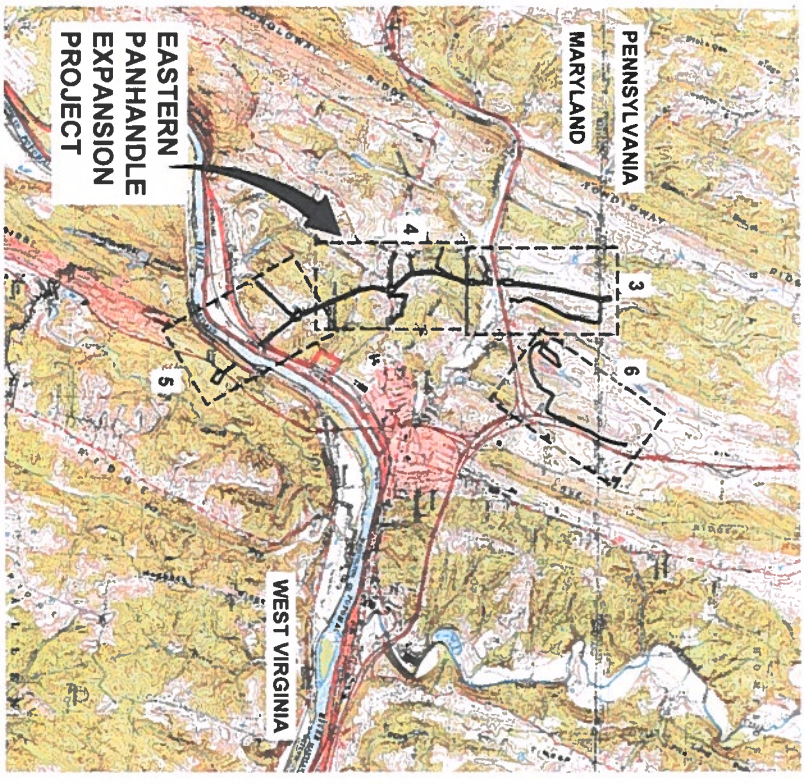


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# EROSION AND SEDIMENT CONTROL PLAN

## EASTERN PANHANDLE EXPANSION PROJECT

### WASHINGTON COUNTY, MARYLAND



### MARCH 2017

#### REVISED SEPTEMBER 2017

## COLUMBIA GAS TRANSMISSION, LLC.,

### A TRANSCANADA COMPANY

## HOUSTON, TEXAS



ARCADIS U.S., INC.



**KEY CONTACTS:**

**OWNER:**  
 COLUMBIA GAS TRANSMISSION, LLC., A TRANSCANADA COMPANY  
 5151 SAN FELIPE, SUITE 2400  
 HOUSTON, TX 77056  
 TELEPHONE: 713.386.3302  
 CONTACT: CLIFFORD ABBOTT

**ENGINEERING FIRM:**  
 ARCADIS U.S., INC.  
 6041 WALLACE ROAD EXTENSION, SUITE 300  
 WEXFORD, PA 15090  
 TELEPHONE: 724.934.9562  
 CONTACT: ALLEN LONG, P.E.

MARYLAND ONE—CALL  
 TELEPHONE: 811 OR 1.800.257.7777

**INDEX TO DRAWINGS**

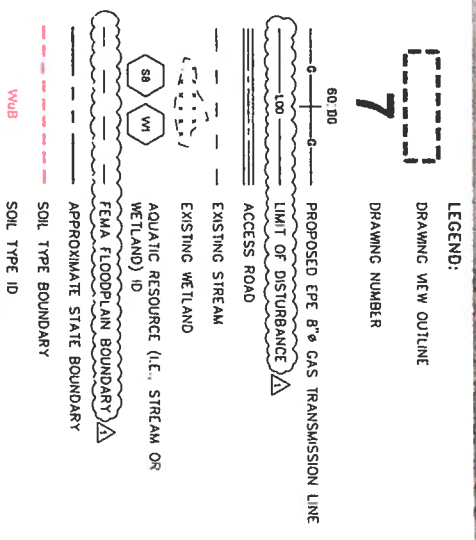
- 1. COVER SHEET
- 2. GENERAL NOTES
- 3. GENERAL NOTES AND LEGEND
- 4. OVERALL SITE PLAN (STA. 0+00 TO 59+00)
- 5. OVERALL SITE PLAN (STA. 59+00 TO 126+00)
- 6. OVERALL SITE PLAN (CONTRACTOR STAGING AREA AND TEMPORARY ACCESS ROAD TAR-1)
- 7. SITE PLAN (STA. 0+00 TO 6+50)
- 8. SITE PLAN (6+50 TO 16+00)
- 9. SITE PLAN (16+00 TO 25+50)
- 10. SITE PLAN (25+50 TO 34+50)
- 11. SITE PLAN (34+50 TO 44+00)
- 12. SITE PLAN (44+00 TO 53+50)
- 13. SITE PLAN (53+50 TO 69+00)
- 14. SITE PLAN (69+00 TO 78+00)
- 15. SITE PLAN (78+00 TO 88+00)
- 16. SITE PLAN (CATHODIC PROTECTION ANODE GROUNDBED AT STA. 94+00)
- 17. SITE PLAN (CATHODIC PROTECTION ANODE GROUNDBED AT STA. 94+25)
- 18. SITE PLAN (95+00 TO 105+00)
- 19. SITE PLAN (STA. 105+00 TO 120+50)
- 20. SITE PLAN (STA. 120+50 TO 136+00)
- 21. SITE PLAN (136+00 TO 151+50)
- 22. SITE PLAN (CATHODIC PROTECTION ANODE GROUNDBED AT STA. 136+00)
- 23. SITE PLAN (STA. 151+50 TO 167+00)
- 24. SITE PLAN (STA. 167+00 TO 177+74)
- 25. SITE PLAN (CONTRACTOR STAGING AREA AND TEMPORARY ACCESS ROAD TAR-1)
- 26. SITE PLAN (TEMPORARY ACCESS ROAD TAR-1)
- 27. SITE PLAN (TEMPORARY ACCESS ROAD TAR-1)
- 28. SITE PLAN (TEMPORARY ACCESS ROAD TAR-1)
- 29. SITE PLAN (TEMPORARY ACCESS ROAD TAR-1)
- 30. PROPOSED STREAM CROSSINGS S8 AND S13 PLANS AND PROFILES
- 31. PROPOSED STREAM CROSSINGS S8 AND S13 PLANS AND PROFILES AND PROFILES
- 32. PROPOSED STREAM CROSSING S4 AND WETLAND CROSSING W6 PLANS AND PROFILES
- 33. MISCELLANEOUS DETAILS
- 34. MISCELLANEOUS DETAILS
- 35. MISCELLANEOUS DETAILS
- 36. MISCELLANEOUS DETAILS
- 37. MISCELLANEOUS DETAILS





XREFS: CPGL00EP-X00  
 CPGL00EP-X03

NOTES:  
 1. REFER TO DRAWINGS 1 AND 2 FOR BASEMAP INFORMATION



THIS BAR REPRESENTS ONE INCH ON THE ORIGINAL DRAWING	USE TO VERIFY FIGURE REPRODUCTION SCALE		
NO.	DATE	MODE COMMENT RESPONSE	REVISIONS
1	7/17/17	ALS ARL	ALS ARL
2	8/1/17	ALS ARL	ALS ARL
3	8/1/17	ALS ARL	ALS ARL
4	8/1/17	ALS ARL	ALS ARL
5	8/1/17	ALS ARL	ALS ARL
6	8/1/17	ALS ARL	ALS ARL
7	8/1/17	ALS ARL	ALS ARL
8	8/1/17	ALS ARL	ALS ARL
9	8/1/17	ALS ARL	ALS ARL
10	8/1/17	ALS ARL	ALS ARL
11	8/1/17	ALS ARL	ALS ARL
12	8/1/17	ALS ARL	ALS ARL
13	8/1/17	ALS ARL	ALS ARL

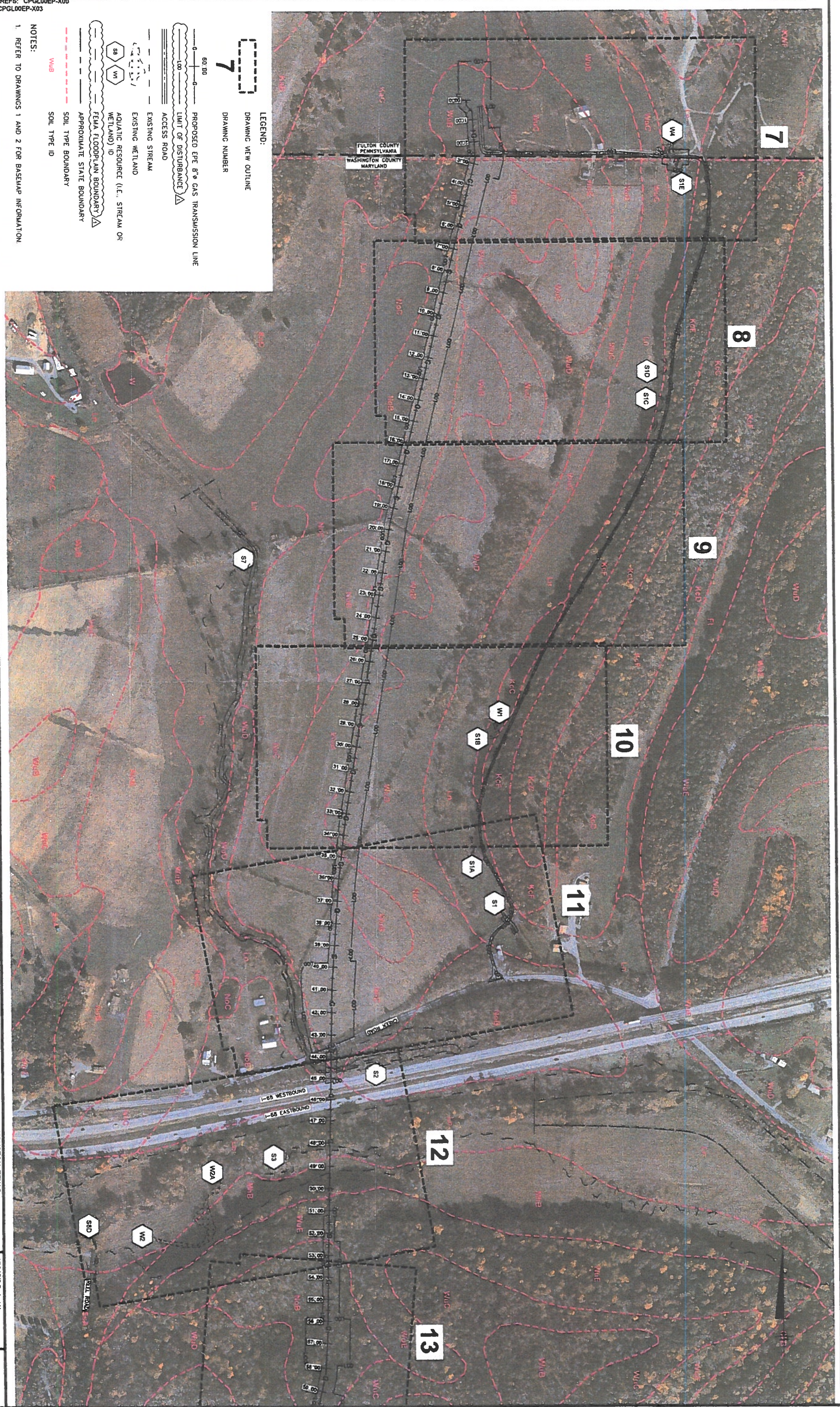


**ARCADIS** | Design & Consultancy  
 for natural and built assets

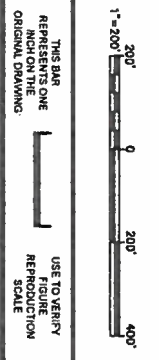
ARCADIS U.S., INC.

COLUMBIA GAS TRANSMISSION, LLC, A TRANSCORP COMPANY • HOUSTON, TEXAS  
 EASTERN PANHANDLE EXPANSION PROJECT  
**OVERALL SITE PLAN - STA. 0+00 TO 59+00**

ARCADIS Project No. CPGL00EP-0001-0008A  
 DATE: 08/03/2017  
 ARCADIS  
 6041 Wallace Road Extension  
 Warford, PA 15680  
 TEL: 724.742.8180



XREFS: CPGL00EP-X00  
CEGL00EP-X03

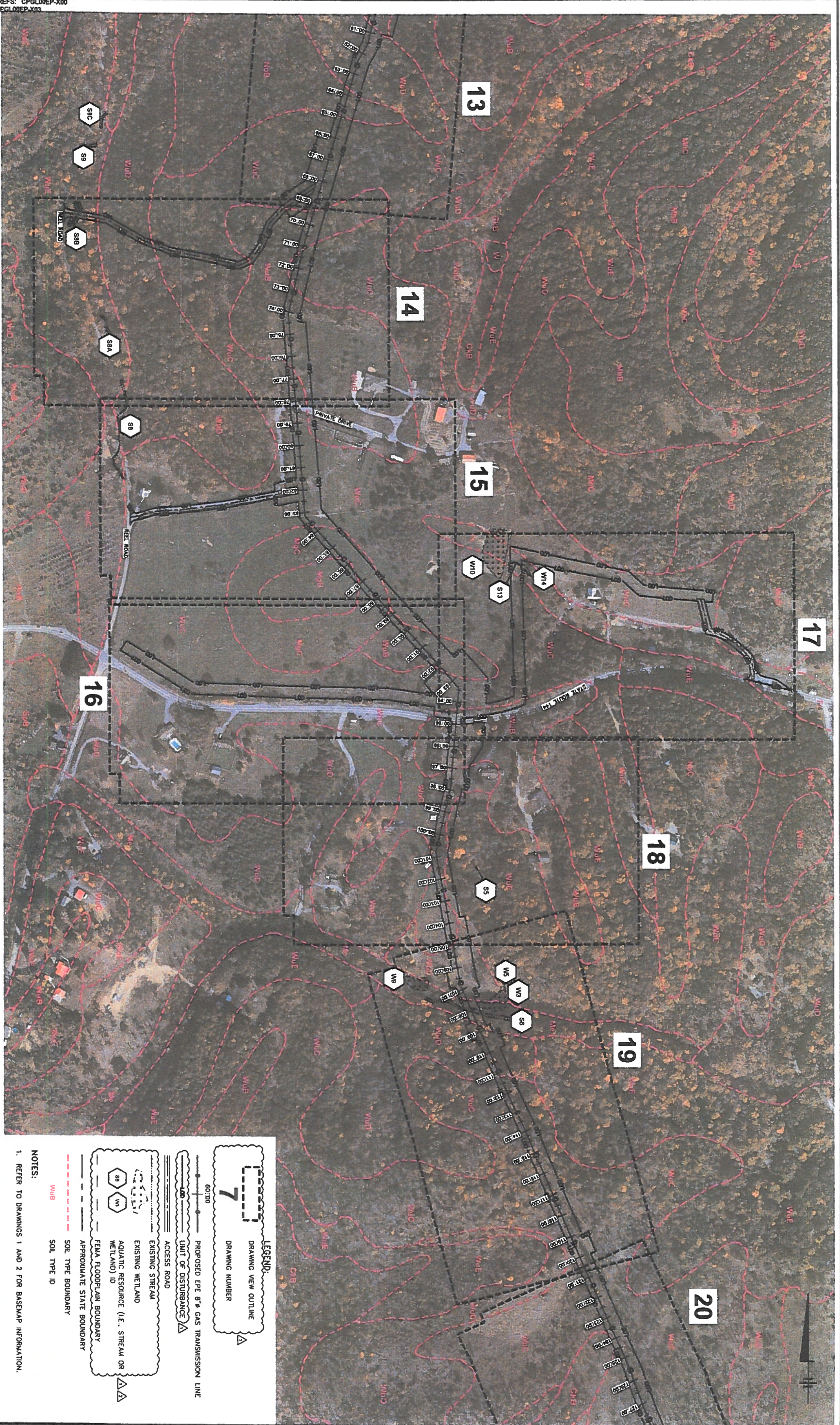


NO.	DATE	BY	REVISIONS
1	8/11/17	ALS	DATE SIGNED
2	8/17/17	ALS	DATE SIGNED
3			
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17			
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19			
20			

Professional Engineer Name  
**ALLEN LONG**  
Professional Engineer No.  
WD 34862



COLUMBIA GAS TRANSMISSION, L.L.C., A TRANSCANADA COMPANY • HOUSTON, TEXAS  
EASTERN PANHANDLE EXPANSION PROJECT  
**OVERALL SITE PLAN - STA. 59+00 TO 126+00**



**LEGEND:**

- DRAWING NEW OUTLINE
- DRAWING NUMBER
- PROPOSED 8\"/>
- LIMIT OF DISTURBANCE
- ACCESS ROAD
- EXISTING STREAM
- EXISTING WETLAND
- AQUATIC RESOURCE (I.E., STREAM OR WETLAND) ID
- FEWA FLOODPLAIN BOUNDARY
- APPROXIMATE STATE BOUNDARY
- SOIL TYPE BOUNDARY
- SOIL TYPE ID

**NOTES:**

- REFER TO DRAWINGS 1 AND 2 FOR BASEMAP INFORMATION.

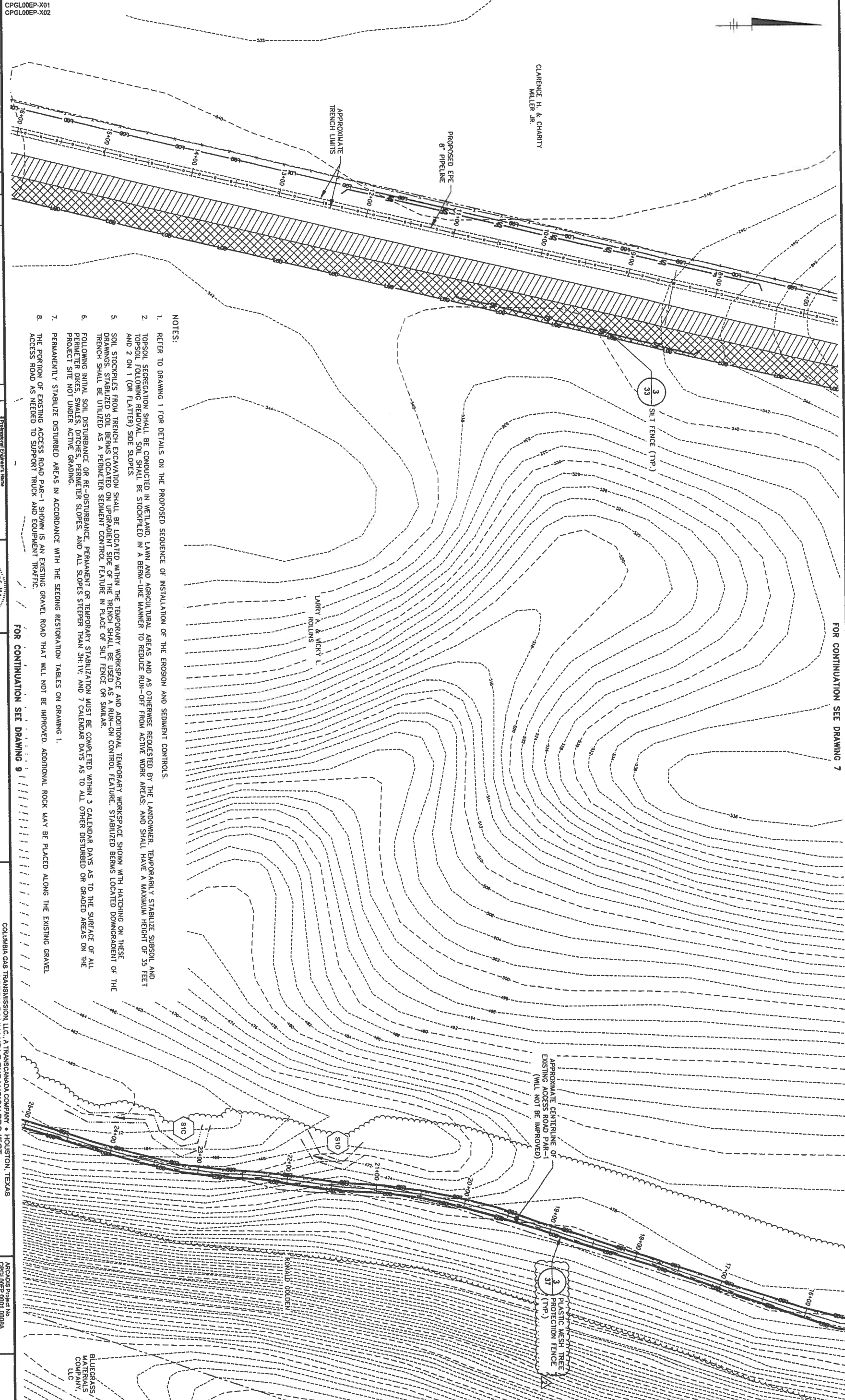








XREFS: CPGL00EP-X00  
 CPGL00EP-X01  
 CPGL00EP-X02



FOR CONTINUATION SEE DRAWING 7

NOTES:

1. REFER TO DRAWING 1 FOR DETAILS ON THE PROPOSED SEQUENCE OF INSTALLATION OF THE EROSION AND SEDIMENT CONTROLS
2. TOPSOIL SEGREGATION SHALL BE CONDUCTED IN WETLAND, LAWN AND AGRICULTURAL AREAS AND AS OTHERWISE REQUESTED BY THE LANDOWNER. TEMPORARILY STABILIZE SUBSOIL AND TOPSOIL FOLLOWING REMOVAL. SOIL SHALL BE STOCKPILED IN A BERM-LIKE MANNER TO REDUCE RUN-OFF FROM ACTIVE WORK AREAS; AND SHALL HAVE A MAXIMUM HEIGHT OF 35 FEET AND 2 ON 1 (OR FLATTER) SIDE SLOPES.
3. SOIL STOCKPILES FROM TRENCH EXCAVATION SHALL BE LOCATED WITHIN THE TEMPORARY WORKSPACE AND ADDITIONAL TEMPORARY WORKSPACE SHOWN WITH HATCHING ON THESE DRAWINGS. STABILIZED SOIL BERMS LOCATED ON UPGRADIENT SIDE OF THE TRENCH SHALL BE USED AS A RUN-ON CONTROL FEATURE. STABILIZED BERMS LOCATED DOWNGRADIENT OF THE TRENCH SHALL BE UTILIZED AS A PERIMETER SEDIMENT CONTROL FEATURE IN PLACE OF SILT FENCE OR SIMILAR.
4. FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION MUST BE COMPLETED WITHIN 3 CALENDAR DAYS AS TO THE SURFACE OF ALL PERMETER DIKES, SWALES, DITCHES, PERMETER SLOPES, AND ALL SLOPES STEEPER THAN 3:1V; AND 7 CALENDAR DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE NOT UNDER ACTIVE GRADING.
5. PERMANENTLY STABILIZE DISTURBED AREAS IN ACCORDANCE WITH THE SEEDING RESTORATION TABLES ON DRAWING 1.
6. THE PORTION OF EXISTING ACCESS ROAD PAR-1 SHOWN IS AN EXISTING GRAVEL ROAD THAT WILL NOT BE IMPROVED. ADDITIONAL ROCK MAY BE PLACED ALONG THE EXISTING GRAVEL ACCESS ROAD AS NEEDED TO SUPPORT TRUCK AND EQUIPMENT TRAFFIC.

FOR CONTINUATION SEE DRAWING 9

1"=50'  
 0 50' 100'

THIS BAR IS TO BE USED TO VERIFY REPRODUCTION SCALE

USE TO VERIFY REPRODUCTION SCALE

No.	Date	Revisions	By	Checked by
1	7/17/17	FOREST CONSERVATION ACT RE. UREMENT	ALS JRL	ALS

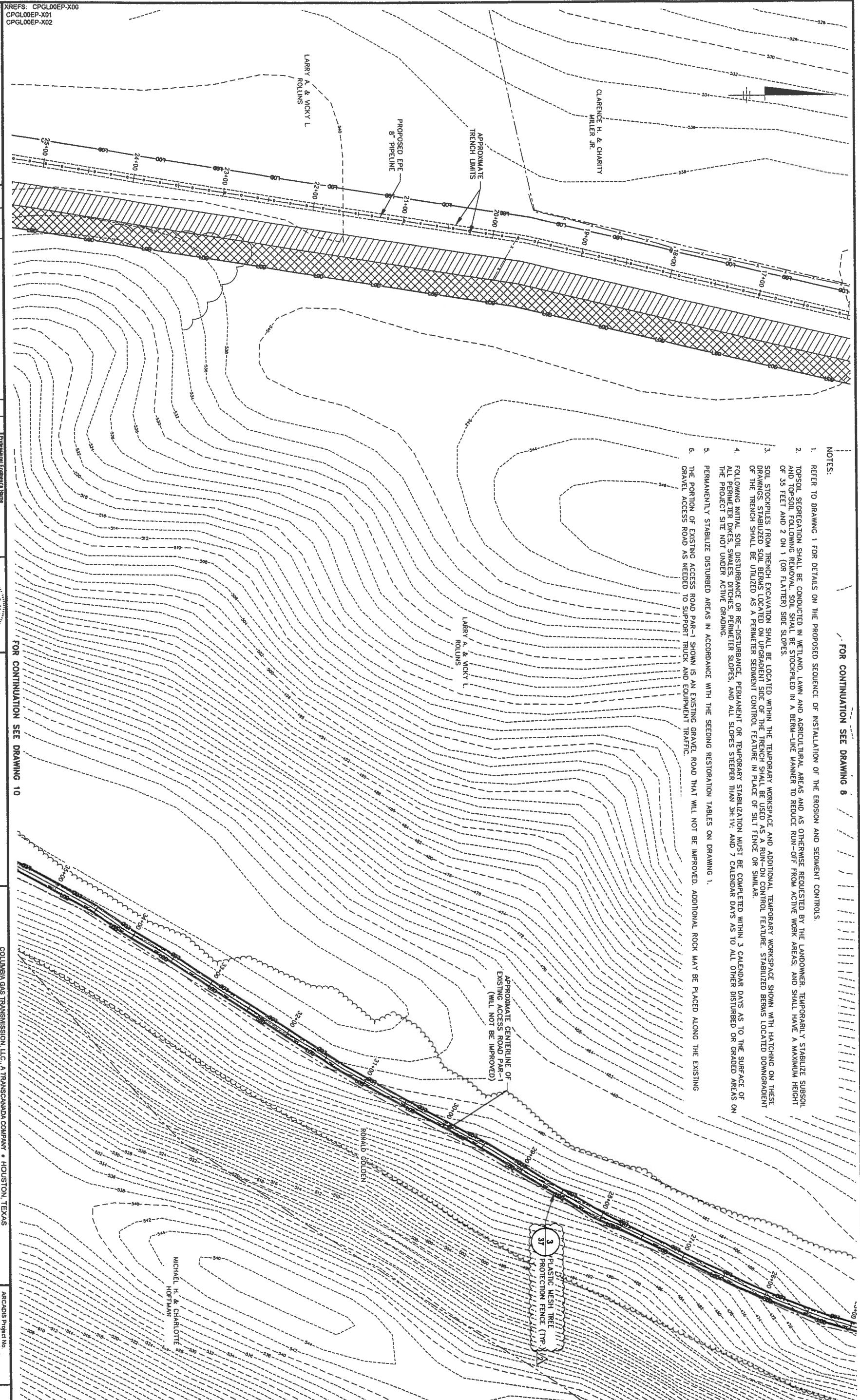
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Professional Engineer's Stamp  
**ALLEN LONG**  
 Professional Engineer No. MD 34882  
 State MD  
 Designated by ALS  
 Drawn by ALS  
 Created by ANL



COLUMBIA GAS TRANSMISSION, L.L.C., A TRANSCANADA COMPANY • HOUSTON, TEXAS  
 EASTERN PANHANDLE EXPANSION PROJECT  
**SITE PLAN (STA. 6+50 TO 16+00)**

ARCADIS Project No. CPGL00EP-0001-0008A  
 Date MARCH 2017  
 ARCADIS  
 6001 Walters Road Extension  
 Warfield, PA 15090  
 Tel. 724.422.9180



- NOTES:
1. REFER TO DRAWING 1 FOR DETAILS ON THE PROPOSED SEQUENCE OF INSTALLATION OF THE EROSION AND SEDIMENT CONTROLS.
  2. TOPSOIL SEGREGATION SHALL BE CONDUCTED IN WETLAND, LAWN AND AGRICULTURAL AREAS AND AS OTHERWISE REQUESTED BY THE LANDOWNER. TEMPORARILY STABILIZE SUBSOIL AND TOPSOIL FOLLOWING REMOVAL. SOIL SHALL BE STOCKPILED IN A BERM-LIKE MANNER TO REDUCE RUN-OFF FROM ACTIVE WORK AREAS, AND SHALL HAVE A MAXIMUM HEIGHT OF 35 FEET AND 2 ON 1 (OR FLATTER) SIDE SLOPES.
  3. SOIL STOCKPILES FROM TRENCH EXCAVATION SHALL BE LOCATED WITHIN THE TEMPORARY WORKSPACE AND ADDITIONAL TEMPORARY WORKSPACE SHOWN WITH HATCHING ON THESE DRAWINGS. STABILIZED SOIL BERMS LOCATED ON UPGRADIENT SIDE OF THE TRENCH SHALL BE USED AS A RUN-ON CONTROL FEATURE. STABILIZED BERMS LOCATED DOWNGRADIENT OF THE TRENCH SHALL BE UTILIZED AS A PERIMETER SEDIMENT CONTROL FEATURE IN PLACE OF SILT FENCE OR SIMILAR.
  4. FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION MUST BE COMPLETED WITHIN 3 CALENDAR DAYS AS TO THE SURFACE OF ALL PERIMETER DIKES, SWALES, DITCHES, PERIMETER SLOPES, AND ALL SLOPES STEEPER THAN 3H:1V; AND 7 CALENDAR DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE NOT UNDER ACTIVE GRADING.
  5. PERMANENTLY STABILIZE DISTURBED AREAS IN ACCORDANCE WITH THE SEEDING RESTORATION TABLES ON DRAWING 1.
  6. THE PORTION OF EXISTING ACCESS ROAD PAR-1 SHOWN IS AN EXISTING GRAVEL ROAD THAT WILL NOT BE IMPROVED. ADDITIONAL ROCK MAY BE PLACED ALONG THE EXISTING GRAVEL ACCESS ROAD AS NEEDED TO SUPPORT TRUCK AND EQUIPMENT TRAFFIC.

FOR CONTINUATION SEE DRAWING 8

FOR CONTINUATION SEE DRAWING 10

THIS BAR REPRESENTS ONE ORIGINAL DRAWING.		USE TO VERIFY REPRODUCTION SCALE	
1"=50'	0	50'	100'

No.	Date	Revisions	By	Check
1	7/17/17	FOREST CONSERVATION ACT RE: URELEMENT	ALS/ARL	MD

Professional Engineer's Name	Allen Long
Professional Engineer's No.	MD 34862
Site	MD 34862
Drawn by	ALS
Checked by	ARL



**ARCADIS** Design & Consultancy  
for natural land built assets

ARCADIS U.S., INC.

