Mr. Raymond Stackhouse
Caln Township
Department of Building and Life Safety
253 Municipal Drive
Thorndale, PA 19372

Arcadis U.S., Inc.
6041 Wallace Road Extension
Suite 300
Wexford
Pennsylvania 15090
Tel 724 742 9180
Fax 724 742 9189
www.arcadis.com

ENVIRONMENT

Subject:
Columbia Lines 1278, 1278 Loop, 1896 Cathodic Protection Project
325 Rock Raymond Road
Caln Township Zoning Hearing Board Special Exemption Request

Date:
May 7, 2020

Contact:
Jeremy Trexel

Phone:
412.522.6292

Email:
Jeremy.trexel@arcadis.com

Our ref:
30006221

Dear Mr. Stackhouse:

On behalf of Columbia Gas Transmission (Columbia), Arcadis U.S., Inc. (Arcadis) is submitting a Zoning Hearing Board Special Exemption application. As you are aware, Caln Township's code (§155-25.D(2)) restricts earth disturbance within 50 feet of delineated wetlands which have not been subject to a jurisdictional review by the U.S. Army Corps of Engineers. This is being submitted because Columbia's proposed project entails temporary impacts to wetlands delineated by Arcadis that exist within the necessary workspace (i.e. limits-of-disturbance) for the project which cannot be reduced further or avoided. A Chapter 105/Section 404 joint permit application (JPA) for these impacts has been submitted to the Pennsylvania Department of Environmental Protection Southeast Regional Office to obtain Chapter 105 and Section 404 permits for this project. This application covers resource impacts within and outside of Caln Township and is currently under review. The proposed impacts within Caln Township are to 4,428 square feet of one wetland (W3). This wetland is a palustrine emergent wetland, which will be restored to pre-existing conditions following construction.

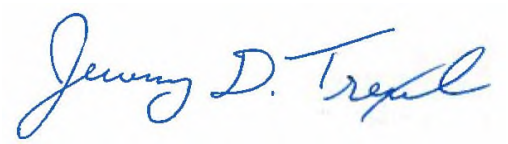
In support of this exemption request, the following materials are attached:

1) A complete Caln Township Zoning Hearing Board Application
2) The Project Description section from the JPA
3) The Alternatives Analysis from the JPA
4) Photographs of wetland W3 from the JPA
5) The erosion and sediment control plan drawings for the Williams Station work area (5 copies)

Please note that a check in the amount of $3,000 associated with this Exemption Request application is being sent under separate cover to the attention of Ms. Shonna Fickes at Caln Township.

Sincerely,

Arcadis U.S., Inc.



Jeremy D. Trexel
Principal Environmental Scientist/Project Manager

Copies:
Mr. Bill Timmermeyer, Columbia (electronic)
Mr. Bryan Kulakowsky, Arro Consulting, Inc. (electronic)

Attachment 1 – Caln Township Zoning Hearing Board Application

253 Municipal Dr, Thorndale, PA 19372
Phone: 610-384-0600 | Fax: 610-384-0617
www.calntownship.org

ZONING HEARING BOARD APPLICATION

NAME OF APPLICANT: Columbia Gas Transmission, LLC

DATE OF APPLICATION: May 6, 2020 APPLICATION # unknown

LOCATION OF PROPERTY: Columbia's existing natural gas pipeline right-of-way

TAX PARCEL ID NUMBER: 3902 00500000 ZONING DISTRICT: N/A - pipeline right-of-way

TYPE OF APPLICATION:

	ZONING VARIANCE APPLICATION
X	SPECIAL EXCEPTION
	ZONING OFFICER APPEAL
	OTHER

APPLICANT'S NAME: Columbia Gas Transmission, LLC (POC: Bill Timmermeyer)
MAILING ADDRESS: 1700 MacCorkle Avenue SE, PO Box 1273, Charleston, WV 25314
PHONE NUMBER: 304-549-5187 FAX NUMBER: N/A
E-MAIL ADDRESS: william_timmermeyer@tcenergy.com

OWNER OF RECORD: Columbia owns the permanent lease for their right-of-way
MAILING ADDRESS:
PHONE NUMBER: FAX NUMBER:
E-MAIL ADDRESS:

PROJECT ATTORNEY: If required, Columbia's corporate legal team will participate.
MAILING ADDRESS:
PHONE NUMBER: FAX NUMBER:
E-MAIL ADDRESS: jeremy.trexel@arcadis.com

PROJECT ENGINEER Arcadis U.S. Inc. (POC: Jeremy Trexel)
MAILING ADDRESS: 6041 Wallace Rd Extension, Ste 300, Wexford, PA 15090
PHONE NUMBER: 412,522.6292 FAX NUMBER: N/A
E-MAIL ADDRESS: jeremy.trexel@arcadis.com

253 Municipal Dr, PO Box 72149, Thorndale, PA 19372
Phone: 610-384-0600 | Fax: 610-384-0617
www.calntownship.org

CALN TOWNSHIP
THE HEART OF CHESTER COUNTY
INC. 1868

BASIS FOR ZONING VARIANCE AND/OR SPECIAL EXCEPTION APPLICATION	
SECTION(s) OF ZONING ORDINANCE INVOLVED	PROVIDE A BRIEF DESCRIPTION OF ACTION REQUESTED
155.35.D	Exemption from the Wetlands and Hydric Soil Overlay District restriction on earth disturbance
	within wetlands and designated buffers. See attached information.

THE APPLICANT SHALL SUBMIT THE FOLLOWING DOCUMENTATION WITH THIS APPLICATION:

(1) ONE (1) ORIGINAL APPLICATION.
(2) FIVE (5) COPIES OF A PLOT PLAN OR TAX MAP, ACCURATELY DRAWN TO SCALE.
(3) FIVE (5) COPIES OF A SKETCH PLAN ILLUSTRATING THE ACTION REQUESTED.
(4) A CD OF ALL FILES SUBMITTED WITH APPLICATION WHEN DEEMED NECESSARY.
(5) PDF FILE OF PLAN REQUIRED WHEN DEEMED NECESSARY.
(6) PHOTOGRAPHS OF THE PROPERTY.
(7) PROOF OF OWNERSHIP OR THE RIGHT TO UTILIZE THE PROPERTY FOR THE ACTION REQUESTED.
(8) THE REQUIRED APPLICATION FEE AS PRESCRIBED BY CALN TOWNSHIP.
(9) TOWNSHIP WILL PROVIDE LIST OF NAMES AND ADDRESSES OF ALL PROPERTY OWNERS.
(10) A DETAILED WRITTEN DESCRIPTION OF THE ACTION REQUESTED WITH THIS APPLICATION.
(11) APPLICATION TO BE SUBMITTED WITHIN THE FIRST WEEK (PREFERABLY MONDAY OR TUESDAY OF THE MONTH PRECEDING THE DATE OF THE HEARING.

253 Municipal Dr, PO Box 72149, Thorndale, PA 19372
Phone: 610-384-0600 | Fax: 610-384-0617
www.calntownship.org

(1) I HEREBY PERMIT ANY ELECTED, APPOINTED AND/OR ASSIGNED STAFF MEMBER OF CALN TOWNSHIP TO ENTER THE EXTERIOR PREMISES OF THE PROPERTY, IN WHICH THIS APPLICATION PERTAINS, FOR THE PURPOSES OF CONDUCTING SITE INSPECTIONS WHILE THE PROPOSED APPLICATION IS BEING CONSIDERED BY CALN TOWNSHIP.

(2) I HEREBY AGREE TO PAY ALL CONSULTANT, ADMINISTRATIVE AND/OR APPLICATION FEES REQUIRED FOR THE REVIEW OF THIS APPLICATION.

(3) I HEREBY UNDERSTAND THAT THE ZONING HEARING BOARD IS NOT OBLIGATED TO APPROVE THIS APPLICATION.

William Trimberger _____ May 6, 2020

SIGNATURE OF APPLICANT OR AUTHORIZED REPRESENTATIVE

DATE OF APPLICATION

FOR MUNICIPAL USE ONLY **AUTHORIZED STAFF MEMBER:** _____

APPLICATION NAME: _____ APPLICATION # _____

SUBMISSION DATE: _____ SUBMISSION NUMBER: _____

CALN TWP. FEE: _____ CHECK NUMBER: _____ DATE: _____

DATE APPLICATION WILL BE CONSIDERED BY THE TOWNSHIP ZONING HEARING BOARD: _____

APPLICATION COMPLETENESS REVIEW: _____ DATE: _____

Attachment 2 – JPA Project Description

PROJECT DESCRIPTION

Columbia's Lines 1278, 1278 Loop, and 1896 Cathodic Protection 2020 Project in Chester County involves improvements to the cathodic protection system protecting these existing natural gas pipelines. Historically low potential readings between the Downingtown and Eagle compressor stations requires mitigation of the cathodic protection systems including the installation of linear anodes, rectifiers, solid state decouplers, and test stations. These modifications are required at two areas along the existing pipeline right-of-way (ROW). The Project area crosses through three townships within Chester County including: Caln, East Brandywine, and Uwchlan. Please refer to the USGS Topographic Overview Map in Attachment I for the Project location. All proposed disturbance related to construction activities will be limited to the existing pipeline ROW. The total proposed construction limits-of-disturbance (LOD) is 2.84 acres. No tree clearing or side trimming is proposed as part of the Project.

Wetland delineations of the proposed Project areas occurred on June 12-13, July 30-31, and August 1-2, 2018 and July 22, 2019. Columbia has attempted to minimize impacts to aquatic resources in the design of the LOD for this Project; however, due to the nature of this Project all aquatic resource impacts could not be avoided. Columbia will use timber mats for wetland crossings and timber mat bridges for stream crossings for construction vehicle travel. At open-cut stream crossings, a dam-and-pump approach will be employed to minimize disturbance to the streams. In wetland crossing areas, topsoil will be segregated and replaced carefully to ensure rapid recovery of the wetland. Construction activities within the existing pipeline ROW will result in temporary impacts to 10 streams and 4 palustrine emergent (PEM) wetlands. Since all impacts to wetlands are temporary in nature no wetland mitigation is required. Total permanent impacts related to construction activities include less than 0.01 acres of impacts to streams, 0.01 acres of impacts to stream floodways, and 0.02 acres of impacts to wetlands. Total temporary impacts related to construction activities include 0.05 acres of impacts to streams, 0.43 acres of impacts to stream floodways, and 0.59 acres of impacts to wetlands. Although impacts have been counted as “permanent” in this application for PADEP permit purposes due to O&M activities within the permanent pipeline ROW, all impacts will be temporary in nature and will be restored to pre-existing conditions and contours following the completion of construction. Please refer to the aquatic resource impact table (Attachment B) and the Erosion and Sediment Control Plans (Attachment M) for a complete list of proposed impacts. Columbia is proposing to begin construction in the spring of 2020.

The Project was initially reviewed as part of the 2019 Project under Pennsylvania Natural Diversity Inventory (PNDI) requiring coordination with the PA Department of Conservation Natural Resources (DCNR), Pennsylvania Fish and Boat Commission, and the United States Fish and Wildlife Service (USFWS). In a letter dated June 18, 2019 the PFBC determined that no impacts are likely and states that no further coordination with the PFBC is required at this time for the Project. In an email on June 6, 2019 the DCNR requested a presence / absence survey of six locally listed species within the Project work areas, specifically Brandywine Creek, Williams Station, and Creek Road – Deep Well (which is no longer included as part of the 2020 Project). A presence / absence survey was conducted on July 11, 2019 of the three identified Project work areas. A small population of Tall tick-trefoil (*Desmodium glabellum*) was identified within the Brandywine Creek work area. To avoid impacting this species the botanist met with the construction manager on site to discuss avoidance measures and reducing the limits-of-disturbance (LOD) in this area. It was determined that the LOD would be reduced to avoid impacts and orange construction fencing would be installed around the population to further identify the area of avoidance and to prevent any disturbance to the Tall tick-trefoil population.

Since the initial PNDI submission, Columbia has reduced the Project from the initially planned eight separate work areas down to two separate work areas (Brandywine Creek and Williams Station), which was updated in the PNDI system on February 6, 2020. A letter addressed to PFBC and DCNR with attachments including the findings from the presence / absence survey were submitted via the online PNDI web tool on January 29, 2020. The Project is under concurrence review and is still waiting on a response from PFBC and DCNR.

The PNDI receipt included a "potential impact" result with "more information required" from the U.S. Fish and Wildlife Service (USFWS). Since the Project falls within a known bog turtle county, it is assumed that the USFWS potential impact is associated with bog turtles (*Glyptemys muhlenbergii*) and a Phase I habitat survey should be completed. Columbia's consultation process for bog turtles is guided by the Columbia (NiSource) Multi-Species Habitat Conservation Plan (MSHCP), which supersedes the PNDI result in this situation. This comprehensive plan was developed and approved jointly by Columbia and the USFWS, and involved input from the National Park Service, the U.S. Forest Service, and the Federal Energy Regulatory Commission. For many federally-listed species, including bog turtles, the MSHCP allows Columbia to self-consult to satisfy Sections 7 and 10 of the Endangered Species Act following specific parameters contained in the MSHCP for most Columbia projects (including the current project) within or near Columbia's existing facilities across several states, including Pennsylvania. The MSHCP allows Columbia to self-consult for this project as long the processes and measures detailed in the MSHCP are followed to reduce or eliminate impacts to federally listed species. The MSHCP development process also resulted in issuance of an Incidental Take Permit for 11 species, including bog turtles. A joint USFWS-Columbia letter describing the MSHCP is attached. Because the MSHCP allows Columbia to self-consult, no project-specific coordination or project review by USFWS is required.

The MSHCP supplies Columbia with a range of options that may include field surveys (Phase 1 and/or Phase 2), assumptions of presence, defined avoidance and minimization measures (AMMs), and potential mitigation for bog turtle impacts. Among the options, Columbia is not *required* to perform a pre-construction Phase 1 or 2 field survey and may elect to assume bog turtle presence. However, it is often advantageous to Columbia to perform the Phase 1, and possibly the Phase 2 survey in an effort to reduce or eliminate the required list of AMMs or to eliminate mitigation costs. These decisions by Columbia may depend on proximity of wetlands to the construction workspace, the allowable survey seasons, the planned season of construction and other factors which influence the list of AMMs that must be followed.

For this project, Columbia hired Environmental Consultation Services, Inc (ESCi) to conduct a Phase 1 survey on September 6, 2018 and a subsequent Phase II during the survey season of 2019. No bog turtles were identified during the survey, therefore no AMMs will be required. Columbia will fully comply with the parameters of the MSHCP and therefore will achieve compliance with the Endangered Species Act.

Attachment 3 – JPA
Alternatives Analysis

ALTERNATIVE ANALYSIS

The No Action alternative to the proposed Project was deemed not viable due to the need to install the cathodic protection system. Although not performing this Project would eliminate the aquatic resource impacts associated with this Project, without the cathodic protection system in place the existing pipeline would continue to deteriorate and would require repairs in the future. Leaving the pipeline in its current state would expose the pipe to corrosion and leaks, which would be ongoing and, in many instances, would have associated aquatic resource impacts. Replacement of the pipeline itself would create the need for a larger workspace than is currently proposed and would ultimately create more aquatic resource impacts.

No practicable alternative exists which would avoid or reduce impacts to aquatic resources and still allow for the installation of the cathodic protection system. This is due largely to the fact that the existing pipeline ROW contains or crosses some aquatic resources and construction must occur in these areas. It should be noted that most of the existing Line 1278, 1278 Loop, and 1896 pipeline ROWs associated with this Project lies in largely upland areas where the number and size of aquatic resources are minimal. Alternative re-routes of the cathodic protection system outside of the existing pipeline ROW are not possible as the cathodic protection system must run parallel to the existing pipeline to adequately protect the pipe and run at maximum potential so re-routing this system would be impractical for a cathodic protection system.

Columbia's Project team participated in email discussions where individual aquatic resource impacts along the cathodic protection system were examined and discussed. In all cases, the LOD was limited as much as is feasible to still be able to construct the Project safely. In some cases, this led to avoidance of an aquatic resource close to the LOD edge, in other instances complete avoidance was not feasible, but the amount of impact was reduced.

Attachment 4 – JPA Wetland W3 photographs

Project Photographs

Columbia Gas Transmission, LLC
Lines 1278, 1278 Loop, and 1896 Cathodic Protection Project
Chester County, Pennsylvania

Photo: 47

Date:
June 13, 2018

Description:
View of data point SP-W3.

Perspective:
North.

Photo: 48

Date:
June 13, 2018

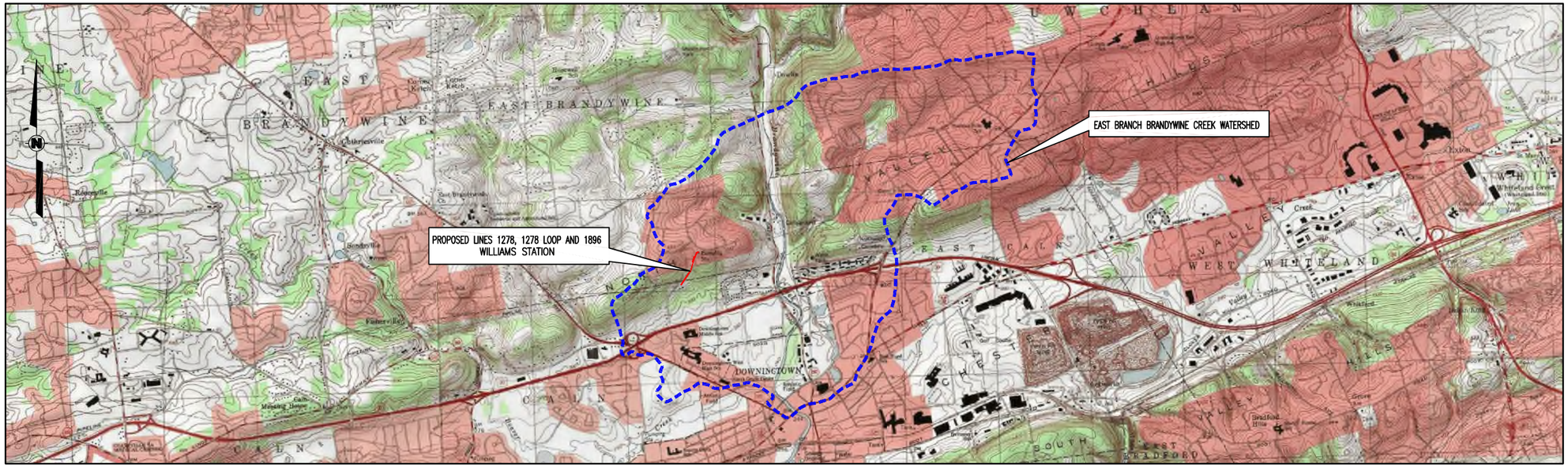
Description:
View of data point SP-W3-UPL.

