

Section H – Project Narrative and Aquatic Resource Impact Table



**APPALACHIA TO MARKET II AND ARMAGH
AND ENTRIKEN HP REPLACEMENT PROJECTS**

LINE 28 LOOP

JOINT PERMIT APPLICATION
Project Description Narrative

August 2022

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ACRONYMS AND ABBREVIATIONS

A2M II Project	Appalachia to Market II Project
APE	Area of Potential Effects
ATWS	Additional Temporary Workspace
Dth/d	dekatherms per day
E&SCP	Erosion and Sediment Control Plan
EI	Environmental Inspector
EMD	electric-motor driven
GE	General Electric Company
hp or HP	horsepower
HUC	Hydrologic Unit Code
JPA	Joint Permit Application
LDC	local distribution company
Line 28 Loop	approximately 2 miles of 36-inch diameter looping pipeline adjacent and to the south of Texas Eastern's existing Line 12, Line 19, and Line 27 pipelines
PADEP	Pennsylvania Department of Environmental Protection
PEM	palustrine emergent
Project	Appalachia to Market II and Armagh and Entriiken HP Replacement Projects
PNDI	Pennsylvania Natural Diversity Inventory
Proposed Receiver Site	new receiver, valve, and crossover site
PSS	palustrine scrub-shrub
Removal of Existing Receiver Site	existing receiver and valve site that will be retired and removed
Replacement Projects	Armagh and Entriiken HP Replacement Projects
ROW	right-of-way
SPCC and PPC Plan	Spill Prevention Control and Countermeasure Plan and a Preparedness, Prevention, and Contingency Plan for Construction Projects
Texas Eastern	Texas Eastern Transmission, LP
TWS	temporary workspace
UDP	Unanticipated Discovery Plan
USFWS	U.S. Fish and Wildlife Service

1.0 INTRODUCTION

Texas Eastern Transmission, LP (Texas Eastern) is seeking authorization to abandon certain facilities and to construct and operate the Appalachia to Market II Project (A2M II Project) and Armagh and EntriKen HP Replacement Projects (Replacement Projects) in Pennsylvania. The A2M II Project and the Replacement Projects are comprised of overlapping facilities and therefore are treated as a single project for permitting purposes and are referred to collectively as the “Project” throughout this Project Description Narrative. The Replacement Projects are designed to improve reliability on the Texas Eastern system by replacing a 1950’s era gas-driven compressor unit with an electric-motor driven (EMD) compressor unit at two compressor stations. The A2M II Project is designed to provide up to 55,000 dekatherms per day (Dth/d) of additional firm natural gas transportation from the Appalachia supply basin in Southwest Pennsylvania to existing local distribution company (LDC) customers in New Jersey (PSEG Power LLC and Elizabethtown Gas). The facilities required for the Project are located primarily within Texas Eastern’s existing right-of-way (ROW) and at existing compressor stations owned and operated by Texas Eastern. The Project involves the following system modifications:

- Line 28 Pipeline Loop, located in Lebanon County, Pennsylvania: Install approximately 2 miles of 36-inch diameter looping pipeline generally adjacent and to the south of Texas Eastern’s existing Lines 12, 19, and 27 pipelines (Line 28 Loop) beginning at the terminus of the existing Line 28. At the western terminus of the Line 28 Loop, an existing receiver and valve site will be abandoned and removed (Removal of Existing Receiver Site). At the eastern terminus of the Line 28 Loop, a new receiver, valve, and crossover site will be constructed (Proposed Receiver Site). New permanent ROW will be required for the Line 28 Loop and the Proposed Receiver Site.
- Armagh Compressor Station Modifications, located in Indiana County, Pennsylvania: Install a 27,000 horsepower (hp) EMD compressor unit, gas coolers, filter separators, source control facilities, and associated buildings and piping at an existing compressor station to abandon and replace an existing 22,000 hp General Electric Company (GE) Frame 5 gas-driven turbine compressor unit. Additionally, a new electric substation will be constructed to provide power to the new EMD compressor. The proposed Armagh Compressor Station Modifications will occur within the operational footprint of the existing facility site and will increase the station’s total horsepower to 27,000 hp, which is an increase of 5,000 hp.
- EntriKen Compressor Station Modifications, located in Huntingdon County, Pennsylvania: Install a 24,000 hp EMD compressor unit, gas coolers, filter separators, and associated buildings and piping at an existing compressor station to abandon and replace an existing 22,000 hp GE Frame 5 gas-driven turbine compressor unit. Additionally, a new electric substation will be constructed to provide power to the new EMD compressor unit. The proposed EntriKen Compressor Station Modifications will occur primarily within the operational footprint of the existing facility site and will increase the station’s total horsepower to 24,000 hp, which is an increase of 2,000 hp.

