pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

December 13, 2019

Via Hand Delivery

Tom Glisson
ETC Northeast Pipeline, LLC
6051 Wallace Run Extension
Wexford, PA 15090

Re: Revolution Pipeline Project ("Project")
October 29, 2018 Administrative Order and March 26, 209 Commonwealth Court Order
ESCGP-2 Permit Nos. ESG0007160001, ESG000716001, ESG00007170002 ("ESCGP's")
Temporary Slope Stabilization Plan, Landslide Hazard Evaluation, and Updated Erosion and Sedimentation Pollution Control Plan

Dear Mr. Glisson:

The Department of Environmental Protection ("Department") has reviewed ETC Northeast Pipeline, LLC's ("ETC") Temporary Slope Stabilization Plan ("Stabilization Plan"), Landslide Hazard Evaluation and Temporary Slope Stabilization Plan ("Landslide Plan"), and Erosion and Sedimentation Pollution Control Plan ("ESC Plan") (collectively the "Plans") submitted pursuant to the Department's October 29, 2018 Compliance Order regarding the Project. ETC modified the Plans in response to the deficiencies identified by the Department.

The Plans with the final revisions received through December 9, 2019 are hereby approved subject to the following conditions (this letter is referred to as the "Conditional Approval of the Plans"). The terms and conditions of the above referenced Erosion and Sedimentation Control General Permits remain in full force and effect unless modified herein. The approval of the Plans does not constitute authorization to modify the pipeline, the pipeline route, or to place the pipeline into service.

1. This approval is granted based, in part, on the Plans provided by ETC. The information provided in the Plans by ETC including all appendices, attachments, plans and supporting documentation are incorporated by reference as part of this approval and are enforceable as a condition of this authorization. If there is a conflict between the Erosion and Sedimentation Control General Permits and the Plans, the provisions of the Plans apply.

2. The Mechanized Equipment Use Requests ("MERs") previously authorized in writing by the Department are incorporated herein. These include but may not be limited to the following MERs: 001, 002, 006, 008, 009, 010, 012, 013, 015, 016, 017, 018 and 019. Any pending MERs that have been incorporated into the Plans are superseded by this authorization and are approved herein. If there is a conflict between the Plans and the MERs, the more environmentally protective provision applies.

3. In order to assess the soil and rock stability, all soil borings collected in accordance with the requirements of this Conditional Approval of the Plans and/or any approved MER shall penetrate through soil and into bedrock. This shall be done so that adequate data is collected and analyzed to complete the requisite stability analyses.

4. The Penny Hollow site (Station 1211+00 to 1219+50) is not subject to this approval and activities outlined in the Plans for the Penny Hollow site cannot commence until such time as this Conditional Approval of the Plans is modified in writing by the Department. By no later than April 30, 2020, ETC shall submit to the Department for review and approval a permanent stabilization plan for the Penny Hollow Site. By that same date, ETC shall determine if the installed sheet pile walls at the Penny Hollow site will be removed or incorporated into the permanent stabilization plan. If ETC intends to remove the sheet pile walls, then the design for permanent stabilization of the Penny Hollow site shall include details on sequencing of sheet pile removal and impacts to Penny Hollow Road.

The Penny Hollow permanent stabilization plan shall include, at a minimum, a stability analysis that achieves a factor of safety of 1.5, unless ETC can demonstrate to the satisfaction of the Department that it cannot meet a factor of safety of 1.5 using generally accepted geotechnical engineering practices, soil borings, collection of site-specific soil samples, and laboratory testing. The laboratory testing shall be performed to verify soil parameters used in the stability analysis. ETC shall conduct laboratory testing of native overburden soils and soft/weak layers within bedrock. Testing shall include moisture content, grain size analysis and Atterberg Limits testing. Testing shall also include shear strength testing of one or more of the following methods: in situ vane shear, direct shear, and/or triaxial shear strength testing. All test results shall be submitted with the stability analysis.

5. For the following sites, ETC shall commence activities in accordance with the Plans; however; by no later than March 1, 2020, ETC shall:

a. Elkhorn 1 Station 863+00 to 868+00: Perform soil borings in accordance with the approved MER(s).

b. Elkhorn 2 Station 871+50 to 873+00: Perform soil borings in accordance with the approved MER(s), collect site-specific soil samples, conduct laboratory testing on the site-specific soil samples, and perform a stability analysis. The laboratory testing shall be performed to verify soil parameters used in the stability analysis. ETC shall conduct laboratory testing of native overburden soils and soft/weak layers within bedrock. Testing shall include moisture content, grain size analysis and Atterberg Limits testing. Testing shall also include shear strength testing of one or more of the following methods: in situ vane shear, direct shear, and/or triaxial shear strength testing.

