Federal Energy Regulatory Commission

**Office of Energy Projects**

**March 2018**

**Transcontinental Gas Pipe Line Company, LLC** **Docket No. CP17-490-000**

# Rivervale South to Market Project

## Environmental Assessment

Washington, DC 20426

FEDERAL ENERGY REGULATORY COMMISSION
WASHINGTON, D.C. 20426

OFFICE OF ENERGY PROJECTS

**In Reply Refer To:**
OEP/DG2E/Gas Branch 4
Transcontinental Gas Pipe Line
Company, L.L.C.
Docket No. CP17-490-000

TO THE PARTY ADDRESSED:

The staff of the Federal Energy Regulatory Commission (FERC or Commission) has prepared this environmental assessment (EA) for the Rivervale South to Market Project (Project) proposed by Transcontinental Gas Pipe Line Company, LLC (Transco) in the above-referenced docket. Transco requests authorization to construct and operate natural gas pipeline facilities in Bergen and Hudson Counties, New Jersey. The Project would enable Transco to transport an additional 190 million cubic feet of natural gas per day.

The EA assesses the potential environmental effects of the construction and operation of the Project in accordance with the National Environmental Policy Act. The FERC staff concludes that approval of the proposed Project, with appropriate mitigating measures, would not constitute a major federal action significantly affecting the quality of the human environment.

The Project would involve the following activities in the specified counties in New Jersey:

- construct 0.61 mile of 42-inch-diameter pipeline loop[1] along Transco's Mainline A, from milepost 1825.80 to 1826.41 (Bergen County);
- uprate 10.35 miles of existing 24-inch-diameter-pipeline (North New Jersey Extension) from a maximum allowable operating pressure of 650 pounds per square inch gauge (psig) to 812 psig from the Paramus Meter and Regulation Station (M&R) to the Orange and Rockland M&R (Bergen County);
- upgrade the existing valves, including overpressure protection valves, and yard piping at the Central Manhattan M&R (Hudson County) and Orange and Rockland M&R (Bergen County);
- construct regulation and overpressure protection valves and upgrade yard piping at the Emerson M&R and Paramus M&R (Bergen County); and

[1] A loop is a segment of pipe that is usually installed adjacent to an existing pipeline and connected to it at both ends. The loop allows more gas to be moved through the system.

- construct additional facilities, such as mainline valves, cathodic protection, pig[2] launchers and receivers, communication equipment, and related appurtenant underground and aboveground facilities.

The FERC staff mailed copies of the EA to federal, state, and local government representatives and agencies; elected officials; environmental and public interest groups; Native American tribes; potentially affected landowners and other interested individuals and groups; and local media in the Project area. In addition, the EA is available for public viewing on the FERC's website (www.ferc.gov) using the eLibrary link. A limited number of copies of the EA are available for distribution and public inspection at:

Federal Energy Regulatory Commission
Public Conference Room
888 First Street NE, Room 2A
Washington, DC 20426
(202) 502-8371

Any person wishing to comment on the EA may do so. Your comments should focus on the potential environmental effects, reasonable alternatives, and measures to avoid or lessen environmental impacts. The more specific your comments, the more useful they will be. To ensure that your comments are properly recorded and considered prior to a Commission decision on the proposal, it is important that the FERC receives your comments in Washington, DC on or before **April 16, 2018**.

For your convenience, there are three methods you can use to submit your comments to the Commission. In all instances, please reference the Project docket number (CP17-490-000) with your submission. The Commission encourages electronic filing of comments and has dedicated eFiling expert staff available to assist you at (202) 502-8258 or FercOnlineSupport@ferc.gov.

(1) You may file your comments electronically by using the eComment feature, which is located on the Commission's website at www.ferc.gov under the link to Documents and Filings. An eComment is an easy method for interested persons to submit brief, text-only comments on a project;

[2] A "pig" is a tool that the pipeline company inserts into and pushes through the pipeline for cleaning the pipeline, conducting internal inspections, or other purposes.

(2) You may file your comments electronically by using the eFiling feature, which is located on the Commission's website (www.ferc.gov) under the link to Documents and Filings. With eFiling, you can provide comments in a variety of formats by attaching them as a file with your submission. New eFiling users must first create an account by clicking on "eRegister." You will be asked to select the type of filing you are making. A comment on a particular project is considered a "Comment on a Filing"; or

(3) You can file a paper copy of your comments by mailing them to the following address:

Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission
888 First Street NE, Room 1A
Washington, DC 20426

Any person seeking to become a party to the proceeding must file a motion to intervene pursuant to Rule 214 of the Commission's Rules of Practice and Procedures (18 CFR 385.214).[3] Only intervenors have the right to seek rehearing of the Commission's decision. The Commission grants affected landowners and others with environmental concerns intervenor status upon showing good cause by stating that they have a clear and direct interest in this proceeding which no other party can adequately represent. **Simply filing environmental comments will not give you intervenor status, but you do not need intervenor status to have your comments considered.**

Additional information about the Project is available from the Commission's Office of External Affairs, at **(866) 208-FERC**, or on the FERC website (www.ferc.gov) using the eLibrary link. Click on the eLibrary link, click on "General Search," and enter the docket number excluding the last three digits in the Docket Number field (i.e., CP17-490). Be sure you have selected an appropriate date range. For assistance, please contact FERC Online Support at FercOnlineSupport@ferc.gov or toll free at (866) 208-3676, or for TTY, contact (202) 502-8659. The eLibrary link also provides access to the texts of formal documents issued by the Commission, such as orders, notices, and rulemakings.

In addition, the Commission offers a free service called eSubscription which allows you to keep track of all formal issuances and submittals in specific dockets. This can reduce the amount of time you spend researching proceedings by automatically providing you with notification of these filings, document summaries, and direct links to the documents. Go to http://www.ferc.gov/docs-filing/esubscription.asp.

[3] See the previous discussion on the methods for filing comments.

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| | |
|---|---|
| AQCR | Air Quality Control Region |
| ATWS | additional temporary workspace |
| Certificate | Certificate of Public Convenience and Necessity |
| CFR | Code of Federal Regulations |
| $CH_4$ | methane |
| CO | carbon monoxide |
| $CO_2$ | carbon dioxide |
| $CO_2e$ | carbon dioxide equivalents |
| Commission | Federal Energy Regulatory Commission |
| CZMA | Coastal Zone Management Act |
| dBA | decibels on the A-weighted scale |
| EA | Environmental Assessment |
| EDR | Environmental Data Resources, Inc. |
| EFH | Essential Fish Habitat |
| EI | Environmental Inspector |
| FERC | Federal Energy Regulatory Commission |
| FERC Plan | FERC *Upland Erosion Control, Revegetation, and Maintenance Plan* |
| FERC Procedures | FERC *Wetland and Waterbody Construction and Mitigation Procedures* |
| GHG | greenhouse gases |
| GWP | global warming potential |
| HAPs | Hazardous air pollutants |
| HCA | high consequence area |
| HDD | horizontal directional drill |
| $L_{dn}$ | day-night averaged sound level |
| $L_{eq}$ | 24-hour equivalent sound level |
| MAOP | maximum allowable operating pressure |
| MLV | mainline valve |
| MMcf | million cubic feet of natural gas |
| M&R | meter and regulation |
| MP | milepost |
| NAAQS | National Ambient Air Quality Standards |
| NGA | Natural Gas Act |
| NJDEP | New Jersey Department of Environmental Protection |
| NJGWS | New Jersey Geological and Water Survey |
| NJNHP | New Jersey Natural Heritage Program |
| NMFS | National Marine Fisheries Service |
| NNJE | North New Jersey Extension |

| | |
|---|---|
| NOI | *Notice of Intent to Prepare an Environmental Assessment for the Proposed Rivervale South to Market Project and Request for Comments on Environmental Issues* |
| $NO_x$ | nitrogen oxides |
| NRCS | National Resources Conservation Service |
| NSA | noise sensitive area |
| OEP | Office of Energy Projects |
| OPP | overpressure protection |
| PAR | permanent access road |
| $PM_{10}$ | particulate matter with a diameter of 10 microns or less |
| $PM_{2.5}$ | particulate matter with a diameter of 2.5 microns or less |
| Project | Rivervale South to Market Project |
| psig | pounds per square inch gauge |
| ROW | right-of-way |
| Secretary | Secretary of the Commission |
| SHPO | State Historic Preservation Office |
| Spill Plan | Transco's *Spill Plan for Oil and Hazardous Materials* |
| $SO_2$ | sulfur dioxide |
| SUEZ | SUEZ North America |
| TAR | temporary access road |
| tpy | tons per year |
| Transco | Transcontinental Gas Pipe Line Company, LLC |
| TWS | temporary workspace |
| USDOT | U.S. Department of Transportation |
| USEPA | U.S. Environmental Protection Agency |
| USFWS | U.S. Fish and Wildlife Service |
| USGS | U.S. Geological Survey |
| VOC | volatile organic compound |

# A. PROPOSED ACTION

## 1. Introduction

The staff of the Federal Energy Regulatory Commission (Commission or FERC) has prepared this environmental assessment (EA) to assess the environmental impacts of the natural gas pipeline facilities proposed by Transcontinental Gas Pipe Line Company, LLC (Transco). We[4] prepared this EA in compliance with the requirements of the National Environmental Policy Act (NEPA) (Title 40 of the Code of Federal Regulations, Parts 1500-1508 [40 CFR 1500-1508]), and the Commission's implementing regulations under 18 CFR 380.

On August 31, 2017, Transco filed an application in Docket No. CP17-490-000 under Section 7 of the Natural Gas Act (NGA) and Part 157, Subpart F of the Commission's regulations requesting a Certificate of Public Convenience and Necessity (Certificate) that would authorize Transco to construct and operate natural gas pipeline facilities in New Jersey. The proposed facilities are referred to as the Rivervale South to Market Project (Project) and are described in section A.4.

The assessment of environmental impacts is an integral part of the Commission's decision on whether to issue Transco a Certificate to construct and operate the facilities. Our principal purposes of preparing this EA are to:

- identify and assess potential impacts on the natural and human environment that would result from the implementation of the proposed action;
- assess reasonable alternatives to the proposed action that would avoid or minimize adverse effects to the environment; identify and recommend specific mitigation measures, as necessary, to avoid or minimize environmental impacts; and
- encourage and facilitate public involvement in the environmental review process.

The FERC is the federal agency responsible for authorizing interstate natural gas transmission facilities under the NGA, and is the lead federal agency for the preparation of this EA in compliance with the requirements of NEPA. Major federal, state, and local permits, approvals, and consultations for the Project are presented in section A.9, below.

## 2. Purpose and Need

According to Transco, the Project would enable Transco to provide an additional 190 million cubic feet of natural gas (MMcf) per day of firm transportation service to Direct Energy Business Marketing, LLC and UGI Energy Services, LLC. Of this amount, 140 MMcf per day of natural gas would be provided to the Compressor Station 210 pooling point and 50 MMcf per day of natural gas would be provided to the Central Manhattan meter and regulation station (M&R), to meet supply needs for the 2019/2020 winter heating season.

The Project would involve the following activities in the specified counties, all in New Jersey:

- Construct 0.61 mile of 42-inch-diameter pipeline loop along Transco's Mainline A, from milepost (MP) 1825.80 to 1826.41 (Bergen County);

[4] "We," "us," and "our" refer to the environmental staff of the Commission's Office of Energy Projects.

- uprate 10.35 miles of existing 24-inch-diameter-pipeline (North New Jersey Extension [NNJE]) from a maximum allowable operating pressure (MAOP) of 650 pounds per square inch gauge (psig) to 812 psig from the Paramus M&R to the Orange and Rockland M&R (Bergen County);
- upgrade the existing valves, including overpressure protection valves, and yard piping at the Central Manhattan M&R (Hudson County) and Orange and Rockland M&R (Bergen County);
- construct regulation and overpressure protection valves and upgrade yard piping at the Emerson M&R and Paramus M&R (Bergen County); and
- construct additional facilities, such as mainline valves, cathodic protection, pig launchers and receivers, communication equipment, and related appurtenant underground and aboveground facilities.

Under Section 7(c) of the NGA, the Commission determines whether interstate natural gas transportation facilities are in the public convenience and necessity and, if so, grants a Certificate to construct and operate them. The Commission is an independent regulatory agency and therefore conducts a complete independent review of project proposals, including an environmental review of proposed facilities. The Commission bases its decision on technical competence, financing, rates, market demand, gas supply, environmental impact, long-term feasibility, and other issues concerning a proposed project.

## 3. Public Review and Comment

In accordance with the Commission's regulations, Transco contacted all landowners and public officials whose constituents may be affected by the proposed Project. On September 15, 2017, the Commission issued its *Notice of Application* for the Project. The Commission received several interventions in response to this notice. Additionally, the Hackensack Riverkeeper submitted environmental comments with its intervention, as well as additional environmental comments in response to the *Notice of Application.*

On October 19, 2017, the Commission issued its *Notice of Intent to Prepare an Environmental Assessment for the Proposed Rivervale South to Market Project and Request for Comments on Environmental Issues* (NOI).[5] The NOI was sent to about 240 individuals, organizations, federal and state agency representatives, county and local government agencies, elected officials, local media, and property owners either crossed or adjacent to the pipeline to be replaced and/or within 0.5 mile of the compressor stations to be modified. The NOI requested written comments from the public on the scope of analysis for the EA. The public scoping period closed on November 20, 2017.

In response to the NOI, we received comments from Emerson Borough, New Jersey; the U.S. Fish and Wildlife Service (USFWS); the U.S. Environmental Protection Agency (USEPA); and Food & Water Watch, in coordination with the New Jersey Sierra Club. The primary issues raised by the commentors are impacts on drinking water, wetlands, and wildlife; pipeline safety and oversight; pollution prevention practices; the continued reliance on fossil fuels and the necessity for the Project;[6] long-term environmental impacts; improper segmentation; evaluation of cumulative, indirect, and secondary impacts; environmental impacts from increased shale gas development; evaluation of

[5] The NOI was published in the Federal Register (Vol. 82, No. 205) on October 25, 2017.

[6] Comments related to the nation's energy policy are outside the scope of this EA. Further, the FERC Commission (not staff's EA) will ultimately decide on whether or not the Project is in the Public Convenience and Necessity.

alternatives, including those outside FERC's jurisdiction; climate change; environmental justice; and the need for an environmental impact statement.[7]

### Emerson Borough

The relevant Project specifications and related environmental discussion are included in the appropriate EA sections below.

### U.S. Fish and Wildlife Service

The USFWS provided comments regarding potential Project impacts on federally listed species, migratory birds, bald eagles, fisheries, and pollinators. The USFWS's environmental comments are addressed in the appropriate sections of the EA.

### U.S. Environmental Protection Agency

The USEPA suggested various environmental issues it believes should be addressed in the EA, including a full discussion of the purpose and need of the Project; an evaluation of alternatives, including those outside FERC's jurisdiction; a comprehensive evaluation of cumulative, indirect, and secondary impacts; a discussion of pollution prevention practices; and environmental justice. We determined that an evaluation of alternatives outside FERC's jurisdiction was outside the scope of this EA. The USEPA's environmental comments applicable to the Project are addressed in the appropriate sections of the EA.

### Food & Water Watch/New Jersey Sierra Club

We received a comment from Food & Water Watch, in coordination with the New Jersey Sierra Club, that Transco's Gateway Expansion Project (FERC Docket No. CP18-18-000) should be reviewed along with the current Project in a single NEPA document. The Gateway Expansion Project would involve compressor station upgrades in Roseland, New Jersey and an M&R replacement in Paterson, New Jersey. The closest Gateway Expansion Project facility (the Paterson M&R) is approximately 5.5 miles from the Project's Paramus M&R. Transco's Gateway Expansion Project is an independent project that is not reliant upon Rivervale South to Market Project (or vice versa), and is currently being evaluated in a separate NEPA review. A Notice of Intent to prepare an EA for the Gateway Expansion Project was issued on January 2, 2018.

The Food & Water Watch/New Jersey Sierra Club also suggested that authorization of the Project would induce additional shale gas development in the Marcellus Shale formation. As the Commission has previously concluded in natural gas infrastructure proceedings, the environmental effects resulting from natural gas production are generally neither caused by a proposed pipeline project (or other natural gas infrastructure) nor are they reasonably foreseeable consequences of Commission approval of an infrastructure project, as contemplated by CEQ regulations. A causal relationship sufficient to warrant Commission analysis of the non-pipeline activity as an indirect impact would only exist if the proposed pipeline would transport new production from a specified production area and that production would not occur in the absence of the proposed pipeline (i.e., there would be no other way to move the gas). In this case, while the Project would likely transport gas generated from the Marcellus Shale formation, the information available regarding this Project does not demonstrate the requisite reasonably close causal

[7] Based on our evaluation of the Project scope and associated impacts, we have not identified any construction or operation impacts that would significantly affect the quality of the human environment. Therefore, we conclude that an EA, rather than an environmental impact statement, is appropriate for evaluating the potential impacts associated with the Project.

relationship between the impacts of future natural gas production and the Project that would necessitate further analysis. The fact that natural gas production and transportation facilities are all components of the general supply chain required to bring domestic natural gas to market is not in dispute. This does not mean, however, that the Commission's approval of this particular pipeline project would cause or induce the effect of additional or further shale gas production. The Project is responding to the need for transportation, not creating it. In section B.10 of this EA, we consider the cumulative impact of the proposed Project in addition to other natural gas production facilities in the region. Additionally, the closest natural gas production in the Marcellus Shale formation are over 100 miles away in Pennsylvania, and outside the geographic scope of analysis for the Project, and therefore not considered in the EA. Other Food & Water Watch/New Jersey Sierra Club environmental comments applicable to the Project are addressed in the appropriate sections of the EA.

#### Hackensack Riverkeeper

The Hackensack Riverkeeper submitted environmental comments regarding the Project's potential impact on drinking water, wetlands, and the Hackensack River. The Riverkeeper's comments also included concern for the continued reliance on fossil fuels; the overall necessity for the Project; long-term environmental impacts; pipeline safety and oversight; environmental impacts from increased shale gas development; and climate change. As stated above, we determined that analysis of potential impacts from shale gas production was outside the scope of this EA. The Hackensack Riverkeeper's environmental comments applicable to the Project are addressed in the appropriate sections of the EA.

## 4. Proposed Facilities

Transco would uprate 10.35 miles of its existing NNJE pipeline; install a new 0.61-mile pipeline loop of its existing Mainline A; modify certain aboveground facilities; and construct appurtenant ancillary facilities, all described in more detail below. No new major aboveground facilities are proposed as part of the Project. Figure 1 shows the overall Project location, and table A-1 summarizes the aboveground facilities associated with the Project.

### 4.1 Pipeline Facilities

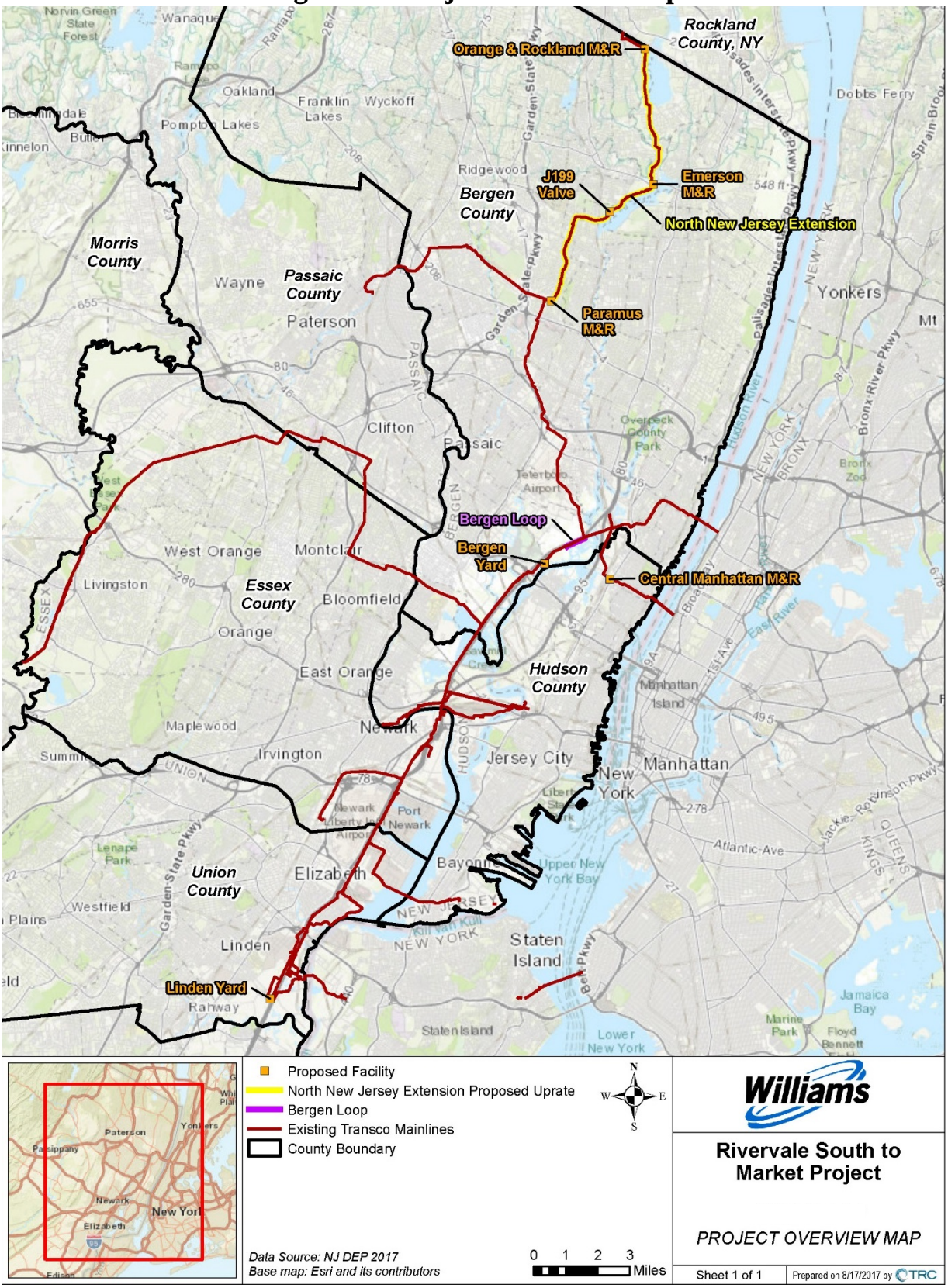
#### North New Jersey Extension Uprate

The Project would involve the uprate of 10.35 miles of the existing 24-inch-diameter NNJE pipeline from the Paramus M&R at MP 0.23 to the Orange and Rockland M&R at MP 10.56 from a MAOP of 650 psig to 812 psig. Prior to uprating the MAOP, Transco would run an electromagnetic acoustic transducer inspection suite of tools and complete a hydrostatic test to verify the structural integrity of the pipeline is sufficient for the increased MAOP. The pipeline segment would be tested with approximately 1.2 million gallons of water; additional information on hydrostatic testing is provided in section B.3.3.

#### Bergen Loop

The Project would also involve the construction of 0.61 mile of a new 42-inch-diameter pipeline loop in Bergen County. Transco would also install a new pig launcher, new pig receiver, tie-in, and crossover piping to the existing 30-inch-diameter Mainline A, and re-locate an existing thermoelectric generator. The loop would be co-located adjacent to Transco's existing Mainline A and Mainline B. The loop would parallel Mainline A separated by approximately 35 feet to the southeast from MP 1825.80 to MP 1826.41. The new 35-foot-wide permanent right-of-way (ROW) would extend from the Mainline A ROW to form one contiguous ROW for all three pipelines.

# Figure 1 – Project Overview Map



## 4.2 Aboveground Facilities

### Orange and Rockland M&R (Bergen County)

Transco would upgrade the overpressure protection (OPP) valve and associated valves and piping. Transco would utilize the same temporary workspace (TWS) for these facilities as would be used for the hydrostatic testing workspace required for the NNJE Uprate. The modifications proposed would occur within the existing facility fence line. Transco would access the site from both its existing driveway off of Orangeburgh Road, as well as by Transco's existing ROW off Handwerg Drive.

### Emerson M&R (Bergen County)

Transco would add regulation and OPP valves and upgrade existing valves to maintain the existing MAOP of 650 psig delivery. A new mainline valve (MLV) would also be installed at this location, to replace the existing J199 Valve that would be removed from another location (discussed below). All permanent modifications would be within the existing facility fence line. However, TWS outside Transco's existing easement would be utilized during construction for equipment, material, and personnel movement, safety and environmental measures, and parking. Permanent access to the site would be via the existing driveway loop off Old Hook Road.

### Paramus M&R (Bergen County)

Transco would add regulation and OPP valves and upgrade existing yard piping and valves to maintain the existing 650 psig MAOP on the Paterson Lateral and remainder of the NNJE pipeline. The Project construction activities would require the expansion of facilities within Transco's property and the permanent alteration of the existing facility wall. Access to the site during construction would be via Schimmel Street and the existing driveway loop off Spring Valley Road.

### Central Manhattan M&R (Hudson County)

Transco would upgrade existing valves, including the OPP valves, and existing yard piping. Permanent below ground piping replacement would be required within Transco's existing 72nd St. Lateral easement, outside the facility fence line. No permanent aboveground expansion of the existing facility footprint is proposed; however, temporary construction workspace would be required outside the facility footprint for construction staging, equipment movement, parking, and piping replacement. Access to the site would be gained via the existing paved drive off 69th Street.

### Appurtenant Aboveground Facilities

Transco would replace and relocate existing J199 Valve in Bergen County to the Emerson M&R. Transco would remove and dispose of the existing valve and valve setting in accordance with Transco's Waste Management Plan. The valve setting would be restored in accordance with the landowner agreement. Transco would gain Temporary access to the site from an existing access road through the golf course off 1st Street in Emerson, New Jersey. Additionally, a new pig launcher and new pig receiver would be installed at the tie-in locations on the Bergen Loop. The launcher would be constructed on developed land within Transco's existing Station 240 facility fence line at MP 0.00 on the Bergen Loop. The proposed receiver would be constructed within Transco's existing MLV on the Mainline A at MP 0.61. In order to meet the required safety setback distances, Transco would relocate an existing thermoelectric generator associated with the MLV to the other side of Metro Road.

Table A-1
**Summary of Aboveground Facilities Associated with the Project**

| Facility | Proposed Activities | Approx. MP [a] | Municipality | County, State |
|---|---|---|---|---|
| Orange and Rockland M&R | Upgrade valves and OPP valve. | NNJE 10.56 | River Vale | Bergen, New Jersey |
| Emerson M&R | Add regulation, OPP valves, and replacement J199 valve; and upgrade yard piping and valves, remote telemetry unit (RTU), and measurement instrumentation. | NNJE 6.01 | Emerson | Bergen, New Jersey |
| Paramus M&R | Add regulation and OPP valves, and upgrade yard piping and valves, RTU, and measurement instrumentation. | NNJE 0.23 | Paramus | Bergen, New Jersey |
| Central Manhattan M&R | Upgrade valves including OPP valves, yard piping and valves, and RTU. | 72L 1.82 | North Bergen | Hudson, New Jersey |
| J199 Valve | Remove MLV. | NNJE 4.33 | Oradell | Bergen, New Jersey |
| New Pig Launcher | Add new Pig Launcher, crossover valve and piping, and RTU. | BL 0.00 | Carlstadt | Bergen, New Jersey |
| New Pig Receiver | Add new Pig Receiver and crossover valve and piping. | BL 0.61 | Carlstadt | Bergen, New Jersey |
| Re-located Thermoelectric Generator | Re-locate existing thermoelectric generator. | BL 0.61 | Carlstadt | Bergen, New Jersey |

a: NNJE = milepost along the North New Jersey Extension; 72L = milepost along 72nd St Lateral; BL = milepost along the Bergen Loop

## 5. Land Requirements

The Project involves activities at existing facilities and within and adjacent to existing ROW. The footprint of all Project-related disturbances during construction is estimated at 52.43 acres, of which 23.26 acres would be outside existing facilities and/or ROW. The Project would require approximately 11.24 acres of permanent ROW for operation, of which 5.02 acres would be new permanent ROW. Construction and operational land requirements for the Project are summarized below in table A-2. Cross sectional drawings showing the construction ROW configurations are in appendix A.

Included in the construction impacts are three permanent access roads and one temporary access road. The existing J199 Valve site would be accessed from 1st Street along an existing permanent access road (PAR) around a golf course (PAR-201). The Bergen Loop would be accessed via the existing Metro Road (PAR-001) and along an existing permanent access and turnaround owned by Transco (PAR-003). An existing private road through the Kane Mitigation Area would be utilized as a temporary access road (TAR) during construction of the Bergen Loop (TAR-002). The TAR and PARs would not require widening or improvements with the exception of a small gravel section of PAR-001, which would require additional gravel and grading. Access to the existing M&R stations during construction and operation would be from the existing station driveways or Transco's existing ROW easements off public roads.

Transco proposes to use two contractor yards (see table A-2). In Bergen County, a 4.81-acre parcel of vacant land would be used as a contractor yard and for equipment, pipe, and material storage. The Linden Yard is an 8.16-acre developed site in Union County that is currently occupied by Transco's Linden Station that would be used as a contractor yard and for equipment, pipe, and material storage.

Although Transco has identified areas where extra workspace would be required, additional or alternative areas could be identified in the future due to changes in site-specific construction requirements. Transco would be required to file information on each of those areas for our review and approval prior to use.

## 6. Construction Schedule and Workforce

Transco proposes to begin construction in February 2019, with workspace preparation starting in December 2018. Overall construction is anticipated to be completed within an 8-11 month period with a target in-service date of November 1, 2019. Transco states that standard construction operating hours would be 7:00 a.m. to 7:00 p.m., Monday through Saturday. Transco anticipates a peak construction workforce of approximately 150 individuals. No new permanent employees would be required as a result of the construction, operation, or maintenance of the Project.

