

PITT-04-16-036 April 26, 2016 Project Number 112IC05958

Pamela Shellenberger U.S. Fish and Wildlife Service 110 Radnor Rd; Suite 101 State College, PA 16801

Subject: Revised *Myotis* Conservation Plan and Additional Bulrush Requests

Sunoco Pipeline, L.P. - Pennsylvania Pipeline Project Multiple Counties

**USFWS Project #2014-0200** 

Dear Ms. Shellenberger:

Tetra Tech, Inc. (Tetra Tech) has been retained by Sunoco Pipeline, L.P. (SPLP) to conduct environmental field surveys and permitting services for the proposed Pennsylvania Pipeline Project (PPP or Project). On behalf of SPLP, Tetra Tech is providing a revised *Myotis* Conservation Plan and additional supporting information for the northeastern bulrush to the U.S. Fish and Wildlife Service (USFWS or Service)-Pennsylvania Field Office in response to comments received from the Service during a January 26, 2016 meeting.

Through discussions with the Service, SPLP will avoid take of Indiana and northern long-eared bats through the use of the attached, revised *Myotis* Conservation Plan, which also outlines how SPLP will offset habitat impacts for the Indiana bat. A summary of the results of the mist-net surveys and mine portal surveys are also provided within the Plan. To summarize, as a standard practice for avoiding impacts to these bat species, SPLP will conduct tree clearing between November 15 and March 31 within the two known Indiana bat swarming habitat protection radii and between June 1 and July 31 within the 150 foot protection radius of a single northern long-eared bat roost tree location.

Through several design iterations SPLP has minimized tree clearing as much as operationally possible, however some areas will need to be cleared to allow safe installation and operation. Within the 0.25-mile buffer of the Project's limit of disturbance (LOD) and within the Hartman Mine swarming habitat, there are approximately 8,600 acres of forested area. Within the LOD and within the known Hartman Mine swarming habitat radius there are approximately 258 acres of the 8,600 forested area that will need to be cleared. As a habitat impact off-set measure, a payment to the Indiana Bat Conservation Fund (IBCF) will be remitted for the tree acreage that needs to be cleared within the Hartman Mine swarming habitat radius in Cambria, Blair, and Huntingdon counties. In summary, the approximate tree clearing area within the swarming area radius in Cambria, Blair, and Huntingdon counties are 42, 125, and 91 acres, respectively. SPLP has deposited an initial amount of \$702,187 and will be making a second deposit of \$300,632 to the IBCF. The total deposit amount will be \$1,002,819. The attached *Myotis* Conservation Plan includes the Calculation Sheet for Indiana Bat Habitat Compensation that outlines these amounts. The second check payable to the Indiana Bat Conservation Fund (Acct #710621004) will be submitted upon the Service's approval of the attached *Myotis* Conservation Plan to the First Commonwealth Bank – Trust Division. Proof of the deposit will then be sent to the USFWS and PADEP.

SPLP has also committed to performing emergence surveys at 66 potential roost trees on USACE lands (i.e., Raystown Lake Recreation Area) where trees could not be cleared between November 15 and March 31 due to the land acquisition process. The data for these trees was previously submitted to the Service in a December 2015 Report from Apogee Environmental and Archaeology titled, "A Myotis Bat Summer and Winter Habitat Assessment for the Pennsylvania Pipeline Project in Huntingdon, Indiana, and Westmoreland Counties, Pennsylvania". This report was updated in April 2016 to include the applicability of completing emergence surveys for bats at the potential roost trees identified in the report and the updated report is provided as Appendix C of the attached Myotis Conservation Plan. These emergence surveys will be completed prior to tree clearing to prevent the incidental take of Indiana within these areas.

The Service identified the Northeastern bulrush as potentially occurring within the Project area in Cambria, Blair, Huntington, Juniata, and Perry Counties. Consultation with USFWS determined that field surveys should focus on wetlands, waterbodies, and vernal pools within the Project area at 1,300 feet elevation or higher as suitable habitat. Northeastern bulrush surveys by Service approved biologists began in August 2014 and were completed in August 2015. The surveys were completed by Tetra Tech, PA Soil & Rock, and Skelly and Loy. Survey Reports for these activities have been previously provided to the Service.

Field surveys identified 231 total potential northeastern bulrush habitat areas (e.g. vernal pools, wetlands, floodplain depressions) within 46 Study Areas. Field surveys of these potential bulrush habitat areas identified two confirmed northeastern bulrush populations, one in Cambria County and one in Blair County. The Cambria Co. population is located within the proposed LOD, approximately 75-ft from an existing access road. The Blair Co. population is located approximately 340-ft from the edge of the proposed LOD.

As outlined in the previously submitted September 2015 Northeastern Bulrush Conservation Plan for the PPP, SPLP has taken measures to ensure no direct impacts occur to these identified populations. SPLP anticipates that a Project re-route shifting the proposed LOD from 125 feet within the population to 340 feet away will avoid potential impacts to the Blair Co. population. Impacts to the Cambria Co. population will be avoided with the use of the Horizontal Directional Drill installation method, along with exclusion fencing, signage, compliance inspection, and implementation of an inadvertent return contingency plan. In response to a comment from the Service, SPLP has updated the Inadvertent Return Contingency Plan (Attachment 2) to list the USFWS as a contact should an inadvertent return occur during the HDD in Cambria County. In response to an additional comment from the Service, a memo prepared by Skelly and Loy, Inc. indicating that the wetland supporting the population of northeastern bulrush in Blair County has no direct connectivity to Wetland L70 that will be open cut is included as Attachment 3.

Based on the information provide herein, the attached survey reports and conservation plans, and what is known about the presence and/or potential presence of these ESA listed species in the vicinity of the project areas, it is Tetra Tech's conclusion that the PPP is not likely to adversely affect the Indiana bat, northern long-eared bat, or northeastern bulrush. We request, on behalf of SPLP, the Service's concurrence with this determination to satisfy Federal and State permit requirements.

Thank you for your assistance in this matter and we look forward to your review and concurrence. If you have any questions regarding this request, please feel free to contact me at 412.921.8167 or preston.smith@tetratech.com.

Sincerely,

Preston R. Smith

Manager, Wetlands and Ecological Services

Attachments:

Myotis Conservation Plan

Revised Inadvertent Return Contingency Plan

Memo: Connectivity of Wetland L70 to Blair County Northeastern Bulrush Population

CC: Brian Scofield, USFWS (cover letter only)
Chris Embry, Sunoco Logistics

Monica Styles, Sunoco Logistics Matt Gordon, Sunoco Logistics

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File 112IC05957

### **ATTACHMENT 1**

### **Myotis Conservation Plan**

## Myotis Conservation Plan

### Pennsylvania Pipeline Project

### Prepared for:

**Sunoco Logistics, L.P.** 525 Friztown Road Sinking Spring, PA 19608

### Prepared by:

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### Submitted to:

### U.S. Fish & Wildlife Service – Pennsylvania Field Office

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**April 2016** 

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### 1.0 INTRODUCTION

On behalf of Sunoco Pipeline L.P. (SPLP), Tetra Tech, Inc. (Tetra Tech) has prepared this *Myotis* Conservation Plan for the Pennsylvania Pipeline Project (PPP or Project). This plan will be used to provide and implement the measures that are necessary to avoid, minimize, and mitigate for potential impacts to federally listed *Myotis* species occurring in Pennsylvania. These species include the Indiana bat (*Myotis sodalis*) and northern long-eared bat (*Myotis septentrionalis*). This plan was developed using the *U.S. Fish and Wildlife Service: Guidance on Developing and Implementing an Indiana Bat Conservation Plan for the Northeast Region (February 25, 2013 Revision*). This plan describes the Project, survey results, forested acreage and proposed tree clearing activities within the Project areas, and discusses the avoidance, minimization, and mitigation measures that will be used to conserve Indiana and northern long-eared bat species.

### 1.1 PROJECT DESCRIPTION

SPLP proposes to construct and operate the Pennsylvania Pipeline Project to expand existing pipeline systems and provide natural gas liquid (NGL) transportation of up to 350,000 barrels per day. The Project involves the phased installation of approximately 561 miles of two parallel pipelines within a 306-mile, 50-foot-wide Right-of-Way (ROW) from Houston, Washington County, Pennsylvania to SPLP's Twin Oaks facility in, Delaware County, Pennsylvania with the purpose of interconnecting with existing SPLP Mariner East pipelines. Initially, a 20-inch diameter pipeline would be installed within the ROW from Houston, PA to the Twin Oaks facility (306 miles) and a second, up to 20-inch diameter pipeline, is proposed be installed in the same ROW. The second line is proposed to be installed from SPLP's Delmont Station, Westmoreland County, Pennsylvania to the Twin Oaks facility, paralleling the initial line for approximately 255 miles. The Project location is shown in Appendix A.

The Project will provide transportation service for up to 700,000 barrels of NGL per day from the Utica and Marcellus Shale formations for both domestic and international markets. The Project will transport propane, butane, and ethane across Pennsylvania. SPLP's upstream customers currently extract natural gas in the form of methane from the aforementioned geologic formations for distribution to the community. The natural gas extracted for this Project will provide fuel that is used for power generation, heating, and cooking. NGLs are separated from the natural gas stream before it is shipped on the natural gas piping network. Upstream shippers are currently limited by the shortage of NGL transport systems. In addition, the Project will provide along its route across Pennsylvania various exit points for the supply of desperately needed propane, at affordable prices to local distributors. This is especially helpful during peak demand periods when there would otherwise be a shortage of supplies. Finally, upon completion, the Pennsylvania Pipeline Project will promote sustained economic development and jobs-creation throughout Pennsylvania.

### 1.2 LAND REQUIREMENTS

The proposed Project would result in temporary access during the construction period of proposed facilities. Construction of the pipeline would require a 75-foot wide ROW that would contain a 50-foot wide post-construction ROW that is permanently maintained and a 25-foot wide temporary workspace that would be used to facilitate the installation of the pipelines. Following installation, the 25-feet temporary workspace unit would be restored and allowed to return to its pre-construction state unless it is within an existing, permanently maintained ROW. Additional temporary work space (ATWS) would also be needed at some areas to facilitate construction. Sizes of these workspaces would depend on site-specific requirements. All workspaces would be clearly defined within project mapping and within agency and municipality applications. Following construction, ATWS's would be restored and allowed to return their pre-construction state unless they are within an existing, permanently maintained ROW.

Construction of the Project's aboveground facilities and the use of non-public access roads would have land requirements. New pump stations would generally require 3-4 acres of land and modifications to existing pump stations would require 2-3 acres of additional land. Support sites, such as pipe/contractor yards, are to be sited on previously disturbed areas and generally range from 5-15

acres in size. Temporary use would primarily be limited to existing non-public roads, driveways, and farm lanes that may require improvements. Permanent access roads to stations or valve settings may also be required. All proposed temporary and permanent access roads would be clearly defined within project mapping and within agency and municipality applications. Following construction, temporary work spaces would be restored and allowed to return their pre-construction state unless they are within an existing, permanently maintained ROW.

### 2.0 CONSERVATION PLAN

Based on project correspondences with the United States Fish and Wildlife Service (Service)-Pennsylvania Field Office, on behalf of SPLP, Tetra Tech contracted Apogee Environmental and Archaeology (Apogee) to complete mist-net and mine portal surveys across Pennsylvania. The data for the 2014 surveys was previously provided to the Service. A summary report for the 2014 surveys on the Project was also previously provided to the Service for review. The survey activities and results for the PPP are described below and include a summary of the 2014-2016 surveys. The gathered background information and survey results provided the knowledge base for the development of the conservation measures.

### 2.1 SURVEY

### 2.1.1 Mist Net Survey

Apogee biologists conducted summer mist net-surveys between May 15, 2014 to August 4, 2015 for the federally endangered Indiana bat and threatened northern long-eared bat. Surveys were carried out only in areas where suitable habitat existed and where those areas occurred outside of already assumed occupied habitats (e.g., swarming or maternity areas). The surveys were carried out in accordance with the Service's 2014 Range-wide Indiana Bat Summer Survey Guidelines.

To facilitate the mist net survey, the entire project alignment was separated into 506, 1 km sampling blocks. Per the Service, 100 of these survey blocks are within two known Indiana bat swarming habitat protection radii (Layton Fire Clay Mine swarming habitat radius in Allegheny and Westmoreland counties and Hart Mine swarming habitat radius in Cambria, Blair, and Huntingdon counties). Therefore mist-netting surveys were not completed in these areas due to the known habitat status. An additional 12 square km blocks were not surveyed due to a lack of tree cover within the entire block. Similarly, an additional 65 blocks occurring within a recently constructed SPLP project called Mariner East 1 were not surveyed due construction being restricted primarily to the same LOD requiring minimal additional tree clearing and previous correspondence from the Service that directed concerns primarily to the swarming areas. The remaining 294 survey blocks were mist net surveyed following the survey protocols outlined in the Service's 2014 Range-Wide Indiana Bat Summer Survey Guidelines and 2015 Range-Wide Indiana Bat Summer Survey Guidelines. The minimum level of effort of 6 nights per square km of habitat was met and summarized within previously submitted data and reports.

#### 2.1.2 Radio Telemetry and Emergence Survey

During mist-net surveys in 2014, 30 northern long-eared bats and no Indiana bats were captured during surveys of PPP. An additional 2 northern long-eared bats were captured during mist-net surveys in 2015. The previously submitted summary reports shows these capture locations. Table 1 provides the latitude, longitude, and county of all northern long-eared bat captures. Thirteen of the northern long-eared bats that were captured in 2014 were fitted with radio transmitters to track them to summer roost trees. By tracking the bats tagged with the transmitters using radio telemetry techniques, 18 roosts were identified in 2014. These roosts, also shown in the previously submitted summary reports, consisted of 17 roost trees and 1 bat box. As presented on Table 2, tree species utilized included bitternut hickory (*Carya cordiformis*), sugar maple (*Acer saccharum*), red maple (*Acer rubrum*), sassafras (*Sassafras albidum*), red elm (*Ulmus rubra*), American beech (*Fagus grandifolia*), black gum (*Nyssa sylvatica*), black cherry (*Prunus serotina*), and snags of unknown species. Emergence counts were performed at every roost. The two northern long-eared bats that were captured in 2015 were fitted with radio transmitters and tracked to 2 additional roost trees. These roost tree locations are shown in the previously submitted summary reports. Emergence counts were also performed for both of these trees. The only tree species found to be utilized in 2015 was red maple.

#### 2.1.3 Portal Search

Apogee biologists conducted winter habitat assessments on mine portals found within 0.5 miles of the proposed Project where land access could be obtained, and on mines documented within the Pennsylvania Abandoned Mine Lands Inventory to occur within the same distance of the Project. Biologists also walked the PPP ROW searching for caves and abandoned mines that could serve as potential winter hibernacula for cave-roosting bat species in the region. Appendix B provides a description of the types of habitats searched. As a result, twelve potential hibernacula were identified and harp trap surveys were performed at each site for 3 nights (Table 3). Additionally, acoustic surveys were performed at every site in conjunction with portal harp trap surveys. No bats were captured during the surveys and bat calls analyzed from the acoustic survey data yielded no positive results for Indiana or northern long-eared bats.

### 2.1.4 Summer Habitat Surveys

Apogee biologists conducted potential summer habitat surveys for both Indiana and northern long-eared bats in Huntingdon, Indiana, and Westmoreland Counties, Pennsylvania on United States Army Corps of Engineers (USACE) lands with tree clearing restrictions that are crossed by the Project. The Service considers suitable summer roosting and foraging habitat to be forested habitats containing trees ≥ 5 and ≥3 inches diameter breast height (DBH) for Indiana and northern long-eared bats respectively. Eighty three potential roost trees were identified to be suitable summer roosting habitat for Indiana and northern long-eared bats. This data was previously submitted to the Service in a December 2015 Report from Apogee Environmental and Archaeology titled, "A *Myotis* Bat Summer and Winter Habitat Assessment for the Pennsylvania Pipeline Project in Huntingdon, Indiana, and Westmoreland Counties, Pennsylvania". This report was updated in April 2016 to include the applicability of completing emergence surveys for bats at the potential roost trees identified in the report attached as Appendix C.

### 2.1.5 Forested Area Mapping

The Project area begins in Houston, Washington County and continues approximately 306 miles east to the Twin Oaks Facility in Delaware County (Appendix A). A variety of habitat types occur within the project area including forested, scrub-shrub, open field, and cropland. A 75-foot ROW will be required to install the pipelines within the 50-ft of permanent ROW. Additional temporary workspace, including temporary access roads will also be required to facilitate pipeline installation. The limit-of-disturbance (LOD) which includes all construction workspaces including access roads was used to calculate existing forested areas to be cleared for the Project.

ArcGIS was used to map forested area boundaries using the latest aerial photography available. Forested areas were identified by the aerial signatures of trees supporting large canopies. All forested areas within 0.25 miles of the pipeline and access road centerlines were mapped to provide an understanding of the available habitat in the area of the project. Appendix D illustrates the forested area mapping effort. Within the project LOD and within the known Layton Clay Fire Mine swarming habitat radius there are approximately 0.62 acres of forested area. Within the 0.25-mile buffer of the LOD and within the Layton Fire Clay Mine swarming habitat, there are approximately 800 acres of forested area. Within the project LOD and within the known Hartman Mine swarming habitat radius there are approximately 258 acres of forested area. Within the 0.25-mile buffer of the LOD and within the Hartman Mine swarming habitat, there are approximately 8,600 acres of forested area. Within the project LOD and within 150 feet of a known occupied northern long-eared bat roost tree, there are approximately 0.27 acres of forested area.

### 2.2 Conservation Measures

SPLP utilized the U.S. Fish and Wildlife Service's Guidance on Developing and Implementing an Indiana Bat Conservation Plan (February 25, 2013 revision) to assist with development of this

conservation plan which was also used to support northern long-eared bat conservation. The following sections outline SPLP's pre-construction, construction, and post-construction avoidance, minimization, and conservation best management practice (BMP) commitments to prevent impacts to these two bat species.

#### 2.2.1 Pre-construction

From the onset of the Project, SPLP has instructed project designers to consider environmental impacts in regard to all aspects of the proposed Project and to avoid and minimize wherever possible while allowing safe installation. Pipeline engineers where provided a large list of restrictions, recommendations, and requirements to consider during the design phase. Major considerations included co-location with existing utility corridors, limiting the construction corridor to the minimum amount practicable, use of HDD technology, and avoidance and minimization at sensitive habitats.

During the development of the Project route, SPLP worked with routing agents and property owners to minimize and avoid forested uplands and wetlands, woodlots, and fence rows where possible. SPLP also co-located the project alignment with other similar disturbances wherever possible, and paralleled existing SPLP ROW for the majority of the route so that this existing ROW could be utilized as workspace. SPLP has co-located the Project with an existing SPLP ROW for approximately 80% of the project. With the use of portions of the existing ROW for construction, this is a major means for avoiding new impacts to sensitive resources (i.e., forested wetlands, forest areas, streams) and for minimizing environmental impacts for the entire Project. SPLP has also co-located with foreign utility lines whenever possible when routing pulls away from the existing SPLP ROW. In addition, SPLP has implemented a number of route variations through environmental feedback, both minor and major, to further reduce the impacts associated with the Project. Many of these route variations are driven by environmental factors such as avoidance of forested wetlands or areas occupied by sensitive species.

In general, the construction ROW is limited to 75 feet in most areas. This is comprised of a 50-foot-wide permanent easement and 25 feet of temporary workspace required to facilitate construction. In some areas, additional temporary workspace is required to facilitate construction. The industry standard for installation of this size of pipe is 100 feet. Restricting construction to 75 feet significantly reduces impacts to the landscape including a large reduction in impacts to forested areas. Instead of continuing through the wetlands/streams with the 75-foot-wide construction ROW, SPLP has narrowed the construction ROW to 50 feet for all wetland/stream crossings thus minimizing temporary impacts to these resources during construction. This narrow construction corridor, along with co-location efforts has greatly minimized forested habitat removal and fragmentation impacts.

Another major construction alternative implemented by SPLP to avoid and minimize environmental impacts, is the horizontal directional drill (HDD) method at areas of unique sensitivity (i.e., bog turtle habitat, rare plant populations, large rivers or reservoirs, forested wetlands, and cultural resource sites). Without HDD, typical construction methods through these areas would involve conventional pipeline trenching (i.e. open cut trenching) construction methods, resulting in significant impacts. Specifically, conventional construction throughout the entire Project length would have required clearing, grading, and the excavation and disturbance of approximately 100 acres of wetlands and approximately 87,000 feet of stream crossings (linear length of stream in construction ROW). In comparison, with the currently proposed locations of HDD construction, impacts have been reduced to approximately 38 acres of wetlands and approximately 52,800 feet of stream crossings. Consequently, the alternative HDD construction method has reduced impacts by approximately 62 acres to wetlands and 34,200 feet to streams. Based on these reduced impacts to wetland/stream resources, the overall Project will result in fewer biological impacts, decreased disturbance to soils, decreased erosion sedimentation and runoff and water quality, and less recreational impacts.

Within the project LOD, there are approximately 258 acres of forested area within Indiana bat swarming habitats that will need to be cleared. SPLP will compensate for the tree loss associated with the Project that is located within the P2 classified Hartman Mine Indiana bat swarming habitat radius. There is limited tree clearing proposed where the project traverses a portion of the Layton Clay Fire Mine Indiana bat swarming habitat radius. The compensation for the tree loss at the Hartman Mine area will be

through a contribution to the Pennsylvania Indiana Bat Conservation Fund (IBCF) administered by the Service and the PA Game Commission (PGC). The IBCF worksheet is included as Appendix F.

The approximate tree clearing area within the swarming area radius in Cambria, Blair, and Huntingdon counties are 42, 125, and 91 acres, respectively. Blair County's per/acre donation value is indicated on the IBCF worksheet as \$2,285. Per the Service, donation values for counties for which the PGC has not provided cost/acre values on the IBCF worksheet were based on the median price of recently sold vacant woodlots. This analysis was performed for Cambria and Huntingdon counties by SPLP Lands Department and it was determined that the Cambria median prices for wooded lots above 100 acres was \$1,250 and Huntingdon was \$3,631 (Table 4).

Since the compensation cost per acre in Cambria County is \$1,250, a deposit in the amount of \$78,750 will be made to the Indiana Bat Conservation Fund (IBCF) by SPLP for the 42 acres of tree clearing within this area for PPP. Since the compensation cost per acre in Blair County is \$2,285, a deposit in the amount of \$428,437.50 will be made to the Indiana Bat Conservation Fund (IBCF) by SPLP for the 125 acres of tree clearing within this area for PPP. Since the compensation cost per acre in Huntingdon County is \$3,631, a deposit in the amount of \$495,631.50 will be made to the Indiana Bat Conservation Fund (IBCF) by SPLP for the 91 acres of tree clearing within this area for PPP. A deposit of \$702,187 has been made to the IBCF. A second deposit of \$300,632 will be made to the IBCF for a total contribution amount of \$1,002,819.

SPLP has reduced impacts to forested areas to the maximum extent practicable Project-wide in consideration of habitat impacts to the Indiana bat and northern long-eared bat. However, compensation for tree area loss within the northern long-eared bat radius is not warranted as the primary threat to the bats is from the white-nose syndrome, rather than from human activity. SPLP will adhere to the tree clearing restriction (June 1 to July 31) within the protection radius as the primary measure to protect the northern long-eared bat. Clearing trees during this time period will ensure breeding opportunities are not interfered with during the bat's activity period and prevent incidental take of roosting bats.

Environmental training is a requirement of all personnel working in the field on the ROW. That environmental training will include a section on wildlife protection in general, but also will focus on sensitive species, including a discussion on the Indiana bat and northern long-eared bat. That training will involve the identification of the LOD in general and any timing restrictions placed on various land disturbances, such as tree clearing.

#### 2.2.2 Construction

To protect water quality and *Myotis* prey base, stringent soil and water protection measures will be required and implemented during construction. In addition, when reforesting and stabilizing soils, an appropriate seed mix will be used to avoid the propagation of invasive and exotic plant species. These commitments will be emulated within the projects Erosion and Sedimentation Control and Pollution and Prevention plans that will receive state and county approvals. These erosion control measures will remain after construction is complete and will be monitored until the projects areas are sufficiently vegetated.

The primary avoidance and minimization measure that SPLP will implement in regards to *Myotis* species protection is a seasonal tree clearing restriction. The Project is located within two Indiana bat swarming areas, and/or within a 150 foot radius of a known occupied roost tree. Therefore, with the exception of the Raystown Lake Recreation Area discussed further below, SPLP will clear all project areas that occur within Indiana bat swarming areas between November 15 and March 31. Furthermore, in accordance with the Service's 4d rule, SPLP will clear the project area within 150 feet of a known occupied northern long-eared bat roost tree between July 31 and June 1 (Appendix E). This will prevent the incidental take of Indiana bats and northern long-eared bats that could be using these areas outside of these time periods. Prior to and during construction, areas designated for clearing will be surveyed and flagged and Construction and Environmental Inspectors will monitor all tree clearing activity to ensure planned LODs are not exceeded.

