

GENERAL NOTES:

1. CONTRACTOR TO FIELD VERIFY ALL AS-BUILT DIMENSIONS.

DESIGN SPECIFICATION

1. AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 7th EDITION, 2014, AND AS SUPPLEMENTED BY DESIGN MANUAL, PART 4 (DM-4), APRIL 2015 (INCLUDING REVISIONS).

2. LIVE LOAD DISTRIBUTION TO GIRDERS BASED ON THE FOLLOWING:

- SPANS 1 THRU 3 AND 12: DM-4 DISTRIBUTION FACTOR METHOD
- SPANS 4 THRU 11: FINITE ELEMENT METHOD

3. DESIGN IS IN ACCORDANCE WITH THE LRFD METHOD.

DESIGN LIVE LOAD

1. PHL-93 OR P-82 (204 KIP PERMIT LOAD)

2. FATIGUE DESIGN IS BASED ON THE FOLLOWING: ADTT 15,680 (2038) (ONE DIRECTIONAL).

DEAD LOAD

1. INCLUDES SURFACE AREA DENSITY OF 0.030 KSF FOR FUTURE WEARING SURFACE ON THE DECK SLAB.

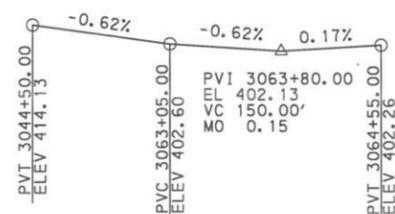
2. INCLUDES A SURFACE AREA DENSITY OF 0.015 KSF FOR PERMANENT METAL DECK FORMS WHICH TAKES INTO ACCOUNT THE WEIGHT OF THE FORM, PLUS THE WEIGHT OF THE CONCRETE IN THE VALLEYS OF THE FORMS FOR APPROACH SPANS 1 THRU 3 AND 12.

HYDRAULIC DESIGN DATA		
	EXISTING	PROPOSED
LOW CHORD ELEV:	396.47'	396.47'
DESIGN STORM:	50 YEAR	50 YEAR
DESIGN STORM DISCHARGE:	36,807 CFS	36,807 CFS
DESIGN STORM WSE:	362.86	362.86
DESIGN STORM VELOCITY:	6.15 FPS	6.14 FPS
REGULATORY STORE:	100 YEAR	100 YEAR
REGULATORY DISCHARGE:	43,395 CFS	43,395 CFS
REGULATORY WSE:	364.36	364.37
REGULATORY VELOCITY:	6.45 FPS	6.44 FPS

HORIZONTAL CURVE DATA

ON TANGENT
N 62° 47' 12" E

VERTICAL CURVE DATA



TEST BORING SCHEDULE					
NO.	STATION	OFFSET	NO.	STATION	OFFSET
S2-1	3044+78	31 L	S2-2	3044+72	30 R
S2-3	3045+58	42 L	S2-4	3045+51	55 R
S2-3P	3045+58	29 L	S2-6	3046+29	55 R
S2-5	3046+28	44 L	S2-6A	3046+29	52 R
S2-7	3047+16	44 L	S2-8	3047+22	45 R
S2-9	3048+05	43 L	S2-10	3048+05	54 R
S2-11	3048+78	43 L	S2-12	3048+99	56 R
S2-11P	3048+78	13 L	S2-14	3050+47	54 R
S2-13	3050+47	42 L	S2-14A	3050+47	52 R
S2-15	3052+04	42 L	S2-16	3052+05	54 R
S2-17	3053+62	41 L	S2-18	3053+62	54 R
S2-19	3055+19	42 L	S2-20	3055+25	54 R
S2-21	3056+70	59 L	S2-22	3056+77	54 R
S2-21P	3056+70	57 L	S2-24	3058+39	54 R
S2-23	3058+39	50 L	S2-26	3059+79	58 R
S2-25	3059+87	44 L	S2-28	3061+54	55 R
S2-27	3061+54	47 L	S2-30	3062+35	55 R
S2-29	3062+35	43 L	S2-32	3063+47	30 R
S2-29P	3062+33	39 L			
S2-29PA	3062+30	32 L			
S2-31	3063+32	28 L			

Mark	Description	By	Chk'd	Recm'd	Date
REVISIONS					

S.R. 0078 PREVIOUSLY KNOWN AS L.R. 285

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF TRANSPORTATION

BERKS COUNTY
S.R. 0078 SECTION 13B
SEGMENT 0294 OFFSET 1480 EB, SEGMENT 0295 OFFSET 1485 WB
S.R. 0078 13B STA. 3054+08.19
OVER SCHUYLKILL RIVER, RBMN RAILROAD & T571
15-SPAN CONC. OPEN SPANDREL DECK ARCH BRIDGE