COLUMBIA GAS TRANSMISSION, LLC, A TRANSCANADA COMPANY • HOUSTON, TEXAS  
EASTERN PANHANDLE EXPANSION PROJECT  
**SITE PLAN (STA. 16+00 TO 25+50)**

ARCADIS Project No.	CPGL00EP.0001.0008A
Date	MARCH 2017
ARCADIS	6041 Webster Road Extension
Wexford, PA 15390	181.726.742.8710

XREFS: CPGL00EP-X00  
 CPGL00EP-X01  
 CPGL00EP-X02

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DATE: 7/17/17  
 DESIGNED BY: ALS  
 CHECKED BY: ALS  
 PROJECT NO: 17010000000000000000

No.	Date	Description	By	Check
1	7/17/17	FOREST CONSERVATION ACT RE: UREINEMENT	ALS	RAL
2				
3				

Professional Engineer's Name: **ALLEN LONG**  
 Professional Engineer's No: MD 34882  
 State: MD  
 Date Signed: JD  
 Project No: 17010000000000000000



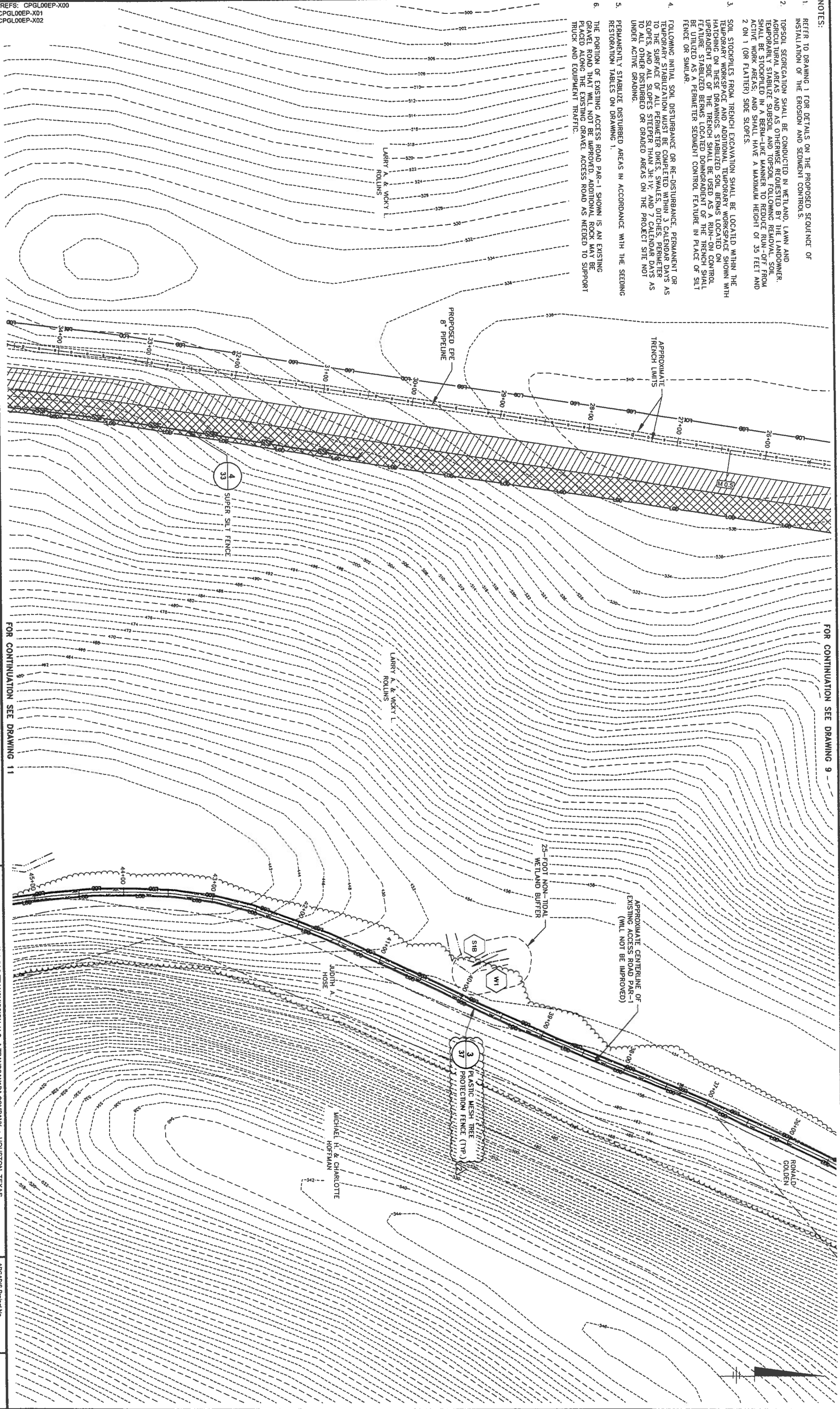
**ARCADIS** Design & Consultancy  
 for natural and built assets

ARCADIS U.S., INC.

COLUMBIA GAS TRANSMISSION, L.L.C. A TRANSCANADA COMPANY • HOUSTON, TEXAS  
 EASTERN PANHANDLE EXPANSION PROJECT  
**SITE PLAN (STA. 25+50 TO 34+50)**

ARCADIS Project No: CPGL00EP-001-0000A  
 Date: MARCH 2017  
 ARCADIS  
 6041 Wallace Road Extension  
 Suite 300  
 Wexford, PA 15080  
 Tel: 724.742.9180

**10**



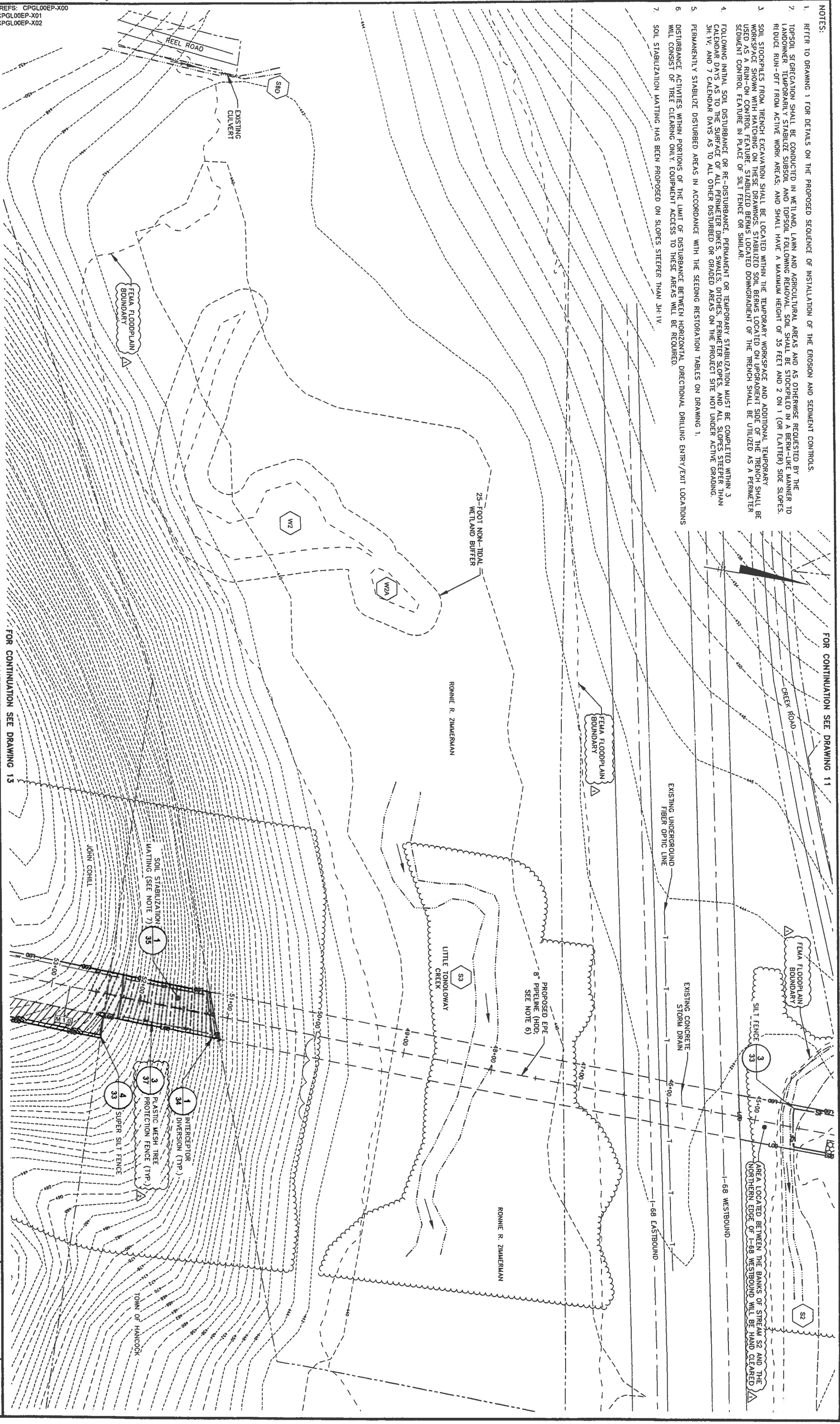
- NOTES:**
- REFER TO DRAWING 1 FOR DETAILS ON THE PROPOSED SEQUENCE OF INSTALLATION OF THE EROSION AND SEDIMENT CONTROLS.
  - TOPSOIL SEPARATION SHALL BE CONDUCTED IN WETLAND, LAWN AND AGRICULTURAL AREAS AND AS OTHERS ARE DETERMINED BY THE LANDOWNER. TEMPORARILY STABILIZE SOBERBANKS IN A MANNER TO REDUCE RUN-OFF FROM ACTIVE WORK AREAS AND SHALL HAVE A MAXIMUM HEIGHT OF 35 FEET AND 2 ON 1 (OR FLATTER) SIDE SLOPES.
  - SOIL STOCKPILES FROM TRENCH EXCAVATION SHALL BE LOCATED WITHIN THE TEMPORARY WORKSPACE AND ADDITIONAL TEMPORARY WORKSPACE SHOWN WITH HATCHING ON THESE DRAWINGS. STABILIZED SOIL BERMS LOCATED ON UPWARD SIDE OF THE TRENCH SHALL BE USED AS A RUN-ON CONTROL FEATURE. STABILIZED BERMS LOCATED DOWNWARD OF THE TRENCH SHALL BE UTILIZED AS A PERMETER SEDIMENT CONTROL FEATURE IN PLACE OF SILT FENCE OR SIMILAR.
  - FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION MUST BE COMPLETED WITHIN 14 CALENDAR DAYS AS TO THE SURFACE OF ALL STREETS, SIDEWALKS, DITCHES, PERMETER SLOPES, AND ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE NOT UNDER ACTIVE GRADING.
  - PERMANENTLY STABILIZE DISTURBED AREAS IN ACCORDANCE WITH THE SEEDING RESTORATION TABLES ON DRAWING 1.
  - THE PORTION OF EXISTING ACCESS ROAD PAR-1 SHOWN IS AN EXISTING GRAVEL ROAD THAT WILL NOT BE IMPROVED. ADDITIONAL ROCK MAY BE PLACED ALONG THE EXISTING GRAVEL ACCESS ROAD AS NEEDED TO SUPPORT TRUCK AND EQUIPMENT TRAFFIC.

FOR CONTINUATION SEE DRAWING 9

FOR CONTINUATION SEE DRAWING 11



- NOTES:**
1. REFER TO DRAWING 1 FOR DETAILS ON THE PROPOSED SEQUENCE OF INSTALLATION OF THE EROSION AND SEDIMENT CONTROLS.
  2. TOPSOIL SEGREGATION SHALL BE CONDUCTED IN WETLAND, LAWN AND AGRICULTURAL AREAS AND AS OTHERWISE REQUESTED BY THE LANDOWNER. TEMPORARILY STABILIZE SUBSOIL AND TOPSOIL FOLLOWING REMOVAL. SOIL SHALL BE STOCKPILED IN A BERM-LIKE MANNER TO REDUCE RUN-OFF FROM ACTIVE WORK AREAS. AND SHALL HAVE A MAXIMUM HEIGHT OF 35 FEET AND 2 ON 1 (OR FLATTER) SIDE SLOPES.
  3. SOIL STOCKPILES FROM TRENCH EXCAVATION SHALL BE LOCATED WITHIN THE TEMPORARY WORKSPACE AND ADDITIONAL TEMPORARY WORKSPACE SHOWN WITH HATCHING ON THESE DRAWINGS. STABILIZED SOIL BERMS LOCATED ON UPGRADIENT SIDE OF THE TRENCH SHALL BE USED AS A RUN-ON CONTROL FEATURE. STABILIZED BERMS LOCATED DOWNGRADIENT OF THE TRENCH SHALL BE UTILIZED AS A PERIMETER SEDIMENT CONTROL FEATURE IN PLACE OF SILT FENCE OR SIMILAR.
  4. FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION MUST BE COMPLETED WITHIN 3 CALENDAR DAYS AS TO THE SURFACE OF ALL PERIMETER DITCHES, SHALES, DITCHES, AND SLOPES ON THE PROJECT SITE NOT UNDER ACTIVE GRADING. 3H:1V, AND 7 CALENDAR DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE.
  5. PERMANENTLY STABILIZE DISTURBED AREAS IN ACCORDANCE WITH THE SEEDING RESTORATION TABLES ON DRAWING 1.
  6. DISTURBANCE ACTIVITIES WITHIN PORTIONS OF THE LIMIT OF DISTURBANCE BETWEEN HORIZONTAL DIRECTIONAL DRILLING ENTRY/EXIT LOCATIONS WILL CONSIST OF TREE CLEARING ONLY. EQUIPMENT ACCESS TO THESE AREAS WILL BE REQUIRED.
  7. SOIL STABILIZATION MATTING HAS BEEN PROPOSED ON SLOPES STEEPER THAN 3H:1V.



FOR CONTINUATION SEE DRAWING 11

FOR CONTINUATION SEE DRAWING 13

Professional Engineer's Name: **ALLEN LONG**  
 Professional Engineer's No.: MD 34882  
 State: MD  
 Date Signed: [blank]  
 Project No.: JD  
 Checked by: ARJ

NO.	DATE	MODE	REVISIONS	BY	CHKD
1	7/17/17	FOREST CONSERVATION ACT REQUIREMENT		ALJ	ARJ
2	7/17/17	MODE COMMENT RESPONSE		ALJ	ARJ

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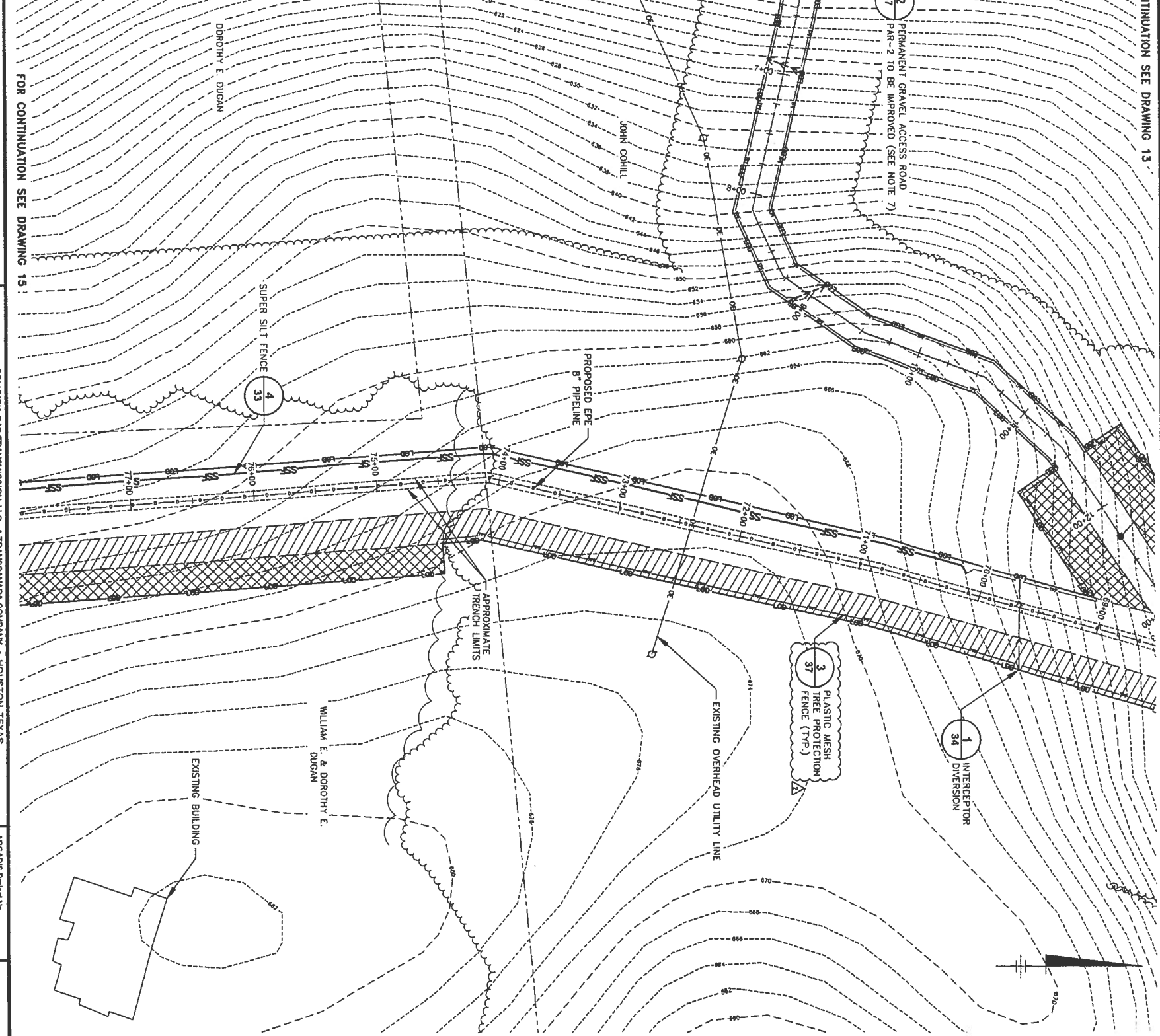
COLUMBIA GAS TRANSMISSION, L.L.C. A TRANSCANADA COMPANY • HOUSTON, TEXAS  
**SITE PLAN (STA. 44+00 TO 53+50)**

ARCADIS Project No.: CPGL00EP-0008A  
 Date: MARCH 2017  
 ARCADIS  
 6041 Wallace Road Extension  
 Suite 300  
 Wexford, PA 15090  
 Tel: 724.742.2180



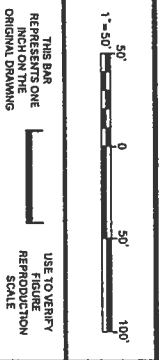
XREFS: CPGL00EP-X00  
 CPGL00EP-X01  
 CPGL00EP-X02

- NOTES:**
1. REFER TO DRAWING 1 FOR DETAILS ON THE PROPOSED SEQUENCE OF INSTALLATION OF THE EROSION AND SEDIMENT CONTROLS.
  2. TOPSOIL SEGREGATION SHALL BE CONDUCTED IN WETLAND, LAWN AND AGRICULTURAL AREAS AND AS OTHERWISE REQUESTED BY THE LANDOWNER. TEMPORARILY STABILIZE SUBSOIL AND TOPSOIL FOLLOWING REMOVAL. SOIL SHALL BE STOCKPILED IN A BERM-LIKE MANNER TO REDUCE RUN-OFF FROM ACTIVE WORK AREAS; AND SHALL HAVE A MAXIMUM HEIGHT OF 35 FEET AND 2 ON 1 (OR FLATTER) SIDE SLOPES.
  3. INTERCEPTOR DIVERSIONS LOCATED IN RESIDENTIAL AREAS AND AGRICULTURAL FIELDS SHALL BE REMOVED DURING FINAL GRADING. INTERCEPTOR DIVERSIONS THAT CAN BE LEFT IN PLACE, AT THE LANDOWNER'S DISCRETION, SHALL BE VEGETATED.
  4. SOIL STOCKPILES FROM TRENCH EXCAVATION SHALL BE LOCATED WITHIN THE TEMPORARY WORKSPACE AND ADDITIONAL TEMPORARY WORKSPACE SHOWN WITH HATCHING ON THESE DRAWINGS. STABILIZED SOIL BERMS LOCATED ON UP-DRAINAGE SIDE OF THE TRENCH SHALL BE SET ON CONTROL FEATURE. STABILIZED BERMS LOCATED DOWN-DRAINAGE OF THE TRENCH SHALL BE UTILIZED AS A PERIMETER SEDIMENT CONTROL FEATURE IN PLACE OF SILT FENCE OR SIMILAR.
  5. FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION MUST BE COMPLETED WITHIN 3 CALENDAR DAYS AS TO THE DISTURBED OR GRADED AREAS ON THE PROJECT SITE NOT UNDER ACTIVE GRADING.
  6. PERMANENTLY STABILIZE DISTURBED AREAS IN ACCORDANCE WITH THE SEEDING RESTORATION TABLES ON DRAWING 1.
  7. PROPOSED PERMANENT ACCESS ROAD PAR-2 WILL BE IMPROVED BY GRADING AND STABILIZED WITH STONE TO FACILITATE TRUCK AND EQUIPMENT TRAFFIC.



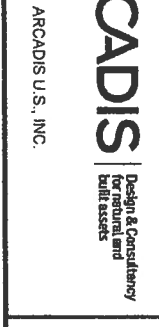
FOR CONTINUATION SEE DRAWING 15

FOR CONTINUATION SEE DRAWING 13



No.	Date	Revisions	By	Checked by
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2	7/11/17	MODE COMMENT RESPONSE	ALS	ALS

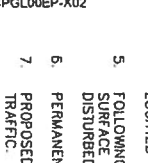
Professional Engineer's Name: **ALLEN LONG**  
 Professional Engineer's No: MD 34662  
 State: MD  
 Date Signed: [blank]  
 Project No: [blank]  
 Checked by: [blank]



**SITE PLAN (STA. 69+00 TO 78+00)**  
 COLUMBIA GAS TRANSMISSION, L.L.C., A TRANSCANADA COMPANY • HOUSTON, TEXAS  
 EASTERN PANHANDLE EXPANSION PROJECT

ARCADIS Project No: CPGL00EP-0001-0008A  
 Date: MARCH 2017  
 ARCADIS  
 6001 Wallace Road Extension  
 Wexford, PA 15080  
 TEL 724 742 9190

XREFS: CPGL00EP-X00  
CPGL00EP-X01  
CPGL00EP-X02



1. REFER TO DRAWING 1 FOR DETAILS ON THE PROPOSED SEQUENCE OF INSTALLATION OF THE EROSION AND SEDIMENT CONTROLS.

2. TOPSOIL SEGREGATION SHALL BE CONDUCTED IN WETLAND, LAWN AND AGRICULTURAL AREAS AND AS OTHERWISE REQUESTED BY THE LANDOWNER. TEMPORARILY STABILIZE SUBSOIL AND TOPSOIL FOLLOWING REMOVAL. SOIL SHALL BE STOCKPILED IN A BERM-LIKE MANNER TO REDUCE RUN-OFF FROM ACTIVE WORK AREAS; AND SHALL HAVE A MAXIMUM HEIGHT OF 3.5 FEET AND 2 ON 1 (OR FLATTER) SIDE SLOPES.

3. INTERCEPTOR DIVERSIONS LOCATED IN RESIDENTIAL AREAS AND AGRICULTURAL FIELDS SHALL BE REMOVED DURING FINAL GRADING. INTERCEPTOR DIVERSIONS THAT CAN BE LEFT IN PLACE, AT THE LANDOWNER'S DISCRETION, SHALL BE VEGETATED.

4. SOIL STOCKPILES FROM TRENCH EXCAVATION SHALL BE LOCATED WITHIN THE TEMPORARY WORKSPACE AND ADDITIONAL TEMPORARY WORKSPACE SHOWN WITH HATCHING ON THESE DRAWINGS. STABILIZED SOIL BERMS LOCATED ON UPGRADE SIDE OF THE TRENCH SHALL BE USED AS A RUN-ON CONTROL FEATURE. STABILIZED BERMS LOCATED DOWNGRADE OF THE TRENCH SHALL BE UTILIZED AS A PERIMETER SEDIMENT CONTROL FEATURE IN PLACE OF SILT FENCE OR SIMILAR.

5. FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION MUST BE COMPLETED WITHIN 3 CALENDAR DAYS AS TO THE SURFACE OF ALL PERIMETER DIKES, SWALES, DITCHES, PERIMETER SLOPES, AND ALL SLOPES STEEPER THAN 3H:1V, AND 7 CALENDAR DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE NOT UNDER ACTIVE GRADING.

6. PERMANENTLY STABILIZED DISTURBED AREAS IN ACCORDANCE WITH THE SEEDING RESTORATION TABLES ON DRAWING 1.

7. PROPOSED PERMANENT ACCESS ROAD PAR-2 IS AN EXISTING GRAVEL ROAD THAT WILL BE STABILIZED WITH ADDITIONAL STONE TO FACILITATE TRUCK AND EQUIPMENT TRAFFIC.

NOTES:

FOR CONTINUATION SEE DRAWING 14

FOR CONTINUATION SEE DRAWING 16

REEL ROAD

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LANDESBITZ, INC.

REEL ROAD

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CPGL00EP-X01  
CPGL00EP-X02

1"=50'  
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THIS DRAWING IS THE PROPERTY OF THE ENGINEER AND IS NOT TO BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM, WITHOUT THE WRITTEN PERMISSION OF SAAR.

USE TO VERIFY REPRODUCTION SCALE

REPRESENTS ONE REPRODUCTION SCALE

No.	Date	Issue Comment	Response	Revisions	By	Check
1	7/7/17				ALS	ARL

Professional Engineer's Name  
**ALLEN LONG**  
Professional Engineer's No.  
MD 54862

State  
MD

Date signed  
ALS

Project Mgr  
JD

Created by  
ALS

Drawn by  
ALS

**ARCADIS**  
Design & Consultancy  
for natural and built assets  
ARCADIS U.S., INC.

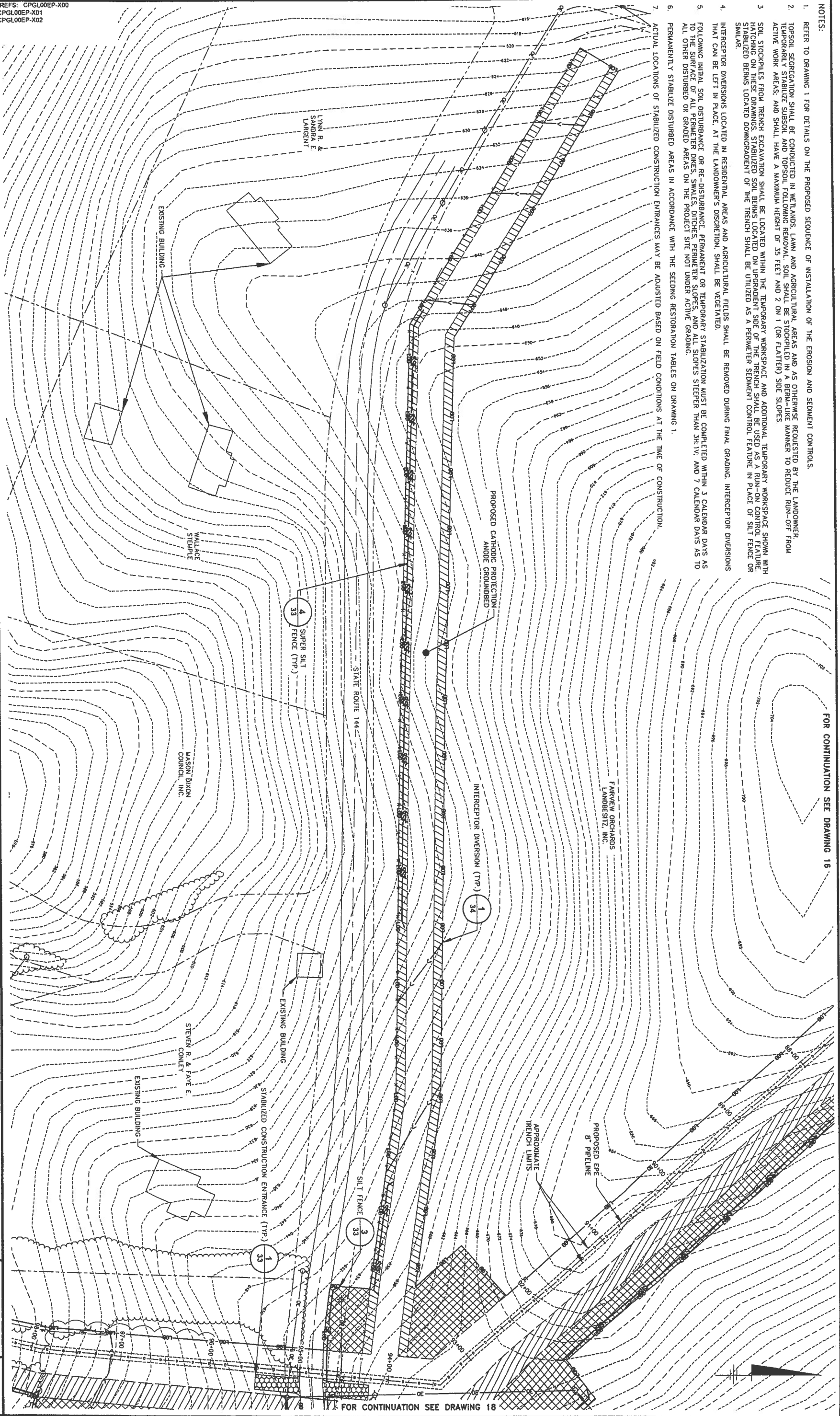
COLUMBIA GAS TRANSMISSION, LLC, A TRANSCANADA COMPANY • HOUSTON, TEXAS  
EASTERN PANHANDLE EXPANSION PROJECT

**SITE PLAN (CATHODIC PROTECTION ANODE GROUNDBED AT STA. 94+00)**

ARCADIS Project No.  
CPGL00EP-001-1009A

Date  
MARCH 2017

ARCADIS  
6041 Wallace Road Extension  
Wexford, PA 15090  
Tel: 724.762.8189



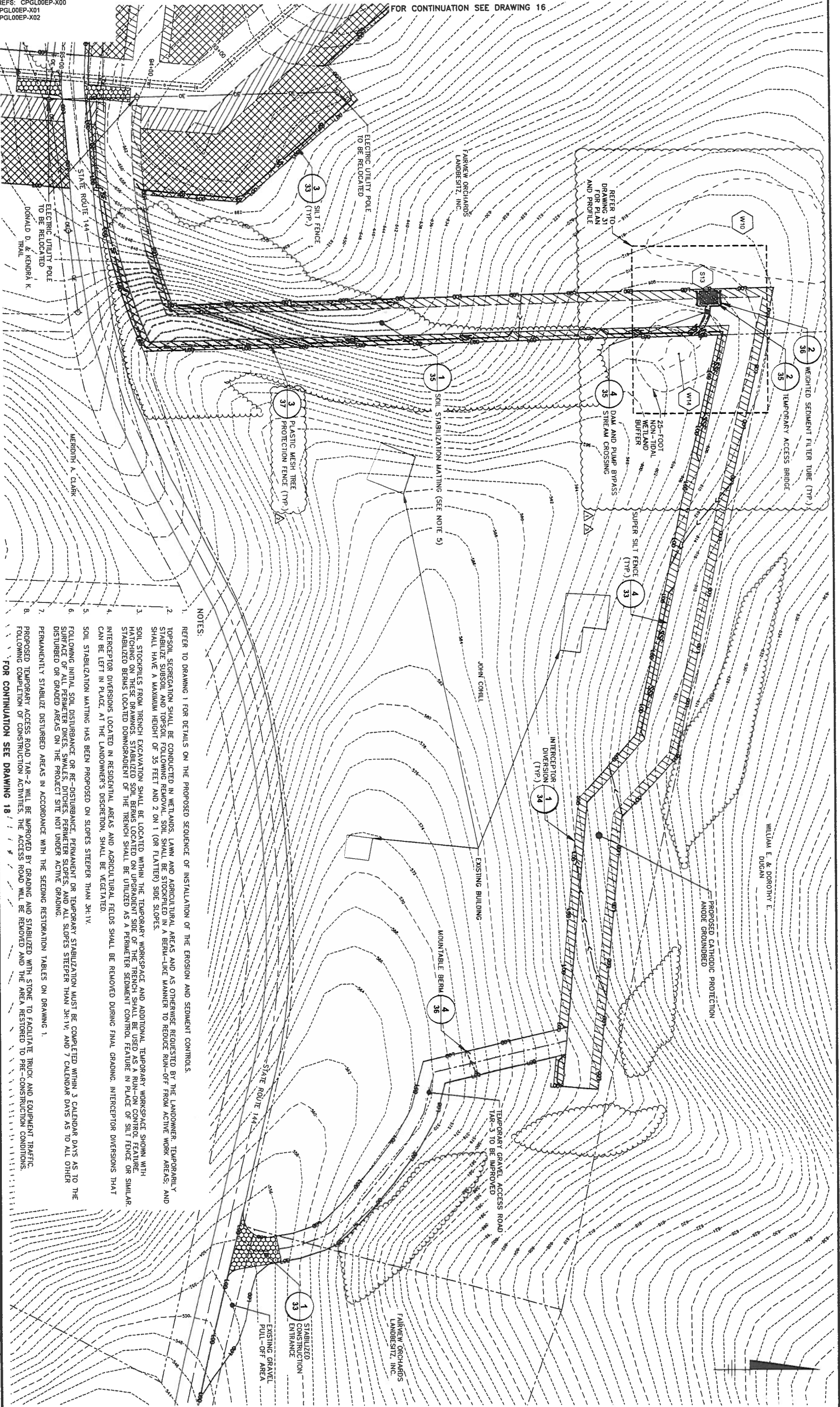
- NOTES:
- REFER TO DRAWING 1 FOR DETAILS ON THE PROPOSED SEQUENCE OF INSTALLATION OF THE EROSION AND SEDIMENT CONTROLS.
  - TOPSOIL SEPARATION SHALL BE CONDUCTED IN WETLANDS, LAWN AND AGRICULTURAL AREAS AND AS OTHERWISE REQUESTED BY THE LANDOWNER. TEMPORARILY STABILIZE SUBSOIL AND TOPSOIL FOLLOWING REMOVAL. SOIL SHALL BE STOCKPILED IN A BERM-LIKE MANNER TO REDUCE RUN-OFF FROM ACTIVE WORK AREAS. AND SHALL HAVE A MAXIMUM HEIGHT OF 3.5 FEET AND 2 ON 1 (OR FLATTER) SIDE SLOPES.
  - SOIL STOCKPILES FROM TRENCH EXCAVATION SHALL BE LOCATED WITHIN THE TEMPORARY WORKSPACE AND ADDITIONAL TEMPORARY WORKSPACE SHOWN WITH HATCHING ON THESE DRAWINGS. STABILIZED SOIL BERMS LOCATED ON UPGRADEMENT SIDE OF THE TRENCH SHALL BE USED AS A PERIMETER SEDIMENT CONTROL FEATURE IN PLACE OF SILT FENCE OR STABILIZED BERMS LOCATED DOWNGRADIENT OF THE TRENCH SHALL BE UTILIZED AS A PERIMETER SEDIMENT CONTROL FEATURE IN PLACE OF SILT FENCE OR SIMILAR.
  - INTERCEPTOR DIVERSIONS LOCATED IN RESIDENTIAL AREAS AND AGRICULTURAL FIELDS SHALL BE REMOVED DURING FINAL GRADING. INTERCEPTOR DIVERSIONS THAT CAN BE LEFT IN PLACE AT THE LANDOWNER'S DISCRETION, SHALL BE VEGETATED.
  - FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION MUST BE COMPLETED WITHIN 3 CALENDAR DAYS AS TO THE SURFACE OF ALL PERIMETER DIKES, SWALES, DITCHES, PERIMETER SLOPES, AND ALL SLOPES STEEPER THAN 3H:1V, AND 7 CALENDAR DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE NOT UNDER ACTIVE GRADING.
  - PERMANENTLY STABILIZED DISTURBED AREAS IN ACCORDANCE WITH THE SEEDING RESTORATION TABLES ON DRAWING 1.
  - ACTUAL LOCATIONS OF STABILIZED CONSTRUCTION ENTRANCES MAY BE ADJUSTED BASED ON FIELD CONDITIONS AT THE TIME OF CONSTRUCTION.