## 7. Construction, Operation, and Maintenance Procedures

Transco would construct, operate, and maintain the proposed Project in compliance with the U.S. Department of Transportation (USDOT) regulations under 49 CFR 192 - *Transportation of Natural and Other Gas by Pipeline: Minimum Federal Safety Standards*, and all other applicable federal and state permit requirements, regulations, and environmental guidelines. During all phases of this Project, Transco would follow the applicable Occupational Safety and Health Administration requirements. The requirements set forth in the aforementioned acts have been or would be provided to Transco's employees engaged in the planning, construction, maintenance, and operation of the Project and would be provided to Transco's construction contractors and third-party inspectors. These employees and contractors have been or would be instructed to follow these requirements, as applicable, when planning, installing, and operating the facilities.

### 7.1 Environmental Compliance and Monitoring

Transco has adopted the FERC's *Upland Erosion Control, Revegetation, and Maintenance Plan* (Plan), and *Wetland and Waterbody Construction and Mitigation Procedures* (Procedures) [8] with one requested alternative measure to the FERC Plan (section IV.A.2) and nine requested alternative measures to the FERC Procedures (sections IV.A.1.d, V.B.2, VI.A.2, VI.A.3, VI.A.6, VI.B.1, VI.B.2.b, VI.B.2.d, and VI.C.6), discussed in table A-3 below. We have reviewed these proposed alternate measures and find them acceptable. Therefore, Transco would follow FERC's Plan and Procedures, with these approved alternate measures (referred to henceforth as Transco's Plan and Procedures).

[8] The FERC Plan and Procedures are a set of best management practices for companies to minimize resource impacts during construction and right-of-way restoration of pipeline projects. Copies of the Plan and Procedures may be accessed on our website (http://www.ferc.gov/industries/gas/enviro/guidelines.asp).

Table A-2

**Summary of Land Requirements for the Project [a]**

| Facility | County | Land Affected During Construction (acres)[b] | | Land Affected During Operation (acres) | |
|---|---|---|---|---|---|
| | | Within Existing ROW / Facility Boundaries | Outside Existing ROW / Facility Boundaries | Within Existing ROW / Facility Boundaries | Outside Existing ROW / Facility Boundaries[c] |
| **Pipeline Facilities** | | | | | |
| North New Jersey Extension Uprate | | | | | |
| *Pipeline ROW* | Bergen | 0.00 | 0.00 | 0.00 | 0.00 |
| *ATWS (hydrostatic testing)* | Bergen | N/A [d] | N/A [d] | 0.00 | 0.00 |
| Bergen Loop | | | | | |
| *Pipeline ROW* | Bergen | 1.34 | 4.73 | <0.01 | 2.52 |
| *ATWS* | Bergen | 6.04 | 4.65 | 0.00 | 0.00 |
| **Pipeline Facilities Subtotal:** | | **7.38** | **9.38** | **<0.01** | **2.52** |
| **M&R Station Modifications** | | | | | |
| Orange and Rockland M&R | Bergen | 1.16 | 1.28 | 0.02 | 0.02 |
| Emerson M&R | Bergen | 0.79 | 0.57 | 0.09 | 0.00 |
| Paramus M&R | Bergen | 2.91 | 0.00 | 0.17 | 0.00 |
| Central Manhattan M&R | Hudson | 0.34 | 3.30 | 0.15 | 0.05[e] |
| **Aboveground Facilities Subtotal:** | | **5.21** | **5.15** | **0.43** | **0.07** |
| **Appurtenant Facilities** | | | | | |
| J199 Valve | Bergen | 0.36 | 1.49 | 0.01 | 0.00 |
| New Pig Launcher | Bergen | 0.13 | 0.00 | 0.13 | 0.00 |
| New Pig Receiver | Bergen | 0.09 | 0.08 | 0.09 | 0.08 |
| Re-located Thermoelectric Generator | Bergen | <0.01 | 0.01 | <0.01 | 0.01 |
| **Access Roads** | | | | | |
| PAR-201 / J199 Valve Access | Bergen | 0.00 | 2.34 | 0.00 | 2.34 |
| PAR-001 / Metro Road | Bergen | 4.87 | 0.00 | 4.87 | 0.00 |
| PAR-003 / Bergen Loop | Bergen | 0.68 | 0.00 | 0.68 | 0.00 |
| TAR-002 / Kane Mitigation | Bergen | 2.29 | 0.00 | 0.00 | 0.00 |
| **Access Road Subtotal:** | | **7.84** | **2.34** | **5.55** | **2.34** |

Table A-2

**Summary of Land Requirements for the Project [a]**

| Facility | County | Land Affected During Construction (acres)[b] | | Land Affected During Operation (acres) | |
|---|---|---|---|---|---|
| | | Within Existing ROW / Facility Boundaries | Outside Existing ROW / Facility Boundaries | Within Existing ROW / Facility Boundaries | Outside Existing ROW / Facility Boundaries[c] |
| **Contractor and Pipe Yards** | | | | | |
| Linden Yard | Union | 8.16 | 0.00 | 0.00 | 0.00 |
| Bergen Yard | Bergen | 0.00 | 4.81 | 0.00 | 0.00 |
| | **Contractor Yard Subtotal:** | **8.16** | **4.81** | **0.00** | **0.00** |
| | **PROJECT TOTAL:** | **29.16** | **23.26** | **6.22** | **5.02** |

ATWS = additional temporary workspace

a: Totals may not equal sum of addends due to rounding.
b: Land Affected During Construction includes Land Affected During Operation.
c: Includes only the new permanent ROW or permanent aboveground facility footprint that is outside Transco's existing pipeline or aboveground facility easement or property boundary.
d: Included as part of Orange and Rockland M&R and Paramus M&R workspaces.
e: Includes below-ground pipe replacement work adjacent to the station but within Transco's pipeline ROW.

In addition, Transco has developed several environmental management plans, described further in this EA, which would apply to this Project:

- *Spill Plan for Oil and Hazardous Materials* (Spill Plan) to prevent incidental soil contamination during construction and restoration;
- *Waste Management Plan* for managing hazardous and non-hazardous waste generated during construction;
- *Unanticipated Discovery of Contamination Plan* to respond to potential soil and groundwater contamination encountered during construction;
- *Fugitive Dust Control Plan* for managing dust generated during construction; and
- *Invasive Species Management Plan* for identification and management of invasive species during construction.

Transco would utilize at least one full-time environmental inspector (EI) during construction of the Project. The EI would be on site during construction activities to ensure compliance with the construction procedures contained in Transco's various Plans. The EI's responsibilities include:

- ensuring compliance with applicable federal, state, and local environmental permits;
- ordering corrective actions for acts that violate the environmental conditions of the Commission's Certificate, or any other authorizing document;
- ensuring compliance with site-specific construction and restoration plans or other mitigation measures and landowner agreements; and
- maintaining construction status reports.

Transco would conduct environmental training sessions in advance of and during construction to ensure that all individuals working on the Project are familiar with the environmental mitigation measures appropriate to their jobs and the EI's authority.

In addition to Transco's environmental inspection program, FERC staff will conduct compliance inspections during construction and restoration to verify Transco's compliance with the Commission's orders.

## 7.2 Construction Methods

Transco would use conventional lay and push-pull methods for buried pipeline construction. Conventional construction methods would be used where practical in the upland areas on the north and south ends of the Bergen Loop pipeline installation. The push-pull method would be used in the wetland areas crossed by the Bergen Loop.

### Conventional Pipeline Construction

Prior to construction, Transco would survey the route and stake the pipeline centerlines, foreign pipeline and utility crossings, and workspace limits, along with wetland boundaries and other environmentally sensitive areas. Clearing crews would cut vegetation and remove it from construction workspaces. After clearing, the grading crew would grade upland portions of the construction ROW to create a safe and level work surface. Environmental crews would install temporary erosion controls, where necessary, to minimize erosion and would maintain these controls throughout construction.

Table A-3

**Transco's Proposed Alternative Measures to FERC Plan and Procedures for the Project**

| Requirement | Location | Justification / Description | Comments |
|---|---|---|---|
| **FERC Plan** | | | |
| Section IV.A.2 | Bergen Loop (Upland MPs) | Transco proposes 75 feet of TWS and an additional 50 feet of ATWS along the proposed loop for a typical 125 foot construction work area for stockpiling spoil during push-pull construction across the marsh.<br><br>OSHA Type C soil conditions affect slope stability of pipeline trench and saturated soil conditions make it difficult to contain spoil. Wider construction ROW would ensure excavated material does not result in sedimentation into adjacent wetland. | Acceptable. The EI would be onsite for the duration of the marsh crossing to ensure erosion controls are maintained and to order corrective action where necessary. Additionally, the EI would conduct daily inspections along the loop, even when active construction is not occurring, until permanent restoration measures are implemented. |
| **FERC Procedures** | | | |
| Section IV.A.1.d. | Bergen Loop | Refueling within 100 feet of a wetland or waterbody boundary is necessary due to the location of the majority of the proposed Loop within wetland. | Acceptable. These activities would only occur within 100 feet of wetlands and waterbodies if the EI determines there is no reasonable alternatives, and Transco and its contractors have taken appropriate measures (i.e., implementing Transco's Waste Management Plan and Spill Plan). |
| | PAR-003 Hackensack River<br><br>TWS Lake Tappan | Extra workspace needed for water withdrawal pump and piping. The activity requires access to the water's edge. | Acceptable. The EI would be onsite for the duration of withdrawal activities to ensure installation of the pump in accordance with the FERC Procedures (Section VII.C), to ensure erosion controls are maintained, and to order corrective action where necessary. |
| Section V.B.2 | ATWS-BE-001 (Bergen Yard) / TOB/EOW 01 | Extra workspace needed for staging push-pull construction. There is limited upland area in which to stage equipment required for construction. The ATWS area consists of land previously disturbed by commercial activity. | Acceptable. Transco would install erosion and sediment barriers at the limit of the yard in this location adjacent to the waterbody in accordance with the FERC Procedures with daily monitoring by the EI during construction to ensure sediment controls are in proper working order and would order corrective action where necessary. |
| | ATWS-BE-002 / TOB | Extra workspace needed for staging push-pull construction. There is limited upland area in which to stage equipment required for construction. The ATWS area consists of existing disturbed station area. | Acceptable. |

Table A-3

**Transco's Proposed Alternative Measures to FERC Plan and Procedures for the Project**

| Requirement | Location | Justification / Description | Comments |
|---|---|---|---|
| Section VI.A.2. | Bergen Loop | Transco proposes a 35 foot separation between the proposed Bergen Loop and the existing Mainline A. The existing soils conditions require a wider trench and therefore a wider corridor is needed to facilitate the construction activities. | Acceptable. |
| Section VI.A.3 | Bergen Loop MP 0.00 – 0.61 / W-06 and W-01 | Transco proposes 75 feet of TWS and an additional 50 feet of ATWS along the proposed loop for a typical 125 foot construction work area for stockpiling spoil during push-pull construction across the marsh.<br><br>OSHA Type C soil conditions affect slope stability of pipeline trench and saturated soil conditions make it difficult to contain spoil. A wider construction ROW would ensure excavated material does not run into adjacent wetland. | Acceptable. The EI would be onsite for the duration of the marsh crossing to ensure erosion controls are maintained and to order corrective action where necessary and would conduct daily inspections along the loop, even when active construction is not occurring, until permanent restoration measures are implemented. |
| Section VI.A.6. | New Pig Receiver Bergen Loop and re-located Thermoelectric generator /W-01, W-600 | The new pig receiver at the terminus of the Bergen Loop would be co-located with an existing facility. The existing facility would be expanded within wetlands to accommodate the aboveground facilities. An existing thermoelectric generator at this location must be relocated to comply with National Fire Protection Association code (NFPA 497) and the only location for it with sufficient separation to meet these codes is on the opposite side of Metro Road. | Acceptable. Transco proposes to install the re-located thermoelectric generator on pilings to minimize wetland fill and to avoid effects on flood storage capacity. Wetland impacts from the pig receiver would be mitigated as part of Transco's Compensatory Mitigation Plan to be developed in consultation with the U.S. Army Corps of Engineers. |
| Section VI.B.1 | ATWS-BE-002 / W-06, W-700, W-04 | Extra workspace needed in wetland for staging push-pull construction. There is limited upland area in which to stage equipment required for construction. The ATWS are consists of existing disturbed station area. | Acceptable. |
| | ATWS-BE-003 / W-01, W-03, W-06, W-600<br>ATWS-BE-004 / W-01, W-600 and W-700 | Extra workspace needed in wetland for spoil storage. There are no upland locations to place the ATWS for trench spoil storage. | Acceptable. |
| | PAR-003 / W-01, W-600 | Extra workspace needed for in wetland hydrostatic test water withdrawal pump and parking. | Acceptable. |
| | ATWS-BE-101 / W44/50A | Extra space needed in wetland for parking equipment and construction vehicles. There is limited space available at the station site for parking. | Acceptable. Transco would mat this wetland with timber mats to prevent rutting of wetland soil and would restore the area in accordance with the FERC Procedures post-construction. |

Table A-3

**Transco's Proposed Alternative Measures to FERC Plan and Procedures for the Project**

| Requirement | Location | Justification / Description | Comments |
|---|---|---|---|
| Section VI.B.2.b. | ATWS-BE-003 / W-01, W-03, W-06, W-600 | Portions of ATWS-BE-003 located in wetland area would be used for pipe stringing. There is limited upland area to string the pipe. Transco would use all of the upland area available and would only use the minimum amount of wetland area necessary to complete the pipe string. | Acceptable. |
| Section VI.B.2.d. | Bergen Loop | Because the pipeline would be constructed by the push-pull method, the entire length of trench would need to be excavated before the pipe can be assembled. | Acceptable. |
| Section VI.C.6 | Bergen Loop - All wetlands | Transco proposes to temporarily revegetate the construction ROW for the Bergen Loop, if necessary prior to implementation of permanent seeding, with a native seed mix approved for use within the adjacent Marsh Resources Mitigation Bank. | Acceptable. The request is in accordance with direction from Marsh Resources. |

Note: OHSA = Occupational Safety and Health Administration; ATWS = Additional temporary workspace

Trench excavation is necessary to bury the pipeline. Excavation of the trench would follow clearing and grading of the ROW. The trench would be excavated with a rotary trenching machine, track-mounted backhoe, or similar equipment. Transco does not anticipate that blasting would be required; however, in the unlikely event that rock substrates are encountered at depths that interfere with conventional excavation or rock-trenching methods, blasting may be used as necessary. The bottom of the trench would be excavated as wide as required for the diameter of the pipe and safe construction practices. The sides of the trench may be sloped for safety, with the top of the trench wider at tie-in locations. The trench would be excavated to a sufficient depth to allow the typical design depth of 48 inches in accordance with 49 CFR 192.327, which establishes a minimum 36 inches of cover for most pipelines in Class 1, 2, and 3 locations. In areas where the new pipeline is co-located with Transco's existing pipeline, adequate separation would be maintained between the two pipelines to provide sufficient room for the use of standard overland pipeline construction methods and ready access for maintenance operations or in the event of an emergency.

Excavated subsoil would typically be stockpiled along the ROW on the side of the trench away from the construction traffic and pipe assembly area. Subsoil would be stockpiled separately from topsoil. This segregation of topsoil and subsoil would be maintained throughout the construction of the Project.

The stringing crew would deliver the pipe to the cleared and graded ROW where the pipe would be placed on skids adjacent to the trench in a single, continuous line. Once the pipe is strung, welding crews would weld the pipe together prior to lowering it into the ditch. Welding would be conducted in compliance with 49 CFR 192 (Transportation of Natural and Other Gas by Pipeline Minimum Federal Safety Standards) and American Petroleum Institute Standard 1104 Welding of Pipelines and Related Facilities and Transco's company specifications. Completed welds would be inspected to ensure compliance with 49 CFR 192, and all pipe welds would be coated to prevent corrosion. Inspectors would check the entire pipe for defects in the coating and repair the coating as needed before installation in the trench. Next, the crews would dewater the trench as necessary in accordance with applicable permits and the trench would be cleaned of debris. The crews would lower the pipeline into the trench, and install trench barriers or breakers as required before backfilling at specified intervals to prevent water movement along the pipeline. After the pipe is positioned in the trench, crews would backfill the trench with the previously excavated material. Previously graded areas would be returned to original contours, although a slight crowning at the top of the trench may be left to allow for settling of soil air pockets. Excess soil may be spread evenly within uplands in the ROW.

After backfilling, pipeline segments would be hydrostatically tested in sections to ensure the system is free from leaks and meets safety requirements at operating pressures. Water for hydrostatic testing would be obtained from both nearby surface waters and municipal sources. The water in the pipe segments would be pressurized and held for a minimum of 8 hours and conducted in accordance with USDOT requirements in 49 CFR 192 and applicable permit conditions. Any leaks detected would be repaired and the pipe segment retested. Upon completion of hydrostatic testing, the water would be discharged to upland areas, a municipal system, or possibly into the Hackensack River. Hydrostatic testing is further discussed in section B.3.3.

After the completion of backfilling, areas disturbed by Project construction activities would be graded and cleaned up of any construction trash/debris. Transco would implement erosion control measures in accordance with Transco's Plan and Procedures. Transco would consult with the U.S. Department of Agriculture Natural Resources Conservation Service (NRCS) and landowners concerning seed-mixes and applications of other soil additives following construction. Transco would restore areas disturbed by construction to pre-construction conditions to the extent practicable.

Markers showing the location of the pipeline would be installed at fence and road crossings to identify Transco as the owner and convey emergency information in accordance with applicable government regulations, including USDOT safety requirements.

Transco would install a low-voltage cathodic protection system to supplement the external coating protecting the buried pipeline from corrosion, including from acidic soils. Furthermore, a properly applied and maintained external pipeline coating serves as a barrier by insulating the pipeline from the surrounding soil. Although soil surveys may indicate how corrosive an environment may be, the final cathodic protection system design requires an assessment of actual pipe-to-soil potentials. Based on these measurements, the cathodic protection systems would be put in service within one year of construction, in accordance with USDOT requirements

### Push-pull Pipeline Construction

The push-pull wetland crossing method would be used to cross wetland areas where sufficient water is present for floating the pipeline in the trench, and where grade elevation over the length of the push-pull area would not require damming to maintain adequate water levels for pipe floatation. Crossing of wetlands using the push-pull method involves pushing the prefabricated pipe from upland areas on the western edge of the wetland. Vegetation in emergent wetlands would not be purposefully cleared except during trench excavation. Instead, vegetation would be flattened during construction activities, but otherwise left undisturbed. The trench would be excavated using swamp excavators (pontoon mounted backhoes) or tracked backhoes supported by fabricated timber mats or floats. Transco proposed an alternate measure to the FERC Plan and Procedures (discussed in table A-3) to utilize 75 feet of TWS and an additional 50 feet of additional temporary workspace (ATWS) along the Bergen Loop to allow stockpiling spoil during push-pull construction. We find this acceptable. The pipe would be stored and joined at staging areas outside the wetland. Floats would be attached temporarily to give the pipe positive buoyancy. After floating the pipe into place, the floats would be removed and the pipe lowered to the bottom of the ditch. The excavated material would then be placed over the pipe to backfill the trench.

### Aboveground Facility Construction

At the aboveground facilities, Transco would clear and grade the relevant portion of each property to prepare for construction. Erosion control devices would be installed to prevent erosion and offsite impacts. Access to the aboveground facilities would be provided by existing public and private access roads and the temporary access roads described above in section A.5. After construction, any disturbed area that is not covered in gravel or asphalt would be restored and revegetated.

## 7.3 Operations and Maintenance

Transco would continue to operate and maintain the facilities proposed to be constructed and upgraded in this Project in the same manner as current facilities are operated. The system is monitored remotely from Transco's Gas Control Center in Houston, Texas. Personnel would continue to perform routine checks of all facilities, including calibration of equipment and instrumentation, inspection of critical components, and scheduled and routine maintenance of equipment and grounds. Vegetation within the fenced portion of the stations would continue to be mowed as needed. Transco would continue to maintain the existing 5- to 50-foot-wide permanent ROW along the route of the NNJE Uprate segment and would maintain a 35-foot-wide permanent ROW along the route of the proposed Bergen Loop.

## 8. Non-jurisdictional Facilities

Occasionally, projects have associated facilities that are constructed in support of the project, but do not come under the jurisdiction of the FERC. Such non-jurisdictional facilities are often constructed upstream or downstream of the jurisdictional facilities for the purpose of delivering, receiving, or using the proposed gas volumes, or may include utilities necessary for aboveground facility operation. At this time, there are no non-jurisdictional facilities related to Transco's proposed Project.

## 9. Permits and Approvals

Transco would obtain all necessary permits, licenses, clearances, and approvals related to construction and operation of the Project. The company would provide all relevant permits and approvals to the contractor, who would be required to adhere to applicable requirements. Table A-4 lists federal and state permits related to construction and operation of the Project. Transco would be responsible for obtaining all applicable permits for its Project regardless of whether they appear in the table or not.

Table A-4
**Permits, Approvals, and Consultations for the Project**

| Agency | Permit/Approval/Consultation | Status |
|---|---|---|
| **Federal** | | |
| Federal Energy Regulatory Commission | Certificate of Public Convenience and Necessity | Submitted 8/29/17 |
| U.S. Army Corps of Engineers | Individual Permit - Section 404 of the Clean Water Act | Submitted 9/15/17; additional information submitted 11/3/17; response pending |
| U.S. Fish and Wildlife Service, State Field Offices | Endangered Species Act – Section 7 Consultation<br>Consultation – Migratory Bird Treaty Act and Bald and Golden Eagle Protection Act | Submitted 7/13/17; concurrence received 9/14/17 |
| National Oceanographic and Atmospheric Administration / National Marine Fisheries Service, Greater Atlantic Regional Fisheries Office | Consultation – Section 7 of the Endangered Species Act; the Marine Mammal Protection Act; and the Magnuson-Stevens Fishery Conservation and Management Act | Submitted 3/27/17; concurrence received 3/28/17 |

Table A-4
**Permits, Approvals, and Consultations for the Project**

| Agency | Permit/Approval/Consultation | Status |
|---|---|---|
| **New Jersey** | | |
| New Jersey Department of Environmental Protection (NJDEP), Division of Land Use | Bergen Loop Multi-permit application - Waterfront Development Permit; Flood Hazard Area Verification; Individual Water Quality Certificate | Submitted 9/15/17; approved 12/14/17 |
| | Uprate Multi-permit application - Freshwater Wetlands Permit; Flood Hazard Area Individual Permit | Submitted 10/6/17; response pending |
| | Bergen Loop Flood Hazard Area Individual Permit | Submitted 11/6/17, response pending |
| NJDEP, Division of Water Quality | New Jersey Pollutant Discharge System (NJPDES) Short Term De Minimis Discharge Permit | Anticipated 3rd Quarter 2018 |
| | NJPDES Construction Activity Stormwater Permit | Anticipated 3rd Quarter 2018 |
| | NJPDES Hydrostatic Test Water Discharge | Anticipated 3rd Quarter 2018 |
| | Temporary Dewatering Permit OR Short-term Water Use Permit by Rule or Water Use Registration | Anticipated 3rd Quarter 2018 |
| NJDEP, Natural Heritage Program | Rare, Threatened and Endangered Species Consultation | Consultation request submitted on 4/20/17; response received 5/1/17 |
| New Jersey Historic Preservation Office | Section 106 National Historic Preservation Act | Consultation request submitted on 3/28/17; updated consultation 8/15/17; concurrence received 4/18/17; addendum concurrent received 9/12/17 |
| **County and Local** | | |
| Hudson-Essex & Passaic County Soil Conservation District<br>Bergen County Soil Conservation District | Soil Erosion and Sedimentation Control Plan Approval and Request for Authorization to Discharge Construction Stormwater (NJPDES General Permit) | Submitted 12/21/17; response pending |
| **American Indian Tribes** | | |
| Delaware Nation | Native American tribal consultations pursuant to Section 106 of the National Historic Preservation Act, Native American Graves Protection and Reparations Act, Archaeological Resources Protection Act, and several Executive Orders and Executive Memorandums | Submitted 3/28/17; consultation completed 4/10/17 |
| Delaware Tribe of Indians | | Submitted 3/28/17; consultation completed 8/8/17 |
| Shawnee Tribe of Oklahoma | | Submitted 3/28/17; consultation completed 5/5/17 |

# B. ENVIRONMENTAL ANALYSIS

The environmental consequences of constructing and operating the Project would vary in duration and significance. Four levels of impact duration were considered: temporary, short-term, long-term, and permanent. For this EA, temporary impacts are defined as occurring only during the construction phase. Short-term impacts are defined as lasting up to 3 years. Long-term impacts would eventually recover, but require more than 3 years. A permanent impact could occur as a result of any activity that modifies a resource to the extent that it would not return to preconstruction conditions during the life of the Project. An impact would be considered significant if it would result in a substantial adverse change in the physical environment.

## 1. Geology

The Project is underlain by the northern part of the Lowland Section of the Piedmont Physiographic Province (Fenneman, 1938; New Jersey Department of Environmental Protection [NJDEP]/ New Jersey Geological and Water Survey [NJGWS], 2006a). The Piedmont Province in New Jersey and southeast Pennsylvania is characterized by a low rolling plain predominantly underlain by sedimentary and igneous rocks from the Triassic through Jurassic age (240 to 140 million years ago) (Hack, 1918), and bands of metamorphic bedrock. Local relief in northern Bergen County is typically less than 130 feet, while local relief at the southern extent of the Project is typically about 10 feet with bedrock outcrops rising to 150 feet (USFWS, 1997).

The landscape in the Project area has been shaped by multiple glacial events. The unconsolidated surficial geologic units in the Project area include alluvial, swamp, estuarine, and stream terrace deposits of the postglacial age as well as glaciolacustrine and glaciofluvial deposits and till from the late Wisconsinan age (Stanford, 1993). Bedrock underlying the Project area consists of the Passaic Formation (siltstone and sandstone), Passaic Formation Sandstone, Passaic Formation Siltstone facies, Passaic Formation Mudstone facies (fine-grained mixed clastics and siltstone), and Lockatong Formation (argillite and mudstone) (U.S. Geological Survey [USGS], 2006a).

### 1.1 Mineral Resources

Mineral resources in the vicinity of the Project area are limited to non-fuel resources. According to the NJDEP/NJGWS (2006b), no active mining operations are present within 0.25 mile of the Project area.

### 1.2 Geologic Hazards

Geologic hazards are natural physical conditions that can result in damage to land or structures, and/or injury to the public. Potential geologic or other natural hazards can generally include ground failure caused by unstable soils (liquefaction), landslides, karst terrain (unexpected formation of sinkholes), seismicity (earthquakes), faults, hurricanes, and volcanism.

#### Seismic Hazards

No quaternary faults exist in the vicinity of the Project area according to the USGS Quaternary Fault and Fold database and New Jersey GeoWeb (USGS, 2006b; NJDEP/NJGWS, 1999).

The USGS earthquake hazard program (USGS, 2014) mapping shows that seismicity in terms of peak ground acceleration within the Project area is between 14 to 20 percent gravity for the 2-percent

probability of return period in 50 years and between 3 to 5 percent gravity for the 10-percent probability of return period in 50 years. These values represent light to moderate ground shaking with little to no associated damage, and low potential for soil liquefaction to occur.

There are no recent faults that cross or are present in the immediate vicinity of the Project, and the near-flat terrain renders the Project area negligible for slope instability and landslides. Based on the low probability of localized earth movements or geological hazards in the vicinity of the Project, we do not anticipate impacts attributable to such geological movements or hazards.

### Land Subsidence and Karst Terrain

Ground subsidence is a lowering of the land surface elevation that results from changes that take place underground. Common causes of land subsidence include dissolution of limestone in areas of karst terrain, collapse of underground mines, and the pumping of water, oil, and gas from underground reservoirs. Underground mines and pumping of oil or gas does not take place in the vicinity of Project facilities. Karst terrain is not present or not likely to occur within the Project area. Based on the lack of significant collapse hazards, underground mines, and pumping of oil and gas in and around the proposed Project area, impacts on the Project facilities or adjacent land due to groundsoil land subsidence and karst terrain are not anticipated.

### Major Storm Events and Flooding

Flash flood events are less common in the northeastern United States compared to other regions; however, flash flooding is possible on streams in the Project area. The greatest potential for flash flooding is associated with major storms, which are usually accompanied by significant precipitation over a short period of time. As such, the potential for flash flooding to occur and significantly impact construction of the Project facilities is low. Transco would design aboveground facilities associated with the Bergen Loop to applicable engineering standards and applicable federal and state regulations. Therefore, we do not anticipate impacts on the Project facilities from flooding caused by severe storms (including hurricanes). Flooding could increase the buoyancy of pipelines, causing them to rise toward the land surface where they may be exposed. However, risks of increased buoyancy would be minimized by implementing standard construction techniques on the Bergen Loop including the use of concrete-coated pipe, and maintaining a minimum depth of 3 feet of cover over the pipeline as required by the USDOT.

## 1.3 Blasting

The surficial geology of the Bergen Loop is salt marsh and estuarine deposits, which would not require blasting. Transco proposes to construct the Bergen Loop using the conventional lay and push-pull methods, described above. The proposed depth of the pipeline trench is approximately 8 feet and is therefore expected to be above bedrock. If blasting is found to be necessary, Transco states that Project-specific blasting plans would be developed in coordination with the appropriate agencies that address pre- and post-blast inspections and monitoring; advanced public notification; and mitigation measures for building foundations, groundwater wells, and springs.

## 1.4 Paleontology

The Project area is underlain by Jurassic to Triassic sedimentary rocks that have the potential to contain fossils. Although fossil specimens may be encountered during construction activities, no impacts on sensitive paleontological resources are anticipated during construction. If unique or significant fossil

specimens are discovered during excavation activities, Transco would notify the New Jersey State Museum Bureau of Natural History upon discovery.

The overall effect of the Project on topography and geology would be minor, and significant adverse effects on geological resources are not anticipated. Given the geologic conditions within the Project area, and the fact that most construction would take place within existing Transco facilities and ROW, we do not anticipate that Project facilities would be compromised due to seismicity, ground rupture, soil liquefaction, subsidence, flooding, or landslides and that the proposed facilities would not result in significant impact on geologic or paleontologic resources.

