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Missile/Munitions Distribution Facility (MMDF) and Rail Classification Yard (RCY) Environmental Assessment (EA)

Letterkenny Army Depot, Pennsylvania

July 2024

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ENVIRONMENTAL ASSESSMENT

DEPARTMENT OF THE ARMY

Letterkenny Army Depot

Chambersburg, Pennsylvania

FINDING OF NO SIGNIFICANT IMPACT

Letterkenny Munitions Center Project at Letterkenny Army Depot

INTRODUCTION

This Environmental Assessment (EA) has been prepared to analyze the potential environmental, cultural, and socioeconomic effects associated with construction and operation of a new Missile/Munitions Distribution Facility (MMDF) and Rail Classification Yard (RCY) in the northeastern section of Letterkenny Munitions Center (LEMC) at Letterkenny Army Depot (LEAD), Pennsylvania. This EA and Finding of No Significant Impact (FNSI) were prepared pursuant to the National Environmental Policy Act (NEPA) of 1969 (42 United States Code Section 4321 *et seq.*); the Council on Environmental Quality (CEQ) regulations that implement NEPA (Title 40 Code of Federal Regulations [CFR], Parts 1500 to 1508); and the U.S. Army's NEPA regulations at 32 CFR Part 651.

PURPOSE AND NEED FOR THE PROPOSED ACTION

The ***purpose*** of the Proposed Action is to provide an effective, efficient, and DoD Explosives Safety Board (DDESB)-compliant MMDF at LEMC, capable of handling LEMC's demands for ammunition processing. With the implementation in 2006 of the JMC's Integrated Logistics Study (ILS) and Enterprise-Integrated Logistics Study (E-ILS), LEMC has been designated as the provider of joint munitions for the Northeast Region.

The Proposed Action is ***needed*** because LEMC is designated as the provider of joint munitions to all of the Northeast Region and needs to meet their shipment demands. If this project is not provided, a DDESB-compliant MMDF capable of responding effectively and efficiently to the centralized ammunitions shipments specific to the Northeast Region will not be available.
In addition, the demolition of Buildings 1456 and 2365 is ***needed*** because they are in a state of disrepair, pose environmental hazards, and have renovation costs which would exceed the current value of the buildings.

DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

The Proposed Action consists of the demolition of Buildings 1456 and 2365; construction of a MMDF and a vehicle storage building; and the construction of a RCY with an access control building. The project will include cybersecurity, sustainability/energy measures, building information systems, and site development.

The proposed MMDF includes stormwater management ponds along with extensive grading necessary for building construction, and a parking area for government and commercial vehicles. Designs for the MMDF will follow Unified Facilities Criteria (UFC) 4-440-01, *Warehouses and Storage Facilities*, for finish standards and explosive safety criteria per Defense Explosives Safety Regulation (DESR) 6055.9 (01.2019). The conceptual design can be seen in **Figure FNSI 1** below.

The proposed MMDF would replace the current MMDF facility. Under the Proposed Action, the current MMDF would be retained by LEMC and continue to be used for minor shipment operations. It would also be used for overflow or any changing missions that cannot be accounted for yet.

This EA analyzes two courses of action: the Proposed Action and the No Action Alternative, both described below. Alternatives considered but eliminated from further evaluation are also listed below.

No-Action Alternative

Under the No Action Alternative, the Proposed Action would not be implemented. The current MMDF would continue to be utilized and a DDESB-compliant MMDF capable of responding effectively and efficiently to the centralized ammunitions shipments specific to the Northeast Region would not be available. The current space is not large enough and does not meet ESQD arc requirements, which exposes both the munitions and personnel to the elements creating an unsafe working environment.

Operational efficiencies at both the less than truckload (LTL) building and RCY would be lacking and the opportunity for shipment delays, missed delivery commitments, detention charges, and fewer consolidated shipments would occur. Buildings 2365 and 1456 would be left in their current state. They would continue to deteriorate, falling further into disrepair and pose an environmental hazard to those around them.

Alternatives Eliminated From Further Consideration

Renovation of Current MMDF

Under this alternative, the MMDF would be renovated. The size and the functional layout of interior structural components associated with the facility would not allow for the incorporation of space requirements to meet current and programmed future mission requirements. This would also not solve the ESQD arc issue and is therefore not viable.

Renovation/New Construction Combination

Under this alternative, a mix of existing building renovation (including the current MMDF), and new construction, when necessary, were considered. This alternative attempted to use existing facilities within LEMC some of which would require renovation, alongside the construction of new buildings to account for the lack of space in existing facilities. Although renovation of assigned facilities could improve associated appearance characteristics, it would not provide space that meets the mission flexibility, and it would not adequately address the large deficit of space

Figure FNSI 1 MMDF and RCY Project Location Map

Figure FNSI 2 Proposed Demolition Project Sites

and new development constraints at LEAD. New construction could geographically separate both facilities, not entirely meeting the objective of the project, and exacerbating an already dysfunctional siting of facilities. In addition, there is no existing facility identified within the Real Property Inventory that could be renovated to adequately meet the project objectives.

Other DoD Agencies or Federal Agency Facilities

Under this alternative, other DoD or Federal Agency Facilities could be leased to fulfill the mission requirements. The only nearby facilities that meet this requirement are Carlisle Barracks and the Navy Support Activity Mechanicsburg. Neither of these have facilities that could support the mission.

Leasing within LEAD

Under this alternative, an existing facility within LEAD would be leased to replace the current MMDF. This facility could have been within or outside of the LEMC boundary. The LEAD Department of Public Works (DPW) has indicated that there are no facilities within LEAD's boundary available for lease that would support the project objective to provide LEMC with adequate long-term facility space. Additionally, leasing of facilities does not conform to DoD Directive 4165.056, *Real Property*, published July 19, 2022.

Contract the Services

Under this alternative, LEMC munitions handling would be the responsibility of a contractor. This would not meet security standards if the facility was not within an DoD-controlled perimeter.

SUMMARY OF ENVIRONMENTAL IMPACTS

As detailed in this EA, construction activities associated with the Proposed Action would generate adverse impacts to natural resources, but no significant adverse impacts would occur. These impacts would be temporary, lasting approximately only during the construction phase. The intensity of the adverse impacts would be limited to the area immediately surrounding the Proposed Action area.

During operation, long-term, minor, direct, adverse impacts would occur. On a cumulative basis, the Proposed Action would also have long-term, minor, indirect, adverse impacts. **Table FNSI-1** below summarizes the potential consequences the Proposed Action and No Action Alternative would have on resources evaluated in the EA.

Table FNSI-1. Summary of Environmental Consequences

Resource	Construction	Operation	No Action
Land Use	Short- and long-term, direct, moderate, adverse impact on land use due to construction staging and conversion of agricultural fields to developed land.	Long-term, minor, direct adverse effects on land use from the conversion of agricultural land to developed land. Long-term, direct, negligible adverse effects on viewshed.	No impact
Viewshed	Short-term, direct, minor adverse impacts due to construction staging.	Overall, long-term, direct, minor beneficial impacts due to the due to the removal of dilapidated structures and renovation of the current RCY.	Long-term, minor, direct, adverse impacts due to the continued existence of two dilapidated buildings at LEAD.
Geology, Topography, and Soils	Short-term, minor, direct adverse impacts to topography with the extensive grading of the MMDF and RCY sites. No impacts to geology. Short- and long-term, moderate, direct impacts to soil from arable land conversion to developed land.	No impacts to geology or topography after construction. Long-term, moderate, direct adverse impact to soils from the conversion of arable land to compacted, non-productive land.	No impact
Prime Farmland	Long-term, minor, direct, adverse impacts from conversion of up to 13 acres of farmland into developed land.	Long-term, minor, direct, adverse impacts from permanent soil compaction.	No impact
Water Resource (Surface Water, Stormwater, Floodplains, Wetlands, and Groundwater)	Short-term, minor, direct, adverse impacts to surface water, stormwater, floodplains, and wetlands from sediment deposition, conversion or	Long-term, direct, negligible, adverse impacts to surface water due to conversion of permeable land to impervious. Long-term, direct, minor, adverse impacts to stormwater and floodplains due to	No impact

Resource	Construction	Operation	No Action
	permeable to impervious surface, and development in a Zone A of a floodplain, and disturbance of wetlands, respectively. Short-term, indirect, negligible, adverse impacts to groundwater from potential accidental releases of petroleum.	potential increased runoff and operation of an RCY in a floodplain.	
Biological Resources (Vegetation, Wildlife, Rare, Threatened, and Endangered Species[RTE])	Overall, short-and long-term, minor, direct, adverse impacts to vegetation, wildlife, and RTEs due to removal and/or trampling, noise from construction and habitat removal, and accidental discovery or take of RTE species, respectively.	Overall, long-term, minor, direct, adverse impacts vegetation. Long-term, negligible, direct, adverse impacts to wildlife and RTEs from operational noises.	No impact
Cultural Resources	No impacts to cultural resources to the MMDF as no archeological sites are present. The RCY site was determined to not be eligible for the NRHP	No impact	No impact
Hazardous and Toxic Materials and Waste	Short-term, direct, minor , adverse impacts due to the use of chemicals and fuels during construction and the release of hazardous materials during demolition.	Long-term, minor, direct, adverse impacts due to wastes and hazardous materials generated at the operation sites.	No impact
Utilities (Potable Water, Wastewater, Energy Sources, Natural Gas, Communications, and Solid Waste)	Long-term, minor, direct, adverse impacts due to increased demands on existing utility structures.	Long-term, minor, direct, adverse impacts due to increased consolidated shipments at the MMDF and upgrades the LEAD rail system.	No impact

Resource	Construction	Operation	No Action
Transportation and Traffic	Short-term, minor, direct, adverse impacts to additional traffic during construction.	Long-term, minor, direct, beneficial impacts	No impact
Noise	Short-term, minor, direct, adverse impacts due to increase in noise during construction and demolition.	Long-term, minor, direct, adverse impacts due to operational noises at the MMDF. .	No impact
Air Quality and Climate Change	Short-term, minor, direct, adverse impacts from construction emissions.	Long-term, minor, direct, adverse impacts from the operation of the newly constructed MMDF.	No impact
Human Health and Safety	No impact	No impact	No impact
Socioeconomics (Environmental Justice and Protection of Children)	Short-term, minor, direct, beneficial impacts to socioeconomics due to job creation during construction. No impact to environmental justice or protection of children.	No impact	No impact
Cumulative Impacts	No impact	Long-term, minor, indirect, adverse impacts from increase pollutant emissions, and increased impervious surface, noise, vegetation removal, and soil degradation.	No impact

PUBLIC INVOLVEMENT

The Draft EA was made available for public review online at https://www.letterkenny.army.mil/ and https://www.amc.army.mil/Resources/Environmental/. The Notice of Availability for the Draft EA was published in the *Chambersburg Public Opinion*. All comments received during this public review period, which include agency responses but no public comments, have been considered and incorporated in the Final EA

CONCLUSION AND FINDING OF NO SIGNIFICANT IMPACT

I have reviewed the EA and find that the Proposed Action for the Missile/Munitions Distribution Facility (MMDF) and Rail Classification Yard (RCY) at Letterkenny Army Depot will have no significant impacts on the natural environment, cultural resources, or the human environment. Based on these findings, an Environmental Impact Statement is not required for this project and this FNSI shall be issued.

COL DONALD SANTILLO
COL, LG COMMANDING

Date

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1. INTRODUCTION

1.1. PROJECT BACKGROUND

This Environmental Assessment (EA) is prepared in accordance with the National Environmental Policy Act (NEPA) of 1969; its implementing regulations published by the Council on Environmental Quality (CEQ) (40 Code of Federal Regulations [CFR] 1500-1508), as amended May 20, 2022; and 32 CFR Part 651, which implements NEPA for the Army as revised and published in the Federal Register on March 29, 2002, as *Environmental Analysis of Army Actions*. Pursuant to NEPA, Federal agencies are required to consider the environmental consequences of their proposed actions. NEPA typically applies when the Federal agency is the proponent of the action or where Federal funds are involved in the action.

Letterkenny Army Depot (LEAD) is located in Chambersburg, central Franklin County, Pennsylvania and contains Letterkenny Munitions Center (LEMC) within its boundaries. LEMC is a United States (U.S.) Army, government-owned facility under the command of the Joint Munitions Command (JMC). LEMC conducts regional and global contingency distribution of munitions, provides missile maintenance, and conducts demilitarization of munitions for the Army in support of all Department of Defense (DoD) and international partners to provide readiness to the warfighter.

This EA provides NEPA analysis and documentation for the Proposed Action, which includes the construction and operation of a Missile/Munitions Distribution Facility (MMDF) and Rail Classification Yard (RCY) on the northeast section of LEMC (**Figures 1-1 and 1-2**). In addition, the Proposed Action includes the demolition of Building 1456, which served as a shipping and receiving building and now lies in a state of disrepair **(Figure 1-3**) and the demolition of Building 2365, an old storage warehouse (**Figure 1-3**).

1.2. PURPOSE AND NEED

The ***purpose*** of the Proposed Action is to provide an effective, efficient, and DoD Explosives Safety Board (DDESB)-compliant MMDF at LEMC, capable of handling LEMC's demands for ammunition processing. With the implementation in 2006 of the JMC's Integrated Logistics Study (ILS) and Enterprise-Integrated Logistics Study (E-ILS), LEMC has been designated as the provider of joint munitions for the Northeast Region.

The Proposed Action is ***needed*** because LEMC is designated as the provider of joint munitions to all of the Northeast Region and needs to meet their shipment demands. In addition, the demolition of Buildings 1456 and 2365 is ***needed*** because they are in a state of disrepair, pose environmental hazards, and have renovation costs which would exceed the current value of the buildings. Building 1456 is an unused and dilapidated shipping and receiving building, which would no longer serve a purpose with the construction of a new MMDF. Army Materiel Command (AMC) Army Facility Investment Guidance (AMC, 2022) also requires a "one-for-one" offset which dictates that any new footprint construction must be offset with an equal disposal asset. Inherently, this guidance is put in place to control the growth and investment in costly, underutilized facilities. In this instance the disposal asset would be attained through the demolition of Buildings 1456 and 2365.

Figure 1-1: LEAD Location Map

Figure 1-2: Proposed Project Location Map

Figure 1-3: Proposed Building Demolitions

MMDF facilities currently in use are restricted in throughput capacity due to an explosive safety quantity distance (ESQD) constraint. The quantity of munitions processed is severely constrained by exposed sites. A requisite safe operating distance between these exposed sites and the MMDF must be maintained. As part of LEAD legacy rail infrastructure there are two existing RCYs, Classyard 1 and Classyard 2. However, Classyard 1 and Classyard 2 are now outside the ammunition area due to LEAD's 1995 Base Realignment and Closure (BRAC) requirement to transfer its entire rail system over to a private development. LEMC has trackage rights to Classyard 1, but the private development authority owns the track. The tracks at Classyard 1 have fallen into disrepair.

If this project is not provided, a DDESB-compliant MMDF capable of responding effectively and efficiently to the centralized ammunitions shipments specific to the Northeast Region will not be available.

1.3. SCOPE OF THE ENVIRONMENTAL ASSESSMENT

This EA informs decision makers and the public of the likely environmental impacts of the Proposed Action and the No Action Alternative. This EA identifies, documents, and evaluates environmental effects of the proposed activity at LEMC. Environmental effects would include those related to construction and operation of the Proposed Action. The Proposed Action, No Action Alternative, and other alternatives considered but eliminated from consideration are detailed in **Section 2.0** of this EA.

The information presented in this document will serve as the basis for deciding whether the Proposed Action would result in a significant impact to the human environment, requiring the preparation of an Environmental Impact Statement (EIS), or whether no significant impacts would occur, in which case a Finding of No Significant Impact (FNSI) would be appropriate. If the Proposed Action would involve construction in a wetland as defined in Executive Order (EO) 11990, *Protection of Wetlands*, or action in a floodplain under EO 11988, *Floodplain Management*, a Finding of No Practicable Alternative (FONPA) would be prepared in conjunction with the FNSI.

The existing conditions at LEAD are described in **Section 3.0**, *Affected Environment and Environmental Consequences*. The evaluation of potential impacts from the Proposed Action can also be found in **Section 3.0**, following the descriptions of each resource area. The following resources are evaluated in this EA: land use; geology, topography, and soils; prime farmland; water resources; biological resources; cultural resources; hazardous and toxic material and waste; utilities; transportation and traffic; noise; air quality and climate change; human health and safety; socioeconomics; and cumulative impacts

To the extent possible, analyses of the resources presented in this EA are streamlined based on the anticipated level of potential impact. The following resource areas are not analyzed in this EA because the Proposed Action either has no potential to affect them, or the potential impacts would be negligible:

Airspace. No impacts to airspace from construction or operation activities related to the Proposed Action are expected to occur.

Designated Natural Areas. No Wild or Scenic Rivers, Natural Areas, or National Forests are present in the Proposed Action area.

1.3.1. *Interagency Coordination and Consultations*

Scoping is an early and open process for developing the breadth of issues to be addressed in the EA and for identifying significant concerns related to a Proposed Action. Per the requirements of Intergovernmental Cooperation Act of 1968 (42 United State Code [U.S.C.] 4231(a)) and EO 12372, *Intergovernmental Review of Federal Programs*, Federal, state, and local agencies with jurisdiction that could be affected by the Proposed Action were notified during the development of this EA.

Appendix A contains the list of agencies consulted during this analysis and copies of correspondence.

1.3.2. *Government to Government Consultations*

EO 13175, *Consultation and Coordination with Indian Tribal Governments*, directs Federal agencies to coordinate and consult with Native American tribal governments whose interests might be directly and substantially affected by activities on federally administered lands. Consistent with that EO, Department of Defense Instruction (DoDI) 4710.02, *Interactions with Federally-Recognized Tribes*, federally-recognized tribes that are historically affiliated with the LEAD geographic region were invited to consult on all proposed undertakings that have a potential to affect properties of cultural, historical, or religious significance to the tribes. The tribal consultation process is distinct from NEPA consultation or the interagency coordination process, and it requires separate notification of all relevant tribes.

The Native American tribal governments that were coordinated or consulted with regarding these actions are listed in **Appendix A**.

1.3.3. *Other Agency Consultations*

Per the requirements of Section 106 of the National Historic Preservation Act (NHPA) and implementing regulations (36 CFR Part 800); Section 7 of the Endangered Species Act (ESA) and implementing regulations; and the Migratory Bird Treaty Act (MBTA); findings of effect and request for concurrence were transmitted to the Pennsylvania State Historic Preservation Office (SHPO) and the U.S. Fish and Wildlife Service (USFWS). A full list of agencies LEAD coordinated with can be found in **Appendix A**.

Concurrence indicating a finding of no adverse effect for the construction of the Proposed Action is pending with the submissions of a Phase II Archeological Report. A report was generated through the Information for Planning and Conservation (IPaC) system, the USFWS online system for searching for species protected under the ESA, which notes that four [4]protected species have the potential to occur within the limit of disturbance (LOD) of the Proposed Action. In addition, a Pennsylvania Natural Diversity Inventory (PNDI) environmental review tool was generated on 24 June 2024.Correspondence regarding the findings and concurrence and resolution of any adverse effect is included in **Appendix A**.

1.4. PUBLIC INVOLVEMENT

Public participation opportunities with respect to this EA and FNSI and decision making on the Proposed Action are guided by 32 CFR Part 651.

A Notice of Availability (NOA) of the Draft EA and Draft FNSI was published in the newspapers of record (listed below), announcing the availability of the Draft EA and Draft FNSI for review. The NOA invited the public to review and comment on the Draft EA and Draft FNSI. The NOA and public and agency comments are provided in **Appendix A**.

The NOA was published in the *Chambersburg Public Opinion*. Electronic copies of the Draft EA and Draft FNSI were made available for review on the LEAD environmental website, at https://www.letterkenny.army.mil/ and https://www.amc.army.mil/Resources/Environmental/.

Comments received during the 30-day public review period have been addressed and documented in the final EA, as appropriate. All coordination letters and responses received during the preparation of this EA are located in **Appendix A**.

At the end of the 30-day public review period, LEAD considered any comments submitted by individuals, agencies, or organizations on the Proposed Action, the Draft EA, or Draft FNSI, if applicable. As appropriate, LEAD may then execute the FNSI and proceed with implementation of the Proposed Action. If it is determined prior to issuance of a final FNSI that implementation of the Proposed Action would result in significant impacts, LEAD will publish in the *Federal Register* a Notice of Intent (NOI) to prepare an EIS, commit to mitigation actions sufficient to reduce impacts below significance levels, or not take the action.

1.5. ENVIRONMENTAL LAWS AND REGULATIONS

Army decisions that affect environmental resources and conditions occur within the framework of numerous laws, regulations, and Executive Orders (EO). Some of these authorities prescribe standards for compliance while others require specific planning and management actions to protect environmental values potentially affected by Army actions. Compliance with the following environmental regulations and EOs include but are not limited to the EOs and regulations presented in **Table 1-1** below.

Table 1-1 Compliance with Federal Environmental Statutes and Executive Orders

Acts	Compliance
Archaeological Resources Protection Act (ARPA) of 1979	FULL
Clean Air Act, as amended (42 United States Code [U.S.C.]	FULL
Clean Water Act, as amended (33 U.S.C. ch. 23 §1151)	FULL
Coastal Zone Management Act (CZMA) of 1972, as amended	FULL
Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended by the Superfund Amendments and Reauthorization Act of 1986 (42 U.S.C. §9601 et seq.)	FULL
Section 438 of the Energy Independence and Security Act (42 U.S.C. ch. 152 §17001 et seq.)	FULL
Endangered Species Act of 1973, as amended (16 U.S.C. ch. 35 §1531 et seq.)	FULL

Acts	Compliance
Fish and Wildlife Coordination Act, as amended (16 U.S.C. 661-667e)	FULL
Migratory Bird Treaty Act (16 U.S.C §§703-712, et seq.)	FULL
National Defense Authorization Act of 2018 (Public Law 115-91)	FULL
National Environmental Policy Act of 1969 (42 U.S.C. §4321 et seq.)	FULL
National Historic Preservation Act of 1966, as amended (16 U.S.C. ch. 1A, subch. II §470 et seq.)	FULL
Noise Control Act of 1972, as amended (42 U.S.C. §§4901-4918, et seq.)	FULL
North American Wetlands Conservation Act (16 U.S.C. 4401-4412)	FULL
Resource Conservation and Recovery Act (42 U.S.C. ch. 82 §6901 et seq.)	FULL
Safe Drinking Water Act, as amended (42 U.S.C. §300f)	FULL
Solid Waste Disposal Act of 1965, as amended (42 U.S.C 6901 et seq.)	FULL
Toxic Substances Control Act of 1976 (15 U.S.C. ch.53, subch. I §§2601-2629)	FULL
Watershed Protection and Flood Prevention Act of 1954 (16 U.S.C. §1101, et seq.)	FULL
Wild and Scenic Rivers Act (16 U.S.C. 1271, et seq.)	FULL
Sikes Act, as amended (16 U.S.C. 670a-670o)	FULL
Executive Orders (EO)	
Protection and Enhancement of the Cultural Environment (EO 11593)	FULL
Floodplain Management (EO 11988)	FULL
Protection of Wetlands (EO 11990)	FULL
Environmental Justice in Minority Populations and Low-Income Populations (EO 12898)	FULL
Federal Compliance with Pollution Control Standards (EO 12088)	FULL
Protection of Children from Environmental Health Risks and Safety Risks (EO 13045)	FULL
Invasive Species (EO 13112)	FULL
Consultation and Coordination with Indian Tribal Governments (EO 13175)	FULL
Efficient Federal Operations (EO 13834)	FULL
Chesapeake Bay Protection and Restoration (EO 13508)	FULL
Strengthening Federal Environmental, Energy, and Transportation Management (EO 13514)	FULL

2. DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES

This chapter describes the Proposed Action and Alternatives to the Proposed Action. In accordance with CEQ guidance in 40 CFR 1502.14, the purpose of this chapter is to sharply define the differences between the alternatives.

2.1. PROPOSED ACTION

The Proposed Action consists of the demolition of Buildings 1456 and 2365; construction of a MMDF and a vehicle storage building; and the construction of a RCY with an access control building. The project will include cybersecurity, sustainability/energy measures, building information systems, and site development.

The proposed MMDF includes stormwater management ponds along with extensive grading necessary for building construction, and a parking area for government and commercial vehicles. Designs for the MMDF will follow Unified Facilities Criteria (UFC) 4-440-01, *Warehouses and Storage Facilities*, for finish standards and explosive safety criteria per Defense Explosives Safety Regulation (DESR) 6055.9 (01.2019). The conceptual design can be seen in **Figure 2-1** below.

The proposed MMDF would replace the current MMDF facility. Under the Proposed Action, the current MMDF would be retained by LEMC and continue to be used for minor shipment operations. It would also be used for overflow or any changing missions that cannot be accounted for yet.

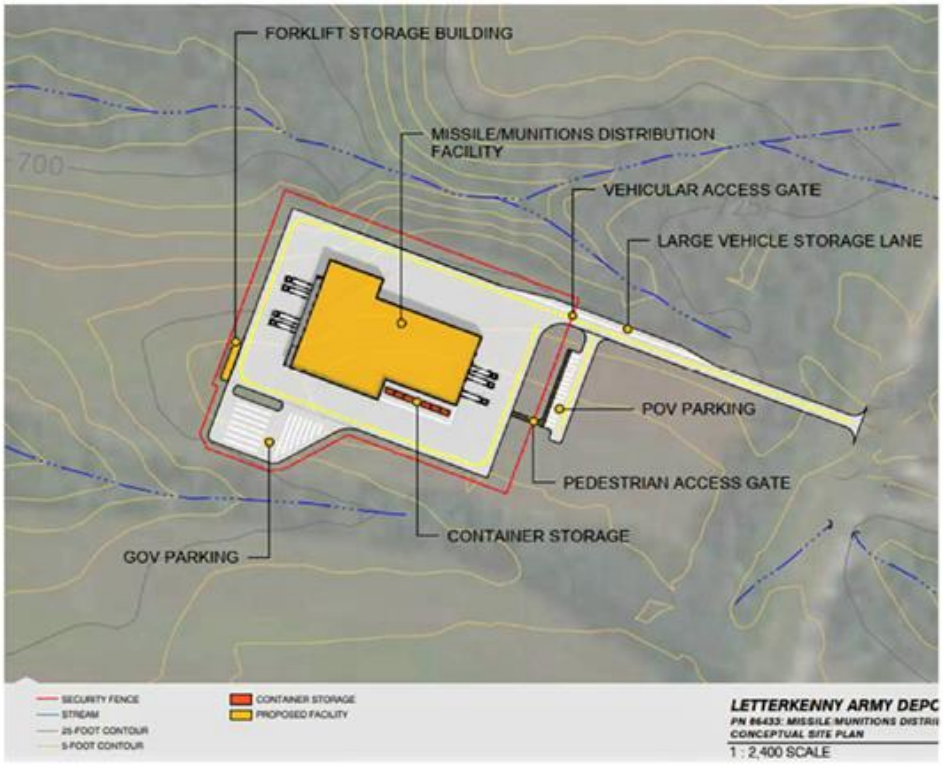

Figure 2-1: MMDF Design

The RCY would include the reconstruction of the existing mainline track, the construction of two classification tracks, and an access control building, labeled as shipping and receiving **in Figure 2-2,** and a small gravel access road around the RCY with fire hydrants 500 ft apart on the north side. This would include the extension of culverts and grass swales (**Figure 2-2**).

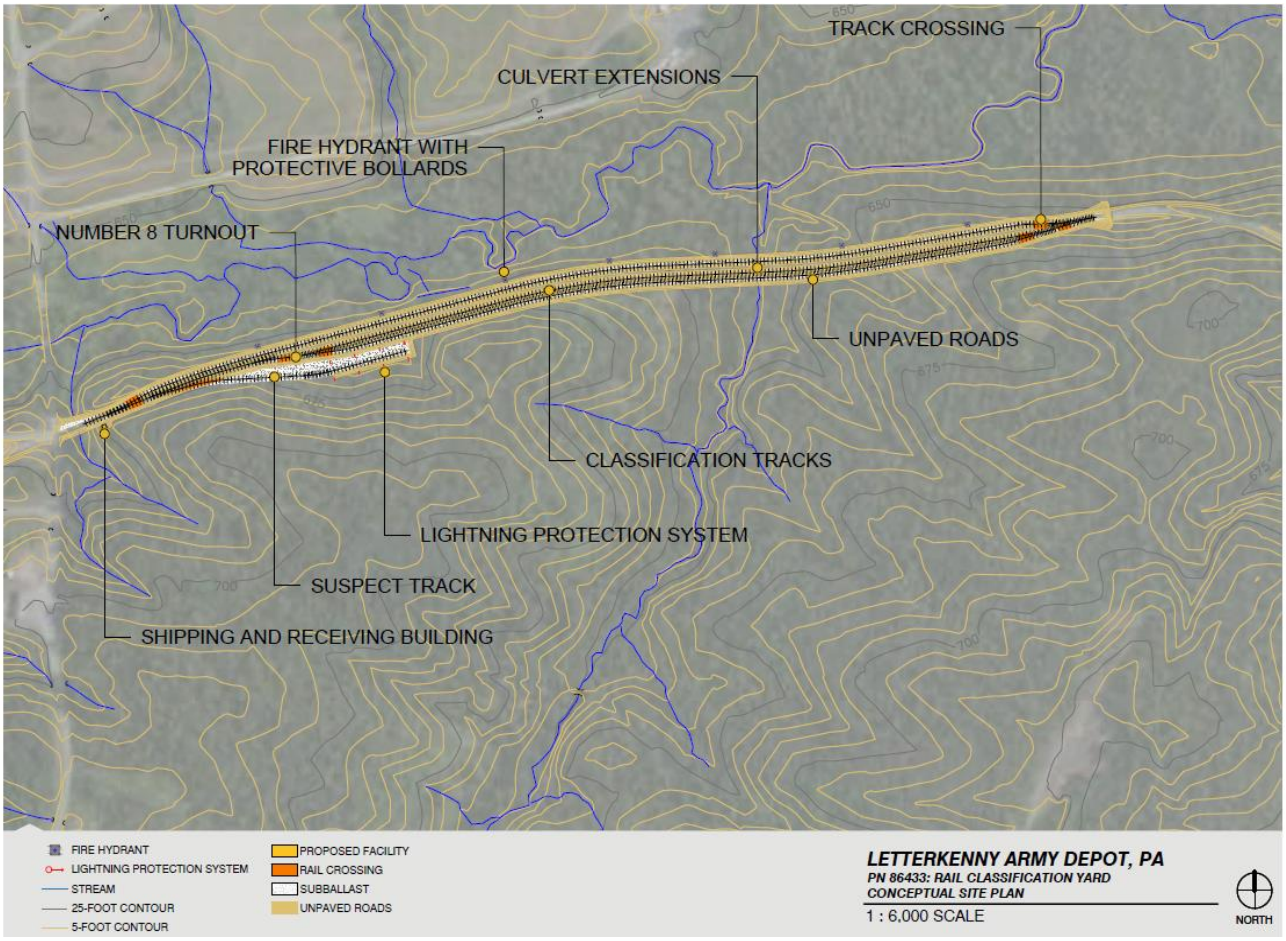

Figure 2-2: RCY Design

2.2. NO ACTION ALTERNATIVE

Under 40 CFR 1508, a No Action Alternative is to be analyzed in an EA to provide a comparative basis for the Preferred Alternative. Under the No Action Alternative, the Proposed Action would not be implemented. The current MMDF would continue to be utilized and a DDESB-compliant MMDF capable of responding effectively and efficiently to the centralized ammunitions shipments specific to the Northeast Region would not be available. The current space is not large enough and does not meet ESQD arc requirements, which exposes both the munitions and personnel to the elements creating an unsafe working environment.

Operational efficiencies at both the less than truckload (LTL) building and RCY would be lacking and the opportunity for shipment delays, missed delivery commitments, detention charges, and fewer consolidated shipments would occur. Buildings 2365 and 1456 would be left in their current

state. They would continue to deteriorate, falling further into disrepair and pose an environmental hazard to those around them.

2.3. OTHER ALTERNATIVES CONSIDERED BUT ELIMINATED

Five other alternatives were considered but eliminated from consideration, see **Table 2-1.** These alternatives had to meet the following four screening requirements in order to be further evaluated:

- Alternatives must meet specific space requirements. The current MMDF is restricted because it does not meet space requirements for the amount of munitions processing required at LEMC.
- Alternatives must meet specific ESQD arc requirements. The current net explosive weight required to be processed at LEMC has not been met.
- MMDF operations are inherently governmental activities and need to be kept within a controlled DoD perimeter. The only nearby facilities that meet this requirement are Carlisle Barracks and Navy Support Activity Mechanicsburg.
- Alternatives must meet missions/project objectives. The project objective is stated in **Section 1.2 Purpose and Need.**

2.3.1 Renovation of Current MMDF

Under this alternative, the MMDF would be renovated. The size and the functional layout of interior structural components associated with the facility would not allow for the incorporation of space requirements to meet current and programmed future mission requirements. This would also not solve the ESQD arc issue and is therefore not viable.

2.3.2 Renovation/New Construction Combination

Under this alternative, a mix of existing building renovation (including the current MMDF), and new construction, when necessary, were considered. This alternative attempted to use existing facilities within LEMC some of which would require renovation, alongside the construction of new buildings to account for the lack of space in existing facilities. Although renovation of assigned facilities could improve associated appearance characteristics, it would not provide space that meets the mission flexibility, and it would not adequately address the large deficit of space and new development constraints at LEAD. New construction could geographically separate both facilities, not entirely meeting the objective of the project, and exacerbating an already dysfunctional siting of facilities. In addition, there is no existing facility identified within the Real Property Inventory that could be renovated to adequately meet the project objectives.

2.3.3 Other DoD Agencies or Federal Agency Facilities

Under this alternative, other DoD or Federal Agency Facilities could be leased to fulfill the mission requirements. The only nearby facilities that meet this requirement are Carlisle Barracks and the Navy Support Activity Mechanicsburg. Neither of these have facilities that could support the mission.

2.3.4 Leasing within LEAD

Under this alternative, an existing facility within LEAD would be leased to replace the current MMDF. This facility could have been within or outside of the LEMC boundary. The LEAD Department of Public Works (DPW) has indicated that there are no facilities within LEAD's boundary available for lease that would support the project objective to provide LEMC with adequate long-term facility space. Additionally, leasing of facilities does not conform to DoD Directive 4165.056, *Real Property*, published July 19, 2022.

2.3.5 Contract the Services

Under this alternative, LEMC munitions handling would be the responsibility of a contractor. This would not meet security standards if the facility was not within an DoD-controlled perimeter.

Table 2-1: Alternative Considerations and Requirements

Alternative	Meets Space Requirement	ESQD Arc Compliance	Inside a Controlled DoD Property Perimeter	Meets Missions/Project Objective
Preferred Alternative: Construction of a New MMDF	**X**	**X**	**X**	X
Renovation of Current MMDF			**X**	
Renovation/New Construction Combination			**X**	
Other DoD Agencies or Federal Agency Facilities	**X**	**X**	**X**	
Leasing within LEAD		**X**		
Contract the Services	**X**	**X**		

3. AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

This section presents the affected environment at the Proposed Action area and analyzes the environmental consequences of implementing the Proposed Action and No Action Alternative. The impacts of a proposed action can vary in duration. Two levels of impact duration could occur: short-term and long-term. Short-term impacts are temporary and generally occur during construction with the resource returning to preconstruction condition almost immediately afterward or represent impacts that could last up to two years following construction. Impacts considered long-term would occur if the resource would require more than five years to recover or result in a permanent change from an activity that affects a resource for the life of the project or beyond.

3.1. LAND USE

3.1.1. *Affected Environment*

LEMC occupies the majority of LEAD's 18,668 acres. Its facilities include explosive operating buildings, explosive storage space, igloos, above-ground magazines, rail docks. LEMC's land use includes ammunition storage (Zone 1) and a buffer zone (Zone 2). The ammunition storage area consists of semi-improved and unimproved land. The associated activities include ammunition storage, tactical missile storage & assembly, open burning/open detonation, a firing range, agricultural out leasing, wildlife management, and recreational hunting and fishing. Included in this area are ESQD arcs. ESQD arcs are safety buffers intended to protect explosive mission functions from encroaching development while protecting life and property from explosive hazards. Inhabited development, incompatible with explosives operations is prohibited within ESQD arcs.

The buffer zone consists of semi-improved and unimproved land. Zone II associated activities include agricultural out leasing, forestry management, wildlife management, and recreational hunting and fishing. LEMC has a large number of acres of agricultural land in the ammunition storage area and buffer area that are leased to area farmers for crop production. LEMC is bordered by agricultural lands to the north and south, the state forest and state game management land to the west, and LEAD cantonment to the east.

More than 85% of the land in Franklin County is either pasture and grassland, row crops, or forest. There are several residential developments and a commercial shopping strip along U.S. 11 that service the LEAD and Chambersburg. LEMC is bordered by the Buchanan State Forest to the west and Pennsylvania State Game Lands (SGL) occur to the west and south of the Installation. Several farms along the LEMC border are classified as protected agricultural land under the state Agricultural Easement program (LEMC, 2020).

The proposed site for the MMDF is currently listed as agricultural field, the RCY and Building 2365 are Zone I, and Building 1456 is Agricultural Tract (**Figure 3-1).**

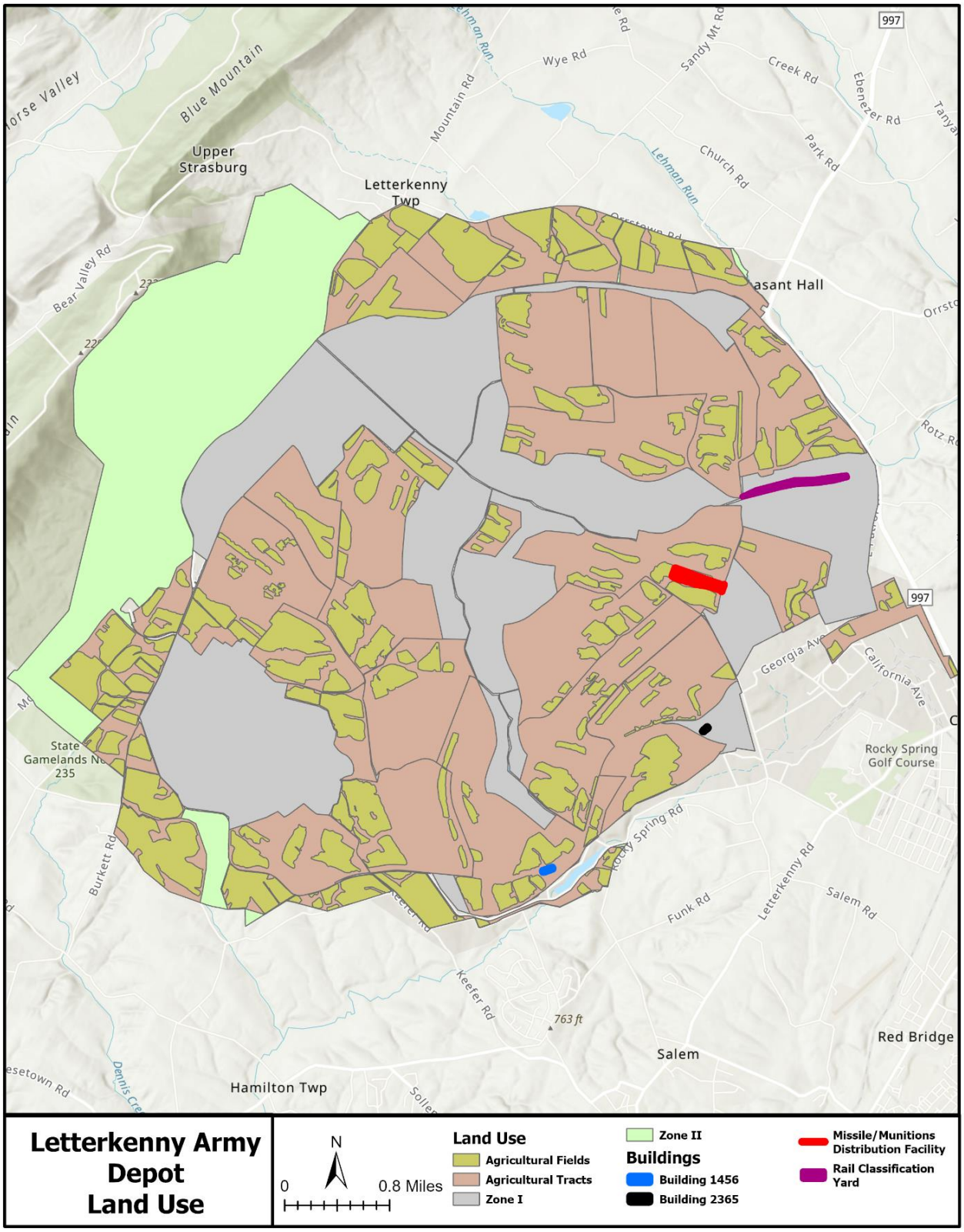

Figure 3-1: Land Use on LEAD

3.1.2. *Environmental Consequences*

3.1.2.1. Significance Criteria

An alternative would be expected to have a significant adverse impact on land use if:

- It is inconsistent with existing land use plans or policies
- It prohibits the viability of existing land use
- Surrounding land use would be expected to substantially change in the short or long-term
- It conflicts with adjacent land use to the extent that public health or safety is threatened
- It is incompatible with planning criteria that ensures the safety and protection of human life and property

3.1.2.2. Impacts from the Construction of the Proposed Action

During construction, there would be short-term, minor, direct, adverse moderate impacts from staging of heavy equipment and active construction on land that is classified as agricultural fields.

At the RCY location, there would be no impacts to land use during construction as the land use of the site would not change.

The demolition site of Building 1456 and 2365 would have no impacts as the land use is not changing.

Overall, there would short-term, minor, adverse impacts to land use from construction.

3.1.2.3. Impacts from the Operation of the Proposed Action

Overall, there would be long-term, minor, direct, adverse impacts to land from operation of the Proposed Action

At the MMDF site, there would be long-term, moderate, direct, adverse impacts from the Proposed Action due to the conversion of undeveloped land to developed land, rendering it no longer viable as farmland. The LOD for the MMDF is approximately 15 acres, hence 15 acres of actively used land for agricultural fields will be lost.

The RCY site would continue to operate in the same function as it exists now, causing no impacts to land use.

With the demolition of the Building 1456, the land could potentially be used for its classified land use purpose. However, there are not future plans at LEAD to do so. This would incur long-term, minor, direct, beneficial impacts to land use. As stated above, Building 2365 would remain in Zone I and the land has no future planned use. There would be no impacts to land use at Building 2365.

3.1.2.4. Impacts from the No-Action Alternative

Overall, no impacts would occur to land use under the No-Action Alternative as no land use would change. The MMDF site would continue to be used as an agricultural field and the RCY site would continue to function as a railway. Building 2365 would remain abandoned in Zone I. There would be a long-term, negligible, direct, adverse impact to the land use at Building 1456 as the land is classified as agricultural tract and cannot be used as such if the building remains in place. However, there are no future plans to use the land for these purposes.

3.2. VIEWSHED

3.2.1. *Affected Environment*

LEMC consists of semi-improved and unimproved lands. The semi-improved lands include earthen munitions storage igloos, open burning/open detonation area in the southwest, firing range, roads, railroads, and agricultural out lease fields (row crops and pasture lands). The storage and assembly facilities are scattered in the eastern, northeastern, and southwestern areas of LEMC, but most of the built structures reside in the LEAD project area. The unimproved areas of LEMC consist of forests, streams, and wetlands. There are housing/residential developments on the Installation. However, there is no housing within LEMC. Outside the Installation, there are rural residences along the northeast border and higher density residential developments to the southeast (LEMC, 2020).

3.2.2. *Environmental Consequences*

3.2.2.1. Significance Criteria

An alternative would be considered to have a significant effect on visual impacts if:

- Long term alteration of the viewshed that would require minimization would occur
- Negative alterations to the viewshed of a historical resource would be expected
- It is not compliant with the overall viewshed of adjacent areas

3.2.2.2. Impacts from the Construction of the Proposed Action

At all the proposed sites, there would be short-term, minor, direct, adverse impacts to the viewshed. Each site would be a temporary staging area for equipment and debris. This would cease upon completion of construction. The MMDF and RCY sites are surrounding by tree lines on either side and would not be easily visible from other buildings at LEAD.

3.2.2.3. Impacts from the Operation of the Proposed Action

The Proposed Action would cause long-term, minor, direct, adverse impacts due to the conversion of the natural environment to hard/grey infrastructure at the MMDF site. However, the area is surrounded by tree lines on all sides and is not an area that is easily visible from LEAD buildings.

At the RCY site, there would be long-term, minor, direct, adverse impacts to the viewshed at the farm homestead south of the site would no longer be surrounded by forest. The proposed retaining wall would cut into the 100-foot buffer of the site and therefore, change the view slightly to the railway. However, this area is not easily accessible and is not within eyesight of any LEAD infrastructure.

At the demolition sites, long-term, minor, direct, beneficial impacts would be anticipated with the removal of the existing deteriorated structures. The land would be left vacant after demolition, improving the viewshed by removing dilapidated buildings and converting them to open lots.

3.2.2.4. Impacts from the No-Action Alternative

MMDF site would remain an undeveloped, open field. The RCY would not encroach on the viewshed of the known archeological site to the south. However, the dilapidate buildings would incur long-term, negligible, direct, adverse impacts to the viewshed. These buildings are a negative impact on the viewshed because of their state and would continue to deteriorate if they were not demolished.

3.3. GEOLOGY, TOPOGRAPHY, AND SOILS

3.3.1. *Affected Environment*

3.3.1.1. Topography

LEAD lies in the Appalachian Ridge and Valley physiographic region, specifically, the Susquehanna-Potomac Segment of the Middle Section of the Appalachian Ridge and Valley Region (Milner Associates, 1981), on a divide between the Susquehanna drainage flowing northward and the Potomac drainage flowing southward (Shippensburg University 1995). The extreme western portion of the depot crosscuts Broad Mountain, and the remainder of LEAD is contained by the Cumberland Valley, where elevations typically vary between 700 feet (ft) above mean sea level (amsl) and 730 feet ft (John Milner Associates 1981). The Cumberland Valley trends northeast to southwest through central Pennsylvania and is bordered to the west by the Appalachian Mountains. The South Mountain section of the Blue Ridge Province is east of Chambersburg and marks the eastern edge of the Cumberland Valley.

The topography of the Proposed Action area ranges from approximately 738 ft amsl to 685 ft amsl at the MMDF proposed site. Relief at the RCY site varies from 660 ft amsl to 684 ft amsl **(Figure 3-2**). There are steep drop-offs along the sides of the railroad at certain points due to grading when it was built. Building 2365 sits at approximately 742 ft amsl, while Building 1456 sits at 634 ft amsl (**Figure 3-4**).

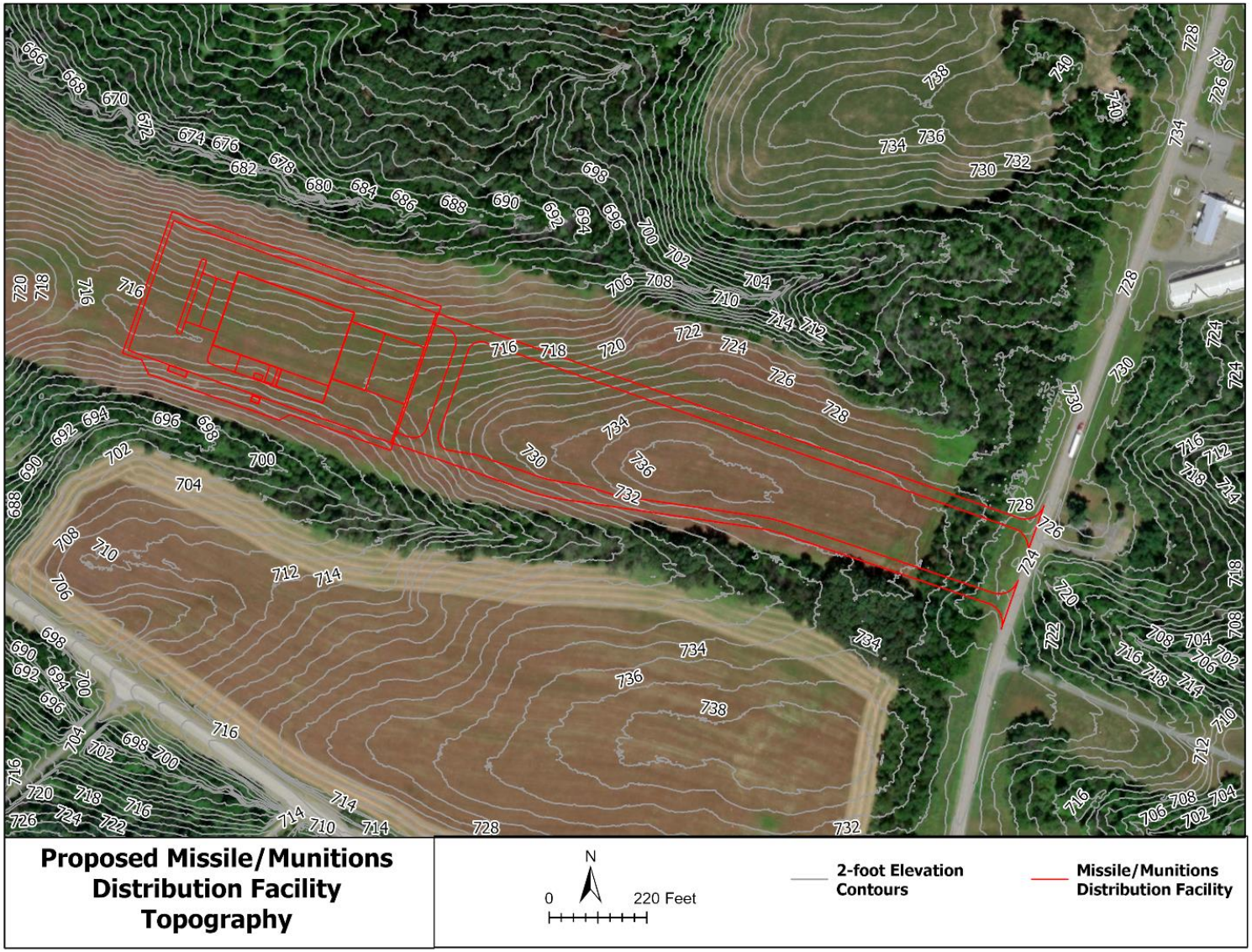

Figure 3-2: Topography in the MMDF Proposed Action Area

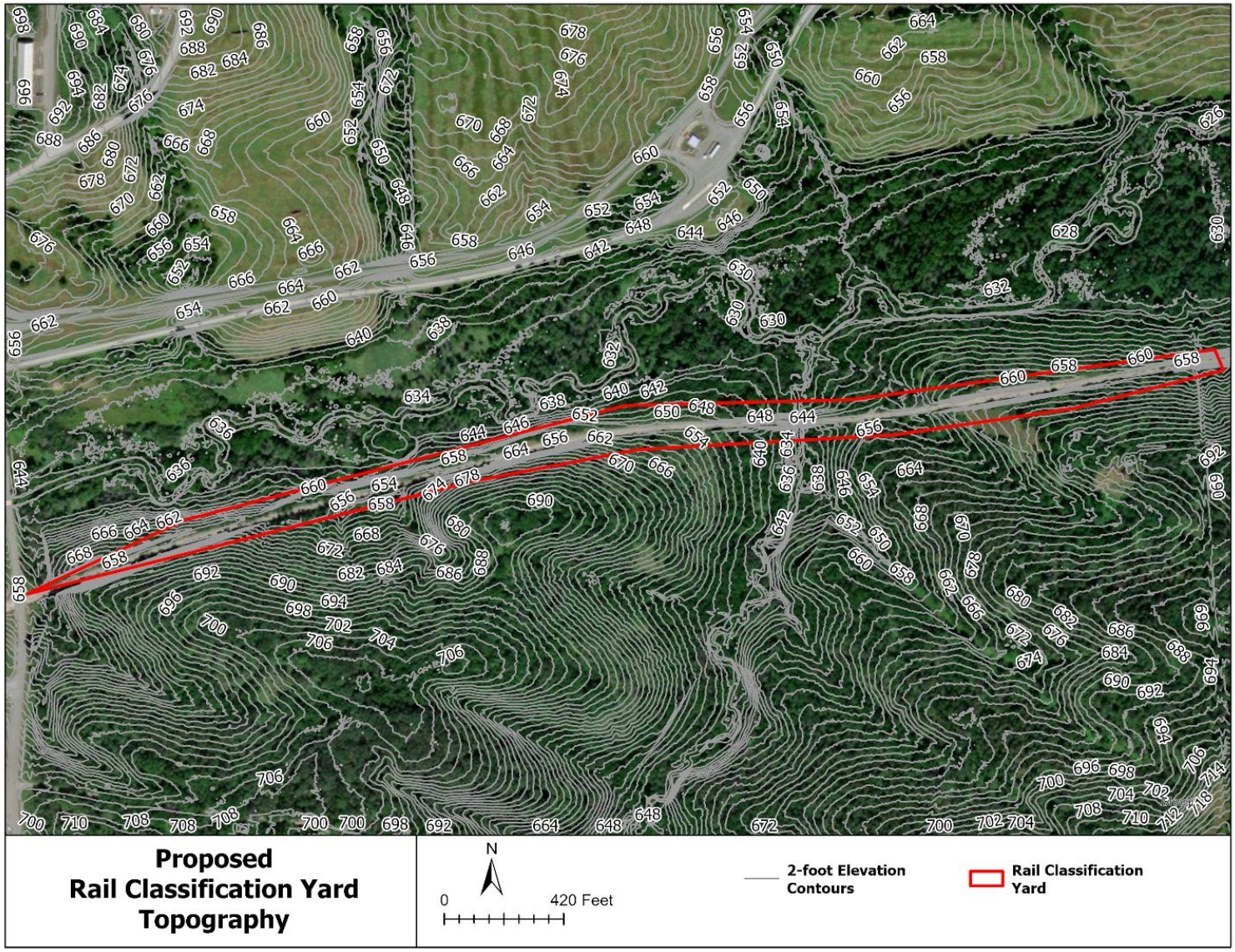

Figure 3-3 Topography in the RCY Proposed Action Area

Figure 3-4 Topography in the Building 1456 and 2365 Demolition Area

3.3.1.2. Geology

LEAD straddles two major geologic structural features: the South Mountain Anticlinorium to the east and the Massanutten Synclinorium to the west. The eastern section of the depot is underlain primarily by carbonate rocks (limestones and dolomites) and is part of the South Mountain Anticlinorium. The western section of the depot is underlain primarily by shales and is part of the Massanutten Synclinorium. These regional geologic structures were formed as a result of folding that occurred during the Paleozoic era (225 million to 570 million years ago). In the eastern section of the depot, high-angle reverse faulting accompanied the folding. As a result, several major faults, which strike north to northeast and dip to the southeast at fairly steep angles, occur on the depot (Weston, 1996). The Letterkenny Fault, which dips to the west; the Pinola Fault, which dips to the east and is to the west of the Letterkenny Fault; and an unnamed fault, which occurs between the Pinola and Letterkenny Faults; all occur in the excess area.

The depot is underlain by five Ordivician-aged geologic formations (430 million to 500 million years old) of the Great Valley. The formations underlying the depot include carbonate rocks of the Chambersburg formation, St. Paul Group, Rockdale Run formation, and Pinesburg Station formation and the shales and sandstones of the Martinsburg formation (Tetra, 2020). Based on the soil associations of the Proposed Action, which contain sandstone, siltstone, and sandstone parent material, it is likely the LODs fall within the Martinsburg Formation area.

The Martinsburg formation is late Ordivician in age and consists of thin-bedded, black, steeply inclined, extensively fractured shales. The formation contains interbedded layers of sandstones, siltstones, and some carbonates. The Martinsburg formation is more resistant to erosion than the limestones and dolomites of the St. Paul Group and Chambersburg formation and forms the gently rolling hills of the depot.

3.3.1.3. Soils

The U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) has mapped eight distinct soil types within the study area (**Figure 3-5, 3-6, and 3-7**). In general, The Weikert-Berks-Beddington soil association covers most of LEAD. Characterized as shallow to deep and well-drained, these acidic soils are weathered from shale, siltstone, and acid sandstone.

The MMDF mainly consists of four soils listed in **Table 3-1**. The RCY is the only LOD to contain hydric soils (Atkins silt loam). These soils surround an unnamed tributary of Muddy Run that is mapped in **Figure 3-10**. Soils are also highly disturbed underneath the railroad due to construction, which can be seen in Google Earth aerial imagery dating back to 1993. The RCY mainly contains Weikert channery silt loam, 8 to 15 % slopes. The demolition sites are comprised of Urban land-Berks complex 0 to 8 % slopes, Weikert channery silt loam 8 to 10 % slopes, and Berks channery silt loam 3 to 8 % slopes. The demolition sites only account for approximately 0.69 acres of the total LOD (0.48 for Building 1456 and 0.21 for Building 2365). Due to the structures sitting atop the soils at each demolition site, these soils are highly disturbed. None of the soils within the Proposed Action site are considered highly erodible.

Table 3-1: Soils within the Proposed Action Areas

Map Unit Symbol	Map Unit Name	Acres in LOD	Percent of LOD	Hydric	Drainage Class
MMDF LOD					
BkB	Berks channery silt loam, 3 to 8 % slopes	9.4	65.4	No	Well Drained
CtB	Clearbrook channery silt loam, 0 to 8 % slopes	1.2	8.0	No	Somewhat poorly drained
WeB	Weikert channery silt loam, 3 to 8 % slopes	2.7	18.8	No	Well Drained
WeC	Weikert channery silt loam, 8 to 15 % slopes	1.1	8.2	No	Well Drained
WkC	Weikert very channery silt loam, 8 to 15 % slopes	1.1	7.8	No	Well Drained
RCY LOD					
As	Atkins silt loam	0.2	2.1	Yes	Poorly Drained
BkB	Berks channery silt loam, 3 to 8 % slope	1.3	10.6	No	Well Drained
ErB	Ernest silt loam, 3 to 8 % slopes	0.4	3.7	No	Moderately Well Drained
WeB	Weikert channery silt loam, 3 to 8 % slopes	2.6	22.2	No	Well Drained
WeC	Weikert channery silt loam, 8 to 15 % slopes	0.1	1.2	No	Well Drained
WkC	Weikert very channery silt loam, 8 to 15 % slopes	7.2	60.2	No	Well Drained
Building 1456 LOD					
UbB	Urban land-Berks complex, 0 to 8 % slopes	0.48	100	No	Well Drained
Building 2365					
UbB	Urban land-Berks complex, 0 to 8 % slopes	0.0	5.8	No	Well Drained
WeC	Weikert channery silt loam, 8 to 10 % slopes	0.2	94.2	No	Well Drained

Source: USDA NRCS, 2022

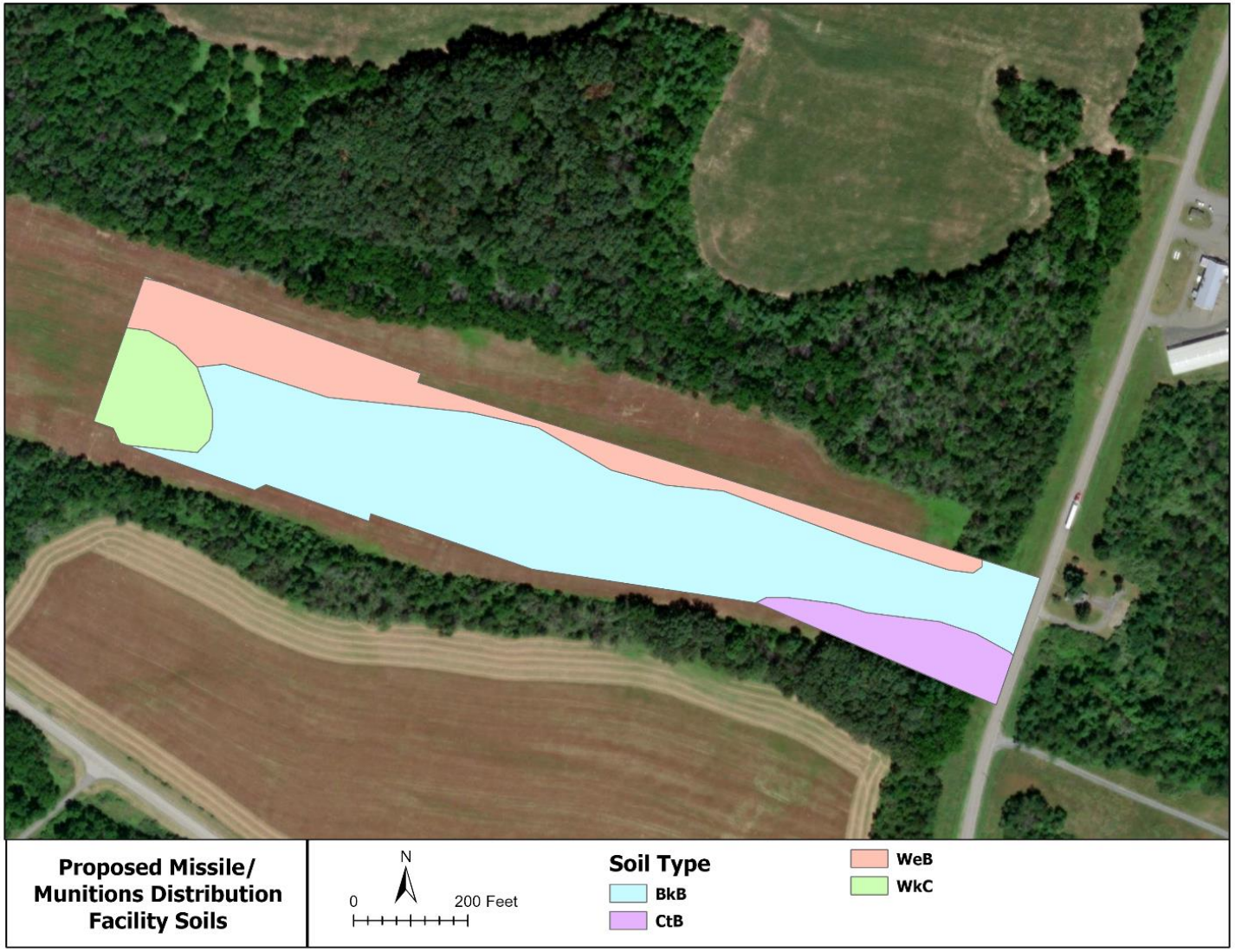

Figure 3-5: Soils with the Proposed MMDF Action Area

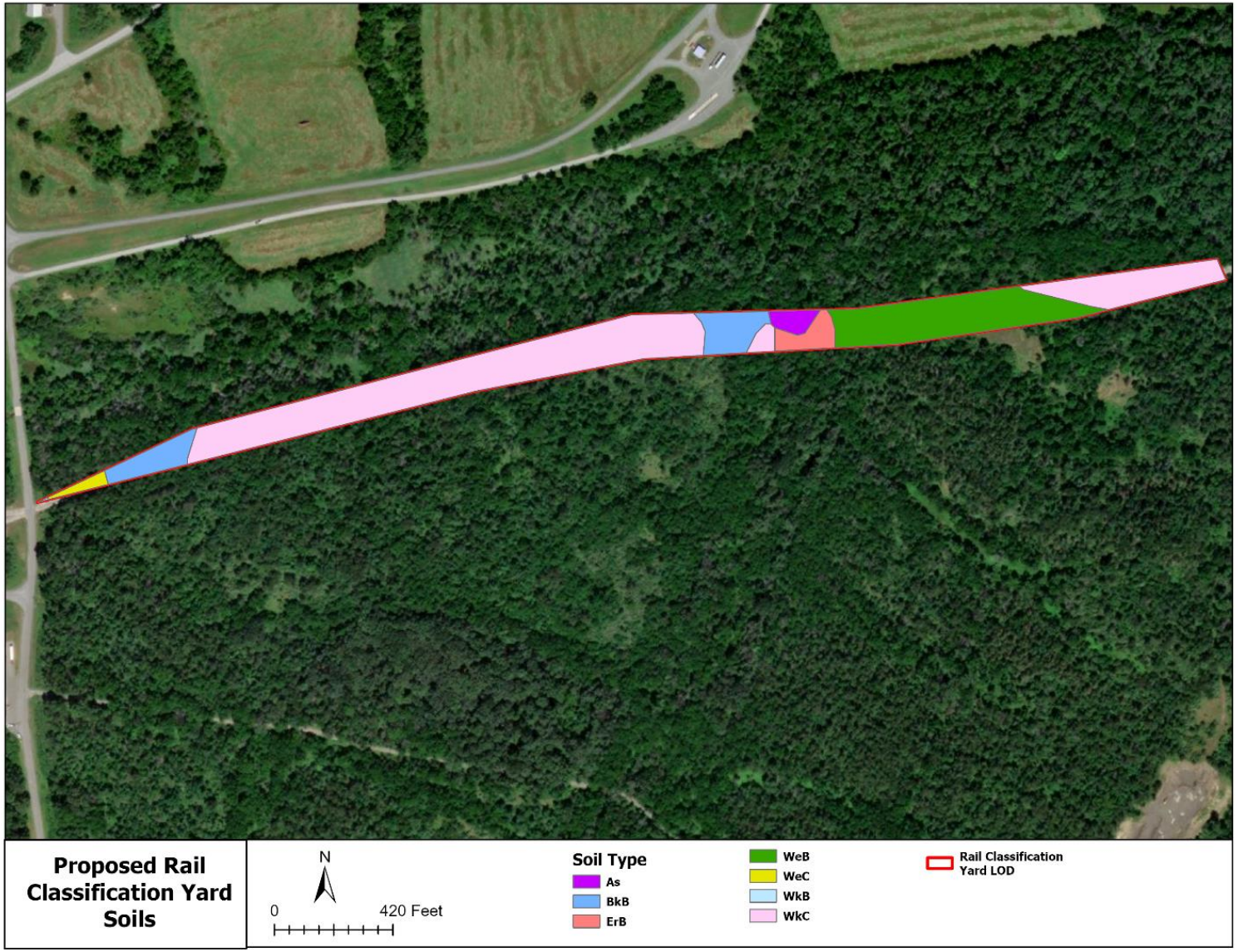

Figure 3-6 Soils within the RCY Proposed Action Area

Figure 3-7 Soils within the Demolition Proposed Action Area

3.3.2. *Environmental Consequences*

3.3.2.1. Significance Criteria

Impacts to topography, geology, and soils would be considered significant if the construction and operation of the Proposed Action:

- alters the topography of the surrounding area
- removes or alters bedrock resulting in structural instability to surrounding buildings or infrastructure
- cause substantial soil erosion or loss of topsoil, which would result in damage to waterways, ground instability, or impacts to animal or human habitats

3.3.2.2. Impacts from Construction of the Proposed Action

Topography

Under the Proposed Action, there would be a short-term, minor, direct, adverse impacts on topography. Moderate grading would occur at the MMDF site; grading would be up to 20ft feet in some areas as the back end of the site has a 20 ft elevation drop. The site has gentle, rolling hills, with peak elevation occurring in the center of the agricultural field and downward slopes towards the north and south.