TYPE, SIZE & LOCATION
GENERAL PLAN AND ELEVATION - 1

RECOMMENDED _____ SHEET 1 OF 9

- LEGEND:**
- ⊕ BORING LOCATION
 - 200--- EXISTING CONTOURS
 - 200— PROPOSED CONTOURS
 - ➔ DIRECTION OF TRAFFIC
 - ~~~~~ TEMPORARY SUPPORT OF EXCAVATION (FOR INFORMATION ONLY)

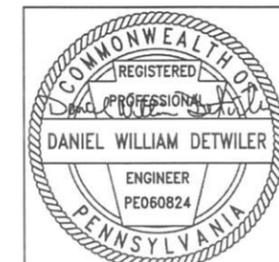
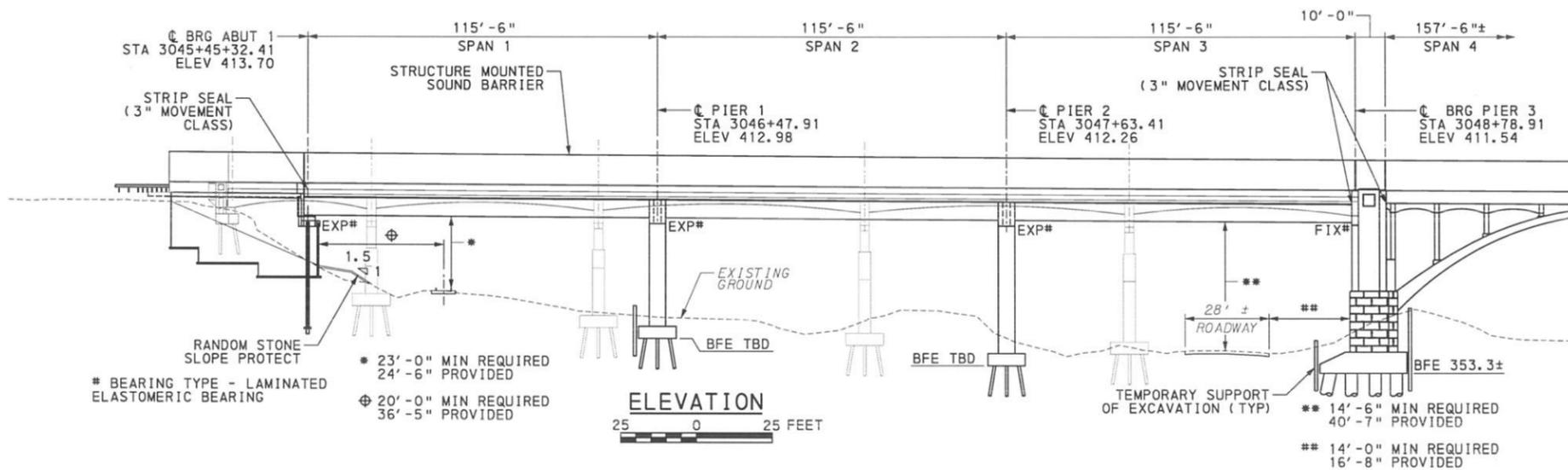
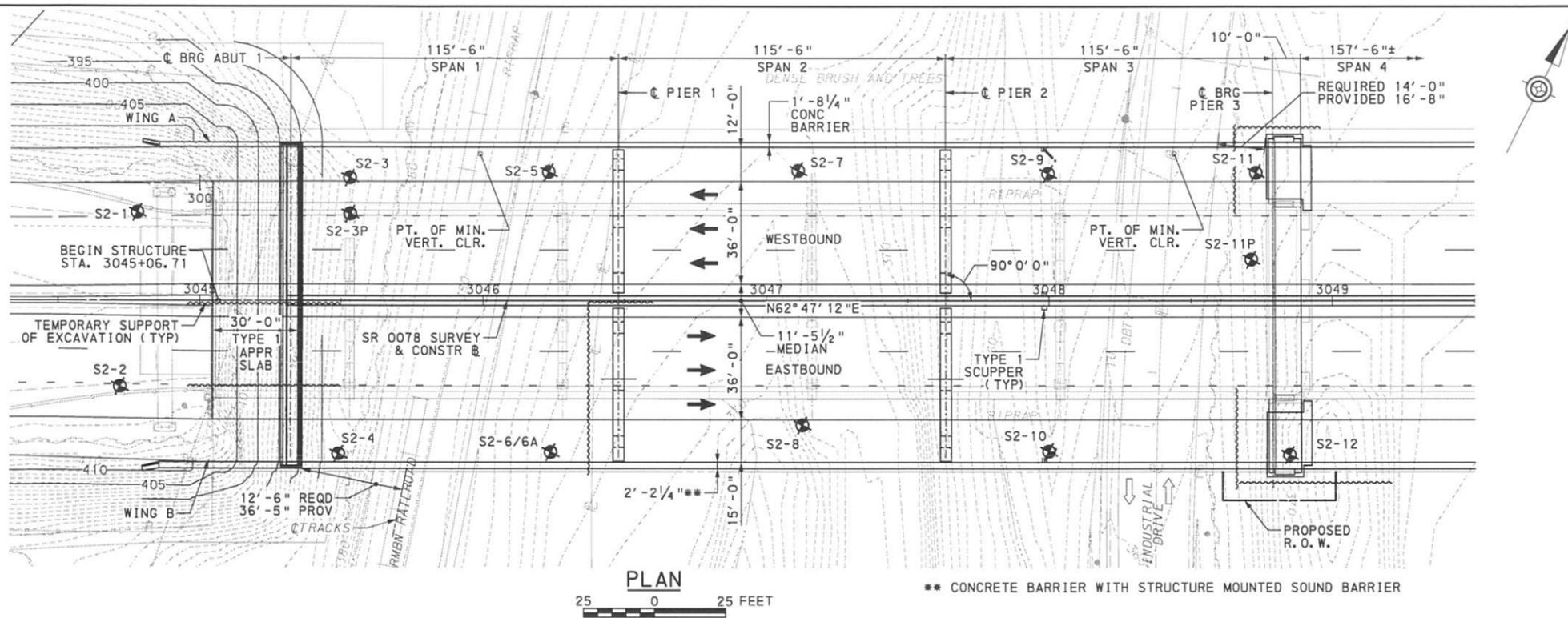


EXHIBIT 'A' 1 OF 9



- LEGEND:**
- BORING LOCATION
 - EXISTING CONTOURS
 - PROPOSED CONTOURS
 - DIRECTION OF TRAFFIC
 - TEMPORARY SUPPORT OF EXCAVATION (FOR INFORMATION ONLY)

Mark	Description	By	Chk'd	Rec'd	Date
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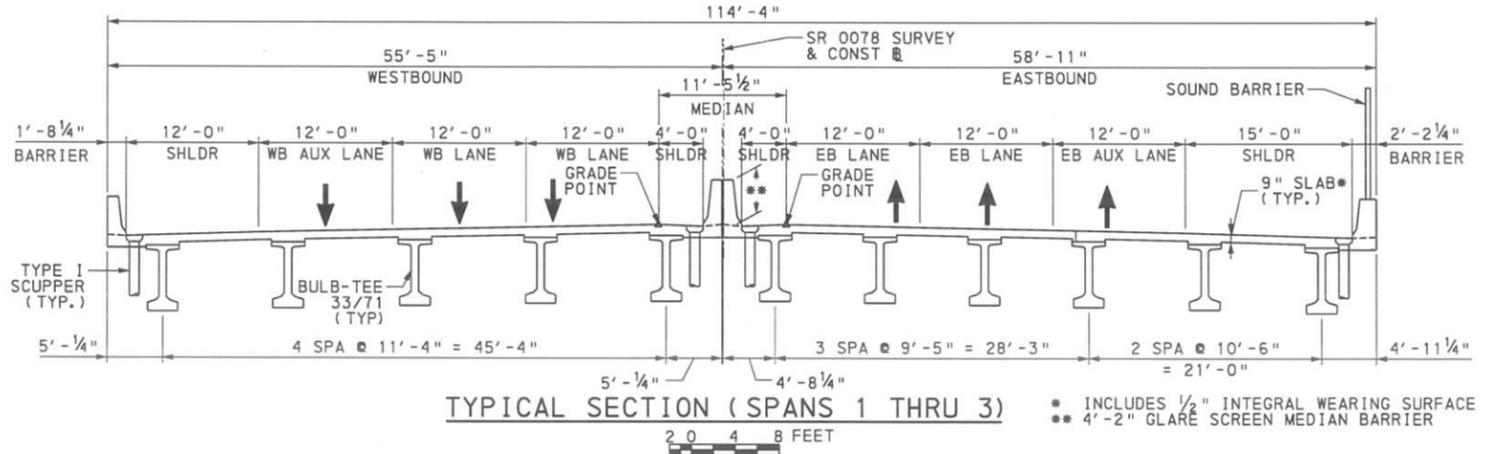


EXHIBIT 'A' 2 OF 9

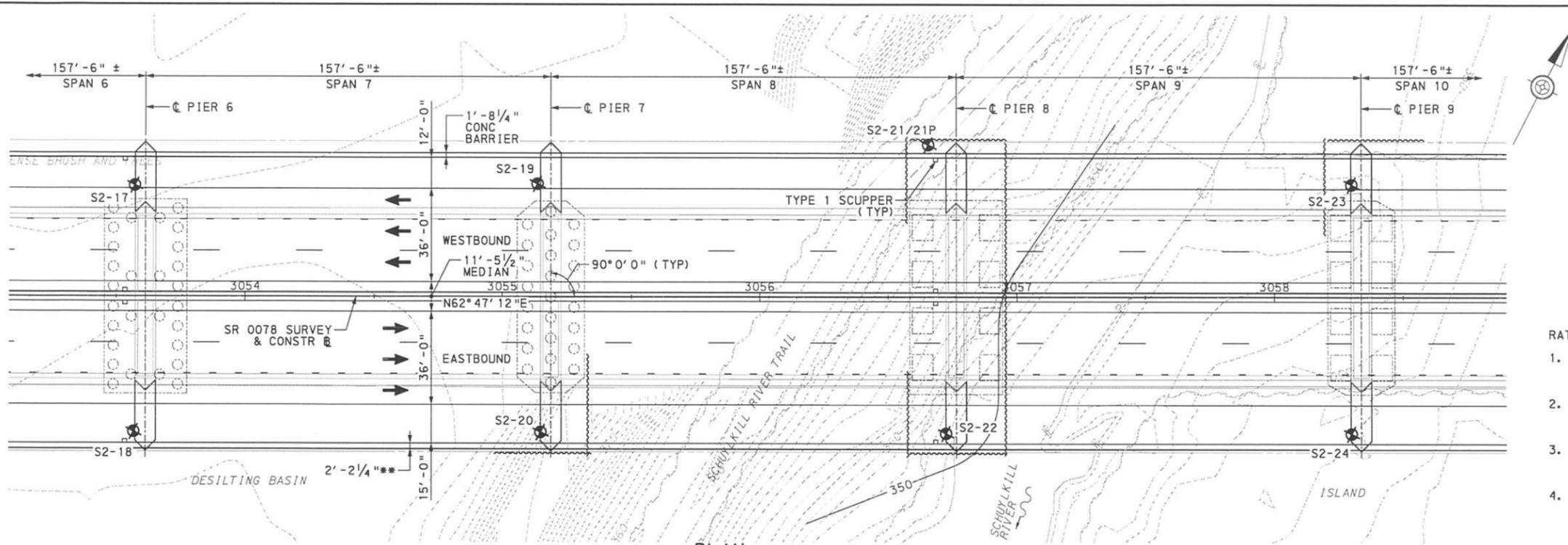
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 15-SPAN CONC. OPEN SPANDREL DECK ARCH BRIDGE

TYPE, SIZE & LOCATION
GENERAL PLAN AND ELEVATION - 2

RECOMMENDED _____	SHEET <u>2</u> OF <u>9</u>
DISTRICT 5-0 BRIDGE ENGINEER	



LEGEND:

- BORING LOCATION
- EXISTING CONTOURS
- PROPOSED CONTOURS
- DIRECTION OF TRAFFIC
- TEMPORARY SUPPORT OF EXCAVATION (FOR INFORMATION ONLY)

- RATING TABLE NOTES:**
1. TABLE 1 - IN-KIND REHABILITATION CONSISTS OF REPLACING SPALLED CONCRETE AND CORRODED REINFORCING BARS MATCHING EXISTING ARCH SPAN DESIGN PLANS DATED JUNE 7, 1954
 2. TABLE 2 - STRENGTHENING CONSISTS OF REPLACEMENT OF DEFICIENT DECK SLAB AND SPANDREL BEAMS TO INCREASE INVENTORY RATING FACTOR TO MINIMUM 1.0