FOR CONTINUATION SEE DRAWING 18

FOR CONTINUATION SEE DRAWING 18

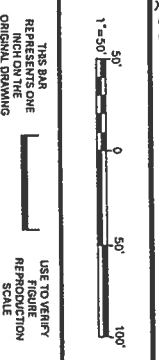
XREFS: CPGL00EP-X00  
CPGL00EP-X01  
CPGL00EP-X02

FOR CONTINUATION SEE DRAWING 16



NOTES:

1. REFER TO DRAWING 1 FOR DETAILS ON THE PROPOSED SEQUENCE OF INSTALLATION OF THE EROSION AND SEDIMENT CONTROLS.
2. TOPSOIL SEGREGATION SHALL BE CONDUCTED IN WETLANDS, LAWN AND AGRICULTURAL AREAS AND AS OTHERWISE REQUESTED BY THE LANDOWNER. TEMPORARILY STABILIZE SUBSOIL AND TOPSOIL FOLLOWING REMOVAL. SOIL SHALL BE STOCKPILED IN A BERM-LIKE MANNER TO REDUCE RUN-OFF FROM ACTIVE WORK AREAS. AND SHALL HAVE A MAXIMUM HEIGHT OF 35 FEET AND 2 ON 1 (OR FLATTER) SIDE SLOPES.
3. SOIL STOCKPILES FROM TRENCH EXCAVATION SHALL BE LOCATED WITHIN THE TEMPORARY WORKSPACE AND ADDITIONAL TEMPORARY WORKSPACE SHOWN WITH HATCHING ON THESE DRAWINGS. STABILIZED SOIL BERMS LOCATED ON UPGRADIENT SIDE OF THE TRENCH SHALL BE USED AS A PERIMETER CONTROL FEATURE. STABILIZED BERMS LOCATED DOWNGRADIENT OF THE TRENCH SHALL BE UTILIZED AS A PERIMETER SEDIMENT CONTROL FEATURE IN PLACE OF SILT FENCE OR SIMILAR INTERCEPTOR DIVERSIONS LOCATED IN RESIDENTIAL AREAS AND AGRICULTURAL FIELDS SHALL BE REMOVED DURING FINAL GRADING. INTERCEPTOR DIVERSIONS THAT CAN BE LEFT IN PLACE, AT THE LANDOWNER'S DISCRETION, SHALL BE VEGETATED.
4. SOIL STABILIZATION MATTING HAS BEEN PROPOSED ON SLOPES STEEPER THAN 3H:1V.
5. FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION MUST BE COMPLETED WITHIN 3 CALENDAR DAYS AS TO THE SURFACE OF ALL PERIMETER DICES, SWALES, DITCHES, PERIMETER SLOPES, AND ALL SLOPES STEEPER THAN 3H:1V, AND 7 CALENDAR DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE NOT UNDER ACTIVE GRADING.
6. PERMANENTLY STABILIZE DISTURBED AREAS IN ACCORDANCE WITH THE SEEDING RESTORATION TABLES ON DRAWING 1.
7. PROPOSED TEMPORARY ACCESS ROAD TAR-2 WILL BE IMPROVED BY GRADING AND STABILIZED WITH STONE TO FACILITATE TRUCK AND EQUIPMENT TRAFFIC. FOLLOWING COMPLETION OF CONSTRUCTION ACTIVITIES, THE ACCESS ROAD WILL BE REMOVED AND THE AREA RESTORED TO PRE-CONSTRUCTION CONDITIONS.
8. FOR CONTINUATION SEE DRAWING 18



No.	Date	Revisions	Designed by	Drawn by	Checked by
1	8/17/17	NOE COMMENT RESPONSE	ALS	ARL	ALS
2	7/17/17	FOREST CONSERVATION ACT REVIEW COMMENT	ALS	ARL	ALS
3	7/17/17	NOE COMMENT RESPONSE	ALS	ARL	ALS



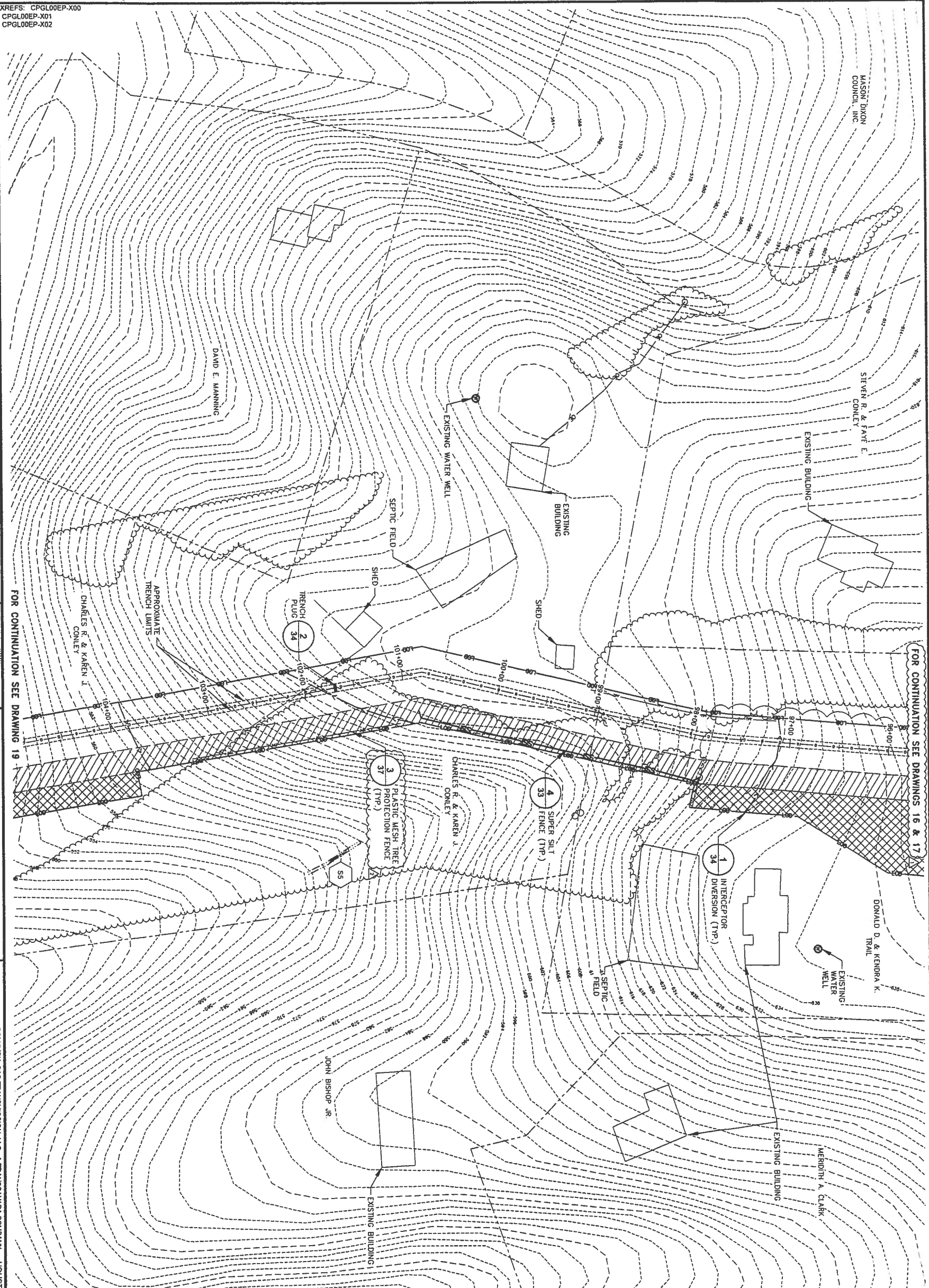
**ARCADIS** Design & Consultancy  
for industrial and built assets

ARCADIS U.S., INC.

**SITE PLAN (CATHODIC PROTECTION ANODE GROUND BED AT STA. 94+25)**

COLUMBIA GAS TRANSMISSION, LLC, A TRANSCANADA COMPANY • HOUSTON, TEXAS  
EASTERN PANHANDLE EXPANSION PROJECT

ARCADIS Project No. CPGL00EP-001-00000A  
Date: MARCH 2017  
ARCADIS  
6901 Wallace Road Extension  
Wexford, Pa, 15090  
Tel: 724.742.9180



- NOTES:
1. REFER TO DRAWING 1 FOR DETAILS ON THE PROPOSED SEQUENCE OF INSTALLATION OF THE EROSION AND SEDIMENT CONTROLS.
  2. TOPSOIL SEGREGATION SHALL BE CONDUCTED IN WETLAND, LAWN AND AGRICULTURAL AREAS AND AS OTHERWISE REQUESTED BY THE LANDOWNER. TEMPORARILY STABILIZE SUBSOIL AND TOPSOIL FOLLOWING REMOVAL. SOIL SHALL BE STOCKPILED IN A BERM-LIKE MANNER TO REDUCE RUN-OFF FROM ACTIVE WORK AREAS. AND SHALL HAVE A MAXIMUM HEIGHT OF 35 FEET AND 2 ON 1 (OR FLATTER) SIDE SLOPES.
  3. SOIL STOCKPILES FROM TRENCH EXCAVATION SHALL BE LOCATED WITHIN THE TEMPORARY WORKSPACE AND ADDITIONAL TEMPORARY WORKSPACE SHOWN WITH HATCHING ON THESE DRAWINGS. STABILIZED SOIL BERMS LOCATED ON UPGRADEMENT SIDE OF THE TRENCH SHALL BE USED AS A RUN-ON CONTROL FEATURE. STABILIZED BERMS LOCATED DOWNGRADEMENT OF THE TRENCH SHALL BE UTILIZED AS A PERMANENT SEDIMENT CONTROL FEATURE IN PLACE OF SILT FENCE OR SIMILAR.
  4. INTERCEPTOR DIVERSIONS LOCATED IN RESIDENTIAL AREAS AND AGRICULTURAL FIELDS SHALL BE REMOVED DURING FINAL GRADING. INTERCEPTOR DIVERSIONS THAT CAN BE LEFT IN PLACE, AT THE LANDOWNER'S DISCRETION, SHALL BE VEGETATED.
  5. SOIL STABILIZATION MATTING HAS BEEN PROPOSED ON SLOPES STEEPER THAN 3H:1V.
  6. FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION MUST BE COMPLETED WITHIN 3 CALENDAR DAYS AS TO THE SURFACE OF ALL PERMETER DIKES, SWALES, DITCHES, PERIMETER SLOPES, AND ALL SLOPES STEEPER THAN 3H:1V, AND 7 CALENDAR DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE NOT UNDER ACTIVE GRADING.
  7. PERMANENTLY STABILIZE DISTURBED AREAS IN ACCORDANCE WITH THE SEEDING RESTORATION TABLES ON DRAWING 1.
  8. ACTUAL LOCATIONS OF STABILIZED CONSTRUCTION ENTRANCES MAY BE ADJUSTED BASED ON FIELD CONDITIONS AT THE TIME OF CONSTRUCTION.

FOR CONTINUATION SEE DRAWING 19

FOR CONTINUATION SEE DRAWINGS 16 & 17

THIS BAR REPRESENTS ONE INCH ON THE ORIGINAL DRAWING

USE TO VERIFY FIGURE REPRODUCTION SCALE

NO.	DATE	REVISIONS	BY	CHKD
1	7/7/17	FOREST CONSERVATION ACT RETIREMENT	ALS	ARL
2	7/7/17	MADE COMMENT RESPONSE	ALS	ARL

Professional Engineer's Name: ALLEN LONG  
 Professional Engineer's No.: MD 34862  
 State: MD  
 Date Signed: [blank]  
 Project No.: [blank]  
 ID: [blank]  
 Created by: ARL



**ARCADIS** Design & Consultancy for natural and built assets

ARCADIS U.S., INC.

COLUMBIA GAS TRANSMISSION, L.L.C., A TRANSCANADA COMPANY • HOUSTON, TEXAS  
 EASTERN PANHANDLE EXPANSION PROJECT  
**SITE PLAN (STA. 95+00 TO 105+00)**

ARCADIS Project No.	CPGL00EP-0001-0000A
Date	MARCH 2017
ARCADIS Site No.	300
ARCADIS Office	Wexford, PA 15090
ARCADIS Phone	Tel. 724.742.8180

XREFS: CPGL00EP-X00  
CPGL00EP-X01  
CPGL00EP-X02

FOR CONTINUATION SEE DRAWING 16

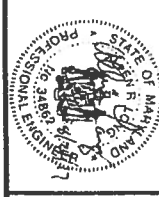
THIS BAR REPRESENTS ONE INCH ON THE ORIGINAL DRAWING

USE TO VERIFY REPRODUCTION SCALE

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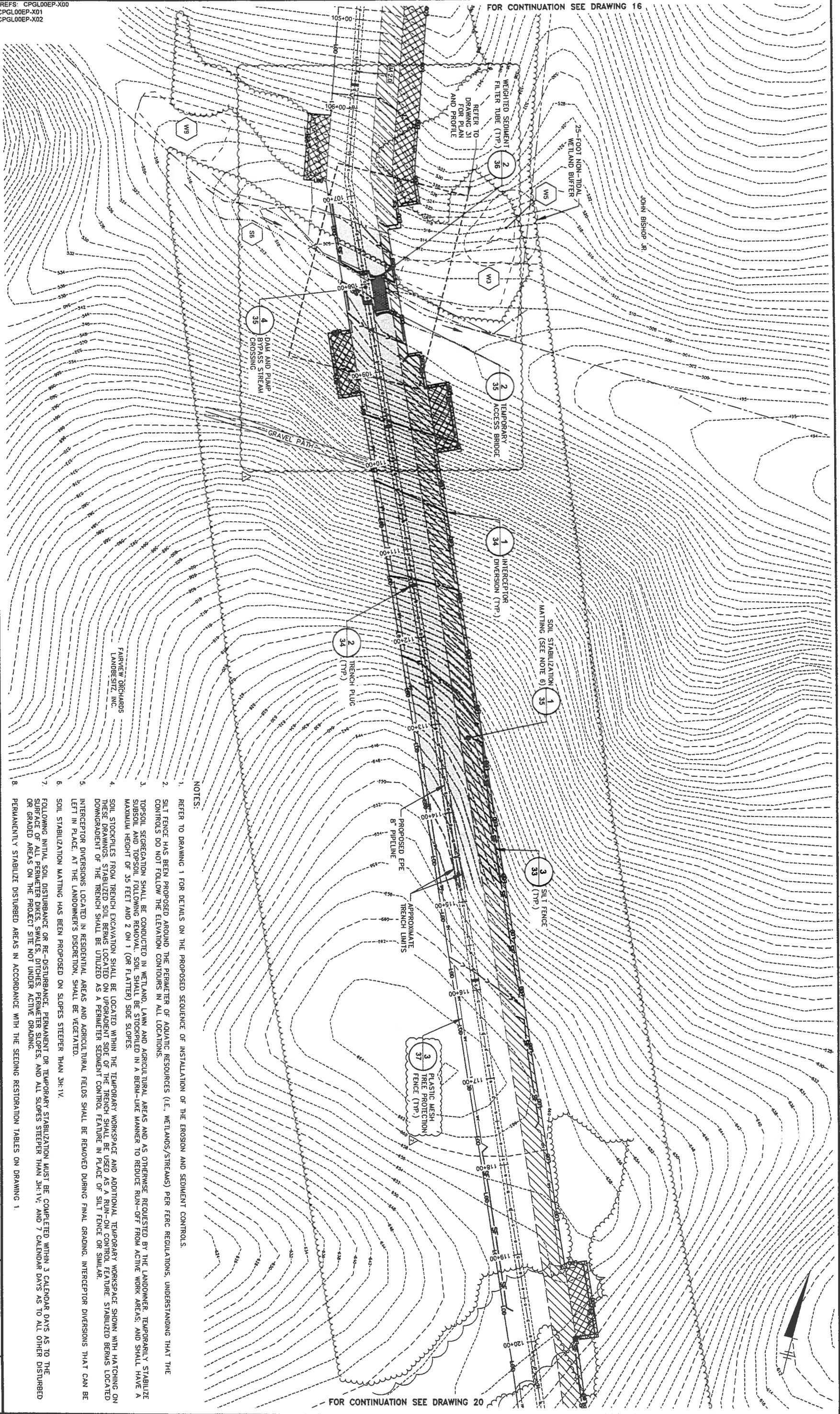
No.	Date	Revisions	Professional Engineer's Name	State	Date Signed	Project No.	Project Name
1	7/17/17	EDGE COMMENT RESPONSE	ALLEN LONG	MD	3/4/17	MD 34822	FAIRVIEW ORCHARDS LANDSCAPE, INC.
2	7/17/17	EDGE COMMENT RESPONSE	ALLEN LONG	MD	3/4/17	MD 34822	FAIRVIEW ORCHARDS LANDSCAPE, INC.
3	7/17/17	EDGE COMMENT RESPONSE	ALLEN LONG	MD	3/4/17	MD 34822	FAIRVIEW ORCHARDS LANDSCAPE, INC.



Design & Consistency for natural and built assets

COLUMBIA GAS TRANSMISSION, L.L.C. A TRANSCANADA COMPANY • HOUSTON, TEXAS  
EASTERN PAHHANDLE EXPANSION PROJECT  
**SITE PLAN (STA. 105+00 TO 120+50)**

ARCADIS Project No.	07510057-000110009A
Date	MARCH 2017
ARCADIS	6041 Wallace Road Extension
Wexford, PA 15090	Tel: 724.742.2180

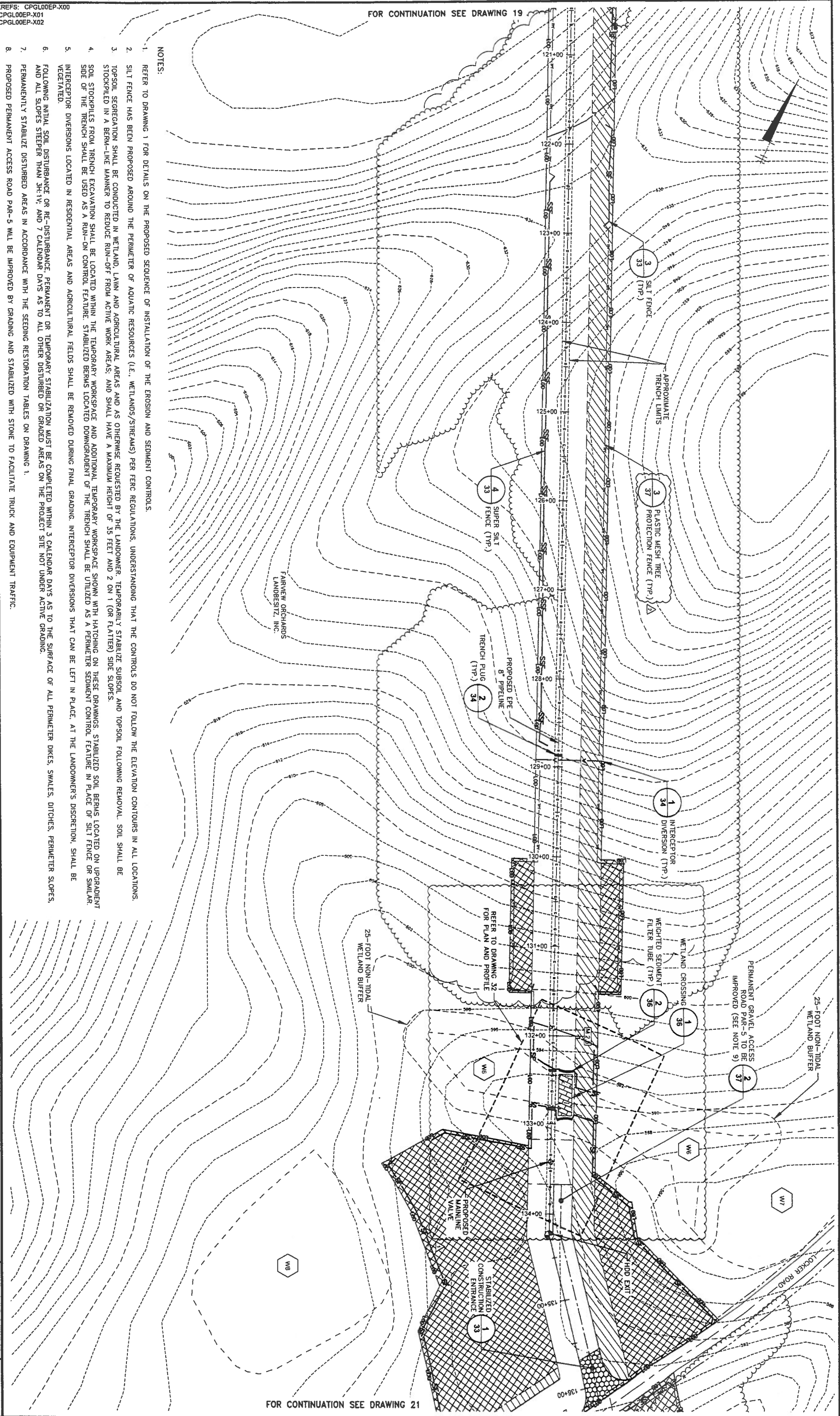


FOR CONTINUATION SEE DRAWING 20

**NOTES:**

- REFER TO DRAWING 1 FOR DETAILS ON THE PROPOSED SEQUENCE OF INSTALLATION OF THE EROSION AND SEDIMENT CONTROLS.
- SILT FENCE HAS BEEN PROPOSED AROUND THE PERIMETER OF AQUATIC RESOURCES (I.E., WETLANDS/STREAMS) PER FERC REGULATIONS, UNDERSTANDING THAT THE CONTROLS DO NOT FOLLOW THE ELEVATION CONTOURS IN ALL LOCATIONS.
- TOPSOIL SEGREGATION SHALL BE CONDUCTED IN WETLAND, LAWN AND AGRICULTURAL AREAS AND AS OTHERWISE REQUESTED BY THE LANDOWNER. TEMPORARILY STABILIZE SUBSOIL AND TOPSOIL FOLLOWING REMOVAL. SOIL SHALL BE STOCKPILED IN A BERM-LIKE MANNER TO REDUCE RUN-OFF FROM ACTIVE WORK AREAS, AND SHALL HAVE A MAXIMUM HEIGHT OF 35 FEET AND 2 ON 1 (OR FLATTER) SIDE SLOPES.
- SOIL STOCKPILES FROM TRENCH EXCAVATION SHALL BE LOCATED WITHIN THE TEMPORARY WORKSPACE AND ADDITIONAL TEMPORARY WORKSPACE SHOWN WITH HATCHING ON THESE DRAWINGS. STABILIZED SOIL BERMS LOCATED ON UPGRADIENT SIDE OF THE TRENCH SHALL BE USED AS A RUN-ON CONTROL FEATURE. STABILIZED BERMS LOCATED DOWNGRADIENT OF THE TRENCH SHALL BE UTILIZED AS A PERIMETER SEDIMENT CONTROL FEATURE IN PLACE OF SILT FENCE OR SIMILAR.
- INTERCEPTOR DIVERSIONS LOCATED IN RESIDENTIAL AREAS AND AGRICULTURAL FIELDS SHALL BE REMOVED DURING FINAL GRADING. INTERCEPTOR DIVERSIONS THAT CAN BE LEFT IN PLACE, AT THE LANDOWNER'S DISCRETION, SHALL BE VEGETATED.
- SOIL STABILIZATION MATTING HAS BEEN PROPOSED ON SLOPES STEEPER THAN 3H:1V.
- FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION MUST BE COMPLETED WITHIN 3 CALENDAR DAYS AS TO THE SURFACE OF ALL PERIMETER DIKES, SWALES, DITCHES, PERIMETER SLOPES, AND ALL SLOPES STEEPER THAN 3H:1V, AND 7 CALENDAR DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE NOT UNDER ACTIVE GRADING.
- PERMANENTLY STABILIZE DISTURBED AREAS IN ACCORDANCE WITH THE SEEDING RESTORATION TABLES ON DRAWING 1.

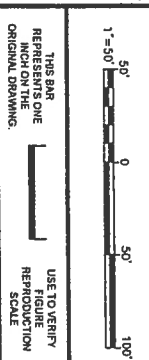
FOR CONTINUATION SEE DRAWING 19



NOTES:

1. REFER TO DRAWING 1 FOR DETAILS ON THE PROPOSED SEQUENCE OF INSTALLATION OF THE EROSION AND SEDIMENT CONTROLS.
2. SILT FENCE HAS BEEN PROPOSED AROUND THE PERIMETER OF AQUATIC RESOURCES (I.E. WETLANDS/STREAMS) PER FERC REGULATIONS, UNDERSTANDING THAT THE CONTROLS DO NOT FOLLOW THE ELEVATION CONTOURS IN ALL LOCATIONS.
3. TOPSOIL SEGREGATION SHALL BE CONDUCTED IN WETLAND, LAWN AND AGRICULTURAL AREAS AND AS OTHERWISE REQUESTED BY THE LANDOWNER. TEMPORARILY STABILIZE SUBSOIL AND TOPSOIL FOLLOWING REMOVAL. SOIL SHALL BE STOCKPILED IN A BERM-LIKE MANNER TO REDUCE RUN-OFF FROM ACTIVE WORK AREAS; AND SHALL HAVE A MAXIMUM HEIGHT OF 35 FEET AND 2 ON 1 (OR FLATTER) SIDE SLOPES.
4. SOIL STOCKPILES FROM TRENCH EXCAVATION SHALL BE LOCATED WITHIN THE TEMPORARY WORKSPACE SHOWN WITH HATCHING ON THESE DRAWINGS. STABILIZED BERMS LOCATED ON UPGRADED SIDE OF THE TRENCH SHALL BE USED AS A RUN-ON CONTROL FEATURE. STABILIZED BERMS LOCATED DOWNGRADENT OF THE TRENCH SHALL BE UTILIZED AS A PERIMETER SEDIMENT CONTROL FEATURE IN PLACE OF SILT FENCE OR SIMILAR.
5. INTERCEPTOR DIVERSIONS LOCATED IN RESIDENTIAL AREAS AND AGRICULTURAL FIELDS SHALL BE REMOVED DURING FINAL GRADING. INTERCEPTOR DIVERSIONS THAT CAN BE LEFT IN PLACE, AT THE LANDOWNER'S DISCRETION, SHALL BE VEGETATED.
6. FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION MUST BE COMPLETED WITHIN 3 CALENDAR DAYS AS TO THE SURFACE OF ALL PERIMETER DIKES, SWALES, DITCHES, PERIMETER SLOPES, AND ALL SLOPES STEEPER THAN 3H:1V; AND 7 CALENDAR DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE NOT UNDER ACTIVE GRADING.
7. PERMANENTLY STABILIZE DISTURBED AREAS IN ACCORDANCE WITH THE SEEDING RESTORATION TABLES ON DRAWING 1.
8. PROPOSED PERMANENT ACCESS ROAD PAR-5 WILL BE IMPROVED BY GRADING AND STABILIZED WITH STONE TO FACILITATE TRUCK AND EQUIPMENT TRAFFIC.

XREFS: CPGL00EP-X00  
CPGL00EP-X01  
CPGL00EP-X02



NO.	DATE	DESCRIPTION	BY	CHKD
1	7/27/17	FOREST CONSERVATION ACT REQUIREMENT	ALS	ARL
2	7/27/17	NOE COMMENT RESPONSE	ALS	ARL

Professional Engineer's Name  
**ALLEN LONG**  
Professional Engineer's No. MD 34862



**ARCADIS** Design & Consultancy for natural and built assets  
ARCADIS U.S., INC.  
COLUMBIA GAS TRANSMISSION, LLC, A TRANSCANADA COMPANY • HOUSTON, TEXAS  
EASTERN PANHANDLE EXPANSION PROJECT  
**SITE PLAN (STA. 120+50 TO 136+00)**

ARCADIS Project No. 07-01067-10009A  
Date: MARCH 2017  
ARCADIS  
6041 Wallace Road Extension  
Wexford, PA 15090  
Tel: 724.742.8180

FOR CONTINUATION SEE DRAWING 21

XREFS: CPGL00EP-X00  
CPGL00EP-X01  
CPGL00EP-X02

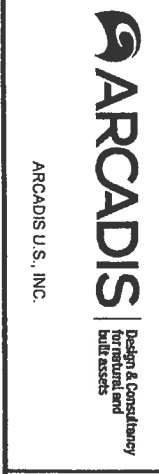
THIS BAR REPRESENTS ONE INCH ON THE ORIGINAL DRAWING

USE TO VERIFY FIGURE REPRODUCTION SCALE

No.	DATE	REVISIONS	BY	CHECKED
1	7/17/17	FOREST CONSERVATION ACT REVIEW URGEMENT	ALS	ALS
2	7/17/17	MADE COMMENT RESPONSE	ALS	ALS

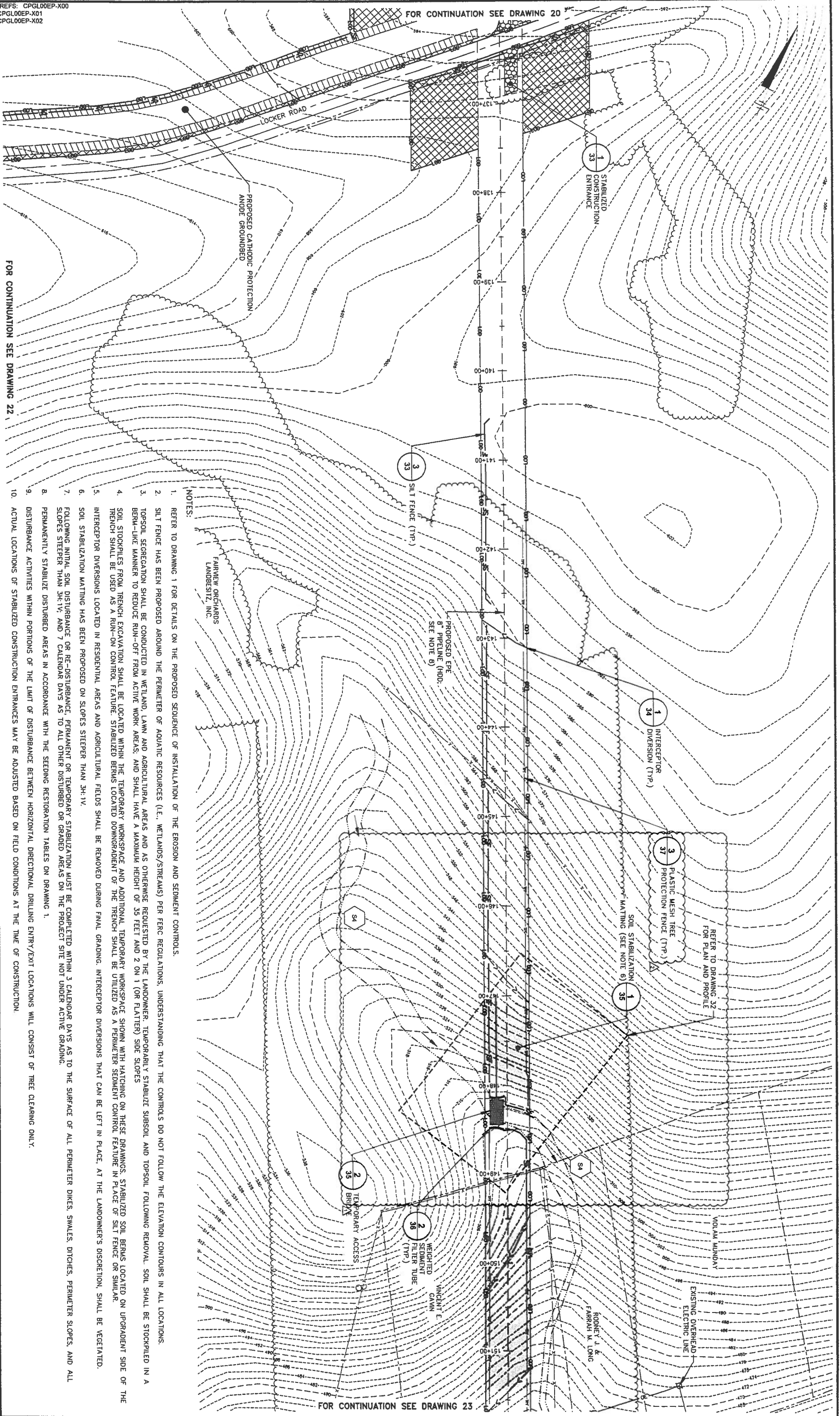
THIS DRAWING IS NOT BE REFERRED TO OR REPRODUCED IN ANY MANNER WITHOUT THE WRITTEN PERMISSION OF ARCADIS U.S., INC.

