ATTACHMENT G-5

THREATENED AND ENDANGERED SPECIES COORDINATION

UNITED STATES FISH AND WILDLIFE SERVICE

From: Shellenberger, Pamela
To: Smith, Rachel
Subject: Re: Williams" ASE Project Introductory Meeting
Date: Wednesday, February 5, 2014 11:58:35 AM
Attachments: image001.jpg
T&E list_100813.pdf

Rachel,

This time works for me. I also invited another biologist in our office, Jennifer Siani, to discuss MBTA and Bald Eagles. I am not sure if she can attend yet, but either way, let's plan to have the meeting at that time.

Please submit GIS shapefiles and a smaller scale map showing the whole pipeline route.

Bog turtle
Will this project go through any counties with bog turtles in them (see attached document)? If so, will there be wetland impacts? And if so, a phase 1 habitat survey should be completed for those wetlands.

Mussels
Will this project cross any stream systems with known federally listed mussel species (see attached doc.)? If so, how will the streams/rivers be crossed? Please elaborate and explain how avoidance and minimization measures will be implemented to reduce impacts to mussels (i.e. frac-out contingency plan, geologic survey, experienced driller, open trenching during low flow periods, etc.). Mussel surveys may be required.

Northeastern bulrush

Will this project cross any forested wetlands or vernal pool communities in counties where this species occurs (see doc.)? If so, how will you avoid or minimize impacts to this species?

Indiana Bat
How many acres of Indiana bat habitat are anticipated to be impacted? Because of the extent of the project, you will most likely have to do summer surveys to determine if maternity colonies are present within or close to the project area. Depending on the areas of impact, we may ask for an Indiana Bat Conservation Plan to be completed, or consultation through Section 7 (if a federal nexus is involved - FERC or ACOE?) or 10 (if a federal nexus is not involved).

Proposed Northern long-eared bat

Please see the consultation guidance for more information. If your project implementation will occur beyond October 2014 (when we will know if this species is federally listed or not), we would recommend that you also survey for this species as well. At this time, use of the Indiana bat summer survey guidance is adequate to survey for this species. We can discuss more about this when we meet.

Indiana bat summer survey guidance (which can be used for northern long-eared bats at this time):
http://www.fws.gov/midwest/endangered/mammals/inba/surveys/pdf/2014IBatSummerSurveyGuidelines13Jan2014.pdf

Consultation guidance for northern long-eared bats:
http://www.fws.gov/midwest/endangered/mammals/nlba/pdf/NLEBinterimGuidance6Jan2014.pdf

These are my preliminary thoughts, just from knowing it is a large project. As you know, I have not even seen the project yet, so things can change. Some of these thoughts may not even pertain to your project, but I just wanted to get you thinking.

Thank you!

Pamela Shellenberger
U.S. Fish and Wildlife Service
315 South Allen Street
State College, PA 16801
814-234-4090 x241
814-234-0748 (f)

http://fws.gov/northeast/pafo/index.html

Due to an imposed hiring freeze and the inability to back fill positions, we are experiencing increased project review times (a minimum of 60 days) and response times to phone calls and emails. Please be patient; we will address projects in the order in which they are received.

On Wed, Feb 5, 2014 at 9:59 AM, Smith, Rachel <RSmith@ene.com> wrote:

> Pam,
>
> I have confirmed that Wednesday March 12th will work for the PM at Williams, Anne Allen to hold an introductory meeting for the Atlantic Sunrise Expansion Project. Does 10am that day work well for you? I anticipate that myself and Greg Netti from E&E, Anne from Williams and Ryan Nelson from WHM Group will be attending this meeting at a minimum. We will be submitted a formal request for T&E consultation request prior to this meeting, do you have any specific requirements regarding the detail of mapping that you'll need? If you need anything in addition to prepare for this meeting, please let me know.
>
> Thanks,
>
> Rachel
>
> *Rachel J. Smith*
>
> **Ecology and Environment, Inc.**
>
> 368 Pleasantview Drive, Lancaster, NY 14086
>
> Phone: 716-684-8060 | Cell: 716-725-2781
>
> rsmith@ene.com | www.ene.com
>
> 
>
> *Celebrating 40 Years of Green Solutions*

Federally Listed, Proposed, and Candidate Species in Pennsylvania

(revised October 8, 2013)

Common Name	Scientific Name	Status[1]	Distribution (Counties and/or Watersheds)
MAMMALS			
Indiana bat	*Myotis sodalis*	E	**Hibernacula**: Armstrong, Beaver, Blair, Centre, Fayette, Huntingdon, Lawrence, Luzerne, Mifflin and Somerset Co. **Maternity Colonies & Male Sites**: Adams, Armstrong, Bedford, Berks, Blair, Greene, Pike, Washington, and York Counties. Potential winter habitat state-wide in caves or abandoned mines. Potential summer habitat state-wide in forests or wooded areas.
Northern long-eared bat	*Myotis septentrionalis*	PE	**Hibernacula**: Allegheny. Armstrong, Beaver, Bedford, Berks, Blair, Bucks, Butler, Cambria, Carbon, Centre, Clarion, Clearfield, Clinton, Columbia, Dauphin, Fayette, Fulton, Huntingdon, Indiana, Jefferson, Lackawanna, Lancaster, Lawrence, Lehigh, Luzerne, Lycoming, McKean, Mifflin, ,Monroe, Montgomery, Northampton, Northumberland, Pike, Potter, Schuylkill, Snyder, Somerset, Tioga, Venango, Warren, Westmoreland, York **Maternity Colonies & Male Sites:** Statewide
BIRDS			
Piping plover	*Charadrius melodus*	E	Designated critical habitat on Presque Isle (Erie Co.). Migratory. No nesting in PA since 1950s, but recent colonization attempts at Presque Isle
REPTILES			
Bog turtle	*Clemmys (Glyptemys) muhlenbergii*	T	Adams, Berks, Bucks, Carbon (Aquashicola Creek watershed only), Chester, Cumberland, Delaware, Lancaster, Lebanon, Lehigh, Monroe, Montgomery, Northampton, Schuylkill (Swatara Creek watershed only), and York Co. *Historically found in Crawford, Mercer and Philadelphia Co.*
Eastern massasauga rattlesnake	*Sistrurus catenatus catenatus*	C	Butler, Crawford, Mercer and Venango Co. *Historically found in Allegheny and Lawrence Co.*
MUSSELS			
Clubshell	*Pleurobema clava*	E	Allegheny River (Armstrong, Clarion, Forest, Venango, Warren); Conneaut Outlet (Crawford); Conneauttee Creek (Crawford); French Creek (Crawford, Erie, Mercer, Venango); LeBoeuf Creek (Erie); Muddy Creek (Crawford); Shenango River (Mercer) *Has not been found recently in 13 streams of historical occurrence in Butler, Beaver, Fayette, Greene, Indiana, Lawrence, and Westmoreland Co.*

US Fish and Wildlife Service
315 South Allen Street, Suite 322, State College, Pennsylvania 16801

Common Name	Scientific Name	Status[1]	Distribution (Counties and/or Watersheds)
Dwarf wedgemussel	*Alasmidonta heterodon*	E	Delaware River (Monroe, Northampton, Pike, Wayne Co.). *Has not been found recently in streams of historical occurrence in the Delaware River watershed (Bucks, Carbon, Chester, Philadelphia) or Susquehanna River watershed (Lancaster)*
Northern riffleshell	*Epioblasma torulosa rangiana*	E	Allegheny River (Armstrong, Clarion, Forest, Venango, Warren); Conewango Creek (Warren); French Creek (Crawford, Erie, Mercer, Venango); LeBoeuf Creek (Erie); Muddy Creek (Crawford) *Has not been found recently in streams of historical occurrence, including Shenango River (Lawrence)*
Rabbitsfoot	*Quadrula cylindrica cylindrica*	T	Allegheny River (Armstrong, Clarion, Forest, Venango, Warren); Conneauttee Creek (Venango); French Creek (Crawford, Erie, Mercer, Venango); LeBoeuf Creek (Erie); Muddy Creek (Crawford); Shenango River (Crawford, Mercer)
Rayed bean	*Villosa fabalis*	E	Allegheny River (Armstrong, Clarion, Forest, Venango, Warren); Cussewago Creek (Crawford); French Creek (Crawford, Erie, Mercer, Venango); LeBoeuf Creek (Erie); Muddy Creek (Crawford) *Potentially extant in Shenango River (Crawford, Mercer) and Woodcock Creek (Venango)* *Has not been found recently in 5 streams of historical occurrence in Armstrong, Lawrence, Mercer and Warren Co.*
Sheepnose	*Plethobasus cyphyus*	E	Allegheny River (Forest and Venango Co.). *Has not been found recently in streams of historical occurrence, including: Allegheny River (Armstrong); Beaver River (Lawrence); Monongahela River (Washington); Ohio River (Allegheny and Beaver)*
Snuffbox	*Epioblasma triquetra*	E	Allegheny River (Armstrong, Clarion, Venango), Conneaut Outlet (Crawford); Cussewago Creek (Crawford); Dunkard Creek (Greene); French Creek (Crawford, Erie, Mercer, Venango); LeBoeuf Creek (Erie); Little Mahoning Creek (Indiana); Muddy Creek (Crawford); Shenango and Little Shenango River (Mercer); West Branch French Creek (Erie)
FISH			
Atlantic sturgeon[2]	*Acipenser oxyrinchus oxyrinchus*	E	Delaware River (New York Bight Distinct Population Segment)
Shortnose sturgeon[2]	*Acipenser brevirostrum*	E	Delaware River and other Atlantic coastal waters

Common Name	Scientific Name	Status[1]	Distribution (Counties and/or Watersheds)
PLANTS			
Northeastern bulrush	*Scirpus ancistrochaetus*	E	Adams, Bedford, Blair, Cambria, Carbon, Centre, Clinton, Columbia, Cumberland, Dauphin, Franklin, Fulton, Huntingdon, Lackawanna, Lehigh, Lycoming, Mifflin, Monroe, Perry, Snyder, Tioga, and Union Co. *Historically found in Northampton Co.*
Small-whorled pogonia	*Isotria medeoloides*	T	Centre, Chester and Venango Co. *Historically found in Berks, Greene, Monroe, Montgomery and Philadelphia Co.*

[1] E = Endangered; T = Threatened; PE = Proposed for listing as Endangered; C = Candidate
[2] Atlantic sturgeon and shortnose sturgeon are under the jurisdiction of the National Marine Fisheries Service

ecology and environment, inc.
International Specialists in the Environment
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March 7, 2014

Pamela Shellenberger
United States Fish and Wildlife Service
Endangered Species Section
315 South Allen St., Suite 322
State College, PA 16801

Re: Transcontinental Gas Pipe Line Company, LLC.
USFWS # 2014-0324: Atlantic Sunrise Expansion Project
Informal Endangered Species Consultation

Dear Ms. Shellenberger:

Ecology and Environment, Inc. (E & E) is supporting Transcontinental Gas Pipeline Company, LLC (Transco) in their development of the proposed Atlantic Sunrise Expansion (ASE) Project (Project). Transco is proposing to expand its current interstate natural gas pipeline system by connecting their existing natural gas facilities and gathering system in Susquehanna County, Pennsylvania to markets in the Mid-Atlantic and Southern U.S. To accomplish this, Transco is proposing to construct and modify a variety of pipelines, compressor stations, meter stations, regulator stations, and interconnections within Pennsylvania, Maryland, Virginia, North Carolina, and Georgia. All together, the ASE Project will include approximately 177 miles of greenfield pipeline, 16 miles of pipeline looping (e.g. installation of new pipeline adjacent to existing pipeline), 2.5 miles of pipeline replacement, two new greenfield compressor stations, and new and up-rated facility modifications across the Project area. Within Pennsylvania, Transco is proposing to construct or modify the following facilities:

- Central Penn Line (CPL) North: construction of approximately 56 miles of 30-inch diameter greenfield pipeline in Susquehanna County (Gibson, Harford and Lenox Townships), Wyoming County (Nicholson, Clinton, Overfield, Falls, Eaton, Northmoreland, Monroe Townships), Luzerne County (Dallas, Lehman, Lake, Ross, Fairmount Townships) and Columbia County (Sugarloaf Township), PA. Approximately half of this pipeline is collocated with an existing Transco pipeline.
- CPL South: construction of approximately 121 miles of 42-inch diameter greenfield pipeline in Lancaster County (Drumore, Martic, Conestoga, Manor, West Hempfield, Columbia, East Donegal, and Mount Joy Townships), Lebanon County (South Londonderry, South Annville, North Annville, Annville, East Hanover, Union, Swatara, and Bethel Townships), Schuylkill County (Pine Grove, Tremont, Porter, Hegins, and Eldred Townships), Northumberland County (East Cameron, Coal, and Ralpho Townships), and Columbia County (Cleveland, Franklin, Montour, Hemlock, Mt Pleasant, Orange, Greenwood, Jackson, and Sugarloaf Townships), PA.

- Grugan Loop: construction of approximately 5.5 miles of looping 42-inch diameter pipeline in Clinton County (Gallagher Township), PA.
- Unity Loop: construction of approximately 11 miles looping 42-inch diameter pipeline in Lycoming County (Jordan, Franklin, and Penn Townships), PA.
- New Compressor Station 605: construction of a greenfield compressor station in Susquehanna County (Lenox Township), PA.
- New Compressor Station 610: construction of a greenfield compressor station in Columbia County (Hemlock Township), PA.
- Existing Compressor Stations 520 and 517: modification and up-rating these facilities in Lycoming County (Mifflin Township), Columbia County (Jackson Township), and York County (Peach Bottom Township), PA.
- New Regulator Stations: construction of regulator stations in Luzerne County (Dallas Township), Lancaster County (Drumore Township), and Columbia County (Sugarloaf Township), PA.
- Existing Zick Compressor Station: construction of a new receipt meter at the existing station in Susquehanna County (Lenox Township), PA.

A figure showing the location of the proposed Pennsylvania facilities is provided in Attachment A. To further assist your review, a Pennsylvania Natural Diversity Inventory (PNDI) Large Project Form is included in Attachment B. As you requested during our correspondence on February 5, 2014, a CD containing shapefiles of the proposed facility locations is also enclosed. Within the maps and shapefiles only the preliminary pipeline centerlines have been provided as field surveys have not yet been conducted nor have permanent and temporary workspaces (e.g. disturbance areas) been fully identified. Please note that during and following field surveys, the proposed pipeline routes are subject to refinements in order to avoid various natural resource and land use features along with engineering design requirements. Thus, the estimated areas of impact noted on the PNDI Large Project Review from are also subject to change during and following field surveys.

This correspondence is intended to initiate interactions with the USFWS in relation to compliance with the Endangered Species Act (ESA) on the ASE Project. E & E, on behalf of Transco, has scheduled a meeting with your office on March 12, 2014 to further discuss ESA issues.

Preliminary ESA Considerations

Table 1 identifies the federally-listed threatened and endanger (T&E) species with potential to occur in the vicinity of the ASE Project, based on the list of "Federally Listed, Proposed, and Candidate Species in Pennsylvania (revised October 8, 2013), which was forwarded via email on February 5, 2014. According to this data source, there is potential for winter habitat of the endangered Indiana bat in the Luzerne County portion of CPL North and potential for summer habitat for this species in all facilities. For the proposed endangered northern long-eared bat, there is potential winter habitat in the Columbia, Lackawanna, and Luzerne County portions of CPL North; in the Lancaster and Schuylkill County portions

of CPL South; and along the Grugan and Unity Loops in Clinton and Lycoming Counties, respectively. There are also potential maternity colonies and male sites of northern long-eared bats in all PA Project segments. The threatened bog turtle may potentially occur in the Lebanon, Lancaster, and Schuylkill County portions of CPL South. Finally, there is potential habitat for the endangered northeastern bulrush along the Grugan and Unity Loops in Clinton and Lycoming Counties, respectively.

Table 1: Federally-listed T&E Species Potentially Occurring in the Vicinity of the ASE Project in Pennsylvania

Species		Federal Status	ASE Project Segment
Common Name	Scientific Name		
Indiana bat	*Myotis sodalis*	Endangered	CPL North, CPL South, Grugan Loop, Unity Loop, and all aboveground facilities
Northern long-eared bat	*Myotis septentrionalis*	Proposed Endangered	CPL North, CPL South, Grugan Loop, Unity Loop, and all aboveground facilities
Bog turtle	*Clemmys (Glyptemys) muhlenbergii*	Threatened	CPL South (Lancaster, Lebanon, and Schuylkill Counties)
Northeastern bulrush	*Scirpus ancistrochaetus*	Endangered	Grugan Loop and Unity Loop

Indiana bat

E & E requests the USFWS, Pennsylvania Field Office identify any known Indiana bat hibernacula in and near the proposed CPL North pipeline route in Luzerne County.

E & E anticipates completing field surveys during spring/summer 2014 to document the presence and quality of potential Indiana bat summer habitat. E & E expects that the need for and strategies related to additional presence/absence surveys (e.g. acoustical and mist-netting) will be discussed with the USFWS at the March 12, 2014 meeting.

Northern long-eared bat

E & E requests the USFWS, Pennsylvania Field Office identify any known northern long-eared bat hibernacula in and near the proposed CPL South and CPL North greenfield pipeline routes, and along the Grugan and Unity Loops.

E & E anticipates completing field surveys during spring/summer 2014 to document the presence and quality of potential northern long-eared bat summer habitat. E & E expects that the need for and

strategies related to additional presence/absence surveys (e.g. acoustical and mist-netting) will be discussed with the USFWS at the March 12, 2014 meeting.

Bog turtle

E & E requests the USFWS, Pennsylvania Field Office identify any known bog turtle populations in and near the proposed CPL South pipeline route in Lebanon, Lancaster, and Schuylkill Counties.

Based on the occurrence records of bog turtles in Lebanon, Lancaster, and Schuylkill Counties, Transco plans to initiate Phase 1 bog turtle habitat surveys in spring 2014. The Phase 1 survey will be completed by qualified surveyors, as listed by the USFWS, Pennsylvania Field Office. All wetlands occurring within the Project components of the above-listed counties will be investigated during the Phase 1 survey. The survey results will be provided to USFWS for review and comment.

In addition to the above species, E & E is also requesting information regarding the presence of any other T&E and special concern species, and the existence of significant natural communities occurring along or in the vicinity of the Project components in Pennsylvania.

If you have any questions regarding this correspondence and information request, or require additional Project information, please do not hesitate to call me at (716) 684-8060, or contact me via email at rsmith@ene.com. I appreciate your assistance and thank you for your attention to this request. We look forward to meeting with you on March 12 to discuss this Project further.

Sincerely,
ECOLOGY & ENVIRONMENT, INC.