In addition, Texas Eastern proposes to use four existing contractor yards to temporarily store and prepare pipe, equipment, and other materials needed for construction. Texas Eastern anticipates that construction contractors and/or inspection staff may maintain temporary construction office trailers at the yards and will use the yards for parking. None of the yards will be expanded, and no earth disturbance will be required for their use to support Project construction. These contractor yards are:

- Lebanon Yard, an existing, approximately 23-acre gravel commercial yard in North Lebanon Township, Lebanon County;

- Myerstown Yard, an existing, approximately 3-acre gravel parking area in Jackson Township, Lebanon County;
- Mt. Braddock Yard, an existing, approximately 20-acre pipe yard at the end of Ainsley Road in North Union Township, Fayette County; and
- Mundys Corner Yard, an existing, approximately 10-acre pipe yard in Jackson Township, Cambria County.

This Joint Permit Application (JPA) is being submitted for wetland, watercourse, and floodway impacts related to construction and operation of the Line 28 Loop in Bethel and Jackson Townships, Lebanon County, Pennsylvania. The Armagh Compressor Station Modifications will not result in wetland, watercourse, or floodway impacts. Construction and operation of the Entriaken Compressor Station Modifications will impact one watercourse and floodways of watercourses that have drainage areas less than 100 acres, therefore qualifying for a Waiver 2 under 25 Pa. Code § 105.12. A waiver request for those impacts will be submitted concurrently under a separate cover.

1.1 Purpose and Need

The purpose and need of the Project includes providing necessary pipeline infrastructure and compression to increase system capacity up to 55,000 Dth/d, allowing for incremental growth of existing LDCs in New Jersey, while replacing older compressors to improve system reliability. Texas Eastern, PSEG Power LLC, and Elizabethtown Gas entered into two precedent agreements on December 31, 2021 and January 24, 2022, respectively, pursuant to which Texas Eastern will, subject to certain conditions precedent, develop and construct the Project to provide long-term firm service at a fixed negotiated rate. The Project is designed to provide up to 25,000 and 30,000 Dth/d of firm natural gas transportation services from the Appalachian supply basin in Southwest Pennsylvania to South Plainfield, New Jersey and Union City, New Jersey.

The Project will also ensure the continued safe and reliable operation of the Armagh and Entriaken Compressor Stations, while reducing air emissions, by replacing natural gas fired compressor units and associated related facilities that were constructed in the 1950s with new, more efficient EMD compressor units.

1.2 Location and Description of Proposed Facilities

The Project facilities in Lebanon County include the construction of approximately 2 miles of 36-inch diameter pipeline, removal of an existing receiver site, and construction of a new receiver and crossover in Bethel and Jackson Townships. Two of the proposed contactor yards, the Lebanon Yard and the Myerstown Yard, are also located in Lebanon County. Pipeline alignment sheets and site plans depicting impacts for each resource are located in **JPA Section F**. Figures depicting the facility locations on USGS maps and aerial photographs are provided in **JPA Section G and JPA Section J, respectively**.

1.2.1 Land Requirements

The Line 28 Loop will be constructed along the southern boundary of Texas Eastern's existing 100-foot-wide ROW. As shown in the ROW Construction Typical in **Appendix A**, pipeline operation will require 25 feet of new permanent ROW, for a total ROW width of 125 feet to maintain the existing Line 12, Line 19, Line 27, and the Line 28 Loop. On average, an approximately 50-foot-wide temporary workspace (TWS) will be required, for a nominal 100-foot-wide construction corridor. From the center of the ditch, the spoil side of the construction ROW is proposed to be 25 feet. This footprint will accommodate segregated topsoil and serve as the primary spoil storage area. Thus, the working side of the construction ROW will typically be 75 feet wide from the center of the ditch to accommodate trench excavation, bank sloping, and safe construction and restoration activities. The construction ROW will be reduced to 75-feet-wide, where feasible, through wetlands and streams to minimize impacts to sensitive resources. Near two

residences, the construction ROW will be narrowed to 65 feet wide. Additional temporary workspace (ATWS) will be necessary in some locations to accommodate special construction methods. The Line 28 Loop has been designed to minimize impacts to the surrounding community by fully collocating the pipeline with Texas Eastern's existing ROW.

1.2.2 Additional Temporary Workspace

Texas Eastern has determined that ATWS will be necessary at road crossings, near wetland and stream crossings, and near residences to accommodate specialized construction techniques to minimize environmental and landowner impacts. Texas Eastern proposes to bore under each public road crossing, which will require additional workspace to stage and safely execute the bores. At wetland and stream crossings, the construction corridor will be reduced to 75 feet wide, where feasible, and near residences, the construction ROW will be reduced to 65 feet wide. ATWS will be necessary on either side of the reduced construction ROW to facilitate staging for crossing and to provide vehicle turn-out passing areas. ATWS will be located at least 50 feet from wetland and stream boundaries.

1.2.3 Aboveground Facilities

Aboveground facilities associated with the Project include removal of an existing receiver site, construction of a new receiver site, and modifications at the Armagh and Entriiken Compressor Stations (including the modification of ancillary piping).

