PennEast Pipeline Company, LLC

PENNEAST PIPELINE PROJECT

Certificate Amendment Application

Exhibit F-I: Environmental Report

Submitted January 30, 2020

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LIST OF ACRONYMS AND DEFINED TERMS

Acronym	Term
2019 Amendment Application	PennEast's February 1, 2019 Application for Amendment to the Certificate of Public Convenience and Necessity
2020 Amendment Application	This Application for Amendment to the Certificate of Public Convenience and Necessity
Adelphia	Adelphia Gateway, LLC
AIMP	Agricultural Impact Minimization Plan
Algonquin	Algonquin Gas Transmission, LLC
APE	Area of Potential Effect
AQCR	Air Quality Control Region
ASME	American Society of Mechanical Engineers
ATW	Approved Trout Waters
BGEPA	Bald and Golden Eagle Protection Act of 1940
BMP	Best Management Practice
BO	Biological Opinion
CAA	Clean Air Act of 1963
CEQ	Council on Environmental Quality
Certificate	Certificate of Public Convenience and Necessity
Certificate Application	PennEast's application to FERC for Certificates of Public Convenience and Necessity and Related Authorizations, filed September 24, 2015
Certificate Order	Certificate of Public Convenience and Necessity issued by FERC on January 19, 2018
Certificated Route	The PennEast Pipeline Project as approved within the Certificate Order
CFR	Code of Federal Regulations
CIAA	Cumulative Impact Assessment Area
CO	Carbon Monoxide
CO_2	Carbon Dioxide
CO_{2e}	Carbon Dioxide Equivalent
CT	combustion turbine compressors
CWA	Clean Water Act of 1972
dBA	A-weighted decibels
DEIS	Draft Environmental Impact Statement
Dth/d	Dekatherms per day
E&SCP	Erosion and Sedimentation Control Plan

Acronym	Term
EDR	Environmental Data Resources, Inc.
EFH	Essential Fish Habitat
EI	Environmental Inspector
EO	Executive Order
EPA	Environmental Protection Agency
ESA	Endangered Species Act of 1973
ESCGP	Erosion and Sediment Control General Permit
EV	Exceptional Value
FEIS	Final Environmental Impact Statement
FEMA	Federal Emergency Management Agency
FERC	Federal Energy Regulatory Commission
GHG	Greenhouse Gas
GIS	Geographic Information Systems
GWP	Global Warming Potential
HAP	Hazardous Air Pollutant
HCA	High Consequence Area
HDD	Horizontal Directional Drilling
HQ	High-Quality
HUC	Hydrologic Unit Code
IBA	Important Bird Area
IP	Implementation Plan
IR	Incidental Return
L_{dn}	Day-Night Average Sound Level
LNG	Liquified Natural Gas
M&R	Metering and Regulation
MBCP	Migratory Bird Conservation Plan
MBTA	Migratory Bird Treaty Act of 1918
Modifications	The four (4) route modifications to the Pennsylvania Portion of the Project submitted in the 2019 Amendment Application
MSFCMA	Magnuson-Stevens Fishery Conservation and Management Act of 1976
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act of 1969
New Jersey Authorizations	Certain governmental authorizations and certain real property rights for the Project facilities proposed to be constructed in New Jersey
NGA	Natural Gas Act of 1938
NHD	National Hydrography Dataset

Acronym	Term
NHPA	National Historic Preservation Act of 1966
NMFS	National Marine Fisheries Service
NO_2	Nitrous Oxide
NOAA	National Oceanic and Atmospheric Administration
NO_x	Nitrogen Oxides
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NSA	Noise-Sensitive Area
NSR Program	New Source Review Program
NWS	National Weather Service
O&M	Operation and Maintenance
OEP	Office of Energy Projects
PADCNR	Pennsylvania Department of Conservation and Natural Resources
PADEP	Pennsylvania Department of Environmental Resources
PASDA	Pennsylvania Spatial Data Access
PASHPO	Pennsylvania State Historic Preservation Office
PCB	Polychlorinated Biphenyl
PennEast	PennEast Pipeline Company, LLC
PFBC	Pennsylvania Fish and Boat Commission
PGC	Pennsylvania Game Commission
PIG	Pipe Inspection Gauge
Plan	*Upland Erosion Control, Revegetation, and Maintenance Plan*
PM	Particulate Matter
$PM_{2.5}$	Particulate Matter with a Nominal Aerodynamic Diameter of 2.5 microns or less
PM_{10}	Particulate Matter with a Nominal Aerodynamic Diameter of 10 microns or less
PPC Plan	Preparedness, Prevention, and Contingency Plan
ppm	parts per million
Procedures	*Wetland and Waterbody Construction and Mitigation Procedures*
Project	PennEast Pipeline Project
PSD	Prevention of Significant Deterioration
ROI	Region of Influence
ROW	Right-of-Way
RTU	Remote terminal unit
SFHA	Special Flood Hazard Areas

Acronym	Term
SGL	State Game Land
SIP	State Implementation Plan
SR	State Route
SSA	Sole-source aquifer
SSW	Sensitive Surface Waters
T&E	Threatened and Endangered
TCO	Columbia Gas Transmission, LLC
Texas Eastern	Texas Eastern Transmission, L.P.
Transco	Transcontinental Gas Pipe Line Company, LLC
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USDI	U.S. Department of the Interior
USDOT	U.S. Department of Transportation
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
VOC	Volatile Organic Compound
WHPA	Wellhead Protection Area
WQS	Water Quality Standards
WTW	Wild Trout Waters

1.0 INTRODUCTION

1.1 BACKGROUND INFORMATION

1.1.1.1 Certificate Application

On September 24, 2015, PennEast Pipeline Company, LLC (PennEast) filed an application with the Federal Energy Regulatory Commission (FERC), pursuant to Section 7(c) of the Natural Gas Act of 1938, as amended (NGA) (15 U.S.C. §§ 717 *et seq.*) seeking a certificate of public convenience and necessity authorizing the construction and operation of the PennEast Pipeline Project (Project) (Docket CP15-558-000) (Certificate Application). The Project will provide a long-term solution to bring low-cost natural gas produced in the Marcellus Shale region in northeastern Pennsylvania to homes and businesses in New Jersey, Pennsylvania, New York, and surrounding states. PennEast developed the Project in response to market demands in New Jersey, Pennsylvania, and New York, and interest from shippers that require transportation capacity to accommodate increased receipts of natural gas into the region. An additional supply of natural gas to the region will provide a benefit to consumers, utilities, and electric generators by providing enhanced competition among suppliers and pipeline transportation providers.

1.1.1.2 FERC Environmental Reviews and Certificate Order

On July 22, 2016, FERC issued a Notice of Availability of the Draft Environmental Impact Statement (DEIS) for the Project. FERC held six (6) public sessions in the Project area to solicit and receive comments on the DEIS. During this time, and through to the present, PennEast has continued to evaluate the proposed Project route, as summarized below. By order dated January 19, 2018, FERC issued a certificate of public convenience and necessity to PennEast for the Project (Certificate Order).

The route approved in the Certificate Order (Certificated Route), included the route proposed by PennEast in its Certificate Application, as modified by multiple route update filings, including in September 2016. The September 2016 route update assessed the potential environmental effects of construction and operation for each of the Project's design iterations. FERC issued the Final Environmental Impact Statement (FEIS) on April 7, 2017. The FEIS considered the environmental impacts of the Project route and associated workspace as reflected in the September 2016 route update, and the Certificate Order authorized the construction of the Project utilizing that route as the Certificated Route.

The Certificate Order authorized PennEast to construct and operate a 36-inch diameter, approximately 116-mile pipeline, extending from Luzerne County, Pennsylvania to Mercer County, New Jersey, three (3) lateral pipelines, one (1) compressor station, and appurtenant facilities. The Certificated Route would extend from various receipt point interconnections in the eastern Marcellus region, including interconnections with Transcontinental Gas Pipe Line Company, LLC (Transco) and gathering systems operated by Williams Partners, L.P., Energy Transfer Partners, L.P. (formerly Regency Energy Partners, L.P.), and UGI Energy Services, LLC, all in Luzerne County, Pennsylvania, to various delivery point interconnections in the heart of major northeastern natural gas-consuming markets, including interconnections with UGI Central Penn Gas, Inc. in Carbon County, Pennsylvania; UGI Utilities, Inc. and Columbia Gas Transmission, LLC (TCO) in Northampton County, Pennsylvania; and Elizabethtown Gas,

NRG REMA, LLC, Texas Eastern Transmission, L.P. (Texas Eastern), and Algonquin Gas Transmission, LLC (Algonquin), all in Hunterdon County, New Jersey. The terminus of the Certificated Route will be located at a delivery point interconnection with Transco in Mercer County, New Jersey.

1.1.1.3 2019 Amendment Application and Initial Implementation Plan

On February 1, 2019, PennEast submitted an Application for Amendment to Certificate of Public Convenience and Necessity (2019 Amendment Application), including an environmental report and an Initial Implementation Plan (IP), for proposed changes to the Certificated Route (Docket CP19-78-000). These changes included four (4) route modifications to the Pennsylvania portion of the Project (Modifications), to address agency concerns, improve construction feasibility or accommodate customer commitments. The FERC staff issued an Environmental Assessment (EA) for the 2019 Amendment Application on September 20, 2019. As of the filing date of this Application for Amendment to Certificate of Public Convenience and Necessity (2020 Amendment Application), including this Environmental Report, FERC has not issued an order on the 2019 Amendment Application.

1.1.1.4 2020 Amendment Application

In this 2020 Amendment Application, PennEast is requesting authorization for a change to the Certificated Route that cannot be requested as a variance in accordance with Environmental Condition No. 5 of the Certificate Order. This Environmental Report analyzes the potential environmental effects of the proposed Project change. As described in Section 1.2 below, the proposed change includes constructing the Certificated Route in two (2) phases and constructing new interconnect facilities, the Church Road Interconnects, at the terminus of Phase 1 at milepost (MP) 68.2R2. The Church Road Interconnects will allow PennEast to provide the Phase 1 shippers with firm transportation service to two (2) new delivery points. The Church Road Interconnects will be constructed on a parcel owned by PennEast along the Certificated Route. PennEast's 2020 Amendment Application, including this Environmental Report, is independent from, and is not associated with, any of the four (4) Modifications proposed in the 2019 Amendment Application.

1.2 PROPOSED FACILITIES

1.2.1 Purpose and Need

The purpose and need of the 2020 Amendment Application is to phase construction of the Project to allow PennEast to provide up to 650,000 dekatherms per day (Dth/d) of firm transportation service through approximately MP 68 of the Certificated Route to the new delivery points at the Church Road Interconnects while PennEast pursues the necessary authorizations to construct the certificated facilities in New Jersey. PennEast has encountered delays in obtaining certain governmental authorizations and in acquiring certain real property rights for the Project facilities proposed to be constructed in New Jersey (New Jersey Authorizations). However, PennEast has received significant interest for Phase 1 firm transportation service from the Project receipt points to the new delivery points near MP 68. Specifically, with respect to Phase 1 service, PennEast has executed precedent agreements with four (4) shippers for approximately 340,000 Dth/d, and is negotiating with additional shippers to enter into precedent agreements for a significant

quantity of capacity for long-term, firm transportation service. Following execution of precedent agreements with these additional shippers, PennEast will have precedent agreements in place for a substantial amount of the capacity of the Phase 1 facilities. These long-term firm service commitments are not dependent on the construction of the Phase 2 facilities and will remain in effect if the Phase 2 facilities are not ultimately constructed. As such, Phase 1 is a stand-alone project and is not dependent on the construction of Phase 2. Most, but not all, of the Phase 1 shippers have precedent agreements for service on the full Project. While these shippers remain committed to the full Project, their decision to take Phase 1 service to delivery points on Phase 1 is not dependent on the construction of Phase 2.

By phasing the construction of the Project in two (2) phases, PennEast will be able to construct and operate the Phase 1 facilities proposed to be located in Pennsylvania through approximately MP 68 of the Certificated Route, including two (2) of the compressor units at the Kidder Compressor Station with software controls to limit the total horsepower (hp) from these two (2) compressor units to 17,700 hp, as well as the Church Road Interconnects, which are independent of the New Jersey Authorizations. The Phase 1 facilities, including the Church Road Interconnects, will allow PennEast to provide the Phase 1 shippers with up to 650,000 Dth/d of firm transportation service for deliveries of natural gas into TCO and Adelphia Gateway, LLC (Adelphia), which received its certificate of public convenience and necessity from the Commission on December 20, 2019 (Docket Nos. CP18-46-000, CP18-46-001). Upon receipt of the New Jersey Authorizations, PennEast will construct and operate the facilities proposed to be located in New Jersey and the third compressor unit at the Kidder Compressor Station, and will remove the software controls to provide full Project capacity on the full Project path, consistent with the Certificate Order.

1.2.2 Location and Description

As described herein, PennEast proposes to construct the Project in two (2) phases. The Phase 1 facilities would include the Project's mainline pipeline and aboveground facilities for the Certificated Route between MP 0.0R1 and MP 68.2R2, including two (2) of the compressor units at the Kidder Compressor Station and the Church Road Interconnects. The Phase 1 facilities would also include the Modifications proposed in the 2019 Amendment Application and any variances pursuant to Environmental Condition No. 5 of the Certificate Order, to the extent such Modifications or variances are approved by FERC. Upon receipt of the New Jersey authorizations, the Phase 2 facilities would be constructed and operated, and would include the mainline pipeline, lateral pipelines, and aboveground facilities for the Certificated Route between MP 68.2R2 and MP 114.02, as well as the third compressor unit at the Kidder Compressor Station. The Phase 2 facilities would include any variances pursuant to Environmental Condition No. 5 of the Certificate Order to the extent such variances are approved by FERC. Refer to Appendix A for figures depicting the proposed phasing and Church Road Interconnects location.

The proposed Church Road Interconnects would be an approximately 2.13-acre Metering and Regulation (M&R) station at the Project's mainline pipeline with two separate interconnections and measurement facilities, to interconnect with TCO and Adelphia in Bethlehem Township, Northampton County, Pennsylvania. PennEast proposes to construct a single M&R Station for both delivery points on a parcel at MP 68.2R2. As shown on the site plan in Appendix A, a Pipe Inspection Gauge (PIG) launcher/receiver would be installed along the mainline pipeline to provide access for internal pipeline inspections during

Project operations of each Project phase. Station piping would allow gas to flow to meter runs, flow control valves, heaters, and gas control/remote terminal unit (RTU) buildings south of and abutting the Certificated Route right-of-way (ROW). The M&R station would be accessed via access road number AR-066N, which is an existing driveway from Church Road. Table 1-1 summarizes the proposed facilities that comprise the Church Road Interconnects.

Table 1-1
Church Road Interconnects Facility Components

Facility Type	Approximate Milepost	County, State	Description
Meter & Regulation Station	68.2R2	Northampton, PA	Install new meter and regulation facilities and tie-in with TCO and Adelphia
PIG Launcher/Receiver	68.2R2	Northampton, PA	Install PIG launcher/receiver within the mainline pipeline's permanent ROW to allow for Project phasing
Access Road	68.2R2	Northampton, PA	Existing driveway on property will be used as facility entrance from Church Road

As detailed below, the Church Road Interconnects are located within 0.25 mile of the Certificated Route and have been sited and designed so that they will not adversely impact any regulated environmental features of concern. This Environmental Report analyzes the same resource areas that were assessed within the FEIS for the Certificated Route, and notes updates to the analysis presented in the FEIS by virtue of the Church Road Interconnects being implemented.

1.3 LAND REQUIREMENTS

The proposed Church Road Interconnects facilities would include a total of 2.62 acres, including 0.49 acres of temporary workspace and 2.13 acres of permanent workspace (Table 1-2). The permanent access road is included within the permanent workspace acreage calculation.

Table 1-2
Land Requirements for the Church Road Interconnects

Approximate MP	Parcel ID	Parcel Size (acres)	Temporary Disturbance Area (acres)	Permanent Disturbance Area (acres)
68.2R2	PE-NO-173.000	3.49	0.49	2.13

1.4 CONSTRUCTION PROCEDURES

1.4.1 Standard Construction Methods

The Project, including the proposed Church Road Interconnects, will be constructed in compliance with applicable specifications, federal regulations and guidelines, and the Project-specific permit conditions (Section 1.7). The Erosion and Sedimentation Control Plan (E&SCP) provides detail of such techniques and mitigation measures that will be used for the Project. The E&SCP is consistent with FERC's *Upland Erosion Control, Revegetation, and Maintenance Plan* (*Plan*) and *Wetland and Waterbody Construction and Mitigation Procedures* (*Procedures*). Additional construction techniques and measures that will be employed for the Project are provided in the Preparedness, Prevention, and Contingency (PPC) Plan (Appendix B).

PennEast's proposed construction methods have been previously analyzed in the 2017 FEIS. The standard construction methods proposed, and associated analyses, remain unchanged from previous filings by the proposed Church Road Interconnects and Project phasing. The proposed Church Road Interconnects will not require specialized construction techniques.

1.4.2 Aboveground Facilities

Proposed aboveground facilities will be constructed in accordance with American Society of Mechanical Engineers (ASME) B31.8 standards. The construction of the Church Road Interconnects will take approximately six (6) months and will occur as part of the overall construction of the Phase 1 facilities. No employees will be permanently stationed at the Church Road Interconnects.

1.4.3 Environmental Training for Construction

Environmental training will be required for all land agents, construction personnel, and environmental inspectors; agency personnel will also be invited to the training. This training will include an overview of the FERC *Plan* and *Procedures*, and detailed sessions using the Environmental Permit Notebooks that describe the timing, notification and environmental permit conditions required to be implemented and adhered to at each phase of construction, restoration, and mitigation. PennEast will use FERC's third-party monitoring program during construction.

1.4.4 Construction Workforce

Phase 1, including the proposed Church Road Interconnects, is anticipated to consist of three (3) construction spreads; Phase 2 will consist of two (2) construction spreads. There will be a Chief Environmental Inspector as well as two (2) Environmental Inspectors (EIs) for each construction spread. FERC third-party monitors will also review construction activities throughout the construction time period. In total, PennEast estimates that the construction of the Church Road Interconnects will require a workforce of approximately twenty-five (25) workers during peak construction.

1.5 OPERATION AND MAINTENANCE

1.5.1 Aboveground Facilities

PennEast will own, operate, and maintain the entire Project, including the facilities proposed in the Church Road Interconnects, in accordance with 49 Code of Federal Regulations (CFR) Parts 192 and 199 and other applicable regulations. Operations of similar facilities have been addressed previously in the FEIS.

1.6 FUTURE PLANS AND ABANDONMENT

The proposed Church Road Interconnects are a newly proposed facility which would be a part of the larger Certificated Route. PennEast does not plan to expand upon or abandon facilities associated with the overall Project in the future.