## 2. Soils

Soil types within the Project area were identified by the NRCS Soil Survey Geographic Database (NRCS, 2017). As discussed, construction would take place primarily within existing facility boundaries and ROW that have been previously disturbed. Approximately 52.43 acres would be temporarily impacted during construction (29.16 acres within and 23.26 acres outside existing ROW/facility boundaries), and approximately 11.24 acres would be affected during Project operation (6.22 acres within and 5.02 acres outside existing ROW/facility boundaries).

Construction activities that create soil disturbance, such as clearing, grading, trench excavation, backfilling, and the movement of construction equipment along the ROW, would result in temporary and minor impacts on soil resources. Soil characteristics could affect construction performance or increase the potential for adverse construction-related soil impacts. The activities that have the potential to impact soils and reduce soil quality are the mixing topsoil of with subsoil, bringing excess rocks to the surface, compacting soil by heavy equipment, and disrupting surface and subsurface drainage patterns.

The U.S. Department of Agriculture defines prime farmland soils as those that have the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and that is available for these uses. Unique farmland is identified as land other than prime farmland that is used for the production of specific high-value food and fiber crops, such as citrus, tree nuts, olives, cranberries, and other fruits and vegetables. Prime and unique farmland soils can include either actively cultivated land or land that is potentially available for cultivation. Farmland that does not meet the criteria for prime or unique farmland may still be considered farmland of statewide importance for the production of food, feed, fiber, forage, and oilseed crops. The criteria for defining and delineating farmland of statewide importance are determined by the local conservation districts. Generally, this land includes soils that nearly meet the requirements for prime or unique farmland and that economically produce high yields of crops when treated and managed according to acceptable farming methods. Approximately 34.47 acres of the soils temporarily impacted by Project activities are considered prime or unique farmland or farmland of statewide importance. Of this, about 2.94 acres would be required for operation of the Project, the majority of which is currently within existing facility fence lines, existing permanent ROW, or land owned by Transco. None of this land is currently being used for agricultural purposes.

### 2.1 Erosion, Runoff, and Sediment Control

Most impacted soils in the Project area have low to moderate erosion potential based on soil characteristics and slope. To minimize or avoid potential impacts from soil erosion and sedimentation to nearby waterbodies, Transco would utilize erosion and sedimentation control devices in accordance with Transco's Plan and Procedures during construction. Temporary erosion control techniques, including slope breakers, trench breakers, sediment barriers, and re-establishment of stabilizing vegetation would be installed prior to or immediately following any clearing activities, based on site-specific conditions.

Temporary erosion control devices would be inspected on a regular basis as well as after each rainfall event of 0.5 inch or greater to ensure that the controls are functioning properly. In addition, Transco would perform the following to minimize impacts on soils:

- minimize the quantity and duration of soil exposure;
- protect critical areas during construction by reducing the velocity of and redirecting runoff;
- install and maintain erosion and sediment control measures during construction;
- reestablish vegetation as soon as possible following final grading; and
- inspect and maintain erosion and sediment controls as necessary until final stabilization is achieved.

## 2.2 Compaction and other Soil Impacts

During construction, topsoil and subsoil would be disturbed during grading and trenching activities and the movement of heavy equipment. The potential mixing of topsoil with the subsoil from these activities could result in a loss of soil fertility, which could potentially affect soils, including residential and agricultural soils. To prevent mixing of the soil horizons, topsoil segregation would be performed in croplands, improved pastures, residential areas, non-saturated wetlands, and in areas requested by the landowner. In upland areas, Transco would strip topsoil from either the full work area or from the trench and subsoil storage area. In non-saturated wetlands, topsoil would only be segregated within the trench line. The topsoil would be segregated and replaced in the proper order during backfilling and final grading. Implementation of proper topsoil segregation would help to ensure post-construction revegetation success, thereby minimizing loss of crop productivity and the potential for long-term erosion problems. Topsoil segregation would also minimize the introduction of subsoil rocks into agricultural topsoil, as further discussed below regarding shallow bedrock and rocky soils.

There is a potential for construction activities to introduce rock into topsoil during excavation in areas of shallow depth to bedrock or areas with stony, rocky soil. Transco would attempt to use mechanical methods such as a pneumatic ram, ripping, or conventional excavation to excavate through the rock, where possible. Rock excavated from the trench may be used to backfill the trench only to the top of the existing bedrock profile. Rock not returned to the trench would be considered construction debris and disposed of appropriately. Excess rock would be removed from at least the top 12 inches of soil in all residential areas, as well as other areas at the landowner's request, to ensure the rock in the area disturbed by construction is similar to adjacent undisturbed areas.

Construction equipment traveling over wet soils could disrupt the soil structure, reduce pore space, increase runoff potential, and cause rutting. The degree of compaction depends on the moisture content and soil texture. Fine-textured soils with poor internal drainage that are moist during construction are the most susceptible to compaction. Approximately 32 percent of the soils that would be affected by the Project are considered prone to compaction. Transco would minimize compaction and rutting impacts during construction in soft or saturated soils by using measures outlined in Transco's Plan and Procedures. Measures such as the use of low-ground-weight equipment and/or by temporary installation of timber equipment mats may be used when soil moisture is high. Transco would test the topsoil and subsoil for compaction in all agricultural and residential areas disturbed by construction. Severely compacted agricultural areas would be mitigated with deep tillage operations during restoration activities using a paraplow or similar implement. In areas where topsoil is segregated, plowing with a paraplow or other deep tillage implement to alleviate subsoil compaction would be conducted before replacement of the topsoil. Soil compaction mitigation would also be performed in severely compacted residential areas.

The clearing and grading of soils with poor revegetation potential could result in a lack of adequate revegetation following construction and restoration of the ROW, which could lead to increased

erosion, a reduction in wildlife habitat, and adverse visual impacts. None of the soils that would be affected by the Project are considered to have revegetation concerns. Transco would restore and revegetate according to Transco's Plan and Procedures, which includes specifications for applying soil amendments, working with local soil conservation authorities or other agencies to obtain seed mixture recommendations, and post-construction monitoring to ensure the effectiveness of revegetation and permanent erosion control devices during facility operation.

To minimize or prevent impacts due to soil erosion and off-ROW sedimentation during construction, Transco would utilize the erosion and sedimentation controls outlined Transco's Plan and Procedures. Erosion control devices would be maintained until the ROW is successfully revegetated. Temporary erosion controls, including slope breakers and sediment barriers (e.g., hay bales and silt fences), would be installed following initial ground disturbance to control runoff and prevent sediment transport off the construction ROW. Temporary erosion controls would be maintained until the Project area is successfully revegetated. During construction, the effectiveness of these temporary erosion control devices would be monitored by Transco's EIs. Following successful revegetation of construction areas, temporary erosion control devices would be removed. Permanent erosion controls would be installed, as necessary, to ensure the successful restoration of the Project area. The effectiveness of revegetation and permanent erosion control devices would be monitored by operating personnel during the long-term operation and maintenance of the Project facilities in accordance with the provisions in Transco's Plan and Procedures. With the implementation of these measures, we conclude that impacts on soils would be adequately minimized.

### 2.3 Soil Contamination

The proposed Project involves construction in proximity to areas of known contamination. An Environmental Data Resources, Inc. (EDR) database search report was acquired for the Project area around each facility (EDR, 2017). Areas of possible soil contamination within the Project area were identified at MP 0.0 and the new pig launcher on the Bergen Loop. The listings associated with this site have a closed status. Therefore, no effect from contaminated soil or groundwater is anticipated. According to Transco, and based on information available in the EDR reports, areas of possible soil contamination were not identified on or adjacent to the remaining Project areas.

At any of the Project sites, inadvertent spills or leaks of fuels, lubricants, or coolant from construction equipment could adversely affect soils. The impacts of such releases are typically minor because of the low frequency and small volumes of spills and leaks. Transco would implement the measures in its Spill Plan to prevent spills of any material that may contaminate soils, and to ensure that inadvertent spills are contained, cleaned up, and disposed of in an appropriate manner. Should Transco encounter unanticipated contaminated soils during construction, it would evaluate and treat impacted soils in accordance with its Unanticipated Discovery of Contamination Plan and applicable federal and state requirements.

Given the impact minimization and mitigation measures described above, we conclude that soils would not be significantly affected by Project construction and operation.

## 3. Water Resources and Wetlands

### 3.1 Groundwater

The Project areas, with the exception of the Central Manhattan M&R, are underlain by the Brunswick Aquifer. Groundwater movement within such aquifers occurs through secondary openings in the rock, such as faults, bedding planes, and other partings that have been enlarged by dissolution (Trapp

and Horn, 1997). Groundwater depths in the Bergen County are reported at approximately 26-37 feet below ground surface in the Mesozoic basin aquifer (USGS, 2017a) and approximately 6-13 feet below ground surface in a sand and gravel aquifer (USGS, 2017b). The drinking water supply for the Project area is provided primarily by surface water, rather than by aquifers.

The USEPA defines Sole Source or Principal Source Aquifers as those aquifers which supply at least 50 percent of the drinking water consumed in the area overlying the aquifer. These areas typically have no alternative drinking water source(s) that could be physically, legally, and/or economically supplied to all those who depend on the aquifer for their potable water supply. Based on information provided by the NJGWS, no USEPA-designated Sole Source Aquifers are present in the Project areas (NJDEP/NJGWS, 1999). One state-designated Public Community Well Head Protection Area is crossed by the North New Jersey Extension Uprate in Oradell and Emerson Boroughs (NJDEP/NJGWS, 2017). No private or public drinking water wells or springs have been identified within 150 feet of the proposed Project construction areas.

Minor and temporary impacts on groundwater infiltration could occur as a result of tree, herbaceous vegetation, or scrub-shrub vegetation clearing. Clearing of vegetation is known to enhance groundwater infiltration and minimize surface runoff and could result in some minor, temporary impacts on local aquifer recharge. However, following completion of construction activities, Transco would restore and revegetate cleared areas to pre-construction conditions to the maximum extent practicable, except where land would be permanently converted by installation of aboveground facilities.

### Groundwater Contamination

The Project involves construction in proximity to areas of known groundwater contamination. An EDR database search report for potential groundwater contamination was acquired for each Project area (EDR, 2017). This data identified one in the vicinity of the Bergen Loop. However, the status and contamination issues at the site are closed, and therefore no effect from contaminated sediments or groundwater is anticipated.

At the Central Manhattan M&R, the EDR report identified two proximate historic leaking underground storage tanks with reported groundwater contamination. According to the NJDEP GeoWeb interactive map (NJDEP, 2017a), one of the listings (2115 69th Street) is the proposed location of the ATWS adjoining the Central Manhattan M&R construction activities, and the second (6900 Nolan Avenue) is directly across 69th Street from the M&R. Based on the information available in the EDR report and on the NJDEP GeoWeb interactive map, we believe there is a potential for contact with contaminated groundwater during Project construction dewatering activities. However, with implementation of appropriate containment and disposal procedures, we conclude that potential impacts to groundwater resources would be adequately minimized. To ensure appropriate plans are in place for this area of known groundwater contaminates, **we recommend that:**

- **Prior to construction of the Central Manhattan M&R, Transco should consult with the NJDEP regarding appropriate groundwater containment and disposal guidelines and practices, and file the results of this consultation, along with any proposed mitigation measures, with the Secretary of the Commission (Secretary), for review and written approval by the Director of the Office of Energy Projects (OEP).**

Transco's pipeline construction and trench dewatering activities could encounter shallow surficial aquifers and Transco has conducted appropriate research to identify areas with known contamination of organics and metals. If Transco encounters unanticipated contaminated groundwater during construction, it would implement the procedures in its Unanticipated Discovery of Contamination Plan, which includes

identifying hazardous materials, testing, reporting, and disposing of the contaminated media according to appropriate state and federal regulations.

Accidental spills of fuels, lubricants, and other petroleum products could occur during construction activities. The potential for this impact would be avoided or minimized by the proper implementation of Transco's Spill Plan, which details preventative measures that would be followed to avoid a hazardous waste spill, as well as mitigation and reporting measures that would be followed to immediately contain and clean up a spill, should one occur. With the implementation of the Project's Spill Plan, as well as the measures in the Transco's Plan and Procedures, and our recommendation above, we conclude that impacts on groundwater would be adequately minimized.

## 3.2 Surface Water

The Project is within the Hackensack-Passaic watershed. The Project would not cross any waterbodies designated as wild and scenic rivers. Transco identified 19 waterbodies in the vicinity of the Project facilities. Of the waterbodies identified, 16 are perennial waterbodies, 1 is intermittent, 1 is ephemeral, and 1 is a lake. Waterbodies crossed by the NNJE Uprate would not be directly impacted because the uprate only involves hydrostatic testing of the pipeline. Five waterbodies would be crossed by access roads that have existing bridges or culverts; therefore, no impacts would occur on these waterbodies. The only waterbodies affected by construction workspace are associated with the hydrostatic test water withdrawal and discharge at the Orange and Rockland M&R and Paramus M&R. Lake Tappan and the Hackensack River are proposed as locations for the withdrawal/discharge of hydrostatic test water. The only other surface water associated with the aboveground facilities is an ephemeral drainage at the Paramus M&R. This drainage would be marked with construction fencing and avoided during construction. Erosion controls such as silt fence and hay bales at the edge of construction workspaces would ensure that runoff of sediments does not enter nearby waterbodies.

Transco identified several locations where ATWS would be within 50 feet of a waterbody. Transco would install appropriate erosion control devices to prevent off-site sedimentation, and an EI would monitor the locations daily to ensure waterbodies are adequately protected. These locations and associated site-specific justifications are provided in table A-4.

The Hackensack Riverkeeper and Food & Water Watch/New Jersey Sierra Club submitted comments regarding potential Project impacts on the Oradell Reservoir adjacent to the J199 Valve site and Lake Tappan. The only direct impact on waterbodies would be from the intake and discharge of hydrostatic test water. All other impacts would be indirect, but Transco would implement its Plan and Procedures to avoid or minimize these impacts. We conclude that if the Project is constructed in accordance with the construction and restoration methods described in Transco's Plan and Procedures, impacts on waterbodies would be minor and temporary.

## 3.3 Hydrostatic Test Water and Fugitive Dust Control

Hydrostatic testing is a process in which a pipeline is tested for leaks using pressurized water, to ensure the integrity of facilities and the pipeline prior to operation. The process is generally carried out after backfilling and after completion of other construction activities. Transco would be required to hydrostatically test all pipe in accordance with USDOT pipeline safety regulations. A hydrostatic test involves filling the lowered-in pipeline with water and pressurizing the pipeline above its maximum allowable operating pressure. The pressure in the pipeline is then monitored for several hours. If a drop in pressure is recorded, Transco must examine the pipelines to determine if any leaks are present.

Transco would obtain water for hydrostatic testing from both nearby surface waters and municipal sources (see table B-1 below). During water withdrawal, Transco would screen intake hoses to prevent fish entrainment, maintain adequate flow rates, keep pumps at least 100 feet from any wetland or waterbody, and implement secondary containment and refueling per Transco's Spill Plan. For most test segments, the water would be discharged into well-vegetated upland areas using energy dissipation devices to reduce impacts on soil erosion in accordance with Transco's Procedures. Transco proposes to discharge water into the municipal stormwater sewer at two locations (NNJE Uprate and Central Manhattan M&R segments) and possibly into the Hackensack River for three test segments (Bergen Loop, pig launcher, and pig receiver).

Table B-1
**Project Water Use and Sources**

| Facility | Source | Volume of Water (gallons) | Withdrawal Location | Discharge Location | Discharge Rate (gallons/minute) |
|---|---|---|---|---|---|
| **HYDROSTATIC TESTING-PIPELINE FACILITIES** | | | | | |
| NNJE Uprate | Lake Tappan | 1,201,352 | MP 10.56 (adjacent to Orange and Rockland M &R | Paramus M&R, municipal sewer system | 2,000 |
| Bergen Loop | Hackensack River | 230,000 | 0.2 mile north of MP 0.61 | Upland location at MP 0.00 or Hackensack River at MP 0.61 | 2,000 |
| **HYDROSTATIC TESTING-ABOVEGROUND FACILITIES** | | | | | |
| Orange and Rockland M&R | Lake Tappan/Municipal | 4,000 | MP 10.56 of NNJE | Upland location at MP 10.56 of the NNJE | 300 |
| Emerson M&R | Municipal | 6,000 | MP 10.56 of NNJE | Upland location at MP 6.01 of the NNJE | 300 |
| Paramus M&R | Municipal | 20,000 | MP 10.56 of NNJE | Upland location at MP 0.23 of the NNJE | 300 |
| Central Manhattan M&R | Municipal | 35,000 | MP 1.82 of 72nd St. Lateral | Municipal stormwater system at MP 1.82 of the 72nd Street Lateral | 300 |
| Pig Launcher | Municipal | 28,000 | MP 0.00 of Bergen Loop | MP 0.0 of the Bergen Loop or MP 0.61 (Hackensack River) | 300 |
| Pig Receiver | Hackensack River | 25,000 | 0.2 mile North of Bergen Loop MP 0.61 | MP 0.0 of the Bergen Loop or MP 0.61 (Hackensack River) | 300 |
| **FUGITIVE DUST CONTROL** | | | | | |
| Fugitive Dust Control | Hackensack River | 45,000 | 0.2 mile North of Bergen Loop MP 0.61 | N/A | N/A |
| **TOTAL** | | **1,594,352** | | | |

Transco would obtain all applicable permits prior to withdrawal and discharge of hydrostatic test water. Transco does not anticipate the use of any additives in the hydrostatic test water. The NNJE Uprate section would be cleaned using a pigging tool prior to hydrostatic testing. The water would be tested prior to discharge in accordance with the NJDEP permit, and treated if required. Given that Transco would discharge to uplands and waterbodies with appropriate erosion control measures, screen water intakes, and adhere to all permit requirements, impacts on waterbodies from hydrostatic testing activities are expected to be temporary and minor. Impacts on fisheries from discharges directly into waterbodies are discussed below in section B.4.3.

## 3.4 Wetlands

Wetlands are areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support a prevalence of wetland vegetation adapted for life in saturated soil conditions. Wetlands can be a source of substantial biodiversity and serve a variety of functions that include providing wildlife habitat, recreational opportunities, flood control, and naturally improving water quality.

Transco conducted wetland delineation surveys in 2017. These surveys identified four wetland types: palustrine forested, palustrine emergent, estuarine intertidal emergent, and palustrine unconsolidated bottom. Palustrine forested wetlands are non-tidal wetlands dominated by trees, with an understory of young trees/shrubs and an herbaceous layer. Palustrine emergent wetlands consist of erect, rooted, herbaceous vegetation. Estuarine intertidal emergent wetlands are tidal wetlands that are usually semi-enclosed by land but have open, partially obstructed, or open access to the open ocean, and in which ocean water is at least occasionally diluted by freshwater runoff from land. These wetlands consist of vegetated and non-vegetated brackish and include saltwater marsh, beach, and shoals. Palustrine unconsolidated bottom wetlands are ponds and other similar waterbodies.

The Bergen Loop would be constructed adjacent to a wetland mitigation bank, the Marsh Resources, Inc. Mitigation Bank Program. The Project would temporarily impact a total of 7.23 acres of wetlands, of which 2.09 acres would be permanent. The Hackensack Riverkeeper submitted a comment regarding potential Project impacts on the Meadowlands conservation lands. All wetlands impacted by the Project would occur on Transco-owned land outside the boundaries of the Meadowlands Conservation Trust properties. Construction of the Project would temporarily impact 6.73 acres of estuarine intertidal emergent wetlands, of which 2.08 acres would be permanent. A total of 0.32 acre of palustrine forested wetlands would be impacted during construction, of which 0.01 would be permanently impacted. Finally, the Project would temporarily impact 0.18 acre of palustrine emergent wetlands. The majority of the permanent impacts on wetlands would be due to a conversion in wetlands type due to operational maintenance activities; however, these wetlands would still provide important ecological functions. However, Transco does propose to locate the pig receiver and thermoelectric generator associated with the Bergen Loop within an estuarine intertidal emergent wetland, resulting in a permanent impact of 0.06 acre. The thermoelectric generator would be installed on pilings to minimize the filling of wetlands.

Transco would construct pipeline segments through wetlands in accordance with its Procedures (i.e., the FERC Procedures with some modifications, discussed in section A.7.1 and table A-3) and state and federal permitting requirements. Transco's proposed modifications include using a 125-foot-wide construction ROW through wetlands crossed by the Bergen Loop, refueling within 100 feet of wetlands on the Bergen Loop, using a separation distance of 35 feet from the existing pipeline through the wetlands (rather than the standard 25 feet), and siting the pig receiver and thermoelectric generator in a wetland.

We have reviewed these modifications, the site-specific justifications for each modification, and the additional mitigation measures proposed by Transco, and find Transco's proposed measures acceptable.

The Bergen Loop would be constructed using the push-pull construction method and the extra workspace would be used for stockpiling spoil. This construction method is described in section A.7 above. Temporary impacts on wetlands include vegetation clearing, soil disturbance, and temporary alteration of hydrology. Construction could also affect water quality within the wetland due to sediment loading or inadvertent spills of fuel or chemicals.

Impacts on wetlands would be greatest during and immediately following construction. Most of these effects would be short term in nature and would diminish as wetland functionality recovers and eventually reaches preconstruction conditions. Wetlands affected within the TWS would be returned to pre-construction contours and allowed to revegetate naturally. In areas where standing water is not present, seeding may be completed to promote revegetation. Any seeding of wetland areas would be coordinated with the adjacent Marsh Resources, Inc. Mitigation Bank program. Vegetation within emergent wetlands are expected to regenerate quickly (typically within 1 to 3 years). Because these areas are naturally open and herbaceous, there would be little to no permanent impacts on emergent wetlands. Impacts on scrub-shrub and forested wetlands would last longer than those on emergent wetlands. Woody vegetation may take several years to regenerate to its original density. Furthermore, regular mowing and maintenance of a 10-foot-wide herbaceous strip centered over the pipeline, and removal of trees within 15 feet of the pipeline centerline, would result in a long-term, permanent impact by converting previously scrub-shrub vegetated wetland areas to emergent wetland areas.

Transco is currently working with the NJDEP and the U.S. Army Corps of Engineers to develop an appropriate mitigation plan to offset the permanent impacts on wetlands. Transco proposes to purchase wetland credits from existing mitigation banks to offset impacts on wetlands.

Construction would result in permanent conversion of wetland habitat and minor permanent filling of wetlands. Transco would minimize these impacts by co-locating the proposed facilities as much as possible. Revegetation would be monitored, and additional measures to promote revegetation would be developed, if necessary. Based on the mitigation and restoration measures proposed by Transco, we conclude that wetland impacts associated with the construction and operation of the Project would be sufficiently minimized and do not represent a significant impact on these resources.

# 4. Vegetation, Fisheries, Wildlife, and Special Status Species

## 4.1 Vegetation

Vegetation in the Project area consists of open upland, forested upland, wetlands (forested and non-forested), and industrial/commercial land. Open uplands include all non-forested uplands, including previously disturbed areas such as maintained utility ROW and residential lawns. Open uplands consist of species such as perennial ryegrass and crabgrass. The dominant upland forest community is mixed broadleaf/evergreen forest. Common upland forest species include American beech, red maple, Eastern white pine, and red cedar. Examples of shrubs inhabiting the upland forested areas include multi-flora rose, and herbaceous species include wild onion and poison ivy. Typical species found in the palustrine emergent wetlands include soft rush and common reed, while estuarine emergent wetlands include species such as saltmeadow cordgrass and salt-marsh bulrush. Palustrine forested wetlands in the Project area are dominated by red maple. Industrial/commercial lands generally lack vegetation, and are either covered by gravel or a hard surface such as concrete or asphalt. Vegetation impacts are summarized in table B-2 below.

Based on Transco's consultation with the New Jersey Natural Heritage Program (NJNHP), there are no rare, unique, or sensitive natural communities or vegetation species present within the Project area.

Table B-2
**Vegetation Affected by the Project**

| | Open Upland (acres) | | Upland Forest (acres) | | Wetlands (acres) | |
|---|---|---|---|---|---|---|
| **Facility** | **Temporary** | **Permanent** | **Temporary** | **Permanent** | **Temporary** | **Permanent** |
| North New Jersey Extension Uprate | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Bergen Loop | 3.43 | 0.58 | 0.00 | 0.00 | 6.54 | 1.89 |
| Aboveground Facilities | 3.17 | 0.15 | 0.54 | 0.00 | 0.57 | 0.08 |
| Contractor and Pipe Yards | 3.74 | 0.0 | 0.00 | 0.0 | 0.0 | 0.0 |
| Access Roads | 2.44 | 2.44 | 1.18 | 1.18 | 0.13 | 0.13 |
| **Project Total** | **12.76** | **3.15** | **1.73** | **1.18** | **7.23** | **2.09** |

Invasive plant species can outcompete native vegetation and change the composition of native vegetation communities. Species identified during Transco's field surveys in 2017 include Japanese stiltgrass, purple loosestrife, and common reed. Invasive species could potentially spread as a result of soil disturbances associated with construction activities. Transco has developed an Invasive Species Management Plan that contains measures to prevent and control the spread or introduction invasive weeds during construction. This plan includes measures such as: ensuring that construction equipment is cleaned prior to entering wetlands and waterbodies, cleaning equipment before moving between wetlands, and planting annual ryegrass to quickly revegetate workspaces and prevent the establishment of invasive species. We have reviewed this plan and find it acceptable. After construction is complete, the areas affected by construction would be inspected to ensure successful restoration. As part of those inspections, invasive species would be controlled with measures such as physical removal or herbicide use if necessary.

After construction is complete, the Project ROW and all temporary work areas would be revegetated according to measures contained in Transco's Plan, and all other areas would be maintained in permanent operational use. Land outside the permanent easement would be reseeded using seed mixes recommended by local and state agencies and allowed to revert to pre-construction condition, which would be a short-term impact (3 to 12 months to reach preconstruction densities) for open land, and would be a long-term impact (30 to 50 years to reach preconstruction densities) for forested areas. The TWSs at aboveground facilities are adjacent to existing aboveground facilities and within existing facility property boundaries that are previously developed and disturbed industrial areas, thus vegetation communities at these sites would not be significantly affected. Therefore, we conclude that the Project would not have a significant impact on vegetation.

## 4.2 Wildlife

The habitat types affected by the Project include open uplands, upland forest, wetlands, and open water. Common wildlife found in the upland portions of Project area include raccoon, gray squirrel, and eastern cottontail. Wetlands in the Project area support species such as bullfrog, snapping turtle, Canada goose, and eastern garter snake. Common fish species in the waterbodies impacted by the Project are discussed in section B.4.3 below.

Potential impacts on wildlife include habitat removal and construction-related ground disturbance and noise. Most species present in the Project area have adapted to human presence and disturbance.

Some individuals could be inadvertently injured or killed by construction equipment; however, more mobile species such as birds and larger mammals would likely relocate to other nearby suitable habitat to avoid the Project area once construction activities commence. The temporary disturbance of local habitat is not expected to have population-level effects on wildlife because the amount of habitat crossed represents only a small portion of the habitat available to wildlife throughout the proposed Project area, and much of the Project area would return to preconstruction conditions. Long-term impacts from habitat alteration would be further minimized by the implementation of mitigation measures contained in Transco's Plan, which would ensure revegetation of most areas disturbed by construction that would not become permanent aboveground facilities. Transco has also committed to revegetate the areas adjacent to the Orange and Rockland M&R, Emerson M&R, Paramus M&R, and the J199 Valve Site with pollinator seed mixes to support the recovery of pollinator habitat. Therefore, we conclude that the Project would not have a significant impact on wildlife or their habitat.

## 4.3 Fisheries

The Project would only directly impact two waterbodies: Lake Tappan and the Hackensack River. Several other waterbodies are crossed by existing access roads that would be used during construction; however, no improvements would be required at these crossings and no impacts on the waterbodies would occur. Lake Tappan is a freshwater lake that would be used as a source for hydrostatic test water for the NNJE Uprate. Representative fish species in Lake Tappan include largemouth bass, northern pike, and yellow perch. Fisheries in the Hackensack River are classified as estuarine, with common fish species such as striped bass, white perch, and Atlantic menhaden. The Hackensack River would be used as a source of hydrostatic test water for the Bergen Loop and possibly receive testwater discharge upon completion of hydrostatic testing. No threatened or endangered species are present in any of the waterbodies crossed by the Project (see discussion in section B.4.5).

### Essential Fish Habitat

The Magnuson-Stevens Fishery Conservation and Management Act mandated the identification of Essential Fish Habitat (EFH) for managed species. EFH is defined as "those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity." Federal agencies that authorize, fund, or undertake activities that may adversely impact EFH must consult with the National Oceanographic and Atmospheric Administration's National Marine Fisheries Service (NMFS). Although absolute criteria have not been established for conducting EFH consultations, the NMFS recommends consolidated EFH consultations with interagency coordination procedures required by other statutes, such as the NEPA or the Endangered Species Act, to reduce duplication and improve efficiency. Generally, the EFH consultation process includes the following steps:

1. Notification – The action agency should clearly state the process being used for EFH consultations (e.g., incorporating EFH consultation into an EA or environmental impact statement).
2. EFH Assessment – The action agency should prepare an EFH Assessment that includes both identification of affected EFH and an assessment of impacts. Specifically, the EFH should include:

    - a description of the proposed action;
    - an analysis of the effects of the proposed action on EFH, managed fish species, and major prey species;
    - the federal agency's views regarding the effects of the action on EFH; and
    - proposed mitigation, if applicable.

3. EFH Conservation Recommendations – After reviewing the EFH Assessment, the NMFS should provide recommendations to the action agency regarding measures that can be taken by that agency to conserve EFH.
4. Agency Response – Within 30 days of receiving the recommendations, the action agency must respond to the NMFS. The action agency may notify the NMFS that a full response to the conservation recommendations would be provided by a specified completion date agreeable to all parties. The response must include a description of measures proposed by the agency to avoid, mitigate, or offset the impact of the activity on EFH.