Grading would also occur at the RCY site. To expand the railroad tracks, the culverts would potentially need to be elevated in some areas, while other areas would need to be cut to create an even surface. In addition, a retaining wall would be put in place on the southern end of the site. The retaining wall would cut into the existing culvert on the south side and the already altered topography for the existing track.

Geology

There would be no bedrock blasting or impacts to bedrock outcrops during the construction of the Proposed Action that would impact the geology of LEAD.

Soils

The construction of the Proposed Action would have short- and long-term, moderate, direct, adverse impacts on soils in the immediate area of proposed MMDF and RCY. Ground-disturbing activities would include vegetation and topsoil removal, the removal of mature forest, and grading. Soils would be compacted, and soil layer structure would be disturbed and modified. Exposed soils would be susceptible to wind and surface runoff, which may lead to erosion and additional loss of soil.

The proposed MMDF site is an active agricultural field; therefore, the soil structure has been previously altered. However, the soil structure does remain in prime condition for farming. The Proposed Action would prevent any future agricultural use of the field. In addition, the soils in the portion of the LOD that are forested would be highly disturbed. The removal of trees and their roots would break soil structure and leave the area vulnerable to erosion. Because the proposed building is large, over 30,000 square-foot (SF), and the soils on which it would be placed are a

productive farm field to be converted to impervious surface, these would suffer the greatest adverse impacts from construction.

The RCY has disturbed soils from the current railroad track. However, further land surrounding the railroad would be graded with a cut and fill method, disturbing soil structure and further compacting soils that are placed underneath the new RCY and its associated structures. Any potential soil productivity would be lost. During construction, soils would be vulnerable to erosion and experience minor, adverse effects.

The soils at Buildings 1456 and 2365 were previously disturbed and would not be disturbed any further. Building demolition would not involve the removal of soil. The soils under the buildings are highly disturbed and compacted from the existing buildings. They would not experience adverse impact under the Proposed Action.

Proper construction management and planning and the use of appropriate best management practices (BMPs) for controlling runoff, erosion, and sedimentation during construction activities, would minimize adverse impacts to soils. Erosion and sediment controls, including a stabilized construction entrance, silt fencing, earth dikes and/or diversion fencing, and sediment traps, would be installed during construction. Areas disturbed outside of the new construction footprints would be reseeded, replanted, and/or re-sodded following construction activities, decreasing the overall erosion potential of the site and improving soil productivity.

Because the Proposed Action would disturb more than one acre of ground surface, either a General or Individual Permit for Stormwater Associated with Construction Activity would be applied for with the Pennsylvania Department of Environmental Protection (PADEP). As the Proposed Action would disturb more than five acres of land, an Erosion and Sediment Permit is required as well. The contractor or organization would prepare and apply for these permits on behalf of LEAD to the PADEP for review and approval prior to the start of any construction activities. In addition, the project would follow the PADEP Erosion and Sediment Pollution Control Program Manual. Additional soil erosion environmental protection measures may also be required in the associated state-issued construction permit (e.g., the National Pollutant Discharge Elimination System [NPDES] permit).

3.3.2.3. Impacts from Operation of the Proposed Action

Operation of the Proposed Action would have long-term, minor, direct, adverse impacts due to the disturbance of the soil layer profile, loss of topsoil in the new impervious areas, and loss of farmland.

Topography and Geology

The proposed MMDF and RCY areas would be stabilized with the planned development and landscaping at project sites. The operation of the Proposed Action would not affect topography or geology. There would be no bedrock blasting or impacts to bedrock outcrops during either the operation of the proposed MMDF and RCY that would impact the geology of LEAD. After the demolition of Buildings 1456 and 2365, no impacts to topography or geology would occur.

Soils

Long-term, moderate, direct, adverse impacts would occur to soils from the construction of the MMDF and RCY. The proposed MMDF would disturb a large area of land, 20% of which would be forested prior to construction. In addition, farmland soils would be permanently converted into non-productive and compacted soils. The proposed RCY site would experience a smaller portion of adverse effects, as this area has previously been disturbed and some of the soil surrounding the railroad has experienced cut and fill grading. However, additional soils will be permanently disturbed, particularly with the addition of a retaining wall on the south side of the project. The retaining wall has the potential to cut into the soil profile at a depth where disturbance has not occurred before.

3.3.2.4. Impacts from the No Action Alternative

Implementation of the No Action Alternative would have no impacts on topography, geology, or soils. The MMDF and RCY would not be constructed, and there would be no activities that would change the topography, geology, or the existing soil quality of the site.

3.4. PRIME FARMLAND

Prime farmland is land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops, and is also available for these uses. It has the soil quality, growing season, and moisture supply needed to produce economically sustained high yields of crops when treated and managed according to acceptable farming methods, including water management. In general, prime farmlands have an adequate and dependable water supply from precipitation or irrigation, a favorable temperature and growing season, acceptable acidity or alkalinity, acceptable salt and sodium content, and few or no rocks. They are permeable to water and air. Prime farmlands are not excessively erodible or saturated with water for extended periods of time, and they either do not flood frequently or are protected from flooding (USDA, 1993).

3.4.1. *Affected Environment*

LEAD contains over 10,000 acres of land that is deemed to be agricultural tracts and could be used for farmland. According to the 2020 LEAD Integrated Natural Resource Management Plan (INRMP) LEAD contains 1,442 acres of soils that are federally considered prime farmland soils and 9,969 acres of soils that are considered of statewide importance **(Figure 3-8**).

The proposed MMDF contains three prime farmland soils of statewide importance, listed in **Table 3-5** below (USDA, 2022). Therefore, 61.2% of the MMDF LOD is a prime farmland soil of statewide importance, totaling 8.9 acres. The proposed RCY contains three soils of statewide importance listed in **Table 3-5**. A total of 4.3 acres of the proposed RCY are soils of statewide importance, or 36% of the proposed site. The proposed demolition sites do not contain soils of statewide importance.

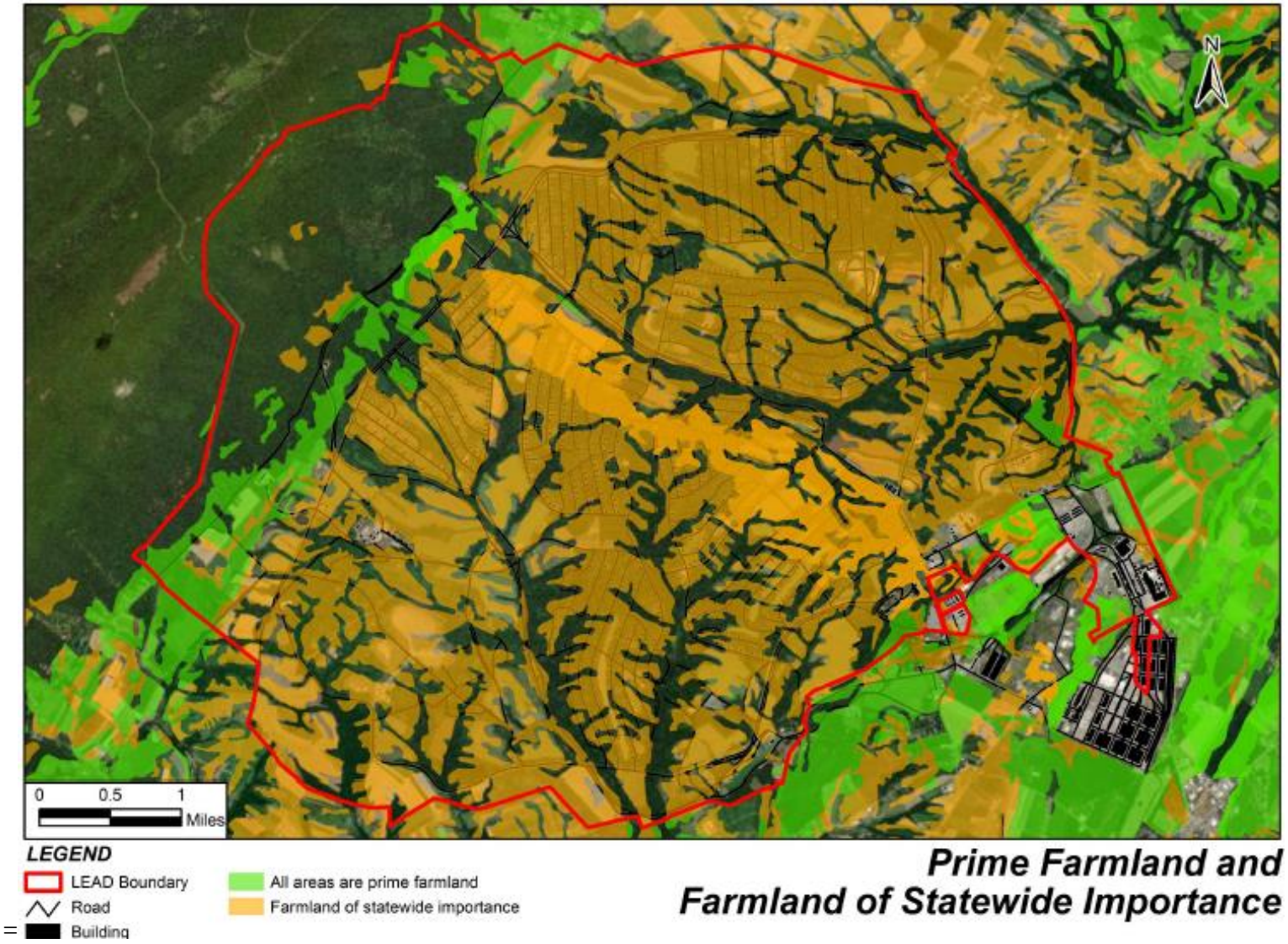

Figure 3-8: Prime Farmland and Farmland of Statewide Importance at LEAD

Table 3-2 MMDF and RCY Soils of Statewide Importance

Map Unit Symbol	Map Unit Name	Acres in MMDF	Acres in RCY
BkB	Berks channery silt loam, 3 to 8 % slope	5.0	1.3
CtB	Clearbrook channery silt loam, 0 to 8 % slopes	1.2	0
ErB	Ernest silt loam, 3 to 8 % slopes	0	0.4
WeB	Weikert channery silt loam, 3 to 8 % slopes	2.7	2.6
Total		**8.9**	**4.3**

3.4.2. *Environmental Consequences*

3.4.2.1. Significance Criteria

Impacts to prime farmland would be considered significant if the construction and operation if the Proposed Action would convert a large percentage of LEAD land that is currently eligible to be used as farmland to another land use and if this conversion is irreversible.

3.4.2.2. Impacts from the Construction of the Proposed Action

Under the Proposed Action, there would be long-term, minor direct, adverse impacts from the construction of the Proposed Action. The proposed MMDF would convert 8.9 acres of prime farmland soil of statewide significance to compacted and disturbed soils. After the construction of the MMDF, the soils would not be eligible to be used as farmland again due to compaction. The majority of these soils are currently being used as farmland soils. The entire field on which the proposed MMDF sits is active farmland. However, there of over 10,000 acres of land on LEAD that are eligible to be farmed. The farmland lost through the Proposed Action could be replaced elsewhere at LEAD and represents less than 1% of eligible farmland at LEAD.

The proposed RCY would potentially convert 4.3 acres of prime farmland soils to disturbed and compacted soils. These soils are not being used as farmland currently. The railroad that spans the entirety of the proposed RCY site has compacted and disturbed the portions of soil that it rests on. Therefore, less than the estimated 4.3 acres of soils of statewide importance would be disturbed.

3.4.2.3. Impacts from the Operation of the Proposed Action

The operation of the Proposed Action would have minor, direct, long-term, adverse impacts on prime farmland soils. The conversion of prime farmland underneath the proposed MMDF would result in permanent loss of farmland. The operations of the MMDF would continue to compact these soils; however, the majority of the disturbance would occur with the conversion of the soils and not the operation of the proposed MMDF. The proposed RCY would also convert some farmland soils to compacted, unusable soils for farming. However, these soils are not currently being farmed. The operation of the railroad would continue to compact and disturb these soils after construction is completed.

3.4.2.4. Impacts from the No Action Alternative

The No Action Alternative would have no impacts of prime farmland. Under the No Action Alternative, the RCY and current MMDF would remain operational as they are and no demolitions would occur; therefore, no prime farmland would be disturbed.

3.5. WATER RESOURCES

Water resources are defined as sources of water available for use by humans, flora, or fauna, including surface water, groundwater, near-shore waters, wetlands, and floodplains. Water resources are broken down into the groups below, each of which is defined individually.

3.5.1. *Affected Environment*

3.5.1.1. Surface Water

Surface water resources, including but not limited to, storm water, ponds, lakes, streams, rivers, and wetlands, are important for economic, ecological, recreational, and human health reasons. Year-round presence of water in surface water features varies, falling into the categories of perennial, intermittent, and ephemeral. Perennial surface waters normally have water year-round. Intermittent surface waters flow only when they receive water from rainfall or springs, or from some surface sources such as melting snow. Ephemeral surface waters flow in direct response to precipitation; they receive little to no water from springs, melting snow, or other source and its channel is over the water table at all times (USGS, 2013). Surface water systems are typically described in terms of watersheds, a land area bounded by topography that drains water to a common destination.

LEAD is a part of the Chesapeake Bay Watershed. To protect and restore this valuable ecosystem, Pennsylvania joined a consortium of state and federal agencies to establish the Chesapeake Bay Program partnership. The Army's conservation mission supports the Chesapeake Bay Programs, and LEAD is implementing BMPs that support the guidelines established by the partnership.

LEAD is directly on the drainage divide between the Susquehanna River to the northeast and Potomac River to the southwest. Because of the headwater location, drainages at LEAD are short, and streams are small. Streams cutting through the limestone terrain of the Chambersburg formation and St. Paul group on LEAD flow through broad, open valleys and are ephemeral or intermittent, carrying water only in winter and spring, or after heavy rains. In contrast to this, streams cutting through the upper shale units of the Martinsburg formation usually meander in small, steep-walled valleys and are perennial. Natural surface water features at LEAD include seven named streams and numerous unnamed streams. Lehman Run, Keasey Run (a tributary of Lehman Run), Muddy Run, and Rowe Run are in the northeastern portion of LEAD and drain to the Susquehanna River. Dennis Creek, Back Creek, Rocky Spring Branch, and Conococheague Creek are in the southwest and drain to the Potomac River. The main channels on LEAD—Lehman Run, Keasey Run, Muddy Run, and Rocky Spring Branch—are permanent (Shippensburg University 1995).

The Susquehanna watershed drains 27,500 miles of land and cover parts of New York, Maryland, and Pennsylvania. Muddy Run, located in U.S. Geological Survey Susquehanna River Subregion

0205 drains approximately 11.4 square miles directly into the west branch of the Susquehanna River. The unnamed tributaries within the the proposed MMDF LOD is located in hydrologic unit code (HUC) 8 002050305.

Muddy Run watershed is primarily surrounded by agricultural lands. Pastures and croplands often extend right up to streambanks with little to no riparian buffer zones. Livestock frequently have unlimited access to streambanks throughout the watershed. Streambank erosion is severe in most reaches of the stream. Small riparian buffers and streambank erosion create sedimentation issues for the watershed. Targeted total maximum daily load (TMDLs) for Muddy Run is 7,053.5710 pounds of sediment per day. A TMDL is the calculation of the maximum amount of a pollutant allowed to enter a waterbody so that the waterbody will meet and continue to meet water quality standards for that particular pollutant. A TMDL determines a pollutant reduction target and allocates load reductions necessary to the source(s) of the pollutant. The mean annual loading of sediment to Muddy Run Watershed was 10,453.41 pounds per day in 2012 (DEP, 2012).

The proposed MMDF LOD has an unnamed tributary running west to east along its northern boundary. This tributary flows into Muddy Run to the north, off site. The proposed RCY site contains two unnamed tributaries that run south to north and flow into Muddy Run. Muddy Run meanders just north of the proposed RCY for its entire length. Building 2365 has an unnamed tributary to Rocky Springs Branch approximately 240 ft to the west of the building outline. Building 1456 sits 786 ft west of Rocky Springs Lake. All surface waters are shown **Figures 3-9, 3-10**, and **3-11** below.

3.5.1.2. Floodplains

Floodplains are defined as relatively flat areas adjacent to rivers, streams, watercourses, bays, or other bodies of water subject to inundations during flood events. The likelihood of these flood events is categorized by Federal Emergency Management Agency (FEMA). The 500-year floodplain has a 0.2% change of flooding each year and is considered a moderate flood hazard area. If a project site is determined to be located within a 100-year floodplain (1% chance of annual flooding), any federal development at that site is subject to EO 11988, *Floodplain Management*. On January 30, 2015, EO 11988 was amended by EO 13690, *Establishing a Federal Flood Risk Management Standard and a Process for Further Soliciting and Considering Stakeholder Input*. EO 13690 provides three approaches that federal agencies can now use to establish the flood elevation and hazard area for consideration in decision-making: climate-informed science approach, adding two to three ft of elevation to the 100-year floodplain, and using the 500-year floodplain. In response to EO 13690, FEMA issued floodplain management guidelines for implementing Eos 11988 and 13690, dated October 8, 2015.

The proposed MMDF, RCY, and Building 2365 are within FEMA flood map area 42055C0170E, effective January 18, 2012. Building 1456 is located in FEMA flood map area 42055C0165E, effective January 18, 2012. These maps indicate that the proposed MMDF, Building 1456, and Building 2365 are entirely within Zone X, defined as an area determined to be outside of the 500-year flood and protected by levee from 100-year flood.

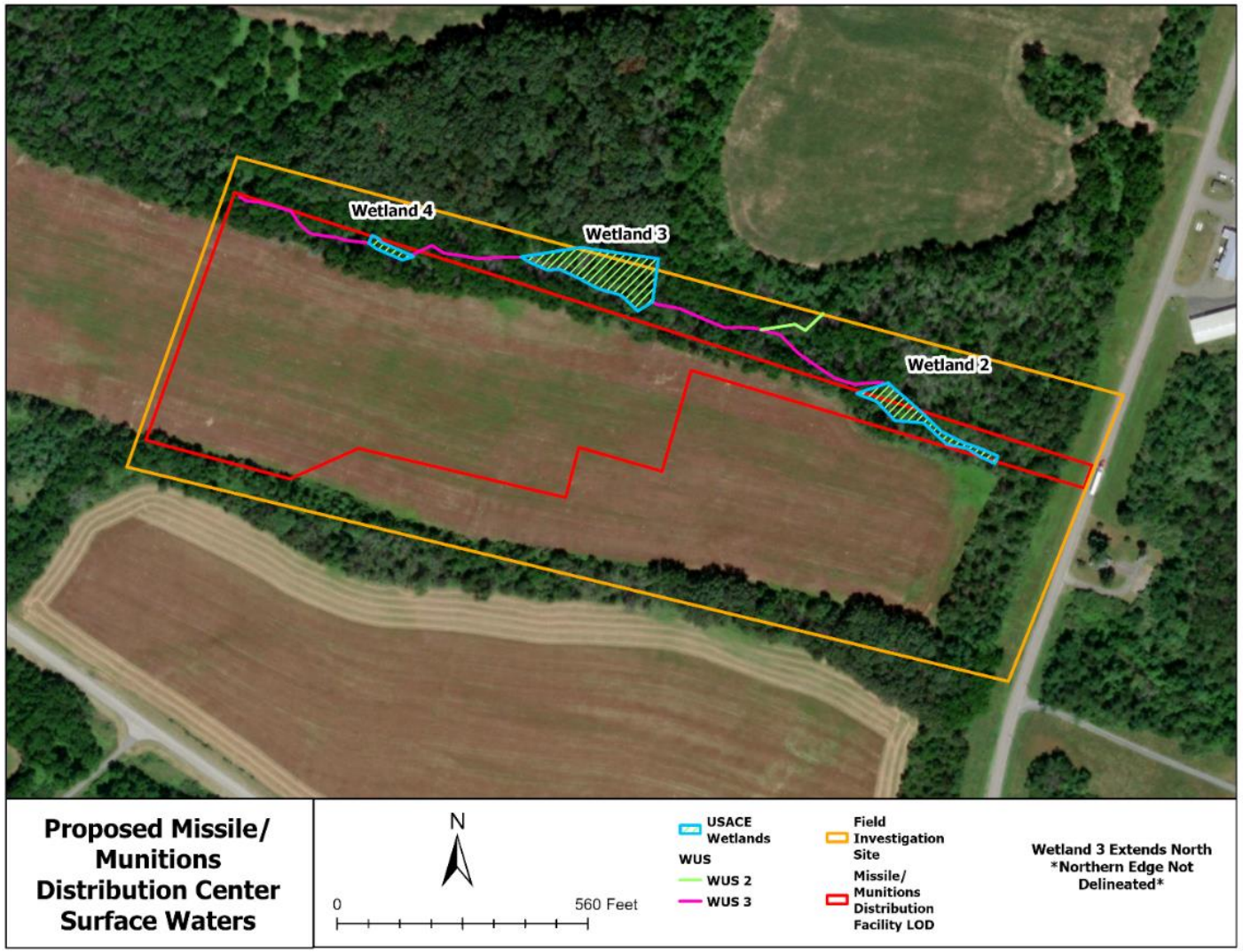

Figure 3-9: Surface Waters with MMDF Proposed Action Area

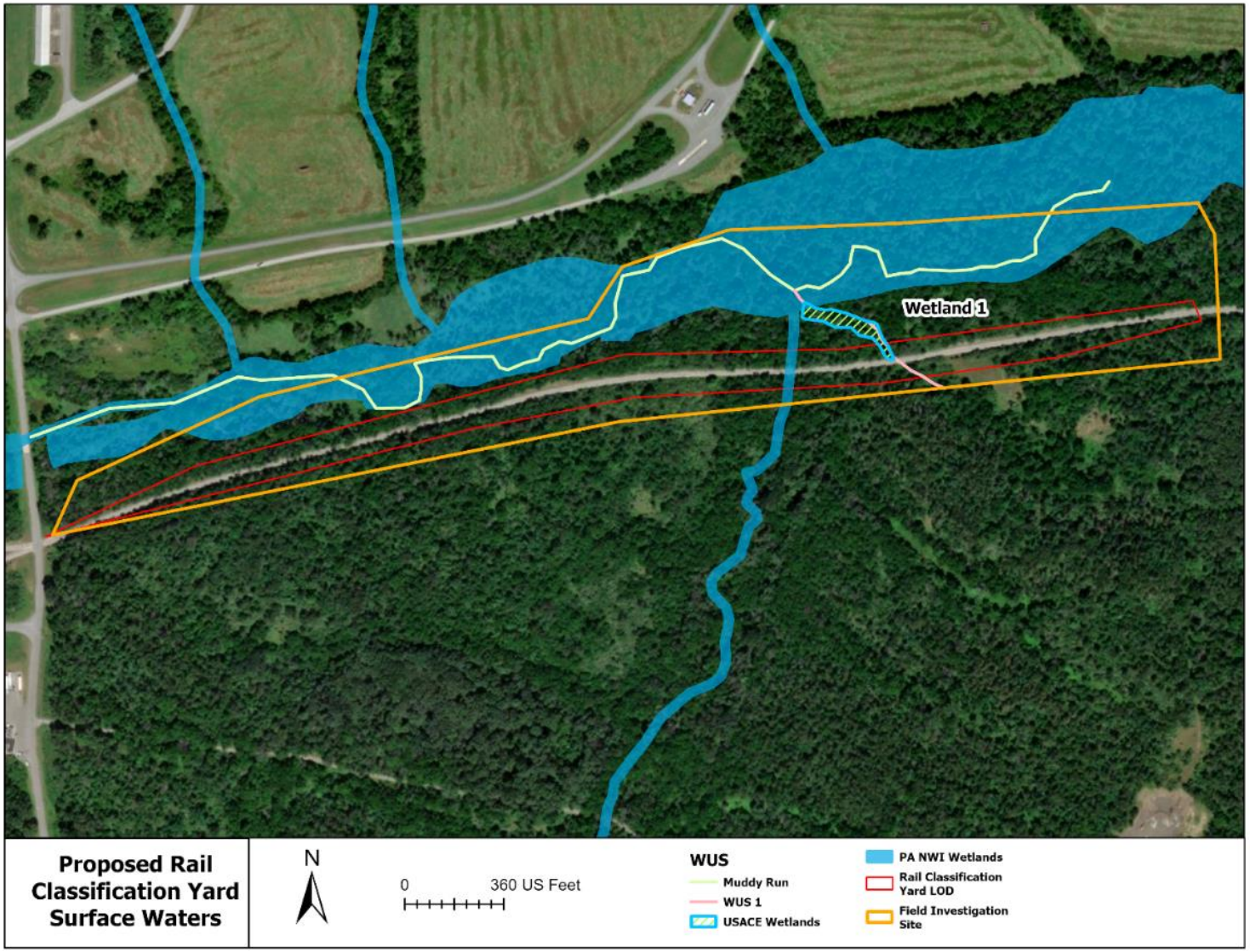

Figure 3-10: Surface Waters and the RCY Proposed Action Area

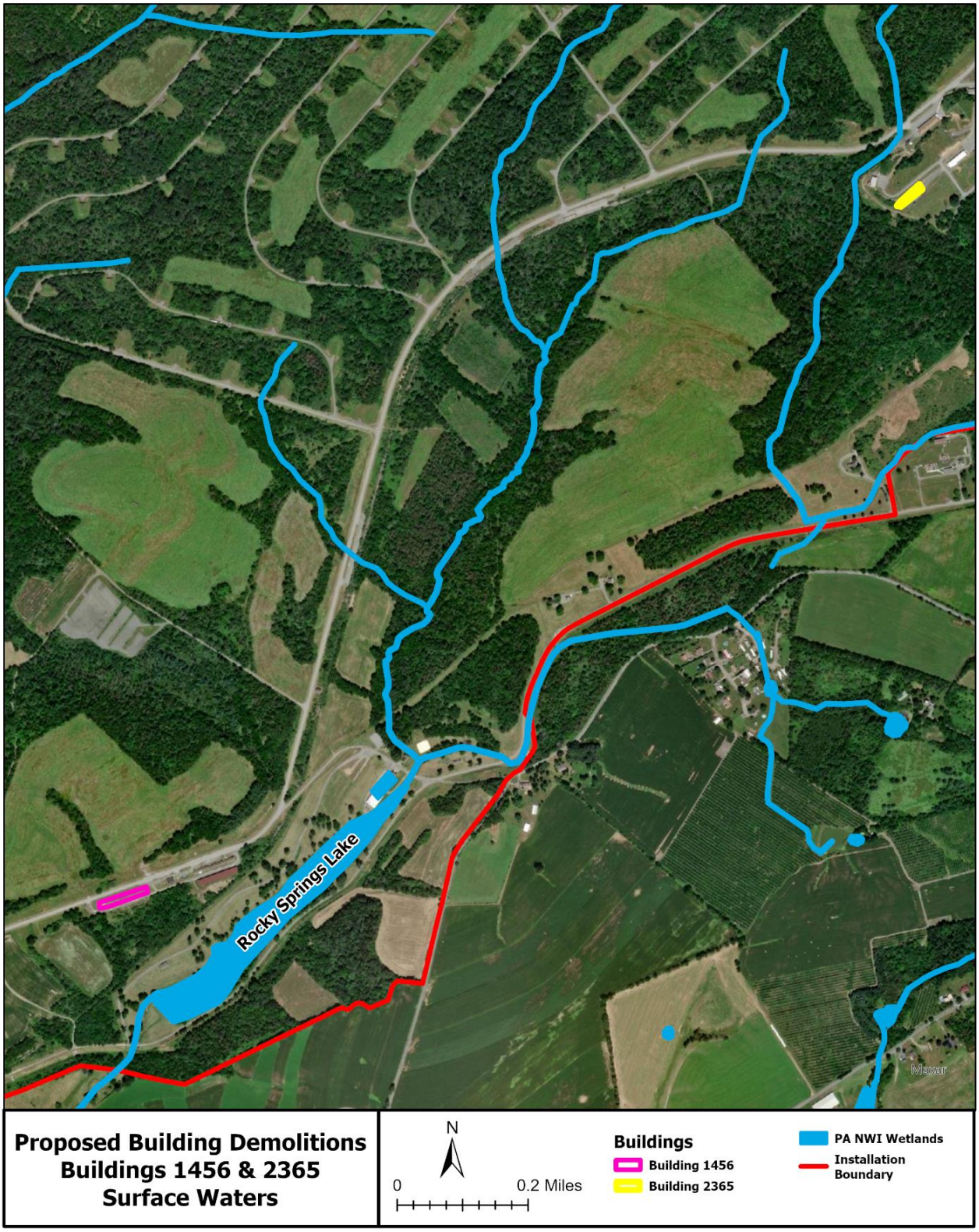

Figure 3-11: Surface Waters at the Proposed Demolitions Sites

The proposed RCY site is located partially within Zone A, defined as areas with a 1% chance of annual flooding and a 26% of flooding over the life of a 30-year mortgage. This floodplain can be seen in **Figure 3-12**.

3.5.1.3. Wetlands

Wetlands are protected under the Clean Water Act (CWA). Jurisdictional wetlands are those wetlands subject to regulatory protection under Section 404 of the CWA and EO 11990 *Protection of Wetlands*.

The U.S. Army Corps of Engineers (USACE) defines wetlands as "those areas that are inundated or saturated with ground or surface water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted to life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas" (33 CFR Part 328). Important wetland functions include water quality improvement, groundwater recharge and discharge, pollution mitigation, storm water attenuation and storage, sediment detention, and erosion protection. If a formal wetland delineation has already been determined for the Army installation for the Proposed Action area, this can be used to determine the occurrence of jurisdictional wetlands or other regulated Waters of the U.S. within the footprint of the construction area for any proposed new facilities and associated infrastructure. Pennsylvania Code 25 § 102.14. *Riparian Buffer Requirements* mandates buffers for any projects that fall within a "high quality" or "exceptional value" watershed, which is determined by the PADEP water quality testing. LEAD has not undergone a comprehensive wetland delineation to quantify the acreage of wetlands present on the installation or the quality. Wetland delineations are performed on an as-needed basis for specific projects. However, LEAD is the headwaters for Muddy Run, and therefore has many small streams associated with it. The southern half of LEAD has streams associated with Rocky Spring Branch.

The proposed MMDF site has three wetlands just outside of its northern border, visible in **Figure 3-9**. These wetlands total 0.79 acres and are located along an unnamed tributary flowing west to Muddy Run. These three wetlands are palustrine forested (PFO) wetlands and are regulated by the PADEP.

The proposed RCY contains a large PFO wetland surrounding Muddy Run to the north of the site. There is also a small, PFO wetland running south to north that surrounds an unnamed tributary to Muddy Run. This wetland totals 0.4 acres. These wetlands are also regulated by the PADEP.

3.5.1.4. Groundwater

Groundwater is classified as any source of water beneath the ground surface and may be used for potable water, agricultural irrigation, and industrial applications. Near-shore waters can be directly affected by human activity and are important for human recreation and subsistence.

LEAD is largely underlain by shales and some graywacke (Martinsburg formation), although carbonate rocks (limestone) do occur in the Rowe and Conococheague drainages and in a narrow belt along the base of Broad Mountain. The Martinsburg formation is generally a good aquifer

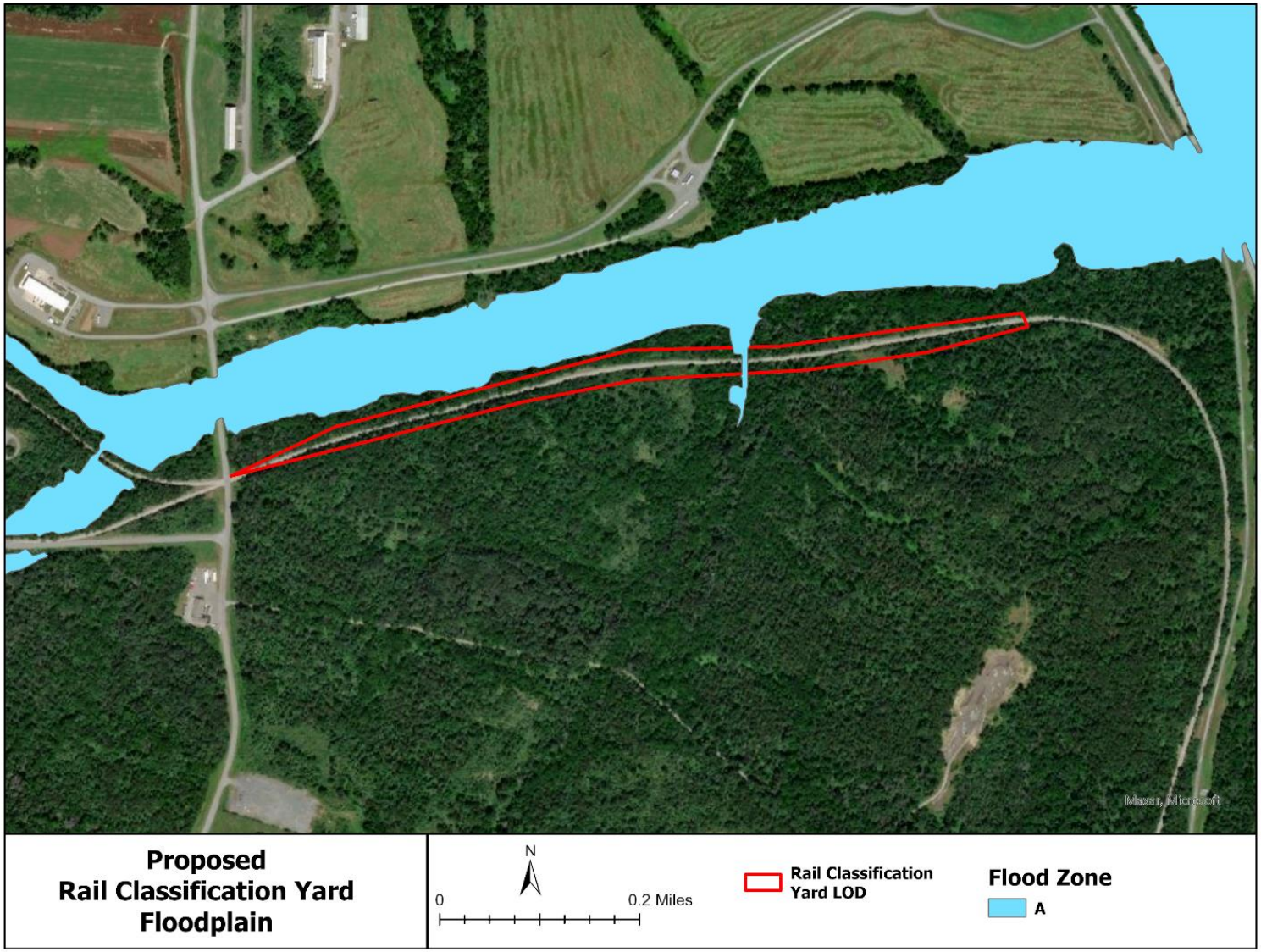

Figure 3-12: Floodplains at the RCY Proposed Action Site

yielding water of decent quality, although high iron and manganese concentrations can occur. Hydrogen sulfide gas occasionally occurs and degrades the water quality. Sustained well yields of 100 gallons per minute can be expected, though there is a close relationship between well yield and topography. Wells in the area of low topographic expression have significantly greater yields than wells on upland locations. Geologically, wells along fracture traces also have higher yields. Yield from the carbonate aquifers also is directly related to topographic expression and fracture trace occurrence. Secondary porosity in the carbonate due to solution activity is important and results in a wide range of yield from 0.01 to 950 gallons per minute. Good locations in the Saint Paul group will yield 150 to 200 gallons per minute, but the Chambersburg formation produces only about 40 gallons per minute. Calcium and magnesium deposits can occur from carbonate aquifers, making this water unsuitable for certain industrial uses (Shippensburg University 1995).

Groundwater is not used as a resource at LEAD as the reservoir off-base is used for drinking water. Suez Water Pennsylvania Incorporated through the Franklin County General Authority supplies, owns, and maintains the water on LEAD. Three primary water lines supply LEAD, two of which extend off the water main.

3.5.1.5. Stormwater

LEAD has a large amount of impervious surface, generally flat terrain, and a high clay loam content/low permeability of soils. As a result, stormwater drainage can be an issue at LEAD (USACE, 2020).

The proposed MMDF site currently contains no stormwater features. Its natural topography drains water to the north and south end of the site, into the forested areas. The proposed RCY site has two culverts that run underneath the railroad to allow for streams to make their way underneath the railroad and into Muddy Run. The north and south sides of the railroad currently have drainage swales that divert water away from the railroad. This project would result in a 5.12-acres increase in impervious surface.

Buildings 1456 and 2365 have natural stormwater features surrounding them. These features would not be affected by the demolition and have not been documented.

Energy Independence and Security Act of 2007

Army stormwater management practices are also required to comply with Section 438 of the Energy Independence and Security Act (EISA) of 2007, which directs federal agencies sponsoring development or redevelopment of over 5,000 SF in size to use site planning, design, construction, and maintenance strategies for the property to maintain or restore, to the maximum extent technically feasible, the predevelopment hydrology of the property with regard to the temperature, rate, volume, and duration of water flow. This requirement is further emphasized by Army policy which states development projects of 5,000 SF (1,524 square meters) or greater must be planned, designed, and constructed to manage any increase in stormwater runoff (i.e., the difference between pre- and post-project runoff) within the LOD.

Municipal Separate Storm Sewer System Phase II

Section 402(p) of the CWA addresses the unique permitting needs for Municipal Separate Storm Sewer System (MS4s) under NPDES. The USEPA's first National Pollution Discharge Elimination System (NPDES) regulation, finalized in 1973, recognized the challenges of regulating stormwater under the CWA and exempted most stormwater discharges from the NPDES permit requirement. In 1977, a federal court ordered the USEPA to develop permitting regulations for stormwater discharges. Congress, in 1987, stepped in and added Section 402(p) to the CWA to create a distinct permitting standard for MS4s.

Section 301 of the CWA generally mandates that NPDES permits include water quality-based effluent limits that are as stringent as necessary to ensure that permittees' discharges comply with all applicable water quality standards. Section 402(p) exempts MS4 permits from this requirement and replaces it with a unique standard; MS4 permittees must "reduce the discharge of pollutants to the maximum extent practicable.

PADEP oversees the implementation of MS4 regulations and permits in Pennsylvania. MS4 permits require the permitholder to reduce the discharge of pollutants to the maximum extent practicable. LEAD would also comply with the MS4 Phase II State and Federal permit which obligates minimum control measures for construction and post-construction runoff control.

General Construction Permit

As part of the process to obtain the construction general permit for stormwater discharges during construction, the construction contractor would prepare a Stormwater Pollution Prevention Plan (SWPPP). SWPPPs include implementation of BMPs, performing frequent visual inspections, and conducting benchmark monitoring to determine BMP effectiveness. Monitoring results are analyzed in relationship to the identified water quality objectives and if the benchmarks are not being reached, the BMPs would be modified.

3.5.2. *Environmental Consequences*

3.5.2.1. Significance Criteria

The general definitions of what defines significant impacts for each resources area are stated below.

Water Resources: Impacts to water resources would be considered significant if impacts:

- Substantially deplete groundwater supplies or interfere with groundwater recharge
- Result in a violation of federal and/or state water quality standards
- Cause an unpermitted direct impact on a Water of the U.S.
- Alter existing drainage patterns

Floodplains: Impacts to floodplains would be considered significant if impacts

- Threaten or damage unique hydrologic characteristics
- Endanger public health by creating or worsening health hazard conditions
- Violate established laws or regulations adopted to protect floodplains

Wetlands: Impacts to wetlands would be considered significant if impacts:

- Fill or alter a portion of a wetland that would cause irreversible negative impacts to a species or habitat of high concern
- Irreversibly degrade the quality of a unique or pristine wetland
- Reduce population size or distribution of species of high concern

Groundwater: Impacts to groundwater would be considered significant if impacts:

- Reduce water availability or supply to existing users
- Overdraft groundwater basins
- Endanger public health by creating or worsening health hazard conditions

3.5.2.2. Impacts from Construction of the Proposed Action

Surface Water

Construction of the Proposed Action would result in short-term, minor, direct, adverse impacts to surface water. This impact could occur if sediment-laden stormwater migrated to Muddy Run. During the design of the project, appropriate BMPs would be developed and LEAD or the construction contractor would obtain the necessary permits.

Where possible, the designs would be developed to avoid or minimize impacts to surface water resources. Provided that a construction general permit for stormwater has been approved and implemented, runoff of stormwater and pollutants from a construction site is considered to be in compliance with regulatory requirements and would not cause an impairment of surface waters.

At the MMDF site, a net increase of 5.12 acres of impervious surfaces, representing an estimated increase of 142,129 gallons of runoff volume above what the site currently produces. BMPs would utilize pavement design and landscaping for storm water infiltration. Several LID-BMPs are suitable, but a retaining structure/berm around the existing retention pond redirecting overflow water is highly recommended during stormwater design. The following LID BMPs would be utilized at the MMDF site:

- Grading to encourage sheet flows over long flow paths.
- Maintenance of natural drainage divides.
- Disconnecting impervious areas from the storm-drain network.
- Preservation of naturally vegetated areas.
- Directing runoff into stormwater collection system. System consisted of Oil/Water separator feeding to stormwater retention pond.
- Provide small-scale distributed features and devices. Use BMPs that meet regulatory and resource standards.

With the implementation of permit-related construction BMPs, no construction-related stormwater runoff is expected to intersect with the Muddy Run at any time during construction or operation of the Proposed Action; however, this is still a possibility and therefore a minor adverse effect.

Stormwater

Construction of the Proposed Action could result in short-term, minor, direct, adverse impacts to stormwater. Approximately 5 acres of the Proposed Action sites would change from permeable to impervious surfaces which would increase the volume and quantity of stormwater runoff from the site.

As part of the process to obtain the construction general permit for storm water discharges during construction, a SWPPP would be prepared. SWPPPs include implementation of BMPs, performing frequent visual inspections, and conducting benchmark monitoring to determine BMP effectiveness. Monitoring results are analyzed in relationship to the identified water quality objectives and if the benchmarks are not being reached, the BMPs would be modified. These measures would ensure that construction-related impacts to stormwater quality remain at a short-term, direct, minor adverse level. With the implementation of BMPs, runoff would be minimized; but cannot be eliminated with the increase in impervious surface area.

Floodplains

The proposed MMDF site, and the proposed buildings for demolition and outside of the 500-yearfloodplain and would incur no adverse effects to floodplains.

The RCY site does contain a small section (0.13 acres) in Zone A, the 100-year floodplain of Muddy Run. Long-term, direct, minor, adverse impacts to this section of floodplain caused by construction of the proposed RCY are anticipated. EO 11988 directs that any new construction must avoid floodplains as much as possible, and if construction in the floodplain cannot be avoided, flood protection measures must be undertaken to reduce the risk of flood-associated damages.

As noted in **Section 3.4.1.2 Floodplains**, the majority of the proposed RCY is outside the 500-year flood zone. EOs 11988 and 13690, which require Federal agencies to avoid actions located in or adversely affecting floodplains unless there is no practicable alternative. The Proposed Action would have minor long-term and short-term adverse effects on floodplains, even with all practicable steps to avoid the floodplain encroachment and impacts undertaken. A FONPA would be prepared with the FNSI stating there are no alternatives that can be taken to avoid impacts to the floodplain. The floodplain crosses the railroad track in the same area as the largest unnamed tributary to Muddy Run. There is a culvert running underneath the track to allow the water to flow to Muddy Run. The impact to this area cannot be avoided if the railroad track is to be updated. More details on impacts and mitigation methods for floodplains can be found in **Appendix E**.

Wetlands

There would be long-term, minor, direct, adverse impacts to wetland resources as a result of the construction of the Proposed Action. The proposed MMDF would not impact wetlands as the LOD does not intersect the wetlands or streams to the north. The demolition of Buildings 1456 and 2365 also would not impact wetlands.

The proposed RCY site is bordered by a large, PFO wetland, originating from Muddy Run just north of the LOD. Muddy Run is not considered to be of "exceptional value or high quality"

according to the PADEP 2022 Integrated Report Mapping. According to Pennsylvania Code 25§ 102.14, *Riparian Buffer Requirements*, these wetlands would not require riparian buffers. Wetland impacts would not require mitigation per the PADEP *General Water Obstruction and Encroachment Permit* guidelines. Only 0.38 acres of wetlands would be impacted, which is less than the 0.5 acres of wetlands that elicits mitigation measures.

Groundwater

The Proposed Action construction activities could have a short-term, indirect, negligible, adverse impacts on groundwater quality. Although construction would not directly impact or encounter groundwater resources, during construction, accidental releases of petroleum-based fluids from construction equipment could occur. If not immediately remediated, it could adversely impact groundwater quality. To avoid such potential releases and impacts, construction equipment would be properly maintained in good working order and equipped with emergency spill kits, with workers trained in proper deployment and use of these kits. This would ensure that construction contractors are prepared to respond to an emergency release of petroleum-based fluids, contain the release, and prevent adverse impacts to groundwater from occurring. Additionally, construction equipment would be refueled in a designated area equipped with impervious surfaces to avoid potential releases to permeable surfaces and the underlying groundwater.

3.5.2.3. Impacts from Operation of the Proposed Action

Surface Water

Operations of the Proposed Action would result in long-term, negligible, direct adverse impacts to surface waters located within the vicinity of the site. The conversion of permeable to impervious areas would be less than six acres and would come mostly from the MMDF building footprint. Through the use of BMPs and LID practices, LEAD would comply with Section 438 of EISA, to ensure that both pre-and post-hydrology remain the same.

Stormwater

Operation of the Proposed Action would have a long-term, minor, direct, adverse impacts to stormwater. Stormwater would be treated on site at the proposed MMDF with stormwater retention ponds utilizing LID to the maximum extent practicable. The parking lot would utilize permeable pavements to decrease impervious surface. Grass swales will be used to convey stormwater to stormwater structures where practicable. In addition, PADEP and Franklin County stormwater requirement would be met. The RCY would utilize grass swales for stormwater management, as is being done on the site now.

EO 13514, *Federal Leadership in Environmental, Energy, and Economic Performance*, requires that all new construction comply with the *Guiding Principles for Federal Leadership in High Performance and Sustainable Buildings*, including employing design and construction strategies that reduce stormwater runoff. Section 438 of EISA requires that any development or redevelopment project involving a federal facility with a footprint exceeding 5,000 SF use site planning, design, construction, and maintenance strategies to maintain or restore the pre-project hydrology of the property with regard to temperature, rate, volume and duration of flow. Compliance with these requirements would be met through the implementation of LID

technologies mentioned previously, which would maintain or restore natural hydrologic functions of the site. Examples include, but are not limited to, minimizing total site impervious areas, directing building drainage to vegetative buffers, using permeable pavements where practical, and breaking up flow directions from large, paved surfaces.

Floodplains

The proposed MMDF site, and the proposed buildings for demolition and outside of the 500-yearfloodplain and would incur no adverse effects to floodplains.

The RCY site does contain a small section (0.13 acres) in the100-year floodplain of Muddy Run. Direct, long-term, adverse impacts to this section of floodplain caused by construction of the proposed RCY are anticipated. The primary adverse effects would occur from the construction of the RCY, rather than from its operation. The RCY intersects with the 100-year floodplain as it stands; however, the area would be disturbed and expanded by less than 0.10 acres. Once construction is completed, there would be long-term, minor, direct, adverse impacts to floodplains through the continued existence of the RCY in a 100-year floodplain.

A FONPA would be prepared with the FNSI stating there are no alternatives that can be taken to avoid impacts to the floodplain. The floodplain crosses the railroad track in the same area as the largest unnamed tributary to Muddy Run. There is a culvert running underneath the track to allow the water to flow to the Muddy Run. The impact to this area cannot be avoided if the railroad track is to be updated. More details on impacts and mitigation methods for floodplains can be found in **Appendix E.**

Wetlands

There would be long-term, minor, direct, adverse impacts to wetland resources as a result of the operation of the Proposed Action. The proposed MMDF would not impact wetlands as the LOD does not intersect the wetlands or streams to the north and does not require a riparian buffer for the wetlands. The demolition of Buildings 1456 and 2365 also would not impact wetlands. Sediment and erosion control and stormwater BMPs would be employed to prevent indirect impacts to wetlands in the vicinity of the site after the facility was built.

The RCY site is bordered by wetlands to the north, a small portion of which would be impacted by the proposed RCY since it intersects the LOD perpendicularly. The majority of impacts to this wetland would occur during the construction phase of the proposed RCY. A small portion of wetland would be removed due to grading for the track. This would also cause the existing culvert to be expanded, cutting into the 0.38 acres of wetland that is within the LOD. There would be long-term, minor, direct, adverse impacts to wetlands from the operation of the proposed RCY. Dynamics and hydrology of the existing wetland could be permanently and minorly changed due to the loss of a small wetland area around the culvert.

Groundwater

Operation of the Proposed Action would have a long-term negligible, direct, adverse impacts on groundwater quality due to the new impervious surfaces and reduced groundwater recharge

volume. Operational activities would not encounter groundwater resources and thus would have no additional adverse impact.

3.5.2.4. Impacts from the No Action Alternative

Implementation of the No Action Alternative would result in no impacts to water resources. The MMDF facility would not be constructed, nor would the RCY; therefore, there would be no changes to the existing hydrology in and around the Proposed Action area.

3.6. BIOLOGICAL RESOURCES

Biological resources include native or naturalized plants and animals and the habitats (e.g., wetlands, forests, and grasslands) in which they live. Protected biological resources include plant and animal species listed by Pennsylvania as rare, threatened, or endangered (RTE) or by the USFWS as threatened or endangered. Special concern species are not afforded the same level of protection, but their presence is taken into consideration by resource agency biologists involved in reviewing projects and permit applications.

3.6.1. *Affected Environment*

3.6.1.1. Vegetation

Approximately 34% of LEAD land is second- and third-growth forest, 52% is open fields, and 13% is developed with scattered landscaped vegetation. Woody species in the approximately 6,264 acres of forest land on the Installation are primarily of the oak-hickory association, including: red oak (*Quercus rubra*), black oak (*Q. velutina*), white oak (*Q. alba*), chestnut oak (*Q. prinus*), and various hickory species (*Carya* spp.), with lesser numbers of yellow poplar (*Liriodendron tulipifera*), white ash (*Fraxinus americana*), and red maple (*Acer rubrum*). Understory species include hawthorn (*Crataegus* spp.), redbud (*Cercis canadensis*), black haw (*Viburnum prunifolium*), hackberry (*Celtis* spp.), Tatarian honeysuckle (*Lonicera tatarica*), autumn olive (*Elaeagnus umbellata*), northern spicebush (*Lindera benzoin*), and dogwood (*Cornus racemosa*). Ground cover species include dogbane (*Apocynum* spp.), hyacinths (*Hyacinthus* spp.), clover (*Trifolium* spp.), goldenrod (*Solidago* spp.), sedges (*Carex* spp.), rushes (*Juncus* spp.), wild mustard (*Brassica* spp.), broom sedge (*C. scoparia*), spring beauty (*Claytonia caroliniana*), cattail (*Typha latifolia*), raspberries and blackberries (*Rubus* spp.), wild garlic (*Allium vineale*), various grasses, Japanese barberry (*Berberis thunbergii*), burdock (*Arctium* spp.), mayapple (*Podophyllum peltatum*), and multiflora rose (*Rosa multiflora*).

Open habitat vegetation at LEAD consists of grassland fields in the agricultural outlease program. The open areas are primarily buffer areas along roadways, around munitions igloos, and field borders that also serve as fire breaks. The forest habitat on LEAD is healthy overall. The greatest threats to habitat are the spread of invasive species and deer over browse. Invasive species include tree-of-heaven (*Ailanthus altissima*), reed canary grass (*Phalaris arundinacea*), mile-a-minute (*Persicaria perfoliata*), Japanese barberry, wineberry (*R. phoenicolasius*), multiflora rose, wild privet (*Ligustrum vulgare*), Japanese stilt grass (*Microstegium vimineum*), common reed (*Phragmites australis*), garlic mustard (*Alliaria petiolata*), field garlic (*A. oleraceum*), sericea

lespedeza (*Lespedeza cuneata*), and vine- and shrub-form honeysuckles. These rapidly growing species crowd out native vines and shrubs and do not create quality habitat for other native species. Reed canary grass has been noted as a problem in some of the wetlands on LEAD and is becoming a dominant plant in several areas (LEMC, 2020).

Federal laws, policies, and regulations that could affect forest management at LEAD include AR 200-1; Public Law 86-797, the Sikes Act, as amended (16 U.S.C. 670); 10 U.S.C. 2665 (Sale of certain interest in land: logs); DoD Instruction 7310.5 *Accounting for Production and Sale of Lumber and Timber Products*; EO 11990 *Protection of Wetlands*, ESA ; and the National Forest Management Act of 1976 (16 U.S.C. 1601 et seq.). LEAD has a forest management plan in place, which was last updated in 2012. This plan adheres to the regulations listed above. The objective of forest management at LEAD is to manage the depot's forestland for multiple uses: to provide a sustainable yield of wood products, maintain wildlife habitat, improve aesthetics, protect streams and springs, provide forested areas for military training, and to enhance recreational value (e.g.,bird watching, hunting, horseback riding, and hiking). Practices such as forest inventorying, forest product sales, timber stand improvement, forest access road management, encouragement and protection of natural (or artificial) regeneration, support for cultural and other natural resource surveys, and protection from wildfire, insects, and disease sustain the forested environment.

At the Proposed MMDF site, the only existing vegetation within the LOD is either planted crops that would be harvested prior to construction, or vegetation that has become overgrown during the non-planted times of the year. The entire field is surrounded by mature forest, composed of a variety of canopy trees primarily falling under the oak/hickory category. The RCY site is surrounded entirely by mature forest with primarily black walnut (*Juglans nigra*) and shagbark hickory (*C. ovata*) in its canopy. The understory varies depending on the topography but contains vegetation such as northern spicebush, black walnut saplings, and dense areas of autumn-olive. The demolition sites are both urbanized and do not contain mature forest, but rather overgrown areas that were once maintained.

3.6.1.2. Wildlife

Mammals

Wildlife inventories and field observations conducted between 1987 and 2005, identified thirty-five (35) species of mammals at LEAD. Additionally, a small mammal survey was conducted in 2003 by the LEAD Natural Resources Office in conjunction with Shippensburg University to determine the abundance and distribution of species. Some of the common species of mammals identified include the Virginia opossum (*Didelphis virginiana*), Eastern cottontail (*Sylvilagus floridanus*), Eastern chipmunk (*Tamias striatus*), gray squirrel (*Sciurus carolinensis*), beaver (*Castor canadensis*), red fox (*Vulpes vulpes*) and the white-tailed deer (*Odocoileus virginianus*). A mist netting survey was also conducted in 2000 for the endangered Indiana bat (*Myotis sodalis*). During the survey, several common species of bat were identified, including the big brown bat (*Eptesicus fuscus*) and red bat (*Lasiurus borealis*). The federally endangered northern long-eared bat (NLEB) (*Myotis septentrionalis*) was last identified at LEAD in 2015 when the bat was considered federally threatened (LEMC, 2020).

Birds

Wildlife inventories, field observations, and subsequent surveys conducted by the LEAD Natural Resource Office, the Pennsylvania Game Commission, and the Audubon Society identified more than 100 avian species at LEAD. The diverse avian habitats attract migratory species like warblers (*Passeri* spp.) and vireos (*Vireonidae* spp.) that use LEAD as a stopover. Nesting species such as the great blue heron (*Ardea horodias*), Canada geese (*Branta canadensis*), and killdeer (*Charadrius vociferous*) have been observed in spring and summer months. Year-round residents include the ring-necked pheasant (*Phasianus colchicus*), eastern wild turkey (*Meleagris gallopavo*), and woodpeckers (*Picoides* spp.). Grass-land dependent species include the grasshopper sparrow (*Ammodramus savannarum*), field sparrow (*Spizella pusilla*), bobolink (*Dolichonyx oryzivorus*), common yellowthroat (*Geothlypis trichas*), and song sparrow (*Melospiza melodia*). Other species on LEAD include the European starlings (*Sturnus vulgaris*) and brown-headed cowbirds (*Molothrus ater*) (LEMC, 2020).

Impacts to wildlife from federal artificial light at night must be assessed, with significant impacts mitigated to the extent practicable. UFC 3-530-01 requires full shielding for outdoor lighting, and provides standards for brightness, controls, and spectrum; in sensitive areas for mission and habitat, adherence to USFWS and state lighting design recommendations is mandated. Reference DoD Partners in Flight *Artificial Light At Night Fact Sheet* from Oct 3, 2022, for further details. The Proposed Action would adhere to these regulations.

Herpetofauna and Fish

Nineteen (19) species of reptiles have been identified at LEAD as part of the RTE inventories, subsequent surveys, or as field observations. The LEAD Natural Resources Office and Shippensburg University conducted reptile surveys from 2003 to 2005 to determine the abundance and distribution of reptile species. Observed species include the wood turtle (*Clemmys insculpta*), common snapping turtle (*Chelydra serpentina*), eastern box turtle (*Terrapene carolina*), midland painted turtle (*Chrysemys picta marginata*), five-lined skink lizard (*Eumeces fasciatus*), northern water snake (*Nerodia sipedon*), northern copperhead (*Agkistrodon contortrix*), and black rat snake (*Elaphe 3-34odalist*). The LEAD Natural Resources Office and Shippensburg University conducted amphibian surveys from 2003 to 2005 to determine the abundance and distribution of amphibian species. Twenty-four (24) species were observed during these surveys. Another species-specific survey was conducted for box turtles (*Terrapene* spp.), marbled salamanders (*Ambystoma. Opacum*), frogs, and spotted newts (*Notophthalmus* spp.). LEAD includes a vernal pond community within an area of forest bordering Buchanan State Forest in the northwestern portion of LEAD. The vernal ponds on LEAD and in nearby areas house many species including marbled salamanders, spotted salamanders, Jefferson's salamanders (*A. jeffersonianum*), wood frogs (*Rana sylvatica*), spring peepers (*Pseudacris crucifer*), green frogs (*R. clamitans*), pickerel frogs (*R. palustris*), toads (*Bufo* spp.), and red-spotted newts (*N. viridescens*). There is a lack of survey data related to the condition of fisheries on LEAD (LEMC, 2020).

Pests

The gypsy moth (*Lymantria dispar dispar*), eastern ash borers (*Agrilus planipennis*), spotted lanternfly (*Lycorma delicatula*), and hemlock woolly adelgid (*Adelges tsugae*) have caused catastrophic deforestation in other parts of the country and are closely monitored in the LEAD

area. Occasional gypsy moth infestations have occurred in the western buffer zone of LEAD. Advanced stages of hemlock woolly adelgid infestation were observed in the buffer zone at the foot of and on the eastern slopes of Broad Mountain. No evidence of eastern ash borers or spotted lanternflies have been observed on LEAD.

3.6.1.3. Rare, Threatened and Endangered Species

The ESA requires federal agencies, in consultation with the USFWS to ensure that actions they authorize, fund, or carry out are not likely to jeopardize the continued existence of any listed species or result in the destruction or adverse modification of designated critical habitat of such species. Critical habitat can include areas not occupied by the species at the time of the listing but are essential to the conservation of the species. The Sikes Act provides for cooperation by the Department of the Interior and DoD with state agencies in planning, development, and maintenance of fish and wildlife resources on military reservations throughout the U.S.
Section 7 of the ESA requires federal agencies to request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action for any project that is conducted, permitted, funded, or licensed by any federal agency. The Information for IpaC resource list can be found in **Appendix B.** As reported through the USFWS Resource List, there are no critical habitats or wetlands of any type within the project site.

Federally- Listed Species

Based on the IPaC results, from USFWS, four (4) species populated on the official species list: northeastern bulrush (*Scirpus ancistrochaetus,* endangered*),* Indiana bat (endangered), NLEB (endangered), tricolored bat (*Perimyotis subflavus,* proposed) and monarch butterfly (*Danaus plexippus,* candidate*).*

White-nose syndrome, a fungal disease known to affect bats, is the most severe and immediate threat to NLEB and tricolored bat survival and is the basis for the listing of the species' status. During the active season (April 1 to October 31), bats roost singly or in colonies in cavities, underneath bark, crevices, or hollows of both live and dead trees and snags.

Monarch butterfly does not require further consultation, however, USFWS may recommend conservation measures that would support the species. Three surveys were conducted for federally listed species that may be on LEAD. The most recent survey, in 2000, included three targeted species: bog turtle (*Glyptemys muhlenbergii*), Indiana bat, and northeastern bulrush. The 2000 survey of all LEAD wetlands found no potential bog turtle habitat on LEAD. No Indiana bats were observed on LEAD either. However, due to the limited nature of the bat survey, it cannot be concluded that there are no Indiana bats present. The 2015 survey identified the federally endangered NLEB bat as occurring on the Installation. Viable northeastern bulrush habitat was found on LEAD, but no species evidence was observed. It is unlikely that the species is present (LEMC, 2020).

The PNDI was also run for the entirety of LEAD's boundary can be viewed in **Appendix B**. The closest natural area to the Proposed Action sites is Keasey Run Wetlands. These wetlands run along the very northern edge of LEAD's boundary and to the southeastern edge. The RCY site appears to be within the bounds of the Keasey Run Wetlands. This area is a concern for bullrush;

however, the proposed site would affect a very small portion of wetlands. These wetlands are not habitat for home to northeastern bullrush, as was verified by the USACE survey team during wetland delineations.