1.2.4 Contractor Yards

Texas Eastern proposes the use of four existing contractor yards for the Project, two of which are in Lebanon County. No additional impervious surface will be added at the contractor yards, and there will be no impact to wetlands, watercourses, or floodplain resources during the course of their utilization.

1.2.5 Access Roads

Line 28 Loop

There are no proposed access roads associated with the Line 28 Loop. Construction workspace for the Line 28 Loop will be accessed directly from public roads and access along the ROW will be timber matted during active construction.

Removal of Existing Receiver Site

An approximately 100-foot-long paved and gravel driveway will be removed.

Proposed Receiver Site

One new permanent access road, PAR-1, will be constructed off East Rosebud Road as part of the Proposed Receiver site. PAR-1 will be an approximately 200 feet long and 24 feet wide gravel access road. It will be used to access the new receiver to facilitate pigging during operation of the Line 28 Loop. PAR-1 is not located within a wetland, watercourse, or floodplain resource.

1.3 Statement of Water Dependency

The Line 28 Loop is considered to be water dependent because it requires siting within wetlands and watercourses to fulfill the basic purposes of this Project.

1.4 Construction Schedule

Texas Eastern anticipates mobilization and construction of the Project to begin January 31, 2024. However, pending receipt of applicable authorizations, Texas Eastern may accelerate this construction schedule. The construction schedule is based on the need to meet an in-service date of November 1, 2025.

1.5 Affected Landowners

Texas Eastern has made a good faith effort to conduct stakeholder outreach and has provided information about the Project to the public. Information about the Project has been provided to affected landowners listed in **JPA Section A** (Privileged Information). Texas Eastern will continue to work with stakeholders to facilitate communication, assist with early identification and resolution of concerns, and disseminate information as the Project progresses through the approval process and construction.

2.0 RESOURCE IMPACTS DESCRIPTION

2.1 Survey Statuses

Texas Eastern has completed environmental and cultural resource surveys on 100 percent of the proposed Project workspace and Area of Potential Effect (APE). These surveys include wetland and watercourse delineations (**Appendix 2 of JPA Section J**), Phase 1 and Phase 2 bog turtle (*Glyptemys mühlenbergii*) surveys (**JPA Section E**), Phase I archaeological survey, and reconnaissance-level historic architectural surveys (**JPA Section D**). A summary of survey results and proposed impacts is provided below.

2.2 Wetland Impacts

As detailed within the Wetland Delineation Reports (**Appendix 2 of JPA Section J**), three potentially jurisdictional wetlands were identified within the Line 28 Loop study area. This included two palustrine emergent (PEM) wetlands and one PEM/palustrine scrub-shrub (PSS) wetland.

The proposed Line 28 Loop route was chosen to minimize impacts to wetlands and streams. Temporary impacts to the three PEM wetlands will occur during construction. The wetlands will be restored in-kind following construction, so there will be no permanent loss of function or value. The PSS portion of Wetland W-MJU-850 will be avoided by construction activities, so that only PEM wetlands will be impacted. The proposed wetland construction methods are described in **Section 3.2** of this document. Impacts are quantified in the Aquatic Resource Impact Table (**Appendix B**).

No wetlands were identified within the Removal of the Existing Receiver Site nor Proposed Receiver Site either by desktop survey or field survey. There will be no wetland impacts in this location.

2.3 Watercourse and Floodway Impacts

On March 24, 2022, field surveys identified two perennial streams and one intermittent stream within the Line 28 Loop study area. The delineated watercourses are located within the HUC-12 Little Swatara Creek watershed (HUC 020503050703) in Lebanon County, Pennsylvania and are identified as follows:

- S-KMB-001 is a perennial waterway, listed as an unnamed tributary to Deep Run (State Watercourse ID: PA-SCR-56396457);
- S-KMB-002 is an intermittent stream and flows north from Wetland W-MJU-851 towards Deep Run, and
- S-KMB-003 is a perennial waterway, called Deep Run (State Watercourse ID: PA-SCR-56396235).

Two of the three delineated streams are within the Line 28 Loop workspace and will be impacted by the Line 28 Loop during construction and operation of the pipeline. Impacts to stream S-KMB-002 will be avoided, but a portion of its floodway will be impacted during construction and operation. The proposed watercourse construction methods are described in **Section 3.3** of this document. Impacts are quantified in the Aquatic Resource Impact Table (**Appendix B**).

No watercourses or floodways will be impacted at the Removal of Existing Receiver Site or the Proposed Receiver Site.

2.4 PNDI Avoidance Measures

Texas Eastern has completed Pennsylvania Natural Diversity Inventory (PNDI) review and surveys for threatened and endangered species in Lebanon County. The Project facilities located in Lebanon County were reviewed under Project Search ID: PNDI-756253. In response to Texas Eastern's PNDI review submission, the Pennsylvania Game Commission, Pennsylvania Department of Conservation and Natural Resources, and Pennsylvania Fish and Boat Commission all responded indicating "No Known Impact" and

“No Further Review Required.” The U.S. Fish and Wildlife Service (USFWS) identified a potential conflict due to Lebanon County being located within the known range of the bog turtle (*Glyptemys muhlenbergii*).