Transco consulted with the NMFS regarding the potential for the Project to impact EFH. The NMFS indicated that EFH may be present in the estuarine portions of the Project area. There is EFH for winter flounder present at the Hackensack River hydrostatic test water withdrawal location. Transco may also discharge some hydrostatic test water at this location in the Hackensack River. In accordance with the Magnuson-Stevens Fishery Conservation and Management Act, we request that the NMFS consider this EA as our EFH Assessment, and request any additional recommended conservation measures to avoid or minimize impacts on EFH.

Winter flounder are found in the estuaries and the continental shelf of the northwest Atlantic Ocean from the Gulf of St. Lawrence Canada to North Carolina, but are most common north of Delaware Bay. Winter flounder have an oval shaped, thick body, with a white underside. The coloration on the top side of the body varies with its habitat, but is usually brown, green, or almost black. In the winter months, winter flounder migrate from offshore areas where they feed to inshore areas where they spawn, often returning to spawn in the same waters where they were born (NMFS, 2017).

The hydrostatic test water would be withdrawn through a screened intake. Juvenile and early stage adult fish and invertebrates could be impinged on the intake screens and zooplankton could be entrained or entrapped. It is assumed that any eggs or larvae entrained during hydrostatic testing would be killed. These activities could also result in the mortality of some fish and invertebrates near the intake structure. If Transco discharges water into surface waters, the force of the water entering the water could cause an increase in turbidity in the water column at the discharge location. Turbidity may cause eggs and benthic invertebrates in the immediate vicinity to be smothered or killed as sediment settles out of the water column. This increase in turbidity would be expected to dissipate within hours after the discharge is complete.

Transco would implement several mitigation measures to avoid or minimize impacts on EFH at the Hackensack River. These measures include:

- restricting in-water work at this location between March 1 and June 30 to protect diadromous fish migration and spawning activities;
- use of floating intakes so they are not laying directly on the streambed;
- use of screening intakes to avoid larger fish from entering the intake structure; and
- regulating the discharge rate and using energy dissipating devices to prevent streambed scour.

Based on Transco's implementation of the measures described above, the proposed timing restriction, and the limited and temporary nature of the impacts, we conclude that the Project would not significantly affect fisheries, including EFH, within the Project area. We are initiating EFH consultation with the NMFS concurrently with the issuance of this EA.

## 4.4 Migratory Birds

Migratory birds are species that nest in the United States and Canada during the summer and then migrate to and from the tropical regions of Mexico, Central and South America, and the Caribbean for the non-breeding season. Migratory birds are protected under the Migratory Bird Treaty Act ([MBTA]-16 U.S. Code [USC] 703-711), and Bald and Golden Eagles are additionally protected under the Bald and Golden Eagle Protection Act (16 USC 668-668d). The MBTA, as amended, prohibits the taking, killing, possession, transportation, and importation of migratory birds, their eggs, parts, and nests. Executive Order 13186 (66 Federal Register 3853) was enacted in 2001 to, among other things, ensure that environmental analyses of federal actions evaluate the impacts of federal actions on migratory birds. Executive Order 13186 directs federal agencies to identify where unintentional take is likely to have a measurable negative effect on migratory bird populations; avoid or minimize adverse impacts on migratory birds through enhanced collaboration with the USFWS; emphasize species of concern, priority habitats, and key risk factors, and give particular focus to population-level impacts.

Executive Order 13186 also requires the federal agency to identify where unintentional "take" (i.e., the unintended death, harm, or harassment) is likely to have a measurable negative effect on migratory bird populations. We conclude that adult birds relocating to avoid construction is an impact of limited duration that would not result in a substantial or long-term change in migration patterns through the area nor constitute a population-level impact.

Transco proposes to conduct vegetation clearing outside of the nesting season for migratory birds (generally April 1 to August 31) as much as possible. In the event that vegetation clearing would need to take place during the nesting season, Transco proposes to conduct pre-construction nesting bird surveys and would avoid and monitor active nests. In addition, Transco would coordinate with the USFWS regarding any additional conservation measures that could be implemented between April 1 and August 31. This EA also discusses several plans (e.g., Transco's Plan and Procedures, Spill Plan) that contain Project-specific mitigation measures that would reduce the extent and duration of impacts on migratory bird habitat, actively and naturally allow a great majority of the construction ROW to return to preconstruction condition, and limit the potential effects from spills or environmental contamination.

### Bald Eagle

Bald eagles are protected under the MBTA and the Bald and Golden Eagle Protection Act. In addition, the bald eagle is listed as endangered in New Jersey. The majority of the Project area provides suitable foraging and/or wintering habitat. However, only the NNJE Uprate and the J199 Valve in Bergen County are in the vicinity of potentially suitable nesting habitat. Bald eagles nest in tall trees near large bodies of water. The only land disturbing activity associated with the uprate is at the Orange and Rockland M&R. Based on Transco's consultation with the NJNHP, there is no nesting habitat in the vicinity of the Orange and Rockland M&R. According to the NJDEP, there is a bald eagle nest at the Oradell Reservoir which is adjacent to the J199 valve site (NJDEP, 2017). According to the USFWS' *National Bald Eagle Management Guidelines* (May 2007), the bald eagle nesting season in New Jersey is January through June. Although the construction activities associated with the removal of the MLV would be minor, construction of Transco's Project would likely overlap at least part of the bald eagle nesting season.

In a letter dated November 16, 2017, the USFWS stated that the Project is outside of the historic 660 foot nest buffer surrounding the past nest at the Oradell Reservoir, but that future nest attempts in future nesting seasons may be closer to the Project area. Therefore, the USFWS recommends consulting with the NJDEP prior to the start of construction to determine the most up-to-date information on nest

locations at the Oradell Reservoir. In addition, the USFWS recommends that if a bald eagle is observed nesting or attempting to nest within 0.25 mile of the Project, that work should stop and Transco should contact the USFWS and NJDEP. Transco has committed to continue to consult with the USFWS and NJDEP to avoid disturbance of any bald eagle nests.

During operation of the Project, vegetation maintenance clearing would occur outside of the nesting season in accordance with Transco's Plan.

Based on the limited tree clearing/limbing involved in construction of the Project and Transco's commitment to avoiding tree clearing during the nesting season, we conclude that the Project would not have a significant impact on migratory birds.

## 4.5 Special Status Species

Special status species are those species for which state or federal agencies provide an additional level of protection by law, regulation, or policy. Included in this category are federally listed species that are protected under the Endangered Species Act or are considered as candidates for such listing by the USFWS, those species that are state-listed as threatened or endangered, and state species of special concern.

### Federally Listed Species

Transco, acting as the Project non-federal representative to FERC, reviewed the USFWS' Information for Planning and Conservation and the NJNHP database for the Project area. The federally listed Indiana bat and northern long-eared bat were identified as potentially occurring in the area of the NNJE Uprate, Orange and Rockland M&R modifications, Emerson M&R modifications, and the J199 Valve removal.

Indiana Bat and Northern Long-Eared Bat

Both Indiana bats and northern long-eared bats hibernate in caves or mines beginning in the late summer/early fall. In the spring, the bats emerge and travel to summer roosting habitat. Summer roosting habitat, including maternity roosts, includes tree cavities, exfoliating bark, snags of dead or dying trees, and man-made structures such as barns. Indiana Bats roost in trees in riparian, bottomland, and upland forests in a wide range of habitats, from highly altered landscapes to intact forests. Northern long-eared bats occur in widespread, but uncommon, patterns in forest habitats. Individuals may travel up to 35 miles from their summer habitat to their winter hibernacula.

The Project is not in or near a cave or mine and there are no documented hibernation or maternity occurrences for Indiana bat or northern long-eared bat in the municipalities affected by the Project. Some limited tree clearing/limbing at the Emerson M&R and tree limbing at the J199 Valve site would occur. Transco has indicated that this tree clearing/limbing would occur outside of the USFWS recommended tree clearing restriction windows (April 1-September 30 for Indiana bat and April 1- October 31 for northern long-eared bat) as much as possible. In a letter dated November 17, 2017, the USFWS concurred that the Project would not adversely affect the northern long-eared bat or the Indiana bat, provided that tree clearing did not take place within the Indiana bat restricted time window. We agree, and further note that a summer survey for the presence/absence of Indiana bats would be required in the event of a Project modification where tree clearing is proposed during the active season of the Indiana bat. Such a circumstance would require additional section 7 consultation between the FERC and the USFWS before such tree clearing could be conducted. Excepting that unlikely circumstance, we conclude that consultation under section 7 of the Endangered Species Act is complete.

### State-listed species

Transco consulted with the NJNHP to identify state-listed species potentially occurring in the Project area. One amphibian (Fowler's toad) (species of special concern) and several bird species (threatened, endangered, and species of special concern) were identified. While Fowler's toad was identified as potentially occurring within one mile of the NNJE Uprate, the only activities associated with the uprate are hydrostatic test water fill and discharge at the Paramus M&R and the Orange and Rockland M&R. According to the NJNHP, Fowler's toad does not occur in the vicinity of these aboveground facility sites.

Impacts on New Jersey state-listed bird species would be similar to the impacts discussed in section B.4.4 above for migratory birds. Resident and transient birds in the Project area be highly mobile and would leave the Project area during construction due to disturbance and human presence. The potential impacts on bird species would primarily be disturbance of active nests, eggs, and young birds during tree felling activities. Transco committed to tree clearing outside of the migratory bird nesting season as much as possible. Given that Transco expects to begin tree clearing in December 2018 in preparation for a construction start date of February 2019, we expect that all clearing would be completed prior to the start of the nesting season. In the event that the construction schedule is delayed and tree clearing within the nesting season becomes necessary, Transco has committed to conducting nest surveys prior to clearing and avoiding active nests. These measures would prevent any impacts on eggs and young birds.

Based on the discussion above, we conclude that the Project would not significantly affect state-listed species within the Project area.

## 5. Land Use and Visual Resources

Land use types affected by the Project include commercial/industrial land, open upland, forest, wetland, agricultural land, open water, and residential. Table B-3 summarizes the acreage of each land use that would be affected during construction and operation of the Project.

The Project would affect a total of 52.43 acres of land during construction, including the pipeline construction ROW, ATWS areas, contractor yards, access roads, and existing aboveground facilities. Following construction, almost all of that land would be restored to pre-construction uses. Only 5.02 acres of new impact would be maintained for operation of Transco's facilities.

### Residential Land

A total of seven residences or residential structures are within 50 feet of the proposed Project construction workspace, summarized in table B-4. The closest residence to Project areas is approximately 33 feet from the proposed construction workspace. The residential properties are entirely outside of the Project TWS and ATWS. Transco developed construction plans for the affected residences within 50 feet of proposed construction work areas (Appendix B). We have reviewed the plans and find them satisfactory. We encourage affected residences to review these plans and provide comments on the EA for possible incorporation in final site-specific residential construction plans.

Table B-3

**Land Use Acreage Affected by Construction and Operation of the Project**

| Workspace Type/ Facility | Commercial / Industrial Land[a] | | Open Upland[b] | | Wetlands[c] | | Upland Forest[d] | | Residential Land[e] | | Open Water[f] | | Agricultural Land[g] | | Total | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Construction [h] | Operation [i] | Construction | Operation | Construction | Operation | Construction | Operation | Construction | Operation | Construction | Operation | Construction | Operation | Construction | Operation |
| **Pipeline Facilities** | | | | | | | | | | | | | | | | |
| North New Jersey Extension Uprate [i] | | | | | | | | | | | | | | | | |
| *Pipeline ROW* | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| *ATWS* | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| **Uprate Subtotal** | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Bergen Loop | | | | | | | | | | | | | | | | |
| *Pipeline ROW (new land)* | 0.09 | 0.06 | 1.22 | 0.58 | 3.42 | 1.89 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 4.73 | 2.52 |
| *Pipeline ROW (existing easement)* | 0.64 | 0.00 | 0.68 | <0.01 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.34 | <0.01 |
| *ATWS (new land)* | 0.15 | 0.00 | 1.41 | 0.00 | 3.10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 4.65 | 0.00 |
| *ATWS (existing easement)* | 5.92 | 0.00 | 0.12 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.04 | 0.00 | 0.00 | 0.00 | 6.04 | 0.00 |
| **Loop Subtotal** | 6.79 | 0.06 | 3.43 | 0.58 | 6.54 | 1.89 | 0.00 | 0.00 | 0.00 | 0.00 | 0.06 | 0.00 | 0.00 | 0.00 | 16.76 | 2.52 |
| **Pipeline Facilities Subtotal** | 6.79 | 0.06 | 3.43 | 0.58 | 6.54 | 1.89 | 0.00 | 0.00 | 0.00 | 0.00 | 0.06 | 0.00 | 0.00 | 0.00 | 16.76 | 2.52 |
| **Aboveground Facilities** | | | | | | | | | | | | | | | | |
| Orange and Rockland M&R | 1.86 | 0.04 | 0.34 | 0.00 | 0.17 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 0.05 | 0.00 | 0.00 | 0.00 | 2.44 | 0.04 |
| Emerson M&R | 0.80 | 0.08 | 0.09 | 0.00 | 0.31 | 0.01 | 0.16 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.36 | 0.09 |
| Paramus M&R | 1.16 | 0.08 | 1.66 | 0.09 | 0.02 | 0.00 | 0.07 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 2.91 | 0.17 |
| Central Manhattan M&R | 3.65 | 0.20 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 3.64 | 0.20 |
| J199 Valve | 0.53 | 0.00 | 1.03 | 0.01 | 0.00 | 0.00 | 0.29 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.84 | 0.01 |
| Pig Launcher (Bergen Loop) | 0.13 | 0.13 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.13 | 0.13 |
| Pig Receiver (Bergen Loop) | 0.07 | 0.07 | 0.04 | 0.04 | 0.06 | 0.06 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.17 | 0.17 |
| Re-located Thermoelectric Generator (Bergen Loop) | 0.00 | 0.00 | <0.01 | <0.01 | 0.01 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.01 |

Table B-3

**Land Use Acreage Affected by Construction and Operation of the Project**

| Workspace Type/ Facility | Commercial / Industrial Land[a] | | Open Upland[b] | | Wetlands[c] | | Upland Forest[d] | | Residential Land[e] | | Open Water[f] | | Agricultural Land[g] | | Total | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Construction[h] | Operation[i] | Construction | Operation | Construction | Operation | Construction | Operation | Construction | Operation | Construction | Operation | Construction | Operation | Construction | Operation |
| **Contractor and Pipe Yards** | | | | | | | | | | | | | | | | |
| Linden Yard | 8.16 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 8.16 | 0.00 |
| Bergen Yard | 1.08 | 0.00 | 3.74 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 4.81 | 0.00 |
| **Access Roads** | | | | | | | | | | | | | | | | |
| PAR-001 (Bergen Loop) | 3.83 | 3.83 | 1.05 | 1.05 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 4.87 | 4.87 |
| TAR-002 (Bergen Loop) | 2.29 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 2.29 | 0.00 |
| PAR-201 (J199 Valve) | 0.24 | 0.24 | 0.90 | 0.09 | 0.00 | 0.00 | 1.18 | 1.18 | 0.02 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 2.34 | 2.34 |
| PAR-003 (Bergen Loop) | 0.00 | 0.00 | 0.49 | 0.46 | 0.13 | 0.13 | 0.00 | 0.00 | 0.00 | 0.00 | 0.06 | 0.06 | 0.00 | 0.00 | 0.68 | 0.68 |
| **Project Total:** | **30.58** | **4.73** | **12.76** | **3.15** | **7.23** | **2.09** | **1.73** | **1.18** | **0.02** | **0.02** | **0.11** | **0.06** | **0.00** | **0.00** | **52.43** | **11.24** |

NOTES: *Sums may not equal addends due to rounding.

a: Commercial / Industrial Land – Manufacturing or industrial plants, paved areas, landfills, mines, quarries, electric power and natural gas utility aboveground facilities, developed areas, railroads and railroad yards, and commercial or retail facilities.

b: Open Upland – Utility ROW, open fields, vacant land, herbaceous and scrub-shrub uplands, and non-forested lands.

c: Wetlands – Palustrine emergent, palustrine forested, and estuarine intertidal emergent wetlands.

d: Upland Forest – Forested area, not including forested wetlands.

e: Residential Land – Existing developed residential areas. This may include large developments low, medium, and high-density residential neighborhoods, urban/suburban residential, multi-family residences, ethnic villages, residentially zoned areas that have been developed, or short segments of the route at road crossings with homes near the route alignment.

f: Open Water – Surface waters identified during field surveys. All Project workspace areas have been field surveyed.

g: Agriculture – Cultivated or rotated cropland, orchards, vineyards, or hay fields.

h: Includes land to be used for construction, including any land that would be retained for operation of the new facilities.

i: Workspace/impacts proposed as part of the North New Jersey Extension Uprate overlap and are included with the workspace requirements at Orange and Rockland M&R and Paramus M&R.

| Table B-4<br>**Structures within 50 Feet of Construction Work Areas** | | |
|---|---|---|
| **Facility (Town, County)** | **Structure Type** | **Distance to Project (feet)** |
| PAR-201/J199 Valve (Emerson, Bergen County) | Single house | 33 |
| Paramus M&R (Paramus, Bergen County) | Single house | 46 |
| | Single house | 45 |
| | Single house | 50 |
| | Single house | 50 |
| | Single house | 50 |
| | Single house | 42 |

In residential areas, the greatest impacts associated with construction and operation of pipeline facilities are typically temporary disturbances during construction and restrictions preventing construction of permanent structures within the permanent ROW during operation. Temporary construction impacts on residential areas for the Project include inconveniences caused by noise and dust generated by construction equipment and personnel; traffic congestion; and removal of trees, landscaped shrubs, or other vegetation screening between residences and/or adjacent ROW. To minimize impacts on residences, Transco, in consultation with landowners, would implement mitigation measures in residential areas as necessary, including the following:

- install safety fencing along the edge of the construction corridor when adjacent to residences for a distance of 100 feet on either side of the residence, where public access is within 50 feet of the construction work area, and around equipment, to warn people of possible danger in these areas;
- maintain utility service during construction activities;
- expedite clean-up and backfill as soon as practical after pipeline installation;
- spray the construction ROW and workspaces with water to reduce potential fugitive dust in residential areas during extremely dry conditions;
- consult with landowners for property-specific measures to avoid or minimize impacts;
- limit the disturbance and noise associated with residential construction (construction activities would be limited to 7:00 am to 7:00 pm), except where special conditions or construction measures dictate[9] or as approved by the FERC variance process, in which case appropriate noise mitigation measures would be utilized; and
- revegetate at the first seasonal opportunity.

Transco has also developed an Environmental Complaint Resolution Procedure that provides landowners whose properties would be crossed with directions for identifying and resolving issues or concerns during construction and restoration of the Project. Transco would mail a letter to each affected landowner prior to construction that includes Transco's toll-free telephone number and instructions on lodging a complaint or asking a question. Transco also would include FERC's Landowner Helpline telephone number for the landowner to call in the event the landowner is not satisfied with the response using Transco's environmental complaint resolution process.

For each problem/concern received, Transco would include the following information in its biweekly report that is filed with the FERC:

[9] We address "special conditions" that may result in nighttime construction in EA section 8.2 (Noise).

- the date of the call;
- the ID number of the certificated alignment sheet for the affected property;
- a description of the problem/concern; and
- an explanation of how and when the problem was addressed and resolved, how it will be resolved, or why it has not been or cannot be resolved.

We have reviewed Transco's Environmental Complaint Resolution Procedures and find it acceptable.

Based on the measures committed to by Transco as discussed above, and the use of existing ROW/facilities for the majority of the Project, we conclude that only minimal impacts on residential areas would occur. Further, Transco's Environmental Complaint Resolution Procedure Plan would promote resolution of landowner issues, should any occur.

### Traffic

Transco would utilize existing roadways for ROW access, and local roads would experience higher levels of traffic from construction workers, equipment, and materials delivery during morning and evening peak travel periods. A temporary increase in traffic is expected from commuter (worker) traffic and from the transportation of equipment and materials for construction. The initial construction staging, which would involve transporting the bulk of the construction equipment and materials to areas along the Project route, and the daily transportation of additional equipment and materials may temporarily affect local transportation systems. Traffic patterns could occasionally be affected because the route would encounter a number of roads and intersections. The transportation of equipment and materials would be consolidated through planning and coordination to limit the number of separate vehicle trips.

## 5.1 Land Use by Facility

Descriptions of land uses around each Project area site where land disturbance is proposed are presented below, including nearby recreation and consistency with the Coastal Zone Management Act as relevant.

### Orange and Rockland M&R

The Orange and Rockland M&R is an existing facility in Bergen County. It is surrounded principally by residential neighborhoods. No residences are within 50 feet of the construction workspaces and no special land uses were identified within 0.25 mile of the Orange and Rockland M&R.

All modifications would be within the existing facility fence lines, and no permanent conversion of land use is proposed. TWSs would be required both inside and outside Transco's existing easements. The TWS is largely within existing maintained lawn areas, a maintained overhead electric transmission line ROW, and the graveled natural gas M&R facilities. A portion of the TWS is on two parcels owned by SUEZ North America (SUEZ) with existing conservation restriction easements for the preservation and maintenance of water supply. Transco is currently working with SUEZ, the NJDEP, and the New Jersey Watershed Property Review Board for use of the TWS on these parcels. No temporary or permanent tree clearing is proposed as part of the construction activities at the Orange and Rockland M&R.

### Emerson M&R

The existing Emerson M&R is in an agricultural and forested area of Bergen County. A certified organic farm is across Old Hook Road to the north, and the Valley Brook Golf Club is 0.20 mile to the north. No impacts on these special land use properties are anticipated during construction or operation of the Project.

All modifications would take place within the confines of the existing facility. No permanent tree clearing is proposed as part of this work, and only 0.16 acre of temporary tree clearing is proposed within the existing property line. Approximately 0.31 acre of wetland would be temporarily impacted during construction with approximately 0.01 acre of wetland permanently converted to commercial/industrial use. A portion of the TWS is on three parcels owned by SUEZ with existing conservation restriction easements for the preservation and maintenance of water supply. Transco is currently working with SUEZ, the NJDEP, and the New Jersey Watershed Property Review Board for use of the TWS on these parcels.

### Paramus M&R

The Paramus M&R is an existing facility in Bergen County that is surrounded by residential land uses. There are six residences, between 42 and 50 feet away, outside the existing fence line which would be impacted by construction activity at the site (see table B-4 for a list of all affected residences). As mentioned above, Transco developed construction plans for these affected residences (included in Appendix B). All modifications would take place within the confines of the existing M&R facility. No permanent tree clearing is proposed as part of this work, and only 0.07 acre of temporary tree clearing is proposed within the existing property line. Approximately 0.02 acre of wetland would be temporarily impacted during construction with no permanent conversion proposed. There are no recreational facilities identified within 0.25 mile of the facility. Special land uses identified within 0.25 mile of the Paramus M&R include Paramus High School, approximately 172 feet to the west, and Saint Matthew's Episcopal Church, approximately 0.20 mile to the north.

### Central Manhattan M&R

The Central Manhattan M&R is in an urban area of mostly commercial and industrial uses in Hudson County. Transco would utilize nearby commercial/industrial land owned by others for parking and staging ATWS outside of Transco's existing property or easement. No long-term direct or indirect impacts on this area would result from these facility modifications. No special land uses were identified within 0.25 mile of the Central Manhattan M&R.

### J199 Valve

The existing J199 Valve is within open land in Bergen County. An existing public golf course property and a conservation restricted parcel adjoin the J199 Valve and TWS areas. Existing access roads leading to the J199 Valve site are on three parcels owned by SUEZ with existing conservation restriction easements for the preservation and maintenance of water supply. Transco is currently working with SUEZ, the NJDEP, and the New Jersey Watershed Property Review Board for use of the access roads on these parcels. No permanent impacts on these special land use properties are anticipated during construction or operation of the Project.

All modifications would take place within the confines of Transco's existing easement. All aboveground structures and piping associated with the valve setting would be removed from the site and disposed of at an approved facility in accordance with Transco's Waste Management Plan. Following

removal of the J199 Valve, the land would be restored in accordance with Transco's Plan and Procedures and applicable landowner agreement. A portion of the TWS and ATWS required for the removal is outside Transco's existing easement and on both the golf course and on the conservation restricted parcel.

### Bergen Loop

The proposed Bergen Loop is in an area of open upland, wetlands, and commercial/industrial land entirely within existing Transco property boundaries. The majority (76 percent) of the Bergen Loop would cross estuarine intertidal emergent wetlands. Approximately 6.54 acres of wetlands would be temporarily impacted by construction of the Bergen Loop, approximately 1.89 acres of wetlands would become permanent pipeline ROW, and approximately 0.07 acre of wetlands would be permanently converted to commercial/industrial use for aboveground pipeline facilities. Open uplands (primarily existing permanent ROW) represents approximately 20 percent of the land impacted by the proposed Bergen Loop, and commercial/industrial land (primarily existing access roads and paved areas) represents approximately 4 percent of the land impacted by the proposed Bergen Loop.

No residential land would be crossed by the Bergen Loop and no residences are within 50 feet of any proposed construction workspace area for the Bergen Loop. No federal or county special land uses were identified within 0.25 mile of the Bergen Loop workspaces. The River Barge Park and Marina, Trolley Park, the Evergreen MRI3 Mitigation Bank, the Richard Kane Wetland Mitigation Bank, the Richard P. Kane Lower 43 Acres, and the Richard P. Kane Natural area were identified within 0.25 mile of the Bergen Loop workspaces. These areas would not be directly impacted during construction or operation of the Project. While construction noise could cause temporary impacts on these areas, the Bergen Loop is less than 200 feet from the New Jersey Turnpike. Therefore, any additional noise impacts resulting from Project construction are expected to be negligible. The Project would temporarily impact approximately 3.05 acres of the Marsh Resources Meadowlands Mitigation Bank. Approximately 0.85 acre of the Marsh Resources Meadowlands Mitigation Bank would be used as permanent ROW for the Project.

The Coastal Zone Management Act (CZMA) calls for the "effective management, beneficial use, protection, and development of the nation's coastal zone" and promotes active state involvement in achieving those goals. The CZMA gives states with federally approved coastal management programs the responsibility of reviewing federal agency actions to ensure they are consistent with the state program's goals and policies. The Project would be in the New Jersey coastal zone managed by the NJDEP's Office of Land Use Regulation. Transco submitted an application for a Coastal Use Permit with the NJDEP on September 15, 2017, and received the permit from the NJDEP on December 17, 2017. Therefore, consultation under the CZMA is complete.

### North New Jersey Extension Uprate

No federal lands or state parks, forests, or marinas were identified within 0.25 mile of the NNJE Uprate (NJDEP, 2003; Osowski, 2017). The NNJE primarily crosses upland forest and residential properties (36 percent and 31 percent, respectively). However, no land disturbance is proposed along the existing ROW outside of the Orange and Rockland M&R and Paramus M&R workspace areas described above. Therefore, the NNJE Uprate would not directly impact nearby existing land uses such as residential properties and special land uses.

## 5.2 Visual Resources

Temporary visual impacts would result from construction equipment and activity in the viewshed and from the removal of trees and shrubs during construction at some locations. Proposed activities at the

M&R stations and contractor yards would have negligible to no impact on visual resources as any ground-disturbing would be limited to within existing fence lines of existing facilities and would include minimal removal of trees or shrubs, with the exception of the Central Manhattan M&R. However, the ground-disturbing activities outside the Central Manhattan M&R fence line would be temporary and within Transco's existing ROW. Activities at the J199 Valve removal would result in an improvement in visual resources, as the current commercial/industrial land would be restored and allowed to revert to open land associated with the adjoining golf course.

The Bergen Loop would result in temporary visual impacts from the presence of construction equipment and open trenching. The Bergen Loop would be co-located with Transco's existing easement and the majority of the existing vegetation is emergent. Following completion of construction, the landscape would be recontoured and revegetated as near to pre-construction conditions as possible. Additionally, no residences are in the vicinity of the Bergen Loop. Therefore, visual impacts during the operation of the Bergen Loop would be minimal.

The Project would not be within any federal, state, or locally designated scenic areas. All proposed activities would take place at existing aboveground facilities or Transco-owned property, therefore we anticipate visual impacts of the Project would be temporary and minimal.

## 6. Environmental Justice

The USEPA and Food & Water Watch/New Jersey Sierra Club suggested in comments that this EA address Environmental Justice. Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, requires that environmental analyses of federal actions address any disproportionately high and adverse human health or environmental effects on minority and low-income communities.

In its guidance for the consideration of environmental justice under NEPA, the CEQ defines a "minority" as an individual who is American Indian or Alaskan Native, Black or African American, Asian, Native Hawaiian or Pacific Islander, Hispanic or Latino. CEQ characterizes a "minority population" as existing in an affected area where the percentage of defined minorities exceeds 50 percent of the population, or where the percentage of defined minorities in the affected area is meaningfully greater (10 percent higher) than the percentage of defined minorities in the general population or other appropriate unit of geographic analysis. The CEQ guidance further recommends that low-income populations in an affected area should be identified using data on income and poverty from the U.S. Census Bureau (CEQ 1997). Low-income populations are populations where households have an annual household income below the poverty threshold, which is currently $ $24,600 for a family of four (HHS 2017).

Approximately 42.0 percent of the population in Bergen County, and 71.1 of the population in Hudson County (in which the Project facilities are located) are minorities (Black/African American, Native American, Hispanic, Asian, and Native Hawaiian). Census Tract 146 in Hudson County is the only census tract within the Project area with a minority population as defined by CEQ. Census Tract 146 in Hudson County, in which the Central Manhattan M&R property is located, is 86.8 percent minority, slightly higher than the county, and higher than the State of New Jersey (44.2 percent). Approximately 6.9 percent of individuals in Bergen County and 15.6 percent of individuals in Hudson County, live below the poverty level as compared to the state average of 10.4 percent. The Census Tract 146 in Hudson County shows approximately 15.6 percent of the population below the poverty level, only slightly higher than both the county and the state. The remaining census tracts within the Project area shows that a range of 0.4 to 8.0 percent of the population lives below the poverty level, less than both the county and state.