1.7 CONSULTATIONS AND REQUIRED AUTHORIZATIONS

PennEast will obtain applicable permits and licenses relating to activities crossing or affecting roads, drainage facilities, waterbodies, wetlands, and through other sites or places that a governmental license or permit may be required. PennEast is continuing consultations and permit application reviews with the regulatory agencies identified in the Certificate Application and subsequent filings. PennEast will provide FERC with pertinent agency correspondence, approvals and permits as they are received. Table 1-3, below, provides an overview of the environmental permits and approvals that have been or will be issued pursuant to federal law that are required for the proposed Church Road Interconnects and Project phasing.

Table 1-3
List of Required Federal Permits and Approvals Associated with the Proposed Church Road Interconnects and Project Phasing

Agency	Permit/Approval	Filing	Status	Receipt
Federal				
FERC	Amendment to Certificate of Public Convenience and Necessity	2020 Amendment Application filed January 30, 2020	Filed with FERC, awaiting approval	[Anticipated receipt October 2020]
U.S. Fish and Wildlife Service (USFWS)	Endangered Species Act, Section 7 Consultation and Clearance	Consultation Initiated August 2014. Draft Applicant-Prepared Biological Assessment filed with FERC on 11/28/16. FERC submitted a Biological Assessment to USFWS on July 13, 2017.	Section 7 Consultation is complete for the Certificated Route and Revised PA Route. PennEast contacted the USFWS on January 23, 2020 regarding the proposed Church Road Interconnects.	The USFWS issued its Biological Opinion for the Certificated Route on November 28, 2017. The USFWS later issued an amended Biological Opinion, which addressed the Revised PA Route, on July 29, 2019. PennEast anticipates a response to its consultation letter, which requests USFWS feedback on the proposed Church Road Interconnects, in the first quarter 2020.
Pennsylvania Department of Environmental Resources (PADEP) (Northeast and Southeast Regional Offices)	Section 401 Water Quality Certification	Section 401 Water Quality Certification Application submitted Feb. 5, 2016; Supplemental information provided Dec. 22, 2016.	Water Quality Certification is conditioned on PADEP issuance of Water Obstruction and Encroachment Permit, Erosion and Sediment Control General Permit (ESCGP), and PAG-10.	Water Quality Certification issued on Feb. 7, 2017.
Pennsylvania State Historic Preservation Office (PASHPO)	National Historic Preservation Act, Section 106 Consultation and Clearance	Consultation initiated August 2014. Archaeology and Architectural History survey reports and addenda, data recovery workplans, and Determination of Effects Report submitted 2015 through 2020.	Initial consultation letter sent Aug. 21, 2014. Route and workspace updates provided 2015-2020. Phase I Archeological Report and Historical Reconnaissance Report submitted in 2015, with addenda provided 2016 - 2020. Refer to the tables in Section 4, which detail archeological and architectural history studies and status for reports.	PennEast anticipates comments on the Archaeology Phase I Addendum 6 Report and the Architectural History Reconnaissance Survey Addendum 5 Report for the Church Road Interconnects in the first quarter 2020.
State				
PADEP (Northeast Regional Office)	Plan Approval and Operating Permit for a Non-Major Source	Application submitted March 3, 2016	Initial consultation letter sent August 12, 2014. Coordination meeting held November 2014. Application submitted March 3, 2016. Public hearing held March 1, 2017.	[Anticipated receipt second quarter 2020]

Notes:
No federally jurisdictional waters would be affected by the Church Road Interconnects, and no revised 401 Water Quality Certification would be required.

1.8 LANDOWNER OUTREACH

PennEast will make the necessary post-filing notifications to landowners abutting the Church Road Interconnects site (listed in Appendix C, privileged and confidential) following the submittal of this Amendment Application.

1.9 NON-JURISDICTIONAL FACILITIES

Non-jurisdictional utilities that will be required to operate the proposed Church Road Interconnects will be installed within the proposed workspace. Existing electric power distribution lines along Church Road can be connected using a standard residential drop without the need for additional workspace beyond what is proposed in this 2020 Amendment Application.

2.0 WATER USE AND QUALITY

In the Certificate Application and subsequent filings, PennEast evaluated water use and quality as they pertain to the Project. The reports discussed groundwater and surface water resources, including wetlands and waterways, with the potential to be affected by construction or operation of the Project. Evaluations were based on existing conditions and resources identified through a combination of mapping resources and field evaluations. Proposed conditions and potential effects to resources were evaluated based on current engineering design as described in associated reports, as well as FERC (e.g., adherence to the FERC *Plan* and *Procedures*) and PennEast guidelines, Best Management Practices (BMPs), and operating procedures. PennEast has analyzed potential impacts to water use and quality associated with construction and operation of the proposed Church Road Interconnects, and this assessment is detailed in the following sections.

2.1 GROUNDWATER RESOURCES

Groundwater resources include all waters beneath the earth's surface and storage at any given time; a saturated zone which is known as an aquifer. Aquifers usually provide a source of water that is economically available and of suitable quality for human supply. Aquifers must have a net recharge larger than the amount of water being extracted or the aquifer will be depleted. A groundwater recharge area is the land area that allows precipitation to seep into the saturated zone. These areas are generally at topographically high areas with discharge areas at lower elevations, commonly at streams or other water bodies (i.e., a portion of the groundwater returns to surface water). A large percentage of precipitation flows through the shallow layers of soil and weathered bedrock to the nearest stream. A smaller percentage penetrates deeper and recharges the aquifer. Aquifers often are used for water supply and supply surface waters with baseflow (stream flow occurring during periods with no runoff) for both human water uses and for maintaining aquatic ecosystems.

PennEast proposes to implement BMPs designed to avoid, reduce and/or mitigate potential impacts on groundwater during construction and operation as detailed within the Project's E&SCP. PennEast will adhere to practices related to groundwater protection, including restrictions on refueling and storage of hazardous substances. As engineering design progresses, PennEast will evaluate the potential groundwater effects and implement mitigation measures where appropriate.

The proposed Church Road Interconnects are not anticipated to result in any changes to the assessment of groundwater quality or supply impacts that were presented in the FEIS.

2.1.1 Aquifers Occurring within the Project Area

PennEast evaluated bedrock aquifers, principal aquifers and surficial aquifers in the Project area.

2.1.1.1 Bedrock Aquifers

In Pennsylvania, bedrock aquifers are identified based on water-well statistics for individual geologic units, which are partitioned by physiographic sections. Bedrock aquifer areas intersected by the Project area in Pennsylvania include forty (40) geologic formations, conglomerates, fanglomerates, rock types or groups. These geologic units occur within three (3) physiographic provinces in Pennsylvania: the Appalachian Plateaus Province, the Ridge and Valley Province, and the New England Province (Pennsylvania

Department of Conservation and Natural Resources [PADCNR], 2000). The proposed Church Road Interconnects are located within the Allentown Formation, in the Ridge and Valley Province.

The Church Road Interconnects are sited entirely within bedrock aquifer areas that are already intersected by the Certificated Route, and the Church Road Interconnects will not result in changes to potential impacts, either in kind or in degree, from those that were previously discussed in the FEIS; therefore, the previous analyses and conditions remain unchanged.

2.1.1.2 Principal Aquifers

Principal aquifers are the regionally extensive aquifers or aquifer systems with the potential to be used as a source of potable water. The proposed Church Road Interconnects are located within the Valley and Ridge Aquifer, with sandstone and carbonate-rock (Trapp and Horn 1997). Valley and Ridge Aquifers are permeable rocks within a sequence of folded and faulted sedimentary formations of Paleozoic age. A series of parallel valleys are formed by folded rocks separated by steep to well-rounded ridges that rise from about 100 to 2,000 feet above the valley floors. The Valley and Ridge Aquifer is composed of sandstone, shale, and carbonate rocks with a thick layer of regolith on the rocks, particularly in the valleys (Trapp and Horn, 1997).

The Church Road Interconnects are sited entirely on principal aquifer areas that are already intersected by the Certificated Route, and the Church Road Interconnects will not result in changes to potential impacts, either in kind or in degree, that were previously discussed in the FEIS; therefore, the previous analyses and conditions remain unchanged.

2.1.1.3 Surficial Aquifers

Surficial aquifers are the uppermost occurring aquifers connected with the surface. The proposed Church Road Interconnects are sited in an area where the surficial aquifer results from till and glacial lake deposits (Trapp and Horn, 1997).

The Church Road Interconnects are sited entirely on surficial aquifer areas that are already intersected by the Certificated Route, and Church Road Interconnects will not result in changes to potential impacts, either in kind or in degree, that were previously discussed in the FEIS; therefore, the previous analyses and conditions remain unchanged.

2.1.2 Sole-Source Aquifers

The U.S. Environmental Protection Agency (EPA) defines sole-source aquifers (SSAs) as aquifers that supply at least fifty percent (50%) of the drinking water consumed in the area overlying the aquifer. SSAs are defined in guidelines set forth by EPA as authorized in Section 1424(e) of the Safe Drinking Water Act of 1974 (42 U.S.C. § 300h-3(a)(1)-(2)). These areas have no alternative drinking water source(s), which could physically, legally and economically supply a source of drinking water to those who depend upon the aquifer for drinking water. Federally funded projects within SSAs are subject to review by the EPA under the Safe Drinking Water Act. Based on a review of the EPA-designated SSA mapping, the proposed Church Road Interconnects are not sited in any SSA areas (EPA 2019).

The Church Road Interconnects are not sited within an SSA area; therefore, no impacts to SSAs are anticipated.

2.1.3 Public and Private Water Supply Wells and Springs

In compliance with Environmental Condition No. 21 of the Certificate Order, PennEast continues to identify the locations of water wells and springs within 150 feet of the construction workspace (500 feet in areas characterized by karst terrain) through publicly available datasets, discussions with landowners, civil surveys, and consultations with public water suppliers. The refined list of water supply wells and springs will be provided in an IP prior to Project construction. To date, PennEast has identified the wells summarized on Table 2-1 within 500 feet of the proposed Church Road Interconnects, which is sited in a karst-terrain region.

Table 2-1
Wells Identified within 500 Feet of the Church Road Interconnects

Facility	Number of Wells Within 500 feet
Church Road Interconnects	3

In its Well Monitoring Plan, PennEast has identified certain monitoring and mitigation measures which will be implemented to protect identified groundwater sources should public and private water supply wells and springs be identified as a result of continued investigations and outreach efforts. Prior to construction, PennEast will file the final Well Monitoring Plan with the FERC in accordance with Environmental Condition No. 23 of the Certificate Order.

A refined list of water wells and springs within 500 feet of the Church Road Interconnects will be provided in an IP prior to Project construction.

2.1.4 Aquifer Recharge Areas and Wellhead Protection Areas

The 1986 Federal Safe Drinking Water Act Amendments (42 U.S.C. §§ 300f *et seq.)* direct all states to develop a Wellhead Protection Program for both public community and public non-community water-supply wells. Pennsylvania has developed wellhead protection plans that require the delineation of wellhead protection areas (WHPAs). The EPA defines a WHPA as the surface and subsurface area surrounding a well or wellfield supplying a public water system, through which contaminants are reasonably likely to move toward and reach such well or wellfield. WHPAs are delineated by "zones" based on distance from the wellhead in Pennsylvania (25 Pa. Code § 109.1). The identification of WHPAs allows potential pollution sources to be managed in relation to their location within the WHPA.

The Church Road Interconnects are not sited in an area of WHPAs, nor would they result in changes to potential impacts to aquifer recharge areas, either in kind or in degree, that were previously analyzed in the FEIS.

2.1.5 Potential Contaminated Groundwater

Groundwater contamination may originate on the surface of the land (e.g., dumps, accidental spills, fertilizers, and pesticides), underground but above the water table (e.g., septic systems, and underground

storage tanks) or underground below the water table (e.g., mines and waste disposal wells). The location at which a contaminant is introduced and the rate at which the contaminant moves through the ground determines the amount of time it takes the substance to reach the groundwater. Groundwater contamination occurs from a variety of sources including substances that occur naturally (e.g., iron, sodium, sulfur, arsenic, radiation, calcium and selenium) or from anthropogenic substances, including synthetic organic chemicals and hydrocarbons, liquid waste (leachate) from landfills, as well as heavy metals, road salt, bacteria and viruses.

Potential for contaminated groundwater areas was analyzed using data from PADEP Land Recycling Cleanup Locations program (PADEP, 2019). PennEast also obtained an Environmental Data Resources, Inc. (EDR) search report of 123 federal and state databases and performed a search of available EPA records to determine the presence and location of potential groundwater contamination in the vicinity of the Project. There were no sites identified as having potential groundwater contamination located within 0.25 mile of the proposed Church Road Interconnects (EDR 2015).

The Church Road Interconnects are not sited in an area that is known to have potentially contaminated groundwater and is within the study corridor previously analyzed for the Certificated Route in the FEIS; therefore, prior analyses remain unchanged.

2.1.6 Summary of Groundwater Effects and Mitigation

The proposed Church Road Interconnects are not anticipated to have significant impacts on groundwater quality or supply. PennEast proposes to implement BMPs designed to avoid, reduce and/or mitigate potential impacts on groundwater during construction and operation as detailed within the Project E&SCP and the PPC Plan. PennEast will adhere to practices related to groundwater protection, including specifications for trench breakers and dewatering, as well as restrictions on refueling and storage of hazardous substances. As engineering design progresses, potential groundwater effects will be evaluated, and mitigation measures will be implemented where appropriate.

The Church Road Interconnects are sited entirely in an area of aquifers that were analyzed and discussed in the FEIS and would not result in change to potential impacts, either in kind or in degree, that were previously discussed; therefore, prior analyses remain unchanged.

2.2 SURFACE WATER RESOURCES

To define the surface water resources intersected by the proposed Church Road Interconnects, data were obtained from field survey results, the National Hydrography Dataset (NHD), PADCNR, Natural Resources Conservation Service (NRCS) county soils surveys, watershed data from the U.S. Geological Survey (USGS), and aerial photography**. PennEast has completed waterbody surveys on the Church Road Interconnects study area, and no surface waters are present.**

2.2.1 Waterbody Crossings

The United States is divided and sub-divided into successively smaller hydrologic units that are classified into four (4) levels: regions, sub-regions, accounting units, and cataloging units. The hydrologic units are arranged or nested within each other, from the largest geographic area (regions) to the smallest geographic

area (cataloging units) (USGS 2018). Each hydrologic unit is identified by a unique hydrologic unit code (HUC) that is two (2) to twelve (12) digits long, based on six (6) levels of classification: two- (2-) digit HUC first-level (region), four- (4-) digit HUC second-level (subregion), six- (6-) digit HUC third-level (basin), eight- (8-) digit fourth-level (sub-basin), ten- (10-) digit HUC fifth-level (watershed) and twelve- (12-) digit HUC sixth-level (subwatershed) (USGS 2013).

The proposed Church Road Interconnects are within the Nancy Run subwatershed (HUC 020401060812). This subwatershed is part of the Lower Lehigh River watershed, within Lehigh sub-basin. Environmental field surveys, including aquatic resource delineations, were completed within the Church Road Interconnects study area in January 2020.

No surface waters were identified within the proposed Church Road Interconnects area.

2.2.2 Statewide Floodplains and Flood Hazard Zones

PennEast assessed the Flood Insurance Rate Maps issued by the Federal Emergency Management Agency (FEMA) to identify crossings of areas subject to flooding and high-volume flows (identified as Special Flood Hazard Areas [SFHAs]). FEMA SFHAs are areas located within the 100-year floodplain.

The Church Road Interconnects are not located within, and would not impact, any SFHAs.

2.2.3 Surface Water Effects and Mitigation

The proposed Church Road Interconnects will be constructed in compliance with applicable specifications, federal regulations and guidelines and Project-specific permit condition, including PennEast's E&SCP and PPC Plan.

There are no waterbody crossings associated with the Church Road Interconnects; therefore, no surface water effects are anticipated, and no mitigation is proposed.

2.2.4 Operation and Maintenance

Operation and maintenance (O&M) plans will incorporate measures to protect surface waters, as applicable. PennEast will control runoff with approved BMPs as part of the approved E&SCP. **There are no waterbody impacts associated with the Church Road Interconnects; therefore, no surface water effects are anticipated as a result of operations and maintenance.**

2.2.5 Sensitive Surface Waters

FERC (FERC 2017) defines sensitive surface waters (SSWs) as including, but not limited to, the following:

- Waters that do not meet the water quality standards associated with the waters' designated beneficial uses;
- Surface waters that have been designed for intensified water quality management and improvement;
- Waterbodies that contain threatened and endangered (T&E) species or critical habitat;

- Waterbodies that are crossed less than three (3) miles upstream of potable water intake structures;
- Outstanding or exceptional quality waterbodies;
- Waters of particular ecological and recreational importance;
- Waterbodies located in sensitive and protected watershed area;
- Waterbodies and intermittent drainages that have steep banks, potentially unstable soils, high-volume flows, and actively eroding banks;
- Surface waters that have important riparian areas; and
- Rivers on or designated to be added to the Nationwide Rivers Inventory or a state river inventory.

The proposed Church Road Interconnects would not impact SSWs or other surface waters.

2.2.6 State-Designated High-Quality and Exceptional Value Waters

Pennsylvania-designated high-quality (HQ) and exceptional value (EV) waters are set forth in the Pennsylvania water quality standards (WQS) (25 Pa. Code § 93 *et seq.*) and amended under the Clean Streams Law (35 P.S. §§ 691.5(b)(1), and 691.402). Chapter 93 designations are based on a variety of criteria, including chemistry, biology, and outstanding resources. Designated uses are specified in Chapter 93 for each waterbody or segment whether or not they are being attained. Existing uses are uses attained in the waterbody on or after November 28, 1975, whether or not they are included in the WQSs. **The proposed Church Road Interconnects would not affect state-designated high-quality (HQ) or exceptional value (EV) waters.**

2.3 HYDROSTATIC TEST AND DUST SUPPRESSION WATER USE

In compliance with U.S. Department of Transportation (USDOT) specifications, PennEast will conduct hydrostatic testing on all pipeline segments prior to placing them in service. PennEast will follow the hydrostatic testing procedures identified in Section 7 of the FERC *Procedures*, which include permitting, notification, withdrawal, testing, and discharge BMPs. PennEast will source water for hydrostatic testing and dust suppression from approved sources (e.g. commercial and municipal suppliers), and no chemicals will be added to hydrostatic test waters. Hydrostatic test water will not be discharged or used for dust suppression; all used hydrostatic test water will be removed from the site and disposed of at approved water treatment facilities. In accordance with Environmental Condition No. 28 of the Certificate Order, PennEast will submit a final hydrostatic test plan that identifies test water sources, discharge locations, and volumes to FERC prior to construction.

2.4 WETLANDS

Wetlands are areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of wetland vegetation adapted for life in saturated soil conditions. The federal Clean Water Act of 1972 (CWA) (33 U.S.C. §§ 1251-1387) establishes the regulation of pollution discharge into waters of the United States. Section 404 of the CWA (33 U.S.C. § 1344) is enforced by the U.S. Army Corps of Engineers (USACE) and regulates the discharge of dredge or fill material into navigable waters, tributaries of navigable waters and wetlands.