Professional Engineer's Name: **ALLEN LONG**  
Professional Engineer's No: MD 24862  
Date Signed: [Blank]  
Project Mgr: JD  
Checked by: ALS



COLUMBIA GAS TRANSMISSION, L.L.C., A TRANSCANADA COMPANY • HOUSTON, TEXAS  
EASTERN PAHANDLE EXPANSION PROJECT  
**SITE PLAN (STA. 136+00 TO 151+50)**

ARCADIS Project No: CPGL00EP-001-0009A  
Date: MARCH 2017  
ARCADIS Eastern PAhandle Road Extension  
Wexford, PA 15090  
Tel: 724.762.8180



FOR CONTINUATION SEE DRAWING 22

FOR CONTINUATION SEE DRAWING 20

FOR CONTINUATION SEE DRAWING 23

- NOTES:**
- REFER TO DRAWING 1 FOR DETAILS ON THE PROPOSED SEQUENCE OF INSTALLATION OF THE EROSION AND SEDIMENT CONTROLS.
  - SILT FENCE HAS BEEN PROPOSED AROUND THE PERIMETER OF AQUATIC RESOURCES (I.E., WETLANDS/STREAMS) PER FERC REGULATIONS, UNDERSTANDING THAT THE CONTROLS DO NOT FOLLOW THE ELEVATION CONTOURS IN ALL LOCATIONS.
  - TOPSOIL SEGREGATION SHALL BE CONDUCTED IN WETLAND, LAWN AND AGRICULTURAL AREAS AND AS OTHERWISE REQUESTED BY THE LANDOWNER. TEMPORARILY STABILIZE SUBSOIL AND TOPSOIL FOLLOWING REMOVAL. SOIL SHALL BE STOCKPILED IN A BERM-LIKE MANNER TO REDUCE RUN-OFF FROM ACTIVE WORK AREAS, AND SHALL HAVE A MAXIMUM HEIGHT OF 35 FEET AND 2 ON 1 (OR FLATTER) SIDE SLOPES
  - SOIL STOCKPILES FROM TRENCH EXCAVATION SHALL BE LOCATED WITHIN THE TEMPORARY WORKSPACE SHOWN WITH HATCHING ON THESE DRAWINGS. STABILIZED SOIL BERMS LOCATED ON UPGRADIENT SIDE OF THE TRENCH SHALL BE USED AS A RUN-ON CONTROL FEATURE. STABILIZED BERMS LOCATED DOWNGRADIENT OF THE TRENCH SHALL BE UTILIZED AS A PERIMETER SEDIMENT CONTROL FEATURE IN PLACE OF SILT FENCE OR SIMILAR.
  - INTERCEPTOR DIVERSIONS LOCATED IN RESIDENTIAL AREAS AND AGRICULTURAL FIELDS SHALL BE REMOVED DURING FINAL GRADING. INTERCEPTOR DIVERSIONS THAT CAN BE LEFT IN PLACE, AT THE LANDOWNER'S DISCRETION, SHALL BE VEGETATED.
  - SOIL STABILIZATION MATTING HAS BEEN PROPOSED ON SLOPES STEEPER THAN 3H:1V.
  - FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE PERMANENT OR TEMPORARY STABILIZATION MUST BE COMPLETED WITHIN 3 CALENDAR DAYS AS TO THE SURFACE OF ALL PERIMETER DIKES, SWALES, DITCHES, PERIMETER SLOPES, AND ALL SLOPES STEEPER THAN 3H:1V, AND 7 CALENDAR DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE NOT UNDER ACTIVE GRADING.
  - PERMANENTLY STABILIZE DISTURBED AREAS IN ACCORDANCE WITH THE SEEDING RESTORATION TABLES ON DRAWING 1.
  - DISTURBANCE ACTIVITIES WITHIN PORTIONS OF THE LIMIT OF DISTURBANCE BETWEEN HORIZONTAL DIRECTIONAL DRILLING ENTRY/EXIT LOCATIONS WILL CONSIST OF TREE CLEARING ONLY.
  - ACTUAL LOCATIONS OF STABILIZED CONSTRUCTION ENTRANCES MAY BE ADJUSTED BASED ON FIELD CONDITIONS AT THE TIME OF CONSTRUCTION.

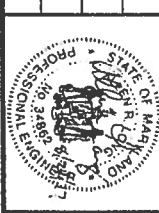
XREFS: CPGL00EP-X00  
 CPGL00EP-X01  
 CPGL00EP-X02

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USE TO VERIFY FIGURE REPRODUCTION SCALE

No.	Date	FOR BEST CONSERVATION ACT RE. LIBREMENT	ALS. ARL	Drawn by	Checked by
1	7/7/17		MD	ALS	ARL

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 for natural and built assets

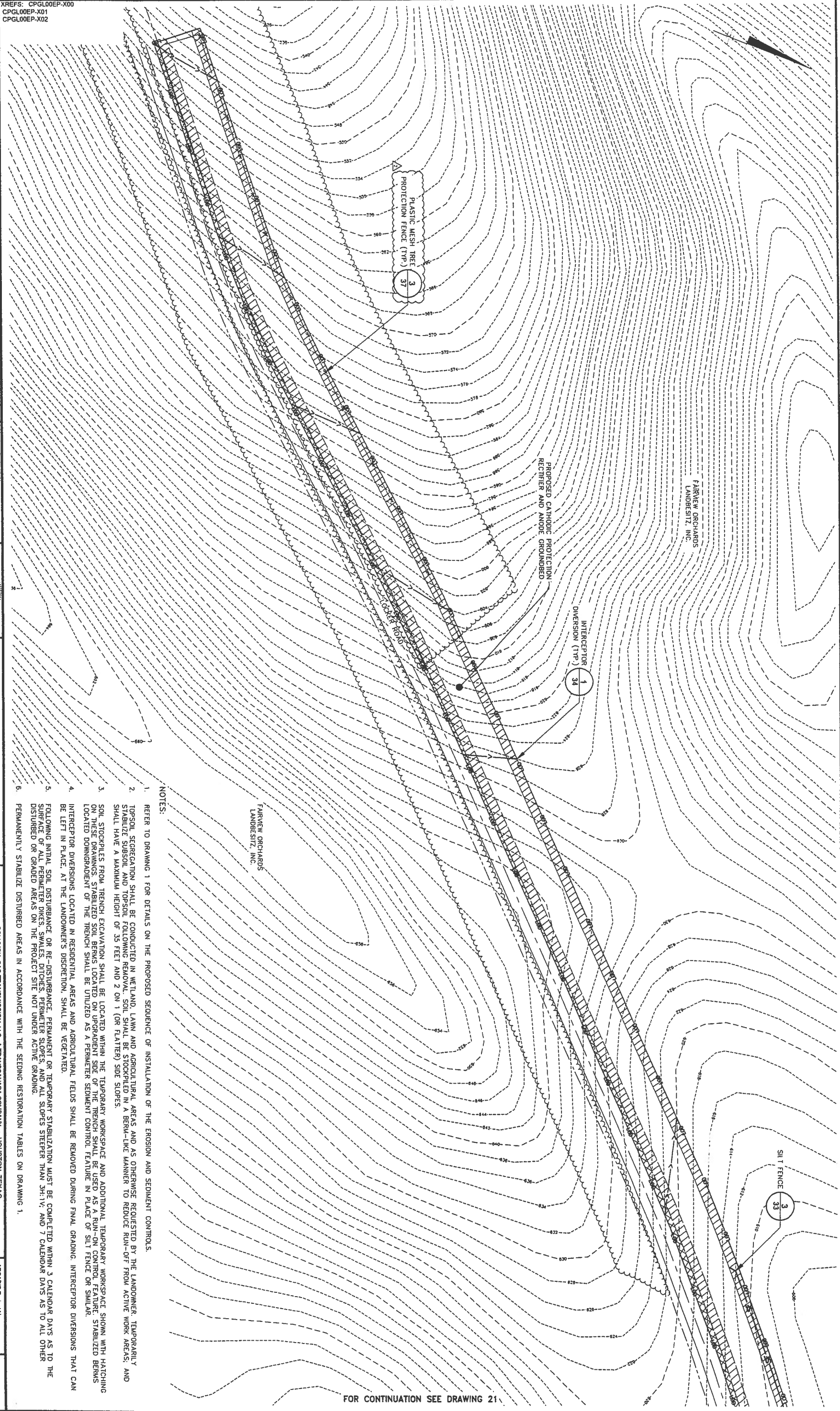
ARCADIS U.S., INC.

COLUMBIA GAS TRANSMISSION, L.L.C., A TRANSCANADA COMPANY • HOUSTON, TEXAS  
 EASTERN PANHANDLE EXPANSION PROJECT

**SITE PLAN (ANODE GROUNDBED CATHODIC PROTECTION AT STA. 136+00)**

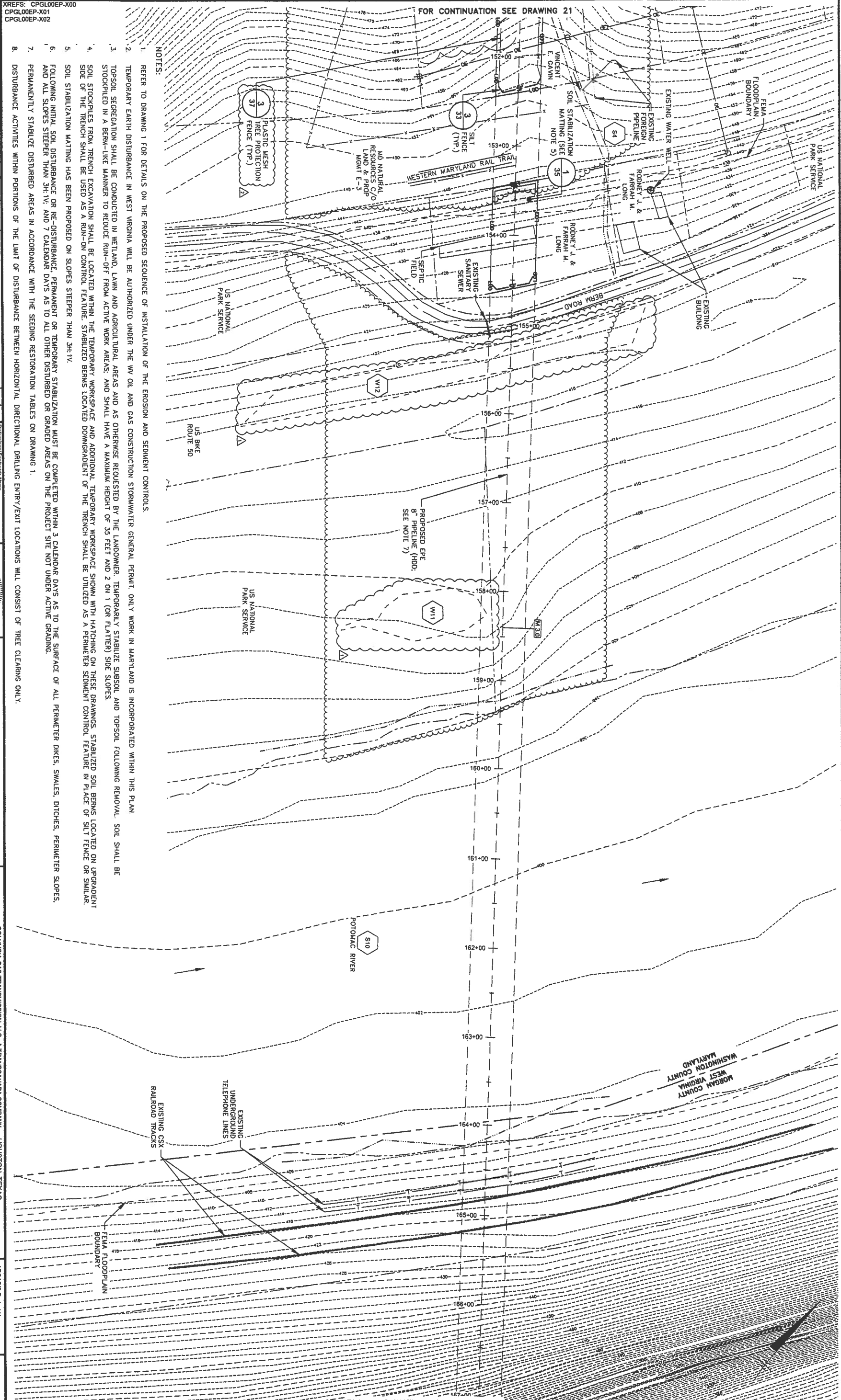
ARCADIS Project No.	CPGL00EP-0001-0009A
Date	MARCH 2017
ARCADIS Site Road Extension	Station 300 Wexford, PA 15090 Tel: 724.742.2180

**22**



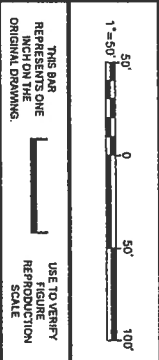
- NOTES:
- REFER TO DRAWING 1 FOR DETAILS ON THE PROPOSED SEQUENCE OF INSTALLATION OF THE EROSION AND SEDIMENT CONTROLS.
  - TOPSOIL SEGREGATION SHALL BE CONDUCTED IN WETLAND, LAWN AND AGRICULTURAL AREAS AND AS OTHERWISE REQUESTED BY THE LANDOWNER. TEMPORARILY STABILIZE SUBSOIL AND TOPSOIL FOLLOWING REMOVAL. SOIL SHALL BE STOCKPILED IN A BERM-LIKE MANNER TO REDUCE RUN-OFF FROM ACTIVE WORK AREAS; AND SHALL HAVE A MAXIMUM HEIGHT OF 35 FEET AND 2 ON 1 (OR FLATTER) SIDE SLOPES.
  - SOIL STOCKPILES FROM TRENCH EXCAVATION SHALL BE LOCATED WITHIN THE TEMPORARY WORKSPACE AND ADDITIONAL TEMPORARY WORKSPACE SHOWN WITH HATCHING ON THESE DRAWINGS. STABILIZED SOIL BERMS LOCATED ON UPGRADEMENT SIDE OF THE TRENCH SHALL BE USED AS A RUN-ON CONTROL FEATURE. STABILIZED BERMS LOCATED DOWNGRADEMENT OF THE TRENCH SHALL BE UTILIZED AS A PERIMETER SEDIMENT CONTROL FEATURE IN PLACE OF SILTY FENCE OR SIMILAR.
  - INTERCEPTOR DIVERSIONS LOCATED IN RESIDENTIAL AREAS AND AGRICULTURAL FIELDS SHALL BE REMOVED DURING FINAL GRADING. INTERCEPTOR DIVERSIONS THAT CAN BE LEFT IN PLACE, AT THE LANDOWNER'S DISCRETION, SHALL BE VEGETATED.
  - FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION MUST BE COMPLETED WITHIN 3 CALENDAR DAYS AS TO THE SURFACE OF ALL PERIMETER DIKES, SMILES, DITCHES, EROSION CONTROL SCHEMES AND ALL SLOPES STEEPER THAN 3H:1V, AND 7 CALENDAR DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE NOT UNDER ACTIVE GRADING.
  - PERMANENTLY STABILIZE DISTURBED AREAS IN ACCORDANCE WITH THE SEEDING RESTORATION TABLES ON DRAWING 1.

FOR CONTINUATION SEE DRAWING 21

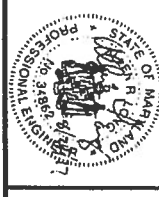


**NOTES:**

1. REFER TO DRAWING 1 FOR DETAILS ON THE PROPOSED SEQUENCE OF INSTALLATION OF THE EROSION AND SEDIMENT CONTROLS.
2. TEMPORARY EARTH DISTURBANCE IN WEST VIRGINIA WILL BE AUTHORIZED UNDER THE WV OIL AND GAS CONSTRUCTION STORMWATER GENERAL PERMIT. ONLY WORK IN MARYLAND IS INCORPORATED WITHIN THIS PLAN.
3. TOPSOIL SEGREGATION SHALL BE CONDUCTED IN WETLAND, LAWN AND AGRICULTURAL AREAS AND AS OTHERWISE REQUESTED BY THE LANDOWNER. TEMPORARILY STABILIZE SUBSOIL AND TOPSOIL FOLLOWING REMOVAL. SOIL SHALL BE STOCKPILED IN A BERM-LIKE MANNER TO REDUCE RUN-OFF FROM ACTIVE WORK AREAS, AND SHALL HAVE A MAXIMUM HEIGHT OF 35 FEET AND 2 ON 1 (OR FLATTER) SIDE SLOPES.
4. SOIL STOCKPILES FROM TRENCH EXCAVATION SHALL BE LOCATED WITHIN THE TEMPORARY WORKSPACE SHOWN WITH HATCHING ON THESE DRAWINGS. STABILIZED BERMS LOCATED DOWNGRADIENT OF THE TRENCH SHALL BE UTILIZED AS A PERIMETER SEDIMENT CONTROL FEATURE IN PLACE OF SILT FENCE OR SIMILAR. SIDE OF THE TRENCH SHALL BE USED AS A RUN-ON CONTROL FEATURE. STABILIZED BERMS LOCATED DOWNGRADIENT OF THE TRENCH SHALL BE UTILIZED AS A PERIMETER SEDIMENT CONTROL FEATURE IN PLACE OF SILT FENCE OR SIMILAR.
5. SOIL STABILIZATION MATTING HAS BEEN PROPOSED ON SLOPES STEEPER THAN 3H:1V.
6. FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION MUST BE COMPLETED WITHIN 3 CALENDAR DAYS AS TO THE SURFACE OF ALL PERIMETER DIKES, SWALES, DITCHES, PERIMETER SLOPES, AND ALL SLOPES STEEPER THAN 3H:1V, AND 7 CALENDAR DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE NOT UNDER ACTIVE GRADING.
7. PERMANENTLY STABILIZE DISTURBED AREAS IN ACCORDANCE WITH THE SEEDING RESTORATION TABLES ON DRAWING 1.
8. DISTURBANCE ACTIVITIES WITHIN PORTIONS OF THE LIMIT OF DISTURBANCE BETWEEN HORIZONTAL DIRECTIONAL DRILLING ENTRY/EXIT LOCATIONS WILL CONSIST OF TREE CLEARING ONLY.



Professional Engineer's Name	ALLEN LONG	
Professional Engineer's No.	MD 34882	
State	MD	
Date Signed	JD	
Project Mgr.	ALS	
Designed By	ALS	
Drawn By	ALS	
Created By	ALS	

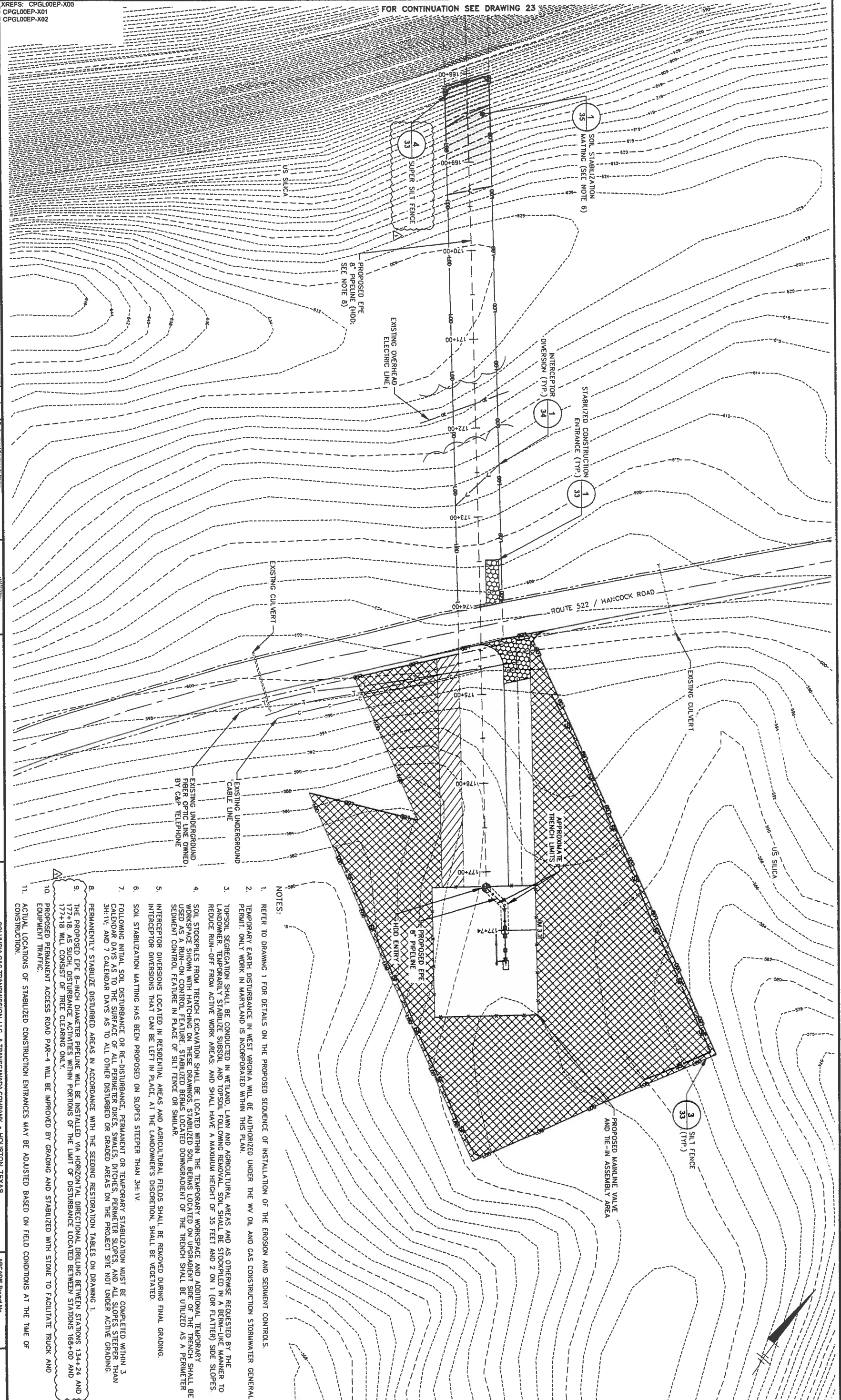


COLUMBIA GAS TRANSMISSION, LLC, A TRANSCANADA COMPANY • HOUSTON, TEXAS  
 EASTERN PANHANDLE EXPANSION PROJECT

**SITE PLAN (STA. 151+50 TO 167+00)**

ARCADIS Project No. CPGL00EP-0001-0000A  
 Date: MARCH 2017  
 ARCADIS  
 Suite 300  
 Wexford, PA 15090  
 Tel: 724.742.8180





XREFS: CPGL00EP-X00  
CPGL00EP-X01  
CPGL00EP-X02

1"=50'  
0 50' 100'

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USE TO VERIFY REPRODUCTION SCALE

No.	Date	Description	By	Checked
7/19/17	7/19/17	W/ DEP COMMENT RESPONSE	ALS ABL	ALS

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Professional Engineer's Name  
**ALLEN LONG**  
Professional Engineer's No.  
MD 34882



**ARCADIS**  
Design & Consultancy for natural and built assets

ARCADIS U.S., INC.

COLUMBIA GAS TRANSMISSION, L.L.C., A TRANSCANADA COMPANY • HOUSTON, TEXAS  
EASTERN PANHANDLE EXPANSION PROJECT

**SITE PLAN (STA. 167+00 TO 177+74)**

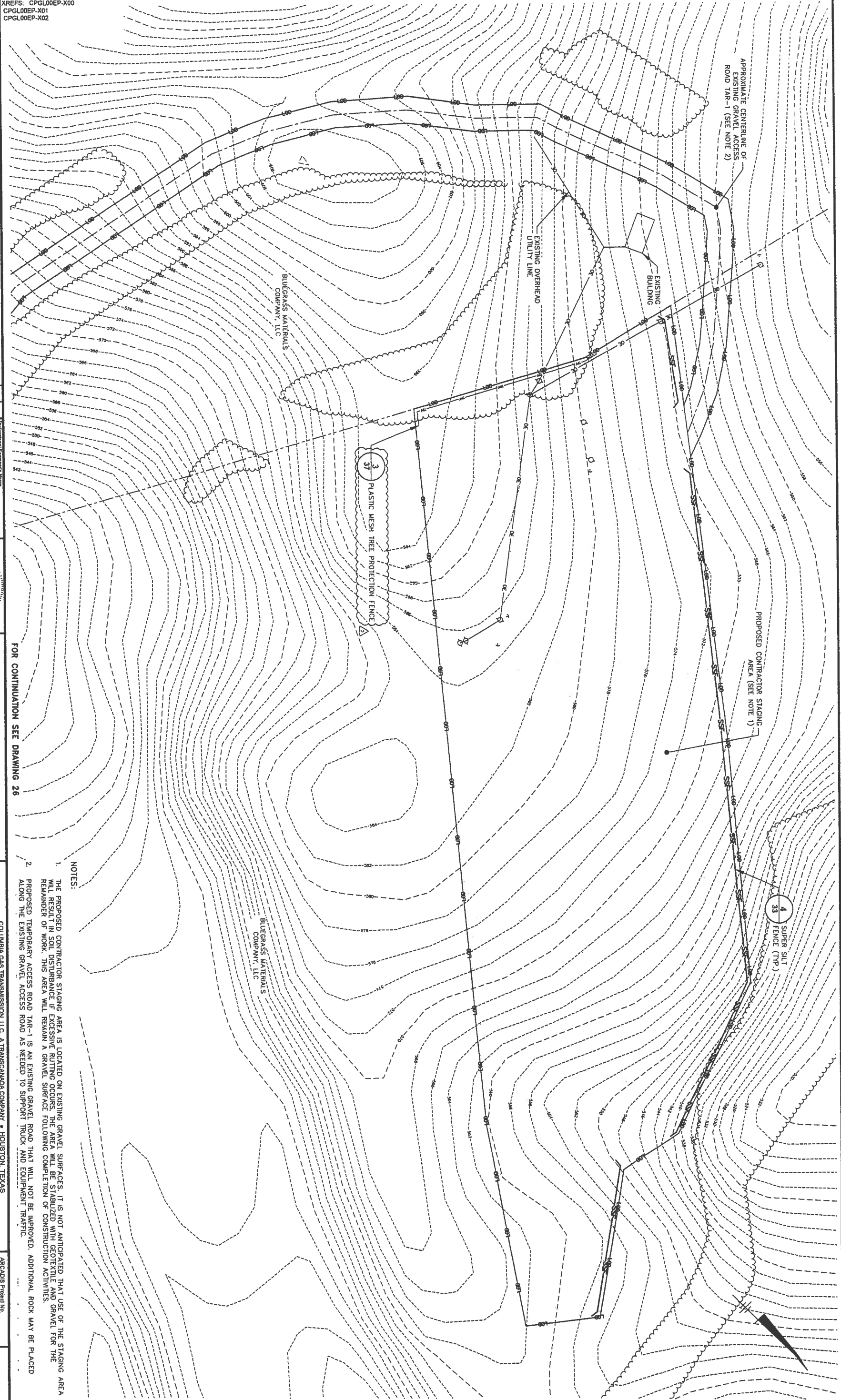
ARCADIS Project No.  
CPGL00EP-0001.0000A

Date  
MARCH 2017

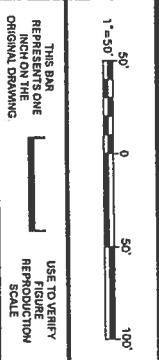
ARCADIS  
6941 Wilshire Road Extension  
Wexford, PA 15090  
Tel: 724.742.9180

**24**

- NOTES:
- REFER TO DRAWING 1 FOR DETAILS ON THE PROPOSED SEQUENCE OF INSTALLATION OF THE EROSION AND SEDIMENT CONTROLS.
  - TEMPORARY EARTH DISTURBANCE IN WEST VIRGINIA WILL BE AUTHORIZED UNDER THE WV OIL AND GAS CONSTRUCTION STORMWATER GENERAL PERMIT. ONLY WORK IN MARYLAND IS INCORPORATED WITHIN THIS PLAN.
  - TOPSOIL SEGREGATION SHALL BE CONDUCTED IN WETLAND, LAWN AND AGRICULTURAL AREAS AND AS OTHERWISE REQUESTED BY THE LANDOWNER. TEMPORARILY STABILIZE SUBSOIL AND TOPSOIL FOLLOWING REMOVAL. SOIL SHALL BE STOCKPILED IN A BERRA-LIKE MANNER TO REDUCE RUN-OFF FROM ACTIVE WORK AREAS. AND SHALL HAVE A MAXIMUM HEIGHT OF 35 FEET AND 2 ON 1 (OR FLATTER) SIDE SLOPES.
  - SOIL STOCKPILES FROM TRENCH EXCAVATION SHALL BE LOCATED WITHIN THE TEMPORARY WORKSPACE AND ADDITIONAL TEMPORARY WORKSPACE SHOWN WITH HATCHING ON THESE DRAWINGS. STABILIZED SOIL BERMS LOCATED ON UPGRADIENT SIDE OF THE TRENCH SHALL BE USED AS A RUN-ON CONTROL FEATURE. STABILIZED BERMS LOCATED DOWNGRADIENT OF THE TRENCH SHALL BE UTILIZED AS A PERIMETER SEDIMENT CONTROL FEATURE IN PLACE OF SILT FENCE OR SIMILAR.
  - INTERCEPTOR DIVERSIONS LOCATED IN RESIDENTIAL AREAS AND AGRICULTURAL FIELDS SHALL BE REMOVED DURING FINAL GRADING. INTERCEPTOR DIVERSIONS THAT CAN BE LEFT IN PLACE, AT THE LANDOWNER'S DISCRETION, SHALL BE VEGETATED.
  - SOIL STABILIZATION MATTING HAS BEEN PROPOSED ON SLOPES STEEPER THAN 3H:1V.
  - FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION MUST BE COMPLETED WITHIN 3 CALENDAR DAYS AS TO THE SURFACE OF ALL PERIMETER DIKES, SWALES, DITCHES, PERIMETER SLOPES, AND ALL SLOPES STEEPER THAN 3H:1V, AND 7 CALENDAR DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE NOT UNDER ACTIVE GRADING.
  - PERMANENTLY STABILIZE DISTURBED AREAS IN ACCORDANCE WITH THE SEEDING RESTORATION TABLES ON DRAWING 1.
  - THE PROPOSED EPE 8-INCH DIAMETER PIPELINE WILL BE INSTALLED VIA HORIZONTAL DIRECTIONAL DRILLING BETWEEN STATIONS 134+24 AND 177+18. AS SUCH, DISTURBANCE ACTIVITIES WITHIN PORTIONS OF THE LIMIT OF DISTURBANCE LOCATED BETWEEN STATIONS 168+00 AND 177+18 WILL CONSIST OF TREE CLEARING ONLY.
  - PROPOSED PERMANENT ACCESS ROAD PAR-4 WILL BE IMPROVED BY GRADING AND STABILIZED WITH STONE TO FACILITATE TRUCK AND EQUIPMENT TRAFFIC.
  - ACTUAL LOCATIONS OF STABILIZED CONSTRUCTION ENTRANCES MAY BE ADJUSTED BASED ON FIELD CONDITIONS AT THE TIME OF CONSTRUCTION.



XREFS: CPLGLO0EP-X00  
 CPLGLO0EP-X01  
 CPLGLO0EP-X02



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USE TO VERIFY FIGURE REFERENCE SCALE

No.	Date	Revisions
1	7/7/17	FOREST CONSERVATION ACT RE-ALIGNMENT

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Professional Engineer's Name  
**ALLEN LONG**  
 Professional Engineer's No.  
 MD 34882

Scale  
 MD

Date Signed  
 MD

Project Mgr.  
 JD

Drawn by  
 ALS

Checked by  
 ARL



FOR CONTINUATION SEE DRAWING 26

NOTES:

1. THE PROPOSED CONTRACTOR STAGING AREA IS LOCATED ON EXISTING GRAVEL SURFACES. IT IS NOT ANTICIPATED THAT USE OF THE STAGING AREA WILL RESULT IN SOIL DISTURBANCE. IF EXCESSIVE RUTTING OCCURS, THE AREA WILL BE STABILIZED WITH GEOTEXTILE AND GRAVEL FOR THE REMAINDER OF WORK. THIS AREA WILL REMAIN A GRAVEL SURFACE FOLLOWING COMPLETION OF CONSTRUCTION ACTIVITIES.
2. PROPOSED TEMPORARY ACCESS ROAD TAR-1 IS AN EXISTING GRAVEL ROAD THAT WILL NOT BE IMPROVED. ADDITIONAL ROCK MAY BE PLACED ALONG THE EXISTING GRAVEL ACCESS ROAD AS NEEDED TO SUPPORT TRUCK AND EQUIPMENT TRAFFIC.