As previously described, low-income and minority individuals were identified in the Project areas through the review of U.S. Census data. A minority population (as defined by CEQ) was identified in Census Tract 146 in Hudson County in which the Central Manhattan M&R is located. Low-income populations throughout the census tract within the Project area were generally less than the state and county with the exception of Census Tract 146. As described throughout this EA, the proposed Project would not have a significant adverse impact on the environment nor on individuals living in the Project area. In addition, only minor modifications to the existing Central Manhattan M&R facility, which falls within Census Tract 146 (where populations of minorities and low-income individuals are slightly higher than the county and state), would occur and no permanent aboveground expansion of the existing facility footprint is proposed. Therefore, the Project would not have a disproportionately high adverse environmental or human health impact on minority or low-income residents.

## 7. Cultural Resources

Section 106 of the National Historic Preservation Act, as amended, requires the FERC to take into account the effects of its undertakings on properties listed, or eligible for listing, on the National Register of Historic Places, and to afford the Advisory Council on Historic Preservation an opportunity to comment. Transco, as a non-federal party, is assisting the FERC in meeting our obligations under Section 106 and its implementing regulations at 36 CFR 800.

Transco contacted the New Jersey State Historic Preservation Office (SHPO) regarding the Project, providing a Project description, mapping, and the results of cultural resources background research. No previously recorded cultural resources were identified in proximity to any of the Project components. On April 18, 2017, the SHPO indicated that there were no historic properties affected by the Project. Transco subsequently re-contacted the SHPO regarding additions and modifications to the Project, again providing a Project description, mapping, and the results of cultural resources background research. No previously recorded cultural resources were identified in proximity to any of the Project components with the exception of the Linden Yard, where the National Register of Historic Places-eligible "Inch-lines" Historic District was identified just outside the yard boundaries. On September 12, 2017, the SHPO indicated that the Project would not adversely affect historic properties.

On January, 12, 2018, Transco identified further modifications to the Project, and provided this information to the SHPO. Transco has not yet provided the SHPO's comments on the information. Therefore, **we recommend that:**

- **Transco <u>should not begin construction</u> of facilities and/or use of staging, storage, or temporary work areas and new or to-be-improved access roads <u>until</u>:**

    **a. Transco files with the Secretary the New Jersey SHPO's comments on the January 12, 2018 Project modification information; and**
    **b. the Director of OEP notifies Transco in writing that construction may proceed.**

Transco contacted three Native American tribes regarding the Project: the Delaware Nation, Delaware Tribe of Indians, and Shawnee Tribe. The Delaware Nation and Shawnee Tribe expressed no concerns, but requested to be notified in the event of discoveries during construction. The Delaware Tribe of Indians requested additional information and provided information regarding procedures for inadvertent discoveries during construction. Transco provided the Delaware Tribe of Indians with the requested information, and would notify the tribes in the event of a discovery during construction. No further comments have been received. We sent our NOI to these same tribes. No responses to our NOI have been received.

Transco provided a plan to address the unanticipated discovery of historic properties and human remains during construction. We requested minor revisions to the plan. Transco provided a revised plan which we find acceptable.

# 8. Air Quality and Noise

## 8.1 Air Quality

Air quality would be affected by construction and operation of the Project. During construction, short-term emissions would be generated by operation of equipment, land disturbance, and increased traffic from worker and delivery vehicles. Operation of the expanded facilities would result in minimal long-term emissions of natural gas, as presented below.

### Existing Air Quality

Ambient air quality is protected by federal and state regulations. The USEPA established National Ambient Air Quality Standards (NAAQS) to protect human health and welfare.[10] Primary standards protect human health, including the health of sensitive subpopulations, such as children, the elderly, and those with chronic respiratory problems. Secondary standards set limits to protect public welfare, including protection against decreased visibility, and damage to animals, crops, vegetation, and buildings. NAAQS have been developed for sulfur dioxide ($SO_2$), particulate matter with a diameter of 10 microns or less ($PM_{10}$), particulate matter with a diameter of 2.5 microns or less ($PM_{2.5}$), nitrogen dioxide, carbon monoxide (CO), ozone, and lead, and include levels for short-term (acute) and long-term (chronic) exposures. However, ozone is not a pollutant emitted into the air. It is formed from a chemical reaction between oxides of nitrogen ($NO_x$) and volatile organic compounds (VOC) in the presence of sunlight. Consequently, emissions of $NO_x$ and VOCs are regulated by the USEPA as "precursors" to the formation of ozone. New Jersey has adopted the majority of the USEPA's NAAQS, but also applies its own standards per New Jersey Administrative Code 7:27-13.

Air quality control regions (AQCRs) are areas established by the USEPA and local agencies for air quality planning purposes, in which State Implementation Plans describe how the NAAQS would be achieved and maintained. The AQCRs are intra- and interstate regions such as large metropolitan areas where improvement of the air quality in one portion of the AQCR requires emission reductions throughout the AQCR. Each AQCR, or smaller portion within an AQCR (such as a county), is designated, based on compliance with the NAAQS, as attainment, unclassifiable, maintenance, or nonattainment, on a pollutant-by-pollutant basis. Areas in compliance or below the NAAQS are designated as attainment, while areas not in compliance or above the NAAQS are designated as nonattainment. Areas previously designated as nonattainment that have since demonstrated compliance with the NAAQS are designated as maintenance for that pollutant. Maintenance areas may be subject to more stringent regulatory requirements to ensure continued attainment of the NAAQS. Areas that lack sufficient data to determine attainment status are designated unclassifiable and treated as attainment areas. The Project area is part of the New Jersey-New York-Connecticut Interstate AQCR.

In addition, New Jersey is included in the Ozone Transport Region. This region, established under the Clean Air Act as amended in 1977 and 1990, includes 11 northeastern states in which ozone transports from one or more states and contributes to a violation of the ozone NAAQS in one or more other states. Emissions in this region are subject to more stringent permitting requirements and various regulatory thresholds are lower for the pollutants that form ozone, even if they meet the ozone NAAQS.

[10] The current NAAQS are listed on the USEPA's website at http://www.epa.gov/air/criteria.html.

The USEPA and state and local agencies have established a network of ambient air quality monitoring stations to measure and track the background concentrations of criteria pollutants across the United States. This data is then used by regulatory agencies to compare the air quality of an area to the NAAQS. Both counties in the Project area are in moderate nonattainment for ozone, in maintenance for $PM_{2.5}$, and in maintenance for CO. For all other pollutants, the Project area counties are in attainment or unclassified.

Greenhouse gases (GHG) produced by fossil-fuel combustion are carbon dioxide ($CO_2$), methane ($CH_4$), and nitrous oxide. Classification of GHGs as a pollutant is not related to toxicity. GHGs are non-toxic and non-hazardous at normal ambient concentrations, and there are no applicable ambient standards or emission limits for GHG under the Clean Air Act. Emissions of GHGs are typically expressed in terms of $CO_2$ equivalents ($CO_2e$). The $CO_2e$ takes into account the global warming potential (GWP) of each GHG. The GWP is a ratio relative to $CO_2$ of a particular GHG's ability to absorb solar radiation as well its residence time within the atmosphere. Thus, $CO_2$ has a GWP of 1, $CH_4$ has a GWP of 25, and nitrous oxide has a GWP of 298.[11] Impacts from GHG emissions (i.e., climate change) are discussed further in section B.10.

Hazardous air pollutants (HAPs), also known as toxic air pollutants or air toxics, are those pollutants that are known or suspected to cause cancer (carcinogens) or other serious health effects, such as reproductive effects or birth defects, or adverse environmental effects. There are no national air quality standards for HAPs but their emissions are limited through permit thresholds and technology standards. New Jersey maintains regulations limiting emissions of HAPs (or air toxics).

### Permitting/Regulatory Requirements

The Clean Air Act is the basic federal statute governing air pollution. The NJDEP has the authority to implement permit programs under the Clean Air Act for the proposed Project facilities.

On November 8, 2010, the USEPA signed a rule that finalizes reporting requirements for the petroleum and natural gas industry under 40 CFR 98. Subpart W of 40 CFR 98 requires petroleum and natural gas facilities that emit 25,000 metric tons or more of $CO_2e$ per year to report annual emissions of specified GHGs from various processes within the facility. Construction emissions are not covered under the GHG Reporting Rule, but those related to the proposed Project are expected to be well below the 25,000 metric tons reporting threshold. Operational emissions from the proposed facilities are likewise not expected to exceed this threshold and be reported to the USEPA.

The General Conformity Rule was developed to ensure that federal actions in nonattainment and maintenance areas do not impede states' attainment of the NAAQS. The lead federal agency must conduct a conformity determination if a federal action's construction and operational activities is likely to result in generating direct and indirect emissions that would exceed the General Conformity Applicability threshold levels of the pollutant(s) for which an air basin is designated nonattainment or maintenance. Conforming activities or actions should not, through additional air pollutant emissions:

- cause or contribute to new violations of the NAAQS in any area;
- increase the frequency or severity of any existing violation of any NAAQS; or
- delay timely attainment of any NAAQS or interim emission reductions.

[11] These GWPs are based on a 100-year time period. We have selected their use over other published GWPs for other timeframes because these are the GWPs that the USEPA has established for reporting of GHG emissions and air permitting requirements. This allows for a consistent comparison with these regulatory requirements.

The General Conformity Rule entails both an applicability analysis and a subsequent conformity determination, if triggered. A General Conformity Determination must be completed when the total direct and indirect emissions of a project would equal or exceed the specified pollutant thresholds on a calendar year basis for each nonattainment or maintenance area.

As noted earlier, the Project would be in a nonattainment and maintenance area. These counties are designated as moderate nonattainment for ozone, as well as being in the Ozone Transport Region, need to be evaluated for VOC and $NO_x$ precursors. These areas are also designated as maintenance areas for CO and $PM_{2.5}$, and thus need to be evaluated for CO, $PM_{2.5}$, $NO_x$, and $SO_2$. The associated General Conformity Applicability thresholds are 50 tons per year (tpy) for VOC and $NO_x$ and 100 tpy for CO, $PM_{2.5}$, $NO_x$, and $SO_2$. These applicability thresholds are compared only to the construction emissions, tabulated below in table B-5, and would not be exceeded in any non-attainment or maintenance area. Therefore, a General Conformity Determination is not required.

### Construction Air Emission Impacts

Construction of the Project would result in short-term, localized increases in emissions of some pollutants from the use of fossil fuel-fired equipment and the generation of fugitive dust due to earthmoving activities. Construction emissions would also include indirect emissions attributable to construction workers commuting to and from work sites during construction and from on-road and off-road construction vehicle traffic. Large earth-moving equipment and other mobile equipment are sources of combustion-related emissions, including criteria pollutants (i.e., $NO_x$, CO, VOC, $SO_2$, and $PM_{10}$). Transco estimated construction emissions using USEPA's Motor Vehicle Emission Simulator and USEPA's NONROAD 2008 model. The estimated emissions are presented by activity type below in table B-5.

Table B-5
**Estimated Emissions From Construction of the Project**

| Facility ID | Total Site Emissions (tons) | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | **$NO_x$** | **CO** | **$SO_2$** | **$PM_{10}$** | **$PM_{2.5}$** | **VOC** | **$CO_2e$** | **Total HAPs** |
| Commuter transit | 0.04 | 0.43 | 0.0006 | 0.0013 | 0.0012 | 0.0053 | 91 | 0.0015 |
| On-road vehicles | 0.42 | 0.21 | 0.0016 | 0.02 | 0.02 | 0.05 | 188 | 0.0092 |
| Off-roach vehicles | 5.4 | 13.89 | 0.02 | 0.46 | 0.46 | 0.93 | 1,485 | 0.05 |
| Fugitive Dust | - | - | - | 4.96 | 0.57 | - | - | - |
| **Project Total** | **5.9** | **14.5** | **0.0** | **5.4** | **1.1** | **1.0** | **1764.0** | **0.1** |

The volume of fugitive dust generated by surface disturbance and vehicle travel on unpaved roads would be dependent upon the area disturbed and the type of construction activity, along with the soil's silt and moisture content, wind speed, and the nature of vehicular/equipment traffic. The fugitive dust emissions from construction equipment on unpaved roads included in the table assume no mitigation, so actual emissions would be lower than shown. Transco would suppress fugitive dust suppression using water sprays from mobile water trucks and installing gravel/stone entrances in transition from unpaved to paved roads to limit sediment transport.

Once construction activities are completed, fugitive dust and construction equipment emissions would terminate and ambient air quality would return to current levels. Based on our analysis and Transco's proposed mitigation measures, we conclude that total Project construction emissions would result in short-term, localized impacts on air quality during construction, but that such impacts would not be significant.

### Operation Air Emission Impacts

The Project does not include the installation of any new point sources of air pollutants; however, the increase in capacity and new pipeline would increase the potential for fugitive and vented natural gas emissions. Summarized in table B-6 are estimates in the increase in fugitive emissions from the operation the NNJE Pipeline, the new 42-inch Bergen Loop, and the new pig launcher / tie-in of the Bergen Loop at the existing Compressor Station 240. In addition, natural gas would be vented from these new facilities to perform routine maintenance activities; the annual average of vented emissions is also presented below.

Table B-6
**Fugitive and Blowdown Emissions from Pipeline Facilities**

| Source | Total Site Emissions (tons/year) | | |
|---|---|---|---|
| | VOC | Total HAPs | $CO_2e$ |
| Venting or blowdown (average) | 0.0018 | 0.0013 | 610 |
| Fugitive gas leaks | 0.0021 | 0.0015 | 805 |
| **Totals** | **0.0039** | **0.0028** | **1,415** |

Potential impacts on air quality associated with operation of the Project would be minimal and limited to fugitive emissions of natural gas. We conclude that emissions from operating the Project facilities would not have significant impacts on local or regional air quality.

## 8.2 Noise

The Project would contribute to noise in the Project area during construction and operation. Due to natural and anthropogenic influences such as weather conditions, seasonal vegetation cover, and human activity, the magnitude and frequency of environmental noise may vary considerably over the course of a day and throughout the year.

Noise levels are expressed as decibels on the A-weighted scale (dBA) to put more emphasis on frequencies in the range that humans hear best, thereby mimicking the human ear. Two measurements that relate the time-varying quality of environmental noise to its known effect on people are the 24-hour equivalent sound level ($L_{eq}$) and day-night sound level ($L_{dn}$). The $L_{eq}$ is the level of steady sound with the same total energy as the time-varying sound of interest, averaged over a 24-hour period. However, because noise levels are perceived differently depending on length of exposure and time of day, the $L_{dn}$ takes into account the duration and time the noise is encountered. Specifically, the $L_{dn}$ is the $L_{eq}$ plus 10 dBA added to nighttime sound levels between the hours of 10 p.m. and 7 a.m. to account for people's greater sensitivity to sound during the night. For an essentially steady sound source that operates continuously over a 24-hour period and controls the environmental sound level, the $L_{dn}$ is approximately 6.4 dB above the measured $L_{eq}$.

In 1974, the USEPA published its *Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety*. This document provides information for state and local governments to use in developing their own ambient noise standards. The USEPA has indicated that an $L_{dn}$ of 55 dBA protects the public from indoor and outdoor activity interference. We have adopted this criterion and use it to evaluate the potential noise impacts from a proposed Project at noise sensitive areas (NSA), such as residences, schools, or hospitals. Due to the 10 dBA nighttime penalty added prior to calculation of the $L_{dn}$, for a facility to meet the $L_{dn}$ 55 dBA limit, it must be designed such that actual constant noise levels on a 24-hour basis do not exceed 48.6 dBA $L_{eq}$ at any NSA. Also, in general, a person's threshold of perception for a perceivable change in loudness on the

A-weighted sound level is about 3 dBA, whereas a 5 dBA change is clearly noticeable, and a 10 dBA change is perceived as either twice or half as loud.

Additionally, the State of New Jersey's Noise Control Act of 1971 includes the promulgation of noise control standards for stationary commercial and industrial sources. Continuous noise between 7:00 a.m. and 10:00 p.m. must remain below 65 dBA at any residential property line, and continuous noise between 10:00 p.m. and 7:00 a.m. must remain below 50 dBA at any residential property line.

### Construction Noise

Construction of the facilities would involve operation of general construction equipment, and noise would be generated during the installation of the Project components. Construction noise would be highly variable because the types of equipment in use at a construction site changes with the construction phase and the types of activities. The noise from construction activities may be noticeable at nearby NSAs; however, noise would be localized and short-term, and construction equipment would be operated on an as-needed basis during the short-term construction period. Measures to mitigate construction noise would include compliance with federal regulations limiting noise from trucks, proper maintenance of equipment, and ensuring that sound muffling devices provided by the manufacturer are kept in good working condition.

Transco states that construction activities would generally occur from 7 a.m. to 7 p.m. Transco suggests up to 21 days of extended hours may be required per site and details the possible reasons for extended construction hours to include the following: securing facilities for safety reasons, work that cannot be reasonably finished without jeopardizing the integrity of the facilities being installed, hydrostatic testing, catch-up for construction delays, and minimization of customer outage during final tie-ins. We recognize that field conditions may require isolated instances of late-night construction activities, but the possibility of 3 weeks of extended hours without noise mitigation represents the potential for adverse impacts given the dense residential land use around many of the facilities. We conclude that extended construction hours should be reviewed by FERC staff before implementation, to ensure appropriate mitigation measures are employed and that resulting impacts are consistent with our EA conclusions. Therefore, **we recommend that**:

- **Prior to any construction activity that Transco anticipates would extend beyond Transco's identified typical construction hours of 7 a.m. to 7 p.m., six days a week, Transco should file with the Secretary, for review and written approval by the Director of OEP, a site-specific or activity-specific request for the extended hours, which should include a justification for nighttime work and plans to minimize noise impacts on nearby NSAs.**

### Operational Noise

M&R stations have the potential to generate noise, notably from the regulating valves. Operational noise from the stations were measured at nearby NSAs. Transco conducted a noise analysis for each of the four proposed modified M&R stations to predict sound levels from the sources, predict total sound levels, and determine noise increases at the nearby NSAs. Ambient noise levels were measured at nearby NSAs around the M&R stations on May 17, 2017. Maps of the NSAs around each station are in Appendix C and results of the analyses are presented below in table B-7.

Table B-7
**Noise Analyses for Closest NSAs to Project M&R Stations**

| NSA Description | Distance (feet) and Direction of NSA | Existing Ambient $L_{dn}$ (dBA) | Contribution from Existing Station $L_{dn}$ (dBA) [a] | Estimated Contribution after Project $L_{dn}$ (dBA) | Estimated Total Noise after Project $L_{dn}$ (dBA) | Increase Above Existing (dB) |
|---|---|---|---|---|---|---|
| Manhattan M&R Station, North Bergen, New Jersey | | | | | | |
| Motel | 150 (E) | 70.4 | 33 [a] | 36.1 | 70.4 | 0.0 |
| Orange and Rockland M&R Station, River Vale, New Jersey | | | | | | |
| Residence | 100 (S) | 55.6 | 55.6 | 53.6 | 53.6 | -2.0 |
| Emerson M&R Station, Emerson, New Jersey | | | | | | |
| Assisted Living Facility | 850 (W) | 63.3 | 40 [a] | 40.9 | 63.3 | 0.0 |
| Residences | 1,000 (N) | 56.0 | 24 [a] | 24.9 | 56.0 | 0.0 |
| Paramus M&R Station, Paramus, New Jersey | | | | | | |
| Residence | 150 (S) | 52.8 | 36 [a] | 37.0 | 52.9 | 0.1 |
| Residences | 150 (N) | 53.2 | 37 [a] | 38.1 | 53.3 | 0.1 |
| Residence | 300 (SE) | 53.0 | 29 [a] | 29.7 | 53.0 | 0.0 |

a: The existing M&Rs were not audible at the NSAs at the time of measurement; ambient sound data were dominated by traffic. These values are estimates based on modeling of existing equipment at the stations.

At the Manhattan, Emerson, and Paramus M&Rs, ambient noise at nearby NSAs is dominated by traffic and natural noises; the existing M&R stations were not audible. Transco proposes to install upgraded regulating skids inside noise mitigating buildings at each of these stations, potentially increasing noise by a decibel at the stations. However, this increase would not result in any audible changes in noise at the nearby NSAs.

At the NSA next to the existing Orange and Rockland M&R, noise from the station was most prominent. Transco proposes to increase noise mitigation measures at this station as part of the Project, covering piping with insulation to reduce overall noise. Transco's analysis suggests the nearby residence should see a 2 dBA decrease in noise, which would bring that station's noise level to below our criterion of 55 dBA $L_{dn}$. To verify the accuracy of Transco's acoustical analysis and ensure sound levels do not exceed our criterion, **we recommend that**:

- **Transco should file noise surveys with the Secretary no later than 60 days after placing the Orange and Rockland M&R in service. If a full load condition noise survey is not possible, Transco should provide an interim survey at the maximum possible power load and provide the full power load survey within six months. If the noise attributable to the operation of all the equipment at the facility at interim or full power load conditions exceeds 55 dBA $L_{dn}$ at any nearby NSAs, Transco should file a report on what changes are needed and should install additional noise controls to meet the recommended noise level within one year of the in-service date. Transco should confirm compliance with the above requirement by filing a second noise survey with the Secretary no later than 60 days after it installs the additional noise controls.**

Based on the noise analyses above and our recommendations, we conclude that the Project would not result in significant noise impacts on residents and the surrounding communities.

# 9. Reliability and Safety

The transportation of natural gas by pipeline involves some risk to the public in the event of an accident and subsequent release of gas. The greatest hazard is a fire or explosion following a major pipeline rupture. Methane, the primary component of natural gas, is colorless, odorless, and tasteless. It is not toxic, but is classified as a simple asphyxiate, possessing a slight inhalation hazard. If breathed in high concentration, oxygen deficiency can result in serious injury or death.

The pipeline and aboveground facilities associated with the Project must be designed, constructed, operated, and maintained in accordance with the USDOT Minimum Federal Safety Standards in 49 CFR 192. The regulations are intended to ensure adequate protection for the public and to prevent natural gas facility accidents and failures.

The USDOT pipeline standards are published in 49 CFR 190-199. For example, Part 192 specifically addresses natural gas pipeline safety issues, prescribes the minimum standards for operating and maintaining pipeline facilities, and incorporates compressor station design, including emergency shutdowns and safety equipment. Part 192 also requires a pipeline operator to establish a written emergency plan that includes procedures to minimize the hazards in a natural gas pipeline emergency.

The operator must also establish a continuing education program to enable customers, the public, government officials, and those engaged in excavation activities to recognize a gas pipeline emergency and report it to appropriate public officials.

Facilities associated with Transco's Project must be designed, constructed, operated, and maintained in accordance with Transco's standards, including the provisions for written emergency plans and emergency shutdowns. Transco would provide the appropriate training to local emergency service personnel before the facilities are placed in service.

## 9.1 Class Areas

The USDOT also defines area classifications, based on population density in the vicinity of the pipeline, and specifies more rigorous safety requirements for populated areas. The class location unit is an area that extends 220 yards on either side of the centerline of any continuous 1-mile length of pipeline. The four area classifications are defined below:

- Class 1 – Location with 10 or fewer buildings intended for human occupancy.
- Class 2 – Location with more than 10 but less than 46 buildings intended for human occupancy.
- Class 3 – Location with 46 or more buildings intended for human occupancy or where the pipeline lies within 100 yards of any building, or small well-defined outside area occupied by 20 or more people on at least 5 days a week for 10 weeks in any 12-month period.
- Class 4 – Location where buildings with four or more stories aboveground are prevalent.

Class locations representing more populated areas require higher safety factors in pipeline design, testing, and operation. For instance, pipelines constructed on land in Class 1 locations must be installed with a minimum depth of cover of 30 inches in normal soil and 18 inches in consolidated rock. Class 2, 3, and 4 locations, as well as drainage ditches of public roads and railroad crossings, require a minimum cover of 36 inches in normal soil and 24 inches in consolidated rock.

Class locations also specify the maximum distance to a sectionalizing block valve (e.g., 10.0 miles in Class 1, 7.5 miles in Class 2, 4.2 miles in Class 3, and 2.5 miles in Class 4). Pipe wall

thickness and pipeline design pressures, hydrostatic test pressures, maximum allowable operating pressure, inspection and testing of welds, and frequency of pipeline patrols and leak surveys must also conform to higher standards in more populated areas. Preliminary class locations for the Project have been determined based on the relationship of the pipeline centerline to other nearby structures and manmade features.

The class locations of the existing and new facilities are described below in tables B-8 and B-9.

Table B-8
**Summary of Class Locations for the Project Aboveground Facilities**

| Facility | Milepost | Class Locations |
|---|---|---|
| Orange and Rockland M&R Piping | NNJE 10.56 | Class 3 |
| Emerson M&R Piping / J199 Valve | NNJE 6.01 | Class 3 |
| Paramus M&R Piping | NNJE 0.23 | Class 3 |
| Central Manhattan M&R Piping | 72L 1.82 | Class 3 |
| new Pig Launcher Station Piping | BL 0.00 | Class 3 |
| new Pig Receiver Station Piping | BL 0.61 | Class 3 |

Table B-9
**Summary of Class Locations for the Project Pipeline Facilities**

| Facility | Starting Milepost | Ending Milepost | Class Locations |
|---|---|---|---|
| North New Jersey Extension | 0 | 3.96 | Class 3 |
| | 3.96 | 4.53 | Class 1 |
| | 4.53 | 5.20 | Class 3 |
| | 5.20 | 5.20 | Class 2 |
| | 5.20 | 5.91 | Class 1 |
| | 5.91 | 8.88 | Class 3 |
| | 8.88 | 9.19 | Class 1 |
| | 9.19 | 9.52 | Class 3 |
| | 9.52 | 9.76 | Class 1 |
| | 9.76 | 10.57 | Class 3 |
| Bergen Loop | 0.00 | 0.61 | Class 1 |

## 9.2 High Consequence Areas

The Pipeline Safety Improvement Act of 2002 requires operators to develop and follow a written integrity management program that contained all the elements described in 49 CFR 192.911 and addressed the risks on each transmission pipeline segment. Specifically, the law establishes an integrity management program which applies to all high consequence areas (HCA).

The USDOT has published rules that define HCAs where a gas pipeline accident could do considerable harm to people and their property and requires an integrity management program to minimize the potential for an accident. This definition satisfies, in part, the Congressional mandate for the USDOT to prescribe standards that establish criteria for identifying each gas pipeline facility in a high-density population area.

The HCAs may be defined in one of two ways. In the first method an HCA includes:

- current Class 3 and 4 locations;
- any area in Class 1 or 2 where the potential impact radius[12] is greater than 660 feet and there are 20 or more buildings intended for human occupancy within the potential impact circle[13]; or
- any area in Class 1 or 2 where the potential impact circle includes an identified site.

An identified site is an outside area or open structure that is occupied by 20 or more persons on at least 50 days in any 12-month period; a building that is occupied by 20 or more persons on at least 5 days a week for any 10 weeks in any 12-month period; or a facility that is occupied by persons who are confined, are of impaired mobility, or would be difficult to evacuate.

In the second method, an HCA includes any area within a potential impact circle which contains:

- 20 or more buildings intended for human occupancy; or
- an identified site.

Once a pipeline operator has determined the HCAs along its pipeline, it must apply the elements of its integrity management program to those segments of the pipeline within HCAs. The USDOT regulations specify the requirements for the integrity management plan at Section 192.911.

As part of the Project, Transco proposes to uprate 10.35 miles of the existing 24-inch NNJE pipeline from a MAOP of 650 psig to 812 psig. Several locations along the NNJE are within HCAs and are summarized below in Table B-10. The existing pipeline was installed in 1956, with 0.412-inch wall thickness and grade X42 (42,000 pounds per square inch specified minimum yield strength) steel pipe. A commentor from Emerson Borough requested further information regarding the hydrostatic test for this uprate. Transco responded on the public docket on January 17, 2018, and committed to notify Emerson Borough prior to commencing hydrostatic testing activities. Transco would test the NNJE pipeline to a pressure that is 1.5 times the uprated MAOP. More description about the sources and disposal of hydrostatic test water is also found in section B.3.3.

Table B-10
**Summary of HCAs for Project Facilities**

| Facility | Starting Milepost | Ending Milepost | Length (miles) |
|---|---|---|---|
| North New Jersey Extension | 0 | 3.98 | 3.98 |
| | 4.71 | 5.04 | 0.33 |
| | 6.94 | 7.32 | 0.38 |
| | 7.97 | 8.59 | 0.62 |
| | 9.13 | 9.58 | 0.45 |

Transco's M&R stations and pipeline construction, uprate, and operation would represent a minimum increase in risk to the public.

[12] The potential impact radius is calculated as the product of 0.69 and the square root of the MAOP of the pipeline in psig multiplied by the square of the pipeline diameter in inches.

[13] The potential impact circle is a circle of radius equal to the potential impact radius.

## 10. Cumulative Impacts

In accordance with NEPA and FERC policy, we evaluated the cumulative impacts of the Project and other projects in the area. The USEPA, the Hackensack Riverkeeper, and Food & Water Watch/New Jersey Sierra Club submitted comments regarding the potential cumulative impacts associated with the Project. The CEQ regulations define cumulative impact as "the impact on the environment which results from the incremental impact of the action [being studied] when added to other past, present, and reasonably foreseeable future actions. Cumulative impacts can result from individually minor, but collectively significant, actions taking place over a period of time."[14] Our cumulative impacts analysis in this EA includes other (i.e., non-Project) actions meeting the following three criteria:

- the action impacts a resource area also potentially impacted by the proposed Project;
- the action causes the impacts within all or part of the Project area; and
- the action causes this impact within all or part of the time span for the potential impacts from the Project.

As described in section B of this EA, constructing and operating the Project would temporarily and permanently impact the environment. However, we have concluded that the Project would have only minimal, generally localized, and temporary impacts on environmental resources. The majority of ground-disturbing activities would be within existing facilities, and the proposed Bergen Loop would be co-located with existing ROW. Based on this, along with the proposed minimization and mitigation measures described in Transco's construction procedures and its adherence to our recommendations, we have concluded that most of the Project impacts would be largely limited to the Project workspaces and adjacent areas. For example, erosion control measures included in Transco's Plan and Procedures would keep disturbed soils within the work areas. For other resources, the contribution of regional cumulative impacts is lessened by the expected recovery of ecosystem function. For example, vegetation communities would be cleared, but restoration would proceed immediately following construction. Additionally, we determined that air quality and noise impacts would be temporary during construction and there would be no significant air quality or noise impacts during operation of the Project. No cultural resources were identified; therefore, the Project would have no adverse impact on cultural resources, thereby preventing any cumulative impact.