PennEast identified wetlands crossed by the Project using site-specific field delineation results. PennEast has conducted wetland surveys on one hundred percent (100%) of the Certificated Route, as well as the proposed workspace for the Church Road Interconnects.

Field surveys were completed within the Church Road Interconnects study area in January 2020; no wetlands were identified within the proposed workspace.

2.4.1 Wetland Effects and Mitigation

PennEast has planned the proposed aboveground facility and work areas to avoid and minimize effects on wetlands to the greatest extent practicable while maintaining engineering standards and safety. PennEast will also implement the BMPs described in its Certificate Application and subsequent filings to further minimize impacts, including adherence to their E&SCP and PPC Plan. Where impacts are unavoidable, PennEast will coordinate with the applicable permitting agencies to determine appropriate mitigation to compensate for unavoidable impacts.

There are no wetlands within the Church Road Interconnects study area; therefore, no wetland impacts are anticipated, and no mitigation is proposed.

3.0 FISHERIES, VEGETATION AND WILDLIFE

In the Certificate Application and subsequent filings, PennEast addressed aquatic life, fisheries, essential fish habitat (EFH), wildlife, sensitive wildlife habitat, vegetation, and rare, T&E species associated with the Project area. Potential impacts to these resources that may occur as a result of construction and operation of the Project were evaluated. PennEast has analyzed impacts to fisheries, vegetation, and wildlife in the Church Road Interconnects study area and has detailed them in the following section.

3.1 FISHERIES

The following section discusses fisheries of special concern that may be affected by the proposed Church Road Interconnects.

3.1.1 Fisheries Classification

Fisheries of special concern include surface waters that possess any or all of the following characteristics: exceptional recreational value, assignment of state fishery management regulations, or implementation of stocking programs. In Pennsylvania, these also include HQ waters, EV waters, wilderness streams, wild trout streams (Class A and wild trout waters [WTW] supporting natural reproduction of trout) and approved trout waters (ATWs). **The proposed Church Road Interconnects would not affect surface waters or fisheries.**

3.1.2 Fisheries of Concern

Federally-listed EFH is also identified as of special concern under the Magnuson-Stevens Fishery Conservation and Management Act of 1976 (MSFCMA) (16 U.S.C. §§ 1801 *et seq.*). No EFH is present in or near the proposed Church Road Interconnects study area. **Implementing the Church Road Interconnects would not affect National Marine Fisheries Service (NMFS)-jurisdictional EFH.**

The NMFS also did not identify any species listed under the Endangered Species Act of 1973 (ESA) (16 U.S.C. §§ 1531 *et seq.*) as being of concern for the Project. **Implementing the Church Road Interconnects would not affect fish species protected under the ESA.**

3.1.3 Construction and Operation Impacts

The proposed Church Road Interconnects will not result in surface water impacts; therefore, no fisheries impacts are anticipated to result from construction or operation of the Church Road Interconnects.

3.2 VEGETATION

Vegetation cover types in the proposed Church Road Interconnects study area were evaluated through field surveys and the use of aerial imagery and Pennsylvania Spatial Data Access (PASDA) Geographic Information Systems (GIS) layers. The major cover types identified in the FEIS for the Project were forest/woodland, agricultural/crop land, open land (non-forested upland, including old fields, pasture and grassland), residential, industrial/commercial and open water (waterbody). Within the FEIS, wetlands were

included within open land and forest categories of land use cover; as stated above, the Church Road Interconnects will not impact wetlands.

The proposed Church Road Interconnects location consists of residential land (Table 3-1), including a house (which will be demolished), driveway, mowed lawn, and some decorative trees along the property boundaries. **No new vegetation types will be affected which were not addressed in the FEIS; only residential lands will be affected by the Church Road Interconnects.**

3.2.1 Vegetation Communities of Special Concern

Vegetation communities of special concern include mature upland forest habitat, wetlands habitat, vernal pools and those for which state regulatory agencies have identified as special concern or conservation sites. **The Church Road Interconnects would not result in impacts to vegetation communities of special concern.**

Table 3-1
Acreage of Vegetation and Land Use Affected by the Church Road Interconnects[1]

Facility	Agricultural[2] (acres)		Commercial/ Industrial[3] (acres)		Forest/ Woodland[4](acres)		Open Land[5] (acres)		Open Water[6] (acres)		Residential[7] (acres)		Total Acres[8]	
	Temporary	Permanent	Temporary	Permanent	Temporary	Permanent	Temporary	Permanent	Temporary	Permanent	Temporary	Permanent	Temporary	Permanent
Church Road Interconnects	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.49	2.13	0.49	2.13

Notes:
1. Acreages include new permanent impacts for the aboveground facilities and temporary workspace for construction. All units in acres and rounded to the nearest 0.1.
2. Agricultural Land - Active cropland, pasture, orchards, vineyards, and/or hay fields.
3. Commercial/Industrial Land - Electric power or gas utility stations, manufacturing or industrial plants, landfills, mines, quarries, commercial or retail facilities, and roads.
4. Forest/Woodland - Tracts of upland forest or woodland that would be removed for the construction ROW or extra work or staging areas.
5. Open Land - Non-forested lands and maintained utility ROW.
6. Open Water - Water crossings greater than 100 feet.
7. Residential Land - Residential yards, residential subdivisions, and planned new residential developments.
8. The totals shown on this table may not equal the sum of addends due to rounding.

3.3 WILDLIFE

Various federal and state laws and regulations regulate and protect game and non-game wildlife species. Federal laws include the Fish and Wildlife Conservation Act of 1980 (16 U.S.C. §§ 2901-2912), the Fish and Wildlife Coordination Act of 1934 (16 U.S.C. §§ 661-667e), the Migratory Bird Treaty Act of 1918 (MBTA) (16 U.S.C. §§ 703-712), the ESA, and the Bald and Golden Eagle Protection Act of 1940 (BGEPA) (16 U.S.C. §§ 668-668d). Applicable state laws in Pennsylvania include the Game and Wildlife Code (34 Pa. Cons. Stat. §§ 101-2965), and the Fish and Boat Code (30 Pa. Cons. Stat. §§ 101-7314).

3.3.1 Existing Resources

The impact of the proposed Church Road Interconnects would be minimal, due to the limited size of the workspace and the actively maintained landscape of the property. Habitat within the proposed workspace for the proposed Church Road Interconnects is entirely residential, consisting of an existing home (which will be demolished), driveway, and maintained lawn. Some mature trees are present along the edges of the property, which PennEast plans to leave intact if practicable. Refer to Table 3-1 for a quantitative summary of temporary and permanent impacts.

The proposed Church Road Interconnects would not impact unique habitat types.

3.3.2 Construction and Operation Impacts

The FEIS for the Certificated Route considered aboveground facilities similar in design to the proposed Church Road Interconnects, including PIG launcher/receivers, meter stations, and interconnects. The construction methods and operational requirements of the proposed Church Road Interconnects do not deviate from those previously addressed activity types; **therefore, the proposed Church Road Interconnects are not expected to have significantly different construction and operation impacts than the Certificated Route; refer to Section 4.5.2.2 of the FEIS for analysis of these impacts.**

3.3.3 Unique and Sensitive Wildlife

3.3.3.1 Significant and Sensitive Habitat

Habitats such as existing or proposed National Wildlife Refuges, state wildlife management areas, or privately-owned management areas or preserves are considered significant and sensitive wildlife habitats. In Pennsylvania, examples of significant and sensitive habitats may include State Game Lands (SGLs), state forests and parks, and important bird areas (IBAs). **The Church Road Interconnects would not impact significant and sensitive habitats.**

3.3.3.2 Migratory Birds

A variety of migratory bird species, including waterfowl and songbirds, are present within the Project area. Species composition varies seasonally, and some species may nest and breed within the Project area while others may use it only as a migration route. The potential impacts of the Project on migratory birds have been evaluated in the FEIS. PennEast has also committed to developing a Migratory Bird Conservation Plan (MBCP) in coordination with the USFWS, which will be provided to FERC prior to the start of

construction. **The Church Road Interconnects would not introduce new facility types or construction methods, and would not intersect IBAs; therefore, the analysis presented in the FEIS remains unchanged.**

3.4 THREATENED AND ENDANGERED (T&E) SPECIES

PennEast initiated consultation with regulatory agencies that have jurisdictional authority of federal and state T&E species surveys in 2014. PennEast has completed federal consultation for the entirety of the Certificated Route and has completed state-level consultations for the portion of the Certificated Route, encompassing all of Phase 1, as proposed. Copies of consultation letters and rare species reports have been previously filed with the FERC in Docket Nos. CP15-558-000 and CP19-78-000.

The proposed Church Road Interconnects are located within the previously surveyed 400-foot environmental survey corridor for the Certificated Route, with the exception of approximately one (1) acre which extends beyond the area reviewed by state and federal resource agencies for potential T&E species impacts. Given the addition of a new aboveground facility with potential impacts outside the previously surveyed areas, PennEast is continuing consultations with the regulatory agencies addressed in this section to request comments regarding potential impacts to T&E species associated with the proposed Church Road Interconnects. Copies of the consultation letters are provided in Appendix D.

3.4.1 U.S. Fish and Wildlife Service (USFWS)

When considering the effects of a federal action on a listed species or critical habitat, the USFWS considers the consequences of other activities which would not occur but for the proposed action, including those occurring outside the immediate area involved in the action (50 CFR 402.02). Because the proposed Church Road Interconnects would be a component of the overall Project, the USFWS would consider the new facility in combination with the previously certificated Project facilities when making its effects determination pursuant to ESA Section 7.

In consultations on the Project since 2014, the USFWS has considered the Project's potential effect on six (6) federally listed species: the Indiana bat (*Myotis sodalis*, federally endangered), northern long-eared bat (*M. septentrionalis*, federally threatened), northeastern bulrush (*Scirpus ancistrochaetus*, federally endangered), bog turtle (*Glyptemys muhlenbergii*, federally threatened), dwarf wedgemussel (*Alasmidota heterodon*, federally endangered), and rusty patched bumble bee (*Bombus affinis*, federally endangered). After reviewing the Project, including multiple alternative configurations and alignments, the USFWS determined that the Project would have no effect on the rusty patched bumblebee and was "not likely to adversely affect" the northern long-eared bat, northeastern bulrush, and dwarf wedgemussel.

On November 28, 2017, the USFWS issued a Biological Opinion (BO) regarding Project elements which are "likely to adversely affect" threatened and endangered species. In its BO, the USFWS concluded that the Project may result in incidental take of the northern long-eared bat and the bog turtle but would not jeopardize the continued existence of either species. The BO allowed for the exemption of limited incidental take from ESA Section 9 prohibitions for the bog turtle; incidental take of northern long-eared bats was determined to be exempt from Section 9 prohibitions because it was compliant with the final 4(d) rule (50 CFR §§ 17.40(o) *et seq.*) for that species.

On July 29, 2019, the USFWS issued an amended BO which addressed PennEast's updated survey results and the workspace changes proposed in PennEast's 2019 Amendment Application. In its amended BO, the USFWS determined that the Revised PA Route "will not result in adverse effects above what was analyzed in the November 28, 2017 [BO]."

3.4.1.1 Consultation Regarding the Proposed Church Road Interconnects

PennEast has completed surveys and consultations for T&E species within the 400-foot survey corridor of the Certificated Route. The proposed Church Road Interconnects are almost entirely within that survey corridor; however, the southwest corner of the property, approximately one (1) acre, is outside the previously surveyed corridor. **Based on negative survey results within the survey corridor at the proposed Church Road Interconnects location, PennEast's preliminary review indicates that no federally threatened or endangered species are likely to occur at the site. PennEast has contacted the USFWS with information regarding the proposed workspace changes and aboveground facility layout to confirm these conclusions (Appendix D).**

Each federal species considered throughout Project development is addressed below with regards to this newly proposed disturbance outside the Project's Certificated Route footprint.

Indiana Bat

Habitat assessments for this species previously discounted the portion of ROW associated with the Church Road Interconnects for mist-netting surveys due to the residential land use and lack of contiguous forest. No new surveys are necessary at this location, and PennEast does not plan to remove the trees growing along the perimeter of the affected parcel. **PennEast has concluded that the proposed Church Road Interconnects would not affect this species.**

Northern Long-eared Bat

Habitat assessments for this species previously discounted the portion of ROW associated with the Church Road Interconnects for mist-netting surveys due to the residential land use and lack of contiguous forest. No new surveys are necessary at this location, and PennEast does not plan to remove the trees growing along the perimeter of the affected parcel. **PennEast has concluded that the proposed Church Road Interconnects would not affect this species.**

Bog Turtle

PennEast has fully surveyed the affected parcel for wetlands and waterbodies; none are present. **PennEast has concluded that the proposed Church Road Interconnects would not affect this species.**

Northeastern Bulrush

The USFWS requested northeastern bulrush surveys at all wetlands which were above 790 feet in elevation. There are no wetlands on the affected parcel, and the elevation is below 790 feet. **PennEast has concluded that the proposed Church Road Interconnects would not affect this species.**

Dwarf Wedgemussel

There are no watercourses or other surface waters on the affected parcel. **PennEast has concluded that the proposed Church Road Interconnects would not affect this species.**

Rusty Patched Bumble Bee

The USFWS has previously confirmed that the rusty patched bumble bee will not be affected by the Project because it is not known to occur along the Certificated Route. **PennEast has concluded that the proposed Church Road Interconnects would not affect this species.**

3.4.2 Pennsylvania Game Commission (PGC)

PennEast has consulted with the PGC throughout Project planning and development regarding a variety of state-listed species and has completed consultation on the Certificated Route. No state-listed species surveys were requested by the PGC at MP 68.2R2, and no state-listed species have been captured or recorded at the proposed Church Road Interconnects. **PennEast has contacted the PGC to confirm its conclusion that the proposed Church Road Interconnects would not impact state-listed species (Appendix D).**

3.4.3 Pennsylvania Fish and Boat Commission (PFBC)

PennEast has consulted with the PFBC throughout Project planning and development regarding a variety of state-listed species and has completed consultation on the Certificated Route. The PFBC requested that PennEast conduct bog turtle surveys at all wetlands within Northampton County. **No wetlands or waterbodies are present on the affected parcel; therefore, no impacts to bog turtles are anticipated. PennEast has contacted the PFBC to confirm its conclusion that the proposed Church Road Interconnects would not impact state-listed species (Appendix D).**

3.4.4 Pennsylvania Department of Conservation and Natural Resources (PADCNR)

PennEast has consulted with the PADCNR throughout Project planning and development regarding a variety of state-listed plant species and has completed consultation on the Certificated Route. No botanical surveys were requested by the PADCNR at MP 68.2R2, and no state-listed species have been identified in the vicinity of the Church Road Interconnects. **PennEast has contacted the PADCNR to confirm its conclusion that the proposed Church Road Interconnects would not impact state-listed species (Appendix D).**

4.0 CULTURAL RESOURCES

In the Certificate Application and subsequent filings, PennEast reported on extensive cultural resources investigations, coordination with federally recognized Native American tribes, and outreach to potential stakeholders, pursuant to the requirements of Section 106 of the National Historic Preservation Act of 1966, as amended (NHPA) (50 U.S.C. §§ 306108), and its implementing regulations (36 CFR Part 800). Cultural resources investigations of the Church Road Interconnects, including field and desktop surveys, began in October 2014 and were completed in January 2020. Archaeological surveys have been completed on one hundred percent (100%) of the Church Road Interconnects site. Architectural history survey has been completed within one hundred percent (100%) of the (direct and indirect) Area of Potential Effect (APE) for the Church Road Interconnects site.

This section discusses the status of consultation with the PASHPO and the survey results for the Church Road Interconnects.

4.1 CONSULTATION AND COORDINATION

PennEast initiated Section 106 consultation with the PASHPO and coordinated with federally recognized tribes in 2014. PennEast has filed copies of consultation letters as part of its Certificate Application proceedings, in within PennEast's responses to FERC data requests, and other filings. Since November 2016, PennEast has continued to conduct archaeological and historic architectural surveys on accessible parcels, provide reports to the PASHPO and FERC, and consult with the PASHPO and federally recognized tribes on specific issues.

4.2 CULTURAL RESOURCE INVESTIGATIONS

4.2.1 Archaeology

The direct Area of Potential Effect (APE) for the Church Road Interconnects totals 2.62 acres in Pennsylvania. Phase I archaeological survey has been completed in the direct APE and no archaeological resources were identified. The results of Phase I archaeological survey for the portion of the Church Road Interconnects that was previously part of the APE for the Project have been reported to the PASHPO and federally recognized tribes in the Phase I archaeological survey reports listed below in Table 4-1. The report *PA Phase I, Addendum 6* documents survey on the remaining parcels of the Church Road Interconnects that were not previously part of the APE for the Project, and it was submitted to the PASHPO and federally recognized tribes in January 2020 and to FERC in this filing (Appendix E). PASHPO and federally recognized tribes' comments on *PA Phase I, Addendum 6* are anticipated in February 2020 and will be filed with FERC when they are received.

No archaeological resources have been identified in the Church Road Interconnects APE. Coordination with the PASHPO and federally recognized tribes regarding the potential effects of the Church Road Interconnects is ongoing.

Table 4-1
Archaeological Reports that Include the Church Road Interconnects

Report Title	Report Date	Date Submitted to PASHPO	PASHPO Comment Letter Date	Date Filed with FERC	Abbreviated Title
Phase I Archaeological Survey Report, PennEast Pipeline Project, Luzerne, Carbon, Northampton, and Bucks Counties, Pennsylvania	9/2015	9/24/2015	10/22/2015	12/14/2015	*PA Phase I*
Phase I Archaeological Survey Report, PennEast Pipeline Project, Luzerne, Carbon, Northampton, and Bucks Counties, Pennsylvania Addendum 6	1/2020	1/24/2020	Anticipated 2/24/2020	1/30/2020	*PA Phase I, Addendum 6*

4.2.2 Architectural History

The Architectural history APE for the Church Road Interconnects consists of a total of thirteen (13) parcels in Pennsylvania. Of the thirteen (13) parcels, all have been surveyed (includes both physical survey and parcels cleared through desktop study), totaling one hundred percent (100%) completion. The results of the architectural history survey for the Church Road Interconnects have been reported to the PASHPO in the survey report *PA Recon Addendum 5* (Table 4-2) and was filed with PASHPO in January 2020 and to FERC in this filing (Appendix E). PASHPO comments on *PA Recon Addendum 5* are anticipated in February 2020 and will be filed with FERC when they are received.

No architectural history historic properties have been identified in the Church Road Interconnects APE; coordination with the PASHPO regarding recently surveyed resources and potential Project effects is ongoing.

