OS-600C (12-15)

pennsylvania
DEPARTMENT OF TRANSPORTATION

July 24, 2024

Rosemary Chiavetta, Secretary
Pennsylvania Public Utility Commission
400 North Street
Harrisburg, PA 17105-3265

Re: Delaware County
Tinicum Township
SR 291 DEC
Gov Printz Blvd. o/ Conrail
PUC No. A-2017-2634994
MPMS# 92324

Dear Secretary Chiavetta,

Attached for approval is one copy of the Final signed Construction Plans and Structure Plans (S-34549), for the Construction of State Route 291, Section DEC in Delaware County.

The Department of Transportation hereby avers that a set of the aforesaid final Plans and a copy of the Final Structure Plans are being sent to the parties of record as indicated on the Certificate of Service for examination simultaneously with this submission to the Public Utility Commission.

We respectfully request the approval of these Plans and the appropriation of the property. Should you have any questions or concerns, please feel free to contact K. Michael Anderson at (610) 205 - 6867.

Sincerely,

/s/ Mary Ann Lang

Mary Ann Lang, District Utility Manager
Engineering District 6-0
Department of Transportation

Attachments

cc: Parties of Record

Mark Chappell, Chief, Right-of-Way, Utilities, and Grade Crossing Division, 7th Floor, CKB

Karen Cummins, Assistant Counsel in Charge, Office of Chief Counsel, 9th Floor, CKB
Supervisor, Rail Safety Engineering Section, PUC, 3rd Floor, C

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

Application of the Department of Transportation of the Commonwealth of Pennsylvania, for approval to replace the superstructure of the existing bridge where State Route 0291 (Gov. Printz Blvd.) crosses above the tracks of Consolidated Railway Corporation (Conrail), DOT No. 589 291 W in Tinicum Township, Delaware County, and the allocation of costs incident thereto.	Application Docket No. A-2017-2634994 **Electronically Filed**

VERIFICATION

I, Mary Ann Lang, District Utility Manager, hereby state that the facts above set forth are true and correct to the best of my knowledge, information and belief and that I expect to be able to prove the same at a hearing held in this matter. I understand that the statements herein are made subject to the penalties of 18 Pa.C.S. §4904 (relating to unsworn falsification to authorities).

Date: 07/25/2024

/s/ Mary Ann Lang
Mary Ann Lang
District Utility Manager

Application of the Department of Transportation of the Commonwealth of Pennsylvania, for approval to replace the superstructure of the existing bridge where State Route 0291 (Gov. Printz Blvd.) crosses above the tracks of Consolidated Railway Corporation (Conrail), DOT No. 589 291 W in Tinicum Township, Delaware County, and the allocation of costs incident thereto.

Application
Docket No. A-2017-2634994

Electronically Filed

CERTIFICATE OF SERVICE

I hereby certify that I have this day served a true copy of the foregoing document upon the participants listed below by electronic mail pursuant to the Emergency Order at Docket Number M-2020-3019262:

I hereby certify that I have this day served a true copy of the foregoing document upon the participants listed below, in accordance with the requirements of 52 Pa. Code § 1.54, by first class mail, postage prepaid:

Ryan M. Hill, Chief Engineer Design and Construction
ryan.hill@conrail.com
Consolidated Rail Corporation
330 Fellowship Road
Mount Laurel, NJ 08054

Scott Nubbemeyer, Highway Engineer
scott.nubbemeyer@verizon.com
Verizon Pennsylvania, LLC
1050 Virginia Drive
Fort Washington PA 19034

Pete Dettling, Program Manager
Charles.Dettling@exeloncorp.com
PECO Energy Company
1050 W Swedesford Road
Berwyn PA 19312

Scott A. Sauer, Chief Operating Officer
ssauer@septa.org
Southern Pennsylvania Transportation Authority
1234 Market Street-10th Floor
Philadelphia, PA 19107-3780

David T Montvydas, Chief Engineer MOW
dmontvydas@septa.org
Southern Pennsylvania Transportation Authority
1234 Market Street-10th Floor
Philadelphia, PA 19107-3780

Genny Rodriguez-Lee, Manager
Genny.rodriguez-ll@enbridge.com
Texas Eastern Transmission LP (Enbridge)
560 Pottstown Pike
Chester Spring, PA 19425

John Ruszkay, Senior Engineer
John.Ruszkay@energytransfer.com
Sunoco Pipeline LP (Energy Transfer)
525 Fritztown Road
Sinking Spring, PA 19608

Lauren Levitt, Sr. Supervisor Network Construction
Lauren.Levitt@crowncastle.com
Crown Castle Fiber
3200 Horizon Drive Suite 150
King of Prussia, PA 19406

Brian Barr, Senior Specialist
encroachmentreviews@buckeye.com
Laurel Pipe Line Co. LP (Buckeye Partners, LP)
6161 Hamilton Blvd
Allentown, PA 18106

Richard Williams, Program Manager
relocations@lumen.com
Lumen Technologies (CenturyLink)
5095 Ritter Road Suite 101
Mechanicsburg, PA 17055

David D. Schreiber, Manager
dschreiber@tinicumtownshipdelco.com
Tinicum Township
97 Wanamaker Ave.
Essington, PA 19029

Thomas Shaffer, Transportation Manager
shaffert@co.delaware.pa.us
Delaware County Planning Dept
201 West Front Street
Media, PA 19063-2708

Jim Kern, Authority Secretary
cdca@craftech.com
Central Delaware County Authority
212B Unity Terrace
Rutledge, PA 19070-2130

Elias Bakhash, Project Manager
Ebakhash@aquaamerica.com
Aqua Pennsylvania, Inc.
762 W Lancaster Ave.
Bryn Mawr, PA 19010

Mike Kimberly, Construction Coordinator
Mike_kimberly@cable.comcast.com
Comcast Cable Communications
190 Shoemaker Road
Pottstown, PA 19464

Dated this 25th Day of July 2024

/s/ Mary Ann Lang
Mary Ann Lang
District Utility Manager
7000 Geerdes Boulevard Ave
King of Prussia, PA 19406
610-205-6530
Malang@pa.gov

DISTRICT	COUNTY	TOWNSHIP	BOROUGH	ROUTE	SECTION	TOTAL SHEETS
6-0	DELAWARE	TINICUM	--	0291	DEC	22
				6291	DEC	

ECMS NO. 92324

COMMONWEALTH OF PENNSYLVANIA

DEPARTMENT OF TRANSPORTATION

DRAWINGS
FOR
CONSTRUCTION
OF

STATE ROUTE 0291 **SECTION** DEC

IN DELAWARE **COUNTY**

FROM STA 127+00.00 TO STA 207+25.00 LENGTH 3983.25 FT 0.754 MI

FROM SEG 0190 OFFSET 1149 TO SEG 0006 OFFSET 0166

FROM SEG 0191 OFFSET 1230 TO SEG 0007 OFFSET 0225

PUC APPLICATION DOCKET NUMBER A-2017-2634994

ALSO INCLUDED

TRAFFIC CONTROL PLAN	42 SHEETS
SIGNING AND PAVEMENT MARKING PLAN	16 SHEETS
EROSION AND SEDIMENT POLLUTION CONTROL PLAN	23 SHEETS
TRAFFIC SIGNAL PLAN	5 SHEETS
ITS PLAN	10 SHEETS
STRUCTURE PLAN	
S-34549	112 SHEETS
CROSS SECTIONS	14 SHEETS
EXISTING STRUCTURE PLANS	
S-1392	*6 SHEETS*
S-1392A	*5 SHEETS*
S-7603	*3 SHEETS*

SCALE

HORIZONTAL 0 25 50 FEET

VERTICAL 0 5 10 FEET

SR 0291 & 6291 SEC DEC DESIGN DESIGNATION

HIGHWAY CLASSIFICATION	-	URBAN MINOR ARTERIAL
DESIGN SPEED	-	40 MPH
PAVEMENT WIDTH	-	2-12'-0" LANES (EACH DIRECTION)
SHOULDER WIDTH	-	8'-0"
MEDIAN WIDTH	-	4'-0"

TRAFFIC DATA

CURRENT ADT	-	20,022 (2024)
DESIGN YEAR ADT	-	20,022 (2044)
DHV	-	1,402
D	-	70%
T	-	7%

PREPARED BY:

CDM Smith
993 OLD EAGLE SCHOOL RD, SUITE 408
WAYNE, PA 19087
Tel: (610) 293-0450

James F Weimer Digitally signed by James F Weimer DN: CN=JWeimer@cdmsmith.com, O=CDM Smith, C=US Date: 2024.05.24 15:44:49-04'00'

COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL JAMES F. WEIMER ENGINEER PE048931E

REG. PROF. ENGINEER

DATE

RECOMMENDED DATE: 6-21-2024

DISTRICT EXECUTIVE

RECOMMENDED DATE: 06-25-2024

Christine Norris

DEPUTY SECRETARY

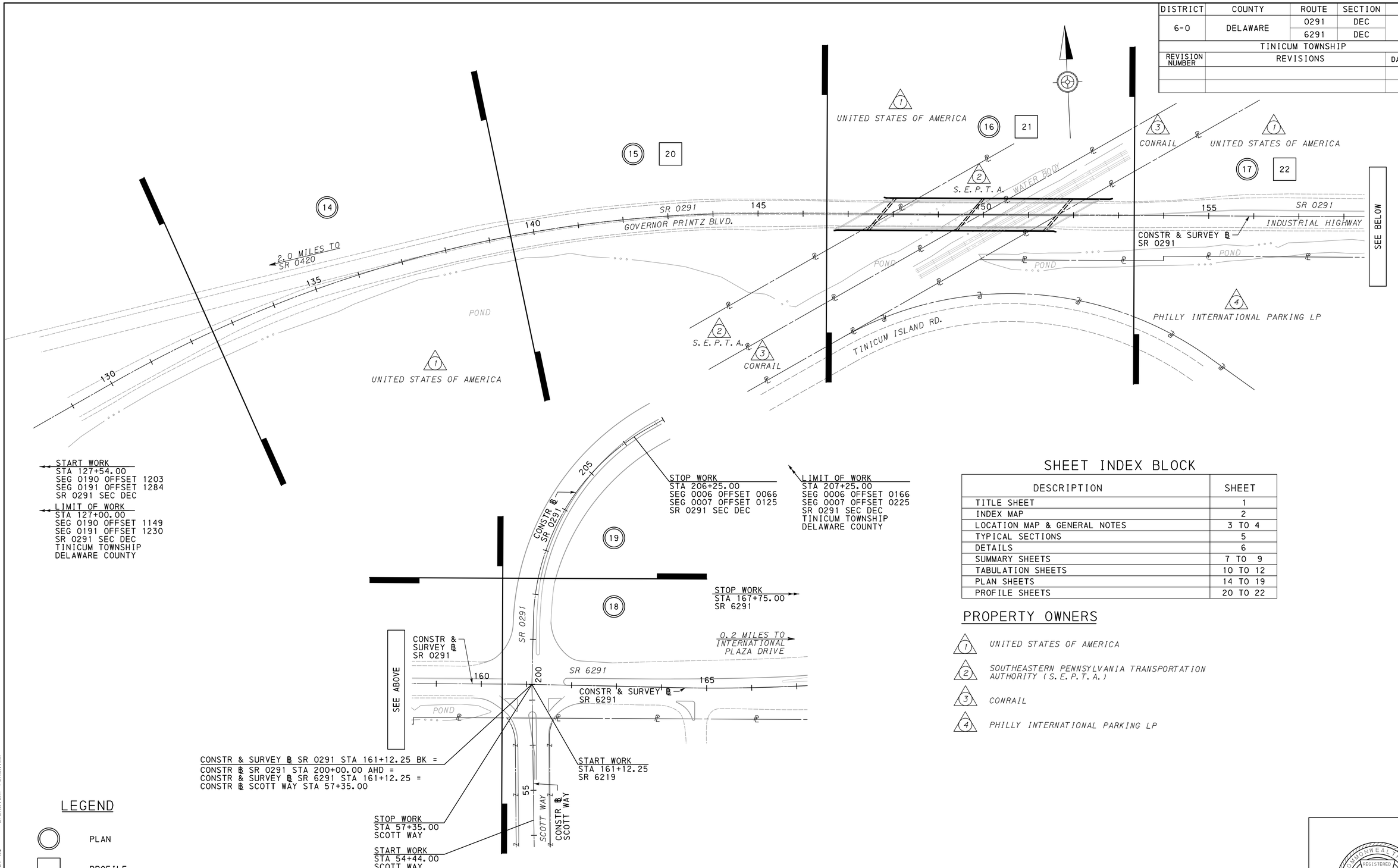
APPROVED DATE: 06-25-2024

SECRETARY OF TRANSPORTATION
(ON BEHALF OF THE GOVERNOR
AS WELL AS THE SECRETARY)

DISTRICT	COUNTY	ROUTE	SECTION	SHEET
6-0	DELAWARE	0291	DEC	2 OF 22
		6291	DEC	

TINICUM TOWNSHIP

REVISION NUMBER	REVISIONS	DATE	BY



START WORK
STA 127+54.00
SEG 0190 OFFSET 1203
SEG 0191 OFFSET 1284
SR 0291 SEC DEC

LIMIT OF WORK
STA 127+00.00
SEG 0190 OFFSET 1149
SEG 0191 OFFSET 1230
SR 0291 SEC DEC
TINICUM TOWNSHIP
DELAWARE COUNTY

STOP WORK
STA 206+25.00
SEG 0006 OFFSET 0066
SEG 0007 OFFSET 0125
SR 0291 SEC DEC

LIMIT OF WORK
STA 207+25.00
SEG 0006 OFFSET 0166
SEG 0007 OFFSET 0225
SR 0291 SEC DEC
TINICUM TOWNSHIP
DELAWARE COUNTY

STOP WORK
STA 167+75.00
SR 6291

CONSTR & SURVEY ℄ SR 0291 STA 161+12.25 BK =
CONSTR ℄ SR 0291 STA 200+00.00 AHD =
CONSTR & SURVEY ℄ SR 6291 STA 161+12.25 =
CONSTR ℄ SCOTT WAY STA 57+35.00

START WORK
STA 161+12.25
SR 6219

STOP WORK
STA 57+35.00
SCOTT WAY

START WORK
STA 54+44.00
SCOTT WAY

LEGEND

- PLAN
- PROFILE
- PARCEL IDENTIFICATION NUMBER - NO TAKE
- SHEET LIMITS

INDEX MAP

0 100 200
SCALE IN FEET

SHEET INDEX BLOCK

PROPERTY OWNERS

1. UNITED STATES OF AMERICA
2. SOUTHEASTERN PENNSYLVANIA TRANSPORTATION AUTHORITY (S.E.P.T.A.)
3. CONRAIL
4. PHILLY INTERNATIONAL PARKING LP

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JAMES F. WEIMER
ENGINEER
ME048931E

PUBLIC UTILITIES

PA ONE CALL SYSTEM PHONE 1-800-242-1776
DESIGN SERIAL NO. 20241243052

ENERGY TRANSFER
1824 HORSESHOE PIKE
HONEY BROOK, PA 19344
ATTN: CHRIS CORNWALL
TEL:(484)663-4414
christopher.cornwell@energytransfer.com
——— PU1 ———

BUCKEYE PARTNERS
6161 HAMILTON BOULEVARD
ALLENTOWN, PA 18106
ATTN: DAVID JONES
TEL:(610)904-4409
dajones@buckeye.com
——— PU2 ———

TEXAS EASTERN PIPELINE
560 POTTSTOWN PIKE
CHESTER SPRINGS, PA 19425
ATTN: MICHAEL WALSH
TEL: (610)458-1736
dave.leib@enbridge.com
——— TPU ———

PECO
1050 WEST SWEDESFORD ROAD
BERWYN, PA 19312
ATTN: ANDREW DIPASQUALE
TEL: (610)506-0489
charles.dettling@exeloncorp.com
——— E ———

CROWN CASTLE
3200 HORIZON DRIVE, SUITE 150
KING OF PRUSSIA, PA 19406
ATTN: CLAUDIA WADE
TEL:(610)567-7012
claudia.wade@crowncastle.com
——— CTV ———
——— CTVU ———
——— C ———

LUMEN
5095 RITTER ROAD
MECHANICSBURG, PA 17055
ATTN: RICHARD WILLIAMS
TEL:(717)928-9234
richard.l.williams@lumen.com
——— CTV ———
——— CTVU ———
——— C ———

VERIZON PENNSYLVANIA LLC
1050 VIRGINIA DRIVE
FORT WASHINGTON, PA 19034
ATTN: JOHN HUTCHINS
TEL:(267)637-3920
jhutchins@pike.com
——— T ———
——— FO ———
——— FOU ———
——— FOU ———

TABULATION OF OVERALL LENGTH

SR 0291 STA 127+00.00 TO STA 207+25.00 = 4137.25 FT = 0.784 MILES

TABULATION OF CONSTRUCTION LENGTH

SR 0291 STA 127+54.00 TO STA 206+25.00 = 3983.25 FT = 0.754 MILES

TABULATION OF SEGMENT EQUALITIES

SR 0291
SEGMENT 0210 OFFSET 0000 / SEGMENT 0190 OFFSET 3155 = STA 147+06.25
SEGMENT 0211 OFFSET 0000 / SEGMENT 0191 OFFSET 3276 = STA 147+46.25
SEGMENT 0210 OFFSET 1406 = SEGMENT 0224 OFFSET 0000 = STA 200+00.00
SEGMENT 0211 OFFSET 1366 = SEGMENT 0225 OFFSET 0000 = STA 200+00.00
SEGMENT 0224 OFFSET 0559 = SEGMENT 0006 OFFSET 0000 = STA 205+59.00
SEGMENT 0225 OFFSET 0500 = SEGMENT 0007 OFFSET 0000 = STA 205+00.00
SEGMENT 0210 OFFSET 1406 = SR 6291 SEGMENT 0010 OFFSET 0000 = STA 161+12.25
SEGMENT 0211 OFFSET 1366 = SR 6291 SEGMENT 0011 OFFSET 0000 = STA 161+12.25

LIST OF EQUALITIES

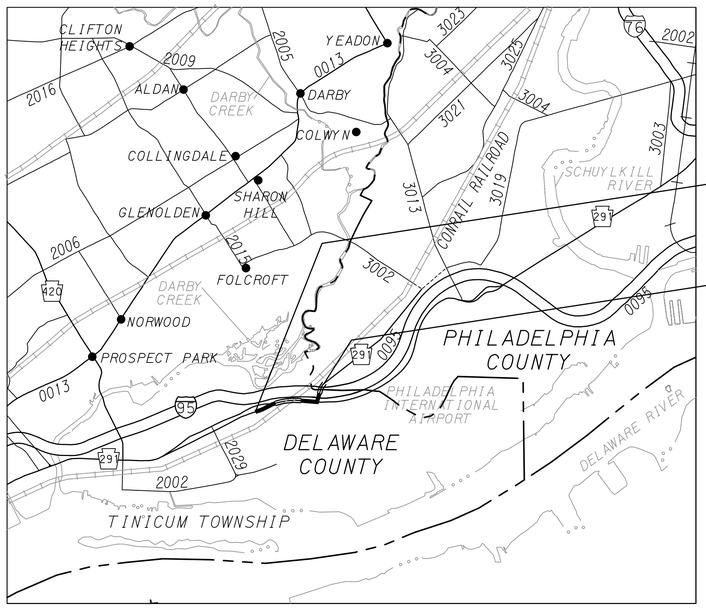
SR 0291 STA 161+12.25 = SR 6291 STA 161+12.25
SR 0291 STA 161+12.25 BK = STA 200.00 AHD
SR 0291 STA 161+12.25 = SCOTT WAY STA 57+35.00

SUMMARY OF PROJECT COORDINATES

BASED ON NAD83 (2011) PA STATE PLANE - SOUTH ZONE COORDINATE SYSTEM
US SURVEY FEET

RTE.	STATION	POINT	COORDINATES NORTH	COORDINATES EAST	BEARING
CONSTR. & SURVEY SR 0291	128+00.00	POT	206941.1800	2663510.1722	N63°13'42"E
	130+02.00	PC	207032.1678	2663690.5197	
	137+69.66	PI	207377.9463	2664375.8899	S86°46'18"E
	145+02.07	PT	207334.7142	2665142.3273	
	161+00.08	PI	207244.7194	2666737.7935	S85°44'53"E
CONSTR. & SURVEY SR 6291	161+12.25		207243.8168	2666749.9338	
	164+25.15	PC	207220.6176	2667061.9715	
	166+27.94	PI	207205.5823	2667264.2017	N88°26'51"E
	168+30.38	PT	207211.0765	2667466.9155	
	169+86.22	POE	207215.2988	2667622.7005	

NOTE: FOUR (4) PLACE COORDINATES ARE USED FOR COMPUTATIONAL PURPOSES ONLY AND DO NOT IMPLY A PRECISION BEYOND TWO (2) PLACES.