Perspective:
North.

Attachment 5 – Erosion and Sediment Control Plan Drawings

Columbia Gas Transmission

1700 MACCORKLE AVE., SE
CHARLESTON, WEST VIRGINIA 25314



NOTE:
THE GRID SYSTEM SHOWN IS BASED ON THE PENNSYLVANIA STATE PLANE COORDINATE SYSTEM NAD 27 SOUTH FEET.

SCALE
2000 0 2000 4000 FEET

REFERENCE:
7.5 MIN. USGS TOPOGRAPHIC MAPS OF DOWNINGTOWN AND WAGONTOWN QUADRANGLES, PENNSYLVANIA.

INDEX OF DRAWINGS

DRAWING NO.	TITLE
B19-099-T3	TITLE SHEET
B19-099-D19	PLAN VIEW (SHEET 1 OF 7)
B19-099-D20	PLAN VIEW (SHEET 2 OF 7)
B19-099-D21	PLAN VIEW (SHEET 3 OF 7)
B19-099-D22	PLAN VIEW (SHEET 4 OF 7)
B19-099-D23	PLAN VIEW (SHEET 5 OF 7)
B19-099-D24	PLAN VIEW (SHEET 6 OF 7)
B19-099-D25	PLAN VIEW (SHEET 7 OF 7)
B19-099-D26	SECTIONS A-A, B-B AND C-C
B19-099-D27	AQUATIC RESOURCE TABLE
B19-099-D28	DETAILS (SHEET 1 OF 2)
B19-099-D29	DETAILS (SHEET 2 OF 2)
B19-099-D30	E&S CONTROL NOTES (SHEET 1 OF 3)
B19-099-D31	E&S CONTROL NOTES (SHEET 2 OF 3)
B19-099-D32	E&S CONTROL NOTES (SHEET 2 OF 3)

EROSION CONTROL DEVICES

TYPE	LENGTH (FEET)	WIDTH (FEET)	NO.
12" COMPOST FILTER SOCK	285	N/A	N/A
18" COMPOST FILTER SOCK	250	N/A	N/A
24" COMPOST FILTER SOCK	1,525	N/A	N/A
TEMPORARY ROAD ENTRANCE	SEE DETAILS		1
WOOD MAT (10' X 10')	SEE DETAIL		100
GEOTEXTILE FABRIC	13,125 SQ. FT.		N/A
EROSION CONTROL BLANKET	22,500 SQ. FT.		N/A

PROPOSED LINES 1278, 1278 LOOP AND 1896 PROJECT
WILLIAMS STATION
CALN AND EAST BRANDYWINE TOWNSHIPS
CHESTER COUNTY, PA

Prepared For

COLUMBIA GAS TRANSMISSION, LLC
1700 MACCORKLE AVE., SE
CHARLESTON, WEST VIRGINIA 25314

"I, THE UNDERSIGNED, ACKNOWLEDGE THAT ANY REVISION TO THE APPROVED SWM SITE PLAN SHALL BE SUBMITTED TO AND APPROVED BY THE TOWNSHIP, AND THAT A REVISED EROSION AND SEDIMENT CONTROL PLAN SHALL BE SUBMITTED TO, AND APPROVED BY, THE CONSERVATION DISTRICT OR TOWNSHIP (AS APPLICABLE) FOR DETERMINATION OF ADEQUACY PRIOR TO CONSTRUCTION OF THE REVISED FEATURES."

APPLICANT SIGNATURE — 05/06/20 DATE

REV.	DATE	DESCRIPTION	P.M.
2	04/29/20	GENERAL REVISIONS PER CALN TOWNSHIP	BCS
1	02/18/20	GENERAL REVISIONS PER C.C.C.D	BCS

Alliance Consulting, Inc.
Engineers • Constructors • Scientists
BECKLEY, WV (304) 255-0491 · CANONSBURG, PA (724) 745-3630 · CHARLESTON, WV (681) 217-2090

TITLE SHEET
EROSION AND SEDIMENT CONTROL PLAN
PROPOSED LINES 1278, 1278 LOOP AND 1896 PROJECT–2020
WILLIAMS STATION
CHESTER COUNTY, PA
Prepared For
COLUMBIA GAS TRANSMISSION, LLC
1700 MACCORKLE AVE., SE, CHARLESTON, WEST VIRGINIA 25314

CAD BY	JSC	03/15/19	PROJECT NO. B19-099-2207	
CHECKED BY			DRAWING NO. B19-099-T3	
APPROVED BY				

Columbia Gas Transmission

COMMONWEALTH OF PENNSYLVANIA – REGISTERED PROFESSIONAL CLAUDIO E. YON ENGINEER No. PE-038394-R

"I, THE UNDERSIGNED, HEREBY CERTIFY THAT, TO THE BEST OF MY KNOWLEDGE AND BELIEF, THIS MAP IS ACCURATE AND SHOWS ALL THE INFORMATION REQUIRED. FURTHERMORE, FOR ALL PROJECT AREAS LOCATED WITHIN CALN TOWNSHIP, I HEREBY CERTIFY TO THE BEST OF MY KNOWLEDGE THAT THE SWM SITE PLAN MEETS ALL DESIGN STANDARDS AND CRITERIA OF THE CALN TOWNSHIP STORMWATER MANAGEMENT ORDINANCE, ADOPTED ON DECEMBER 19, 2013."

REGISTERED PROFESSIONAL ENGINEER — DATE 5/06/20

LEGEND

- WORKSPACE WITHIN EXISTING PERMANENT ROW — 0.96 AC.
- STAGING AREA — 0.10 AC.
- TOTAL PROJECT ACREAGE (LOD) — 1.06 AC.
- LINE 1278
- LINE 1896
- APPROXIMATE PERMANENT RIGHT OF WAY
- PROPOSED LINEAR ANODE
- JB JUNCTION BOX — AB ANODE BOX
- HB HOFFMAN BOX — RECTIFIER
- SSD SAFETY SHUTOFF DEVICE
- TEMPORARY ROAD ENTRANCE (SEE DETAIL, FIGURE NO. 3-1-ABACT)
- 12" COMPOST FILTER SOCK (SEE DETAIL, FIGURE NOS. 4-1 AND 4.2)
- 18" COMPOST FILTER SOCK (SEE DETAIL, FIGURE NOS. 4-1 AND 4.2)
- 24" COMPOST FILTER SOCK (SEE DETAIL, FIGURE NOS. 4-1 AND 4.2)
- EROSION CONTROL BLANKET (SEE DETAIL, FIGURE NO. 11-1)
- WOOD MAT (SEE DETAIL, FIGURE NO. 3.7)
- IMPERVIOUS TRENCH PLUG (SEE DETAIL, FIGURE NO. 13-4)
- TYPICAL UTILITY LINE FLUMED STREAM CROSSING WITH OPTIONAL ACCESS ROAD (SEE DETAIL, FIGURE NO. 13-1)
- TYPICAL UTILITY LINE STREAM CROSSING WITH PUMP BYPASS (SEE DETAIL, FIGURE NO. 13-2)
- PUMPED WATER FILTER BAG (SEE DETAIL, FIGURE NO. 3-16)
- EdD SOIL TYPE
- SOIL TYPE BOUNDARY
- DELINEATED STREAM
- DELINEATED WETLAND
- PADEP REGULATED FLOODWAY

PRE-CONSTRUCTION PERVIOUS/IMPERVIOUS AREAS			
LIMITS OF DISTURBANCE	PERVIOUS (AC.)	IMPERVIOUS (AC.)	TOTAL
PRE-CONSTRUCTION	1.03	0.03	1.06
POST-CONSTRUCTION	1.03	0.03	1.06

NOTES:

1. SITE TO BE RESTORED TO ORIGINAL CONDITIONS AFTER CONSTRUCTION.
2. PROJECT LOD IS LOCATED ENTIRELY WITHIN THE EAST BRANCH BRANDYWINE CREEK WATERSHED. NO CHANGES TO CURRENT DRAINAGE PATTERNS ARE ANTICIPATED, AS THIS PROJECT IS A LINEAR ANODE REPLACEMENT PROJECT THAT WILL BE RESTORED TO ORIGINAL CONDITIONS.
3. LOCATIONS AND WIDTHS OF TEMPORARY BRIDGE STREAM CROSSINGS AS SHOWN ON THE PLANS ARE APPROXIMATE AND MAY BE ADJUSTED BASED ON CONDITIONS ENCOUNTERED IN THE FIELD.
4. PROPOSED METHODS FOR ANODE LINE STREAM CROSSINGS MAY BE ADJUSTED BASED ON CONDITIONS ENCOUNTERED IN THE FIELD IN ACCORDANCE WITH COLUMBIA'S ENVIRONMENTAL CONSTRUCTION STANDARDS AND THE PADEP EROSION AND SEDIMENT POLLUTION CONTROL MANUAL.
5. CATHODIC PROTECTION INFORMATION PROVIDED BY TRANSCANADA/ MATCOR.
6. CURRENT LANDUSE CLASSIFICATIONS WITHIN THE PROJECT LOD INCLUDE "SHRUB/SCRUB", "MIXED FOREST", "DEVELOPED OPEN SPACE", AND "DECIDUOUS FOREST". AND WERE OBTAINED FROM NATIONAL LAND COVER DATA PROVIDED BY PASDA.
7. FOR CROSS SECTIONS A-A, B-B AND C-C, SEE DRAWING NO. B19-099-D26.

REFERENCES:

1. IMAGERY PROVIDED BY GOOGLE EARTH PRO ONLINE MAPPING.
2. 2-FOOT TOPOGRAPHY CREATED FROM DATA OBTAINED FROM THE PENNSYLVANIA SPATIAL DATA ACCESS (PASDA) FTP.

SCALE: 10 0 10 20 FEET

REV.	DATE	DESCRIPTION	P.M.
2	04/29/20	GENERAL REVISIONS PER CALN TOWNSHIP	BCS
1	02/18/20	GENERAL REVISIONS PER C.C.C.D	BCS

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PLAN VIEW

EROSION AND SEDIMENT CONTROL PLAN
PROPOSED LINES 1278, 1278 LOOP AND 1896 PROJECT-2020
WILLIAMS STATION
CHESTER COUNTY, PA
Prepared For
COLUMBIA GAS TRANSMISSION, LLC
1700 MACCORKLE AVE., SE, CHARLESTON, WEST VIRGINIA 25314

CAD BY	JSC	03/15/19	PROJECT NO. B19-099-2207	SHEET 1 OF 7
CHECKED BY			DRAWING NO. B19-099-D19	
APPROVED BY				

LEGEND

WORKSPACE WITHIN EXISTING PERMANENT ROW	0.96 AC.
STAGING AREA	0.10 AC.
TOTAL PROJECT ACREAGE (LOD)	1.06 AC.

- LINE 1278
- LINE 1896
- APPROXIMATE PERMANENT RIGHT OF WAY
- PROPOSED LINEAR ANODE
- JUNCTION BOX (JB) / ANODE BOX (AB)
- HOFFMAN BOX (HB) / RECTIFIER
- SAFETY SHUTOFF DEVICE (SSD)
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- SOIL TYPE BOUNDARY
- DELINEATED STREAM
- DELINEATED WETLAND
- PADEP REGULATED FLOODWAY

PRE-CONSTRUCTION PERVIOUS/IMPERVIOUS AREAS

LIMITS OF DISTURBANCE	PERVIOUS (AC.)	IMPERVIOUS (AC.)	TOTAL
PRE-CONSTRUCTION	1.03	0.03	1.06
POST-CONSTRUCTION	1.03	0.03	1.06

NOTES:

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SCALE

10 0 10 20 FEET

REV.	DATE	DESCRIPTION	P.M.
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1	02/18/20	GENERAL REVISIONS PER C.C.C.D	BCS

Columbia Gas Transmission

COMMONWEALTH OF PENNSYLVANIA — REGISTERED PROFESSIONAL — CLAUDIO E. YON — ENGINEER — No. PE-080844-E

"I, THE UNDERSIGNED, HEREBY CERTIFY THAT, TO THE BEST OF MY KNOWLEDGE AND BELIEF, THIS MAP IS ACCURATE AND SHOWS ALL THE INFORMATION REQUIRED. FURTHERMORE, FOR ALL PROJECT AREAS LOCATED WITHIN CALN TOWNSHIP, I HEREBY CERTIFY TO THE BEST OF MY KNOWLEDGE THAT THE SWM SITE PLAN MEETS ALL DESIGN STANDARDS AND CRITERIA OF THE CALN TOWNSHIP STORMWATER MANAGEMENT ORDINANCE, ADOPTED ON DECEMBER 19, 2013."

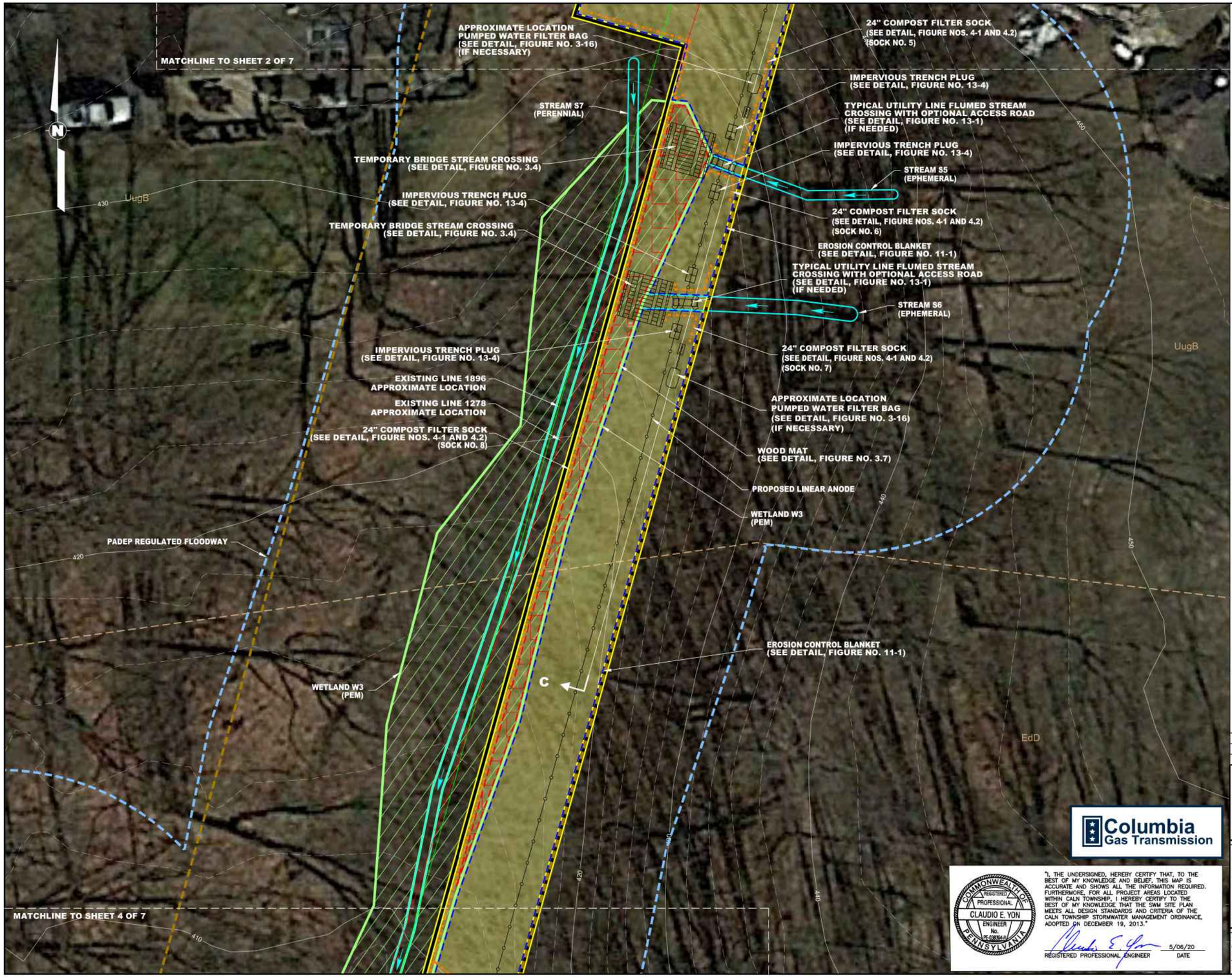
REGISTERED PROFESSIONAL ENGINEER — 5/06/20 DATE

Alliance Consulting, Inc.
Engineers · Constructors · Scientists
BECKLEY, WV (304) 255-0491 — CANONSBURG, PA (724) 745-3630 — CHARLESTON, WV (681) 217-2090

PLAN VIEW

EROSION AND SEDIMENT CONTROL PLAN
PROPOSED LINES 1278, 1278 LOOP AND 1896 PROJECT-2020
WILLIAMS STATION
CHESTER COUNTY, PA
Prepared For
COLUMBIA GAS TRANSMISSION, LLC
1700 MACCORKLE AVE., SE, CHARLESTON, WEST VIRGINIA 25314

CAD BY	JSC	03/15/19	PROJECT NO. B19-099-2207	SHEET 2 OF 7
CHECKED BY				
APPROVED BY				DRAWING NO. B19-099-D20



LEGEND

WORKSPACE WITHIN EXISTING PERMANENT ROW	0.96 AC.
STAGING AREA	0.10 AC.
TOTAL PROJECT ACREAGE (LOD)	1.06 AC.