Rachel J. Smith

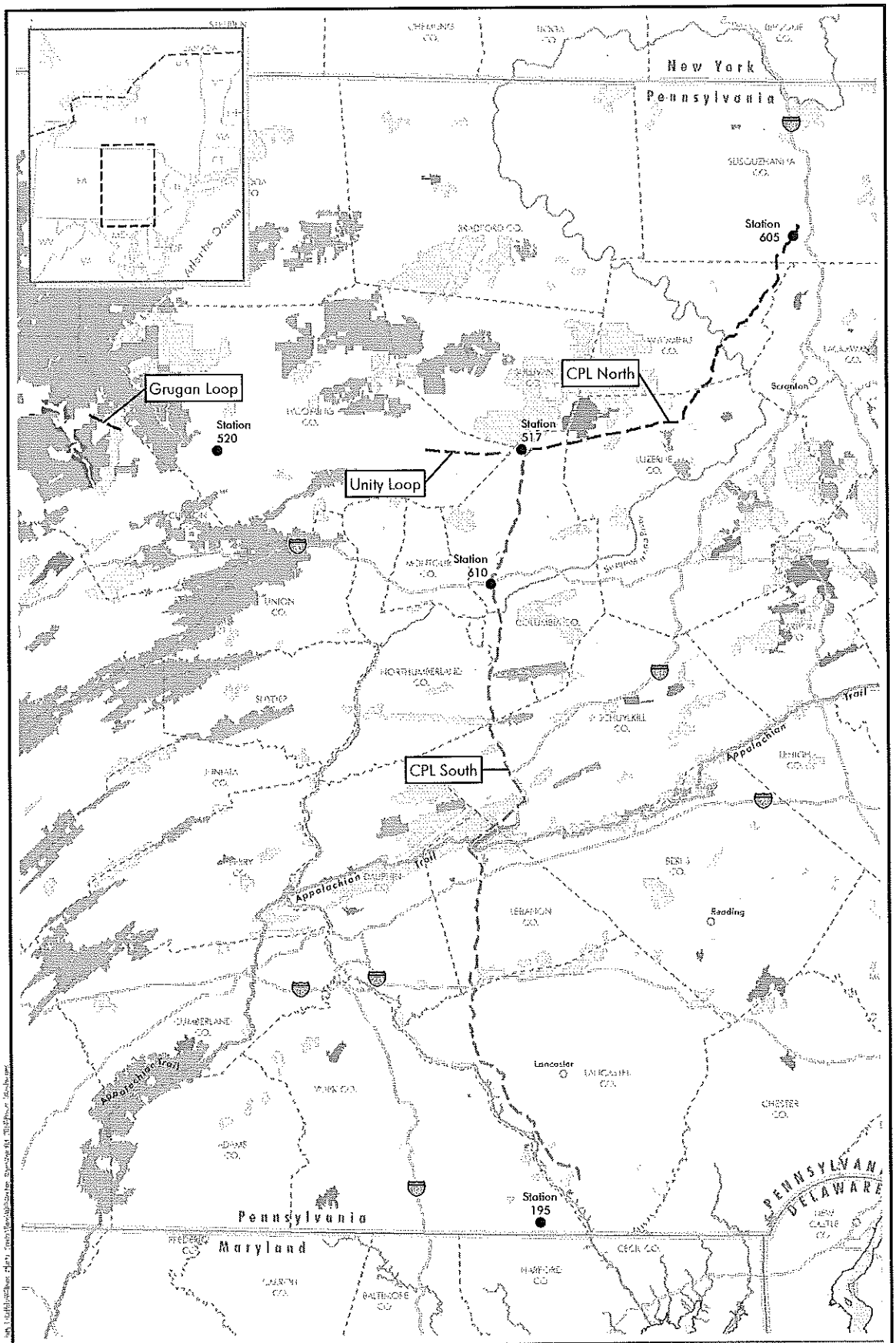
Rachel Smith
Deputy Project Manager

Attachments: Attachment A: Project Location Map for PA Facilities
Attachment B: PNDI Large Project Form

Enclosures: CD containing Project shapefiles

Cc: Anne Allen, Transco
Greg Netti, E & E
Casey Talento, E & E

Attachment A


New York
Pennsylvania
Station 605
Grugan Loop
Station 520
CPL North
Station 517
Unity Loop
Station 610
CPL South
Scranton
Reading
Lancaster
Station 195
Pennsylvania
Maryland
Appalachian Trail
Project Features
Compressor Station
CPL North
CPL South
Grugan Loop
Unity Loop
Natural Resources
Appalachian Trail
State Park
State Forest
Gamelands
Administrative Boundaries/Transportation
State Boundary
County Boundary
Interstate
Other Major Road
Secondary Road
Project Overview Map
Atlantic Sunrise
Pennsylvania
0 5 10 20 Kilometers
0 5 10 20 Miles

Attachment B

Pennsylvania Natural Diversity Inventory
LARGE PROJECT FORM

How to Use the PNDI Large Project Form

If your Project is a "Large Project"— too large/long to search on the online system
Projects are considered "Large Projects" when the ENTIRE project is:

- Linear/Large Projects that exceed the PNDI online project size limits of 10 miles in length or 5165 acres
- Township-wide, Countywide or Statewide Projects. Examples: Act 537 Sewage Plans, Wind Farms, Roadway Improvements exceeding map limits above.

Due to system limitations and agency requirements, projects should not be submitted piecemeal. The entire project area including roads and infrastructure should be submitted as a single unit.

What to Send to Jurisdictional Agencies

Send the following information to all of the agencies listed on the Large Project Form.

Check-list of Minimum Materials to be submitted:
____Completed Large Project Form
____Supplemental project narrative with a description of the overall project, the work to be performed, current physical characteristics of the site and acreage to be impacted.
____USGS 7.5-minute Quadrangle with project boundary clearly indicated, and quad name on the map

The inclusion of the following information may expedite the review process.
____GIS shapefiles depicting the project extent
____A basic site plan (particularly showing the relationship of the project to the physical features such as wetlands, streams, ponds, rock outcrops, etc.)
____Color photos keyed to the basic site plan (i.e. showing on the site plan where and in what direction each photo was taken and the date of the photos)
____Information about the presence and location of wetlands in the project area, and how this was determined (e.g., by a qualified wetlands biologist), if wetlands are present in the project area, provide project plans showing the location of all project features, as well as wetlands and streams

PNDI Large Project Form Definitions

Applicant: Person that owns the property or is proposing the project or activity

Contact Person: Person to receive response if different than applicant (e.g. Consultant)

Project Name: Descriptive title of project (e.g. Twin Pines Subdivision, Miller Bridge Replacement)

Proposed Activity: Include ALL earth disturbance activities for project (e.g. for a timber sale—include stream crossings, cutting areas and new roadway accesses). Also include Current Conditions (e.g. housing, farmland, current land cover), and how Construction/Maintenance Activity is to be accomplished

Total Acres of Property: Entire site acreage (e.g. timber sale property—including road access (200 acres)

Acreage to be Impacted: Disturbance acreage (e.g. timber sale—if the property is 200 acres, but only 100 acres will be disturbed, for example: cutting on 90 acres, a road impacting 10 acres); include all temporary and permanent activities

Pennsylvania Natural Diversity Inventory
LARGE PROJECT FORM

This form provides site information necessary to perform an Environmental Review for special concern species and resources listed under the Endangered Species Act of 1973, the Wild Resource Conservation Act, the Pennsylvania Fish and Boat Code or the Pennsylvania Game and Wildlife Code.

Applicant Information

Name: Transcontinental Gas Pipe Line Company, Llc
Address: Anne Allen, Senior Environmental Scientist
Phone Number: 713-215-2406 Fax Number: 713-215-4551

Contact Person Information - if different from applicant

Name: Greg Netti
Address: 368 Pleasant View Drive, Lancaster, NY 14086
Phone Number: 716-684-8060 Fax Number: 716-684-0844
Email: gnetti@ene.com

Project Information

Project Name: Atlantic Sunrise Expansion Project
Project Reference Point (center point of project): Latitude: 40°19'34.08"N Longitude: 76°31'39.15"W
Datum: NAD 1983
Municipality: Various County: Various
☒ Attach a copy of a U.S.G.S. 7 ½ Minute Quadrangle Map with Project Boundaries clearly marked.
U.S.G.S. Quad Name: Various
Provide GIS shapefiles showing the project boundary (strongly recommended)

Project Description

Proposed Project Activity (including ALL earth disturbance areas and current conditions)

Transcontinental Gas Pipeline Company, LLC (Transco) is proposing to expand its current interstate natural gas pipeline system by connecting their existing natural gas facilities and gathering system in Susquehanna County, Pennsylvania to markets in the Mid-Atlantic and Southern U.S. To accomplish this, Transco is proposing to construct and modify a variety of pipelines, compressor stations, meter stations, regulator stations, and interconnections within Pennsylvania, Maryland, Virginia, North Carolina, and Georgia. All together, the ASE Project will include approximately 177 miles of greenfield pipeline, 24 miles of pipeline looping (e.g. installation of new pipeline adjacent to existing pipeline), 2.5 miles of pipeline replacement, two new greenfield compressor stations, and new and up-rated facility modifications across the Project area. Please note that during and following field surveys, the proposed pipeline routes are subject to refinements in order to avoid various natural resource and land use features along with engineering design requirements. Thus, the estimated areas of impact noted below also subject to change during and following field surveys..

Total Acres of Property: N/A Acreage to be Impacted: +/- 2,000

1. Will the entire project occur in or on an existing building, parking lot, driveway, road, maintained road shoulder, street, runway, paved area, railroad bed, or maintained lawn? Yes ☐ No ☒
2. Are there any waterways or waterbodies (intermittent or perennial rivers, streams, creeks, tributaries, lakes or ponds) in or near the project area, or on the land parcel? If so, how many feet away is the project?
   Yes ☒ 0 Feet No ☐
3. Are wetlands located in or within 300 feet of the project area? Yes ☒ No ☐ If No, is this the result of a wetland delineation?
4. How many acres of tree removal, tree cutting or forest clearing will be necessary to implement all aspects of this project? +/- 500

Dept. of Conservation and Natural Resources
Bureau of Forestry, Ecological Services Section
400 Market St., PO Box 8552
Harrisburg, PA 17105
fax: 717-772-0271

PA Game Commission
Bureau of Wildlife Habitat Management
Division of Environmental Planning & Habitat Protection
2001 Elmerton Avenue
Harrisburg, PA 17110-9797

PA Fish and Boat Commission
Natural Diversity Section
450 Robinson Lane
Bellefonte, PA 16823

US Fish and Wildlife Service
Endangered Species Biologist
315 South Allen St., Suite 322
State College, PA 16801
no faxes please

Meeting Summary

Attendees:

Transco: Anne Allen, Perry Luu

E & E: Greg Netti, Rachel Smith, and Casey Talento

USFWS (PA Field Office): Pamela Shellenberger and Jennifer Siani

TRC: John Zimmer*

**Participated via conference call*

Meeting Date:	12 March 2014
Project Segment:	Atlantic Sunrise Expansion Project
Project Segment:	PA Facilities (Susquehanna, Wyoming, Luzerne, Sullivan, Lycoming, Clinton, Columbia, Northumberland, Schuylkill, Lebanon, and Lancaster Counties)
Meeting Location:	USFWS PA Field Office – 315 South Allen Street, State College, PA 16801
Meeting Time:	10:00 AM
Issues/Keywords:	Project overview; threatened and endangered species; migratory birds; mitigation; conservation measures

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Transcontinental Gas Pipe Line Company, LLC (Transco) held a meeting with the US Fish and Wildlife Service (USFWS) to introduce the Atlantic Sunrise Expansion (ASE) Project (Project).

Notes:

Project Overview

- After introductions, Mr. Luu began the meeting by providing an overview of the proposed project.
    - Project consists of construction of new greenfield pipeline, pipeline looping, and new and modified compressor stations in Pennsylvania; pipeline replacement in Virginia; and facility modifications to existing facilities located along Transco's Mainline from Maryland to Georgia. The Project will add 1.7 bcf of natural gas to Transco existing Mainline.
        - The typical construction right-of-way (ROW) width for new pipeline is expected to be 100-110 feet, with extra work space designated based on site-specific conditions. The new permanent ROW will be 50 feet wide
- Ms. Siani asked whether a tie-in to existing Compressor Station 517 is planned, and questioned the need to construct two new greenfield compressor stations when existing compressor stations are located in the general Project area. She further asked if existing stations could be expanded to minimize the Project footprint and potential impacts.
    - Mr. Luu stated that no tie-in to Compressor Station 517 is planned. The planned locations of the new compressor stations was determined based on hydraulic modeling, which considers the proposed volume and flow of gas. In general, compressor stations are required about every 60 miles along a pipeline depending on location and pressure. The alternatives analysis for the Project will include a detailed summary of why new greenfield compressor stations are required in place of expanding existing facilities.

- Ms. Siani asked where the transition between 30" and 42" pipeline would occur.
    - Mr. Luu stated that the transition will take place at MP L113.75 (West Diamond) along Transco's Leidy pipeline, at the start/end points of the CPL South and North routes.
- Ms. Siani asked who is the point of contact for the USFWS Virginia Field Office, as coordination between the Pennsylvania and Virginia field offices will be necessary. Ms. Siani noted that the Pennsylvania Field Office will take the overall lead for project review due to most of the project being located in Pennsylvania.
    - Ms. Allen stated that coordination with agencies outside of Pennsylvania is scheduled to occur following Transco's request to enter the FERC pre-filing process onMarch 31, 2014. Contact information will be provided once determined.
- Ms. Allen provided an overview of the purpose and need for the Project and stated this is a significant project for Williams in that it will allow for gas to flow bi-directionally by adding southward flow to the Transco system. Large volumes of gas are currently generated from the Marcellus Shale Basin, but transportation of this gas to markets is constrained by lack of interstate pipeline infrastructure. The ASE Project will allow for multiple points of delivery for gas from the Marcellus Shale Basin to markets along the eastern seaboard.

FERC Process and Schedule

- Ms. Allen provided an overview of the Federal Energy Regulatory Commission (FERC) process and the current schedule for the Project.
- Ms. Allen states the FERC Project Manager is anticipated to be Jennifer Kerrigan. The FERC pre-filing meeting is scheduled for March 18, 2014.
- A 11 month pre-filing process (although it could be extended) is anticipated with the FERC 7(c) application expected to be submitted in the 1st Quarter of 2015. Transco is working towards receiving a FERC Order in the 3rd Quarter of 2016, beginning construction in July 2016, and having the Project in-service on July 1, 2017. Because the schedule requests that construction activities begin during the summer, Transco expects and requests additional meetings with USFWS, as necessary, to discuss mitigation measures.
- The Project is under FERC jurisdiction; therefore, USFWS will complete the T/E species review under Section 7 of the ESA.
- Ms. Allen stated that USFWS will be given the opportunity to participate in the FERC process as a cooperating agency.
    - Ms. Siani indicated that coordination with the other USFWS offices would need to occur before a determination would be made and noted that in some cases the USFWS was an intervening agency on other projects.

Threatened and Endangered (T/E) Species

- E & E, on behalf of Transco, sent T/E information request letters to USFWS on March 7, 2014 with Project specific mapping and shapefiles to assist with the Project review. USFWS will respond to this letter with Project-specific T/E species information.

Indiana Bat (IB)

- IBs may roost in forested habitat in each county within the Project area. Phase 1 IB habitat surveys are optional and, if completed, are likely to only exclude small areas of the Project as suitable IB habitat. This is because IBs in Pennsylvania have been found to roost in a wide variety of forested habitats. Individual trees greater than 3 inches in diameter at breast height (DBH) may potentially be used. Generally, forested areas identified from

remote sensing will be considered suitable IB roosting habitat. If Phase 1 habitat surveys are completed, areas to be excluded as IB habitat would be limited to trees less than 3 inches DBH with smooth bark.

- The Project area is not within any known IB swarming or maternity colonies.
- The Project does not cross any known IB hibernacula sites. The closest documented IB hibernacula sites are located in Luzerne County, greater than 10 miles from both CPL North and CPL South.
- Portals, caves, and mines which may be used by IB for hibernation need to be investigated within 300 feet of the construction ROW. A significant amount of information is available online that can be used to conduct an initial screening for these areas. This should be combined with a visual investigation for portals, caves, and mines during other environmental surveys conducted along the ROW. Field efforts should focus in areas such as limestone valleys where portals and caves are most likely to occur. Such geological features exist in Lancaster, Lebanon, and Schuylkill Counties. Where 300 feet of survey access is not available, biologists may look for these features from the edge of the survey corridor. Any potential portals, caves, or mines identified through either desktop or field review should be investigated further to determine whether such areas are being using by IB's as hibernacula.
- IB survey methods will follow the guidelines posted on the USFWS Midwest Region 3 website.
- Either mist-net or acoustical surveys can be conducted to document IB presence/absence. However, acoustical surveys have potential limitations compared to mist-netting, such as potential to pick up "false-positives". When an IB "hit" is recorded, mist-netting is then required to catch and radio-track the bat. In addition, USFWS PA Field Office has a much smaller acoustical survey dataset compared to mist-net data. Additional direction on acoustical surveys may be available after the 2014 field season as more data becomes available.
- Transco plans to initiate Phase 2 IB surveys this summer. Additional Phase 2 surveys will be completed during the 2015 survey season on parcels with no survey access this year. Transco will submit a Phase 2 IB survey plan to USFWS for review and approval prior to conducting any surveys.
- USFWS will consider issuing Transco authorization to conduct tree clearing during the restricted period (April 1 – September 30) on a case-by-case basis when mist-net survey results are negative.
- Potential mitigation measures related to IB's will be discussed with Transco after the first season of field survey data is available.

Northern Long-Eared Bat (NLEB)

- The determination on listing status of the NLEB is anticipated in October 2014.
- USFWS is compiling locations of NLEB hibernacula and maternity colonies in Pennsylvania; if NLEB is listed as threatened or endangered, this data will be available for project reviews by the end of 2014.
- Survey protocols for NLEB are currently the same as IB survey protocols. NLEB Phase 2 surveys will be completed concurrently with IB surveys this summer.

Bog Turtle (BT)

- Transco plans to conduct Phase 1 BT habitat surveys this spring/summer. Results will be sent to USFWS and Phase 2 surveys will be conducted during the 2015 survey season.
- CPL South passes through or near a documented bog turtle population in Lancaster County [redacted]. Additional information regarding this area will be provided in the USFWS response to the T/E information request letter.
- Review of survey reports and other consultations related to BTs will be coordinated by Kayla Easter at USFWS.

Northeastern Bulrush

- Populations of northeastern bulrush have been documented in Clinton County; therefore, presence/absence surveys for this species will be required along the Grugan Loop. Per USFWS survey protocols, all wetlands need to be evaluated for presence of this species in counties where existing populations have been documented. There is also potential for this species to occur along the Unity Loop in Columbia County. USFWS will provide additional information in their response to the T/E information request letter.

- Preferred habitats are emergent wetlands in forested areas, mountain areas and vernal pools at elevations greater than 1,600 feet. Northeastern bulrush are normally not located in valleys.

- Survey window is June to mid-September. Presence/absence surveys will be completed by Transco this summer on parcels with survey access. Additional surveys may be needed during summer 2015 as additional access becomes available.

Bald Eagle (BE)

- The BE is protected on the federal level under the Bald and Golden Eagle Protection Act. Pennsylvania via the PA Game Commission (PGC) delisted the BE and USFWS now has sole jurisdiction for this species in the state.

- PNDI hits for BE are now being forwarded from the PGC to the USFWS which is developing a publicly available website to preform reviews for known BE nesting locations. The website will be available soon and will show every known nest location in Pennsylvania.

- Protection buffers around BE nests are either 330 feet (if activity will not be visible from the nest) or 660 feet (if the activity will be visible from the nest). A larger buffer of 0.5 mile is required for blasting activities and helicopter operations.

- It does not appear that CPL South is within 660 feet of any known BE nests on the Susquehanna River. This will be confirmed once the website noted above is available for review.

- A Disturbance Permit will be required if impacts within the buffer area of a BE nest cannot be avoided. Impacts for which a permit would be required include visual, noise and vibrations associated with construction equipment and activities. If required, the permit would be coordinated with the USFWS Hadley, Massachusetts Office. For a Disturbance Permit to be issued, the applicant must demonstrate that every possible avoidance and minimization measure has been implemented to reduce impacts.

- The BE breeding season is from January 15 – July 31. The most critical period of time within the breeding season in Pennsylvania is from January through February when eggs are susceptible to damage if the BE is flushed from the nest.

Migratory Birds

- Over 700 species of migratory birds breed in Pennsylvania, all of which are protected under the Migratory Bird Treaty Act (MBTA). Because so many migratory bird species breed in Pennsylvania, breeding birds are generally assumed to be present in any habitats during the breeding season.

- USFWS PA Field Office will not require breeding bird field surveys be completed for impact assessment because, as noted above, presence is assumed in a wide variety of habitats. Rather, existing sources of data should be reviewed to develop lists of bird species most likely to be present in the Project area. Two publications in particular should be reviewed: "Birds of North America" (provides dates and defines preferred habitat); and "Breeding Bird Atlas of Pennsylvania" (provides block/grid system breakdown and survey data for bird species within each block).

- Identification of breeding birds present in the project area should focus on identifying Birds of Conservation Concern (BCC). Species are designated as such due to negative population trends. There are approximately 20-

30 bird species of conservation concern in PA. BCC are listed by regions; the Project area is located in Regions 28 and 29.

- Important Bird Areas (IBAs) should also be identified in the Project area. It appears at minimum that the Grugan Loop and Lower Susquehanna River portion of CPL South are located in an IBA.

- Incidental permits are not issued for impacts to migratory birds; however, there is ample room for negotiation between Transco and USFWS to develop appropriate mitigation measures in order for the Project to proceed in compliance with the MBTA.

- USFWS stated that the preferred conservation measure is to avoid clearing and grubbing activities during breeding season (April 1 – August 31). However, conservation measures to avoid and minimize impacts can often be used as a negotiation measure for overall MBTA compliance.

  Examples of conservation measures may include any of the following:

  - Priority to BBCs and IBAs.
  - Reduction of construction footprint.
  - Avoidance of habitat fragmentation to the maximum extent possible.
  - Integration of habitat functionality as a component of the Erosion and Sediment Control Plan (E&SCP). This may include early successional plantings in temporary ROW to provide for a gradual return to the canopy; riparian plantings at stream crossings; and providing resource to specific species in key areas for quicker habitat restoration.

- Ms. Allen stated that Transco would like to have a separate meeting to discuss MBTA and possible conservation measures early in the process following general habitat assessments along the study corridor for the Project.

Closing

- Ms. Allen stated that follow-up meetings at the conclusion of the 2014 field season will be requested to discuss survey results, to provide an overall Project update, and to solicited input on the route prior to submittal of the draft Environmental Resource Report to the FERC in 3rd or 4th quarter of 2014..

