DRAFT
Environmental Assessment

Appalachian NGL Hub Rail Transloading
Hannibal, Monroe County, Ohio

July 2020

Prepared for:
Federal Railroad Administration (FRA)
1200 New Jersey Avenue
Washington, DC 20590

And

Monroe County Commissioners
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TETRA TECH

Environmental Assessment
Appalachian NGL Hub Rail Transloading

Issued by: Federal Railroad Administration (FRA)
Pursuant to the National Environmental Policy Act of 1969, 42 U.S.C. § 4321 et. seq.

Approved by:

MARLYS A OSTERHUES

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Chief, Environment and Project Engineering Division
Office of Railroad Policy and Development
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ACRONYMS/ABBREVIATIONS

Acronyms/Abbreviations	Definition
ACHP	Advisory Council on Historic Preservation
APE	Area of Potential Effects
AQCR	Air Quality Control Regions
BAT	Best Available Technology
BMPs	Best Management Practices
BUILD	Better Utilizing Investments to Leverage Development
CAA	Clean Air Act
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CH_4	Methane
CO	Carbon Monoxide
CO_2	Carbon Dioxide
CO_2e	Carbon Dioxide Equivalents
dBA	Weighted Decibel
DERR	Division of Environmental Response and Revitalization
DOE	Department of Energy
EA	Environmental Assessment
ECHO	Enforcement and Compliance History Online
EIA	United States Energy Information Administration
EMA	Ohio Emergency Management Agency
EPA	United States Environmental Protection Agency
ESA	Endangered Species Act
ESCP	Erosion and Sediment Control Plan
FEMA	Federal Emergency Management Agency
FINDS	Facility Index System
ft	Feet
FRA	Federal Railroad Administration
FTA	Federal Transit Administration
FUDS	Formerly Used Defense Sites
GHG	Greenhouse Gas
GIS	Geographic Information System
GWP	Global Warming Potential
HAP	Hazardous Air Pollutant

Acronyms/Abbreviations	Definition
HDD	Horizontal Directional Drill
HHEI	Ohio Headwater Habitat Evaluation Index
HUC	Hydrologic Unit Code
IPAC	Information for Planning and Consultation
IRCP	Inadvertent Return Contingency Plan
Leq	Equivalent Sound Level
LF	Linear Feet
LOD	Limits of Disturbance
LRET	Long Ridge Energy Terminal
LUST	Leaking Underground Storage Tank
NAAQS	National Ambient Air Quality Standards
NPDES	National Pollution Discharge Elimination System
NEPA	National Environmental Policy Act
NESHAP	National Emission Standard for Hazardous Air Pollutants
NO_2	Nitrogen Dioxide
N_2O	Nitrogen Oxide
NO_X	Nitrogen Oxides
NGL	Natural Gas Liquids
NHPA	National Historic Preservation Act
NHO	Alaska and Native Hawaiian Organization
NNSR	Non-attainment New Source Review
NPL	National Priorities List
NRCS	National Resources Conservation Service
NSPS	New Source Performance Standard
NRPW	Non-relatively Permanent Waters
NSR	New Source Review
NWI	National Wetland Inventory
NWP	Nationwide Permit
O_3	Ozone
OAC	Ohio Administrative Code
OH	Ohio
Ohio Hist LF	Ohio Historical Landfill
OHPO	Ohio Historic Preservation Office
ODNR	Ohio Department of Natural Resources
Ohio EPA	Ohio Environmental Protection Agency

Acronyms/Abbreviations	Definition
OHWM	Ordinary High Water Mark
ORAM	Ohio Rapid Assessment Method
OWI	Ohio Wetlands Inventory
Pb	Lead
PCSM	Post-Construction Stormwater Management
PEM	Palustrine Emergent Wetlands
PFO	Palustrine Forested Wetlands
$PM_{2.5}$	Particulate Matter that are two and one half microns or less in width
PM_{10}	Particulate Matter that are en microns or less in width
PSD	Prevention of Significant Deterioration
PTE	Potential-to-Emit
QHEI	Ohio Qualitative Habitat Evaluation Index
RCRA	Resource Conservation and Recovery Act
ROD	Record of Decision
ROW	Right-of-Way
RPW	Relatively Permanent Waters
RUMA	Road Use Maintenance Agreement
SHPO	State Historic Preservation Office
SIP	State Implementation Plan
SO_2	Sulfur Dioxide
SPCC	Spill Prevention and Control and Countermeasure
SWPPP	Stormwater Pollution Prevention Plan
TEG	Triethylene Glycol
THPO	Tribal Historic Preservation Office
TNW	Traditional Navigable Waters
TOYR	Time of year restrictions
Tpy	Tons Per Year
TSCA	Toxic Substances Control Act
UNT	Unnamed Tributary
USACE	United States Army Corps of Engineers
USDOT	United States Department of Transportation
USFWS	United States Fish and Wildlife Service
UST	Underground Storage Tank
VAP	Voluntary Action Plan
VdB	Vibration Decibels

Acronyms/Abbreviations	Definition
VOC	Volatile Organic Content
VOLs	Volatile Organic Liquids
VCP	Voluntary Cleanup Program
WQC	Water Quality Certification
WV	West Virginia
WVDCH	West Virginia Division of Culture and History
WVDEP	West Virginia Department of Environmental Protection
WWF	Warm Water Fishes

1.0 PURPOSE AND NEED OF THE PROJECT

1.1 INTRODUCTION

The proposed Appalachian NGL HUB Rail Transloading Project (the Project) would be constructed by Ohio River Partners Shareholder LLC (doing business as Long Ridge Energy Terminal (LRET)) to support the continued need for transportation of Natural Gas Liquids (NGL) to end-use markets. The Project consists of two parts:(1) the construction of new transloading facility (the Transloading Facility) in Hannibal, Ohio, for which funds have been awarded to Monroe County by the Federal Railroad Administration (FRA), and (2) the construction of an associated, privately-funded 10-inch diameter pipeline (the NGL Pipeline). The NGL Pipeline would transport NGLs from the existing gas processing facility owned by Blue Racer Midstream (Blue Racer) in Natrium, West Virginia, crossing under the Ohio River into Ohio and ultimately terminating approximately 5.9 miles to the southeast at the new Transloading Facility (Figure 1.1.1). The Transloading Facility would facilitate loading NGLs from the pipeline onto railcars for shipment out of the region to extra-regional processing facilities and end-use markets.

In 2018, Monroe County, Ohio applied to the US Department of Transportation's (US DOT) Better Utilizing Investments to Leverage Development (BUILD) program for grant funding that would offset the cost for construction of the Project. The goal of the BUILD program is to invest in transportation projects that upgrade America's surface transportation infrastructure. Grants are awarded for projects that will have a significant local or regional impact. BUILD funding can support roads, bridges, transit, rail, ports or intermodal transportation.

The US DOT selected Monroe County to receive grant funding for the Project under the 2018 BUILD program administered through the FRA. The $20 million grant offsets the total cost of approximately $40 million for the Transloading Facility. The construction of the NGL pipeline is also a part of the Project, but only the Transloading Facility is federally funded.

This Environmental Assessment (EA) was prepared to satisfy the FRA's obligations under the National Environmental Policy Act (NEPA) prior to providing funding for the Project.

1.2 PROJECT DESCRIPTION

As described above, the Project consists of two components: a Transloading Facility and an NGL Pipeline. Figures 1.2.1 and 1.2.2 show the location of the proposed Transloading Facility and the proposed route of the NGL Pipeline.

The proposed Transloading Facility has a footprint of approximately 17 acres situated entirely on LRET Property. The proposed Transloading Facility would be designed to facilitate loading NGLs onto railcars for shipment out of the region. The proposed Transloading Facility location is currently being used as a parking lot that would be repurposed to construct the on-site storage tanks for propane, butane, and natural gasoline, rail spurs into the facility, and rail loading racks for cars to be loaded. In addition to the rail, storage, and loading capabilities, the Transloading Facility would have a transmix [1]tank, a truck loading area to transport transmix materials back to Blue Racer for reprocessing, associated pumps, controls, an office building, and two flares. The proposed Transloading

[1] Transmix product is formed when multiple products are transferred in the same pipeline. When the product transferred in the pipeline follows a different product, the initial slug of material will be a mixture of the two products and cannot be sold to market.

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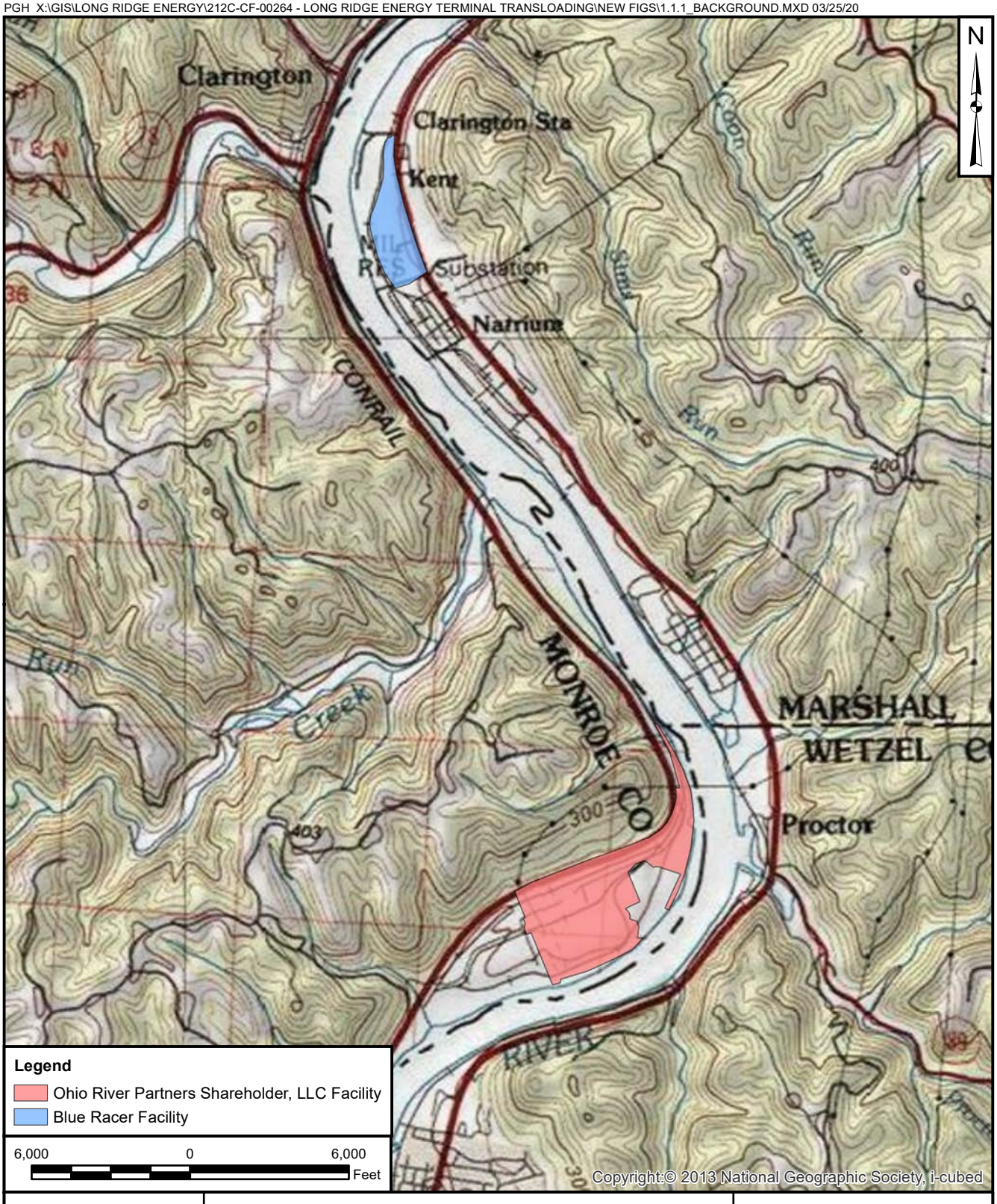

TETRA TECH

PROJECT BACKGROUND LOCATION MAP
APPALACHIAN NGL HUB RAIL TRANSLOADING FACILITY
MONROE COUNTY, OHIO

DRAWN BY: M. SCOTT 01/06/20
CHECKED BY: L. DRANE 03/25/20
APPROVED BY:

CONTRACT NUMBER:212C-CF-00264

FIGURE NUMBER	REV
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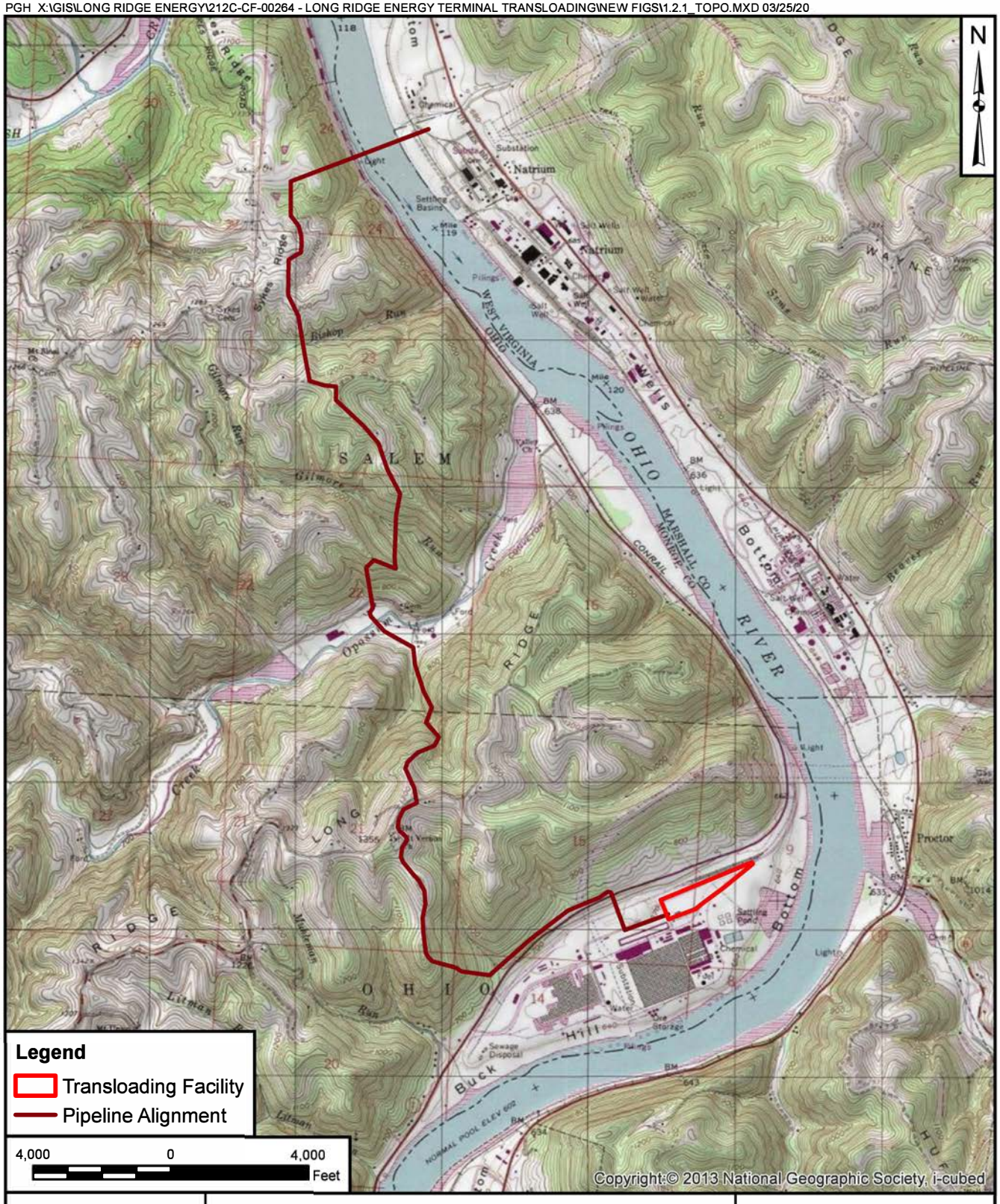

TETRA TECH

TOPOGRAPHIC MAP (USGS)

APPALACHIAN NGL HUB RAIL TRANSLOADING FACILITY
MONROE COUNTY, OHIO

DRAWN BY: M. SCOTT 03/25/20
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APPROVED BY:

CONTRACT NUMBER:212C-CF-00264

FIGURE NUMBER	REV
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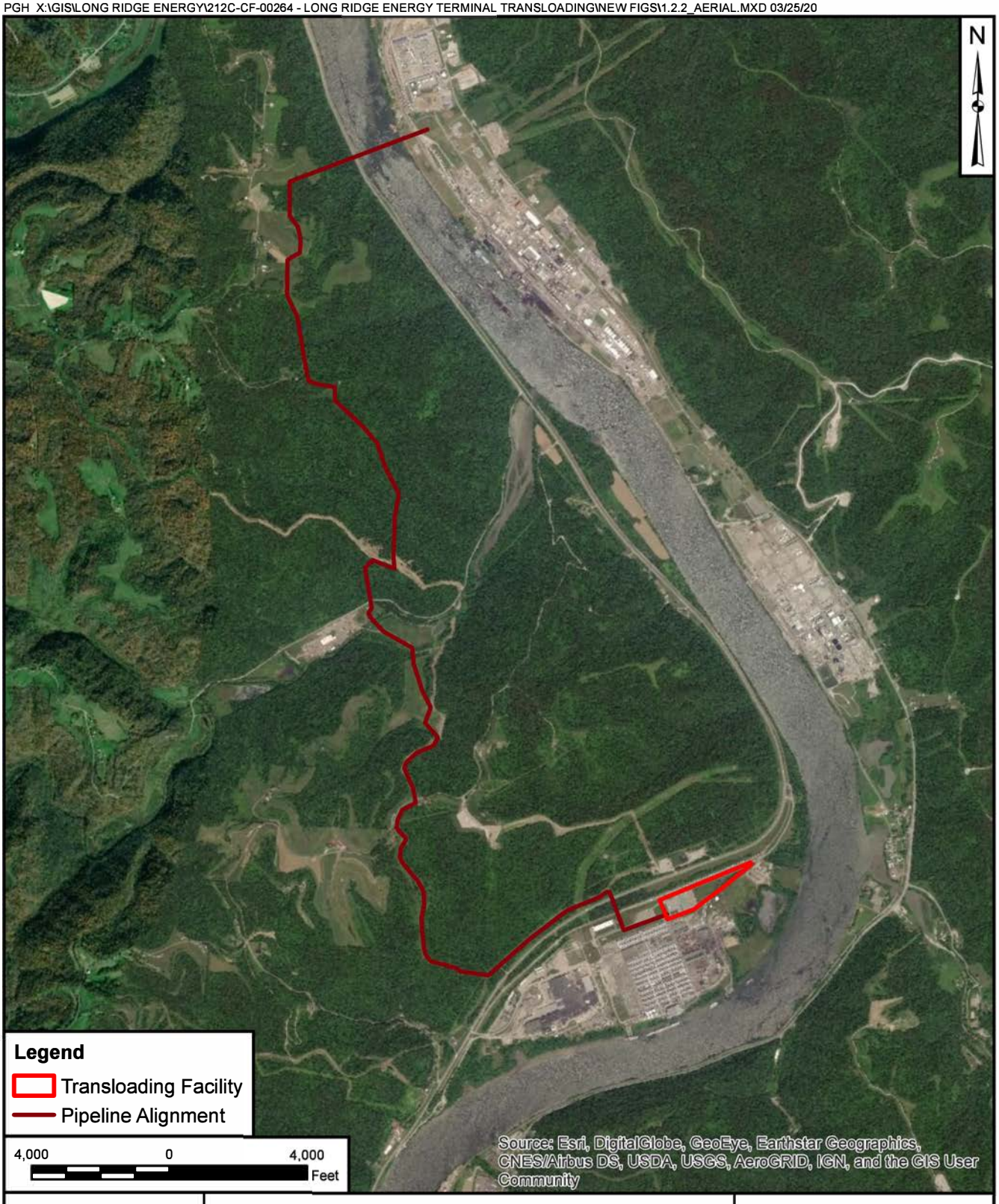

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AERIAL MAP

APPALACHIAN NGL HUB RAIL TRANSLOADING FACILITY

MONROE COUNTY, OHIO

DRAWN BY: M. SCOTT 03/25/20
CHECKED BY: L. DRANE 03/25/20
APPROVED BY:

CONTRACT NUMBER:212C-CF-00264

FIGURE NUMBER	REV
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Facility would be connected to an existing rail loop at the LRET Property and would be used to store and stack railcars for loading and delivery.

The proposed 10-inch NGL Pipeline originates at the existing Blue Racer facility. As part of the NGL Pipeline, new transfer pumps will be installed to pump the NGL from Blue Racer through the NGL Pipeline to the Transloading Facility. From the new transfer pumps, the pipeline would traverse underground via a bore pit excavated inside the Blue Racer facility and then cross under the Ohio River via bore, and surface at a valve site in Monroe County, Ohio on a bluff overlooking the Ohio River. One interconnect valve would be above ground, located on western side of the Ohio River near the HDD bore exit point. This interconnect valve would be within the NGL Pipeline ROW. From the bore pit exit, the terrain encountered across the pipeline route is comprised of east to west trending ridgelines separated by steep, narrow stream valleys. The NGL Pipeline generally follows ridgelines as much as possible, but some valleys

would be crossed as the NGL Pipeline extends to the south and eventually turns east and southward to the Transloading Facility. Approximately one-third of the NGL Pipeline would be collocated in disturbed pipeline right-of-way (ROW) and the remaining two-thirds of the ROW would traverse rural, agricultural, and wooded areas.

The NGL Pipeline would be constructed in a linear corridor with a limit of disturbance (LOD) that would be generally 100-feet (ft) wide along the entire length of the pipeline with the exception of the portions that will be bored (Ohio River and Opossum Creek) and where the width has been reduced at stream and wetland crossings to minimize or avoid impacts to the natural resources. The minimum LOD would be 50-feet at those non-bored crossing locations. The length of the pipeline corridor from the bore pit exit to the LRET Property is approximately 28,387 ft. Thus, ground disturbing activities would be confined to a linear corridor measuring 28,387 ft by 100 ft or 65.17 acres for the construction of the pipeline, plus 17 acres within the existing LRET Property where the Transloading Facility would be constructed.

1.3 PURPOSE AND NEED

The purpose of the Project is to allow for the safe and efficient movement of NGL's from the region in commercial quantities to east coast markets by using existing rail networks in proximity to processing facilities. The Project is needed to address the demand for increased rail capacity to allow for expanded NGL distribution from the region.

The Marcellus and Utica Shale of the Appalachian Basin is one of the largest gas fields in world. According to data provided through the Energy and Information Administration (EIA, 2020), natural gas production has increased over84 percent since 2015, and continues to increase. As of January 2020, natural gas from the Appalachian Basin accounted for 39 percent of US natural gas production. The challenge of moving natural gas and NGLs from the rural areas of Appalachia, such as eastern Ohio and West Virginia's Northern Panhandle, is complex. Pipeline capacity has not kept up with demand. While there are pipeline projects planned, they are difficult to permit and slow to come online. Another challenge is that NGL facilities have limited rail capacity to move energy products. Furthermore, the existing regional fractionation facilities cannot meet the current and growing processing demand for NGL constituents such as ethane, butane and propane.

The US Department of Energy (DOE) Primer published June 27, 2018, projects that Appalachian NGL products will increase over 700 percent from 2013 to 2023 (US DOE 2018) and states that rail capacity is critical "*as produced volumes do not align with the high seasonal variability in demand and often exceed pipeline takeaway capacity*." If no new alternatives are constructed to move NGLs, then the fuel becomes stranded. Rail transportation can expand NGL distribution capabilities, allowing NGLs to be delivered directly to end users in a safe and reliable manner. Considering the location of the LRET, the access to rail infrastructure and the availability of NGLs from the area make this a good location for this type of development and enhanced infrastructure.

1.4 SCOPING/PUBLIC PARTICIPATION

While a formal scoping and public engagement process has not occurred, LRET contacted local land owners who provided input that influences the development of alternatives. LRET has a strong working relationship with the local community and will engage in additional public outreach activities as needed to obtain the applicable state and federal permits. The Transloading Facility would be constructed on the existing LRET Property that is surrounded by operational industrial infrastructure. Individual property owners along the NGL Pipeline route were individually contacted and agreed to allow access to their properties for conducting the required field surveys and collection of data. Input from these property owners influenced the development of the NGL Pipeline route alternatives (see Chapter 2). The construction of the NGL Pipeline would involve temporary disruptions associated with installation, but as an underground feature, would not introduce incompatible visual elements to the industrial communities along the Ohio River. It is LRET's experience that economic development projects that employ local workers are favorably viewed by the local community.

After pre-application discussions with key state and federal agencies regarding public outreach requirements, LRET anticipates that, under the anticipated permitting requirements, and outside of the NEPA process, no additional public outreach activities will be necessary. A summary of discussions and correspondence with federal and state agencies is provided in Section 4.0 by agency, and includes:

- United States Army Corps of Engineers (USACE)
- United States Fish and Wildlife Service (USFWS), Ohio and West Virginia Offices
- Ohio Department of Natural Resources (ODNR)
- Ohio Environmental Protection Agency (Ohio EPA)
- West Virginia Department of Environmental Protection (WVDEP)
- Ohio Historic Preservation Office (OHPO)
- West Virginia Division of Culture and History (WVDCH)
- Federally-recognized tribes

The proposed Transloading Facility and a portion of the proposed NGL Pipeline is on property owned by LRET. The remainder of the NGL Pipeline will cross an additional 29 land parcels and an additional 14 property owners (some property owners own more than one parcel). LRET has contacted each of the property owners where cultural resource and aquatic resource surveys were required. Survey permission has been received from all the property owners required and additional detail is presented in Section 3.10. LRET is coordinating with property owners on the NGL Pipeline.

1.5 APPLICABLE REGULATION AND PERMITS

Due to the differing jurisdictional nature and location of the two Project components, different regulatory programs are applicable. The Project would be conducted in accordance with all applicable federal, state and local requirements.

Federally Funded Transloading Facility: No approvals would be required by the USACE or under the Ohio 401 Water Quality Certification (WQC) program because no temporary or permanent impacts to streams or wetlands would occur. After OHPO review, it was determined that cultural resources requiring special measures are not likely to be encountered within the previously disturbed area. The USFWS-OH was consulted along with the ODNR for the complete Project area, but no federally listed species would be adversely affected. The reviews and/or approvals listed below would be required. The Transloading Facility would be included in the permitting applications as a single and complete project along with the NGL Pipeline.

- Local Fire Jurisdiction/Ohio Department of Commerce: Permits would be required for the storage tanks at the facility. This permit would be prepared based on the final design of the Transloading Facility.

- Ohio Building Code, Department of Commerce: Local or State permit for Transloading Facility including piping, electrical, and mechanical engineering. These permits would be prepared based on the final design of the Transloading Facility.

- Ohio Environmental Protection Agency (EPA) Air Permit: The Transloading Facility may have fugitive discharges from the storage tanks, loading racks, and from the flares. These discharges would require coverage under an air permit based on the final design of the Transloading Facility.

- Ohio EPA Construction Stormwater Permit: This general permit (OHC000005) would be required for construction stormwater and would require the preparation of a Stormwater Pollution Prevention Plan (SWPPP). This permit would also include a post-construction stormwater management plan (PCSM).

- Ohio EPA Hydrostatic Test Discharge National Pollutant Discharge Elimination System (NPDES): Upon completion of the Transloading Facility tanks and piping, it would have to be tested for integrity. A permit would be required to discharge the hydrostatic test water.

- Ohio EPA NPDES Permit: The need for this permit is to be determined but may be required for industrial stormwater and wastewater. The water would be discharged to the Ohio River using existing Property infrastructure and would be determined based on the final design of the Transloading Facility.

Non-Federally Funded NGL Pipeline: Potential reviews and/or permits potentially required for the NGL Pipeline are listed below. As final design and alignment adjustments occur, the specific requirement for permits would be reviewed and adjusted, as appropriate.

- USACE Nationwide Permit (NWP)-12: NWP-12 is related to linear projects that exceed the standards (impact thresholds) to aquatic resources and allows the State of Ohio to impose conditions to NWP-12. These standards include maximum thresholds for permanent impacts to streams and wetlands. If impacts exceed the thresholds, an individual permit would be required. Coordination with USFWS, state wildlife agencies, and state SHPOs is required under NWP-12.

- USACE Section 10 Authorization: Although the NGL Pipeline would be installed beneath the riverbed, this authorization would be required for the crossing of the Ohio River, which is considered a Section 10 water.

- Ohio EPA Hydrostatic Test Discharge NPDES: Upon completion of the NGL Pipeline, hydrostatic testing is required. A permit would be required for discharge of the test water from the pipeline in Ohio.

- Ohio Linear Pipeline Construction Stormwater: This general permit (OHCG00001) would be required to meet the construction stormwater water quality standards in Ohio and would be issued by the Ohio EPA. This permit would require a SWPPP that would include Best Management Practices (BMPs) to minimize the impacts to water quality through construction activities.

- Ohio EPA 401 WQC: The NGL Pipeline would be located in drainage basins designated as "Ineligible" and "Possibly Eligible" for coverage only under the NWP-12. Because of these designations, a 401 WQC would be required for the NGL Pipeline.

- West Virginia (WV) 401 WQC: The Ohio River is mostly within the jurisdiction of the State of West Virginia. Crossing the Ohio River would require a West Virginia state WQC due to the proposed bore profile of the HDD bore. The HDD bore would be less than 100-feet below the bottom of the Ohio River, which would require a 401 WQC.

- West Virginia Construction Stormwater: Only a small portion of the project would be within West Virginia and the extent of the construction impacts would likely be small enough that this permit may not be required. If this permit would be required a SWPPP.

- West Virginia Hydrostatic Test Discharge NPDES: Upon completion of the NGL Pipeline, hydrostatic testing is required. A permit would be required for discharge of the test water from the pipeline in West Virginia.

1.6 DEFINITION OF FREQUENTLY USED TERMS

The terms defined below are used throughout the document and are key for discussions on environmental resources. Figure 1.6.1 illustrates some of these terms.

- **Monroe County, Ohio** the applicant for Federal funding under the US DOT BUILD program.
- **Ohio River Partners Shareholder LLC** owns and operates the Long Ridge Energy Terminal and is doing business as LRET.
- **LRET Property** refers to the 256-acre portion of the former Orment Aluminum Plant in Hannibal, Monroe County, Ohio.
- **Transloading Facility** refers to the proposed transportation and loading facility that would be constructed on the LRET Property.
- **Natural Gas Liquids** (NGLs) are components of natural gas that are separated from the gas state in the form of liquids. NGLs are valuable as separate products, and it is, therefore, profitable to remove them from the natural gas. The liquids are first extracted from the natural gas and later separated into different components. These components include ethane, propane butanes, isobutanes and pentanes.
- **NGL Pipeline** the proposed pipeline that would supply NGLs to the Transloading Facility.
- **Study Area:** The approximate 17-acre Transloading Facility on a portion of the LRET Property and 200-foot wide corridor encompassing the proposed NGL Pipeline that was studied in preparing the environmental resource evaluations presented in Section 3 of this document. The Study Area is larger than the Project's limits of disturbance.
- **Limit of Disturbance (LOD)** is the area that would be physically disturbed through tree clearing and earthwork associated with construction of the proposed Transloading Facility and NGL Pipeline. Generally, the NGL Pipeline LOD width is 100 ft in width along the entire length of the pipeline with the exception of the portions that will be bored (Ohio River and Opossum Creek) and were the width has been reduced at stream and wetland crossings to minimize or avoid impacts to the natural resources. The minimum LOD would be 50 ft at those non-bored crossing locations.
- **Right-of-Way (ROW)** a 50-foot wide permanent easement that would run the length of the NGL Pipeline and remain after construction of the NGL Pipeline to maintain and service the line. The ROW is smaller than, and subsumed by, the LOD.

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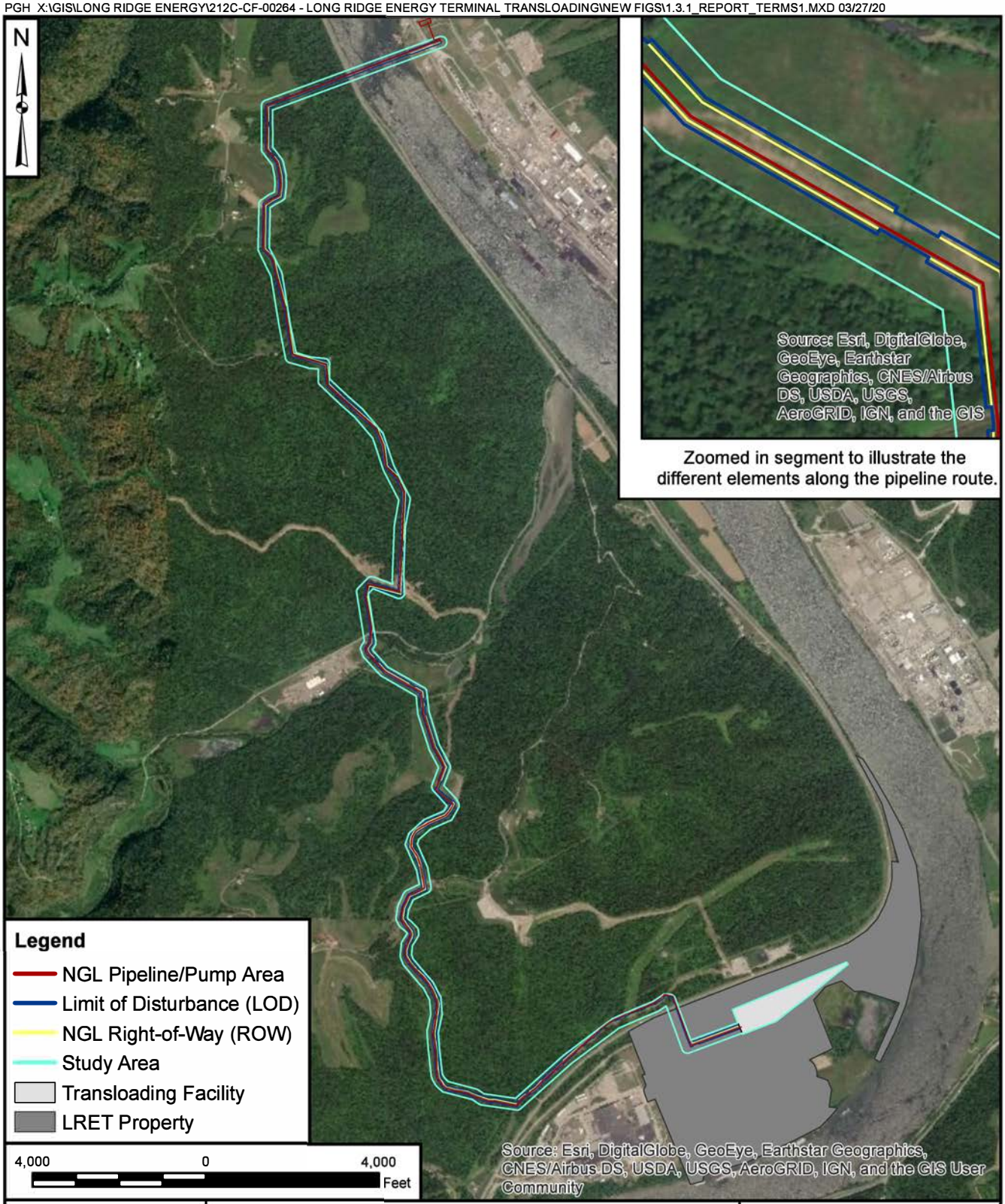

TETRA TECH

DESCRIPTION OF REPORT TERMS

APPALACHIAN NGL HUB RAIL TRANSLOADING FACILITY
MONROE COUNTY, OHIO

DRAWN BY: M. SCOTT 03/23/20
CHECKED BY: L. DRANE 03/27/20
APPROVED BY:

CONTRACT NUMBER:212C-CF-00264

FIGURE NUMBER	REV
1.6.1	0

2.0 ALTERNATIVES

LRET evaluated several layout options for the Transloading Facility and various alignments for the NGL Pipeline. The alternatives for the proposed Transloading Facility were located on the LRET Property and included existing rail connections, access roads, the function of existing buildings and plans for the continuing development of the LRET. The alternatives for the NGL Pipeline were most critically focused on aspects of constructability such as slope and terrain and minimizing or avoiding impacts to environmental and cultural resources. This section of the EA provides a description of LRET's alternatives analysis process and defines the alternatives (No Action Alternative and Action Alternative) that are evaluated in this EA.

2.1 EVALUATION CRITERIA

A preliminary alternatives analysis was performed by LRET as part of early planning work for the project. The preliminary alternatives analysis examined potential impacts (positive and negative) using evaluation criteria described below. The determinations for each evaluation criteria were based on desktop review of available data, field studies, and professional judgment. Based on these evaluations, alternatives were eliminated, and a Proposed Action was identified by LRET for the Transloading Facility and the NGL Pipeline and forwarded to FRA for review in this EA.

Transloading Facility

The alternative analysis for the siting of the Transloading Facility considered the following evaluation criteria:

- Preliminary and completed aquatic resource surveys: Quantitative analysis of potential impacts to aquatic resources.
- Preliminary and completed cultural resource surveys: Quantitative analysis of potential impacts to cultural resources.
- Existing infrastructure: Evaluation of potential impacts to existing infrastructure at LRET, best use of existing infrastructure (railroads), and consideration of LRET development logistics.
- Facility components: Qualitative analysis of required equipment for the facility.
- Facility layout: Evaluation of the most efficient logistical layout for the facility.
- Constructability/Use considerations. Evaluation of potential construction constraints such as topography, accessibility, infrastructure constraints (utilities, roads, buildings, etc.), and engineering evaluation of existing infrastructure (existing railroad and rail spurs).
- Visual impacts: Qualitative analysis of visual impacts from public, particularly along State Highway 7.
- Current and future development considerations: Evaluation of current and future LRET development plans.

NGL Pipeline

The evaluation of the NGL Pipeline alternatives was focused the following evaluation criteria:

- Preliminary and completed aquatic resource surveys: Quantitative analysis of potential impacts to aquatic resources.
- Preliminary and completed cultural resource surveys: Quantitative analysis of potential impacts to cultural resources.
- Existing infrastructure: Evaluation of using existing pipeline infrastructure and existing pipeline ROWs
- Proposed route land use and adjacent land use: Evaluation of potential impacts to the current land use and constraints on future land use.
- Potential business-related risks: Evaluation of potential project impacts related to project by third party companies or providers.

- Constructability/Use considerations: Evaluation of the constructability of pipeline based on topography, accessibility, infrastructure constraints (utilities, roads, buildings, etc.), and engineering evaluation of existing infrastructure (existing pipeline).

2.2 ALTERNATIVES DISMISSED FROM FURTHER CONSIDERATION

LRET evaluated two preliminary alternatives for the Transloading Facility and four preliminary alternatives for the NGL Pipeline. The discussion below summarizes the Transloading Facility alternatives and NGL Pipeline alternatives that were considered and dismissed prior to identification of the Proposed Action that was carried forward for evaluation in this EA. Under the evaluation for the Transloading Facility, Alternative 1 was dismissed from further consideration. Of the four alternatives developed for the NGL Pipeline, three alternatives (Alternatives A, B, and C) were dismissed from further consideration. The Proposed Action consists of the alternatives advanced for the Transloading Facility (Alternative 2) and NGL Pipeline (Alternative D) and is presented in Section 2.3.

2.2.1 Dismissed Transloading Facility Alternative

Alternative 1 for the Transloading Facility included connection to the main rail line through extension of the existing rail spur into the former industrial facility rail loop (Figures 2.2.1 and Figure 2.2.2). Under Alternative 1, the Transloading Facility would be situated on the western portion of the LRET, near the main rail line and easily accessible by rail and access roads. The proposed siting area encompassed approximately 17 acres. Alternative 1 included the addition of four new rail spurs off an existing rail spur entering LRET from the north. The spurs would be extended into a loading rack that could load cars simultaneously from both sides of the track. Alternative 1 did not include storage of NGL on site, rather the NGL would be loaded directly into rail cars via rail loading racks. Since the NGL would be loaded directly from the pipeline, a transmix tank that would capture residual fuel left in the pipeline when switching fuel types would be required to avoid mixing and maintain purity. The transmix would be loaded on trucks and transported back to Blue Racer for re-processing. Alternative 1 also included associated pumps, truck loadout, system control, and two stack flares.

Upon consideration of the evaluation criteria, it was determined that Alternative 1 resulted in potential significant impacts and was therefore dismissed because of these potential impacts. The potential impacts which caused dismissal of Alternative 1 included:

- Wetlands were identified within the footprint of Alternative 1. The proposed layout would have permanently impacted two emergent wetlands and one forested wetland.
- Alternative 1 would have required the removal of an existing office building in good and usable condition. Demolition and removal of this building would have added costs to the project and would have required the construction of new office space as a replacement.
- The flare stack location proposed for Alternative 1 would have the potential to create noise and visual distractions to motorists traveling on State Route 7.

The other evaluated criteria under this alternative were considered acceptable. Alternative 1 was ultimately dismissed because Alternative 2 had fewer potential impacts.

2.2.2 Dismissed NGL Pipeline Alternatives

Four pipeline alternatives were evaluated to supply NGL to the Transloading Facility. Alternatives A, B and C were dismissed based on the evaluation criteria for NGL Pipeline. The three dismissed alternatives are summarized below and presented in Figures 2.2.3 and 2.2.4.

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MARK	DATE	DESCRIPTION	BY

APPALACHIAN NGL HUB RAIL TRANSLOADING FACILITY
MONROE COUNTY, OHIO

DISMISSED TRANSLOADING FACILITY ALTERNATIVE – AERIAL

DATE:	06/24/20
PROJECT NO.:	212C-CF-00264
DESIGNED BY:	LD
DRAWN BY:	JZ
CHECKED BY:	LD
SHEET:	– OF –

FIGURE 2.2.1

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PROPOSED PIPELINE

N

0 100 200
SCALE IN FEET

TETRA TECH

www.tetratech.com
6715 TIPPECANOE ROAD, SUITE C201
CANFIELD, OH 44406
T: (330) 286-3683 | F: (330) 286-3573

MARK	DATE	DESCRIPTION	BY

APPALACHIAN NGL HUB RAIL TRANSLOADING FACILITY
MONROE COUNTY, OHIO

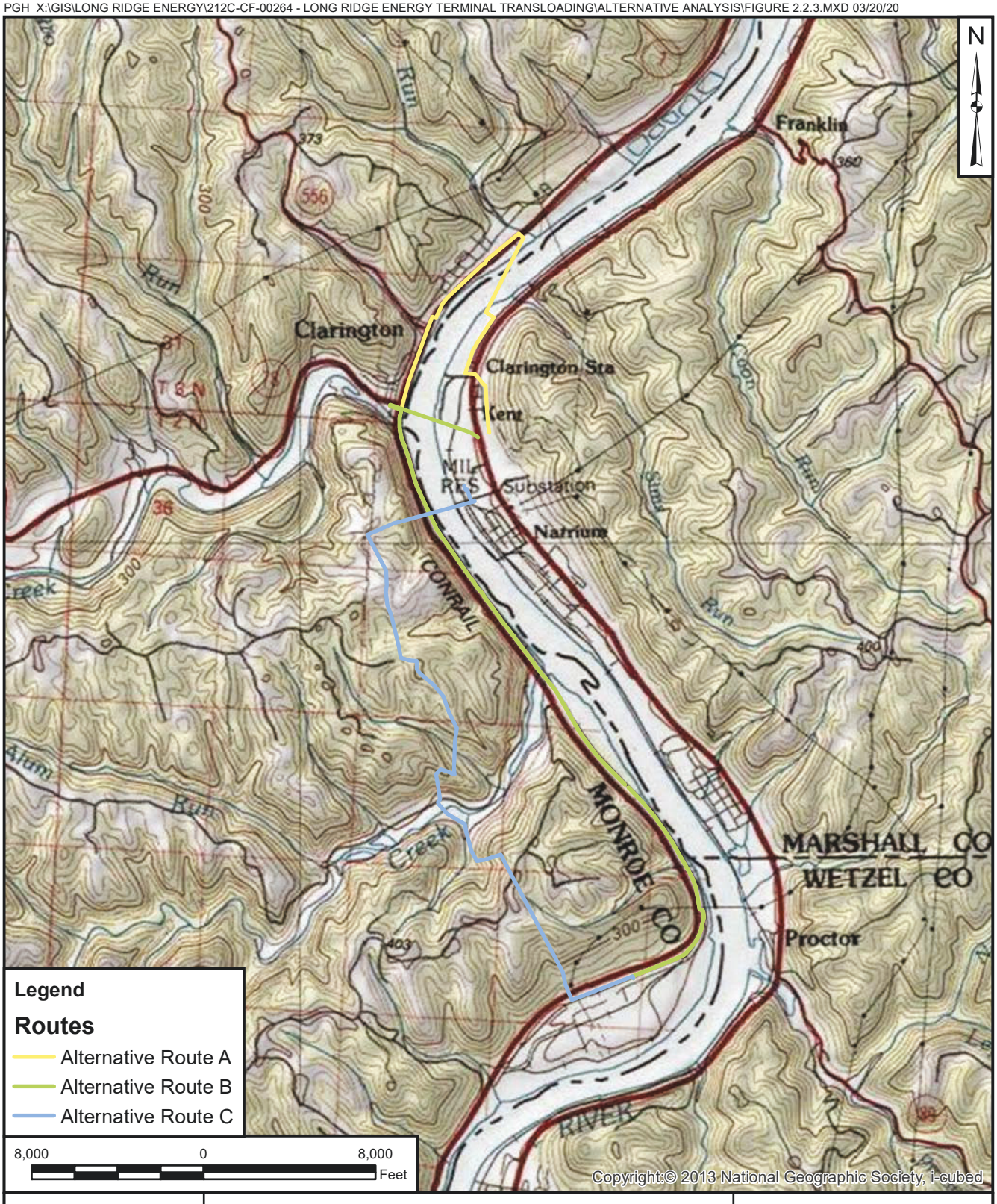
PROPOSED ACTION
TRANSLOAD FACILITY

DATE:	06/24/20
PROJECT NO.:	212C-CF-00264
DESIGNED BY:	LD
DRAWN BY:	JZ
CHECKED BY:	LD
SHEET:	– OF –

FIGURE 2.2.2

X:\CADD\Long Ridge Transloading\212c-cf-00264\FIGURES\FOR SUBMITTAL\FIGURE 2.2.2.dwg PIT JIMKUSIOWSKI 6/24/2020 5:41:41 PM

PGH X:\GIS\LONG RIDGE ENERGY\212C-CF-00264 - LONG RIDGE ENERGY TERMINAL TRANSLOADING\ALTERNATIVE ANALYSIS\FIGURE 2.2.3.MXD 03/20/20



TETRA TECH

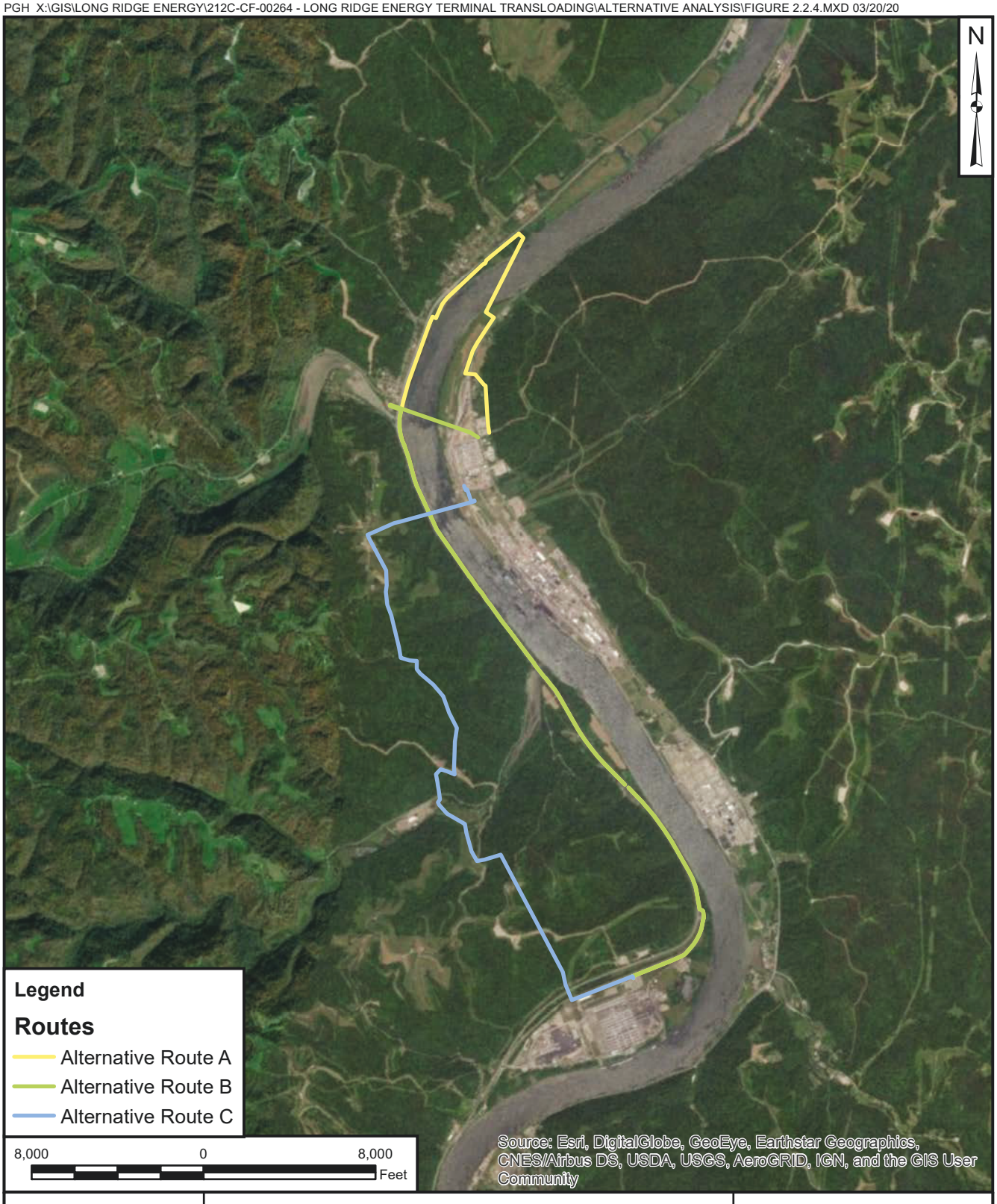
DISMISSED NGL PIPELINE ALTERNATIVES USGS MAP
APPALACHIAN NGL HUB RAIL TRANSLOADING FACILITY
MONROE COUNTY, OHIO

DRAWN BY: M. SCOTT 03/07/20
CHECKED BY: L. DRANE 03/20/20
APPROVED BY:

CONTRACT NUMBER:212C-CF-00264

FIGURE NUMBER	REV
2.2.3	0

PGH X:\GIS\LONG RIDGE ENERGY\212C-CF-00264 - LONG RIDGE ENERGY TERMINAL TRANSLOADING\ALTERNATIVE ANALYSIS\FIGURE 2.2.4.MXD 03/20/20



TETRA TECH

DISMISSED NGL PIPELINE ALTERNATIVES
AERIAL MAP
APPALACHIAN NGL HUB RAIL
TRANSLOADING FACILITY
MONROE COUNTY, OHIO

DRAWN BY: M. SCOTT 03/07/20
CHECKED BY: L. DRANE 03/20/20
APPROVED BY:

CONTRACT NUMBER:212C-CF-00264

FIGURE NUMBER	REV
2.2.4	0

Pipeline Alternative A

Under Alternative A, the pipeline would consist of three segments. The initial segment would use a section of pipeline that would tie into the Blue Racer facility and extend to a proposed NGL underground storage facility (Mountaineer). This proposed 10-inch, 3.25-mile pipeline would extend from Blue Racer facility in West Virginia and travel north along the Ohio River. This initial segment would then cross the Ohio River using a horizontal directional drill (HDD) at an angle not perpendicular to the river. The pipeline would extend to the floodplain of the Ohio River in Ohio, near the town of Clarington and head north along the Ohio River to the proposed Mountaineer gas storage facility. Alternative A has already received the necessary federal and state permits.