Sixty six potential roost trees for Indiana or northern long-eared bats were identified on USACE lands (i.e., Raystown Lake Recreation Area) with a tree clearing restriction from November 15 to March 31. Data on these potential roost trees was recorded and previously submitted to the Service in the December 2015 report titled, "A Myotis Bat Summer and Winter Habitat Assessment for the Pennsylvania Pipeline Project in Huntingdon, Indiana, and Westmoreland Counties, Pennsylvania". This report was updated in April 2016 with the following proposed conservation measures and is attached as Appendix C. SPLP is proposing to perform emergence surveys at these trees prior to clearing to prevent the incidental take of any Indiana or northern long-eared bats during the clearing process. Emergence surveys will be conducted by two experienced bat biologists for two consecutive nights at each tree. If weather does not allow for a second consecutive survey, the second survey will be performed on the third night. Surveys will not be conducted in harsh weather conditions with temperatures falling below 10°C, precipitation lasting longer than 30 minutes, or wind speeds in excess of 9 miles per hour (mph). Surveys will begin at least one hour prior to sunset and continue until at least one hour after sunset, or until bats can no longer be seen emerging from the roost. Surveyors will be positioned at an angle to be determined in the field based on surrounding habitat so that they can observe bats emerging silhouetted against the sky and that the earliest potential emerging bat will be counted. If no bats are observed to emerge from the potential roost tree, it will be felled immediately after surveys are completed. Surveyors will record data on Bat Emergence Survey Data Sheets or similar data sheets and submit all recorded data to the Service.

#### 2.2.3 Post-construction

SPLP, through its extensive environmental inspection and compliance program, will monitor the LOD for successful restoration and cleanup of workspaces.

### 3.0 CONCLUSION

This *Myotis* Conservation Plan for the Pennsylvania Pipeline Project provides SPLP's commitment to avoidance, minimization, and mitigation measures to prevent impacts to the Indiana bat and northern long-eared bat within the Project area. SPLP has conducted extensive background and field survey to identify Indiana and northern-long eared bat occurrence and habitats within and adjacent to all Project work areas. These surveys provided the foundation for the development of this plan.

As a standard practice for avoiding impacts to the *Myotis* species, SPLP will conduct tree clearing between November 15 and March 31 within known Indiana bat swarming radii. In addition, because the northern long-eared bat is known to use similar habitats and thirty two individuals have been captured at twenty four locations, the tree clearing restriction from June 1 to July 31 will be implemented within the 0.27 acre area that is within 150 feet of a known occupied northern long-eared bat roost tree (Appendix E). SPLP through the design of the project has minimized tree clearing as much as operationally possible. However, approximately 258 acres of forested areas are expected to be cleared within Indiana bat habitat swarming areas to allow safe installation. As a result of this loss of habitat, SPLP has donated \$702,187 and has committed to making a second donation of \$300,632 to the IBCF for a total of \$1,002,819. SPLP is proposing to perform emergence surveys on 66 potential roost trees located on the USACE owned Raystown Lake Recreation Area to allow clearing to be conducted between April 1 and November 14. Based on SPLP commitments to the protection and conservation of *Myotis* species and what is known about the presence and/or potential presence of ESA listed species in the vicinity of the Project areas, we conclude that the PPP is not likely to adversely affect the Indiana bat or northern long-eared bat.

### Table 1

### **Northern Long-Eared Bat Capture Locations**

Table 1.
Northern Long-Eared Bat
Capture Locations

Species	Date Captured	County	Capture 1km block	Latitude	Longitude	Frequency
MYSE	05/21/14	Westmoreland	PA-WE-300	40.4270833	-79.5559722	N/A
MYSE	05/21/14	Westmoreland	PA-WE-299	40.4254722	-79.5437500	N/A
MYSE	05/19/14	Westmoreland	PA-WE-298A	40.4258333	-79.5302778	172.338
MYSE	05/19/14	Westmoreland	PA-WE-298A	40.4258333	-79.5302778	172.595
MYSE	05/19/14	Westmoreland	PA-WE-298A	40.4258333	-79.5302778	N/A
MYSE	05/18/14	Westmoreland	PA-WE-295	40.4314444	-79.5034444	N/A
MYSE	05/22/14	Westmoreland	PA-WE-282	40.4422778	-79.3510833	172.625
MYSE	05/22/14	Westmoreland	PA-WE-281A	40.4472222	-79.3325000	172.515
MYSE	05/22/14	Westmoreland	PA-WE-281A	40.4472222	-79.3330556	N/A
MYSE	05/22/14	Westmoreland	PA-WE-280	40.4419444	-79.3205000	N/A
MYSE	05/29/14	Indiana	PA-IN-275	40.4547500	-79.2677222	172.575
MYSE	05/25/14	Indiana	PA-IN-267	40.4351667	-79.1711389	N/A
MYSE	05/29/14	Indiana	PA-IN-266	40.4408611	-79.1603056	N/A
MYSE	05/31/14	Indiana	PA-IN-263	40.4395556	-79.1198611	N/A
MYSE	05/30/14	Indiana	PA-IN-263	40.4395556	-79.1198611	172.647
MYSE	05/31/14	Indiana	PA-IN-259	40.4332222	-79.0721667	172.935
MYSE	06/02/14	Indiana	PA-IN-254	40.4305000	-79.0149167	N/A
MYSE	06/02/14	Indiana	PA-IN-254	40.4305000	-79.0149167	N/A
MYSE	06/01/14	Indiana	PA-IN-254	40.4305000	-79.0149167	N/A
MYSE	06/01/14	Indiana	PA-IN-254	40.4305000	-79.0149167	N/A
MYSE	06/01/14	Indiana	PA-IN-254	40.4305000	-79.0149167	N/A
MYSE	05/31/14	Indiana	PA-IN-250	40.4167778	-78.9653889	N/A
MYSE	06/03/14	Cambria	PA-CA-234	40.4314444	-78.7806667	N/A
MYSE	06/03/14	Cambria	PA-CA-234	40.4314444	-78.7806667	172.765
MYSE	06/10/14	Cambria	PA-HU-205	40.3128056	-77.7570278	172.618
MYSE	06/17/14	Cumberland	PA-CU-175	40.2425000	-77.4136111	172.265
MYSE	06/27/14	York	PA-YO-125	40.1978333	-76.8025556	172.219
MYSE	07/24/14	Berks	PA-BE-58	40.1778611	-75.8811389	172.396
MYSE	08/04/14	Delaware	PA-DE-22	39.9415833	-75.4968611	N/A
MYSE	08/06/14	Delaware	PA-DE-19	39.9327778	-75.4741944	172.305
MYSE	06/03/15	Perry	PA-PE-14	40.2602780	-77.4734170	172.732
MYSE	06/03/15	Perry	PA-PE-14	40.2602780	-77.4734170	172.942

### Table 2

### **Northern Long-Eared Bat Roost Tree Locations**

Table 2.

Northern Long-Eared Bat

Roost Tree Locations

Species	Date Found	County	Capture block	Frequncy	Roost ID	Latitude	Longitude
MYSE	6/28/2014	York	PA-YO-125	172.219	B219RT1	40.1988611	-76.8004722
MYSE	6/29/2014	York	PA-YO-125	172.219	B219RT2	40.1971667	-76.8013056
MYSE	5/20/2014	Westmoreland	PA-WE-298A	172.338	B339RT1	40.4266389	-79.5193611
MYSE	5/21/2014	Westmoreland	PA-WE-298A	172.338	B339RT2	40.4272222	-79.5202500
MYSE	5/22/2014	Westmoreland	PA-WE-298A	172.338	B339RT3	40.4270556	-79.5197778
MYSE	5/25/2014	Berks	PA-BE-58	172.396	B396RT1	40.1792500	-75.8839444
MYSE	5/30/2014	Indiana	PA-IN-275	172.575	B575RT1	40.4514444	-79.2703056
MYSE	5/20/2014	Westmoreland	PA-WE-298A	172.595	B595RT1	40.4246944	-79.5199444
MYSE	5/21/2014	Westmoreland	PA-WE-298A	172.595	B595RT2	40.4257500	-79.5203889
MYSE	6/12/2014	Huntingdon	PA-HU-205	172.618	B618RT1	40.3127222	-77.7575556
MYSE	6/13/2014	Huntingdon	PA-HU-205	172.618	B618RT2	40.3126667	-77.7573333
MYSE	6/14/2014	Huntingdon	PA-HU-205	172.618	B618RT3	40.3137778	-77.7586111
MYSE	5/27/2014	Westmoreland	PA-WE-282	172.625	B625RT1	40.4376944	-79.3469444
MYSE	5/29/2014	Westmoreland	PA-WE-282	172.625	B625RT2	40.4374167	-79.3471944
MYSE	5/31/2014	Indiana	PA-IN-263	172.647	B647RT1	40.4454722	-79.1311389
MYSE	5/31/2014	Indiana	PA-IN-263	172.647	B647RT2	40.4452500	-79.1508889
MYSE	8/4/2014	Cambria	PA-CA-234	172.765	B765RT1	40.4335000	-78.7839167
MYSE	6/1/2014	Indiana	PA-IN-259	172.935	B935RT1	40.4486111	-79.0736667
MYSE	6/7/2015	Perry	PA-PE-14	172.732	B732_942RT1	40.2655560	-77.4689440
MYSE	6/7/2015	Perry	PA-PE-14	172.942	B732_942RT1	40.2655560	-77.4689440
MYSE	6/8/2015	Perry	PA-PE-14	172.732	B732_942RT2	40.2655560	-77.4689440
MYSE	6/8/2015	Perry	PA-PE-14	172.942	B732_942RT2	40.2655560	-77.4689440
MYSE	6/9/2015	Perry	PA-PE-14	172.732	B732_942RT3	40.2634440	-77.4690280
MYSE	6/9/2015	Perry	PA-PE-14	172.942	B732_942RT3	40.2634440	-77.4690280

# Table 3 Surveyed Portal Locations

Table 3.
Surveyed Portal Locations

Portal	County	Latitude	Longitude
PA-BE-P1	Berks	40.306444	-76.034472
PA-BE-P2	Berks	40.306444	-76.034472
PA-BE-P3	Berks	40.409444	-78.53975
PA-IN-P4	Indiana	40.461083	-79.233556
PA-IN-P5	Indiana	40.461028	79.233361
PA-IN-P6	Indiana	40.461083	-79.233556
PA-IN-P7	Indiana	40.460639	-79.233417
PA-IN-P8	Indiana	40.450361	-79.238667
PA-WE-P9	Westmoreland	40.223306	-79.791917
PA-WE-P10	Westmoreland	40.232	-79.771917
PA-WE-P11	Westmoreland	40.231944	-79.771833
PA-WE-P12	Westmoreland	40.232	-79.771917

### Table 4

### **Calculations for Counties Without IBCF Donation Values**

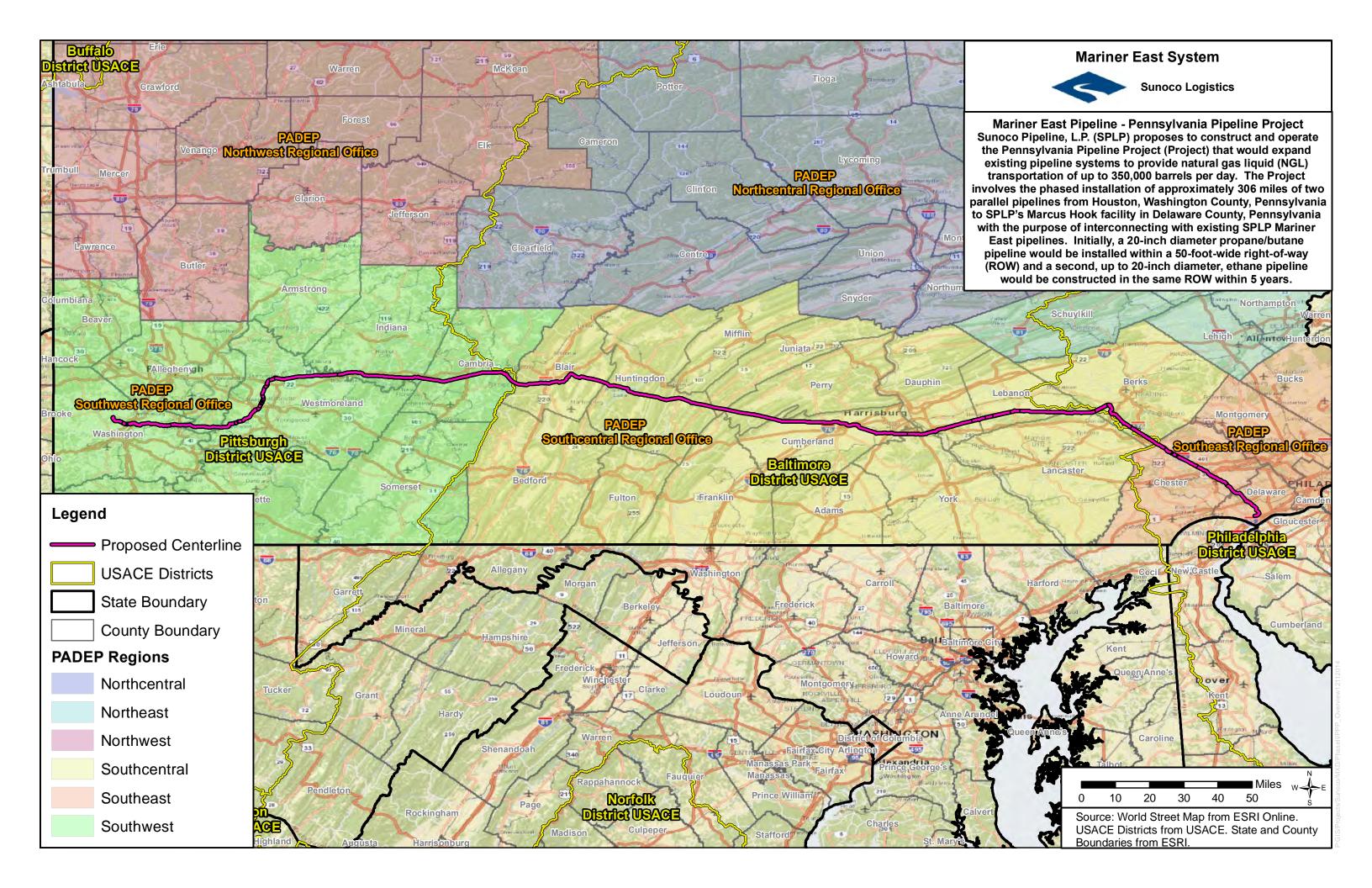
Table 4.
Calculations for Counties Without IBCF Donation Values

County	Lot Size	High	Low	Median
	Conservation/Woodland < 50 Acres	\$2,000.00	\$4,000.00	\$3,000.00
Cambria County	Conservation/Woodland 50 - 100 Acres	\$1,500.00	\$3,500.00	\$2,500.00
	Conservation/Woodland > 100 Acres	\$500.00	\$2,000.00	\$1,250.00
Huntingdon County	Agricultural/Woodland 10-20 Acres	\$1,255.00	\$62,451.00	\$3,320.00
	Agricultural/Woodland 20-50 Acres	\$899.00	\$10,075.00	\$3,041.00
	Agricultural/Woodland >100 Acres	\$933.00	\$6,509.00	\$3,631.00

IBCF = Indiana Bat Conservation Fund

### **APPENDIX A**

### **Project Overview Map**



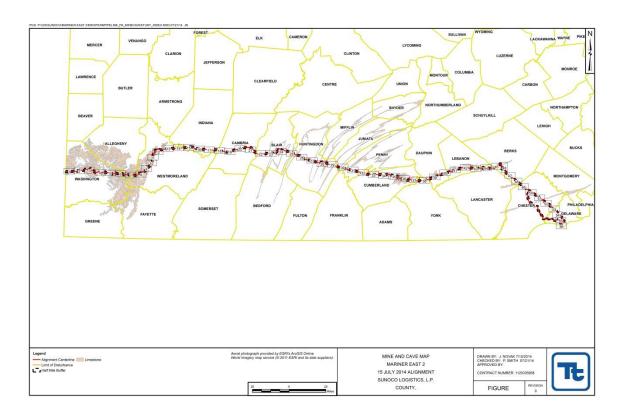
### **APPENDIX B**

### Geological Bat Habitat Along Sunoco's Pennsylvania Pipeline Project

### Geological Bat Habitat Along Sunoco's Pennsylvania Pipeline Project

#### **OVERVIEW**

Tetra Tech has been tasked to assess the potential of encountering bats or bat habitat along the alignment of the Pennsylvania Pipeline Project (PPP) and to identify specific areas most likely to contain bats or bat habitat. A preliminary evaluation of the area was conducted along the PPP located in southern Pennsylvania. This summary identifies the bat-prone areas along this alignment starting on the west at the Ohio/Pennsylvania border and continuing east to Philadelphia. The PPP alignment is shown below. Fifty six mapped segments along this alignment are identified on the map, starting with Figure 1 through Figure 56, from west to east respectively. Copies of these individual mapped segments are attached to this summary.

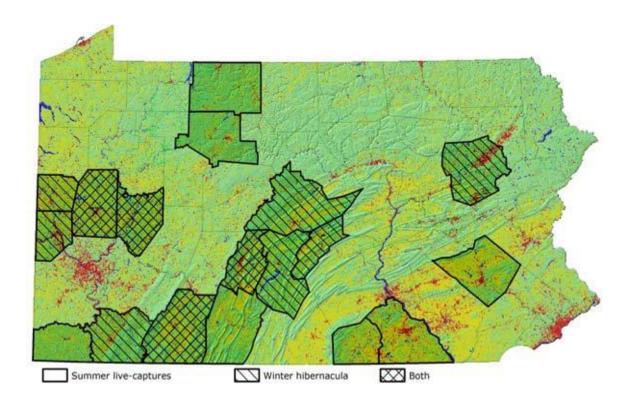


### **BAT HABITATS**

Bat habitats are primarily found in caves, underground mine openings, other manmade underground openings which are suitable for hibernation, and within the bark of trees having a diameter of 5-inches or greater. The purpose of this summary is to delineate areas where bat habitats are prone to occur in cave-forming rocks along the proposed alignment of the PPP. It is the intent of this summary to identify bat-prone areas which should help field crews who will walk segments of the alignment. Field crews can

then use this information to evaluate specific areas that may contain bats; especially those on the threatened or endangered list such as the Indiana Bat (Myotis sodalist) and the Small-footed Bat (Myotis leibii).

The illustration below identifies those counties within Pennsylvania with known bat hibernation areas. The alignment for the PPP crosses parts of the following counties of known hibernation: Blair, Huntingdon, Juniata and Berks.



### LIMESTONE/DOLOMITE GEOLOGY OF THE PPP

Most bats in Pennsylvania are found in caves that have formed by the dissolution of carbonate minerals by groundwater through rocks such as limestones and dolomites. The cave-forming rocks in Pennsylvania consist mainly of medium- to massive-bedded limestones and dolomites. Other known cave habit for bats include thin limestone units within shales, expansion cracks and fissures within quartzites, sandstones, limestone conglomerates and possibly local areas where limestones/dolomites overlie metamorphosed rocks (schist). The geological ages of the primary cave-forming rocks in Pennsylvania include carbonates [primarily limestones (Ls) and dolomites (Do)] of the Devonian, Ordovician and Cambrian Periods, although caves have been found to occur in at least 18 rock formations within the state. These are listed below by geologic age.

Cambrian (570-500 MYO)		
Conococheague Ls		
Elbrook Ls		
Ledger Do		
Cambrian-Ordovician (570-430 MYO)		
Undifferentiated limestone conglomerate		
Tomstown Ls		
Conestoga Ls		
Ordovician (500-430 MYO)		
Trenton Ls*		
Leesport Ls		
Martinsburg Sh		
Jacksonburg Ls		
Beekmantown Ls		
Stones River Ls		
Silurian (430-395 MYO)		
Tuscarora Ss		
Devonian (395-345 MYO)		
Helderberg Ls*		
Mississippian (345-325 MYO)		
Pocono Ss		
Loyalhanna Ls		
Pennsylvanian (325-280 MYO)		
Freeport Ls		
Vanport Ls		

<sup>\*</sup>Primary cave-forming formations in southern Pennsylvania

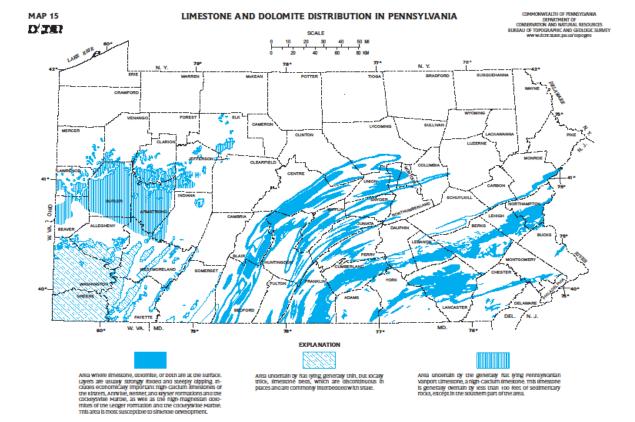
Although these rocks have been identified as containing caves, many of these formations are interbedded with non-cave forming rocks such as shales, and sandstones. Due to the lack of carbonate minerals in shales and sandstones (a key component for cave development), many of these formations produce either limited cave habitat or their extent is so short that a constant cool temperature which bats require for hibernation cannot be maintained. Of the formations listed only a few are conducive to long-term hibernation. Of these, most caves along the PPP are found in two limestone formations; Helderberg Ls (Devonian) and the Trenton Ls. (Ordovician), and to a lesser extent in various Cambrianage mixed carbonates.

The figure below illustrates the distribution of limestones and dolomites in Pennsylvania. Generally, the PPP alignment crosses three distinct limestone and dolomite areas within the state; one on the west side; one in the central part, and another in the southeastern corner. The western area extends from Washington to Cambria counties. This part of the state is referred to as the Allegheny Plateau Physiographic Province. Surface rocks here are flat lying and relatively thin, although some thin limestone units are found interbedded with the more prominent shales, siltstones, sandstones and occasional coal beds. The surface rocks here are geologically quite young and range from Permian and Pennsylvanian in age. Although the cave-forming Pennsylvanian Freeport and Vanport limestones are present in the area, they are not very thick and are typically interbedded with shales and sandstones.

These characteristics are not prone to develop large-scale, permanent habitat which is ideal for year-round bat habitat. Although caves may be found in this area, their presence is limited to a few localized areas and generally is not considered to be prime habitat for bats. In terms of the PPP, this area encompasses Washington, Allegheny, Westmoreland, Indiana, and Cambria counties. Although potential cave-forming rocks are found within this area of this alignment of the PPP, the potential for frequent encounters of large populations of bats is limited.

The central part of the state is referred to as the Ridge and Valley Physiographic Province. Here surface rocks have been highly folded into a series of parallel ridges and valleys that trend in a southwest to northeast direction. Commonly these ridges and valleys consist of medium- and thick-bedded limestones and dolomites known to contain most of the larger caves within the Commonwealth. Surface rocks here are some of the oldest in the state and range in age from Mississippian to Cambrian. The primary formations that have known bat habit include the Devonian Helderberg Limestone and the Ordovician Trenton Limestone. Limestones and dolomites are found in all counties within this physiographic province including Blair, Huntingdon, Juniata, and Perry. This is one of the three area s along the PPP alignment that is most likely to encounter caves and bats. Specific areas that should be of concern and should be examined closely by the field crews include the eastern half of Blair County (Figures 23, 24, 25), northern Huntingdon County (Figures 27, 28, 29), and Juniata County (Figure 30),

The alignment of the PPP east of the ridge and valley is referred to as the Great Valley and Piedmont Upland physiographic provinces. Within this area, the PPP will cross Cumberland, Dauphin, Lebanon, Lancaster, Berks, Chester and Delaware counties. Geologically this part of the state has rocks that have undergone a complex history of tectonic deformation and erosion. Rocks range in age from the Triassic to Precambrian. Additionally, some of the oldest rocks in the state are present and consist of igneous rocks and locally contain large-scale metamorphic zones and rocks of volcanic origin. Some of the largest caves in the state are found here especially in massive limestones and calcareous shales as found in Berks County. Specific areas that should be of concern and should be examined closely by the field crews include northeastern Cumberland County (Figures 35, 36, 37), southern Lebanon County (Figures 41, 42, 43), southern Berks County (Figures 45, 46), and north central Chester County (Figure 51).