Table B-11 summarizes the resource-specific geographic boundaries that were considered in this analysis and justification for each. Actions outside of these boundaries are generally not evaluated because their potential to contribute to a cumulative impact diminishes with increasing distance from the Project. A summary of the identified recent past, current, and reasonably foreseeable projects and affected resources is shown in table B-12. Figures 1, 2, and 3 in Appendix D show such projects in relation to Hydrologic Unit Code-12 (HUC-12) watersheds, counties, and a 0.25-mile radius from the Project. The actions considered in our cumulative impact analysis may vary from the proposed Project in nature, magnitude, and duration. These actions are included based on the likelihood of their impacts coinciding with the Project impacts, meaning the other actions have current or ongoing impacts or are "reasonably foreseeable." The actions we considered are those that could affect similar resources during the same timeframe as the Project. The anticipated cumulative impacts of the Project and these other actions are discussed below, as well as any pertinent mitigation actions. The following is a discussion of the defined area resources and the nature of potential cumulative impacts, as well as the measures that Transco would employ to minimize cumulative impacts.

[14] 40 CFR 1508.7 (2015).

Table B-11
**Resource-Specific Geographic Scopes for Cumulative Impact Analysis**

| Environmental Resource | Area of Impact |
|---|---|
| Geology and Soils | Area of disturbance of the Project and immediately adjacent areas |
| Groundwater, Wetlands, Surface Water, and Fisheries | Hydrologic Unit Code (HUC) 12-digit Watersheds |
| Vegetation, Terrestrial Wildlife, and Special Status Species | HUC-12 watersheds; (watersheds can serve as a geographic proxy for impacts on vegetation and wildlife and provides a natural boundary, as recommended by CEQ) |
| Land Use (including construction traffic, residential impacts, and special land use impacts) and Visual Impacts | 0.25 mile radius |
| Construction Air Quality | 0.25 mile from the Project (Operational impacts do not apply to the Project) |
| Construction Noise | Overlapping noise sensitive areas during construction and operation (Operational impacts do not apply to the Project) |

## 10.1 Geology and Soils

As Project impacts on geology and soils would be highly localized and limited primarily to the Project footprint during the period of active construction, cumulative impacts on geology and soils would only occur if other geographically overlapping projects were constructed at the same time (and place) as the Project (and the exposure of soils to erosion and sedimentation) occurs. None of the other projects/actions occurring within the temporal scope of the Project would occur within the geographic scope for the Project. We believe that limited footprint and the measures Transco would adopt to minimize impacts on soils would prevent any significant cumulative impacts on geology and soils from the Project in consideration with other projects.

## 10.1 Water Resources

### Wetlands

For the analysis of cumulative effects on wetlands, we used a geographic scope that encompasses the HUC 12 watersheds crossed by the Project. Construction projects/actions occurring within the geographic and/or temporal scopes of the Project include the North Branch Corridor Project, Transco's Meadows Reliability Enhancement Project, and the TGP River Vale Interconnect Project. Construction impacts on wetlands range from short-term to permanent, depending on the type of wetlands being impacted and the type of facility being constructed. Emergent wetlands would transition relatively quickly back into a community with functionality similar to that of the preconstruction state (typically within 1 to 3 years). Permanent impacts from the Rivervale South to Market Project on palustrine forested wetlands are limited to 0.01 acre conversion of the vegetation cover; these areas would be subject to vegetation maintenance but would retain their hydrologic function as a wetland. Less than 2.08 acres of permanent impacts on intertidal emergent wetlands would result from operation of aboveground facilities related to the Project.

Table B-12
**Projects with Potential Cumulative Impacts on Resources Within the General Area of the Project**

| Project | Description | Located within Project HUC 12 | Located within Project County | Anticipated Date of Construction / Project Status | Approximate Distance from Closest Project Facility | Potentially Affected Resource Areas |
|---|---|---|---|---|---|---|
| **Energy Projects** | | | | | | |
| PSE&G Transmission's Bergen-Linden Corridor Upgrade Project | 345kV transmission system running from PSE&G's Bergen Switching Station in Ridgefield, New Jersey to its Linden Switching Station in Linden, New Jersey. The project will be separated into three phases and would require overhead transmission modifications, underground cable replacements, and new 345kV cable routes. There would also be major upgrades to nine existing stations, and construction of a new switching station at Newark Liberty International Airport. | 020301040203 – Lower Hackensack River | Bergen, Hudson and Union | Phase 1 was completed in June 2016. Phase 2 expected to be in-service by June 2017. Phase 3 has an expected in-service date of June 2018. | 0.2 mile (west of Central Manhattan M&R) | Surface water, wetlands, air, noise, groundwater, land use |
| TGP River Vale Interconnect Project | Proposed upgrades at the River Vale Meter Station to accommodate the additional capacity from the Project including M&R replacement, installation of a filter separator, and modification of the odorization system. | 020301030905 – Upper Hackensack River | Bergen | February to June 2019 | 0 mile (abuts Orange and Rockland M&R) | Surface water, wetlands, vegetation, wildlife, land use, air, noise, groundwater |
| Transco Meadows Reliability Enhancement Project (FERC docket no. CP18-20-000) | Installation of three new heater units; fire walls; backup generator in generator building; remote telemetry unit control building; odorization facilities and building; yard piping and valves; condensate tank; security fencing; site security system; and electrical conduit, grounding, cathodic protection, and overvoltage protection at the Meadows Heater Facility site in Bergen County, New Jersey. | 020301040203 – Lower Hackensack River | Bergen | Construction of the project is scheduled to begin in February 2018 with a target in-service date of October 1, 2018. | 0.60 mile (northeast of PAR 003) | Groundwater, surface water, wetlands |

Table B-12

**Projects with Potential Cumulative Impacts on Resources Within the General Area of the Project**

| Project | Description | Located within Project HUC 12 | Located within Project County | Anticipated Date of Construction / Project Status | Approximate Distance from Closest Project Facility | Potentially Affected Resource Areas |
|---|---|---|---|---|---|---|
| **Transportation Projects** | | | | | | |
| Northern Branch Corridor Project | Transit improvements in northeastern Hudson and southeastern Bergen Counties through the restoration of passenger rail service on an existing freight rail line. | 020301040203 – Lower Hackensack River | Bergen and Hudson | Supplemental Draft Environmental Impact Statement published March 24, 2017; public hearings held April 24, 2017. | 1.0 mile (east of Bergen Loop); 0.09 mile west of Central Manhattan M&R | Surface waters, wetlands, groundwater |
| Teterboro Airport Improvements / Port Authority of New York and New Jersey | Removal of existing Taxiway B and installation of new Taxiway V and associated gravel access road at the Teterboro Airport. Project requires 3.28 acres of permanent wetland fill. Wetland impacts to be mitigated by purchasing of mitigation credits. | 020301040203 – Lower Hackensack River | Bergen | Construction schedule: mid-2016 – mid-2018 | 2.8 miles (northwest of Bergen Loop) | Surface waters, wetlands, groundwater |
| **Commercial/Large Subdivision Projects** | | | | | | |
| Tomu Development | Construction of a residential housing development with affordable housing units. | 020301040203 - Lower Hackensack River | Bergen | On hold | 0 (Bergen Yard) | Soils, land use, groundwater, wetlands |

The supplemental draft environmental impact statement for the North Branch Corridor Project indicates that that project would result in a total of 3.92 acres of wetlands impacts not representing high-quality habitat areas, and only involve isolated drainage swales of minimal quality. Mitigation is anticipated to occur in the form of the purchase of mitigation credits from an approved wetlands mitigation bank, regardless of the jurisdiction of the acreage affected (New Jersey Transit, 2011). The supplemental draft environmental impact statement also indicates that best management practices would be implemented to minimize water quality degradation and erosion and control sediment. All wetlands impacted by construction staging would be restored to pre-construction conditions and structures would be used to cross wetlands. The Meadows Reliability Enhancement Project would permanently impact 1.33 acres of estuarine intertidal emergent wetlands. Transco would mitigate for this unavoidable, permanent impact by purchasing credits from the Marsh Resources, Inc. mitigation bank. Impacts from TGP River Vale Interconnect Project are unknown at this point as no application has been filed and the information is not publically available. Transco would implement the Procedures to minimize the temporary and permanent impacts to wetlands within the disturbed project areas. Additionally, we anticipate erosion control measures, restoration practices, and mitigation would occur in accordance with local or state permitting authorities (and the FERC's Procedures in the case of TGP River Vale Interconnect Project) would be implemented in the development and construction of the North Branch Corridor Project and TGP River Vale Interconnect Project.

The proposed Bergen Loop is within a region covered by tidally influenced wetlands along the waterways of coastal New York and New Jersey. Overall, the area has been developed and wetland loss has historically occurred in this area. Based on the minimal amount of wetland impacted overall in the context of existing wetlands in the area and the requirement for mitigation to occur for impacts, we conclude that the temporary impact and limited permanent impact on wetlands from the Project would be cumulatively minor when considered in the context of the other projects' wetland impacts. As a result, although project impacts include long-term and permanent impacts on wetlands, the extent of these impacts are minimal and would not be significant; therefore, we conclude that the project would not contribute to adverse cumulative impacts on wetland resources.

### Groundwater

Construction of the Bergen Loop could result in minor, temporary impacts on groundwater infiltration due to tree, herbaceous vegetation, or scrub-shrub vegetation clearing. There is a chance that construction associated from the Project in combination with construction associated with the TGP River Vale Interconnect Project could result in temporary cumulative impacts within the aquifers if construction activities occur concurrently or within several days of one another. If temporary impacts occur, it would likely be limited to short-term turbidity visible in groundwater or reduced infiltration. We also anticipate that Transco's Spill Plan would prevent or minimize the opportunity for and necessitate immediate control and clean-up of spills of fuels, lubricants, or other hazardous material, and would therefore minimize the opportunity for cumulative impacts that could result if other projects were to also result in spills. For these reasons, we conclude that any cumulative impact on groundwater from the Project would be negligible.

### Surface Water

No ground-disturbing activities would directly impact any streams, rivers, or ponds. Therefore, because the Project would have no direct impacts on waterbodies, we conclude that any cumulative impact on waterbodies from the Project would be negligible.

## 10.2 Vegetation and Wildlife

For the analysis of cumulative effects on vegetation and wildlife, we used a geographic scope that encompasses the HUC 12 watersheds crossed by the Project. The construction activities associated with clearing, grading, removal of vegetation, and the potential for the establishment of invasive plant species occurring during the same timeframe and area can result in cumulative impacts. In addition, changes of these environments can also cause alteration of wildlife habitat, displacement of wildlife, and other secondary effects such as forest fragmentation.

The TGP River Vale Interconnect Project is within the geographic and temporal scope of the Orange and Rockland M&R Project construction areas. By utilizing existing facilities, Transco designed the Project so it would minimize impacts on vegetation and wildlife. Additionally, no temporary or permanent tree clearing would be conducted as part of the Orange and Rockland M&R construction activities. Therefore, because of the existing developed nature of the aboveground facilities; the transient nature of wildlife and the ability to adapt to already disturbed/developed areas, most areas would be allowed to revegetate immediately following construction; and the minimal amount of permanent tree clearing (although forested areas could take over 10 years to reforest), we do not anticipate any significant cumulative impact on vegetation and wildlife.

## 10.3 Land Use

As discussed above, construction of the Project would generate traffic associated with delivery of construction materials and supplies, worker commutes, and movement of construction equipment. This added traffic could increase congestion on public roads and contribute to cumulative impacts if any or all of the other projects listed in table B-12 were concurrently using the same or nearby roads for their construction equipment. Traffic impacts resulting from Project construction would typically be localized to the specific facility under construction, for the duration of that facilities' construction. Of the projects listed in table B-12, the TGP River Vale Interconnect Project is the most likely to contribute to traffic congestion at the same time as Transco's construction of the Project. None of the other listed projects are scheduled to be constructed concurrently with and in the same vicinity of the proposed Project and would therefore not contribute to cumulative impacts. Due to Transco's traffic mitigation measures and the availability of other public roadways in the area, we conclude that the Project would not result in significant cumulative traffic impacts.

The construction and operation of the Project and other reasonably foreseeable future projects would require the temporary and permanent use of land, which would result in temporary and permanent impact/conversion of land use. The majority of the Project impacts on general land uses would be restricted to the construction workspaces within existing facilities or existing commercial/industrial properties; therefore, the geographic scope for land use and recreation used was 0.25 mile from the edge of the Project. While many of the pipeline construction impacts would be temporary, construction of the Project would result in some permanent land use changes, including approximately 0.07 acre of wetlands converted to commercial/industrial land at the Bergen Loop. No permanent aboveground facilities would be placed on properties outside of existing aboveground facilities, preventing a cumulative impact of loss of commercial, agricultural, or residential land to permanent aboveground natural gas infrastructure.

In addition, because the Project would be co-located within existing facilities or along existing ROW, forest conversion would be reduced and overall land use would generally be consistent with the current baseline condition of the existing facilities and adjacent ROW. This collocation would also result in fewer visual impacts. Although projects listed above could result in changes to land use, such as from open areas/agricultural to residential, the Rivervale South to Market Project would generally allow most

areas to revert to preconstruction conditions, preventing cumulative impact. For these reasons, we conclude cumulative impacts on land use or visual impacts would not be significant.

## 10.4 Construction Air Quality and Noise

There are no expected cumulative air or noise impacts from the operation of the Project as there are only negligible air or noise impacts from the Project itself; nonetheless, concurrent construction in the immediate vicinity of the Project area could result in short-term cumulative impacts relating to air and noise during construction. Cumulative impacts could result from the additive impact of heavy equipment that generate temporary emissions of air contaminants, fugitive dust, and noise. The impacts would be localized to the vicinity of the construction areas during active construction.

The two projects with potential for cumulative air and noise construction impacts are the TGP River Vale Interconnect Project and the Northern Branch Corridor Project. Respectively, these projects may cumulatively impact the areas near the Orange and Rockland M&R (River Vale, New Jersey) and the Central Manhattan M&R (North Bergen, New Jersey).

The Northern Branch Corridor Project is a major transportation project in the area around the Manhattan M&R. This existing environment is already characterized by high ambient noise level given its proximity to highways and dense development. However, the Riverdale South to Market Project activities would be confined to the existing station, be generally limited to daylight hours, and would not significantly contribute to any cumulative air and noise impacts at this site.

The Rockland M&R is in more mixed use areas with less ambient noise and activity. Here, the TGP River Vale Interconnect Project is a parallel set of construction activities related to the station itself. Residents may experience these projects as one. Construction would be generally limited to daylight hours and the footprint of the station. Based on the expected temporary and minor impacts from these projects, they would not result in significant cumulative air and noise impacts.

## 10.5 Climate Change

Climate change is the change in climate over time and cannot be represented by single annual events or individual anomalies. For example, a single large flood or particularly hot summer are not indications of climate change, while a series of floods or warm years that statistically change the average precipitation or temperature over years or decades may indicate climate change.

Climate change has resulted in a wide range of impacts across every region of the country. Impacts extend beyond atmospheric climate change alone and include changes to water resources, transportation, agriculture, ecosystems, and human health. These changes are driven by accumulation of GHG in the atmosphere through combustion of fossil fuels (coal, petroleum, and natural gas), combined with agriculture and clearing of forests. These impacts have accelerated throughout the end 20$^{th}$ and into the 21$^{st}$ century. Although climate change is a global concern, for this analysis, we focus on the potential cumulative impacts in the Project area.

The following observations of environmental impacts are attributed to climate change in the Northeast region with a high or very high level of confidence:

- from 1895 to 2011 the Northeast experienced a nearly 2 °F temperature increase;
- temperatures are projected to increase by 4.5 to 10 °F by the 2080s under the worst-case scenario (continually increasing emissions), and would increase by 3 °F to 6 °F if emissions were decreased;

- the number of days above 90 °F are projected to increase, resulting in major human health implications;
- from 1958 to 2010 the Northeast experienced a 70 percent increase in the amount of precipitation falling in heavy events (the greatest increase in the nation) and 5 to 20 percent increase in average winter precipitation;
- the global sea level has risen by about 8 inches since reliable record keeping began in 1880, and is projected to rise another 1 to 4 feet by 2100;
- higher than average sea level rise along the Northeastern coast will occur due to land subsidence;
- severe flooding due to sea level rise and heavy downpours are likely to occur more frequently;
- increased fall and winter precipitation could damage crops, and wetter springs would result in delayed planting of grain and vegetables;
- an increase in carrier habitat and human exposure to vector-borne diseases (e.g., Lyme disease, Zika, Chikamunya, or West Nile); and
- coastal water temperature in several regions are likely to continue warming as much as 4 to 8 °F by 2100.

The FERC staff has presented the direct and indirect GHG emissions associated with construction and operation of the Project in section B.8.1 of this EA.

The State of New Jersey issued its Energy Master Plan in 2011, which outlines its goals to reduce its carbon footprint; increase the state's reliance on renewable and "clean" energy sources, including hydroelectric generation, natural gas, and nuclear energy; and reach 70 percent of state electricity generation through renewable and clean energy sources by 2050 (New Jersey, 2011). The Energy Master Plan also calls for the safe expansion of the natural gas pipeline system in New Jersey for electricity generation and to lower wholesale power costs while lessening the state's dependence on oil.

The U.S. national energy-related $CO_2$ emissions were 5,187.09 million metric tons in 2015, which is the most recently available data (EIA, 2017). For a more localized analysis, the 2015 state-level GHG emissions for New Jersey is 111.9 million metric tons of $CO_2e$ (EIA, 2017). The GHG emissions associated with construction and operation of the Project are discussed in more detail in section B.8.1. The GHG emissions from other nearby projects are unknown. Emissions of GHGs from the proposed Project and other regional projects would not have any direct impacts on the environment in the Project area. Currently, there is no standard methodology to determine how a project's relatively small incremental contribution to GHGs would translate into physical effects on the global environment.

The Project would provide 190 MMcf per day of additional natural gas capacity along Transco's pipeline system to delivery points in Hudson and Mercer Counties, New Jersey, to meet growing market demands for the 2019/2020 winter season. Using the USEPA's conversion factors, the end-use consumption of natural gas provided by the maximum capacity of the Project would result in as much as 3.7 million metric tpy of $CO_2e$ (USEPA, 2017). The downstream use of the Project-related natural gas could potentially increase GHG emissions from the 2015 levels by 3.3 percent within New Jersey and by 0.071 percent at the national level. This estimate represents the upper bound for the amount of end-use combustion that could result from the maximum quantity of gas potentially transported by this Project without accounting for reductions in GHG emissions from fuel switching. While these emissions comparisons provide context, they do not represent an estimate of significance.

## 10.6 Conclusions on Cumulative Impacts

Impacts associated with the Project would be relatively minor. The impacts from other existing and proposed projects or general activities within the geographic scope of analysis are also expected to be minor. Our project-specific and resource specific (based on appropriate geographic scope) analysis leads us to conclude that the Project would contribute to a negligible cumulative impact when the effects of the Project are added to past, present, and reasonably foreseeable projects.

# C. ALTERNATIVES

In accordance with NEPA and FERC policy, we evaluated alternatives to the Project to determine whether they would be reasonable and environmentally preferable to the proposed action. The USEPA requested an evaluation of alternatives to the Project. However, none of the environmental comments received on the Rivervale South to Market Project identified specific alternatives to the proposed looping segment. Further, there are no new major aboveground facilities associated with the Project; all of the proposed modifications would take place at existing facilities. Therefore, we did not evaluate any aboveground facility site alternatives. However, as previously noted, we received comments regarding the impacts on wetlands from the proposed Bergen Loop; therefore, we evaluated alternative wetland crossing methods. Accordingly, the alternatives discussed in this section include the no-action alternative, system alternatives, and alternative wetland crossing methods.

The evaluation criteria we used for our alternatives analysis are:

- meeting the objectives of the proposed action (i.e., providing an additional 190 MMcf per day to Compressor Station 210 and the Central Manhattan M&R to meet supply needs for the 2019/2020 winter heating season);
- technical feasibility and practicability; and
- conferring a significant environmental advantage over the proposed action.

Our evaluation of the identified alternatives is based on Project-specific information provided by Transco, affected landowners, and other concerned parties; publicly available information; our consultations with federal and state resource agencies; and our expertise and experience regarding the siting, construction, and operation of natural gas transmission facilities and their potential impact on the environment. We evaluate to a point where it becomes clear if the alternative could or could not meet the three evaluation criteria. For example, an alternative that cannot achieve the purpose for the Project cannot be considered as an acceptable replacement for the Project. We do not consider the cost of an alternative as a critical factor unless the added cost to design, permit, and construct the alternative would render the project economically impractical or non-viable (in effect, resulting in the no-action alternative). Determining if an alternative provides a significant environmental advantage requires a comparison of resource impacts, balancing the overall impacts with other relevant considerations (e.g., permitting requirements, land availability, land use conflicts, etc.). Taking into account these factors, our alternatives analysis is presented below.

## 1. No-Action Alternative

The no-action alternative would result in not implementing the proposed action and would avoid the potential environmental impacts associated with the Project; however, the Project objectives would not be met. Transco would likely seek alternative proposals to transport the requested volumes of natural gas. Although a Commission decision to postpone or deny the proposed action would either delay or avoid the environmental impacts addressed in this EA, other natural gas projects could be constructed to provide a substitute for the natural gas supplies offered by Transco. Such actions could result in impacts similar to or greater than the proposed Project, and would likely not meet the Project's purpose and need within the proposed timeframes. Therefore, we are not recommending it.

## 2. System Alternatives

System alternatives make use of existing or modified natural gas transmission systems to meet the stated objective of the proposed action. The point of identifying and evaluating system alternatives is to

determine if the potential environmental impact associated with the construction and operation of the proposed facilities could be avoided or minimized by using another pipeline system or modifying an existing system. Environmental considerations with system alternatives include, but are not limited to, new ROW requirements, land use effects, and stream and wetland disturbances. While modifications or additions to existing systems could result in environmental impact, this impact may be less, the same, or more than associated with the proposed Project.

## 2.1 Transco System Alternatives

### Bergen Loop Alternative

Potential system alternatives to the proposed Bergen Loop would require construction of a 3,000 or more horsepower greenfield mainline compressor station or longer pipeline loops of smaller diameter. A greenfield compressor station would result in greater permanent environmental impacts on vegetation, wildlife, air quality, and noise. Longer pipeline loops would likely require similar ROW widths and because of the greater length, would result in greater environmental disturbances and/or impacts. Because the loop as proposed is sited next to existing facilities and utilizes existing ROW to the extent practicable and the system alternatives did not confer an obvious environmental advantage, we did not further evaluate these Transco system alternatives.

### North New Jersey Extension Uprate Alternative

Potential system alternatives to the proposed NNJE Uprate would require construction of a greenfield compressor station near the Paramus M&R or approximately 5 miles of 36-inch-diameter pipeline loop between Rivervale and the Paramus M&R. Both would result in greater environmental impacts, as compared to the minimal impact associated with hydrostatic testing and uprate of an existing line. Additionally, the required locations are within dense residential and/or commercial/industrial areas. Therefore, we did not see any significant environmental advantage that would occur with the Transco system alternatives compared to the proposed uprate and did not evaluate further.

## 2.2 Other Company System Alternatives

There is significant fuel conversion-driven demand in the United States for additional supplies of natural gas to supply utility companies and other users. Because Transco currently operates a transmission system in the northeast, Transco can supply the increased demand for natural gas in this area using efficiencies afforded by its existing system. The Project has a firm purchaser commitment and can meet the demand sooner than a hypothetical project not yet planned or committed. Further, the proposed uprate, modifications, and loop were selected to minimize environmental impacts to the greatest extent possible while using existing ROW to limit the need for construction on undisturbed lands.

We did not identify any other existing systems in the area that could deliver the same quantities of gas, at similar locations, without substantial additional pipeline construction. Existing systems in the area would require a minimum of 8 miles of greenfield pipeline to reach target delivery points and would likely require additional compression and/or pipeline system upgrades. Because Transco's existing system already connects to the Project shippers' specified receipt and delivery points, the modification or expansion of another existing or new pipeline system that does not connect at or near the specified receipt and delivery points would require construction with similar or greater environmental impact than Transco's proposal. Therefore, we did not further evaluate the expansion of another existing pipeline system to meet the Project objectives.

# 3. Alternative Bergen Loop Construction Methods

We received comments regarding possible environmental impacts on the wetlands to be crossed by the Bergen Loop. Transco proposes to cross wetlands using conventional lay or push-pull methods (detailed in sections A.6.2 and B.3.4). Our environmental analysis in section B analyzed the impacts associated with Transco's proposed construction method. In this section we evaluate alternative construction methods for the Bergen Loop. We considered three different methods for construction of the Bergen Loop: conventional bore, horizontal directional drill (HDD), and direct pipe.

## 3.1 Conventional Bore

We evaluated the feasibility of crossing the wetland using the conventional bore method. The conventional bore method allows for trenchless construction across an area by excavating a pit on each side of the feature, placing boring equipment within the pits, boring a hole under the feature, and pulling a section of pipe through the hole. This method is used to avoid direct impacts on sensitive features or areas that otherwise present difficulties for standard pipeline construction. A conventional bore can only be used over distances of around 300 feet. Additionally, the bore pits would be within the water table and would likely require constant dewatering. Working in saturated bore pits and tending to the dewatering process would increase the potential for erosion and sedimentation and negate some of the presumed advantages of a bore (e.g., conducting activity in a dry circumstance and lessening water-related impacts). We conclude that the conventional bore method for constructing the proposed Bergen Loop is not technically or environmentally preferable, and we do not recommend it.

## 3.2 Horizontal Directional Drill Crossing Method

We evaluated the feasibility of crossing the wetlands to construct the Bergen Loop using the HDD method. The HDD method allows for trenchless construction across an area by drilling a hole below the depth of a conventional lay, and then pulling a prefabricated section of pipe through the hole. This method is used to avoid direct impacts on sensitive environmental features or areas that otherwise present difficulties for standard pipeline construction. An HDD has an advantage over a conventional bore in that HDD entry and exit areas can often be sited further from the crossed feature and may avoid placement in wetlands or result in a water-filled bore-hole.

While an HDD entry area for the Bergen Loop wetland crossing could be sited in an upland area, the exit point work area would require staging in a wetland. A limited geotechnical study of the wetlands was completed to depths of approximately 90 feet below ground surface. The proposed Bergen Loop area is underlain by approximately 10 feet of sands, silts, and gravels; approximately 20 feet of soft to medium stiff clays; approximately 40 feet of very soft clays; and approximately 20 feet of gravel. Siltstone bedrock was observed below the gravel layer. Therefore, the HDD method would pose a high risk for inadvertent returns (loss of drilling fluid) into the wetlands or nearby Hackensack River, which would cause impacts on water quality and possibly on the recreational use of the river. Plus, some of the HDD work area would be within a wetland, thus negating some of the advantages of using an HDD crossing method. Because of the geotechnical conditions in the Project area which could result in a failed HDD or a greater risk of inadvertent returns, we conclude that the HDD method is technically infeasible and not environmentally preferable, and we do not recommend it.

## 3.3 Direct Pipe Method

The Direct Pipe method is used to install pipelines beneath the ground surface where traditional open cut excavations or other trenchless methods, such as HDD or conventional bore, are not feasible due

to sensitive resource areas or logistical reasons. The Direct Pipe method involves pushing a steel pipeline with a microtunnel machine attached to the lead pipe from the entry location through to the exit location using a pipe thruster. The Direct Pipe alignment is similar to that of an HDD, but at a much shallower depth. Cuttings and drilling fluid are pumped to the ground surface from a slurry pump that is within the microtunnel machine. For a Direct Pipe installation, the soils beneath the microtunnel machine must be able to bear the weight of the machine (bearing capacity) or the machine would tend to sink under its own weight. Based on the limited geotechnical study performed in the wetland area, the bearing capacity of the soils are likely not sufficient to support the microtunnel machine. Additionally, pipes installed by the Direct Pipe method can have buoyancy or floating issues in soft soils such as those in the wetland area, which could increase the stresses acting on the installed pipe. These buoyancy issues can also result in a need for the pipeline to be reburied at some future time. Because of the geotechnical conditions in the Project area which could result in the microtunnel machine to sink or the constructed pipeline to float over time, we conclude that the Direct Pipe method is technically infeasible, and we do not recommend it.

## 3.4 Alternative Bergen Loop Construction Methods Conclusions

Based on information provided by Transco and our review, we conclude that the alternative construction methods for the Bergen Loop are technically infeasible. Additionally, the conventional bore and HDD methods are not environmentally preferable. Therefore, we recommend Transco's previously discussed wetland construction methods.

Overall, we conclude that Transco's proposed Project, as modified by our recommended mitigation measures, is the preferred alternative to meet the Project objectives.

## D. CONCLUSIONS AND RECOMMENDATIONS

Based on the analysis contained in this EA, we have determined that if Transco constructs the proposed facilities in accordance with its application, filed supplements, and staff's recommended mitigation measures listed below, approval of the Project would not constitute a major federal action significantly affecting the quality of the human environment.

We recommend that the Commission Order contain a finding of no significant impact. If the Commission certificates the proposed Project, we recommend that the Commission Order include the following specific conditions:

1. Transco shall follow the construction procedures and mitigation measures described in its application and supplements (including responses to staff data requests) and as identified in the EA, unless modified by the Order. Transco must:

    a. request any modification to these procedures, measures, or conditions in a filing with the Secretary;
    b. justify each modification relative to site-specific conditions;
    c. explain how that modification provides an equal or greater level of environmental protection than the original measure; and
    d. receive approval in writing from the Director of OEP **before using that modification**.

2. The Director of OEP, or the Director's designee, has delegated authority to address any requests for approvals or authorizations necessary to carry out the conditions of the Order, and take whatever steps are necessary to ensure the protection of all environmental resources during construction and operation of the project. This authority shall allow:

    a. the modification of conditions of the Order;
    b. stop-work authority; and
    c. the imposition of any additional measures deemed necessary to ensure continued compliance with the intent of the conditions of the Order as well as the avoidance or mitigation of unforeseen adverse environmental impact resulting from project construction and operation.