LOCATION MAP

1/4 0 1/4
SCALE IN MILES

PROJECT LOCATION
INTERSTATE HIGHWAY (MARKED)
STATE HIGHWAY (MARKED)
RAILROAD
COUNTY BOUNDARY
STREAM

LIMIT OF WORK
STA 127+00.00
SEG 0190 OFFSET 1149
SEG 0191 OFFSET 1230
SR 0291 SEC DEC
TINICUM TOWNSHIP
DELAWARE COUNTY

LIMIT OF WORK
STA 207+25.00
SEG 0006 OFFSET 0166
SEG 0007 OFFSET 0225
SR 0291 SEC DEC
TINICUM TOWNSHIP
DELAWARE COUNTY

EARTHWORK SUMMARY ENTIRE PROJECT

THE INFORMATION ON ESTIMATED AMOUNTS OF EARTHWORK HAS BEEN USED IN THE PRELIMINARY ESTIMATE. DO NOT USE AS A WAIVER OF ANY PROVISIONS OF THE SPECIFICATIONS AND CONTRACTS.

CUBIC YARDS OF EXCAVATION				
CLASS 1	CLASS 1B	CLASS 3	CLASS 3 OVER EXCAVATION AND BACKFILL WITH COARSE AGGREGATE, S-34549	CLASS 4 **
9537	936	7430	1050	761

EARTHWORK SUMMARY ENTIRE PROJECT CONTINUED

THE INFORMATION ON ESTIMATED AMOUNTS OF EARTHWORK HAS BEEN USED IN THE PRELIMINARY ESTIMATE. DO NOT USE AS A WAIVER OF ANY PROVISIONS OF THE SPECIFICATIONS AND CONTRACTS.

CUBIC YDS. OF COMPLETED EMBANKMENT *	CUBIC YDS. OF SELECTED BORROW STRUCTURE BACKFILL	CUBIC YDS. OF SELECTED BORROW EXCAVATION ROCK, CLASS R-3	CUBIC YDS. OF SELECTED BORROW EXCAVATION ROCK, CLASS R-4	CUBIC YDS. OF SELECTED BORROW EXCAVATION ROCK, CLASS R-7, R-7 CHOKED WTIH R-3	CUBIC YDS. OF WASTE ***
2605	5500	1644	10695	1230	17109

* EXCLUDES ALL SELECTED BORROW ITEMS.
** INCLUDES EXCAVATION FOR DRAINAGE PIPES
*** INCLUDES PAVEMENT REMOVAL AND OVEREXCAVATION

DISTRICT	COUNTY	ROUTE	SECTION	SHEET
6-0	DELAWARE	0291	DEC	3 OF 22
		6291	DEC	
TINICUM TOWNSHIP				

REVISION NUMBER	REVISIONS	DATE	BY

GENERAL NOTES

THE LEGAL RIGHT-OF-WAY ON SR 0291, FORMERLY LR 762, FROM STATION 126+41.00 TO STATION 198+11.00 IS VARIABLE IN WIDTH FROM 208 FEET TO 254 FEET BASED ON THE DRAWINGS FOR CONSTRUCTION AND APPROPRIATION OF RIGHT-OF-WAY FOR ROUTE 762, SECTION 2, APPROVED ON MAY 12, 1943, AND REVISED FOR CHANGES OF PROPERTY LINES ON JUNE 6, 1943; AND AS APPROPRIATED BASED ON THE PENNSYLVANIA PUBLIC UTILITY COMMISSION APPLICATION DOCKET NO. A66236.

THIS IS A FEDERAL-AID PROJECT AND AS SUCH IS SUBJECT TO INSPECTION BY REPRESENTATIVES OF THE FEDERAL HIGHWAY ADMINISTRATION AND THE PENNSYLVANIA DEPARTMENT OF TRANSPORTATION.

ALL CURVE DATA IS BASED ON THE ARC DEFINITION UNLESS OTHERWISE NOTED.

HORIZONTAL DATUM IS BASED ON NAD83 (2011) PA STATE PLANE - SOUTH ZONE.

VERTICAL DATUM IS BASED ON NAVD 88.

THE COMBINED FACTOR USED TO OBTAIN THE PROJECT COORDINATES IS 1.00001450 x GROUND DISTANCE.

THE PROJECT UNITS ARE US SURVEY FEET.

DO NOT INTERFERE WITH THE OPERATION OF ANY FIRE HYDRANT, FIRE CALL BOX OR POLICE CALL BOX.

THE WATER BODY IS NOT NAVIGABLE WITHIN THE PROJECT LIMITS.

SR 0291 PREVIOUSLY KNOWN AS LR 762.

THREE TO TEN WORKING DAYS PRIOR TO EXCAVATION BASED ON THE COMPLEXITY OF THE PROJECT, THE CONTRACTOR MUST CONTACT THE PA ONE CALL SYSTEM, INC., PHONE 1-800-242-1776, SERIAL NO. _____ FOR TINICUM TOWNSHIP. ADDITIONAL INFORMATION IS AVAILABLE AT https://www.paicall.org/PA811/Public/.

THE CONTRACTOR IS REQUIRED TO NOTIFY THE DEPARTMENT AND SUBMIT AN ALLEGED VIOLATION REPORT (AVR) TO THE PA PUBLIC UTILITY COMMISSION THROUGH THE PA ONE CALL SYSTEM, WWW.PAICALL.ORG, WITHIN TEN (10) BUSINESS DAYS AFTER A UTILITY LINE IS STRUCK, DAMAGED, OR PREVIOUS DAMAGE IS DISCOVERED AS REQUIRED BY PENNSYLVANIA'S UNDERGROUND UTILITY LINE PROTECTION LAW ACT 50 (P.L.852, NO. 287 AMENDED OCT. 30, 2017).

EXISTING UTILITIES ARE SHOWN IN ACCORDANCE WITH THE BEST INFORMATION AVAILABLE AND ARE FOR THE CONVENIENCE OF THE CONTRACTOR ONLY. THE CORRECTNESS OF THE INFORMATION IS NOT GUARANTEED. THE CONTRACTOR IS TO VERIFY THE INFORMATION AND TAKE ALL PRECAUTIONS TO FULLY PROTECT THE UTILITY AND SERVICE.

SLOPE EASEMENT. AN EASEMENT FOR THE SUPPORT AND PROTECTION OF THE HIGHWAY, INCLUDING THE RIGHT TO CONSTRUCT, INSPECT, MAINTAIN, REPAIR, RECONSTRUCT AND ALTER DRAINAGE FACILITIES AND THE CONTOUR OF THE LAND. THE EASEMENT SHALL NOT PREVENT THE PROPERTY OWNER FROM MAKING ANY LEGAL USE OF THE AREA WHICH IS NOT DETRIMENTAL TO THE NECESSARY SUPPORT AND PROTECTION OF THE HIGHWAY RIGHT-OF-WAY AND THE SAFETY OF THE TRAVELING PUBLIC.

THERE ARE IN STREAM TIME OF YEAR RESTRICTIONS FOR THE UNNAMED WATER BODY FOR IMPACT AVOIDANCE OF THE RED-BELLIED TURTLE (PSEUDEMYS RUBRIVENTRIS) FOR CONSTRUCTION ACTIVITIES. THE ACTIVE SEASON FOR ALLOWANCE OF IN WATER ACTIVITIES IS APRIL 15 TO OCTOBER 15. NO CONSTRUCTION ACTIVITIES ARE PERMITTED IN THE WATER DURING THE INACTIVE SEASON FROM OCTOBER 15 TO APRIL 15. REFER TO THE EROSION AND SEDIMENT POLLUTION CONTROL PLANS FOR ADDITIONAL INSTRUCTIONS FOR AVOIDANCE MEASURES ASSOCIATED WITH THE RED-BELLIED TURTLE.

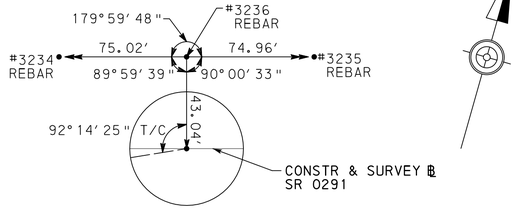
DETAILS OTHER THAN THOSE INDICATED ARE ON THE FOLLOWING STANDARD DRAWINGS:

RC-10M	JUN 01, 2010	TC-8600	JUN 13, 2013
RC-11M	JUN 01, 2010	TC-8602	JUN 13, 2013
RC-12M	NOV 01, 2022	TC-8604	AUG 17, 2021
RC-13M	JUN 01, 2010	TC-8700C	JUN 13, 2013
RC-23M	FEB 08, 2019	TC-8701A	JUN 13, 2013
RC-27M	NOV 30, 2021	TC-8701D	JUN 13, 2013
RC-28M	SEPT 01, 2023	TC-8701E	JUN 13, 2013
RC-30M	FEB 27, 2023	TC-8701S	JUN 13, 2013
RC-31M	NOV 30, 2021	TC-8702A	JUN 13, 2013
RC-39M	NOV 30, 2021	TC-8702B	JUN 13, 2013
RC-45M	FEB 19, 2021	TC-8702E	JUN 13, 2013
RC-46M	FEB 19, 2021	TC-8716	JUN 13, 2013
RC-50M	FEB 27, 2023	TC-8717	JUN 13, 2013
RC-51M	SEPT 01, 2023	TC-8804	JUN 20, 2023
RC-53M	NOV 30, 2021		
RC-54M	SEPT 01, 2023	ITS-1201	MAR 01, 2013
RC-57M	SEPT 01, 2023		
RC-64M	FEB 19, 2021	BC-701M	NOV 23, 2022
RC-70M	FEB 08, 2019	BC-719M	JAN 31, 2019
RC-72M	FEB 08, 2019	BC-732M	NOV 23, 2022
RC-73M	FEB 08, 2019	BC-734M	FEB 19, 2021
RC-75M	JUN 01, 2010	BC-735M	SEPT 30, 2016
RC-77M	DEC 17, 2019	BC-736M	NOV 23, 2022
RC-82M	JUN 01, 2010	BC-751M	JAN 31, 2019
		BC-752M	NOV 23, 2022
		BC-753M	JAN 31, 2019
		BC-757M	SEPT 30, 2016
		BC-766M	NOV 23, 2022
		BC-767M	NOV 23, 2022
		BC-788M	NOV 23, 2022

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JAMES F. WEIMER
ENGINEER
PE046931E

DISTRICT	COUNTY	ROUTE	SECTION	SHEET
6-0	DELAWARE	0291	DEC	14 OF 22
		6291	DEC	
TINICUM TOWNSHIP				

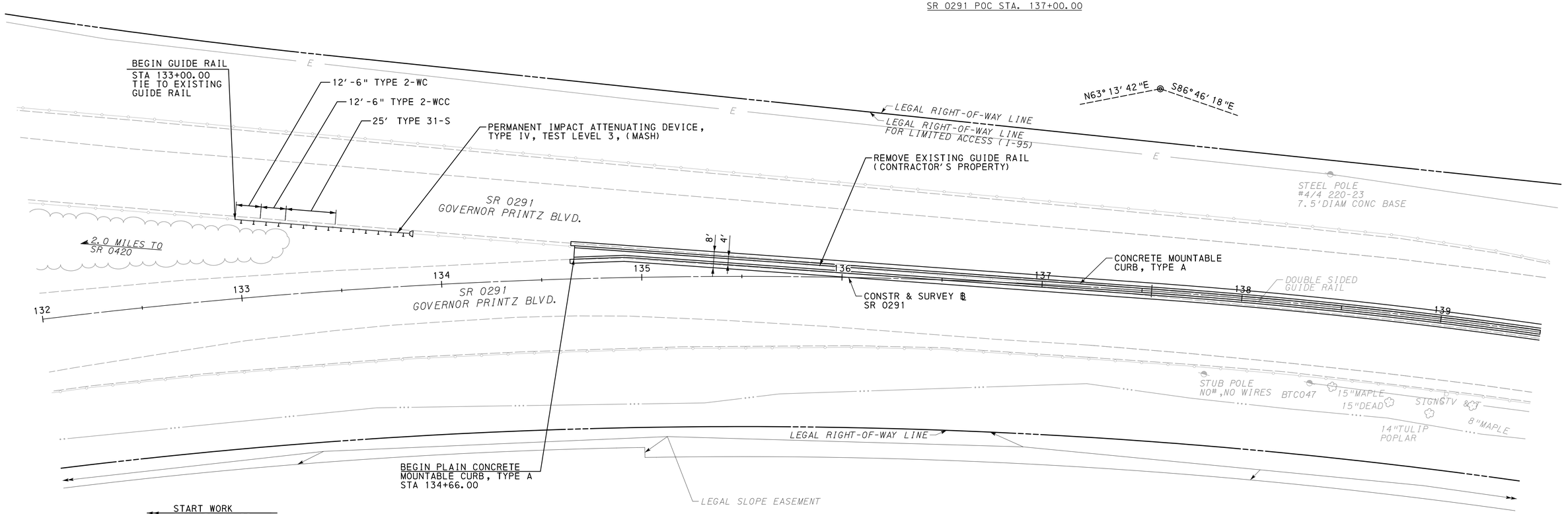
REVISION NUMBER	REVISIONS	DATE	BY



POINT #	NORTHING	EASTING
3234	207296.4640	2664264.0260
3235	207324.0000	2664411.4560
3236	207310.2350	2664337.7690

SR 0291 POC STA. 137+00.00

UNITED STATES OF AMERICA



SEE SHEET 15

START WORK
STA 127+54.00
SEG 0190 OFFSET 1203
SEG 0191 OFFSET 1284
SR 0291 SEC DEC

LIMIT OF WORK
STA 127+00.00
SEG 0190 OFFSET 1149
SEG 0191 OFFSET 1230
SR 0291 SEC DEC
TINICUM TOWNSHIP
DELAWARE COUNTY

UNITED STATES OF AMERICA

SR 0291
CONSTR & SURVEY ℄

PI STA 137+69.66
△ = 30°00'00" RT
T = 767.66'
L = 1500.07'
R = 2864.93'
E = 101.06'
PC STA 130+02.00
PT STA 145+02.07

0 25 50
SCALE IN FEET

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JAMES F. WEIMER
ENGINEER
PE048931E

SURVEY BOOK NO. 10,459

DISTRICT	COUNTY	ROUTE	SECTION	SHEET
6-0	DELAWARE	0291	DEC	15 OF 22
		6291	DEC	
TINICUM TOWNSHIP				
REVISION NUMBER	REVISIONS		DATE	BY

BM #3 ELEV 5.69'
STA 140+96.41 OFFSET 38.44' RT
SQUARE CUT ON N.E. CORNER OF OH SIGN

POINT #	NORTHING	EASTING
3237	207373.2840	2665069.3620
3238	207369.0010	2665144.2650
3239	207364.8100	2665219.0900

179°55'59" #3238 REBAR
75.03' 74.94'
#3237 REBAR 90°02'17" 90°01'44" #3239 REBAR
34.34'
89°59'38"
CONSTR & SURVEY ℄ SR 0291
SR 0291 PT STA. 145+02.07

BEGIN FULL DEPTH SHOULDER PAVEMENT STA 143+00.00 LT

BEGIN FULL DEPTH PAVEMENT AND SHOULDER RT STA 144+75.00

UNITED STATES OF AMERICA (1)

LEGAL RIGHT-OF-WAY LINE
LEGAL RIGHT-OF-WAY LINE FOR LIMITED ACCESS (I-95)

STEEL POLE #4/5 220-23 1.5 DIAM CONC BASE

TIE-IN-TO EXISTING GUIDERAIL

CONC. MOUNTABLE CURB, TYPE A

REMOVE EXISTING GUIDE RAIL (CONTRACTOR'S PROPERTY)

DOUBLE SIDED GUIDE RAIL

442' TYPE 31-S

BY OTHERS

FOU

CONSTR & SURVEY ℄ SR 0291

S86°46'18"E 146

SR 0291
GOVERNOR PRINTZ BLVD.