- Ms. Siani asked if a meeting was schedule with the US Army Corps of Engineers (USACE), as USFWS will be involved as a commenting agency on the Section 404 permit.

  - Project introduction meeting is scheduled for March 27th with the USACE Baltimore District in State College.

- Ms. Shellenberger stated that the next step for USFWS will be to review the T/E information request letter and provide a letter response with T/E species location information relative to the Project area and survey requirements for each species noted.

- Transco will review the USFWS response letter and proceed with developing T/E species survey plans in advance of the 2014 field season. Survey plans such as for IB/NLEB Phase 2 mist netting surveys will be sent to USFWS for review and approval prior to initiating field surveys.

- The meeting concluded at approximately 12:05 PM.

- End of Notes -

From:	Zoladz, Justin A.
To:	pamela_shellenberger@fws.gov
Cc:	Netti, Gregory; Smith, Rachel
Subject:	USFWS Project # 2014-0324 (Atlantic Sunrise Expansion Pipeline Project)
Date:	Tuesday, April 15, 2014 12:38:17 PM
Attachments:	Survey Effort Determination Example.pdf

Dear Ms. Shellenberger,

In an effort to assure we develop a proper bat survey work plan, and as I indicated in our earlier phone conversation, I have attached an example of how we are interpreting the level of effort determination for bat mist-netting surveys following the *2014 Range-wide Indiana Bat Summer Survey Guidelines* (January 2014). As we discussed, we have already conducted a desktop *Phase 1 Summer Habitat Assessment* by digitizing all suitable summer habitat in proximity to the current preferred route centerline. This included all forested areas, treed windrows, wooded corridors, and individual trees where it appeared that the stand contained trees which appeared to be, or the individual tree appeared to be, greater than 5 inches dbh. For the purposes of the desktop analysis, it was assumed that any forest block containing individual trees of sufficient size could include exfoliating bark, cracks, crevices, and/or hollows and thus was counted as potentially suitable. This was determined by using multiple years' worth of available aerial imagery.

The project is currently planning on exclusively conducting mist-netting for the presence/absence surveys for both Indiana and northern-long-eared bats. Phase 2, Step 4 (Pg. 5 of the guidelines), indicates that for this project, "a minimum of 6 net-nights per km (0.6 miles) of suitable summer habitat" will be needed. The definition of potentially suitable summer habitat is found on page 10 and 11 of the guidelines.

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As we interpret these guidelines, although suitable habitat "*consists of a wide variety of forested/wooded habitats where they roost, forage, and travel and may also include some adjacent and interspersed non-forested habitats such as emergent wetlands and adjacent edges of agricultural fields, old fields and pastures,*" footnote 18 appears to indicate only forested habitats should be included in determining the minimum level of effort for Phase 2 surveys.

As such, when forested areas or other suitable habitat is discontiguous, it is only when the collective total of each piece reaches a total of 1 Km that a survey block requiring 6 net-nights is required. This is shown as Option 1 in the attachment. We calculated each piece of suitable habitat when any portion of the proposed 100-foot wide ROW would impact the digitized habitat. As such, in discontiguous habitats, only one sample site would be required somewhere between just over 1 Km to 2 or more Km, depending on the distance between the segments of forested area.

As you described the other interpretation, as outlined in Option 2 of the attachment, if any forested habitat exists within a Km, it should be surveyed.

We believe the difference is that the guidelines state level of effort is "*per Km of suitable habitat,*" which footnote 18 goes on to indicate does not include non-forested area for determining level of effort. In the way you have described it, that would be "*per Km [with] suitable habitat.*"

Obviously, the two interpretations will result in a much different level of effort requirement. As indicated in the last sentence of the suitable summer habitat definition paragraph, this is our effort to coordinate with your office to ensure we develop an appropriate work plan. We wish to minimize the required level of effort, and associated expense, while still conforming to these guidelines.

Thank you,

Justin Zoladz, Biologist
Ecology and Environment, Inc.
368 Pleasant View Drive, Lancaster, NY 14086
Phone: 716-684-8060 x2608 | Mobile: 716-560-4585
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02:1391001.CDR-10/19/01-GRA

USFWS Project #

ecology and environment

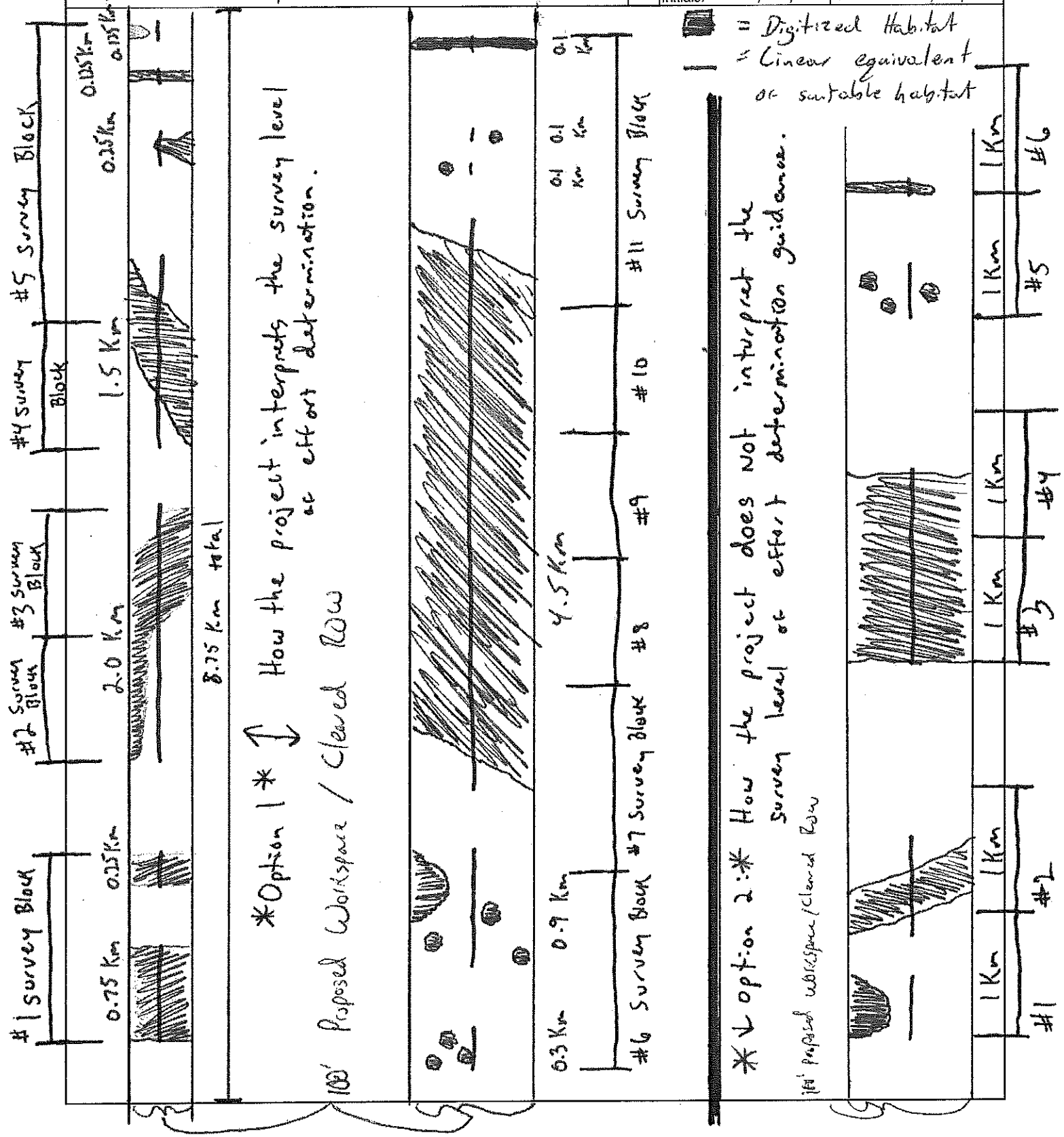
Computation Sheet

Project No.	2014-0324
Preliminary	☐
Final	☐
Void	☐
Sheet ____ of ____	

Project Name: Atlantic Sunrise Expansion

Subject: Bat Survey Effort Determination

Rev.	Completed By:	Checked By:
☒	Initials: / /	Initials: / /
	Initials: / /	Initials: / /



From: Zoladz, Justin A.
To: Shellenberger, Pamela
Cc: Netti, Gregory; Smith, Rachel
Subject: RE: USFWS Project # 2014-0324 (Atlantic Sunrise Expansion Pipeline Project)
Date: Tuesday, April 15, 2014 4:57:14 PM

Pam,

Thank you for the prompt reply today. I appreciate that you are further discussing this internally and if pointing this out allows for better clarification in 2015, everyone will be better off next year. In the meantime, we will be awaiting your response as how best handle this scenario this year.

Justin Zoladz, Biologist
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From: Shellenberger, Pamela [mailto:pamela_shellenberger@fws.gov]
Sent: Tuesday, April 15, 2014 4:43 PM
To: Zoladz, Justin A.
Cc: Netti, Gregory; Smith, Rachel
Subject: Re: USFWS Project # 2014-0324 (Atlantic Sunrise Expansion Pipeline Project)

Justin,

Email received! You should know that I have been talking to our regional lead for Ibat about this, and she has passed it on to other regions who have also been involved in developing summer survey guidance. The consensus is that this is something that needs better clarification for the 2015 guidance. I still need to have discussions internally and I will let you know our thoughts. Thank you for bringing this up!

Pamela Shellenberger
U.S. Fish and Wildlife Service
315 South Allen Street
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814-234-4090 x241
814-234-0748 (f)

http://fws.gov/northeast/pafo/index.html

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As we interpret these guidelines, although suitable habitat "*consists of a wide variety of forested/wooded habitats where they roost, forage, and travel and may also include some adjacent and interspersed non-forested habitats such as emergent wetlands and adjacent edges of agricultural fields, old fields and pastures,* " footnote 18 appears to indicate only

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From: Shellenberger, Pamela
To: Zoladz, Justin A.
Cc: Netti, Gregory; Smith, Rachel
Subject: Re: USFWS Project # 2014-0324 (Atlantic Sunrise Expansion Pipeline Project)
Date: Monday, April 28, 2014 5:10:27 PM

Hi Justin,

A summary of the methodology to determine the total number of mist net sites for linear projects with some non-wooded areas is presented below:

Establish 1-km sample areas for the entire project. The 1-km sample areas measure 1,000 meters in length along the proposed project centerline. The initial 1-km sample area begins at the first tree to be cleared within the project ROW and then continues for 1,000 meters. The next 1-km sample area begins at the next tree to be cleared within the project ROW and then continues for 1,000 meters. The process of locating each 1-km sample area should be repeated for the entire project ROW. The 1-km sample areas should be mapped and graphically represented on figures attached to the survey plan submitted. The 1-km sample area method allows project proponents to account for unforested or sparsely forested habitat that may be used as travel corridors and edge habitat by endangered bat species while not causing sampling in large, unforested, land tracts which contain unsuitable endangered bat habitat.

Basically, for each km, determine whether there is suitable forest habitat and conduct surveys within that km. For 1-km stretches without any forest (e.g. all ag lands), no surveys. I suggested they modify footnote 18 to read "1 km sections of non-forested habitats typically should be excluded from acreages used to establish a minimum level of survey effort for Phase 2 surveys"

Thank you,

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http://fws.gov/northeast/pafo/index.html

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From: Shellenberger, Pamela [mailto:pamela_shellenberger@fws.gov]
Sent: Tuesday, April 15, 2014 4:43 PM
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Cc: Netti, Gregory; Smith, Rachel
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As you described the other interpretation, as outlined in Option 2 of the attachment, if any forested habitat exists within a Km, it should be surveyed.

We believe the difference is that the guidelines state level of effort is "*per Km of suitable*

habitat," which footnote 18 goes on to indicate does not include non-forested area for determining level of effort. In the way you have described it, that would be "*per Km [with] suitable habitat.*"

Obviously, the two interpretations will result in a much different level of effort requirement. As indicated in the last sentence of the suitable summer habitat definition paragraph, this is our effort to coordinate with your office to ensure we develop an appropriate work plan. We wish to minimize the required level of effort, and associated expense, while still conforming to these guidelines.

Thank you,

Justin Zoladz, Biologist

Ecology and Environment, Inc.

368 Pleasant View Drive, Lancaster, NY 14086

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Adaptive Management Practices for Conserving Migratory Birds

The Fish and Wildlife Service is the principal Federal agency charged with protecting and enhancing populations and habitat of migratory bird species. The Migratory Bird Treaty Act (MBTA, 16 U.S.C. 703-712; Ch. 128; July 13, 1918; 40 Stat. 755, as amended) prohibits the taking, killing, possession, transportation, and importation of migratory birds, their eggs, parts, and nests, except when specifically authorized by the Department of the Interior. While the MBTA has no provision for authorizing incidental take, the Service recognizes that some birds may be killed even if all reasonable measures to avoid take are implemented. Unless the take is authorized, it is not possible to absolve individuals, companies or agencies from liability (even if they implement avian mortality avoidance or similar conservation measures). However, the Office of Law Enforcement focuses on those individuals, companies, or agencies that take migratory birds with disregard for their actions and the law.

The potential exists for avian mortality from habitat destruction and alteration within the project boundaries. Site-specific factors that should be considered in project siting to avoid and minimize the risk to birds include avian abundance; the quality, quantity and type of habitat; geographic location; type and extent of bird use (*e.g.* breeding, foraging, migrating, etc.); and landscape features.

We offer the following recommendations to avoid and minimize impacts to migratory birds within and around the project area:

1. Where disturbance is necessary, clear natural or semi-natural habitats (*e.g.*, forests, woodlots, reverting fields, shrubby areas) and perform maintenance activities (*e.g.*, mowing) between September 1 and March 31, which is outside the nesting season for most native bird species. Without undertaking specific analysis of breeding species and their respective nesting seasons on the project site, implementation of this seasonal restriction will avoid take of most breeding birds, their nests, and their young (*i.e.*, eggs, hatchlings, fledglings).

2. Minimize land and vegetation disturbance during project design and construction. To reduce habitat fragmentation, co-locate roads, fences, lay down areas, staging areas, and other infrastructure in or immediately adjacent to already-disturbed areas (*e.g.*, existing roads, pipelines, agricultural fields) and cluster development features (*e.g.*, buildings, roads) as opposed to distributing them throughout land parcels. Where this is not possible, minimize roads, fences, and other infrastructure.

3. Avoid permanent habitat alterations in areas where birds are highly concentrated. Examples of high concentration areas for birds are wetlands, State or Federal refuges, Audubon Important Bird Areas, private duck clubs, staging areas, rookeries, leks, roosts, and riparian areas. Avoid establishing sizable structures along known bird migration pathways or known daily movement flyways (*e.g.*, between roosting and feeding areas).

4. To conserve area-sensitive species, avoid fragmenting large, contiguous tracts of wildlife habitat, especially if habitat cannot be fully restored after construction. Maintain

contiguous habitat corridors to facilitate wildlife dispersal. Where practicable, concentrate construction activities, infrastructure, and man-made structures (*e.g.*, buildings, cell towers, roads, parking lots) on lands already altered or cultivated, and away from areas of intact and healthy native habitats. If not feasible, select fragmented or degraded habitats over relatively intact areas.

5. Develop a habitat restoration plan for the proposed site that avoids or minimizes negative impacts to birds, and that creates functional habitat for a variety of bird species. Use only plant species that are native to the local area for revegetation of the project area.

If you have any questions regarding these measures, please contact Jennifer Siani of the Pennsylvania Field Office located in State College, PA at 814-234-4090 ext 225 or Jennifer_Siani@fws.gov.

Resources for determining likely presence of migratory birds

The Fish and Wildlife Service (Service) is the principal Federal agency charged with protecting and enhancing populations and habitat of migratory bird species. The Migratory Bird Treaty Act (MBTA, 16 U.S.C. 703-712; Ch. 128; July 13, 1918; 40 Stat. 755, as amended) prohibits the taking, killing, possession, transportation, and importation of migratory birds, their eggs, parts, and nests, except when specifically authorized by the Department of the Interior. While the MBTA has no provision for authorizing incidental take, the Service recognizes that some birds may be killed even if all reasonable measures to avoid take are implemented. Unless the take is authorized, it is not possible to absolve individuals, companies or agencies from liability (even if they implement avian mortality avoidance or similar conservation measures). However, the Office of Law Enforcement focuses on those individuals, companies, or agencies that take migratory birds with disregard for their actions and the law.

Thank you for taking migratory bird protection into consideration. At this time, we do not maintain databases containing species-specific and site-specific data within the state of Pennsylvania, however, the potential exists for avian mortality from habitat destruction and alteration within the project boundaries. Site-specific factors that should be considered in project siting to avoid and minimize the risk to birds include avian abundance; the quality, quantity and type of habitat; geographic location; type and extent of bird use (*e.g.* breeding, foraging, migrating, etc.); and landscape features. Resources are available to assist you in determining which species are likely to be present within your project area. These include but are not limited to the following:

- http://www.fws.gov/migratorybirds/CurrentBirdIssues/Management/BirdManagement.html - This website provides links to information on the MBTA (e.g., which birds are covered under the law), bald eagles, birds of conservation concern broken down by regions, birds of management concern, and focal species associated with the Service's focal species strategy.

- http://www.pabirds.org/SeasonalTables.htm - This link provides tables of breeding and migration of birds by county in PA. It is a way to identify which bird species may be impacted within a given project area but it does not contain all PA counties.

- http://pa.audubon.org/pennsylvanias-important-bird-area-program - This is a link to the PA chapter of the Audubon which provides best management practices for birds, information on Important Bird Areas, and so forth.

- http://www.mapsportal.org/audubon_national_iba/ - National map with information on each Audubon Important Bird Area.

- https://www.pwrc.usgs.gov/bbs/RawData/Choose-Method.cfm - This link contains North American Breeding Bird Survey data and information.

- http://ebird.org/ebird/GuideMe?cmd=changeLocation – Allows users to create a bar chart of species occurrence for your region of interest.

- http://bird.atlasing.org/Atlas/PA/Main?viewBlocksRegions=1 – The Second Pennsylvania Breeding Bird Atlas has some data available online.

- http://www.amjv.org/ - The Appalachian Mountains Joint Venture (AMJV) is one of 18 habitat Joint Venture partnerships in the United States. This is the predominant joint venture in Pennsylvania.

- http://bna.birds.cornell.edu/bna/ - The Birds of North America online features comprehensive life history information on all birds breeding in North America.

If you have any questions regarding these resources, please contact Jennifer Siani of the Pennsylvania Field Office located in State College, PA at 814-234-4090 ext 225 or Jennifer_Siani@fws.gov

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Pennsylvania Field Office
315 South Allen Street, Suite 322
State College, Pennsylvania 16801-4850

April 28, 2014

Rachel Smith
Ecology and Environmental, Inc.
368 Pleasant View Drive
Lancaster, New York 14086

RE: USFWS Project #2014-0324

Dear Ms. Smith:

This responds to your letter of March 7, 2013, and our meeting of March 12, 2014, regarding information about federally listed and proposed endangered and threatened species within the area affected by proposed Transco Atlantic Sunrise Expansion project located in Susquehanna, Wyoming, Luzerne, Columbia, Northumberland, Schuylkill, Lebanon, and Lancaster Counties, Pennsylvania. The following comments are provided pursuant to the Endangered Species Act of 1973 (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.*) to ensure the protection of endangered and threatened species, the Migratory Bird Treaty Act (MBTA, 16 U.S.C. 703-712; Ch. 128; July 13, 1918; 40 Stat. 755, as amended) to ensure the protection of migratory bird species, the Bald and Golden Eagle Protection Act (Eagle Act; 54 Stat. 250, as amended; 16 U.S.C. 668-668d), and the Fish and Wildlife Coordination Act (FWCA; 48 Stat. 401, as amended; 16 U.S.C. 661 *et seq.*) to ensure protection of other fish and wildlife resources.

Transco proposes to expand its current interstate natural gas pipeline system by connecting their existing natural gas facilities and gathering system in Susquehanna County, Pennsylvania to markets in the Mid-Atlantic and Southern United States. The proposed project consists of 56 miles of 30" diameter pipeline at the northern portion of the project and 121 miles of 42" pipeline at the southern portion of the project.

Federally Listed/Proposed Species

Bog turtle

The proposed project goes through Lebanon and Lancaster Counties, which are within the known range of the bog turtle (*Clemmys muhlenbergii*), a species that is federally listed as threatened. Portions of Schuylkill County also lie within the range of the bog turtle; however, according to the information provided, the pipeline does not propose to go through this portion of Schuylkill

County (Swatara Creek watershed). Therefore, no bog turtle surveys will be necessary in Schuylkill County.