Table 4-2
Architectural History Reports that Include the Church Road Interconnects

Report Title	Report Date	Date Submitted to PASHPO	PASHPO Comment Letter Date	Date Filed with FERC	Abbreviated Title
PA Reconnaissance Level Survey Addendum 5	1/2020	1/24/2020	Anticipated 2/24/2020	1/30/2020	*PA Recon Addendum 5*

5.0 SOCIOECONOMICS

As part of the Certificate Application, PennEast evaluated the existing socioeconomic conditions of the areas that will be impacted by the Project. To the extent practicable, potential socioeconomic impacts of construction and operation of the Project were quantified, and mitigation measures were identified to avoid or minimize these potential socioeconomic impacts. In this Environmental Report, PennEast has evaluated the potential socioeconomic impacts of the proposed Church Road Interconnects, which are described in this section.

5.1 SOCIOECONOMIC IMPACT AREA

The socioeconomic issues considered in the Church Road Interconnects area include population, demographics, economy and employment sectors, agriculture and timber production, tourism, housing, land acquisition and displacement, community services, taxes and revenues, and environmental justice populations.

The Church Road Interconnects will not significantly affect the anticipated workforce for the Project. Because the Church Road Interconnects would be within 0.25 mile of the Certificated Route and within the study area used for the socioeconomic impact analysis for the FEIS, the previous analyses remain unchanged.

5.2 ENVIRONMENTAL JUSTICE

An environmental justice analysis was performed on areas affected by the Certificated Route in accordance with Executive Order (EO) 12,898, "Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations." The analysis considers whether disproportionately high and adverse impacts on minority or low-income populations, or environmental justice communities, are expected in the surrounding areas.

Because the Church Road Interconnects would be within 0.25 mile of the Certificated Route and within the study area used for the environmental justice analysis for the FEIS, the previous analyses remain unchanged.

6.0 GEOLOGICAL RESOURCES

Published information regarding geological conditions for the Church Road Interconnects was obtained from the USGS and the PADCNR. The proposed Church Road Interconnects would be within 0.25 mile of the Certificated Route. The scale of the geological resources evaluated within the FEIS is inclusive of the proposed Church Road Interconnects. These resources, including specific bedrock formations crossed by the Project, were analyzed as part of Resource Report 6, which was submitted to FERC in the Certificate Application and updated as necessary in subsequent filings.

Construction and operation of the proposed Church Road Interconnects would not result in a change to bedrock formations crossed by the Project or result in changes to potential impacts, either in kind or in degree, that were previously discussed in the FEIS; therefore, the previous analyses and conclusions remain unchanged.

6.1 SURFICIAL GEOLOGY

As applicable to the Church Road Interconnects, in previous geologic reports provided to FERC, PennEast relied on information prepared by the USGS, U.S. Department of Agriculture (USDA) NRCS Soil Survey, U.S. Department of the Interior (USDI), Pennsylvania Geologic Survey, and PADEP.

Implementation of the proposed Church Road Interconnects would not result in a change to surficial geologic formations previously reported for the Project.

6.2 BLASTING

PennEast anticipates that some rock removal will be required for the Project. Rock encountered during construction of the pipeline will be removed using one of the available rock removal techniques:

- Conventional excavation with a backhoe;
- Ripping with a bulldozer followed by backhoe excavation;
- Pneumatic hammering followed by backhoe excavation;
- Blasting surface rock followed by backhoe excavation; and
- Blasting subsurface (if necessary) rock prior to backhoe excavation.

If blasting is deemed to be necessary within the Church Road Interconnects, such activities will be performed according to federal and state safety standards and in accordance with PennEast's comprehensive Blasting Plan to be implemented by a certified blasting contractor. The proposed blasting techniques and impact minimization measures (e.g., using blast mats and the minimum charge necessary to fracture bedrock) that were proposed in PennEast's Certificate Application and subsequent filings would also be used for the Church Road Interconnects, if necessary.

At this time, no blasting is anticipated to be necessary for the construction of the Church Road Interconnects. Implementation of the proposed Church Road Interconnects would not result in a change to the analysis included in the FEIS or the methods described in the Project's Blasting Plan.

6.3 MINERAL RESOURCES

Information regarding mining activities and locations was obtained from the PADEP Office of Active and Abandoned Mine Operations and USGS Mineral Resources Online Spatial Data (PADEP 2020a-c; USGS 2005).

Implementation of the proposed Church Road Interconnects will not result in a change to mineral resources previously reported for the Project, as detailed below.

6.3.1 Active and Abandoned Mines and Quarries

There are no active or abandoned mines and quarries within 0.25 mile of the Church Road Interconnects.

6.3.2 Oil and Gas Wells

There are no oil and gas wells within 0.25 mile of the Church Road Interconnects.

6.4 GEOLOGIC HAZARDS

PennEast evaluated several geologic hazards, as discussed below.

6.4.1 Seismic Risk

A seismic disturbance is earth movement (natural or manmade) that is caused by a momentary disturbance of the elastic equilibrium of a portion of the earth. A seismic hazard evaluation was conducted to evaluate the potential seismic hazard of the Project, the results of which were provided to FERC in previous environmental reports and submittals. Seismic hazard due to wave propagation effects should not pose a significant threat to the Project. Also, there is no conclusive evidence of Quaternary fault displacement. Therefore, the permanent ground displacement hazard due to fault offset is considered insignificant.

The Church Road Interconnects would not change the seismic hazard evaluation that was previously conducted for the Certificated Route; therefore, prior analyses remain unchanged.

6.4.2 Soil Liquefaction

Soil liquefaction is a process whereby the strength and stiffness of a soil is reduced because of earthquake shaking or similar rapid loading (e.g., blasting). Liquefaction may occur in saturated soils (meaning soils in which soil pore space is completely filled with water) and sandy soils. Soil liquefaction is more likely to occur on areas of land reclamation. Prior to an earthquake, soil water pressure is low. Due to the energy delivered by an earthquake, water pressure increases to a level where individual soil particles can easily move with respect to other soil particles. When liquefaction does occur, the strength of the soil decreases sharply, resulting in a reduced ability to support infrastructure such as foundations and similar structures. When liquefaction occurs, water saturated soils essentially behave like fluids (Frankel et al., 2002).

Liquefaction susceptibility for various surficial geologic units was determined in accordance with recommendations of Youd and Perkins (1978) using geologic age and mode of deposition. A summary of existing surficial geology units for the Project and their liquefaction susceptibility was provided to FERC in previous environmental reports and submittals.

PennEast conducted a Geotechnical Investigation at the proposed Church Road Interconnects location (described in detail in Section 6.6), finding that the soils observed at the site consisted mainly of stiff clay with decomposed rock. **Based on the results of the Geotechnical Investigation, liquefaction is unlikely during a seismic event.**

6.4.3 Faults

The Project crosses the Ramapo fault system which extends from Pennsylvania through New Jersey into New York. Mapping from the PADCNR and USGS, included in the *Geotechnical Recommendations Report for the Church Road Interconnects* (Appendix F) indicate that one (1) fault line exists approximately a mile south of the proposed Church Road Interconnects; however, no Quaternary-active fault capable of producing surface rupture is recognized in the northeastern U.S. Hence, the surface fault displacement hazard in the Project area is considered to be negligible, and no mitigation measures are required.

The proposed Church Road Interconnects would not affect the previous determination that no active faults exist within the vicinity of the Project. Therefore, surface fault displacement hazard is not a concern, and no mitigation measures are anticipated or required.

6.4.4 Surface Subsidence - Karst Terrain

Subsidence is the local downward movement of surface material with little or no horizontal movement (Nuhfer, Proctor, and Moser, 1993). Subsidence is a potential geologic hazard in areas where karst terrain occurs and where underground mining has taken place. In karst terrain, limestone and dolomite bedrock are dissolved by water and create karst features such as subsurface channels, caves and sinkholes. USGS Mineral Resources Online Spatial Database was used to report the presence or absence of sinkholes for the Project.

PennEast has performed general geophysical and geotechnical borehole investigations to evaluate risk at locations along the Certificated Route where the potential for sinkholes has been positively identified through means such as identifying carbonate formations, reviewing known/mapped sinkhole features, and reviewing local and regional data continually gathered by PennEast.

Karst features are known to occur within 0.25 mile of the Church Road Interconnects. The facility is located within the Allentown geological formation described by the USGS as: Allentown Formation - Medium- to medium-dark-gray, thick-bedded dolomite and impure limestone; dark-gray chert stringers and nodules; laminated; oolitic and stromatolitic; some orange-brown-weathering calcareous siltstone at base; this formation is known to contain Karst features.

PennEast will address karst features and associated risks in accordance with its Karst Mitigation Plan, last submitted to FERC in May 2016, which will be updated prior to construction in accordance with Environmental Condition No. 16 of the Certificate Order.

6.4.5 Surface Subsidence – Underground Mines

Subsidence associated with underground mining can be either a planned or an unplanned activity. In general, surface subsidence is usually an unplanned event for underground mining operations.

There are no underground mines within 0.25 mile of the Church Road Interconnects.

6.4.6 Landslides

"Landslide" is a general term for downslope mass movement of soil, rock or a combination of materials on an unstable slope. Landslides can vary greatly in their rate of movement, area affected and volume of material. The principal types of movement are falling, sliding and flowing, but combinations of these are common. The primary cause of landslides is when colluvial (loose) soil and old landslide debris on steep slopes give way. The geologic instabilities that cause landslides are often exacerbated by highway projects in which the earth is cut and soil is loosened. Other primary causes of landslides are rainfall or rain-on-snow events that can weaken debris on steep mountain slopes (McCormick Taylor 2009).

Areas of high landslide potential were determined by reviewing available historic landslide records from the PADCNR and PADEP, evaluating topographic relief and slopes of existing ground surfaces, and field-truthing identified slopes in accessible areas with granted survey permission. This information was also reviewed holistically with nearby geotechnical records, including existing boreholes conducted by PennEast and others, geologic mapping, and depth to groundwater and restrictive layers from NRCS. **The Church Road Interconnects will not impact areas of landslide potential; therefore, the risks and conclusions presented in the FEIS remain unchanged.**

6.4.7 Flash Flooding

Flash floods are short-term events, occurring within six (6) hours of the source event, such as a heavy rain, dam break or levee failure (National Oceanic and Atmospheric Administration [NOAA] National Weather Service [NWS] 2018). Flash flooding is possible from streams adjacent to Project facilities if water depths rise rapidly above stream banks. **The Church Road Interconnects would not impact SFHAs.**

6.5 PALEONTOLOGY

As described in the Certificate Application, PennEast consulted with paleontological specialists for the counties crossed by the Project, and no known paleontological sites were identified within 0.5 mile of the Project. PennEast is preparing an Unanticipated Discovery Plan of Paleontological Resources in accordance with Environmental Condition No. 20 of the Certificate Order, including coordination with specified agencies and individuals. This Plan will address unanticipated discovery that will apply to the entire Project, including the Church Road Interconnects, and will be filed with FERC prior to construction.

The proposed Church Road Interconnects will not affect known paleontology sites.

6.6 GEOTECHNICAL INVESTIGATIONS

6.6.1 Geologic Investigation of Church Road Interconnects Location

PennEast conducted a subsurface investigation in January 2017 to provide geotechnical data for pipeline construction at the location of the newly proposed Church Road Interconnects. One (1) soil boring was drilled adjacent to (within approximately fifty [50] feet of) the footprint of the proposed meter station to determine engineering properties of the soils for foundation and civil design purposes (boring B-JBSR33-1). The profile of the soil at the proposed Church Road Interconnects consisted of the following layers:

- Topsoil with Roots: Encountered at the top of boring and was approximately 0.3 feet thick.
- Silt: Encountered below the topsoil and was generally described as soft to medium stiff, brownish yellow to reddish brown, and extended to four (4) feet below ground surface.
- Clay: Encountered underlying the silt stratum. This stratum was described as medium stiff to very stiff, light brown to brownish yellow clay with varying amounts of gravel and sand.
- Clayey Sand: Interbedded within the clay stratum and described as very loose to medium dense, brownish yellow to reddish brown, clayey sand with varying amounts of gravel.
- Decomposed rock: Encountered below the clay stratum at 50.5 feet below ground surface to the boring termination depth of fifty-one (51) feet and was described as decomposed dolomite.

No groundwater was encountered within the boring; however, groundwater depths are may fluctuate due to weather or seasonal influences. A geophysical survey performed at the site on September 24 and 27, 2018 did not record the presence of possible karst formations within the pipeline alignment surveyed at the proposed Church Road Interconnects site. PennEast will address karst features and associated risks in accordance with its Karst Mitigation Plan, an update version of which will be submitted to FERC prior to construction in accordance with Environmental Condition No. 20 of the Certificate Order.

The *Geotechnical Recommendations Report for the Church Road Interconnects*, dated December 18, 2019, is included herein as Appendix F. The results of the subsurface investigation indicate that favorable soil conditions exist to complete the design, construction and operation activities for the Church Road Interconnects.

7.0 SOILS

7.1 SOIL CONDITIONS

A summary of general soil conditions at the proposed Church Road Interconnects is presented in this section. PennEast used the USDA NRCS Soil Survey Geographic Database to compile soils information for the Church Road Interconnects area. Specific soil attributes were selected based on the attributes' potential to cause construction limitations or potential hazards.

Soil limitations have been addressed in the Project's E&SCP for the Pennsylvania portions of the Project that will be reviewed by the PADEP as well as the Luzerne, Carbon, Monroe, Northampton, and Bucks County Conservation Districts as part of the Erosion and Sediment Control General Permit (ESCGP) application review process. The E&SCP is currently under review by these agencies, and PennEast anticipates that minor revisions may be required during the permit application review process. PennEast's E&SCP is consistent with FERC's *Plan* and *Procedures* and 25 Pa. Code § 102 requirements, and in accordance with Environmental Condition No. 27 of the Certificate Order, PennEast will file a revised E&SCP to with FERC for review and written approval prior to construction.

The methods in the E&SCP that will be used to minimize impacts on soils during construction include, but are not limited to:

- Minimizing the area and duration of soil exposure;
- Protecting critical areas by reducing the velocity of and controlling runoff;
- Installing and maintaining erosion and sediment control measures;
- Segregating and stockpiling topsoil on cultivated lands;
- Reestablishing vegetation following final grading; and
- Inspecting the workspace and maintaining erosion and sediment controls, as necessary, until final stabilization is achieved.

Characteristics of the soil map units that will be impacted to construct and operate the Church Road Interconnects are provided in Table 7-1. The potential impacts and mitigation are discussed below. Soil map units are shown on the soils map in Appendix A-4.

None of the soils occurring within the proposed Church Road Interconnects workspace indicate that significant construction limitations or hazards are likely to occur.

7.1.1 Prime Farmlands

The NRCS defines prime farmland as land which has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops. Land is assigned prime farmland designation based on soil map units, though urban, built-up, and water areas are not considered to be prime farmland regardless of soil unit. The proposed Church Road Interconnects are located within soil map unit Washington silt loam, 0 to 3% slopes (WaA), which is typically designated as prime farmland soil; however, the Church Road Interconnects are located on a residential property which has been fully developed and does not meet the definition of prime farmland.

Although the underlaying soils meet prime farmland criteria, there is no impact to prime farmland. Implementing the proposed Church Road Interconnects would not result in changes to the previous analyses and mitigation measures that PennEast proposed in its Certificate Application, or that were described in the FEIS.

7.1.2 Hydric Soils and Compaction Potential

Hydric soils are defined as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part, or the rooting zone. Hydric soils (or poorly to very poorly drained soils) are either saturated or inundated long enough during the growing season to support the growth of hydrophytic vegetation. These soils are generally associated with wetland areas. Hydric soils that contain a large organic component can be susceptible to both wind and water erosion.

Compaction-prone soils include those that have a clay loam or finer USDA texture classification and have a drainage class of somewhat poorly drained to very poorly drained. Soil characteristics that affect soil compaction include soil texture, soil moisture, grain size distribution and porosity. Soil compaction has a restrictive action on water penetration, root development, and the rate of diffusion of oxygen into soils. Compaction has the effect of reducing yields of most agricultural crops and can inhibit revegetation.

The soils found at the Church Road Interconnects location are classified as having “fine-loamy” particle size, “well drained” drainage class, and “moderate” compaction potential (Table 7-1). Compaction will be mitigated by implementing BMPs included in the E&SCP. PennEast will also test topsoil and subsoils for compaction at regular intervals in agricultural areas disturbed by construction activities. Severely compacted agricultural areas will be plowed with a paraplow or other deep tillage implement.

Implementing the proposed Church Road Interconnects would not result in changes to the previous analyses and mitigation measures that PennEast proposed in its Certificate Application, or that were described in the FEIS.

7.1.3 Erosion by Water and Wind

Wind erosion is common in regions of low rainfall and is increased by removing or reducing the vegetative cover. Water erosion is the dislocation of soil particles by falling water and their subsequent movement by flowing water. Water erosion is influenced by ground cover and slope gradient.

The soils identified at the proposed Church Road Interconnects location have water erosion potential of “moderate” and a wind erodibility group of “6” (out of Groups 1-8, with Group 1 having the highest erodibility potential and Group 8 the least). Refer to Table 7-1 for selected physical and interpretive characteristics of the soil map unit crossed by the proposed Church Road Interconnects.

PennEast will limit the extents and duration of earth disturbance to that absolutely necessary to construct the Project. PennEast will employ the use of appropriate erosion control measures, as described in the E&SCP to minimize potential impacts due to water erosion. EIs will inspect construction activities for compliance with the requirements of the E&SCP and are responsible for identifying, documenting and overseeing corrective actions, if necessary. Temporary erosion control measures will be inspected on at

least a daily basis in areas of active construction and equipment operation, on a weekly basis in areas of no construction or equipment operation, and within twenty-four (24) hours of each half- (0.5-) inch rainfall event. Erosion control devices will remain in place until site stabilization is achieved.

Constructing and operating the proposed Church Road Interconnects would not result in changes to the previous analyses and mitigation measures that PennEast proposed in its Certificate Application, or that were described in the FEIS.

7.1.4 Revegetation Potential

Construction will necessitate the removal of surface vegetation from workspaces. Upon completion of construction, disturbed areas not part of the permanent, fenced facility will be revegetated. If necessary, poor revegetation potential will be mitigated by implementing BMPs included in the E&SCP. The soil map unit crossed by the proposed Church Road Interconnects is classified as having Class 1, or "good," revegetation potential.

Topsoil segregation will aid in restoration, reducing surface compaction and wetland seed banks. As described in Section 7.1.2 above, PennEast will also mitigate compaction impacts in agricultural areas through testing and tilling or paraplowing. Soils will be amended with fertilizer and pH modifiers, as appropriate, in residential and agricultural areas. The seedbed will be prepared to a depth of three (3) to four (4) inches to provide a firm seedbed. Seed mixes will be applied using an acceptable method as outlined in the E&SCP (seed drill equipped with a cultipacker, broadcast or hydroseeding). Mulch will be applied to the seeded areas in accordance with the E&SCP.

PennEast proposes several seed mixes for use on the Project, and an appropriate mix or mixes will be selected from that list for use in revegetating the Church Road Interconnects workspace. Seed mixes will follow the PADEP's Erosion and Sediment Pollution Control Program Manual, Technical Guidance Number 363-2134-008 (March 2012) unless otherwise requested by the landowner.