### **APPENDIX C**

A *Myotis* Bat Summer and Winter Habitat Assessment for the Pennsylvania Pipeline Project in Huntingdon, Indiana, and Westmoreland Counties, Pennsylvania



### A MYOTIS BAT SUMMER AND WINTER HABITAT ASSESSMENT FOR THE PENNSYLVANIA PIPELINE PROJECT IN HUNTINGDON, INDIANA AND WESTMORELAND COUNTIES, PENNSYLVANIA

PREPARED BY:

Shane Roberts & Joel Beverly Apogee

PREPARED FOR:

Tetra Tech, Inc. & U.S. Fish & Wildlife Service

APOGEE PROJECT NUMBER:

15-720.00



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**APPENDIX A.** Project Location Maps

**APPENDIX B.** Data Sheets

**APPENDIX C.** Potential Roost Tree/Representative Photos

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#### 1.0 INTRODUCTION

Apogee was contracted by Tetra Tech, Inc. (Tetra Tech) to assess the potential summer and winter habitat for the federally endangered Indiana bat (*Myotis sodalis*) and northern longeared bat (*Myotis septentrionalis*) for the Pennsylvania Pipeline Project in Huntingdon, Indiana and Westmoreland Counties, Pennsylvania.

The following report details the findings of the *Myotis* bat habitat assessment conducted by Apogee on behalf of Tetra Tech to fulfill requirements set forth by U.S. Fish & Wildlife Service (USFWS).

### 2.0 PERSONNEL

 <u>Chance Osborne</u>, Ecologist, Clemson University, B.S. Wildlife and Fisheries Biology, 2013.

### 3.0 SITE LOCATION/PROJECT DESCIPTION

Sunoco Pipeline, L.P. (SPLP) proposes to construct and operate the Pennsylvania Pipeline Project (Project) that would expand existing pipeline systems to provide natural gas liquid (NGL) transportation of up to 350,000 barrels per day. The Project involves the installation of approximately two parallel pipelines within a 306-mile, 50-foot-wide right-of-way (ROW) from Houston, Washington County, Pennsylvania to SPLP's Marcus Hook facility in Delaware County, Pennsylvania with the purpose of interconnecting with existing SPLP Mariner East pipelines. A 20-inch diameter pipeline would be installed within the ROW from Houston to Marcus Hook (306 miles) and a second, up to 20-inch diameter pipeline, will also be installed in the same ROW. The second line is proposed to be installed from SPLP's Delmont Station, Westmoreland County, Pennsylvania to the Marcus Hook facility, paralleling the initial line for approximately 255 miles. The proposed project area location maps can be found in Appendix A.

### 4.0 METHODS

#### **4.1 Habitat Assessment**

Qualified biologists followed methods set forth by the USFWS (2015) while conducting an on-site assessment of the quality and quantity of suitable bat habitat present within the project areas. In-field assessments were conducted on the  $23^{rd}$  and  $24^{th}$  of November 2015. In Pennsylvania, the USFWS considers all forested habitats containing trees  $\geq 5$  and  $\geq 3$  inches in diameter at breast height (DBH) to be potential suitable summer roosting and foraging habitat for the Indiana bat and northern long-eared bat.

### A. Summer Habitat

To assess the quality and quantity of potential suitable *Myotis* bat habitat present for the proposed PPP, qualified biologists with knowledge and experience with Indiana bat and/or northern long-eared bat habitat requirements conducted a desktop analysis and in-field surveys of the entire proposed pipeline Limit of Disturbance (LOD) in Pennsylvania. The on-site assessments included a detailed analysis of potential roost trees (PRT's) that may be affected by the project, as well as, a description of potential foraging and commuting areas present within

Apogee Project 15-720.00 Myotid Bat Habitat Assessment Page 4 April 2016

the project areas. In addition, recent aerial photography was used to delineate non-forested and forested areas within the proposed LOD. Data sheets can be found in Appendix B.

#### B. Winter Habitat

To determine if potential winter habitat was present within the proposed LOD qualified biologists reviewed karst occurrence, mining history, and environmental resource maps to determine if any open abandoned mines or karst areas were present within or adjacent to the proposed project area. Qualified biologists with knowledge and experience with Indiana bat and northern long-eared bat winter habitat requirements conducted an in-field survey of the proposed LOD.

#### 5.0 RESULTS

#### 5.1 Habitat Assessment

#### A. Summer Habitat

Desktop review of the most recent aerial photography and in-field surveys determined there to be potential Indiana bat and northern long-eared bat summer habitat consisting of forest and other lands with snags and trees  $\geq 5$  and  $\geq 3$  inches DBH that met the USFWS criteria for potential summer roosts. During the in-field surveys, eighty-three potential bat roosts were identified within the survey areas. Of those eighty-three PRT's, thirty-nine were identified as potential primary roosts for the Indiana bat and/or northern long-eared bat. The remaining forty-four PRT's were identified as potential secondary roosts for the Indiana bat and/or northern long-eared bat. Photos can be found in Appendix C.

#### **B.** Winter Habitat

No caves, rock shelters or abandoned underground mines were observed during the in-field survey of the LOD. Review of the Karst occurrence, mining history and environmental resource maps showed no abandoned mine portals within the proposed project area. Thus, no winter habitat was found to exist for the Indiana bat and/or northern long-eared bat within the proposed project LOD.

#### 6.0 DISCUSSION

This habitat assessment was conducted with the appropriate level of effort and under the appropriate conditions to investigate potential summer and winter habitat for Indiana and northern long-eared bats. Eighty-three potential roost trees were discovered within the LOD. No potential winter habitat was observed during these survey efforts. The results of this habitat assessment indicates that potential summer roosting and foraging habitat does exist within the proposed project LOD.

Due to the land acquisition process, SPLP will not be able to clear potential roost trees identified in this habitat assessment report. SPLP is proposing emergence surveys on identified PRT's, which fall outside the scope of the USFWS guidance (e.g. conducting emergence surveys on more than 10 trees and over a relatively large area.) PRT's will be felled immediately after emergency surveys are complete.

Apogee Project 15-720.00 Myotid Bat Habitat Assessment Page 5 April 2016

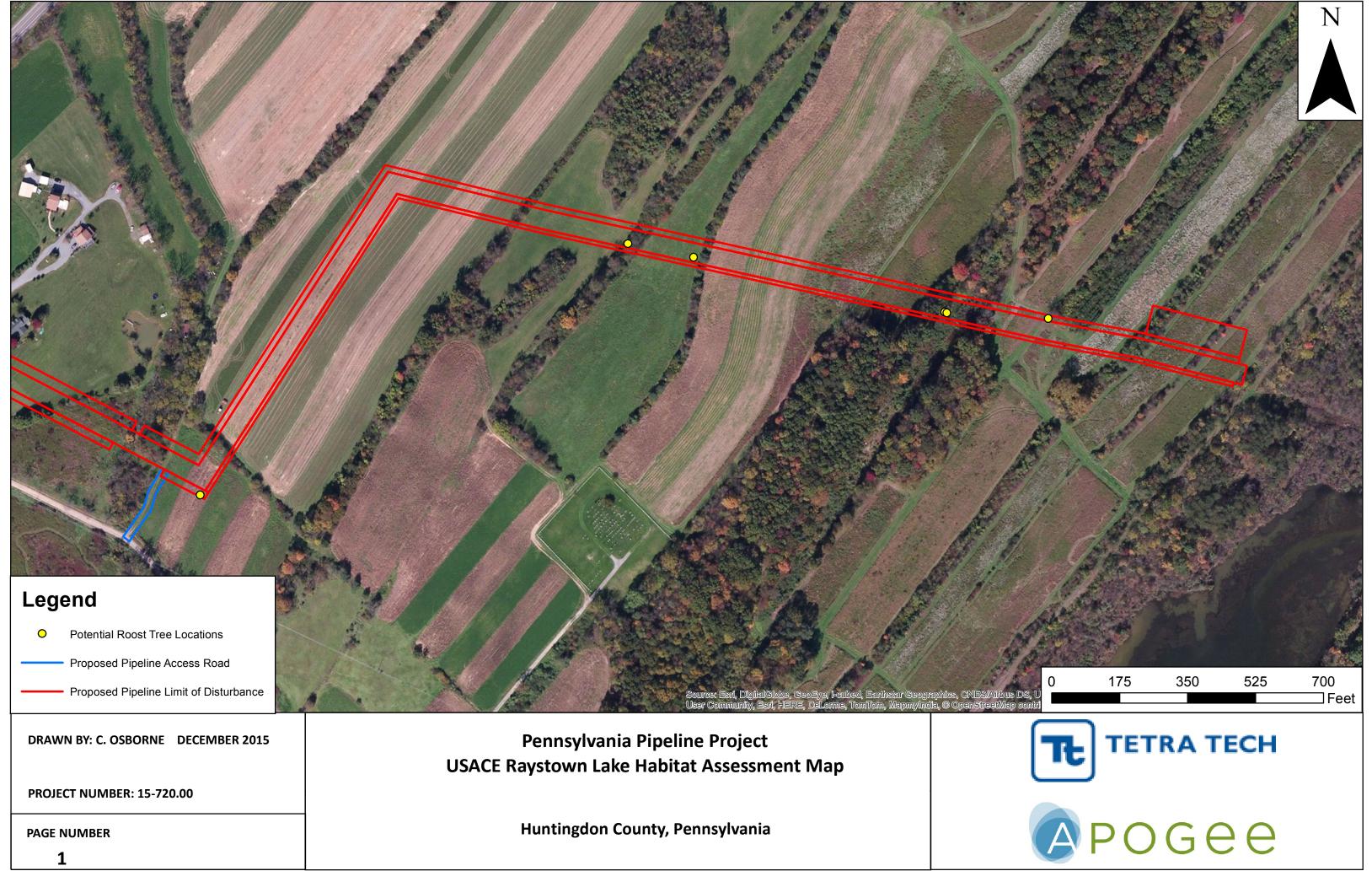
Apogee bat biologist's will conduct emergence surveys on identified PRT's within the project LOD. Nightly emergence counts made as bats depart from day roosts can be one of the most effective ways to estimate the number of bats using a diurnal roost and are nondisruptive to bats if they are using the PRT as a diurnal roost. Nightly emergence counts are most effective when departing bats are silhouetted against a clear sky but can still be effective in other field situations. The number of observers required to conduct nightly emergence counts depend on the size and configuration of the PRT site. Based on the field data of identified PRT's, Apogee is confident that this can be accomplished with a minimum of two biologists per PRT. Each observer will be assigned a specific exit(s) or field of view to ensure that the earliest potential emerging bats are counted. Angle of observation will be determined based on surrounding habitat of PRT's. Observers will be in place a minimum of one hour before the onset of nightfall to conduct the emergence surveys. Surveys will take place until visibility is too low to determine if any bats are emerging from the PRT. Based on access, understory and overstory of surrounding PRT habiat, Apogee is confident that emergence surveys can be conducted at a high level of certainty to determine if and when bats are emerging from PRT's. Apogee biologists have extensive experience conducting emergence surveys in all types of terrain and forest types.

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### **APPENDIX A**

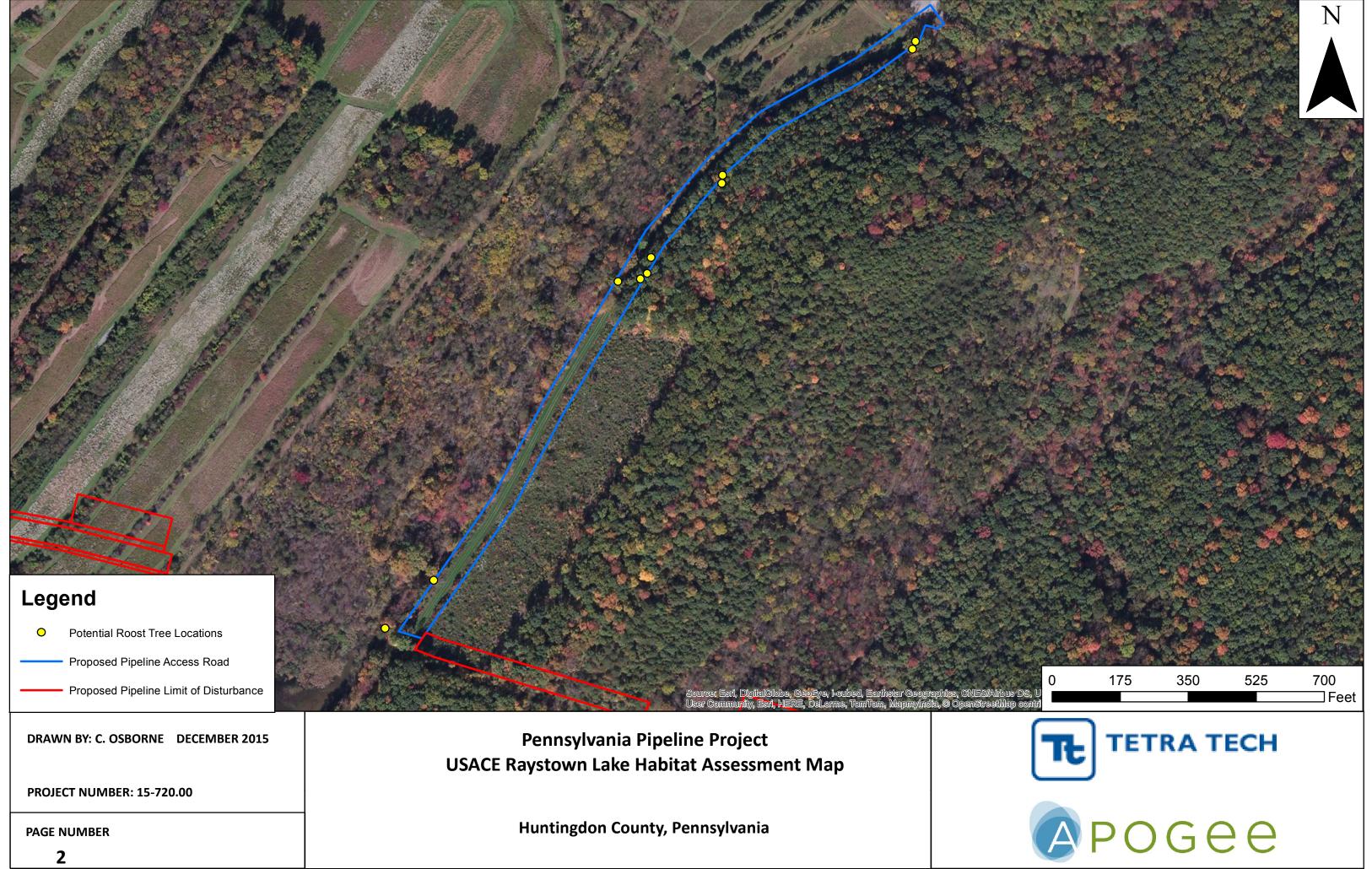
### **PROJECT LOCATION MAPS**

Note: Appendix A has been modified to include only maps on USACE properties



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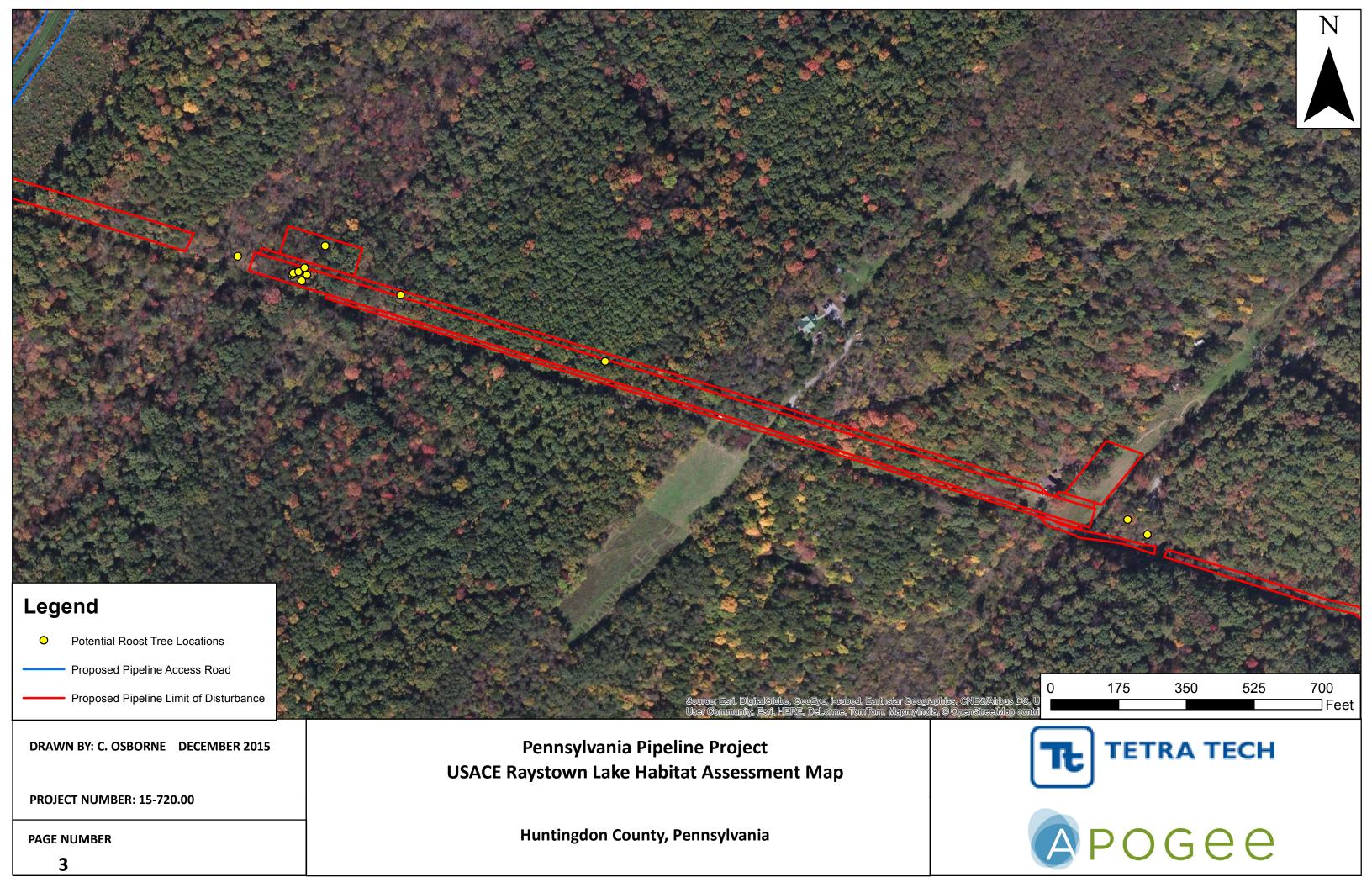