State-Listed Species

Although an Installation-wide flora survey has not been conducted, several surveys were conducted with the following state-listed species identified as occurring or potentially occurring at LEAD. Allegheny woodrat (*Neotoma floridana magister*), lance-leaved loosestrife (*Lysimachia hybrida)*, timber rattlesnake (*Crotalus horridus*), eastern spadefoot toad (*Scaphiopus holbrookii*), and brown sedge (*Carex buxbaumii*). Three (3) Allegheny woodrats were trapped during a small mammal survey conducted by the LEAD Natural Resources Office with Shippensburg University in 2003 and 2004. Lance-leaved loosestrife was identified on LEAD during the 2000 endangered species survey. No brown sedge has been observed on LEAD. Until an Installation-wide flora survey been completed, impacts to listed plants cannot be determined (LEMC, 2020

3.6.2. *Environmental Consequences*

3.6.2.1. Significance Criteria

An alternative would be considered to have a significant impact on biological resources if the Proposed Action caused:

- A permanent net loss of habitat or long-term loss or impairment of a substantial portion of local habitat on which native species depends
- Unpermitted loss or destruction of more than one acre of jurisdictional wetlands, including the filling or alteration of a wetland or portion, thereof that would cause irreversible negative impacts to species or habitats of high concern
- Federally threatened or endangered species incurred any form of 'take' under the ESA

3.6.2.2. Impacts from the Construction of the Proposed Action

Vegetation

At the proposed MMDF site, short-term, minor, direct, adverse impacts to vegetation would be expected during construction due to removal or trampling. Long-term negligible adverse impacts would be anticipated with new construction, grading, or permanent vegetation removal. Adverse impacts would primarily occur to any plants growing on the active farm field. At the start of construction, the field would have been harvested and therefore, very little vegetation would remain. Vegetation remaining would be weeds that had seeded in-between the time of harvest and the start of construction. Tree removal would occur on the eastern edge of the site where the entrance road would be constructed.

At the RCY location, short-term, minor, direct, adverse impacts to vegetation would be expected during construction and demolition due to any removal or trampling. Long-term, direct, minor adverse impacts would be anticipated with any permanent vegetation removal. The proposed RCY is surrounded by forested area. The exact quantity of tree removal is unknown and will be minimized to the highest extent possible. However, large amounts of grading would have to occur

at the RCY site because of the dramatic topography. Specifically, at the western end of the site, the grading will involve tree removal in a mature forest where the suspect tract would be built. LEAD would maintain the maximum amount of vegetation within the project area (e.g. on steeply sloped areas to reduce the potential for erosion) and seed and/or plant native vegetation for stabilization and landscape purposes after construction is finished.

Tree clearing would not contribute to fragmentation of the nearby forest habitat. Clearing would affect trees and understory that are edge habitat, are currently fragmented or separated from other larger forested areas, or both. The tree clearing would not increase the amount of forest edge habitat but would instead relocate the edge habitat away further from the current track.

Forest edge areas provide opportunities for non-native species to colonize and spread and invasive ground cover species. Due to the exposure of new edge areas along forested tracts, invasive species control will be implemented as dictated through LEAD's INRMP. Only native species that are suitable for this habitat type will be seeded or planted after construction is finished.

At the demolition sites, short-term, direct mionr, adverse impacts to vegetation would be expected during construction and demolition due to any removal or trampling. Long-term, direct, negligible, adverse impacts would be anticipated with any permanent vegetation removal. No vegetation removal is anticipated, with the exception of some vegetation that may be accidentally harmed during the demolition of the buildings. These would only be herbaceous species that have overgrown the area.

Wildlife

Short-term, minor, direct, adverse impacts to fish and wildlife resources would be anticipated at all of the proposed sites due to noise from heavy equipment and construction activities.

At the proposed MMDF site, long-term, direct, moderate adverse impacts to fish and wildlife would occur with the construction of impervious surfaces, habitat loss in this undeveloped location, and conversion of land to a location of high use and industrialization. However, this area is an active farmland field and therefore not ideal habitat for woodland creatures, specifically when the field is being harvested. Birds that require field/meadow habitat for food would be negatively impacted by the loos of foraging area.

Short-term, minor, direct, adverse impacts to fish and wildlife resources would be anticipated due to noise from heavy equipment and construction activities from the proposed RCY. Long-term adverse impacts are not anticipated due to the site having existing infrastructure and usage.

Short-term, direct, minor, adverse impacts to fish and wildlife resources would be anticipated due to noise from the demolition of Buildings 2365 and 1456. Long-term, direct, minor, adverse impacts would not be anticipated from the demolition.

At all Proposed Action locations, minor, short-term, indirect, adverse impacts to federally listed species may occur due to noise disturbances. Conservation measures provided by the USFWS will be implemented to protected listed species in the project area.

Rare, Threatened and Endangered Species

Coordination with USFWS and PNDI using the IPaC website, indicated that there is a possible occurrence of the NLEB Indiana Bat, and tricolored at the Proposed Site. However, no critical habitat was identified within the anticipated LOD (USFWS, 2024). Part of the IPaC process requires completion of a set of determination keys, involving structured questions to assist in determining whether a proposed project qualifies for a predetermined consultation outcome. The determination key for the Indiana bat determined that the Proposed Action would have no effect and no additional consultation is required; however, the determination key for NLEB indicated the Proposed Action may affect this species, and informal consultation in accordance with the *Interim Consultation Framework for Northern Long-Eared Bat*, (Appendix A) was initiated 17 June 2024. Potential adverse impacts to the NLEB would be minimized by restricting tree clearing to the non-active, overwintering season (October 1 – March 31). Based on the noted time of year restrictions for tree clearing, the USFWS responded that no further Section 7 consultation is required for this project unless project plans change, or when updated Section 7 guidance for northern long-eared bat and new guidance for tricolored bat are expected. USFWS recommended LEAD review the updated guidelines once released and consider reinitiating consultation at that time. This time-of-year restriction will also minimize impacts to herp species (eastern box turtle, wood turtle, spotted turtle (*Clemmys guttata*), and various amphibians/snakes) that may be utilizing the wetland area at the RCY site or are just passing through the project area. All three turtle species utilize Muddy Run and the surrounding wetland habitats.

3.6.2.3. Impacts from the Operation of the Proposed Action

Vegetation

Adverse impacts from the operation of the proposed MMDF and RCY would be long term, direct, and minor. Once the MMDF and RCY were built, vegetation would be adversely impacted by not being allowed to regrow, causing loss of habitat. However, the majority of adverse impacts would occur with the construction of the Proposed Action.

The demolition of Buildings 1456 and 2365 would have long-term, negligible, beneficial impacts on vegetation. After the buildings were demolished, some vegetation may be allowed to grow where the buildings once stood.

Wildlife

Long-term, direct, negligible, adverse impacts would occur with the operation of the MMDF and RCY. Operations of the MMDF would create standard noises that could disturb wildlife. However, LEAD already is subject to noise associated with operational buildings and wildlife in the areas is likely desensitized to this type of noise. Noises surrounding the proposed RCY would be similar to those that are already present in the area with the current railroad; therefore, this would be a negligible effect on wildlife. The demolition of Buildings 1456 and 2365 would have no impact on wildlife.

Rare, Threatened, and Endangered Species

The operation of the Proposed Action would have negligible, direct, long-term adverse effects on RTE species. The proposed MMDF would add typical operational noise to the area in which it would be built, such as heating, ventilation, and air conditioning noises, car engines, etc. However, LEAD as a whole is a military installation with typical operational noises. The addition of an MMDF would not disturb any RTE species any more than other operational noises in the area that they would be accustomed to prior to construction. The proposed RCY would be comparable to the operational noise of the current railroad track. The operation of the new RCY would add no additional noise to disturb RTE species.

3.6.2.4. Impacts from the No-Action Alternative

No impacts would occur to biological resources under the No-Action Alternative as the Proposed Action area would not change biologically. No demolitions or construction would take place; therefore, all wildlife and vegetation could remain where in place.

3.7. CULTURAL RESOURCES

Several federal laws and regulations have been established to manage cultural resources. Cultural resources are "historic properties" as defined by the NHPA of 1966; "cultural items" as defined by the Native American Graves Protection and Repatriation Act of 1979 (NAGPRA); "archaeological resources" as defined by the Archaeological Resources Protection Act of 1979 (ARPA), "sacred sites" as defined by EO 13007, *Indian Sacred Sites*, to which access is afforded under the American Indian Religious Freedom Act of 1987 (AIRFA); and "collections and associated records" as defined in 36 CFR Part 79, *Curation of Federally Owned and Administered Archaeological Collections*.

Cultural resources can include precontact and historic sites, structures, districts, or any other physical evidence of human activity considered important to a culture, a subculture, or a community for scientific, traditional, religious, or any other reason. Depending on their condition and use, these resources can provide insight into the living conditions of previous existing civilizations, or retain cultural and religious significance to modern groups, referred to as "Traditional Cultural Properties." Traditional Cultural Properties include locations of historic occupations and events, historic and contemporary sacred and ceremonial areas, prominent topographical areas that have cultural significance, traditional hunting and gathering areas, and other resources that Native Americans or other groups consider essential for the persistence of their traditional culture.

Archaeological resources are locations where precontact or historic activity measurably altered the earth or produced deposits of physical remains. Architectural resources include standing buildings, districts, bridges, dams, and other structures of historic significance.

In order for a cultural resource to be considered significant, it must meet one or more of the following criteria for inclusion in the National Register of Historic Places (NRHP): the quality of significance in American history, architecture, archaeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting,

materials, workmanship, feeling, and association and: (1) that are associated with events that have made a significant contribution to the broad patterns of our history; or (2) that are associated with the lives or persons significant in our past; or (3) that embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or (4) that have yielded, or may be likely to yield, information important in prehistory or history.

The NHPA, as amended, as well as Federal legislation, and DoD regulations (particularly Army Regulation 200-1, *Environmental Protection and Enhancement*), requires the Army and other Federal agencies to locate, identify, evaluate, and treat cultural resources under their ownership, administration, and control in a manner that fosters the preservation of the resources. Accordingly, the most recent update to the Integrated Cultural Resources Management Plan (ICRMP) for LEAD was finalized in 2020 and will remain valid until the end of 2024.

3.7.1. *Affected Environment*

3.7.1.1. Area of Potential Effect

The Area of Potential Effect (APE) for this Proposed Action is the LOD for the proposed MMDF facility. For the RCY, the APE is considered the LOD and anything within a 0.25-mile radius of the LOD.

3.7.1.2. Historic Properties at LEAD

In 1998, a Programmatic Agreement (PA) for the BRAC-95 actions was finalized and agreed upon by the Army Materiel Command (AMC), Pennsylvania SHPO, and the Advisory Council on Historic Preservation. The PA stated that the entire LEAD installation was considered eligible as a district for the NRHP under Criterion A for its association with the events of World War II. The PA also identified all World War II resources as contributing elements in the historic district with no consideration given to resource integrity, the type of construction (temporary, semi-permanent, or permanent), or whether or not buildings were contributing or non-contributing resources in the district. For purposes of the PA, all buildings constructed at LEAD were considered contributing buildings in the Letterkenny Historic District. Since the PA, the buildings and structures in the Letterkenny Historic District have been evaluated only when undertakings at LEAD evoked the Section 106 process. Historic resource surveys performed at LEAD following this determination satisfied Section 106 requirements. None of these surveys identified any individually eligible or contributing elements to the Letterkenny Historic District.

A total of 20 archeological sites have been recorded at LEAD. The sources used to identify previously recorded sites at LEAD were (1) previous survey reports, (2) the 1999 ICRMP, and (3) the 2007 ICRMP. Eleven of the 20 archeological sites were identified during a 1998 cultural resources survey. Of these 11 sites, six historic sites were recommended as potentially eligible. However, all 11 sites are located on property that was transferred to private ownership during BRAC-95. The resulting PA stipulates that the transferred archeological sites will be protected with preservation covenants. No archeological sites at LEAD have been formally nominated to or included in the NRHP.

3.7.1.3. Archeological Surveys at the MMDF and RCY Sites

LEAD has no record of either the MMDF or the RCY areas being surveyed for archaeological sites. In addition to reviewing LEAD's files and previous survey reports, the PA SHPO's online database, PA SHARE, was carefully reviewed to understand the archaeological context of the area. There are 14 known archaeological sites within 1 mile of the MMDF and RCY sites.

It was determined that a Phase I Archeological survey was needed to determine the presence or absence of archeological sites at the MMDF proposed area. USACE conducted a Phase I archeological survey across the MMDF LOD in December 2022. No archeological artifacts were found at the site and concurrence for a "no adverse effect" determination from the PA SHPO is expected to be received.

A Phase I Archeological survey at the RCY was conducted in December 2022. There is a known historic farm on the eastern end of the RCY project site. The survey captured the boundaries of this complex to see if this area can be avoided by the RCY project team. The above ground features were mapped which included the known house foundation and associated stone wall. USACE identified two building foundations, a concrete animal trough, stone wall features, and a debris field of architectural materials associated with former farm complex. The site boundaries were drawn to encompass these features and 20th century debris noted on the ground's surface.

In June 2023, the USACE engineering design team determined that due to the steep topographic relief and geologic conditions on the eastern end of the RCY project that the slope would potentially need to be cut back further than previously thought or a retaining wall would need to be built (**Figure 3-13**). This would expand the LOD into the identified archaeological site. Originally, the Phase I conclusions recommended that the RCY project maintain a 100-foot buffer away from the known site features and building foundations. Due to the design changes, a Phase II investigation was conducted to determine if the site is eligible for the NRHP. The purpose of a site evaluation is (1) To accurately define site boundaries and assess the horizontal and vertical integrity; (2) To determine whether the site is eligible for the NRHP and under what criterion; and (3) To provide recommendations for future treatment of the site. These goals can best be met when research strategies focus on determining site chronology, site function, intrasite structure, and integrity.

A Phase II archeological survey was conducted in May and June of 2024 and determined preliminarily that the historic farm stead is not eligible for listing on the NRHP. The results of the survey were sent to the PA SHPO for concurrence. The findings of the Phase II survey will be posted in **Appendix D** once they are available**.**

3.7.2. ***Environmental Consequences***

3.7.2.1. Significance Criteria

Significant impacts on cultural resources would occur if:

- Potential resources that have not been previously documented are not properly identified
- Consultation pursuant to Section 106 is not completed
- Known historic properties are adversely affected

- Impacts on viewsheds within the APE buffer are not appropriately considered and addressed

3.7.2.2. Impacts from Construction and Operation of Proposed Action

LEAD initiated NHPA Section 106 consultation via a letter to the PA SHPO in 2022. The PA SHPO concurred with LEAD's proposed Phase I workplan. Consultation was reinitiated with the PA SHPO upon the completion of the Phase II Archeological Survey. The PA SHPO concurred that the MMDF site would incur no adverse impacts from the Proposed Action. The farm homestead was found to not preliminarily eligible for the NRHP and would not require a buffer. It is anticipated there would be no impacts to cultural resources as a result of the construction and operation of the Proposed Action.

However, there is the potential for adverse impacts to cultural resources in the event of an inadvertent discovery during construction work. To minimize the potential impact to previously unknown cultural resources during subsurface work, LEAD would implement an "Accidental Discovery" plan to comply with the NHPA; NAGPRA; ARPA; EO 13007 to which access is afforded under AIRFA; and 36 CFR Part 79. If precontact or historic artifacts that could be associated with Native American, early European, or American settlement are encountered during construction/operation of the expansion areas, LEAD would cease all activities in the vicinity of the discovery. Should human remains or other cultural items be discovered during construction work would immediately cease until the LEAD Cultural Resources Manager, PA SHPO, and selected Native American Tribes are contacted to properly identify and appropriately treat discovered items in accordance with applicable state and federal law(s). Implementation of these measures would ensure that the Proposed Action would have no adverse effect on historic properties or cultural resources.

3.7.2.3. Impacts from the No Action Alternative

Implementation of the No Action Alternative would result in no impacts to cultural resources. The MMDF and RCY would not be constructed, and no buildings would be demolished. Therefore, there would be no ground disturbances that could impact archaeological, architectural, or Native American resources.

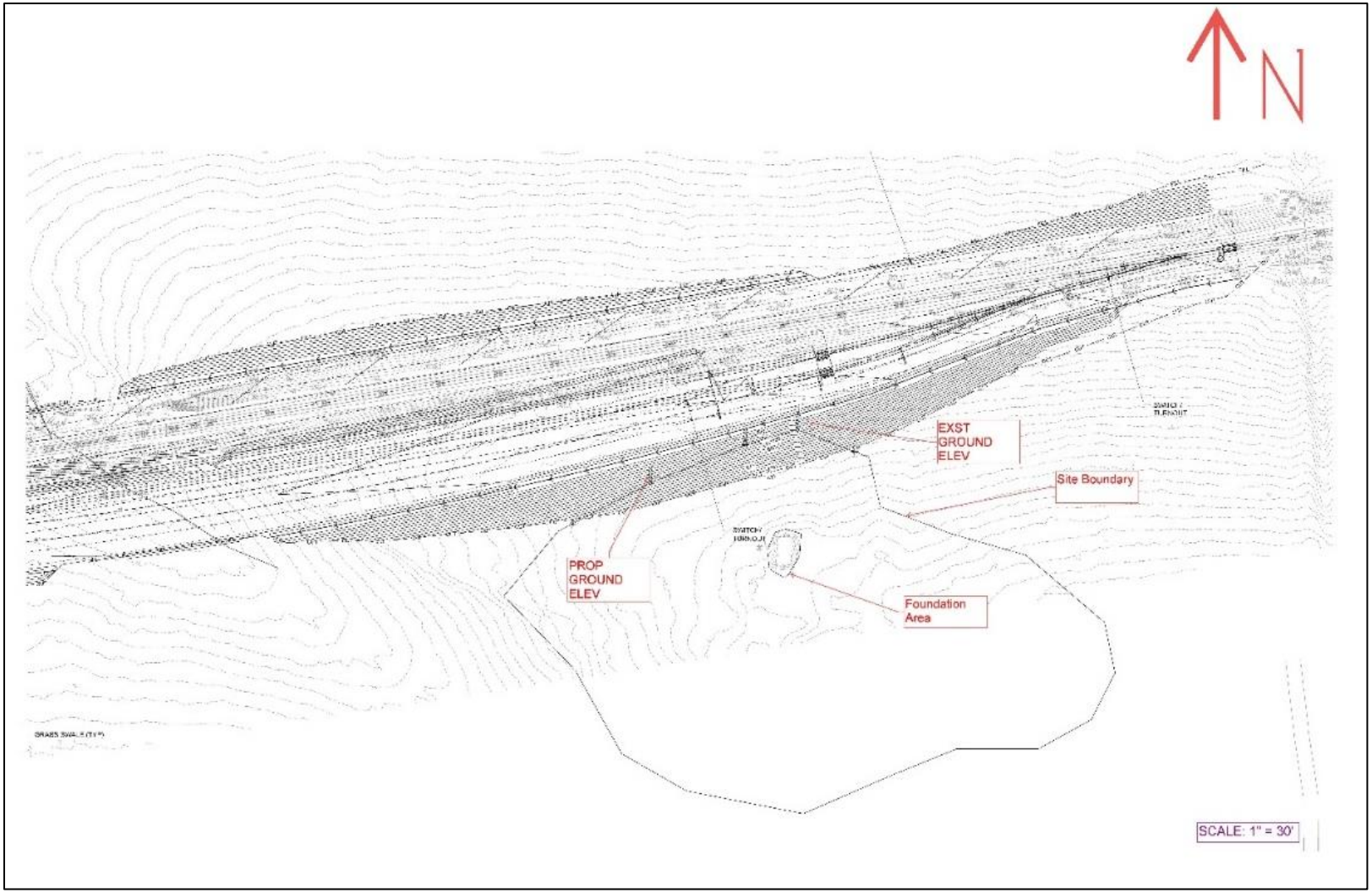

Figure 3-13: RCY Design with Retaining Wall Cutback

The promulgation of TSCA (40 CFR Parts 700 to 766) represented an effort by the federal government to address those chemical substances and mixtures for which it was recognized that the manufacture, processing, distribution, use, or disposal may present unreasonable risk of personal injury or health of the environment, and to effectively regulate these substances and mixtures in interstate commerce. The TSCA Chemical Substances Inventory lists information on more than 62,000 chemicals and substances. Toxic chemical substances regulated by USEPA under TSCA include asbestos and lead.

RCRA defines hazardous waste as wastes or combination of wastes that, because of quantity, concentration, or physical, chemical, or infectious characteristics, may either cause, or significantly contribute to, an increase in mortality or an increase in serious irreversible illness, or pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, disposed of or otherwise managed. All hazardous wastes are classified as solid wastes. A solid waste is any material that is disposed, incinerated, treated, or recycled except those exempted under 40 CFR 261.4.

3.7.3. *Affected Environment*

Storage and assembly facilities are scattered across the eastern, northeastern, and southwestern areas of LEMC, but the majority of the built structures reside in the LEAD. Several hazardous-waste site investigations and remediation projects at LEAD have involved groundwater contamination, particularly in and around the cantonment area. These investigations have indicated the presence of volatile organic compound (VOC) contamination. The principal issue of concern is recharge of contaminated groundwater to surface water bodies of LEAD since groundwater is not directly used as a water resource (LEMC, 2020).

LEAD is an RCRA-permitted treatment, storage, and disposal facility. LEAD is also considered a large quantity generator due to the volume of hazardous waste generated. LEAD was established in 1941 prior to the implementation of the TSCA, in which the regulation of asbestos-containing materials began. As such, it is likely that asbestos-containing material is present in the earthen munitions storage igloos and other structures on the LEMC. Similarly, lead may occur on LEMC as Lead-based paint (LBP) in buildings constructed before 1978. LBP chips that fall from the exterior of buildings can cause soil contamination. Remaining LBP is likely found within the earthen-munitions storage igloos and other structures at LEAD. The MMDF site does not contain any known hazardous materials, nor does the RCY site. The demolition locations may contain hazardous substances (i.e., mold) due to non-occupancy and exposure to natural elements (LEMC, 2020). Building 1456 is know is to contain LBP and Building 2365 likely contains LBP as well.

None of the Proposed Action areas are with 1,000 ft of a hazardous waste storage area. Building 2365 is approximately 1,500 ft from a hazmat storage area located to the west.

3.7.4. *Environmental Consequences*

3.7.4.1. Significance Criteria

Significant environmental impacts of an alternative to hazardous and toxic waste materials would occur if:

- A significant hazard to the public is created or the environment through the routine transport, use, or disposal of hazardous materials or wastes or from reasonably foreseeable accident events
- Impairs implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan
- Requires remediation of unexploded ordnance contamination
- Causes non-compliance with applicable federal and state regulations; or
- Increases site contamination that could preclude future use of the proposed site

3.7.4.2. Impacts from the Construction and Operation of the Proposed Action

At the proposed MMDF and RCY locations, the Proposed Action would have short-term, direct, minor, adverse impacts associated with the usage of materials, such as paints, solvents, sealants, or fuel during construction of infrastructure. Additionally, minor, direct, long-term, adverse impacts could occur from the increased use of hazardous materials and generated waste from operations and production.

At the demolition sites, there would be short-term minor adverse impacts from the demolition activities releasing hazardous substances (ex: mold) airborne. The proper mitigation measures would be implemented to ensure adverse impacts are minimized effectively. Additionally, short-term, direct, minor adverse impacts associated with the usage of materials (i.e., fuel) during demolition of existing structures.

The construction contractor would be required to prepare and adhere to a Spill Prevention, Control, and Countermeasures plan that identifies practices to minimize the potential for accidental spills of petroleum products or other hazardous substances and the procedures for containing and cleaning up any accidental spills that may occur.

Soils excavated or otherwise disturbed during the project's construction phase would be tested in accordance with established LEAD policies and procedures. If concentrations of contaminants in soils are determined to exceed applicable regulatory thresholds for re-use on the site, any affected soils would be removed from the site and disposed of at a permitted facility off LEAD in accordance with Pennsylvania solid waste disposal regulations, as well as all other federal, state, and local laws and regulations.

The operation of the MMDF and RCY would have no impacts on hazardous waste and toxic materials. The RCY and MMDF would produce hazardous waste or toxic material.

3.7.4.3. Impacts from the No-Action Alternative

No impacts to hazardous and toxic waste material resources are expected under the No Action Alternative. There would be no potential of disturbing hazardous waste in or near the proposed sites and no human exposure to the LBPs at the demolition sites would occur.

3.8. UTILITIES

3.8.1. *Affected Environment*

This section assesses the water supply, wastewater systems, energy sources, communications, and solid waste service at LEAD. The water, sewer, and electric utilities have been privatized and services have been purchased from the Franklin County General Authority/Letterkenny Industrial Development Authority.

3.8.1.1. Potable Water Supply

LEAD receives potable water from the Letterkenny Reservoir. This reservoir is located north of the Installation (LEMC, 2020). There is an existing water line that runs along Pennsylvania Avenue, just east of the proposed MMDF site and touches the western edge of the RCY LOD.

3.8.1.2. Wastewater System

LEAD uses a privatized wastewater system, which is operated and maintained by Suez Water Pennsylvania Incorporated. Wastewater is collected throughout LEAD in holding tanks and is pumped out. An existing wastewater treatment plant operates to the south of the complex but is not currently used for existing facilities in LEAD. Due to the topography of the area, a connected sanitary sewer system would require multiple combinations of lift stations, force mains, and gravity flow pipes.

3.8.1.3. Energy Sources

The electrical power at LEAD is provided by Allegheny Power's Letterkenny substation, which also provides power for LEMC. The substation is served from a single feeder that approaches from the east, where it ties to the Allegheny Power distribution grid. Power is then distributed from the adjacent switch station. LEMC is sub-fed on a single aerial circuit by means of step-down transformers. The existing electrical distribution system is currently insufficient for mission needs. Several facilities operate on generators and are not connected to the system (LEMC, 2020).

3.8.1.4. Natural Gas

LEAD is currently in the process of converting the facility from propane to natural gas. Gas service only exists in certain areas of LEAD and LEMC. A privatized company, UGI Utilities, Incorporated Gas Division supplies the natural gas on LEMC. There are no existing gas lines servicing any of the sites under the Proposed Action (LEMC, 2020).

3.8.1.5. Communications

Aerial mounted copper (voice) and fiber optic (data) cabling exists along the existing utility pole lines and direct bury lines throughout LEMC. There is a fiber optic cable line that runs along the road connected to the proposed MMDF site to the east. This runs north, touching the very west side of the proposed RCY (LEMC, 2020).

3.8.1.6. Solid Waste

Solid waste is collected and disposed through Waste Management, Incorporated who transports the waste to Upton, Pennsylvania and places it in a landfill owned by Waste Management of Central Pennsylvania (LEMC, 2020).

3.8.2. *Environmental Consequences*

3.8.2.1. Significance Criteria

Significant environmental impacts of an alternative to utilities would occur if:

- Existing utilities and their connector points were altered or removed
- New utilities were constructed that surpassed the capabilities of existing infrastructure
- An impairment occurred to the local community, including residential homes or businesses
- Existing utilities were relocated

3.8.2.2. Impacts from the Operation of the Proposed Action

At the proposed MMDF location, long-term, minor, direct, adverse impacts would be anticipated under the Proposed Action from the construction of new utilities (stormwater, electric, water supply, etc.) on undeveloped land. This would put a higher load on existing infrastructure at LEAD. All communication needs for the proposed MMDF have been vetted by the appropriate companies to ensure utility demands would not exceed capabilities. Electrical usage at LEAD is approximately one megawatt while the allowable supply is nine megawatts.

At the RCY site, short-term, direct, negligible adverse impacts would be anticipated due to the temporary shutdown of utilities to provide safe working conditions for construction workers. This would have no impact on families, civilians, or employees in adjacent locations from the project site. The RCY site proposed utilities have also been vetted by the appropriate companies and will not exceed the current LEAD capabilities.

At the demolition sites, no impacts to utilities are anticipated due to only demolition of unoccupied structures occurring in these areas.

3.8.2.3. Impacts from the Operation of the Proposed Action

The MMDF site would use approximately 297 gallons of sanitary sewer collection at peak times of day, 7,800 cubic feet per hour peak load of natural gas, and 232 kilowatts of electricity at peak

hour. A backup generator would also need to be provided for the MMDF. Defense switch network services would need to be provided to the MMDF building via fiber distribution lines connections.

The RCY would require increased utility usage due to the addition of a small operations building. However, this would be negligible usage for utilities. The operation of the proposed MMDF and RCY would have long-term, minor, direct, adverse impacts on utilities at LEAD. The operation of the MMDF and RCY would increase utility usage; however, the usage is well within the capabilities of the systems in place at LEAD.

3.8.2.4. Impacts from the No-Action Alternative

No impacts to utility resources are expected under the No Action Alternative as no increased utility demands would occur.

3.9. TRANSPORTATION AND TRAFFIC

3.9.1. *Affected Environment*

The area around LEAD is served by U.S. Highway 11, U.S. Highway 30, Interstate 81, and the Pennsylvania Turnpike is 14 miles north of the facility via State Route 997. Direct access to LEAD is provided by State Route 433 and 997. The primary entrance to LEAD is via the access point on Coffey Avenue. LEAD includes 123 miles of paved roadways and additional unpaved roadways. The unpaved roadway network includes direct connections between storage areas. Many of the existing roadways and gate systems within LEAD have not been adequately maintained and need repair (LEMC, 2020).

The MMDF site is accessible located on the eastern portion of LEMC by car via Pennsylvania Avenue after passing through the security checkpoint at Georgia Avenue from LEAD to LEMC. The RCY is not accessible by car, however Pennsylvania Avenue borders the western side of the site. There is an unpaved road accessible via Florida Avenue that is near the site as well. The RCY site is located on the northeastern portion of LEMC and is also only accessible after passing a security gate.

3.9.2. *Environmental Consequences*

3.9.2.1. Significance Criteria

Significant environmental impacts to transportation or traffic would occur if the Proposed Action:

- Contributes to a long-term increase in vehicle traffic that could not be accommodated by the existing roadway network
- Results in long-term traffic circulation problems and in the surrounding community
- Increases annual average daily traffic volume by 20 % or more

3.9.2.2. Impacts from the Construction of the Proposed Action

At the proposed MMDF and RCY location, short-and long-term minor, direct, adverse impacts would be anticipated during construction. Construction vehicles would need to access the site daily and would temporarily increase traffic.

At the demolition sites, short-term, direct, minor, adverse impacts would be anticipated during demolition due to construction equipment and staging. Once the demolition occurred, traffic would continue to operate as it did pre-demolition.

3.9.2.3. Impacts from the Operation of the Proposed Action

The proposed MMDF would result in minor, long-term, direct, beneficial impacts to traffic. With a new MMDF, a net reduction in traffic would occur due to the consolidation of shipments.

At the RCY site, long-term, direct, beneficial impacts would occur with improvements and upgrades to the current railroad networks. No long-term adverse impacts are anticipated due to the existing usage.

3.9.2.4. Impacts from the No-Action Alternative

No impacts to transportation and traffic resources are expected under the No Action Alternative as no changes in traffic would occur from construction, demolition, or operational changes.

3.10. NOISE

Noise is traditionally defined as unwanted sound that interferes with normal activities in a way that reduces the quality of the environment. Magnitudes of sound, whether wanted or unwanted, are usually described by sound pressure. There are two primary types of sound sources that generate noise: stationary and transient. Sounds produced by these sources can be intermittent or continuous. A stationary source is usually associated with a specific land use or site, such as construction activities or the operation of generators. Transient sound sources, such as vehicles and aircraft, move through the area.

The Noise Control Act of 1972 establishes a national policy to promote an environment for all Americans free from noise that jeopardizes their health and welfare. The Act also serves to (1) establish a means for effective coordination of federal research and activities in noise control; (2) authorize the establishment of federal noise emission standards for products distributed in commerce; and (3) provide information to the public with respect to the noise emission and noise reduction characteristics of such products. The Act provided the framework for states and local authorities to establish noise regulations.

Sound pressure levels are quantified in decibels (dB); the dB are then "weighted" to account for differences in how people respond to sound in what is known as the "A-weighted" decibel (dBA) scale (FAA, 2022). Sound levels, in dBA, for common activities and construction work are presented in **Table 3-3** below. Noise levels and durations from these activities would vary depending on the specific equipment being used, and the impact from this noise on a receptor

would depend on the distance between the receptor and the source of the noise. Generally, noise levels decrease by approximately six dBA for every doubling of distance for point sources (such as a single piece of construction equipment) and approximately three dBA for every doubling of distance for line sources (such as a stream of motor vehicles on a busy road at a distance) (Federal Highway Administration [FHWA], 2006).

Table 3-3. Common Sound Levels and Exposure Conditions

Source	Decibel Level (in dBA)	Exposure Concern
Silent Study Room	20	Normal safe level
Library	35	
Soft Whisper (5 ft. away)	40	
Average Home in an urban area	50	
Dishwasher in next room	55	
Conversational speech (3 ft. away)	65	
Classroom Chatter	70	
Freight Train (100-ft. away)	80	May affect hearing in some individuals depending on sensitivity, exposure length, etc.
Heavy Traffic	90	
Construction Site	100	
Operating Heavy Equipment	120	
Live Rock Band	130	
Fighter Jet Launch	150	Above 140 decibels may cause pain.
Shotgun Blast	160	
Rocket Launch	180	

Source: Table adapted from the following three references: FAA, 2022; Occupational Safety and Health Administration (OSHA), 2022; and Pulsar Instruments, 2022.

Another important noise metric is the day-night average sound level (DNL). DNL is used to reflect a person's cumulative exposure to sound over a 24-hour period (FAA, 2022). According to the U.S. Department of Housing and Urban Development criteria, residential units and other noise-sensitive land uses are "unacceptable" in areas where the noise exposure exceeds the DNL of 75 dB, "normally unacceptable" in regions exposed to noise between the DNL of 65 to 75 dB, and "acceptable" in areas exposed to noise where the DNL is 65 dB or less.

LEAD is primarily surrounded by agricultural land. However, there are several nearby noise receptors that need to be considered as a part of the noise analysis. To the north and northeast there are rural residences a short distance from the property boundary. Upper Strasburg and Pleasant Hall are small residential communities that are located north of LEAD. To the south and southeast rural residences are relatively close to the property boundary. Cheesetown, Green Village, and the northern most portion of Chambersburg are all approximately one mile south/ southeast of LEAD (LEMC, 2020).

3.10.1. *Environmental Consequences*

3.10.1.1. Significance Criteria

The Proposed Action would be considered to have impacts to noise if:

- Residential and business properties were affected during daytime or nighttime hours excessively
- Continuous construction noises above 60 dBA may be considered significant if audible at residential properties or other sensitive receptors during daytime hours, or results in excessive ground-borne vibration to persons or property.

3.10.1.2. Impacts from the Construction of the Proposed Action

Table 3-4: Typical Noise levels of Construction Equipment (Noise Level in dBA at 50 Feet)

Construction Vehicle Type	dBA
Bulldozers	80
Backhoe	72-93
Bobcat	72-93
Jack Hammer	81-98
Crane	75-77
Pick-Up Truck	83-94
Dump Truck	83-94

Source: USEPA, 1986

At the proposed MMDF site, the Proposed Action would have minor, short-term, direct, adverse impacts to noise from construction and heavy equipment use. Noise would be typical of a construction site and the equipment listed in **Table 3-4.** The MMDF has a tree line noise buffer surrounding it on all sides. In addition, there are no sensitive noise receptors within a close proximity to the proposed site. The closest CDC would not be affected by the noise.

At the RCY location, there would be minor, short-term, direct, adverse impacts to noise from construction and heavy equipment use. The RCY is entirely surrounded by forest on either side, which, would buffer construction noise greatly. In addition, there are no sensitive noise receptors within a close proximity the proposed site. The closest noise receptor is a residential home, which is far enough away that noise would not effect it.

At the demolition locations, the Proposed Action would have minor, short-term, direct, adverse impacts to noise from construction and heavy equipment use. This noise would be temporary and cease upon the removal of the building materials. Building 2365 is located on the southern edge of LEAD, with its closest noise receptor being a church to the southwest. Building 5331 is situated within 0.25 miles of the RCY site, with its closest noise receptor being a residential home at a distance that would not effect it from noise.

3.10.1.3. Impacts from the Operation of the Proposed Action

Overall, the Proposed Action would have long-term, minor, direct, adverse impacts to noise. The MMDF would produce typical operational noises similar to those present at LEAD. It would be a

large building addition to an area that did not produce year-round operational noises previously. Noise production would occur primarily from trucks and generators. The RCY would produce noise very similar to what is already being produce at the site currently. The buildings proposed for demolition would not produce noise from operation as they would no longer exist.

3.10.1.4. Impacts form the No Action Alternative

No impacts to noise would occur under the No Action Alternative as no construction or demolition would occur. Operational noises typical to farming activities would continue to occur, several times a year at the MMDF site. The RCY site would continue to produce noise from incoming and outgoing trains.

3.11. AIR QUALITY AND CLIMATE CHANGE

3.11.1. *Affected Environment*

3.11.1.1. National Ambient Air Quality Standards and Attainment Status

USEPA Region 3 and PA DEP Bureau of Air Quality regulate air quality in Pennsylvania. The CAA (42 USC 7401–7671q), as amended, gives the USEPA the responsibility to establish the primary and secondary National Ambient Air Quality Standards (NAAQS) (40 CFR Part 50, *National Primary and Secondary Ambient Air Quality Standards*, amended 1 July 2016, hereafter referred to as 40 CFR 50), acceptable concentration levels for seven criteria pollutants: particulate matter less than 10 microns (PM_{10}), particulate matter less than 2.5 microns ($PM_{2.5}$), sulfur dioxide (SO_2), carbon monoxide (CO), nitrogen oxides (NOx), ozone (O_3), and lead. Short-term standards (i.e., 1-, 8- and 24-hour periods) have been established for pollutants that contribute to acute health effects, while long-term standards (i.e., annual averages) have been established for pollutants that contribute to chronic health effects (**Table 3-5**). Each state has the authority to adopt standards stricter than those established under the Federal program. The DEP has adopted the NAAQS and is responsible for maintaining air quality standards for Pennsylvania.

Primary and secondary NAAQS for the aforementioned criteria are presented in areas that exceed the NAAQS ambient concentration (i.e., have poor air quality) and are labeled as nonattainment areas designated by federal regulations. According to the severity of the pollution problem, areas exceeding the established NAAQS are categorized as marginal, moderate, serious, severe, or extreme nonattainment. Maintenance areas have recently met NAAQS but are considered to be at risk of not remaining in attainment if efforts are not continued to maintain better air quality. LEAD is within the Central Pennsylvania Air Quality Control Region (40 CFR Part 81.28). (USEPA, 2022a). This area is in attainment for all criteria pollutants (USEPA, 2023).

Table 3-5 Federal and State Ambient Air Quality Standards

NAAQS Pollutant	Primary/ Secondary	Averaging Time	Level[(1)]	Form
CO	Primary	8-hour	9 ppm	Not to be exceeded more than once per year
		1-hour	35 ppm	
	Primary	1-hour	100 ppb	98th percentile, averaged over 3 years

NAAQS Pollutant	Primary/ Secondary	Averaging Time	Level[(1)]	Form
Nitrogen Dioxide	Primary and secondary	Annual	53 ppb	Annual Mean
O_3	Primary and secondary	8-hour	70 ppb	Annual fourth-highest daily maximum 8-hr concentration, averaged over 3 years
$PM_{2.5}$	Primary	Annual	12 $\mu g/m^3$	Annual mean, averaged over 3 years
	Secondary	Annual	15 $\mu g/m^3$	Annual mean, averaged over 3 years
	Primary and secondary	24-hour	35 $\mu g/m^3$	98^{th} percentile, averaged over 3 years
PM_{10}	Primary and secondary	24-hour	150 $\mu g/m^3$	Not to be exceeded more than once per year on average over 3 years
Lead	Primary and secondary	Rolling 3-month average	0.15 $\mu g/m^3$	Not to be exceeded
SO_2	Primary	1-hour	75 ppb	99^{th} percentile of 1-hour daily maximum concentrations, averaged over 3 years
	Secondary	3-hour	0.5 ppm	Not to be exceeded more than once per year

**Units of measure for the standards are parts per million by volume (ppm), parts per billion (ppb) by volume, and micrograms per cubic meter of air ($\mu g/m^3$)*

3.11.1.2. Hazardous Air Pollutants

In addition to the ambient air quality standards for criteria pollutants, national standards exist for hazardous air pollutants (HAPs). The National Emission Standards regulate 188 HAPs based on available control technologies. The majority but not all HAPs are VOCs (USEPA, 2022a). Sources of HAP emission at LEAD include stationary, mobile, and fugitive emissions. Stationary sources elsewhere at LEAD include boilers, generators, water heaters, incinerators, fuel storage tanks, fuel-dispensing facilities, vehicle and maintenance shops. Mobile sources of emissions include private and government-owned vehicles. Fugitive sources include dust generated from construction activities and roadway traffic.

3.11.1.3. Clean Air Act Conformity

State agencies (in Pennsylvania, DEP) develop air quality plans, which are also referred to as State Implementation Plans (SIPs), designed to attain and maintain the NAAQS and to prevent significant deterioration of air quality in areas which demonstrate air that exceeds NAAQS standards. Pennsylvania has individual SIPs for various pollutants, including Nitrogen Dioxide,

$PM_{2.5}$, 8-hour O_3, regional haze, etc. Federal agencies must ensure that their actions conform to the SIP in a nonattainment area, and do not contribute to new violations of ambient air quality standards, or an increase in the frequency or severity of existing violations, or a delay in timely state and/or regional attainment standards. The 1990 amendments to the CAA require Federal agencies to ensure that their actions conform to the SIP in a nonattainment area. The purpose of the General Conformity Rule is to:

- Ensure Federal activities do not interfere with the budgets in the SIPs
- Ensure the attainment and maintenance of NAAQS
- Ensure actions do not cause or contribute to new violations of NAAQS

USEPA has developed two distinctive sets of conformity regulations: one for transportation projects and one for non-transportation projects. Non-transportation projects are governed by general conformity regulations (40 CFR Part 93, *Determining Conformity of Federal Actions to State or Federal Implementation Plans*, dated November 24, 1993, hereinafter referred to as 40 CFR 93). The Proposed Action is a non-transportation project within an attainment area.

Current emission sources at LEAD are associated with staff and visitor vehicles, building heating, ventilation, and air conditioning, generators, water heaters, and routine grounds maintenance activities. Within the Proposed Action, the only source of emissions is the RCY, when trains come through.

3.11.1.4. Sensitive Receptors

CEQ NEPA regulations require evaluation of the degree to which the Proposed Action affects public health (40 CFR 1508.27). Children, elderly people, and people with illnesses are especially sensitive to the effects of air pollutants; therefore, hospitals, schools, convalescent facilities, and residential areas are considered to be sensitive receptors for air quality impacts, particularly when located within one mile from the emissions source. LEAD houses a childcare development center that is a safe distance from the MMDF site.

There are several sensitive receptors, including other hospitals, schools, religious institutions, and elderly and childcare facilities within one mile of LEAD, outside of its boundaries.

3.11.1.5. Greenhouse Gases

GHGs are chemical compounds in the Earth's atmosphere that allow incoming short-wave solar radiation but absorb long-wave infrared radiation re-emitted from the Earth's surface, trapping heat in the atmosphere. Scientific evidence indicates a trend of increasing global temperature over the past century which may be due to an increase in GHG emissions from human based activities. A warmer climate is expected to increase the risk of heat-related illnesses and death, worsen conditions for air quality, allow some diseases to spread more easily, and increase the frequency and strength of extreme events (such as floods, droughts, and storms) that threaten human health and safety (USAEC, 2016)

Gases exhibiting greenhouse properties come from both natural and human sources. Water vapor, Carbon Dioxide (CO_2), methane (CH_4), and nitrous oxide are examples of GHGs that have both

natural and manmade sources, while other GHGs such as chlorofluorocarbons are exclusively manmade. In the U.S., most GHG emissions are attributed to energy use. Such emissions result from combustion of fossil fuels used for electricity generation, transportation, industry, heating, and other needs. Reduction goal requirements applicable to federal agencies are set forth in EO 13693, *Planning for Federal Sustainability in the Next Decade* (USAEC, 2016).

3.11.1.6. Climate Change

According to National Aeronautics and Space Administration's (NASA)"Global Climate Change: Vital Signs of the Planet" website at "climate.nasa.gov," climate change is defined as "a long-term change in the average weather patterns that have come to define Earth's local, regional and global climates" (NASA, 2022). Climate change key indicators are as follows: global land and ocean temperature increases; rising sea levels; ice loss at Earth's poles and in mountain glaciers; frequency and severity changes in extreme weather such as hurricanes, heatwaves, wildfires, droughts, floods, and precipitation; and cloud and vegetation cover changes (NASA, 2022).

According to the CEQ, "Federal courts consistently have held that NEPA requires agencies to disclose and consider climate impacts in their reviews" (86 Federal Register 10252). On January 9, 2023, CEQ issued the "National Environmental Policy Act Guidance on Consideration of Greenhouse Gas Emissions and Climate Change". Although CEQ is currently working to finalize this guidance, in the interim, CEQ provides the steps that agencies should take in analyzing the effects of the proposed action on climate change: (1) quantify the reasonable foreseeable GHG emissions, (2), disclose and provide context for GHG emissions and climate impacts, and (3) analyze reasonable alternatives, including those that would reduce GHG emissions relative to baseline conditions, and identify mitigation measures to avoid, minimize, or compensate for climate effects.

Each GHG is assigned a global warming potential (GWP). The GWP is the ability of a gas or aerosol to trap heat in the atmosphere. The GWP rating system is standardized to CO_2, which has a value of one. For example, CH_4 has a GWP of 25, which means that it has a global warming effect 25 times greater than CO_2 on an equal-mass basis.

To simplify GHG analyses, total GHG emissions from a source are often expressed as a CO_2 equivalent (CO_{2e}). The CO_{2e} is calculated by multiplying the emissions of each GHG by its GWP and adding the results together to produce a single, combined emission rate representing all GHGs. While CH_4 and nitrous oxide have much higher GWPs than CO_2, CO_2 is emitted in such higher quantities that it is the overwhelming contributor to CO_{2e} from both natural processes and human activities.

Per CEQ guidance, LEAD is considering all available tools and resources in assessing GHG emissions and climate change related to the Proposed Action. For example, the Army has been utilizing the USACE-developed Army Climate Assessment Tool (ACAT) to help Army installations identify climate-related threats that could degrade mission readiness (Surash and Dornbos, 2020). Thus far, the ACAT has proven very helpful in improving installation resiliency. Accordingly, the DoD has adopted and scaled the ACAT as the Defense Climate Assessment Tool and is using it to prioritize the most climate change vulnerable installations across DoD (DA, 2022).

LEAD is also adhering to both the Department of Defense Climate Adaption Plan (DoD, 2021) and the Department of the Army (DA) U.S. Army Climate Strategy ("Army Climate Strategy") (DA, 2022).

3.11.2. *Environmental Consequences*

3.11.2.1. Significance Criteria

Impacts to air quality and GHGs would be considered significant if the Proposed Action would:

- Result in a NAAQS attainment area becoming a nonattainment area
- If the Proposed Action would generate substantial GHG emissions nationwide (> 75,000 tons COs equivalents per year) (USAEC, 2016).

Criteria Pollutants and General Conformity

To determine whether the GCR applies and what the level of effects would be under NEPA, LEAD estimated all direct and indirect emissions and compared them to the *de minimis* thresholds (**Table 3-6**). Construction emissions were estimated for fugitive dust, on- and off-road diesel equipment and vehicles, architectural coatings, asphalt paving, and worker trips during the construction of the Proposed Action. It was assumed that all construction activities would be accomplished within a three-year period. Regardless of the ultimate implementation schedule (i.e., whether accomplished within three years or not), annual emissions would be less than or equal to those estimated in this EA. Small changes in the siting of the facilities, the final design, and moderate changes in the quantity and types of equipment used would not substantially influence the emissions estimates or change the determination under the GCR or the level of effects under NEPA.

Table 3-6 presents a summary of the estimated emissions due to implementation of the Proposed Action. Estimated annual emissions are projected to be below the *de minimis* levels for CAA conformity; therefore, a formal conformity determination under Section 176(c) of the CAA would not be required. U.S. Army guidance dictates that a Record of Non-Applicability (RONA) be prepared for federal actions in which proposed emissions are clearly *de minimis* to comply with the GCR. Detailed emission calculations and a RONA are provided in **Appendix C.**

Table 3-6 Estimated Annual Construction and Operational Emissions

		Criteria Pollutants						GHGs	
Year	**Project Element**	**CO**	**VOC**	**NO_X**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**	**CO_2e**	**CH_4**
		Emissions (tons)							
2025	**RCY**	1.92	0.34	7.35	0.2	0.48	0.36	7,233	0.03
	MMDF	1.59	0.27	5.80	0.02	0.34	0.28	5,430	0.03
Total Year 2025		**3.52**	**0.61**	**13.16**	**0.03**	**0.82**	**0.64**	**12,633**	**0.06**
2026	**RCY**	1.33	0.18	2.84	0.00	0.20	0.20	1,432	0.00
	MMDF	3.80	1.08	13.53	0.03	0.06	0.58	9,528	0.06
Total Year 2026		**5.12**	**1.26**	**16.37**	**0.03**	**0.80**	**0.78**	**10,960**	**0.06**
2027	**RCY**	0.29	0.04	0.63	0.00	0.04	0.04	355	0.00

	MMDF	1.66	3.21	3.24	0.00	0.25	0.24	1,308	0.02
Total Year 2027		**1.95**	**3.25**	**3.88**	**0.00**	**0.30**	**0.29**	**1,633**	**0.02**
Project Total		**10.59**	**5.12**	**33.86**	**0.06**	**1.72**	**1.71**	**25,226**	**0.14**
General Conformity *De Minimis* Thresholds (40 CFR 93.153 (b) (1))		**100**	**100**	**100**	**100**	**100**	**100**	**Not Established**	**Not Established**

Annual emissions resulting from project activities have been conservatively estimated using data presented in **Appendix C**, general air quality assumptions, and published emission factors. Emissions from on-road heavy and light duty diesel-fueled trucks associated with the delivery and distribution of construction materials and general on-site construction support, as well as those from construction workers' passenger vehicles, were included in this analysis. Assumptions of travel distance incorporated in the calculations for the different vehicle categories are found in **Appendix C.**

Based on these estimates provided in **Table 3-6**, the annual emissions emitted during construction would not exceed the USEPA NAAQS *de minimis* thresholds and a General Conformity determination is not required.

In addition, project construction equipment would emit minor amounts of HAPs. The main sources of HAPs would occur from the combustion of diesel fuel. Construction would be temporary and minor HAPs emissions could be further moderated through implementation of BMPs such as restricting excessive idling, adherence to equipment maintenance programs, use of particulate filters, and use of ultra-low sulfur diesel fuel if applicable.

Climate Change

To meet the requirements under NEPA, this EA examines GHGs as a category of air emissions. Under the Proposed Action, total project activities combined would generate approximately 9,020.3 tons of CO_{2e}, 0.028 tons of CH_4, and 10.82 tons of NO_x. By comparison, 9,020 tons of CO_{2e} is equivalent to a GHG footprint of 1,948 passenger vehicles driven for one year or 1,067 homes' energy use of one year (USEPA, 2024).). In 2021, Pennsylvania produced 255.2 million metric tons of CO_2 emissions (USEIA 2021). Assuming all CO_2e emissions from construction are from CO_2, emissions, the Proposed Action would represent less than 0.0098 percent of the total CO_2 emissions from the state. As such, air emissions produced during construction would not meaningfully contribute to the potential effects of global climate change and would not notably increase the total CO_2 emissions produced by the Pennsylvania

In addition, this EA estimates the social cost of GHG (SC-GHG) in metric dollars. The SC-GHG estimates the monetary value of the net harm to society associated with adding a small amount of that GHG to the atmosphere in a given year. It includes the value of all climate change impacts, including (but not limited to) changes in net agricultural productivity, human health effects, property damage from increased flood risk natural disasters, disruption of energy systems, risk of conflict, environmental migration, and the value of ecosystem services. In 2009, the Interagency Working Group on Social Cost of GHGs was established to ensure that Federal Agencies were

using the best available science and to promote consistency in the values used across agencies. On January 20, 2021, President Biden issued E.O. 13990 which directed the Interagency Working Group to ensure that SC-GHG estimates used by the U.S. Government reflect the best available science and the recommendations of the National Academies and work towards approaches that take account of climate risk, environmental justice (EJ), and intergenerational equity (EJ)

3.11.2.2. Impacts from Construction of the Proposed Action

The construction of the Proposed Action would result in short-term minor, direct, adverse impacts to air quality, primarily due to construction equipment and activities. Under the Proposed Action, potential air quality impacts from construction activities would occur from combustion emissions due to the use of fossil fuel-powered equipment and vehicles and particulate emissions during earth-moving activities.

There would be short-term, minor, direct, adverse impacts to climate change and the SC-GHG from the GHGs produced by construction equipment. However, the increase in emissions is relatively small and would cease once construction is finished. The increase in GHG emissions from the operation of the facility would be negligible and there would be no increase in the SC-GHG.

Construction activities may generate fugitive dust including coarse and fine particulate emissions which would temporarily affect local air quality. The number of particulate emissions can be estimated from the amount of ground surface exposed, the type and intensity of activity, soil type and conditions, wind speed, and dust control measures used. To limit these emissions, construction BMPs, generally including water- or chemical-based dust suppression, would be implemented to reduce fugitive dust generation and further prevent it from becoming airborne. No long-term increases in fugitive dust are expected to occur, because this source of emissions is limited and would cease upon completion of the Proposed Action construction.

Architectural coatings (e.g., paint) would generate emissions because these coatings often contain VOCs, which are released to the atmosphere when the paint is applied. The emissions generated from coatings is based on the area to be coated. The formula for emissions calculations is found in **Appendix C**.

3.11.2.3. Impacts from Operation of the Proposed Action

The operation of the Proposed Action would result in long-term, minor, direct, adverse impacts to air quality. Operational emissions of the MMDF would be limited to heating/air conditioning and ventilation. Other operational emissions would be related to emissions from vehicles used to drive to and from the MMDF facility. The MMDF facility would also be designed to meet Army requirements for energy efficiency and sustainability, such as those outlined in the 2023 DA Sustainable Design and Development Policy Update Memorandum.

Operation of the RCY would have emissions similar to current emissions and would have negligible effects on air quality. There would be an addition of a small building that would add a negligible quantity of emissions to the air.

3.11.2.4. Impacts from the No Action Alternative

Implementation of the No Action Alternative would result in no impacts to air quality. The facility would not be constructed, and there would be no changes in air quality and GHG emissions in or around LEAD

Implementation of the No Action Alternative will not result in any impacts to climate change.

3.12. HUMAN HEALTH AND SAFETY

3.12.1. *Affected Environment*

Under NEPA, federal agencies are required to consider the environmental consequences of their proposed actions. This consideration is broad in scope and includes an analysis of effects the action could have on the human environment, including on human health and safety. This section will consider existing conditions at the Proposed Action area relative to human health and safety , including the existing health and safety conditions and protocols pertaining to workers and the general public.

With regard to protecting worker health and safety, workers would be expected to comply with all federal laws such as OSHA regulations, state and local regulations, and general contractor safety plans during the construction of the MMDF and RCY. Any electrical work for the Proposed Action would conform to applicable electrical and fire code requirements. Any hazardous area or rooms identified will be separated from the remainder of the building. For Business occupancies these include general storage, boiler or furnace rooms.

3.12.2. *Environmental Consequences*

Impacts to human health and safety would be considered significant if the Proposed Action results in direct human exposure to a health hazard or a safety risk substantially increases due to the Proposed Action.

3.12.2.1. Impacts from Construction of the Proposed Action

Under the Proposed Action, no adverse impacts to human health and safety would be expected to occur. The company awarded the construction project would be required to implement a site-specific health and safety plan in accordance with OSHA regulations. This plan would be reviewed by the LEAD for adequacy prior to the start of work on the site. The approved plan would be strictly followed during the proposed construction project. All efforts would be focused on reducing job hazards on the site for all construction activities. The minimum worker safety personal protective equipment ensemble would require hard hat, safety glasses, work gloves, and steel-toed boots to enter the construction area. Additional safety gear may be required based on work activities.

The only existing risks to human health at safety would be at the site of the buildings to be demolished. These buildings are known to contain hazardous materials such as LBP. See **Section 3.7, Hazardous and Toxic Materials and Waste** for further details.

3.12.2.2. Impacts from Operation of the Proposed Action

No adverse impacts would occur under the operation of the Proposed Action. The proposed MMDF would be designed to meet all regulations for the handling of munitions including ESQD arcs, DESR 6055.9 (01.2019), fire protection, DA Pamphlet 385-64 *Ammunition and Explosives Safety*, UFC 4-420-01 *Ammunition and Explosive Storage Magazine, with Change 1,* and anti-terrorism/force protection design requirements, including UFC 4-010-01 *DoD Minimum Antiterrorism Standards For Buildings, With Change 3*.

The RCY would have no impacts from operation to human health and safety. It would also follow all standard regulations including Technical Instruction 850-02 *Railroads and Rehabilitation* and Technical Manual 5-628 *Railroad Track Standards*.

The buildings set to be demolished would no longer exist and have no impacts from operation.

3.12.2.3. Impacts from the No Action Alternative

Under the No Action Alternative, long-term, negligible, direct, adverse impacts would occur to human health and safety. The buildings proposed for demolition would continue to decay and pose a threat to human health, but this would be negligible as the buildings remain abandoned and no workers should be near them.

3.13. SOCIOECONOMICS

3.13.1. *Affected Environment*

3.13.1.1. Socioeconomic Environment

Socioeconomic characteristics are defined by the interaction or combination of social and economic factors. Most of LEAD lies within the Letterkenny Township, with small portions in Hamilton Township to the south. According to the 2013 to 2017 American Community Survey (5-Year Estimates) the estimated population of Letterkenny Township is around 2,406 and the median household income is $53,523. According to the same survey, the median household income in Franklin County is $52,637; and the median household income for Pennsylvania is $53,046. Letterkenny Township is above the national median household income by about $500 per year. LEAD employs 2,480 people, including 1,484 DA civilians and 996 contractors. LEAD is one of the largest employers in the area and contributes over 300 million dollars to the regional economy (LEMC, 2020).

3.13.1.2. Environmental Justice

This section describes socioeconomic characteristics and EJ communities in the Proposed Action area. The Proposed Action area is in Census Block Group (BG) 420550102002. LEAD examined

socioeconomic data for the BG, Franklin County, and the State of Pennsylvania to provide a comparative analysis. This area was selected because it represents the geographic area that is most directly and indirectly impacted by the project.

EO 12898, *Federal Actions to Address Environmental Justice in Minority and Low-Income Populations*, requires Federal Agencies to consider whether their actions will result in disproportionate adverse impacts to minority (People of Color) and low-income populations. EJ analyses are performed to identify potential disproportionate adverse effects from proposed actions and to identify alternatives that might mitigate these effects (USEPA, 2022b). LEAD and census tracts surrounding LEAD were evaluated using CEJST and was not identified as a disadvantaged community.

Table 3-7 shows a summary of selected socioeconomic and demographic statistics and summarizes the range of population densities in the affected county and city in the area. As shown in the table, the census tract in the Proposed Action area has a lower percentage of People of Color compared to Franklin County and to the nearby city of Chambersburg.

Table 3-7:Demographics Near the ROI for the Proposed Action

Race/Ethnicity	Pennsylvania	Chambersburg, PA	Franklin County, PA	Block Group 420550102002 (Census Track 102)
Total Population Count	13,002,700	22,141	155,592	2,435
Hispanic or Latino	8%	22%	6%	0%
White	74%	62%	87%	96%
Black or African-American	11%	10%	3%	0%
American Indian and Alaska Native	<1%	0%	0%	0%
Asian	4%	1%	1%	1%
Native Hawaiian & Other Pacific Islander	<1%	0%	0%	0%
Some other race	4%	0%	0%	0%
Two or more races	6%	4%	3%	3%
Total People of Color Percent	22%	38%	13%	4%

Source: EJ Screen ACS Summary Report
**Hispanic population can be of any race. * May not sum to totals due to rounding.*

Table 3-8: Income and Poverty Near the ROI of the Proposed Action

Income and Poverty Characteristics	Pennsylvania	Chambersburg, PA	Franklin County, PA	Block Group 420550102002 (Census Track 102)
Median household income	71,79	$53,493	$74,002	74,596
Per capita income,	41,489	$26,874	$33,394	29,310

Source: 2022 ACS Per Capita Income in the Past 12 Month (in 2022 Inflation-Adjusted Dollars) Table B19301. 2022 ACS Per Capita Income in Past 12 Months. Table S1901.

USEPA has developed a new EJ mapping and screening, EJScreen. It is based on nationally consistent data and an approach that combines environmental and demographic indicators in maps and reports. EJScreen was used to evaluate potential EJ communities in the Proposed Action area. This tool looks at 12 environmental indicators, combined with socioeconomic information. The EJ index highlights BGs with the highest intersection of low-income populations, People of Color, and a given environmental indicator (USEPA, 2022b). USEPA EJ Screen rated the project in the 22nd percentile across the nation for O_3 and superfund proximity for approximately 52% of the project area (USEPA, 2022c). Therefore, based on this information and some of the demographic data, the Proposed Action area is not considered an EJ community.

3.13.1.3. Protection of Children

On 21 April 1997, President Clinton issued EO 13045, *Protection of Children from Environmental Health Risks and Safety Risks*. This EO directs each federal agency to ensure that its policies, programs, activities, and standards address disproportionate environmental health or safety risks to children that may result from the agency's actions. EO 13045 recognizes that a growing body of scientific knowledge demonstrates that children may suffer disproportionately from environmental health and safety risks due to still developing neurological, immunological, physiological, and behavioral systems. Examples of risks to children include increased traffic volumes and industrial- or production-oriented activities that would generate substances or pollutants that children could encounter and ingest. Children are present as residents and visitors (e.g., living in family housing), using recreational facilities on the Installation. The Child Development Center provides childcare services to the children of LEAD. Precautions have been taken in these areas for their safety by limiting access to certain areas, protective fencing, and adult supervision.

The ROI for determining compliance with EO 13045 is within the boundaries of LEAD and immediately surrounding communities. As stated above, EPA's EJScreen was utilized to analyze the ROI. The data in the mapping layers available through EJScreen is provided by the U.S. Census Bureaus' American Community Survey 5-year summary estimates and includes the percent of individuals under the age of five as a fraction of the population (USEPA, 2022c).

3.13.2. *Environmental Consequences*

3.13.2.1. Significance Criteria

Significant environmental impacts of an alternative to socioeconomics would occur if:

- It results in a disproportionate share of adverse environmental or social impacts being borne by People of Color or low-income populations
- The health, safety, social structure, or economic viability of an EJ population are affected
- Minimization efforts could not eliminate disproportionate effects to People of Color or low-income populations, or
- Activities that would disproportionately raise risks to children through environmental or health hazards

3.13.2.2. Impacts of from the Construction of the Proposed Action

Overall, no impacts to minorities, low-income families, or children are expected as the site does not encompass and EJ community.

Short-term, minor, direct, beneficial impacts to socioeconomics are expected from the Proposed Action during the construction period, as jobs created from the construction of the Proposed Action would generally stimulate economic activity within the ROI, such as spending at restaurants within and surrounding LEAD. Additionally, construction activities would not induce changes in employment, housing, or demands on education or community resources within the community because the time frame of the work is of a short duration, such that temporary or permanent relocation of families would not be anticipated as a result of the Proposed Action.

This EA has identified no environmental health and safety risks from construction of the Proposed Action that would disproportionately affect children. Although there is a child development center in the ROI, no children reside in or visit the Proposed Action area. Temporary construction safety fencing would be erected around the construction area, preventing unauthorized access to the site by any age group, including children.

3.13.2.3. Impacts from the Operation of the Proposed Action

At the MMDF, no impacts would occur to socioeconomics from operation. The MMDF is not expected to require relocation of any workers to the new site. In addition, because LEAD is not considered an EJ community, no impacts would occur to EJ communities. The operation of the MMDF or RCY would not affect any EJ communities near LEAD either. All operations would occur within LEAD boundaries and would not be noticeable to the surrounding communities.

At the RCY site, short-term, moderate beneficial impacts on the local economy due to upgrades, renovation, and infrastructure improvements with regard to transportation of goods, materials, and equipment vital to the Installation's operations. No adverse impacts to EJ communities would be expected as LEAD is not an EJ community and the operation of the RCY would have no effect on any surrounding EJ communities.

At the demolition sites, no impacts to socioeconomics would be anticipated as no operations would occur.