PennEast will establish and implement a program to monitor the success of restoration upon completion of construction and restoration activities. Inspections will occur for a minimum of two (2) years. Restoration in upland areas will be considered successful once a uniform vegetation cover of seventy percent (70%) is achieved. Monitoring and reporting will continue until revegetation is successful.

Constructing and operating the proposed Church Road Interconnects would not result in changes to the previous analyses and mitigation measures that PennEast proposed in its Certificate Application, or that were described in the FEIS.

Table 7-1
Selected Physical and Interpretive Characteristics of the Soil Map Units for the Proposed Church Road Interconnects

Facility	Workspace Type	Map Unit Symbol	Map Unit Name	Component Name	Component Percent	Taxonomic Classification	Particle Size	Slope Gradient	Shallow Depth to Bedrock[1]	Prime Farmland[2]	Compaction Potential[3]	Water Erosion Potential[4]	Wind Erosion Potential[5]	Revegetation Potential[6]	Hydric	Drainage Class[7]
Church Road Interconnects	Permanent Facility	WaA	Washington silt loam, 0 to 3 percent slopes	Clarksburg	5	Fine-loamy, mixed, semiactive, mesic Ultic Hapludalfs	fine-loamy	2	5.08 ft	Yes	Medium	Slight	6	Class 1	No	Well Drained
Church Road Interconnects	Temporary Workspace and Staging	WaA	Washington silt loam, 0 to 3 percent slopes	Clarksburg	5	Fine-loamy, mixed, semiactive, mesic Ultic Hapludalfs	fine-loamy	2	5.08 ft	Yes	Medium	Slight	6	Class 1	No	Well Drained

Notes:
1. Shallow depth to bedrock = depth less than 5 feet.
2. Prime farmland includes farmland of statewide importance.
3. Potential for mechanical activities to compact soils. Includes very poorly drained and poorly drained soils.
4. Water Erosion Potential estimated using NRCS classifications slight (minor risk), moderate (contains certain undesirable properties), severe (unacceptable risk)
5. Erodibility Groups 1-8 with Group 1 having the highest erodibility potential and Group 8 the least erodibility potential
6. Revegetation Potential estimated using NRCS Non-irrigated Capability Class. Capability Class 1 = Good, 2 = Fair, ≥ 3 = Poor
7. Drainage Class Key: VP = very poorly, P = poorly, SP = somewhat poorly, MW = moderately well, W = well, SE = somewhat excessively, E = excessively drained.

8.0 LAND USE, RECREATION AND AESTHETICS

As part of its September 2016 route update, PennEast characterized land uses that would be affected by the Project. Existing land uses within the Project area were identified and information was provided on planned residential, commercial, and business development, special land uses, and lands administered by federal, state, and local agencies and private conservation organizations. Natural, recreational and scenic areas that may be affected by activities associated with the Project were also addressed. Potential impacts to land use that will be affected by construction and operation of the Project were quantified and proposed mitigation measures to help avoid or minimize these impacts were identified. PennEast has evaluated the potential land use, recreation and aesthetic impacts of the proposed Church Road Interconnects.

8.1 LAND USE

Land use was evaluated through field surveys and the use of aerial imagery and PASDA GIS layers. The major cover types identified within the Certificated Route area are forest/woodland, agricultural/crop land, open land (non-forested upland, including old fields, pasture and grassland), residential, industrial/commercial and open water (waterbody). The proposed Church Road Interconnects site consists of residential lands only.

The vegetation and land use cover types for the proposed Church Road Interconnects are shown in Table 3-1 in Section 3.2.

8.1.1 Aboveground Facilities

The Church Road Interconnects are the only aboveground facility proposed in this 2020 Amendment Application and would be located near MP 68.2R2 in Northampton County, Pennsylvania. A total of 2.62 acres of land will be utilized for this facility, including a permanent facility footprint of 2.13 acres and an additional 0.49 acres of temporary workspace. The proposed Church Road Interconnects site consists of residential lands only.

8.1.2 Facility Abandonment/Replacement

Construction of the Church Road Interconnects will not involve facility abandonment or replacement.

8.2 RESIDENTIAL, COMMERCIAL AND INDUSTRIAL AREAS

PennEast owns the parcel affected by the proposed Church Road Interconnects. PennEast consulted with local and county government planning officials to determine if new residential or commercial development is scheduled to occur within 0.25-mile of the Project. Planned residential and commercial developments include developments on file with a local planning board or those included in a municipal master plan. One such commercial development project, the Mill Creek Corporate Campus Development, is located approximately 0.14-mile south of the proposed Church Road Interconnects (see Table 13-2 in Section 13.0). The Church Road Interconnects would not affect this proposed development.

Aside from a house that will be vacated before construction, there are no buildings identified within fifty (50) feet of the proposed Church Road Interconnects. The house, which is currently within the footprint of the proposed aboveground facility, will be demolished. The measures that PennEast proposes to implement to minimize impacts to surrounding landowners are identical to those proposed in PennEast's Certificate Application and described in the FEIS.

8.3 PUBLIC LAND, RECREATION AND OTHER DESIGNATED AREAS

In the September 2016 route update, PennEast identified public land, recreation areas, conservation areas, and other areas designated as having special land use crossed by or located within the vicinity of the Project. These areas were identified through review of publicly available websites and databases of federal, state, and local agencies, public websites, and other sources of publicly available information. **The proposed Church Road Interconnects would not impact public land, recreation areas, or other designated areas.**

8.4 PRIVATE CONSERVATION EASEMENTS

PennEast has performed an extensive title search and consulted with federal, state, county and local agencies to determine existing easements on properties located within the Project area. PennEast, as owner, has not identified any private conservation easements for the affected parcel. **Because the proposed Church Road Interconnects will not affect easement-encumbered properties, no additional permits or permissions from any conservation easement holders or other landowners are required in order to construct the facility on this parcel.**

8.5 LANDFILLS AND HAZARDOUS WASTE SITES

PennEast reviewed publicly available federal, state, and local agency websites and databases to identify landfills, hazardous waste sites, or other known contaminated waste sites in the vicinity of the proposed Project. In PennEast's September 2016 route update, PennEast identified hazardous waste sites within 0.25 mile of the Project. The Church Road Interconnects are within the previously studied areas and would not change the proximity to these previously-reported sites. **No hazardous waste sites or landfills were identified within 0.25-mile of the Church Road Interconnects; therefore, previous analyses remain unchanged.**

8.6 VISUAL RESOURCES

The Project was designed to minimize impacts to visual resources by co-locating the Project with existing ROWs where practicable. This includes the proposed Church Road Interconnects, where the Certificated Route is co-located with existing utility ROWs. Construction of the Church Road Interconnects will result in temporary impacts to visual and/or aesthetic resources due to the construction equipment and activities necessary for constructing the facility. Construction impacts will be mitigated through stabilization and re-vegetation of the temporary construction workspace. PennEast will continue to coordinate with landowners, state agencies, and federal agencies for development of the revegetation plans.

8.6.1 Aboveground Facilities

The Church Road Interconnects would be located between Route 33 to the east and Church Road to the west. There is one (1) neighboring residence to the north, more than 300 feet away. A number of line-of-sight occluding features would minimize the visual impact of the Church Road Interconnects substantially:

- To the east, there is an existing tree line and highway sound barriers which would block most or all of the new facility from the view of highway drivers;
- To the south, there is an existing tree line which would block the new facility from view of the nearest residence in that direction, which is more than 600 feet away;
- To the west, there is an existing tree line of short, decorative tree species which line the road front of the property along Church Road, which would substantially limit the facility's visual impact from that direction;
- To the north, the closest residence is more than 300 feet away, and that property has a number of decorative trees which would partially hide the facility from view.

To limit the visual impact of the Church Road Interconnects facility on nearby residences and roadways, PennEast would leave as much of the existing perimeter tree line as practicable. **The Church Road Interconnects would have minimal long-term impacts on visual and aesthetic resources.**

8.7 APPLICATIONS FOR RIGHTS-OF-WAY OR OTHER LAND USE

The construction and operation of the proposed Church Road Interconnects does not require separate applications for ROW or other special land use not addressed elsewhere in this document. Workspace associated with the new aboveground facility is located on property owned by PennEast.

9.0 AIR AND NOISE QUALITY

This section focuses on the air and noise impacts associated with construction and operation of the Church Road Interconnects and the phasing of Project construction.

9.1 AIR QUALITY

Federal regulations at 40 CFR Part 93, Subpart B, require that federal actions conform with the Clean Air Act of 1963 (CAA) (42 U.S.C. § 7401). The 2020 Amendment Application proposes one new aboveground facility – the Church Road Interconnects – and separating the Project into two (2) construction phases. These would result in changes to previous air quality analyses presented for the Project.

9.2 CONSTRUCTION EMISSIONS

The proposed Church Road Interconnects will require similar types of construction equipment that were previously reported for Construction Spread 3. PennEast has calculated construction emission estimates for the Church Road Interconnects and re-calculated construction emission estimates for each proposed construction phase as discussed in the following section.

9.2.1 Emissions related to Construction of the Church Road Interconnects

Construction of the Church Road Interconnects components will result in temporary emissions from construction equipment, such as from fuel combustion and fugitive particulate matter resulting from vehicle roadway travel and earthmoving and construction activities. Construction equipment will include earth-moving equipment (e.g., backhoes, bulldozers), skid loaders, pipe bending and handling equipment, welding rigs, trucks and other mobile sources. These equipment may be powered either by diesel or gasoline engines and will contribute to overall construction emissions of nitrogen oxides (NO_x), carbon monoxide (CO), volatile organic compounds (VOCs), particulate matter (PM) with a nominal aerodynamic diameter of ten (10) microns or less (PM_{10}); PM with a nominal aerodynamic diameter of 2.5 microns or less ($PM_{2.5}$), sulfur dioxide (SO_2) and small amounts of air toxics (hazardous air pollutants [HAPs]). A listing of the types, size and number of planned equipment is included in Appendix G.

Moreover, construction activities will generate temporary emissions of fugitive dust due to earth disturbances, land clearing, grading, excavation and vehicle traffic on both paved and unpaved roads. The assumptions, data and emissions factors used to estimate the emissions from construction activities are provided in Appendix G along with a more comprehensive list of construction equipment and associated emissions. **The proposed mitigation described in the FEIS will not change. A Fugitive Dust Control Plan was originally provided in PennEast's Certificate Application and was updated in the 2019 Amendment Application.**

The quantity of fugitive dust emissions generated from construction activities is proportional to the area of the land being disturbed and to the level of construction activity. Approximately 2.62 acres of disturbance are estimated for the Church Road Interconnects construction activities. The emission factors for off-road construction equipment and on-road vehicles were developed using the EPA MOVES2014 model for Northampton County and construction in 2019. Using these emission factors developed for 2019 is a

reasonable and conservative approach because equipment emission factors are expected to decrease over time.

Emissions of NO_x, CO, PM_{10}, $PM_{2.5}$, SO_2, VOCs, greenhouse gases (GHGs) and HAPs from construction equipment engines used during Project construction have been estimated based on the anticipated types of non-road and on-road equipment and their estimated levels of use.

The emission estimates by major construction activities for the Church Road Interconnects are presented in Table 9-1. The assumptions, data and emissions factors used to estimate the emissions from construction activities are provided in Appendix G along with a more comprehensive list of construction equipment and associated emissions. The major construction activities at the Church Road Interconnects are forecast to all occur during one (1) calendar year.

Table 9-1
Project Construction Activity Combined Emissions for Church Road Interconnects (Tons)

Project Total Emissions (in PA)	NO_X	CO	VOC	PM_{10}	$PM_{2.5}$	SO_2	CO_2e	HAPs
Non-Road Equipment Totals	0.27	0.09	0.04	0.01	0.01	0.0012	129	0.003
Diesel and Gas On-Road	0.14	0.55	0.07	0.01	0.01	0.0005	61	0.005
Construction Activity Fugitive Dust	-	-	-	5.92	1.45	-	-	-
Roadway Fugitive Dust	-	-	-	3.81	0.57	-	-	-
Total	**0.41**	**0.65**	**0.11**	**9.76**	**2.04**	**0.0016**	**190**	**0.008**

CO_{2e} represents a sum of Greenhouse Gases equivalent to Carbon Dioxide (CO_2) based on Global Warming Potential (GWP) with CO_2 GWP = 1, Nitrous Oxide NO_2 GWP = 298, and Methane GWP = 25.

9.2.2 Phasing of Project Construction Emissions

The construction of the entire Project (Phase 1 and Phase 2 combined) was previously evaluated for air quality impacts. The previous assessment considered that the entire Project would be constructed during one (1) calendar year. The assessment concluded that anticipated construction emissions associated with constructing the entire Project in a single phase would not contribute to air quality degradation or prevent the achievement of state and federal air quality goals because the emissions in each county were less than the General Conformity "De Minimis" Rates for Non-Attainment Areas.

Phasing the Project would likely result in Phase 1 and Phase 2 being constructed in different calendar years. To demonstrate the lower construction emissions per year in the subject counties, PennEast re-evaluated construction emissions for each Project phase, which are presented in Tables 9-2 and 9-3. The estimated emissions for Phase 1 are inclusive of the Church Road Interconnects, for which emissions are also broken out separately in Section 9.2.1 above. The results of the analysis confirm that the phasing of the Project would not contribute to air quality degradation or prevent the achievement of state and federal air quality goals in those counties.

The construction emissions for each project phase are based on the prior Project analyses with the following considerations and updates. Non-road and on-road construction equipment exhaust emission calculations

based on the Project's four previously-proposed construction spreads were broken into two groups based on total miles of pipeline construction miles and in each of the two construction phases. Spreads 1, 2, and a portion of 3 relate to the construction of the Phase 1, and the remainder of Spread 3 and Spread 4 relates to Phase 2. Emission estimates to construct the compressor station, estimated separately, are included Phase 1. The emissions of Spread 3 were proportioned based on the planned pipeline miles (including laterals) to be constructed in each phase. The estimated on-road vehicle fugitive dust emissions were similarly proportioned. Construction activity dust emission estimates that are based on the area of land disturbed and the duration of activity were allocated to each phase based on Project land disturbance data (in acres).

Two updates from the emission estimates that differ from the emission information considered in the Certificated Route and the FEIS include equipment exhaust emission factors and construction equipment inventories and durations. Non-road and on-road construction equipment exhaust emission factors have been revised using the EPA MOVES2014 model to 2019 values for each county. The number and types of non-road construction equipment and the durations (days and total hours) have also been updated. In addition, the construction equipment inventory now includes additional detail for each of the planned horizontal directional drill (HDD) sites. The results of these construction emission estimate refinements are summarized for both Project phases in Table 9-2 and 9-3 below.

Table 9-2
Project Phase 1 Construction Activity Emissions (Tons)

Project Total Emissions	NO_X	CO	VOC	PM_{10}	$PM_{2.5}$	SO_2	CO_2e	HAPs
Non-Road Equipment Totals	95.5	31.1	13.3	5.0	4.9	0.4	44,319	1.80
Diesel and Gas On-Road	5.4	31.7	3.5	0.29	0.2	0.0	2,207	0.23
Construction Activity Fugitive Dust	-	-	-	1,121.2	168	-	-	-
Roadway Fugitive Dust	-	-	-	178.2	28	-	-	-
Compressor Station Construction Sub-Total	3.3	3.3	0.7	28.6	4.3	0.0	1,708	0.05
Total	**104.2**	**66.0**	**17.5**	**1333.3**	**205.4**	**0.4**	**48,234**	**2.07**

Table 9-3
Project Phase 2 Construction Activity Emissions (Tons)

Project Total Emissions	NO_X	CO	VOC	PM_{10}	$PM_{2.5}$	SO_2	CO_2e	HAPs
Non-Road Equipment Totals	118.5	26.4	12.8	5.8	5.7	0.7	37,581	0.8
Diesel and Gas On-Road	1.8	6.5	0.7	0.15	0.1	0.0	876	0.06
Construction Activity Fugitive Dust				773.0	118			
Roadway Fugitive Dust				58.3	9			
Total	**120.3**	**32.9**	**13.5**	**837.2**	**133.4**	**0.8**	**38,458**	0.86

9.3 OPERATIONAL EMISSIONS

In the FEIS, FERC considered operational emissions of the mainline pipeline and laterals as well as above ground facilities including metering and regulating stations, interconnects, mainline valves, PIG launcher/receivers and a new 47,700 horsepower compressor station in Kidder Township, Carbon County, Pennsylvania. The FEIS concluded that emissions expected during operation of the pipeline would be relatively minor, that no Federal Class I Areas would be impacted and that the estimated emissions from the proposed Kidder Compressor Station are below all applicable Prevention of Significant Deterioration (PSD) thresholds.

Operating the Church Road Interconnects would slightly increase the operational emissions previously estimated for the Project and as reported in the FEIS. Phasing turbine installation at the Kidder Compressor Station would also result in differences in annual operating emissions on a temporary basis, although the total operating emissions associated with the Kidder Compressor Station once both proposed Project phases are constructed would be unchanged. To account for the Project changes proposed in this 2020 Amendment Application, PennEast has evaluated emissions related to the operation of the newly proposed Church Road Interconnects and the planned phasing of turbine installation at the Kidder Compressor Station, as discussed below.

9.3.1 Operational Emissions Related to the Church Road Interconnects

The operation of the Church Road Interconnects will involve several sources of air emissions including combustion of natural gas in pipeline heaters, diesel engine exhaust of the emergency generator, and natural gas released from fugitive leaks and venting of the meters, regulator, valves, flanges, and other interconnection system components. Occasional operation of the PIG receiver will also result in natural gas related emissions. Table 9-4 presents a summary of estimated operational emissions of the Church Road Interconnects.

Table 9-4
Estimated Total Operational Emissions Church Road Interconnects - Phase 1

Project Total Emissions (in PA)	NO_X	CO	VOC	PM_{10}	$PM_{2.5}$	SO_2	CO_2e	HAPs
Fugitive and Venting from Interconnection Piping	-	0.004	-	-	-	-	149.1	-
Pipeline Inspection Gauge (PIG) Retrieving	-	1.0E-04	-	-	-	-	0.8	-
Indirect-fired Nat. Gas-fired Line Heaters	2.45	0.134	2.05	0.19	0.19	0.018	2,923.4	4.6E-02
Diesel Emergency Generator	0.12	0.028	0.11	0.01	0.01	1.5E-04	15.7	3.7E-04
Total	**2.57**	**0.166**	**2.16**	**0.19**	**0.19**	**0.018**	**3,089.0**	**4.7E-02**

Note: All values are tons per year (tpy)

9.3.2 Operational Emissions Related to Phasing Kidder Compressor Station Turbines

The maximum case operational emission estimates considered in the FEIS and PADEP Plan Application for the Kidder Compressor Station are based on three (3) 15,900 horsepower natural gas combustion turbine compressors (CTs) operating at full capacity (one hundred percent [100%] load, 8,760 hours per year). Phasing of the Project would temporarily reduce emissions of the compressor station and pipeline by operating at a level that is less than full capacity. The estimated emissions shown in Table 9-5 are based on two CTs and supporting equipment operating for an entire year to provide on a design maximum of 17,700 horsepower of compression for Phase 1 operations.