 3. (A) RATING FACTOR CONTROLLED BY SHEAR NEAR SUPPORT
FACTORED SHEAR RESISTANCE = 75 KIPS (BEFORE STRENGTHENING)
FACTORED SHEAR RESISTANCE = 145 KIPS (AFTER STRENGTHENING)
 4. (B) RATING FACTOR CONTROLLED BY TRANSVERSE DIRECTION POSITIVE MOMENT (BOTTOM FIBER IN TENSION) AT CENTER OF SPAN
FACTORED TRANSVERSE DIRECTION POSITIVE MOMENT RESISTANCE = 390 KIPS-IN/FT (BEFORE STRENGTHENING)
FACTORED TRANSVERSE DIRECTION POSITIVE MOMENT RESISTANCE = 571 KIPS-IN/FT (AFTER STRENGTHENING)
 5. (C) RATING FACTOR CONTROLLED BY LONGITUDINAL DIRECTION POSITIVE MOMENT (BOTTOM FIBER IN TENSION) AT CENTER OF SPAN
FACTORED LONGITUDINAL DIRECTION POSITIVE MOMENT RESISTANCE = 417 KIPS-IN/FT (BEFORE STRENGTHENING)
FACTORED LONGITUDINAL DIRECTION POSITIVE MOMENT RESISTANCE = 697 KIPS-IN/FT (AFTER STRENGTHENING)
 6. (D) RATING FACTOR CONTROLLED BY LONGITUDINAL DIRECTION NEGATIVE MOMENT (TOP FIBER IN TENSION) AT SUPPORT
FACTORED LONGITUDINAL DIRECTION NEGATIVE MOMENT RESISTANCE = 272 KIPS-IN/FT (BEFORE STRENGTHENING)
FACTORED LONGITUDINAL DIRECTION NEGATIVE MOMENT RESISTANCE = 671 KIPS-IN/FT (AFTER STRENGTHENING)

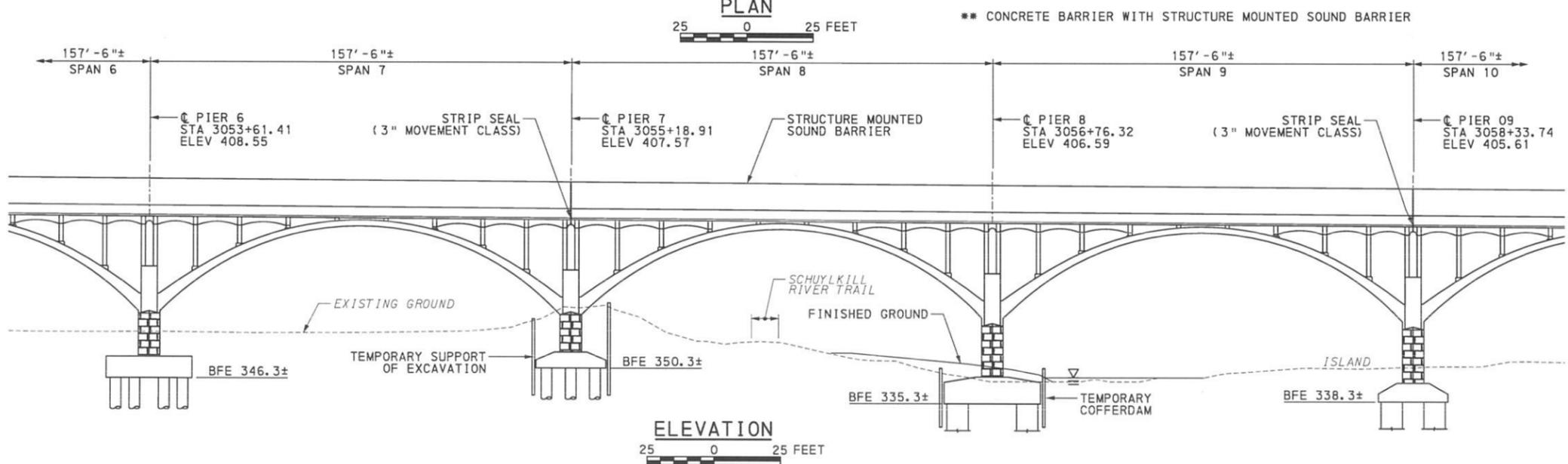


EXHIBIT 'A' 4 OF 9

TABLE 1 - OPEN SPANDREL ARCH RATINGS (AFTER IN-KIND REPAIRS OF EXIST BRIDGE AND WIDENING)

CURRENT ADTT = 19,730
DESIGN YEAR ADTT = 30,568

INVENTORY RATING (IR)	LOCATION	H20	HS20	ML-80	TK-527	PHL-93	P-82
		DECK SLAB	DECK SLAB	SPANDREL BEAM	SPANDREL BEAM	DECK SLAB	---
ELEMENT	0.5L	0.5L	0.2L	0.2L	0.5L	---	
LIMIT STATE	STRENGTH I	STRENGTH I	STRENGTH I	STRENGTH I	STRENGTH I	---	