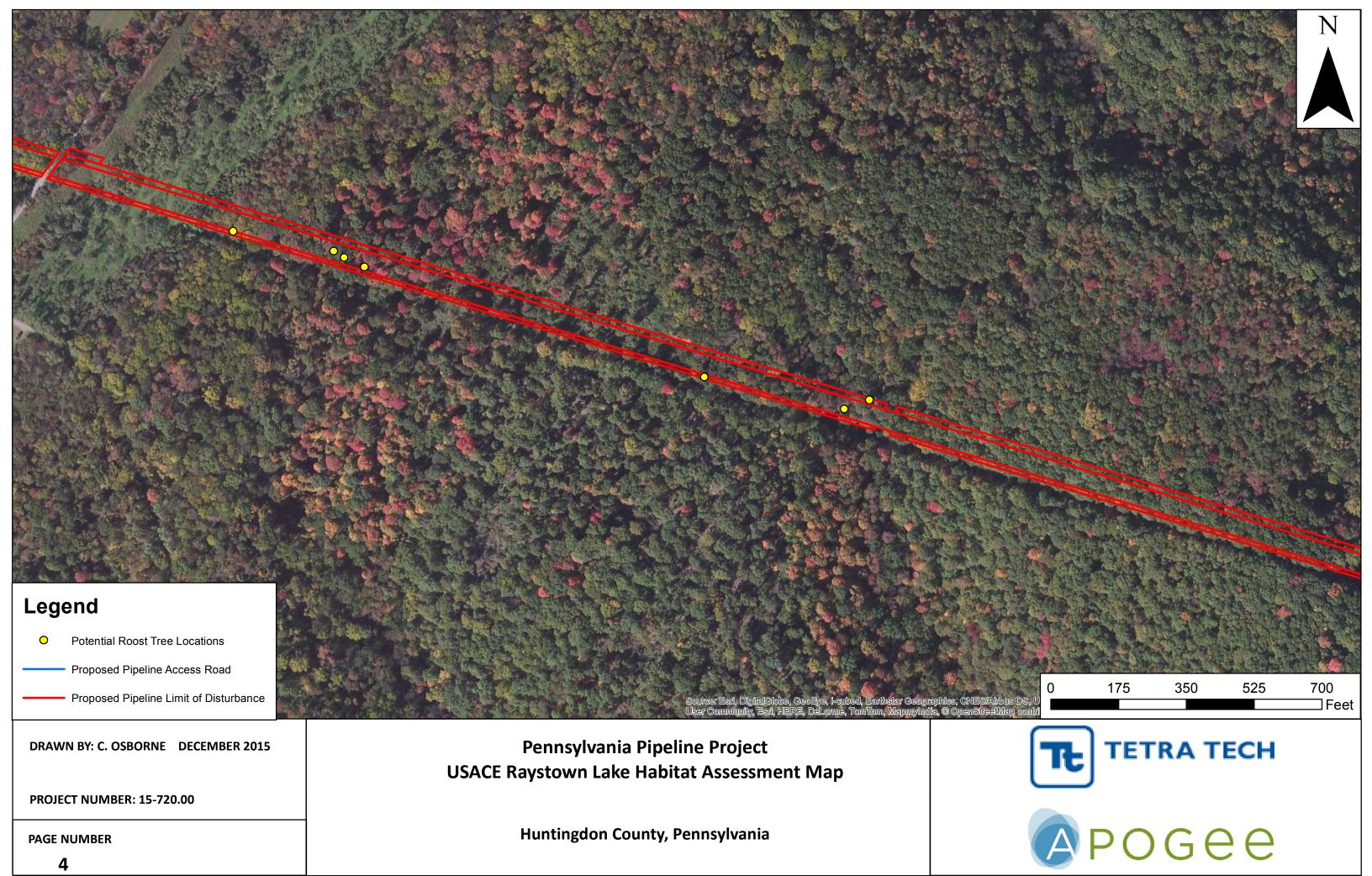


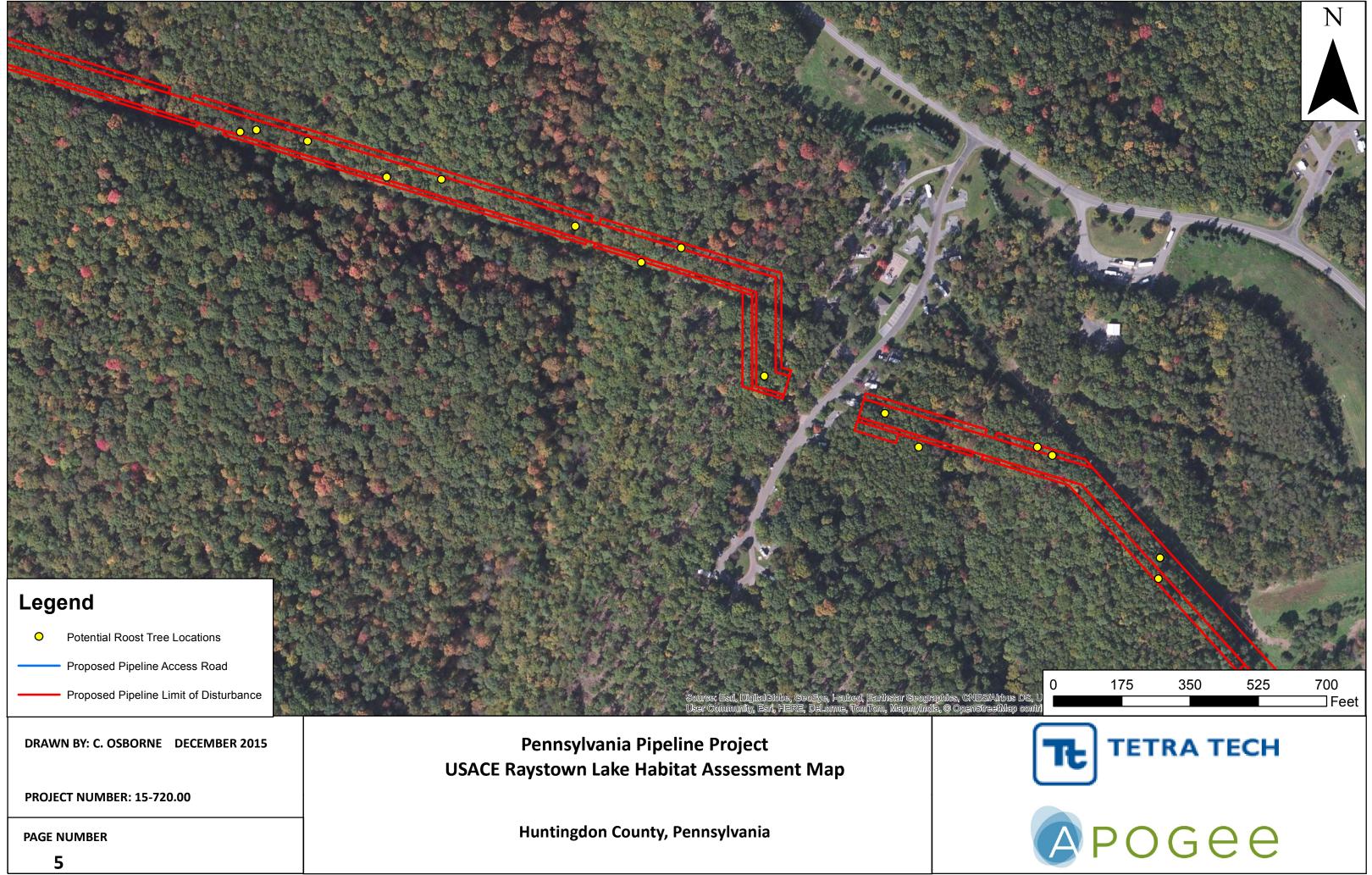
**Huntingdon County, Pennsylvania** 



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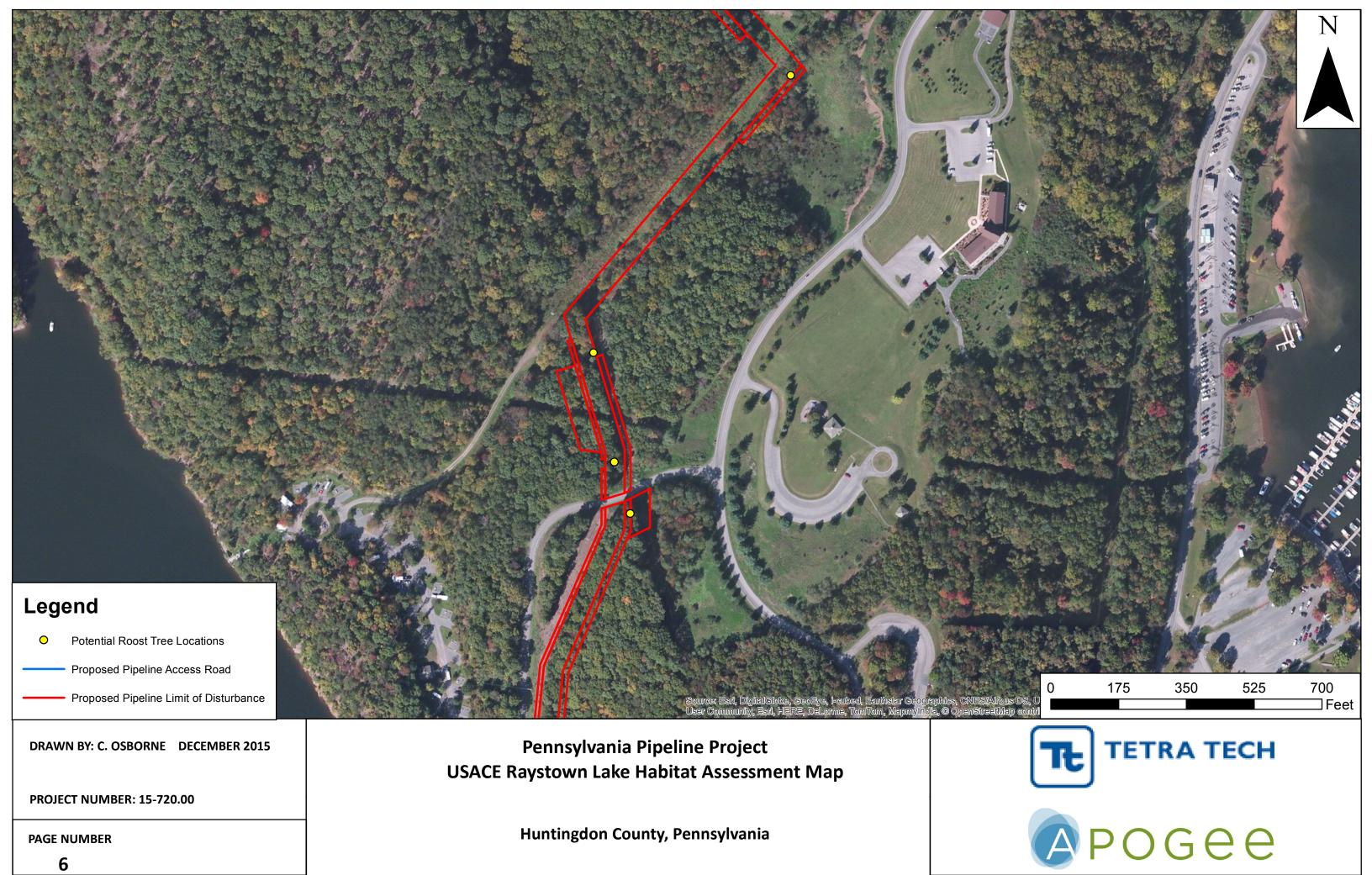


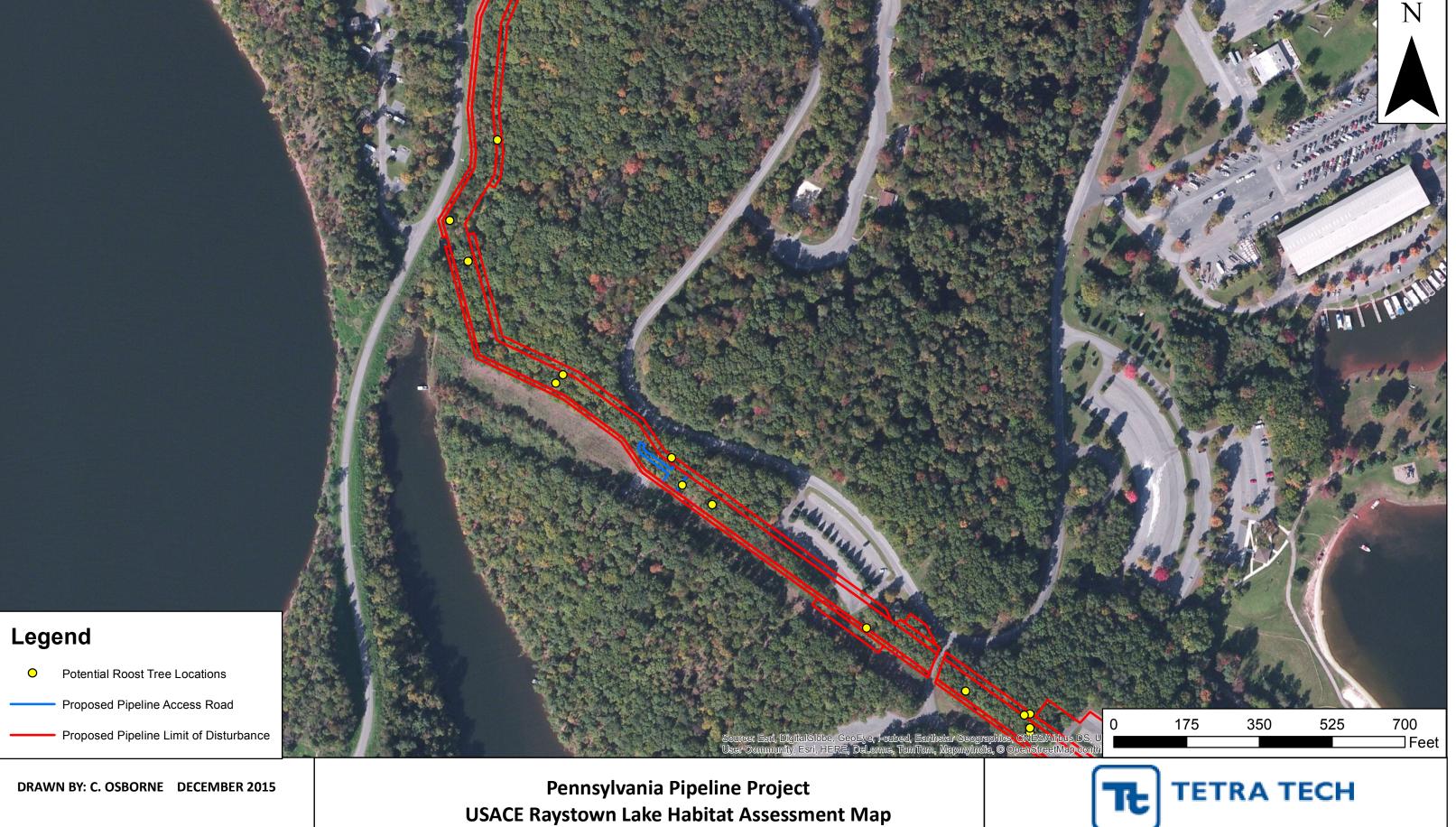




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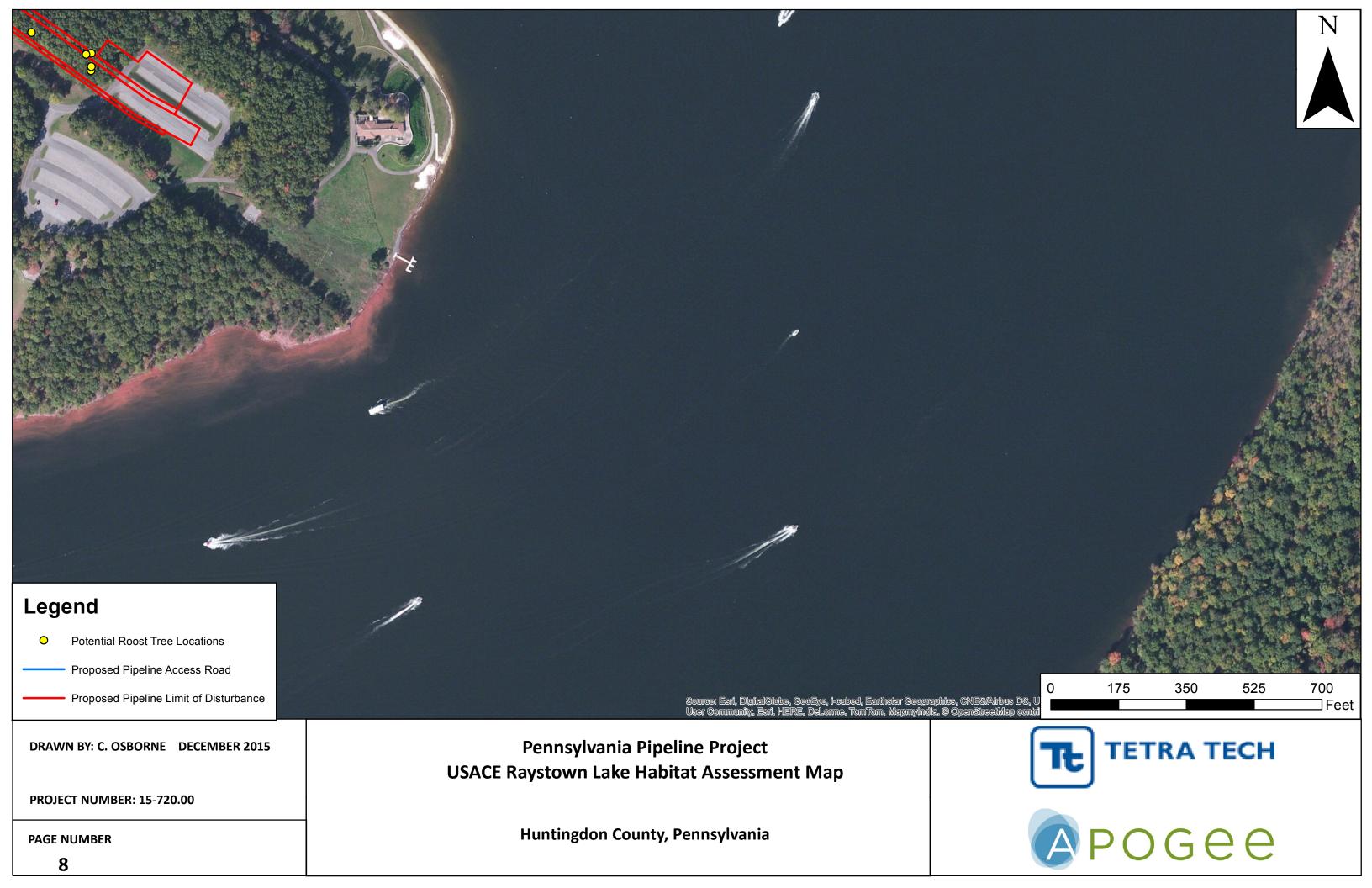


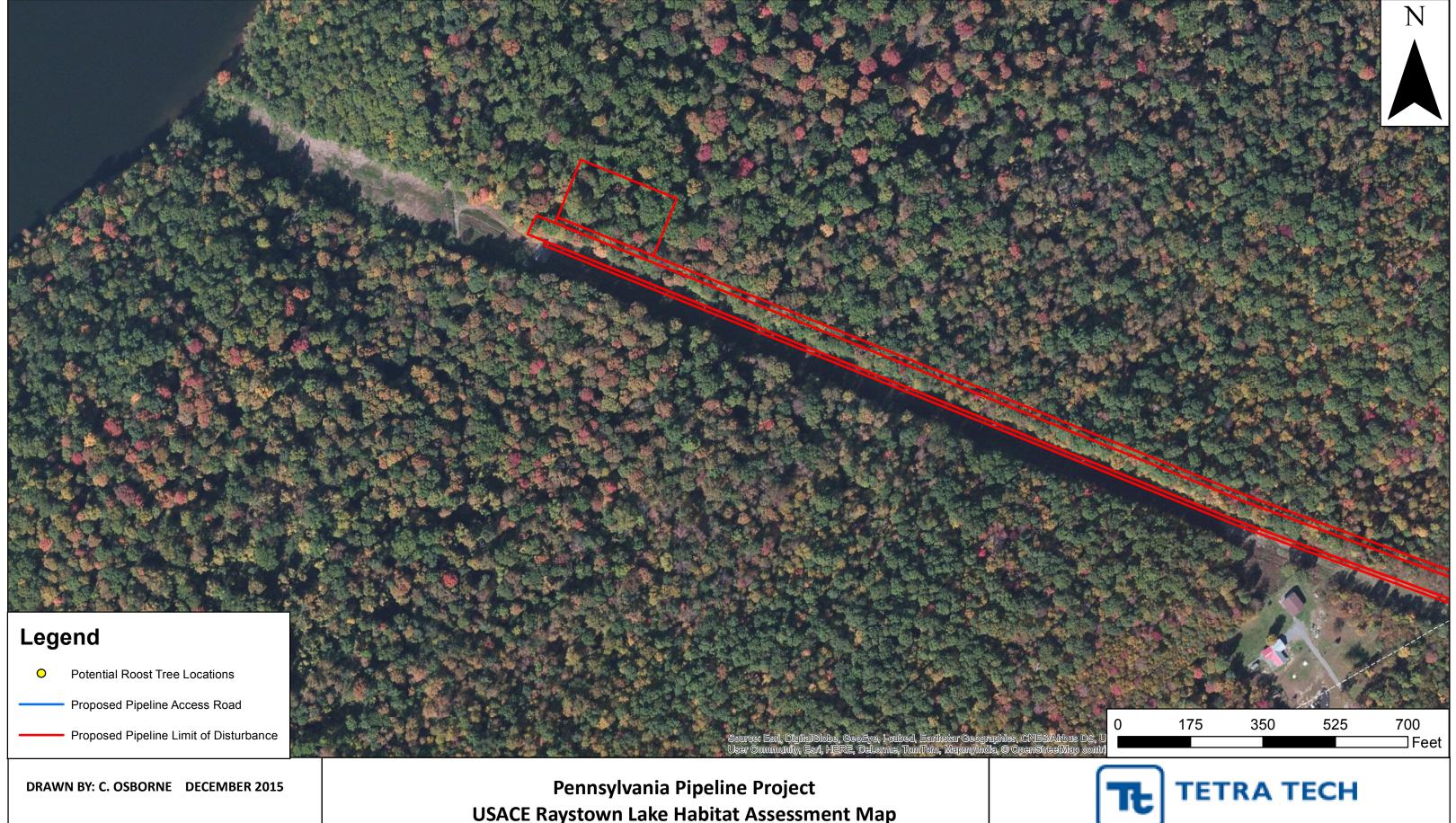


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**USACE Raystown Lake Habitat Assessment Map** 





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### **APPENDIX B**

**DATA SHEETS** 

### **Potential Roost Tree Information Sheet**

Project #: 15-720.00 State: PA County: Huntingdon

-	Team ID: AP-1					Date:	23 Noven	nhor 2015
	Team D. Al I				Coordi		23 Noven	
Tree ID #	Species	DBH (inches)	Primary or Secondary	Alive/ Dead	Latitude	Longitude	Photo #	Avoid/ Unavoid
PRT 1	P. serotina	17.5	S	Α			1	U
PRT 2	C. ovata	8.5	S	Α			2	U
PRT 3	C. ovata	8.5	S	Α			3	U
PRT 4	C. ovata	22.0	Р	Α			4	U
PRT 5	C. ovata	16.25	Р	Α			5	U
PRT 6	A. rubrum	29.5	Р	D			6	U
PRT 7	Q. alba	24.0	Р	Α			7	U
PRT 8	Q. alba	22.75	S	Α			8	U
PRT 9	A. rubrum	14.75	S	D			9	U
PRT 10	Q. alba	16.25	Р	Α			10	U
PRT 11	A. rubrum	3.5	S	D			11	U
PRT 12	A. rubrum	21.0	Р	D			12	U
PRT 13	Q. alba	56.5	Р	Α			13	U
PRT 14	C. lienosa	10.75	S	Α			14	U
PRT 15	Snag	10.25	S	D			15	U
PRT 16	C. ovata	19.5	Р	Α			16	U
PRT 17	C. ovata	17.5	Р	Α			17	U
PRT 18	C. ovata	12.75	Р	Α			18	U
PRT 19	C. ovata	21.0	Р	Α			19	U
PRT 20	C. ovata	5.5	S	Α			20	U
PRT 21	C. ovata	6.75	S	Α			21	U
PRT 22	C. ovata	17.0	Р	Α			22	U
PRT 23	Q. alba	25.25	Р	Α			23	U
PRT 24	Snag	12.5	S	D			24	U
PRT 25	C. ovata	10.0	S	Α			25	U
PRT 26	C. ovata	13.5	Р	Α			26	U
PRT 27	A. rubrum	13.0	S	Α			27	U
PRT 28	Snag	9.5	S	D			28	U
PRT 29	Snag	13.75	S	D			29	U
PRT 30	Snag	9.0	S	D			30	U

### **Potential Roost Tree Information Sheet**

Project #: 15-720.00 State: PA County: Huntingdon

	Team ID: AP-1					Date:	23 Novem	hor 2015
	Team D. Al I				Coordi		23 Noveii	
Tree ID #	Species	DBH (inches)	Primary or Secondary	Alive/ Dead	Latitude	Longitude	Photo #	Avoid/ Unavoid
PRT 31	Q. snag	7.75	S	D			31	U
PRT 32	Q. alba	13.25	S	D			32	U
PRT 33	A. rubrum	13.0	S	Α			33	U
PRT 34	A. rubrum	19.75	Р	Α			34	U
PRT 35	A. rubrum	8.0	S	D			35	U
PRT 36	Q. rubra	18.75	Р	D			36	U
PRT 37	R. pseudoacacia	17.0	Р	D			37	U
PRT 38	Q. spp.	19.5	Р	D			38	U
PRT 39	Q. alba	22.25	Р	Α			39	U
PRT 40	A. rubrum	17.5	S	Α			40	U
PRT 41	C. ovata	13.75	S	Α			41	U
PRT 42	R. pseudoacacia	15.5	S	D			42	U
PRT 43	R. pseudoacacia	9.25	S	D			43	U
PRT 44	R. pseudoacacia	14.5	S	D			44	U
PRT 45	Q. spp. snag	9.75	S	D			45	U
PRT 46	Q. alba	47.75	Р	Α			46	U
PRT 47	Q. spp.	6.75	S	D			47	U
PRT 48	Snag	10.5	Р	D			48	U
PRT 49	A. saccharum	17.75	S	D			49	U
PRT 50	P. virginianus	14.5	S	D			50	U
PRT 51	Q. rubra	25.25	Р	D			51	U
PRT 52	Snag	11.0	S	D			52	U
PRT 53	Q. alba	16.25	Р	Α			53	U
PRT 54	P. strobus	20.0	S	D			54	U
PRT 55	Q. spp.	15.75	S	D			55	U
PRT 56	Q. alba	14.75	S	Α			56	U
PRT 57	Snag	14.0	S	D			57	U
PRT 58	Snag	16.25	S	D			58	U
PRT 59	R. pseudoacacia	29.25	S	D			59	U
PRT 60	Q. rubra	33.75	Р	Α			60	U

### **Potential Roost Tree Information Sheet**

Project #: 15-720.00 State: PA County: Huntingdon

	13-720.00	Jiaic			County. 11			
	Team ID: AP-1					Date:	24 Novem	ber 2015
		DBH	Primary or	Alive/	Coord	inates		Avoid/
Tree ID #	Species		Secondary	Dead	Latitude	Longitude	Photo #	Unavoid
PRT 61	Snag	8.75	S	D			61	U
PRT 62	Q. prinus	22.25	Р	D			62	U
PRT 63	Q. alba	18.0	S	D			63	U
PRT 64	R. pseudoacacia	15.75	S	D			64	U
PRT 65	Q. alba	15.75	Р	D			65	U
PRT 66	R. pseudoacacia	16.5	S	D			66	U
		<u> </u>					1	

Project #: 15-720.00

<b>Locational Data:</b>		Well Pad ID:			
Plot ID:	PPP-1	Date of Survey:	23 November 2015		
Pipeline Segment:		Team ID:	AP-1		
Approx MP:		Latitude:	40 23 46.7		
Tract No.:		Longitude:	78 08 38.4		
State:	PA	Photographs:	iPad		
County:	Huntingdon				
Plot Description:					
Maintained agricu	ltural field				
Description of Adjace	ent Areas:				
Ag fields, resident	ial areas				
Distribution of Trees	- dbh by inch: (percent)	Species:	Ave. dbh		
Small (3-8 inch dbh)		·			
Medium (8-15 inch dbh)					
Large > 15 dbh					
Forest Density: (perc	ent)				
Understory closure:					
Midstory closure: Canopy closure:					
Carlopy closure.			ļ		
Waterbodies: (total #	ŧ and ID)	Wetlands: (total #	and ID)		
Ephemeral	,	Number	,		
Intermittent		Acres			
Perennial					
	1				
IBat Habitat Type:	3				
NEB Habitat Type:	3				
Notes: MYSO Habitat Types:					
1. Maternity Roosting Habitat: Stand with $\geq 1$ suitable roost tree $\geq 9$ inches dbh that are either preferred species with $\leq 30\%$ exfoliating bark or suitable snags					
<ul><li>a. no trees that species with gre</li></ul>	tiy Roosting Habitat: A forested stand with are greater than or equal to nine inchestater than or equal to 30 percent exfoliation that are than or equal to four inches dbh that ar	s dbh that are either prefe ting bark or suitable snag	erred tree s, and		

3. Foraging Habitat: A forested stand with trees  $\geq$  four inches dbh with no preferred tree species or suitable snags.

### MYSE Habitat Types:

1. Roosting Habitat: A forested stand with trees  $\geq$  3 inches DBH

### Sampling Frequency:

In contiguous forest, sample one  $30 \times 400$  foot plot centered on centerline for each defined change in habitat, with a minimum of one plot per kilometer.