170' TYPE 31-S

48'

36" HIGH BOLLARD

CONDUIT AND CABLES ABANDONED/REMOVED BY OTHERS

REMOVED BY OTHERS

TERMINAL SECTION, SINGLE

REMOVE AND REPLACE PRIVATE GATE
STA 145+00.00

SR 0291
CONSTR & SURVEY ℄

PI STA 137+69.66
Δ = 30°00'00" RT
T = 767.66'
L = 1500.07'
R = 2864.93'
E = 101.06'
PC STA 130+02.00
PT STA 145+02.07

LEGAL RIGHT-OF-WAY LINE

LEGAL SLOPE EASEMENT

UNITED STATES OF AMERICA (1)

SOUTHEASTERN PENNSYLVANIA TRANSPORTATION AUTHORITY (S.E.P.T.A.) (2)

0 25 50
SCALE IN FEET

SEE SHEET 14

SEE SHEET 16

FOR SR 0291 PROFILE, SEE SHEET 20

SURVEY BOOK NO. 10,459

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JAMES F. WEIMER
ENGINEER
PE048931E

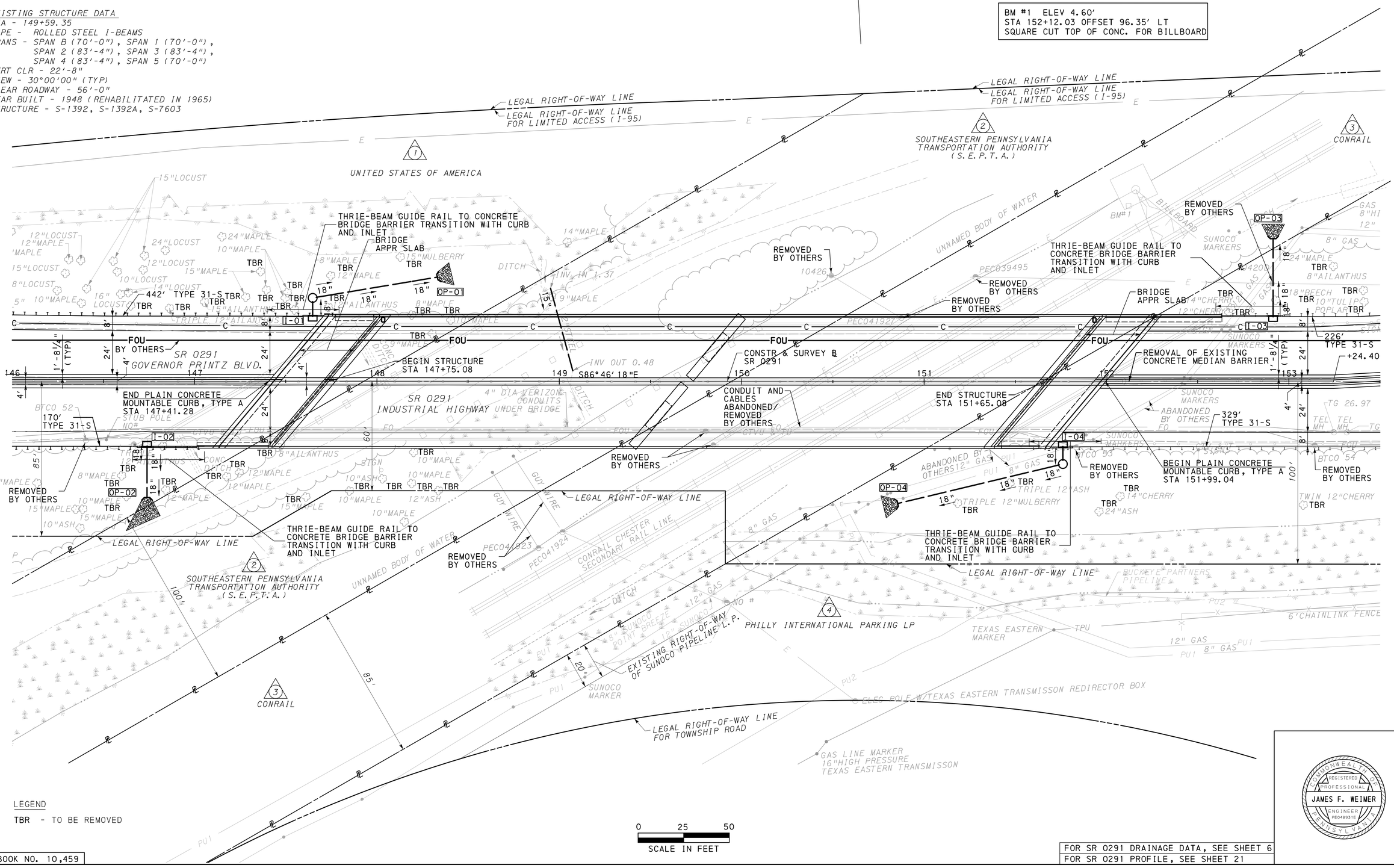
DISTRICT	COUNTY	ROUTE	SECTION	SHEET
6-0	DELAWARE	0291	DEC	16 OF 22
		6291	DEC	
TINICUM TOWNSHIP				

REVISION NUMBER	REVISIONS	DATE	BY

PROPOSED STRUCTURE DATA
STA - 149+70.08
TYPE - TWO SPAN CONTINUOUS STEEL MULTI GIRDER
SPANS - SPAN 1 (195'-0"), SPAN 2 (195'-0")
VERT CLR - 23'-1 1/16 "
SKEW - 50°00'00" (TYP)
CLEAR ROADWAY - 71'-4 1/2"
STRUCTURE - S-34549

EXISTING STRUCTURE DATA
STA - 149+59.35
TYPE - ROLLED STEEL I-BEAMS
SPANS - SPAN B (70'-0"), SPAN 1 (70'-0"),
SPAN 2 (83'-4"), SPAN 3 (83'-4"),
SPAN 4 (83'-4"), SPAN 5 (70'-0")
VERT CLR - 22'-8"
SKEW - 30°00'00" (TYP)
CLEAR ROADWAY - 56'-0"
YEAR BUILT - 1948 (REHABILITATED IN 1965)
STRUCTURE - S-1392, S-1392A, S-7603

BM #1 ELEV 4.60'
STA 152+12.03 OFFSET 96.35' LT
SQUARE CUT TOP OF CONC. FOR BILLBOARD



LEGEND
TBR - TO BE REMOVED

0 25 50
SCALE IN FEET

FOR SR 0291 DRAINAGE DATA, SEE SHEET 6
FOR SR 0291 PROFILE, SEE SHEET 21

SURVEY BOOK NO. 10,459

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JAMES F. WEIMER
ENGINEER
PE048931E

SEE SHEET 15
SEE SHEET 17

DISTRICT	COUNTY	ROUTE	SECTION	SHEET
6-0	DELAWARE	0291	DEC	17 OF 22
		6291	DEC	

TINICUM TOWNSHIP

REVISION NUMBER	REVISIONS	DATE	BY

BM #2 ELEV 10.54'
STA 158+54.56 OFFSET 35.38' RT
SQUARE CUT ON SIGN BASE

POINT #	NORTHING	EASTING
3244	207217.1550	2666617.2050
3245	207184.7760	2666684.8380
3246	207303.9870	2666656.9970
3247	207306.9100	2666582.0250

SR 0291 PI STA. 161+00.08

LEGEND

TBR - TO BE REMOVED

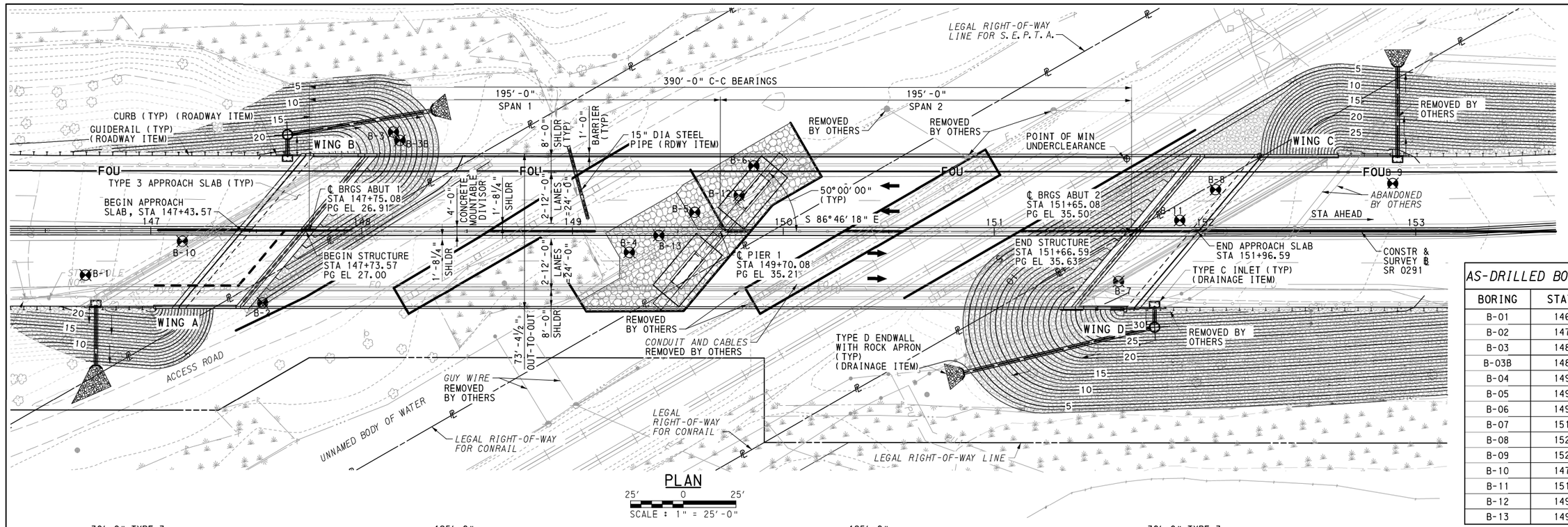
0 25 50
SCALE IN FEET

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JAMES F. WEIMER
ENGINEER
PE048931E

SURVEY BOOK NO. 10,459

FOR SR 0291 PROFILE, SEE SHEET 22

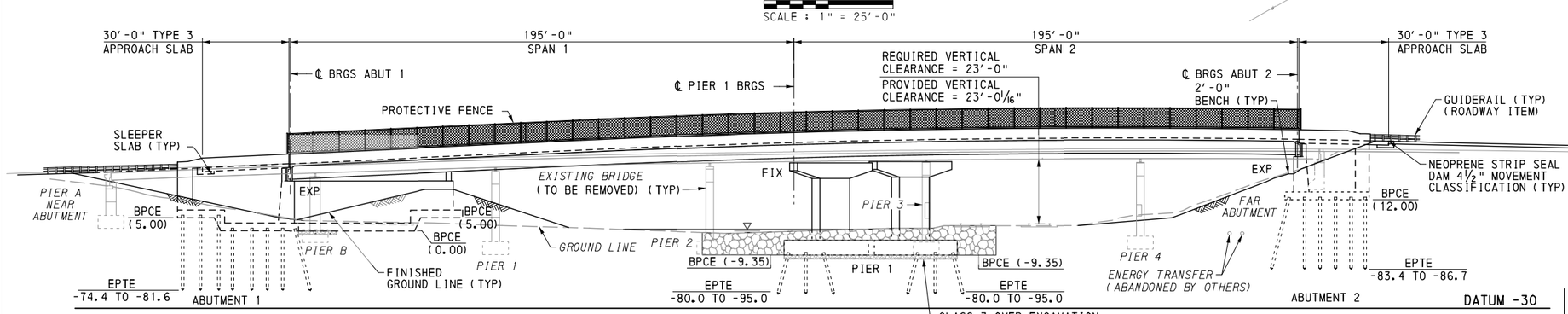
pw:\\cdmsmith-az02-pw.bentley.com:pw_01\Documents\18203\91306_PS&E\10 Transportation\02 Engineering Services NM.502\01 Roadway Design\10 CADD\01 Working\09 Roadway\04 Plans\SR0291-C0pn-004.dgn
OPERATOR: PERONIAM
9:48:21 AM
7/17/2024



PLAN

25' 0 25'

SCALE : 1" = 25'-0"



ELEVATION

25' 0 25'

SCALE : 1" = 25'-0"

AS-DRILLED BORING LOCATIONS

BORING	STATION	OFFSET
B-01	146+69	21.0' R
B-02	147+53	34.0' R
B-03	148+15	47.0' L
B-03B	148+18	43.0' L
B-04	149+27	10.0' R
B-05	149+58	9.0' L
B-06	149+86	31.0' L
B-07	151+59	23.5' R
B-08	152+05	20.0' L
B-09	152+89	23.0' L
B-10	147+15	5.0' R
B-11	151+88	5.5' L
B-12	149+79	17.0' R
B-13	149+41	2.0' R

NOTES

1. FOR GENERAL NOTES & INDEX OF DRAWINGS, SEE SHEETS 2 - 3.
3. FOR STAGED CONSTRUCTION DETAILS, SEE SHEETS 5-6.
4. FOR DEMOLITION PLANS, SEE SHEETS 7-10.
5. PILES OF EXISTING SUBSTRUCTURES ARE NOT SHOWN. FOR INFORMATION REGARDING EXISTING SUPER STRUCTURE AND SUBSTRUCTURES, SEE THE EXISTING STRUCTURE PLANS.

LEGEND

- TEMPORARY EXCAVATION SUPPORT AND PROTECTION SYSTEM (GENERAL LOCATION SHOWN, ACTUAL LENGTH AND LOCATION BASED ON CONTRACTOR'S DESIGN)
- PERMANENT SHIELDING
- PROPOSED DRAINAGE
- 10 PROPOSED CONTOURS
- 10 EXISTING CONTOURS
- WETLANDS
- UTILITY POLE
- E ELECTRIC LINE
- PU1 ENERGY TRANSFER GAS LINE
- PU2 BUCKEYE PARTNERS GAS LINE
- EDGE OF WATER
- DIRECTION OF TRAFFIC
- SELECTED BORROW EXCAVATION ROCK, CLASS R-7 MODIFIED (R-7 CHOKED WITH R-3)
- CLASS R-4 ROCK (ROADWAY ITEM)

SR 0291 HORIZONTAL CURVE DATA

TANGENT S 86°46'18" E

SR 0291 VERTICAL CURVE DATA

PVI STA 150+60.00
ELEV = 41.60
VC = 430.00'

5.16% -4.52%

EXISTING STRUCTURE DATA

STA - 149+59.35

YEAR BUILT - 1948 (REHABILITATED IN 1965)

TYPE - ROLLED STEEL I-BEAMS

SPANS - SPAN B (70'-0"), SPAN 1 (70'-0"), SPAN 2 (83'-4"), SPAN 3 (83'-4"), SPAN 4 (83'-4"), SPAN 5 (70'-0")

VERTICAL CLEARANCE - 22'-8"

SKEW - 30°00'00" (TYP)

CLEAR ROADWAY - 56'-0"

STRUCTURE - S-1392, S-1392A, S-7603

NOTES

1. STAGE 2 ABUTMENT 1 AND BEGINNING OF WINGWALL A BOTTOM OF PILE CAP ELEVATION IS 0.00'. WINGWALL A BOTTOM OF PILE CAP ELEVATION STEPS TO ELEVATION 5.00' AT STA 147+19.96 . STAGE 1B ABUTMENT 1 BOTTOM OF PILE CAP ELEVATION STEPS TO ELEVATION 5.00 AT STA 147+92.11.
2. STAGE 1B ABUTMENT 2 AND BEGINNING OF WINGWALL C BOTTOM OF PILE CAP ELEVATION IS 2.00'. WINGWALL C BOTTOM OF PILE CAP ELEVATION STEPS TO ELEVATION 7.00' AT STA. 152+35.35. STAGE 2 ABUTMENT 2 BOTTOM OF PILE CAP ELEVATION STEPS TO ELEVATION 7.00 AT STA 151+70.99. STAGE 2 ABUTMENT 2 BOTTOM OF PILE CAP ELEVATION STEPS TO ELEVATION 12.00 AT STA. 151+50.10.

COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL BRIAN KEITH HOOVER ENGINEER PE077543

Brian K. Hoover 07/12/2024
PROFESSIONAL ENGINEER DATE

PREPARED BY :

CDM Smith

993 OLD EAGLE SCHOOL RD., SUITE 408
WAYNE, PA 19087
TEL: (610) 293-0450

DESCRIPTION	DWG NO.	APP'D DATE
PROTECTIVE FENCE	BC-701M	11-23-22
TEMPORARY CONCRETE BARRIER, STRUCTURE MOUNTED	BC-719M	03-27-24
PERMANENT METAL DECK FORMS	BC-732M	11-23-22
ANCHOR SYSTEMS	BC-734M	02-19-21
WALL CONSTRUCTION AND EXPANSION JOINT DETAILS	BC-735M	09-30-16
REINFORCEMENT BAR FABRICATION DETAILS	BC-736M	11-23-22
BRIDGE DRAINAGE	BC-751M	01-31-19
CONCRETE DECK SLAB DETAILS	BC-752M	11-23-22
STEEL GIRDER DETAILS	BC-753M	01-31-19
STEEL PILE TIP REINFORCEMENTS AND SPLICES	BC-757M	09-30-16
PREFORMED NEOPRENE COMPRESSION SEAL JOINT FOR APPROACH SLABS	BC-766M	11-23-22
NEOPRENE STRIP SEAL DAM FOR PRESTRESSED CONCRETE & STEEL I-BEAM BRIDGES	BC-767M	11-23-22
TYPICAL WATERPROOFING AND EXPANSION DETAILS	BC-788M	11-23-22
CLASSIFICATION OF EARTHWORK FOR STRUCTURES	RC-11M	06-01-10
BACKFILL AT STRUCTURES	RC-12M	11-01-22

SUPPLEMENTAL DRAWINGS

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

REVISIONS

SR 291 PREVIOUSLY KNOWN AS LR 762
BMS STR ID: 23-0291-0210-0001 MPMS/ECMS PROJ: 92324 BRKEY: 70468

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF TRANSPORTATION

DELAWARE COUNTY
SR 0291 SECTION DEC
SEGMENT 0210 OFFSET 0299 - EB
SEGMENT 0211 OFFSET 0193 - WB
SR 0291 STA 149+70.08 OVER
CONRAIL CHESTER SECONDARY RAIL LINE
2-SPAN CONTINUOUS STEEL MULTI-GIRDER BRIDGE
GENERAL PLAN & ELEVATION

RECOMMENDED
Steve Bartkovich, P.E. Digitally signed by Steven N. Bartkovich, P.E. Date: 2024.07.18 14:48:50 -04'00'
DISTRICT BRIDGE ENGINEER

SHEET 1 OF 112 + SUPPLEMENTAL DRAWINGS

S-34549

DES: TLB | DWG: EMD | CKD: BKH

OPERATOR: DUNNIEM 7/12/2024 4:12:19 PM
pw:\\cdmsmith-ad02-pw.bentley.com:pw_a41\Documents\1182023\91306_PSE\10 Transportation\02 Engineering Services NM_50%\02 Structures\10 CADD\01 Working\FinalPSE\291-GPE.dgn

INDEX OF DRAWINGS

LIST OF ABBREVIATIONS

ABUT	= ABUTMENT
ALT	= ALTERNATE
APP	= APPROACH
APPROX	= APPROXIMATE
℄	= BASELINE
BPCE	= BOTTOM PILE CAP ELEVATION
BOT	= BOTTOM
BTWN	= BETWEEN
BRG	= BEARING
℄	= CENTERLINE
CVN	= CHARPY V-NOTCH
CLR	= CLEARANCE
CCNS	= CLOSED CELL NEOPRENE SPONGE
CONSTR	= CONSTRUCTION
DIA	= DIAMETER
EA	= EACH
EPTE	= ESTIMATED PILE TIP ELEVATION
EF	= EACH FACE
ELEV	= ELEVATION
EMBED	= EMBEDMENT
EQ	= EQUAL
EXIST	= EXISTING
EXP	= EXPANSION
FIX	= FIXED
FF	= FRONT FACE
IF	= INSIDE FACE
JT	= JOINT
LT	= LEFT
MAX	= MAXIMUM
MIN	= MINIMUM
OF	= OUTSIDE FACE
PCP	= PREFORMED CELLULAR POLYSTYRENE
PG	= PROFILE GRADE
PROJ	= PROJECTION
PT	= POINT
VC	= LENGTH OF VERTICAL CURVE
PVI	= POINT OF VERTICAL INTERSECTION
R	= RADIUS
RF	= REAR FACE
RT	= RIGHT
SHLDR	= SHOULDER
SPA	= SPACING OR SPACES
STA	= STATION
TPCE	= TOP PILE CAP ELEVATION
TYP	= TYPICAL
WP	= WORK POINT

GENERAL NOTES

DESIGN SPECIFICATIONS

AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 8TH EDITION, 2017, AND AS SUPPLEMENTED BY DESIGN MANUAL, PART 4 (DECEMBER 2019 REVISIONS).

LIVE LOAD DISTRIBUTION TO GIRDERS IS BASED UPON A THREE DIMENSIONAL FINITE ELEMENT ANALYSIS.

DESIGN IS IN ACCORDANCE WITH THE LRFD METHOD.

DESIGN LIVE LOADS

PHL-93, P-82 AND P216-13.

FATIGUE DESIGN IS BASED ON THE FOLLOWING: ADTT 1402 (YEAR 2044) (ONE-DIRECTIONAL).