c. Elkhorn 3 Station 885+00 to 888+50: Perform a stability analysis using the results of the hand augers and hand probes. The results of the hand augers and hand probes shall be submitted with the stability analysis.

d. Incident Site Station 1111+50 to 1125+00: Perform soil borings and geophysical testing in accordance with the approved MER(s), and conduct laboratory testing to verify soil parameters. Complete a revised stability analysis that incorporates the findings of all geotechnical testing. As part of the test boring program at the Incident site, laboratory testing shall be performed to verify soil parameters used in the stability analysis. ETC shall conduct laboratory testing of native overburden soils and soft/weak layers within bedrock. Testing shall include moisture content, grain size analysis and Atterberg Limits testing. Testing shall also include shear strength testing of one or more of the following methods: in situ vane shear, direct shear, and/or triaxial shear strength testing.

e. GAS Raccoon Creek Station 1169+50 to 1173+50: Verify results of the stability analysis using the results of shear testing on structural fill materials.

f. SR151 Station1495+00 to 1500+00: Perform soil borings in accordance with the approved MER(s), collect site-specific soil samples, conduct laboratory index testing, and verify results of stability analysis using results of shear testing on structural fill materials. ETC shall conduct laboratory testing of native overburden soils and soft/weak layers within bedrock. Testing shall include but not be limited to moisture content, grain size analysis and Atterberg Limits testing.

g. CIS Clinton Frankfort Station 1734+75 to 1735+00: Perform hand augers and hand probes in the fill soils above the pipeline at Station 1734+75. Perform a stability analysis. As a temporary stabilization measure, ETC shall install cellular confinement system at this location.

h. Campbell Hill Road Station 2041+00 to 2044+00: Using the results of the recently performed soil borings, collect site-specific soil samples, conduct laboratory testing, and perform a stability analysis. The laboratory testing shall be performed to verify soil parameters used in the stability analysis. ETC shall conduct laboratory testing of native overburden soils and soft/weak layers within bedrock. Testing shall include moisture content, grain size analysis and Atterberg Limits testing. Testing shall also include shear strength testing of one or more of the following methods: in situ vane shear, direct shear, and/or triaxial shear strength testing.

i. Submit to the Department stability analyses as follows. All test results and boring logs required herein shall be submitted with stability analyses. Each stability analysis shall achieve a factor of safety of 1.5 for any proposed permanent conditions unless ETC can demonstrate to the satisfaction of the Department that it cannot meet a factor of safety of 1.5 using generally accepted geotechnical engineering practices. The borings and collection of samples shall be conducted under the supervision of a qualified, professional engineer and/or professional geologist licensed to practice in the Commonwealth of Pennsylvania with experience in soil and rock slope stability analysis.

6. **Steep Side Slope Fill Segments** ("Steep Side Slope Fill Segments") are gradients of 40 percent or steeper where the pipeline is oriented parallel to contour (side slope) or oblique to contour as identified in Section 7 of the Landslide Plan.

a. In the design of the permanent stabilization ("Permanent Stabilization") of Steep Side Slope Fill Segments, ETC shall:

i. Demonstrate that the pipeline is benched into bedrock or dense, weathered rock or dense residual soil and that the pipeline is not supported on fill or colluvium. In order to fulfill this demonstration ETC shall review all past construction records and perform drive probes, hand augers and/or soft digging methods or other methods approved in writing by the Department at adequate and sufficient locations to verify competent bearing soils. By no later than April 1, 2020 ETC shall submit the results of this investigation to the Department.

ii. Propose a design that achieves a factor of safety of 1.5 unless ETC can demonstrate to the satisfaction of the Department that it cannot meet a factor of safety of 1.5 using generally accepted geotechnical engineering practices

b. ETC shall submit written notification to the Department 3 days prior to the commencement of the bulk earth disturbance activities at each Steep Side Slope Fill Segment.

c. By August 1, 2020 and in the event that 70 percent uniform vegetative cover is not established on any Steep Side Slope Fill Segment, ETC shall install an erosion and sedimentation control blanket in accordance with the Pennsylvania Stormwater Best Management Practices Manual (Document 363-0300-002 Dated December 30, 2006).

7. **Permanent Stabilization Plans**: The Permanent Stabilization Plan shall be submitted to the Department by March 1, 2020 and include but may not be limited to the sites in the Conditional Approval of the Plans. The Permanent Stabilization Plan shall include a discussion of the potential loss of cohesion based on wetting or drying of the slope over time and how the loss of cohesion will affect the factor of safety. ETC shall perform additional SPT borings and drive probes to characterize the soil conditions and those results shall be incorporated into the Permanent Stabilization Plans and stability analysis. At any location that borings are proposed, ETC shall conduct laboratory testing of native overburden soils and soft/weak layers within bedrock. Testing shall include moisture content, grain size analysis and Atterberg Limits testing. Testing shall also include shear strength testing of one or more of the following methods: in situ vane shear, direct shear, and/or triaxial shear strength testing. All test results shall be submitted with the stability analysis. The Permanent Stabilization Plan shall include the results of a seismic stability analyses along with the stability analyses.