In small isolated woodlots, sample 30 ft width for entire length of woodlot

Project #: 15-720.00

Plot ID: PPP-2  Pipeline Segment: Approx MP: Tract No.:  State: PA	Date of Survey: Team ID: Latitude: Longitude:	23 November 2015  AP-1  40 23 51.2  -78 08 08.7		
Approx MP:  Tract No.:  State: PA County: Huntingdon	Latitude: Longitude:	40 23 51.2		
Tract No.:  State: PA County: Huntingdon	Longitude:			
Tract No.:  State: PA County: Huntingdon	Longitude:	-78 08 08 7		
State: PA County: Huntingdon				
County: Huntingdon	Diameter and the	70 00 00		
Plot Description:	Photographs:	iPad		
·				
Alternating patches of corn/sorghum/wheat fields and sma	all forested patches			
Description of Adjacent Areas:				
Ag fields, residential areas				
Distribution of Trees - dbh by inch: (percent)	Species:	Ave. dbh		
Small (3-8 inch dbh) 50	C. ovata.	15.0		
Medium (8-15 inch dbh) 20	Q. alba.	12.0		
Large > 15 dbh 30	A. saccharum	10.5		
Large > 13 ubit	L. tulipifera	9.75		
Forest Density (negent)	L. taliplicia	0.70		
Forest Density: (percent)				
Understory closure: 15				
Midstory closure: 40				
Canopy closure: 45				
Waterbodies: (total # and ID)	Wetlands: (total # a	nd ID)		
Ephemeral	Number			
Intermittent	Acres			
	Acres			
Perennial				
IBat Habitat Type: 2				
NEB Habitat Type: 2				
Notes: MYSO Habitat Types:				
1. Maternity Roosting Habitat: Stand with $\geq 1$ suitable roost tree $\geq 9$ inches dbh that are either preferred species with $\leq 30\%$ exfoliating bark or suitable snags				
<ol> <li>Non-Materntiy Roosting Habitat: A forested stand with the following characteristics:         <ul> <li>a. no trees that are greater than or equal to nine inches dbh that are either preferred tree species with greater than or equal to 30 percent exfoliating bark or suitable snags, and</li> <li>b. trees greater than or equal to four inches dbh that are either preferred tree species or suitable snags.</li> </ul> </li> <li>Foraging Habitat: A forested stand with trees ≥ four inches dbh with no preferred tree species or suitable snags.</li> </ol>				

### MYSE Habitat Types:

1. Roosting Habitat: A forested stand with trees  $\geq$  3 inches DBH

### Sampling Frequency:

In contiguous forest, sample one  $30 \times 400$  foot plot centered on centerline for each defined change in habitat, with a minimum of one plot per kilometer.

In small isolated woodlots, sample 30 ft width for entire length of woodlot

Project #: 15-720.00

<b>Locational Data:</b>			Well Pad ID:	
Plot ID:	PPP-3		Date of Survey:	23 November 2015
			2 4 10 0 10 4 10 7 1	
Pipeline Segment:			Team ID:	AP-1
Approx MP:			Latitude:	40 23 48.1
Tract No.:			Longitude:	-78 07 59.1
Trade Ivon			zongrade.	
State:	PA		Photographs:	iPad
County:	Huntingdon			
Plot Description:				
Large forested we	tland; large amount of Pl	RT's, but they v	were outside the L	OD
Description of Adjace	ent Areas:			
	g fields, forested areas a	and access roa	d	
	- dbh by inch: (percent)		Species:	Ave. dbh
Small (3-8 inch dbh)	25		C. ovata.	16.0
Medium (8-15 inch dbh)	35 35		Q. alba. A. rubrum	13.5 11.0
Large > 15 dbh	33		P. strobus	08.5
Forest Density: (perc	ent)		A. saccharum	10.5
Understory closure:	30		A. Saccitatuiii	10.5
Midstory closure:	30			
Canopy closure:	40			
carropy crossare.				!
Waterbodies: (total #	and ID)		Wetlands: (total #	and ID)
Ephemeral			Number	
Intermittent			Acres	
Perennial	1			
IBat Habitat Type:	1			
NEB Habitat Type:	1			
	<u>L</u>			
Notes:				
MYSO Habitat Types:				
1. Maternity Ro	oosting Habitat: Stand with	> 1 suitable roost	tree > 9 inches dbh	that are either
	es with < 30% exfoliating bar			
	_			
2 Non-Materni	tiy Roosting Habitat: A fores	ted stand with th	e following characte	aristics.
	are greater than or equal to		_	
	eater than or equal to 30 per			
-	than or equal to four inches	_	_	
or trees Breater	than or equal to roal mones	abir tilat are ell.	ner preferred tree sp	recies of suitable shagsi
3. Foraging Hah	pitat: A forested stand with	trees > four inch	es dbh with no prefe	erred tree species or
suitable snags.	Troicated atulia with	000 <u>-</u> 1001 mem	22 dan mai no piere	Ja a de species oi
Januare Jilugs.				
MYSE Habitat Types:				
<ol> <li>Roosting Hat</li> </ol>	oitat: A forested stand with t	trees <u>&gt;</u> 3 inches D	ВH	

Sampling Frequency:

In contiguous forest, sample one  $30 \times 400$  foot plot centered on centerline for each defined change in habitat, with a minimum of one plot per kilometer.

In small isolated woodlots, sample 30 ft width for entire length of woodlot

Project #: 15-720.00

<b>Locational Data:</b>		Well Pad ID:	
Plot ID:	PPP-4	Date of Survey:	23 November 2015
Pipeline Segment:		Team ID:	AP-1
Approx MP:		Latitude:	40 23 53.5
Tract No.:		Longitude:	-78 07 51.0
State: County:	PA Huntingdon	Photographs:	iPad
Plot Description:			
Access road			
Description of Adjace Forested areas, A			
	- dbh by inch: (percent)	Species: Q. alba.	Ave. dbh 14.75
Small (3-8 inch dbh) Medium (8-15 inch dbh)	55	A. rubrum	13.5
Large > 15 dbh	30	C. ovata	12.5
		P. strobus	4.5
Forest Density: (perc		L. tulipifera	8.5
Understory closure:	10		
Midstory closure:	50		
Canopy closure:	40		
Waterbodies: (total #	t and ID)	Wetlands: (total #	and ID)
Ephemeral		Wetlands: (total #	
Intermittent		Acres	
Perennial		Acres	
rerennar			
IBat Habitat Type:	1		
NEB Habitat Type:	1		
	oosting Habitat: Stand with <u>&gt;</u> 1 suita		that are either
<ol> <li>Non-Maternia</li> <li>no trees that</li> <li>species with green</li> </ol>	es with < 30% exfoliating bark or suitive Roosting Habitat: A forested startiare greater than or equal to nine interested to 30 percent extends or equal to four inches dbh the	nd with the following characte iches dbh that are either prefe foliating bark or suitable snag	erred tree s, and
<ol><li>Foraging Hat</li></ol>	oitat: A forested stand with trees >	four inches dbh with no prefe	rred tree species or

### MYSE Habitat Types:

suitable snags.

1. Roosting Habitat: A forested stand with trees  $\geq$  3 inches DBH

### Sampling Frequency:

In contiguous forest, sample one  $30 \times 400$  foot plot centered on centerline for each defined change in habitat, with a minimum of one plot per kilometer.

In small isolated woodlots, sample 30 ft width for entire length of woodlot

Project #: 15-720.00

<b>Locational Data:</b>			Well Pad ID:	
Plot ID:	PPP-5		Date of Survey:	23 November 2015
Pipeline Segment:			Team ID:	AP-1
Approx MP:			Latitude:	40 23 42.7
Tract No.:			Longitude:	-78 07 32.7
State:	PA		Photographs:	
County:	Huntingdon		. Hotographor	iPad
Plot Description:				
·		eside existing ROW;	same habitat contir	ues after small
Description of Adjace	ant Areas.			
Forested areas, re				
Torested areas, re	isideriliai areas			
Distribution of Trees	- dbh by inch: (percent	t)	Species:	Ave. dbh
Small (3-8 inch dbh)	25		C. ovata	14.0
Medium (8-15 inch dbh)	40		A. rubrum	14.0
Large > 15 dbh	35		A. saccharum	12.5
		•	Q. alba	13.75
Forest Density: (perc	ent)	_	L. tulipifera	9.5
Understory closure:	15		P. strobus	7.0
Midstory closure:	40			
Canopy closure:	45			
Waterbodies: (total #	and ID)	1	Wetlands: (total #	and ID)
Ephemeral			Number	
Intermittent			Acres	
Perennial				
IBat Habitat Type:	1			
NEB Habitat Type:	1			
,,	·			
Notes:				
MYSO Habitat Types:	:			
1. Maternity Ro	oosting Habitat: Stand v	with > 1 suitable roos	t tree > 9 inches dhh	that are either
•	es with < 30% exfoliating	<del>_</del>	<del></del>	that are entirer
protest open.	<u></u> 90/0 0/1101140111	8 2011 01 00100000 0110	.00	
2 Non-Materni	tiy Roosting Habitat: A f	forested stand with th	ne following characte	arictice:
	are greater than or equ		_	
	eater than or equal to 30			
-	· ·	-	_	ecies or suitable snags.
or trees Breater	than or equal to roun in		ner preferred tree sp	recies of surface struggs.
3. Foraging Wah	nitate A forested stands	with trees > four inch	as dhh with na profo	rrad tree species or
	oitat: A forested stand v	with trees <u>&gt;</u> four inch	es abii witti 110 prete	med tree species of
suitable snags.				
MYSE Habitat Types:				
• • • • • • • • • • • • • • • • • • • •	oitat: A forested stand w	vith trees <u>&gt;</u> 3 inches [	ОВН	

### Sampling Frequency:

In contiguous forest, sample one  $30 \times 400$  foot plot centered on centerline for each defined change in habitat, with a minimum of one plot per kilometer.

In small isolated woodlots, sample 30 ft width for entire length of woodlot

Project #: 15-720.00

Locational Data:		Well Pad ID:		
Plot ID:	PPP-6	Date of Survey:	23 November 2015	
Pipeline Segment:		Team ID:	AP-1	
Approx MP:		Latitude:	40 23 41.0	
Tract No.:		Longitude:	-78 07 29.5	
Tract No.:		congitude:	-76 07 29.3	
State: County:	PA Huntingdon	Photographs:	iPad	
Dist Description				
Plot Description: Residential area w 40 23 39.0, -78 07	ith small field and scattered trees; additio 18.3	n location below SE	forested patch at:	
Description of Adjace	ent Areas:			
Forested areas, re	esidential areas, small cleared fields			
Small (3-8 inch dbh)	- dbh by inch: (percent)	Species:  Q. alba	Ave. dbh	
Medium (8-15 inch dbh)	45	C. ovata	6.5	
Large > 15 dbh	15	P. strobus	6.5	
Forest Density: (perc				
Understory closure:	50			
Midstory closure:	20			
Canopy closure:	20			
Waterbodies: (total #	and ID)	Wetlands: (total # a	nd ID)	
Ephemeral		Number	,	
Intermittent		Acres		
Perennial				
IBat Habitat Type:	3			
NEB Habitat Type:	3			
Notes: MYSO Habitat Types:				
1. Maternity Roosting Habitat: Stand with $\geq 1$ suitable roost tree $\geq 9$ inches dbh that are either preferred species with $\leq 30\%$ exfoliating bark or suitable snags				
2. Non-Materntiy Roosting Habitat: A forested stand with the following characteristics: a. no trees that are greater than or equal to nine inches dbh that are either preferred tree species with greater than or equal to 30 percent exfoliating bark or suitable snags, and b. trees greater than or equal to four inches dbh that are either preferred tree species or suitable snags.				
<ol> <li>Foraging Hab suitable snags.</li> </ol>	pitat: A forested stand with trees $\geq$ four inch	es dbh with no preferr	red tree species or	
MYSE Habitat Types:				

1. Roosting Habitat: A forested stand with trees > 3 inches DBH

# Sampling Frequency:

In contiguous forest, sample one  $30 \times 400$  foot plot centered on centerline for each defined change in habitat, with a minimum of one plot per kilometer.

In small isolated woodlots, sample 30 ft width for entire length of woodlot

Project #: 15-720.00

Locational Data:		Well Pad ID:				
Plot ID:	PPP-7	Date of Survey:	23 November 2015			
PIOUID.	FFF-/	Date of Survey.	23 November 2015			
Pipeline Segment:		Team ID:	AP-1			
Approx MP:		Latitude:	40 22 04.8			
Tract No.:		Longitude:	-78 03 45.9			
State:	PA	Photographs:	iDad			
County:	Huntingdon		iPad			
Plot Description:						
	trees in area, but an extremely high r	number of PRT's just	outside of LOD			
	, ,	•				
Description of Adjace	ent Areas:					
Forested areas, R	OW and Lake Raystown					
Distribution of Trees	- dbh by inch: (percent)	Species:	Ave. dbh			
Small (3-8 inch dbh)						
Medium (8-15 inch dbh)						
Large > 15 dbh						
Forest Density: (perc	ent)					
Understory closure:						
Midstory closure: Canopy closure:						
Waterbodies: (total #	Fand ID)	Wetlands: (total # a	and ID)			
Intermittent		Acres				
Perennial						
IBat Habitat Type:	3					
NEB Habitat Type:	3					
Notes:						
MYSO Habitat Types:	:					
	posting Habitat: Stand with $\geq 1$ suitable roces with $\leq 30\%$ exfoliating bark or suitable signary.		that are either			
process op our						
2 Non Materni	tiy Roosting Habitat: A forested stand with	the following character	rictics			
	are greater than or equal to nine inches d					
-	eater than or equal to 30 percent exfoliating	-				
b. trees greater	than or equal to four inches dbh that are e	either preferred tree sp	ecies or suitable snags.			
3. Foraging Habitat: A forested stand with trees $\geq$ four inches dbh with no preferred tree species or						
suitable snags.						
MYSE Habitat Types:						
	pitat: A forested stand with trees <u>&gt; 3</u> inches	s DBH				

In contiguous forest, sample one 30 x 400 foot plot centered on centerline for each defined change in

Survey Corridor:

Sampling Frequency:

habitat, with a minimum of one plot per kilometer.

In small isolated woodlots, sample 30 ft width for entire length of woodlot

Project #: 15-720.00

Locational Data:				
		Well Pad ID:		
Plot ID:	PPP-8	Date of Survey:	23 November 2015	
Pipeline Segment:		Team ID:	AP-1	
,			L	
Approx MP:		Latitude:	40 22 34.7	
Tract No.:		Longitude:	-78 04 42.3	
State:	PA	Photographs:		
County:	Huntingdon	r notographs.	iPad	
,	Hantingaon			
Plot Description:				
Interspersed netw USACOE park; sr	ork of roads, parking lots, and small for nall wetland	ested patches throu	ighout the	
Description of Adjace	ent Areas:			
Park grounds, ma				
Traik grounds, ma	illia			
	- dbh by inch: (percent)	Species:	Ave. dbh	
Small (3-8 inch dbh)	25	Q. alba	16.5	
Medium (8-15 inch dbh)	40	C. ovata	14.0	
Large > 15 dbh	35	A. rubrum	14.0	
		L. tulipifera	11.5	
Forest Density: (perc		R. pseudoacacia	13.0	
Understory closure:	25	A. saccharum	12.5	
Midstory closure:	35			
Canopy closure:	40			
\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	4 4 10)	NA/atlandar /tatal # a	d ID)	
Waterbodies: (total #	r and IU)	Wetlands: (total # a	מו na (טו	
Ephemeral		Number		
Intermittent		Acres		
Perennial				
IBat Habitat Type:	1			
NEB Habitat Type:	1			
NED Habitat Type.	Li .			
Notes:				
MYSO Habitat Types:	:			
1. Maternity Roosting Habitat: Stand with $\geq 1$ suitable roost tree $\geq 9$ inches dbh that are either preferred species with $\leq 30\%$ exfoliating bark or suitable snags				
	tiy Roosting Habitat: A forested stand with th	_		
	are greater than or equal to nine inches dbh	·		
•	eater than or equal to 30 percent exfoliating			
b. trees greater	than or equal to four inches dbh that are eit	her preterred tree spe	cies or suitable snags.	
3. Foraging Hab	pitat: A forested stand with trees $\geq$ four inch	es dbh with no preferr	ed tree species or	
suitable snags.				
MYSE Habitat Types:				

1. Roosting Habitat: A forested stand with trees  $\geq$  3 inches DBH

# Sampling Frequency:

In contiguous forest, sample one 30 x 400 foot plot centered on centerline for each defined change in habitat, with a minimum of one plot per kilometer.

In small isolated woodlots, sample 30 ft width for entire length of woodlot

## Survey Corridor:

30x400

Project #: 15-720.00

<b>Locational Data:</b>		Well Pad ID:			
Plot ID:	PPP-9	Date of Survey:	24 Novembrr 2015		
Pipeline Segment:		Team ID:	AP-1		
Approx MP:		Latitude:	40 22 59.8		
Tract No.:		Longitude:	-78 04 42.7		
State:	PA	Photographs:	iPad		
County:	Huntingdon		L		
Plot Description:					
Existing pipeline F	ROW				
Description of Adjace	ent Areas:				
Forested area, pa	rk grounds, roads				
Distribution of Trees	- dbh by inch: (percent)	Species:	Ave. dbh		
Small (3-8 inch dbh)					
Medium (8-15 inch dbh)					
Large > 15 dbh					
Forest Doneits / Japan	ant)				
Forest Density: (perc Understory closure:	ent)				
Midstory closure:					
Canopy closure:					
		L			
Waterbodies: (total #	and ID)	Wetlands: (total # a	nd ID)		
Ephemeral		Number			
Intermittent		Acres			
Perennial					
IBat Habitat Type:	3				
NEB Habitat Type:	3				
Notes: MYSO Habitat Types:					
1. Maternity Roosting Habitat: Stand with $\geq 1$ suitable roost tree $\geq 9$ inches dbh that are either preferred species with $\leq 30\%$ exfoliating bark or suitable snags					
2. Non-Materntiy Roosting Habitat: A forested stand with the following characteristics: a. no trees that are greater than or equal to nine inches dbh that are either preferred tree species with greater than or equal to 30 percent exfoliating bark or suitable snags, and b. trees greater than or equal to four inches dbh that are either preferred tree species or suitable snags.					
3. Foraging Habitat: A forested stand with trees $\geq$ four inches dbh with no preferred tree species or suitable snags.					

### MYSE Habitat Types:

1. Roosting Habitat: A forested stand with trees  $\geq$  3 inches DBH

### Sampling Frequency:

In contiguous forest, sample one  $30 \times 400$  foot plot centered on centerline for each defined change in habitat, with a minimum of one plot per kilometer.

In small isolated woodlots, sample 30 ft width for entire length of woodlot

Project #: 15-720.00

I a serifica ed Borto					
Locational Data:			Well Pad ID:		
Plot ID:	PPP-10		Date of Survey:	24 November 2015	
Pipeline Segment:			Team ID:	AP-1	
Approx MP:			Latitude:	40 23 01.5	
Αρριοχ ΙνιΡ.			Latitude.	40 23 01.5	
Tract No.:			Longitude:	-78 04 46.0	
State:	PA		Photographs:	iPad	
County:	Huntingdon				
Plot Description:					
Mature hardwood	forest that runs adjad d area - same habitat	•		I parking lot that	
Description of Adjace	ant Areas.				
	ark grounds, roads				
Torested areas, p	ark grounds, roads				
Distribution of Trees	- dbh by inch: (percent	·)	Species:	Ave. dbh	
Small (3-8 inch dbh)	5	· <i>)</i>	Q. alba	15.5	
Medium (8-15 inch dbh)	55		A. rubrum	13.5	
Large > 15 dbh	40		R. pseudoacacia	10.75	
			L. tulipifera	9.5	
Forest Density: (perc	ent)				
Understory closure:	0				
Midstory closure:	25				
Canopy closure:	75				
Waterbodies: (total #	t and ID)		Wetlands: (total # a	and ID)	
Ephemeral			Number		
Intermittent			Acres		
Perennial					
IBat Habitat Type:	1				
NEB Habitat Type:	1				
Notes:					
MYSO Habitat Types:					
,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,					
1. Maternity Roosting Habitat: Stand with $\geq 1$ suitable roost tree $\geq 9$ inches dbh that are either preferred species with $\leq 30\%$ exfoliating bark or suitable snags					
2. Non-Materntiy Roosting Habitat: A forested stand with the following characteristics:					
a. no trees that are greater than or equal to nine inches dbh that are either preferred tree					
species with greater than or equal to 30 percent exfoliating bark or suitable snags, and b. trees greater than or equal to four inches dbh that are either preferred tree species or suitable snags.					
b. trees greater than or equal to rour inches upit that are either preferred tree species or suitable shags.					
3. Foraging Habitat: A forested stand with trees $\geq$ four inches dbh with no preferred tree species or suitable snags.					
MYSE Habitat Types:					
1. Roosting Habitat: A forested stand with trees > 3 inches DBH					

In contiguous forest, sample one 30 x 400 foot plot centered on centerline for each defined change in

Survey Corridor:

Sampling Frequency:

habitat, with a minimum of one plot per kilometer.

In small isolated woodlots, sample 30 ft width for entire length of woodlot

Project #: 15-720.00

Locational Data:		Well Pad ID:		
Plot ID:	PPP-11	Date of Survey:	24 November 2015	
Pipeline Segment:		Team ID:	AP-1	
Approx MP:		Latitude:	40 23 12.7	
Tract No.:		Longitude:	-78 05 24.2	
State: County:	PA Huntingdon	Photographs:	iPad	
	Hammigaon			
Plot Description: Recently cleared	(tree removal) area on ridge top; early	succession occurrir	ng	
Description of Adjace	ent Areas:			
Forested areas				
Distribution of Trees	- dbh by inch: (percent)	Species:	Ave. dbh	
Small (3-8 inch dbh)	10	Q. alba	13.75	
Medium (8-15 inch dbh)	75	A. saccharum	11.0	
Large > 15 dbh	15	P. strobus	10.5	
Forest Density: (perc				
Understory closure:	15			
Midstory closure:	15			
Canopy closure:	15		ļ	
Maria da adha a franch	( I ID)	Marile de Arelanda	(10)	
Waterbodies: (total #	ן מו and מו)	Wetlands: (total #	and טו)	
Ephemeral		Number		
Intermittent		Acres		
Perennial				
-				
IBat Habitat Type:	3			
NEB Habitat Type:	3			
71				
Notes:				
MYSO Habitat Types	:			
,				
1. Maternity Roosting Habitat: Stand with $\geq 1$ suitable roost tree $\geq 9$ inches dbh that are either				
preferred species with < 30% exfoliating bark or suitable snags				
2. Non-Materntiy Roosting Habitat: A forested stand with the following characteristics:				
a. no trees that are greater than or equal to nine inches dbh that are either preferred tree				
species with greater than or equal to 30 percent exfoliating bark or suitable snags, and				
b. trees greater than or equal to four inches dbh that are either preferred tree species or suitable snags.				
. 6	,	,		
3. Foraging Habitat: A forested stand with trees $\geq$ four inches dbh with no preferred tree species or				
suitable snags.				

MYSE Habitat Types:

1. Roosting Habitat: A forested stand with trees  $\geq$  3 inches DBH

Sampling Frequency:

In contiguous forest, sample one  $30 \times 400$  foot plot centered on centerline for each defined change in habitat, with a minimum of one plot per kilometer.

In small isolated woodlots, sample 30 ft width for entire length of woodlot

Project #: 15-720.00

Locational Data:			W !! D . L ! D		
			Well Pad ID:		
Plot ID:	PPP-12		Date of Survey:	24 November 2015	
		1			
Pipeline Segment:			Team ID:	AP-1	
Annroy MD:		]	Latitude:	40 23 16.4	
Approx MP:			Latitude.	40 23 16.4	
Tract No.:			Longitude:	-78 05 41.7	
		l	<b>-</b> 0.1.8.0.0.0.		
State:	PA		Photographs:	iPad	
County:	Huntingdon			IFau	
Plot Description:					
•	ortion of LOD in tree	line; ROW has ear	ly successional gro	wth coupled with	
saplings					
Description of Adjace	ent Areas:				
	NOTE: Forest density	v and tree distribution	on not recorded bed	cause of such small	
sampling area	VOTE: 1 Groot dorlong	y and noo alomban		dado or odori ornan	
Distribution of Tracs	dhh hu inch: /norcont	<b>+</b> \	Species	Ave. dbh	
	- dbh by inch: (percent	L) 	Species: Q. alba	16.75	
Small (3-8 inch dbh)			A. rubrum	14.5	
Medium (8-15 inch dbh)  Large > 15 dbh	15 15		A. saccharum	14.0	
Large > 13 upir	10		R. pseudoacacia	10.0	
Forest Density: (perc	ent)		P. virginianus	11.0	
Understory closure:	60		TTTIGHTAT	11.0	
Midstory closure:	20				
Canopy closure:	20				
Waterbodies: (total #	and ID)	1	Wetlands: (total # a	nd ID)	
Ephemeral			Number		
Intermittent			Acres		
Perennial					
IBat Habitat Type:	1				
NEB Habitat Type:	1				
Notes:					
MYSO Habitat Types:					
1. Maternity Roosting Habitat: Stand with $\geq 1$ suitable roost tree $\geq 9$ inches dbh that are either					
preferred species with $\leq$ 30% exfoliating bark or suitable snags					
2. Non-Materntiy Roosting Habitat: A forested stand with the following characteristics:					
a. no trees that are greater than or equal to nine inches dbh that are either preferred tree					
species with greater than or equal to 30 percent exfoliating bark or suitable snags, and					
b. trees greater than or equal to four inches dbh that are either preferred tree species or suitable snags.					
3 Foreging Habitati. A forested stand with troops for a lack as deb with as a sufficient troops.					
3. Foraging Habitat: A forested stand with trees $\geq$ four inches dbh with no preferred tree species or suitable spage.					
suitable snags.					
MYSE Habitat Types:					
• • • • • • • • • • • • • • • • • • • •	nitat: A forested stand v	vith trees > 3 inches F	)BH		
<ol> <li>Roosting Habitat: A forested stand with trees &gt; 3 inches DBH</li> </ol>					

# Sampling Frequency:

In contiguous forest, sample one 30 x 400 foot plot centered on centerline for each defined change in habitat, with a minimum of one plot per kilometer.