The second segment would include an approximate 0.33-mile tie-in pipeline and interconnection facility that would connect the proposed Mountaineer pipeline to the third segment, which is an existing Dominion pipeline. The second segment consists of eight-inch tie-in pipeline, that would extend from the approximate location where the Mountaineer pipeline surfaces after crossing the Ohio River toward the west for approximately 220-ft, then south for approximately 1,600 ft along a set of railroad tracks owned by Ohio River Partner Shareholders LLC. An interconnection facility would be constructed to connect and meter the NGL. This segment would extend along the eastern side of State Route 7, which separates this segment from the Village of Clarington.

The third segment consists of approximately six miles of existing Dominion pipeline that runs along the Ohio side of the Ohio River southward to the LRET Property. There would be no planned construction activities on this segment; however, some internal reconditioning of the existing pipeline would be required to convert it for NGL use. This segment would transport the NGL from the interconnection facility to the proposed Transloading Facility.

Alternative A had three positive determinations for the evaluation criteria, including criteria for aquatic resources and land use. Due to the use of existing pipelines, there would be no impacts to aquatic resources or changes to land use. A Phase I archaeological survey identified a prehistoric archaeological site that may have resulted in an adverse effect that would have been costly to mitigate and may have delayed the Project; therefore, Alternative A was rated as a negative determination for this criterion (cultural resource impacts). A second negative determination included the business risk. This alternative would be dependent on the construction of the Mountaineer pipeline by a third party that is not controlled by Project stakeholders. Although this pipeline has been permitted, it has not yet been constructed. If some unforeseeable circumstances were to occur where this pipeline was not built, it would pose an unacceptable level of risk because another alternative would have to be considered and developed. The constructability and use criterion also were viewed to have potential concerns. The use of existing infrastructure, such as the proposed Mountaineer pipeline and existing Dominion pipeline was rated as neutral due to the risks associated with the Dominion pipeline. The construction of the 0.33 pipeline segment and meter stations would not be a significant construction risk, but the use of the existing Dominion pipeline may not be adequate. Preliminary evaluations of the existing 8-inch Dominion pipeline indicated that the grade of the line might not be suitable for transport of NGL at the volumes and pressures expected for the Project and that a higher grade and size pipeline would likely be required. Due to negative determinations associated with the above-mentioned evaluation criteria, Alternative A was dismissed and not carried forward in this EA.

Pipeline Alternative B

Alternative B proposed the use of an existing pipeline that crosses the Ohio River on the south side of Clarington, Ohio and would also include three segments. The initial segment would include an existing pipeline from Blue Racer under the Ohio River. The second segment would include a meter station that would be built in the southern portion of Clarington, near the confluence of Sunfish Creek and the Ohio River, as well as and an approximate 550-foot tie-in line that would connect the second and third segments to the existing Dominion pipeline as described in Alternative A. Once tied into the existing Dominion pipeline, the proposed pipeline would use the existing line to connect to the proposed Transloading Facility.

Three of the evaluation criteria for Alternative B, including aquatic resources and cultural resources were considered positive. Since the first and third segment would have used existing pipelines and the meter station and 550-foot

tie-in line would be within a previously disturbed area, aquatic and cultural potential impacts were considered negligible. The second segment would be constructed in a sparsely populated area of Clarington on cleared and previously disturbed land. Alternative B received two negative determinations for business risk and constructability and use. For the business risk, the Project would be dependent on use of the existing pipeline owned and operated by a third-party. The long-term plans for the pipeline were unknown. LRET considered that a short-term contract may be obtainable, but with a long-term plan unknown, it was considered an unacceptable risk. The constructability and use of segments 1 and 2 of Alternative B are not considered an issue; however, as described in Alternative A, the use of the existing Dominion pipeline would not be satisfactory. Based on the considered evaluation criteria, Alternative B was dismissed because of the two negative determinations and not carried forward for consideration in this EA.

Pipeline Alternative C

This alternative includes the construction of a new pipeline from the Blue Racer facility directly to the proposed Transloading Facility. The approximately 5.3-mile 10-inch pipeline would originate at Blue Racer and cross the Ohio River using an HDD bore with the installation of new pumps at the Blue Racer facility. The bore would extend to the highlands to the west of the Ohio River in Ohio and the pipeline route would continue to the south-southeast into the proposed Transloading Facility. This alternative would require additional right-of-way for the new pipeline and include construction of the new pipeline.

There were no evaluation criteria that were considered negative associated with the evaluation of Alternative C, and business risk was determination to be positive. Since this pipeline would be constructed, owned, and operated by the LRET, the business risk is significantly reduced as the Project team has control of the pipeline. Because of this control, Alternative C rated higher under this criterion than Alternatives A and B. The other evaluation criteria including aquatic resources, cultural resources, existing infrastructure, land use, and constructability were rated as neutral. Under Alternative C, aquatic resources would be temporarily impacted including crossing of streams and wetlands for construction of the pipeline. This alternative would not use existing infrastructure since it is a new pipeline and the land use would be significantly changed since the pipeline will be buried and the land would be returned to the existing grade. Wooded areas would have to be removed for construction and future maintenance but would remain unoccupied and converted to meadowland. Pipeline construction in this region is common even with topographic challenges and this alternative pipeline route followed ridge lines as much as possible and travels as perpendicular as possible going up and down the hillsides and steep slopes. The locality of pipeline near local road will provide access points to the pipeline and these roads have already been upgraded due to historic pipeline and gas well drilling.

Alternative C is largely on the same line as Alternative D except for the southernmost section, which under Alternative C runs due south directly into the facility instead of using an existing pipeline ROW. Alternative C is 0.6 miles shorter than the Proposed Action but would require significantly more tree clearing than what is proposed under Alternative D. Due to the additional tree clearing that would be required, Alternative C was dismissed and not carried forward for consideration in this EA.

2.3 ALTERNATIVES CONSIDERED IN THIS EA

2.3.1 No Action Alternative

Under the No Action Alternative, the purpose and need of the Project is not met; however, the No Action Alternative serves as a baseline against which the Proposed Action is compared.

Transloading Facility

Under the No Action Alternative, the Transloading Facility would not be constructed. Export potential of large volumes of NGL and constituent products would be inhibited and unable to come to market. This could cause a

delay of extraction of resources that could make it difficult in industry expansion and the economic health of rural areas of eastern Ohio and Northern West Virginia.

Under the No Action Alternative, the local rail infrastructure would not be improved to load and transport NGLs from the region, bringing construction and operations jobs. New businesses looking to capitalize on the planned infrastructure improvements would seek alternative locations. No new jobs would be created and there would be no economic benefit to rural communities in eastern Ohio and Northern West Virginia.

NGL Pipeline

Under the No Action Alternative, the NGL Pipeline would not be constructed as it is dependent on the construction of the Transloading Facility to move NGL by rail. The No Action Alternative would not allow a safe and efficient method for transporting the NGLs from the Blue Racer facility; therefore, there would be no product available to load at the Transloading Facility. The Blue Racer facility is the closest producer of NGLs and other facilities in the region, and without the proposed NGL Pipeline and Transloading Facility, an extensive pipeline would be required to transport the NGLs to another Transloading Facility or market.

2.3.2 Proposed Action

As discussed in Section 2.2, LRET considered and dismissed several alternatives for the Transloading Facility and the NGL Pipeline. Alternative 2 for the Transloading Facility and Alternative D for the NGL Pipeline were carried forward for evaluation in this EA and constitute the Proposed Action. FRA reviewed the Proposed Action and finds that it meets the Purpose and Need of the Project.

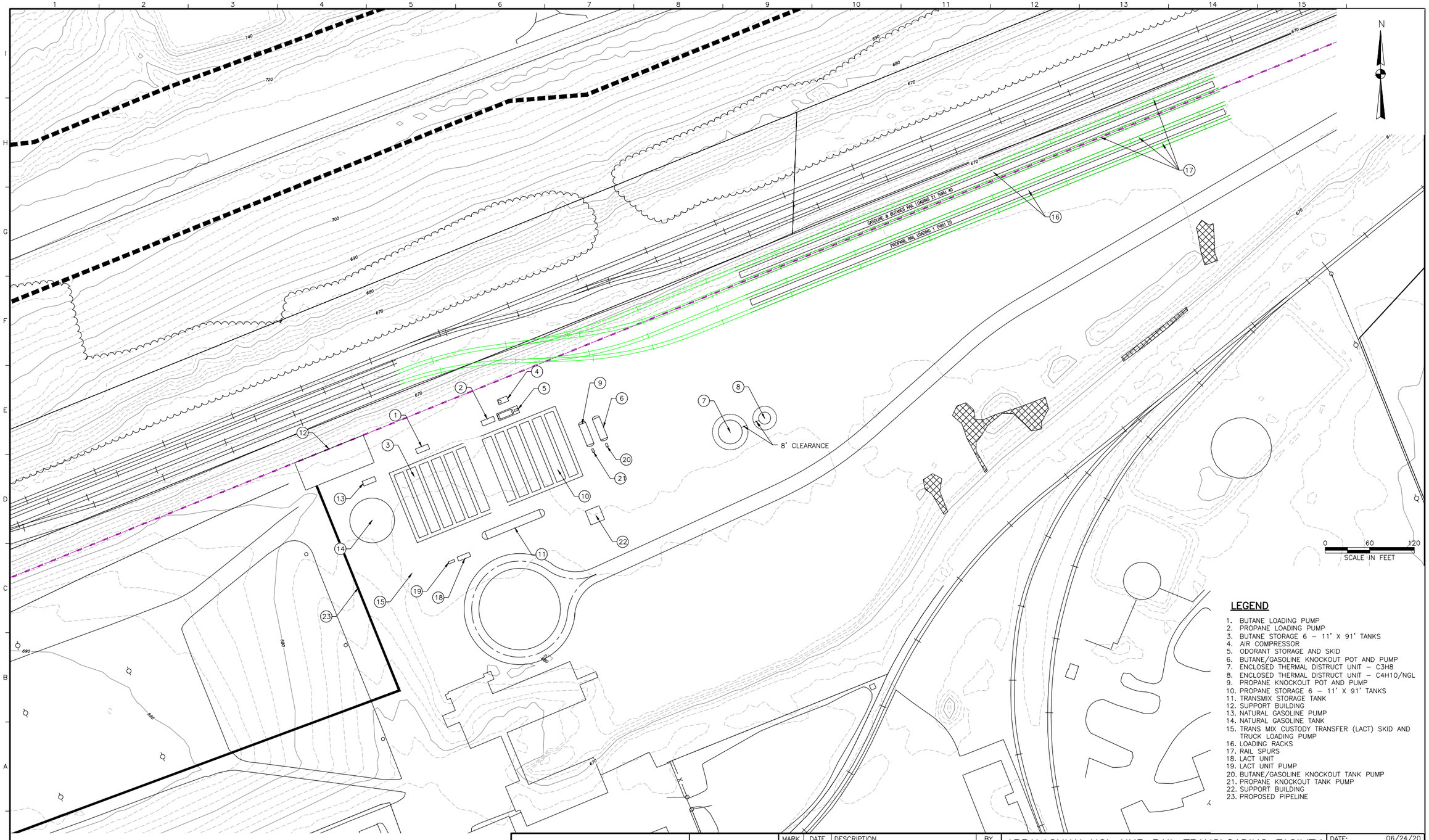
Transloading Facility

Alternative 2 uses the same 17-acre site as Alternative 1, but Alternative 2 includes the addition of on-site NGL storage and a change in flare types. New rail spurs would extend from the existing spurs to the west of the proposed Transloading Facility. While the 17-acre site is the same as Alternative 1, under Alternative 2, the Transloading Facility would be located closer to the main rails than the proposed layout in Alternative 1. This layout avoids the wetland impacts that occurred under Alternative 1. The Alternative 2 layout also avoids the removal of an existing office building, which would have occurred under Alternative 1. Alternative 2 also includes time saving steps to efficiently fill the tank cars by providing on-site storage to help buffer and speed up the rail car loading, from which rail cars can be loaded concurrently as NGL is pumped via pipeline from the Blue Racer facility. The tank farm includes six 60,000 gallon propane tanks (total storage capacity of 360,000-gallons), six 60,000 gallon butane tanks (total of 360,000-gallons of storage capacity), and a 630,000 gallon condensate/natural gasoline tank. The respective NGL products would be loaded into the rail cars through pipe racks that would be situated between the rail spurs. As NGL fuel types are switched in the NGL pipeline a commixture of residual product remains and mixes with the initial slug new fuel type. Alternative 2 includes construction of a transmix tank to remove commixture of products and allow for this mixture to be sent back to the Blue Racer facility for reprocessing. Off-gas materials would be burnt through enclosed ground flares. The layout for the Transloading Facility under Alternative 2 is presented in Figures 2.3.1 and 2.3.2.

Alternative 2 met the evaluation criteria and was identified as the Proposed Action to be carried forward for consideration in this EA. A detailed evaluation of the potential impacts of Alternative 2 are presented in Chapter 3.

NGL Pipeline

Alternative D includes the construction of a new pipeline from the Blue Racer facility to the proposed Transloading Facility. This approximately 5.9-mile 10-inch pipeline would originate at the Blue Racer facility and cross the Ohio River using an HDD bore. New pumps would be installed at the Blue Racer facility to pump the NGLs through the NGL Pipeline to the Transloading Facility. One interconnect valve would be above ground, located on western side of the Ohio River near the HDD bore exit point. This interconnect valve would be within the NGL Pipeline ROW.



LEGEND

1. BUTANE LOADING PUMP
2. PROPANE LOADING PUMP
3. BUTANE STORAGE 6 – 11' X 91' TANKS
4. AIR COMPRESSOR
5. ODORANT STORAGE AND SKID
6. BUTANE/GASOLINE KNOCKOUT POT AND PUMP
7. ENCLOSED THERMAL DISTRUCT UNIT – C3H8
8. ENCLOSED THERMAL DISTRUCT UNIT – C4H10/NGL
9. PROPANE KNOCKOUT POT AND PUMP
10. PROPANE STORAGE 6 – 11' X 91' TANKS
11. TRANSMIX STORAGE TANK
12. SUPPORT BUILDING
13. NATURAL GASOLINE PUMP
14. NATURAL GASOLINE TANK
15. TRANS MIX CUSTODY TRANSFER (LACT) SKID AND TRUCK LOADING PUMP
16. LOADING RACKS
17. RAIL SPURS
18. LACT UNIT
19. LACT UNIT PUMP
20. BUTANE/GASOLINE KNOCKOUT TANK PUMP
21. PROPANE KNOCKOUT TANK PUMP
22. SUPPORT BUILDING
23. PROPOSED PIPELINE

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MARK	DATE	DESCRIPTION	BY

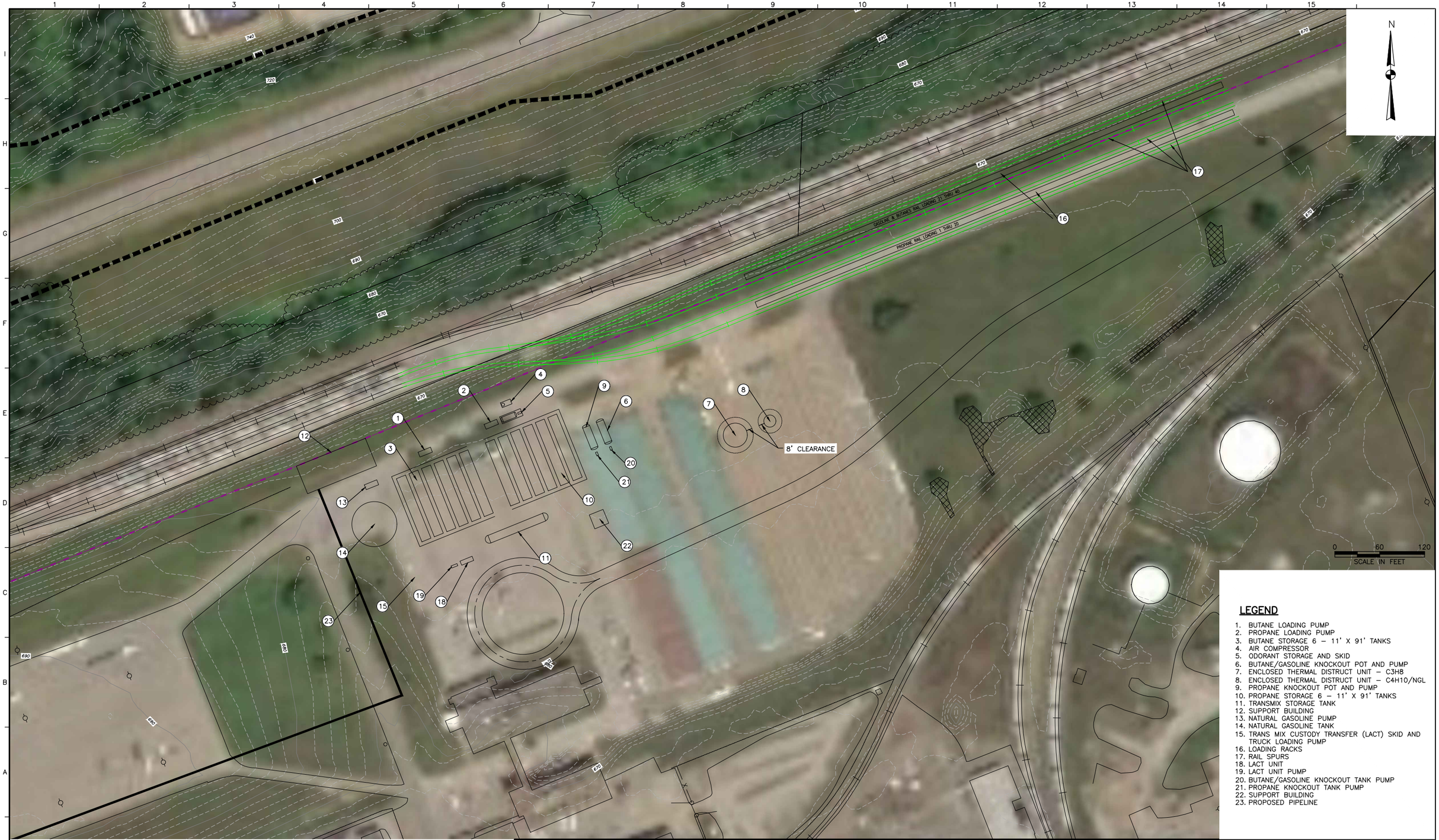
APPALACHIAN NGL HUB RAIL TRANSLOADING FACILITY
MONROE COUNTY, OHIO

PROPOSED ACTION
TRANSLOAD FACILITY

DATE:	06/24/20
PROJECT NO.:	212C-CF-00264
DESIGNED BY:	LD
DRAWN BY:	JZ
CHECKED BY:	LD
SHEET:	– OF –

FIGURE 2.3.1

X:\CADD\Long Ridge Transloading\212c-cf-00264\FIGURES\FOR SUBMITTAL\FIGURE 2.3.1.dwg PIT JIM.KUSIOWSKI 6/24/2020 5:45:52 PM



LEGEND

1. BUTANE LOADING PUMP
2. PROPANE LOADING PUMP
3. BUTANE STORAGE 6 – 11' X 91' TANKS
4. AIR COMPRESSOR
5. ODORANT STORAGE AND SKID
6. BUTANE/GASOLINE KNOCKOUT POT AND PUMP
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8. ENCLOSED THERMAL DISTRUCT UNIT – C4H10/NGL
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10. PROPANE STORAGE 6 – 11' X 91' TANKS
11. TRANSMIX STORAGE TANK
12. SUPPORT BUILDING
13. NATURAL GASOLINE PUMP
14. NATURAL GASOLINE TANK
15. TRANS MIX CUSTODY TRANSFER (LACT) SKID AND TRUCK LOADING PUMP
16. LOADING RACKS
17. RAIL SPURS
18. LACT UNIT
19. LACT UNIT PUMP
20. BUTANE/GASOLINE KNOCKOUT TANK PUMP
21. PROPANE KNOCKOUT TANK PUMP
22. SUPPORT BUILDING
23. PROPOSED PIPELINE

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MARK	DATE	DESCRIPTION	BY

APPALACHIAN NGL HUB RAIL TRANSLOADING FACILITY
MONROE COUNTY, OHIO

PROPOSED ACTION AERIAL TRANSLOAD FACILITY

DATE:	06/24/20
PROJECT NO.:	212C-CF-00264
DESIGNED BY:	LD
DRAWN BY:	JZ
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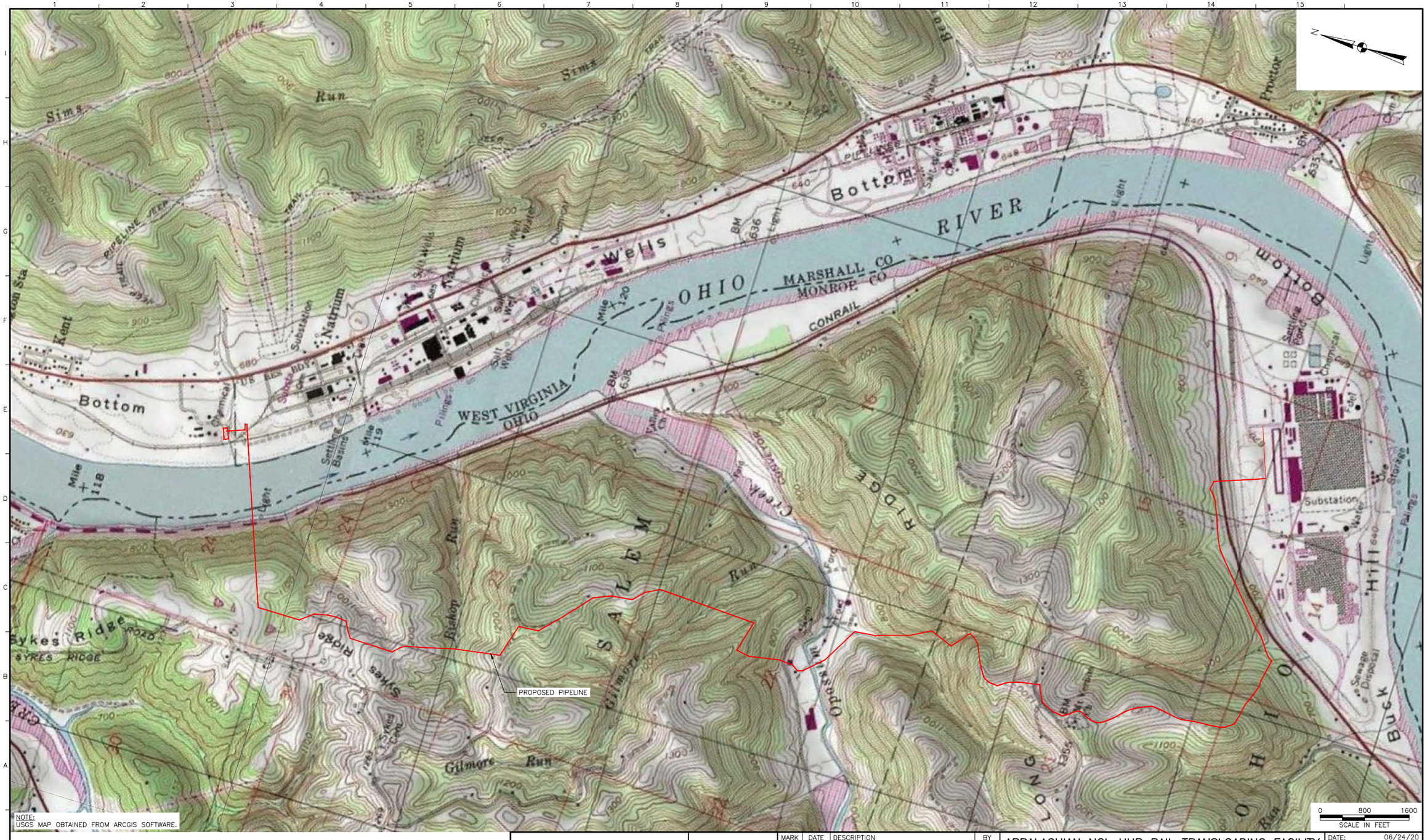
SHEET:	– OF –

FIGURE 2.4.2

X:\CADD\Long Ridge Transloading\212c-cf-00264\FIGURES\FOR SUBMITTAL\FIGURE 2.3.2.dwg PIT JIM.KUSIOWSKI 6/24/2020 5:47:22 PM

The bore would extend the highlands to the west of the Ohio River in Ohio and the pipeline route would continue underground to the south-southeast into the proposed Transloading Facility. The proposed location of the pipeline route was selected to reduce impacts to natural resources. In addition, discussions occurred with property owners early in the planning process to obtain access agreements for field work. Through these discussions, landowners provided input on potential route placement to accommodate activities on their properties, such as farming, pasture field fenced area, and property access. Alternative D incorporates route modifications to address comments and suggestions made by property owners. The southern portion of the route is situated so that it takes advantage of an existing pipeline ROW. Figures 2.3.3 through 2.3.4 illustrate the Proposed Action for the NGL Pipeline.

Alternative D would have some temporary impacts and minor permanent impacts (conversion of a wetland segment) to environmental resources, but Alternative D would reduce the need for tree clearing and would generally minimize impacts to cultural and environmental resources; therefore, Alternative D was identified as the Proposed Action to be carried forward in this EA. Detailed evaluation of the potential impacts of Alternative D are presented in Chapter 3.



NOTE:
USGS MAP OBTAINED FROM ARCGIS SOFTWARE.

PROPOSED PIPELINE

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MARK	DATE	DESCRIPTION	BY

APPALACHIAN NGL HUB RAIL TRANSLOADING FACILITY
MONROE COUNTY, OHIO
PROPOSED ACTION–PIPELINE
USGS MAP

DATE:	06/24/20
PROJECT NO.:	212C-CF-00264
DESIGNED BY:	LD
DRAWN BY:	JZ
CHECKED BY:	LD
SHEET:	– OF –

FIGURE 2.3.3

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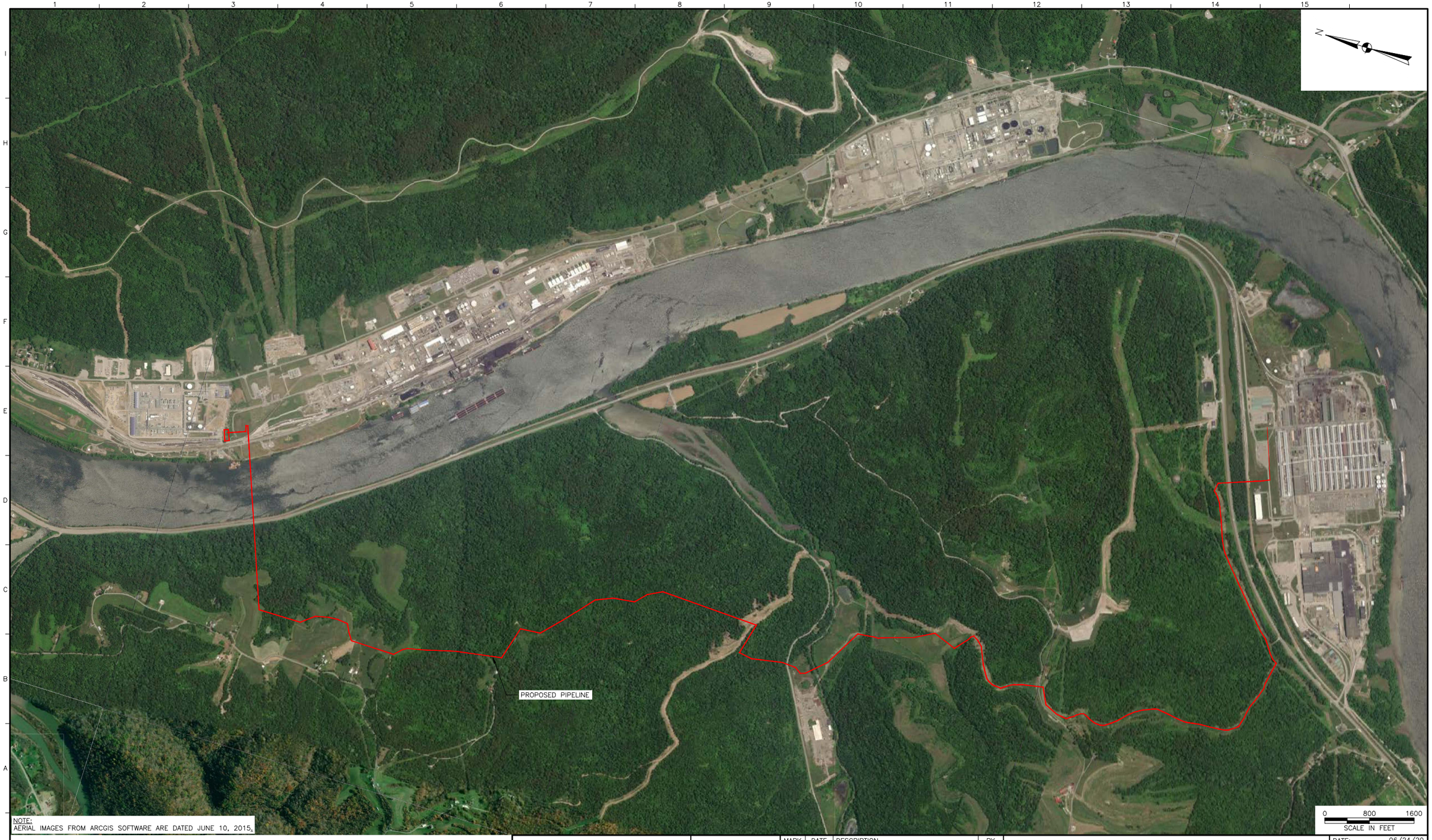

NOTE:
AERIAL IMAGES FROM ARCGIS SOFTWARE ARE DATED JUNE 10, 2015.

PROPOSED PIPELINE

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MARK	DATE	DESCRIPTION	BY

APPALACHIAN NGL HUB RAIL TRANSLOADING FACILITY
MONROE COUNTY, OHIO
PROPOSED ACTION–PIPELINE
AERIAL MAP

DATE:	06/24/20
PROJECT NO.:	212C-CF-00264
DESIGNED BY:	LD
DRAWN BY:	JZ
CHECKED BY:	LD
SHEET:	– OF –

FIGURE 2.3.4

X:\CADD\Long Ridge Transloading\212c-cf-00264\FIGURES\FOR SUBMITTAL\FIGURE 2.3.4.dwg PIT JIM.KUSIOWSKI 3/30/2020 11:13:21 AM

3.0 ENVIRONMENTAL RESOURCE EVALUATION

This chapter describes the affected environment and assesses the environmental impacts associated with the Project (the proposed Transloading Facility and NGL Pipeline). As defined in Section 1.6, the Study Area consists of the 17-acre Transloading Facility site which is located within the LRET Property and a 200-foot wide corridor encompassing the proposed NGL pipeline, traveling from the Blue Racer facility to the proposed Transloading Facility. Unless otherwise noted, generally, the affected environment for each subsection within this chapter provides a description of the Study Area. Some environmental resources have a defined study area specific to that resource, and those resource-specific defined areas are identified in the appropriate resource sections. Also defined in Section 1.6, the LOD is the area that would be physically disturbed through tree clearing and earthwork associated with construction of the proposed Transloading Facility and NGL Pipeline. Generally, the NGL Pipeline LOD width is 100 ft in width along the entire length of the pipeline with the exception of the portions that will be bored (Ohio River and Opossum Creek) and were the width has been reduced at stream and wetland crossings to minimize or avoid impacts to the natural resources. The minimum LOD would be 50 ft at those non-bored crossing locations. The environmental impacts are provided specific to the Project component (the Transloading Facility or the NGL Pipeline).

3.1 GEOLOGICAL/PHYSICAL SETTING

3.1.1 Affected Environment

The Study Area lies in the Little Switzerland Plateau within the Marietta Plateau Section of the Appalachian Plateau Physiographic Province (Figure 3.1.1). The Little Switzerland Plateau is a high-relief plateau dissected by fluvial action and includes a mix of rural, industrial, residential, and wooded lands (Ohio Division of Geological Survey, 1998). Bedrock units in the Study Area are composed of sedimentary rocks ascribable to the Pennsylvanian-period Monongahela Group. The Monongahela Group is manifest as cyclic sequences of shale, siltstone, limestone, claystone, sandstone, and coal visible in the valley walls along river, streams, and in roadcuts (Figure 3.1.2). Occasional outcropping of the Dunkard Group may also be encountered at higher elevations in the Study Area. The Dunkard Group consists mainly of claystone, shale, and siltstone. The regional dip of strata averages approximately 3 degrees to the southeast (Swinford, 1997).

These bedrock units' weather into red, clay-rich soils that are prone to landslides when saturated. The Ohio Emergency Management Agency (EMA) notes that the region has a high incidence of landslide occurrence (DeWine, Stickrath, and Merick, 2019) (Figure 3.1.3). Factors in this assessment includes slope, rock fractures, rock and sediment permeability, clay or shale units subject to lubrication, and water accumulation. Landslide prone areas are typically located where steep topography is encountered (side-slopes and deep narrow stream valleys).

Along the Ohio River, younger Pleistocene sediments are present that form river terraces, outwash deposits, gravel bars, and valley fills deposited in recurring glacial and interglacial cycles throughout the Pleistocene. Glacial outwash is present along the eastern side of Monroe County, Ohio and within the Ohio River valley (Ohio Division of Geological Survey, 2005). An evaluation of the LRET Property was conducted on January 27, 2017, as part of the Remedial Investigation of the former Orment Aluminum Plant (Geo Resource Group, 2017). The report described the subsurface geology at the LRET Property as formed from the deposition of glacial outwash and alluvial sediments, underlain by a second sequence of unconsolidated alluvial and colluvial deposits, believed to represent an earlier pulse of Pleistocene glacial outwash (e.g. sand and gravel). The near surface material at the proposed Transloading Facility is composed of an admixture of earthen fill composed mostly of sand and gravel with interspersed layers of clay and silt and colluvium that extends from 0-20 ft below surface. The fill is capped by an asphalt parking surface.

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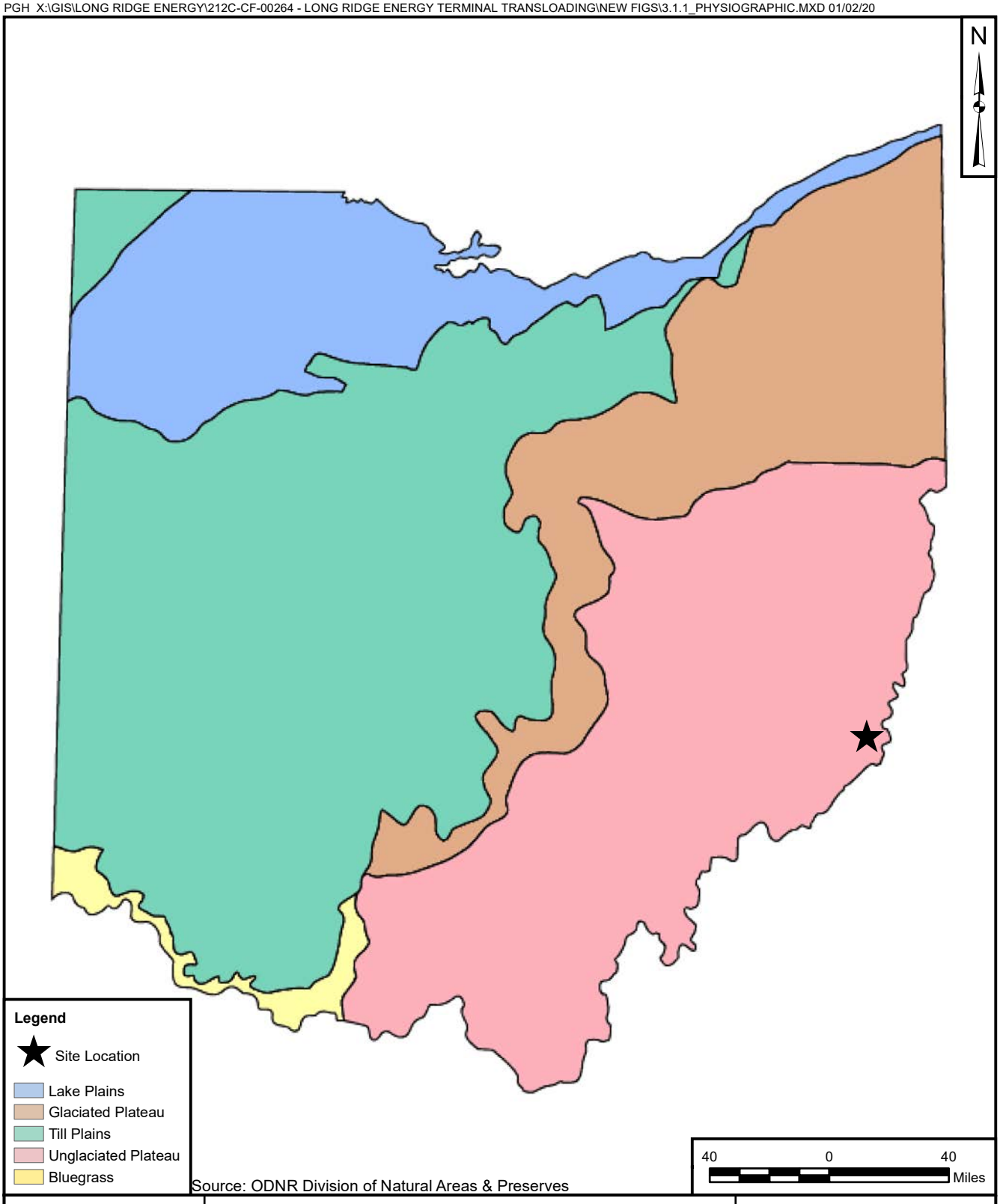

Source: ODNR Division of Natural Areas & Preserves

TETRA TECH

PHYSIOGRAPHIC MAP OF OHIO
APPALACHIAN NGL HUB RAIL
TRANSLOADING FACILITY
MONROE COUNTY, OHIO

DRAWN BY: M. SCOTT 12/05/19
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APPROVED BY:

CONTRACT NUMBER:212C-CF-00264

FIGURE NUMBER	REV
3.1.1	0

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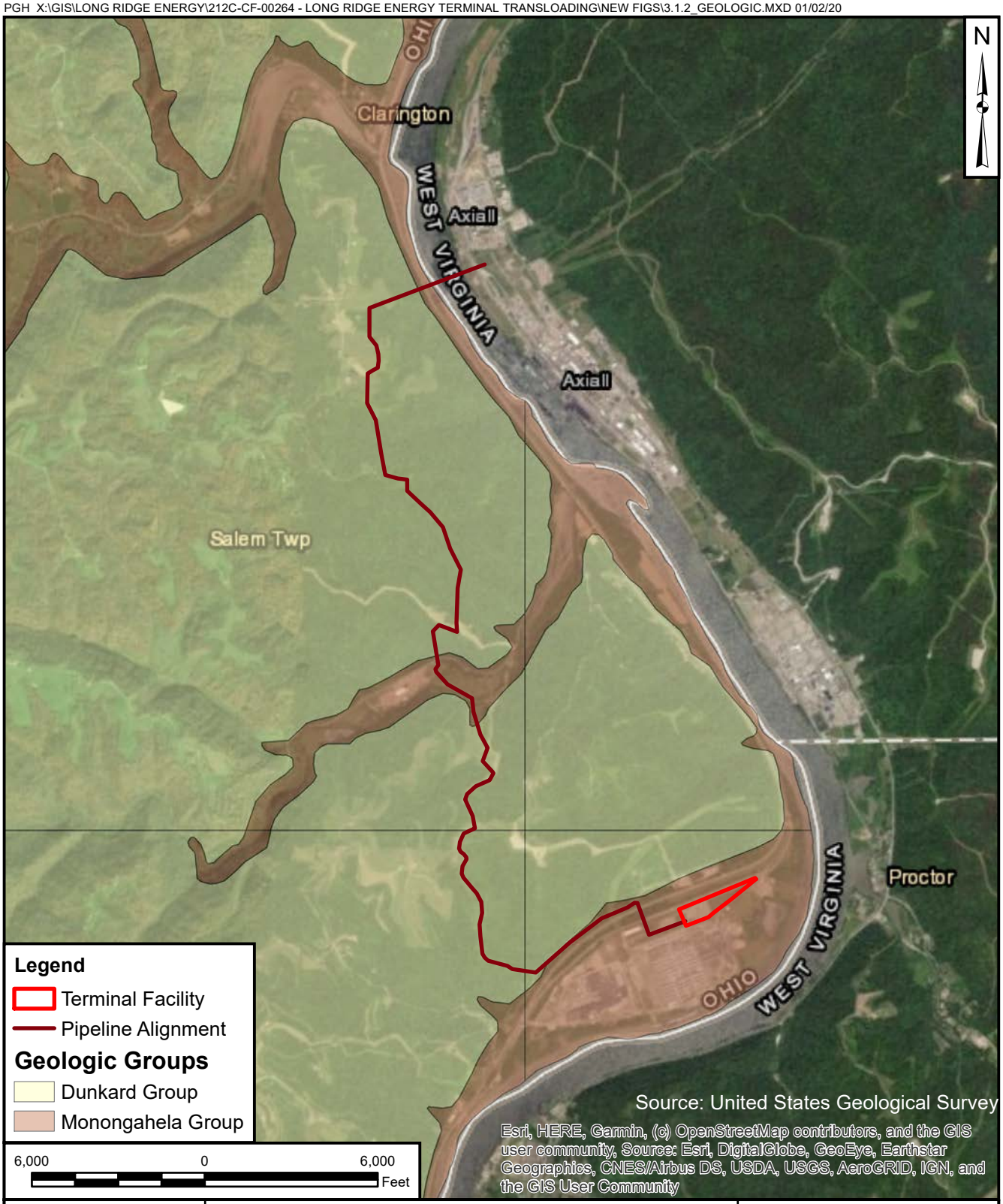

TETRA TECH

GEOLOGIC MAP
APPALACHIAN NGL HUB RAIL
TRANSLOADING FACILITY
MONROE COUNTY, OHIO

DRAWN BY: M. SCOTT 12/05/19
CHECKED BY: T. SERENKO 01/02/20
APPROVED BY:

CONTRACT NUMBER:212C-CF-00264

FIGURE NUMBER	REV
3.1.2	0

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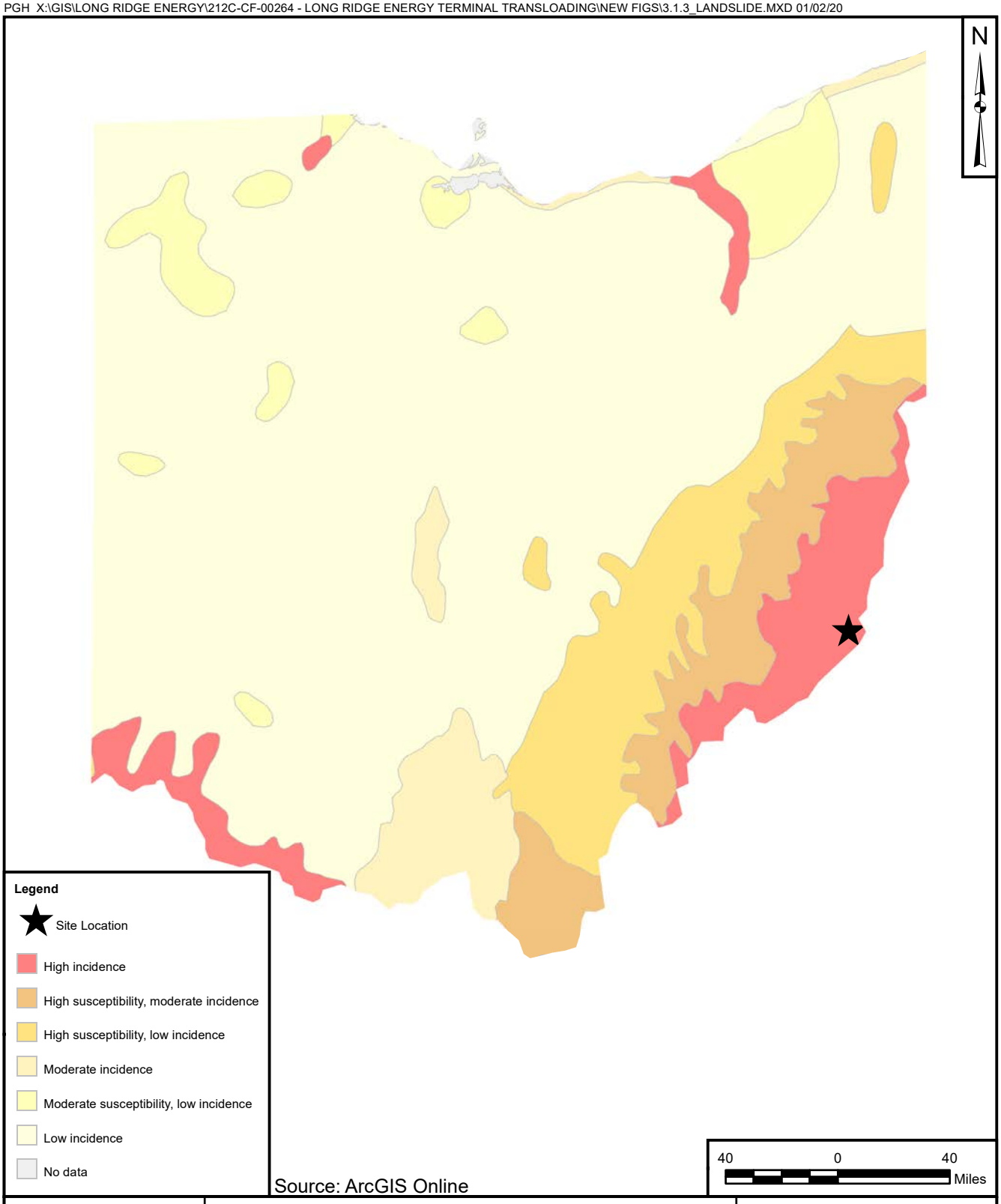


Source: ArcGIS Online

TETRA TECH

LANDSLIDE RISK POTENTIAL MAP OF OHIO
APPALACHIAN NGL HUB RAIL
TRANSLOADING FACILITY

MONROE COUNTY, OHIO

DRAWN BY: M. SCOTT 12/05/19
CHECKED BY: T. SERENKO 01/02/20
APPROVED BY:

CONTRACT NUMBER:212C-CF-00264

FIGURE NUMBER	REV
3.1.3	0

3.1.2 Environmental Consequences

The methodology used for assessing impacts to geologic resources focused on the presence of the geologic setting identified in the affected environment, including soil type, bedrock quality and characteristics specific to the area and assessing whether changes due to the Project implementation would create a hazard or risk related to these geologic features.

No Action Alternative

Transloading Facility

Under the No Action Alternative, no ground disturbance would occur; therefore, there would be no impacts to the underlying unconsolidated fill, soils and glacial outwash deposits, and no changes to the existing conditions.

NGL Pipeline

Under the No Action Alternative, no ground disturbance would occur; therefore, there would be no impacts to unconsolidated soils, glacial outwash deposits, and weathered bedrock or bedrock. Since there would be no ground disturbance, there would be no potential for slope failure.

Proposed Action Alternative

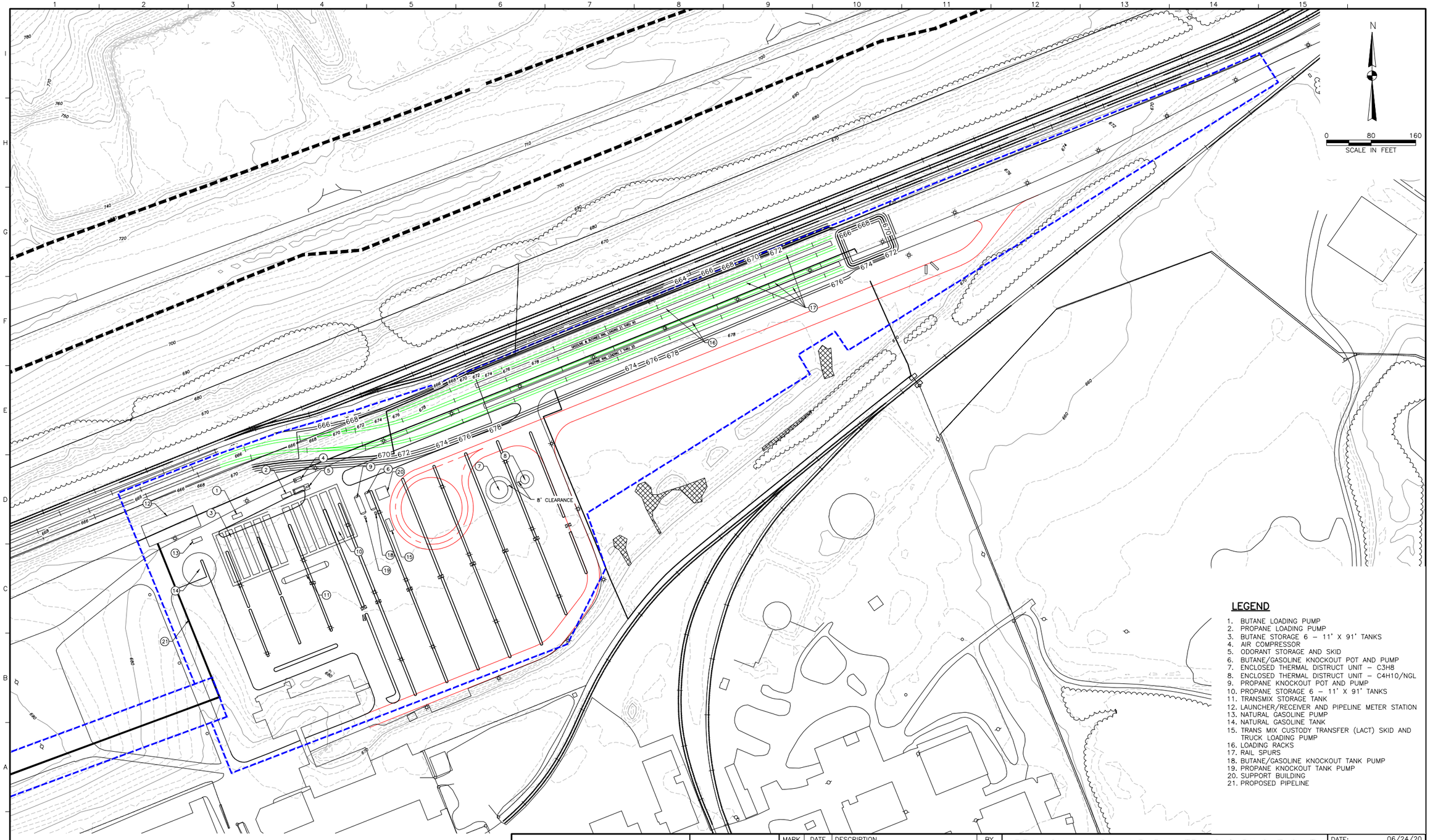
Transloading Facility

Development of the Transloading Facility would be mostly within the surficial fill materials but may extend down into the underlying glacial outwash materials. Figure 3.1.4 illustrates the proposed grading plan for the proposed Transloading Facility, where approximately 8 to 10-feet of material would be excavated for installation of the loading rack to get the rail spurs at the grade of the existing railroad and spurs. Although the Transloading Facility would be located in a region identified by the Ohio EMA as having a high incidence of landslide occurrence, it would be situated on a flat river terrace where the risk of landslide is minimal. Therefore, no impacts to geological resources is anticipated with the Transloading Facility. Geotechnical studies would be conducted to determine the underlying soil bearing capacities and recommended foundation design.

NGL Pipeline

The NGL Pipeline would be installed below the ground surface, typically a minimum of 3-feet in depth. The actual depth would vary based on topography and would be determined during the pipeline design phase. Installation of the pipeline would involve minor grading within the LOD for equipment and material access and for excavation of the pipe trench. The NGL Pipeline route would traverse an area prone to landslides due to fracture planes in the bedrock. The pipeline route was selected to minimize encountering side-slopes and deep narrow stream valleys, where landslides are prone in this type of terrain. When steeper slopes are encountered, the NGL Pipeline route would be orientated so that it runs perpendicular to the contour to the extent possible. Small slides could occur along the pipeline, typically in steeper areas, and in areas of water saturated soils.