3.13.2.4. Impacts from the No-Action Alternative

No impacts to socioeconomic resources are expected under the No Action Alternative as no changes would occur from constriction or demolition.

3.14. CUMULATIVE IMPACTS

3.14.1.1. Definition of Cumulative

CEQ regulations stipulate that the cumulative impacts analysis within an EA should consider the potential environmental impacts resulting from "the incremental impacts of the action when added to other past, present and reasonably foreseeable future actions regardless of what agency or person undertakes such other actions" (40 CFR 1508.7). CEQ guidance in considering cumulative impacts affirms this requirement, stating that the first steps in assessing cumulative impacts involve defining the scope of the other actions and their interrelationship with a Proposed Action. The scope must consider geographic and temporal overlaps among the Proposed Action and other actions. It must also evaluate the nature of interactions among these actions.

Cumulative impacts are most likely to arise when a relationship or synergism exists between a Proposed Action and other actions expected to occur in a similar location or during a similar time period. Actions overlapping with or in close proximity to the Proposed Action would be expected to have more potential for a relationship than those more geographically separated. Similarly, actions that coincide, even partially, in time would tend to offer a higher potential for cumulative impacts.

To identify cumulative impacts the analysis needs to address three fundamental questions:

- Does a relationship exist such that affected resource areas of the Proposed Action might interact with the affected resource areas of past, present, or reasonably foreseeable actions?
- If one or more of the affected resource areas of the Proposed Action and another action could be expected to interact, would the Proposed Action affect or be affected by impacts of the other action?
- If such a relationship exists, then does an assessment reveal any potentially significant impacts not identified when the Proposed Action is considered alone?

The scope of the cumulative effects analysis involves both the geographic extent of the effects and the time frame in which the effects could be expected to occur. For this EA, the geographic extent of the cumulative effects analysis is LEAD property and surrounding roadways. **Table 3-9** identifies projects occurring within the same general time frame at LEAD and the immediate vicinity, and whose effects, when added to those of the Proposed Action, may result in cumulative effects.

Table 3-9 Actions at/Surrounding LEAD Potentially Causing Cumulative Effects

Project	Description
LEAD Fire Station	Construct a two-company, two-story headquarters fire station capable of providing fire station services to LEAD and the surrounding community. It would include four apparatus bays to house two fire engines, a ladder truck, a tanker truck, a command vehicle, a brush truck, an ambulance, and a HAZMAT vehicle. The structure would include individual fire equipment storage, breathing apparatus maintenance area, residential living areas with bedrooms for 12 fire fighters and two chief suites, administration areas, and training areas.
Guided Missile and Maintenance Facility	Construct a depot-level maintenance and certification facility at LEAD for the test, repair, and recertification of the Army's Phased Array Tracking Radar to Intercept On Target Advanced Capability-3 Missile Segment Enhancement. This project would be located along Florida Avenue near Bayonet Road.
Access Control Point	Construct a new Access Control Point off Georgia Road from Highway 997. This proposed site was cleared previously and is a well graded site. There are currently no remediation factors anticipated for this project and nothing was found during the previous disturbance of the site for grading and drainage construction.
Joint Missile Maintenance Facility	Construct a guided missile maintenance facility for the LEMC missile maintenance operations for Compatibility Group E and J missile variants. Supporting facilities include site development, utilities and off-site utility connections, lighting paving, parking, walks, storm drainage, information systems, landscaping, and signage.
Rocket and Missile Maintenance Facility	Construct a guided missile maintenance facility for LEMC, missile maintenance operations for support expanding long range precision strike programs and any long-range guided missile requirements. Construct a standard design Access Control Point. Project includes a combined search office/gatehouse, overwatch, inspection canopies, guard booths, roadways, parking, lighting, traffic control signals.
Component Rebuild Shop	Construct a Component Rebuild Shop to support the Avenger Modification Mission. This project includes vehicle and equipment maintenance bays, internal vehicle and equipment wash area, overhead cranes, administrative area, fire protection and alarm systems, Intrusion Detection System installation, and Energy Monitoring Control Systems connection. Sustainability and energy enhancement measures are included.
Microgrid	Construct a microgrid with a ground source heat pump for Guided Missile Maintenance Compound, (including buildings 5800 and 5803). Microgrid includes a photovoltaic array, backup generators, battery energy storage, switching and controls, fuel supply and storage. Ground source heat pump consists of ground loop, heat pumps, plumbing systems, and mechanical room addition with existing HVAC retrofit.

3.14.2. *Potential Cumulative Impacts from the Construction and Operation of the Proposed Action*

The following analysis examines the potential cumulative impacts on the natural and human-made environment that would result from the cumulative impacts of the Proposed Action, in combination with the other actions described above. Based on the assessment of past, present, and reasonably foreseeable future actions at and in the vicinity of the Proposed Action at LEAD, a limited number of resource topics analyzed in this EA would be reasonably expected to experience cumulative impacts. These include stormwater, air quality and climate change, noise, soils, and utilities.

Together, the Proposed Action, in combination with the other construction projects listed in **Table 3-9**, could cumulatively result in an increase in air pollution and GHGs; noise; and soil degradation such as compaction and erosion. However, implementation of the Proposed Action would be consistent with existing designated NAAQs regulations, noise regulations, and stormwater regulations.

The Proposed Action and other developmental projects would increase impervious areas within the area. This may lead to detrimental impacts on stormwater retention capabilities. However, the contractor would obtain all necessary stormwater management permits prior to construction to account for increased impervious surface and include stormwater management features to adequately and appropriately capture stormwater on the Proposed Action area.

The Proposed action and other developmental projects would also increase noise in the surrounding area. The fire station in particular would increase noise from fire sirens and operational noises. Construction noises from any of the projects would also increase noise. However, all projects would follow regulations including the Noise Control Act and would adhere to local noise regulations. Noise during construction would be temporary and cease upon completion of construction.

Soil erosion from the Proposed Action and other development projects would be temporary and confined to the construction phase of the projects. Soil compaction would have minor, direct, long-term adverse effects.

Vegetation could incur minor, adverse, direct, cumulative impacts. Not all the projects listed have a proposed site; but it can be assumed that some sites would include the removal of vegetation. All vegetation removal would be in accordance with the regulations listed in **Section 3.6.1.1,** including LEAD's forest management plan.

There would be no long-term adverse impacts on the remaining resource areas. Thus, all other environmental resource topics were omitted from impact analysis because temporary, negligible, or no environmental impacts would occur when considered on a cumulative basis. No significant adverse cumulative effects on any resource area would be expected from the combined effects of the proposed action and local projects.

3.14.2.1. Cumulative Impacts from the No Action Alternative

The No Action Alternative would result in no impacts. The Proposed Action area would continue to be used for recreational purposes; therefore, it would continue to be mowed and maintained in the manner it is currently maintained with no changes to any resources.

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4. SUMMARY OF ENVIRONMENTAL CONSEQUENCES

As described throughout Section 4 of this EA, the construction and operation of the Proposed Action would not generate any significant adverse impacts; therefore, an EIS in not warranted.

As detailed in this EA, minor adverse impacts would result from construction activities associated with the Proposed Action. Impacts would be temporary, during the construction phase of the project. The intensity of the adverse impacts would be limited to the area immediately surrounding the Proposed Action area. These adverse impacts would end once the construction phases are completed.

During operation, long-term, minor, direct, impacts would be realized through the Proposed Action. The Proposed Action would require minor, routine operational and grounds maintenance and generally be a passive, unobtrusive land use. **Table 4-1** summarizes the potential consequences the Proposed Action and No Action Alternative would have on resources evaluated in the EA.

Table 4-1 Summary of Environmental Consequences

Resource	Construction	Operation	No Action
Land Use	Short-term, direct, minor, adverse impact on land use due to construction staging and conversion of agricultural fields to developed land.	Long-term, minor, direct adverse effects on land use from the conversion of agricultural land to developed land. Long-term, direct, negligible adverse effects on viewshed.	No impact
Viewshed	Short-term, direct, minor adverse impacts due to construction staging.	Overall, long-term, direct, minor beneficial impacts due to the due to the removal of dilapidated structures and renovation of the current RCY.	Long-term, minor, direct, adverse impacts due to the continued existence of two dilapidated buildings.
Geology, Topography, and Soils	Short-term, minor, direct, adverse impacts to topography with the extensive grading of the MMDF and RCY sites. No impacts to geology. Short- and long-term, moderate, direct impacts to soil from arable land conversion to developed land.	No impacts to geology or topography after construction. Long-term, moderate, direct adverse impact to soils from the conversion of arable land to compacted, non-productive land.	No impact

Resource	Construction	Operation	No Action
Prime Farmland	Long-term, minor, direct, adverse impacts from conversion of up to 13 acres of farmland into developed land.	Long-term, minor, direct, adverse impacts from permanent soil compaction.	No impact
Water Resource (Surface Water, Stormwater, Floodplains, Wetlands, and Groundwater)	Short-term, minor, direct, adverse impacts to surface water, stormwater, floodplains, and wetlands from sediment deposition, conversion or permeable to impervious surface, and development in a Zone A of a floodplain, and disturbance of wetlands, respectively. Short-term, indirect, negligible, adverse impacts to groundwater from potential accidental releases of petroleum.	Long-term, direct, negligible, adverse impacts to surface water and groundwater due to conversion of permeable land to impervious and reduced groundwater recharge. Long-term, direct, minor, adverse impacts to stormwater , wetlands, and floodplains due to potential increased runoff ,construction in wetlands, and operation of an RCY in a floodplain. Ni	No impact
Biological Resources (Vegetation, Wildlife, Rare, Threatened, and Endangered Species[RTE])	Overall, short-and long-term, minor, direct, adverse impacts to vegetation, wildlife, and RTEs due to removal and/or trampling, noise from construction and habitat removal, and accidental discovery or take of RTE species, respectively.	Overall, long-term, minor, direct, adverse impacts to vegetation. Long-term, negligible, direct, adverse impacts to wildlife and RTEs from operational noises.	No impact
Cultural Resources	No impacts to cultural resources to the MMDF as no archeological sites are present. The RCY site was determined to not be eligible for the NRHP	No impact	No impact

Resource	Construction	Operation	No Action
Hazardous and Toxic Materials and Waste	Short-term, direct, minor , adverse impacts due to the use of chemicals and fuels during construction and the release of hazardous materials during demolition.	Long-term, minor, direct, adverse impacts due to wastes and hazardous materials generated at the operation sites.	No impact
Utilities (Potable Water, Wastewater, Energy Sources, Natural Gas, Communications, and Solid Waste)	Long-term, minor, direct, adverse impacts due to increased demands on existing utility structures.	Long-term, minor, direct, adverse impacts due to increased consolidated shipments at the MMDF and upgrades the LEAD rail system.	No impact
Transportation and Traffic	Short-term, minor, direct, adverse impacts to additional traffic during construction.	Long-term, minor, direct, beneficial impacts	No impact
Noise	Short-term, minor, direct, adverse impacts due to increase in noise during construction and demolition.	Long-term, minor, direct, adverse impacts due to operational noises at the MMDF. .	No impact
Air Quality and Climate Change	Short-term, minor, direct, adverse impacts from construction emissions.	Long-term, minor, direct, adverse impacts from the operation of the newly constructed MMDF.	No impact
Human Health and Safety	No impact	No impact	No impact
Socioeconomics (Environmental Justice and Protection of Children)	Short-term, minor, direct, beneficial impacts to socioeconomics due to job creation during construction. No impact to environmental justice or protection of children.	No impact	No impact
Cumulative Impacts	No impact	Long-term, minor, indirect, adverse impacts from increase pollutant emissions, and increased impervious surface, noise, vegetation removal, and soil degradation.	No impact

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6. ACRONYMS AND ABBREVIATIONS

ACAT	Army Climate Assessment Tool
AIRFA	American Indian Religious Freedom Act
APE	Area of Potential Effect
ARPA	Archaeological Resources Protection Act
AMC	United States Army Materiel Command
AMSL	Above Mean Sea Level
ACM	Asbestos Containing Material
BG	Block Group
BRAC	Base Realignment and Closure
CAA	Clean Air Act
CERCLA	Comprehensive Environmental Response, Compensation, and Liability 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 Equivalent
CWA	Clean Water Act
DA	Department of the Army
DDESB	DoD Explosives Safety Board
DESR	Defense Explosives Safety Regulation
DoD	Department of Defense
DoDI	Department of Defense Instruction
DNL	Day-Night Average Sound Level
DPW	Department of Public Works
EA	Environmental Assessment
EJ	Environmental Justice
E-ILS	Enterprise Integrated Logistics Study
EIS	Environmental Impact Statement
EISA	Energy Independence and Security Act
EO	Executive Order
ESA	Endangered Species Act
ESQD	Explosive Safety Quantity Distance
FEMA	Federal Emergency Management Agency
FNSI	Finding of No Significant Impact
FONPA	Finding of No Practicable Alternative
FT	Feet
GHG	Greenhouse Gases
GWP	Global Warming Potential
HAP	Hazardous Air Pollutants
ICRMP	Integrated Cultural Resources Management Plan
ILS	Integrated Logistics Study
IPaC	Information for Planning and Conservation

JMC	Joint Munitions Command
LBP	Lead-based Paint
LEAD	Letterkenny Army Depot
LEMC	Letterkenny Munitions Center
LF	Linear Feet
LOD	Limit of Disturbance
LID	Low Impact Development
LTL	Less Than Truckload
MBTA	Migratory Bird Treaty Act
MMDF	Missile/Munitions Distribution Facility
MG/ M^3	Micrograms per Meter Cubed
MS4	Municipal Separate Storm Sewer System
NAAQS	National Ambient Air Quality Standards
NASA	National Aeronautics and Space Administration
NAGPRA	Native American Graves Protection and Repatriation Act
NEPA	National Environmental Policy Act
NRHP	National Register of Historic Places
NPDES	National Pollutant Discharge Elimination System
NHPA	National Historic Preservation Act
NOA	Notice of Availability
NOI	Notice of Intent
NOx	Nitrogen Oxides
O_3	Ozone
OSHA	Occupational Safety and Health Administration
PA	Programmatic Agreement
PFO	Palustrine Forested
PPM	Parts Per Million
PPB	Part Per Billion
PNDI	Pennsylvania Natural Diversity Inventory
RCRA	Resource Conservation and Recovery Act
RCY	Rail Classification Yard
RONA	Record of Non-Applicability
RTE	Rare, Threatened, and Endangered
SC-GHG	Social Cost of Greenhouse Gases
SF	Square Feet
SIP	State Implementation Plans
SO_2	Sulfur Dioxide
SHPO	State Historic Preservation Office
TSCA	Toxic Substance Control Act
U.S.	United States
USACE	United State Army Corps of Engineers
U.S.C.	United States Code
UFC	Unified Facilities Criteria
USFWS	United States Fish and Wildlife Service
VOC	Volatile Organic Compound

APPENDICES

Appendix A
Agency Coordination

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From:	Anderson, Robert M
To:	Joyal, Lauren E CIV USARMY CENAB (USA); ESPenn, IR1
Cc:	Kindlin, Craig M CIV USARMY USAMC (USA)
Subject:	[Non-DoD Source] Re: [EXTERNAL] USFWS Missile Munitions Distribution Facility and Rail Classification Yard Initial Coordination
Date:	Wednesday, February 1, 2023 9:27:22 AM

Hello Ms. Joyal,

Thank you for the opportunity to provide comment. I am forwarding your request to our general delivery mailbox at IR1_ESPenn@fws.gov. The PA Field Office asks that all requests for comment or project review be submitted to that address to ensure that the request is logged and correctly assigned to a biologist for review.

Robert M. Anderson
Assistant Field Office Supervisor
U.S. Fish & Wildlife Service
Pennsylvania Field Office
110 Radnor Rd; Suite 101
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From: Joyal, Lauren E CIV USARMY CENAB (USA) <Lauren.E.Joyal@usace.army.mil>
Sent: Wednesday, February 1, 2023 8:56 AM
To: Anderson, Robert M <robert_m_anderson@fws.gov>
Cc: Kindlin, Craig M CIV USARMY USAMC (USA) <craig.m.kindlin.civ@army.mil>
Subject: [EXTERNAL] USFWS Missile Munitions Distribution Facility and Rail Classification Yard Initial Coordination

Dear Mr. Anderson,
On behalf of the Letterkenny Army Depot (LEAD), we would like to coordinate with your agency regarding a National Environmental Policy Act (NEPA) analysis for the construction and operation of Missile/Munitions Distribution Center (MMDF) and Rail Classification Yard (RCY) at Letterkenny Munitions Center (LEMC). In accordance with 40 CFR 1500-1508 and Section 106 of the National History Preservation Act (NHPA), the Army invites you to provide early input on the Proposed Action. This input will be considered and incorporated into the preparation of the NEPA document.
Please see the attached request and mapping and let us know if you have any questions. Thank you for your time and input. We kindly request your response within 30 days of this receipt.

Please direct any comments or questions you have to myself, at lauren.e.joyal@usace.army.mil, within 30 days of this receipt.

Best Regards,
Lauren Joyal

Lauren Joyal
Ecologist
USACE, Baltimore District
2 Hopkins Plaza
Baltimore MD, 21201

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From:	Stauffer, Aura
To:	Joyal, Lauren E CIV USARMY CENAB (USA)
Cc:	Kindlin, Craig M CIV USARMY USAMC (USA)
Subject:	[URL Verdict: Neutral][Non-DoD Source] Re: [External] PA DCNR Missile Munitions Distribution Facility and Rail Classification Yard Initial Coordination
Date:	Wednesday, February 1, 2023 9:44:31 AM

I passed this along to my supervisors Emily Domoto and Rebecca Bowen. Thanks.

From: Joyal, Lauren E CIV USARMY CENAB (USA) <Lauren.E.Joyal@usace.army.mil>
Sent: Wednesday, February 1, 2023 8:52:00 AM
To: Stauffer, Aura <astauffer@pa.gov>
Cc: Kindlin, Craig M CIV USARMY USAMC (USA) <craig.m.kindlin.civ@army.mil>
Subject: [External] PA DCNR Missile Munitions Distribution Facility and Rail Classification Yard Initial Coordination

Dear Ms. Stauffer,
On behalf of the Letterkenny Army Depot (LEAD), we would like to coordinate with your agency regarding a National Environmental Policy Act (NEPA) analysis for the construction and operation of Missile/Munitions Distribution Center (MMDF) and Rail Classification Yard (RCY) at Letterkenny Munitions Center (LEMC). In accordance with 40 CFR 1500-1508 and Section 106 of the National History Preservation Act (NHPA), the Army invites you to provide early input on the Proposed Action. This input will be considered and incorporated into the preparation of the NEPA document.
Please see the attached request and mapping and let us know if you have any questions. Thank you for your time and input. We kindly request your response within 30 days of this receipt. Please direct any comments or questions you have to myself, at lauren.e.joyal@usace.army.mil, within 30 days of this receipt.

Best Regards,
Lauren Joyal

Lauren Joyal
Ecologist
USACE, Baltimore District
2 Hopkins Plaza
Baltimore MD, 21201

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From:	Nagle, Cheryl
To:	Joyal, Lauren E CIV USARMY CENAB (USA)
Cc:	Kindlin, Craig M CIV USARMY USAMC (USA)
Subject:	[URL Verdict: Neutral][Non-DoD Source] Re: [External] PA SHPO Missile Munitions Distribution Facility and Rail Classification Yard Initial Coordination
Date:	Wednesday, February 1, 2023 10:52:36 AM

Good morning!
Thank you for your email regarding the proposed project. We have received the documentation through our new project submission portal PA-SHARE, and it is currently under review as Environmental Review Project 2023PR00427. Eva Falls and Craig Kindlin are on the project as the contacts (so all responses will come through the PA-SHARE system/email address). We look forward to consultation with you regarding this proposed project.
Cheryl

From: Joyal, Lauren E CIV USARMY CENAB (USA) <Lauren.E.Joyal@usace.army.mil>
Sent: Wednesday, February 1, 2023 8:50 AM
To: Nagle, Cheryl <chnagle@pa.gov>
Cc: Kindlin, Craig M CIV USARMY USAMC (USA) <craig.m.kindlin.civ@army.mil>
Subject: [External] PA SHPO Missile Munitions Distribution Facility and Rail Classification Yard Initial Coordination

Dear Ms. Nagle,
On behalf of the Letterkenny Army Depot (LEAD), we would like to coordinate with your agency regarding a National Environmental Policy Act (NEPA) analysis for the construction and operation of Missile/Munitions Distribution Center (MMDF) and Rail Classification Yard (RCY) at Letterkenny Munitions Center (LEMC). In accordance with 40 CFR 1500-1508 and Section 106 of the National History Preservation Act (NHPA), the Army invites you to provide early input on the Proposed Action. This input will be considered and incorporated into the preparation of the NEPA document.
Please see the attached request and mapping and let us know if you have any questions. Thank you for your time and input. We kindly request your response within 30 days of this receipt. Please direct any comments or questions you have to myself, at lauren.e.joyal@usace.army.mil, within 30 days of this receipt.

Best Regards,
Lauren Joyal

Lauren Joyal
Ecologist
USACE, Baltimore District
2 Hopkins Plaza
Baltimore MD, 21201

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From:	tswartz@franklinccd.org
To:	Joyal, Lauren E CIV USARMY CENAB (USA)
Cc:	"Dave Stoner"; "Chris Swartz"
Subject:	[URL Verdict: Neutral][Non-DoD Source] RE: Franklin County Conservation District Missile Munitions Distribution Facility and Rail Classification Yard Initial Coordination
Date:	Wednesday, February 1, 2023 10:31:03 AM
Attachments:	image003.png image001.png

Ms. Joyal, please update your stakeholder contact list with my contact information for future distributions.

The Franklin CCD has been in contact with the USACE for the proposed land development, we have no further input at this time.

Thomas Swartz, *CPESC*
102 Program Manager
FRANKLIN COUNTY CONSERVATION DISTRICT
185 Franklin Farm Lane
Chambersburg, PA 17202
717-264-5499

From: Christine Swartz <cswartz@franklinccd.org>
Sent: Wednesday, February 1, 2023 9:02 AM
To: 'Thomas Swartz ' <tswartz@franklinccd.org>
Cc: 'Dave Stoner' <davestoner@franklinccd.org>
Subject: FW: Franklin County Conservation District Missile Munitions Distribution Facility and Rail Classification Yard Initial Coordination

Chris Swartz
Agricultural Conservation Technician

FRANKLIN COUNTY CONSERVATION DISTRICT
185 Franklin Farm Lane
Chambersburg, PA 17202
717-264-5499

From: Joyal, Lauren E CIV USARMY CENAB (USA) [mailto:Lauren.E.Joyal@usace.army.mil]
Sent: Wednesday, February 1, 2023 8:59 AM
To: cswartz@franklinccd.org
Cc: Kindlin, Craig M CIV USARMY USAMC (USA) <craig.m.kindlin.civ@army.mil>
Subject: Franklin County Conservation District Missile Munitions Distribution Facility and Rail Classification Yard Initial Coordination

Dear Mr. Swartz,
On behalf of the Letterkenny Army Depot (LEAD), we would like to coordinate with your agency regarding a National Environmental Policy Act (NEPA) analysis for the construction and operation of Missile/Munitions Distribution Center (MMDF) and Rail Classification Yard (RCY) at Letterkenny Munitions Center (LEMC). In accordance with 40 CFR 1500-1508 and Section 106 of the National History Preservation Act (NHPA), the Army invites you to provide early input on the Proposed Action. This input will be considered and incorporated into the preparation of the NEPA document.
Please see the attached request and mapping and let us know if you have any questions. Thank you for your time and input. We kindly request your response within 30 days of this receipt. Please direct any comments or questions you have to myself, at lauren.e.joyal@usace.army.mil, within 30 days of this receipt.

Best Regards,
Lauren Joyal

Lauren Joyal
Ecologist
USACE, Baltimore District
2 Hopkins Plaza
Baltimore MD, 21201

Joyal, Lauren E CIV USARMY CENAB (USA)

From: Traver, Carrie <Traver.Carrie@epa.gov>
Sent: Friday, March 3, 2023 4:21 PM
To: Joyal, Lauren E CIV USARMY CENAB (USA)
Cc: Glyn, Rebecca
Subject: [URL Verdict: Neutral][Non-DoD Source] RE: EPA Missile Munitions Distribution Facility and Rail Classification Yard Initial Coordination

Dear Ms. Joyal:

Thank you for providing notice to the U.S. Environmental Protection Agency (EPA) that Letterkenny Army Depot (LEAD) in Chambersburg, Pennsylvania is preparing an Environmental Assessment (EA or Study) for the proposed construction and operation of a Missile/Munitions Distribution Facility (MMDF) and Rail Classification Yard (RCY). In accordance with the National Environmental Policy Act (NEPA) of 1969, Section 309 of the Clean Air Act and the Council on Environmental Quality regulations implementing NEPA (40 CFR 1500-1508), we have the following comments for your consideration in the development of the EA.

Purpose and Need and Alternatives

The Proposed Action consists of the demolition of Buildings 1456 and 2365, construction of a shipping and receiving building and a vehicle storage building (54,268 square feet [SF]) for the MMDF, and the installation of the RCY (12,260 linear feet) with an access control building (255 SF). The stated purpose is to provide an effective, efficient, and DoD Explosives Safety Board (DDESB) compliant MMDF at the Letterkenny Munitions Center (LEMC), capable of handling LEMC's increase in ammunitions processing.

- We recommend explaining the siting requirements and describing locations evaluated for the RCY and MMDF facilities.

- As the buildings to be demolished are not located in proximity to the proposed RCY and MMDF facilities, the purpose and need for the demolition of building and/or how the demolition will contribute to the project should be discussed.

- We recommend evaluating alternative locations for the shipping and receiving building and vehicle storage building onsite that would potentially reduce impacts by constructing these facilities on currently impervious or heavily disturbed areas.

Affected Environment

EPA encourages avoidance and minimization of resource impacts where possible. Figure 1 indicates that the project areas will primarily be located on previously cleared land. Avoidance of impacts to forests, riparian buffers, and wetlands will help reduce a number of impacts to resources and species, such as migratory birds and bats, and help protect water quality.

To illustrate potential resource impacts and avoidance, we recommend including figures that show resources in proximity to the project area (such as streams and wetlands, vernal pools, mature forests, and other habitat) and how the project footprint would avoid or overlap with these resources.

Aquatic Resources and Water Quality

Figure 1 shows that the RCY would be located along Muddy Run, a tributary to the Conodoguinet Creek. Forested wetlands are mapped along Muddy Run; it appears that the RCY may cross at least one tributary to Muddy Run. The MMDF would be located along another tributary to Muddy Run. The Study should include a detailed discussion of existing conditions of aquatic resources in the project area and downstream.

The EA should fully assess potential permanent and temporary impacts associated with the Proposed Action or alternatives on the biological, physical, and chemical characteristics of aquatic ecosystems. This includes potential direct impacts to streams or wetlands, such as the addition, replacement, or expansion of crossings, construction of outfalls, or installation of utilities, as well as indirect impacts such as clearing vegetation or rerouting hydrology away from or to aquatic resources.

- To effectively evaluate the potential for such impacts, the extent of streams should be mapped and a wetlands delineation should be conducted in accordance with the 1987 Corps of Engineers Wetlands Delineation Manual ("1987 Manual") and the Eastern Mountains and Piedmont Regional Supplement.

- In accordance with Section 404 of the Clean Water Act, impacts to aquatic resources should be avoided and minimized. EPA supports alignments and facilities that avoid direct and indirect impacts to streams and wetlands.

- Given the proximity of the resources, the EA should outline measures to protect surface waters and the aquatic ecosystem. Runoff from facilities adjacent to riparian areas may contribute to water quality and habitat degradation in the watershed. Therefore, we recommend a detailed discussion of best management practices and mitigation measures to address both construction and long-term stormwater management. These may include preservation of buffers, structural best management practices (BMPs), and regular inspection and monitoring to limit impacts.

We recommend that the cumulative effects of the Proposed Action and other existing and proposed projects at LEAD on water quality and aquatic resources be fully evaluated.

We note that impacts considered to be temporary will be short-term and may require a restoration plan to return to pre-construction conditions, while permanent or long-term impacts to wetlands or streams may require compensatory mitigation. If mitigation may be required, we recommend identifying how the loss of resource function and acreage is expected to be offset in the watershed.

<u>Stormwater and Impervious Cover</u>
Construction of facilities for the MMDF as well as the RCY will increase impervious area, which is linked to water quality degradation. We recommend minimizing the construction of impervious cover where possible and limiting its effects. EPA suggests committing to incorporating and planning for Low Impact Development (LID) and green infrastructure (GI) principles in site design to reduce runoff volume and improve water quality. The fundamental principles of LID and GI are to maintain pre-development hydrology of the site and ensure that the project does not cause receiving waters to be adversely impacted by changes in runoff temperature, volume, duration, and rate.

- We recommend protecting or enhancing native vegetation, preserving natural drainage patterns, and/or mitigating existing impacts. Where possible, we support reducing impacts to the watershed by using pervious paving options, removing unneeded impervious areas, and

examining opportunities to add or enhance vegetation-based stormwater BMPs or other green infrastructure to reduce stormwater runoff.

- EPA encourages sustainable site and building design, which considers energy efficiency, water conservation, waste prevention, and sustainable facility maintenance and operation. We suggest considering options to reduce impacts and to enhance efficiency of buildings, such as water collection and storage from roof areas, roof solar panels, and/or green roof installations. Rainwater harvesting from roof areas can also be used for landscape irrigation or other purposes.

- We encourage LEAD to plan to incorporate LID and green stormwater infrastructure in the early planning stages of the project. Planning should include conceptual layout and space requirements.

Guidance and resources for implementing green infrastructure practices and LID can be found at the following sites: *www.epa.gov/greeninfrastructure*; h*ttps://www.epa.gov/nps/urban-runoff-low-impact-development* ; and *http://www.bmpdatabase.org*

Geology and Soils

We recommend assessing impacts to prime farmland soils and soils of statewide importance.

This area of Pennsylvania is typically mapped as underlain by limestones and dolomites and may be prone to features such as sinkholes and subsurface streams. As such, the potential for impacts and hazards associated with the geology should be evaluated, including potential impacts from construction, post-construction stormwater, and spread of potential spills and contamination.

Biological Resources

Vegetation types and habitat in the area of the Proposed Action or alternatives should be characterized in detail and potential impacts on vegetation and fauna assessed. Specific recommendations include:

- As noted above, EPA recommends avoiding impacts to forests and riparian buffers to reduce impacts to a number of species, including birds, bats, and amphibians, as well as to protect water quality. Removal of mature native trees may cause long-term or permanent habitat loss.
- It appears that the MMDF facility will be sited in a field; potential impacts to grassland birds, monarch butterflies, or other species that may use field habitat should be evaluated.

- Potential impacts to wildlife associated with the new facilities, such as lighting or barriers should be assessed. We suggest that the EA consider minimizing wildlife impacts in the design of facilities, such as selection of lighting.

- The EA would benefit from an evaluation of the Project's potential for dispersal of invasive species during construction and a general discussion of any plans or measures in place to avoid or reduce impacts. We suggest considering landscaping enhancements that may provide native habitat and manage invasive species.

We recommend that the EA include correspondence and recommendations provided by applicable resource agencies such as the PA Department of Conservation and Natural Resources and the U.S. Fish and Wildlife Service to assess and minimize impacts on species of special concern.

Greenhouse Gas Emissions and Climate Change

EPA recommends that (GHG) generation from construction and operation of the Proposed Action be assessed. We suggest outlining BMPs that will be implemented to reduce greenhouse gas (GHG) emissions during construction and operation. EPA encourages incorporating energy efficient heating and cooling systems and lighting.

On January 9, 2023, CEQ published interim guidance to assist federal agencies in assessing and disclosing climate change impacts during environmental reviews. CEQ developed this guidance in response to EO 13990, Protecting Public Health and the Environment and Restoring Science to Tackle the Climate Crisis. CEQ indicated that agencies should use this interim guidance to inform the NEPA review for all new proposed actions and may use it for evaluations in process. EPA recommends the EA consider the interim guidance as appropriate, to ensure robust consideration of potential climate impacts, mitigation, and adaptation issues. Tools for estimating GHG emissions can be found at *https://ceq.doe.gov/guidance/ghg-tools-and-resources.html*

We also recommend that the EA consider measures that promote resiliency where possible.

Hazardous and Toxic Substances

A number of active and closed BRAC, Army Environmental Restoration, and Defense Site Environmental Restoration Tracking System sites are located at LEAD. We recommend that the Study indicate the status of any investigations or remediation of hazardous sites or materials in the vicinity of the Proposed Action. The EA should identify any known contamination in the project areas, completed or ongoing remediation efforts, additional studies that will be conducted, and potential impacts from the proposed activities, or how such impacts may be avoided or minimized. For building demolition, the presence of and disposal of hazardous materials should be addressed.

Accidental leaks and spills are possible during construction, demolition, and operation of the facilities. Specific measures to prevent and contain spills should be discussed, as well as listing spill response plans and measures to prevent fugitive dust.

As stated, the purpose of the Proposed Action is to provide a DDESB compliant MMDF capable of handling LEMC's increase in ammunitions processing. We recommend that the EA address any potential beneficial or adverse effects on public safety.

Cultural Resources

We support early engagement with the State Historic Preservation Office (SHPO) to identify, avoid, and minimize potential adverse effects from the proposed activities on cultural resources. We recommend that the EA indicate the status of the consultation under Section 106 of the National Historic Preservation Act of 1966 as well as consultation with Native American Tribes.

We recommend that the EA identify whether any investigations have or will be conducted for potential historic, archeological, or cultural resources in proximity to the project areas and whether any impacts may occur from any of the proposed activities. We recommend specifically addressing whether the buildings to be demolished may be individually eligible for the National Register of Historic Places or contribute to listed or eligible resources.

Community Impacts

The potential for offsite impacts should be evaluated. Noise impacts from construction and demolition of facilities and from operation of the RCY should be fully assessed. We recommend outreach to any residences or business that may be impacted by the project; the EA should indicate any outreach conducted and identify BMPs that may be used to minimize impacts.

Environmental Justice

We recommend that the EA indicate whether there may be communities with potential environmental justice (EJ) concerns in the vicinity, whether impacts may be adverse, and whether those impacts may be disproportionate. We recommend showing low income and minority census block groups in relation to the project area. EPA's environmental justice screening tool, EJSCREEN, can be utilized to provide such information.

Again, thank you for notifying us of the preparation of the EA. Please feel free to contact me if you wish to discuss any of the questions or comments. I would like to request a copy of the Draft EA by email when it is available.

Thank you,
Carrie

Carrie Traver
Office of Communities, Tribes, & Environmental Assessment
U.S. Environmental Protection Agency, Region 3
215-814-2772
traver.carrie@epa.gov

From: Joyal, Lauren E CIV USARMY CENAB (USA) <Lauren.E.Joyal@usace.army.mil>
Sent: Wednesday, February 01, 2023 8:55 AM
To: Traver, Carrie <Traver.Carrie@epa.gov>
Cc: Kindlin, Craig M CIV USARMY USAMC (USA) <craig.m.kindlin.civ@army.mil>
Subject: EPA Missile Munitions Distribution Facility and Rail Classification Yard Initial Coordination

Dear Ms. Traver,

On behalf of the Letterkenny Army Depot (LEAD), we would like to coordinate with your agency regarding a National Environmental Policy Act (NEPA) analysis for the construction and operation of Missile/Munitions Distribution Center (MMDF) and Rail Classification Yard (RCY) at Letterkenny Munitions Center (LEMC). In accordance with 40 CFR 1500-1508 and Section 106 of the National History Preservation Act (NHPA), the Army invites you to provide early input on the Proposed Action. This input will be considered and incorporated into the preparation of the NEPA document.

Please see the attached request and mapping and let us know if you have any questions. Thank you for your time and input. We kindly request your response within 30 days of this receipt.

Please direct any comments or questions you have to myself, at lauren.e.joyal@usace.army.mil, within 30 days of this receipt.

Best Regards,

Lauren Joyal

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pennsylvania
FISH AND BOAT COMMISSION

February 6, 2023

IN REPLY REFER TO
SIR# 57448

US Army Corps of Engineers
Lauren Joyal
2 Hopkins Plaza
Baltimore, Maryland 21201

RE: Species Impact Review (SIR) – Rare, Candidate, Threatened and Endangered Species
PNDI Search No.
Missle/Munitions Distribution Facility

Dear Lauren Joyal:

This responds to your inquiry about a Pennsylvania Natural Diversity Inventory (PNDI) Internet Database search "potential conflict" or a threatened and endangered species impact review. These projects are screened for potential conflicts with rare, candidate, threatened or endangered species under Pennsylvania Fish and Boat Commission jurisdiction (fish, reptiles, amphibians, aquatic invertebrates only) using the Pennsylvania Natural Diversity Inventory (PNDI) database and our own files. These species of special concern are listed under the Endangered Species Act of 1973, the Wild Resource Conservation Act, and the Pennsylvania Fish and Boat Code (Chapter 75), or the Wildlife Code.

Except for occasional transient species, rare, candidate, threatened or endangered species under our jurisdiction are not known to exist in the vicinity of the project area. Therefore, no biological assessment or further consultation regarding rare species is needed with the Commission. Should project plans change, or if additional information on listed or proposed species becomes available, this determination may be reconsidered.

This response represents the most up-to-date summary of the PNDI data and our files and is valid for two (2) years from the date of this letter. An absence of recorded species information does not necessarily imply species absence. Our data files and the PNDI system are continuously being updated with species occurrence information. Should project plans change or additional information on listed or proposed species become available, this determination may be reconsidered, and consultation shall be re-initiated.

If you have any questions regarding this review, please contact Kathy Gipe at 814-359-5186 or c-kgipe@pa.gov and refer to the SIR # 57448. Thank you for your cooperation and attention to this important matter of species conservation and habitat protection.

Sincerely,

Christopher A. Urban, Chief
Natural Diversity Section

CAU//KDG/dn

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Pennsylvania State Historic Preservation Office
PENNSYLVANIA HISTORICAL AND MUSEUM COMMISSION

February 3, 2023

Eva Falls
USACE
2 Hopkins Plaza
US Army Corps of Engineers, 10-A-01
Baltimore PA 21030

RE: ER Project # 2023PR00427.001, Section 106 Initiation of the Missile Munitions Distribution Facility (MMDF) & Rail Classification Yard (RCY) Project, Department of Defense, Letterkenny Township, Franklin County

Dear Eva Falls:

Thank you for submitting information concerning the above referenced project. The Pennsylvania State Historic Preservation Office (PA SHPO) reviews projects in accordance with state and federal laws. Section 106 of the National Historic Preservation Act of 1966, and the implementing regulations (36 CFR Part 800) of the Advisory Council on Historic Preservation, is the primary federal legislation. The Environmental Rights amendment, Article 1, Section 27 of the Pennsylvania Constitution and the Pennsylvania History Code, 37 Pa. Cons. Stat. Section 500 et seq. (1988) is the primary state legislation. These laws include consideration of the project's potential effects on both historic and archaeological resources.

Above Ground Resources
More Information Requested - New Attachment

The proposed project is located within the National Register of Historic Places eligible Letterkenny Army Depot, Resource # 1997RE01162. Please provide clarification regarding statement on historic resources - please confirm/verify that neither building is a contributing resource (based upon the the 1986 Programmatic Agreement on the disposal of temporary WWII properties). Please note, the only documentation on file for the resource shows a list of contributing members within the Brac 95 area (neither building is on that list - but the mapping in that file appears to show them outside of that area). Please submit the requested materials to the PA SHPO through PA-SHARE using the link under SHPO Requests More Information on the Response screen.

For questions concerning above ground resources, please contact Cheryl Nagle at chnagle@pa.gov.

Archaeological Resources
More Information Requested - Environmental Review - More Info Archaeological - High Prob

Based on an evaluation by our staff, there is a high probability that National Register-

eligible archaeological sites are present within this project area. These sites could be adversely affected by project activities. Our review considers the locations of known archaeological resources, the Statewide Pre-Contact Predictive Model, soil type, topographic setting, slope direction and distance to water, among other regionally specific predictive factors for archaeological site locations. We concur that a Phase I archaeological survey should be conducted to locate potentially significant resources and we also concur with the proposed methodology.

More Information Requested - New Survey

Please use this request for information to update survey details, add any identified archaeological sites, and to upload the Phase I archaeological survey report. Please submit the requested materials to the PA SHPO through PA-SHARE using the link under SHPO Requests More Information on the Response screen.

For questions concerning archaeological resources, please contact Justin McKeel at jusmckeel@pa.gov.

Sincerely,

Emma Diehl

Emma Diehl
Environmental Review Division Manager

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Appendix B
Information for Planning and Consultation (IPaC) Report

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United States Department of the Interior

FISH AND WILDLIFE SERVICE
Pennsylvania Ecological Services Field Office
110 Radnor Road Suite 101
State College, PA 16801-7987
Phone: (814) 234-4090 Fax: (814) 234-0748

In Reply Refer To: 06/14/2024 18:09:40 UTC
Project Code: 2024-0104288
Project Name: Letterkenny MMDF & RCY

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological

evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

https://www.fws.gov/sites/default/files/documents/endangered-species-consultation-handbook.pdf

Migratory Birds: In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts see https://www.fws.gov/program/migratory-bird-permit/what-we-do.

The MBTA has no provision for allowing take of migratory birds that may be unintentionally killed or injured by otherwise lawful activities. It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures see https://www.fws.gov/library/collections/threats-birds.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit https://www.fws.gov/partner/council-conservation-migratory-birds.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List
- USFWS National Wildlife Refuges and Fish Hatcheries
- Bald & Golden Eagles
- Migratory Birds
- Wetlands

OFFICIAL SPECIES LIST

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

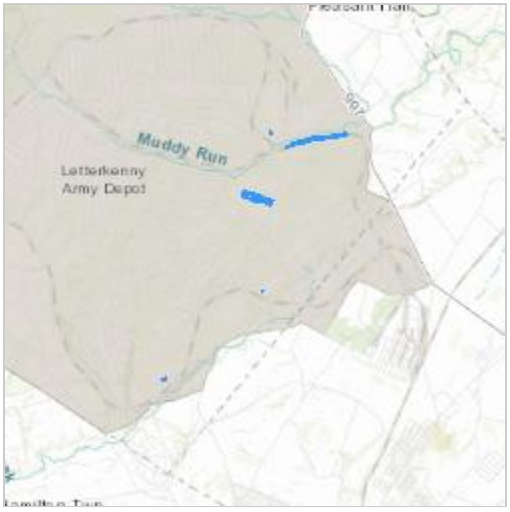
Pennsylvania Ecological Services Field Office
110 Radnor Road Suite 101
State College, PA 16801-7987
(814) 234-4090

PROJECT SUMMARY

Project Code: 2024-0104288
Project Name: Letterkenny MMDF & RCY
Project Type: Military Operations
Project Description: The current proposed undertaking includes the construction and operation of a Missile/Munitions Distribution Facility (MMDF) (54,268 square feet [SF]) and a vehicle storage building (536 SF), and Rail Classification Yard (RCY) (12,260 linear feet [LF]) with an access control building (255 SF), on the northeast section of Letterkenny Munitions Center (LEMC). The project will include cybersecurity, sustainability/energy measures, building information systems, and site development.

Project Location:

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@40.028157,-77.65581745926224,14z



Counties: Franklin County, Pennsylvania

ENDANGERED SPECIES ACT SPECIES

There is a total of 5 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

---

1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

MAMMALS

NAME	STATUS
Indiana Bat *Myotis sodalis* There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/5949	Endangered
Northern Long-eared Bat *Myotis septentrionalis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045	Endangered
Tricolored Bat *Perimyotis subflavus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/10515	Proposed Endangered

INSECTS

NAME	STATUS
Monarch Butterfly *Danaus plexippus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9743	Candidate

FLOWERING PLANTS

NAME	STATUS
Northeastern Bulrush *Scirpus ancistrochaetus* Population: No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/6715	Endangered

CRITICAL HABITATS

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

YOU ARE STILL REQUIRED TO DETERMINE IF YOUR PROJECT(S) MAY HAVE EFFECTS ON ALL ABOVE LISTED SPECIES.

USFWS NATIONAL WILDLIFE REFUGE LANDS AND FISH HATCHERIES

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS OR FISH HATCHERIES WITHIN YOUR PROJECT AREA.

BALD & GOLDEN EAGLES

Bald and golden eagles are protected under the Bald and Golden Eagle Protection Act[1] and the Migratory Bird Treaty Act[2].

Any person or organization who plans or conducts activities that may result in impacts to bald or golden eagles, or their habitats[3], should follow appropriate regulations and consider implementing appropriate conservation measures, as described in the links below. Specifically, please review the "Supplemental Information on Migratory Birds and Eagles".

---

1. The Bald and Golden Eagle Protection Act of 1940.
2. The Migratory Birds Treaty Act of 1918.
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

There are likely bald eagles present in your project area. For additional information on bald eagles, refer to Bald Eagle Nesting and Sensitivity to Human Activity

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, see the PROBABILITY OF PRESENCE SUMMARY below to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Bald Eagle *Haliaeetus leucocephalus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Sep 1 to Aug 31

PROBABILITY OF PRESENCE SUMMARY

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read "Supplemental Information on Migratory Birds and Eagles", specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

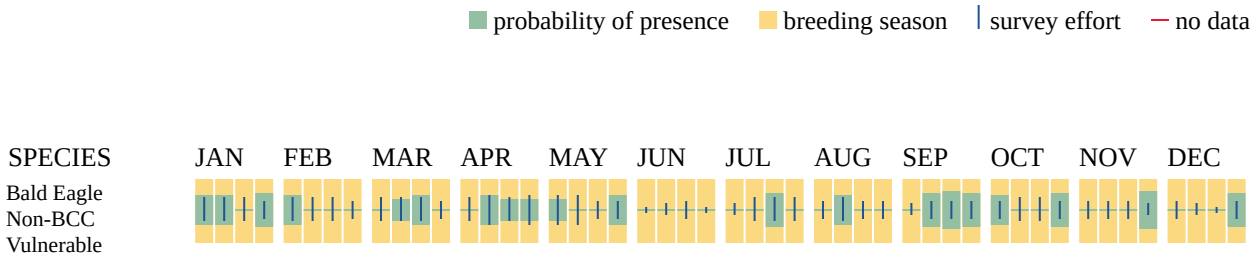
Probability of Presence (■)

Green bars; the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during that week of the year.

Breeding Season (■)
Yellow bars; liberal estimate of the timeframe inside which the bird breeds across its entire range.

Survey Effort (|)
Vertical black lines; the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps.

No Data (–)
A week is marked as having no data if there were no survey events for that week.



Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

MIGRATORY BIRDS

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats[3] should follow appropriate regulations and consider implementing appropriate conservation measures, as described in the links below. Specifically, please review the "Supplemental Information on Migratory Birds and Eagles".

---

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, see the PROBABILITY OF PRESENCE SUMMARY below to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Bald Eagle *Haliaeetus leucocephalus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Sep 1 to Aug 31
Black-billed Cuckoo *Coccyzus erythropthalmus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9399	Breeds May 15 to Oct 10
Black-capped Chickadee *Poecile atricapillus practicus* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/10645	Breeds Apr 10 to Jul 31
Bobolink *Dolichonyx oryzivorus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9454	Breeds May 20 to Jul 31
Canada Warbler *Cardellina canadensis* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9643	Breeds May 20 to Aug 10
Cerulean Warbler *Setophaga cerulea* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/2974	Breeds Apr 27 to Jul 20
Chimney Swift *Chaetura pelagica* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9406	Breeds Mar 15 to Aug 25
Eastern Whip-poor-will *Antrostomus vociferus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/10678	Breeds May 1 to Aug 20
Golden-winged Warbler *Vermivora chrysoptera* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/8745	Breeds May 1 to Jul 20

NAME	BREEDING SEASON
Northern Saw-whet Owl *Aegolius acadicus* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/9101	Breeds Mar 1 to Jul 31
Prairie Warbler *Setophaga discolor* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9513	Breeds May 1 to Jul 31
Red-headed Woodpecker *Melanerpes erythrocephalus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9398	Breeds May 10 to Sep 10
Rusty Blackbird *Euphagus carolinus* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/9478	Breeds elsewhere
Wood Thrush *Hylocichla mustelina* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9431	Breeds May 10 to Aug 31

PROBABILITY OF PRESENCE SUMMARY

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read "Supplemental Information on Migratory Birds and Eagles", specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Green bars; the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during that week of the year.

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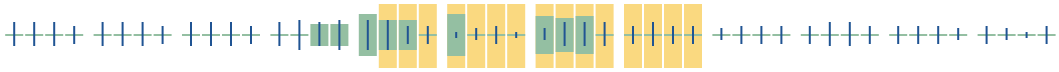
Vertical black lines; the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps.

No Data (–)
A week is marked as having no data if there were no survey events for that week.

probability of presence | breeding season | survey effort | no data

Wood Thrush
BCC Rangewide
(CON)



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- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

WETLANDS

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

RIVERINE

- R5UBH

IPAC USER CONTACT INFORMATION

Agency: Army Corps of Engineers
Name: Lauren Joyal
Address: 2 Hopkins Plaza
City: Baltimore
State: MD
Zip: 21201
Email joyall@umich.edu
Phone: 8128782281

LEAD AGENCY CONTACT INFORMATION

Lead Agency: Army

Introduction

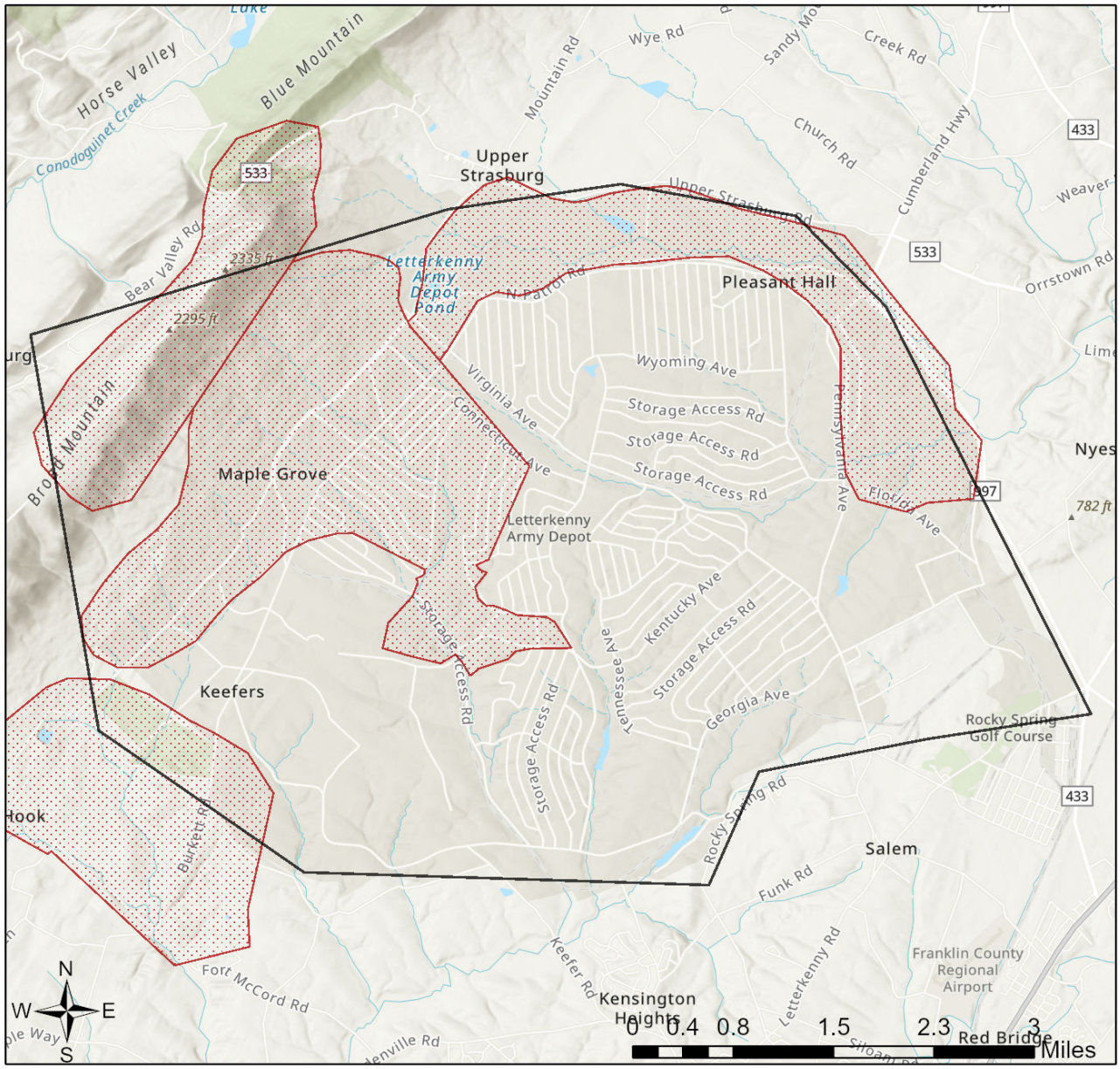
This Conservation Planning Report compiles names, descriptions, maps, locations, measurements, links and references for Natural Heritage Areas (core and supporting habitats), Important Bird Areas, State Lands, and agency designated water resources that are coincident with an area of interest defined by the user of the Pennsylvania Conservation Explorer tool. For an overview and additional details, please be sure to visit the website at www.naturalheritage.state.pa.us and download the applicable County Natural Heritage Inventory report(s).

Site Area: 19,528.78 acres
County(s): Franklin
Township/Municipality(s): GREENE; HAMILTON; LETTERKENNY
Quadrangle Name(s): CHAMBERSBURG; FANNETTSBURG; ROXBURY; SAINT THOMAS
Watersheds HUC 8: Conococheague-Opequon; Lower Susquehanna-Swatara
Watersheds HUC 12: Dennis Creek-Back Creek; Lehman Run-Muddy Run; Rocky Spring Branch; Rowe Run; Trout Run-Conodoguinet Creek
Decimal Degrees: 40.019764 N, -77.705621 W
Degrees Minutes Seconds: 40° 1' 11.1514" N, 77° 42' 20.2353" W

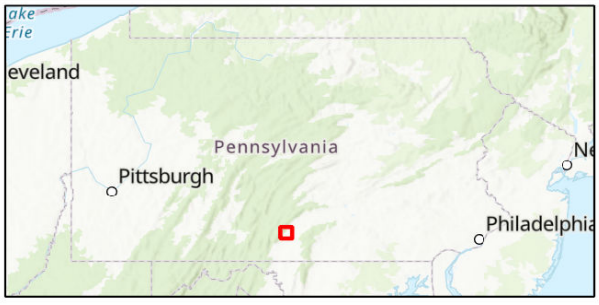
SEARCH RESULT SUMMARY

Conservation Planning Category	Detected Area Summary
Natural Heritage Areas	4 sites
Protected Lands	3 tracts; 1,519.47 acres

MMD and RCY Version 2



Core Habitats
Area of Interest



Sources: Esri, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap and the GIS user community

Natural Heritage Areas

Natural Heritage Areas (NHAs) are sites that have been identified as critical habitat for species or natural communities of concern. This dataset is designed to identify, map and discuss areas that support species of concern, exemplary natural communities, and broad expanses of intact natural ecosystems that support components of Pennsylvanias native species biodiversity. These areas are prioritized based upon their ecological qualities and provided with recommendations regarding their management and protection. Most of the existing NHAs have been developed through PNHPs County Natural Heritage Inventories -- systematic studies of the critical biological resources of a county.

Natural Heritage Site Name	Description	Reference
Clarks Knob	Area contains a population of a species of concern.	Link
Dunn's Creek Meadow	Site supports an animal species of concern.	Link
Keasey Run Wetlands	A plant species of concern occurs in marshy bottomland along a creek.	Link
Letterkenny Army Depot	Site contains an Ephemeral Fluctuating Pool Natural Community. Area also contains good grassland bird habitat.	Link

State Lands

These include lands managed by the Department of Natural Resources (DCNR) Bureau of Forestry (BOF) for long-term forest health and native plant conservation; Pennsylvania Game Commission (PGC) for hunting, trapping and fishing; and DCNR Bureau of State Parks (BSP) for healthful outdoor recreation and environmental education.

Name	Wild Area Type	Wild Area Name	Manager	Total Acres
Buchanan State Forest State Forest	None	NA	BOF	5394.88
State Gameland	None	NA	PGC	1201177.16

Protected Lands

Protected lands or conservation areas are locations which receive protection, through legal or other means, because of their recognized natural, ecological and/or cultural values.

Name	Description	Owner	Website	Total Acres
	Park	Franklin		0.00

For additional information about the Pennsylvania Natural Heritage Program, visit the website at www.naturalheritage.state.pa.us or you can email your questions and comments to RA-HeritageReview@pa.gov.

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Pennsylvania Ecological Services Field Office
110 Radnor Road Suite 101
State College, PA 16801-7987
Phone: (814) 234-4090 Fax: (814) 234-0748

In Reply Refer To: 06/14/2024 18:20:37 UTC
Project code: 2024-0104288
Project Name: Letterkenny MMDF & RCY

Federal Nexus: yes
Federal Action Agency (if applicable): Army

Subject: Federal agency coordination under the Endangered Species Act, Section 7 for 'Letterkenny MMDF & RCY'

Dear Lauren Joyal:

This letter records your determination using the Information for Planning and Consultation (IPaC) system provided to the U.S. Fish and Wildlife Service (Service) on June 14, 2024, for 'Letterkenny MMDF & RCY' (here forward, Project). This project has been assigned Project Code 2024-0104288 and all future correspondence should clearly reference this number. **Please carefully review this letter. Your Endangered Species Act (Act) requirements may not be complete.**

Ensuring Accurate Determinations When Using IPaC

The Service developed the IPaC system and associated species' determination keys in accordance with the Endangered Species Act of 1973 (ESA; 87 Stat. 884, as amended; 16 U.S.C. 1531 et seq.) and based on a standing analysis. All information submitted by the Project proponent into IPaC must accurately represent the full scope and details of the Project.

Failure to accurately represent or implement the Project as detailed in IPaC or the Northern Long-eared Bat Rangewide Determination Key (DKey), invalidates this letter. ***Answers to certain questions in the DKey commit the project proponent to implementation of conservation measures that must be followed for the ESA determination to remain valid.***

Determination for the Northern Long-Eared Bat

Based upon your IPaC submission and a standing analysis completed by the Service, your project has reached the determination of "May Affect, Not Likely to Adversely Affect" the northern long-eared bat. Unless the Service advises you within 15 days of the date of this letter that your

IPaC-assisted determination was incorrect, this letter verifies that consultation on the Action is complete and no further action is necessary unless either of the following occurs:

- new information reveals effects of the action that may affect the northern long-eared bat in a manner or to an extent not previously considered; or,
- the identified action is subsequently modified in a manner that causes an effect to the northern long-eared bat that was not considered when completing the determination key.

15-Day Review Period

As indicated above, the Service will notify you within 15 calendar days if we determine that this proposed Action does not meet the criteria for a “may affect, not likely to adversely affect” (NLAA) determination for the northern long-eared bat. If we do not notify you within that timeframe, you may proceed with the Action under the terms of the NLAA concurrence provided here. This verification period allows the identified Ecological Services Field Office to apply local knowledge to evaluation of the Action, as we may identify a small subset of actions having impacts that we did not anticipate when developing the key. In such cases, the identified Ecological Services Field Office may request additional information to verify the effects determination reached through the Northern Long-eared Bat DKey.

Other Species and Critical Habitat that May be Present in the Action Area

The IPaC-assisted determination for the northern long-eared bat does not apply to the following ESA-protected species and/or critical habitat that also may occur in your Action area:

- Indiana Bat *Myotis sodalis* Endangered
- Monarch Butterfly *Danaus plexippus* Candidate
- Northeastern Bulrush *Scirpus ancistrochaetus* Endangered
- Tricolored Bat *Perimyotis subflavus* Proposed Endangered

You may coordinate with our Office to determine whether the Action may affect the species and/or critical habitat listed above. Note that reinitiation of consultation would be necessary if a new species is listed or critical habitat designated that may be affected by the identified action before it is complete.

If you have any questions regarding this letter or need further assistance, please contact the Pennsylvania Ecological Services Field Office and reference Project Code 2024-0104288 associated with this Project.

Action Description
You provided to IPaC the following name and description for the subject Action.

1. Name

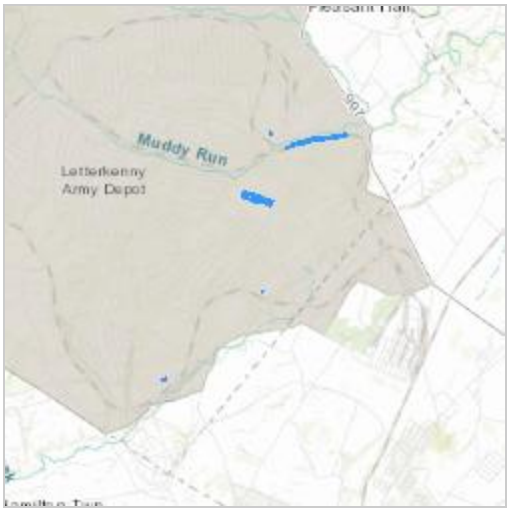
Letterkenny MMDF & RCY

2. Description

The following description was provided for the project 'Letterkenny MMDF & RCY':

> The current proposed undertaking includes the construction and operation of a Missile/Munitions Distribution Facility (MMDF) (54,268 square feet [SF]) and a vehicle storage building (536 SF), and Rail Classification Yard (RCY) (12,260 linear feet [LF]) with an access control building (255 SF), on the northeast section of Letterkenny Munitions Center (LEMC). The project will include cybersecurity, sustainability/energy measures, building information systems, and site development.

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@40.028157,-77.65581745926224,14z



DETERMINATION KEY RESULT

Based on the answers provided, the proposed Action is consistent with a determination of “may affect, but not likely to adversely affect” for the Endangered northern long-eared bat (*Myotis septentrionalis*).

QUALIFICATION INTERVIEW

1. Does the proposed project include, or is it reasonably certain to cause, intentional take of the northern long-eared bat or any other listed species?

   Note: Intentional take is defined as take that is the intended result of a project. Intentional take could refer to research, direct species management, surveys, and/or studies that include intentional handling/encountering, harassment, collection, or capturing of any individual of a federally listed threatened, endangered or proposed species?

   No

2. The action area does not overlap with an area for which U.S. Fish and Wildlife Service currently has data to support the presumption that the northern long-eared bat is present. Are you aware of other data that indicates that northern long-eared bats (NLEB) are likely to be present in the action area?

   Bat occurrence data may include identification of NLEBs in hibernacula, capture of NLEBs, tracking of NLEBs to roost trees, or confirmed NLEB acoustic detections. Data on captures, roost tree use, and acoustic detections should post-date the year when white-nose syndrome was detected in the relevant state. With this question, we are looking for data that, for some reason, may have not yet been made available to U.S. Fish and Wildlife Service.

   Yes

3. Does any component of the action involve construction or operation of wind turbines?

   Note: For federal actions, answer ‘yes’ if the construction or operation of wind power facilities is either (1) part of the federal action or (2) would not occur but for a federal agency action (federal permit, funding, etc.).

   No

4. Is the proposed action authorized, permitted, licensed, funded, or being carried out by a Federal agency in whole or in part?

   Yes

5. Is the Federal Highway Administration (FHWA), Federal Railroad Administration (FRA), or Federal Transit Administration (FTA) funding or authorizing the proposed action, in whole or in part?

   No

6. Are you an employee of the federal action agency or have you been officially designated in writing by the agency as its designated non-federal representative for the purposes of Endangered Species Act Section 7 informal consultation per 50 CFR § 402.08?

   Note: This key may be used for federal actions and for non-federal actions to facilitate section 7 consultation and to help determine whether an incidental take permit may be needed, respectively. This question is for information purposes only.

   Yes

7. Is the lead federal action agency the Environmental Protection Agency (EPA) or Federal Communications Commission (FCC)? Is the Environmental Protection Agency (EPA) or Federal Communications Commission (FCC) funding or authorizing the proposed action, in whole or in part?

   No

8. Is the lead federal action agency the Federal Energy Regulatory Commission (FERC)?

   No

9. Have you determined that your proposed action will have no effect on the northern long-eared bat? Remember to consider the effects of any activities that would not occur but for the proposed action.

