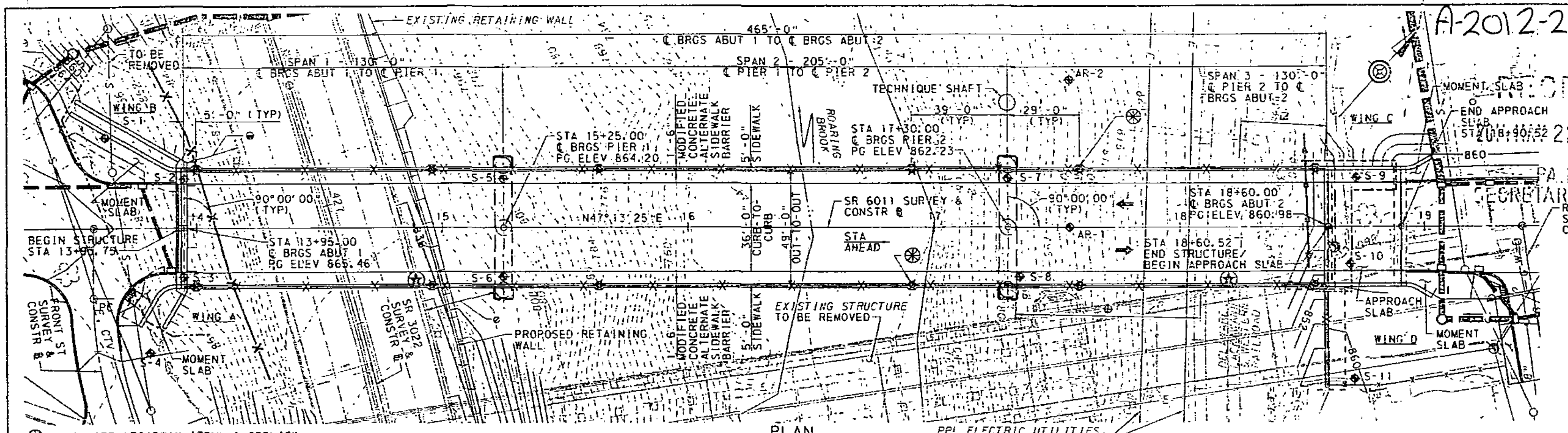
Attachments

cc: Parties of Record
Chief, Utilities and Right-of-Way Section, 7th Floor, CKB
Gina D'Alfonso, Office of Chief Counsel, 9th Floor, CKB
Manager, Rail Safety Division, PUC, 3rd Floor, CKB

A-2012-2330212

RECEIVED
2014 MAY 22 AM 10:39
PA P.U.C.
SECRETARY'S BUREAU

AS-DRILLED BORINGS		
MARK	STATION	OFFSET
STRUCTURE BORINGS SR 6011 ℄		
S-1	13+63	37' LT
S-2	13+95	20' LT
S-3	13+95	20' RT
S-4	13+81	51' RT
S-5	15+25	20' LT
S-6	15+25	20' RT
S-7	17+30	20' LT
S-8	17+34.8	20' RT
S-9	18+72	20' LT
S-10	18+65.5	15.2' RT
S-11	18+71	62' RT
AR-1	17+55	0
AR-2	17+55	60' LT



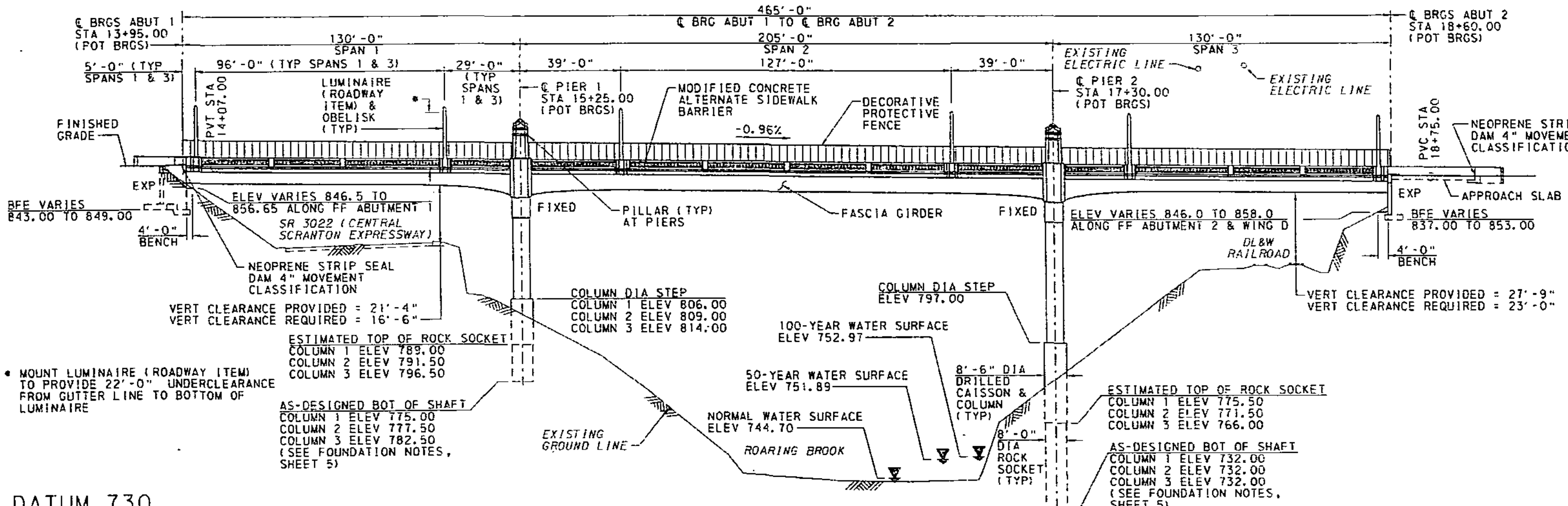
⊛ LUMINAIRE (ROADWAY ITEM) & OBELISK: TYPICAL ON BOTH SIDES OF BRIDGE AT INDICATED LOCATIONS

PLAN

25 0 25 FEET

LEGEND

- —860— PROPOSED CONTOUR
- - -860- - EXISTING CONTOUR
- MIN VERT UNDERCLEARANCE
- EXISTING UTILITY POLE
- DIRECTION OF TRAFFIC
- PROPOSED LIGHTING
- —S— EXISTING SANITARY SEWER LINE
- —E— EXISTING OVERHEAD ELECTRIC LINE
- TEMPORARY EXCAVATION SUPPORT AND PROTECTION SYSTEM (ABUTMENT 1)
- TEMPORARY EXCAVATION SUPPORT AND PROTECTION SYSTEM (ABUTMENT 2, SYSTEM A)
- TEMPORARY EXCAVATION SUPPORT AND PROTECTION SYSTEM (ABUTMENT 2, SYSTEM B)
- TEMPORARY EXCAVATION SUPPORT AND PROTECTION SYSTEM (ABUTMENT 2, SYSTEM C)
- TEMPORARY SLOPE SHIELDING SYSTEM 1 (ROADWAY ITEM)
- TEMPORARY SLOPE SHIELDING SYSTEM 2 (ROADWAY ITEM)
- DECORATIVE PROTECTIVE FENCE
- TYPE 1 ROW FENCE
- AS-DRILLED BORING LOCATION
- —S— RELOCATED SANITARY SEWER LINE



* MOUNT LUMINAIRE (ROADWAY ITEM) TO PROVIDE 22'-0" UNDERCLEARANCE FROM GUTTER LINE TO BOTTOM OF LUMINAIRE

DATUM 730

ELEVATION

25 0 25 FEET

NOTES

1. FOR INDEX OF DRAWINGS AND LIST OF SUPPLEMENTAL DRAWINGS, SEE SHEET 2.
2. FOR TYPICAL SECTION, SEE SHEET 2.
3. FOR BRIDGE LOAD RATINGS, SEE SHEET 3.
4. FOR LIST OF ABBREVIATIONS, SEE SHEET 5.
5. FOR GENERAL NOTES, SEE SHEETS 4 & 5.
6. FOR QUANTITIES, SEE SHEETS 6 & 7.
7. FOR STAKE-OUT PLAN, SEE SHEET 8.
8. FOR DECK ELEVATIONS, SEE SHEETS 52 & 53.
9. FOR LEGAL R/W LINES, AERIAL EASEMENTS, TEMPORARY EASEMENTS & CONSTRUCTION EASEMENTS, SEE CONSTRUCTION PLAN.

Mark	Description	By	Chk'd.	Recm'd.	Date
REVISIONS					

HORIZONTAL CLEARANCES

- 21'-5" HORIZONTAL CLEARANCE PROVIDED TO ABUTMENT 1
- 29'-10¼" HORIZONTAL CLEARANCE PROVIDED TO PIER 1
- 34'-4" HORIZONTAL CLEARANCE PROVIDED TO ABUTMENT 2 (12'-6" MIN HORIZONTAL CLEARANCE REQUIRED)
- 75'-0¾" HORIZONTAL CLEARANCE PROVIDED TO PIER 2 (18'-0" MIN HORIZONTAL CLEARANCE REQUIRED)

HYDRAULIC DATA

DRAINAGE AREA = 54.9 SQ MILES

FLOOD DATA:

	50	100
FREQUENCY (YR)	50	100
MAGNITUDE (CFS)	7090	8545
WS ELEV @ INLET	751.89	752.97
VELOCITY (FT/S)	12.70	13.35

FLOOD OF RECORD: UNKNOWN

HORIZONTAL CURVE DATA

SR 3022	SR 6011	SR 6011
PI STA 425+46.04	PI STA 10+62.46	PI STA 21+17.57
Δ = 14°26'00" LT	Δ = 8°54'24" RT	Δ = 8°32'40" LT
T = 207.32'	T = 38.94'	T = 74.70'
L = 412.45'	L = 77.72'	L = 149.13'
R = 1637.28'	R = 500.00'	R = 1000.00'
E = 13.07'	E = 1.51'	E = 2.79'
PC STA 423+38.72	PC STA 10+23.52	PC STA 20+42.86
PT STA 427+51.17	PT STA 11+01.24	PT STA 21+91.99
	SUPERELEVATION: NC	SUPERELEVATION: NC

VERTICAL CURVE DATA

SR 6011

PVI STA 12+86.00
PVI ELEV 866.45
VC = 242.00'
MO = 2.01'
HLSD = 200'

-7.62% / -0.96%

PVI STA 19+50.00
PVI ELEV 860.12
VC = 150.00'
MO = 0.59'
HLSD = 314'

-0.96% / +2.18%

DES: GCP | CKD: DMC | DWG: GCP | CKD: DMC

HARRISON AVENUE BRIDGE

PREPARED BY:
Dewberry Engineers Inc.
A Dewberry Company
ENGINEERS, PLANNERS, SURVEYORS
101 NOBLE BOULEVARD
CARLISLE, PENNSYLVANIA 17013

COMMONWEALTH OF PENNSYLVANIA PROFESSIONAL ENGINEER GARY L. FRENETTE

PROFESSIONAL ENGINEER — APRIL 3 2014 DATE

DESIGN REVIEWED BY:
4.9.2014
REVIEW CONSULTANT'S NAME, SIGNATURE AND DATE
PE SEAL

THE DESIGN REVIEW IS FOR GENERAL CONFORMANCE WITH THE DEPARTMENT'S DESIGN AND CONSTRUCTION CRITERIA AND STANDARDS AND IS NOT INTENDED TO RELIEVE THE DESIGNER OF FULL RESPONSIBILITY FOR THE ACCURACY AND COMPLETENESS OF THE PLANS.

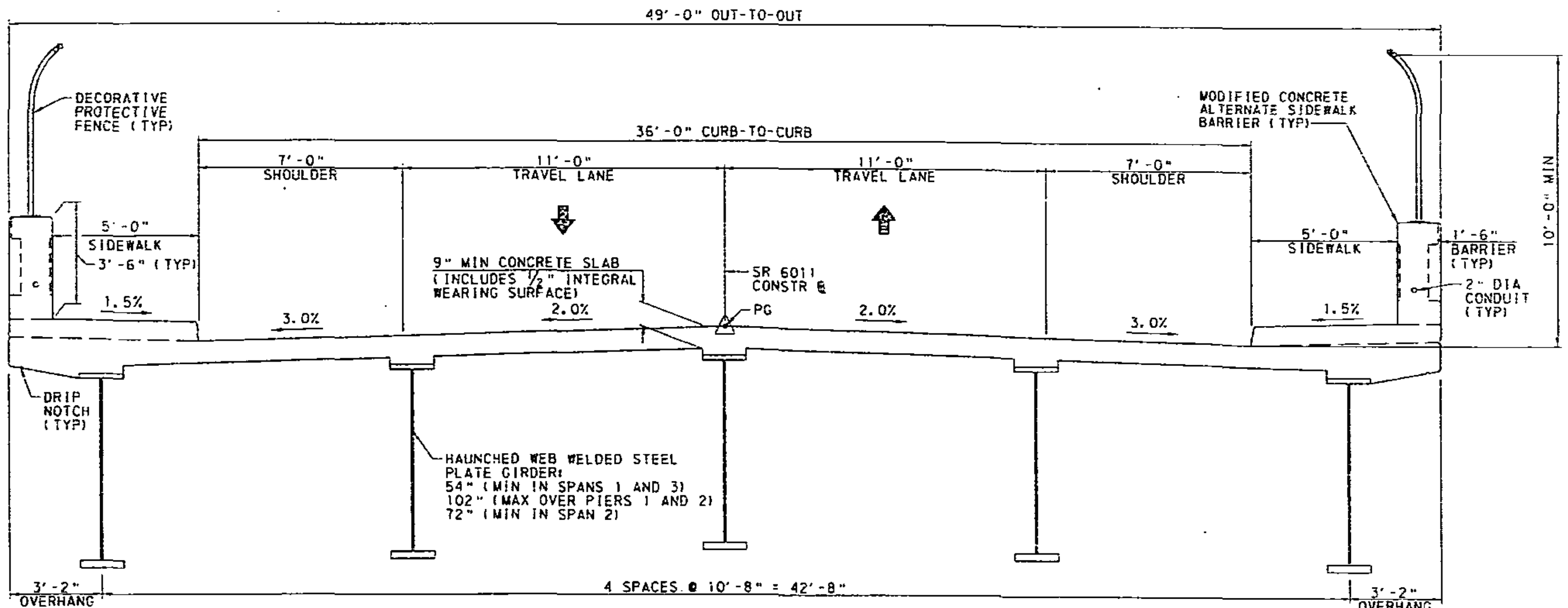
SR 6011 PREVIOUSLY KNOWN AS LR 5

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF TRANSPORTATION

LACKAWANNA COUNTY
SR 6011 SEC 273
SEGMENT 0190 OFFSET 0404
SR 6011 - 273 STA 16+27.50
OVER ROARING BROOK, SR 3022,
AND DELAWARE, LACKAWANNA & WESTERN RAILROAD
3-SPAN CONT COMP STEEL MULTI-GIRDER BRIDGE
GENERAL PLAN & ELEVATION

RECOMMENDED MAY 07 2014
CHIEF BRIDGE ENGINEER

S - 33152



TYPICAL SECTION

1 0 1 2 3 FEET

INDEX OF DRAWINGS

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NOTES

1. FOR GENERAL NOTES AND LIST OF ABBREVIATIONS, SEE SHEETS 4 & 5.

Mark	Description	By	Chk'd.	Recm'd.	Date

REVISIONS

SR 6011 PREVIOUSLY KNOWN AS LR 5

DESCRIPTION	DWG. NO.	APP. DATE
CLASSIFICATION OF EARTHWORK FOR STRUCTURES	RC-11M	6-1-10
BACKFILL AT STRUCTURES	RC-12M	6-1-10
PROTECTIVE FENCE	BC-701M	5-18-12
ELECTRICAL DETAILS	BC-721M	10-26-10
PERMANENT METAL DECK FORMS	BC-732M	10-26-10
ANCHOR SYSTEMS	BC-734M	10-26-10
WALL CONSTR & EXP JOINT DETAILS	BC-735M	10-26-10
REINFORCEMENT BAR FABRICATION DETAILS	BC-736M	5-18-12
BRIDGE DRAINAGE	BC-751M	11-26-13
CONCRETE DECK SLAB DETAILS	BC-752M	11-26-13
STEEL GIRDER DETAILS	*BC-753M*	*11-26-13*
STEEL DIAPHRAGMS FOR STEEL BEAM/ GIRDER STRUCTURES (STRAIGHT GIRDERS ONLY)	BC-754M	10-26-10
NEOPRENE STRIP SEAL DAM FOR PRESTRESSED CONCRETE & STEEL I-BEAM BRIDGES	BC-767M	11-26-13
TYPICAL WATERPROOFING AND EXPANSION DETAILS	BC-788M	5-18-12

SUPPLEMENTAL DRAWINGS

PREPARED BY:
DEWBERRY ENGINEERS INC.

COMMONWEALTH OF PENNSYLVANIA PROFESSIONAL ENGINEER GARY L. FRENETTE

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF TRANSPORTATION

LACKAWANNA COUNTY
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3-SPAN CONT COMP STEEL MULTI-GIRDER BRIDGE
TYPICAL SECTION & SHEET INDEX

RECOMMENDED MAY 07 2014

SHEET 2 OF 76
-SUPPLEMENTAL DRWGS

S - 33152

DES: GCP | CKD: KES | DWG: GCP | CKD: KES

BRIDGE LOAD RATINGS
WITH FUTURE WEARING SURFACE

CURRENT ADTT - 257 (2014)
DESIGN YEAR ADTT 269 (2034)

		HAUNCHED COMPOSITE STEEL GIRDER					
		H 20	HS 20	ML-80	PHL-93	P-82	TK527
INVENTORY RATING (IR)	DISTRIBUTION FACTOR	0.859	0.859	0.859	0.926	--	0.859
	LIMIT STATE	SERV-II	SERV-II	SERV-II	STR-I	--	SERV-II
	CONTROLLING SPAN	[illegible]	2	2	3	--	2
	DISTANCE*	78.50'	78.50'	78.50'	28.50'	--	78.50'
	RATING FACTOR	1.60(M)	1.60(M)	1.59(M)	1.04(M)	--	1.52(M)
	RATING TONNAGE	[illegible]	57.5	58.1	--	--	60.8
	CRITICAL MEMBER	[illegible]	G2, G4	G2, G4	G2, G4	--	G2, G4
OPERATING RATING (OR)	DISTRIBUTION FACTOR	[illegible]	0.859	0.859	0.926	0.859	0.859
	LIMIT STATE	[illegible]	SERV-IIA	SERV-IIA	STR-IA	SERV-IIB	SERV-IIA
	CONTROLLING SPAN	2	2	2	3	2	2
	DISTANCE*	78.50'	78.50'	78.50'	28.50'	78.50'	78.50'
	RATING FACTOR	2.08(M)	2.08(M)	2.06(M)	1.35(M)	1.03(M)	1.98(M)
	RATING TONNAGE	[illegible]	74.8	75.6	--	105.3	79.1
	CRITICAL MEMBER	G2, G4	G2, G4	G2, G4	G2, G4	G2, G4	G2, G4

* FROM LEFT SUPPORT OF CONTROLLING SPAN

BRIDGE LOAD RATINGS
WITHOUT FUTURE WEARING SURFACE

CURRENT ADTT - 257 (2014)
DESIGN YEAR ADTT - 269 (2034)

		HAUNCHED COMPOSITE STEEL GIRDER					
		H 20	HS 20	ML-80	PHL-93	P-82	TK527
INVENTORY RATING (IR)	DISTRIBUTION FACTOR	0.859	0.859	0.859	0.926	--	0.859
	LIMIT STATE	SERV-II	SERV-II	SERV-II	STR-I	--	SERV-II
	CONTROLLING SPAN	2	2	2	3	--	2
	DISTANCE*	78.50'	78.50'	78.50'	28.50'	--	78.50'
	RATING FACTOR	1.74(M)	1.74(M)	1.73(M)	1.12(M)	--	1.66(M)
	RATING TONNAGE	34.8	62.7	63.4	--	--	66.3
	CRITICAL MEMBER	G2, G4	G2, G4	G2, G4	G2, G4	--	G2, G4
OPERATING RATING (OR)	DISTRIBUTION FACTOR	0.859	0.859	0.859	0.926	0.859	0.859
	LIMIT STATE	SERV-IIA	SERV-IIA	SERV-IIA	STR-IA	SERV-IIB	SERV-IIA
	CONTROLLING SPAN	2	2	2	3	2	2
	DISTANCE*	78.50'	78.50'	78.50'	28.50'	78.50'	78.50'
	RATING FACTOR	2.26(M)	2.26(M)	2.25(M)	1.47(M)	1.13(M)	2.16(M)
	RATING TONNAGE	45.3	81.5	82.4	--	114.8	86.2
	CRITICAL MEMBER	G2, G4	G2, G4	G2, G4	G2, G4	G2, G4	G2, G4

* FROM LEFT SUPPORT OF CONTROLLING SPAN

MEMBER	EXTERIOR	FIRST INTERIOR	INTERIOR
MAXIMUM FACTORED FLEXURAL RESISTANCE	21,935 k ft	22,018 k ft	22,115 k ft
LOCATION	0.02 L (SPAN 2)	0.02 L (SPAN 2)	0.02 L (SPAN 2)
MAXIMUM FACTORED SHEAR RESISTANCE	1,621 kips	1,621 kips	1,621 kips
LOCATION	0.20 L (SPAN 2)	0.20 L (SPAN 2)	0.20 L (SPAN 2)

DISTRIBUTION FACTORS**

DESIGN LIVE LOAD (LANE FRACTION, INCLUDING SKEW)

SPAN	2 OR MORE LANES				1 LANE			
	MOMENT		SHEAR		MOMENT		SHEAR	
	DF 1	DF 2	DF 1	DF 2	DF 1	DF 2	DF 1	DF 2
GIRDERS 1 & 5								
1	.681	.681	.681	.681	.533	.533	.533	.533
2	.681	.681	.681	.681	.533	.533	.533	.533
3	.681	--	.681	.681	.533	--	.533	.533
GIRDERS 2, 3 & 4								
1	.926	.888	.996	.996	.782	.729	.996	.996
2	.859	.888	.996	.996	.690	.729	.996	.996
3	.926	--	.996	.996	.782	--	.996	.996

** DISTRIBUTION FACTORS ARE FOR THE AS-BUILT CONDITION WITH SIDEWALKS

RATING NOTES

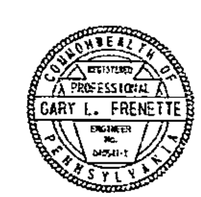
1. DATA IS TAKEN FROM THE STLRFD STEEL GIRDER DESIGN AND RATING OUTPUT (VERSION 2.1.0.0).
2. (M) DENOTES THAT MOMENT CONTROLS RATING.
3. (S) DENOTES THAT SHEAR CONTROLS RATING.
4. LIVE LOAD DISTRIBUTION FACTORS ARE IN ACCORDANCE WITH SECTION 4.6.2.2 OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS AND AS SUPPLEMENTED BY DM-4 SECTION 4.6.2.2.
5. IR = INVENTORY RATING
   OR = OPERATING RATING
   ML = PENNSYLVANIA MAXIMUM LEGAL LOAD (ML-80)
   P-82 = PENNSYLVANIA PERMIT LOAD
   TK527 = PENNSYLVANIA LEGAL LOAD FOR 5-7 AXLE DUMP TRUCK

Mark	Description	By	Chk'd.	Recm'd.	Date

REVISIONS

SR 6011 PREVIOUSLY KNOWN AS LR 5

PREPARED BY:
DEWBERRY ENGINEERS INC.



COMMONWEALTH OF PENNSYLVANIA
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3-SPAN CONT COMP STEEL MULTI-GIRDER BRIDGE
LIVE LOAD RATINGS

RECOMMENDED MAY 07 2014

SHEET 3 OF 76

S - 33152

DES: KES | CKD: GCP | DWG: KLL | CKD: KES

GENERAL NOTES

CONSTRUCTION SPECIFICATIONS

1. PROVIDE MATERIALS AND PERFORM WORK IN ACCORDANCE WITH SPECIFICATIONS, PUBLICATION 408/2011, AASHTO/AWS/D1.5M/D1.5 BRIDGE WELDING CODE 2008 AND CONTRACT SPECIAL PROVISIONS.
2. PROVIDE STRUCTURAL STEEL CONFORMING TO AASHTO M 270 GRADE 50 (ASTM A 709) DESIGNATION, EXCEPT WHEN NOTED OTHERWISE.

DESIGN SPECIFICATIONS

3. AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS 5TH EDITION, 2010, AND AS SUPPLEMENTED BY DESIGN MANUAL, PART 4, MAY 2012 EDITION.
4. LIVE LOAD DISTRIBUTION TO GIRDERS IS BASED UPON DM-4 DISTRIBUTION FACTORS.
5. DESIGN IS IN ACCORDANCE WITH LRFD METHOD.

DESIGN LIVE LOADS

6. PHL-93 OR P-82 (204 KIP PERMIT LOAD).
7. FATIGUE DESIGN IS BASED UPON THE FOLLOWING:
   STEEL STRUCTURES: ADTT 310 (2114)
   (ONE-DIRECTIONAL)

DESIGN DEAD LOADS

8. INCLUDES SURFACE AREA DENSITY OF 30 POUNDS PER SQUARE FOOT FOR FUTURE WEARING SURFACE ON THE DECK SLAB.
9. INCLUDES A SURFACE AREA DENSITY OF 15 POUNDS PER SQUARE FOOT FOR PERMANENT METAL DECK FORMS, WHICH TAKES INTO ACCOUNT THE WEIGHT OF THE FORM. PLUS THE WEIGHT OF THE CONCRETE IN THE VALLEYS OF THE FORMS.

GENERAL

10. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR THE SAFE ERECTION OF ALL STRUCTURES. PROVIDE ALL NECESSARY BRACING AND SUPPORTS. CONSTRUCTION ACTIVITY WILL NOT BE ALLOWED OUTSIDE THE RIGHT-OF-WAY.
11. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR MAINTAINING THE INTEGRITY AND SAFETY OF ALL EXISTING STRUCTURES AT ALL TIMES.
12. ALL DIMENSIONS SHOWN ARE HORIZONTAL, EXCEPT AS NOTED.
13. SUPERSTRUCTURE DIMENSIONS SHOWN ARE FOR A NORMAL TEMPERATURE OF 68°F.
14. NOTIFY THE REGIONAL HEADQUARTERS OF THE FISH COMMISSION PRIOR TO CONSTRUCTION AND COOPERATE WITH FISH COMMISSION DURING CONSTRUCTION.
    LARRY BUNDY, JR
    NORTHEAST REGION MANAGER
    5566 MAIN ROAD
    SWEET VALLEY, PA 18656
    (570) 477-5717
15. SPREAD FOOTINGS MAY BE ORDERED BY THE ENGINEER TO BE AT ANY ELEVATION OR OF ANY DIMENSIONS NECESSARY TO PROVIDE A PROPER FOUNDATION (APPLICABLE FOR ABUTMENT 1 OR ABUTMENT 2).

CONCRETE

16. PROVIDE 2" CONCRETE COVER ON REINFORCEMENT BARS, EXCEPT AS NOTED.
17. USE CLASS AAAP CEMENT CONCRETE IN DECK SLAB, SIDEWALKS, APPROACH SLAB, HEADER SLAB AND CONCRETE DIAPHRAGMS.
18. USE CLASS AA CEMENT CONCRETE IN BARRIER, ABUTMENT BACKWALLS, CHEEKWALLS, CURTAIN WALLS, PILLARS, OBELISKS, PILLAR SUPPORT COLUMNS, SLEEPER SLAB AND MOMENT SLABS.
19. USE CLASS A CEMENT CONCRETE IN ABUTMENTS BELOW BRIDGE SEAT, PIERS, PEDESTALS, WINGWALLS, ROCK SOCKETS, CAISSONS AND FOOTINGS.
20. USE TYPE II CEMENT IN ABUTMENTS, WINGWALLS, ROCK SOCKET AND DRILLED CAISSON SECTIONS OF PIER COLUMNS.
21. A HIGHER CLASS CONCRETE MAY BE SUBSTITUTED FOR A LOWER CLASS CONCRETE AT NO ADDITIONAL COST TO THE DEPARTMENT, IF APPROVED BY THE DISTRICT BRIDGE ENGINEER.
22. RAKE-FINISH ALL HORIZONTAL CONSTRUCTION JOINTS, EXCEPT AS INDICATED.
23. SITE CLASS IS NOT CLASS E.
24. CONSTRUCT DECK SLAB TRANSVERSE CONSTRUCTION JOINTS PARALLEL TO BRIDGE CENTERLINE OF BEARINGS.
25. PLACE CHEEKWALL AND BACKWALL CONCRETE AFTER BEAMS ARE SET IN POSITION.
26. USE EITHER PERMANENT METAL FORMS OR REMOVABLE FORMS TO CONSTRUCT THE DECK SLAB.
27. CHAMFER EXPOSED CONCRETE EDGES 1" BY 1", EXCEPT AS NOTED.
28. DECK SLAB THICKNESS INCLUDES A ½" INTEGRAL WEARING SURFACE.
29. ABUTMENT BACKWALLS MAY BE PLACED UP TO A CONSTRUCTION JOINT BELOW THE LEVEL OF THE BOTTOM OF DECK SLAB PRIOR TO CONSTRUCTION OF THE DECK.

REINFORCING STEEL

30. PROVIDE GRADE 60 REINFORCING STEEL BARS THAT MEET THE REQUIREMENTS OF ASTM A615/A 615M-96A, A 996/A 996M OR A 706/A 706M. DO NOT WELD GRADE 60 REINFORCING STEEL BARS UNLESS SPECIFIED. GRADE 40 REINFORCING STEEL BARS MAY BE SUBSTITUTED WITH A PROPORTIONAL INCREASE IN CROSS-SECTIONAL AREA, IF APPROVED BY THE CHIEF BRIDGE ENGINEER. DO NOT USE RAIL STEEL A 996/A 996M REINFORCEMENT BARS IN BRIDGE PIERS, ABUTMENTS, FOOTINGS, BARRIERS, CAISSONS, ROCK SOCKETS, OR WHERE BENDING OR WELDING OF THE REINFORCEMENT BARS IS INDICATED.
31. USE EPOXY-COATED REINFORCEMENT BARS IN THE DECK SLAB, BARRIERS, SIDEWALK, DIAPHRAGM, PILLARS, PILLAR SUPPORT COLUMNS, OBELISKS, ABUTMENTS, WINGWALLS, DRILLED SHAFTS AND ROCK SOCKETS. EPOXY COAT OTHER SUPERSTRUCTURE AND SUBSTRUCTURE REINFORCEMENT BARS AS INDICATED.
32. GALVANIZED REINFORCING STEEL BARS MAY BE SUBSTITUTED FOR EPOXY-COATED REINFORCING BARS AT NO ADDITIONAL COST TO THE DEPARTMENT.
33. PROVIDE MINIMUM EMBEDMENT AND SPLICE LENGTHS IN ACCORDANCE WITH STANDARD DRAWING BC-736M, UNLESS OTHERWISE INDICATED.
34. BEAM HAUNCH REINFORCEMENT WAS NOT DETERMINED TO BE REQUIRED FOR THE COMPUTED BEAM CAMBERS. HOWEVER, PROVIDE HAUNCH REINFORCEMENT IN ACCORDANCE WITH BC-752M WHERE IRREGULAR BEAM CAMBERS OR OTHER CONSTRUCTION CONDITIONS PROVIDE ACTUAL HAUNCHES THAT EXCEED THE THICKNESS SPECIFIED IN BC-752M.

STRUCTURAL STEEL

35. IF GIRDERS CANNOT BE SHIPPED IN THE LENGTHS SHOWN ON THE PLANS, FIELD SPLICE(S) WILL BE PERMITTED AT THE REQUEST OF THE CONTRACTOR, BUT NO COMPENSATION WILL BE ALLOWED FOR THE SPLICES.
36. IF GIRDERS CAN BE FABRICATED IN LENGTHS LONGER THAN THE SECTIONS SHOWN ON THE PLANS BY ELIMINATING FIELD SPLICES, FIELD SPLICE(S) MAY BE OMITTED AT THE REQUEST OF THE CONTRACTOR. THE CONTRACTOR ASSUMES FULL RESPONSIBILITY FOR SECURING A HAULING PERMIT. APPROVAL FOR ELIMINATION OF A FIELD SPLICE AT THE SHOP DRAWING STAGE DOES NOT OBLIGATE THE DEPARTMENT TO ISSUE A HAULING PERMIT.
37. DO NOT USE FORM SUPPORT SYSTEMS THAT WILL CAUSE UNACCEPTABLE OVERSTRESS OR DEFORMATION TO PERMANENT BRIDGE MEMBERS.
38. ALL FASTENERS ARE ⅞ INCH DIAMETER HS BOLTS, EXCEPT AS NOTED.
39. REAM SUBDRILLED OR SUBPUNCHED HOLES FOR FIELD SPLICES IN THE FABRICATION SHOP.
40. PREPARE BEARING AREAS AS SPECIFIED IN PUBLICATION 408/2011, SECTION 1001.3(K)9.
41. DO NOT MAKE WELDS BY MANUAL SHIELDED METAL ARC PROCESS FOR PRIMARY GIRDER WELDS, SUCH AS FLANGE-TO-WEB WELDS OR FOR SHOP SPLICES OF WEBS AND FLANGES.
42. DO NOT WELD PERMANENT METAL DECK FORMS OR OTHER ATTACHMENTS TO GIRDER TOP FLANGES IN TENSION AREAS. (TENSION AREAS OF TOP FLANGES ARE DESIGNATED ON THE PLANS.) THREADED STUDS FOR THE SUPPORT OF THE OVERHANG DECK FORMING BRACKET IS PERMITTED PROVIDED THE THREADED STUD IS ATTACHED WITH THE SAME WELDING PROCESSING AS THE SHEAR STUDS.
43. WELDING OF REINFORCEMENT BARS DURING FABRICATION OR CONSTRUCTION IS NOT PERMITTED UNLESS SPECIFIED.
44. PROVIDE WELDED STUD SHEAR CONNECTORS MANUFACTURED FROM STEEL CONFORMING TO ASTM A 108.
45. SET ANCHOR BOLTS TO TEMPLATE OR IN PREFORMED HOLES. DO NOT DRILL UNLESS SPECIFICALLY INDICATED ON PLANS. FILL THE PREFORMED HOLES WITH NONSHRINK GROUT. FILL THE CLEARANCE BETWEEN ANCHOR BOLTS AND HOLES IN MASONRY PLATES WITH APPROVED NON-HARDENING CAULKING COMPOUND CONFORMING TO PUBLICATION 408, SECTION 705.8.
46. BLAST CLEAN THE FAYING SURFACES OF SPLICES AND CONNECTIONS OF ALL STRUCTURAL ELEMENTS IN ACCORDANCE WITH PUBLICATION 408 SECTION 1060.3(b)3. REBLAST UNPAINTED ELEMENTS THAT REMAIN UNASSEMBLED FOR A PERIOD OF 12 MONTHS OR MORE FOLLOWING THE INITIAL CLEANING.
47. PAINT STRUCTURAL STEEL IN ACCORDANCE WITH PUBLICATION 408, SECTION 1060. MATCH THE COLOR OF THE FINAL TOP COAT WITH FEDERAL COLOR NUMBER 36463. SUBMIT THE PAINT COLOR TO THE ENGINEER FOR APPROVAL.
48. STABILITY OF PARTIAL GIRDERS AND COMPLETE GIRDERS IS TO BE MAINTAINED BY THE CONTRACTOR DURING ERECTION, UNTIL ALL GIRDERS AND DIAPHRAGMS ARE IN PLACE AND ALL BOLTS ARE PROPERLY INSTALLED. ERECTION LOADS, INCLUDING SELF-WEIGHT OF THE STEEL MEMBERS, WIND LOADING AND CONSTRUCTION LIVE LOAD EFFECTS, ARE TO BE EVALUATED BY THE CONTRACTOR FOR STABILITY, STRESSES AND DEFLECTIONS ON THE STEEL MEMBERS DURING ANY STAGE OF ERECTION.
49. AN ALTERNATE SLAB PLACEMENT SEQUENCE MAY BE PERMITTED AT THE REQUEST OF THE CONTRACTOR. SUBMIT FOR REVIEW AND APPROVAL TO THE DEPARTMENT A REVISED SLAB PLACEMENT SEQUENCE WITH SUPPORT CALCULATIONS AND COMPUTER STRESS ANALYSIS. SATISFY THE REQUIREMENTS OF THE ORIGINAL SLAB PLACEMENT SEQUENCE. OBTAIN WRITTEN APPROVAL PRIOR TO THE USE OF THE REVISED SLAB PLACEMENT SEQUENCE AND/OR CAMBER VALUES. NO COMPENSATION WILL BE ALLOWED FOR THE DEVELOPMENT AND APPROVAL OF THE REVISED SLAB PLACEMENT SEQUENCE AND CAMBER VALUES. THE DEPARTMENT WILL BE THE SOLE JUDGE OF THE ACCEPTABILITY OF THE REVISED SLAB PLACEMENT SEQUENCE AND CAMBER VALUES.
50. GIRDER WEBS SHALL BE PLUMB UNDER THE FULL DEAD LOAD EXISTING AT THE END OF CONSTRUCTION.
51. SEE SHEET 51 FOR OVERHANG FORMING NOTE.

APPROACH SLAB

52. CONSTRUCT BRIDGE APPROACH SLAB AFTER THE BRIDGE DECK SLAB IS CONSTRUCTED.
53. PLACE CONCRETE IN ONE CONTINUOUS OPERATION, UNLESS OTHERWISE INDICATED OR DIRECTED.
54. TRANSVERSE CONSTRUCTION JOINTS ARE NOT PERMITTED IN THE CONCRETE APPROACH SLAB OR SLEEPER SLAB, UNLESS OTHERWISE INDICATED.

PROTECTIVE COATING

55. APPLY PROTECTIVE COATING FOR REINFORCED CONCRETE SURFACES (PENETRATING SEALERS FOR BRIDGE SUPERSTRUCTURE), IN ACCORDANCE WITH PUBLICATION 408, SECTION 1019, TO THE EXPOSED ROADWAY SURFACE OF THE BRIDGE DECK, AND TO THE INSIDE AND TOP FACES OF THE BARRIERS, AND OUTSIDE FACES OF THE BARRIERS DOWN TO THE DRIP NOTCH.
56. APPLY A PENETRATING ARCHITECTURAL CONCRETE STAIN TO CONCRETE SURFACES IN ACCORDANCE WITH THE SPECIAL PROVISIONS. MATCH THE COLOR WITH FEDERAL COLOR NUMBER 36463. APPLY THE STAIN TO THE FOLLOWING EXPOSED SURFACES:
    - BARRIERS ON BRIDGE, APPROACH SLAB AND MOMENT SLABS
    - OBELISKS
    - OUTSIDE EDGE OF DECK AND UNDERSIDE OF DECK OVERHANG
    - CONCRETE END DIAPHRAGM AT ABUTMENT 2
    - FRONT FACES OF ABUTMENT BACKWALLS, BRIDGE SEATS, COPING, ABUTMENT CORNERS, CURTAIN WALLS AND CHEEKWALLS
    - WINGWALL COPING
    - PILLARS AND PILLAR SUPPORT COLUMNS
    - PIER CAPS AND PIER COLUMNS TO A LIMIT OF 3'-0" BELOW FINISHED GROUND
57. FOLLOWING APPLICATION OF THE PENETRATING ARCHITECTURAL CONCRETE STAIN, APPLY AN APPROVED CLEAR ANTIGRAFFITI COATING (MATTE FINISH) TO CONCRETE SURFACES IN ACCORDANCE WITH THE SPECIAL PROVISIONS.

UTILITY NOTES

58. COORDINATE, LOCATE, AND CONDUCT ALL WORK RELATED TO PUBLIC AND PRIVATE UTILITIES IN ACCORDANCE WITH PUBLICATION 408, SECTIONS 105.06 AND 107.12.

DECK STAGING NOTES

59. SEE PUBLICATION 408, SECTION 105.17 FOR CONSTRUCTION LOADING LIMITS. REFER TO SHEETS 9 AND 10 FOR STAGING LIMITS AND ADDITIONAL INFORMATION.

Mark	Description	By	Chk'd.	Recm'd.	Date

REVISIONS

SR 6011 PREVIOUSLY KNOWN AS LR 5

PREPARED BY:
DEWBERRY ENGINEERS INC.

COMMONWEALTH OF PENNSYLVANIA
PROFESSIONAL
GARY L. FRENETTE
ENGINEER

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF TRANSPORTATION

LACKAWANNA COUNTY
SR 6011 SEC 273
SEGMENT 0190 OFFSET 0404
SR 6011 - 273 STA 16+27.50
OVER ROARING BROOK, SR 3022,
AND DELAWARE, LACKAWANNA & WESTERN RAILROAD
3-SPAN CONT COMP STEEL MULTI-GIRDER BRIDGE
GENERAL NOTES - 1

RECOMMENDED MAY 07 2014

SHEET 4 OF 76

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DES: DMC	CKD: GCP	DWG: DMC	CKD: GCP

GENERAL NOTES - CONTINUED

FOUNDATION NOTES

60. CLASS C CEMENT CONCRETE WILL BE REQUIRED BELOW THE ABUTMENT AND WINGWALL BOTTOM OF FOOTING ELEVATIONS, AS NECESSARY, TO ENSURE A FOUNDATION ON ROCK. OVER-EXCAVATE TO THE BOTTOM OF THE CLAY SEAM AND BACKFILL UP TO THE BOTTOM OF FOOTING WITH CLASS C CEMENT CONCRETE AT ABUTMENT 2 AND WINGS C AND D. A THROUGH INSPECTION OF THE BEARING MATERIAL MUST BE PERFORMED BY THE ENGINEER FOLLOWING THE FOUNDATION EXCAVATION FOR THE ABUTMENTS AND WINGS. IF ANY SOFT, LOOSE OR UNSUITABLE MATERIAL IS FOUND AT THE PROPOSED FOOTING ELEVATION, THE MATERIAL MUST BE OVER-EXCAVATED AND BACKFILLED TO THE FOOTING ELEVATION WITH CLASS C CEMENT CONCRETE. IT IS REQUIRED THAT THE CLASS C CEMENT CONCRETE EXTEND AT LEAST 1-FOOT WIDER THAN THE PLAN DIMENSIONS OF THE ABUTMENT FOOTING.

61. CASING IS REQUIRED THROUGH THE SOIL TO MAINTAIN AN OPEN HOLE. DESIGN SHAFT SIDE RESISTANCE ASSUMES THAT CASING WILL NOT BE USED IN ROCK.

62. CONSTRUCT DRILLED SHAFTS IN ACCORDANCE WITH PUBLICATION 408, AND/OR AS OTHERWISE APPROVED BY THE DEPARTMENT.

63. BE PREPARED TO DRILL ROCK WITH STRENGTH GREATER THAN 1800 KSF AT PIER 1 AND 3000 KSF AT PIER 2, BASED ON THE RESULTS OF THE LAB STRENGTH TESTS.

64. TOP OF ROCK SOCKET ELEVATIONS ARE APPROXIMATE, CORRESPOND TO THE ASSUMED TOP OF ROCK ELEVATIONS AT THE LOW SIDE OF EACH SHAFT AT ANY SHAFT LOCATION, AND ARE PROVIDED FOR INFORMATION ONLY.

65. PRIOR TO DRILLING CAISSONS AND/OR ORDERING PIER REINFORCEMENT, DRILL A TEST HOLE AT THE LOW SIDE OF EACH SHAFT TO VERIFY THE TOP OF ROCK ELEVATIONS AND THAT THE STRENGTH AND THICKNESS OF THE ROCK IS SUFFICIENT TO SUPPORT THE REQUIRED LOAD AND FOR PROPER FOUNDING OF THE CAISSONS.

66. PRIOR TO CONSTRUCTION OF FOUNDATIONS AT PIERS 1 & 2, CONSTRUCT TECHNIQUE SHAFT AND PERFORM BIDIRECTIONAL COMPRESSION LOAD TESTING IN ACCORDANCE WITH THE SPECIAL PROVISIONS.

67. PIER DESIGN INCLUDES A CONTINGENCY TOP OF ROCK DEPTH. PIER DESIGN IS VALID FOR A TOP OF ROCK ELEVATION (AT THE LOW SIDE OF EACH SHAFT) HIGHER THAN OR EQUAL TO 787.0 AT PIER 1 AND HIGHER THAN OR EQUAL TO 764.0 AT PIER 2. IF TOP OF ROCK IS FOUND TO BE LOWER THAN THESE LOWEST ALLOWABLE ELEVATIONS AT ANY SHAFT LOCATION, CONTACT THE DISTRICT BRIDGE ENGINEER.

68. BOTTOM OF SHAFTS TO BE 14'-0" BELOW TOP OF SUITABLE ROCK AT PIER 1.
BOTTOM OF SHAFTS TO BE AT ELEVATION 732.00 AT PIER 2.

69. BE PREPARED TO ENCOUNTER GROUND WATER WITHIN THE ROCK AT PIERS 1 & 2.

70. PROVIDE A MINIMUM 4-FOOT WIDE BENCH ALONG FRONT FACE OF ABUTMENTS 1 & 2.

71. PROVIDE A MINIMUM COVER OF 3'-6" TO THE BOTTOM OF FOOTING FOR FROST PROTECTION AT ABUTMENTS 1 & 2.

GIRDER ERECTION AND BEARING LOCATIONS - SPAN 2

72. FOR SPAN LENGTH VARIANCES LESS THAN ¾", ADJUST THE PIER BEARING ANCHOR BOLT PLACEMENT ACCORDINGLY AND GROUT IN PLACE AFTER THE GIRDERS ARE SET.

73. FOR SPAN LENGTH VARIANCES ¾" OR GREATER, JACK THE PIERS HORIZONTALLY TO THE REQUIRED SPAN LENGTH, OR SUPPORT THE GIRDERS ON TEMPORARY BLOCKING UNTIL THE THERMAL DIFFERENTIAL IS REDUCED, OR ADJUST ANCHOR BOLT PLACEMENT AS DIRECTED BY THE PROJECT MANAGER.

SPAN 2 LENGTH VARIANCE

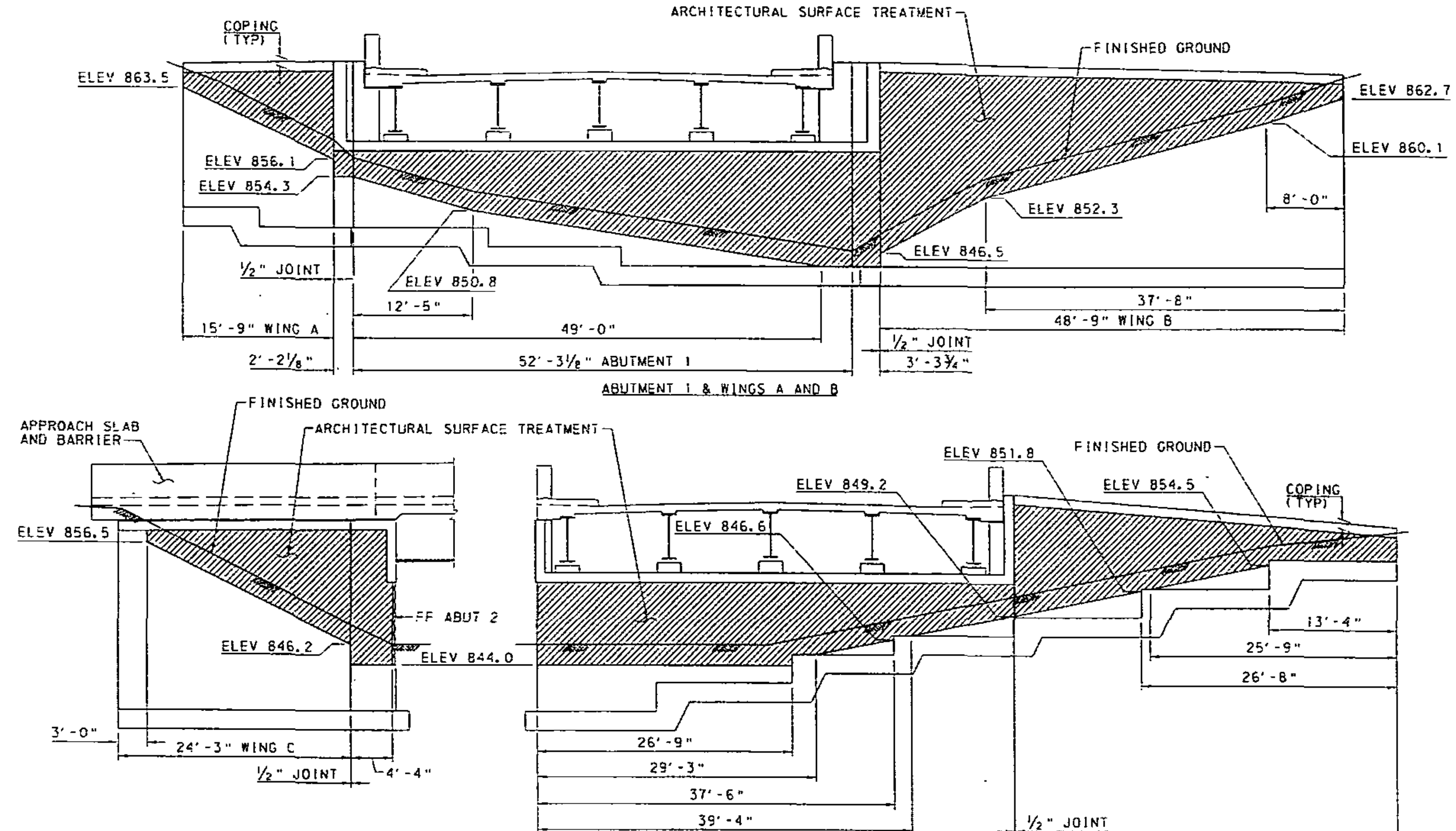
TEMPERATURE (DEGREES F)												
-10	0	10	20	30	40	50	60	70	80	90	100	110
-1¼"	-1⅛"	-1"	-¾"	-⅝"	-½"	-⅜"	-⅛"	0	+⅛"	+⅜"	+½"	+⅝"

DIMENSIONS INDICATE THE RELATIVE DISTANCE THE PIERS/BRGS NEED TO BE MOVED TO MAINTAIN THE AS-DESIGNED FIXED BEARING LOCATIONS AT THE ℄ OF PIERS.

(+) POSITIVE VALUES INDICATE THE PIERS/BRGS NEED TO BE MOVED APART.

(-) NEGATIVE VALUES INDICATE THE PIERS/BRGS NEED TO BE MOVED TOGETHER.

74. THEORETICAL FIXED POINT: STA 15+76



ABUTMENT 2 & WINGS C AND D

NOTES:

- FOR TOP OF GROUND ELEVATIONS, BOTTOM OF FOOTING ELEVATIONS, AND ABUTMENT AND WING WALL DETAILS, SEE SHEETS 11 THRU 20.
- ALL HORIZONTAL DIMENSIONS MEASURED ALONG FRONT FACE OF ABUTMENT OR WING WALL.
- USE ARCHITECTURAL SURFACE TREATMENT WITH LARGE STONE ASHLAR PATTERN. SEE SPECIAL PROVISIONS FOR APPROVED SUPPLIERS.

LIMITS OF SUBSTRUCTURE ARCHITECTURAL SURFACE TREATMENT

NO SCALE

LIST OF ABBREVIATIONS

ABUT - ABUTMENT
B/W - BETWEEN
BOT - BOTTOM
BRGS - BEARINGS
CIP - CAST-IN-PLACE
CJP - COMPLETE JOINT PENETRATION
CLR - CLEAR COVER
CCNS - CLOSED CELL NEOPRENE SPONGE
COMP - COMPOSITE
CONSTR - CONSTRUCTION
CTSK - COUNTERSUNK
DIA - DIAMETER
EA - EACH
EF - EACH FACE
ELEV - ELEVATION
EMBED - EMBEDMENT
EXP - EXPANSION
FF - FRONT FACE
GA - GAGE
HS - HIGH STRENGTH
INSP - INSPECTION
INV - INVERT
JT - JOINT
MAX - MAXIMUM
MIN - MINIMUM
PCP - PREFORMED CELLULAR POLYSTYRENE
P/S - PRESTRESSED
PG - PROFILE GRADE
RF - REAR FACE
REINF - REINFORCEMENT
SPA - SPACE OR SPACING
STA - STATION
STR - STRAIGHT
TYP - TYPICAL
WW - WINGWALL
W/ - WITH
WP - WORK POINT

Mark	Description	By	Chk'd.	Recm'd.	Date

REVISIONS

SR 6011 PREVIOUSLY KNOWN AS LR 5

PREPARED BY: DEWBERRY ENGINEERS INC.

COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL GARY L. FRENETTE ENGINEER

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF TRANSPORTATION

LACKAWANNA COUNTY
SR 6011 SEC 273
SEGMENT 0190 OFFSET 0404
SR 6011 - 273 STA 16+27.50
OVER ROARING BROOK, SR 3022,
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3-SPAN CONT COMP STEEL MULTI-GIRDER BRIDGE
GENERAL NOTES - 2

RECOMMENDED MAY 07 2014

SHEET 5 OF 76

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DES: DMC | CKD: GCP | DWG: DMC | CKD: GCP

APPROXIMATE QUANTITIES - BRIDGE STRUCTURE, AS DESIGNED

ITEM NUMBER	DESCRIPTION	UNIT	MOMENT SLAB AT WING A	MOMENT SLAB AT WING B	ABUTMENT 1	PIER 1	PIER 2	ABUTMENT 2	ABUT 2 APP SLAB	MOMENT SLAB AT WING C	MOMENT SLAB AT WING D	SUPER-STRUCTURE	TOTAL
8120-0001	BRIDGE STRUCTURE, AS DESIGNED, S-33152	LS											LS
(1)	CLASS 3 EXCAVATION	CY			1440			836					2276
(1)	CLASS AA CEMENT CONCRETE	CY	26	53	34	58	58	15	21	14	14	171	464
(1)	CLASS A CEMENT CONCRETE	CY			321	265	357	251					1194
(1)	CLASS AAAP CEMENT CONCRETE	CY							98 (10)			907 (3)	1005
(1)	SELECTED BORROW EXCAVATION, STRUCTURE BACKFILL	CY			1080			314					1394
(1)(8)	NO. 57 COARSE AGGREGATE	CY			4			4					8
(1)	MECHANICAL SPLICE SYSTEM FOR NO. 6 REINFORCEMENT BARS, EPOXY COATED	EA										101	101
(1)	MECHANICAL SPLICE SYSTEM FOR NO. 5 REINFORCEMENT BARS, EPOXY COATED	EA										110	110
(1)	MECHANICAL SPLICE SYSTEM FOR NO. 4 REINFORCEMENT BARS, EPOXY COATED	EA						16					16
(1)(2)	DECORATIVE PROTECTIVE FENCE	LF						41				930	971
(1)	NEOPRENE STRIP SEAL DAM, (4" MOVEMENT)	LF			58				58				116
(1)	FABRICATED STRUCTURAL STEEL	LB										759,881	759,881
(1)	HIGH LOAD MULTI-ROTATIONAL BEARINGS - FIXED	EA				5	5						10
(1)	HIGH LOAD MULTI-ROTATIONAL BEARINGS - GUIDED EXPANSION	EA			2			2					4
(1)	HIGH LOAD MULTI-ROTATIONAL BEARINGS - NON-GUIDED EXPANSION	EA			3			3					6
(1)	2" CONDUIT IN STRUCTURE	LF							64	14	14	922	1014
(1)	1¼" CONDUIT IN STRUCTURE	LF										204	204
(1)	JUNCTION BOXES, JB-25	EA										12	12
(1)(2)	ARCHITECTURAL SURFACE TREATMENT	SF			1005			1070					2075
AND													
1002-0001 (4)	REINFORCEMENT BARS	LB				13,912	27,060						40,972
AND													
1002-0053 (4)	REINFORCEMENT BARS, EPOXY COATED	LB	2462	4381	21,490	16,491	13,938	16,059	26,030	1336	1336	258,917	362,440
AND													
9001-0001 (2)(4)	PENETRATING ARCHITECTURAL CONCRETE STAIN	SF	279	603	854	4985	6305	661	688	144	144	13,486	28,149
AND													
9001-0002 (2)(4)	ANTIGRAFFITI COATING	SF	279	603	854	4985	6305	661	688	144	144	13,486	28,149
5001-0020 (2)(5)(11)	CLASS C CEMENT CONCRETE MODIFIED	CY			22			44					66
1006-0610	TEST HOLES	LF				62	140						202
1019-0050 (9)	PROTECTIVE COATING FOR REINFORCED CONCRETE SURFACES (PENETRATING SEALERS, BRIDGE SUPERSTRUCTURE)	SY	12	27					204	6	6	3007	3262
9001-0004 (2)(14)	CONTROL OF HEAT OF HYDRATION FOR STRUCTURAL MASS CONCRETE	LS											LS
9006-0001 (2)(15)	CONTROL OF HEAT OF HYDRATION FOR STRUCTURAL MASS CONCRETE	LS											LS
9006-0218 (2)	102" DIAMETER DRILLED CAISSONS, SHAFT SECTION	LF				45	46						91
9006-0219 (2)	TECHNIQUE SHAFT, 102" DIAMETER DRILLED CAISSONS, SHAFT SECTION	LF					11						11
9006-0317 (2)	96" DIAMETER DRILLED CAISSONS, ROCK SOCKET	LF				42	117						159
9006-0318 (2)	TECHNIQUE SHAFT, 96" DIAMETER DRILLED CAISSONS, ROCK SOCKET	LF					44						44
9006-0418 (2)	102" DIAMETER SHELLS FOR DRILLED CAISSONS	LF				45	46						91
9006-0419 (2)	TECHNIQUE SHAFT, 102" DIAMETER SHELLS FOR DRILLED CAISSONS	LF					11						11
9006-0690 (2)	DRILLED CAISSON HQ CONCRETE CORING	LF				9	22						31
9006-0691 (2)	TECHNIQUE SHAFT, BIDIRECTIONAL COMPRESSION LOAD TESTING	LS					LS						LS
9203-0101 (2)(6)	TEMPORARY EXCAVATION SUPPORT AND PROTECTION SYSTEM (ABUTMENT 1)	LS			LS								LS
9203-0102 (2)(7)	TEMPORARY EXCAVATION SUPPORT AND PROTECTION SYSTEM (ABUTMENT 2, SYSTEM A)	LS						LS					LS
9203-0104 (2)(12)	TEMPORARY EXCAVATION SUPPORT AND PROTECTION SYSTEM (ABUTMENT 2, SYSTEM B)	LS						LS					LS
9203-0105 (2)(13)	TEMPORARY EXCAVATION SUPPORT AND PROTECTION SYSTEM (ABUTMENT 2, SYSTEM C)	LS						LS					LS

ALTERNATE STRUCTURE ITEMS

ITEM NUMBER	ITEM	UNIT	TOTAL
8120-0001 (2)	BRIDGE STRUCTURE, AS DESIGNED, S-33152	LS	LUMP SUM
8000-0010 (2)	PRESTRESSED CONCRETE BRIDGE STRUCTURE	LS	LUMP SUM
8100-0010 (2)	STEEL BRIDGE STRUCTURE	LS	LUMP SUM

NOTES FOR TABULATION OF BRIDGE ITEMS:

(1) ITEMS IN BRIDGE STRUCTURE LUMP SUM ITEM 8030-0001 GIVEN FOR INFORMATION ONLY.
(2) SEE CONTRACT SPECIAL PROVISIONS.
(3) INCLUDES CLASS AAAP CEMENT IN DECK SLAB AND APPROXIMATELY 53 CY OF CEMENT CONCRETE TO ACCOUNT FOR STAY-IN-PLACE FORM TROUGHS.
(4) FOR AS DESIGNED STRUCTURE, INCLUDED IN BRIDGE BID ITEMS. FOR ALTERNATE DESIGNS, INCLUDED IN BRIDGE STRUCTURE LUMP SUM BID ITEM.
(5) QUANTITY IS AN ESTIMATED VALUE FOR BIDDING PURPOSES ONLY. ITEM AS DIRECTED BY THE ENGINEER.
(6) APPROXIMATE QUANTITY FOR INFORMATION ONLY = 1690 SF (STA 13+58, 67' LT TO STA 14+06, 43' RT)
(7) APPROXIMATE QUANTITY FOR INFORMATION ONLY = 820 SF (STA 18+49, 27' LT TO STA 18+70, 8' RT)
(8) GEOTEXTILE, CLASS 1 AT WEEPHOLES IS INCIDENTAL TO NO. 57 COARSE AGGREGATE.
(9) ONLY APPLY PROTECTIVE COATING IF CONCRETE IS POURED BETWEEN SEPTEMBER 1 AND MARCH 1 PER PUBLICATION 408M, SECTION 1001.3(k)6.
(10) WATERSTOP, POLYETHYLENE SHEETING, CLOSED CELL NEOPRENE SPONGE & EPOXY BONDING COMPOUND ARE INCIDENTAL TO APPROACH SLAB CONCRETE.
(11) INCLUDES OVER-EXCAVATION.
(12) APPROXIMATE QUANTITY FOR INFORMATION ONLY = 440 SF (STA 18+70, 8' RT TO STA 18+45, 22' RT)
(13) APPROXIMATE QUANTITY FOR INFORMATION ONLY = 540 SF (STA 18+44, 26' RT TO STA 18+54, 67' RT)
(14) APPLIES TO PIER 1 AND PIER 2: COLUMNS AND PIER CAP.
(15) APPLIES TO PIER 1 AND PIER 2: DRILLED CAISSONS (ROCK SOCKETS AND SHAFT SECTIONS).

NOTES

1. FOR GENERAL NOTES, SEE SHEETS 4 & 5.
2. FOR LIST OF ABBREVIATIONS, SEE SHEET 5.

Mark	Description	By	Chk'd.	Recm'd.	Date

REVISIONS

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PREPARED BY: DEWBERRY ENGINEERS INC.

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF TRANSPORTATION

LACKAWANNA COUNTY
SR 6011 SEC 273
SEGMENT 0190 OFFSET 0404
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OVER ROARING BROOK, SR 3022,
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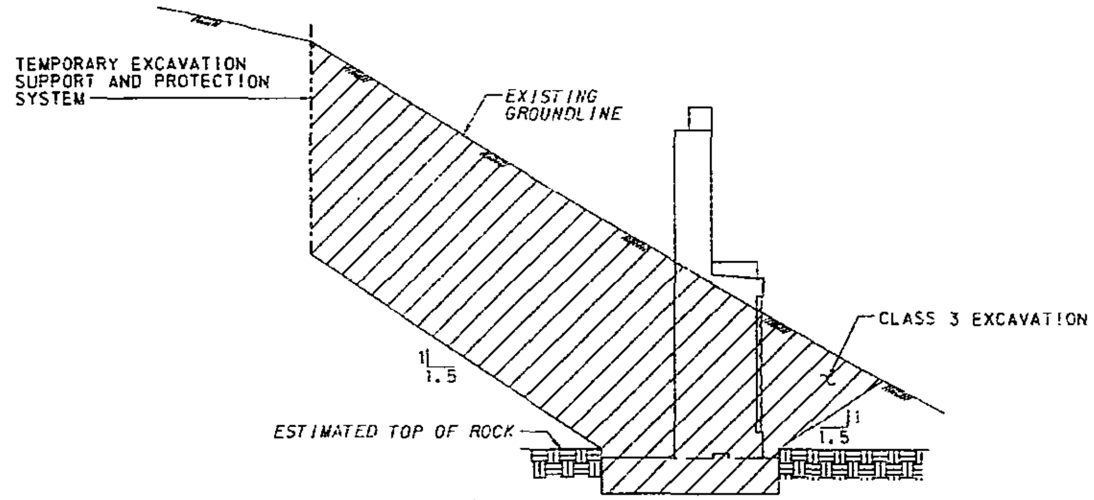
3-SPAN CONT COMP STEEL MULTI-GIRDER BRIDGE
QUANTITIES - 1

RECOMMENDED MAY 07 2014

SHEET 6 OF 76

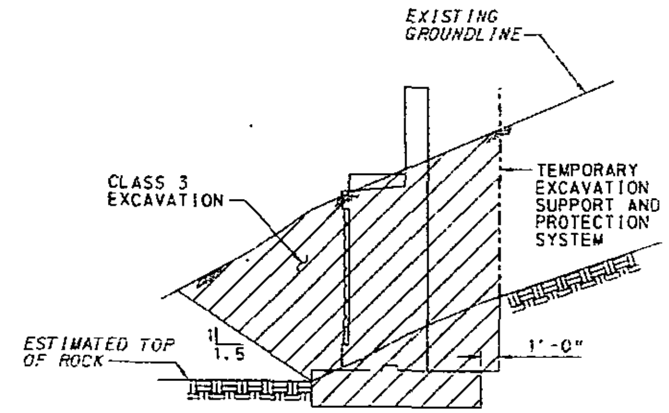
S - 33152

DES: GLF | CKD: DMC | DWG: GLF | CKD: DMC



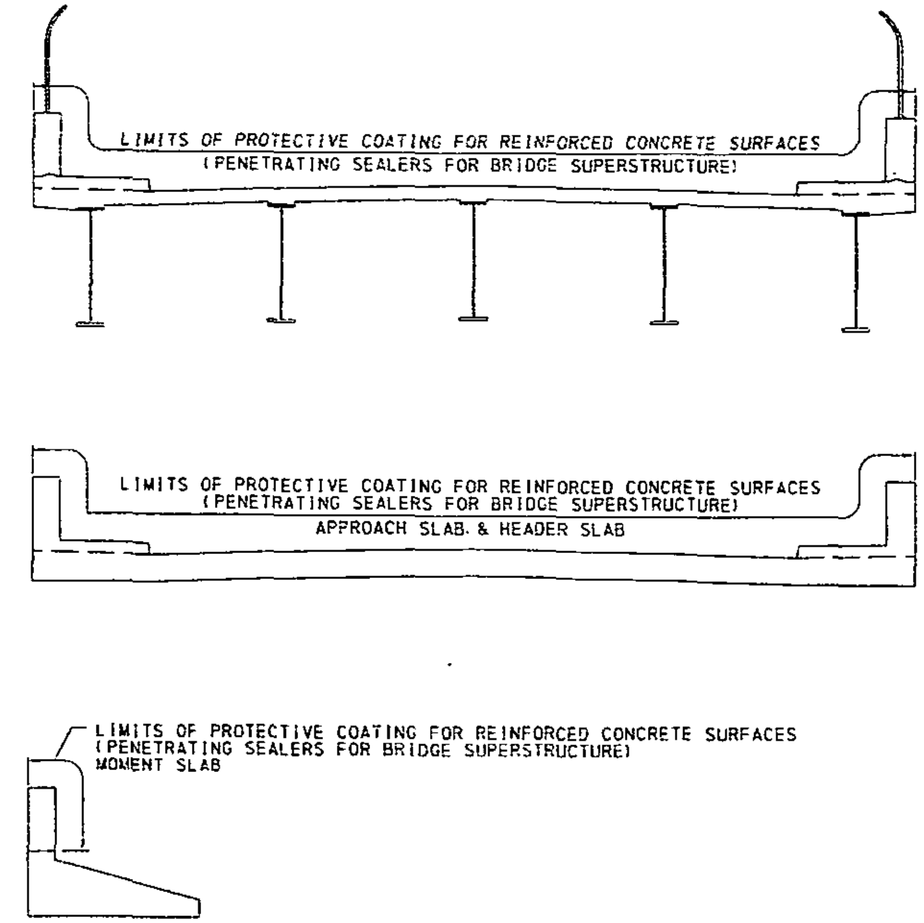
PAY LIMITS FOR EXCAVATION - ABUTMENT 1

NOT TO SCALE



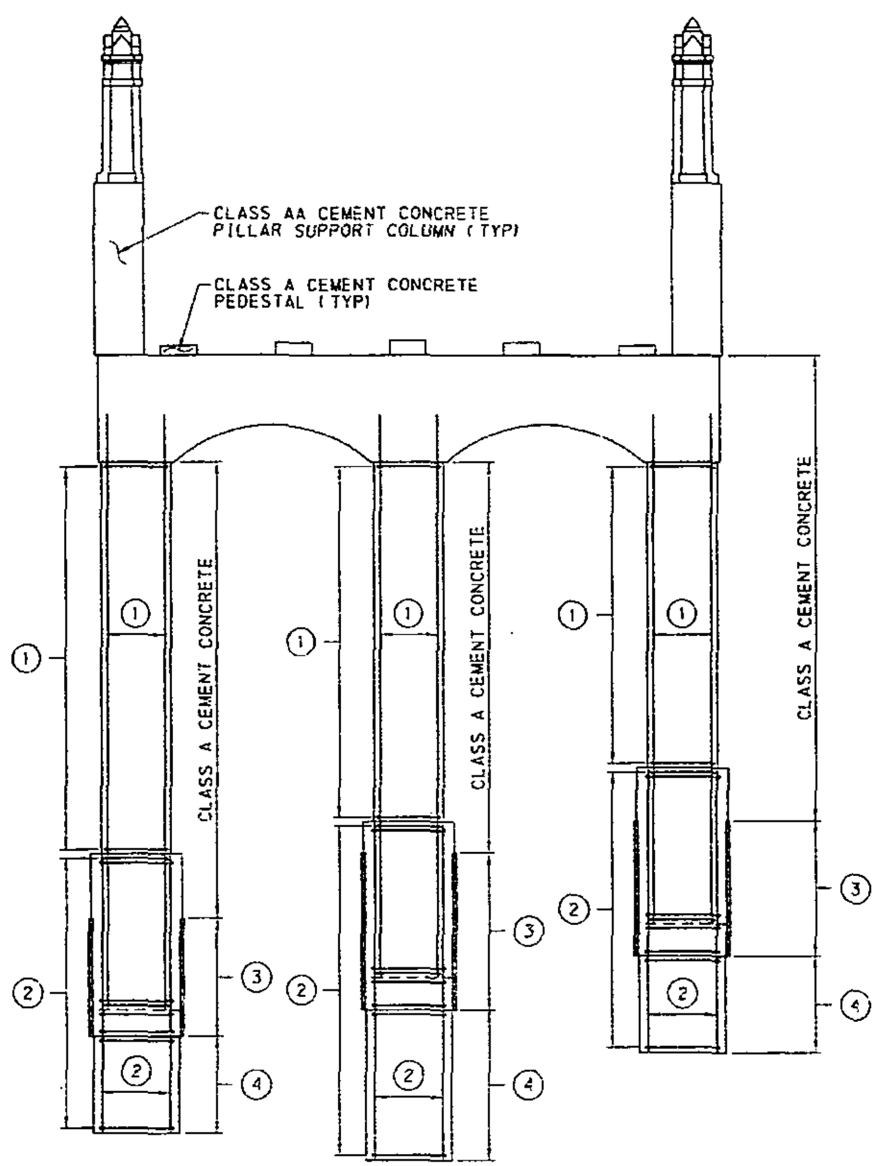
PAY LIMITS FOR EXCAVATION - ABUTMENT 2

NOT TO SCALE



PROTECTIVE COATING LIMITS

NOT TO SCALE



PAY LIMITS FOR PIERS

NOT TO SCALE

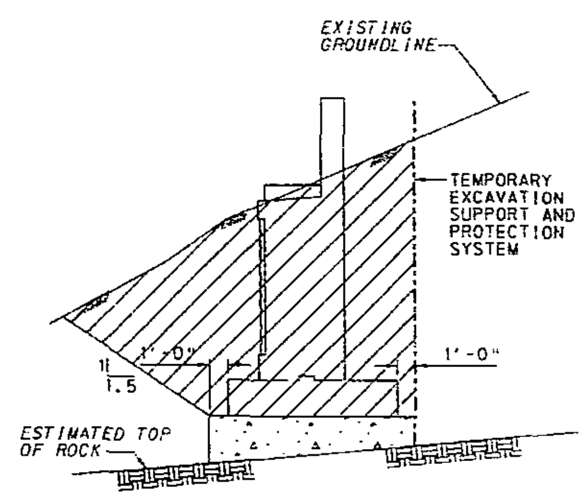
(1) REINFORCEMENT BARS PAID FOR UNDER ITEM NO. 1002-0001 OR ITEM NO. 1002-0053

(2) REINFORCEMENT BARS PAID FOR UNDER ITEM NO. 9006-0218 OR ITEM NO. 9006-0317

(3) 102" DIA DRILLED CAISSONS, SHAFT SECTION (ITEM NO. 9006-0218) AND 102" DIA SHELLS FOR DRILLED CAISSONS, (ITEM NO. 9006-0418)

(4) 96" DIA DRILLED CAISSONS, ROCK SOCKET (ITEM NO. 9006-0317)

NOTE: CLASS A CEMENT CONCRETE IN THE DRILLED CAISSONS IS INCIDENTAL TO ITEMS NO. 9006-0218 AND 9006-0317.



LEGEND

- CLASS 3 EXCAVATION
- CLASS C CEMENT CONCRETE MODIFIED AND OVER-EXCAVATION

PAY LIMITS FOR OVER-EXCAVATION AND CLASS C CEMENT CONCRETE MODIFIED

NOT TO SCALE

NOTES

1. FOR GENERAL NOTES, SEE SHEETS 4 & 5.
2. FOR LIST OF ABBREVIATIONS, SEE SHEET 5.

Mark	Description	By	Chk'd.	Recm'd.	Date

REVISIONS

SR 6011 PREVIOUSLY KNOWN AS LR 5

PREPARED BY:
DEWBERRY ENGINEERS INC.

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF TRANSPORTATION

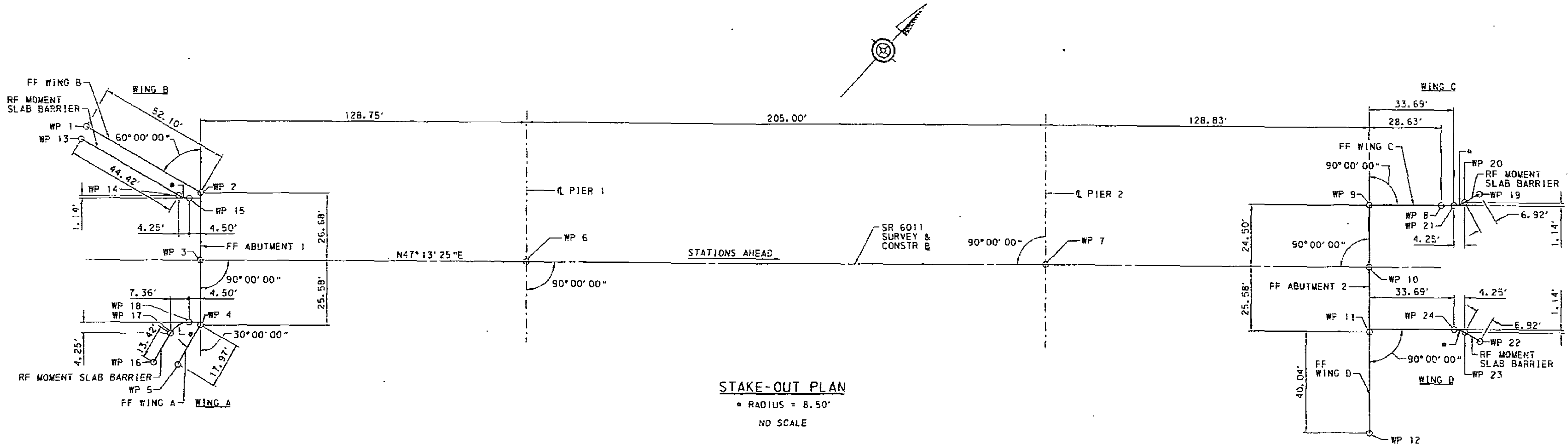
LACKAWANNA COUNTY
SR 6011 SEC 273
SEGMENT 0190 OFFSET 0404
SR 6011 - 273 STA 16+27.50
OVER ROARING BROOK, SR 3022,
AND DELAWARE, LACKAWANNA & WESTERN RAILROAD
3-SPAN CONT COMP STEEL MULTI-GIRDER BRIDGE
QUANTITIES - 2

RECOMMENDED MAY 07 2014

SHEET 7 OF 76

S - 33152

DES: DMC | CKD: GLF | DWG: DMC | CKD: GLF

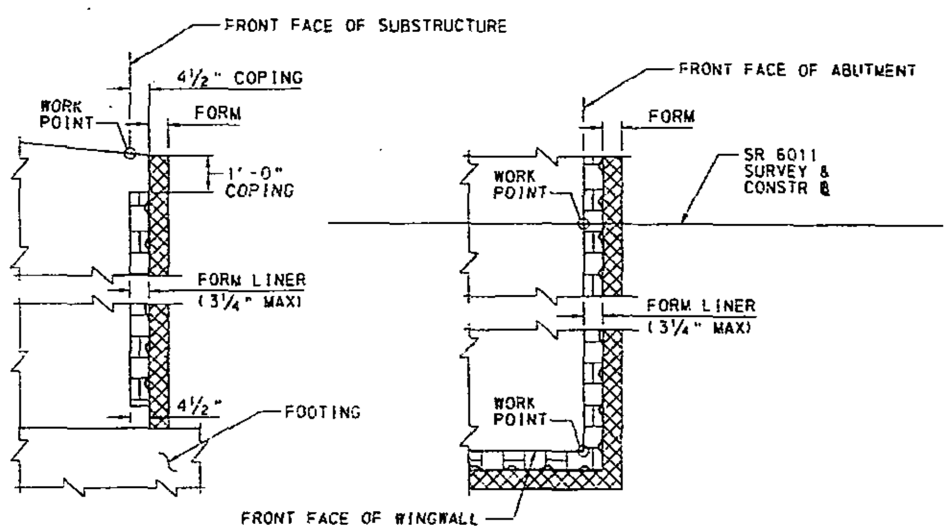


STAKE-OUT PLAN

* RADIUS = 8.50'

NO SCALE

COORDINATES				
POINT	STATION	OFFSET	NORTHING	EASTING
WP 1	13+51.13	52.73' LT	456,216.8812	2,543,879.6483
WP 2	13+96.25	26.68' LT	456,228.4029	2,543,930.4578
WP 3	13+96.25	0.00	456,208.6205	2,543,948.5764
WP 4	13+96.25	25.58' RT	456,190.0421	2,543,965.9510
WP 5	13+87.26	41.15' RT	456,172.5175	2,543,969.9250
WP 6	15+25.00	0.00	456,296.2597	2,544,043.0800
WP 7	17+30.00	0.00	456,435.4834	2,544,193.5519
WP 8	18+87.45	24.50' LT	456,560.4029	2,544,292.4887
WP 9	16+58.83	24.50' LT	456,540.9625	2,544,271.4777
WP 10	18+58.83	0.00	456,522.9793	2,544,288.1166
WP 11	18+58.83	25.58' RT	456,504.2009	2,544,305.4913
WP 12	18+58.83	65.62' RT	456,474.6099	2,544,332.6852
WP 13	13+49.03	47.85' LT	456,211.8744	2,543,881.4246
WP 14	13+87.50	25.64' LT	456,221.6971	2,543,924.7415
WP 15	13+91.75	24.50' LT	456,223.7476	2,543,928.6344
WP 16	13+77.68	40.37' RT	456,166.5779	2,543,962.3625
WP 17	13+84.38	28.75' RT	456,179.6623	2,543,959.3954
WP 18	13+91.75	24.50' RT	456,187.7811	2,543,961.9123
WP 19	19+02.76	29.10' LT	456,574.1698	2,544,300.5988
WP 20	18+96.77	25.64' LT	456,567.5632	2,544,298.5508
WP 21	18+92.52	24.50' LT	456,563.8410	2,544,296.2046
WP 22	19+02.76	29.10' RT	456,531.4546	2,544,340.1208
WP 23	18+96.77	25.64' RT	456,529.9250	2,544,333.3754
WP 24	18+92.52	24.50' RT	456,527.8746	2,544,329.4825



WORK POINT LOCATIONS ON ABUTMENTS & WINGWALLS

NO SCALE

NOTES

1. FOR GENERAL NOTES AND LIST OF ABBREVIATIONS, SEE SHEETS 4 & 5.
2. FOUR DECIMAL PLACE COORDINATES ARE FOR COMPUTATIONAL PURPOSES ONLY AND DO NOT IMPLY PRECISION BEYOND TWO DECIMAL PLACES.
3. ALL DIMENSIONS ARE HORIZONTAL.

Mark	Description	By	Chk'd.	Recm'd.	Date

REVISIONS

SR 6011 PREVIOUSLY KNOWN AS LR 5

PREPARED BY: DEWBERRY ENGINEERS INC.

COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL GARY L. FRENETTE ENGINEER

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF TRANSPORTATION

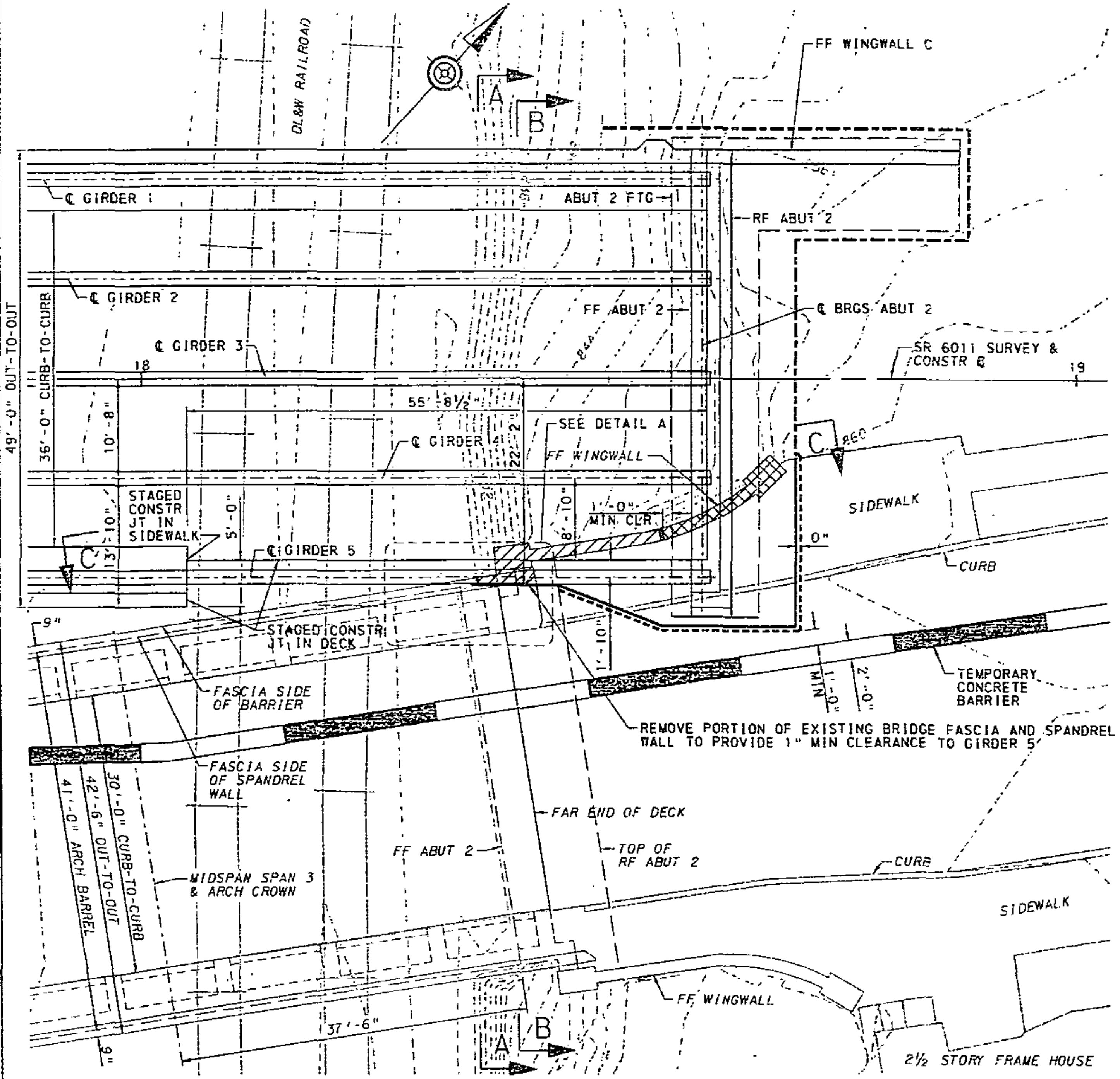
LACKAWANNA COUNTY
SR 6011 SEC 273
SEGMENT 0190 OFFSET 0404
SR 6011 - 273 STA 16+27.50
OVER ROARING BROOK, SR 3022,
AND DELAWARE, LACKAWANNA & WESTERN RAILROAD
3-SPAN CONT COMP STEEL MULTI-GIRDER BRIDGE
STAKE-OUT PLAN

RECOMMENDED MAY 07 2014

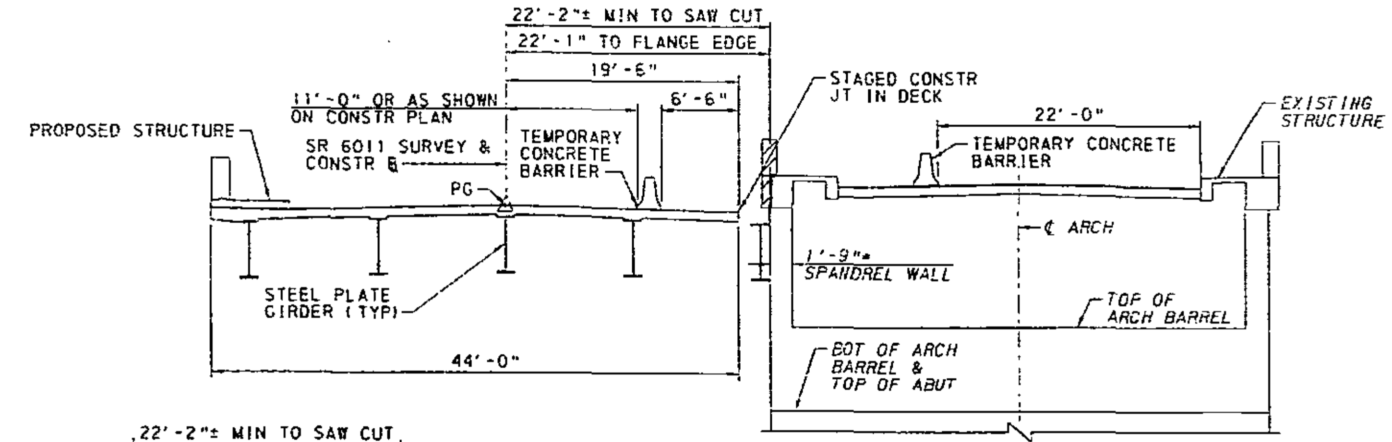
SHEET 8 OF 76

S - 33152

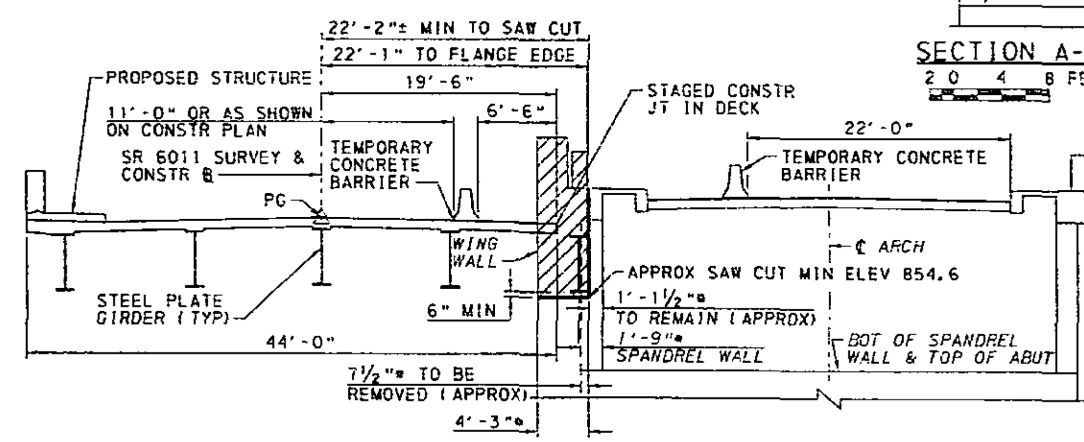
DES: GCP | CKD: KLL | DWG: KLL | CKD: GCP



PLAN
2 0 4 8 FEET



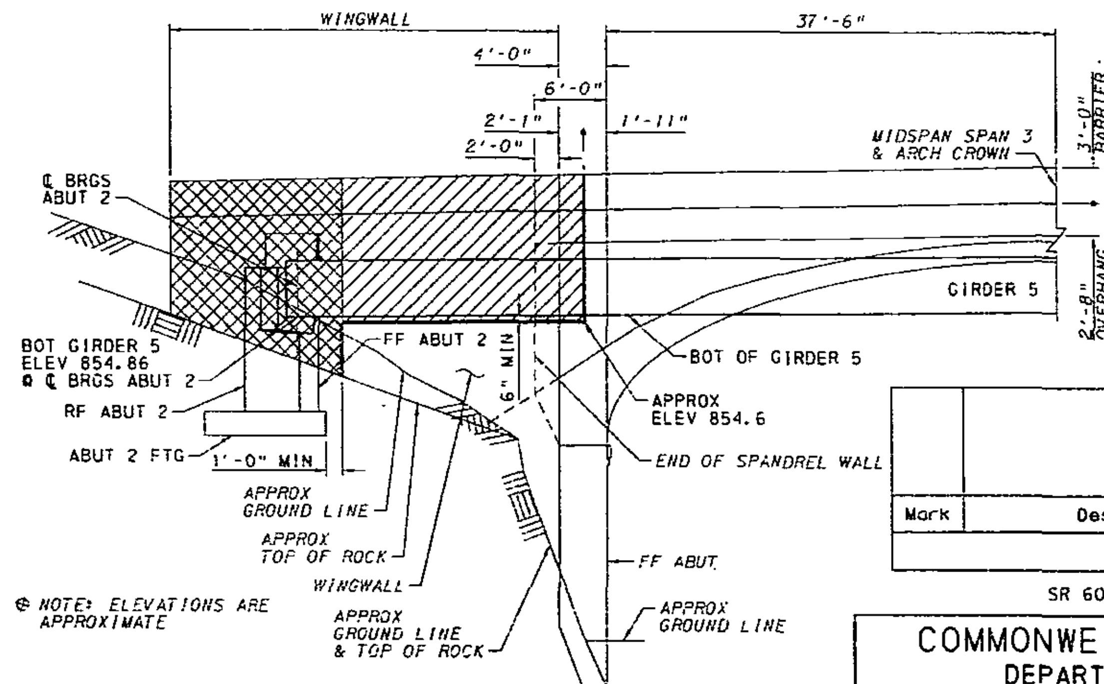
SECTION A-A
2 0 4 8 FEET



SECTION B-B
2 0 4 8 FEET

⊕ NOTE: ELEVATIONS ARE APPROXIMATE

• DIMENSION MEASURED PERPENDICULAR TO CENTERLINE OF EXISTING ARCH



⊕ NOTE: ELEVATIONS ARE APPROXIMATE

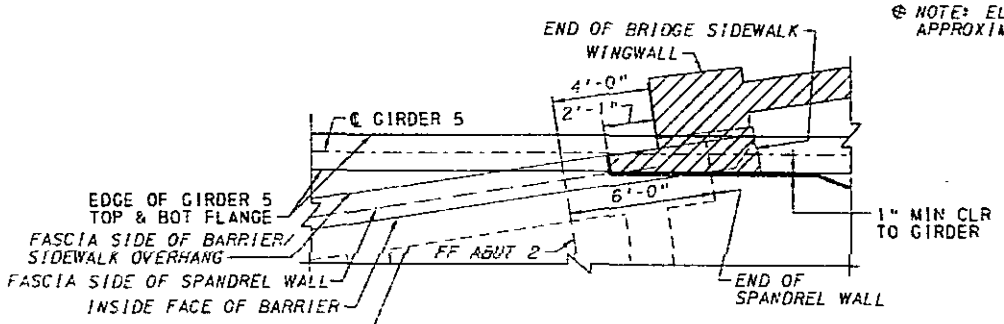
SECTION C-C
2 0 4 8 FEET

NOTES:

1. FOR GENERAL NOTES AND LIST OF ABBREVIATIONS, SEE SHEETS 4 & 5.
2. FOR BRIDGE REMOVAL AND CONSTR SEQUENCE, SEE SHEET 10.

LEGEND

- PORTION OF WINGWALL TO BE ENTIRELY REMOVED
- PORTION OF BARRIER, SIDEWALK, OVERHANG, SPANDREL WALL & WINGWALL TO BE REMOVED TO 6" MIN BELOW BOTTOM OF GIRDER
- REMOVAL LIMIT IN BARRIER, SIDEWALK, PAVEMENT & SPANDREL WALL
- TEMPORARY EXCAVATION SUPPORT & PROTECTION SYSTEM (ABUTMENT 2, SYSTEM A)
- TEMPORARY EXCAVATION SUPPORT & PROTECTION SYSTEM (ABUTMENT 2, SYSTEM B)



DETAIL A
2 0 2 4 FEET

Mark	Description	By	Chk'd.	Recm'd.	Date
REVISIONS					

SR 6011 PREVIOUSLY KNOWN AS LR 5

PREPARED BY: DEWBERRY ENGINEERS INC.

COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL GARY L. FRENETTE ENGINEER No. 045541-E

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF TRANSPORTATION

LACKAWANNA COUNTY
SR 6011 SEC 273
SEGMENT 0190 OFFSET 0404
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3-SPAN CONT COMP STEEL MULTI-GIRDER BRIDGE
SPAN 3 PARTIAL REMOVAL/CONSTR DETAILS

RECOMMENDED MAY 07 2014

SHEET 9 OF 76

S - 33152

DES: GCP | CKD: GLF | DWG: GCP | CKD: GLF

GENERAL SEQUENCE OF NEW BRIDGE CONSTRUCTION AND EXISTING BRIDGE REMOVAL

MAINTAIN SR 6011 TRAFFIC OVER THE EXISTING BRIDGE AND NEW BRIDGE DURING CONSTRUCTION STAGE 1 AS INDICATED ON THE TRAFFIC CONTROL PLAN. MAINTAIN THE SAFETY OF THE TRAVELING PUBLIC AT ALL TIMES DURING CONSTRUCTION. REFER TO THE TRAFFIC CONTROL PLAN FOR ADDITIONAL STAGING AND PHASING DETAILS.

STAGE 1 - PHASE A
1. MAINTAIN SR 6011 TRAFFIC (BOTH DIRECTIONS) OVER EXISTING BRIDGE DURING PHASE A.
2. INSTALL UNDERDECK SHIELDING BELOW EXISTING BRIDGE PRIOR TO BEGINNING CONSTRUCTION OF NEW BRIDGE.
3. INSTALL TEMPORARY SLOPE SHIELDING SYSTEM AT ABUTMENT 1.
4. CONSTRUCT ABUTMENT 1 AND WINGWALLS A AND B.
5. CONSTRUCT PIER 1.
6. CONSTRUCT PIER 2.

STAGE 1 - PHASE B
1. CONTINUE TO MAINTAIN BOTH DIRECTIONS OF SR 6011 TRAFFIC OVER EXISTING BRIDGE.
2. INSTALL TEMPORARY SLOPE SHIELDING SYSTEM AT ABUTMENT 2.
3. COMPLETE PARTIAL REMOVAL OF EXISTING BRIDGE AS INDICATED. SEE RESTRICTIONS AND REQUIREMENTS FOR PARTIAL REMOVAL, BELOW.
4. CONSTRUCT ABUTMENT 2 AND WINGWALL C.
5. ERECT STEEL GIRDER SUPERSTRUCTURE.
6. CONSTRUCT DECK SLAB, EXCEPT INDICATED PORTION OF DECK, SIDEWALK AND BARRIER OVER GIRDER 5 IN SPAN 3.

STAGE 1 - PHASES C THROUGH J
1. COMPLETE SR 6011 APPROACH ROADWAY CONSTRUCTION, MAINTAINING SR 6011 TRAFFIC AS INDICATED ON THE TRAFFIC CONTROL PLAN.
2. SHIFT BOTH DIRECTIONS OF SR 6011 TRAFFIC TO THE NEW BRIDGE DECK DURING PHASE I.

STAGE 2 - PHASE A
1. REMOVE ADDITIONAL PORTIONS OF EXISTING SPAN 3 AS NECESSARY TO COMPLETE THE NEW DECK SLAB, SIDEWALK AND BARRIER OVER GIRDER 5 IN PROPOSED SPAN 3.
2. CONSTRUCT REMAINING PORTIONS OF DECK SLAB, SIDEWALK AND BARRIER OVER GIRDER 5 IN SPAN 3.
3. REMOVE REMAINING PORTIONS OF EXISTING BRIDGE.
4. CONSTRUCT WINGWALL D.

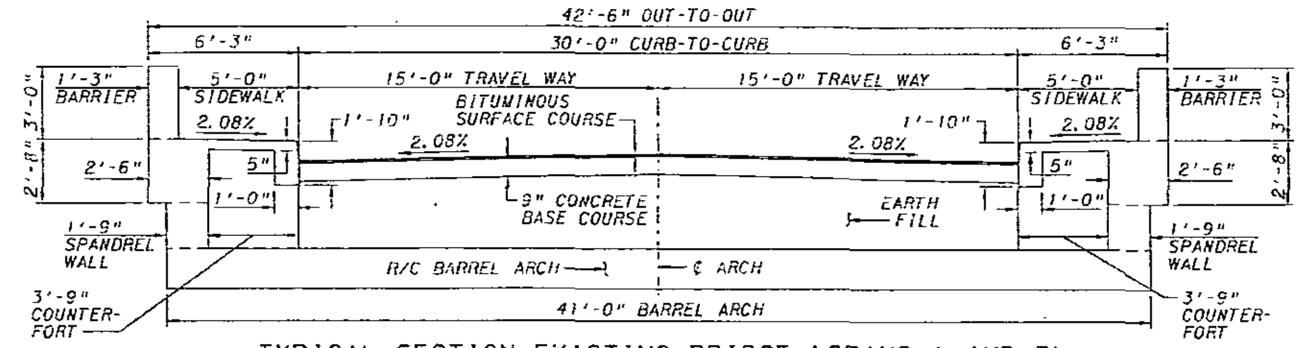
RESTRICTIONS AND REQUIREMENTS FOR PARTIAL REMOVAL OF EXISTING BRIDGE (STAGE 1 - PHASE B)

MAINTAIN THE STABILITY AND INTEGRITY OF THE EXISTING BRIDGE TO SAFELY MAINTAIN SR 6011 TRAFFIC UNTIL TRAFFIC IS SHIFTED TO THE NEW STRUCTURE.