3. **Prior to any construction**, Transco shall file an affirmative statement with the Secretary, certified by a senior company official, that all company personnel, EIs, and contractor personnel will be informed of the EI's authority and have been or will be trained on the implementation of the environmental mitigation measures appropriate to their jobs **before** becoming involved with construction and restoration activities.

4. The authorized facility locations shall be as shown in the EA, as supplemented by filed alignment sheets. **As soon as they are available, and before the start of construction**, Transco shall file with the Secretary any revised detailed survey alignment maps/sheets at a scale not smaller than 1:6,000 with station positions for all facilities approved by the Order. All requests for modifications of environmental conditions of the Order or site-specific clearances must be written and must reference locations designated on these alignment maps/sheets.

    Transco's exercise of eminent domain authority granted under NGA section 7(h) in any condemnation proceedings related to the Order must be consistent with these authorized

facilities and locations. Transco's right of eminent domain granted under NGA section 7(h) does not authorize it to increase the size of its natural gas facilities to accommodate future needs or to acquire a ROW for a pipeline to transport a commodity other than natural gas.

5. Transco shall file with the Secretary detailed alignment maps/sheets and aerial photographs at a scale not smaller than 1:6,000 identifying all route realignments or facility relocations, and staging areas, pipe storage yards, new access roads, and other areas that would be used or disturbed and have not been previously identified in filings with the Secretary. Approval for each of these areas must be explicitly requested in writing. For each area, the request must include a description of the existing land use/cover type, documentation of landowner approval, whether any cultural resources or federally listed threatened or endangered species would be affected, and whether any other environmentally sensitive areas are within or abutting the area. All areas shall be clearly identified on the maps/sheets/aerial photographs. Each area must be approved in writing by the Director of OEP **before construction in or near that area**.

   This requirement does not apply to extra workspace allowed by the Commission's Plan and/or minor field realignments per landowner needs and requirements which do not affect other landowners or sensitive environmental areas such as wetlands. Examples of alterations requiring approval include all route realignments and facility location changes resulting from:

   a. implementation of cultural resources mitigation measures;
   b. implementation of endangered, threatened, or special concern species mitigation measures;
   c. recommendations by state regulatory authorities; and
   d. agreements with individual landowners that affect other landowners or could affect sensitive environmental areas.

6. **Within 60 days of the acceptance of the authorization and before construction begins**, Transco shall file an Implementation Plan with the Secretary for review and written approval by the Director of OEP. Transco must file revisions to the plan as schedules change. The plan shall identify:

   a. how Transco will implement the construction procedures and mitigation measures described in its application and supplements (including responses to staff data requests), identified in the EA, and required by the Order;
   b. how Transco will incorporate these requirements into the contract bid documents, construction contracts (especially penalty clauses and specifications), and construction drawings so that the mitigation required at each site is clear to onsite construction and inspection personnel;
   c. the number of EIs assigned, and how the company will ensure that sufficient personnel are available to implement the environmental mitigation;
   d. company personnel, including EIs and contractors, who will receive copies of the appropriate material;
   e. the location and dates of the environmental compliance training and instructions Transco will give to all personnel involved with construction and restoration (initial and refresher training as the project progresses and personnel change).
   f. the company personnel (if known) and specific portion of Transco's organization having responsibility for compliance;
   g. the procedures (including use of contract penalties) Transco will follow if noncompliance occurs; and

h. for each discrete facility, a Gantt or PERT chart (or similar project scheduling diagram), and dates for:

(1) the completion of all required surveys and reports;
(2) the environmental compliance training of onsite personnel;
(3) the start of construction; and
(4) the start and completion of restoration.

7. Transco shall employ at least one EI per construction spread. The EI shall be:

a. responsible for monitoring and ensuring compliance with all mitigation measures required by the Order and other grants, permits, certificates, or other authorizing documents;
b. responsible for evaluating the construction contractor's implementation of the environmental mitigation measures required in the contract (see condition 6 above) and any other authorizing document;
c. empowered to order correction of acts that violate the environmental conditions of the Order, and any other authorizing document;
d. a full-time position, separate from all other activity inspectors;
e. responsible for documenting compliance with the environmental conditions of the Order, as well as any environmental conditions/permit requirements imposed by other federal, state, or local agencies; and
f. responsible for maintaining status reports.

8. Beginning with the filing of its Implementation Plan, Transco shall file updated status reports with the Secretary on a **biweekly** basis until all construction and restoration activities are complete. On request, these status reports will also be provided to other federal and state agencies with permitting responsibilities. Status reports shall include:

a. an update on Transco's efforts to obtain the necessary federal authorizations;
b. the construction status of the project, work planned for the following reporting period, and any schedule changes for stream crossings or work in other environmentally-sensitive areas;
c. a listing of all problems encountered and each instance of noncompliance observed by the EI(s) during the reporting period (both for the conditions imposed by the Commission and any environmental conditions/permit requirements imposed by other federal, state, or local agencies);
d. a description of the corrective actions implemented in response to all instances of noncompliance, and their cost;
e. the effectiveness of all corrective actions implemented;
f. a description of any landowner/resident complaints which may relate to compliance with the requirements of the Order, and the measures taken to satisfy their concerns; and
g. copies of any correspondence received by Transco from other federal, state, or local permitting agencies concerning instances of noncompliance, and Transco's response.

9. Transco must receive written authorization from the Director of OEP **before commencing construction of any project facilities.** To obtain such authorization, Transco must file with the Secretary documentation that it has received all applicable authorizations required under federal law (or evidence of waiver thereof).

10. Transco must receive written authorization from the Director of OEP **before placing the project into service**. Such authorization will only be granted following a determination

that rehabilitation and restoration of the ROW and other areas affected by the project are proceeding satisfactorily.

11. **Within 30 days of placing the authorized facilities in service**, Transco shall file an affirmative statement with the Secretary, certified by a senior company official:

    a. that the facilities have been constructed in compliance with all applicable conditions, and that continuing activities will be consistent with all applicable conditions; or
    b. identifying which of the conditions in the Order Transco has complied with or will comply with. This statement shall also identify any areas affected by the project where compliance measures were not properly implemented, if not previously identified in filed status reports, and the reason for noncompliance.

12. **Prior to construction of the Central Manhattan M&R**, Transco shall consult with the NJDEP regarding appropriate groundwater containment and disposal guidelines and practices, and file the results of this consultation, along with any proposed mitigation measures, with the Secretary, for review and written approval by the Director of OEP.

13. Transco **shall not begin construction** of facilities and/or use of staging, storage, or temporary work areas and new or to-be-improved access roads **until**:

    a. Transco files with the Secretary the New Jersey SHPO's comments on the January 12, 2018 project modification information; and
    b. the Director of OEP notifies Transco in writing that construction may proceed.

14. **Prior to any construction activity that Transco anticipates would extend beyond Transco's identified typical construction hours of 7 a.m. to 7 p.m., six days a week**, Transco shall file with the Secretary, for review and written approval by the Director of OEP, a site-specific or activity-specific request for the extended hours, which shall include a justification for nighttime work and plans to minimize noise impacts on nearby NSAs.

15. Transco shall file noise surveys with the Secretary **no later than 60 days after placing the Orange and Rockland M&R in service**. If a full load condition noise survey is not possible, Transco shall provide an interim survey at the maximum possible power load and provide the full power load survey **within six months**. If the noise attributable to the operation of all the equipment at the facility at interim or full power load conditions exceeds 55 dBA $L_{dn}$ at any nearby NSAs, Transco shall file a report on what changes are needed and shall install additional noise controls to meet the recommended noise level **within one year** of the in-service date. Transco shall confirm compliance with the above requirement by filing a second noise survey with the Secretary **no later than 60 days after it installs the additional noise controls**.

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# F. LIST OF PREPARERS

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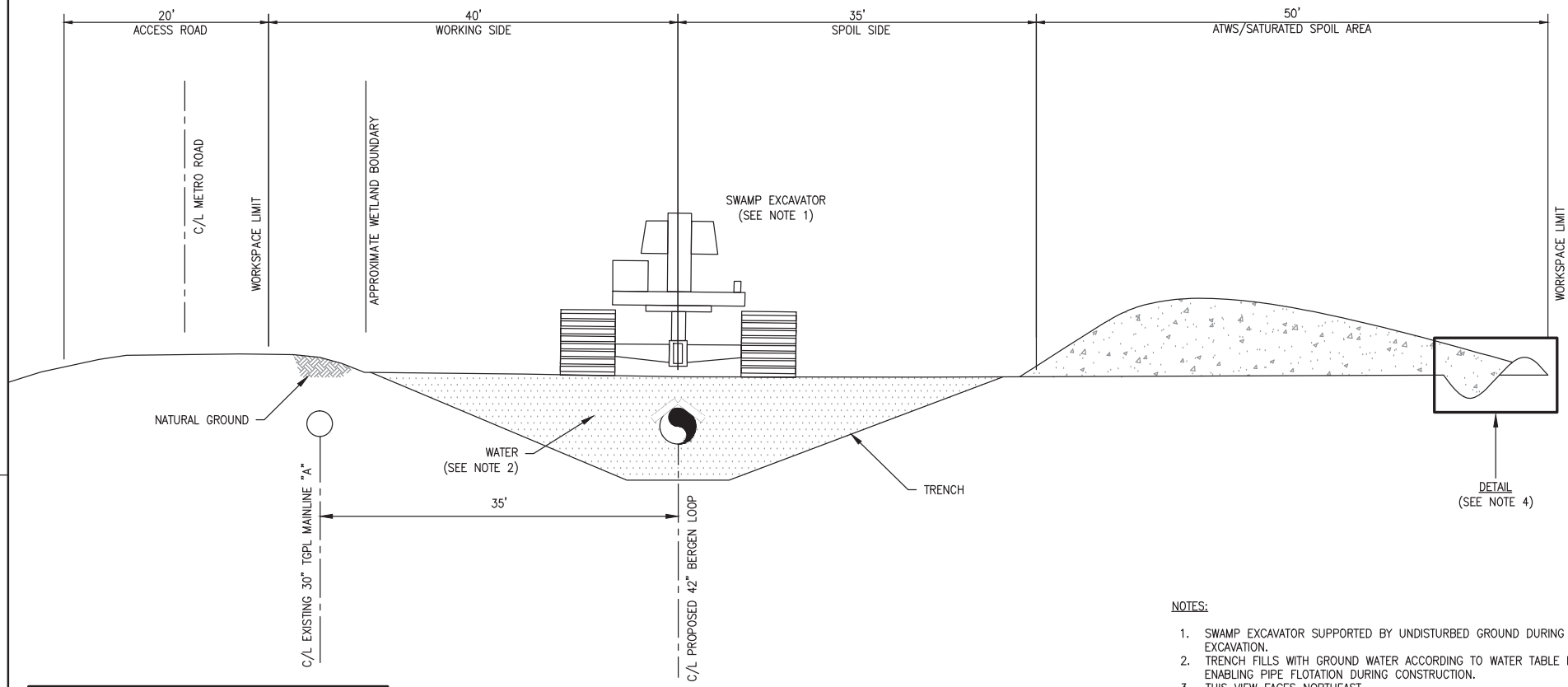
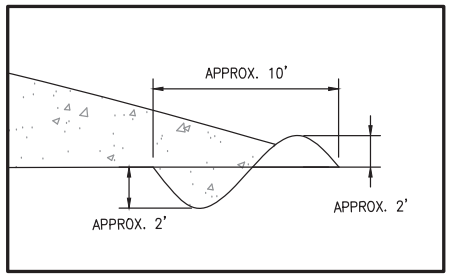
# APPENDIX A

## Right-of-way Cross Sectional Diagrams




DETAIL
(SEE NOTE 4)

NOTES:

1. SWAMP EXCAVATOR SUPPORTED BY UNDISTURBED GROUND DURING TRENCH EXCAVATION.
2. TRENCH FILLS WITH GROUND WATER ACCORDING TO WATER TABLE LEVEL, ENABLING PIPE FLOTATION DURING CONSTRUCTION.
3. THIS VIEW FACES NORTHEAST.
4. TEMPORARY SOIL BERM AND BORROW DITCH IMPLEMENTED TO CONTAIN SATURATED SPOIL WITHIN WORKSPACE LIMITS.

| DRAWING NO. | REFERENCE TITLE |
|---|---|
| F-AS-RSTM-D-01 | FERC ALINGMENT SHEET |
| F-AS-RSTM-D-02 | FERC ALINGMENT SHEET |

| NO. | DATE | BY | REVISION DESCRIPTION | W.O. NO. | CHK. | APP. |
|---|---|---|---|---|---|---|
| A | 08/2017 | MM | ISSUE FOR FERC | 1182737 | MAP | RWP |

TRANSCONTINENTAL GAS PIPE LINE COMPANY LLC
RIVERVALE SOUTH TO MARKET PROJECT
PROPOSED 42" BERGEN LOOP
TYPICAL CONSTRUCTION CROSS SECTION
BERGEN COUNTY, NEW JERSEY

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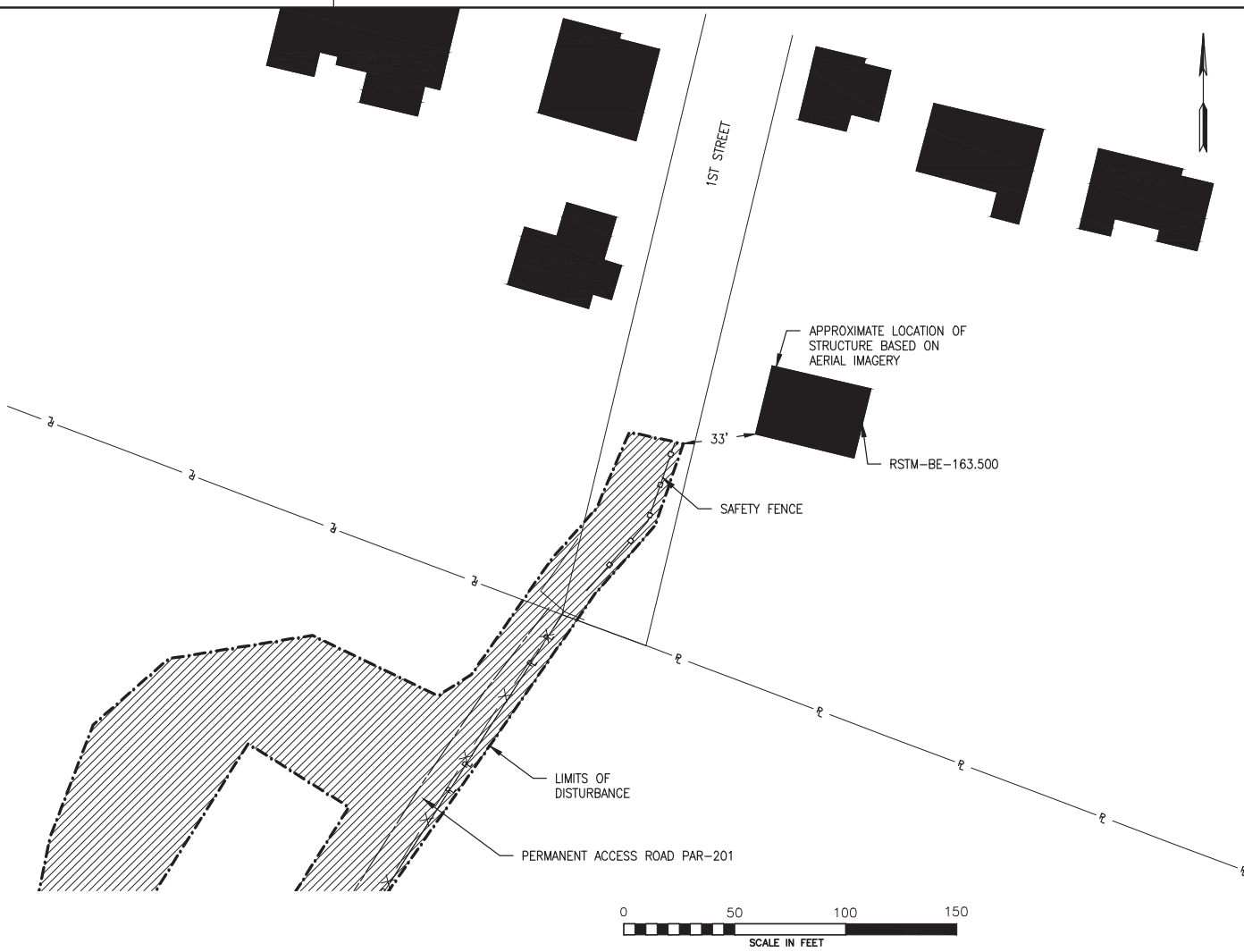
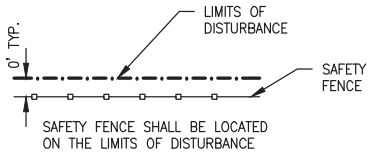
# APPENDIX B

## Construction Plans for Residences within 50 feet of the Project

NOTES:

1. TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC (TRANSCO) HAS PREPARED THIS RESIDENTIAL CONSTRUCTION PLAN TO INCLUDE DIMENSIONED SITE PLANS FOR EACH RESIDENCE LOCATED WITHIN 50 FEET OF THE CONSTRUCTION WORK AREAS. THE SITE PLANS SHOW THE LOCATION OF EACH OF THESE RESIDENCES IN RELATION TO EACH OF THESE RESIDENCES IN RELATION TO THE FACILITY MODIFICATIONS AND THE CONSTRUCTION WORK AREAS PROPOSED FOR THE RIVERVALE SOUTH TO MARKET PROJECT.
2. OTHER KNOWN UTILITIES ARE ALSO DEPICTED ON THE SITE PLANS. PRIOR TO CONSTRUCTION, THE STATE ONE CALL CENTER WILL BE NOTIFIED TO VERIFY THE LOCATION OF THESE UTILITIES AND IDENTIFY ANY UNKNOWN UTILITIES WHICH MIGHT EXIST WITHIN THE CONSTRUCTION RIGHT OF WAY. TRANSCO WILL ALSO CONTACT INDIVIDUAL PROPERTY OWNER(S) TO IDENTIFY AND LOCATE ANY OTHER UTILITIES THAT MIGHT EXIST WITHIN THE CONSTRUCTION RIGHT OF WAY. THESE UTILITIES WILL BE IDENTIFIED AND MARKED BY THE RESPECTIVE UTILITY COMPANIES PRIOR TO CONSTRUCTION.
3. ANY NEARBY STRUCTURES, RESIDENTIAL FEATURES AND TREES LOCATED WITHIN THE CONSTRUCTION WORK AREAS WHICH WILL NOT BE REMOVED DURING CONSTRUCTION ARE NOTED ON THE SITE PLAN.
4. TRANSCO WILL NOTIFY LANDOWNERS, IN WRITING, AT LEAST TWO (2) WEEKS PRIOR TO THE START OF CONSTRUCTION. TRANSCO'S LAND AGENT WILL THEN FOLLOW UP WITH EACH LANDOWNER AT LEAST ONE (1) WEEK PRIOR TO THE START OF CONSTRUCTION.
5. AFTER COMPLETION, THE CONSTRUCTION WORK AREAS WILL BE RESTORED IN ACCORDANCE WITH APPLICABLE PERMIT REQUIREMENTS, THE PROJECT–SPECIFIC VERSION OF FERC'S UPLAND EROSION CONTROL REVEGETATION AND MAINTENANCE PLAN AND THE EROSION AND SEDIMENT CONTROL PLAN.
6. LAND REPRESENTATIVES WILL DISCUSS ACCESS TO RESIDENCES PRIOR TO CONSTRUCTION AND INCLUDE THAT INFORMATION IN THE CONSTRUCTION LINE LIST. THE CONSTRUCTION LINE LIST WILL BE INCLUDED IN THE CONSTRUCTION CONTRACT. ADDITIONALLY, INSPECTORS ASSIGNED TO THE PROJECT WILL ENSURE THAT THE REQUIREMENTS IN THE LINE LIST ARE FOLLOWED.
7. AT A MINIMUM, CONSTRUCTION SAFETY PERIMETER FENCING OR TEMPORARY CHAINLINK FENCING SHALL BE INSTALLED AND MAINTAINED ALONG THE WORK AREA AS SHOWN ON THE SITE PLAN.
8. UTILIZE CONTROLS AS NECESSARY TO MITIGATE DUST, NOISE, AND VIBRATIONS DURING CONSTRUCTION.

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TRANSCONTINENTAL GAS PIPE LINE COMPANY LLC
RIVERVALE SOUTH TO MARKET PROJECT
24" J199 MAINLINE VALVE
RESIDENTIAL CONSTRUCTION PLAN
LINE LIST NO. RSTM–BE–163.500
BERGEN COUNTY, NJ

| NO. | DATE | BY | REVISION DESCRIPTION | W.O. NO. | CHK. | APP. |
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| A | 08/2017 | MM | ISSUE FOR FERC | 1199034 | MAP | RWP |
| B | 12/2017 | MM | REISSUE FOR FERC | 1199034 | MAP | RWP |

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NOTES:

1. TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC (TRANSCO) HAS PREPARED THIS RESIDENTIAL CONSTRUCTION PLAN TO INCLUDE DIMENSIONED SITE PLANS FOR EACH RESIDENCE LOCATED WITHIN 50 FEET OF THE CONSTRUCTION WORK AREAS. THE SITE PLANS SHOW THE LOCATION OF EACH OF THESE RESIDENCES IN RELATION TO EACH OF THESE RESIDENCES IN RELATION TO THE FACILITY MODIFICATIONS AND THE CONSTRUCTION WORK AREAS PROPOSED FOR THE RIVERVALE SOUTH TO MARKET PROJECT.

2. OTHER KNOWN UTILITIES ARE ALSO DEPICTED ON THE SITE PLANS. PRIOR TO CONSTRUCTION, THE STATE ONE CALL CENTER WILL BE NOTIFIED TO VERIFY THE LOCATION OF THESE UTILITIES AND IDENTIFY ANY UNKNOWN UTILITIES WHICH MIGHT EXIST WITHIN THE CONSTRUCTION RIGHT OF WAY. TRANSCO WILL ALSO CONTACT INDIVIDUAL PROPERTY OWNER(S) TO IDENTIFY AND LOCATE ANY OTHER UTILITIES THAT MIGHT EXIST WITHIN THE CONSTRUCTION RIGHT OF WAY. THESE UTILITIES WILL BE IDENTIFIED AND MARKED BY THE RESPECTIVE UTILITY COMPANIES PRIOR TO CONSTRUCTION.

3. ANY NEARBY STRUCTURES, RESIDENTIAL FEATURES AND TREES LOCATED WITHIN THE CONSTRUCTION WORK AREAS WHICH WILL NOT BE REMOVED DURING CONSTRUCTION ARE NOTED ON THE SITE PLAN.

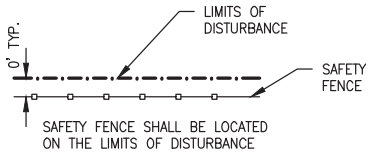
4. TRANSCO WILL NOTIFY LANDOWNERS, IN WRITING, AT LEAST TWO (2) WEEKS PRIOR TO THE START OF CONSTRUCTION. TRANSCO'S LAND AGENT WILL THEN FOLLOW UP WITH EACH LANDOWNER AT LEAST ONE (1) WEEK PRIOR TO THE START OF CONSTRUCTION.

5. AFTER COMPLETION, THE CONSTRUCTION WORK AREAS WILL BE RESTORED IN ACCORDANCE WITH APPLICABLE PERMIT REQUIREMENTS, THE PROJECT–SPECIFIC VERSION OF FERC'S UPLAND EROSION CONTROL REVEGETATION AND MAINTENANCE PLAN AND THE EROSION AND SEDIMENT CONTROL PLAN.

6. LAND REPRESENTATIVES WILL DISCUSS ACCESS TO RESIDENCES PRIOR TO CONSTRUCTION AND INCLUDE THAT INFORMATION IN THE CONSTRUCTION LINE LIST. THE CONSTRUCTION LINE LIST WILL BE INCLUDED IN THE CONSTRUCTION CONTRACT. ADDITIONALLY, INSPECTORS ASSIGNED TO THE PROJECT WILL ENSURE THAT THE REQUIREMENTS IN THE LINE LIST ARE FOLLOWED.

7. AT A MINIMUM, CONSTRUCTION SAFETY PERIMETER FENCING OR TEMPORARY CHAINLINK FENCING SHALL BE INSTALLED AND MAINTAINED ALONG THE WORK AREA AS SHOWN ON THE SITE PLAN.

8. UTILIZE CONTROLS AS NECESSARY TO MITIGATE DUST, NOISE, AND VIBRATIONS DURING CONSTRUCTION.


| DRAWING NO. | REFERENCE TITLE |
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TRANSCONTINENTAL GAS PIPE LINE COMPANY LLC
RIVERVALE SOUTH TO MARKET PROJECT
PARAMUS METER STATION
RESIDENTIAL CONSTRUCTION PLAN
LINE LIST NOS. RSTM–BE–440.000, RSTM–BE–439.000 & RSTM–BE–438.000
BERGEN COUNTY, NJ

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| B | 12/2017 | MM | REISSUE FOR FERC | 1199034 | MAP | RWP |

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1. TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC (TRANSCO) HAS PREPARED THIS RESIDENTIAL CONSTRUCTION PLAN TO INCLUDE DIMENSIONED SITE PLANS FOR EACH RESIDENCE LOCATED WITHIN 50 FEET OF THE CONSTRUCTION WORK AREAS. THE SITE PLANS SHOW THE LOCATION OF EACH OF THESE RESIDENCES IN RELATION TO EACH OF THESE RESIDENCES IN RELATION TO THE FACILITY MODIFICATIONS AND THE CONSTRUCTION WORK AREAS PROPOSED FOR THE RIVERVALE SOUTH TO MARKET PROJECT.

2. OTHER KNOWN UTILITIES ARE ALSO DEPICTED ON THE SITE PLANS. PRIOR TO CONSTRUCTION, THE STATE ONE CALL CENTER WILL BE NOTIFIED TO VERIFY THE LOCATION OF THESE UTILITIES AND IDENTIFY ANY UNKNOWN UTILITIES WHICH MIGHT EXIST WITHIN THE CONSTRUCTION RIGHT OF WAY. TRANSCO WILL ALSO CONTACT INDIVIDUAL PROPERTY OWNER(S) TO IDENTIFY AND LOCATE ANY OTHER UTILITIES THAT MIGHT EXIST WITHIN THE CONSTRUCTION RIGHT OF WAY. THESE UTILITIES WILL BE IDENTIFIED AND MARKED BY THE RESPECTIVE UTILITY COMPANIES PRIOR TO CONSTRUCTION.

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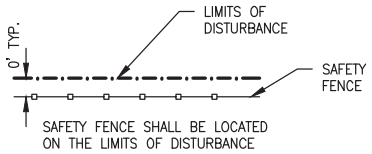
5. AFTER COMPLETION, THE CONSTRUCTION WORK AREAS WILL BE RESTORED IN ACCORDANCE WITH APPLICABLE PERMIT REQUIREMENTS, THE PROJECT–SPECIFIC VERSION OF FERC'S UPLAND EROSION CONTROL REVEGETATION AND MAINTENANCE PLAN AND THE EROSION AND SEDIMENT CONTROL PLAN.

6. LAND REPRESENTATIVES WILL DISCUSS ACCESS TO RESIDENCES PRIOR TO CONSTRUCTION AND INCLUDE THAT INFORMATION IN THE CONSTRUCTION LINE LIST. THE CONSTRUCTION LINE LIST WILL BE INCLUDED IN THE CONSTRUCTION CONTRACT. ADDITIONALLY, INSPECTORS ASSIGNED TO THE PROJECT WILL ENSURE THAT THE REQUIREMENTS IN THE LINE LIST ARE FOLLOWED.

7. AT A MINIMUM, CONSTRUCTION SAFETY PERIMETER FENCING OR TEMPORARY CHAINLINK FENCING SHALL BE INSTALLED AND MAINTAINED ALONG THE WORK AREA AS SHOWN ON THE SITE PLAN.