The USFWS’s PNDI response requested that a recognized, qualified bog turtle surveyor conduct Phase 1 habitat assessment surveys on all aquatic resources within 300 feet of the Project footprint to determine whether any are suitable for bog turtles. Texas Eastern completed Phase 1 surveys on April 12, 2022 and provided a letter summarizing the findings to the USFWS on May 12, 2022. Texas Eastern subsequently completed Phase 2 presence/absence surveys on suitable wetlands on May 20, 2022. Texas Eastern provided a combined Phase 1 and Phase 2 Bog Turtle Survey Report to the USFWS on June 23, 2022 and continues to coordinate with the USFWS regarding the results.

2.5 Cultural Resources

Texas Eastern initiated Section 106 consultation with the State Historic Preservation Office (SHPO) in a letter dated April 18, 2022. The initial SHPO submittal included a Project description, Project mapping, and results of preliminary background research conducted via the SHPO’s online Pennsylvania’s Historic & Archaeological Resource Exchange (PA-SHARE). The initial SHPO submittal also included an Unanticipated Discovery Plan (UDP) guiding the treatment of human remains and archaeological sites that might be discovered during construction of the Project. The SHPO responded to Texas Eastern’s initial submittal on May 17, 2022. In that letter, SHPO concurred with Texas Eastern’s proposed archaeological survey methods for the identification of archaeological resources that may be affected by the Project. The SHPO also concurred with the UDP. In regard to historic architectural resources, the SHPO requested an Area of Potential Effects (APE) methodology outlining the area within the viewshed of the Proposed Receiver Site and an intensive-level survey on two farms within the visual APE. Copies of correspondence to date are included in **JPA Section D**.

All archaeological and architectural history surveys have been completed. The archaeological survey was conducted between December 2021 and April 2022 in accordance with SHPO’s *Guidelines for Archeological Investigations in Pennsylvania* (2021). The historic architectural survey was conducted on March 30 and May 25, 2022 in accordance with SHPO’s *Guidelines for Recording Buildings in Pennsylvania* (May 2022) and *Guidelines for Projects with Potential Visual Effects* (July 2021), as well as SHPO guidance on assessing, evaluating, and preparing documentation on agricultural properties. On June 22, 2022, the archaeological survey report was submitted to SHPO along with a letter requesting SHPO comments on the report and the four proposed yards. In its letter dated June 24, 2022, SHPO stated that the archaeological survey report met their guidelines and that the Project will have no effect on archaeological historic properties. In a follow-up letter dated June 30, 2022, the SHPO concurred that use of the four yards would have no effect on archaeological resources. The historic architectural survey report was submitted to SHPO on June 29, 2022. The SHPO responded to Texas Eastern’s architectural survey report with a letter on July 28, 2022. In that letter, SHPO concurred with Texas Eastern’s findings that there are no concerns with historic architectural resources.

3.0 CONSTRUCTION PROCEDURES

Texas Eastern will construct the Project in accordance with the Enbridge and site-specific Erosion and Sediment Control Plans (E&SCPs) provided in **JPA Section K**. The Enbridge E&SCP has been prepared for use by Texas Eastern and its contractors as a guidance manual for minimizing erosion of disturbed soils and to prevent transportation of sediments off the construction workspace and into sensitive resources (e.g., wetlands, streams) during construction. The procedures developed in the Enbridge E&SCP, which represent Texas Eastern's best management practices, are designed to accommodate varying field conditions while maintaining rigid minimum standards for the protection of environmentally sensitive areas. Texas Eastern has also prepared a site-specific E&SCP for the Line 28 Loop, Removal of Existing Receiver Site, and Proposed Receiver Site in accordance with the Pennsylvania Erosion and Sediment Control Program Manual (Pennsylvania E&S Manual 363-2134-008) as part of its Erosion and Sediment Control Individual Permit application to be approved by County Conservation Districts and the PADEP, per 25 Pennsylvania Code Chapter 102 (Chapter 102) regulations.

Texas Eastern has also prepared a *Spill Prevention Control and Countermeasure Plan* and a *Preparedness, Prevention, and Contingency Plan for Construction Projects Plan* (SPCC and PPC Plans), to address the handling of construction fuel and other materials. The SPCC and PPC Plan provides a set of minimum requirements to be used by the contractor in developing the site-specific SPCC and PPC Plan. The SPCC and PPC Plans are included in **Appendix 5 of JPA Section J**. Potential impacts on water quality will be minor and temporary during construction by implementing the following measures:

- Hazardous materials (construction materials, fuels, etc.) will not be stored within wetlands or within 100 feet of any stream or wetland system. These activities can occur closer only when approved by an appropriate government authority.
- Construction equipment will not be refueled or parked within wetlands or within 100 feet of any stream or wetland system, except under limited, highly controlled circumstances and when the Environmental Inspector (EI) determines that there is no reasonable alternative, and when Texas Eastern and its contractors have taken appropriate steps (including secondary containment structures) to prevent spills and provide for prompt cleanup in the event of a spill.
- Construction equipment will not be washed in any wetland or watercourse.
- Construction equipment will be properly inspected, maintained, and checked daily for leaks.
- Leaking and malfunctioning construction equipment will be immediately repaired prior to being used at the site.