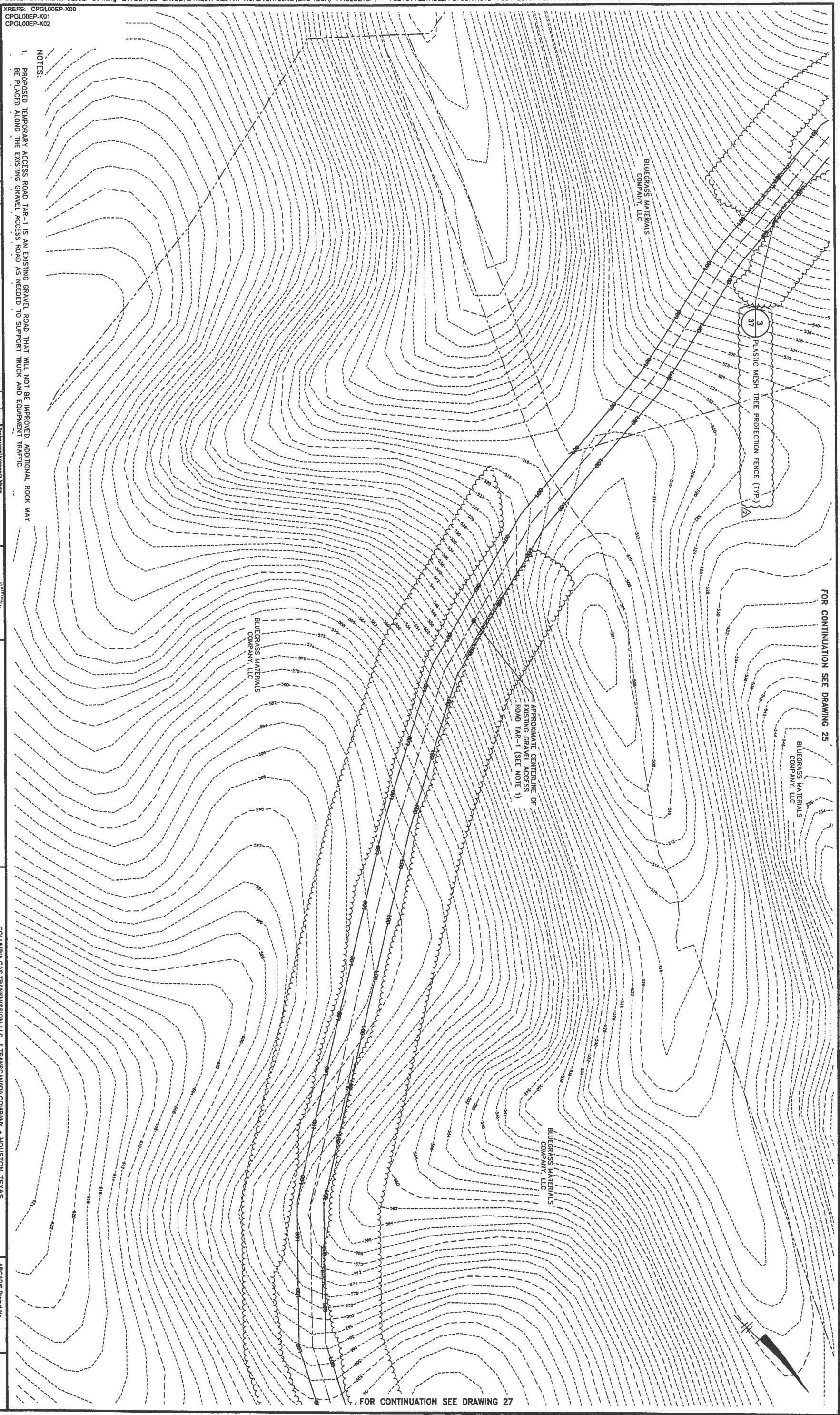
**SITE PLAN (CONTRACTOR STAGING AREA AND TEMPORARY ACCESS ROAD TAR-1)**

COLUMBIA GAS TRANSMISSION, LLC, A TRANSCANADA COMPANY • HOUSTON, TEXAS  
 EASTERN PANHANDLE EXPANSION PROJECT

ARCADIS Project No.  
 CPLGLO0EP-0001-0000A

Date  
 MARCH 2017

ARCADIS  
 6041 Wilshire Road Extension  
 Suite 300  
 Wexford, PA 15090  
 Tel: 724-262-8780



FOR CONTINUATION SEE DRAWING 25

FOR CONTINUATION SEE DRAWING 27

NOTES:  
 1. PROPOSED TEMPORARY ACCESS ROAD TAR-1 IS AN EXISTING GRAVEL ROAD THAT WILL NOT BE IMPROVED. ADDITIONAL ROCK MAY BE PLACED ALONG THE EXISTING GRAVEL ACCESS ROAD AS NEEDED TO SUPPORT TRUCK AND EQUIPMENT TRAFFIC.

XREFS: CPGL00EP-X00  
 CPGL00EP-X01  
 CPGL00EP-X02

THIS BAR REPRESENTS ONE ORIGINAL DRAWING USE TO VERIFY DIMENSION REPRESENTATION SCALE	
1"=50' 0 50' 100'	100'
NO. 1 DATE 7/17/17 FOREST CONSERVATION ACT RETIREMENT	REVISIONS BY ALS CHECKED BY ARL
PROFESSIONAL ENGINEER'S NAME <b>ALLEN LONG</b> PROFESSIONAL ENGINEER NO. MD 34862	DESIGNER DATE SIGNED PROJECT MGR CHECKED BY



**ARCADIS**  
 Design & Consultancy  
 for natural and built assets

ARCADIS U.S., INC.

COLUMBIA GAS TRANSMISSION, LLC, A TRANSCANADA COMPANY • HOUSTON, TEXAS  
 EASTERN PANHANDLE EXPANSION PROJECT  
**SITE PLAN (TEMPORARY ACCESS ROAD TAR-1)**

ARCADIS Project No.  
 CPGL00EP-0001-0008A  
 Date  
 MARCH 2017  
 ARCADIS  
 6901 Wilbur Road Extension  
 Suite 300  
 Wexford, PA 15090  
 Tel: 724.742.9180

XREFS: CPGL00EP-X00  
CPGL00EP-X01  
CPGL00EP-X02

FOR CONTINUATION SEE DRAWING 26

THIS BAR REPRESENTS ONE INCH ON THE ORIGINAL DRAWING

USE TO VERIFY REPRODUCTION SCALE

No.	Date	By	CD	Revision

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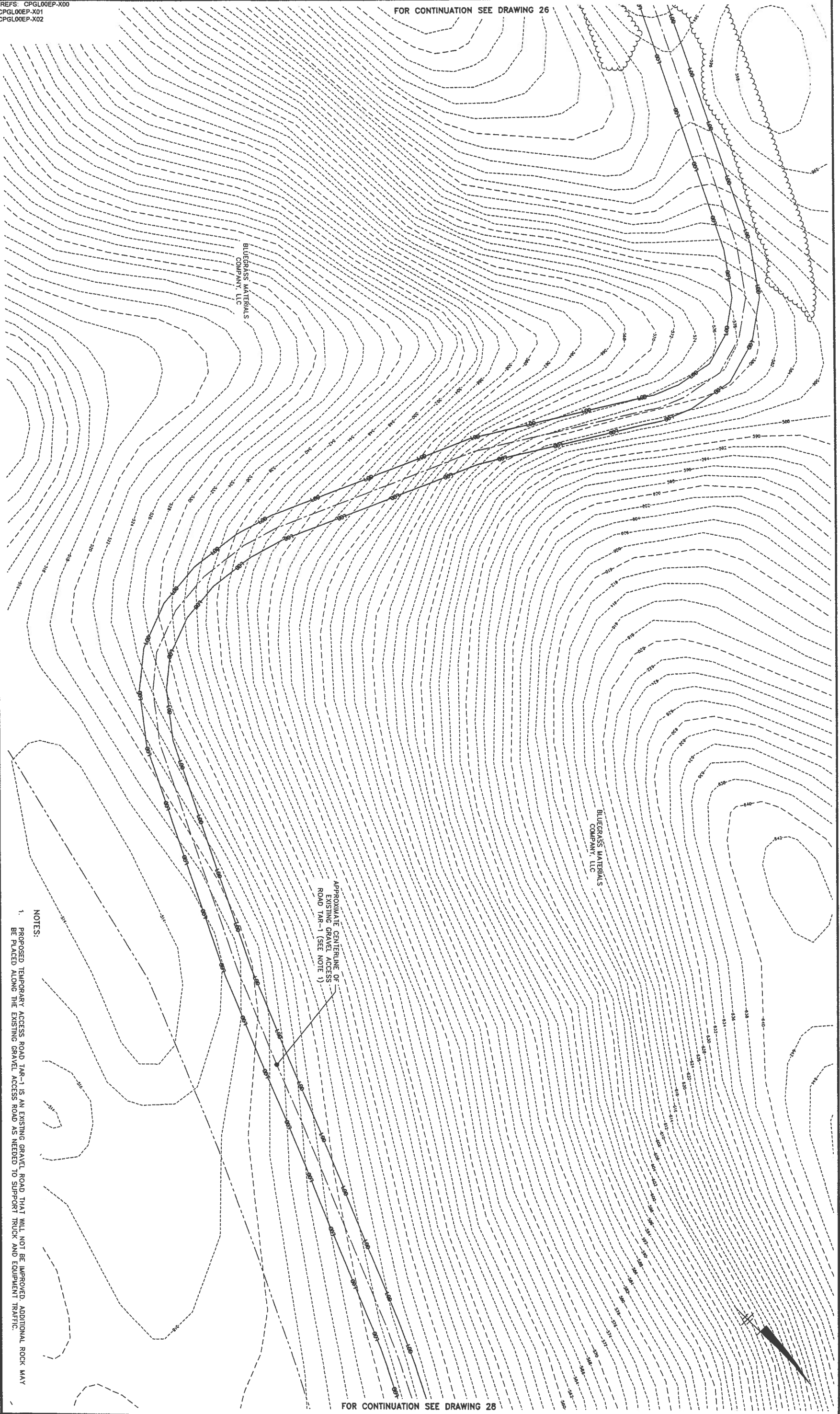
Professional Engineer's Name  
**ALLEN LONG**  
Professional Engineer's No.  
MD 34882  
State  
MD  
Date Signed  
   
Drawn by  
ALS  
Project Mgr.  
JD  
Created by  
ARL

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ARCADIS U.S., INC.

COLUMBIA GAS TRANSMISSION, L.L.C., A TRANSCANADA COMPANY • HOUSTON, TEXAS  
EASTERN PANHANDLE EXPANSION PROJECT  
**SITE PLAN (TEMPORARY ACCESS ROAD TAR-1)**

ARCADIS Project No.  
CPGL00EP-0001-0008A  
Date  
MARCH 2017  
ARCADIS  
6041 Wallace Road Extension  
Wuxford, PA 15090  
Tel: 724.762.2180

**27**



- NOTES:
1. PROPOSED TEMPORARY ACCESS ROAD TAR-1 IS AN EXISTING GRAVEL ROAD THAT WILL NOT BE IMPROVED. ADDITIONAL ROCK MAY BE PLACED ALONG THE EXISTING GRAVEL ACCESS ROAD AS NEEDED TO SUPPORT TRUCK AND EQUIPMENT TRAFFIC.

APPROXIMATE CENTERLINE OF EXISTING GRAVEL ACCESS ROAD TAR-1 (SEE NOTE 1)

FOR CONTINUATION SEE DRAWING 28

XREFS: CPGL00EP-X00  
 CPGL00EP-X01  
 CPGL00EP-X02

FOR CONTINUATION SEE DRAWING 27



APPROXIMATE CENTERLINE OF EXISTING GRAVEL ACCESS ROAD TAR-1 (SEE NOTE 1)

BLUESGRASS MATERIALS COMPANY, LLC

MARY LOIS WHITE ET AL.

FULTON COUNTY PENNSYLVANIA WASHINGTON COUNTY MARYLAND

FOR CONTINUATION SEE DRAWING 29

NOTES:

1. PROPOSED TEMPORARY ACCESS ROAD TAR-1 IS AN EXISTING GRAVEL ROAD THAT WILL NOT BE IMPROVED. ADDITIONAL ROCK MAY BE PLACED ALONG THE EXISTING GRAVEL ACCESS ROAD AS NEEDED TO SUPPORT TRUCK AND EQUIPMENT TRAFFIC.
2. TEMPORARY EARTH DISTURBANCE IN PENNSYLVANIA WILL BE CONDUCTED UNDER A SEPARATE EROSION AND SEDIMENT CONTROL PLAN REVIEW. ONLY WORK IN MARYLAND IS INCORPORATED WITHIN THIS PLAN.

COLUMBIA GAS TRANSMISSION, LLC, A TRANSCANADA COMPANY • HOUSTON, TEXAS

EASTERN PANHANDLE EXPANSION PROJECT

**SITE PLAN (TEMPORARY ACCESS ROAD TAR-1)**



ARCADIS U.S., INC.



Professional Engineer's Name  
**ALLEN LONG**  
 Professional Engineer's No.  
 MD 34862  
 State  
 MD  
 Date Signed  
 Drawn by  
 ALS  
 Checked by  
 APL  
 Project Supt.  
 JD  
 Created by  
 APL

No.	Date	Revisions

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USE TO VERIFY REFERENCE TO SCALE

1"=50'

50'

0

50'

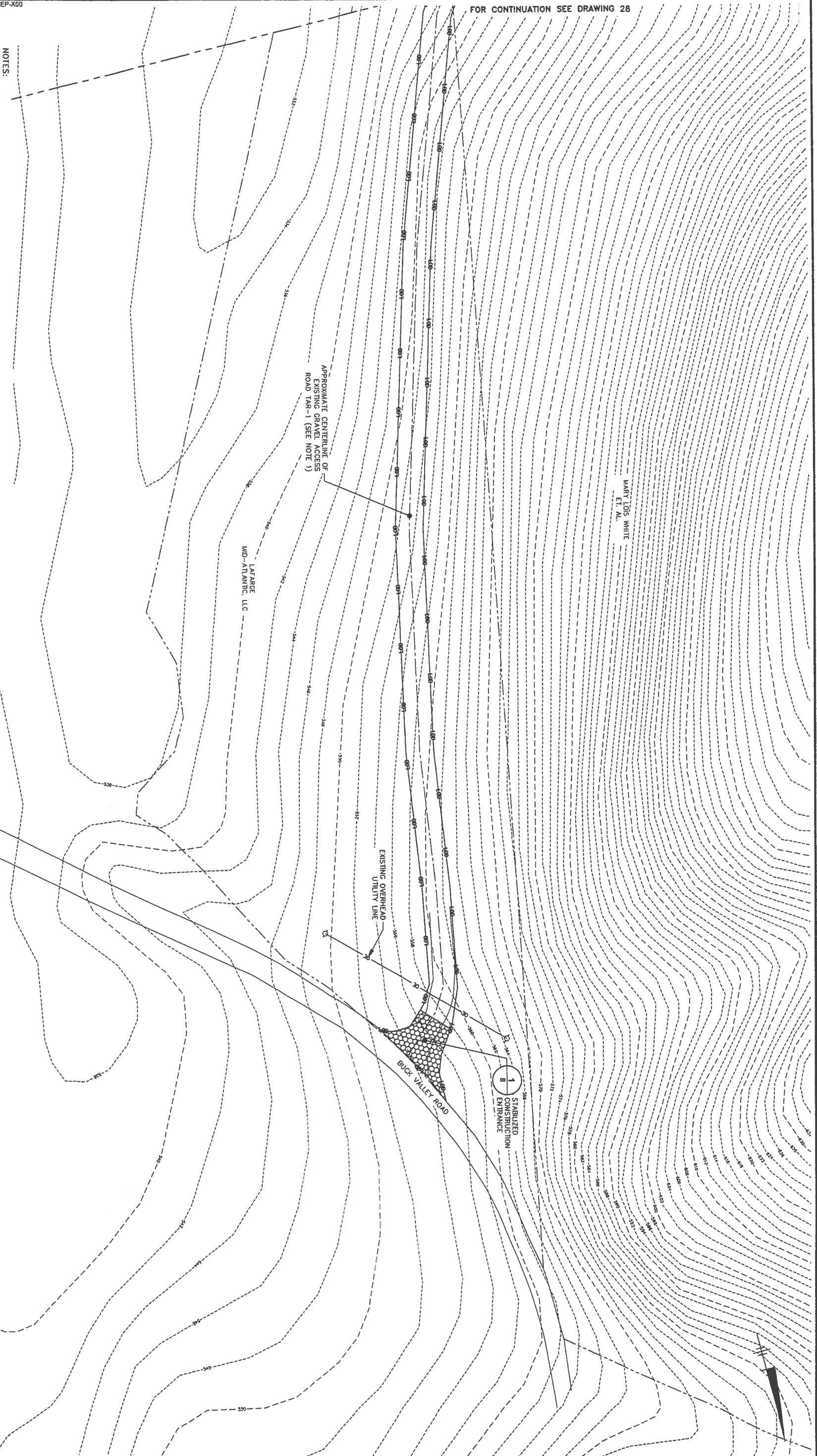
100'

REFER TO ORIGINAL DRAWING

ARCADIS Project No.  
 CPGL00EP-0001-0008A  
 Date  
 MARCH 2017  
 ARCADIS  
 6041 Wallace Road Extension  
 Suite 300  
 Wexford, PA 15080  
 Tel: 724-742-8100

FOR CONTINUATION SEE DRAWING 28

XREFS: CPLG00EP-X00  
 CPLG00EP-X01  
 CPLG00EP-X02



NOTES:

1. PROPOSED TEMPORARY ACCESS ROAD TAR-1 IS AN EXISTING GRAVEL ROAD THAT WILL NOT BE IMPROVED. ADDITIONAL ROCK MAY BE PLACED ALONG THE EXISTING GRAVEL ACCESS ROAD AS NEEDED TO SUPPORT TRUCK AND EQUIPMENT TRAFFIC.
2. TEMPORARY EARTH DISTURBANCE IN PENNSYLVANIA WILL BE CONDUCTED UNDER A SEPARATE EROSION AND SEDIMENT CONTROL PLAN REVIEW. ONLY WORK IN MARYLAND IS INCORPORATED WITHIN THIS PLAN.



THIS DRAWING IS THE PROPERTY OF THE ARCHADIS ENGINEERING FIRM AND MAY NOT BE REPRODUCED OR ALTERED IN WHOLE OR IN PART WITHOUT THE EXPRESS WRITTEN PERMISSION OF ARCHADIS.

No.	Date	Revisions	By	Checked by

Professional Engineer's Name  
**ALLEN LONG**  
 Professional Engineer's No.  
 MD 34882

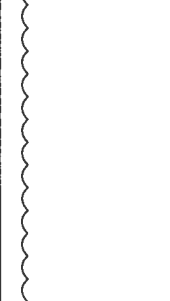


ARCADIS U.S., INC.

COLUMBIA GAS TRANSMISSION, LLC, A TRANSCANADA COMPANY • HOUSTON, TEXAS  
 EASTERN PANHANDLE EXPANSION PROJECT  
**SITE PLAN (TEMPORARY ACCESS ROAD TAR-1)**

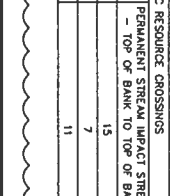
ARCADIS Project No.  
 07-010008A  
 Date  
 MARCH 2017  
 ARCADIS  
 8911 Wallace Road Extension  
 Wexford, PA 15090  
 Tel: 724.742.9180

XREFS: CPGL00EP-X00  
 CPGL00EP-X01  
 CPGL00EP-X05



NO.	DATE	REVISIONS	DESIGNED BY	CHECKED BY
1	8/20/17	ADD COMMENT RESPONSE	ALS	ARL
2	8/11/17	ADD COMMENT RESPONSE	ALS	ARL
3	7/11/17	FOREST CONSERVATION ACT REQUIREMENT	ALS	ARL
4	7/11/17	ADD COMMENT RESPONSE	ALS	ARL

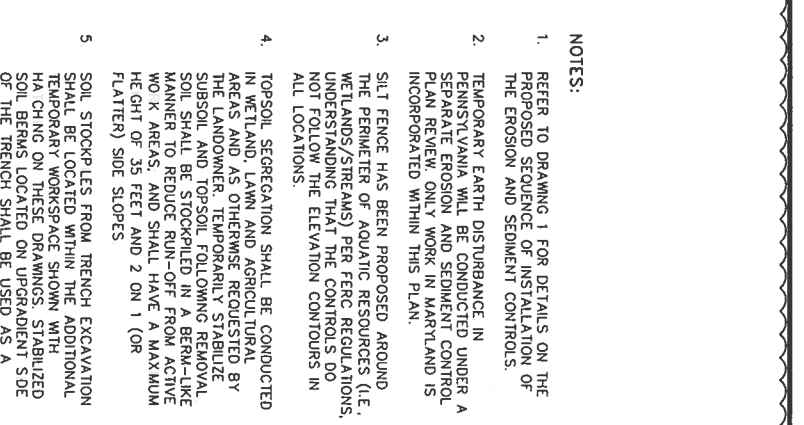
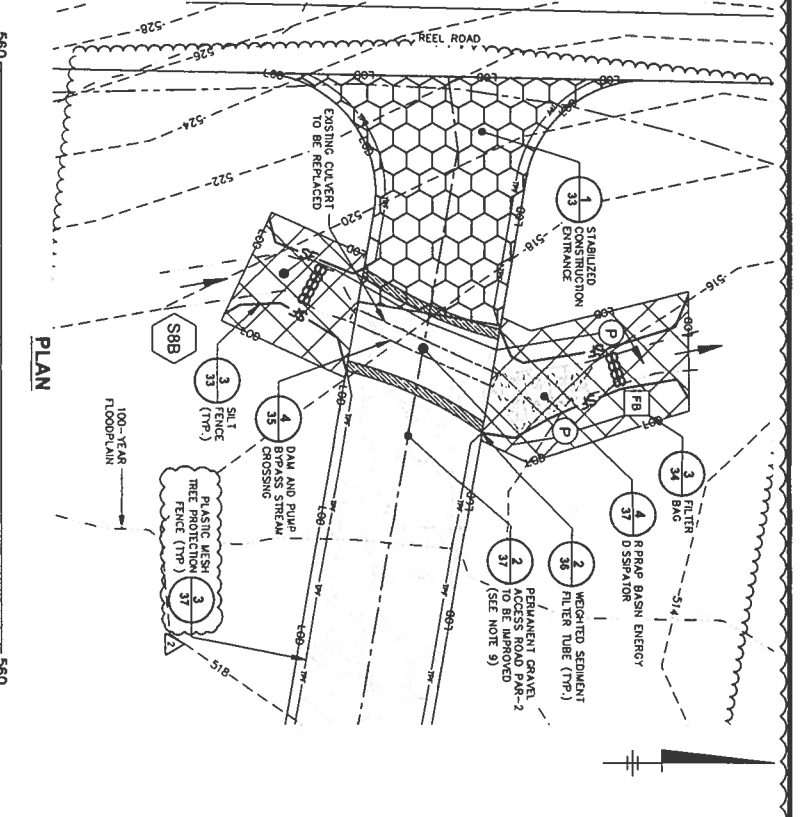
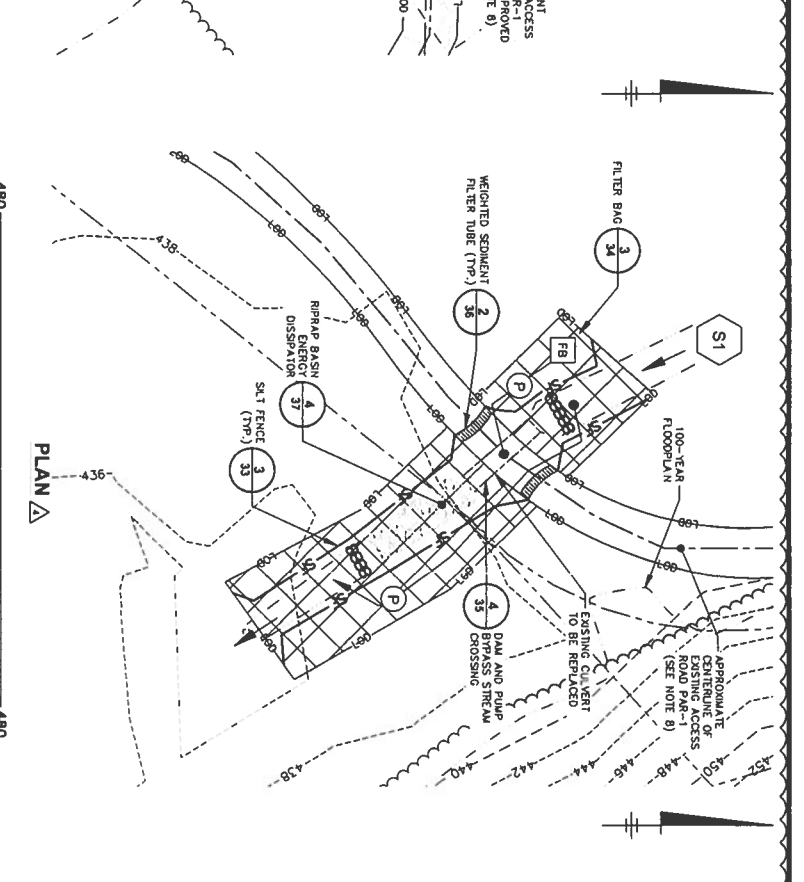
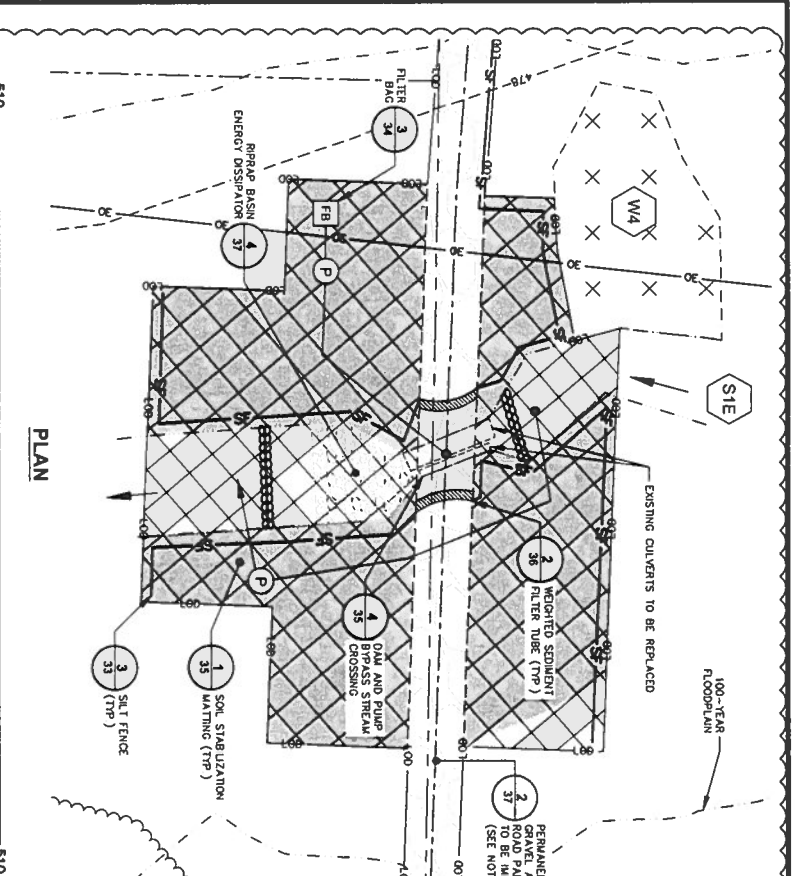
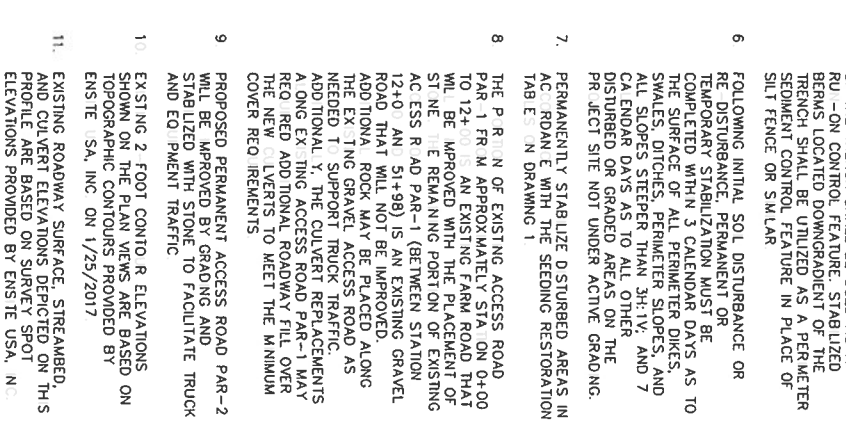
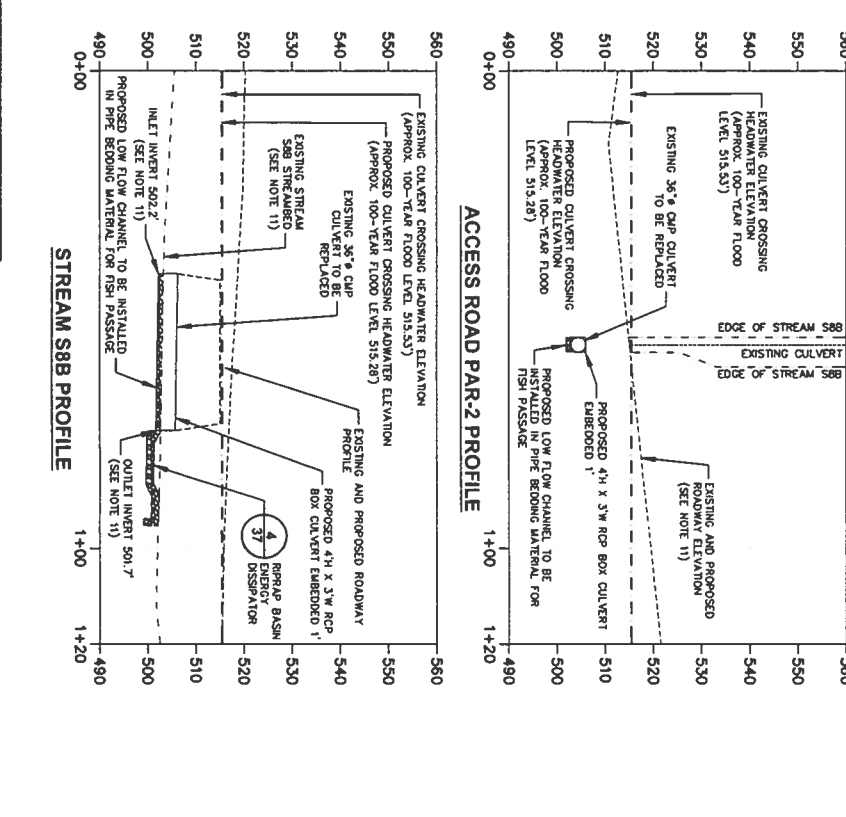
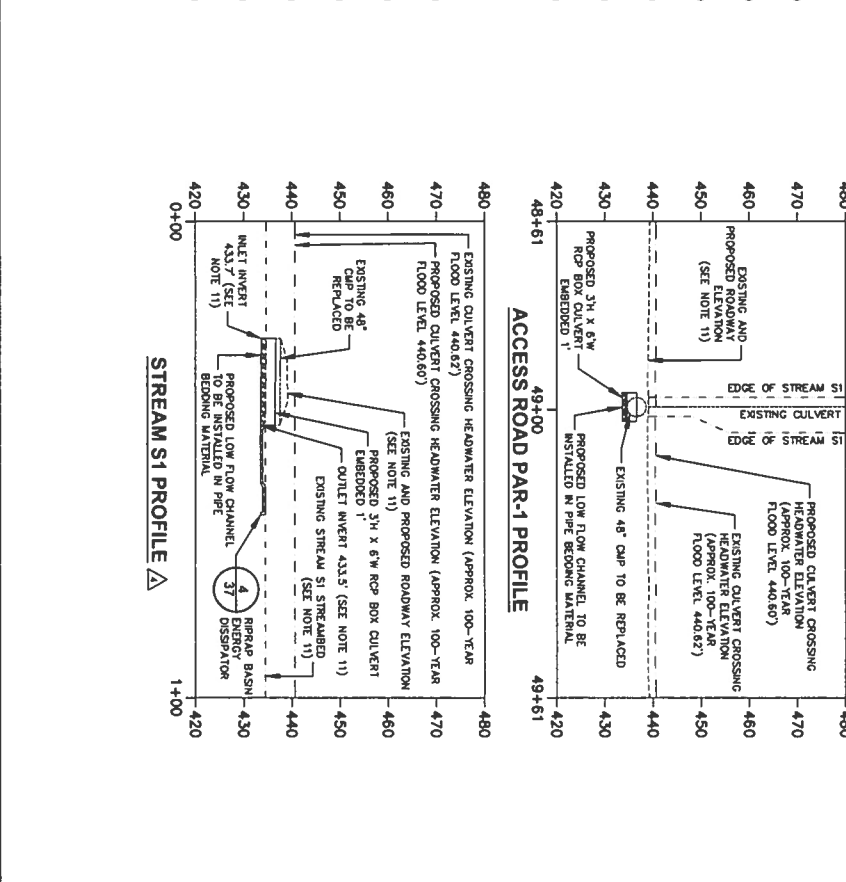
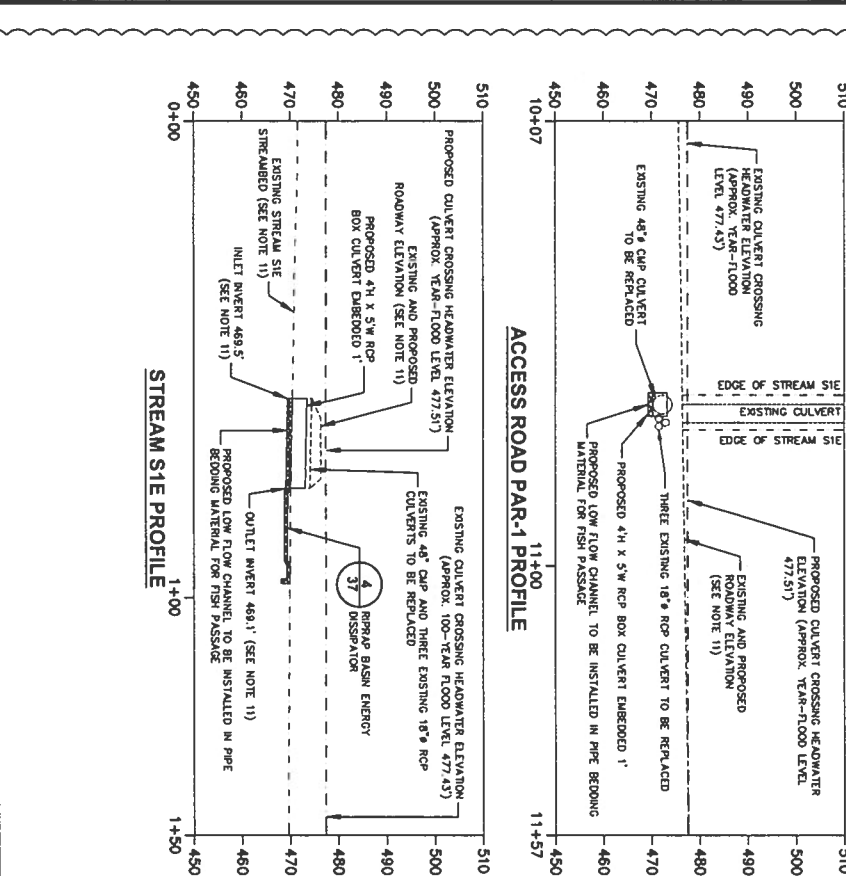
Professional Engineer's Name  
**ALLEN LONG**  
 Professional Engineer's No.  
 MD 34892



Design & Consultancy  
 for natural and built assets  
**ARCADIS**  
 ARCADIS U.S., INC.