The NGL Pipeline would begin at the Blue Racer facility in unconsolidated glacial outwash materials, and then via HDD would run through the underlying Pennsylvanian-period bedrock as it crosses under the Ohio River to the bore pit exit on Sykes Ridge in Monroe County, Ohio. The portion of the NGL Pipeline that would cross under the Ohio River via HDD would be over 50-feet below the bottom of the river within the underlying bedrock. Figure 3.1.5 illustrates the proposed HDD bore profile. The actual profile may differ slightly based on the final pipeline design, which would consider information obtained from geotechnical investigations of the proposed HDD bore route that would be completed prior to drilling activities. The HDD boring technique uses drilling mud (bentonite mud) as a lubricant, cooling agent, and to facilitate the return of rock cuttings that are removed by the drilling bit. During advancement of the HDD bore through the bedrock, fractures may be encountered, and some minor drilling mud loss would be expected within those fractures. However, larger fractures could be encountered that could introduce larger drilling mud losses into the river. Due to the proposed depth of bore below the bed of Ohio River, it is unlikely that drilling mud would reach the surface water; however, significant bedrock fractures could provide a potential



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MARK	DATE	DESCRIPTION	BY

APPALACHIAN NGL HUB RAIL TRANSLOADING FACILITY
MONROE COUNTY, OHIO

DATE:	06/24/20
PROJECT NO.:	212C-CF-00264
DESIGNED BY:	LD
DRAWN BY:	JZ
CHECKED BY:	LD
SHEET:	– OF –

FIGURE 3.1.4

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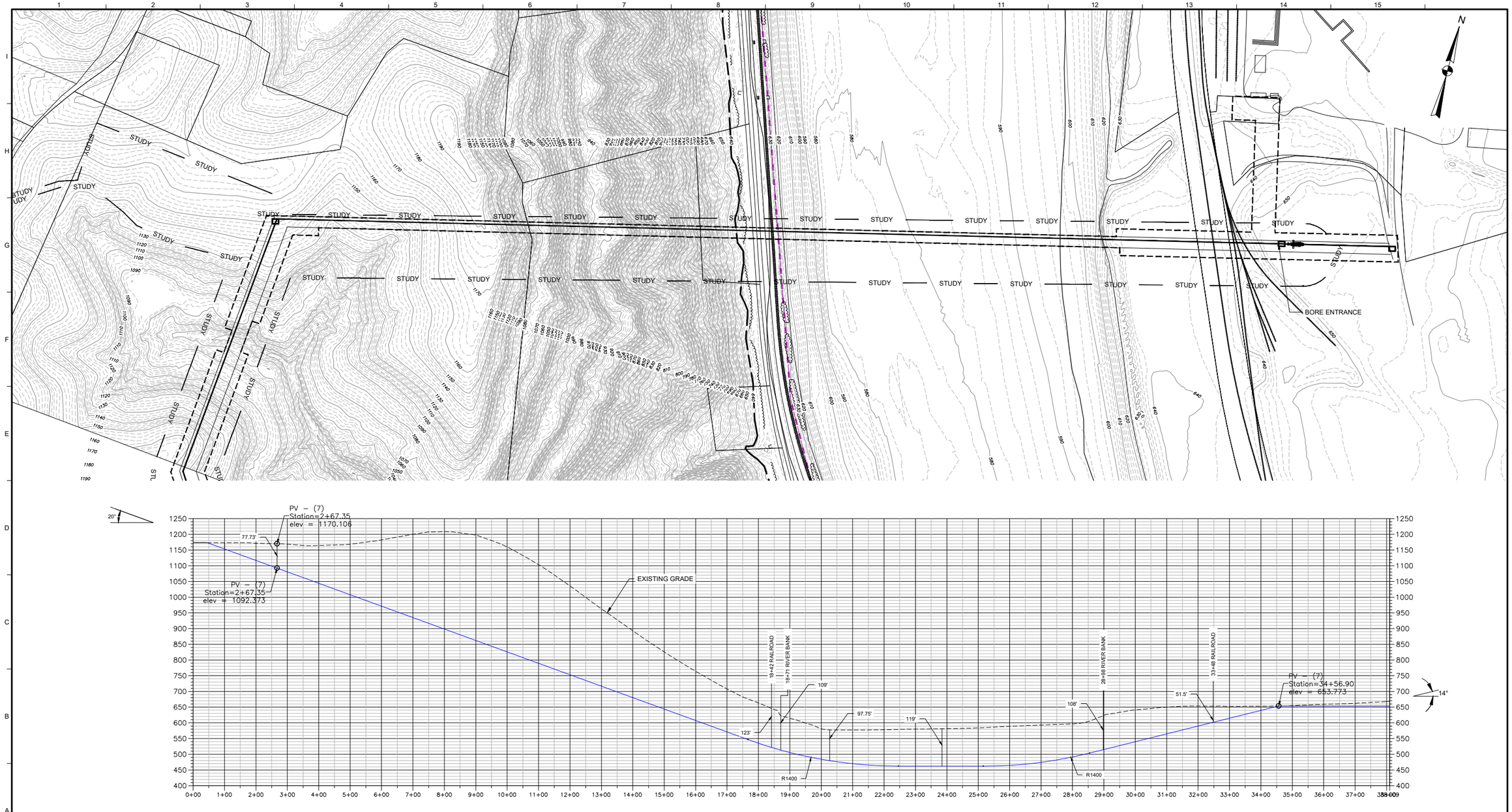

LEGEND

- EXISTING 10' CONTOUR
- EXISTING 2' CONTOUR
- EXISTING GAS PIPELINE
- PROPOSED PIPELINE
- PROPOSED PERMANENT RIGHT-OF-WAY
- PROPOSED LIMIT OF DISTURBANCE
- PROPOSED STUDY AREA

0 150 300
SCALE IN FEET

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MARK	DATE	DESCRIPTION	BY

APPALACHIAN NGL HUB RAIL TRANSLOADING FACILITY
MONROE COUNTY, OHIO

PROPOSED NGL
HDD BORE EXHIBIT

DATE:	06/02/20
PROJECT NO.:	212C-CF-00264
DESIGNED BY:	LD
DRAWN BY:	GR
CHECKED BY:	LD
SHEET:	1 OF 1

FIGURE 3.1.5

X:\CADD\Long Ridge Transloading\212c-cf-00264\Exhibits\BORE CROSSING EXHIBIT FIGURE 3.1.5.dwg PIT JIM.KUSIOWSKI 6/24/2020 5:02:50 PM

pathway for the drilling mud. The fractures, if present, may be filled with bentonite drilling mud. The drilling mud would likely remain in the fractures in the vicinity of the pipeline. The potential impacts from this drilling mud on surface waters are discussed in Section 3.2.2.

From the bore pit exit southward to the Transloading Facility, the NGL pipeline would be installed in a shallow open-cut trench excavated primarily in unconsolidated soils and weathered bedrock. Some bedrock may be encountered in steep topographic areas where bedrock is exposed at the surface. At stream crossings, and as the route approaches the LRET Property along the Ohio River, the NGL Pipeline would encounter outwash deposits and alluvial sediments. The NGL Pipeline could result in negative impacts through inadvertent return of drilling mud to the surface water. The implementation of minimization measures described in Section 3.1.3, would minimize the possibility of inadvertent return and potential for impacts.

3.1.3 Avoidance, Minimization, and/or Mitigation Measures

Transloading Facility

Due to the relatively flat topography and minimal grading required for construction of the Transloading Facility, no specific mitigation measures are necessary, but soil compaction techniques for foundation support may be used. In addition, geotechnical studies would be conducted to determine the underlying soil bearing capacities and recommended foundation design.

NGL Pipeline

The following minimization measures would be conducted during installation of the NGL Pipeline:

- As required under the Ohio Linear Pipeline Construction Stormwater permit and Ohio Revised Code (ORC) 6111, LRET would return the grade along the pipeline route to pre-construction conditions. Returning the grade to its preconstruction contours will minimize the potential for landslides and slope failures.
- In accordance with permit for WV 401 WQC, LRET would develop an Inadvertent Return Contingency Plan (IRCP), with contingencies for loss of drilling mud in bedrock fractures. The plan would include monitoring procedures to be implemented during drilling and action plans in the event of inadvertent returns, which occur when there is a loss of drilling mud during drilling operations.

Implementation of these minimization measures, in accordance with federal and state regulations, and in accordance with the conditions of the required permits (as described in Section 1.5), would reduce the potential for slope failure and minimize impacts associated with potential fractures in bedrock to the geologic and physical setting.

3.2 GROUNDWATER HYDROLOGY/WATER RESOURCES

3.2.1 Affected Environment

Groundwater Resources

Groundwater in the region is found in shallow aquifers that typically occur in the shallow bedrock and alluvial deposits along streams and the Ohio River. These stream valleys and the Ohio River are the discharge points for the groundwater. In general, the shallower groundwater follows the topography and the deeper groundwater flows toward the major discharge point, which is the Ohio River. Groundwater is found in several different water bearing geologic units, some of which can produce usable amounts of water for residential or industrial use. Shallow groundwater is present in the unconsolidated residual soils and weathered bedrock and extends into the shallow bedrock.

Due to the rural nature of the area, groundwater from private wells is the primary source of drinking water for homes outside of developed areas. These private wells range in depth depending on the surface elevation of the well and

the depth to an aquifer that can adequately supply water. There are no drinking water wells on the LRET Property. Developed areas along the river, including nearby communities obtain their water supply from a public water source that draws from the Ohio River. The water is treated and disbursed through waterlines. Depending on the volume of water needed, industrial water can be drawn from multiple sources including the Ohio River, through wells, or from public water supplies.

Numerous groundwater investigations have been conducted on the LRET Property (Geo Resource Group 2016). These studies included the installation and monitoring of dozens of monitoring wells. The local groundwater flow is dominated by the high capacity Ranney Well located along the Ohio River, to the east of the proposed Transloading Facility (Geo Resource Group 2016). The Ranney Well originally produced cooling water for the former industrial facility that occupied the LRET Property. Groundwater potentiometric maps produced during these investigations, and in annual groundwater monitoring reports, illustrate that the groundwater flows towards the Ranney Well location. The rate of pumping, which has been estimated to be approximately one million gallons per day to approximately four million gallons per day, has created a cone of depression (Geo Resource Group 2016). Without the Ranney Well, it is likely that the groundwater would naturally flow to the southeast and towards the Ohio River. Appendix A presents reference drawings from previous studies.

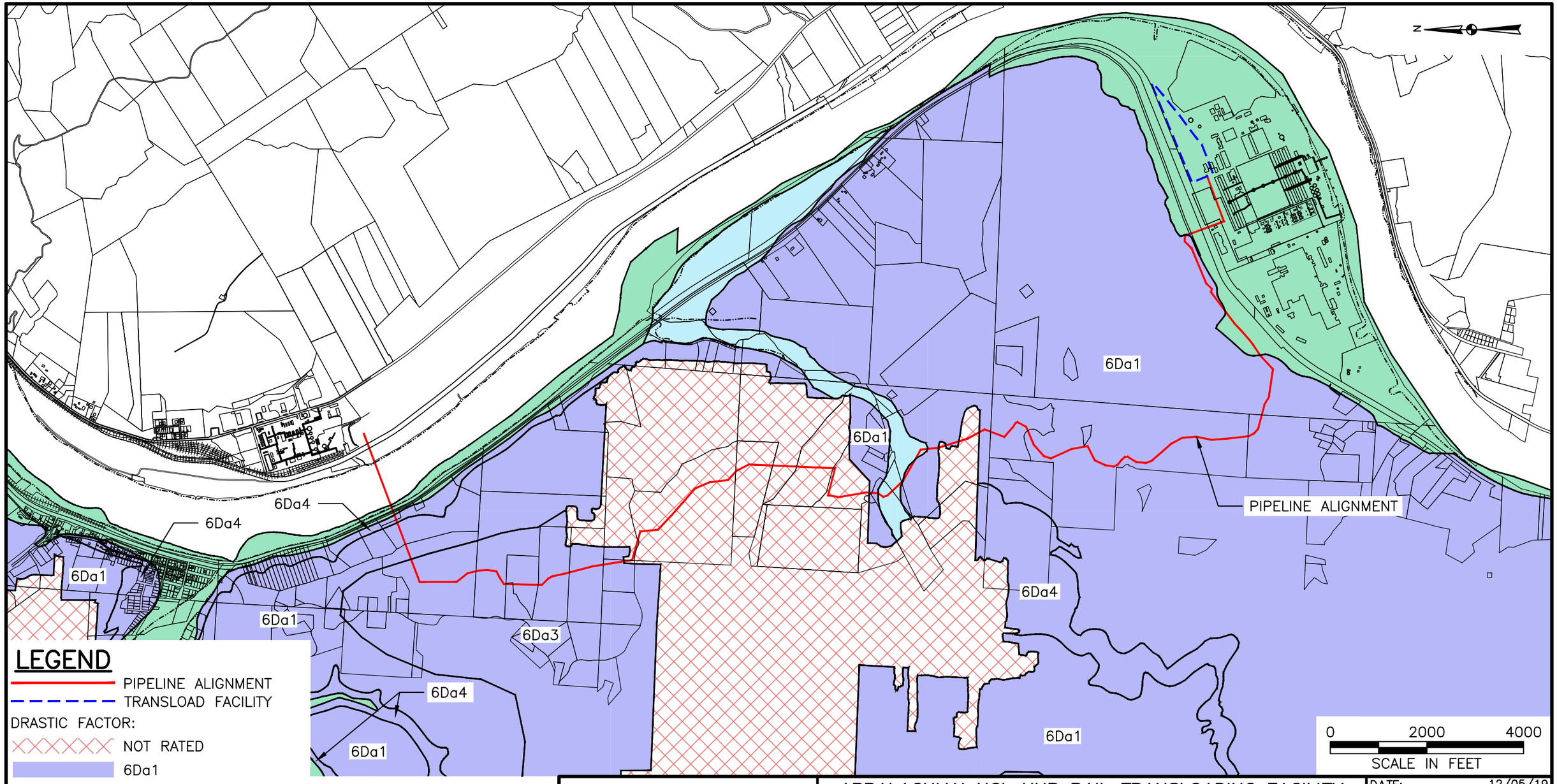
Groundwater Pollution Potential

Groundwater pollution maps have been generated for most of the counties in Ohio, including Monroe County. These maps were developed by the state to indicate relative pollution potential using a system created by the National Groundwater Association and are referred to as the DRASTIC system. This acronym was developed to represent the seven parameters used to develop pollution potential mapping: Depth to water, net Recharge, Aquifer media, Soil media, Topography, Impact of the vadose zone media, Conductivity of the. Aquifer. Generally, the faster that groundwater can flow through an aquifer, the higher the pollution potential. The map for Monroe County was developed and published in 2016 (Sprowls, 2016). The DRASTIC maps do not indicate the presence or absence of pollution or environmental issues. These maps were developed as an evaluation tool to estimate the potential impacts to soil and groundwater if a pollution release were to occur. Based on the evaluated criteria a pollution potential score is determined and used to map the areas. The higher the pollution potential score the higher the potential for groundwater pollution if there were a release or spill.

As illustrated in Figure 3.2.1, the site for the proposed Transloading Facility was mapped as 7D3, and it has the highest pollution potential rating at 132. This mapped area is characterized by having an aquifer media composed of sand and gravel, low slope, and high hydraulic conductivity. The site lies atop fill material, which in turn, overlies alluvial sediments and unconsolidated river deposits. The portion of the study area that contains the Transloading Facility is located on a river terrace underlain by a shallow aquifer formed in unconsolidated glacial outwash materials. Based on data from monitoring wells on the LRET Property, the groundwater surface is approximately 40-feet below the ground surface. The shallow groundwater underlying the proposed Transloading Facility would flow southward toward the Ranney Well. If for some reason the Ranney Well was not in operation, the groundwater flow would likely return to its natural flow path toward the south-southeast.

The NGL Pipeline study area would pass through four different DRASTIC areas, mapped based on their pollution potential. These groups included 6Da1 (pollution potential rating of 75), 6Da3 (pollution potential rating of 77), 6Da4 (pollution potential rating of 69), and 6Fa1 (pollution potential rating of 109). These areas are in the ridge and valley area and vary slightly as a function of soil media, slope, location, and hydraulic conductivity. The area mapped as 6Fa1 differs slightly by being located along Opossum Creek and has slightly different aquifer media and hydraulic conductivity.

The portion of the study area that contains the NGL Pipeline would begin in West Virginia at the Blue Racer facility along the Ohio River. Shallow groundwater in this area lies in unconsolidated glacial outwash materials and would flow westward toward the Ohio River. The depth of the groundwater is not known, but based on the elevation of the Ohio River, is likely between 20 to 25 feet below the ground surface. The shallow groundwater along the pipeline route would be influenced heavily by topography and by water flow within the intervening tributaries, which



LEGEND

- PIPELINE ALIGNMENT
- TRANSLOAD FACILITY

DRASTIC FACTOR:

- NOT RATED
- 6Da1
- 6Da3
- 6Da4
- 6Fa1
- 7D3

NOTE:
DATA OBTAINED FROM ODNR DIVISION OF WATER RESOURCES WEBSITE.

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APPALACHIAN NGL HUB RAIL TRANSLOADING FACILITY
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DRASTIC MAP

DATE:	12/05/19
PROJECT NO.:	212C-CF-00264
DESIGNED BY:	TS
DRAWN BY:	JK
CHECKED BY:	LD
SHEET:	– OF –

FIGURE 3.2.1

X:\CADD\Long Ridge Transloading\212c-cf-00264\FIGURES\FOR SUBMITTAL\FIGURE 3.2.1.dwg PIT JIM.KUSIOWSKI 6/26/2020 11:37:05 AM

include Opossum Creek. Deeper groundwater along this route would be located in the underlying bedrock units and groundwater producing units would include units that exhibit significant fractures or bedrock types with higher permeabilities (ability to produce water).

There are rural residential homes within the study area of the NGL Pipeline along with some small industrial facilities. These homes and facilities get their water supply from wells which are likely cased through the unconsolidated units (soil, sediment, weathered bedrock) and the upper geologic units and set into the underlying aquifers that produce an adequate water supply.

3.2.2 Environmental Consequences

The methodology used for assessing impacts to water resources focused on the presence of the groundwater pollution potential (described in Section 3.2.1) and assessing how the Project would impact water quality during construction and operation. Specifically, the Project was assessed for violation of any water quality standards or waste discharge requirements, potential pollutant exposure, contribution to runoff water, erosion and sedimentation effects from soil disturbance, and potential impacts to drinking water sources.

No Action Alternative

Transloading Facility

Under the No Action Alternative, no ground disturbance would occur; therefore, there would be no potential for impacts to the shallow groundwater through uncontrolled spills or leaks.

NGL Pipeline

Under the No Action Alternative, no ground disturbance would occur; therefore, there would be no potential for impacts to shallow groundwater during stream crossings and potential for slope failures. The No Action Alternative would not affect groundwater users. The risk of an inadvertent release to the Ohio River would be avoided under the No Action Alternative.

Proposed Action Alternative

Transloading Facility

The Transloading Facility is underlain by a shallow aquifer formed in unconsolidated glacial outwash materials along the Ohio River. Based on data from monitoring wells on the LRET Property, the groundwater lies approximately 40 feet below the ground surface. Potential impacts from spills at the Transloading Facility stem from the use of petroleum products for equipment operation and hazardous materials used (such as paints, degreasers, glycol, etc.) during construction. Any significant spills or releases to the environment could potentially contaminate the groundwater. During operation of the facility, there would be storage tanks holding petroleum products, pumps, and product loading areas. Uncontrolled releases from these sources could impact the groundwater. There are no plans for using the groundwater as a source of drinking or industrial process water for the Transloading Facility. However, if contaminated soils were encountered and exposed to precipitation, contaminants could filter into the groundwater. In order to minimize the risk of infiltration, mitigation measures described in Section 3.7.3 would be implemented.

The Proposed Action Alternative could have an adverse impact to groundwater resources in the event of an unmanaged spill or release during construction or operation. These potential impacts would be minimized through the implementation of mitigation measures discussed in Section 3.2.3.

NGL Pipeline

The NGL Pipeline route would extend through various topographical highs and lows and different shallow groundwater environments, including unconsolidated alluvial deposits, unconsolidated residual soils and weathered bedrock, and bedrock. During construction of the NGL Pipeline, a trench would be excavated generally around 5

feet below the ground surface and would likely not encounter any shallow groundwater along most of the pipeline route. However, during stream crossings and crossing of stream valleys, the excavation would likely extend into the shallow groundwater and temporarily disturb the water quality by increasing turbidity; however, this does not negatively impact the shallow groundwater because it is ultimately discharged into the adjacent stream or filtered into the adjoining undisturbed soils and sediments.

There is one conventional bore planned for the NGL Pipeline crossing of Opossum Creek. This bore would likely extend through the shallow groundwater on both sides of, and below, Opossum Creek. This type of bore typically has minimal impacts to the environment since a casing is advanced with the bore and no fluids are introduced into the environment. There is one HDD boring planned for the NGL Pipeline crossing the Ohio River. The HDD bore would start on Sykes Ridge in Ohio, on the west side of the Ohio River. The bore would extend approximately 5,300 feet to the Blue Racer facility on the east side of the Ohio River in West Virginia. The bore would be approximately 50-feet below the bottom of the Ohio River and would be in contact with groundwater. An initial pilot bore would be advanced and then the hole would be reamed to 14 inches in diameter to push the 10-inch pipe through. During advancement of the HDD, non-hazardous bentonite drilling mud would be used and recirculated through the cutting head back to a mud pit. The recirculation of the drilling mud lubricates the cutting head, helps to keep it cool, and brings the drill cuttings to the surface, where they are separated from the mud before recirculation. During advancement of the HDD bore, drilling mud could be lost (inadvertent return) in the geologic formations that exhibit significant fractures. The inadvertent return of drilling mud into the geologic formations would raise the turbidity of the groundwater in the vicinity of the bore. During the drilling process, the drilling pressures and mud quantity would be carefully monitored for losses. A detailed inadvertent return plan and contingency plan would be required under the West Virginia 401 WQC guidelines. If a significant inadvertent return is observed, the drilling process would be halted and preventive measures employed to seal the fractures in the area of the loss, through injection of state approved sealant or cement.

The majority of the NGL Pipeline would be installed in an open-cut trench excavated less than 5-feet below the ground surface. It is unlikely that trench excavation would affect the quantity or quality of the groundwater. The conventional bore crossing under Opossum Creek is anticipated to be approximately 10 feet in length. This short bore would be cased as part of the drilling technique by a casing advanced along with the bore. Thus, impacts to the quantity or quality of the groundwater would be unlikely.

The Ohio River is a drinking water source for many communities in the Ohio River valley. The HDD bore has the potential to impact the water quality of the Ohio River if an inadvertent return occurs and reaches the bottom of the river. The HDD bore would be at least 50-feet below the bottom of the river, and it would be unlikely that the drilling mud would reach the river, but geologic bedrock fractures could provide a potential pathway. A release of bentonite into the river would not be a significant health risk but could increase the turbidity of the water for a short distance downriver. If this were to occur, all operations would be halted until a solution was developed and downstream users within a mile of the release would be notified, which is standard practice and would be included in the IRCP (required under the West Virginia 401 WQC).

During operation of the NGL Pipeline there is the potential for leaks to occur and filter into the shallow groundwater. Based on pollution potential maps, groundwater could be impacted if a significant release did occur, but generally, groundwater for drinking is obtained from deeper bedrock aquifers that would likely not be impacted if a release was detected and immediately addressed. In addition, potential impacts to groundwater would not likely impact the property owners' water supply because the NGL Pipeline is located downgradient and downslope of the residential dwellings and their associated water supply wells. The likelihood of a significant release occurring would be minimized through mitigation measures presented in Section 3.2.3.

Construction and operation of the NGL Pipeline could impact the groundwater quality under the Ohio River and along the pipeline route. However, with the implementation of mitigation measures described in Section 3.2.3, the potential impacts would be minimized.

3.2.3 Avoidance, Minimization, and/or Mitigation Measures

Transloading Facility

The following minimization measures would be developed and implemented during construction and operation of the Transloading Facility:

- LRET would develop and implement a SWPPP in accordance with the Ohio Construction Stormwater permit and the ORC 6111. This SWPPP would include best management practices (BMPs) that would be implemented.
- A spill prevention control and countermeasure (SPCC) plan would be prepared by LRET for the Transloading Facility in accordance with 40 CFR 112, Subpart A. This plan would cover all petroleum products that will be stored on the facility and include plans for emergency response in the event of a release.
- As described in Section 3.7.3, Soil Management Plan would be prepared to address the unlikely event of encountering contaminated soils. This plan would include soil screening requirements, the oversight or monitoring of soil moving activities by an environmental professional, and contingency plans for the handling, removing, temporarily storing, characterizing, and disposing of contaminated materials. This plan would also include measures for containing, treating, and disposing of stormwater that may contact exposed soils.

NGL Pipeline

The following mitigation measures would be developed and implemented during installation and operation of the pipeline:

- LRET would develop and implement a SWPPP in accordance with the Ohio Construction Stormwater permit and the ORC 6111. This SWPPP would include best management practices (BMPs) that would be implemented.
- As described in Section 3.1.3, an IRCP with contingencies for loss of drilling mud in bedrock fractures would be developed by LRET. The plan will include monitoring procedures to be implemented during drilling and action plans in the event of inadvertent returns. In accordance with the IRCP and required under the West Virginia 401 WQC, if a released of bentonite into the river were to occur, all operations would be halted until a solution was developed and downstream users within a mile of the release would be notified. The preparation and implementation of an IRCP would be important to reduce the potential for a release into the Ohio River.
- LRET will follow the applicable emergency response procedures described in 3.12.3 in order to notify and safeguard the public.

Proper implementation of these minimization measures, in accordance with federal and state regulations and in accordance with conditions of the required permits as stated above, would minimize impacts to the groundwater and hydrological resources in the Study Area.

3.3 SURFACE HYDROLOGY/FLOODPLAINS

3.3.1 Affected Environment

Surface runoff from precipitation events in the Study Area generally follows topographic contours and is captured by streams that discharge into the Ohio River. Surface water runoff at the Blue Racer Facility and the LRET Property is captured by stormwater drains and discharged through outfalls into the Ohio River. The Study Area intersects four separate local watersheds. One on the West Virginia side of the Ohio River and the others on Ohio side of the river. Figure 3.3.1 shows the main streams and tributaries and illustrates the dendritic drainage pattern, with the Ohio River being the main discharge location for the surface water.

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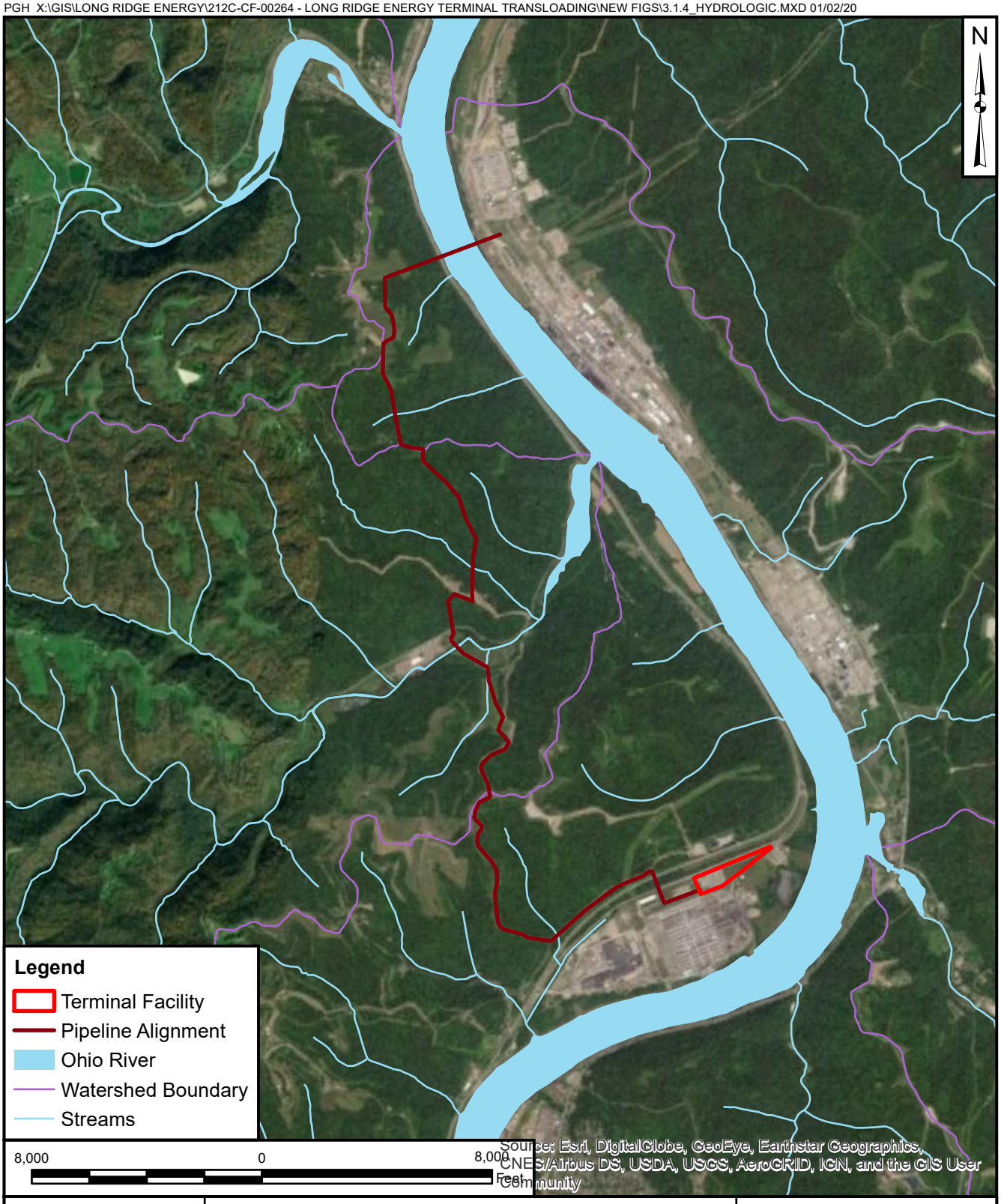

TETRA TECH

HYDROLOGIC MAP
APPALACHIAN NGL HUB RAIL
TRANSLOADING FACILITY
MONROE COUNTY, OHIO

DRAWN BY: M. SCOTT 12/19/19
CHECKED BY: T. SERENKO 01/02/20
APPROVED BY:

CONTRACT NUMBER:212C-CF-00264

FIGURE NUMBER	REV
3.3.1	0

Figure 3.3.2 shows the Federal Emergency Management Agency (FEMA) floodplain mapping for the area in and around the Project. There are three flood zones shown on the map:

- Zone A (100-year flood elevation) – FEMA defines this zone as "Areas subject to inundation by the 1-percent-annual-chance flood event generally determined using approximate methodologies. Because detailed hydraulic analyses have not been performed, no Base Flood Elevations (BFEs) or flood depths are shown. Mandatory flood insurance purchase requirements and floodplain management standards apply."
- Zone AE (100-year flood elevation) – FEMA defines this zone as "Areas subject to inundation by the 1-percent-annual-chance flood event determined by detailed methods. Base Flood Elevations (BFEs) are shown. Mandatory flood insurance purchase requirements and floodplain management standards apply."
- Zone X (500-year flood elevation) – FEMA defines this zone as "Area determined to be outside the 500-year flood and protected by levee from 100-year flood.

An on-site survey for aquatic resources conducted for the preparation of the EA and detailed in Section 3.4 did not identify any streams within the 17-acre footprint of the proposed Transloading Facility (Figure 3.3.1). Surface run off is diverted into stormwater basins and ultimately discharged into the Ohio River through outfalls.

A small segment of the NGL Pipeline would be located along the east side of the Ohio River in West Virginia. There are no streams along the east bank of the Ohio River in the vicinity of the proposed NGL Pipeline. Stormwater runoff form the Blue Racer facility is captured in the existing storm drain system. Once the NGL Pipeline crosses the Ohio River, it would pass through three watershed areas as shown in Figure 3.3.1.

The largest watershed that would be crossed is Opossum Creek, and the NGL Pipeline would cross several tributaries to Opossum Creek in addition to Opossum Creek itself. The NGL Pipeline would also cross two smaller watersheds that are located north and south of Opossum Creek watershed. These smaller watersheds contain fewer tributaries with most tributaries draining directly into the Ohio River.

The NGL Pipeline would cross FEMA Flood zone A for the Ohio River crossing and FEMA Flood zones A and X when the pipeline would cross Opossum Creek. Another portion of the Study Area containing the proposed NGL Pipeline crosses a small portion of FEMA Flood zones A and X again, just past the Opossum Creek crossing location.

3.3.2 Environmental Consequences

The methodology used for assessing impacts to surface hydrology focused on the surface water runoff due to the Project during construction and operation. Impact assessment also included review of potential for flood hazards that could occur due to the Project or be caused by the Project.

No Action Alternative

Transloading Facility

Under the No Action Alternative, the stormwater at the LRET Property would continue to be captured in the existing stormwater system and be discharged into the Ohio River through outfalls.

NGL Pipeline

Under the No Action Alternative, no ground disturbance would occur; the surface drainage would remain unaltered, and there would be no impact to streams.

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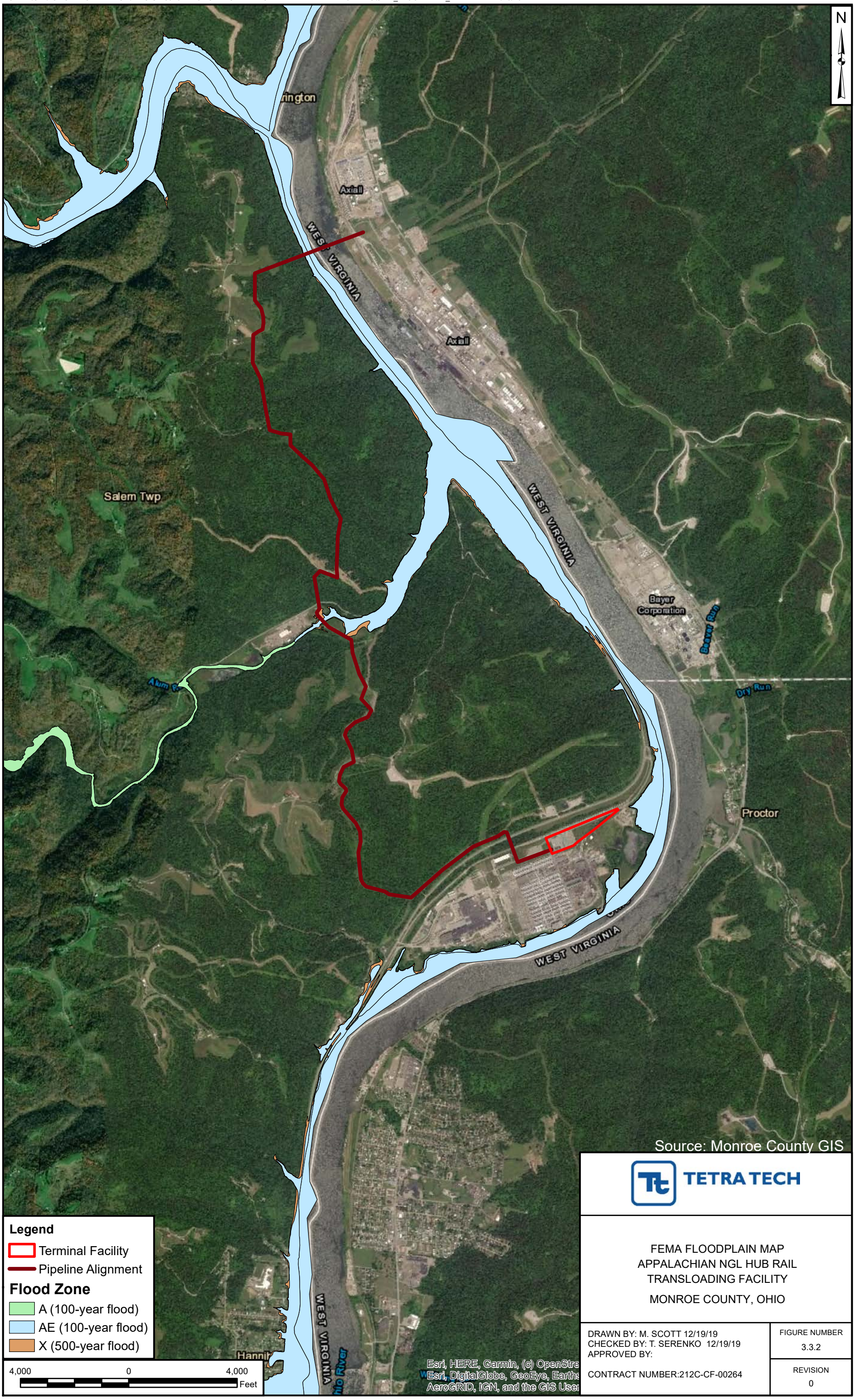

TETRA TECH

FEMA FLOODPLAIN MAP
APPALACHIAN NGL HUB RAIL
TRANSLOADING FACILITY

MONROE COUNTY, OHIO

DRAWN BY: M. SCOTT 12/19/19
CHECKED BY: T. SERENKO 12/19/19
APPROVED BY:

CONTRACT NUMBER:212C-CF-00264

FIGURE NUMBER
3.3.2

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Proposed Action Alternative

Transloading Facility

While portions of the study area are located within a floodplain, the proposed Transloading Facility would not be within a floodplain. Therefore, there would be no impacts to floodplains from construction of the Transloading Facility.

There are no streams present at the proposed Transloading Facility. During construction of the Transloading Facility, most of the 17-acre footprint would be disturbed by grading. Soil would be exposed, and gravel parking and lay-down areas would be temporarily installed. During construction, surface water runoff in contact with exposed soil would have elevated turbidity and would require treatment prior to discharge. Once the facility is in operation, most of the area would be paved. Mitigation and minimization measures would be implemented per the conditions required permits discussed in Section 3.3.4.

NGL Pipeline

During the construction of the NGL Pipeline, soil would be exposed as the ground is cleared and graded and while the pipeline trench is being excavated. Surface water runoff in contact with exposed soil would have elevated turbidity. Surface water runoff from precipitation events would have to be treated to reduce turbidity before leaving the LOD. Section 3.3.3 describes minimization and mitigation measures. As described in Sections 3.1 and 3.2, The Ohio River would be crossed using an HDD bore, while Opossum Creek would be crossed using a conventional bore. Surface waters would not be impacted

Smaller streams and tributaries with no flood hazard zones defined by FEMA would be crossed by open cutting resulting in temporary impacts to the stream beds and flow patterns. There would be no excavation or earthwork activities within FEMA designated zones A and AE.

3.3.3 Avoidance, Minimization, and/or Mitigation Measures

Transloading Facility

As described in Section 1.5, LRET would obtain an Ohio Construction Stormwater Permit in accordance with ORC 6111, which is a permit for stormwater discharges for small and large construction activities, prior to construction of the Transloading Facility. A condition of the general permit mandates a SWPPP plan to control and manage stormwater from the facility through BMPs (see Section 3.2.3 for more information on the SWPPP). A post-construction stormwater management (PCSM) plan would also be prepared based on the final design and layout. The PCSM plan would include stormwater detention basins and feed the existing stormwater control system at the LRET Property.

NGL Pipeline

As described in Section 3.2.3, LRET would obtain an Ohio Linear Pipeline Construction Stormwater permit in accordance with ORC 6111, for authorization of stormwater discharges associated with construction of oil and gas linear transmission lines and gathering line installation of the NGL Pipeline. This permit would require the preparation of a SWPPP plan and the use of BMPs to protect the surface water quality.

Several streams would be crossed and temporarily impacted for installation of the NGL Pipeline, LRET would restore these streams to preconstruction conditions upon completion of the pipeline installation in accordance with necessary permit conditions.

FEMA flood zones A and X will be crossed using boring techniques. The bore pit entrances and exits will be above the 500-year flood elevation; therefore, no construction activity will occur within FEMA flood zones. The HDD bore under the Ohio River and conventional bore under Opossum Creek will not impact respective surface waters as they will run below the bottom of each water body (> 50 feet below the Ohio River and > 5 feet below the bottom of Opossum Creek).

3.4 AQUATIC RESOURCES

3.4.1 Affected Environment

An aquatic resources survey (including wetland delineation and stream identification) was completed for the preparation of this EA. The Aquatic Resource Report is provided in Appendix B. The Study Area used for assessing aquatic resources included the 17-acre footprint of the proposed Transloading Facility and a 200-foot wide corridor centered on the proposed NGL Pipeline route. The Study Area is shown on the United States Geological Survey (USGS) Project Location Maps provided as Figure 3.4.1. Wetlands are identified on Figure 3.4.2.

Aquatic resources were identified using mapping resources and field confirmation. In addition, data was collected to evaluate identified wetlands using the Ohio Rapid Assessment Method (ORAM). ORAM scores provide a functional assessment of wetland quality, with Category 3 wetlands being of the highest quality and Category 1 wetlands being of the lowest quality. Data was recorded to initiate the evaluation of identified stream feature quality using the Ohio Headwater Habitat Evaluation Index (HHEI) and/or the Ohio Qualitative Habitat Evaluation Index (QHEI) scoring methods, as applicable. These methods yield a numerical score that indicates the probable existing aquatic life use of each stream. HHEI scoring classifies streams from Class III, indicating the highest quality, to Class I, indicating the lowest quality of headwater stream habitat. QHEI scoring methods range from a narrative rating of Excellent to Very Poor.

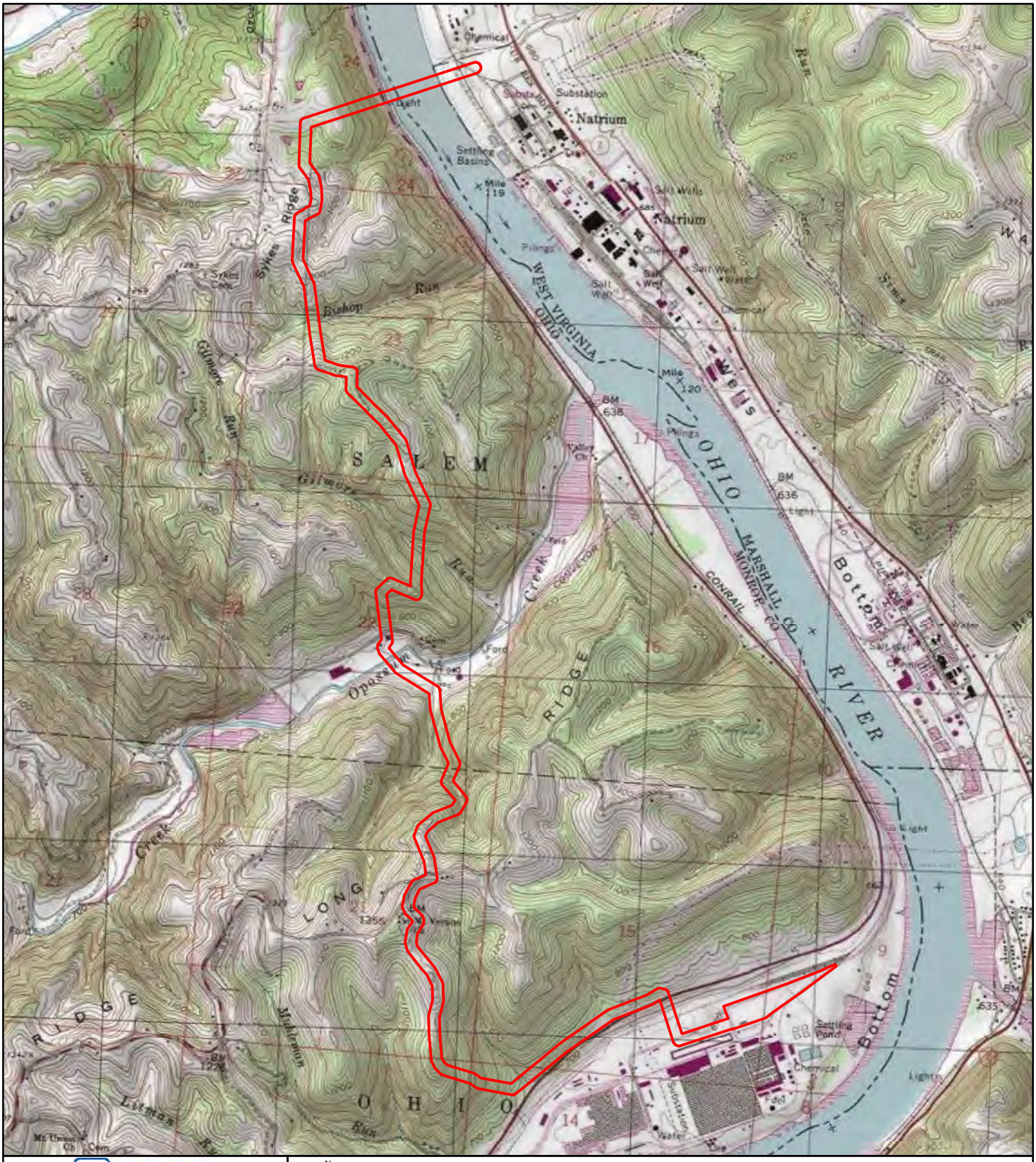
Jurisdictional streams are those waters that exhibit an ordinary high-water mark (OHWM), defined bed and banks, and a non-vegetated substrate indicative of periodic to persistent flowing water. Streams exhibiting all these characteristics are considered jurisdictional aquatic resources by the state and federal regulatory agencies (e.g. OEPA and USACE). Features such as roadside ditches and ephemeral drainages that do not have an identifiable OHWM, do not exhibit a defined bed and bank, or lack a developed substrate are not considered jurisdictional streams by OEPA or USACE. All aquatic resources identified during the Aquatic Resource evaluation are shown on the Aquatic Resource Location Map provided as Figures 4-1 to 4-27 of the Aquatic Resource Report (Appendix B).

The survey identified 30 stream reaches in the Study Area; all stream reaches were identified as jurisdictional streams. No streams were located on the proposed Transloading Facility site. It is anticipated that two of the waterbodies (Bishop Run and Gilmore Run) identified within the Study Area along the NGL Pipeline can be classified as Class III waterbodies. HHEI and QHEI evaluations were completed in conjunction for these two streams because they both had watersheds less than one square mile but exhibited predominant natural pools greater than 40 centimeters (15.75 inches) in depth at the time of the field evaluations. These streams were assessed a QHEI score of 70 which is a narrative rating of “Excellent”.

A total of 26 wetlands were identified in the Study Area, including four within the area proposed for the Transloading Facility. The remaining 22 wetlands were located along the NGL Pipeline route. Many of the identified wetlands are located in close proximity to riparian corridors along the NGL Pipeline because of the surrounding land use and general habitat characteristics of the Study Area.

The four wetland areas located in the Transloading Facility site included three palustrine emergent (PEM) and one palustrine forested (PFO). Two wetlands within the NGL Pipeline portion of the Study Area were identified as PFO and 20 were identified as PEM. None of the identified wetlands were determined to be isolated; therefore, all wetlands would likely be considered federally jurisdictional. Based on the ORAM assessed scores of identified wetland resources, none of the wetlands identified within the Study Area were scored as Category 3 wetlands (which is the highest quality).

Landowner permission to survey has not been granted for one parcel within the Study Area, but this parcel lies just west of the Ohio River and would be bored under as part of the proposed HDD boring of the Ohio River. Desktop analysis using publicly available geographic information system (GIS) including USFWS National Wetland Inventory



TETRA TECH

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1 inch = 2,500 feet

2,500 0 2,500 Feet

FIGURE 3.4.1
USGS PROJECT LOCATION MAP

APPALACHIAN NGL HUB RAIL TRANSLOADING FACILITY

MONROE COUNTY, OHIO

Legend

Study Area

Notes:
1) Topographic map provided by ESRI's ArcGIS Online USA Topo Maps map service (© 2013 National Geographic Society, i-cubed).
2) Quadrangle(s) displayed: Cameron, Powhatan Point, Round Bottom, and New Martinsville.

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(NWI) mapping, ODNR Ohio Wetland Inventory (OWI) mapping, National Resources Conservation Service (NRCS) hydric soils mapping, and aerial imagery were used to assess inaccessible parcels. Where practicable, field review of desktop-identified features and survey for additional aquatic resources for these parcels was conducted from public roads or from adjacent properties.

3.4.2 Environmental Consequences

The methodology used for assessing impacts to aquatic resources is described in the Aquatic Resource Report, provided in Appendix B. The Project was assessed on potential impacts to streams and wetlands resulting from construction and operation.

No Action Alternative

Transload Facility

There would be no impacts to the streams or wetlands under the No Action Alternative. No further evaluation for streams or wetlands is included in this section for the No Action Alternative.

NGL Pipeline

The No Action Alternative would result in no impacts to streams and wetlands along the pipeline route. Under the No Action Alternative, wetland W-WJKM05-PFO would remain a forested wetland. No further evaluation for streams or wetlands is included in this section for the No Action Alternative.

Proposed Action Alternative

The layout of the Transloading Facility has been arranged so that there would be no impacts to aquatic resources. There are no streams present on the Transloading Facility site and the four wetlands in the Study Area would be outside of the construction area. These wetlands would be protected during construction and operation of the Transloading Facility through the implementation of BMPs described in Section 3.4.3. Due to the linear nature of the NGL Pipeline and the topography of the Project area, avoidance of all wetland and stream impacts is not practicable on the NGL Pipeline route. Further evaluation of stream impacts and wetland impacts, as well as proposed mitigation are provided in Sections 3.4.2.1, 3.4.2.2, and 3.4.2.3 for the Proposed Action.

3.4.2.1 Stream Impact Evaluation

Transloading Facility

No streams were identified in the proposed Transloading Facility location; therefore, no impacts would occur during construction.

NGL Pipeline

The proposed NGL Pipeline would cross 18 of 30 identified streams. These streams are the Ohio River, unnamed tributaries (UNTs) to the Ohio River, Bishop Run, Gilmore Run, UNTs to Gilmore Run, Opossum Creek, UNTs to Opossum Creek, Stetson Run, and UNTs to Stetson Run. The Ohio River, Bishop Run, Gilmore Run, Opossum Run, Stetson Run, and all UNTs of these named streams are Warm Water Fishes (WWF), as designated in the Ohio Administrative Code (OAC) Chapter 3745-1 for Water Quality Standards.

Information for all stream crossings and anticipated impacts (lengths in linear feet) is provided in the Summary of Stream Impacts Table (Table 3.4.1).