Texas Eastern will implement dust mitigation measures as necessary and at the discretion of the Contractor Supervisor, EI, and the onsite Chief Construction Inspector. Measures to minimize dust will primarily include the utilization of water trucks to dampen the work area under dry/dusty conditions. Special consideration will be given to roadway areas where clear visibility is required.

3.1 Standard Pipeline Construction and Restoration Techniques

Pipeline construction typically involves numerous work crews working their way along the ROW in an assembly line fashion. For example, the survey crew begins by marking the pipeline centerline and construction work area and moves down the ROW, followed by the clearing crew, the grading crew, the trenching crew, and other crews, until the finish cleanup crew completes the process. Typically, each crew follows relatively closely behind the preceding crew to minimize the size of the active construction spread and begin the restoration as soon as possible.

Pipeline construction generally involves the following sequential operations performed in an assembly line fashion. These operations are summarized below and discussed in more detail in the E&SCP:

- Surveying and flagging;

- Installation and maintenance of erosion control devices (ECDs);
- Clearing, where required,
- ROW and TWS grading;
- Trench excavation;
- Blasting, if required, but not anticipated;
- Stringing;
- Bending;
- Welding, nondestructive weld inspection, and coating;
- Lowering-in and tie-ins;
- Backfilling;
- Hydrostatic testing; and
- Restoration and revegetation.

3.2 Wetland Construction Methods

Three palustrine emergent wetlands will be temporarily impacted by the Project, none of which could be avoided due to their locations in relation to the proposed co-located pipeline. Two wetlands, Wetlands W-MJU-850 and W-MJU-852, will be crossed by the Line 28 Loop using an open-cut trench. Operation of construction equipment in wetlands will be limited to that needed to clear the ROW, dig the trench, fabricate the new pipe, install the pipe, backfill the trench, and restore the ROW. A travel lane will also be maintained across these wetlands during construction, and equipment mats will be installed to reduce soil mixing and compaction. Texas Eastern will segregate the topsoil in each wetland. Segregated topsoil will be placed in the trench following subsoil backfilling. Restoration and monitoring of these wetland crossings will be conducted in accordance with the FERC Procedures to ensure successful wetland revegetation.

One wetland, Wetland W-MJU-851, will be crossed by conventional bore due to its proximity to Halfway Drive. Boring entails drilling a hole below the roadway and wetland through which the pipe will pass. First, a bore pit will be dug on the west side of Halfway Drive and a receiving pit dug on the east side of Wetland W-MJU-851. The bore pit will be excavated and a boring machine is lowered to the bottom of the bore pit and placed on supports. The machine cuts a shaft under the roadway using a cutting head mounted on an auger. The auger rotates in a casing, both of which are pushed forward as the hole is cut. The pipeline is then pushed through the casing. The casing is removed and the area between the pipeline and the shaft is grouted, as required by permits. A travel lane will also be maintained across this wetland, and equipment mats will be installed to reduce soil mixing and compaction.

In accordance with the FERC Procedures, fuel will not be stored within 100 feet of wetlands or other watercourses. Appropriately sized sediment barriers will be used throughout construction and restoration to manage stormwater runoff in accordance with state earth disturbance permits.

3.3 Watercourse Construction Methods

Two perennial watercourses will be temporarily impacted during construction of the Line 28 Loop, as described above. A dry crossing method will be implemented using the dam and pump or flume crossing method to dry the work area within the watercourse. The dam and pump and flume crossing methods are described below. Texas Eastern plans to complete construction activities within 48 hours at each watercourse crossing. A minimum cover depth of 5 feet will be maintained over the pipeline during

operation unless solid rock is encountered. Equipment bridges will also be constructed across each watercourse to reduce instream impacts.

3.3.1 Dam and Pump Crossing Method

Texas Eastern may cross watercourses by using the dam and pump crossing method. The dam and pump crossing method involves constructing temporary sand or pea gravel bag dams upstream and downstream of the proposed crossing site while using a high-capacity pump to divert water from the upstream side around the construction area to the downstream side. Energy dissipation devices, such as steel plates will be placed on the downstream side at the discharge point to prevent streambed scour.

After installing the dams and commencing pumping, a portable pump (separate from that pumping the stream flow around the construction area) may be used to pump standing water from between the dams into a dewatering structure consisting of straw bales/silt fence or into a filter bag located away from the stream banks, thereby creating a dry construction area.