PRIOR TO BEGINNING PARTIAL REMOVAL OF EXISTING BRIDGE SPAN 3, INSTALL ANY NECESSARY BRACING OR SUPPORT MEASURES TO MAINTAIN THE INTEGRITY OF THE REMAINING PORTIONS BEYOND THE INDICATED REMOVAL LIMITS. THIS MAY INCLUDE TIE ROD(S) PLACED HORIZONTALLY BETWEEN THE SPAN 3 SPANDREL WALLS WITH ANCHOR PLATES ON THE OUTSIDE SPANDREL WALL FACES. BE RESPONSIBLE FOR MAINTAINING THE INTEGRITY OF PORTIONS OF THE EXISTING BRIDGE TO REMAIN IN PLACE BEYOND THE INDICATED REMOVAL LIMITS.

REMOVE THE INDICATED PORTIONS OF EXISTING BRIDGE BARRIER AND SIDEWALK OVERHANGS USING SAW CUTTING, GRINDING AND CHIPPING. DO NOT USE HAMMERING OR METHODS THAT COULD RESULT IN DAMAGE BEYOND THE INDICATED REMOVAL LIMITS.

INSTALL TEMPORARY EXCAVATION SUPPORT AND PROTECTION SYSTEM AS REQUIRED FOR CONSTRUCTION OF ABUTMENT 2 AND WINGWALL C.



TYPICAL SECTION EXISTING BRIDGE (SPANS 1 AND 3)

2 0 2 4 FEET

NOTES:
1. FOR GENERAL NOTES AND LIST OF ABBREVIATIONS, SEE SHEETS 4 & 5.
2. FOR DETAILS OF SPAN 3 PARTIAL REMOVAL OF EXISTING BRIDGE AND STAGED DECK CONSTRUCTION, SEE SHEET 9.

Mark	Description	By	Chk'd.	Recm'd.	Date
REVISIONS					

SR 6011 PREVIOUSLY KNOWN AS LR 5

PREPARED BY: DEWBERRY ENGINEERS INC.

COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL GARY L. FRENETTE ENGINEER

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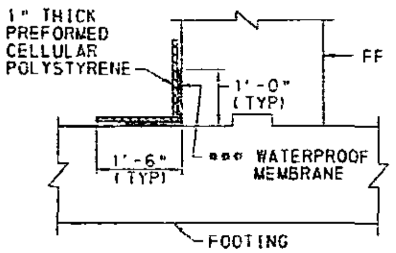
3-SPAN CONT COMP STEEL MULTI-GIRDER BRIDGE
BRIDGE REMOVAL AND CONSTRUCTION SEQUENCE

RECOMMENDED MAY 07 2014

SHEET 10 OF 76

S - 33152

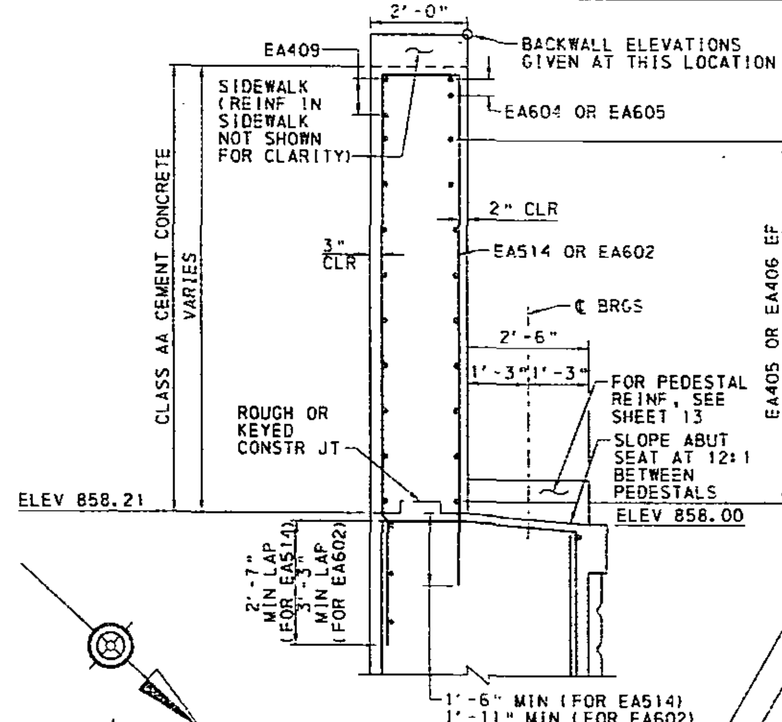
DES: GCP | CKD: GLF | DWG: GCP | CKD: GLF



*** 2'-0" WIDE PIECE BENT TO FIT STEM AND TOP OF FOOTING AS SHOWN. USE AN ADHESIVE BACKED PREFORMED MEMBRANE WATERPROOFING SYSTEM PER PUB 408 SECTION 680.2(b). MEMBRANE TO BE RUN CONTINUOUS FROM WINGWALL STEM TO ABUTMENT STEM. PAYMENT FOR THIS DETAIL IS INCIDENTAL TO FOOTING CONCRETE.

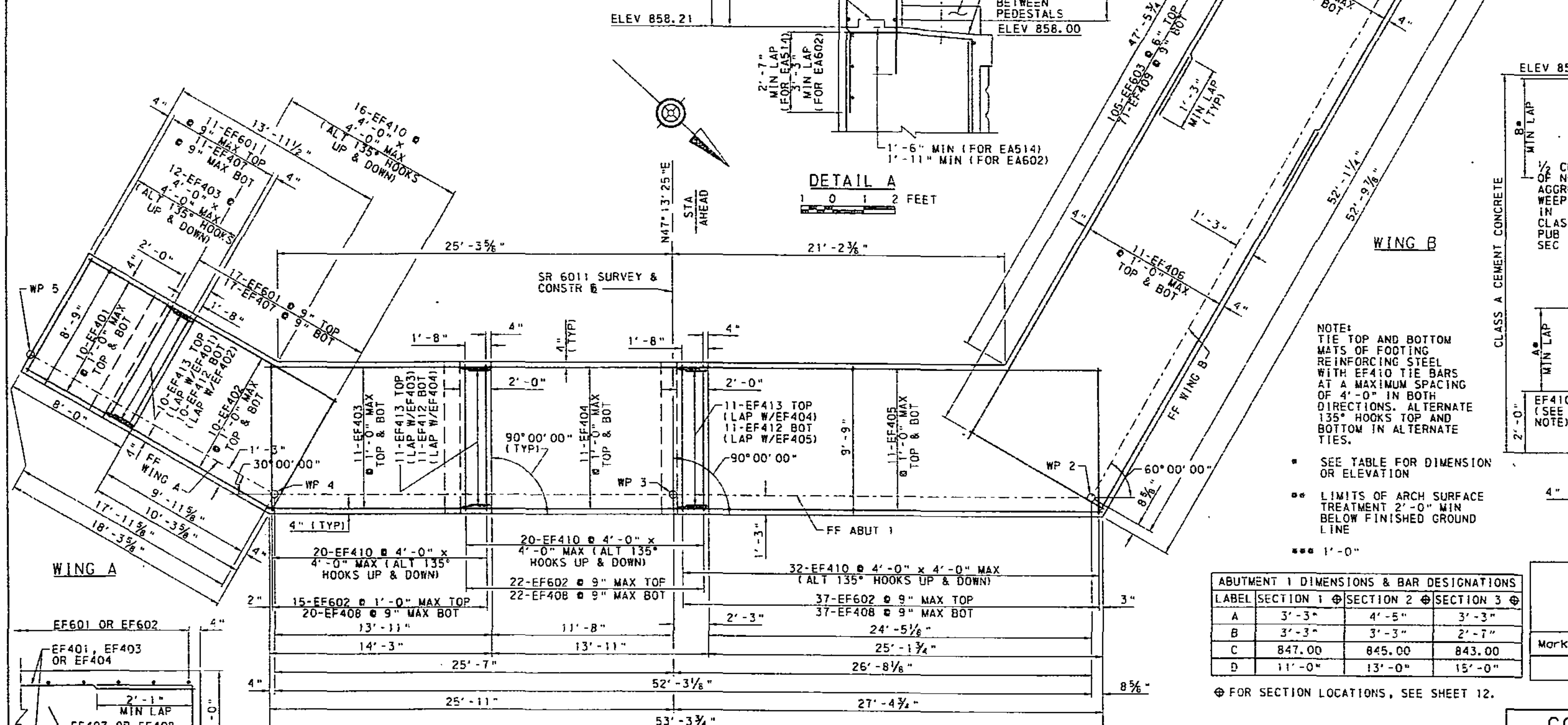
WATERPROOFING DETAIL

NO SCALE



DETAIL A

1 0 1 2 FEET



ABUTMENT 1 FOOTING PLAN

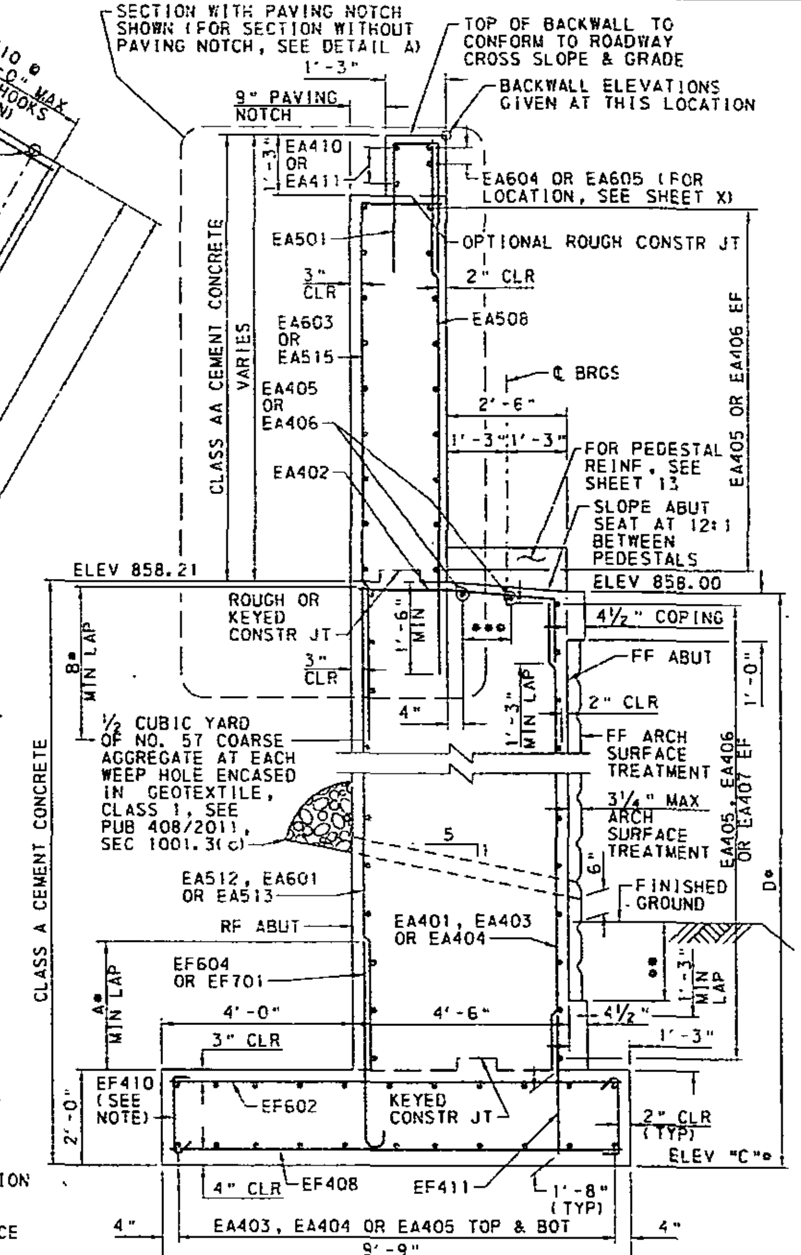
2 0 2 4 FEET

NOTE: TIE TOP AND BOTTOM MATS OF FOOTING REINFORCING STEEL WITH EF410 TIE BARS AT A MAXIMUM SPACING OF 4'-0" IN BOTH DIRECTIONS. ALTERNATE 135° HOOKS TOP AND BOTTOM IN ALTERNATE TIES.

* SEE TABLE FOR DIMENSION OR ELEVATION

** LIMITS OF ARCH SURFACE TREATMENT 2'-0" MIN BELOW FINISHED GROUND LINE

*** 1'-0"



TYPICAL SECTION

1 0 1 2 FEET

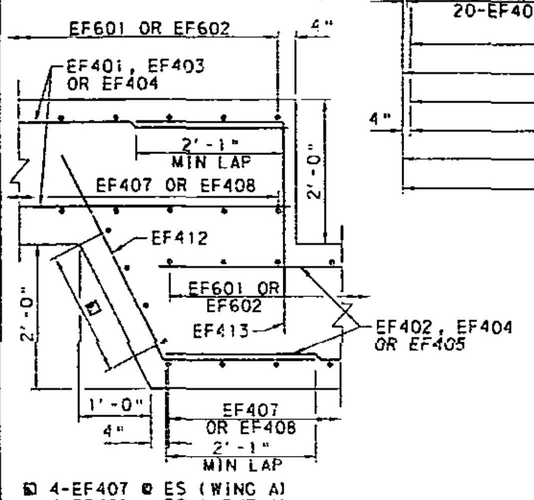
ABUTMENT 1 DIMENSIONS & BAR DESIGNATIONS			
LABEL	SECTION 1 ⊕	SECTION 2 ⊕	SECTION 3 ⊕
A	3'-3"	4'-5"	3'-3"
B	3'-3"	3'-3"	2'-7"
C	847.00	845.00	843.00
D	11'-0"	13'-0"	15'-0"

⊕ FOR SECTION LOCATIONS, SEE SHEET 12.

Mark	Description	By	Chk'd.	Recm'd.	Date

REVISIONS

SR 6011 PREVIOUSLY KNOWN AS LR 5



◻ 4-EF407 @ ES (WING A)
4-EF408 @ ES (ABUT 1)

FOOTING STEP DETAIL

1 0 1 FEET

NOTES

1. FOR GENERAL NOTES AND LIST OF ABBREVIATIONS, SEE SHEETS 4 & 5.
2. FOR STAKE-OUT PLAN, SEE SHEET 8.
3. FOR TYPICAL WINGWALL DETAILS, SEE SHEETS 14 & 15.
4. FOR REINFORCEMENT BAR SCHEDULE, SEE SHEETS 64 THRU 66.
5. FOR DETAILS OF KEYED CONSTRUCTION JOINT AND FLUSH EXPANSION JOINT, SEE BC-735M.
6. MAXIMUM FACTORED BEARING PRESSURE (FINAL CONDITION) = 18.48 KSF (STR-I).
7. FACTORED BEARING RESISTANCE = 40.00 KSF.

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LACKAWANNA COUNTY
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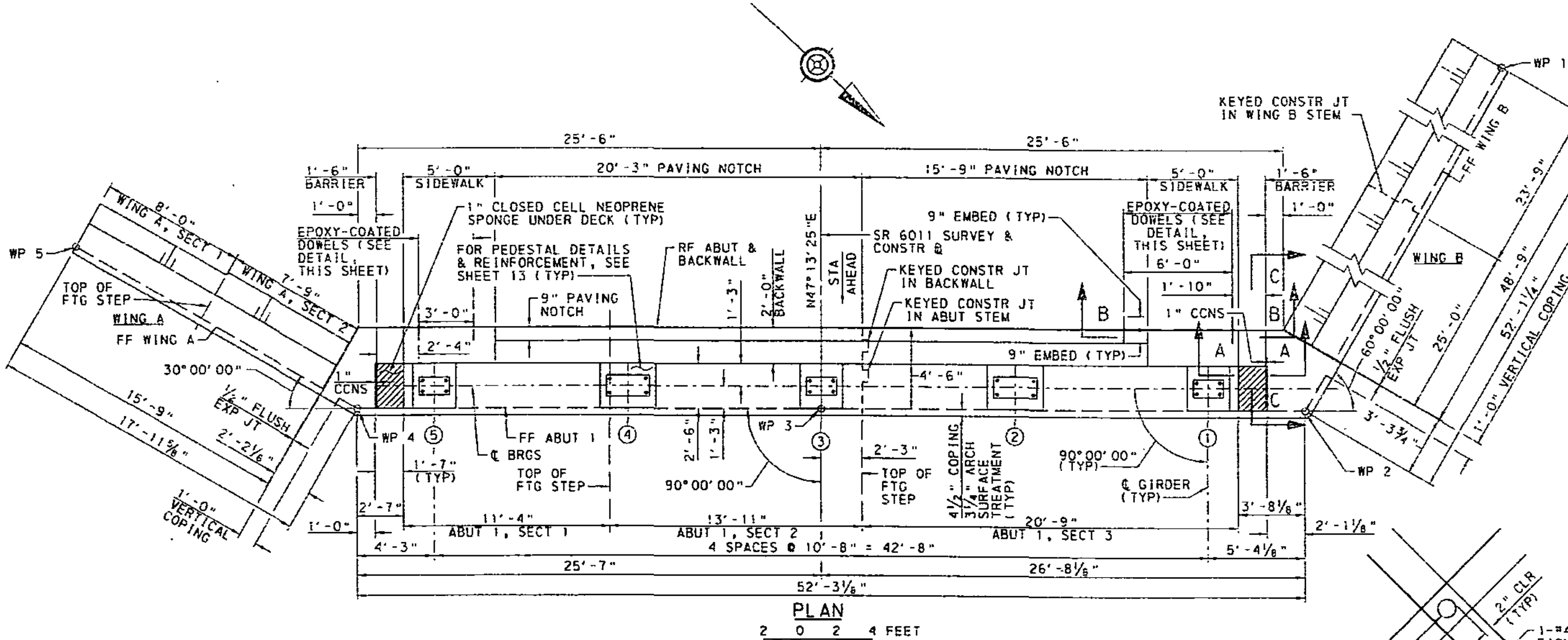
3-SPAN CONT COMP STEEL MULTI-GIRDER BRIDGE
ABUTMENT 1 FOOTING PLAN

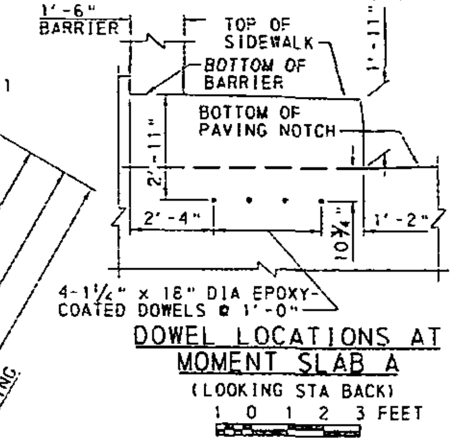
RECOMMENDED MAY 07 2014

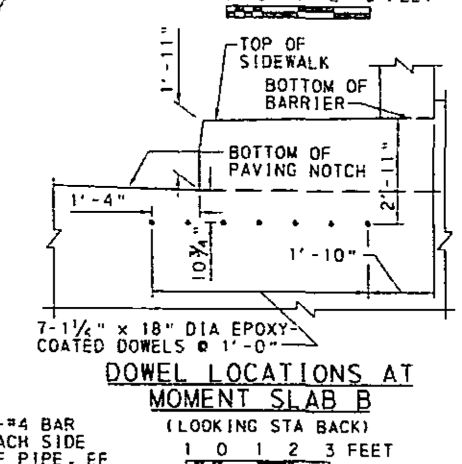
SHEET 11 OF 76

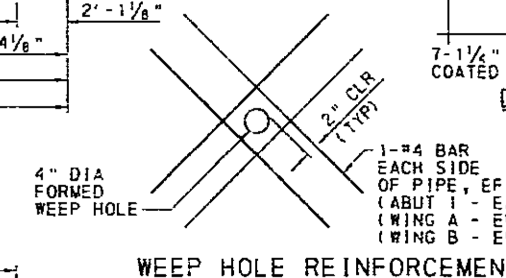
S - 33152

DES: GCP | CKD: AMM | DWG: GCP | CKD: KES

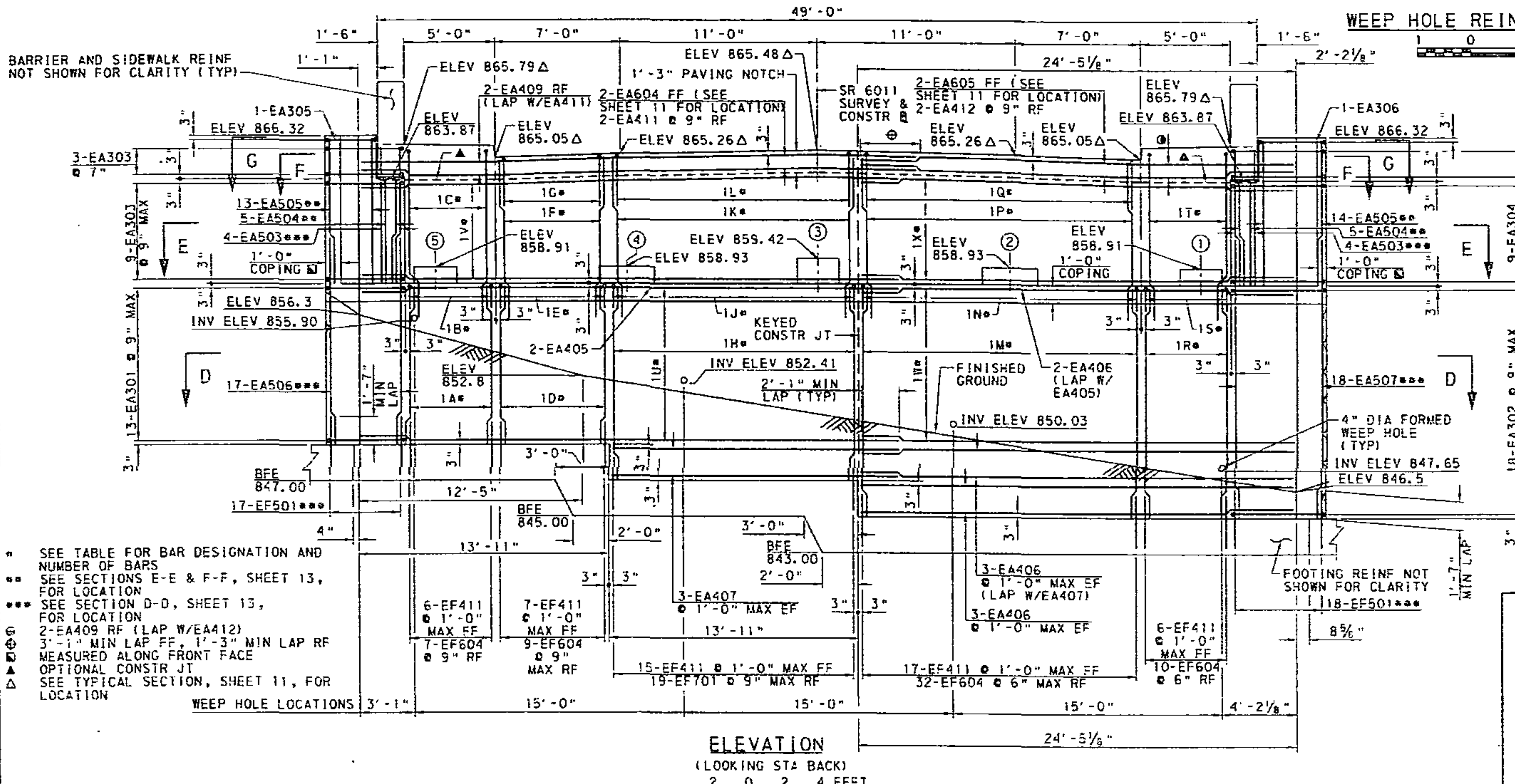








ABUTMENT 1 BAR DESIGNATIONS	
LABEL	DESIGNATION
1A	6-EA401 @ 1'-0" MAX FF (LAP W/EF411) 7-EA512 @ 9" RF (LAP W/EF604)
1B	6-EA402 @ 1'-0" MAX FF (LAP W/EA401)
1C	7-EA602 @ 9" (LAP W/EA512)
1D	7-EA401 @ 1'-0" MAX FF (LAP W/EF411) 9-EA512 @ 9" MAX RF (LAP W/EF604)
1E	7-EA402 @ 1'-0" MAX FF (LAP W/EA401)
1F	7-EA508 @ 1'-0" MAX FF (MATCH W/EA401) 9-EA603 @ 9" MAX RF (LAP W/EA512)
1G	7-EA501 @ 1'-0" MAX FF (LAP W/EA508)
1H	15-EA403 @ 1'-0" MAX FF (LAP W/EF411) 19-EA601 @ 9" MAX RF (LAP W/EF701)
1J	15-EA402 @ 1'-0" MAX FF (LAP W/EA403)
1K	15-EA508 @ 1'-0" MAX FF (MATCH W/EA403) 19-EA603 @ 9" MAX RF (LAP W/EA601)
1L	15-EA501 @ 1'-0" MAX FF (LAP W/EA508)
1M	17-EA404 @ 1'-0" MAX FF (LAP W/EF411) 32-EA513 @ 6" MAX RF (LAP W/EF604)
1N	17-EA402 @ 1'-0" MAX FF (LAP W/EA404)
1P	17-EA508 @ 1'-0" MAX FF (MATCH W/EA404) 32-EA515 @ 6" MAX RF (LAP W/EA513)
1Q	17-EA501 @ 1'-0" MAX FF (LAP W/EA508)
1R	6-EA404 @ 1'-0" MAX FF (LAP W/EF411) 10-EA513 @ 6" MAX RF (LAP W/EF604)
1S	6-EA402 @ 1'-0" MAX FF (LAP W/EA404)
1T	10-EA514 @ 6" MAX (LAP W/EA513)
1U	10-EA405 @ 1'-0" MAX EF
1V	7-EA405 @ 1'-0" MAX EF
1W	10-EA406 @ 1'0" MAX EF (LAP W/EA405)
1X	7-EA406 @ 1'-0" MAX EF (LAP W/EA405)



- * SEE TABLE FOR BAR DESIGNATION AND NUMBER OF BARS
- ** SEE SECTIONS E-E & F-F, SHEET 13, FOR LOCATION
- *** SEE SECTION D-D, SHEET 13, FOR LOCATION
- G 2-EA409 RF (LAP W/EA412)
- ⊕ 3'-1" MIN LAP FF, 1'-3" MIN LAP RF
- ◪ MEASURED ALONG FRONT FACE
- ▲ OPTIONAL CONSTR JT
- △ SEE TYPICAL SECTION, SHEET 11, FOR LOCATION

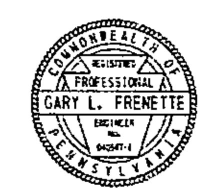
NOTES

1. FOR GENERAL NOTES AND LIST OF ABBREVIATIONS, SEE SHEETS 4 & 5.
2. FOR STAKE-OUT PLAN, SEE SHEET 8.
3. FOR FOOTING PLAN, SEE SHEET 11.
4. FOR ABUTMENT TYPICAL SECTION, SEE SHEET 11.
5. FOR SECTIONS A-A THRU G-G, SEE SHEET 13.
6. FOR PEDESTAL DETAILS, SEE SHEET 13.
7. FOR WINGWALL WEEP HOLE LOCATIONS, SEE SHEETS 14 & 15.
8. FOR WINGWALL DETAILS, SEE SHEETS 14 & 15.
9. FOR POT BEARING AND ANCHOR BOLT DETAILS, SEE SHEETS 39 THRU 43.
10. FOR REINFORCEMENT BAR SCHEDULE, SEE SHEETS 64 THRU 68.
11. FOR DETAILS OF KEYED CONSTR JT AND FLUSH EXP JT, SEE BC-735M.
12. FOR ADDITIONAL WATERPROOFING DETAILS, SEE SHEET 11 AND BC-788M.

Mark	Description	By	Chk'd.	Recm'd.	Date
REVISIONS					

SR 6011 PREVIOUSLY KNOWN AS LR 5

PREPARED BY: DEWBERRY ENGINEERS INC.



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LACKAWANNA COUNTY
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3-SPAN CONT COMP STEEL MULTI-GIRDER BRIDGE

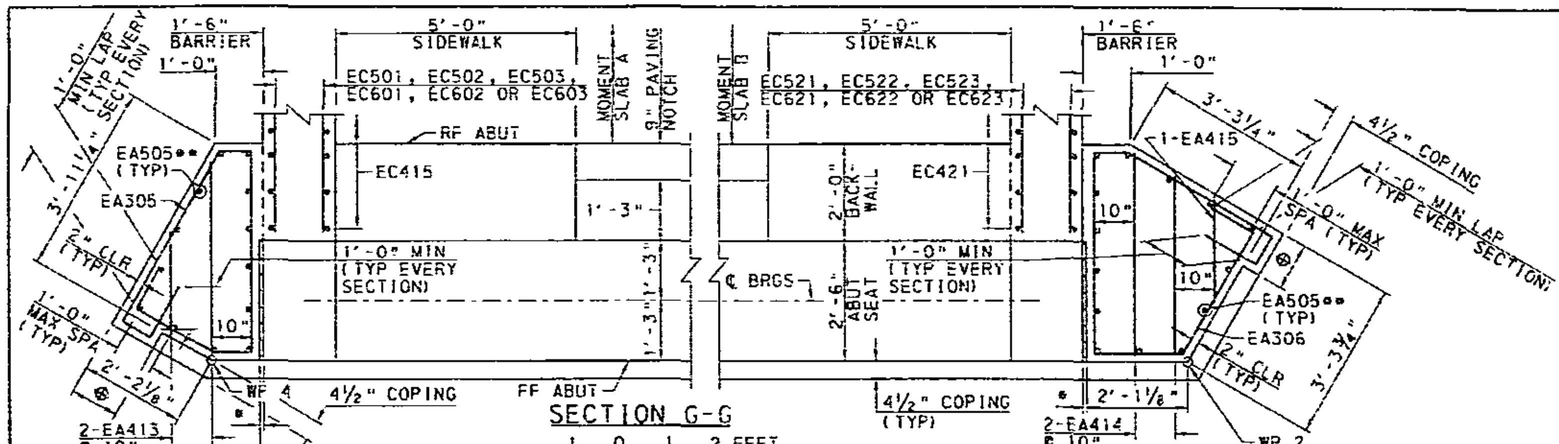
ABUTMENT 1 PLAN AND ELEVATION

RECOMMENDED MAY 07 2014

SHEET 12 OF 76

S - 33152

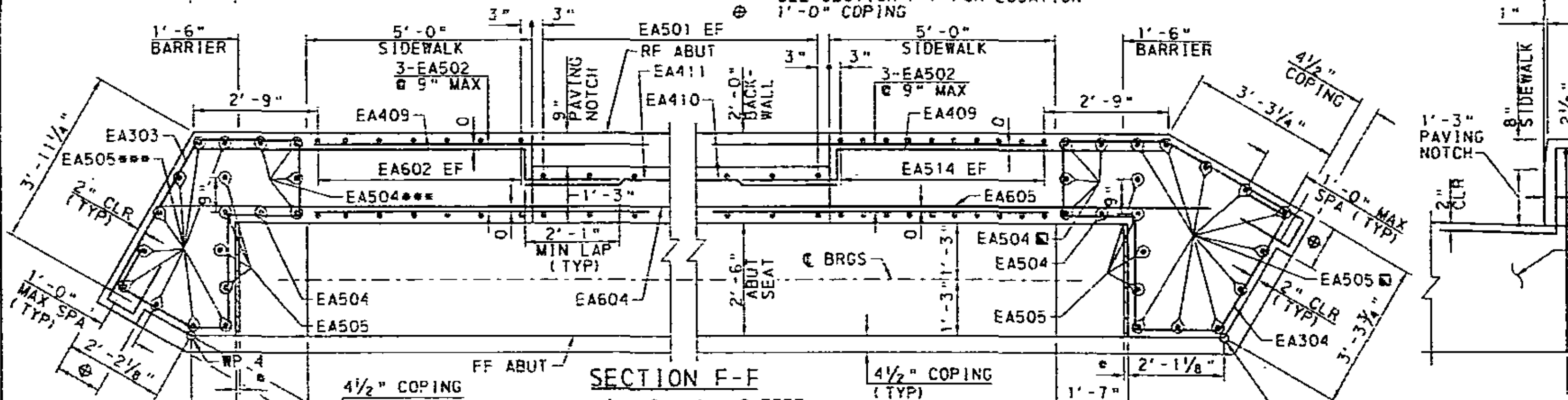
DES: GCP | CKD: AMM | DWG: GCP | CKD: KES



SECTION G-G

1 0 1 2 FEET

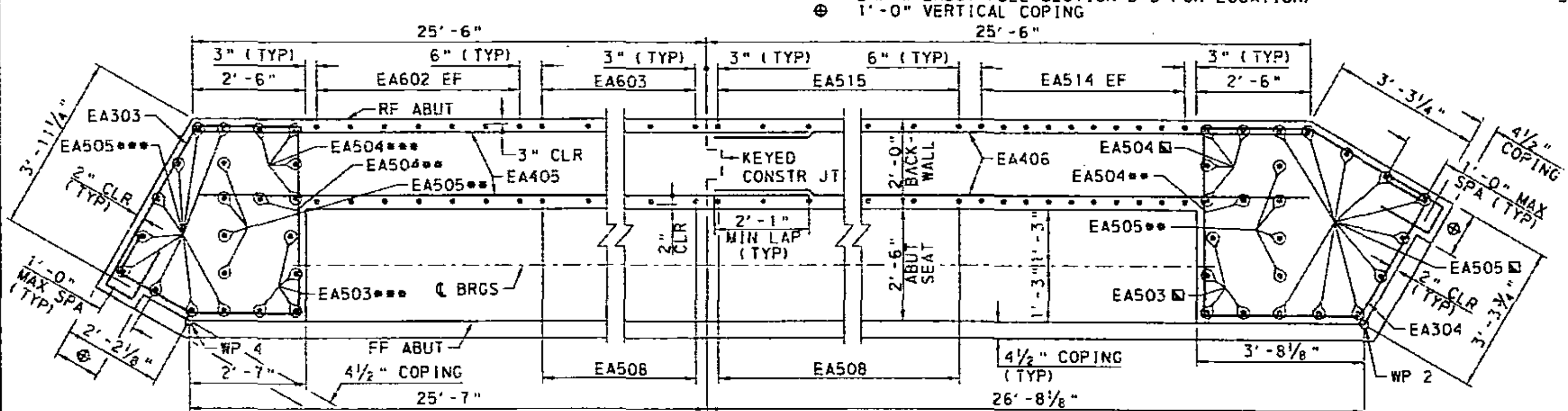
- ● 1" THICK CLOSED CELL NEOPRENE SPONGE
- ●● SEE SECTION F-F FOR LOCATION
- ⊕ 1'-0" COPING



SECTION F-F

1 0 1 2 FEET

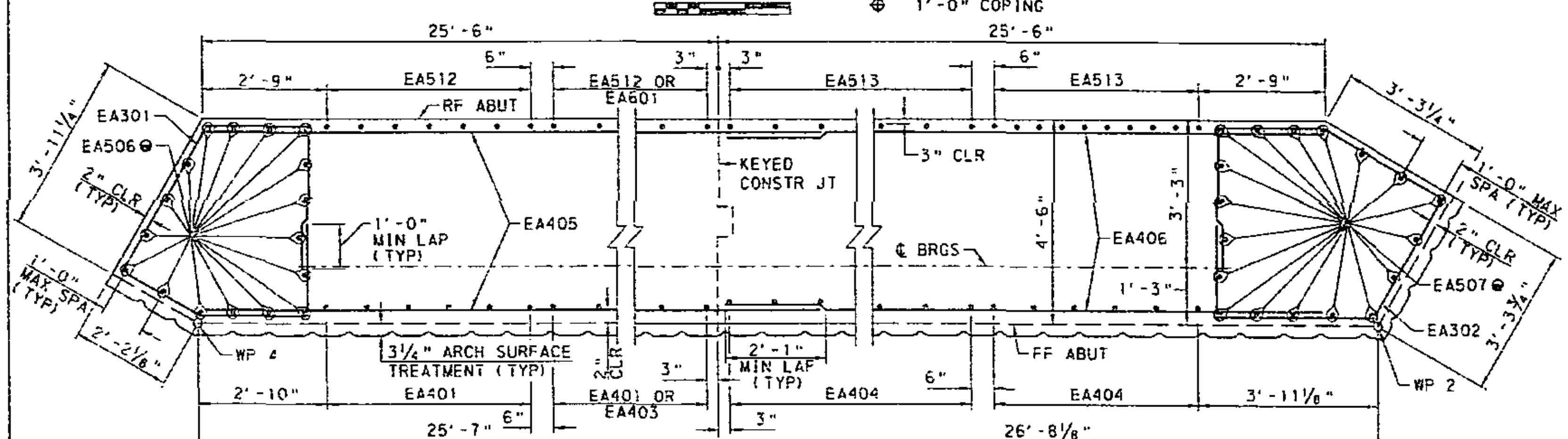
- ● 1" THICK CLOSED CELL NEOPRENE SPONGE
- ●●● LAP W/EA506 (SEE SECTION D-D FOR LOCATION)
- ◘ LAP W/EA507 (SEE SECTION D-D FOR LOCATION)
- ⊕ 1'-0" VERTICAL COPING



SECTION E-E

1 0 1 2 FEET

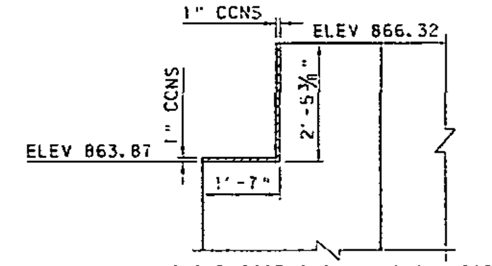
- ●● SEE SECTION F-F FOR LOCATION
- ●●● LAP W/EA506 (SEE SECTION D-D FOR LOCATION)
- ◘ LAP W/EA507 (SEE SECTION D-D FOR LOCATION)
- ⊕ 1'-0" COPING



SECTION D-D

1 0 1 2 FEET

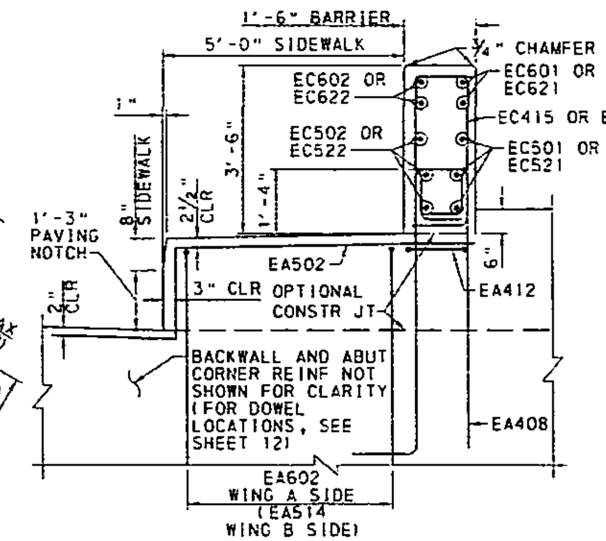
⊕ LAP W/EF501



WING B SIDE SHOWN. WING A SIDE SIMILAR, OPPOSITE HAND

SECTION A-A

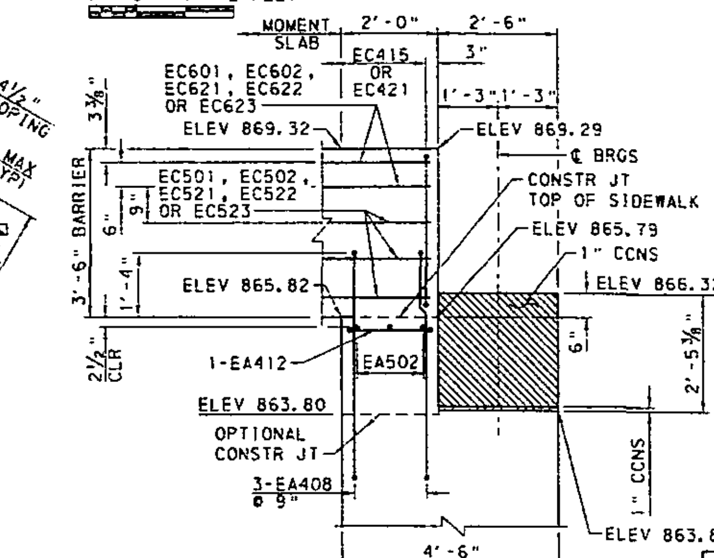
1 0 1 2 FEET



WING B SIDE SHOWN. WING A SIDE SIMILAR, OPPOSITE HAND

SECTION B-B

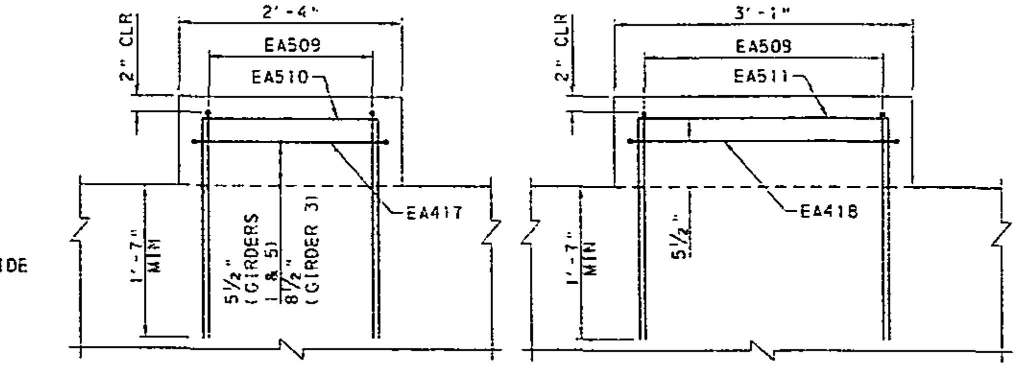
1 0 1 2 FEET



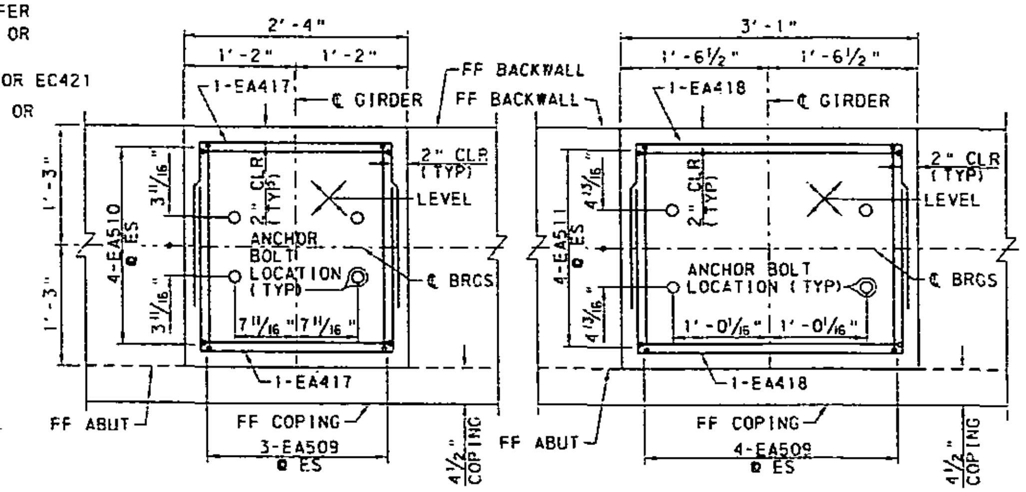
WING B SIDE SHOWN. WING A SIDE SIMILAR, OPPOSITE HAND

SECTION C-C

1 0 1 2 FEET



ELEVATION (GIRDERS 1, 3 & 5)   ELEVATION (GIRDERS 2 & 4)



PLAN (GIRDERS 1, 3 & 5)   PLAN (GIRDERS 2 & 4)

PEDESTAL DETAIL

6 0 6 12 INCHES

NOTES

1. FOR GENERAL NOTES AND LIST OF ABBREVIATIONS, SEE SHEETS 4 & 5.
2. FOR STAKE-OUT-PLAN, SEE SHEET 6.
3. FOR LOCATION OF SECTIONS A-A THRU G-G, SEE SHEET 12.
4. FOR POT BEARING AND ANCHOR BOLT DETAILS, SEE SHEETS 39 THRU 43.
5. FOR REINFORCEMENT BAR SCHEDULE, SEE SHEETS 64 THRU 68.

Mark	Description	By	Chk'd.	Recm'd.	Date

REVISIONS

SR 6011 PREVIOUSLY KNOWN AS LR 5

PREPARED BY: DEWBERRY ENGINEERS INC.

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF TRANSPORTATION

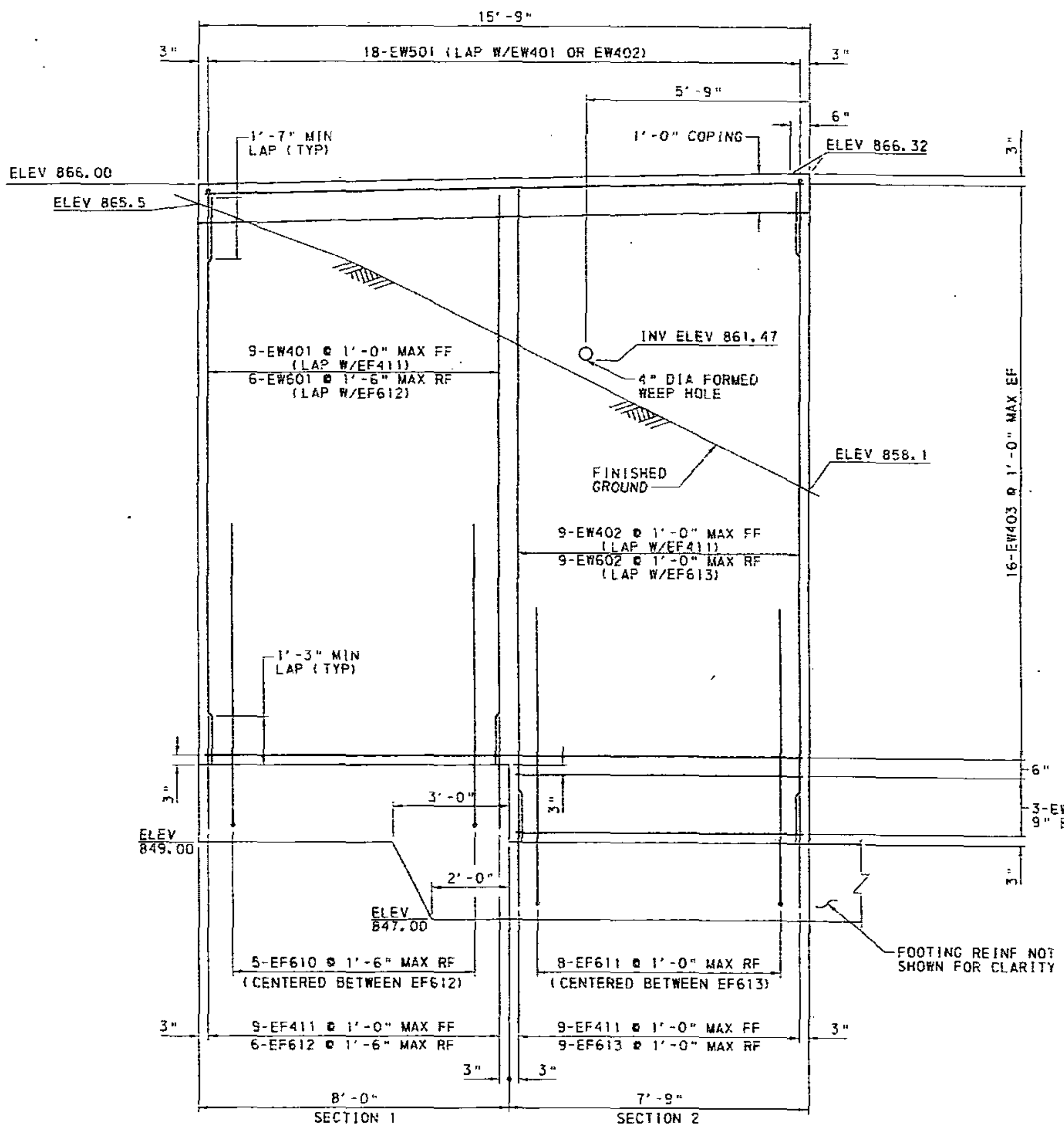
LACKAWANNA COUNTY
SR 6011 SEC 273
SEGMENT 0190 OFFSET 0404
SR 6011 - 273 STA 16+27.50
OVER ROARING BROOK, SR 3022,
AND DELAWARE, LACKAWANNA & WESTERN RAILROAD
3-SPAN CONT COMP STEEL MULTI-GIRDER BRIDGE
ABUTMENT 1 DETAILS

RECOMMENDED MAY 07 2014

SHEET 13 OF 76

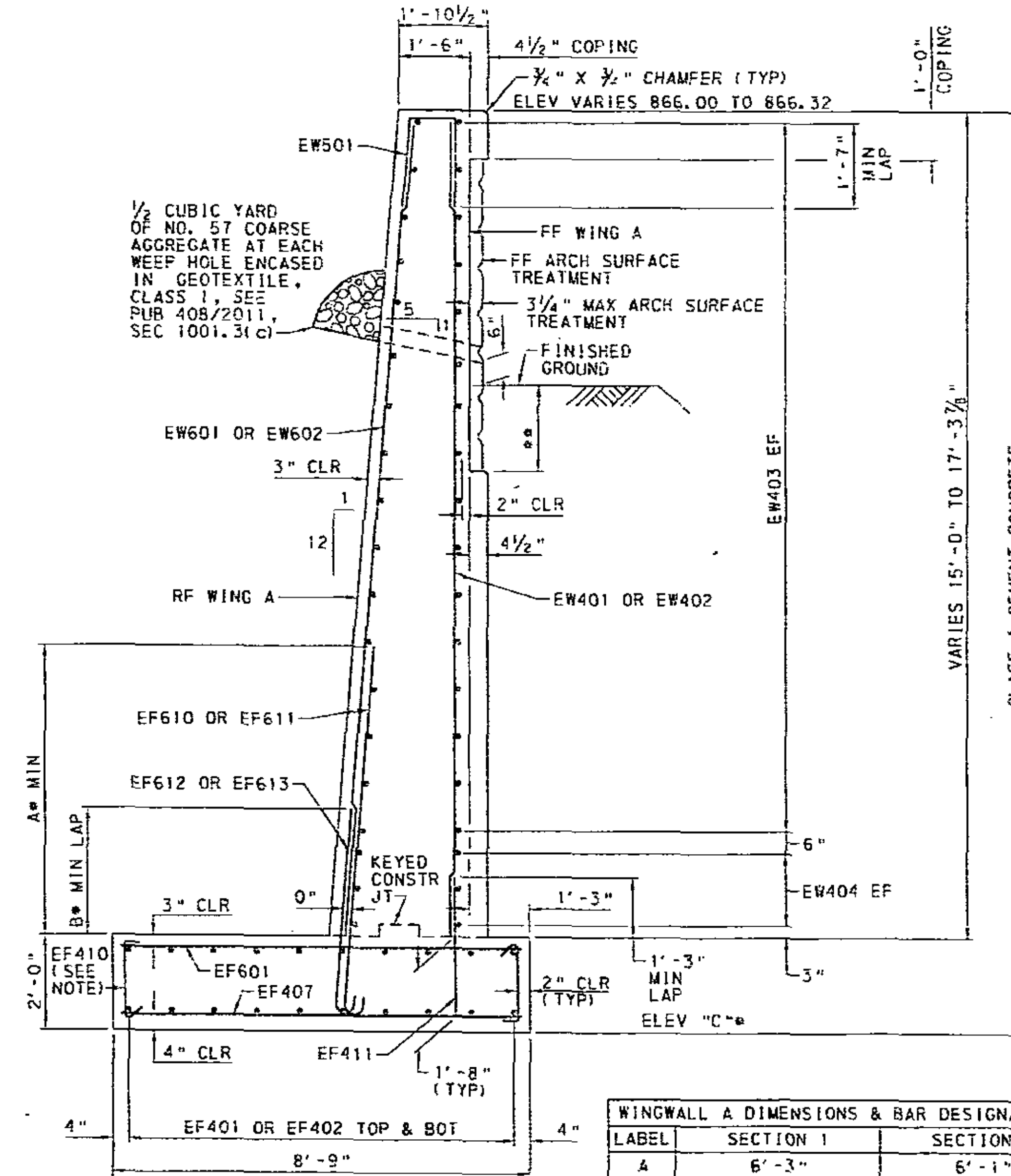
S - 33152

DES: GCP | CKD: AMM | DWG: GCP | CKD: KES



ELEVATION

1 0 1 2 FEET



NOTE:
TIE TOP AND BOTTOM MATS OF FOOTING REINFORCING STEEL WITH EF410 TIE BARS AT A MAXIMUM SPACING OF 4'-0" IN BOTH DIRECTIONS. ALTERNATE 135° HOOKS TOP AND BOTTOM IN ALTERNATE TIES.

* SEE TABLE FOR DIMENSION OR ELEVATION

** 2'-0" MIN BELOW FINISHED GROUND LINE

TYPICAL SECTION

1 0 1 2 FEET

WINGWALL A DIMENSIONS & BAR DESIGNATIONS		
LABEL	SECTION 1	SECTION 2
A	6'-3"	6'-1"
B	3'-1"	2'-8"
C	849.00	847.00

NOTES

1. FOR GENERAL NOTES AND LIST OF ABBREVIATIONS, SEE SHEETS 4 & 5.
2. FOR STAKE-OUT PLAN, SEE SHEET 8.
3. FOR FOOTING PLAN, SEE SHEET 11.
4. FOR WATERPROOFING DETAIL, SEE SHEET 11.
5. FOR ABUTMENT DETAILS, SEE SHEETS 12 & 13.
6. FOR WEEP HOLE DETAILS, SEE SHEET 12.
7. FOR REINFORCEMENT BAR SCHEDULE, SEE SHEETS 64 THRU 68.
8. FOR DETAILS OF KEYED CONSTRUCTION JOINT AND FLUSH EXPANSION JOINT, SEE BC-735M.
9. FOR ADDITIONAL WATERPROOFING DETAILS, SEE BC-788M.

Mark	Description	By	Chk'd.	Recm'd.	Date

REVISIONS

SR 6011 PREVIOUSLY KNOWN AS LR 5

PREPARED BY:
DEWBERRY ENGINEERS INC.

COMMONWEALTH OF PENNSYLVANIA PROFESSIONAL ENGINEER GARY L. FRENETTE

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF TRANSPORTATION

LACKAWANNA COUNTY
SR 6011 SEC 273
SEGMENT 0190 OFFSET 0404
SR 6011 - 273 STA 16+27.50
OVER ROARING BROOK, SR 3022,
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3-SPAN CONT COMP STEEL MULTI-GIRDER BRIDGE
WINGWALL A DETAILS

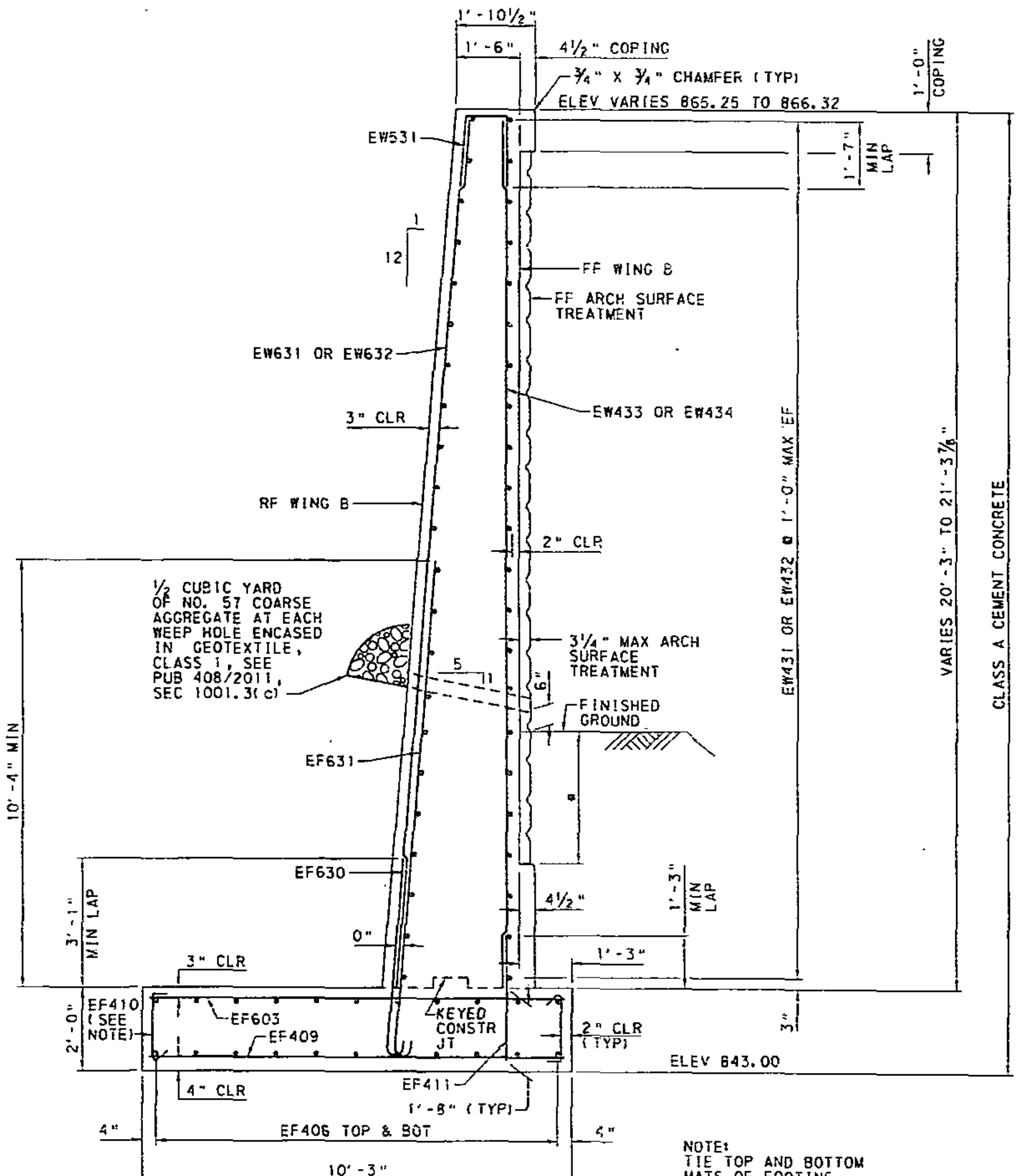
RECOMMENDED MAY 07 2014

SHEET 14 OF 76

S - 33152

DES: GCP | CKD: AMH | DWG: KLL | CKD: GCP

4/3/2014 12:53:13 PM

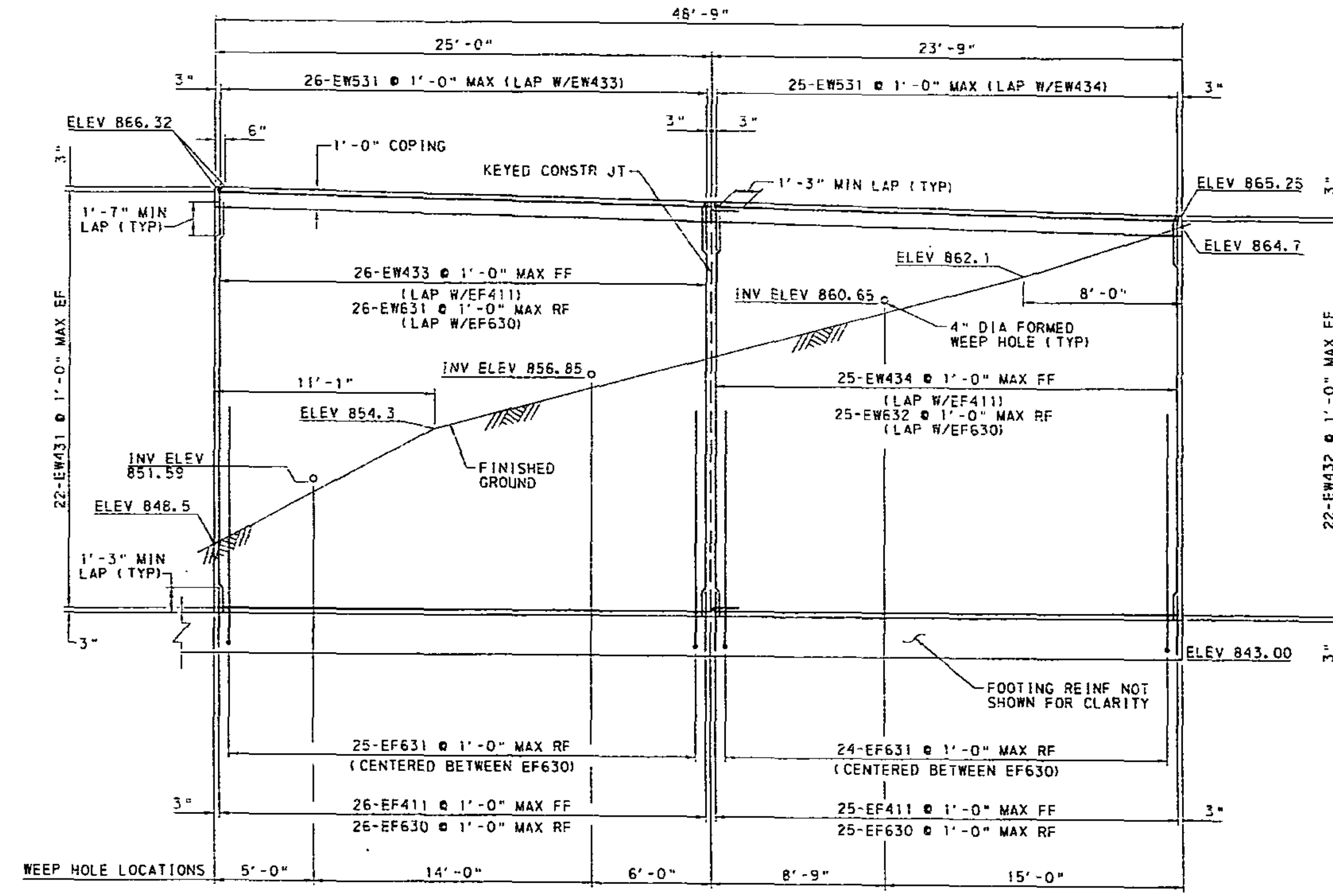


TYPICAL SECTION

1 0 1 2 FEET

NOTE:
TIE TOP AND BOTTOM MATS OF FOOTING REINFORCING STEEL WITH EF410 TIE BARS AT A MAXIMUM SPACING OF 4'-0" IN BOTH DIRECTIONS. ALTERNATE 135° HOOKS TOP AND BOTTOM IN ALTERNATE TIES.

* 2'-0" MIN BELOW FINISHED GROUND LINE



ELEVATION

2 0 2 4 FEET

NOTES

1. FOR GENERAL NOTES AND LIST OF ABBREVIATIONS, SEE SHEET 4 & 5.
2. FOR STAKE-OUT PLAN, SEE SHEET 8.
3. FOR FOOTING PLAN, SEE SHEET 11.
4. FOR WATERPROOFING DETAIL, SEE SHEET 11.
5. FOR ABUTMENT DETAILS, SEE SHEETS 12 AND 13.
6. FOR WEEP HOLE DETAILS, SEE SHEET 12.
7. FOR REINFORCEMENT BAR SCHEDULE, SEE SHEETS 64 THRU 68.
8. FOR DETAILS OF KEYED CONSTRUCTION JOINT AND FLUSH EXPANSION JOINT, SEE BC-735M.
9. FOR ADDITIONAL WATERPROOFING DETAILS, SEE BC-788M.

Mark	Description	By	Chk'd.	Recm'd.	Date

REVISIONS

SR 6011 PREVIOUSLY KNOWN AS LR 5

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF TRANSPORTATION

LACKAWANNA COUNTY
SR 6011 SEC 273
SEGMENT 0190 OFFSET 0404
SR 6011 - 273 STA 16+27.50
OVER ROARING BROOK, SR 3022,
AND DELAWARE, LACKAWANNA & WESTERN RAILROAD
3-SPAN CONT COMP STEEL MULTI-GIRDER BRIDGE
WINGWALL B DETAILS

PREPARED BY: DEWBERRY ENGINEERS INC.

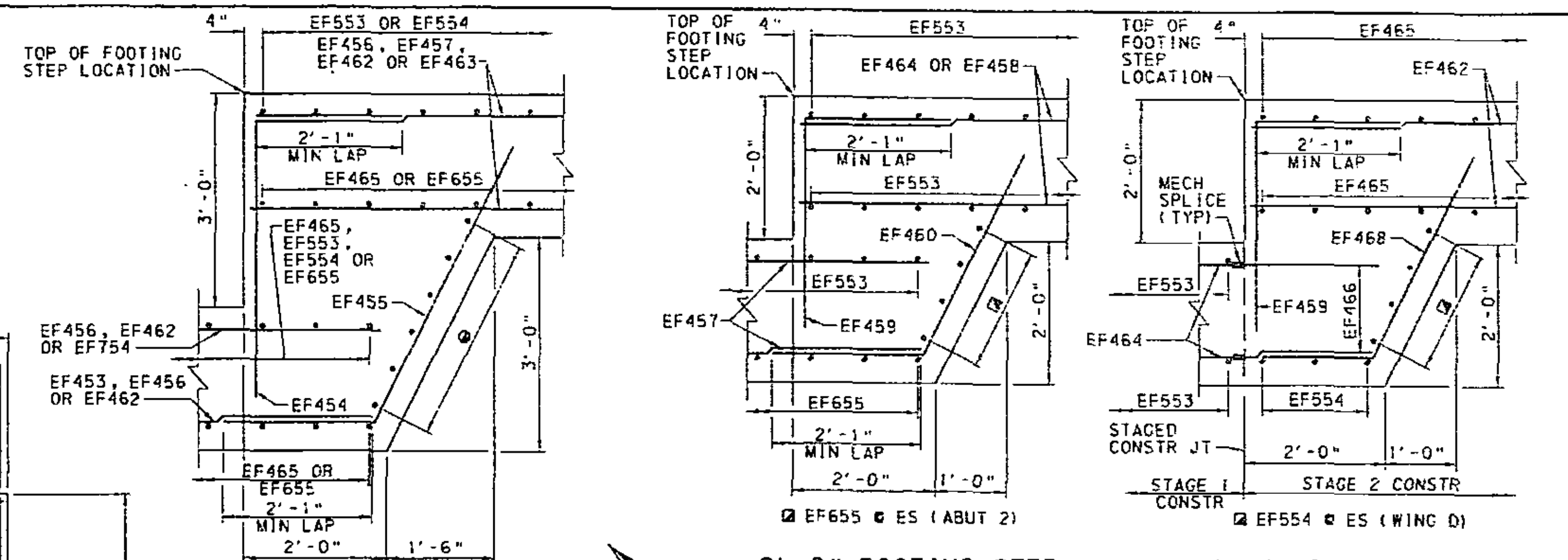
COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL GARY L. FRENETTE ENGINEER

RECOMMENDED MAY 07 2014

SHEET 15 OF 76

S - 33152

DES: GCP | CKD: AMM | DWG: KLL | CKD: GCP



⊖ EF655 ⊕ ES (ABUT 2)
EF465 ⊕ ES (WING D)

3'-0" FOOTING STEP DETAIL

⊠ EF655 ⊕ ES (ABUT 2)

2'-0" FOOTING STEP WITHOUT MECHANICAL SPLICE DETAIL

⊠ EF554 ⊕ ES (WING D)

2'-0" FOOTING STEP WITH MECHANICAL SPLICE DETAIL

ABUTMENT 2 DIMENSIONS & BAR DESIGNATIONS				
LABEL	SECTION 1 ⊕	SECTION 2 ⊕	SECTION 3 ⊕	SECTION 4 ⊕
A	4'-6"	2'-8"	2'-7"	3'-2"
B	8'-9"	8'-9"	8'-7"	N/A
C	837.00	840.00	843.00	845.00
D	16'-6"	13'-6"	10'-6"	8'-6"

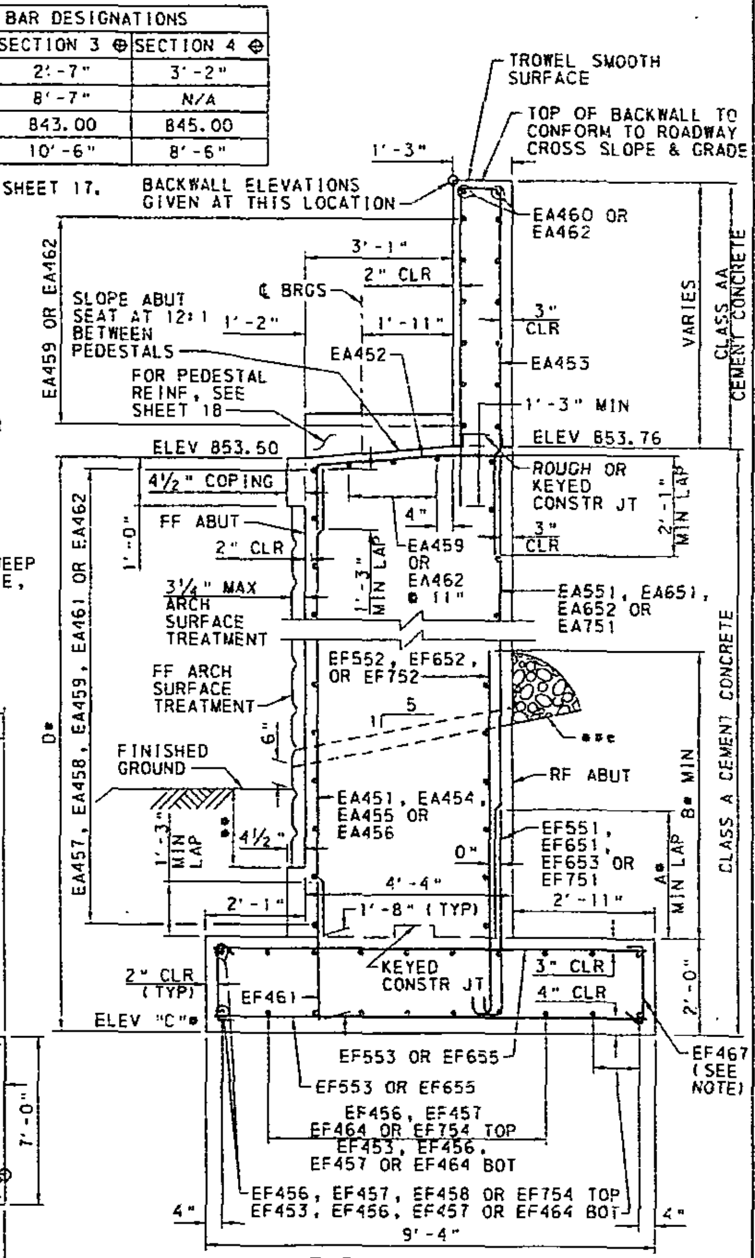
⊕ FOR SECTION LOCATIONS, SEE SHEET 17.

NOTE:
TIE TOP AND BOTTOM MATS OF FOOTING REINFORCING STEEL WITH EF467 TIE BARS AT A MAXIMUM SPACING OF 4'-0" IN BOTH DIRECTIONS. ALTERNATE 135° HOOKS TOP AND BOTTOM IN ALTERNATE TIES.

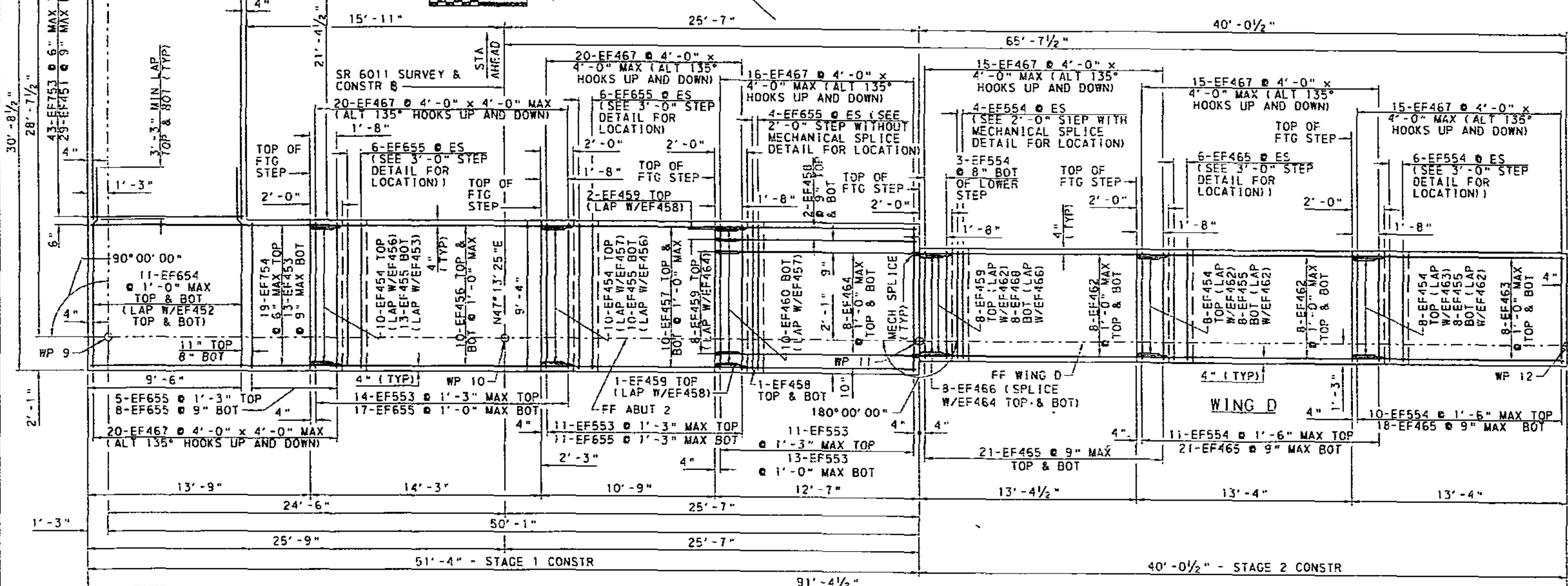
* SEE TABLE FOR DIMENSION OR ELEVATION

** LIMITS OF ARCH SURFACE TREATMENT 2'-0" MIN BELOW FINISHED GROUND LINE

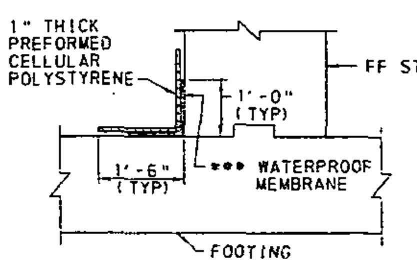
*** 1/2 CUBIC YARD OF NO. 57 COARSE AGGREGATE AT EACH WEEP HOLE ENCASED IN GEOTEXTILE, CLASS 1, SEE PUB 408/2011, SEC 1001.3(c)



TYPICAL SECTION



PLAN



*** 2'-0" WIDE PIECE BENT TO FIT STEM AND TOP OF FOOTING AS SHOWN. USE AN ADHESIVE BACKED PREFORMED MEMBRANE WATERPROOFING SYSTEM PER PUB 408 SECTION 680.2(b). MEMBRANE TO BE RUN CONTINUOUS FROM WINGWALL STEM TO ABUTMENT STEM. PAYMENT FOR THIS DETAIL IS INCIDENTAL TO FOOTING CONCRETE.

WATERPROOFING DETAIL
NO SCALE

NOTES

1. FOR GENERAL NOTES AND LIST OF ABBREVIATIONS, SEE SHEETS 4 & 5.
2. FOR STAKE-OUT PLAN, SEE SHEET 8.
3. FOR TYPICAL WINGWALL DETAILS, SEE SHEETS 19 & 20.
4. FOR REINFORCEMENT BAR SCHEDULE, SEE SHEETS 64 THRU 68.
5. FOR DETAILS OF KEYED CONSTRUCTION JOINT AND FLUSH EXPANSION JOINT, SEE BC-735M.
6. MAXIMUM FACTORED BEARING PRESSURE (FINAL CONDITION) = 21.27 KSF (STR-I).
7. FACTORED BEARING RESISTANCE = 34.00 KSF.

Mark	Description	By	Chk'd.	Recm'd.	Date

REVISIONS

SR 6011 PREVIOUSLY KNOWN AS LR 5

PREPARED BY: DEWBERRY ENGINEERS INC.

COMMONWEALTH OF PENNSYLVANIA PROFESSIONAL ENGINEER GARY L. FRENETTE

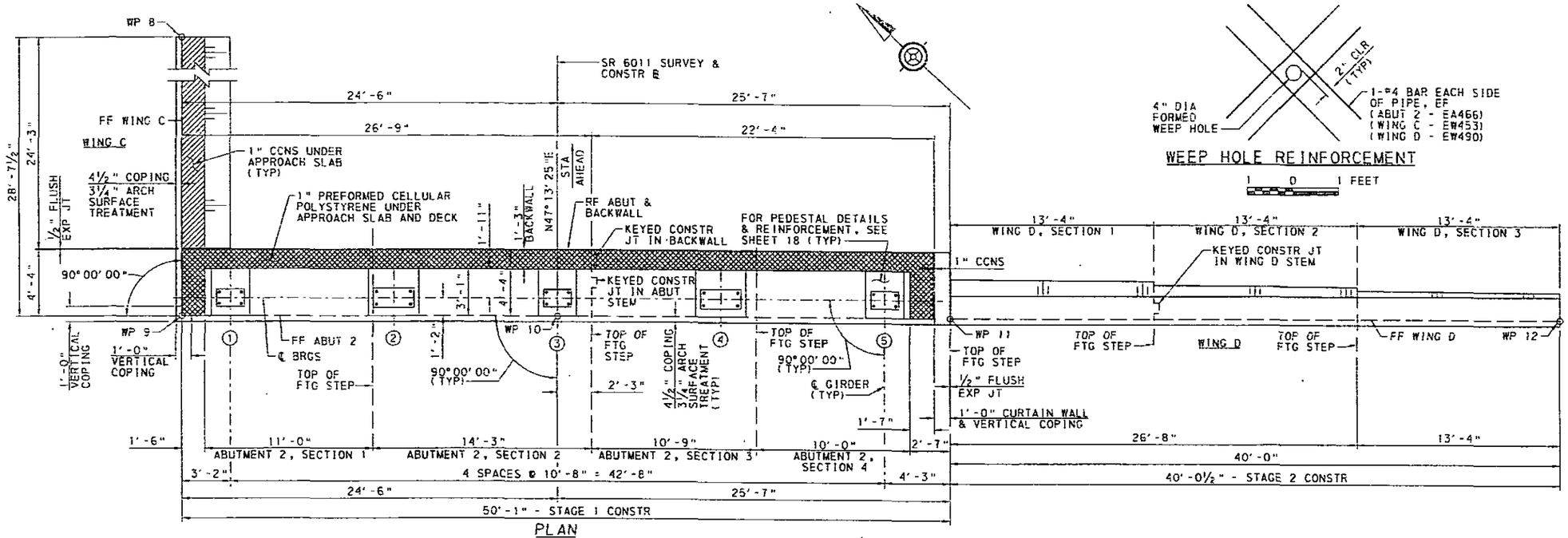
COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF TRANSPORTATION
LACKAWANNA COUNTY
SR 6011 SEC 273
SEGMENT 0190 OFFSET 0404
SR 6011 - 273 STA 16+27.50
OVER ROARING BROOK, SR 3022,
AND DELAWARE, LACKAWANNA & WESTERN RAILROAD
3-SPAN CONT COMP STEEL MULTI-GIRDER BRIDGE
ABUTMENT 2 FOOTING PLAN

RECOMMENDED MAY 0 7 2014

SHEET 16 OF 76

S - 33152

DES: GCP | CKD: AMW | DWG: GCP | CKD: KES



ABUTMENT 2 BAR DESIGNATIONS	
LABEL	DESIGNATION
2A	12-EA451 @ 1'-0" MAX FF (LAP W/EF461) 12-EA751 @ 1'-0" RF (LAP W/EF751)
2B	12-EA452 @ 1'-0" MAX FF (LAP W/EA451)
2C	12-EA453 @ 1'-0" (LAP W/EA751)
2D	15-EA454 @ 1'-0" MAX FF (LAP W/EF461) 15-EA651 @ 1'-0" MAX RF (LAP W/EF651)
2E	15-EA452 @ 1'-0" MAX FF (LAP W/EA454)
2F	15-EA453 @ 1'-0" (LAP W/EA651)
2G	12-EA455 @ 1'-0" MAX FF (LAP W/EF461) 12-EA551 @ 1'-0" MAX RF (LAP W/EF551)
2H	12-EA452 @ 1'-0" MAX FF (LAP W/EA455)
2J	12-EA453 @ 1'-0" (LAP W/EA551)
2K	11-EA456 @ 1'-0" MAX FF (LAP W/EF461) 11-EA652 @ 1'-0" MAX RF (LAP W/EF653)
2L	11-EA452 @ 1'-0" MAX FF (LAP W/EA456)
2M	11-EA453 @ 1'-0" MAX (LAP W/EA653)
2N	4-EA457 @ 1'-0" MAX EF
2P	4-EA458 @ 1'-0" MAX EF
2Q	3-EA459 @ 1'-0" MAX EF
2R	8-EA459 @ 1'-0" MAX EF
2S	6-EA459 @ 1'-0" MAX EF
2T	3-EA461 @ 1'-0" MAX EF (LAP W/EA459)
2U	8-EA462 @ 1'-0" MAX EF (LAP W/EA459)
2V	6-EA462 @ 1'-0" MAX EF (LAP W/EA459)

NOTES

1. FOR GENERAL NOTES AND LIST OF ABBREVIATIONS, SEE SHEETS 4 & 5.
2. FOR STAKE-OUT PLAN, SEE SHEET 8.
3. FOR FOOTING PLAN, SEE SHEET 16.
4. FOR ABUTMENT TYPICAL SECTION, SEE SHEET 16.
5. FOR SECTIONS H-H, J-J AND K-K, SEE SHEET 18.
6. FOR PEDESTAL DETAILS, SEE SHEET 18.
7. FOR WINGWALL WEEP HOLE LOCATIONS, SEE SHEETS 19 & 20.
8. FOR WINGWALL DETAILS, SEE SHEETS 19 & 20.
9. FOR POT BEARING & ANCHOR BOLT DETAILS, SEE SHEETS 39 THRU 43.
10. FOR REINFORCEMENT BAR SCHEDULE, SEE SHEETS 64 THRU 68.
11. FOR DETAILS OF KEYED CONSTRUCTION JOINT AND FLUSH EXPANSION JOINT, SEE BC-735M.
12. FOR ADDITIONAL WATERPROOFING DETAILS, SEE SHEET 16 AND BC-788M.

Mark	Description	By	Chk'd.	Recm'd.	Date
REVISIONS					

SR 6011 PREVIOUSLY KNOWN AS LR 5

PREPARED BY: DEWBERRY ENGINEERS INC.

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
GARY L. FRENETTE
ENGINEER
PENNSYLVANIA

DES: GCP | CKD: AMW | DWG: GCP | CKD: KES

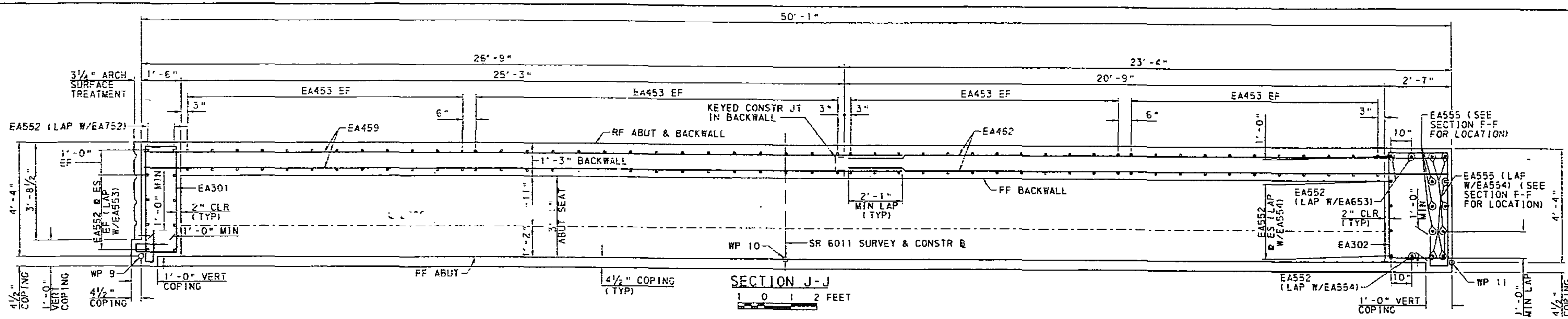
COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF TRANSPORTATION

LACKAWANNA COUNTY
SR 6011 SEC 273
SEGMENT 0190 OFFSET 0404
SR 6011 - 273 STA 16+27.50
OVER ROARING BROOK, SR 3022,
AND DELAWARE, LACKAWANNA & WESTERN RAILROAD
3-SPAN CONT COMP STEEL MULTI-GIRDER BRIDGE
ABUTMENT 2 PLAN & ELEVATION

RECOMMENDED MAY 07 2014

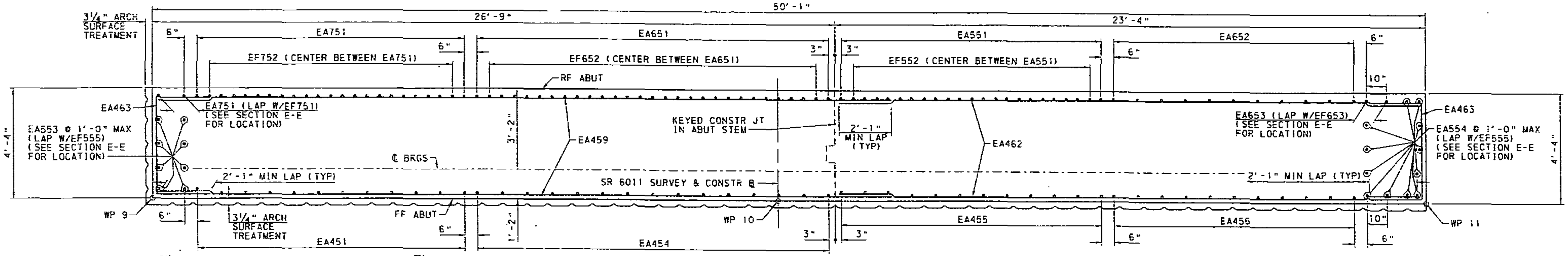
SHEET 17 OF 76

S - 33152



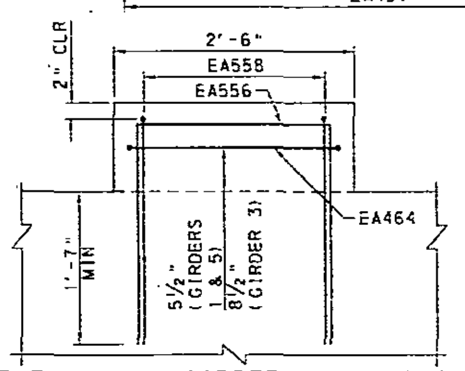
SECTION J-J

1 0 1 2 FEET

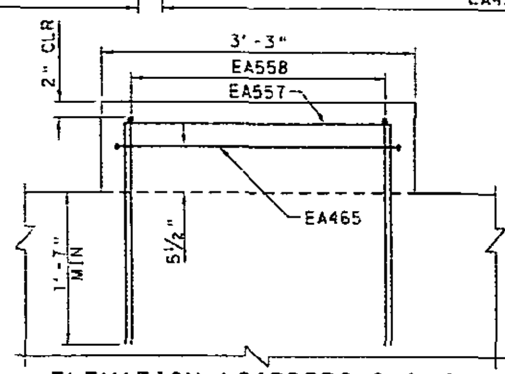


SECTION H-H

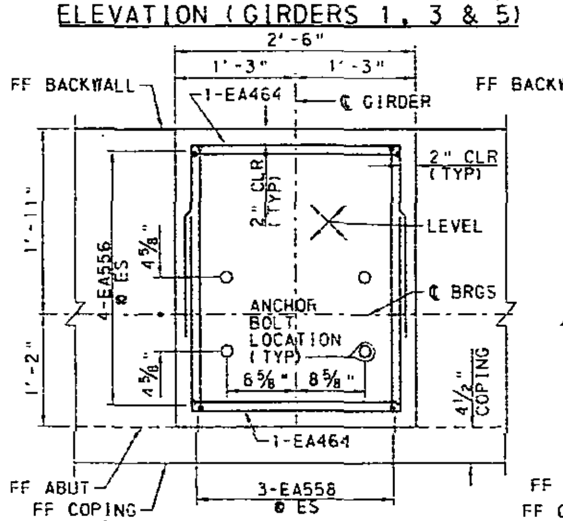
1 0 1 2 FEET



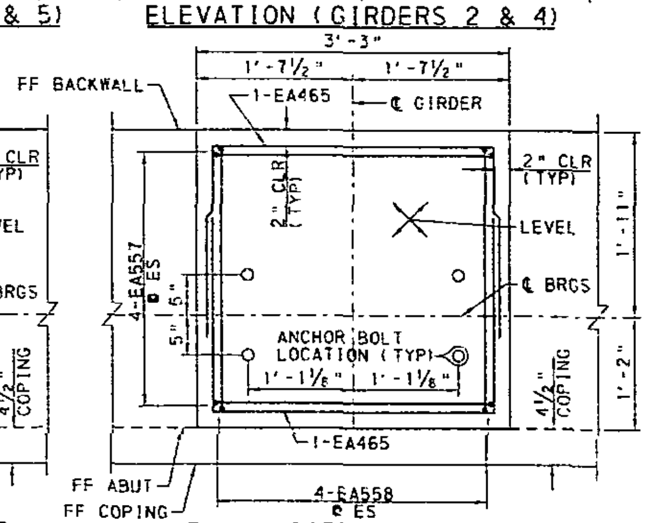
ELEVATION (GIRDERS 1, 3 & 5)



ELEVATION (GIRDERS 2 & 4)



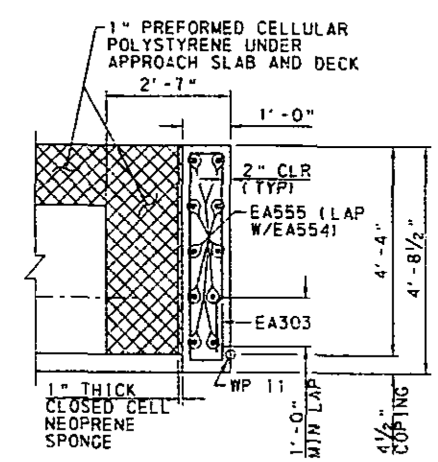
PLAN (GIRDERS 1, 3 & 5)



PLAN (GIRDERS 2 & 4)

PEDESTAL DETAIL

6 0 6 12 INCHES



SECTION K-K

1 0 1 2 FEET

NOTES

1. FOR GENERAL NOTES & LIST OF ABBREVIATIONS, SEE SHEETS 4 & 5.
2. FOR STAKE-OUT-PLAN, SEE SHEET 8.
3. FOR LOCATION OF SECTIONS H-H, J-J & K-K, SEE SHEET 17.
4. FOR POT BEARING AND ANCHOR BOLT DETAILS, SEE SHEETS 39 THRU 43.
5. FOR REINFORCEMENT BAR SCHEDULE, SEE SHEETS 64 THRU 68.

Mark	Description	By	Chk'd.	Recm'd.	Date

REVISIONS

SR 6011 PREVIOUSLY KNOWN AS LR 5

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF TRANSPORTATION

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3-SPAN CONT COMP STEEL MULTI-GIRDER BRIDGE
ABUTMENT 2 DETAILS

PREPARED BY:
DEWBERRY ENGINEERS INC.

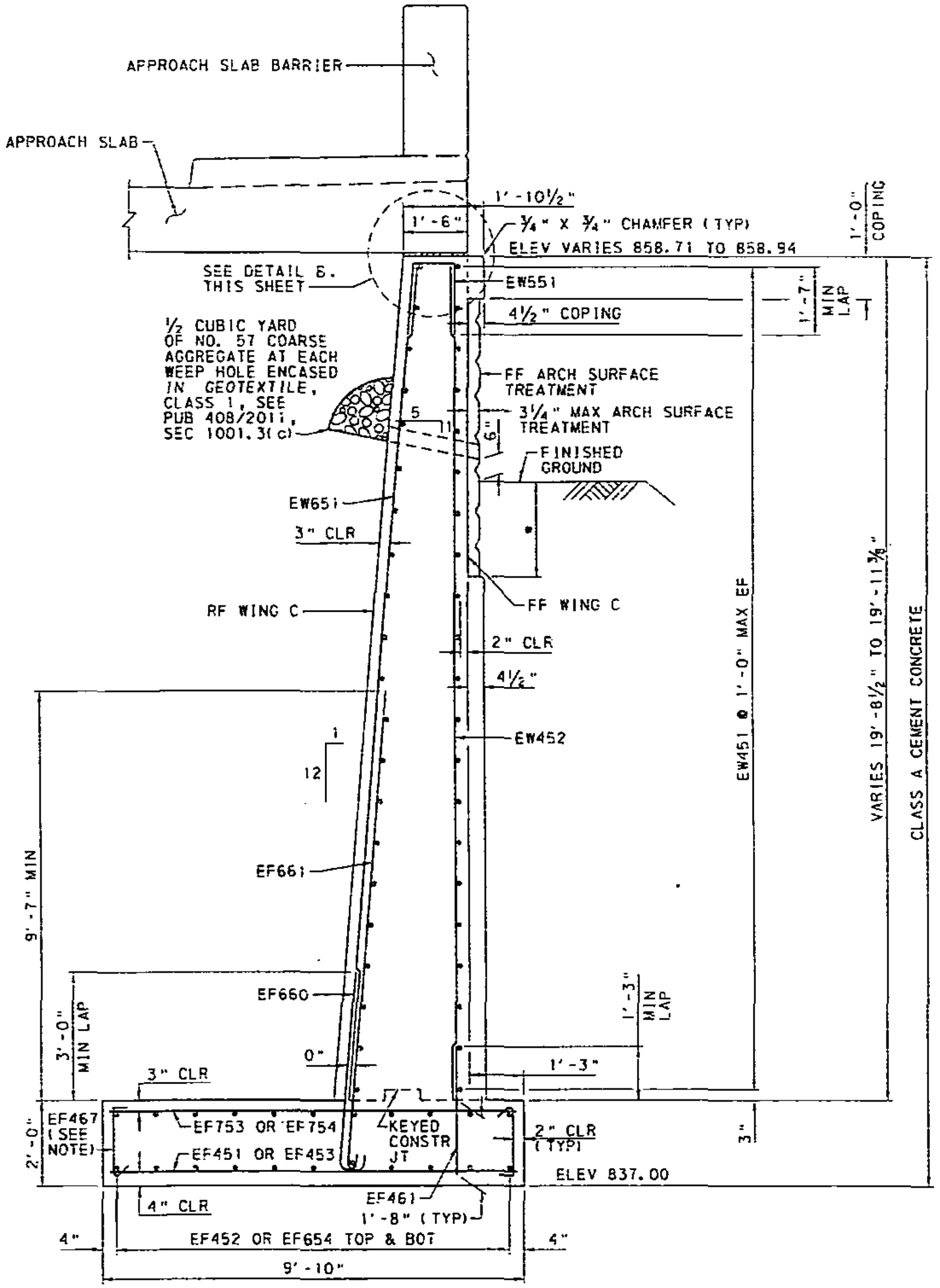
COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL GARY L. FRENETTE ENGINEER

RECOMMENDED MAY 07 2014

SHEET 18 OF 76

S - 33152

DES: GCP | CKD: AMM | DWG: GCP | CKD: KES



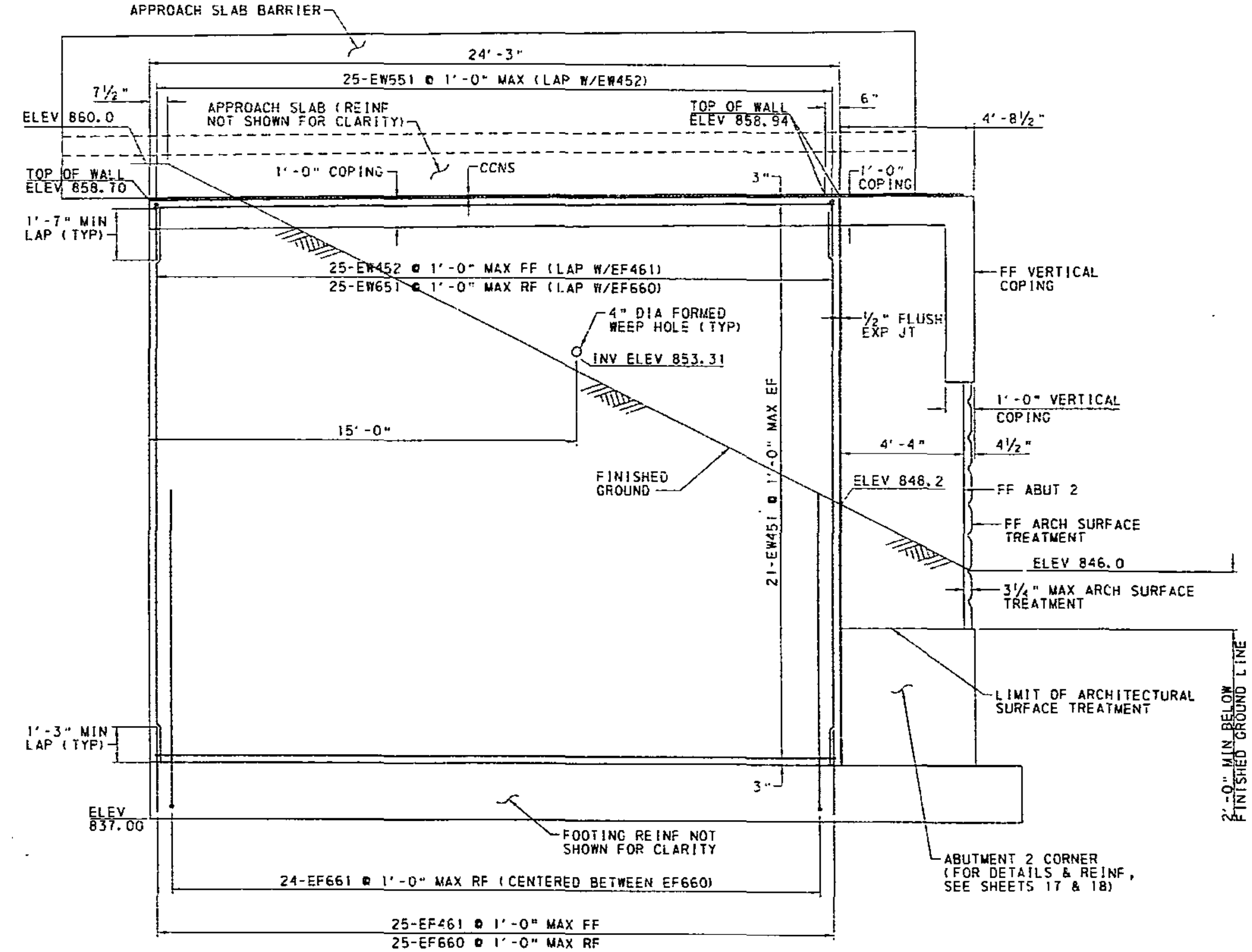
TYPICAL SECTION

(LOOKING STA BACK)

NOTE: TIE TOP AND BOTTOM MATS OF FOOTING REINFORCING STEEL WITH EF467 TIE BARS AT A MAXIMUM SPACING OF 4'-0" IN BOTH DIRECTIONS. ALTERNATE 135° HOOKS TOP AND BOTTOM IN ALTERNATE TIES.