COLUMBIA GAS TRANSMISSION, LLC A TRANSCANADA COMPANY • HOUSTON, TEXAS  
 EASTERN PANHANDLE EXPANSION PROJECT  
**PROPOSED STREAMS S1, S1E, AND S8B CULVERT REPLACEMENT PLANS AND PROFILES**

ARCADIS Project No.  
 CPGL00EP-0001 0000A  
 Date  
 MARCH 2017  
 ARCADIS  
 10000 Road Express  
 Wexford, PA 15090  
 Tel: 724.742.9180



- NOTES:
- REFER TO DRAWING 1 FOR DETAILS ON THE PROPOSED SEQUENCE OF INSTALLATION OF THE EROSION AND SEDIMENT CONTROLS.
  - TEMPORARY EARTH DISTURBANCE IN PENNSYLVANIA WILL BE CONDUCTED UNDER A SEPARATE EROSION AND SEDIMENT CONTROL PLAN REVIEW. ONLY WORK IN MARYLAND IS INCORPORATED WITHIN THIS PLAN.
  - SILT FENCE HAS BEEN PROPOSED AROUND THE PERIMETER OF AQUATIC RESOURCES (I.E. WETLANDS/STREAMS) PER FERC REGULATIONS, UNDERSTANDING THAT THE CONTROLS DO NOT FOLLOW THE ELEVATION CONTOURS IN ALL LOCATIONS.
  - TOPSOIL SEGREGATION SHALL BE CONDUCTED IN WETLAND, FARM AND AGRICULTURAL AREAS AND SHALL BE MONITORED BY THE CONTRACTOR. TOPSOIL SHALL BE STOCKPILED IN A BERM-LIKE MANNER TO REDUCE RUN-OFF FROM ACTIVE WORK AREAS. AREAS SHALL HAVE A MAXIMUM HEIGHT OF 35 FEET AND 2 ON 1 (OR FLATTER) SIDE SLOPES.
  - SOIL STOCKPILES FROM TRENCH EXCAVATION SHALL BE LOCATED WITHIN THE ADDITIONAL TEMPORARY WORKSPACE SHOWN WITH SOL BERM LOCATED ON UPGRADE SIDE OF THE TRENCH. SHALL BE USED AS A RUN-ON CONTROL FEATURE. STABILIZED BERMS LOCATED DOWNGRADIENT OF THE TRENCH SHALL BE UTILIZED AS A PERIMETER SEDIMENT CONTROL FEATURE IN PLACE OF SILT FENCE OR SIMLAR.
  - FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION MUST BE COMPLETED WITHIN 3 CALENDAR DAYS AS TO THE SURFACE OF ALL PERIMETER DIKES, SHALES, DITCHES, PERMETER SLOPES, AND ALL SLOPES STEEPER THAN 3H:1V, AND 7 CALENDAR DAYS AS TO ALL OTHER THE PR. EXCEPT SLOPES UNDER ACTIVE GRADING.
  - PERMANENTLY STABILIZE DISTURBED AREAS IN AC. ROAD E WITH THE SEEDING RESTORATION TAB E IN DRAWING 1.
  - THE P. RUN OF EXISTING ACCESS ROAD PAR-1 FR. M APPROXIMATELY STA ON 0+00 TO 12+00 IS AN EXISTING FARM ROAD THAT WILL BE IMPROVED WITH THE PLACEMENT OF SILT FENCE REMAINING PORTION OF EXISTING ACCESS ROAD PAR-1 (BETWEEN STATION 12+00 AND 51+98) IS AN EXISTING GRAVEL ROAD THAT WILL NOT BE IMPROVED. ADDITIONAL ROCK MAY BE PLACED ALONG THE EXISTING GRAVEL ACCESS ROAD AS NEEDED TO SUPPORT TRUCK TRAFFIC. ADDITIONAL Y. THE CULVERT REPLACEMENTS A LONG EXISTING ACCESS ROAD PAR-1 MAY REO. RED ADDITIONAL ROADWAY FILL OVER THE NEW CULVERTS TO MEET THE MINIMUM COVER REQ. IREMENTS.
  - PROPOSED PERMANENT ACCESS ROAD PAR-2 WILL BE IMPROVED BY GRADING AND STABILIZED WITH STONE TO FACILITATE TRUCK AND EQUIPMENT TRAFFIC.
  - EXISTING 2 FOOT CONTOUR ELEVATIONS SHOWN ON THE PLAN VIEWS ARE BASED ON TOPOGRAPHIC CONTOURS PROVIDED BY ENSTE SA, INC ON 1/29/2017.
  - EXISTING ROADWAY SURFACE, STREAMBED, AND CULVERT ELEVATIONS DEPICTED ON THIS PROFILE ARE BASED ON SURVEY SPOT ELEVATIONS PROVIDED BY ENSTE USA, INC ON 8/10/2017.

XREFS: CPGL00EP-X00  
CPGL00EP-X01  
CPGL00EP-X05



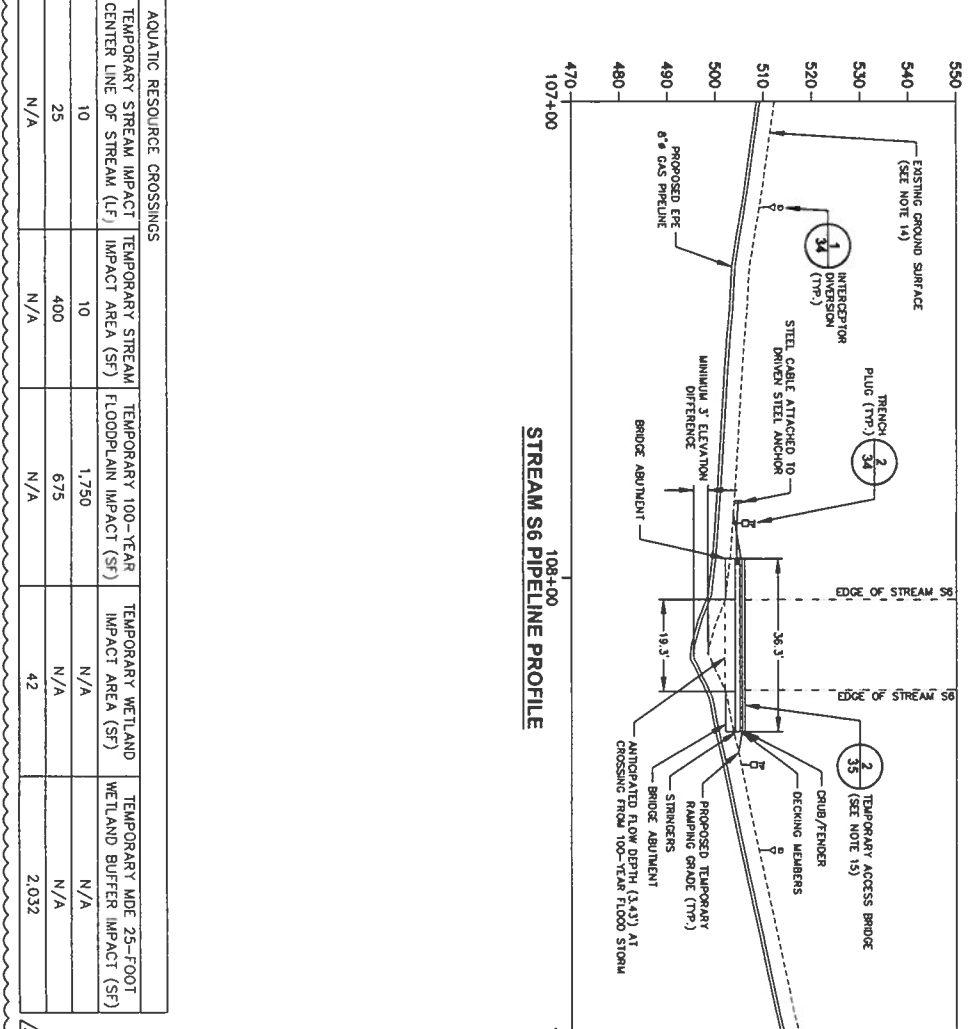
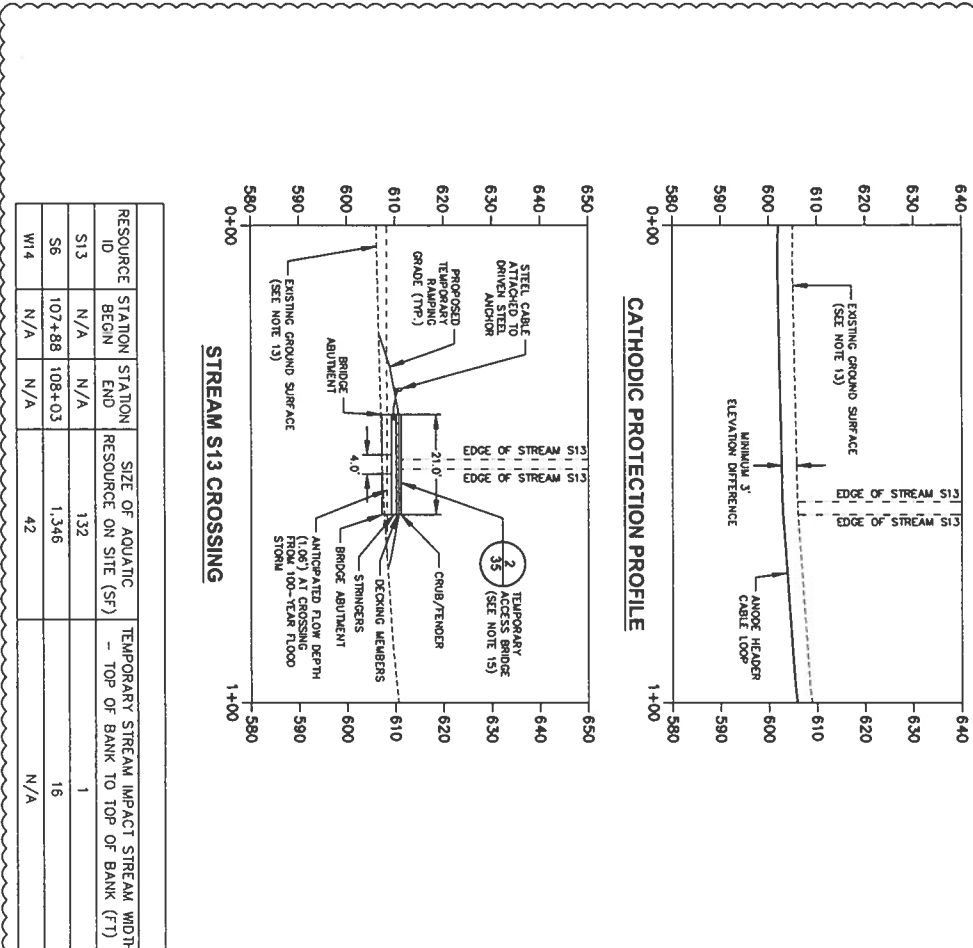
NO.	DATE	DESCRIPTION	BY	CHECKED
1	9/20/17	ISSUE FOR PERMITTING	ALLEN LONG	ALLEN LONG
2	8/11/17	ISSUE FOR PERMITTING	ALLEN LONG	ALLEN LONG
3	7/11/17	ISSUE FOR PERMITTING	ALLEN LONG	ALLEN LONG
4	7/11/17	ISSUE FOR PERMITTING	ALLEN LONG	ALLEN LONG

NO.	DATE	DESCRIPTION	BY	CHECKED
1	9/20/17	ISSUE FOR PERMITTING	ALLEN LONG	ALLEN LONG
2	8/11/17	ISSUE FOR PERMITTING	ALLEN LONG	ALLEN LONG
3	7/11/17	ISSUE FOR PERMITTING	ALLEN LONG	ALLEN LONG
4	7/11/17	ISSUE FOR PERMITTING	ALLEN LONG	ALLEN LONG

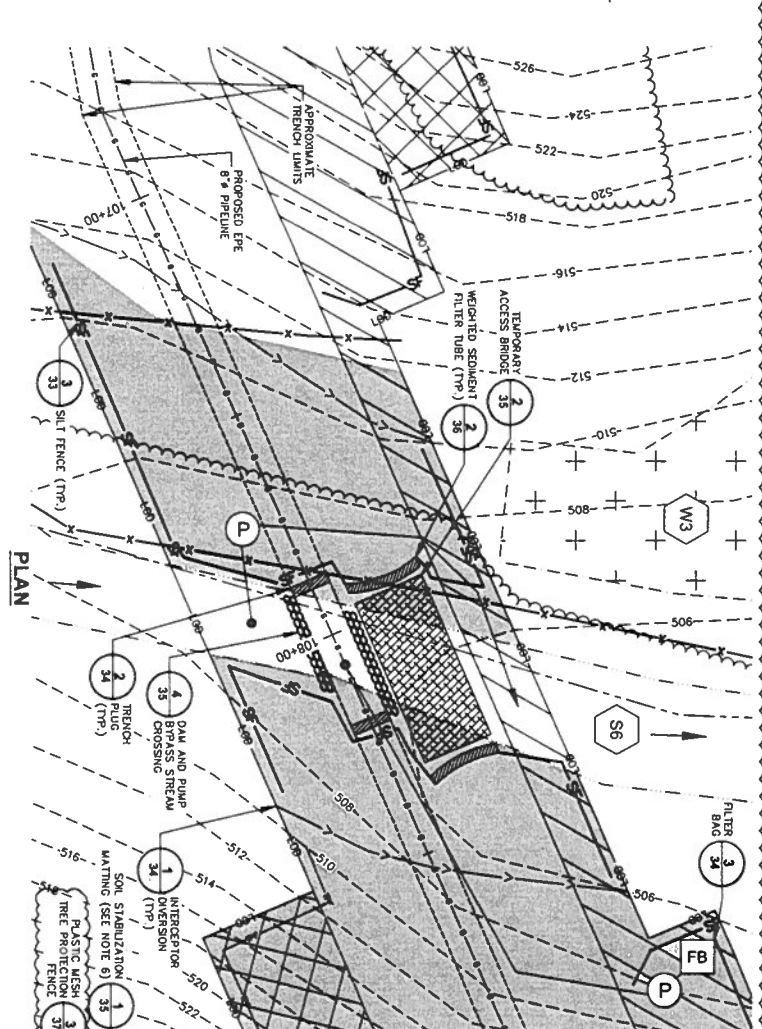
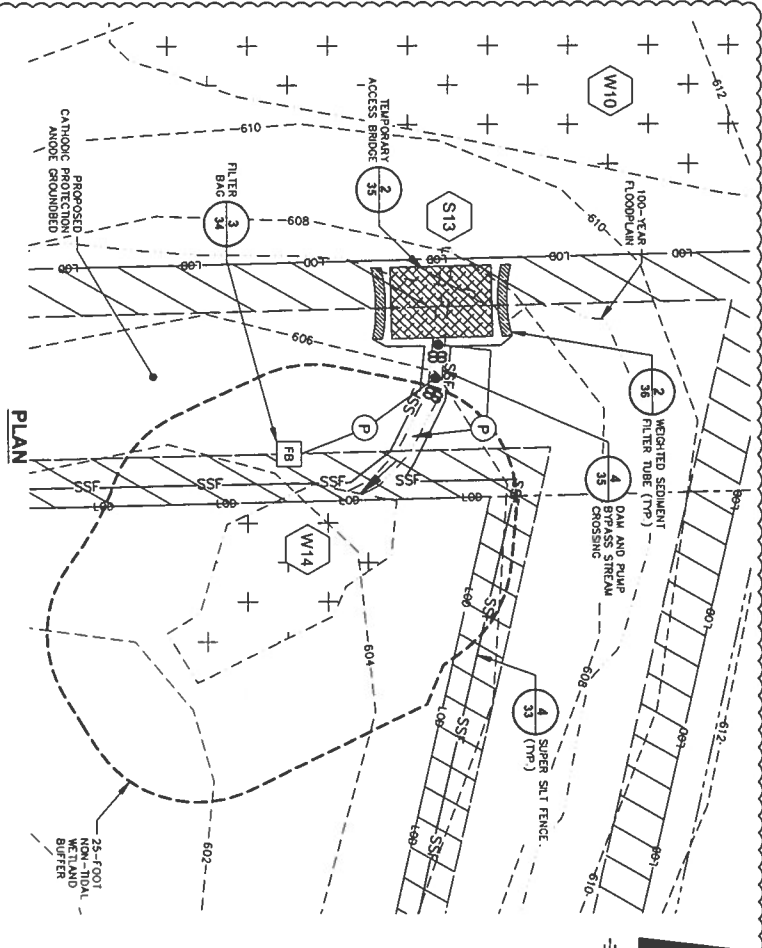


COLUMBIA GAS TRANSMISSION, LLC, A TRANSCANADA COMPANY • HOUSTON, TEXAS  
EASTERN PANHANDLE EXPANSION PROJECT  
**PROPOSED STREAM CROSSINGS S6 AND S13 PLANS AND PROFILES**

ARCADIS Project No.	CPGL00EP-0001-0000A
Date	MARCH 2017
ARCADIS Address	ARCADIS 1000 North 17th Street Wexford, PA 15090 Tel: 724.742.9180



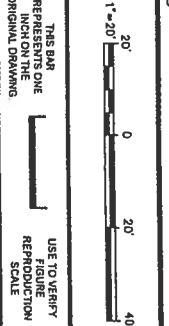
RESOURCE ID	STATION BEGN	STATION END	SIZE OF AQUATIC RESOURCE ON SITE (SF)	TEMPORARY STREAM IMPACT STREAM WIDTH - TOP OF BANK TO TOP OF BANK (F1)	TEMPORARY STREAM IMPACT CENTER LINE OF STREAM (LF)	TEMPORARY STREAM IMPACT AREA (SF)	TEMPORARY 100-YEAR FLOODPLAIN IMPACT (SF)	TEMPORARY WETLAND IMPACT AREA (SF)	TEMPORARY WETLAND BUFFER IMPACT (SF)	TEMPORARY MDE 25-FOOT WETLAND BUFFER IMPACT (SF)
S13	N/A	N/A	132	1	10	1,750	N/A	N/A	N/A	N/A
S6	107+88	108+03	1,346	16	400	675	N/A	N/A	N/A	2,032
W14	N/A	N/A	N/A	42	N/A	N/A	N/A	N/A	N/A	N/A



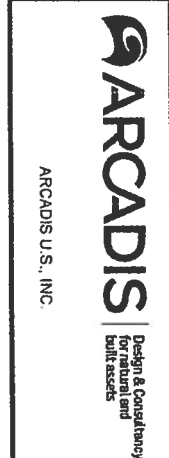
- NOTES:**
- REFER TO DRAWING 1 FOR DETAILS ON THE PROPOSED SEQUENCE OF INSTALLATION OF THE EROSION AND SEDIMENT CONTROL.
  - SILT FENCE HAS BEEN PROPOSED AROUND THE PERIMETER OF AQUATIC RESOURCES (I.E., WETLANDS/STREAMS) PER PERC REGULATIONS. UNDERSTANDING THAT THE CONTROLS DO NOT FOLLOW THE ELEVATION CONTOURS IN ALL LOCATIONS.
  - TOPSOIL SEGREGATION SHALL BE CONDUCTED IN WETLAND AND AGRICULTURAL AREAS AND AS OTHERWISE REQUESTED BY THE LANDOWNER. TEMPORARILY STABILIZE SUBSOIL AND TOPSOIL FOLLOWING REMOVAL. SOIL SHALL BE STOCKPILED IN A BERM-LIKE MANNER TO REDUCE RUN-OFF FROM ACTIVE WORK AREAS. AND SHALL HAVE A MAXIMUM HEIGHT OF 35 FEET AND 2 ON 1 (OR FLATTER) SIDE SLOPES.
  - SOIL STOCKPILES FROM TRENCH EXCAVATION SHALL BE LOCATED WITHIN THE ADDITIONAL TEMPORARY WORKSPACE SHOWN WITH HAULING ON THESE DRAWINGS. STABILIZED SOIL BERMS LOCATED ON UPGRADIENT SIDE OF THE TRENCH SHALL BE USED AS A RUN-ON CONTROL FEATURE. STABILIZED BERMS LOCATED DOWNGRADIENT OF THE TRENCH SHALL BE UTILIZED AS A PERIMETER SEDIMENT CONTROL FEATURE IN PLACE OF SILT FENCE OR SIMILAR.
  - INTERCEPTOR DIVERSIONS LOCATED IN RESIDENTIAL AREAS AND AGRICULTURAL FIELDS SHALL BE REMOVED DURING FINAL GRADING. INTERCEPTOR DIVERSIONS THAT CAN BE LEFT IN PLACE AT THE LANDOWNER'S DISCRETION, SHALL BE VEGETATED.
  - SOIL STABILIZATION MATTING HAS BEEN PROPOSED ON SLOPES STEEPER THAN 3H:1V.
  - FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION MUST BE COMPLETED WITHIN 3 CALENDAR DAYS AS TO THE SURFACE OF ALL PERIMETER DIKES, SWALES, DITCHES, PERIMETER SLOPES, AND ALL SLOPES STEEPER THAN 3H:1V. AND 7 CALENDAR DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE NOT UNDER ACTIVE GRADING.
  - PERMANENTLY STABILIZE DISTURBED AREAS IN ACCORDANCE WITH THE SEEDING RESTORATION TABLES ON DRAWING 1.
  - PROPOSED PERMANENT ACCESS ROAD PAR-5 WILL BE IMPROVED BY GRADING AND STABILIZED WITH STONE TO FACILITATE TRUCK AND EQUIPMENT TRAFFIC.
  - EXISTING 2-FOOT CONTOUR ELEVATIONS SHOWN ON THE PLAN VIEWS ARE BASED ON TOPOGRAPHIC CONTOURS PROVIDED BY ENSITE USA, INC. ON 1/25/2017.
  - EXISTING GRADES DEPICTED ON THIS PROFILE ARE BASED ON TOPOGRAPHIC CONTOURS PROVIDED BY ENSITE USA, INC. ON 1/25/2017.
  - EXISTING GRADES DEPICTED ON THIS PROFILE ARE BASED ON SURVEY SPOT ELEVATIONS PROVIDED BY ENSITE USA, INC. ON 8/10/2017.
  - TEMPORARY ACCESS BRIDGE WILL BE PLACED FROM ONE SIDE OF THE STREAM TO THE OTHER TO AVOID IMPACTS TO THE STREAM BED AND BANKS.



XREFS: CPGL00EP-X00  
CPGL00EP-X01

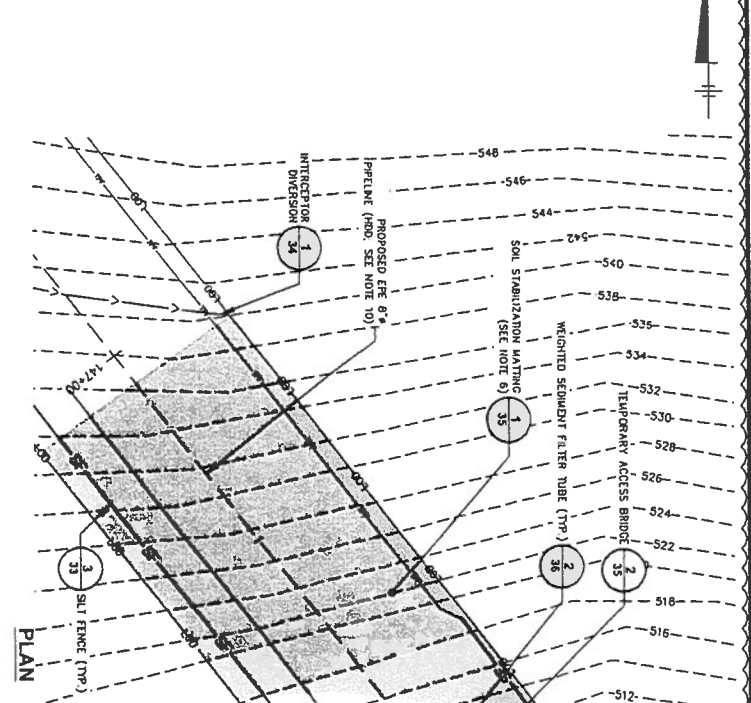
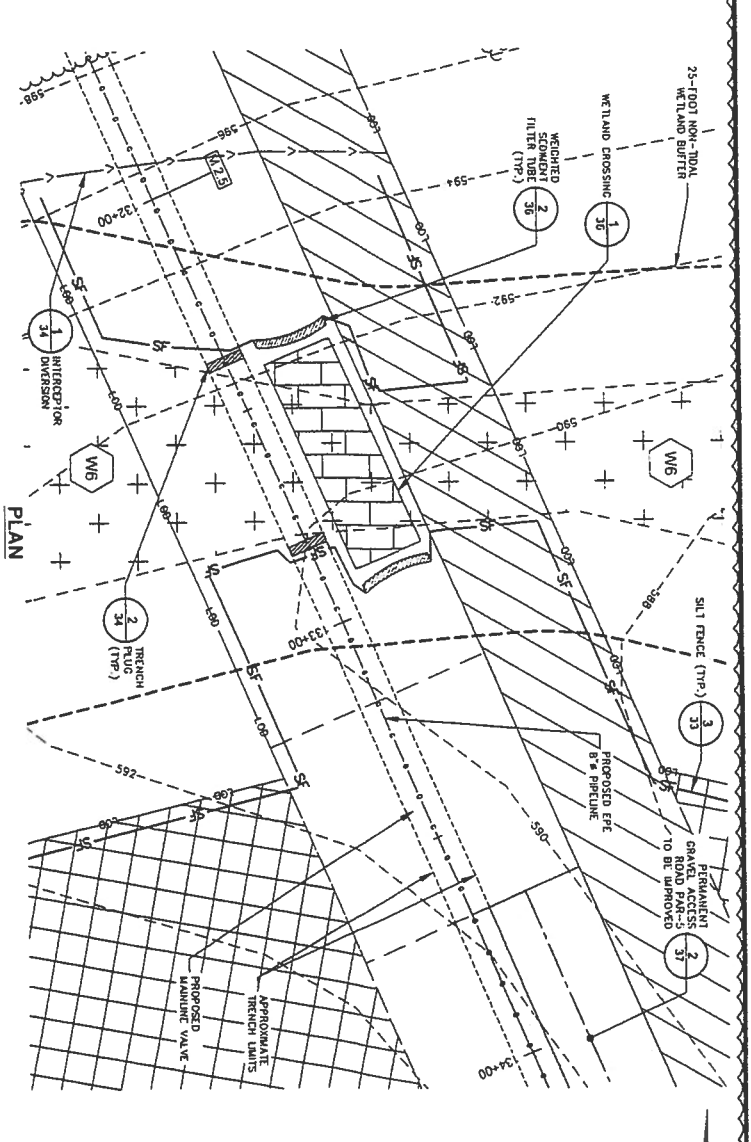
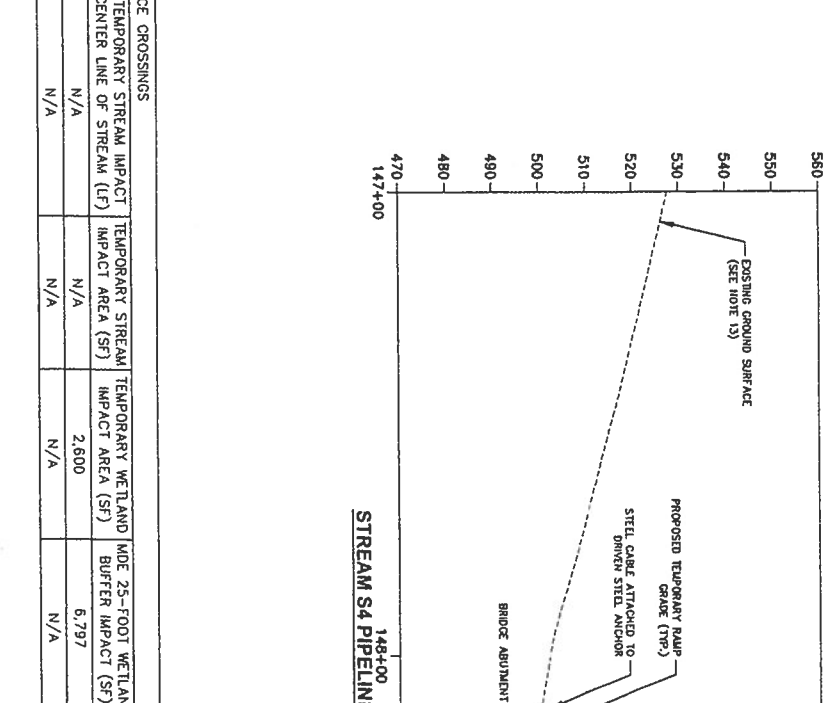
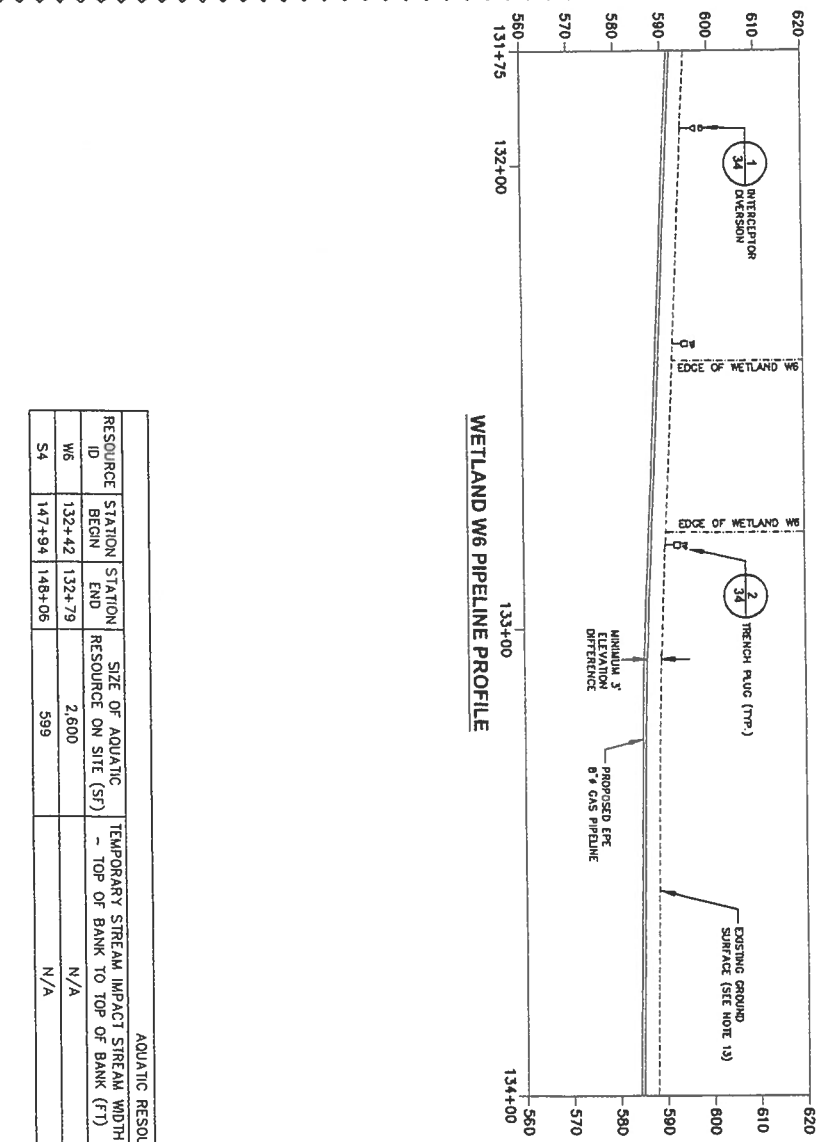