Bog turtles inhabit shallow, spring-fed fens, sphagnum bogs, swamps, marshy meadows, and pastures characterized by soft, muddy bottoms; clear, cool, slow-flowing water, often forming a network of rivulets; high humidity; and an open canopy. Bog turtles usually occur in small, discrete populations occupying suitable wetland habitat dispersed along a watershed. The occupied "intermediate successional stage" wetland habitat is usually a mosaic of micro-habitats ranging from dry pockets, to areas that are saturated with water, to areas that are periodically flooded. Some wetlands occupied by bog turtles are located in agricultural areas and are subject to grazing by livestock.

Because wetlands occur within the project area, their potential suitability as bog turtle habitat should be assessed, as described under "*Bog Turtle Habitat Survey*" (Phase 1 survey) of the enclosed *Guidelines for Bog Turtle Surveys*. This Phase 1 survey should evaluate all wetlands within the project action area. The project "action area" includes all areas that will be directly or indirectly affected by the proposed project (including all phases of multi-phased projects) and all project-associated features, such as roads, water and sewer lines, utility lines, stormwater and sedimentation basins, buildings and other structures, driveways, parking lots, yards/lawns, and wells.

Due to the skill required to correctly identify potential bog turtle habitat, we recommend that the Phase 1 survey be done by a qualified surveyor (see enclosed list). If Phase 1 surveys are conducted by someone on the qualified list, we do not need to see negative Phase 1 survey data. If Phase 1 surveys are conducted by someone on the qualified list, only positive Phase 1 survey results should be submitted to the Service for review and concurrence. If the Phase 1 survey is done by someone who is not on this list, it is likely that a site visit by a Fish and Wildlife Service biologist will be necessary to verify their findings. Due to the limited availability of staff from this office, such a visit may not be possible for some time. Use of a qualified surveyor will expedite our review of the survey results.

If potential bog turtle habitat is found in the project action area, efforts should be made to avoid any direct or indirect impacts to those wetlands (see enclosed *Bog Turtle Conservation Zones*). Avoidance of direct and indirect effects means no disturbance to or encroachment into the wetlands (e.g., filling, ditching or draining) for any project-associated features or activities. Adverse effects may also be anticipated to occur when lot lines include portions of the wetland; when an adequate upland buffer is not designated around the wetland (see *Bog Turtle Conservation Zones*); or when roads, stormwater/sedimentation basins, impervious surfaces, or wells affect the hydrology of the wetland.

If potential habitat is found, submit (along with your Phase 1 survey results) a detailed project description and detailed project plans documenting how direct and indirect impacts to the wetlands will be avoided. Please include wetland shapefiles with Phase 1 surveys. If adverse effects to these wetlands cannot be avoided, a more detailed and thorough survey will be necessary, as described under "*Bog Turtle Survey*" (Phase 2 survey) of the *Guidelines*. The Phase 2 survey should be conducted by a qualified biologist with bog turtle field survey

experience (see enclosed list of qualified surveyors). Submit survey results to the Service for review and concurrence.

There is a known bog turtle occurrence at the southern portion of the line near Muddy Run that is approximately 740' from the 600' buffer search area. The wetland that the bog turtle was found in may extend into the pipeline ROW. Once Phase 1 survey information is received (including wetland shapefiles), we will further evaluate this area.

Northeastern bulrush

The proposed project goes through Columbia County, which is located within the range of the northeastern bulrush (*Scirpus ancistrochaetus*), a federally listed, endangered plant.

Potential habitat for this species could be affected if the project will directly or indirectly affect wetlands. The northeastern bulrush is typically found in ponds, wet depressions, shallow sinkholes, vernal pools, small emergent wetlands, or beaver-influenced wetlands. These wetlands are often located in forested areas and characterized by seasonally variable water levels.

To conserve northeastern bulrush (if present) and other wetland-dependent species of concern, project-related activities should avoid adversely affecting the surface and groundwater recharge areas. This would include establishment of 300-foot wide upland buffer areas around wetlands, as well as 50-100 foot wide buffers along waterways (perennial and intermittent rivers, streams, creeks and tributaries). When adequately vegetated, these buffers will act to filter pollutants and stabilize streambanks. Earth disturbance, spraying or tree-cutting activities (tree felling, skid trails etc.), should not occur in these wetlands and their buffers. If these buffers are included, implementation of the proposed project is not likely to adversely affect the northeasten bulrush.

If you are unable to adopt the buffer restrictions detailed above, we recommend that a qualified botanist with field experience in the identification of this species conduct a thorough survey of all potentially suitable wetland habitat within the proposed project area to determine the presence of the northeastern bulrush before any permits are approved or earth-moving activities begin. Surveys for this species should be conducted between June 1 and September 30, when the flowering/fruiting culm is present. A survey report should be submitted to the Service for review and comment. A list of botanists skilled in the location and identification of the northeastern bulrush is enclosed.

Indiana bat

The project area is located within the range of the Indiana bat (*Myotis sodalis*), a species that is federally listed as endangered. Indiana bats hibernate in caves and abandoned mines during the winter months (November through March), and use a variety of upland, wetland and riparian habitats during the spring, summer and fall. Indiana bats usually roost in dead or living trees with exfoliating bark, crevices or cavities. Female Indiana bats form nursery colonies under the exfoliating bark of dead or living trees, such as shagbark hickory, black birch, red oak, white oak, and sugar maple, in upland or riparian areas.

Land-clearing, especially of forested areas, may adversely affect Indiana bats by killing, injuring or harassing roosting bats, and by removing or reducing the quality of foraging and roosting habitat. Due to the anticipated impacts of the project to forested habitat, a bat survey of the project area should be conducted between May 15 and August 15 by a qualified, Service-approved biologist (see enclosed list) using the 2014 Range-Wide Indiana Bat Summer Survey Guidelines – January 2014 which can be found at the following link: http://www.fws.gov/northeast/pafo/surveys.html . Survey results should be submitted to the Service for review and concurrence.

In addition, if any natural caves or abandoned mines occur within the project area, it is possible that Indiana bats or other bat species may be using them during hibernation or potentially as summer roost sites. Entrances to these potential hibernacula could be intentionally or inadvertently closed or destroyed during activities such as land clearing, grading, fill disposal, mining, road construction or building construction. If bats are present within a cave or abandoned mine when this occurs, they will become trapped inside and perish. Even if bats are not present during the closure, they may be adversely affected when they return to their hibernaculum in the fall and find it closed. This will force them to expend energy looking for another suitable hibernaculum during a time when it is crucial that they store up sufficient fat reserves for hibernation. Bats are at an increased risk of mortality when they enter hibernation with insufficient fat reserves, or are unable to locate a cave/mine with the suite of conditions (*e.g.*, temperature, humidity, air flow) necessary for successful hibernation.

To determine whether this project will affect any potential Indiana bat hibernacula, the project area should be surveyed for cave and mine openings. All openings should be accurately mapped using a GPS unit. If potentially unstable mines (*e.g.*, abandoned coal mines) occur in the project area, the openings of these mines should be evaluated using the enclosed *Protocol for Assessing Abandoned Mines/Caves for Bat Surveys*. The Pennsylvania Game Commission has developed this protocol to determine whether abandoned mines may serve as potentially suitable bat habitat. Following this initial mine opening assessment, a qualified bat surveyor (see enclosed list) should survey each potentially suitable opening, as well as the area in the immediate vicinity of these openings. Surveys should be carried out in accordance with the enclosed survey protocol and a copy of the survey results should be submitted to the Service and the Pennsylvania Game Commission for review and concurrence.

If any caves or stable hard rock mines (*e.g.*, limestone mines) occur in the project area, they should be surveyed for hibernating bats during the winter. Interior winter hibernacula surveys should be coordinated with the Pennsylvania Game Commission. Survey results should be submitted to the Service for review and concurrence. If caves or hard rock mines cannot be safely entered, their openings should be surveyed as described above.

Prior to conducting any survey, however, the Pennsylvania Game Commission should be contacted to determine whether or not they have surveyed the cave/mine in the past. If adequate surveys have been conducted in the recent past, this may preclude the need to conduct additional surveys.

Should Indiana bats be found during any survey, further consultation with the Service will be necessary, including the submission of detailed project plans, and an analysis of alternatives to avoid and minimize adverse effects.

Northern long-eared bat

The northern long-eared bat *(Myotis septentrionalis)* was proposed for listing as an endangered species on October 2, 2013. No critical habitat has been proposed at this time. Species proposed for listing are not afforded protection under the ESA; however, as soon as a listing becomes effective, the prohibition against jeopardizing its continued existence and "take"[1] applies **regardless of an action's stage of completion.** Therefore, to avoid significant project delays we recommend that the effect of the project on northern long-eared bats, and their habitat, be considered during the project planning and design. Additional information about northern long-eared bats, including ecology; habitat descriptions; listing status updates; and possible conservation measures may be found at: *www.fws.gov/midwest/endangered/mammals/nlba/index.html* (click on Northern Long-eared Bat Interim Conference and Planning Guidance). We are available to discuss potential conservation measures specific to your project design.

Assessment of Risks to Migratory Birds including Bald and Golden Eagles

The Service is the principal Federal agency charged with protecting and enhancing populations and habitat of migratory bird species. The Migratory Bird Treaty Act (MBTA) prohibits the taking, killing, possession, transportation, and importation of migratory birds, their eggs, parts, and nests, except when specifically authorized by the Department of the Interior. While the MBTA has no provision for authorizing incidental take, the Service recognizes that some birds may be killed even if all reasonable measures to avoid take are implemented.

The potential exists for avian mortality from habitat destruction and alteration associated with vegetation clearing and fragmentation within the project boundaries. Resources are available to assist you in determining which species are likely to be present within your project area (see attached enclosure) to determine appropriate conservation measures to reduce impacts to migratory birds. Site-specific factors that should be considered in project siting to avoid and minimize the risk to birds include avian abundance; the quality, quantity and type of habitat; geographic location; type and extent of bird use (*e.g.* breeding, foraging, migrating, etc.); and landscape features. Please review the enclosed information for general recommendations for avoiding and minimizing impacts to migratory birds within and around the project area. Be aware that since these are general guidelines, some of them may not be applicable or may have already been included in the project design.

[1] As defined in the Act, take means ". . . to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct." "Harm" in the definition of take means an act which kills or injures wildlife. Such act may include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering (50 CFR part 17.3). "Harass" means an intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding, or sheltering.

Your project is located in the vicinity of the following Important Bird Areas (IBAs): North Mountain – Ricketts Glen State Park, Saint Anthony's Wilderness – SGL 211, Hawk Mountain and Kittatinny Ridge, and the Lower Susquehanna River Gorge – Conewingo/Muddy Run. IBAs are designated by the Pennsylvania Ornithological Technical Committee. They are the most critical regions in the Commonwealth for conserving bird diversity and abundance, and are the primary focus of Audubon Pennsylvania's conservation efforts. To find out more information about this IBA, including which bird species breed there, visit: http://netapp.audubon.org/IBA/State/US-PA

In addition to protection under the MBTA, bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (Eagle Act). The Eagle Act protects eagles by prohibiting killing, selling, disturbing, or otherwise harming eagles, their nests or eggs. "Disturb" means to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, 1) injury to an eagle; 2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior; or 3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior.

Bald eagles (*Haliaeetus leucocephalus*) are known to nest near the project area. Particularly, with the project crossing numerous large river systems and being adjacent to numerous bald eagle populations on the lower Susquehanna River, we recommend that you evaluate the project type, size, location and layout in light of the *National Bald Eagle Management Guidelines* to determine whether or not bald eagles might be disturbed as a direct or indirect result of this project. If it appears that disturbance may occur, we recommend that you consider modifying your project consistent with the *Guidelines*. These guidelines, as well as additional eagle information, are available at http://www.fws.gov/northeast/ecologicalservices/eagle.html. To assist you in making a decision regarding impacts to bald eagles, a screening form can be found at http://www.fws.gov/northeast/pafo/bald_eagle.html

Streams and Wetlands

Work in streams or wetlands requires permits from the Pennsylvania Department of Environmental Protection and the U.S. Army Corps of Engineers. Unless the activities fall under general or nationwide permits, the Service will review project applications, and may concur (with or without stipulations) or object to the proposed work, depending on project effects on fish and wildlife resources. Therefore, we offer the following general recommendations to avoid and minimize impacts within and around the project area.

Preventing direct water contamination – Water contamination can be one of the most damaging and difficult to control environmental impacts that can result from a project. In order to avoid these impacts, we recommend:

- Using directional boring rather than open cuts under streams to avoid impacts at the point of crossing
- Refueling construction equipment outside the 100 year floodplain and protecting the refueling area with secondary containment

- Storing hazardous materials, fuel, lubricating oils, or other chemicals outside the 100-year floodplain, at an upland site
- Inspecting and maintaining equipment daily to prevent the contamination of surface waters from leaking fuels, lubricants, or other toxic materials
- Keeping equipment out of streams by operating from the banks in a fashion that minimizes disturbance to woody vegetation
- Pipeline stream crossings should be near perpendicular to stream flow

Protecting the floodplain and streamside forest - Streamside forests provide travel corridors and habitat for wildlife and protect water quality by stabilizing stream banks and filtering storm-water runoff. Development in the floodplain increases the potential for flooding adjacent and downstream properties and interferes with natural hydrological processes. In order to protect these important and sensitive stream-side areas, we recommend:

- Limiting activities in the floodplain to those absolutely necessary for construction
- Maintaining riparian vegetation to the maximum extent possible, especially large trees
- If riparian areas are disturbed, revegetating them with native species as soon as possible
- Locating areas used for borrow or construction by-products away from wetlands and out of the 100-year flood plain
- Maintaining forested wetland/stream buffers throughout the project area
- Keep all utility crossings to a minimum, and all utility infrastructure should be kept out of riparian buffer areas

Preventing or minimizing erosion – While soil forms the foundation of life on land, it becomes a pollutant in water, eliminating habitat and species. In order to minimize the amount of soil that enters a stream during the construction of a project, we recommend:

- Installing all erosion-control measures prior to starting ground-disturbing activities
- Frequently maintaining erosion-control measures
- Returning existing approaches to preconstruction contours upon completion of the project, and planting the area with native grasses and tree species.
- Planting temporary (e.g., rye, grain, wheat, millet) or permanent herbaceous material to help control erosion immediately following any ground-disturbing activity (native annual small grains and herbs appropriate for the season is recommended. Invasive, exotic species (including fescue) should be avoided).

Reseeding - Native plant species provide the keystone elements for ecosystem restoration and, in most cases, form self-sustaining plant communities that do not require much maintenance. Because they are adapted to a local region, native plants tend to resist damage from freezing, drought, common diseases, and herbivores if planted in that same local region.

- Based on recommendations from Pennsylvania Game Commission and our own observations, we discourage the use of annual ryegrass (*Lolium multiflorum*) as a cover crop. It reseeds heavily and competes with native seedlings. To meet the rapid revegetation requirements for E&S control, we recommend use of cereal oats (*Avena sativa*) if the planting occurs from spring through summer or grain (cereal) rye (*Secale cereale*) if the planting occurs from early fall through winter. The seasonal split is based

on germination temperature tolerances for each. The benefit of both of these species is that they don't reseed heavily which results in less competition for the native seedlings.

- For more permanent stability, we recommend the use of native wild rye such as riverbank, Canadian, or Virginia wild rye (*Elymus riparius*, *E. canadensis*, or *E. virginicus*, respectively). These species are usually used in conjunction with a native legume such as the partridge pea (*Chamaecrista fasciculata*), if nitrogen fixation is desirable.
- For disturbed upland areas (and as a buffer around riparian corridors) we recommend that you consider a mixture of native warm-season grasses, including big bluestem (*Andropogon gerardii*), little bluestem (*Schizachyrium scoparium*), and Indian grass (*Sorghastrum nutans*).

To avoid potential delays in reviewing your project, please use the above-referenced USFWS project tracking number in any future correspondence regarding this project.

If you have any questions regarding these comments, please contact Pamela Shellenberger of my staff at 814-234-4090.

Sincerely,

Lora L. Zimmerman
Field Office Supervisor

Enclosures

From:	Zoladz, Justin A.
To:	"pamela_shellenberger@fws.gov"
Cc:	"jotaucher@pa.gov"; "Allen, Anne"; Harford, Amanda; Netti, Gregory; Smith, Rachel; Donnelly, Mike; ryann@whmgroup.com; Chris Sanders (sanders@batgate.com)
Subject:	Atlantic Sunrise Project Bat Habitat Assessment and Draft Work Plan (USFWS Project # 2014-0324)
Date:	Friday, May 9, 2014 8:02:00 PM
Attachments:	Bat Habitat Assessment and Survey Plan_USFWS Cover Letter_Atlantic Sunri....pdf

Pam,

Per my voice message earlier today, E & E, on behalf of Transco, is submitting an Indiana and Northern Long-eared Bat Phase 1 Habitat Assessment and Phases 2 and 4 Draft Work Plan for the Atlantic Sunrise Project (USFWS Project Number: 2014-0324). Due to the document size, the file has been posted to our FTP site (see access instructions below). A hardcopy of the document will be mailed to your attention; a copy will also be sent to the Pennsylvania Game Commission. The cover letter to accompany this submittal is attached.

Please note that two separate files have been posted to the FTP site for your review: the Phase 1 habitat assessment and Phases 2 and 4 Draft Work Plan; and GIS shapefiles of the habitat assessment results and proposed survey segments. The GIS shapefiles will be provided on compact disc with the hard copy submittal.

Please do not hesitate to contact me if you have any questions regarding this submittal.

Regards,

Justin

Instructions for FTP Site Access

http://its.ene.com
Username: ene
Password: sharedftp
Folder: Atlantic Sunrise
Subfolders: Bat Habitat Assessment and Survey Plan; GIS Data

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May 9, 2014

Pamela Shellenberger
U.S. Fish and Wildlife Service
Pennsylvania Field Office
315 South Allen Street, Suite 322
State College, PA 16801

Re: Atlantic Sunrise Project
USFWS Project No. 2014-0324

Dear Ms. Shellenberger:

This correspondence is a continuation of Transcontinental Gas Pipe Line Company, LLC's (Transco) consultation with your office regarding the proposed Atlantic Sunrise Project (Project). In a letter dated April 28, 2014, your office stated that the Project area is located within the range of the federally endangered Indiana bat (*Myotis sodalis*) as well as the northern long-eared bat (*Myotis septentrionalis)*, a species proposed for listing as endangered. The U.S. Fish and Wildlife Service (USFWS) has requested that Transco complete a bat survey within any areas associated with Project components that require clearing of forested habitat.

Ecology and Environment, Inc. (E & E), on behalf of Transco and with the support of our subcontractor WHM Consulting, Inc., has completed the enclosed Phase 1 summer habitat assessment to identify potential Indiana and northern long-eared bat habitat within the Project area. The enclosed Work Plan for Phase 2 Presence/Absence (P/A) Surveys and Phase 4 Radio-tracking Studies documents Transco's proposed methodology for conducting bat surveys. The goals of these surveys are to determine P/A of federally listed or potentially listed bat species along the proposed Project route, document habitat usage, and locate maternity roosts. At this time, based on USFWS recommendations, and the likely listing of the northern long-eared bat as federally endangered by October 2014, Transco plans to treat the northern long-eared bat as a listed species and conduct P/A surveys for both species concurrently.

Transco proposes to follow USFWS's *2014 Range-wide Indiana Bat Summer Survey Guidelines* (January 2014) (USFWS Guidelines), the *Northern Long-eared Bat Interim Conference and Planning Guidance* (January 2014) (NLEB Guidance), and the Pennsylvania Game Commission's (PGC's) *Standard and Minimum Effort Requirements for Qualified Bat Surveyor Netting within the Commonwealth of Pennsylvania for Environmental Review Projects* (PGC Requirements). WHM Consulting, Inc.'s subcontractor Sanders Environmental (PGC Permit No. 31961) will conduct the Phase 2 P/A Surveys and Phase 4 Radio-tracking Studies.

As stated and explained in more detail in the enclosed work plan, Transco is in the process of finalizing the location of the greenfield portions of the pipeline alignments and developing associated workspace configurations. Consequently, the survey segments identified in the work plan are subject to minor alternations in response to adjustments in the alignment to reflect site-specific conditions. Both the habitat assessment and draft work plan have been developed in a manner to expedite agency approval for changes to planned survey segments. **Therefore, E & E is requesting USFWS (and PGC) to approve the methodology used to identify survey segments to account for any routing or workspace shifts prior to P/A surveys taking place.** Approving the methodology to identify survey segments, as well as the Phase 1 analysis results, will allow for real-time adjustments to P/A survey level of effort without time consuming approvals on a case-by-case basis.

Please let me know if any additional information is required to receive concurrence for the proposed survey activities from your office. Please do not hesitate to contact me by phone at 716-684-8060, or by email at jzoladz@ene.com.

Sincerely,
ECOLOGY AND ENVIRONMENT, INC.