- LINE 1278
- LINE 1896
- APPROXIMATE PERMANENT RIGHT OF WAY
- PROPOSED LINEAR ANODE
- JB — JUNCTION BOX; AB — ANODE BOX
- HB — HOFFMAN BOX; RECTIFIER
- SSD — SAFETY SHUTOFF DEVICE
- TEMPORARY ROAD ENTRANCE (SEE DETAIL, FIGURE NO. 3-1-ABACT)
- 12" COMPOST FILTER SOCK (SEE DETAIL, FIGURE NOS. 4-1 AND 4.2)
- 18" COMPOST FILTER SOCK (SEE DETAIL, FIGURE NOS. 4-1 AND 4.2)
- 24" COMPOST FILTER SOCK (SEE DETAIL, FIGURE NOS. 4-1 AND 4.2)
- EROSION CONTROL BLANKET (SEE DETAIL, FIGURE NO. 11-1)
- WOOD MAT (SEE DETAIL, FIGURE NO. 3.7)
- IMPERVIOUS TRENCH PLUG (SEE DETAIL, FIGURE NO. 13-4)
- TYPICAL UTILITY LINE FLUMED STREAM CROSSING WITH OPTIONAL ACCESS ROAD (SEE DETAIL, FIGURE NO. 13-1)
- TYPICAL UTILITY LINE STREAM CROSSING WITH PUMP BYPASS (SEE DETAIL, FIGURE NO. 13-2)
- PUMP — PUMPED WATER FILTER BAG (SEE DETAIL, FIGURE NO. 3-16)
- EdD — SOIL TYPE
- SOIL TYPE BOUNDARY
- DELINEATED STREAM
- DELINEATED WETLAND
- PADEP REGULATED FLOODWAY

PRE-CONSTRUCTION PERVIOUS/IMPERVIOUS AREAS			
LIMITS OF DISTURBANCE	PERVIOUS (AC.)	IMPERVIOUS (AC.)	TOTAL
PRE-CONSTRUCTION	1.03	0.03	1.06
POST-CONSTRUCTION	1.03	0.03	1.06

NOTES:

1. SITE TO BE RESTORED TO ORIGINAL CONDITIONS AFTER CONSTRUCTION.
2. PROJECT LOD IS LOCATED ENTIRELY WITHIN THE EAST BRANCH BRANDYWINE CREEK WATERSHED. NO CHANGES TO CURRENT DRAINAGE PATTERNS ARE ANTICIPATED, AS THIS PROJECT IS A LINEAR ANODE REPLACEMENT PROJECT THAT WILL BE RESTORED TO ORIGINAL CONDITIONS.
3. LOCATIONS AND WIDTHS OF TEMPORARY BRIDGE STREAM CROSSINGS AS SHOWN ON THE PLANS ARE APPROXIMATE AND MAY BE ADJUSTED BASED ON CONDITIONS ENCOUNTERED IN THE FIELD.
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5. CATHODIC PROTECTION INFORMATION PROVIDED BY TRANSCANADA/MATCOR.
6. CURRENT LANDUSE CLASSIFICATIONS WITHIN THE PROJECT LOD INCLUDE "SHRUB/SCRUB", "MIXED FOREST", "DEVELOPED OPEN SPACE", AND "DECIDUOUS FOREST", AND WERE OBTAINED FROM NATIONAL LAND COVER DATA PROVIDED BY PASDA.
7. FOR CROSS SECTIONS A-A, B-B AND C-C, SEE DRAWING NO. B19-099-D26.

REFERENCES:

1. IMAGERY PROVIDED BY GOOGLE EARTH PRO ONLINE MAPPING.
2. 2-FOOT TOPOGRAPHY CREATED FROM DATA OBTAINED FROM THE PENNSYLVANIA SPATIAL DATA ACCESS (PASDA) FTP.

SCALE
10 0 10 20 FEET

REV.	DATE	DESCRIPTION	P.M.
2	04/29/20	GENERAL REVISIONS PER CALN TOWNSHIP	BCS
1	02/18/20	GENERAL REVISIONS PER C.C.C.D	BCS

Columbia Gas Transmission

COMMONWEALTH OF PENNSYLVANIA — REGISTERED PROFESSIONAL — CLAUDIO E. YON — ENGINEER — No. PE-036364-E

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REGISTERED PROFESSIONAL ENGINEER — 5/06/20 DATE

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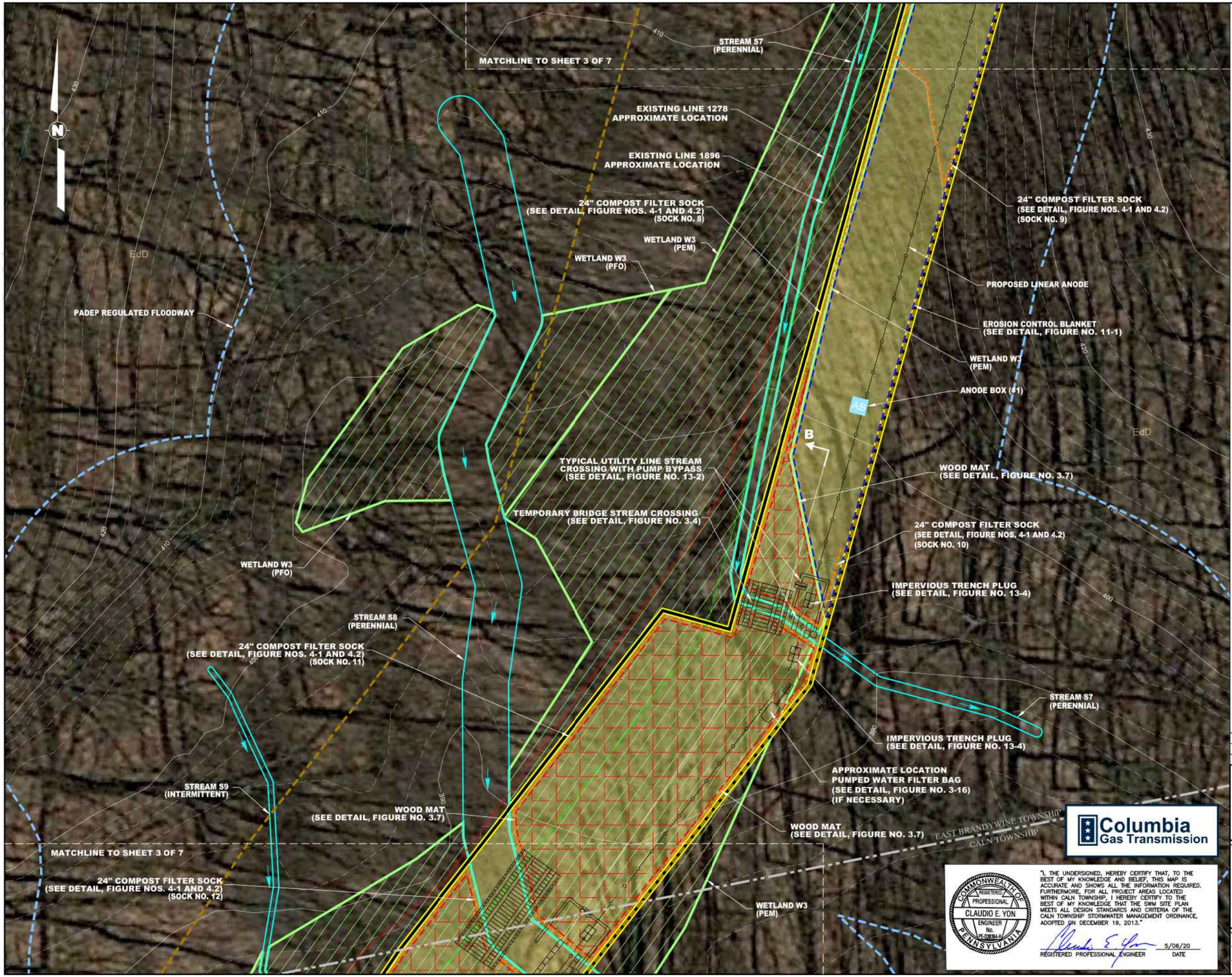
Engineers • Constructors • Scientists
BECKLEY, WV (304) 255-0491 — CANONSBURG, PA (724) 745-3630 — CHARLESTON, WV (681) 217-2090

PLAN VIEW
EROSION AND SEDIMENT CONTROL PLAN
PROPOSED LINES 1278, 1278 LOOP AND 1896 PROJECT-2020
WILLIAMS STATION
CHESTER COUNTY, PA

Prepared For
COLUMBIA GAS TRANSMISSION, LLC
1700 MACCORKLE AVE., SE, CHARLESTON, WEST VIRGINIA 25314

CAD BY	JSC	03/15/19	PROJECT NO. B19-099-2207	SHEET 3 OF 7
CHECKED BY				
APPROVED BY				DRAWING NO. B19-099-D21



LEGEND

WORKSPACE WITHIN EXISTING PERMANENT ROW	0.96 AC.
STAGING AREA	0.10 AC.
TOTAL PROJECT ACREAGE (LOD)	1.06 AC.

- LINE 1278
- LINE 1896
- APPROXIMATE PERMANENT RIGHT OF WAY
- PROPOSED LINEAR ANODE
- JUNCTION BOX (JB) / ANODE BOX (AB)
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- SAFETY SHUTOFF DEVICE (SSD)
- TEMPORARY ROAD ENTRANCE (SEE DETAIL, FIGURE NO. 3-1-ABACT)
- 12" COMPOST FILTER SOCK (SEE DETAIL, FIGURE NOS. 4-1 AND 4.2)
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- PUMPED WATER FILTER BAG (SEE DETAIL, FIGURE NO. 3-16)
- SOIL TYPE (EdD)
- SOIL TYPE BOUNDARY
- DELINEATED STREAM
- DELINEATED WETLAND
- PADEP REGULATED FLOODWAY

PRE-CONSTRUCTION PERVIOUS/IMPERVIOUS AREAS			
LIMITS OF DISTURBANCE	PERVIOUS (AC.)	IMPERVIOUS (AC.)	TOTAL
PRE-CONSTRUCTION	1.03	0.03	1.06
POST-CONSTRUCTION	1.03	0.03	1.06

NOTES:

1. SITE TO BE RESTORED TO ORIGINAL CONDITIONS AFTER CONSTRUCTION.
2. PROJECT LOD IS LOCATED ENTIRELY WITHIN THE EAST BRANCH BRANDYWINE CREEK WATERSHED. NO CHANGES TO CURRENT DRAINAGE PATTERNS ARE ANTICIPATED, AS THIS PROJECT IS A LINEAR ANODE REPLACEMENT PROJECT THAT WILL BE RESTORED TO ORIGINAL CONDITIONS.
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5. CATHODIC PROTECTION INFORMATION PROVIDED BY TRANSCANADA/MATCOR.
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7. FOR CROSS SECTIONS A-A, B-B AND C-C, SEE DRAWING NO. B19-099-D26.

REFERENCES:

1. IMAGERY PROVIDED BY GOOGLE EARTH PRO ONLINE MAPPING.
2. 2-FOOT TOPOGRAPHY CREATED FROM DATA OBTAINED FROM THE PENNSYLVANIA SPATIAL DATA ACCESS (PASDA) FTP.

SCALE
10 0 10 20 FEET

REV.	DATE	DESCRIPTION	P.M.
2	04/29/20	GENERAL REVISIONS PER CALN TOWNSHIP	BCS
1	02/18/20	GENERAL REVISIONS PER C.C.C.D	BCS

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Columbia Gas Transmission

COMMONWEALTH OF PENNSYLVANIA — REGISTERED PROFESSIONAL — CLAUDIO E. YON — ENGINEER — No. PE036914-E

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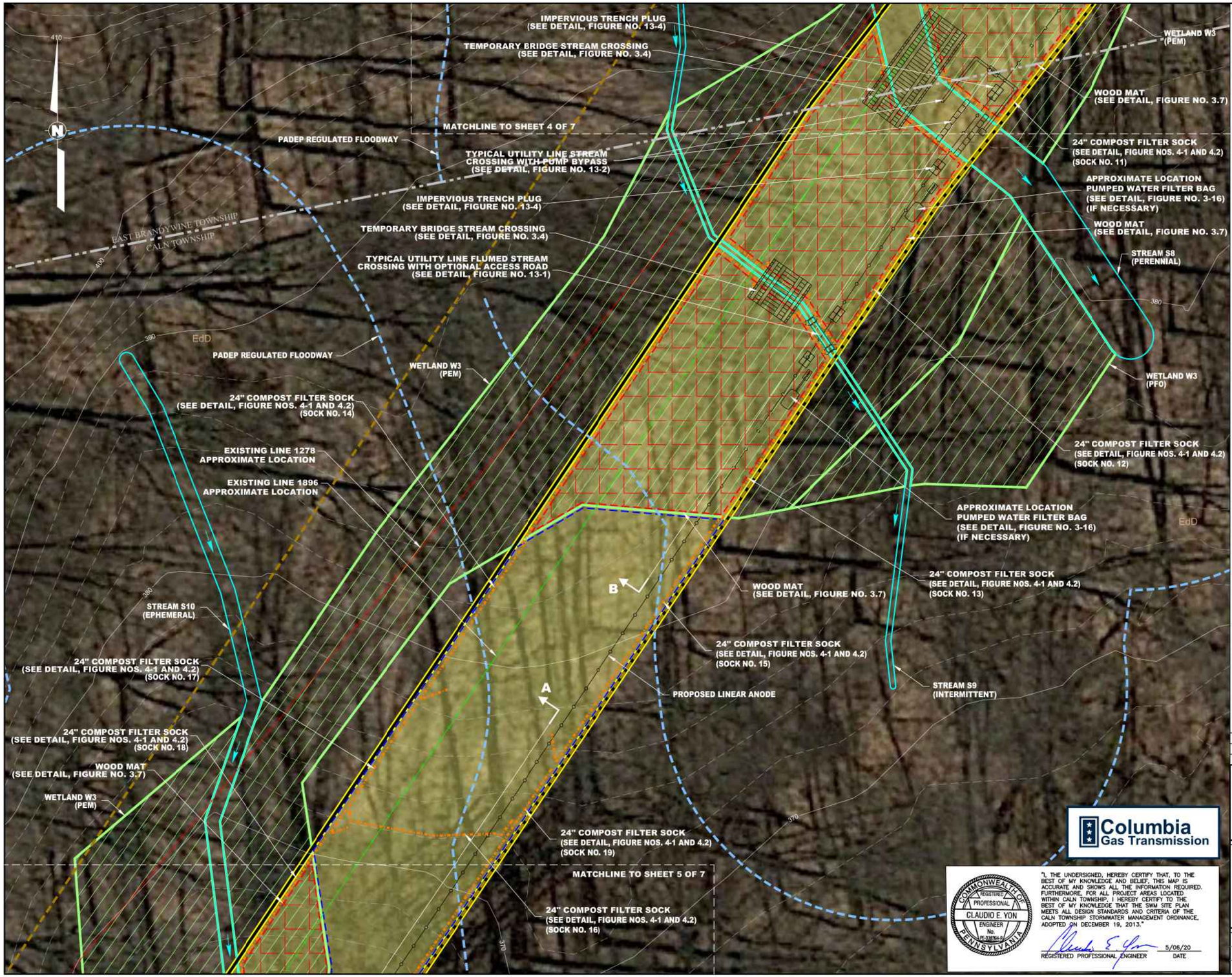
REGISTERED PROFESSIONAL ENGINEER — 5/06/20 DATE

PLAN VIEW

EROSION AND SEDIMENT CONTROL PLAN
PROPOSED LINES 1278, 1278 LOOP AND 1896 PROJECT-2020
WILLIAMS STATION
CHESTER COUNTY, PA
Prepared For
COLUMBIA GAS TRANSMISSION, LLC
1700 MACCORKLE AVE., SE, CHARLESTON, WEST VIRGINIA 25314

CAD BY	JSC	03/15/19	PROJECT NO. B19-099-2207	SHEET 4 OF 7
CHECKED BY				
APPROVED BY				DRAWING NO. B19-099-D22



LEGEND

WORKSPACE WITHIN EXISTING PERMANENT ROW	0.96 AC.
STAGING AREA	0.10 AC.
TOTAL PROJECT ACREAGE (LOD)	1.06 AC.

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PRE-CONSTRUCTION PERVIOUS/IMPERVIOUS AREAS			
LIMITS OF DISTURBANCE	PERVIOUS (AC.)	IMPERVIOUS (AC.)	TOTAL
PRE-CONSTRUCTION	1.03	0.03	1.06
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NOTES:

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7. FOR CROSS SECTIONS A-A, B-B AND C-C, SEE DRAWING NO. B19-099-D26.