Table 3.4.1
Summary of Stream Impacts
Appalachian NGL Hub Rail Transloading Facility

Project Component	Resource ID	Resource Type	County	Latitude [1]	Longitude [1]	NHD Stream Name [2]	OAC Water Quality Standards [3]	Stream Flow Regime	Stream Top of Bank Width (feet)	Waters Type [4]	Cowardin Class [5]	Permanent Stream Impact (Linear Feet)	Temporary Stream Impact (Linear Feet)
Transloading Facility	**No Streams/No Impacts**												
NGL Pipeline	S-WJKM01	Stream	Monroe	39.752721	-80.870663	UNT to Ohio River	WWH	Ephemeral	2.00	NRPW	R6	-	106
	S-WJKM02	Stream	Monroe	39.752870	-80.870647	UNT to Ohio River	WWH	Ephemeral	1.00	NRPW	R6	-	60
	S-WJKM04	Stream	Monroe	39.752552	-80.871198	UNT to Ohio River	WWH	Ephemeral	4.00	NRPW	R6	-	65
	S-WJKM05	Stream	Monroe	39.751548	-80.871870	UNT to Ohio River	WWH	Perennial	5.00	RPW	R3UB1	-	73
	S-WJKM07	Stream	Monroe	39.749990	-80.871726	UNT to Ohio River	WWH	Ephemeral	1.50	NRPW	R6	-	65
	S-WJKM08	Stream	Monroe	39.742487	-80.870809	Bishop Run	WWH	Perennial	8.00	RPW	R3RB1	-	60
	S-WJKM10	Stream	Monroe	39.731213	-80.863556	Gilmore Run	WWH	Perennial	20.00	RPW	R3RB1	-	110
	S-WJKM13	Stream	Monroe	39.730478	-80.863545	UNT to Gilmore Run	WWH	Intermittent	1.50	RPW	R4SB5	-	153
	S-WJKM15	Stream	Monroe	39.72674782	-80.86546738	UNT to Opossum Creek	WWH	Perennial	7.00	RPW	R3UB1	-	67
	S-WJKM16	Stream	Monroe	39.72548113	-80.86506806	Opossum Creek	WWH	Perennial	65.00	RPW	R3UB1	-	63
	S-KP01	Stream	Monroe	39.71911551	-80.86041111	UNT to Opossum Creek	WWH	Intermittent	5.00	RPW	R4SB	-	65
	S-KP03	Stream	Monroe	39.72311887	-80.86204631	UNT to Opossum Creek	WWH	Perennial	5.00	RPW	R3UB	-	51
	S-KP04	Stream	Monroe	39.70394857	-80.85601372	UNT to Stetson Run	WWH	Intermittent	0.50	RPW	R4SB3	-	50
	S-KP05	Stream	Monroe	39.70436036	-80.85539072	Stetson Run	WWH	Perennial	6.00	RPW	R3UB	-	53
	S-KP08	Stream	Monroe	39.70707468	-80.85110168	UNT to Stetson Run	WWH	Intermittent	2.00	RPW	R4SB3	-	105
	S-KP11	Stream	Monroe	39.7076042	-80.85021058	UNT to Stetson Run	WWH	Perennial	5.00	RPW	R3UB1	-	48
	S-KP12	Stream	Monroe	39.70886938	-80.84729219	UNT to Stetson Run	WWH	Perennial	3.00	RPW	R3UB1	-	63
	S-KP14	Stream	Monroe	39.70878143	-80.84669753	UNT to Stetson Run	WWH	Intermittent	1.00	RPW	R4SB3	-	49

Notes:

1- In decimal degrees

2- For identified streams without a NHD (National Hydrography Dataset) name, the identified stream was given the name, “Unamed Tributary (UNT)”, of the first named receiving waterbody

3- Ohio Administrative Code (OAC) Chapter 3745-1 Water Quality Standards

4- RPW = Relatively Permanent Waters,- NRPW = Non-Relatively Permanent Waters,- TNW = Traditional Navigable Waters

5- From Cowardin et al. 1979

The two larger water body crossings (Ohio River and Opossum Creek) would be crossed using HDD and conventional bore techniques, respectively. Borings require entry and exit pits and associated laydown and work areas. Boring methods allow for the crossing of water bodies without obstructing or impeding flow. There is a possibility of inadvertent return of drilling mud during HDD advancement. Measures that would be taken to minimize the risk of inadvertent return are discussed in Section 3.4.3 and include a geologic and geotechnical investigation, drill planning, and development of an Inadvertent Return Contingency Plan (IRCP).

The proposed NGL Pipeline would temporarily impact approximately 1,307 linear feet (LF) of stream channel during construction. Construction of the NGL Pipeline across waterbodies would result in minor, short-term impacts. These impacts would occur as a result of in-stream construction activities, minor earth disturbances within the stream floodways, or construction on slopes adjacent to stream channels. These activities could potentially result in a temporary localized increase in turbidity levels and downstream sediment deposition. Sediments that become suspended during the short period of in-stream disturbance would be expected to settle out of the water column relatively quickly. Measures to minimize and mitigate impacts are discussed in Section 3.4.3.

To minimize the potential impacts associated with stream crossings, LRET would implement construction and restoration BMPs. Restoration of streams would involve restoring the stream to pre-construction contours and seeding the stream banks. Permanent impacts to water quantity and flow rates are not anticipated as a result of this Project, and in general, hydrologic conditions are not anticipated to be impacted.

LRET anticipates that all stream crossings would comply with the conditions of and be authorized under USACE Nationwide Permit (NWP) 12. Authorization from under USACE NWP 12 allows for the construction of utility lines and associated features provided that the activities do not result in the loss of 0.5-acre of Waters of the United States (WoUS). The anticipated stream impacts in Table 3.4.1 meet the NWP 12 conditions. The NGL Pipeline would cross Ohio Environmental Protection Agency (OEPA) 401 Water Quality Certification (WQC) Ineligible and Possibly Eligible Areas for NWP Eligibility; therefore, LRET anticipates that the Project would require either an Individual 401 WQC or Director's Authorization for coverage under the 401 WQC for NWP 12.

3.4.2.2 Wetland Impact Evaluation

Transloading Facility

Four wetlands were identified in the proposed Transloading Facility Study Area, including three PEM wetlands and one PFO wetland. The Proposed Action Alternative avoided impacts to these wetlands through layout design changes. During construction, best management practices (BMPs) would be implemented by LRET to protect these resources as described in Section 3.4.3.

NGL Pipeline

The proposed NGL Pipeline would cross 11 of 26 identified wetlands. Of the 11 wetlands that would be impacted, 10 are PEM wetlands, and one is the PFO habitat of a PEM/PFO wetland complex. Wetlands W-KP01-PEM, W-KP03, W-KP06, W-KP07, and W-KP14 abut Relatively Permanent Waters (RPW) that flow directly, or indirectly, into Traditionally Navigable Waters (TNWs). Wetlands W-WJKM04b, W-KP08, W-KP09, W-KP10, W-KP12, W-KP13, and W-KP16 are adjacent to, but not directly abutting an RPW. Wetlands W-WJKM05-PFO and W-WJKM06 are associated with Non- Relatively Permanent Waters (NRPW) that flow directly, or indirectly, into TNWs. LRET does not anticipate the permanent loss of wetland acreage due to placement of permanent fill. Information for all wetlands being crossed and anticipated impacts are listed in the Summary of Wetland Impacts Table (Table 3.4.2).

The NGL Pipeline would cross wetlands using an open-cut trench with timber mats deployed for equipment crossing. Construction of the NGL Pipeline would temporarily disturb approximately 14,663 square ft (SF) (0.34 acres) of PEM wetland and permanently convert approximately 2,577 SF (0.06 acres) of PFO wetland to PEM wetland within the permanent right-of-way (ROW). Disturbances to PEM wetlands during and after construction to

Table 3.4.2
Summary of Wetland Impacts
Appalachian NGL Hub Rail Transloading Facility

Project Component	Resource ID	Resource Type	County	Latitude [1]	Longitude [1]	HGM[2]	Waters Type [3]	Cowardin Class [4]	Wetland Size (Acres)	Permanent Wetland Impact (Square Feet)	Permanent Wetland Impact (Acres)	Temporary Wetland Impact (Square Feet)	Temporary Wetland Impact (Acres)
Transloading Facility	**No Impacts**												
NGL Pipeline	W-WJKM04b	Wetland	Monroe	39.725622	-80.865327	Depressional	RPWWN	PEM	0.06	-	-	1,913	0.04
	W-WJKM05-PFO	Wetland	Monroe	39.724221	-80.863215	Depressional	NRPWW	PFO	0.52	2,577	0.06	-	-
	W-WJKM06	Wetland	Monroe	39.723544	-80.861886	Slope	NRPWW	PEM	0.02	-	-	0	0.00
	W-KP01-PEM	Wetland	Monroe	39.719138	-80.860708	Riverine	RPWWD	PEM	0.93	-	-	5,275	0.12
	W-KP07	Wetland	Monroe	39.705493	-80.853930	Slope	RPWWD	PEM	0.25	-	-	989	0.02
	W-KP08	Wetland	Monroe	39.706530	-80.852096	Slope	RPWWN	PEM	0.10	-	-	3,377	0.08
	W-KP09	Wetland	Monroe	39.706922	-80.851557	Slope	RPWWN	PEM	0.02	-	-	604	0.01
	W-KP10	Wetland	Monroe	39.706736	-80.844777	Slope	RPWWN	PEM	0.04	-	-	0	0.00
	W-KP13	Wetland	Monroe	39.708241	-80.848729	Slope	RPWWN	PEM	0.13	-	-	765	0.02
	W-KP14	Wetland	Monroe	39.708592	-80.847726	Slope	RPWWD	PEM	0.12	-	-	434	0.01
	W-KP16	Wetland	Monroe	39.708681	-80.846248	Slope	RPWWN	PEM	0.11	-	-	1,306	0.03

Notes:

1- In decimal degrees

2- HGM = Hydrogeomorphic

3- RPW = Relatively Permanent Waters,- NRPW = Non-Relatively Permanent Waters,- TNW = Traditional Navigable Waters

4- From Cowardin et al. 1979

service the pipeline and maintain the ROW are considered temporary impacts by the USACE and were treated as such in calculating anticipated impacts.

Impacts from construction of the NGL Pipeline would include temporary disturbance of vegetation, soils, and hydrology. Topsoil would be separated during construction and then replaced to original horizon and elevation in wetland areas. This would allow the direction, volumes, and rates of flow to be restored to pre-construction conditions and would promote re-establishment of hydrophytic vegetation. No permanent fill in wetlands is proposed as part of this Project; consequently, no loss of wetland area would result from construction or operation of the proposed NGL Pipeline.

Disturbed PEM wetlands would be allowed to revert back to their original PEM wetland functions once construction is complete. Tree clearing and brush removal at the proposed PFO wetland crossing would result in permanent conversion of the wetland vegetative community to PEM. Wetlands within the permeant ROW would be maintained as PEM wetlands after construction and site restoration. The Project is not anticipated to result in loss of total wetland acreage but would alter the existing wetland vegetative communities and result in permanent conversion of PFO wetland acreage to PEM wetland acreage.

Unavoidable permanent wetland impacts total approximately 2,577 SF (0.06 acres) and are limited to PFO to PEM conversion impacts to a single wetland resource, W-WJKM05-PFO. The 0.06 acres of permanent PFO wetland conversion impact would not result in the permanent loss of wetland, but rather the permanent conversion of PFO wetland to PEM wetland due to the vegetation maintenance activities within the permanent pipeline easement. As such, a total of 0.06 acres of unavoidable permanent wetland conversion impact would occur in Monroe County, Ohio, within the Little Muskingum-Middle Island (Hydrologic Unit Code [HUC] 05030201) Watershed. At this time, LRET does not anticipate that this conversion of 0.06 acre of PFO wetland would require mitigation by USACE because the acreage of impact is less than the NWP 12 threshold requiring mitigation for the loss of 0.1 acre, or more, of wetland. A permit would be obtained from the USACE with concurrence that no mitigation will be required.

The anticipated wetland impacts in Table 3.4.2 meet the conditions of NWP 12. LRET does not anticipate any impacts to isolated wetland features requiring OEPA Isolated Wetland Permits.

3.4.3 Avoidance, Minimization, and/or Mitigation Measures

Transloading Facility

As described above, there would be no stream or wetland impacts for the Transloading Facility.

Avoidance of impacts to wetlands within the Transloading Facility would be prevented by implementation of the following measures:

- Silt fence would be installed at the edge of work areas, as necessary, to prevent movement of silt into wetlands. The fencing would be maintained throughout construction until final site stabilization is achieved.
- Wetlands would be flagged for easy identification and avoidance by construction workers and equipment.

NGL Pipeline

The proposed NGL Pipeline has been routed to avoid or minimize impacts to wetlands and surface waters and to minimize the need for tree clearing. Where practicable, routing was adjusted to avoid aquatic resources. LRET would adhere to permit conditions of the applicable federal and state permits. LRET anticipates that all wetland crossings would meet the conditions of and be authorized under USACE NWP 12. NWP 12 allows for utility line crossings of the WoUS provided that construction activities do not result in the loss of 0.5-acre of WoUS. The NWP-12 permit is discussed in Section 1.5. Coordination with USACE regarding the NWP 12 is discussed in Section 4.0. BMPs implemented in the NGL Pipeline routing and design phase were used to minimize impacts to aquatic resources. BMPs included and in accordance with ORC 6111, WV 47 Code of State Rules (CSR) 2, CWA Section 404, and Rivers and Harbor Act Section 10:

- Demarcation of Surface Waters: Surface waters and wetlands proximate to work areas would be flagged for easy identification and avoidance by construction workers and equipment, except where impact would be specifically permitted.
- Stream Crossing Impact Minimization: The NGL Pipeline would be installed using techniques to minimize construction-related impacts to surface waters. Compliance with permit conditions, and implementation of BMPs would avoid or minimize adverse impacts on fish and other aquatic organisms.

The impacts to aquatic resources resulting from construction of the NGL Pipeline would be minimized by implementation of the following measures:

- In accordance with the Ohio Linear Pipeline Construction Stormwater permit, NWP 12, Section 10, and Ohio EPA 401 WQC, a detailed Erosion and Sediment Control Plan (ESCP) would be developed by LRET prior to initiating construction. Silt fence would be installed at the edge of work areas, as necessary, to prevent movement of silt into wetlands. The fencing would be maintained throughout construction until final site stabilization is achieved. Wetland boundaries would be clearly marked prior to construction activities. Procedures for appropriate dewatering and discharge, including measures to limit erosive forces, would also be developed.
- As described in Section 3.1.3, an IRCP would be developed prior to implementation of HDD techniques. The plan would incorporate various measures, including inspections, training, response procedures, ensuring appropriate containment materials are present, and plans for prompt cleaning up of inadvertent releases.
- In accordance with the Ohio Linear Pipeline Construction Stormwater permit, NWP 12, Section 10, and Ohio EPA 401 WQC, Restoration and Revegetation would occur. Areas temporarily impacted by Project construction would be restored to preconstruction contours. Cleared areas would be revegetated as soon as practicable following completion of construction to stabilize exposed areas of soil. Species proposed for the seeding would be selected to ensure compatibility and suitability with surrounding agricultural areas and measures would be instituted to prevent the spread of invasive species through revegetation with native plant species.

3.5 THREATENED AND ENDANGERED SPECIES

3.5.1 Affected Environment

Habitat assessment for the proposed Project was conducted within the same Study Area used during the aquatic resource surveys. The Study Area included the 17-acre footprint of the proposed Transloading Facility and a 200-foot corridor centered on the proposed NGL Pipeline route. The identified habitats within the Study Area are shown on the Habitat Assessment Map, provided as Figures 3.5.1 through 3.5.3. The Study Area originates within the existing Blue Racer facility in Natrium, West Virginia, which is a developed industrial complex currently used for cryogenic natural gas processing. After crossing under the Ohio River via Horizontal Directional Drilling (HDD), the NGL Pipeline generally follows ridgelines across rural agricultural land, pastures, forests, reclaimed strip-mine land, and existing gas pipeline ROW. Rural agricultural land is generally dominated by a mix of planted grass species primarily comprised of Timothy grass (*Phleum pratense*) and orchard grass (*Dactylis glomerata*) for hay production and was located on ridgelines where gentle sloped or flat topography is present. Location and topography of observed pastures varied and often overlapped areas of agriculture, existing ROW, and early to mid-successional forest (Figures 3.5.1 through 3.5.3). The proposed 5.9-mile NGL Pipeline route would be co-located within an existing pipeline ROW for approximately 2.6 miles. The existing pipeline ROW is dominated by a mix of planted grass species primarily comprised of Timothy grass and orchard grass (Figures 3.5.1 through 3.5.3). Approximately 1.9 miles of the Study Area is currently forested with a mix of early to mid-successional forest dominated by American beech (*Fagus americana*), red oak (*Quercus rubra*), shag-bark hickory (*Carya ovata*), and sugar maple

TETRA TECH

N

1 inch = 1,000 feet

1,000 0 1,000 Feet

FIGURE 3.5.1
HABITAT ASSESSMENT MAP

APPALACHIAN NGL HUB RAIL TRANSLOADING FACILITY

MONROE COUNTY, OHIO

Notes:
1) Aerial photograph provided by ESRI's ArcGIS Online World Imagery map service (© 2015 ESRI and its data suppliers).

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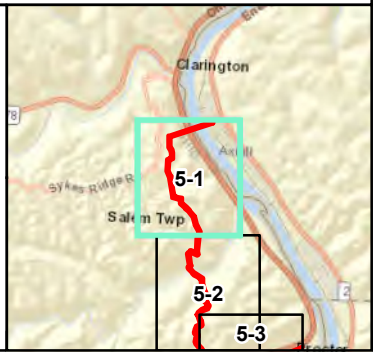
Legend

- Study Area
- Stream
- Agriculture/Pasture
- Early/Mid Successional Forest
- Existing ROW
- Industrial
- Reclaimed Strip Mine
- PEM Wetland
- PFO Wetland



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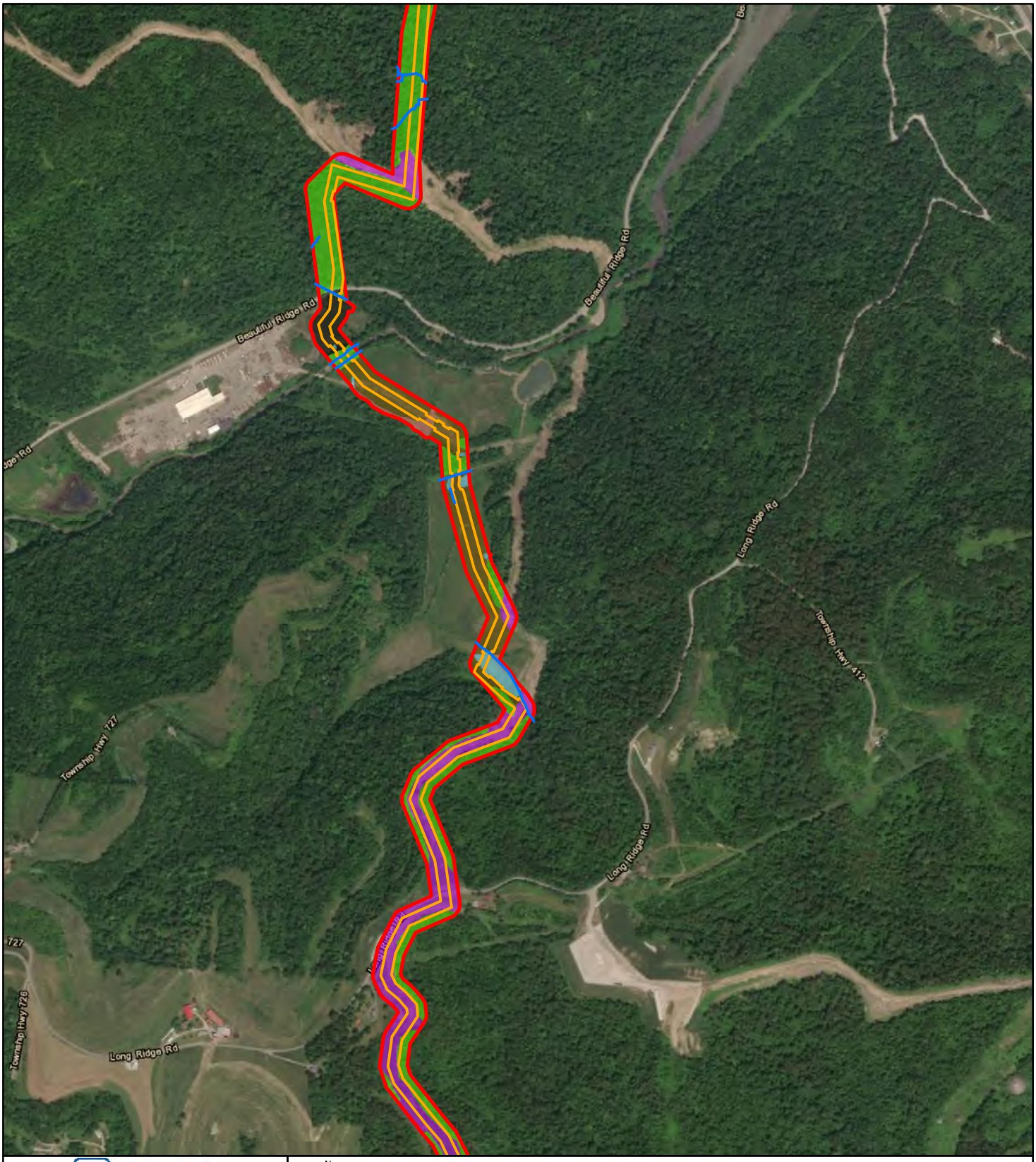

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1 inch = 1,000 feet

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FIGURE 3.5.2
HABITAT ASSESSMENT MAP

APPALACHIAN NGL HUB RAIL TRANSLOADING FACILITY

MONROE COUNTY, OHIO

Notes:
1) Aerial photograph provided by ESRI's ArcGIS Online World Imagery map service (© 2015 ESRI and its data suppliers).

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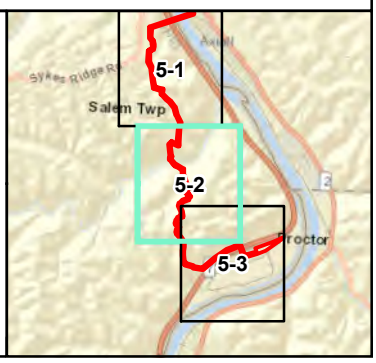
Legend

- Study Area
- Stream
- Agriculture/Pasture
- Early/Mid Successional Forest
- Existing ROW
- Industrial
- Reclaimed Strip Mine
- PEM Wetland
- PFO Wetland



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TETRA TECH

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1 inch = 1,000 feet

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FIGURE 3.5.3
HABITAT ASSESSMENT MAP

APPALACHIAN NGL HUB RAIL TRANSLOADING FACILITY

MONROE COUNTY, OHIO

Notes:
1) Aerial photograph provided by ESRI's ArcGIS Online World Imagery map service (© 2015 ESRI and its data suppliers).

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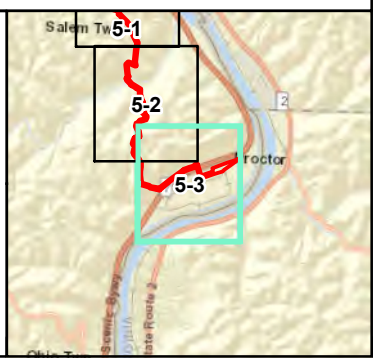
Legend

- Study Area
- Stream
- Agriculture/Pasture
- Early/Mid Successional Forest
- Existing ROW
- Industrial
- Reclaimed Strip Mine
- PEM Wetland
- PFO Wetland



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(*Acer saccharum*). Early to mid-successional forest and pastured forest habitat within the Study Area contained snags, trees exhibiting exfoliating bark, and trees with diameter at breast height (dbh) of greater than five inches (Figures 3.5.1 through 3.5.3).

In addition to these upland habitats, wetland delineation and stream identification surveys identified 30 streams and 26 wetlands within the Project Study Area (Figures 3.5.1 through 3.5.3, and Figures 4-1 to 4-27 of Appendix B). Three of the 26 wetlands exhibited palustrine forested (PFO) wetland habitat while the remaining identified wetlands were documented as palustrine emergent (PEM) wetlands. Many of the identified wetlands were situated near, or between, RPWs and open field habitat (Figures 3.5.1 through 3.5.3).

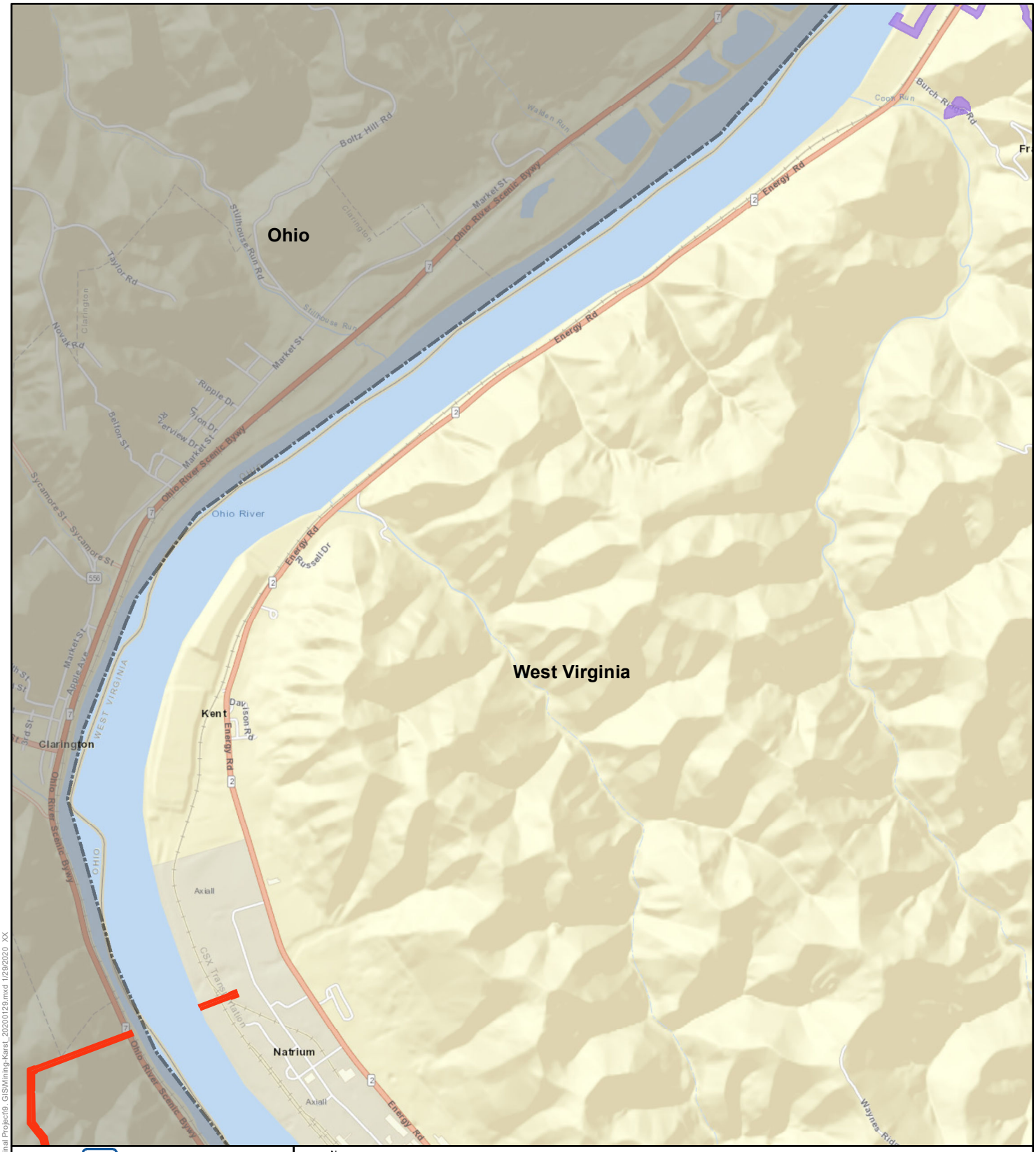
Of the 30 identified streams, 11 are perennial, 8 are intermittent, and 12 are ephemeral. Several of the identified perennial streams exhibited swift water, large rock (boulder slab, boulder, and cobble) substrate, and moderately deep pools. The Ohio River and Opossum Creek exhibited normal baseflow and riverbank characteristics and was observed to have mud, sand, gravel or cobble substrates at the time of field surveys. LRET anticipates that the proposed NGL Pipeline route will cross under the Ohio River, via HDD and under Opossum Creek via conventional bore. With the exception of the Ohio River, there are no Group 1, 2, 3, or 4 mussel streams crossed by the proposed Project listed in Appendix A: Ohio Mussel Stream List – 3/13/2018 of the ODNR Ohio Mussel Survey Protocol.

Official species lists for the Study Area were obtained from the United States Fish and Wildlife Service (USFWS) West Virginia and Ohio field offices, in accordance with Section 7 of the Endangered Species Act (ESA). Consultation with USFWS was conducted through the Information for Planning and Consultation tool (IPaC) and also by letter (Appendix C). Copies of coordination letters are provided in Appendix C along with agency responses from the respective field offices. Since the Project is situated in two states, an official species list was obtained from both Ohio (Consultation Code 03E15000-2020-SLI-0340, Event Code 03E15000-2020-E-00493) and from West Virginia (Consultation Code 05E2WV00-2020-SLI-0550, Event Code 05E2WV00-2020-E-00522). USFWS official species lists were reviewed to identify the potential for the presence of threatened and endangered species or their designated critical habitat within the Study Area (Appendix C).

Two mammal species are known to occur within the Study Area: 1) the Indiana bat (*Myotis sodalis*) is listed as federally and state endangered and has designated critical habitat, and 2) the northern long-eared bat (*Myotis septentrionalis*) is listed as federally threatened with no designated critical habitat. As noted in the USFWS Ohio response letter, "*suitable summer habitat for Indiana bats and northern long-eared bats consists of a wide variety of forested/wooded habitats where they roost, forage, and travel and may also include some adjacent and interspersed non-forested habitats such as emergent wetlands and adjacent edges of agricultural fields, old fields and pastures. This includes forests and woodlots containing potential roosts (i.e., live trees and/or snags ≥3 inches diameter at breast height (dbh) that have any exfoliating bark, cracks, crevices, hollows and/or cavities), as well as linear features such as fencerows, riparian forests, and other wooded corridors*." Approximately 21 acres of the Study Area along the NGL Pipeline route contains early to mid-successional forest, woodland, and wooded pasture habitat that could be considered potential Indiana bat and/or northern long-eared bat habitat. Potentially suitable Indiana bat and/or northern long-eared bat roosting habitat is present in the wooded habitats that exhibited snags, trees exhibiting exfoliating bark, and trees with diameter at breast height (dbh) of greater than five inches (Figures 3.5.1 through 3.5.3). Additionally, potentially suitable foraging habitat, and travel paths from potentially suitable roosting to foraging habitats are present within the Study Area. No caves, rock shelters, or abandoned underground mines were observed during the field survey of the proposed Study Area in West Virginia. Review of karst occurrence, mining history, and environmental resource mapping shows no abandoned mine portals within the proposed Project Study Area within West Virginia (Figure 3.5.4).

No designated critical habitats for any species were identified by USFWS within the Study Area.

Four federally endangered clam species were identified by USFWS in the West Virginia portion of the Study Area, but no critical habitat is designated for these species: 1) fanshell (*Cyprogenia stegaria*), 2) pink mucket/pearlymussel (*Lampsilis abrupta*), 3) sheepnose mussel (*Plethobasus cyphyus*), and 4) snuffbox mussel (*Epioblasma triquetra*). These listed freshwater mussel species typically prefer small- to medium-sized creeks with



TETRA TECH

N

1 inch = 2,000 feet

2,000 0 2,000 Feet

FIGURE 3.5.4
WV MINING AND KARST FORMATION MAP

APPALACHIAN NGL HUB RAIL TRANSLOADING FACILITY

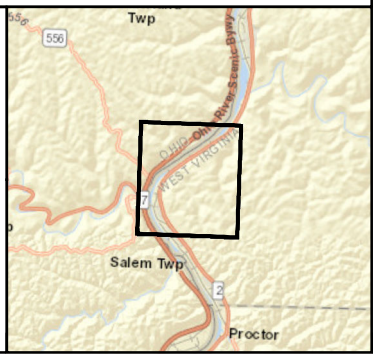
MARSHALL COUNTY, WEST VIRGINIA

Notes:
1) Aerial photograph provided by ESRI's ArcGIS Online World Imagery map service (© 2015 ESRI and its data suppliers).
2) Karst, Surface Mining Disturbance, Underground Mining from WV DEP at http://tagis.dep.wv.gov/home/Downloads

Drawn: SAZ 01/29/2020	Checked: KMM 01/29/2020	Approved: HBS 01/29/2020

Legend

- Project Limit of Disturbance
- Surface Mining Disturbance
- Underground Mining
- Karst Formations
- West Virginia State Boundary
- Other State



Document Path: S:\Wetlands - P Smith\LRE\TLRET - Long Ridge Energy Terminal Project\9_GIS\Mining-Karst_20200129.mxd 1/29/2020 XX

a moderate to swift current and some larger rivers with mud, sand, gravel or cobble substrates. These freshwater mussels rely on fish to complete their life histories. The Ohio River is the only waterbody in the West Virginia portion of Study Area that meets the general criteria for preferred freshwater mussel habitat. No federally listed mussel species were listed by the USFWS Ohio field office for the portion of the proposed Project located in Ohio.

Coordination has also been conducted with the Ohio Department of Natural Resources (ODNR). Through coordination with ODNR, several aquatic species listed in the Natural Heritage Database where identified within one mile of the Study Area, including: 1) state threatened Tippecanoe darter (*Etheostoma tippecanoe*), 2) state threatened channel darter (*Percina copelandi*), 3) state threatened river darter (*Percina shumardi*), 4) state Species of Special Concern longnose dace (*Rhinichthys cataractae*), state threatened three-horn wartyback (*Obliquaria reflexa*), state endangered Indiana bat, state endangered Ohio lamprey (*Ichthyomyzon bdellium*), and the state endangered eastern hellbender (*Cryptobranchus alleganiensis*). The Tippecanoe, channel, and river darters prefer riffle or gravel bar areas in clean rivers and large creeks, with a substrate composition of large, coarse sand, fine to pea-sized gravel to rock, with a high bottom current velocity. Longnose dace is found in rocky streams with extremely steep gradients and very swift currents. The state Three-horn wartyback mussels typically prefer small- to medium-sized creeks with a moderate to swift current and some larger rivers with mud, sand, gravel or cobble substrates. Eastern hellbenders are found mostly in unglaciated (south and east) Ohio, and they prefer large, swift flowing streams where they hide during the day under large rocks or boulders.

Other than the Indiana bat, which was discussed above, the other species listed by ODNR are typically found in perennial streams. Eleven perennial streams were identified within the Study Area. Several of these streams exhibited swift water, large rock (boulder slab, boulder, and cobble) substrate, and moderately deep pools, which could contain suitable habitat for the longnose dace but are too small for the eastern hellbender. The Ohio River and Opossum Creek exhibited normal baseflow and riverbank characteristics and were observed to have mud, sand, gravel or cobble substrates which could serve as potential suitable habitat for the darter species, and the three-horn wartyback. Additionally, the Ohio lamprey has potentially suitable habitat in the Ohio River. LRET anticipates that

the proposed NGL Pipeline route will cross under the Ohio River and Opossum Creek, via HDD and conventional bore, respectively.

With the exception of the Ohio River, there are no Group 1, 2, 3, or 4 mussel streams crossed by the proposed Project listed in Appendix A: Ohio Mussel Stream List – 3/13/2018 of the ODNR Ohio Mussel Survey Protocol. While Opossum Creek is not listed in the Ohio Mussel Survey Protocol (OMSP) as a group 1 stream, it does have a watershed larger than 10 square miles at the proposed NGL Pipeline crossing. Therefore, the ODNR recommended that a freshwater mussel survey be conducted for Opossum Creek.

3.5.2 Environmental Consequences

The methodology used for assessing impacts to threatened and endangered species included review of habitats and areas of concern as well as potential to impact presence of threatened or endangered species with the proposed Project construction and operation. In addition, the Project activities were reviewed for potential affect areas of seasonal importance for listed species.

No Action Alternative

Transload Facility

Under the No Action Alternative, no tree clearing, or ground disturbance would occur. There would be no impacts to threatened and endangered species or changes in habitat under the No Action Alternative.

NGL Pipeline

Under the No Action Alternative, no tree clearing, or ground disturbance would occur. There would be no impacts to threatened and endangered species or changes in habitat under the No Action Alternative.

Proposed Action Alternative

Transload Facility

As described in previous sections, the proposed Transloading Facility would be constructed on an existing, developed industrial facility. There are no streams located within the proposed Transload Facility; therefore, construction of the Transloading Facility would not impact any of the State listed aquatic species specified by ODNR in the Environmental Project Review for the proposed Project.

There are some isolated trees at the prosed Transloading Facility in an area currently maintained as mowed lawn, and in a linear strip that borders an existing rail spur. Depending of the final design, some trees may need to be removed. If tree cutting is required it would be conducted between October 1st and March 31st, outside of the species-specific time of year restrictions (TOYR) for the federally and State listed bat species. If any tree clearing would be required outside of that period, a presence/absence survey may be required, and further coordination would be conducted with USFWS Ohio Field Office and ODNR. Therefore, FRA determined that construction of the Transloading Facility is "not likely to adversely affect" the Indiana bat or northern long-eared bat. FRA also determined the Transload Facility would have "no effect" on other federally listed species. The USFWS Ohio Field Office concurred with this finding in a letter dated March 13, 2020 (Appendix C).

NGL Pipeline

Approximately 21 acres of tree clearing would be necessary along the approximately 5.9-mile proposed NGL Pipeline route in Ohio.

Tree clearing would occur between October 1st and March 31st, outside of the species-specific TOYR for the federally and State listed bat species. If any tree clearing would be required outside of that time frame, a presence/absence survey may be required, and further coordination would be conducted with OH USFWS and ODNR.

The FRA determined that construction of the NGL Pipeline is "not likely to adversely affect" the Indiana bat or northern long-eared bat and would have "no effect" on other federally listed species. The USFWS Ohio Field Office concurred with this finding in a letter dated March 13, 2020 (Appendix C).

The FRA also determined there would be "no effect" on federally listed species at the origination of the NGL Pipeline at the Blue Racer facility and the associated HDD in West Virginia. The USFWS West Virginia field office concurred with this finding in writing on January 14, 2020 (Appendix C).

The aquatic species identified by ODNR generally prefer perennial streams and there were 10 perennial streams identified in the proposed NGL Pipeline route. To minimize potential stream and associated species impacts, the two largest water body crossings (Ohio River and Opossum Creek) would be accomplished via HDD and conventional bore, respectively; therefore, LRET does not anticipate any impacts to state-listed aquatic species at these crossings. The proposed conventional bore crossing of Opossum Creek and avoidance of stream impacts would address the ODNR recommendation for a freshwater mussel survey at this crossing. The ODNR does not anticipate any impacts to the eastern hellbender from the proposed Project due to the proposed Project location

and lack of suitable potential habitat. To avoid impacts to state-listed aquatic species, LRET proposes to conduct required in-stream work within perennial streams outside of the ODNR recommended TOYR (April 15 – June 30).

3.5.3 Avoidance, Minimization, and/or Mitigation Measures

The following minimization measures would be implanted to minimize impacts to Threatened and Endangered Species.

- In accordance with the Section 7 finding of "not likely to adversely affect" the federally and state Endangered Indiana bat and federally Threatened northern long-eared bat, tree clearing will be conducted by LRET between October 1st and March 31st. There will be no tree clearing between April 1 and September 30.
- To avoid impacts to state-listed aquatic species, LRET will conduct in-stream work within perennial streams outside of the ODNR recommended TOYR (April 15 – June 30). There will be no in-stream work within perennial streams between April 15 and June 30.
- To support the "no effect" finding and further minimize potential impacts to streams and associated federally and state listed species, the two largest water body crossings (Ohio River and Opossum Creek) would be accomplished via HDD and conventional bore, respectively.

3.6 HISTORIC PROPERTIES

Historic properties are any prehistoric or historic districts, sites, buildings, structures, or objects that are listed in or eligible for listing in, the National Register of Historic Places.

Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended, requires Federal agencies to consider the effects of their undertakings on historic properties and to provide the public and the Advisory Council on Historic Preservation (ACHP) with a reasonable opportunity to comment. Federal agencies, such as the FRA, are required to consult under the Section 106 process with State Historic Preservation Offices (SHPO), and Tribal Historic Preservation Offices (THPO). 36 CFR 800 (Protection of Historic Properties) governs the Section 106 process and outlines how Federal agencies are to consult with SHPOs, THPOS, Tribes, Native Hawaiian Organizations (NHOs), and other interested parties, identify historic properties, determine whether and how such properties may be affected, and resolve adverse effects.

The following section places the Project in its prehistoric and historic context followed by a summary of previously conducted cultural resources surveys and the cultural resources that have been identified by these surveys. A brief summary of the Phase I Cultural Resources Survey conducted for this Project concludes the section.

3.6.1 Affected Environment

Prehistoric Context

Paleo-Indian Period (11,500 - 10,000 BP)

The Paleoindian period is the earliest documented occupation in the Ohio region and the Eastern United States. This period is defined by distinctive cultural adaptations focused on the environmental milieu that characterized the late Pleistocene and early Holocene climatic periods. The key artifact type that identifies this period is the fluted projectile point, usually manufactured from a high quality crypto-crystalline lithic material, e.g. jasper, chert, or chalcedony. Although the Paleoindian stage is of short duration, three distinct Paleoindian sub-phases or periods have been proposed by Gardner for this period in the Middle Atlantic region, based on excavations at the Thunderbird site complex in the Shenandoah Valley of Virginia (Gardner 1974), a periodization that is relevant to the Ohio region as well. Gardner's three-part subdivision of the Paleoindian stage was, in part, based on stratigraphic excavations at the Thunderbird site in the Shenandoah Valley of Virginia (Gardner 1974) though it had precedent in earlier work conducted in Nova Scotia. Gardner noted that MacDonald had subdivided the Paleoindian

stage into three separate phases based on his work with the Debert site materials in Nova Scotia (Gardner 1974:36, citing MacDonald 1968). MacDonald's Early Phase included only the Clovis points in his sequence. The second phase was defined by Folsom points and their cognate variants, while the Dalton-Hardaway sub-phase is the final chronological period of the Paleoindian stage, characterized by the minimally fluted Dalton and Hardaway projectile points. Many other tool categories are usually associated with these projectile points that usually cannot be taken by themselves as diagnostic Paleoindian indicators. It is notable that Tankersley (1996; see also Jeffries 2008), has also outlined a three sub-period sequence for the Lower Ohio River Valley, one that follows Gardner's chronological subdivisions of the Paleoindian stage and the sub-phases that he identified within it. (Tankersley 1996; Jeffries 2008:69-87).

Paleoindian points almost always exhibit an advanced level of craftsmanship in their manufacture. Fluted points are highly diagnostic and appear in broad characteristics uniform in stylistic attributes across the continent. The classic lanceolate-shaped and fluted Clovis point marks the earliest phase of the Paleoindian stage. As a diagnostic type, the Clovis lanceolate point has a well-documented and widespread distribution across the continental United States (Gardner 1974, Anderson, O'Steen and Sassaman 1996). Anderson (1996) has modeled the distribution of this type across the Southeastern United States. Clovis points mark the key artifact type for the inception of this stage (arguments for pre-Clovis aside); its distribution is continent-wide, and it even extends south into lower Central America (Ranere and Cooke 1991, 1995). Attributes such as basal grinding, lateral thinning, and straight to slightly waisted lower blade margins were common on specimens from this stage.

In Gardner's chronological framework noted above has strong implications for the Appalachian Plateau and Ohio, Clovis points and closely related types identify the first of the three sub-periods (Gardner 1974; Gardner and Verrey 1979); it was considered to date between 11,500 to 11,000 BP. The Middle Paleoindian period was placed between 11,000 to 10,500 years BP; it generally is characterized by smaller fluted point types, e.g. Folsom and related variants.

The final sub-period is identified by the characteristic Dalton or Dalton-Hardaway point types, is of interest since it serves as a transition to the sequent Early Archaic period of the Archaic stage. Dalton and cognate points are widespread throughout the Eastern United States. Goodyear, in his excellent paper on the Dalton horizon, reviewed the stratigraphic placement of Dalton points from a number of sites in this broad region. His review included the Hardaway Site in North Carolina, first tested by Coe (1964), the Stanfield-Worley Bluff Shelter in Alabama (DeJarnette, Kurjack and Cambron 1962), the Modoc rockshelter in Illinois (Fowler 1959), and Graham Cave in Missouri (Logan 1952). In terms of stratigraphic placement, Goodyear noted that Dalton and related points had been consistently recovered from basal levels of these sites but were not associated with the classic fluted points (e.g. Clovis and Folsom specimens), but with specimens such as Quad points and, importantly, the Early Archaic Palmer-Kirk corner notched types (Goodyear 1982:384). The latter associations could be nothing more than the poor depositional separation between living floors that are frequently found in rockshelter and cave sites where depositional processes are quite variable. Goodyear concluded that Dalton points fell into a chronological span post-dating classic fluted points and "overlapped to some extent" (his words) with specimens belonging to the Early Archaic period. Sassaman et al. reviewed Goodyear's (1982) data on Dalton points and suggested a chronological bracket from 10,500 to about 9,000 years BP (uncorrected) for the final sub-phase of the Paleoindian period. The latter date would overlap with the Early Archaic Palmer/Kirk corner notched points.

Goodyear also observed that there were strong continuities of other artifact categories found in Dalton assemblages shared with earlier Paleoindian tool kits. His work was based on extensive research from Arkansas to South Carolina. He stated that "the majority of non-projectile point stone tools found in Dalton tool kits can be matched in fluted point assemblages" (Goodyear 1982:384). A variety of unifacial flake tools and blades point to a high degree of technological continuity with earlier fluted point tool kits. Thus, Dalton represented a technological continuum with earlier Paleoindian phases (Goodyear 1982:384; (Goodyear, Michie and Charles 1989:39). In the latter paper, Goodyear et al. again mentioned that Dalton might straddle the Paleoindian to Archaic divide as noted above. They noted the frequent incidence of serrations of the blade element and the far greater number of sites as evidence reflecting the onset of the Early Archaic period, which is discussed further below.

An analysis of fluted point distributions in Ohio suggests that Paleoindian site locations frequently are found in major stream valleys and at stream confluences close to quality flint resources. In Virginia, Gardner's (1974) quarry base camp model is applicable to a variety of geographic settings that includes Ohio, a model that Goodyear (1971) adopted for the Carolina region. As an example of this model, it common that many diagnostic Paleoindian points have been recovered far removed from the original lithic source from which they were made. One of the lamellar blades associated with the Clovis occupation at Big Bone Lick in northern Kentucky was, as noted by Tankersley, Waters and Stafford (2009:563) struck from a core of Fort Payne chert, a source that is nearly 420 km (261 mi) distant from the site from where it was recovered. Recovery of this lithic material far from its source reflects the high mobility of Early Paleoindian hunting groups. In addition, many points recovered distant from the quarry source exhibit curation or re-sharpening to preserve its useful life rather than selecting local lithic sources. Paleoindian sites are rarely documented in regions such as swampy lowlands or rugged highlands (Payne 1982) though the location of some upland Clovis point finds suggests that some use was made of these environmental settings. In particular, the Three Saylors site in Harlan County, Kentucky contained a moderate-sized Clovis component situated on a terrace along a small tributary of the Kentucky River (Tankersley 2008).

Paleoindian groups relied on late Pleistocene faunal and floral resources for subsistence. In terms of faunal remains, there are several sites that have good associations of extinct faunal specimens and Clovis tools in direct association in the region. This sample would include the well-known Big Bone Lick site in Boone County, Kentucky, where late Pleistocene fauna, including numerous mastodon remains, have been recovered since the beginning of the nineteenth century (Tankersley 1985, 1987, 1998). Tankersley, Waters and Stafford (2009) reported on the association and dating of stratigraphic contexts at the site that contain Clovis points along with mastodon and other extinct mammalian species that were present during the late Pleistocene era. Although no direct evidence that the faunal remains reflect game that was actually procured through hunting, the stratigraphic contexts of the site clearly illustrates the association of Clovis with mastodon remains. Excavations at Sheridan Cave site in NW Ohio revealed an association between a single Clovis point and extinct mammalian species. Radiocarbon dating of one of two bone points recovered from the same stratigraphic context as the Clovis point fragment produced a date of 10, 915 BP Calibrated, this date falls between 12, 925 and 13,000 BP (Waters, Stafford, Redmond and Tankersley 2009:109), a date that is well within the range for Clovis and the Early Paleoindian sub-phase or period. Of interest was the presence of extinct peccary in the faunal remains from the site among other species (Ibid:107-108), though secure associations between the Clovis fragment is not clear. It is likely that such patterns of faunal exploitation continued into the later phases of the Paleoindian stage though sites with good contexts are rare to non-existent in the project area.

Early Archaic Period (10,000 - 8,000 BP)

The Early Archaic period was a technological and adaptive continuum from the Paleoindian period. It also marked the advent of a different “stage” of cultural development following the chronological scheme discussed above (Willey and Phillips 1958; Griffin 1967). Across the Eastern United States projectile point assemblages exhibited a distinctive innovation in lithic technology not found in the earlier Paleoindian periods, the notching of projectile points, a trait that Gardner (1974) argued reflected the use of the spear-thrower used with lances bearing points fixed on detachable-shafts mounted on longer shafts or lances. Gardner argued that this may have been linked to the adoption of a throwing technique as opposed to a thrusting technique in hunting behavior, a change that may reflect an adaptation to the procurement of more solitary game species that were present in the changing environmental conditions that began towards the close of the Paleoindian period and accelerated during the onset of the Holocene climatic era and the Early Archaic period. A continuing climatic change post-dating the glacial recession led to the gradual reduction of the mixed open grassland biome and spruce forest characteristic of the Late Pleistocene. This change was coupled with the spread of a mixed deciduous forest biome (Carbone 1974) and in places, particularly in the Southeastern United States, to a more open grassland or savanna type environment.

Such changes were likely present in the eastern Ohio region, and to an extent, the western edge of the Allegheny Plateau region. Development of the deciduous forest probably led to the greater dispersal of game species that were hunted during the Early Archaic period. Following Gardner’s suggestion and based on their extensive work

at the Haw River sites in North Carolina, Claggett and Cable (1982) argued that changes in biface technology from the earlier Paleoindian period reflected adaptations to a range of new environments that were the consequence of post-glacial warming trends (see discussion in Sassaman et al. 1990:9). Such changes are readily seen in the Early Archaic assemblages found in Ohio and the Plateau region in general.

Key projectile points that mark the onset of the Early Archaic period include the classic corner-notched Palmer and Kirk points and their cognate forms (Coe 1964; Gardner 1974; Chapman 1985). In his classic, well-known volume on the Carolina Piedmont, Coe suggested that the corner-notched Palmer point developed from the late Paleoindian Hardaway side-notched types (Coe 1964). Palmer points frequently exhibit basal grinding, a trait found on many Paleoindian specimens. This may represent a carry-over in preparation techniques of the haft prior to mounting the point in a shaft along with other aspects of Early Archaic lithic technology. As noted below, basal grinding was a variable trait and not necessarily a good chronological indicator (see Kimball 1996). Many specimens from West Virginia exhibit heavily ground basal elements, likely tied to techniques of lashing a finished point to a haft.

Kirk Corner-Notched points may have developed out of Palmer. However, Chapman, based on his extensive work in the Little Tennessee River, suggested that both types were contemporaneous and reflected nothing more than size differences based on raw material (Chapman 1985:147). In light of his extensive excavations at the Icehouse Bottom and Bacon sites, Chapman argued that the Early Archaic period marked by the appearance of corner notched Palmer/Kirk specimens could be subdivided into two sub-periods based on overall morphology, the earlier designated a "Lower Kirk" and the sequent one an "Upper Kirk" component (Chapman 1985:147). Additionally, Chapman suggested the use of the term Kirk Corner Notched “Cluster” for discussing the early corner notched Palmer and Kirk specimens and cognate corner-notched point forms. Distinguishing Palmer from Kirk specimens is based on the relative percentage of basal grinding, present more frequently on Palmer specimens and largely absent on the corner notched Kirk specimens. However, many corner-notched points from a range of sites exhibit variable to heavy basal grinding. Coe did not report basal grinding on corner notched Kirk points from the Hardaway site (Coe 1964:70), perhaps an oversight.

At the outset of the Early Archaic period, lithic technology saw the continued emphasis on the selection of high quality lithic raw materials employed during the Paleoindian period, especially during the Palmer sub-phase. Such a strong emphasis on the selection and use of cryptocrystalline lithic material for projectile point manufacture could suggest that a continuation of the quarry-base camp settlement model defined by Gardner (1974) and discussed further by Goodyear (1979) was still in use. Such a model may have been tied to mobility patterns related to the procurement of more solitary game species as well. A greater range of lithic raw materials appears to have been employed in the later Kirk phases and certainly by the onset of the Middle Archaic period.

Early Archaic settlement was likely timed to the distribution of faunal and floral resources that were being procured and thus was distributed across a wider range of environmental zones than had been exploited previously when climatic conditions were different. For instance, to the south in eastern Tennessee, the Early Archaic sites along the Little Tennessee River are diverse in terms of resources exploited and include manos and metates for processing plant subsistence items. Such sites are called by Chapman “residential base camps” and are thought to mark larger social groups than those represented by small lithic scatters found in upland settings. The greater distribution of Early Archaic sites compared to the known extent and number of Paleoindian sites may reflect an adaptive pattern tied to dispersed or solitary roaming game species that were adapted to the gradually spreading deciduous forest. The greater number of Early Archaic sites is also a testament to an increase in population over the Paleoindian period if overall site density is used as a gross measure of population density.

A number of the Early Archaic components are present in multi-component sites in the Hocking River Valley (Shane and Murphy 1967). These sites, along with others identified in the Scioto River Valley (Prufer 1967a), demonstrate a selection for broad floodplain areas for base-camp locations. In eastern Ohio, most Early Archaic components are either isolated upland hunting stations or small overnight camps and larger residential base camps located in floodplain localities along the larger streams and rivers.