Once the area between the dams is stable, backhoes located on both banks will excavate a trench across the stream. Spoil excavated from the trench may be stored in the dry streambed adjacent to the trench if the stream crossing is major or in a straw bale/silt fence containment area located a minimum of 10 feet from the edge of the stream banks. Leakage from the dam, or subsurface flow from below the streambed, may cause water to accumulate in the trench. As water accumulates in the trench, it may be periodically pumped out and discharged into a dewatering structure located away from the stream banks.

After trenching across the streambed is complete, a prefabricated segment of pipe will be installed in the trench. The streambed portion of the trench is immediately backfilled with streambed spoil. Once restoration of the streambed is complete, the dams are removed and normal flow is re-established in the stream.

3.3.2 Flume Crossing Method

The flume crossing method involves diverting the flow of the stream across the construction site through one or more flume pipes placed in the stream. The first step in the flume crossing method involves placing a sufficient number of adequately sized flume pipes in the stream to accommodate the highest anticipated flow during construction. After placing the pipes in the stream, sand or pea gravel bags will be placed in the stream upstream and downstream of the proposed trench. The bags serve to dam the stream and divert the stream flow through the flume pipes, thereby isolating the stream flow from the construction area.

Backhoes located on both banks of the stream will excavate a trench under the flume pipe in the isolated streambed. Spoil excavated from the stream trench will be placed or stored a minimum of 10 feet from the edge of the watercourse for temporary storage. Once the trench is excavated, a pre-fabricated segment of pipe will be installed beneath the flume pipes. The trench will then be backfilled with native spoil from the streambed.

If trench dewatering is necessary near watercourses, the trench water will be discharged into an energy dissipation/sediment filtration device, such as geotextile filter bag or straw bale structure, away from the water's edge to prevent heavily silt-laden water from flowing into the watercourse.

3.4 Removal of Existing Receiver Site

The Removal of Existing Receiver Site will be completed concurrently with construction of the Line 28 Loop. Survey, flagging, and installation of ECDs for the facility will be completed with the pipeline work. The fence, existing receiver barrel, valve, appurtenant facilities, gravel, and pavement will be removed to accommodate pipeline construction.

3.5 Proposed Receiver Site

The Proposed Receiver Site will be constructed concurrently with construction of the Line 28 Loop. The

survey, flagging, clearing, and grading for the facility will be completed with the pipeline work and will include the following construction procedures.