REFERENCES:

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SCALE
10 0 10 20 FEET

REV.	DATE	DESCRIPTION	P.M.
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1	02/18/20	GENERAL REVISIONS PER C.C.C.D	BCS

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Columbia Gas Transmission

COMMONWEALTH OF PENNSYLVANIA — REGISTERED PROFESSIONAL ENGINEER — CLAUDIO E. YON — No. PE-036764-E

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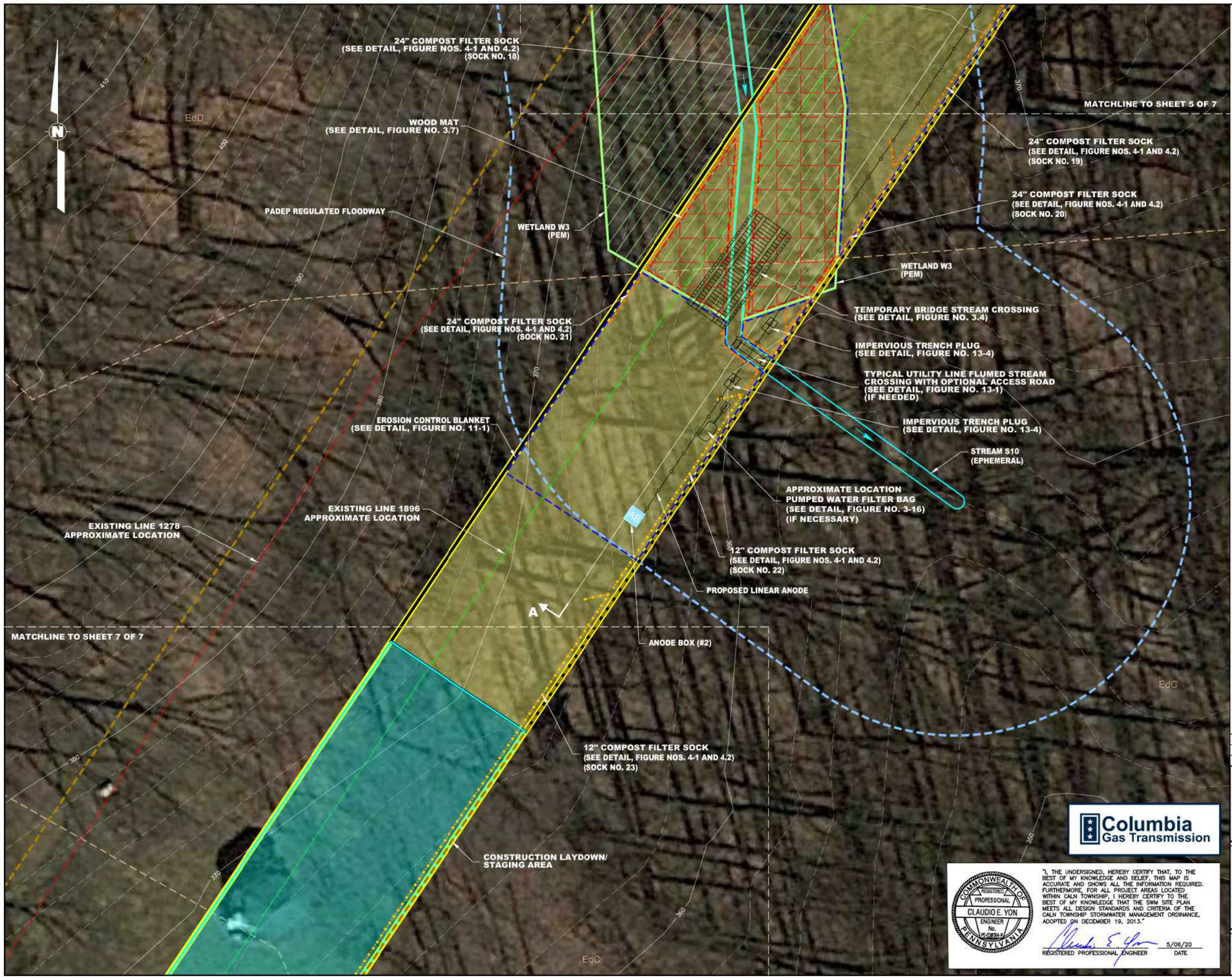
REGISTERED PROFESSIONAL ENGINEER — 5/06/20 DATE

PLAN VIEW
EROSION AND SEDIMENT CONTROL PLAN
PROPOSED LINES 1278, 1278 LOOP AND 1896 PROJECT-2020
WILLIAMS STATION
CHESTER COUNTY, PA

Prepared For
COLUMBIA GAS TRANSMISSION, LLC
1700 MACCORKLE AVE., SE, CHARLESTON, WEST VIRGINIA 25314

CAD BY	JSC	03/15/19	PROJECT NO. B19-099-2207	SHEET 5 OF 7
CHECKED BY				
APPROVED BY				DRAWING NO. B19-099-D23



LEGEND

WORKSPACE WITHIN EXISTING PERMANENT ROW	0.96 AC.
STAGING AREA	0.10 AC.
TOTAL PROJECT ACREAGE (LOD)	1.06 AC.

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- LINE 1896
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- SOIL TYPE BOUNDARY
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- PADEP REGULATED FLOODWAY

PRE-CONSTRUCTION PERVIOUS/IMPERVIOUS AREAS			
LIMITS OF DISTURBANCE	PERVIOUS (AC.)	IMPERVIOUS (AC.)	TOTAL
PRE-CONSTRUCTION	1.03	0.03	1.06
POST-CONSTRUCTION	1.03	0.03	1.06

NOTES:

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7. FOR CROSS SECTIONS A-A, B-B AND C-C, SEE DRAWING NO. B19-099-D26.

REFERENCES:

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SCALE
10 0 10 20 FEET

REV.	DATE	DESCRIPTION	P.M.
2	04/29/20	GENERAL REVISIONS PER CALN TOWNSHIP	BCS
1	02/18/20	GENERAL REVISIONS PER C.C.C.D	BCS

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COMMONWEALTH OF PENNSYLVANIA — REGISTERED PROFESSIONAL — CLAUDIO E. YON — ENGINEER No. PE-067614-E

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REGISTERED PROFESSIONAL ENGINEER — 5/06/20 DATE

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EROSION AND SEDIMENT CONTROL PLAN
PROPOSED LINES 1278, 1278 LOOP AND 1896 PROJECT-2020
WILLIAMS STATION
CHESTER COUNTY, PA

Prepared For
COLUMBIA GAS TRANSMISSION, LLC
1700 MACCORKLE AVE., SE, CHARLESTON, WEST VIRGINIA 25314

CAD BY	JSC	03/15/19	PROJECT NO. B19-099-2207	SHEET 6 OF 7
CHECKED BY				
APPROVED BY				DRAWING NO. B19-099-D24

LEGEND

WORKSPACE WITHIN EXISTING PERMANENT ROW	0.96 AC.
STAGING AREA	0.10 AC.
TOTAL PROJECT ACREAGE (LOD)	1.06 AC.

- LINE 1278
- LINE 1896
- APPROXIMATE PERMANENT RIGHT OF WAY
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- JUNCTION BOX (JB) / ANODE BOX (AB)
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- SOIL TYPE
- SOIL TYPE BOUNDARY
- DELINEATED STREAM
- DELINEATED WETLAND
- PADEP REGULATED FLOODWAY

PRE-CONSTRUCTION PERVIOUS/IMPERVIOUS AREAS

LIMITS OF DISTURBANCE	PERVIOUS (AC.)	IMPERVIOUS (AC.)	TOTAL
PRE-CONSTRUCTION	1.03	0.03	1.06
POST-CONSTRUCTION	1.03	0.03	1.06

NOTES:

1. SITE TO BE RESTORED TO ORIGINAL CONDITIONS AFTER CONSTRUCTION.
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SCALE
10 0 10 20 FEET

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1	02/18/20	GENERAL REVISIONS PER C.C.C.D	BCS

Columbia Gas Transmission

COMMONWEALTH OF PENNSYLVANIA — REGISTERED PROFESSIONAL ENGINEER — CLAUDIO E. YON — ENGINEER No. PE 082844-E

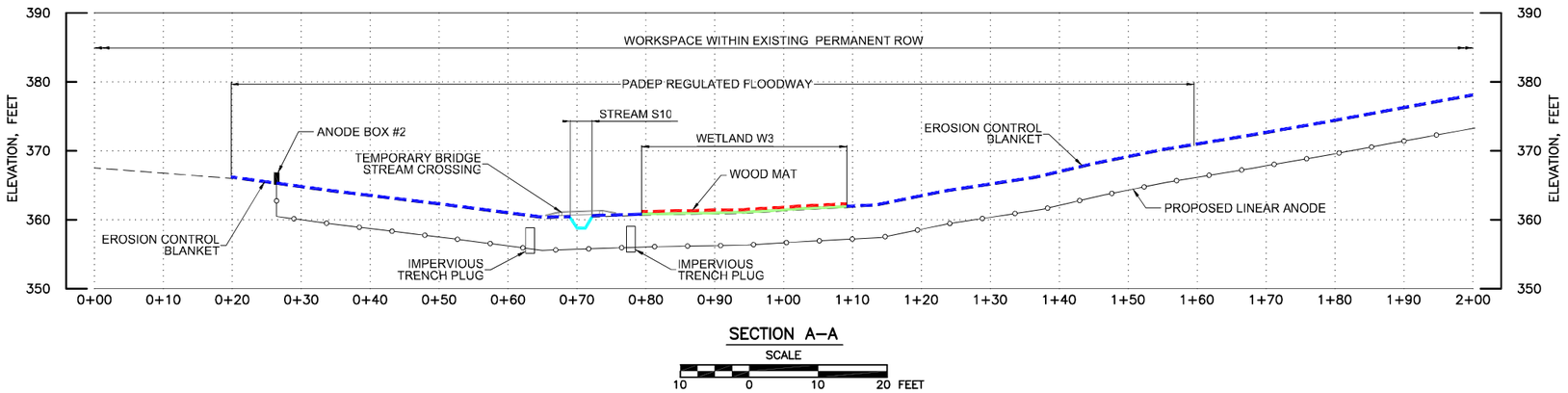
"I, THE UNDERSIGNED, HEREBY CERTIFY THAT, TO THE BEST OF MY KNOWLEDGE AND BELIEF, THIS MAP IS ACCURATE AND SHOWS ALL THE INFORMATION REQUIRED. FURTHERMORE, FOR ALL PROJECT AREAS LOCATED WITHIN CALN TOWNSHIP, I HEREBY CERTIFY TO THE BEST OF MY KNOWLEDGE THAT THE SWM SITE PLAN MEETS ALL DESIGN STANDARDS AND CRITERIA OF THE CALN TOWNSHIP STORMWATER MANAGEMENT ORDINANCE, ADOPTED ON DECEMBER 19, 2013."

REGISTERED PROFESSIONAL ENGINEER — DATE 5/06/20

Alliance Consulting, Inc.
Engineers · Constructors · Scientists
BECKLEY, WV (304) 255-0491 · CANONSBURG, PA (724) 746-3630 · CHARLESTON, WV (681) 217-2080

PLAN VIEW
EROSION AND SEDIMENT CONTROL PLAN
PROPOSED LINES 1278, 1278 LOOP AND 1896 PROJECT-2020
WILLIAMS STATION
CHESTER COUNTY, PA
Prepared For
COLUMBIA GAS TRANSMISSION, LLC
1700 MACCORKLE AVE., SE, CHARLESTON, WEST VIRGINIA 25314

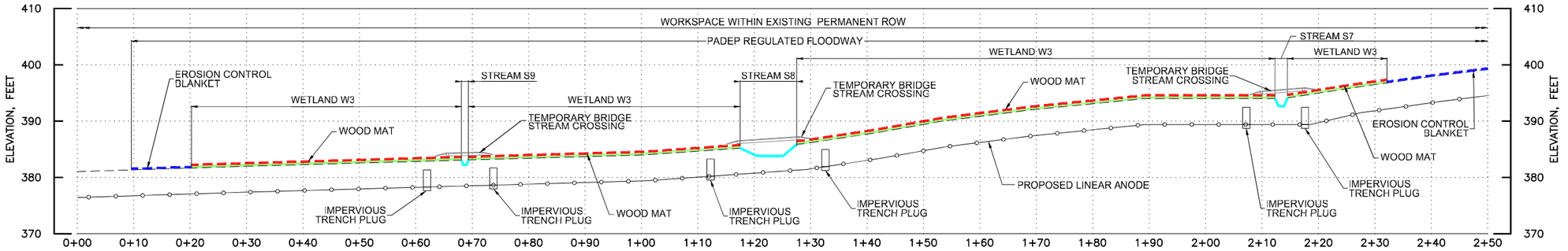
CAD BY	JSC	03/15/19	PROJECT NO. B19-099-2207	SHEET 7 OF 7
CHECKED BY				
APPROVED BY				DRAWING NO. B19-099-D25



SECTION A–A

SCALE

10 0 10 20 FEET



SECTION B–B

SCALE

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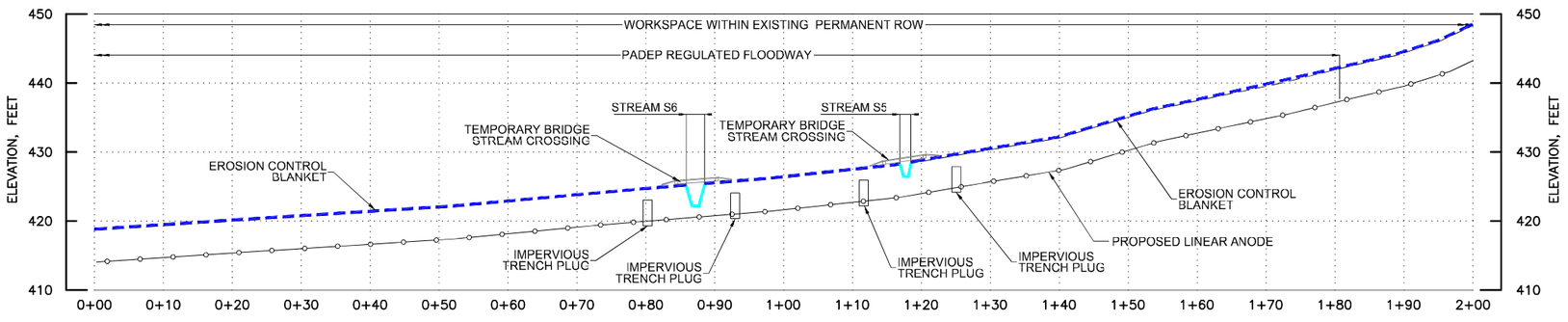

SECTION C–C

SCALE

10 0 10 20 FEET

NOTE:
FOR CROSS SECTION A–A, B–B AND C–C LOCATION, SEE DRAWING NOS. B19–099–D20 THROUGH D24.

COMMONWEALTH OF PENNSYLVANIA — REGISTERED PROFESSIONAL — CLAUDIO E. YON — ENGINEER — No. PE-036344-E

"I, THE UNDERSIGNED, HEREBY CERTIFY THAT, TO THE BEST OF MY KNOWLEDGE AND BELIEF, THIS MAP IS ACCURATE AND SHOWS ALL THE INFORMATION REQUIRED. FURTHERMORE, FOR ALL PROJECT AREAS LOCATED WITHIN CALN TOWNSHIP, I HEREBY CERTIFY TO THE BEST OF MY KNOWLEDGE THAT THE SWM SITE PLAN MEETS ALL DESIGN STANDARDS AND CRITERIA OF THE CALN TOWNSHIP STORMWATER MANAGEMENT ORDINANCE, ADOPTED ON DECEMBER 19, 2013."

REGISTERED PROFESSIONAL ENGINEER — 5/06/20 DATE

REV.	DATE	DESCRIPTION	P.M.

Alliance Consulting, Inc.
Engineers • Constructors • Scientists
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SECTIONS A–A, B–B AND C–C
EROSION AND SEDIMENT CONTROL PLAN
PROPOSED LINES 1278, 1278 LOOP AND 1896 PROJECT–2020
WILLIAMS STATION
CHESTER COUNTY, PA

Prepared For
COLUMBIA GAS TRANSMISSION, LLC
1700 MACCORKLE AVE., SE, CHARLESTON, WEST VIRGINIA 25314

Columbia Gas Transmission

CAD BY	JSC	03/15/19
CHECKED BY		
APPROVED BY		

PROJECT NO. B19–099–2207

DRAWING NO. B19–099–D26

Project Information										PADEP / 105 Impacts								
Applicable Permit[2]	Structure/ Activity Unique Identifier	Aquatic Resource Type	Latitude (dd NAD83)	Longitude (dd NAD83)	Waters Name	PA Chapter 93 Designation[3]	PFBC Trout Water Designation	Work Proposed	DEP Impact Type	Watercourse			Floodway			Wetland		
										Length (ft)	Width (ft)	Area[4,6] (ft2)	Length (ft)	Width (ft)	Area[4,6] (ft2)	Length (ft)	Width (ft)	Area[5,6] (ft2)
Waived	S5	Ephemeral	40.02065°	-75.71757°	UNT Beaver Creek	CWF, MF	Trib to TSW	Fill	Temp	8	2	16	20	104	2,453	N/A	N/A	N/A
								Excavation	Perm	1	2	2	1	104	104	N/A	N/A	N/A
Waived	S6	Ephemeral	40.02057°	-75.71761°	UNT Beaver Creek	CWF, MF	Trib to TSW	Fill	Temp	14	3	42	20	106	2,000	N/A	N/A	N/A
								Excavation	Perm	1	3	3	1	106	106	N/A	N/A	N/A
Waived	S7	Perennial	40.02034°	-75.71778°	UNT Beaver Creek	CWF, MF	Trib to TSW	Fill	Temp	20	2	40	424	20	9,914	N/A	N/A	N/A
								Excavation	Perm	2	1	2	424	1	424	N/A	N/A	N/A
JPA	W3	PEM	40.02037°	-75.71779°	Wetland	Other	None	Fill	Temp	N/A	N/A	N/A	N/A	N/A	N/A	530	18	9,298
								Excavation	Perm	N/A	N/A	N/A	N/A	N/A	N/A	240	1	240
Waived	S8	Perennial	40.01973°	-75.71814°	UNT Beaver Creek	CWF, MF	Trib to TSW	Fill	Temp	39	10	390	39	120	4,092	N/A	N/A	N/A
								Excavation	Perm	1	10	10	1	120	120	N/A	N/A	N/A
Waived	S9	Intermittent	40.01957°	-75.71826°	UNT Beaver Creek	CWF, MF	Trib to TSW	Fill	Temp	36	1	36	36	102	3,927	N/A	N/A	N/A
								Excavation	Perm	1	1	1	1	102	102	N/A	N/A	N/A
Waived	S10	Intermittent	40.01797°	-75.71867°	UNT Beaver Creek	CWF, MF	Trib to TSW	Fill	Temp	59	3	177	36	106	5,538	N/A	N/A	N/A
								Excavation	Perm	1	3	3	1	106	106	N/A	N/A	N/A

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
CLAUDIO E. YON
ENGINEER
No. PE-038044-E

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AQUATIC RESOURCE TABLE

EROSION AND SEDIMENT CONTROL PLAN
PROPOSED LINES 1278, 1278 LOOP AND 1896 PROJECT-2020
WILLIAMS STATION
CHESTER COUNTY, PA

Prepared For
COLUMBIA GAS TRANSMISSION, LLC
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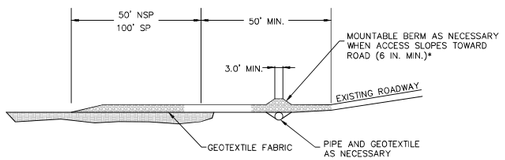
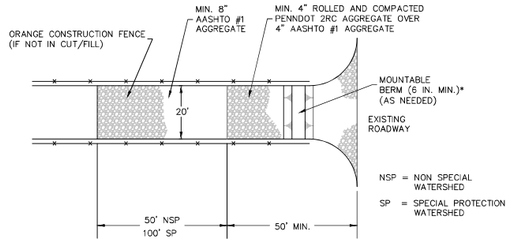
CAD BY	JSC	03/15/19	PROJECT NO. B19-099-2207	
CHECKED BY				
APPROVED BY			DRAWING NO. B19-099-D27	



PROFILE

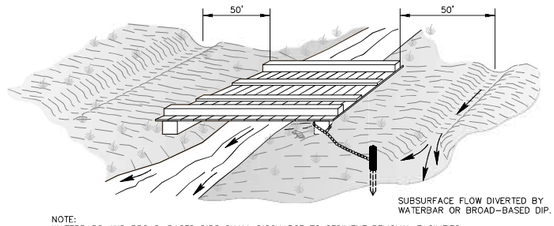


* MOUNTABLE BERM USED TO PROVIDE PROPER COVER FOR PIPE

PLAN VIEW

ALTERNATIVE CONSTRUCTION DETAIL #3-1-ABACT
ROCK CONSTRUCTION ENTRANCE
NOT TO SCALE

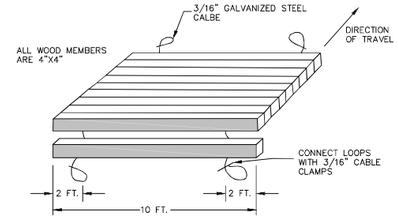
Columbia Gas Transmission



NOTE:
WATERBARS AND BROAD-BASED DIPS SHALL DISCHARGE TO SEDIMENT REMOVAL FACILITIES.