Justin A. Zoladz
Biologist

cc: John Taucher, PGC
Anne Allen, Transco
Amanda Harford, Transco
Greg Netti, E & E
Rachel Smith, E & E
Mike Donnelly, E & E
Ryan Nelson, WHM
Chris Sanders, Sanders Environmental

Enclosures: Phase 1 Habitat Assessment and Phases 2 and 4 Draft Work Plan

From: Zoladz, Justin A.
To: "pamela_shellenberger@fws.gov"
Cc: "jotaucher@pa.gov"; "Allen, Anne"; "Harford, Amanda"; Netti, Gregory; Smith, Rachel; Donnelly, Mike; ryann@whmgroup.com; Chris Sanders (sanders@batgate.com)
Subject: RE: Atlantic Sunrise Project Bat Habitat Assessment and Draft Work Plan (USFWS Project # 2014-0324)
Date: Tuesday, May 13, 2014 12:13:00 PM

Pam,

After close review of the data over the weekend, one location was found where a small number of suitable habitat polygons were inadvertently deleted from the dataset. As a result, there was a minor increase in the level of effort and acreage of suitable habitat on CPL North.

We have corrected this error both in the shapefiles and in the report, which have been re-posted to the same FTP site. The hard copy document in the mail was also corrected prior to being sent out on Monday.

Please re-download the updated report and shapefiles from the FTP site listed below.

Again, please do not hesitate to contact me if you have any questions regarding this submittal.

Regards,

Justin Zoladz, Biologist
Ecology and Environment, Inc.
368 Pleasant View Drive, Lancaster, NY 14086
Phone: 716-684-8060 x2608 | Mobile: 716-560-4585
Fax: 716-684-0844
jzoladz@ene.com | www.ene.com

From: Zoladz, Justin A.
Sent: Friday, May 09, 2014 8:02 PM
To: 'pamela_shellenberger@fws.gov'
Cc: 'jotaucher@pa.gov'; 'Allen, Anne'; Harford, Amanda; Netti, Gregory; Smith, Rachel; Donnelly, Mike; ryann@whmgroup.com; Chris Sanders (sanders@batgate.com)
Subject: Atlantic Sunrise Project Bat Habitat Assessment and Draft Work Plan (USFWS Project # 2014-0324)

Pam,

Per my voice message earlier today, E & E, on behalf of Transco, is submitting an Indiana and Northern Long-eared Bat Phase 1 Habitat Assessment and Phases 2 and 4 Draft Work Plan for the Atlantic Sunrise Project (USFWS Project Number: 2014-0324). Due to the document size, the file has been posted to our FTP site (see access instructions below). A hardcopy of the document will be mailed to your attention; a copy will also be sent to the Pennsylvania Game Commission. The cover letter to accompany this submittal is attached.

Please note that two separate files have been posted to the FTP site for your review: the Phase 1 habitat assessment and Phases 2 and 4 Draft Work Plan; and GIS shapefiles of the habitat

assessment results and proposed survey segments. The GIS shapefiles will be provided on compact disc with the hard copy submittal.

Please do not hesitate to contact me if you have any questions regarding this submittal.

Regards,

Justin

Instructions for FTP Site Access

http://its.ene.com
Username: ene
Password: sharedftp
Folder: Atlantic Sunrise
Subfolders: Bat Habitat Assessment and Survey Plan; GIS Data

Justin Zoladz, Biologist
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Indiana and Northern Long-eared Bat Phase 1 Habitat Assessment and Phase 2 and Phase 4 Draft Work Plan

Atlantic Sunrise Project

USFWS Project Number: 2014-0324

May 2014

Prepared for:

Transcontinental Gas Pipe Line Company, LLC (Transco)

Prepared by:

ECOLOGY AND ENVIRONMENT, INC.
368 Pleasant View Drive
Lancaster, New York 14086

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List of Abbreviations and Acronyms

BI	Bat Identifier
CD	compact disk
Certificate	Certificate of Public Convenience and Necessity
CPL	Central Penn Line
E & E	Ecology and Environment, Inc.
FERC	Federal Energy Regulatory Commission
GIS	geographic information system
ID	identification
LOE	level of effort
MAOP	maximum allowable operating pressure
MHz	megahertz
MLV	mainline valve
MP	milepost
NAIP	National Agriculture Imagery Program
NLEB Guidance	*Northern Long-eared Bat Interim Conference and Planning Guidance*
P/A	presence/absence
PA QBS	Pennsylvania Qualified Bat Surveyor
PGC	Pennsylvania Game Commission
Project	Atlantic Sunrise Project
psig	pounds per square inch gauge
QBS	Qualified Bat Surveyor
ROW	right-of-way
T&E	threatened and endangered
Transco	Transcontinental Gas Pipe Line Company, LLC
USFWS	U.S. Fish and Wildlife Service
Williams	Williams Partners L.P.

1 Introduction

1.1 Project Description

Transcontinental Gas Pipe Line Company, LLC (Transco), a subsidiary of Williams Partners L.P. (Williams), is proposing the Atlantic Sunrise Project (Project) to add 1,700,000 dekatherms per day of pipeline capacity to the Transco natural gas transmission system. The Project will consist of compression and looping of the Transco Leidy Line system in Pennsylvania along with a new, greenfield pipeline segment, referred to as the Central Penn Line (CPL), connecting the northeastern Marcellus Shale natural gas production region to the existing Transco mainline near Station 195 in southeastern Pennsylvania. The Project consists of the following primary components:

- Approximately 177.3 miles of new 30-inch and 42-inch diameter greenfield pipelines in Pennsylvania;
- Approximately 12.0 miles of new 36-inch and 42-inch diameter pipeline loops in Pennsylvania;
- Two new compressor stations in Pennsylvania;
- Additional ancillary facilities, such as mainline valves (MLVs), cathodic protection, communication towers, and internal inspection device launchers and receivers in Pennsylvania;
- Additional compression and related modifications to three existing compressor stations in Pennsylvania, Maryland, and Virginia;
- Two new meter stations with interconnecting piping in Pennsylvania;
- Three new regulator stations with interconnecting piping in Pennsylvania;
- Approximately 2.52 miles of 30-inch diameter pipeline replacements in Virginia;
- Modifications to six existing compressor stations that enable compression for bi-directional flow, and/or supplemental odorization, odor detection, and/or odor masking/deodorization equipment in Maryland, Virginia, and North Carolina; and
- Supplemental odorization, odor detection, and odor masking/deodorization equipment, at various meter stations, and valve sites in North Carolina and South Carolina.

On March 31, 2014, Transco requested that the Federal Energy Regulatory Commission (FERC) initiate a pre-filing environmental review of the proposed Project. FERC accepted Transco's pre-filing request and assigned the Project pre-filing docket number PF14-8. Should FERC grant a Certificate of Public Convenience and Necessity (Certificate) for the Project and upon receipt of necessary permits and authorizations, Transco anticipates construction of the Project would commence in June 2016 to meet an in-service date of July 1, 2017.

1.2 Agency Consultation

Ecology and Environment, Inc. (E & E), on behalf of Transco, submitted a letter to the U.S. Fish and Wildlife Service (USFWS), Pennsylvania Field Office, on March 7, 2014, requesting information on threatened and endangered (T&E) species in the Project area. In a response letter dated April 28, 2014, the USFWS stated that the Project area is located within the range of the federally endangered Indiana bat (*Myotis sodalis*) as well as the range of the northern long-eared bat (*Myotis septentrionalis)*, a species proposed for listing as endangered (Zimmerman 2014). The USFWS Pennsylvania Field Office requested that E & E perform a bat survey within areas of suitable habitat associated with the Project that require tree clearing.

The Pennsylvania Game Commission (PGC) was also contacted by E & E for information regarding state-listed threatened and endangered species. In a letter dated April 3, 2014, the PGC stated that the Project has the potential to impact the Indiana bat and northern long-eared bat. As stated in PGC's response letter, the PGC defers comments on potential impacts to Indiana bats to the USFWS (Taucher 2014).

1.3 Scope of Bat Surveys

At this time, Transco has identified the need for tree clearing on the following Project components in Pennsylvania: CPL North, CPL South, Chapman Loop, and Unity Loop. Each Project component is shown on Figure 1 and described below.

Central Penn Line North

CPL North will consist of approximately 56.1 miles of new 30-inch-diameter natural gas pipeline in Pennsylvania with a maximum allowable operating pressure (MAOP) of 1,480 pounds per square inch gauge (psig). This proposed pipeline will be co-located within or adjacent to Transco's Leidy Line pipeline right-of-way (ROW) for approximately 21.0 miles. CPL North will commence near approximate milepost (MP) L113.8 of the existing Transco Leidy Line pipeline in Columbia County and continue east for approximately 21.0 miles along Transco's Leidy Line A ROW. Near approximate MP 21.0 in Luzerne County, the pipeline will turn northeast, separating from the existing Transco Leidy Line system and continuing for approximately 35.1 miles through Wyoming and Susquehanna counties, Pennsylvania to the proposed receipt meter station at the existing Williams Zick Compressor Station in Susquehanna County.

Central Penn Line South

CPL South will consist of approximately 121.3 miles of new greenfield 42-inch diameter pipeline in Pennsylvania with an MAOP of 1,480 psig. CPL South is currently proposed to commence near approximate MP 1683.0 of the existing Transco Mainline system in Lancaster County and will continue north through Lebanon, Schuylkill, Northumberland, and Columbia counties, Pennsylvania, before reaching its terminus near approximate MP L113.8 of the existing Transco Leidy Line pipeline.

Chapman Loop

The Chapman Loop will consist of approximately 3.0 miles of 36-inch pipeline co-located with the existing Transco Leidy Line in Clinton County, Pennsylvania. Once placed into operation, Transco will refer to the Chapman Loop as the Leidy Line E.

Unity Loop

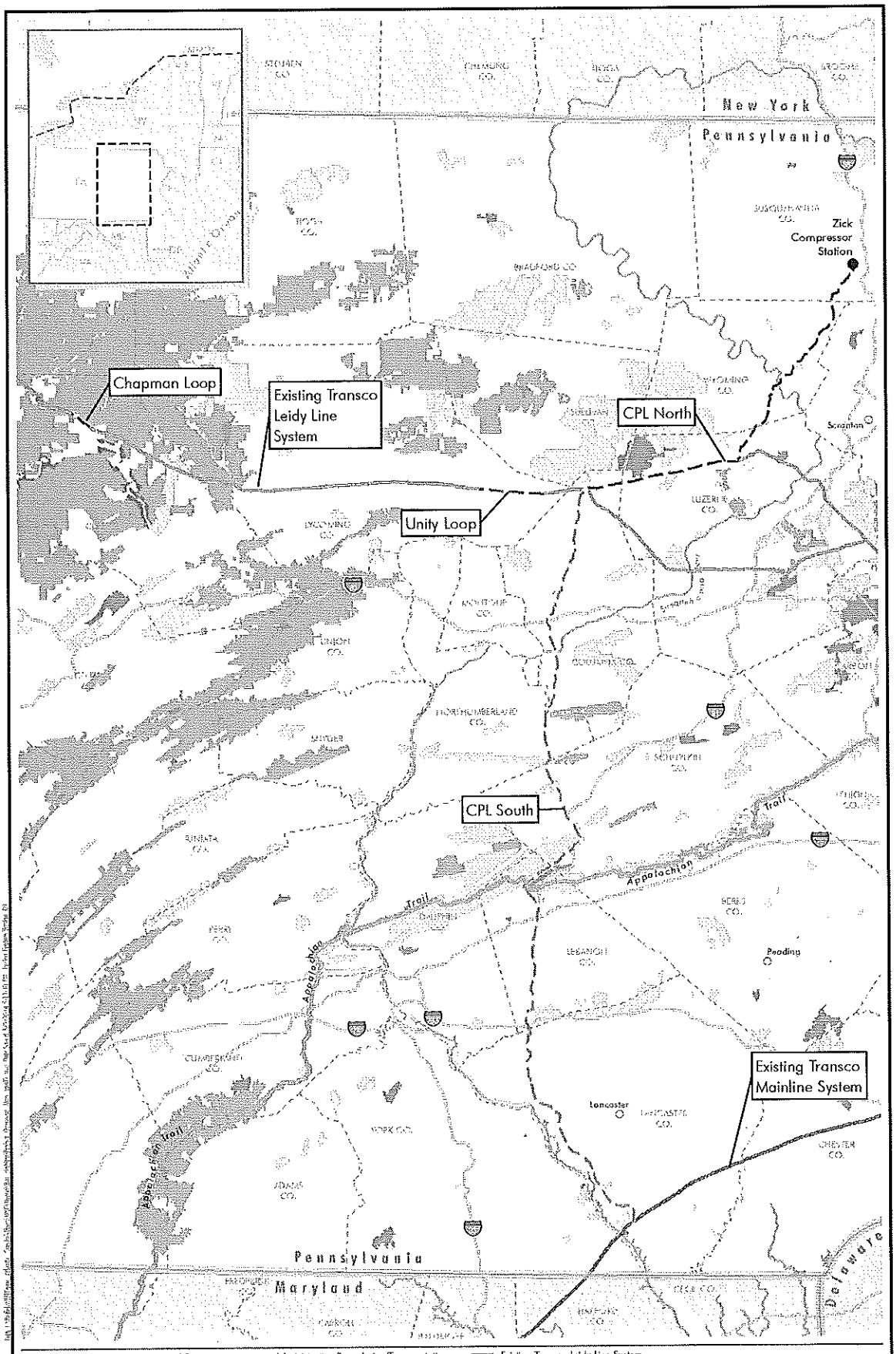
The Unity Loop will consist of approximately 9.0 miles of 42-inch pipeline co-located with the existing Transco Leidy Line pipeline in Lycoming County, Pennsylvania. Once placed into operation, Transco will refer to the Unity Loop as the Leidy Line D.

1.4 Phase 1 Habitat Assessment and Phases 2 and 4 Draft Work Plan

E & E, on behalf of Transco, has conducted a Phase 1 Habitat Assessment and developed a Phase 2 mist-netting presence/absence (P/A) survey and Phase 4 Telemetry study Draft Work Plan for the above Project components in accordance with USFWS's *2014 Range-wide Indiana Bat Summer Survey Guidelines* (January 2014) (USFWS Guidelines; USFWS 2014a) and the *Northern Long-eared Bat Interim Conference and Planning Guidance* (January 2014) (NLEB Guidance; USFWS 2014b), along with the Pennsylvania Game Commission's *Standard and Minimum Effort Requirements for Qualified Bat Surveyor Netting within the Commonwealth of Pennsylvania for Environmental Review Projects* (PGC Requirements). The Phase 1 Habitat Assessment is provided in Section 2 of this document; the Phase 2 and Phase 4 Draft Work Plan is provided in Section 3.

Transco proposes to conduct P/A surveys using only mist-netting. No acoustic P/A surveys will be performed. As such, Phase 3 of the USFWS Guidelines is not addressed in the work plan.

At this time, other proposed facilities to be constructed in Pennsylvania as part of the Project are not expected to require tree clearing and were, therefore, not included in the habitat assessment and work plan. Any changes or additions to the Project will be reviewed to determine if there is any potential impact to rare bat species. If there are any additional potential impacts from any Project changes or additions, a supplemental Phase 1 assessment will be conducted and this work plan will be amended accordingly.



Data Sources: Williams 2014; Mustang 2014; ESRI 2013; DCNR 2013; USGS NHD 2012; PAGC 2006

Figure 1
Proposed Pipeline Facilities Associated with the Atlantic Sunrise Project

2 Phase 1 Habitat Assessment

2.1 Project Area Definition for Phase 1 Habitat Assessment

E & E conducted a desktop Phase 1 summer habitat assessment for each of the four pipeline components of the proposed Project in Pennsylvania: CPL North, CPL South, Chapman Loop, and Unity Loop. Transco is in the process of finalizing the centerline of the greenfield portions of the pipeline routes and developing workspace configurations. As such, the exact clearing limits associated with each proposed pipeline are not known at this time. To facilitate completion of bat surveys during the upcoming survey season, this habitat assessment has been completed within the limits of the survey corridors where the pipelines are planned to be placed and workspace developed. These survey corridors are described below.

- Greenfield Pipeline: Transco is undertaking a comprehensive routing process to identify the centerline of the greenfield portions of the CPL North pipeline (approximately 29.7 miles) and entire CPL South pipeline (approximately 121.3 miles) to minimize environmental impacts as feasible along the route. This is being accomplished by individual routing teams comprised of land, engineering, and environmental specialists evaluating a 600-foot-wide corridor for placement of the centerline. Resource and land use areas of environmental concern (e.g., stream, wetlands, sensitive species habitats, and residences) are being avoided to the maximum extent possible, while engineering design factors, constructability, and safety are considered. Survey crews will begin marking the centerline of the proposed pipelines in May 2014 on those properties where survey access has been granted by the landowners. Crews will mark the centerlines at frequent intervals, as well as at known crossings of foreign lines and utilities, at road crossings, and at points of inflection.
- Co-located Pipeline and Looping: For the portion of the CPL North pipeline co-located with Transco's existing Leidy Line system (approximately 21.0 miles) and the entire Chapman and Unity Loops (approximately 12.0 miles), Transco is completing environmental field surveys within a 300-foot-wide corridor. The workspace to construct these pipelines will be placed within this corridor.

In summary, the Project area for the Phase 1 habitat assessment is defined as a 600-foot-wide corridor for the greenfield portion of CPL North and entire CPL South, and a 300-foot wide corridor for the co-located portion of CPL North and the two proposed pipeline loops.

2.2 Methodology

2.2.1 Summer Roosting and Foraging Habitat

E & E conducted a desktop analysis and digitized all potentially suitable summer habitats within the Project areas identified in Section 2.1. All forested areas, treed windrows, wooded corridors, and individual trees were included as potential suitable summer habitat for both Indiana and northern long-eared bat if it appeared that a stand contained trees or an individual tree appeared to be, greater than 5 inches diameter at breast height. Areas were determined not to be potential suitable summer habitat if they appeared to be scrub/shrub or early successional forest, presumably only containing trees less than 5 inches diameter at breast height. For the purposes of the desktop analysis, it was assumed that any forest block containing individual trees of sufficient size could have exfoliating bark, cracks, crevices, and/or hollows and thus was counted as potentially suitable summer habitat.

Each area identified as having potentially suitable habitat was reviewed using multiple years' worth of aerial imagery. Digitization of individual habitat polygons was conducted at a 1:1,250 scale and based on the ESRI World Imagery ArcGIS Online Basemap layer, which is comprised of primarily 2011 data at 1-foot resolution. This initial digitization was reviewed on a National Agriculture Imagery Program (NAIP) 2013 aerial imagery base layer to account for any recent changes. The primary digitization was not based off the NAIP imagery because it is of lower resolution than the World Imagery. Additionally, Google Earth historic aerial imagery and Bing oblique imagery were used as supplemental data to verify areas that were identified as scrub/shrub and/or early successional forest.

2.2.2 Hibernacula

As requested by the USFWS in its April 28, 2014, a desktop analysis of existing databases was reviewed to determine the potential presence of caves, mines, and portals within the Project areas that could be used during hibernation or alternatively, potentially used as summer roost sites by either the Indiana bat or the northern long-eared bat. Queried features included: bat caves; abandoned mines; coal mining operations; industrial mineral mining operations; other mines, quarries, and plants; anthracite coal mine permits; and karst features. Bat cave data were obtained from Bat Conservation and Management, Inc. Data on mining features, such as abandoned and active mines and quarries, were obtained from Pennsylvania Department of Environmental Protection and United States Geological Survey. Karst features were obtained from the Bureau of Topographic and Geologic Survey, Pennsylvania Department of Conservation and Natural Resources.

2.3 Results

2.3.1 Summer Roosting and Foraging Habitat

In total, approximately 5,139 acres of suitable summer bat habitat were digitized within the Project area survey corridors (see Table 2-1). Since this was a desktop analysis, no Indiana Bat Habitat Assessment Datasheets were completed.

Due to the length of the proposed pipelines, E & E is submitting representative hardcopy mapping showing results of the habitat assessment on aerial base maps. (see Appendix A). Shapefiles containing the results of the habitat mapping for the entire Project area are included on compact disk (CD) in Appendix B.