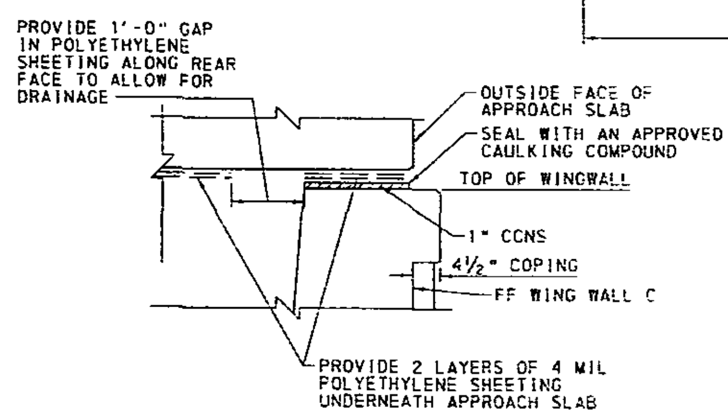
■ 2'-0" MIN BELOW FINISHED GROUND LINE

1 0 1 2 FEET



ELEVATION

1 0 1 2 3 FEET



DETAIL B

NO SCALE

NOTES

1. FOR GENERAL NOTES AND LIST OF ABBREVIATIONS, SEE SHEETS 4 & 5.
2. FOR STAKE-OUT PLAN, SEE SHEET 6.
3. FOR FOOTING PLAN, SEE SHEET 16.
4. FOR WATERPROOFING DETAIL, SEE SHEET 16.
5. FOR ABUTMENT DETAILS, SEE SHEETS 17 & 18.
6. FOR WEEP HOLE DETAILS, SEE SHEET 17.
7. FOR REINFORCEMENT BAR SCHEDULE, SEE SHEETS 64 THRU 68.
8. FOR DETAILS OF KEYED CONSTRUCTION JOINT AND FLUSH EXPANSION JOINT, SEE BC-735M.
9. FOR ADDITIONAL WATERPROOFING DETAILS, SEE BC-788M.

Mark	Description	By	Chk'd.	Recm'd.	Date

REVISIONS

SR 6011 PREVIOUSLY KNOWN AS LR 5

PREPARED BY: DEWBERRY ENGINEERS INC.

COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL GARY L. FRENETTE ENGINEER

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF TRANSPORTATION

LACKAWANNA COUNTY
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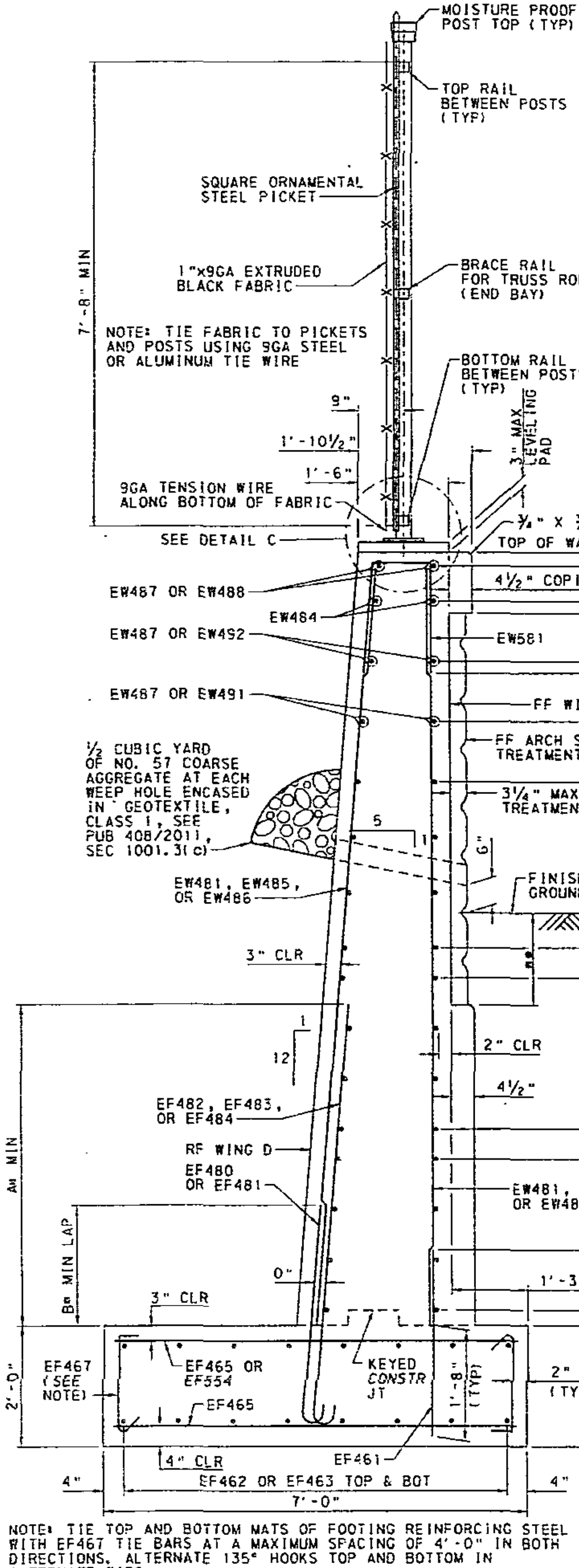
SEGMENT 0190 OFFSET 0404
SR 6011 - 273 STA 16+27.50
OVER ROARING BROOK, SR 3022,
AND DELAWARE, LACKAWANNA & WESTERN RAILROAD
3-SPAN CONT COMP STEEL MULTI-GIRDER BRIDGE
WINGWALL C DETAILS

RECOMMENDED MAY 07 2014

SHEET 19 OF 76

S - 33152

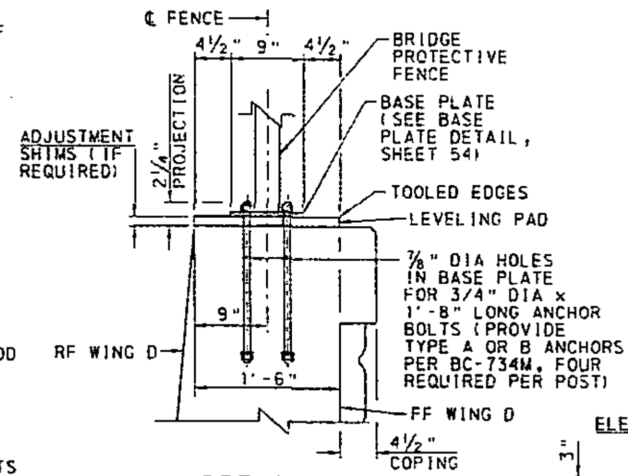
DES: GCP | CKD: AMM | DWG: KLL | CKD: GCP



NOTE: TIE TOP AND BOTTOM MATS OF FOOTING REINFORCING STEEL WITH EF467 TIE BARS AT A MAXIMUM SPACING OF 4'-0" IN BOTH DIRECTIONS. ALTERNATE 135° HOOKS TOP AND BOTTOM IN ALTERNATE TIES.

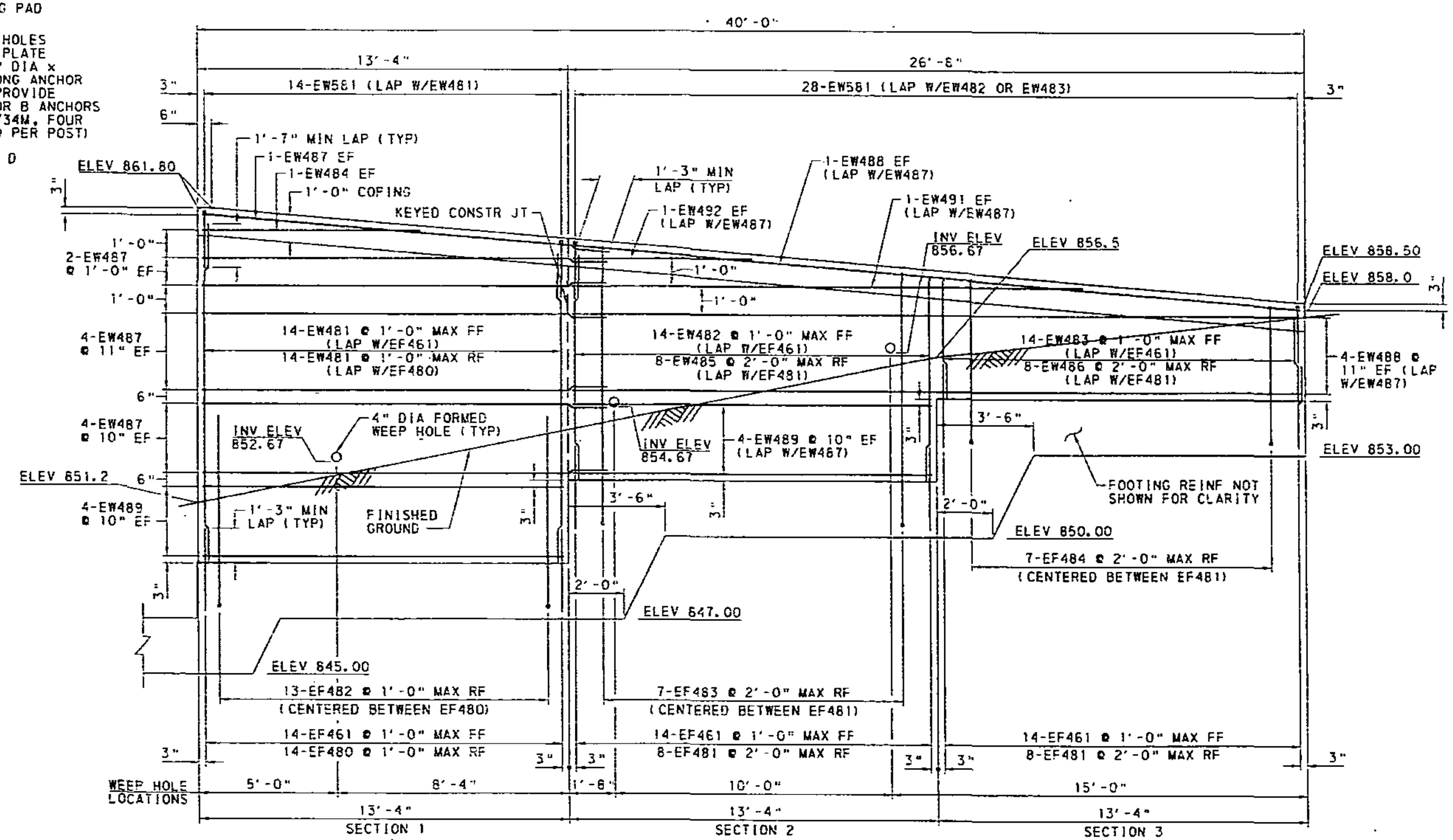
TYPICAL SECTION

1 0 1 FEET



DETAIL C

6 0 6 12 INCHES



ELEVATION

1 0 1 2 3 FEET

NOTES

1. FOR GENERAL NOTES AND LIST OF ABBREVIATIONS, SEE SHEETS 4 & 5.
2. FOR STAKE-OUT PLAN, SEE SHEET 8.
3. FOR FOOTING PLAN, SEE SHEET 16.
4. FOR WATERPROOFING DETAIL, SEE SHEET 16.
5. FOR ABUTMENT DETAILS, SEE SHEETS 17 AND 18.
6. FOR WEEP HOLE DETAILS, SEE SHEET 17.
7. *FOR ADDITIONAL DECORATIVE PROTECTIVE FENCE DETAILS,* SEE SHEET 54.
8. FOR REINFORCEMENT BAR SCHEDULE, SEE SHEETS 64 THRU 68.
9. FOR DETAILS OF KEYED CONSTRUCTION JOINT AND FLUSH EXPANSION JOINT, SEE BC-735M.
10. FOR ADDITIONAL WATERPROOFING DETAILS, SEE BC-788M.

WINGWALL D DIMENSIONS & BAR DESIGNATIONS

LABEL	SECTION 1	SECTION 2	SECTION 3
A	5'-4"	VARIES (BAR EXTENDS TO TOP OF WALL)	VARIES (BAR EXTENDS TO TOP OF WALL)
B	2'-0"	1'-9"	1'-9"
C	847.00	850.00	853.00

* SEE TABLE FOR DIMENSION OR ELEVATION
** 2'-0" MIN BELOW FINISHED GROUND LINE

Mark	Description	By	Chk'd.	Recm'd.	Date

REVISIONS

SR 6011 PREVIOUSLY KNOWN AS LR 5

PREPARED BY: DEWBERRY ENGINEERS INC.

COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL GARY L. FRENETTE ENGINEER

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF TRANSPORTATION

LACKAWANNA COUNTY
SR 6011 SEC 273
SEGMENT 0190 OFFSET 0404
SR 6011 - 273 STA 16+27.50
OVER ROARING BROOK, SR 3022,
AND DELAWARE, LACKAWANNA & WESTERN RAILROAD
3-SPAN CONT COMP STEEL MULTI-GIRDER BRIDGE
WINGWALL D DETAILS

RECOMMENDED MAY 07 2014

SHEET 20 OF 76

S - 33152

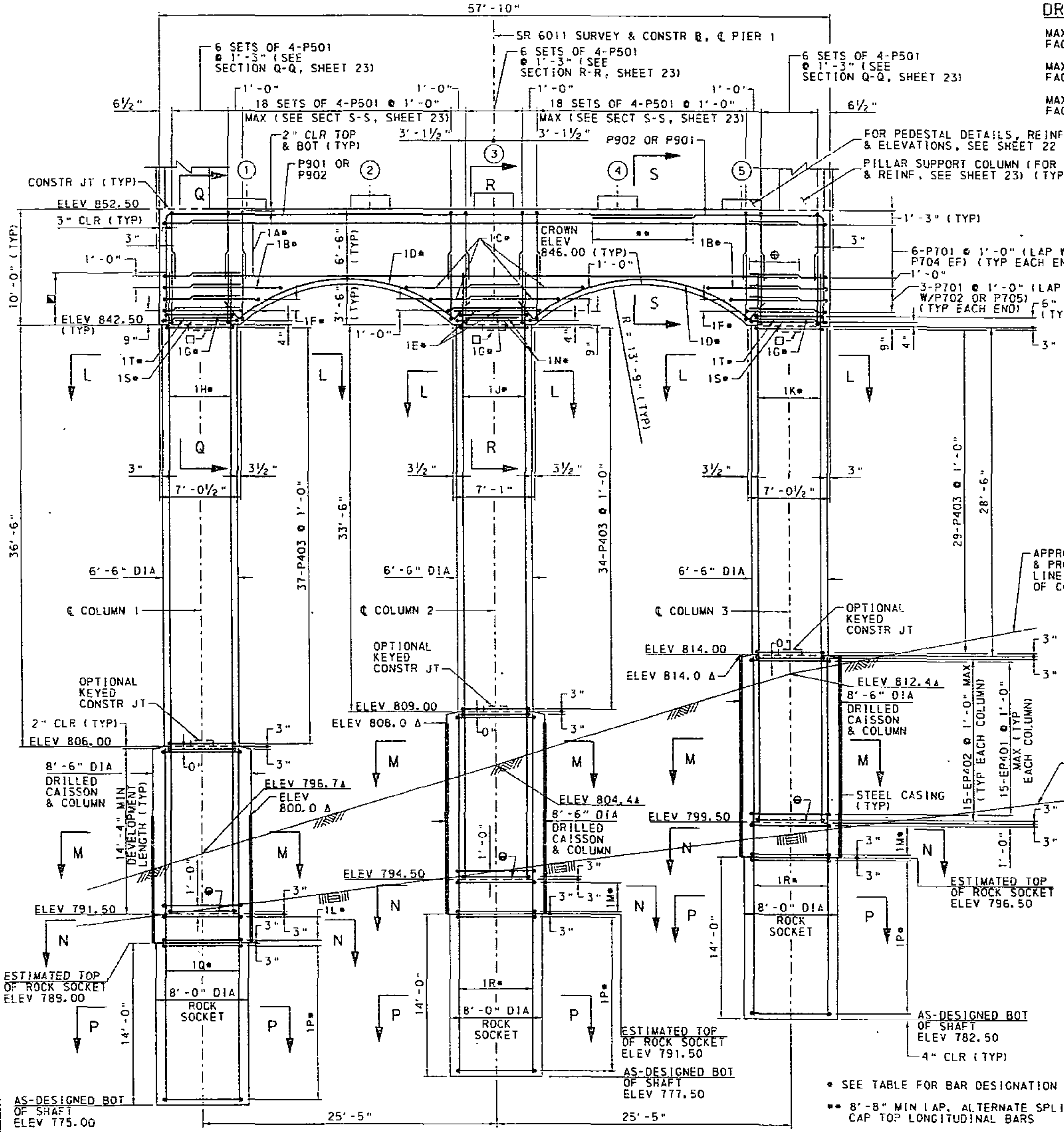
DES: GCP | CKD: AMM | DWG: KLL | CKD: GCP

DRILLED SHAFT LOADS AND RESISTANCES

MAXIMUM FACTORED MOMENT = 7300.5 FT-KIPS (STR-III)
FACTORED MOMENT RESISTANCE OF ROCK SOCKET SECTION = 11,325.2 FT-KIPS

MAXIMUM FACTORED SHEAR = 1095 KIPS (STR-III)
FACTORED MAXIMUM SHEAR RESISTANCE = 1123.0 KIPS

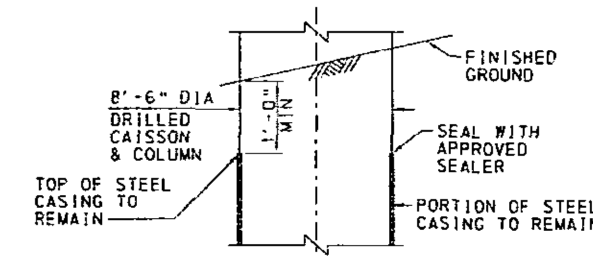
MAXIMUM FACTORED VERTICAL SHAFT LOAD = 3139 KIPS (STR-I)
FACTORED VERICAL SHAFT RESISTANCE = 3210 KIPS



ELEVATION

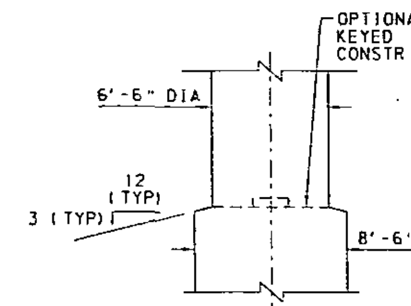
LOOKING STA AHEAD

2 0 2 4 6 FEET



TOP OF REMAINING CASING DETAIL

NO SCALE



COLUMN STEP DETAIL

NO SCALE

PIER 1 BAR DESIGNATIONS	
LABEL	DESIGNATION
1A	6-P704 @ 1'-0" EF (LAP W/P701 EACH END)
1B	1-P705 (LAP W/P701 EF)
1C	1-P706 (LAP W/P706)
1D	P1001 (SEE SECTION S-S FOR LOCATION)
1E	1-P703 (LAP W/P703)
1F	2-P702 @ 1'-0" (LAP W/P701 EF)
1G	1-P403
1H	33-EP801 @ EQUAL SPA (SEE SECTION L-L FOR LOCATION)
1J	33-EP802 @ EQUAL SPA (SEE SECTION L-L FOR LOCATION)
1K	33-EP803 @ EQUAL SPA (SEE SECTION L-L FOR LOCATION)
1L	3-EP401 @ 1'-0" MAX
1M	4-EP401 @ 1'-0" MAX
1N	1-P708 (LAP W/P708)
1P	24-EP601 @ 7" MAX
1Q	33-EP1101 @ EQUAL SPA (SEE SECTION P-P FOR LOCATION)
1R	33-EP1102 @ EQUAL SPA (SEE SECTION P-P FOR LOCATION)
1S	1-P708 (LAP W/P707)
1T	1-P707 (LAP W/P708)

NOTES

1. FOR GENERAL NOTES AND LIST OF ABBREVIATIONS, SEE SHEETS 4 & 5.
2. FOR ADDITIONAL FOUNDATION NOTES, SEE SHEET 5.
3. FOR STAKE-OUT PLAN, SEE SHEET 8.
4. FOR SECTIONS L-L THRU P-P, SEE SHEET 22. FOR SECTIONS Q-Q THRU S-S, SEE SHEET 23.
5. FOR PILLAR SUPPORT COLUMN, PEDESTAL & PIER DETAILS, SEE SHEETS 22 & 23.
6. FOR PILLAR DETAILS, SEE SHEETS 55 & 56.
7. FOR REINFORCEMENT BAR SCHEDULE, SEE SHEETS 64 THRU 68.
8. FOR KEYED CONSTRUCTION JOINT DETAILS, SEE BC-735M.

(ⓝ) GIRDER NUMBER

NOTE: IF CONTRACTOR PROPOSES A LARGER DIAMETER ROCK SOCKET OR DRILLED CAISSON THAN SHOWN, SUBMIT PROPOSED CHANGES TO DISTRICT BRIDGE ENGINEER FOR APPROVAL. REVISE REINFORCEMENT AS REQUIRED BASED ON PROPOSED CHANGES.

NOTE: ROCK SOCKET TOP & BOTTOM ELEVATIONS ARE APPROXIMATE AND ARE FOR INFORMATION ONLY. VERIFY ACTUAL TOR ELEVATION PRIOR TO ORDERING PIER REINFORCEMENT.

NOTE: REMOVE STEEL CASING TO 1'-0" MIN BELOW THE LOW GROUND SIDE OF EACH SHAFT.

NOTE: PILLARS, GIRDERS, BRIDGE DECK & PEDESTAL REINFORCEMENT NOT SHOWN FOR CLARITY.

NOTE: COORDINATE COLUMN REINFORCEMENT WITH BOTTOM FLEXURAL CAP REINFORCEMENT TO AVOID INTERFERENCE.

- ● SEE TABLE FOR BAR DESIGNATION AND NUMBER OF BARS
- ●● 8'-8" MIN LAP. ALTERNATE SPLICE LOCATIONS OF ADJACENT PIER CAP TOP LONGITUDINAL BARS
- ⊕ 5'-2" MIN LAP (TYP FOR LONGITUDINAL SKIN REINFORCEMENT BETWEEN ARCHED PORTIONS AND AT ENDS OF PIER CAP)
- ◪ 4'-6" MIN DEVELOPMENT INTO CAP (TYP)
- ⊖ OPTIONAL CONSTRUCTION JOINT
- □ KEYED CONSTRUCTION JOINT
- Δ APPROX TOP OF STEEL CASING (HIGHEST GROUND AT EACH COLUMN)
- ▲ APPROX TOP OF GROUND @ CENTER OF COLUMN

Mark	Description	By	Chk'd.	Recm'd.	Date
REVISIONS					

SR 6011 *PREVIOUSLY KNOWN AS LR 5*

PREPARED BY: DEWBERRY ENGINEERS INC.

GARY L. FRENETTE PROFESSIONAL ENGINEER

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF TRANSPORTATION

LACKAWANNA COUNTY
SR 6011 SEC 273
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3-SPAN CONT COMP STEEL MULTI-GIRDER BRIDGE
PIER 1 ELEVATION

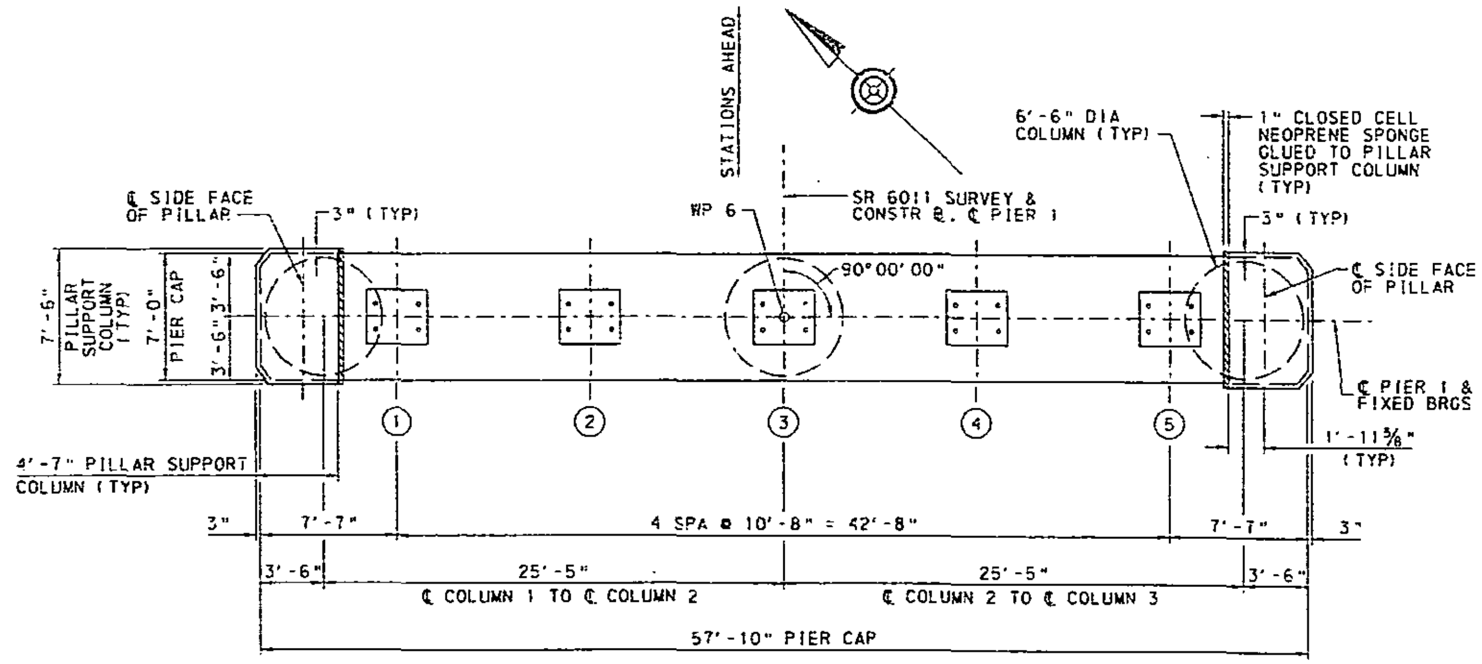
RECOMMENDED MAY 07 2014

SHEET 21 OF 76

S - 33152

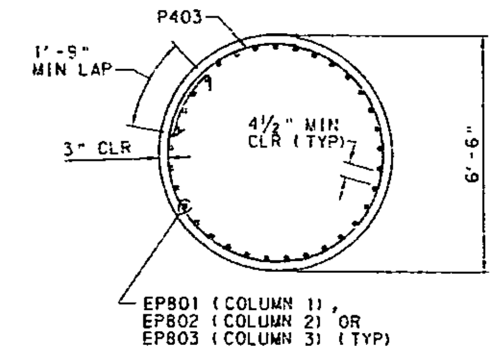
DES: GCP | CKD: AMM | DWG: KLL | CKD: GCP

4/17/2014



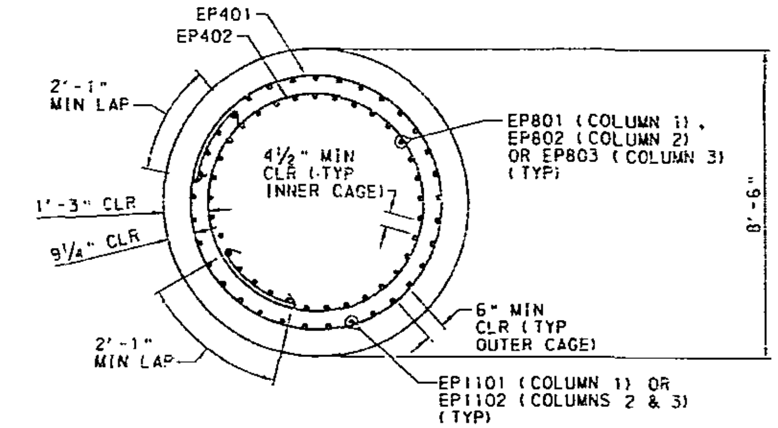
PIER CAP PLAN

2 0 2 4 6 FEET



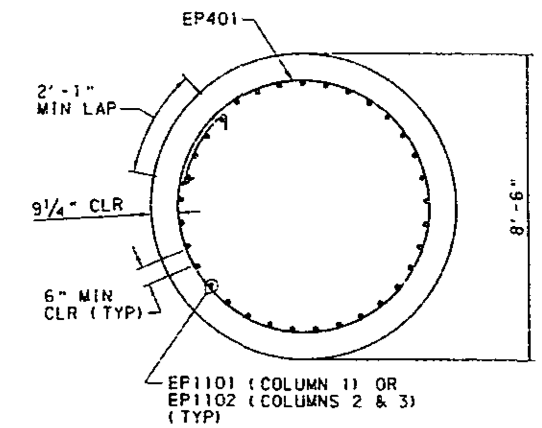
SECTION L-L

1 0 1 2 3 FEET



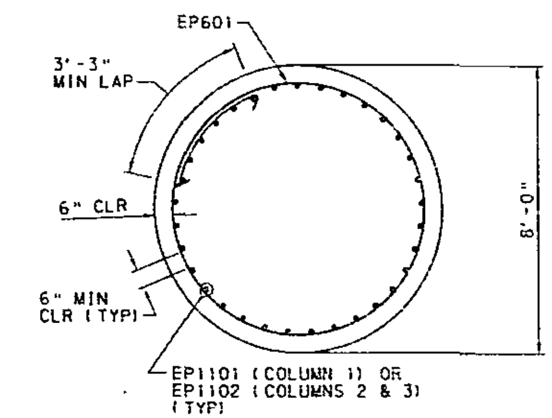
SECTION M-M

1 0 1 2 3 FEET



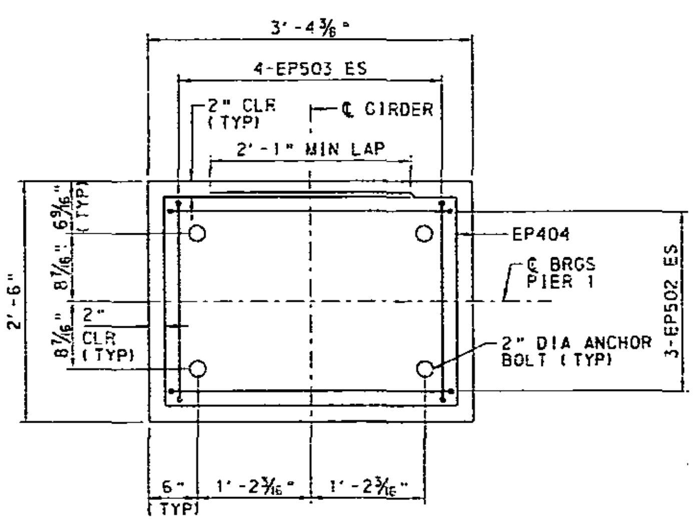
SECTION N-N

1 0 1 2 3 FEET



SECTION P-P

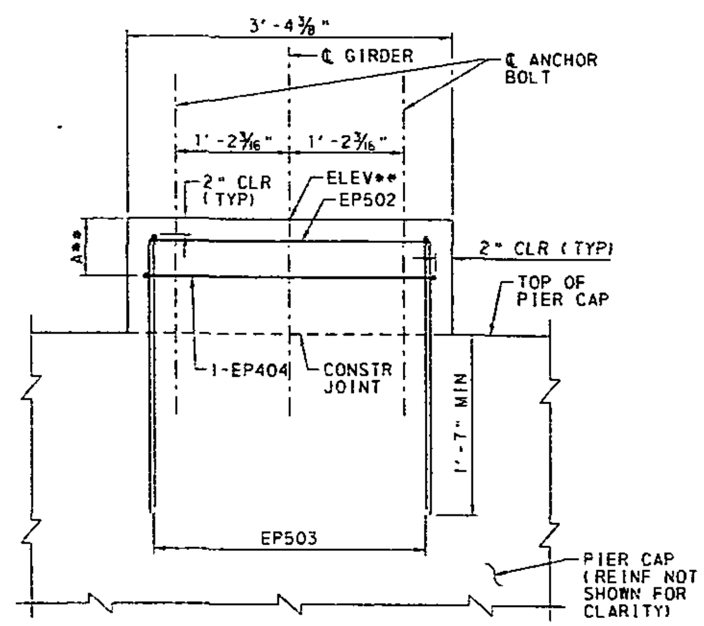
1 0 1 2 3 FEET



PEDESTAL AND ANCHOR BOLT PLAN

NOTE: PLACE REINFORCING BARS TO CLEAR ANCHOR BOLTS

6 0 6 12 INCHES



PEDESTAL ELEVATION

LOOKING STA AHEAD

** SEE TABLE FOR ELEVATIONS & "A" DIMENSION

6 0 6 12 INCHES

NOTES

1. FOR GENERAL NOTES AND LIST OF ABBREVIATIONS, SEE SHEETS 4 & 5.
2. FOR STAKE-OUT PLAN, SEE SHEET 8.
3. FOR LOCATIONS OF SECTIONS L-L THRU P-P, SEE SHEET 21.
4. FOR PILLAR SUPPORT COLUMN DETAILS, SEE SHEET 23.
5. FOR FRAMING PLAN, SEE SHEETS 27 THRU 29.
6. FOR POT BEARING AND ANCHOR BOLT DETAILS, SEE SHEETS 39 THRU 43.
7. FOR PILLAR DETAILS, SEE SHEETS 55 & 56.
8. FOR REINFORCEMENT BAR SCHEDULE, SEE SHEETS 64 THRU 68.
9. CONTRACTOR MAY SUBSTITUTE SPLICED TIES AT NO ADDITIONAL COST TO THE DEPARTMENT.
10. ALL HOOKS ON TIES MUST ENGAGE VERTICAL COLUMN REINFORCING STEEL.
11. FOR KEYED CONSTRUCTION JOINT DETAILS, SEE BC-735M.

(#) GIRDER NUMBER

PEDESTAL ELEVATIONS		
GIRDER	ELEVATION	A
1	853.39	5½"
2	853.67	7¼"
3	853.89	8½"
4	853.67	7¼"
5	853.39	5½"

Mark	Description	By	Chk'd.	Recm'd.	Date

REVISIONS

SR 6011 PREVIOUSLY KNOWN AS LR 5

PREPARED BY: DEWBERRY ENGINEERS INC.

COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL GARY L. FRENETTE ENGINEER

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF TRANSPORTATION

LACKAWANNA COUNTY
SR 6011 - SEC 273
SEGMENT 0190 OFFSET 0404
SR 6011 - 273 STA 16+27.50
OVER ROARING BROOK, SR 3022,
AND DELAWARE, LACKAWANNA & WESTERN RAILROAD
3-SPAN CONT COMP STEEL MULTI-GIRDER BRIDGE

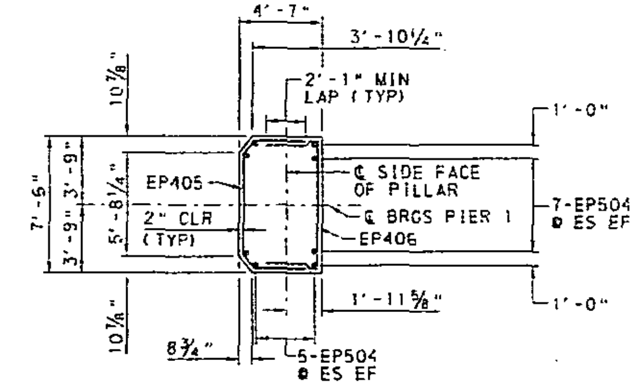
PIER 1 DETAILS - 1

RECOMMENDED MAY 07 2014

SHEET 22 OF 76

S - 33152

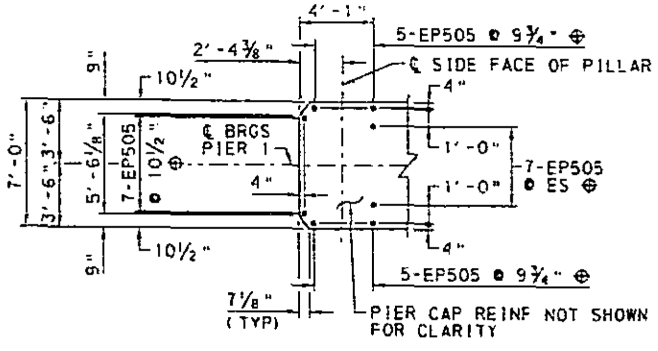
DES: GCP | CKD: AMM | DWG: KLL | CKD: GCP



SECTION T-T

NOTE: LEFT SUPPORT COLUMN SHOWN. RIGHT SUPPORT COLUMN SIMILAR, OPPOSITE HAND.

2 0 2 4 6 FEET

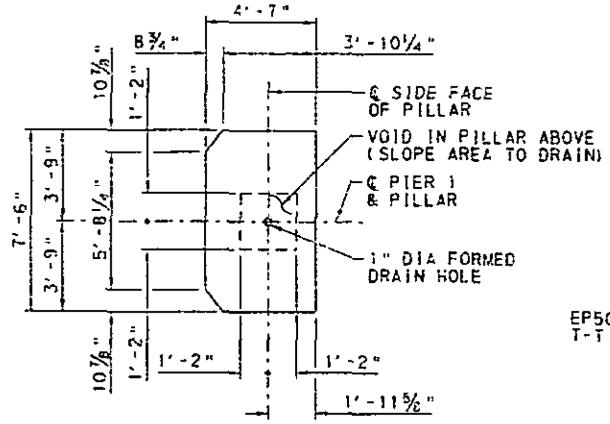


⊕ COORDINATE EP505 BARS WITH PIER CAP REINFORCEMENT

SECTION U-U

NOTE: LEFT END OF PIER CAP SHOWN. RIGHT END OF PIER CAP SIMILAR, OPPOSITE HAND.

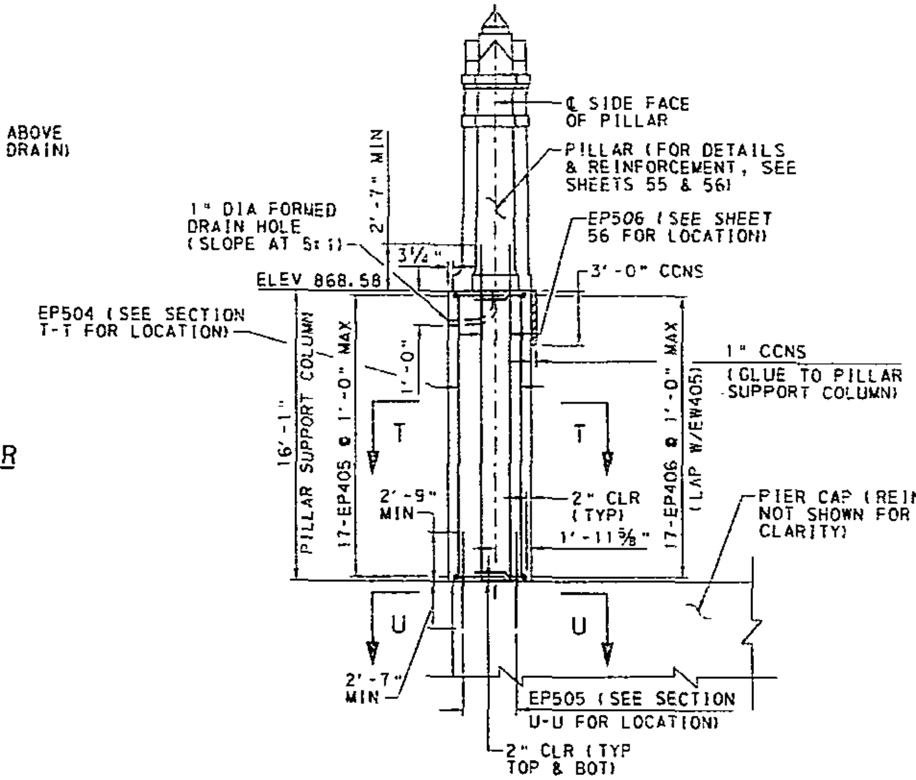
2 0 2 4 6 FEET



PLAN VIEW - TOP FACE OF PILLAR SUPPORT COLUMN DETAIL

NOTE: LEFT SUPPORT COLUMN SHOWN. RIGHT SUPPORT COLUMN SIMILAR, OPPOSITE HAND.

2 0 2 4 FEET



PILLAR SUPPORT COLUMN ELEVATION

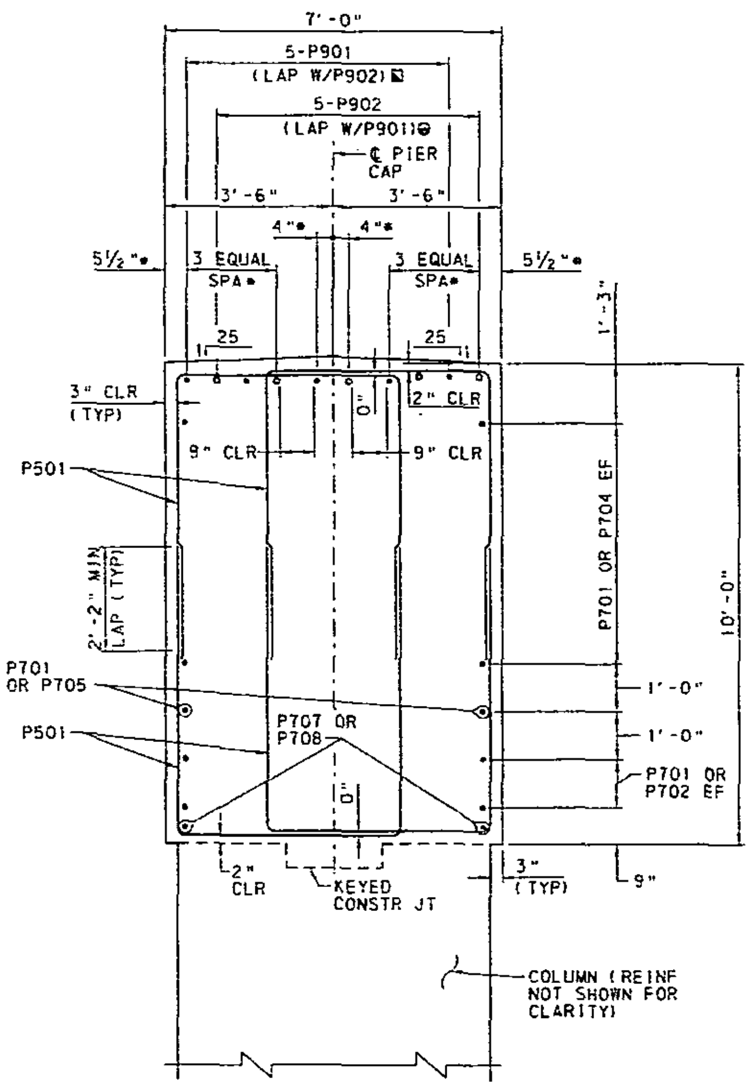
LOOKING STA AHEAD

NOTE: LEFT SUPPORT COLUMN SHOWN. RIGHT SUPPORT COLUMN SIMILAR, OPPOSITE HAND.

2 0 2 4 6 FEET

NOTES

1. FOR GENERAL NOTES AND LIST OF ABBREVIATIONS, SEE SHEETS 4 & 5.
2. FOR STAKE-OUT PLAN, SEE SHEET 8.
3. FOR LOCATIONS OF SECTIONS Q-Q THRU S-S, SEE SHEET 21.
4. FOR PEDESTAL DETAILS, SEE SHEET 22.
5. FOR PILLAR DETAILS, SEE SHEET 55.
6. FOR REINFORCEMENT BAR SCHEDULE, SEE SHEETS 64 THRU 68.
7. FOR KEYED CONSTRUCTION JOINT DETAILS, SEE BC-735M.

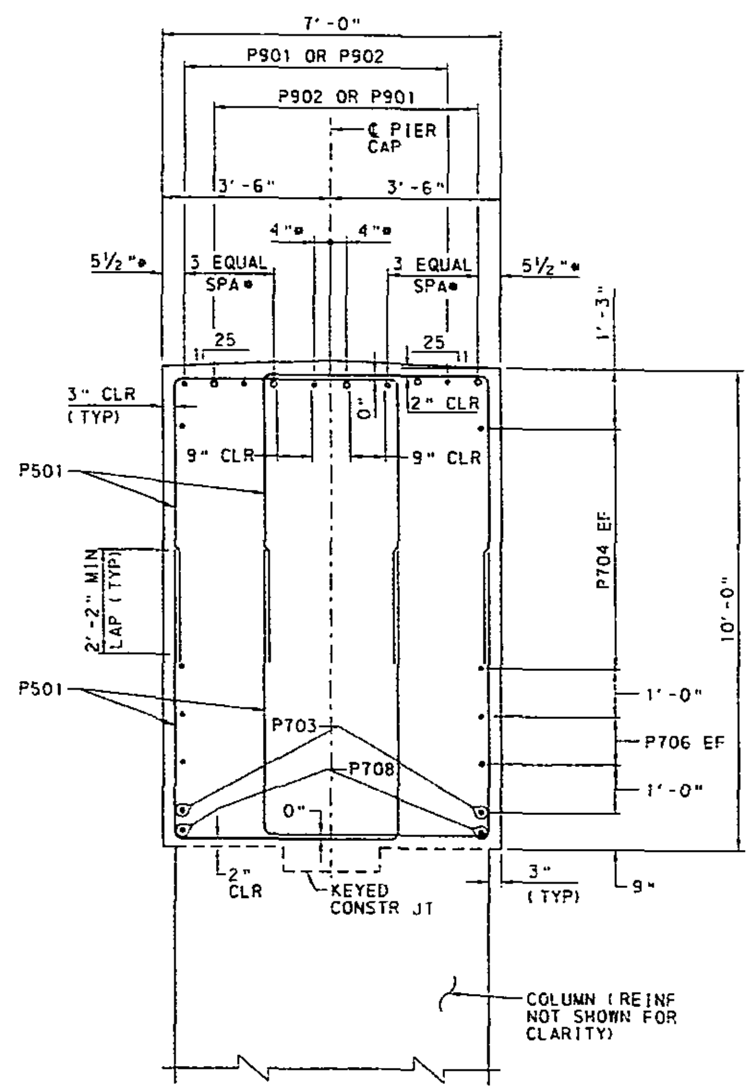


◪ 5-P902 (LAP W/P901) ABOVE COLUMN 3

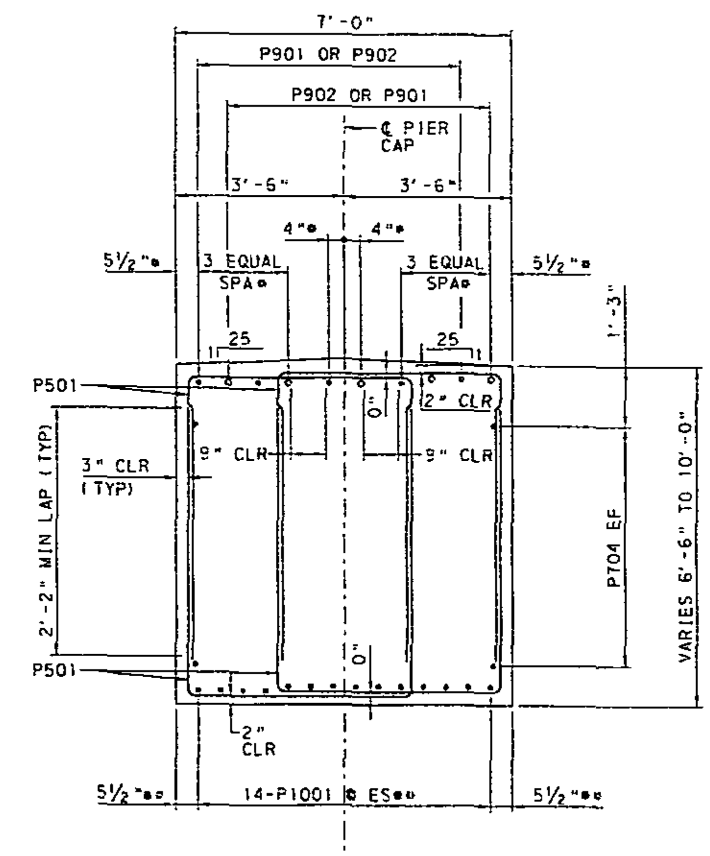
● 5-P901 (LAP W/P902) ABOVE COLUMN 3

NOTE: SECTION ABOVE COLUMN 1 SHOWN. SECTION ABOVE COLUMN 3 SIMILAR, EXCEPT AS NOTED.

SECTION Q-Q



SECTION R-R



SECTION S-S

PIER CAP SECTIONS

NOTE: PROVIDE A CLEARANCE CIRCLE FROM CAP REINFORCEMENT WHERE ANCHOR BOLT EXTENDS INTO TOP OF PIER CAP THAT IS CONCENTRIC WITH AND 2" LARGER THAN THE ANCHOR BOLT.

● ADJUST SPACING TO CLEAR ANCHOR BOLTS AND PEDESTAL REINFORCEMENT.

●● COORDINATE BOTTOM FLEXURAL CAP REINFORCEMENT WITH VERTICAL COLUMN REINFORCEMENT TO AVOID INTERFERENCE.

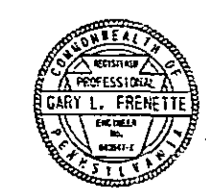
1 0 1 2 FEET

Mark	Description	By	Chk'd.	Recm'd.	Date

REVISIONS

SR 6011 PREVIOUSLY KNOWN AS LR 5

PREPARED BY: DEWBERRY ENGINEERS INC.



COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF TRANSPORTATION

LACKAWANNA COUNTY
SR 6011 SEC 273
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AND DELAWARE, LACKAWANNA & WESTERN RAILROAD
3-SPAN CONT COMP STEEL MULTI-GIRDER BRIDGE

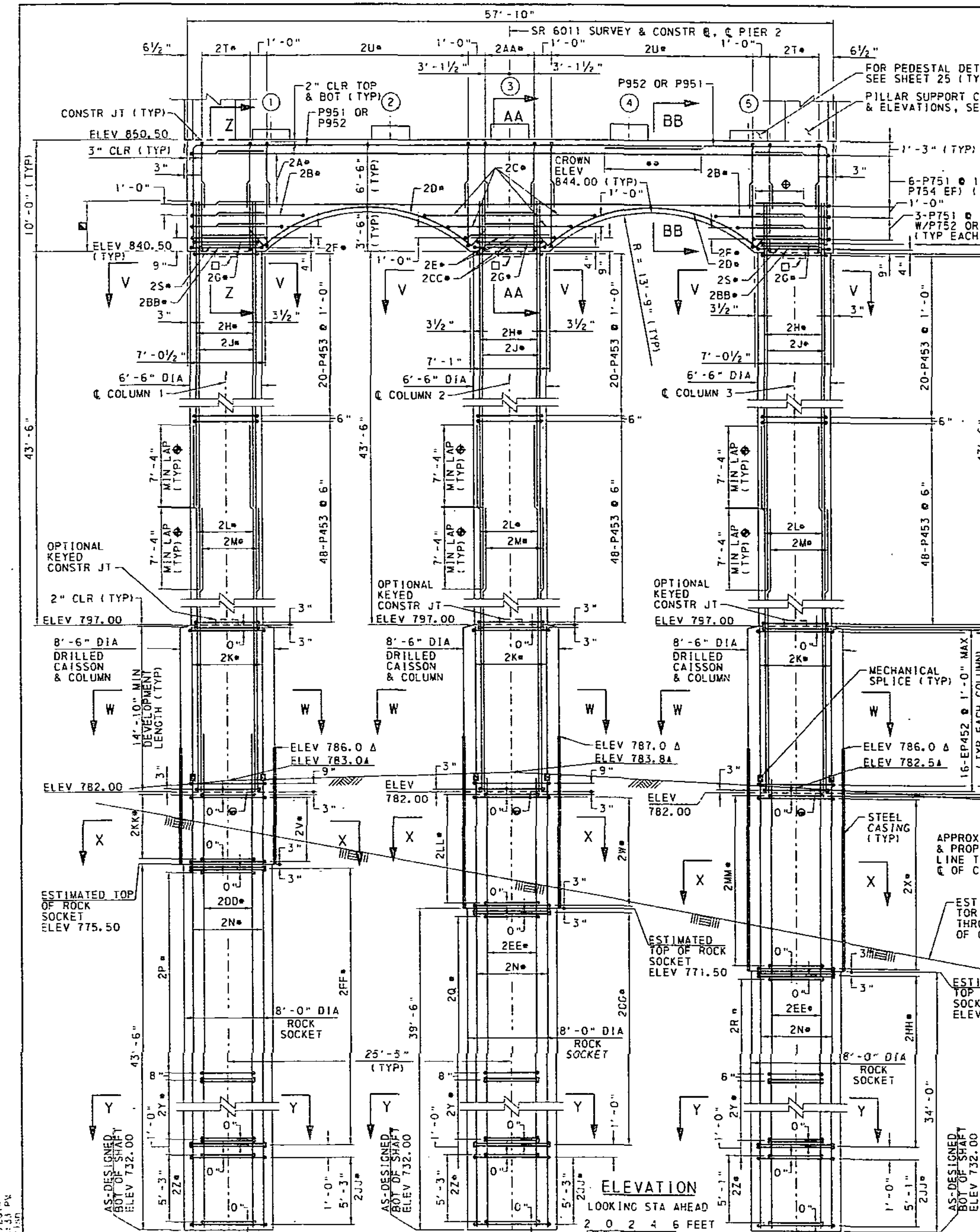
PIER 1 DETAILS - 2

RECOMMENDED MAY 07 2014

SHEET 23 OF 76

S - 33152

DES: GCP | CKD: AMM | DWG: KLL | CKD: GCP



ELEVATION

LOOKING STA AHEAD

2 0 2 4 6 FEET

LABEL	DESIGNATION	LABEL	DESIGNATION
PIER 2 BAR DESIGNATIONS			
2A	6-P754 @ 1'-0" EF (LAP W/P751 EACH END)	2V	7-EP451 @ 1'-0"
2B	1-P755 (LAP W/P751 EF)	2W	11-EP451 @ 1'-0"
2C	1-P756 (LAP W/P756)	2X	17-EP451 @ 1'-0" MAX
2D	P1051 (SEE SECTION BB-BB FOR LOCATION)	2Y	25-EP652 BUNDLED PAIRS @ 8" (SEE SECTION Y-Y FOR LOCATION)
2E	1-P753 (LAP W/P753)		
2F	2-P752 @ 1'-0" (LAP W/P751 EF)	2Z	7-EP652 @ 1'-0" MAX
2G	1-P453	2AA	6 SETS OF 4-P551 @ 1'-3" (SEE SECTION AA-AA, SHEET 26)
2H	20-P854 @ EQUAL SPA (LAP W/EP851) (SEE SECTION V-V FOR LOCATION)	2BB	1-P758 (LAP W/P757)
		2CC	1-P758 (LAP W/P758)
2J	20-P853 @ EQUAL SPA (LAP W/EP852) (SEE SECTION V-V FOR LOCATION)	2DD	22-EP1453 @ EQUAL SPA (SEE SECTION Y-Y FOR LOCATION)
2K	32-P1452 @ EQUAL SPA (SPLICE W/EP1451) (SEE SECTION W-W FOR LOCATION)	2EE	22-EP1454 @ EQUAL SPA (SEE SECTION Y-Y FOR LOCATION)
2L	20-EP851 @ EQUAL SPA (SEE SECTION W-W FOR LOCATION)	2FF	56-EP651 BUNDLED PAIRS @ 8" (SEE SECTION Y-Y FOR LOCATION)
2M	20-EP852 @ EQUAL SPA (SEE SECTION W-W FOR LOCATION)	2GG	50-EP651 BUNDLED PAIRS @ 8" (SEE SECTION Y-Y FOR LOCATION)
2N	32-EP1451 @ EQUAL SPA (SEE SECTION Y-Y FOR LOCATION)	2HH	42-EP651 BUNDLED PAIRS @ 8" (SEE SECTION Y-Y FOR LOCATION)
2P	31-EP652 @ 8"		
2Q	25-EP652 @ 8"	2JJ	7-EP651 @ 1'-0" MAX
2R	17-EP652 @ 8"	2KK	7-EP457 @ 1'-0" (SEE SECTION X-X FOR LOCATION)
2S	1-P757 (LAP W/P758)		
2T	6 SETS OF 4-P551 @ 1'-3" (SEE SECTION Z-Z, SHEET 26)	2LL	11-EP457 @ 1'-0" (SEE SECTION X-X FOR LOCATION)
2U	18 SETS OF 4-P551 @ 1'-0" MAX (SEE SECTION BB-BB, SHEET 26)	2MM	17-EP457 @ 1'-0" MAX (SEE SECTION X-X FOR LOCATION)

NOTE: IF CONTRACTOR PROPOSES A LARGER DIAMETER ROCK SOCKET OR DRILLED CAISSON THAN SHOWN, SUBMIT PROPOSED CHANGES TO DISTRICT BRIDGE ENGINEER FOR APPROVAL. REVISE REINFORCEMENT AS REQUIRED BASED ON PROPOSED CHANGES.

NOTE: TOP OF ROCK SOCKET ELEVATION IS APPROXIMATE AND IS FOR INFORMATION ONLY. VERIFY ACTUAL TOR ELEVATION PRIOR TO ORDERING PIER REINFORCEMENT.

NOTE: REMOVE STEEL CASING TO 1'-0" MIN BELOW THE LOW GROUND SIDE OF EACH SHAFT.

NOTE: PILLARS, GIRDERS, BRIDGE DECK & PEDESTAL REINFORCEMENT NOT SHOWN FOR CLARITY.

NOTE: COORDINATE COLUMN REINFORCEMENT WITH BOTTOM FLEXURAL CAP REINFORCEMENT TO AVOID INTERFERENCE.

- • SEE TABLE FOR BAR DESIGNATION AND NUMBER OF BARS
- •• 8'-8" MIN LAP. ALTERNATE SPLICE LOCATIONS OF ADJACENT PIER CAP TOP LONGITUDINAL BARS
- ⊕ 5'-2" MIN LAP (TYP FOR LONGITUDINAL SKIN REINFORCEMENT BETWEEN ARCHED PORTIONS AND AT ENDS OF PIER CAP)
- ◪ 4'-6" MIN DEVELOPMENT INTO CAP (TYP)
- ⊖ OPTIONAL CONSTRUCTION JOINT
- □ KEYED CONSTRUCTION JOINT
- Δ APPROX TOP OF STEEL CASING (HIGHEST GROUND AT EACH COLUMN)
- ▲ APPROX TOP OF GROUND @ CENTER OF COLUMN
- ◈ STAGGER SPLICES SUCH THAT NO MORE THAN 50% OF THE REINFORCING BARS ARE SPLICED AT ONE LOCATION

NOTES

1. FOR GENERAL NOTES AND LIST OF ABBREVIATIONS, SEE SHEETS 4 & 5.
2. FOR ADDITIONAL FOUNDATION NOTES, SEE SHEET 5.
3. FOR STAKE-OUT PLAN, SEE SHEET 8.
4. FOR TOP OF REMAINING CASING DETAIL, SEE SHEET 21.
5. FOR SECTIONS V-V THRU Y-Y, SEE SHEET 25. FOR SECTIONS Z-Z THRU BB-BB, SEE SHEET 26.
6. FOR PILLAR SUPPORT COLUMN, PEDESTAL & PIER DETAILS, SEE SHEETS 25 & 26.
7. FOR PILLAR DETAILS, SEE SHEETS 55 & 56.
8. FOR REINFORCEMENT BAR SCHEDULE, SEE SHEETS 64 THRU 68.
9. FOR KEYED CONSTRUCTION JOINT DETAILS, SEE BC-735M.

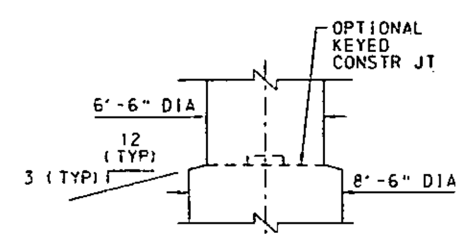
(#) GIRDER NUMBER

DRILLED SHAFT LOADS AND RESISTANCES

MAXIMUM FACTORED MOMENT = 12,064.6 FT-KIPS (STR-III)
FACTORED MOMENT RESISTANCE OF ROCK SOCKET SECTION = 17,789.9 FT-KIPS

MAXIMUM FACTORED SHEAR = 1375 KIPS (STR-III)
FACTORED MAXIMUM SHEAR RESISTANCE = 2296.0 KIPS

MAXIMUM FACTORED VERTICAL SHAFT LOAD = 3161 KIPS (STR-I)
FACTORED VERICAL SHAFT RESISTANCE = 3860 KIPS



COLUMN STEP DETAIL

NO SCALE

Mark	Description	By	Chk'd.	Recm'd.	Date
	REVISIONS				

SR 6011 PREVIOUSLY KNOWN AS LR 5

PREPARED BY: DEWBERRY ENGINEERS INC.

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF TRANSPORTATION

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3-SPAN CONT COMP STEEL MULTI-GIRDER BRIDGE

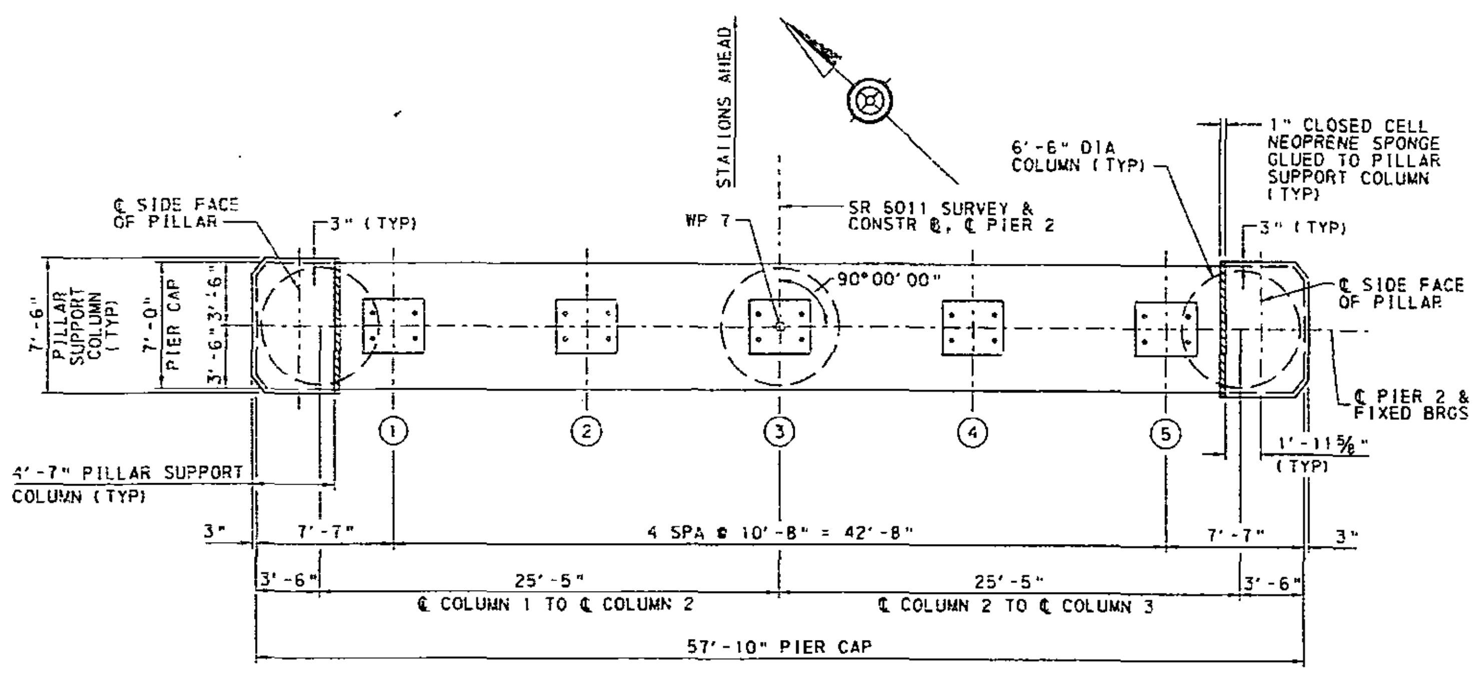
PIER 2 ELEVATION

RECOMMENDED MAY 07 2014

SHEET 24 OF 76

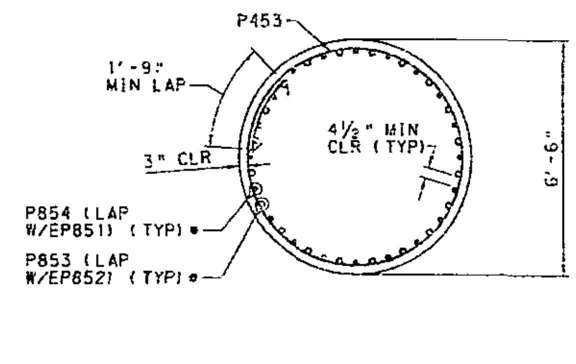
S - 33152

DES: GCP | CKD: AMM | DWG: KLL | CKD: GCP



PIER CAP PLAN

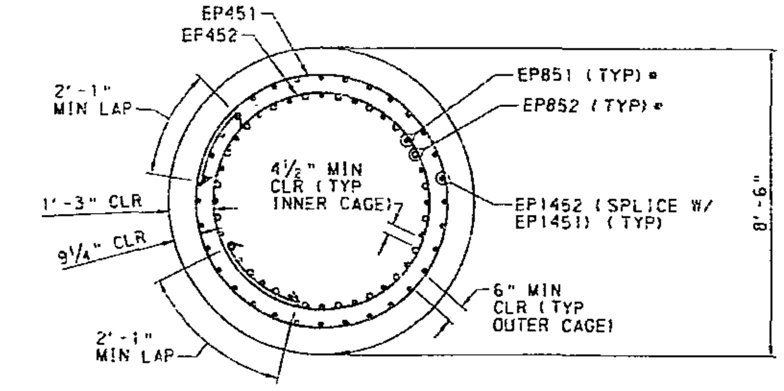
2 0 2 4 6 FEET



SECTION V-V

• ALTERNATE EVERY OTHER BAR

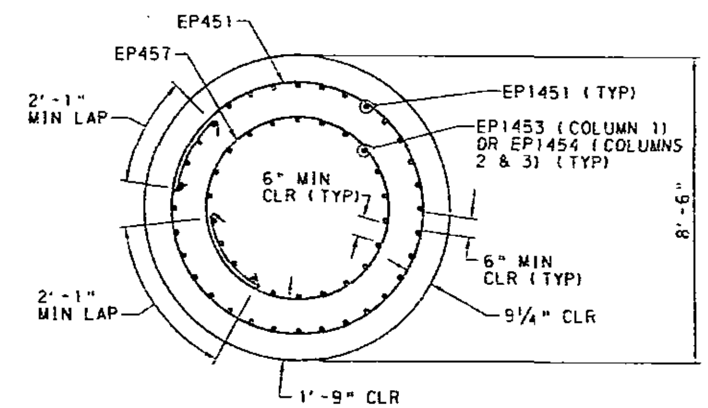
1 0 1 2 3 FEET



SECTION W-W

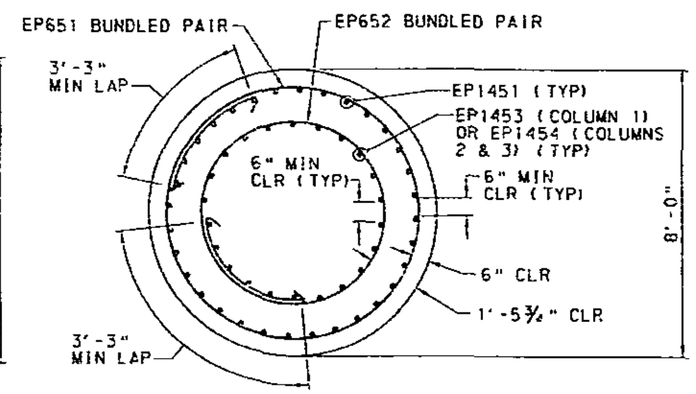
• ALTERNATE EVERY OTHER BAR

1 0 1 2 3 FEET



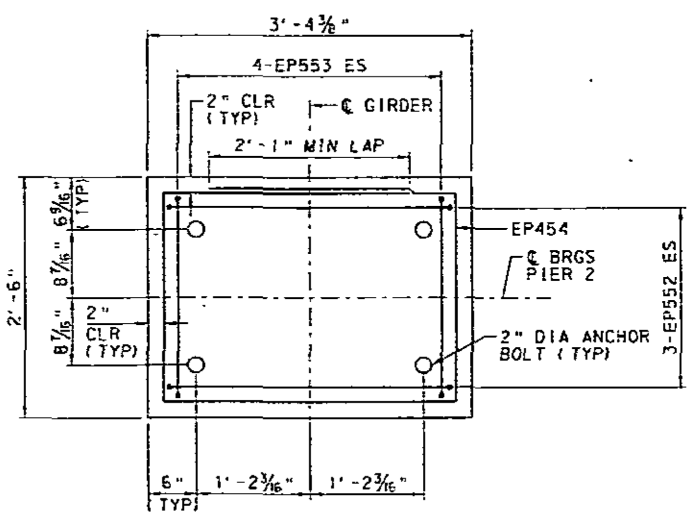
SECTION X-X

1 0 1 2 3 FEET



SECTION Y-Y

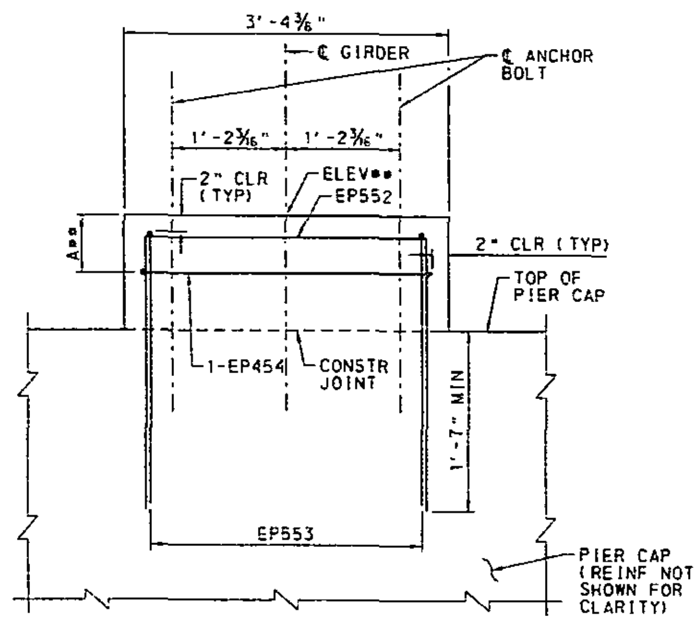
1 0 1 2 3 FEET



PEDESTAL AND ANCHOR BOLT PLAN

NOTE: PLACE REINFORCING BARS TO CLEAR ANCHOR BOLTS

6 0 6 12 INCHES



PEDESTAL ELEVATION

LOOKING STA AHEAD

•• SEE TABLE FOR ELEVATIONS & "A" DIMENSION

6 0 6 12 INCHES

NOTES

1. FOR GENERAL NOTES AND LIST OF ABBREVIATIONS, SEE SHEETS 4 & 5.
2. FOR STAKE-OUT PLAN, SEE SHEET 8.
3. FOR LOCATIONS OF SECTIONS V-V THRU Y-Y, SEE SHEET 24.
4. FOR PILLAR SUPPORT COLUMN DETAILS, SEE SHEET 26.
5. FOR FRAMING PLAN, SEE SHEETS 27 THRU 29.
6. FOR POT BEARING AND ANCHOR BOLT DETAILS, SEE SHEETS 39 THRU 43.
7. FOR PILLAR DETAILS, SEE SHEETS 55 & 56.
8. FOR REINFORCEMENT BAR SCHEDULE, SEE SHEETS 64 THRU 66.
9. CONTRACTOR MAY SUBSTITUTE SPLICED TIES AT NO ADDITIONAL COST TO THE DEPARTMENT.
10. ALL HOOKS ON TIES MUST ENGAGE VERTICAL COLUMN REINFORCING STEEL.
11. FOR KEYED CONSTRUCTION JOINT DETAILS, SEE BC-735M.

(#) GIRDER NUMBER

PEDESTAL ELEVATIONS		
GIRDER	ELEVATION	A
1	851.42	5½"
2	851.71	7¼"
3	851.92	8½"
4	851.71	7¼"
5	851.42	5½"

PREPARED BY: DEWBERRY ENGINEERS INC.

GARY L. FRENETTE PROFESSIONAL ENGINEER

Mark	Description	By	Cnk'd.	Recm'd.	Date

REVISIONS

SR 6011 PREVIOUSLY KNOWN AS LR 5

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF TRANSPORTATION

LACKAWANNA COUNTY
SR 6011 SEC 273
SEGMENT 0190 OFFSET 0404
SR 6011 - 273 STA 16+27.50
OVER ROARING BROOK, SR 3022,
AND DELAWARE, LACKAWANNA & WESTERN RAILROAD
3-SPAN CONT COMP STEEL MULTI-GIRDER BRIDGE

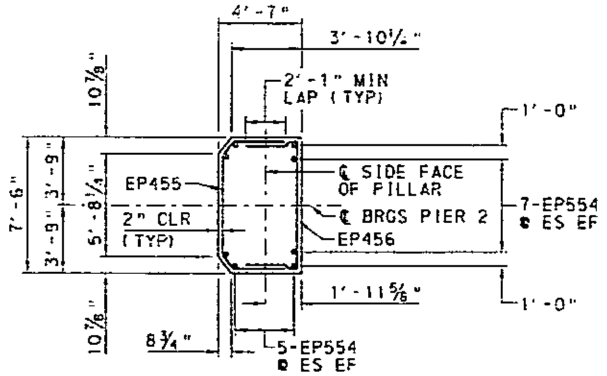
PIER 2 DETAILS - 1

RECOMMENDED MAY 07 2004

SHEET 25 OF 76

S - 33152

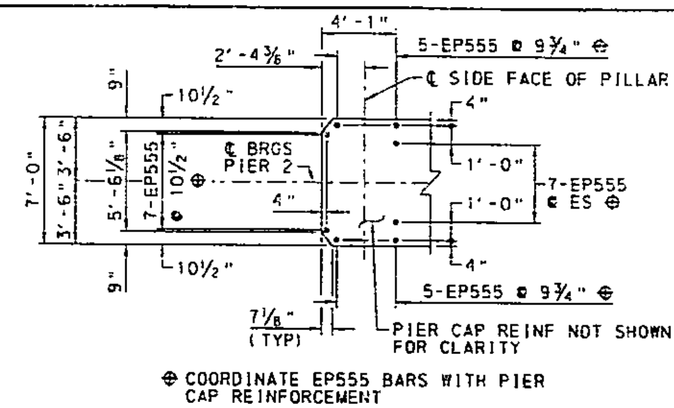
DES: GCP | CKD: AMM | DWG: KLL | CKD: GCP



SECTION CC-CC

NOTE: LEFT SUPPORT COLUMN SHOWN. RIGHT SUPPORT COLUMN SIMILAR, OPPOSITE HAND.

2 0 2 4 6 FEET

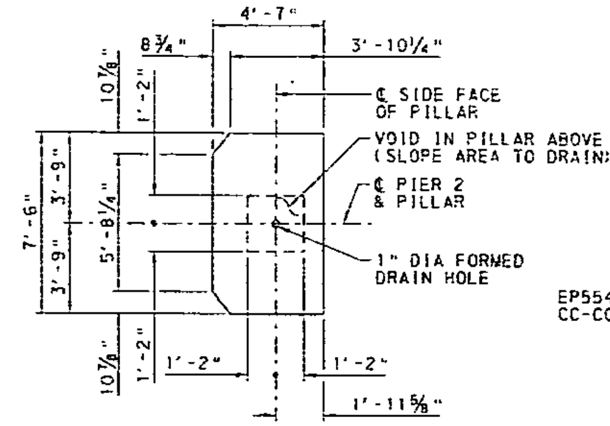


⊕ COORDINATE EP555 BARS WITH PIER CAP REINFORCEMENT

SECTION DD-DD

NOTE: LEFT END OF PIER CAP SHOWN. RIGHT END OF PIER CAP SIMILAR, OPPOSITE HAND.

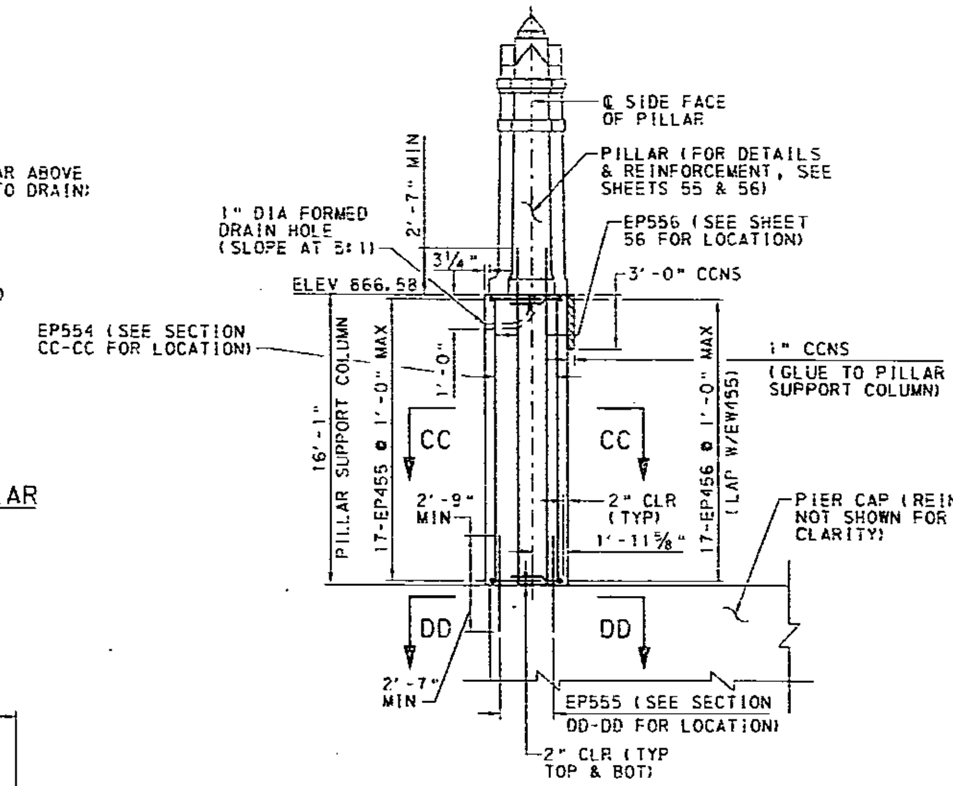
2 0 2 4 6 FEET



PLAN VIEW - TOP FACE OF PILLAR SUPPORT COLUMN DETAIL

NOTE: LEFT SUPPORT COLUMN SHOWN. RIGHT SUPPORT COLUMN SIMILAR, OPPOSITE HAND.

2 0 2 4 FEET



PILLAR SUPPORT COLUMN ELEVATION

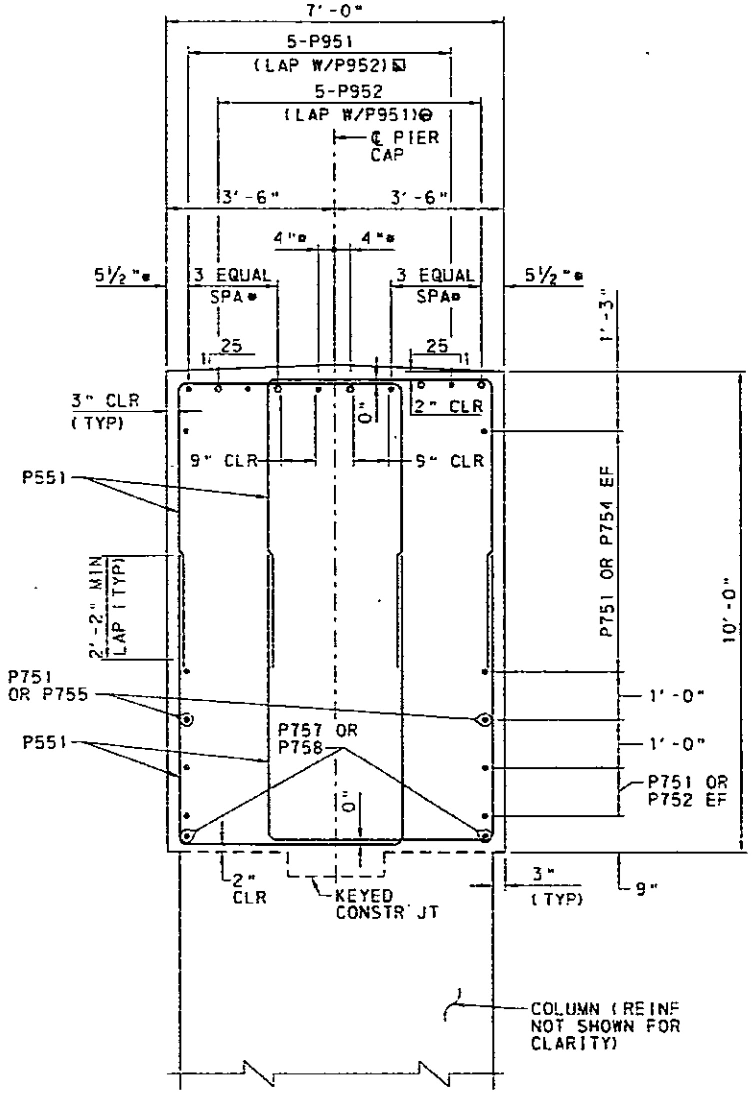
LOOKING STA AHEAD

NOTE: LEFT SUPPORT COLUMN SHOWN. RIGHT SUPPORT COLUMN SIMILAR, OPPOSITE HAND.

2 0 2 4 6 FEET

NOTES

1. FOR GENERAL NOTES AND LIST OF ABBREVIATIONS, SEE SHEETS 4 & 5.
2. FOR STAKE-OUT PLAN, SEE SHEET 8.
3. FOR LOCATIONS OF SECTIONS Z-Z THRU BB-BB, SEE SHEET 24.
4. FOR PEDESTAL DETAILS, SEE SHEET 25.
5. FOR PILLAR DETAILS, SEE SHEET 55.
6. FOR REINFORCEMENT BAR SCHEDULE, SEE SHEETS 64 THRU 66.
7. FOR KEYED CONSTRUCTION JOINT DETAILS, SEE BC-735M.

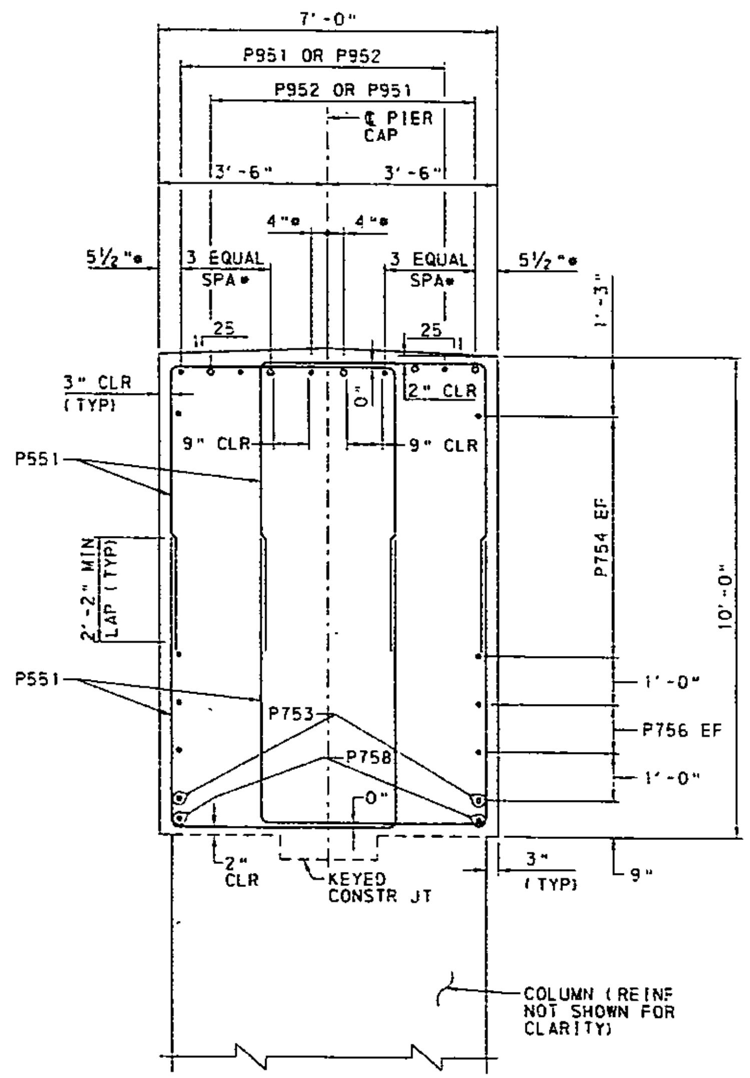


⊠ 5-P952 (LAP W/P951) ABOVE COLUMN 3

⊖ 5-P951 (LAP W/P952) ABOVE COLUMN 3

NOTE: SECTION ABOVE COLUMN 1 SHOWN. SECTION ABOVE COLUMN 3 SIMILAR, EXCEPT AS NOTED.

SECTION Z-Z



SECTION AA-AA

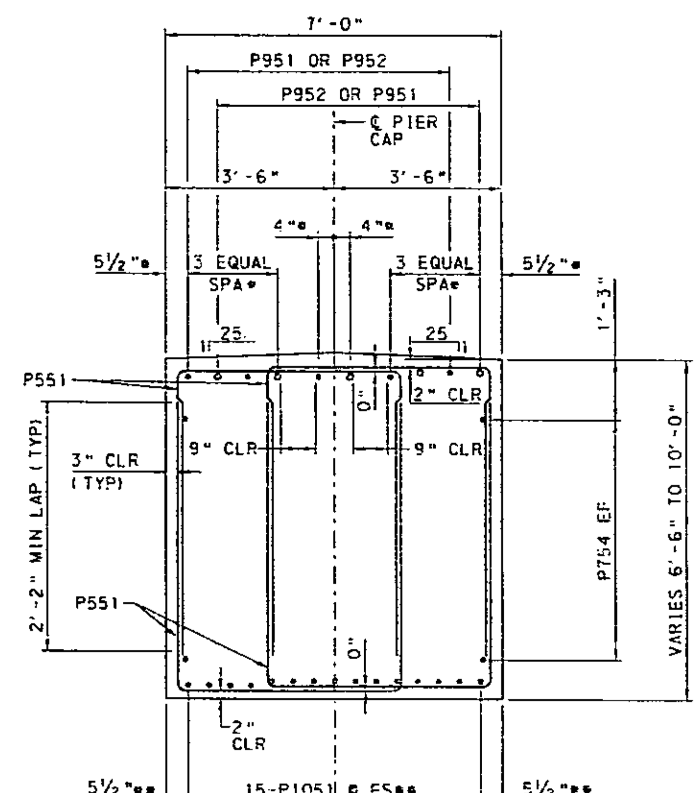
PIER CAP SECTIONS

NOTE: PROVIDE A CLEARANCE CIRCLE FROM CAP REINFORCEMENT WHERE ANCHOR BOLT EXTENDS INTO TOP OF PIER CAP THAT IS CONCENTRIC WITH AND 2" LARGER THAN THE ANCHOR BOLT.

• ADJUST SPACING TO CLEAR ANCHOR BOLTS AND PEDESTAL REINFORCEMENT.

•• COORDINATE BOTTOM FLEXURAL CAP REINFORCEMENT WITH VERTICAL COLUMN REINFORCEMENT TO AVOID INTERFERENCE.

1 0 1 2 FEET



SECTION BB-BB

Mark	Description	By	Chk'd.	Recm'd.	Date

REVISIONS

SR 6011 PREVIOUSLY KNOWN AS LR 5

PREPARED BY: DEWBERRY ENGINEERS INC.

GARY L. FRENETTE, PROFESSIONAL ENGINEER, COMMONWEALTH OF PENNSYLVANIA

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF TRANSPORTATION

LACKAWANNA COUNTY
SR 6011 SEC 273
SEGMENT 0190 OFFSET 0404
SR 6011 - 273 STA 16+27.50
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3-SPAN CONT COMP STEEL MULTI-GIRDER BRIDGE
PIER 2 DETAILS - 2

RECOMMENDED MAY 07 2014

SHEET 26 OF 76

S - 33152

DES: GCP	CKD: AMM	DWG: KLL	CKD: GCP

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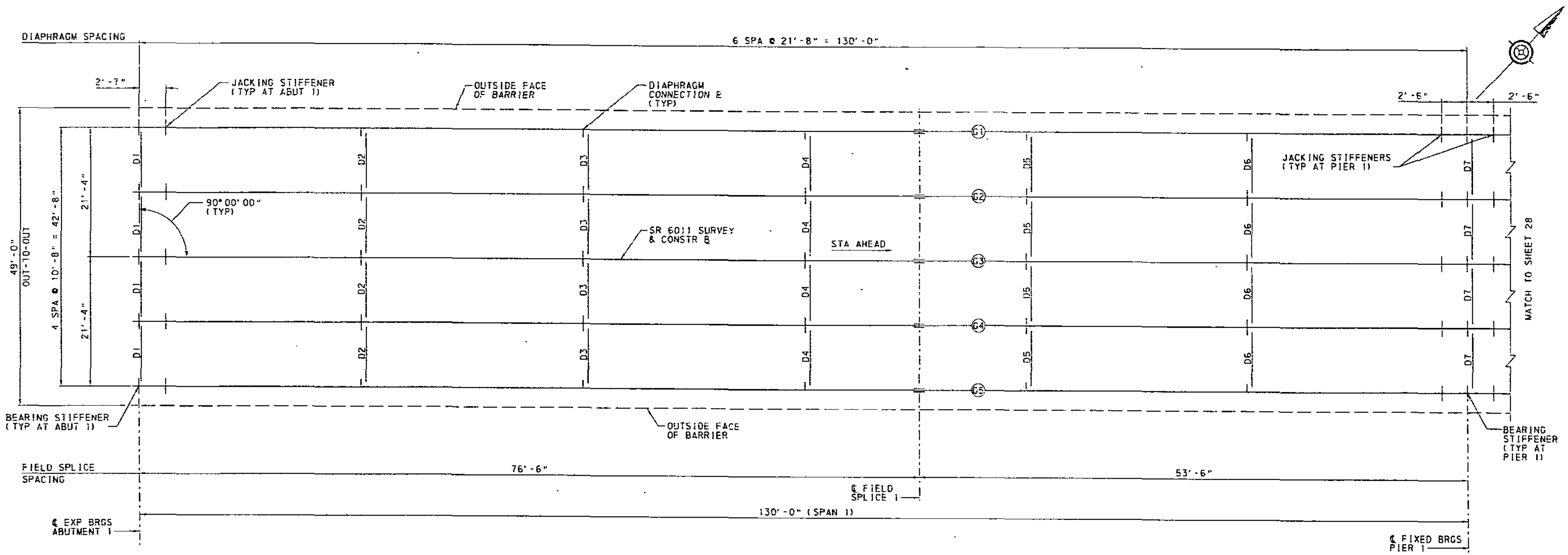

FRAMING PLAN - SPAN 1

NO SCALE

(G1) DENOTES GIRDER NUMBER

ERECTION NOTES

1. STABILITY OF PARTIAL AND COMPLETE GIRDERS IS THE RESPONSIBILITY OF THE CONTRACTOR DURING ALL STAGES OF CONSTRUCTION.
2. TEMPORARY BENTS AND GUIDE WIRES AND OTHER SUPPORT SYSTEMS, IF REQUIRED FOR ERECTION, ARE TO BE DESIGNED BY THE CONTRACTOR AND APPROVED BY THE ENGINEER.

NOTES

1. FOR STRUCTURAL STEEL NOTES, SEE SHEET 4.
2. FOR GENERAL NOTES & LIST OF ABBREVATIONS, SEE SHEETS 4 AND 5.
3. FOR STAKE-OUT PLAN, SEE SHEET 8.
4. FOR GIRDER ELEVATIONS, SEE SHEETS 30 THRU 32.
5. FOR CAMBER DIAGRAM, SEE SHEET 33.
6. FOR FIELD SPLICE DETAILS, SEE SHEET 36.
7. FOR DIAPHRAGM DETAILS, SEE SHEETS 37 AND 38.
8. FOR POT BEARING DETAILS, SEE SHEETS 39 THRU 43.
9. ALL DIMENSIONS ARE MEASURED HORIZONTAL UNLESS OTHERWISE NOTED.
10. PLACE INTERMEDIATE STIFFENERS ON INSIDE FACE OF WEB OF FASCIA GIRDERS.

FUTURE JACKING LOADS
TOTAL DEAD LOAD (KIPS)
(UNFACTORED, INCLUDING FWS)

	G1	G2	G3	G4	G5
ABUT 1	124.11	134.97	114.08	134.97	124.11
PIER 1	564.58	599.57	506.00	599.57	564.58
PIER 2	565.70	601.04	507.46	601.04	565.70
ABUT 2	124.11	134.97	114.08	134.97	124.11

Mark	Description	By	Chk'd.	Recm'd.	Date

REVISIONS

SR 6011 PREVIOUSLY KNOWN AS LR 5

PREPARED BY: DEWBERRY ENGINEERS INC.

COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL GARY L. FRENETTE ENGINEER

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF TRANSPORTATION

LACKAWANNA COUNTY
SR 6011 SEC 273
SEGMENT 0190 OFFSET 0404
SR 6011 - 273 STA 16+27.50
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3-SPAN CONT COMP STEEL MULTI-GIRDER BRIDGE
FRAMING PLAN - SPAN 1

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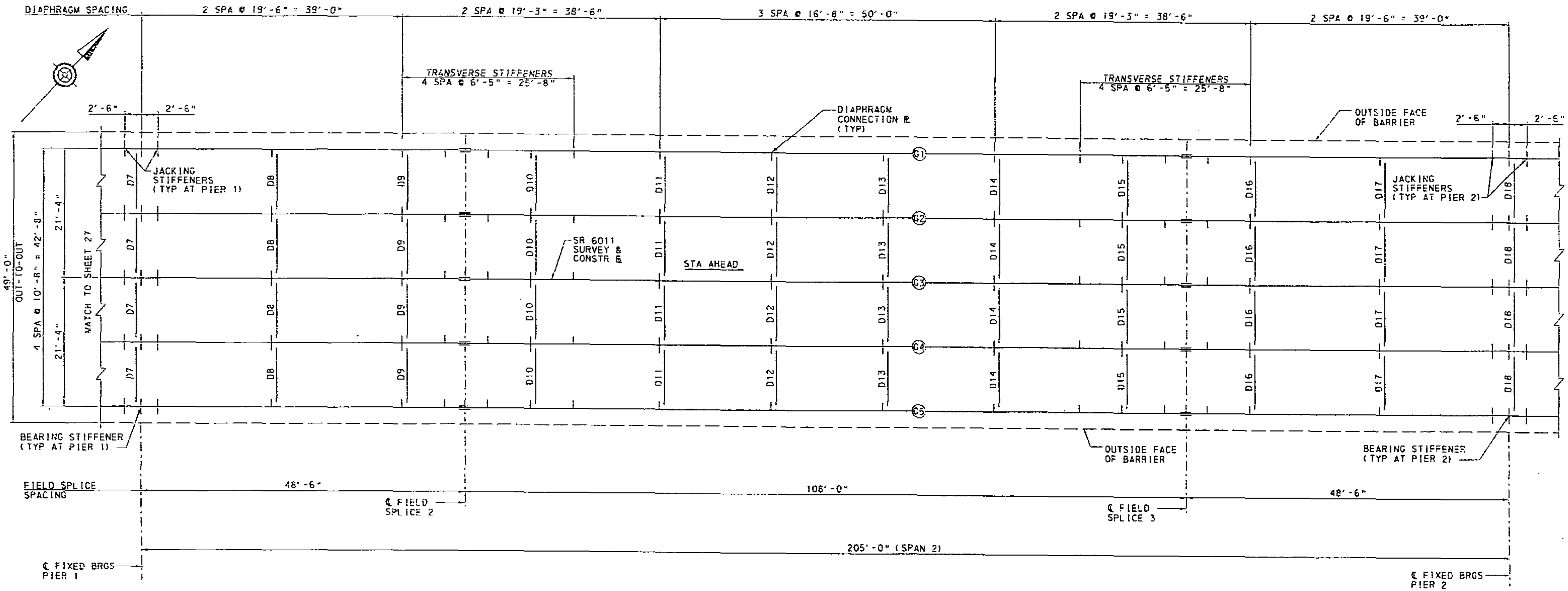
SHEET 27 OF 76

S - 33152

DES: GCP | CKD: GLF | DWG: KLL | CKD: KES



G1 DENOTES GIRDER NUMBER

FRAMING PLAN - SPAN 2

NO SCALE

NOTES

1. FOR STRUCTURAL STEEL NOTES, SEE SHEET 4.
2. FOR GENERAL NOTES & LIST OF ABBREVATIONS, SEE SHEETS 4 AND 5.
3. FOR STAKE-OUT PLAN, SEE SHEET 8.
4. FOR FUTURE JACKING LOADS, SEE SHEET 27.
5. FOR GIRDER ELEVATIONS, SEE SHEETS 30 THRU 32.
6. FOR CAMBER DIAGRAM, SEE SHEET 33.
7. FOR FIELD SPLICE DETAILS, SEE SHEET 36.
8. FOR DIAPHRAGM DETAILS, SEE SHEET 37 AND 38.
9. FOR POT BEARING DETAILS, SEE SHEETS 39 THRU 43.
10. ALL DIMENSIONS ARE MEASURED HORIZONTAL UNLESS OTHERWISE NOTED.
11. PLACE INTERMEDIATE STIFFENERS ON INSIDE FACE OF WEB OF FASCIA GIRDERS.
12. FOR ERECTION NOTES, SEE SHEET 27.