   If you think that the northern long-eared bat may be affected by your project or if you would like assistance in deciding, answer “No” below and continue through the key. If you have determined that the northern long-eared bat does not occur in your project’s action area and/or that your project will have no effects whatsoever on the species despite the potential for it to occur in the action area, you may make a “no effect” determination for the northern long-eared bat.

   Note: Federal agencies (or their designated non-federal representatives) must consult with USFWS on federal agency actions that may affect listed species [50 CFR 402.14(a)]. Consultation is not required for actions that will not affect listed species or critical habitat. Therefore, this determination key will not provide a consistency or verification letter for actions that will not affect listed species. If you believe that the northern long-eared bat may be affected by your project or if you would like assistance in deciding, please answer “No” and continue through the key. Remember that this key addresses only effects to the northern long-eared bat. Consultation with USFWS would be required if your action may affect another listed species or critical habitat. The definition of Effects of the Action can be found here: https://www.fws.gov/media/northern-long-eared-bat-assisted-determination-key-selected-definitions

   No

10. [Semantic] Is the action area located within 0.5 miles of a known northern long-eared bat hibernaculum?

    Note: The map queried for this question contains proprietary information and cannot be displayed. If you need additional information, please contact your State wildlife agency.

    Automatically answered
    No

11. Does the action area contain any caves (or associated sinkholes, fissures, or other karst features), mines, rocky outcroppings, or tunnels that could provide habitat for hibernating northern long-eared bats?

    No

12. Does the action area contain or occur within 0.5 miles of (1) talus or (2) anthropogenic or naturally formed rock crevices in rocky outcrops, rock faces or cliffs?

    No

13. Is suitable summer habitat for the northern long-eared bat present within 1000 feet of project activities?
    (If unsure, answer "Yes.")

    Note: If there are trees within the action area that are of a sufficient size to be potential roosts for bats (i.e., live trees and/or snags ≥3 inches (12.7 centimeter) dbh), answer "Yes". If unsure, additional information defining suitable summer habitat for the northern long-eared bat can be found at: https://www.fws.gov/media/northern-long-eared-bat-assisted-determination-key-selected-definitions

    Yes

14. Will the action cause effects to a bridge?

    No

15. Will the action result in effects to a culvert or tunnel?

    Yes

16. Do the interior dimensions of the culvert or tunnel equal or exceed 4.0 feet (1.3 meters) in height and 130 feet (40 meters) in length? Answer "No" if the affected culvert(s) or tunnel is smaller in either of these two dimensions.

    No

17. Does the action include the intentional exclusion of northern long-eared bats from a building or structure?

    Note: Exclusion is conducted to deny bats' entry or reentry into a building. To be effective and to avoid harming bats, it should be done according to established standards. If your action includes bat exclusion and you are unsure whether northern long-eared bats are present, answer "Yes." Answer "No" if there are no signs of bat use in the building/structure. If unsure, contact your local U.S. Fish and Wildlife Services Ecological Services Field Office to help assess whether northern long-eared bats may be present. Contact a Nuisance Wildlife Control Operator (NWCO) for help in how to exclude bats from a structure safely without causing harm to the bats (to find a NWCO certified in bat standards, search the Internet using the search term "National Wildlife Control Operators Association bats"). Also see the White-Nose Syndrome Response Team's guide for bat control in structures

    No

18. Does the action involve removal, modification, or maintenance of a human-made structure (barn, house, or other building) **known or suspected to contain roosting bats?**

    No

19. Will the action directly or indirectly cause construction of one or more new roads that are open to the public?

    Note: The answer may be yes when a publicly accessible road either (1) is constructed as part of the proposed action or (2) would not occur but for the proposed action (i.e., the road construction is facilitated by the proposed action but is not an explicit component of the project).

    No

20. Will the action include or cause any construction or other activity that is reasonably certain to increase average daily traffic on one or more existing roads?

    Note: For federal actions, answer ‘yes’ when the construction or operation of these facilities is either (1) part of the federal action or (2) would not occur but for an action taken by a federal agency (federal permit, funding, etc.). .

    No

21. Will the action include or cause any construction or other activity that is reasonably certain to increase the number of travel lanes on an existing thoroughfare?

    For federal actions, answer ‘yes’ when the construction or operation of these facilities is either (1) part of the federal action or (2) would not occur but for an action taken by a federal agency (federal permit, funding, etc.).

    No

22. Will the proposed action involve the creation of a new water-borne contaminant source (e.g., leachate pond pits containing chemicals that are not NSF/ANSI 60 compliant)?

    No

23. Will the proposed action involve the creation of a new point source discharge from a facility other than a water treatment plant or storm water system?

    No

24. Will the action include drilling or blasting?

    No

25. Will the action involve military training (e.g., smoke operations, obscurant operations, exploding munitions, artillery fire, range use, helicopter or fixed wing aircraft use)?

    No

26. Will the proposed action involve the use of herbicide or other pesticides (e.g., fungicides, insecticides, or rodenticides)?

    No

27. Will the action include or cause activities that are reasonably certain to cause chronic nighttime noise in suitable summer habitat for the northern long-eared bat? Chronic noise is noise that is continuous or occurs repeatedly again and again for a long time.

    Note: Additional information defining suitable summer habitat for the northern long-eared bat can be found at: https://www.fws.gov/media/northern-long-eared-bat-assisted-determination-key-selected-definitions

    No

28. Does the action include, or is it reasonably certain to cause, the use of artificial lighting within 1000 feet of suitable northern long-eared bat roosting habitat?

    Note: Additional information defining suitable roosting habitat for the northern long-eared bat can be found at: https://www.fws.gov/media/northern-long-eared-bat-assisted-determination-key-selected-definitions

    Yes

29. Will the action use only downward-facing, full cut-off lens lights (with same intensity or less for replacement lighting)
    when installing new or replacing existing permanent lights? Or for those transportation agencies using the Backlight, Uplight, Glare (BUG) system developed by the Illuminating Engineering Society, will all three ratings (backlight, uplight, and glare) be as close to zero as is possible, with a priority of "uplight" of 0?

    Yes

30. Will the action direct any temporary lighting away from suitable northern long-eared bat roosting habitat during the active season?

    Note: Active season dates for northern long-eared bat can be found here: https://www.fws.gov/media/inactive-season-dates-swarming-and-staging-areas.

    Yes

31. Will the action include tree cutting or other means of knocking down or bringing down trees, tree topping, or tree trimming?

    Yes

32. Has a presence/probable absence summer bat survey targeting the northern long-eared bat following the Service's Range-wide Indiana Bat and Northern Long-Eared Bat Survey Guidelines been conducted within the project area? If unsure, answer "No."

    No

33. Does the action include emergency cutting or trimming of hazard trees in order to remove an imminent threat to human safety or property? See hazard tree note at the bottom of the key for text that will be added to response letters

    Note: A "hazard tree" is a tree that is an immediate threat to lives, public health and safety, or improved property and has a diameter breast height of six inches or greater.

    No

34. Are any of the trees proposed for cutting or other means of knocking down, bringing down, topping, or trimming suitable for northern long-eared bat roosting (i.e., live trees and/or snags ≥3 inches dbh that have exfoliating bark, cracks, crevices, and/or cavities)?

    Yes

35. [Semantic] Does your project intersect a known sensitive area for the northern long-eared bat?

    Note: The map queried for this question contains proprietary information and cannot be displayed. If you need additional information, please contact your state agency or USFWS field office

    Automatically answered
    No

36. Will all tree cutting/trimming or other knocking or bringing down of trees be restricted to the inactive season for the northern long-eared bat?

    Note: Inactive Season dates for summer habitat outside of staging and swarming areas can be found here: https://www.fws.gov/media/inactive-season-dates-swarming-and-staging-areas.

    Yes

37. Will the action cause trees to be cut, knocked down, or otherwise brought down across an area greater than 10 acres?

    No

38. Will the action cause trees to be cut, knocked down, or otherwise brought down in a way that would fragment a forested connection (e.g., tree line) between two or more forest patches of at least 5 acres?

    The forest patches may consist of entirely contiguous forest or multiple forested areas that are separated by less than 1000’ of non-forested area. A project will fragment a forested connection if it creates an unforested gap of greater than 1000’.

    No

39. Will the action result in the use of prescribed fire?

    No

40. Will the action cause noises that are louder than ambient baseline noises within the action area?

    No

PROJECT QUESTIONNAIRE

Will all project activities by completed by November 30, 2024?

No

In what extent of the area (in acres) will trees be cut, knocked down, or trimmed during the inactive (hibernation) season for northern long-eared bat? **Note:** Inactive Season dates for spring staging/fall swarming areas can be found here: https://www.fws.gov/media/inactive-season-dates-swarming-and-staging-areas

4

Enter the extent of the action area (in acres) from which trees will be removed - round up to the nearest tenth of an acre. For this question, include the entire area where tree removal will take place, even if some live or dead trees will be left standing.

4

In what extent of the area (in acres) will trees be cut, knocked down, or trimmed during the active (non-hibernation) season for northern long-eared bat? **Note:** Inactive Season dates for spring staging/fall swarming areas can be found here: https://www.fws.gov/media/inactive-season-dates-swarming-and-staging-areas

0

Will all potential northern long-eared bat (NLEB) roost trees (trees ≥3 inches diameter at breast height, dbh) be cut, knocked, or brought down from any portion of the action area greater than or equal to 0.1 acre? If all NLEB roost trees will be removed from multiple areas, select 'Yes' if the cumulative extent of those areas meets or exceeds 0.1 acre.

Yes

Enter the extent of the action area (in acres) from which all potential NLEB roost trees will be removed. If all NLEB roost trees will be removed from multiple areas, entire the total extent of those areas. Round up to the nearest tenth of an acre.

4

For the area from which all potential northern long-eared bat (NLEB) roost trees will be removed, on how many acres (round to the nearest tenth of an acre) will trees be allowed to regrow? Enter '0' if the entire area from which all potential NLEB roost trees are removed will be developed or otherwise converted to non-forest for the foreseeable future.

0

Will any snags (standing dead trees) ≥3 inches dbh be left standing in the area(s) in which all northern long-eared bat roost trees will be cut, knocked down, or otherwise brought down?

No

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LEAD AGENCY CONTACT INFORMATION

Lead Agency: Army

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Appendix C
Record of Non-Applicability

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Air Emissions Calculations and Record of Non-Applicability for the Missile/Munitions Distribution Facility (MMDF) and Rail Classification Yard (RCY)

Letterkenny Munitions Center

Letterkenny Army Depot

02 May 2023

Table of Contents for the Supporting Documentation and Emissions Estimates

List of Tables

Attachments

1 Introduction

The U.S. Army Corps of Engineers has considered all foreseeable direct and indirect sources of air emissions associated with the Proposed Action. Direct emissions are emissions that are caused or initiated by a federal action and occur at the same time and place as the action. Indirect emissions are reasonably foreseeable emissions that are caused by the action but might occur later in time and/or be farther removed in distance from the action itself, and that the federal agency can practicably control.

2 Project Description and Assumptions

The Proposed Action is to construct and operate a Missile/Munitions Distribution Facility (MMDF) and Rail Classification Yard (RCY) on the northeast section of the Letterkenny Army Depot (LEAD) in Chambersburg, Franklin County, Pennsylvania. In addition, the Proposed Action includes the demolition of Building 1456, which served as a shipping and receiving building and now lies in a state of disrepair and the demolition of Building 2365, an old storage warehouse.

The proposed location for the MMDF is an approximately seven-acre field currently under agricultural production. The proposed location for the RCY is an approximately 13-acre wooded area spanning approximately one mile and is adjacent to the existing LEAD railroad.

Construction activities, including site clearing, grading, rail construction, vertical construction, and demolition would occur in phases beginning in January 2025 and ending in August 2027.

The emissions estimates for constructing the Proposed Action anticipates that equipment, building materials and supplies, and a qualified workforce is available within 60 miles of LEAD. The facility would be designed according to the Department of Defense (DoD) Unified Facility Criteria and include DoD-required hardening and security elements. The MMDF and RCY facilities would also be designed to meet Army requirements for energy efficiency and sustainability. Based on the final design for the Proposed Action, the selected Architect/Engineer (A/E) of Record would determine whether any new air quality permits would be required to operate the MMDF and RCY facilities.

Operational emissions would be limited to heating/air conditioning and ventilation of the new MMDF and RCY Access Control Building. Other operational emissions would be related to emissions from vehicles and locomotives traveling to and from LEAD, but the number of these trips would not be substantively different from existing trips. Therefore, operational emissions would be negligible and were not individually calculated in this RONA.

3 Clean Air Act National Ambient Air Quality Standards

Air quality is described by the concentration of various pollutants in the atmosphere. The significance of the pollutant concentration is determined by comparing it to the federal and state ambient air quality standards. The Clean Air Act (CAA), and its subsequent amendments, established the National Ambient Air Quality Standards (NAAQS) for "criteria" pollutants: ozone, carbon monoxide (CO), nitrogen dioxide, sulfur dioxide, particulate matter less than 10 (PM10) and 2.5 (PM2.5) microns in diameter, and lead (Pb) (USEPA, 2023). These standards represent the maximum allowable atmospheric concentrations that may occur while ensuring protection of

public health and welfare, with a reasonable margin of safety.

Impacts of emissions from the Proposed Action on air quality impacts would be significant if the emissions would: 1) increase ambient air pollution concentrations above the NAAQS, 2) contribute to an existing violation of the NAAQS, or 3) interfere with, or delay timely attainment of the NAAQS.

4 Greenhouse Gases

Greenhouse gases (GHGs) are gases that trap heat in the atmosphere and include water vapor, carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), and fluorinated gases (i.e., hydrofluorocarbons, perfluorocarbons, sulfur hexafluoride, and nitrogen trifluoride). For simplification, total GHG emissions are often expressed in terms of a CO2 equivalent ($CO2_e$) unit. As GHGs are relatively stable in the atmosphere and are essentially uniformly mixed throughout the troposphere and stratosphere, the climatic impact of GHG emissions does not depend upon the source location. Therefore, regional GHG impacts are likely a function of global emissions.

On January 9, 2023, CEQ issued interim guidance, *National Environmental Policy Act Guidance on Consideration of Greenhouse Gas Emissions and Climate Change*, that directs federal agencies to include analyses of GHG emissions and climate change in NEPA reviews. In addition, the following Executive Orders (EOs) direct federal agencies to consider climate change, including GHG emissions, in operations:

- EO 14057, *Catalyzing Clean Energy Industries and Jobs Through Federal Sustainability*, signed in December 2021, encourages climate resilient infrastructure and operations.
- EO 14008, *Tackling the Climate Crisis at Home and Abroad*, enacted in January 2021, aims to 1) promote safe global temperatures, 2) increase climate resilience, and 3) support a financial pathway toward low GHG emissions and climate-resilient development.
- EO 13990, *Protecting Public Health and the Environment and Restoring Science to Tackle the Climate Crisis*, enacted in January 2021, directs federal agencies to reduce GHG emissions and bolster resilience to the impacts of climate change, among several other directives.

5 Region of Influence

The region of influence for air quality is defined as the Central PA Air Quality Control Region (AQCR) (defined in 40 CFR Part 81.144), which includes Franklin County, PA. This AQCR is designated as "in attainment/unclassifiable" for all criteria pollutants (USEPA, 2023).

6 Emission Factors

Under the Proposed Action, potential air quality impacts from construction activities would occur from: 1) combustion emissions due to the use of fossil-fuel-powered equipment and vehicles, and 2) particulate emissions from fugitive dust generated during ground-disturbing activities.

The emission estimates were based on the use of the equipment typically involved in site grading,

industrial/commercial building construction and demolition, and infrastructure construction.

Emission factors were obtained from several sources. Emissions factors for non-road construction and commercial diesel-fueled machinery specific to Franklin County, PA for the years 2025, 2026, and 2027, were obtained from the U.S. Environmental Protection Agency (USEPA) MOtor Vehicle Emission Simulator (MOVES) software version 3 (USEPA, 2023). MOVES is a state-of-the-science emissions modeling system that estimates air pollution emissions for criteria air pollutants, greenhouse gases and air toxics.

Emission factors for on-road heavy-duty diesel-fueled vehicles were obtained from the California Air Resources Board's EMFAC2007 (version 2.3) Burden Model, for HHDT trucks (33,001 to 60,000 pounds) for scenario year 2025 (CARB, 2007) and the On-Road Heavy Duty Diesel Vehicle emission factors published for Pennsylvania for year 2025 by the US Air Force Civil Engineer Center (AFCEC, 2021). Emissions factors were obtained for the criteria pollutants carbon monoxide (CO), volatile organic compounds (VOCs; ozone precursor), nitrogen oxides (NO_x), sulfur dioxide (SO_2), and particulate matter with 10-millimeter and 2.5-millimeter diameter (PM_{10} and $PM_{2.5}$). Emission factors were also obtained for carbon dioxide equivalents (CO_2e), which is a measure used to compare the emissions from various greenhouse gases (GHG) based on their global warming potential, as well as for methane (CH_4). Although methane is included in the CO_2e emission factor, methane emissions are also presented individually to depict its individual contribution to CO_2e estimates.

7 Construction Emissions

This section describes the direct emissions anticipated from constructing the Proposed Action. Indirect emissions are caused by an action but are removed from the action in either time or space. The Proposed Action is not anticipated to generate indirect emissions because the MMDF and RCY facilities would not cause or initiate actions that generate emissions over which the Army has practical control within or beyond LEAD or Franklin County.

This section also presents the equations used to estimate the Proposed Action construction emissions. The assumption and outputs for emission calculations for construction activities are provided in Attachment 1.

The Proposed Action would involve the construction of different facilities in different years. Emissions were separately calculated for each of the two major phases of construction activity (RCY and MMDF/Demolition), in the year when that phase of activity would occur. The following table depicts how the emissions estimates are organized.

Table 1. Phases of Construction Activity used to Calculate Emissions Estimates

Phase of Activity		Year Emissions Would Occur for this Activity
RCY Elements	**MMDF and Demolition Elements**	
Railyard site prep	MMDF site prep, MMDF foundation construction	2025
Railroad construction	MMDF vertical construction; Demolition of buildings 1456 and 2365	2026
Access Building construction	MMDF exterior/grounds finish work and paving the MMDF apron and driveway	2027

7.1 Off-Road Heavy Duty Construction Equipment Emissions

Off-road heavy duty construction equipment would be used in earth work, which involves tree clearing, earth moving, grading, and compacting the land at each site for development; to construct new building foundations and railroad tracks; to demolish existing buildings; and to construct other infrastructure improvements. The off-road heavy duty construction equipment are diesel-fueled and include graders, excavators, dozers, cranes, and other mobile equipment not designed for on-road use. Emission factors specific to Franklin County, PA were obtained from USEPA MOVES for each specific type of equipment (USEPA, 2023).

Attachment 1 details the anticipated use of off-road diesel-fuel heavy duty equipment, time in use, and the emissions estimate for each phase of construction activity. The following equation was used to calculate the off-road heavy duty construction equipment emissions in tons per year.

$$\mathbf{TPY_p = (T_h \times E_{fp} \times N \times D)/C}$$

Where: TPY_p = Tons Per Year of Pollutant
T_h = Time (hours per day of operation)
E_{fp} = Emissions Factor for the given pollutant, pounds per hour (*SCAQMD, 2022*)
N = Number of pieces of equipment
D = Days of use of equipment
C = Conversion from lbs to tons

A sample calculation for CO emitted from the use of one excavator is depicted as follows:

$$TPY_{CO} = (T_h \times E_{CO} \times N \times D)/C$$
$$TPY_{CO} = (8 \times 0.5086 \times 1 \times 30)/2000$$
$$TPY_{CO} = (122.06)/2000$$
$$TPY_{CO} = 0.061$$

7.2 On-Road Haul Truck Emissions

On-road heavy duty diesel-fueled vehicles (HDDV) are used to haul construction supplies and material to the MMDF and RCY construction sites, as well as transport demolition debris from LEAD to an Army-approved construction and debris landfill. The HDDVs weighing 8,501 pounds (lbs) or greater and examples include multi-axle tractor trailers and dump trailers, dump trucks, concrete mixing trucks, and multi-axle flat-bed and box delivery trucks designed for traveling on local roads and highways. The emission estimates assume that supplies needed to construct the Proposed Action are located within 60 miles of LEAD in the greater Philadelphia area.

Emission factors specific to PA for year 2025 were used for HDDVs because AFCEC has not published factors for years 2026 and 2027 (AFCEC, 2021). However, emissions factors typically decrease over time as new and more efficient HDDVs come to market. As a result, the emission factors for year 2025 result in a slightly conservative (higher) estimate of HDDV emissions. Additionally, AFCEC does not provide emission factors for methane; the methane emission factor was obtained from the California Air Resources Board's EMFAC2007 (version 2.3)

Burden Model for heavy duty diesel-fueled trucks (33,001 to 60,000 pounds) for scenario year 2025 to be consistent with the AFCEC HDDV year 2025 factors (CARB, 2007).

Attachment 1 details the anticipated use of HDDVs, miles traveled, and the emissions estimate for each phase of construction activity. The following equation was used to calculate HDDV emissions in tons per year.

$$\mathbf{TPY_P = (ME \times EF_P)/C}$$

Where: TPY_P = Tons Per Year of Pollutant

ME = Miles per vehicle: number of truck trips (703) x miles per round trip (120)

EF_P = Emission Factor for the given pollutant (lbs/mile)

C = Conversion from lbs to tons

A sample calculation for CO emissions for HDDVs is provided below:

$$TPY_{CO} = (ME \times EF_{CO})/C$$

$$TPY_{CO} = (84{,}362 \times 0.0001587)/2{,}000$$

$$TPY_{CO} = 13.39/2{,}000$$

$$TPY_{CO} = 0.007$$

7.3 Surface Disturbance (Fugitive Dust)

The MMDF site is approximately 7 acres and the RCY site is approximately 14 acres. Preparing these sites for further development requires removing surface vegetation and other ground cover. This disturbance could cause fugitive dust (particulate matter) to be released into the air. Particulates are a primary air pollutant of concern from construction projects that disturb ground coverings. Particulate emissions can be estimated from the amount of ground surface exposed, the type and intensity of activity, soil type and conditions, wind speed, and dust control measures used.

Total suspended particulates were calculated using the emission factor for heavy construction activity operations from *Compilation of Air Pollutant Emission Factors, AP-42, 5th edition, Vol. I* (USEPA, 1995). This equation assumes the quantity of dust emissions from construction is proportional to the area of land being worked on and the type of construction activity.

Attachment 1 details the particulate matter estimates for each site and using the following equation:

$$\mathbf{E_{10} = (acres \times EF \times CF \times PM_{10}) / C}$$

$$\mathbf{E_{2.5} = E_{10} \times PM_{2.5}}$$

$$\mathbf{E_{total} = E_{10} + E_{2.5}}$$

Where: E_{total} = Tons per year of total Particulate Matter

E_{10} = *Tons per year of* PM_{10}

$E_{2.5}$ = *Tons per year of* $PM_{2.5}$

Area to be disturbed = 0.5 acre (as an example)

EF = 80 lbs TSP/acre

TSP = Total Suspended Particulates

CF = Capture Fraction

CF = 0.5

PM = Particulate matter; specific for PM_{10} and $PM_{2.5}$

PM_{10} = 0.45 lbs/TSP

$PM_{2.5}$ = 0.15 lbs/PM_{10} lbs

C = Conversion from lbs to tons

7.4 Construction Worker Vehicle Emissions

Emissions were estimated for light duty (less than 8,500 pounds) gasoline-fueled vehicles (LDGVs) that construction workers would drive to travel to and from LEAD during each phase of activity. Emission factors used are specific to PA for year 2025 because AFCEC has not published factors for years 2026 and 2027 (AFCEC, 2021). AFCEC does not provide emission factors for methane; methane emission factors for LDGVs were obtained from the California Air Resources Board's EMFAC2007 (version 2.3) Burden Model for gasoline-fueled passenger vehicles for scenario year 2025 to be consistent with the AFCEC HDDV year 2025 factors (CARB, 2007).

For construction workers' vehicle emissions, it was assumed workers would travel approximately 50 miles round trip per day from their place of lodging to and from LEAD. Anticipating the probability of some workers driving together, a commuting factor of 0.6 (shared vehicles) was included. Additionally, each phase of construction activity would require different numbers of workers, and these differences are accounted for in the LDGV emission estimates.

Attachment 1 details the anticipated use of LDGVs, miles traveled, and the emissions estimate for each phase of construction activity. The following equation was used to calculate LDGV emissions in tons per year.

$$\mathbf{TPY_P = (ME \times EF_P \times W)/C}$$

Where: TPY_P = Tons Per Year of Pollutant

ME = Miles per Vehicle: miles (50) x commuting factor per trip (0.6) x days (276)

W = Number of Workers (50)

EF_P = Emission Factor for the given pollutant (lbs/mile)

C = Conversion from lbs to tons

A sample calculation for CO emissions from construction workers' LDGVs is provided below:

$$TPY_{CO} = (ME \times EF_{CO} \times W)/C$$

$$TPY_{CO} = (50 \times 0.6 \times 276) \times (0.000216) / 2{,}000$$

$$TPY_{CO} = 1.788/2{,}000$$

$$TPY_{CO} = 0.00089$$

7.5 Emissions from Architectural Coatings

Architectural coatings (e.g. paint) would generate emissions because these coatings often contain VOCs, which are released to the atmosphere when the paint is applied. The emissions generated from coatings is based on the area to be coated. For interior office space, the area to be painted was assumed to be approximately twice the heated interior area of the proposed MMDF and RCY Access Control Building. The emission factor for coatings is based on an average of 1.25 lbs of VOCs emitted per gallon of paint, assuming a dry film thickness of three millimeters (mm). The Ozone Transport Commission, a multistate organization created under the Clean Air Act, also has a model rule that limits flat coatings to 100 g/l (0.83 lbs/gallon) and non-flat coatings to 150 g/l (1.25 lbs/gallon). This model rule has been adopted by the District of Columbia and Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, Pennsylvania, Rhode Island, Vermont, and Virginia. Any paint sold in these places must be OTC-compliant (OTC, 2016). However, under 25 Pa. Code § 130.60 for exterior paints, which would also be used under the Proposed Action, a VOC concentration of approximately 250 grams/l (2.09 lbs/gallon) may also be used. As a result, the 2.09 lbs/gallon emission factor for VOC from paint was used as a conservative (higher) estimate. Based on paint manufacturer data, one gallon of interior paint can coat approximately 400 square feet (Sherwin-Williams, 2023).

Attachment 1 details the anticipated VOC emissions from architectural coatings for each phase of construction activity, using the following equation (*the example uses typical, non-project specific data*).

$$\mathbf{E = ([F/H] \times G)/2{,}000}$$

Where: E = Emissions of VOCs from architectural coatings

F = Pounds of VOC emissions per gallon

F =1.25 lbs/gallon

G = Total area to be coated (floor area x 2)

G = 120,987 x 2 = 241,947 square feet

H = Paint coverage

H = 400 square feet/gallon

C = Conversion from lbs to tons

The VOC emissions, in tons per year (tpy). from architectural coating are:

$$E = ([F/H] \times G)/2000$$
$$E = ([1.25/400] \times 241{,}947)/2{,}000$$
$$E = 756/2{,}000$$
$$E = 0.378 \text{ tons/year}$$

7.6 Asphalt Paving

Asphalt paving would result in emissions from VOCs that off-gas during the curing process for hot-mix asphalt, which is the type of asphalt commonly used for roads and parking lots in the northeast, including at LEAD. Emissions from the paving equipment are already accounted for in the off-road heavy-duty equipment estimates. The USEPA emission factor for hot-mix asphalt

was used to estimate the VOC emissions for the Proposed Action (USEPA, 2020). Briefly, the hot-mix asphalt emission factor is based on quantitative data where liquid asphalt is approximately 5% and aggregate is 95% of the mass of hot-mix asphalt, and where the emission factor accounts for both VOC emissions during application of the asphalt and the subsequent curing process.

Attachment 1 details the anticipated VOC emissions from asphalt paving, using the following equation (*the example uses typical, non-project specific data*).

$$\mathbf{TPY_{VOC} = (EF_A \times A_T)/C_1}$$

Where:

TPY_{VOC} = tons per year of VOCs emitted
EF_A = Emission factor in lbs VOC/ton of hot-mix asphalt = 10.05 lbs VOC/ton; where liquid asphalt is approximately 5% and aggregate is 95% of the mass of hot-mix asphalt.
A_T = Tons of hot-mix asphalt, where there are typically 2.05 tons per cubic yard of hot-mix asphalt. Cubic yardage is project specific.
C1 = Conversion from lbs to tpy (2,000)

VOC emissions from asphalt paving:

$$TPY_{VOC} = (EF_A \times A_T)/C_1$$

$$TPY_{VOC} = (10.05 \text{ lbs} \times 580 \text{ tons})/2{,}000$$

$$TPY_{VOC} = 2.92 \text{ tons VOC/year}$$

8 Total Emissions and Conclusion

Table 2 presents the estimated annual emissions for each year of each phase of construction activity (RCY represents the Railyard activities and MMDF represents both the MMDF and demolition activities). These data demonstrate that the Proposed Action emissions in any given year, or cumulatively, would be below the Clean Air Act General Conformity *de minimis* threshold values and would not result in an exceedance of the NAAQS. Therefore, a full General Conformity Determination is not required.

Table 2. Proposed Action Total Construction Emissions

Year	Project Element	Criteria Pollutants						Greenhouse Gases		
		CO	VOC	NO_X	SO_2	PM_{10}	$PM_{2.5}$	CO_2e	NH_4	CH_4
		Emissions (tons)								
2025	Railyard	1.92	0.34	7.35	0.02	0.48	0.36	7,233	0.00	0.03
	MMDF	1.59	0.27	5.80	0.02	0.34	0.28	5,430	0.00	0.03
TOTAL YEAR 2025		**3.52**	**0.61**	**13.16**	**0.03**	**0.82**	**0.64**	**12,663**	**0.00**	**0.06**
2026	Railyard	1.33	0.18	2.84	0.00	0.20	0.20	1,432	0.01	0.00
	MMDF	3.80	1.08	13.53	0.03	0.60	0.58	9,528	0.00	0.06
TOTAL YEAR 2026		**5.12**	**1.26**	**16.37**	**0.03**	**0.80**	**0.78**	**10,960**	**0.01**	**0.06**
2027	Railyard	0.29	0.04	0.63	0.00	0.04	0.04	355	0.00	0.00
	MMDF	1.66	3.21	3.24	0.00	0.25	0.24	1,308	0.00	0.02
TOTAL YEAR 2027		**1.95**	**3.25**	**3.88**	**0.00**	**0.30**	**0.29**	**1,663**	**0.00**	**0.02**
General Conformity *De Minimis* Thresholds[(1)] (40 CFR 93.153(b)(1))		100	100	100	100	100	100	Not established	Not established	Not established

9 References

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Attachment 1

Emissions Estimates Input Assumptions and Supporting Calculations

TOTAL ANNUAL EMISSIONS FOR CONSTRUCTION OF THE PROPOSED ACTION										
Year	Project Element	Criteria Pollutants						Greenhouse Gases		
		CO	VOC	NO_X	SO_2	PM_{10}	$PM_{2.5}$	CO_2e	NH_4	CH_4
		Emissions (tons)								
2025	Railyard	1.92	0.34	7.35	0.02	0.48	0.36	7,233	0.00	0.03
	MMDF	1.59	0.27	5.80	0.02	0.34	0.28	5,430	0.00	0.03
TOTAL YEAR 2025		**3.52**	**0.61**	**13.16**	**0.03**	**0.82**	**0.64**	**12,663**	**0.00**	**0.06**
2026	Railyard	1.33	0.18	2.84	0.00	0.20	0.20	1,432	0.01	0.00
	MMDF	3.80	1.08	13.53	0.03	0.60	0.58	9,528	0.00	0.06
TOTAL YEAR 2026		**5.12**	**1.26**	**16.37**	**0.03**	**0.80**	**0.78**	**10,960**	**0.01**	**0.06**
2027	Railyard	0.29	0.04	0.63	0.00	0.04	0.04	355	0.00	0.00
	MMDF	1.66	3.21	3.24	0.00	0.25	0.24	1,308	0.00	0.02
TOTAL YEAR 2027		**1.95**	**3.25**	**3.88**	**0.00**	**0.30**	**0.29**	**1,663**	**0.00**	**0.02**

INPUT ASSUMPTIONS TO ESTIMATE PROPOSED ACTION EMISSIONS - MMDF

Value Key:

Enter value
Calculated value
Calculated value used in subsequent calculations
Automatically populated from entered values

TOPIC	VALUES		NOTES
Construction Start Date	21-Jan-25		From Lauren Joyal Email (1391 has March 2025)
Construction End Date	20-Aug-27		From Lauren Joyal Email (1391 has September 2027))
Proposed parcel	7	acres	From DD1391
MMDF area new construction			
MMDF building	54,268	square feet	From DD1391
Vehicle storage building	536	square feet	From DD1391
TOTAL MMDF simplified building area for anaysis	54,268	square feet	
Stories	1	stories, 20 feet	From DD1391
Footprint	54,268	square feet	
2026 - Site preparation includes site clearing, grading, foundation work			
MMDF Concrete			
Concrete Pavement, 6in, Unreinforced	13,019	Square yards	From DD1391
Depth	0.2	yard	From DD1391
Cubic Yards for roads	2,170	cubic yards	
Concrete Pavement, 6in, hydrant pads	20	SY	From DD1391
Depth	0.2	yard	From DD1391
Cubic Yards for roads	3.3	cubic yards	
Slab			
Thickness of slab	1	foot	standard assumption
Area of slab	54,268	square feet	
Volume of slab	37,988	cubic feet	
Convert to cubic yards	1,407	cubic yards	
Foundation curtain			
Building spec foundations, rased 4 feet	998	feet	From DD1391
Foundation depth	4	feet, 4 below grade	From DD1391
Curtain width	2	foot	standard assumption
Volume of foundation curtain	5,986	cubic feet	
Convert to cubic yards	222	cubic yards	
Doc Apron			
Area of slab for MMDF	2,236	square yards	From DD1391
Area of slab for Vehicle Storage Building	111	square yards	From DD1391
			https://www.fordasphalt.com/concrete-thickness/#:~:text=Concrete%20loading%20docks%20and%20dumpster,of%20the%20loads%20they%20bear.
Thickness of slab	0.33	yards	
Volume of apron concrete	775	cubic yards	
Cubic yards held in a concrete truck	8	cubic yards	https://gambrick.com/how-many-yards-of-concrete-are-in-a-truck/
Total volume of concrete	4,576	cubic yards	Sum of footings, slab, and foundation
Total concrete deliveries	572	concrete trucks delivere	Assumes 8 cubic yards per concrete mixer
2026 - Deliver materials to construct building envelope			
Volume of building supplies based on buiding size			
Roof	54,268	square feet	
Thickness	0.5	foot	Assumption
Roof material	27,134.0	cubic feet	
Walls	932	linear feet of walls	
Wall height	16	feet	Assumption
Wall thickness	0.5	foot	Assumption
Wall material volume	7,455	cubic feet	
Interior materials (40 of building area)	21,707	cubic feet	
Total material volume	56,296	cubic feet	
HDDV deliveries, assuming 40 CY per load, plus			
50% factor	44	HDDV trucks	Assume HDDV truck can haul 1,920 cubic feet (30 feet x 8 feet x 8 feet)
2026 - Deliver materials to construct supporting infrastructure			
Other Infrastrcture Materials			
Oil/water Separator and support	2	HDDV delivery	From DD1391
Piping, utility lines	10	HDDV delivery	From DD1391
Precast curbs	10	HDDV delivery	From DD1391
External finishes	10	HDDV delivery	From DD1391
Office equipment and supplies	10	HDDV delivery	From DD1391
TOTAL ADDITIONAL HDDV delivery trucks	42	HDDV other delivery trucks	
Architectural Coatings			
Building area to be painted	108,536	square feet	assumed to be approximately twice the heated area
Pavement markings, 100,000 LF x 4 inches wide	33,333	square feet	From DD1391
Paint coverage	400	square feet per gallon	standard assumption
Gallons of paint	355	gallons	
			from 25 Pa. Code § 130.603 (https://casetext.com/regulation/pennsylvania-code-rules-and-regulations/title-25-environmental-protection/part-i-department-of-environmental-protection/subpart-c-protection-of-natural-resources/article-iii-air-resources/chapter-130-standards-for-products/subchapter-c-architectural-and-industrial-maintenance-coatings/section-130603-standards)
Grams of VOC per liter, average	250.00	grams per liter	
Pounds of VOC per gallon	2.09	pounds per gallons	dry film thickness was assumed to be three millimeters (mm)
2027 - Deliver materials pave MMDF area			
Paving			
Road Pavement, asphalt	3,397	square yards	From DD1391
Depth, 3 inches	0.08	yards	From DD1391
Volume of asphalt	283	cubic yards	
			https://constructionmentor.net/hauling-and-placing-asphalt/#:~:text=The%20amount%20of%20asphalt%20a,8.5%2D9.5%20Cubic%20Yards).
How much asphalt in quad axle truck	9	cubic yards	
Number of HDDV asphalt deliveries	31	HDDV asphalt trucks delivered	
Bank run gravel base	3,397	square yards	From DD1391
Depth, 6 inches	0.17	yards	From DD1391
Volume of bank run gravel	566	cubic yards	
How much gravel in dump trailer	20	cubic yards	standard assumption
Number of HDDV gravel deliveries	28	HDDV bank run gravel trailer trucks delivered	
Total number of HDDV trucks to deliver aggregat	60	HDDV trucks	

INPUT ASSUMPTIONS TO ESTIMATE PROPOSED ACTION EMISSIONS - DEMO

Value Key:

Enter value
Calculated value
Calculated value used in subsequent calculations
Automatically populated from entered values

TOPIC	VALUES		NOTES
Demo, Year 2026			
Building 1456	14,000	SF	From DD1391
Width	45	LF	From aerial
Length	345	LF	From aerial
Height	12	feet	standard assumption
Thickness of walls, roof	0.5	feet	standard assumption
Roof area, with pitch	15,400	SF	
Interior materials	4,620		
Total cubic feet of debris	17,000	cubic feet	
Total cubic yards of debris	630	cubic yards	
Building 2365	6,760	SF	From DD1391
Width	35	LF	From aerial
Length	195	LF	From aerial
Height	12	feet	standard assumption
Thickness of walls, roof	0.2	feet	standard assumption
Roof area, corrigated	7,436	SF	
Total cubic feet of debris	2,591	cubic feet	
Total cubic yards of debris	96	cubic yards	
TOTAL VOLUME OF DEMOLITION DEBRIS	**726**	**cubic yards**	
Size of dumpster	40	cubic yards	
Void volume of debris in dumpste	30%		standard assumption
Volume of debris per dumpster	28	cubic yards	
Number of dumpsters needed	25.91	dumpsters	
Plus 50% overage	39		CY dumpsters needed, transported by HDDV trucks

Architectural Coatings VOC Emissions - Construction - MMDF

Account for VOC emissions from architectural coatings (paints). The emission factor is based on 1.247 lbs of VOCs emitted per gallon of paint, assuming dry film thickness of three millimeters (mm). (The Ozone Transport Commission, a multistate organization created under the Clean Air Act, also has a model rule that limits flat coatings to 100 g/l (0.83 lbs/gallon) and non-flat coatings to 150 g/l (1.25 lbs/gallon). It has been adopted by the District of Columbia and Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, Pennsylvania, Rhode Island, Vermont and Virginia. Any paint sold in these places must be OTC-compliant.)

Equation: $\mathbf{TPY_{VOC} = ((Ac/Pc)*(EF_A))/C1}$

Where:

TPY_{VOC} = tons per year of VOCs emitted
EF_A = Emission factor in lbs VOC/gallon
A_c = Area to be coated
P_c = square foot area of coverage per gallon of paint
C1 = Conversion from lbs to tpy (2,000)

For this project:			Notes:
EF_A=			From 25 Pa. Code § 130.603, Subchapter C - ARCHITECTURAL AND INDUSTRIAL MAINTENANCE COATINGS
	2.09	lbs VOC/gallon	
A_c=	141,869	square feet	Interior and exterior finishes
P_c=	400	square feet per gallon	Sherwin-Williams.com
C1=	2000	conversion factor for lbs to tons	

Year: 2026 TPYvoc= 0.3701 tons

On-Road Heavy Duty Diesel Truck Travel Inputs - MMDF

YEAR	Activity	Function	Number of HDDV deliveries	Units:
2025	Site Prep	Prep MMDF site, foundation	572	trucks
2026	Delivery MMDF building materials	Deliver building materials	44	trucks
2026	Delivery MMDF interior and infrastructure	Deliver building and infrastructure materials	42	trucks
2026	Demo two buildings	Transport demo debris	39	trucks
2027	MMDF paving	Aggregate material delivery	60	trucks
	TOTAL HDDV Deliveries		757	trucks
	Roundtrip miles (from supplier to site and back) (assumes equipment, aggregate, and materials are available within 60 miles of LEAD)		120	miles
	Total miles traveled for On-Road HDDV		**90,798**	**miles**

On-Road Heavy Duty Diesel Truck Emissions - MMDF

YEAR 2025: On-Road Heavy Duty Diesel Truck Travel Inputs			
Activity	**Function**	**Number of HDDV deliveries**	**Units:**
Site Prep	Prep MMDF site, foundation	572	trucks
TOTAL HDDV Deliveries		572	trucks
Roundtrip miles (from supplier to site and back) (assumes equipment, aggregate, and materials are available within 60 miles of LEAD)		120	miles
Total miles traveled for On-Road HDDV		**68,645**	**miles**

YEAR 2025 - Emission Factors for Heavy Duty Diesel Vehicles (8,501+ lbs), Specific to Pennsylvania

Emissions factors(1,2) multiplied by total HDDV miles: 68645 miles

Criteria Pollutant (grams/miles):

CO	VOC	NO_X	SO_2	PM_{10}	$PM_{2.5}$	CO_2e	NH_4	CH_4 (2)
0.1200000	0.0200000	0.5120000	0.0028100	0.0117000	0.0108000	334.5310000	0.0055300	0.0170770
Convert to pounds per mile								
0.0002646	0.0000441	0.0011287	0.0000062	0.0000258	0.0000238	0.7375022	0.0000122	0.0000363
Emissions, Total Pounds (2025)								
18.16	3.03	77.48	0.43	1.77	1.63	50625.84	0.84	2.49
EMISSIONS, TONS (2025)								
0.009	*0.0015*	*0.039*	*0.00021*	*0.0009*	*0.0008*	*25.313*	*0.0004*	*0.0012*

YEAR 2026: On-Road Heavy Duty Diesel Truck Travel Inputs			
Activity	**Function**	**Number of HDDV deliveries**	**Units:**
Delivery MMDF building materials	Deliver building materials	44	trucks
Construct MMDF	Vertical construction	42	trucks
Demo two buildings	Transport demo debris	39	trucks
TOTAL HDDV Deliveries		125	trucks
Roundtrip miles (from supplier to site and back) (assumes equipment, aggregate, and materials are available within 60 miles of LEAD)		120	miles
Total miles traveled for On-Road HDDV		**14,982**	**miles**

YEAR 2026 - Emission Factors for Heavy Duty Diesel Vehicles (8,501+ lbs), Specific to Pennsylvania

Emissions factors(1,2) multiplied by total HDDV miles: 14982 miles

Criteria Pollutant (grams/miles):

CO	VOC	NO_X	SO_2	PM_{10}	$PM_{2.5}$	CO_2e	NH_4	CH_4 (2)
0.1200000	0.0200000	0.5120000	0.0028100	0.0117000	0.0108000	334.5310000	0.0055300	0.0170770
Convert to pounds per mile								
0.0002646	0.0000441	0.0011287	0.0000062	0.0000258	0.0000238	0.7375022	0.0000122	0.0000363
Emissions, Total Pounds (2026)								
3.96	0.66	16.91	0.09	0.39	0.36	11049.26	0.18	0.54
EMISSIONS, TONS (2026)								
0.002	*0.0003*	*0.008*	*0.00005*	*0.0002*	*0.0002*	*5.525*	*0.0001*	*0.0003*

YEAR 2027: On-Road Heavy Duty Diesel Truck Travel Inputs			
Activity	**Function**	**Number of HDDV deliveries**	**Units:**
MMDF exterior finish work and paving	Aggregate and other material deliveries	60	trucks
TOTAL HDDV Deliveries		60	trucks
Roundtrip miles (from supplier to site and back) (assumes equipment, aggregate, and materials are available within 60 miles of LEAD)		120	miles
Total miles traveled for On-Road HDDV		**7,171**	**miles**

YEAR 2027 - Emission Factors for Heavy Duty Diesel Vehicles (8,501+ lbs), Specific to Pennsylvania

Emissions factors(1,2) multiplied by total HDDV miles: 7171 miles

Criteria Pollutant (grams/miles):

CO	VOC	NO_X	SO_2	PM_{10}	$PM_{2.5}$	CO_2e	NH_4	CH_4 (2)
0.1200000	0.0200000	0.5120000	0.0028100	0.0117000	0.0108000	334.5310000	0.0055300	0.0170770
Convert to pounds per mile								
0.0002646	0.0000441	0.0011287	0.0000062	0.0000258	0.0000238	0.7375022	0.0000122	0.0000363
Emissions, Total Pounds (2027)								
1.90	0.32	8.09	0.04	0.18	0.17	5288.63	0.09	0.26
EMISSIONS, TONS (2027)								
0.001	*0.0002*	*0.004*	*0.00002*	*0.0001*	*0.0001*	*2.644*	*0.0000*	*0.0001*

Emissions = EF x TL

where TL = trip length (miles/day) and EF = emission factor (pounds per mile)

Notes:

(1) - HDDV Emissions factors from US Air Force 2021 Mobile Guide, Pennsylvania On-Road Vehicle Emission Factors – 2025 (most recent year available)

(2) - Methane emissions factor from California Air Resources Board's EMFAC2007 (version 2.3) Burden Model, for HHDT trucks (33,001 to 60,000 pounds) for scenario year 2025.

Off-Road Heavy Duty Construction Equipment Emissions - MMDF

				Emissions in grams per operating day							
Year	Activity	Activity	Equipment	CO	VOC	NO_x	SO_2	PM_{10}	$PM_{2.5}$	CO_2	CH_4
2025	Site Preparation	Bulldozer for clearing and grading the site	Crawler Tractor/Dozers	3531	590	14023	31	621	602	11406772	48
2025	Tree cutting	Excavator with tree cutting attachment	Excavators	1824	386	8313	31	364	353	11456933	31
2025	Cut and fill	Excavator for digging and moving earth	Excavators	1824	386	8313	31	364	353	11456933	31
2025	Grading	Loaders for moving cut and fill	Rubber tire loaders	5986	958	19689	35	1061	1029	12467448	78
2025	Grading	Smaller loaders to support grading	Dumpers/Tenders	55	12	78	0.0	8	8	16019	1
2025	Grading	Grader for leveling the ground	Graders	416	85	1347	8	91	89	2850532	6
2025	Compaction	Rollers for compacting the ground	Rollers	1337	224	4931	8	224	217	2825962	22

Frequency[1]	
Number of units	Days in use
1	90
1	15
2	90
1	90
1	90
1	90
1	90

Emissions (grams)							
CO	VOC	NO_x	SO_2	PM_{10}	$PM_{2.5}$	CO_2	CH_4
317,790.00	53,100.00	1,262,070.00	2,790.00	55,890.00	54,180.00	1,026,609,480.00	4,320.00
27,360.00	5,790.00	124,695.00	465.00	5,460.00	5,295.00	171,853,995.00	465.00
328,320.00	69,480.00	1,496,340.00	5,580.00	65,520.00	63,540.00	2,062,247,940.00	5,580.00
538,740.00	86,220.00	1,772,010.00	3,150.00	95,490.00	92,610.00	1,122,070,320.00	7,020.00
4,950.00	1,080.00	7,020.00	-	720.00	720.00	1,441,710.00	90.00
37,440.00	7,650.00	121,230.00	720.00	8,190.00	8,010.00	256,547,880.00	540.00
120,330.00	20,160.00	443,790.00	720.00	20,160.00	19,530.00	254,336,580.00	1,980.00
Emissions, pounds (2025)							
3,031.15	*536.77*	*11,523.71*	*29.60*	*554.30*	*537.67*	*10,791,684.09*	*44.08*
EMISSIONS, TONS (2025)							
1.52	**0.27**	**5.76**	**0.01**	**0.28**	**0.27**	**5,395.84**	**0.022**

Year	Activity	Activity	Equipment	CO	VOC	NO_x	SO_2	PM_{10}	$PM_{2.5}$	CO_2	CH_4
2026	MMDF construction	Building construction	Other Construction Equipment	1073	142	2337	3	168	163	1174246	11
2026	MMDF construction	Building construction	Cement and Mortar Mixers	88	21	209	0	13	12	44894	1
2026	MMDF construction	Building construction	Forklifts	1018	242	12758	19	153	148	7039502	34
2026	MMDF construction	Building construction	Aerial Lifts	1579	340	2415	1	222	216	486767	14
2026	MMDF construction	Building construction	Sweepers/Scrubbers	636	139	4082	8	105	102	3074331	15
2026	MMDF construction	Building construction	Other General Industrial Equipr	998	195	4403	9	188	183	3120742	18
2026	MMDF construction	Building construction	Plate Compactors	111	35	208	0	11	11	30266	3
2026	MMDF construction	Building construction	Tampers/Rammers	8	3	13	0	1	1	1834	0
2026	MMDF construction	Building construction	Cranes	732	156	2757	7	137	133	2610809	13
2026	MMDF construction	Building construction	Excavators	1588	355	7781	30	320	310	11443021	28
2026	MMDF construction	Building construction	Trenchers	977	161	4255	4	135	131	1339532	18
2026	Building Demo	Demo	Excavators	1588	355	7781	30	320	310	11443021	28
2026	Building Demo	Demo	Skid Steer Loaders	15604	2792	22979	16	2395	2323	5192540	134
2026	Building Demo	Demo	Rubber Tire Loaders	4876	802	17613	34	877	850	12452616	66
2026	Building Demo	Demo	Sweepers/Scrubbers	636	139	4082	8	105	102	3074331	15
2026	Building Demo	Demo	Concrete/Industrial Saws	79	14	330	0	10	10	94761	2
2026	Building Demo	Demo	Other Material Handling Equipr	236	59	424	0	40	39	120395	3

Number of units	Days in use
1	220
1	220
1	220
1	220
1	220
1	220
1	220
1	220
1	220
1	220
1	220
1	60
1	60
1	60
1	60
1	60
1	60

CO	VOC	NO_x	SO_2	PM_{10}	$PM_{2.5}$	CO_2	CH_4
236,060.00	31,240.00	514,140.00	660.00	36,960.00	35,860.00	258,334,120.00	2,420.00
19,360.00	4,620.00	45,980.00	-	2,860.00	2,640.00	9,876,680.00	220.00
223,960.00	53,240.00	2,806,760.00	4,180.00	33,660.00	32,560.00	1,548,690,440.00	7,480.00
347,380.00	74,800.00	531,300.00	220.00	48,840.00	47,520.00	107,088,740.00	3,080.00
139,920.00	30,580.00	898,040.00	1,760.00	23,100.00	22,440.00	676,352,820.00	3,300.00
219,560.00	42,900.00	968,660.00	1,980.00	41,360.00	40,260.00	686,563,240.00	3,960.00
24,420.00	7,700.00	45,760.00	-	2,420.00	2,420.00	6,658,520.00	660.00
1,760.00	660.00	2,860.00	-	220.00	220.00	403,480.00	-
161,040.00	34,320.00	606,540.00	1,540.00	30,140.00	29,260.00	574,377,980.00	2,860.00
349,360.00	78,100.00	1,711,820.00	6,600.00	70,400.00	68,200.00	2,517,464,620.00	6,160.00
214,940.00	35,420.00	936,100.00	880.00	29,700.00	28,820.00	294,697,040.00	3,960.00
95,280.00	21,300.00	466,860.00	1,800.00	19,200.00	18,600.00	686,581,260.00	1,680.00
936,240.00	167,520.00	1,378,740.00	960.00	143,700.00	139,380.00	311,552,400.00	8,040.00
292,560.00	48,120.00	1,056,780.00	2,040.00	52,620.00	51,000.00	747,156,960.00	3,960.00
38,160.00	8,340.00	244,920.00	480.00	6,300.00	6,120.00	184,459,860.00	900.00
4,740.00	840.00	19,800.00	-	600.00	600.00	5,685,660.00	120.00
14,160.00	3,540.00	25,440.00	-	2,400.00	2,340.00	7,223,700.00	180.00
Emissions, pounds (2026)							
7,316.80	*1,418.08*	*27,029.32*	*50.93*	*1,200.35*	*1,164.55*	*19,010,510.41*	*107.98*
EMISSIONS, TONS (2026)							
3.66	**0.71**	**13.51**	**0.03**	**0.60**	**0.58**	**9,505.26**	**0.05**

Year	Activity	Activity	Equipment	CO	VOC	NO_x	SO_2	PM_{10}	$PM_{2.5}$	CO_2	CH_4
2027	MMDF finish work, paving	Paving	paver	226	46	1319	3	40	39	1126388	5
2027	MMDF finish work, paving	Paving	Paving Equipment	94	19	313	0	15	15	169040	2
2027	MMDF finish work, paving	Paving	Rollers	956	183	4350	8	154	150	2819172	18
2027	MMDF finish work, paving	Paving	Surfacing Equipment	112	17	313	0	16	16	104475	1
2027	MMDF finish work, paving	Finish work	Skid Steer Loaders	14272	2504	22040	16	2166	2101	5187029	129
2027	MMDF finish work, paving	Finish work	Sweepers/Scrubbers	598	136	4070	8	97	94	3174717	14
2027	MMDF finish work, paving	Finish work	Other General Industrial Equipr	872	172	4019	9	164	159	3222704	15
2027	MMDF finish work, paving	Finish work	Other Material Handling Equipr	217	53	398	0	37	35	124346	2

Number of units	Days in use
1	30
1	30
1	30
1	30
1	90
1	90
1	90
1	90

CO	VOC	NO_x	SO_2	PM_{10}	$PM_{2.5}$	CO_2	CH_4
6,780.00	1,380.00	39,570.00	90.00	1,200.00	1,170.00	33,791,640.00	150.00
2,820.00	570.00	9,390.00	-	450.00	450.00	5,071,200.00	60.00
28,680.00	5,490.00	130,500.00	240.00	4,620.00	4,500.00	84,575,160.00	540.00
3,360.00	510.00	9,390.00	-	480.00	480.00	3,134,250.00	30.00
1,284,480.00	225,360.00	1,983,600.00	1,440.00	194,940.00	189,090.00	466,832,610.00	11,610.00
53,820.00	12,240.00	366,300.00	720.00	8,730.00	8,460.00	285,724,530.00	1,260.00
78,480.00	15,480.00	361,710.00	810.00	14,760.00	14,310.00	290,043,360.00	1,350.00
19,530.00	4,770.00	35,820.00	-	3,330.00	3,150.00	11,191,140.00	180.00
Emissions, pounds (2027)							
3,258.27	*585.98*	*6,473.28*	*7.28*	*503.77*	*488.56*	*2,602,213.16*	*33.47*
EMISSIONS, TONS (2027)							
1.63	**0.29**	**3.24**	**0.004**	**0.25**	**0.24**	**1,301.11**	**0.02**

Equation:

Tons per year (TPY_{Pj} = (EF_P x N x H x D)

Efp = emissions Factor for the given pollutant
N = Number of pieces of equipment
H = Number of hours equipment used per day
D = Days of use of equipment in a given year

NOTES:

Source: Emissions factors from US Environmental Protection Agency, MOVES 3.0.3.
Factors specific for Franklin County, Pennsylvania for individual years in 2025, 2026, and 2027.
(1) - Equipment type and frequency based on general assumptions for construction of typical commerical building.

Worker Miles Traveled Inputs - MMDF

Year	Activity	Number of Workers per Day for this Activity	Days Worked Per Month	Number of Months Worked per Year	Miles Driven per Vehicle, Round Trip	Commuting Factor	TOTAL MILES
2025	Site Prep - Prep MMDF site, foundation	30	23	12	50	0.6	248,400
2026	Delivery MMDF building materials - Deliver building materials	10	23	6	50	0.6	41,400
2026	Construct MMDF and supporting infrastrcture	50	23	12	50	0.6	414,000
2026	Demo two buildings - Transport demo debris	12	23	4	50	0.6	33,120
2027	MMDF finish work and paving	20	23	8	50	0.6	110,400
	SUM						**847,320**

On-Road Worker Passenger Vehicle Emissions - MMDF

Year: 2025		Emissions Factors[1,2]								
Criteria Pollutant:		CO	VOC	NO_x	SO_2	PM_{10}	$PM_{2.5}$	CO_2e	NH_4	CH_4[2]
Emission Factors for Gasoline-Fueled Light-Duty Trucks, grams/mile		0.255	0.003	0.015	0.000207	0.000297	0.000263	31.161	0.00225	0.0165153
Convert to pounds per mile		0.0005622	0.0000066	0.0000331	0.0000005	0.0000007	0.0000006	0.0686971	0.0000050	0.0000364
Activity	Miles	Emissions (pounds per activity)								
Site Prep - Prep MMDF site, foundation	248,400	139.6429	1.6429	8.2143	0.1134	0.1626	0.1440	17064.3571	1.2321	9.0441
		Total Emissions, pounds (2025)								
		139.643	*1.643*	*8.214*	*0.113*	*0.163*	*0.144*	*17064.357*	*1.232*	*9.044*
		TOTAL EMISSIONS, TONS (2025)								
		0.0698	**0.0008**	**0.0041**	**0.0001**	**0.0001**	**0.0001**	**8.5322**	**0.0006**	**0.0045**

Year: 2026		Emissions Factors[1,2]								
Criteria Pollutant:		CO	VOC	NO_x	SO_2	PM_{10}	$PM_{2.5}$	CO_2e	NH_4	CH_4[2]
Emission Factors for Gasoline-Fueled Light-Duty Vehicles (Trucks), grams/mile		0.255	0.003	0.015	0.00021	0.00030	0.00026	31.1610000	0.0022500	0.0165153
Convert to pounds per mile		0.0005622	0.0000066	0.0000331	0.0000005	0.0000007	0.0000006	0.0686971	0.0000050	0.0000364
Activity	Miles	Emissions (pounds per activity)								
Delivery MMDF building materials - Deliver building materials	41,400	23.2738	0.2738	1.3690	0.0189	0.0271	0.0240	2844.0595	0.2054	1.5073
Construct MMDF and supporting infrastrcture	414,000	232.7381	2.7381	13.6905	0.1889	0.2711	0.2400	28440.5952	2.0536	15.0735
Demo two buildings - Transport demo debris	33,120	18.6190	0.2190	1.0952	0.0151	0.0217	0.0192	2275.2476	0.1643	1.2059
		Total Emissions, pounds (2026)								
		274.631	*3.231*	*16.155*	*0.223*	*0.320*	*0.283*	*33559.902*	*2.423*	*17.787*
		TOTAL EMISSIONS, TONS (2026)								
		0.137	**0.002**	**0.008**	**0.000**	**0.000**	**0.000**	**16.780**	**0.001**	**0.009**

Year: 2027		Emissions Factors[1,2]								
Criteria Pollutant:		CO	VOC	NO_x	SO_2	PM_{10}	$PM_{2.5}$	CO_2e	NH_4	CH_4[2]
Emission Factors for Gasoline-Fueled Light-Duty Vehicles (Trucks), grams/mile		0.255	0.003	0.015	0.00021	0.00030	0.00026	31.1610000	0.0022500	0.0165153
Convert to pounds per mile		0.0005622	0.0000066	0.0000331	0.0000005	0.0000007	0.0000006	0.0686971	0.0000050	0.0000364
Activity	Miles	Emissions (pounds per activity)								
MMDF finish work and paving	110,400	62.0635	0.7302	3.6508	0.0504	0.0723	0.0640	7584.1587	0.5476	4.0196
		Total Emissions, pounds (2027)								
		62.063	*0.730*	*3.651*	*0.050*	*0.072*	*0.064*	*7584.159*	*0.548*	*4.020*
		TOTAL EMISSIONS, TONS (2027)								
		0.03103	**0.00037**	**0.00183**	**0.00003**	**0.00004**	**0.00003**	**3.79208**	**0.00027**	**0.00201**

Emissions (pounds per day) = TL x EF

where TL = trip length (miles/day), and EF = emission factor (pounds per mile)

All the emission factors account for the emissions from start, running and idling exhaust. In addition, the ROG emission factors include diurnal, hot soak, running and resting emissions, and the PM10 & PM2.5 emission factors include tire and brake wear.

(1) - HDDV Emissions factors from US Air Force 2021 Mobile Guide, Pennsylvania On-Road Vehicle Emission Factors – 2025, the most recent year available.

(2) - Methane emissions factor from California Air Resources Board's EMFAC2007 (version 2.3) Burden Model, for gasoline-fueled passenger trucks (<8,500 pounds) for scenario year 2025.