In small isolated woodlots, sample 30 ft width for entire length of woodlot

Project #: 15-720.00

Locational Data:		147-II DI ID		
		Well Pad ID:		
Plot ID:	PPP-13	Date of Survey:	24 November 2015	
Pipeline Segment:		Team ID:	AP-1	
Approx MP:		Latitude:	40 23 20.0	
Αρριολίνιι.		Latitude.	40 23 20.0	
Tract No.:		Longitude:	-78 05 57.3	
State:	PA	Photographs:	iPad	
County:	Huntingdon		ii au	
Plot Description:				
· ·	ıl field with planted ornamentals; small t	tree line running alo	ngside road	
Description of Adjace	ant Areas			
Forested areas, re				
Distribution of Trees	- dbh by inch: (percent)	Species:	Ave. dbh	
Small (3-8 inch dbh)				
Medium (8-15 inch dbh)	<u> </u>			
Large > 15 dbh				
Forest Density: (perc	ent)			
Understory closure:				
Midstory closure:				
Canopy closure:				
Waterbodies: (total #	and ID)	Wetlands: (total # a	n <u>d ID)</u>	
Ephemeral		Number		
Intermittent		Acres		
Perennial				
IBat Habitat Type:	3			
NEB Habitat Type:	3			
Notes: MYSO Habitat Types:				
1. Maternity Roosting Habitat: Stand with $\geq 1$ suitable roost tree $\geq 9$ inches dbh that are either preferred species with $\leq 30\%$ exfoliating bark or suitable snags				
2. Non-Materntiy Roosting Habitat: A forested stand with the following characteristics: a. no trees that are greater than or equal to nine inches dbh that are either preferred tree species with greater than or equal to 30 percent exfoliating bark or suitable snags, and b. trees greater than or equal to four inches dbh that are either preferred tree species or suitable snags.				
3. Foraging Habitat: A forested stand with trees $\geq$ four inches dbh with no preferred tree species or suitable snags.				
MYSE Habitat Types:  1. Roosting Habitat: A forested stand with trees > 3 inches DBH				

# Sampling Frequency:

In contiguous forest, sample one  $30 \times 400$  foot plot centered on centerline for each defined change in habitat, with a minimum of one plot per kilometer.

In small isolated woodlots, sample 30 ft width for entire length of woodlot

Apogee Project 15-720.00 Myotid Bat Habitat Assessment Page 8 April 2016

### **APPENDIX C**

POTENTIAL ROOST TREE/REPRESENTATIVE PHOTOS



PRT-1 - Secondary



PRT-2 – Secondary



PRT-3 - Secondary



PRT-4 – Primary



PRT-5 - Primary



PRT-6 – Primary



PRT-7 - Primary



PRT-8 – Secondary



PRT-9 - Secondary



PRT-10 – Primary



PRT-11 - Secondary



PRT-12 – Primary



PRT-13 - Primary



PRT-14 – Secondary



PRT-15 - Secondary



PRT-16 – Primary



PRT-17 - Primary



PRT-18 – Primary



PRT-19 - Primary



PRT-20 – Secondary



PRT-21 - Secondary



PRT-22 – Primary



PRT-23 - Primary



PRT-24 – Secondary



PRT-25 - Secondary



PRT-26 – Primary



PRT-27 - Secondary



PRT-28 – Secondary



PRT-29 - Secondary



PRT-30 – Secondary



PRT-31 - Secondary



PRT-32 – Secondary



PRT-33 - Secondary



PRT-34 – Primary



PRT-35 - Secondary



PRT-36 – Primary



PRT-37 - Primary



PRT-38 – Primary



PRT-39 - Primary



PRT-40 – Secondary



PRT-41 - Secondary



PRT-42 – Secondary



PRT-43 - Secondary



PRT-44 – Secondary



PRT-45 - Secondary



PRT-46 – Primary



PRT-47 - Secondary



PRT-48 – Primary



PRT-49 - Secondary



PRT-50 – Secondary



PRT-51 - Primary



PRT-52 – Secondary



PRT-53 - Primary



PRT-54 – Secondary



PRT-55 - Secondary



PRT-56 – Secondary



PRT-57 - Secondary



PRT-58 – Secondary



PRT-59 - Secondary



PRT-60



PRT-61 - Secondary



PRT-62 – Primary



PRT-63 - Secondary



PRT-64 – Secondary



PRT-65 - Primary



PRT-66 - Secondary



Habitat 1 - PPP-1



Habitat 2 - PPP-2.1



Habitat 2 - PPP-2.2



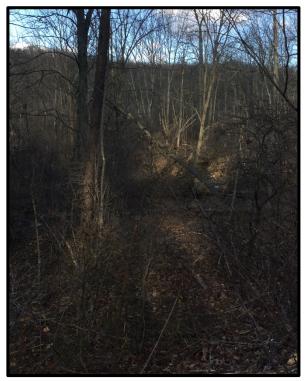
Habitat 2 - PPP-2.3



Habitat 2 - PPP-2.4



Habitat 3 – PPP-3



Habitat 3 – PPP-3.1



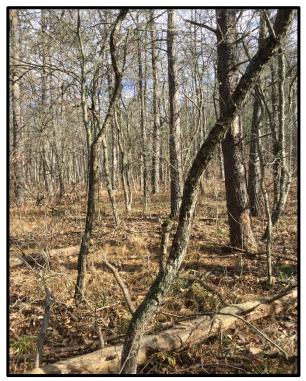
Habitat 4 – PPP-4



Habitat 4 – PPP-4.1



Habitat 5 – PPP-5



Habitat 5 – PPP-5.1



Habitat 5 – PPP-5.2



Habitat 6 – PPP-6



Habitat 7 – PPP-7.1



Habitat 7 – PPP-7.2



Habitat 8 – PPP-8.1



Habitat 8 – PPP-8.2



Habitat 8 – PPP-8.3



Habitat 8 – PPP-8.4



Habitat 8 – PPP-8.5



Habitat 8 – PPP-8.6



Habitat8 – PPP-8.7



Habitat8 – PPP-8.8



Habitat 9 – PPP-9



Habitat 10 – PPP-10.1



Habitat 10 – PPP-10.2



Habitat 10 – PPP-10.3



Habitat 10 – PPP-10.4



Habitat 10 – PPP-10.5



Habitat 11- PPP-11.1



Habitat 11 – PPP-11.2



Habitat 12 – PPP-12.1



Habitat 12 – PPP-12.2



Habitat 12 – PPP-12.3



Habitat 12 – PPP-12.4



Habitat 12 – PPP-12.5

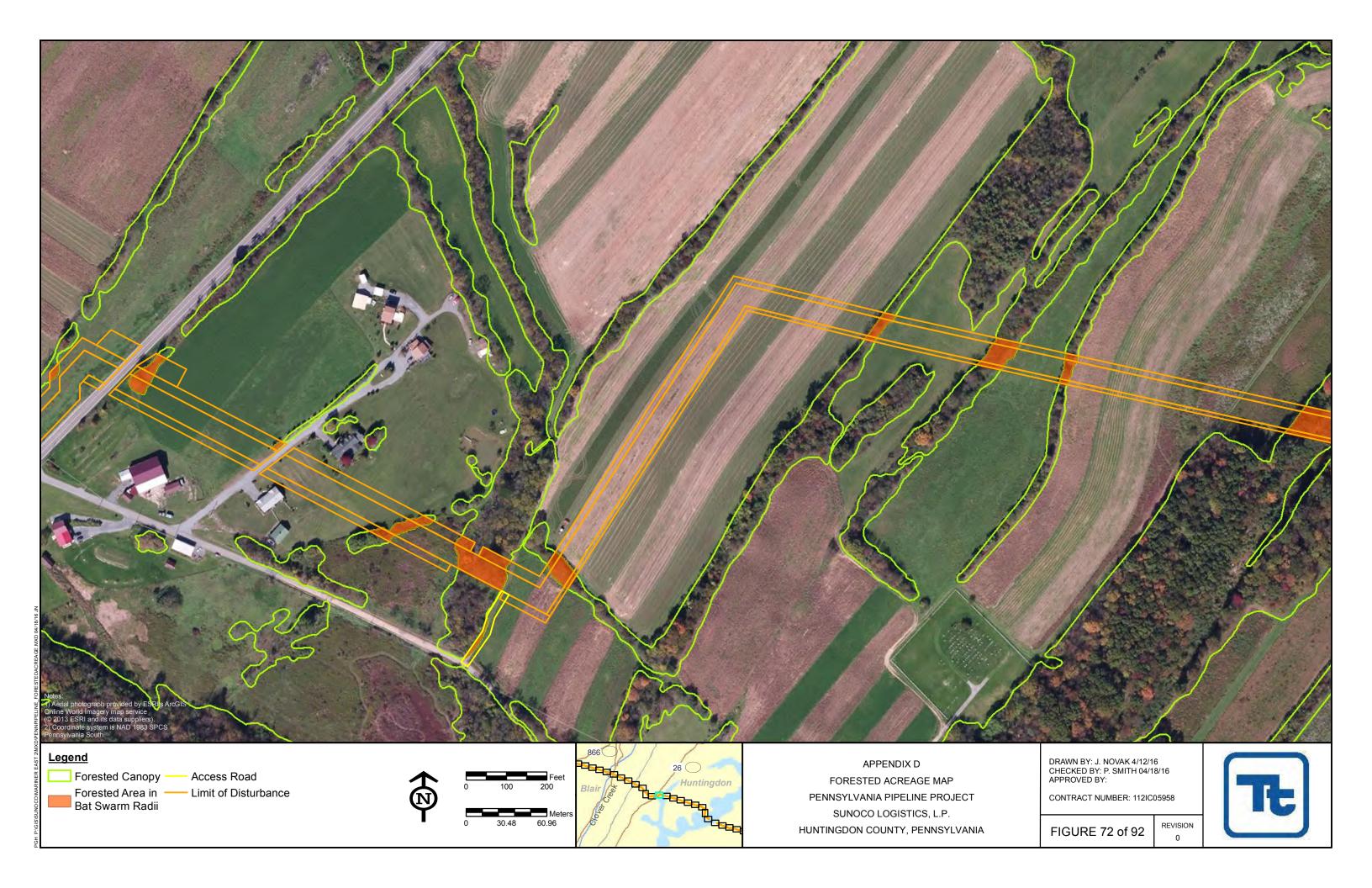


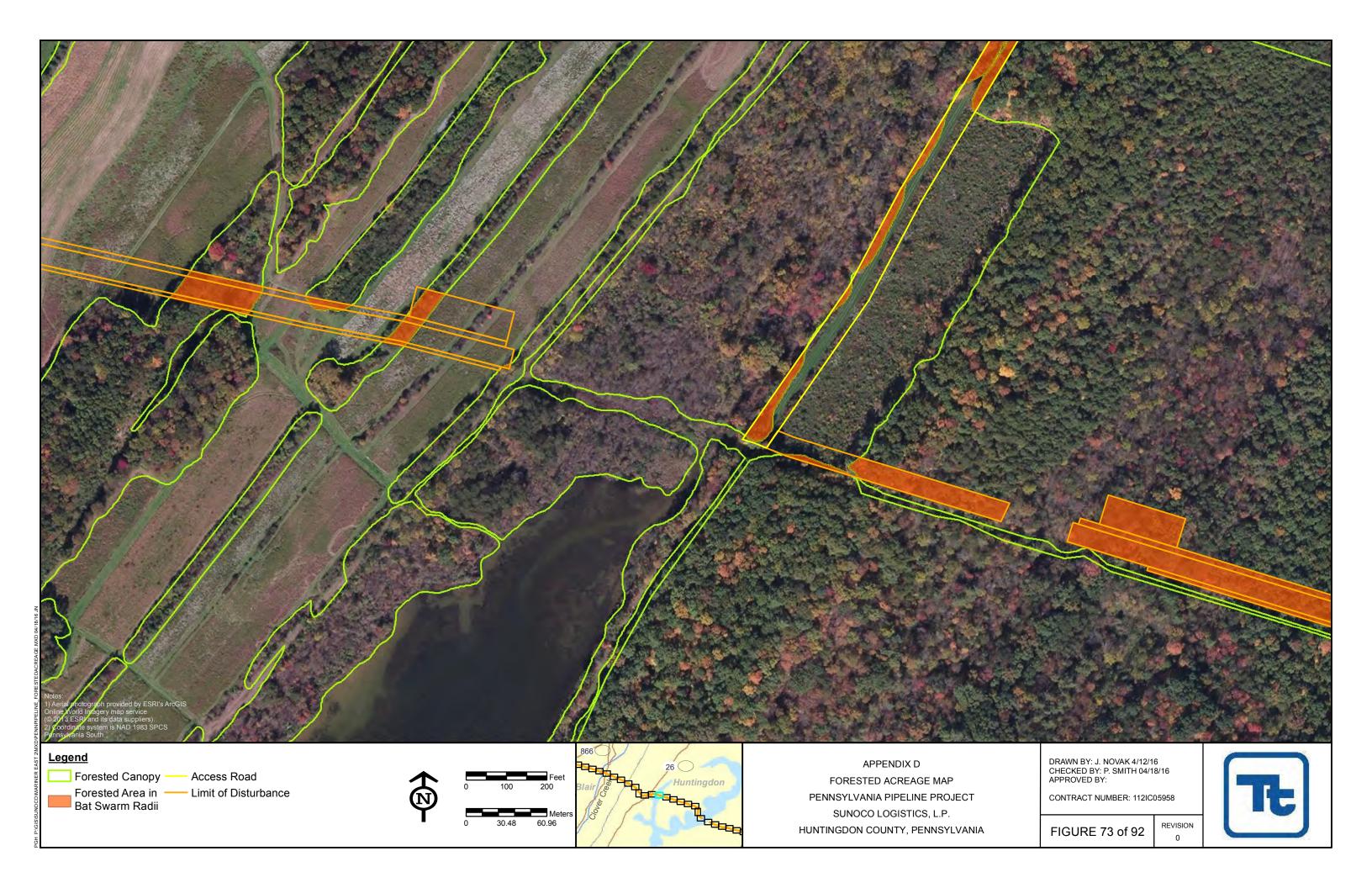
Habitat 13 – PPP-13

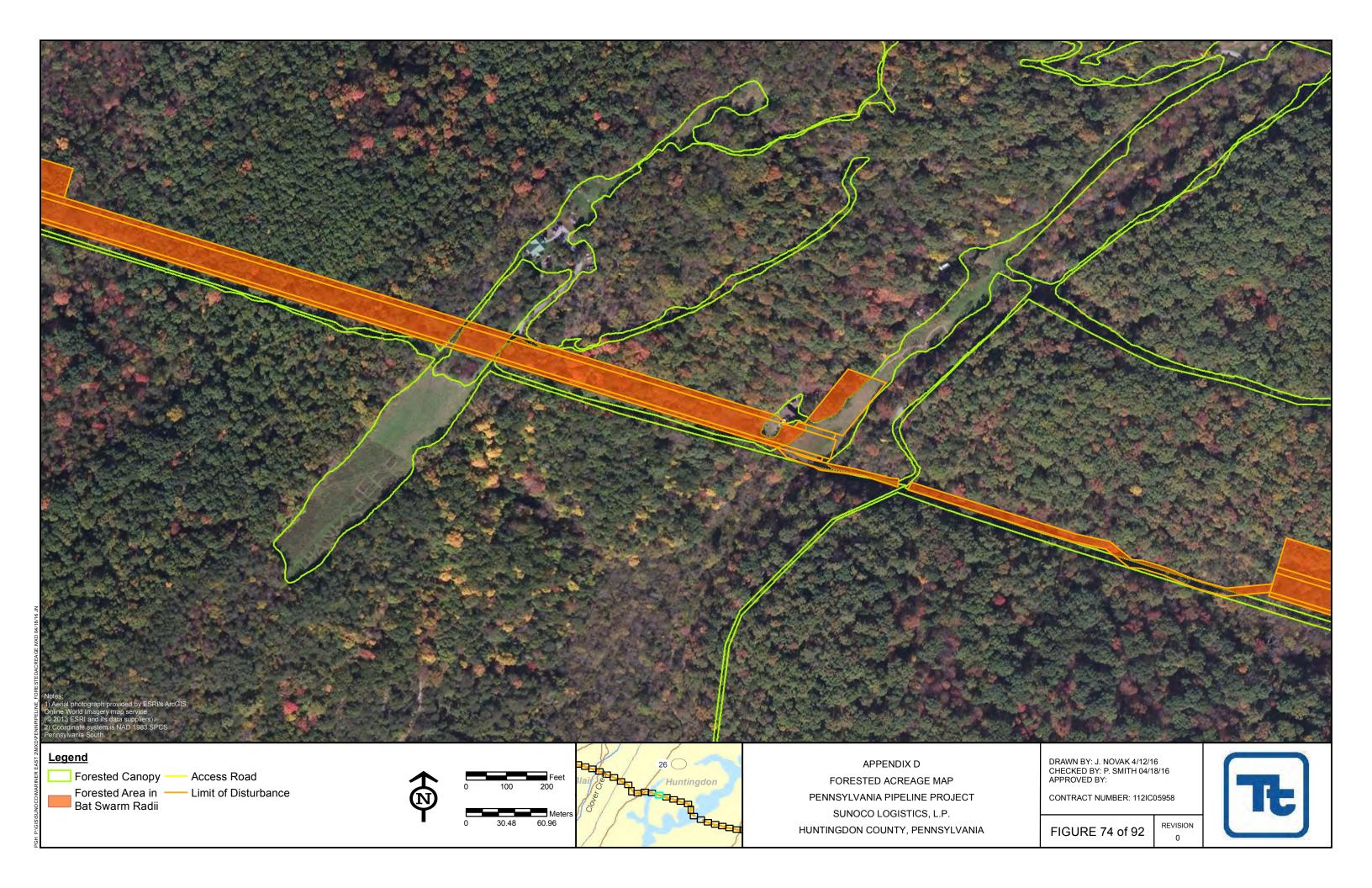
### **APPENDIX D**

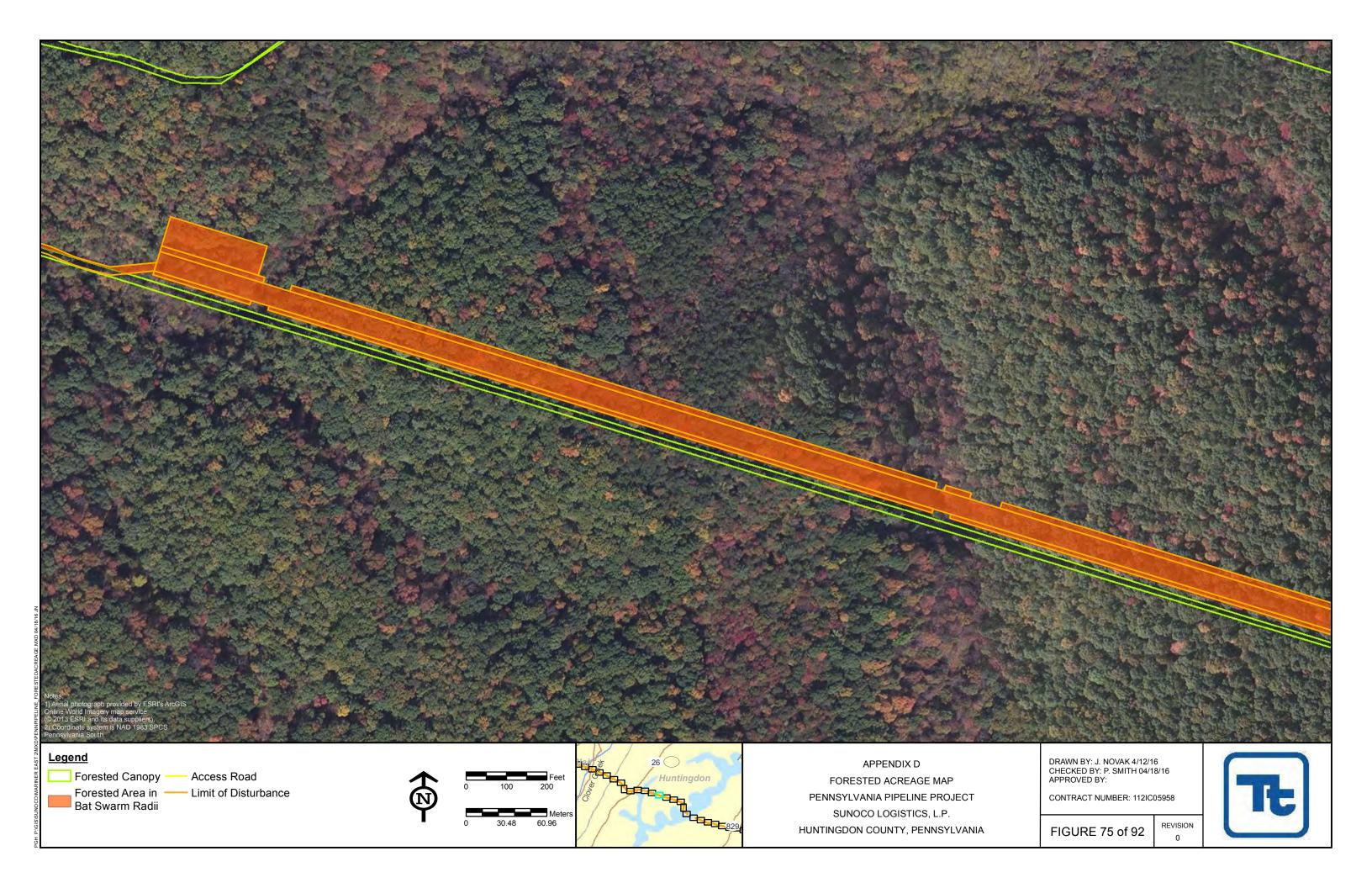
### **Forested Acreage Maps**

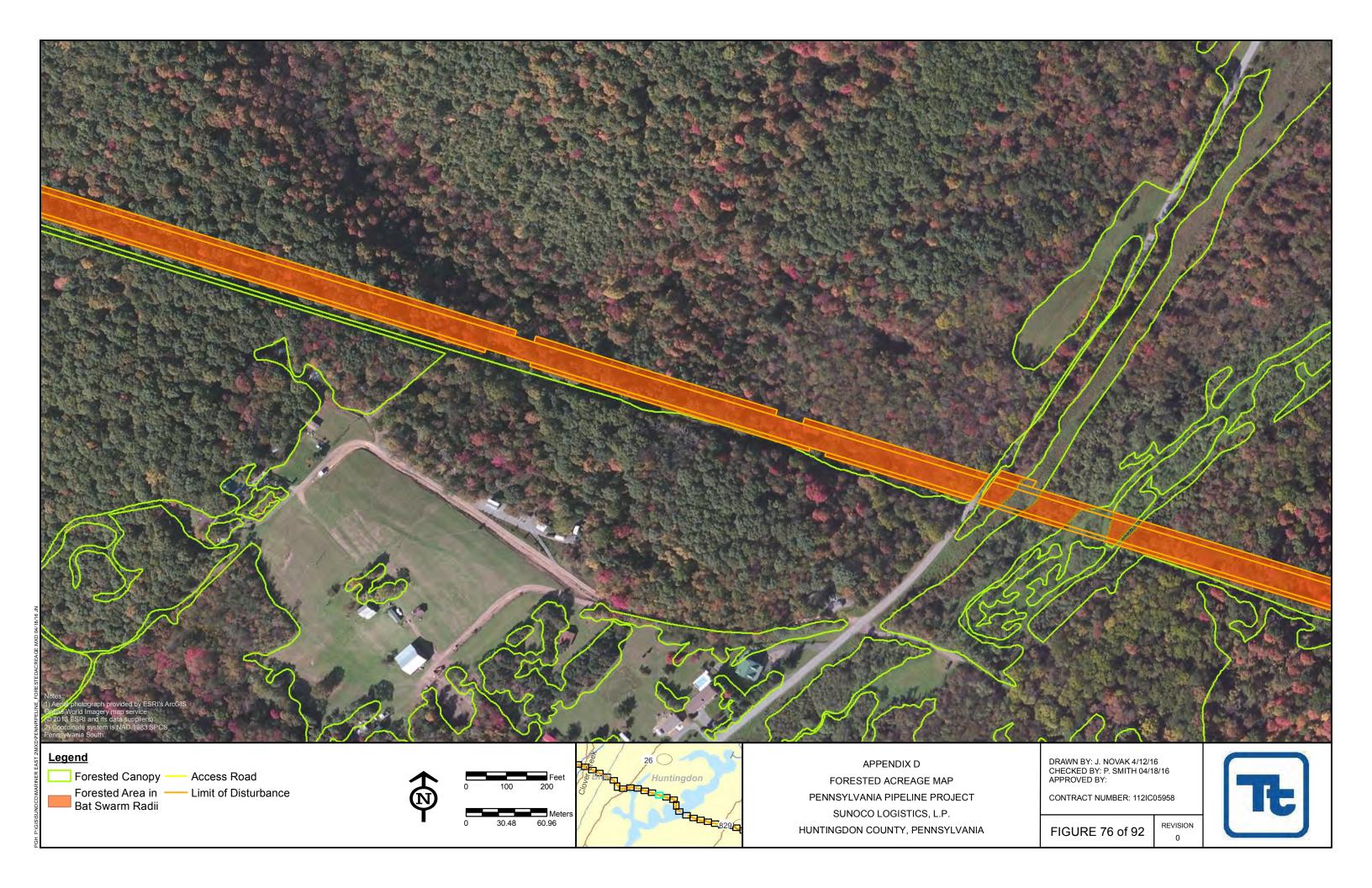
Note: Appendix D has been modified to include only maps on USACE properties