DES: GCP	CKD: GLF	DWG: KLL	CKD: KES

Mark	Description	By	Chk'd.	Recm'd.	Date

REVISIONS

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FRAMING PLAN - SPAN 2

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SHEET 28 OF 76

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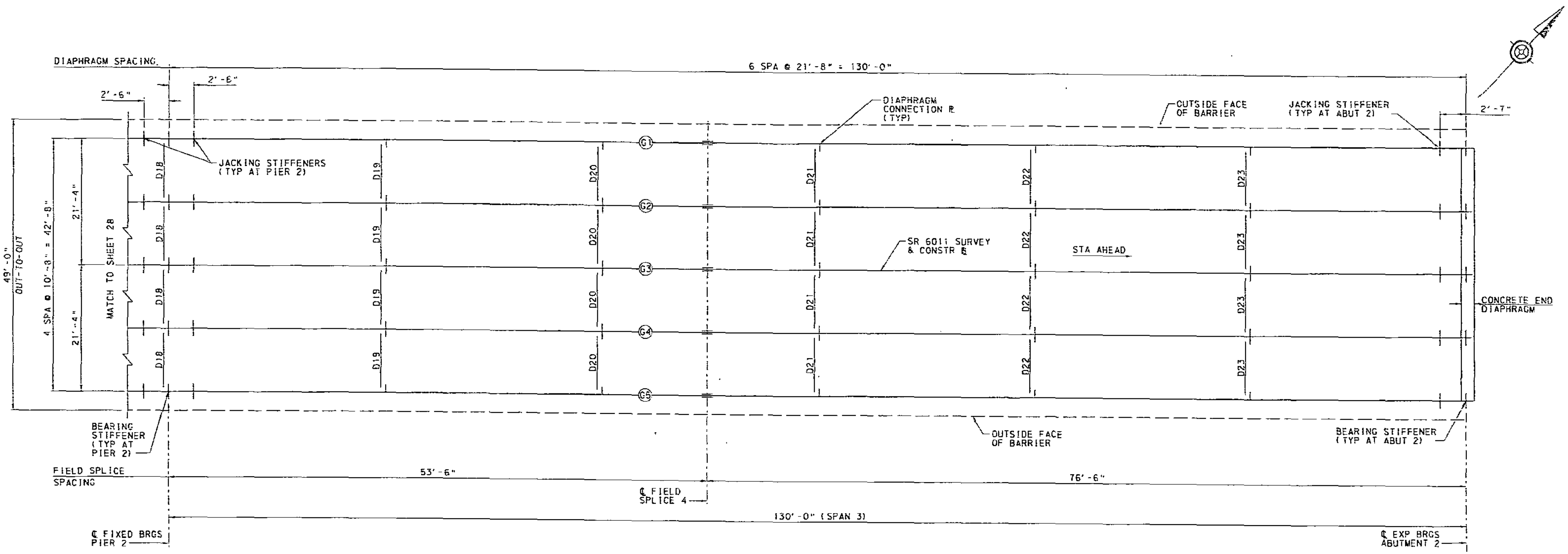

FRAMING PLAN - SPAN 3

(G1) DENOTES GIRDER NUMBER

NO SCALE

NOTES

1. FOR STRUCTURAL STEEL NOTES, SEE SHEET 4.
2. FOR GENERAL NOTES & LIST OF ABBREVATIONS, SEE SHEETS 4 AND 5.
3. FOR STAKE-OUT PLAN, SEE SHEET 8.
4. FOR FUTURE JACKING LOADS, SEE SHEET 27.
5. FOR GIRDER ELEVATIONS, SEE SHEETS 30 THRU 32.
6. FOR CAMBER DIAGRAM, SEE SHEET 33.
7. FOR FIELD SPLICE DETAILS, SEE SHEET 36.
8. FOR DIAPHRAGM DETAILS, SEE SHEET 37 AND 38.
9. FOR POT BEARING DETAILS, SEE SHEETS 39 THRU 43.
10. ALL DIMENSIONS ARE MEASURED HORIZONTAL UNLESS OTHERWISE NOTED.
11. PLACE INTERMEDIATE STIFFENERS ON INSIDE FACE OF WEB OF FASCIA GIRDERS.
12. FOR ERECTION NOTES, SEE SHEET 27.

Mark	Description	By	Chk'd.	Recm'd.	Date

REVISIONS

SR 6011 PREVIOUSLY KNOWN AS LR 5

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DEWBERRY ENGINEERS INC.

COMMONWEALTH OF PENNSYLVANIA PROFESSIONAL GARY L. FRENETTE ENGINEER

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FRAMING PLAN - SPAN 3

RECOMMENDED MAY 07 2014

SHEET 29 OF 76

S - 33152

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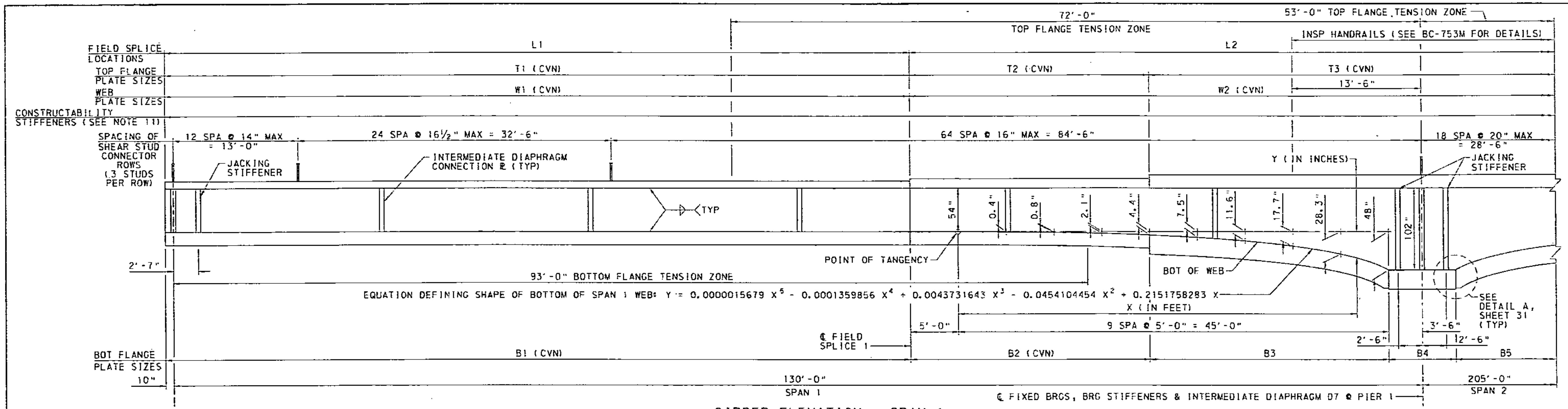


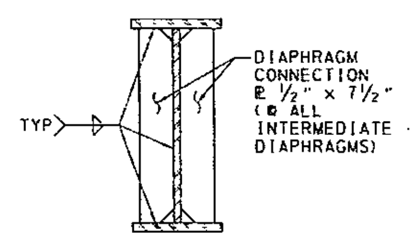
GIRDER ELEVATION - SPAN 1

NO SCALE

GIRDER	SECTION NO.		NON-COMPOSITE I	NON-COMPOSITE D	COMPOSITE 3N I	COMPOSITE 3N D	COMPOSITE N I	COMPOSITE N D
EXTERIOR	1	P	35023	23.775	66945	36.397	91963	46.185
		N	35023	23.775	-	-	47733	26.958
	2	P	42835	26.179	73302	36.316	100613	45.323
		N	42835	26.179	-	-	54408	30.157
	3	P	42835 (L) 50815 (R)	26.179 (L) 28.253 (R)	73302 (L) 85714 (R)	36.316 (L) 38.747 (R)	100613 (L) 117640 (R)	45.323 (L) 48.275 (R)
		N	42835 (L) 50815 (R)	26.179 (L) 28.253 (R)	-	-	54408 (L) 64034 (R)	30.157 (L) 32.350 (R)
	4	P	67079 (L) 232888 (R)	27.941 (L) 48.873 (R)	106363 (L) 339641 (R)	37.454 (L) 61.083 (R)	145819 (L) 461512 (R)	46.956 (L) 75.000 (R)
		N	67079 (L) 232888 (R)	27.941 (L) 48.873 (R)	-	-	81559 (L) 271514 (R)	31.550 (L) 53.364 (R)
	5	P	232888	48.873	339641	61.083	461512	75.000
		N	232888	48.873	-	-	271514	53.364
	6	P	232888 (L) 109438 (R)	48.873 (L) 34.888 (R)	339641 (L) 167561 (R)	61.083 (L) 45.455 (R)	461512 (L) 228851 (R)	75.000 (L) 56.559 (R)
		N	232888 (L) 109438 (R)	48.873 (L) 34.888 (R)	-	-	271514 (L) 130739 (R)	53.364 (L) 38.851 (R)
INTERIOR	1	P	35023	23.775	71866	38.334	96941	48.100
		N	35023	23.775	-	-	50488	30.083
	2	P	42835	26.179	78419	38.012	106445	47.222
		N	42835	26.179	-	-	57011	31.054
	3	P	42835 (L) 50815 (R)	26.179 (L) 28.253 (R)	78419 (L) 91651 (R)	38.012 (L) 40.526 (R)	106445 (L) 124529 (R)	47.222 (L) 50.309 (R)
		N	42835 (L) 50815 (R)	26.179 (L) 28.253 (R)	-	-	57011 (L) 67025 (R)	31.054 (L) 33.278 (R)
	4	P	67079 (L) 232888 (R)	27.941 (L) 48.873 (R)	113435 (L) 360337 (R)	39.163 (L) 63.448 (R)	154800 (L) 491526 (R)	49.102 (L) 78.421 (R)
		N	67079 (L) 232888 (R)	27.941 (L) 48.873 (R)	-	-	84915 (L) 280749 (R)	32.388 (L) 54.439 (R)
	5	P	232888	48.873	360337	63.448	491526	78.421
		N	232888	48.873	-	-	280749	54.439
	6	P	232888 (L) 109438 (R)	48.873 (L) 34.888 (R)	360337 (L) 178330 (R)	63.448 (L) 47.409 (R)	491526 (L) 243207 (R)	78.421 (L) 59.148 (R)
		N	232888 (L) 109438 (R)	48.873 (L) 34.888 (R)	-	-	280749 (L) 135738 (R)	54.439 (L) 39.782 (R)

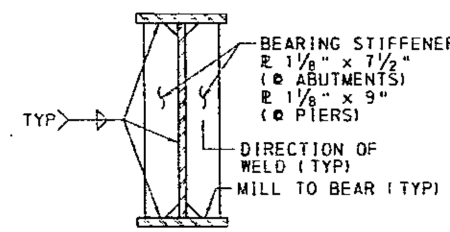
SECTION PROPERTIES (INCH UNITS)

I = MOMENT OF INERTIA (IN^4)
D = DISTANCE FROM NEUTRAL AXIS TO BOTTOM OF SECTION
P = POSITIVE MOMENT
N = NEGATIVE MOMENT
(L) = LEFT END OF SECTION
(R) = RIGHT END OF SECTION



DIAPHRAGM CONNECTION PLATE DETAIL**

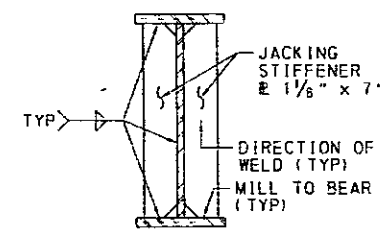
NO SCALE



BEARING STIFFENER DETAIL**

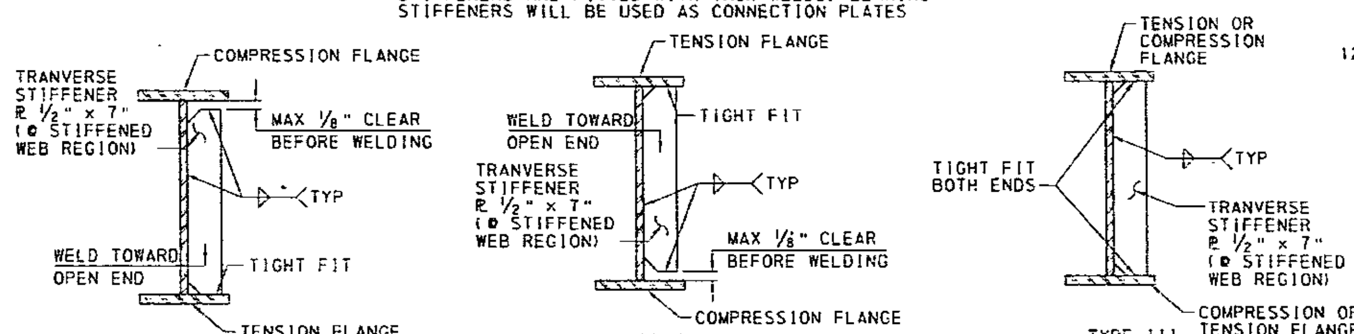
NO SCALE

NOTE: DIRECTION OF WELDS IS NOT APPLICABLE IF STIFFENERS ARE FITTED WITH TACK WELDS. BEARING STIFFENERS WILL BE USED AS CONNECTION PLATES



JACKING STIFFENER DETAIL**

NO SCALE



TRANSVERSE STIFFENER DETAIL**

NO SCALE

NOTE: DIRECTION OF WELDS IS NOT APPLICABLE IF STIFFENERS ARE FITTED WITH TACK WELDS

** SEE CORNER CHAMFER DETAIL FOR LIMITS OF WELDS, SHEET 31

GIRDER DIMENSIONS

FIELD SPLICE LOCATIONS		WEB PLATE SIZES		TOP FLANGE PLATE SIZES		BOTTOM FLANGE PLATE SIZES		SECTION NO. ¤
L1	77'-4"	W1	9/16"x54"x77'-4"	T1	¾"x18"x77'-4"	B1	1⅜"x18"x77'-4"	1
L2	102'-0"	W2	13/16"xVARIES 54" TO 102" TO 72"	T2	1"x18"x25'-0"	B2	1⅜"x18"x25'-0"	2 3
				T3	1⅜"x18"x57'-0"	B3	2"x18"x25'-0"	4
						B4	2"x18"x7'-0"	5
						B5	2"x18"x25'-0"	6

VAR = VARIABLE DEPTH

¤ REFER TO TABLE AT LEFT

NOTES

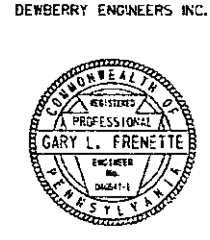
1. FOR GENERAL NOTES AND LIST OF ABBREVIATIONS, SEE SHEETS 4 & 5.
2. FOR INTERMEDIATE DIAPHRAGM AND TRANSVERSE STIFFENER SPACING, SEE FRAMING PLAN, SHEETS 27 THRU 29.
3. FOR SHEAR CONNECTOR DETAILS, SEE SHEET 31 AND BC-753M.
4. FOR WELDED SPLICE DETAILS AND TABLE OF MINIMUM FILLET WELD SIZES, SEE SHEET 32.
5. FOR CAMBER DIAGRAM, SEE SHEET 33.
6. FOR MOMENT AND SHEAR DIAGRAMS, SEE SHEETS 34 & 35.
7. FOR GIRDER FIELD SPLICE DETAILS, SEE SHEET 36.
8. FOR ADDITIONAL NOTES AND DETAILS, SEE BC-753M.
9. PROVIDE HANDRAIL ALONG INSIDE FACE OF FASCIA BEAMS AND ALONG BOTH SIDES OF INTERIOR BEAMS, SEE BC-753M FOR DETAILS.
10. BEARING AREA: PROVIDE BOTTOM FLANGE IN A TRUE HORIZONTAL PLANE IN TRANVERSE DIRECTION AND A TRUE PLANE LONGITUDINALLY.
11. PROVIDE ADDITIONAL ½" x 7" TRANSVERSE STIFFENERS ON GIRDERS 1 & 5 AS REQUIRED FOR OVERHANG FORMING. REFER TO OVERHANG FORMING NOTE, SHEET 51, AND TO BC-753M FOR STIFFENER DETAILS.
12. CHARPY V-NOTCH TEST ALL PLATES MARKED "CVN" AND ALL FIELD SPLICE PLATES (EXCEPT FILLER PLATES) IN ACCORDANCE WITH PUBLICATION 408, SECTION 1105.02(c)5.

Mark	Description	By	Chk'd.	Recm'd.	Date

REVISIONS

SR 6011 PREVIOUSLY KNOWN AS LR 5

PREPARED BY: DEWBERRY ENGINEERS INC.



COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF TRANSPORTATION

LACKAWANNA COUNTY
SR 6011 SEC 273
SEGMENT 0190 OFFSET 0404
SR 6011 - 273 STA 16+27.50
OVER ROARING BROOK, SR 3022,
AND DELAWARE, LACKAWANNA & WESTERN RAILROAD
3-SPAN CONT COMP STEEL MULTI-GIRDER BRIDGE

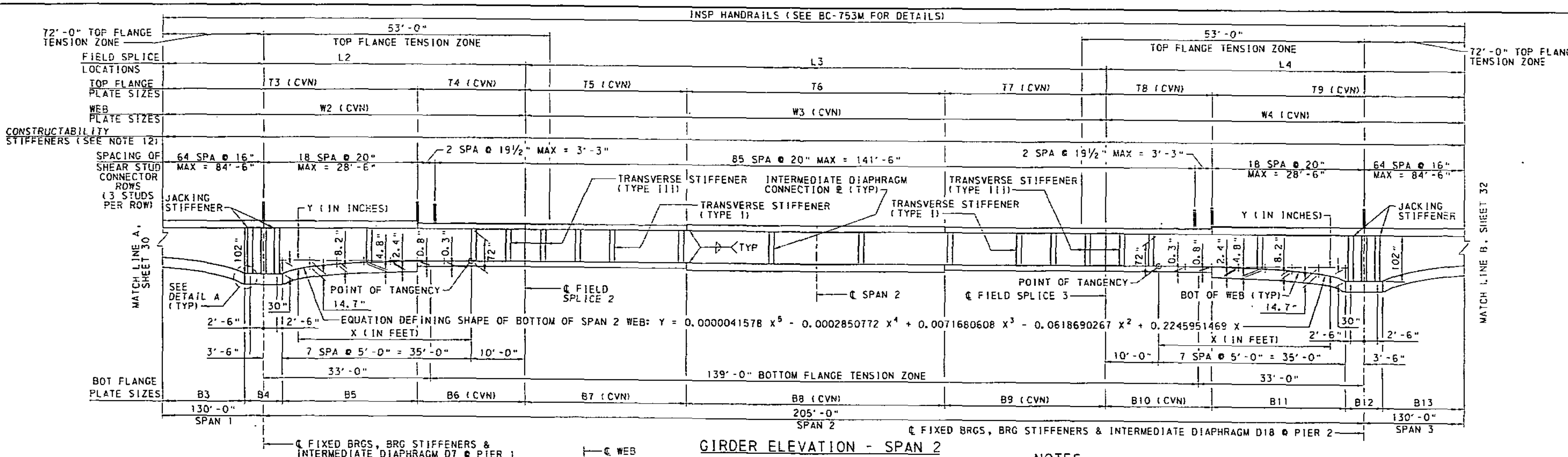
GIRDER ELEVATION & DETAILS - 1

RECOMMENDED ____ MAY 0 7 2014

SHEET 30 OF 76

S - 33152

DES: KES	CKD: GCP	DWG: KLL	CKD: KES



GIRDER ELEVATION - SPAN 2

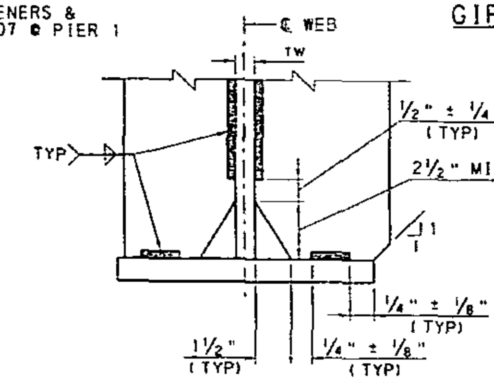
NO SCALE

GIRDER	SECTION NO.		NON-COMPOSITE I	NON-COMPOSITE D	COMPOSITE 3N I	COMPOSITE 3N D	COMPOSITE N I	COMPOSITE N D
EXTERIOR	4 (16**)	P	67079 (L) 232888 (R)	27.941 (L) 48.873 (R)	106363 (L) 339641 (R)	37.454 (L) 61.083 (R)	145819 (L) 461512 (R)	46.956 (L) 75.000 (R)
		N	67079 (L) 232888 (R)	27.941 (L) 48.873 (R)	-	-	81559 (L) 271514 (R)	31.550 (L) 53.364 (R)
	5 (15**)	P	232888	48.873	339641	61.083	461512	75.000
		N	232888	48.873	-	-	271514	53.364
	6 (14**)	P	232888 (L) 109438 (R)	48.873 (L) 34.888 (R)	339641 (L) 167561 (R)	61.083 (L) 45.455 (R)	461512 (L) 228851 (R)	75.000 (L) 56.559 (R)
		N	232888 (L) 109438 (R)	48.873 (L) 34.888 (R)	-	-	271514 (L) 130739 (R)	53.364 (L) 38.851 (R)
	7 (13**)	P	75458 (L) 73236 (R)	37.465 (L) 37.000 (R)	121253 (L) 117923 (R)	48.935 (L) 48.408 (R)	164329 (L) 159786 (R)	59.666 (L) 59.036 (R)
		N	75458 (L) 73236 (R)	37.465 (L) 37.000 (R)	-	-	92769 (L) 90141 (R)	41.914 (L) 41.430 (R)
	8 (12**)	P	73236	37.000	117923	48.408	159786	59.036
		N	73236	37.000	-	-	90141	41.430
	9 (11**)	P	65460	37.000	107430	50.231	142419	61.181
		N	65460	37.000	-	-	81939	42.335
	10	P	77557	35.414	125466	48.286	167965	59.639
		N	77557	35.414	-	-	96039	40.505
INTERIOR	4 (16**)	P	67079 (L) 232888 (R)	27.941 (L) 48.873 (R)	113435 (L) 360337 (R)	39.163 (L) 63.448 (R)	154800 (L) 491526 (R)	49.102 (L) 78.421 (R)
		N	67079 (L) 232888 (R)	27.941 (L) 48.873 (R)	-	-	84915 (L) 280749 (R)	32.388 (L) 54.439 (R)
	5 (15**)	P	232888	48.873	360337	63.448	491526	78.421
		N	232888	48.873	-	-	280749	54.439
	6 (14**)	P	232888 (L) 109438 (R)	48.873 (L) 34.888 (R)	360337 (L) 178330 (R)	63.448 (L) 47.409 (R)	491526 (L) 243207 (R)	78.421 (L) 59.148 (R)
		N	232888 (L) 109438 (R)	48.873 (L) 34.888 (R)	-	-	280749 (L) 135738 (R)	54.439 (L) 39.782 (R)
	7 (13**)	P	75458 (L) 73236 (R)	37.465 (L) 37.000 (R)	129180 (L) 125639 (R)	50.916 (L) 50.373 (R)	173758 (L) 168929 (R)	61.997 (L) 61.338 (R)
		N	75458 (L) 73236 (R)	37.465 (L) 37.000 (R)	-	-	96718 (L) 93993 (R)	42.931 (L) 42.441 (R)
	8 (12**)	P	73236	37.000	125639	50.373	168929	61.338
		N	73236	37.000	-	-	93993	42.441
	9 (11**)	P	65460	37.000	114168	52.349	149587	63.400
		N	65460	37.000	-	-	85579	43.514
	10	P	77557	35.414	133466	50.430	176963	62.022
		N	77557	35.414	-	-	100192	41.650

SECTION PROPERTIES (INCH UNITS)

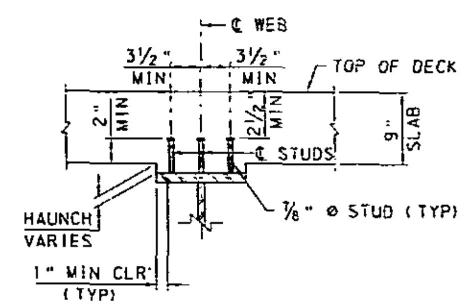
** OPPOSITE HAND

I = MOMENT OF INERTIA (IN^4)
D = DISTANCE FROM NEUTRAL AXIS TO BOTTOM OF SECTION
P = POSITIVE MOMENT
N = NEGATIVE MOMENT
(L) = LEFT END OF SECTION
(R) = RIGHT END OF SECTION



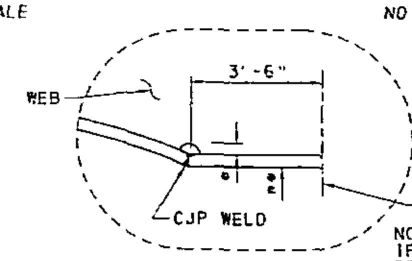
CORNER CHAMFER DETAIL

NO SCALE



SHEAR CONNECTOR DETAIL

NO SCALE



* 1¾" MAX WELD ACCESS HOLE
** BOTTOM FLANGE

NOTE: ELIMINATE WELD ACCESS HOLE IF FLANGE SPLICE IS PERFORMED PRIOR TO WEB CONNECTION

NOTE: CONTRACTOR HAS AN OPTION OF USING BENT FLANGE PLATE IN LIEU OF WELDING SPLICED FLANGE PLATE AS SHOWN

DETAIL A

NO SCALE

GIRDER DIMENSIONS

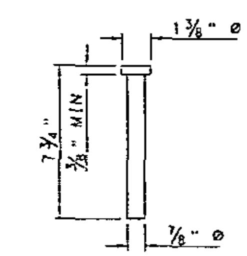
FIELD SPLICE LOCATIONS		WEB PLATE SIZES		TOP FLANGE PLATE SIZES		BOTTOM FLANGE PLATE SIZES		SECTION NO. *
L2	102'-0"	W2	13/16"xVARIES 54" TO 102" TO 72"	T3	1⅜"x18"x57'-0"	B3	2"x18"x25'-0"	4
						B4	2"x18"x7'-0"	5
						B5	2"x18"x25'-0"	6
				T4	1"x18"x20'-0"	B6	1"x18"x20'-0"	7
								8
L3	108'-0"	W3	5/16"x72"x108'-0"	T5	1"x18"x30'-0"	B7	1"x18"x30'-0"	9
				T6	1⅜"x18"x48'-0"	B8	1⅜"x18"x48'-0"	10
				T7	1"x18"x30'-0"	B9	1"x18"x30'-0"	11
L4	102'-0"	W4	13/16"xVARIES 72" TO 102" TO 54"	T8	1"x18"x20'-0"	B10	1"x18"x20'-0"	12
								13
				T9	1⅜"x18"x57'-0"	B11	2"x18"x25'-0"	14
						B12	2"x18"x7'-0"	15
						B13	2"x18"x25'-0"	16

VAR = VARIABLE DEPTH

* REFER TO TABLE AT LEFT

NOTES

1. FOR GENERAL NOTES AND LIST OF ABBREVIATIONS, SEE SHEETS 4 & 5.
3. FOR INTERMEDIATE DIAPHRAGM AND TRANSVERSE STIFFENER SPACING, SEE FRAMING PLAN, SHEETS 27 THRU 29.
4. FOR JACKING STIFFENER, BEARING STIFFENER, TRANSVERSE STIFFENER AND DIAPHRAGM CONNECTION PLATE DETAILS, SEE SHEET 30 AND BC-753M.
5. FOR WELDED SPLICE DETAILS AND TABLE OF MINIMUM FILLET WELD SIZES, SEE SHEET 32.
6. FOR CAMBER DIAGRAM, SEE SHEET 33.
7. FOR MOMENT AND SHEAR DIAGRAMS, SEE SHEETS 34 & 35.
8. FOR GIRDER FIELD SPLICE DETAILS, SEE SHEET 36.
9. FOR ADDITIONAL NOTES AND DETAILS, SEE BC-753M.
10. PROVIDE HANDRAIL ALONG INSIDE FACE OF FASCIA BEAMS AND ALONG BOTH SIDES OF INTERIOR BEAMS, SEE BC-753M FOR DETAILS.
11. BEARING AREA: PROVIDE BOTTOM FLANGE IN A TRUE HORIZONTAL PLANE IN TRANSVERSE DIRECTION AND A TRUE PLANE LONGITUDINALLY.
12. PROVIDE ADDITIONAL ½" x 7" TRANSVERSE STIFFENERS ON GIRDERS 1 & 5 AS REQUIRED FOR OVERHANG FORMING. REFER TO OVERHANG FORMING NOTE, SHEET 51, AND TO BC-753M FOR STIFFENER DETAILS.
13. CHARPY V-NOTCH TEST ALL PLATES MARKED "CVN" AND ALL FIELD SPLICE PLATES (EXCEPT FILLER PLATES) IN ACCORDANCE WITH PUBLICATION 408, SECTION 1105.02(c)5.



STUD DETAIL

NO SCALE

Mark	Description	By	Chk'd.	Recm'd.	Date

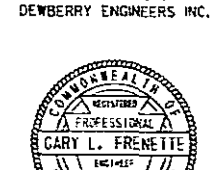
REVISIONS

SR 6011 PREVIOUSLY KNOWN AS LR 5

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF TRANSPORTATION

LACKAWANNA COUNTY
SR 6011 SEC 273
SEGMENT 0190 OFFSET 0404
SR 6011 - 273 STA 16+27.50
OVER ROARING BROOK, SR 3022,
AND DELAWARE, LACKAWANNA & WESTERN RAILROAD
3-SPAN CONT COMP STEEL MULTI-GIRDER BRIDGE
GIRDER ELEVATION & DETAILS - 2

PREPARED BY: DEWBERRY ENGINEERS INC.

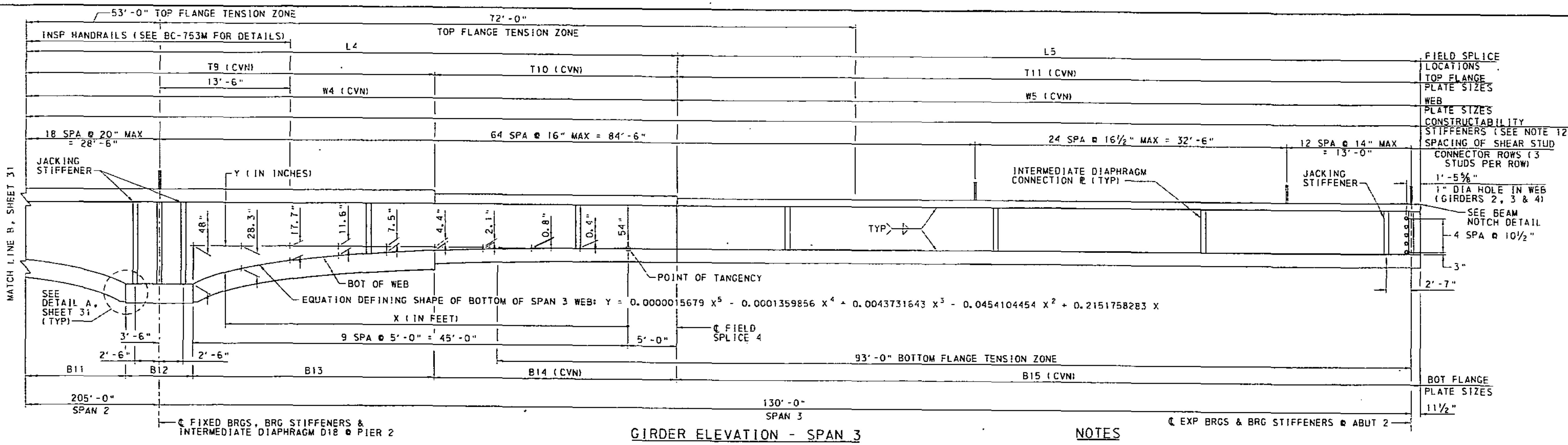


RECOMMENDED MAY 07 2014

SHEET 31 OF 76

S - 33152

DES: KES | CKD: GCP | DWG: KLL | CKD: KES



GIRDER ELEVATION - SPAN 3

NO SCALE

NOTES

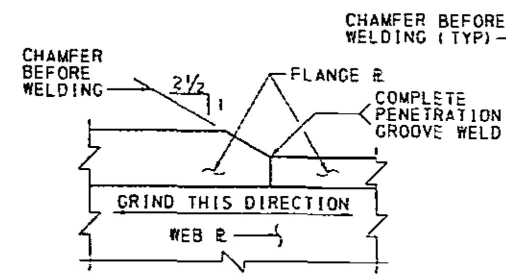
1. FOR GENERAL NOTES & LIST OF ABBREVIATIONS, SEE SHEETS 4 & 5.
3. FOR INTERMEDIATE DIAPHRAGM AND TRANSVERSE STIFFENER SPACING, SEE FRAMING PLAN, SHEETS 27 THRU 29.
4. FOR JACKING STIFFENER, BEARING STIFFENER, TRANSVERSE STIFFENER AND DIAPHRAGM CONNECTION PLATE DETAILS, SEE SHEET 30 AND BC-753M.
5. FOR SHEAR CONNECTOR DETAILS, SEE SHEET 31 AND BC-753M.
6. FOR CAMBER DIAGRAM, SEE SHEET 33.
7. FOR MOMENT AND SHEAR DIAGRAMS, SEE SHEETS 34 & 35.
8. FOR GIRDER FIELD SPLICE DETAILS, SEE SHEET 36.
9. FOR ADDITIONAL NOTES AND DETAILS, SEE BC-753M.
10. PROVIDE HANDRAIL ALONG INSIDE FACE OF FASCIA BEAMS AND ALONG BOTH SIDES OF INTERIOR BEAMS, SEE BC-753M FOR DETAILS.
11. BEARING AREA: PROVIDE BOTTOM FLANGE IN A TRUE HORIZONTAL PLANE IN TRANVERSE DIRECTION AND A TRUE PLANE LONGITUDINALLY.
12. PROVIDE ADDITIONAL ½" x 7" TRANSVERSE STIFFENERS ON GIRDERS 1 & 5 AS REQUIRE FOR OVERHANG FORMING. REFER TO OVERHANG FORMING NOTE, SHEET 51, AND TO BC-753M FOR STIFFENER DETAILS.
13. CHARPY V-NOTCH TEST ALL PLATES MARKED "CVN" AND ALL FIELD SPLICE PLATES (EXCEPT FILLER PLATES) IN ACCORDANCE WITH PUBLICATION 408, SECTION 1105.02(c)5.

SECTION PROPERTIES (INCH UNITS)

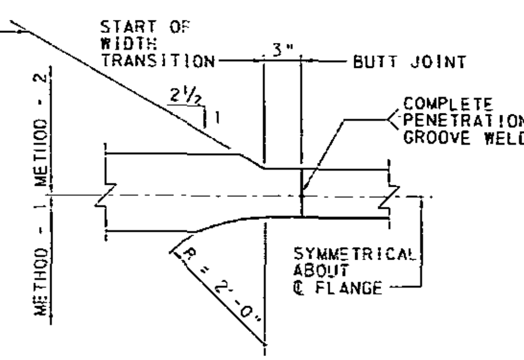
GIRDER	SECTION NO.		NON-COMPOSITE I	NON-COMPOSITE D	COMPOSITE 3N I	COMPOSITE 3N D	COMPOSITE N I	COMPOSITE N D
EXTERIOR	14	P	109438 (L) 232888 (R)	34.888 (L) 48.873 (R)	167561 (L) 339641 (R)	45.455 (L) 61.083 (R)	228851 (L) 461512 (R)	56.559 (L) 75.000 (R)
		N	109438 (L) 232888 (R)	34.888 (L) 48.873 (R)	-	-	130739 (L) 271514 (R)	38.851 (L) 53.364 (R)
	15	P	232888	48.873	339641	61.083	461512	75.000
		N	232888	48.873	-	-	271514	53.364
	16	P	232888 (L) 67079 (R)	48.873 (L) 27.941 (R)	339641 (L) 106363 (R)	61.083 (L) 37.454 (R)	461512 (L) 145819 (R)	75.000 (L) 46.956 (R)
		N	232888 (L) 67079 (R)	48.873 (L) 27.941 (R)	-	-	271514 (L) 81559 (R)	53.364 (L) 31.550 (R)
	17	P	50815 (L) 42835 (R)	28.253 (L) 26.179 (R)	85714 (L) 73302 (R)	38.747 (L) 36.316 (R)	117640 (L) 100613 (R)	48.275 (L) 45.323 (R)
		N	50815 (L) 42835 (R)	28.253 (L) 26.179 (R)	-	-	64034 (L) 54408 (R)	32.350 (L) 30.157 (R)
	18	P	42835	26.179	73302	36.316	100613	45.323
		N	42835	26.179	-	-	54408	30.157
	19	P	35023	23.775	66945	36.397	91963	46.185
		N	35023	23.775	-	-	47733	28.958
INTERIOR	14	P	109438 (L) 232888 (R)	34.888 (L) 48.873 (R)	178330 (L) 360337 (R)	47.409 (L) 63.448 (R)	243207 (L) 491526 (R)	59.148 (L) 78.421 (R)
		N	109438 (L) 232888 (R)	34.888 (L) 48.873 (R)	-	-	135738 (L) 280749 (R)	39.782 (L) 54.439 (R)
	15	P	232888	48.873	360337	63.448	491526	78.421
		N	232888	48.873	-	-	280749	54.439
	16	P	232888 (L) 67079 (R)	48.873 (L) 27.941 (R)	360337 (L) 113435 (R)	63.448 (L) 39.163 (R)	491526 (L) 154800 (R)	78.421 (L) 49.102 (R)
		N	232888 (L) 67079 (R)	48.873 (L) 27.941 (R)	-	-	280749 (L) 84915 (R)	54.439 (L) 32.388 (R)
	17	P	50815 (L) 42835 (R)	28.253 (L) 26.179 (R)	91651 (L) 78419 (R)	40.526 (L) 38.012 (R)	124529 (L) 106445 (R)	50.309 (L) 47.222 (R)
		N	50815 (L) 42835 (R)	28.253 (L) 26.179 (R)	-	-	67025 (L) 57011 (R)	33.278 (L) 31.054 (R)
	18	P	42835	26.179	78419	38.012	106445	47.222
		N	42835	26.179	-	-	57011	31.054
	19	P	35023	23.775	71866	38.334	96941	48.100
		N	35023	23.775	-	-	50488	30.083

I = MOMENT OF INERTIA (IN^4)
D = DISTANCE FROM NEUTRAL AXIS TO BOTTOM OF SECTION
P = POSITIVE MOMENT
N = NEGATIVE MOMENT
(L) = LEFT END OF SECTION
(R) = RIGHT END OF SECTION

TABLE OF MINIMUM FILLET WELD SIZES	
THICKER PLATE JOINED	WELD SIZE
TO ¾" INCLUSIVE	¼"
OVER ¾"	5/16"



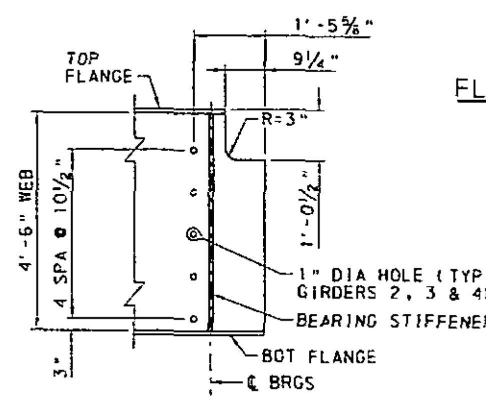
ELEVATION



PLAN

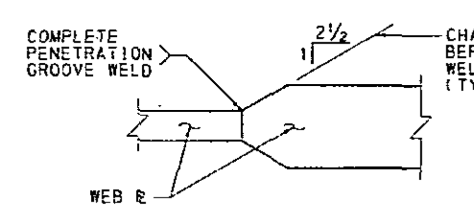
FLANGE SPLICE DETAILS

NO SCALE



BEAM NOTCH

NO SCALE



WEB SPLICE DETAIL (PLAN)

NO SCALE

GIRDER DIMENSIONS								
FIELD SPLICE LOCATIONS		WEB PLATE SIZES		TOP FLANGE PLATE SIZES		BOTTOM FLANGE PLATE SIZES		SECTION NO. *
L4	102'-0"	W4	13/16"xVARIES 72" TO 102" TO 54"	T9	1⅜"x18"x57'-0"	B11	2"x18"x25'-0"	14
						B12	2"x18"x7'-0"	15
						B13	2"x18"x25'-0"	16
				T10	1"x18"x25'-0"	B14	1⅜"x18"x25'-0"	17
								18
L5	77'-5½"	W5	9/16"x54"x77'-5½"	T11	¾"x18"x77'-5½"	B15	1⅜"x18"x77'-5½"	19

VAR = VARIABLE DEPTH

* REFER TO TABLE AT LEFT

Mark	Description	By	Chk'd.	Recm'd.	Date

REVISIONS

SR 6011 PREVIOUSLY KNOWN AS LR 5

PREPARED BY:
DEWBERRY ENGINEERS INC.

COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL GARY L. FRENETTE ENGINEER

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF TRANSPORTATION

LACKAWANNA COUNTY
SR 6011 SEC 273
SEGMENT 0190 OFFSET 0404
SR 6011 - 273 STA 16+27.50
OVER ROARING BROOK, SR 3022,
AND DELAWARE, LACKAWANNA & WESTERN RAILROAD
3-SPAN CONT COMP STEEL MULTI-GIRDER BRIDGE

GIRDER ELEVATION & DETAILS - 3

RECOMMENDED ______ MAY 07 2014

SHEET 32 OF 76

S - 33152

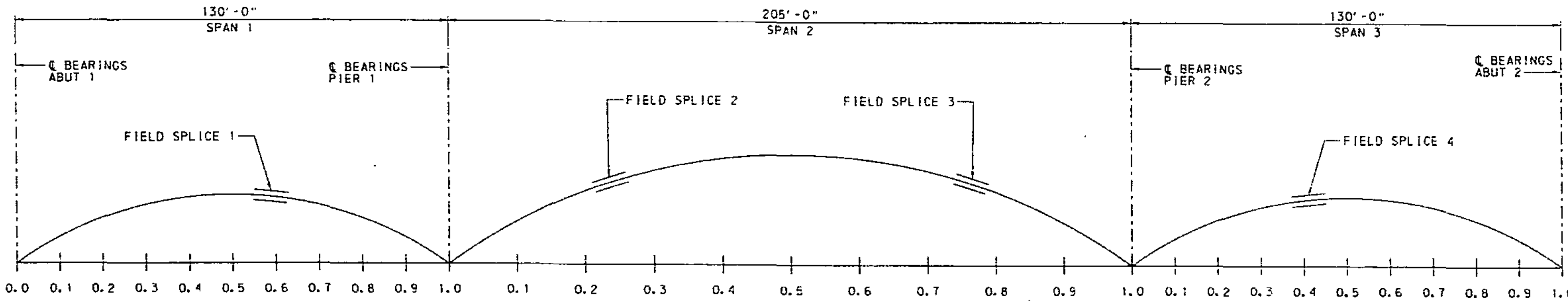
DES: KES | CKD: GCP | DWG: KLL | CKD: KES

CAMBER ORDINATES (INCHES)

POINT NUMBERS

LOCATION		SPAN 1												
		0.0	0.1	0.2	0.3	0.4	0.5	FS 1	0.6	0.7	0.8	0.9	1.0
G1	A	0.00	0.08	0.13	0.14	0.10	0.03	-0.04	-0.05	-0.13	-0.15	-0.10	0.00
	B	0.00	0.54	0.93	1.10	1.02	0.71	0.33	0.28	-0.13	-0.35	-0.30	0.00
	C	0.00	0.21	0.37	0.43	0.40	0.28	0.12	0.10	-0.07	-0.17	-0.15	0.00
	D	0.00	-0.16	-0.15	-0.13	-0.12	-0.10	-0.09	-0.09	-0.07	-0.06	-0.04	0.00
	E	0.00	0.66	1.28	1.54	1.40	0.92	0.32	0.24	-0.40	-0.72	-0.60	0.00
G2	A	0.00	0.08	0.14	0.15	0.12	0.04	-0.04	-0.05	-0.13	-0.15	-0.11	0.00
	B	0.00	0.59	1.02	1.21	1.11	0.77	0.36	0.30	-0.15	-0.39	-0.33	0.00
	C	0.00	0.08	0.14	0.17	0.15	0.11	0.05	0.04	-0.02	-0.06	-0.05	0.00
	D	0.00	-0.16	-0.15	-0.13	-0.12	-0.10	-0.09	-0.09	-0.07	-0.06	-0.04	0.00
	E	0.00	0.59	1.15	1.39	1.26	0.82	0.28	0.21	-0.36	-0.65	-0.54	0.00
G3	A	0.00	0.08	0.14	0.15	0.12	0.04	-0.04	-0.05	-0.13	-0.15	-0.11	0.00
	B	0.00	0.59	1.02	1.21	1.11	0.77	0.36	0.30	-0.15	-0.39	-0.33	0.00
	C	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	D	0.00	-0.16	-0.15	-0.13	-0.12	-0.10	-0.09	-0.09	-0.07	-0.06	-0.04	0.00
	E	0.00	0.51	1.01	1.23	1.11	0.71	0.23	0.17	-0.34	-0.59	-0.48	0.00
G4	A	0.00	0.08	0.14	0.15	0.12	0.04	-0.04	-0.05	-0.13	-0.15	-0.11	0.00
	B	0.00	0.59	1.02	1.21	1.11	0.77	0.36	0.30	-0.15	-0.39	-0.33	0.00
	C	0.00	0.08	0.14	0.17	0.15	0.11	0.05	0.04	-0.02	-0.06	-0.05	0.00
	D	0.00	-0.16	-0.15	-0.13	-0.12	-0.10	-0.09	-0.09	-0.07	-0.06	-0.04	0.00
	E	0.00	0.59	1.15	1.39	1.26	0.82	0.28	0.21	-0.36	-0.65	-0.54	0.00
G5	A	0.00	0.08	0.13	0.14	0.10	0.03	-0.04	-0.05	-0.13	-0.15	-0.10	0.00
	B	0.00	0.54	0.93	1.10	1.02	0.71	0.33	0.28	-0.13	-0.35	-0.30	0.00
	C	0.00	0.21	0.37	0.43	0.40	0.28	0.12	0.10	-0.07	-0.17	-0.15	0.00
	D	0.00	-0.16	-0.15	-0.13	-0.12	-0.10	-0.09	-0.09	-0.07	-0.06	-0.04	0.00
	E	0.00	0.66	1.28	1.54	1.40	0.92	0.32	0.24	-0.40	-0.72	-0.60	0.00

LOCATION		SPAN 2												SPAN 3										
		0.1	0.2	FS 2	0.3	0.4	0.5	0.6	0.7	FS 3	0.8	0.9	1.0	0.1	0.2	0.3	0.4	FS 4	0.5	0.6	0.7	0.8	0.9	1.0
G1	A	0.27	0.63	0.77	0.99	1.24	1.33	1.24	0.99	0.77	0.63	0.27	0.00	-0.10	-0.15	-0.13	-0.05	-0.04	0.03	0.10	0.14	0.13	0.08	0.00
	B	0.89	2.20	2.71	3.57	4.53	4.87	4.53	3.57	2.71	2.20	0.89	0.00	-0.30	-0.35	-0.13	0.28	0.33	0.71	1.02	1.10	0.93	0.54	0.00
	C	0.44	1.07	1.32	1.73	2.18	2.34	2.18	1.73	1.32	1.07	0.44	0.00	-0.15	-0.17	-0.07	0.10	0.12	0.28	0.40	0.43	0.37	0.21	0.00
	D	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	E	1.59	3.90	4.80	6.28	7.96	8.55	7.96	6.28	4.80	3.90	1.59	0.00	-0.55	-0.67	-0.33	0.33	0.41	1.02	1.52	1.68	1.43	0.83	0.00
G2	A	0.28	0.65	0.79	1.03	1.29	1.36	1.29	1.03	0.79	0.65	0.28	0.00	-0.11	-0.15	-0.13	-0.05	-0.04	0.04	0.12	0.15	0.14	0.08	0.00
	B	0.98	2.42	2.99	3.93	5.00	5.37	5.00	3.93	2.99	2.42	0.98	0.00	-0.33	-0.39	-0.15	0.30	0.36	0.77	1.11	1.21	1.02	0.59	0.00
	C	0.16	0.40	0.49	0.64	0.80	0.86	0.60	0.64	0.49	0.40	0.16	0.00	-0.05	-0.06	-0.02	0.04	0.05	0.11	0.15	0.17	0.14	0.08	0.00
	D	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	E	1.41	3.47	4.27	5.60	7.09	7.62	7.09	5.60	4.27	3.47	1.41	0.00	-0.50	-0.60	-0.29	0.30	0.37	0.93	1.38	1.52	1.30	0.75	0.00
G3	A	0.28	0.65	0.79	1.03	1.29	1.38	1.29	1.03	0.79	0.65	0.28	0.00	-0.11	-0.15	-0.13	-0.05	-0.04	0.04	0.12	0.15	0.14	0.08	0.00
	B	0.98	2.42	2.99	3.93	5.00	5.37	5.00	3.93	2.99	2.42	0.98	0.00	-0.33	-0.39	-0.15	0.30	0.36	0.77	1.11	1.21	1.02	0.59	0.00
	C	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	D	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	E	1.25	3.07	3.79	4.96	6.29	6.75	6.29	4.96	3.79	3.07	1.25	0.00	-0.44	-0.54	-0.27	0.25	0.32	0.82	1.23	1.36	1.16	0.67	0.00
G4	A	0.28	0.65	0.79	1.03	1.29	1.38	1.29	1.03	0.79	0.65	0.28	0.00	-0.11	-0.15	-0.13	-0.05	-0.04	0.04	0.12	0.15	0.14	0.08	0.00
	B	0.98	2.42	2.99	3.93	5.00	5.37	5.00	3.93	2.99	2.42	0.98	0.00	-0.33	-0.39	-0.15	0.30	0.36	0.77	1.11	1.21	1.02	0.59	0.00
	C	0.16	0.40	0.49	0.64	0.80	0.86	0.80	0.64	0.49	0.40	0.16	0.00	-0.05	-0.06	-0.02	0.04	0.05	0.11	0.15	0.17	0.14	0.08	0.00
	D	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	E	1.41	3.47	4.27	5.60	7.09	7.62	7.09	5.60	4.27	3.47	1.41	0.00	-0.50	-0.60	-0.29	0.30	0.37	0.93	1.38	1.52	1.30	0.75	0.00
G5	A	0.27	0.63	0.77	0.99	1.24	1.33	1.24	0.99	0.77	0.63	0.27	0.00	-0.10	-0.15	-0.13	-0.05	-0.04	0.03	0.10	0.14	-0.13	0.08	0.00
	B	0.89	2.20	2.71	3.57	4.53	4.87	4.53	3.57	2.71	2.20	0.89	0.00	-0.30	-0.35	-0.13	0.28	0.33	0.71	1.02	1.10	0.93	0.54	0.00
	C	0.44	1.07	1.32	1.73	2.18	2.34	2.18	1.73	1.32	1.07	0.44	0.00	-0.15	-0.17	-0.07	0.10	0.12	0.28	0.40	0.43	0.37	0.21	0.00
	D	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	E	1.59	3.90	4.80	6.28	7.96	8.55	7.96	6.28	4.80	3.90	1.59	0.00	-0.55	-0.67	-0.33	0.33	0.41	1.02	1.52	1.68	1.43	0.83	0.00



CAMBER DIAGRAM

NOT TO SCALE

LEGEND

A = CAMBER DUE TO WEIGHT OF STEEL
B = CAMBER DUE TO WEIGHT OF DECK
C = CAMBER DUE TO SUPERIMPOSED DEAD LOAD EXCLUDING FUTURE WEARING SURFACE
D = CAMBER DUE TO VERTICAL CURVE
E = TOTAL CAMBER
FS = FIELD SPLICE

NOTES

1. FOR GENERAL NOTES AND LIST OF ABBREVIATIONS, SEE SHEETS 4 & 5.
2. WORK THIS SHEET WITH SHEETS 27 THRU 32.
3. CAMBER VALUES REFLECT PLACEMENT OF THE DECK SLAB AT ONE TIME, NOT THE PROPOSED STAGING OF THE DECK POURS.
4. AFTER ALL SUPERSTRUCTURE STEEL HAS BEEN ERECTED AND FALSEWORK REMOVED, THE CONTRACTOR SHALL TAKE ELEVATIONS ALONG THE TOP OF THE GIRDER FLANGES AT THE POINTS WHERE THE ROADWAY ELEVATIONS ARE SHOWN. THE DIFFERENCE BETWEEN THESE ELEVATIONS AND THE ROADWAY ELEVATIONS, PLUS THE CONCRETE DEAD LOAD DEFLECTION, WILL BE THE THICKNESS OF THE SLAB AT THESE POINTS. THE MINIMUM SLAB THICKNESS OVER THE STEEL SHALL NOT BE LESS THAN 9 IN (INCLUDING INTEGRAL WEARING SURFACE). IF THE GIRDER HAS EXCESSIVE CAMBER AND THE MINIMUM CANNOT BE OBTAINED, THE ROADWAY GRADE SHALL BE ADJUSTED TO OBTAIN THIS THICKNESS.

Mark	Description	By	Chk'd.	Recm'd.	Date

REVISIONS

SR 6011 PREVIOUSLY KNOWN AS LR 5

PREPARED BY: DEWBERRY ENGINEERS INC.

GARY L. FRENETTE

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF TRANSPORTATION

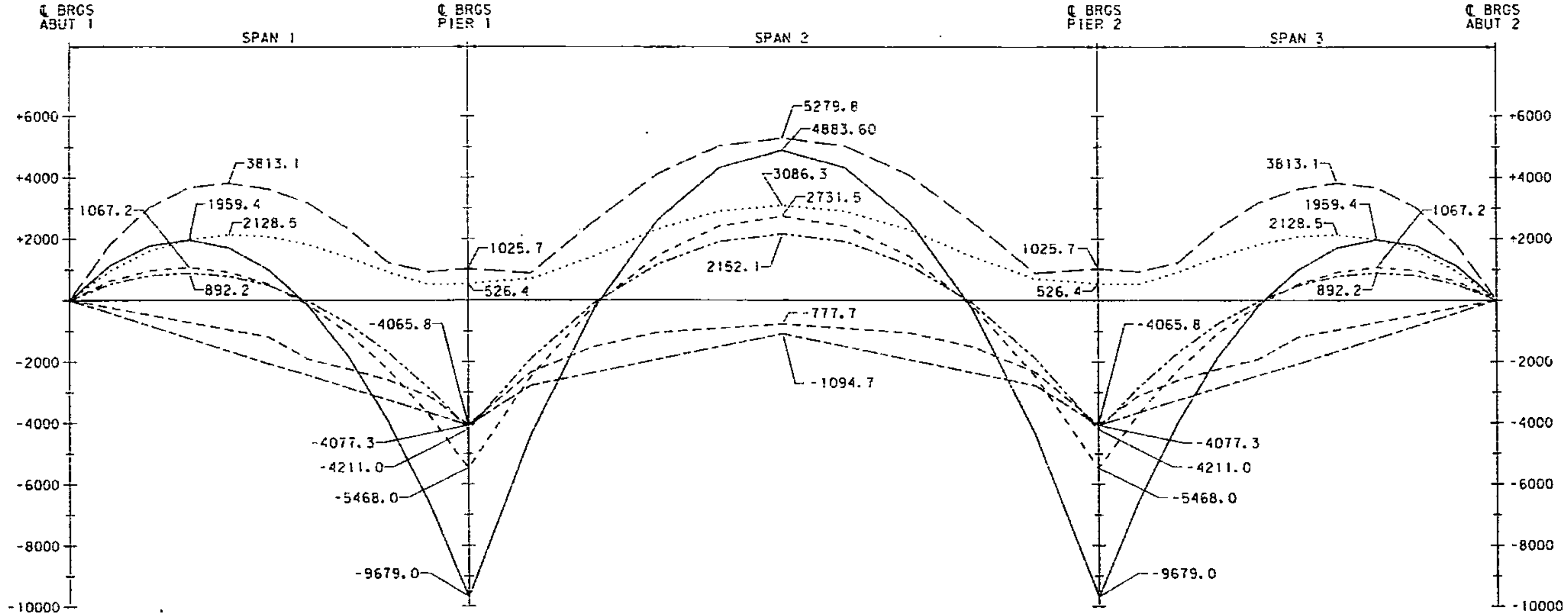
LACKAWANNA COUNTY
SR 6011 SEC 273
SEGMENT 0190 OFFSET 0404
SR 6011 - 273 STA 16+27.50
OVER ROARING BROOK, SR 3022,
AND DELAWARE, LACKAWANNA & WESTERN RAILROAD
3-SPAN CONT COMP STEEL MULTI-GIRDER BRIDGE
CAMBER DIAGRAM

RECOMMENDED MAY 07 2014

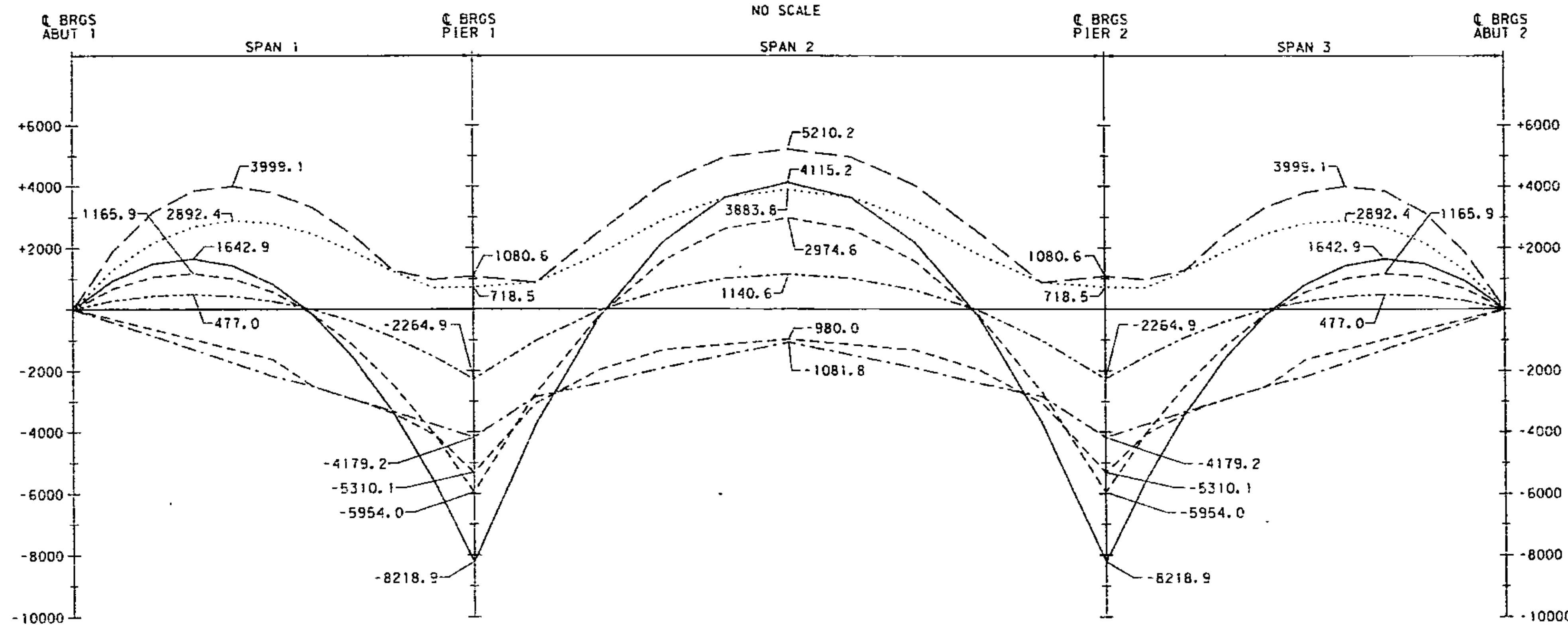
SHEET 33 OF 76

S - 33152

DES: GCP | CKD: KES | DWG: GCP | CKD: KLL



MOMENT ENVELOPE
(UNFACTORED VALUES, KIP-FT)
EXTERIOR GIRDER
NO SCALE



MOMENT ENVELOPE
(UNFACTORED VALUES, KIP-FT)
INTERIOR GIRDER
NO SCALE

MOMENT ENVELOPE LEGEND

- POSITIVE LIVE LOAD + IMPACT (PHL-93)
- NEGATIVE LIVE LOAD + IMPACT (PHL-93)
- POSITIVE LIVE LOAD + IMPACT (P-82)
- NEGATIVE LIVE LOAD + IMPACT (P-82)
- NONCOMPOSITE DEAD LOAD
- SUPERIMPOSED DEAD LOAD
- TOTAL DEAD LOAD

MAXIMUM BEARING REACTIONS (K) EXTERIOR GIRDER

BEARINGS	TOTAL DEAD LOAD	POSITIVE LIVE LOAD + IMPACT (PHL-93)	NEGATIVE LIVE LOAD + IMPACT (PHL-93)	POSITIVE LIVE LOAD + IMPACT (P-82)	NEGATIVE LIVE LOAD + IMPACT (P-82)
ABUTMENT 1	95.5	107.3	-23.5	163.0	-31.4
PIER 1	434.3	244.0	-22.8	210.8	-28.3
PIER 2	435.2	244.0	-22.8	210.8	-28.3
ABUTMENT 2	95.5	107.3	-23.5	163.0	-31.4

MAXIMUM BEARING REACTIONS (K) INTERIOR GIRDER

BEARINGS	TOTAL DEAD LOAD	POSITIVE LIVE LOAD + IMPACT (PHL-93)	NEGATIVE LIVE LOAD + IMPACT (PHL-93)	POSITIVE LIVE LOAD + IMPACT (P-82)	NEGATIVE LIVE LOAD + IMPACT (P-82)
ABUTMENT 1	103.8	123.0	-27.0	186.9	-36.1
PIER 1	461.2	279.8	-26.2	241.7	-32.5
PIER 2	462.3	279.8	-26.2	241.7	-32.5
ABUTMENT 2	103.8	123.0	-27.0	186.9	-36.1

NOTES

1. FOR BRIDGE LOAD RATINGS, SEE SHEET 3.
2. FOR GENERAL NOTES AND LIST OF ABBREVIATIONS, SEE SHEETS 4 & 5.
3. FOR GIRDER SECTION PROPERTIES, SEE SHEETS 30 THRU 32.
4. SUPERIMPOSED DEAD LOAD VALUES INCLUDE 30 PSF FUTURE WEARING SURFACE.
5. PHL-93 AND P-82 LIVE LOAD VALUES INCLUDE IMPACT.
6. MOMENT VALUES REFLECT PLACEMENT OF THE DECK SLAB AT ONE TIME, NOT THE PROPOSED STAGING OF THE DECK POURS.

Mark	Description	By	Chk'd.	Recm'd.	Date

REVISIONS

SR 6011 PREVIOUSLY KNOWN AS LR 5

PREPARED BY:
DEWBERRY ENGINEERS INC.

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF TRANSPORTATION

LACKAWANNA COUNTY
SR 6011 SEC 273
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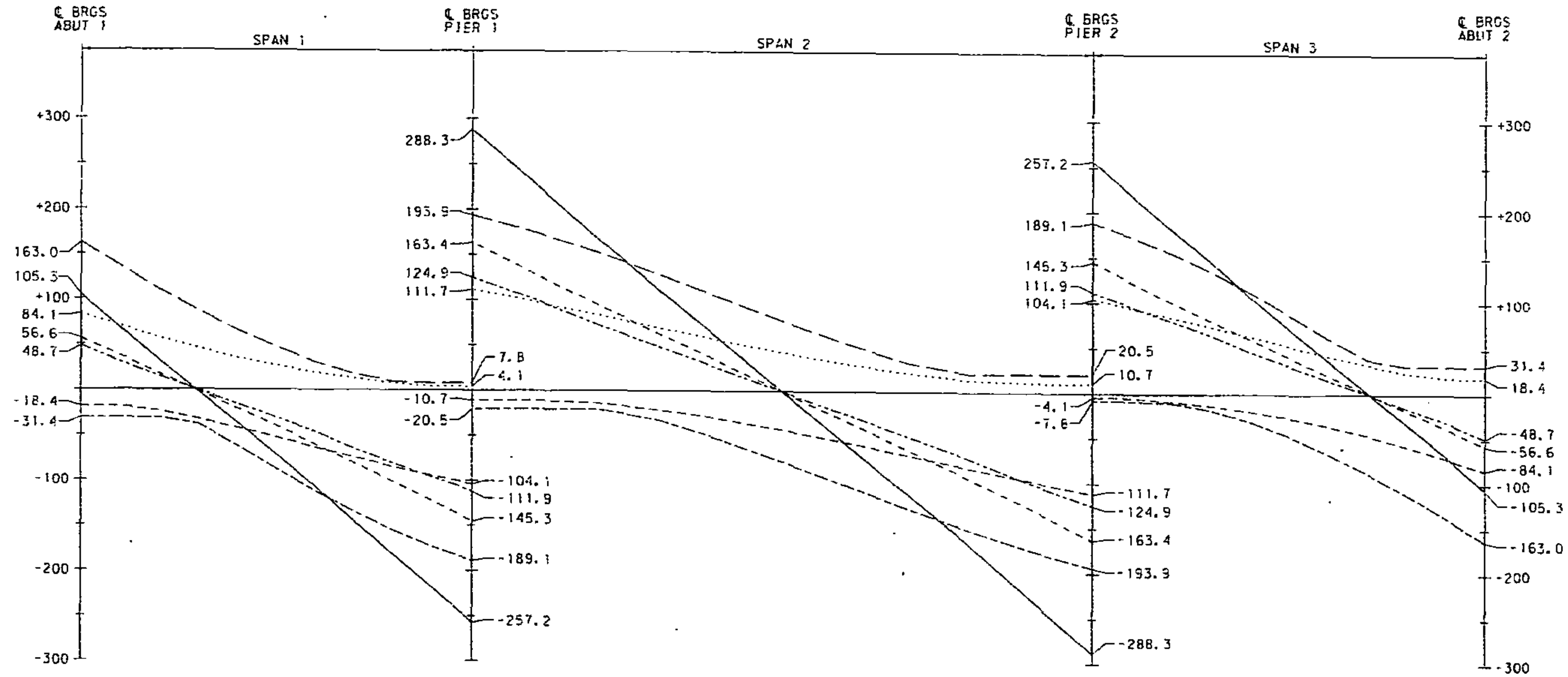
3-SPAN CONT COMP STEEL MULTI-GIRDER BRIDGE
MOMENT DIAGRAMS

RECOMMENDED MAY 07 2014

SHEET 34 OF 76

S - 33152

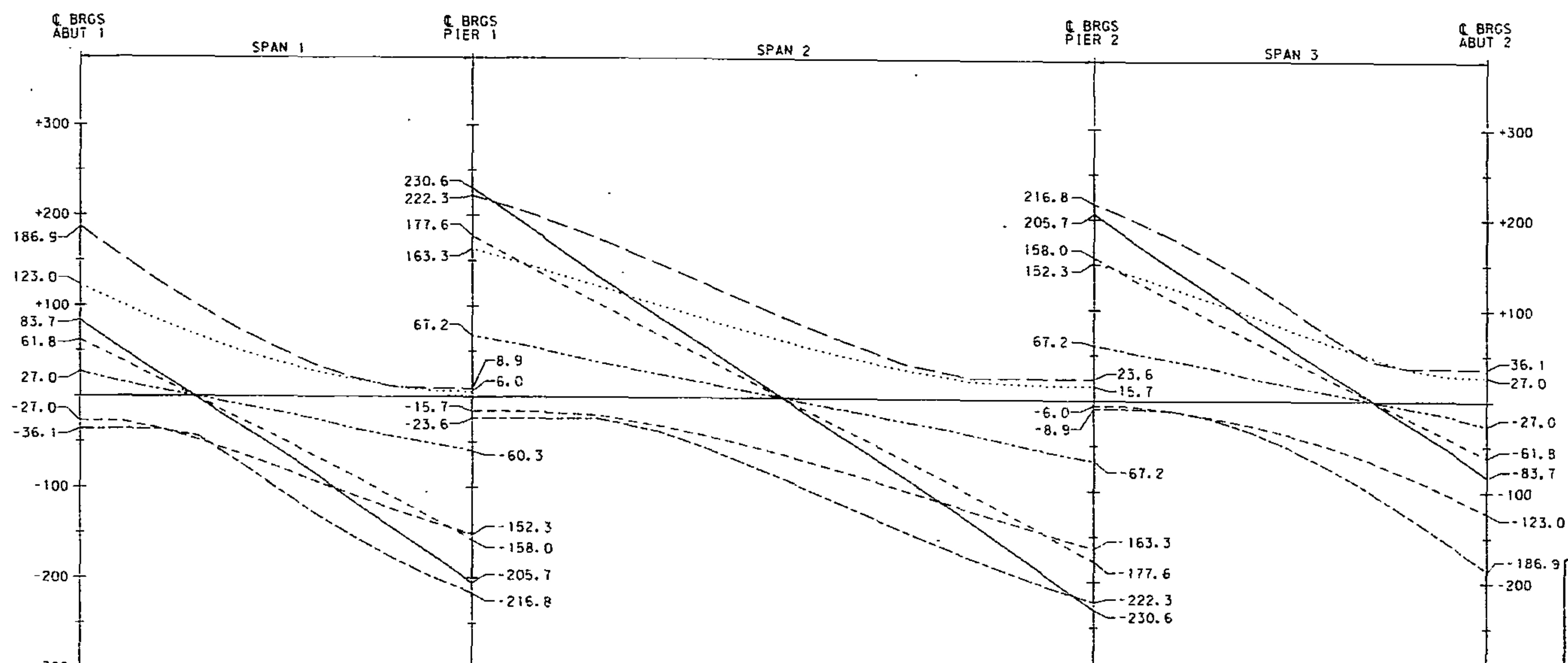
DES: GCP | CKD: KES | DWG: GCP | CKD: KLL



SHEAR ENVELOPE
(UNFACTORED VALUES, KIPS)
EXTERIOR GIRDER
NO SCALE

SHEAR ENVELOPE LEGEND

- .... POSITIVE LIVE LOAD + IMPACT (PHL-93)
- - - - - - NEGATIVE LIVE LOAD + IMPACT (PHL-93)
- — — — POSITIVE LIVE LOAD + IMPACT (P-82)
- — - — - NEGATIVE LIVE LOAD + IMPACT (P-82)
- - - - - - NONCOMPOSITE DEAD LOAD
- -·-·-·- SUPERIMPOSED DEAD LOAD
- ——— TOTAL DEAD LOAD



SHEAR ENVELOPE
(UNFACTORED VALUES, KIPS)
INTERIOR GIRDER
NO SCALE

NOTES

1. FOR BRIDGE LOAD RATINGS, SEE SHEET 3.
2. FOR GENERAL NOTES AND LIST OF ABBREVIATIONS, SEE SHEETS 4 & 5.
3. FOR GIRDER SECTION PROPERTIES, SEE SHEETS 30 THRU 32.
4. SUPERIMPOSED DEAD LOAD VALUES INCLUDE 30 PSF FUTURE WEARING SURFACE.
5. PHL-93 AND P-82 LIVE LOAD VALUES INCLUDE IMPACT.
6. SHEAR VALUES REFLECT PLACEMENT OF THE DECK SLAB AT ONE TIME, NOT THE PROPOSED STAGING OF THE DECK POURS.

Mark	Description	By	Chk'd.	Recm'd.	Date

REVISIONS

SR 6011 PREVIOUSLY KNOWN AS LR 5

PREPARED BY:
DEWBERRY ENGINEERS INC.

GARY L. FRENETTE PROFESSIONAL ENGINEER

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF TRANSPORTATION

LACKAWANNA COUNTY
SR 6011 SEC 273
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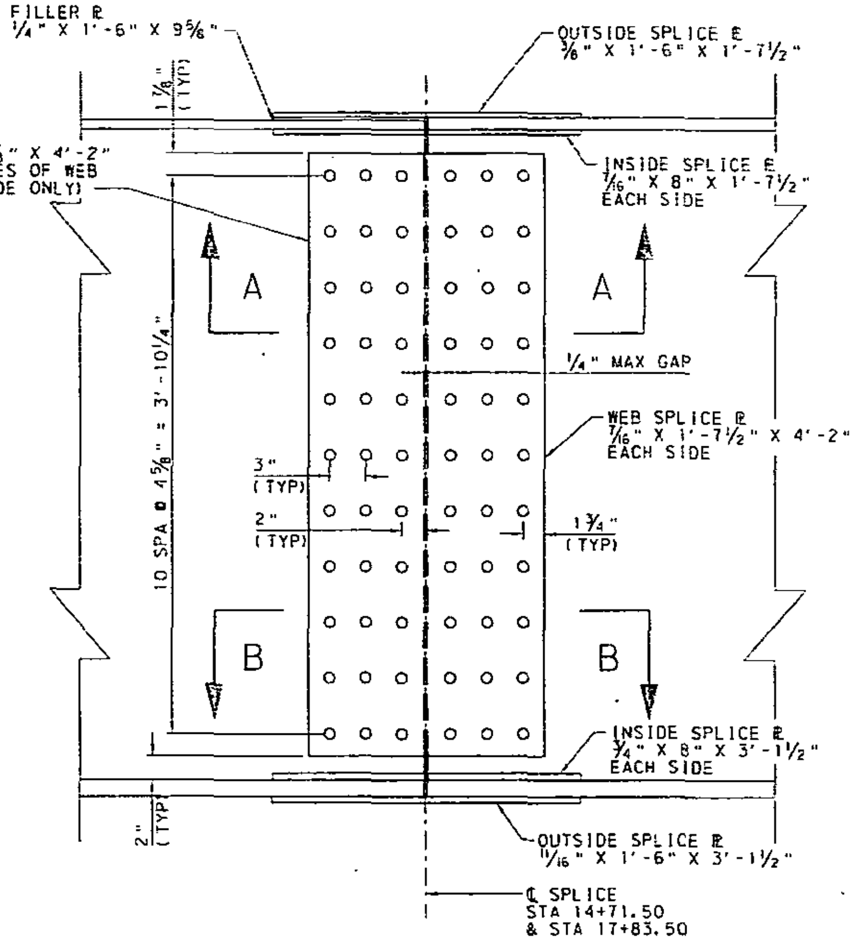
AND DELAWARE, LACKAWANNA & WESTERN RAILROAD
3-SPAN CONT COMP STEEL MULTI-GIRDER BRIDGE
SHEAR DIAGRAMS

RECOMMENDED MAY 07 2014

SHEET 35 OF 76

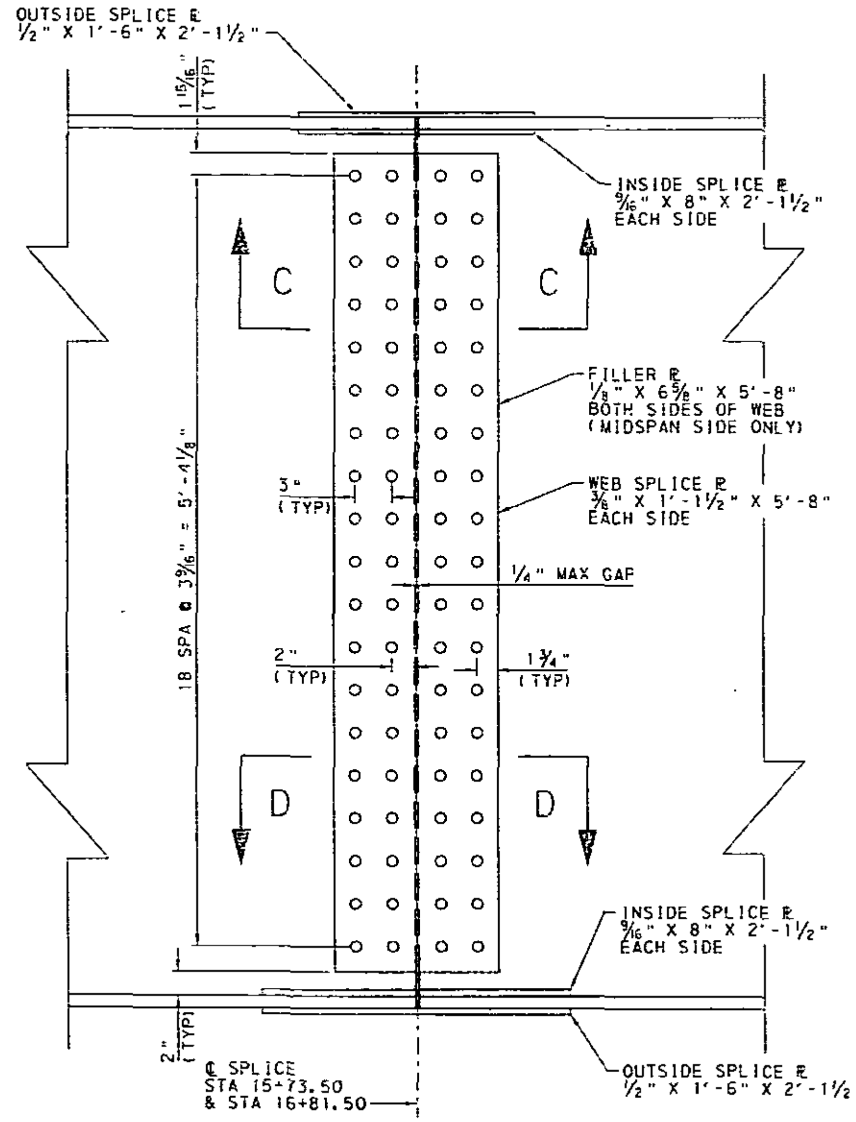
S - 33152

DES: GCP | CKD: KES | DWG: GCP | CKD: KLL



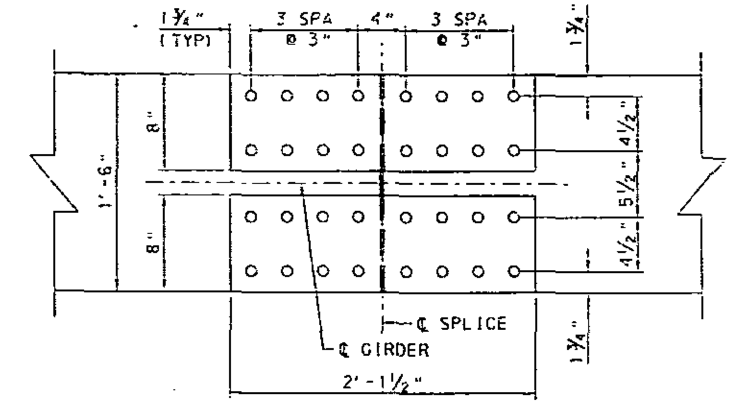
FIELD SPLICE - SPANS 1 & 3

6 0 6 INCHES



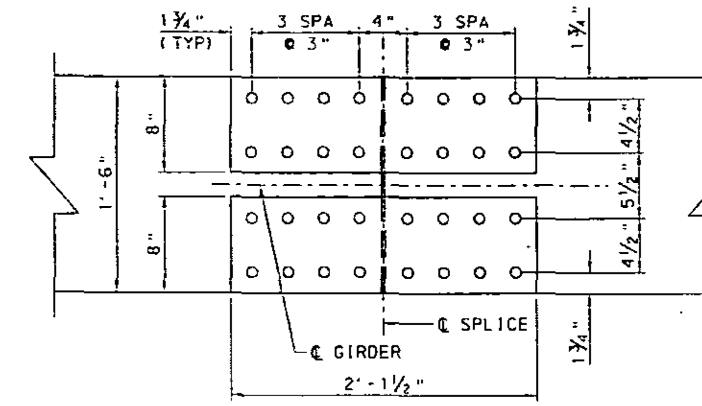
FIELD SPLICE - SPAN 2

6 0 6 INCHES



SECTION C-C

6 0 6 INCHES

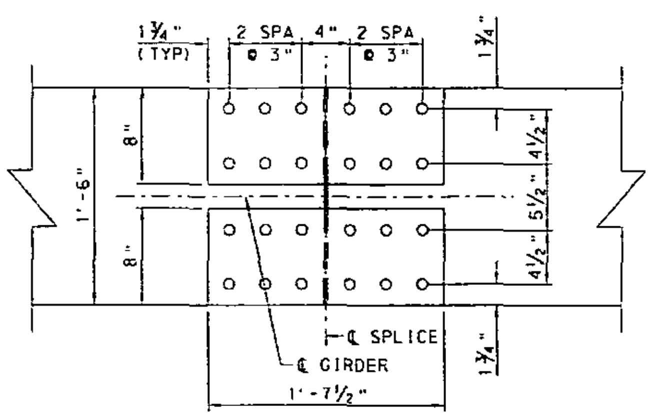


SECTION D-D

6 0 6 INCHES

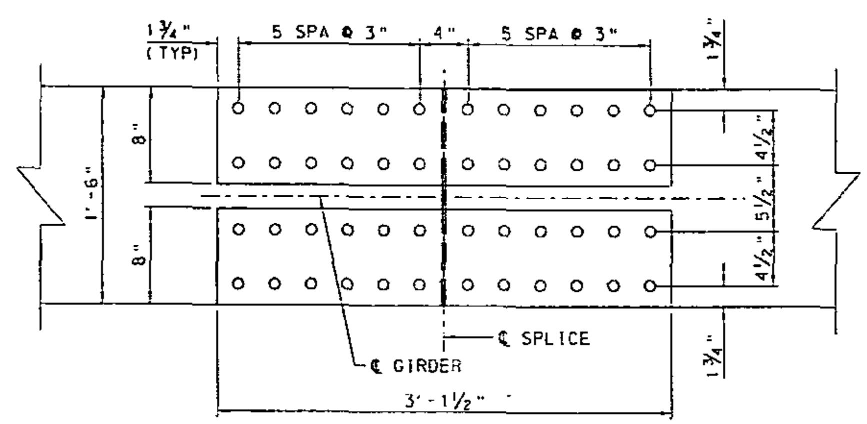
NOTES

1. FOR GENERAL NOTES AND LIST OF ABBREVIATIONS, SEE SHEETS 4 & 5.
2. FOR FRAMING PLAN, SEE SHEETS 27 THRU 29.
3. FOR GIRDER ELEVATIONS, SEE SHEETS 30 THRU 32.
4. ALL BOLTS SHOWN ARE 7/8" DIA A325 BOLTS.
5. EXCLUDE BOLT THREADS FROM SHEAR PLANE.
6. INNER FLANGE SPLICE PLATE BOLT CONFIGURATION SHOWN, OUTER PLATES SIMILAR.
7. CHARPY V-NOTCH TEST ALL FIELD SPLICE PLATES (EXCEPT FILLER PLATES) IN ACCORDANCE WITH PUBLICATION 408, SECTION 1105.02(c)5.



SECTION A-A

6 0 6 INCHES



SECTION B-B

6 0 6 INCHES

Mark	Description	By	Chk'd.	Recm'd.	Date

REVISIONS

SR 6011 PREVIOUSLY KNOWN AS LR 5

PREPARED BY: DEWBERRY ENGINEERS INC.

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF TRANSPORTATION

LACKAWANNA COUNTY
SR 6011 SEC 273
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SR 6011 - 273 STA 16+27.50
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3-SPAN CONT COMP STEEL MULTI-GIRDER BRIDGE

GIRDER FIELD SPLICE DETAILS

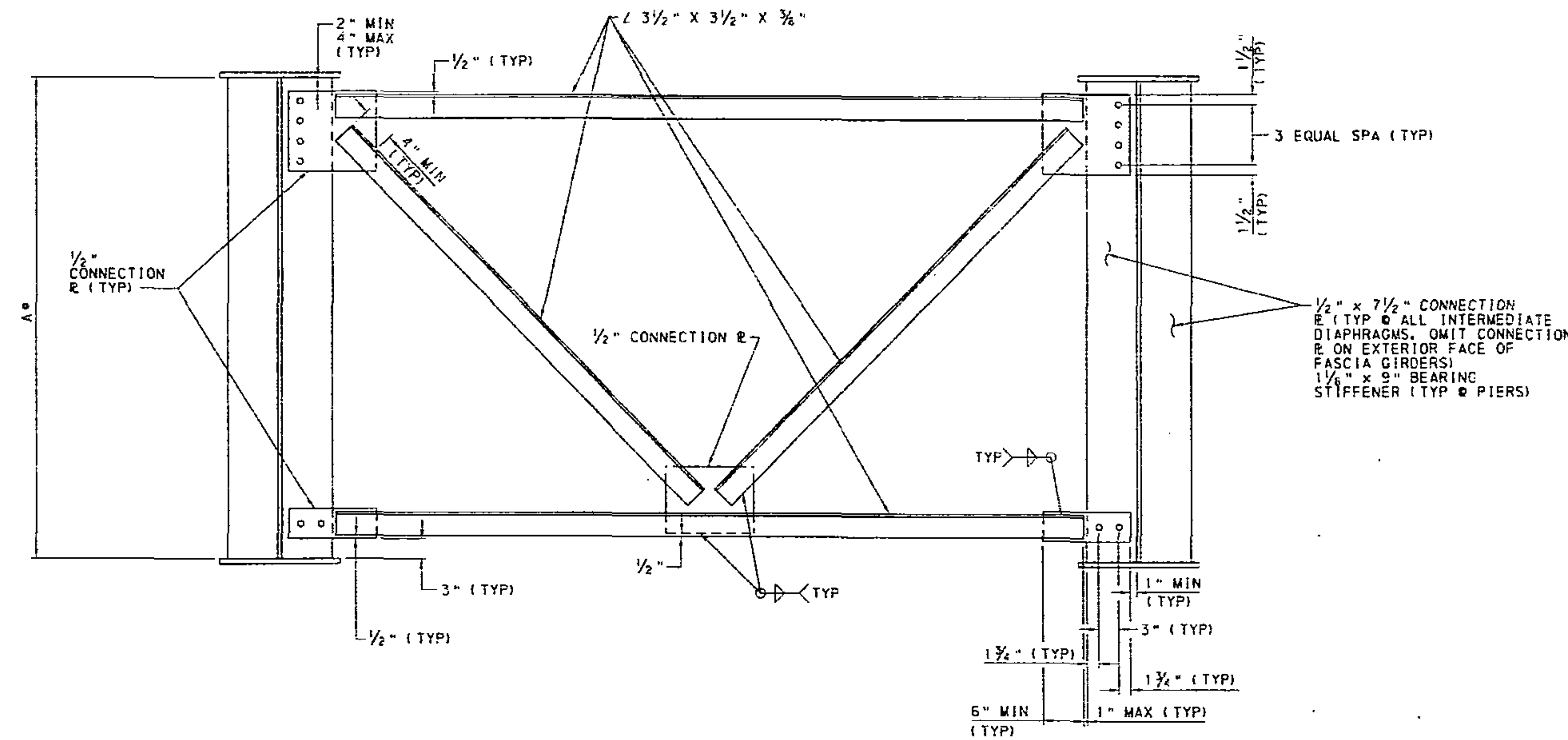
COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL ENGINEER GARY L. FRENETTE

RECOMMENDED MAY 07 2014

SHEET 36 OF 76

S - 33152

DES: KES | CKD: GCP | DWG: KLL | CKD: KES



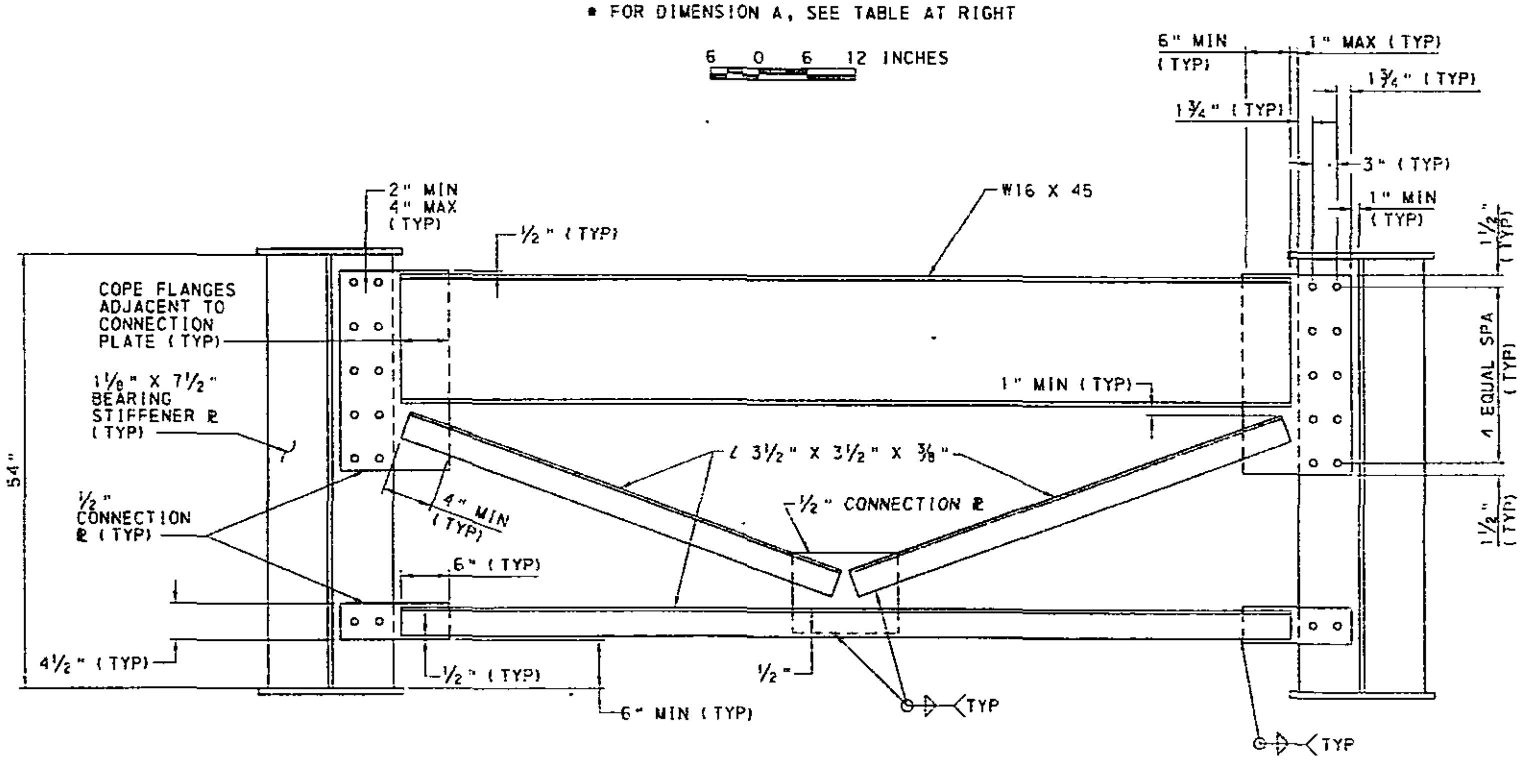
INTERMEDIATE DIAPHRAGM DETAIL, D2-D23

* FOR DIMENSION A, SEE TABLE AT RIGHT

6 0 6 12 INCHES

DIAPHRAGM*	DIMENSION A
D2	54"
D3	54"
D4	54"
D5	54.4"
D6	62.9"
D7	102"
D8	76.2"
D9	72"
D10	72"
D11	72"
D12	72"
D13	72"
D14	72"
D15	72"
D16	72"
D17	76.2"
D18	102"
D19	62.9"
D20	54.4"
D21	54"
D22	54"
D23	54"

* SEE SHEETS 27 THRU 29 FOR DIAPHRAGM LOCATIONS



END DIAPHRAGM DETAIL, D1

6 0 6 12 INCHES

NOTES

1. FOR GENERAL NOTES AND LIST OF ABBREVIATIONS, SEE SHEETS 4 & 5.
2. FOR DIAPHRAGM LOCATIONS, SEE FRAMING PLAN, SHEETS 27 THRU 29.
3. FOR ADDITIONAL DETAILS, SEE BC-753M AND BC-754M.
4. FOR TABLE OF MINIMUM FILLET WELD SIZES, SEE SHEET 32.

Mark	Description	By	Chk'd.	Recm'd.	Date

REVISIONS

SR 6011 PREVIOUSLY KNOWN AS LR 5

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF TRANSPORTATION

LACKAWANNA COUNTY
SR 6011 SEC 273
SEGMENT 0190 OFFSET 0404
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OVER ROARING BROOK, SR 3022,
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3-SPAN CONT COMP STEEL MULTI-GIRDER BRIDGE
DIAPHRAGM DETAILS - 1

PREPARED BY: DEWBERRY ENGINEERS INC.

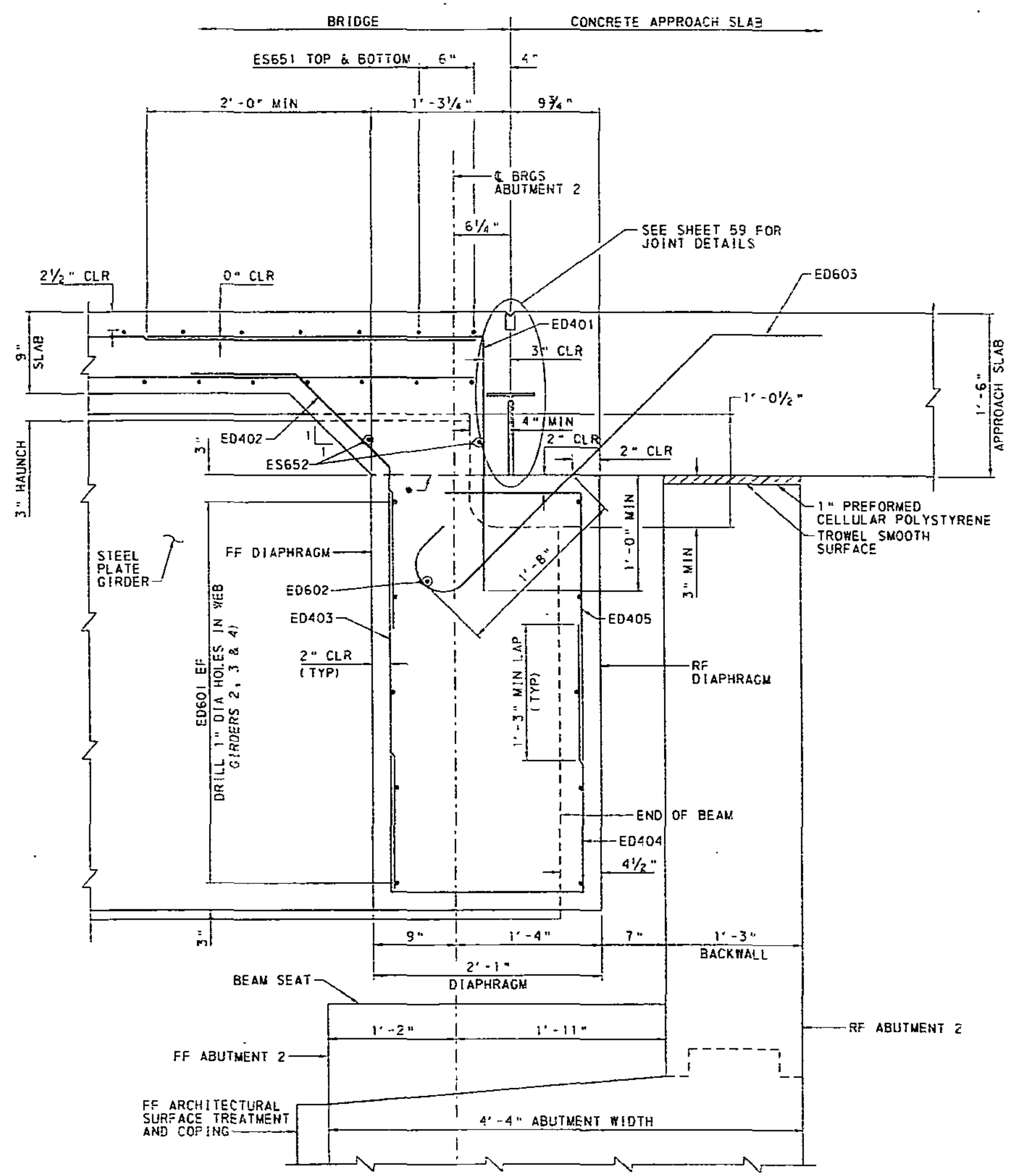
COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL GARY L. FRENETTE ENGINEER

RECOMMENDED MAY 01 2014

SHEET 37 OF 76

S - 33152

DES: KLL | CKD: KES | DWG: KLL | CKD: KES

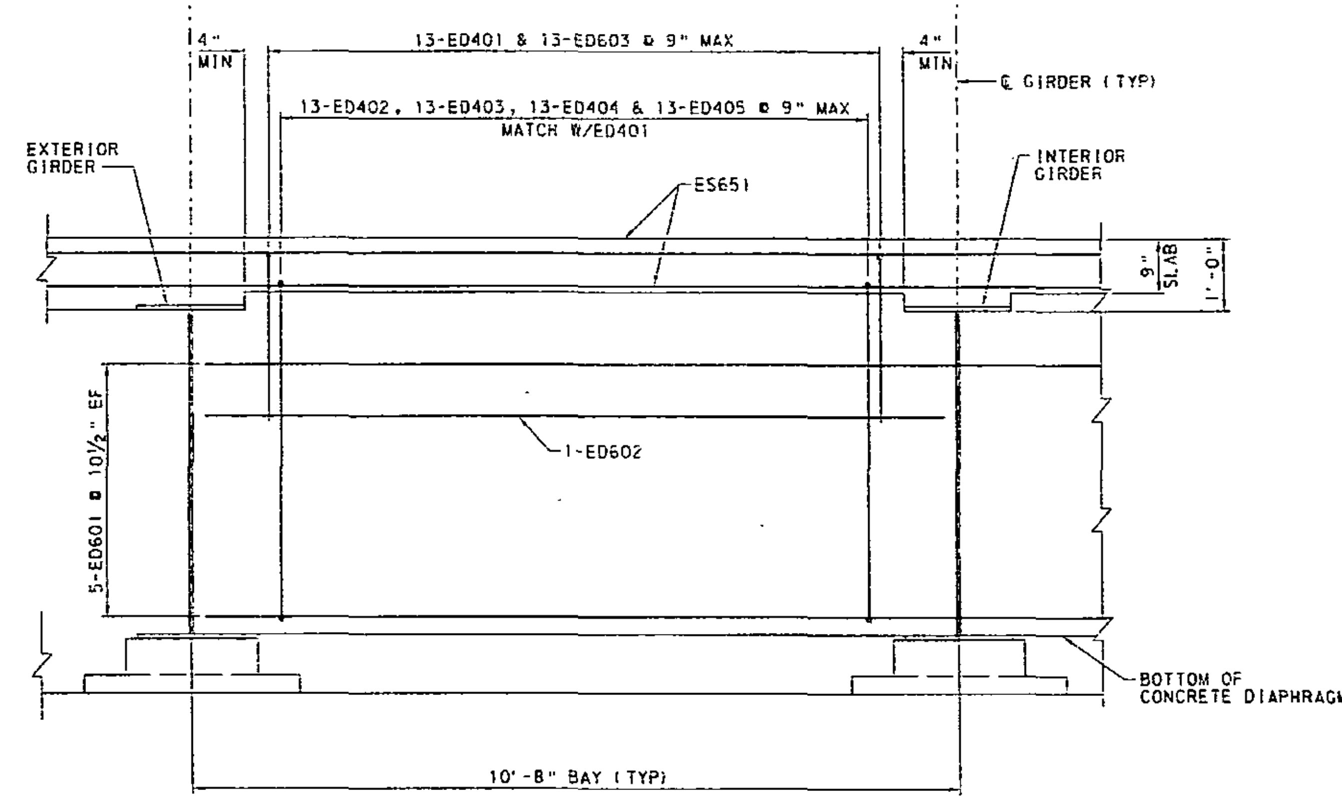


NOTE: APPROACH SLAB DETAILS NOT SHOWN FOR CLARITY

• ROUGH CONSTRUCTION JOINT. PLACE PORTION OF DIAPHRAGM TO THE CONSTRUCTION JOINT. WAIT TWO HOURS MINIMUM BEFORE PLACING DECK CONCRETE.