Fugitive Dust Emissions - MMDF

$E_{10} = (acres \times EF \times CF \times PM_{10}) / C$

$E_{2.5} = E10 \times PM_{2.5}$

$E_{total} = E_{10} + E_{2.5}$

Acres	EF	CF	PM10	PM2.5	C
7.4	80	0.5	0.45	0.15	2000

E_{10}	0.0666
$E_{2.5}$	0.0100
E_{total} (tons/year)	**0.077**

E = Tons per year of Particulate Matter (sum of E10 and E2.5)

Acres = Number of acres to be cleared

EF = 80 lb Total Suspended Particles/acre

TSP = Total Suspended Particulates

CF = Capture Fraction

CF = 0.5 (50% of emissions captured)

PM = Particulate matter; specific for PM_{10} and $PM_{2.5}$

PM_{10} = 0.45 lb/TSP

$PM_{2.5}$ = 0.15 lb/ PM_{10} lb

C = Conversion from lbs to tpy (2,000)

E10= PM10 Emissions

E2.5= PM2.5 Emissions

Paving Assumptions and Emissions - MMDF

	Item	Value	Unit		source
	New parking, area	3,397	square yards		From DD1391
	Depth of asphalt				
	asphalt wearing course	3	inches	0.08 yards	From DD1391
	TOTAL	**3**	**inches**	**0.08**	**yards**
	Volume of aggregate needed				
	Area	3,397	square yards		
	Depth	0.08	yards		
	Volume of asphalt needed	**283**	**cubic yards**		
	Tons per cubic yard of asphalt	**2.05**	tons per cubic yard		https://www.pavepro.com/asphalt-calculator/
	Total tons of asphalt needed	**580.32**	tons		
	VOC emissions per ton of asphalt	**10.05**	lb/ton	---->	1.) 2020 National Emissions Inventory Technical Support Document: Solvents – Consumer and Commercial: Asphalt Paving: https://www.epa.gov/system/files/documents/2023-03/NEI2020_TSD_Section31_AsphaltPaving.pdf
					...AND...
				---->	2.) 2020 NEI Supporting Data and Summaries: https://www.epa.gov/air-emissions-inventories/2020-nei-supporting-data-and-summaries; 2020 Nonpoint Wagon Wheel Supporting Data: https://www.epa.gov/system/files/documents/2023-
	Total VOC emissions from paving	**5,832.22**	pounds		
Year: 2027	**Convert to tons**	**2.92**	**tons VOC from paving**		

MMDF and DEMOLITION - TOTAL EMISSIONS FOR CONSTRUCTION OF THE PROPOSED ACTION

YEAR: 2025	Criteria Pollutants						Greenhouse Gases		
Activity	CO	VOC	NO_X	SO_2	PM_{10}	$PM_{2.5}$	CO_2e	NH_4	CH_4
	Emissions (tons)								
Site preparation, MMDF foundation (off-road equipment emissions)	1.516	0.268	5.762	0.015	0.277	0.269	5395.84	N/A	0.022
On-Road HDDV Emissions	0.009	0.002	0.039	0.000	0.001	0.001	25.31	0.000	0.001
Workers' Vehicle Emissions	0.070	0.001	0.004	0.000	0.000	0.000	8.53	0.001	0.005
Fugitive Dust	N/A	N/A	N/A	N/A	0.067	0.010	N/A	N/A	N/A
2025 - TOTAL PROJECT EMISSIONS (tons)	**1.59**	**0.27**	**5.80**	**0.02**	**0.34**	**0.28**	**5429.69**	**0.001**	**0.03**
General Conformity *De Minimis* Thresholds[1] (40 CFR 93.153(b)(1)) (typ)	100	100	100	100	100	100	Not established	Not established	Not established

YEAR: 2026	Criteria Pollutants						Greenhouse Gases		
Activity	CO	VOC	NO_X	SO_2	PM_{10}	$PM_{2.5}$	CO_2e	NH_4	CH_4
	Emissions (tons)								
MMDF vertical construction and demolition (off-road equipment emissions)	3.658	0.709	13.515	0.025	0.600	0.582	9505.26	N/A	0.054
On-Road HDDV Emissions	0.002	0.000	0.008	0.000	0.000	0.000	5.52	0.000	0.000
Workers' Vehicle Emissions	0.137	0.002	0.008	0.000	0.000	0.000	16.78	0.001	0.009
Architectural Coatings	N/A	0.370	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2026 - TOTAL PROJECT EMISSIONS (tons)	**3.80**	**1.08**	**13.53**	**0.03**	**0.60**	**0.58**	**9527.56**	**0.001**	**0.06**
General Conformity *De Minimis* Thresholds[1] (40 CFR 93.153(b)(1)) (typ)	100	100	100	100	100	100	Not established	Not established	Not established

YEAR: 2027	Criteria Pollutants						Greenhouse Gases		
Activity	CO	VOC	NO_X	SO_2	PM_{10}	$PM_{2.5}$	CO_2e	NH_4	CH_4
	Emissions (tons)								
MMDF finish work and paving (off-road equipment emissions)	1.629	3.209	3.237	0.004	0.252	0.244	1301.11	N/A	0.017
Workers' Vehicle Emissions	0.031	0.000	0.002	0.000	0.000	0.000	3.79	0.000	0.002
On-Road HDDV Emissions	0.001	0.000	0.004	0.000	0.000	0.000	2.64	0.000	0.000
2027 - TOTAL PROJECT EMISSIONS (tons)	**1.66**	**3.21**	**3.24**	**0.00**	**0.25**	**0.24**	**1307.54**	**0.000**	**0.02**
General Conformity *De Minimis* Thresholds[1] (40 CFR 93.153(b)(1)) (typ)	100	100	100	100	100	100	Not established	Not established	Not established

Notes:

1 - Franklin County, Pennsylvania is attainment for all Criteria Pollutants as of April 30, 2023.
See: https://www3.epa.gov/airquality/greenbook/anayo_pa.html
TPY = Tons per year

INPUT ASSUMPTIONS TO ESTIMATE PROPOSED ACTION EMISSIONS - RAILYARD

Value Key:

Enter value
Calculated value
Calculated value used in subsequent calculations
Automatically populated from entered values

TOPIC	VALUES		NOTES
Construction Start Date	21-Jan-25		From Lauren Joyal Email (1391 has March 2025)
Construction End Date	20-Aug-27		From Lauren Joyal Email (1391 has September 2027))
Proposed parcel	14	acres	From DD1391
RCY new construction			
Railroad tracks and ties	12,260	linear feet	From DD1391
Access Control Building	255	square feet	From DD1391
TOTAL RCY building size	255	square feet	
Stories	1	stories	From DD1391
Footprint	255	square feet	
2025 - Site preparation includes site clearing, excavation and preparation for construction			
Inputs include site of parcel to be cleared, off-road heavy construction equipment use, construction work travel			
Site preparation work is completed by end of 2025			
2026 - Railroad Construction			
Railroad Construction			
Packed gravel for railroads			
gravel depth	1	feet	
gravel area	26,740	square feet	
gravel volume	26,740	cubic feet	
convert to cubic yards	990	cubic yards	
number of gravel delivery trucks	50	HDDV truck deliveries	assuming 20 cubic yards per multi-axle dump trailer
Ties			standard assumptions
Number of ties per mile	2,640	ties	https://www.rta.org/assets/docs/comparitive%20crosstie%20unit%20value%20%20costs.pdf
Total miles of track	2	miles	From DD1391
Weight of a concrete tie	700	lbs	https://www.sciencedirect.com/topics/engineering/concrete-tie#:~:text=Concrete%20ties%20weight%20600%E2%80%93800,of%20slightly%20over%20200%20lb.
Total number of ties	5,280	ties	
Total weight of ties	3696000	pounds	
Weight a truck can carry	43500	lbs	
How many ties per truckload	62	ties	https://www.foxlumber.com/index.php/features/railroad-ties#:~:text=Used%20Railroad%20Ties&text=Available%20by%20the%20truckload%20(240%2D300%20pcs).
Number of trucks to deliver ties	42	HDDV truck deliveries	
Railroad rail			
Length of track	2	miles	From DD1391
Convert to feet, multiplied by two (two rails pe	21,120	feet	
Length of single rail	39	feet	Common Railroad Track Weight And Length | AGICO (railroadrails.com)
Total number of rails needed	542	rails	
Number of rails a truck can carry	15	rails per truck	Based on 60 kg per meter of rail; truck can carry up to 43,500 lbs cargo.
Total number of rail delivery trucks	36	HDDV truck deliveries	
2027 - Access Control Building			
Slab for Access Control Building			
Thickness of slab	1	foot	standard assumption
Area of slab	16	square feet	
Volume of slab	11	cubic feet	
Convert to cubic yards	0.41	cubic yards	
Cubic yards held in a concrete truck	8	cubic yards	https://gambrick.com/how-many-yards-of-concrete-are-in-a-truck/
Total volume of concrete	0.41	cubic yards	Sum of footings, slab, and foundation
Total concrete deliveries	1	HDDV truck deliveries	Assumes 8 cubic yards per concrete mixer
Other materials			
Stringers and other finishings	2	trucks	
Furniture and hardware deliveries	2	trucks	
Utilities	2	trucks	
Total (with 20% increase factor)	7	HDDV truck deliveries	
Interior Finishing			
Area to be painted	510	square feet	assumed to be approximately twice the heated area
Paint coverage	400	square feet per gallon	standard assumption
Gallons of paint	1.3	gallons	
Grams of VOC per liter, average	250.00	grams per liter	from 25 Pa. Code § 130.603 (https://casetext.com/regulation/pennsylvania-code-rules-and-regulations/title-25-environmental-protection/part-i-department-of-environmental-protection/subpart-c-protection-of-natural-resources/article-iii-air-resources/chapter-130-standards-for-products/subchapter-c-architectural-and-industrial-maintenance-coatings/section-130603-standards)
Pounds of VOC per gallon	2.09	pounds per gallons	dry film thickness was assumed to be three millimeters (mm)

Fugitive Dust Emissions - Railyard

$E_{10} = (acres \times EF \times CF \times PM_{10}) / C$

$E_{2.5} = E10 \times PM_{2.5}$

$E_{total} = E_{10} + E_{2.5}$

Acres	EF	CF	PM10	PM2.5	C
14.0	80	0.5	0.45	0.15	2000

E_{10}	0.12555
$E_{2.5}$	0.0188
E_{total} (tons/year)	**0.144**

E = Tons per year of Particulate Matter (sum of E10 and E2.5)

Acres = Number of acres to be cleared

EF = 80 lb Total Suspended Particles/acre

TSP = Total Suspended Particulates

CF = Capture Fraction

CF = 0.5 (50% of emissions captured)

PM = Particulate matter; specific for PM_{10} and $PM_{2.5}$

PM_{10} = 0.45 lb/TSP

$PM_{2.5}$ = 0.15 lb/ PM_{10} lb

C = Conversion from lbs to tpy (2,000)

E10= PM10 Emissions

E2.5= PM2.5 Emissions

On-Road Heavy Duty Diesel Truck Travel Inputs - Railyard

YEAR	Activity	Function	Number of HDDV deliveries	Units:
2026	Railroad Track Construction	Rail material delivery	128	trucks
2027	Access Control Building/Infrastructure	Building material delivery	8	trucks
	TOTAL HDDV Deliveries		8	trucks
	Roundtrip miles (from supplier to site and back) (assumes equipment, aggregate, and materials are available within 60 miles of LEAD)		120	miles
	Total miles traveled for On-Road HDDV		**984**	**miles**

On-Road Heavy Duty Diesel Truck Emissions - Railyard

YEAR 2026: On-Road Heavy Duty Diesel Truck Travel Inputs			
Activity	**Function**	**Number of HDDV deliveries**	**Units:**
Railroad Track Construction	Rail material delivery	128	trucks
TOTAL HDDV Deliveries		128	trucks
Roundtrip miles (from supplier to site and back) (assumes equipment, aggregate, and materials are available within 60 miles of LEAD)		120	miles
Total miles traveled for On-Road HDDV		**15,372**	**miles**

YEAR 2026 - Emission Factors for Heavy Duty Diesel Vehicles (8,501+ lbs), Specific to Pennsylvania

Emissions factors(1,2) multiplied by total HDDV miles: 15372 miles								
Criteria Pollutant (grams/miles):								
CO	**VOC**	**NO_X**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**	**CO_2e**	**NH_4**	**CH_4 (2)**
0.1200000	0.0200000	0.5120000	0.0028100	0.0117000	0.0108000	334.5310000	0.0055300	0.0170770
Convert to pounds per mile								
0.0002646	0.0000441	0.0011287	0.0000062	0.0000258	0.0000238	0.7375022	0.0000122	0.0000363
Emissions, Total Pounds (2026)								
4.07	0.68	17.35	0.10	0.40	0.37	11336.88	0.19	0.56
EMISSIONS, TONS (2026)								
0.002	*0.0003*	*0.009*	*0.00005*	*0.0002*	*0.0002*	*5.668*	*0.0001*	*0.0003*

YEAR 2027: On-Road Heavy Duty Diesel Truck Travel Inputs			
Activity	**Function**	**Number of HDDV deliveries**	**Units:**
Access Control Building/Infrastructure	Building material delivery	8	trucks
TOTAL HDDV Deliveries		8	trucks
Roundtrip miles (from supplier to site and back) (assumes equipment, aggregate, and materials are available within 60 miles of LEAD)		120	miles
Total miles traveled for On-Road HDDV		**984**	**miles**

YEAR 2027 - Emission Factors for Heavy Duty Diesel Vehicles (8,501+ lbs), Specific to Pennsylvania

Emissions factors(1,2) multiplied by total HDDV miles: 984 miles								
Criteria Pollutant (grams/miles):								
CO	**VOC**	**NO_X**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**	**CO_2e**	**NH_4**	**CH_4 (2)**
0.1200000	0.0200000	0.5120000	0.0028100	0.0117000	0.0108000	334.5310000	0.0055300	0.0170770
Convert to pounds per mile								
0.0002646	0.0000441	0.0011287	0.0000062	0.0000258	0.0000238	0.7375022	0.0000122	0.0000363
Emissions, Total Pounds (2027)								
4.07	0.68	17.35	0.10	0.40	0.37	11336.88	0.19	0.56
EMISSIONS, TONS (2027)								
0.002	*0.0003*	*0.009*	*0.00005*	*0.0002*	*0.0002*	*5.668*	*0.0001*	*0.0003*

Emissions = EF x TL

where TL = trip length (miles/day) and EF = emission factor (pounds per mile)

Notes:

(1) - HDDV Emissions factors from US Air Force 2021 Mobile Guide, Pennsylvania On-Road Vehicle Emission Factors – 2025 (most recent year available)

(2) - Methane emissions factor from California Air Resources Board's EMFAC2007 (version 2.3) Burden Model, for HHDT trucks (33,001 to 60,000 pounds) for scenario year 2025

Off-Road Heavy Duty Construction Equipment Emissions - Railyard

YEAR: 2025 MOVES

Year	Activity	Activity	Equipment	Emissions in grams per operating day: CO	VOC	NO_X	SO_2	PM_{10}	$PM_{2.5}$	CO_2	CH_4	Frequency[1]: Number of units	Days in use
2025	Gross earth moving	Bulldozer for clearing and grading the site	Crawler Tractor/Dozers	3531	590	14023	31	621	602	11406772	48	1	120
2025	Tree cutting	Excavator with tree cutting attachment	Excavators Composite	1824	386	8313	31	364	353	11456933	31	1	60
2025	Cut and fill	Excavator for digging and moving earth	Excavators Composite	1824	386	8313	31	364	353	11456933	31	2	120
2025	Grading	Loaders for moving cut and fill	Rubber tire loaders	5986	958	19689	35	1061	1029	12467448	78	1	120
2025	Grading	Smaller loaders to support grading	Dumpers/Tenders	55	12	78	0.0	8	8	16019	1	1	120
2025	Grading	Grader for leveling the ground	Graders	416	85	1347	8	91	89	2850532	6	1	90

Emissions (grams): CO	VOC	NO_X	SO_2	PM_{10}	$PM_{2.5}$	CO_2	CH_4
423,720.00	70,800.00	1,682,760.00	3,720.00	74,520.00	72,240.00	1,368,812,640.00	5,760.00
109,440.00	23,160.00	498,780.00	1,860.00	21,840.00	21,180.00	687,415,980.00	1,860.00
437,760.00	92,640.00	1,995,120.00	7,440.00	87,360.00	84,720.00	2,749,663,920.00	7,440.00
718,320.00	114,960.00	2,362,680.00	4,200.00	127,320.00	123,480.00	1,496,093,760.00	9,360.00
6,600.00	1,440.00	9,360.00	-	960.00	960.00	1,922,280.00	120.00
37,440.00	7,650.00	121,230.00	720.00	8,190.00	8,010.00	256,547,880.00	540.00
Emissions, pounds (2025)							
3,821.16	*684.85*	*14,704.43*	*39.55*	*705.89*	*684.72*	*14,463,087.43*	*55.29*
EMISSIONS, TONS (2025)							
1.91	**0.34**	**7.35**	**0.02**	**0.35**	**0.34**	**7,231.54**	**0.028**

Year	Activity	Activity	Equipment	CO	VOC	NO_X	SO_2	PM_{10}	$PM_{2.5}$	CO_2	CH_4	Number of units	Days in use
2026	Railroad construction	Diesel-fueled equipment to support rail track construction	Other construction equipment	1073	145	2337	3	168	163	1174246	11	5	220

CO	VOC	NO_X	SO_2	PM_{10}	$PM_{2.5}$	CO_2	CH_4
1,180,300.00	159,500.00	2,570,700.00	3,300.00	184,800.00	179,300.00	1,291,670,600.00	12,100.00
Emissions, pounds (2026)							
2,602.07	*351.63*	*5,667.33*	*7.28*	*407.41*	*395.28*	*2,847,598.32*	*26.68*
EMISSIONS, TONS (2026)							
1.30	**0.18**	**2.83**	**0.004**	**0.20**	**0.20**	**1,423.80**	**0.013**

Year	Activity	Activity	Equipment	CO	VOC	NO_X	SO_2	PM_{10}	$PM_{2.5}$	CO_2	CH_4	Number of units	Days in use
2027	Construct Access Control Building and Other RCY improvements	Other diesel-fueled support equipment	Other construction equipment	949	129	2096	3	150	146	1172854	10	3	90

CO	VOC	NO_X	SO_2	PM_{10}	$PM_{2.5}$	CO_2	CH_4
256,230.00	34,830.00	565,920.00	810.00	40,500.00	39,420.00	316,670,580.00	2,700.00
Emissions, pounds (2027)							
564.88	*76.79*	*1,247.62*	*1.79*	*89.29*	*86.90*	*698,127.38*	*5.95*
EMISSIONS, TONS (2027)							
0.28	**0.038**	**0.62**	**0.001**	**0.045**	**0.043**	**349.06**	**0.0030**

Equation:

Tons per year (TPY_{Pj}) = (EF_P x N x H x D)

Efp = emissions Factor for the given pollutant
N = Number of pieces of equipment
H = Number of hours equipment used per day
D = Days of use of equipment in a given year

NOTES:

Source: Emissions factors from US Environmental Protection Agency, MOVES 3.0.3.
Factors specific for Franklin County, Pennsylvania for individual years in 2025, 2026, and 2027.
(1) - Equipment type and frequency based on general assumptions for industrial construction activities.

Worker Miles Traveled Inputs - Railyard

Year	Activity	Number of Workers per Day for this Activity	Days Worked Per Month	Number of Months Worked per Year	Miles Driven per Vehicle, Round Trip	Commuting Factor	TOTAL MILES
2025	Site Preparation	10	23	6	50	0.6	41,400
2026	Railroad contruction	20	23	6	50	0.6	82,800
2027	Vertical Construction and RCY Improvements	6	23	2	50	0.6	8,280
	TOTAL						**132,480**

On-Road Worker Passenger Vehicle Emissions - Railyard

Year: 2025		Emissions Factors[1,2]								
Criteria Pollutant:		CO	VOC	NO_x	SO_2	PM_{10}	$PM_{2.5}$	CO_2e	NH_4	CH_4[2]
Emission Factors for Gasoline-Fueled Light-Duty Vehicles (Trucks), grams/mile		0.255	0.003	0.015	0.00021	0.00030	0.00026	31.1610000	0.0022500	0.0165153
Convert to pounds per mile		0.0005622	0.0000066	0.0000331	0.0000005	0.0000007	0.0000006	0.0686971	0.0000050	0.0000364
Activity	Miles	Emissions (pounds per activity)								
Site Preparation	41,400	23.2738	0.2738	1.3690	0.0189	0.0271	0.0240	2844.0595	0.2054	1.5073
		Total Emissions, pounds (2025)								
		23.274	*0.274*	*1.369*	*0.019*	*0.027*	*0.024*	*2844.060*	*0.205*	*1.507*
		TOTAL EMISSIONS, TONS (2025)								
		0.012	**0.0001369**	**0.000685**	**0.0000094**	**0.0000136**	**0.0000120**	**1.42203**	**0.00010**	**0.00075**

Year: 2026		Emissions Factors[1,2]								
Criteria Pollutant:		CO	VOC	NO_x	SO_2	PM_{10}	$PM_{2.5}$	CO_2e	NH_4	CH_4[2]
Emission Factors for Gasoline-Fueled Light-Duty Vehicles (Trucks), grams/mile		0.255	0.003	0.015	0.00021	0.00030	0.00026	31.1610000	0.0022500	0.0165153
Convert to pounds per mile		0.0005622	0.0000066	0.0000331	0.0000005	0.0000007	0.0000006	0.0686971	0.0000050	0.0000364
Activity	Miles	Emissions (pounds per activity)								
Railroad contruction	82,800	46.5476	0.5476	2.7381	0.0378	0.0542	0.0480	5688.1190	0.4107	3.0147
		Total Emissions, pounds (2026)								
		46.548	*0.548*	*2.738*	*0.038*	*0.054*	*0.048*	*5688.119*	*0.411*	*3.015*
		TOTAL EMISSIONS, TONS (2026)								
		0.023	**0.0002738**	**0.001369**	**0.0000189**	**0.0000271**	**0.0000240**	**2.84406**	**0.00021**	**0.00151**

Year: 2027		Emissions Factors[1,2]								
Criteria Pollutant:		CO	VOC	NO_x	SO_2	PM_{10}	$PM_{2.5}$	CO_2e	NH_4	CH_4[2]
Emission Factors for Gasoline-Fueled Light-Duty Vehicles (Trucks), grams/mile		0.255	0.003	0.015	0.00021	0.00030	0.00026	31.1610000	0.0022500	0.0165153
Convert to pounds per mile		0.0005622	0.0000066	0.0000331	0.0000005	0.0000007	0.0000006	0.0686971	0.0000050	0.0000364
Activity	Miles	Emissions (pounds per activity)								
Vertical Construction and RCY Improvements	8,280	4.6548	0.0548	0.2738	0.0038	0.0054	0.0048	568.8119	0.0411	0.3015
		Total Emissions, pounds (2027)								
		4.655	*0.055*	*0.274*	*0.004*	*0.005*	*0.005*	*568.812*	*0.041*	*0.301*
		TOTAL EMISSIONS, TONS (2027)								
		0.002	**0.0000274**	**0.000137**	**0.0000019**	**0.0000027**	**0.0000024**	**0.28441**	**0.00002**	**0.00015**

Emissions (pounds per day) = TL x EF

where TL = trip length (miles/day), and EF = emission factor (pounds per mile)

All the emission factors account for the emissions from start, running and idling exhaust. In addition, the ROG emission factors include diurnal, hot soak, running and resting emissions, and the PM10 & PM2.5 emission factors include tire and brake wear.

(1) - HDDV Emissions factors from US Air Force 2021 Mobile Guide, Pennsylvania On-Road Vehicle Emission Factors – 2025, the most recent year available.

(2) - Methane emissions factor from California Air Resources Board's EMFAC2007 (version 2.3) Burden Model, for gasoline-fueled passenger trucks (<8,500 pounds) for scenario year 2025.

Architectural Coatings VOC Emissions - Construction - Railyard

Account for VOC emissions from architectural coatings (paints). The emission factor is based on 1.247 lbs of VOCs emitted per gallon of paint, assuming dry film thickness of three millimeters (mm). (The Ozone Transport Commission, a multistate organization created under the Clean Air Act, also has a model rule that limits flat coatings to 100 g/l (0.83 lbs/gallon) and non-flat coatings to 150 g/l (1.25 lbs/gallon). It has been adopted by the District of Columbia and Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, Pennsylvania, Rhode Island, Vermont and Virginia. Any paint sold in these places must be OTC-compliant.)

Equation: $\mathbf{TPY_{VOC} = ((Ac/Pc)*(EF_A))/C1}$

Where:

TPY_{VOC} = tons per year of VOCs emitted

EF_A = Emission factor in lbs VOC/gallon

A_c = Area to be coated

P_c = square foot area of coverage per gallon of paint

C1 = Conversion from lbs to tpy (2,000)

For this project:			Notes:
EF_A=	2.09	lbs VOC/gallon	From 25 Pa. Code § 130.603, Subchapter C - ARCHITECTURAL AND INDUSTRIAL MAINTENANCE COATINGS
A_c=	510.0	square feet	Assumed to be approximately twice the heated area
P_c=	400.0	square feet per gallon	Sherwin-Williams.com
C1=	2000	conversion factor for lbs to tons	

Year: 2027 TPYvoc= 0.0013 tons

RAILYARD - TOTAL EMISSIONS FOR CONSTRUCTION OF THE PROPOSED ACTION

YEAR: 2025	Criteria Pollutants						Greenhouse Gases		
Activity	CO	VOC	NO_X	SO_2	PM_{10}	$PM_{2.5}$	CO_2e	NH_4	CH_4
	Emissions (tons)								
Site clearing, cut and fill, grading	1.911	0.342	7.352	0.020	0.353	0.342	7231.544	N/A	0.028
Construction Worker Emissions	0.012	0.00014	0.00068	0.00001	0.00001	0.00001	1.422	0.0001	N/A
Fugitive Dust	N/A	N/A	N/A	N/A	0.126	0.019	N/A	N/A	N/A
2025 - TOTAL PROJECT EMISSIONS (tons)	**1.92**	**0.34**	**7.35**	**0.020**	**0.48**	**0.36**	**7,232.97**	**0.0001**	**0.028**
General Conformity *De Minimis* Thresholds[1] (40 CFR 93.153(b)(1)) (typ)	100	100	100	100	100	100	Not established	Not established	Not established

YEAR: 2026	Criteria Pollutants						Greenhouse Gases		
Activity	CO	VOC	NO_X	SO_2	PM_{10}	$PM_{2.5}$	CO_2e	NH_4	CH_4
	Emissions (tons)								
Railroad construction	1.301	0.176	2.834	0.004	0.204	0.198	1423.799	0.013	0.000
On-Road HDDV Deliveries	0.002	0.00034	0.00868	0.00005	0.00020	0.00018	5.668	0.0001	0.000
Construction Worker Emissions	0.023	0.000	0.001	0.000	0.000	0.000	2.844	0.000	N/A
2026 - TOTAL PROJECT EMISSIONS (tons)	**1.33**	**0.18**	**2.84**	**0.004**	**0.20**	**0.20**	**1,432.31**	**0.0136**	**0.000**
General Conformity *De Minimis* Thresholds[1] (40 CFR 93.153(b)(1)) (typ)	100	100	100	100	100	100	Not established	Not established	Not established

YEAR: 2027	Criteria Pollutants						Greenhouse Gases		
Activity	CO	VOC	NO_X	SO_2	PM_{10}	$PM_{2.5}$	CO_2e	NH_4	CH_4
	Emissions (tons)								
Vertical Construction and RCY Improvements	0.2824	0.0384	0.6238	0.0009	0.0446	0.0435	349.0637	0.0030	0.0000
Construction Worker Emissions	0.00233	0.00003	0.00014	0.00000	0.00000	0.00000	0.28441	0.00002	N/A
On-Road HDDV Deliveries	0.00203	0.00034	0.00868	0.00005	0.00020	0.00018	5.66844	0.00009	0.00028
Architectural Coatings	N/A	0.0013	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2027 - TOTAL PROJECT EMISSIONS (tons)	**0.29**	**0.04**	**0.63**	**0.001**	**0.04**	**0.04**	**355.02**	**0.00309**	**0.00028**
General Conformity *De Minimis* Thresholds[1] (40 CFR 93.153(b)(1)) (typ)	100	100	100	100	100	100	Not established	Not established	Not established

Notes:

1 - Franklin County, Pennsylvania is attainment for all Criteria Pollutants as of April 30, 2023.
See: https://www3.epa.gov/airquality/greenbook/anayo_pa.html
TPY = Tons per year

Attachment 2

Record of Non-Applicability Signature Page

Record of Non-Applicability

The Proposed Action was evaluated in accordance with the Clean Air Act – General Conformity Rule.

The Army proposes to construct the MMDF and RCY facilities at the Letterkenny Munitions Center, Letterkenny Army Depot, in Franklin County, PA.

General Conformity under the Clean Air Act, Section 176 has been evaluated according to the requirements of Title 40 of the Code of Federal Regulations Part 93, Subpart B. The requirements of this rule are not applicable to the action because:

> *The annualized direct emissions from constructing the Proposed Action have been estimated at 1.58 tons per year (tpy) of carbon monoxide (CO), 0.36 tpy of volatile organic compounds (VOCs; ozone precursor), 1.25 tpy of nitrogen oxides (NOx), 0.005 tpy of sulfur dioxide (SO_2), and 7.3 tpy of particulate matter ($PM_{2.5+10}$).*
>
> *These levels are below the 100 tpy General Conformity de minimis threshold values for CO, VOCs, NOx, SO_2, and $PM_{2.5+10}$ established by 40 CFR 93.153(b)(1).*

Supporting documentation and emissions estimates:

[X] Are Attached

[X] Appear in the National Environmental Policy Act Documentation

[ ] Other

_____ _____

Colonel, U.S. Army — Date
Garrison Commander

Appendix D
Phase I and Phase II Archeological Survey Reports

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Missile/Munitions Distribution Facility (MMDF) and Rail Classification Yard (RCY) Environmental Assessment

Letterkenny Munitions Center
Letterkenny Army Depot
Franklin County, Pennsylvania

Phase I Archaeological Investigation

Spring 2023

Prepared by:
US Army Corps of Engineers
Baltimore District
Planning Division

ER2023PR00427

Executive Summary

This Phase I archaeological survey report includes the background, methodology, and results for the Phase I archaeological investigation for a proposed undertaking at Letterkenny Army Depot (LEAD) in Chambersburg, central Franklin County, Pennsylvania. The report has been prepared by the US Army Corps of Engineers, Baltimore District (USACE) at the request of LEAD.

The current proposed undertaking includes the construction and operation of a Missile/Munitions Distribution Facility (MMDF) (54,268 square feet [SF]) and a vehicle storage building (536 SF), and Rail Classification Yard (RCY) (12,260 linear feet [LF]) with an access control building (255 SF), on the northeast section of Letterkenny Munitions Center (LEMC). The project will include cybersecurity, sustainability/energy measures, building information systems, and site development.

The proposed MMDF includes stormwater management ponds along with extensive grading necessary for building construction, and a parking area for government and commercial vehicles. Designs for the MMDF will follow Unified Facilities Criteria (UFC) 4-440-01, *Warehouses and Storage Facilities*, for finish standards and explosive safety criteria per Defense Explosives Safety Regulation (DESR) 6055.9 (01.2019). The RCY would include the reconstruction of the existing mainline track, the construction of two classification tracks, and an access control building. This would include the extension of culverts and grass swales.

On December 6th, 2022, the USACE team visited and conducted an initial pedestrian survey of the project areas. The MMDF site was observed to be a cleared agricultural field currently being used for growing hay. The build site is on an obvious ridge that gently slopes down towards the stream to the north. Trees surround the agricultural field. Examination of historic topographic maps and aerial photographs do not show any previous buildings or infrastructure on this site. Due to the field's proximity to the stream and wetlands to the north along with being on a relatively stable and flat upland, this project site had a moderate potential for unidentified archaeological resources.

The RCY site is characterized by overgrowth and evidence of past disturbance in the form of mounded soil, gravel, and debris from past railroad activities. There has been past land clearing and grading activities along the railroad. Examination of historic topographic maps and aerial photographs show the railroad was built during World War II. Due to this past disturbance, most of the RCY project area along the railroad has a low potential for intact archaeological resources. However, on the eastern end of the project area there is a known historic farmstead. During the December 2022 site visit, the foundation of a house and former stone wall was observed. This is an archaeological site that bears further defining and exploration. Based on this site visit, a Phase I investigation to identify archaeological sites within the project's area of potential effect (APE) was recommended.

From March 13-22, USACE completed a Phase I investigation to identify the presence of archaeological sites and their boundaries. At the MMDF location, USACE excavated 360 shovel test pits across the open farm field. Apart from a few modern wire nails and shot gun shells found on or near the surface, no archaeological sites or features were identified. USACE recommends no further archaeological testing for the MMDF project. USACE confirmed that the limits of disturbance (LOD) for the RCY project location are highly disturbed from earth moving for the construction of the railroad. No further testing is recommended within the majority of the project LOD. USACE did identify two building foundations, a concrete animal trough, stone wall features, and a debris field of architectural materials associated with former farm complex to the southeast of the main RCY corridor (*INSERT SITE NUMBER ONCE ASSIGNED*). As the RCY LOD was updated by the design team during the course of the Phase I and an appropriate buffer cannot be assured to avoid the site, a Phase II investigation of the site will be completed to determine its eligibility for the National Register of Historic Places.

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Figures

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Appendices

1 Introduction

This Phase I archaeological survey report includes the background, methodology, and results for the Phase I archaeological investigation for a proposed undertaking at Letterkenny Army Depot (LEAD) in Chambersburg, central Franklin County, Pennsylvania. The report has been prepared by the US Army Corps of Engineers, Baltimore District (USACE) at the request of LEAD.

1.1 Project Description

LEAD is located in Chambersburg, central Franklin County, Pennsylvania, and spans approximately 18,287 acres. Letterkenny Munitions Center (LEMC) sits within LEAD (Figure 1-1). LEMC is a United States (U.S.) Army, government-owned facility under the command of the U.S. Army Materiel Command (AMC). LEMC conducts regional and global contingency distribution of munitions, provides missile maintenance, and conducts demilitarization of munitions for the Army in support of all Department of Defense (DoD) and international partners to provide readiness to the warfighter. LEMC spans approximately 16,971 acres, which accounts for approximately 92 percent of LEAD's total size. LEMC's facilities include 17 explosive operating buildings, 2.3-million square feet (SF) of explosive storage space, 902 igloos (bunker-like munitions storage), 10 aboveground magazines (munitions storage), and 26 rail docks.

The current proposed undertaking includes the construction and operation of a Missile/Munitions Distribution Facility (MMDF), MMDF (54,268 SF) and a vehicle storage building (536 SF), and Rail Classification Yard (RCY), RCY (12,260 linear feet [LF]) with an access control building (255 SF), on the northeast section of LEMC. The project will include cybersecurity, sustainability/energy measures, building information systems, and site development (Figures 1-2 to 1-6).

The proposed MMDF includes stormwater management ponds along with extensive grading necessary for building construction, and a parking area for government and commercial vehicles. Designs for the MMDF will follow Unified Facilities Criteria (UFC) 4-440-01, *Warehouses and Storage Facilities*, for finish standards and explosive safety criteria per Defense Explosives Safety Regulation (DESR) 6055.9 (01.2019). The conceptual design can be seen in Figure 4.

The RCY would include the reconstruction of the existing mainline track, the construction of two classification tracks, and an access control building, labeled as shipping and receiving in Figure 1-6. This would include the extension of culverts and grass swales.

1.2 Project Background

The purpose of the Proposed Action is to provide an effective, efficient, and DoD Explosives Safety Board (DDESB)-compliant MMDF at LEMC, capable of handling LEMC's increased demands for ammunitions processing. With the implementation of the Joint Munitions Command's Integrated Logistics Study (ILS) and Enterprise-Integrated Logistics Study (E-ILS), LEMC has been designated as the provider of joint munitions for the Northeast Region. As a result of this designation, LEMC has seen a significant increase in the number of shipments to support post, camp, and station training requirements.

The Proposed Action is needed because LEMC is designated as the provider of joint munitions to all the Northeast Region and has had an increase in ammunition shipments. Currently, there are no MMDF's assigned to LEMC designed to safely manage the receipt and shipment of both full truckloads and less than truckload (LTL) shipments.

MMDF facilities currently in use are restricted in throughput capacity due to an explosive safety quantity distance (ESQD) constraint. The quantity of munitions processed is severely constrained by exposed sites. A requisite safe operating distance between these exposed sites and the MMDF must be maintained. As part of LEAD legacy rail infrastructure, the existing RCY (Classyard 1) was capable of handling 120, 89-foot railcars. LEAD also utilized a second RCY (Classyard 2); it had a capacity of 130, 89-foot railcars. However, Classyard 1 and Classyard 2 are now outside the ammunition area due to LEAD's requirement to transfer its entire rail system over to a private development authority except for the rail lines inside the ammunition area. LEMC has trackage rights to Classyard 1, but the private development authority owns the track. The tracks at Classyard 1 have fallen into disrepair. The serviceable sidings have been reduced from 10 tracks to two, and the capacity has been reduced to 50, 89-foot railcars.

If this project is not provided, a DDESB-compliant MMDF capable of responding effectively and efficiently to the centralized ammunitions shipments specific to the Northeast Region will not be available. Operational inefficiencies at both the LTL building and RCY increases the opportunity for shipment delays, missed delivery commitments, detention charges, and fewer consolidated shipments.

The proposed MMDF would be replacing the current MMDF, Building 5331. Under the Proposed Action, Building 5331 would be retained by LEMC and continue to be used for minor shipment operations. It would also be used for overflow or any changing missions that cannot be accounted for yet.

1.3 Project Location and Regional Setting

The project area is in Franklin County within the Cumberland Valley of south-central Pennsylvania. LEAD is located northwest of the intersection of Interstate 81 and U.S. Route 30, 5 miles north of Chambersburg, Pennsylvania. LEAD is regionally situated among the metropolitan areas of Pittsburgh, Pennsylvania, 130 miles to the northwest; Philadelphia, Pennsylvania, 135 miles to the east; Washington, DC, 90 miles to the south; and Baltimore, Maryland, 75 miles to the southeast.

The area around LEAD is served by Interstate 81, and U.S. Highways No. 11 and Route 30 occurs at the primary entrance to LEAD. In addition, the Pennsylvania Turnpike is located 14 miles north of the facility within Franklin County. The area surrounding the depot is primarily agricultural, except to the west, which is state forest and state game land. There are several unincorporated residential and commercial developments contiguous to the depot. The largest development, the Cumberland Valley Business Park, is located immediately adjacent to the depot.

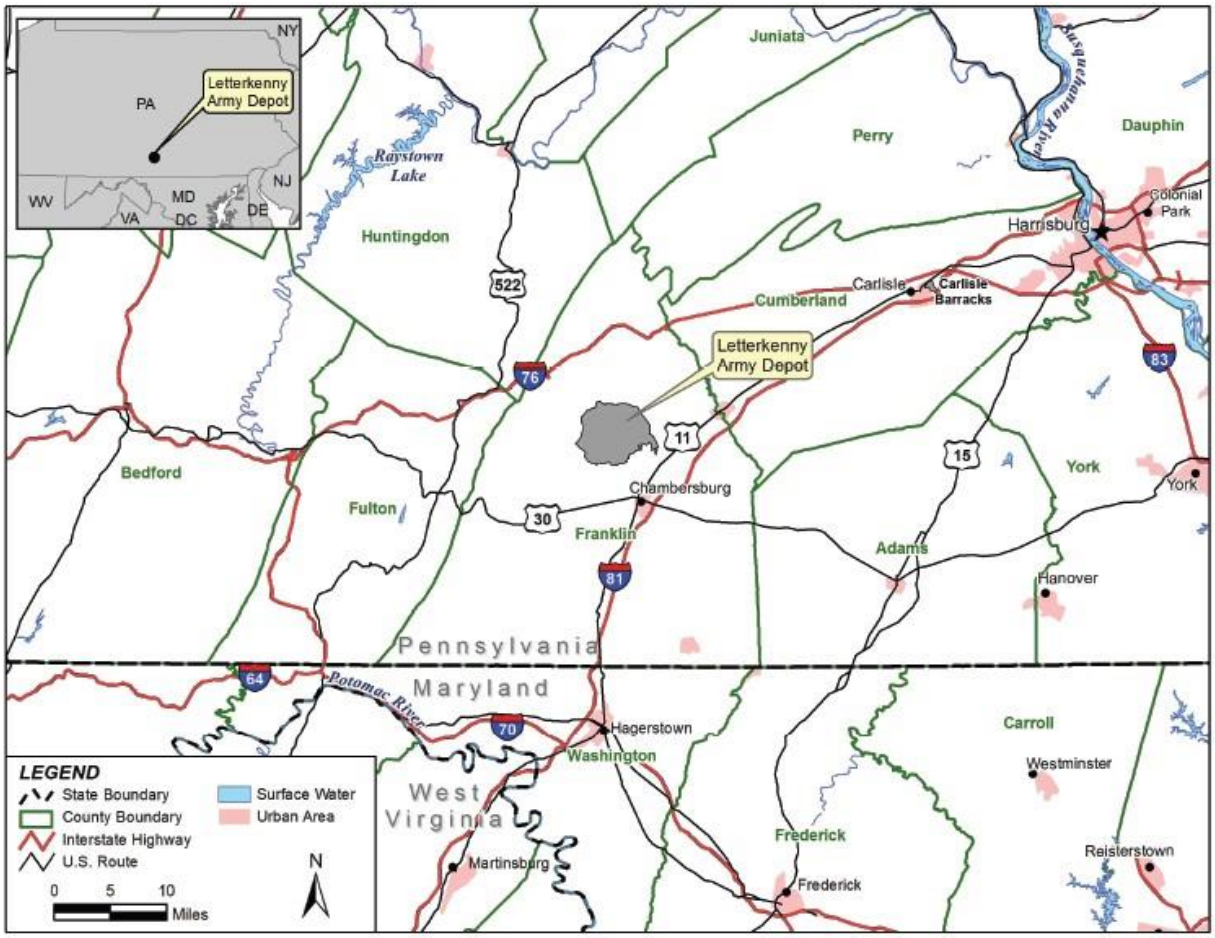

Figure 1-1: LEAD Location.

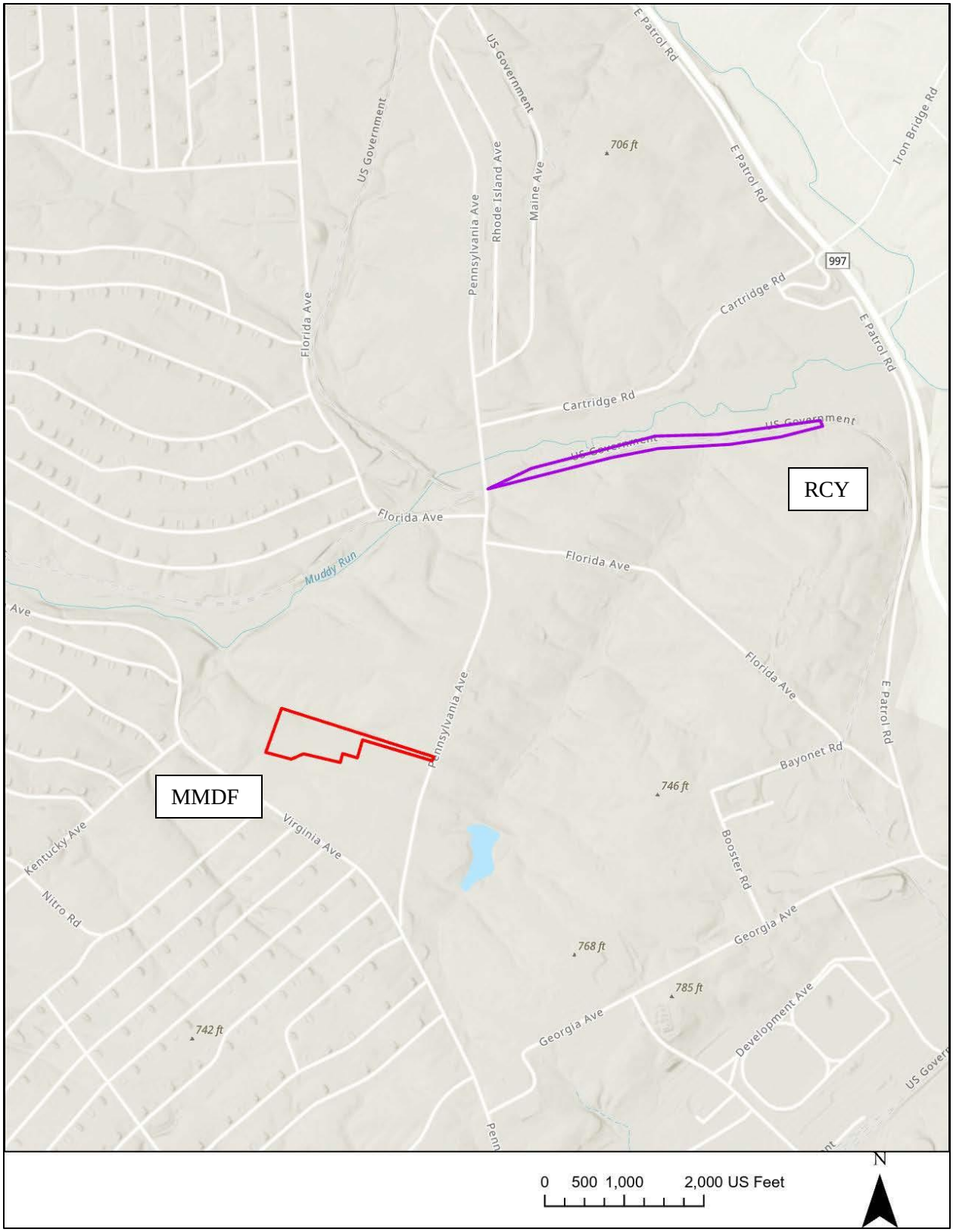

Figure 1-2: MMDF & RCY Proposed Locations.

Figure 1-3: MMDF Location.

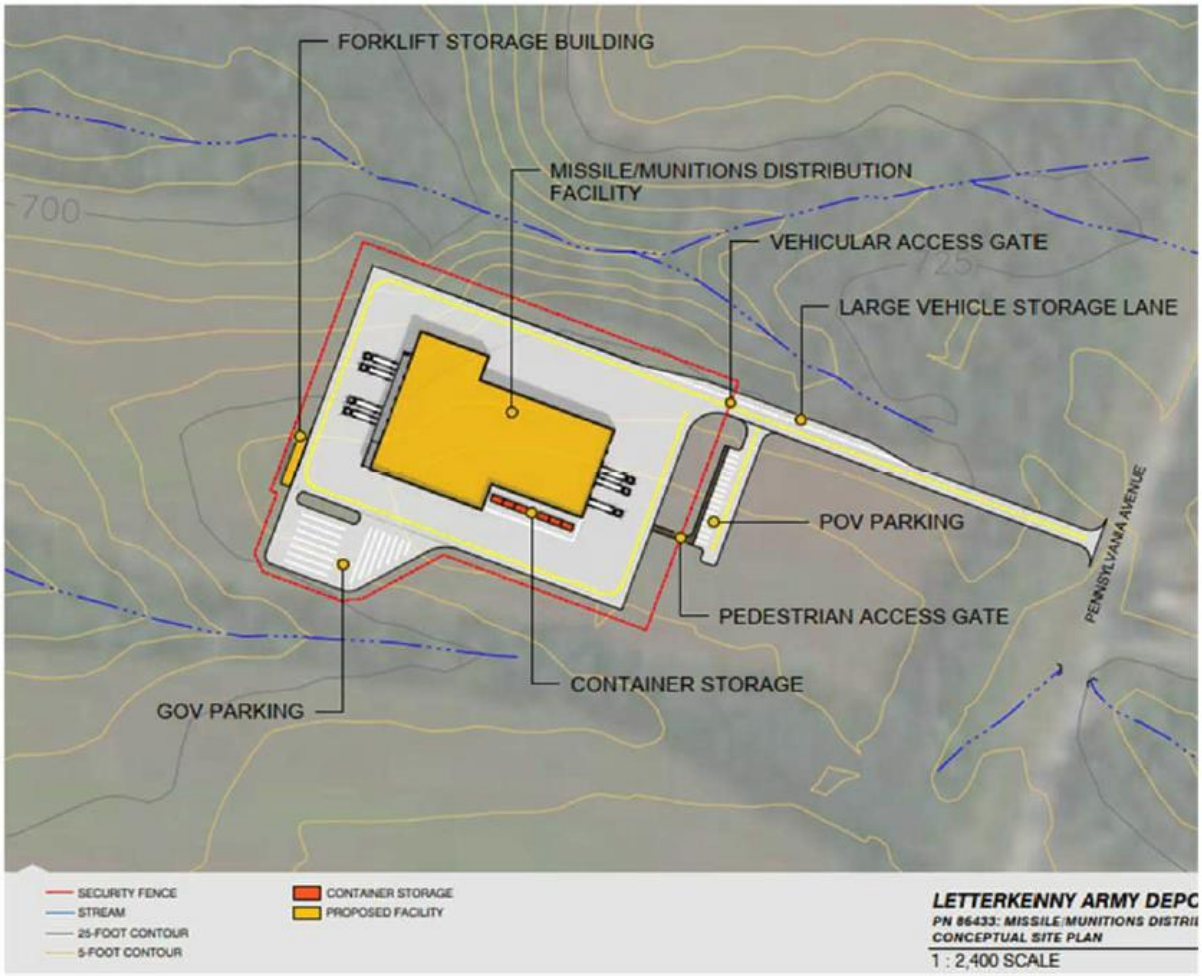

Figure 1-4: MMDF Concept Layout.

Figure 1-5: RCY Location.

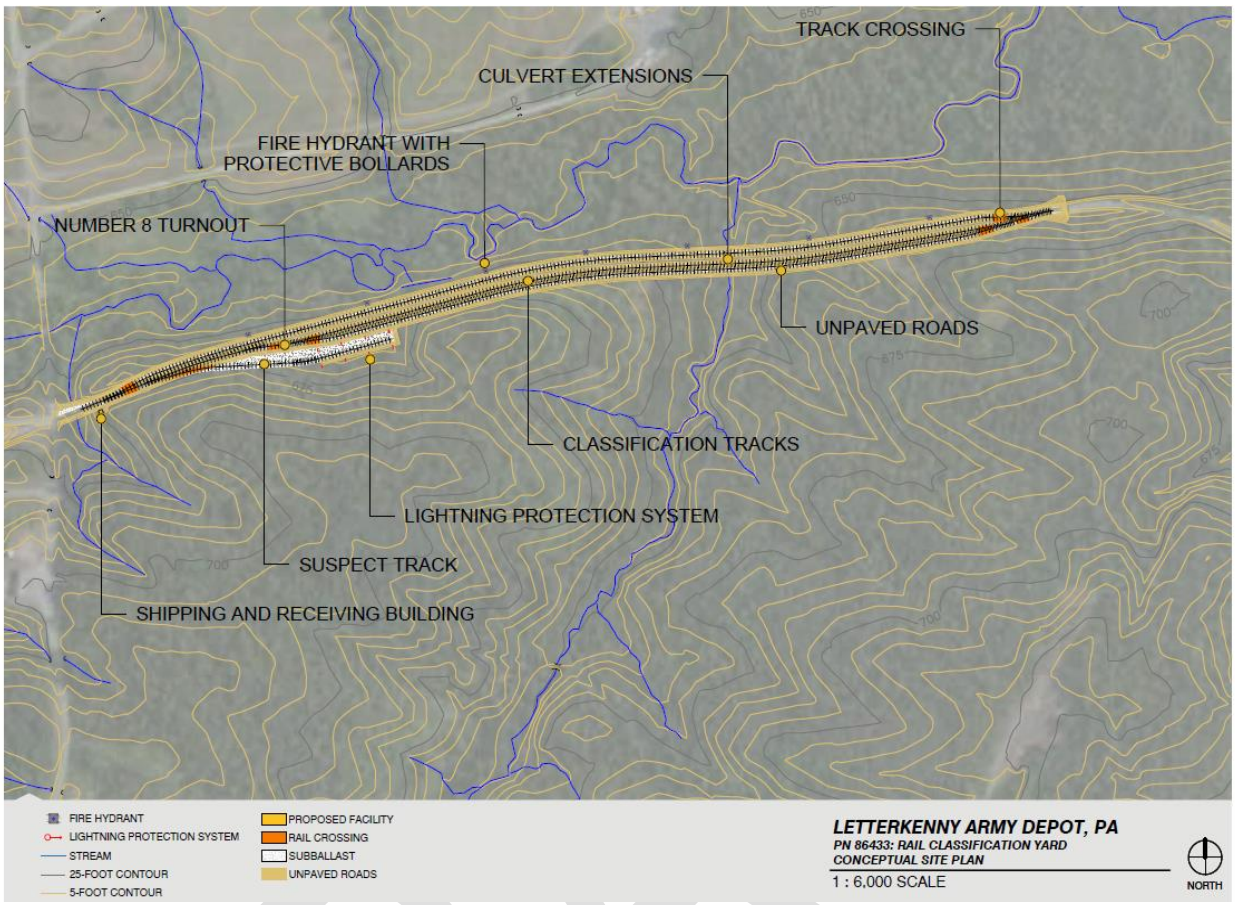

Figure 1-6: RCY Concept Layout.

2 Environmental Background

2.1 Physiography

LEAD is situated approximately 40 miles southwest of Harrisburg and the Susquehanna River and five miles north of Chambersburg. Located in the Ridge and Valley Physiographic Province, the topography of the area ranges from 800 feet above mean sea level (amsl) to 1,200 feet amsl and occasionally rises to heights of 2,000 feet amsl. The Ridge and Valley Province is characterized by long, thin ridges and broad, flat valleys that run obliquely across Pennsylvania (The Pennsylvania Science Office 2004; LEAD 2020).

2.2 Water Resources

LEAD is located approximately 40 miles southwest of the Susquehanna River. Keasey Run and its associated wetlands are located just north of LEAD, while Muddy Run bisects LEAD roughly through the middle, running east to west. Rocky Springs Lake and Lake Letterkenny are situated in the southern portion of LEAD. Various intermittent steams flow through LEAD as well. LEAD contains an ephemeral/fluctuating natural pool community with ponds located in wooded areas (The Pennsylvania Science Office 2004). Franklin County is drained by the Susquehanna and the Potomac Rivers (LEAD 2020).

USACE completed a wetland survey of the MMDF and RCY sites in early March 2023 (Figures 2-1, 2-2). The entire north side of the RCY site is a wetland. Smaller wetlands are also along the northern end of the MMDF site.

2.3 Soils

One of the main soil groups in Franklin County and the project area is the Weikert-Berks-Bedington Association: Ranging from shallow to deep, these soils can be found on nearly level areas to very steep areas, often in valleys. These soils are formed in weathered shale and interbedded shale, siltstone, and sandstone. Thirty-one percent of the county is covered in these soils. The Association is made up of approximately 40% Weikert, 20% Berks, 10% Bedington, and 30% minor soil types. Both wooded and cleared agricultural lands are located within these associations (Long 1975; LEAD 2020; Appendix A). Table 1 and Figure 2-3 show the soils found within the MMDF and RCY footprints.

2.4 Paleoenvironmental Conditions

From a regional perspective, the environmental conditions in Pennsylvania and adjacent areas have fluctuated moderately since the maxima of the last ice age, about 25,000 to 16,000 years ago. The maximum extent of the ice sheet stretched from northwestern Pennsylvania across Ohio, Indiana, and northern Iowa, and covered much of North and South Dakota. The climatic conditions were generally thought to be much cooler and moister than at present (LEAD 2020).

At the end of the last glacial maximum around 18,000 to 20,000 years ago, the area that is now Pennsylvania was covered in conifer or broadleaved forest with a relatively open canopy (Adams and Faure 2012). By 8,000 years ago, most of the eastern U.S. was heavily forested with deciduous and mixed forest (Adams and Faure 2012). Around 5,000 years ago, the vegetation was much the same as at 8,000 years ago (Adams and Faure 2012). After this time, the climate become more like it is today with moister conditions (LEAD 2020).

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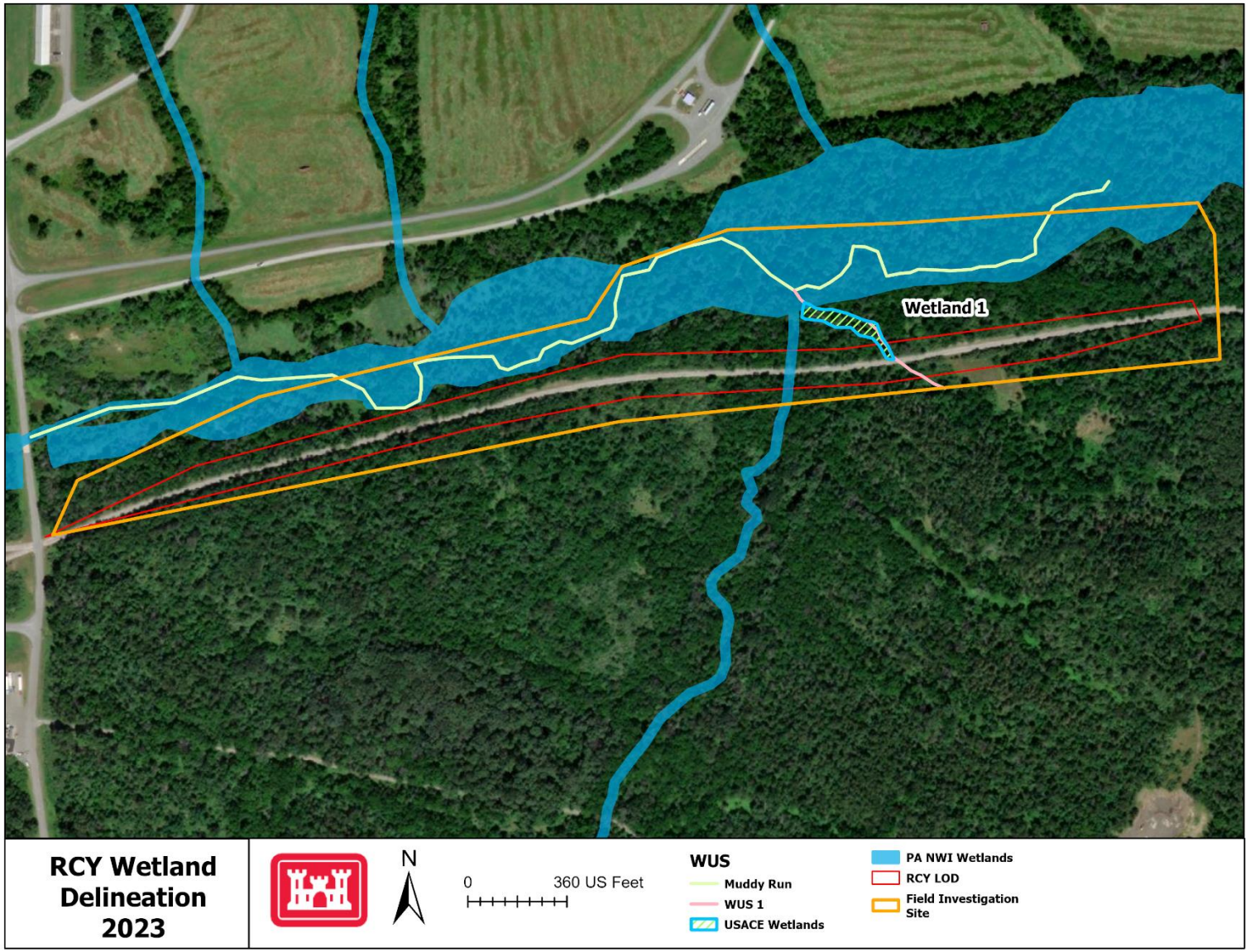

Figure 2-1: RCY, Wetlands 2023.

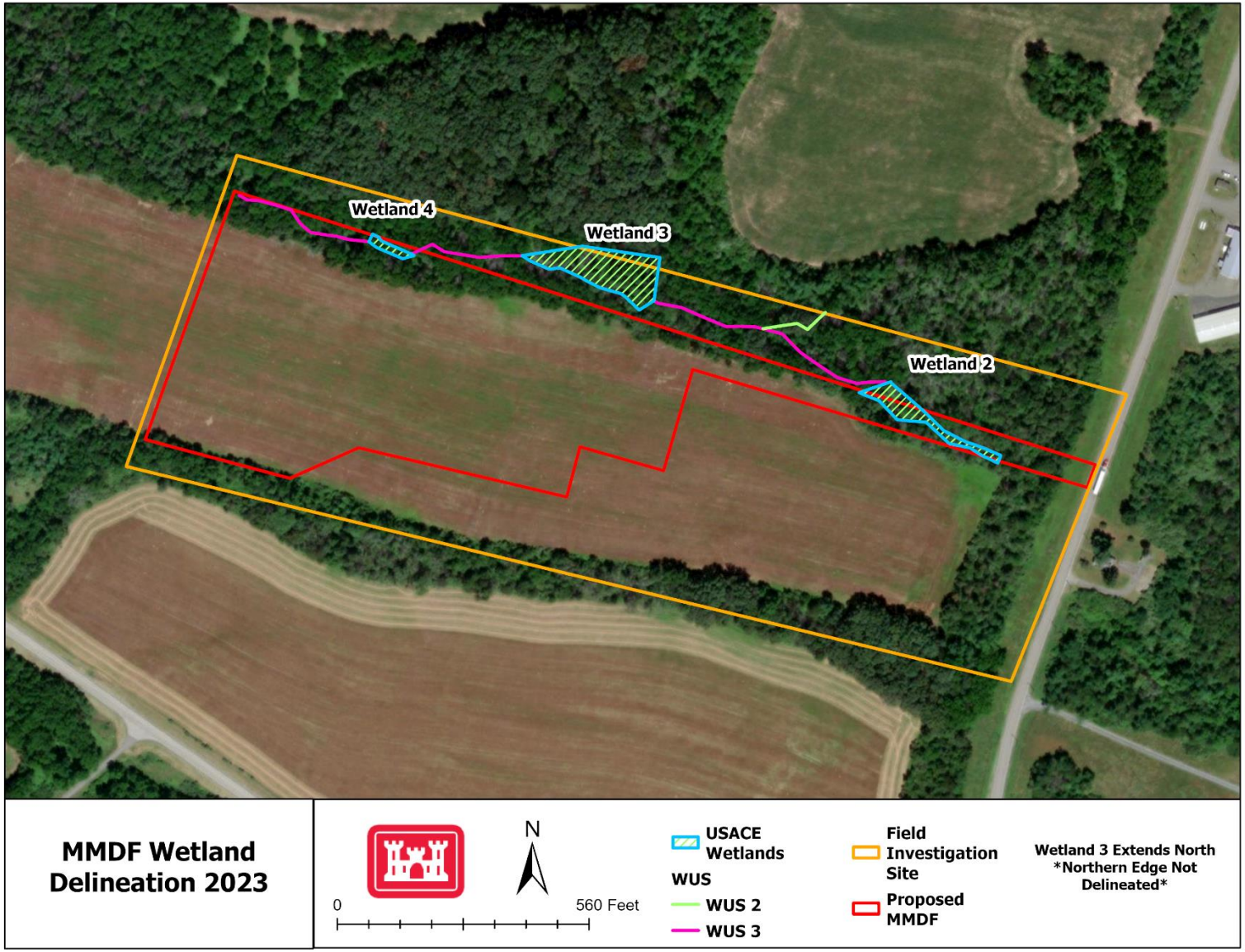

Figure 2-2: MMDF, Wetlands 2023.

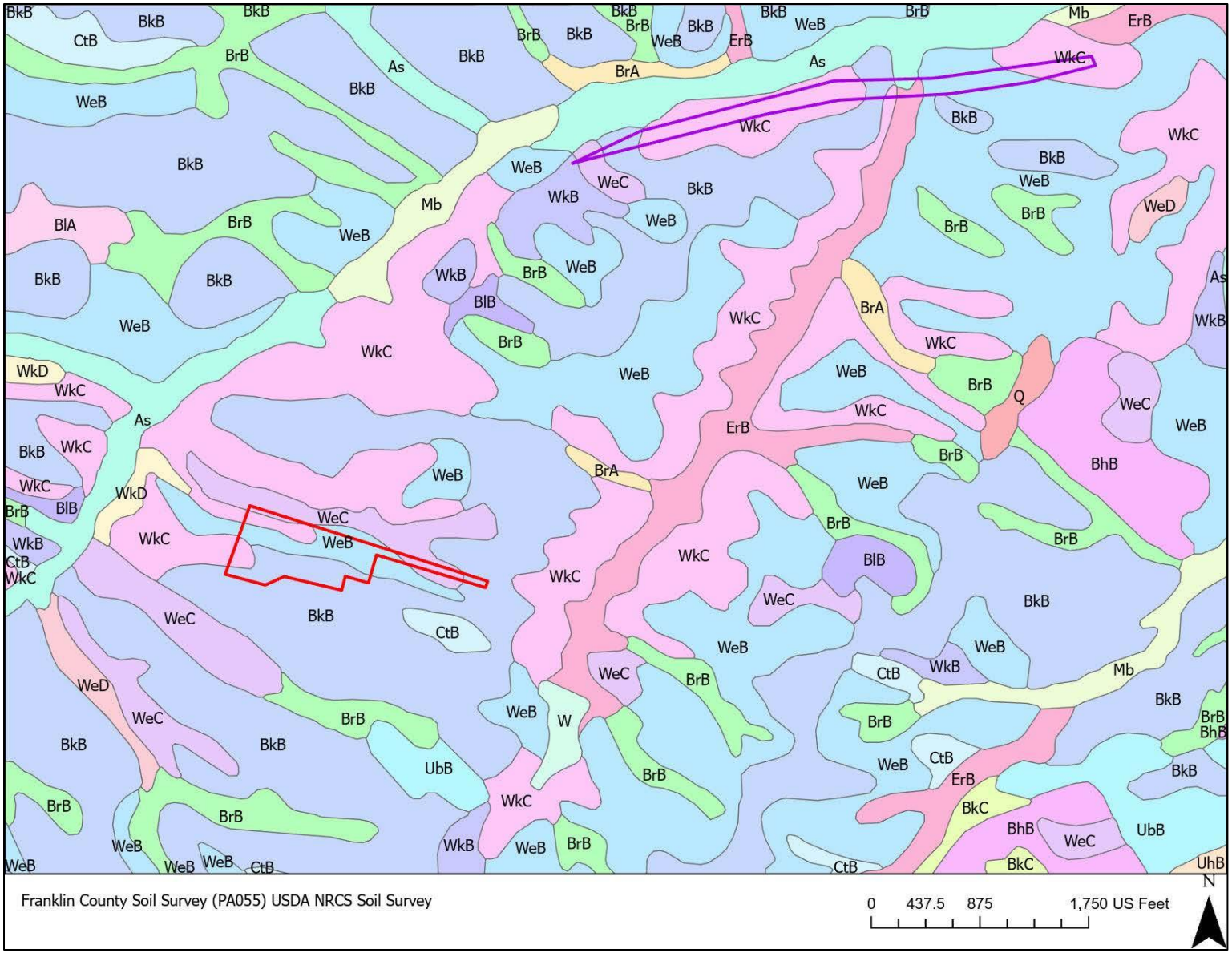

Figure 2-3: Soils (USDA NRCS)

Table 1: Soil Descriptions.