DEAD LOADS

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

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.

INCLUDES THE WEIGHT OF THE EXCESS CONCRETE IN THE HAUNCH DUE TO THE GEOMETRIC DIFFERENCE BETWEEN THE CAMBER AND THE VERTICAL PROFILE GRADE.

INCLUDES THE WEIGHT OF THE UTILITIES SUPPORTED FROM THE SUPERSTRUCTURE.

GENERAL CONSTRUCTION

PROVIDE MATERIALS AND PERFORM WORK IN ACCORDANCE WITH SPECIFICATIONS, PUBLICATION 408, AASHTO/AWS D1.5M/D1.5-2015 BRIDGE WELDING CODE, AND CONTRACT SPECIAL PROVISIONS. USE AASHTO/AWS D1.1/D1.1M-2015 FOR WELDING NOT COVERED IN AASHTO/AWS D1.5M/D1.5-2015.

PROVIDE 2-INCH CONCRETE COVER ON REINFORCEMENT BARS, EXCEPT AS NOTED.

USE CLASS AAAP CEMENT CONCRETE IN DECK SLAB, CONCRETE END DIAPHRAGMS, AND APPROACH SLAB.

USE CLASS AA CEMENT CONCRETE IN BARRIERS, MEDIANS, ABUTMENT BACKWALL, CHEEK WALL, WINGWALL ABOVE GUTTERLINE CONSTRUCTION JOINT, SLEEPER SLABS AND CURBS.

USE CLASS A CEMENT CONCRETE IN PIERS, ABUTMENTS BELOW BRIDGE SEAT, PEDESTALS, WINGWALLS BELOW GUTTERLINE CONSTRUCTION JOINT.

A HIGHER CLASS CONCRETE MAY BE SUBSTITUTED FOR A LOWER CLASS CONCRETE AT NO ADDITIONAL COST TO THE DEPARTMENT.

PROVIDE GRADE 60 REINFORCING STEEL BARS THAT MEET THE REQUIREMENTS OF ASTM A 615, A 996 OR A 706. 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 REINFORCEMENT BARS IN ABUTMENTS, BEAMS, BARRIERS, PIERS, FOOTINGS, BARRIERS OR WHERE BENDING OR WELDING OF THE REINFORCEMENT BARS IS INDICATED.

USE EPOXY-COATED REINFORCEMENT BARS UNLESS NOTED OTHERWISE.

GALVANIZED REINFORCING STEEL BARS MAY BE SUBSTITUTED FOR EPOXY-COATED REINFORCING STEEL BARS AT NO ADDITIONAL COST TO THE DEPARTMENT.

RAKE-FINISH ALL HORIZONTAL CONSTRUCTION JOINTS, EXCEPT AS INDICATED.

ABUTMENT BACKWALLS MAY BE PLACED UP TO A CONSTRUCTION JOINT BELOW THE LEVEL OF THE BOTTOM OF DECK SLAB PRIOR TO THE CONSTRUCTION OF THE DECK.

CONSTRUCT DECK SLAB TRANSVERSE CONSTRUCTION JOINTS PARALLEL TO BRIDGE CENTERLINE OF BEARINGS.

PLACE CHEEKWALL CONCRETE AFTER BEAMS ARE SET IN POSITION.

CHAMFER EXPOSED CONCRETE EDGES ¾ INCH BY ¾ INCH, EXCEPT AS NOTED.

ALL DIMENSIONS SHOWN ARE HORIZONTAL, EXCEPT AS NOTED.

USE EITHER PERMANENT METAL FORMS OR REMOVABLE FORMS TO CONSTRUCT THE DECK SLAB.

DECK SLAB THICKNESS INCLUDES A ½ INCH INTEGRAL WEARING SURFACE.

SUPERSTRUCTURE DIMENSIONS SHOWN ARE FOR A NORMAL TEMPERATURE OF 68°F.

APPLY PROTECTIVE COATING FOR REINFORCED CONCRETE SURFACES (PENETRATING SEALERS, BRIDGE SUPERSTRUCTURE) TO BRIDGE DECK SLAB, AND TO INSIDE AND TOP SURFACES OF BARRIER, IN ACCORDANCE WITH PUB 408, SECTION 1019.

REINFORCEMENT BAR SPACINGS CALLED OUT IN THE PLANS ARE A MAXIMUM.

PROVIDE MINIMUM EMBEDMENT AND SPLICE LENGTHS IN ACCORDANCE WITH STANDARD DRAWING BC-736M, UNLESS OTHERWISE INDICATED.

PREPARE BEARING AREAS AS SPECIFIED IN PUBLICATION 408, SECTION 1001.3(K)9.

DO NOT USE ADHESIVE ANCHORS IN TENSION APPLICATION FOR PERMANENT INSTALLATION.

DO NOT USE ADHESIVE ANCHORS IN A SUSTAINED TENSION APPLICATION FOR TEMPORARY INSTALLATIONS, INCLUDING DURING CONSTRUCTION.

BRIDGE IS NOT WEIGHT RESTRICTED. SEE PUBLICATION 408 SECTION 105.17 FOR CONSTRUCTION LOADING LIMITS.

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 COMPUTE STRESS ANALYSIS. SATISFY THE REQUIREMENTS OF THE ORIGINAL SLAB PLACEMENT SEQUENCE. OBTAIN WRITTEN APPROVAL PRIOR TO THE USE OF THE REVISED SLAB PLACEMENT SEQUENCE. OBTAIN WRITTEN APPROVAL PRIOR TO THE USE OF THE REVISED SLAB 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.

SET ANCHOR BOLTS TO TEMPLATE OR IN PREFORMED HOLES. DO NOT DRILL UNLESS SPECIFICALLY INDICATED ON PLANS. FILL THE PREFORMED HOLE WITH NON-SHRINK 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.

NOTIFY THE MANAGER OF THE PHILADELPHIA INTERNATIONAL AIRPORT AND PHILADELPHIA AIR TRAFFIC CONTROL TOWER (INTERNATIONAL) AT LEAST 3 BUSINESS DAYS PRIOR TO ANY TEMPORARY STRUCTURES BEING ERECTED AND AGAIN WHEN THE STRUCTURE IS REMOVED FROM THE SITE, AND COOPERATE WITH THE PHILADELPHIA INTERNATIONAL AIRPORT DURING CONSTRUCTION. PROVIDE CONTACT INFORMATION FOR THE ON-SITE POINT OF CONTACT IN THE EVENT THAT AIR TRAFFIC CONTROL REQUIRES THE TEMPORARY STRUCTURE TO BE LOWERED IMMEDIATELY. FOLLOW THE SPECIAL PROVISION "FEDERAL AVIATION ADMINISTRATION CLEARANCE" FOR ADDITIONAL DETAILS AND INSTRUCTIONS.

JIMMY CLARKIN, PP, AICP, LEED GA
PHILADELPHIA INTERNATIONAL AIRPORT
CAPITAL DEVELOPMENT SUSTAINABILITY
ONE INTERNATIONAL PLAZA DRIVE, SUITE 100
OFFICE: (215) 937-7853
CELL: (732) 208-8588

STRUCTURAL STEEL

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. HAULING PERMIT IS REQUIRED FOR LENGTHS AS SHOWN ON THE PLANS.

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.

DO NOT USE FORM SUPPORT SYSTEMS THAT WILL CAUSE UNACCEPTABLE OVERSTRESS OR DEFORMATION TO PERMANENT BRIDGE MEMBERS.

ALL FASTENERS ARE ⅞ IN DIAMETER ASTM F3125, GRADE A325HS BOLTS, EXCEPT AS NOTED. OVERSIZED HOLES ARE NOT PERMITTED. PROVIDE SUFFICIENT LENGTH TO NOT ALLOW ANY THREADS TO EXIST IN THE PLANE BETWEEN THE TWO CONNECTED PARTS (SHEAR PLANE).

REAM SUBDRILLED OR SUBPUNCHED HOLES FOR FIELD SPLICES IN THE FABRICATION SHOP.

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.

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.

WELDING OF REINFORCEMENT BARS DURING FABRICATION OR CONSTRUCTION IS NOT PERMITTED UNLESS SPECIFIED.

PROVIDE WELDED STUD SHEAR CONNECTORS MANUFACTURED FROM STEEL CONFORMING TO ASTM A108.

SET ANCHOR BOLTS TO TEMPLATE OR IN PREFORMED HOLES. DO NOT DRILL UNLESS SPECIFICALLY INDICATED ON PLANS. FILL THE PREFORMED HOLES WITH NON-SHRINK 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.

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 DEFLECTION ON THE STEEL MEMBERS DURING ANY STAGE OF ERECTION.

NOTES

1. FOR GENERAL PLAN & ELEVATION, SEE SHEET 1.
2. FOR GENERAL NOTES - 2, SEE SHEET 3.

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

SR 291 PREVIOUSLY KNOWN AS LR 762
BMS STR ID: 23-0291-0210-0001 MPMS/ECMS PROJ: 92324 BRKEY: 70468

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF TRANSPORTATION

DELAWARE COUNTY
SR 0291 SECTION DEC
SEGMENT 0210 OFFSET 0299 - EB
SEGMENT 0211 OFFSET 0193 - WB
SR 0291 STA 149+70.08 OVER
CONRAIL CHESTER SECONDARY RAIL LINE
2-SPAN CONTINUOUS STEEL MULTI-GIRDER BRIDGE
GENERAL NOTES - 1

COMMONWEALTH OF PENNSYLVANIA — REGISTERED PROFESSIONAL — BRIAN KEITH HOOVER — ENGINEER PE077543

PREPARED BY
CDM SMITH
WAYNE, PA

RECOMMENDED 07/18/2024

SHEET 2 OF 112

S-34549

DES: TLB | DWG: EMD | CKD: BKH

STRUCTURAL STEEL (CONTINUTED)

HEAT-CURVED GIRDERS ARE NOT PERMITTED.

THE STEEL SUPERSTRUCTURE SHALL BE DETAILED AND FABRICATED FOR STEEL DEAD LOAD FIT (SDLF).

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.

PROVIDE INSPECTION HANDRAILS ON INSIDE FACE OF FASCIA GIRDERS AND ON BOTH FACES OF INTERIOR GIRDERS.

IT IS PERMISSIBLE TO ATTACH THE DIAPHRAGMS BETWEEN GIRDERS 5 AND 6 AFTER THE MAIN DECK POUR IN STAGE 2 IN ORDER TO ACHIEVE FIT-UP OF THE DIAPHRAGMS. ATTACH THE DIAPHRAGMS PRIOR TO THE FORMING OF THE STAGE 2 CLOSURE POUR BETWEEN GIRDERS 5 AND 6.

PROVIDE STRUCTURAL STEEL CONFORMING TO AASHTO M 270/M 270 M (ASTM A 709/A 709M) GRADE 50W DESIGNATION, EXCEPT WHEN NOTED OTHERWISE.

WELDING NOTES

WELDING SPECIFICATIONS: AASHTO/AWS D1.5M/D1.5 BRIDGE WELDING CODE (2015) CONSISTENT WITH PUB 408 1105.03(M).AND THE CONTRACT SPECIAL PROVISIONS. DO NOT FIELD-WELD ON ANY PART OF THE EXISTING BRIDGE, EXCEPT WHERE SHOWN ON THE DRAWINGS, WITHOUT PRIOR APPROVAL OF THE DISTRICT BRIDGE ENGINEER.

WELDING OF EXISTING STRUCTURAL STEEL: USE THE SHIELDED METAL ARC PROCESS AND LOW HYDROGEN ELECTRODES WHICH ARE COMPATIBLE WITH THE BASE METAL AS SPECIFIED, AND IN ACCORDANCE WITH AN APPROVED WELD PROCEDURE SPECIFICATION.

MAKE TACK WELDS WITH THE SAME TYPE OF ELECTRODE AND INCORPORATE IN THE FINAL WELD. NO OTHER TACK WELDING WILL BE PERMITTED.

DO NOT WELD WHEN SURFACES TO BE WELDED ARE MOIST OR EXPOSED TO RAIN, SNOW, OR WIND, OR WHEN WELDERS ARE EXPOSED TO INCLEMENT CONDITIONS THAT WILL ADVERSELY AFFECT THE QUALITY OF THE WORK.

DO NOT WELD OR BURN WHEN THE TEMPERATURE IS BELOW 0 °F. PREHEAT AND MAINTAIN THE TEMPERATURE OF THE METAL TO AT LEAST 70°F WHEN THE TEMPERATURE OF THE METAL IS BETWEEN 0 °F AND 32°F DURING WELDING OR BURNING.

PREHEAT THE STEEL TO THE SPECIFIED MINIMUM TEMPERATURE FOR A DISTANCE EQUAL TO THE THICKNESS OF THE PART BEING WELDED, BUT NOT LESS THAN 3 IN. IN ALL DIRECTIONS FROM THE POINT OF WELDING.

REMOVE BY APPLICATION OF HEAT ANY MOISTURE PRESENT AT POINT OF WELD. PROVIDE WINDBREAKS FOR PROTECTION FROM DIRECT WIND.

PRIOR TO PLACING THE WELD, THOROUGHLY CLEAN ALL PORTIONS OF NEW AND EXISTING SURFACES TO RECEIVE WELDS OF ALL FOREIGN MATTER, INCLUDING PAINT FILM, FOR A DISTANCE OF 2 IN. FROM EACH SIDE OF THE OUTSIDE LINES OF THE WELD.

TEST COMPLETED WELDS USING VISUAL AND NONDESTRUCTIVE METHODS IN ACCORDANCE WITH AASHTO/AWS D1.5M/D1.5 BRIDGE WELDING CODE CLAUSE 6.

FOUNDATION NOTES

PILE SPLICING TO BE IN ACCORDANCE WITH STANDARD DRAWINGS BC-757M.

SOIL IS CONSIDERED A CORROSIVE ENVIRONMENT. PILE CAPACITY HAS BEEN REDUCED TO ACCOUNT FOR POTENTIAL CORROSION.

LIMIT THE MAXIMUM DRIVING STRESS OF THE PILES TO 45 KSI (90 PERCENT OF THE PILE YIELD STRESS).

PROVIDE NECESSARY PROTECTION MEASURES WHEN PILE DRIVING OPERATIONS ARE IN CLOSE PROXIMITY TO LIVE TRAFFIC.

EXCAVATE ACCORDING TO CURRENT OSHA OR OTHER APPLICABLE LOCAL, STATE, AND FEDERAL REGULATIONS. PROVIDE TEMPORARY SHORING OF EXCAVATED AREAS AS NECESSARY. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE STABILITY OF THE EXCAVATIONS.

PROVIDE ADEQUATE DEWATERING METHODS DURING EXCAVATION AND FOUNDATION CONSTRUCTION SUCH THAT THE EXCAVATION IS DRY ENOUGH FOR INSPECTION AND CONCRETE PLACEMENT.

USE CONCRETE WITH A MAXIMUM WATER/CEMENT RATIO OF 0.45 (BY WEIGHT) AND AIR ENTRAINMENT FOR SUBSTRUCTURE FOUNDATIONS. DO NOT UTILIZE ADMIXTURES CONTAINING CHLORIDES. ALL REBAR SHALL BE EPOXY COATED.

EXCAVATE ACCORDING TO OSHA AND OTHER APPLICABLE LOCAL, STATE, AND FEDERAL REGULATIONS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE STABILITY OF ALL EXCAVATIONS.

BLASTING IS NOT PERMITTED TO BE USED AS A METHOD OF EXCAVATION.

SEISMIC SITE CLASSIFICATION: SITE CLASS E
SEISMIC ZONE: ZONE 1
PEAK GROUND ACCELERATION: 0.07G
ACCELERATION COEFFICIENT: 0.175G

BACKFILL OVEREXCAVATION WITH COARSE AGGREGATE TO THE BOTTOM OF PILE CAP ELEVATION PRIOR TO DRIVING THE PILES AT ABUTMENT 1 (EASTBOUND) AND WINGWALL A, PROVIDE PERMANENT SHIELDING AT A DISTANCE NO MORE THAN 2.0 FEET BEHIND THE PROPOSED PILE CAP. AT A MINIMUM, THE PERMANENT SHIELDING SHOULD EXTEND FROM THE TOP OF THE PROPOSED PILE CAP TO ELEVATION -12.0 FEET.

DRIVE HP14x117 (GRADE 50) PILES TO ABSOLUTE REFUSAL AS DEFINED BY PUBLICATION 408, SECTION 1005.3(b)5.a - CASE 2 TO SUPPORT THE ABUTMENTS, ASSOCIATED WINGWALLS AND PIER. UTILIZE HEAVY-DUTY PILE TIP REINFORCEMENT WITH STEEL PRONGS IN ACCORDANCE WITH PUBLICATION 408, SECTION 1005.2(b). USE BATTERED PILES TO SUPPORT LATERAL LOADS.

IN THE EVENT THAT OBSTRUCTIONS ARE ENCOUNTERED PRIOR TO REACHING THE PREDETERMINED PILE TIP ELEVATIONS, EXTRACT THE PILE AND PRE-DRILL THROUGH THE OBSTRUCTION IN ACCORDANCE WITH PUBLICATION 408, SECTION 1005.3(j). INSPECT THE PILE FOR DAMAGE PRIOR TO REDRIVING THE PILE TO REFUSAL.

PERFORM A MINIMUM OF TWO TEST PILES AT EACH ABUTMENT/PIER FOR EACH CONSTRUCTION STAGE AT LOCATIONS SHOWN ON THE PLANS. PERFORM DYNAMIC PILE LOAD TESTING IN ACCORDANCE WITH PUBLICATION 408, SECTION 1005.3(h)2. TEST PILES THAT ARE ACCEPTED BASED ON THE RESULTS OF THE DYNAMIC PILE LOAD TESTING CAN BE USED AS PRODUCTION PILES.

FOUNDATION NOTES (CONTINUED)

CONTROL PILE DRIVING BY THE WAVE EQUATION ANALYSIS IN ACCORDANCE WITH PUBLICATION 408, SECTION 1005.3(b)5.a-CASE 2. THE DISTRICT STRUCTURE CONTROL ENGINEER SHALL VERIFY, FROM THE TEST PILE DRIVING RESULTS, THE CAPABILITY OF THE PILE HAMMER SELECTED BY THE CONTRACTOR.

PILE CAPACITY AS ESTABLISHED BY PILE DRIVE ANALYZER MUST BE GREATER THAN OR EQUAL TO THE PILE RESISTANCE OF 729 KIPS (FACTORED PILE RESISTANCE OF 474 KIPS DIVIDED BY RESISTANCE FACTOR OF 0.65).

DRIVE BEARING PILES TO A TIP ELEVATION AND A DRIVING RESISTANCE PREDETERMINED BY THE STRUCTURAL CONTROL ENGINEER FROM THE DYNAMIC PILE LOAD TESTING OF THE TEST PILES. THE DISTRICT STRUCTURE CONTROL ENGINEER SHALL DETERMINE THE ACCEPTABILITY OF THE BEARING PILES WHICH OBTAIN THE DESIRED DRIVING RESISTANCE ABOVE THE PREDETERMINED PILE TIP ELEVATIONS.