Professional Engineer's Name	ALLEN LONG
Professional Engineer's No.	MD 34862
State	MD
Date Signed	
Project No.	
Checked by	ARL



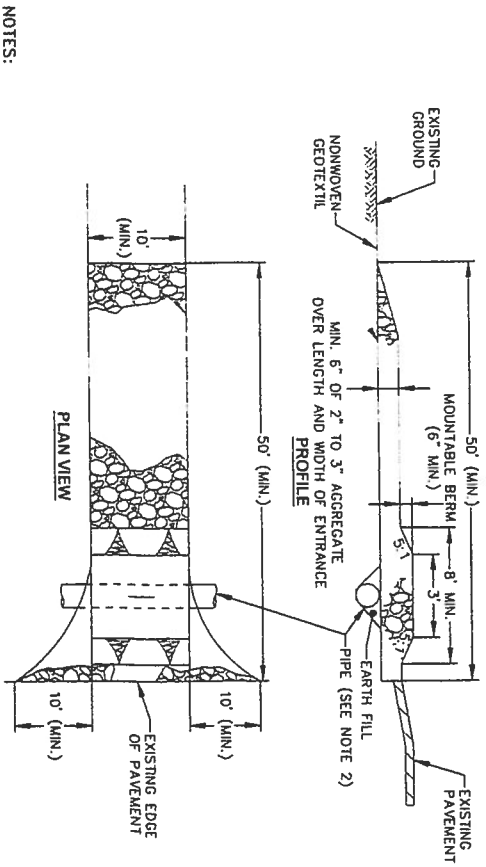
COLUMBIA GAS TRANSMISSION, L.L.C. A TRANSCORPORA COMPANY • HOUSTON, TEXAS  
EASTERN PANHANDLE EXPANSION PROJECT  
**PROPOSED STREAM CROSSING S4  
AND WETLAND CROSSING W6  
PLANS AND PROFILES**

ARCADIS Project No.	CPGL00EP-0001-0008A
Date	MARCH 2017
ARCADIS	6041 Whitehall Road Extension Wexford, PA 15090 Tel: 724.742.8180



- NOTES:
- REFER TO DRAWING 1 FOR DETAILS ON THE PROPOSED SEQUENCE OF INSTALLATION OF THE EROSION AND SEDIMENT CONTROLS.
  - SILT FENCE HAS BEEN PROPOSED AROUND THE PERIMETER OF AQUATIC RESOURCES (I.E. WETLANDS/STREAMS) PER FERC REGULATIONS, UNDERSTANDING THAT THE CONTROLS DO NOT FOLLOW THE ELEVATION CONTOURS IN ALL LOCATIONS.
  - TOPSOIL SEGREGATION SHALL BE CONDUCTED IN WETLAND, LEAN AND AGRICULTURAL BY THE S4 UNDERNEAR. TEMPORARILY STABILIZE SUBSOIL AND TOPSOIL FOLLOWING REMOVAL. SOIL SHALL BE STOCKPILED IN A BERM-LIKE MANNER TO REDUCE RUN-OFF FROM ACTIVE WORK AREAS. AND SHALL HAVE A MAXIMUM HEIGHT OF 35 FEET AND 2 ON 1 (OR FLATTER) SIDE SLOPES.
  - SOIL STOCKPILES FROM TRENCH EXCAVATION SHALL BE LOCATED WITHIN THE ADDITIONAL TEMPORARY WORKSPACE SHOWN WITH HATCHING ON THESE DRAWINGS. STABILIZED SOIL BERMS LOCATED ON UPGRADE SIDE OF THE TRENCH SHALL BE USED AS A RUN-ON CONTROL FEATURE. STABILIZED BERMS LOCATED DOWNGRADE OF THE TRENCH SHALL BE USED AS A PERIMETER SILT FENCE OR SIMILAR.
  - INTERCEPTOR DIVERSIONS LOCATED IN RESIDENTIAL AREAS AND AGRICULTURAL FIELDS SHALL BE REMOVED DURING FINAL GRADING. INTERCEPTOR DIVERSIONS THAT CAN BE LEFT IN PLACE, AT THE LANDOWNER'S DISCRETION, SHALL BE VEGETATED.
  - SOIL STABILIZATION MATTING HAS BEEN PROPOSED ON SLOPES STEEPER THAN 3H: 1V.
  - FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE PERMANENT OR BE COMPLETED WITHIN 90 CALENDAR DAYS AS TO THE SURFACE OF ALL PERIMETER DIKES, SWALES, DITCHES, PERIMETER SLOPES, AND ALL SLOPES STEEPER THAN 3H:1V. AND 7 CALENDAR DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE NOT UNDER ACTIVE GRADING.
  - PERMANENTLY STABILIZE DISTURBED AREAS IN ACCORDANCE WITH THE SEEDING RESTORATION TABLES ON DRAWING 1.
  - PROPOSED PERMANENT ACCESS ROAD PAR-5 STABILIZED WITH STONE TO FACILITATE TRUCK AND EQUIPMENT TRAFFIC.
  - DISTURBANCE ACTIVITIES WITHIN PORTIONS OF THE LIMIT OF DISTURBANCE DURING HORIZONTAL DIRECTIONAL DRILLING ENTRY/EXIT LOCATIONS WILL CONSIST OF TREE CLEARING ONLY.
  - PROPOSED EPE 8-INCH DIAMETER PIPELINE IS NOTE SHOWN ON THE PROFILE FOR STREAM S4 CROSSING, AS THE PIPELINE WILL BE INSTALLED VIA HORIZONTAL DIRECTIONAL DRILLING TO BE LOCATED APPROXIMATELY 200 FEET BELOW GROUND SURFACE AT THIS STREAM CROSSING.
  - EXISTING 2-FOOT CONTOUR ELEVATIONS SHOWN ON THE PLAN VIEWS ARE BASED ON TOPOGRAPHIC CONTOURS PROVIDED BY ENSITE USA, INC. ON 1/25/2017.
  - EXISTING GRADES DEPICTED ON THIS PROFILE ARE BASED ON SURVEY SPOT ELEVATIONS PROVIDED BY ENSITE USA, INC. ON 8/10/2017.
  - TEMPORARY ACCESS BRIDGE WILL BE PLACED FROM ONE SIDE OF THE STREAM TO THE AVOID IMPACTS TO THE STREAM BED AND BANKS.

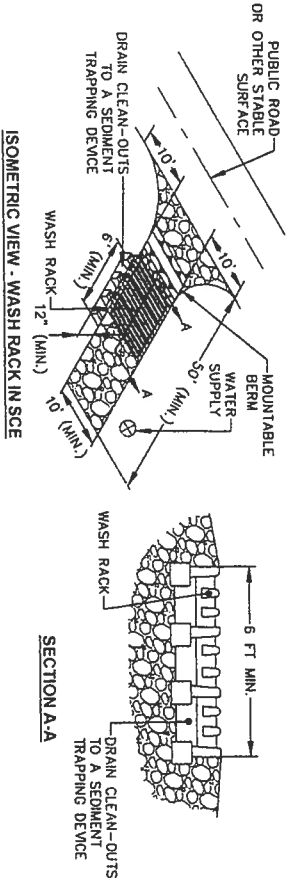
XREFS: CPGL00EP-X00



- NOTES:
1. PLACE STABILIZED CONSTRUCTION ENTRANCE IN ACCORDANCE WITH THE APPROVED PLAN. VEHICLES MUST TRAVEL OVER THE ENTIRE LENGTH OF THE SCE. USE MINIMUM LENGTH OF 50 FEET. USE MINIMUM WIDTH OF 10 FEET. FLARE STABILIZED CONSTRUCTION ENTRANCE 10 FEET MINIMUM AT THE EXISTING ROAD TO PROVIDE A TURNING RADIUS.
  2. PIPE ALL SURFACE WATER FLOWING TO OR DIVERTED TOWARD THE SCE UNDER THE ENTRANCE. MAINTAIN POSITIVE DRAINAGE. PROTECT PIPE INSTALLED THROUGH THE SCE WITH AN APPROVED BERM WITH 5H:1V SLOPES AND A MINIMUM OF 12 INCHES OF STONE OVER THE PIPE. PROVIDE DEPTH TO THE SCE ON APPROVED PLAN. WHEN THE STABILIZED CONSTRUCTION ENTRANCE IS LOCATED AT A HIGH SPOT AND HAS A MINIMUM OF 5% TO 10% SLOPE, A PIPE IS NOT NECESSARY. A MOUNTABLE BERM IS REQUIRED WHEN STABILIZED CONSTRUCTION ENTRANCE IS NOT LOCATED AT A HIGH SPOT.
  3. PLACE CRUSHED AGGREGATE (2 TO 3 INCHES IN SIZE) OR EQUIVALENT RECYCLED CONCRETE (WITHOUT REBAR) AT LEAST 6 INCHES DEEP OVER THE LENGTH AND WIDTH OF THE STABILIZED CONSTRUCTION ENTRANCE.
  4. MAINTAIN ENTRANCE IN A CONDITION THAT MINIMIZES TRACKING OF SEDIMENT. ADD STONE OR MAKE OTHER REPAIRS AS CONDITIONS DEMAND TO MAINTAIN CLEAN SURFACE. MOUNTABLE BERM, AND SPECIFIED DIMENSIONS, IMMEDIATELY REMOVE STONE AND/OR SEDIMENT SPILLED, DROPPED, OR TRACKED ONTO ADJACENT ROADWAY BY VACUUMING, SCRAPING, AND/OR SWEETING. WASHING ROADWAY TO REMOVE MUD TRACKED ONTO PAVEMENT IS NOT ACCEPTABLE UNLESS WASH WATER IS DIRECTED TO AN APPROVED SEDIMENT CONTROL PRACTICE.

**STABILIZED CONSTRUCTION ENTRANCE 1**

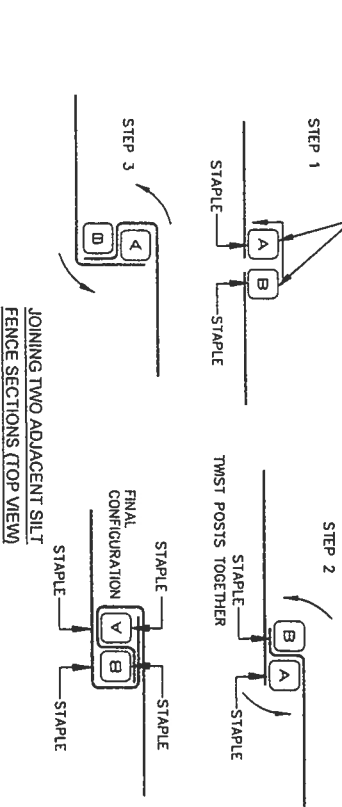
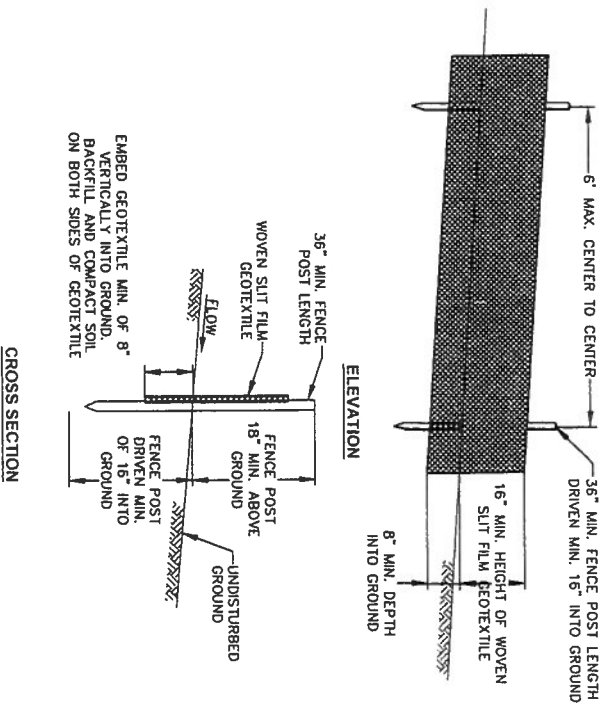
NOT TO SCALE



- NOTES:
1. USE A WASH RACK DESIGNED AND CONSTRUCTED/MANUFACTURED FOR THE ANTICIPATED TRAFFIC LOADS. CONCRETE, STEEL, OR OTHER MATERIALS ARE ACCEPTABLE. PRE-FABRICATED UNITS SUCH AS CHUTE GUARDS ARE ACCEPTABLE. USE MINIMUM DIMENSION OF 6 FEET BY 10 FEET. ORIENT DIRECTION OF RIBS AS SHOWN ON THE DETAIL.
  2. INSTALL PRIOR TO, ALONG SIDE OF, OR AS PART OF THE STABILIZED CONSTRUCTION ENTRANCE.
  3. DIRECT WASH WATER TO AN APPROVED SEDIMENT TRAPPING DEVICE.
  4. KEEP AREA UNDER WASH RACK FREE OF ACCUMULATED SEDIMENT. IF DAMAGED, REPAIR OR REPLACE WASH RACK.

**WASH RACK OPTION 2**

NOT TO SCALE



- NOTES:
1. USE WOOD POSTS 1 3/4" BY 1 3/4" ± 1/16" (MINIMUM) SQUARE CUT OF SOUND QUALITY HARDWOOD. AS AN ALTERNATIVE TO WOODEN POST USE STANDARD "T" OR "U" SECTION STEEL POSTS WEIGHING NOT LESS THAN 1 POUND PER LINEAR FOOT.
  2. USE 3/8 INCH MINIMUM POSTS DRIVEN 16 INCH MINIMUM INTO GROUND NO MORE THAN 6 FEET APART.
  3. FASTEN GEOTEXTILE SECURELY TO UPSLOPE SIDE OF FENCE POSTS WITH WIRE TIES OR STAPLES AT TOP AND MID-SECTION.
  4. PROVIDE MANUFACTURER CERTIFICATION TO THE AUTHORIZED REPRESENTATIVE OF THE INSPECTION/ENGINEERING AUTHORITY SHOWING THAT THE GEOTEXTILE USED MEETS THE REQUIREMENTS OF THIS DETAIL.
  5. EMBED GEOTEXTILE A MINIMUM OF 8 INCHES VERTICALLY INTO THE GROUND. BACKFILL AND COMPACT THE SOIL ON BOTH SIDES OF FABRIC.
  6. WHERE TWO SECTIONS OF GEOTEXTILE ADJOIN; OVERLAP, TWIST, AND STAPLE TO POST IN ACCORDANCE WITH THIS DETAIL.
  7. EXTEND BOTH ENDS OF THE SILT FENCE A MINIMUM OF FIVE HORIZONTAL FEET UPSLOPE AT 45 DEGREES TO THE MAIN FENCE ALIGNMENT TO PREVENT RUNOFF FROM GOING AROUND THE ENDS OF THE SILT FENCE.
  8. REMOVE ACCUMULATED SEDIMENT AND DEBRIS WHEN BULGES DEVELOP IN SILT FENCE OR WHEN SEDIMENT REACHES 25% OF FENCE HEIGHT. REPLACE GEOTEXTILE IF TORN. IF UNDERMINING OCCURS, REINSTALL FENCE.

**SILT FENCE 3**

NOT TO SCALE

PROPERTY	TEST METHOD	WOVEN SLIT FILM GEOTEXTILE		NONFLAMMENT GEOTEXTILE		NONWOVEN GEOTEXTILE	
		MD	CD	MD	CD	MD	CD
GRAB TENSILE STRENGTH	ASTM D-4632	200 LBS	200 LBS	370 LBS	250 LBS	200 LBS	200 LBS
GRAB TENSILE ELONGATION	ASTM D-4632	15%	10%	15%	15%	50%	50%
TRAPEZOIDAL TEAR STRENGTH	ASTM D-4533	75 LBS	75 LBS	100 LBS	60 LBS	80 LBS	80 LBS
PUNCTURE STRENGTH	ASTM D-6241	450 LBS	900 LBS	900 LBS	450 LBS	450 LBS	450 LBS
APPEARANT OPENING SIZE	ASTM D-4751	U.S. SIEVE 30 (0.59 MM)	U.S. SIEVE 30 (0.59 MM)	U.S. SIEVE 70 (0.21 MM)	U.S. SIEVE 70 (0.21 MM)	U.S. SIEVE 70 (0.21 MM)	U.S. SIEVE 70 (0.21 MM)
PERMITTIVITY	ASTM D-4491	0.05/SEC	0.28/SEC	0.28/SEC	1.1/SEC	1.1/SEC	1.1/SEC
ULTRAVIOLET RESISTANCE RETAINED AT 500 HOURS	ASTM D-4355	70% STRENGTH	70% STRENGTH	70% STRENGTH	70% STRENGTH	70% STRENGTH	70% STRENGTH

- NOTES:
1. INSTALL 2 3/8" DIAMETER GALVANIZED STEEL POSTS OF 0.095" WALL THICKNESS AND SIX FOOT LENGTH SPACED NO FURTHER THAN 10 FEET APART. DRIVE THE POSTS A MINIMUM OF 36 INCHES INTO THE GROUND.
  2. FASTEN 9 GAUGE OR HEAVIER GALVANIZED CHAIN LINK FENCE (2 3/8" MAXIMUM OPENING) 42 INCHES IN HEIGHT SECURELY TO THE FENCE POSTS WITH WIRE TIES OR HUG RINGS.
  3. FASTEN WOVEN SLIT FILM GEOTEXTILE SECURELY TO THE UPSLOPE SIDE OF CHAIN LINK FENCE WITH TIES SPACED EVERY 24 INCHES AT THE TOP AND MID SECTION. EMBED GEOTEXTILE AND CHAIN LINK FENCE A MINIMUM OF 8 INCHES INTO THE GROUND.
  4. WHERE ENDS OF THE GEOTEXTILE COME TOGETHER, THE ENDS SHALL BE OVERLAPPED BY 6 INCHES, FOLDED, AND STAPLED TO PREVENT SEDIMENT BY PASS.
  5. EXTEND BOTH ENDS OF THE SUPER SILT FENCE A MINIMUM OF FIVE HORIZONTAL FEET UPSLOPE AT 45 DEGREES TO THE MAIN FENCE ALIGNMENT TO PREVENT RUNOFF FROM GOING AROUND THE ENDS OF THE SUPER SILT FENCE.
  6. PROVIDE MANUFACTURER CERTIFICATION TO THE INSPECTION/ENGINEERING AUTHORITY SHOWING THAT THE GEOTEXTILE USED MEETS THE REQUIREMENTS OF THIS DETAIL.
  7. REMOVE ACCUMULATED SEDIMENT AND DEBRIS WHEN BULGES DEVELOP IN FENCE OR WHEN SEDIMENT REACHES 25% OF FENCE HEIGHT. REPLACE GEOTEXTILE IF TORN. IF UNDERMINING OCCURS, REINSTALL CHAIN LINK FENCING AND GEOTEXTILE.

**SUPER SILT FENCE 4**

NOT TO SCALE

NOT TO SCALE

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Professional Engineer's Name	Allen Long
Professional Engineer's No.	MD 34662
Scale	AS
Date Signed	
Drawn by	ALS
Checked by	ARL
Project No.	
Job No.	

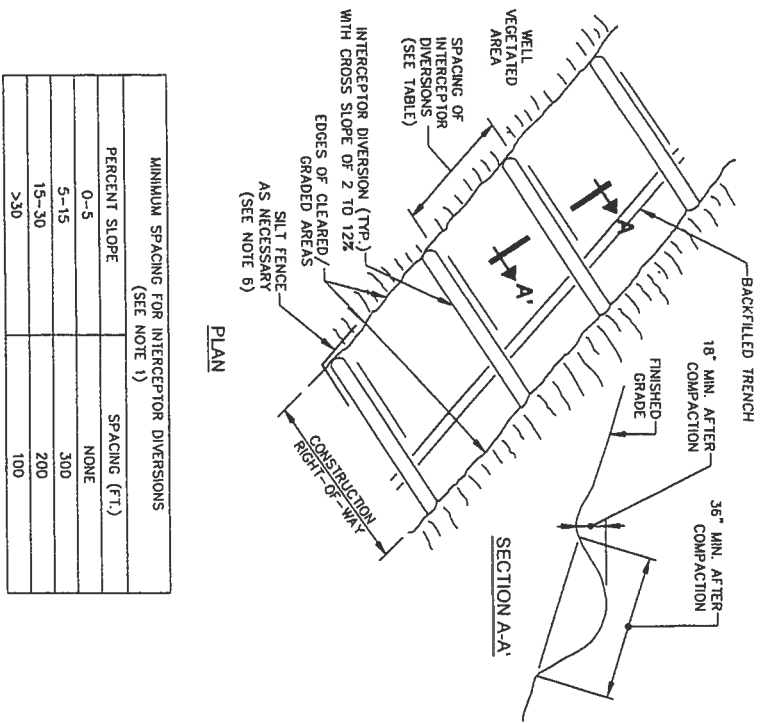
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COLUMBIA GAS TRANSMISSION, LLC - A TRANSCANADA COMPANY • HOUSTON, TEXAS  
EASTERN PANHANDLE EXPANSION PROJECT

MISCELLANEOUS DETAILS

ARCADIS Project No. CPGL00EP-0001-0009A  
DATE: 08/08/2017  
ARCADIS 6041 Wallace Road Extension Suite 300 Westboro MA 01580 TEL: 781/422-2100

XREFS: CPGL00EP-X00

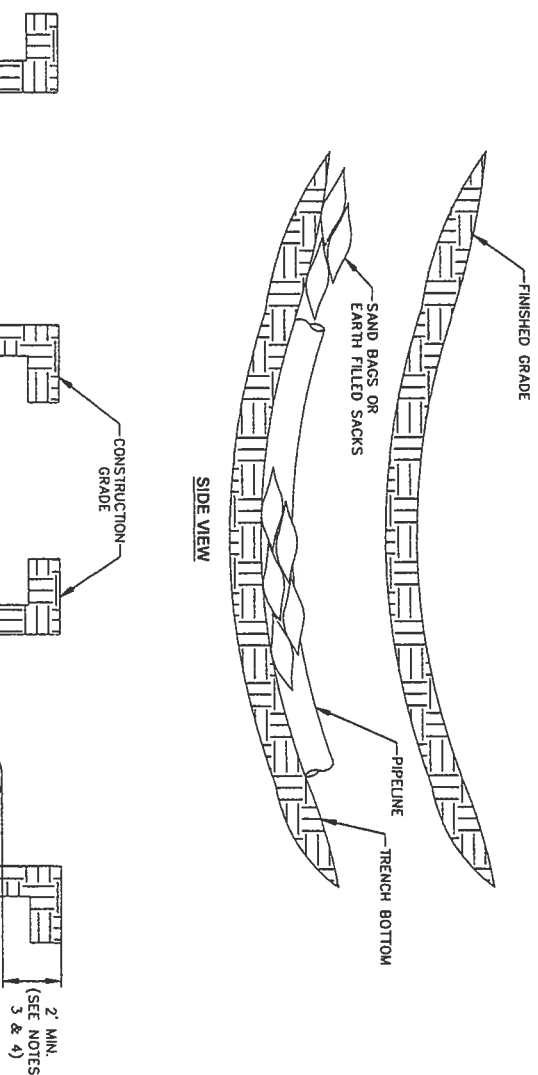


MINIMUM SPACING FOR INTERCEPTOR DIVERSIONS (SEE NOTE 1)	
PERCENT SLOPE	SPACING (FT.)
0-5	NONE
5-15	300
15-30	200
>30	100

- NOTES:
1. MINIMUM SPACING SPECIFIED FOR BOTH TEMPORARY AND PERMANENT INTERCEPTOR DIVERSIONS.
  2. INTERCEPTOR DIVERSIONS SHALL DISCHARGE TO A WELL VEGETATED, STABLE AREA.
  3. INTERCEPTOR DIVERSIONS SHALL BE INSPECTED WEEKLY (DAILY ON ACTIVE ROADS) AND AFTER EACH RUNOFF EVENT. DAMAGED OR ERODED WATERBARS SHALL BE RESTORED TO ORIGINAL DIMENSIONS WITHIN 24 HOURS OF INSPECTION.
  4. MAINTENANCE OF INTERCEPTOR DIVERSIONS SHALL BE PROVIDED UNTIL RIGHT-OF-WAY HAS ACHIEVED PERMANENT STABILIZATION. INTERCEPTOR DIVERSIONS IN AGRICULTURAL AND RESIDENTIAL AREAS SHALL BE REMOVED DURING FINAL RESTORATION.
  5. INTERCEPTOR DIVERSIONS MUST BE INSTALLED WITHIN ALL CLEARED AREAS AT THE LOCATIONS IDENTIFIED ON THESE DRAWINGS BY THE END OF THE WORK DAY.
  6. SILT FENCE SHALL BE INSTALLED AT THE OUTLETS OF THE INTERCEPTOR DIVERSIONS, WHERE A WELL VEGETATED AREA IS NOT AVAILABLE AND/OR ADJACENT TO SURFACE WATERS.
  7. DIVERSION OUTLETS WILL ALTERNATE FROM SIDE TO SIDE WHENEVER POSSIBLE.

**INTERCEPTOR DIVERSION 1**

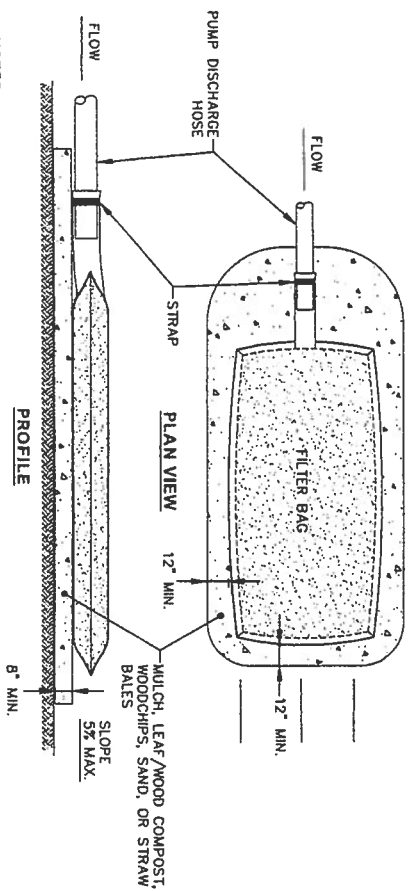
NOT TO SCALE



- NOTES:
1. PROMPTLY INSTALL TRENCH PLUG AT EVERY SECOND INTERCEPTOR DIVERSION AS TRENCH IS COMPLETED.
  2. PRIOR TO LOWERING PIPELINE INTO THE TRENCH, REMOVE ALL DECOMPOSED MATERIAL AND ROCKS FROM THE TRENCH BOTTOM.
  3. INSTALL SAND BAGS OR EARTH FILLED SACKS TO TOP OF TRENCH ON STEEP SLOPES GREATER THAN 3H:1V IN NON-AGRICULTURAL AREAS.
  4. TOP OF TRENCH PLUG SHALL BE A MINIMUM OF 2 FEET BELOW THE CONSTRUCTION GRADE IN AGRICULTURAL AREAS TO PROVIDE CLEARANCE FOR PLOWING.

**TRENCH PLUG 2**

NOT TO SCALE



- NOTES:
1. TIGHTLY SEAL SLEEVE AROUND THE PUMP DISCHARGE HOSE WITH A STRAP OR SIMILAR DEVICE.
  2. PLACE FILTER BAG ON SUITABLE BASE (E.G. MULCH, LEAF/WOOD COMPOST, WOODCHIPS, SAND, OR STRAW BALES) LOCATED ON A LEVEL OR 5% MAXIMUM SLOPING SURFACE. DISCHARGE TO A STABILIZED AREA. EXTEND BASE A MINIMUM OF 12 INCHES FROM EDGES OF BAG.
  3. CONTROL PUMPING RATE TO PREVENT EXCESSIVE PRESSURE WITHIN THE FILTER BAG IN ACCORDANCE WITH THE MANUFACTURER RECOMMENDATIONS. AS THE BAG FILLS WITH SEDIMENT, REDUCE PUMPING RATE.
  4. REMOVE AND PROPERLY DISPOSE OF FILTER BAG UPON COMPLETION OF PUMPING OPERATIONS OR AFTER BAG HAS REACHED CAPACITY, WHICHEVER OCCURS FIRST. SPREAD THE DEWATERED SEDIMENT FROM THE BAG IN AN APPROVED UPLAND AREA AND STABILIZE WITH SEED AND MULCH BY THE END OF THE WORK DAY. RESTORE THE SURFACE AREA BENEATH THE BAG TO ORIGINAL CONDITION UPON REMOVAL OF THE DEVICE.
  5. USE NONWOVEN GEOTEXTILE WITH DOUBLE STITCHED SEAMS USING HIGH STRENGTH THREAD. SIZE SLEEVE TO ACCOMMODATE A MAXIMUM 4 INCH DIAMETER PUMP DISCHARGE HOSE. THE BAG MUST BE MANUFACTURED FROM A NONWOVEN GEOTEXTILE THAT MEETS OR EXCEEDS MINIMUM AVERAGE ROLL VALUES (MANY) FOR THE FOLLOWING:
 

GRAB TENSILE	250 LB	ASTM D-4632
PUNCTURE	150 LB	ASTM D-4633
FLOW RATE	70 GAL/MIN/FT <sup>2</sup>	ASTM D-4491
PERMEABILITY (SEC-1/)	1.2	ASTM D-4491
UV RESISTANCE	70% STRENGTH @ 500 HOURS	ASTM D-4355
APARENT OPENING SIZE (AOS)	0.15-0.18 MM	ASTM D-4751
SEAM STRENGTH	90%	ASTM D-4632
  6. REPLACE FILTER BAG IF BAG CLOGS OR HAS RIPS, TEARS, OR PUNCTURES. DURING OPERATION KEEP CONNECTION BETWEEN PUMP HOSE AND FILTER BAG WATER TIGHT. REPLACE BEDDING IF IT BECOMES DISPLACED.

**FILTER BAG 3**

NOT TO SCALE

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NO.	DATE	REVISIONS	BY	CHKD

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Professional Engineer's Name  
**ALLEN LONG**  
Professional Engineer's No.  
MD 241652

State  
MD

Design by  
ALS

Drawn by  
ALS

Checked by  
ARL

Project No.

Project Name

Professional Engineer's Seal  
Professional Engineer  
Allen Long  
No. 241652  
State of Maryland  
Exp. 08/31/2017

**ARCADIS** Design & Consultancy for natural and built assets

ARCADIS U.S., INC.