- Piping
- Hydrostatic Testing
- Final Cleanup and Stabilization

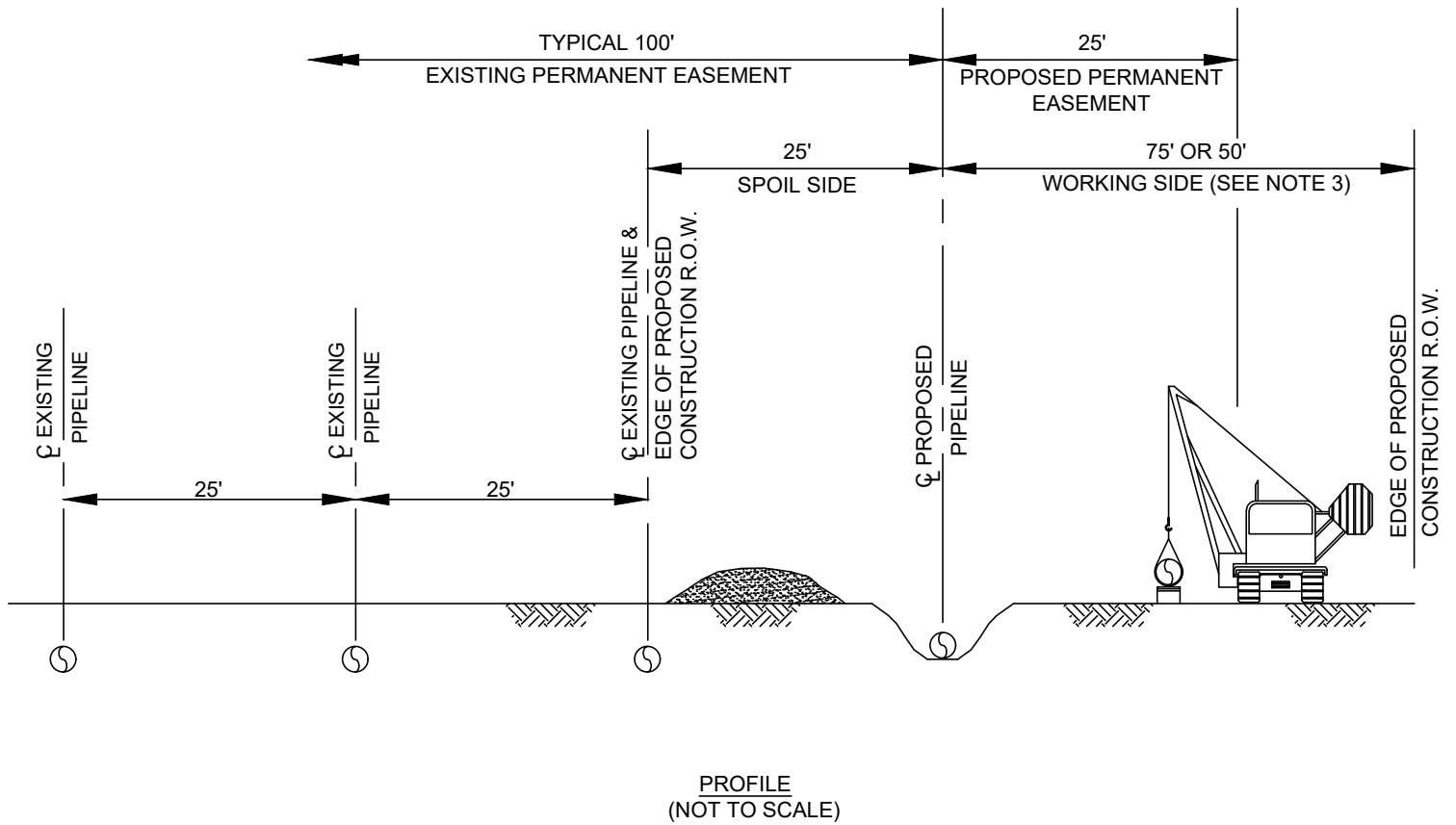
3.6 Vegetation Maintenance

The full width of the post-construction permanent ROW in non-wetland resource areas will be maintained for the Line 28 Loop. A permanent 10-foot-wide cleared corridor will be maintained through wetland and riparian resource areas in accordance with FERC's Plan and Procedures, in accordance with the current practice on the existing ROW. Maintaining a cleared ROW is necessary for the following reasons:

- Access for routine pipeline patrols and corrosion surveys;
- Access in the event that emergency repairs of the pipeline are needed; and
- Visibility during aerial patrols.

APPENDIX A

Typical Right-of-Way Cross-Section



PROFILE
(NOT TO SCALE)

NOTES:

1. CONSTRUCTION RIGHT-OF-WAY WILL TYPICALLY BE 100' WIDE; CONSISTING OF 25' OF EXISTING PERMANENT EASEMENT, 25' OF PROPOSED PERMANENT EASEMENT AND 75' OF TEMPORARY WORKSPACE.
2. ADDITIONAL TEMPORARY WORKSPACE WILL BE NECESSARY AT ROAD CROSSINGS, WETLAND/WATERBODY CROSSINGS AND OTHER SPECIAL CIRCUMSTANCES, AS REQUIRED.
3. CERTAIN SITUATIONS MAY REQUIRE A NARROWER WIDTH, WHERE THE WORKING SIDE WILL BE REDUCED TO 50' WIDE.
4. THE EXISTING PERMANENT EASEMENT IS TYPICALLY 100'. THE PROPOSED PIPELINE'S PERMANENT EASEMENT WILL TYPICALLY SHARE 25' OF THE EXISTING PERMANENT EASEMENT AND HAVE AN ADDITIONAL 25' OF PROPOSED PERMANENT EASEMENT.
5. THE OFFSET FROM EXISTING PIPELINES, WHERE APPLICABLE, WILL TYPICALLY BE 25'.
6. LEAVE GAPS IN SPOIL PILES AT OBVIOUS DRAINAGE LOCATIONS.
7. DO NOT PUSH UPLAND SOILS INTO CREEKS OR WETLANDS.
8. DO NOT USE TOPSOIL FOR PADDING.
9. AVOID SCALPING VEGETATED GROUND SURFACE WHEN BACKFILLING TOPSOIL AND SPOIL PILES.
10. BOTTOM OF TRENCH WIDTH WILL BE AN AVERAGE OF 5' (TYPICAL). HOWEVER, UNDER CERTAIN CIRCUMSTANCES, THE TRENCH MAY BE A MAXIMUM OF 10' WIDE.



Texas Eastern Transmission, LP
5400 Westheimer Ct. Houston, TX 77056-5310 713 / 627-5400

ENG. RECORD		DATE
DRAWN BY:	BK	03/31/22
DRAWING APPROVAL	JP	04/08/22
PROJECT APPROVAL	MW	04/08/22
SURVEY DATE:	N/A	
SCALE: NONE		
PROJECT ID: C.E.000202.001		
FILE NAME: GRAN-S.500-0001		

APPALACHIA TO MARKET II AND ARMAGH AND ENRIKEN HP REPLACEMENT PROJECTS
TYPICAL RIGHT-OF-WAY
CONSTRUCTION LIMITS
LINE 28 LOOP