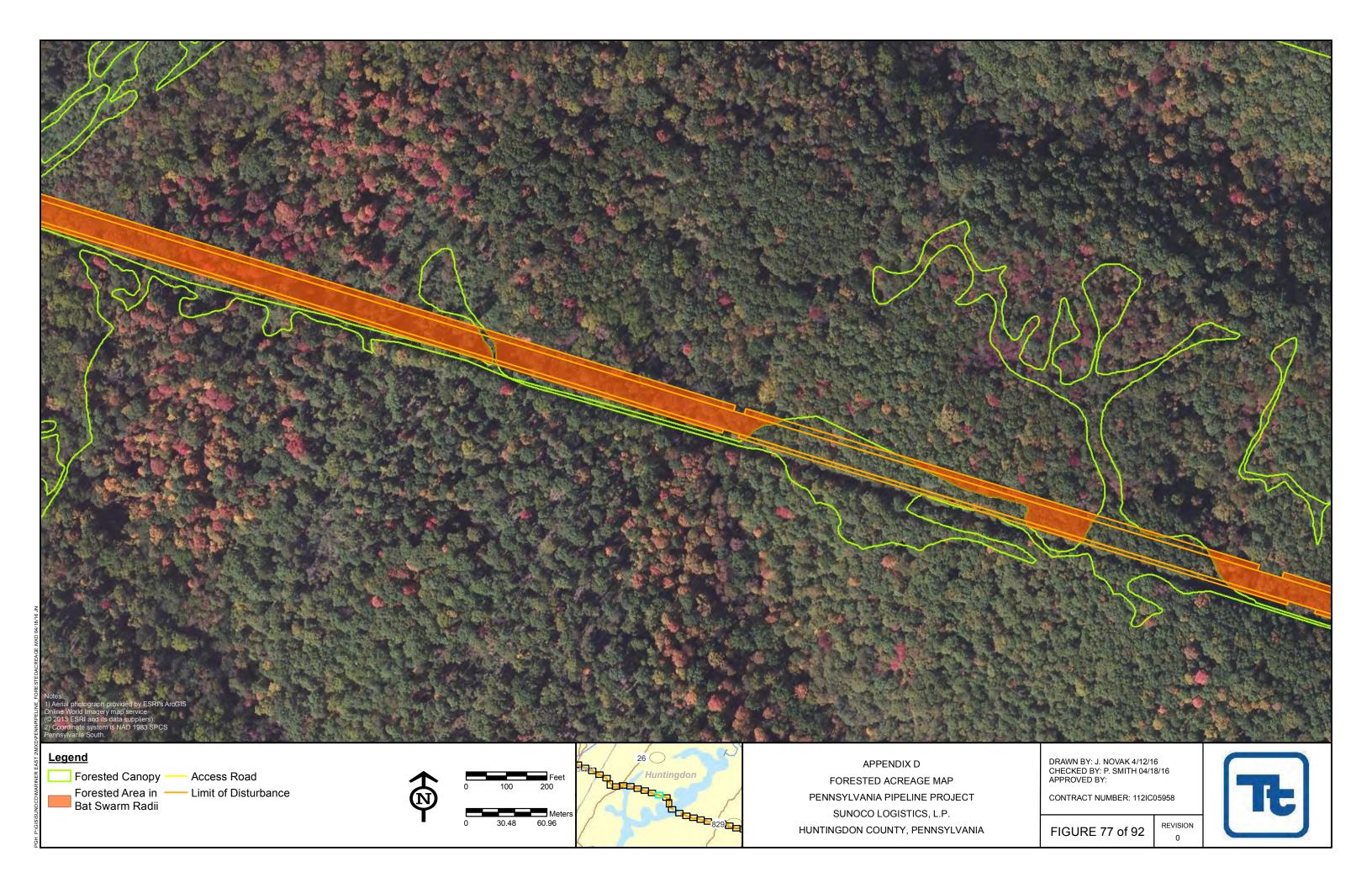


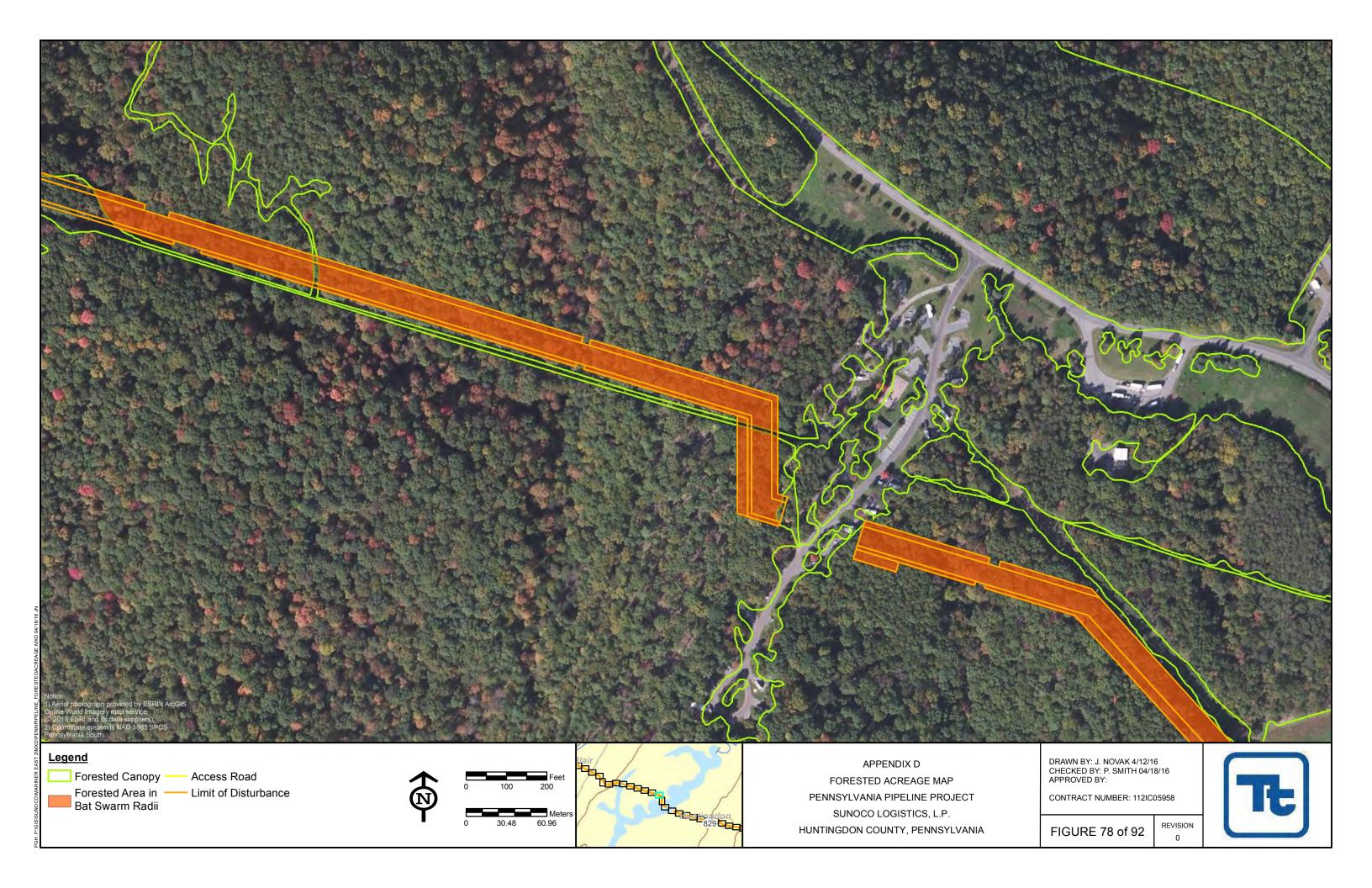


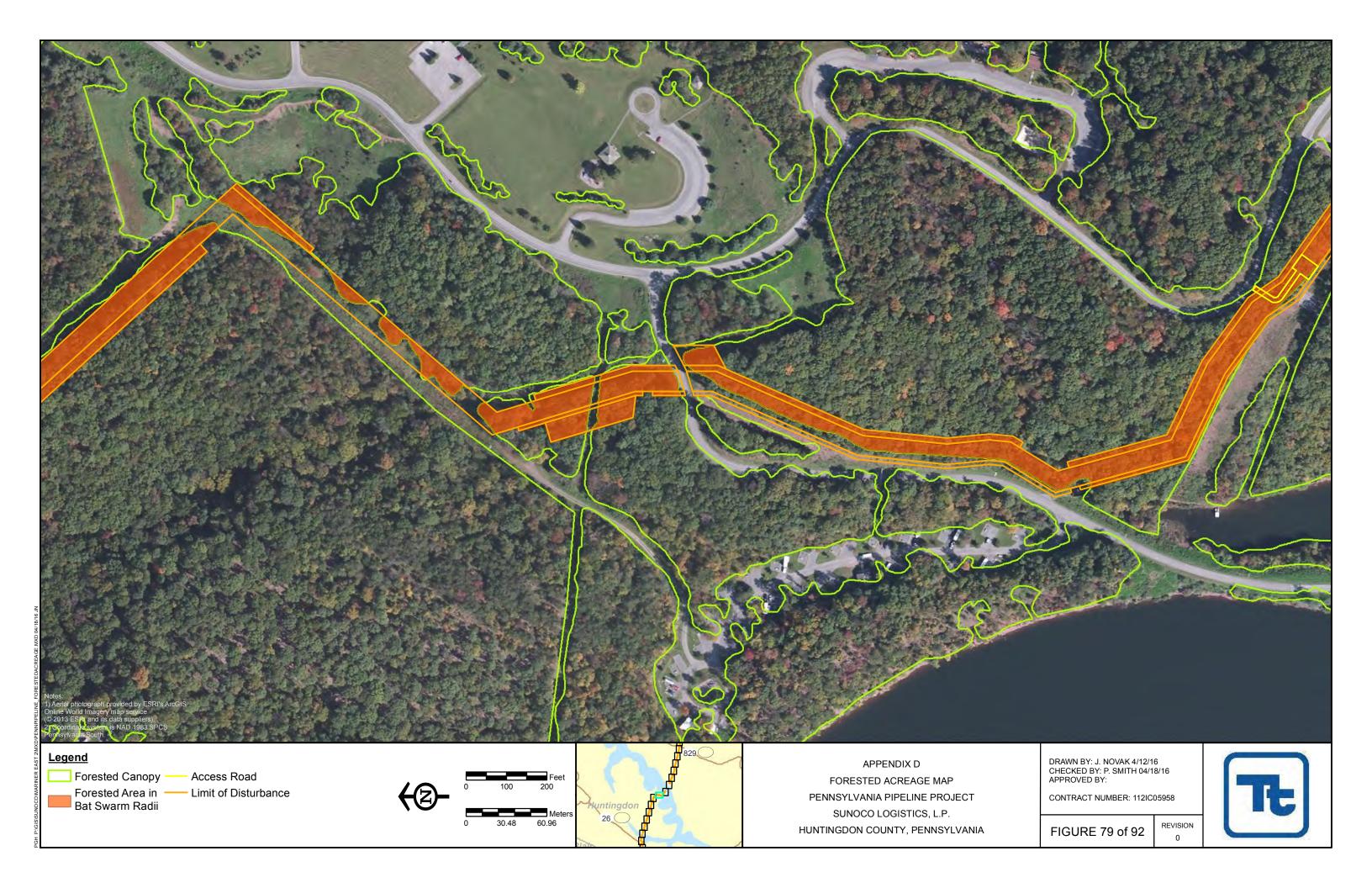






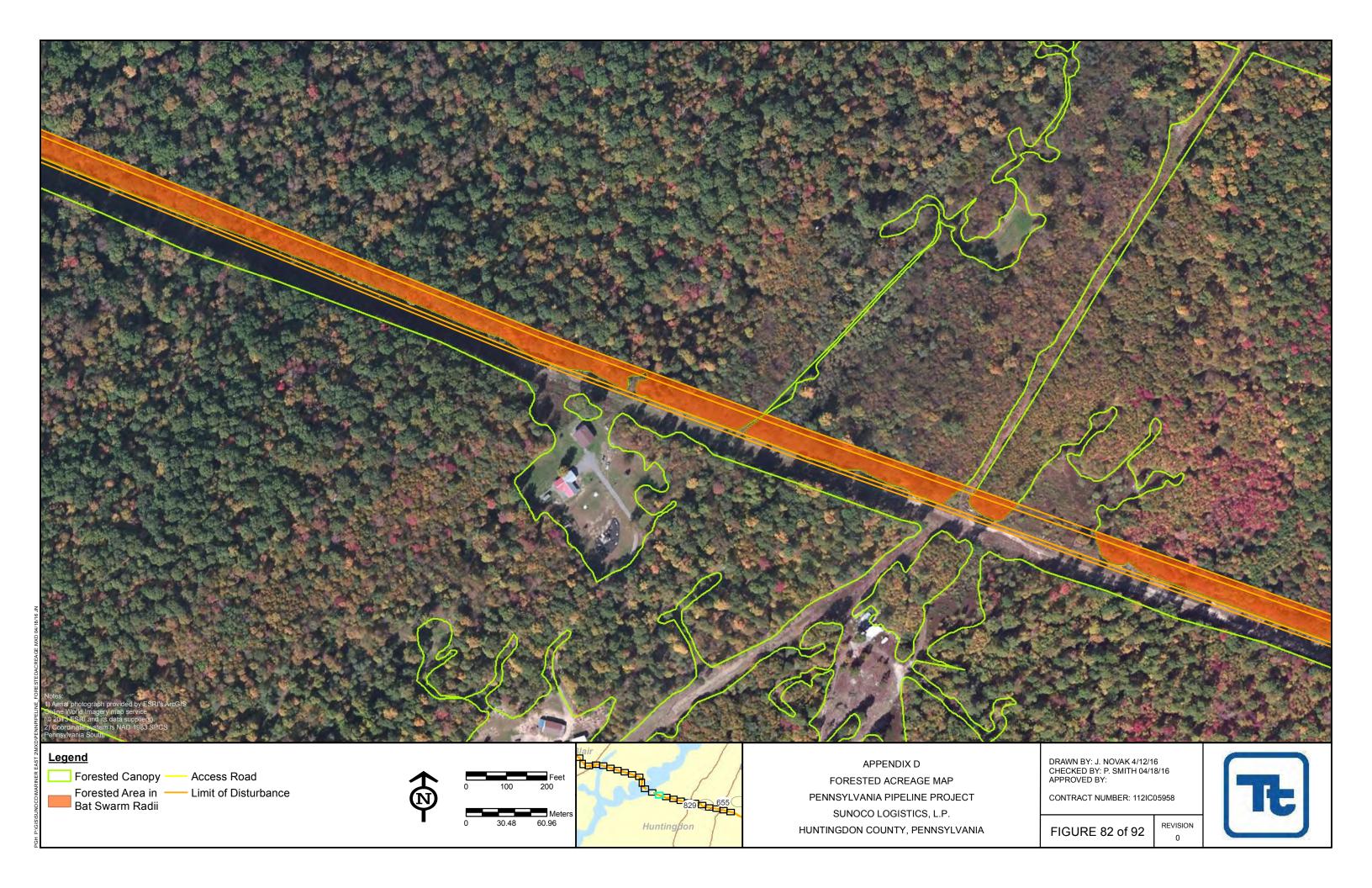


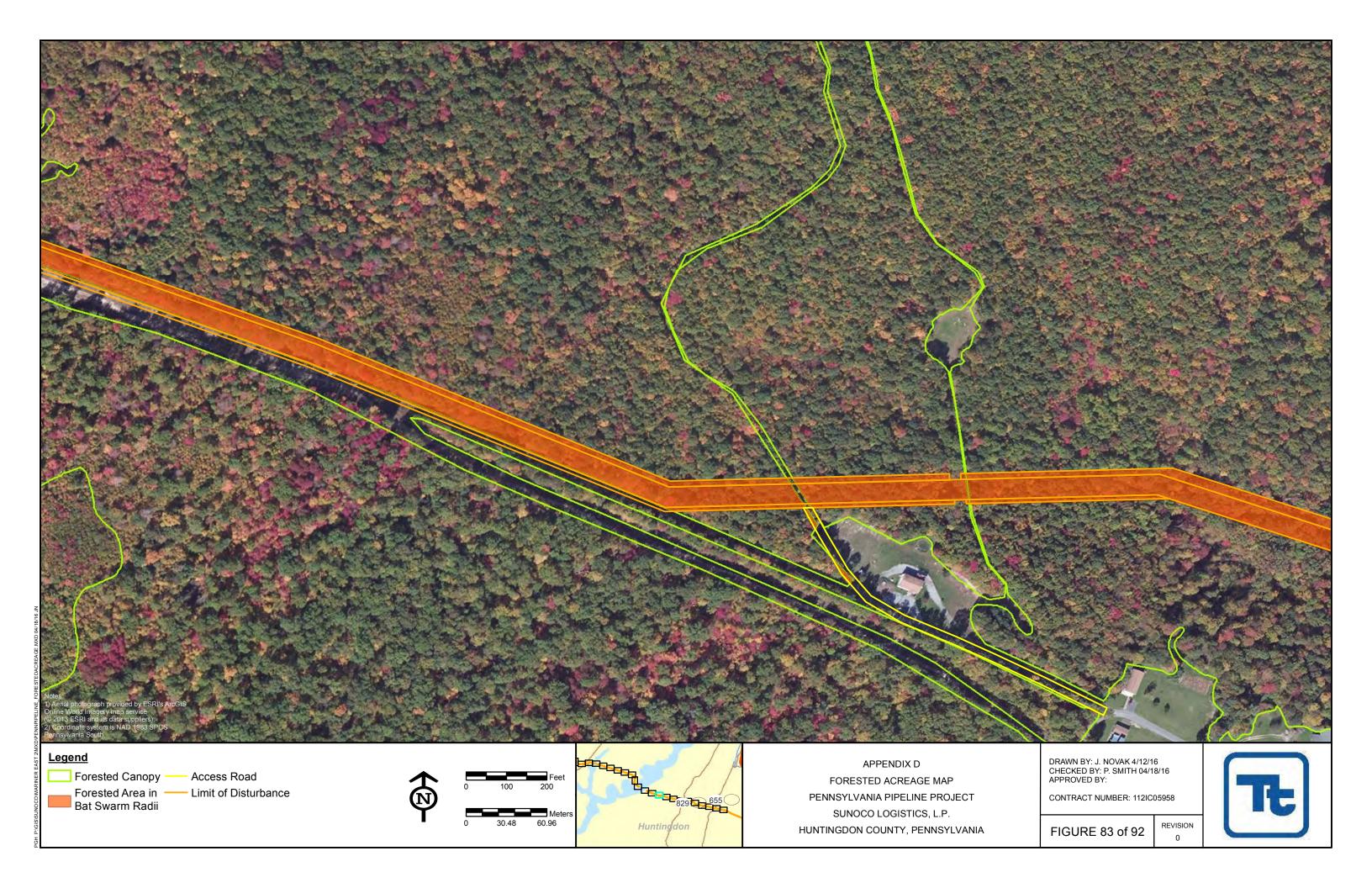








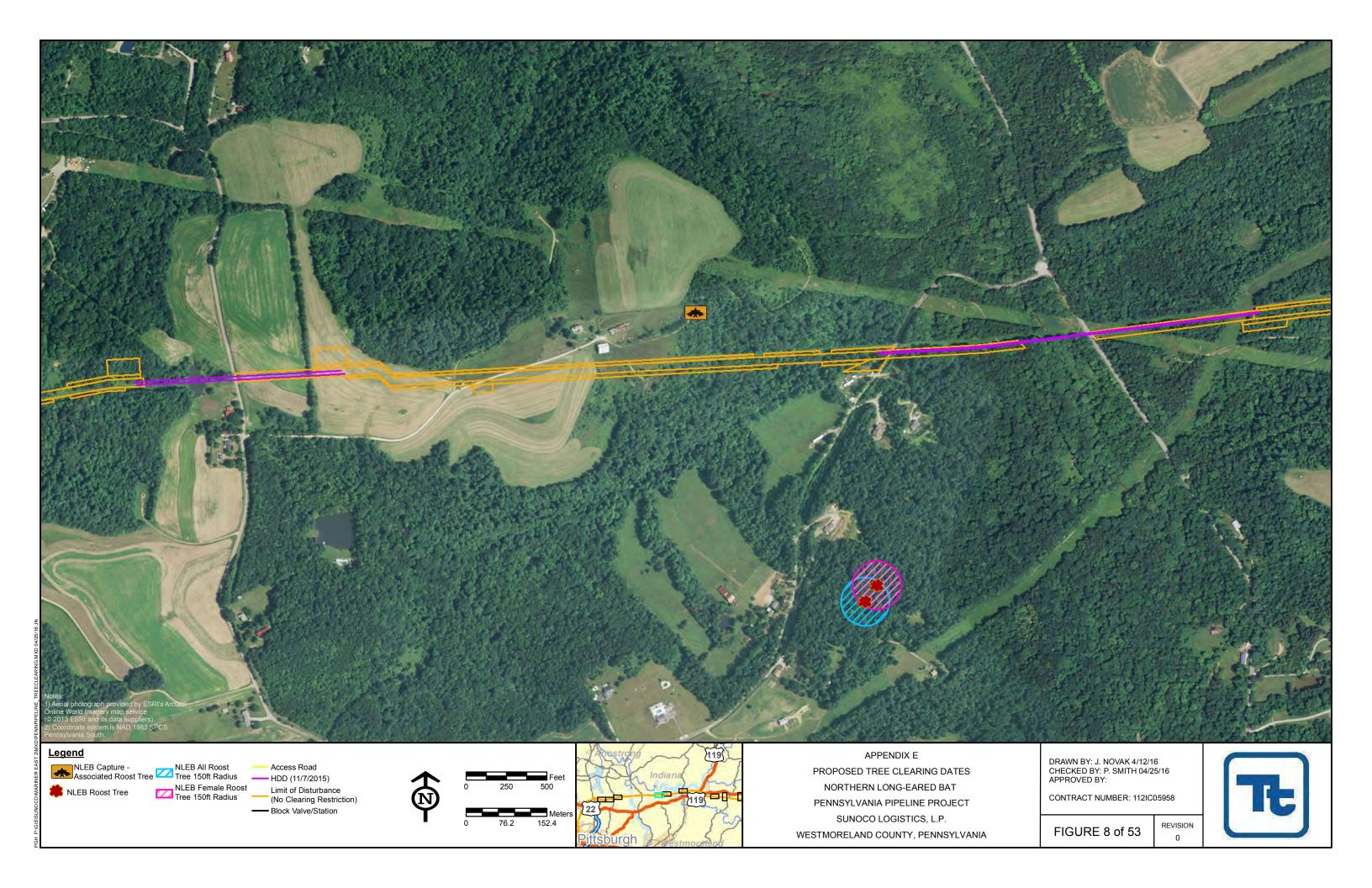


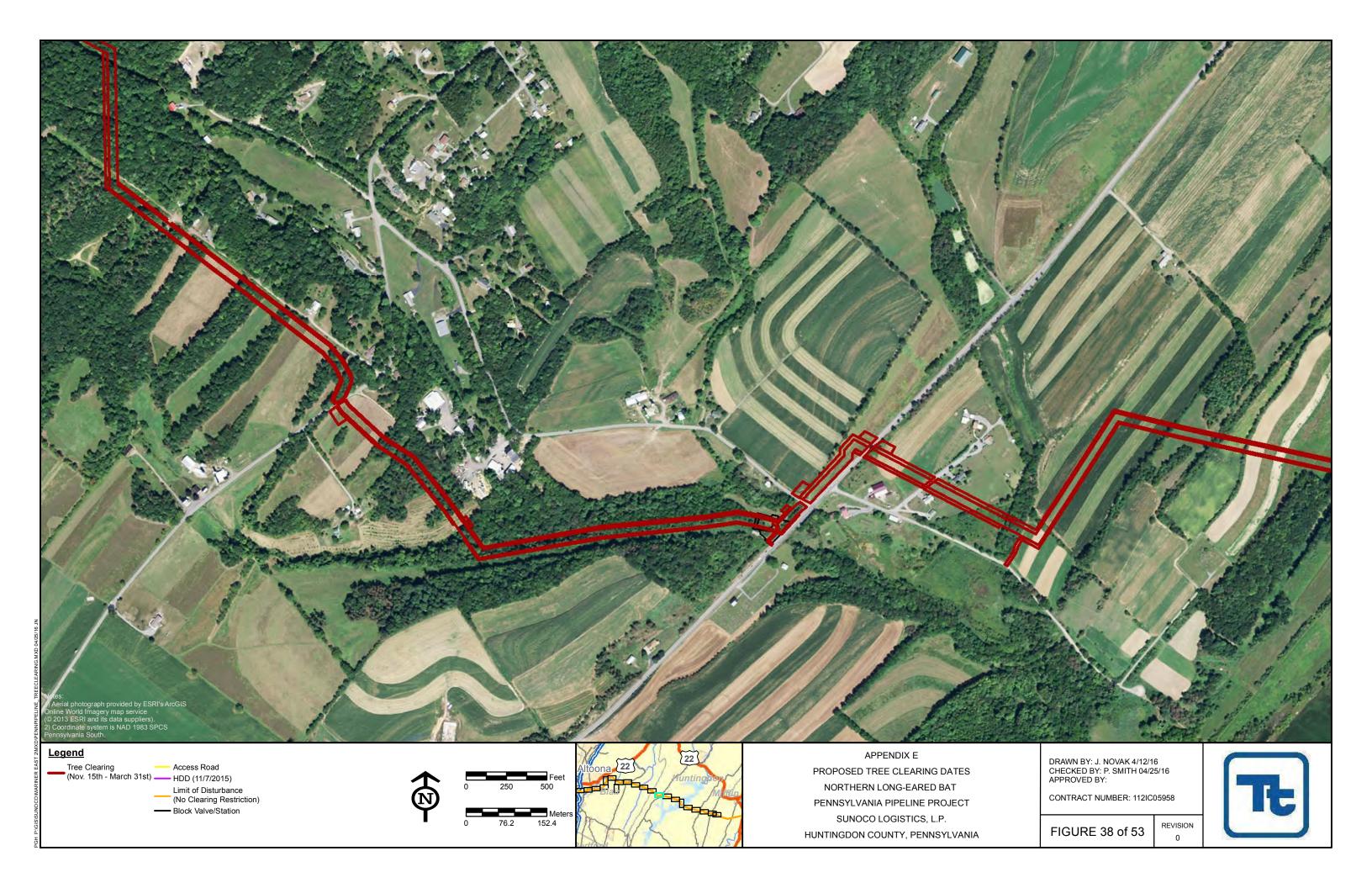


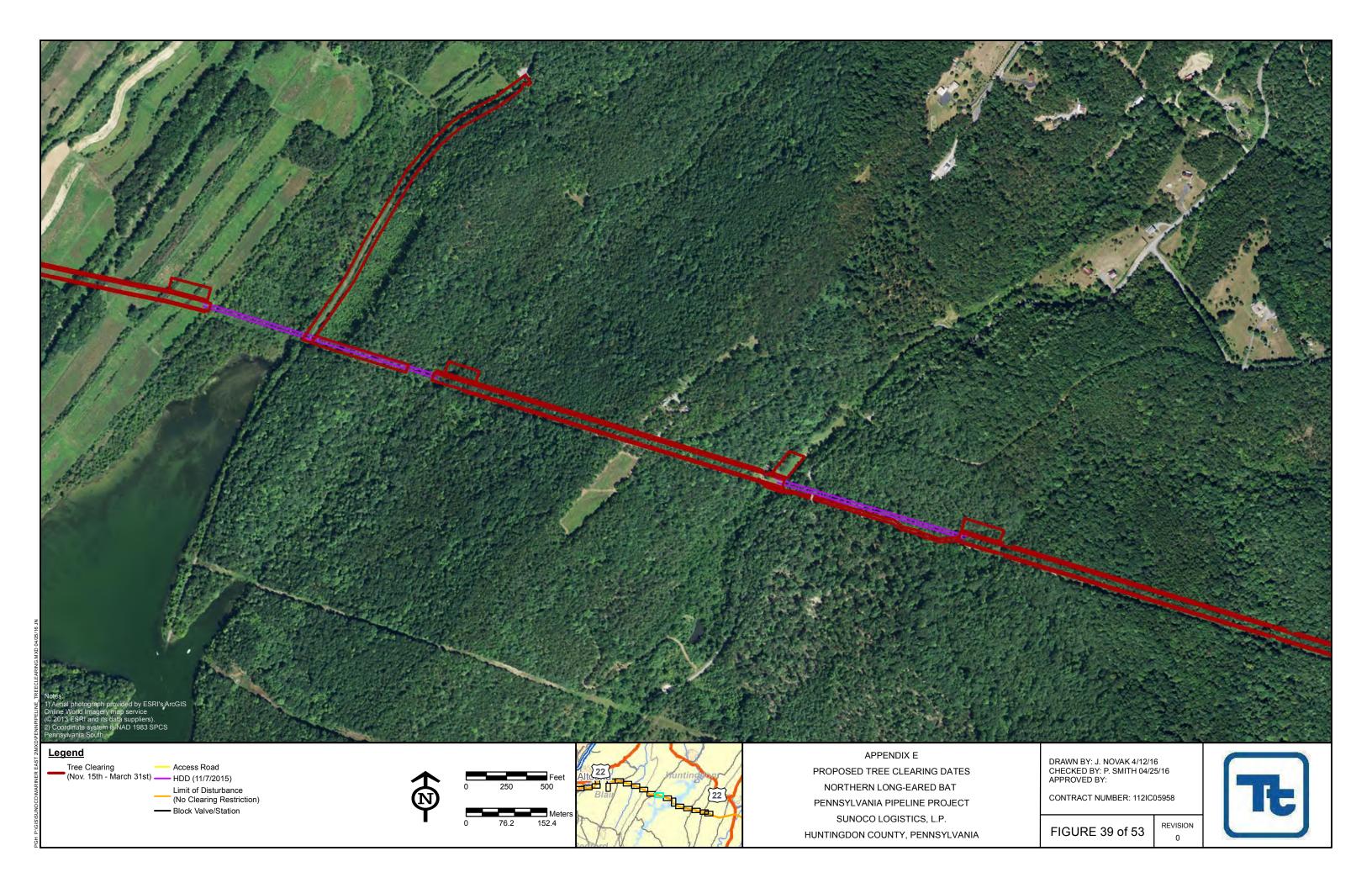
### **APPENDIX E**

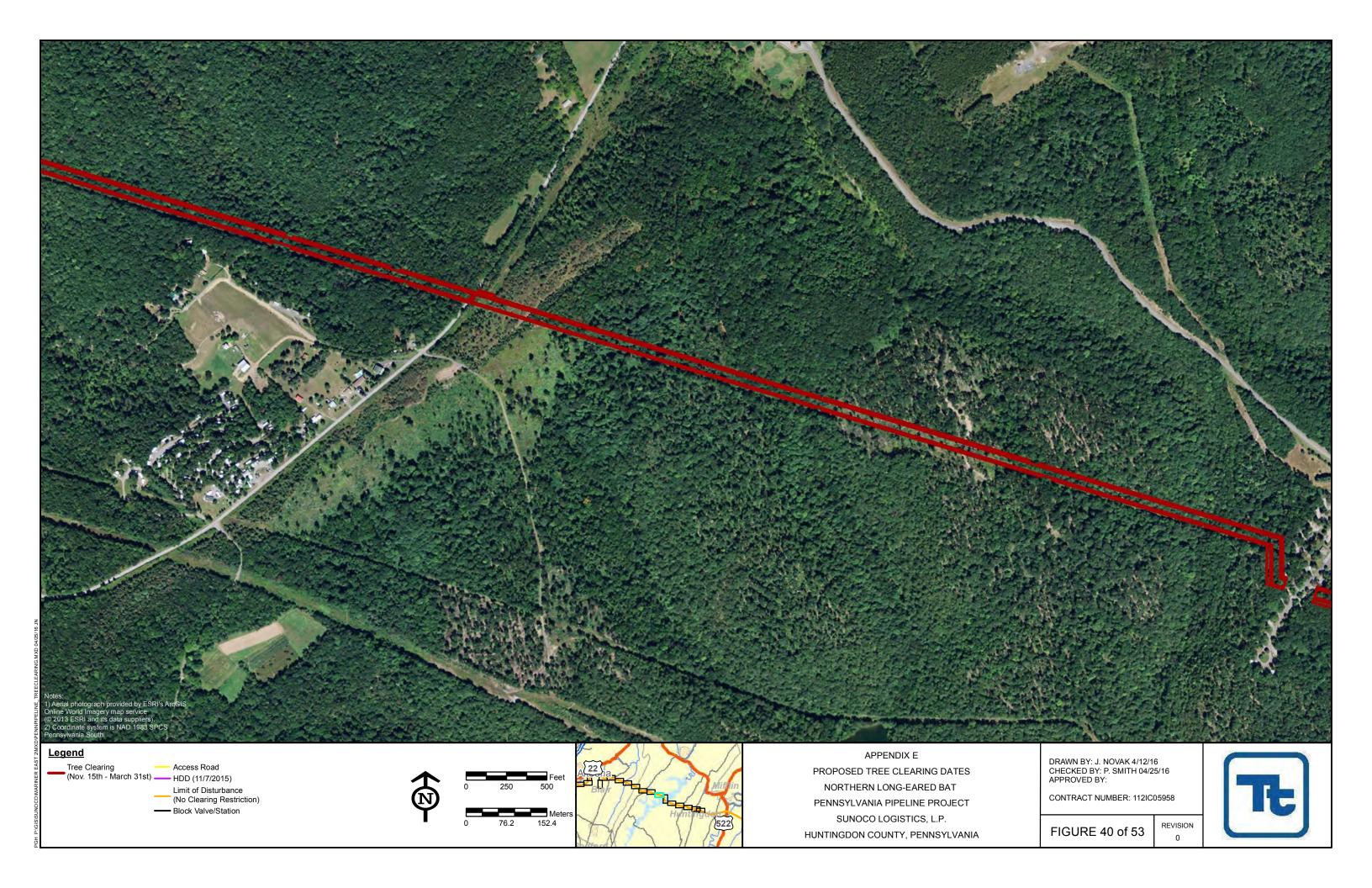
### **Proposed Tree Clearing Date Figures**

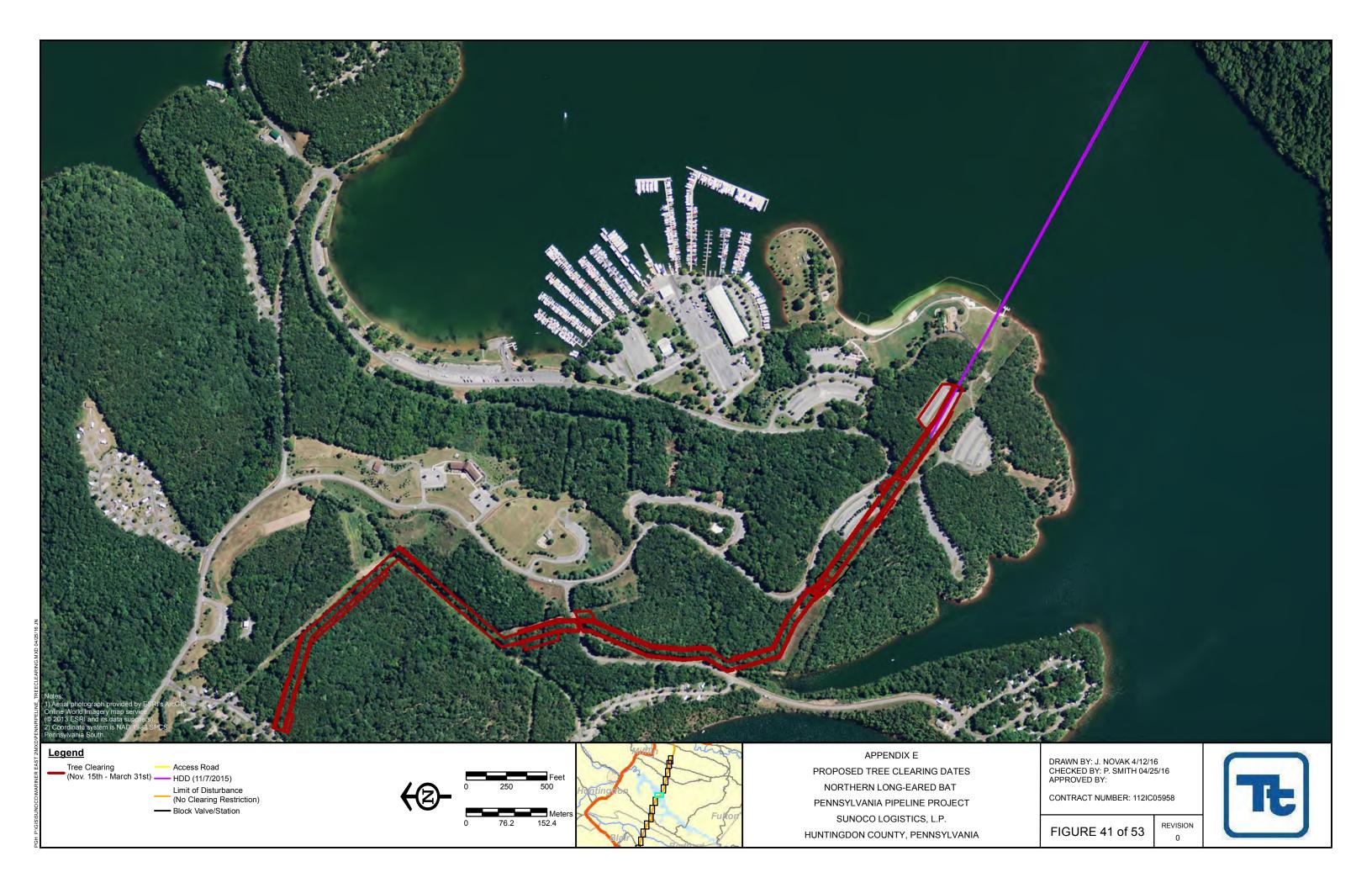
Note: Appendix D has been modified to include only maps on USACE properties

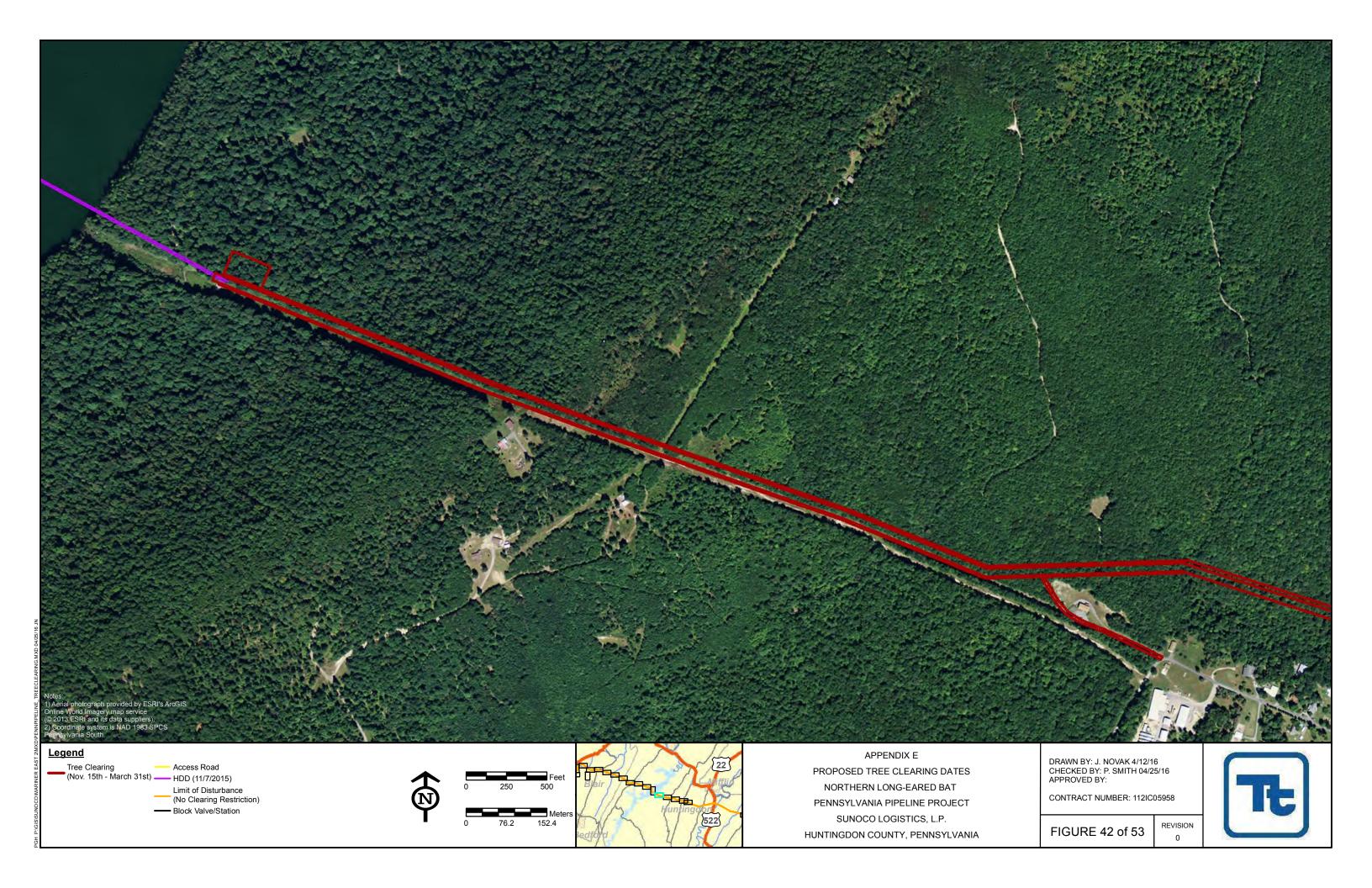












### **APPENDIX F**

### **Calculation Sheet for Indiana Bat Habitat Compensation**

## CALCULATION SHEET FOR INDIANA BAT HABITAT COMPENSATION

(revised 9/22/2014)

USFWS Project # 2014-0200	Date 04/26/2016			
Project Name: Pennsylvania Pipeline Project	pject			
Project Location (township and coun	ty): Pennsylvania			
Project Type: Natural Gas Liquids Pipelin	DEP permit #			
Hibernaculum and/or Maternity Colony Affected: Hartman Mine				

#### **Table 1. Calculation of Compensation Acres**

IMPACT TYPE	IMPACT ACRES	MULTIPLIER <sup>1</sup>	COMPENSATION ACRES
Summer Habitat Loss <sup>2</sup>			
Known maternity habitat		1.5	
Known non-maternity habitat		1.0	
Potential habitat <sup>3</sup>		0.5	
Swarming Habitat Loss <sup>4</sup>			
P2 or P3	258	1.5	387
P4		1.0	
Overlapping Habitat Loss <sup>5</sup>			
Known maternity and swarming habitat occur together: choose highest multiplier from above (maternity or swarming) for the impact, and add 1.0 to the multiplier			

<sup>&</sup>lt;sup>1</sup> Multiplier provides for a PARTIAL offset of habitat impacts and assumes permanent habitat protection will occur in accordance with the *Indiana Bat Mitigation Guidance for Pennsylvania*. A substantially higher multiplier would be needed to fully offset habitat impacts.

<sup>&</sup>lt;sup>2</sup> Loss of known summer habitat assumes such loss will occur when bats are NOT present (i.e., between October 15 and March 31).

 $<sup>^3</sup>$  For coal mining projects having forest impacts  $\geq$  40 acres, applicants can either conduct mist-net surveys in accordance with the Service's survey guidelines OR assume presence of Indiana bats. When assuming presence, a seasonal restriction will apply, along with a 0.5:1 compensation ratio for forest impacts. Non-coal projects are evaluated on a case-by-case basis.

<sup>&</sup>lt;sup>4</sup> Swarming habitat is suitable habitat in the vicinity of an Indiana bat hibernaculum (generally 10-20 miles). Loss of swarming habitat assumes such loss will occur when bats are NOT present (i.e., between November 15 and March 31).

<sup>&</sup>lt;sup>5</sup> Loss of summer and swarming habitat assumes such loss will occur when bats are NOT present (i.e., between October 15 and March 31).

Table 2. Calculation of Deposit when using the Indiana Bat Conservation Fund

Location of Impact (County)	Compensation Acres (from Table 1)	Cost/Acre <sup>6</sup>	IBCF Deposit <sup>7</sup>
Adams		TBD	
Armstrong/Butler		\$2,060	
Beaver/Lawrence		\$2,320	
Bedford		TBD	
Berks		TBD	
Blair	187.5	\$2,285	\$428,437.50
Centre		\$3,600	
Fayette		\$1,519	
Greene		\$1,223	
Huntingdon	136.5	\$3,631	\$495,631.50
Luzerne		\$3,716	
Mifflin		TBD	
Pike		\$8,100	
Somerset		\$2,247	
Washington		\$2,760	
York		TBD	
Cambria	63	\$1,250	\$78,750.00