In many sites, the Early Archaic components found in the larger river drainages, such as those identified by Prufer (1967a) in the Scioto River Valley, were obscured by the intensive re-occupation by later Archaic and intense Woodland villages. Single-component residential base camps that yield better-defined Early Archaic diagnostic material have been located along the channels of smaller tributaries that were not used as frequently by later more sedentary Woodland components. The sites located along such smaller drainages have been interpreted as seasonal inland encampments (Pratt 1981). Evidence suggests that seasonal semi-sedentism began to develop around 7,000 B.C.; the subsistence and settlement systems were characterized by scheduled exploitation of seasonally available resources and by a high degree of residential mobility within well-defined resource catchment areas (Muller 1986). This is a pattern that Gardner discussed as well for the Shenandoah region of Virginia and the greater Middle Atlantic area (Gardner 1974, 1980).

Middle Archaic Period (8,000 - 5,500 BP)

Characteristics that differentiate the Middle from the Early Archaic Period include a tool kit that includes groundstone grooved axes, bannerstones, bell-shaped pestles, and pendants; a decline in unifacially worked tools; and a shift in subsistence strategy to a heavier reliance on shellfish collecting along major drainages (Griffin 1967; Mayer-Oakes 1955). Numerous sites with Middle Archaic components also were identified during Prufer's (1967a) survey of the Scioto and Hocking River valleys. Middle Archaic sites seem to be concentrated along the smaller tributaries throughout southern Ohio.

The three general types of Middle Archaic sites suggested by DeRegnaucourt (1983) are small camps, large camps, and base camps. "Small camps" usually are less than 0.5 hectares (ha) (1.24 ac) in area, probably were occupied from one to a few days, and typically occur in upland areas away from streams on elevated ridges near springs. The category of "large camps" incorporates hunting camps, hunting and butchering camps, and chert quarrying and processing sites. These sites are consistent with encampments of one day to perhaps a week or slightly more; they typically occupy an area of between 0.5 ha and 2 ha (1.24 ac. – 4.94 ac). Base camps may be considered to represent the foci of a centrally based transhumance system, and probably were occupied seasonally. Base camps range from 0.5 ha (1.24 ac) to 8 ha (19.8 ac) in size and are located on prominent terraces, bluffs, or other elevations near the confluence of two small streams or a small stream and a larger river. The basic projectile point types for the Middle Archaic are the Lecroy bifurcate (7,500 BP), the Eva basal notched (7,200 to 6,000 BP), and the Morrow Mountain (6,700 to 6,400 BP).

Late Archaic Period (3,500 - 1,000 BP)

The Late Archaic saw the advent of modern mixed deciduous forest communities throughout the northeastern United States. A hunting, fishing, and gathering economy developed around a seasonal schedule of resource procurement focused on white-tailed deer, nuts, waterfowl, fish, and mussels. Other economic functions and patterns also coincided with the scheduling of resources; bands or tribes settled either in seasonal base camps or in one semi-sedentary settlement with several satellite procurement stations distributed radially around them (Brose and Lee 1985; DeRegnaucourt 1986).

In Ohio, six site types occur: villages, camp sites, lithic scatters, find spots, rockshelters, and mortuary sites. The preference for habitation in all categories was for upland localities, particularly at the confluence of drainages, regardless of type of landform (Brose and Lee 1985). The primary Late Archaic artifact types are stemmed and notched projectile point forms such as Lamoka, Dustin, Brewerton side-notched, Brewerton corner-notched, Newton Falls side-notched, Susquehanna/Ashtabula, and Narrow stemmed types. Less frequently found are hafted scrapers, knives, drills and perforators, ground stone axes, celts, grooved hammerstones, adzes, and pestles. An extensive bone and antler industry is evidence by such forms as bone fishhooks, bone awls, bone bodkins, hairpins, atlatl handles, antler points, and flakes, although it is probable that similar industries existed earlier (DeRegnaucourt 1986; Brose and Lee 1985). Other characteristics of the Late Archaic included the first appearance of ceremonial paraphernalia, and the first real signs of collective cemeteries located away from settlement areas also were established (Penny 1985).

Transitional Period (3,000 - 2,000 BP)

The Transitional Period can be viewed as a stage during which numerous small societies shared a fundamental cultural package and interacted with mutually influential, more complex neighboring communities (Mason 1981). By 2,600 BP, however, Early Woodland ceramic technology was firmly established throughout the region, ending the Transitional phase. In the Hocking River Valley, transitional sites that include habitation centers and ceremonial mounds are located in a wider variety of ecological settings, including upland terraces along smaller tributary streams (Abrams 1992). This pattern of site distribution seems to reflect a growing Adena influence that was grafted onto an Archaic-style framework of site location preferences. As mound-building became more prevalent, the variation in the ecological settings of sites narrowed, with nearly all sites located on the broad floodplains of major rivers (Abrams 1992).

Several types of projectile points are associated with the Transitional Period time frame. Meadowood points, thin, triangular, well-made bifaces with small side notches, generally are crafted from Onondaga chert. Leimbach stemmed points are ovate based, tapered and straight stemmed bifaces. The other two types are the large Feeheley bifaces, and the various small, micro regional projectile point types of which the Crawford Knoll type is the most common in northern Ohio. Cresap points are larger, stemmed bifaces that are believed to be a possible antecedent to later stemmed Adena projectile points (Shane 1967). Other artifacts that are diagnostic of the Transitional Period are stone bowls, birdstones, and smoking pipes (Mason 1981; and Stothers and Abel 1993).

Early Woodland Period (2,600 – 2,100 BP)

Early Woodland in Ohio is defined primarily with reference to the Adena Culture of central and southern Ohio, which in turn is divided into the Early Adena (3,000 – 2,500 BP), Late Adena (2,500 – 2,100 BP), and Transitional Adena-Hopewell (2,100 – 1,900 BP) sub-periods (Greber 1983). Specific Adena traits include: conical mounds located within earthen enclosures or constructed over burned dwellings; sacred circles with interior ditches; log tombs; circular houses with paired posts; and artifacts such as stemmed projectile points (especially the Robbins type), Adena Plain ceramics, expanded center gorgets, tubular tobacco pipes, hematite cones, galena artifacts, mica artifacts, use of ornamental copper, jaw spatulas, scapula awls, tablets with stylistic engravings, and sculpture in the round (Kime 1986).

Early Woodland social organization in southern Ohio adopted a hierarchical system that drew together groups on at least three social levels: regional bands, local bands, and band segments. Several types of Early Woodland sites are common throughout the region. Village sites accommodated large groups of more than five households as year-round primary domiciles; they frequently were occupied for more than one year, and they provide evidence of permanent structures. Camps were short-term seasonal occupation sites with structural remains or were used for other special purpose activities. Mortuary sites contain one or more burials in non-mound contexts, as at the Caldwell's Little Bluff Site (Lovejoy 1967). Mounds are earth and stone deposits placed over one or more burials. Earthworks consist of earthen walls arranged in geometric patterns.

Middle Woodland Period (2,100 – 1,500 BP)

The Middle Woodland has been defined primarily with reference to the Hopewell culture. Ohio Hopewell culture was based primarily in the Ohio and Scioto river valleys. The Hopewell cultural phenomenon is defined by the exchange of rare ritual items rather than by local phases. Sizable populations were present, but truly large-scale agriculture was not practiced. Hopewell sites elaborated on Early Woodland models; their larger earthworks and richer burials suggest intensified ceremonialism and greater social inequality. Specific Hopewell traits include enclosure, burial, and effigy mounds and earthworks; distinctive dentate-stamped and rocker-stamped ceramic vessels; platform pipes; cut animal jaws and teeth; pan pipes; extensive villages located near water sources; and widespread long-distance exchange networks (Fitting 1978).

Maslowski and Seeman (1992) identified five ecological zones for Hopewell habitation, including stream channel, flood zone, Wisconsin terraces, Illinoisan terraces, and uplands. The majority of recorded Scioto Valley sites are located on terraces overlooking the floodplain of the river, often near its confluence with a smaller stream (Prufer

1967a), although habitation sites from the Middle Woodland have been identified in all of the above-mentioned ecological zones. The primary Hopewell settlement pattern consisted of small farmsteads scattered around ceremonial centers (Fitting 1978), although the exact relationship between these two types of sites is still debated (Dancey and Pacheco 1997). Mound sites have been interpreted as communal hubs of trade, redistribution, and shared ceremonial events (Pacheco 1997).

Late Woodland Period (1,500 – 800 BP)

The Late Woodland Period was marked by the gradual disappearance of Hopewell influences and by a gradual contraction of the inter-regional exchange of raw materials and finished artifacts (Griffin 1983). In terms of settlement patterning, Dancey (1992), in his comparison of Middle and Late Woodland settlement patterns, noted that the size of Late Woodland habitation sites was 2 ha to 4 ha (4.94 ac – 9.88 ac), a marked increase from the previous average size of 0.6 ha to 2 ha (1.48 ac – 4.94 ac) during the Middle Woodland. The “nucleation” of typically dispersed populations in southern Ohio seems to have been tied directly to the advent of subsistence strategies that benefited from cooperation and creation of surpluses (Dancey 1992).

True maize-beans-and-squash agriculture adopted by the Late Woodland populations in the Ohio Valley, such as the occupants of the Water Plant Site in the Hocking River Valley (Dancey 1992), offered a more constant food source and decreased the area over which earlier populations ranged. Villages typically included several households, evidenced in the archeological record by numerous and spatially separate artifact distribution density peaks; these villages sometimes were surrounded by defensive ditches or palisades. Storage pit features are common, as at the Graham Site (McKenzie 1967). Village sites typically were located on level ground on higher terraces above major rivers, often near the confluence with a smaller stream.

Projectile point styles from the Late Woodland period in Ohio most often associated with bow and arrow technology are the Jack's Reef Corner Notched, Raccoon Notched, Hamilton and Levanna types. Thomas (1978) has put forth a quantitative analysis of the relative size of dart and arrow points, and according to his data only Madison triangular points (1,100 – 500 BP) qualify as true arrow points. Dates associated with Madison points may demonstrate a widespread acceptance of bow and arrow technology, with a “trial use” period from 600 to 800 A.D., marked by the some of the most pronounced changes in projectile point morphology in the Woodland period (Seeman 1992).

Ceramic traditions followed during the Late Woodland period in southern Ohio seems to represent a mingling of indigenous cultures with newly prominent Mississippian cultural traditions. In the Scioto Valley, Peters ceramics represents a continuation of local traditions (Prufer 1967b). Baum focus ceramics, marked by crushed granite temper, cord-wrapped paddle decoration and straight to slightly flaring lips, is often affiliated with the Fort Ancient tradition, and seems to represent a local population that had extensive interaction with and influence from Mississippian cultures (McKenzie 1967). Feurt ceramics typically are incised and demonstrate mussel shell temper. These ceramics are likely a direct adoption of Mississippian technologies (Prufer 1967b).

Late Prehistoric Period (800 BP– 350 BP)

Mississippian culture spread northward from the Gulf Coast through all of the headwaters of the Mississippi drainage (Nass and Yerkes 1995; Rogers and Salem 1995; Rutter 1984; Stothers and Graves 1985; and Stothers and Rutter 1977). An Upper Mississippian manifestation in Southern Ohio from ca. 1,450 – 1,600 A.D. is known as Fort Ancient (Nass and Yerkes 1995; and Ullman 1985). Early Fort Ancient phase peoples still built monumental earthworks, but by A.D. 1300, mound building had ended, and Fort Ancient peoples shifted to cemetery burial with no overt mound construction (Drooker 2000).

Fort Ancient villages generally consisted of several round or rectangular houses ranged around a central plaza, with later sites evidencing defensive works surrounding the settlement (Harper 2000). Maize production increased sharply during the period (Wymer 1992), although hunting was still an important part of Fort Ancient phase subsistence patterns. Prufer (1967a) and Shane and Murphy (1967) identified several sites with substantial Fort Ancient components in their surveys of the Scioto and Hocking River valleys. These sites often cover several acres and are located on the bottomlands below the Illinoisian terrace.

In eastern Ohio, the Late Prehistoric Period includes evidence for the Monongahela culture, better known from Pennsylvania and West Virginia. Defining artifacts of the tradition include limestone and shell tempered, collarless ceramic vessels demonstrating both plain and cordmarked exterior treatment, cannel coal pendants, bird bone beads, ceramic pipes, small triangular chert projectile points (Nass and Hart 2000, Mayer-Oakes 1955). The Monongahela lived in villages of several households organized around a central plaza, often situated in upland areas several kilometers from major river valleys. Semi-subterranean pits enclosed by bent posts covered with hides were popular means of storage among the Monongahela for the surplus of crops generated by their intensive maize agricultural practices (Nass and Hart 2000). Early Monongahela sites in eastern Ohio, such as the Opatrny site (Baker 1979), typically do not evidence a palisade or other defensive measures. Later sites in eastern Ohio show trends towards larger villages with greater complexity of house pattern and storage feature arrangement.

Historic Context

Frontier (ca. 1775–1795)

Until the late eighteenth century, few Euro-Americans had settled in Ohio. Those who were in Ohio either lived in or near Native American villages or were hunter-farmers. During the Revolutionary War, squatters from western Pennsylvania and Virginia began occupying land in the future Belmont, Carroll, Columbiana, Guernsey, Harrison, Jefferson, Monroe, Mahoning, and Stark counties. By 1779, there were clearances along the Ohio River as far south as the Muskingum River. In 1785, there were approximately 300 families at the falls of the Hocking River, 300 along the Muskingum River, and 1,500 along the Miami and the Scioto rivers (Jones 1983). These small settlements would have been rather perilous because they were not welcomed by the Native Americans, nor was their settlement sanctioned by the United States government. The descendants of these first migrants to Ohio probably formed the core of native-born Ohioans in eastern Ohio.

Settlement (1796–1819)

The Treaty of Greenville, signed August 3, 1795, was the impetus for rapid settlement of Ohio. Previously, Ohio pioneers, like pioneers of New England, had settled in defensible nucleated groups with in-lots and out-lots for mutual protection. Following the conflicts with Native Americans during 1794 and the Greenville Treaty line was established in 1795, the situation was drastically altered and most of Ohio was safe for isolated farms (Bond 1941).

Migrants to Ohio at first gravitated toward the Virginia Military District, the Symmes Purchase, and the Ohio Company Purchase. These areas were held privately and were already open for settlement. The Survey of the Seven Ranges (1785–1786) and the Connecticut Western Reserve greatly increased the available land (Bond 1941). The settlement of Northeast Ohio was principally the result of migration from Mid-Atlantic states, especially Pennsylvania and Maryland. Settlers from this area moved westward, crossing the Ohio River and following its tributaries inland.

Most migrants were farmers seeking fertile farmland in the new frontier. Their livelihood depended on livestock raising and grain production, particularly wheat (Wilhelm 1982). Although new settlers, out of necessity, were self-sufficient, they still had to trade for basic supplies such as coffee, tea, salt, sugar, hardware, farm implements, and cloth. The average settler cleared only 2.47 ac (1 ha) of land per year. Generally, the early farmer only put a small portion of land (about 9.88 ac [4 ha]) for crops under the plow and reserved plenty for pasture for animals and forest for firewood and livestock, usually pigs. However, there was little advantage to producing much more than one's family needed as roads were not adequate to get their goods to market. Any surplus produce was used to trade for supplies or was distilled (Heald 1949; Noble and Wilhelm 1995).

The land comprising eastern Ohio was not ceded to the United States until the early nineteenth century through a succession of land treaties. The former Native American trails through the region aided in establishing frontier settlements (Blue 1928). The region's counties, known for their fertile, agricultural lands, became great wheat producers and by 1815 were the center of an exclusively sheep-raising, agricultural region (Howe 1902). Coal-mining activity in the region has a history extending back to 1806. Ten years later, coal was the chief source of fuel in many counties (Perrin 1881).

Immigration

Little immigration occurred in the first decade-and-a-half of the nineteenth century, due to the disturbance of shipping caused by the Napoleonic Wars and the War of 1812. After peace was achieved by 1815, transatlantic shipping resumed. With a change in European land policies of the nineteenth century, emigration was also encouraged or viewed as the only viable option by European peasants (Wilhelm 1982).

Immigrants from Ireland, Scotland, and Germany left their homelands due in part to changing land policies. When the potato crops failed, most notably in Scotland in 1846 and in Ireland ca. 1830 to 1845, there was a massive wave of emigration from those countries. Many Germans left their homeland after the failed Revolution of 1848. These nineteenth-century German immigrants often joined and reinforced the cultural ways of the westward-moving Pennsylvania Dutch, descendants of eighteenth-century German immigrants (Wilhelm 1982).

Diverse social, economic, political, and material traits became established in eastern Ohio because of the varying cultural backgrounds of the migrants.

Since the major migrant groups became geographically distinct during settlement and did not overlap greatly, their respective cultural influences remained relatively unchanged and persistent, providing the basis of the region's cultural differentiation of today (Wilhelm 1982).

The 1850 census of Ohio is a good indicator of the ethnic and regional composition of the state in the middle of the nineteenth century, after the initial settlement and predominantly western European immigration, and before the largely eastern European immigration in the late nineteenth and early twentieth centuries (Wilhelm 1982). All of these groups probably shared a similar cultural background, that of Germanic/Pennsylvania Dutch. Judging by the sheer number of Pennsylvanian migrants, the Marylanders were probably from parts of Maryland strongly influenced and dominated by Pennsylvania culture. Likewise, the number of German immigrants indicates that the French were probably from parts of France strongly influenced and dominated by Germanic culture. Thus a Germanic influence would be expected to dominate much of eastern Ohio due to the sheer numbers of the migrants from the Pennsylvania sphere, combined with the immigrants from the German sphere.

The Industrial Period (ca. 1850–1930*)*

An investment in infrastructure complemented Ohio's central location and put it at the heart of the nation's transportation system traveling north and south and east and west, and also gave eastern Ohio a head start during the national industrialization process which occurred during this period. By the late 1810s, the National Road crossed the Appalachian Mountains, connecting the region with the east coast. The Ohio River aided the agricultural economy by allowing farmers to move their goods by water to the southern states and the port of New Orleans. The construction of the Erie Canal in the 1820s allowed businesses to ship their goods through Lake Erie and to the east coast, which was followed by the completion of the Ohio and Erie Canal and the connection of Lake Erie with the Ohio River. This gave the region complete water access to the world within the borders of the United States. The Ohio Loan Law of 1837 allowed the state to loan one-third of construction costs to businesses, passed initially to aid the construction of canals, but instead used heavily for the construction of railroads. The Baltimore and Ohio Railroad crossed the Appalachians in the mid-1850s and connected the state with the east coast (Heald 1949).

With the emergence of a successful and growing industrial base in the region, the need for workers were high and the increase in population created a need for more housing (Heald 1949). For these developments to be attractive to potential property owners, improved transportation was required. At first, there were horse-drawn trolley cars, but by the end of 1889, electric street railways were the norm. The interurban lines were popular until the early 1920s when automobiles and bus transportation became more highly used.

Twentieth Century

From the time Ohio attained statehood in 1803, the state's ready access to raw materials and navigable waterways at its northern and southern boundaries offered industrious entrepreneurs' opportunity for profit. With an abundance

of coal and iron ore, industrialists throughout the state erected iron works for the production of pig iron. The Mahoning Valley, in northeast Ohio, developed into a significant iron smelting area. The iron industry in turn facilitated the development of a large steel industry, with Youngstown in the Mahoning Valley arising as one of the most prominent steel towns in the country (Hunker 1958:11–17).

During World War II, the region experienced significant industrial development and population growth. The state's diversified industrial base and geographical proximity to transportation routes and other population centers made it well suited for wartime production needs.

The industrial development and consequential economic prosperity generated during World War II shaped the region's economic, cultural, and social history for decades thereafter.

As the development of paved roads and automobiles accompanied this industrial development, demographic trends shifted from population increases in the cities at the expense of the countryside, to the opposite trend. The population of both the county and cities continued to grow, but the population living in the cities dropped to 59 percent, meaning the non-city population grew more quickly than the city population by that time. The suburban areas by 1958 had more residents than any single city in the region. Early suburban development in the post-World War I period had focused on subdivisions for the wealthy. In the post-World War II period, suburban living for city workers became the rule rather than the exception (Heald 1958).

The agricultural sector of the region's economy also benefitted from wartime expansion and demand. Eastern Ohio farmers worked within a constantly changing dynamic that involved weather, market forces, and technological developments. A farmer's success often depended on his or her acumen at correctly assessing both current events and future trends. At the onset of World War II, the region's farmers faced numerous difficult challenges, many of which had been brewing for more than two decades. Small and family farms met additional obstacles as most federal government programs were tailored toward consolidating farms and meeting the needs of large farmers. The resultant industrialization of agriculture that began during this period continued through the remainder of the twentieth century (Hunker 1958:67).

Area of Potential Effects

In terms of historic properties, the affected environment is referred to as the Project's area of potential effects (APE). The APE is defined in 36 CFR 800.1(d) as "*The geographic area or areas that within which an undertaking may directly or indirectly cause changes in the character or use of historic properties if any such properties exist. The APE is influenced by the nature and scale of an undertaking and may be different for different effects caused by the undertaking".*

The APE for the Project includes the limits of disturbance (LOD) where actual ground disturbance will occur during construction of the NGL Pipeline and the proposed Transloading Facility, as well as the area within which any visual effects from construction that would alter the preconstruction landscape. The construction of the NGL Pipeline will require a LOD with a width of 100 feet (ft) extending 50 ft on either side of the centerline (Figure 3.6.1). The length of the APE on the Ohio side of the river from the bore pit exit to the LRET is approximately 28,387 ft. Thus, ground-disturbing activities would be confined to a linear corridor measuring 28,387 ft by 100 ft (65.17) acres) for the construction of the pipeline, plus approximately 20 acres entirely within the existing LRET Property where the Transloading Facility would be constructed.

Visual effects are of two types, temporary and permanent. Temporary visual effects would occur while the NGL Pipeline is under construction. However, since the NGL Pipeline would be buried and the surface restored to preconstruction contours, the permanent visual effects of the Project would be limited to those portions of the pipeline LOD where tree clearing is required to maintain and service the pipeline after construction. Approximately 21 acres of tree clearing would be necessary to construct the NGL Pipeline. The FRA defined the visual effects of the Project as encompassing 75 acres, as including areas where aboveground resources in the vicinity of the LOD would have a view of tree clearing (Figure 3.6.1). The Transloading Facility will not be visible outside of the 20

acres of LRET Property. Summing the individual disturbances associated with the Projects gives a total APE of 160.17 acres.

To reiterate, the term APE includes areas where actual ground disturbance would occur (the LOD) plus areas outside the LOD that might be visually impacted by a view of the Project. For both Ohio and West Virginia, the Section 106 consultation letters included the identification of the APE; both SHPOs concurred on the APE. See Section 3.6.3 on SHPO consultation and concurrence related to the APE.

3.6.2 Previous Surveys and Identified Cultural Resources

To identify the cultural resources, present in the general vicinity of the APE, a search of the cultural resources databases maintained by each state was conducted using a 1-mile buffer around the LOD (Figure 3.6.1). The 1-mile buffer is standard practice and ensures that the scope of background research is broad enough.

West Virginia

In West Virginia, the APE contains the LOD and the viewshed of tree clearing done in Ohio but visible in West Virginia. A search of the West Virginia Division of Culture and History (WVDCH) Interactive Map Viewer identified no previously recorded historic properties in the LOD at the Blue Racer facility, where the NGL Pipeline would originate (Figure 3.6.2). However, previous surveys have documented 54 above ground historical resources and one cemetery within 1-mile of the LOD at the Blue Racer facility, as well as 16 archeological sites (Figure 3.6.2; Tables 3.6.1 to 3.6.3).

The broader APE for the viewshed from Ohio to West Virginia was examined. The view of the permanent pipeline corridor from West Virginia would be obstructed by topography and vegetation.

Ohio

A search of the OHPO Online Mapping System, using a 1-mile buffer around the LOD for the proposed Transloading Facility and NGL Pipeline identified no previously recorded historic properties (Figure 3.6.2).

The search identified eight surveys conducted within 1-mile of the LOD that documented 15 above ground historical resources, seven cemeteries and one archaeological site within 1-mile of the LOD (Figure 3.6.2; Tables 3.6.4 to 3.6.6).

3.6.2.1 New Field Surveys

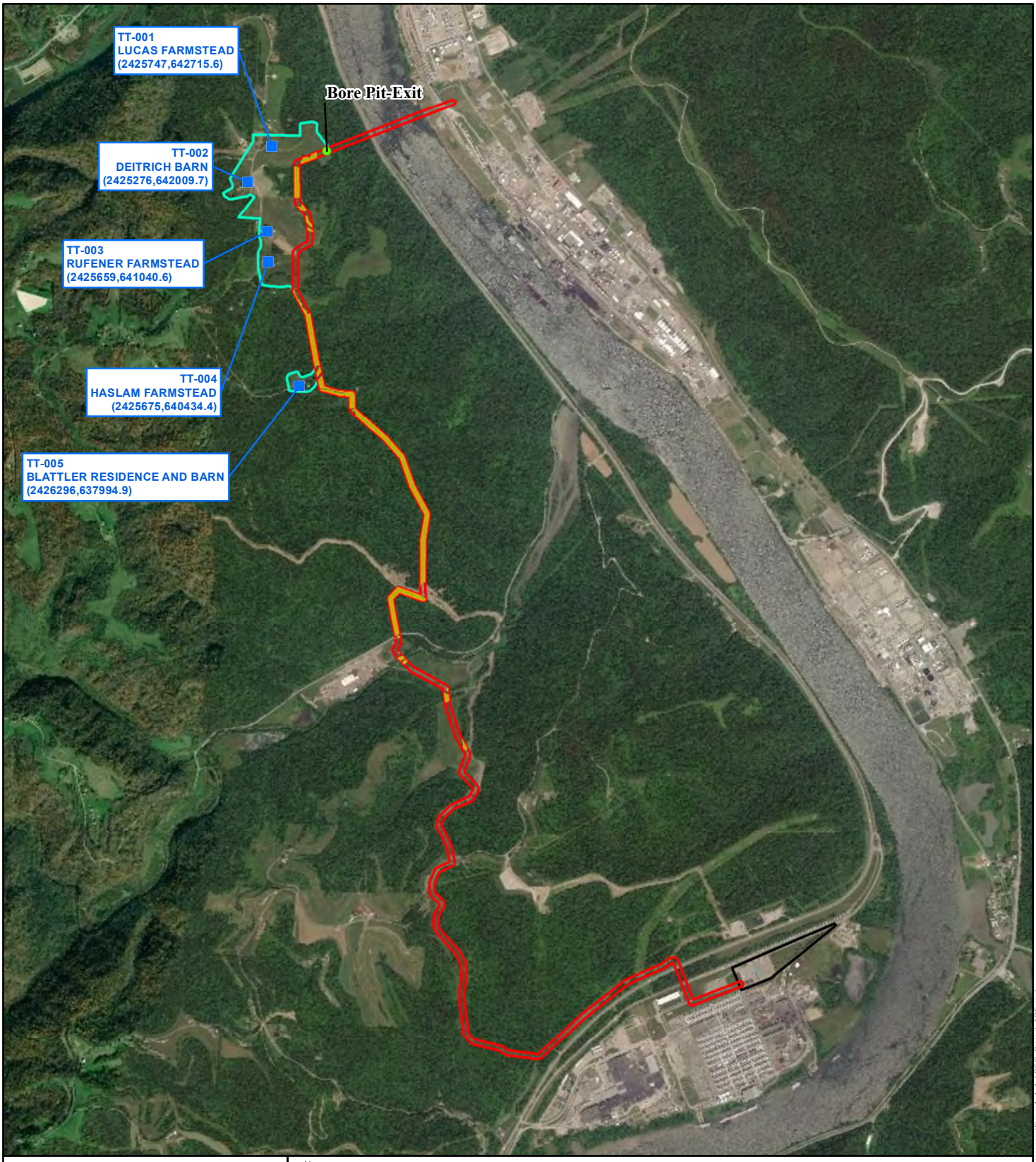
West Virginia

Archaeology

No subsurface archaeological testing was conducted in the LOD at the Blue Racer Facility. The bore pit for the NGL Pipeline and the area where new pumps would be installed lies in previously disturbed ground within the existing facility.

Built Environment

No survey for above ground historical resources was conducted for visual effects that would stem from the excavation of the bore pit and installation of the pumps at the Blue Racer facility. The bore pit is a subterranean Project element and would not introduce new visual elements to the viewshed. The addition of pumps to move NGLs through the connected NGL pipeline would be an aboveground Project element, but the new pumps could only be viewed from within the existing facility.



TETRA TECH

N

0 1,250 2,500 5,000 Feet

APPALACHIAN NGL HUB RAIL TRANSLOADING FACILITY

MONROE COUNTY, OHIO

Figure 3.6.1
Project APE

Date: 2/20/2020

Data SourcesEsri, DigitalGlobe, GeoEye, i-cubed,USDA FSA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

Legend

Total APE = 160.17 acres

- Bore Pit-Exit
- Aboveground Historic Resource
- Extent of Tree Clearing in Pipeline LOD
- Pipeline LOD (65.17 acres)
- Potential Visual Effects (75 acres)
- Transloading Facility LOD (20 acres)

NOT FOR CONSTRUCTION

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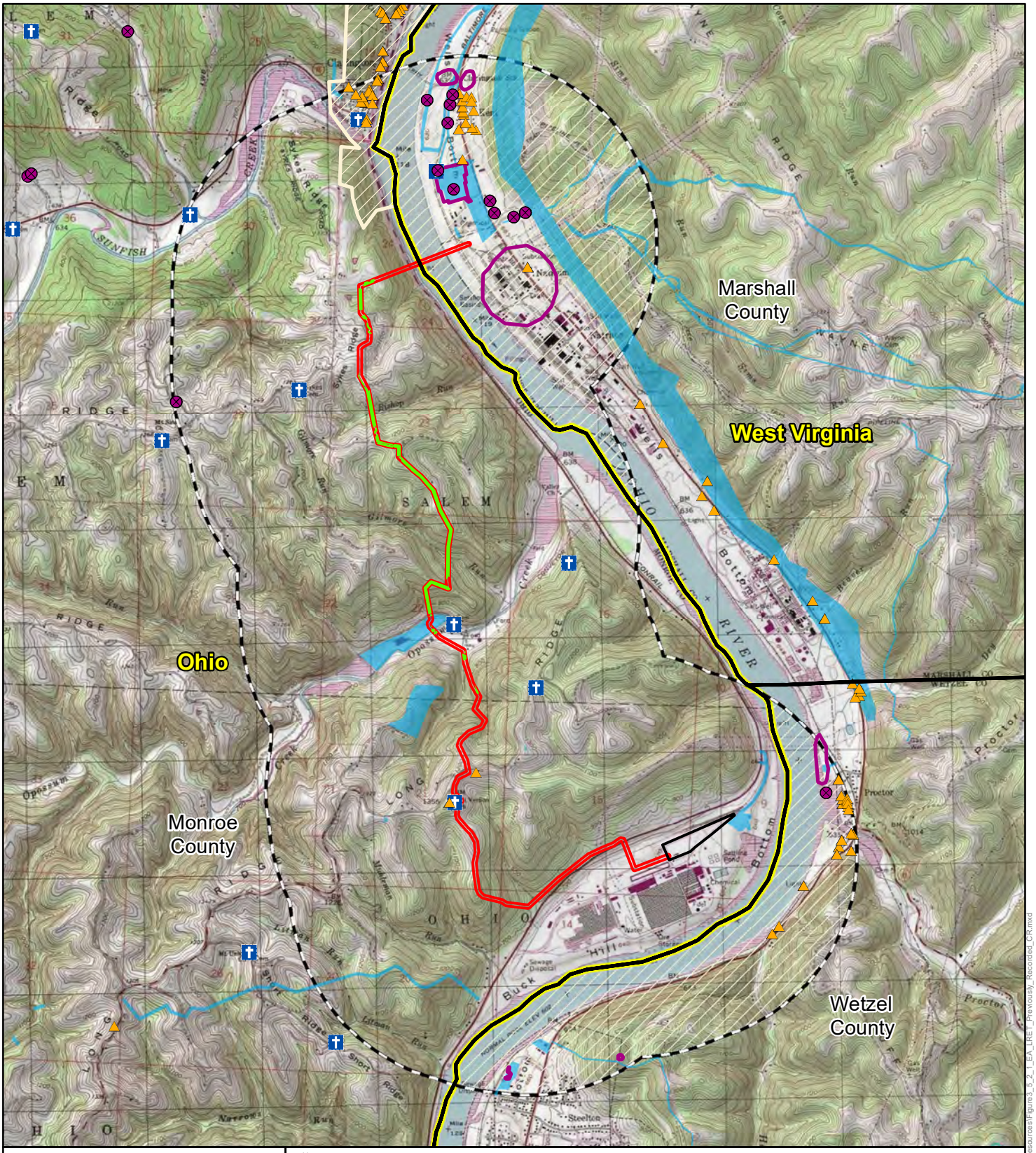

TETRA TECH

N

0 0.25 0.5 1 Miles

APPALACHIAN NGL HUB RAIL TRANSLOADING FACILITY

MONROE COUNTY, OHIO, MARSHALL AND WETZEL COUNTIES, WEST VIRGINIA

Figure 3.6.2
Previous Surveys and Recorded Cultural Resources

Date: 2/24/2020

Data Sources:ESRI USA Topo Map,
Copyright: © 2014 National Geographic Society, i-cubed

Legend

- Previously Recorded Archaeological Site
- Previously Recorded Historic Structure
- Previously Recorded Cemetery
- Previously Surveyed for Historic Resources
- Previously Recorded Archaeological Site Area
- Previous Phase 1 Archaeological Survey
- Pipeline LOD
- Transloading Facility LOD
- Extent of Tree Clearing
- 1-mile Buffer - Preliminary Pipeline LOD
- County Boundary
- State Boundary

NOT FOR CONSTRUCTION

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Table 3.6.1
Previous Surveys Conducted in West Virginia
Appalachian NGL Hub Rail Transloading Facility

Survey ID	Report Title	Author(s)	Date
17-14-MR	Phase I Archaeological Survey for the Proposed Powhattan to Axiall Pipeline, Marshall County, West Virginia	Jim Snyder, Margaret Sams, and Kathryn M.H. Finney	2016
11-252-MR-6	Report of Phase I Archaeological Investigations for the Dominion Natrium Additional Land Acquisition	Patricia E. Miller and Thomas Kutys	2012
11-252-MR-9	The Sun Fish Sites: Archaeological Data Recovery at 46MR155, A Late Woodland Period Site in Franklin District, Marshall County, West Virginia	Jamie S. Meece, Steven C. Pullins, Christopher L. Nelson, Todd Grote, and Renee Bonzani	2013
13-879-Multi-1	Phase I Archaeological Survey of WV-2 Alternate 1 and Alternate 2, from Proctor to Kent, in Marshall and Wetzel Counties, West Virginia	J. Howard Beverly, Jr., Dona Daugherty, Ann S. Wilkinson, J. David McBride	2013
11-992-MR-1	Phase I Archaeological Investigations for the Proposed Natrium Natural Gas Pipeline Project	Patricia E. Miller and Thomas Kutys	2011
18-359-Multi-2	Addendum to the Abbreviated Phase I Cultural Resource Report for the Angelina Gathering Company, LLC Victory Trunkline Project, Ohio River to Schostag Impoundment in Marshall and Wetzel Counties, West Virginia	Karen L. Leone	2018
14-529-Multi-9	Addendum4, Phase I Archaeological Investigation for the Murphy Brothers Laydown Yard and AR-310-57C Variance, Ohio Valley Connector Pipeline Project, Wetzel County, West Virginia	Shane P. Gilligan and Rishard C. Petyk	2016
15-856-Multi	Phase IA Archaeological Survey, 99th Regional Support Command Facilities, West Viriginia	United States Army Corps of Engineers, Baltimore District	2014
12-239-WZ	Phase I Archaeological Investigations for the Proposed Monroe County Extension Gas Pipline Project, Wetzell County, West Virginia	Patricia E. Miller, Ken Duerksen, and Christopher Bergman	2011
RWZ-04	2018 Historic Resources Survey of Wetzel County	JMT	2018
RMR-08	2018 Historic Resources Survey of Marshall County	JMT	2018

Table 3.6.2

Previously Recorded Historical Aboveground Resources within 1-mile of the LOD

Appalachian NGL Hub Rail Transloading Facility

SHPO ID	Address	Resource Type	Style	Date	NR Status
WZ-0146	Plum Street, Proctor, WV	ND	ND	ND	ND
WZ-0141	Rt 2 Proctor, WV	ND	ND	ND	ND
WZ-0140	Rt 2 Proctor, WV	ND	ND	ND	ND
WZ-0139	Rt 2 Proctor, WV	ND	ND	ND	ND
WZ-0138	Rt 2 Proctor, WV	ND	ND	ND	ND
WZ-0137	Rt 2 Proctor, WV	ND	ND	ND	ND
WZ-0136	Rt 2 Proctor, WV	ND	ND	ND	ND
WZ-0135	Rt 2 Proctor, WV	ND	ND	ND	ND
WZ-0134	Frontage Road, Proctor, WV	ND	ND	ND	ND
WZ-0132	Frontage Road, Proctor, WV	ND	ND	ND	ND
WZ-0131	Frontage Road, Proctor, WV	ND	ND	ND	ND
WZ-0130	Frontage Road, Proctor, WV	ND	ND	ND	ND
WZ-0129	Plum Street, Proctor, WV	ND	ND	ND	ND
WZ-0128	Plum Street, Proctor, WV	ND	ND	ND	ND
WZ-0127	Plum Street, Proctor, WV	ND	ND	ND	ND
WZ-0126	Plum Street, Proctor, WV	ND	ND	ND	ND
WZ-0125	Plum Street, Proctor, WV	ND	ND	ND	ND
WZ-0124	Apple Street, Proctor, WV	ND	ND	ND	ND
WZ-0123	Apple Street, Proctor, WV	ND	ND	ND	ND
WZ-0122	Plum Street, Proctor, WV	ND	ND	ND	ND
WZ-0121	Plum Street, Proctor, WV	ND	ND	ND	ND
WZ-0120	Plum Street, Proctor, WV	Residence	ND	1990	NE
WZ-0119	Plum Street, Proctor, WV	Residence	ND	ND	ND
WZ-0118	Proctor Street, Proctor, WV	Residence	ND	ND	ND
WZ-0117	Rt 2 Box 3 Proctor, WV	Residence	ND	ND	ND
WZ-0116	Proctor Street, Proctor, WV	ND	ND	ND	ND
WZ-0115	Proctor Street, Proctor, WV	ND	ND	ND	ND
WZ-0114	Proctor Street, Proctor, WV	ND	ND	ND	ND
WZ-0113	Proctor Street, Proctor, WV	ND	ND	ND	ND

Table 3.6.2

Previously Recorded Historical Aboveground Resources within 1-mile of the LOD

Appalachian NGL Hub Rail Transloading Facility

SHPO ID	Address	Resource Type	Style	Date	NR Status
WZ-0112	Proctor Street, Proctor, WV	ND	ND	ND	ND
WZ-0111	Proctor Street, Proctor, WV	ND	ND	ND	ND
WZ-0110	Proctor Street, Proctor, WV	ND	ND	ND	ND
WZ-0109	Proctor Street, Proctor, WV	ND	ND	ND	ND
WZ-0108	Proctor Street, Proctor, WV	ND	ND	ND	ND
WZ-0107	Proctor Street, Proctor, WV	ND	ND	ND	ND
WZ-0106	Frontage Road, Proctor, WV	ND	ND	ND	ND
WZ-0028	Frontage Road, Proctor, WV	ND	ND	ND	ND
WZ-00133	Frontage Road, Proctor, WV	ND	ND	ND	ND
WZ-0007	653 6th Sreet, New Martinsville, WV	Residence	Log	c. 1814-1930	Considered Eligible
MR-0170	WV Route 2, Kent, Marshall County	Residence	Frame	c. 1925-1949	Not Eligible
MR-0165	Unnamed Road east of WV Route 2, Kent, Marshall County	Residence	Frame	c. 1925-1949	Contributing to Historic District
MR-0164	Unnamed Road east of WV Route 2, Kent, Marshall County	Residence	Frame	c. 1925-1949	Contributing to Historic District
MR-0163	WV Route 2, Kent, Marshall County	Residence	Frame	c. 1950-1974	Contributing to Historic District
MR-0162	Unnamed Road east of WV Route 2, Kent, Marshall County	Residence	Frame	c. 1925-1949	Contributing to Historic District
MR-0161	WV Route 2, Kent, Marshall County	Residence	Frame	c. 1925-1949	Contributing to Historic District
MR-0160	WV Route 2, Kent, Marshall County	Residence	Frame	c. 1925-1949	Contributing to Historic District
MR-0159	WV Route 2, Kent, Marshall County	Residence	Frame	c. 1925-1949	Contributing to Historic District
MR-0158	WV Route 2, Kent, Marshall County	Residence	Frame	c. 1925-1949	Contributing to Historic District
MR-0157	WV Route 2, Kent, Marshall County	Residence	Frame	c. 1950-1974	Contributing to Historic District
MR-0156	WV Route 2, Kent, Marshall County	Residence	Frame	c. 1925-1949	Contributing to Historic District
MR-0155	WV Route 2, Kent, Marshall County	Residence	Frame	c. 1925-1949	Contributing to Historic District

Table 3.6.2

Previously Recorded Historical Aboveground Resources within 1-mile of the LOD

Appalachian NGL Hub Rail Transloading Facility

SHPO ID	Address	Resource Type	Style	Date	NR Status
MR-0154	WV Route 2, Kent, Marshall County	Residence	Frame	c. 1925-1949	Not Eligible
MR-0153	WV Route 2, Kent, Marshall County	Residence	Frame	c. 1925-1949	Not Eligible
MR-0004	WV Route 2, Kent, Marshall County	Commercial/Motel	Vernacular	c. 1920	Demolished

Table 3.6.3
Previously Recorded Archaeological Sites within 1-mile of the LOD
Appalachian NGL Hub Rail Transloading Facility

Site ID	Site Name	Cultural Period	Site Type	NRHP Status
46WZ148	Murphy Brothers Yard Site	Prehistoric	Lithic Scatter	Not Evaluated
46WZ074	Athey Site	Prehistoric	Camp or Village	Not Evaluated
46WZ034	Boeher Site	Prehistoric	Open Habitation	Not Evaluated
46WZ003	Welcome Mound	Prehistoric	Earthen Mound	Destroyed
46MR176	Site 7	Prehistoric	Lithic Scatter	Not Evaluated
46MR175	Site 6	Prehistoric	Lithic Scatter	Not Eligible Per WVDCH
46MR153	FS 01 (URS Site 4	Historic	Domestic	Not Eligible Per WVDCH
46MR152	FS 01	Historic	Domestic	Not Evaluated
46MR155	FS 04	Prehistoric	Village, Farmstead	Prehistoric Component Eligible
46MR154	Unknown	Historic	Cemetery	Not Evaluated
46MR186	EA 26	Prehistoric	Isolated Find	Not Eligible Per WVDCH
46MR184	Site 1	Prehistoric	Lithic Scatter	Not Eligible Per WVDCH
46MR185	Site 2	Prehistoric	Lithic Scatter	Not Eligible Per WVDCH
46MR040	Kent I	Prehistoric	Open Habitation	Not Evaluated
46MR044	Kent Bottom II	Prehistoric	Open Habitation	Not Evaluated
46MR087	Turtle Hill	Prehistoric	Lithic Scatter	Not Evaluated

Table 3.6.4
Previous Surveys Conducted within 1-mile of the LOD in Ohio
Appalachian NGL Hub Rail Transloading Facility

SHPO ID	Report Title	Author	Year	Phase
No ID	A Phase I Archaeological Survey of the Proposed Powhatan 7 Mine Reclamation Borrow Area, Salem and Ohio Townships, Monroe County, Ohio	Murphy, James L.	1999	1
No ID	Phase I Archaeological Survey of the Proposed SBA Network Services Long Ridge (Site #10135-061B) Wireless Communications Tower Location in Ohio Township, Monroe County, Ohio	Pecora, Albert M.	2001	1
25449	Proposed Berne to Natrium Natural Gas Liquid Condensate Pipeline Franklin, Summit, Center, Adams, and Salem Townships, Monroe County, Ohio	McHugh, Sean	2014	1
28004	Fourth Supplemental Phase I Archeological Survey For The Proposed Columbia Gas Transmission, LLC Leach Xpress Project Belmont, Fairfield, Guernsey, Hocking, Jackson, Lawrence, Monroe, Morgan, Muskingum, Noble, Perry, And Vinton Counties, Ohio	Hornum, Michael B.	2017	1
No ID	Supplemental Phase I Archaeological Survey for the Proposed Time II Project, (Salem Township, Monroe County, Ohio	Hornum, Michael B.	2006	1
28004	Third Supplemental Phase I Archeological Survey for the Proposed Columbia Gas Transmission, LLC Leach Xpress Project - Belmont, Fairfield, Hocking, Jackson, Lawrence, Monroe, Morgan, Muskingum, Noble, Perry, and Vinton Counties, Ohio	Hornum, Michael B.	2017	1
18986	Phase I Archaeological Survey (for the) Monroe Extension Natural Gas Pipeline Project in (Ohio Township) Monroe County, Ohio	Duerksen, Ken	2011	1
No ID	Phase I Archaeological Survey of the Proposed SBA Network Services Long Ridge (Site #10135-061) Wireless Communications Tower Location in Ohio Township, Monroe County, Ohio	Pecora, Albert M.	2001	1

Table 3.6.5

Previously Recorded Historical Aboveground Resources within 1-mile of the LOD

Appalachian NGL Hub Rail Transloading Facility

SHPO ID	Address	Place Name	Architectural Style	Historic Use	Date	NRHP Status
MOE0021008	Market St	Clarington	Vernacular	Single Dwelling	1900	Not Evaluated
MOE0021108	Market St	Clarington	Italianate	Single Dwelling	1880	Not Evaluated
MOE0021208	Market St	Clarington	Greek Revival	Village/Twp/City Hall	1870	Not Evaluated
MOE0021308	Market & Church	Clarington	Gothic Revival	Church/Religious Structure	1880	Not Evaluated
MOE0021408	Market St	Clarington	Vernacular	Single Dwelling	1880	Not Evaluated
MOE0021508	Ferry St & Market St	Clarington	Italianate	COMMERCIAL	1870	Not Evaluated
MOE0021608	Ferry St at 3rd	Clarington	Italianate	COMMERCIAL	1870	Not Evaluated
MOE0021708	Ferry St	Clarington	Queen Anne	Single Dwelling	1890	Not Evaluated
MOE0021808	3rd St & Ferry St	Clarington	Gothic Revival	Church/Religious Structure	1890	Not Evaluated
MOE0021908	Church St	Clarington	Tudor/English Revival	School	1925	Not Evaluated
MOE0022008	Ferry St & Front St	Clarington	Italianate	Unknown Use	1810	Not Evaluated
MOE0022108	Main St & Market St	Clarington	Italianate	Single Dwelling	1870	Not Evaluated
MOE0022208	Market St	Clarington	Eastlake	Single Dwelling	1890	Not Evaluated
MOE0031812	S Side Co 43	Ohio Township	Federal	Single Dwelling	1870	Not Evaluated
MOE0031912	S Side Co 43 Near Salem Twp	Ohio Township	Italianate	Church/Religious Structure	1870	Not Evaluated

Table 3.6.6
Cemeteries within 1-mile of the LOD
Appalachian NGL Hub Rail Transloading Facility

SHPO ID	Name	County	Location	NRHP Status
8141	MOUNT VERNON	Monroe	On east side of CR 43	Not Evaluated
8158	OLD CLARINGTON	Monroe	Near junction of SR 7 and SR 78	Not Evaluated
8159	CLARKE	Monroe	CR 43	Not Evaluated
8160	COCHRAN	Monroe	1.5 miles west of Clarington. Near SR 78	Not Evaluated
8161	KURTZMAN	Monroe	CR 43	Not Evaluated
8163	OLLUM/OLLEM-POSSUM CREEK	Monroe	On CR 26. 1.5 miles from SR 7	Not Evaluated
8167	SYKES RIDGE CHRISTIAN CHURCH-(SYKES)	Monroe	Two miles from SR 7. On CR 4	Not Evaluated

Table 3.6.7
Previously Recorded Archaeological Sites within 1-mile of the LOD
Appalachian NGL Hub Rail Transloading Facility

SHPO ID	Site Name	Cultural Period	Site Type	NRHP Status
33MO155	N/A	Historic	Historic Scatter	Not Evaluated

Ohio

In the fall of 2019, a Phase I archaeological survey and a reconnaissance level history/architectural survey was conducted for the Project in Monroe County, Ohio. The technical report submitted to the OHPO March 13, 2020, is included in Appendix D. A brief summary of the results is given below.

Archaeology

The archaeological survey entailed subsurface testing of all intact soils on slopes of less than 15 percent within the LOD of the proposed NGL Pipeline. Shovel test pits were initially placed at 50-foot intervals in all areas with slopes of less than 15 percent. Pedestrian survey was undertaken in all areas not shovel tested to inspect these areas for the presence of historic-period features as well as rockshelters and level benches that could contain prehistoric sites.

The Phase I archaeological survey identified one historic archaeological resource, 33MO211, within the LOD of the NGL Pipeline. This site consists of the disarticulated structural remains of an early to mid-twentieth century farmstead and a surface scatter of modern and early to mid-twentieth century artifacts (Figure 3.6.1). Site 33MO211 is recommended as not eligible for listing in the NRHP.

Built Environment

Fieldwork involved a systematic survey of historic architectural resources in the APE (Figure 3.6.1). The survey team members traversed all passable public roads located within the APE. Historic architectural resources were observed and documented from the public right-of-way unless otherwise accessed via privately-owned driveways or roads when express consent of the landowner was provided. Buildings normally construed as public, such as churches, stores, and cemeteries were approached more closely. Every effort was made to identify and record each resource over 50 years old within the APE. USGS topographical quadrangle maps dated from 1961 guided field observations related to dates of construction and the NRHP age criterion.

The reconnaissance level history/architectural survey identified five historic aboveground resources within the APE that meet the 50-year minimum age requirement for NHRP listing. Two of these resources, the Lucas Farmstead (MOE005308) and Rufener Farmstead (MOE005408), are recommended as potentially eligible for NRHP-listing (Figure 3.6.1).

The Lucas Farmstead is recommended as potentially eligible for NRHP-listing under Criteria A and C; it serves as a relatively well-preserved collective representation of a mid-twentieth century farmstead in Monroe County. Likewise, the Rufener Farmstead is recommended potentially eligible for NRHP - listing under Criteria A and C for its well-preserved collection of early twentieth-century domestic and agricultural buildings.

3.6.3 Consultation

Under the NHPA, State Historic Preservation Offices (SHPOs) administer the Section 106 process for each state. Federal agencies consult with federally-recognized tribes for undertaking impacting those tribes or their areas of tribal interest. For both West Virginia and Ohio, the Section 106 consultation letter sent to SHPOs and federally-recognized tribes initiated the Section 106 process, delineated the APE, identified historic properties, and assessed effects (Appendix D).

Consultation with the West Virginia Division of Culture and History

In West Virginia, the West Virginia Division of Culture and History (WVDCH) serves as the SHPO. No new field surveys were conducted in West Virginia. As stated earlier, the bore pit entrance for the pipeline is contained entirely within the existing Blue Race facility in West Virginia. The excavation of the bore pit within the existing and previously disturbed facility would not introduce any new visual effects (Appendix D).

A cultural resource notice that described the Project with supporting maps and figures was submitted to the WVDCH for review and comment on December 11, 2019. The WVDCH commented in a letter dated January 9, 2020. For

archeological resources, the WVDCH stated the no archaeological investigation were necessary as the land within the Blue Racer Facility had been previously disturbed. For historical above resources the WVDCH determined there would be no effect (Appendix D).

Consultation with the Ohio Historic Preservation Office

In Ohio, the Ohio Historic Preservation Office (OHPO) serves as the SHPO. A Phase I archaeological survey and reconnaissance level history/architectural survey was conducted for the proposed Transloading Facility and NGL Pipeline in the fall of 2019.

The Phase I archaeological survey identified one historic-period archaeological site, 33MO211, in the APE. This site consisted of the disarticulated structural remains of an early to mid-twentieth century farmstead and a surface scatter of modern and early to mid-twentieth century artifacts. The FRA determined the site was not eligible for listing in the NRHP.