A	NO	DATE	BY	DESCRIPTION	PROJ. ID	MW	APPR.
		06/30/22	BK	ISSUED FOR FERC	C.E.000202.001	MW	
REVISIONS							

DWG. NO. GRAN-S.500-0001

APPENDIX B

Aquatic Resource Impact Table



AQUATIC RESOURCE IMPACT TABLE
FOR PENNSYLVANIA CHAPTER 105 WATER OBSTRUCTION AND ENCROACHMENT APPLICATION / REGISTRATION

Project / Site Name: <u>Appalachia to Market II and Armagh and Entriken Replacement Projects – Line 28 Loop</u>														
Date: <u>August 2022</u>														
DEP USE ONLY	Project Information						PA DEP / 105						Enter Only If Different from DEP Impacts Army Corps Impacts:	
PADEP Permit Number	Structure / Activity unique identifier	Aquatic Resource Type	Latitude dd nad83	Longitude dd nad83	Waters Name	PA Code Chapter 93 Designation	Work Proposed	DEP Impact Type temp / perm	ACOE Impact Type temp / perm	Watercourse Impact Top of Bank to Top of Bank Length and Width in feet	Floodway Impact Top of Bank Landward Length and Width in feet	Wetland Impact Dimensions Length and Width in feet	Watercourse Impact Length and Width in feet	Wetland Impact Length and Width in feet
	W-MJU-851	Riverine floodplain complex (R2c)	40.393540	-76.364520		Other	Access / Temp. Workspace	Temp	Temp	NA	NA	66 – 73.5 (3,935 ft ²)*	NA	66 – 73.5 (3,935 ft ²)*
	W-MJU-851	Riverine floodplain complex (R2c)	40.393679	-76.364472		Other	Directional Bore / Permanent ROW Maint.	Perm	NA	NA	NA	63 – 26.5 (1,662 ft ²)*	NA	0
	S-KMB-002	Perennial	40.393854	-76.364754	UNT to Deep Run	WWF	Extra workspace	Temp	Temp	NA	10 – 26 (181 ft ²)*	NA	0	NA
	W-MJU-850	Riverine floodplain complex (R2c)	40.396382	-76.357374		Other	Access / Temp. Workspace	Temp	Temp	NA	NA	267 – 48.5 (12,605 ft ²)*	NA	267 – 48.5 (12,605 ft ²)*
	W-MJU-850	Riverine floodplain complex (R2c)	40.396448	-76.357497		Other	Excavation / Permanent ROW Maint.	Perm	Temp	NA	NA	267 – 26.5 (7,112 ft ²)*	NA	267 – 26.5 (7,112 ft ²)*
	S-KMB-001	Intermittent	40.396217	-76.357770	UNT to Deep Run	WWF	Access / Temp. Workspace	Temp	Temp	20 – 57.5 (916 ft ²)*	36 – 48.5 (1,935 ft ²)*	NA	20 – 57.5 (916 ft ²)*	NA
	S-KMB-001	Intermittent	40.396286	-76.357896	UNT to Deep Run	WWF	Excavation / Permanent ROW Maint.	Perm	Temp	15 – 31.5 (422 ft ²)*	28 – 26.5 (847 ft ²)*	NA	15 – 31.5 (422 ft ²)*	NA
	W-MJU-852	Riverine floodplain complex (R2c)	40.404537	-76.336834		Other	Access / Temp. Workspace	Temp	Temp	NA	NA	130 – 36 (4,372 ft ²)*	NA	130 – 36 (4,372 ft ²)*
	W-MJU-852	Riverine floodplain complex (R2c)	40.404535	-76.337146		Other	Excavation / Permanent ROW Maint.	Perm	Temp	NA	NA	68 – 13 (843 ft ²)*	NA	68 – 13 (843 ft ²)*
	S-KMB-003	Perennial	40.404550	-76.336796	Deep Run	WWF	Access / Temp. Workspace	Temp	Temp	6 – 94 (561 ft ²)*	137 – 29 (3,597 ft ²)*	NA	6 – 94 (561 ft ²)*	NA
	S-KMB-003	Perennial	40.404589	-76.337003	Deep Run	WWF	Excavation / Permanent ROW Maint.	Perm	Temp	6 – 32 (192 ft ²)*	157 – 32 (3,081 ft ²)*	NA	6 – 32 (192 ft ²)*	NA

* The area of impact (sf) provided in the table and on the Site Plan were calculated in a CAD program and do not equal the product of the length and the width of the proposed impact.

PADEP Impact Type: temporary or permanent.

Permanent Impacts are those areas affected by a water obstruction or encroachment that consist of both direct and indirect impacts that result from the placement or construction of a water obstruction or encroachment and include areas necessary for the operation and maintenance of the water obstruction or encroachment located in, along or across, or projecting into a watercourse, floodway or body of water.

Temporary Impacts are those areas affected during the construction of a water obstruction or encroachment that consists of both direct and indirect impacts located in, along or across, or projecting into a watercourse, floodway or body of water that are restored upon completion of construction. This does not include areas that will be maintained as a result of the operation and maintenance of the water obstruction or encroachment located in, along or across, or projecting into a watercourse, floodway or body of water (these are considered permanent impacts).