RATING FACTOR	1.07(B)	0.85(B)	0.52(A)	0.69(A)	0.58(B)	---	
OPERATING RATING (OR)	LOCATION	H20	HS20	ML-80	TK-527	PHL-93	P-82
		DECK SLAB	DECK SLAB	SPANDREL BEAM	SPANDREL BEAM	DECK SLAB	DECK SLAB
ELEMENT	0.5L	0.5L	0.2L	0.2L	0.5L	0.5L	
LIMIT STATE	STRENGTH II	STRENGTH II	STRENGTH II	STRENGTH II	STRENGTH II	STRENGTH II	
RATING FACTOR	1.39(B)	1.11(B)	0.69(A)	0.89(A)	0.76(B)	0.70(B)	

TABLE 2 - OPEN SPANDREL ARCH RATINGS (AFTER IN-KIND REPAIRS AND STRENGTHENING OF EXIST BRIDGE AND WIDENING)

CURRENT ADTT = 19,730
DESIGN YEAR ADTT = 30,568

INVENTORY RATING (IR)	LOCATION	H20	HS20	ML-80	TK-527	PHL-93	P-82
		SPANDREL BEAM					
ELEMENT	0.2L	0.2L	0.2L	0.2L	0.2L	---	
LIMIT STATE	STRENGTH I	STRENGTH I	STRENGTH I	STRENGTH I	STRENGTH I	---	
RATING FACTOR	1.96(A)	1.48(A)	1.18(A)	1.26(A)	1.06(A)	---	
OPERATING RATING (OR)	LOCATION	H20	HS20	ML-80	TK-527	PHL-93	P-82
		SPANDREL BEAM					
ELEMENT	0.2L	0.2L	0.2L	0.2L	0.2L	0.2L	
LIMIT STATE	STRENGTH II	STRENGTH II	STRENGTH II	STRENGTH II	STRENGTH II	STRENGTH II	
RATING FACTOR	2.55(A)	1.92(A)	1.53(A)	1.63(A)	1.37(A)	1.06(A)	

Mark	Description	By	Chk'd.	Rec'd.	Date
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BERKS COUNTY
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S.R. 0078 13B STA. 3054+08.19
OVER SCHUYLKILL RIVER, RBMN RAILROAD & T571
15-SPAN CONC. OPEN SPANDREL DECK ARCH BRIDGE

TYPE, SIZE & LOCATION
GENERAL PLAN AND ELEVATION - 4

RECOMMENDED _____

SHEET 4 OF 9

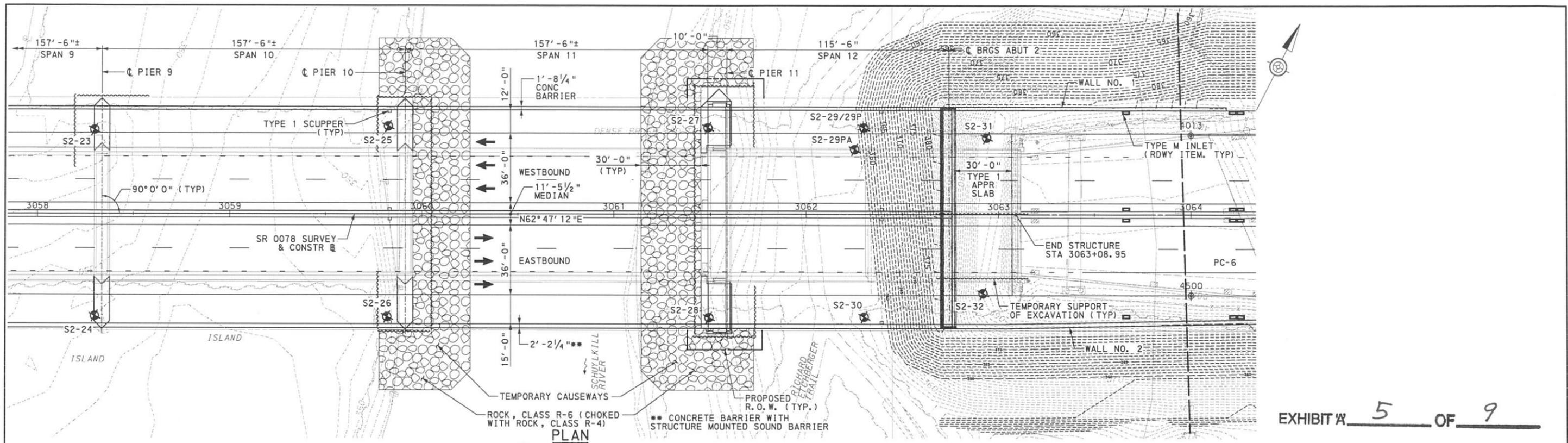