TYPICAL SECTION

6 0 6 INCHES



ELEVATION - CONCRETE DIAPHRAGM AT ABUTMENT 2

1 0 1 FEET

NOTES

1. FOR GENERAL NOTES AND LIST OF ABBREVIATIONS, SEE SHEETS 4 & 5.
2. FOR DECK SLAB REINFORCEMENT, SEE SHEETS 44 THRU 50.
3. FOR APPROACH SLAB REINFORCEMENT, SEE SHEETS 58 & 59.
4. FOR REINFORCEMENT BAR SCHEDULE, SEE SHEETS 64 THRU 66.

Mark	Description	By	Chk'd.	Recm'd.	Date
REVISIONS					

SR 6011 PREVIOUSLY KNOWN AS LR 5

PREPARED BY: DEWBERRY ENGINEERS INC.

COMMONWEALTH OF PENNSYLVANIA
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LACKAWANNA COUNTY
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3-SPAN CONT COMP STEEL MULTI-GIRDER BRIDGE
DIAPHRAGM DETAILS - 2

RECOMMENDED MAY 07 2014

SHEET 38 OF 76

S - 33152

DES: KLL | CKD: KES | DWG: KLL | CKD: KES

POT BEARING SCHEDULE AND DESIGN DATA							
LOCATION		ABUTMENT 1		PIER 1	PIER 2	ABUTMENT 2	
BEARING TYPE		GUIDED EXPANSION	NON-GUIDED EXPANSION	FIXED	FIXED	GUIDED EXPANSION	NON-GUIDED EXPANSION
GIRDER NUMBER		2,4	1,3,5	1,2,3,4,5	1,2,3,4,5	2,4	1,3,5
NO. REQUIRED FOR CONSTRUCTION		2	3	5	5	2	3
BEARING SIZE		250 KIP POT BEARING	200 KIP POT BEARING	750 KIP POT BEARING	750 KIP POT BEARING	300 KIP POT BEARING	300 KIP POT BEARING
HORIZONTAL LOAD CAPACITY		30%	N/A	30%	30%	30%	N/A
DESIGN ROTATION (RADIANS) *		0.03	0.03	0.03	0.03	0.03	0.03
DESIGN MOVEMENT CAPACITY (INCHES) **	TRANS.	0.00	0.00	0.00	0.00	0.00	0.00
	LONG.	3.09	3.09	0.00	0.00	4.97	4.97
FRICTION COEFFICIENT		0.04	0.04	0.04	0.04	0.04	0.04

* INCLUDES .02 RADIANS CONSTRUCTION TOLERANCE
** DESIGN MOVEMENT = 2 X CONTRACTION

DESIGN LOADS FOR POT BEARINGS											
AASHTO LRFD LIMIT STATES	VERTICAL						HORIZONTAL				
	DL + FWS		LL+I		TOTAL		TRANSVERSE		LONGITUDINAL		RESOLUTION ◆
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	
	ABUTMENT 1 DESIGN LOADS (KIPS)										
EXTREME EVENT 1 (G)	117.8	72.9	0.0	0.0	117.8	72.9	34.7	0.0	---	---	52.0/1.5 = 34.7
EXTREME EVENT 1 (NG-I)	99.0	59.4	0.0	0.0	99.0	59.4	0.0	0.0	---	---	0.0
EXTREME EVENT 1 (NG-E)	110.3	67.5	0.0	0.0	110.3	67.5	0.0	0.0	---	---	0.0
SERVICE 1 (G)	93.3	79.7	123.0	-27.0	216.3	52.7	16.9	0.0	---	---	16.9
SERVICE 1 (NG-I)	77.0	66.0	123.0	-27.0	200.0	39.0	0.0	0.0	---	---	0.0
SERVICE 1 (NG-E)	88.5	72.5	107.0	-24.0	195.5	48.5	0.0	0.0	---	---	0.0
	ABUTMENT 2 DESIGN LOADS (KIPS)										
EXTREME EVENT 1 (G)	188.8	119.7	0.0	0.0	188.8	119.7	60.0	0.0	---	---	90.0/1.5 = 60.0
EXTREME EVENT 1 (NG-I)	170.0	106.2	0.0	0.0	170.0	106.2	0.0	0.0	---	---	0.0
EXTREME EVENT 1 (NG-E)	180.0	113.4	0.0	0.0	180.0	113.4	0.0	0.0	---	---	0.0
SERVICE 1 (G)	149.4	131.6	130.0	-27.0	279.4	104.6	18.8	0.0	---	---	18.8
SERVICE 1 (NG-I)	133.0	118.0	130.0	-27.0	263.0	91.0	0.0	0.0	---	---	0.0
SERVICE 1 (NG-E)	143.9	123.1	114.0	-24.0	257.9	99.1	0.0	0.0	---	---	0.0

AASHTO LRFD LIMIT STATES	VERTICAL						HORIZONTAL					
	DL + FWS		LL+I		TOTAL		TRANSVERSE		LONGITUDINAL		VECTOR SUM	
	MAX	MIN	MAX	MIN	MAX	MIN	0°	60°	0°	60°	0°	60°
	PIER 1 & PIER 2 DESIGN LOADS (KIPS)											
EXTREME EVENT 1 (F-EXT)	562.3	346.5	0.0	0.0	562.3	346.5	71.3	71.3	71.3	71.3	100.9	100.9
EXTREME EVENT 1 (F-INT)	587.3	364.5	0.0	0.0	587.3	364.5	71.3	71.3	71.3	71.3	100.9	100.9
EXTREME EVENT 1 (F-CEN)	487.3	292.5	0.0	0.0	487.3	292.5	71.3	71.3	71.3	71.3	100.9	100.9
SERVICE 1 (F-EXT)	448.9	375.1	245.0	-24.0	693.9	351.1	52.4	18.0	71.0	91.5	88.2	93.3
SERVICE 1 (F-INT)	463.9	400.1	261.0	-28.0	744.9	372.1	52.4	18.0	71.0	91.5	88.2	93.3
SERVICE 1 (F-CEN)	379.0	325.0	281.0	-28.0	660.0	297.0	52.4	18.0	71.0	91.5	88.2	93.3

G = GUIDED POT BEARING
NG-I = NON-GUIDED INTERIOR POT BEARING
NG-E = NON-GUIDED EXTERIOR POT BEARING
F-EXT = FIXED EXTERIOR POT BEARING
F-INT = FIXED INTERIOR POT BEARING
F-CEN = FIXED CENTER POT BEARING

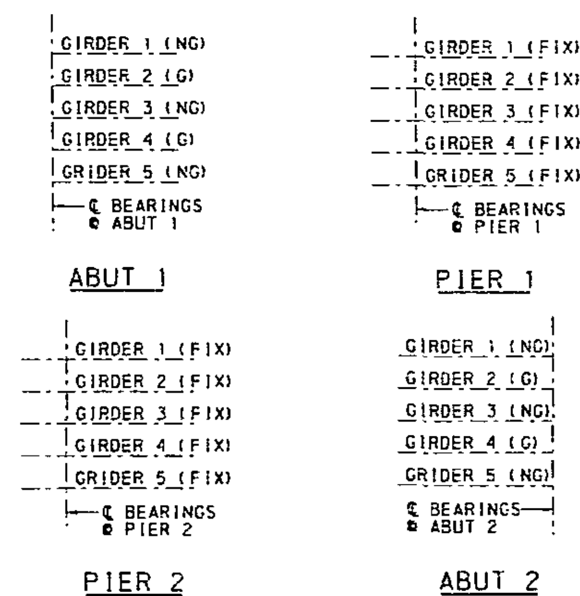
◆ SEISMIC LOAD IS DIVIDED BY 1.5 PER BD-613M

MATERIALS

1. STRUCTURAL STEEL: AASHTO M270/M270M (ASTM A709/ A709M), GRADE 50
2. ANCHOR BOLTS: ASTM F1554, GRADE 55
3. NUTS: ASTM A563/A563M, GRADE DH
4. WASHERS: ASTM F436/F436M, TYPE 1
5. GALVANIZING OF ANCHOR BOLTS, NUTS AND WASHERS: PUBLICATION 408, SECTION 1105.02(S).
6. STAINLESS STEEL: ASTM A240, GRADE 30, TYPE 304 WITH AN ANSI 0.02 MIL SURFACE FINISH OR LESS.
7. FLAT BRASS SEALING RINGS: ASTM B36 (HALF HARD) SPECIFICATION.
8. ELASTOMERIC DISC: VIRGIN PLAIN NEOPRENE OR NATURAL RUBBER WITH HARDNESS OF 50 DUROMETER (± 10) PER AASHTO M251.
9. PTFE SHEET: (UNFILLED, DIMPLED, AND LUBRICATED) MADE FROM VIRGIN TFE RESIN PER ASTM D4894. DIMPLES MUST HAVE A MINIMUM EDGE DISTANCE OF 0.5" AND CONFORM TO 1998 AASHTO LRFD SECTION 14.7.2.
10. CAULK FOR SEALING AROUND THE POT PERIMETER: SIKAFLEX 1A OR APPROVED EQUAL.
11. BEDDING MATERIAL: PUBLICATION 408, SECTION 1113.03 (h), TYPE II.

MATERIAL DESIGN PARAMETERS

1. ALLOWABLE PRESSURE IN ELASTOMER AND PTFE:
   MAXIMUM = 3500 PSI (ELASTOMER AND PTFE)
   MINIMUM = 700 PSI (ELASTOMER)
2. COEFFICIENT OF FRICTION BETWEEN PTFE AND STAINLESS STEEL: 0.04
3. CONCRETE BEARING STRENGTH: f'c = 3000 PSI



BEARING LAYOUTS FOR POT BEARINGS

NOT TO SCALE

G = GUIDED POT BEARING
NG = NON-GUIDED POT BEARING
FIX = FIXED POT BEARING

ANCHOR BOLT INSTALLATION NOTES

1. IF ANCHOR BOLTS ARE INSTALLED BEFORE THE MASONRY PLATE INSTALLATION, USE ANCHOR BOLT DETAIL 1, SHEET 41 (PREFERRED). THE USE OF A BLOCKOUT FORM IS OPTIONAL.
2. IF ANCHOR BOLTS ARE INSTALLED AFTER THE BEARINGS ARE INSTALLED, USE ANCHOR BOLT *DETAIL 2, SHEET 41 (ALTERNATE).*
3. IF BLOCKOUTS ARE USED, REMOVE BLOCKOUT FORM AND DEBRIS FROM HOLE PRIOR TO GROUTING. INSTALL NON-SHRINK GROUT IN ACCORDANCE WITH PUBLICATION 408, SECTION 1001. DO NOT GROUT UNTIL ALL GIRDER UNITS ARE PROPERLY ALIGNED.
4. PREVENT WATER FROM ACCUMULATING IN THE PREFORMED ANCHOR BOLT HOLES OR STANDARD PIPE AND ENSURE THE HOLES ARE COMPLETELY FILLED WITH GROUT.

POT BEARING GENERAL NOTES

1. PROVIDE MATERIALS AND WORKMANSHIP IN ACCORDANCE WITH SPECIFICATIONS, PUBLICATION 408, ANSI/AASHTO/AWS/D1.5 BRIDGE WELDING CODE AND CONTRACT SPECIAL PROVISIONS.
2. SANDBLAST IN ACCORDANCE WITH SSPC-SP10 TO REMOVE MILL SCALE FROM BEARINGS.
3. GRIND SMOOTH ALL STEEL SURFACES AND EDGES AND REMOVE ANY SHARP PROTRUSIONS. FABRICATION TOLERANCES AND THE LIMITATIONS ON SURFACE FINISH WILL BE IN ACCORDANCE WITH PUBLICATION 408, SECTION 1111.
4. PAINT ALL STEEL SURFACES IN ACCORDANCE WITH PUB 408, SECTION 1060. APPLY ALL COATS IN THE FABRICATION SHOP ONLY. DO NOT PAINT PTFE, STAINLESS STEEL OR THE INSIDE OF THE POT. APPLY ONLY PRIME COAT TO THE CONTACT AREA BETWEEN BEAM BOTTOM FLANGE AND SOLE PLATE AND TO THE BOTTOM SIDE OF THE MASONRY PLATE.
5. ROUND ALL PTFE CORNERS TO ACCOMMODATE THE MACHINED RECESS IN STEEL GUIDE PLATE/PISTON.
6. ETCH PTFE ON ONE SIDE FOR BONDING INTO THE MACHINED RECESS.
7. PTFE ON THE SIDE OF GUIDE PLATE MUST BE PIGMENTED.
8. PRIOR TO THE APPLICATION OF ADHESIVE, CLEAN ALL MATING STEEL AND PTFE SURFACES BY GRIT BLASTING AND DEGREASING. APPLY ADHESIVE AS PER THE MANUFACTURER'S RECOMMENDATION.
9. LUBRICATE ALL SURFACES OF NEOPRENE DISC WITH SILICONE GREASE IN ACCORDANCE WITH MILITARY SPECIFICATION MIL-S-8660.
10. CUT FLAT BRASS SEALING RING ENDS AT 45° ANGLE WITH A MAXIMUM GAP OF 0.05". STAGGER THE OPENINGS IN THE BRASS RINGS 120° APART.
11. MARK THE THICKER EDGE OF THE SOLE PLATE AS SUCH FOR THE PURPOSE OF FIELD IDENTIFICATION. PLACE MARK ON THE EDGE OF SOLE PLATE SO THAT IT WILL BE VISIBLE AFTER BEARING INSTALLATION. IN THE CASE OF A SOLE PLATE WITH A COMPOUND BEVEL, PLACE THE MARK ON EITHER EDGE OF THE THICKEST SOLE PLATE CORNER.
12. MARK CENTERLINE OF GUIDED AND NON-GUIDED POT BEARINGS ON THE SIDES OF MASONRY PLATE AND SOLE PLATE. THE CENTERLINE IDENTIFICATION MARKS WILL BE USEFUL TO LOCATE OFFSET DISTANCES IN THE FIELD. USE INDELIBLE INK TO PLACE ALL MARKS.
13. MARK EACH BEARING WITH THE NAME OF THE MANUFACTURER AND TYPE OR MODEL NUMBER. PLACE THE IDENTIFICATION MARK IN A PERMANENT MANNER AND LOCATION SO THAT IT IS VISIBLE AFTER ERECTION.
14. WHEN THE POT IS RECESSED INTO THE MASONRY PLATE, SEAL AROUND THE POT PERIMETER WITH AN APPROVED CAULKING COMPOUND IN THE SHOP AFTER PAINT COATING HAS DRIED.
15. ENSURE ALL BEARING SURFACES INCLUDING THE BEARING SEAT ARE LEVEL PRIOR TO INSTALLATION OF POT BEARING IN ACCORDANCE WITH PUBLICATION 408.
16. TEST ONE BEARING PER TYPE OR PER LOT SIZE OF 25 FOR A HORIZONTAL FORCE CAPACITY PRIOR TO SHIPMENT.
17. PROVIDE A CLEARANCE OF 2" BETWEEN THE ANCHOR BOLTS AND REINFORCEMENT BARS.

NOTES

1. FOR GENERAL NOTES AND LIST OF ABBREVIATIONS, SEE SHEETS 4 & 5.
2. FOR POT BEARING DETAILS, SEE SHEETS 39 THRU 43.

Mark	Description	By	Chk'd.	Recm'd.	Date

REVISIONS

SR 6011 PREVIOUSLY KNOWN AS LR 5

PREPARED BY: DEWBERRY ENGINEERS INC.

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF TRANSPORTATION

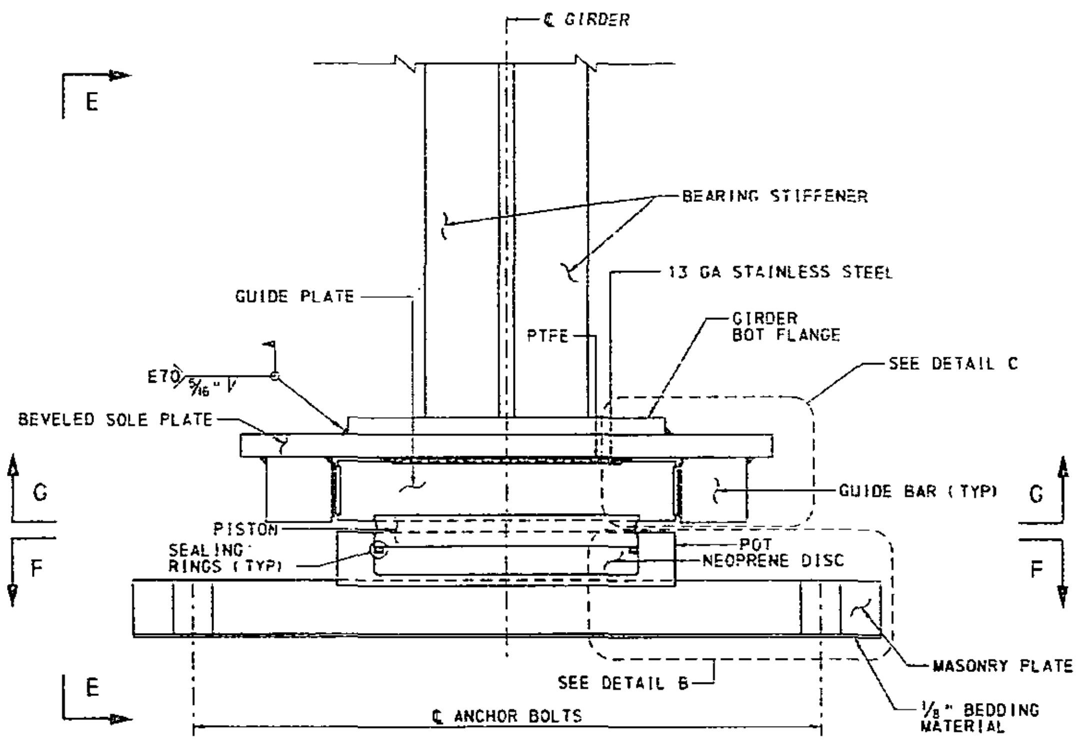
LACKAWANNA COUNTY
SR 6011 SEC 273
SEGMENT 0190 OFFSET 0404
SR 6011 - 273 STA 16+27.50
OVER ROARING BROOK, SR 3022,
AND DELAWARE, LACKAWANNA & WESTERN RAILROAD
3-SPAN CONT COMP STEEL MULTI-GIRDER BRIDGE
POT BEARINGS - GENERAL

RECOMMENDED MAY 07 2014

SHEET 39 OF 76

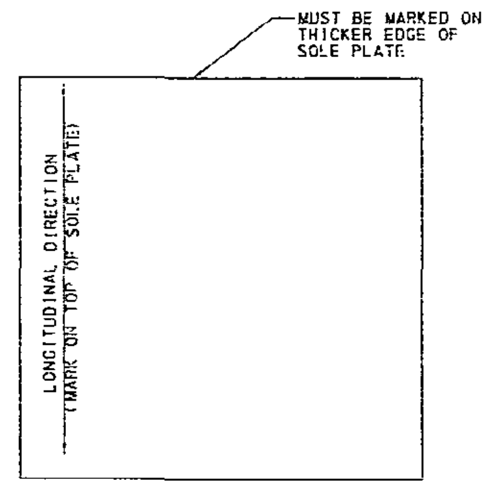
S - 33152

DES: GCP | CKD: KES | DWG: KLL | CKD: KES



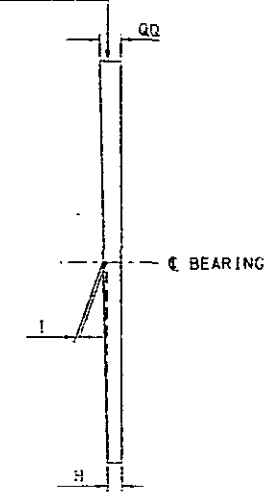
TYPICAL GUIDED EXPANSION BEARING (ABUT 1 & ABUT 2)

NO SCALE



GUIDED BEARING SOLE PLATE PLAN

NO SCALE

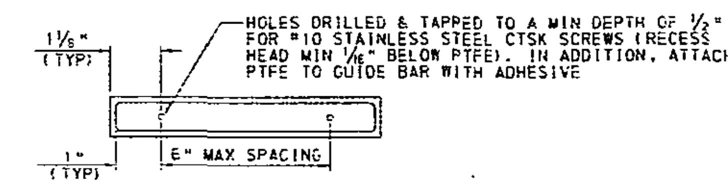


SIDE VIEW

NO SCALE

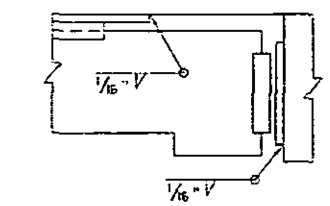
LOCATION	H	I	QQ	PP* @ ℄ BRG
ABUTMENT 1	0.8125"	0.1186"	1.0498"	8.3686"
ABUTMENT 2	0.8125"	0.0990"	1.0105"	8.9740"

* BEARING HEIGHT INCLUDES 1/8" BEDDING MATERIAL



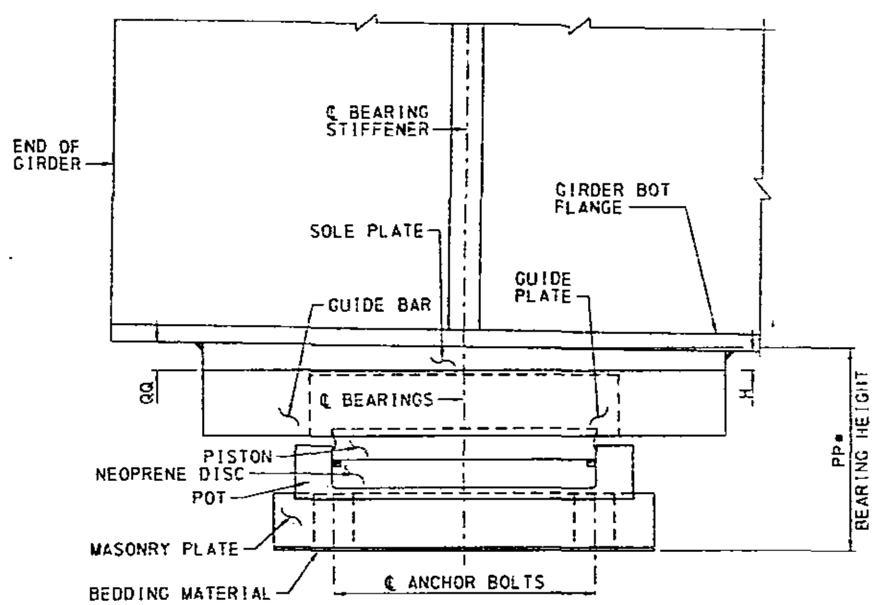
TYPICAL GUIDE PLATE PTFE DETAIL

NO SCALE



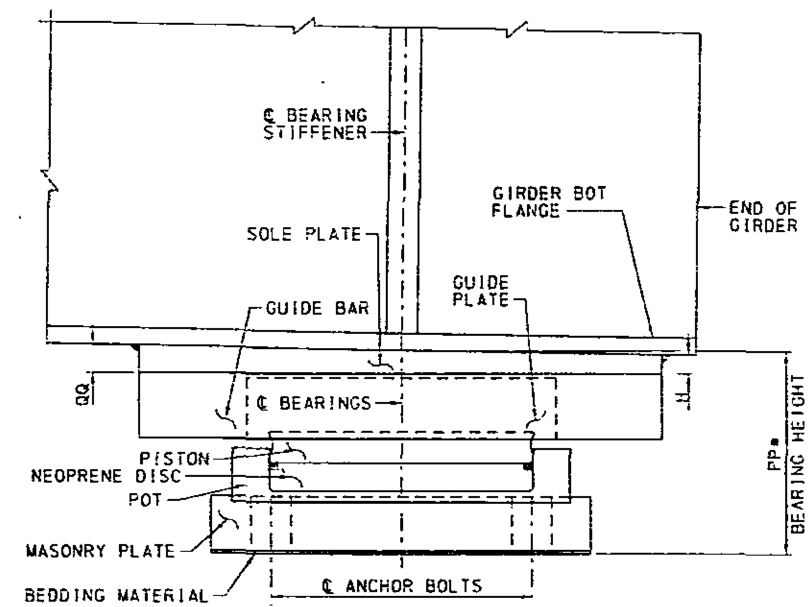
TYPICAL STAINLESS STEEL WELD DETAIL

NO SCALE



SECTION E-E, ABUT 1

NO SCALE



SECTION E-E, ABUT 2

NO SCALE

NOTES

1. FOR GENERAL NOTES AND LIST OF ABBREVIATIONS, SEE SHEETS 4 & 5.
2. FOR POT BEARING NOTES, SEE SHEET 39.
3. FOR BEARING SCHEDULE, SEE SHEET 39.
4. FOR ANCHOR BOLT INSTALLATION NOTES, SEE SHEET 35.
5. FOR ANCHOR BOLT DETAILS, SEE SHEET 41.
6. FOR PISTON DETAIL, SEE SHEET 41.
7. FOR TYPICAL GUIDE BAR WELD DETAIL, SEE SHEET 41.
8. FOR DETAIL B, DETAIL C, SECTION F-F AND SECTION G-G, SEE SHEET 41.

Mark	Description	By	Chk'd.	Recm'd.	Date
REVISIONS					

SR 6011 PREVIOUSLY KNOWN AS LR 5

PREPARED BY:
DEWBERRY ENGINEERS INC.

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
GARY L. FRENETTE
ENGINEER

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF TRANSPORTATION

LACKAWANNA COUNTY
SR 6011 SEC 273
SEGMENT 0190 OFFSET 0404
SR 6011 - 273 STA 16+27.50
OVER ROARING BROOK, SR 3022,
AND DELAWARE, LACKAWANNA & WESTERN RAILROAD
3-SPAN CONT COMP STEEL MULTI-GIRDER BRIDGE
GUIDED POT BEARING DETAILS - 1

RECOMMENDED MAY 07 2014

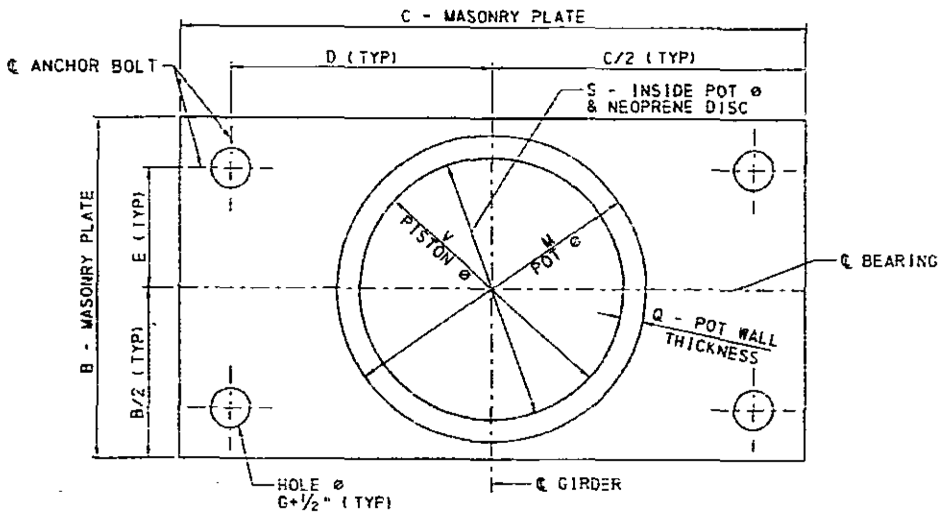
SHEET 40 OF 76

S - 33152

DES: GCP | CKD: KES | DWG: KLL | CKD: KES

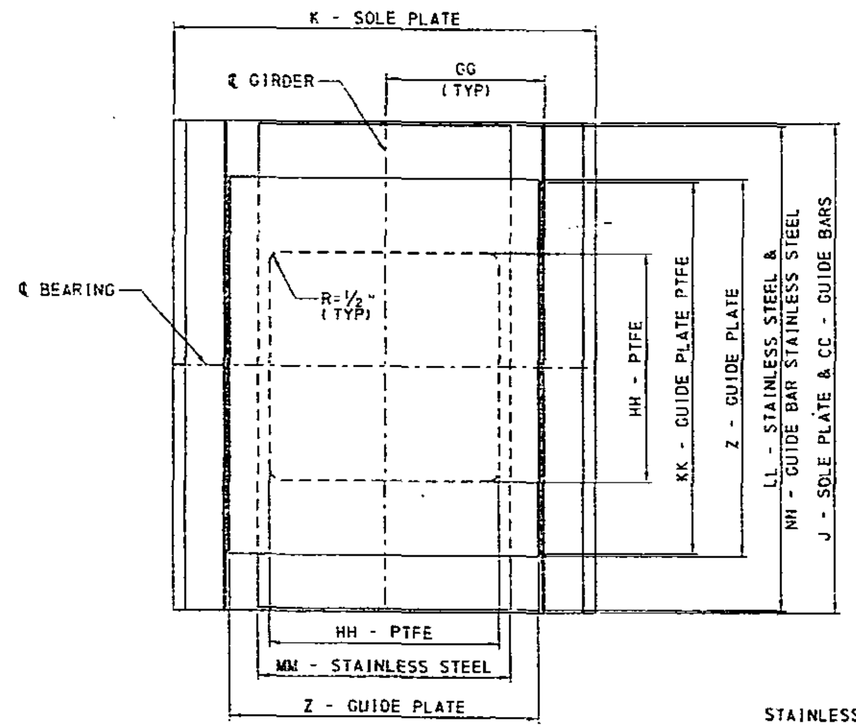
LOCATION	REQ'D	VERTICAL LOAD (K)	HORIZ LOAD (K)	ROTATION (RADS)	MASONRY PLATE A	MASONRY PLATE B	MASONRY PLATE C	MASONRY PLATE D	MASONRY PLATE E	ANCHOR BOLT QTY	ANCHOR BOLT G	SOLE PLATE J	SOLE PLATE K	POT L	POT M	POT N	POT O	POT P	POT Q	NEOPRENE DISC R	NEOPRENE DISC S	NEOPRENE DISC T
ABUTMENT 1	2	250	75	0.03	2 1/8"	14 1/8"	28 5/8"	12 1/16"	4 13/16"	4	1 1/4"	16 1/4"	19 5/8"	2 3/16"	12 5/8"	1 11/16"	1/2"	1/4"	1 3/8"	1"	9 7/8"	3/8"
ABUTMENT 2	2	300	90	0.03	2 3/8"	15 1/2"	31 1/2"	13 1/8"	5"	4	1 1/2"	20 5/8"	21"	2 7/16"	13 3/4"	1 13/16"	5/8"	1/4"	1 1/2"	1 1/8"	10 3/4"	3/8"

LOCATION	PISTON U	PISTON V	PISTON W	PISTON X	GUIDE PLATE Y	GUIDE PLATE Z	GUIDE BARS AA	GUIDE BARS BB	GUIDE BARS CC	GUIDE BARS DD	GUIDE BARS EE	GUIDE BARS FF	GUIDE BARS GG	PTFE HH	PTFE II	PTFE JJ	PTFE KK	STAINLESS STEEL LL	STAINLESS STEEL MM	STAINLESS STEEL NN	STAINLESS STEEL OO
ABUTMENT 1	1 3/8"	9.835"	7/16"	1/4"	2 3/8"	12 5/8"	2 5/8"	2 5/8"	18 1/4"	5/16"	1/2"	5/16"	6.559"	8 1/2"	3/16"	1 7/8"	12 3/8"	18 1/8"	9 1/2"	18 1/8"	2 1/8"
ABUTMENT 2	1 3/8"	10.710"	7/16"	1/4"	2 1/2"	13 3/4"	2 3/4"	2 3/4"	20 5/8"	5/16"	1/2"	5/16"	7.121"	9 3/8"	3/16"	2"	13 1/2"	20 1/2"	10 3/8"	20 1/2"	2 1/4"



SECTION F-F

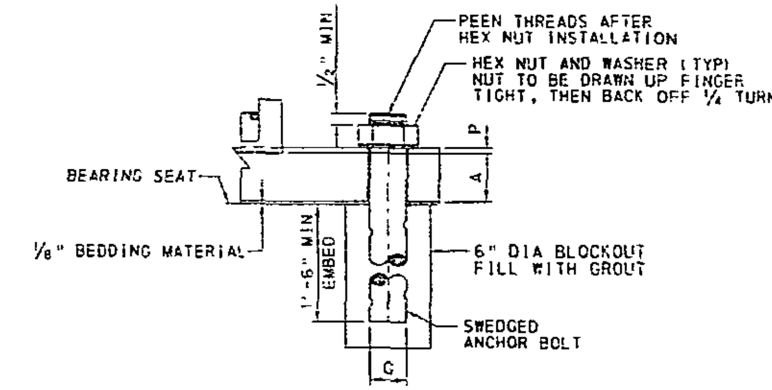
NO SCALE



SECTION G-G

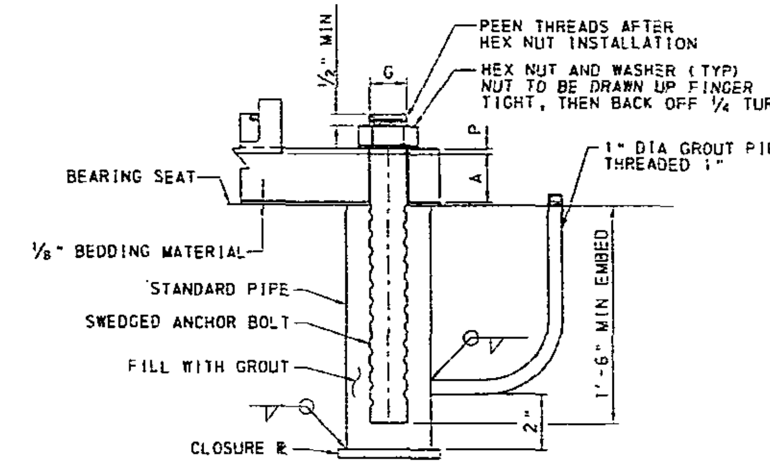
NOTE: PISTON NOT SHOWN FOR CLARITY

NO SCALE



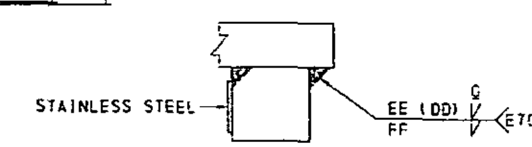
ANCHOR BOLT DETAIL 1

NO SCALE



ANCHOR BOLT DETAIL 2

NO SCALE

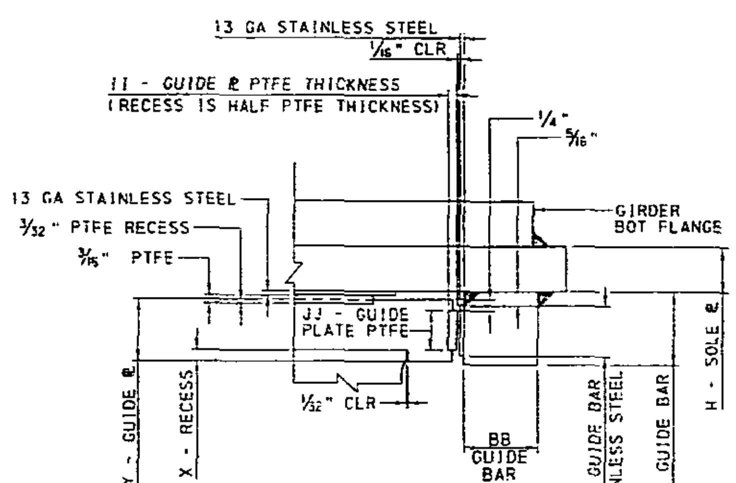


TYPICAL GUIDE BAR WELD DETAIL

NO SCALE

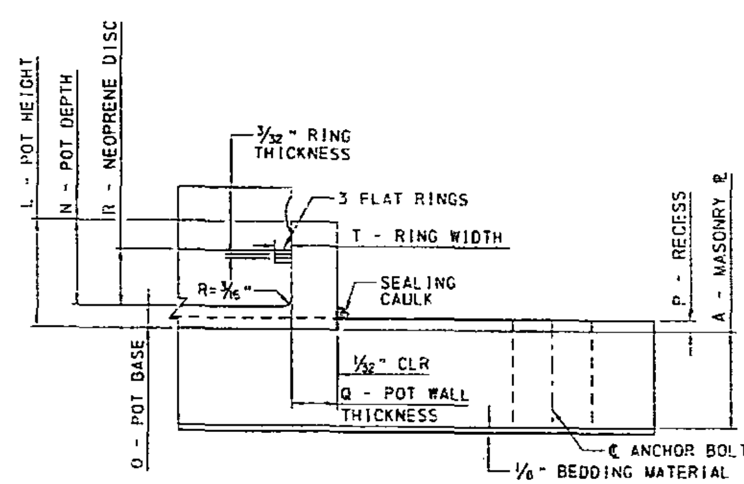
NOTES

1. FOR GENERAL NOTES AND LIST OF ABBREVIATIONS, SEE SHEETS 4 & 5.
2. FOR POT BEARING NOTES, SEE SHEET 39.
3. FOR BEARING SCHEDULE, SEE SHEET 39.
4. FOR ANCHOR BOLT INSTALLATION NOTES, SEE SHEET 39.
5. FOR TYPICAL GUIDE PLATE PTFE DETAIL, SEE SHEET 40.
6. FOR TYPICAL STAINLESS STEEL WELD DETAIL, SEE SHEET 40.
7. FOR LOCATIONS OF DETAIL B, DETAIL C, SECTION F-F AND SECTION G-G, SEE SHEET 40.



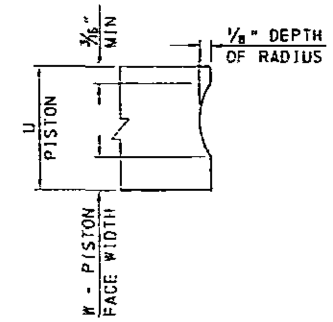
DETAIL C

NO SCALE



DETAIL B

NO SCALE



PISTON DETAIL

NO SCALE

Mark	Description	By	Chk'd.	Recm'd.	Date

REVISIONS

SR 6011 PREVIOUSLY KNOWN AS LR 5

PREPARED BY: DEWBERRY ENGINEERS INC.

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF TRANSPORTATION

LACKAWANNA COUNTY
SR 6011 SEC 273
SEGMENT 0190 OFFSET 0404
SR 6011 - 273 STA 16+27.50
OVER ROARING BROOK, SR 3022,
AND DELAWARE, LACKAWANNA & WESTERN RAILROAD
3-SPAN CONT COMP STEEL MULTI-GIRDER BRIDGE
GUIDED POT BEARING DETAILS - 2

RECOMMENDED MAY 07 2014

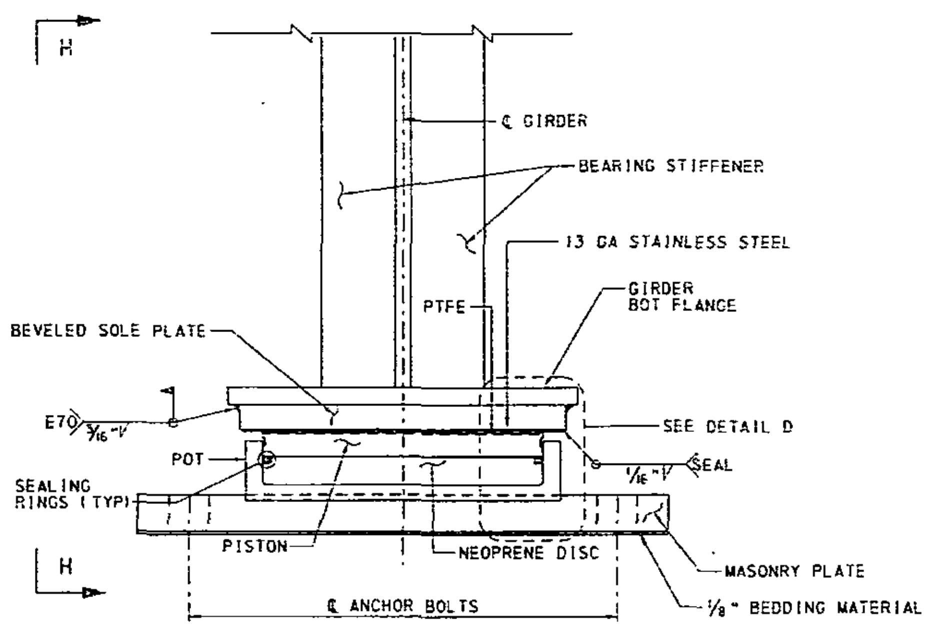
SHEET 41 OF 76

S - 33152

DES: GCF | CKD: KES | DWG: KLL | CKD: KES

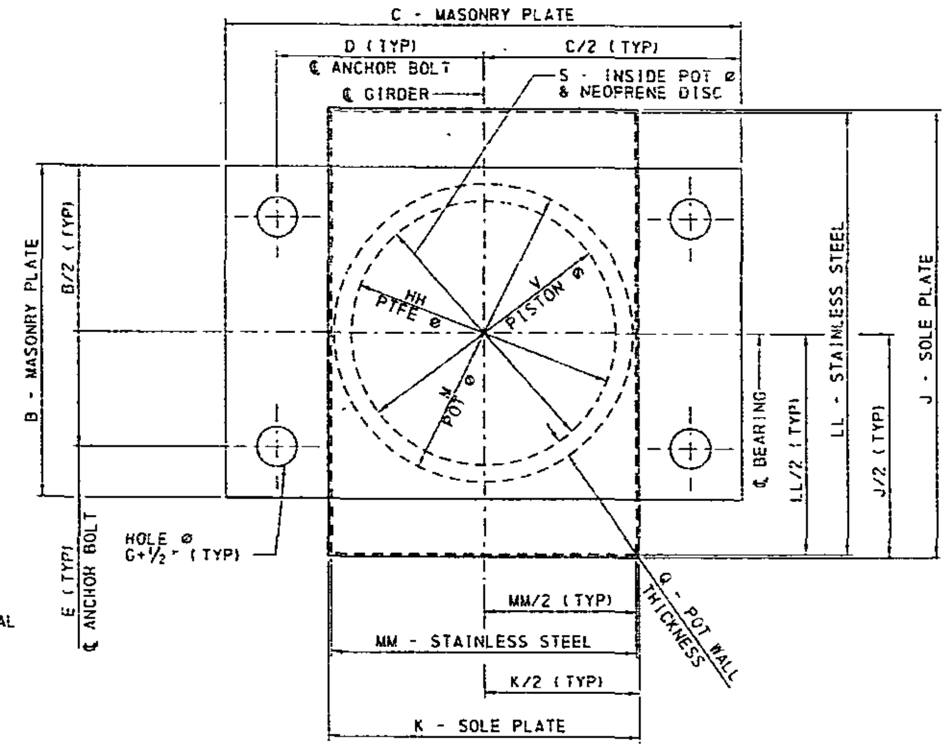
LOCATION	REQ'D	VERTICAL LOAD (K)	HORIZ LOAD (K)	ROTATION (RADS)	MASONRY PLATE A	MASONRY PLATE B	MASONRY PLATE C	MASONRY PLATE D	MASONRY PLATE E	ANCHOR BOLT QTY	ANCHOR BOLT G	SOLE PLATE J	SOLE PLATE K
ABUTMENT 1	3	200	20	0.03	1 1/2"	11 7/8"	19 7/8"	7 11/16"	3 11/16"	4	1 1/4"	14 5/8"	10 7/8"
ABUTMENT 2	3	300	30	0.03	1 5/8"	13 3/4"	21 3/4"	8 5/8"	4 5/8"	4	1 1/4"	17 3/4"	12 3/4"

LOCATION	POT L	POT M	POT N	POT O	POT P	POT Q	NEOPRENE DISC R	NEOPRENE DISC S	NEOPRENE DISC T	PISTON U	PISTON V	PISTON W	PTFE HH	STAINLESS STEEL LL	STAINLESS STEEL MM
ABUTMENT 1	2 1/16"	10 3/8"	1 1/2"	5/16"	1/4"	3/4"	1"	8 7/8"	3/8"	13/16"	8.835"	5/16"	8 5/8"	14 3/8"	10 5/8"
ABUTMENT 2	2 5/16"	12 1/4"	1 3/4"	5/16"	1/4"	3/4"	1 1/8"	10 3/4"	3/8"	15/16"	10.710"	7/16"	10 1/2"	17 1/2"	12 1/2"



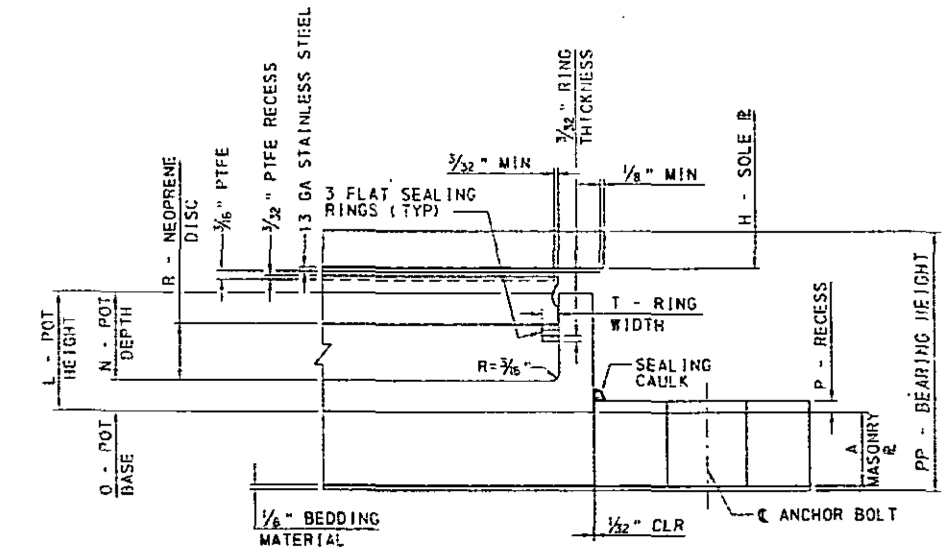
TYPICAL NON-GUIDED EXPANSION BEARING (ABUT 1 & ABUT 2)

NO SCALE



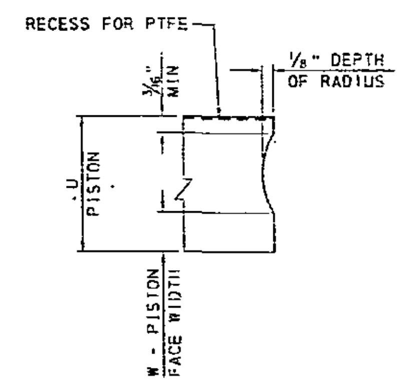
TYPICAL NON-GUIDED EXPANSION BEARING PLAN

NO SCALE



DETAIL D

NO SCALE



PISTON DETAIL

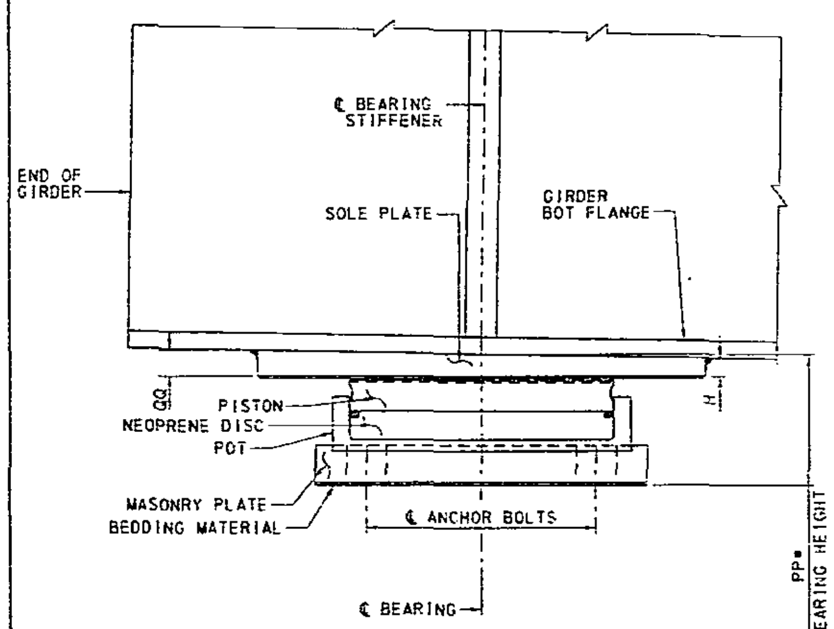
NO SCALE

NOTES

1. FOR GENERAL NOTES AND LIST OF ABBREVIATIONS, SEE SHEETS 4 & 5.
2. FOR POT BEARING NOTES, SEE SHEET 39.
3. FOR BEARING SCHEDULE, SEE SHEET 39.
4. FOR ANCHOR BOLT INSTALLATION NOTES, SEE SHEET 39.
5. FOR ANCHOR BOLT DETAILS, SEE SHEET 41.

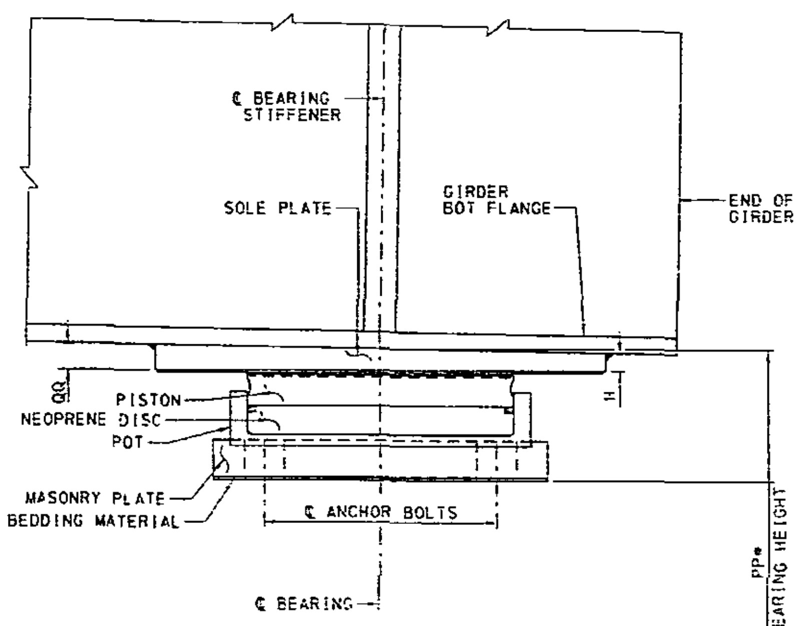
LOCATION	H	I	QQ	PP* @ ℄ BRG
ABUTMENT 1	0.8125"	0.0951"	1.0026"	5.0951"
ABUTMENT 2	0.8125"	0.0852"	0.9829"	5.4602"

* BEARING HEIGHT INCLUDES 1/8" BEDDING MATERIAL



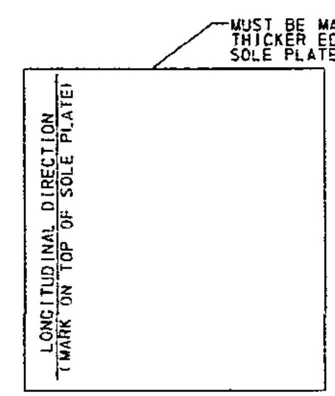
SECTION H-H, ABUT 1

NO SCALE



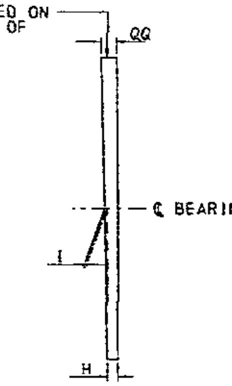
SECTION H-H, ABUT 2

NO SCALE



NON-GUIDED BEARING SOLE PLATE PLAN

NO SCALE



SIDE VIEW

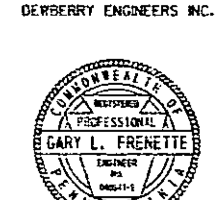
NO SCALE

Mark	Description	By	Chk'd.	Recm'd.	Date

REVISIONS

SR 6011 PREVIOUSLY KNOWN AS LR 5

PREPARED BY: DEWBERRY ENGINEERS INC.



COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF TRANSPORTATION

LACKAWANNA COUNTY
SR 6011 SEC 273
SEGMENT 0190 OFFSET 0404
SR 6011 - 273 STA 16+27.50
OVER ROARING BROOK, SR 3022,
AND DELAWARE, LACKAWANNA & WESTERN RAILROAD
3-SPAN CONT COMP STEEL MULTI-GIRDER BRIDGE
NON-GUIDED POT BEARING DETAILS

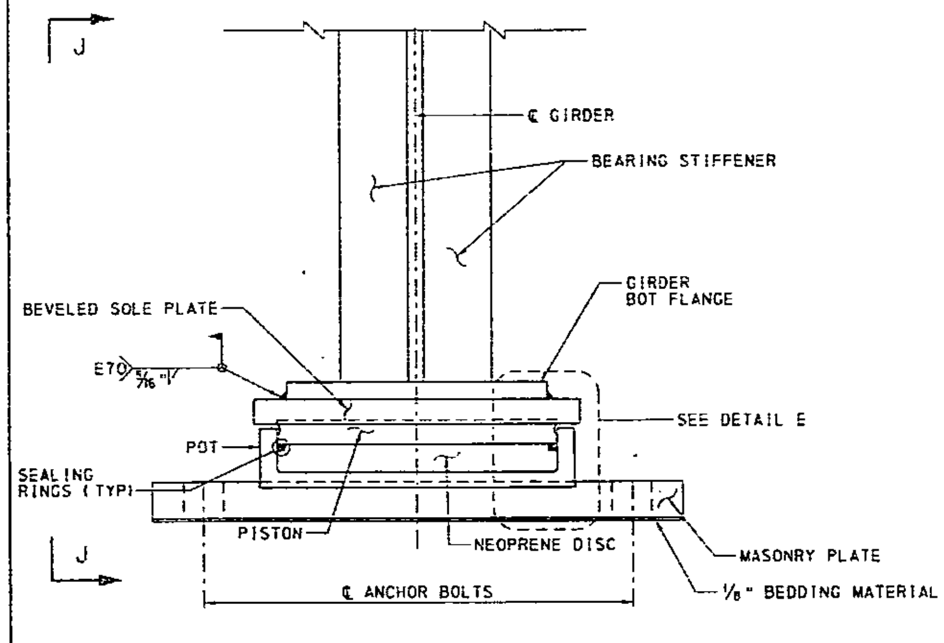
RECOMMENDED MAY 07 2014

SHEET 42 OF 76

S - 33152

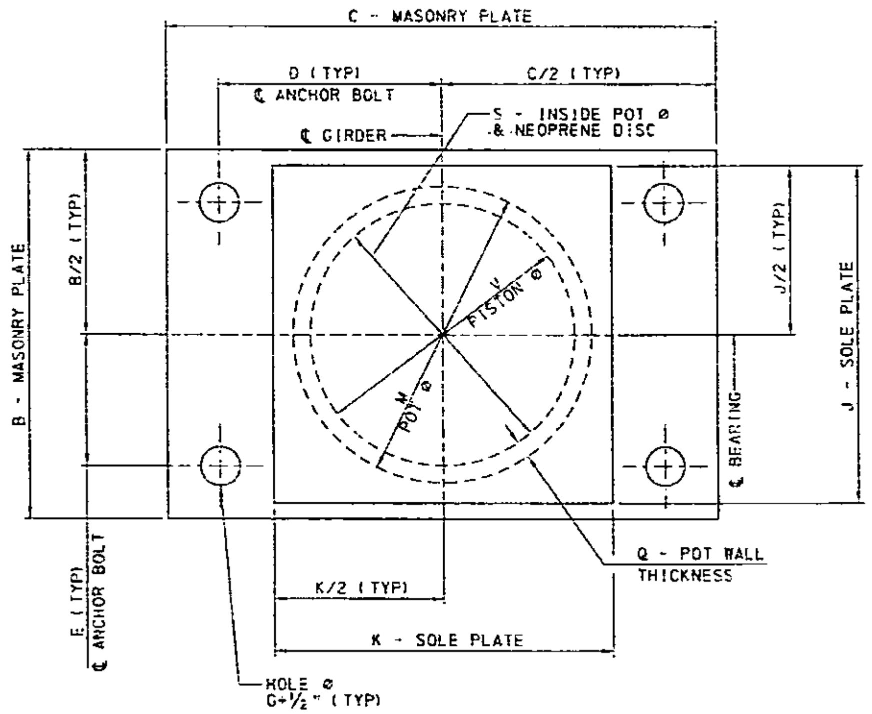
DES: GCP	CKD: KES	DWG: KLL	CKD: KES

LOCATION	REQ'D	VERTICAL LOAD (K)	HORIZ LOAD (K)	ROTATION (RADS)	MASONRY PLATE					ANCHOR BOLT		SOLE PLATE		POT						NEOPRENE DISC			PISTON			
					A	B	C	D	E	QTY	G	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X
PIER 1	5	750	225	0.03	2 1/8"	23 5/8"	35 1/8"	14 3/16"	8 7/16"	4	2"	21 5/8"	21 5/8"	3 11/16"	21 5/8"	2 13/16"	7/8"	1/4"	2 3/8"	1 3/4"	16 7/8"	3/8"	1 7/8"	16.835"	11/16"	5/16"
PIER 2	5	750	225	0.03	2 1/8"	23 5/8"	35 1/8"	14 3/16"	8 7/16"	4	2"	21 5/8"	21 5/8"	3 11/16"	21 5/8"	2 13/16"	7/8"	1/4"	2 3/8"	1 3/4"	16 7/8"	3/8"	1 7/8"	16.835"	11/16"	5/16"



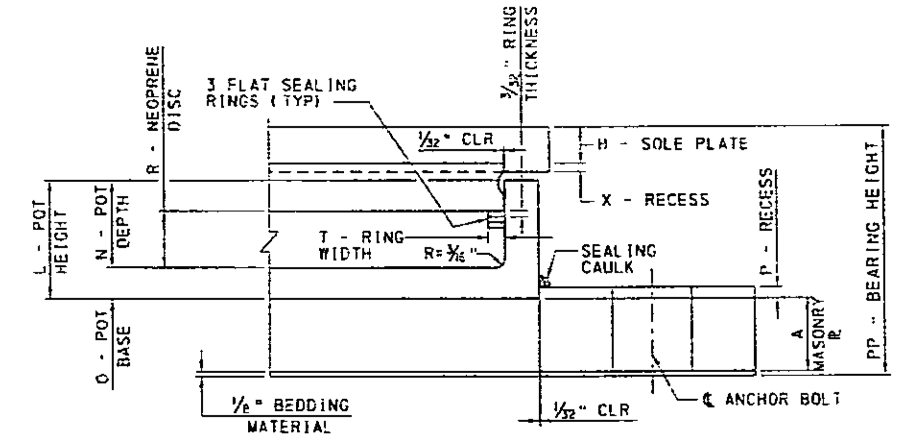
TYPICAL FIXED BEARING (PIER 1 & PIER 2)

NO SCALE



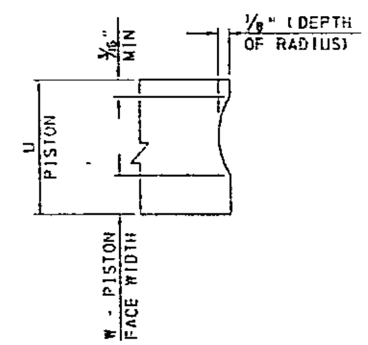
TYPICAL FIXED BEARING PLAN

NO SCALE



DETAIL E

NO SCALE



PISTON DETAIL

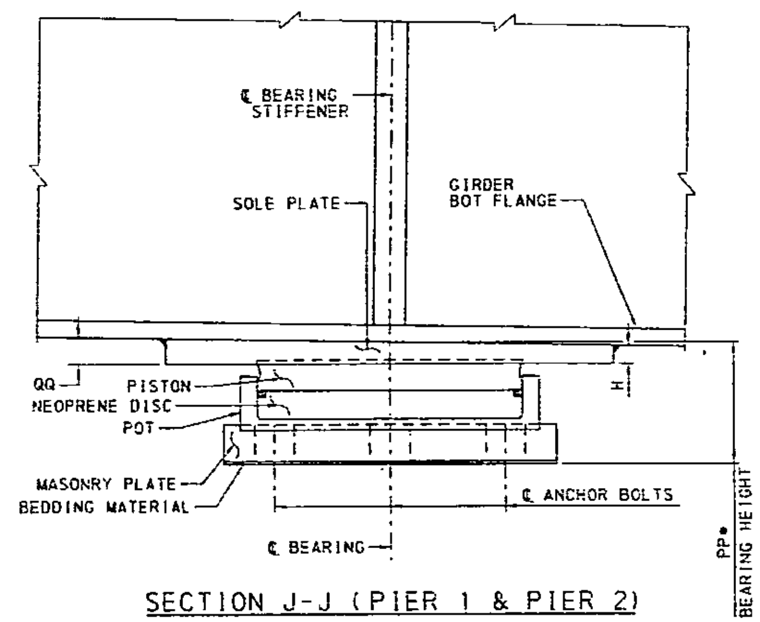
NO SCALE

LOCATION	H	I	QQ	PP* @ ℄ BRG
PIER 1	0.8125"	0.1038"	1.0201"	7.6663"
PIER 2	0.8125"	0.1038"	1.0201"	7.6663"

* BEARING HEIGHT INCLUDES 1/8" BEDDING MATERIAL

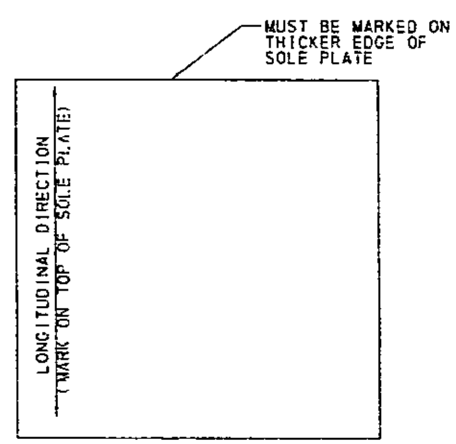
NOTES

1. FOR GENERAL NOTES AND LIST OF ABBREVIATIONS, SEE SHEETS 4 & 5.
2. FOR POT BEARING NOTES, SEE SHEET 39.
3. FOR BEARING SCHEDULE, SEE SHEET 39.
4. FOR ANCHOR BOLT INSTALLATION NOTES, SEE SHEET 39.
5. FOR ANCHOR BOLT DETAILS, SEE SHEET 41.



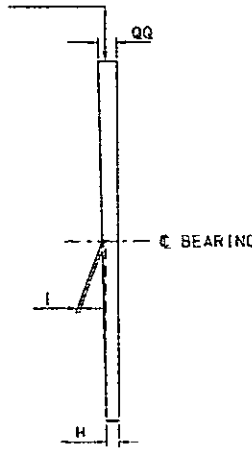
SECTION J-J (PIER 1 & PIER 2)

NO SCALE



FIXED BEARING SOLE PLATE PLAN

NO SCALE



SIDE VIEW

NO SCALE

Mark	Description	By	Chk'd.	Recm'd.	Date

REVISIONS

SR 6011 PREVIOUSLY KNOWN AS LR 5

PREPARED BY: DEWBERRY ENGINEERS INC.

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF TRANSPORTATION

LACKAWANNA COUNTY
SR 6011 SEC 273
SEGMENT 0190 OFFSET 0404
SR 6011 - 273 STA 16+27.50
OVER ROARING BROOK, SR 3022,
AND DELAWARE, LACKAWANNA & WESTERN RAILROAD
3-SPAN CONT COMP STEEL MULTI-GIRDER BRIDGE

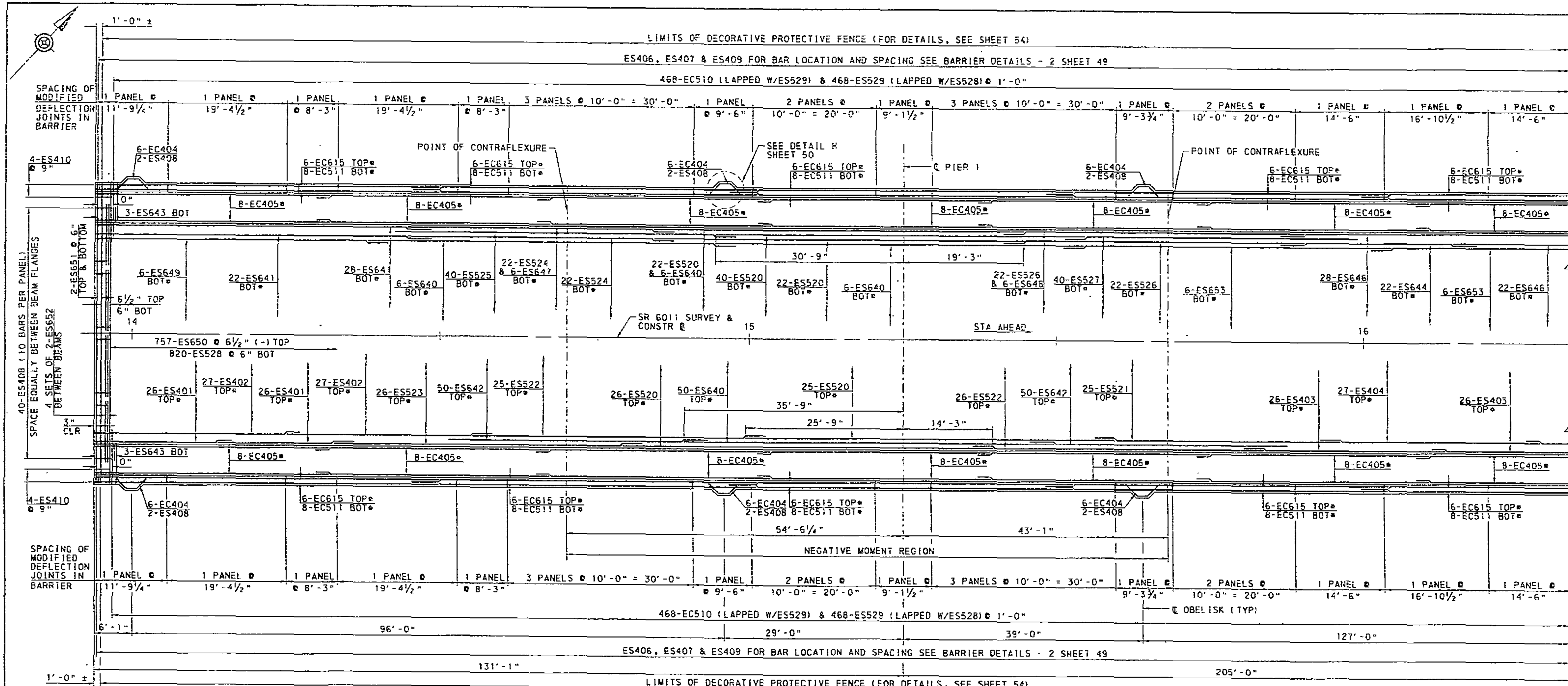
FIXED POT BEARING DETAILS

RECOMMENDED MAY 07 2014

SHEET 43 OF 76

S - 33152

DES: GCP | CKD: KES | DWG: KLL | CKD: KES



PARTIAL SLAB PLAN

2 0 4 8 FEET

NOTES

1. FOR GENERAL NOTES AND LIST OF ABBREVIATIONS, SEE SHEETS 4 & 5.
2. FOR OVERHANG DETAILS AND REINFORCEMENT BAR LOCATIONS, SEE SHEETS 46 & 47.
3. FOR TYPICAL SECTION, SEE SHEET 46.
4. FOR DECK SLAB PLACEMENT SEQUENCE, SEE SHEET 51.
5. FOR DECK SLAB ELEVATIONS, SEE SHEETS 52 & 53.
6. FOR BARRIER DETAILS, SEE SHEETS 48 THRU 50.
7. FOR REINFORCEMENT BAR SCHEDULE, SEE SHEETS 64 THRU 68.

* SEE TYPICAL SECTION FOR LOCATIONS OF LONGITUDINAL DECK REINFORCEMENT

MINIMUM LAP LENGTHS

BAR SIZE	DECK SLAB	SIDEWALK	BARRIER
#4 TO #4	2'-1"	2'-1"	---
#4 TO #5	3'-3"	---	---
#5 TO #5	3'-3"	2'-7"	3'-7"
#5 TO #6	3'-10"	---	---
#6 TO #6	3'-10"	---	4'-4"

Mark	Description	By	Chk'd.	Recm'd.	Date

REVISIONS

SR 6011 PREVIOUSLY KNOWN AS LR 5

PREPARED BY: DEWBERRY ENGINEERS INC.

COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL GARY L. FRENETTE ENGINEER

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF TRANSPORTATION

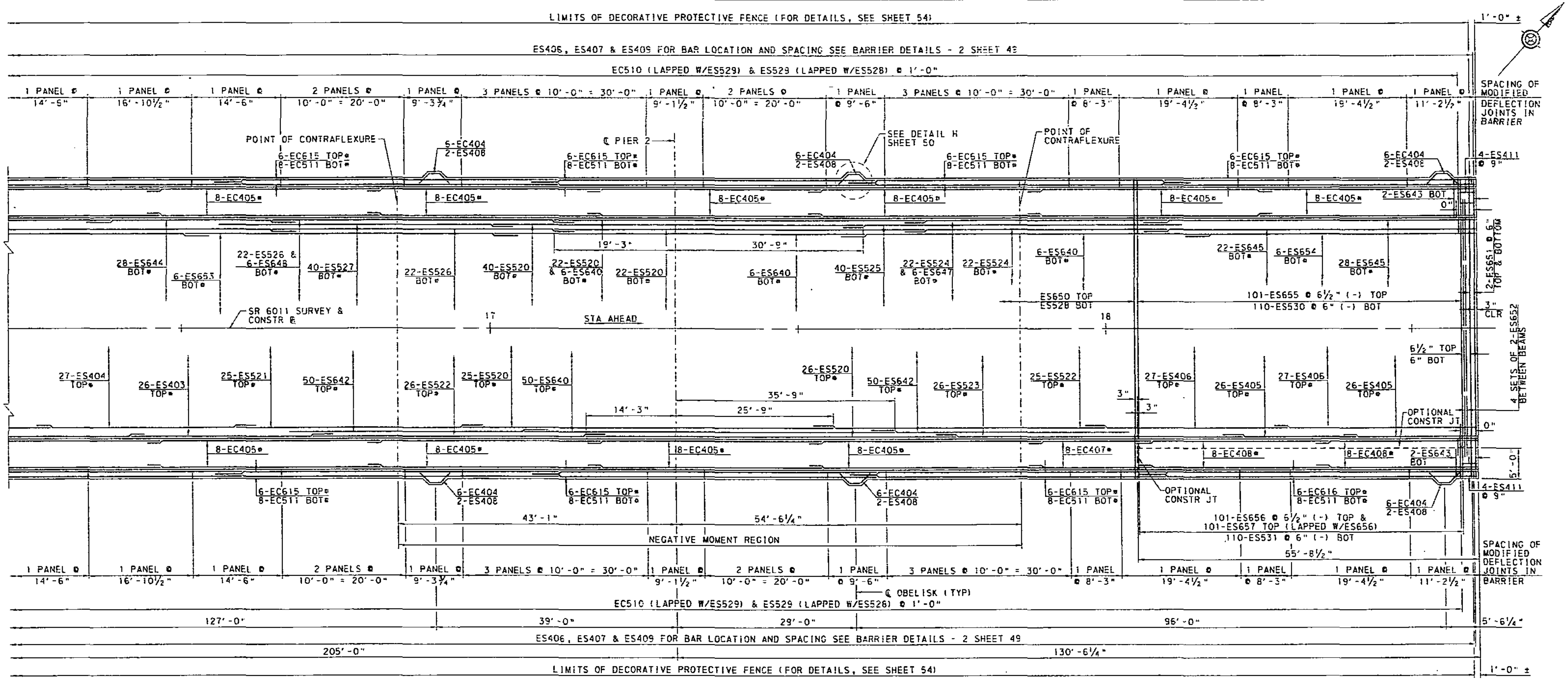
LACKAWANNA COUNTY
SR 6011 SEC 273
SEGMENT 0190 OFFSET 0404
SR 6011 - 273 STA 16+27.50
OVER ROARING BROOK, SR 3022,
AND DELAWARE, LACKAWANNA & WESTERN RAILROAD
3-SPAN CONT COMP STEEL MULTI-GIRDER BRIDGE
DECK SLAB PLAN - 1

RECOMMENDED MAY 07 2014

SHEET 44 OF 76

S - 33152

DES: GCP | CKD: DMC | DWG: DMC | CKD: CRH



PARTIAL SLAB PLAN

2 0 4 8 FEET

NOTES

1. FOR GENERAL NOTES AND LIST OF ABBREVIATIONS, SEE SHEETS 4 & 5.
2. FOR OVERHANG DETAILS AND REINFORCEMENT BAR LOCATIONS, SEE SHEETS 46 AND 47.
3. FOR TYPICAL SECTION, SEE SHEET 46.
4. FOR DECK SLAB PLACEMENT SEQUENCE, SEE SHEET 51.
5. FOR DECK SLAB ELEVATIONS, SEE SHEETS 52 & 53.
6. FOR BARRIER DETAILS, SEE SHEETS 48 THRU 50.
7. FOR REINFORCEMENT BAR SCHEDULE, SEE SHEETS 64 THRU 68.

* SEE TYPICAL SECTION FOR LOCATIONS OF LONGITUDINAL DECK REINFORCEMENT

MINIMUM LAP LENGTHS			
BAR SIZE	DECK SLAB	SIDEWALK	BARRIER
#4 TO #4	2'-1"	2'-1"	---
#4 TO #5	3'-3"	---	---
#5 TO #5	3'-3"	2'-7"	3'-7"
#5 TO #6	3'-10"	---	---
#6 TO #6	3'-10"	---	4'-4"

Mark	Description	By	Cnk'd.	Recm'd.	Date

REVISIONS

SR 6011 PREVIOUSLY KNOWN AS LR 5

PREPARED BY: DEWBERRY ENGINEERS INC.

COMMONWEALTH OF PENNSYLVANIA PROFESSIONAL ENGINEER GARY L. FRENETTE

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF TRANSPORTATION

LACKAWANNA COUNTY
SR 6011 SEC 273
SEGMENT 0190 OFFSET 0404
SR 6011 - 273 STA 16+27.50
OVER ROARING BROOK, SR 3022,
AND DELAWARE, LACKAWANNA & WESTERN RAILROAD
3-SPAN CONT COMP STEEL MULTI-GIRDER BRIDGE

DECK SLAB PLAN - 2

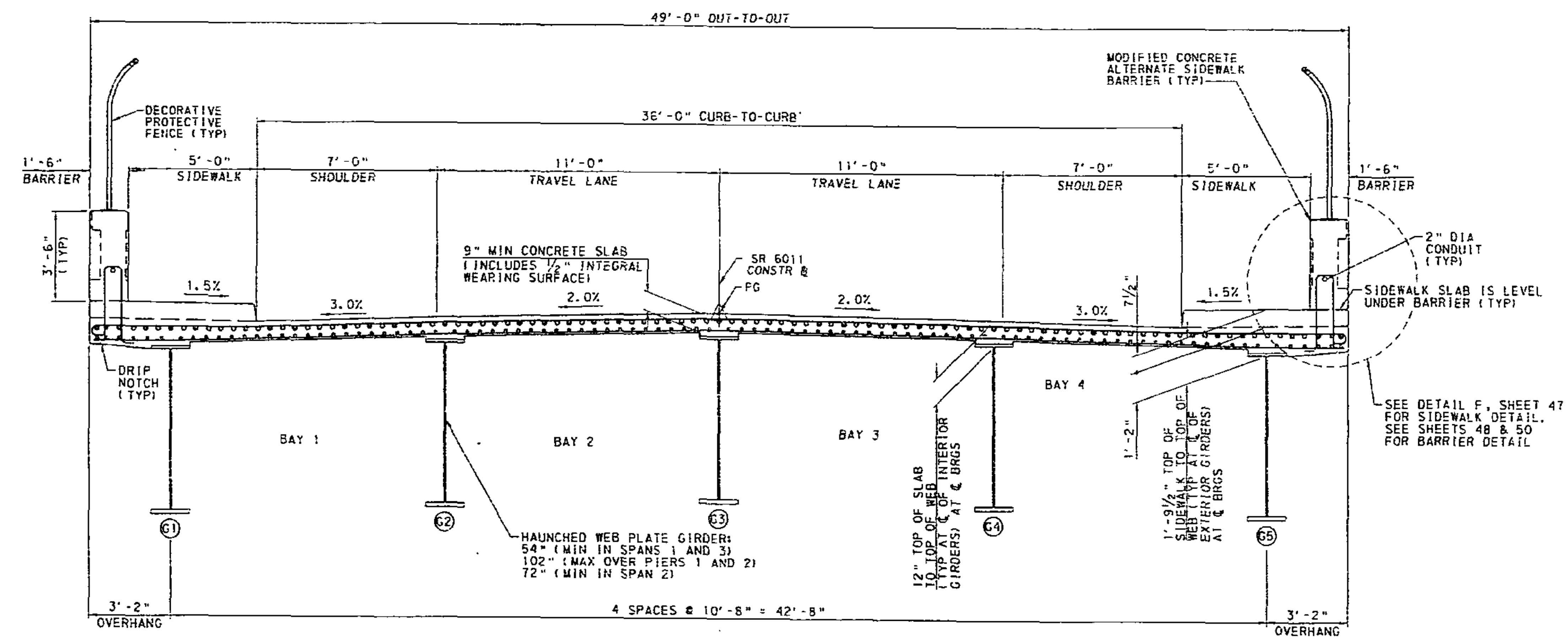
RECOMMENDED MAY 0 7 2014

SHEET 45 OF 76

S - 33152

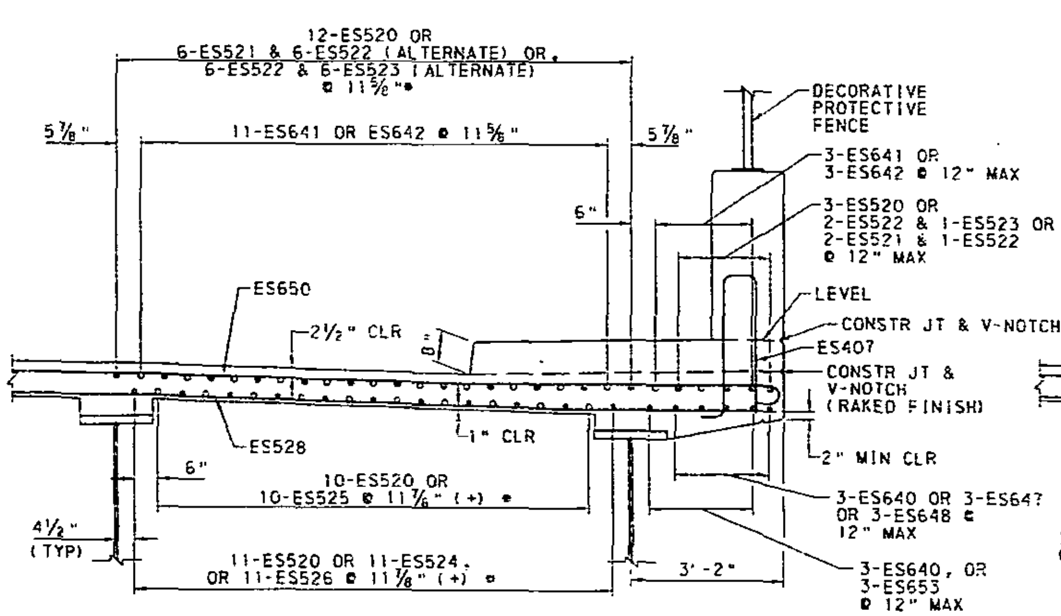
DES: GCP | CKD: DMC | DWG: DMC | CKD: CRH

4/3/2014 12:54:15 PM



TYPICAL SECTION

1 0 1 2 3 FEET

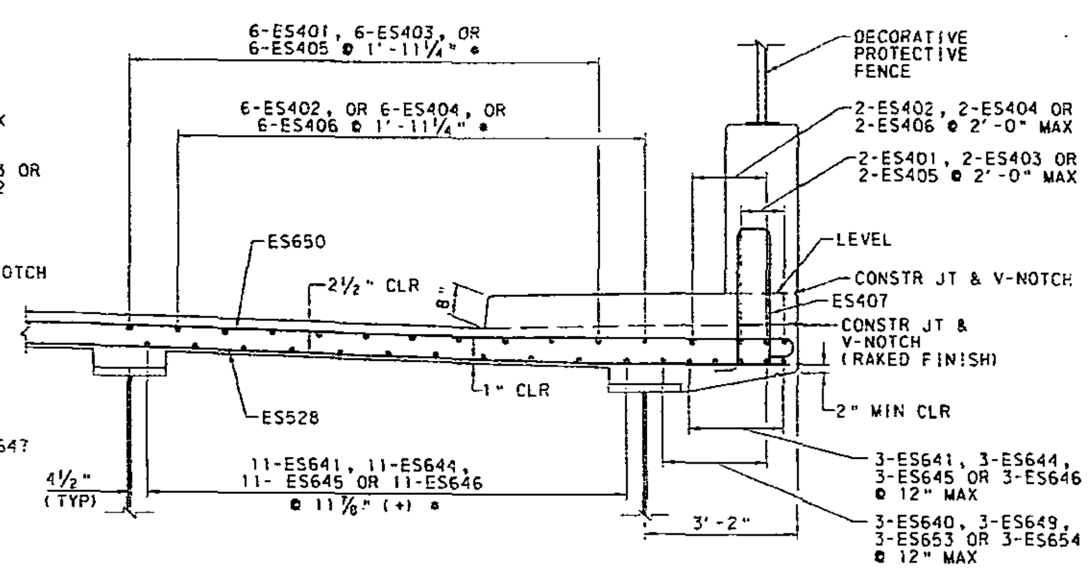


TYPICAL PANEL AND OVERHANG DETAILS - NEGATIVE MOMENT REGIONS

1 0 1 2 FEET

NOTE: BARRIER AND SIDEWALK REINFORCEMENT NOT SHOWN FOR CLARITY. SEE DETAIL F, SHEET 47, FOR SIDEWALK DETAIL, AND SHEETS 48 & 50 FOR BARRIER DETAIL.

* SEE SHEETS 44 & 45 FOR STAGGER PATTERN



TYPICAL PANEL AND OVERHANG DETAILS - POSITIVE MOMENT REGIONS

1 0 1 2 FEET

NOTE: BARRIER AND SIDEWALK REINFORCEMENT NOT SHOWN FOR CLARITY. SEE DETAIL F, SHEET 47, FOR SIDEWALK DETAIL, AND SHEETS 48 & 50 FOR BARRIER DETAIL.

* SEE SHEETS 44 & 45 FOR STAGGER PATTERN

NOTES

1. FOR GENERAL NOTES AND LIST OF ABBREVIATIONS, SEE SHEETS 4 & 5.
2. FOR DECK SLAB PLAN, SEE SHEETS 44 & 45.
3. WORK THIS SHEET WITH SHEETS 44 THRU 54 & 57.
4. FOR DECK SLAB ELEVATIONS, SEE SHEETS 52 & 53.
5. FOR DECORATIVE PROTECTIVE FENCE DETAILS, SEE SHEET 54.
6. FOR ADDITIONAL DETAILS, SEE BC-752M.
7. FOR REINFORCEMENT BAR SCHEDULE, SEE SHEETS 64 THRU 68.

(G#) DENOTES GIRDER NUMBER

Mark	Description	By	Chk'd.	Recm'd.	Date

REVISIONS

SR 6011 PREVIOUSLY KNOWN AS LR 5

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF TRANSPORTATION

LACKAWANNA COUNTY
SR 6011 SEC 273
SEGMENT 0190 OFFSET 0404
SR 6011 - 273 STA 16+27.50
OVER ROARING BROOK, SR 3022,
AND DELAWARE, LACKAWANNA & WESTERN RAILROAD
3-SPAN CONT COMP STEEL MULTI-GIRDER BRIDGE

BRIDGE TYPICAL SECTION

PREPARED BY: DEWBERRY ENGINEERS INC.

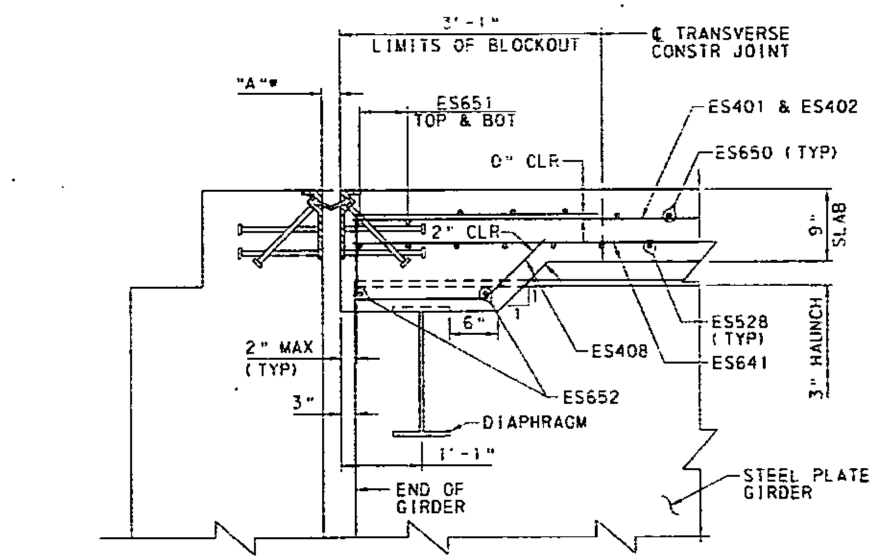
COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL GARY L. FRENETTE ENGINEER

RECOMMENDED MAY 07 2014

SHEET 46 OF 76

S - 33152

DES: GCP | CKD: DMC | DWG: DMC | CKD: CRH

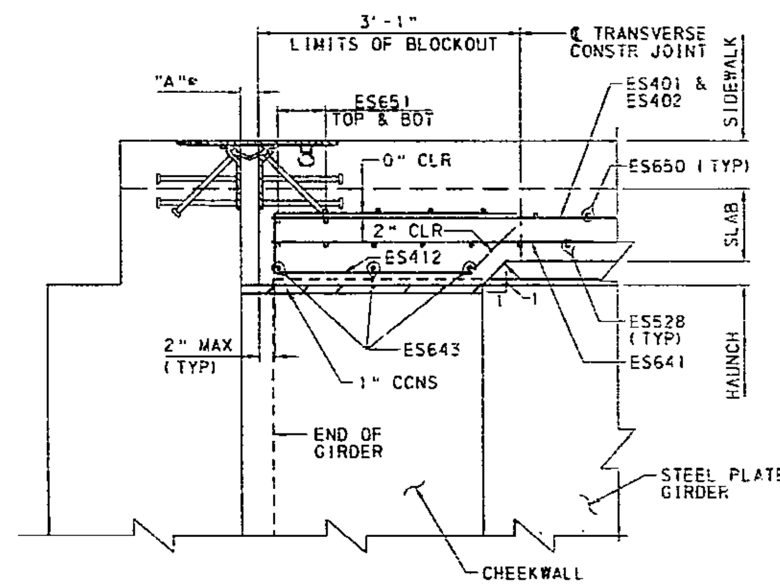


TYPICAL SECTION AT ABUTMENT 1

6 0 6 12 INCHES

NOTE: ABUTMENT 1 REINFORCEMENT NOT SHOWN FOR CLARITY.

* "A" IS INSTALLATION WIDTH AS PER DIMENSION "A" TABLE, SHEET 60

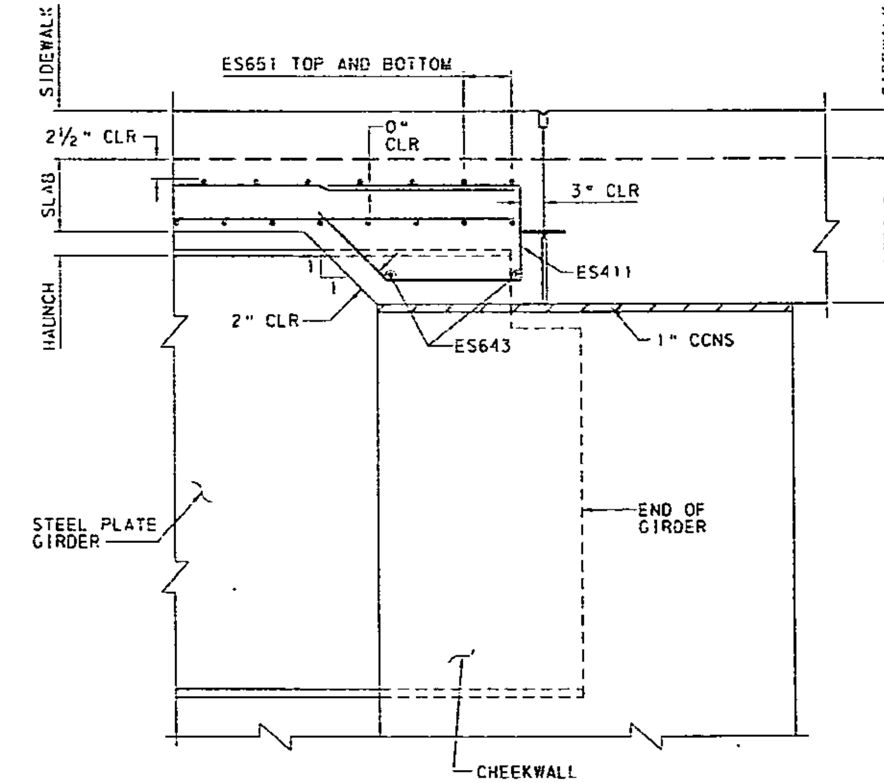


OVERHANG SECTION AT ABUTMENT 1

6 0 6 12 INCHES

NOTE: ABUTMENT 1 REINFORCEMENT NOT SHOWN FOR CLARITY.

* "A" IS INSTALLATION WIDTH AS PER DIMENSION "A" TABLE, SHEET 60



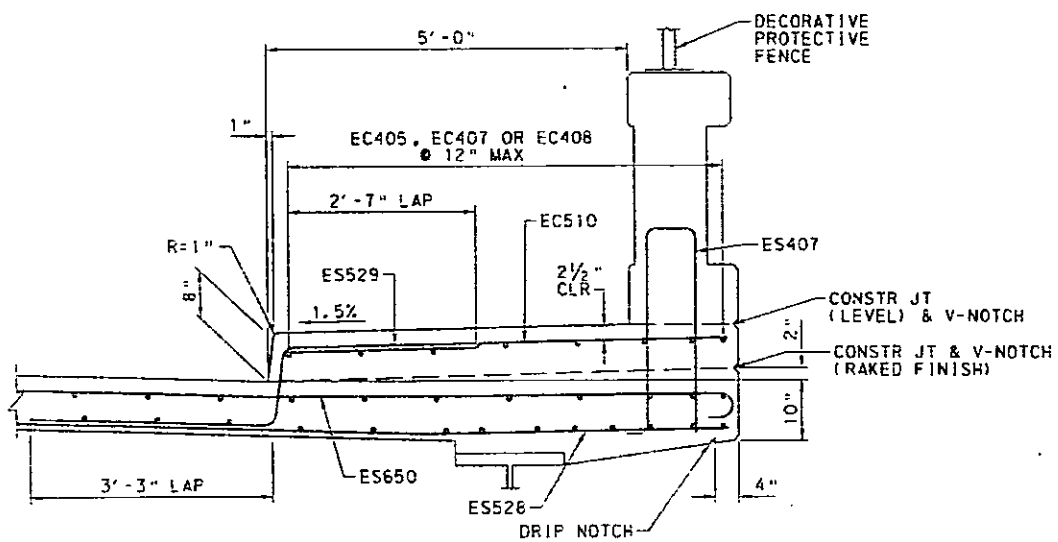
OVERHANG SECTION AT ABUTMENT 2

6 0 6 12 INCHES

NOTE: ABUTMENT 2, DIAPHRAGM AND APPROACH SLAB REINFORCEMENT NOT SHOWN FOR CLARITY.

NOTES

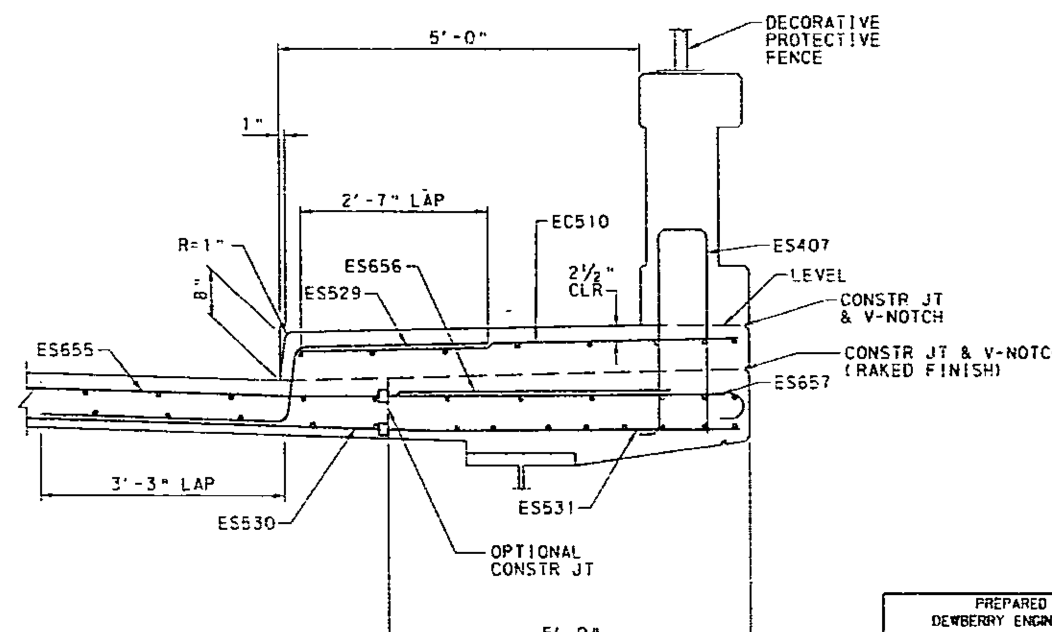
1. FOR GENERAL NOTES AND LIST OF ABBREVIATIONS, SEE SHEETS 4 & 5.
2. WORK THIS SHEET WITH SHEETS 44 THRU 54 & 57.
3. FOR ADDITIONAL DECK SLAB DETAILS, SEE BC-752M.
4. FOR APPROACH SLAB DETAILS, SEE SHEETS 58 & 59.
5. FOR REINFORCEMENT BAR SCHEDULE, SEE SHEETS 64 THRU 68.
6. FOR NEOPRENE STRIP SEAL DAM DETAILS, SEE SHEET 60 AND BC-767M.



DETAIL F - SIDEWALK

1 0 1 FEET

NOTE: FOR OVERANG DETAIL, SEE SHEET 46.
FOR BARRIER DETAILS, SEE SHEETS 48 & 50.



STAGED CONSTRUCTION DETAIL

1 0 1 FEET

NOTE: FOR OVERANG DETAIL, SEE SHEET 46.
FOR BARRIER DETAILS, SEE SHEETS 48 & 50.

Mark	Description	By	Chk'd.	Recm'd.	Date
REVISIONS					

SR 6011 PREVIOUSLY KNOWN AS LR 5

PREPARED BY: DEWBERRY ENGINEERS INC.

COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL GARY L. FRENETTE ENGINEER

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF TRANSPORTATION

LACKAWANNA COUNTY
SR 6011 SEC 273
SEGMENT 0190 OFFSET 0404
SR 6011 - 273 STA 16+27.50
OVER ROARING BROOK, SR 3022,
AND DELAWARE, LACKAWANNA & WESTERN RAILROAD
3-SPAN CONT COMP STEEL MULTI-GIRDER BRIDGE

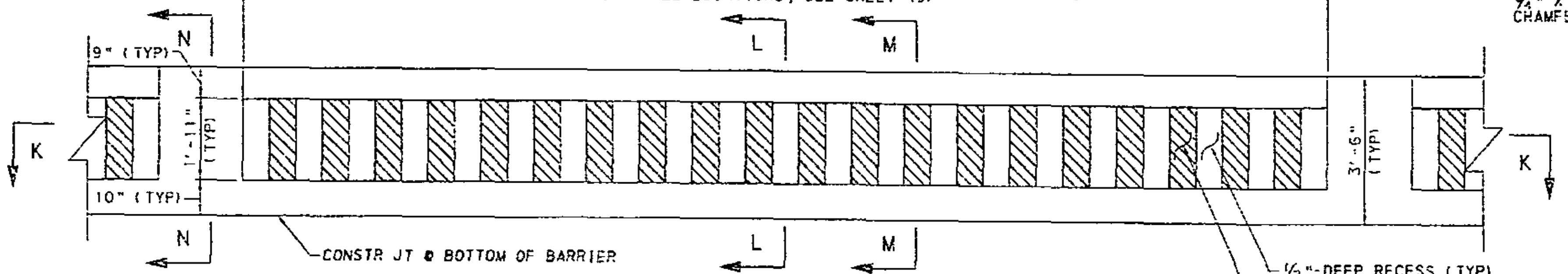
DECK SLAB DETAILS

RECOMMENDED MAY 5 1 2014

SHEET 47 OF 76

S - 33152

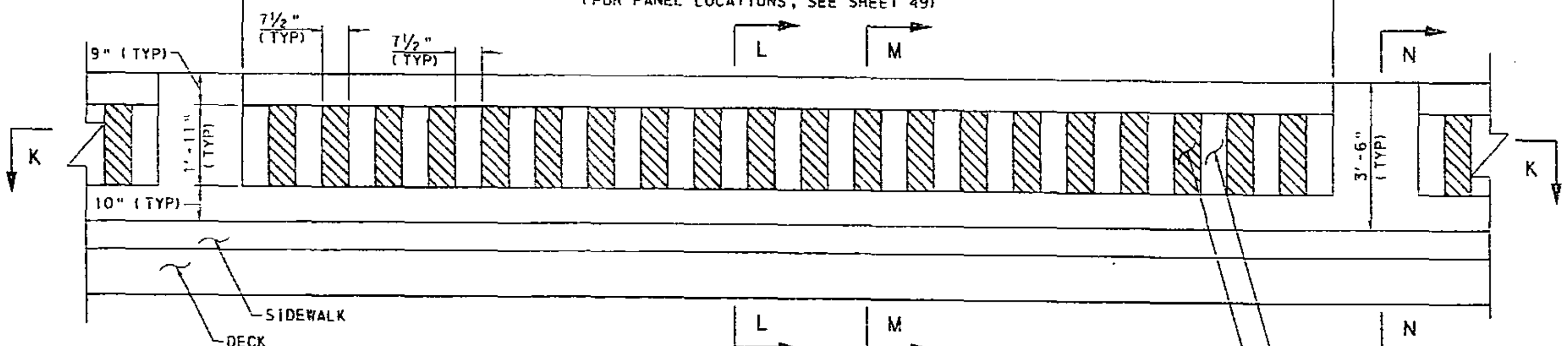
DES: GCP | CKD: DMC | DWG: DMC | CKD: CRH



RIGHT BRIDGE BARRIER ELEVATION - INTERIOR FACE

NOTE: RIGHT BRIDGE BARRIER SHOWN. LEFT BRIDGE BARRIER, SIMILAR OPPOSITE HAND.