CONSTRUCT THE STEEPEND WIDENED EMBANKMENTS IN ACCORDANCE WITH PUBLICATION 408, SECTION 206.3(a) AND THE SPECIAL DETAILS AT THE LOCATIONS NOTED ON THE PLANS. UTILIZE EMBANKMENT MATERIAL MEETING CRITERIA OF PUBLICATION 408,SECTION 206.2(a) AND R-4 SIZED ROCK PROTECTION MEETING MATERIAL CRITERIA OF PUBLICATION 408, SECTION 850.2(a). WHERE A STEEPEND EMBANKMENT IS LOCATED ADJACENT TO A WETLAND, INSTALL A GEOMEMBRANE AROUND THE ROCK TOE AND THE BASE OF THE EMBANKMENT TO A HEIGHT OF THREE FEET ABOVE THE TOE OF FILL TO LIMIT WATER FROM DRAINING FROM THE WETLAND. ANCHOR THE GEOMEMBRANE AS SPECIFIED BY THE MANUFACTURER. THE GEOMEMBRANE SHALL MEET REQUIREMENTS OF PUBLICATION 408, SECTION 736. UTILIZE R-3 ROCK OR AASHTO NO. 1 WHERE GUIDERAILS ARE TO BE INSTALLED AND WHERE THE PROPOSED SLOPE IS A MAXIMUM OF FOUR FEET IN HEIGHT.

PROVIDE TEMPORARY EXCAVATION SUPPORT, IN ACCORDANCE WITH TEMPORARY EXCAVATION SUPPORT AND PROTECTION SYSTEM STANDARD SPECIAL PROVISION. ATRESIAN CONDITIONS WERE ENCOUNTERED IN BORING B-04 DRILLED AT THE PROPOSED PIER LOCATION AT A DEPTH OF 21.0 FEET. DESIGN OF TEMPORARY EXCAVATION SUPPORT SHALL CONSIDER THE POTENTIAL OF LIQUEFACTION DUE TO THE PRESENCE OF SATURATED, LOW BLOW COUNT, TYPICALLY FINE-GRAINED SOILS (SILT AND FIND SAND).

STRUCTURE DEMOLITION NOTES

DO NOT CONSIDER ANY OF THE DATA ON THE EXISTING STRUCTURE SUPPLIED IN THE ORIGINAL DRAWINGS OR MADE AVAILABLE TO YOU BY THE DEPARTMENT OR ITS AUTHORIZED AGENTS AS POSITIVE REPRESENTATIONS OF ANY OF THE CONDITIONS THAT WILL BE ENCOUNTERED IN THE FIELD.

THE INFORMATION SHOWN ON THE PLANS FOR THE EXISTING BRIDGE IS NOT PART OF THE PLANS, PROPOSAL, OR CONTRACT AND IS NOT TO BE CONSIDERED A BASIS FOR COMPUTATION OF THE UNIT PRICES USED FOR BIDDING PURPOSES. THERE IS NO EXPRESSED OR IMPLIED AGREEMENT THAT INFORMATION IS CORRECTLY SHOWN. THE BIDDER IS NOT TO RELY ON THISINFORMATION, BUT IS TO ASSUME THE POSSIBILITY THAT CONDITIONS AFFECTING THE COST AND/OR QUANTITIES OF WORK TO BE PERFORMED MAY DIFFER FROM THOSE INDICATED.

BRIDGE IS WEIGHT RESTRICTED. SEE PUBLICATION 408, SECTION 105.17 FOR CONSTRUCTION LOADING LIMITS.

SEE EROSION AND SEDIMENT POLLUTION CONTROL PLANS, TRAFFIC CONTROL PLANS AND CONTRACT SPECIAL PROVISIONS FOR THE SEQUENCE OF OPERATIONS FOR THE REMOVAL OF EXISTING BRIDGE.

DESIGN THE TEMPORARY EXCAVATION SUPPORT AND PROTECTION SYSTEM BASED ON PARAMETERS OUTLINED IN THE APPROVED FOUNDATION REPORT, FOUNDATION NOTES,AND CONTRACT SPECIAL PROVISIONS. ENSURE DESIGN IS IN ACCORDANCE WITH CURRENT AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, DESIGN MANUAL PART 4 SPECIFICATIONS, CURRENT FHWA GUIDELINES, AND AASHTO GUIDE SPECIFICATIONS.

THE EXISTING STRUCTURE HAS BEEN INVESTIGATED FOR THE EXISTENCE OF ASBESTOS CONTAINING MATERIALS AND LEAD BASED PAINT. THE RESULTS OF THE INSPECTION DID IDENTIFY ASBESTOS CONTAINING MATERIALS. REMOVE AND DISPOSE OF ASBESTOS CONTAINING MATERIAL IN ACCORDANCE WITH THE CONTRACT SPECIAL PROVISIONS. THE EPA CONSIDERS THE BRIDGE AS A FACILITY, AND THUS COMPLIANCE WITH THE NESHAP'S REGULATIONS, WHICH INCLUDES APPROPRIATE 10-DAY NOTIFICATION IS REQUIRED. PAINT COATINGS WERE IDENTIFIED TO CONTAIN HEAVY METALS. REMOVE PAINTED SURFACES ON THE STEEL BEAMS AND ASSOCIATED BRACING IN ACCORDANCE WITH OSHA REGULATIONS INCLUDING BUT NOT LIMITED TO THE OSHA LEAD IN CONSTRUCTION STANDARD AND THE CONTRACT SPECIAL PROVISIONS.

FOR ADDITIONAL INFORMATION REGARDING THE EXISTING BRIDGE, REFERENCE THE EXISTING STRUCTURE PLAN.

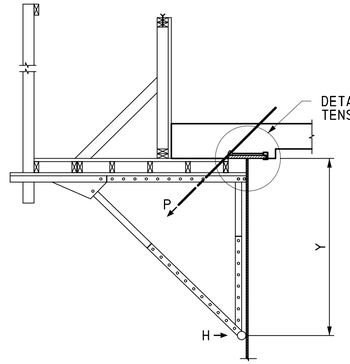
UTILITY NOTES

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

VERIFY AND LOCATE ALL EXISTING UTILITIES PRIOR TO STARTING WORK; CONDUCT OPERATIONS IN A MANNER WHICH ENSURES THAT THE UTILITIES WILL NOT BE DISTURBED OR ENDANGERED, AND ASSUME FULL RESPONSIBILITY FOR ANY DAMAGE TO UTILITIES DURING CONSTRUCTION. THE DEPARTMENT DOES NOT ASSUME RESPONSIBILITY FOR REIMBURSEMENT, PARTICIPATION IN DESIGN AND/OR REVISIONS, OR LIABILITY FOR ACCURACY OF TYPE, SIZE, AND LOCATION OF ANY UTILITY.

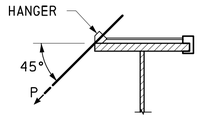
TEST PILE - AS BUILT INFORMATION

SUBSTRUCTURE UNIT	PILE TYPE	PILE TIP (NONE/NORMAL/ HEAVY DUTY)	PILE TIP ELEVATION	FACTORED DESIGN LOAD (KIPS)	ULTIMATE PILE CAPACITY AT END OF DRIVING (KIPS)	WEAP OR PDA
ABUT 1 STAGE 1B TEST PILE 1	HP14X117	--	--	--	--	--
ABUT 1 STAGE 1B TEST PILE 2	HP14X117					
ABUT 1 STAGE 2 TEST PILE 1	HP14X117					
ABUT 1 STAGE 2 TEST PILE 2	HP14X117					
STAGE 1B PIER TEST PILE 1	HP14X117					
STAGE 1B PIER TEST PILE 2	HP14X117					
STAGE 2 PIER TEST PILE 1	HP14X117					
STAGE 2 PIER TEST PILE 2	HP14X117					
ABUT 2 STAGE 1B TEST PILE 1	HP14X117					
ABUT 2 STAGE 1B TEST PILE 2	HP14X117					
ABUT 2 STAGE 2 TEST PILE 1	HP14X117					
ABUT 2 STAGE 2 TEST PILE 2	HP14X117					



TYPICAL OVERHANG FORMING DETAIL

NOT TO SCALE



DETAIL AT TENSION AREA

NOT TO SCALE

NORMAL DEPTH Y (in)	MAXIMUM PERMISSIBLE HORIZONTAL LOAD H (kip/ft)
66	1.02

DEPTH MEASURED FROM UNDERSIDE OF TOP FLANGE.
MAXIMUM PERMISSIBLE JACK SPACING 3 FT.

THE FASCIA GIRDERS ARE DESIGNED FOR A TEMPORARY CONSTRUCTION LOAD APPLIED TO THE WEB AT A MAXIMUM 3FT 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 DESCIRBED 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 MODIFCATIONS DO NOT CAUSE UNACCEPTABLE DEFORMATION OR STRESSES IN THE BRIDGE AND IT IS UNDERSTOOD THE CONTACTOR IS ULTIMATELY RESPONSIBLE FOR THE SATISFACTORY COMPLETION OF THE BRIDGE.

PILE SUPPORTED FOUNDATION	ABUTMENT 1, WINGWALLS A & B	ABUTMENT 2, WINGWALLS C & D	PIER 1
APPLICABLE BORINGS	B-01, B-02, B-03/B-03B, B-10	B-07, B-08, B-09, B-11	B-04, B-05, B-06, B-12, B-13
BEARING STRATUM	MICA SCHIST & GNEISS		
RECOVERY (%)	93	98	89
RQD (%)	67	65	48
BOTTOM OF PILE CAP ELEVATION (FT)	STEP 1 BPCE = 0.00	STEP 1 BPCE = 2.00	BPCE = -9.35
	STEP 2 BPCE = 5.00	STEP 2 BPCE = 7.00	
		STEP 3 BPCE = 12.00	
ESTIMATED PILE TIP EL (FT)	-74.4 TO -81.6	-83.4 TO -86.7	-80.0 TO -95.0
PILE TYPE	HP14x117		
ULTIMATE AXIAL CAPACITY, q_{ult} (KIPS)	948		
AXIAL RESISTANCE FACTOR	0.5		
FACTORED AXIAL RESISTANCE q_r (KIPS)	474		

NOTES

1. FOR GENERAL PLAN & ELEVATION, SEE SHEET 1.
2. FOR GENERAL NOTES - 1 AND INDEX OF DRAWINGS, SEE SHEET 2.

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

SR 291 PREVIOUSLY KNOWN AS LR 762
BMS STR ID: 23-0291-0210-0001 MPMS/ECMS PROJ: 92324 BRKEY: 70468

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF TRANSPORTATION

DELAWARE COUNTY
SR 0291 SECTION DEC
SEGMENT 0210 OFFSET 0299 - EB
SEGMENT 0211 OFFSET 0193 - WB
SR 0291 STA 149+70.08 OVER
CONRAIL CHESTER SECONDARY RAIL LINE
2-SPAN CONTINUOUS STEEL MULTI-GIRDER BRIDGE
GENERAL NOTES - 2

RECOMMENDED 07/18/2024

SHEET 3 OF 112

S-34549

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
BRIAN KEITH HOOVER
ENGINEER PE077543

PREPARED BY
CDM SMITH
WAYNE, PA

DES: TLB | DWG: EMD | CKD: BKH

OPERATOR: BLAINET
7/22/2024 11:49:17 AM
pw:\\cdmsmith-ad02-pw.bentley.com:pw_pi1\Documents\118203\91306_PSE\E\10 Transportation\02 Engineering Services NM_50%\02 Structures\10 CADD\01 Working\FinalPSE\291-GENERAL SHEETS.dgn

APPROXIMATE QUANTITIES - BRIDGE STRUCTURE, AS DESIGNED

ITEM NO	DESCRIPTION	UNIT	APPROACH SLAB 1	ABUT 1	PIER	ABUT 2	APPROACH SLAB 2	SUPER-STRUCTURE	TOTAL
8120-0001	BRIDGE STRUCTURE, AS DESIGNED, S-34549 (4)	LS	-	-	-	-	-	-	LUMP SUM
(1)	CLASS 3 EXCAVATION	CY	-	1,280	2,220	3,930	-	-	7,430
(1)	STRUCTURE BACKFILL	CY	-	2,260	-	3,240	-	-	5,500
(1)	MEMBRANE WATERPROOFING INSTALLED ON OTHER SURFACES	SY	-	99	20	110	-	-	229
(1)	NO. 57 COARSE AGGREGATE (10)	CY	-	5	-	6	-	-	11
(1)	CLASS AAAP CEMENT CONCRETE (3)	CY	123	-	-	-	123	938	1,184
(1)	CLASS A CEMENT CONCRETE (3)	CY	-	476	462	701	-	-	1,639
(1)	CLASS AA CEMENT CONCRETE (7)(8)	CY	37	34	-	40	37	128	276
(1)	STEEL HP 14 X 117 TEST PILE (6)	EA	-	2 @ 89′ 2 @ 84′	4 @ 89′	2 @ 95′ 1 @ 90′ 1@ 100′	-	-	12
(1)	PROTECTIVE COATING FOR REINFORCED CONCRETE SURFACES (PENETRATING SEALERS, REINFORCED CONCRETE SUBSURFACES) (9)	SY	-	374	425	498	-	-	1,297
(1)	PROTECTIVE COATING FOR REINFORCED CONCRETE SURFACES (PENETRATING SEALERS, BRIDGE SUPERSTRUCTURE) (9)	SY	270	-	-	-	270	3,533	4,073
(1)	NEOPRENE STRIP SEAL DAM, (4½" MOVEMENT)	LF	96	-	-	-	96	-	192
(1)	HIGH LOAD MULTI-ROTATIONAL BEARINGS - FIXED	EA	-	-	8	-	-	-	8
(1)	HIGH LOAD MULTI-ROTATIONAL BEARINGS - GUIDED EXPANSION	EA	-	8	-	8	-	-	16
(1)	HIGH LOAD MULTI-ROTATIONAL BEARINGS - NON-GUIDED EXPANSION	LB	-	2	2	2	-	-	6
(1)	FABRICATED STRUCTURAL STEEL	LB	-	-	-	-	-	1,789,906	1,789,906
(1)	SHEAR CONNECTORS	EA	-	-	-	-	-	11,520	11,520
(1)	BARRIER PROTECTIVE FENCE, VINYL-COATED STEEL	LF	-	-	-	-	-	804	804
AND 1002-0052	REINFORCEMENT BARS, EPOXY COATED (2)	LB	41,230	42,733	90,330	66,210	41,836	331,721	614,060
AND 1002-0138	MECHANICAL SPLICE SYSTEM FOR NO. 4 REINFORCEMENT BARS, EPOXY COATED (2)	EA	-	84	-	74	-	-	158
AND 1002-0140	MECHANICAL SPLICE SYSTEM FOR NO. 5 REINFORCEMENT BARS, EPOXY COATED (2)	EA	43	-	-	24	43	2,915	3,025
AND 1002-0142	MECHANICAL SPLICE SYSTEM FOR NO. 6 REINFORCEMENT BARS, EPOXY COATED (2)	EA	8	60	-	19	8	40	135
AND 1002-0146	MECHANICAL SPLICE SYSTEM FOR NO. 7 REINFORCEMENT BARS, EPOXY COATED (2)	EA	24	-	-	15	24	-	63
AND 1005-1850	STEEL HP 14 X 117 PRODUCTION PILE	LF	-	4,928	3,960	6,325	-	-	15,213
AND 1005-2050	STEEL HP 14 X 117 TIP REINFORCMENT, (HEAVY DUTY)	EA	-	56	44	65	-	-	165
4205-0267	SELECTED BORROW EXCAVATON ROCK, CLASS R-7 (R-7 CHOKED WTH R-3)	CY	-	-	1,230	-	-	-	1,230
5018-0050	REMOVAL OF PORTION OF EXISTING BRIDGE, S-34549 (4)	LS	-	-	-	-	-	-	LUMP SUM
1005-1420	PREDRILLING FOR UNFORESEEN OBSTRUCTIONS, EARTH DRILLING, S-34549	DOLLA	-	-	-	-	-	-	161,000
1005-1430	PREDRILLING FOR UNFORESEEN OBSTRUCTIONS, OBSTRUCTION DRILLING, S-34549	DOLLA	-	-	-	-	-	-	81,000
1005-1440	PILE EXTRACTION AND REDRIVING, S-34549	DOLLA	-	-	-	-	-	-	50,000
1005-1450	MOBILIZATION FOR PREDRILLING FOR UNFORESEEN OBSTRUCTIONS, S-34549 (4)	DOLLA	-	-	-	-	-	-	25,000
1005-1480	DYNAMIC PILE LOAD TEST	EA	-	4	4	4	-	-	12
9000-0004	DEBRIS SHIELDING, S-34549 (4)(5)	LS	-	-	-	-	-	-	LUMP SUM
9000-0006	CLASS 3 OVER EXCAVATION AND BACKFILL WITH COARSE AGGRAGATE, S-34549 (4)	CY	-	204	24	822	-	-	1,050
9000-0010	PERMANENT SHIELDING (4)	LS	-	-	-	-	-	-	LUMP SUM
9203-0101	TEMPORARY EXCAVATION SUPPORT AND PROTECTION SYSTEM, S-34549 (4)	LS	-	-	-	-	-	-	LUMP SUM

QUANTITY NOTES

(1) ITEMS IN BRIDGE STRUCTURE LUMP SUM ITEM NUMBER 8120-0001 ARE GIVEN FOR INFORMATION ONLY.

(2) FOR AS DESIGNED STRUCTURE INCLUDED IN BRIDGE BID ITEMS. FOR ALTERNATE DESIGNS, INCLUDED IN BRIDGE STRUCTURE LUMP SUM BID ITEM.

(3) PREFORMED CELLULAR POLYSTYRENE IS INCIDENTAL TO CLASS A CEMENT CONCRETE AND CLASS AAAP CEMENT CONCRETE.

(4) SEE SPECIAL PROVISIONS.

(5) DEBRIS SHIELDING, S-34549 IS FOR THE CONSTRUCTION OF THE NEW DECK. FOR THE REMOVAL OF THE EXISTING DECK, THE COST OF DEBRIS SHIELDING IS INCLUDED IN THE LUMP SUM FOR THE REMOVAL OF PORTION OF EXISTING BRIDGE, S-34549.

(6) STEEL BEAM TEST PILES INCLUDE STEEL BEAM (HEAVY DUTY) PILE TIP REINFORCEMENT, HP14x117. PERFORM PILE DYNAMIC ANALYZER (PDA) TESTING ON ALL PILES.

(7) APPROACH SLAB QUANTITIES INCLUDE THE SLEEPER SLABS.

(8) THE CLASS AA CEMENT CONCRETE AT THE APPROACH SLABS INCLUDES POLYETHYLENE SHEETING, CLOSED CELL NEOPRENE SPONGE AND JOINT SEALING MATERIAL.

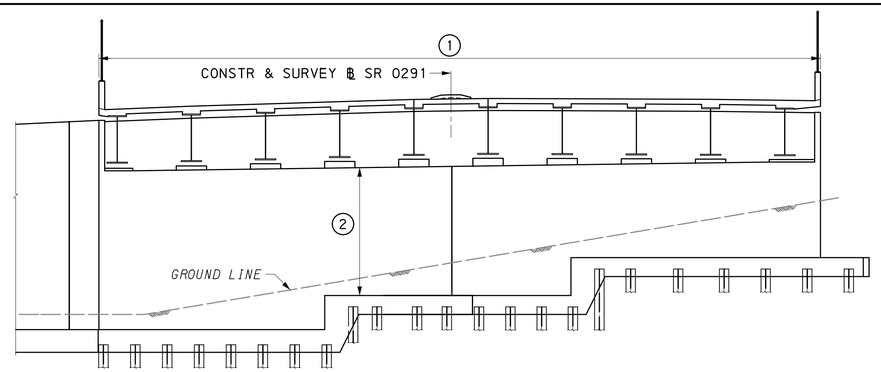
(9) ASSUMES ONE COAT.