The reconnaissance level history\architectural survey identified no above ground resources within the LOD of the NGL Pipeline, but five newly recorded above-ground architectural resources were identified in the APE due to viewshed. The five resources identified in the survey consisted of historic farmsteads or farm buildings, two of which, the Lucas Farmstead (MOE005308) and the Rufener Farmstead (MOE005408), were recommended as eligible for listing in the NRHP as individual resources. Because these resources are located primarily in open agricultural land that would be restored to preconstruction conditions and the view of the permanent pipeline corridor would be minimal, the FRA determined the undertaking would have No Adverse Effect on historic properties.

The FRA submitted a consultation letter with the No Adverse Effect determination, and the technical report detailing the methods and results of the surveys to OHPO on March 13, 2020. On April 16, 2020, the OHPO responded to FRA's consultation letter. OHPO concurred with all of FRA's determinations as described in this Section. A brief summary of the results of the surveys is given below. The complete technical report is provided in Appendix D.

Consultation with Tribal Entities

FRA has identified the following federally-recognized Tribes who may have an interest in the project:

- Eastern Shawnee Tribe of Oklahoma
- Miami Tribe of Oklahoma
- Osage Nation
- Seneca Cayuga Nation

The FRA submitted a consultation letter to each of these Tribes with the No Adverse Effect determination, and the technical report detailing the methods and results of the surveys on March 13, 2020. On April 16, 2020, FRA received a response from the Miami Tribe of Oklahoma stating that Monroe County is outside of their area of concern. As of the release of this draft EA, FRA has not received any other tribal correspondence. Comments received from other interested Tribes will be incorporated and considered in the final NEPA document.

3.6.4 Environmental Consequences

The methodology applied to assessing adverse effects to cultural and historic resources resulting from the Project (Transloading Facility and NGL Pipeline) was to follow the Section 106 process as described in Section 3.6.2 and 3.6.3.

No Action Alternative

Under the No Action Alternative, no ground disturbance would occur that might affect archaeological resources. The viewshed would remain unchanged and therefore, there would be no visual effects. For these reasons, no historic properties would be affected by the No Action Alternative.

Proposed Action Alternative

Transloading Facility

The Transloading Facility is located in a previously disturbed industrial facility. The FRA determined the construction and installation associated with the Transloading Facility would have No Effect on historic properties. The OHPO concurred with this finding.

NGL Pipeline

West Virginia: The WVDCH commented on the Project on January 9, 2020, concurring with FRA's determination that no archaeological investigations were necessary and that there would be No Effect to historic properties (See Appendix D SHPO Comments).

Ohio: In Ohio, the entirety of the LOD was subject to archaeological investigation. The archaeological survey entailed subsurface testing of all intact soils on slopes of less than 15 percent within the pipeline LOD. Shovel test pits were initially placed at 50-foot intervals in all areas with slopes of less than 15 percent. Pedestrian reconnaissance was undertaken in all areas not shovel tested to inspect these areas for the presence of historic-period features as well as rockshelters and level benches that could contain prehistoric sites.

The Phase I archaeological survey identified one historic archaeological resource, 33MO211. This site consists of the disarticulated structural remains of an early to mid-twentieth century farmstead and a surface scatter of modern and early to mid-twentieth century artifacts (Appendix D). Site 33MO211 is recommended as not eligible for listing in the NRHP.

For the built environment, field survey involved a systematic survey of historic architectural resources in the APE. The survey team members traversed all passable public roads located within the APE. Historic architectural resources were observed and documented from the public right-of-way unless otherwise accessed via privately-owned driveways or roads when express consent of the landowner was provided. Buildings normally construed as public, such as churches, stores, and cemeteries were approached more closely. Every effort was made to identify and record each resource over 50 years old within the APE. USGS topographical quadrangle maps dated from 1961 guided field observations related to dates of construction and the NRHP age criterion.

The reconnaissance level history/architectural survey identified five historic aboveground resources within the APE that meet the 50-year minimum age requirement for NHRP listing. Two of these resources, the Lucas Farmstead (MOE005308) and Rufener Farmstead (MOE005408) are recommended as potentially eligible for NRHP-listing.

FRA has determined that the Lucas Farmstead is potentially eligible for NRHP-listing under Criteria A and C; it serves as a relatively well-preserved collective representation of a mid-twentieth century farmstead in Monroe County. Likewise, the FRA has determined that the Rufener Farmstead is potentially eligible for NRHP listing under Criteria A and C for its well-preserved collection of early twentieth-century domestic and agricultural buildings.

The Lucas Farmstead (MOE005308) and Rufener Farmstead (MOE005408) are located primarily in open agricultural land that would be restored to preconstruction conditions and the view of the permanent pipeline corridor would be minimal. Further, routing of the pipeline through mostly open agricultural land minimizes effects to historic agricultural landscape features such as treelines, wind breaks, and woodlots. As a result, the Project's effects would not occur to an extent that would diminish the historical integrity of the Lucas Farmstead (MOE005308) or the Rufener Farmstead (MOE005408).

FRA determined that the Project would have No Adverse Effect on historic properties. The OHPO concurred with this finding.

3.6.5 Avoidance, Minimization, and/or Mitigation

Minimization measures, if required, will be detailed upon completion of the Section 106 process.

3.7 CONTAMINATED SITES AND HAZARDOUS WASTE

3.7.1 Affected Environment

The potential for encountering contaminated sites and hazardous waste is largely a function of historic and current land use. The Project is situated in the heavily industrialized Ohio River valley. The Ohio River valley has served as a major water and rail transportation route since the mid-nineteenth century when rail production supplanted the canal system. In the mid-twentieth-century, industrial development along the Ohio River was most prominently focused on steel production and the movement of steel by railroad. Raw materials, for steel production arrived at mills constructed along the river via barge and rail car and end products left the area in the same manner. The same transportation infrastructure fed coal to electrical generation plants along the river. The adjacent uplands were mostly farmland, woodland, and rural residential properties.

The proposed Transloading Facility is located on the LRET Property, formerly the Orment Aluminum plant in an area that was historically used for parking. Because of the historical use of the LRET Property for industrial purposes a review of government databases and previous environmental investigation conducted for LRET's redevelopment of the site was undertaken.

Environmental Records Review

A search of available environmental records was conducted by Environmental Data Resources, Inc. (EDR) in September of 2019. EDR is a third-party provider that compiles and synthesizes data from government and private environmental databases for due diligence reporting. A search radius of 1-mile was used centered on the proposed Transloading Facility. The EDR Radius Map Report, Historical Topo Map Report, City Directory Image Report, Certified Sanborn Map Report and Aerial Photo Decade Package are provided in (Appendix E).

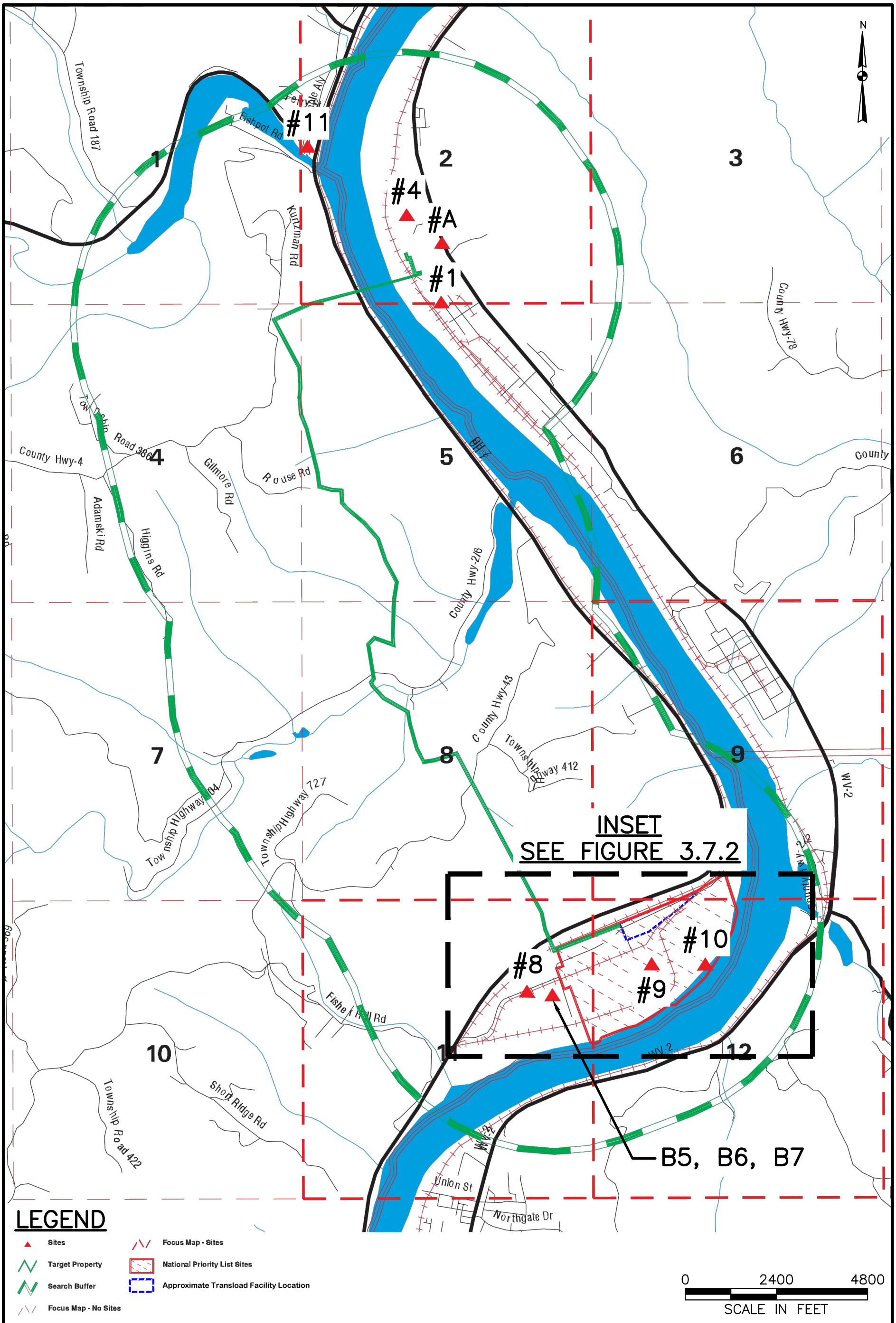
The Radius Map Report identified six sites with the potential for containing contaminated or hazardous waste within the search radii of the proposed Transloading Facility and NGL Pipeline. None of the sites were located within the proposed Transloading Facility LOD. Sites within the search radius are indicated by red triangles on Figures 3.7.1 and 3.7.2 and described below.

- **Site # B5 - Triple J Oilfield.** This site, located east of the proposed Transloading Facility site, was found in RCRA, FINDS, and ECHO databases. It is listed as a "conditional exempt small quantity generator." The site is owned and operated by Triple J Oilfield Services and began operation in January 2009. The site received a written informal notice of violation from the state after a compliance evaluation inspection in October 2013. No other violations were identified the EDR search.

- **Site # B6 - Artco Group International.** This site, located west-southwest of the Transloading Facility site, was found in RCRA, FINDS, and ECHO databases. The site is listed as a "small quantity generator. It is owned and operated by Artco Group International, Inc., (Artco) and began operation in June 2007. The site was previously owned and operated by the Orment Corporation. This site received several historic violation notices between 1988 and 2006 but has received none since Artco began operating.

- **Site # B7 - Orment Corp Aluminum Rolling Mill.** This site is found in the OH DERR, OH VCP, OH SPILLS, and OH NPDES databases. This facility participates in a Voluntary Action Program (VAP) and has multiple listings in OH SPILLS between 1999 and 2005 for substances including sheen, wastewater, and oil.

- **Site # 8 - Hannibal Industrial Park.** This site, located west of the Transloading Facility site, is found in the OH LUST, OH UST, and OH ARCHIVE UST databases. Two releases are listed in the LUST database with no further action required. Three tanks are listed as having been removed in the UST database. Three tanks of unreported content and capacity are listed in the ARCHIVE UST database.



TETRA TECH

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T: (330) 286-3683 | F: (330) 286-3573

APPALACHIAN NGL HUB RAIL TRANSLOADING FACILITY MONROE COUNTY, OHIO

HAZARD SUMMARY MAP

DATE:	12/10/19
PROJECT NO.:	212C-CF-00264
DESIGNED BY:	TS
DRAWN BY:	JK
CHECKED BY:	LD
SHEET:	– OF –

FIGURE 3.7.1

PROPOSED TRANSLOAD FACILITY LOCATION

PIPELINE ALIGNMENT

SUPERFUND SITE

APPROXIMATE RANNEY WELL LOCATION

N

0 600 1200

SCALE IN FEET

LEGEND

- PIPELINE ALIGNMENT
- PROPOSED TRANSLOAD FACILITY LOCATION
- NATIONAL PRIORITY LIST SITE
- SUPERFUND SITE
- APPROXIMATE RANNEY WELL LOCATION

TETRA TECH

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APPALACHIAN NGL HUB RAIL TRANSLOADING FACILITY
MONROE COUNTY, OHIO

HAZARD SUMMARY MAP
SITE DETAIL

DATE:	12/05/19
PROJECT NO.	212C-CF-00264
DESIGNED BY:	TS
DRAWN BY:	JK
CHECKED BY:	LD
SHEET:	– OF –

FIGURE 3.7.2

X:\CADD\Long Ridge Transloading\212c-cf-00264\FIGURES\FOR SUBMITTAL\FIGURE 3.7.2.dwg PIT JIM.KUSIOWSKI 6/24/2020 6:12:07 PM

- **Site # 9 - Orment Corp Aluminum Reduction Mill.** This site, situated 0.25 miles to the east of the Transloading Facility site, is found in the OH DERR and OH INST CONTROL databases. The Orment Corporation Reduction Mill area is a Superfund site. The mill was in operation from 1958 to 1968, during which time pot liner, a by-product of the aluminum production process, was staged in an uncontained area During the years 1968 to 1981 this pot liner waste was periodically removed and transported to an on-site recovery plant where any remaining cryolite was extracted. Cryolite was used as a solvent for aluminum oxide(Al_2O_3) in the Hall–Héroult process and was used in the refining process to lower the melting point of molten aluminum oxide. The slurry from the cryolite recovery plant was ultimately routed to a disposal pond (i.e., landfill).

- **Site # 10 - Orment Landfill (LDF).** This site is listed in the OH HIST LF database and is located approximately 0.47 miles east of the proposed Transloading Facility. The site closed in 1981.

Environmental Investigations

Further research conducted into the Orment site and the listings identified in the EDR Radius Map Report revealed a Record of Decision (ROD) Declaration that was produced by the Orment Company in 1994 (Appendix E). According to the ROD, in 1972, a hydrogeologic study by Orment verified high levels of fluoride in the Ranney well at the reduction plant. Interceptor wells were installed to intercept the plume prior to reaching the pumping center. Site contamination found by the US EPA and the OH EPA, combined with the potential impact to the drinking water supply, led to the site being placed on the US EPA National Priorities List (NPL) in September of 1985. In May of 1987, the US EPA, Ohio EPA and Orment entered into an Administrative Order by Consent requiring Orment to conduct a remedial investigation under the direction of US EPA and Ohio EPA. As a result of the remedial investigation, remediation systems including interceptor wells, soil flushing systems, cap and cover landfills, and infiltration trenches were installed to improve the groundwater conditions at the Orment site.

The EDR search for the proposed NGL Pipeline used a 1-mile buffer around the 5.9-mile centerline. The Radius map report identified no sites with the potential for containing contaminated or hazardous waste within the LOD (Figures 3.71 and 3.7.2). Four sites, (one in Ohio, and three in West Virginia) were identified within the 1-mile buffer along the Ohio River north of the LOD. The sites included:

- **Site # 11 - Clarington, Ohio, Leek Properties Phase II**. This site was listed in the Clean Ohio Fund database as a leaking storage tank.

- **Site # 4 – Natrium, West Virginia Extraction and Fractionation Site Tank.** The tank is currently used to store used oils. The tank is a composite construction. No issues were noted.

- **Site # A2 – Natrium, West Virginia Blue Racer.** This site was identified in the RCRA, TSCA, FINDS, and ECHO databases. It is listed as a “conditionally exempt small quantity generator” in RCRA. It is owned and operated by Blue Racer Natrium, LLC, and began operation in July 2011. The Blue Racer property underwent a focused compliance inspection in 2013. No violations were found by the EDR search.

- **Site # 1 – West Virginia, Marshall Army Chemical Plant.** This site is found on the Formerly Used Defense Site (FUDS) list. As of 2015, it is listed as a 200-acre property that was formerly owned by the Army. It is currently listed as private property being used as a chemical plant by Pittsburgh Plate Glass. This site is located downgradient of the Project.

3.7.2 Environmental Consequences

The methodology used for assessing impacts to contaminated sites and hazardous waste included the preserve of hazardous materials and severity of contamination and the Project in relation to the current hazardous waste sites. The assessment reviewed any sensitive areas proximate to the Project that may be affected by conditions arising

from construction, operation or maintenance of the Project, including drinking water reservoirs, soil disturbance, and residential areas. In addition, the assessment included the potential for the project to cause hazardous materials to be released into the environment.

No Action Alternative

Transloading Facility

Under the No Action Alternative, the Transloading Facility would not be built. Therefore, there would be no chance of encountering contaminated or hazardous waste sites.

NGL Pipeline

Under the No Action Alternative, no ground disturbance would occur and there would be no chance of encountering contaminated or hazardous waste sites.

Proposed Action Alternative

Transloading Facility

The proposed Transloading Facility would be in the western portion of the LRET Property that was historically used for office parking. In addition, the Transloading facility would be located hydraulically upgradient of the environmental problems that were identified and being remediated in other parts of the LRET Property caused from historic industrial use. These downgradient issues include soil and groundwater contamination. The Transloading Facility would not be installing water wells and there is no evidence of historic environmental issues at the proposed Transloading Facility. With the current groundwater restrictions, cover systems, interceptor wells, in addition to operational Ranney wells, the contamination found to the east and southeast (downgradient) of the Transloading Facility is not expected to enter the proposed Transloading Facility LOD. However, based on historical use of the LRET Property there is a slight potential that contaminated soils could be encountered during earthwork activities and site grading. Groundwater is not anticipated to be directly encountered during earthwork or grading as it lies approximately 40-feet below the ground surface. If contaminated soils were encountered and exposed to precipitation, contaminants could filter into the groundwater. In order to minimize the risk of infiltration, mitigation measure described in Section 3.7.3 would be implemented.

NGL Pipeline

The majority of the NGL pipeline would traverse farm fields wooded uplands and existing pipeline ROWs. No sites with the potential to contain contaminated or hazardous materials were identified in the LOD for the proposed NGL Pipeline. The nearest sites with the potential to contain contaminated or hazardous materials were identified at the at the Blue Racer facility in West Virginia and on the LRET Property outside and down gradient of the NGL Pipeline LOD. Contamination from down gradient sites would likely not be encountered during construction of the NGL Pipeline. However, based on the historical and current industrial use of the Blue Race facility and the LRET Property, and the overlap of the NGL Pipeline where it connects with existing facilities, there is a slight potential that contaminated soils could be found during earthwork activities, site grading, and installation of the HDD bore. In order to minimize the risk for adverse impacts, minimization measures described in Section 3.7.4 would be implemented.

3.7.3 Avoidance, Minimization, and/or Mitigation Measures

The following avoidance and minimization measures, which are BMPs, would be implanted to minimize the potential for adverse effects to the Project:

- A Soil Management Plan would be prepared to address the unlikely event of encountering contaminated soils. This plan would include soil screening requirements, the oversight or monitoring of soil moving activities by an environmental professional, and contingency plans for the handling, removing, temporarily

storing, characterizing, and disposing of contaminated materials. This plan would also include measures for containing, treating, and disposing of stormwater that may contact exposed soils.

- A Groundwater Management Plan would be prepared to address the unlikely event of encountering contaminated groundwater from known down gradient sites. This plan would include the oversight of soil moving activities by an environmental professional, groundwater screening procedures, handling, temporary storage, characterization, and disposal of contaminated groundwater. This plan would also include contingencies for collecting, stabilizing, and disposal of drilling mud that may be exposed to contaminated groundwater.

Preparation and proper implementation of the plans presented above would reduce the potential adverse impacts that may result if contaminated soil or groundwater is encountered.

3.8 AIR QUALITY AND GREENHOUSE GAS EMISSIONS

3.8.1 Affected Environment

Air Quality Monitoring Data

The US EPA has developed National Ambient Air Quality Standards (NAAQS) for seven air contaminants designated "criteria pollutants," which are nitrogen dioxide (NO_2), carbon monoxide (CO), ozone (O_3), sulfur dioxide (SO_2), lead (Pb), particulate matter with an aerodynamic diameter less than or equal to 10 microns (PM_{10}) and particulate matter with an aerodynamic diameter less than or equal to 2.5 microns ($PM_{2.5}$). The NAAQS were established under the Clean Air Act (CAA) of 1970, as amended in 1977 and 1990, to protect human health (primary standards) and public welfare (secondary standards). The primary standards are lower than or equal to the secondary standards for each pollutant and, therefore, compliance with the primary standards satisfies the secondary standards. The EPA conducts periodic reviews of the NAAQS to ensure they provide adequate protection of human health and public welfare based upon current scientific evidence. The NAAQS are promulgated in 40 CFR Part 50 and are summarized in Table 3.8.1.

Each state is required to implement and enforce air quality control regulations, known as State Implementation Plans (SIP), to ensure that air quality in the state meets the NAAQS (40 CFR Part 51). The Ohio EPA and West Virginia DEP administer the SIP in their respective states.

The US EPA coordinated with state agencies to establish air quality control regions (AQCRs) within the states for the development of the SIPs to describe how the NAAQS would be achieved and maintained (40 CFR Part 81). The AQCRs are intra- and interstate regions, such as metropolitan areas, where improvement of the air quality in one portion of the AQCR requires emission reductions throughout the AQCR. Each AQCR, or portion thereof, is designated based on compliance with the NAAQS. AQCR designations fall under one of three categories: "attainment" (areas in compliance with the NAAQS); "non-attainment" (areas not in compliance with the NAAQS); or "unclassifiable."

On December 7, 2009, the EPA added greenhouse gases (GHG) to the definition of pollutants covered by the CAA (74 FR 66496); GHGs were defined as including, carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. GHG are gases that trap heat in the atmosphere. CO_2 is by far the most abundant and, therefore, the most influential GHG. CO_2 is emitted from any combustion process (both natural and manmade), from some industrial processes such as the manufacture of cement, mineral production, metal production, and the use of petroleum-based products, from volcanic eruptions, and from the decay of organic matter. CO_2 is removed ("sequestered") from the lower atmosphere by natural processes such as photosynthesis and uptake by the oceans. CO_2 is included in any analysis of GHG emissions.

Emissions of GHGs are quantified in terms of carbon dioxide equivalents (CO_2e) by multiplying emissions of each GHG by its respective global warming potential (GWP) as defined under 40 CFR 98, Subpart A, Table A-1. The GWP is a ratio relative to CO_2 regarding each GHG's ability to absorb solar radiation and its residence time in the

TABLE 3.8.1
National Ambient Air Quality Standards
Appalachian NGL Hub Rail Transloading Facility

Pollutant	Averaging Time	Primary	Secondary	Compliance Requirement
NO2	1-hour	100 parts per billion (ppb)	N/A	98th percentile, averaged over 3 years
	Annual	53 ppb	53 ppb	Annual mean
CO	1-hour	35 parts per million (ppm)	Not applicable (N/A)	Not to be exceeded more than once per year
	8-hour	9 ppm	N/A	
O3	8-hour	70 ppb	70 ppb	Annual 4th highest daily maximum 8-hour concentration, averaged over 3 years
SO2	1-hour	75 ppb	N/A	99th percentile of 1-hour daily maximum concentrations, averaged over 3 years
	3-hour	N/A	0.5 ppm	Not to be exceeded more than once per year
PM10	24-hour	150 ug/m3	150 ug/m3	Not to be exceeded more than once per year on average over 3 years
Pb	Rolling 3-month average	0.15 micrograms per cubic meter (?g/m3)	0.15 ug/m3	Not to be exceeded
PM2.5	24-Hour	35 ug/m3	35 ug/m3	98th percentile, averaged over 3 years
	Annual	12 ug/m3	15 ug/m3	Annual mean, averaged over 3 years

atmosphere. Accordingly, CO_2 has a GWP of 1 while CH_4 has a GWP of 25 and N_2O a GWP of 298. EPA did not establish NAAQS for any listed GHG, as their impact occurs on a global basis and not a local/regional basis.

The Project would primarily be located in Monroe County, OH, and secondarily in Marshall County, WV, both of which are located within the Steubenville-Weirton-Wheeling Interstate AQCR (40 CFR Part 81). The Study Area is designated as in attainment or unclassifiable for all NAAQS except for the 1-hour SO_2 NAAQS in which case, portions of Marshall County are designated nonattainment (although the WVDEP proposed the nonattainment area to be redesignated to attainment in February 2020). The Blue Racer facility and the portion of the NGL Pipeline located in Marshall County are located in the SO_2 nonattainment area. Areas designated as unclassifiable are treated as attainment areas for air quality control purposes.

Regulatory Applicability and Compliance

The Project would potentially be subject to a variety of federal and state air quality regulations for the construction and operation of air pollutant emitting equipment.

The Ohio EPA administers the state's regulations as well as the federal requirements (Ohio EPA, 2020). The federal and state regulations established as a result of the CAA that are potentially applicable to the Project are as follows:

- New Source Review (NSR)
- Federal Class I Area Protection
- Title V Operating Permits
- New Source Performance Standards (NSPS)
- National Emission Standard for Hazardous Air Pollutants (NESHAP)
- Minor Source Permitting Requirements
- General Conformity

The following sections summarize the applicability of various state and federal regulations to the Project for both construction and operation.

3.8.1.1 New Source Review

NSR is a preconstruction air permitting program for operational emission sources established under Parts C and D of the CAA. The NSR program is not applicable to construction activities and would only apply to the Project's operational emissions. An NSR permit must be obtained prior to the commencement of construction on new major sources or major modifications to existing major sources. NSR permitting requirements are implemented per two distinct programs: The Prevention of Significant Deterioration (PSD) program and the Non-Attainment New Source Review (NNSR) program. The NSR program rules are promulgated under 40 CFR Parts 51 and 52.

The applicability of the PSD and NNSR programs to a project is pollutant-specific and dependent upon the attainment designation where the project is located and the estimated increase in potential criteria pollutant emissions. The PSD program applies to a new major source or a major modification to an existing major source for pollutants designated as attainment with the NAAQS. The goal of the PSD program is to prevent new and modified air pollutant emission sources from causing the existing air quality to deteriorate to unacceptable levels. The NNSR program applies to a new major source or a major modification to an existing major source for pollutants designated as non-attainment with the NAAQS. The goal of the NNSR program is to assure that new and modified air pollutant emission sources result in a net improvement in the existing air quality. The Project would be located in an area designated as attainment or unclassifiable for all NAAQS. Areas designated as unclassifiable are treated as attainment areas for air quality control purposes. Therefore, NNSR would not apply to the Project.

The PSD regulations are codified under 40 Code of Federal Regulations (CFR) 52.21. Each state may allow the EPA to retain PSD authority, adopt authority of the federal PSD program or develop a state-specific PSD program that is incorporated into the SIP and approved by the EPA. Ohio EPA administers the requirements of 40 CFR 52.21 in Ohio.

The Project's operational emission sources include railcar loading, storage tanks, and emission control devices (flares) with a storage capacity less than 300,000 barrels. Emissions from locomotive engines are not governed by the NSR program as they are not stationary sources.

Table 3.8.3 provides a comparison of the Project's estimated potential-to-emit (PTE) for each criteria pollutant versus the applicable PSD major source threshold. In accordance with EPA's vacated GHG Tailoring Rule and subsequent EPA guidance issued in response to a US Supreme Court ruling, a new facility would only be subject to PSD permitting for GHG emissions if it was a PSD major source for at least one non-GHG pollutant (EPA, 2014).

As shown in Table 3.8.3, the PTE for each criteria pollutant would be well below the PSD major source threshold and, therefore, PSD permitting would not be required. PTE estimates for each emission source are provided in Table 3.8.4.

3.8.1.2 Federal Class I Area Protection

Congress designated certain lands as Class I areas in 1977 (40 CFR Part 81). Class I areas were designated because the air quality was considered a special feature of the area (e.g., national parks or wilderness areas). These Class I areas are given special protection under the PSD program. The PSD program establishes air pollution increment increases that are allowed by new or modified air pollution sources. If the new source is required to demonstrate compliance with the PSD program requirements and is near a Class I area, the facility is required to demonstrate compliance with the allowable PSD Class I increments. As documented in Section 3.9.1.1 the Project would not be subject to PSD permitting and therefore would not be required to demonstrate compliance with the allowable PSD Class I increments. The nearest PSD Class I Areas are the Otter Creek National Wilderness Area and the Dolly Sods National Wilderness Area in West Virginia which are each located more than 77 miles [125 kilometers (km)] from the proposed Transloading Facility site.

3.8.1.3 Title V Operating Permit

Title V of the CAA established an operating permit program for new and existing major stationary sources of emissions. The program rules are promulgated under 40 CFR Part 70. A Title V Operating Permit documents all applicable requirements for each emission source at a subject facility. The Title V regulations are codified at the federal level under 40 CFR 70. Each state is required to develop Title V permitting regulations and incorporate them into their SIP. For sources located in an attainment area such as the Project, the major source thresholds are 100 tpy for criteria pollutants, 10 tpy of any single hazardous air pollutant (HAP), 25 tpy for the sum of all HAPs, or 100,000 tpy of GHGs as CO_{2e}.

If the PTE for any pollutant exceeds one or more of the Title V major source thresholds, then the facility must obtain a Title V Operating Permit. The Title V permitting program is not applicable to construction activities and would only apply to the Project's operational emissions. Table 3.8.3 shows that the Project's PTE would be below the Title V thresholds for criteria pollutants and GHGs. The Project's PTE for total HAP emissions is estimated to be 1.4 tpy, which is well below the Title V major source threshold. Therefore, the Project would not be subject to Title V permitting.

3.8.1.4 New Source Performance Standards (NSPS)

Section 111 of the CAA authorized the EPA to develop technology-based standards that apply to specific categories of stationary sources. These standards are promulgated under 40 CFR Part 60. The NSPS are not applicable to

Table 3.8.2

PSD Applicability

Appalachian NGL Hub Rail Transloading Facility

Pollutant	Project PTE tons per year (tpy)	PSD Major Source Threshold (tpy)
NOx	5.1	250
PM10	0.2	250
PM2.5	0.2	250
CO	27.7	250
VOC	73.8	250
SO2	0.04	250
GHGs (as CO2e)	10,553	100,000

TABLE 3.8.3
Summary of Potential Operational Emissions
Appalachian NGL Hub Rail Transloading Facility

Emission Source Description	Potential Emissions (tpy)						
	NO_x	CO	PM_{10} / $PM_{2.5}$	VOC	SO_2	GHGs	Total HAP
Stationary Point Sources							
Propane Loadout (with Flare)	2.73	14.85	0.098	36.29	0.024	5,562	---
Butane Loadout (with Flare)	1.7	9.26	0.061	22.96	0.015	3,580	0
Natural Gasoline Loadout (with Thermal Combustor)	0.65	3.56	0.024	9.82	0.006	1,411	0.93
Trans-Mix Storage Tank	---	---	---	4.75	---	---	0.45
Stationary Point Source Totals	**5.08**	**27.7**	**0.182**	**73.8**	**0.045**	**10,553**	**1.38**
Fugitive Sources							
Process Equipment Leaks	---	---	---	18	---	---	0.24
Mobile Sources							
Locomotives	13.87	3.78	0.504	0.76	0.012	1,310	0.013
Project Total PTE	**18.9**	**31.4**	**0.69**	**92.6**	**0.06**	**11,864**	**1.39**

construction or to mobile sources, only to new operational stationary sources that meet the applicability criteria for a specific source category.

NSPS Subpart Kb - Standards of Performance for Volatile Organic Liquid Storage Vessels

The Project would include a 60,000-gallon Trans-Mix storage tank, which is required to collect purged NGLs from the system. The contents of this storage tank would include propane, butane, and natural gasoline at varying proportions at any given time. NSPS Subpart Kb governs certain storage tanks with a capacity greater than or equal to 19,813 gallons that contain Volatile Organic Liquids (VOLs) constructed after July 23, 1984. The Trans-Mix storage tank would be subject to this standard. The Trans-Mix storage tank would be designed to meet the requirements of 40 CFR 60.112b(a)(3).

NSPS Subpart KKK - Standards of Performance for Crude Oil and Natural Gas Production, Transmission and Distribution

NSPS Subpart KKK applies to onshore natural gas processing plants that commenced construction after January 20, 1984 and on or before August 23, 2011. As the Project would be constructed after August 23, 2011, this standard would not apply.

NSPS Subpart OOOO - Standards of Performance for Equipment Leaks of VOC From Onshore Natural Gas Processing Plants

NSPS Subpart OOOO applies to onshore natural gas processing plants that commenced construction after August 23, 2011 and on or before September 18, 2015. As the Project would be constructed after September 18, 2015, this standard would not apply.

NSPS Subpart OOOOa - Standards of Performance for Crude Oil and Natural Gas Facilities

NSPS Subpart OOOO applies to onshore natural gas processing plants that commenced construction after August 23, 2011 and on or before September 18, 2015. A *natural gas processing plant* is defined under this standard as "any processing site engaged in the extraction of natural gas liquids from field gas, fractionation of mixed natural gas liquids to natural gas products, or both." The Project would not extract natural gas liquids from field gas or separate natural gas liquids into natural gas products and therefore does not meet the definition of a natural gas processing plant. The Trans-Mix storage tank would have potential VOC emissions less than 6 tpy and therefore is not subject to the storage vessel requirements of this standard pursuant to 40 CFR 60.5365a(e). Therefore, NSPS Subpart OOOOa does not apply to the Project.

3.8.1.5 National Emission Standards for Hazardous Air Pollutants (NESHAP)

Section 112 of the CAA authorized the EPA to develop technology-based standards that apply to specific categories of stationary sources that emit HAPs. These standards are referred to as NESHAP and are promulgated under 40 CFR Parts 61 and 63. The NESHAP are not applicable to construction or mobile sources, only to new operational stationary sources that meet the specific criteria established for that source category. The only potentially applicable NESHAP is Subpart HH, the National Emission Standards for Hazardous Air Pollutants from Oil and Natural Gas Production Facilities.

NESHAP Subpart HH applies to natural gas production facilities that are major or area sources of HAP emissions with specific emission units that meet specified criteria. The Project would be an area source of HAP emissions and NESHAP Subpart HH only governs HAP emissions from triethylene glycol (TEG) dehydration unit at area sources in accordance with 40 CFR 63.760(b)(2). The Project would not include a TEG dehydration unit and therefore this standard would not apply.

3.8.1.6 Minor Source Permitting Requirements

The Ohio EPA air regulations require that new minor stationary sources obtain a permit if the source has potential emissions equal to or greater than 10 pounds per day for any air pollutant per Ohio Administrative Code (OAC) chapter 3745-31. A minor source is required to meet Best Available Technology (BAT) requirements and if potential emissions of any pollutant are greater than the Ohio Modeling Significant Emission Rates in Ohio EPA Engineering Guide #69: Air Dispersion Modeling Guidance an ambient air impact analysis is required to demonstrate compliance with the NAAQS. The applicability of the minor source permitting requirements to the Project is evaluated below.

3.8.1.7 General Conformity

Section 176(c) of the CAA established requirements to ensure that federal actions or actions approved by federal agencies do not adversely affect a state's ability to achieve and maintain attainment with the NAAQS. Section 176(c)(1) states that a federal agency cannot approve or support any activity that does not conform to an approved SIP. Conforming activities or actions should not, through additional air pollutant emissions:

- Cause or contribute to new violations of the NAAQS in any area;
- Increase the frequency or severity of any existing violation of any NAAQS; or
- Delay timely attainment of any NAAQS or interim emission reductions.

Regulations governing General Conformity are promulgated under 40 CFR Part 93. General Conformity requirements are applicable to projects requiring federal actions that are located in areas designated as nonattainment or maintenance with a NAAQS and if emissions exceed the conformity threshold (*de minimis*) for the applicable criteria pollutant. Although the Project would involve federal funding, the Project is located in the Steubenville-Weirton-Wheeling Interstate AQCR which is designated as attainment or unclassifiable (which is treated as attainment) for all NAAQS with one exception. The portion of the NGL Pipeline located in Marshall County is in an area designated nonattainment for the 1-hour SO_2 NAAQS. The Project will not emit SO_2 within the nonattainment area. Therefore, General Conformity requirements would not apply to the Project.

3.8.2 Environmental Consequences

The methodology used for assessing impacts to air quality and greenhouse gas emissions involved the calculation of estimated emissions from the Project and comparing those to regulatory threshold established for air emissions permitting and for NAAQS compliance demonstrations.

No Action Alternative

Transloading Facility

The No Action Alternative would not include construction and operation of the Transloading facility and would result in no changes to current air quality at the LRET Property.

NGL Pipeline

Under the No Action Alternative, the NGL Pipeline would not be constructed; therefore there would be no change in the air quality from construction or operation.

Proposed Action Alternative

Transloading Facility

Operational emissions would result from the railcar loading operations, storage tanks, emission control devices, and locomotive engine emissions. The Project would be subject to preconstruction and operating permit requirements. Potential emissions from the emission sources were estimated using design material throughput

rates, expected best available techniques (BAT) control requirements, and EPA AP-42 emission factors. Table 3.8.4 summarizes potential operation-related emissions for the proposed Transloading Facility.

The Transloading Facility would have potential NO_x, CO, and VOC emissions that exceed the minor source air permitting thresholds and, therefore, would require a permit to construct and a permit to operate in accordance with the Ohio Administrative Code (OAC) chapter 3745-31. In accordance with Ohio EPA's air permit requirements, the Transloading Facility would be required to install BAT controls for the railcar loading racks. The flare and thermal combustor proposed to control vapor emissions from product loading to railcars would be designed to meet BAT requirements. The Project would not have potential emissions of any pollutant greater than the Ohio Modeling Significant Emission Rates in Ohio EPA Engineering Guide #69: Air Dispersion Modeling Guidance and, therefore, an ambient air impact analysis is not expected to be required to demonstrate compliance with the NAAQS.

The GHGs that would be produced by the Project are CO_2, CH_4, and N_2O during operation; hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride would not be emitted by the Project. Total emissions of GHGs resulting from the Project are quantified in terms of carbon dioxide equivalents (CO_2e) by multiplying emissions of each GHG by its respective global warming potential (GWP) as defined under 40 CFR 98, Subpart A, Table A-1. The GWP is a ratio relative to CO_2 regarding each GHG's ability to absorb solar radiation and its residence time in the atmosphere. Accordingly, CO_2 has a GWP of 1 while CH_4 has a GWP of 25 and N_2O a GWP of 298.

Table 3.8.4 previously presented the GHG emissions during operations from each process area of the Project. The GHG emissions are associated with operation of the emissions controls (flares) and the operation of the locomotives serving the loading of product.

The Project would result in air pollutant emissions during short-term construction activities of the Transloading Facility. Emissions associated with construction activities generally include fugitive dust from soil disruption and combustion emissions from construction equipment. These emissions generally include: 1) exhaust emissions from construction equipment; 2) fugitive dust emissions associated with construction vehicle movement on unpaved surfaces; and 3) fugitive dust associated with trenching, backfilling, and other earth-moving activities. The construction equipment would include earth-moving equipment (e.g., bulldozers, track hoes), skid loaders, trucks, and other mobile sources. The exhaust emissions would depend on the horsepower rating of the equipment used and hours of operation. This equipment would be powered by diesel or gasoline engines that would emit NO_x, CO, VOC, PM_{10}, $PM_{2.5}$, SO_2, GHGs and HAPs. Fugitive PM_{10} and $PM_{2.5}$ emissions would result from land clearing, grading, excavation, and vehicle traffic on paved and unpaved roads. The duration of construction activities would be expected to last no longer than 16 to18 months.

NGL Pipeline

The Project would result in air pollutant emissions during short-term construction activities of the NGL Pipeline. As noted above, emissions associated with construction activities generally include fugitive dust from soil disruption and combustion emissions from construction equipment. These emissions generally include: 1) exhaust emissions from construction equipment; 2) fugitive dust emissions associated with construction vehicle movement on unpaved surfaces; and 3) fugitive dust associated with trenching, backfilling, and other earth-moving activities. The construction equipment would include earth-moving equipment (e.g., bulldozers, track hoes), skid loaders, trucks, and other mobile sources. The exhaust emissions would depend on the horsepower rating of the equipment used and hours of operation. This equipment would be powered by diesel or gasoline engines that would emit NO_x, CO, VOC, PM_{10}, $PM_{2.5}$, SO_2, GHGs and HAPs. Fugitive PM_{10} and $PM_{2.5}$ emissions would result from land clearing, grading, excavation, and vehicle traffic on paved and unpaved roads. The duration of construction activities would be expected to last no longer than 16 to18 months.

Because the NGL Pipeline component of the Project includes no fuel combustion or chemical processes, it is not expected to result in operational emissions. In the event of a leak or a release, LRET will follow the applicable emergency response procedures described in 3.12.3 in order to notify and safeguard the public.

3.8.3 Best Attainment Techniques and Minimization and Mitigation Measures

3.8.3.1 Mitigation of Operational Impacts

Operational impacts would be mitigated using required BAT emission controls, including the flare and thermal combustor to control organic vapor emissions during railcar loading. The Project would also comply with requirements in applicable NSPS standards and the conditions contained in the permits to construct and operate that would be issued by Ohio EPA per the Ohio EPA Air Permit as described in Section 1.5. These mitigation measures would ensure that the Project's operational impacts would not adversely affect ambient air quality.

Mitigation of GHG emissions during Project operation would include limiting full-capacity flare operation during railcar loading conditions (with pilot operation occurring otherwise) and minimizing or eliminating idling emissions from locomotives as appropriate.

The Project would be designed and constructed to be resilient to the effects of climate change. USACE has determined that the Ohio Basin is at significant risk of experiencing intense flooding and more intense precipitation events (USACE 2017).

3.8.3.2 Mitigation of Construction Impacts

Combustion emissions from construction equipment would be minimized as on-road and non-road engines must meet the EPA emission standards (40 CFR Parts 85, 86, and 89). Fugitive particulate matter emissions from soil disturbance activities and road travel would be intermittent, consist predominantly of larger dust particles and would be released near to ground level; therefore, they would be expected to settle out of the atmosphere near their release point. For these reasons, long range transport of fugitive particulate matter emissions from soil disturbance is not anticipated.

Fugitive particulate matter would be further mitigated through the use of dust suppression techniques in construction zones near residential and commercial areas. Dust suppression techniques would be specifically addressed in the SWPPP (as described in Section 3.2.3 and in accordance with ORC 6111), and may include the following:

- Covering open-bodied trucks while transporting materials;
- Watering, or use of other approved dust suppressants, at construction sites, as necessary;
- Minimizing the area of soil disturbance to those necessary for construction;
- Minimizing construction site traffic by the use of offsite parking and shuttle buses, as necessary; and
- Conforming with vehicle idling regulations.

As a result of these mitigation measures, construction equipment emissions and fugitive dust emissions from soil disturbance are not anticipated to adversely impact compliance with ambient air quality standards.

GHG emissions during construction can be mitigated by minimizing or eliminating idling emissions from construction equipment as appropriate.

3.9 NOISE AND VIBRATION

This chapter defines the noise and vibration analysis pertinent to the Project. For the Proposed Action Alternative and the No Action Alternative, this chapter assess the potential impacts due to noise and vibration.

Noise is commonly defined as unwanted sound. The magnitude of the sound or noise is reported using the A-weighted sound level descriptor, noted as dBA, which accounts for typical human hearing sensitivity. Sound metrics are used to account for and describe sounds which fluctuate from moment to moment. A typical noise assessment may use the following metrics:

- Equivalent Sound Level (L_{eq}) describes a receiver's cumulative noise exposure from all events normalized to a specified period of time, 't'. For rail and transit noise impact assessments, the equivalent sound level metrics is normalized over a one-hour time period, $L_{eq(1hr)}$. This metric is appropriate for non-residential land uses.
- Day-Night Sound Level (L_{dn}) describes a receiver's cumulative noise exposure from all events over 24 hours. Events between 10 pm and 7 am are increased by 10 dB to account for humans' greater nighttime sensitivity to noise. L_{dn} is used to assess noise for residential land uses.

Vibration can be interpreted as energy transmitted in waves through the ground or man-made structures, which generally dissipate with distance from the vibration source. Because energy is lost during the transfer of energy from one particle to another, vibration becomes less perceptible with increasing distance from the source. There are several different methods that are used to quantify vibration. The peak particle velocity (PPV) is defined as the maximum instantaneous peak of the vibration signal in inches per second (in/sec) and is most frequently used to describe vibration impacts to buildings. The rms amplitude is used to convey the magnitude of the vibration signal felt by the human body, and is commonly expressed in decibel notation (VdB). The background vibration velocity level in residential areas is usually 50 VdB or lower, and the threshold of perception for humans is approximately 65 VdB.

For rail and transit projects where operational speeds are below 90 mph, the FRA endorses use of impact assessment methodologies outlined in the Federal Transit Administration's Transit Noise and Vibration Impact Assessment Manual (FTA 2018). The FTA noise and vibration criteria were used to evaluate the impacts from the construction and operation of the Project.

The FTA defines noise impact criteria for three land use categories. Category 1 includes tracts of land where quiet is an essential element in their intended purpose. Category 2 includes places where people normally sleep, such as residences, motels, and hotels. Category 3 includes institutional land uses with primarily daytime and evening uses such as places of worship and libraries. The FTA noise impact criteria are based on comparing the existing ambient noise levels (outdoor) to the predicted Project noise levels. Based on the magnitude of the numerical comparative difference, the FTA defines three levels of impact: none, moderate and severe. A significant percentage of people may be highly annoyed by a project's noise where severe impacts are identified. Where moderate impacts are identified, the change in noise level would be noticeable to most people, but may not be sufficient to generate strong, adverse reactions. Table 5 in Appendix F provides a summary of the FTA noise impact criteria.

The FTA general assessment vibration impact criteria for acceptable ground-borne vibration impacts are based on maximum levels for a single train pass-by event, the frequency of events, and the type of land use. For infrequent rail events (<30 per day), the FTA has established an 80 vibration-decibel (VdB) threshold for residences and buildings where people normally sleep.

No standardized criteria have been developed for assessing construction noise impact. Rather, FTA provides guidelines that can be considered reasonable criteria for assessment, where construction noise levels are estimated and an appropriate mitigation approach is identified based each phase of construction, the construction schedule, and the particular equipment involved. For residential land uses, FTA recommends that construction noise should not exceed 80 dBA Leq at night, and 90 dBA Leq during daytime hours.

For construction vibration, the FTA has established a damage criterion based on type of building construction. The peak particle velocity damage criteria for concrete, steel and timber is 0.5 (in/sec). The peak particle velocity for damage criteria for timber and masonry buildings is 0.2 (in/sec).

Appendix F contains a technical report documenting the analysis methodology and results. This report provides descriptions of the noise and vibration metrics used; applicable noise and vibration standards and regulations; the results of the ambient sound measurement program; predicted noise and vibration levels associated with the Transloading Facility construction; and predicted noise and vibration levels from worst-case operations of the Transloading Facility equipment and railway.

3.9.1 Affected Environment

For operational noise and vibration analyses, the Study Area is based on the boundaries of the proposed Project (Transloading Facility and NGL Pipeline (see Section 1.6)) plus an additional screening distance to include all sensitive receptors which may be impacted. For identification of operational noise impacts, the FTA methodology specifies a screening distance extending at least 1000 ft from the outer boundary of the proposed project site. . For identification of vibration impacts due to train movements, the study area extends at least 600 ft from the outer boundary of the proposed project site. The Vibration Screening Procedure considers the type of project and the presence or absence of vibration-sensitive land uses within the screening distance.

Most of the noise sensitive land uses surrounding the Project in the Study Area are single-family residential use. There are no high-sensitivity or institutional land uses surrounding the Study Area such as concert halls, schools, or churches. The closest residence from the Transloading Facility site is located approximately 3,800 ft (0.72 miles) southeast from the Transloading Facility site boundary across the Ohio River (represented by ML-4). The next nearest residence from the Transloading Facility site is located approximately 4,860 ft (0.92 miles) east of the Transloading Facility site boundary across the Ohio River (represented by ML-5). A residential neighborhood is located approximately 1.1 miles west from the Transloading Facility site boundary (represented by ML-2). This residential neighborhood is separated from the Transloading Facility site by existing industrial land use and the Ohio River Scenic Byway. Several residences are located along Long Ridge Road located approximately 0.97 miles north of the Transloading Facility site boundary (represented by ML-1). These residences are located at an elevation 580 feet above the Transloading Facility site elevation. Residential homes located within the City of Martinsville are located as close as approximately 1.16 miles southwest of the Transloading Facility site boundary (represented by ML-3). There are residences located within the vicinity of the proposed NGL Pipeline. The closest residence to the NGL Pipeline would be 200 feet.

Existing Conditions

In accordance with FRA and FTA noise assessment methodologies, existing noise levels were measured throughout the Project area. To document the existing noise conditions, baseline ambient sound level measurements were performed from October 2 through October 4, 2019. The modeling locations (ML) were selected to be representative of the surroundings of potential receptors nearest to the proposed Facility Site in the principal geographical directions. The measurements included one unattended long-term (24 hour) monitor and five short-term (30 minute) measurements. The short-term measurements were collected during both the daytime and nighttime periods. The monitoring locations are shown in Figure 3.9.1. Table 3.9.1 provides a summary of the measured ambient sound levels observed at each of the monitoring locations for both the daytime and nighttime Leq.

Ambient sound levels exhibited typical diurnal patterns. Daytime Leq sound levels at the measurement locations ranged from a low of 50 dBA at ML-1 to a high of 56 dBA at ML-3 and ML-4. Nighttime sound levels ranged from a low of 42 dBA at ML-1 to 55 dBA at ML-3. The noise levels at ML-2 were heavily influenced by vehicle traffic along Highway 7. Noise levels at ML-3, ML-4 and ML-5 were influenced by vehicle traffic along Highway 2 as well as train operations associated with the nearby railway.

The daytime Leq sound level at the long-term monitor was 49 dBA and the nighttime Leq sound level was 46 dBA. The data collected during the 24-hour sound monitoring study showed relative consistency with the short-term measurements; however, since the Facility site is further setback from the roadway, it was not as influenced by

LEGEND

MONITORING LOCATION

NOTE:
AERIAL PHOTO OBTAINED FROM ARCGIS SOFTWARE

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APPALACHIAN NGL HUB RAIL TRANSLOADING FACILITY
MONROE COUNTY, OHIO

FACILITY SITE AND MEASUREMENT LOCATIONS

DATE:	12/12/19
PROJECT NO.	212C–CF–00264
DESIGNED BY:	KF
DRAWN BY:	JK
CHECKED BY:	KF
SHEET:	1 OF 3

FIGURE 3.9.1

X:\CADD\Long Ridge Transloading\212c–cf–00264\FIGURES\FOR SUBMITTAL\FIGURE 3.9.1.dwg PIT JIM.KUSIOWSKI 6/24/2020 6:15:16 PM

Table 3.9.1
Sound Measurement Results – Leq Sound Levels
Appalachian NGL Hub Rail Transloading Facility

Monitoring Location	Distance and Direction from Facility Site Boundary	Time Period	Leq (dBA)
ML-1	0.97 mile N	Day	50
		Night	42
ML-2	1.11 mile W	Day	54
		Night	49
ML-3	1.16 mile SW	Day	56
		Night	55
ML-4	0.72 mile SE	Day	56
		Night	54
ML-5	0.75 mile E	Day	53
		Night	48
Long-Term Monitor	Northeast corner of Facility Site	Day	49
		Night	46

traffic-related noise. Also, no rail operations were documented from the railway adjacent to the Ohio River Scenic Byway during the monitoring period.

The FTA general vibration impact assessment methodology does not require measurement of existing vibration conditions.

3.9.2 Environmental Consequences

The following steps were undertaken in the analysis of potential noise and vibration impacts:

1. Identify representative sensitive land uses (representative receptors) where noise and vibration impacts could potentially occur.
2. Determine existing noise exposure at representative receptors (preferably from noise measurements);
3. Predict Project noise and vibration exposure at representative receptors using FTA methodology;
4. Assess impacts by comparing existing and Project noise levels to FTA noise impact criteria;
5. Where noise and vibration impacts are predicted to exist, discuss appropriate noise and vibration mitigation options; and,
6. Assess potential construction noise and vibration impacts.