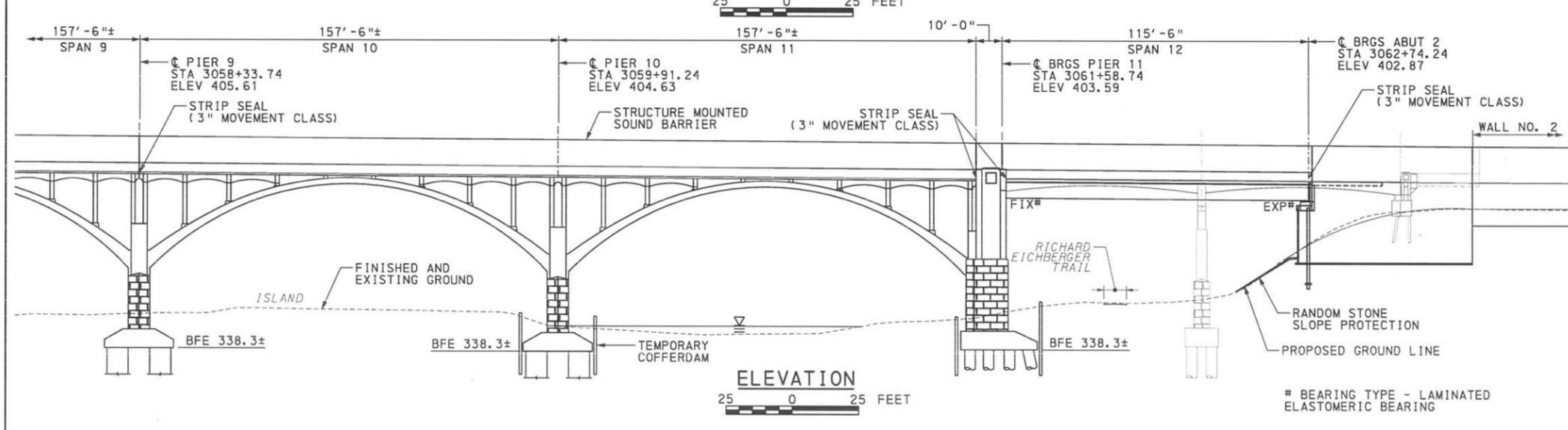
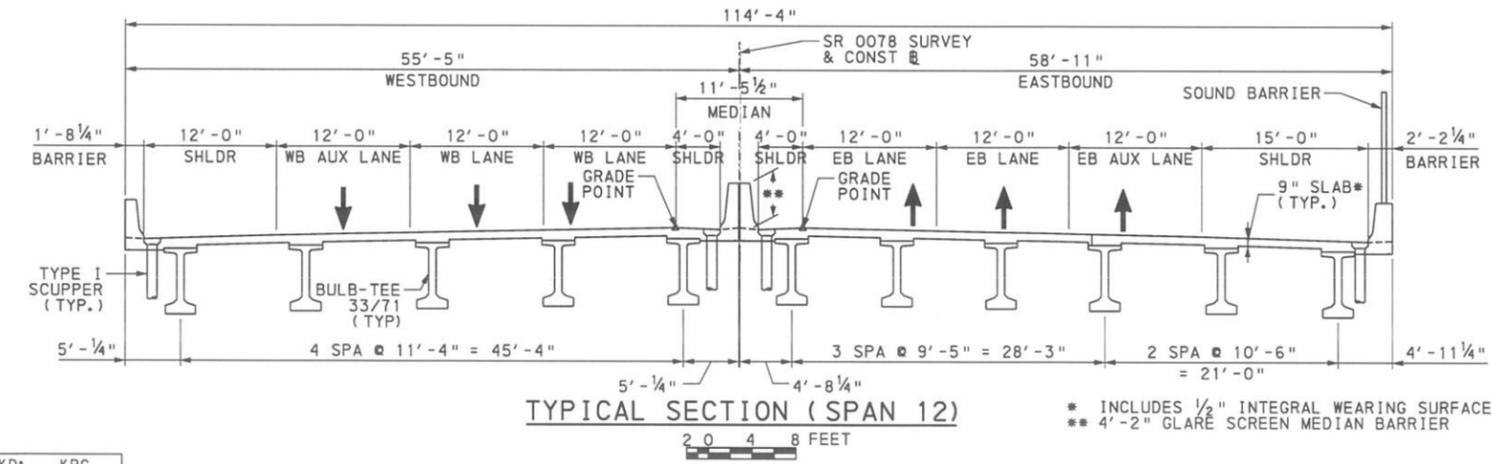


EXHIBIT A 5 OF 9



- LEGEND:**
- BORING LOCATION
 - EXISTING CONTOURS
 - PROPOSED CONTOURS
 - DIRECTION OF TRAFFIC
 - TEMPORARY SUPPORT OF EXCAVATION (FOR INFORMATION ONLY)
 - ROCK, CLASS R-6 (CHOKED WITH ROCK, CLASS R-4)

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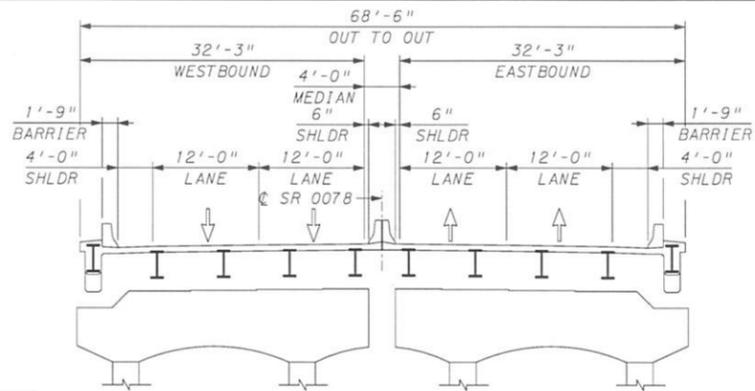
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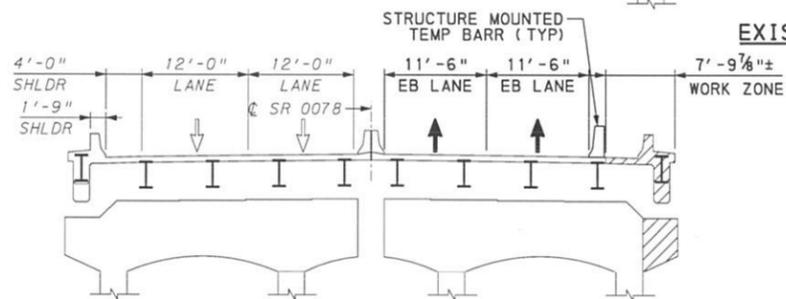
TYPE, SIZE & LOCATION
GENERAL PLAN AND ELEVATION - 5

RECOMMENDED _____

SHEET 5 OF 9

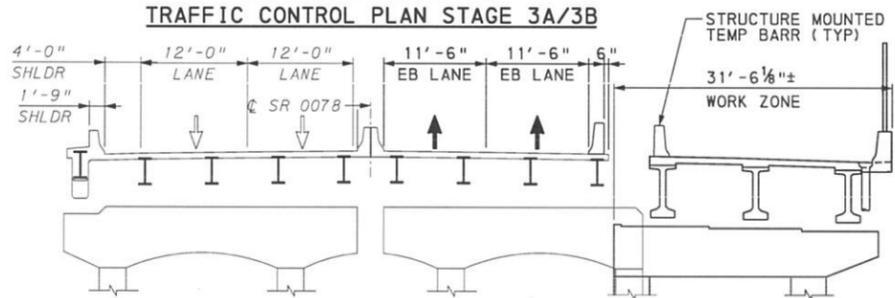


EXISTING TYPICAL SECTION



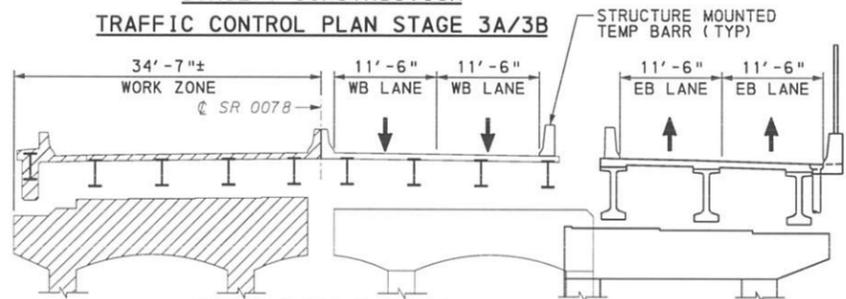
STAGE 1 DEMOLITION

TRAFFIC CONTROL PLAN STAGE 3A/3B



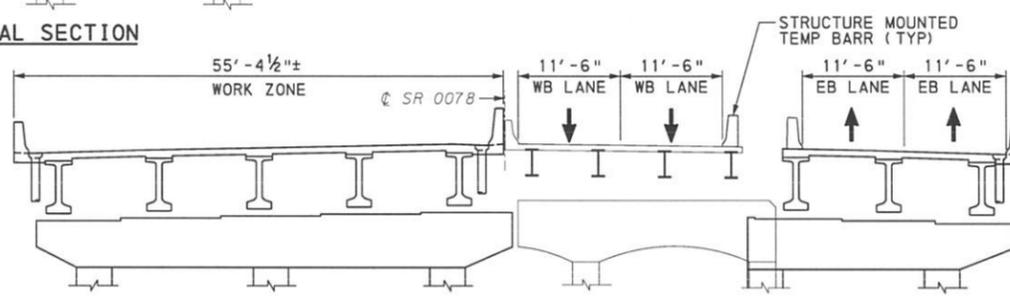
STAGE 1 CONSTRUCTION

TRAFFIC CONTROL PLAN STAGE 3A/3B



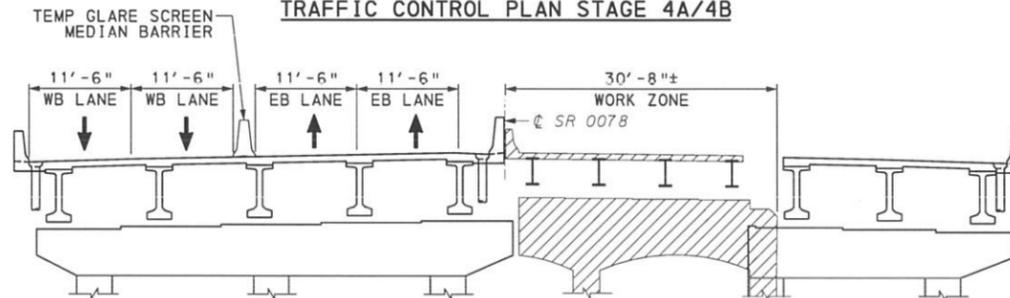
STAGE 2 DEMOLITION

TRAFFIC CONTROL PLAN STAGE 4A/4B



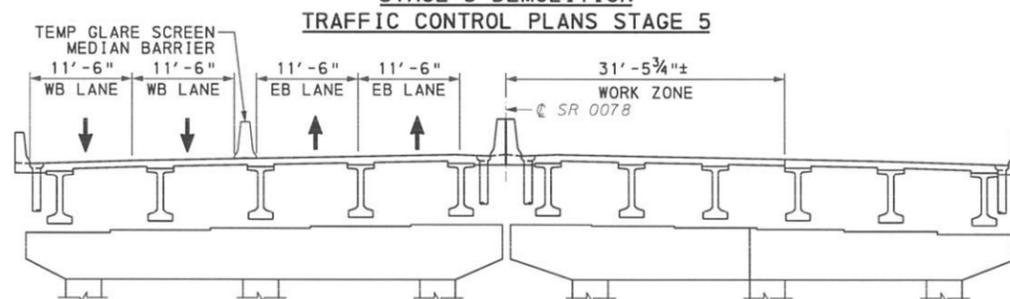
STAGE 2 CONSTRUCTION

TRAFFIC CONTROL PLAN STAGE 4A/4B



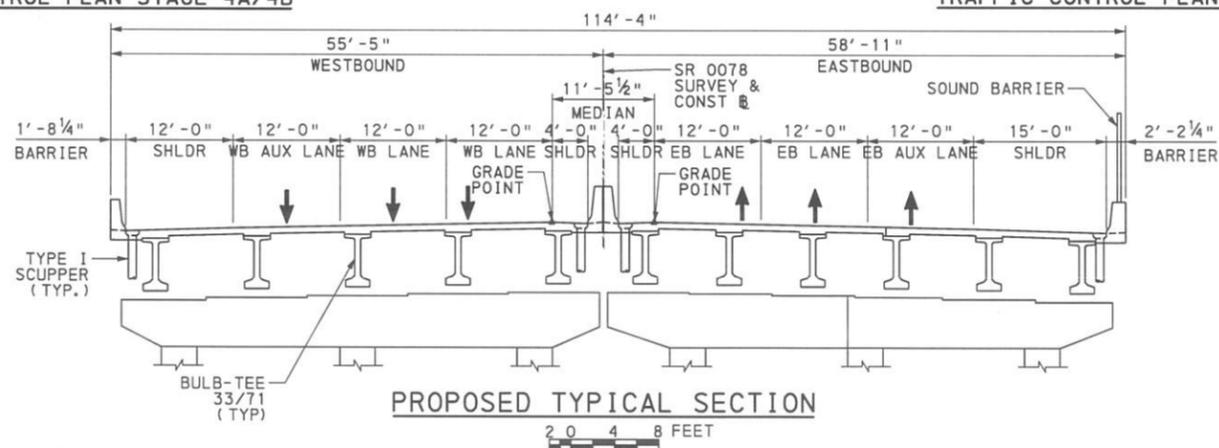
STAGE 3 DEMOLITION

TRAFFIC CONTROL PLANS STAGE 5



STAGE 3 CONSTRUCTION

TRAFFIC CONTROL PLANS STAGE 5



PROPOSED TYPICAL SECTION

2 0 4 8 FEET

LEGEND:



STAGING NOTES:

STAGE 1 DEMOLITION AND CONSTRUCTION

REDUCE TRAFFIC TO 11'-6" EAST-BOUND BY USING TRAFFIC CONTROL BARRIERS. DEMO PORTION OF THE EASTBOUND BRIDGE AS SHOWN IN THE LIMITS ON THE CONTRACT PLANS. CONSTRUCT PORTION OF SUBSTRUCTURE AND SUPERSTRUCTURE FOR THE PROPOSED BRIDGE AS SHOWN IN THE CONTRACT PLANS.