(10) GEOTEXTILE, CLASS 1 IS INCIDENTAL TO NO. 57 COARSE AGGREGATE.

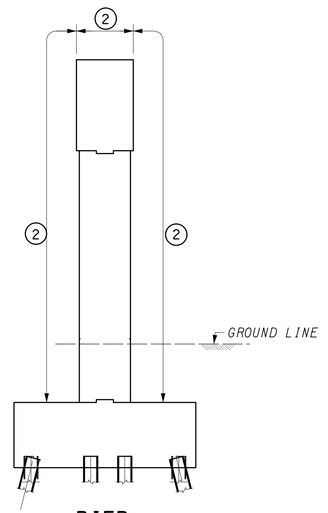
ALTERNATE STRUCTURE ITEMS			
ITEM NO.	ITEM	UNIT	TOTAL
8120-0001	BRIDGE STRUCTURE, AS DESIGNED, S-34549 (4)	LS	LUMP SUM
8000-0001	PRESTRESSED CONCRETE BRIDGE STRUCTURE (4)	LS	LUMP SUM
8100-0001	STEEL BRIDGE STRUCTURE (4)	LS	LUMP SUM

NOTES

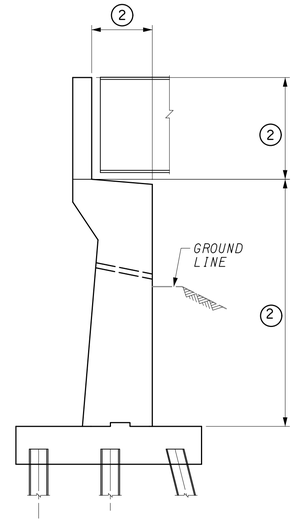
1. FOR GENERAL NOTES, SEE SHEETS 2 - 3.



ABUTMENTS
NOT TO SCALE



PIER
NOT TO SCALE



ABUTMENTS
NOT TO SCALE

SURFACE TREATMENT LIMITS

COATING LEGEND

(1) PROTECTIVE COATING FOR REINFORCED CONCRETE SURFACES (PENETRATING SEALERS, BRIDGE SUPERSTRUCTURE)

(2) PROTECTIVE COATING FOR REINFORCED CONCRETE SURFACES (PENETRATING SEALERS, REINFORCED CONCRETE SUBSTRUCTURE SURFACES) (OMIT SEALER AT MASONRY PLATE AREAS, INCLUDES PEDESTALS).

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

SR 291 PREVIOUSLY KNOWN AS LR 762
BMS STR ID: 23-0291-0210-0001 MPMS/ECMS PROJ: 92324 BRKEY: 70468

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF TRANSPORTATION

DELAWARE COUNTY
SR 0291 SECTION DEC
SEGMENT 0210 OFFSET 0299 - EB
SEGMENT 0211 OFFSET 0193 - WB
SR 0291 STA 149+70.08 OVER
CONRAIL CHESTER SECONDARY RAIL LINE
2-SPAN CONTINUOUS STEEL MULTI-GIRDER BRIDGE
SUMMARY OF QUANTITIES

COMMONWEALTH OF PENNSYLVANIA — REGISTERED PROFESSIONAL — BRIAN KEITH HOOVER — ENGINEER PE077543

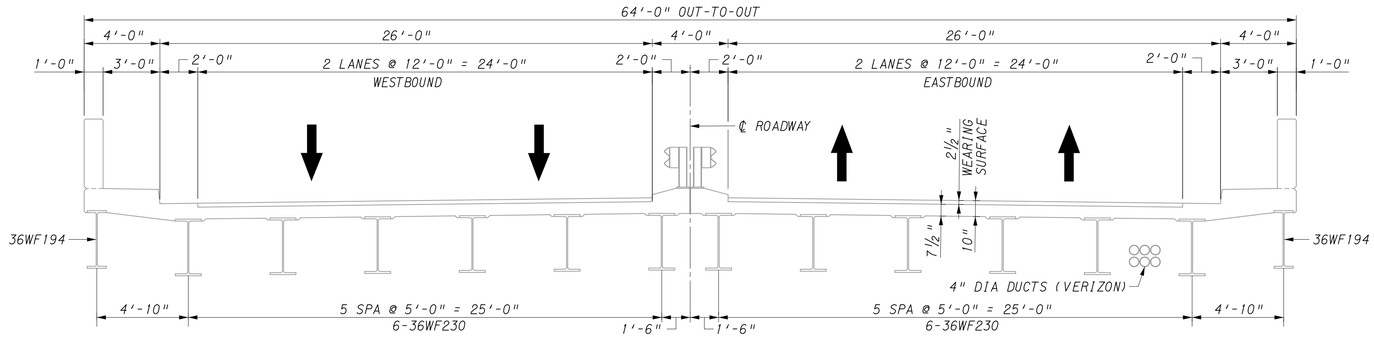
PREPARED BY
CDM SMITH
WAYNE, PA

RECOMMENDED 07/18/2024

SHEET 4 OF 112

S-34549

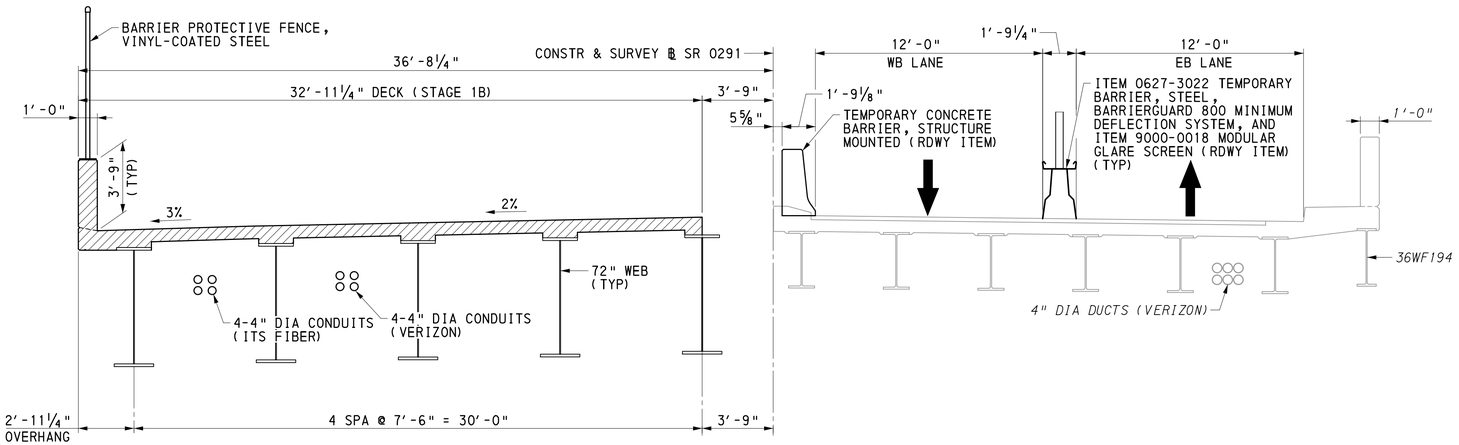
DES: TLB | DWG: EMD | CKD: BKH



EXISTING TYPICAL SECTION

2' 0 2' 4'

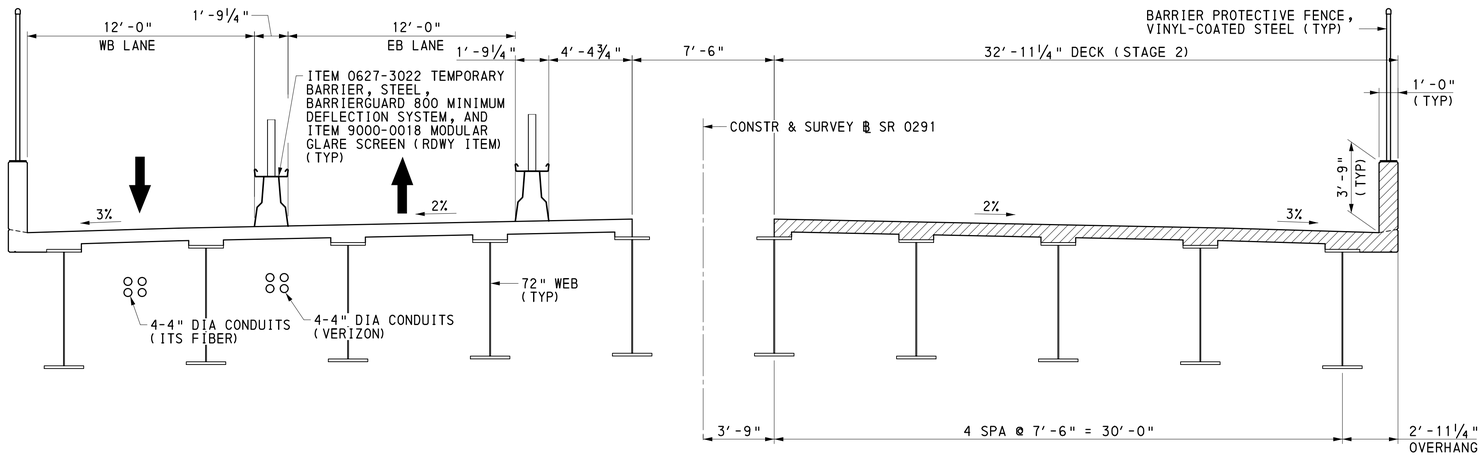
SCALE : ¼" = 1'-0"



CONSTRUCTION STAGE 1B

2' 0 2' 4'

SCALE : ¼" = 1'-0"



CONSTRUCTION STAGE 2

2' 0 2' 4'

SCALE : ¼" = 1'-0"

LEGEND

PORTION OF NEW STRUCTURE TO BE CONSTRUCTED DURING THE STAGE DEPICTED.

NOTES

1. FOR GENERAL NOTES & INDEX OF DRAWINGS, SEE SHEETS 2-3.
2. APPROACH SLAB CONSTRUCTION SEQUENCE AND BARRIER PLACEMENT SIMILAR TO THE DECK SLAB CONSTRUCTION SEQUENCE SHOWN.
3. USE TYPE B INSTALLATION FOR THE STRUCTURE MOUNTED TEMPORARY CONCRETE BARRIERS.
4. REPAIR DECK FOLLOWING THE REMOVAL OF THE STRUCTURE MOUNTED TEMPORARY CONCRETE BARRIER AFTER EACH STAGE OF CONSTRUCTION IN ACCORDANCE WITH BC-719M.
5. SEE ABUTMENT 1 AND ABUTMENT 2 PLAN AND ELEVATION SHEETS, AND PIER PILE LAYOUT AND FOOTING PLAN SHEET FOR DIMENSIONS OF SUBSTRUCTURE CONSTRUCTION STAGE LIMITS.
6. SEE EROSION AND SEDIMENT POLLUTION CONTROL PLANS FOR SEQUENCE OF BRIDGE CONSTRUCTION.
7. SEE TRAFFIC CONTROL PLANS FOR STAGING AND PHASING OF TEMPORARY TRAFFIC CONTROL FOR BRIDGE CONSTRUCTION.
8. FOR LOCATIONS OF UTILITY SUPPORT HANGERS, SEE SHEETS 46 & 47.
9. FOR UTILITY SUPPORT HANGER DETAILS, SEE SHEETS 76 & 77.
10. FOR ADDITIONAL INFORMATION REGARDING UTILITY RELOCATIONS, SEE CONTRACT SPECIAL PROVISIONS.
11. DO NOT CUT SUBSTRUCTURE INBOARD OF THE OUTSIDE EDGE OF THE BEARING PEDESTAL AT EXISTING GIRDER 8 AT BOTH THE ABUTMENTS AND PIER.
12. THE FOUR 4" DIAMETER ITS FIBER CONDUITS ARE DESIGNATED WITH ONE BEING ALLOCATED FOR LUMEN FIBER, ONE BEING ALLOCATED FOR CROWN CASTLE FIBER, ONE BEING ALLOCATED FOR PENNDOT FIBER, AND ONE REMAINING OPEN FOR FUTURE USE.

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

SR 291 PREVIOUSLY KNOWN AS LR 762

BMS STR ID: 23-0291-0210-0001 MPMS/ECMS PROJ: 92324 BRKEY: 70468

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF TRANSPORTATION

DELAWARE COUNTY
SR 0291 SECTION DEC
SEGMENT 0210 OFFSET 0299 - EB
SEGMENT 0211 OFFSET 0193 - WB
SR 0291 STA 149+70.08 OVER
CONRAIL CHESTER SECONDARY RAIL LINE
2-SPAN CONTINUOUS STEEL MULTI-GIRDER BRIDGE
STAGED CONSTRUCTION DETAILS - 1

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
BRIAN KEITH HOOVER
ENGINEER PE077543

PREPARED BY
CDM SMITH
WAYNE, PA

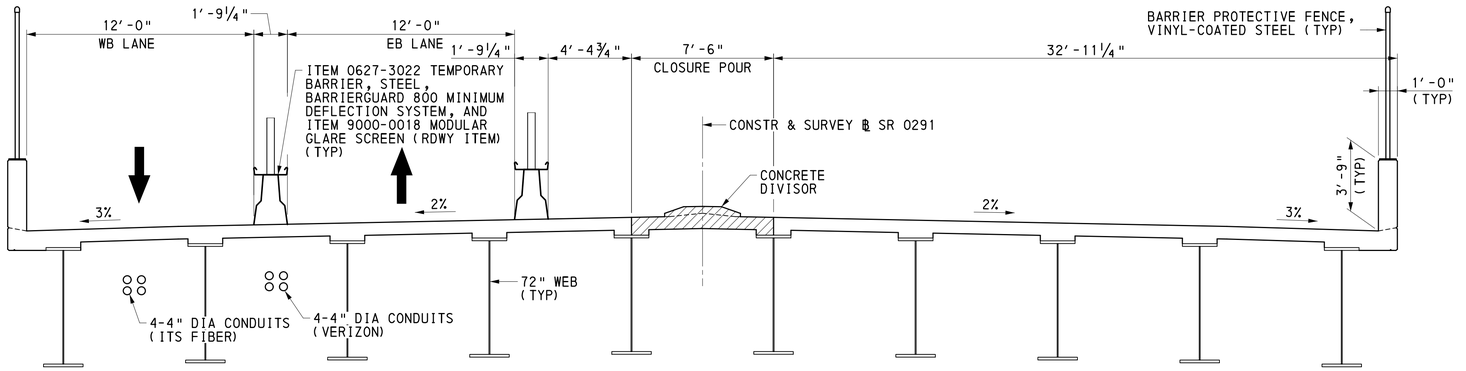
RECOMMENDED 07/18/2024

SHEET 5 OF 112

S-34549

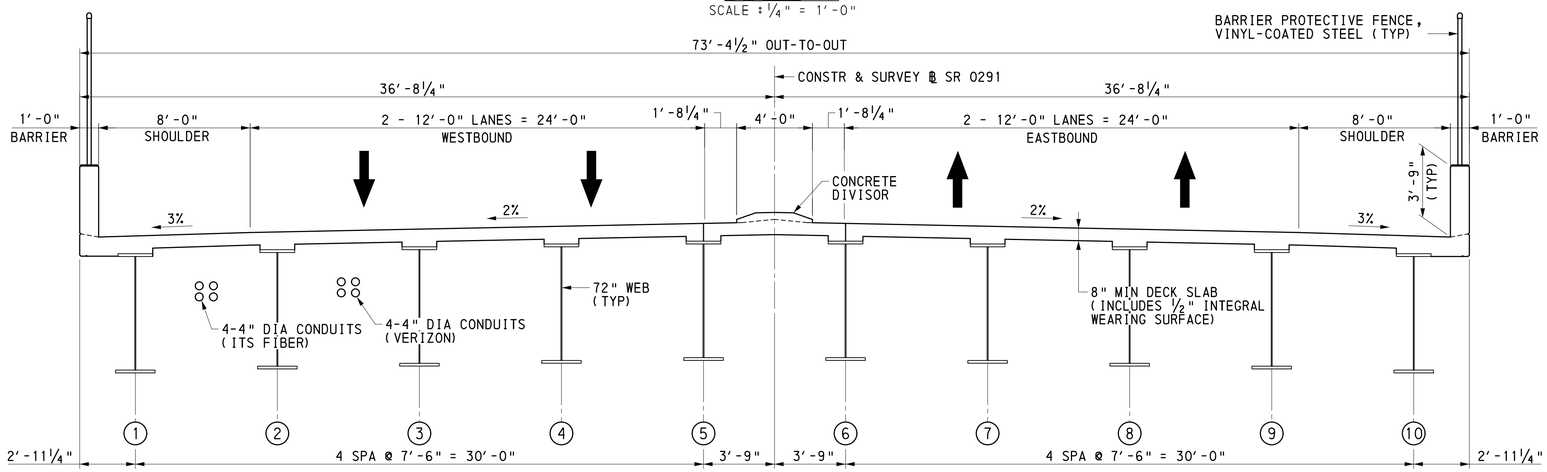
DES: TLB | DWG: TLB | CKD: BKH

OPERATOR: BLAINET
7/22/2024 11:49:20 AM
pw:\\cdmsmith-ad02-pw.bentley.com:pw_p1\Documents\1182039\9306_PSE\10 Transportation\02 Engineering Services NM_50%\02 Structures\10 CADD\01 Working\Final\PSE0291-SECTIONS.dgn



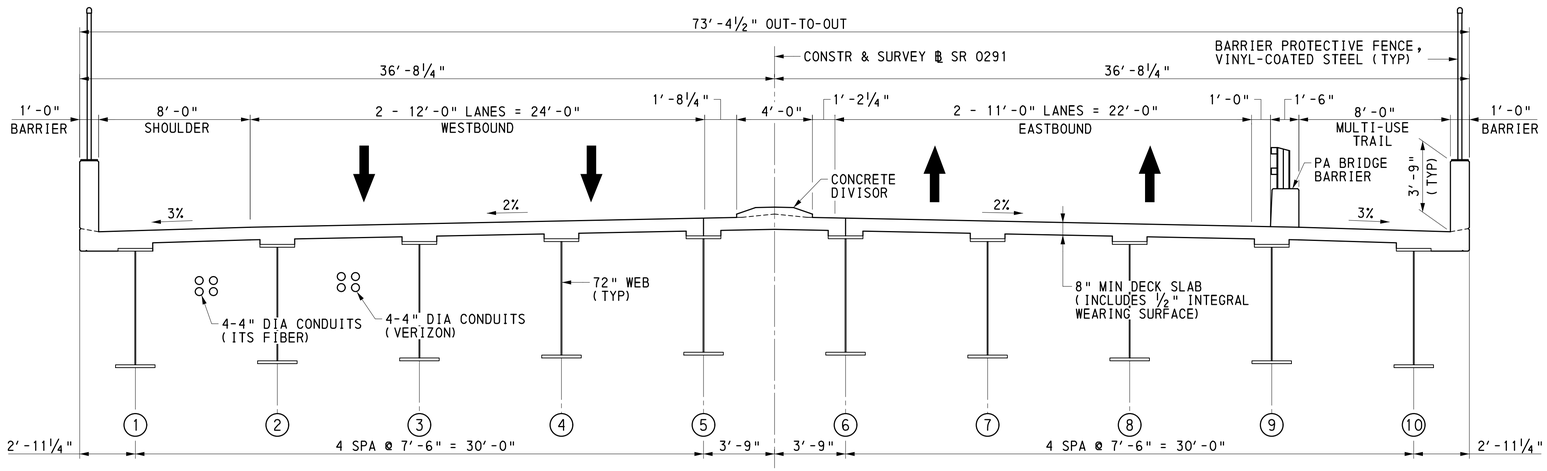
CONSTRUCTION STAGE 2 CLOSURE POUR

2′ 0 2′ 4′
SCALE: ¼" = 1′-0"



FINAL TYPICAL SECTION

2′ 0 2′ 4′
SCALE: ¼" = 1′-0"



FUTURE SECTION - MULTI USE TRAIL

2′ 0 2′ 4′
SCALE: ¼" = 1′-0"

LEGEND

PORTION OF NEW STRUCTURE TO BE CONSTRUCTED DURING THE STAGE DEPICTED.