Also, see Appendix F which contains a technical report documenting the analysis methodology and results.

3.9.2.1 Construction Impact Assessment

No Action Alternative

Transloading Facility

Under the No Action Alternative, there would be no construction noise or vibrations as the facility would not be constructed.

NGL Pipeline

Under the No Action Alternative, there would be no temporary noise generated for construction activities associated with the NGL Pipeline and the advancement of the HDD bore under the Ohio River.

Proposed Action Alternative

Transloading Facility – Construction Noise

Construction of the Transloading Facility would be typical of other terminal facilities in terms of schedule, equipment, and activities. Construction is anticipated to require approximately 12 months. Nighttime construction will be limited; however, activities may occur 6 days per week, 10 hours per day. Certain activities, such as foundation pours, cannot be stopped until the task is completed, which may continue into the nighttime period. As required, a night shift may be implemented to maintain schedule or complete a continuous task.

Per FTA methods, acoustic emission levels for activities associated with Facility construction were based upon typical ranges of energy equivalent noise levels at construction sites. Using those energy equivalent noise levels as input to a basic noise propagation model, construction noise levels were calculated at the nearest Facility Site boundary and the five MLs. The model conservatively assumed that all pieces of construction equipment associated with an activity would operate simultaneously for the duration of that activity. An additional level of conservatism was built into the construction noise model by excluding potential shielding effects due to intervening structures and buildings along the propagation path from the site to receiver locations. Table 3.9.2 summarizes the predicted noise levels for each construction phase at each ML location. Construction sound levels are predicted to range from 45 to 53 dBA at the monitoring locations. The highest projected sound level from construction-related activity is expected to occur at ML-4 and ML-5, during activities associated with excavation and commissioning. The predicted levels do not exceed the FTA construction impact guidelines at any of the monitoring locations.

Table 3.9.2
Projected Construction Noise Levels by Phase (dBA)
Appalachian NGL Hub Rail Transloading Facility

Construction Phase	USEPA Construction Noise Level 50 feet	ML-1	ML-2	ML-3	ML-4	ML-5
Phase 1: Site clearing and grading	86	45	44	44	48	48
Phase 2: Excavation and placement of major structural concrete foundations	89	49	48	47	51	51
Phase 3: Erection of building structural steel	85	45	43	43	47	47
Phase 4: Installation of mechanical and electrical equipment	83	43	42	42	46	45
Phase 5: Equipment installation, commissioning and testing	89	49	48	48	52	51

Transloading Facility – Construction Vibration

Vibration levels for activities associated with the project components are based on average of source levels in PPV published with the FTA Noise and Vibration Manual (FTA 2018), which documents several types of heavy equipment measured under a wide variety of activities. Using the documented vibration levels as input into a basic propagation model, non-blasting project vibration levels were calculated at various distances from the source.

Based on the calculated vibration levels, damage to structures could occur within 25 feet from the source and human annoyance could occur within 50 feet from the source. There are no sensitive receptors that would be located 50 feet or less from the earth moving equipment. Therefore, vibration impacts due to construction are unlikely to occur.

NGL Pipeline – Construction Noise and Vibration

During construction of the pipeline and drilling of the HDD bore (under the Ohio River), the area would have construction noise that would include large earth moving equipment, drilling equipment, and truck traffic for delivering pipeline materials to the site. Construction activities would be conducted during the daylight hours so as not to impact the residence in the area. Some nighttime drilling activities may be required for the HDD drilling across the Ohio River, but efforts would be made to work with the local residences during the construction activities to minimize any disturbances. There are residences within the vicinity of the NGL Pipeline LOD, with the closest residence being 200 feet from the NGL Pipeline LOD. LRET would work with the property owners within proximity to the LOD on noise reduction measures. Given the proximity of these residences to the NGL Pipeline LOD, there would be noise impacts associated with construction of the NGL Pipeline. Based on FTA guidelines, there would be no vibration impacts beyond 25 ft during typical construction activities within the NGL Pipeline LOD, and no vibration impacts beyond 100 ft during HDD drilling unless there is rock blasting. There are no sensitive receptors located within these distances., and there is currently no rock blasting anticipated during the project. If rock blasting is required, LRET will determine if vibration impacts are anticipated and will work with property owners on appropriate mitigation measures. Noise associated with the NGL Pipeline would be temporary and only during construction. Mitigation measures are proposed in Section 3.9.3 regarding the NGL Pipeline noise construction impacts.

3.9.2.2 Operations Impact Assessment

Noise and vibration impacts from operations were assessed using procedures according to the Transit Noise and Vibration Assessment Manual published by the FTA (FTA 2018).

No Action Alternative

Transloading Facility

Under the No Action Alternative, there would be no noise or vibrations as the Transloading Facility would not be constructed.

NGL Pipeline

Under the No Action Alternative, there would be no noise or vibrations as the NGL pipeline would not be constructed.

Proposed Action Alternative

The FTA noise impact criterion is based on comparing the existing ambient outdoor noise levels to the Project related outdoor noise levels for three land-use categories. Category 1 includes noise sensitive areas such as outdoor concert pavilions, recording studios and concert halls. Category 2 includes places where people normally sleep, such as residences, motels, and hotels. Category 3 includes institutional land uses with primarily daytime and evening uses such places of worship and libraries. Impacts for Category 1 and 3 land-uses are evaluated on the basis of the maximum or noisiest 1-hour Leq, while for Category 2 land uses impacts are evaluated on the basis of the 24 hour day-night sound level (Ldn) metric. Based on the magnitude of the numerical comparative difference,

the FTA further defines 3 levels of impacts: none, moderate and severe. For residences and noise sensitive land uses, an increase of less than 10 dBA is considered no impact, increases between 10 dBA to 15 dBA are considered moderate impact, and increases greater than 15 dBA are considered severe impact.

The FTA criteria specified for operational vibration impacts are similarly identified based on land use category and expected frequency of events (e.g., number of train pass-bys). Category 1 land use includes buildings where vibration would interfere with interior operations. Category 2 includes places where people normally sleep, such as residences, motels, and hotels. Category 3 includes institutional land uses with primarily daytime and evening uses such places of worship and libraries. Table 6 of Appendix F details the impact criteria. For infrequent rail events, the FTA has established an 80 vibration-decibel (VdB) threshold for residences and buildings where people normally sleep.

Transloading Facility – Operational Noise

The Transloading Facility layout was reviewed and directly imported into a detailed acoustic model so that on-site equipment could be easily identified; buildings and structures could be added; and sound emission data could be assigned to sources as appropriate. A detailed computer noise model was used to calculate sound pressure levels from the operation of the Transloading Facility equipment and the rail activities in the vicinity of the Transloading Facility site. The results of the acoustic modeling are summarized in Table 3.9.3 and graphically illustrated on Figure 3.9.2. Details of the noise modeled used for the analysis are provided in Appendix F.

The primary noise sources during operations include six (6) 200 HP pumps associated with loading NGLs onto rail transportation. The 200 HP pumps are expected to operate with a sound power level of 97 dBA. The noise analysis also incorporates the arrival and leaving of a single train with 110 cars. The offloading loop incorporates the movement of 40 cars. These inputs are considered to be worst-case assumptions.

Sound levels were predicted for expected normal Transloading Facility operation assuming that all components identified are operating continuously and concurrently at the representative manufacturer-rated emission level. The noise model results predict that the majority of surrounding residences would experience sound levels from the Transloading Facility at less than 40 dBA and would result in overall increases of 1 dBA or less to the existing ambient noise levels. Based on FTA guidelines, the noise levels resulting from the proposed Transloading Facility would be considered as “no impact” and mitigation is not required.

Transloading Facility – Operational Vibration

The rail line that services the Transloading Facility runs along the Ohio River Scenic Byway (Route 7). Residents are located on the other side of the roadway, more than 150 feet from the rail line. The vibration impacts from the single train would be less than 80 VdB at distance of 150 feet or greater (Table 3.9.4). Therefore, Transloading Facility vibration levels would be below the 80 VdB nighttime standards at the nearest residences.

NGL Pipeline – Operational Noise and Vibration

There would be no noise or vibration impacts associated with the operation of the NGL Pipeline.

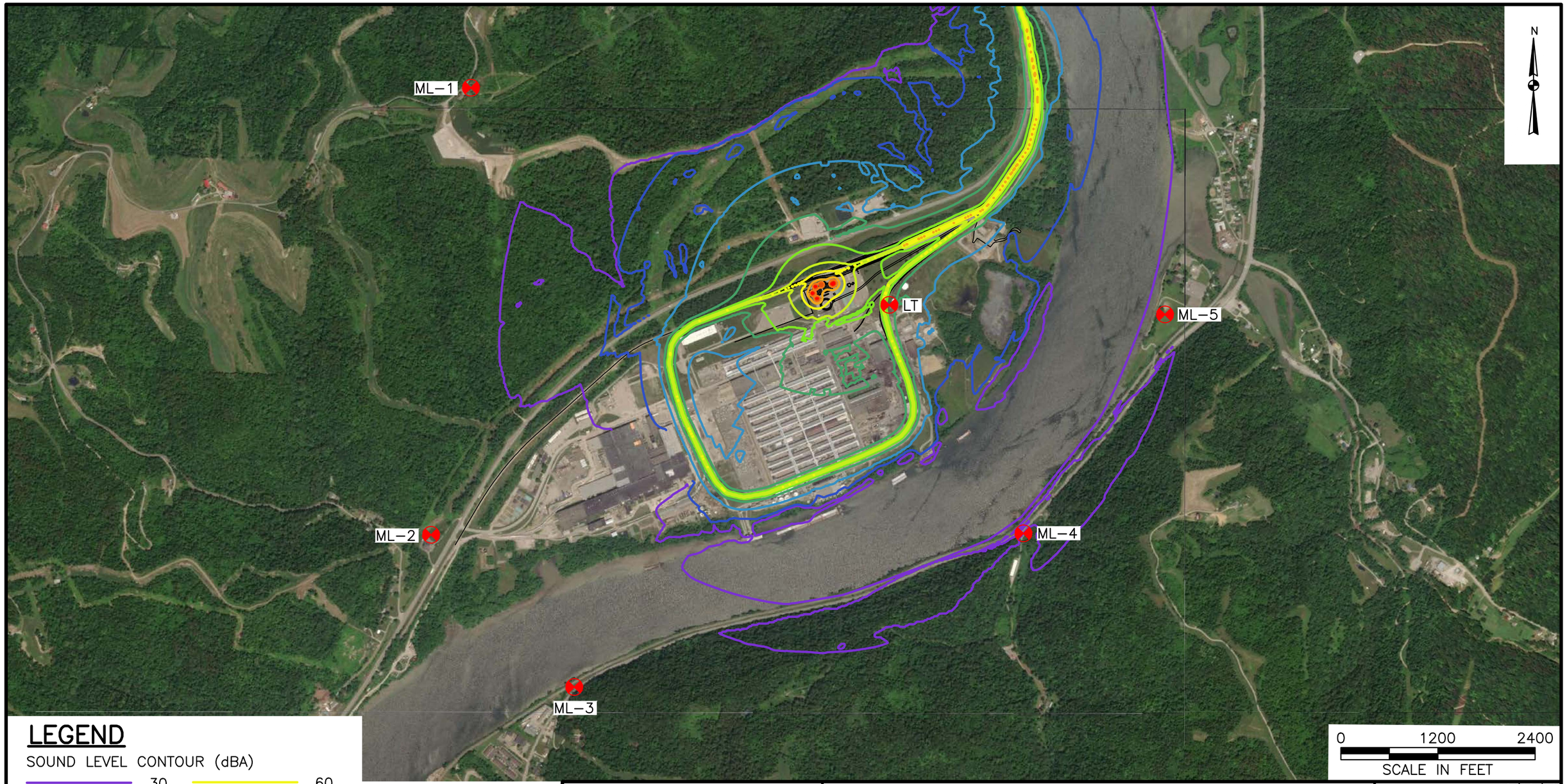
3.9.3 Avoidance, Minimization, and/or Mitigation Measures

Since construction machines operate intermittently, and the types of machines in use at the Transloading Facility site change with the phase of construction, noise emitted during construction would be mobile and highly variable, making it challenging to control. LRET would implement construction management procedures, which are best management practices, for both the Transloading Facility and the NGL Pipeline and include the following noise mitigation measures to minimize noise impacts:

- Maintain all construction tools and equipment in good operating order according to manufacturers’ specifications;
- Limit use of major excavating and earth moving machinery to daytime hours;

Table 3.9.3
Acoustic Modeling Results Summary
Appalachian NGL Hub Rail Transloading Facility

Monitoring Location	Nighttime Ambient L_{eq}, dBA	Facility Sound Level, dBA	Total Sound Level (Ambient + Facility), dBA	Net Increase in Sound Level, dBA
ML-1	42	20	42	<1
ML-2	49	23	49	<1
ML-3	55	25	55	<1
ML-4	54	30	54	<1
ML-5	48	29	48	<1
Long-Term Monitor	46	49	51	5



LEGEND

SOUND LEVEL CONTOUR (dBA)

30		60	
35		65	
40		70	
45		75	
50		80	
55			MONITORING LOCATION

NOTE:
AERIAL PHOTO OBTAINED FROM ARCGIS SOFTWARE

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APPALACHIAN NGL HUB RAIL TRANSLOADING FACILITY
MONROE COUNTY, OHIO

RECEIVED SOUND LEVELS
PROJECT OPERATION

DATE:	12/12/19
PROJECT NO.	212C–CF–00264
DESIGNED BY:	KF
DRAWN BY:	JK
CHECKED BY:	KF
SHEET:	3 OF 3

FIGURE 3.9.2

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Table 3.9.4
Worst-Case Calculated Non-Blasting Vibration Levels
Appalachian NGL Hub Rail Transloading Facility

Feet from Source	Calculated Non-Blasting Vibration Levels	
	PPV In/sec	VdB
25	0.089	87
50	0.0315	78
75	0.0171	73
100	0.0111	69
125	0.008	66
150	0.0061	64
175	0.0048	62
200	0.0039	60
225	0.0033	58
250	0.0028	57
275	0.0024	56
300	0.0021	55
325	0.0019	54
350	0.0017	53
375	0.0015	52
400	0.0014	51
425	0.0013	50
450	0.0012	49
475	0.0011	49
500	0.001	48

- To the extent practicable, schedule construction activity during normal working hours on weekdays when higher sound levels are typically present;
- Equip any internal combustion engine used for any purpose on the job or related to the job with a properly operating muffler that is free from rust, holes, and leaks;
- For construction devices that use internal combustion engines, ensure the engine's housing doors are kept closed, and install noise-insulating material mounted on the engine housing consistent with manufacturers' guidelines, if possible;
- Limit possible evening shift work to low noise activities such as welding, wire pulling and other similar activities, together with appropriate material handling equipment;
- Use a Complaint Resolution Procedure to address any noise complaints received from residents; and
- Communicate with neighbors prior to conducting specific loud noise activities such as steam blows.

LRET would make reasonable efforts to minimize the impact of noise resulting from construction activities at proximate noise sensitive areas through the use of noise mitigation (as listed in the bullet points above). Because of the temporary nature of the construction noise, no adverse or long-term effects would be expected.

Specific to the NGL Pipeline near residences, LRET would work with the property owners on noise reduction measures. The majority of NGL Pipeline construction would occur during regular daylight hours.

The increase in operational noise and vibration levels do not exceed impact thresholds established by the FTA and FRA. There are no specific mitigation measures required for operation of the proposed Transloading Facility and the NGL Pipeline.

3.10 LAND USE, PLANNING, AND PROPERTY ACQUISITIONS

3.10.1 Affected Environment

The nearest municipalities to the Project are the towns of Clarington, Ohio; Hannibal, Ohio; New Martinsville, West Virginia; and Proctor, West Virginia.

Land use for the portion of the Study Area in West Virginia consists of the Blue Racer facility, which is industrial use and contains the existing industrial facility. Land use within the remainder of the Study Area was examined using available GIS data provided by the Monroe County Ohio Tax Map Department and confirmed through review of recent aerial photographs. According to the information found in the auditor links for each parcel accessed from the tax map, the properties in the Study Area are classified as either Residential, Agricultural, Industrial/Commercial, or Natural areas (Monroe County Tax Map Department, 2018). Roads were not classified as a separate land use category. Figure 3.10.1 illustrates the property parcels that are impacted by the Project and adjacent property parcels. Table 3.10.1 summarizes the property parcels that are within the LOD of the proposed Transloading facility and NGL Pipeline. Table 3.10.1 also identifies the current land use of each parcel.

The Project is in situated in the Utica/Point Pleasant formation where there is robust oil and gas exploration and development. Two well pads are located near the LRET Property within the Study Area: Orment 2-9H, which is 0.1 mile from the proposed Transloading Facility across State Route 7 and Orment 2 2-15, which is approximately 0.4 miles to the northwest on Long Ridge Road. Several wells have either been drilled, or are planned, for both pads. Both are owned by Ohio River Partners Shareholder LLC, who also owns the land proposed for the Transloading Facility (ODNR,2020).

The majority of the portion of the Study Area that would include the NGL Pipeline is undeveloped agricultural lands and woodlands. The NGL Pipeline will cross 35 land parcels with 17 different landowners as summarized in Table 3.10.1. The NGL Pipeline would also pass through four industrial properties beginning at a bore pit at the Blue Racer property (5-20-25.4) in Natrium, West Virginia and passing under CSX property 5-21-5) also in Natrium, West Virginia. In Monroe County, Ohio the NGL Pipeline would cross a small industrial property (180300213000) owned

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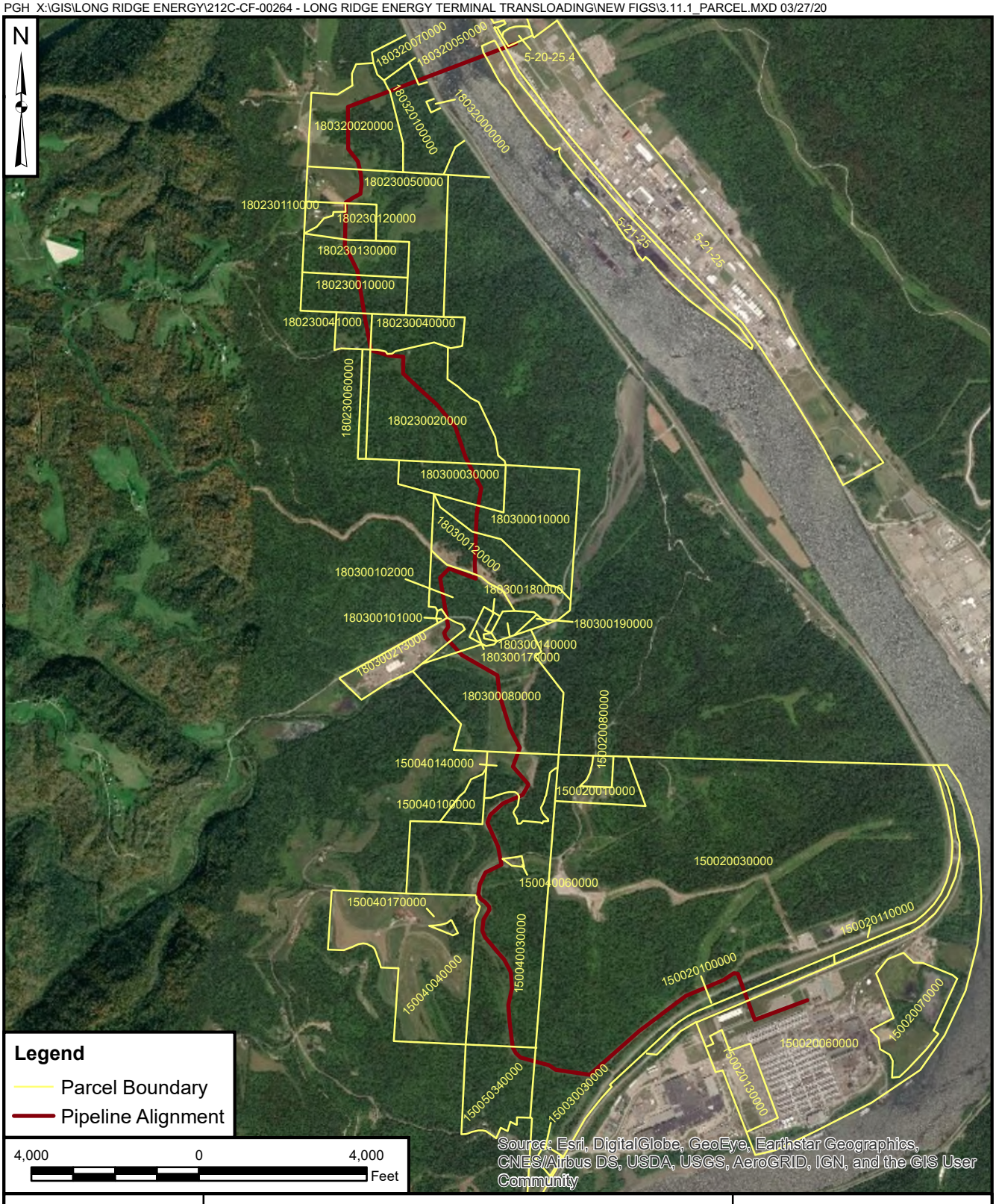

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PROPERTY PARCEL MAP
APPALACHIAN NGL HUB RAIL
TRANSLOADING FACILITY
MONROE COUNTY, OHIO

DRAWN BY: M. SCOTT 03/23/20
CHECKED BY: L. DRANE 03/27/20
APPROVED BY:

CONTRACT NUMBER:212C-CF-00264

FIGURE NUMBER	REV
3.10.1	0

Table 3.10.1
Landowner List
Appalachian NGL Hub Rail Transloading Facility

Parcel ID	Landowner Name	Current Land Use
150020130000	LONG RIDGE ENERGY GENERATION, LLC	Industrial
150020060000	Ohio River Partner Shareholder	Vacant, Wooded
150020100000	Ohio River Partner Shareholder *RR* **Norfolk Southern**	Rail Road
150020030000	Ohio River Partner Shareholder	Vacant, Wooded
150050340000	Robert Woods Jr.	Rural Residential
150040030000	Ohio River Partner Shareholder	Vacant, Wooded
150040060000	Clyde W. Gilmore	Rural Residential
150040140000	CNX Land LLC	Vacant, Wooded
180300080000	CNX Land LLC	Vacant, Wooded
180300102000	CNX Land LLC	Vacant, Wooded
180300213000	AMERICAN MINE SERVICES, LLC	Industrial
180300101000	CNX Land LLC	Vacant, Wooded
180300120000	CNX Land LLC	Vacant, Wooded
180300010000	CNX Land LLC	Vacant, Wooded
180300031000	CNX Land LLC	Vacant, Wooded
180230020000	CNX Land LLC	Vacant, Wooded
180230040000	BLATTLER, RONALD EUGENE	Rural Residential
180230060000	CNX Land LLC	Vacant, Wooded
180230041000	BLATTLER, RONALD EUGENE	Rural Residential
180230010000	NORTHCUTT, MICHAEL H & TARI L OR SURV.	Rural Residential
180230130000	NORTHCUTT, MICHAEL H & TARI L OR SURV.	Rural Residential
180230120000	HASLAM, DEWEY E. & RUTH ANN OR SURV.	Rural Residential
180230110000	HASLAM, DEWEY E. & RUTH ANN OR SURV.	Rural Residential
180230050000	RUFENER, ROGER K.	Rural Residential
180320020000	RUFENER, ROGER K.	Rural Residential
180150110000	RUFENER, ROGER K.	Rural Residential
180320070000	BAUER & TURNER, INC.	Rural Residential
180320100000	CONWELL, DELLA MAY, ET AL.	Rural Residential
180320050000	MESSNER, FRANCES E. ETAL	Rural Residential
180320150000	Ohio River Partner Shareholder *RR* **Norfolk Southern**	Rail Road
05 21002500000000	EAGLE NATRIUM LLC	Industrial
No Parcel ID	CSX	Rail Road
05 20002500040000	BLUE RACER MIDSTREAM LLC	Industrial
150020010000	GEHRIG, GREGORY	Rural Residential
150020080000	STALEY WIRELESS, LP	Industrial
180310030000	CNX Land LLC	Vacant, Wooded

by American Mine Services in the central portion of the proposed route and terminate at the LRET Property (150020060000).

3.10.2 Environmental Consequences

The methodology used for assessing impacts to land use focused on changes that would occur to existing land uses with the Project construction and operation. Land use changes were also considered in assessing changes to travel patterns and accessibility.

No Action Alternative

Transloading Facility

Under the No Action Alternative there would be no change in land use. The LRET Property would remain in industrial use.

NGL Pipeline

Under the No Action Alternative, the NGL Pipeline would not be constructed. No ground disturbance or tree clearing would occur. Land use would remain unchanged. Under the No Action Alternative, there would be no lease or easement agreements for construction and maintenance of the NGP Pipeline.

Proposed Action Alternative

Transloading Facility

The property where the proposed Transloading Facility would be constructed is owned by the parent company of LRET and no property acquisition would be required for building the Transloading Facility. The site for the Transloading Facility is currently being used as a parking lot within the industrial complex of the LRET Property. The specific function of the current parking area would change, but the loss of this parking lot would not impact the industrial property and the property would remain in industrial use.

NGL Pipeline

No change in land use is expected to occur under development of the NGL Pipeline. The portion of the project occurring at Blue Racer facility in West Virginia will be contained within this existing industrial facility with no planned work outside of this property. Approximately 21 acres of wooded area will be cleared for construction of the NGL Pipeline in Ohio between the Ohio River and Transloading Facility. After construction, the LOD for the NGL Pipeline would be restored to as near as previous condition as possible, with the exception of former wooded areas which would be permanently converted to meadow. No trees would be permitted to grow over the NGL Pipeline ROW. No additional property would be purchased for development of the NGL Pipeline. Lease or easement agreements would be negotiated with each of the individual property owners. Property owners would be paid an agreed upon amount for each foot of permanent ROW through their property. Options with a negotiated fee would be requested and full payment would be provided to the property owner once the NGL Pipeline is ready for construction. As discussed in Section 3.12, one interconnect valve would be above ground, located on western side of the Ohio River near the HDD bore exit point. This interconnect valve would be within the NGL Pipeline ROW. The interconnect valve would be accessed through landowner agreements or through public roads and may require travel along the ROW to get to the valve location. Access agreements would be included with the easement agreements relevant landowners for ease of access. During the construction of the NGL Pipeline, the property owners may be exposed to large construction equipment and temporary road closures. In addition, temporary noise and construction activity would occur. Local residents would be notified of construction activity that might result in temporary road closings. Section 3.9.2 provides information about noise impacts related to construction. Road closures are addressed in Section 3.18, Transportation. This area has experienced other pipelines and oil and gas drilling activities, and the local residents would be familiar with this activity.

While there would be temporary impacts to property owners, the NGL Pipeline would not result in a long term impacts to property uses along the LOD. Property owners would have restive use of the ROW as negotiated in the lease or easement agreement.

3.10.3 Avoidance, Minimization, and/or Mitigation Measures

Lease or easement agreements would be negotiated with each of the property owners for the NGL Pipeline, including compensation for the NGL Pipeline right-of-way. The construction work would be conducted during normal daylight working hours. If any night time work is required, residents would be notified. If temporary road closures are required, the residents would be notified in advance of the road closure, as described in Section 3.18. After construction, the LOD for the NGL Pipeline would be restored to as near as previous condition as possible, with the exception of former wooded areas which would be permanently converted to meadow.

3.11 PARKS, RECREATION AREAS, AND SECTION 4(F)

3.11.1 Affected Environment

The park and recreational areas within the study area consist of the recreational use that occurs on the Ohio River and the CONSOL Energy Powhatan Wildlife Agreement Area (Figure 3.11.1). There are no designated recreational areas along the Ohio River within the study area, such as boat launches or designated picnicking areas; however, the Ohio River is used within this area for both commerce (river transit) and recreation (boating and fishing). The CONSOL Energy Powhatan Wildlife Agreement Area is privately owned; however, in 2006, the ODNR Division of Wildlife and CONSOL Energy entered into a cooperative agreement which would allow public access for hunting, fishing, and other outdoor activities by the public, such as berry picking, nature study, and bird watching. The CONSOL Energy Powhatan Wildlife Agreement Area covers approximately 4,216 acres and consists of deep narrow valleys and narrow ridge tops interlaced by small streams, most of which are dry during the summer. Approximately 80 percent of the area is forested. The agreement between ODNR and CONSOL Energy allows for either party to abandon the agreement at any time. The main emphasis for ODNR is on forest game management as hunting is the primary activity. ODNR provides law enforcement for the facility to manage timber stealing and potential destruction along paths and roadways; however, ODNR does not mow trails or provide active management and oversight to the degree of other ODNR properties.

A desktop search was conducted to identify properties that are located within the Study Area that would qualify under Section 4(f) of the Department of Transportation Act (Section 4(f)). Properties under Section 4(f) would include:

- Parks and recreational areas of national, state, or local significance that are both publicly owned and open to the public
- Publicly owned wildlife and waterfowl refuges of national, state, or local significance that are open to the public to the extent that public access does not interfere with the primary purpose of the refuge
- Historic sites of national, state, or local significance in public or private ownership regardless of whether they are open to the public. (23 CFR 774)

Part of the proposed NGL Pipeline passes through the CONSOL Energy Powhatan Point Wildlife Agreement Area. According to the Ohio auditor's office, the part of this recreation area that the proposed pipeline would pass through is owned by CNX Land, LLC (Monroe, 2018). In accordance with the agreement between ODNR Division of Wildlife and CONSOL Energy, public can access the wildlife agreement area but property continues to be owned and maintained by CNX Land, which is a private entity. While the CONSOL Energy Powhatan Wildlife Agreement Area is available for public use, it is a privately-owned and privately-managed facility with no long term lease or easement provided through the agreement with ODNR. ODNR does not have a permanent proprietary interest in the land; therefore, the CONSOL Energy Powhatan Wildlife Agreement Area is not considered a Section 4(f) resource.

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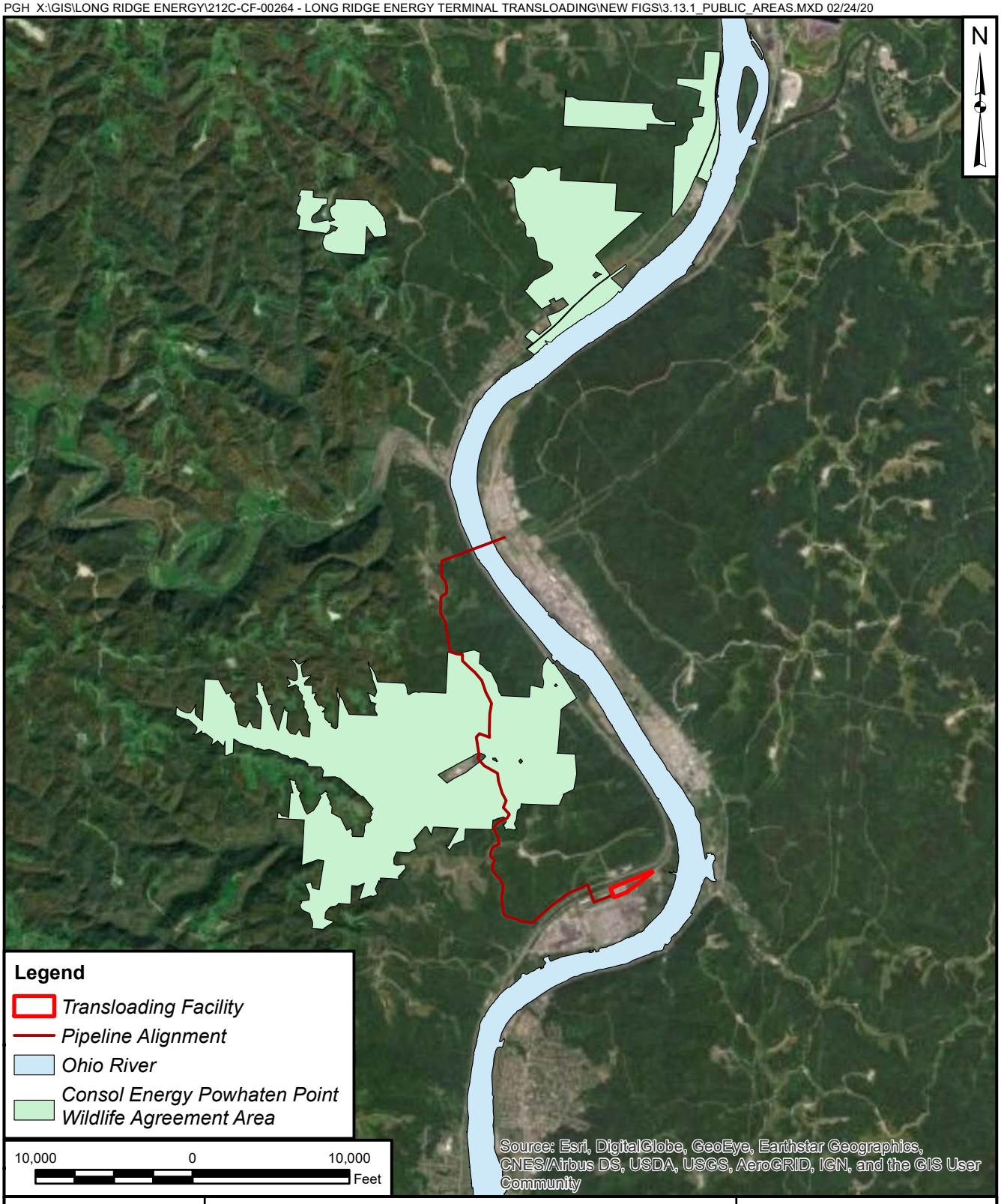

TETRA TECH

PUBLIC ACCESSIBLE AREAS
APPALACHIAN NGL HUB RAIL
TRANSLOADING FACILITY

MONROE COUNTY, OHIO

DRAWN BY: M. SCOTT 02/24/20
CHECKED BY: L. DRANE 02/24/20
APPROVED BY:

CONTRACT NUMBER:212C-CF-00264

FIGURE NUMBER	REV
3.11.1	0

As discussed above, there are recreational uses on the Ohio River; however, the Ohio River is not considered a Section 4(f) resource as there are no adjacent publicly-owned lands along the Ohio River, such as boat launches or picnicking areas, and recreation is not the primary purpose of the river within the study area.

3.11.2 Environmental Consequences

The methodology used for assessing impacts to parks and recreational facilities was to assess whether a portion or all of the identified parkland within the study area overlaps with the project and impacts to recreational activities due to the construction and operation of the Project.

No Action Alternative

Transloading Facility

Under the No Action Alternative there, would be no impact to parks, recreation areas, or Section 4(f) resources.

NGL Pipeline

Under the No Action Alternative, there would be no impact to parks, recreation areas, or Section 4(f) resources.

Proposed Action Alternative

Transloading Facility

The Transloading Facility would be constructed on a portion of the former industrial facility within LRET Property, which is privately owned and operated. There are no parks, designated recreation areas or Section 4(f) resources within 1-mile of the proposed facility; therefore, no impacts to parks, recreation areas, or Section 4(f) resources would occur.

NGL Pipeline

The NGL Pipeline would not cross, impact, or disturb any public parks or resources that would be considered for review under Section 4(f). The NGL Pipeline will cross the Ohio River; however, it would run approximately 50-feet below the bottom of the river and would be installed using HDD techniques. The installation and operation of the NGL Pipeline would likely not impede public access or use of the Ohio River; although, during the drilling of the HDD bore, drilling mud could be lost in fractures (see Section 3.2). Drilling mud lost to fractures could migrate upward into the Ohio River affecting the river water quality and potentially affecting recreational use of the river for a period of time. During operation of the NGL Pipeline, there would be the potential for a leak to occur from the pipeline, which could migrate upward and impact the quality of the water in the Ohio River. A significant release could have an adverse effect on the water quality restricting access to, and use of, the Ohio River for recreational purposes. Impacts to hydrology are addressed in Section 3.2.2.

As noted above, since the CONSOL Energy Powhatan Point Wildlife Agreement Area is privately-owned and maintained, it is not considered a Section 4(f) resource. Part of the proposed NGL Pipeline LOD would occur in this area, which would impact recreational use of the CONSOL Energy Powhatan Point Wildlife Agreement Area during construction; therefore, during construction, the portion of the Agreement Area where the LOD traverses would be inaccessible to the public (ODOT: OES, 2016). Construction of the NGL Pipeline would restrict access to approximately 2.4 acres of the approximately 2,000-acre area. Public roads allow access to the Wildlife area without having to cross the proposed NGL Pipeline. Hunting activities may be temporarily impacted in the immediate vicinity depending on the when the pipeline is constructed and what hunting seasons are within that time period. LRET would provide public notices in newspapers prior to construction to notify that construction would occur within the CONSOL Energy Powhatan Point Wildlife Agreement Area with restricted access. LRET would provide security personnel to monitor the LOD during construction to keep the public off the LOD for their protection. The NGL Pipeline LOD would be staked and flagged in the field with access restricted. An easement would be obtained by LRET from CONSOL Energy to grant access for construction and the permanent ROW for the NGL Pipeline.

There are potential adverse effects from drilling mud loss or potential NGL release that could occur during the installation and operation of the NGL Pipeline. These risks for drilling mud loss and impacts from potential NGL releases would be minimized through the implementation

of mitigation measures presented in Section 3.11.3.

3.11.3 Avoidance, Minimization, and/or Mitigation Measures

As described in Section 3.3.1, an IRCP would be prepared with contingencies for loss of drilling mud in bedrock fractures. The plan would include monitoring procedures to be implemented during drilling and action plans in the event of inadvertent returns.

In accordance with the WV 401 WQC permit and WV 47CSR2, the NGL Pipeline would be equipped with an emergency shut-off that would be located on both sides of the Ohio River. If there is a detected drop in pressure during pipeline use, such as would result from a leak from the pipeline, a valve would be automatically engaged to shut down the pipeline and to minimize any potential impacts to the environment. Emergency response procedures would also be put in place by LRET to evacuate any residual materials from that segment of the pipeline to keep them from entering the environment.

Newspaper notices would occur prior to construction of the NGL Pipeline to notify users of the CONSOL Energy Powhatan Wildlife Agreement Area about the planned project and restricted access during construction. LRET would provide personnel to monitor the LOD during construction to keep the public off the LOD for their protection.

3.12 PUBLIC HEALTH, ELDERLY AND PERSONS WITH DISABILITIES

3.12.1 Affected Environment

The US Census Bureau data for Marshall County, West Virginia and Monroe County, Ohio was reviewed to identify elderly populations and percent of populations with a disability within the Study Area. A paper developed by the World Health Organization (WHO) in 2002 states that most developed countries consider the age of 65 as elderly (WHO, 2002). Similarly, the most recently conducted US Census Bureau refers to people over the age of 65 as an “older population” (Roberts, Ogunwole, Blakeslee, and Rabe, 2018). Based on the US Census Bureau population estimates for 2019, 22.4 percent of the Marshall County and 23.5 percent of Monroe County population was considered elderly with an age of 65 or older (US Census Bureau, 2018). The US Census Bureau (US Census Bureau, 2018) indicates 17.9 percent of Marshall County and 21.5 percent of the Monroe County populations are considered to have a disability (Table 3.12.1).

The transportation for the Study Area is discussed in Section 3.18. State Route 7 is the two-lane highway within the Study Area that would be used to access LRET Property. Township and residential roads off of State Route 7 would be used during construction to access the NGL Pipeline. Currently, these secondary roads are used by residences and school buses. Emergency services within the Study Area are provided in Section 3.13. For information on school bus routes and road usage, see Section 3.18, Transportation.

3.12.2 Environmental Consequences

The methodology used for assessing impacts included identification of changes to public transportation, emergency services, or transportation to health care facilities as a result of the Project. In addition, any hazards that result from the Project’s operation and construction were evaluated for potential conditions and effects.

Table 3.12.1
Summary of Public Demographics
Appalachian NGL Hub Rail Transloading Facility

Subject	Disability Data [1]			
	Marshall County		West Virginia	
	With a Disability	% with Disability	With a Disability	% with Disability
POPULATION				
Total Population	5,585	17.9%	338,677	19.1%
POPULATION, RACE				
White alone	5,321	17.4%	317,007	19.1%
Hispanic or Latino	68	22.0%	2,764	11.3%
Black or African American alone	211	71.3%	13,931	22.2%
American Indian and Alaska Native alone	0	0.0%	1,048	39.9%
Asian alone	0	0.0%	917	6.9%
Native Hawaiian and Other Pacific Islander alone	0	0.0%	--	--
Some Other Race alone	24	72.7%	--	--
Two or More Races	29	14.4%	5,013	14.9%

Subject	Disability Data [1]			
	Monroe County		Ohio	
	With a Disability	% with Disability	With a Disability	% with Disability
POPULATION				
Total Population	3,002	21.5%	1,629,506	14.1%
POPULATION, RACE				
White alone	2,874	21.0%	1,333,183	14.3%
Hispanic or Latino	92	61.3%	48274	10.8%
Black or African American alone	4	12.1%	215643	15.4%
American Indian and Alaska Native alone	5	100.0%	8006	31.6%
Asian alone	57	100.0%	17212	6.3%
Native Hawaiian and Other Pacific Islander alone	0	0.0%	564	13.6%
Some Other Race alone	0	0.0%	12528	11.3%
Two or More Races	62	42.5%	42370	12.0%

Data from www.data.census.gov, 2018 ACS 5-Year Data Profiles (May 13, 2020)
1 - Total Civilian Noninstitutional

No Action Alternative

Transloading Facility

As there would be no change in conditions under the No Action Alternative, there would be no impacts to the public, elderly, or the people with disabilities.

NGL Pipeline

As there would be no change in conditions under the No Action Alternative, there would be no impacts to the public, elderly, or the people with disabilities.

Proposed Action Alternative

Transloading Facility

The Transloading Facility would be constructed within an existing industrial facility which is not accessible to the public. Access to the proposed Transloading Facility would be from the existing access road for the LRET Property, and there would be no significant changes to traffic patterns that would impact the public, elderly, or persons with disabilities. The Transloading Facility would not impair public health, nor cause disruptions or impacts to the elderly or disabled. The Transloading Facility location within an existing industrial property (LRET Property) provides a compatible land use context and adequate workspace so that construction would not result in significant changes to traffic patterns on local roadways. Therefore, there would be no impact on public transportation, emergency services, or transportation to health care facilities. The operation of the Transloading Facility would be in accordance with BMPs that would prevent and limit leaks, spills, or releases of NGL products to the environment in the interests of public health and the environment, as described in the SPCC plan in Section 3.2.3. In the event of an accidental release, appropriate state and federal protocols would be followed, as stated in Section 3.2.3 for the IRCP.

NGL Pipeline

The construction of the NGL Pipeline would mostly occur in lightly populated areas and would not affect the elderly or disabled persons. Depending on the final design of the NGL Pipeline and required components, there may be an interconnect valve that would be above the ground surface on west side of the Ohio River, likely at the HDD bore exit site. Any potential leaks from these features would be detected through pressure monitoring in the NGL Pipeline, and if there is a noticeable drop in pressure, the NGL Pipeline would be shut down through the automatic interconnect valve. The interconnect valve would be enclosed in area with chain link security fence with gravel padding. The site would also include a small electrical panel to power the valve and instrumentation. There would be a new access road for specifically access the interconnect valve, which would include signage indicating restricted access for this roadway. The NGL Pipeline would be designed and constructed in accordance with industry best practices and would comply with all local, state, and federal regulations, including those for safety. The NGL Pipeline would be inspected periodically and in accordance with BMPs.

During construction activities, the NGL Pipeline would be accessed through county and township roads from State Route 7. During construction, there may be occasions where public access to the road may be limited for a short period of time during delivery of large equipment and pipeline components. Residences would be notified in advance of these road closures or limited access along the roads. Emergency services would also be notified of any temporary road closures. In the event of an emergency, response vehicles would be given the priority with the equipment trucks pulling over on a straight portion of the road and allowing the emergency vehicles access. No detours are anticipated due to the short duration of the road closures. Section 3.18, Transportation, provides information on anticipated temporary road closures.

During operation of the NGL Pipeline, there would be no traffic restrictions other than in the event of an emergency. There is a potential for the pipeline to leak or have a release to the environment which could impact the soil, water, and air around the NGL Pipeline and the surrounding area. LRET will follow the applicable emergency response procedures described in 3.12.3 in order to notify and safeguard the public.

Construction and operation of the NGL Pipeline could impact the public health; however, with implementation of minimization measures presented in Section 3.12.3, these potential impacts would be minimized.

3.12.3 Avoidance, Minimization, and/or Mitigation Measures

The following mitigation measures would be implemented by LRET for this Project:

Transloading Facility

Although there are no anticipated impacts to the public from the Transloading Facility, BMPs that would prevent and limit leaks, spills, or releases of NGL products would be in place, as described in Section 3.2.3 as part of the SPCC plan.

NGL Pipeline

Travel restrictions would occur for pipeline construction personnel and related equipment deliveries or oversized loads during school bus travel times, if applicable, as described in Section 3.18.3 under the Road Use Maintenance Agreement.

The new access road created for the NGL Pipeline interconnect valve would have restricted access, as indicated with signage near the road entrance.

LRET, in cooperation with Monroe County and the Township, would develop a resident coordination and communication plan for project road use that instructs LRET's contractor on procedures and required notifications when hauling oversized loads that may result in restricting public access to roads on a temporary basis during construction. The local residents would be notified of the potential road access restriction and oversized loads' would be coordinated during construction.

Operation and maintenance procedures would be developed by LRET for operation of the Transloading Facility and the transfer of NGL through the pipeline. These procedures would include operation standards and emergency monitoring requirements. If there is a detected loss in pressure in the system during transfer of the NGLs, an automatic valve would be closed, and the system would be shut down. This would minimize the release of NGL to the environment.

Emergency response procedures would be developed by LRET for operation of the pipeline, as mentioned in Section 3.11.3. In the event of a release of NGL to the environment, a specific notification program would be implemented, including notifications to the appropriate emergency response agencies, potentially impacted residents, and regulatory agencies.

3.13 SAFETY AND SECURITY

3.13.1 Affected Environment

The following services are the nearest available emergency services within the Study Area (distance is determined by proximity to the LRET Property):

- Fire Departments:
  - Clarington Volunteer Fire Department (2.0 miles north; Clarington, OH)
  - Sardis Volunteer Fire Department (9.8 miles southwest; Sardis, OH)
  - City of New Martinsville Fire Department (7.9 miles south; New Martinsville, WV)
- Police Departments:
  - Monroe County Sheriff's Office (19.5 miles west; Woodsfield, OH - Patrols throughout county)
  - State of Ohio Highway Patrol (49.5 miles southwest; Marietta, OH – Patrols throughout county)
  - Powhatan Point Police Department (10.4 miles north-northeast; Powhatan Point, OH)
- Hospitals

- Wetzel County Hospital (8.7 miles S; New Martinsville, WV)

The LRET Property is not open to the public. There is a single entrance road off State Route 7 that grants ingress and egress from the LRET Property. There is no restricted access to the western portion of the LRET Property to the office building and parking areas where the proposed Transloading Facility would be located. A guard is stationed to manage access to other portions of the LRET Property.

Access to the Blue Racer facility, where the NGL Pipeline would originate, is restricted and not accessible to the public. The Study Area portion containing the proposed NGL Pipeline includes privately-owned property and has no specific access requirements other than private property rights. Several parcels of land are owned by CNX on which the CONSOL Energy Powhatan Wildlife Agreement Area is located (see Section 3.11). CNX, by agreement with ODNR, grants access to the public for outdoor activities, particularly hunting.

3.13.2 Environmental Consequences

The methodology used for assessing impacts to safety and security focused on access to areas of the Project and potential to changes to public transportation and emergency services.

No Action Alternative

Transloading Facility

Under the No Action Alternative, restricted access would continue for the existing LRET Property, and there would be no changes to existing safety and security measures, resulting in no impacts.

NGL Pipeline

Other than private property access restrictions, there are no existing security or access restrictions. Under the No Action Alternative, there would be no changes; therefore, the No Action Alternative would have no impacts to safety and security.

Proposed Action Alternative

Transloading Facility

During construction and operation of the proposed Transloading Facility, restriction to the public would continue. Within the existing LRET Property, the proposed Transloading Facility would have its own security fencing with employee-only and contractor-only gate access. Access to the Transloading Facility would be controlled and limited to a single entrance with signage that makes it clear public access is not permitted. Signage would be posted at the entrance, warning of hazardous conditions and that only authorized personnel would be allowed on the site. Signage indicating “No trespassing” would be posted where appropriate. In the event of an emergency during construction or operation of the Transloading Facility, local services would be contacted and engaged as needed.

The construction and operation of the Transloading Facility is not expected to pose a risk to safety of the general public. Emergency response times in the area are not anticipated to change and there is no anticipated impact to public safety or security as a result of the Transloading Facility.

NGL Pipeline

Except for the termini, which are on restricted access properties at the Blue Racer facility and LRET Property, the NGL Pipeline would traverse several privately-owned properties that currently do not have specific access restrictions other than those associated with private property, as shown in Table 3.10.1. During construction of the NGL Pipeline, coordination would occur with local security and emergency response personnel, as the LOD for the NGL Pipeline would be restricted from public access during the construction activities. Security personnel would monitor the NGL Pipeline LOD during construction to keep the public off the LOD and safe from the construction activities. The interconnect valve, which may be above ground, would be located on west side of the Ohio River near the HDD bore exit, and would be within the NGL Pipeline ROW. If a portion of the interconnect valve is located

above ground, it would be fenced. The new access road created for the NGL Pipeline interconnect valve would have restricted access, as indicated with signage near the road entrance. As discussed in Section 3.12 and 3.18, emergency services would also be notified of any temporary road closures. In the event of an emergency, response vehicles would be given the priority with the equipment trucks pulling over on a straight portion of the road and allowing the emergency vehicles access. No detours are anticipated due to the short duration of the road closures. The CONSOL Energy Powhatan Wildlife Agreement Area would be to be temporarily restricted to the public during the construction activities. After construction, the LOD for the NGL Pipeline would be restored to as near as previous condition as possible, with the exception of former wooded areas which would be permanently converted to meadow. Access to the NGL Pipeline would be restricted to individual property owners, as the ROW is located on private property. Portions of the property that are open for public hunting and use would be returned to normal access once the NGL Pipeline is completed.

3.13.3 Avoidance, Minimization, and/or Mitigation Measures

No specific mitigation measures would be required; however, there would be measures taken by LRET to assure security to the proposed action occurs during construction and operation:

- Access to the Transloading Facility would be controlled and limited to a single entrance with signage that makes it clear public access is not permitted. Signage would be posted at the entrance, warning of hazardous conditions and that only authorized personnel would be allowed on the site. Signage indicating “No trespassing” would be posted where appropriate.
- LRET would provide security personnel to monitor the NGL Pipeline LOD during construction to keep the public off the LOD and safe from the construction activities.
- LERT would provide public notification in newspapers about the planned project and restricted access during construction, as described in Section 3.11.
- The CONSOL Energy Powhatan Wildlife Agreement Area would be to be temporarily restricted to the public during the construction activities. Signage indicating “No trespassing” would be posted, as appropriate during construction. LRET would provide personnel to monitor the LOD during construction to keep the public off the LOD for their protection.
- Marking of the pipeline will be in accordance with ORC 4901:1-16, 49 C.F.R. 40, 49 C.F.R. 191, 49 C.F.R. 192 and 49 C.F.R. 199. As stated in 49 C.F.R. 192, the marker warning must consist of the following written legibly on the background of a sharply contrasting color on each line marker: the word “Warning”, “Caution”, or “Danger”, followed by the words “Gas (or name of gas transported) Pipeline”, all of which, except for markers in heavily developed urban areas, must be in letters at least 1 inch (25 millimeters) high with ¼ inch (6.4 millimeters) stroke. The name of the operator and telephone number where the operator can be reached at all times should also be present.
- As discussed in Section 3.12, operation and maintenance procedures would be developed by LRET for operation of the Transloading Facility and the transfer of NGL through the pipeline. These procedures would include operation standards and emergency monitoring requirements.
- As discussed in Sections 3.11.3 and 3.12.3, emergency response procedures would be developed by LRET to define procedures in the event of an emergency, including working with local emergency response personnel.
- As discussed on Section 3.12 and 3.18, the new access road created for the NGL Pipeline interconnect valve would have restricted access, as indicated with signage near the road entrance.
- As discussed in Section 3.12 and 3.18, emergency services would also be notified of any temporary road closures.