COLUMBIA GAS TRANSMISSION, LLC, A TRANSCANADA COMPANY • HOUSTON, TEXAS  
EASTERN PANHANDLE EXPANSION PROJECT

**MISCELLANEOUS DETAILS**

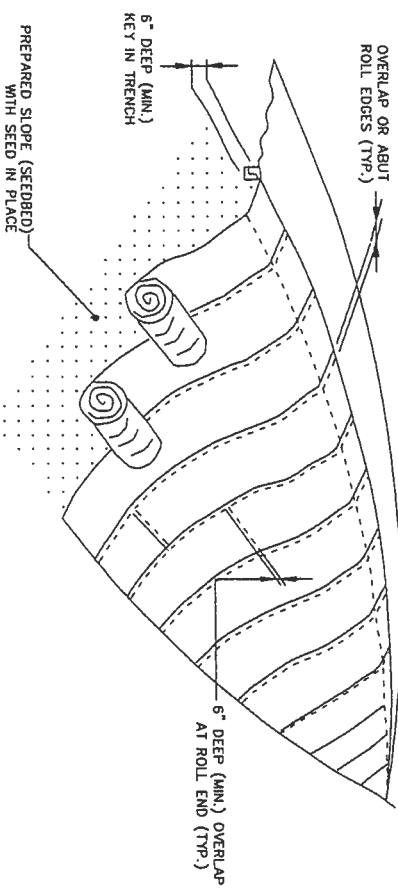
ARCADIS Project No.  
CPGL00EP-0001-0009A

Date  
MARCH 2017

ARCADIS  
6041 Wallace Road Extension  
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Wexford, PA 15090  
Tel: 724.742.2180

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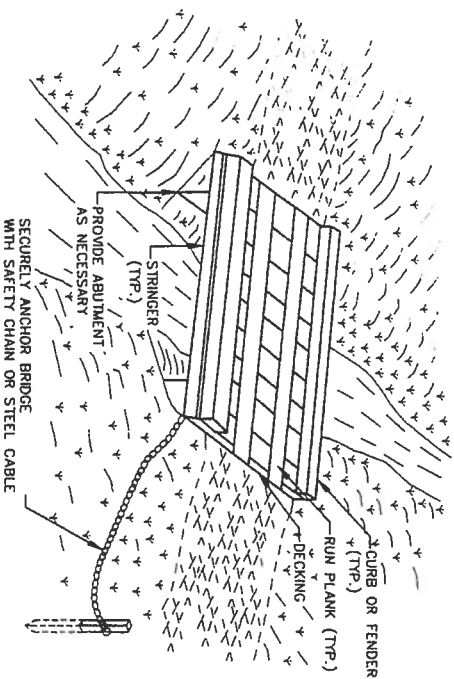
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- NOTES:**
- USE TEMPORARY SOIL STABILIZATION MATTING MADE OF DEGRADABLE (LASTS 6 MONTHS MINIMUM) NATURAL OR MAN-MADE FIBERS (MOSTLY ORGANIC). MAT MUST HAVE UNIFORM THICKNESS AND DISTRIBUTION OF FIBERS THROUGHOUT AND BE SMOOTHER RESISTANT CHEMICALS USED IN THE MAT MUST BE NON-LEACHING AND NON-TOXIC TO VEGETATION AND SEED GERMINATION AND NON-HAZARDOUS TO THE SKIN. IF PRESENT, NETTING MUST BE EXTRUDED PLASTIC WITH A MAXIMUM MESH OPENING OF 2X2 INCHES AND SUFFICIENTLY BONDED OR SEWN ON 2 INCH CENTERS ALONG LONGITUDINAL AXIS OF THE MATERIAL TO PREVENT SEPARATION OF THE NET FROM THE PARENT MATERIAL.
  - SECURE MATTING USING STEEL STAPLES, WOOD STAKES, OR BIODEGRADABLE EQUIVALENT. STAPLES MUST BE "J" OR "T" SHAPED STEEL WIRE HAVING A MINIMUM GAUGE OF NO. 11 AND NO. 8 RESPECTIVELY. "J" SHAPED STAPLES MUST AVERAGE 1 TO 1 1/2 INCHES WIDE AND BE A MINIMUM OF 6 INCHES LONG. "T" SHAPED STAPLES MUST HAVE A MINIMUM 8 INCH MAIN LEG, A MINIMUM 1 INCH SECONDARY LEG, AND A MINIMUM 4 INCH HEAD. WOOD STAPLES MUST BE ROUND-SAWN HARDWOOD, 12 TO 24 INCHES IN LENGTH, 1 BY 3 INCH IN CROSS SECTION, AND WEDGE SHAPED AT THE BOTTOM.
  - PERFORM FINAL GRADING, TOSSEL APPLICATION, SEEDBED PREPARATION, AND PERMANENT SEEDING IN ACCORDANCE WITH SPECIFICATIONS. PLACE MATTING WITHIN 48 HOURS OF COMPLETING SEEDING OPERATIONS UNLESS END OF WORKDAY STABILIZATION IS SPECIFIED ON THE APPROVED EROSION & SEDIMENT CONTROL PLAN.
  - UNROLL MATTING DOWNSLOPE. LAY MAT SMOOTHLY AND FIRMLY UPON THE SEEDBED SURFACE. AVOID STRETCHING THE MATTING.
  - OVERLAP OR ABUT ROLL EDGES PER MANUFACTURER RECOMMENDATIONS. OVERLAP ROLL ENDS BY 6 INCHES (MINIMUM), WITH THE UPSLOPE MAT OVERLAPPING ON TOP OF THE DOWNSLOPE MAT.
  - KEY IN THE UPSLOPE END OF MAT 6 INCHES (MINIMUM) BY DIGGING A TRENCH, PLACING THE MATTING ROLL END IN THE TRENCH, STAPLING THE MAT IN PLACE REPLACING THE EXCAVATED MATERIAL, AND TAMPING TO SECURE THE MAT END IN THE KEY.
  - STAPLE/STAKE MAT IN A STAGGERED PATTERN ON 4 FOOT (MAXIMUM) CENTERS THROUGHOUT AND 2 FOOT (MAXIMUM) CENTERS ALONG SEAMS, JOINTS, AND ROLL ENDS.
  - ESTABLISH AND MAINTAIN VEGETATION SO THAT REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT ARE CONTINUOUSLY MET IN ACCORDANCE WITH SECTION B-4 VEGETATIVE STABILIZATION OF THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL.

### SOIL STABILIZATION MATTING 1

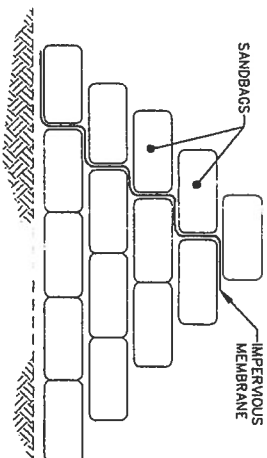
NOT TO SCALE



- NOTES:**
- CONSTRUCT TEMPORARY BRIDGE STRUCTURE AT OR ABOVE THE BANK ELEVATION TO PREVENT IMPACTS FROM FLOATING MATERIALS AND DEBRIS.
  - PLACE ABUTMENTS PARALLEL TO, AND ON, STABLE BANKS.
  - CONSTRUCT BRIDGE TO SPAN ENTIRE CHANNEL UNLESS OTHERWISE INDICATED ON APPROVED PLAN.
  - USE STRINGERS CONSISTING OF LOGS, SAWN TIMBER, PRESTRESSED CONCRETE BEAMS, METAL BEAMS, OR OTHER APPROVED MATERIALS.
  - SELECT DECKING MATERIALS TO PROVIDE SUFFICIENT STRENGTH TO SUPPORT THE ANTICIPATED LOAD. PLACE DECKING MEMBERS PERPENDICULAR TO THE STRINGERS BUT NOT TO PREVENT ANY SOIL MATERIAL TRACKED ONTO THE BRIDGE FROM FALLING INTO THE WATERWAY BELOW.
  - SECURELY FASTEN OPTIONAL RUN PLANKING FOR THE LENGTH OF THE SPAN. PROVIDE A RUN PLANK FOR EACH TRACK OF THE EQUIPMENT WHEELS. ALTHOUGH RUN PLANKS ARE OPTIONAL, THEY MAY BE NECESSARY TO PROPERLY DISTRIBUTE LOADS.
  - INSTALL CURBS THE ENTIRE LENGTH OF THE OUTER SIDES OF THE DECK TO PREVENT SEDIMENT FROM ENTERING THE STREAM CHANNEL.
  - ANCHOR BRIDGE SECURELY AT ONLY ONE END USING STEEL CABLE OR CHAIN. ANCHORING AT ONLY ONE END WILL PREVENT CHANNEL OBSTRUCTION IN THE EVENT THE FLOODING OVERSAYS THE BRIDGE. ANCHORS IN AREAS SUBJECT TO FLOODING SHOULD BE BUILT ON BENT PILES. ANCHOR MUST BE SUFFICIENT TO PREVENT THE BRIDGE FROM FLOATING DOWNSLOPE.
  - AREAS DISTURBED DURING BRIDGE INSTALLATION AND/OR REMOVAL MUST NOT BE LEFT UNSTABILIZED OVERNIGHT UNLESS THE RUNOFF IS DIRECTED TO AN APPROVED SEDIMENT CONTROL DEVICE.
  - STABILIZE APPROACH TO BRIDGE AND KEEP FREE OF EROSION. CLEAN SEDIMENT FROM DECKING AND CURBS DAILY BY SCRAPING, SWEEPING, AND/OR WASHING. ENSURE THAT DECKING AND CURBS REMAIN TIGHTLY BUTTED WITHOUT GAPS. REMOVE DEBRIS TRAPPED BY BRIDGE. MAINTAIN AREAS ADJACENT TO CROSSING TO CONTINUOUSLY MEET REQUIREMENTS FOR ADOQUATE VEGETATIVE ESTABLISHMENT.
  - AFTER THE TEMPORARY CROSSING IS NO LONGER NEEDED, REMOVE IT WITHIN 14 CALENDAR DAYS. IF SUBJECT TO THE USE DESIGNATION CLOSURE, REMOVE AT THE END OF CLOSURE PERIOD. PROTECT STREAM BANKS DURING BRIDGE REMOVAL AND STABILIZE ALL DISTURBED AREAS WITH EROSION CONTROL MATTING. ACCOMPLISH REMOVAL OF THE BRIDGE AND CLEANUP OF THE AREA WITHOUT CONSTRUCTION EQUIPMENT WORKING IN THE WATERWAY CHANNEL. STORE ALL REMOVED MATERIALS IN AN APPROVED STAGING AREA.
  - TEMPORARY CROSSINGS SHALL BE MADE FROM SUITABLE MATERIALS (I.E., STEEL PLATE, TIMBER MATTING).

### TEMPORARY ACCESS BRIDGE 2

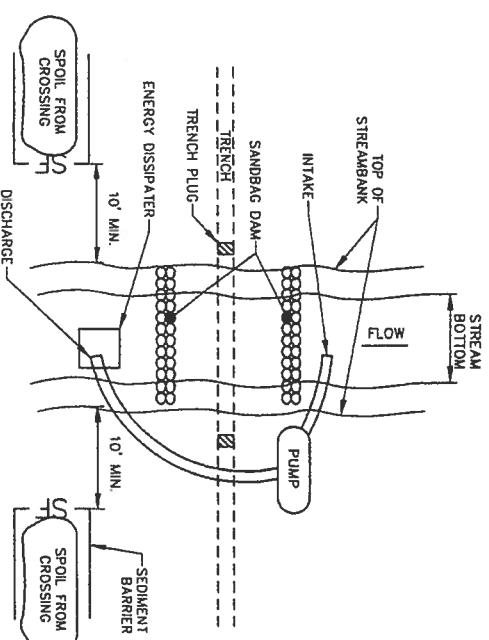
NOT TO SCALE



- NOTES:**
- TWO BAG MINIMUM HEIGHT ABOVE NORMAL BASE FLOW.
  - A TEMPORARY COFFERDAM, AS MANUFACTURED BY AQUA-BARRIER OR SIMILAR, MAY BE USED IN PLACE OF SANDBAG DIVERSION DAM.

### SANDBAG DIVERSION DAM 3

NOT TO SCALE



- NOTES:**
- GRUBBING SHALL NOT TAKE PLACE WITHIN 50 FEET OF THE TOP-OF-BANK UNTIL ALL MATERIALS REQUIRED TO COMPLETE CROSSING ARE ON SITE AND PIPE IS READY FOR INSTALLATION.
  - BYPASS PUMP INTAKE SHALL BE MAINTAINED A SUFFICIENT DISTANCE FROM THE BOTTOM TO PREVENT PUMPING OF CHANNEL BOTTOM MATERIALS.
  - TRENCH PLUGS SHALL BE INSTALLED WITHIN THE TRENCH ON BOTH SIDES OF THE STREAM CHANNEL (SEE TRENCH PLUG DETAIL).
  - WATER ACCUMULATING WITHIN THE WORK AREA SHALL BE PUMPED TO A FILTER HAZARDOUS OR POLLUTANT MATERIAL STORAGE AREAS SHALL BE LOCATED AT LEAST 100 FEET BACK FROM THE TOP OF STREAM BANK.
  - ALL EXCESS EXCAVATED MATERIAL SHALL BE IMMEDIATELY REMOVED FROM THE STREAM CROSSING AREA.
  - APPROPRIATE STREAMBANK PROTECTION SHALL BE PROVIDED WITHIN THE CHANNEL.

### DAM AND PUMP BYPASS STREAM CROSSING 4

NOT TO SCALE

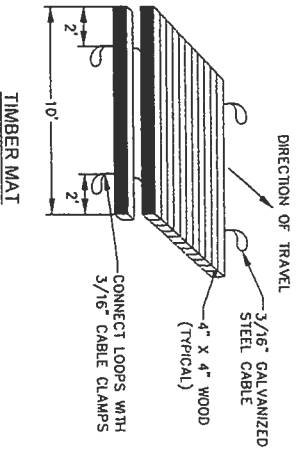
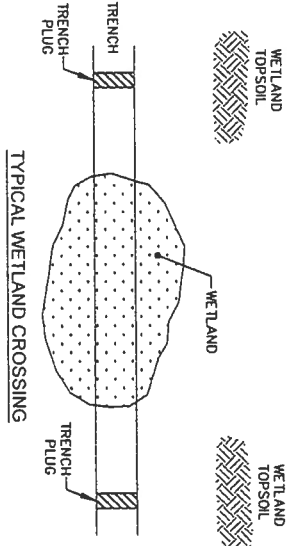
THIS BAR REPRESENTS THE ORIGINAL DRAWING.	USE TO VERIFY REPRODUCTION SCALE
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No.	Date	Revisions

Professional Engineer's Name	Allen Long
Professional Engineer's No.	MD 34862
State	MD
Title Signed	
Project No.	
Drawn by	
Checked by	
Designed by	
Drawn by	
Checked by	
Designed by	

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COLUMBIA GAS TRANSMISSION, LLC, A TRANSCANA COMPANY • HOUSTON, TEXAS	ARCADIS Project No. CPGL00EP 0001 0009A
EASTERN PANHANDLE EXPANSION PROJECT	Date: MARCH 2017
MISCELLANEOUS DETAILS	ARCADIS 6041 Wallace Road Extension Suite 300 Wexford, PA 15090 Tel: 724.742.8180

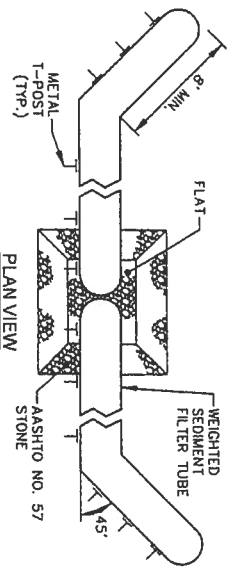
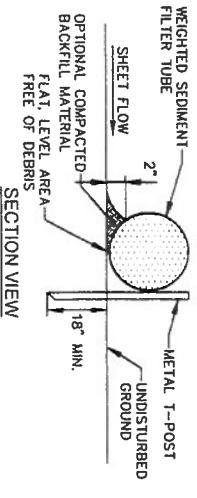
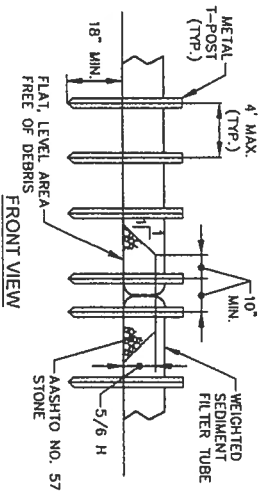
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- NOTES:**
1. STAGING AREAS SHALL BE LOCATED AT LEAST 50 FEET FROM THE EDGE OF THE WETLAND.
  2. SILT FENCE SHALL BE INSTALLED AS SHOWN ON THE PLAN DRAWINGS.
  3. DISTURBANCE FOR WETLAND CROSSINGS WILL BE LIMITED TO THE MINIMUM IMPACT NEEDED FOR PIPELINE INSTALLATION.
  4. THE MOVEMENT OF VEHICLES ACROSS THE WETLAND WILL BE MINIMIZED IF SOFT SOILS ARE ENCOUNTERED IN THE WETLAND AREA. THE USE OF TIMBER PADS/MATS WILL BE USED TO SUPPORT THE MOVEMENT OF EQUIPMENT AND/OR VEHICLES.
  5. EXCAVATED UPPER MOST 1 FOOT OF TOPSOIL (WITH THE VEGETATIVE ROOT MASS) WILL BE CAREFULLY REMOVED AND STOCKPILED SEPARATELY FROM THE SUBSOIL, UNLESS THERE IS STANDING WATER OR THE SOIL IS TOO SATURATED TO SEGREGATE.
  6. TRENCH PLUGS WILL BE INSTALLED WHERE SHOWN TO PREVENT THE PIPELINE TRENCH FROM DRAINING THE WETLANDS OR CHANGING ITS HYDROLOGY.
  7. UPSLOPE RUNOFF WILL BE DIVERTED AROUND THE WORK AREA BY THE USE OF INTERCEPTOR DIVERSIONS, WHERE INDICATED.

**WETLAND CROSSING 1**

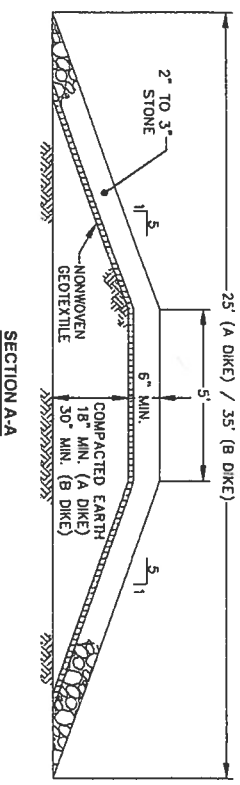
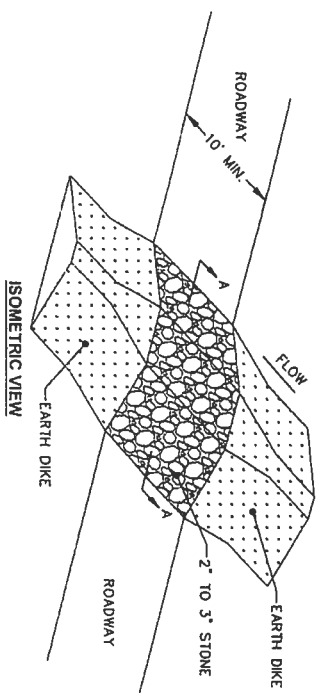
NOT TO SCALE



- NOTES:**
1. A SEDIMENT TUBE PLACEMENT AREA SHALL BE PREPARED SO THAT IT IS FREE OF ALL DEBRIS, INCLUDING ROCKS, STICKS, ROOTS, ETC. A 2" LAYER OF ASHTO #57 STONE SHALL BE PLACED WHERE THE LOGS COME TOGETHER. ENDS OF TUBES MAY BE OVERLAPPED ACCORDING TO MANUFACTURER'S SPECIFICATIONS INSTEAD OF THE ASHTO #57 STONE.
  2. SEDIMENT TUBES SHALL BE PLACED AT EXISTING LEVEL GRADE. ENDS SHALL BE EXTENDED UPSLOPE AT 45 DEGREES TO THE MAIN FILTER LOG ALIGNMENT FOR A MINIMUM OF 8 FEET.
  3. SEDIMENT TUBES SHALL BE INSPECTED WEEKLY AND AFTER EACH RUNOFF EVENT.
  4. SEDIMENT DEPOSITS SHALL BE CLEANED FROM THE LOG WHEN IT REACHES HALF THE HEIGHT OF THE TUBE.
  5. DAMAGED TUBES SHALL BE REPLACED WITHIN 24 HOURS OF INSPECTION. A SUPPLY OF TUBES SHALL BE MAINTAINED ON SITE FOR THIS PURPOSE.

**WEIGHTED SEDIMENT FILTER TUBE 2**

NOT TO SCALE



- NOTES:**
1. USE MINIMUM WIDTH OF 10 FEET TO ALLOW FOR VEHICULAR PASSAGE.
  2. PLACE NONWOVEN GEOTEXTILE OVER THE EARTH MOUND PRIOR TO PLACING STONE.
  3. PLACE 2 TO 3 INCH STONE OR EQUIVALENT RECYCLED CONCRETE AT LEAST 6 INCHES DEEP OVER THE LENGTH AND WIDTH OF THE MOUNTABLE BERM.
  4. MAINTAIN LINE, GRADE, AND CROSS SECTION. ADD STONE OR MAKE OTHER REPAIRS AS CONDITIONS DEMAND TO MAINTAIN SPECIFIED DIMENSIONS. REMOVE ACCUMULATED SEDIMENT AND DEBRIS. MAINTAIN POSITIVE DRAINAGE.

**MOUNTABLE BERM 4**

NOT TO SCALE

NOT TO SCALE

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USE TO VERIFY REPRODUCTION SCALE

NO. REVISIONS

Professional Engineer's Name	ALLEN LONG
Professional Engineer's No.	MD 34852
Date Signed	
Drawn by	AL S
Checked by	ARL
Project No.	
Date	



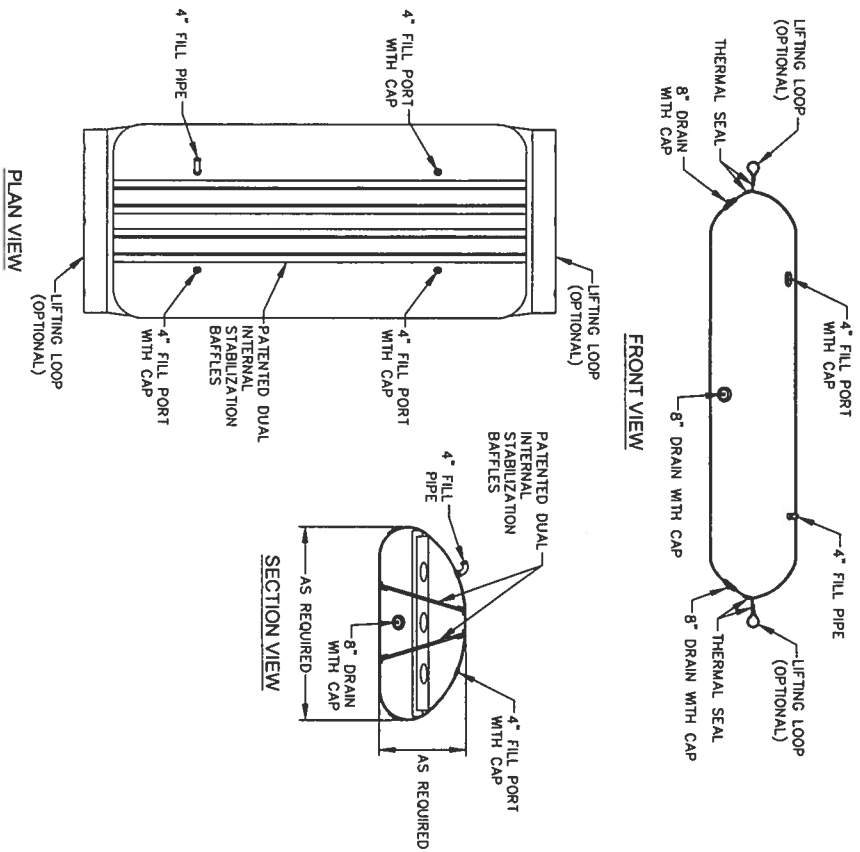
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 EASTERN PANHANDLE EXPANSION PROJECT

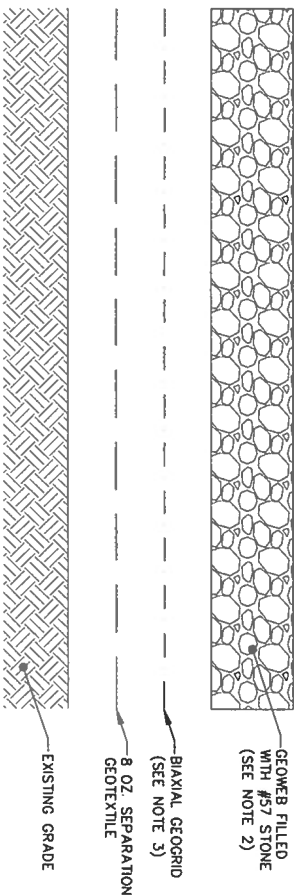
**MISCELLANEOUS DETAILS**

CPGL00EP-X00



**NOTE:**  
1. AQUA-BARRIER SHALL BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION GUIDELINES.

**AQUA-BARRIER® 1**  
NOT TO SCALE

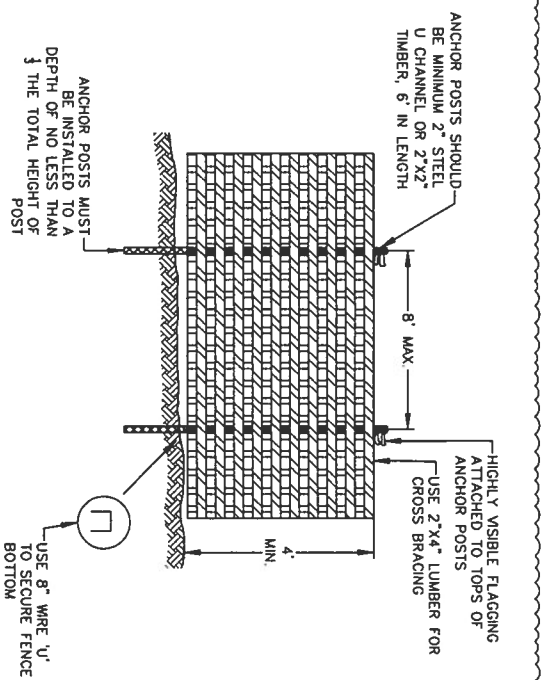


- NOTES:**
1. NEW PERMANENT ACCESS ROADS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THIS DETAIL TO PROVIDE A PERVIOUS SURFACE FOR STORMWATER INFILTRATION AND STABILITY FOR EQUIPMENT TRAVEL.
  2. GEOWEB SHALL BE STRATA 356 (8-INCH PROFILE) OR SIMILAR.
  3. GEORGRID SHALL BE STRATA BASE 12 OR SIMILAR.
  4. EXISTING GRADE SHALL BE INSPECTED AT THE TIME OF CONSTRUCTION TO DETERMINE SUBGRADE PREPARATION REQUIREMENTS.

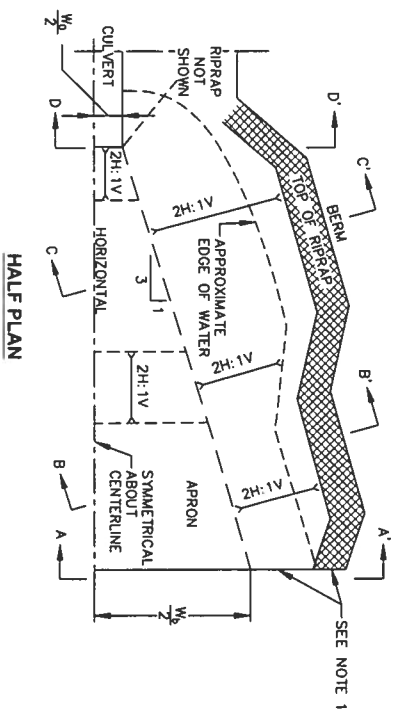
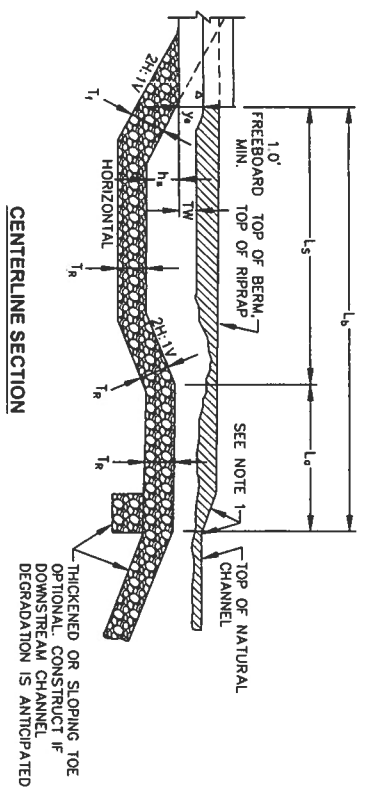
**TYPICAL PERMANENT ACCESS ROAD DETAIL 2**  
NOT TO SCALE

STREAM CROSSING ID	CULVERT SIZE	RIPRAP BASIN											
		D <sub>50</sub> (FT)	D <sub>85</sub> (FT)	TAILWATER DEPTH (FT)	EQUIVALENT BRINK DEPTH (FT)	DISSIPATOR POOL DEPTH (FT)	CULVERT WIDTH (FT)	FORESLOPE THICKNESS (T <sub>1</sub> ) (FT)	RIPRAP THICKNESS (T <sub>2</sub> ) (FT)	BASIN WIDTH (W <sub>B</sub> ) (FT)	BASIN LENGTH (L <sub>B</sub> ) (FT)	POOL LENGTH (L <sub>P</sub> ) (FT)	APRON LENGTH (L <sub>A</sub> ) (FT)
SIE	5'H X 4'W CONCRETE BOX CULVERT	0.30	0.45	5.00	3.00	0.60	4.00	0.89	0.67	18.33	20.00	15.00	5.00
S1	3'H X 6'W CONCRETE BOX CULVERT	0.23	0.34	5.94	2.00	0.47	6.00	0.68	0.51	22.00	24.00	18.00	6.00
S8B	4'H X 3'W CONCRETE BOX CULVERT	0.67	1.00	3.38	3.83	1.34	3.00	2.00	1.50	16.37	20.05	13.37	6.68

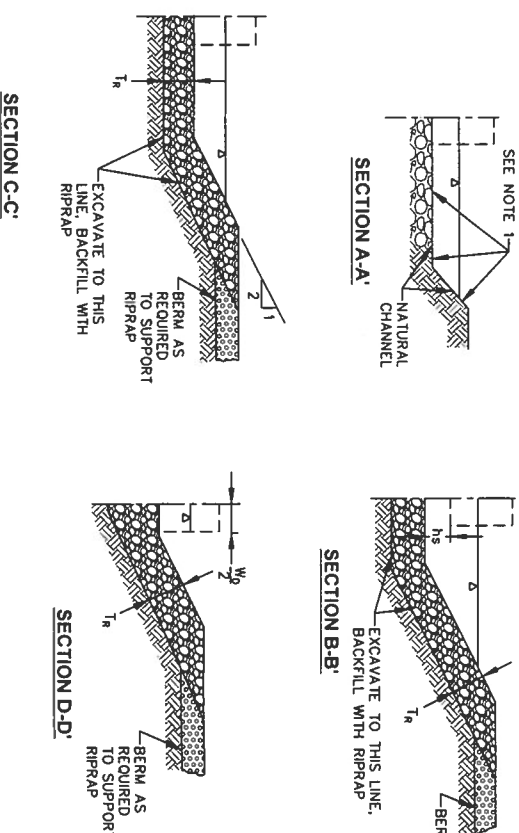
**PLASTIC MESH TREE PROTECTION FENCE 3**  
NOT TO SCALE



- NOTES:**
1. BLAZE ORANGE OR BLUE PLASTIC MESH FENCE FOR TREE PROTECTION FENCE, ONLY.
  2. BOUNDARIES OF RETENTION AREA WILL BE ESTABLISHED AS PART OF THE FOREST CONSERVATION PLAN REVIEW PROCESS.
  3. BOUNDARIES OF RETENTION AREA SHALL BE STAKED AND FLAGGED PRIOR TO INSTALLING TREE PROTECTION FENCE.
  4. AVOID DAMAGES TO CRITICAL ROOT ZONE. DO NOT DAMAGE OR SEVER LARGE ROOTS WHEN INSTALLING POSTS.
  5. TREE PROTECTION SIGNS ARE REQUIRED.
  6. TREE PROTECTION FENCE SHALL BE MAINTAINED THROUGHOUT CONSTRUCTION.



**RIPRAP BASIN ENERGY DISSIPATOR 4**  
NOT TO SCALE



- NOTES:**
1. RIPRAP BASIN TO CONFORM TO NATURAL STREAM CHANNEL. TOP OF RIPRAP IN FLOOR OF BASIN SHOULD BE AT LEAST THE SAME ELEVATION OR LOWER THAN THE NATURAL CHANNEL BOTTOM AT SECTION A-A.

THIS BAR REPRESENTS ONE INCH ON THE ORIGINAL DRAWING

USE TO VERIFY REPRODUCTION SCALE

No.	Date	Revisions	Designed By	Drawn By	Checked By
1	02/01/17	IDE COMMENT RESPONSE	ALS	ARL	ALS
2	07/11/17	IDE COMMENT RESPONSE	ALS	ARL	ALS
3	07/11/17	FOREST CONSERVATION ACT REQUIREMENT	ALS	ARL	ALS
4	07/11/17	IDE COMMENT RESPONSE	ALS	ARL	ALS

Professional Engineer's Name: **ALLEN LONG**  
Professional Engineer's No: MD 34892



COLUMBIA GAS TRANSMISSION, LLC A TRANSCANADA COMPANY • HOUSTON, TEXAS  
EASTERN PANHANDLE EXPANSION PROJECT

ARCADIS Project No: CPGL00EP-0001-10008A  
Date: MARCH 2017  
ARCADIS  
6041 Wallace Road Extension  
Wardford, PA 15090  
Tel: 724.742.8180