STANDARD CONSTRUCTION DETAIL #3.4
TEMPORARY BRIDGE STREAM CROSSING
NOT TO SCALE

Columbia Gas Transmission



NOTES:

WETLAND CROSSINGS MUST BE AVOIDED WHEREVER POSSIBLE. WHERE THAT IS NOT POSSIBLE, THE LOCATION AND ITS ORIENTATION MUST BE SELECTED SO AS TO HAVE THE LEAST POSSIBLE IMPACT UPON THE WETLAND.

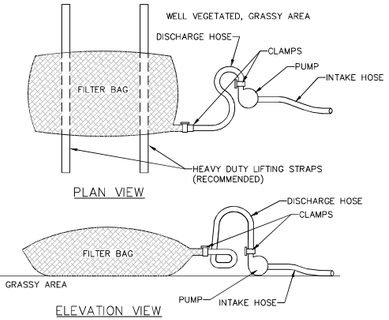
ALL WETLAND CROSSINGS MUST CONFORM TO CHAPTER 105 PERMITTING REQUIREMENTS.

TEMPORARY CROSSINGS SHOULD BE CONSTRUCTED FROM MATERIALS THAT CAN BE PLACED WITH A MINIMUM OF DISTURBANCE TO THE SOIL SURFACE AND COMPLETELY REMOVED WHEN NO LONGER NEEDED. SOME EXAMPLES OF STABILIZED CROSSING METHODS ARE ILLUSTRATED IN FIGURES 3.5 THROUGH 3.7.

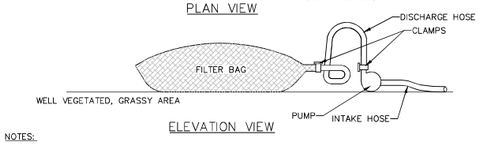
A GEOTEXTILE UNDERLAYMENT SHALL BE USED UNDER THE PROPOSED WOOD MAT.

STANDARD CONSTRUCTION DETAIL # 3.7
TYPICAL WOOD MAT FOR WETLAND CROSSING
NOT TO SCALE

Columbia Gas Transmission



PLAN VIEW



ELEVATION VIEW

NOTES:

LOW VOLUME FILTER BAGS SHALL BE MADE FROM NON-WOVEN GEOTEXTILE MATERIAL SEWN WITH HIGH STRENGTH, DOUBLE STITCHED "J" TYPE SEAMS. THEY SHALL BE CAPABLE OF TRAPPING PARTICLES LARGER THAN 150 MICRONS. HIGH VOLUME FILTER BAGS SHALL BE MADE FROM WOVEN GEOTEXTILES THAT MEET THE FOLLOWING STANDARDS:

PROPERTY	TEST METHOD	MINIMUM STANDARD
AVG. WIDE WIDTH STRENGTH	ASTM D-4884	60 LB/IN
GRAB TENSILE	ASTM D-4632	205 LB
PUNCTURE	ASTM D-4833	110 LB
MULLEN BURST	ASTM D-3786	350 PSI
UV RESISTANCE	ASTM D-4355	70%
AOS % RETAINED	ASTM D-4751	80 SIEVE

A SUITABLE MEANS OF ACCESSING THE BAG WITH MACHINERY REQUIRED FOR DISPOSAL PURPOSES SHALL BE PROVIDED. FILTER BAGS SHALL BE REPLACED WHEN THEY BECOME 1/2 FULL OF SEDIMENT. SPARE BAGS SHALL BE KEPT AVAILABLE FOR REPLACEMENT OF THOSE THAT HAVE FAILED OR ARE FILLED. BAGS SHALL BE PLACED ON STRAPS TO FACILITATE REMOVAL UNLESS BAGS COME WITH LIFTING STRAPS ALREADY ATTACHED.

BAGS SHALL BE LOCATED IN WELL-VEGETATED (GRASSY) AREA, AND DISCHARGE ONTO STABLE, EROSION RESISTANT AREAS. WHERE THIS IS NOT POSSIBLE, A GEOTEXTILE UNDERLAYMENT AND FLOW PATH SHALL BE PROVIDED. BAGS MAY BE PLACED ON FILTER STONE TO INCREASE DISCHARGE CAPACITY. BAGS SHALL NOT BE PLACED ON SLOPES GREATER THAN 5% FOR SLOPES EXCEEDING 5%, CLEAN ROCK OR OTHER NON-ERODIBLE AND NON-POLLUTING MATERIAL MAY BE PLACED UNDER THE BAG TO REDUCE SLOPE STEEPNESS.

NO DOWNSLOPE SEDIMENT BARRIER IS REQUIRED FOR MOST INSTALLATIONS. COMPOST BERM OR COMPOST FILTER SOCK SHALL BE INSTALLED BELOW BAGS LOCATED IN HQ OR EV WATERSHEDS, WITHIN 50 FEET OF ANY RECEIVING SURFACE WATER OR WHERE GRASSY AREA IS NOT AVAILABLE.

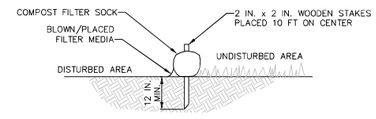
THE PUMP DISCHARGE HOSE SHALL BE INSERTED INTO THE BAGS IN THE MANNER SPECIFIED BY THE MANUFACTURER AND SECURELY CLAMPED. A PIECE OF PVC PIPE IS RECOMMENDED FOR THIS PURPOSE.

THE PUMPING RATE SHALL BE NO GREATER THAN 750 GPM OR 1/2 THE MAXIMUM SPECIFIED BY THE MANUFACTURER, WHICHEVER IS LESS. PUMP INTAKES SHALL BE FLOATING AND SCREENED.

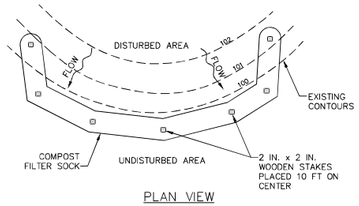
FILTER BAGS SHALL BE INSPECTED DAILY. IF ANY PROBLEM IS DETECTED, PUMPING SHALL CEASE IMMEDIATELY AND NOT RESUME UNTIL THE PROBLEM IS CORRECTED.

STANDARD CONSTRUCTION DETAIL #3-16
PUMPED WATER FILTER BAG
NOT TO SCALE

Columbia Gas Transmission



SECTION

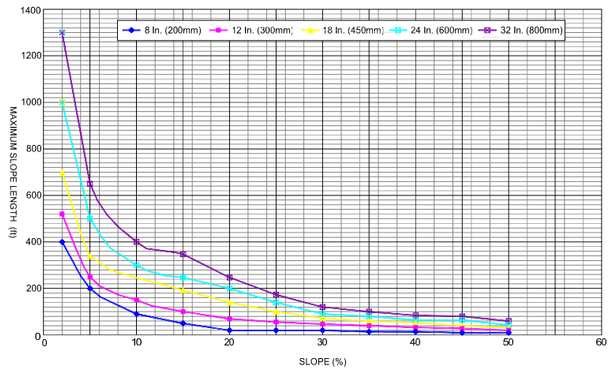


PLAN VIEW

NOTES:
1. SOCK FABRIC SHALL MEET STANDARDS OF TABLE 4.1 OF THE PA DEP EROSION CONTROL MANUAL. COMPOST SHALL MEET THE STANDARDS OF TABLE 4.2 OF THE PA DEP EROSION CONTROL MANUAL.
2. SEE ADDITIONAL NOTES ON #4-1A

STANDARD CONSTRUCTION DETAIL #4-1
COMPOST FILTER SOCK
NOT TO SCALE

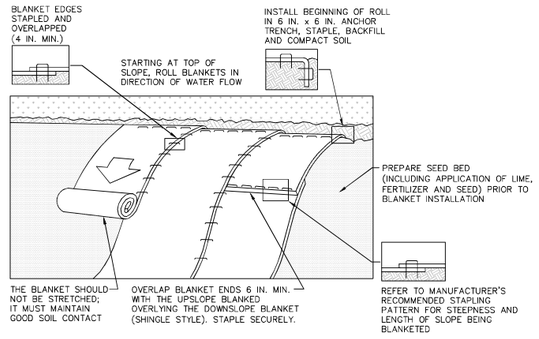
Columbia Gas Transmission



NOTE: 8" DIAMETER SOCKS SOULD ONLY BE USED TO CONTROL SMALL (≤1/4 ACRE) DISTURBED AREAS ON INDIVIDUAL HOUSE LOTS.

STANDARD CONSTRUCTION DETAIL #4.2
MAXIMUM PERMISSIBLE SLOPE LENGTH ABOVE COMPOST FILTER SOCKS
NOT TO SCALE

Columbia Gas Transmission



NOTES:

SEED AND SOIL AMENDMENTS SHALL BE APPLIED ACCORDING TO THE RATES IN THE PLAN DRAWINGS PRIOR TO INSTALLING THE BLANKET.

PROVIDE ANCHOR TRENCH AT TOE OF SLOPE IN SIMILAR FASHION AS AT TOP OF SLOPE.

SLOPE SURFACE SHALL BE FREE OF ROCKS, CLODS, STICKS, AND GRASS.

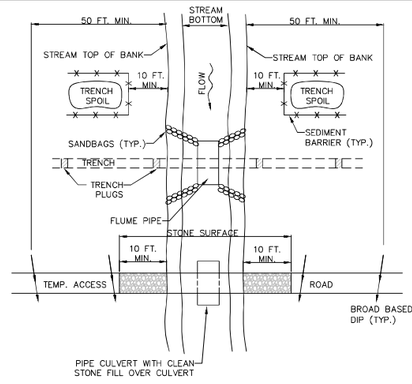
BLANKET SHALL HAVE GOOD CONTINUOUS CONTACT WITH UNDERLYING SOIL THROUGHOUT ENTIRE LENGTH. LAY BLANKET LOOSELY AND STAKE OR STAPLE TO MAINTAIN DIRECT CONTACT WITH SOIL. DO NOT STRETCH BLANKET.

THE BLANKET SHALL BE STAPLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

BLANKETED AREAS SHALL BE INSPECTED WEEKLY AND AFTER EACH RUNOFF EVENT UNTIL PERENNIAL VEGETATION IS ESTABLISHED TO A MINIMUM UNIFORM 70% COVERAGE THROUGHOUT THE BLANKETED AREA. DAMAGED OR DISPLACED BLANKETS SHALL BE RESTORED OR REPLACED WITHIN 4 CALENDAR DAYS.

STANDARD CONSTRUCTION DETAIL #11-1
EROSION CONTROL BLANKET INSTALLATION
NOT TO SCALE

Columbia Gas Transmission



NOTES:

GRUBBING SHALL NOT TAKE PLACE WITHIN 50 FEET OF TOP-OF-BANK UNTIL ALL MATERIALS REQUIRED TO COMPLETE CROSSING ARE ON SITE AND PIPE IS READY FOR INSTALLATION.

PIPE CULVERT FOR ACCESS ROAD AND FLUME PIPE MAY BE ONE CONTINUOUS PIPE.

TRENCH PLUGS SHALL BE INSTALLED WITHIN THE TRENCH ON BOTH SIDES OF THE STREAM CHANNEL (STANDARD CONSTRUCTION DETAIL #13-4).

WATER ACCUMULATING WITHIN THE WORK AREA SHALL BE PUMPED TO A PUMPED WATER FILTER BAG OR SEDIMENT TRAP PRIOR TO DISCHARGING INTO ANY SURFACE WATER.

HAZARDOUS OR POLLUTANT MATERIAL STORAGE AREAS SHALL BE LOCATED AT LEAST 100 FEET BACK FROM THE TOP OF STREAMBANK.

ALL EXCESS EXCAVATED MATERIAL SHALL BE IMMEDIATELY REMOVED FROM THE STREAM CROSSING AREA.

ALL DISTURBED AREAS WITHIN 50 FEET OF TOP-OF-BANK SHALL BE BLANKETED OR MATTED WITHIN 24 HOURS OF INITIAL DISTURBANCE FOR MINOR STREAMS OR 48 HOURS OF INITIAL DISTURBANCE FOR MAJOR STREAMS UNLESS OTHERWISE AUTHORIZED. APPROPRIATE STREAMBANK PROTECTION SHALL BE PROVIDED WITHIN THE CHANNEL.

STANDARD CONSTRUCTION DETAIL # 13-1
TYPICAL UTILITY LINE FLUMED STREAM CROSSING WITH OPTIONAL ACCESS ROAD
NOT TO SCALE

Columbia Gas Transmission

Columbia Gas Transmission

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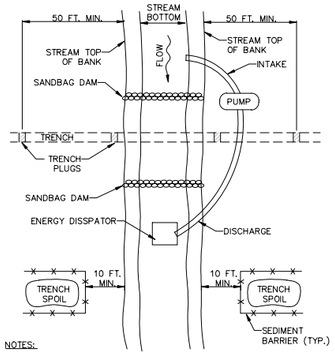
DETAILS
EROSION AND SEDIMENT CONTROL PLAN
PROPOSED LINES 1278, 1278 LOOP AND 1896 PROJECT-2020
WILLIAMS STATION
CHESTER COUNTY, PA
Prepared For
COLUMBIA GAS TRANSMISSION, LLC
1700 MACCORKLE AVE., SE, CHARLESTON, WEST VIRGINIA 25314

CAD BY	JSC	09/16/19	PROJECT NO. B19-099-2207	SHEET 1 OF 2
CHECKED BY				
APPROVED BY				DRAWING NO. B19-099-D28



NOTES:

GRUBBING SHALL NOT TAKE PLACE WITHIN 50 FEET OF 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 (STANDARD CONSTRUCTION DETAIL #13-4).

WATER ACCUMULATING WITHIN THE WORK AREA SHALL BE PUMPED TO A PUMPED WATER FILTER BAG OR SEDIMENT TRAP PRIOR TO DISCHARGING INTO ANY SURFACE WATER.

HAZARDOUS OR POLLUTANT MATERIAL STORAGE AREAS SHALL BE LOCATED AT LEAST 100 FEET BACK FROM THE TOP OF STREAMBANK.

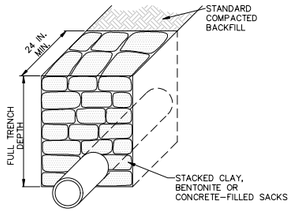
ALL EXCESS EXCAVATED MATERIAL SHALL BE IMMEDIATELY REMOVED FROM THE STREAM CROSSING AREA.

ALL DISTURBED AREAS WITHIN 50 FEET OF TOP-OF-BANK SHALL BE BLANKETED OR MATTED WITHIN 24 HOURS OF INITIAL DISTURBANCE FOR MINOR STREAMS OR 48 HOURS OF INITIAL DISTURBANCE FOR MAJOR STREAMS UNLESS OTHERWISE AUTHORIZED.

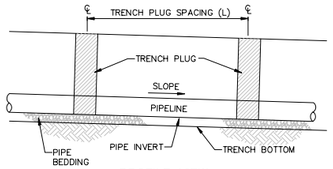
APPROPRIATE STREAMBANK PROTECTION SHALL BE PROVIDED WITHIN THE CHANNEL.

STANDARD CONSTRUCTION DETAIL # 13-2
TYPICAL UTILITY LINE STREAM CROSSING WITH PUMP BYPASS
NOT TO SCALE

Columbia Gas Transmission



SECTION VIEW



PROFILE VIEW

NOTES:

IMPERVIOUS TRENCH PLUGS ARE REQUIRED FOR ALL STREAM, RIVER, WETLAND, OR OTHER WATER BODY CROSSINGS.