NOTES

1. FOR GENERAL NOTES & INDEX OF DRAWINGS, SEE SHEETS 2-3.
2. APPROACH SLAB CONSTRUCTION SEQUENCE AND BARRIER PLACEMENT SIMILAR TO THE DECK SLAB CONSTRUCTION SEQUENCE SHOWN.
3. USE TYPE B INSTALLATION FOR THE STRUCTURE MOUNTED TEMPORARY CONCRETE BARRIERS.
4. REPAIR DECK FOLLOWING THE REMOVAL OF THE STRUCTURE MOUNTED TEMPORARY CONCRETE BARRIER AFTER EACH STAGE OF CONSTRUCTION IN ACCORDANCE WITH BC-719M.
5. SEE ABUTMENT 1 AND ABUTMENT 2 PLAN AND ELEVATION SHEETS, AND PIER PILE LAYOUT AND FOOTING PLAN SHEET FOR DIMENSIONS OF SUBSTRUCTURE CONSTRUCTION STAGE LIMITS.
6. SEE EROSION AND SEDIMENT POLLUTION CONTROL PLANS FOR SEQUENCE OF BRIDGE CONSTRUCTION.
7. SEE TRAFFIC CONTROL PLANS FOR STAGING AND PHASING OF TEMPORARY TRAFFIC CONTROL FOR BRIDGE CONSTRUCTION.
8. FOR LOCATIONS OF UTILITY SUPPORT HANGERS, SEE SHEETS 46 & 47.
9. FOR UTILITY SUPPORT HANGER DETAILS, SEE SHEETS 76 & 77.
10. FOR ADDITIONAL INFORMATION REGARDING UTILITY RELOCATIONS, SEE CONTRACT SPECIAL PROVISIONS.
11. DO NOT CUT SUBSTRUCTURE INBOARD OF THE OUTSIDE EDGE OF THE BEARING PEDESTAL AT EXISTING GIRDER 8 AT BOTH THE ABUTMENTS AND PIER.
12. THE FOUR 4" DIAMETER ITS FIBER CONDUITS ARE DESIGNATED WITH ONE BEING ALLOCATED FOR LUMEN FIBER, ONE BEING ALLOCATED FOR CROWN CASTLE FIBER, ONE BEING ALLOCATED FOR PENNDOT FIBER, AND ONE REMAINING OPEN FOR FUTURE USE.

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

SR 291 PREVIOUSLY KNOWN AS LR 762
BMS STR ID: 23-0291-0210-0001 MPMS/ECMS PROJ: 92324 BRKEY: 70468

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF TRANSPORTATION

DELAWARE COUNTY
SR 0291 SECTION DEC
SEGMENT 0210 OFFSET 0299 - EB
SEGMENT 0211 OFFSET 0193 - WB
SR 0291 STA 149+70.08 OVER
CONRAIL CHESTER SECONDARY RAIL LINE
2-SPAN CONTINUOUS STEEL MULTI-GIRDER BRIDGE
STAGED CONSTRUCTION DETAILS - 2

COMMONWEALTH OF PENNSYLVANIA — REGISTERED PROFESSIONAL — BRIAN KEITH HOOVER — ENGINEER PE077543

PREPARED BY
CDM SMITH
WAYNE, PA

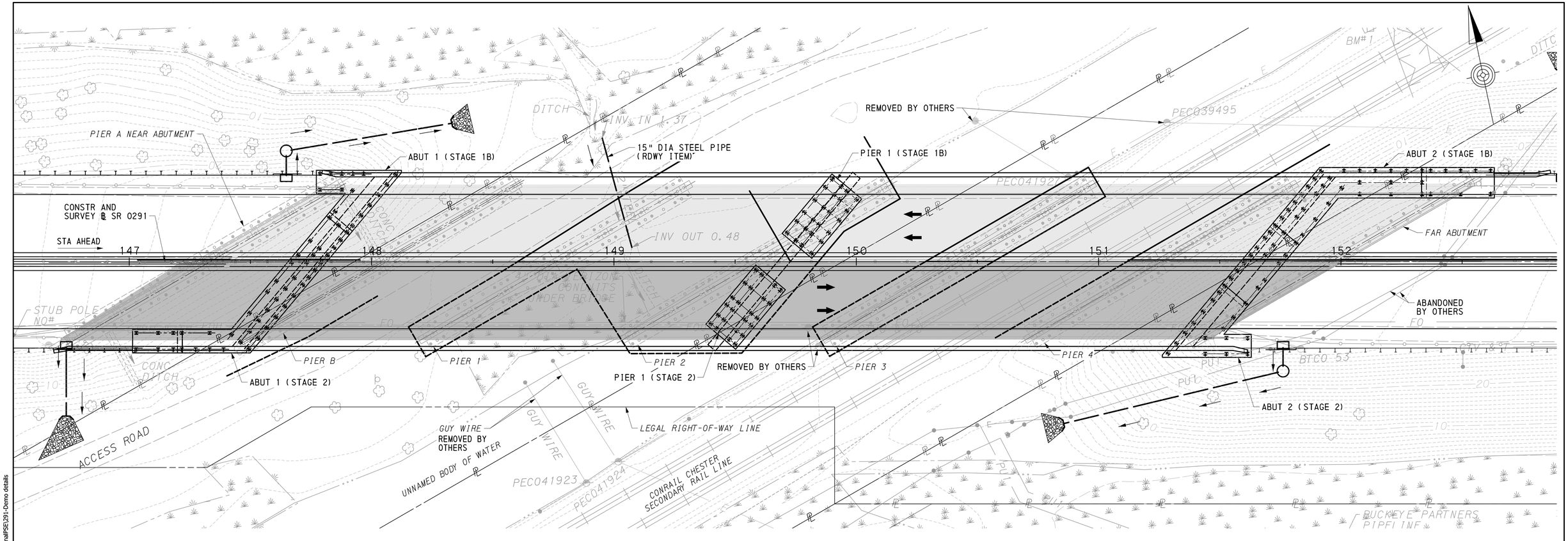
RECOMMENDED 07/18/2024

SHEET 6 OF 112

S-34549

DES: TLB | DWG: TLB | CKD: BKH

OPERATOR: BLAINET
7/22/2024 11:49:21 AM
pw:\\cdmsmith-az02-pw.bentley.com:pw_pl1\Documents\118203\91306_PS&E\10 Transportation\02 Engineering Services NM_50%\02 Structures\10 CADD\01 Working\FinalPSE\291-SECTIONS.dgn



DEMOLITION PLAN

20′ 0 20′

SCALE : 1" = 20′-0"

NOTES

1. FOR GENERAL PLAN & ELEVATION, SEE SHEET 1.
2. FOR GENERAL NOTES & INDEX OF DRAWINGS, SEE SHEETS 2 - 3.
3. FOR EXISTING PIER A NEAR AND ABUTMENT 1 PIER B REMOVAL LIMITS, SEE SHEET 8.
4. FOR EXISTING FAR ABUTMENT AND PIER 4 REMOVAL LIMITS, SEE SHEET 9.
5. FOR EXISTING ABUTMENT PIER 1, PIER 2, AND PIER 3 REMOVAL LIMITS, SEE SHEET 10.
6. PROPOSED CONTOURS AND ROCK, CLASS R-4 NOT SHOWN FOR CLARITY.

LEGEND

- SUPERSTRUCTURE REMOVAL LIMITS, STAGE 1B
- SUPERSTRUCTURE REMOVAL LIMITS, STAGE 2
- (STAGE 1B) TEMPORARY EXCAVATION SUPPORT AND PROTECTION SYSTEM, (GENERAL LOCATION SHOWN, ACTUAL LENGTH AND LOCATION BASED ON CONTRACTOR'S DESIGN)
- (STAGE 2)
- *DENOTES VERTICAL CONCRETE PILE*
- *DENOTES BATTERED CONCRETE PILE*
- DENOTES VERTICAL STEEL BEAM PILE, HP 14x117
- DENOTES BATTERED STEEL BEAM PILE, HP 14x117

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

SR 291 PREVIOUSLY KNOWN AS LR 762
BMS STR ID: 23-0291-0210-0001 MPMS/ECMS PROJ: 92324 BRKEY: 70468

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF TRANSPORTATION

DELAWARE COUNTY
SR 0291 SECTION DEC
SEGMENT 0210 OFFSET 0299 - EB
SEGMENT 0211 OFFSET 0193 - WB
SR 0291 STA 149+70.08 OVER
CONRAIL CHESTER SECONDARY RAIL LINE
2-SPAN CONTINUOUS STEEL MULTI-GIRDER BRIDGE
DEMOLITION PLAN

COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL
BRIAN KEITH HOOVER
ENGINEER PE077543

PREPARED BY
CDM SMITH
WAYNE, PA

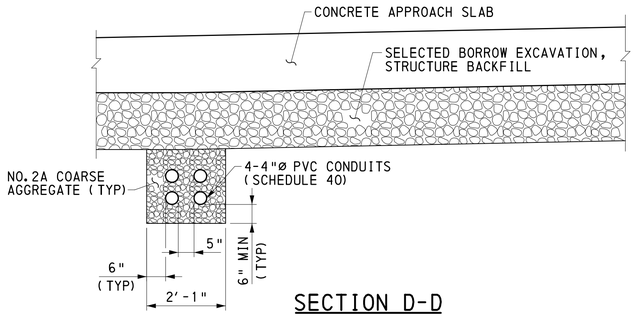
RECOMMENDED 07/18/2024

SHEET 7 OF 112

S-34549

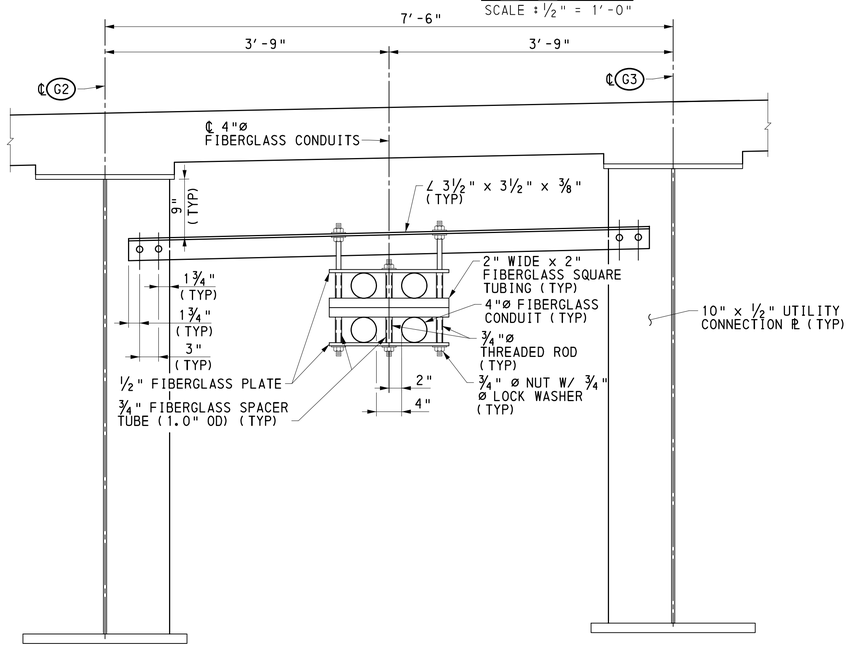
DES: TLB | DWG: RTC | CKD: BKH

OPERATOR: BLAINET
7/22/2024 11:49:47 AM
pw:\\cdmsmith-ad02-pw.bentley.com:pw_pi1\Documents\11820319\1306_PSE\10 Transportation\02 Engineering Services NM_50%\02 Structures\10 CADD\01 Working\FinalPSE\291-Demo details



SECTION D-D

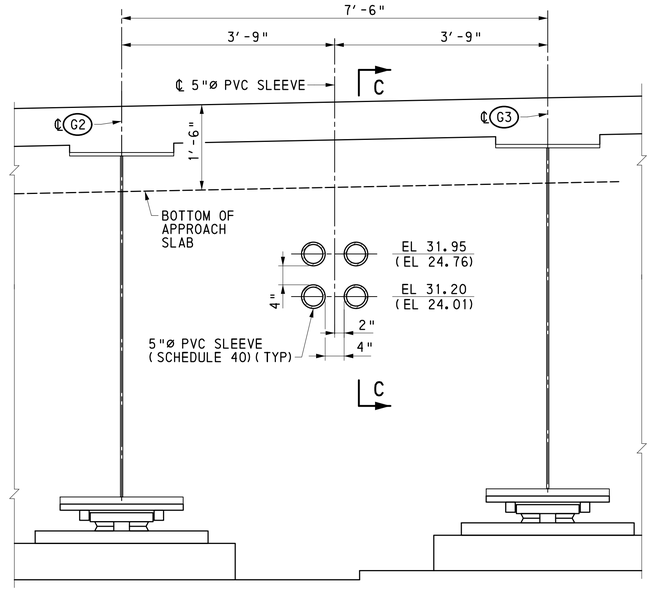
SCALE : 1/2" = 1'-0"



VERIZON UTILITY SUPPORT HANGER DETAIL

12" 6" 0 12"

SCALE : 1" = 1'-0"



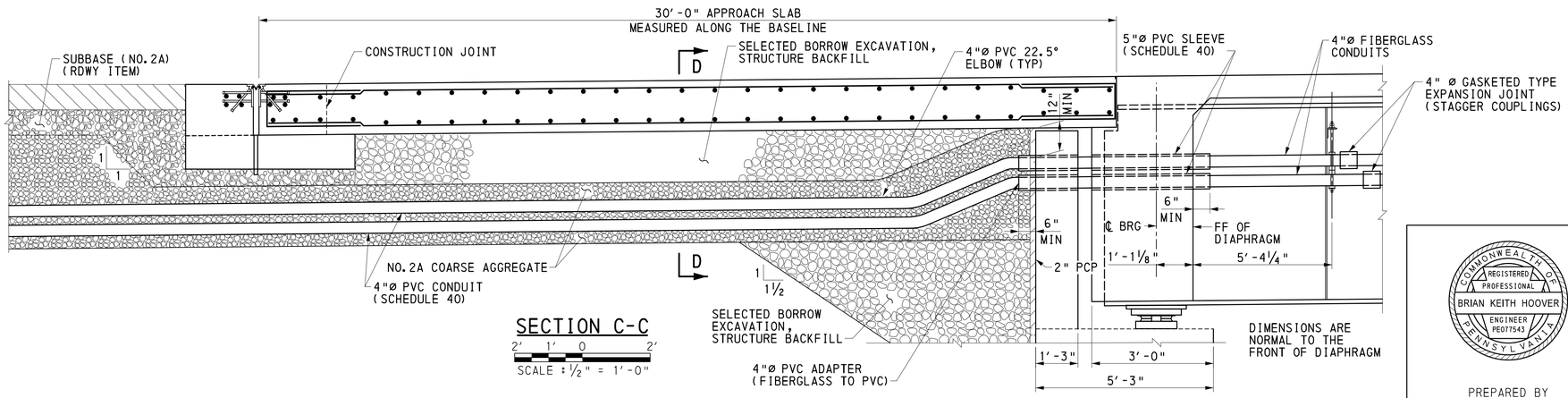
VERIZON DETAIL AT ABUTMENT 2

(LOOKING STATIONS AHEAD)

(ABUTMENT 1 OPPOSITE HAND, ELEVATIONS SHOWN IN PARENTHESES)

12" 0 12"

SCALE : ¾" = 1'-0"



SECTION C-C

2' 1' 0 2'

SCALE : ½" = 1'-0"

(1) UTILITY HANGER SUPPORT ASSEMBLY INCLUDES FIBERGLASS TUBING, FIBERGLASS PLATE, SPACER TUBES, ¾"ø ZINC PLATED THREADED RODS, NUTS AND WASHERS.

(2) INCLUDES THE WEIGHT OF UTILITY SUPPORT ANGLES, ¾"ø A325 BOLTS AND CONNECTION PLATES.

(3) THE ANCHORED HANGER SUPPORT IS TO BE THE FIRST HANGER SUPORT INSTALLED IN SPAN 2 AFTER THE PIER DIAPHRAGM. IT IS TO HAVE AN ADDITIONAL 3½" X 3½" X ⅜" UTILITY SUPPORT ANGLE ATTAHED AT THE BOTTOM OF THE HANGER.

(4) ITEMS IN INSTALLATION OF VERIZON FACILITIES ITEM 9000-0003 ARE GIVEN FOR INFORMATION ONLY.

ITEM 9000-0003 INSTALLATION OF VERIZON FACILITIES

FACILITIES ON STRUCTURE

MATERIALS	FURNISHED BY	INSTALLED BY	UNIT	QUANTITY
FABRICATED STRUCTURAL STEEL (A709, GRADE 50W) (2)	CONTRACTOR	CONTRACTOR	LB	10,050
4" DIA PVC CONDUIT (SCHEDULE 40)	CONTRACTOR	CONTRACTOR	LF	250
4" DIA PVC 22.5 DEGREES ELBOW (SCHEDULE 40)	CONTRACTOR	CONTRACTOR	LF	16
STANDARD HANGER SUPPORT 2W X 2H (26" LONG RODS) (1)	VERIZON	CONTRACTOR	EA	33
ANCHORED HANGER SUPPORT 2W X 2H (34" LONG RODS) (1)(3)	VERIZON	CONTRACTOR	EA	1
4" DIA GASKETED TYPE EXPANSION JOINT	VERIZON	CONTRACTOR	EA	8
4" IPS 4½" OD FIBERGLASS CONDUIT WITH THREADED ENDS	VERIZON	CONTRACTOR	LF	1,650
5" DIA PVC CONDUIT (SCHEDULE 40) 4'-1" LONG	VERIZON	CONTRACTOR	LF	8
5" DIA PVC CONDUIT (SCHEDULE 40) 2'-4" LONG	VERIZON	CONTRACTOR	LF	8
ADHESIVE KIT	VERIZON	CONTRACTOR	EA	15
4" DIA IPS FIBERGLASS SLEEVE COUPLING	VERIZON	CONTRACTOR	EA	16
4" DIA FIBERGLASS SPLIT STOP RING	VERIZON	CONTRACTOR	EA	8
4" DIA PVC ADAPTOR (FIBERGLASS TO PVC)	VERIZON	CONTRACTOR	EA	8

NOTES

1. FOR GENERAL NOTES & INDEX OF DRAWINGS, SEE SHEETS 2 - 3.
2. FOR FRAMING PLANS & STEEL DETAILS, SEE SHEETS 46 - 55.
3. FOR APPROACH SLAB DETAILS, SEE SHEETS 78 - 86.
4. FOR INFORMATION REGARDING THE INSTALLATION OF VERIZON FACILITIES BEYOND THE ENDS OF APPROACH SLABS, SEE THE ITS PLANS.
5. ALL CONDUIT CONNECTIONS ARE TO BE BONDED
6. SELECT CONDUIT LENGTHS SO THAT COUPLING LOCATIONS DO NOT COINCIDE WITH HANGER LOCATIONS.
7. ROD ALL CONDUITS AND PLACE GALVANIZED FISH WIRES THEREIN.
8. THE CONDUIT INSTALLATION IS SUBJECT TO INSPECTION AND APPROVAL OF THE UTILITY COMPANY.
9. PROVIDE ZINC PLATED THREADED ATTACHMENT RODS, NUTS AND FLAT WASHERS FOR THE UTILITY SUPPORT HANGERS.
10. SET SLEEVES AT ABUTMENT 1 TO 2.95° AND AT ABUTMENT 2 TO 1.38° TO MATCH THE LONGITUDINAL SLOPE OF THE STEEL GIRDERS.
11. ELEVATIONS FOR THE PVC SLEEVES AT THE ABUTMENTS ARE GIVEN AT CENTERLINE OF BEARING AT THE CENTERLINE OF THE GIRDER BAY.