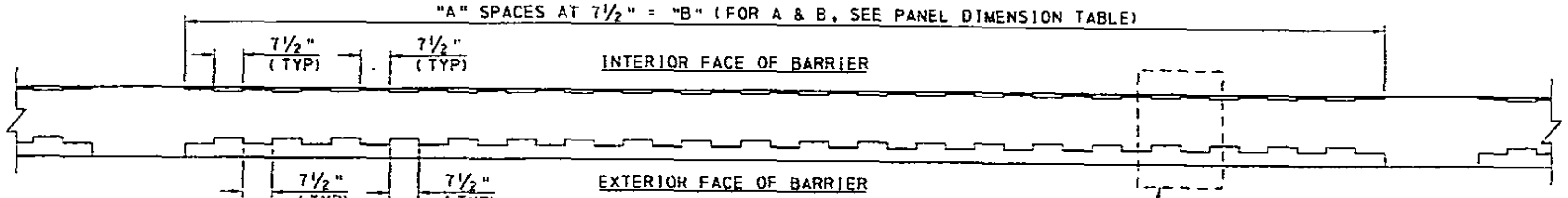
1 0 1 2 FEET



RIGHT BRIDGE BARRIER ELEVATION - EXTERIOR FACE

NOTE: RIGHT BRIDGE BARRIER SHOWN. LEFT BRIDGE BARRIER SIMILAR, OPPOSITE HAND.

1 0 1 2 FEET

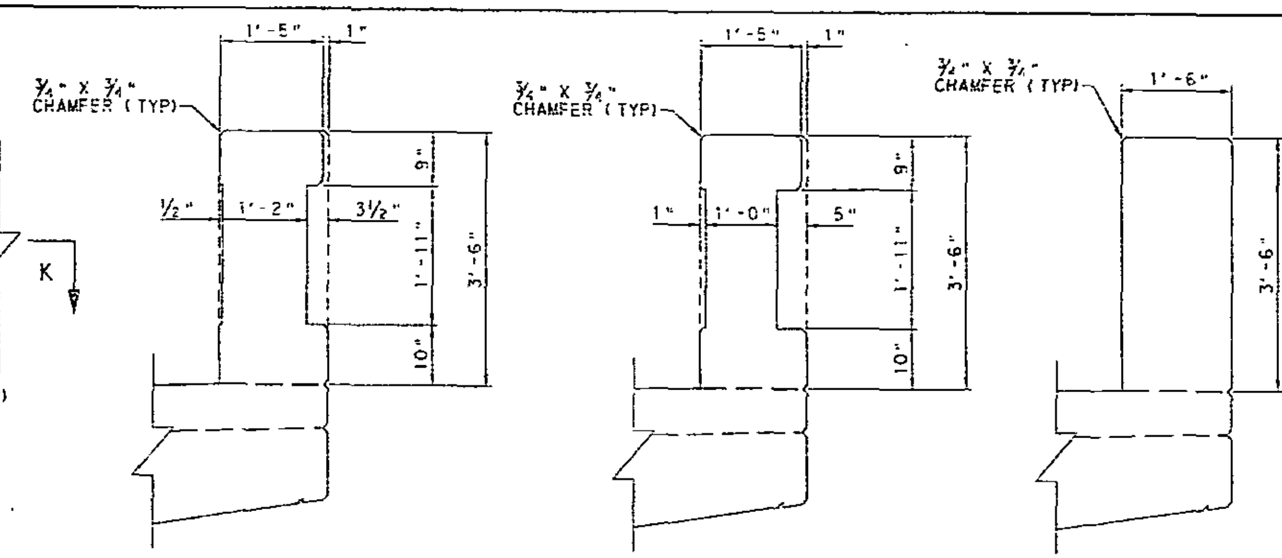


SECTION K-K

1 0 1 2 FEET

PANEL	"A" NO. OF SPACES	"B" PANEL LENGTH (FEET)
1	41	25'-7½"
2	51	31'-10½"
3	45	28'-1½"
4	47	29'-4½"
5	35	21'-10½"
6	57	35'-7½"

PANEL DIMENSIONS



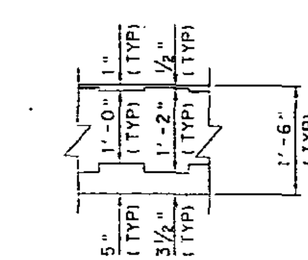
SECTION L-L

SECTION M-M

SECTION N-N

DIMENSIONS AND FORMING DETAILS

1 0 1 FEET



DETAIL G

1 0 1 FEET

NOTES

1. FOR GENERAL NOTES AND LIST OF ABBREVIATIONS, SEE SHEETS 4 & 5.
2. WORK THIS SHEET WITH SHEETS 44 THRU 54 & 57.
3. FOR LOCATION OF SECTION D-D, SEE SHEET 49.
4. FOR REINFORCEMENT BAR SCHEDULE, SEE SHEETS 64 THRU 68.

Mark	Description	By	Chk'd.	Recm'd.	Date

REVISIONS

SR 6011 PREVIOUSLY KNOWN AS LR 5

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF TRANSPORTATION

LACKAWANNA COUNTY
SR 6011 SEC 273
SEGMENT 0190 OFFSET 0404
SR 6011 - 273 STA 16+27.50
OVER ROARING BROOK, SR 3022,
AND DELAWARE, LACKAWANNA & WESTERN RAILROAD
3-SPAN CONT COMP STEEL MULTI-GIRDER BRIDGE

BARRIER DETAILS - 1

PREPARED BY: DEWBERRY ENGINEERS INC.

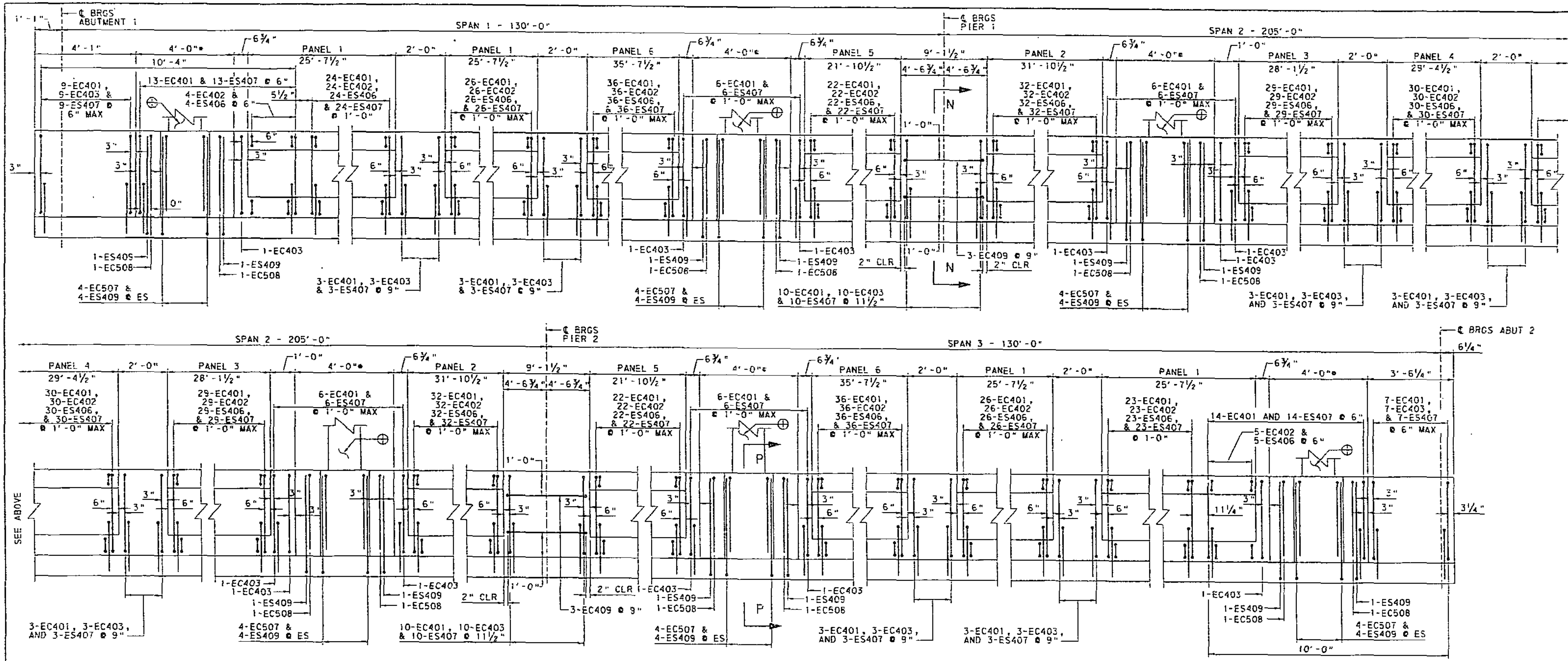
COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL GARY L. FRENETTE ENGINEER

RECOMMENDED MAY 07 2014

SHEET 48 OF 76

S - 33152

DES: DMC | CKD: GCP | DWG: DMC | CKD: GCP



RIGHT BRIDGE BARRIER ELEVATION - EXTERIOR FACE

NOTE: RIGHT BARRIER SHOWN. LEFT BARRIER SIMILAR, OPPOSITE HAND.

NOTE: LONGITUDINAL BARRIER REINFORCEMENT AND DECK REINFORCEMENT NOT SHOWN FOR CLARITY.

⊕ OBELISK (FOR DETAILS & REINFORCEMENT, SEE SHEET 57)

* SEE DETAIL H ON SHEET 50

1 0 1 2 FEET

Mark	Description	By	Chk'd.	Recm'd.	Date

REVISIONS

SR 6011 PREVIOUSLY KNOWN AS LR 5

NOTES

1. FOR GENERAL NOTES AND LIST OF ABBREVIATIONS, SEE SHEETS 4 & 5.
2. WORK THIS SHEET WITH SHEETS 44 THRU 54 & 57.
3. FOR SECTIONS N-N AND P-P, SEE SHEET 50.
4. FOR OBELISK DETAILS, SEE SHEET 57.
5. FOR REINFORCEMENT BAR SCHEDULE, SEE SHEETS 64 THRU 68.

PREPARED BY: DEWBERRY ENGINEERS INC.

COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL GARY L. FRENETTE ENGINEER

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF TRANSPORTATION

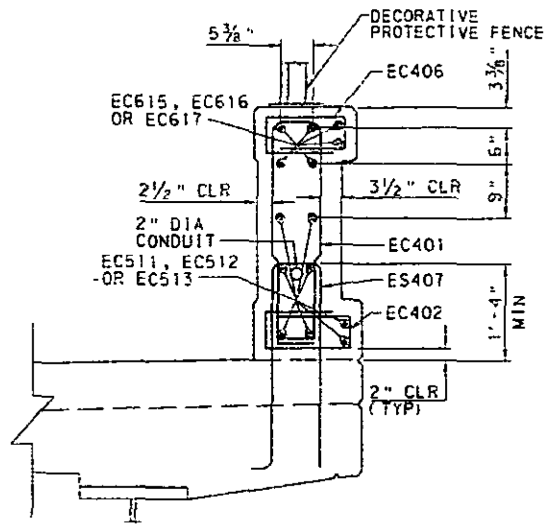
LACKAWANNA COUNTY
SR 6011 SEC 273
SEGMENT 0190 OFFSET 0404
SR 6011 - 273 STA 16+27.50
OVER ROARING BROOK, SR 3022,
AND DELAWARE, LACKAWANNA & WESTERN RAILROAD
3-SPAN CONT COMP STEEL MULTI-GIRDER BRIDGE
BARRIER DETAILS - 2

RECOMMENDED MAY 07 2014

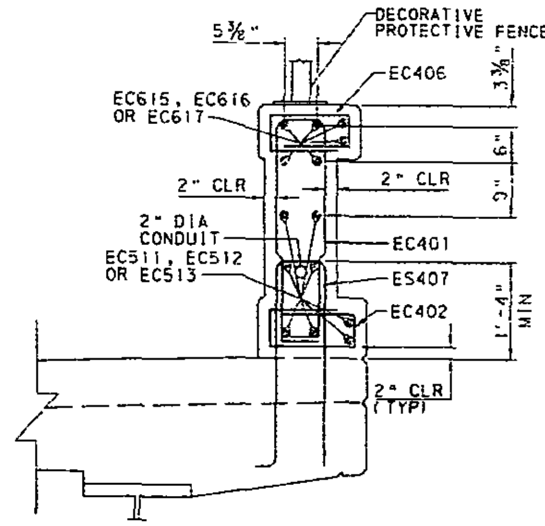
SHEET 49 OF 76

S - 33152

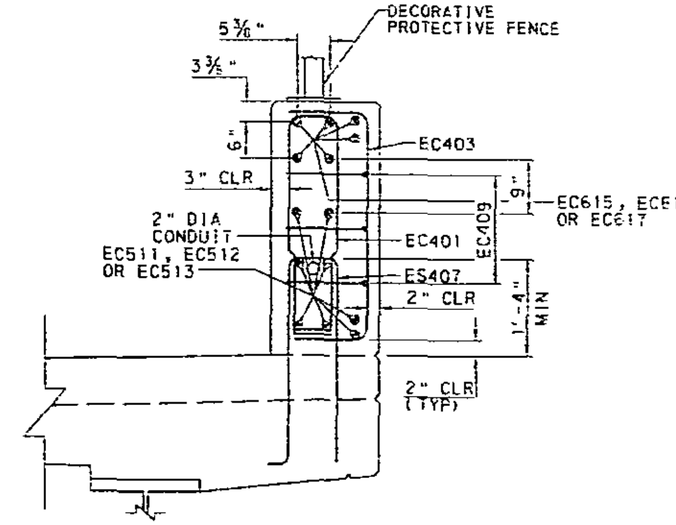
DES: DMC | CKD: GCP | DWG: DMC | CKD: GCP



SECTION L-L



SECTION M-M

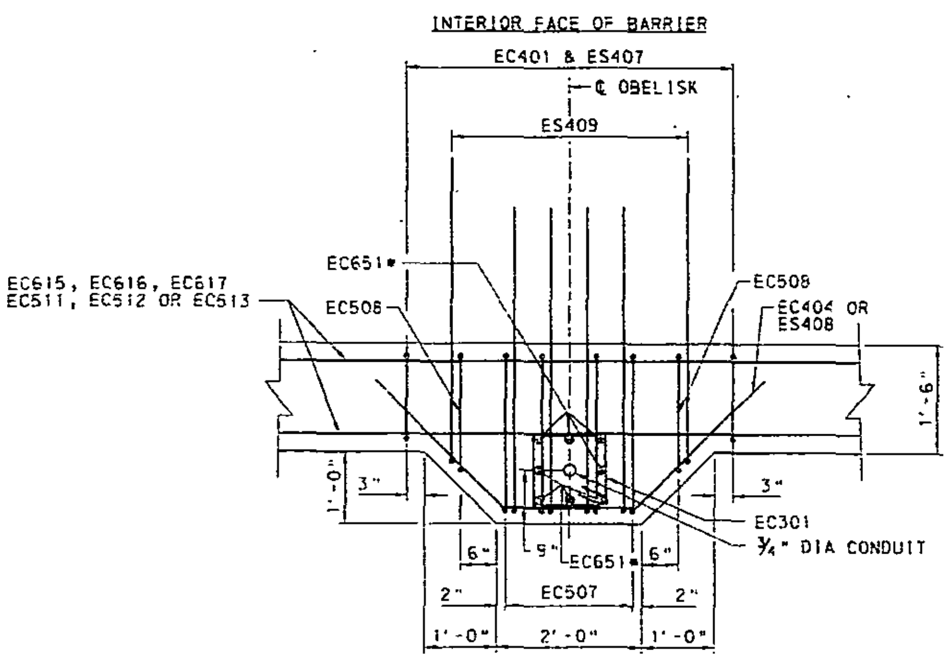


SECTION N-N

BARRIER REINFORCEMENT DETAILS

NOTE: RIGHT BRIDGE BARRIER SHOWN. LEFT BRIDGE BARRIER SIMILAR, OPPOSITE HAND.

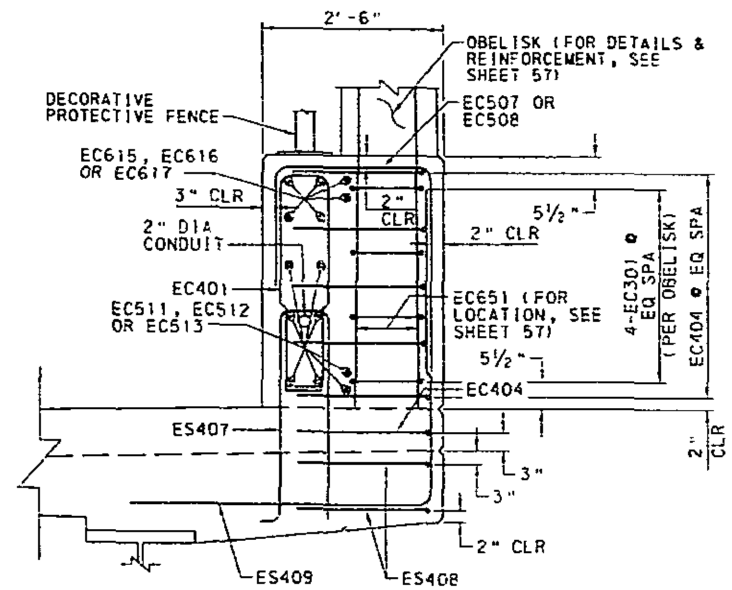
1 0 1 FEET



* FOR LOCATION, SEE SHEET 57

DETAIL H

1 0 1 FEET



SECTION P-P

NOTE: RIGHT BRIDGE BARRIER SHOWN. LEFT BRIDGE BARRIER SIMILAR, OPPOSITE HAND.

1 0 1 FEET

NOTES

1. FOR GENERAL NOTES AND LIST OF ABBREVIATIONS, SEE SHEETS 4 & 5.
2. WORK THIS SHEET WITH SHEETS 44 THRU 54 & 57.
3. FOR LIMITS OF PROTECTIVE FENCE, SEE SHEETS 44 & 45.
4. FOR ELEVATION VIEW OF REINFORCEMENT LAYOUTS, SEE SHEET 49.
5. FOR SECTIONS L-L THRU N-N, SEE SHEET 48.
6. FOR DECORATIVE PROTECTIVE FENCE DETAILS, SEE SHEET 54.
7. FOR OBELISK DETAILS, SEE SHEET 57.
8. FOR REINFORCEMENT BAR SCHEDULE, SEE SHEETS 64 THRU 68.

Mark	Description	By	Chk'd.	Recm'd.	Date

REVISIONS

SR 6011 PREVIOUSLY KNOWN AS LR 5

PREPARED BY: DEWBERRY ENGINEERS INC.

COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL GARY L. FRENETTE ENGINEER

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF TRANSPORTATION

LACKAWANNA COUNTY
SR 6011 SEC 273
SEGMENT 0190 OFFSET 0404
SR 6011 - 273 STA 16+27.50
OVER ROARING BROOK, SR 3022,
AND DELAWARE, LACKAWANNA & WESTERN RAILROAD
3-SPAN CONT COMP STEEL MULTI-GIRDER BRIDGE

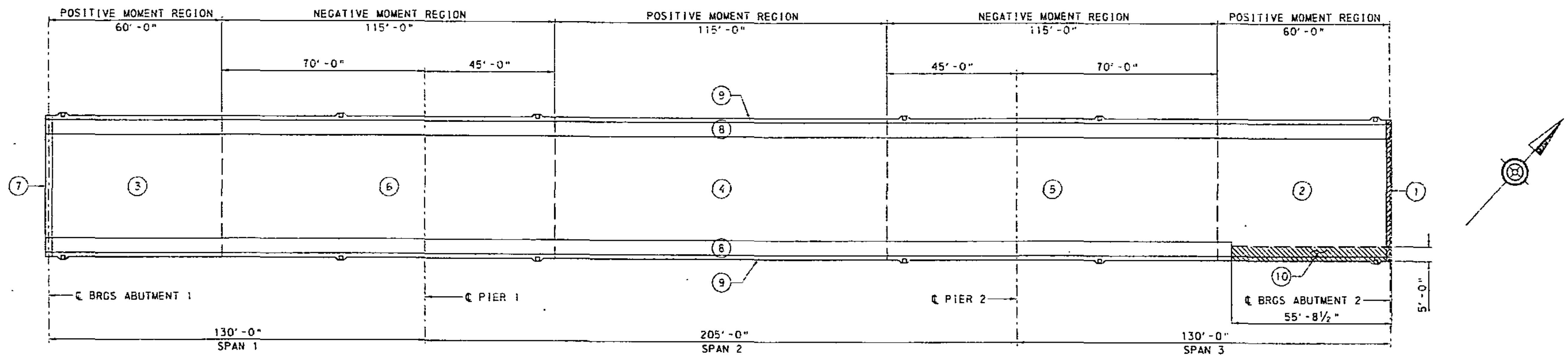
BARRIER DETAILS - 3

RECOMMENDED MAY 07 2014

SHEET 50 OF 76

S - 33152

DES: DMC | CKD: GCP | DWG: DMC | CKD: GCP



DECK PLACEMENT SEQUENCE

NO SCALE

1. CAST PLACEMENT 1 (END DIAPHRAGM AT ABUTMENT 2)
2. CAST PLACEMENT 2 (POSITIVE MOMENT REGION SPAN 3)
3. CAST PLACEMENT 3 (POSITIVE MOMENT REGION SPAN 1)
4. CAST PLACEMENT 4 (POSITIVE MOMENT REGION SPAN 2)
5. CAST PLACEMENT 5 (NEGATIVE MOMENT REGION AT PIER 2)
6. CAST PLACEMENT 6 (NEGATIVE MOMENT REGION AT PIER 1)
7. BLOCK OUT AT NEOPRENE STRIP SEAL DAM
8. CAST SIDEWALK IN POSITIVE MOMENT REGION, THEN NEGATIVE MOMENT REGION, UNLESS CONTINUOUS CASTING CAN BE MAINTAINED
9. CAST BARRIERS IN POSITIVE MOMENT REGION, THEN NEGATIVE MOMENT REGION, UNLESS CONTINUOUS CASTING CAN BE MAINTAINED
10. CAST PLACEMENT 10 (SPAN 3 REMAINING PORTION OF DECK) (CAST DECK, THEN SIDEWALK, THEN BARRIER)

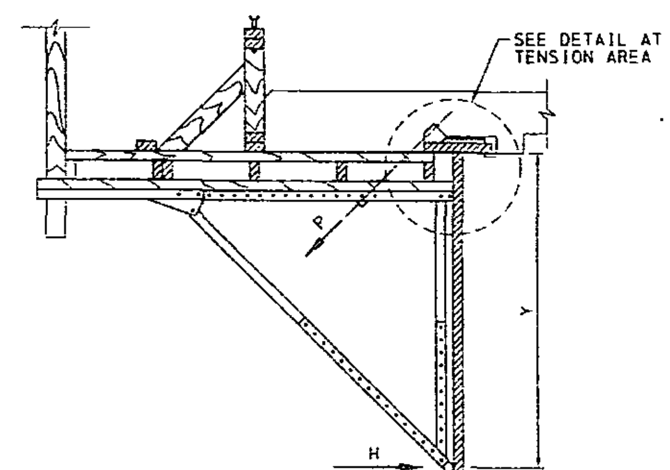
NOTE: AN ALTERNATE PLACEMENT SEQUENCE MAY BE SUBMITTED FOR REVIEW AND APPROVAL BY THE DISTRICT BRIDGE ENGINEER. IF AN ALTERNATE SEQUENCE IS PROPOSED, PROVIDE AN ANALYSIS OF THE GIRDER STRESSES DURING EACH STAGE OF DECK CONSTRUCTION. ALLOW SUFFICIENT TIME FOR DEPARTMENT REVIEW OF THE PROPOSED ALTERNATE SEQUENCE, AND DO NOT PROCEED UNTIL WRITTEN APPROVAL HAS BEEN ISSUED.

OVERHANG FORMING NOTE:

THE FASCIA GIRDERS ARE DESIGNED FOR A TEMPORARY CONSTRUCTION LOAD APPLIED TO THE WEB AT A MAXIMUM 4 FT INTERVAL. THIS LOAD (SEE TABLE) APPROXIMATES THE HORIZONTAL COMPONENT OF A DECK OVERHANG FORM SUPPORT BRACKET AND CONSISTS OF AN ALLOWANCE FOR THE WEIGHT OF THE CONCRETE, FORMS AND INCIDENTAL LOADS, PLUS THE DECK FINISHING MACHINE. WHERE A TRANSVERSE STIFFENER SPACING, LESS THAN THAT REQUIRED FOR THE FINAL DESIGN SHEAR, IS INDICATED FOR CONSTRUCTABILITY, THE SPACING FOR THE FINAL DESIGN SHEAR MAY BE USED IF THE OVERHANG FORMS ARE SUPPORTED FROM THE BOTTOM FLANGE OF THE FASCIA GIRDER, OR IF THE GIRDER WEB IS ADEQUATELY BRACED TO PREVENT BUCKLING DUE TO LOADS FROM WEB-BEARING FORM SUPPORT BRACKETS. THE CONTRACTOR HAS THE OPTION TO MODIFY THE OVERHANG BRACKET FROM THAT DESCRIBED HEREIN PROVIDED WORKING DRAWINGS INCLUDING CALCULATIONS, SEALED BY A PROFESSIONAL ENGINEER LICENSED IN THE COMMONWEALTH OF PENNSYLVANIA, ARE SUBMITTED FOR REVIEW AND ACCEPTANCE AND SHOW THE MODIFICATIONS DO NOT CAUSE UNACCEPTABLE DEFORMATIONS OR STRESSES IN THE BRIDGE AND IT IS UNDERSTOOD THE CONTRACTOR IS ULTIMATELY RESPONSIBLE FOR THE SATISFACTORY COMPLETION OF THE BRIDGE.

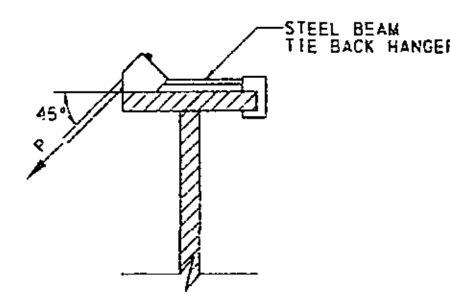
NOMINAL DEPTH Y IN	MAXIMUM PERMISSIBLE HORIZONTAL LOAD H KIP/FT
36	1.250
56	0.750
76	0.540

MAXIMUM PERMISSIBLE JACK SPACING 4 FT



TYPICAL OVERHANG FORMING DETAIL

NO SCALE



DETAIL AT TENSION AREA

NOTES

1. FOR GENERAL NOTES AND LIST OF ABBREVIATIONS, SEE SHEETS 4 & 5.
2. WORK THIS SHEET WITH SHEETS 44 THRU 53.

Mark	Description	By	Chk'd.	Recm'd.	Date

REVISIONS

SR 6011 PREVIOUSLY KNOWN AS LR 5

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF TRANSPORTATION

LACKAWANNA COUNTY
SR 6011 SEC 273
SEGMENT 0190 OFFSET 0404
SR 6011 - 273 STA 16+27.50
OVER ROARING BROOK, SR 3022,
AND DELAWARE, LACKAWANNA & WESTERN RAILROAD
3-SPAN CONT COMP STEEL MULTI-GIRDER BRIDGE
DECK PLACEMENT SEQUENCE

PREPARED BY: DEWBERRY ENGINEERS INC.

RECOMMENDED MAY 07 2014

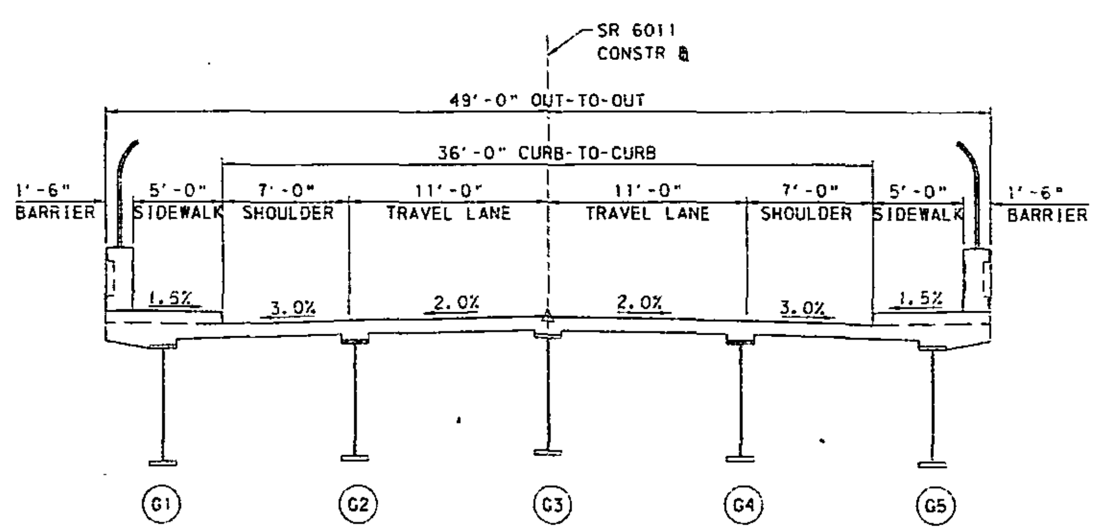
SHEET 51 OF 76

S - 33152

DES: GCF | CKD: KES | DWG: CELG | CKD: CRH

SPAN	LOCATION		DISTANCE (WITHIN SPAN) (FT)	DISTANCE (ENTIRE BRIDGE) (FT)	STATION	G1			G2			G3			G4			G5		
						OFFSET (FT)	PG ELEV	ELEV @ ℄	OFFSET (FT)	PG ELEV	ELEV @ ℄	OFFSET (FT)	PG ELEV	ELEV @ ℄	OFFSET (FT)	PG ELEV	ELEV @ ℄	OFFSET (FT)	PG ELEV	ELEV @ ℄
1	0.0	℄ Brgs Abut 1	0.00	0.00	13+95.00	21.33' LT	865.46	865.75	10.67' LT	865.46	865.25	0	865.46	865.46	10.67' RT	865.46	865.25	21.33' RT	865.46	865.75
	0.1	1st Tenth Point	13.00	13.00	14+08.00	21.33' LT	865.32	865.61	10.67' LT	865.32	865.11	0	865.32	865.32	10.67' RT	865.32	865.11	21.33' RT	865.32	865.61
	0.2	2nd Tenth Point	26.00	26.00	14+21.00	21.33' LT	865.20	865.48	10.67' LT	865.20	864.98	0	865.20	865.20	10.67' RT	865.20	864.98	21.33' RT	865.20	865.48
	0.3	3rd Tenth Point	39.00	39.00	14+34.00	21.33' LT	865.07	865.36	10.67' LT	865.07	864.86	0	865.07	865.07	10.67' RT	865.07	864.86	21.33' RT	865.07	865.36
	0.4	4th Tenth Point	52.00	52.00	14+47.00	21.33' LT	864.95	865.23	10.67' LT	864.95	864.73	0	864.95	864.95	10.67' RT	864.95	864.73	21.33' RT	864.95	865.23
	0.5	5th Tenth Point	65.00	65.00	14+60.00	21.33' LT	864.82	865.11	10.67' LT	864.82	864.61	0	864.82	864.82	10.67' RT	864.82	864.61	21.33' RT	864.82	865.11
	0.6	6th Tenth Point	78.00	78.00	14+73.00	21.33' LT	864.70	864.98	10.67' LT	864.70	864.48	0	864.70	864.70	10.67' RT	864.70	864.48	21.33' RT	864.70	864.98
	0.7	7th Tenth Point	91.00	91.00	14+86.00	21.33' LT	864.57	864.86	10.67' LT	864.57	864.36	0	864.57	864.57	10.67' RT	864.57	864.36	21.33' RT	864.57	864.86
	0.8	8th Tenth Point	104.00	104.00	14+99.00	21.33' LT	864.45	864.73	10.67' LT	864.45	864.23	0	864.45	864.45	10.67' RT	864.45	864.23	21.33' RT	864.45	864.73
	0.9	9th Tenth Point	117.00	117.00	15+12.00	21.33' LT	864.32	864.61	10.67' LT	864.32	864.11	0	864.32	864.32	10.67' RT	864.32	864.11	21.33' RT	864.32	864.61
	℄ Bearings Pier 1		130.00	130.00	15+25.00	21.33' LT	864.20	864.48	10.67' LT	864.20	863.98	0	864.20	864.20	10.67' RT	864.20	863.98	21.33' RT	864.20	864.48
2	0.1	1st Tenth Point	20.50	150.50	15+45.50	21.33' LT	864.00	864.29	10.67' LT	864.00	863.79	0	864.00	864.00	10.67' RT	864.00	863.79	21.33' RT	864.00	864.29
	0.2	2nd Tenth Point	41.00	171.00	15+66.00	21.33' LT	863.80	864.09	10.67' LT	863.80	863.59	0	863.80	863.80	10.67' RT	863.80	863.59	21.33' RT	863.80	864.09
	0.3	3rd Tenth Point	61.50	191.50	15+86.50	21.33' LT	863.61	863.89	10.67' LT	863.61	863.39	0	863.61	863.61	10.67' RT	863.61	863.39	21.33' RT	863.61	863.89
	0.4	4th Tenth Point	82.00	212.00	16+07.00	21.33' LT	863.41	863.70	10.67' LT	863.41	863.20	0	863.41	863.41	10.67' RT	863.41	863.20	21.33' RT	863.41	863.70
	0.5	5th Tenth Point	102.50	232.50	16+27.50	21.33' LT	863.21	863.50	10.67' LT	863.21	863.00	0	863.21	863.21	10.67' RT	863.21	863.00	21.33' RT	863.21	863.50
	0.6	6th Tenth Point	123.00	253.00	16+48.00	21.33' LT	863.02	863.30	10.67' LT	863.02	862.80	0	863.02	863.02	10.67' RT	863.02	862.80	21.33' RT	863.02	863.30
	0.7	7th Tenth Point	143.50	273.50	16+68.50	21.33' LT	862.82	863.11	10.67' LT	862.82	862.61	0	862.82	862.82	10.67' RT	862.82	862.61	21.33' RT	862.82	863.11
	0.8	8th Tenth Point	164.00	294.00	16+89.00	21.33' LT	862.62	862.91	10.67' LT	862.62	862.41	0	862.62	862.62	10.67' RT	862.62	862.41	21.33' RT	862.62	862.91
	0.9	9th Tenth Point	184.50	314.50	17+09.50	21.33' LT	862.43	862.71	10.67' LT	862.43	862.21	0	862.43	862.43	10.67' RT	862.43	862.21	21.33' RT	862.43	862.71
	℄ Bearings Pier 2		205.00	335.00	17+30.00	21.33' LT	862.23	862.52	10.67' LT	862.23	862.02	0	862.23	862.23	10.67' RT	862.23	862.02	21.33' RT	862.23	862.52
3	0.1	1st Tenth Point	13.00	348.00	17+43.00	21.33' LT	862.11	862.39	10.67' LT	862.11	861.89	0	862.11	862.11	10.67' RT	862.11	861.89	21.33' RT	862.11	862.39
	0.2	2nd Tenth Point	26.00	361.00	17+56.00	21.33' LT	861.98	862.27	10.67' LT	861.98	861.77	0	861.98	861.98	10.67' RT	861.98	861.77	21.33' RT	861.98	862.27
	0.3	3rd Tenth Point	39.00	374.00	17+69.00	21.33' LT	861.86	862.14	10.67' LT	861.86	861.64	0	861.86	861.86	10.67' RT	861.86	861.64	21.33' RT	861.86	862.14
	0.4	4th Tenth Point	52.00	387.00	17+82.00	21.33' LT	861.73	862.02	10.67' LT	861.73	861.52	0	861.73	861.73	10.67' RT	861.73	861.52	21.33' RT	861.73	862.02
	0.5	5th Tenth Point	65.00	400.00	17+95.00	21.33' LT	861.61	861.89	10.67' LT	861.61	861.39	0	861.61	861.61	10.67' RT	861.61	861.39	21.33' RT	861.61	861.89
	0.6	6th Tenth Point	78.00	413.00	18+08.00	21.33' LT	861.48	861.77	10.67' LT	861.48	861.27	0	861.48	861.48	10.67' RT	861.48	861.27	21.33' RT	861.48	861.77
	0.7	7th Tenth Point	91.00	426.00	18+21.00	21.33' LT	861.36	861.64	10.67' LT	861.36	861.14	0	861.36	861.36	10.67' RT	861.36	861.14	21.33' RT	861.36	861.64
	0.8	8th Tenth Point	104.00	439.00	18+34.00	21.33' LT	861.23	861.52	10.67' LT	861.23	861.02	0	861.23	861.23	10.67' RT	861.23	861.02	21.33' RT	861.23	861.52
	0.9	9th Tenth Point	117.00	452.00	18+47.00	21.33' LT	861.11	861.40	10.67' LT	861.11	860.90	0	861.11	861.11	10.67' RT	861.11	860.90	21.33' RT	861.11	861.40
	1.0	℄ Brgs Abut 2	130.00	465.00	18+60.00	21.33' LT	860.98	861.27	10.67' LT	860.98	860.77	0	860.98	860.98	10.67' RT	860.98	860.77	21.33' RT	860.98	861.27

Table: TOP OF SLAB ELEVATIONS ALONG ℄ GIRDERS



TYPICAL SECTION

2 0 2 4 6 FEET

NOTES

1. FOR GENERAL NOTES AND LIST OF ABBREVIATIONS, SEE SHEETS 4 & 5.
2. FOR TOP OF SLAB ELEVATIONS AT BREAKPOINTS, SEE SHEET 53.
3. FOR FRAMING PLAN, SEE SHEETS 27 THRU 29.

Mark	Description	By	Chk'd.	Recm'd.	Date

REVISIONS

SR 6011 PREVIOUSLY KNOWN AS LR 5

PREPARED BY:
DEWBERRY ENGINEERS INC.

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF TRANSPORTATION

LACKAWANNA COUNTY
SR 6011 SEC 273
SEGMENT 0190 OFFSET 0404
SR 6011 - 273 STA 16+27.50
OVER ROARING BROOK, SR 3022,
AND DELAWARE, LACKAWANNA & WESTERN RAILROAD
3-SPAN CONT COMP STEEL MULTI-GIRDER BRIDGE
DECK ELEVATIONS - 1

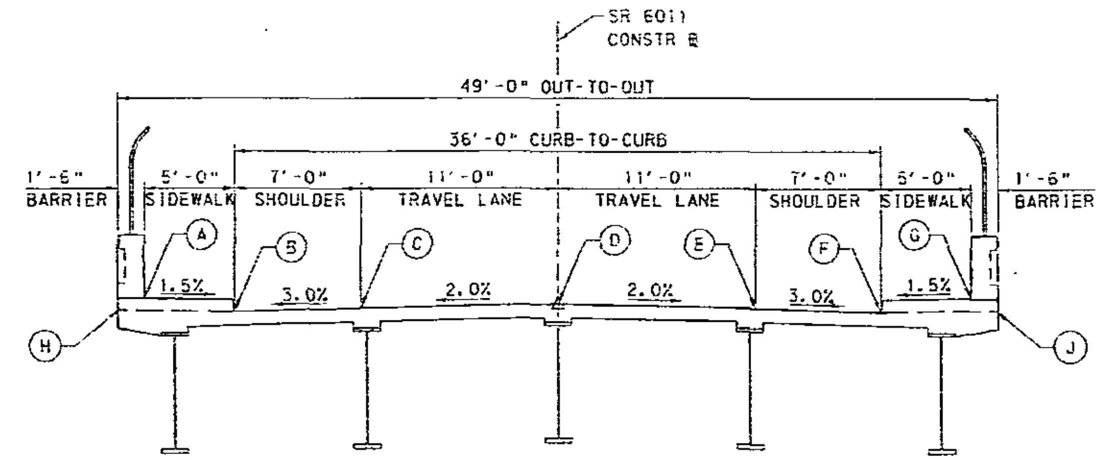
RECOMMENDED MAY 0 7 2004

SHEET 52 OF 76

S - 33152

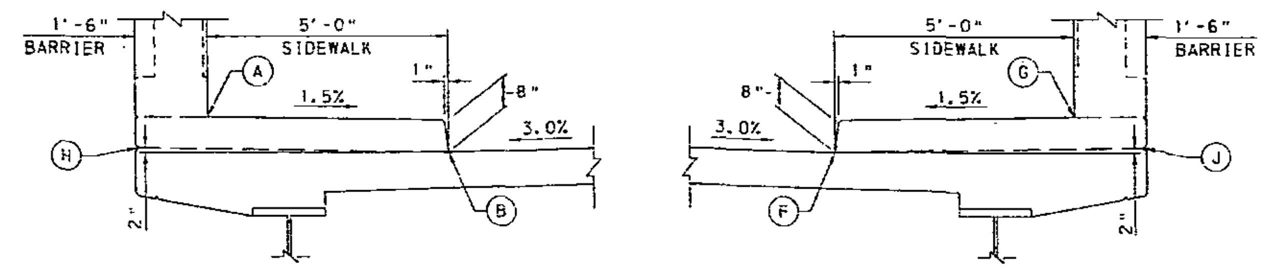
DES: GCP | CKD: DMC | DWG: KLL | CKD: CELG

TOP OF SLAB ELEVATIONS AT BREAKPOINTS										
LOCATION	STATION	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(J)
FF BACKWALL ABUTMENT 1	13+93.75	865.79	865.05	865.26	865.48	865.26	865.05	865.79	865.22	865.22
℄ BRGS ABUTMENT 1	13+95.00	865.77	865.03	865.24	865.46	865.24	865.03	865.77	865.20	865.20
	14+00.00	865.71	864.97	865.18	865.40	865.18	864.97	865.71	865.14	865.14
	14+10.00	865.61	864.87	865.08	865.30	865.08	864.87	865.61	865.04	865.04
	14+20.00	865.52	864.78	864.99	865.21	864.99	864.78	865.52	864.94	864.94
	14+30.00	865.42	864.68	864.89	865.11	864.89	864.68	865.42	864.85	864.85
	14+40.00	865.33	864.58	864.79	865.01	864.79	864.58	865.33	864.75	864.75
	14+50.00	865.23	864.49	864.70	864.92	864.70	864.49	865.23	864.65	864.65
	14+60.00	865.13	864.39	864.60	864.82	864.60	864.39	865.13	864.56	864.56
	14+70.00	865.04	864.30	864.51	864.73	864.51	864.30	865.04	864.46	864.46
	14+80.00	864.94	864.20	864.41	864.63	864.41	864.20	864.94	864.37	864.37
	14+90.00	864.85	864.10	864.31	864.53	864.31	864.10	864.85	864.27	864.27
	15+00.00	864.75	864.01	864.22	864.44	864.22	864.01	864.75	864.17	864.17
	15+10.00	864.65	863.91	864.12	864.34	864.12	863.91	864.65	864.08	864.08
	15+20.00	864.56	863.82	864.03	864.25	864.03	863.82	864.56	863.98	863.98
℄ PIER 1	15+25.00	864.51	863.77	863.98	864.20	863.98	863.77	864.51	863.93	863.93
	15+30.00	864.46	863.72	863.93	864.15	863.93	863.72	864.46	863.89	863.89
	15+40.00	864.37	863.62	863.83	864.05	863.83	863.62	864.37	863.79	863.79
	15+50.00	864.27	863.53	863.74	863.96	863.74	863.53	864.27	863.69	863.69
	15+60.00	864.17	863.43	863.64	863.86	863.64	863.43	864.17	863.60	863.60
	15+70.00	864.08	863.34	863.55	863.77	863.55	863.34	864.08	863.50	863.50
	15+80.00	863.98	863.24	863.45	863.67	863.45	863.24	863.98	863.41	863.41
	15+90.00	863.89	863.14	863.35	863.57	863.35	863.14	863.89	863.31	863.31
	16+00.00	863.79	863.05	863.26	863.48	863.26	863.05	863.79	863.22	863.22
	16+10.00	863.69	862.95	863.16	863.38	863.16	862.95	863.69	863.12	863.12
	16+20.00	863.60	862.86	863.07	863.29	863.07	862.86	863.60	863.02	863.02
	16+30.00	863.50	862.76	862.97	863.19	862.97	862.76	863.50	862.93	862.93
	16+40.00	863.41	862.66	862.87	863.09	862.87	862.66	863.41	862.83	862.83
	16+50.00	863.31	862.57	862.78	863.00	862.78	862.57	863.31	862.74	862.74
	16+60.00	863.21	862.47	862.68	862.90	862.68	862.47	863.21	862.64	862.64
	16+70.00	863.12	862.38	862.59	862.81	862.59	862.38	863.12	862.54	862.54
	16+80.00	863.02	862.28	862.49	862.71	862.49	862.28	863.02	862.45	862.45
	16+90.00	862.93	862.18	862.39	862.61	862.39	862.18	862.93	862.35	862.35
	17+00.00	862.83	862.09	862.30	862.52	862.30	862.09	862.83	862.26	862.26
	17+10.00	862.73	861.99	862.20	862.42	862.20	861.99	862.73	862.16	862.16
	17+20.00	862.64	861.90	862.11	862.33	862.11	861.90	862.64	862.06	862.06
℄ PIER 2	17+30.00	862.54	861.80	862.01	862.23	862.01	861.80	862.54	861.97	861.97
	17+40.00	862.45	861.71	861.92	862.14	861.92	861.71	862.45	861.87	861.87
	17+50.00	862.35	861.61	861.82	862.04	861.82	861.61	862.35	861.78	861.78
	17+60.00	862.26	861.51	861.72	861.94	861.72	861.51	862.26	861.68	861.68
	17+70.00	862.16	861.42	861.63	861.85	861.63	861.42	862.16	861.58	861.58
	17+80.00	862.06	861.32	861.53	861.75	861.53	861.32	862.06	861.49	861.49
	17+90.00	861.97	861.23	861.44	861.66	861.44	861.23	861.97	861.39	861.39
	18+00.00	861.87	861.13	861.34	861.56	861.34	861.13	861.87	861.30	861.30
	18+10.00	861.78	861.03	861.24	861.46	861.24	861.03	861.78	861.20	861.20
	18+20.00	861.68	860.94	861.15	861.37	861.15	860.94	861.68	861.10	861.10
	18+30.00	861.58	860.84	861.05	861.27	861.05	860.84	861.58	861.01	861.01
	18+40.00	861.49	860.75	860.96	861.18	860.96	860.75	861.49	860.91	860.91
	18+50.00	861.39	860.65	860.86	861.08	860.86	860.65	861.39	860.82	860.82
℄ BRGS ABUTMENT 2	18+60.00	861.30	860.55	860.76	860.98	860.76	860.55	861.30	860.72	860.72
END OF DECK SLAB	18+60.52	861.29	860.55	860.76	860.98	860.76	860.55	861.29	860.72	860.72
	18+70.00	861.20	860.46	860.67	860.89	860.67	860.46	861.20	860.62	860.62
	18+80.00	861.10	860.36	860.57	860.79	860.57	860.36	861.10	860.53	860.53
	18+90.00	861.01	860.27	860.48	860.70	860.48	860.27	861.01	860.44	860.44
NEAR EDGE HEADER SLAB	18+90.52	861.00	860.26	860.47	860.69	860.47	860.26	861.00	860.43	860.43



TYPICAL SECTION

2 0 2 4 6 FEET



SIDEWALK DETAIL

1 0 1 2 FEET

NOTES

1. FOR GENERAL NOTES AND LIST OF ABBREVIATIONS, SEE SHEETS 4 & 5.
2. FOR TOP OF SLAB ELEVATIONS ALONG ℄ GIRDERS, SEE SHEET 52.
3. FOR SLAB PLAN, SEE SHEETS 44 & 45.

Mark	Description	By	Chk'd.	Recm'd.	Date
REVISIONS					

SR 6011 PREVIOUSLY KNOWN AS LR 5

PREPARED BY:
DEWBERRY ENGINEERS INC.

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
GARY L. FRENETTE
ENGINEER

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF TRANSPORTATION

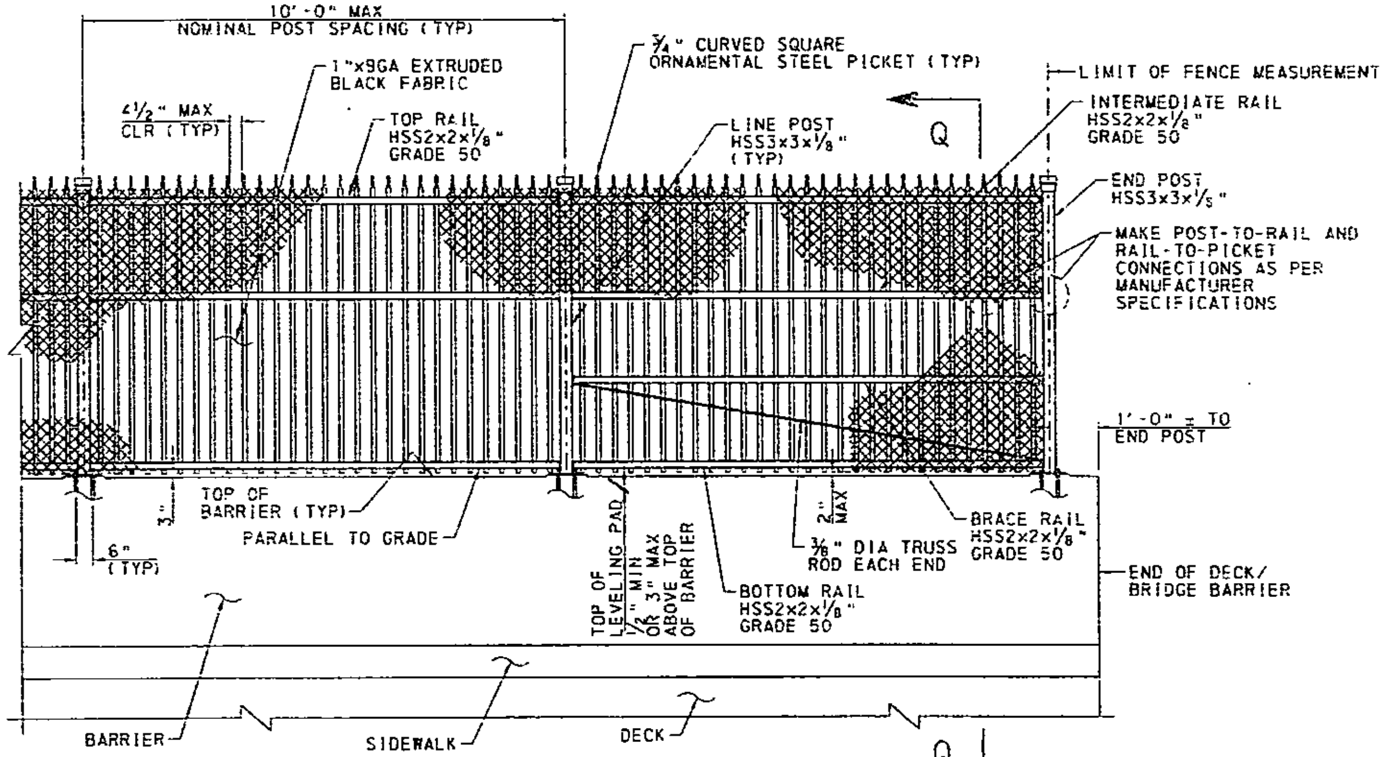
LACKAWANNA COUNTY
SR 6011 SEC 273
SEGMENT 0190 OFFSET 0404
SR 6011 - 273 STA 16+27.50
OVER ROARING BROOK, SR 3022,
AND DELAWARE, LACKAWANNA & WESTERN RAILROAD
3-SPAN CONT COMP STEEL MULTI-GIRDER BRIDGE
DECK ELEVATIONS - 2

RECOMMENDED MAY 07 2014

SHEET 53 OF 76

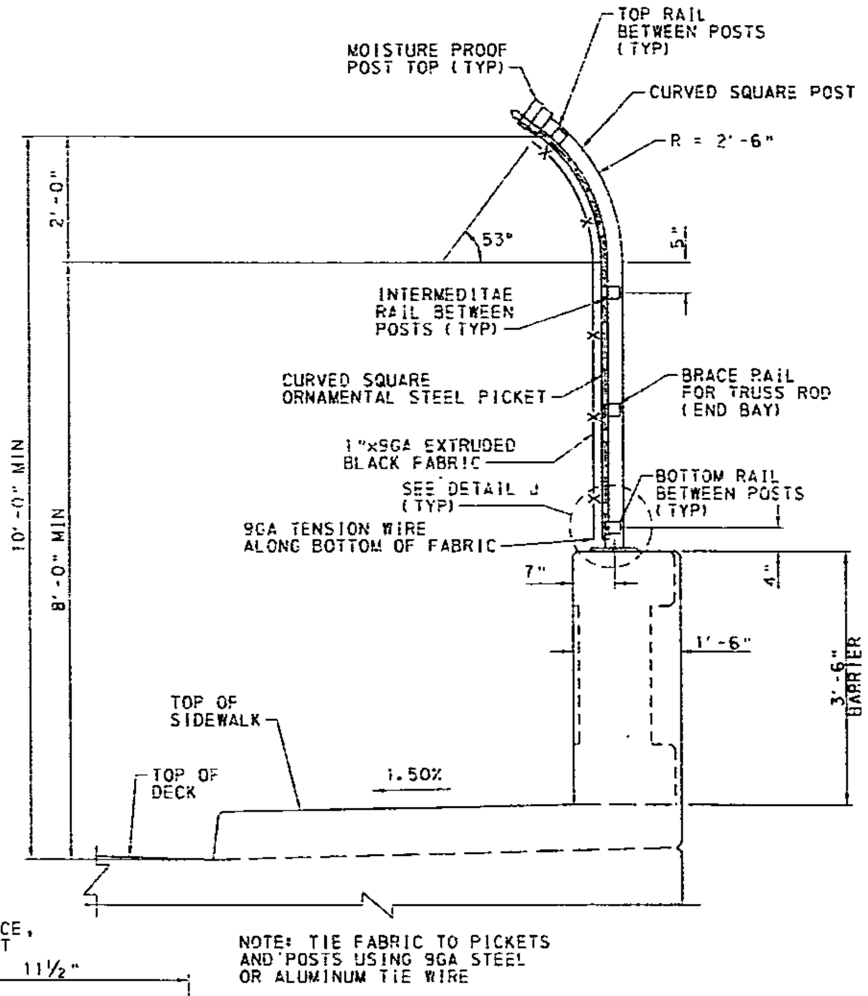
S - 33152

DES: GCF | CKD: DMC | DWG: KLL | CKD: CELC



BRIDGE FENCE ELEVATION

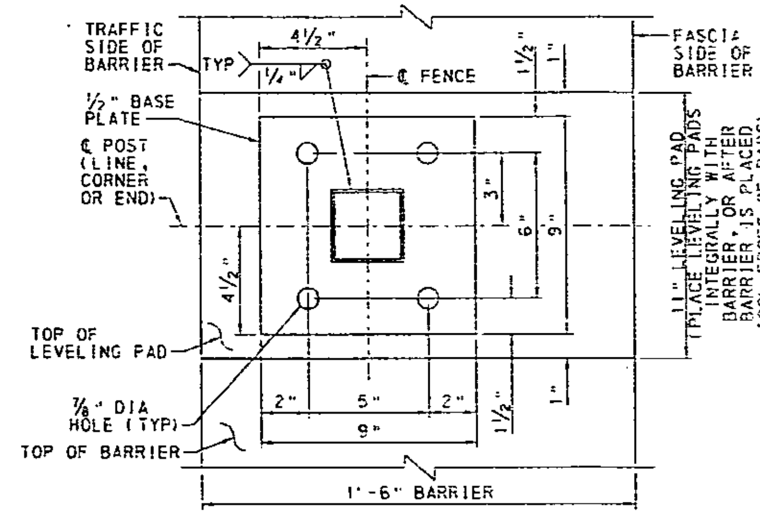
1 0 1 2 FEET



NOTE: TIE FABRIC TO PICKETS AND POSTS USING 9GA STEEL OR ALUMINUM TIE WIRE

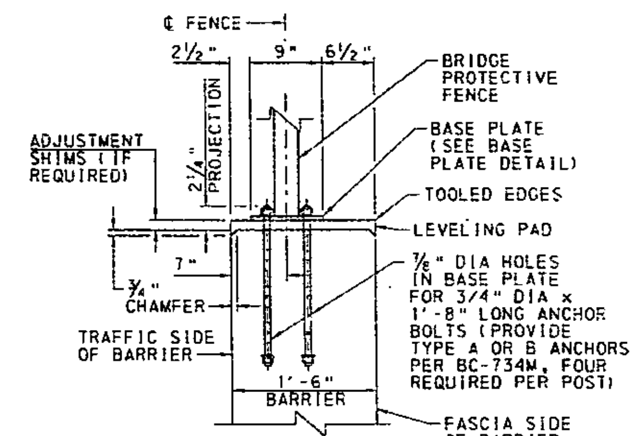
SECTION Q-Q

1 0 1 FEET



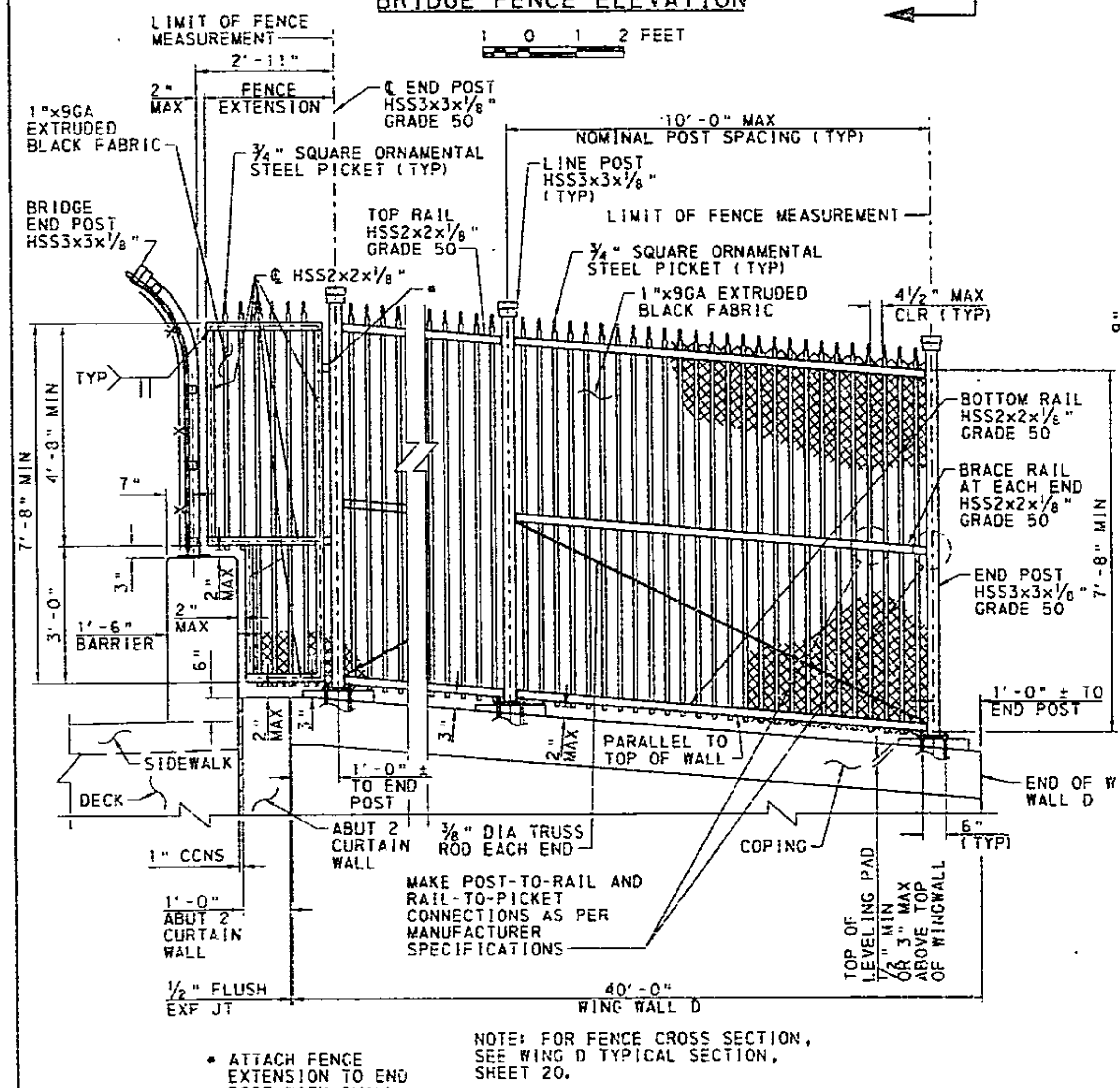
BASE PLATE & LEVELING PAD DETAIL

3 0 3 INCHES



DETAIL J

6 0 6 12 INCHES

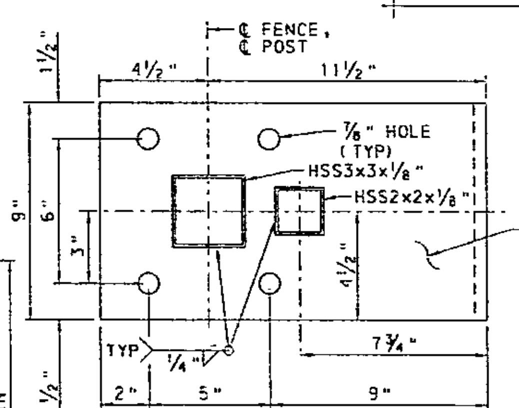


* ATTACH FENCE EXTENSION TO END POST WITH SMALL SECTIONS OF HSS2x2x⅛" WITH ¼" FILLET WELD

NOTE: FOR FENCE CROSS SECTION, SEE WING D TYPICAL SECTION, SHEET 20.

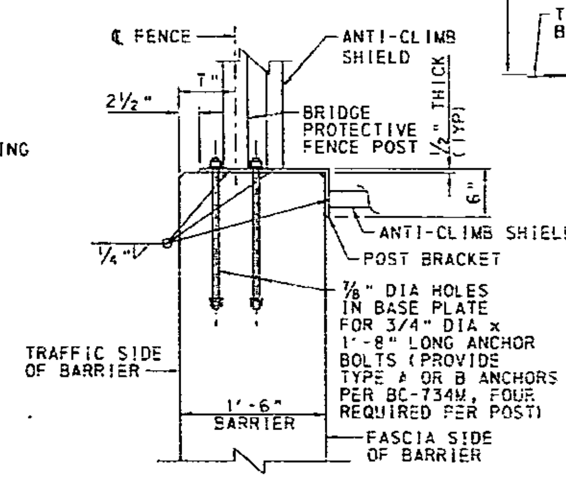
WING D FENCE ELEVATION

1 0 1 2 FEET



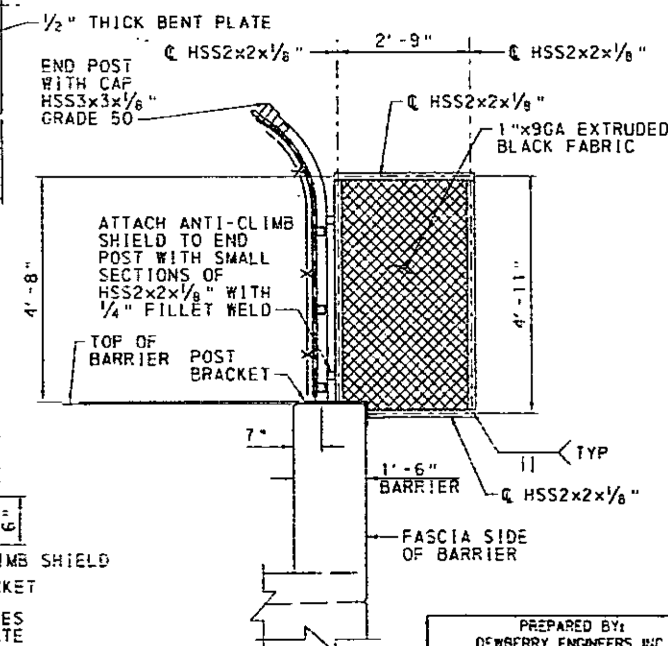
POST BRACKET DETAIL - PLAN

3 0 3 INCHES



POST BRACKET DETAIL - SECTION

6 0 6 12 INCHES



NOTE: TIE FABRIC TO POSTS USING 9GA STEEL OR ALUMINUM TIE WIRE

ANTI-CLIMB SHIELD DETAILS

REQUIRED AT ENDS OF FENCE, EXCEPT AT WING D (3 TOTAL)

1 0 1 2 FEET

NOTES

1. FOR GENERAL NOTES AND LIST OF ABBREVIATIONS, SEE SHEETS 4 & 5.
2. FOR ADDITIONAL DECORATIVE PROTECTIVE FENCE DETAILS AT WINGWALL D, SEE SHEET 20.
3. FOR BARRIER DETAILS, SEE SHEETS 48 THRU 50.
4. FOR ADDITIONAL NOTES, SEE BC-701M.

Mark	Description	By	Chk'd.	Recm'd.	Date

REVISIONS

SR 6011 PREVIOUSLY KNOWN AS LR 5

PREPARED BY: DEWBERRY ENGINEERS INC.

GARY L. FRENETTE

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF TRANSPORTATION

LACKAWANNA COUNTY
SR 6011 SEC 273
SEGMENT 0190 OFFSET 0404
SR 6011 - 273 STA 16+27.50
OVER ROARING BROOK, SR 3022,
AND DELAWARE, LACKAWANNA & WESTERN RAILROAD
3-SPAN CONT COMP STEEL MULTI-GIRDER BRIDGE

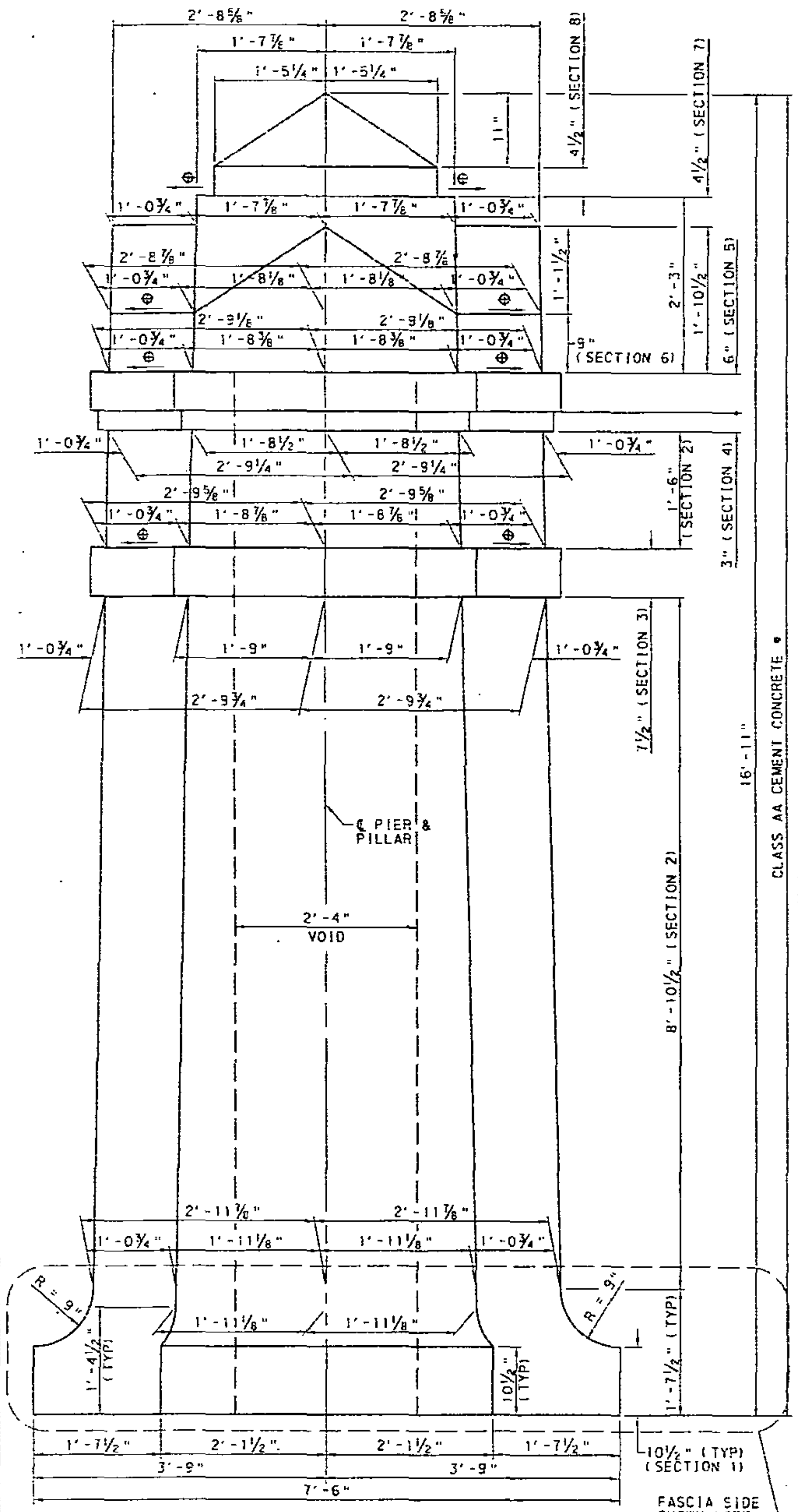
DECORATIVE PROTECTIVE FENCE

RECOMMENDED MAY 07 2014

SHEET 54 OF 76

S - 33152

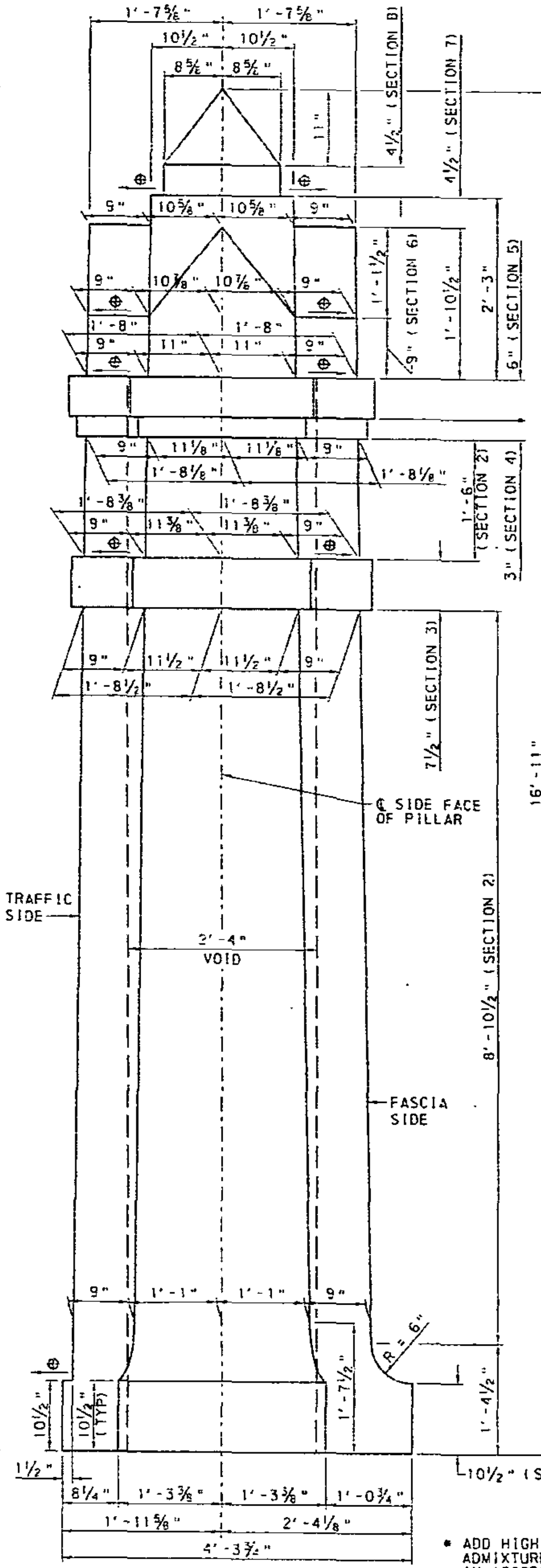
DES: GCP | CKD: GLF | DWG: GCP | CKD: GLF



FRONT FACE

⊕ SLOPE SURFACE TO DRAIN

6 0 6 12 INCHES

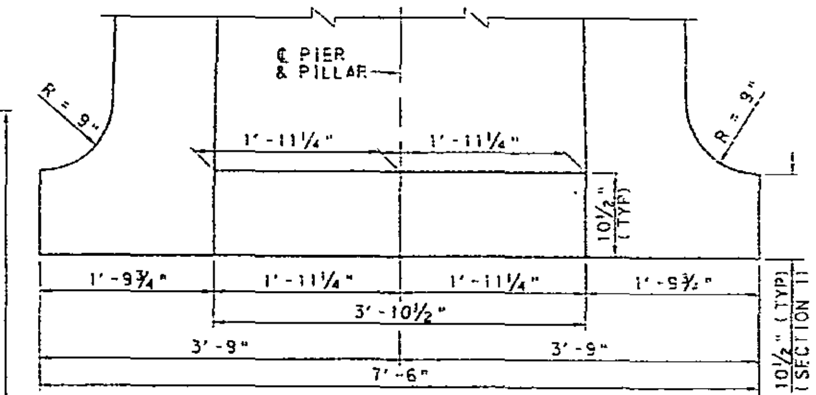


SIDE FACE

⊕ SLOPE SURFACE TO DRAIN

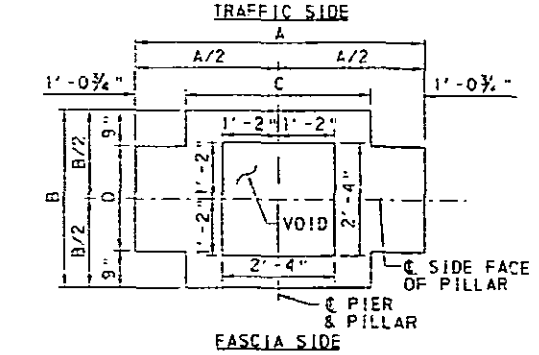
6 0 6 12 INCHES

* ADD HIGH RANGE WATER REDUCING ADMIXTURES (SUPERPLASTICIZERS) IN ACCORDANCE WITH SECTION 704



DETAIL K

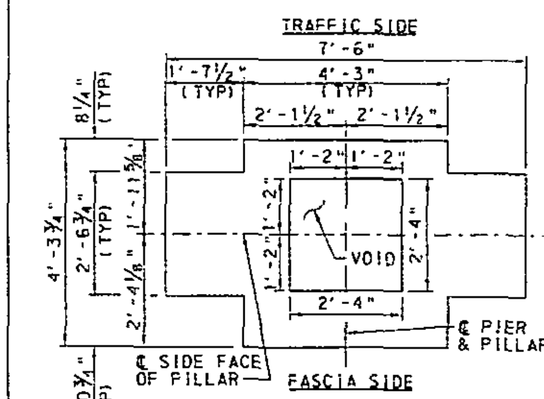
6 0 6 12 INCHES



DIMENSIONS FOR SECTIONS 3 THRU 5				
	LABEL			
SECTION NO.	A	B	C	D
3	6'-0"	3'-8½"	3'-10½"	2'-2½"
4	5'-9¾"	3'-7"	3'-8¼"	2'-1"
5	6'-0"	3'-9½"	3'-10½"	2'-3¼"

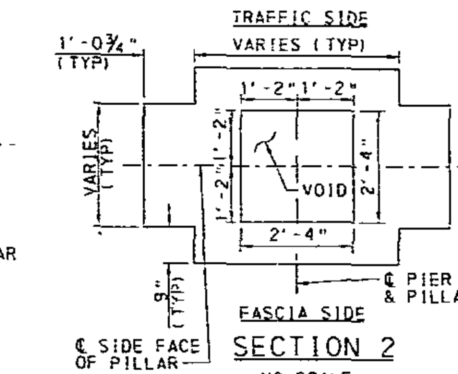
SECTIONS 3 THRU 5

NO SCALE



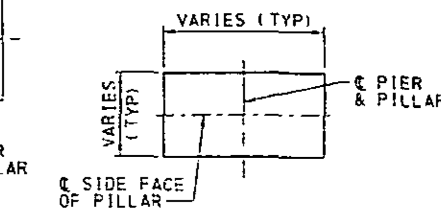
SECTION 1

1 0 1 2 FEET



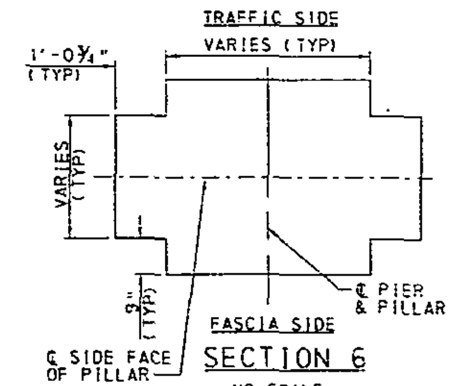
SECTION 2

NO SCALE



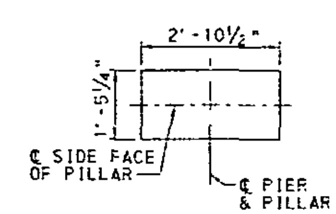
SECTION 7

NO SCALE



SECTION 6

NO SCALE



SECTION 8

NO SCALE

NOTES

1. FOR GENERAL NOTES AND LIST OF ABBREVIATIONS, SEE SHEETS 4 & 5.
2. FOR PILLAR REINFORCEMENT, SEE SHEET 56.
3. WORK THIS SHEET WITH SHEETS 21 THRU 26.
4. FOR REINFORCEMENT BAR SCHEDULE, SEE SHEETS 64 THRU 68.
5. PILLARS MAY BE PRECAST AT NO ADDITIONAL EXPENSE TO THE DEPARTMENT. SUBMIT DESIGN AND CALCULATIONS TO THE DISTRICT BRIDGE ENGINEER FOR APPROVAL PRIOR TO FABRICATION.

Mark	Description	By	Chk'd.	Recm'd.	Date

REVISIONS

SR 6011 PREVIOUSLY KNOWN AS LR 5

PREPARED BY: DEWBERRY ENGINEERS INC.

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF TRANSPORTATION

LACKAWANNA COUNTY
SR 6011 SEC 273
SEGMENT 0190 OFFSET 0404
SR 6011 - 273 STA 16+27.50
OVER ROARING BROOK, SR 3022,
AND DELAWARE, LACKAWANNA & WESTERN RAILROAD
3-SPAN CONT COMP STEEL MULTI-GIRDER BRIDGE

PILLAR DETAILS - 1

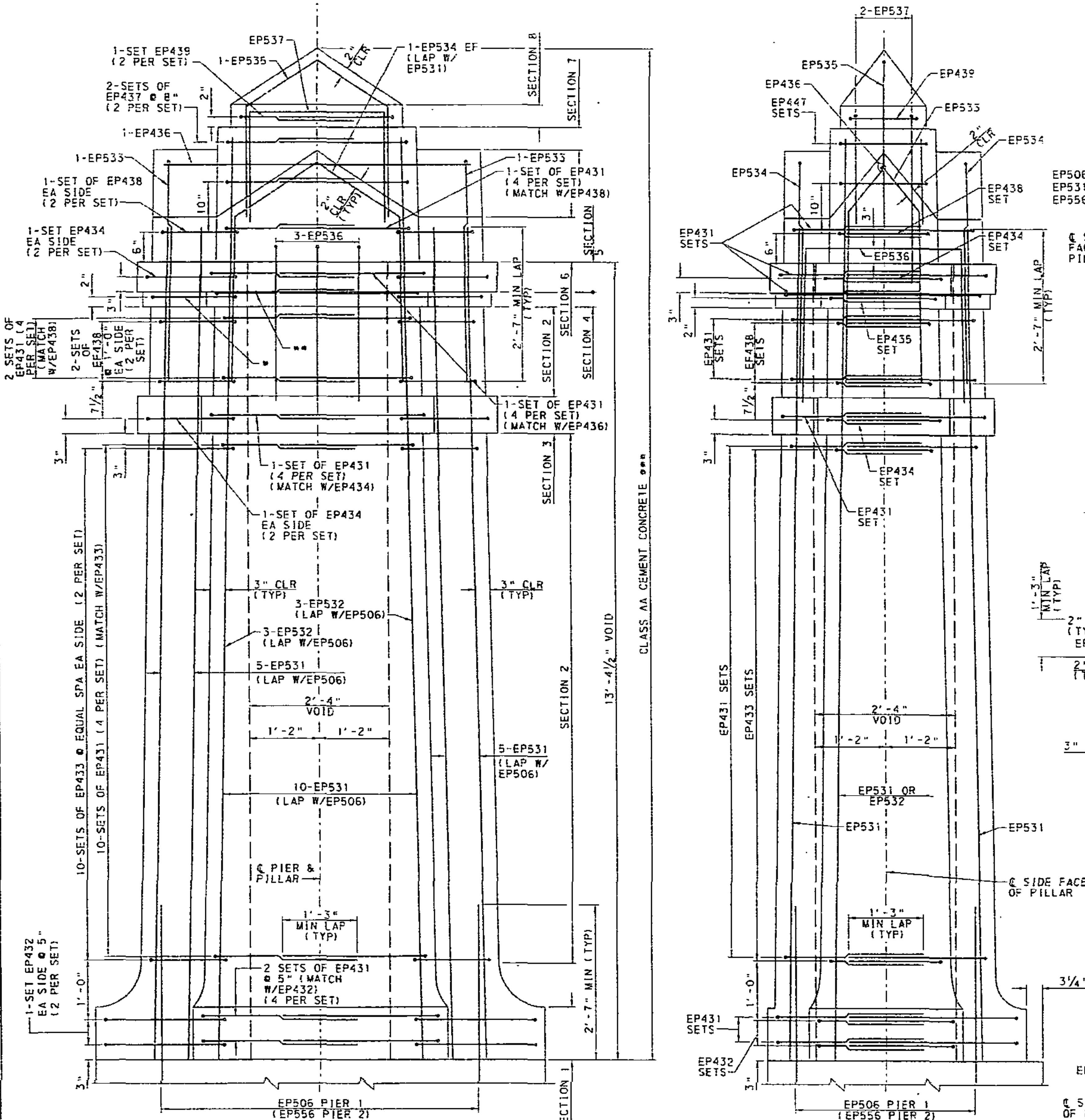
COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL GARY L. FRENETTE ENGINEER

RECOMMENDED MAY 07 2014

SHEET 55 OF 76

S - 33152

DES: GCP | CKD: DMC | DWG: GCP | CKD: DMC



FASCIA SIDE SHOWN. TRAFFIC SIDE SIMILAR, EXCEPT AS NOTED IN DETAIL A.

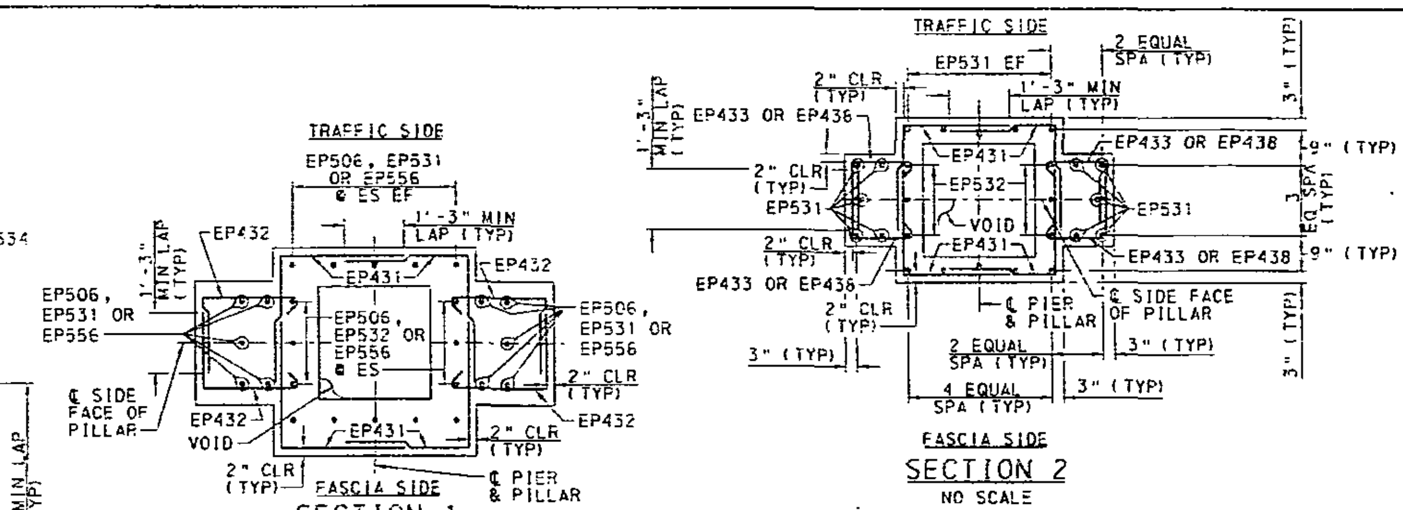
* 1-SET OF EP435 EA SIDE (2 PER SET)

** 1-SET OF EP431 (4 PER SET) (MATCH W/EP435)

*** ADD HIGH RANGE WATER REDUCING ADMIXTURES (SUPERPLASTICIZERS) IN ACCORDANCE WITH SECTION 704

REINFORCEMENT DETAILS

6 0 6 12 INCHES

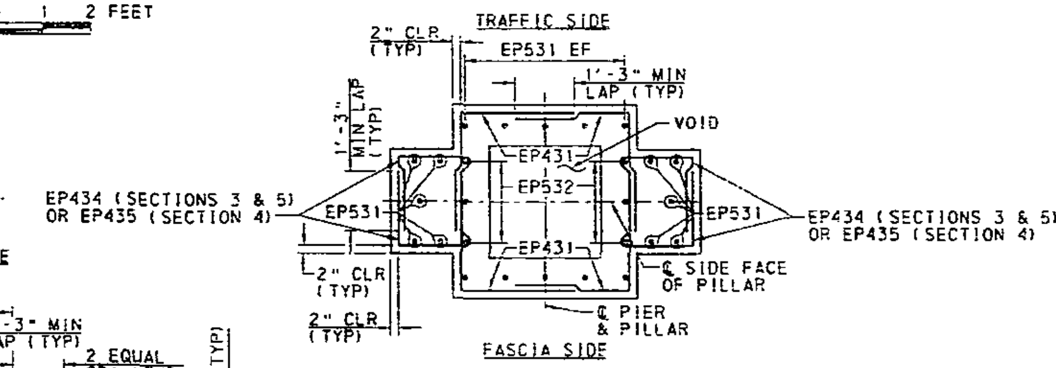


SECTION 1

1 0 1 2 FEET

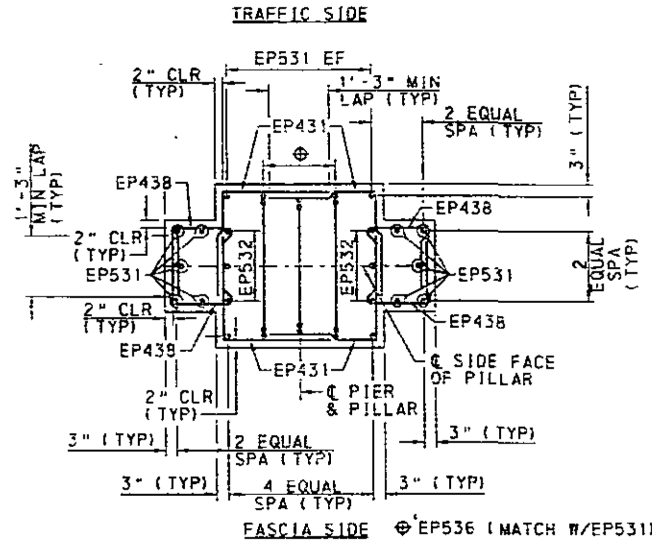
SECTION 2

NO SCALE



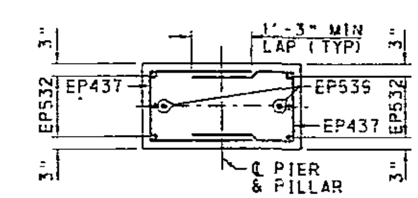
SECTIONS 3 THRU 5

NO SCALE



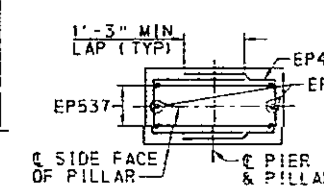
SECTION 6

NO SCALE



SECTION 7

NO SCALE



SECTION 8

NO SCALE

NOTES

1. FOR GENERAL NOTES AND LIST OF ABBREVIATIONS, SEE SHEETS 4 & 5.
3. FOR PILLAR DIMENSIONS AND SECTION LABELS, SEE SHEET 55.
4. WORK THIS SHEET WITH SHEETS 21 THRU 26.
5. FOR REINFORCEMENT BAR SCHEDULE, SEE SHEETS 64 THRU 68.
6. PILLAR REINFORCEMENT IDENTICAL AT BOTH PIERS, EXCEPT WHERE NOTED.

Mark	Description	By	Chk'd.	Recm'd.	Date

REVISIONS

SR 6011 PREVIOUSLY KNOWN AS LR 5

PREPARED BY: DEWBERRY ENGINEERS INC.

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF TRANSPORTATION

LACKAWANNA COUNTY
SR 6011 SEC 273
SEGMENT 0190 OFFSET 0404
SR 6011 - 273 STA 16+27.50
OVER ROARING BROOK, SR 3022,
AND DELAWARE, LACKAWANNA & WESTERN RAILROAD
3-SPAN CONT COMP STEEL MULTI-GIRDER BRIDGE

PILLAR DETAILS - 2

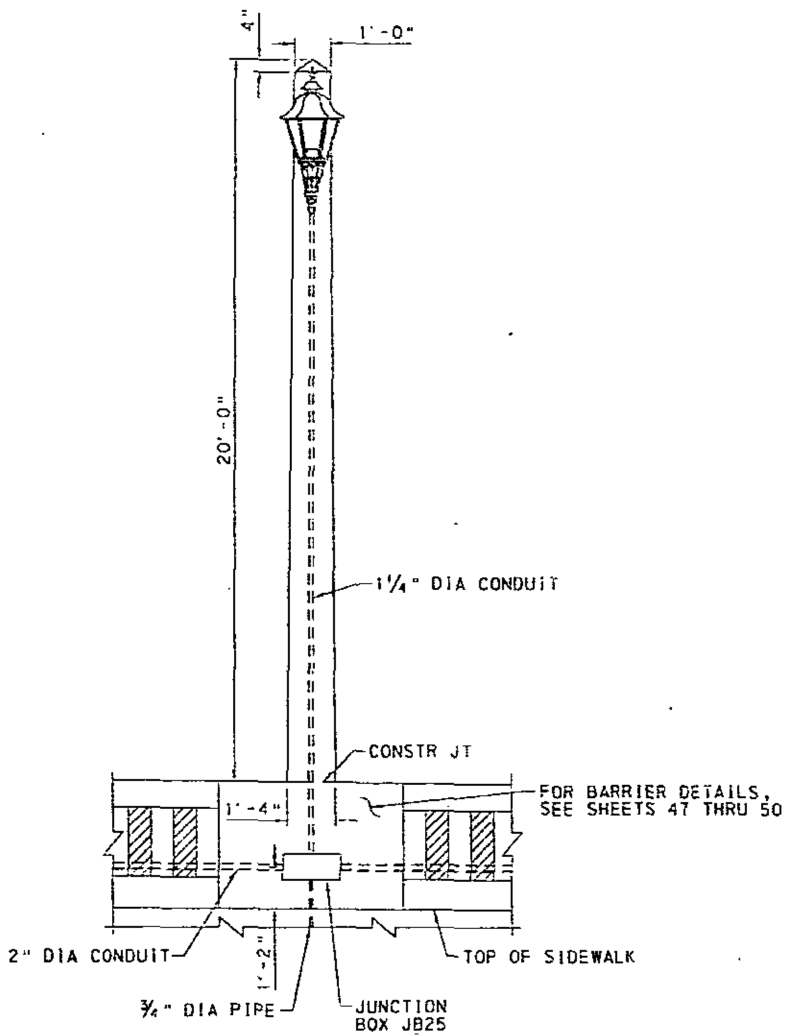
RECOMMENDED MAY 07 2014

SHEET 56 OF 76

S - 33152

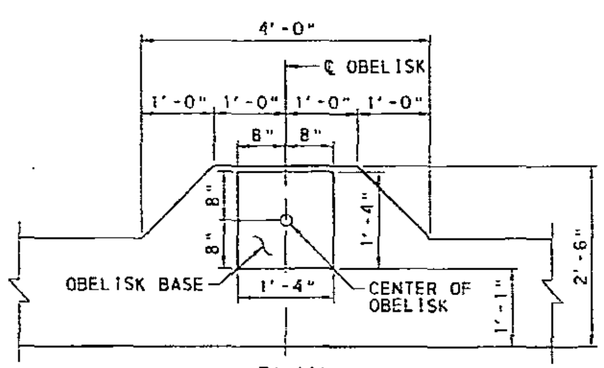
DES: GCP | CKD: DMC | DWG: GCP | CKD: DMC

4/2/2014 12:54:37 PM



ELEVATION

1 0 1 2 3 FEET

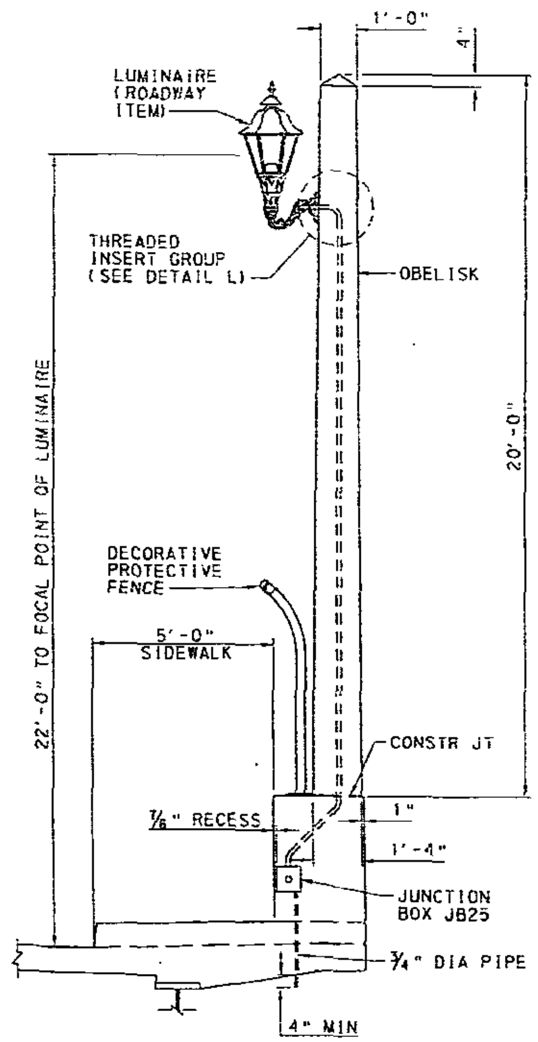


PLAN

1 0 1 FEET

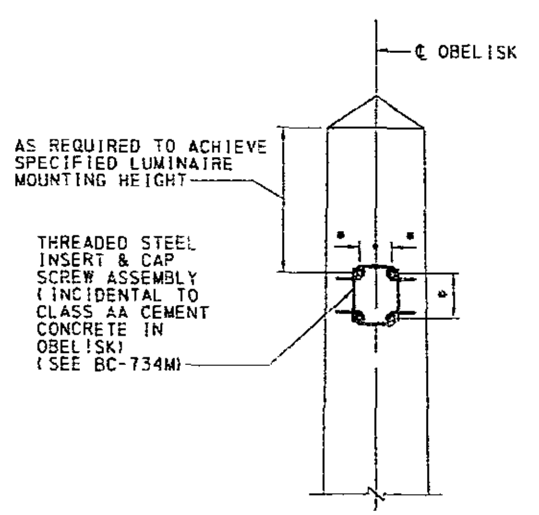
OBELISK AND DECORATIVE LUMINAIRE LOCATIONS **	
STATION	OFFSET
14+00.00	24.75' LT
14+00.00	24.75' RT
14+96.00	24.75' LT
14+96.00	24.75' RT
15+64.00	24.75' LT
15+64.00	24.75' RT
16+91.00	24.75' LT
16+91.00	24.75' RT
17+59.00	24.75' LT
17+59.00	24.75' RT
18+55.00	24.75' LT
18+55.00	24.75' RT

** STATIONS AND OFFSETS MEASURED TO CENTER OF OBELISK



SECTION

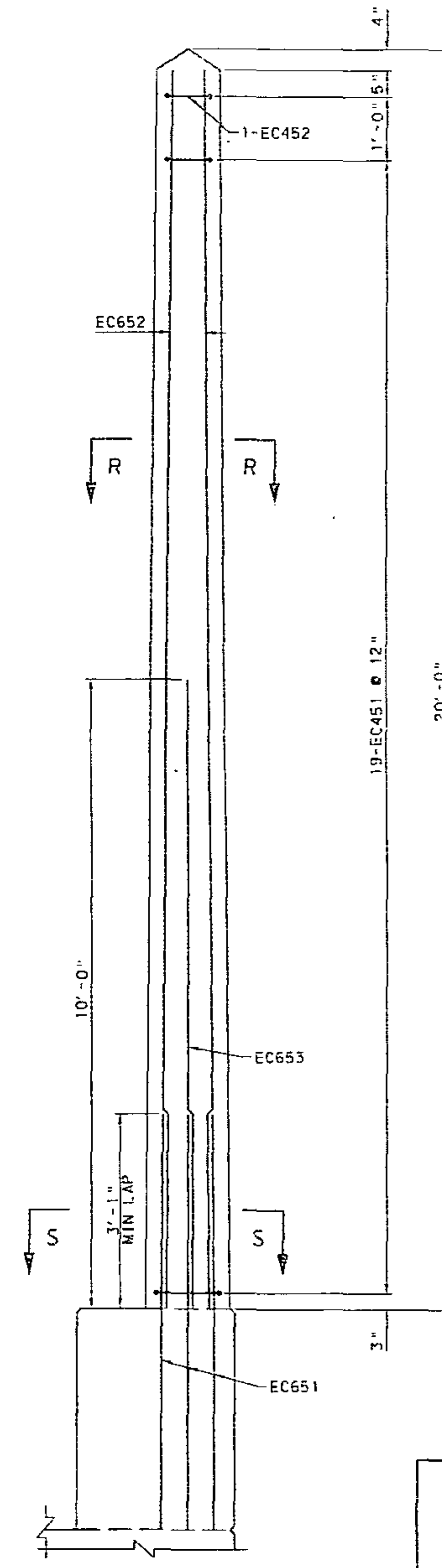
1 0 1 2 3 FEET



* SPACE AS REQUIRED BY MANUFACTURER'S BRACKET DIMENSIONS

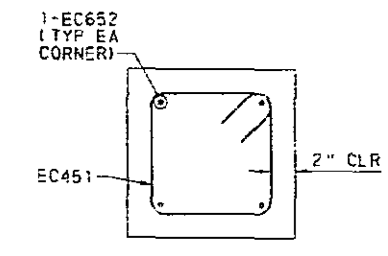
DETAIL L

6 0 6 12 INCHES



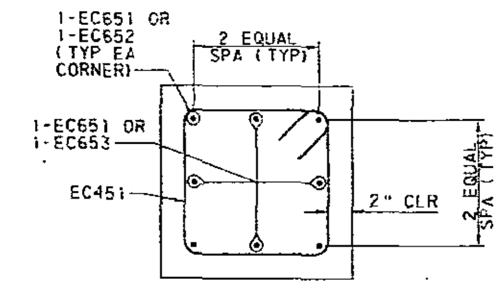
REINFORCEMENT DETAIL

1 0 1 FEET



SECTION R-R

6 0 6 INCHES



SECTION S-S

6 0 6 INCHES

NOTES

1. FOR GENERAL NOTES AND LIST OF ABBREVIATIONS, SEE SHEETS 4 & 5.
2. FOR ADDITIONAL DETAILS, SEE BC-721M AND BC-734M.
3. FOR BARRIER DETAILS, SEE SHEETS 48 THRU 50.
4. FOR REINFORCEMENT BAR SCHEDULE, SEE SHEETS 64 THRU 68.
5. FOR ELECTRICAL DETAILS, SEE LIGHTING PLAN AND BC-721M.
6. FOR LUMINAIRE DETAILS, SEE SPECIAL PROVISIONS.