3.14 ENVIRONMENTAL JUSTICE

3.14.1 Affected Environment

The US EPA defines Environmental Justice (EJ) as the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies.[2] Executive Order (EO) 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, requires that federal agencies, whenever practical and appropriate, maintain information of populations by race, national origin, or income and use this information to determine whether their programs, policies, and activities have disproportionately high and adverse human health or environmental effects. Consistent with EO 12898, FRA identifies and addresses any disproportionately high and adverse human health or environmental effects of its actions on minority and low-income populations as part of the NEPA process.

The majority of the Project is in Salem and Ohio Townships in Monroe County, Ohio. Only a small portion of the Project is located in Marshall County, West Virginia within the Blue Racer facility as the work in West Virginia consists of installing pumps and an HDD Bore at an existing industrial facility. The Blue Racer facility is situated within an industrial area with no adjacent residential properties. Figure 3.14.1 illustrates the Project location with respect to the townships in Ohio and Marshall County. Demographic data from Monroe County and Marshall County was also compared to state data for Ohio and West Virginia.

Demographic data from the US Census Bureau was reviewed to establish population characteristics and income levels. The Project is in the eastern portion of Marshall County, West Virginia and the western portion of Monroe County, Ohio. As shown in Table 3.14.1, the population of Marshall County is 31,645 (US Census Bureau, 2018). Of that population, 96.7 percent identify as white alone. The minority identified groups include Black or African American (1 percent), American Indian and Alaska Native alone (0.4 percent), Asian (0.2 percent), Native Hawaiian and Other Pacific Islander alone (0.1 percent), Hispanic or Latino (1 percent) and two or more races (0.9 percent). The remainder of the population were identified as “Two or More Races” (0.5 percent). These demographics for minority population are generally lower than what is represented in the state of West Virginia where the minority population are Black or African American (3.8 percent), Asian (0.7 percent), , Hispanic or Latino (1.4 percent), some other race (0.1 percent), and two or more races (1.8 percent). Both American Indian and Alaska Native (0.1 percent) and Native Hawaiian or Other Pacific Islander (0 percent) were slightly lower than the state percentages.

The population of Monroe County is 14,090 (Table 3.14.1). Of that population, 97.3 percent identify as white alone. The minority identified groups include Black or African American (0.3 percent), Asian (0.4 percent), Hispanic or Latino (1.1 percent) and two or more races (0.9 percent). The remainder of the population were identified as “Some Other Race” (0.1 percent) or with “Two or More Races” (1.2 percent). These demographics for minority population are much lower than what is represented in the state of Ohio, where the minority population are Black or African American (14.3 percent), American Indian and Alaska Native (0.9 percent), Asian (3.0 percent), Native Hawaiian or Other Pacific Islander (0.1 percent), Hispanic or Latino (3.9 percent), and two or more races (3.1 percent).

The US Census Bureau poverty definition uses income thresholds that vary by family size and composition to determine who is in poverty. If a family's total income is less than the family's threshold, then that family and every individual in it is considered in poverty. As shown in Table 3.15.1, the US Census Bureau indicates 15.1 percent of the people in Marshall County are within the poverty level, slightly lower than the 17.8 percent poverty level for

[2]EPA Environmental Justice. Available at: https://www.epa.gov/environmentaljustice/learn-about-environmental-justice

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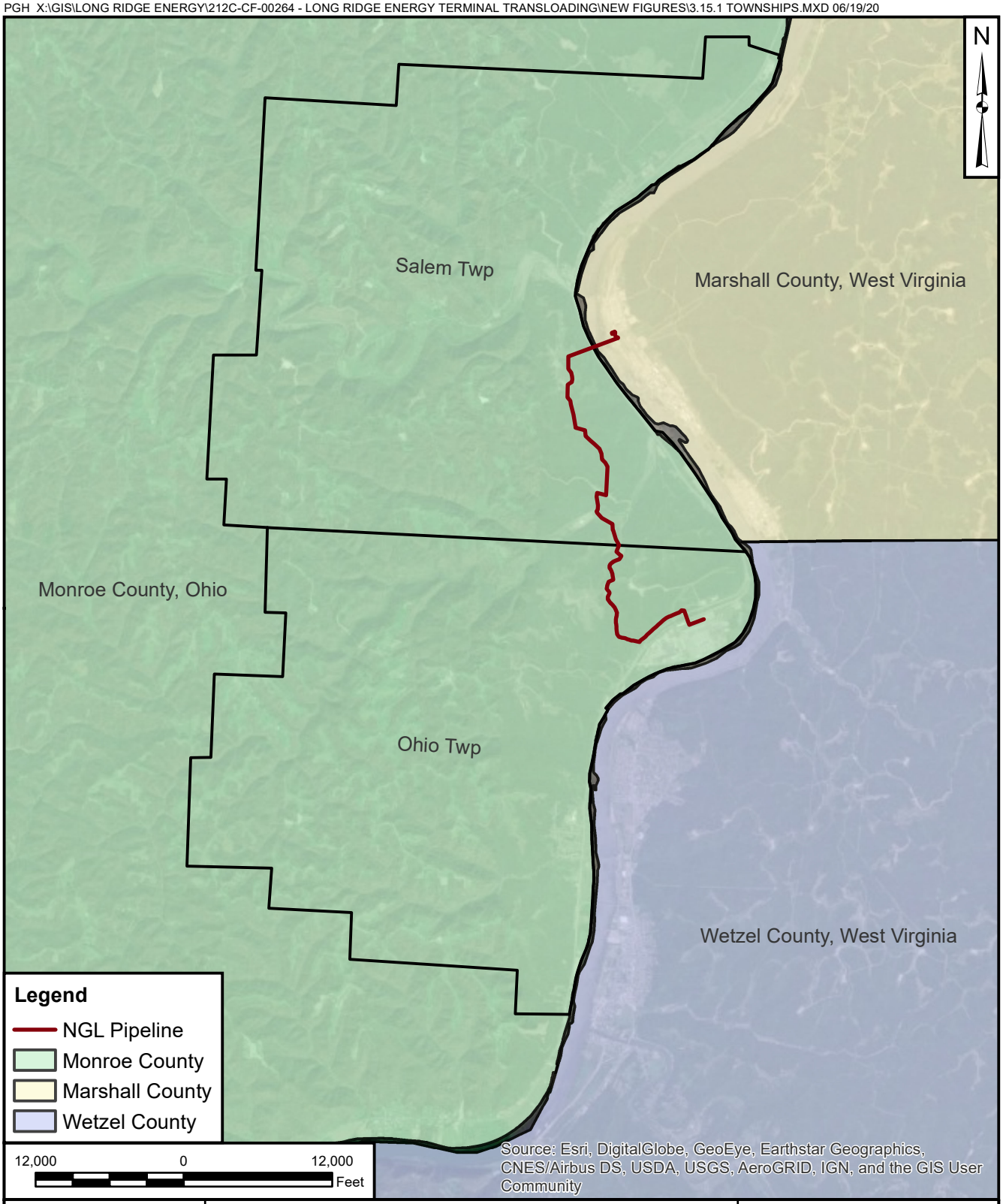

TETRA TECH

CARTOGRAPHIC BOUNDRIES AND PROJECT LOCATION

APPALACHIAN NGL HUB RAIL TRANSLOADING FACILITY
MONROE COUNTY, OHIO

DRAWN BY: M. SCOTT 06/19/20
CHECKED BY: L. DRANE 06/19/20
APPROVED BY:

CONTRACT NUMBER:212C-CF-00264

FIGURE NUMBER 3.14.1

REV 0

Table 3.14.1
Summary of Demographics
Appalachian NGL Hub Rail Transloading Facility

Subject	Marshall County		West Virginia	
	Number	Percentage	Number	Percentage
POPULATION				
Total Population	31,645		1,805,832	
POPULATION, HISPANIC OR LATINO ORIGIN				
Not Hispanic or Latino	31,326	99.00%	1,780,263	98.60%
Hispanic or Latino	319	1.00%	25,569	1.40%
POPULATION, RACE				
White alone	30,612	96.70%	1,661,773	92.00%
Black or African American alone	310	1.00%	68,042	3.80%
American Indian and Alaska Native alone	131	0.40%	2,535	0.10%
Asian alone	78	0.20%	13,311	0.70%
Native Hawaiian and Other Pacific Islander alone	34	0.10%	451	0.00%
Some Other Race alone	0	0.00%	2,286	0.10%
Two or More Races	161	0.50%	31,865	1.80%

Subject	Monroe County		Ohio	
	Number	Percentage	Number	Percentage
POPULATION				
Total Population	14,090		11,689,442	
POPULATION, HISPANIC OR LATINO ORIGIN				
Not Hispanic or Latino	13,940	98.9%	11,181,830	95.7%
Hispanic or Latino	150	1.1%	455,918	3.9%
POPULATION, RACE				
White alone	13,706	97.3%	9,794,421	83.8%
Black or African American alone	39	0.3%	1,674,699	14.3%
American Indian and Alaska Native alone	5	0.0%	104,484	0.9%
Asian alone	57	0.4%	345,724	3.0%
Native Hawaiian and Other Pacific Islander alone	0	0.0%	13,486	0.1%
Some Other Race alone	2	0.0%	141,318	1.2%
Two or More Races	131	0.9%	358,398	3.1%

Data from www.data.census.gov, 2018 ACS 5-Year Data Profiles (May 13, 2020)

West Virginia. Monroe County has 16.6 percent within the poverty level, which is slightly higher than the 13.9 percent of individuals in the state of Ohio that fall into this poverty level (US Census Bureau, 2018).

Based upon a desktop review of property parcels and aerial photography, there are no residential structures within a half-mile radius of the LRET Property. There appears to be 30 residential structures within

a half-mile radius of the proposed NGL Pipeline area in Ohio and there are no residential properties within a half-mile of the portion of the project in Marshall County, West Virginia.

3.14.2 Environmental Consequences

The methodology used for assessing impacts to environmental justice populations focused on (1) identify any adverse human health and environmental effects on minority and low-income populations and (2) determine whether these adverse impacts would disproportionately affect the EJ populations. Impact analysis included review of construction impacts, access, community disruption, and any beneficial effects.

No Action Alternative

Transloading Facility

Under the No Action Alternative, there would be no disproportionate adverse impacts to minority or low-income populations. However, under the No Action Alternative, there would not be the employment opportunity for minority or low-income populations for construction jobs or operation jobs that would be associated with the Proposed Action. In addition, tax revenue that would be generated from the Transloading Facility would not be available to the community.

NGL Pipeline

Under the No Action Alternative, there would be no disproportionate adverse impacts to minority or low-income populations. However, under the No Action Alternative, there would not be the employment opportunity for minority or low-income populations for construction jobs or operation jobs that would be associated with the Proposed Action. In addition, tax revenue that would be generated from the NGL Pipeline would not be available to the community.

Proposed Action Alternative

Transloading Facility

The proposed Transloading Facility would be constructed on existing industrial property and the nearest residential property is located over 4,700-ft from the proposed Transloading Facility.

Based on the demographic profile of Monroe County and the two rural townships where the proposed Transloading Facility would be constructed, the Proposed Action Alternative would not present a disproportionate impact on minority or low-income populations. Minorities, if present in the vicinity of the project, could potentially be adversely affected by the Project; however, the effect would not be any more than non-minorities experienced and as described in sections throughout this assessment, mitigation measures would eliminate or reduce potential impacts.

The Transloading Facility would not have a disproportionate adverse impact to low-income individuals. The construction of the Transloading Facility would provide opportunity for minority or low-income population access to temporary construction jobs and potentially permanent operation jobs. In addition, there would be a public benefit from the secondary income potential and tax revenue for the community.

NGL Pipeline

Based on review of these statistics, construction of the NGL Pipeline would not have a disproportionate adverse impact to minorities or low-income individuals. The construction of the NGL Pipeline would provide opportunity for minority or low-income population access to temporary construction jobs. In addition, there would be a public benefit from the secondary income potential and tax revenue for the community.

3.14.3 Avoidance, Minimization, and/or Mitigation Measures

There are no specific minimization or mitigation measures for Environmental Justice; however, Environmental Justice communities would benefit from the mitigation measures described in Section 3.12, 3.13, and 3.18.

3.15 SOCIOECONOMIC RESOURCES

3.15.1 Affected Environment

This section discusses population demographics, employment characteristics, economic activity, and related data providing key insights into the socioeconomic conditions that might be affected by the Project. Socioeconomic data shown in this section are presented at the US Census Bureau county, state, and national levels to characterize baseline socioeconomic conditions in the context of regional, state, and national trends. Data has been collected from previously published documents issued by federal, state, and local agencies and from state and national databases. The analysis of this section will focus on data for Marshall County, West Virginia and Monroe County, Ohio (see Figure 3.14.1). The data is summarized in Table 3.15.1.

Population

The US Census Bureau defines urbanized areas as having at least 50,000 people and an urban cluster as having between 2,500 and 50,000 people. Rural area encompasses people living outside these urban areas. Based on the US Census Bureau, the total estimated population for Marshall County is 31,645 and Monroe County was 14,090 (US Census Bureau, 2018). This population in both counties show a downward trend based on US Census data from 2000 (Marshall – 35,579, Monroe - 15,180) and 2010 (Marshall – 33,369, Monroe - 14,642). Since the 2010 Census, the Marshall County has experienced a decrease of 1,724 residents (5.2 percent decrease) and Monroe Count a decrease of 552 residents (3.8 percent decrease) in population based on the 2018 American Community Survey 5-year estimates (US Census Bureau, 2018). Based on the same data source, the State of West Virginia decreased by 2.6 percent to 1,805,832 and Ohio increased to a population of 11,689,442 in 2018, an increase of 1.3 percent.

Marshall and Monroe Counties are generally rural with a population densities of 108.4 and 32.1 people per square mile, respectively. Marshall County encompasses 305.43 square miles and Monroe is 455.72 square miles. The State of West Virginia covers 24,038.21 square miles with a population density of 77.1 and Ohio covers 40,860.69 square miles and has a population density of 282.3 per square mile.

Employment Characteristics

According to the US Census Bureau, Marshall County had an unemployment rate of 8.2% in 2018, which was higher than the state rate of 5.2%. Monroe County had an unemployment rate of 12.3 percent in 2018, which is higher than the 4.1 percent unemployment rate for the state of Ohio (US Census Bureau, 2018). Between 2014 and 2018, (adjusted for 2018 dollars) the median household income in Marshall County was $43,918 and Monroe County was similar and approximately $43,956 with 15.1 percent and 16.6 percent of the population living below poverty level, respectively (US Census Bureau, 2018). In comparison, the state of West Virginia had a median household income of $44,621 with 17.8 percent below the poverty level and Ohio had a median household income of $54,533 with 13.9 percent of the population living below poverty (US Census Bureau, 2018).

The state of West Virginia reported 36,522 employer establishments (businesses with paid employees) and 88,150 non-employer establishments (businesses with no paid employees) in 2017 (US Census Bureau, 2017). In the same period, Marshall County had 484 employer establishments and 1,128 non-employer establishments. Between 2014 and 2018, population in the state of West Virginia included 86.5 percent of persons above the age of 25 were high school graduates or higher, with 20.3 percent of those having a bachelor's degree or higher. Marshall County had 90.1 of the over 25 population in Monroe County were being a high school graduates and only 18.5 percent had a bachelor's degree or higher. From 2014 to 2018, 50.7 percent of the Marshall County population

Table 3.15.1
Summary of Socioeconomic Resources
Appalachian NGL Hub Rail Transloading Facility

Resource Item	Marshall County, West Virginia	West Virginia
Population		
Population, Census, April 1, 2018	31,645	1,829,054
Population per square mile	108.4	77.1
Land area in square miles	305.43	24,038.21
Employment Characteristics		
Unemployment	8.20%	5.20%
Median household income (in 2018 dollars), 2014-2018	$43,918	$44,921
Persons in Poverty, 2018	15.10%	17.80%
Total employer establishments, 2017	484	36,522
Total nonemployer establishments, 2017	1,128	88,150
High school graduate or higher, percent of persons age 25 years+, 2014-2018	91.00%	86.50%
Bachelor's degree or higher, percent of persons age 25 years+, 2014-2018	18.50%	20.30%
In civilian labor force, total, percent of population age 16 years+, 2014-2018	50.70%	53.10%
Housing		
Housing units, July 1, 2018, (V2018)	15,730	894,956
Owner-occupied housing unit rate, 2014-2018	80.30%	72.90%

Resource Item	Monroe County, Ohio	Ohio
Population		
Population, Census, April 1, 2018	14,090	11,689,442
Population per square mile	30.92	286.08
Land area in square miles	455.72	40,860.69
Employment Characteristics		
Unemployment	12.3%	4.1%
Median household income (in 2018 dollars), 2014-2018	43956	$54,533
Persons in Poverty, 2018	16.6%	13.9%
Total employer establishments, 2017	251	253001
Total nonemployer establishments, 2017	1,057	785,833
High school graduate or higher, percent of persons age 25 years+, 2014-2018	88.1%	90.1%
Bachelor's degree or higher, percent of persons age 25 years+, 2014-2018	11.9%	27.8%
In civilian labor force, total, percent of population age 16 years+, 2014-2018	48.4%	63.1%
Housing		
Housing units, July 1, 2018, (V2018)	7,500	5,217,423
Owner-occupied housing unit rate, 2014-2018	75.6%	66.0%

Data from www.census.gov/quickfacts and www.data.census.gov, 2018 ACS 5-Year Data Profiles (May 13, 2020)

was in the civilian labor force (age 16 years or older), while the 53.1 percent of the state of West Virginia population was in the civilian labor force. The largest municipality in Marshall County is Moundsville, with a population of 9,318 in the 2010 Census (US Census Bureau, 2010). The state of Ohio reported 253,001 employer establishments of which 251 were in Monroe County and 785,833 non-employer establishments of which 1,057 were in Monroe County in 2017 (US Census Bureau, 2017). Between 2014 and 2018, population in the state of Ohio included 90.1 percent of persons above the age of 25 were high school graduates or higher, with 27.7 percent of those having a bachelor's degree or higher. In the same period, had 88.1 of the over 25 population in Monroe County were high school graduates and only 11.9 percent had a bachelor's degree or higher. From 2014 to 2018, 48.4 percent of the Monroe County population was in the civilian labor force (age 16 years or older), while the 63.1 percent of the state of Ohio population was in the civilian labor force. The largest municipality in Monroe County is Woodsfield, with a population of 2,384 in the 2010 US Census Bureau. With the shutdown of the former Orment Aluminum facility in 2013, around 2,000 people lost their jobs and livelihood. As a result, people began receiving unemployment benefits, moved from the area, or traveled further for jobs. LRET is in the process of redeveloping the former industrial property. The redevelopment activities at the former industrial facility have contributed to bringing back jobs in the area and further improve economic conditions that were impacted that occurred due to the shutdown of the former industrial plant.

Housing

The total number of housing units in the state of West Virginia is approximately 894,956 and approximately 5,217,423 units in Ohio. Of these housing units, 82.2 percent are owner-occupied in West Virginia and 89.8 percent in Ohio (US Census Bureau, 2018). The total number of housing units in Marshall County is 15,730 of which 77.5 percent are owner occupied and Monroe County is 7,500 with 79.0 percent being owner occupied.

3.15.2 Environmental Consequences

The methodology used for assessing impacts to socioeconomic resources focused on impacts to the economy and job creation as well as implications to housing.

No Action Alternative

The No Action Alternative, which includes not building the Transloading Facility nor the NGL Pipeline, would not have a benefit to the socioeconomics of the region as no jobs or economic improvements would occur. In addition, the industry within this area would not benefit from expanded facilities and ability to extract and distribute NGLs.

Proposed Action Alternative

Transloading Facility

The proposed Transloading Facility would be constructed on the LRET property.

The Proposed Action would bring an economic benefit to the region. Jobs would be created by providing additional capacity for moving NGL from the region. Given the unemployment rate of 12.3 percent in Monroe County, LRET anticipates that the additional jobs created by the Transloading Facility would be absorbed within the Monroe County community. Project development and construction would require an estimated investment of approximately $60 million, which would provide a significant benefit to the local, regional, and state economies. In the short-term, it is expected that an average of 100 to 150 construction jobs would be created during the 16 to 18-month construction of the Project. Once completed, operation of the Transloading Facility would support approximately eight permanent jobs. The investment in the Project, during both construction and operation, would also result in significant secondary economic benefits, as described in Section 3.19.

Temporary housing, likely through rentals, may slightly increase during the construction of the Transloading Facility, but during operation, the full-time employees' housing would be absorbed from available housing within the region and there would be no significant impacts to the housing market.

NGL Pipeline

The NGL Pipeline would not impact the population of Salem or Ohio Townships. During construction of the NGL Pipeline, construction jobs would be available including labor, equipment operators, pipefitters, welders, environmental inspectors, construction management, truck driving, and drilling operators. Secondary benefits, as described in Section 3.19, would occur to other business in the area though motels, restaurants, grocery stores, hardware stores, and service providers. The housing market in Salem and Ohio Townships would not be impacted by the NGL Pipeline during construction or operation. The expected eight full time jobs may be filled with current residence or potential commuters in the area.

3.15.3 Avoidance, Minimization, and/or Mitigation Measures

No specific mitigation measures are anticipated because this Project would have a positive effect to the socioeconomic characteristics of Monroe County.

3.16 ENERGY USE

3.16.1 Affected Environment

The former facility on LRET Property (the Orment Aluminum facility) used a significant amount of electrical power to melt and process aluminum, and this was the major energy source required by the Orment Aluminum facility. However, that facility is no longer in operation and the area is being redeveloped.

Within the Study Area, the Blue Racer facility is an active gas processing facility that collects and separates various forms of NGLs collected from wells in the region and prepares them for market. The facility is serviced by electrical power through a third-party provider.

3.16.2 Environmental Consequences

The methodology used for assessing impacts to energy use focused on potential increases in the energy requirements of the energy network and changes (increase or decrease) in the overall energy consumption due to the Project.

No Action Alternative

Transloading Facility

Under the No Action Alternative, there would be no additional draw on local energy sources.

NGL Pipeline

Under the No Action Alternative, there would be no additional draw on local energy sources.

Proposed Action Alternative

Transloading Facility

During construction of the Transloading Facility, there would be a need for electrical power for construction offices, lighting, and other constructed-related needs such as hand tools and pumps. This would likely be done through a temporary drop line that could later be converted to supplement the existing electrical supply. Depending on the location and phase of the construction, some portable power units may be used. Other than fuel required for the equipment, no additional significant energy use would be required. During operation, the Transloading Facility would continue to require electricity to run pumps, instrumentation, and site lighting.

Under the Proposed Action Alternative, the temporary draw on the local power supply would be increased but would not result in an interruption of service or undue stress on the existing electrical infrastructure. No impacts are anticipated stemming from the construction and operation of the proposed Transloading Facility.

NGL Pipeline

The three primary pumps and three back-up pumps at the Blue Racer facility would require electrical power for pumping NGL to the Transloading Facility through the proposed NGL Pipeline. The addition of a metered power supply connected to the pumps would be necessary.

The NGL Pipeline runs through rural area that includes agricultural fields, woodland, and cleared ROW for existing pipelines with no specific energy resources. During construction of the proposed NGL Pipeline, electrical needs would be supplied through portable generators as needed for lighting, running pumps, welding, tools, etc.

The electrical power needed to construct and install the remainder of the NGL Pipeline in Monroe County, Ohio, would be provided by portable power generation units that would not draw on the existing electrical grid.

3.16.3 Avoidance, Minimization, and/or Mitigation Measures

No specific mitigation measures are required.

3.17 AESTHETICS AND VISUAL QUALITY

3.17.1 Affected Environment

Visual and aesthetic resources include features of both the built and natural environment that together make the visual environment. Examples of these resources can include parks; natural areas; scenic features; open vistas; water bodies; and other landscape features. Historic or urban core districts can also be visual resources. All of these visual resources create aesthetic qualities that are valued by the public that views the features. Viewers may include neighbors (who occupy land adjacent or visible to the project) and travelers (who may see the Project using existing transportation).

Within the Study Area, the LRET Property, which was a former industrial facility, is currently being redeveloped for industrial purposes and includes active material handling, processing, and rail transport. The LRET Property is bordered to the south and east by the Ohio River, to the southwest, and the northwest by railroads and State Route 7. There are no significant visual resources within this portion of the Study Area, and the visual environment consists of industrial uses.

The majority of the NGL Pipeline would be in undeveloped agricultural lands and woodlands. The Study Area of the NGL Pipeline consists of rural residential properties, vacant woodland, agricultural fields, and industrial properties. The viewshed within this portion of the Study Area is mostly woodlands with no significant visual resources.

The proposed NGL Pipeline would mostly be located out of typical eyesight of the residential homes and from the local roads. The NGL Pipeline would cross Beautiful Ridge Road, but the pipeline would be bored under this road and once in place, would not be visible. The NGL Pipeline would cross under the Ohio River and through the CONSOL Energy Powhatan Point Wildlife Agreement Area as described in previous sections.

3.17.2 Environmental Consequences

The methodology used for assessing impacts to aesthetics and visual quality focused on determining the compatibility of the Project to surrounding areas, the sensitivity of the viewers, and the degree of the impact to aesthetic and visual resources due to the Project.

No Action Alternative

Transloading Facility

Under the No Action Alternative, there would be no new visual elements introduced. The proposed location for the Transloading Facility would remain in use as a parking area.

NGL Pipeline

Under the No Action Alternative, there would be no new visual elements introduced or changed. The viewshed would not be altered by tree clearing along the pipeline LOD, and no impacts to potential public views would occur.

Proposed Action Alternative

Transloading Facility

The visual effects of the Transloading Facility would be minimal. The Transloading Facility would be located within an existing industrial property. The proposed use would be compatible with existing operations and would not be a material visual change when viewed from non-industrial locations. The viewshed from the Ohio River from the east or the hills to the west would not be significantly impacted (See Photo Log in Appendix G).

The Transloading Facility would be constructed and operated along the west side of the current industrial facility within the view of people traveling on State Route 7. The area is currently being used for parking but would be part of the industrial facility that is being developed. Local residents traveling State Route 7 are familiar with the presence of the industrial facility, and there would be no significant changes to the viewshed.

NGL Pipeline

The NGL Pipeline would traverse rural areas, mostly farm fields and wooded areas. The NGL Pipeline would be buried, so once the NGL Pipeline is installed, there would be no significant changes to the viewshed except where trees would be removed for construction and continued maintenance of the pipeline. The locations where the trees would be removed is presented on in Appendix G and also discussed in Section 3.6. As described in Section 3.6, the viewshed would not be adversely affected by removal of the trees. Approximately 21 acres of tree clearing would be necessary to construct the NGL Pipeline. The FRA defined the visual effects of the Project as encompassing 75 acres, to include areas where aboveground resources in the vicinity of the LOD would have a view of tree clearing. As described in Section 3.6, there would be five residential properties that would have a view of the LOD for the proposed NGL Pipeline. Other residential properties would have a view of the proposed NGL Pipeline; however, it would be at locations where there are existing pipelines and the view would not change significantly. As discussed in Section 3.12, an interconnect valve may be above ground, located on the west side of the Ohio River. This interconnect valve would be within the NGL Pipeline ROW and would be enclosed by a chain link security fence with gravel padding.

A total of 30 residential properties were identified within a half-mile of the proposed NGL Pipeline. Of those 30 residential properties, nine of them would have a view of the pipeline route; however, four of them are along a portion of the proposed NGL Pipeline route that will be installed adjacent to an existing pipeline, with one of those being the closest resident to the NGL Pipeline at approximately 200 feet. The other five residential properties are located at the northern end of the NGL Pipeline and have the potential to see the pipeline, particularly during construction activities. Once the NGL Pipeline is installed, the area would be restored to its original topographic contour and revegetated as grassland. The public view of the permanent 50-foot NGL Pipeline ROW would be minimal as it would be obstructed by topographic features and intervening surrounding tree cover. Travelers on Beautiful Ridge Road would see a cleared ROW though the wooded area to the northwest, but the other areas along the proposed NGL Pipeline route would not be noticeable from the road by travelers because it is not near the road or would be adjacent to existing pipeline ROW that has already been cleared.

3.17.3 Avoidance, Minimization, and/or Mitigation Measures

No specific mitigation measure would be required for the Transloading Facility. Upon completion of construction, the NGL Pipeline ROW would be restored to its original topographic contour and revegetated as meadowland.

3.18 TRANSPORTATION RESOURCES

3.18.1 Affected Environment

The major arterial roadway within the Study Area is State Route 7, which is a two-lane highway that generally follows the Ohio River along the Ohio side. The proposed Transloading Facility would be located just east of State Route 7 and would be accessed from the existing entrance to the LRET Property.

An extended turning lane on State Route 7 is present for northbound traffic to turn right into the LRET Property. A rail line owned and operated by LRET and is located between the proposed Transloading Facility and State Route 7. The rail line has several rail spurs entering the LRET Property and is connected to a rail loop that goes around the LRET Property. The rail line terminates less than a mile south-southwest of the LRET Property. North of the LRET Property, the rail line continues and ties into a Norfolk Southern line.

Within the Study Area, several secondary roads run perpendicular to the Ohio River, including Beautiful Ridge Road and Long Ridge Road. These roads are rural and relatively narrow; however, the roads have been upgraded in support of other recent oil and gas projects and activities. These roads are used by local residences for access. The roads are also likely used for school bus access to pick up children. School bus schedules and routes change each year based on need (if children are living on the road) and age of the children. The school system evaluates and creates the school bus routes each year. The Study Area is located in the Switzerland of Ohio Local School District which coverers 546 square miles (all of Monroe County and parts of Belmont and Noble Counties) and includes five elementary schools and three high schools.

Figure 3.18.1 illustrates the transportation resources in the Study Area.

The Study Area is located in a region of the country that is active in oil and gas drilling and processing. There are pads and associated pipelines in the Study Area that other private companies use for development, and roads within the Study Area are likely used for transporting related materials. The Ohio River is used to transport cargo via barges from the confluence with the Mississippi River to Pittsburgh where it is formed by the convergence of the Allegheny River and Monongahela River. The barges transport products to and from ports located along the Ohio River and include coal, coke, aggregates, and occasionally machines and equipment. There is no rail oil and gas-related travel in the portion of the Study Area of the proposed Transloading Facility.

3.18.2 Environmental Consequences

The methodology used for assessing impacts to transportation focused on a change in travel conditions, specifically road closures and traffic patterns.

No Action Alternative

Transloading Facility

Under the No Action Alternative, no additional truck traffic or rail traffic would occur on State Route 7 or the adjacent railroad related to development of the Transloading Facility.

NGL Pipeline

Under the No Action Alternative for the NGL Pipeline, there would be no temporary traffic increase along State Route 7 or other roads in the vicinity. The No Action Alternative would not impact local residential travel, oil and gas-related travel, or school bus travel.

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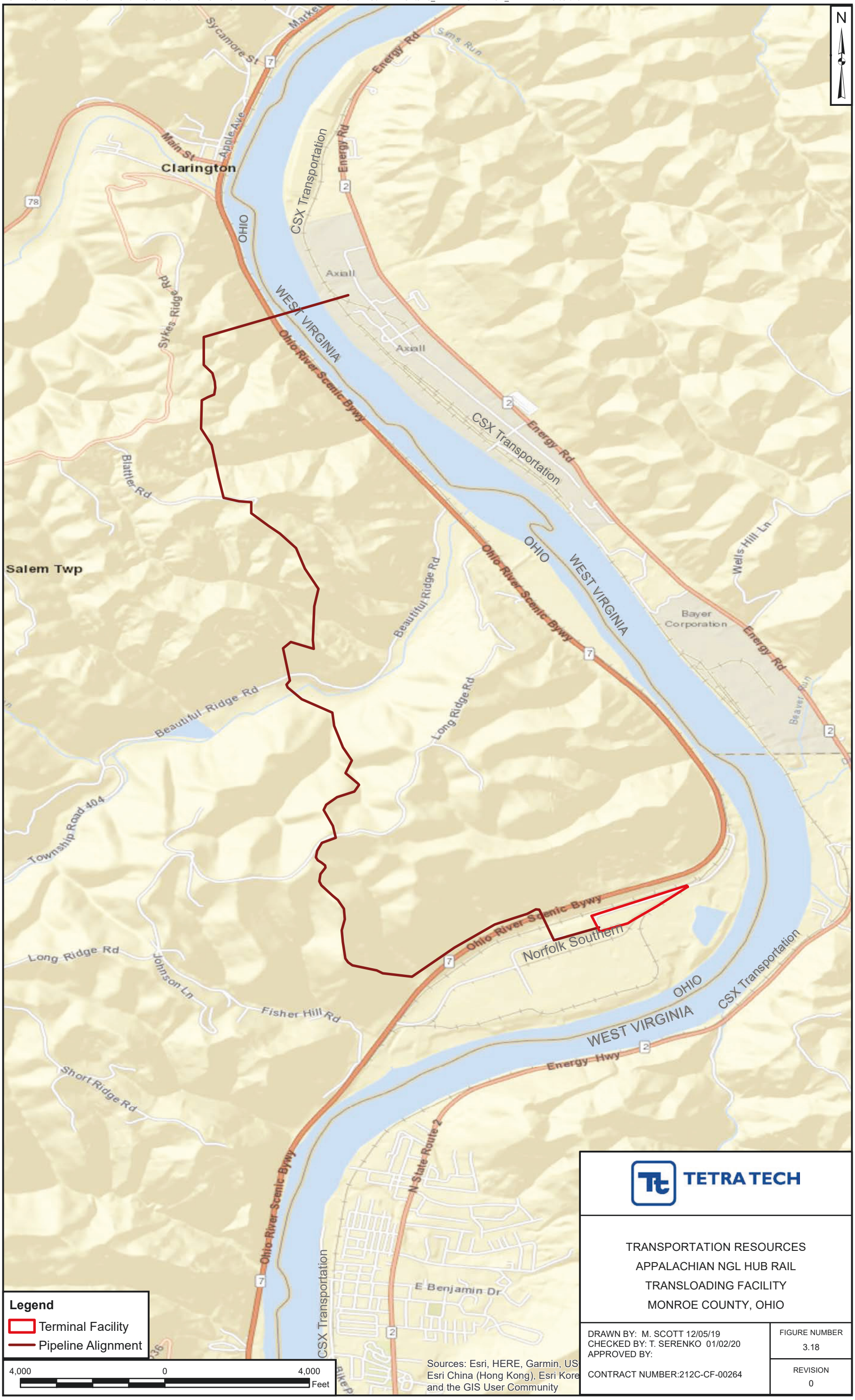

TETRA TECH

TRANSPORTATION RESOURCES
APPALACHIAN NGL HUB RAIL
TRANSLOADING FACILITY
MONROE COUNTY, OHIO

DRAWN BY: M. SCOTT 12/05/19
CHECKED BY: T. SERENKO 01/02/20
APPROVED BY:

CONTRACT NUMBER:212C-CF-00264

FIGURE NUMBER
3.18

REVISION
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Proposed Action Alternative

Transloading Facility

The proposed Transloading Facility will be accessed from State Route 7 through the existing access road to the LRET Property. The LRET Property is an active construction site where a natural gas-fired combined cycle power plant is being built. During construction of the Transloading Facility, additional construction vehicles would use the access road off State Route 7. The additional traffic would not pose a significant impact to the traffic patterns.

During the operation of the proposed Transload Facility, vehicular traffic would see a minor increase from the addition of eight new full-time employees and occasional delivery trucks that would enter the Transloading Facility for collecting transmix NGL for transportation back to the Blue Racer facility for processing and separation. Rail traffic to the proposed Transloading facility would increase and the facility is expected to fill 40-rail cars at a time. There is currently sufficient rail storage capacity on the LRET facility through an existing rail loop that goes around the majority LRET property. This would eliminate the need to stack rail cars along the main line.

Based on the minimal increase of traffic during construction and the rail storage capacity at the LRET Property, the Transloading Facility would not have impacts on transportation resources.

NGL Pipeline

As discussed in Section 3.12 and 3.13, during the construction and installation of the pipeline, local roads would be used to access the pipeline route and work areas associated with the pipeline. In the event of an emergency, response vehicles would be given the priority with the equipment trucks pulling over on a straight portion of the road and allowing the emergency vehicles access. No detours are anticipated due to the short duration of the road closures. Construction activities would increase traffic on the county and township roads and LRET would communicate with residents on temporary closures and to adjust construction activity traffic to accommodate school bus travel. Once the school bus routes and schedules are determined, LRET would coordinate with the school system prior to construction to be able to work around those schedules, if needed. There is also the potential for damage to the roads from use during construction of the NGL Pipeline. Due to recent oil and gas activities (well drilling and pipeline installation), the access road has already been upgraded to handle heavier loads. However, road damage could still occur due to construction equipment. LRET would coordinate with Monroe County and the Township prior to using the roads during construction. Following construction, LRET would return the roads to the previous condition. Once the NGL Pipeline has been installed and the area has been restored, there would be no additional traffic for the NGL Pipeline. Maintenance of the NGL Pipeline would be accessed through public roads or through access agreements included as part of the lease agreement with property owners. Periodic maintenance would no impact traffic or restrict traffic flow on the roads.

As discussed in Section 3.12 and 3.13, the above ground interconnect valve would require a new access road, which would include signage indicating restricted access for this roadway. This road would be used only for maintenance of the NGL pipeline and accessing the interconnect valve.

3.18.3 Avoidance, Minimization, and/or Mitigation Measures

A road use maintenance agreement (RUMA) would be put in place by LRET with Monroe County and the Township prior to use of the road or pipeline construction. This agreement would include an evaluation of the current condition and a condition to return the road to the previous condition (condition prior to the construction activities) or better condition. The RUMA would also describe any travel restrictions that would occur during construction. Travel restrictions would occur for pipeline construction personnel and related equipment deliveries or oversized loads during school bus travel times, if applicable. In the event of an emergency, response vehicles would be given the priority. The RUMA would detail contingencies, notification procedures, and emergency procedures related to transportation and traffic. LRET would work with Monroe County and the school district to get the information on bus routes and schedules prior to each school year during the construction period. Once the school bus routes and

schedules are determined, LRET would coordinate with the school system prior to construction to be able to work around those schedules, if needed. This information would be detailed in the RUMA.

As described in Section 3.12.3, a resident coordination and communication plan would be developed by LRET to communicate temporary road access restriction during construction with local residents.

As discussed in Section 3.12 and 3.13, the above ground interconnect valve would require a new access road, which would include signage indicating restricted access for this roadway.

3.19 INDIRECT AND CUMULATIVE IMPACTS

3.19.1 Affected Environment

3.19.1.1 Indirect Impacts

Indirect impacts are future consequences to the environment at or in the vicinity of a project that are directly associated with the implementation of a Build Alternative. The CEQ defines indirect impacts as those that are "caused by an action and are later in time or farther removed in distance but are still reasonably foreseeable." (40 CFR 1508.8).[3] Indirect impacts may include growth in population or development due to changes in land use, increase population and employment density and effects on air, water, or other natural systems.

Indirect impacts differ from direct impacts in that they are indirect or induced changes that result in changed patterns of social and economic activities. Direct impacts are directly related to the construction or the implementation of the proposed action. Indirect impacts are usually determined by land-use policies, development objectives and the physical location of the proposed action. Indirect impacts are either adverse or beneficial.

3.19.1.2 Cumulative Impacts

The CEQ regulations define cumulative effects as "…the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or nonfederal) or person undertakes such other actions. Cumulative effects can result from individually minor but collectively significant actions taking place over a period of time." (40 CFR 1508.7)[4] The cumulative effects analysis considers the aggregate effects of direct and indirect impacts from federal, nonfederal, public, and private actions on the quality or quantity of a resource.

The intent of the cumulative-effects analysis is to determine the magnitude and significance of cumulative effects, both beneficial and adverse, and to determine the contribution of the proposed action to those aggregate effects.

This Project is part of the redevelopment of the LRET Property. The LRET Property has added a rail loop around the facility and LRET is currently constructing a natural gas-fired combined cycle power plant, which began in 2019 and will continue until 2021. LRET would also like to redevelop other portions of the LRET Property that would have a continued impact to the economic growth of the region and to capture opportunities that would continue to develop as the oil and gas industry grows.

[3] Code of Federal Regulations 40 CFR 1508.8. Available at: https://ecfr.io/Title-40/.
[4] Code of Federal Regulations 40 CFR 1508.7. Available at: https://ecfr.io/Title-40/.

3.19.2 Environmental Consequences

3.19.2.1 Indirect Impacts

Indirect impacts from the proposed Project were evaluated and include reasonably foreseeable future consequences (positive and negative) from the Transloading Facility and NGL Pipeline. These indirect impacts include not only the Project, but also to adjacent properties, and the region.

The indirect impact analysis focused on the Project area and the potential impacts to the Salem and Ohio Townships along this portion of the Ohio River valley.

No Action Alternative

The No Action Alternative does not result in any beneficial secondary impacts, such as additional rail capacity for transport of NGLs, trucking jobs for transport of the transmix materials, jobs that would be generated to separate and process the NGLs and through the drilling activities in the region, and revenue and economic benefit to other local business that would support the Project and indirect employees.

Proposed Action Alternative

Transloading Facility

The proposed Transloading Facility would be constructed on an existing industrial property that is being redeveloped (LRET Property). The planned capacity for the Transloading Facility would be sufficient for the reasonably foreseeable future. The Transloading Facility, as proposed, could accommodate an additional 40 to 50 train cars to be filled and sent to markets through the eastern US. In addition, the existing rail loop around the LRET could be used to stack the additional rail cars and would have the capacity to hold up to 100 cars. If market demand for other products to be shipped by rail from this facility occurred, the Transloading Facility could also handle other petroleum products from the region if there is need and market for those products to be shipped by rail. The usage of existing capacity and expanded services of the Transloading Facility could result in additional jobs to individuals in Monroe County through temporary construction jobs and additional operational jobs relating to the production and shipping of other petroleum products in the region. While such development is possible, there are no known plans for it and as such any discussion of potential impacts would be speculative.

As payments to suppliers and worker wages are spent and recirculated in the area economy, additional jobs, income and revenue may be created in a variety of industries. This potential expansion may result in additional tax revenue for Monroe County and Ohio Township due to economic growth. The demographics of Monroe County and Ohio Township are not expected to significantly change.

NGL Pipeline

Except for adverse effects from an unexpected leak or release from the pipeline, there would be no future impacts to human health or individuals as a result of the NGL Pipeline.

3.19.2.2 Cumulative Impacts

The methodology used for assessing cumulative impacts included identification of past, present, and foreseeable projects that are considered with the construction and operation of the Project.

No Action Alternative

The No Action Alternative does not result in any cumulative impacts and the proposed Transloading Facility would not be part of the planned and continued development of the LRET Property.

Proposed Action Alternative

Transloading Facility

There is no known planned Transloading Facilities in Monroe County or the surrounding counties. Energy Transfer has existing pipelines located approximately 43 miles north of the proposed Transloading Facility that take NGLs from the region to the east coast. This includes the Mariner East pipeline, Mariner East 2 pipeline and the Mariner East 2X pipeline. The Mariner East and Mariner East 2 are currently in operation taking propane, ethane, and butane to the Marcus Hook Industrial Complex in Pennsylvania where it is processed, stored and distributed to markets. The Mariner East 2X is scheduled to be in service in late 2020 and will expand capacity.

An NGL underground storage facility known as the Mountaineer Facility has been planned approximately six miles to the north, on the west bank (Ohio side) of the Ohio River. The Mountaineer Facility is planned to take some of the excess NGL from the region and store it underground with caverns created in subsurface salt deposits. The status of this facility is unknown but would complement the proposed Transloading Facility by having the capacity to store NGLs produced in the region until needed in other markets. Outside of the proposed Mountaineer Facility, there are no known similar development projects in Monroe County or in Salem and Ohio Townships.

NGL Pipeline

Monroe County and the surrounding counties are within the Appalachian Shale Basin for oil and gas resources. This area has experienced a large amount of development in a relatively short period of time. As the region continues to move from exploration into production, the development activities have slowed down, but continue through the installation of additional wells on existing well pads, upgrading gathering, compression, and refining facilities, and finding safe and economic ways of getting product to market. This growth is through private companies and are conducted in accordance with their specific corporate schedules and plans that are not typically public knowledge. Private projects which do not receive federal funds or require a federal permit would not be subject to NEPA. This Project for the Transloading Facility and NGL Pipeline, in consideration with these past projects, would extent the period of construction and construction-related impacts within the region. Resource areas that would see prolonged construction effects would be impacts to road closures and traffic patterns, groundwater and potential for surface runoff, and potential for erosion and sedimentation impacts.

Some product users are also looking to expand in the region and the closest proposed facility, an ethane cracker, is located approximately 15 miles to the north-northeast of the proposed Transloading facility. This facility will use the ethane extracted from the region and create ethylene, which is used in plastics. This project is currently going through the permitting process. Another project, known as the Mountaineer Storage project, would be located approximately 6 miles to the north includes subsurface storage of NGLs in man-made salt caverns. This project has been permitted, but one of the permits had expired and an application has been reissued and is pending approval. This Project for the Transloading Facility and NGL Pipeline, in consideration with these current and foreseeable projects, would extent the period of construction and construction-related impacts within the region. Resource areas that would see prolonged construction effects would be impacts to road closures and traffic patterns, groundwater and potential for surface runoff, and potential for erosion and sedimentation impacts

There are no known NGL Pipelines planned within Monroe County or the surrounding counties. As mentioned above, Energy Transfer has existing pipelines located approximately 43 miles north of the proposed Transloading Facility that take NGLs from the region to the east coast. This region is active in the oil and gas industry. Wells and pad sites may be coming online in the future through other private development. If not properly permitted, engineered, and with property mitigation measures, the environment and public health could be adversely affected, including additional air emissions, noise and vibration impacts, visual impacts, and use on energy resources and transportation resources

4.0 COORDINATION AND CONSULTATION

4.1 AGENCY COORDINATION

As discussed in Chapter 1 and in the relevant resource sections within Chapter 3, resource and regulatory agencies have been consulted in the development of this Project. This coordination would continue through permitting, construction, start-up, and operation of the proposed Transloading Facility and NGL Pipeline. Coordination has occurred with the following agencies (correspondence is included in Appendices C and D):

Federal Agencies

- USACE – Nationwide Permit 12 and Section 10 Authorization for NGL Pipeline
- USFWS in Ohio – Section 7 Consultation
- USFWS in West Virginia – Section 7 Consultation

State Agencies

- Ohio EPA – 401 Water Quality Certification for NGL Pipeline, Air Permit, Construction Stormwater Permits (Transloading Facility and NGL Pipeline).
- Ohio Historic Preservation Office – Section 106 Consultation
- West Virginia Department of Environmental Protection – 401 Water Quality Certification for NGL Pipeline crossing the Ohio River
- West Virginia Historic Preservation Office - Section 106 Consultation

A summary of discussions and correspondence with federal and state agencies is provided in below by agency.

USACE: A meeting with the USACE was held February 11, 2020 to establish lines of communication between the FRA and the USACE, present an overview of the anticipated impacts to streams and wetlands, and establish expected deliverables. There would be no impacts to streams and wetlands for the federally-funded Transloading Facility; however, for the NGL Pipeline, temporary impacts would occur at a jurisdictional crossing and one small wetland conversion would be necessary. Jurisdictional stream and wetland crossings would be permitted under Nationwide Permit 12 for utilities crossing the waters of the United States. A Pre-Construction Notification (PCN) and Section 10 Authorization for crossing of the Ohio River would be required. Coordination between LRET and the USACE would continue through the permitting process.

USFWS, Ohio and West Virginia Offices: Consultation letters were submitted to the USFWS offices in Ohio and West Virginia, December 6, 2019, for the Project area (including the Transloading Facility and NGL Pipeline). Responses were received from Ohio USFWS on March 13, 2020, and from West Virginia USFWS on January 31, 2020. USFWS requires no further coordination in either state unless there are changes to the LOD as discussed in Section 3.5.

ODNR: A consultation letter was submitted to the ODNR Office of Real Estate – Environmental Review Services Section on December 6, 2019. A response was received on January 22, 2020, as further described in Section 3.5. No further coordination is required unless there are changes to the proposed project LOD as discussed in Section 3.5.

Ohio EPA: There would be no wetland or stream impacts for the federally-funded Transloading Facility; therefore, no permit would be required. However, the NGL Pipeline would incur temporary stream and wetland impacts and one small wetland conversion. These impacts would be subject to a 401 Water Quality Certification (WQC) in accordance with Section 401 of the Clean Waters Act. A pre-application meeting will occur with the Ohio EPA prior to submittal of the permit application to introduce the proposed Project, establish lines of communication and coordination between the Ohio EPA and the USACE, and establish expected deliverables.

WVDEP: The federally-funded Transloading Facility is in Ohio and is not subject to WVDEP regulations. The NGL Pipeline would begin in West Virginia at the Blue Racer facility and cross under the Ohio River. The Ohio River is mostly located in the Commonwealth of West Virginia, and therefore, the NGL Pipeline would be subject to regulatory oversight by the WVDEP. The WVDEP was contacted on February 11, 2020, as an introduction from the USACE and again on February 20, 2020, to discuss the Project and permitting requirements to meet the WV conditions to the NWP-12 and for the 401 WQC. Since the proposed bore is less than 100 feet below the bottom of the Ohio River, a 401 WQC would be required. In addition, an Inadvertent Return Plan and Contingency Plan will be required for crossing the Ohio River. Coordination between LRET and the WVDEP will continue through the permitting process.

OHPO: A cultural resources survey was conducted for the Transloading Facility and NGL Pipeline in the fall of 2019. A technical report was submitted to the OHPO with a finding of No Adverse Effect to historic properties. OHPO concurred on April 16, 2020. A summary of the survey results is presented in Section 3.6. The complete technical report and comments of the OHPO are provided in Appendix D.

WVDCH: The transfer pump station that would pump the NGL to the Transloading Facility is included as part of the proposed NGL Pipeline, and the new transfer pumps would be located in the existing Blue Racer facility in West Virginia. This area around the existing Blue Racer facility has been previously disturbed by past and current industrial activity. A Section 106 Project Review Notice was submitted to the WVDCH on December 11, 2019. The WVDCH commented in a letter dated January 9, 2020 (See Section 3.6 and Appendix D). The WVDCH stipulated that no archaeological investigations are necessary and that the project would "impose no effect on historic resources…" No further consultation is necessary unless archaeological items are encountered during construction or there are project changes.

4.2 PUBLIC OUTREACH

No public meetings or hearings were held for the proposed Project. Public meeting and newspaper notices will be conducted for the air permit that will be submitted for the Transloading Facility. These meetings and notifications will be conducted in accordance with the requirements of the Ohio EPA.

This draft EA will be circulated for a 30-day public comment period. A notice will be placed in the Intelligencer (Wheeling News-Register) and the Monroe County Herald on the availability of the EA and the comment period, including how and where to provide comments. The draft EA will be available on the project website and the FRA website. FRA will consider comments received on the draft EA in development of the NEPA decision document.

The proposed Transloading Facility and a portion of the proposed NGL Pipeline is on property owned by LRET. The remainder of the NGL Pipeline will cross an additional 29 land parcels and an additional 14 property owners (some property owners own more than one parcel). Individual meetings with property owners along the proposed pipeline route were notified about the Project and the need for the NGL Pipeline across their respective properties. Access agreements were signed with the impacted property owners in order to conduct field studies along the route. The property owners allowed access for the studies that are presented and summarized in Section 3 of this EA. No property owner along the pipeline route has expressed concerns with the Project or the proposed NGL Pipeline. LRET continues coordination with property owners on the NGL Pipeline.

4.3 TRIBAL COORDINATION

Coordination with federally-recognized Tribes, listed below, is part of the EA process. The FRA invited these Tribes to participate in the Project as a consulting party in the Section 106 process. The FRA requested Tribal input regarding any historic properties that have religious and cultural significance to them and may be affected by the Project and included:

- Eastern Shawnee Tribe of Oklahoma
- Miami Tribe of Oklahoma

- Osage Nation
- Seneca-Cayuga Nation

The FRA sent consultation letters as part of Section 106 compliance to each of the tribes on March 16, 2020. The coordination letters describe the Project background, the location of the site and the general construction components of the proposed facility. The coordination letters also listed the Area of Potential Effect (APE), and the results of surveys conducted on archaeology and historic properties in the APE.

Additional details on tribal coordination is presented in Section 3.6. A copy of the letters that were sent and responses are included in Appendix H.

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