Table 9-5
Compressor Station Phase 1 Operational Emissions (Tons per Year)

Project Total Emissions (in PA)	NO_X	CO	VOC	PM_{10}	$PM_{2.5}$	SO_2	CO_2e	HAPs
Compressors (Two Combustion Turbines)	35.34	10.12	2.12	9.72	9.72	2.20	76,583	0.84
Auxiliary Power Unit (Generator)	1.61	1.69	0.28	0.03	0.03	0.01	333	0.21
Indirect-fired Nat. Gas-fired Heaters	0.05	0.05	0.01	0.01	0.01	0.003	115	0.002
Equipment Leaks	-	-	0.004	-	-	-	150	-
Equipment Vents	-	-	0.01	-	-	-	47	-
Total	**37.00**	**11.87**	**2.42**	**9.76**	**9.76**	**2.22**		**1.04**

As noted in the FEIS. PennEast would be required to meet all federal and state air quality permitting requirements prior to construction and operation of the Project, and PennEast would comply with federal and state air quality permitting rules, including the installation of mitigation measures and technologies required to meet federal and state air quality regulations. FERC concluded that the Project would not result in significant air quality impacts. Neither the phasing of the Project, nor the addition of operational emissions associated with the Church Road Interconnects would materially impact the operational emissions such as to change these findings.

In accordance with Environmental Condition No. 10 of the Certificate Order and at the appropriate time, PennEast will file documentation that federal permits have been received, including a Plan Approval (air permit) from PADEP. If PADEP decides that the phasing the Project requires revision to the Air Plan

Approval application that PennEast has submitted to PADEP for the Kidder Compressor Station, PennEast will submit additional information as directed by PADEP.

9.4 GENERAL CONFORMITY

The General Conformity Rule establishes conformity in coordination with and as part of the National Environmental Policy Act of 1969 (NEPA) (42 U.S.C. §§ 4321 *et seq.*) review process. The General Conformity Rule affects air pollution emissions associated with actions that are federally funded, licensed, permitted, or approved and ensures that emissions do not contribute to air quality degradation or prevent the achievement of state and federal air quality goals. The purpose of the General Conformity Rule is to ensure that federal agencies consult with state and local air quality agencies so that these regulatory entities are aware of the expected impacts of the federal action and therefore can include expected emissions in their State Implementation Plan (SIP) emissions budget.

EPA developed two (2) conformity regulations relating to transportation and non-transportation projects. Transportation projects are governed by the "transportation conformity" regulations (40 CFR Parts 51 and 93). Non-transportation projects are governed by the "general conformity" regulations (40 CFR Parts 6, 51, and 93) described in the final rule for Determining Conformity of General Federal Actions to State or Federal Implementation Plans. Since the Project is a non-transportation project, the General Conformity Rule applies.

9.4.1 General Conformity Process

The process to determine conformity for a proposed action involves two (2) distinct steps: applicability and determination. A determination is only required if an evaluation confirms that the General Conformity Rule is applicable to a project. The first step, an applicability evaluation, is required for any action that is federally funded, licensed, permitted, or approved where the total direct and indirect emissions for criteria pollutants in a non-attainment or maintenance area exceed the rates listed specified in 40 CFR 93.153(b)(1)-(2). If project emissions are estimated to exceed these rates, or if the emissions are determined to be regionally significant, a General Conformity Determination is required as the second step. The proposed Project is considered regionally significant if the total direct and indirect emissions for any criteria pollutant represent ten percent (10%) or more of a non-attainment or maintenance area emission inventory for that pollutant.

9.4.2 General Conformity Applicability

The General Conformity Rule applies only to federal actions occurring in air quality regions designated as being in non-attainment for the National Ambient Air Quality Standards (NAAQS) or attainment areas subject to maintenance plans (maintenance areas). Federal actions occurring in attainment areas are not subject to the conformity rules. In addition, a General Conformity evaluation is not required for proposed actions that fall under a New Source Review (NSR) Program or Operating Permit Program. The emission sources of proposed Church Road Interconnects would most likely be covered by a General Permit (General Operating Permit BAQ-GPA/GP-5A for Unconventional Natural Gas Well Site Operations and Remote Pigging Stations); if so, the operational emissions are not required to be included in a conformity evaluation. Nonetheless, these emissions are included in the analysis below. Table 9-6 summarizes the attainment status for the Project area and shows that a General Conformity evaluation is required.

The evaluation is summarized in Table 9-7, which compares the estimated construction emissions for the Project to the General Conformity "De Minimis" Rates for Non-Attainment Areas (40 CFR 93.153).

The anticipated emissions as a result of phased Project construction activities (inclusive of the Church Road Interconnects) are less than the General Conformity "De Minimis" Rates for Non-Attainment Areas. Therefore, a general conformity determination is not required for Project construction emissions.

Table 9-6
Attainment Status for Project Sites (Phased Project)

Project Component	Phase	Location (Town/County)	AQCR[1]	Attainment/ Unclassifiable	Non-Attainment or Maintenance
22.7 miles of mainline pipeline	Phase 1	Luzerne, PA – *Dallas, Kingston, West Wyoming, Wyoming, Jenkins, Plains, Bear Creek*	Northeast PA-Upper Delaware Valley Interstate Air Quality Control Region	CO, NO_X, Pb, PM_{10}, $PM_{2.5}$, SO_2,	None [2]
28.4 miles of mainline pipeline, Kidder Compressor Station	Phase 1	Carbon, PA – *Kidder, Penn Forest, Towamensing, Lower Towamensing*	Northeast PA-Upper Delaware Valley Interstate Air Quality Control Region	CO, NO_X, Pb, PM_{10}, $PM_{2.5}$, SO_2,	Marginal for O_3 2008
17.5 miles of mainline pipeline	Phase 1	Northampton, PA – *Lehigh, Moore, East Allen, Upper Nazareth, Lower Nazareth, Bethlehem*	Northeast PA-Upper Delaware Valley Interstate Air Quality Control Region	CO, NO_X, Pb, PM_{10}, SO_2	Marginal for O_3 2008 Maintenance for $PM_{2.5}$ 2006
7.8 miles of mainline pipeline, 2.1 miles of lateral pipeline	Phase 2	Northampton, PA – *Bethlehem, Easton, Lower Saucon, Williams*	Northeast PA-Upper Delaware Valley Interstate Air Quality Control Region	CO, NO_X, Pb, PM_{10}, SO_2	Marginal for O_3 2008 Maintenance for $PM_{2.5}$ 2006
1.8 miles of mainline pipeline	Phase 2	Bucks, PA – *Durham, Riegelsville*	Metropolitan Philadelphia Interstate Air Quality Control Region (PA-NJ-Delaware)	CO, NO_X, Pb, PM_{10}, SO_2	Marginal for O_3 2008 and 2015 Maintenance for $PM_{2.5}$ 2006
27.9 miles of mainline pipeline, 2.1 miles of lateral pipeline	Phase 2	Hunterdon, NJ – *Holland, Alexandria, Kingwood, Delaware, West Amwell*	New York-N. New Jersey-Long Island, NY-NJ-CT	CO, NO_X, Pb, PM_{10}, $PM_{2.5}$, SO_2,	Serious for O_3 2008, Moderate for O_3 2015

Project Component	Phase	Location (Town/County)	AQCR[1]	Attainment/ Unclassifiable	Non-Attainment or Maintenance
9.8 miles of mainline pipeline	Phase 2	Mercer, NJ – *Hopewell*	New York-N. New Jersey-Long Island, NY-NJ-CT for $PM_{2.5}$ and Philadelphia-Wilmington-Atlantic City, PA-NJ-MD-DE for O_3	CO, NO_X, Pb, PM_{10}, SO_2,	Marginal for O_3 2008 and 2015 Maintenance for $PM_{2.5}$ 2006

Notes:
1 AQCR = Air Quality Control Region (Title 40: Protection of Environment Part 81, Subpart B - Designation of Air Quality Control Regions).
2 For NSR purposes, all Project sites and counties in PA are subject to **moderate** ozone non-attainment as both states are within the Ozone Transport Region (OTR). However, for conformity purposes the OTR is not a relevant consideration. Therefore, county-by-county attainment designations are considered per the official designations listed in 40 CFR 81.339.
Source: 40 CFR 81.339

Table 9-7
General Conformity Determination for the Phased Project

Project Component	Phase	Location (County, State)	County Non-Attainment Pollutants[1,2]	Construction Emissions[3] (tons)	General Conformity "De Minimis" Rates for Non-Attainment Areas	General Conformity Determination Required? (Yes/No)
22.7 miles of mainline pipeline	Phase 1	Luzerne, PA	None	N/A	N/A	No
28.4 miles of mainline pipeline, Kidder Compressor Station	Phase 1	Carbon, PA	O_3[1]	50.8 tons NOx 7.5 tons VOC	100 tpy NOx 50 tpy VOC	No
17.5 miles of mainline pipeline	Phase 1	Northampton, PA	$PM_{2.5}$[2] O_3[1]	62.7 tons $PM_{2.5}$ 17.2 tons NOx 3.2 tons VOC	100 tpy $PM_{2.5}$ 100 tpy NOx 50 tpy VOC	No
7.8 miles of mainline pipeline, 2.1 miles of lateral pipeline	Phase 2	Northampton, PA	$PM_{2.5}$[2] O_3[1]	34.4 tons $PM_{2.5}$ 25.5 tons NOx 3.1 tons VOC	100 tpy $PM_{2.5}$ 100 tpy NOx 50 tpy VOC	No

Project Component	Phase	Location (County, State)	County Non-Attainment Pollutants[1,2]	Construction Emissions[3] (tons)	General Conformity "De Minimis" Rates for Non-Attainment Areas	General Conformity Determination Required? (Yes/No)
1.8 miles of mainline pipeline	Phase 2	Bucks, PA	$PM_{2.5}$[2] O_3[1]	1.0 tons $PM_{2.5}$ 7.8 tons NOx 0.8 tons VOC	100 tpy $PM_{2.5}$ 100 tpy NOx 50 tpy VOC	No
27.9 miles of mainline pipeline, 2.1 miles of lateral pipeline	Phase 2	Hunterdon, NJ	O_3[1]	65.9 tons $PM_{2.5}$ 76.6 tons NOx 7.8 tons VOC	100 tpy $PM_{2.5}$ 100 tpy NOx 50 tpy VOC	No
9.8 miles of mainline pipeline	Phase 2	Mercer, NJ	$PM_{2.5}$[2] O_3[1]	27.7 tons $PM_{2.5}$ 14.4 tons NOx 1.8 tons VOC	100 tpy $PM_{2.5}$ 100 tpy NOx 50 tpy VOC	No

Notes:
1. Marginal or Moderate Non-Attainment for the 2008 8-hour Ozone standard
2. Moderate Non-Attainment for the 1997 and/or 2006 $PM_{2.5}$ Standards
3. Emissions of all major construction activities will occur during one calendar year.

9.5 NOISE QUALITY

9.5.1 Construction Noise

Noise-generating activities from construction of the Church Road Interconnects would include grading, trenching, material delivery, welding, pipe bending, and crane operation. Predicted hourly construction noise levels at the four nearest noise-sensitive areas (NSAs) range from sixty (60) to sixty-three (63) dBA, L_{eq}. Bethlehem Township ordinances exempt construction noise from its sound level limits if occurring between the hours of 7:00 a.m. and 9:00 p.m. on any day. Construction activities are not expected to extend into the nighttime hours. **Noise impacts associated with the construction of the Church Road Interconnects are not anticipated.**

9.5.2 Operational Noise

An ambient noise measurement survey was conducted on November 14, 2019, and November 15, 2019, at a total of three (3) representative NSAs and property lines surrounding the proposed Church Road Interconnects site. The measured existing ambient day-night (L_{dn}) noise levels these locations ranged from sixty-five (65) to sixty-eight (68) dBA.

Noise source data and noise control measures reported by Hoover & Keith Inc. for the Hellertown M&R station noise analysis were used as standard design assumptions for the Church Road Interconnects operational noise prediction model. In addition to these assumptions, three (3) noise barriers were introduced as noise control measures to achieve compliance with the local regulatory criteria of Bethlehem Township. Refer to Appendix H for the complete report for this noise analysis and impact assessment. Table 9-8 summarizes the results of the predictive noise modeling.

Table 9-8
Noise Quality Analysis for the Church Road Interconnects M&R Station

NSA ID	Distance (Feet) and Direction to Site Center	Ambient Noise Level (L_{dn}, dBA)	Estimated Station Noise Level (L_{dn}, dBA)	Station Plus Ambient Noise Level (L_{dn}, dBA)	Potential Noise Level Increase
NSA-1	490 | NE	68	51	68	0
NSA-2	1408 | NE	65	49	66	0[1]
NSA-3	1066 | SE	66	36	66	0
NSA-4	869 | SW	66	48	66	0

Notes:
1. Increased by 0.1 dBA, from 65.4 dBA to 65.5 dBA. Values are rounded to nearest whole number.

Predicted noise levels generated by operation of the M&R station at four (4) studied nearest-NSAs ranged from thirty-six (36) to fifty-one (51) dBA, L_{dn}, well-below the FERC impact threshold of fifty-five (55) dBA L_{dn}. Combined with ambient noise levels, which already exceed the FERC impact threshold of fifty-five (55) dBA L_{dn} due primarily to vehicular traffic on Pennsylvania State Route 33, future noise levels at NSAs are expected to increase by less than one (1) dBA, L_{dn}. This increase is imperceptible to the human ear. Bethlehem Township, where the station site and all studied NSAs are located, maintains a code of ordinances that stipulates sound level limits at property line locations for various time periods and land use types. Predicted M&R station operational noise was determined to be two (2) to twenty (20) dBA below these local sound level limits. **Therefore, assuming the recommended noise control measures are followed and successfully implemented, PennEast's believes that the sound level attributable to the proposed Church Road Interconnects would neither exceed FERC's criterion of fifty-five (55) dBA L_{dn} at the nearby NSAs, nor the Bethlehem Township ordinance sound level limits at the site property boundaries, and there would not be a perceptible increase in vibration.** PennEast intends to implement the recommended noise control measures for the Project facilities, which could be further refined in the detailed design phase.

10.0 ALTERNATIVES

PennEast discussed the extensive alternatives that have been identified and analyzed during the Project's development in its Certificate Application. Since the Project's inception in 2014, PennEast has continued to evaluate system, pipeline route, and aboveground facility alternatives to develop the most practicable Project design. As part of this ongoing process, PennEast has determined the need to develop the Project in two (2) phases and to construct new interconnect facilities, the Church Road Interconnects, as described within this Environmental Report. This section describes the alternatives that were considered during the identification and design phase of these proposed Project changes. To be considered a viable alternative, it must meet the purpose and need of the Project as specified in Section 1.2.1.

10.1 NO-ACTION ALTERNATIVE

The no-action alternative would involve PennEast constructing the original Certificated Route as amended by the 2019 Amendment Application, if the Modifications proposed therein are authorized by FERC. If such Modifications are not authorized by FERC, the no-action alternative would involve PennEast constructing the original Certificated Route. In either case, the no-action alternative would not include any Project phasing and would not include the Church Road Interconnects. This alternative would avoid the minor environmental impacts associated with the proposed Church Road Interconnects that are discussed in this Environmental Report. It may also result in the temporal delay of impacts identified in the FEIS for the portion of the Project from MP 0.0R1 to MP 68.2R2, and in analysis of the 2019 Amendment Application if FERC authorizes the Modifications proposed therein, until such time as the entire Project can be constructed. The no-action alternative, however, would not meet the purpose and need of the Project as they pertain to numerous of its shippers and customers, and it would not meet the needs of those shippers to be served by the new Church Road Interconnects.

10.2 SYSTEM ALTERNATIVES

System alternatives would make use of other existing, modified, or proposed facilities while meeting the objective of the proposed action. FERC previously determined that there are no reasonable system alternatives that would provide a significant environmental advantage when compared to the proposed Project. The proposal to phase the Project and to construct the Church Road Interconnects will provide delivery points from the Project's mainline pipeline to the TCO and Adelphia pipelines. There are no system alternatives that can provide those delivery points.

10.3 SITE ALTERNATIVES

The location of the proposed Church Road Interconnects are influenced by the location at which the Project's mainline pipeline would tie into existing infrastructure at delivery points. The facility could potentially be constructed on either the north or south side of the PennEast mainline pipeline. The Church Road Interconnects location is proposed to be constructed to the south of the ROW because that layout would:

- Increase the distance between the proposed facility and neighboring houses
- Minimize construction and operational noise impacts
- Utilize the previously-developed footprint of the existing residence and utility ROWs

- Locate the facility behind multiple tree lines which limit visual impacts from all directions
- Allow for the existing driveway on the property to be used for access to the facility without the construction of a new entrance or significantly extending the existing driveway
- Avoid impacts to open land designated as prime farmland

Although the Church Road Interconnects would be a viable facility in either configuration (north or south of the Project's mainline pipeline), the proposed site layout is the preferred option per the aforementioned reasons, with the Church Road Interconnects located on the south side of the pipeline.

11.0 RELIABILITY AND SAFETY

The Project has been designed, and will be constructed, operated and maintained, to minimize potential hazards to the public. The facilities will be installed and operated consistent with sound engineering practices and applicable safety standards, including the USDOT Minimum Federal Safety Standards specified in 49 CFR Part 192. **The proposed Church Road Interconnects are within 0.25-mile of the Certificated Route, and the overall construction, operation and maintenance practices have not changed. Therefore, the reliability and safety assessment remains the same as that presented in the FEIS.**

11.1.1 High Consequence Areas

The Pipeline Safety Improvement Act (49 U.S.C. §§ 60101 *et seq.*), which was signed into law on December 17, 2002, required the USDOT to issue regulations establishing standards for risk analysis and development of an integrity management program to strengthen overall pipeline safety. The Pipeline Safety Improvement Act also established minimum requirements for integrity management programs for gas pipelines located in high consequence areas (HCAs). The term HCA is used to identify specific areas where an incidental return (IR) from a pipeline could have the most significant adverse consequences.

The proposed Church Road Interconnects are within an HCA which was previously identified for the Certificated Route and addressed in the FEIS. Previously proposed mitigation measures remain unchanged.