Table 2-1 Atlantic Sunrise Project - Desktop Bat Habitat Assessment Results

Project Component	County	Acres of Study Corridor	Acres of Suitable Summer Bat Habitat within the Project Area Corridors
CPL North	Columbia	176.31	138.05
	Luzerne	991.28	663.20
	Susquehanna	487.87	200.24
	Wyoming	1,648.83	936.81
	CPL North Total	**3,304.30**	**1,938.29**
CPL South	Columbia	2,433.59	777.47
	Lancaster	2,603.06	623.82
	Lebanon	1,939.10	580.81
	Northumberland	552.75	480.55
	Schuylkill	1,276.52	594.33
	CPL South Total	**8,805.02**	**3,056.99**
Chapman Loop	Clinton County	**111.54**	**60.99**
Unity Loop	Lycoming	**328.81**	**117.48**
Overall Totals		**12,549.67**	**5,173.75**

2.3.2 Hibernacula

Results of the database review for potential bat hibernacula features are provided in Table 2-2. No bat caves were identified, but a small number of abandoned or active mines were identified in existing databases as occurring within the Project area. Of the seven mines identified, six occur along CPL South and one occurs along CPL North. Of these, two are active mines and five are abandoned. Karst features are concentrated along CPL South in Lancaster and Lebanon counties. Of

the 128 karst features identified, 125 of them were surface depressions. The remaining karst features were one sinkhole and two surface mines.

Caves, mines, and portals within the Project area as obtained from existing data sources are included in the shapefiles provided on CD in Appendix B.

Table 2-2 Atlantic Sunrise Project - Caves, Mines, and Portals within the Project Area

Project Component	County	Feature Class	Number of Sites
CPL North	Wyoming	Industrial Mineral Mining Operations	1
	CPL North Total		**1**
CPL South	Lancaster	Karst Features	63
	Lebanon	Karst Features	65
	Northumberland	Abandoned Mines	3
	Schuylkill	Abandoned Mines	2
	Schuylkill	Coal Mining Operations	1
	CPL South Total		**134**
	Overall Total		**135**

Note:
- No features were identified within 150 feet of the proposed centerline on either the Chapman or Unity Loops.
- No caves with documented presence of bats were identified within the Project area.

2.4 Habitat Assessment Preparers

The Phase 1 desktop habitat assessment and the digitization of the polygons of potential suitable summer habitat used to calculate the Phase 2 LOE, was conducted by Justin Zoladz. Mr Zoladz is an associate biologist at E & E, who is a named permittee on E & E's federal native endangered species recovery permit (TE212427-6), which includes Indiana bats (see Appendix C). He is also listed as a Pennsylvania Qualified Bat Surveyor (PA QBS) with the USFWS State College Field Office. Mr. Zoladz received a B.S. in Environmental Science from Canisius College in May 2001. Gregory Coniglio, a Chief GIS Analyst at E & E assisted Mr. Zoladz with the geographic information system (GIS) analysis and Phase 2 LOE determination. Mr. Coniglio has a B.S. in Environmental Science and a M.S. in GIS, both from the State University of New York at Buffalo.

The habitat assessment and draft work plan was reviewed by Christopher Sanders, of Sanders Environmental, Inc. Mr. Sanders has been working with northeastern bats since 1995. Mr. Sanders began his career with bats working part time for the PGC as a biologist's aide under Cal Butchkoski and continued seasonal work with the Commission for 12 years. In 1996 he began performing a variety of contract and grant work (Indiana bat P/A surveys, spring and fall migration, cave and mine gating) centered on bats. Since Sanders Environmental, Inc. was incorporated in 2002, the organization has been surveying 200 to 500 net sites a summer, including some of the largest linear sampling projects in the mid-Atlantic. The

corporation consults and conducts surveys for industry and government, and employs up to 40 individuals per year, working almost exclusively with bats.

3 Phase 2 and Phase 4 Draft Work Plan

3.1 Project Area Definition for Phases 2 and 4 Work Plan

The level of effort (LOE) for the Phase 2 P/A survey was determined by utilizing a 100-foot-wide corridor centered on the current proposed pipeline routes. This 100-foot-wide corridor represents the approximate clearing limits associated with pipeline alignments. Please note that construction workspace for the proposed pipelines will generally range from 75 to 110 feet wide, depending on land use and natural resources present. A general 100-foot-wide construction corridor has been assumed for the development of this work plan.

3.2 Phase 2 Presence/Absence Survey

As outlined in Section 1.4, Phase 2 mist-net P/A surveys must be completed according to protocols established in the USFWS Guidelines, NLEB Guidance, and PGC Requirements. The following subsections focus on the specific methods (desktop or field) used to meet the two protocols, specifically discussing areas where the USFWS Guidelines and PGC Requirements are non-specific or differ for full disclosure of methods prior to sampling.

3.2.1 Level of Effort Determination

The minimum survey LOE was determined by GIS analysis, using a minimum length of 1 kilometer for each survey segment. The length of the centerline where potential suitable summer bat habitat would be impacted was determined using ESRI ArcGIS's "linear referencing." The digitized polygons representing potential suitable summer bat habitat were reduced to a 100-foot corridor centered on the proposed centerline, representing the potential clearing limit necessary for construction. To relate these polygons to their parallel location(s) along the centerline, each vertex on the bat habitat polygons was converted into a GIS point feature. For each of these points, the closest location along the proposed centerline was determined, and added to a table, using the "Locate Features along Routes" tool within ESRI's ArcGIS Desktop 10.2 software. This produces a table listing the location along the centerline that is closest to each polygon vertex, along with the identification (ID) of the original bat habitat polygon. The bat polygon ID is summarized to produce a second table listing the first location along the route, and the last location along the route associated with each particular bat polygon ID. From this summary table, the "Make Route Event Layer" tool (Line option) is used to create a new linear dataset, which represents

only the portion of the centerline that is parallel to a potential suitable summer bat habitat polygon.

Using the data that were generated in the previous step, a custom-written script, developed using an ESRI ArcGIS Desktop 10.2 "ArcObjects" add-in, was used to create the 1-kilometer survey segments where the Phase 2 surveys will be conducted. The script began at the first occurrence of suitable summer bat habitat on the centerline. It then extends forward 1 kilometer along the segment, recording the prior kilometer as the first 1-kilometer segment. If the new location also crossed a suitable summer habitat polygon, the next 1 kilometer was also recorded as a survey segment. If an extension of 1 kilometer resulted in a location that did not cross suitable summer bat habitat on the centerline, then the script continued forward along the centerline until it encountered the next habitat. From here, the program started the next 1-kilometer segment. The final LOE was determined by summing these resulting 1-kilometer segments. Depending on placement, the final segment on the centerline may be less than 1 kilometer.

Table 3-1 lists the number of sites required for each Project component. Due to the length of the proposed pipelines, E & E is submitting representative hardcopy mapping showing anticipated survey segment locations (see Appendix A). Shapefiles containing the locations of anticipated survey segment locations for the entire Project area are included on CD in Appendix B.

Table 3-1 Atlantic Sunrise Project - Level of Effort (Phase 2 Survey Sites) per Project Component

Project Component	County	Kilometers (km) of Project Component	Survey Sites Required Based on Phase 1 Results
CPL North	Columbia	7.69	8
	Luzerne	35.02	34
	Susquehanna	10.75	10
	Wyoming	36.56	35
	CPL North Total	**90.02**	**87**
CPL South	Columbia	53.97	44
	Lancaster	57.67	43
	Lebanon	43.01	34
	Northumberland	12.23	13
	Schuylkill	28.26	24
	CPL South Total	**195.14**	**158**
Chapman Loop	Clinton County	**4.86**	**5**
Unity Loop	Lycoming	**14.40**	**14**
Overall Totals		**304.42**	**264**

3.2.2 Agency Approval for Potential Survey Segment Adjustments

As discussed in Section 2.1, Transco is in the process finalizing the centerline of the greenfield portions of the pipeline alignments and developing associated workspace configurations. Consequently, the survey segments listed in Table 3-1 and shown on mapping and shapefiles provided in Appendices A and B, respectively, are subject to slight alterations if the centerline is adjusted and after workspaces have been finalized. As described below, E & E has developed the habitat assessment and draft work plan in a manner that should expedite agency approval for changes to planned survey segments.

The Phase 1 habitat assessment was completed within the routing and/or field survey corridors of each pipeline route, within which the construction workspace will be located. Potential summer bat habitat that may be impacted by the Project is shown on mapping and shapefiles provided in Appendices A and B, respectively. The custom-written script to calculate LOE can be easily re-calculated for any adjustments to the centerline and/or workspaces. ***Therefore, E & E is requesting USFWS and PGC to approve the methodology of applying the same custom-written script on an as-needed basis to account for any routing or workspace shifts prior to P/A surveys taking place. Approving the methodology of the custom-written script, as well as the Phase 1 analysis results, will allow for real-time adjustments to P/A survey LOE without time consuming approvals on a case-by-case basis.***

3.2.3 Survey Methodology

To meet the requirement of six net-nights per kilometer within suitable habitat, it is anticipated that each survey segment site will have three nets, sampled on two different evenings, consecutive or non-consecutive, depending on weather and access.

To meet PGC requirements, at least two of the three nets per site will consist of three or more stacked nets and be greater than 30 meters apart. The third net will be sampled to USFWS standards, and may be within 30 meters of other nets as the USFWS guidance has no minimum spacing requirements. This will allow sampling of river corridors greater than 18 meters wide by using two triple-high nets to cover such areas.

3.2.4 Schedule

The tentative survey schedule to conduct the surveys is between May 21, 2014, (or as soon as the Work Plan is approved) to August 15, 2014, and May 15, 2015, to August 15, 2015. The survey period for the entire Project will extend over two field seasons. Due to the nature of the Project, it is not anticipated that full land access will be acquired this calendar year. The goal is to survey as many of the sites during the 2014 season as possible. It is assumed that approximately 75% of the sites will be surveyed in 2014 and the remaining 25% will be surveyed in 2015.

3.2.5 Survey Personnel

In accordance with the USFWS Guidelines, a qualified biologist (on the PA QBS list) will select/approve mist-netting areas that are most suitable for capturing Indiana and northern long-eared bats. A Pennsylvania Qualified Bat Surveyor (QBS) or Bat Identifier (BI) will be present at each site and will confirm all bat species identifications. The PGC Special Use Permit and a tentative list of surveyors (listed as sub-permitees on the permit) is provided as Appendix C. Each site run by a BI will be inspected by a QBS during sampling. Any T&E bat captures will be verified by two permitted biologists if logistically possible within acceptable holding times (1 hour per PGC Requirements). When a QBS leaves their own site in order to inspect BI sites, verify T&E species, and to aid in the placement of a radio transmitter on T&E species, the site will be managed by an assistant for a short period of time (1 hour or less).

3.2.6 Site Placement

The exact location of the site(s) within the survey segment will be determined in the field by a QBS based on access, actual habitat present, and best mist-netting locations. Net sites will be placed as close to the proposed construction corridor as practicable, provided there are adequate corridors or other suitable features for mist-netting setups. However, as stated in the USFWS Guidelines, "*in some cases, the most suitable habitat for effectively conducting surveys may occur outside a project site boundary and may be sampled if landowner permission is available.*" USFWS will be notified if any netting site would be more than 200 meters from the proposed ROW so that any significant deviation could be pre-authorized. Such sites would only be surveyed with consent of the landowner.

3.2.7 Net Placement

Net placement will focus on corridors (natural or man-made) through forested stands. These may include existing access roads, waterways, and wildlife trails. To increase survey efficacy for northern long-eared bats, nets will be placed in forested areas with small or no trails. In addition, and based on the best professional judgment of the QBS, nets extending from dense woodlots into large fields may be used.

3.2.8 Survey Timing

The survey period for each net shall begin at dusk and continue for a minimum of 5 hours. Each site will be sampled for two full nights, consecutive or non-consecutive, under appropriate weather conditions.

3.2.9 Weather

The USFWS Guidelines require that half or more of the 5-hour survey period with negative results be free from adverse weather conditions for the survey night to count as a successful sample night. The USFWS Guidelines define adverse weather conditions as temperatures that fall below 50°F (10°C); precipitation, including rain and/or heavy fog, that exceeds 30 minutes or continues intermittently during the survey period; and sustained wind speeds greater than 9 miles per hour (4 meters/second; 3 on the Beaufort scale). The PGC Requirements

require 5 hours of sampling free from adverse weather conditions and call for extending the survey period if needed to reach 5 hours of good sampling time that is free from adverse weather conditions. As the PGC Requirements for weather and sample period are significantly more stringent then USFWS Guidelines, the PGC Requirements shall be followed and a night counted if at least 5 hours of sampling free from adverse conditions is achieved.

3.2.10 Monitoring Nets

Surveyors will monitor each mist-net by walking between nets at approximately 10-minute intervals and never exceeding 15 minutes between observations. There will be no other disturbance near the nets, other than checking nets and removing bats.

3.2.11 Notifications

If an Indiana bat is captured, the USFWS Pennsylvania Field Office will be notified within 48 hours. The USFWS Pennsylvania Field Office will also be notified of each northern long-eared bat capture of this species unless directed otherwise, as Transco will treat the northern long-eared bat as if it is already listed. All bats captured that are identified as Indiana bats and northern long-eared bats will be photo documented. Although USFWS Guidelines state that only the first 10 little brown bats (*Myotis lucifugus*) need to be photographed for the Project, in order to verify the identifications made in the field, the Project will commit to photo-documenting all bats in the genus *Myotis*, as long as large capture numbers at an individual site do not prevent processing of individuals in a reasonable timeframe.

3.3 Phase 4 Radio-Tracking

3.3.1 Telemetry

If Indiana or northern long-eared bats are captured, the Project proposes to proceed directly into a Phase 4 radio-tracking study. A QBS who is experienced in handling Indiana bats and attaching radio transmitters will perform transmitter attachments to both Indiana and northern long-eared bats. Radio transmitters will be attached between the shoulder blades of the bat using surgical glue. In accordance with USFWS Guidelines, the radio transmitter, adhesive, and any other markings (e.g., wing bands) will typically not weigh more than 5% of pre-attachment body weight, and never exceed 10% of the bat's total body weight. For pregnant bats, this rule will be applied to their non-pregnant weight (the average weight of non-pregnant females of the same species in the area). If there are no transmitters available on site that are $\leq$ 10% of the bat's body weight, the bat will be released without a radio transmitter. In accordance with PGC requirements, all transmitters will be at 172 megahertz (MHz).

Additionally, PGC has required that radio-tracking studies collect foraging data of all (males, females, juveniles, and adults) small-footed bats (*Myotis leibii*), all Indiana bats, reproductive female and juvenile silver-haired bats (*Lasionycteris noctivagans*), and all Seminole bats (*Lasiurus seminolus*). Per PGC Requirements, a maximum of six bats in aggregate will be tracked for foraging data.

Up to 30 bats in aggregate, a combination of either the federally endangered Indiana bat, the proposed federally endangered northern long-eared bat, or the additionally required PGC species, will be radio-tracked to their roost and have exit counts conducted when accessible. Six of these bats, a subset of the 30, will be tracked for foraging studies, per PGC Requirements. To assure an even distribution of effort, no more than four individual bats will be radio-tracked per county. With the exception of the additional species required by the PGC Requirements, radio-tracking will focus on reproductive female and juvenile Indiana and northern long-eared bats. No more than a total of five males of either Indiana or northern long-eared bats will be radio- tracked for the entire Project. No more than one male of each species will be radio-tracked per county.

A QBS or biological technician(s) under QBS supervision will track all radio-tagged bats to diurnal roosts when accessible. When bats appear to be roosted on properties not associated with the Project, Transco land agents will attempt to gain access. When access cannot be attained, the approximate roost location will be triangulated from accessible areas such as public roads, public property, or adjacent accessible parcels. Tracking shall continue until the transmitter fails, fall off, or cannot be located for a total of at least seven days. Emergence count surveys will be conducted a minimum of two evenings at each identified roost which is on accessible property. Bat emergence surveys will begin one half hour before sunset and continue until at least one hour after sunset or until it is otherwise too dark to see emerging bats.

In addition to the USFWS Guidelines, PGC requirements include a minimum of three full nights of foraging studies on up to six radio-tagged Indiana, small-footed, silver-haired, or Seminole bats. As such, the Project will conduct up to six of these studies. To ensure an even distribution, no more than one foraging study will be conducted per county. To ensure there is foraging study effort reserved for Indiana bats, the Project will conduct no more than two of these studies on either a silver-haired or Seminole bat and no more than two studies on small-footed bats. If no small-footed, silver-haired, or Seminole bats are captured, or if six suitable Indiana bats are captured first, in six different counties, all six studies may be performed on Indiana bats. The Project does not plan on using aircraft-mounted telemetry receivers.

3.4 Cave, Mine, and Portal Surveys

Additionally, all sites identified during the desktop analysis of caves, mines, and portals within the Project areas will be field-inspected to determine if potentially suitable hibernacula exist. These will be inspected during other biological surveys, such as wetland delineations, when field teams are in proximity of these sites. If the site is off accessible property, it will be assessed as best as possible from the adjacent property.

Following PGC Requirements, these, and any other incidentally encountered mines, caves, or portals will be assessed as followed to determine if they are potentially suitable hibernacula.

In general, a cave or mine opening can be dismissed from fall bat surveys under any of the following circumstances:

- There is only one horizontal opening, and it is less than 6 inches in diameter, and no or very little airflow is detected;
- The opening is a vertical shaft less than 1 foot in diameter;
- The passage continues less than 50 feet and terminates with no fissures that bats can access*;
- The mine is prone to flooding, collapsed shut and completely sealed, or otherwise inaccessible to bats; or
- It is a "new" opening, which has occurred recently (less than 1 year old) due to subsidence.

  * Due to safety concerns, biologists will not enter any caves or mines to determine if they are more than 50 feet deep. For the purpose of this survey, if the back of the cave or mine cannot be seen from the entrance, it will be assumed to be a suitable hibernacula and surveyed appropriately in the fall.

Any opening identified as potential bat hibernacula will be surveyed between September 15 and October 15, in accordance with PGC Requirements. E & E will coordinate with PGC to develop a new work plan specific to these fall surveys and attain a special use permit specific to this effort, if necessary. If there are any positive results at locations safe for entry, the Project will coordinate with the PGC to conduct an interior winter hibernacula study. It should be noted that this protocol for hibernacula survey deviates from the USFWS-issued NLEB Guidance to reflect with PGC protocols, as the survey dates between the two documents are slightly different. E & E integrated this specific protocol to reflect the response letter received from the USFWS Pennsylvania Field Office, which specifically deferred to the PGC protocol.

3.5 Precautions for White Nose Syndrome

All surveyors will follow the disinfection protocol for bat field studies issued by the USFWS.

4 References

Pennsylvania Game Commission (PGC). 2014. Standard and Minimum Effort Requirements for Qualified Bat Surveyor Netting within the Commonwealth of Pennsylvania for Environmental Review Projects. 4-4-14 revision. Pennsylvania Game Commission. Harrisburg, Pennsylvania.

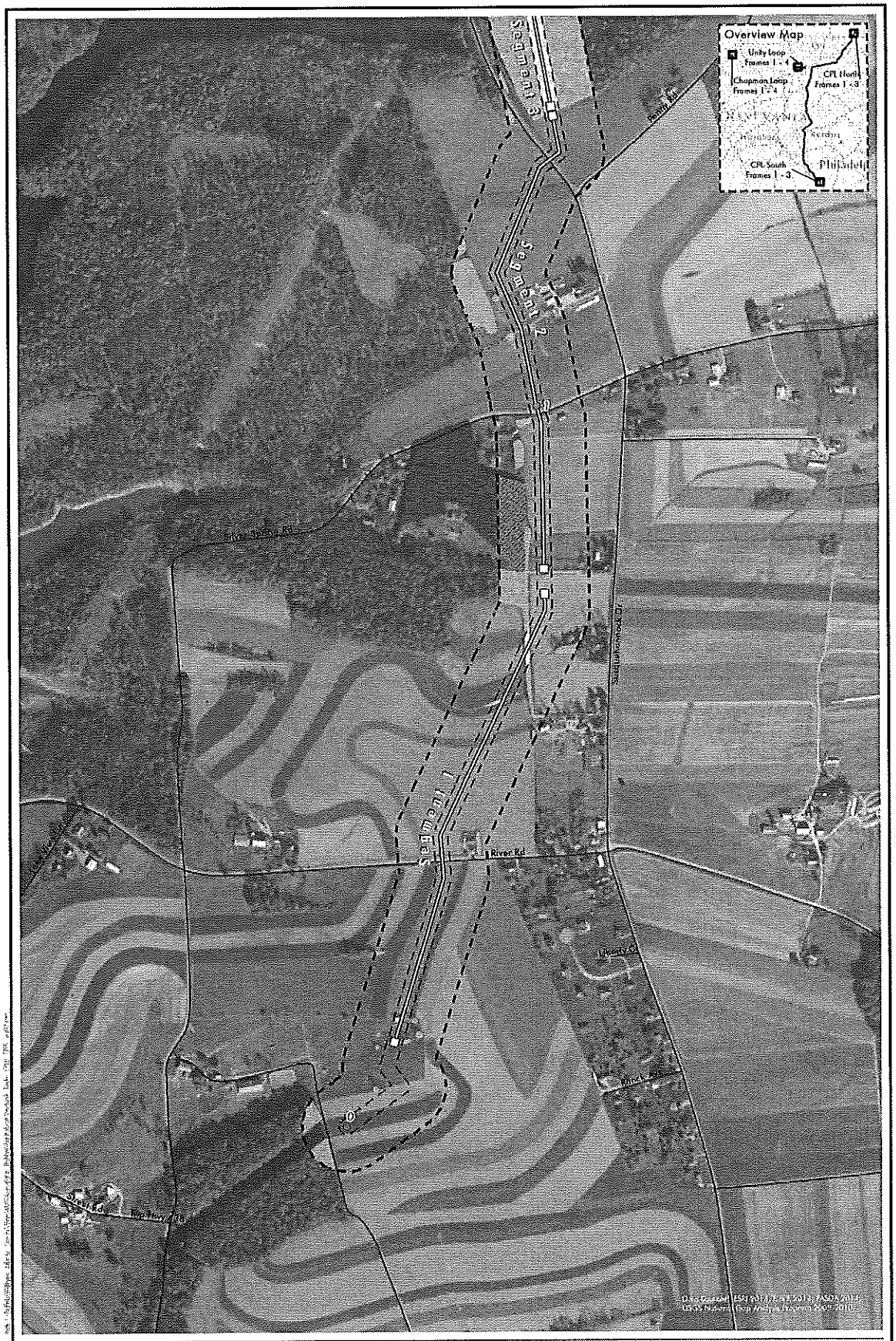
Taucher, J. 2014. Division of Environmental Planning & Habitat Protection Bureau of Wildlife Habitat Management. Letter to Rachel Smith of Ecology and Environment, Inc., regarding PGC ID Number: 201403110501 dated April 3, 2014.