Map Unit Symbol	Map Unit Name
BkB	Berks channery silt loam, 3 to 8 percent slopes
WkC	Weikert very channery silt loam, 8 to 15 percent slopes
WeB	Weikert channery silt loam, 3 to 8 percent slopes
WeC	Weikert channery silt loam, 8 to 15 percent slopes
ErB	Ernest silt loam, 3 to 8 percent slopes

3 Historic Context

3.1 Precontact Period

The earliest accepted date of humans settling North America is about 12,000 years ago. While there are some sites that have been dated earlier, it is apparent that human beings were occupying North America by this date. It is also generally accepted that humans first came to North America from Siberia through the Bering Strait. Due to the glacial ice of the Middle and Late Wisconsin age, the sea level was lower than it is today. Geologic evidence indicates that the lower sea level exposed a land bridge between North America and Siberia, which allowed humans to cross. From this point, humans eventually migrated into present-day Pennsylvania. The prehistory of Pennsylvania is divided into six periods: the Paleoindian (circa 14,000-8000 B.C.E.), Archaic (circa 8000-1800 B.C.E.), Transitional/Terminal Archaic (circa 1800-1200 B.C.E.), Early and Middle Woodland (circa 1200 B.C.E.-800 C.E.), Late Woodland/Late Prehistoric (circa 800-1550 C.E.), and Contact (circa 1550-1780 C.E.) (LEAD 2020).

3.1.1 Paleoindian Period

The Paleoindian period extended from circa 14,000-8000 B.C.E. Though the northern portion of the state was covered in ice prior to the Paleoindian occupation, the southern part was covered in open grassland and forests. A handful of sites in North America have yielded very early materials: Meadowcroft Rockshelter in Pennsylvania (14,250 B.C.E.), the Topper Site in South Carolina (14,000 B.C.E.), and Cactus Hill in Virginia (14,200 B.C.E.) (Pennsylvania Historical and Museum Commission 2012a). In fact, the Meadowcroft Rockshelter is the earliest known human occupation in North America (Heinz History Center 2019; LEAD 2020).

It is generally thought that Paleoindians hunted megafauna but fewer than 100 archeological sites are associated with these now extinct animals, making study and inference problematic (Krech 2012). Along with smaller animals (perhaps deer, wolf, moose, elk and bison), Paleoindians subsisted on mastodon, mammoth, caribou and moose (Funk 1972; Funk 1976). It seems likely that Paleoindians used aquatic resources, nuts, seeds, and berries as well. Based on findings at the Meadowcroft Rock shelter, population density was low (LEAD 2020).

Around 9500 B.C.E., the fluted point appeared. This is the primary technological remnant of the Paleoindian period. Points found in Pennsylvania are known as “Clovis,” after a type discovered in Southwestern North America. The “flute” refers to a channel running down the middle face of each side of the point for hafting. These large points measure 2.5-10 cm long (Snow 1980) and are usually made from high quality lithic material (Pennsylvania Historical and Museum Commission 2012). Other artifacts found in Paleoindian contexts include knives, scrapers, and flake tools. Small, mobile bands moved throughout the area in search of food and resources. Conflict and war were likely rare, as the population was small and did not have to defend territory for natural resources in order to support their numbers (Pennsylvania Historical and Museum Commission 2012; LEAD 2020).

The Shawnee-Minisink Site, situated along the Delaware River in modern day Monroe County, and located approximately 140 miles northeast of LEAD, is a deeply buried Paleoindian site. Tools and two fluted points were recovered, and C-14 dated to 8900 B.C.E. More interestingly, floral remains consisting of blackberry and hawthorn plum, as well as fish bones were found in a hearth. These remains offer a rare glimpse into the Paleoindian diet (Pennsylvania Historical and Museum Commission 2012a). Located approximately 50 miles northeast of LEAD, the Shoop Site yielded over 100 fluted points. The raw material was a chert found only in New York, some 250 miles away. Many scrapers were also recovered. It has been

posited that the site may have been located along a caribou or elk migration path and was used yearly to hunt these animals (Pennsylvania Historical and Museum Commission 2012a; LEAD 2020).

3.1.2 Archaic Period

The Archaic period (circa 8000-1800 B.C.E.) showed a gradual transition from the Paleoindian period. The main difference between the Early Archaic and the Paleoindian period is the method of producing stone tools and a less nomadic existence. There is evidence to suggest that hunting megafauna was no longer the main subsistence strategy and bands of people began to move seasonally through a territory (Snow 1980; Funk 1993). The climate had warmed by around 8000 B.C.E. and spruce-pine forests were emerging. Oak, chestnut, and other deciduous trees began to grow in the area but did not replace the spruce-pine forest until around 7000 B.C.E. (Sherfy and Luce 1998:22; LEAD 2020).

In the Early Archaic, notched spear points were common and the atlatl, or spear thrower, was in use. Early Archaic people, like the Paleoindians, moved in family or small bands in search of food over a fairly broad area. When the oak and hardwood trees gradually took over the forest by around 7000 B.C.E., a more varied food resource base was available, including nuts, seeds, and more berries. The bifurcated base point is a defining artifact for the Middle Archaic and was common in the southeastern United States but is not found much further north than southern New England. This distinctive point style may have offered some hunting advantage in the oak forest. By the Middle Archaic, points were made of locally available raw materials, rather than the high-quality material that was favored in the Paleoindian and Early Archaic times (Pennsylvania Historical and Museum Commission 2012; LEAD 2020).

By the beginning of the Late Archaic (around 3000 B.C.E.), population had increased significantly, as evidenced by the increase in the number of known archeological sites and their larger size. The hunting and gathering groups were likely larger, with several related families banding together. The size of the groups likely fluctuated with the seasons, as well. More specialized tools were used to maximize the amount of usable food, as territories shrank. Drills, scrapers, grinding tools, and net sinkers are found in association with Late Archaic sites (Pennsylvania Historical and Museum Commission 2012b; LEAD 2020).

3.1.3 Transitional Period (1800-1200 B.C.E.)

Around 2000 B.C.E., there is evidence that the climate was in the middle of a warming and drying trend. As a result, many Transitional sites are found near water sources and appear to have been occupied longer. The trading of stone becomes evident, as does burial ceremonialism. There is little evidence of burial ceremonialism in Pennsylvania, but it is well documented elsewhere in North America (including nearby New York and New Jersey). Broadspears, or long, large, broad blades, are a new type of tool documented in the Transitional period. They may have been used as cutting tools, rather than as spears. The use life of these broadspears is extended by shaping broken blades into scrapers and drills. Another kind of drill, roughly six inches in length and quite thin, is also found and no specific use is known. Stemmed and notched points are also in use, carried over from Middle and Late Archaic times. Fire-cracked rock features are common on the Transitional period sites and suggest food was being cooked for large groups. Steatite, or soapstone, bowls are first found during this time frame. The presence of soapstone, rhyolite, and jasper at locations far from where they naturally occur is evidence of long-distance trading (Pennsylvania Historical and Museum Commission 2012c; LEAD 2020).

3.1.4 Early and Middle Woodland (circa 1200 B.C.E.-800 C.E.)

A climate similar to what we know today was in place by roughly 1000 B.C.E. and by around 400 B.C.E., the similarities to the preceding Transitional period had died out: soapstone bowls were replaced by ceramic vessels and tools were again being made from local materials. Hunting and gathering, however, did persist throughout this period. Early pottery was handmade and undecorated and may have been modeled after the soapstone bowls in form. Later, slab and coil construction was used and cord marking is evidence that the coils and slabs were smoothed together with a paddle wrapped in cordage. As pottery is not easy to transport long distances due to is fragility, a more sedentary lifestyle is suggested (Pennsylvania Historical and Museum Commission 2012; LEAD 2020).

In western Pennsylvania, the Adena culture flourished, and mound building and elaborate burial ceremonialism was practiced. There is also evidence that the Adena gathered seeds (sunflower and chenopodium) to grind into flour and used squash (Pennsylvania Historical and Museum Commission 2012d). During this time, vast trade and interaction existed in the area, and beyond. Dubbed the Hopewellian Interaction Sphere, this trade of exotic materials originating in the Ohio River Valley at the Hopewell Site and extended into the Pennsylvania area. Exotic materials (grizzly bear and shark teeth, galena, obsidian, mica, marine shell, silver, copper and pipe stone) were exchanged throughout the region and beyond. An increasing degree of ritualism went along with the establishment of this vast trade and interaction network. Monumental earthworks, effigy and burial mounds, and ceremonial centers are associated with the Hopewell. Very few of these Hopewell sites are found in Pennsylvania; in fact, few sites have been documented as Early to Middle Woodland, perhaps because the artifacts "are rather nondescript in appearance, and even their pottery is not distinctive" (Pennsylvania Historical and Museum Commission 2012d; LEAD 2020).

3.1.5 Late Woodland/Late Prehistoric (800-1550 C.E.)

Around C.E. 1000, the atlatl was no longer in use and the bow and arrow was the hunting mechanism of choice. Horticulture was practiced in addition to hunting, gathering, and fishing. Sites may have been occupied year-round and pottery styles are finer and more distinctive, so much so, that they can be defined into types by archeologists (LEAD 2020).

Between C.E. 1000-1300, sites in the Susquehanna River Valley generally contain one to two structures of a size that would house a family. Though this suggests that sites were dispersed and were occupied by only a few families, burial mounds have been documented in the central Susquehanna River Valley and may have required group efforts to manage. Groups of houses are documented after around C.E. 1300 and fortified villages are known by around C.E. 1400. Known as the Shenks Ferry culture, these stockaded villages contained up to 60 houses covering over four acres. Corn, beans, and squash were farmed, and burials have been found throughout but concentrating just outside the houses. By 1550, the Shenks Ferry culture appears to have dissipated or disappeared and the Susquehannock occupied the Lower Susquehanna River Valley. A series of 60-80-foot-long longhouses held as many as 5,000 people (Pennsylvania Historical and Museum Commission 2012e; LEAD 2020).

3.1.6 Contact Period (1550-1780 C.E.)

At the time of Contact, there were three distinct groups of Native Americans in Pennsylvania, each occupying one of the three major river valleys: the Delaware occupied the Delaware River Valley; the Susquehannock occupied the Susquehanna River Valley; and the Monongahela occupied the Ohio River Valley. Though not located directly on the Susquehanna River, LEAD is in the Susquehanna River watershed (Pennsylvania Historical and Museum Commission 2012f; LEAD 2020).

The stockaded villages of the Susquehannock suggest that unrest and fighting might have existed with neighboring villages. Excavations at the Shultz Site yielded some European artifacts, indicating that the fur trade may have begun in the late 1500s. The Native Americans wanted access to European goods and by the early 1600s the fur trade was in full swing. The Susquehannock began to trade with other Indian groups from Ohio, New York, and Canada and solidified a position as "middlemen", facilitating trade between native populations and the Europeans (Pennsylvania Historical and Museum Commission 2012). Other Indian groups resented the Susquehannock's position and inter-tribal conflict known as the "Beaver Wars" resulted. But trade with the Europeans continued. In fact:

"After European contact, the Susquehannocks engaged in extensive trading with the English, Dutch, and Swedes, receiving goods such as glass beads, iron axes, metal harpoons, brass kettles and flintlock muskets. By 1650, much of their natural technology had been replaced by European technology (Pennsylvania Historical and Museum Commission 2012f)."

As trade continued, so did inter-tribal war, especially between the Susquehannock and the New York Seneca. By 1675, the toll of warfare and European disease had decimated the Susquehannock. What was left of the population moved into Maryland but were eventually invited back by the Seneca, who were worried about other tribes moving into the gap created when the Susquehannock left. In the early 1700s the fledgling colonial government offered them land in Conestoga Township, Lancaster, Pennsylvania, and they became known as the Conestoga Indians. This is generally thought of as the first Indian reservation in Pennsylvania (Pennsylvania Historical and Museum Commission 2012f; LEAD 2020).

By the mid-1700s, France and England were both flexing their muscles, attempting to control more and more of North America. The French and Indian War (1754-1763) arose out of this conflict. Native American tribes banded together in their frustration with the Europeans. The French built forts in western Pennsylvania and the British build forts along the Susquehanna River. The majority of the fighting took place in the Ohio River Valley in the western portion of the state. Fort Loudon, located in present day Franklin County, was an important supply depot during the conflict (Pennsylvania Historical and Museum Commission 2012f; LEAD 2020).

Pontiac's War (1763) was essentially the last Indian attempt to control their fate. The remaining Susquehannock (now known as Conestoga) were attacked at Conestoga and slaughtered, essentially wiping out what remained of this tribe. The remaining Indians were quickly defeated and forced west of the Ohio River in that same year (Pennsylvania Historical and Museum Commission 2012f; LEAD 2020).

3.2 Historic Period

3.2.1 Colonial Period (1681-1776)

Londoner William Penn embraced the unpopular Quaker, or Society of Friends, religion and sought to convert friends and acquaintances. From a wealthy family, Penn used his money and status to protect fellow Quakers and promote their tenants. King Charles II owed a sum of money to Penn and rather than being repaid, Penn requested a land grant between New York and Maryland. On March 4, 1681, King Charles signed the Charter of Pennsylvania. In April of that year, Penn sent William Markham, his cousin, as deputy governor, to seize control of the territory. Philadelphia was anointed the capitol and the city and its adjacent counties laid out. Penn stayed for about two years and solidified the Quaker refuge. Quakers were the dominant people in Pennsylvania at that time, though English Anglicans also inhabited the area. Germans settled here too, most commonly in the interior counties and German population increased after 1727. Many Germans immigrated from the Rhineland. Hardships in Ireland led to an influx of Scotch-Irish between 1717 and 1776. Though Quaker sensibilities frowned upon slavery, some 4,000 African American slaves were brought to the area by 1730. By 1790, the African American population numbered around 10,000 (6,500 of which were freed). Smaller numbers of French Huguenot, Jewish, Dutch, and Swedes also resided in Colonial Pennsylvania (Pennsylvania Historical and Museum Commission 2012g; LEAD 2020).

Agriculture was an important part of Pennsylvania from the start, most notably in the southeastern portion of the state. Principal crops included corn and wheat, but rye, hemp, and flax were also popular. Of course, river ways were an important early mode of transport. By 1776, roads and stagecoach lines had reached into the south-central portion of the state, originating in Philadelphia. Benjamin Franklin and other inventors, scholars, and thinkers helped seal the reputation of colonial Philadelphia as the "Athens of America" due to its rich cultural life (Pennsylvania Historical and Museum Commission 2012g; LEAD 2020).

3.2.2 Revolutionary War to Civil War (Circa 1776-1861)

The first State Constitution was signed in September of 1776, but many Conservative patriots were opposed to it and fought with the Constitutionalists for years. In 1779, the Conservative governing body signed an act that would remove public lands from the Penn Family control; and in 1780, they signed an act calling for the gradual removal of slavery. By 1789 the Conservatives began to rewrite the state constitution, with both parties willing to give and take (Pennsylvania Historical and Museum Commission 2012h; LEAD 2020).

On July 4, 1776, the Declaration of Independence was adopted by the Continental Congress at Independence Hall in Philadelphia. Pennsylvania played an important role in the American Revolution, with Philadelphia serving as the capitol during much of the Revolution. Pennsylvania troops were involved in numerous battles. The importance of Philadelphia was evident to the British, who attacked in 1777 and eventually captured the city. The alliance with France, that had been negotiated by Ben Franklin, coupled with the British defeat at Saratoga, led the British to withdraw from Philadelphia. Pennsylvania farms, factories, and natural resources were important in the eventual success of the Revolution. With no central power, the Articles of Confederation no longer served its purpose and the Federal Constitutional Congress met in Philadelphia in 1787. Prominent Pennsylvanian, Benjamin Franklin was part of the delegation (LEAD 2020).

The U.S. Constitution was ratified by the Pennsylvania government in December and by June 21, 1788, it was ratified by nine of the 13 states and went into effect (Pennsylvania Historical and Museum Commission 2012h). The Pennsylvania border was established after disputes with neighboring states, including

Connecticut, Delaware, New York, and Virginia. By the 1860s, partially due to generous land grants, population in Pennsylvania had swelled and was distributed throughout the state. By the 1860s, the factory system was in full swing. Textile manufacturing was the most common, along with leather making, lumber processing, shipbuilding, publishing, tobacco processing, and paper manufacture. The iron and steel manufacturing were a boon to the state during these years. Iron ore and coal were also mined with great success (Pennsylvania Historical and Museum Commission 2012h; LEAD 2020).

3.2.3 Civil War and Industrial Era (1861-1940)

Though the Quakers had long opposed slavery and slavery had declined significantly in Pennsylvania, it was a major national issue by the eve of the Civil War. Due to its location at the Mason Dixon Line, Pennsylvania served as a border between the North and the South, and its geographic location somewhat protected the North during the conflict. The great iron and steel works were of great importance during the war, as were the Pennsylvania shipbuilding enterprises. Over 350,000 Pennsylvania soldiers were involved in the war effort. Chambersburg, just southeast of the current location of LEAD, was invaded several times and in fact was burned on July 20, 1864, by Robert E. Lee, leaving many homeless and a wake of damage (LEAD 2020).

After the war, the state's population began to rise, industrial enterprise continued, and the state government grew. During World War I (1914-1918) mills and factories provided supplies for the troops and the coal and steel industries were at maximum output. Over 324,000 Pennsylvanian men went to war. After the war, the influenza pandemic hit the Philadelphia Naval shipyards, unleashing the spread of the deadly disease in the area. The 1929 stock market collapse, which led to the Great Depression, was the start of tough times in Pennsylvania. With such large industrial workforce, the state suffered and by the end of 1931, 24% of the state's workforce was out of work. By 1933, the number had reached 37%. Production needs during World War II helped revive the flailing economy (Pennsylvania Historical and Museum Commission 2012i; LEAD 2020).

3.2.4 Letterkenny Army Depot (1941 to present)

Twelve army ordinance depots were planned in 1941, LEAD being one of them. The site had access to rail lines, was close to water, had human resources available, and was close but not too close to the East Coast and Washington, D.C. The local public decried the loss of prime agricultural land and the displacement of approximately 1,000 people but the bombing of Pearl Harbor, on December 7, 1941, soon changed the tide of public opinion and on December 18 of that same year, the Secretary of War ordered the purchase of 21,000 acres for construction of LEAD. Originally, 798 underground igloos, 12 aboveground magazines, and 17 warehouses were constructed and in 1956, an additional 104 igloos were added. Some existing buildings (farmhouses, barns, chicken houses) were re-purposed and used for LEAD operations. Three million tons of supplies were moved through LEAD during the World War II era (U.S. Army 2012; LEAD 2020).

After the war, LEAD was involved in peacetime storage and mission and destroying some of the unusable munitions that were shipped back after the war. At the start of the Korean War in the July of 1950, LEAD added many new employees, sometimes as many as 50 in a day and the work force topped 6,000. In 1953, LEAD began manufacturing missile parts. On July 1, 1954, LEAD became a permanent Army Depot. In 1956, the Depot began “canning” military vehicles in dehumidified storage tanks. This trial was deemed a success when all the vehicles came out in working order (U.S. Army 2012; LEAD 2020).

As the Korean War had in the 1950s, the Vietnam Conflict cause work at LEAD to accelerate in the 1960s. With increased demand, more employees were hired. The Depot Maintenance Division, for example,

employed some 1,400 people to recondition artillery, vehicles, and missiles. During the 1960s, the Depot was updated and automated (U.S. Army 2012; LEAD 2020).

Relocated from Fort Meade, Maryland in 1964, the 28th Ordnance Detachment was "to dispose of explosive ordnance items such as bombs, shells, rockets, and guided missiles in addition to assisting police in the disposal of explosives and war souvenirs" (U.S. Army 2012; LEAD 2020).

In the 1970s, LEAD was less active but still in use: the Northeast Area Flight Detachment moved to LEAD; in 1974, LEAD was slated to store war reserves of petroleum, oil, lubricants, and various chemicals and acids; the Air Tow Missile was maintained here; and in 1976, the U.S. Army Depot System Command (DESCOM) was established and headquartered here. By the end of the 1970s, LEAD was Pennsylvania's largest Military Installation, employing some 5,400 people (U.S. Army 2012; LEAD 2020).

In the 1980s, the Depot was again updated and modernized and became the largest repair center for HAWK missile system. In addition, LEAD began to work on the Sparrow, a radar guided air-to-air missile and the Improved Sidewinder, an infrared guided air-to-air missile. In the 1980s, LEAD began to comply with the Environmental Protection Agency's effort to clean up contaminated soil and water (U.S. Army 2012; LEAD 2020).

The 1990s brought Department of Defense downsizing but LEAD was selected to store and process all items for Operation Good Cause in the invasion of Panama in 1990. In 1992 LEAD was chosen to be the center of all Tactical Missile Systems in the Army, Navy, Air Force, and Marines and the Depot completed over 22 missile systems, thus solidifying their reputation as aggressive and efficient. LEAD was the only Department of Defense installation working on the PATRIOT missile system. After the September 11, 2001, terrorist attacks, LEAD began retrofitting vehicles and recapping PATRIOT missiles. The Depot was also updated again and received several awards of excellence during the decade (U.S. Army 2012; LEAD 2020).

3.3 Historic Map Review of Project Areas

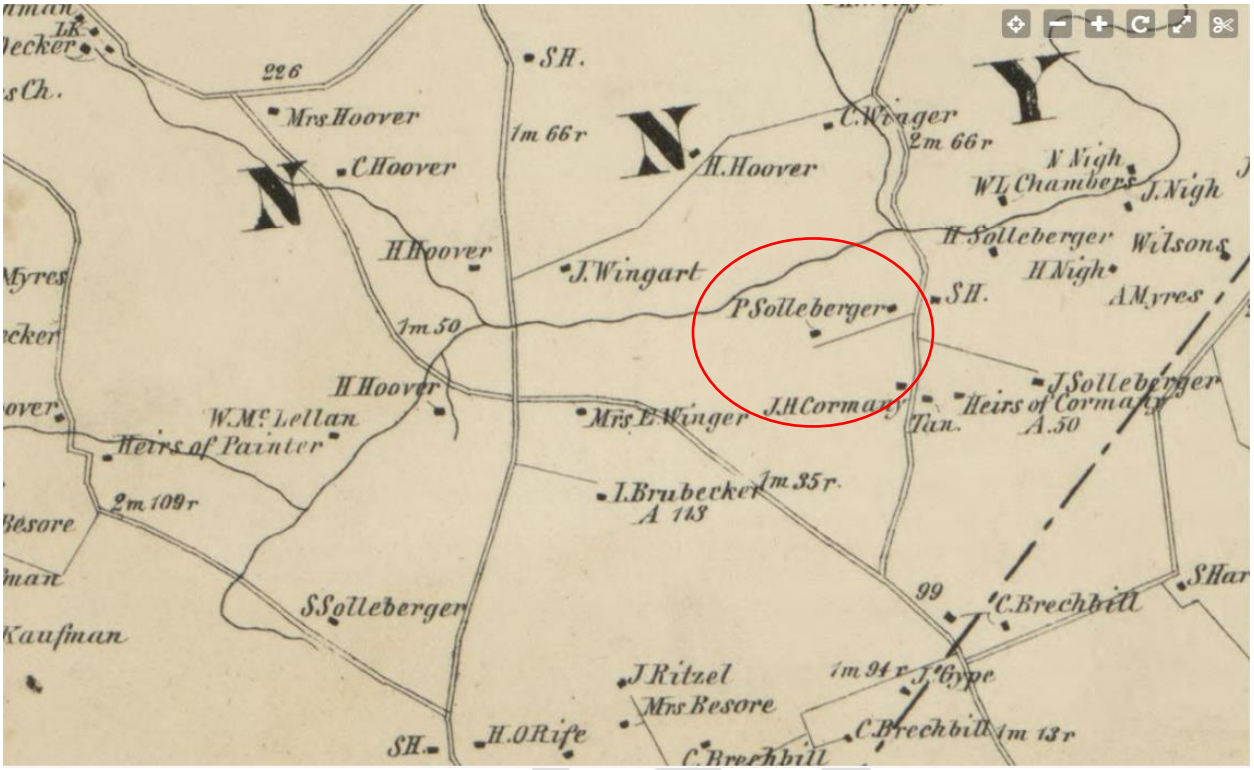

Figure 3-1: 1858 map of Franklin County, PA with RCY project area circled in red (Davidson).

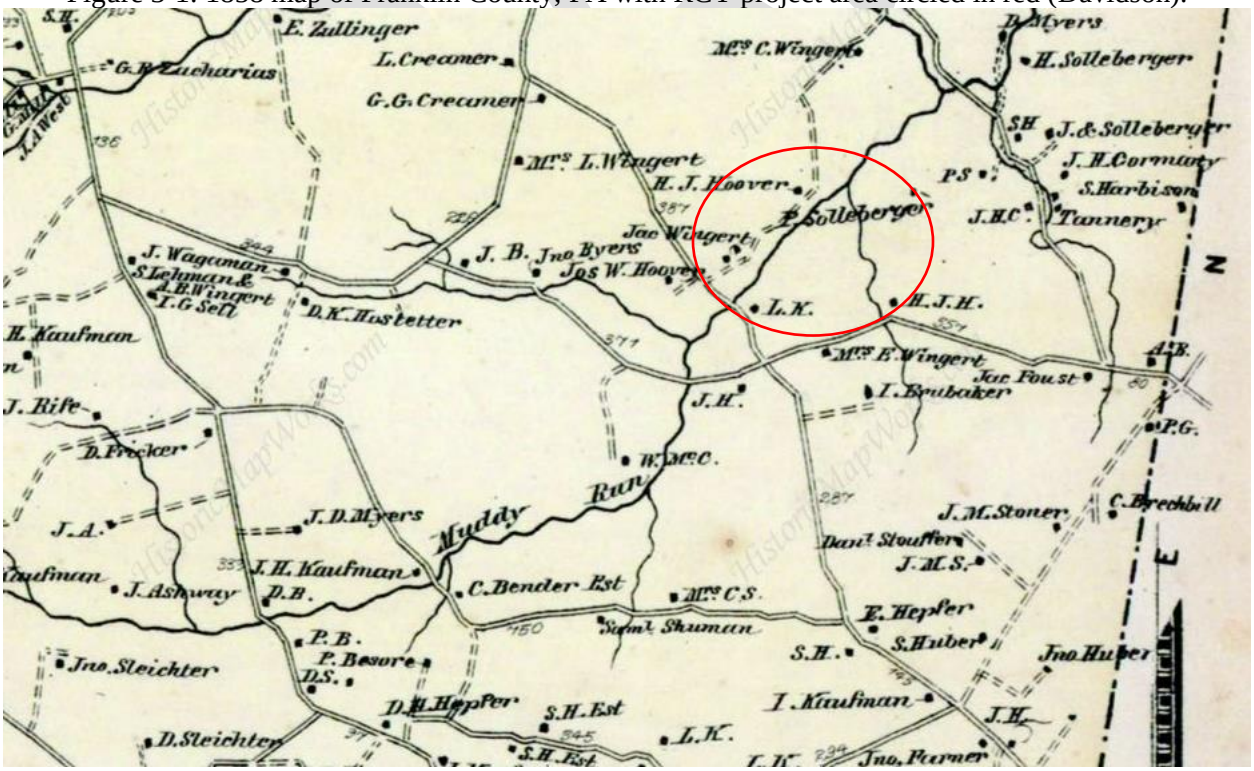

Figure 3-2: 1868 Atlas of Franklin County, PA with RCY project area circled in red; note that north points toward the top left in this map (Pomeroy and Beers 1868).

Name of Owner, Agent, or Manager of the Farm.	Improved.	Unimproved.	Cash value of Farm.	Value of farming Implements and Machinery.	Horses.	Asses and Mules.	Milch Cows.	Working Oxen.	Other Cattle.	Sheep.	Swine.	Value of Live Stock.	Wheat, bushels of.	Rye, bushels of.	Indian Corn, bushels of.	Oats, bushels of.	Rice, lbs. of.	Tobacco, lbs. of.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
1 John Washinger	180	20	7000	475	4		4		9		21	571	375	60	400	150		
2 Catharine Hoover	85	26	2775	250	4		3		3	4	5	326	250	75	400	200		
3 Christian Hoover	130	30	4000	300	4		6		7	10	8	641	375	65	375	175		
4 John L. Hoverent	100	20	2250	100	1		3		2		5	211	100	50	225	100		
5 Jacob Weigert	140	40	4500	400	4		6		7	20	10	456	200	40	300	75		
6 Peter Hoover	100	20	2700	350	3		4		7	9	10	321	250	60	325	100		
7 Peter Sollenberger	100	20	2600	275	3		4		4	4	14	497	150	35	200	57		
8 John Sollenberger	90	16	2675	175	1		3				5	190	150	35	225	25		
9 Jacob Benbaker	120	60	8345	175	3		2		6		14	430	300	22	450	30		
10 John Hoover	90	30	5400	200	5		5		8		10	515	250	30	375	250		
11 Israel Horst	45	5	1250	75	1		2				5	155	75		125	15		
12 James Gelwix	140	46	4650	190	3		6		4		15	407	300	40	375	100		
13 Benjamin Hoover	55	5	1680	75	2		3		3		9	276	100		100	100		
14 John Sollenberger	80	32	3460	150	3		5		3	5	6	372	175	25	175	200		

Figure 3-3: Peter Sollenberger's appearance in the 1850 Agricultural Census (PHMC).

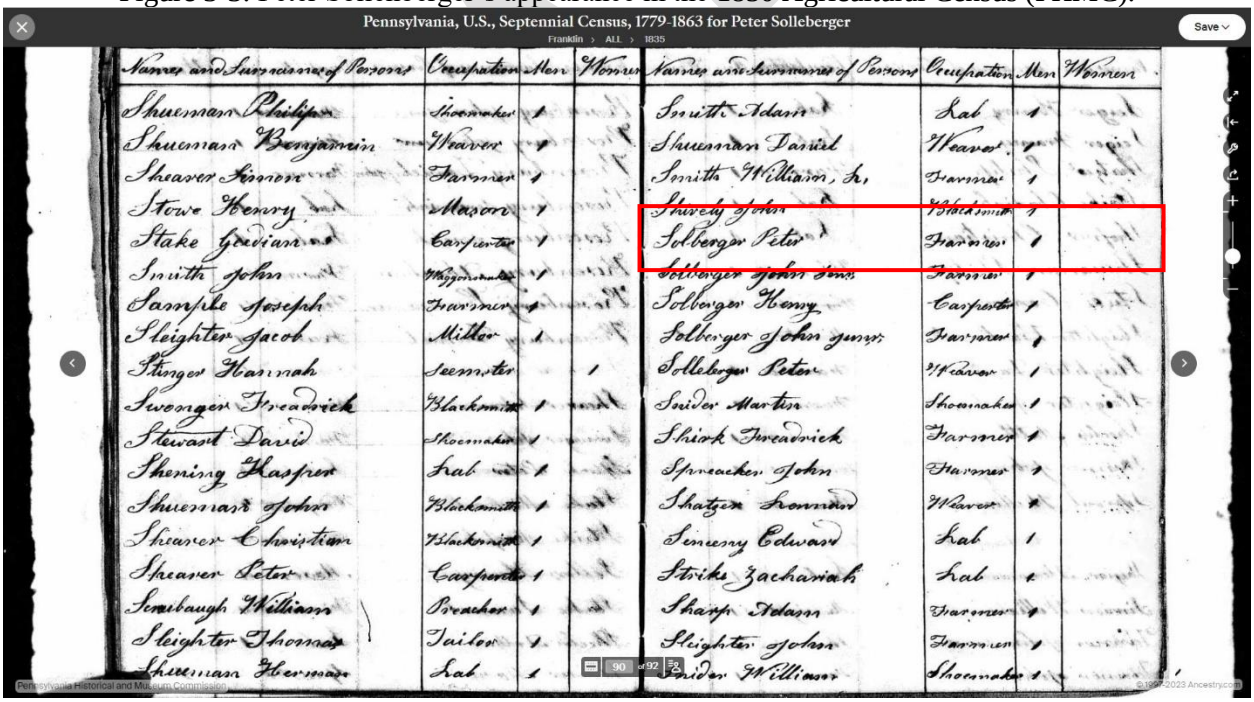

Figure 3-4: Peter Sollenberger's appearance in the 1835 Septennial census of Franklin County (Ancestry)

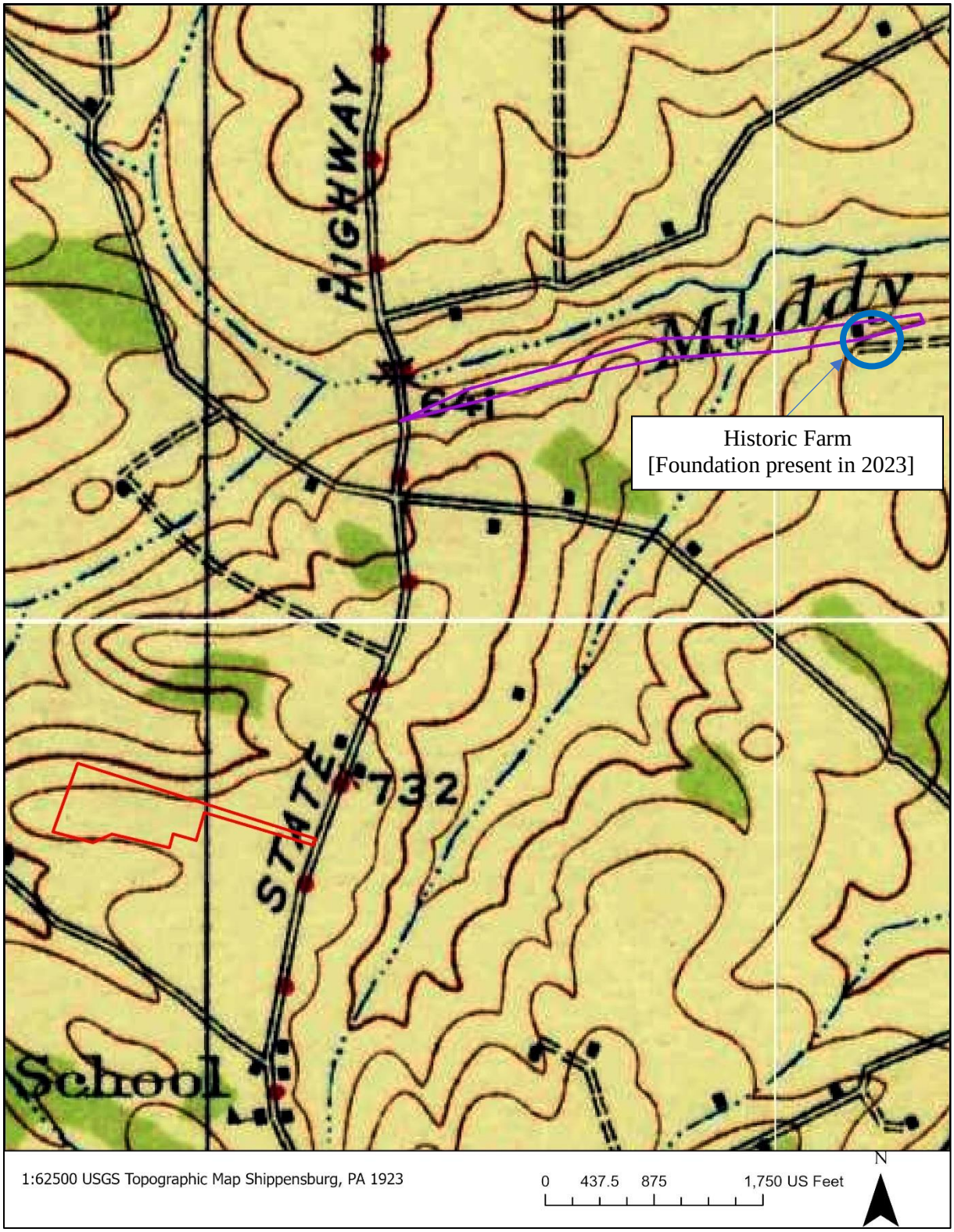

Figure 3-5: USGS Topographic Map, Shippensburg, PA 1923, 1:62500.

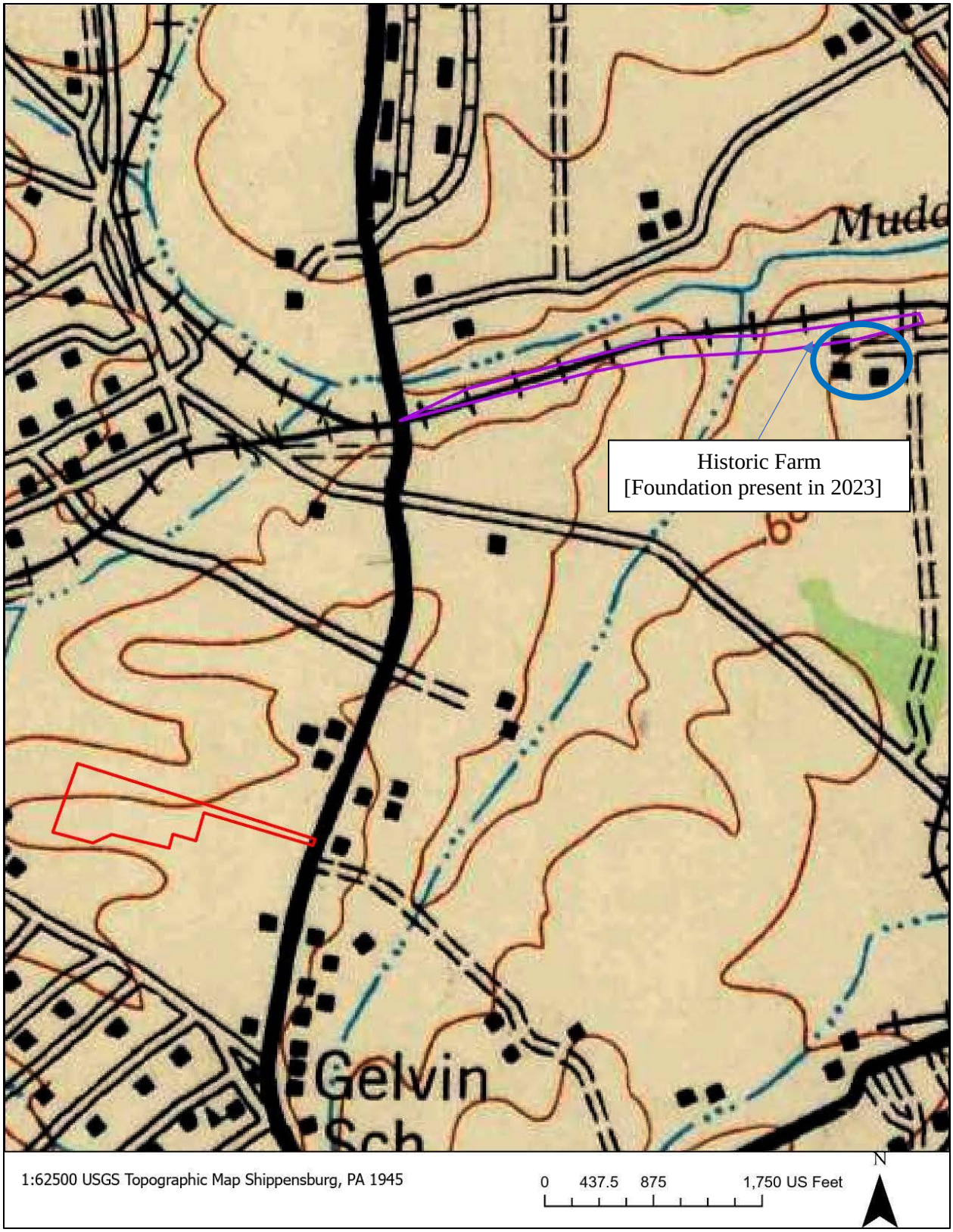

Figure 3-6: USGS Topographic Map, Shippensburg, PA 1945, 1:62500.

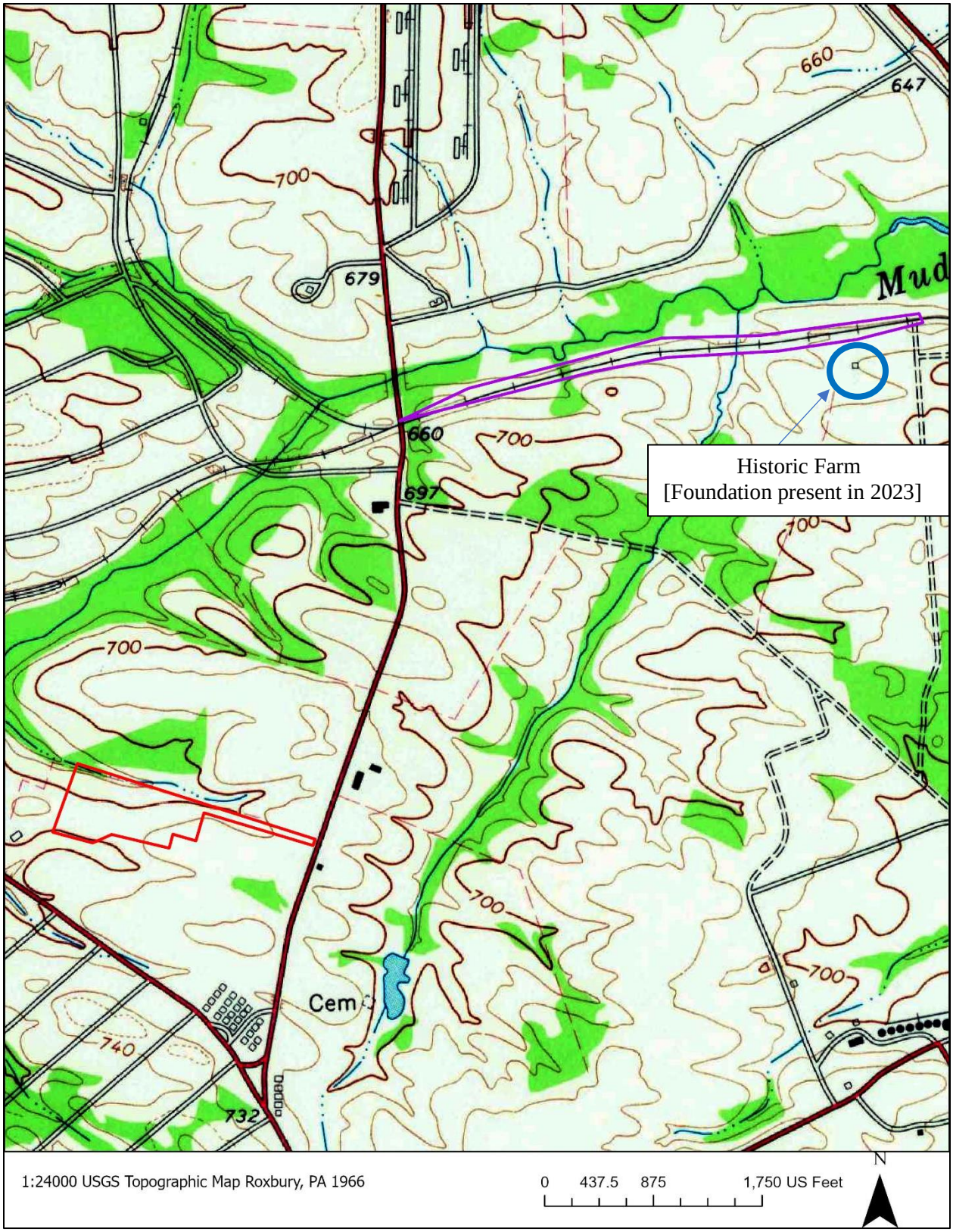

Figure 3-7: USGS Topographic Map, Roxbury, PA 1966, 1:24000.

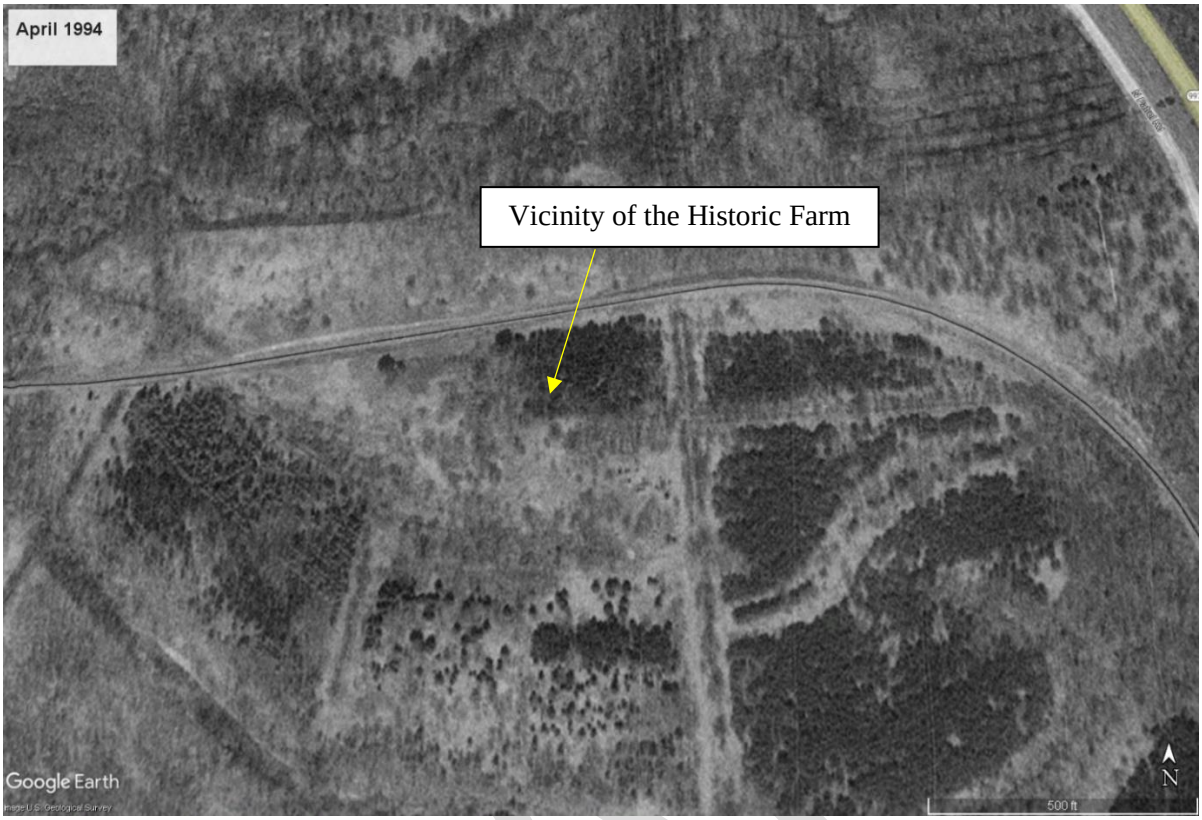

Figure 3-8: Eastern end of the RCY LOD, April 1994 Aerial Image via Google Earth.

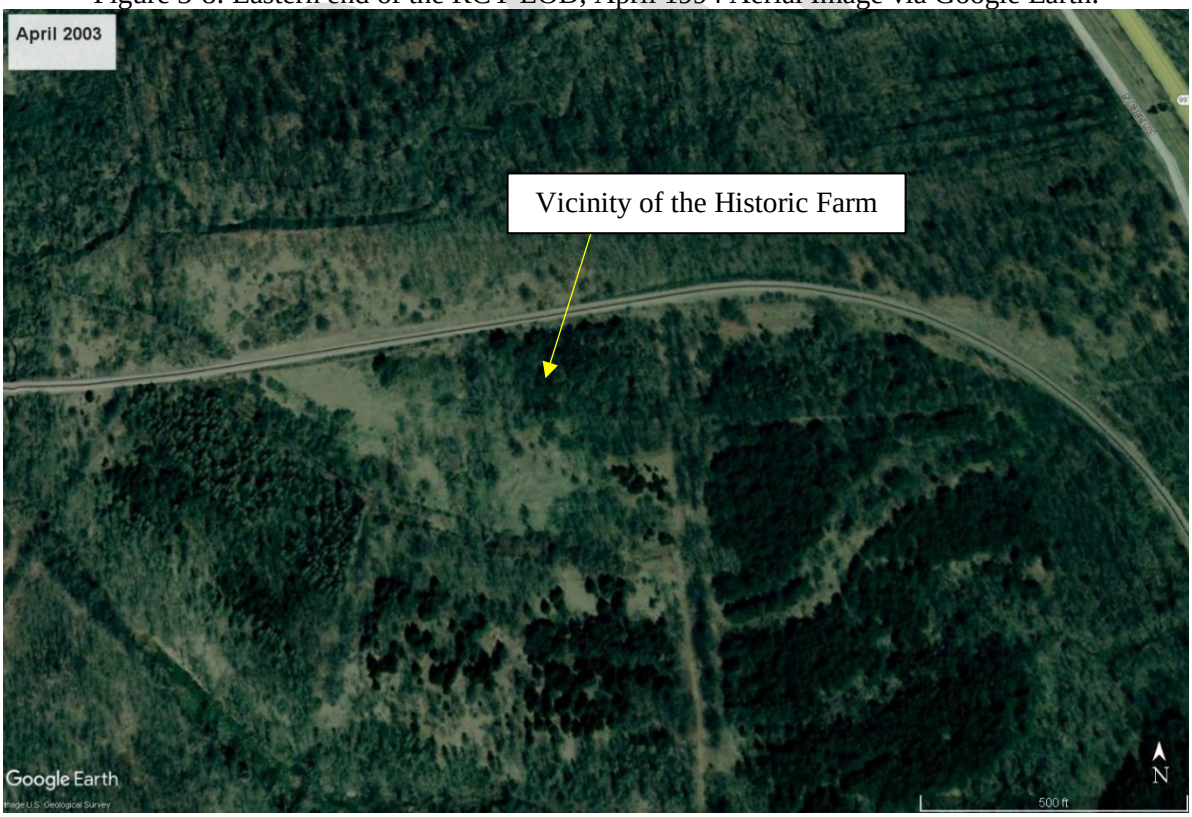

Figure 3-9: Eastern end of the RCY LOD, April 2003 Aerial Image via Google Earth.

Figure 3-10: Eastern end of the RCY LOD, March 2007 Aerial Image via Google Earth.

4 Previous Archaeological Investigations

Six cultural resource investigations have been previously conducted at LEAD (which all fall outside of the current proposed undertaking's LOD). In 1981, John Milner and Associates conducted a Phase I-level archaeological reconnaissance of approximately 200 acres of LEAD in support of proposed future development (Roberts 1981). Three precontact archaeological sites and three historic archaeological sites were identified in this survey. The precontact archaeological sites include two possible Archaic campsites (36FRI13 and 36FR114) and one possible multicomponent site (36FRI12). The three historic archaeological sites included the probable location of the Isaac Meyers House, an abandoned Franklin County roadway, and the Joseph W. Fegan stone quarry. The abandoned roadway and the quarry were not considered eligible for National Register listing.

In 1985, an archaeological overview and management plan for LEAD was prepared by the Pennsylvania State University and the Envirosphere Company (Klein 1985). This investigation, which was primarily based on documentary resources such as historic maps and atlases, determined that there are at least 345 potential historic archaeological sites at LEAD. The archaeological overview and management plan produced maps of LEAD showing the location of potential historic archaeological sites, based on the historic maps and atlases. These maps were digitized by the Baltimore District and were used by LEAD to avoid potential historic archaeological sites in the selection of some of the construction sites for the five projects described in this report. The archaeological overview and management plan also determined that, although large areas of LEAD have been disturbed, it is likely that many precontact archaeological sites also exist at LEAD.

The Baltimore District conducted a Phase I archaeological investigation of the north side of Cartridge Road in the northeast section of LEAD in 1993 (U.S. Army Corps of Engineers, Baltimore District 1993). The archaeological investigation was conducted in support of a proposed dualization of Cartridge Road. This investigation identified two historic archaeological sites. The Jno. Wingerton House, located at the west end of Cartridge Road, was determined to be ineligible for National Register listing. The Rush Hoover House, located near the middle of Cartridge Road, was determined to be potentially eligible for National Register listing. The Cartridge Road Phase I investigation also reexamined precontact site 36FR113, which was reported as being located on the north side of Cartridge Road near an unnamed tributary of Muddy Run (Roberts 1981 :26-27). The Cartridge Road investigation determined that this precontact site no longer exists (U.S. Army Corps of Engineers, Baltimore District 1993:13).

A Cultural Resources Survey was conducted by Patricia Miller under contract with USACE in 1997 for portions of LEAD subject to Base Realignment and Closure (BRAC) activities (Miller 1997). The BRAC project area is located in the southeast portion of LEAD, outside the ammunition storage area. The archaeological survey tested 114 acres including areas thought to have a high probability for historic archaeological sites, and sample areas with either a high or a low probability for precontact archaeological sites. Eleven historic archaeological sites were identified. Five of those sites did not contain significant information; the remaining six were thought to be potentially eligible for National Register listing. No precontact archaeological sites were identified, although an isolated rhyolite stemmed point was found (Miller 1997:91).

In June 1998, a Programmatic Agreement (PA) was entered into among the U.S. Army, the Pennsylvania State Historic Preservation Office, and the Advisory Council on Historic Preservation, regarding BRAC activities at LEAD. In this PA, all World War 11-era permanent and semi-permanent construction at LEAD was determined to be eligible for listing in the National Register of Historic Places as a National Register District. The LEAD National Register District was considered eligible under Criterion A for its association with the events of World War 11(1939-1945).

A Phase I-level cultural resource investigation was conducted by the Baltimore District in July 2000 at four locations at LEAD. The four locations were being considered for the construction of an ammunition container storage and repair facility. A potentially National Register eligible historic archaeological site was identified in the northeast corner of the intersection of Virginia and Massachusetts Avenues. The site is possibly associated with the Wisler (Whisler) farmstead that appears on the 1858 Davidson and 1868 Beers atlases, or the Wilber Martin house appearing on the Brinton 1950 map of former LEAD homes (Davidson 1858, Beers 1868, Brinton 1950).

The most recent previous cultural resource investigation at LEAD was conducted by the Baltimore District in 2001. The investigation consisted of a Phase I cultural resource investigation of a proposed Field Ammunition Supply Area (FASA) to be used by the 351st Ordnance Company to conduct training activities related to the storage and handling of munitions. The Phase I investigation was conducted on approximately 30 acres of the larger, 589-acre parcel selected for the FASA. A light scatter of twentieth century artifacts was found, and two isolated precontact artifacts were also recovered. The precontact artifacts consisted of a jasper comer-notched projectile point and a rhyolite biface fragment. None of the artifacts or sites were found to be National Register eligible.

5 Methodology

5.1 Background Research & Site Visit

LEAD has no record either the MMDF or the RCY areas have ever been surveyed for archaeological sites. In addition to reviewing LEAD's files and previous survey reports, the PA SHPO's online database, PA SHARE, was carefully reviewed to understand the archaeological context of the area. There are 14 known archaeological sites within 1 mile of the MMDF and RCY sites. They are listed below in Table 2.

Table 2: Sites Near to the RCY or MMDF Project Areas

Site Number	Description	Eligibility
36FR0113	Pre-Contact Open Habitation	Undetermined
36FR0355	Historic; Rush Hoover House	Undetermined
36FR0412	Pre-Contact; Muddy Run	Undetermined
36FR0024	Pre-Contact	Undetermined
36FR0019	Pre-Contact	Undetermined
36FR0017	Pre-Contact	Undetermined
36FR0018	Pre-Contact	Undetermined
36FR0023	Pre-Contact	Undetermined
36FR0342	Historic; Willow Grove School	Undetermined
36FR0114	Pre-Contact	Undetermined
36FR0393	Historic; C. Brechbill Farmstead	Undetermined
36FR0398	Historic; G. Cover Site	Undetermined
36FR0387	Historic; Jno Huber Farmstead	Undetermined
36FR0388	Historic; Jno Huber House	Undetermined

On 6 December 2022, the USACE team visited and conducted an initial pedestrian survey of the project areas.

The MMDF site was observed to be a cleared agricultural field being used for growing hay (Figures 5-1 and 5-2). The build site is on an obvious ridge that gently slopes down towards the stream to the north. Trees surround the agricultural field. Examination of historic topographic maps and aerial photographs do not show any previous buildings or infrastructure on this site (USGS; NetROnline). Due to the field's proximity to the stream and wetlands to the north along with being on a relatively stable and flat upland, this project site could have a moderate potential for unidentified archaeological resources.

The RCY site is characterized by overgrowth and evidence of past disturbance in the form of mounded soil, gravel, and debris from past railroad and farming activities (Figure 5-3). There has been past land clearing and grading activities along the railroad. Examination of historic topographic maps and aerial photographs show the railroad was built during World War II (USGS; NetROnline). Due to this past disturbance, most of the RCY project area along the railroad has a low potential for intact archaeological resources. However, on the eastern end of the project area there is a known historic farmstead, potentially associated with Peter Solleberger's ownership of a farm in this vicinity in the mid-19th century (Figure 3-1). During the December 2022 site visit, the foundation of a house and former stone wall was observed (Figures 5-4 and 5-5).

Figure 5-1: MMDF Site looking west; taken 6 December 2022.

Figure 5-2: MMDF Site looking east; taken 6 December 2022.

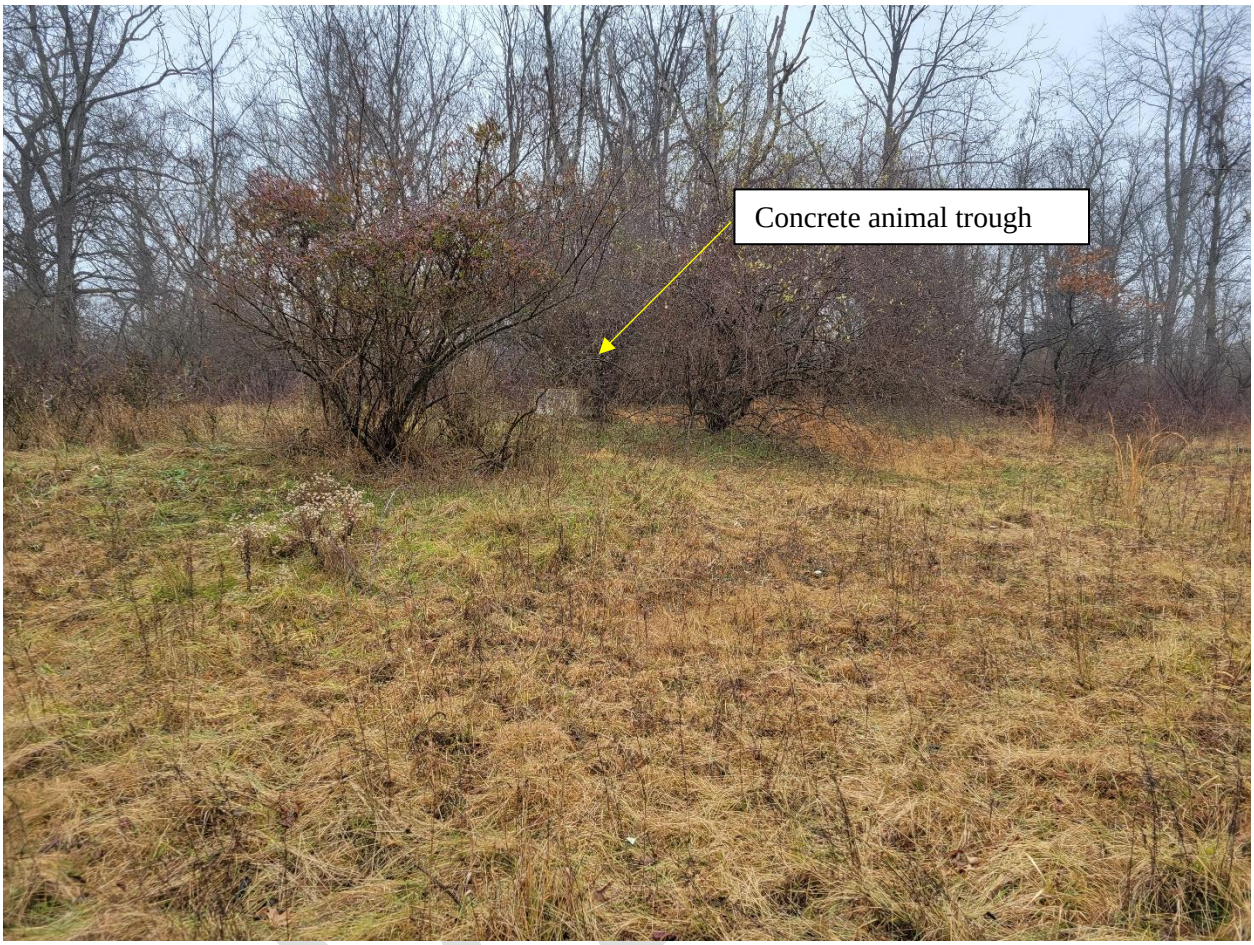

Figure 5-3: RCY Site looking east; taken 6 December 2022.

Figure 5-4: RCY Site looking east; foundation of former farmhouse; taken 6 December 2022 (Feature 2)

Figure 5-5: RCY Site looking west; stone wall near the farmhouse; taken 6 December 2022 (Feature 2)

5.2 Field Investigations and Laboratory Methodology

The goal of the Phase I field survey was to identify archaeological sites in the project area, along with defining their vertical and horizontal boundaries.

As the MMDF project site has a moderate potential for precontact sites, the team excavated shovel test pits (STPs) at a 50-foot interval on a grid system across the proposed build site. STP locations were mapped using a Trimble R2 GNSS Receiver. STPs were hand excavated in 1.5-2-foot diameter circular pits and did not extend deeper than 3 feet. Stratigraphic information for each hole was documented via a Munsell Soil Color Chart.

All excavated soils were screened through ¼ inch hardware mesh and excavation extended to a depth at which no archaeological materials could be found or at which the vertical Area of Potential Affect (APE) had been investigated to the point where the project impacts would not affect any deeper archaeological deposits. STPs extended at least 4 inches (10 centimeters) into sterile subsoil. All STPs were excavated in natural stratigraphic levels. If archaeological resources were identified during shovel testing, additional STPs (radials) would have been excavated in a cruciform pattern within the original testing grid to preliminarily define the site boundary.

A farmer currently leases the MMDF site. LEAD tried to coordinate the timing of the Phase I survey with planned spring plowing/disking. Unfortunately, due to scheduling conflicts the survey team was unable to complete a controlled surface collection.

As most of the RCY project site has been disturbed by railroad construction activities, STPs were excavated judgmentally to try to catch any areas within the APE that could be undisturbed along the railroad corridor. The team walked the entire length of the project area. Testing and examination of soil disturbance was focused on the areas for the proposed shipping receiving building and suspect track.

There is a known historic farm on the eastern end of the RCY project site. As this area was originally located outside of the RCY LOD, systematic shovel testing of the area was not completed. A pedestrian survey of the above ground features captured the boundaries of this complex to ensure this area could be avoided by the RCY project team. The above ground features were mapped which included the known house foundation and associated stone wall. Modern materials, such as plastic waste, were noted in the field, but not collected. For the RCY farmstead, large building materials and 20th century debris on the ground surface were noted but were not collected as to leave as much of the foundation and surrounding wall features intact as possible.

For any sites identified during the survey, site boundaries were defined based on the location of recovered/observed artifacts and features. At a minimum, the site boundaries encompassed all the artifacts and features associated with a particular site. Any proposed site boundaries heavily considered landforms and topography.

6 Survey Results

6.1 MMDF

At the MMDF location, USACE excavated 360 STPs across the open farm field (Figures 6-1, 6-2). Apart from a few modern wire nails and shot gun shells found on or near the surface, no artifacts or features were documented. As the property has been under the control of the Army since the 1940's very little to no modern plastic trash was present near the surface. The STPs were excavated into sterile subsoil which were found 1 to 2 feet below ground surface. Figure 6-3 shows a typical soil profile for the STPs.

6.2 RCY

After walking the length of the railroad corridor, USACE confirmed that the limits of disturbance (LOD) for the RCY project location are highly disturbed from earth moving for the construction of the railroad in the 1940's. There are sharp topographic reliefs on the either side the railroad corridor (Figures 6-4 and 6-5). Soils were periodically examined along the corridor by the field crew, and large amounts of gravel were present throughout the soil profiles.

Since the stone building foundation was known southeast of the RCY LOD, USACE field crew members started there and then radiated outward looking for additional features and architectural debris on the ground's surface. USACE did identify two building foundations, a concrete animal trough, stone wall features, and a debris field of architectural materials associated with former farm complex (Figures 6-6 and 6-7). The site boundaries were drawn to encompass these features and 20th century debris noted on the ground's surface. This site has been assigned the site number *INSERT SITE NUMBER ONCE ASSIGNED* by the PA SHPO.

Feature 1- 'Foundation A' was once a brick building with a stone foundation that had a cellar (Figures 6-10 and 6-12). Metal roofing material was noted nearby on the ground.

Feature 2- 'Foundation B' was once a stone building with a cellar and a well adjacent to its western wall (Figures 6-14 and 6-15).

Feature 3- Roughly four short stone walls that are attached in an approximate rectangular shape (Figures 6-16 and 6-17) that could have potentially been used for animal pens.