12.0 POLYCHLORINATED BIPHENYL CONTAMINATION

According to 18 CFR 380.12(n), this analysis is not required because the Project does not involve: the replacement, abandonment by removal, or abandonment in place of pipeline facilities determined to have polychlorinated biphenyl (PCBs) in excess of fifty (50) parts per million (ppm) in pipeline liquids; or compressor station modifications. **Therefore, no further discussion is provided, as this is unchanged by the Church Road Interconnects.**

13.0 CUMULATIVE IMPACTS

A cumulative impacts analysis was conducted to identify and describe the potential effects attributable to the proposed Project, the findings of which were submitted in the Certificate Application and subsequent filings. This analysis was developed in accordance with the NEPA and addresses the Council on Environmental Quality (CEQ) guidelines (40 CFR Parts 1500-1508). CEQ's regulations define cumulative impacts as the incremental effect of a proposed action when added to other past, present and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor, but collectively significant actions taking place over a period of time (40 CFR 1508.7). Although the individual impact of each separate project may be minor, CEQ's regulations provide the additive or synergistic effects of multiple projects may be significant.

Existing baseline conditions within the Project area, including the area of the proposed Church Road Interconnects, are a result of past actions. Within the cumulative impact assessment in the Certificate Application, PennEast identified four (4) general categories of actions (and their regions of influence [ROI]) which could potentially contribute to cumulative impacts when considered with the Project. These include: 1) natural gas development (natural gas wells, pipeline gathering systems and interstate pipelines); 2) electric generation and transmission projects; 3) transportation projects; and 4) residential and commercial development projects. These types of actions have the potential to alter the natural environment in the Project area and wider region. Therefore, to update this evaluation to assess potential cumulative impacts that may result from the proposed Church Road Interconnects, PennEast identified similar types of proposed actions. When added to other past, present and future actions, the proposed Church Road Interconnects may result in cumulative impacts that affect resources such as groundwater, surface water, vegetation, wildlife (including federally and state protected species), cultural resources, socioeconomics, geology, soils, land use, air quality and noise.

In addition, the geographic boundaries for the cumulative impacts analysis for the Church Road Interconnects are based on the geographic extents of impacts of the Church Road Interconnects for each resource. PennEast understands that this geographic extent varies with the resource affected, and cumulative impacts can extend beyond certain immediate terrestrial boundaries. Therefore, consistent with the previous cumulative assessments developed for the Project, the geographic extents for the proposed Project's cumulative impact analysis include:

- *Minor projects*, including natural gas wells, residential development, small commercial development and small transportation projects, within 0.25-mile of the Church Road Interconnects workspace;
- *Major projects*, including large commercial, industrial, transportation and energy development projects, within ten (10) -miles of the Church Road Interconnects workspace when discussing land use, recreation, aesthetics and socioeconomics;
- *Major projects* within the USGS NHD HUC-10 Watershed or sub-basin area in which the Church Road Interconnects are sited; and

The following analysis identifies potential cumulative impacts associated with the proposed Church Road Interconnects. Table 13-1 identifies the Cumulative Impact Assessment Area (CIAA) for each of the resource categories the proposed Church Road Interconnects may contribute direct and indirect impacts to,

and how these might apply to the Church Road Interconnects. The CIAA boundary used herein (listed in Table 13-1) for each resource category is the same as that used for the Certificate Application, although the potential air quality impacts due to construction and operation have been separated into two (2) distinct CIAAs.

The proposed Church Road Interconnects are located within 0.25-mile of the Certificated Route; therefore, the CIAA geographic boundaries that were used in the cumulative impacts analysis for the Certificated Route include the areas directly affected by the Church Road Interconnects. Major projects within ten (10) miles of or within the HUC-10 watersheds were identified and included in the cumulative impacts analysis for the Certificated Route. Because it is possible that minor projects within 0.25-mile of the Church Road Interconnects would not have been included in the previous analysis, PennEast created 0.25 mile and one (1) mile buffers around the proposed Church Road Interconnects area and identified projects within those buffers.

In the FEIS for the Project, FERC determined that construction and operation of the Project would result in some adverse environmental impacts, but impacts would be reduced to less-than-significant levels with the implementation of PennEast's proposed and FERC's recommended mitigation measures. PennEast would minimize impacts on natural and cultural resources during construction and operation of the Project by implementing FERC's *Plan* and *Procedures*, its E&SCP, and other Project-specific plans (Unanticipated Discovery Plan, Fugitive Dust Control Plan, Agricultural Impact Minimization Plan [AIMP], Karst Mitigation Plan, HDD Plan for Karst Terrain, HDD Inadvertent Returns and Contingency Plan, Hydrostatic Testing Alternative Water Source Plan, Post-Construction Stormwater Management Plan, Spill Prevention Control and Countermeasures Plan, Unanticipated Discovery of Contamination Plan, Blasting Plan, Invasive Plant Species Control Plan, Well Monitoring Plan, Wetland Restoration Plan, Residential Access and Traffic Management Plan, Site-Specific Residential Construction Plans, Vibration Monitoring Plan, HDD Noise Mitigation Plan, Post-Construction Landslide Monitoring Plan, and Migratory Bird Conservation Plan). These plans each apply to the Church Road Interconnects, as applicable, and would minimize the potential for cumulative impacts.

Table 13-1
Cumulative Impact Assessment Area for the Church Road Interconnects

Resource Report (RR) Resource	CIAA Boundary
RR 2: Groundwater	Watershed boundary HUC-10
RR 2: Water Use and Quality	Watershed boundary HUC-10
RR 3: Fish, Wildlife	Watershed boundary HUC-10
RR 3: Vegetation	Watershed boundary HUC-10
RR 4: Cultural Resources	0.25-mile
RR 5: Socioeconomics	County
RR 6: Geological Resources	0.25-mile
RR 7: Soils	0.25-mile or Watershed boundary HUC-10
RR 8: Land Use, Recreation, and Aesthetics	Watershed HUC-10 or ten (10) miles

Resource Report (RR) Resource	CIAA Boundary
RR 9: Air Quality	Operations: N/A (The operational emissions of the Church Road Interconnects are estimated to be 10 to 30 times less than applicable pollutant thresholds that would require air permitting (Plan Approval). Since an air permit will not be required, no adverse impacts on air quality from facility operational emissions are expected.) Construction: 0.25-mile
RR 9: Noise	One (1) mile
RR 10: Alternatives	N/A
RR 11: Reliability and Safety	N/A
RR 12: PCB Contamination	N/A
RR 13: Engineering and Design Material	N/A

Table 13-2
Projects Potentially Contributing to Cumulative Impacts

Project, Developer	County, State (as Applicable to the Church Road Interconnects)	Description	FERC Docket or Federal / State Permit Number	Approximate Closest Distance to Church Road Interconnects (Miles, Direction)	Approx. Permanent Impact Area (acres or miles)	Potentially Overlapping Resources	Current Status and Schedule
Natural Gas Development (Pipelines Development Wells)							
Adelphia Gateway	Northampton, PA	The Adelphia Gateway project will convert 50 miles of an existing 84-mile pipeline in southeastern Pennsylvania from oil to natural gas; in addition to two (2) pipeline laterals, aboveground facilities include three compressor stations, meter stations, mainline valves, and access roads. Since existing infrastructure is being used, there will be limited construction and minimal environmental impacts.	CP-18-46	0.0 mile; ties into the proposed Church Road Interconnects	42 acres of land during construction for pipeline and aboveground facilities	*ROI = Major Project* Water, Fish, Wildlife, and Vegetation Resources: (HUC-10 Lower Lehigh River Watershed) Cultural Resources: 0.25 mile from Church Road Interconnects Geological Resources: 0.25 mile from Church Road Interconnects Soils: 0.25-mile from Church Road Interconnects Socioeconomics: Northampton County, PA Land Use, Recreation, and Aesthetics: HUC-10 Lower Lehigh River Watershed Noise: 1 mile from Church Road Interconnects Air (Construction): 0.25 mile from Church Road Interconnects	Filed abbreviated FERC application on January 11, 2018. FERC issued its EA on Jan. 4, 2019 recommending that the FERC Certificate Order contain a finding of no significant impact. FERC issued a Certificate Order on December 19, 2019. Pending receipt of necessary permits and regulatory actions, Adelphia Gateway expects the project to be constructed after all appropriate permits have been obtained.
Regional Energy Access Project (Phase I and II)	Northampton, PA	The Regional Energy Access Project (Phase I and II) will connect Marcellus supply from receipt points along the Transco pipeline's Leidy Line in Luzerne County, Pennsylvania, to delivery points in Pennsylvania and New Jersey, including the Station 210 Zone 6 Pool in Mercer County, New Jersey, the Lower Mud Run Road interconnect in Northampton County, Pennsylvania, and along Transco's mainline to Station 200, Marcus Hook lateral and Trenton Woodbury lateral.	N/A	8 miles northeast	34 miles of pipeline looping and additional compression along existing Transco facilities	*ROI = Major Project* Socioeconomics: Northampton County, PA Land Use: 10 miles	Transco announced on March 8, 2019 that it was initiating a binding open season from March 8 to April 8, 2019, for Regional Energy Access. Pending receipt of necessary permits and regulatory actions, Transco expects the project to be placed into service as early as November 2022.
UGI Bethlehem Liquified Natural Gas (LNG) Peak Delivery Facility	Northampton, PA	Construction of a new facility designed to supply natural gas to the distribution system during peak demand in extreme cold weather conditions in the city of Bethlehem, Northampton County.	PADEP: 48-00114A	6 miles south	Less than 11 acres	*ROI = Major Project* Water, Fish, Wildlife, and Vegetation Resources: (HUC-10 Lower Lehigh River Watershed) Socioeconomics: Northampton County, PA Land Use, Recreation, and Aesthetics: HUC-10 Lower Lehigh River Watershed	All required permits and approvals have been received. Construction began in December 2019, and the Project is expected to be in service in 2020.
Electric Generation and Transmission Projects							
None identified in the vicinity of the Church Road Interconnects.							

Project, Developer	County, State (as Applicable to the Church Road Interconnects)	Description	FERC Docket or Federal / State Permit Number	Approximate Closest Distance to Church Road Interconnects (Miles, Direction)	Approx. Permanent Impact Area (acres or miles)	Potentially Overlapping Resources	Current Status and Schedule
Transportation Projects							
Highway Restoration PennDOT Project: State Route (SR) 22 - Bethman Rd to Farmersville Rd	Northampton, PA	Resurface/Restoration Bethman Rd (Seg. 170/171 Off. 0000) to Farmersville Road including ramps at the SR 33 interchange in Bethlehem Township	N/A	0.18 miles northeast	6 miles	*ROI = Minor Project* Water, Fish, Wildlife, and Vegetation Resources: (HUC-10 Lower Lehigh River Watershed) Cultural Resources: 0.25 mile from Church Road Interconnects Geological Resources: 0.25 mile from Church Road Interconnects Soils: 0.25 mile from Church Road Interconnects Socioeconomics: Northampton County, PA Land Use, Recreation, and Aesthetics: HUC-10 Lower Lehigh River Watershed Noise: 1 mile from Church Road Interconnects Air (Construction): 0.25 mile from Church Road Interconnects	Construction in progress (January 2020)
Residential and Commercial Development Projects							
Mill Creek Corporate Campus Development	Northampton, PA	Corporate building development	N/A	0.14 mile south	1.4 acres	*ROI = Minor Project* Water, Fish, Wildlife, and Vegetation Resources: (HUC-10 Lower Lehigh River Watershed) Cultural Resources: 0.25 mile from Church Road Interconnects Geological Resources: 0.25 mile from Church Road Interconnects Soils: 0.25 mile from Church Road Interconnects Socioeconomics: Northampton County, PA Land Use, Recreation, and Aesthetics: HUC-10 Lower Lehigh River Watershed Noise: 1 mile from Church Road Interconnects Air (Construction): 0.25 mile from Church Road Interconnects	Unknown

The following sections describe the potential for cumulative and/or overlapping impacts that the identified projects (as listed in Table 13-2) may have in combination with the Church Road Interconnects on the individual environmental resources.

13.1 ENVIRONMENTAL RESOURCES DISCUSSED IN SECTION 2

As detailed in Table 13-1, the CIAA for cumulative impacts on groundwater, surface water, and wetland resources is the HUC-10 watershed area in which the Church Road Interconnects are located. Table 13-2 identifies the projects which have the potential to impact environmental resources discussed in Section 2, and they include:

- Two (2) Natural Gas Projects:
  - Adelphia Gateway
  - UGI Bethlehem LNG Peak Delivery Facility
- One (1) Transportation Improvement Project:
  - Highway Restoration PennDOT Project: SR 22 - Bethman Road to Farmersville Road
- One (1) Commercial Development Project:
  - Mill Creek Corporate Campus Development

13.1.1 Groundwater

The Church Road Interconnects are not anticipated to adversely affect the groundwater quality or supply impacts that were presented in the FEIS. PennEast proposes to implement BMPs designed to avoid, reduce and/or mitigate potential impacts on groundwater during construction and operation as detailed within the Project E&SCP. PennEast will adhere to practices related to groundwater protection, including specifications for trench breakers and dewatering, as well as restrictions on refueling and storage of hazardous substances. If contaminated soils or groundwater are encountered during construction, PennEast would follow protocol in its Unanticipated Discovery of Contamination Plan.

The Church Road Interconnects are not sited on bedrock aquifers, principal aquifers, surficial aquifers or SSAs that were not previously crossed by the Certificated Route or result in changes to potential impacts, either in kind or in degree, that were previously discussed; therefore, the previous analyses and conditions remain unchanged. In addition, the Church Road Interconnects are not sited in an area that is known to have potentially contaminated groundwater that were not previously crossed by the Certificated Route; therefore, prior analyses remain unchanged. PennEast is continuing to identify the locations of water wells and springs that will be crossed by the Certificated Route. The locations of water wells and springs within 150 feet of the construction workspace (500 feet in karst terrain) will be provided in an IP prior to Project construction. PennEast will utilize its Well Monitoring Plan during construction to identify potential impacts.

As listed above, the projects identified within the CIAA for groundwater include two (2) natural gas projects, one (1) minor transportation project, and one (1) commercial development project. Each of these proposed projects may use small amounts of groundwater from a public or private well or spring or to perform construction activities in their vicinity. Construction of each of these proposed projects would likely require equipment refueling and may potentially require storage of hazardous substances, which would involve a risk of a spill that could result in groundwater contamination. As is the case for the Project,

inclusive of the Church Road Interconnects, each of the identified projects will require construction and environmental permits and BMPs to be implemented in the event that contaminated groundwater is encountered during construction. It is expected that each identified project would have a spill plan that would minimize the potential for groundwater contamination from equipment refueling or storage of hazardous substances. **Therefore, cumulative impacts to groundwater resources are not anticipated with the implementation of the Church Road Interconnects; the proposed Church Road Interconnects do not affect the ultimate conclusions regarding cumulative impacts contained in the FEIS.**

13.1.2 Surface Water

As described in Section 2.2, the Church Road Interconnects will not directly impact surface waters. Regarding hydrostatic test water, the proposed Church Road Interconnects does not affect any proposed water withdrawal locations or volumes, and no hydrostatic test water will be discharged in the Church Road Interconnects area. **Therefore, with no impacts to surface water resources from the Church Road Interconnects, cumulative impacts to surface water use and discharge are not anticipated.**

13.1.3 Wetlands

As described in Section 2.4, the Church Road Interconnects will not impact wetlands. **Therefore, with no impacts to wetlands from the Church Road Interconnects, cumulative impacts to wetlands are not anticipated.**

13.2 ENVIRONMENTAL RESOURCES DISCUSSED IN SECTION 3

As detailed in Table 13-1, the CIAA for cumulative impacts on vegetation, fisheries, wildlife, and threatened or endangered species is the HUC-10 watershed area in which the Church Road Interconnects are located. Table 13-2 identifies the projects that have the potential to temporarily impact environmental resources discussed in Section 3, and they include:

- Two (2) Natural Gas Projects:
  - Adelphia Gateway
  - UGI Bethlehem LNG Peak Delivery Facility
- One (1) Transportation Improvement Project:
  - Highway Restoration PennDOT Project: SR 22 - Bethman Road to Farmersville Road
- One (1) Commercial Development Project:
  - Mill Creek Corporate Campus Development

13.2.1 Vegetation and Wildlife

As described in the FEIS, Project construction would result in changes in vegetation cover and could result in the displacement of wildlife from the Project areas. The effects would be mitigated by restoring disturbed areas in accordance with the FERC's *Plan* and *Procedures*, the E&SCP, permit conditions, and the implementation of restrictions on the locations and timing of construction activities. Construction of the

Church Road Interconnects would not result in changes to the types of vegetation and land uses that will be impacted by the Project.

The two (2) natural gas projects, the transportation project, and the commercial development project listed in Table 13-2 may also result in the temporary displacement of wildlife during construction. Two (2) of these projects include improvements of existing infrastructure or are small development projects, where vegetation and wildlife impacts are expected to be minimal. Within its EA for the 2019 Amendment Application, FERC assessed the potential impacts on vegetation from the Adelphia Gateway natural gas project, and found that, "[b]ased on the types and amounts of vegetation affected by the Project and Adelphia's proposed avoidance, minimization, and mitigation measures to limit Project impacts, we conclude that impacts on vegetation from the Project would not be significant." Likewise, impacts to fisheries and aquatic resources and wildlife were expected not to be significant based on construction methods and minimization and mitigation measures. The Regional Energy Access Project is expected to take similar steps to minimize vegetation and wildlife impacts. Similarly, the transportation and commercial development projects identified in Table 13-2 would be required to adhere to applicable permits and approvals which are protective of vegetation and wildlife. **Therefore, cumulative impacts are not anticipated.**

13.2.2 Threatened and Endangered Species

As described in Section 3.4, PennEast has coordinated with regulatory agencies that have jurisdiction of threatened and endangered species in the Project area. Each agency has received consultation letters regarding the proposed Church Road Interconnects, and surveys have been conducted to provide additional information about species of concern that may occupy habitats impacted by the Church Road Interconnects. Where habitat impacts cannot be avoided, PennEast has committed to conservation and mitigation measures to minimize direct and indirect impacts to threatened and endangered species and their habitats.