United States Fish and Wildlife Service (USFWS). 2014a. 2014 Range-wide Indiana Bat Summer Survey Guidelines. January 13, 2014. Available at: http://www.fws.gov/midwest/endangered/mammals/inba/inbasummersurveyguidance.html. Accessed January 15, 2014.

United States Fish and Wildlife Survey (USFWS). 2014b. *Northern Long-eared Bat Interim Conference and Planning Guidance*. January 6, 2014. Available online at: http://www.fws.gov/midwest/endangered/mammals/nlba/index.html. Accessed on January 7, 2014.

Zimmerman, L. 2014. Field Office Supervisor. Letter to Rachel Smith of Ecology and Environment, Inc. regarding USFWS Project No. 2014-0324; T&E Response dated April 28, 2014.

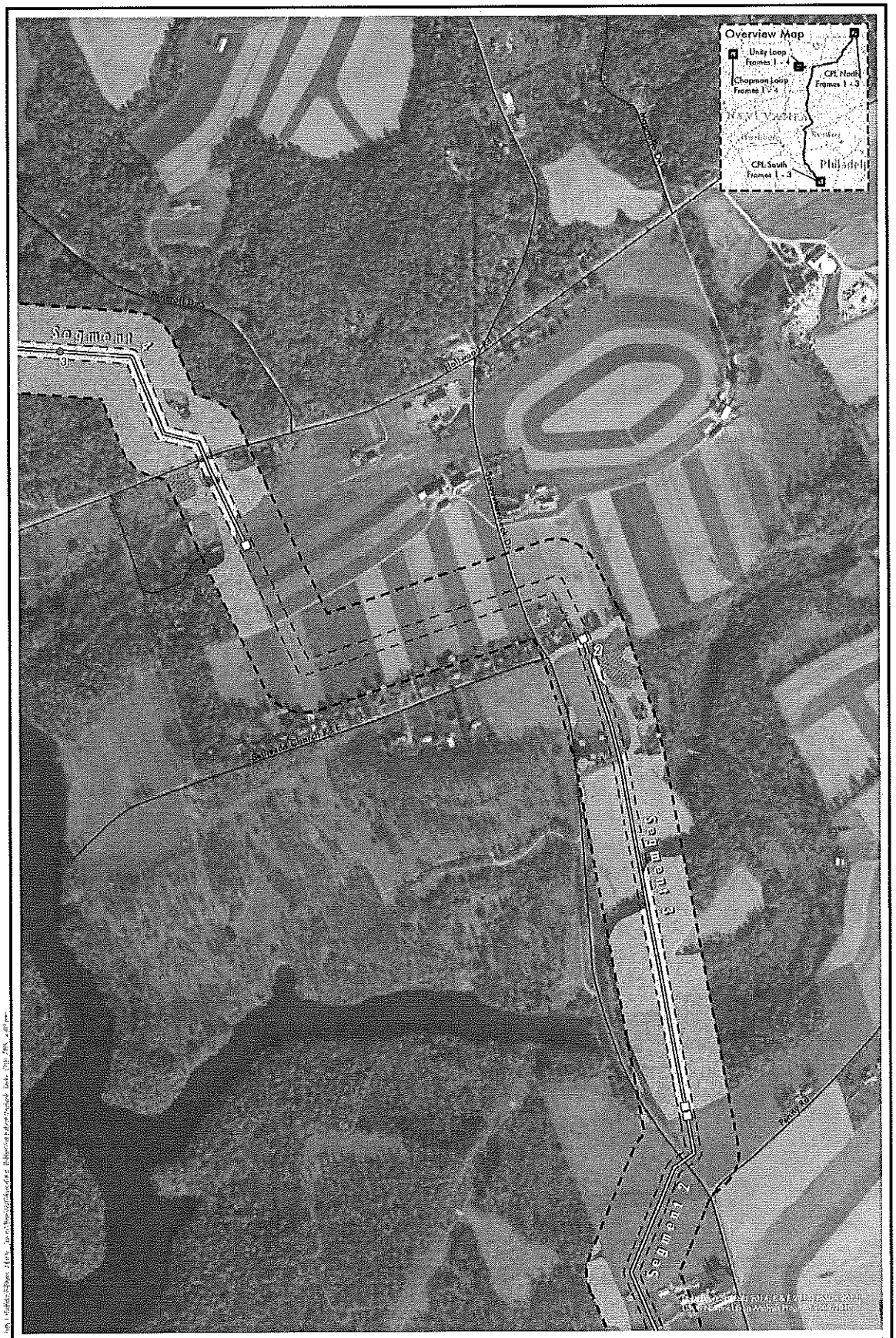
A Phase 1 Habitat Mapping and Proposed Survey Segment Locations



- Milepost
- 1-Kilometer Survey Segments
- Phase 1 Habitat Assessment (600' Corridor)
  - Not Suitable
  - Suitable
- Phase 2 LOE Determination (100' Corridor)
  - Not Suitable
  - Suitable
- State Boundary
- County Boundary
- Interstate
- Local Street

Phase 1 Habitat Assessment Results and
Phase 2 Survey LOE Determination
CPL South, Frame 1 of 3
Atlantic Sunrise Project
Lancaster County, Pennsylvania

0 0.125 0.25 Kilometers
0 0.125 0.25 Miles



- Milepost
- 1-Kilometer Survey Segments

Phase 1 Habitat Assessment (600' Corridor)
- Not Suitable
- Suitable

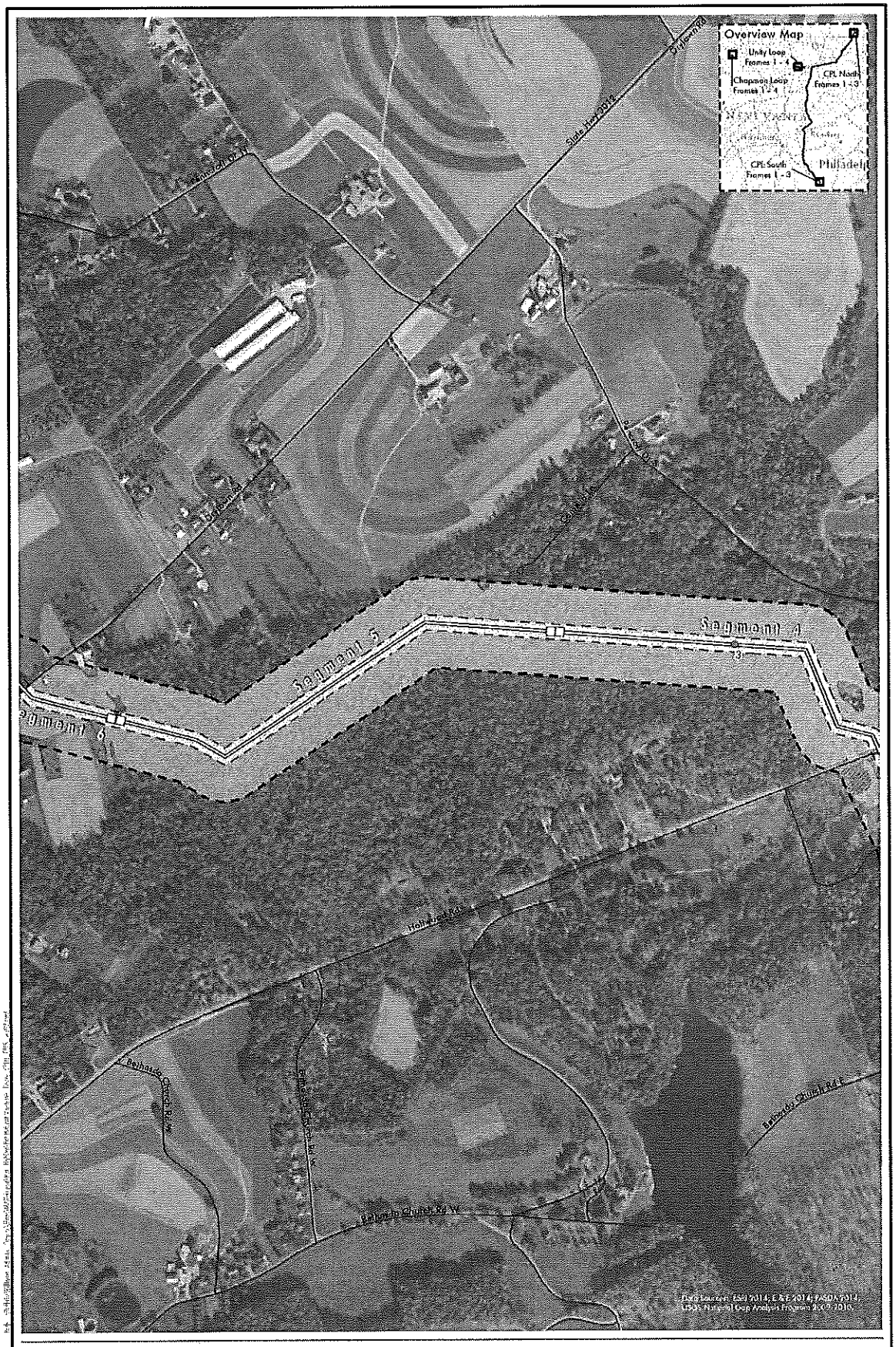
Phase 2 LOE Determination (100' Corridor)
- Not Suitable
- Suitable

- State Boundary
- County Boundary
- Interstate
- Local Street

Phase 1 Habitat Assessment Results and Phase 2 Survey LOE Determination

CPL South, Frame 2 of 3
Atlantic Sunrise Project
Lancaster County, Pennsylvania

0 0.125 0.25 Kilometers
0 0.125 0.25 Miles



- Milepost
- 1-Kilometer Survey Segments

Phase 1 Habitat Assessment (600' Corridor)
- Not Suitable
- Suitable

Phase 2 LOE Determination (100' Corridor)
- Not Suitable
- Suitable

- State Boundary
- County Boundary
- Interstate
- Local Street

Phase 1 Habitat Assessment Results and Phase 2 Survey LOE Determination

CPL South, Frame 3 of 3
Atlantic Sunrise Project
Lancaster County, Pennsylvania

0 0.125 0.25 Kilometers
0 0.125 0.25 Miles

- Milepost
- 1-Kilometer Survey Segments

Phase 1 Habitat Assessment (600' Corridor)

- Not Suitable
- Suitable

Phase 2 LOE Determination (100' Corridor)

- Not Suitable
- Suitable
- Industrial Mineral Mining Operations
- State Boundary
- County Boundary
- Interstate
- Local Street

Phase 1 Habitat Assessment Results and Phase 2 Survey LOE Determination

CPL North, Frame 1 of 3
Atlantic Sunrise Project
Susquehanna County, Pennsylvania

0 0.125 0.25 Kilometers
0 0.125 0.25 Miles

Milepost

1-Kilometer Survey Segments

Phase 1 Habitat Assessment (600' Corridor)

Not Suitable

Suitable

Phase 2 LOE Determination (100' Corridor)

Not Suitable

Suitable

Industrial Mineral Mining Operations

State Boundary

County Boundary

Interstate

Local Street

Phase 1 Habitat Assessment Results and Phase 2 Survey LOE Determination

CPL North, Frame 2 of 3

Atlantic Sunrise Project

Susquehanna County, Pennsylvania

0 | 0.125 | 0.25 Kilometers

0 | 0.125 | 0.25 Miles

- Milepost
- 1-Kilometer Survey Segments

Phase 1 Habitat Assessment (600' Corridor)

- Not Suitable
- Suitable

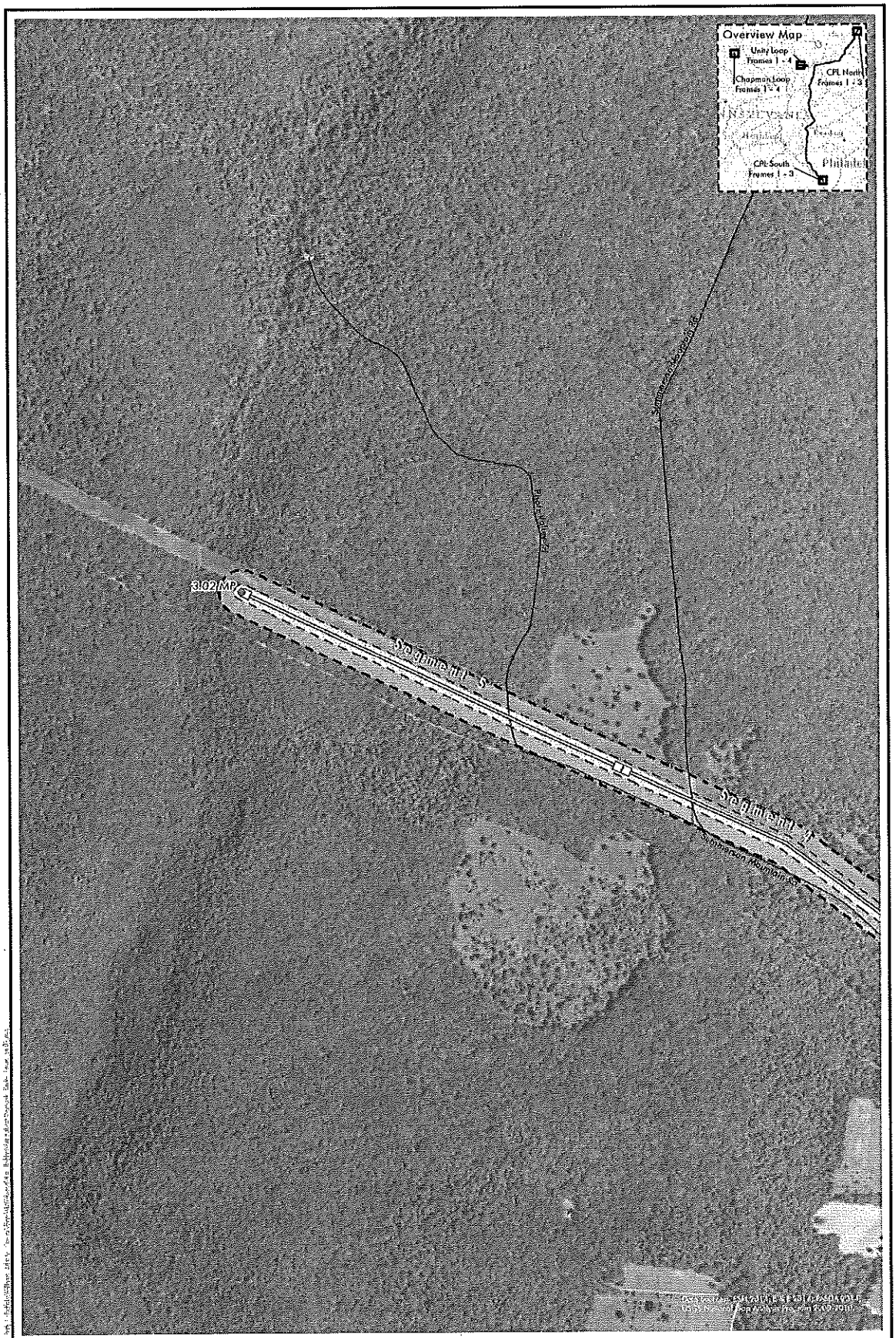
Phase 2 LOE Determination (100' Corridor)

- Not Suitable
- Suitable
- Industrial Mineral Mining Operations
- State Boundary
- County Boundary
- Interstate
- Local Street

Phase 1 Habitat Assessment Results and Phase 2 Survey LOE Determination

CPL North, Frame 3 of 3
Atlantic Sunrise Project
Susquehanna County, Pennsylvania

0 0.125 0.25 Kilometers
0 0.125 0.25 Miles



- Milepost
- 1-Kilometer Survey Segments

Phase 1 Habitat Assessment (300' Corridor)
- Not Suitable
- Suitable

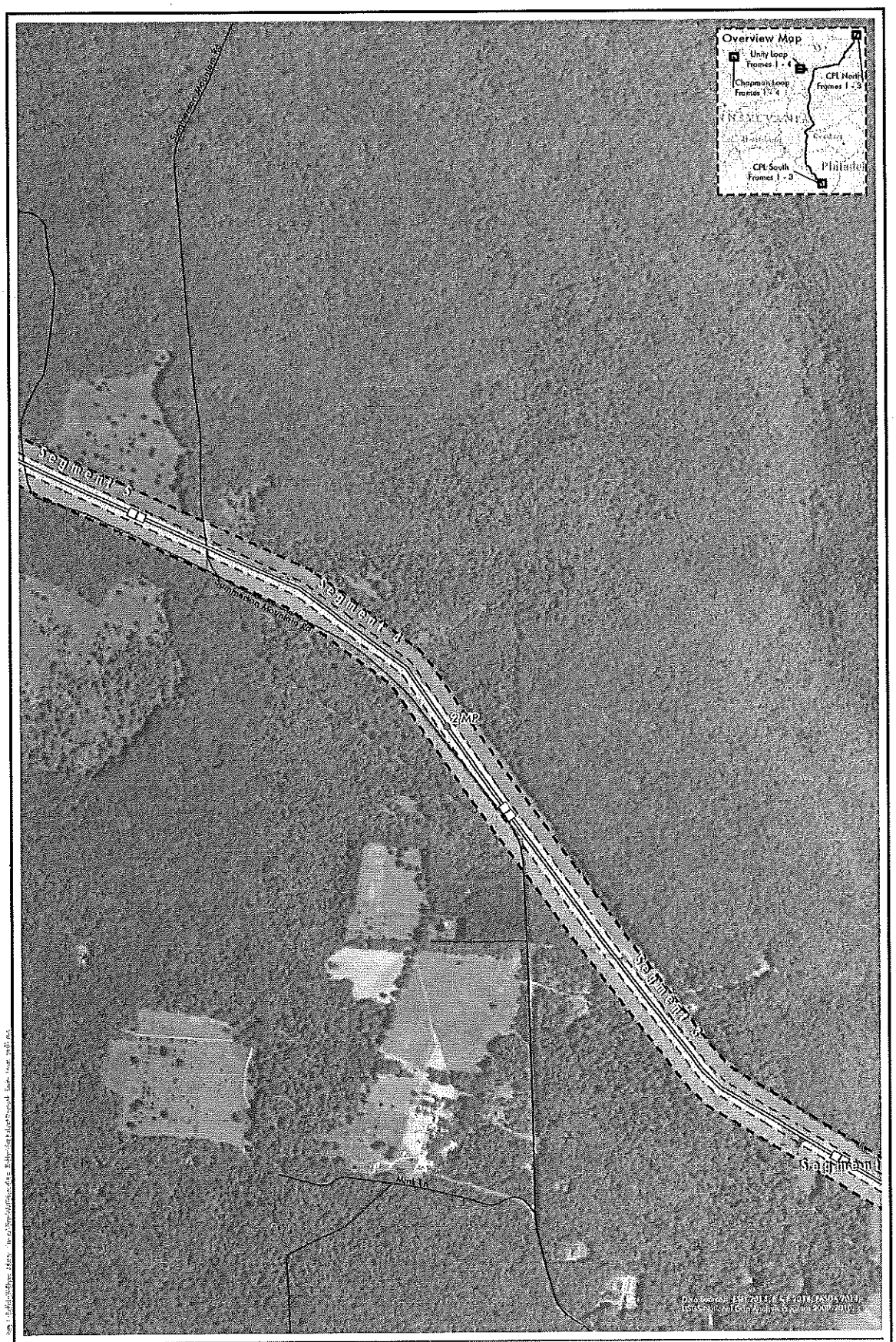
Phase 2 LOE Determination (100' Corridor)
- Not Suitable
- Suitable