8. All evidence of high strength material submitted to the Department shall be site specific. At any location where ETC has shown that existing soils will be removed and replaced with compacted structural fill benched into weathered rock and/or bedrock, a qualified, professional

geologist licensed to practice in the Commonwealth of Pennsylvania with experience in structural geology and rock stability evaluations. ("LPG of Record") shall observe the excavations in rock at each site and observe the rock layers, bedding, dip and dip direction of the bedding and fractures/joints, and determine if the underlying rock condition would lead to a factor of safety lower than previously reported by ETC. If unstable rock conditions exist, ETC shall make recommendations signed and sealed by the LPG of Record to provide the factor of safety previously reported by ETC. The rock mass should provide a factor of safety of 1.3 for the temporary condition and 1.5 for the permanent condition unless ETC can demonstrate to the satisfaction of the Department that it cannot meet a factor of safety of 1.5 using generally accepted geotechnical engineering practices. If the LPG of Record determines that field conditions will not provide the required factors of safety, then ETC shall notify the Department in writing of the LPG of Record's findings within 24 hours of discovery and the recommendations for slope stability measures shall be submitted to the Department within fifteen days of the field inspection.

9. ETC shall provide a stability analysis for CIS Crow's Run Creek, Elkhorn Run Number 1, GAS Tributary of Service Creek (1312+00 to 1314+50), UNT to Service Creek (1368+80 to 1369+30) and Clinton Frankfort (1734+75 to 1735+00) to demonstrate that the permanent stabilization provides a factor of safety of 1.5 unless ETC can demonstrate to the satisfaction of the Department that it cannot meet a factor of safety of 1.5 using generally accepted geotechnical engineering practices.

10. Malfunctioning, inadequate, missing and/or poorly constructed waterbars ("WBs") are cited in the Landslide Plan as the cause of several slope failures. During the implementation of the Plans, ETC shall record the removal or repair (by location) of all existing malfunctioning, inadequate WBs. A monthly written report of the status of each existing WB shall be submitted to the Department. Each existing WB shall be identified by station number and WB number. The monthly report is due the first day of the month and shall be submitted to April Weiland.

11. By no later than April 1, 2020, ETC shall submit a plan to the Department to assess the risk of slides or unstable conditions that may affect or displace the pipeline and a plan to determine if any segment of the pipeline has been displaced by slides, instability, or earth movement. The plan shall include, but not be limited to the use of drive probes, hand augers and/or soft digging methods or other methods at sufficient locations along the pipeline route. By the same date, ETC shall confirm that at the slide near Elkhorn Run (863+00 to 888+00) that the pipeline was installed within competent dense residual soils, dense weathered rock or competent bedrock. The written report shall be submitted to April Weiland.

12. **Terra Tubes:** ETC shall inspect the Terra Tubes weekly and after each precipitation event using a licensed Professional Engineer licensed to practice engineering in the Commonwealth of Pennsylvania and competent in this field of expertise ("Engineer of Record") to ensure that the intended use of this product is achieved. A designee may not be used in place of the Engineer of Record.

a. In the event that a modification is recommended by the Engineer of Record, ETC shall immediately notify the Department that a modification is recommended. ETC shall

implement the recommended modification within 24 hours of inspection. Upon completion of the recommended modification, ETC shall immediately notify the Department that the modification has been completed. Notifications shall be sent to the attention of April Weiland.

b. Inspection reports of the Terra Tube installation shall be submitted to the Department on the first day of the month. The reports should include the weekly inspections of the preceding month. The reports shall be sent to the attention of April Weiland.

c. ETC shall inspect the additional areas of the Incident Site at the locations were Terra Tubes are not proposed for installation. The inspections shall be at the same frequency as the location of the Terra Tube installation and shall be conducted by the Engineer of Record. If the Engineer of Record or the Department determines that additional temporary stabilization measures are necessary at these locations, then ETC shall submit a written proposal to the Department. Inspection reports of these areas shall be submitted to the Department on the first day of the month. The inspection reports shall be sent to the attention of April Weiland. If the Department requests additional temporary stabilization measures, ETC shall submit a written plan to the Department within 14 days of the notice from the Department. If the Engineer of Record recommends additional temporary stabilization measures, ETC shall submit a written plan to the Department within 14 days of the recommendation.