8. UTILIZE CONTROLS AS NECESSARY TO MITIGATE DUST, NOISE, AND VIBRATIONS DURING CONSTRUCTION.


| DRAWING NO. | REFERENCE TITLE |
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TRANSCONTINENTAL GAS PIPE LINE COMPANY LLC
RIVERVALE SOUTH TO MARKET PROJECT
PARAMUS METER STATION
RESIDENTIAL CONSTRUCTION PLAN
LINE LIST NOS. RSTM–BE–427.000 & RSTM–BE–428.000
BERGEN COUNTY, NJ

| NO. | DATE | BY | REVISION DESCRIPTION | W.O. NO. | CHK. | APP. |
|---|---|---|---|---|---|---|
| A | 08/2017 | MM | ISSUE FOR FERC | 1199034 | MAP | RWP |
| B | 12/2017 | MM | REISSUE FOR FERC | 1199034 | MAP | RWP |

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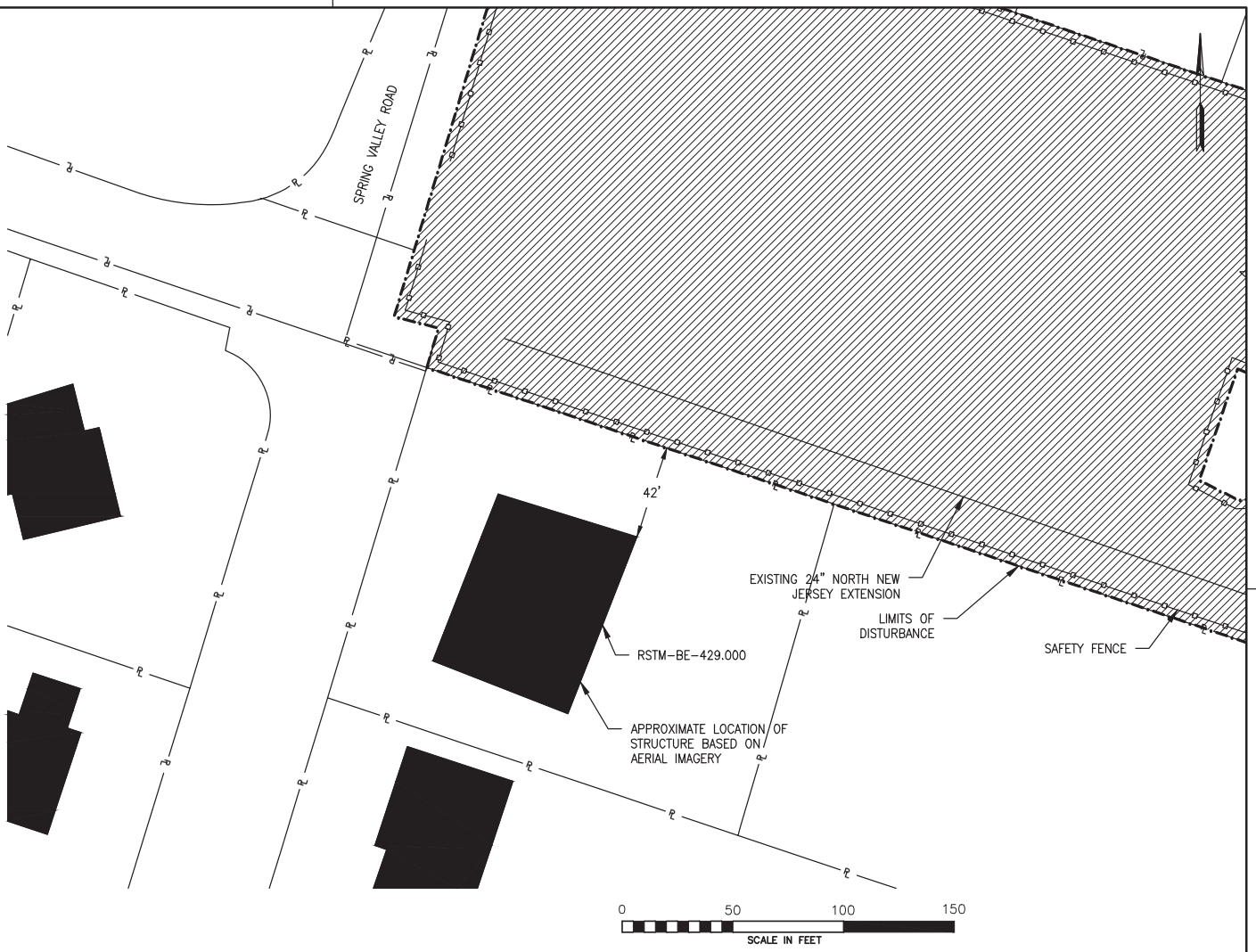
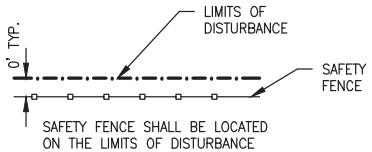
| DRAWN BY: HM | DATE: 08/09/17 | | SCALE: 1" = 50' |
| CHECKED BY: | DATE: | | |
| APPROVED BY: RWP | DATE: | DRAWING NUMBER: F-EX-RSTM-A-03 | SHEET 3 OF 4 |
| W.O: 1199304 | | 1:35:52 PM 12/6/2017 G:\Williams\383791_R2M_Project\Pipeline\Drafting\ResidentialSiteSpecific\F-EX-RSTM-A-03.dwg | |

NOTES:

1. TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC (TRANSCO) HAS PREPARED THIS RESIDENTIAL CONSTRUCTION PLAN TO INCLUDE DIMENSIONED SITE PLANS FOR EACH RESIDENCE LOCATED WITHIN 50 FEET OF THE CONSTRUCTION WORK AREAS. THE SITE PLANS SHOW THE LOCATION OF EACH OF THESE RESIDENCES IN RELATION TO EACH OF THESE RESIDENCES IN RELATION TO THE FACILITY MODIFICATIONS AND THE CONSTRUCTION WORK AREAS PROPOSED FOR THE RIVERVALE SOUTH TO MARKET PROJECT.
2. OTHER KNOWN UTILITIES ARE ALSO DEPICTED ON THE SITE PLANS. PRIOR TO CONSTRUCTION, THE STATE ONE CALL CENTER WILL BE NOTIFIED TO VERIFY THE LOCATION OF THESE UTILITIES AND IDENTIFY ANY UNKNOWN UTILITIES WHICH MIGHT EXIST WITHIN THE CONSTRUCTION RIGHT OF WAY. TRANSCO WILL ALSO CONTACT INDIVIDUAL PROPERTY OWNER(S) TO IDENTIFY AND LOCATE ANY OTHER UTILITIES THAT MIGHT EXIST WITHIN THE CONSTRUCTION RIGHT OF WAY. THESE UTILITIES WILL BE IDENTIFIED AND MARKED BY THE RESPECTIVE UTILITY COMPANIES PRIOR TO CONSTRUCTION.
3. ANY NEARBY STRUCTURES, RESIDENTIAL FEATURES AND TREES LOCATED WITHIN THE CONSTRUCTION WORK AREAS WHICH WILL NOT BE REMOVED DURING CONSTRUCTION ARE NOTED ON THE SITE PLAN.
4. TRANSCO WILL NOTIFY LANDOWNERS, IN WRITING, AT LEAST TWO (2) WEEKS PRIOR TO THE START OF CONSTRUCTION. TRANSCO'S LAND AGENT WILL THEN FOLLOW UP WITH EACH LANDOWNER AT LEAST ONE (1) WEEK PRIOR TO THE START OF CONSTRUCTION.
5. AFTER COMPLETION, THE CONSTRUCTION WORK AREAS WILL BE RESTORED IN ACCORDANCE WITH APPLICABLE PERMIT REQUIREMENTS, THE PROJECT–SPECIFIC VERSION OF FERC'S UPLAND EROSION CONTROL REVEGETATION AND MAINTENANCE PLAN AND THE EROSION AND SEDIMENT CONTROL PLAN.
6. LAND REPRESENTATIVES WILL DISCUSS ACCESS TO RESIDENCES PRIOR TO CONSTRUCTION AND INCLUDE THAT INFORMATION IN THE CONSTRUCTION LINE LIST. THE CONSTRUCTION LINE LIST WILL BE INCLUDED IN THE CONSTRUCTION CONTRACT. ADDITIONALLY, INSPECTORS ASSIGNED TO THE PROJECT WILL ENSURE THAT THE REQUIREMENTS IN THE LINE LIST ARE FOLLOWED.
7. AT A MINIMUM, CONSTRUCTION SAFETY PERIMETER FENCING OR TEMPORARY CHAINLINK FENCING SHALL BE INSTALLED AND MAINTAINED ALONG THE WORK AREA AS SHOWN ON THE SITE PLAN.
8. UTILIZE CONTROLS AS NECESSARY TO MITIGATE DUST, NOISE, AND VIBRATIONS DURING CONSTRUCTION.




| DRAWING NO. | REFERENCE TITLE |
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TRANSCONTINENTAL GAS PIPE LINE COMPANY LLC
RIVERVALE SOUTH TO MARKET PROJECT
PARAMUS METER STATION
RESIDENTIAL CONSTRUCTION PLAN
LINE LIST NO. RSTME–BE–A–429.000
BERGEN COUNTY, NJ

| NO. | DATE | BY | REVISION DESCRIPTION | W.O. NO. | CHK. | APP. |
|---|---|---|---|---|---|---|
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| B | 12/2017 | MM | REISSUE FOR FERC | 1199034 | MAP | RWP |

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| WO: 1199304 | | 1:34:50 PM 12/6/2017 G:\Williams\383791_R2M_Project\Pipeline\Drafting\ResidentialSiteSpecifics\F-EX-RSTM-A-04.dwg | OF 4 |

# APPENDIX C

## Noise Sensitive Areas around Project M&R Stations

Figure 1 Area map showing location of the Orange and Rockland M&R Station and surrounding NSAs within a 0.5 mile

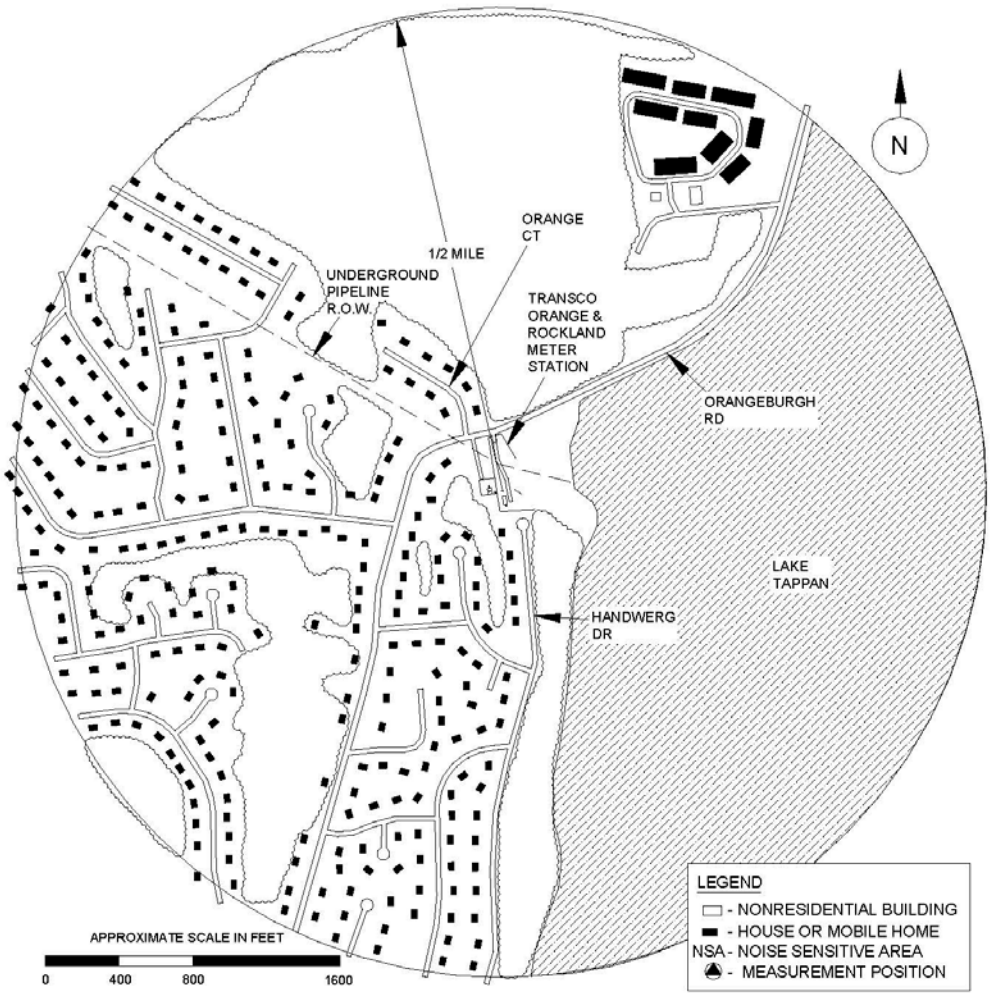


Figure 2: Area map showing location of the Paramus M&R Station and surrounding NSAs within a 0.5 mile

Figure 3 Area map showing location of the Emerson M&R Station and surrounding NSAs within a 0.5 mile

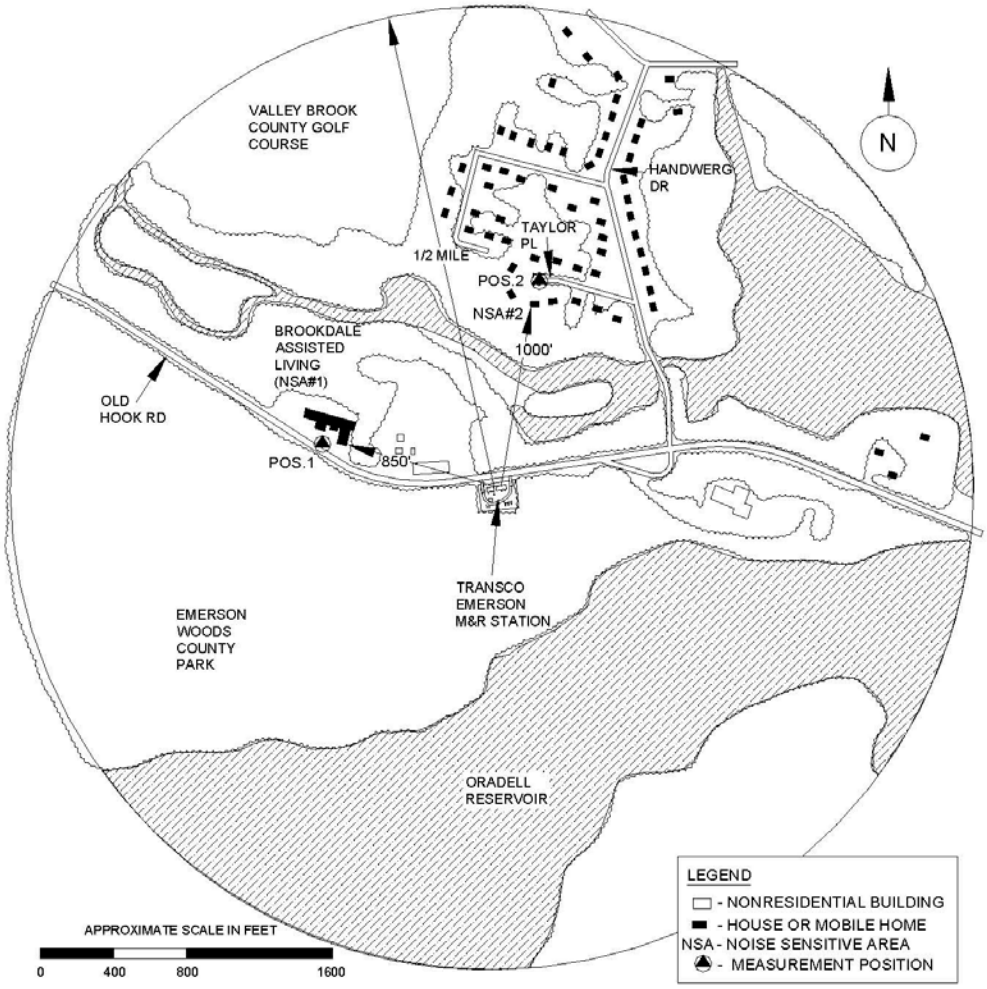
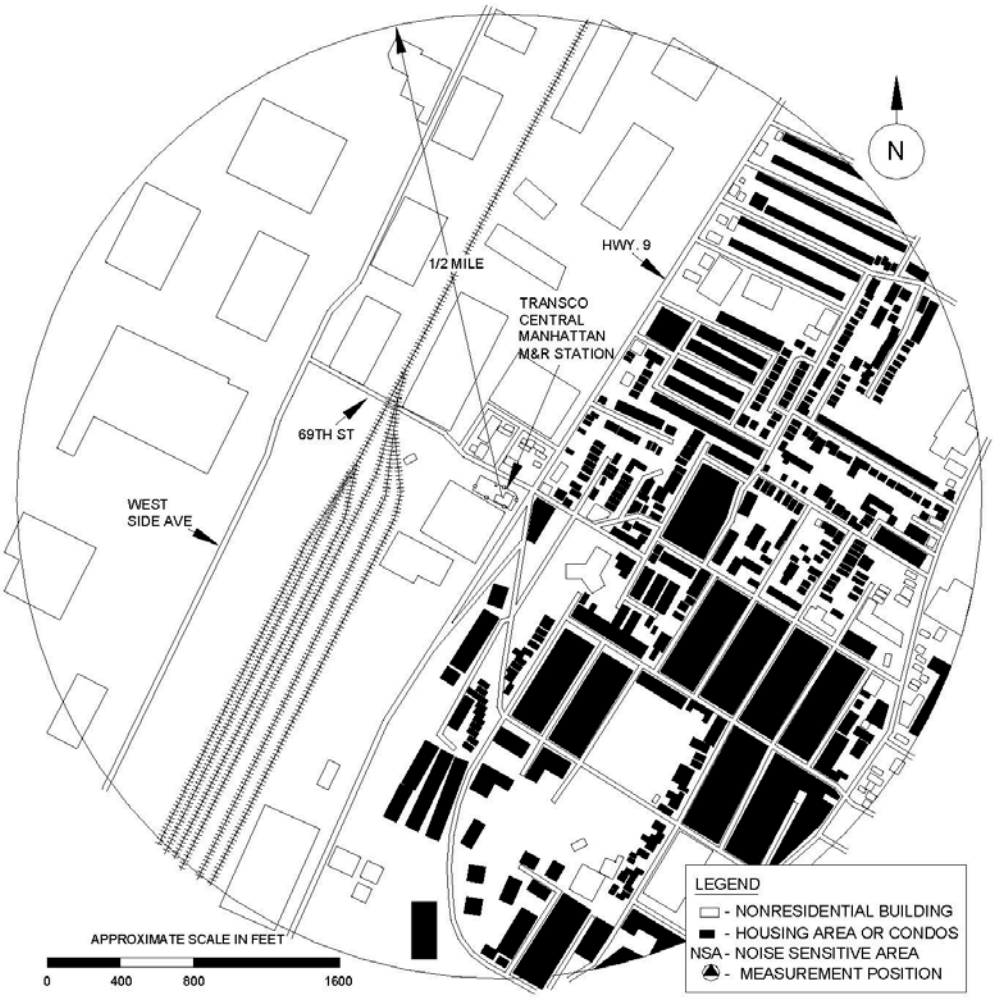
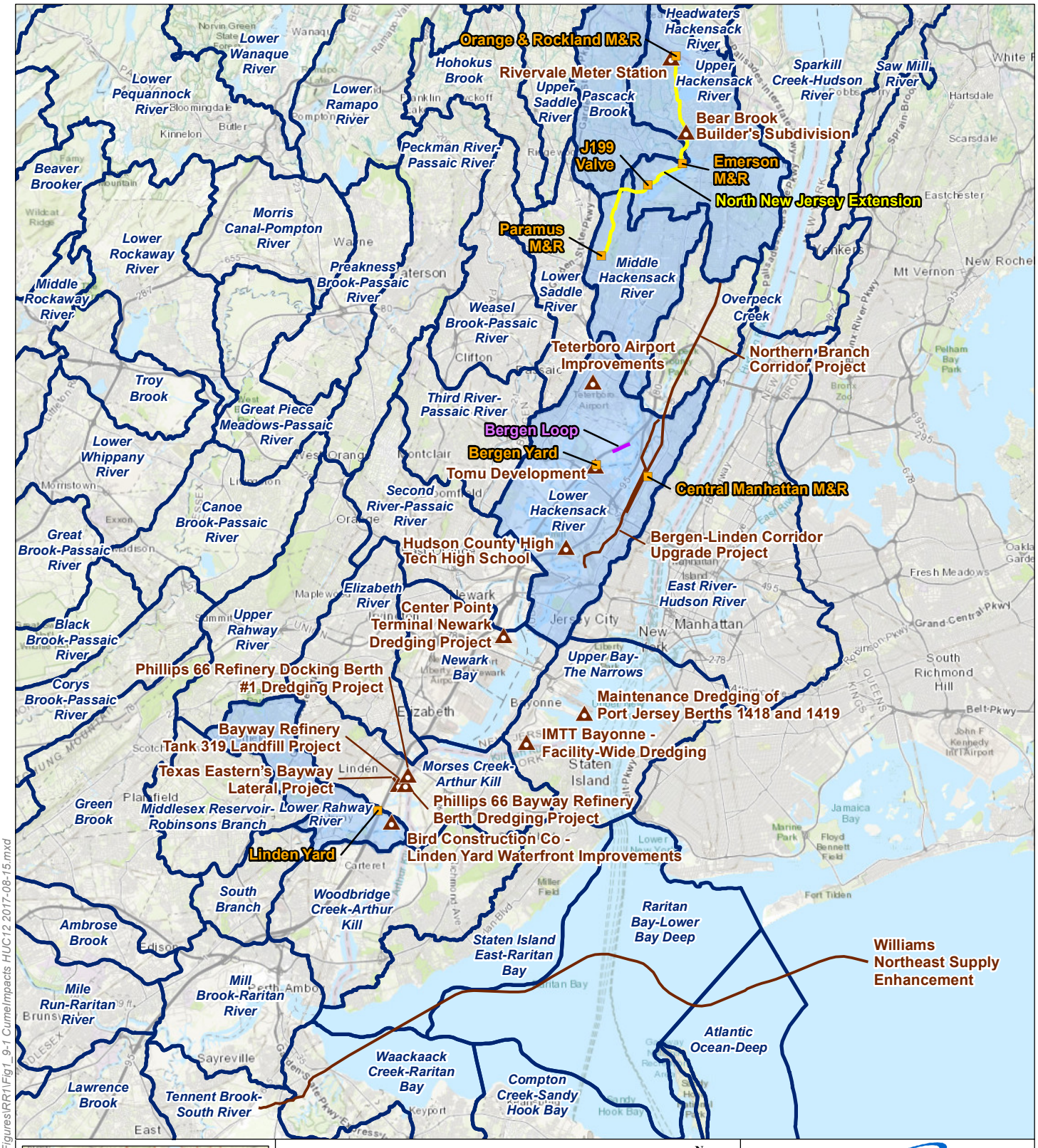


Figure 4: Area map showing location of the Manhattan M&R Station and surrounding NSAs within a 0.5 mile



# APPENDIX D

# Projects with Potential Cumulative Impacts Overview Maps

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# Rivervale South to Market Project

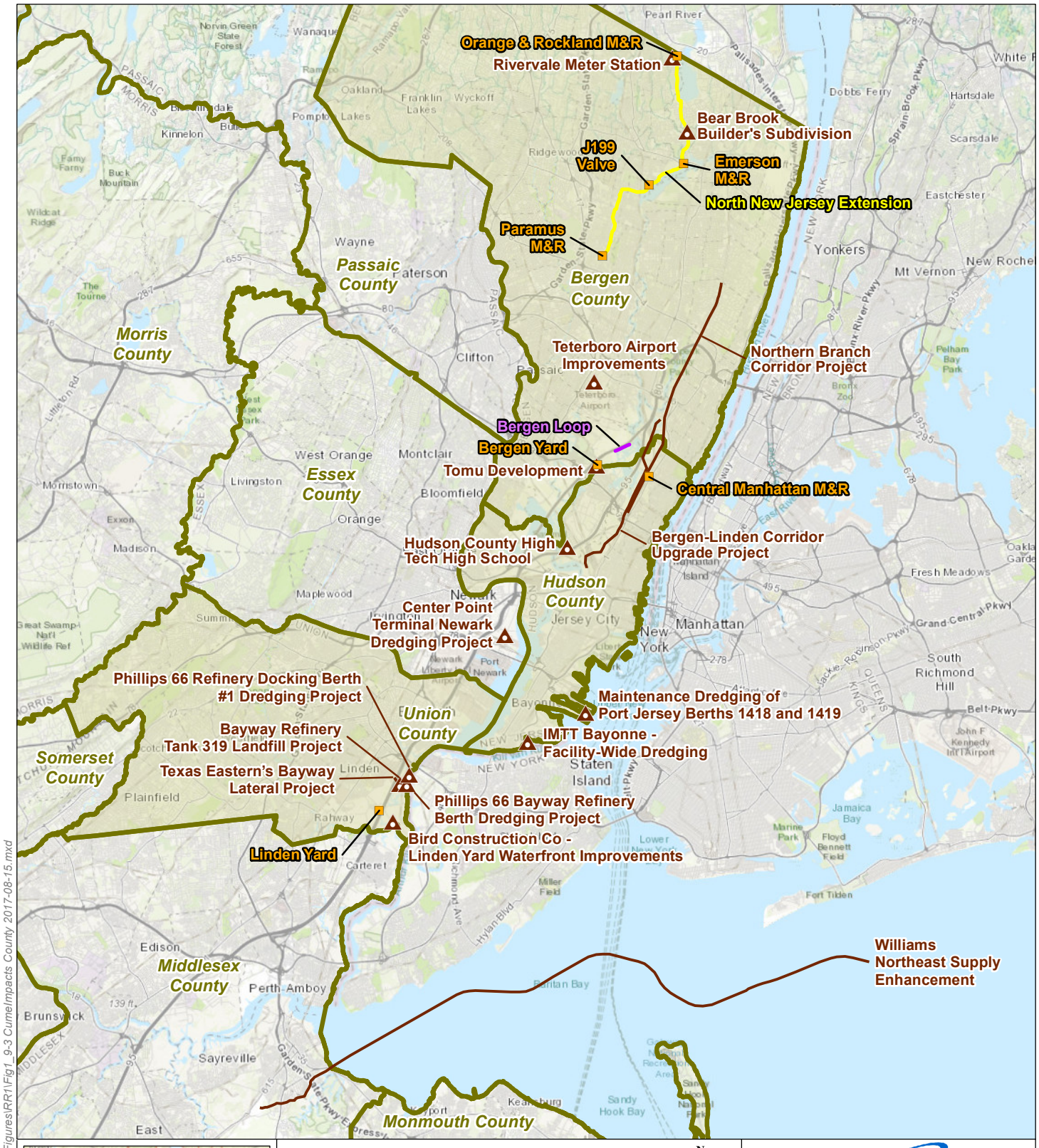
*FIGURE 1*

*PROJECTS WITH POTENTIAL CUMULATIVE IMPACTS*

*HYDROLOGIC UNIT CODE 12*

Sheet 1 of 1

Prepared on 8/17/2017 by TRC

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# Rivervale South to Market Project

*FIGURE 2*

*PROJECTS WITH POTENTIAL CUMULATIVE IMPACTS*

*PROJECT COUNTIES*

Sheet 1 of 1

Prepared on 8/17/2017 by TRC

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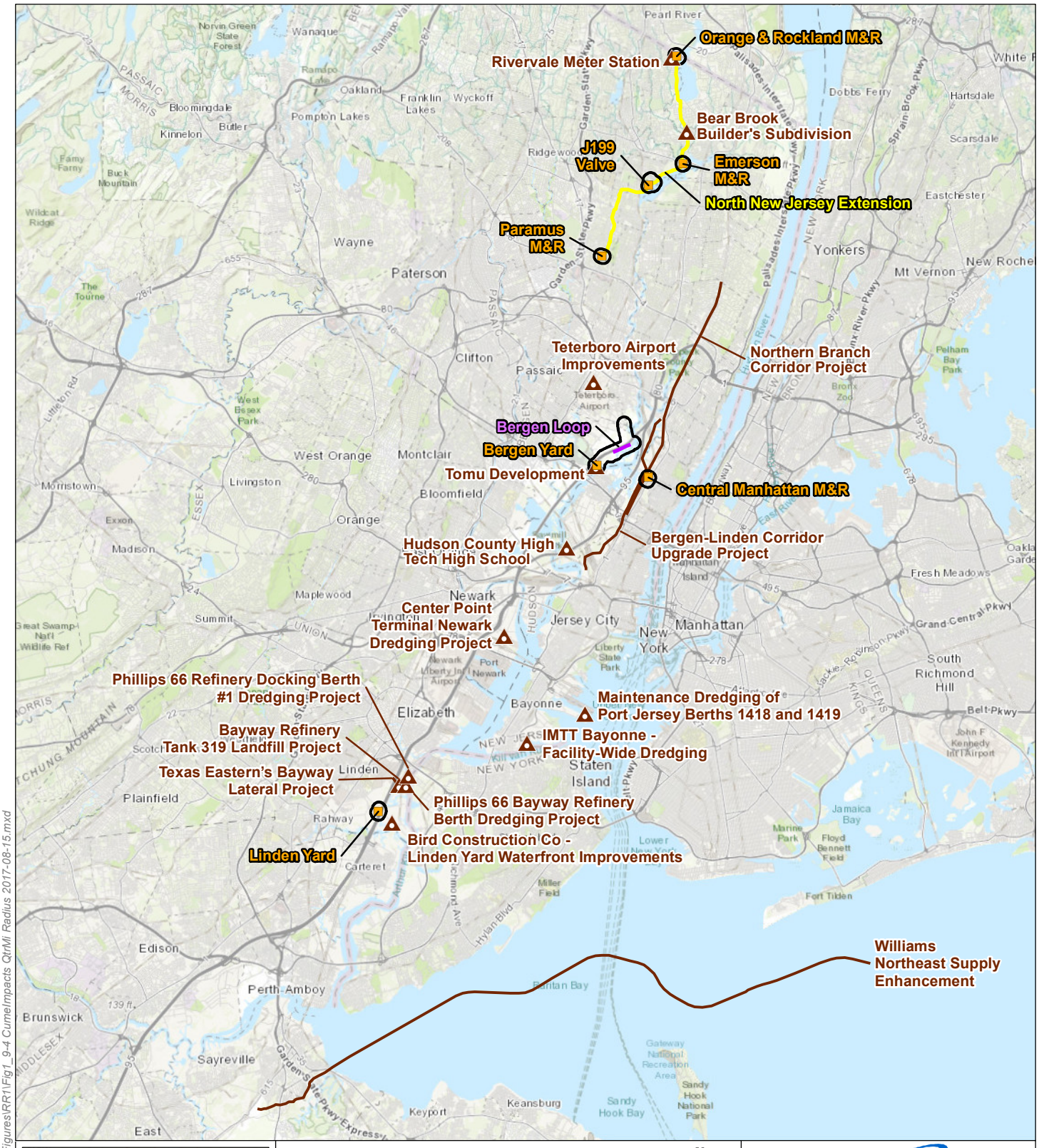



- Proposed Facility
- North New Jersey Extension Proposed Uprate
- Bergen Loop
- Project Point
- Project Line
- 0.25 Mile RSTM Project Radius

N
W E
S

*Data Source: TRC, 2017*
*Base map: Esri and its contributors*

0 5 Miles

Williams

# Rivervale South to Market Project

*FIGURE 3*

*PROJECTS WITH POTENTIAL CUMULATIVE IMPACTS*

*0.25 MILE RSTM PROJECT RADIUS*

Sheet 1 of 1

Prepared on 8/17/2017 by TRC

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