PA DEP EROSION CONTROL MANUAL TABLE 13.1
MAXIMUM SPACING AND MATERIALS FOR TRENCH PLUGS

TRENCH SLOPE (%)	SPACING L (FT)	PLUG MATERIAL
< 5	1000	* CLAY, BENTONITE, OR CONCRETE FILLED SACKS
5 - 15	500	* CLAY, BENTONITE, OR CONCRETE FILLED SACKS
15 - 25	300	* CLAY, BENTONITE, OR CONCRETE FILLED SACKS
25 - 35	200	* CLAY, BENTONITE, OR CONCRETE FILLED SACKS
35 - 100	100	* CLAY, BENTONITE, OR CONCRETE FILLED SACKS
> 100	50	CEMENT BAGS (WETTED) OR MORTARED STONE

* TOPSOIL MAY NOT BE USED TO FILL SACKS

STANDARD CONSTRUCTION DETAIL #13-4
TRENCH PLUG INSTALLATION
NOT TO SCALE

Columbia Gas Transmission

Columbia Gas Transmission

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CHARLESTON, WV (681) 217-2090

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WILLIAMS STATION
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CAD BY	JSC	09/16/19	PROJECT NO. B19-099-2207	SHEET 2 OF 2
CHECKED BY				
APPROVED BY			DRAWING NO. B19-099-D29	

GENERAL NOTES:

1. TOPSOIL STOCKPILE HEIGHTS SHALL NOT EXCEED 35 FEET. STOCKPILE SIDE SLOPES MUST BE 2:1 OR FLATTER.
2. A COPY OF THE APPROVED E&S CONTROL PLAN MUST BE AVAILABLE AT THE PROJECT SITE AT ALL TIMES.
3. AT LEAST 3 DAYS BEFORE STARTING ANY EARTH DISTURBANCE ACTIVITIES, ALL CONTRACTORS INVOLVED IN THOSE ACTIVITIES SHALL NOTIFY THE PENNSYLVANIA ONE CALL SYSTEM INCORPORATED AT 1-800-242-1776 FOR THE LOCATION OF EXISTING UNDERGROUND UTILITIES.
4. ALL EARTH DISTURBANCE ACTIVITIES SHALL PROCEED IN ACCORDANCE WITH THE SEQUENCE PROVIDED ON THE PLAN DRAWINGS. EACH STAGE SHALL BE COMPLETED AND IMMEDIATELY STABILIZED BEFORE ANY FOLLOWING STAGE IN INITIATED. CLEARING, GRUBBING AND TOPSOIL STRIPPING SHALL BE LIMITED ONLY TO THOSE AREAS DESCRIBED IN EACH STAGE.
5. INSTALL E&S CONTROLS PER THE CONSTRUCTION DETAILS AND LOCATIONS PROVIDED ON THE PLAN.
6. IMMEDIATELY UPON DISCOVERING UNFORESEEN CIRCUMSTANCES POSING THE POTENTIAL FOR ACCELERATED EROSION AND/OR SEDIMENT POLLUTION, THE OPERATOR SHALL IMPLEMENT APPROPRIATE BEST MANAGEMENT PRACTICES (BMPS) TO ELIMINATE THE POTENTIAL FOR ACCELERATED EROSION AND/OR SEDIMENT POLLUTION.
7. ALL PUMPING OF SEDIMENT LADEN WATER SHALL BE THROUGH A SEDIMENT CONTROL BMP, SUCH AS A PUMPED WATER FILTER BAG OR EQUIVALENT SEDIMENT REMOVAL FACILITY, OVER UNDISTURBED VEGETATED AREAS.
8. PERMANENT STABILIZATION IS DEFINED AS A MINIMUM UNIFORM 70% PERENNIAL VEGETATIVE COVER OR OTHER PERMANENT NON-VEGETATIVE COVER WITH A DENSITY SUFFICIENT TO RESIST ACCELERATED SURFACE EROSION AND SUBSURFACE CHARACTERISTICS SUFFICIENT TO RESIST SLIDING AND OTHER MOVEMENTS.
9. IMMEDIATELY AFTER EARTH DISTURBANCE ACTIVITIES CEASE, THE OPERATOR SHALL STABILIZE THE DISTURBED AREAS. DURING NON-GERMINATING PERIODS, MULCH MUST BE APPLIED AT THE SPECIFIED RATES. DISTURBED AREAS WHICH ARE NOT AT FINISHED GRADE AND WHICH WILL BE RE-DISTURBED WITHIN 1 YEAR MUST BE STABILIZED IN ACCORDANCE WITH THE TEMPORARY VEGETATIVE STABILIZATION SPECIFICATIONS. DISTURBED AREAS WHICH ARE AT FINAL GRADE OR WHICH WILL NOT BE RE-DISTURBED WITHIN 1 YEAR MUST BE STABILIZED IN ACCORDANCE WITH THE PERMANENT VEGETATIVE STABILIZATION SPECIFICATIONS.
10. AN EROSION CONTROL BLANKET WILL BE INSTALLED ON ALL DISTURBED SLOPES STEEPER THAN 3:1, ALL AREAS OF CONCENTRATED FLOWS, AND DISTURBED AREAS WITHIN 50-FEET OF WATERS OF THE COMMONWEALTH/100-FEET OF SPECIAL PROTECTION WATERS.
11. UNTIL THE SITE IS STABILIZED, ALL E&S CONTROL BMPS MUST BE MAINTAINED PROPERLY. MAINTENANCE MUST INCLUDE INSPECTIONS OF ALL E&S CONTROL BMPS AFTER EACH RUNOFF EVENT AND ON A WEEKLY BASIS. ALL PREVENTATIVE AND REMEDIAL MAINTENANCE WORK, INCLUDING CLEANOUT, REPAIR, REPLACEMENT, RE-GRADING, RESEEDING, RE-MULCHING, AND RE-NETTING MUST BE PERFORMED IMMEDIATELY. IF E&S CONTROL BMPS FAIL TO PERFORM AS EXPECTED, REPLACEMENT BMPS OR MODIFICATIONS OF THOSE INSTALLED WILL BE REQUIRED.
12. THE PERMITTEE MUST ENSURE THAT VISUAL SITE INSPECTIONS ARE CONDUCTED WEEKLY, AND AFTER EACH MEASURABLE PRECIPITATION EVENT BY QUALIFIED PERSONNEL, TRAINED AND EXPERIENCED IN E&S CONTROL, TO ASCERTAIN THAT THE E&S CONTROL BMPS ARE OPERATIONAL AND EFFECTIVE IN PREVENTING POLLUTION TO THE WATERS OF THE COMMONWEALTH. A WRITTEN REPORT OF EACH INSPECTION SHALL BE KEPT, AND INCLUDE:
    a. A SUMMARY OF THE SITE CONDITIONS, E&S CONTROL BMPS, AND COMPLIANCE; AND
    b. THE DATE, TIME, AND THE NAME OF THE PERSON CONDUCTING THE INSPECTION.
13. ANY SEDIMENT REMOVED FROM BMPS DURING CONSTRUCTION WILL BE RETURNED TO UPLAND AREAS ON SITE AND INCORPORATED INTO THE SITE GRADING.
14. ALL BUILDING MATERIALS AND WASTES MUST BE REMOVED FROM THE SITE AND RECYCLED OR DISPOSED OF IN ACCORDANCE WITH PENNSYLVANIA'S SOLID WASTE MANAGEMENT REGULATIONS AT 25 PA. CODE 260. 1 ET SEQ., 271.1., AND 287.1 ET SEQ. NO BUILDING MATERIALS OR WASTES OR UNUSED BUILDING MATERIALS SHALL BE BURNED, BURIED, DUMPED, OR DISCHARGED AT THE SITE.
15. THE CONTRACTOR WILL BE RESPONSIBLE FOR THE REMOVAL OF ANY EXCESS MATERIAL AND MAKE SURE THE SITE(S) RECEIVING THE EXCESS HAS AN APPROVED E&S CONTROL PLAN THAT MEETS THE CONDITIONS OF CHAPTER 102 AND/OR OTHER STATE OR FEDERAL REGULATIONS.
16. CLEAN FILL IS DEFINED AS: UNCONTAMINATED, NON-WATER SOLUBLE, NON-DECOMPOSABLE, INERT, SOLID MATERIAL. THE TERM INCLUDES SOIL, ROCK, STONE, DREDGED MATERIAL, USED ASPHALT, AND BRICK, BLOCK OR CONCRETE FROM CONSTRUCTION AND DEMOLITION ACTIVITIES THAT IS SEPARATE FROM OTHER WASTE AND IS RECOGNIZABLE AS SUCH. THE TERM DOES NOT INCLUDE MATERIALS PLACED IN OR ON THE WATERS OF THE COMMONWEALTH UNLESS OTHERWISE AUTHORIZED. THE TERM "USED ASPHALT" DOES NOT INCLUDE MILLED ASPHALT OR ASPHALT THAT HAS BEEN PROCESSED FOR RE-USE.
17. ANY PLACEMENT OF CLEAN FILL THAT HAS BEEN AFFECTED BY A SPILL OR RELEASE OF A REGULATED SUBSTANCE MUST USE FORM FP-001 TO CERTIFY THE ORIGIN OF THE FILL MATERIAL AND THE RESULTS OF THE ANALYTICAL TESTING TO QUALIFY THE MATERIALS AS CLEAN FILL. FORM FP-001 MUST BE RETAINED BY THE OWNER OF THE PROPERTY RECEIVING THE FILL.
18. ENVIRONMENTAL DUE DILIGENCE MUST BE PERFORMED TO DETERMINE IF THE FILL MATERIALS ASSOCIATED WITH THE PROJECT QUALIFY AS CLEAN FILL. ENVIRONMENTAL DUE DILIGENCE IS DEFINED AS: INVESTIGATIVE TECHNIQUES, INCLUDING, BUT NOT LIMITED TO, VISUAL PROPERTY INSPECTIONS, ELECTRONIC DATA BASE SEARCHES, REVIEW OF PROPERTY OWNERSHIP, REVIEW OF PROPERTY USE HISTORY, SANDBORN MAPS, ENVIRONMENTAL QUESTIONNAIRES, TRANSACTION SCREENS, ANALYTICAL TESTING, ENVIRONMENTAL ASSESSMENTS OR AUDITS. ANALYTICAL TESTING IS NOT A REQUIRED PART OF DUE DILIGENCE UNLESS VISUAL INSPECTION AND/OR REVIEW OF THE PAST LAND USE OF THE PROPERTY INDICATES THAT THE FILL MAY HAVE BEEN SUBJECTED TO A SPILL OR RELEASE OF A REGULATED SUBSTANCE. IF THE FILL MAY HAVE BEEN AFFECTED BY A SPILL OR RELEASE OF A REGULATED SUBSTANCE, IT MUST BE TESTED TO DETERMINE IF IT QUALIFIES AS CLEAN FILL. TESTING SHOULD BE PERFORMED IN ACCORDANCE WITH APPENDIX A OF THE DEPARTMENT'S POLICY "MANAGEMENT OF CLEAN FILL."
19. AREAS OF EXCAVATION ARE TO BE CLEARED, GRUBBED, AND STRIPPED OF TOPSOIL TO REMOVE TREES, VEGETATION, ROOTS AND OTHER OBJECTIONABLE MATERIAL.
20. AT NO TIME SHALL CONSTRUCTION VEHICLES BE ALLOWED TO ENTER AREAS OUTSIDE THE LOD BOUNDARIES SHOWN ON THE PLAN. THESE AREAS MUST BE CLEARLY MARKED AND FENCED OFF BEFORE CLEARING AND GRUBBING OPERATIONS BEGIN.
21. CONSTRUCTION VEHICLES AND EQUIPMENT ARE REQUIRED TO USE THE DESIGNATED EXISTING AND TEMPORARY ACCESS ROADS SHOWN IN THE DRAWINGS.
22. SEDIMENT TRACKED ONTO ANY PUBLIC ROADWAY OR SIDEWALK SHALL BE RETURNED TO THE CONSTRUCTION SITE BY THE END OF EACH WORK DAY, OR AS NEEDED, OR AS DIRECTED BY THE CONSERVATION DISTRICT AND/OR MUNICIPALITY AND DISPOSED AS A MANNER IN THIS PLAN. IN NO CASE SHALL THE SEDIMENT BE WASHED, SHOVELED, OR SWEPT INTO ANY ROADSIDE DITCH, STORM SEWER, OR SURFACE WATER.
23. AREAS WHICH ARE TO BE TOPSOILED SHALL BE SCARIFIED TO A MINIMUM DEPTH OF 3 TO 5 INCHES - 6 TO 12 INCHES ON COMPACTED SOILS PRIOR TO PLACEMENT OF TOPSOIL. AREAS TO BE VEGETATED SHALL HAVE A MINIMUM 4 INCHES OF TOPSOIL IN PLACE PRIOR TO SEEDING AND MULCHING. FILL OUTSLOPES SHALL HAVE A MINIMUM OF 3 INCHES OF TOPSOIL.
24. SEEPS OR SPRINGS ENCOUNTERED DURING CONSTRUCTION SHALL BE HANDLED IN ACCORDANCE WITH THE STANDARD AND SPECIFICATION FOR SUBSURFACE DRAIN OR OTHER APPROVED METHOD.
25. ALL GRADED AREAS SHALL BE PERMANENTLY STABILIZED IMMEDIATELY UPON REACHING FINISHED GRADE. SEEDED AREAS WITHIN 50 FEET OF A SURFACE WATER, OR AS OTHERWISE SHOWN ON THE PLAN DRAWINGS, SHALL BE BLANKETED ACCORDING TO THE STANDARDS OF THIS PLAN.
26. E&S CONTROL BMPS SHALL REMAIN FUNCTIONAL AS SUCH UNTIL ALL AREAS TRIBUTARY TO THEM ARE PERMANENTLY STABILIZED OR UNTIL THEY ARE REPLACED BY ANOTHER E&S CONTROL BMP.
27. AFTER FINAL SITE STABILIZATION HAS BEEN ACHIEVED, TEMPORARY E&S CONTROL BMPS MUST BE REMOVED OR CONVERTED TO PERMANENT POST-CONSTRUCTION STORMWATER MANAGEMENT BMPS. AREAS DISTURBED DURING REMOVAL OR CONVERSION OF THE E&S CONTROL BMPS SHALL BE STABILIZED IMMEDIATELY. IN ORDER TO ENSURE RAPID REVEGETATION OF DISTURBED AREAS, SUCH REMOVAL/CONVERSIONS ARE TO BE DONE ONLY DURING THE GERMINATING SEASON.
28. FAILURE TO CORRECTLY INSTALL E&S CONTROL BMPS, FAILURE TO PREVENT SEDIMENT-LADEN RUNOFF FROM LEAVING THE CONSTRUCTION SITE, OR FAILURE TO TAKE IMMEDIATE CORRECTIVE ACTION TO RESOLVE FAILURE OF E&S CONTROL BMPS MAY RESULT IN ADMINISTRATIVE, CIVIL, AND/OR CRIMINAL PENALTIES BEING INSTITUTED BY THE DEPARTMENT AS DEFINED IN SECTION 602 OF THE PENNSYLVANIA CLEAN STREAMS LAW. THE CLEAN STREAMS LAW PROVIDES FOR UP TO $10,000 PER DAY IN CIVIL PENALTIES, UP TO $10,000 IN SUMMARY CRIMINAL PENALTIES, AND UP TO $25,000 IN MISDEMEANOR CRIMINAL PENALTIES FOR EACH VIOLATION.
29. AS INDICATED ON THE E&S CONTROL PLANS, THIS WORK INVOLVES THE CONSTRUCTION AND/OR MAINTENANCE OF ALL PERMANENT AND TEMPORARY E&S CONTROL FEATURES.
30. ALL SOIL EXPOSED DURING TRENCHING OPERATIONS WILL BE PROTECTED BY SEDIMENT BARRIERS SHOWN ON THE E&S CONTROL DRAWINGS.
31. ALL RUNOFF FROM THE CONSTRUCTION SITE SHALL BE REQUIRED TO PASS THROUGH AN E&S CONTROL DEVICE BEFORE BEING RELEASED INTO EXISTING WATERWAYS. THESE E&S CONTROL DEVICES ARE SHOWN ON THE E&S CONTROL DRAWINGS.
32. ANY DISTURBED AREA WILL BE SEEDED. ONCE THE VEGETATION BECOMES ESTABLISHED, THESE AREAS WILL HAVE SOME INFILTRATION AND FILTERING CHARACTERISTICS.
33. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE CLEANING AND MAINTAINING ALL E&S CONTROL FACILITIES IN ACCORDANCE WITH THE DRAWINGS.
34. THIS PROJECT WILL COMPLY WITH THE PENNSYLVANIA CODE TITLE 25 ENVIRONMENTAL PROTECTION: PART 1 DEPARTMENT OF ENVIRONMENTAL PROTECTION, SUBPART C PROTECTION OF NATURAL RESOURCES, ARTICLE II WATER RESOURCES, CHAPTER 102 EROSION AND SEDIMENT CONTROL OR THE MORE RESTRICTIVE OF THE FEDERAL, STATE, OR LOCAL POLLUTION CONTROL REGULATIONS.
35. THE PROJECT AREA IS MARKED AS THE LOD AND IS OFTEN REFERRED TO AS WORK SPACE. NO CONSTRUCTION WORK IS ALLOWED OUTSIDE THE LOD.
36. AS STATED IN PENNSYLVANIA CODE CHAPTER 102.22, UPON TEMPORARY CESSATION OF AN EARTH DISTURBANCE ACTIVITY OR ANY STAGE OR PHASE OF AN ACTIVITY WHERE A CESSATION OF EARTH DISTURBANCE ACTIVITIES WILL EXCEED 4 DAYS, THE SITE SHALL BE IMMEDIATELY SEEDED, MULCHED, OR OTHERWISE PROTECTED FROM ACCELERATED EROSION AND SEDIMENTATION PENDING FUTURE EARTH DISTURBANCE ACTIVITIES.
37. IF THE CONTRACTOR CHOOSES TO CHANGE THE PLAN, APPROVED INSTALLATION METHODS (SUCH AS OPEN TRENCH TO HDD) THE APPLICANT'S ENGINEER MUST FIRST CONTACT THE CHESTER COUNTY CONSERVATION DISTRICT TO DISCUSS PERMIT MODIFICATIONS (102.11(A)(1).
38. NO WORK SHALL BEGIN IN CHAPTER 105 REGULATED AREAS, WETLANDS AND WATERWAYS, UNTIL ALL CHAPTER 105 PERMITS ARE ISSUED.
39. CONCRETE WASHOUT SHALL CONSIST ONLY OF RINSE WATER FROM THE CHUTES OF THE CONCRETE TRUCK. THIS RINSE WATER WILL BE DIRECTED TO THE EXCAVATION AREA AT AN APPROPRIATE LOCATION IDENTIFIED BY THE ON-SITE ENVIRONMENTAL INSPECTOR.