Feature 4- Concrete animal trough and well feature (Figure 6-9).

Feature 5- Bricks in situ in a straight line on the ground's surface (Figure 6-11) that could be part of a lined pathway.

Feature 6- Large overgrown mound of architectural debris, mainly stone and brick (Figure 6-8).

Figure 6-1: STP locations across the MMDF site.

Figure 6-2: Field crew member digging STPs in March 2023.

Ap, 10YR4/4 Channery Sandy Clay Loam	0-0.4'	*Typical Soil Profile*
Bw, 10YR4/6 Channery Sandy Clay Loam	0.4'-1'	
Bw2/C, 10YR5/8 Channery Sandy Clay Loam	1'-1.5'	
STPs were excavated in tenth's of feet		

Figure 6-3: Sample STP profile excavated at the MMDF site

Figure 6-4: Southern side of the railroad looking north

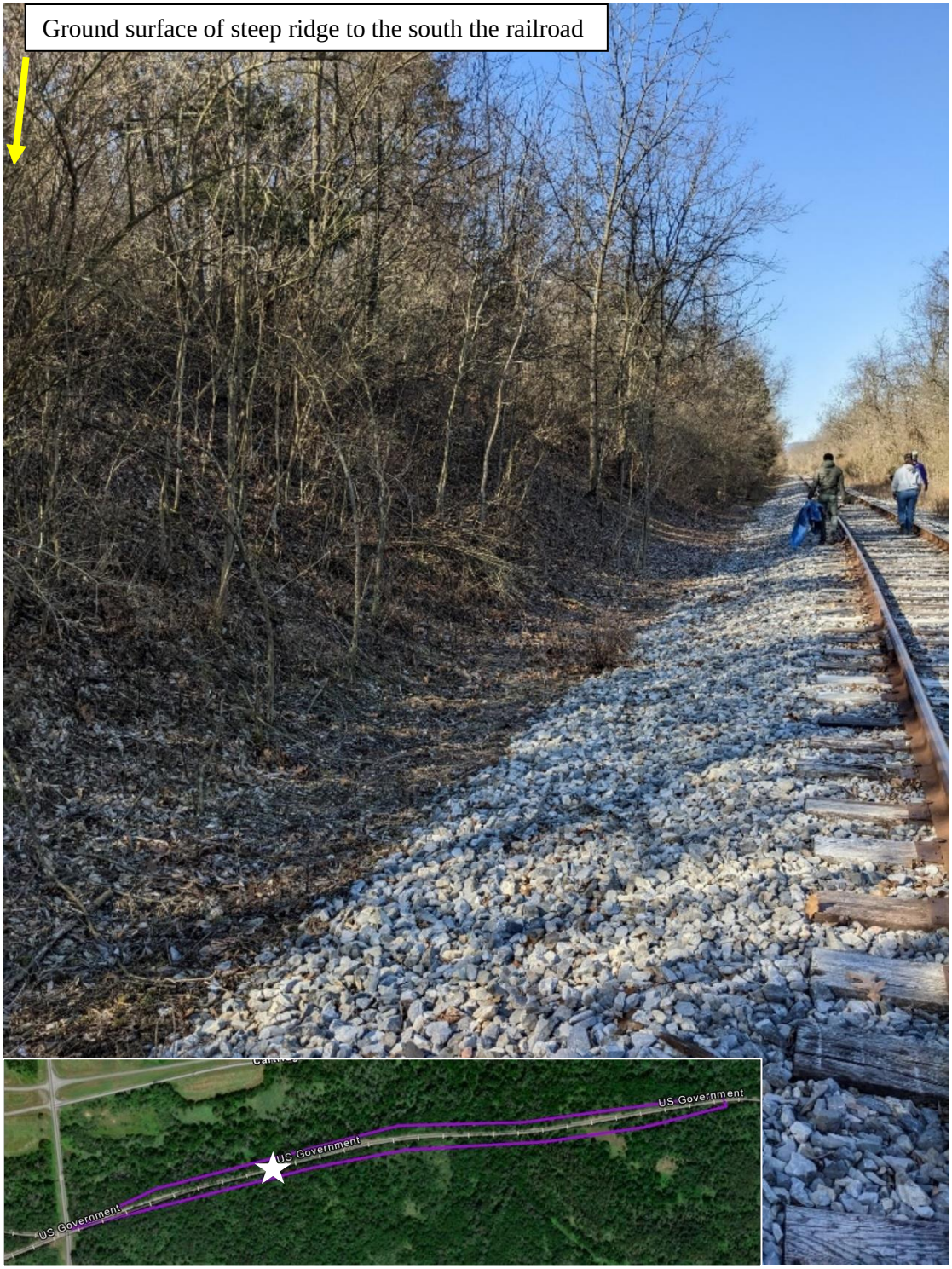

Figure 6-5: Southern side of the rail road looking west

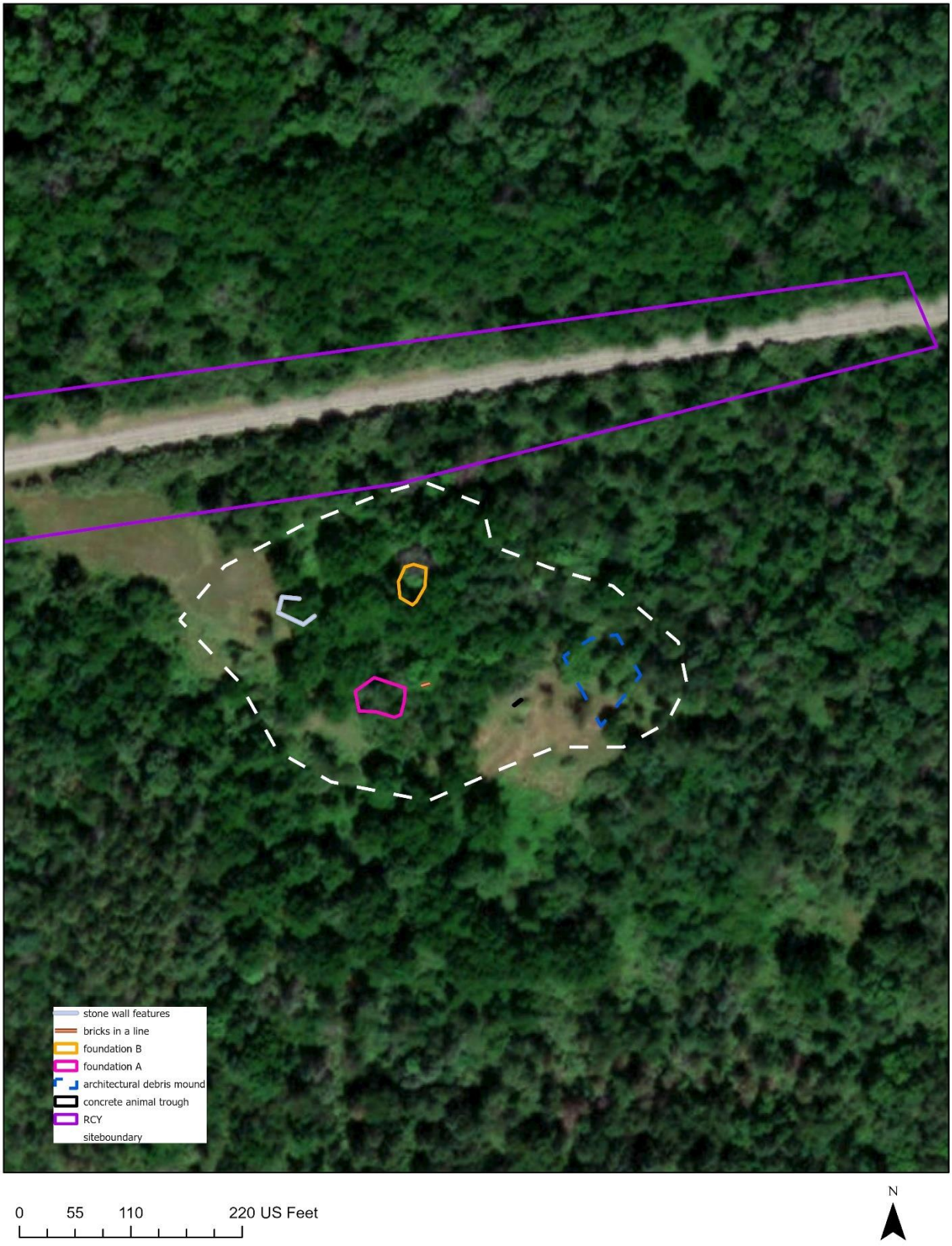

Figure 6-6: Historic Features adjacent to the RCY LOD

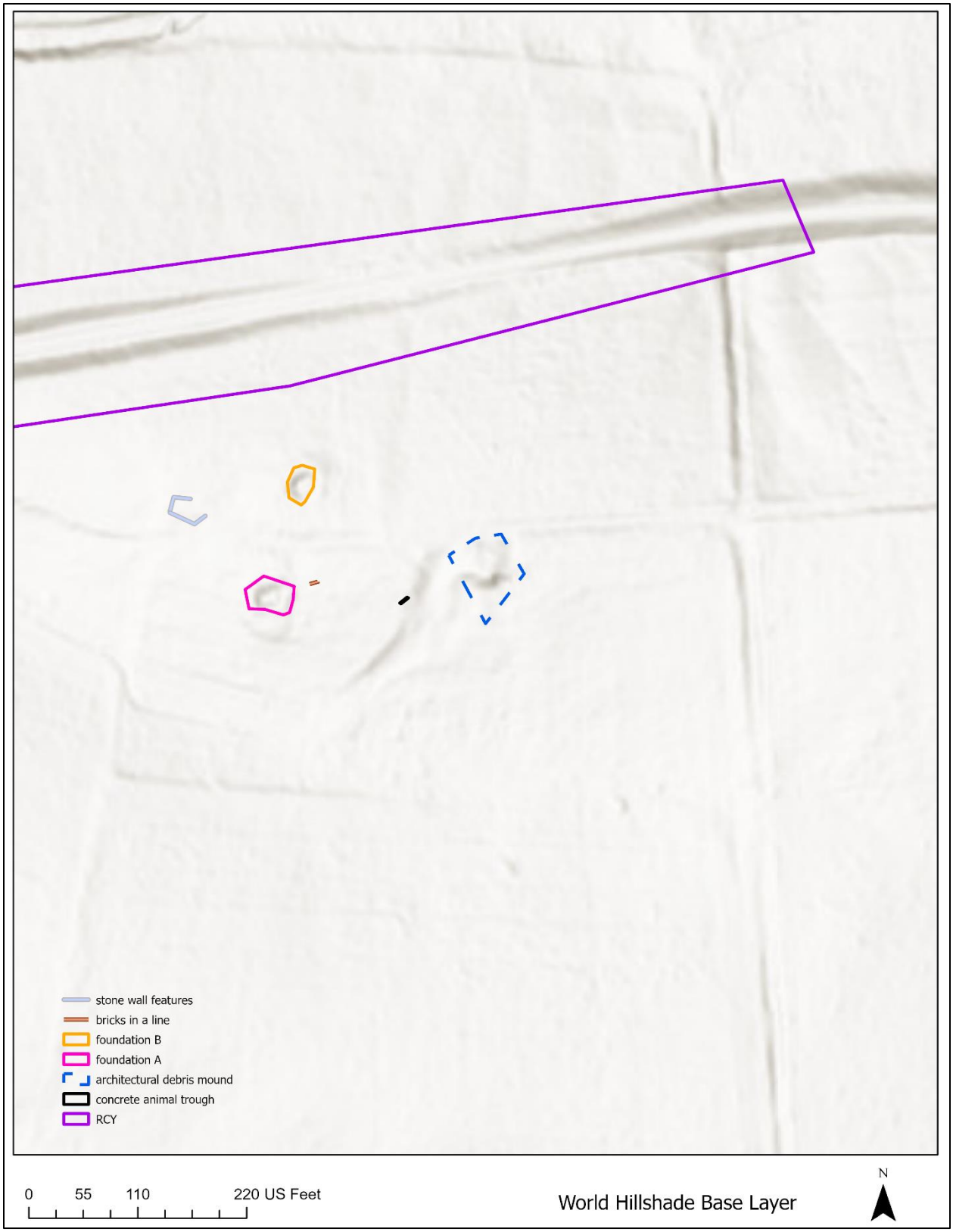

Figure 6-7: Historic Features adjacent to the RCY LOD

Figure 6-8: Feature 6, 20 March 2023

Figure 6-9: Feature 4, 20 March 2023

Figure 6-10: Metal roofing to the east of Feature 1, 20 March 2023

Figure 6-11: Feature 5, Red line highlights bricks in line in situ at the ground surface, 20 March 2023

Figure 6-12: Feature 1, Foundation A, Brick Building, 20 March 2023

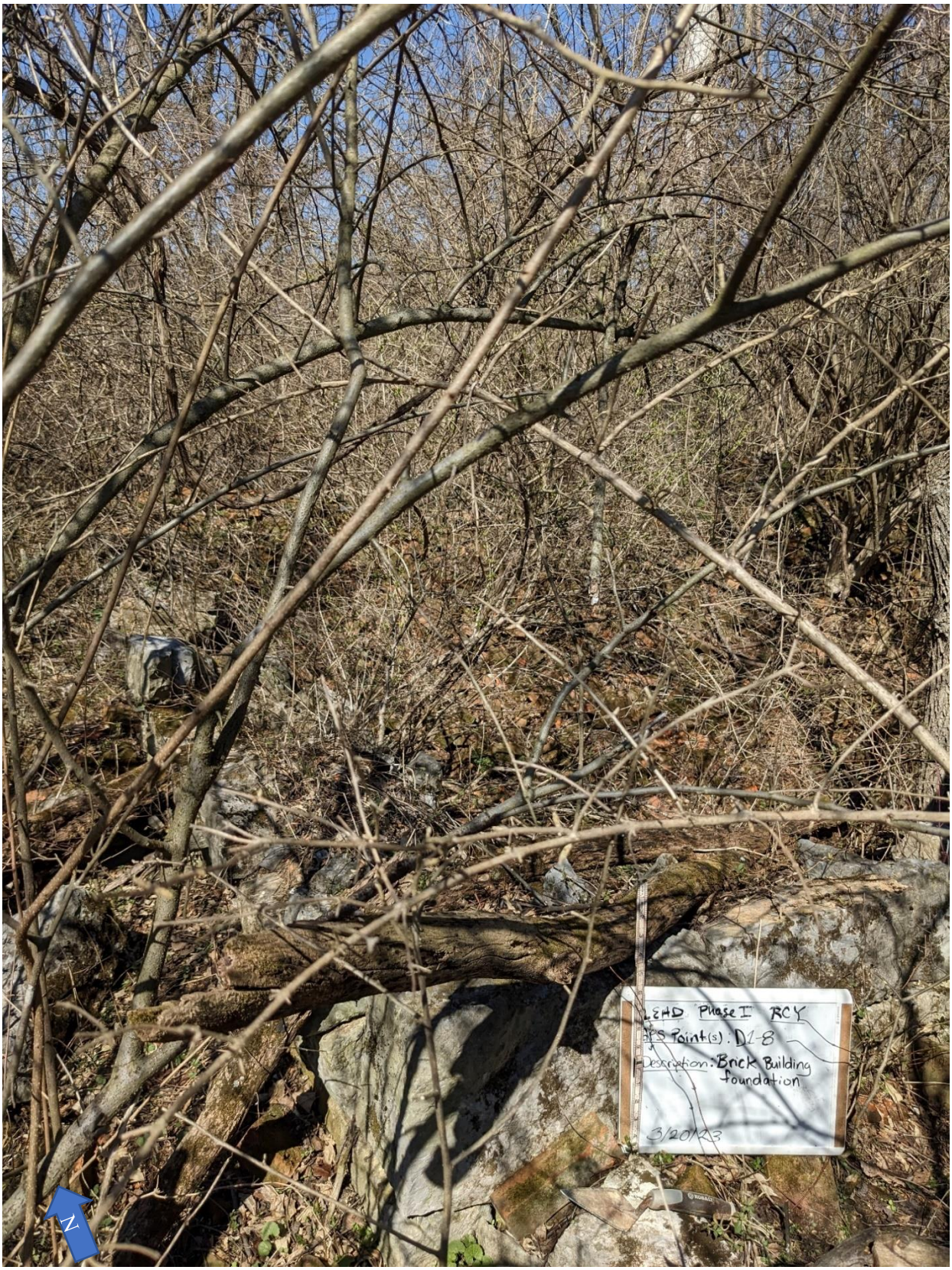

Figure 6-13: Feature 1, Foundation A, Brick Building, stone foundation southwestern corner, 20 March 2023

Figure 6-14: Feature 2, Foundation B, Stone Building cellar, 20 March 2023

Figure 6-15: Feature 2, Foundation B, Stone Building cellar, 20 March 2023

Figure 6-16: Feature 3, stone walls, 28 March 2023

Figure 6-17: Feature 3, stone walls, 28 March 2023

6.3 Statewide Pre-Contact Probability Model Comparison

A Statewide Pre-Contact Probability Model was developed as a joint venture between the PA Department of Transportation (PennDOT) and the PA SHPO. Construction of the model consisted of sectioning the state into 10 regions based on Physiographic Zone and watershed, identifying, and building the statistical model(s) by region using pre-contact site locations from the PASS Files, and analyzing relevant environmental factors. The results of this survey have been compared to this model to test its accuracy.

6.3.1 MMDF

While the MMDF is on a slight ridge adjacent to a small stream and three wetlands to the north of the agricultural field (Figure 2-2), the statewide model shows this area has having a low potential for pre-contact archaeological sites (Figures 6-18, 6-19). The Phase I testing completed for this survey confirmed the model's prediction that no significant archaeological sites are located in this field. In this case, the model proved true.

6.3.2 RCY

The statewide model shows the upland to the south of the RCY LOD as having areas of high probability for precontact sites (Figures 6-18, 6-20). This is reasonable as the railroad cuts across between a plateau to the south and a stream and large wetland to the north (Figure 2-1). Unfortunately, the construction of the railroad in the 1940s likely destroyed any significant archaeological sites located along the middle terrace, though additional testing would be recommended further south on top of the plateau for any future projects (Figure 6-21).

6.4 June 2023 RCY LOD Design Update and Grading Plan

In June 2023, the USACE engineering design team determined that due to the steep topographic relief and geologic conditions on the eastern end of the RCY project that the slope would need to be cut back further than previously thought or a retaining wall would need to be built (Figure 6-22). This would expand the LOD into the identified archaeological site. Originally, the Phase I conclusions recommended that the RCY project maintain a 100-foot buffer away from the known site features and building foundations. Since the designs have changed, a Phase II investigation is recommended to determine if the site is eligible for the National Register of Historic Places (NRHP).

The Phase II fieldwork shall consist of a mixed strategy of STPs and test units. The purpose of the additional work is to search for artifacts, and features, that would contribute to a better understanding of the site. STPs are recommended as a way to probe for stratigraphy across the area of concern, and identify site boundaries more tightly, as well as identify areas where test units should be placed. Test units are recommended to open up larger areas to search for any features, and to collect additional artifacts that would refine the understanding of what people were doing on the landscape, and when they were there, for example, to determine if the site might be associated with Peter Solleberger's ownership of the property in the mid-19th century. The numbers of STPs and test units recommended will be based on the size of the area of concern. It is recommended that the amount of STPs and test units provide adequate coverage equivalent to meet the SHPO *Guidelines* Phase II goals and allow for a determination of NRHP eligibility. The evaluation shall result in a definition of those resources which are eligible or ineligible for NRHP listing. The purpose of a site evaluation is:

- To accurately define site boundaries and assess the horizontal and vertical integrity;
- To determine whether the site is eligible for the NRHP and under what criterion; and
- To provide recommendations for future treatment of the site. These goals can best be met when research strategies focus on determining site chronology, site function, intrasite structure, and integrity.

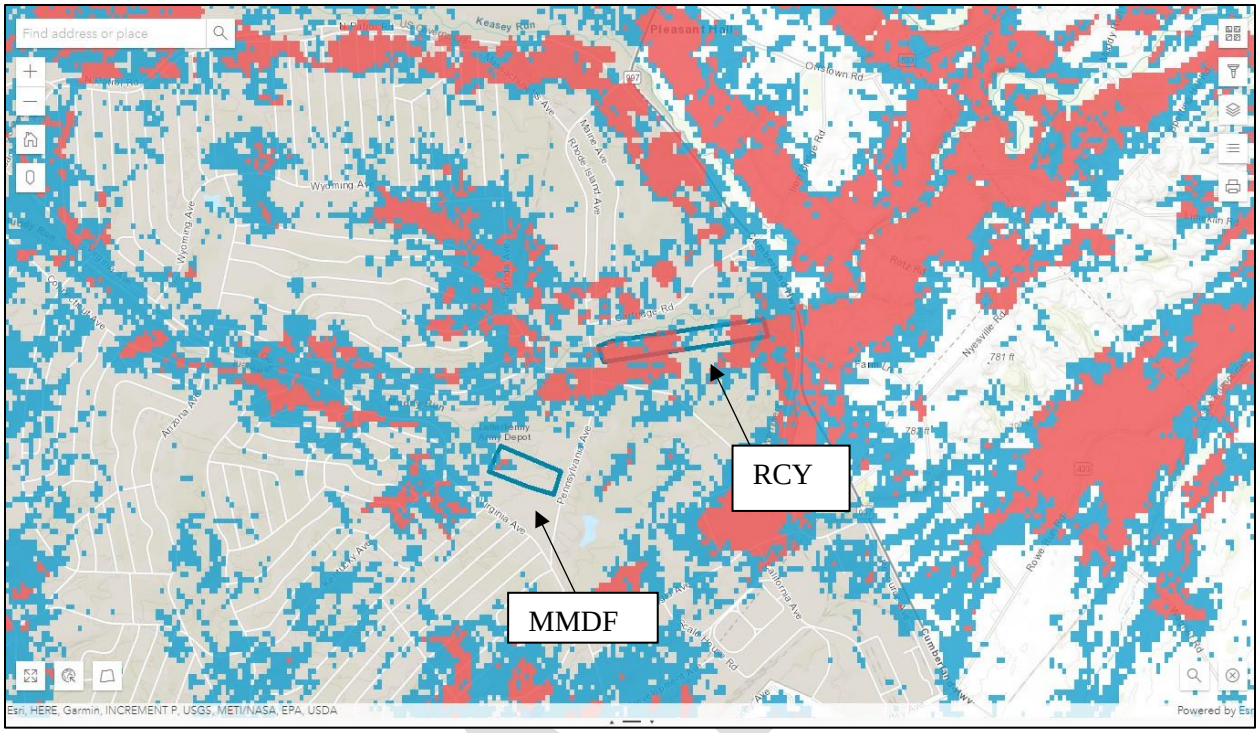

Figure 6-18: Statewide Pre-Contact Predictive Model view of the LODs within PASHARE on 3 May 2023

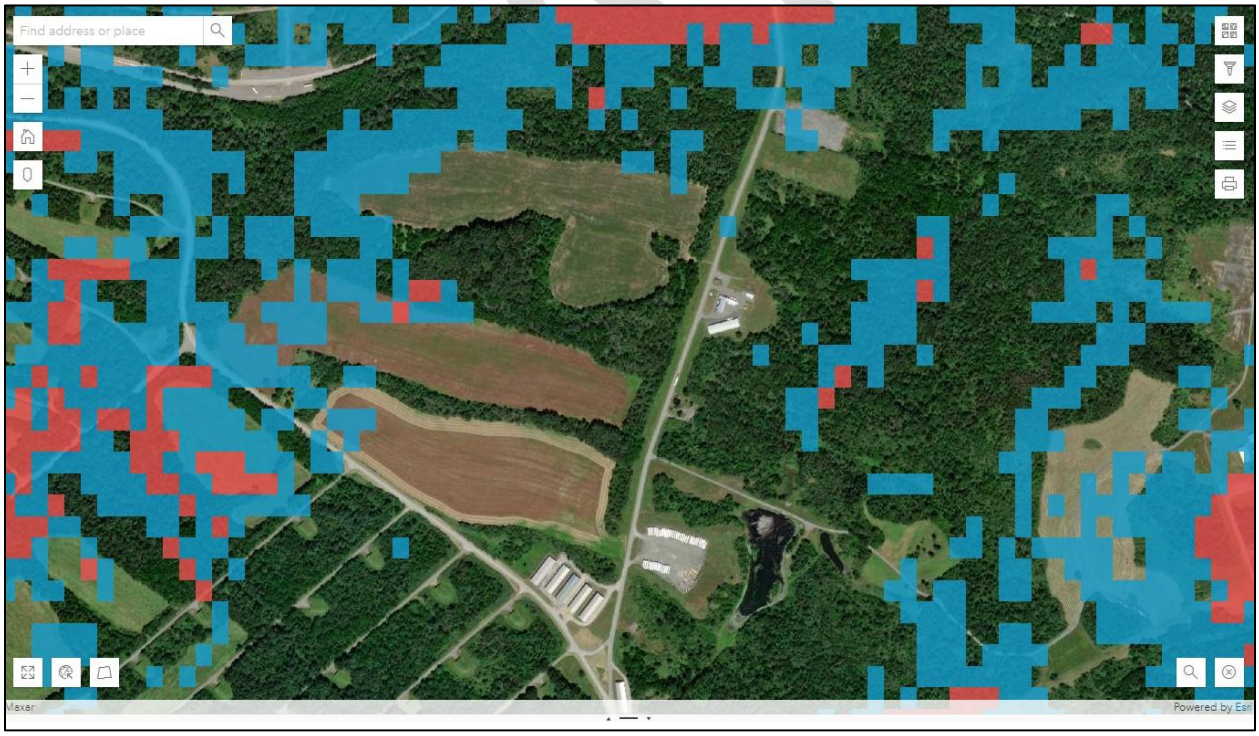

Figure 6-19: Statewide Pre-Contact Predictive Model view of the MMDF area

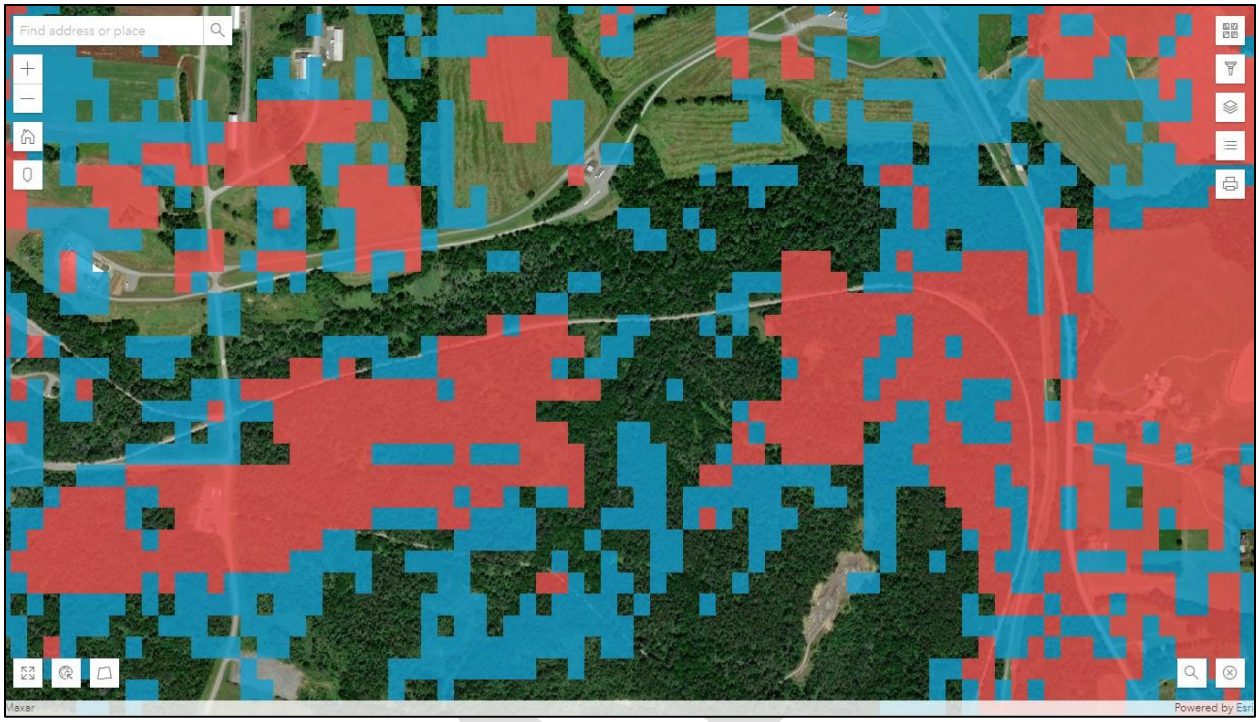

Figure 6-20: Statewide Pre-Contact Predictive Model view of the RCY area

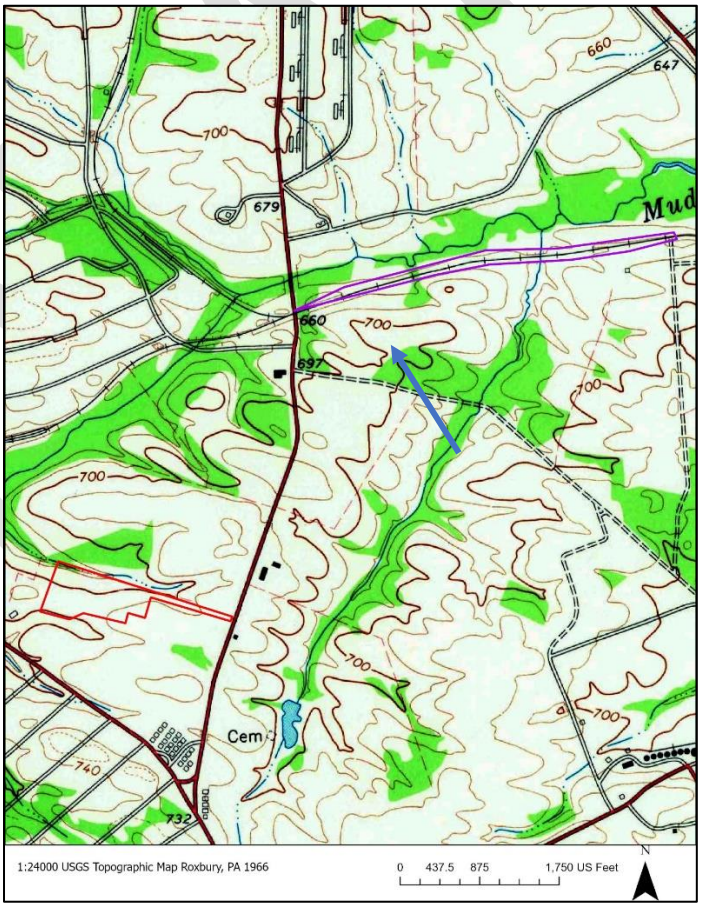

Figure 6-21: Natural plateau to the south of the RCY LOD that could need further testing for pre-contact sites

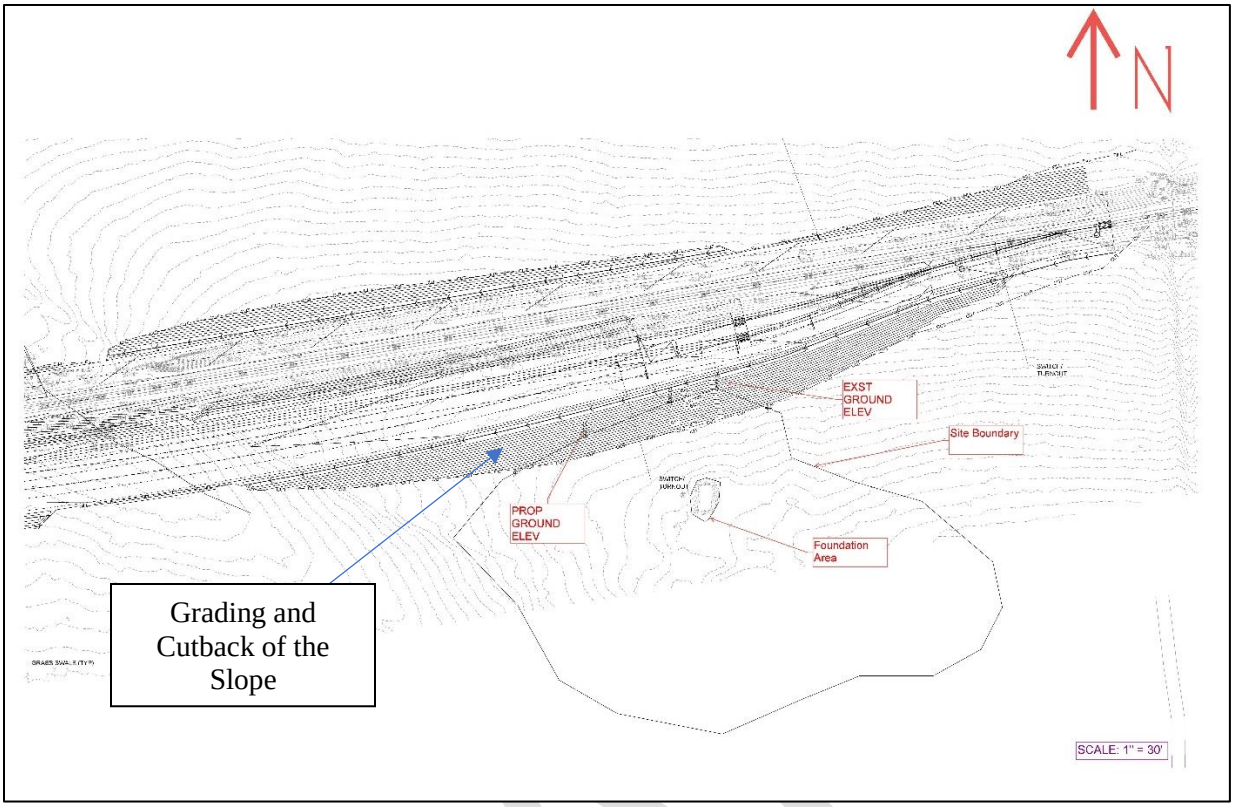

Figure 6-22: New Grading Concept Plan, June 2023

7 Conclusions and Recommendations

This Phase I archaeological survey report includes the background, methodology, and results for the Phase I archaeological investigation for a proposed undertaking at LEAD in Chambersburg, central Franklin County, Pennsylvania. The report has been prepared by USACE at the request of LEAD. The current proposed undertaking includes the construction and operation of a MMDF and RCY on the northeast section of LEMC.

On December 6th, 2022, the USACE team visited and conducted an initial pedestrian survey of the project areas. The MMDF site was observed to be a cleared agricultural field being used for growing hay. The build site is on an obvious ridge that gently slopes down towards the stream to the north. Trees surround the agricultural field. Examination of historic topographic maps and aerial photographs do not show any previous buildings or infrastructure on this site. Due to the field's proximity to the stream and wetlands to the north along with being on a relatively stable and flat upland, this project site had a moderate potential for unidentified archaeological resources.

The RCY site is characterized by overgrowth and evidence of past disturbance in the form of mounded soil, gravel, and debris from past railroad activities. There has been past land clearing and grading activities along the railroad. Examination of historic topographic maps and aerial photographs show the railroad was built during World War II. Due to this past disturbance, most of the RCY project area along the railroad has a low potential for intact archaeological resources. However, on the eastern end of the project area there is a known historic farmstead. During the December 2022 site visit, the foundation of a house and former stone wall was observed. Based on this site visit, a Phase I investigation to identify archaeological sites within the project's APE was recommended.

From March 13-22, USACE completed a Phase I investigation project area to identify the presence of archaeological sites and their boundaries. At the MMDF location, USACE excavated 360 shovel test pits across the open farm field. Apart from a few modern wire nails and shot gun shells found on or near the surface, no archaeological sites or features were identified. USACE recommends no further archaeological testing for the MMDF project.

USACE confirmed that the limits of disturbance (LOD) for the RCY project location are highly disturbed from earth moving for the construction of the railroad. No further testing is recommended within the project LOD along the main railroad corridor.

USACE identified two building foundations, a concrete animal trough, stone wall features, and a debris field of architectural materials associated with a former farm complex to the southeast of the RCY LOD (*INSERT SITE NUMBER ONCE ASSIGNED*). As of June 2023, the RCY project cannot maintain a 100-foot buffer away from the former foundations (particularly Feature 2/Foundation B), so an extensive Phase II investigation of the site is recommended to determine if the site is eligible for the NRHP. USACE has awarded a contract to complete this investigation and a work plan is being drafted.

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1945 Shippensburg, PA, Topographic Map, 1:62500

1966 Roxbury, PA, Topographic Map, 1:24000

Appendix A: Detailed Soil Descriptions

Berks	
Setting	Landform: Mountain slopes, ridges Landform position (two-dimensional): Backslope, summit, shoulder Landform position (three-dimensional): Upper third of mountainflank, side slope Down-slope shape: Convex Across-slope shape: Convex, linear Parent material: Residuum weathered from shale and siltstone and/or fine grained sandstone
Typical Profile	Ap - 0 to 7 inches: channery silt loam Bw1 - 7 to 15 inches: channery silt loam Bw2 - 15 to 28 inches: very channery silt loam C - 28 to 36 inches: extremely channery silt loam R - 36 to 46 inches: bedrock
Properties and Qualities	Slope: 3 to 8 percent Depth to restrictive feature: 20 to 40 inches to lithic bedrock Drainage class: Well drained Runoff class: Medium Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.06 to 5.95 in/hr) Depth to water table: More than 80 inches Frequency of flooding: None Frequency of ponding: None Calcium carbonate, maximum content: 1 percent Gypsum, maximum content: 1 percent Maximum salinity: Nonsaline (0.0 to 1.0 mmhos/cm) Sodium adsorption ratio, maximum: 1.0 Available water supply, 0 to 60 inches: Very low (about 2.9 inches)
Interpretive Groups	Land capability classification (irrigated): None specified Land capability classification (nonirrigated): 2e Hydrologic Soil Group: B Ecological site: F147XY008PA - Shallow Mixed Sedimentary Upland Other vegetative classification: Dry Uplands (DU2) Hydric soil rating: No

Weikert	
Setting	Landform: Ridges Landform position (two-dimensional): Shoulder, backslope Landform position (three-dimensional): Side slope Down-slope shape: Linear Across-slope shape: Convex Parent material: Gray and brown acid residuum weathered from shale and siltstone and/or fine grained sandstone
Typical Profile	Ap - 0 to 7 inches: channery silt loam Bw - 7 to 10 inches: extremely channery silt loam C - 10 to 15 inches: extremely channery silt loam R - 15 to 25 inches: bedrock
Properties and Qualities	Slope: 8 to 15 percent Depth to restrictive feature: 10 to 20 inches to lithic bedrock Drainage class: Somewhat excessively drained Runoff class: Medium Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.06 to 6.00 in/hr) Depth to water table: More than 80 inches Frequency of flooding: None Frequency of ponding: None Maximum salinity: Nonsaline (0.0 to 1.0 mmhos/cm) Available water supply, 0 to 60 inches: Very low (about 1.4 inches)
Interpretive Groups	Land capability classification (irrigated): None specified Land capability classification (nonirrigated): 6e Hydrologic Soil Group: D Ecological site: F147XY008PA - Shallow Mixed Sedimentary Upland Other vegetative classification: Droughty Shales (SD3) Hydric soil rating: No

Ernest	
Setting	Landform: Hills Landform position (two-dimensional): Footslope Landform position (three-dimensional): Base slope Down-slope shape: Linear Across-slope shape: Linear Parent material: Local fine-silty colluvium derived from sedimentary rock
Typical Profile	H1 - 0 to 7 inches: silt loam H2 - 7 to 27 inches: channery silty clay loam H3 - 27 to 43 inches: channery silty clay loam H4 - 43 to 65 inches: channery silt loam
Properties and Qualities	Slope: 3 to 8 percent Depth to restrictive feature: 20 to 36 inches to fragipan Drainage class: Moderately well drained Runoff class: Medium Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.60 in/hr) Depth to water table: About 18 to 36 inches Frequency of flooding: None Frequency of ponding: None Available water supply, 0 to 60 inches: Low (about 4.0 inches)
Interpretive Groups	Land capability classification (irrigated): None specified Land capability classification (nonirrigated): 2e Hydrologic Soil Group: C Ecological site: F147XY002PA - Mixed Sedimentary Upland Hydric soil rating: No

Appendix E
Finding of No Practicable Alternative

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DEPARTMENT OF DEFENSE

UNITED STATES ARMY

FINDING OF NO PRACTICABLE ALTERNATIVE

FOR THE MISSILE MUNITIONS DISTRIBUTION FACILITY (MMDF) AND RAIL CLASSIFICATION YARD (RCY) AT

LETTERKENNY ARMY DEPOT, FRANKLIN COUNTY, PA

1.0 Introduction

Letterkenny Army Depot (LEAD) is located in Chambersburg, central Franklin County, Pennsylvania. LEAD is a government-owned United States (U.S.) Army installation operated by Army Aviation and Missile Command (AMCOM). Letterkenny Munitions Center (LEMC) is a large tenant operation with the boundaries of LEAD. LEMC is a U.S. Army, government-owned facility under the command of the Joint Munitions Command (JMC). LEMC conducts regional and global contingency distribution of munitions, provides missile maintenance, and conducts demilitarization of munitions for the Army in support of all Department of Defense (DoD) and international partners to provide readiness to the warfighter.

The Proposed Action consists of the demolition of Buildings 1456 and 2365; construction of a 54,268 SF Missile/Munitions Distribution Facility (MMDF) and a vehicle storage building (536 SF); and the construction of a Rail Classification Yard (RCY) (12,260 linear feet [LF]) with an access control building (255 SF) within the boundaries of LEMC. The project will include cybersecurity, sustainability/energy measures, building information systems, and site development. The only portion of the Proposed Action analyzed in this document is the RCY, as it is the only portion of the project that will impact floodplains and wetlands. The proposed MMDF Building limit of disturbance (LOD) was moved south to avoid impacts to wetlands and streams. The proposed MMDF and RCY projects are located in the eastern section of LEAD (Figures 1 and 2).

The Proposed Action is needed to provide an effective, efficient, and DoD Explosives Safety Board (DDESB)-compliant MMDF at LEMC, capable of handling LEMC's demands for ammunition processing. With the implementation in 2006 of the JMC's Integrated Logistics Study (ILS) and Enterprise-Integrated Logistics Study (E-ILS), LEMC has been designated as the provider of joint munitions for the Northeast Region.

MMDF facilities currently in use are restricted in throughput capacity due to an explosive safety quantity distance (ESQD) constraint. The quantity of munitions processed is severely constrained by exposed sites. A requisite safe operating distance between these exposed sites and the MMDF must be maintained. As part of LEAD's legacy rail infrastructure there are two existing RCYs, Classyard 1 and Classyard 2. However, Classyard 1 and Classyard 2 are now outside the ammunition area due to LEAD's 1995 Base Realignment and Closure (BRAC) requirement to transfer its entire rail system over to a private development. LEMC has trackage rights to Classyard 1, but the private development authority owns the track. LEAD does not have trackage rights to Classyard 2. The tracks at Classyard 1 have fallen into disrepair. If this project is not provided, a DDESB-compliant MMDF capable of responding effectively and efficiently to the centralized ammunitions shipments specific to the Northeast Region will not be available.

Floodplains and associated wetlands have been identified in the Proposed Action area. Executive Order (EO) 11988, *Floodplain Management*, requires federal agencies to determine whether a proposed action will occur within a floodplain and to avoid floodplains to the maximum extent possible when there is a practicable alternative. The 100-year floodplain is defined as an area adjacent to a water body that has a 1 percent or greater chance of inundation in any given year. EO 11990, *Protection of Wetlands*, requires that each federal agency, to the extent permitted by law, "shall avoid undertaking or providing assistance for new construction located in wetlands unless the head of the agency finds: (1) that there is no practicable alternative to such construction and (2) that the proposed action includes all practicable measures to minimize harm to wetlands which may result from such use." The term "wetland" means "those areas that are inundated by surface or ground water with a frequency sufficient to support and under normal circumstances does or would support a prevalence of vegetative or aquatic life that requires saturated or seasonally saturated soil conditions for growth and reproduction."

Publication in the Federal Register of the Notice of Availability (NOA) for the Draft Environmental Assessment (EA) commences a 30-day public review period. The notice also states that the 30-day public review period applies to this Draft Finding of No Practicable Alternative (FONPA). Written comments on the Draft FONPA may be submitted to the U.S. Army Corps, Baltimore District, Planning Division Attn: Ms. Lauren Joyal, 2 Hopkins Plaza, Baltimore MD 21201 or email comments to lauren.e.joyal@usace.army.mil. LEAD has also established a webpage that contains a Draft FONPA at https://www.letterkenny.army.mil/. If you cannot access the Draft FONPA online, please submit a request to Ms. Lauren Joyal at lauren.e.joyal@usace.army.mil or by mail to the address provided above so materials can be sent to you.

2.0 Proposed Action

The RCY would include the reconstruction of the existing mainline track, the construction of two classification tracks, and an access control building, labeled as shipping and receiving in Figure 3, and a small gravel access road around the RCY with fire hydrants 500 feet apart on the north side. This would include the extension of culverts, grass swales, and the addition of a retaining wall to limit the amount a grading necessary. Drainage systems, stormwater management, and erosion and sediment control design are also included as part of the Proposed Action.

The proposed RCY site contains an elevated railroad track lined with gravel and stormwater swales on either side of the track. There are three culverts that run south to north underneath the track to allow for water flow.

Additionally, the Proposed Action would require approximately 194 linear feet of permanent impacts to an unnamed tributary, to Muddy Run, as well as 5793 square feet (0.153 acres) of permanent impacts to the 100-year floodplain of Muddy Run (Figure 4).

The Proposed Action would permanently impact approximately 1,649 square feet of nontidal forested wetlands regulated by the United States Army Corps of Engineers (USACE) and the Pennsylvania Department of the Environmental Protection (PADEP). No temporary wetland impacts would be anticipated (Figure 5).

Pursuant to EO 13690, *Establishing a Federal Flood Risk Management Standard and a Process for Further Soliciting and Considering Stakeholder Input* (2015), which amended the floodplain definition of EO 13807, this FONPA also considers impacts to the 500-year floodplain as a result of the Proposed Action. The 500-year floodplain is defined as an area that has a 0.2 percent chance of being covered in water during a flood event in any given year. None of the areas in the Proposed Action are in the 500-year floodplain.

3.0 Impacts and Mitigation Measures

3.1 100-Year Floodplain

EO 11988 states that if the only practicable alternative requires siting in a floodplain, the agency shall, prior to acting, design or modify its action to minimize potential harm to or within the floodplain.

The RCY site is severely constrained from expansion to the north and south. The current rail lies between forested areas to the north and south with as little as 15 feet of cleared space in either direction. Muddy Run's floodplain stretches the length of the LOD to the north. In addition, there are two separate culverts that perpendicularly run underneath the rail to allow water to flow into Muddy Run. In order to expand or conduct maintenance activities at the existing railroad, floodplains and wetlands must be impacted. Because the current track already intersects a wetland and an unnamed tributary to Muddy Run's floodplain, no shifting of the project LOD could avoid these impacts. The site is constrained from shifting to the east by a road. The LOD could be potentially shifted to the west, but there is not enough track provided to allow a shift far enough west to avoid the floodplain or wetlands while maintaining the necessary length of the LOD.

The natural features within the project site will be conserved to the maximum extent practicable. The construction LOD has been minimized as much as practical to implement the rail improvement while meeting applicable needs of LEAD and the PADEP.

Under the Proposed Action, the Army would implement best management practices (BMPs) and low-impact-development (LID) measures to reduce the potential for adverse impacts on the floodplain. BMPs and LID measures are incorporated into the Proposed Action to avoid or minimize impacts on floodplains and are collectively described, as follows:

- Adhere to appropriate permits (or letters of exemption) from the PADEP and USACE to comply with Sections 404/401 of the Clean Water Act and comply with all BMPs established throughout this consultation process.
- Obtain a Pennsylvania *General Permit for Discharges of Stormwater Associated with Construction Activities* to manage stormwater associated with construction of the Proposed Action. LEAD would prepare and adhere to a state-approved Erosion and Sediment Control Plan and submit a Notice of Intent to meet the requirements of the federal National Pollutant Discharge Elimination System program. LEAD would also manage stormwater discharges and maintain water quality through compliance with existing total maximum daily loads.
- Comply with Pennsylvania's Erosion and Sediment Control Regulations and Stormwater Management Regulations.

- Native plant species are to be used in any sediment and erosion control efforts (including BMPS) that incorporate plantings.
- Incorporate, as required by Section 438 of the Energy Independence and Security Act, green infrastructure or LID measures to maintain the pre-development hydrology of the Project Site to the maximum extent technically feasible during operation, minimizing any change in the rate, volume, and temperature of stormwater discharging to off-site areas.
- Incorporate, as required by EO 13508, stormwater control BMPs to manage and reduce pollution flowing from the Project Site into the Chesapeake Bay and its tributaries.
- Demarcate the construction LOD in the field to prevent encroachment on unpermitted surface water resources.
- Establish construction staging areas at least 100 feet away from surface water resources.
- If excavating below the groundwater table, incorporate measures that minimize potential impacts to local shallow groundwater, including dewatering these areas, preventing discharge of any water potentially contaminated during the construction/demolition process, and restoring sites to natural subsurface conditions prior to construction.

The above steps would be implemented as "mitigation by design" and are a proactive means of minimizing environmental impacts. Taken together, these and other yet to be determined BMPs and mitigation measures would avoid or minimize the loss of and impacts on floodplains within the Proposed Action location. These measures represent all practicable measures to minimize harm to floodplains.

The No Action Alternative is being carried forward in the EA in accordance with National Environmental Policy Act (NEPA) requirements to provide a baseline against which impacts of the Proposed Action could be measured. Under the No Action Alternative, the current MMDF would continue to be utilized and a DDESB-compliant MMDF capable of responding effectively and efficiently to the centralized ammunitions shipments specific to the Northeast Region would not be available. The current space is not large enough and does not meet ESQD arc requirements, which exposes both the munitions and personnel to the elements, creating an unsafe working environment. Operational efficiencies at both the nearby facility that can only accept less than truckload deliveries and the RCY would be lacking and the opportunity for shipment delays, missed delivery commitments, detention charges, and fewer consolidated shipments would occur. In addition, because the current rail track sits within a small section of the100-year floodplain, any work on this track must be conducted within Zone A, (see Figure 4). Because the No Action Alternative does not meet the purpose and need for the Proposed Action and the rail track siting is in an existing floodplain, the No Action Alternative is not "practicable" within the meaning of EO 11990.

3.2 Wetlands

EO 11990 states that if the only practicable alternative requires siting in a wetland, the agency shall, prior to taking action, design or modify its action to minimize potential harm to or within the wetland.

Implementation of the Proposed Action would result in the Army permanently impacting approximately 1,649 square feet of nontidal forested wetlands regulated by USACE and the PADEP. According to Pennsylvania Code 25§ 102.14. *Riparian Buffer Requirements,* the wetlands

would not require a buffer as they are not deemed to be of "Exceptional Value or High- Quality Watershed" as shown in the PADEP 2022 Integrated Report Mapping. No temporary wetland impacts would be anticipated. As the Proposed Action would impact less than 0.05 acres of nontidal wetlands, mitigation would not be required under a General Water Obstruction and Encroachment Permit with the PADEP.

Under the Proposed Action, the Army would implement BMPs and LID measures to reduce the potential for adverse impacts on the wetlands. BMPs and LID measures are incorporated into the Proposed Action to avoid and minimize impacts on wetlands and are collectively described in Section 3.1.

Taken together, these and other yet to be determined BMPs and mitigation measures would avoid or minimize loss and impacts within wetlands within the Proposed Action area on LEAD. These measures represent all practicable measures to minimize harm to wetlands.

4.0 Finding of No Practicable Alternative

During development of the Proposed Action, the **LEAD Environmental Office** worked proactively to ensure the purpose and need of the Proposed Action was met while also avoiding as many potential impacts to floodplains and wetlands as practicable. Due to operational requirements and site constraints, it was determined that complete avoidance of floodplains and wetlands was not feasible; however, the Proposed Action minimizes potential impacts to the greatest degree practicable while also achieving the required results.

Accordingly, I find there is no practicable alternative that allows siting the Proposed Action entirely outside of the floodplains and/or wetlands; however, the Army will ensure that all practicable measures to minimize impacts are incorporated into the Proposed Action.

_____ _____

Date

Deputy Assistant Secretary of the Army
Installations, Housing, and Partnerships

Attachments:

Figure 1. Proposed Action Vicinity
Figure 2. MMDF and RCY Proposed Locations
Figure 3: RCY Proposed Design
Figure 4: RCY Floodplains
Figure 5: RCY Wetlands

References:

EO 11988, *Floodplain Management*
EO, 13690, *Establishing a Federal Flood Risk Management Standard and a Process for Further Soliciting and Considering Stakeholder Input*
EO 11990, *Protection of Wetlands*
Pennsylvania Code 25 § 102.14. *Riparian Buffer Requirements*

Attachments

Figure 1: Proposed Action Vicinity

Figure 2: MMDF and RCY Proposed Locations

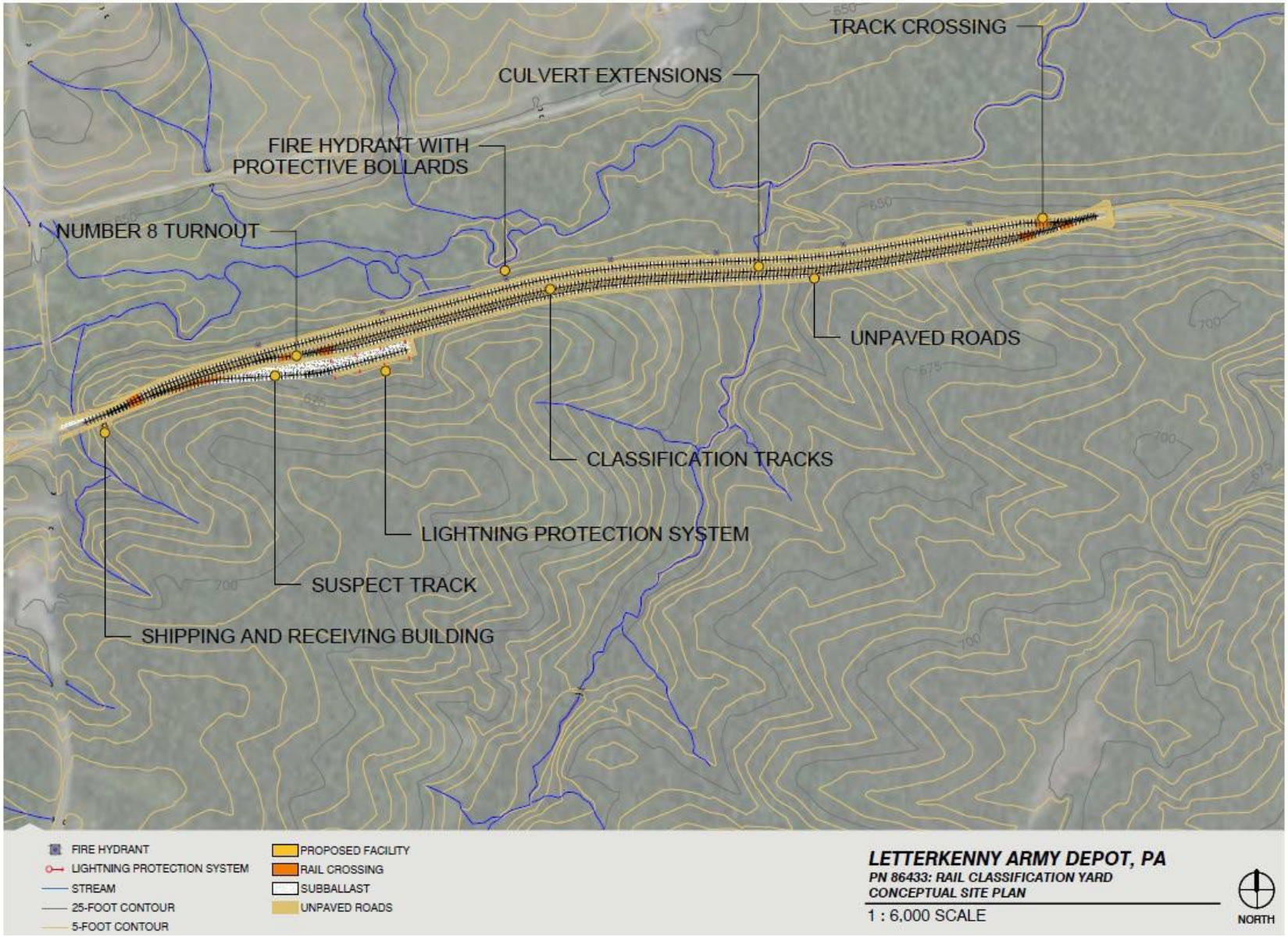

Figure 3: RCY Proposed Design

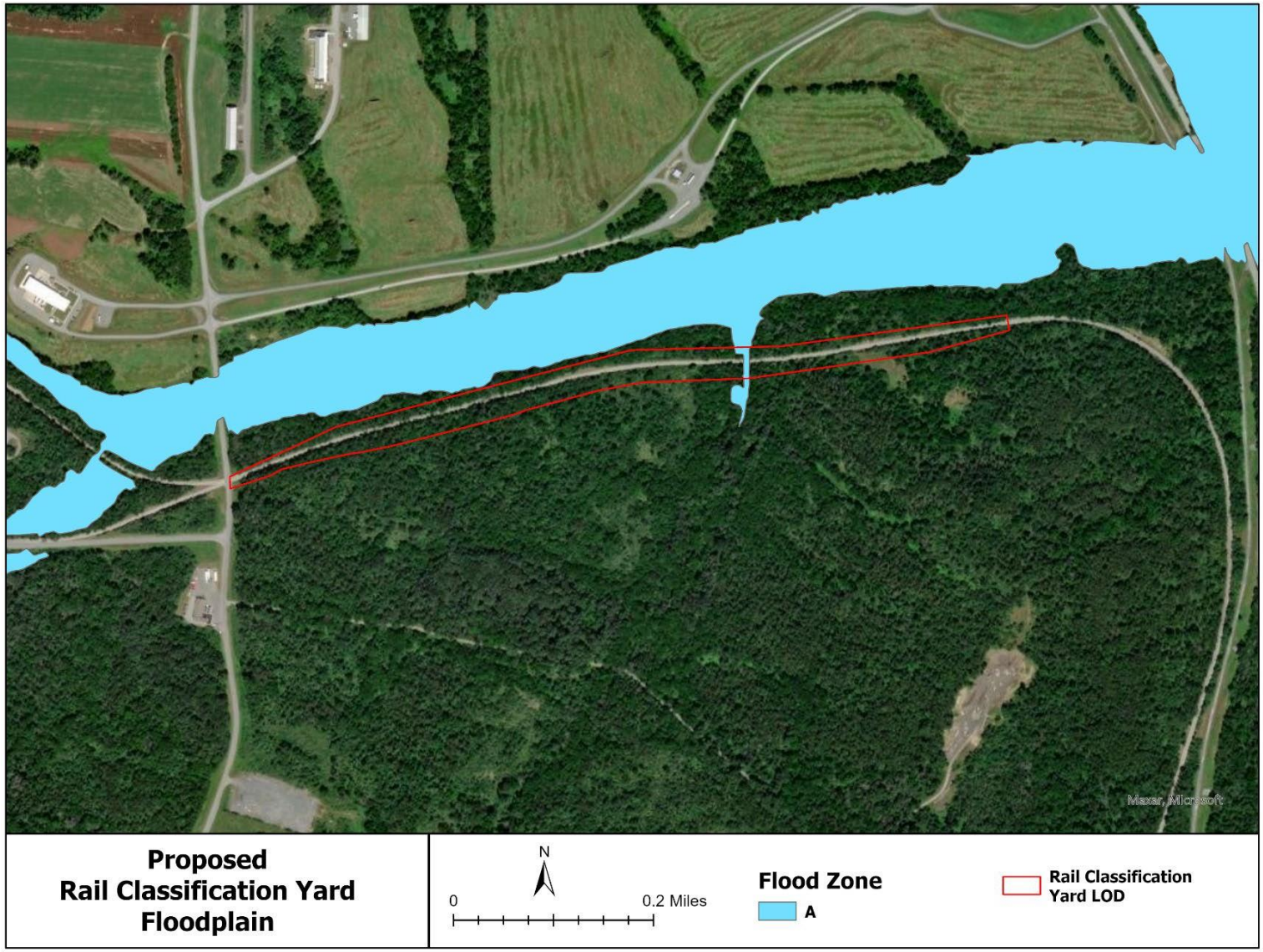

Figure 4: RCY Floodplains

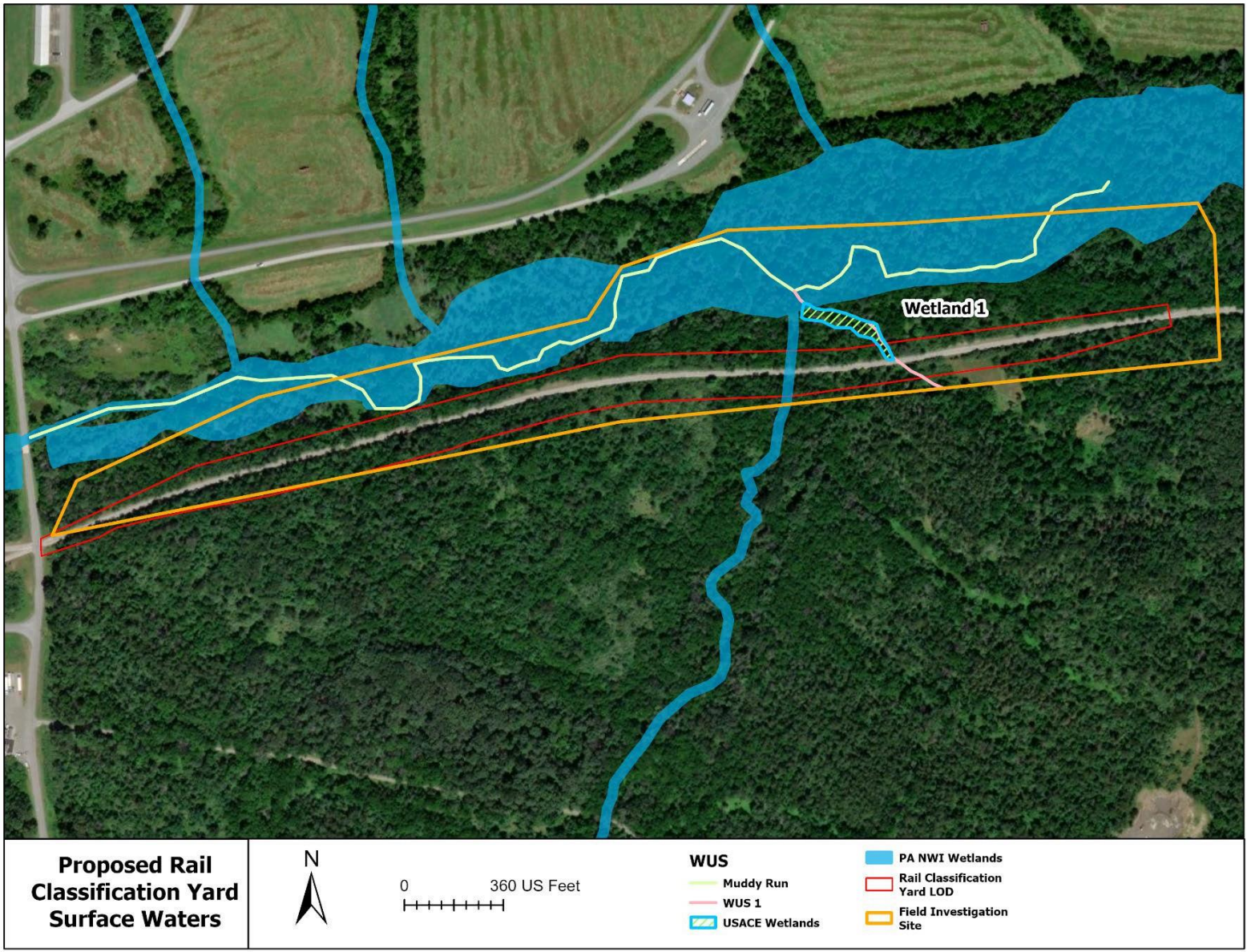

Figure 5: RCY Wetlands