STAGE 2 DEMOLITION AND CONSTRUCTION

MOVE TRAFFIC TO THE PROPOSED BRIDGE CONSTRUCTED IN STAGE 1 AND EXISTING EASTBOUND BRIDGE AND MAINTAIN 2 LANES OF TRAFFIC EACH DIRECTION AT ALL TIMES. DEMO EXISTING WESTBOUND STRUCTURE AND CONSTRUCT PROPOSED STRUCTURE.

STAGE 3 DEMOLITION AND CONSTRUCTION

MOVE TRAFFIC TO BRIDGE CONSTRUCTED IN STAGE 2 AND MAINTAIN 2 LANES OF TRAFFIC EACH DIRECTION AT ALL TIMES. DEMO PORTION OF EXISTING EASTBOUND BRIDGE AND CONSTRUCT REMAINING PORTION OF PROPOSED EASTBOUND STRUCTURE.

EXHIBIT # 6 OF 9

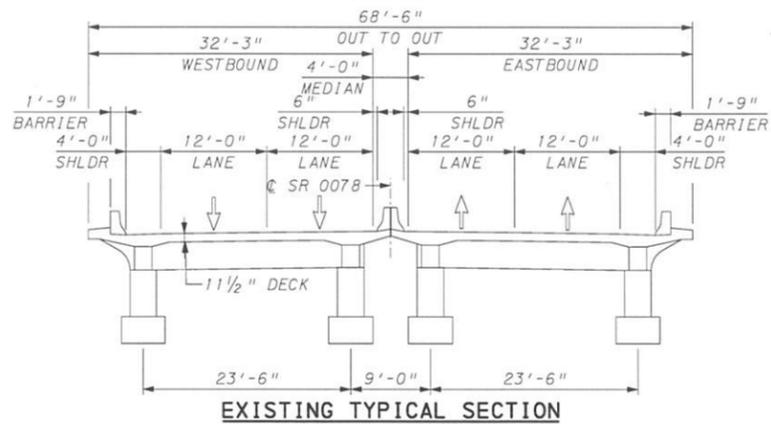
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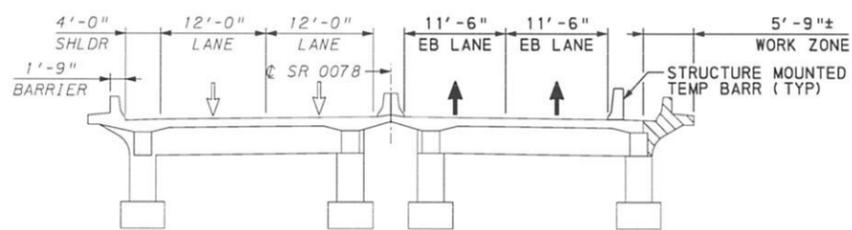
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OVER SCHUYLKILL RIVER, RBMN RAILROAD & T571
15-SPAN CONC. OPEN SPANDREL DECK ARCH BRIDGE
STAGING SECTIONS (APPROACH SPANS)
TYPE, SIZE AND LOCATION

RECOMMENDED _____ SHEET 6 OF 9

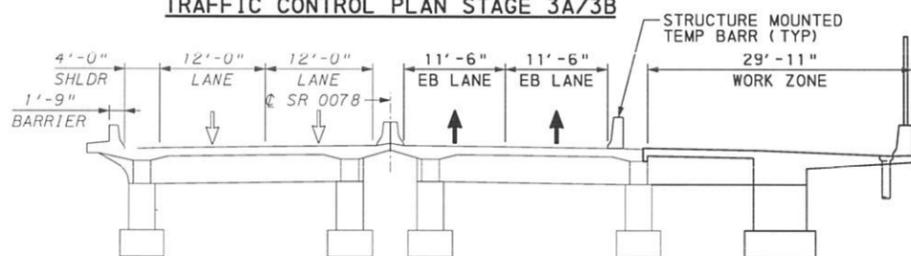


EXISTING TYPICAL SECTION



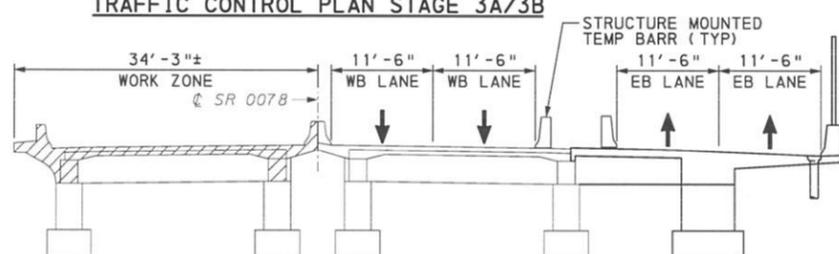
STAGE 1 DEMOLITION

TRAFFIC CONTROL PLAN STAGE 3A/3B



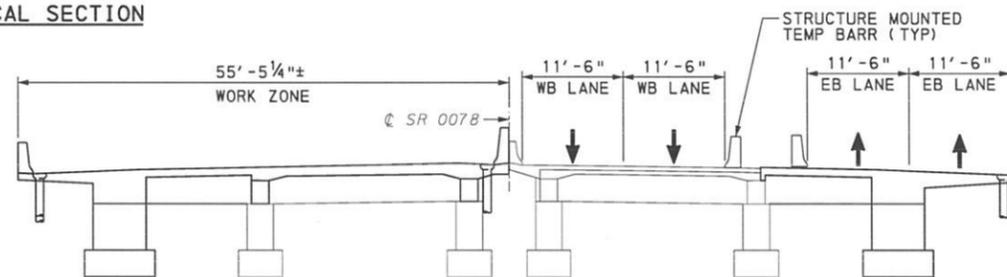
STAGE 1 CONSTRUCTION

TRAFFIC CONTROL PLAN STAGE 3A/3B



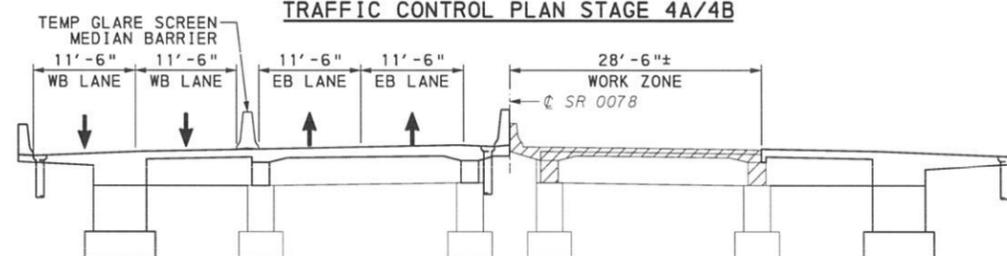
STAGE 2 DEMOLITION

TRAFFIC CONTROL PLAN STAGE 4A/4B



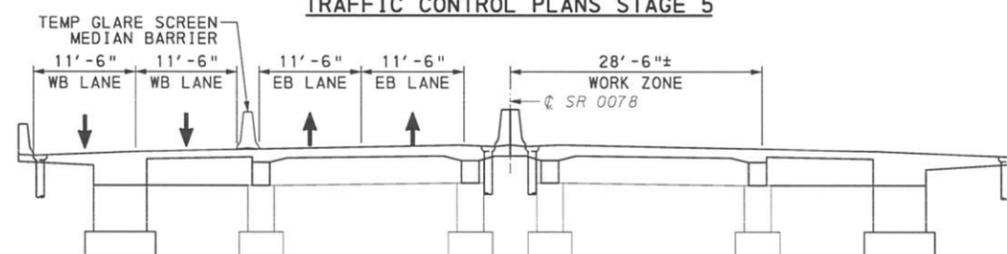
STAGE 2 CONSTRUCTION

TRAFFIC CONTROL PLAN STAGE 4A/4B



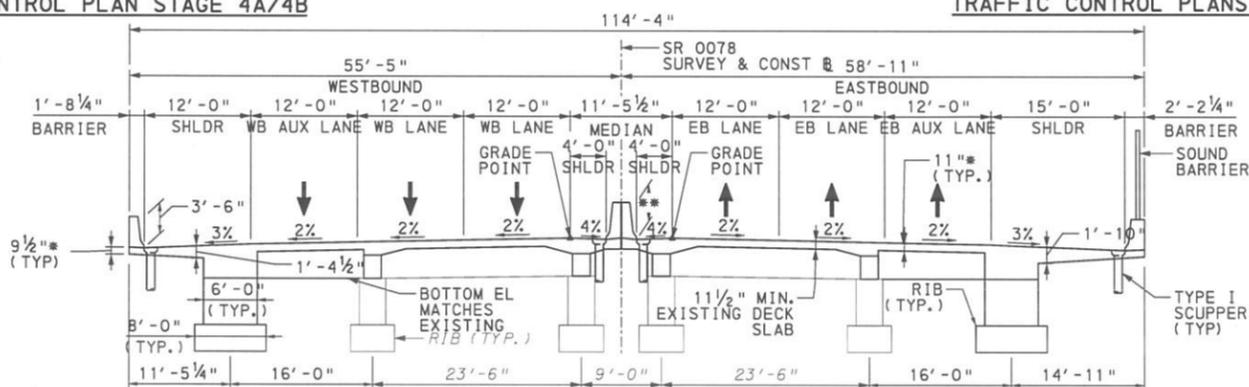
STAGE 3 DEMOLITION