LIMITATIONS OF PENNSYLVANIA SOILS PERTAINING TO EARTHMOVING PROJECTS

SOIL SERIES	CUTBANKS CAVE	CORROSIVE TO CONCRETE/STEEL	DROUGHTY	EASILY ERODIBLE	FLOODING	DEPTH TO SATURATED ZONE/SEASONAL HIGH WATER TABLE	HYDRIC/ HYDRIC INCLUSIONS	LOW STRENGTH/ LANDSLIDE PRONE	PERCOLATION	PIPING	POOR SOURCE OF TOPSOIL	FROST ACTION	SHRINK-SWELL	POTENTIAL SINKHOLE	PONDING	WETNESS	HYDROLOGIC SOILS GROUP
Edgemont (EdC) 8-15% Slopes	X	C	X				X		X		X	X					A
Edgemont (EdD) 15-25% Slopes	X	C	X				X		X		X	X					A
Urban Land-Udorthents (UugB) 0-8% SLOPES *																	

*NOTE:
URBAN LAND-UDORTHENTS (UugB) IS NOT REFLECTED IN TABLE E.1 OF PA E&S POLLUTION CONTROL MANUAL. THE USDA, SCS DESCRIBES THIS CLASSIFICATION AS URBAN AREAS WHERE A SIGNIFICANT PORTION OF THE SURFACE IS COVERED IN PAVEMENT, BUILDINGS OR OTHER ARTIFICIAL MATERIALS.

SOIL LIMITATIONS AND RESOLUTIONS

LIMITATION	RESOLUTION
CUT BANKS CAVE	TRENCHES SHALL BE EXCAVATED WITH APPROPRIATE LAYBACK BANKS TO PREVENT CAVE-INS. SPOIL WILL BE LOCATED AT A SUFFICIENT DISTANCE AWAY FROM THE TRENCH. IN THE EVENT GROUNDWATER IS ENCOUNTERED, THE CONTRACTOR SHALL EMPLOY DEWATERING MEASURES. CONTRACTOR SHALL ENSURE THAT PROPER SHORING METHODS AND SAFETY PROCEDURES ARE UTILIZED TO KEEP WORKERS SAFE.
CORROSIVE TO CONCRETE OR STEEL	STEEL PIPES SHALL BE COATED WITH CORROSION RESISTANT MATERIAL.
DROUGHTY	NO ADDITIONAL ACTION REQUIRED OTHER THAN THE APPROPRIATE EROSION AND SEDIMENT CONTROL SHOWN ON THE DRAWINGS.
EASILY ERODIBLE	ALL DISTURBED AREAS SHALL BE SEEDED IN ACCORDANCE WITH THE ESCP DOCUMENTS.
HIGH WATER TABLE	PUMPS SHALL BE UTILIZED WHERE GROUNDWATER IS ENCOUNTERED.
LOW STRENGTH	TRENCHES SHALL BE EXCAVATED WITH APPROPRIATE LAYBACK BANKS TO PREVENT CAVE-INS. SPOIL WILL BE LOCATED AT A SUFFICIENT DISTANCE AWAY FROM THE TRENCH.
SLOW PERCOLATION	APPROPRIATE BMPS WILL BE USED TO MAINTAIN EXISTING CONDITIONS AS SHOWN ON THE DRAWINGS.
PIPING	TRENCH PLUGS SHALL BE UTILIZED IN ACCORDANCE WITH THE STANDARD DETAIL IN THE DRAWINGS. WATER WILL BE DIVERTED AWAY FROM OPEN TRENCHES.
POOR TOPSOIL	TOPSOIL WILL BE REPLACED WHEN APPLYING PERMANENT SEEDING. SOIL AMENDMENTS (LIME, FERTILIZER) WILL BE ADDED.
FROST ACTION	THE TIMEFRAME FOR CONSTRUCTION IS EXPECTED TO BE BEFORE THE FIRST FROST EVENT.
WETNESS	STABILIZATION AND/OR DEWATERING MEASURES APPLIED WHERE APPROPRIATE.
HYDRIC	VERY LIMITED DISTURBANCE PROPOSED. WETLANDS DELINEATED AND SHOWN ON THE PLAN.
SHRINK-SWELL	NO NEW PERMANENT ACCESS ROADS, BUILDING FOUNDATIONS, ETC. TO EFFECT. NO ADDITIONAL ACTION BEYOND ESCP.
POTENTIAL SINKHOLES	PROPERLY MANAGE DRAINAGE REGULATED TO SITE CONSTRUCTION. IF ENCOUNTERED, FOLLOW BMP METHODOLOGY TO ADDRESS SINKHOLE REPAIR, FIGURE NOS. 17-1 THROUGH 17-4.

NOTE:

THIS PROJECT IS TO ADD OR REPLACE CATHODIC PROTECTION MEASURES IN AN EXISTING RIGHT-OF-WAY INVOLVING MINIMAL EXCAVATION/DISTURBANCE. UPON REVIEW OF NRCS SOILS REPORT FOR THE PROJECT AREA, THE ABSENCE OF KARST/SINKHOLE FORMATIONS AND UNDERGROUND AND SURFACE MINING SITES AS REFLECTED BY PADEP'S EMAP PA WEBSITE, AND CONSIDERING NO WATER QUALITY ISSUES HAVE BEEN ENCOUNTERED WITHIN THE EXISTING PIPELINE RIGHT-OF-WAY, IT IS NOT ANTICIPATED THAT ANY GEOLOGIC FORMATIONS OR SOIL CONDITIONS WILL BE ENCOUNTERED IN WORK ASSOCIATED WITH THIS EXISTING PIPELINE PROJECT WHICH MAY CAUSE SURFACE WATER POLLUTION.

REV.	DATE	DESCRIPTION	P.M.
2	04/29/20	GENERAL REVISIONS PER CALN TOWNSHIP	BCS
1	02/18/20	GENERAL REVISIONS PER C.C.C.D	BCS

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Columbia Gas Transmission

E&S CONTROL NOTES

EROSION AND SEDIMENT CONTROL PLAN
PROPOSED LINES 1278, 1278 LOOP AND 1896 PROJECT-2020
WILLIAMS STATION
CHESTER COUNTY, PA
Prepared For
COLUMBIA GAS TRANSMISSION, LLC
1700 MACCORKLE AVE., SE, CHARLESTON, WEST VIRGINIA 25314

CAD BY	JSC	03/15/19	PROJECT NO. B19-099-2207	SHEET 1 OF 3
CHECKED BY				
APPROVED BY			DRAWING NO. B19-099-D30	

PROJECT DESCRIPTION

COLUMBIA'S LINES 1278, 1278 LOOP, AND 1896 CATHODIC PROTECTION 2020 PROJECT IN CHESTER COUNTY ENTAILS IMPROVEMENTS TO THE CATHODIC PROTECTION SYSTEM THAT PROTECTS THESE EXISTING NATURAL GAS PIPELINES. THIS SYSTEM WILL REDUCE FUTURE PIPELINE CORROSION AND POTENTIAL INTEGRITY ISSUES. HISTORICALLY LOW POTENTIAL READINGS BETWEEN THE DOWNINGTOWN AND EAGLE COMPRESSOR STATIONS REQUIRES MITIGATION OF THE CATHODIC PROTECTION SYSTEMS INCLUDING THE INSTALLATION OF LINEAR ANODES, RECTIFIERS, SOLID STATE DECOUPLERS, AND TEST STATIONS. THESE MODIFICATIONS ARE REQUIRED AT TWO AREAS ALONG THE EXISTING PIPELINE RIGHT-OF-WAY (ROW), ONE OF WHICH KNOWN AS WILLIAMS STATION, IS LOCATED PARTIALLY WITHIN EAST BRANDYWINE TOWNSHIP WHERE APPROXIMATELY 625 FEET OF LINEAR ANODE CABLE WILL BE INSTALLED WITHIN COLUMBIA'S EXISTING MAINTAINED PIPELINE RIGHT-OF-WAY (ROW). A RECTIFIER AND TWO JUNCTION BOXES ASSOCIATED WITH THE NEW CATHODIC PROTECTION SYSTEM WILL BE INSTALLED WITHIN THE ROW AS WELL. THE LIMITS-OF-DISTURBANCE FOR THE PORTION OF THE PROJECT IN EAST BRANDYWINE TOWNSHIP IS 0.66 ACRE IN SIZE AND CONFINED TO COLUMBIA'S EXISTING PERMANENT PIPELINE ROW. THE REMAINING PORTION OF THE WILLIAMS STATION WORK AREA EXTENDS INTO CALN TOWNSHIP (0.31 ACRE). THE LINEAR ANODE CABLE WILL BE INSTALLED VIA PLOWING IF POSSIBLE, OR BY EXCAVATION IF PLOWING IS NOT POSSIBLE DUE TO THE PRESENCE OF SUBSURFACE ROCK. DUE TO THE LIMITED NATURE OF DISTURBANCE FOR THIS PROJECT, DISTURBANCE ASSOCIATED WITH THE LINEAR ANODE CABLE INSTALLATION WILL BE SHORT TERM WITH BACKFILLING, SEEDING, AND MULCHING OCCURRING SHORTLY AFTER INITIAL DISTURBANCE. ACCESS TO THE WORK AREA WILL BE GAINED FROM THE NORTH VIA AN EXISTING PRIVATE DRIVEWAY TO COMBINED WILLIAMS/COLUMBIA FACILITIES. THIS PROJECT WILL ENTAIL TEMPORARY IMPACTS TO TWO PERENNIAL STREAMS, TWO EPHEMERAL STREAMS, AND ONE PALUSTRINE EMERGENT (I.E., HERBACEOUS) WETLAND. ALL RESOURCES AND TOPOGRAPHIC CONTOURS WILL BE RESTORED TO THEIR PRE-CONSTRUCTION CONDITION. NO CHANGES IN LAND COVER WILL OCCUR AND NO STRUCTURAL POST-CONSTRUCTION STORMWATER BEST MANAGEMENT PRACTICES ARE PROPOSED.

TO ADDRESS THE STREAM AND WETLAND IMPACTS ASSOCIATED WITH THIS PROJECT UNDER CHAPTER 105 OF THE PENNSYLVANIA CODE TITLE 25, A JOINT PERMIT APPLICATION WAS SUBMITTED TO THE PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL PROTECTION (PADEP) SOUTHEAST REGIONAL OFFICE ON FEBRUARY 14, 2020. THE REVIEW OF THIS PERMIT APPLICATION IS ONGOING. IN ADDITION, ALTHOUGH THE LIMITS OF DISTURBANCE FOR THIS PROJECT WERE BELOW THE 5 ACRE THRESHOLD FOR REQUIRING A CHAPTER 102 PERMIT UNDER THE PENNSYLVANIA CODE TITLE 25 FOR AN OIL AND GAS ACTIVITY, AN ADEQUACY REVIEW OF THE EROSION AND SEDIMENT CONTROL PLAN (ESCP) IS REQUIRED DUE TO THE NEED FOR A CHAPTER 105 PERMIT. TO ADDRESS THIS, THE ESCP FOR THE WILLIAMS STATION WORK AREA WAS SUBMITTED TO THE CHESTER COUNTY CONSERVATION DISTRICT (CCCD) ON FEBRUARY 13, 2020. TECHNICAL COMMENTS HAVE BEEN RECEIVED FROM CCCD AND A RESPONSE IS IN PREPARATION. COLUMBIA ENGAGED IN A THOROUGH PROJECT PLANNING PROCESS PRIOR TO THESE PERMIT SUBMISSIONS AND NO FUTURE CHANGES TO THE PROJECT PLANS OR ESCP AT COLUMBIA'S INITIATION ARE ANTICIPATED. HOWEVER, IF PROJECT PLANS OR THE ESCP CHANGE DUE TO AGENCY COMMENTS, UPDATED COPIES WILL BE SENT TO ALL REVIEWING AGENCIES. THE PENNSYLVANIA NATURAL DIVERSITY INVENTORY (PNDI) REVIEW PROCESS HAS BEEN COMPLETED AS A REQUIRED COMPONENT OF THE CHAPTER 105 JOINT PERMIT APPLICATION DESCRIBED ABOVE. THE INITIAL REVIEW RESULTED IN THE IDENTIFICATION OF POTENTIAL CONFLICTS WITH THREE PLANT SPECIES UNDER THE JURISDICTION OF THE PENNSYLVANIA DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES AND AN UNIDENTIFIED SENSITIVE SPECIES UNDER THE JURISDICTION OF THE PENNSYLVANIA FISH AND BOAT COMMISSION (PFBC). AFTER SUBMITTING ADDITIONAL INFORMATION, THESE AGENCIES ISSUED CLEARANCE LETTERS.

SPECIAL MANAGEMENT AREAS PRESENT AT THE PROJECT SITE INCLUDE:

- STREAMS THAT DRAIN TO WATERS LISTED AS IMPAIRED BY PADEP – PADEP INTEGRATED LIST STATUS = NOT MAPPED, BUT RECEIVING WATER IS IMPAIRED. THE LISTED CAUSES ARE FLOW REGIME MODIFICATION, HABITAT MODIFICATION – OTHER THAN HYDROMODIFICATION, HABITAT ALTERATIONS, AND UNKNOWN. THE LISTED SOURCE FOR ALL OF THESE IS URBAN RUNOFF/STORM SEWERS.
- WATERS WITH APPROVED TOTAL MAXIMUM DAILY LOADS (TMDLS) – TOTAL MAXIMUM DAILY LOAD STATUS (TMDL) = THE PROJECT AREA IS WITHIN THE CHRISTINA RIVER BASIN. MULTIPLE TMDLS FOR THE CHRISTINA RIVER WATERSHED, INCLUDING THE PROJECT STREAMS, HAVE BEEN DEVELOPED. THESE TMDLS ADDRESS BACTERIA AND SEDIMENT (HIGH FLOW), NUTRIENTS AND LOW DISSOLVED OXYGEN (HIGH FLOW), AND NUTRIENTS AND DISSOLVED OXYGEN (LOW FLOW).

UPLAND CONSTRUCTION SEQUENCE

1. NOTIFY COUNTY OR STATE PERMITTING AUTHORITY AS REQUIRED PRIOR TO CONSTRUCTION ACTIVITY. CONSTRUCTION WILL BEGIN APPROXIMATELY MAY, 2020 AND END APPROXIMATELY OCTOBER, 2020
2. ALL REQUIRED PERIMETER E&S CONTROL BMPS FOR THE CONSTRUCTION ACTIVITIES SHALL BE INSTALLED PRIOR TO STARTING ANY EARTH DISTURBANCE ACTIVITY. THIS INSTALLATION SHALL INCLUDE COMPOST FILTER SOCKS, WOOD MAT AND ROCK CONSTRUCTION ENTRANCES, ALL OF WHICH MUST BE INSTALLED AS INDICATED ON THE PLAN DRAWINGS TO PREVENT SEDIMENTATION TO THE ADJACENT ROADWAYS. COMPOST FILTER SOCK WITHIN ROW ALONG LINEAR ANODE INSTALLATION WILL BE PLACED IMMEDIATELY FOLLOWING TRENCH EXCAVATION AND BACKFILL.
3. AREAS WITH WATER OBSTRUCTION OR ENCROACHMENT ACTIVITY SHALL BE CONDUCTED IN ACCORDANCE WITH THIS PLAN AND CHAPTER 105 REQUIREMENTS.
4. ACCESS WILL EITHER BE ALONG THE EXISTING, MAINTAINED ROW, OR FROM THE APPROVED ACCESS ROADS AS SHOWN ON THESE PLANS.
5. WHEN WORKING WITHIN OR NEAR ROADWAYS, COLUMBIA WILL IMPLEMENT APPROPRIATE TRAFFIC CONTROL AND SAFETY MEASURES.
6. THE PROJECT WILL TAKE PLACE WITHIN THE EXISTING MAINTAINED PIPELINE ROW AND ADDITIONAL AREAS AS DEPICTED.
7. IF NECESSARY, DEWATERING OF THE EXCAVATIONS WILL BE PERFORMED BY PUMPING ANY EXCESS WATER FROM THE TRENCH INTO A NON-WOVEN GEOTEXTILE FILTER BAG. THE BAG WILL BE PLACED IN A WELL-VEGETATED UPLAND AREA ADJACENT TO THE CONSTRUCTION AREA.
8. THE LINEAR TRENCH AND EXCAVATION ASSOCIATED WITH TEST STATIONS, JUNCTION BOXES AND RECTIFIERS WILL BE BACKFILLED AND PERMANENTLY STABILIZED ACCORDING TO THE ATTACHED SEEDING SPECIFICATIONS TABLE (SECTION 8), OR ACCORDING TO LANDOWNER SPECIFICATIONS.
9. THE LENGTH OF ROW DISTURBED AT ANY ONE TIME WILL BE KEPT TO THE MINIMUM REQUIRED TO EFFICIENTLY COMPLETE THE PROJECT. ALL DISTURBED AREAS WILL BE STABILIZED IMMEDIATELY (TEMPORARILY OR PERMANENTLY) AFTER EARTH DISTURBANCE ACTIVITIES ARE COMPLETED. REFER TO STANDARD CONSTRUCTION NOTE 9. SITE RESTORATION IS TO BE CONDUCTED WITH ENGINEERING OVERSIGHT OR DIRECTION. THE NOTICE OF TERMINATION WILL REFLECT THE ENGINEER'S SIGN OFF.
10. FOLLOWING PERMANENT STABILIZATION OF A MINIMUM UNIFORM 70% PERENNIAL VEGETATIVE COVER, WITH A DENSITY CAPABLE OF RESISTING ACCELERATED EROSION AND SEDIMENTATION, ALL E&S CONTROL BMPS MUST BE REMOVED FROM THE SITE AND RECYCLED OR DISPOSED OF IN ACCORDANCE WITH THE WASTE MANAGEMENT REGULATIONS AT 25 PA CODE 260.1 ET SEQ., 271.1, AND 287.1 ET SEQ.
11. ALL EARTH DISTURBANCE ASSOCIATED WITH REMOVAL OF E&S CONTROL BMPS MUST BE IMMEDIATELY REPAIRED AND PERMANENTLY STABILIZED IN ACCORDANCE WITH THE SEEDING SPECIFICATIONS TABLE (SECTION 8), OR ACCORDING TO LANDOWNER SPECIFICATIONS.