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

SR 291 PREVIOUSLY KNOWN AS LR 762

BMS STR ID: 23-0291-0210-0001 MPMS/ECMS PROJ: 92324 BRKEY: 70468

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF TRANSPORTATION

DELAWARE COUNTY
SR 0291 SECTION DEC
SEGMENT 0210 OFFSET 0299 - EB
SEGMENT 0211 OFFSET 0193 - WB
SR 0291 STA 149+70.08 OVER
CONRAIL CHESTER SECONDARY RAIL LINE
2-SPAN CONTINUOUS STEEL MULTI-GIRDER BRIDGE
STRUCTURE UTILITY DETAILS - 2

COMMONWEALTH OF PENNSYLVANIA — REGISTERED PROFESSIONAL ENGINEER — BRIAN KEITH HOOVER — PE077543

PREPARED BY
CDM SMITH
WAYNE, PA

RECOMMENDED 07/18/2024

SHEET 77 OF 112

S-34549

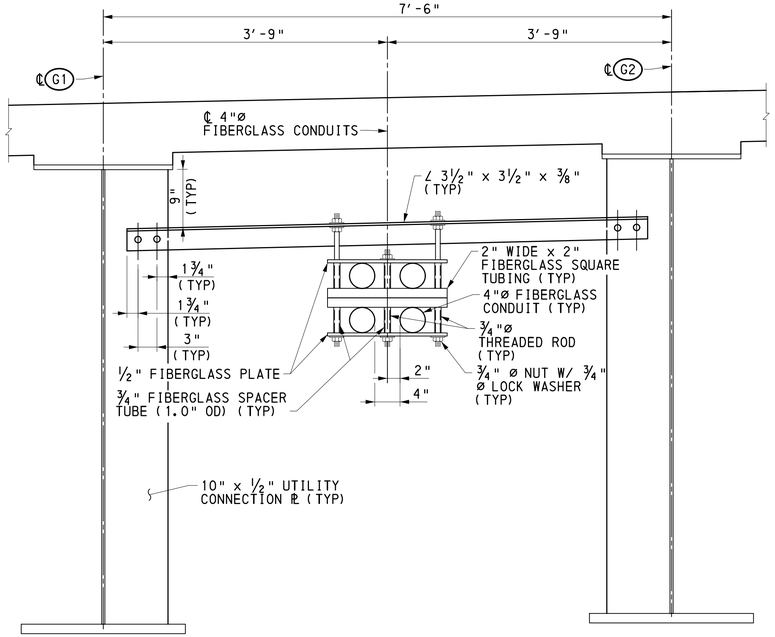
DES: TLB | DWG: EMD | CKD: BKH

OPERATOR: BLAINET
7/22/2024 12:00:24 PM
pw:\\cdmsmith-ad02-pw.bentley.com:pw_pl1\Documents\118203\91306_PS&E\10 Transportation\02 Engineering Services NM_50%\02 Structures\10 CADD\01 Working\FinalPSE\291-Utilities.dgn

ITEM 9000-0001 INSTALLATION OF PENNDOT FIBER FACILITIES				
FACILITIES ON STRUCTURE				
MATERIALS	FURNISHED BY	INSTALLED BY	UNIT	QUANTITY
FABRICATED STRUCTURAL STEEL (A709, GRADE 50W) (2)	CONTRACTOR	CONTRACTOR	LB	10,050
4" DIA PVC CONDUIT (SCHEDULE 40)	CONTRACTOR	CONTRACTOR	LF	250
4" DIA PVC 22.5 DEGREES ELBOW (SCHEDULE 40)	CONTRACTOR	CONTRACTOR	LF	16
STANDARD HANGER SUPPORT 2W X 2H (26" LONG RODS) (1)	CONTRACTOR	CONTRACTOR	EA	33
ANCHORED HANGER SUPPORT 2W X 2H (34" LONG RODS) (1)(3)	CONTRACTOR	CONTRACTOR	EA	1
4" DIA GASKETED TYPE EXPANSION JOINT	CONTRACTOR	CONTRACTOR	EA	8
4" IPS 4½" OD FIBERGLASS CONDUIT WITH THREADED ENDS	CONTRACTOR	CONTRACTOR	LF	1,650
5" DIA PVC CONDUIT (SCHEDULE 40) 4'-1" LONG	CONTRACTOR	CONTRACTOR	LF	8
5" DIA PVC CONDUIT (SCHEDULE 40) 2'-4" LONG	CONTRACTOR	CONTRACTOR	LF	8
ADHESIVE KIT	CONTRACTOR	CONTRACTOR	EA	15
4" DIA IPS FIBERGLASS SLEEVE COUPLING	CONTRACTOR	CONTRACTOR	EA	16
4" DIA FIBERGLASS SPLIT STOP RING	CONTRACTOR	CONTRACTOR	EA	8
4" DIA PVC ADAPTOR (FIBERGLASS TO PVC)	CONTRACTOR	CONTRACTOR	EA	8

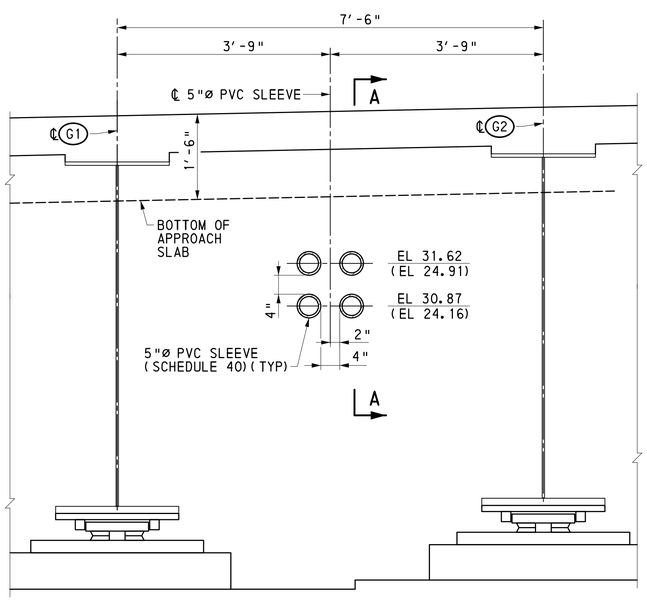
ITEM 9000-0002 INSTALLATION OF CROWN CASTLE FACILITIES				
FACILITIES ON STRUCTURE				
MATERIALS	FURNISHED BY	INSTALLED BY	UNIT	QUANTITY
FABRICATED STRUCTURAL STEEL (A709, GRADE 50W) (2)	CONTRACTOR	CONTRACTOR	LB	10,050
4" DIA PVC CONDUIT (SCHEDULE 40)	CONTRACTOR	CONTRACTOR	LF	250
4" DIA PVC 22.5 DEGREES ELBOW (SCHEDULE 40)	CONTRACTOR	CONTRACTOR	LF	16
STANDARD HANGER SUPPORT 2W X 2H (26" LONG RODS) (1)	CONTRACTOR	CONTRACTOR	EA	33
ANCHORED HANGER SUPPORT 2W X 2H (34" LONG RODS) (1)(3)	CONTRACTOR	CONTRACTOR	EA	1
4" DIA GASKETED TYPE EXPANSION JOINT	CONTRACTOR	CONTRACTOR	EA	8
4" IPS 4½" OD FIBERGLASS CONDUIT WITH THREADED ENDS	CONTRACTOR	CONTRACTOR	LF	1,650
5" DIA PVC CONDUIT (SCHEDULE 40) 4'-1" LONG	CONTRACTOR	CONTRACTOR	LF	8
5" DIA PVC CONDUIT (SCHEDULE 40) 2'-4" LONG	CONTRACTOR	CONTRACTOR	LF	8
ADHESIVE KIT	CONTRACTOR	CONTRACTOR	EA	15
4" DIA IPS FIBERGLASS SLEEVE COUPLING	CONTRACTOR	CONTRACTOR	EA	16
4" DIA FIBERGLASS SPLIT STOP RING	CONTRACTOR	CONTRACTOR	EA	8
4" DIA PVC ADAPTOR (FIBERGLASS TO PVC)	CONTRACTOR	CONTRACTOR	EA	8

ITEM 9000-0005 INSTALLATION OF LUMEN FACILITIES				
FACILITIES ON STRUCTURE				
MATERIALS	FURNISHED BY	INSTALLED BY	UNIT	QUANTITY
FABRICATED STRUCTURAL STEEL (A709, GRADE 50W) (2)	CONTRACTOR	CONTRACTOR	LB	10,050
4" DIA PVC CONDUIT (SCHEDULE 40)	CONTRACTOR	CONTRACTOR	LF	250
4" DIA PVC 22.5 DEGREES ELBOW (SCHEDULE 40)	CONTRACTOR	CONTRACTOR	LF	16
STANDARD HANGER SUPPORT 2W X 2H (26" LONG RODS) (1)	CONTRACTOR	CONTRACTOR	EA	33
ANCHORED HANGER SUPPORT 2W X 2H (34" LONG RODS) (1)(3)	CONTRACTOR	CONTRACTOR	EA	1
4" DIA GASKETED TYPE EXPANSION JOINT	CONTRACTOR	CONTRACTOR	EA	8
4" IPS 4½" OD FIBERGLASS CONDUIT WITH THREADED ENDS	CONTRACTOR	CONTRACTOR	LF	1,650
5" DIA PVC CONDUIT (SCHEDULE 40) 4'-1" LONG	CONTRACTOR	CONTRACTOR	LF	8
5" DIA PVC CONDUIT (SCHEDULE 40) 2'-4" LONG	CONTRACTOR	CONTRACTOR	LF	8
ADHESIVE KIT	CONTRACTOR	CONTRACTOR	EA	15
4" DIA IPS FIBERGLASS SLEEVE COUPLING	CONTRACTOR	CONTRACTOR	EA	16
4" DIA FIBERGLASS SPLIT STOP RING	CONTRACTOR	CONTRACTOR	EA	8
4" DIA PVC ADAPTOR (FIBERGLASS TO PVC)	CONTRACTOR	CONTRACTOR	EA	8



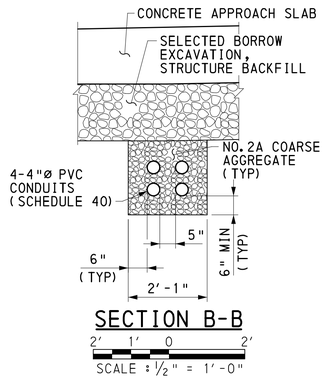
ITS FIBER UTILITY SUPPORT HANGER DETAIL

12" 6" 0 12"
SCALE : 1" = 1'-0"



ITS FIBER DETAIL AT ABUTMENT 2

(LOOKING STATIONS AHEAD)
(ABUTMENT 1 OPPOSITE HAND, ELEVATIONS SHOWN IN PARENTHESES)
12" 0 12"
SCALE : ¾" = 1'-0"



SECTION B-B

2' 1' 0 2'
SCALE : ½" = 1'-0"

(1) UTILITY HANGER SUPPORT ASSEMBLY INCLUDES FIBERGLASS TUBING, FIBERGLASS PLATE, SPACER TUBES, ¾"ø ZINC PLATED THREADED RODS, NUTS AND WASHERS.

(2) INCLUDES THE WEIGHT OF UTILITY SUPPORT ANGLES, ¾"ø A325 BOLTS AND CONNECTION PLATES.

(3) THE ANCHORED HANGER SUPPORT IS TO BE THE FIRST HANGER SUPPORT INSTALLED IN SPAN 2 AFTER THE PIER DIAPHRAGM. IT IS TO HAVE AN ADDITIONAL 3½" X 3½" X ⅜" UTILITY SUPPORT ANGLE ATTACHED AT THE BOTTOM OF THE HANGER.

(4) ITEMS IN INSTALLATION OF FACILITIES QUANTITY TABLES ARE GIVEN FOR INFORMATION ONLY.

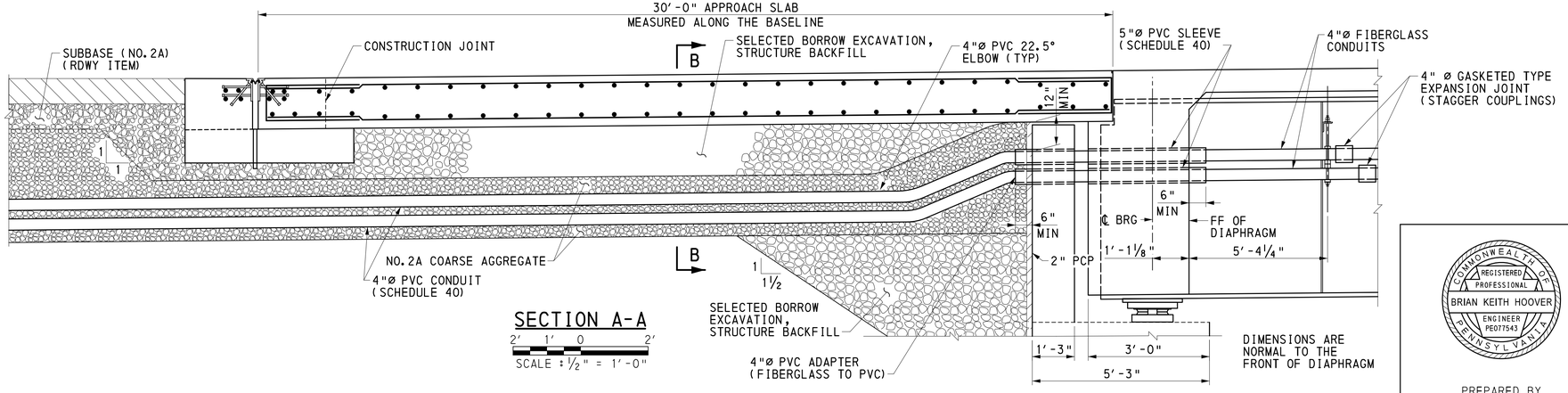
(5) THE MATERIAL LISTED IS THE MATERIAL REQUIRED FOR INSTALLATION OF FACILITIES FROM THE BEGINNING OF SLEEPER SLAB AT ABUTMENT 1 TO THE END OF THE SLEEPER SLAB AT ABUTMENT 2. FOR THE MATERIAL REQUIRED FROM THE END OF SLEEPER SLABS TO THE TIE IN POINT OF THE EXISTING FACILITIES, SEE ITS PLAN SHEET 3 OF 10 FOR ADDITIONAL INFORMATION.

(6) THE MATERIAL QUANTITY LISTED IN EACH TABLE REPRESENTS THE TOTAL QUANTITY NECESSARY FOR THE INSTALLATION OF PENNDOT FIBER FACILITIES, INSTALLATION OF CROWN CASTLE FACILITIES, AND THE INSTALLATION OF LUMEN FACILITIES.

(7) THE FOUR 4" DIAMETER ITS FIBER CONDUITS ARE DESIGNATED WITH ONE BEING ALLOCATED FOR LUMEN FIBER, ONE BEING ALLOCATED FOR CROWN CASTLE FIBER, ONE BEING ALLOCATED FOR PENNDOT FIBER, AND ONE REMAINING OPEN FOR FUTURE USE.

NOTES

1. FOR GENERAL NOTES & INDEX OF DRAWINGS, SEE SHEETS 2 - 3.
2. FOR FRAMING PLANS & STEEL DETAILS, SEE SHEETS 46 - 55.
3. FOR APPROACH SLAB DETAILS, SEE SHEETS 78 - 86.
4. FOR ADDITIONAL INFORMATION REGARDING THE INSTALLATION OF PENNDOT, LUMEN, AND CROWN CASTLE FACILITIES, BEYOND THE LIMIT OF THE APPROACH SLABS, SEE THE ITS PLANS.
5. ALL CONDUIT CONNECTIONS ARE TO BE BONDED.
6. SELECT CONDUIT LENGTHS SO THAT COUPLING LOCATIONS DO NOT COINCIDE WITH HANGER LOCATIONS.
7. ROD ALL CONDUITS AND PLACE GALVANIZED FISH WIRES THEREIN.
8. THE CONDUIT INSTALLATION IS SUBJECT TO INSPECTION AND APPROVAL OF THE UTILITY COMPANY.
9. PROVIDE ZINC PLATED THREADED ATTACHMENT RODS, NUTS AND FLAT WASHERS FOR THE UTILITY SUPPORT HANGERS.
10. SET SLEEVES AT ABUTMENT 1 TO 2.95° AND AT ABUTMENT 2 TO 1.38° TO MATCH THE LONGITUDINAL SLOPE OF THE STEEL GIRDERS.
11. ELEVATIONS FOR THE PVC SLEEVES AT THE ABUTMENTS ARE GIVEN AT CENTERLINE OF BEARING AT THE CENTERLINE OF THE GIRDER BAY.



SECTION A-A

2' 1' 0 2'
SCALE : ½" = 1'-0"

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

SR 291 PREVIOUSLY KNOWN AS LR 762
BMS STR ID: 23-0291-0210-0001 MPMS/ECMS PROJ: 92324 BRKEY: 70468

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF TRANSPORTATION

DELAWARE COUNTY
SR 0291 SECTION DEC
SEGMENT 0210 OFFSET 0299 - EB
SEGMENT 0211 OFFSET 0193 - WB
SR 0291 STA 149+70.08 OVER
CONRAIL CHESTER SECONDARY RAIL LINE
2-SPAN CONTINUOUS STEEL MULTI-GIRDER BRIDGE
STRUCTURE UTILITY DETAILS - 1

COMMONWEALTH OF PENNSYLVANIA — REGISTERED PROFESSIONAL — BRIAN KEITH HOOVER — ENGINEER PE077543

PREPARED BY
CDM SMITH
WAYNE, PA

RECOMMENDED 07/18/2024

SHEET 76 OF 112

S-34549

DES: TLB | DWG: EMD | CKD: BKH

OPERATOR: BLAINET
7/22/2024 12:00:22 PM
pw:\\cdmsmith-aa002-pw.bentley.com:pw_pa1\Documents\118203\91306_PSE&E\10 Transportation\02 Engineering Services NM_50%\02 Structures\10 CADD\01 Working\FinalPSE\291-Utilities.dgn