* REFER TO MANUFACTURER'S DATA FOR LUMINAIRE BRACKET CONFIGURATION AND DETAILS, AND DETERMINE BRACKET LOCATION ACCORDINGLY

Mark	Description	By	Chk'd.	Recm'd.	Date

REVISIONS

SR 6011 PREVIOUSLY KNOWN AS LR 5

PREPARED BY: DEWBERRY ENGINEERS INC.

COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL GARY L. FRENETTE ENGINEER

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF TRANSPORTATION

LACKAWANNA COUNTY
SR 6011 SEC 273
SEGMENT 0190 OFFSET 0404
SR 6011 - 273 STA 16+27.50
OVER ROARING BROOK, SR 3022,
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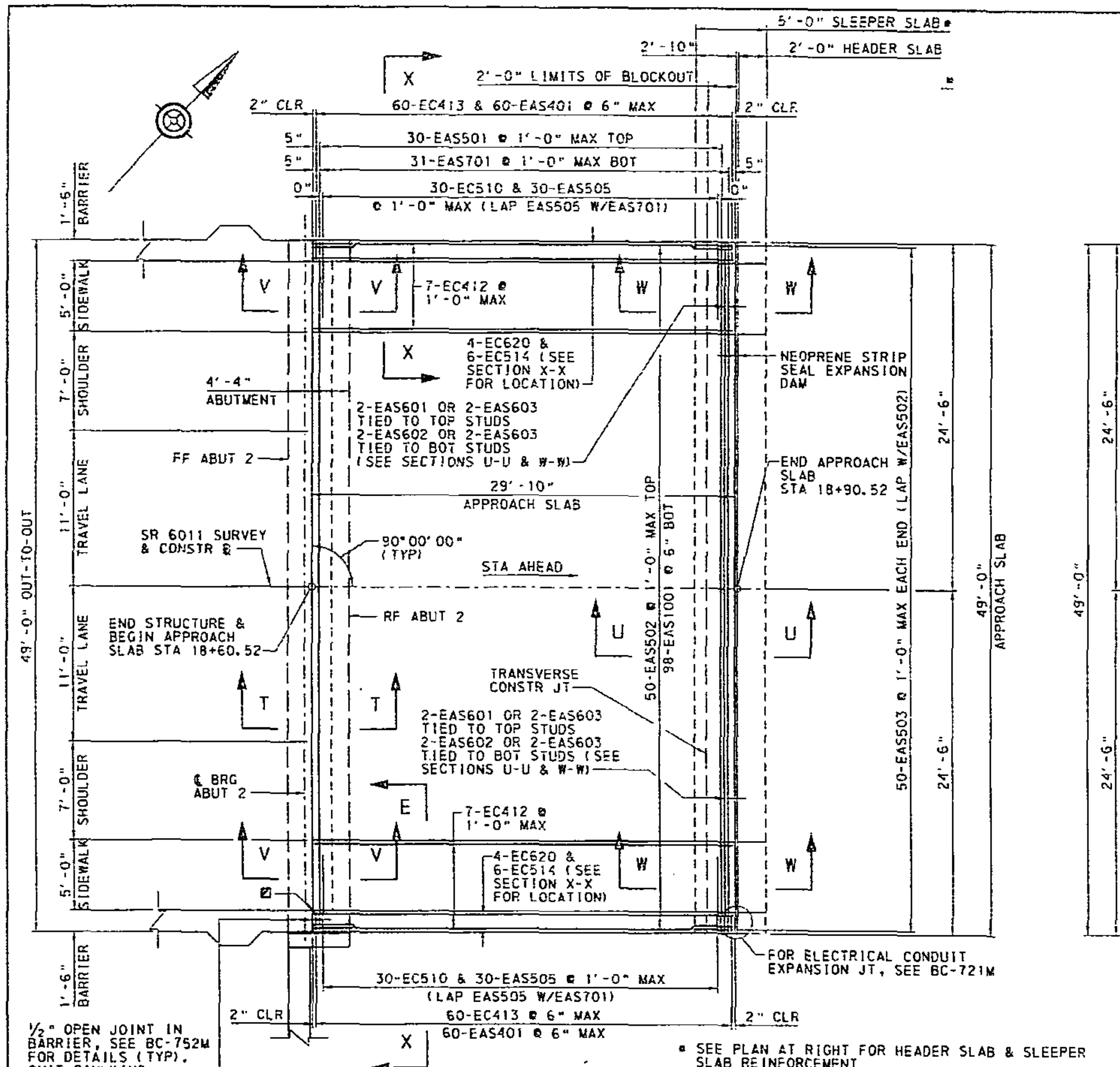
3-SPAN CONT COMP STEEL MULTI-GIRDER BRIDGE
OBELISK & LIGHTING DETAILS

RECOMMENDED MAY 07 2014

SHEET 57 OF 76

S - 33152

DES: GCP | CKD: DMC | DWG: GCP | CKD: DMC

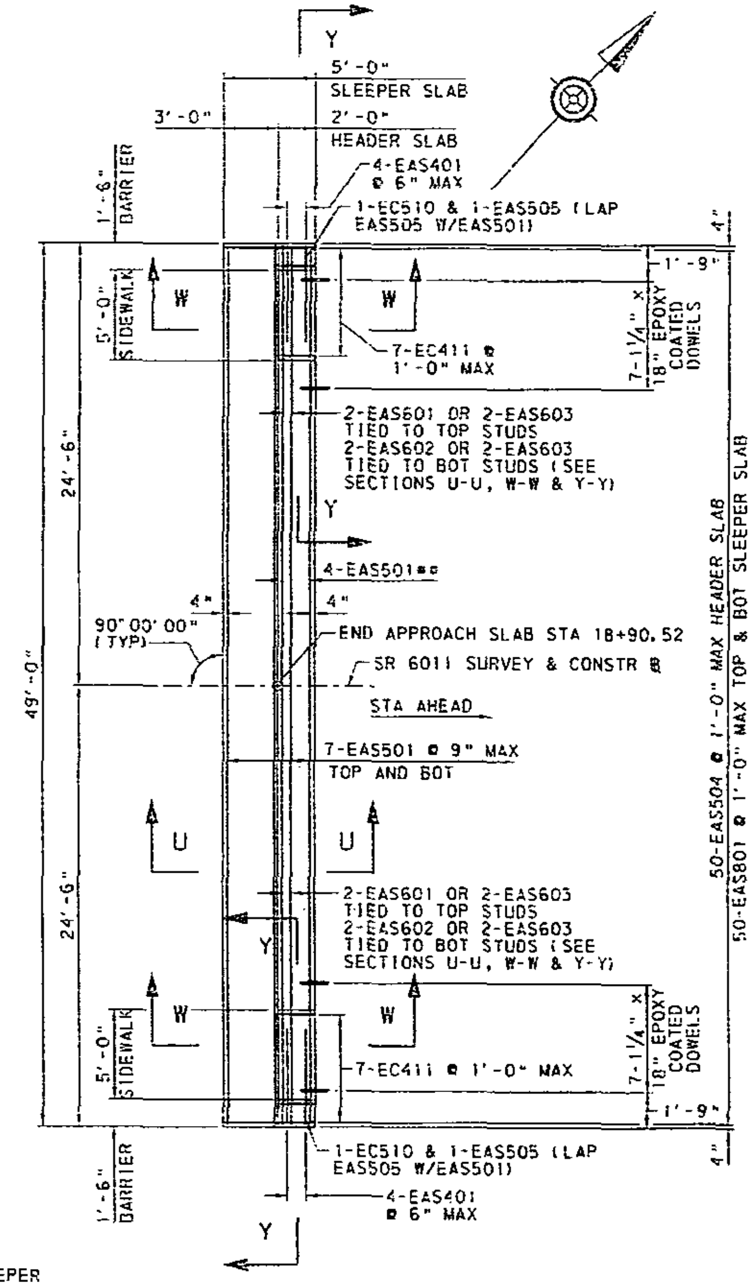


APPROACH SLAB PLAN

2 0 2 4 6 FEET

* SEE PLAN AT RIGHT FOR HEADER SLAB & SLEEPER SLAB REINFORCEMENT

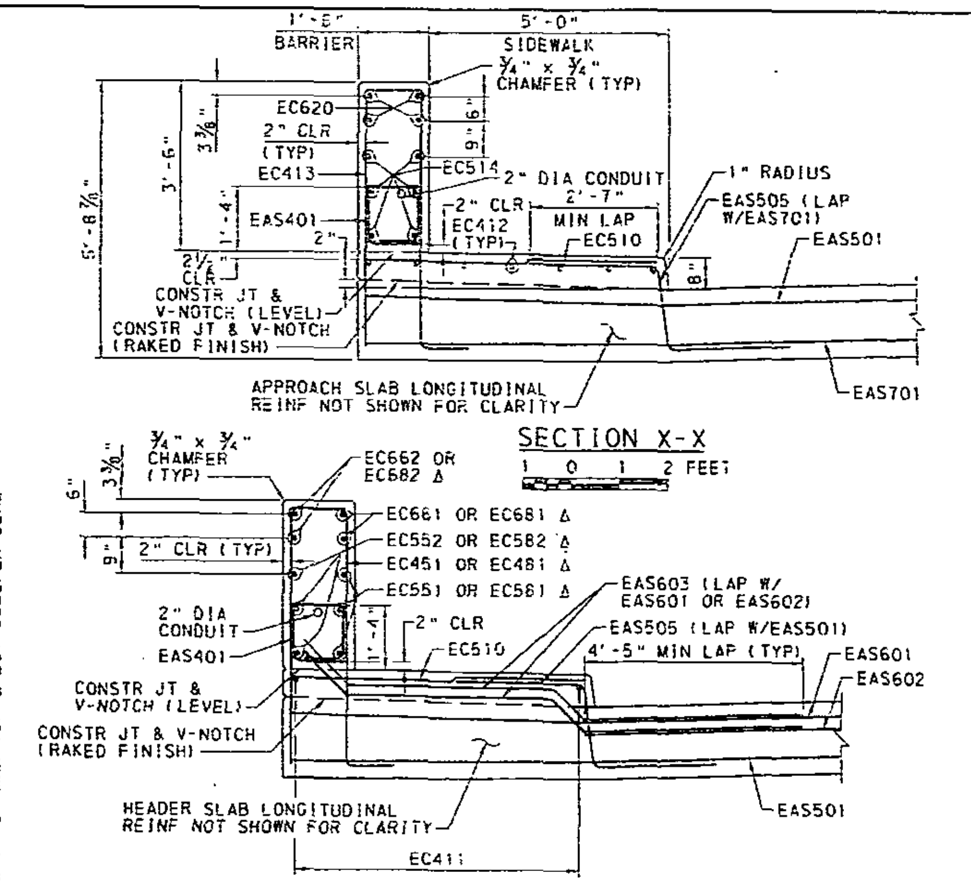
EXTEND JOINT SEAL UP BARRIER FACE IN ACCORDANCE WITH BC-766M. EXTEND WATERSTOP TO OUTSIDE FACE OF BARRIER



** SEE SECTION U-U FOR LOCATION

SLEEPER SLAB PLAN

2 0 2 4 6 FEET



SECTION X-X

1 0 1 2 FEET

Δ SEE MOMENT SLAB PLAN AND DETAILS, SHEET 63

NOTE: FOR BARRIER & SIDEWALK DIMENSIONS, SEE SECTION X-X. FOR ADDITIONAL BARRIER REINFORCEMENT, SEE SHEETS 48 THRU 50

SECTION Y-Y

1 0 1 2 FEET

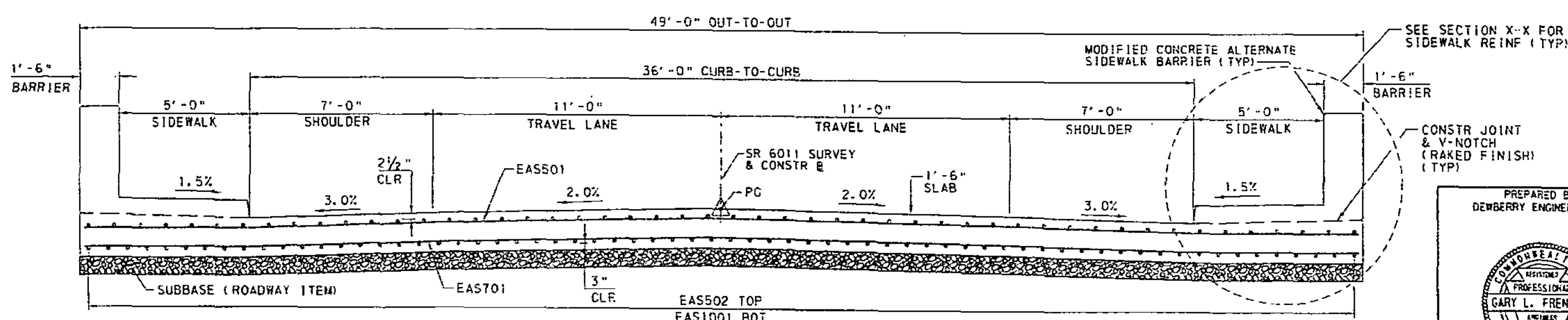
NOTES

1. FOR APPROACH SLAB NOTES, SEE SHEET 4.
2. FOR GENERAL NOTES AND LIST OF ABBREVIATIONS, SEE SHEETS 4 & 5.
3. WORK THIS SHEET WITH SHEETS 38 & 44 THRU 53.
4. FOR ADDITIONAL APPROACH SLAB AND SLEEPER SLAB DETAILS, SEE SHEET 59.
5. FOR SECTIONS T-T THRU W-W, SEE SHEET 59.
6. FOR ELEVATIONS AT TOP OF CONCRETE APPROACH SLAB, SEE SHEET 53.
7. FOR REINFORCEMENT BAR SCHEDULE, SEE SHEETS 64 THRU 68.

Mark	Description	By	Chk'd.	Recm'd.	Date

REVISIONS

SR 6011 PREVIOUSLY KNOWN AS LR 5



APPROACH SLAB SECTION

1 0 1 2 3 FEET

PREPARED BY: DEWBERRY ENGINEERS INC.

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF TRANSPORTATION

LACKAWANNA COUNTY
SR 6011 SEC 273
SEGMENT 0190 OFFSET 0404
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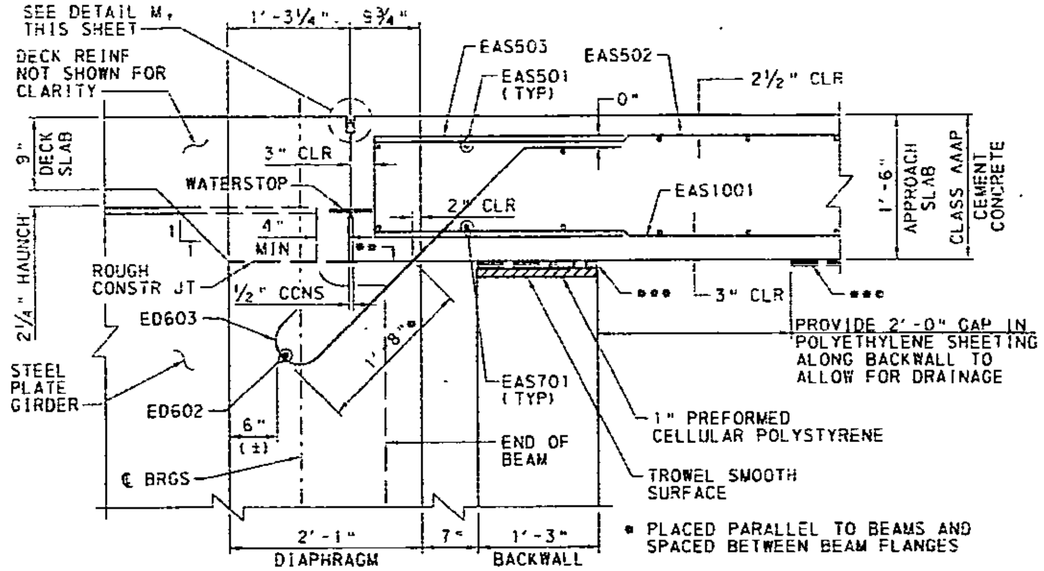
3-SPAN CONT COMP STEEL MULTI-GIRDER BRIDGE
APPROACH SLAB PLAN

RECOMMENDED MAY 07 2014

SHEET 58 OF 76

S - 33152

DES: KLL | CKD: KES | DWG: KLL/MZS | CKD: KES



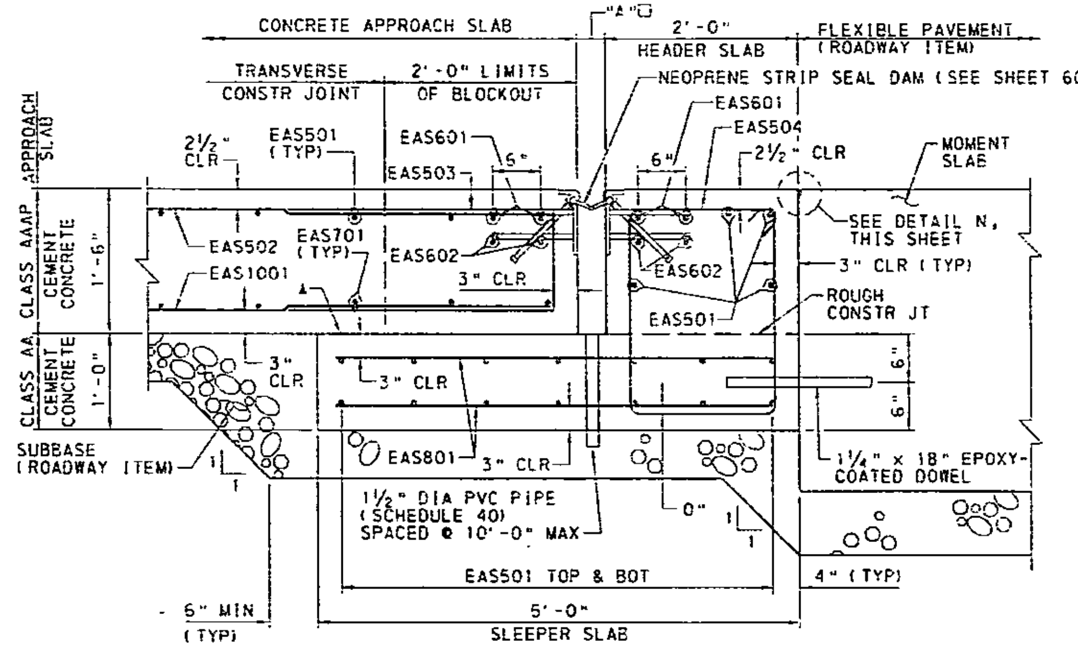
SECTION T-T

6 0 6 12 INCHES

* PLACED PARALLEL TO BEAMS AND SPACED BETWEEN BEAM FLANGES

** COAT WITH AN APPROVED EPOXY BONDING COMPOUND PRIOR TO PLACING APPROACH SLAB CONCRETE

*** SLIDING SURFACE, 2 LAYERS OF 4 MIL POLYETHYLENE SHEETING



SECTION U-U

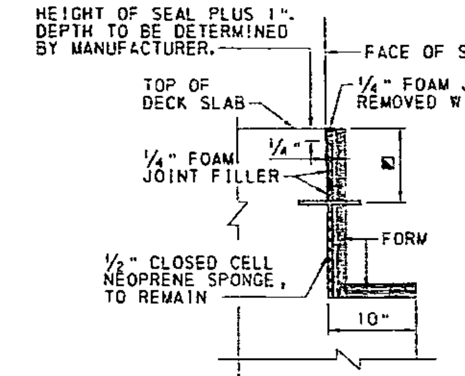
6 0 6 12 INCHES

□ FOR INSTALLATION DIMENSION "A" AT VARIOUS TEMPERATURES, SEE TABLE ON SHEET 60

▲ TROWEL SMOOTH AND PLACE 2 LAYERS OF 4 MIL POLYETHYLENE SHEETING AS BOND BREAKER

JOINT PREPARATION NOTES

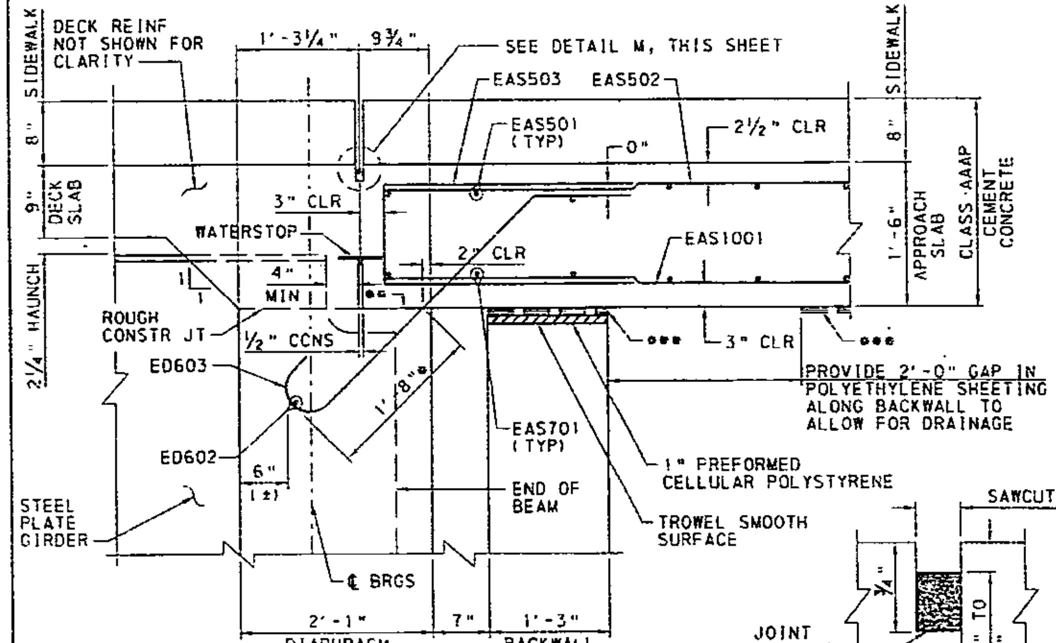
1. THE JOINT OPENING IS TO BE FORMED BY A TWO-STAGE SAWING OPERATION WHERE ACCESSIBLE. WHERE ACCESSIBILITY IS LIMITED, THE JOINT OPENING SHALL BE FORMED. THE FIRST SAW CUT IS DESIGNED TO CONTROL CRACKING. THE SECOND SAW CUT IS MADE USING A DOUBLE-BLADED WATER-COOLED SAW CAPABLE OF HOLDING A TOLERANCE OF ±1/16" TO CREATE THE PROPER OPENING FOR THE PREFORMED NEOPRENE COMPRESSION SEAL OR INVERTED V JOINT SEAL.
2. WATER BLAST OPENING IMMEDIATELY FOLLOWING SAW CUTTING OPERATION TO REMOVE ANY RESIDUAL SLURRY BEFORE IT DRIES.
3. THE DEPTH OF THE JOINT OPENING EQUALS THE HEIGHT OF THE SEAL PLUS 1". THE WIDTH OF THE SECOND SAW CUT SHOULD BE ADJUSTED TO ACCOUNT FOR THE CONCRETE SURFACE TEMPERATURE AT THE TIME OF SAWING, SEE MANUFACTURER'S PRODUCT INFORMATION.
4. BEFORE INSTALLING THE SEAL, ABRASIVE BLAST THE BONDING SURFACES TO THOROUGHLY CLEAN THE JOINT OPENING AND REMOVE FOREIGN MATERIAL, INCLUDING BROKEN CONCRETE. USE WATER AND OIL FREE COMPRESSED AIR TO BLOW OUT RESIDUE FROM THE SEAL GROOVE OPENING.
5. PREPARE BONDING SURFACES AND INSTALL JOINT SEAL IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
6. DO NOT EXCEED 3% ELONGATION OF THE SEAL, IF STRETCHING OCCURS.



■ WATERSTOP NOTE: AN EXPANSION WATERSTOP (TYPE E1 OR E2), IN ACCORDANCE WITH BC-735M, MUST BE INSTALLED AT MID-DEPTH OF APPROACH SLAB. PLACE WATERSTOP TO PROVIDE POSITIVE DRAINAGE TO THE OUTSIDE OF THE STRUCTURE

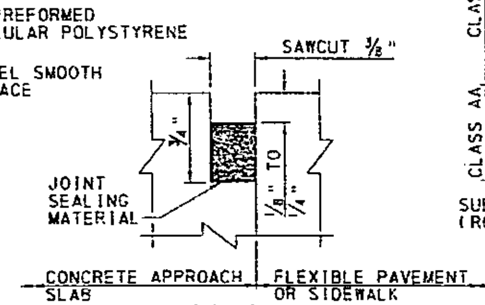
PAVING NOTCH FORMING DETAILS

NO SCALE



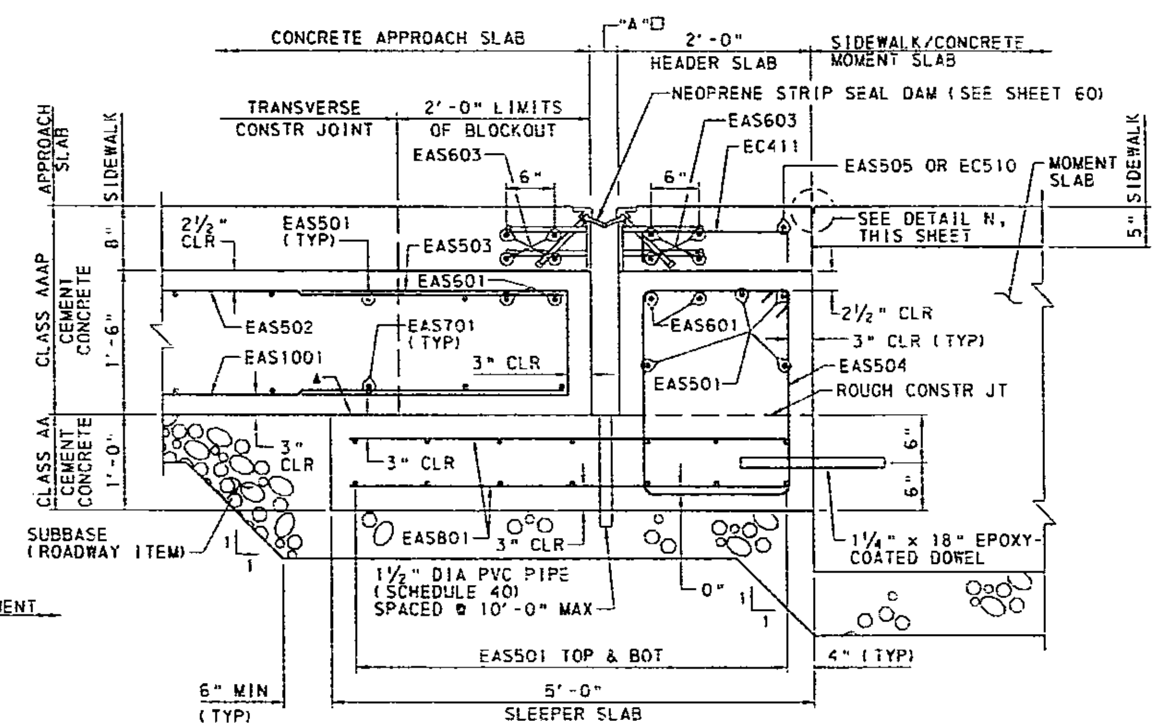
SECTION V-V

6 0 6 12 INCHES



DETAIL N

NO SCALE



SECTION W-W

6 0 6 12 INCHES

NOTES

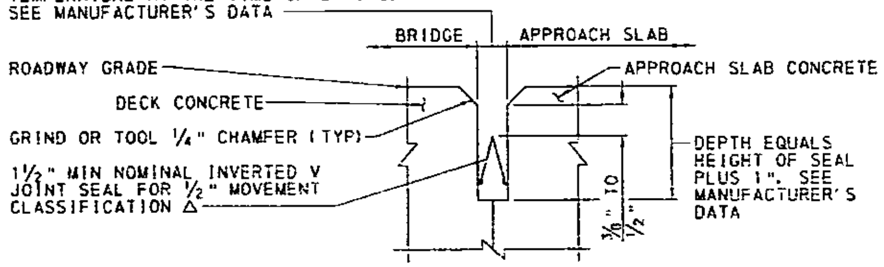
1. FOR GENERAL NOTES AND LIST OF ABBREVIATIONS, SEE SHEETS 4 & 5.
2. FOR CONCRETE DIAPHRAGM DETAILS, SEE SHEET 38.
3. WORK THIS SHEET WITH SHEETS 38 & 44 THRU 53.
4. FOR LOCATION OF SECTIONS T-T THRU W-W, SEE SHEET 56.
5. FOR NEOPRENE STRIP SEAL DETAILS, SEE SHEET 60.
6. FOR REINFORCEMENT BAR SCHEDULE, SEE SHEETS 64 THRU 68.

Mark	Description	By	Chk'd.	Recm'd.	Date

REVISIONS

SR 6011 PREVIOUSLY KNOWN AS LR 5

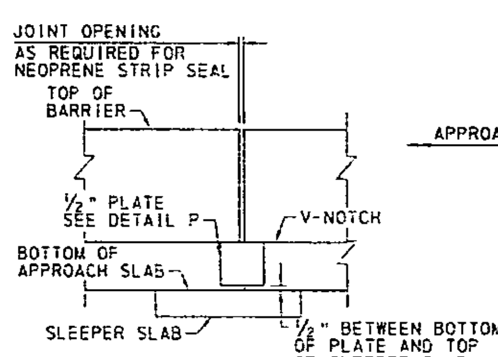
WIDTH OF OPENING SHOULD BE ADJUSTED TO ACCOUNT FOR THE CONCRETE SURFACE TEMPERATURE AT THE TIME OF SAWING. SEE MANUFACTURER'S DATA



△ USE ONLY APPOVED SEALS, AS LISTED IN BULLETIN 15. INSTALL JOINT SEALS TO A UNIFORM DEPTH WITH THE TOP OF THE SEAL FROM 1/4" TO 1/2" BELOW THE LEVEL OF THE CHAMFER. MAKE THE TOP EDGES OF THE CONTACT SURFACES ON BOTH SIDES OF THE SEAL AT THE SAME ELEVATION

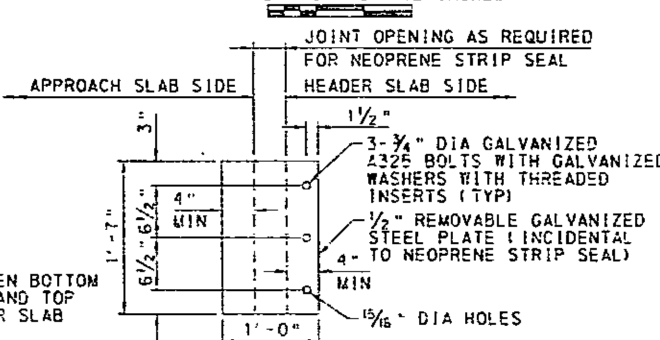
DETAIL M

(INVERTED V JOINT SEAL)
NO SCALE



END COVER PLATE DETAIL

NO SCALE



DETAIL P

NO SCALE

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DEPARTMENT OF TRANSPORTATION

LACKAWANNA COUNTY
SR 6011 SEC 273
SEGMENT 0190 OFFSET 0404
SR 6011 - 273 STA 16+27.50
OVER ROARING BROOK, SR 3022,
AND DELAWARE, LACKAWANNA & WESTERN RAILROAD
3-SPAN CONT COMP STEEL MULTI-GIRDER BRIDGE

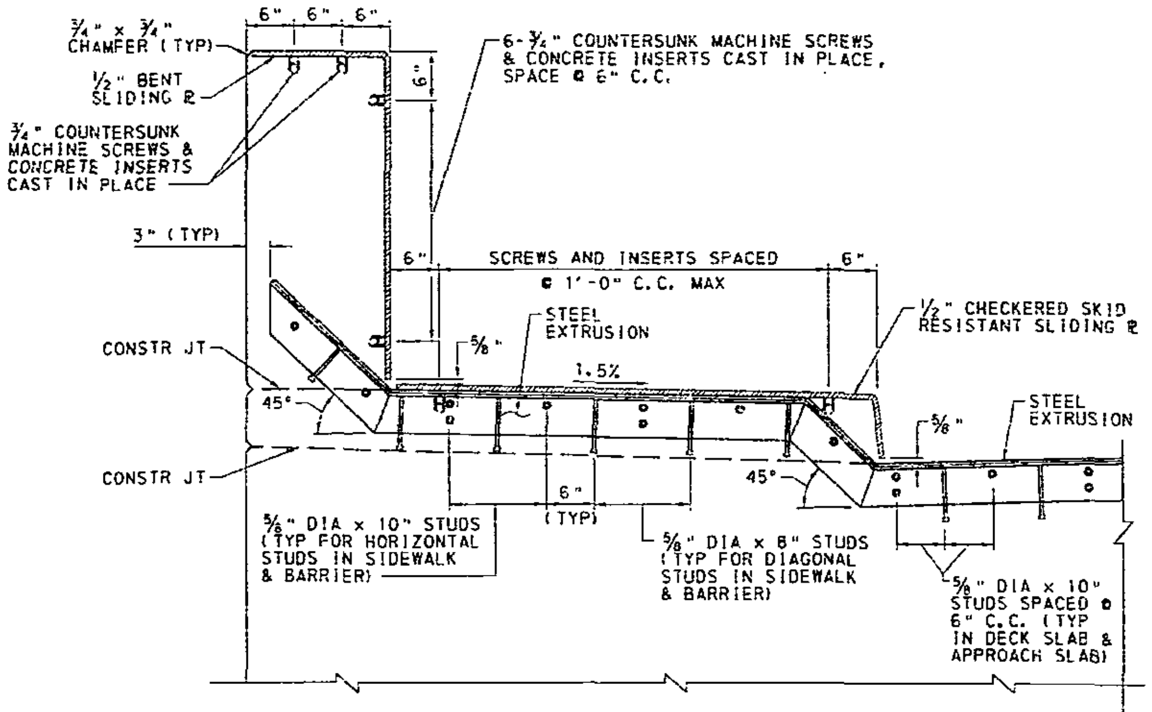
APPROACH SLAB DETAILS

RECOMMENDED MAY 07 2014

SHEET 59 OF 76

S - 33152

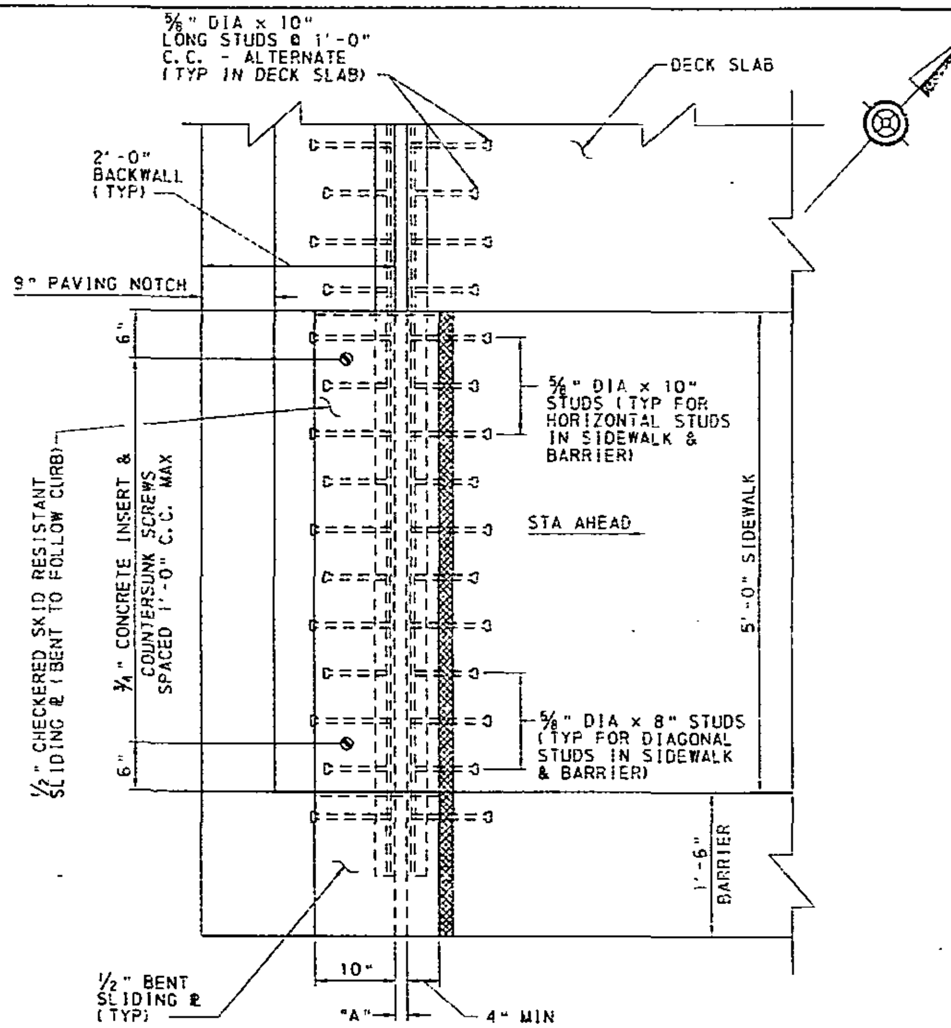
DES: KLL	CKD: KES	DWG: KLL/MZS	CKD: KES



BARRIER AND SIDEWALK DETAIL

NOTE: LEFT BARRIER SHOWN. RIGHT BARRIER SIMILAR, OPPOSITE HAND.

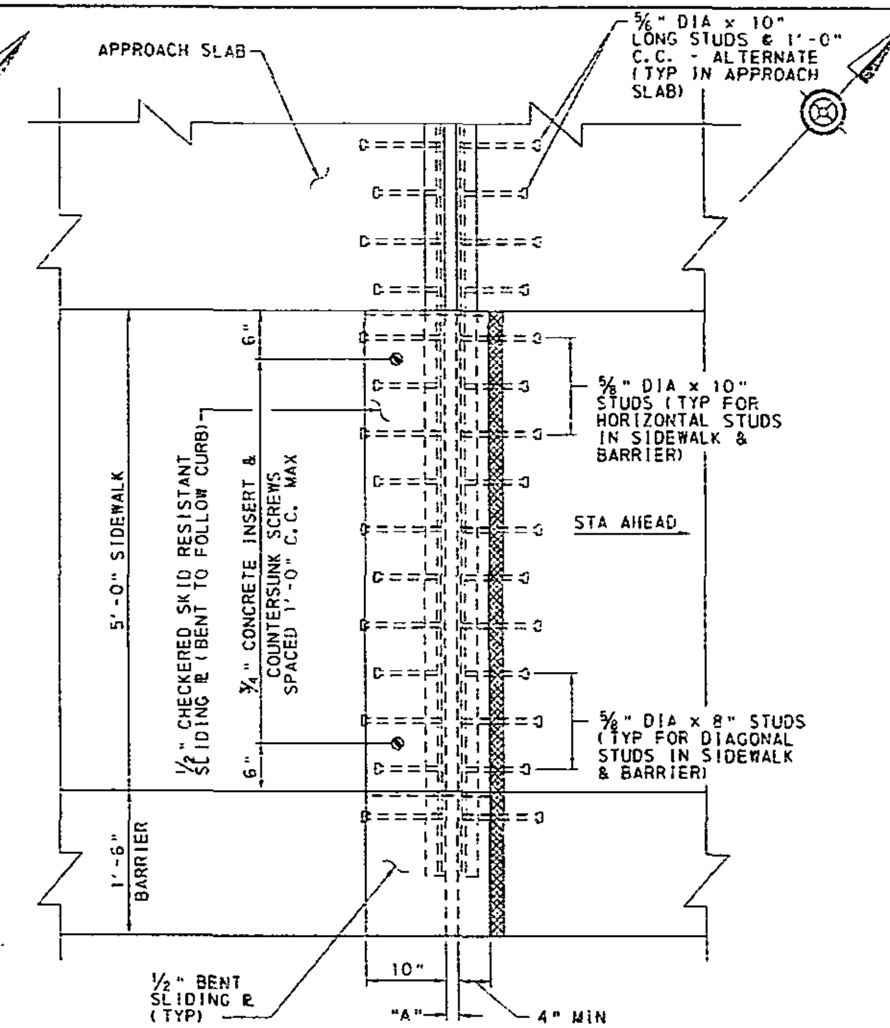
NO SCALE



STRIP SEAL PLAN AT ABUTMENT 1

NOTE: RIGHT BARRIER SHOWN, LEFT BARRIER OPPOSITE HAND.

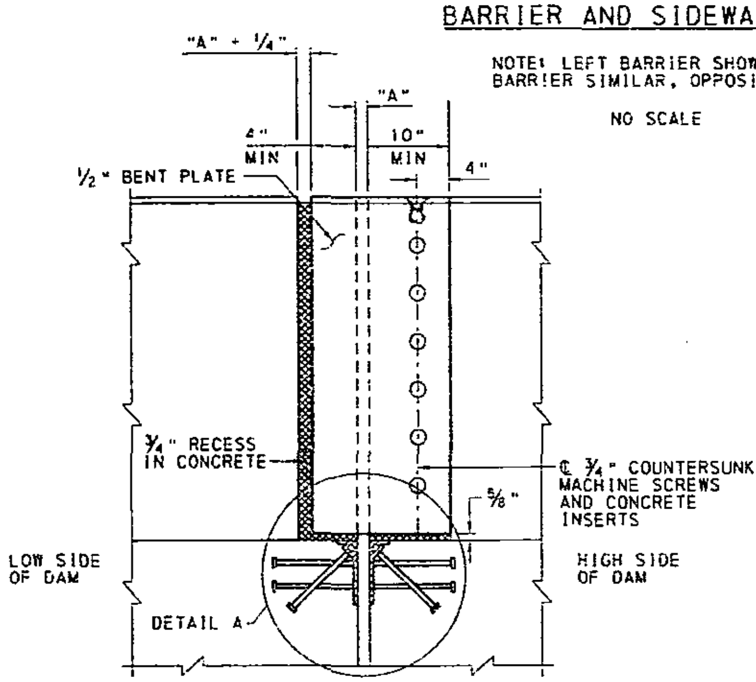
NO SCALE



STRIP SEAL PLAN AT FAR END OF APPROACH SLAB

NOTE: RIGHT BARRIER SHOWN, LEFT BARRIER OPPOSITE HAND.

NO SCALE

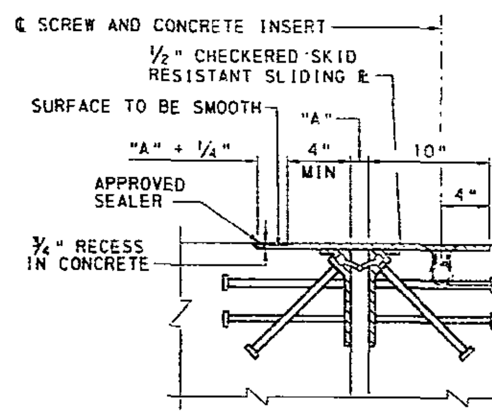


SLIDING PLATE ELEVATION

NO SCALE

NOTE:

FORM CONCRETE RECESS AREA IN BARRIER AND GRIND TO PROVIDE SMOOTH SURFACE. APPLY ONE COAT OF ASPHALT CEMENT PAINT WA-1 OR PERFORMANCE GRADED ASPHALT CEMENT PG 64-22 TO ALLOW BENT SLIDING PLATE TO MOVE FREELY WITHOUT FRICTION.



DETAIL A

NO SCALE

NOTES

1. FOR GENERAL NOTES AND LIST OF ABBREVIATIONS, SEE SHEETS 4 & 5.
2. WORK THIS SHEET WITH SHEETS 11 THRU 13, 44, 46 THRU 50, 58 & 59.
3. FOR EXTRUSION DETAILS, SEE BC-767M.
4. CONSTRUCT EXPANSION DAM TO MATCH ROADWAY SLOPE & GRADE. SEE TYPICAL SECTION, SHEET 46, FOR ROADWAY SLOPE & GRADE.
5. PLATE AND OTHER ITEMS INCIDENTAL TO COST OF THE NEOPRENE STRIP SEAL DAM.

NOTE:

USE A STRIP SEAL WITH A NOMINAL MOVEMENT RANGE OF 4.0" AND WITH A MANUFACTURER-SPECIFIED MINIMUM/MAXIMUM JOINT OPENING OF 0.5"/4.5".

INSTALLATION DIMENSION "A" @ VARIOUS TEMPERATURES

°F	-10	-5	5	15	25	32	40	50	60	68	80	85	95	105	110
A1 WIDTH	3⅛"	3"	2⅞"	2¾"	2⅝"	2½"	2⅜"	2¼"	2⅛"	2"	1⅞"	1¾"	1⅝"	1½"	1⅜"
A2 WIDTH	3⅞"	3¾"	3½"	3¼"	3"	2⅞"	2⅝"	2½"	2¼"	2"	1¾"	1⅝"	1⅜"	1⅛"	1"

(Temperature headings in °F)

A1 = STRIP SEAL AT ABUTMENT 1
A2 = STRIP SEAL AT FAR END OF APPROACH SLAB

Mark	Description	By	Chk'd.	Recm'd.	Date

REVISIONS

SR 6011 PREVIOUSLY KNOWN AS LR 5

PREPARED BY: DEWBERRY ENGINEERS INC.

GARY L. FRENETTE PROFESSIONAL ENGINEER

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF TRANSPORTATION

LACKAWANNA COUNTY
SR 6011 SEC 273
SEGMENT 0190 OFFSET 0404
SR 6011 - 273 STA 16+27.50
OVER ROARING BROOK, SR 3022,
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3-SPAN CONT COMP STEEL MULTI-GIRDER BRIDGE

NEOPRENE STRIP SEAL DETAILS

RECOMMENDED MAY 07 2014

SHEET 60 OF 76

S - 33152

DES: KLL | CKD: CELG | DWG: KLL | CKD: CELG

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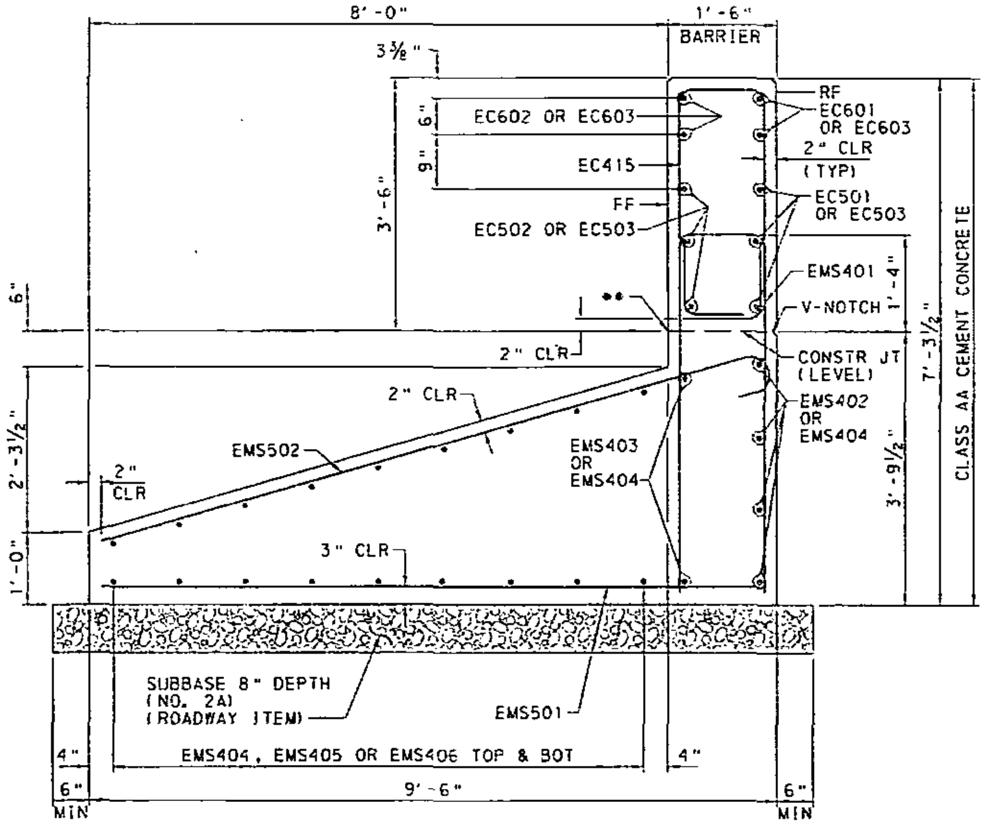
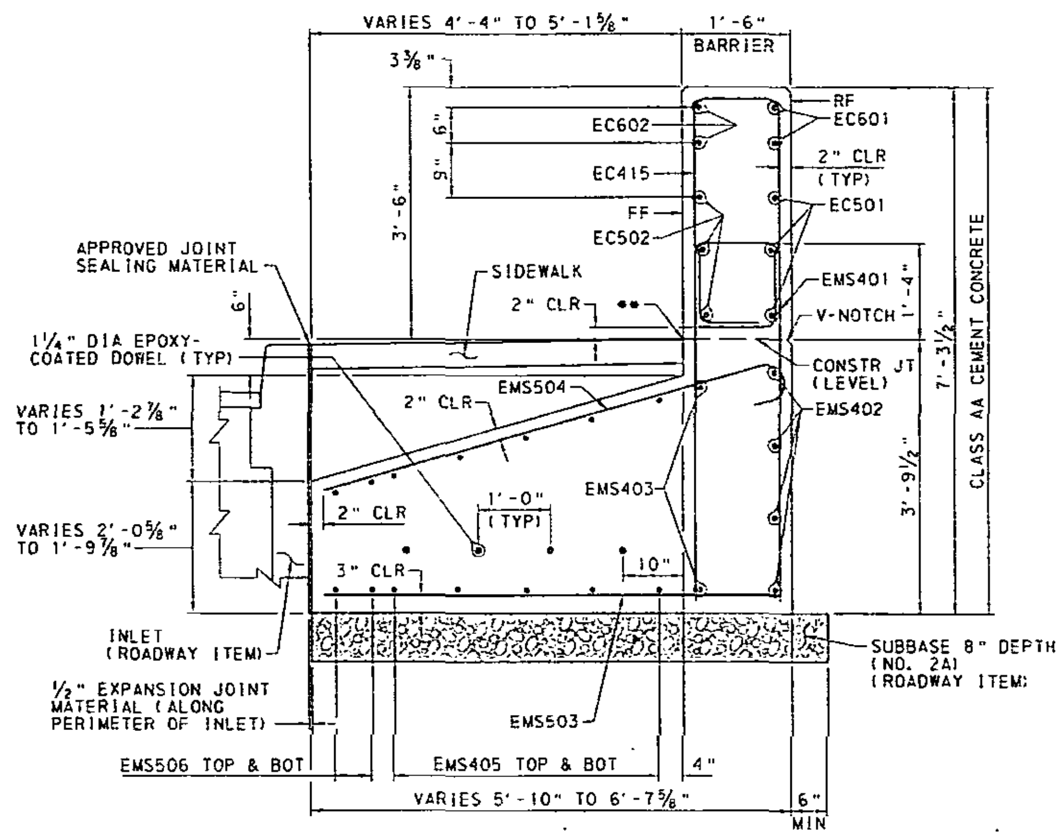


SECTION Z-Z

1 0 1 FEET

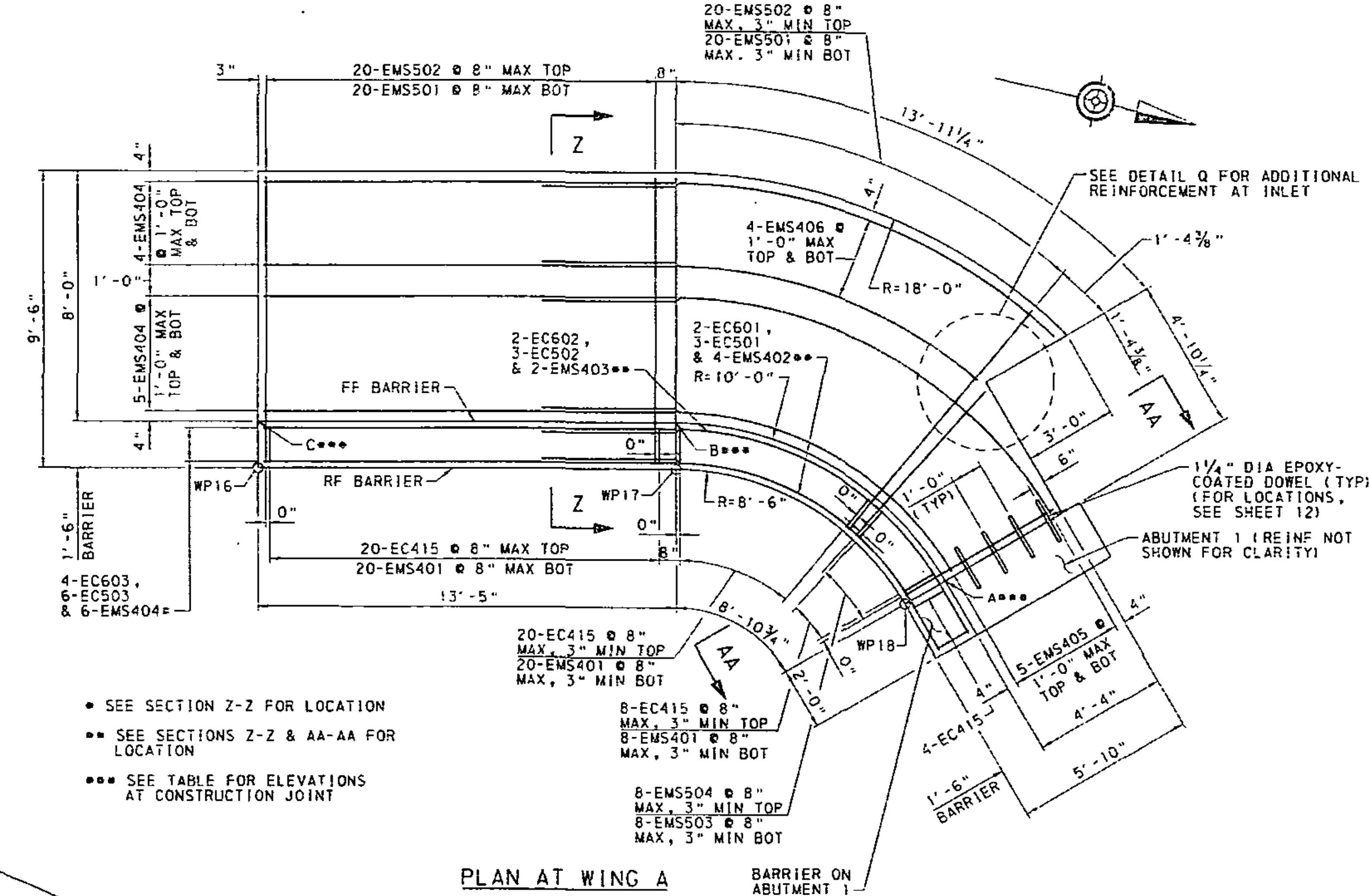
** SEE TABLE FOR ELEVATIONS AT CONSTRUCTION JOINT



SECTION AA-AA

1 0 1 FEET

** SEE TABLE FOR ELEVATIONS AT CONSTRUCTION JOINT



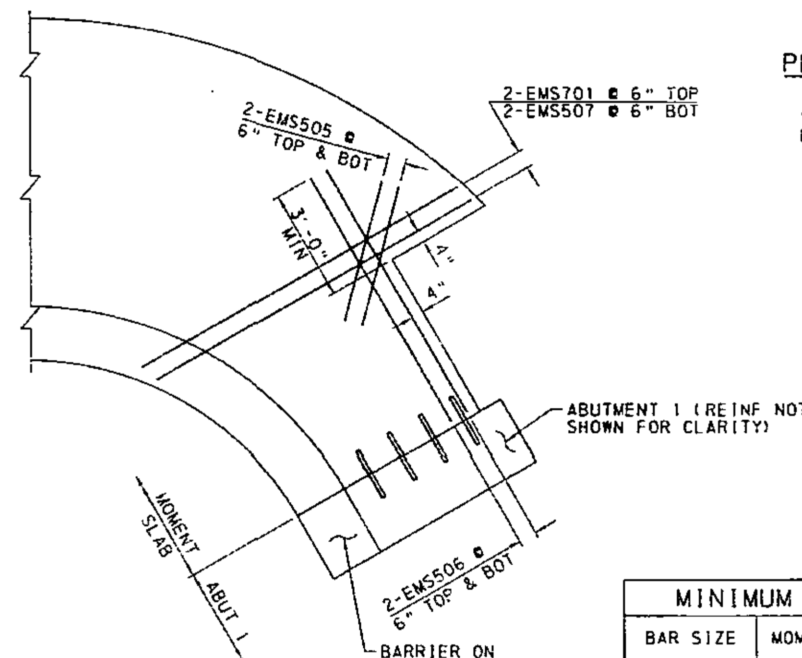
* SEE SECTION Z-Z FOR LOCATION

** SEE SECTIONS Z-Z & AA-AA FOR LOCATION

*** SEE TABLE FOR ELEVATIONS AT CONSTRUCTION JOINT

PLAN AT WING A

1 0 1 2 3 FEET



DETAIL Q

1 0 1 2 3 FEET

ELEVATIONS AT CONSTRUCTION JOINT				
POINT	ROADWAY	STATION	OFFSET	ELEV
A	SR 6011	13+91.75	23.00' RT	865.83
B	FRONT ST	0+28.00	25.00' LT	866.26
C	FRONT ST	0+41.10	17.84' LT	866.40

MINIMUM LAP LENGTHS		
BAR SIZE	MOMENT SLAB	BARRIER
#4 TO #4	2'-11"	--
#5 TO #5	--	3'-7"
#6 TO #6	--	4'-4"

NOTES

1. FOR GENERAL NOTES AND LIST OF ABBREVIATIONS, SEE SHEETS 4 & 5.
2. FOR ABUTMENT 1 DETAILS, SEE SHEETS 11 THRU 13.
3. FOR REINFORCEMENT BAR SCHEDULE, SEE SHEETS 64 THRU 68.
4. FOR ADDITIONAL DOWEL DETAILS, SEE RC-20M.

Mark	Description	By	Chk'd.	Recm'd.	Date

REVISIONS

SR 6011 PREVIOUSLY KNOWN AS LR 5

PREPARED BY: DEWBERRY ENGINEERS INC.

COMMONWEALTH OF PENNSYLVANIA
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LACKAWANNA COUNTY
SR 6011 SEC 273
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3-SPAN CONT COMP STEEL MULTI-GIRDER BRIDGE
MOMENT SLAB DETAILS - 1

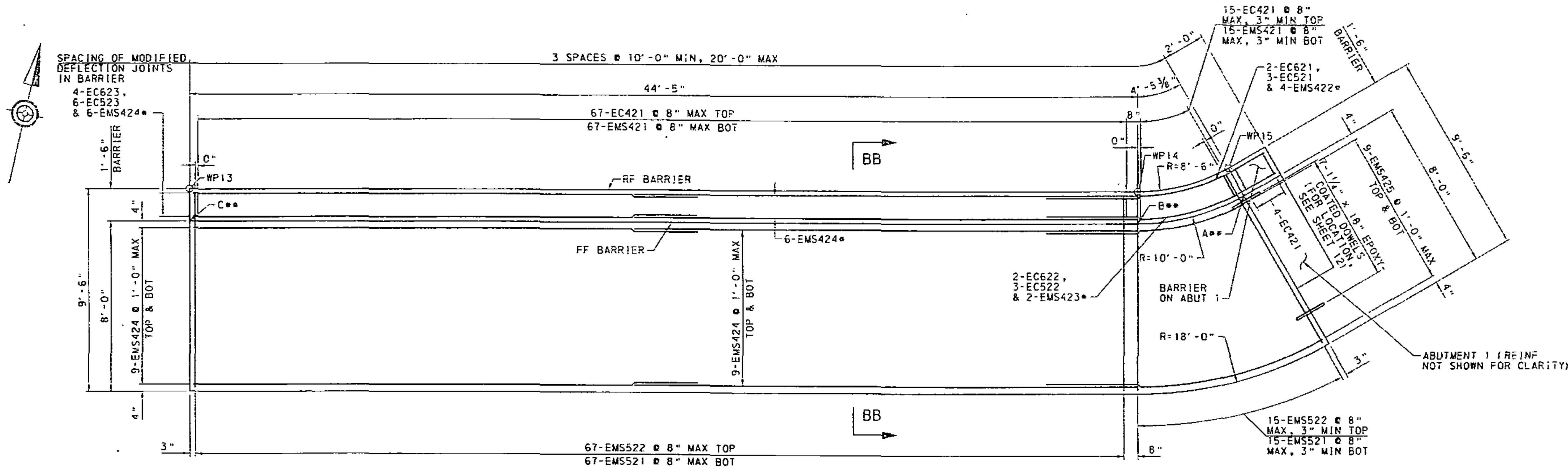
COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL ENGINEER GARY L. FRENETTE

RECOMMENDED MAY 07 2014

SHEET 61 OF 76

S - 33152

DES: KLL | CKD: CRH | DWG: KLL | CKD: CRH

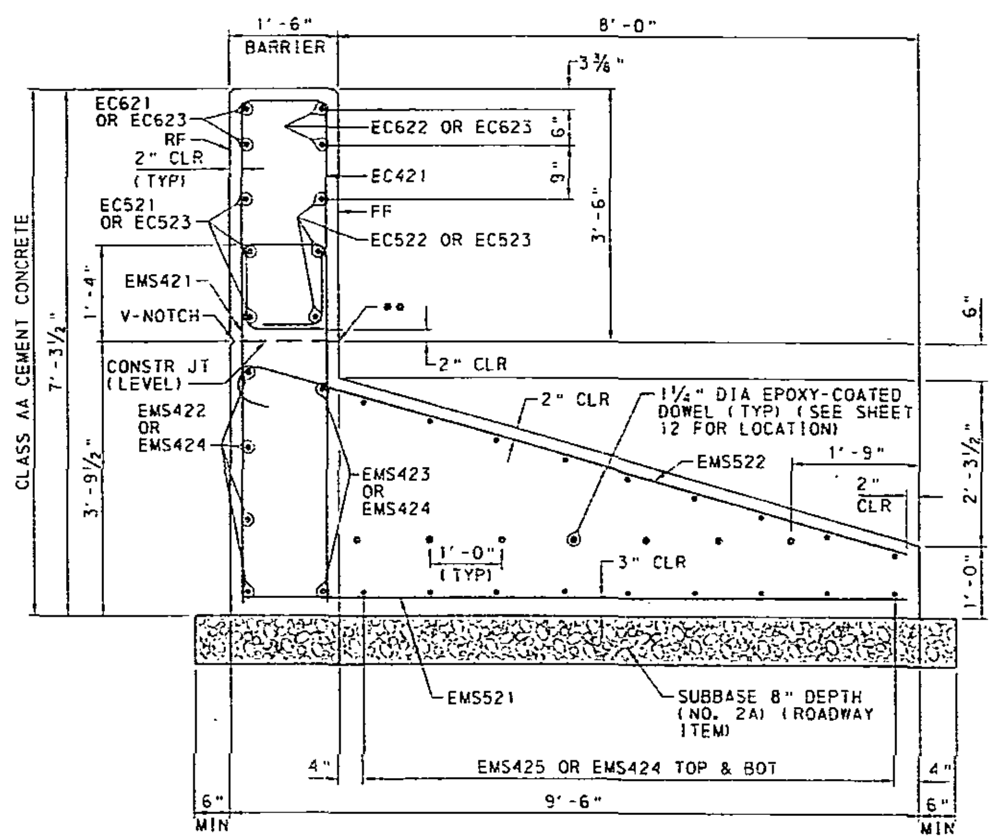


• SEE SECTION BB-BB FOR LOCATION

•• SEE TABLE FOR ELEVATIONS AT CONSTRUCTION JOINT

PLAN AT WING B

1 0 1 2 3 FEET



SECTION BB-BB

1 0 1 FEET

•• SEE TABLE FOR ELEVATIONS AT CONSTRUCTION JOINT

MINIMUM LAP LENGTHS		
BAR SIZE	MOMENT SLAB	BARRIER
#4 TO #4	2'-11"	--
#5 TO #5	--	3'-7"
#6 TO #6	--	4'-4"

ELEVATIONS AT CONSTRUCTION JOINT				
POINT	ROADWAY	STATION	OFFSET	ELEV
A	SR 6011	13+91.75	23.00' LT	865.83
B	SR 6011	13+86.75	24.34' LT	865.99
C	CROWN AVE	82+21.46	15.78' LT	864.82

NOTES

1. FOR GENERAL NOTES AND LIST OF ABBREVIATIONS, SEE SHEETS 4 & 5.
2. FOR ABUTMENT 1 DETAILS, SEE SHEETS 11 THRU 13.
3. FOR REINFORCEMENT BAR SCHEDULE, SEE SHEET 64 THRU 68.
4. FOR ADDITIONAL DOWEL DETAILS, SEE RC-20M.

Mark	Description	By	Chk'd.	Recm'd.	Date

REVISIONS

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COMMONWEALTH OF PENNSYLVANIA
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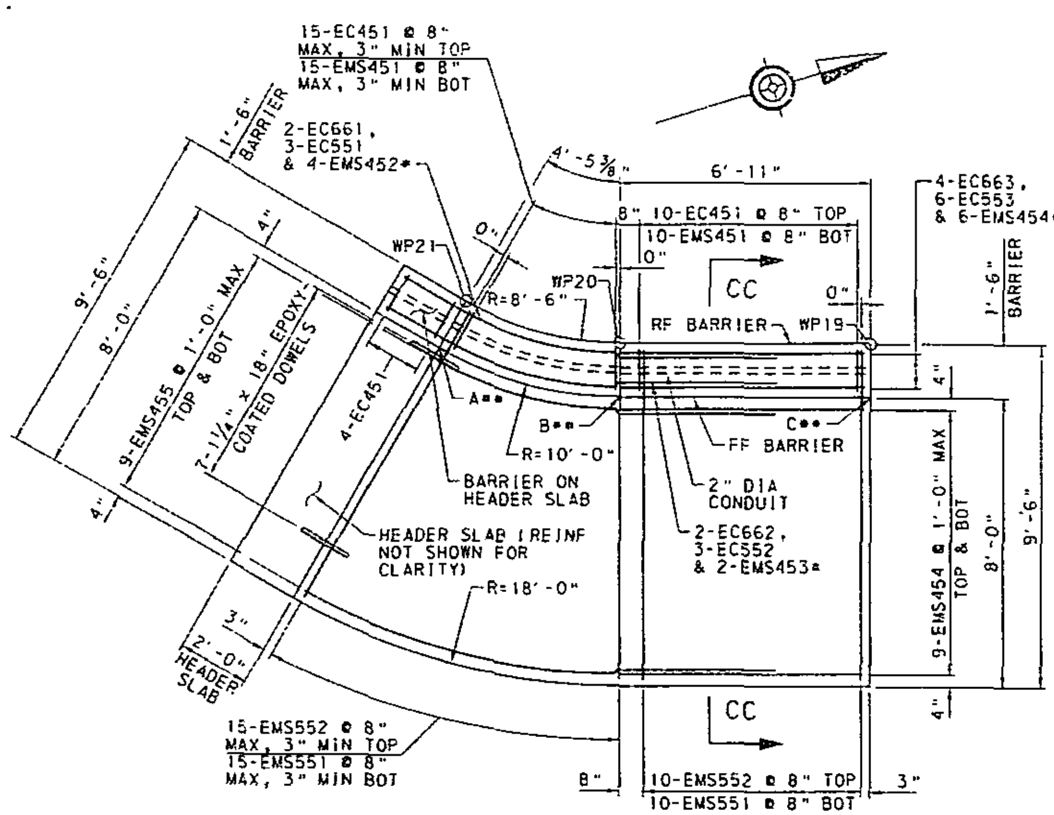
MOMENT SLAB DETAILS - 2

RECOMMENDED MAY 07 2014

SHEET 62 OF 76

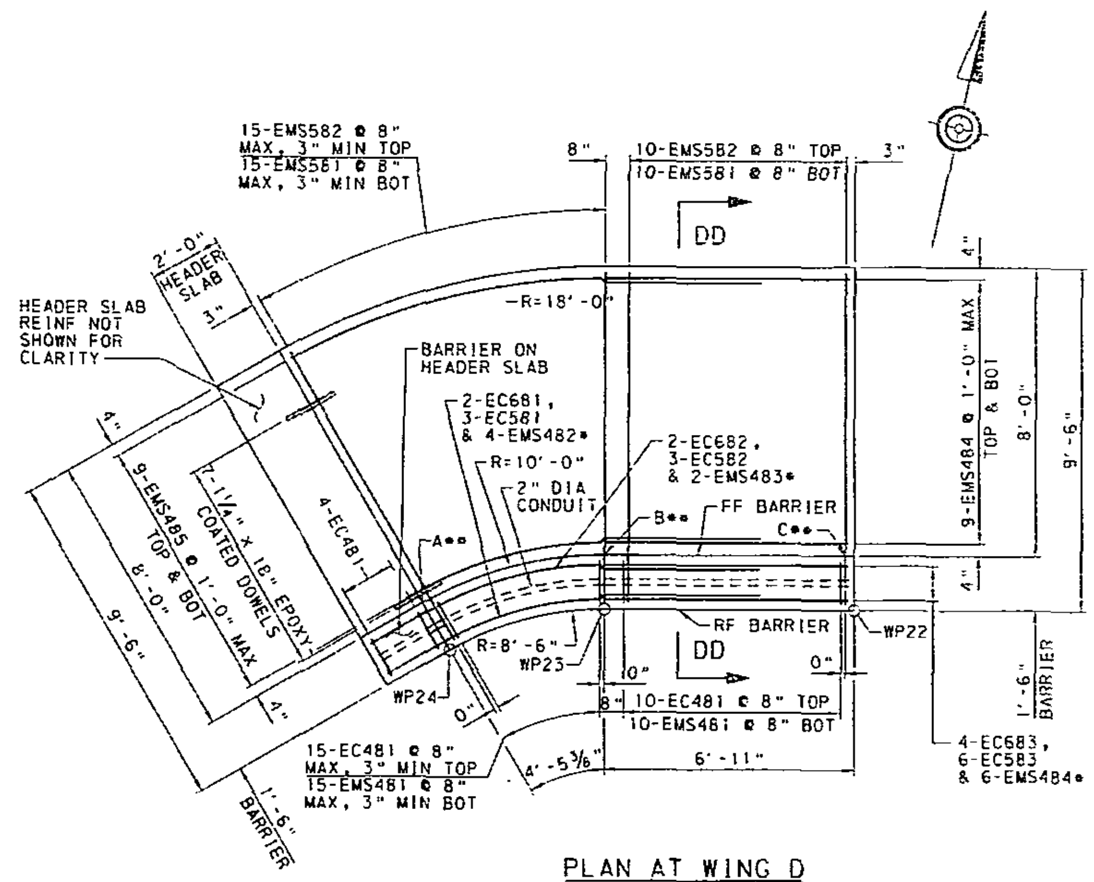
S - 33152

DES: KLL | CKD: CRH | DWG: KLL | CKD: CRH



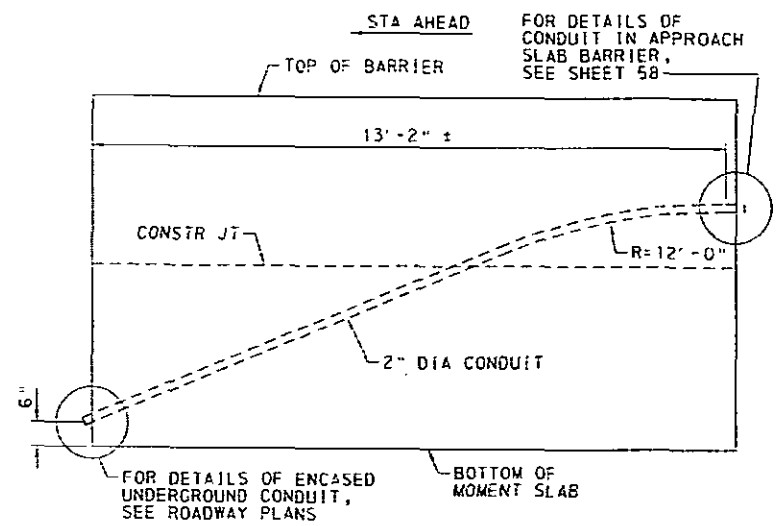
* SEE SECTION CC-CC FOR LOCATION
** SEE TABLE FOR ELEVATIONS AT CONSTRUCTION JOINT

PLAN AT WING C
1 0 1 2 3 FEET



* SEE SECTION DD-DD FOR LOCATION
** SEE TABLE FOR ELEVATIONS AT CONSTRUCTION JOINT

PLAN AT WING D
1 0 1 2 3 FEET

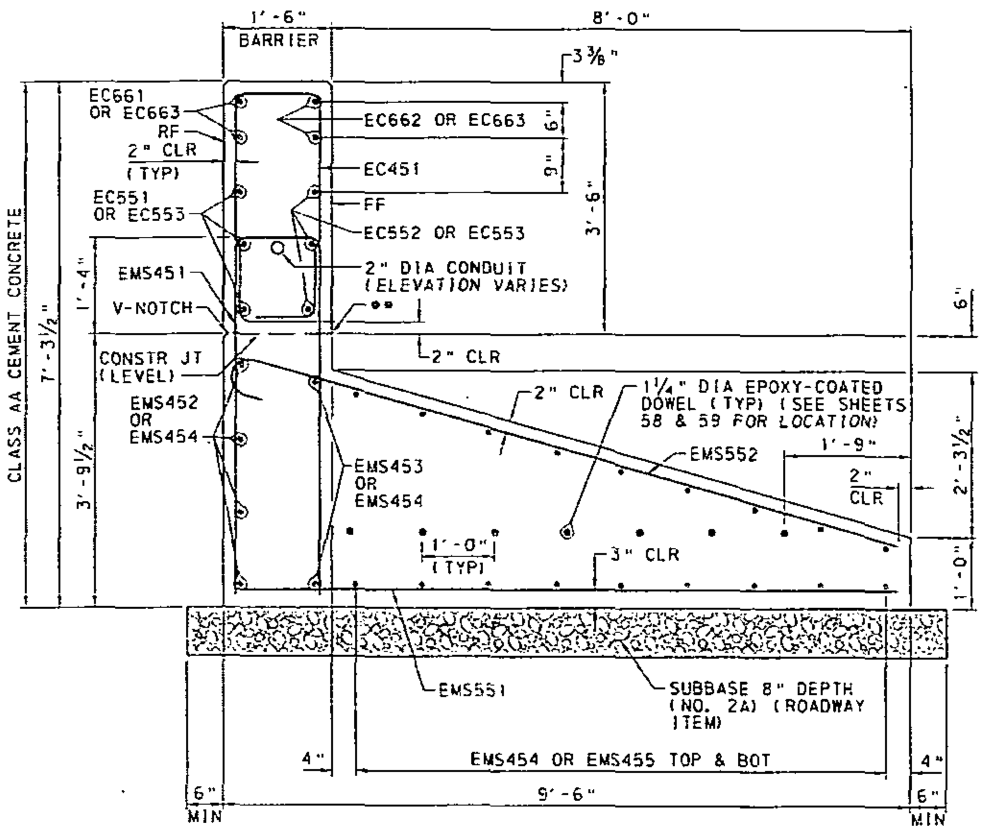


ELEVATION - CONDUIT LOCATIONS
(WING C SHOWN, WING D OPPOSITE HAND)
1 0 1 FEET

ELEVATIONS AT CONSTRUCTION JOINT				
POINT	ROADWAY	STATION	OFFSET	ELEV
A	SR 6011	18+92.52	23.00' LT (C) 23.00' RT (D)	861.02
B	SR 6011	18+97.52	24.34' LT (C) 24.34' RT (D)	861.01
C	SR 6011	19+03.51	27.80' LT (C) 27.60' RT (D)	861.03

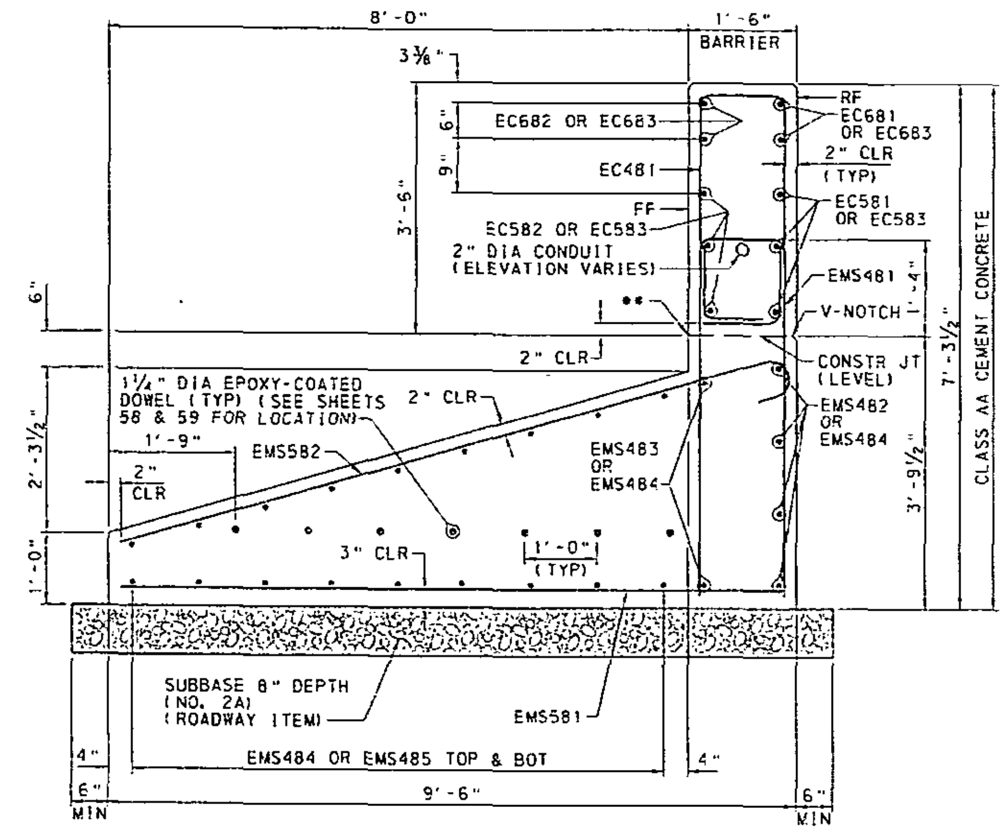
NOTES

1. FOR GENERAL NOTES AND LIST OF ABBREVIATIONS, SEE SHEETS 4 & 5.
2. FOR APPROACH SLAB DETAILS, SEE SHEETS 58 AND 59.
3. FOR REINFORCEMENT BAR SCHEDULE, SEE SHEETS 64 THRU 68.
4. FOR ADDITIONAL DOWEL DETAILS, SEE RC-20M.
5. FOR ADDITIONAL CONDUIT DETAILS, SEE BC-721M.



** SEE TABLE FOR ELEVATIONS AT CONSTRUCTION JOINT

SECTION CC-CC
1 0 1 FEET



SECTION DD-DD
1 0 1 FEET

** SEE TABLE FOR ELEVATIONS AT CONSTRUCTION JOINT

Mark	Description	By	Chk'd.	Recm'd.	Date

REVISIONS

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PREPARED BY: DEWBERRY ENGINEERS INC.

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
GARY L. FRENETTE
ENGINEER

COMMONWEALTH OF PENNSYLVANIA
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LACKAWANNA COUNTY
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MOMENT SLAB DETAILS - 3

RECOMMENDED MAY 07 2014

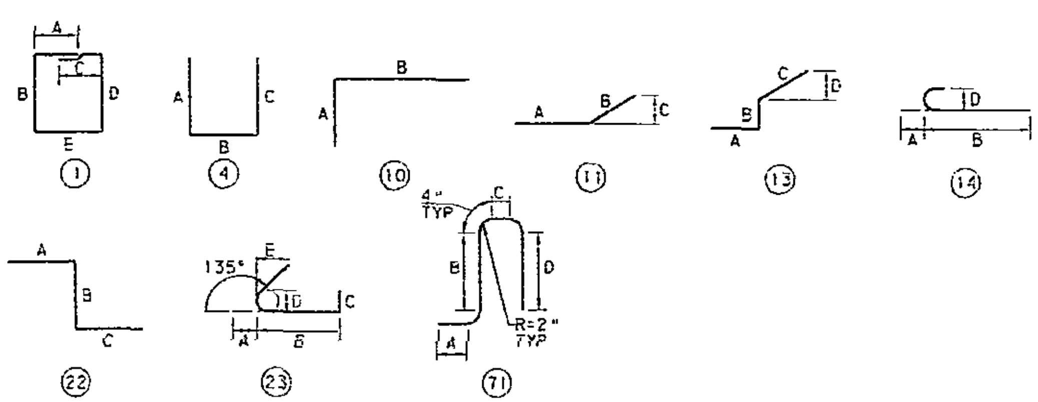
SHEET 63 OF 76

S - 33152

DES: KLL | CKD: CRH | DWG: KLL | CKD: CRH

REINFORCEMENT BAR SCHEDULE

MARK	SIZE	NUMBER	LENGTH	TYPE	A	B	C	D	E	R	REMARKS
ABUTMENT 1											
EF401	4	20	7'-8"	STR							
EF402	4	20	12'-4"	STR							
EF403	4	22	14'-4"	STR							
EF404	4	22	15'-7"	STR							
EF405	4	22	26'-11"	STR							
EF406	4	44	27'-6"	STR							
EF407	4	32	8'-5"	STR							
EF408	4	87	9'-5"	STR							
EF409	4	71	9'-11"	STR							
EF410	4	160	2'-2"	23	4½"	1'-5"	4½"		3"		
EF411	4	120	2'-11"	STR							
EF412	4	32	5'-3"	11	2'-1"	3'-2"	2'-10"				
EF413	4	32	5'-1"	10	3'-0"	2'-1"					
EF501	5	35	3'-3"	STR							
EF601	6	28	8'-5"	STR							
EF602	6	74	9'-5"	STR							
EF603	6	105	9'-11"	STR							
EF604	6	56	5'-7"	14	8"	4'-11"					
EF610	6	5	8'-7"	14	8"	7'-11"					
EF611	6	8	8'-5"	14	8"	7'-9"					
EF612	6	57	5'-5"	14	8"	4'-9"					
EF613	6	9	5'-0"	14	8"	4'-4"					
EF631	6	49	12'-8"	14	8"	12'-0"					
EF701	7	19	6'-11"	14	10"	6'-1"					
EA301	3	13	15'-8"	STR							BEND IN FIELD
EA302	3	16	17'-2"	STR							BEND IN FIELD
EA303	3	12	18'-0"	STR							BEND IN FIELD
EA304	3	12	19'-7"	STR							BEND IN FIELD
EA305	3	1	14'-9"	STR							BEND IN FIELD
EA306	3	1	16'-3"	STR							BEND IN FIELD
EA401	4	13	8'-10"	STR							
EA402	4	51	5'-3"	10	1'-3"	4'-0"					
EA403	4	15	10'-10"	STR							
EA404	4	23	12'-10"	STR							
EA405	4	36	30'-0"	STR							
EA406	4	48	24'-1"	STR							
EA407	4	6	16'-1"	STR							
EA408	4	6	7'-4"	71	1'-0"	2'-5"	9"	2'-8"			
EA409	4	4	9'-11"	22	2'-1"	8"	7'-2"				
EA410	4	2	15'-8"	STR							
EA411	4	2	22'-10"	STR							
EA412	4	2	7'-3"	1	1'-7"	1'-2"	1'-8"	1'-2"	1'-8"		
EA413	4	2	1'-11" TO 3'-10"	STR							VARY BY 1'-11"
EA414	4	2	3'-7" TO 4'-1"	STR							VARY BY 6"
EA415	4	1	2'-0"	STR							
EA416	4	32	3'-6"	STR							WEEP HOLE REINF
EA417	4	6	5'-6"	4	1'-9"	2'-0"	1'-9"				
EA418	4	4	6'-3"	4	1'-9"	2'-9"	1'-9"				
EA501	5	39	8'-3"	4	3'-8"	11"	3'-8"				
EA502	5	6	10'-9"	13	2'-7"	1'-11"	6'-3"	1½"			



REINFORCEMENT BAR SCHEDULE

MARK	SIZE	NUMBER	LENGTH	TYPE	A	B	C	D	E	R	REMARKS
ABUTMENT 1 (CONT)											
EA503	5	8	5'-8"	STR							
EA504	5	10	7'-6"	STR							
EA505	5	27	7'-11"	STR							
EA506	5	17	11'-0"	STR							
EA507	5	18	15'-0"	STR							
EA508	5	39	8'-10"	STR							
EA509	5	17	7'-11"	4	2'-11"	2'-1"	2'-11"				
EA510	5	12	7'-9"	4	2'-11"	1'-11"	2'-11"				
EA511	5	8	7'-6"	4	2'-5"	2'-8"	2'-5"				
EA512	5	16	9'-0"	STR							
EA513	5	42	13'-0"	STR							
EA514	5	10	20'-9"	4	10'-2"	1'-7"	9'-0"				
EA515	5	32	10'-3"	10	8'-8"	1'-7"					
EA601	6	19	11'-0"	STR							
EA602	6	7	21'-9"	4	10'-10"	1'-7"	9'-4"				
EA603	6	28	10'-11"	10	9'-4"	1'-7"					
EA604	6	2	31'-8"	STR							
EA605	6	2	24'-1"	STR							
DOWELS	1¼" DIA	11	1'-6"	STR							EPOXY-COATED; GRADE 60
WINGWALL A											
EW401	4	9	14'-10"	STR							
EW402	4	9	17'-0"	STR							
EW403	4	32	15'-5"	STR							
EW404	4	6	7'-5"	STR							
EW405	4	8	3'-6"	STR							WEEP HOLE REINF
EW501	5	16	4'-9"	4	1'-10½"	1'-0½"	1'-10"				
EW601	6	6	14'-10"	STR							
EW602	6	9	17'-0"	STR							
WINGWALL B											
EW431	4	44	26'-4"	STR							
EW432	4	44	23'-5"	STR							
EW433	4	26	20'-7"	STR							
EW434	4	25	20'-1"	STR							
EW435	4	24	3'-6"	STR							WEEP HOLE REINF
EW531	5	51	5'-7"	4	2'-3"	1'-0½"	2'-3½"				
EW631	6	26	20'-7"	STR							
EW632	6	25	20'-1"	STR							

NOTES

FOR GENERAL NOTES AND LIST OF ABBREVIATIONS, SEE SHEETS 4 & 5.

REINFORCEMENT BAR SCHEDULE IS FOR INFORMATION ONLY. VERIFY BAR SCHEDULE PRIOR TO BIDDING AND FABRICATION.

FOR REINFORCEMENT BAR FABRICATION DETAILS, REFER TO STANDARD DRAWING BC-736M.

FIGURES IN CIRCLES SHOW BAR TYPES.

"D" DIMENSION ON 180° HOOKS TO BE SHOWN ONLY WHERE NECESSARY TO RESTRICT HOOK SIZE, OTHERWISE STANDARD HOOKS ARE TO BE USED.

PREFIX "E" DENOTES EPOXY-COATED REINFORCEMENT BARS.

ALL DIMENSIONS ARE OUT-TO-OUT OF BAR EXCEPT "A" ON STANDARD 135° AND 180° HOOKS, AND "R" WHICH IS SHOWN TO THE INSIDE OF THE BAR.

Mark	Description	By	Chk'd.	Recm'd.	Date

REVISIONS

SR 6011 PREVIOUSLY KNOWN AS LR 5

PREPARED BY: DEWBERRY ENGINEERS INC.

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF TRANSPORTATION

LACKAWANNA COUNTY
SR 6011 SEC 273
SEGMENT 0190 OFFSET 0404
SR 6011 - 273 STA 16+27.50
OVER ROARING BROOK, SR 3022,
AND DELAWARE, LACKAWANNA & WESTERN RAILROAD
3-SPAN CONT COMP STEEL MULTI-GIRDER BRIDGE

REINFORCEMENT BAR SCHEDULE - 1

RECOMMENDED MAY 07 2014

S - 33152

DES: GCP/KLL | CKD: KES/GCP | DWG: KTP | CKD: AMB

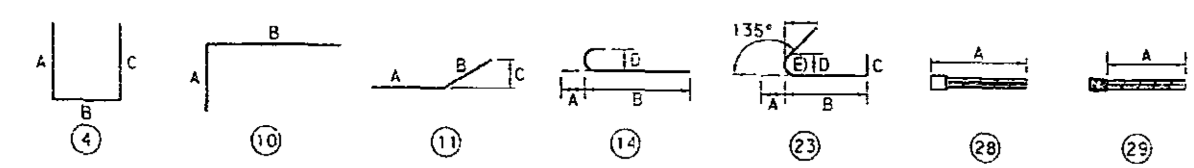
REINFORCEMENT BAR SCHEDULE

MARK	SIZE	NUMBER	LENGTH	TYPE	A	B	C	D	E	R	REMARKS
ABUTMENT 2											
EF451	4	29	9'-6"	STR							
EF452	4	22	21'-3"	STR							
EF453	4	13	15'-5"	STR							
EF454	4	36	6'-1"	10	4'-0"	2'-1"					
EF455	4	39	6'-5"	11	2'-1"	4'-4"	3'-10½"				
EF456	4	20	15'-11"	STR							
EF457	4	20	12'-5"	STR							
EF458	4	6	12'-3"	STR							
EF459	4	19	5'-1"	10	3'-0"	2'-1"					
EF460	4	10	5'-3"	11	2'-1"	3'-2"	2'-10"				
EF461	4	117	2'-11"	STR							
EF462	4	32	15'-0"	STR							
EF463	4	16	13'-0"	STR							
EF464	4	16	12'-5"	28	12'-5"						MECHANICAL SPLICE
EF465	4	87	6'-8"	STR							
EF466	4	16	1'-10" + THREADS	29	1'-10"						MECHANICAL SPLICE
EF467	4	149	2'-2"	23	4½"	1'-5"	4½"		3"		
EF468	4	8	4'-10"	11	1'-6"	3'-2"	2'-10"				
EF480	4	14	4'-2"	14	6"	3'-8"					
EF481	4	16	3'-11"	14	6"	3'-5"					
EF482	4	13	7'-6"	14	6"	7'-0"					
EF483	4	7	9'-7" TO 10'-7"	14	6"	9'-1" TO 10'-1"					VARY B BY 2"
EF484	4	7	5'-6½" TO 6'-5"	14	6"	5'-0½" TO 5'-11"					VARY B BY 1¾"
EF551	5	12	4'-10"	14	7"	4'-3"					
EF552	5	11	10'-10"	14	7"	10'-3"					
EF553	5	49	9'-0"	STR							
EF554	5	34	6'-8"	STR							
EF555	5	20	3'-3"	STR							
EF651	6	15	5'-0"	14	8"	4'-4"					
EF652	6	14	11'-1"	14	8"	10'-5"					
EF653	6	13	5'-6"	14	8"	4'-10"					
EF654	6	22	12'-5"	STR							
EF655	6	57	9'-0"	STR							
EF660	6	25	5'-4"	14	8"	4'-8"					
EF661	6	24	11'-11"	14	8"	11'-3"					
EF751	7	14	7'-0"	14	10"	6'-2"					
EF752	7	11	11'-3"	14	10"	10'-5"					
EF753	7	43	9'-6"	STR							
EF754	7	19	15'-5"	STR							
EA351	3	6	14'-0"	STR							BEND IN FIELD
EA352	3	8	15'-8"	STR							BEND IN FIELD
EA353	3	5	11'-0"	STR							BEND IN FIELD
EA451	4	12	14'-4"	STR							
EA452	4	50	5'-0"	10	1'-3"	3'-9"					
EA453	4	50	17'-5"	4	6'-9"	10"	7'-10"				
EA454	4	15	11'-4"	STR							
EA455	4	12	8'-4".	STR							
EA456	4	11	6'-4"	STR							
EA457	4	8	12'-2"	STR							
EA458	4	8	26'-5"	STR							
EA459	4	37	28'-11"	STR							
EA460	4	2	29'-9"	STR							
EA461	4	6	10'-5"	STR							
EA462	4	33	23'-0"	STR							
EA463	4	27	8'-4"	4	2'-3"	3'-10"	2'-3"				
EA464	4	6	6'-2"	4	2'-0"	2'-2"	2'-0"				
EA465	4	4	6'-11"	4	2'-0"	2'-11"	2'-0"				
EA466	4	32	3'-6"	STR							WEEP HOLE REINF
EA551	5	12	8'-7"	STR							
EA552	5	17	5'-0"	STR							
EA553	5	8	17'-5"	STR							
EA554	5	12	9'-5"	STR							
EA555	5	10	7'-10"	STR							
EA556	5	12	8'-1"	4	3'-0"	2'-1"	3'-0"				
EA557	5	8	7'-10"	4	2'-6"	2'-10"	2'-6"				
EA558	5	17	8'-6"	4	3'-0"	2'-8"	3'-0"				

DES: GCP/KLL | CKD: KES/GCP | DWG: AMB | CKD: CRH

REINFORCEMENT BAR SCHEDULE

MARK	SIZE	NUMBER	LENGTH	TYPE	A	B	C	D	E	R	REMARKS
ABUTMENT 2 (CONT)											
EA651	6	15	11'-7"	STR							
EA652	6	11	6'-7"	STR							
EA653	6	2	9'-5"	STR							
EA751	7	12	14'-7"	STR							
EA752	7	2	17'-5"	STR							
WINGWALL C											
EW451	4	42	23'-11"	STR							
EW452	4	25	19'-6"	STR							
EW453	4	8	3'-6"	STR							WEEP HOLE REINF
EW551	5	25	4'-11"	4	1'-11½"	1'-0½"	1'-11"				
EW651	6	25	19'-6"	STR							
WINGWALL D											
EW481	4	28	11'-6" TO 12'-7"	STR							VARY BY 1"
EW482	4	14	7'-5" TO 8'-6"	STR							VARY BY 1¾"
EW483	4	14	3'-4" TO 4'-5"	STR							VARY BY 1¾"
EW484	4	2	7'-10"	STR							
EW485	4	8	7'-4¾" TO 8'-5"	STR							VARY BY 1¾"
EW486	4	8	3'-4" TO 4'-4¼"	STR							VARY BY 1¾"
EW487	4	22	14'-10"	STR							
EW488	4	10	26'-4"	STR							
EW489	4	16	13'-0"	STR							
EW490	4	24	3'-6"	STR							WEEP HOLE REINF
EW491	4	2	18'-6"	STR							
EW492	4	2	6'-6"	STR							
EW581	5	42	5'-1"	4	2'-0"	1'-0½"	2'-0½"				



NOTES

FOR GENERAL NOTES AND LIST OF ABBREVIATIONS, SEE SHEETS 4 & 5.

REINFORCEMENT BAR SCHEDULE IS FOR INFORMATION ONLY. VERIFY BAR SCHEDULE PRIOR TO BIDDING AND FABRICATION.

FOR REINFORCEMENT BAR FABRICATION DETAILS, REFER TO STANDARD DRAWING BC-736M.

FIGURES IN CIRCLES SHOW BAR TYPES.

"D" DIMENSION ON 180° HOOKS TO BE SHOWN ONLY WHERE NECESSARY TO RESTRICT HOOK SIZE, OTHERWISE STANDARD HOOKS ARE TO BE USED.

PREFIX "E" DENOTES EPOXY-COATED REINFORCEMENT BARS.

ALL DIMENSIONS ARE OUT-TO-OUT OF BAR EXCEPT "A" ON STANDARD 135° AND 180° HOOKS, AND "R" WHICH IS SHOWN TO THE INSIDE OF THE BAR.

Mark	Description	By	Chk'd.	Recm'd.	Date
REVISIONS					

SR 6011 PREVIOUSLY KNOWN AS LR 5

PREPARED BY: DEWBERRY ENGINEERS INC.