WETLAND CONSTRUCTION SEQUENCE:

1. FLAG WETLAND BOUNDARIES PRIOR TO CLEARING.
2. NO REFUELING OF MOBILE EQUIPMENT IS ALLOWED WITHIN 100 FEET OF WETLAND. PLACE "NO FUELING" SIGN POST APPROXIMATELY 100 FEET FROM WETLAND BOUNDARY. REFUEL STATIONARY EQUIPMENT AS PER THE PROJECTS SPILL PREVENTION PROCEDURES.
3. INSTALL TEMPORARY SLOPE BREAKER UPSLOPE WITHIN 100 FEET OF WETLAND BOUNDARY IF DIRECTED BY THE PROJECT CONSTRUCTION MANAGER OR ENVIRONMENTAL INSPECTOR.
4. INSTALL TIMBER MATS THROUGH ENTIRE WETLAND AREA. EQUIPMENT NECESSARY FOR RIGHT-OF-WAY CLEARING MAY MAKE ONE (1) PASS THROUGH THE WETLAND BEFORE MATS ARE INSTALLED. GEOTEXTILE FABRIC MAY BE INSTALLED UNDER TIMBER MATS, WHERE REQUIRED.
5. AVOID ADJACENT WETLANDS. INSTALL SEDIMENT BARRIERS (STRAW BALES AND/OR SILT FENCE) AT DOWN SLOPE EDGE OF RIGHT-OF-WAY AND ALONG EDGE AS REQUIRED. A SEDIMENT FILTER DEVICE WILL BE PLACED ACROSS THE WORKSPACE AT THE WETLAND EDGE, IMMEDIATELY UPSLOPE OF THE WETLAND BOUNDARY AS WELL.
6. RESTRICT ROOT GRUBBING TO ONLY THAT AREA OVER THE DITCHLINE AND DITCH SPOIL AREAS AND REMOVE FROM WETLAND FOR DISPOSAL.
7. TOPSOIL STRIPPING SHALL NOT BE REQUIRED IN SATURATED SOIL CONDITIONS.
8. LEAVE HARD PLUGS AT EDGE OF WETLAND UNTIL JUST PRIOR TO TRENCHING.
9. ASSEMBLE THE PIPELINE IN AN UPLAND AREA UNLESS THE WETLAND IS DRY ENOUGH TO ADEQUATELY SUPPORT SKIDS AND PIPE.
10. TRENCH THROUGH WETLANDS. DO NOT TRENCH THE WETLAND UNTIL THE PIPELINE IS ASSEMBLED AND READY FOR LOWERING IN.
11. LOWER-IN PIPE, INSTALL TRENCH PLUGS AT WETLAND EDGES AS REQUIRED AND BACKFILL IMMEDIATELY.
12. REMOVE TIMBER MATS OR PRE-FABRICATED MATS FROM WETLAND UPON COMPLETION AND ACCESS IS NO LONGER NEEDED.
13. RESTORE GRADE TO NEAR PRE-CONSTRUCTION TOPOGRAPHY, REPLACE TOPSOIL IF SALVAGED AND INSTALL PERMANENT EROSION CONTROL.

MAINTENANCE PROGRAM

THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR CLEANING AND MAINTAINING ALL E&S CONTROL FACILITIES IN ACCORDANCE WITH THE APPROVED DRAWINGS.

THE E&S CONTROL MEASURES SHALL BE MAINTAINED UNTIL ALL GROUND DISTURBING ACTIVITIES CEASE AND UNTIL A REPRESENTATIVE OF THE PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL PROTECTION DETERMINES THE PROJECT AREA HAS BEEN STABILIZED.

STABILIZATION IS DEFINED AS A UNIFORM, 70 PERCENT, PERENNIAL VEGETATIVE COVER OVER THE ENTIRE DISTURBED AREA.

THE CONTRACTOR SHALL INSPECT THE E&S CONTROL DEVICES AS SPECIFIED. RECORDS OF THE MAINTENANCE INSPECTIONS SHALL BE LOGGED ONTO THE PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL PROTECTION FORM 3150-FM-BWEW0083, DATED 3/2012, AND KEPT ON SITE AT ALL TIMES. SEDIMENT REMOVED FROM BEHIND SEDIMENT BARRIERS WILL BE DEPOSITED IN THE DISPOSAL AREA. MATERIAL TAKEN TO A DISPOSAL SITE SHALL BE PROTECTED FROM EROSION BY UTILIZING THE SAME METHODS USED TO PREVENT EROSION OF PROJECT EMBANKMENTS. THE DISPOSAL SITE SHALL BE SEEDED AND MULCHED IMMEDIATELY. ANY OFFSITE DISPOSAL SHOULD HAVE AN APPROVED E&S PLAN. ANY STABILIZED AREAS WHICH ARE DISTURBED DURING MAINTENANCE ACTIVITIES SHALL BE SEEDED AND MULCHED WITHIN 24 HOURS.

THE SPECIFIC CRITERIA FOR MAINTENANCE OF THE E&S CONTROL DEVICES SHALL BE AS FOLLOWS:

COMPOST FILTER SOCK

COMPOST FILTER SOCK SHALL BE INSPECTED ON A WEEKLY BASIS AND AFTER EACH RUNOFF EVENT. RESULTS OF SUCH INSPECTIONS MUST BE REVIEWED WITH THE INSPECTOR. IMMEDIATELY CLEAN, REPAIR, OR REPLACE SOCK THAT IS IN UNSATISFACTORY CONDITION (LOOSE OR BROKEN STAKES, DETERIORATED FABRIC, ETC.) OR IS BEYOND THE LIFE EXPECTANCY RECOMMENDED BY THE MANUFACTURER. REPAIR ANY UNDERCUTTING OR EROSION OF THE TOE ANCHOR WITH A ROCK FILTER OUTLET. REMOVE ACCUMULATED SEDIMENT AS REQUIRED AND DISTRIBUTED IN UPLAND LOCATIONS ACCORDING TO THE E&S PLAN, NOT ALLOWING THE SEDIMENT TO EXCEED ONE-HALF (1/2) THE HEIGHT OF THE SOCK.

ROCK CONSTRUCTION ENTRANCE

ROCK CONSTRUCTION ENTRANCE THICKNESS SHALL BE CONSTANTLY MAINTAINED TO THE SPECIFIED DIMENSIONS BY ADDING STONE. ENTRANCES SHOULD BE INSPECTED WEEKLY AND AFTER EACH RUNOFF EVENT. A STOCKPILE SHALL BE MAINTAINED ON-SITE FOR THIS PURPOSE. ALL SEDIMENT DEPOSITED ON PAVED ROADWAYS SHALL BE REMOVED AND RETURNED TO THE CONSTRUCTION SITE IMMEDIATELY. IF EXCESSIVE AMOUNTS OF SEDIMENT ARE BEING DEPOSITED ON ROADWAY, EXTEND LENGTH OF ROCK CONSTRUCTION ENTRANCE BY 50 FOOT INCREMENTS UNTIL CONDITION IS ALLEVIATED OR INSTALL WASH RACK. WASHING THE ROADWAY OR SWEEPING THE DEPOSITS INTO ROADWAY DITCHES, SEWERS, CULVERTS, OR OTHER DRAINAGE COURSES IS NOT ACCEPTABLE.

PUMPED WATER FILTER BAG

FILTER BAGS SHALL BE INSPECTED DAILY AND AFTER EACH RUNOFF EVENT. IF ANY PROBLEM IS DETECTED, PUMPING SHALL CEASE IMMEDIATELY AND NOT RESUME UNTIL THE PROBLEM IS CORRECTED.

MAINTENANCE PROGRAM (CONTINUED)

WOOD MAT

TEMPORARY WETLAND CROSSINGS SHOULD BE CONSTRUCTED FROM MATERIALS THAT CAN BE PLACED WITH MINIMUM DISTURBANCE TO THE SURFACE AND COMPLETELY REMOVED WHEN NO LONGER NEEDED. A GEOTEXTILE UNDERLAYMENT SHALL BE PLACED UNDER THE MAT.

EROSION CONTROL BLANKET

BLANKETED AREAS TO BE INSPECTED WEEKLY AND AFTER EACH RUNOFF EVENT UNTIL PERENNIAL VEGETATION IS ESTABLISHED TO A UNIFORM 70% COVERAGE THROUGHOUT THE BLANKETED AREA. DAMAGED OR DISPLACED BLANKETS SHALL BE RESTORED OR REPLACED WITHIN 4 CALENDAR DAYS.

TEMPORARY BRIDGE STREAM CROSSING

ADHERE TO CHAPTER 105 PERMIT CONDITIONS. CROSSING TO BE INSPECTED ON A DAILY BASIS, WITH DAMAGED CROSSING REPAIRED WITHIN 24 HOURS. SEDIMENT DEPOSITS ON THE CROSSING OR ITS APPROACHES SHALL BE REMOVED WITHIN 24 HOURS OF INSPECTION.

FLUMED STREAM CROSSING WITH OPTIONAL ACCESS ROAD

IF THERE IS NO BASE FLOW AT THE TIME OF CROSSING, BYPASS IS NOT REQUIRED PROVIDED CROSSING IS COMPLETED - FROM INITIAL DISTURBANCE TO FINAL STABILIZATION - WITHIN ONE DAY. ENSURE ADHERENCE TO PLAN DETAIL REGARDING HANDLING OF EXCESS EXCAVATED MATERIAL, STREAMBANK PROTECTION, ETC.

STREAM CROSSING WITH PUMP BYPASS

IF THERE IS NO BASE FLOW AT THE TIME OF CROSSING, BYPASS IS NOT REQUIRED PROVIDED CROSSING IS COMPLETED - FROM INITIAL DISTURBANCE TO FINAL STABILIZATION - WITHIN ONE DAY. ENSURE ADHERENCE TO PLAN DETAIL REGARDING HANDLING OF EXCESS EXCAVATED MATERIAL, STREAMBANK PROTECTION, ETC.

PRE AND POST CONSTRUCTION STORMWATER RUNOFF CONSIDERATIONS

THIS IS A SHORT TERM (5 MONTH) PROJECT AND ANY PROPOSED TEMPORARY IMPERVIOUS AREAS WILL BE REMOVED PRIOR TO SITE RESTORATION. THE SITE IS TO BE RESTORED TO ORIGINAL CONDITIONS AFTER CONSTRUCTION. THEREFORE, NO CHANGE IN DRAINAGE PATTERNS, PEAK RUNOFF RATE, OR RUNOFF VOLUME IS ANTICIPATED AS A RESULT OF THIS PROJECT.

REV.	DATE	DESCRIPTION	P.M.

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Columbia Gas Transmission

E&S CONTROL NOTES

EROSION AND SEDIMENT CONTROL PLAN
PROPOSED LINES 1278, 1278 LOOP AND 1896 PROJECT–2020
WILLIAMS STATION
CHESTER COUNTY, PA
Prepared For
COLUMBIA GAS TRANSMISSION, LLC
1700 MACCORKLE AVE., SE, CHARLESTON, WEST VIRGINIA 25314

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SEED MIX REQUIREMENTS FOR UPLAND ROW PERMANENT STABILIZATION

SEED (SEE NOTE 1) :
- ORCHARD GRASS AND/OR TALL FESCUE (SEE NOTE 1)
  APPLICATION RATE: 29 LB./ACRE
- BIRDSFOOT-TREFOIL (EMPIRE) (SEE NOTE 3)
  APPLICATION RATE: 9 LB./ACRE
- ANNUAL RYE
  APPLICATION RATE: 12 LB./ACRE

FERTILIZER (SEE NOTE 3) :
- 10-20-20 (OR EQUIVALENT)
  FERTILIZER APPLICATION RATE: 1,000 LB./ACRE (SEE NOTE 4)

AGRICULTURAL LIME
APPLICATION RATE: 6 TON / ACRE

MULCH TYPE:
- HAY OR STRAW
  MULCHING RATE: 3 TON / ACRE

SEED MIX FOR TEMPORARY STABILIZATION

SPECIES:
- ANNUAL RYE
  APPLICATION RATE: 40 LB. / ACRE

MULCH TYPE:
- HAY OR STRAW
  MULCHING RATE: 3 TON / ACRE

FERTILIZER (SEE NOTE 3) :
- 10-10-10 (OR EQUIVALENT)
  FERTILIZER APPLICATION RATE: 500 LB./ACRE (SEE NOTE 4)

AGRICULTURAL LIME
APPLICATION RATE: 1 TON / ACRE

SEED MIX REQUIREMENTS FOR WETLANDS

SPECIES:
- ANNUAL RYE
  APPLICATION RATE: 40 LB. / ACRE

*ANNUAL RYE IS USED AS A VEGETATIVE MEASURE UNTIL INDIGENOUS PLANTS RE-ESTABLISH COVER. A MONITORING PROGRAM WILL BE IN EFFECT TO ENSURE ADEQUATE COVER IS ESTABLISHED.

TOPSOIL CONSERVATION

(FROM COLUMBIA GAS TRANSMISSION ECS MANUAL)

1. TOPSOIL SHALL NOT BE MIXED WITH SUBSOIL.
2. TOPSOIL WILL BE STOCKPILED SEPARATELY FROM SUBSOIL AND REPLACED LAST DURING FINAL GRADING.
3. IN RESIDENTIAL AREAS, TOPSOIL REPLACEMENT IS ACCEPTABLE WITH PRIOR APPROVAL.

NOTES:
1. PURE LIVE SEED WITHIN 12 MONTHS OF TESTING.
2. IF TALL FESCUE IS USED, PLANT ENDOPHYTE-FREE CERTIFIED SEED.
3. LEGUMES TO BE INOCULATED BY MANUFACTURER'S RECOMMENDATIONS, IF NOT AVAILABLE LEGUMES ARE TO BE INOCULATED AT 4 TIMES RECOMMENDED RATE FOR CONVENTIONAL METHODS. 10 TIMES RECOMMENDED RATE FOR HYDRO SEEDING.
4. WHERE WOOD CHIPS ARE SPREAD; ADDITIONAL NITROGEN (11 LBS PER TON OF CHIPS) WILL BE SPREAD.
   SEED MIXTURES OTHER THAN SHOWN ABOVE NEED TO BE APPROVED BY THE NRP GROUP, ENVIRONMENTAL INSPECTOR, AND THE APPROPRIATE GOVERNING AGENCY PRIOR TO USING.

RECEIVING STREAM DESIGNATION

LOCATION	WATERBODY NAME	MUNICIPALITY	CHAPTER 93 DRAINAGE LIST	RECEIVING STREAM NAME	STREAM ZONE DESCRIPTION(1)	CHAPTER 93 WATER QUALITY STANDARD(1,2)
PROJECT WATERSHED	UNT'S OF EAST BRANCH BRANDYWINE CREEK	EAST BRANDYWINE/ CALN TOWNSHIPS	DRAINAGE LIST G- DELEWARE RIVER BASIN IN PA, DELAWARE RIVER	EAST BRANCH BRANDYWINE CREEK OF BRANDYWINE CREEK	BASINS, IN EAST BRANDYWINE AND UWCHLAN TOWNSHIPS	HQ-TSF, MF

1 DESIGNATED WATER USES AND WATER QUALITY CRITERIA AS DEFINED BY PA CODE §93.9
2 HQ-TSF: HIGH QUALITY WATERS - TROUT STOCKING; MF: MIGRATORY FISHES; WWF: WARM WATER FISHES; CWF: COLD WATER FISHES

TABLE 4.1
Compost Sock Fabric Minimum Specifications

Material Type	3 mil HDPE	5 mil HDPE	5 mil HDPE	Multi-Filament Polypropylene (MFPP)	Heavy Duty Multi-Filament Polypropylene (HDMFPP)
Material Characteristics	Photo-degradable	Photo-degradable	Bio-degradable	Photo-degradable	Photo-degradable
Sock Diameters	12" 18"	12" 18" 24" 32"	12" 18" 24" 32"	12" 18" 24" 32"	12" 18" 24" 32"
Mesh Opening	3/8"	3/8"	3/8"	3/8"	1/8"
Tensile Strength		26 psi	26 psi	44 psi	202 psi
Ultraviolet Stability % Original Strength (ASTM G-155)	23% at 1000 hr.	23% at 1000 hr.		100% at 1000 hr.	100% at 1000 hr.
Minimum Functional Longevity	6 months	9 months	6 months	1 year	2 years
Two-ply systems					
			HDPE biaxial net		
			Continuously wound		
Inner Containment Netting			**Fusion-welded junctures**		
			3/4" X 3/4" Max. aperture size		
Outer Filtration Mesh			**Composite Polypropylene Fabric (Woven layer and non-woven fleece mechanically fused via needle punch)**		
			3/16" Max. aperture size		
Sock fabrics composed of burlap may be used on projects lasting 6 months or less.					

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TABLE 4.2
Compost Standards

Organic Matter Content	80% - 100% (dry weight basis)
Organic Portion	Fibrous and elongated
pH	5.5 - 8.0
Moisture Content	35% - 55%
Particle Size	98% pass through 1" screen
Soluble Salt Concentration	5.0 dS/m (mmhos/cm) Maximum

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