The projects identified in Table 13-2 would also be required to adhere to applicable permits, approvals, and conservation measures to protect threatened and endangered species. Per the recommendations in the 2019 FERC's EA for the 2019 Amendment Application, the Adelphia Gateway natural gas project would not begin construction until the FERC staff completes the ESA Section 7 consultations with the USFWS and the project has received written notification from the Director of Office of Energy Projects (OEP) that construction and/or use of mitigation (including implementation of conservation measures) may begin. The Regional Energy Access Project is expected to take similar steps to assess potential impacts to threatened and endangered species. The identified proposed transportation project is small-scale and would not be expected to impact protected species. Depending on construction schedules, the commercial development projects may or may not occur at the same time as the Church Road Interconnects. PennEast will not begin construction of the Church Road Interconnects until consultation with applicable agencies, including ESA Section 7 consultation with the USFWS, is complete. Any adverse effects of the proposed Church Road Interconnects to federal species will be addressed through consultation between FERC and the USFWS, including revisions to the existing BO, if necessary. In the BO, the USFWS determined that no state, local or federal projects were reasonably certain to occur within the action area of the proposed PennEast Pipeline, and that cumulative impacts to federal species were not anticipated. **No federally threatened or endangered species are known or suspected to be present at the location proposed for the Church Road Interconnects.**

13.3 ENVIRONMENTAL RESOURCES DISCUSSED IN SECTION 4

Potential cumulative impacts may include effects to cultural resources. As listed in Table 13-2, projects within 0.25 mile that have the potential for overlapping impacts of the Church Road Interconnects related to cultural resources include:

- One (1) Natural Gas Project:
  - Adelphia Gateway
- One (1) Transportation Improvement Project:
  - Highway Restoration PennDOT Project: SR 22 - Bethman Road to Farmersville Road
- One (1) Commercial Development Project:
  - Mill Creek Corporate Campus Development

For federal undertakings, cumulative impacts to cultural resources can be minimized through implementation of Section 106 of the NHPA. For state-funded or permitted projects in Pennsylvania, cumulative impacts to cultural resources can be minimized through the Pennsylvania History Code (37 Pa. Cons. Stat., §§ 500 *et seq.*). Archaeological surveys have been completed on one hundred percent (100%) of the Church Road Interconnects site. Architectural history survey is based on individual landowner parcels and has been completed on one hundred percent (100%) of the parcels within the Church Road Interconnects APE.

As detailed in Section 4.2.1, PennEast reported the results of Phase I archaeological survey for the Church Road Interconnects to the PASHPO. PennEast will file the PASHPO's comments with FERC when they are received. No archaeological sites have been identified within the proposed Church Road Interconnects site.

As detailed in Section 4.2.2, no potentially significant historic properties will be affected by the Church Road Interconnects.

As indicated in Table 13-1, the CIAA boundary for cultural resources is 0.25 mile. As provided in Table 13-2 and as listed above, projects have been identified with the potential to have overlapping impacts with the Church Road Interconnects within this CIAA include: one (1) natural gas project, one (1) transportation project, and one (1) commercial development project. The identified transportation project is not expected to affect cultural resources, as they involve improvements to existing paved surfaces. Portions of the natural gas and commercial development projects identified in Table 13-2 overlap with the Project, and PennEast did not identify any archaeological sites or historic resources within the area of overlap. If this commercial development project requires federal and/or state permits for construction, their proponents would be required to coordinate with PASHPO for compliance with NHPA Section 106 and/or the Pennsylvania History Code (37 Pa. Cons. Stat., §§ 500 *et seq.*).

PennEast's minimization and mitigation of effects to National Register of Historic Places (NRHP)-listed or -eligible properties, as well as avoidance of NRHP-listed or -eligible properties, will reduce the potential for cumulative effects to cultural resources. If FERC, in consultation with the PASHPO and consulting parties, determines that the Project will have an adverse effect on historic properties, FERC will require PennEast to develop treatment plans to avoid or mitigate adverse effects. PennEast's Unanticipated

Discovery Plan for cultural resources has been submitted to FERC and was approved by the PASHPO. Under that plan, environmental and construction inspectors will monitor Project construction for potential archaeological remains as earth disturbance and other activities take place.

Project construction will not begin until compliance with Section 106 of the NHPA is completed. **Therefore, in combination with the other identified proposed projects within 0.25 mile, the Church Road Interconnects would not incrementally contribute to cumulative impacts.**

13.4 ENVIRONMENTAL RESOURCES DISCUSSED IN SECTION 5

The CIAA for cumulative impacts on socioeconomics includes the counties affected by the Project. As listed in Table 13-2, projects that have the potential for overlapping impacts with the Church Road Interconnects related to socioeconomics include:

- Three (3) Natural Gas Projects:
  - Adelphia Gateway
  - Regional Energy Access Project (Phase I and II)
  - UGI Bethlehem LNG Peak Delivery Facility
- One (1) Transportation Improvement Project:
  - Highway Restoration PennDOT Project: SR 22 - Bethman Road to Farmersville Road
- One (1) Commercial Development Project:
  - Mill Creek Corporate Campus Development

The Church Road Interconnects do not impact counties that were not previously crossed by the Certificated Route or result in changes to potential impacts, either in kind or in degree, that were previously discussed; therefore, the previous analyses and conditions for the Church Road Interconnects remain unchanged.

The projects identified in Table 13-2 may have similar short-term socioeconomic benefits to the region. **Therefore, PennEast does not anticipate that cumulative impacts related to socioeconomics will occur from the incorporation of the proposed Church Road Interconnects.**

13.5 ENVIRONMENTAL RESOURCES DISCUSSED IN SECTION 6

With a CIAA of 0.25 mile and as listed in Table 13-2, projects that have the potential for overlapping impacts with the Church Road Interconnects related to geologic resources include:

- One (1) Natural Gas Projects:
  - Adelphia Gateway
- One (1) Transportation Improvement Project:
  - Highway Restoration PennDOT Project: SR 22 - Bethman Road to Farmersville Road
- One (1) Commercial Development Project:
  - Mill Creek Corporate Campus Development

Implementing the proposed Church Road Interconnects will not result in a change to bedrock formations crossed by the Project that were not previously crossed by the Certificated Route or result in changes to

potential impacts, either in kind or in degree, that were previously discussed; therefore, the previous analyses and conditions remain unchanged. No mineral resources, active or abandoned mines or quarries, or oil and gas wells are affected by the Church Road Interconnects.

As described in Section 6, the Church Road Interconnects would not result in a change to surficial geologic formations previously reported for the Project. Unforeseen impacts from events such as landslides, subsidence, flash flooding, or soil liquefaction should be avoided using information acquired during geophysical studies and implemented in the Project plans. Preliminary and completed studies undertaken during the Project design phase include a seismic hazard analysis, quarry blasting study, arsenic risk assessment, karst hazard study and geotechnical HDD feasibility study. The details and results of these studies are contained in the Certificate Application and subsequent filings. These minimization methods will continue to be implemented with the proposed Church Road Interconnects. Construction of the Project, including the Church Road Interconnects, will be in accordance with PennEast's construction plans as listed in Section 2.3 of the FEIS. As related to geologic resources, these plans include a Karst Mitigation Plan, an HDD Drilling Plan for Karst Terrain, and a Blasting Plan. Implementation of the proposed Church Road Interconnects will not affect known paleontology sites. An Unanticipated Discovery Plan of Paleontological Resources is being prepared and will address unanticipated discovery that will apply to the entire Project, including the Church Road Interconnects.

PennEast does not anticipate a cumulative adverse impact on geological resources from implementation of the Church Road Interconnects in combination with other known planned developments identified in Table 13-2. Projects with an overlapping CIAA for geological resources include one (1) transportation project, which is not expected to impact geological resources. The natural gas project and commercial development project listed above and within Table 13-2 would be constructed in accordance with applicable permits and approved engineering design, which would minimize impacts on geological resources. **Therefore, the Church Road Interconnects would not incrementally contribute to cumulative impacts on geologic or mineral resources.**

13.6 ENVIRONMENTAL RESOURCES DISCUSSED IN SECTION 7

The CIAA for soils is 0.25 mile; as listed in Table 13-2, projects that have the potential for overlapping impacts with the Church Road Interconnects related to soils include:

- Two (2) Natural Gas Projects:
  - Adelphia Gateway
  - UGI Bethlehem LNG Peak Delivery Facility
- One (1) Transportation Improvement Projects:
  - Highway Restoration PennDOT Project: SR 22 - Bethman Road to Farmersville Road
- One (1) Residential and Commercial Development Projects:
  - Mill Creek Corporate Campus Development

The Church Road Interconnects are not anticipated to affect the soils evaluation that was presented in the FEIS. None of the soils occurring within the proposed Church Road Interconnects indicate that significant construction limitations or hazards are likely to occur. The previous analyses remain unchanged related to

erosion potential, revegetation potential, and hydric soils with the implementation of the Church Road Interconnects; the proposed mitigation measures are unchanged.

As discussed in Section 7, impacts to soils from the Project will generally be localized and temporary. PennEast developed an AIMP that will be implemented during construction. The AIMP outlines agriculture-specific construction methods and BMPs as well as restoration methods and monitoring to ensure that crop yields are not significantly impacted as a result of construction of the Project. In addition, PennEast will minimize impacts to soils through consistent implementation of the E&SCP and adherence to the FERC *Plan* and *Procedures* to avoid topsoil mixing, compaction and erosion. Operation and maintenance activities constitute reasonably foreseeable future actions, and impacts associated with these activities, although direct, should be mostly temporary. The implementation of the Church Road Interconnects will not influence these measures.

Taking into account effects from past, present, and reasonably foreseeable future actions, the cumulative impacts to soils resources are expected to be minimal. The identified transportation project is not expected to disturb soil as it involves improvements to existing paved surfaces. The natural gas and commercial development projects identified in Table 13-2 will disturb more than 5,000 square feet of soil and will be required to develop and implement a site-specific E&SCP that meets 25 Pa. Code Chapter 102 requirements. Adherence to these plans and requirements will minimize the potential for each of the identified projects to negatively impact soils resources.

The proposed Church Road Interconnects does not change the ultimate conclusions contained in the FEIS and is not expected to incrementally contribute to cumulative impacts on soils resources. Therefore, cumulative impacts related to geology and soils from the Church Road Interconnects are not anticipated.

13.7 ENVIRONMENTAL RESOURCES DISCUSSED IN SECTION 8

As detailed in Table 13-1, the CIAA for cumulative impacts on land use, recreation, and aesthetics is the HUC-10 watershed area in which the Church Road Interconnects are located. Table 13-2 identifies the projects that have the potential to impact environmental resources discussed in Section 8, and they include:

- Three (3) Natural Gas Projects:
  - Adelphia Gateway
  - Regional Energy Access Project (Phase I and II)
  - UGI Bethlehem LNG Peak Delivery Facility
- One (1) Transportation Improvement Project:
  - Highway Restoration PennDOT Project: SR 22 - Bethman Road to Farmersville Road
- One (1) Residential and Commercial Development Project:
  - Mill Creek Corporate Campus Development

The Church Road Interconnects does not result in a substantial change in distribution of the land cover types impacted by the Project. There are no buildings identified within fifty (50) feet of the proposed Church Road Interconnects, as there were with the Certificated Route. The overall analyses with respect to residential, commercial, and industrial areas remain unchanged. No specialty crop areas or organic farms

are impacted by the proposed Church Road Interconnects. The Church Road Interconnects are not sited in an area where hazardous waste sites were identified; therefore, previous analyses remain unchanged.

The proposed Church Road Interconnects occurs within 0.25 mile of the Certificated Route and would have a minimal long-term impact on visual and aesthetic resources. A number of line-of-sight occluding features would minimize the visual impact of the Church Road Interconnects including maintaining the existing tree line and highway sound barriers.

The transportation project identified in Table 13-2 would not affect land use or visual resources. The identified Adelphia Gateway project and planned commercial development project is proposed in areas with similar, existing land uses, which would minimize potential negative effects. At their nearest locations, the Regional Energy Access Project (Phase I and II) and UGI Bethlehem LNG Peak Delivery Facility are approximately eight (8) and six (6) miles distant from the Church Road Interconnects, respectively, which minimizes the potential for overlapping cumulative effects on land use and visual resources. **Therefore, taking into consideration each of the identified proposed projects along with the Church Road Interconnects, implementation of these activities would not incrementally contribute to cumulative impacts on land use and visual resources.**

13.8 ENVIRONMENTAL RESOURCES DISCUSSED IN SECTION 9

As detailed in Table 13-1, the CIAA for cumulative impacts on air quality during construction is 0.25 mile from the Church Road Interconnects. The CIAA for noise impacts is set at one mile from the Church Road Interconnects. As listed in Table 13-2, projects that have the potential for overlapping impacts with the Church Road Interconnects related to air and noise quality during construction include:

- Operational emissions
- One (1) Natural Gas Projects:
  - Adelphia Gateway
- One (1) Transportation Improvement Projects is within 0.25 mile:
  - Highway Restoration PennDOT Project: SR 22 - Bethman Road to Farmersville Road
- One (1) Residential and Commercial Development Project is within 0.25 mile:
  - Mill Creek Corporate Campus Development

13.8.1 Air Quality

The air quality impacts from operations of the Project are primarily related to the combustion turbines of the proposed Kidder Compressor Station in Kidder Twp., Carbon County, Pennsylvania, but also include emissions from pipeline heaters, diesel engine exhaust of the emergency generator, and natural gas released from fugitive leaks and venting of the meters, regulator, valves, flanges, and other interconnection system components. Operational emissions of the highest emitting facility in the FEIS (the compressor station) were conservatively modeled to demonstrate compliance with the NAAQS for all pollutants and all averaging periods. The modeled outputs represent the cumulative estimated emissions to operate all three (3) turbines that would be constructed in Phase 1 and 2 combined and consider the station emissions in combination with background air quality from existing regional emission sources. Similarly, the emissions presented in Table 4.10.1-8 of the FEIS include the cumulative pipeline operational emissions associated

with the interconnects authorized in the Certificate Order and fugitive pipeline leaks for both Phase 1 and 2.

The operational emissions created by the Church Road Interconnects would create a small increase in the overall operational emissions calculated in the FEIS. The Church Road Interconnects are estimated to have emissions that will be seventy-four (74) times less nitrogen oxides, 150 times less particulate matter, 380 times less sulfur dioxide, and fourteen (14) times less carbon monoxide than the compressor station. Therefore, none of these pollutants emitted by the Church Road Interconnects would be expected to cause adverse air impacts in the vicinity of the facility. In fact, based on the estimated maximum case emission rates, the Church Road Interconnects would be exempt from requiring an air permit (Plan Approval).[1] Due to the exempt magnitude of operational emissions, the Church Road Interconnects will not have an adverse impact within the vicinity of the Project or the larger region of the Project.

Because the Church Road Interconnects are exempt from air permitting, detailed information about its emission sources will not be included in the PADEP emission source inventories. This means that the Church Road Interconnects facility emissions would not be readily available, and would not be included in past, present or future source data provided by PADEP for other larger non-exempt facility that may needs to conduct cumulative air quality assessments. In summary, since the facility is small enough to be exempt, its contribution to cumulative air impacts from operational emissions can be considered immaterial.

PennEast designed the Project to minimize temporary impacts to air quality due to construction activities wherever practicable. The operation of heavy construction equipment and its associated exhaust would increase diesel exhaust emissions and would suspend fugitive dust and other construction related particles in the air. The volume of dust emitted will vary depending on the level of activity, specific construction techniques, soil characterizations, and weather conditions. These temporary impacts will be minimized by requirements that the contractor keep machinery adequately maintained and operating. Construction dust and particles would be reduced by implementing fugitive dust control measures (water suppression) as detailed in the Fugitive Dust Control Plan developed for the Project.

The projects identified above within 0.25 mile of the Church Road Interconnects may also impact air quality during construction; these impacts would be short-term and local. These short-term and temporary impacts may include emissions from construction equipment and contributions of fugitive dust. The proposed transportation project and the commercial development project would likely implement similar minimization measures, and they would not result in air emissions once they have been constructed. **Therefore, air emissions during construction for the Church Road Interconnects along with the potentially overlapping projects are anticipated to be negligible and hence unlikely to contribute to cumulative air quality impacts.**

[1] PA DEP Document ID 275-2101-003, Air Quality Permit Exemptions, August 8, 2018, Exemption 38(c) includes emission rate thresholds for oil and gas exploration, development, and production facilities and associated equipment and operations for which construction or reconstruction commenced on or after August 8, 2018. Facilities with emission rates less than the thresholds do not require an air permit. The Church Road Interconnects has estimated emission rates ranging from fourteen (14) (for Single HAP) to thirty-four (34) (Methane) times less than these thresholds. NOx emissions would be twenty-two (22) times less that the seasonal threshold if all annual emissions occurred during the ozone season, and fifty-three (53) times less than the annual threshold.

13.8.2 Noise

The proposed Church Road Interconnects would not substantially change the temporary noise impacts associated with general pipeline construction, and the previously proposed mitigation measures would be implemented, as necessary, to reduce noise quality impacts in sensitive areas. Section 9.4.2 discusses mitigation proposed to address operational noise. Assuming the recommended noise control measures are followed and successfully implemented, the sound level attributable to the proposed Church Road Interconnects would not exceed the FERC criterion of fifty-five (55) dBA L_{dn} at the nearby NSAs nor the Bethlehem Township ordinance sound level limits at site property boundaries, and there should be no perceptible increase in vibration.

Any noise-producing activity identified in Table 13-2 would be required to adhere to applicable noise ordinances to minimize potential impacts to the community. The identified transportation project may cause additional noise during construction; this impact would be short-term and temporary and occur only during the resurfacing, repair, and or installation of the roadway improvements. Similarly, the proposed commercial development project may contribute to noise during the construction phase; however, once in operation, the corporate park would not be expected to significantly contribute to noise in the area.

PennEast has not identified a cumulative adverse impact on air quality or noise from the implementation of the Project with other past, present, and reasonably foreseeable developments, and the implementation of the Church Road Interconnects does not change this conclusion.

13.9 CLIMATE CHANGE

The GHG emissions resulting from the construction and operation of the Church Road Interconnects are discussed in Section 9. Emissions of GHGs from the Project would not have direct impacts on the environment in the Project area; implementing the Church Road Interconnects would not change this conclusion. Currently, there is no standard methodology to determine how the Project's relatively small incremental contribution to GHGs would translate into physical effects on the global environment. The GHG emissions from the construction and operation of the Project, with or without the proposed Church Road Interconnects, would be negligible compared to the global GHG emission inventory. Additionally, burning natural gas results in less carbon dioxide equivalent (CO_{2e}) emissions compared to other fossil fuel sources (e.g., fuel oil or coal). Because fuel oil is widely used as an alternative to natural gas in the region in which the Project would be located, it is anticipated that the Project would result in the displacement of some fuel oil use, thereby potentially offsetting some regional GHG emissions, in terms of CO_2.

As FERC affirmed in the Certificate Order, the environmental effects (including GHG emissions) resulting from natural gas production are generally neither caused by the Project nor are they reasonably foreseeable consequences of FERC's approval of the Project. Notwithstanding this, FERC quantified GHG emissions from Project construction and operation, as well as upstream emissions from extraction and processing, assuming that all gas transported represented incremental new production and that all natural gas was combusted downstream. Anticipated emissions from the proposed Church Road Interconnects would not change the results of FERC's analysis as contained in the FEIS and the Certificate Order.

13.10 RELIABILITY AND SAFETY

Effects on reliability and public safety will be alleviated through the use of the USDOT Minimum Federal Safety Standards in 49 CFR Part 192, which are intended to protect the public and to avert natural gas facility mishaps and failures. In addition, PennEast construction contractors will be required to observe the Occupational Safety and Health Administration Safety and Health Regulations for Construction in 29 CFR Part 1926. No cumulative impacts on safety and reliability are anticipated to occur as a result of the Project, and the Church Road Interconnects will not change this conclusion. None of the projects identified in Table 13-2 are expected to incrementally increase safety concerns.

14.0 REFERENCES

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APPENDICES