TRAFFIC CONTROL PLANS STAGE 5



STAGE 3 CONSTRUCTION

TRAFFIC CONTROL PLANS STAGE 5



PROPOSED TYPICAL SECTION

* INCLUDES 1/2" INTEGRAL WEARING SURFACE
** 4'-2" GLARE SCREEN MEDIAN BARRIER

2 0 4 8 FEET

LEGEND:



REMOVAL

STAGING NOTES:

STAGE 1 DEMOLITION AND CONSTRUCTION

REDUCE EASTBOUND TRAFFIC LANES TO 11'-6" BY USING TRAFFIC CONTROL BARRIERS. DEMO EXISTING OVERHANG TO THE LIMITS SHOWN ON THE CONTRACT PLANS. CONSTRUCT STRUCTURE FOR THE PROPOSED WIDENED PORTION OF THE EASTBOUND BRIDGE. ENSURE GLOBAL STABILITY OF SYSTEM BEFORE MOVING ON TO THE NEXT PHASE.

STAGE 2 DEMOLITION AND CONSTRUCTION

MOVE TRAFFIC TO THE PROPOSED BRIDGE CONSTRUCTED IN STAGE 1 AND EXISTING EASTBOUND BRIDGE. MAINTAIN 2 LANES OF TRAFFIC BOTH DIRECTIONS AT ALL TIMES. CONSTRUCT PROPOSED WIDENED WESTBOUND STRUCTURE AND REPAIR DAMAGES TO EXISTING WESTBOUND CONCRETE ARCH STRUCTURE AND SUBSTRUCTURE AS SHOWN ON THE CONTRACT PLANS. REMOVE TOP OF CONCRETE ON EXISTING DECK AS SHOWN ON THE CONTRACT PLANS AND RE-DECK TO NEW PROPOSED CROSS SLOPES ON THE DECK.

STAGE 3 DEMOLITION AND CONSTRUCTION

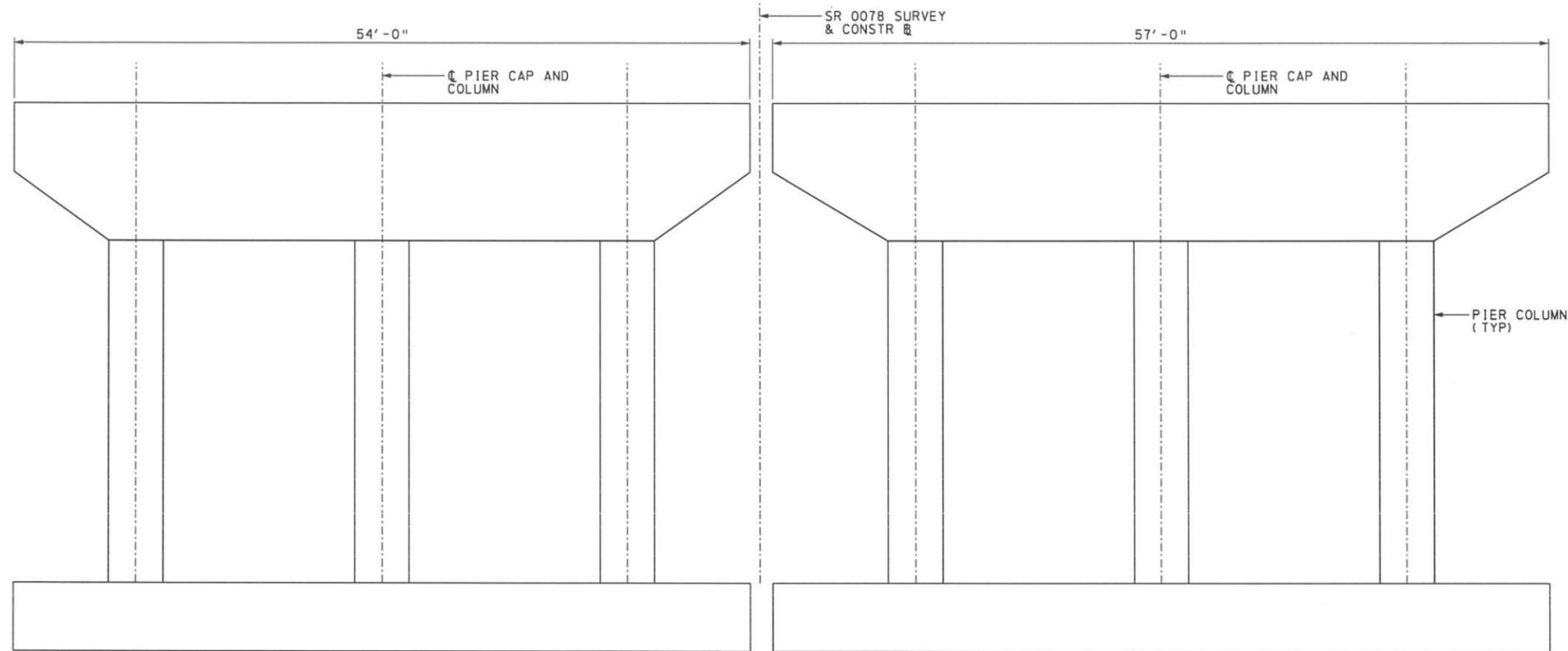
MOVE TRAFFIC TO THE PROPOSED BRIDGE CONSTRUCTED IN STAGE 2 AND MAINTAIN 2 LANES OF TRAFFIC EACH DIRECTION AT ALL TIMES. REMOVE TOP OF CONCRETE ON EXISTING DECK AS SHOWN ON THE CONTRACT PLANS AND RE-DECK TO NEW PROPOSED CROSS SLOPES ON THE DECK. REPAIR DAMAGES TO EXISTING EASTBOUND CONCRETE ARCH STRUCTURE AND SUBSTRUCTURE. MOVE TRAFFIC TO FINAL WIDENED BRIDGE CARRYING 3 LANES OF TRAFFIC IN EACH DIRECTION AS SHOWN.