<sup>\*</sup> See Table 3 for cost/acre value

**NOTE**: Deposits to the IBCF are due prior to permit issuance. Provide documentation of the deposit to the USFWS and the permitting agency (*e.g.*, PA DEP). An escrow account has been set up at the following institution to receive IBCF deposits.<sup>8</sup>

First Commonwealth Bank – Trust Division Attn: Brenda Alabran 614 Philadelphia Street P.O. Box 698 Indiana, Pennsylvania 15701 724-463-6580 (phone)

Designate the deposit for: Indiana Bat Conservation Fund (Acct #710621004)

USFWS Concurrence:	Date:
--------------------	-------

<sup>&</sup>lt;sup>6</sup> Cost/acre subject to change, based on a periodic re-evaluation of land comparable values by the Pennsylvania Game Commission. Cost per acre reflects land cost per acre, plus 20% for expenses associated with land acquisition (*e.g.*, comparable values search, title search, transfer taxes, land survey, recording fees, *etc.*).

<sup>&</sup>lt;sup>7</sup> Multiply the number of Compensation Acres by the Cost/Acre to determine the amount to be submitted to the Indiana Bat Conservation Fund.

<sup>&</sup>lt;sup>8</sup> If you choose to set up an escrow account at another institution, do so in coordination with the Pennsylvania Game Commission.

### **ATTACHMENT 2**

### **Revised Inadvertent Contingency Plan**

Note: Please refer to Appendix C of the EA for the Revised Inadvertent Contingency Plan

### **ATTACHMENT 3**

Memo: Connectivity of Wetland L70 to Blair County Northeastern Bulrush Population

### Skelly and Loy, Inc.

# Memo

To: Preston Smith, Tetra Tech Inc.

From: Andrew P. Nevin, Skelly and Loy Inc.

**Date:** April 12, 2016

Re: Connectivity of Wetland L70 to Blair County Northeastern Bulrush Population

This memo has been prepared to address the potential connectivity of Wetland L70 to a wetland which was found to support a population of Northeastern bulrush (*Scirpus ancistrochaetus*) on State Game Lands #198 in Blair County, Pennsylvania.

Skelly and Loy, Inc. conducted field surveys for the federally endangered Northeastern bulrush during the summer months of 2014 for the PA Pipeline Project (USFWS #2014-0200) in Huntingdon and Blair Counties, Pennsylvania. During these investigations, a previously undocumented population of the species was located, characterized, and delineated on State Game Lands #198 near the Blair/Cambria County border.

This relatively small population occurs within an ombrotrophic basin which is topographically isolated from an unnamed tributary to Blair Run and its surrounding wetlands. The primary source of hydrology at this location appears to be surface water collection along a localized geomorphic depression. Wetland L70 occurs approximately 100 meters southwest and upslope of the wetland which supports Northeastern bulrush. There is no direct surface connection between Wetland L70 and the wetland which supports the species. Both resources are part of a larger headwater complex which fuels an unnamed tributary to Blair Run; thereby potentially maintaining an indirect hydrologic connection.

Please contact me if you have any questions or need additional assistance with this project.

Sincerely,

Andrew P. Nevin USFWS Qualified Northeastern Bulrush Surveyor

Skelly and Loy, Inc. 449 Eisenhower Blvd. Suite 300 Harrisburg, PA 17111 Office: (717) 232-0593

Cell: (717) 599-1024