13. **Park Road Station 1614+50 to 1616+00:** ETC shall inspect the seven drain pipes installed at this location weekly and after each precipitation event. ETC shall document the inspections and that documentation shall be made available to the Department upon request. ETC shall document, at a minimum, if there is any flow from any of the drain pipes. If there is flow from any of the pipes or if there are signs of saturation or instability, then ETC shall immediately notify the Department. Notifications shall be sent to the attention of April Weiland.

14. **Monitoring and Reporting**

a. ETC shall submit weekly written reports to the Department outlining the activities that occurred in the implementation of the Plans the preceding week. The reports are due by 3:00 p.m. on Monday and shall be submitted via email the attention of April Weiland.

b. ETC shall submit daily scatter sheets to the Department documenting work that is being conducted within the ROW. The daily scatter sheets shall be submitted via email to April Weiland.

c. By 3:00 p.m. every Friday, ETC shall submit a schedule of proposed earth moving for the following week. The proposed schedule shall be submitted via email to April Weiland.

d. ETC shall employ an Engineer of Record to inspect the erosion and sedimentation controls and best management practices. The Engineer of Record shall conduct monthly inspections of work performed during each calendar month. ETC shall submit monthly

reports signed and sealed by the Engineer of Record that work has been constructed in accordance with this approval. The written reports shall be submitted to the Department by the 15th of each month.

15. In the event that ETC determines that a modification to the approved Plans is necessary, then ETC shall submit a written request to modify the Plans to the Department. The written request shall be sent to the attention of April Weiland and include an original and two copies.

16. By December 20, 2019, ETC shall schedule a meeting date and time for a preconstruction meeting with the Department. The meeting date and time shall allow for a minimum of seven business days' notice to the Department. At a minimum, ETC shall include all contractors, the LPG of Record, the Engineer of Record, and a geotechnical engineer. By no later than the day before the date of the preconstruction meeting, ETC shall submit to the Department 7 sets of the Plans with all revisions received through December 9, 2019. Three full size drawing sets shall be submitted to the Southwest District Office (attention of Kareen Milcic) and four half scale sets shall be submitted to the Ebensburg District Office (Attention of April Weiland). Additionally, by the same date, ETC shall submit a full-sized drawing sheet numbered Sheet 109A that depicts the Revolution pipeline from station 1111+00 to 1125+00.

17. ECT shall follow the construction sequence as outlined in the Plans. No modifications to the sequence can be made without prior written authorization from the Department.

18. Within 45 days of completion of all activities authorized in the Plans, ETC shall submit three full and complete sets of as built drawings to the Department. The as built drawings shall be submitted to the Southwest District Office (Attention of Kareen Milcic).

19. The Department in this Conditional Approval of the Plans is not approving the use of an Adaptive Management Plan.

20. If conditions encountered during implementation of the Plans or if supplemental analysis indicates that the either the Stabilization Plan or the Landslide Plan require modification, ETC shall submit proposed supplemental temporary stabilization measures in a Revised Stabilization Plan. If the temporary stabilization measures that are implemented in accordance with the Plans are found to be inadequate to achieve the designed result based on additional analysis, site inspections, or evaluation, ETC shall submit proposed modifications to the Plans. The proposed modifications to the Plans shall be designed to achieve a factor of safety of 1.5 for permanent condition unless ETC can demonstrate to the satisfaction of the Department that it cannot meet a factor of safety of 1.5 using generally accepted geotechnical engineering practices.

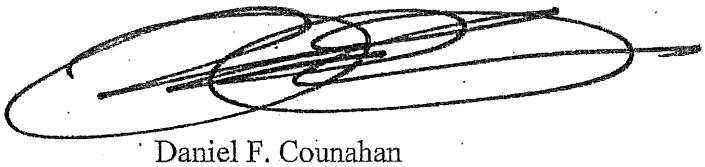
Nothing in this Conditional Approval of the Plans affects or waives the requirement that ETC permanently stabilize the Project pursuant to Chapter 102 of the Department's regulations and other applicable laws and regulations. Any measures, features, disturbances, or construction of any type conditionally approved herein may need to be replaced or altered after the analysis of the soil and rock testing required herein, including but limited to soils, stability, geologic, and seismic testing and analyses. ETC has stated that it fully accepts the responsibility to re-engineer and re-build any features approved herein as part of the permanent stabilization of the project.

The review of the Stabilization Plan and the Landslide Plan and the comments set forth in this letter were conducted and compiled by staff under the responsible charge of Mr. Brian Bailey, P.E. and Ms. Kareen Milcic, P.E. and/or were conducted and compiled by Mr. Brian Bailey and Ms. Kareen Milcic.

This letter does not alter in any way the Department's October 29, 2018 Field Order or the Commonwealth Court's Order of March 26, 2019 at Docket No. 69 M.D. 2019.

If you have should have any questions regarding this matter, please contact April Weiland at 814.472.1820.

Sincerely,



Daniel F. Counahan
District Oil and Gas Manager
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