EXHIBIT 'A' 7 OF 9

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REVISIONS					

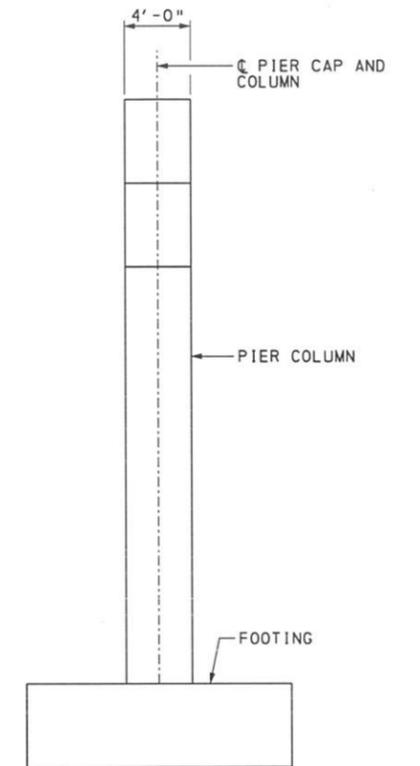
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 15-SPAN CONC. OPEN SPANDREL DECK ARCH BRIDGE
STAGING SECTIONS (ARCH SPANS)
TYPE, SIZE AND LOCATION

RECOMMENDED _____ SHEET 7 OF 9



TYPICAL PIER ELEVATION

2 0 2 4 6 FEET



SIDE ELEVATION

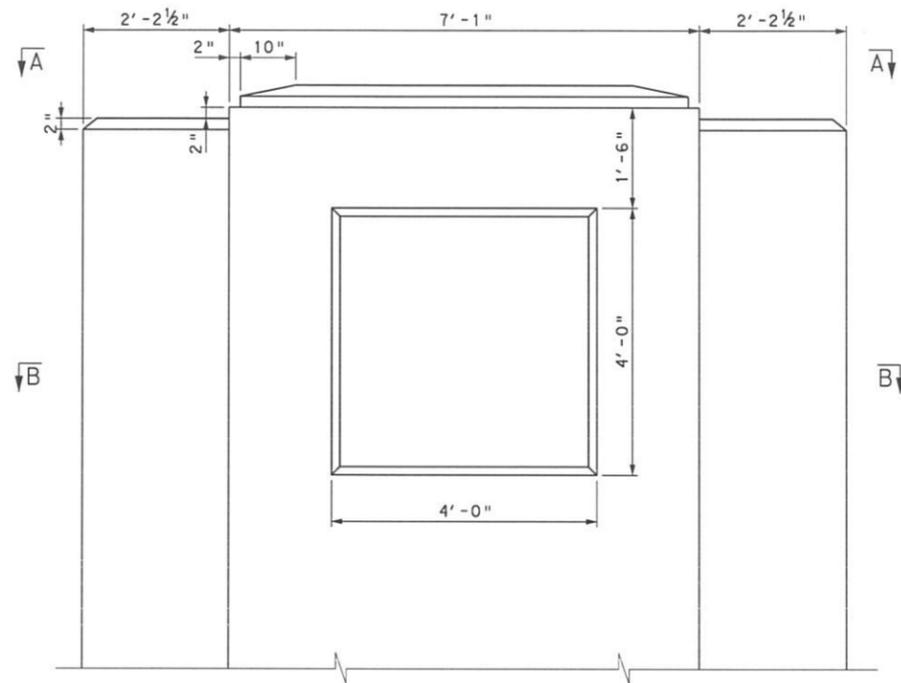
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 15-SPAN CONC. OPEN SPANDREL DECK ARCH BRIDGE
TYPE, SIZE & LOCATION
PILASTER DETAILS

RECOMMENDED _____ SHEET 8 OF 9

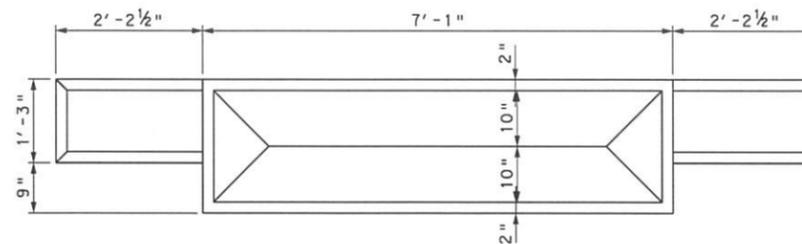
EXHIBIT # 8 OF 9



NOTE: BRIDGE STRUCTURE BEYOND NOT SHOWN FOR CLARITY

PILASTER DETAIL

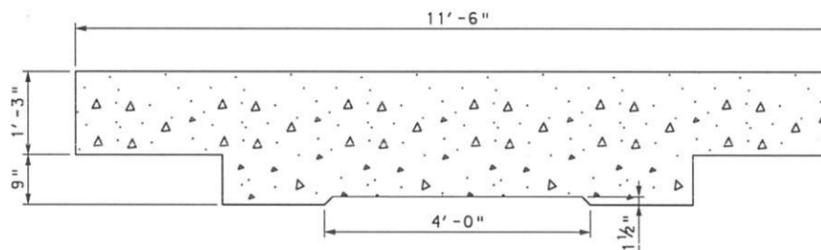
12 0 12 INCHES



NOTE: BRIDGE BARRIER CURB AND DECK NOT SHOWN FOR CLARITY

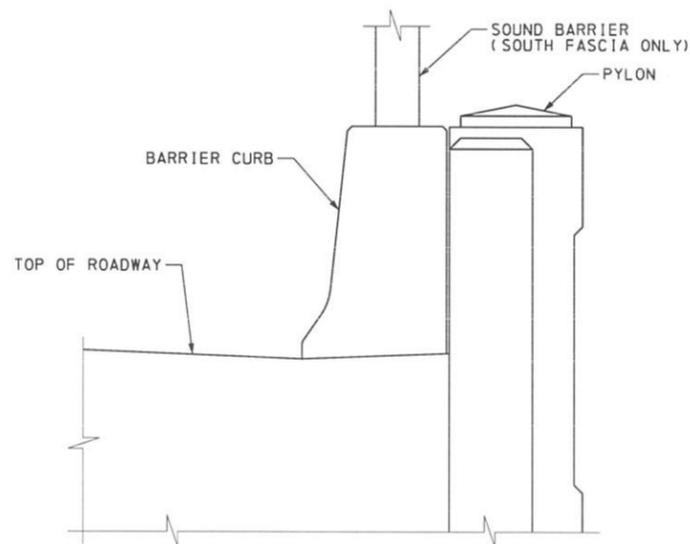
VIEW A-A

12 0 12 INCHES



SECTION B-B

12 0 12 INCHES



TYP. PILASTER SECTION

12 0 12 INCHES

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

S.R. 0078 PREVIOUSLY KNOWN AS L.R. 285

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF TRANSPORTATION

BERKS COUNTY
S.R. 0078 SECTION 13B

SEGMENT 0294 OFFSET 1480 EB, SEGMENT 0295 OFFSET 1485 WB
S.R. 0078 13B STA. 3054+08.19

OVER SCHUYLKILL RIVER, RBMN RAILROAD & T571
15-SPAN CONC. OPEN SPANDREL DECK ARCH BRIDGE

TYPE, SIZE & LOCATION
PILASTER DETAILS

RECOMMENDED _____

SHEET 9 OF 9

EXHIBIT # 9 OF 9