COMMONWEALTH OF PENNSYLVANIA
GARY L. FRENETTE
PROFESSIONAL ENGINEER

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF TRANSPORTATION

LACKAWANNA COUNTY
SR 6011 SEC 273
SEGMENT 0190 OFFSET 0404
SR 6011 - 273 STA 16+27.50
OVER ROARING BROOK, SR 3022,
AND DELAWARE, LACKAWANNA & WESTERN RAILROAD
3-SPAN CONT COMP STEEL MULTI-GIRDER BRIDGE
REINFORCEMENT BAR SCHEDULE - 2

RECOMMENDED MAY 07 2014

SHEET 65 OF 76

S - 33152

REINFORCEMENT BAR SCHEDULE

MARK	SIZE	NUMBER	LENGTH	TYPE	A	B	C	D	E	R	REMARKS
PIER 1											
EP401	4	56	24'-9"	44	4 1/2"	6'-11 1/2"	2'-1"	2"	3"	3'-5 1/4"	SEE ⊕ BELOW
EP402	4	45	22'-0"	44	4 1/2"	6'-0"	2'-4"	2"	3"	2'-11 1/2"	
P403	4	103	21'-5"	44	4 1/2"	6'-0"	1'-9"	2"	3"	2'-11 1/2"	
EP404	4	5	13'-7"	1	2'-7 5/8"	2'-8"	2'-7"	2'-8"	3'-0 3/8"		
EP405	4	34	13'-4"	77	2'-10 3/8"	1'-0 1/4"	5'-6 3/4"	9 5/8"	7 5/8"		
EP406	4	34	13'-0"	4	2'-11"	7'-2"	2'-11"				
P501	5	216	16'-8"	4	6'-0"	4'-8"	6'-0"				
EP502	5	15	8'-8"	4	2'-10"	2'-11 1/4"	2'-10 3/4"				
EP503	5	20	7'-9"	4	2'-10"	2'-1"	2'-10"				
EP504	5	46	15'-9"	STR							
EP505	5	48	5'-6"	STR							
EP506	5	40	18'-10"	STR							
EP601	6	72	26'-9"	44	8"	7'-0"	3'-5"	4 1/2"	4 1/2"	3'-5 1/4"	SEE ⊕ BELOW
P701	7	18	19'-3"	77	6'-3 3/8"	8 1/8"	5'-4"	6 3/8"	5 1/8"		
P702	7	4	20'-7"	4	7'-1 1/4"	6'-4 3/4"	7'-1"				
P703	7	2	18'-3"	4	5'-11 1/4"	6'-4 3/4"	5'-11"				
P704	7	12	54'-5"	STR							
P705	7	2	24'-5"	4	9'-0 1/4"	6'-4 3/4"	9'-0"				
P706	7	4	26'-3"	4	9'-11 1/4"	6'-4 3/4"	9'-11"				
P707	7	2	18'-1"	77	5'-8 3/8"	8 1/8"	5'-4"	6 3/8"	5 1/8"		
P708	7	4	18'-3"	4	5'-11 1/4"	6'-4 3/4"	5'-11"				
EP801	8	33	55'-6"	STR							
EP802	8	33	52'-6"	STR							
EP803	8	33	47'-6"	STR							
P901	9	10	55'-5"	10	9'-7"	45'-10"					
P902	9	10	29'-10"	10	9'-7"	20'-3"					
P1001	10	26	24'-7"	76	2'-0"	20'-7"	18'-8 1/4"	1'-4"	1'-6"	14'-1"	F=3'-8"
EP1101	11	33	30'-8"	STR							SEE ⊕ BELOW
EP1102	11	65	31'-2"	STR							
PILLARS											
EP431	4	288	5'-2"	10	2'-7"	2'-7"					
EP432	4	32	4'-2 1/4"	23	4 1/2"	1'-11 3/4"	1'-10"	2"	3"		
EP433	4	160	3'-2"	23	4 1/2"	1'-3"	1'-6 1/2"	2"	3"		
EP434	4	32	3'-6"	23	4 1/2"	1'-5 1/2"	1'-8"	2"	3"		
EP435	4	16	3'-4"	23	4 1/2"	1'-4 1/2"	1'-7"	2"	3"		
EP436	4	4	5'-1"	STR							
EP437	4	16	5'-9 1/2"	4	2'-2"	1'-5 1/2"	2'-2"				
EP438	4	48	3'-1"	23	4 1/2"	1'-3"	1'-5 1/2"	2"	3"		
EP439	4	8	4'-11"	4	1'-11"	1'-1"	1'-11"				
EP531	5	80	13'-11"	STR							
EP532	5	24	15'-5"	STR							
EP533	5	8	7'-2 1/2"	40	0"	2'-7"	1'-0 1/4"	1'-0 1/4"	2'-7"		F=0", J & K=7 3/4"
EP534	5	8	8'-7"	40	0"	2'-7"	1'-8 1/2"	1'-8 1/2"	2'-7"		F=0", J & K=1'-5 1/4"
EP535	5	4	7'-11 1/2"	40	0"	2'-7"	1'-4 3/4"	1'-4 3/4"	2'-7"		F=0", J & K=1'-2"
EP536	5	12	8'-0"	4	2'-7"	2'-10"	2'-7"				
EP537	5	8	7'-6 1/2"	4	2'-7"	2'-4 1/2"	2'-7"				
CONCRETE DIAPHRAGMS											
ED401	4	52	5'-5"	10	3'-1"	2'-4"					
ED402	4	52	3'-8"	39	1'-0"	1'-2"	1'-6"	8 1/2"	1'-0 3/8"		
ED403	4	52	3'-8"	STR							
ED404	4	52	5'-7"	4	1'-4"	1'-9"	2'-6"				
ED405	4	52	3'-9"	10	1'-3"	2'-6"					
ED601	6	10	42'-4"	STR							
ED602	6	4	10'-4"	STR							
ED603	6	52	5'-2"	49	8"	3'-6"	1'-10"	4 1/2"	8 1/2"		

REINFORCEMENT BAR SCHEDULE

MARK	SIZE	NUMBER	LENGTH	TYPE	A	B	C	D	E	R	REMARKS
PIER 2											
EP451	4	80	24'-9"	44	4 1/2"	6'-11 1/2"	2'-1"	2"	3"	3'-5 1/4"	SEE ⊕ BELOW
EP452	4	48	22'-1"	44	4 1/2"	6'-0"	2'-5"	2"	3"	2'-11 1/2"	
P453	4	207	21'-8"	44	4 1/2"	6'-0"	2'-0"	2"	3"	2'-11 1/2"	
EP454	4	5	13'-7"	1	2'-7 5/8"	2'-8"	2'-7"	2'-8"	3'-0 3/8"		
EP455	4	34	13'-4"	77	2'-10 3/8"	1'-0 1/4"	5'-6 3/4"	9 5/8"	7 5/8"		
EP456	4	34	13'-0"	4	2'-11"	7'-2"	2'-11"				
EP457	4	35	18'-11"	44	4 1/2"	5'-0"	2'-2"	2"	3"	2'-5 1/2"	SEE ⊕ BELOW
P551	5	216	16'-8"	4	6'-0"	4'-8"	6'-0"				
EP552	5	15	8'-8"	4	2'-10"	2'-11 1/4"	2'-10 3/4"				
EP553	5	20	7'-9"	4	2'-10"	2'-1"	2'-10"				
EP554	5	46	15'-9"	STR							
EP555	5	48	5'-6"	STR							
EP556	5	40	18'-10"	STR							
EP651	6	317	26'-9"	44	8"	7'-0"	3'-5"	4 1/2"	4 1/2"	3'-5 1/4"	SEE ⊕ BELOW
EP652	6	244	20'-10"	44	8"	5'-0 1/2"	3'-8"	4 1/2"	4 1/2"	2'-5 1/2"	
P751	7	18	19'-3"	77	6'-3 3/8"	8 1/8"	5'-4"	6 3/8"	5 1/8"		
P752	7	4	20'-7"	4	7'-1 1/4"	6'-4 3/4"	7'-1"				
P753	7	2	18'-3"	4	5'-11 1/4"	6'-4 3/4"	5'-11"				
P754	7	12	54'-5"	STR							
P755	7	2	24'-5"	4	9'-0 1/4"	6'-4 3/4"	9'-0"				
P756	7	4	26'-3"	4	9'-11 1/4"	6'-4 3/4"	9'-11"				
P757	7	2	18'-1"	77	5'-8 3/8"	8 1/8"	5'-4"	6 3/8"	5 1/8"		
P758	7	4	18'-3"	4	5'-11 1/4"	6'-4 3/4"	5'-11"				
EP851	8	60	38'-6"	STR							
EP852	8	60	31'-1"	STR							
P853	8	60	39'-4"	STR							
P854	8	60	31'-11"	STR							
P951	9	10	55'-5"	10	9'-7"	45'-10"					
P952	9	10	29'-10"	10	9'-7"	20'-3"					
P1051	10	30	24'-7"	76	2'-0"	20'-7"	18'-8 1/4"	1'-4"	1'-6"	14'-1"	F=3'-8"
EP1451	14	96	51'-0"	28	51'-0"						MECHANICAL SPLICE SEE ⊕ BELOW
P1452	14	96	13'-8"	29	13'-8"						
EP1453	14	22	55'-3"	STR							SEE ⊕ BELOW
EP1454	14	44	51'-3"	STR							

⊕ THESE BARS ARE GIVEN FOR INFORMATION ONLY. SEE PAY LIMITS FOR PIERS, SHEET 7.

NOTES

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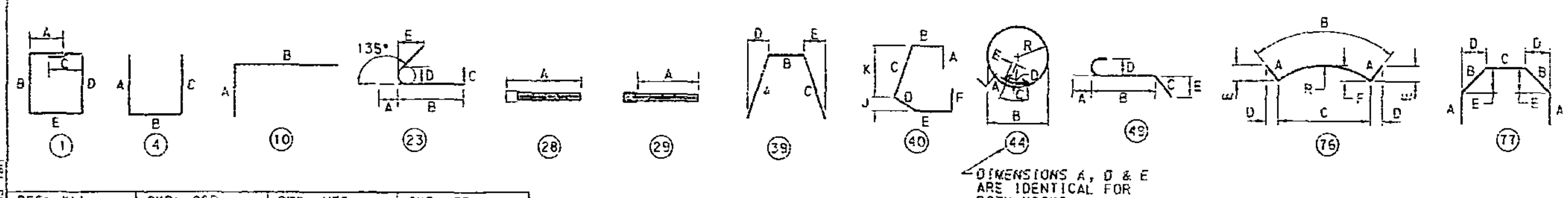
FIGURES IN CIRCLES SHOW BAR TYPES.

"D" DIMENSION ON 180° HOOKS TO BE SHOWN ONLY WHERE NECESSARY TO RESTRICT HOOK SIZE, OTHERWISE STANDARD HOOKS ARE TO BE USED.

PREFIX "E" DENOTES EPOXY-COATED REINFORCEMENT BARS.

ALL DIMENSIONS ARE OUT-TO-OUT OF BAR EXCEPT "A" ON STANDARD 135° AND 180° HOOKS, AND "R" WHICH IS SHOWN TO THE INSIDE OF THE BAR.



Mark	Description	By	Chk'd.	Recm'd.	Date

REVISIONS

SR 6011 PREVIOUSLY KNOWN AS LR 5

PREPARED BY: DEWBERRY ENGINEERS INC.

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF TRANSPORTATION

LACKAWANNA COUNTY
SR 6011 SEC 273
SEGMENT 0190 OFFSET 0404
SR 6011 - 273 STA 16+27.50
OVER ROARING BROOK, SR 3022,
AND DELAWARE, LACKAWANNA & WESTERN RAILROAD
3-SPAN CONT COMP STEEL MULTI-GIRDER BRIDGE

REINFORCEMENT BAR SCHEDULE - 3

RECOMMENDED MAY 0 7 2014

SHEET 66 OF 76

S - 33152

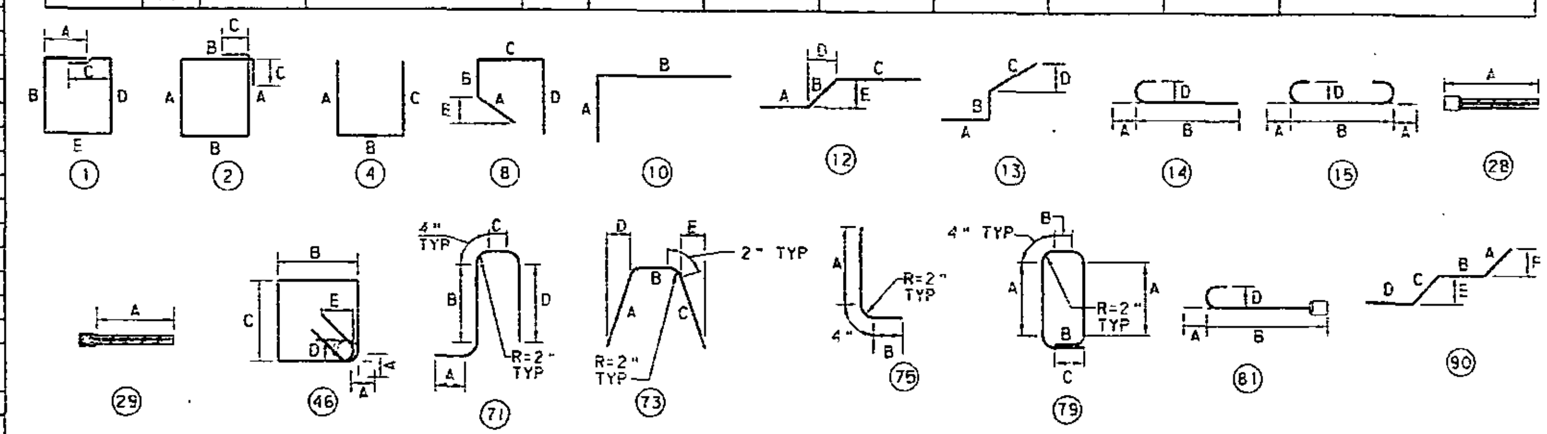
DES: KLL | CKD: GCP | DWG: MZS | CKD: CRH

REINFORCEMENT BAR SCHEDULE

MARK	SIZE	NUMBER	LENGTH	TYPE	A	B	C	D	E	R	REMARKS
DECK SLAB											
ES401	4	52	21'-11"	STR							
ES402	4	54	33'-2"	STR							
ES403	4	78	32'-11"	STR							
ES404	4	54	35'-10"	STR							
ES405	4	52	21'-9"	STR							
ES406	4	54	32'-11"	STR							
ES407	4	1010	7'-3 1/2"	71	1'-0"	2'-5"	3"	2'-7 1/2"			
ES408	4	24	6'-5"	73	2'-3"	1'-7"	2'-3"	1'-7 1/8"	1'-7 1/8"		
ES409	4	72	7'-4"	75	3'-0"	4'-0"					
ES410	4	8	5'-9"	8	8"	2'-0"	7"	2'-6"	5 1/2"		
ES411	4	8	5'-6 1/2"	8	1'-0"	1'-4 1/2"	1'-0"	2'-2"	8 1/2"		
ES520	5	270	60'-0"	STR							
ES521	5	50	40'-0"	STR							
ES522	5	102	47'-6"	STR							
ES523	5	52	50'-0'	STR							
ES524	5	88	43'-0"	STR							
ES525	5	80	55'-0"	STR							
ES526	5	88	49'-3"	STR							
ES527	5	80	48'-0"	STR							
ES528	5	820	48'-8"	STR							
ES529	5	936	7'-0"	13	3'-3"	1'-1"	2'-8"	1 1/2"			
ES530	5	110	43'-10"	28	43'-10"						MECHANICAL SPLICE
ES531	5	110	4'-10' + THREADS	29	4'-10"						MECHANICAL SPLICE
ES640	6	136	60'-0"	STR							
ES641	6	50	54'-4"	STR							
ES642	6	200	43'-1"	STR							
ES643	6	10	2'-10"	STR							
ES644	6	50	34'-0"	STR							
ES645	6	50	53'-9"	STR							
ES646	6	50	52'-0"	STR							
ES647	6	12	43'-7"	STR							
ES648	6	12	49'-10"	STR							
ES649	6	6	47'-11"	STR							
ES650	6	757	50'-0"	15	8"	48'-8"					
ES651	6	8	48'-8"	STR							
ES652	6	16	10'-3"	STR							
ES653	6	18	54'-0"	STR							
ES654	6	6	47'-4"	STR							
ES655	6	101	44'-6"	81	8"	43'-10"					MECHANICAL SPLICE
ES656	6	101	3'-11" + THREADS	29	3'-11"						MECHANICAL SPLICE
ES657	6	101	5'-6"	14	8"	4'-10"					
SIDEWALKS AND BARRIERS											
EC301	3	48	4'-8"	46	4"	1'-0"	1'-0"		2 1/2"		
EC401	4	1010	7'-9 1/2"	79	2'-9"	3"	5 1/2"				
EC402	4	812	4'-4"	1	1'-1"	6"	1'-1"	6"	1'-2"		
EC403	4	138	5'-4"	4	1'-1"	3'-2"	1'-1"				
EC404	4	72	6'-5"	73	2'-3"	1'-7"	2'-3"	1'-7 1/8"	1'-7 1/8"		
EC405	4	192	38'-0"	STR							
EC406	4	812	4'-0"	1	1'-1"	5"	1'-0"	5"	1'-1"		
EC407	4	8	18'-0"	STR							
EC408	4	16	30'-0"	STR							
EC409	4	12	10'-11 1/2"	4	1'-1"	8'-9 1/2"	1'-1"				
EC507	5	48	7'-3"	4	2'-0"	2'-1"	3'-2"				
EC508	5	24	6'-9"	4	2'-0"	1'-7"	3'-2"				
EC511	5	144	55'-2"	STR							
EC615	6	102	55'-9"	STR							
EC616	6	6	55'-4"	STR							
EC651	6	96	6'-8"	STR							
OBELISKS											
EC451	4	228	3'-3" TO 4'-9"	46	4 1/2"	7 1/2" TO 1'-0"	7 1/2" TO 1'-0"	2"	3"		12 SETS OF 19; VARY B & C BY 1/4"
EC452	4	12	3'-5"	46	4 1/2"	8"	8"	2"	3"		
EC652	6	48	19'-8"	STR							
EC653	6	48	10'-0"	STR							

REINFORCEMENT BAR SCHEDULE

MARK	SIZE	NUMBER	LENGTH	TYPE	A	B	C	D	E	R	REMARKS
APPROACH SLAB											
EAS401	4	128	9'-3"	71	1'-0 1/2"	3'-2"	9"	3'-3 1/2"			
EAS501	5	48	48'-8"	STR							
EAS502	5	50	29'-4"	STR							
EAS503	5	100	6'-7"	4	2'-9"	1-0 1/2"	2'-9 1/2"				
EAS504	5	50	8'-0"	2	2'-0 1/2"	1'-6"	5 1/2"				
EAS505	5	62	6'-11"	12	2'-7 3/4"	1'-7 1/2"	2'-7 3/4"	1 7/8"	1'-7 3/8"		
EAS601	6	4	48'-8"	STR							
EAS602	6	4	36'-4"	STR							
EAS603	6	16	11'-2"	90	1'-3 3/4"	4'-3 1/2"	1'-0"	4'-6 3/4"	6"		F=11"
EAS701	7	31	48'-8"	STR							
EAS801	8	100	4'-8"	STR							
EAS1001	10	98	29'-4"	STR							
EC411	4	14	2'-0"	4	3"	1'-6"	3"				
EC412	4	14	29'-4"	STR							
EC413	4	120	9'-3"	79	2'-9"	9"	11"				
EC510	5	62	6'-2"	STR							
EC514	5	12	29'-4"	STR							
EC620	6	8	29'-4"	STR							
DOWELS	1 1/4" DIA	14	1'-6"	STR							EPOXY-COATED; GRADE 60



NOTES

FOR GENERAL NOTES AND LIST OF ABBREVIATIONS, SEE SHEETS 4 & 5.

REINFORCEMENT BAR SCHEDULE IS FOR INFORMATION ONLY. VERIFY BAR SCHEDULE PRIOR TO BIDDING AND FABRICATION.

FOR REINFORCEMENT BAR FABRICATION DETAILS, REFER TO STANDARD DRAWING BC-736M.

FIGURES IN CIRCLES SHOW BAR TYPES.

"D" DIMENSION ON 180° HOOKS TO BE SHOWN ONLY WHERE NECESSARY TO RESTRICT HOOK SIZE, OTHERWISE STANDARD HOOKS ARE TO BE USED.

PREFIX "E" DENOTES EPOXY-COATED REINFORCEMENT BARS.

ALL DIMENSIONS ARE OUT-TO-OUT OF BAR EXCEPT "A" ON STANDARD 135° AND 180° HOOKS, AND "R" WHICH IS SHOWN TO THE INSIDE OF THE BAR.

Mark	Description	By	Chk'd.	Recm'd.	Date
REVISIONS					

SR 6011 PREVIOUSLY KNOWN AS LR 5

PREPARED BY: DEWBERRY ENGINEERS INC.

COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL GARY L. FRENETTE ENGINEER

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF TRANSPORTATION

LACKAWANNA COUNTY
SR 6011 SEC 273
SEGMENT 0190 OFFSET 0404
SR 6011 - 273 STA 16+27.50
OVER ROARING BROOK, SR 3022,
AND DELAWARE, LACKAWANNA & WESTERN RAILROAD
3-SPAN CONT COMP STEEL MULTI-GIRDER BRIDGE
REINFORCEMENT BAR SCHEDULE - 4

RECOMMENDED MAY 07 2014

SHEET 67 OF 76

S - 33152

DES: DMC | CKD: CRH | DWG: DMC | CKD: CRH

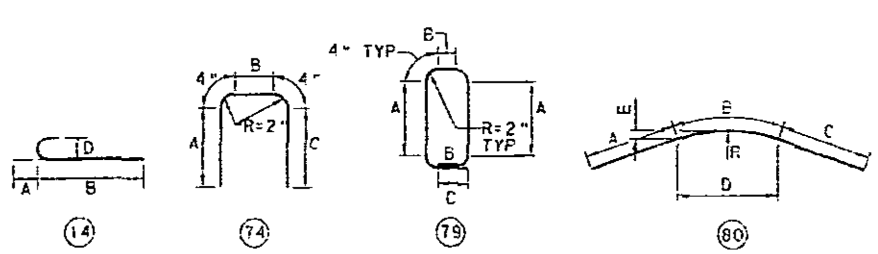
4/3/2014 12:55:00 PM

REINFORCEMENT BAR SCHEDULE

MARK	SIZE	NUMBER	LENGTH	TYPE	A	B	C	D	E	R	REMARKS
MOMENT SLAB A											
EMS401	4	48	10'-9"	74	4'-8"	9"	4'-8"				
EMS402	4	4	12'-0"	80	0"	9'-0"	3'-0"	8'-7"	1'-2"	8'-9"	
EMS403	4	2	13'-1"	80	0"	10'-1"	3'-0"	9'-7"	1'-3"	9'-9"	
EMS404	4	24	13'-3"	STR							
EMS405	4	10	13'-8" TO 17'-6"	80	0"	10'-8" TO 14'-6"	3'-0"	10'-2" TO 13'-10"	1'-4" TO 1'-10"	10'-4" TO 14'-0"	2 SETS OF 5: VARY A BY 11½", VARY C & R BY 11", VARY D BY 1½"
EMS406	4	8	13'-6½" TO 16'-5"	80	0"	10'-6½" TO 13'-5"	3'-0"	10'-4" TO 13'-1"	11" TO 1'-3⅛"	14'-11¾" TO 17'-8"	2 SETS OF 4: VARY A BY 11½", VARY C BY 11", VARY D BY 1⅜", VARY R BY 10¾"
EMS501	5	40	9'-2"	STR							
EMS502	5	40	10'-1"	14	7"	9'-6"					
EMS503	5	8	5'-6" TO 6'-2¾"	STR							VARY EACH BY 1¼"
EMS504	5	8	6'-3¼" TO 7'-0"	14	7"	5'-8¼" TO 6'-5"					VARY EACH BY 1¼"
EMS505	5	4	4'-0"	STR							
EMS506	5	4	7'-11"	STR							
EMS507	5	2	10'-1"	STR							
EMS701	7	2	10'-6"	STR							
EC415	4	48	9'-3"	79	2'-9"	9"	11"				
EC501	5	3	14'-8"	80	1'-10"	9'-2"	3'-8"	8'-9"	1'-2"	8'-9"	
EC502	5	3	15'-9"	80	1'-10"	10'-3"	3'-8"	9'-9"	1'-4"	9'-9"	
EC503	5	6	13'-3"	STR							
EC601	6	2	15'-6"	80	1'-10"	9'-2"	4'-5"	8'-9"	1'-2"	8'-9"	
EC602	6	2	16'-6"	80	1'-10"	10'-3"	4'-5"	9'-9"	1'-4"	9'-9"	
EC603	6	4	13'-3"	STR							
MOMENT SLAB B											
EMS421	4	86	10'-9"	74	4'-8"	9"	4'-8"				
EMS422	4	4	7'-5"	80	0"	4'-5"	3'-0"	4'-5"	3⅜"	8'-9"	
EMS423	4	2	7'-11"	80	0"	4'-11½"	2'-11½"	4'-11"	3¾"	9'-9"	
EMS424	4	46	23'-8"	STR							
EMS425	4	18	8'-3" TO 12'-1"	80	0"	5'-3" TO 9'-1"	3'-0"	5'-2" TO 9'-0"	4" TO 7"	10'-4" TO 17'-8"	2 SETS OF 9: VARY A AND C BY 5¾", VARY D BY ⅜", VARY R BY 11"
EMS521	5	82	9'-2"	STR							
EMS522	5	82	10'-1"	14	7"	9'-6"		3¾"			
EC421	4	86	9'-3"	79	2'-9"	9"	11"				
EC521	5	3	10'-1"	80	1'-10"	4'-7"	3'-8"	4'-6"	3½"	8'-9"	
EC522	5	3	10'-7"	80	1'-10"	5'-1"	3'-8"	5'-1"	4"	9'-9"	
EC523	5	6	44'-3"	STR							
EC621	6	2	10'-10"	80	1'-10"	4'-7"	4'-5"	4'-6"	3½"	8'-9"	
EC622	6	2	11'-4"	80	1'-10"	5'-1"	4'-5"	5'-1"	4"	9'-9"	
EC623	6	4	44'-3"	STR							

REINFORCEMENT BAR SCHEDULE

MARK	SIZE	NUMBER	LENGTH	TYPE	A	B	C	D	E	R	REMARKS
MOMENT SLAB C											
EMS451	4	25	10'-9"	74	4'-8"	9"	4'-8"				
EMS452	4	4	7'-5"	80	0"	4'-5"	3'-0"	4'-5"	3⅜"	8'-9"	
EMS453	4	2	7'-11"	80	0"	4'-11½"	2'-11½"	4'-11"	3¾"	9'-9"	
EMS454	4	24	6'-9"	STR							
EMS455	4	18	8'-3" TO 12'-1"	80	0"	5'-3" TO 9'-1"	3'-0"	5'-2" TO 9'-0"	4" TO 7"	10'-4" TO 17'-8"	2 SETS OF 9: VARY A AND C BY 5¾", VARY D BY ⅜", VARY R BY 11"
EMS551	5	25	9'-2"	STR							
EMS552	5	25	10'-1"	14	7"	9'-6"		3¾"			
EC451	4	29	9'-3"	79	2'-9"	9"	11"				
EC551	5	3	10'-1"	80	1'-10"	4'-7"	3'-8"	4'-6"	3½"	8'-9"	
EC552	5	3	10'-7"	80	1'-10"	5'-1"	3'-8"	5'-1"	4"	9'-9"	
EC553	5	6	6'-9"	STR							
EC661	6	2	10'-10"	80	1'-10"	4'-7"	4'-5"	4'-6"	3½"	8'-9"	
EC662	6	2	11'-4"	80	1'-10"	5'-1"	4'-5"	5'-1"	4"	9'-9"	
EC663	6	4	6'-9"	STR							
MOMENT SLAB D											
EMS481	4	25	10'-9"	74	4'-8"	9"	4'-8"				
EMS482	4	4	7'-5"	80	0"	4'-5"	3'-0"	4'-5"	3⅜"	8'-9"	
EMS483	4	2	7'-11"	80	0"	4'-11½"	2'-11½"	4'-11"	3¾"	9'-9"	
EMS484	4	24	6'-9"	STR							
EMS485	4	18	8'-3" TO 12'-1"	80	0"	5'-3" TO 9'-1"	3'-0"	5'-2" TO 9'-0"	4" TO 7"	10'-4" TO 17'-8"	2 SETS OF 9: VARY A AND C BY 5¾", VARY D BY ⅜", VARY R BY 11"
EMS581	5	25	9'-2"	STR							
EMS582	5	25	10'-1"	14	7"	9'-6"		3¾"			
EC481	4	29	9'-3"	79	2'-9"	9"	11"				
EC581	5	3	10'-1"	80	1'-10"	4'-7"	3'-8"	4'-6"	3½"	8'-9"	
EC582	5	3	10'-7"	80	1'-10"	5'-1"	3'-8"	5'-1"	4"	9'-9"	
EC583	5	6	6'-9"	STR							
EC681	6	2	10'-10"	80	1'-10"	4'-7"	4'-5"	4'-6"	3½"	8'-9"	
EC682	6	2	11'-4"	80	1'-10"	5'-1"	4'-5"	5'-1"	4"	9'-9"	
EC683	6	4	6'-9"	STR							



NOTES

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REINFORCEMENT BAR SCHEDULE IS FOR INFORMATION ONLY. VERIFY BAR SCHEDULE PRIOR TO BIDDING AND FABRICATION.

FOR REINFORCEMENT BAR FABRICATION DETAILS, REFER TO STANDARD *DRAWING BC-736M.*

FIGURES IN CIRCLES SHOW BAR TYPES.

"D" DIMENSION ON 180° HOOKS TO BE SHOWN ONLY WHERE NECESSARY TO RESTRICT HOOK SIZE, OTHERWISE STANDARD HOOKS ARE TO BE USED.

PREFIX "E" DENOTES EPOXY-COATED REINFORCEMENT BARS.

ALL DIMENSIONS ARE OUT-TO-OUT OF BAR EXCEPT "A" ON STANDARD 135° AND 180° HOOKS, AND "R" WHICH IS SHOWN TO THE INSIDE OF THE BAR.

Mark	Description	By	Chk'd.	Recm'd.	Date

REVISIONS

SR 6011 PREVIOUSLY KNOWN AS LR 5

PREPARED BY:
DEWBERRY ENGINEERS INC.

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
GARY L. FRENETTE
ENGINEER
No. 042541-E

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF TRANSPORTATION

LACKAWANNA COUNTY
SR 6011 SEC 273
SEGMENT 0190 OFFSET 0404
SR 6011 - 273 STA 16+27.50
OVER ROARING BROOK, SR 3022,
AND DELAWARE, LACKAWANNA & WESTERN RAILROAD
3-SPAN CONT COMP STEEL MULTI-GIRDER BRIDGE
REINFORCEMENT BAR SCHEDULE - 5

RECOMMENDED MAY 9 7 2014

SHEET 68 OF 76

S - 33152

DES: KLL | CKD: CRH | DWG: CRH | CKD: MZS

ABUTMENT 1

WINGWALL B

BORING: S-1
STATION: 13+63
OFFSET: 37' LT

GE=864.1

Elev.	A	B	C	D	E	F	G	H	Description	Remarks
865	1.5	S-1	2-2-2	0.4	27	-	GC-GM/ A-1-b	DP	SILTY, CLAYEY GRAVEL WITH SAND (GC-GM/A-1-b), MODERATE BROWN, DARK REDDISH BROWN DAMP, LOOSE TO VERY DENSE	
	3.0	S-2	3-2-2	0.3	20	-				
860	4.5	S-3	2-2-3	0.1	7	-			LAB TEST RESULTS (0.0' - 15.0'): LL=23, PL=19, PI=4 NATURAL MOISTURE = 4.6% SPECIFIC GRAVITY = 2.68 COHESION = 90.5 PSF FRICTION ANGLE = 37.4°	
	6.0	S-4	3-4-5	0.5	33	-				
	7.5	S-5	7-6-5	0.9	60	-				
855	9.0	S-6	2-6-8	1.0	67	-				
	10.5	S-7	6-8-5	0.3	20	-				
	12.0	S-8	6-9-10	1.2	80	-				
	13.5	S-9	9-5-6	0.6	40	-				
850	15.0	S-10	11-37-13	1.0	67	-				
846.6 (ground water level at completion)	16.5	S-11	3-4-4	1.4	93	-				
844.8 (ground water level after 24 hrs)	18.0	S-12	10-8-14	1.2	80	-				
845	19.5	S-13	4-3-50/.5	1.1	73	-			19.2-20.2 SANDY CLAY JUST ABOVE TOR	TOR AT 20.2'
TOR 843.9	20.2	S-14	30-50/.2	0.7	100	-			843.9	
BFE 843.0	22.0	R-1	0	1.6	89				SANDSTONE, GRAY, HIGHLY WEATHERED, THIN TO MEDIUM BEDDING, RD= 5° TO 20°, CLOSELY TO MEDIUM FRACTURED,	
840	25.3	R-2	23	3.3	100				RD= 55° TO 100° (TOTAL REC.= 98%, TOTAL RQD= 40%)	
835	30.3	R-3	56	5.0	100				POINT LOAD TEST (21.5'-23.0'): AVERAGE SC (1 POINTS)= 1651.8 TSF 22.8'-28.3': SANDSTONE CONGLOMERATE	BOTTOM OF BORING AT 32.3'
830	32.3	R-4	63	2.0	100				831.8	

START DATE: 1/11/2013
COMPLETION DATE: 1/14/2013
INSPECTOR: RICHARD CLOUSER
DRILLERS NAME/COMPANY: JIM LANG/PENN DRILL CO.
DRILLING METHODS: SPT, HSA, NQ2 CORING
RIG TYPE: CME 45 TRACK RIG
CASING DEPTH: 20.2'

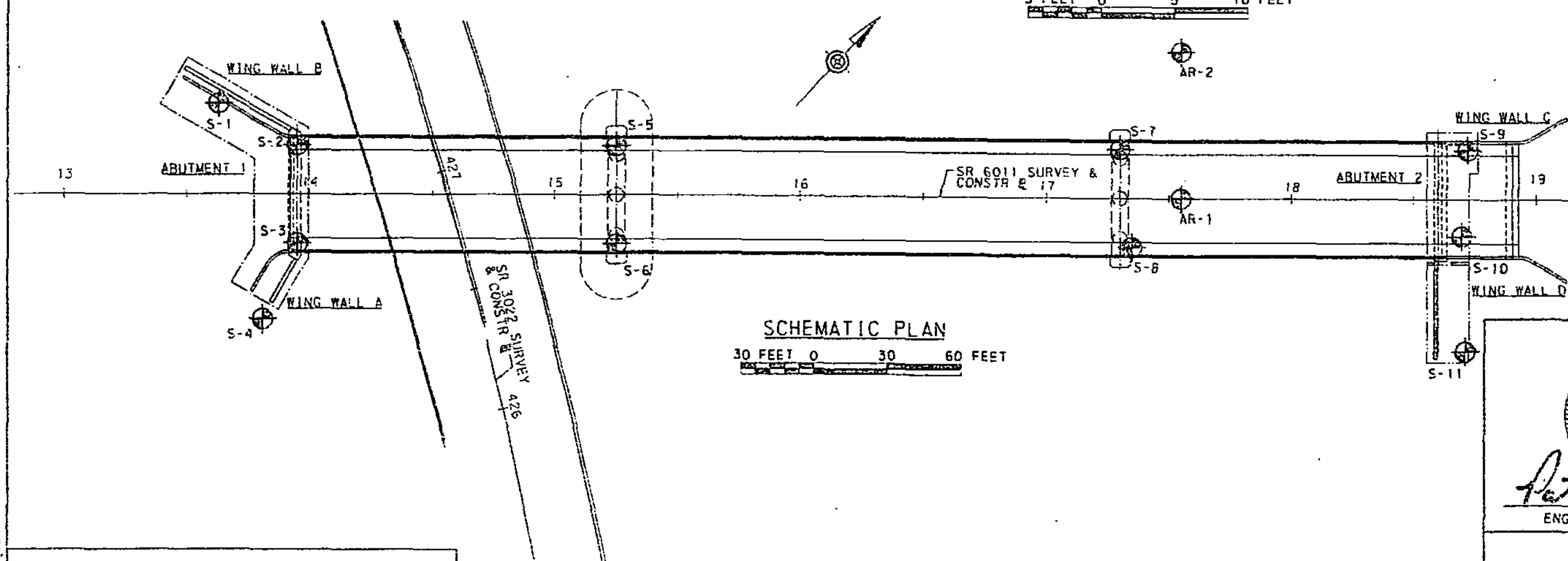
BORING: S-2
STATION: 13+95
OFFSET: 20' LT

GE=850.3

Elev.	A	B	C	D	E	F	G	H	Description	Remarks
850	1.5	S-1	1-1-1	0.5	33	-	sp/a-3	DP	POORLY GRADED SAND WITH GRAVEL (sp/a-3), MODERATE BROWN, BLACK, DAMP, VERY LOOSE TO MEDIUM DENSE, LENSED, SUBROUNDED TO SUB ANGULAR GRAVEL, COAL AND SLAG (FILL)	
	3.0	S-2	1-2-3	0.7	47	-				
	4.5	S-3	5-7-5	0.8	53	-				SPT REFUSAL/TOR AT 6.6'
845	6.0	S-4	3-4-3	0.4	27	-				
TOR 843.7	6.6	S-5	2-50/.1	0.5	83	-			843.7	
BFE 843.0 / 840	10.5	R-1	77	3.9	100				SANDSTONE, MEDIUM GRAY, HARD, MINOR WEATHERING, THICK TO MEDIUM BEDDING, RD= 0° TO 20°, MEDIUM FRACTURES, RD= 0° TO 20°	
835	15.5	R-2	62	5.0	100				(TOTAL REC.= 97%, TOTAL RQD= 72%) UNCONFINED COMPRESSIVE STRENGTH (6.8'-7.15'): 765.2 TSF (7.8'-8.15'): 723.8 TSF	BOTTOM OF BORING AT 17.5'
830	17.5	R-3	85	1.7	85				832.8	

START DATE: 1/10/2013
COMPLETION DATE: 1/10/2013
INSPECTOR: RICHARD CLOUSER
DRILLERS NAME/COMPANY: JIM LANG/PENN DRILL CO.
DRILLING METHODS: SPT, HSA, NQ2 CORING
RIG TYPE: CME 45 TRACK RIG
CASING DEPTH: 6.6'

VERTICAL SCALE
5 FEET 0 5 10 FEET



SCHEMATIC PLAN
30 FEET 0 30 60 FEET

BORING LEGEND:

COLUMN A - LOWER LIMIT OF SAMPLES OR CORE RUNS
COLUMN B - SAMPLE (S) OR CORE RUN (R) IDENTIFICATION NUMBERS.
COLUMN C - SAMPLE BLOWS PER 6 IN. OR %RQD.
COLUMN D - RECOVERY LENGTH IN FEET
COLUMN E - PERCENTAGE OF SAMPLE RECOVERY OR PERCENTAGE OF CORE RECOVERY.
COLUMN F - POCKET PENETROMETER TEST (TSF)
COLUMN G - USCS/AASHTO CLASSIFICATION
COLUMN H - MOISTURE CONTENT
D - DRY
M - MOIST
W - WET
DP - DAMP

GE - GROUND ELEVATION
TOR - TOP OF ROCK ELEVATION
BFE - BOTTOM OF FOOTING ELEVATION
▽ - GROUND WATER LEVEL AT COMPLETION OF BORINGS
▼ - GROUND WATER LEVEL AFTER 24 HRS

HAMMER DROP ON SAMPLER - 30 INCHES
WEIGHT OF HAMMER - 140 LBS.
SIZE OF SAMPLER - 2 INCHES

S.R. 6011 PREVIOUSLY KNOWN AS L.R. 5-010

THE SUBSURFACE EXPLORATION DATA PRESENTED ON THIS DRAWING (INCLUDING BORING LOGS, EARTH SAMPLES, ROCK CORES, CLASSIFICATION OF MATERIAL, AND DEPTH OF BORINGS) ACCURATELY REPRESENTS THE CONDITIONS ENCOUNTERED BY THE TEST BORING PROGRAM AT EACH LOCATION.

ENGINEER/GEOLOGIST 9/16/13
DATE

THIS SHEET IS INCLUDED FOR THE CONVENIENCE OF THE DEPARTMENT. REFER TO PUBLICATION 408 SECTION 102.05 FOR FURTHER INFORMATION.

THE CLASSIFICATIONS OF THE MATERIALS ENCOUNTERED HAVE BEEN VERIFIED.

INITIAL 9/16/13
DATE

ENGINEER/GEOLOGIST

PREPARED BY:
OAWOOD ENGINEERING, INC.
2020 GOOD HOPE ROAD
ENOLA, PA 17025

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF TRANSPORTATION

LACKAWANNA COUNTY
SR 6011 SEC 273
SEGMENT 0190 OFFSET 0402
SR 6011 - 273 STA 16+27.50
OVER ROARING BROOK, SR 3022,
AND DELAWARE, LACKAWANNA & WESTERN RAILROAD
3 SPAN CONT COMP STEEL MULTI-GIRDER BRIDGE

TEST BORINGS - 1

SHEET 69 OF 76

S - 33152

ABUTMENT 1

BORING: S-3
STATION: 13+95
OFFSET: 20' RT

GE=857.1

A	B	C	D	E	F	G	H
1.5	S-1	WOH-1-1	0.5	33	-	sm/a-1-b	M
3.0	S-2	2-2-2	0.8	53	-		
4.5	S-3	2-4-5	1.1	73	-	sp,cl/a-3, a-6	DP
6.0	S-4	3-6-14	1	67	-		
7.5	S-5	6-12-6	0.4	27	-	SC-SM/A-4	
9.0	S-6	3-3-2	0.5	33	-		
9.9	S-7	3-50/.4	0.9	100	-	cl/a-6	
14.5	R-1	52	4.6	100			
19.5	R-2	80	5.0	100			
24.5	R-3	80	5.0	100			
29.5	R-4	84	5.0	100			
34.5	R-5	74	5.0	100			
39.5	R-6	74	5.0	100			
44.5	R-7	44	4.6	92			
49.5	R-8	42	5.0	100			
54.5	R-9	48	4.9	98			
59.0	R-10	58	4.5	100			
63.0	R-11	78	4.0	100			
68.0	R-12	78	5.0	100			
73.0	R-13	88	5.0	100			
75.0	R-14	100	2.0	100			

TOR 847.2
BFE 847.0
800.2 (ground water level symbol)
791.2 (ground water level symbol)

Elevation scale: 860, 855, 850, 845, 840, 835, 830, 825, 820, 815, 810, 805, 800, 795, 790, 785, 780

Descriptions:

SILTY SAND (sm/a-1-b), DARK REDDISH BROWN, MOIST (ICE), VERY LOOSE, HOMOGENEOUS, SUBROUNDED TO SUBANGULAR, COAL (FILL) — 854.6

SAND, CLAY WITH GRAVEL (sp, cl/a-3, a-6), DARK BROWN TO MODERATE BROWN, DAMP, LOOSE, LENSED, CLAY IS SEPERATE FROM THE SAND, COAL (FILL) — 852.6

SILTY, CLAYEY SAND WITH GRAVEL (SC-SM/A-4), MODERATE BROWN TO BROWNISH GRAY, DAMP, MEDIUM DENSE TO LOOSE, LENSED, SUBROUNDED TO SUBANGULAR, COAL, SLAG (FILL)
LAB TEST RESULTS (4.5'-9.0'):
LL=26, PL=21, PI=5
NATURAL MOISTURE = 8.2%
SPECIFIC GRAVITY = 2.68
COHESION = 356.2 PSF
FRICTION ANGLE = 33.7° — 848.1

CLAY (cl/a-6), MODERATE BROWN, MOIST, *VERY DENSE, HOMOGENEOUS* — 847.2

SANDSTONE, MEDIUM GRAY TO MEDIUM DARK GRAY, HARD TO VERY HARD (INCREASES WITH DEPTH), WEATHERED TO MINOR WEATHERING (DECREASES WITH DEPTH), THICK TO MEDIUM BEDDING, CONGLOMERATIC, SOME MICA (TOTAL REC.= 100%, TOTAL RQD= 76%) UNCONFINED COMPRESSIVE STRENGTH (11.8'-12.15'): 793.0 TSF — 833.6

SANDSTONE, BROWNISH GRAY, HARD; WEATHERED, THICK BEDDED, RD= 10° (TOTAL REC.= 100%, TOTAL RQD= 0%) — 832.6

SANDSTONE, MEDIUM GRAY TO MEDIUM DARK GRAY, VERY HARD, MINOR WEATHERING (AT 35.0', HIGHLY WEATHERED, BROKEN ~ 3"), THICK TO MEDIUM BEDDED, RD= 40° TO 10° (DECREASES WITH DEPTH), MEDIUM TO CLOSE FRACTURES, RD= 10° TO 40°, MINOR COAL STRINGERS (TOTAL REC.= 100%, TOTAL RQD= 77%) — 817.6

COAL, BLACK, MEDIUM HARD, FRESH TO SLIGHTLY WEATHERED, LAMINATED TO THIN BEDDED, RD= 10°, CLOSE TO LAMINATED FRACTURES, RD= 10° (TOTAL REC.= 81%, TOTAL RQD= NOT APPLICABLE) — 815.5

SILTY SHALE, BROWNISH GRAY TO BROWNISH BLACK, SOFT, MINOR WEATHERING, THIN TO MEDIUM BEDDED, RD= 5° TO 10°, MEDIUM TO CLOSE FRACTURES, RD= 5° TO 10° (TOTAL REC.= 100%, TOTAL RQD= 63%) — 812.0

COAL, BLACK, MEDIUM HARD, FRESH WEATHERING, LAMINATED TO THIN BEDDED, RD= 0° TO 5°, CLOSE FRACTURES, RD= 0° TO 5° (TOTAL REC.= 100%, TOTAL RQD= NOT APPLICABLE) — 810.2

SHALE, GREENISH BLACK TO OLIVE BLACK, SOFT TO VERY SOFT, MINOR WEATHERING, MEDIUM TO THIN BEDDING, RD=0° TO 5°, MEDIUM TO CLOSE FRACTURES, RD= 80°, 55°, 25°, 105°, 125°, 0° TO 5° *(TOTAL REC.= 99%, TOTAL RQD= 56%)* — 800.5

INTERBEDDED SILTSTONE, SHALE, MEDIUM GRAY, BROWNISH GRAY, SOFT, MINOR WEATHERING, THIN TO LAMINATED BEDDING, RD= 5° TO 20°, MEDIUM FRACTURES, RD= 5° TO 20° (TOTAL REC.= 100%, TOTAL RQD= 86%) — 795.4

COAL, BLACK, MEDIUM HARD, FRESH, LAMINATED BEDDING, RD= 10° TO 20°, LAMINATAED FRACTURES, RD= 10° TO 20° (TOTAL REC.= 100%, TOTAL RQD= NOT APPLICABLE) — 794.8

SILTSTONE, DARK GRAY, SOFT, MINOR WEATHERING, LAMINATED, RD= 10°, MEDIUM TO THIN FRACTURED, RD= 10° (TOTAL REC.= 100%, TOTAL RQD= 69%) — 793.5

SANDSTONE, MEDIUM LIGHT GRAY TO MEDIUM GRAY, VERY HARD, MINOR WEATHERING, MEDIUM TO THIN BEDDING, RD= 10° TO 30°, WIDE TO CLOSE FRACTURES, RD= 10° TO 30°, MINOR COAL SEAMS AND STRINGERS (TOTAL REC.= 100%, TOTAL RQD= 83%) 65.5': APPROXIMATE 3" ZONE OF BROKEN ROCK THAT IS HIGHLY WEATHERED (MICACEOUS) — 782.1

REMARKS

CHEMICAL TEST RESULTS (4.5' 9.0'):
PH = 5.9,
CHLORIDE CONTENT=36 PPM,
SULFATE CONTENT= 60 PPM:
MIN RESISTIVITY = 4.6 KOHMS X CM
TOR AT 9.9'

BOTTOM OF BORING AT 75.0'

START DATE: 1/9/2013
COMPLETION DATE: 1/10/2013
INSPECTOR: RICHARD CLOUSER
DRILLERS NAME/COMPANY: JIM LANG/PENN DRILL CO.
DRILLING METHODS: SPT, HSA, NQ2 CORING
RIG TYPE: CME 45 TRACK RIG
CASING DEPTH: 9.9'

BORING LEGEND:

COLUMN A - LOWER LIMIT OF SAMPLES OR CORE RUNS
COLUMN B - SAMPLE (S) OR CORE RUN (R) IDENTIFICATION NUMBERS.
COLUMN C - SAMPLE BLOWS PER 6 IN. OR %RQD.
COLUMN D - RECOVERY LENGTH IN FEET
COLUMN E - PERCENTAGE OF SAMPLE RECOVERY OR PERCENTAGE OF CORE RECOVERY.
COLUMN F - POCKET PENETROMETER TEST (TSF)
COLUMN G - USCS/AASHTO CLASSIFICATION
COLUMN H - MOISTURE CONTENT
D - DRY
M - MOIST
W - WET
DP - DAMP

GE - GROUND ELEVATION
TOR - TOP OF ROCK ELEVATION
BFE - BOTTOM OF FOOTING ELEVATION
(symbol) - GROUND WATER LEVEL AT COMPLETION OF BORINGS
(symbol) - GROUND WATER LEVEL AFTER 24 HRS

HAMMER DROP ON SAMPLER - 30 INCHES
WEIGHT OF HAMMER - 140 LBS.
SIZE OF SAMPLER - 2 INCHES

S.R. 6011 PREVIOUSLY KNOWN AS L.R. 5-010

THIS SHEET IS INCLUDED FOR THE CONVENIENCE OF THE DEPARTMENT. REFER TO PUBLICATION 408 SECTION 102.05 FOR FURTHER INFORMATION.

THE CLASSIFICATIONS OF THE MATERIALS ENCOUNTERED HAVE BEEN VERIFIED.
INITIAL — DATE 9/16/13

ENGINEER/GEOLOGIST

PREPARED BY:
DAWOOD ENGINEERING, INC.
2020 GOOD HOPE ROAD
ENOLA, PA 17025

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF TRANSPORTATION

LACKAWANNA COUNTY
SR 6011 SEC 273
SEGMENT 0190 OFFSET 0402
SR 6011 - 273 STA 16+27.50
OVER ROARING BROOK, SR 3022,
AND DELAWARE, LACKAWANNA & WESTERN RAILROAD
3 SPAN CONT COMP STEEL MULTI-GIRDER BRIDGE

TEST BORINGS - 2

S - 33152

ABUTMENT 1

BORING: S-4
STATION: 13+81
OFFSET: 51' RT
GE= 869.3

A	B	C	D	E	F	G	H
1.5	S-1	1-2-2	0.7	47	-	sp/a-3	DP
3.0	S-2	2-3-4	0.6	40	-		
4.5	S-3	4-6-9	1	67	-		
6.0	S-4	7-7-6	0.8	53	-	sp/a-1-b	
7.5	S-5	4-4-3	0.6	40	-		
9.0	S-6	3-4-6	0.5	33	-		
10.5	S-7	4-3-3	0.8	53	-		
12.0	S-8	7-6-8	1.2	80	-		
13.5	S-9	8-7-5	1.1	73	-		
15.0	S-10	7-13-15	1.2	80	-	sm/a-4	
15.1	S-11	50/.1	0.1	100	-		
17.0	R-1	18	1.0	53			
21.5	R-2	0	4.0	89			
26.5	R-3	60	5.0	100			
31.5	R-4	76	5.0	100			

Elevation scale: 870, 865, 860, 855, 850, 845, 840, 835

TOR 854.2
851.2 (ground water level at completion)
BFE 849.0
848.2 (ground water level after 24 hrs)

POORLY GRADED SAND (sp/a-3), MODERATE REDDISH BROWN, DAMP, VERY LOOSE, LENSED, SUBROUNDED TO SUBANGULAR, SLAG, COAL FINES, ORGANICS (FILL) — 865.3

POORLY GRADED SAND WITH GRAVEL (sp/a-1-b), MODERATE BROWN, BLACK, VERY LIGHT GRAY, WHITE, DAMP, MEDIUM DENSE TO LOOSE, LENSED, SUBANGULAR, SAND, SLAG, COAL (FILL) — 858.8

POORLY GRADED SAND WITH GRAVEL (sp/a-1-b), GRAYISH BLACK TO DARK GRAY, MEDIUM DENSE, LENSED, SUBANGULAR, SAND, COAL, SLAG (FILL) — 855.8

854.2

SILTY SAND (sm/a-4), GRAYISH BROWN, DARK YELLOWISH ORANGE, MEDIUM DENSE, LENSED, POSSIBLY WEATHERED TILL — 847.8

SANDSTONE, MEDIUM GRAY TO BROWNISH GRAY, MEDIUM HARD, HIGHLY WEATHERED, THIN BEDDED, RD=20°, MEDIUM TO LAMINATED (BROKEN) FRACTURES, RD= 20° R-2: WITH ROOTS (TOTAL REC.= 78%, TOTAL RQD= 5%) POINT LOAD TEST (15.1'-17.0'): AVERAGE SC (4 POINTS)= 679.8 TSF

SANDSTONE, MEDIUM GRAY, HARD TO VERY HARD, MINOR WEATHERING, MEDIUM TO THIN BEDDING, RD= 20° (ONE AT 55°), MEDIUM TO WIDE FRACTURES, RD= 20°, 55°, 0° TO 10°, MICACEOUS, PYRITE ON FRACTURES, FEW CONGLOMERATE BEDS (1" TO 2") (TOTAL REC.= 100%, TOTAL RQD= 68%) POINT LOAD TEST (21.0'-23.0'): AVERAGE SC (6 POINTS)= 1579.2 TSF — 837.8

REMARKS:
SPT/AUGER REFUSAL/ TOR AT 15.1'
15.1' TO 21.5', MAY BE LOOSE BOULDER, WITH ROOTS IN BROKEN ZONES
BOTTOM OF BORING AT 31.5'

START DATE: 1/8/2013
COMPLETION DATE: 1/8/2013
INSPECTOR: RICHARD CLOUSER
DRILLERS NAME/COMPANY: JIM LANG/PENN DRILL CO.
DRILLING METHODS: SPT, HSA, NQ2 CORING
RIG TYPE: CME 45 TRACK RIG
CASING DEPTH: 15.0'

BORING LEGEND:

COLUMN A - LOWER LIMIT OF SAMPLES OR CORE RUNS
COLUMN B - SAMPLE (S) OR CORE RUN (R) IDENTIFICATION NUMBERS.
COLUMN C - SAMPLE BLOWS PER 6 IN. OR %RQD.
COLUMN D - RECOVERY LENGTH IN FEET
COLUMN E - PERCENTAGE OF SAMPLE RECOVERY OR PERCENTAGE OF CORE RECOVERY.
COLUMN F - POCKET PENETROMETER TEST (TSF)
COLUMN G - USCS/AASHTO CLASSIFICATION
COLUMN H - MOISTURE CONTENT
D - DRY
M - MOIST
W - WET
DP - DAMP

GE - GROUND ELEVATION
TOR - TOP OF ROCK ELEVATION
BFE - BOTTOM OF FOOTING ELEVATION
▽ - GROUND WATER LEVEL AT COMPLETION OF BORINGS
▼ - GROUND WATER LEVEL AFTER 24 HRS

HAMMER DROP ON SAMPLER - 30 INCHES
WEIGHT OF HAMMER - 140 LBS.
SIZE OF SAMPLER - 2 INCHES

THIS SHEET IS INCLUDED FOR THE CONVENIENCE OF THE DEPARTMENT. REFER TO PUBLICATION 408 SECTION 102.05 FOR FURTHER INFORMATION.

THE CLASSIFICATIONS OF THE MATERIALS ENCOUNTERED HAVE BEEN VERIFIED.
INITIAL: PJO
DATE: 9/16/13

ENGINEER/GEOLOGIST

PREPARED BY:
DAWOOD ENGINEERING, INC.
2020 GOOD HOPE ROAD
ENOLA, PA 17025

S.R. 6011 PREVIOUSLY KNOWN AS L.R. 5-D10

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF TRANSPORTATION
LACKAWANNA COUNTY
SR 6011 SEC 273
SEGMENT 0190 OFFSET 0402
SR 6011 - 273 STA 16+27.50
OVER ROARING BROOK, SR 3022,
AND DELAWARE, LACKAWANNA & WESTERN RAILROAD
3 SPAN CONT COMP STEEL MULTI-GIRDER BRIDGE

TEST BORINGS - 3

S - 33152

PIER 1

BORING: S-5
STATION: 15+25
OFFSET: 20' LT
GE= 799.1

TOR 792.6 · BODS 780.0 · 774.7 (ground water level at completion) · 771.6 (ground water level after 24 hrs)

A	B	C	D	E	F	G	H
1.5	S-1	1-3-6	0.6	40	-	sw/a-1-b	M
3.0	S-2	6-7-7	0.7	47	-		
4.5	S-3	7-7-14	0.5	33	-		
6.0	S-4	5-6-6	0.6	40	-	sp/a-1-b	
6.5	S-5	17-50/.0	0.2	40	-		
8.5	R-1	0	1.4	70			
11.5	R-2	0	3.0	100			
12.5	R-3	0	1.0	100			
17.5	R-4	15	4.7	94			
22.5	R-5	31	4.9	98			
27.5	R-6	38	5.0	100			
32.5	R-7	18	4.9	98			
37.5	R-8	12	5.0	100			
42.5	R-9	74	5.0	100			
47.5	R-10	94	5.0	100			
52.5	R-11	96	5.0	100			
57.5	R-12	92	5.0	100			
62.5	R-13	92	4.9	98			
65.5	R-14	87	3.0	100			

WELL GRADED SAND WITH SOME GRAVEL (sw/a-1-b), DARK BROWN AND BLACK, MOIST, MEDIUM DENSE, CINDERS, COAL REFUSE AND SLAG (FILL) 0.0'-0.2': TOPSOIL — 794.6

POORLY GRADED SAND WITH SOME GRAVEL AND TRACE SILT (sp/a-1-b), BROWN, DARK BROWN AND BLACK, MOIST, MEDIUM DENSE TO VERY DENSE (FILL) — 792.6

SANDSTONE, GRAY, MEDIUM HARD TO HARD, MINOR WEATHERING, THIN BEDDING, RD= 5° TO 20°, CLOSE FRACTURES, RD= 5° TO 20°, 30°, 45°, 65° TO 75° (TOTAL REC.= 95%, TOTAL RQD= 25%)
POINT LOAD TEST (12.0'-15.0'):
AVERAGE SC (5 POINTS)= 305.4 TSF
POINT LOAD TEST (17.5'-19.5'):
AVERAGE SC (7 POINTS)= 909.9 TSF
UNCONFINED COMPRESSIVE STRENGTH
(20.65'-21.0'): 598.8 TSF
(21.65'-22.0'): 702.1 TSF — 770.8

SHALE, WITH INTERBEDDED COAL, BLACK AND DARK GRAY, MEDIUM HARD, MINOR TO FRESH WEATHERING, THIN BEDDED, RD= 0° TO 20°, LAMINATED TO CLOSE FRACTURED, RD= 0° TO 10°, 45° (TOTAL REC.= 99%, TOTAL RQD= 11%)
SANDSTONE FROM 32.5'-33.3' AND 36.0' - 36.65'
MOST OF STRATA IS VERY BROKEN TO BROKEN — 761.4

SANDSTONE, MEDIUM TO FINE GRAINED, GRAY, HARD TO VERY HARD, MINOR TO FRESH WEATHERING, THIN BEDDED, RD= 0° TO 20°, CLOSE TO WIDE FRACTURED, RD= 0° TO 15°, 45°, 70° TO 80° (TOTAL REC.= 99%, TOTAL RQD= 91%)
40.9' - 41.4': 70° TO 80° FRACTURES

CONGLOMERATE INTERBEDDING FROM 62.5' TO 65.5' — 733.6

REMARKS:
HARD TO AUGER FROM 0' TO 4.5' DUE TO COBBLES AND BOULDERS AUGER REFUSAL/TOR AT 6.5'
R-14: VERY SLOW CORING, BIT MAY BE BAD. END HOLE AT 65.5.
BOTTOM OF BORING AT 65.5'

START DATE: 1/21/2013
COMPLETION DATE: 1/22/2013
INSPECTOR: RICK RICHARDS
DRILLERS NAME/COMPANY: EARL DYE/PENN DRILL CO.
DRILLING METHODS: SPT, HSA, NQ2 CORING
RIG TYPE: ACKER SOIL SCOUT
CASING DEPTH: 6.5'

BORING: S-6
STATION: 15+25
OFFSET: 20' RT
GE= 809.9

808.1 (ground water level at completion) · TOR 797.8 · BODS 787.5

A	B	C	D	E	F	G	H
1.5	S-1	6-7-17	0.3	20	-	sw/a-1-b	DP
3.0	S-2	6-7-6	0.3	20	-		
4.5	S-3	7-7-6	0.6	40	-		
6.0	S-4	6-12-8	0.8	53	-	sp/a-1-b	
6.4	S-5	50/.4	0.4	100	-		
8.0	R-1	0	0.9	56			
13.0	R-2	0	2.1	42			
18.0	R-3	68	4.7	94			
23.0	R-4	42	5.0	100			

WELL GRADED SAND WITH SOME GRAVEL (sw/a-1-b), BROWN AND BLACK, DAMP, MEDIUM DENSE (FILL)
S-1: WITH ROOTS AND 0.2' OF TOPSOIL (0'-0.2')
S-2: SAMPLE IS MOSTLY GRAVEL AND SLAG — 805.4

POORLY GRADED SAND WITH SOME GRAVEL (sp/a-1-b), DARK BROWN, BLACK AND GRAY BROWN, DAMP, MEDIUM DENSE TO VERY DENSE (RESIDUAL)
GRAVEL IS MOSTLY ROCK FRAGMENTS — 803.5 / 797.8

COBBLES AND BOULDERS, VERY BROKEN ROCK FRAGMENTS (RESIDUAL) (TOTAL REC.= 37%, TOTAL RQD= 0%) — 796.9

SHALE, DARK GRAY, MEDIUM HARD, MINOR WEATHERING, BEDDING NOT APPARENT, CLOSE FRACTURED, RD= 0° TO 15° (TOTAL REC.= 100%, TOTAL RQD= 0%)

SANDSTONE, GRAY, HARD, MINOR TO FRESH WEATHERD, THIN BEDDED, RD= 5° TO 20°, CLOSE TO MEDIUM FRACTURED, RD= 5° TO 20°. (TOTAL REC.= 97%, TOTAL RQD= 55%)
14.4': SOIL SEAM
SANDSTONE IS MEDIUM TO FINE GRAINED
UNCONFINED COMPRESSIVE STRENGTH (14.6'-14.95'): 636.7 TSF
UNCONFINED COMPRESSIVE STRENGTH (16.5'-16.85'): 617.8 TSF
UNCONFINED COMPRESSIVE STRENGTH (18.1'-18.45'): 760.5 TSF
UNCONFINED COMPRESSIVE STRENGTH (19.4'-19.75'): 783.7 TSF
20.3'-21.9': CONGLOMERATE INTERBEDDING — 786.9

REMARKS:
HARD TO AUGER FROM 0.0' TO 4.5' DUE TO COBBLES AND BOULDERS, DIFFICULT TO KEEP AUGERS VERTICAL SPT/AUGER REFUSAL AT 6.4'
TOR AT 12.1'
BOTTOM OF BORING AT 23.0'

START DATE: 1/24/2013
COMPLETION DATE: 1/24/2013
INSPECTOR: RICK RICHARDS
DRILLERS NAME/COMPANY: EARL DYE/PENN DRILL CO.
DRILLING METHODS: SPT, HSA, NQ2 CORING
RIG TYPE: ACKER SOIL SCOUT
CASING DEPTH: 6.4'

Elevation scale: 810, 805, 800, 795, 790, 785, 780, 775, 770, 765, 760, 755, 750, 745, 740, 735, 730

BORING LEGEND:

COLUMN A - LOWER LIMIT OF SAMPLES OR CORE RUNS
COLUMN B - SAMPLE (S) OR CORE RUN (R) IDENTIFICATION NUMBERS.
COLUMN C - SAMPLE BLOWS PER 6 IN. OR %RQD.
COLUMN D - RECOVERY LENGTH IN FEET
COLUMN E - PERCENTAGE OF SAMPLE RECOVERY OR PERCENTAGE OF CORE RECOVERY.
COLUMN F - POCKET PENETROMETER TEST (TSF)
COLUMN G - USCS/AASHTO CLASSIFICATION
COLUMN H - MOISTURE CONTENT
D - DRY
M - MOIST
W - WET
DP - DAMP

GE - GROUND ELEVATION
TOR - TOP OF ROCK ELEVATION
BODS - BOTTOM OF DRILLED SHAFT ELEVATION
▽ - GROUND WATER LEVEL AT COMPLETION OF BORINGS
▼ - GROUND WATER LEVEL AFTER 24 HRS

HAMMER DROP ON SAMPLER - 30 INCHES
WEIGHT OF HAMMER - 140 LBS.
SIZE OF SAMPLER - 2 INCHES

S.R. 6011 PREVIOUSLY KNOWN AS L.R. 5-D10

THIS SHEET IS INCLUDED FOR THE CONVENIENCE OF THE DEPARTMENT. REFER TO PUBLICATION 408 SECTION 102.05 FOR FURTHER INFORMATION.

THE CLASSIFICATIONS OF THE MATERIALS ENCOUNTERED HAVE BEEN VERIFIED.
INITIAL — DATE 9/16/13

ENGINEER/GEOLOGIST (seal: PATRICK J. DYER, PROFESSIONAL ENGINEER, COMMONWEALTH OF PENNSYLVANIA)

PREPARED BY:
DAWOOD ENGINEERING, INC.
2020 GOOD HOPE ROAD
ENOLA, PA 17025

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF TRANSPORTATION
LACKAWANNA COUNTY
SR 6011 SEC 273
SEGMENT 0190 OFFSET 0402
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OVER ROARING BROOK, SR 3022,
AND DELAWARE, LACKAWANNA & WESTERN RAILROAD
3 SPAN CONT COMP STEEL MULTI-GIRDER BRIDGE

TEST BORINGS - 4

SHEET 72 OF 76

S - 33152

PIER 2

BORING: S-7
STATION: 17+30.0
OFFSET: 20' LT

GE= 782.3

A	B	C	D	E	F	G	H
1.5	S-1	1-1-2	0.2	13	-	sw/a-1-b	DP
3.0	S-2	3-10-25	0.6	40	-	sp/a-1-b	
3.7	S-3	10-50/.2	0.4	57	-		
4.5							
7.0	R-1	0	2.3	92			
12.0	R-2	0	4.6	96			
17.0	R-3	0	4.9	98			
22.0	R-4	76	5.0	100			
27.0	R-5	88	5.0	100			
32.0	R-6	100	5.0	100			
37.0	R-7	93	5.0	100			
42.0	R-8	82	4.9	98			
47.0	R-9	86	5.0	100			
52.0	R-10	58	5.0	100			
57.0	R-11	90	5.0	100			
62.0	R-12	86	5.0	100			
65.0	R-13	100	3.0	100			

TOR 777.8
771.1 ▽ (ground water)
BODS 759.5

WELL GRADED SAND (sw/a-1-b), DARK BROWN AND BLACK, DAMP, VERY LOOSE (FILL)
CINDERS AND COAL REFUSE IN SAMPLE — 780.8

POORLY GRADED SAND WITH SOME GRAVEL (sp/a-1-b), BLACK, GRAYISH BROWN AND GRAY, DAMP, DENSE TO VERY DENSE (FILL)
GRAVEL IS MOSTLY ROCK FRAGMENTS — 777.8

SANDSTONE, GRAY, HARD, WEATHERED, THINLY BEDDED (RD = 5°), FRACTURES ARE CLOSELY SPACED (RD = 0°-5°, 15°, 35°, 45°)
(TOTAL REC.= 94%, TOTAL RQD= 0%)
POINT LOAD TEST (4.5'-8.0'):
AVERAGE SC (9 POINTS)= 910.8 TSF — 771.5

CARBONACEOUS SHALE AND COAL, BLACK, MEDIUM, HIGHLY WEATHERED TO WEATHERED, BEDDING IS LAMINATED (RD = 0°), FRACTURES ARE LAMINATED TO CLOSELY SPACED (RD = 0°- 5°)
(TOTAL REC.= 96%, TOTAL RQD= 0%) — 768.8

SANDSTONE, GRAY, HARD, WEATHERED, THINLY BEDDED (RD = 0 - 5°); FRACTURES ARE CLOSELY SPACED (RD 5°, 15°); PYRITE IN ROCK
(TOTAL REC.= 100%, TOTAL RQD= 0%) — 767.5

CARBONACEOUS SHALE AND COAL, BLACK, MEDIUM, HIGHLY WEATHERED, BEDDING IS LAMINATED (RD = 0°-5°), FRACTURES ARE LAMINATED TO CLOSELY SPACED (RD = 0°, 5°, 15°, 30°)
(TOTAL REC.= 100%, TOTAL RQD= 0%)
POINT LOAD TEST (15.0'-17.0'):
AVERAGE SC (8 POINTS): 283.5 TSF — 764.1

SANDSTONE, GRAY, HARD, FRESH, MEDIUM TO VERY THICKLY BEDDED (RD = 0°-5°), FRACTURES ARE CLOSELY TO VERY WIDELY SPACED (RD 0°-5°, 15°, 20°, 45°); MICA AND QUARTZ PRESENT IN ROCK
(TOTAL REC.= 100%, TOTAL RQD= 88%)
UNCONFINED COMPRESSIVE STRENGTH
(18.6'-18.95'): 666.9 TSF
(19.0'-19.35'): 815.0 TSF — 738.3

QUARTZ SANDSTONE CONGLOMERATE, VERY HARD, FRESH, MEDIUM TO VERY THICKLY BEDDED, (RD = 0°-5°), FRACTURES ARE MEDIUM TO VERY WIDELY SPACED (RD = 0°, 45°, 20°, 30°)
PYRITE AT 50.0', 51.7'
(TOTAL REC.= 100%, TOTAL RQD= 82%) — 717.3

REMARKS: AUGER REFUSAL/ TOR AT 4.5'; BOTTOM OF BORING AT 65.0'

START DATE: 1/31/2013
COMPLETION DATE: 2/1/2013
INSPECTOR: JACOB MASTREN-WILLAMS
DRILLERS NAME/COMPANY: EARL DYE/PENN DRILL CO.
DRILLING METHODS: SPT, HSA, NQ2 CORING
RIG TYPE: ACKER SOIL SCOUT
CASING DEPTH: 4.5'

BORING: S-8
STATION: 17+34.8
OFFSET: 20' RT

GE= 785.6

A	B	C	D	E	F	G	H
1.5	S-1	4-3-2	0.4	27	-	sw/a-1-b	M
3.0	S-2	2-1-2	0.2	13	-		
4.5	S-3	2-1-1	0.5	33	-		DM
6.0	S-4	3-6-10	0.4	27	-		
7.5	S-5	16-5-7	0.5	33	-		
9.0	S-6	13-10-12	0.6	40	-	sp/a-1-b	M
10.4	S-7	5-10-50/.4	1.2	86	-		
12.0	R-1	0	0.4	25			
17.0	R-2	56	4.8	96			
22.0	R-3	60	4.8	96			

TOR 775.2
773.5 ▽ (ground water)
768.5 ▽ (ground water)
BODS 750.0

WELL GRADED SAND WITH TRACE GRAVEL (sw/a-1-b), DARK BROWN AND BLACK, MOIST TO DAMP, VERY LOOSE TO MEDIUM DENSE, CINDERS, SLAG AND COAL REFUSE (FILL)
S-4: ROCK FRAGMENTS IN SPOON TIP
S-5: ROCK FRAGMENTS IN SAMPLE — 776.1

POORLY GRADED SAND WITH SOME GRAVEL (sp/a-1-b), BROWN, TAN AND GRAY BROWN, MOIST, MEDIUM DENSE, GRAVEL IS MOSTLY ROCK FRAGMENTS (RESIDUAL)
S-7: DARK BROWN AND BLACK IN COLOR — 775.2

SHALE, DARK GRAY, MEDIUM HARD, MINOR WEATHERING, BEDDING IS NOT APPARENT, CLOSE FRACTURES, RD= 0° TO 15°, 20°
(TOTAL REC.= 50%, TOTAL RQD= 0%)
SOIL SEAMS FROM 12.1' TO 12.3' — 772.4

SANDSTONE, GRAY, HARD, MINOR TO FRESH WEATHERING, LAMINATED TO THIN BEDDED, RD= 5° TO 20°, CLOSE TO MEDIUM FRACTURED, RD= 5° TO 25°, 60° TO 65°, 30°
(TOTAL REC.= 98%, TOTAL RQD= 66%)
UNCONFINED COMPRESSIVE STRENGTH
(16.1'-16.45'): 795.9 TSF
UNCONFINED COMPRESSIVE STRENGTH
(17.25'-17.6'): 1492.1 TSF
UNCONFINED COMPRESSIVE STRENGTH
(19.55'-19.9'): 1427.5 TSF
UNCONFINED COMPRESSIVE STRENGTH
(21.15'-21.5'): 1133.2 TSF — 763.6

REMARKS: SPT/AUGER REFUSAL/ TOR AT 10.4'; BOTTOM OF BORING AT 22.0'

START DATE: 1/30/2013
COMPLETION DATE: 1/30/2013
INSPECTOR: RICK RICHARDS
DRILLERS NAME/COMPANY: EARL DYE/PENN DRILL CO.
DRILLING METHODS: SPT, HSA, NQ2 CORING
RIG TYPE: ACKER SOIL SCOUT
CASING DEPTH: 10.4'

Elevation scale: 790, 785, 780, 775, 770, 765, 760, 755, 750, 745, 740, 735, 730, 725, 720, 715

BORING LEGEND:

COLUMN A - LOWER LIMIT OF SAMPLES OR CORE RUNS
COLUMN B - SAMPLE (S) OR CORE RUN (R) IDENTIFICATION NUMBERS.
COLUMN C - SAMPLE BLOWS PER 6 IN. OR %RQD.
COLUMN D - RECOVERY LENGTH IN FEET
COLUMN E - PERCENTAGE OF SAMPLE RECOVERY OR PERCENTAGE OF CORE RECOVERY.
COLUMN F - POCKET PENETROMETER TEST (TSF)
COLUMN G - USCS/AASHTO CLASSIFICATION
COLUMN H - MOISTURE CONTENT
D - DRY
M - MOIST
W - WET
DP - DAMP

GE - GROUND ELEVATION
TOR - TOP OF ROCK ELEVATION
BODS - BOTTOM OF DRILLED SHAFT ELEVATION
▽ - GROUND WATER LEVEL AT COMPLETION OF BORINGS
▼ - GROUND WATER LEVEL AFTER 24 HRS

HAMMER DROP ON SAMPLER - 30 INCHES
WEIGHT OF HAMMER - 140 LBS.
SIZE OF SAMPLER - 2 INCHES

S.R. 6011 PREVIOUSLY KNOWN AS L.R. 5-010

THIS SHEET IS INCLUDED FOR THE CONVENIENCE OF THE DEPARTMENT. REFER TO PUBLICATION 408 SECTION 102.05 FOR FURTHER INFORMATION.

THE CLASSIFICATIONS OF THE MATERIALS ENCOUNTERED HAVE BEEN VERIFIED.
INITIAL — DATE 9/16/13

ENGINEER/GEOLOGIST

PREPARED BY:
DAWOOD ENGINEERING, INC.
2020 GOOD HOPE ROAD
ENOLA, PA 17025

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF TRANSPORTATION

LACKAWANNA COUNTY
SR 6011 SEC 273
SEGMENT 0190 OFFSET 0402
SR 6011 - 273 STA 16+27.50
OVER ROARING BROOK, SR 3022,
AND DELAWARE, LACKAWANNA & WESTERN RAILROAD
3 SPAN CONT COMP STEEL MULTI-GIRDER BRIDGE

TEST BORINGS - 5

SHEET 73 OF 76

S - 33152

ABUTMENT 2

BORING: S-10
STATION: 18+69.5
OFFSET: 15.2' RT
GE= 862.5

Elev. notes	A	B	C	D	E	F	G	H
	0.5							
	2.0	S-1	3-5-7	0.3	20	-	sp/ c-1-b	DP
	3.5	S-2	3-4-7	0.4	27	-		M
	5.0	S-3	5-2-2	0.1	7	-		
	6.5	S-4	1-1-WOH	0.8	53	-	SM/ A-2-4	
854.5 (water level)	8.0	S-5	2-1-1	1.2	60	-		
	9.5	S-6	1-3-5	0.9	60	-		
	11.0	S-7	2-6-4	0.8	53	-	SM/ A-2-4	
	12.5	S-8	3-4-5	1.1	73	-		
	14.0	S-9	8-13-10	1.4	93	-		
	15.5	S-10	8-14-13	1.5	100	-		
TOR 845.3	17.0	S-11	13-30-30	1.5	100	-		
BFE VARIES 843.0-845.0	17.2	S-12	50/.2	0.2	100	-		
	19.5	R-1	0	1.8	78			
	22.5	R-2	25	2.6	87			
834.8 (water level)	27.5	R-3	24	5.0	100			
	32.5	R-4	90	5.0	100			
	37.5	R-5	90	5.0	100			
	42.5	R-6	32	5.0	100			
	47.5	R-7	62	4.9	98			
	52.5	R-8	82	5.0	100			
	57.5	R-9	50	5.0	100			
	62.5	R-10	90	5.0	100			
	67.5	R-11	100	5.0	100			
	72.5	R-12	78	4.9	98			
	75.5	R-13	100	3.0	100			

862.0 — CONCRETE SIDEWALK

857.5 — POORLY GRADED SAND WITH SOME GRAVEL (sp/a-1-b), BROWN, DARK BROWN AND BLACK, DAMP TO MOIST, VERY LOOSE TO MEDIUM DENSE (FILL)

853.0 — SILTY SAND (SM/A-2-4), BLACK, MOIST, VERY LOOSE TO LOOSE (FILL - CINDERS AND SLAG AND COAL REFUSE)
LAB TEST RESULTS (5.0'-9.5'):
LL,PL,PI= NON- PLASTIC
NATURAL MOISTURE = 23.2%
SPECIFIC GRAVITY = 2.23
CHEMICAL TEST RESULTS (5.0'-9.5'):
PH = 7.2
CHLORIDE CONTENT = 24 PPM
SULFATE CONTENT= 30 PPM
MIN RESISTIVITY = 1.05 KOHM X CM

845.3 / 844.3 — SILTY SAND WITH GRAVEL (SM/A-2-4), BROWN AND GRAY, MOIST, LOOSE TO VERY DENSE (RESIDUAL)
GRAVEL IS MOSTLY ROCK FRAGMENTS
S-8 AND S-9, HIGHER GRAVEL CONTENT
LAB TEST RESULTS (9.5'- 17.0')
LL=23, PL=20, PI=3
NATURAL MOISTURE = 9.0%
SPECIFIC GRAVITY = 2.63
COHESION = 66.0 PSF
FRICTION ANGLE = 35.3°

831.4 — SILTSTONE, DARK GRAY, SOFT, MINOR WEATHERING, BEDDING NOT APPARENT, CLOSE FRACTURES, RD = 10° TO 20°, 45°, 110°
(TOTAL REC = 80°, TOTAL RQD= 0%)

823.2 — SANDSTONE, GRAY, MEDIUM HARD TO HARD, MINOR TO FRESH WEATHERING, THIN TO MEDIUM BEDDING, RD = 10° TO 20°, CLOSE TO MEDIUM FRACTURED, RD = 10° TO 20°
(TOTAL REC = 95%, TOTAL RQD = 39%)
POINT LOAD TEST (18.0'-22.0'):
AVERAGE SC (10 POINTS): 569.2 TSF
UNCONFINED COMPRESSIVE STRENGTH
(20.25'-20.6'): 1023.9 TSF

819.4 — CONGLOMERATE (SANDSTONE AND QUARTZ), GRAY AND WHITE, HARD, MINOR TO FRESH WEATHERING, THIN BEDDING, RD = 10° TO 20°, CLOSE TO MEDIUM FRACTURED, RD = 10° TO 20°, 0° TO 5°
(TOTAL REC = 100%, TOTAL RQD = 91%)

816.3 — CARBONACEOUS SHALE, BLACK, HARD, FRESH WEATHERING, BEDDING NOT APPARANT, CLOSE FRACTURES, RD = 5° TO 20°, 45° TO 50° (TOTAL REC = 100%, TOTAL RQD = 0%)

811.5 — SHALE WITH SANDSTONE INTERBEDDING, MEDIUM HARD, DARK GRAY AND BLACK, FRESH, BEDDING NOT APPARENT, CLOSE TO MEDIUM FRACTURED, RD = 5° TO 20°
(TOTAL REC. = 100%, TOTAL RQD = 67%)

COAL WITH SHALE INTERBEDDING, BLACK, MEDIUM HARD, FRESH, BEDDING NOT APPARENT, CLOSE TO MEDIUM FRACTURED, RD = 5° TO 20°, 60° TO 70°
(TOTAL REC = 98%, TOTAL RQD = NOT APPLICABLE)

SHALE WITH SANDSTONE INTERBEDDING, GRAY TO DARK GRAY AND BLACK, MEDIUM HARD TO HARD, FRESH TO MINOR WEATHERING, THIN TO MEDIUM BEDDING, RD = 5° TO 20°, CLOSE TO WIDE SPACED FRACTURES, RD= 5° TO 20°, 60° TO 70°
(TOTAL REC = 99%, TOTAL RQD = 83%)

787.0

REMARKS: SPT/AUGER REFUSAL AT 17.2'; BOTTOM OF BORING AT 75.5'

START DATE: 1/16/2013
COMPLETION DATE: 1/16/2013
INSPECTOR: RICK RICHARDS
DRILLERS NAME/COMPANY: JIM LANG/PENN DRILL CO.
DRILLING METHODS: SPT, HSA, NQ2 CORING
RIG TYPE: CME 45 TRACK RIG
CASING DEPTH: 17.2'

BORING: S-9
STATION: 18+72
OFFSET: 20' LT
GE= 855.5

Elev. notes	A	B	C	D	E	F	G	H
	1.5	S-1	1-2-2	0.8	53	-		M TO W
	3.0	S-2	3-4-3	0.2	13	-	sp/a-1-b	
	4.5	S-3	3-3-4	0.4	27	-		
	6.0	S-4	3-4-7	0	0	-		
	7.5	S-5	7-9-9	1.5	100	-		D TO DP
	9.0	S-6	10-12-12	1	67	-	gp-gm, a-1-a	
	10.5	S-7	6-15-20	0.9	60	-		
	12.0	S-8	22-35-44	1.3	87	-		
841.5 (water level)	13.5	S-9	9-13-17	1.5	100	-		M
840.2 (water level)	15.0	S-10	16-16-18	1.2	80	-	gp, a-1-a	
TOR 837.5	16.5	S-11	9-20-28	1.5	100	-	gp, a-1-a	D TO DP
	17.8	S-12	23-21-50/.3	1.3	100	-		
BFE/TOCCE 837.0	18.0							
BOCCE 835.3	20.2	R-1	0	1	45			
	21.2	R-2	40	0.65	85			
	23.2	R-3	90	2.0	100			
	26.2	R-4	77	2.9	97			
	31.2	R-5	94	5.0	100			

855.1 — TOPSOIL 0.4"

850.1 — POORLY GRADED SAND WITH GRAVEL (sp/a-1-b), BROWN, BLACK, TAN, LOOSE, MOIST TO WET, GAP GRADED, WITH SLAG, GLASS, ORGANICS, SOME CLAY (FILL)

842.3 — POORLY GRADED GRAVEL WITH SILT (gp-gm, a-1-a), BLACK, BROWN, TAN, MEDIUM TO VERY DENSE, DRY TO DAMP, GAP GRADED, ANGULAR, FLAT, SUBANGULAR, WITH COAL FRAGMENTS (FILL)

840.4 — POORLY GRADED GRAVEL WITH SAND (gp, a-1-a), BROWN, BLACK, MOIST, MEDIUM TO DENSE, MOIST, ANGULAR, GAP GRADED, WITH COAL FRAGMENTS (FILL)

837.5 — POORLY GRADED GRAVEL (gp, a-1-a), DARK GRAY, DRY TO DAMP, DENSE TO VERY DENSE, GAP GRADED, ANGULAR, SUB ANGULAR, FLAT (RESIDUAL)

834.8 — SHALE, DARK GRAY, MEDIUM WEATHERED, BEDDING IS LAMINATED (RD = 0°-5°, FRACTURES ARE VERY CLOSELY SPACED (RD = 0°-5°)
(TOTAL REC.= 52%, TOTAL RQD=7%)
19.0'-20.2': CLAY SEAM

SANDSTONE, GRAY, SLIGHTLY WEATHERED TO FRESH, MEDIUM HARD TO VERY HARD TO MEDIUM TO THICKLY BEDDED (RD = 0°-5°), FRACTURES ARE MEDIUM TO WIDELY SPACED, (RD= 0°-5°)
(TOTAL REC.= 98%, TOTAL RQD= 86%)
UNCONFINED COMPRESSIVE STRENGTH
(21.7'-22.05'): 698.7 TSF
(22.45-'22.8'): 1037.2 TSF
25.5'-31.2': SANDSTONE CONGLOMERATE

824.3

REMARKS: AUGER REFUSAL/ TOR AT 18.0'; BOTTOM OF BORING AT 31.2'

START DATE: 2/5/2013
COMPLETION DATE: 2/5/2013
INSPECTOR: JACOB MASTREN-WILLIAMS
DRILLERS NAME/COMPANY: JIM LANG/PENN DRILL CO.
DRILLING METHODS: SPT, HSA, NQ2 CORING
RIG TYPE: CME 45 TRACK RIG
CASING DEPTH: 18.0'

BORING LEGEND:

COLUMN A - LOWER LIMIT OF SAMPLES OR CORE RUNS
COLUMN B - SAMPLE (S) OR CORE RUN (R) IDENTIFICATION NUMBERS.
COLUMN C - SAMPLE BLOWS PER 6 IN. OR %RQD.
COLUMN D - RECOVERY LENGTH IN FEET
COLUMN E - PERCENTAGE OF SAMPLE RECOVERY OR PERCENTAGE OF CORE RECOVERY.
COLUMN F - POCKET PENETROMETER TEST (TSF)
COLUMN G - USCS/AASHTO CLASSIFICATION
COLUMN H - MOISTURE CONTENT
D - DRY
M - MOIST
W - WET
DP - DAMP

GE - GROUND ELEVATION
TOR - TOP OF ROCK ELEVATION
BFE - BOTTOM OF FOOTING ELEVATION
TOCCE - TOP OF CLASS C CONCRETE ELEVATION
BOCCE - BOTTOM OF CLASS C CONCRETE ELEVATION
(symbol) - GROUND WATER LEVEL AT COMPLETION OF BORINGS
(symbol) - GROUND WATER LEVEL AFTER 24 HRS

HAMMER DROP ON SAMPLER - 30 INCHES
WEIGHT OF HAMMER - 140 LBS.
SIZE OF SAMPLER - 2 INCHES

S.R. 6011 PREVIOUSLY KNOWN AS L.R. 5-010

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF TRANSPORTATION

LACKAWANNA COUNTY
SR 6011 SEC 273
SEGMENT 0190 OFFSET 0402
SR 6011 - 273 STA 16+27.50
OVER ROARING BROOK, SR 3022,
AND DELAWARE, LACKAWANNA & WESTERN RAILROAD
3 SPAN CONT COMP STEEL MULTI-GIRDER BRIDGE

TEST BORINGS - 6

(Seal: COMMONWEALTH OF PENNSYLVANIA, REGISTERED PROFESSIONAL, PATRICK J. OREN, ENGINEER)
ENGINEER/GEOLOGIST

PREPARED BY:
DAWOOD ENGINEERING, INC.
2020 GOOD HOPE ROAD
ENOLA, PA 17025

THE CLASSIFICATIONS OF THE MATERIALS ENCOUNTERED HAVE BEEN VERIFIED.
INITIAL — DATE 9/16/13

THIS SHEET IS INCLUDED FOR THE CONVENIENCE OF THE DEPARTMENT. REFER TO PUBLICATION 408 SECTION 102.05 FOR FURTHER INFORMATION.

WINGWALL D

BORING: S-11
STATION: 18+71
OFFSET: 62' RT

GE=863.0

A	B	C	D	E	F	G	H	Description	REMARKS
0.5								CONCRETE SIDEWALK 862.5	
2.0	S-1	2-2-1	0.9	60	-	sp/ a-1-b	DP	WELL-GRADED SAND WITH TRACE GRAVEL (sp/a-1-b), LIGHT BROWN AND BLACK, DAMP STRATA IS CINDERS AND COAL REFUSE FILL S-6: SAMPLE HAS 0.1' OF ROCK FRAGMENT IN SPOON TIP 854.8	SPT/AUGER REFUSAL/ TOR AT 8.2'
3.5	S-2	1-WOH-WOH	0.6	40	-				
5.0	S-3	1-WOH-1	1	67	-				
6.5	S-4	1-1-WOH	0.8	53	-				
8.0	S-5	WOH-WOH-1	1	67	-				
8.2	S-6	50/.2	0.2	100	-				
12.0	R-1	0	3.6	95				FINE TO MEDIUM GRAINED SANDSTONE, GRAY, MEDIUM HARD, MINOR WEATHERING, THIN BEDDING, RD = 10° TO 20°, CLOSE TO MEDIUM FRACTURES, RD = 10° TO 20°, 120°, 150° (TOTAL REC. = 98%, TOTAL RQD - 9%) SOIL SEAMS FROM 9.3' TO 9.4', AND 10.8' TO 10.9' POINT LOAD TEST (8.2'-12.0'): AVERAGE SC (11 POINTS): 908.7 TSF 843.0	
17.0	R-2	0	5.0	100					BOTTOM OF BORING AT 20.0'
20.0	R-3	37	3.0	100					

Elevation scale: 865, 860, 855, 850, 845, 840

TOR 854.8
BFE 853.0
847.6 ▽
847.3 ▽

START DATE: 1/15/2013
COMPLETION DATE: 1/15/2013
INSPECTOR: RICK RICHARDS
DRILLERS NAME/COMPANY: JIM LANG/PENN DRILL CO.
DRILLING METHODS: SPT, HSA, NQ2 CORING
RIG TYPE: CME 45 TRACK RIG
CASING DEPTH: 8.2'

BORING LEGEND:

COLUMN A - LOWER LIMIT OF SAMPLES OR CORE RUNS
COLUMN B - SAMPLE (S) OR CORE RUN (R) IDENTIFICATION NUMBERS.
COLUMN C - SAMPLE BLOWS PER 6 IN. OR %RQD.
COLUMN D - RECOVERY LENGTH IN FEET
COLUMN E - PERCENTAGE OF SAMPLE RECOVERY OR PERCENTAGE OF CORE RECOVERY.
COLUMN F - POCKET PENETROMETER TEST (TSF)
COLUMN G - USCS/AASHTO CLASSIFICATION
COLUMN H - MOISTURE CONTENT
D - DRY
M - MOIST
W - WET
DP - DAMP

GE - GROUND ELEVATION
TOR - TOP OF ROCK ELEVATION
▽ - GROUND WATER LEVEL AT COMPLETION OF BORINGS
▽ - GROUND WATER LEVEL AFTER 24 HRS

HAMMER DROP ON SAMPLER - 30 INCHES
WEIGHT OF HAMMER - 140 LBS.
SIZE OF SAMPLER - 2 INCHES

THIS SHEET IS INCLUDED FOR THE CONVENIENCE OF THE DEPARTMENT. REFER TO PUBLICATION 408 SECTION 102.05 FOR FURTHER INFORMATION.

THE CLASSIFICATIONS OF THE MATERIALS ENCOUNTERED HAVE BEEN VERIFIED.
INITIAL DATE 9/16/13

ENGINEER/GEOLOGIST

PREPARED BY:
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2020 GOOD HOPE ROAD
ENOLA, PA 17025

S.R. 6011 PREVIOUSLY KNOWN AS L.R. 5-010

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF TRANSPORTATION

LACKAWANNA COUNTY
SR 6011 SEC 273
SEGMENT 0190 OFFSET 0402
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OVER ROARING BROOK, SR 3022,
AND DELAWARE, LACKAWANNA & WESTERN RAILROAD
3 SPAN CONT COMP STEEL MULTI-GIRDER BRIDGE

TEST BORINGS - 7

ACCESS ROAD

BORING: AR-1
STATION: 17+55
OFFSET: CL
GE=803.5

A	B	C	D	E	F	G	H	DESCRIPTION	REMARKS
1.5	S-1	1-WOH-1	0.9	60	-	sm/a-1-b	M	SILTY SAND WITH GRAVEL (sm/a-1-b), BLACK, DARK BROWN, MOIST, VERY LOOSE TO MEDIUM DENSE (FILL)	DRILLED ON STAKE.
3.0	S-2	WOH-1-1	0.4	27	-				
4.5	S-3	1-1-3	0	0	-				DIFFICULT TO AUGER FROM 5.6' - 6.0'.
6.0	S-4	1-2-10	0.5	33	-			797.5	AUGER REFUSAL/ TOR AT 6.0'
8.0	R-1	35	1.2	60				SANDSTONE, DARK AND MEDIUM GRAY, BROWN FRACTURE SURFACES, HARD TO VERY HARD, FRESH TO MODERATELY WEATHERED, MEDIUM TO THINLY BEDDED, RD= 15°-20°, VERY CLOSELY TO CLOSELY FRACTURED, RD = 0° - 10°, 15°-25° (TOTAL REC = 84%, RQD = 8%) 14.6' - 15.7' : SANDSTONE CONGLOMERATE	VERY ROUGH FRACTURE SURFACES, MOSTLY MODERATELY WEATHERED AT FRACTURES.
10.0	R-2	0	0.6	30					
15.0	R-3	0	5.0	100					
20.0	R-4	8	5.0	100				783.5	BOTTOM OF BORING AT 20.0'

TOR 797.5
787.4 (ground water level)
Elevation scale: 805, 800, 795, 790, 785, 780

START DATE: 1/30/2013
COMPLETION DATE: 1/30/2013
INSPECTOR: SETH MASCHO
DRILLERS NAME/COMPANY: JIM LANG/PENN DRILL CO.
DRILLING METHODS: SPT, HSA, NQ2 CORING
RIG TYPE: CME 45 TRACK RIG
CASING DEPTH: 6.0'

BORING: AR-2
STATION: 17+55
OFFSET: 60' LT
GE= 803.6

A	B	C	D	E	F	G	H	DESCRIPTION	REMARKS
1.5	S-1	1-2-2	0.5	33	-	sm/a-1-b	DP	SILTY SAND WITH GRAVEL (sm/a-1-b), BLACK, VERY LOOSE, DAMP, SOME CLAY, CINDERS AND ORGANICS (FILL)	
3.0	S-2	2-3-4	0.3	20	-			800.6	
4.5	S-3	3-4-16	0.8	53	-	sc/a-2-7	M TO W	CLAYEY SAND WITH GRAVEL (sc/a-2-7), BROWN, BLACK, LOOSE, MOIST TO WET, SOME COAL FRAGMENTS AND ORGANICS (FILL) 799.4	
5.2 / 5.5	S-4	35-50/.2	0.6	86	-	gp/a-1-a	D	POORLY GRADED GRAVEL (gp/a-1-a), DARK GRAY, MEDIUM TO VERY DENSE, DRY, GAP GRADED, FLAT, ANGULAR, (RESIDUAL) 798.1	
7.0	R-1	0	0.85	57				SHALE, GRAY AND DARK GRAY, MEDIUM WEATHERED, BEDDING IS LAMINATED (RD = 0°- 5°), FRACTURES ARE VERY CLOSELY SPACED (RD = 0°, 5°, 10°) (TOTAL REC. = 94%, TOTAL RQD= 0%)	
12.0	R-2	0	5.0	100					
17.0	R-3	0	5.0	100				786.6	BOTTOM OF BORING AT 17.0'

TOR 798.1
796.5 (ground water level at completion)
787.7 (ground water level after 24 hrs)
Elevation scale: 805, 800, 795, 790, 785, 780

START DATE: 2/4/2013
COMPLETION DATE: 2/4/2013
INSPECTOR: JACOB MASTREN-WILLAMS
DRILLERS NAME/COMPANY: EARL DYE/PENN DRILL CO.
DRILLING METHODS: SPT, HSA, NQ2 CORING
RIG TYPE: ACKER SOIL SCOUT
CASING DEPTH: -

BORING LEGEND:

COLUMN A - LOWER LIMIT OF SAMPLES OR CORE RUNS
COLUMN B - SAMPLE (S) OR CORE RUN (R) IDENTIFICATION NUMBERS.
COLUMN C - SAMPLE BLOWS PER 6 IN. OR %RQD.
COLUMN D - RECOVERY LENGTH IN FEET
COLUMN E - PERCENTAGE OF SAMPLE RECOVERY OR PERCENTAGE OF CORE RECOVERY.
COLUMN F - POCKET PENETROMETER TEST (TSF)
COLUMN G - USCS/AASHTO CLASSIFICATION
COLUMN H - MOISTURE CONTENT
D - DRY
M - MOIST
W - WET
DP - DAMP

GE - GROUND ELEVATION
TOR - TOP OF ROCK ELEVATION
▽ - GROUND WATER LEVEL AT COMPLETION OF BORINGS
▽ - GROUND WATER LEVEL AFTER 24 HRS

HAMMER DROP ON SAMPLER - 30 INCHES
WEIGHT OF HAMMER - 140 LBS.
SIZE OF SAMPLER - 2 INCHES

THIS SHEET IS INCLUDED FOR THE CONVENIENCE OF THE DEPARTMENT. REFER TO PUBLICATION 408 SECTION 102.05 FOR FURTHER INFORMATION.

THE CLASSIFICATIONS OF THE MATERIALS ENCOUNTERED HAVE BEEN VERIFIED.
INITIAL: [signature] DATE: 2/16/13

PATRICK J. OTEN
ENGINEER/GEOLOGIST

PREPARED BY:
DAWOOD ENGINEERING, INC.
2020 GOOD HOPE ROAD
ENOLA, PA 17025

S.R. 6011 PREVIOUSLY KNOWN AS L.R. 5-010

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF TRANSPORTATION
LACKAWANNA COUNTY
SR 6011 SEC 273
SEGMENT 0190 OFFSET 0402
SR 6011 - 273 STA 16+27.50
OVER ROARING BROOK, SR 3022,
AND DELAWARE, LACKAWANNA & WESTERN RAILROAD
3 SPAN CONT COMP STEEL MULTI-GIRDER BRIDGE

TEST BORINGS - 8

S - 33152

ENOS-201V (11-08)

pennsylvania
DEPARTMENT OF TRANSPORTATION

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Ms. Chiavetta, Secretary
Pennsylvania Public Utility Commission
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Harrisburg Pa 17105-3265