- State Boundary
- County Boundary
- Interstate
- Local Street

Phase 1 Habitat Assessment Results and Phase 2 Survey LOE Determination

Chapman Loop, Frame 1 of 4
Atlantic Sunrise Project
Clinton County, Pennsylvania

0 0.125 0.25 Kilometers
0 0.125 0.25 Miles



- Milepost
- 1-Kilometer Survey Segments

Phase 1 Habitat Assessment (300' Corridor)
- Not Suitable
- Suitable

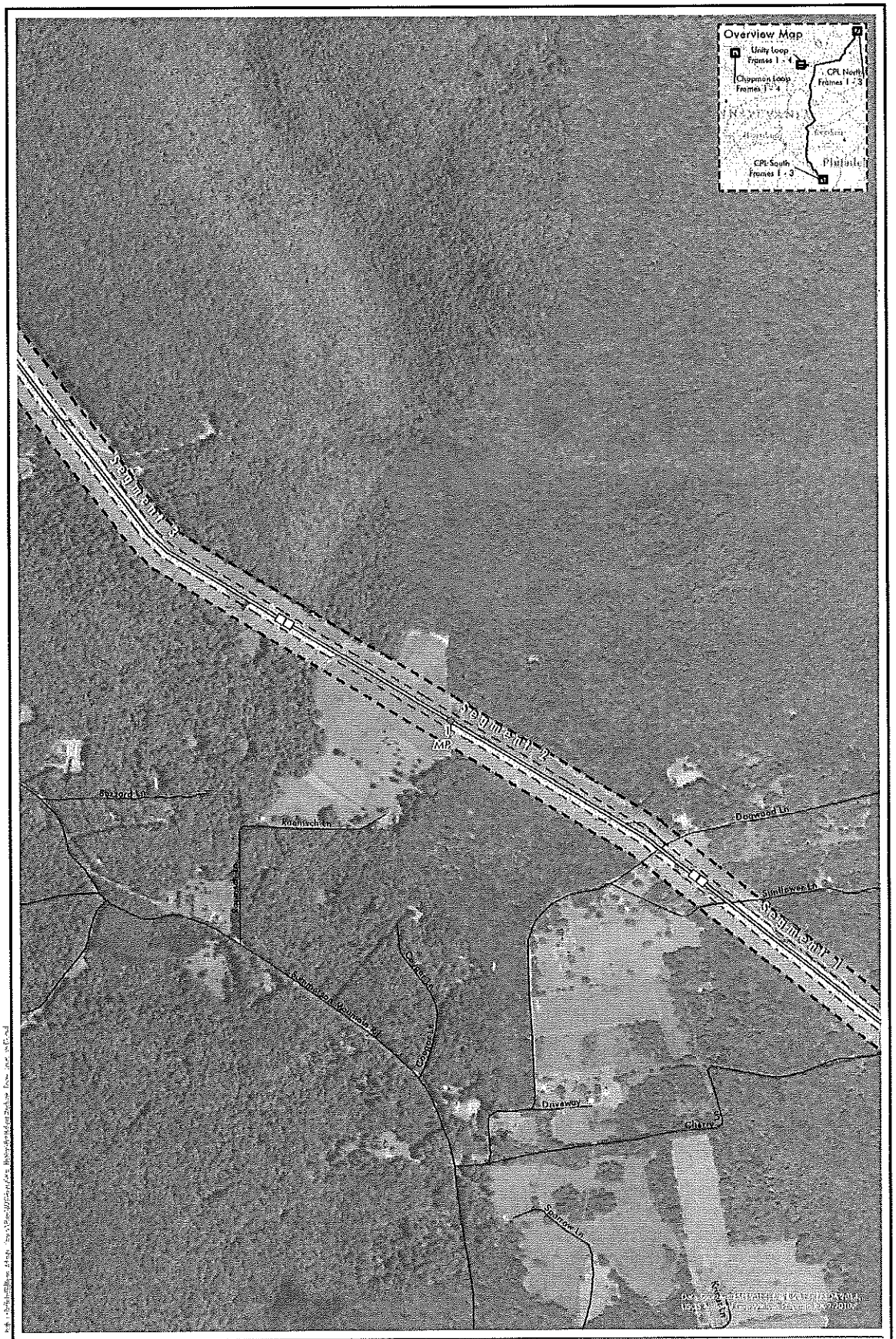
Phase 2 LOE Determination (100' Corridor)
- Not Suitable
- Suitable

- State Boundary
- County Boundary
- Interstate
- Local Street

Phase 1 Habitat Assessment Results and Phase 2 Survey LOE Determination

Chapman Loop, Frame 2 of 4
Atlantic Sunrise Project
Clinton County, Pennsylvania

0 0.125 0.25 Kilometers
0 0.125 0.25 Miles

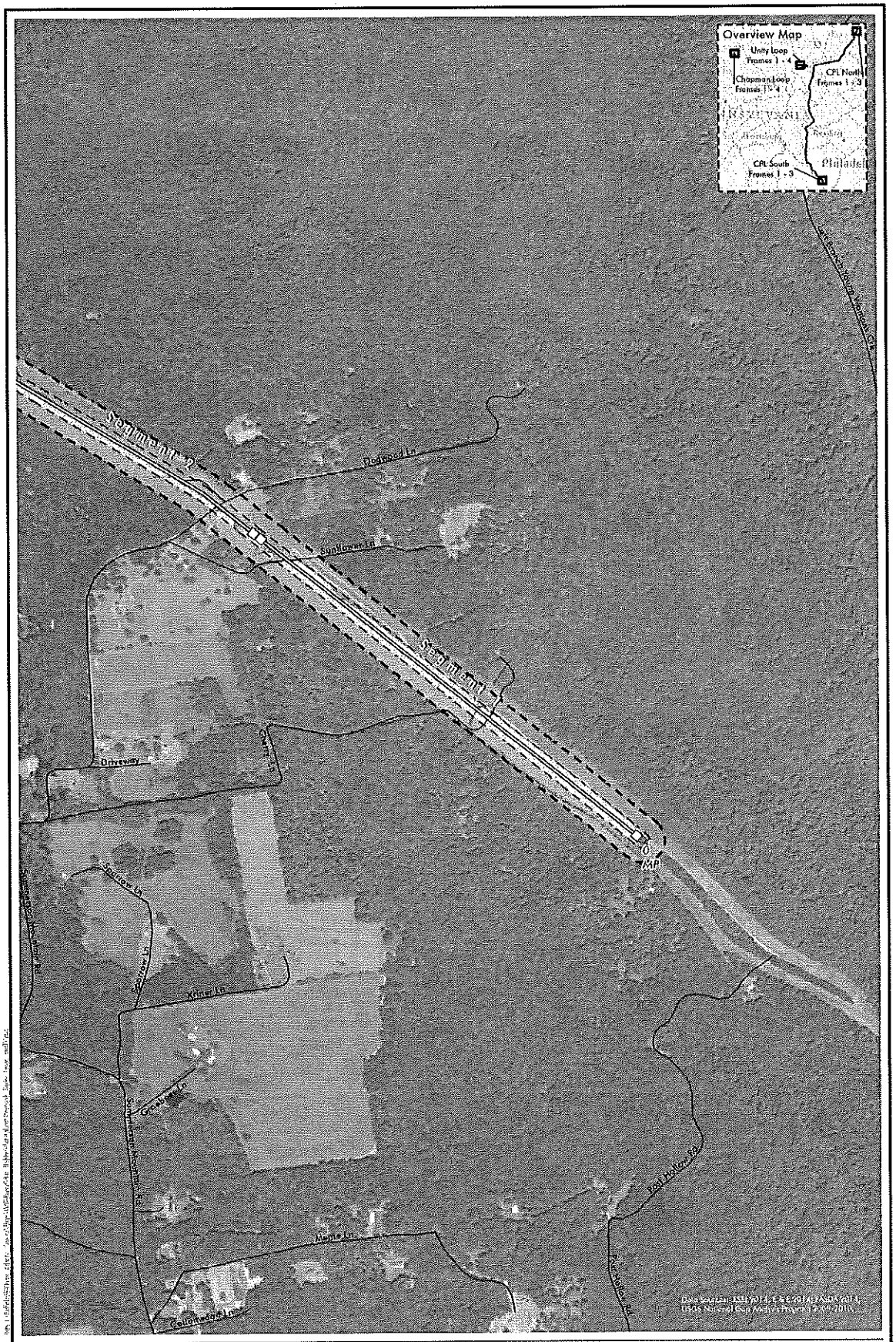


- Milepost
- 1-Kilometer Survey Segments
- Phase 1 Habitat Assessment (300' Corridor)
  - Not Suitable
  - Suitable
- Phase 2 LOE Determination (100' Corridor)
  - Not Suitable
  - Suitable
- State Boundary
- County Boundary
- Interstate
- Local Street

Phase 1 Habitat Assessment Results and Phase 2 Survey LOE Determination

Chapman Loop, Frame 3 of 4
Atlantic Sunrise Project
Clinton County, Pennsylvania

0 0.125 0.25 Kilometers
0 0.125 0.25 Miles



- Milepost
- 1-Kilometer Survey Segments

Phase 1 Habitat Assessment (300' Corridor)
- Not Suitable
- Suitable

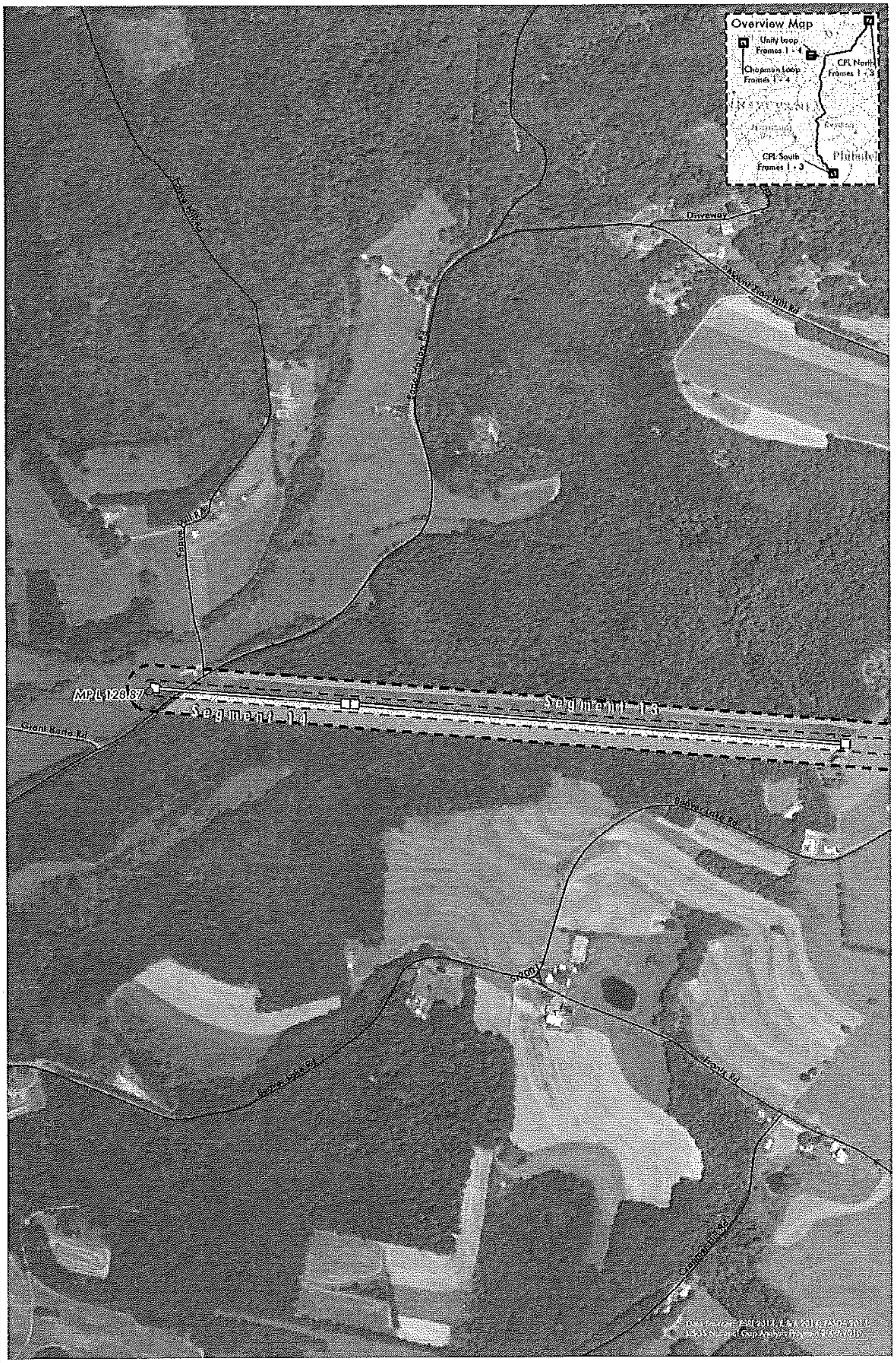
Phase 2 LOE Determination (100' Corridor)
- Not Suitable
- Suitable

- State Boundary
- County Boundary
- Interstate
- Local Street

Phase 1 Habitat Assessment Results and Phase 2 Survey LOE Determination

Chapman Loop, Frame 4 of 4
Atlantic Sunrise Project
Clinton County, Pennsylvania

0 0.125 0.25 Kilometers
0 0.125 0.25 Miles



- Milepost
- 1-Kilometer Survey Segments

Phase 1 Habitat Assessment (300' Corridor)

- Not Suitable
- Suitable

Phase 2 LOE Determination (100' Corridor)

- Not Suitable
- Suitable

- State Boundary
- County Boundary
- Interstate
- Local Street

Phase 1 Habitat Assessment Results and Phase 2 Survey LOE Determination

Unity Loop, Frame 1 of 4

Atlantic Sunrise Project

Lycoming County, Pennsylvania

0 0.125 0.25 Kilometers

0 0.125 0.25 Miles

- Milepost
- 1-Kilometer Survey Segments

Phase 1 Habitat Assessment (300' Corridor)
- Not Suitable
- Suitable

Phase 2 LOE Determination (100' Corridor)
- Not Suitable
- Suitable

- State Boundary
- County Boundary
- Interstate
- Local Street

Phase 1 Habitat Assessment Results and Phase 2 Survey LOE Determination

Unity Loop, Frame 2 of 4
Atlantic Sunrise Project
Lycoming County, Pennsylvania

0 0.125 0.25 Kilometers
0 0.125 0.25 Miles

- Milepost
- 1-Kilometer Survey Segments

Phase 1 Habitat Assessment (300' Corridor)

- Not Suitable
- Suitable

Phase 2 LOE Determination (100' Corridor)

- Not Suitable
- Suitable

- State Boundary
- County Boundary
- Interstate
- Local Street

Phase 1 Habitat Assessment Results and Phase 2 Survey LOE Determination

Unity Loop, Frame 4 of 4

Atlantic Sunrise Project

Lycoming County, Pennsylvania

0 0.125 0.25 Kilometers

0 0.125 0.25 Miles

Milepost

1-Kilometer Survey Segments

Phase 1 Habitat Assessment (300' Corridor)

Not Suitable

Suitable

Phase 2 LOE Determination (100' Corridor)

Not Suitable

Suitable

State Boundary

County Boundary

Interstate

Local Street

Phase 1 Habitat Assessment Results and
Phase 2 Survey LOE Determination

Unity Loop, Frame 3 of 4
Atlantic Sunrise Project
Lycoming County, Pennsylvania

0 0.125 0.25 Kilometers

0 0.125 0.25 Miles

B GIS Shape Files of Phase 1 Habitat Mapping and Proposed Survey Segment Locations

Provided on compact disk.

C

Proposed Surveyors and Appropriate Permits

PENNSYLVANIA GAME COMMISSION
COMMONWEALTH OF PENNSYLVANIA
2001 ELMERTON AVENUE
HARRISBURG PA 17110

SPECIAL USE PERMIT
PERMIT TYPE STUDIES-SCIENTIFIC
PERMIT # 31961

DESCRIPTION BAT SAMPLING - CAPTURE & RELEASE ALL BATS INCLUDING INDIANA BATS (MYOTIS SODALIS)

PERMITTEE

CHRISTOPHER W SANDERS
SANDERS ENVIRONMENTAL
322 BOREALIS WAY
BELLEFONTE PA 16823 - 6461

DOB 11/10/1972
PHONE 814-659-8257

COUNTY	CENTRE, CLINTON, LYCOMING, SULLIVAN, LUZERNE, WYOMING, SUSQUEHANNA, COLUMBIA, NORTHUMBERLAND, SCHUYLKILL, LEBANON, LANCASTER		
REGION	NC, NE, SE		
EFFECTIVE DATE	5/15/2014 - 8/15/2014, 9/15/2014 - 10/15/2014	**REPORT REQUIRED**	AS SPECIFIED
FEE	$ 0	**RENEWABLE**	NO
		PITTMAN-ROBERTSON	NO
SPECIES	BAT		
SUBPERMITEE	CHRISTOPHER SANDERS-QIBS , CHELSEA RIDER-QIBS , KEITH CHRISTENSON-QIBS , MATT HOPKINS-QIBS , MICHAEL O'MAHONY-QIBS , NEIL BOSSART-QIBS , JASON COLLINS-QIBS , AMANDA BRUMBAUGH-QIBS , JENNIFER ROSS-BI , AARON COVALT-QIBS , BRIAN COOPER-QIBS , SARAH DEWEES-QIBS , ELISE MERRILL-QIBS , DOUG KOZIOL-BI , NADIA BARKAWI-BI		

CONDITIONS

1 THE VALIDITY OF THIS PERMIT IS CONDITIONED UPON THE RECEIPT AND MAINTENANCE OF ANY OTHER APPLICABLE FEDERAL, STATE OR LOCAL PERMITS REQUIRED BY LAW.

2 A COPY OF THIS PERMIT SHALL BE CARRIED AND PRESENTED UPON REQUEST OF ANY DULY AUTHORIZED OFFICER OR REPRESENTATIVE OF THE COMMISSION.

3 ALL PERMITTED ACTIVITIES SHALL AT ALL TIMES BE CONDUCTED IN CONFORMANCE WITH ALL APPLICABLE REQUIREMENTS OF THE GAME AND WILDLIFE CODE (34 PA.C.S. § 101 ET SEQ.) AND ITS ATTENDANT REGULATIONS (58 PA. CODE § 131.1 ET SEQ.).

4 STUDY AREAS WILL BE: MINE PORTALS REQUESTED BY DEP, PRIVATE LAND LOCATED A 322 BOREALIS WAY-BELLEFONTE AND PRIVATE LAND LOCATED AT 1513 PURDUE MTN. ROAD, BELLEFONTE-BRUMBAUGH PROPERTY PROJECT AND PROPOSED ATLANTIC SUNRISE PIPELINE IN THE COUNTIES INDICATED ON THE APPLICATION PROVIDED BY THE PERMITTEE.

CONTINUED...

PENNSYLVANIA GAME COMMISSION
COMMONWEALTH OF PENNSYLVANIA
2001 ELMERTON AVENUE
HARRISBURG PA 17110

SPECIAL USE PERMIT
PERMIT TYPE STUDIES-SCIENTIFIC
PERMIT # 31961

5 PERMITTEE WILL ABIDE BY THE ALL THE GUIDANCE AND REQUIREMENTS IN THE 2014 PA BAT SURVEY REPORTING PACKET.

6 THE SUMMER NETTING PERIOD IS MAY 15 THROUGH AUGUST 15 AND IF PROPERLY PERMITTED, THE HIBERNACULA TRAPPING SAMPLING PERIOD IS SEPTEMBER 15 THROUGH OCTOBER 15.

7 BATS MAY BE CAPTURED THROUGH THE USE OF MIST NETS AND HARP TRAPS. INDIANA BATS MAY BE BANDED USING FOREARM BANDS (YELLOW IS RESTRICTED TO CANOE CREEK AREA. OTHER BANDS MAY BE USED. NO OTHER SPECIES WILL BE BANDED WITH YELLOW OR ORANGE BANDS, AND NOT IN EXCESS OF 10 INDIVIDUALS PER SPECIES PER PROJECT. MASS BANDING PROJECTS REQUIRE A PROJECT PROPOSAL BE SUBMITTED AND APPROVED. ANY INDIANA BAT (MYOTIS SODALIS), SMALL-FOOTED (STATE THREATENED, M.LEIBII) AND REPRODUCTIVE FEMALE/JUVENILE SILVER-HAIRED BATS (L.NOCTIVIGANS) AND REPRODUCTIVE FEMALE/JUVENILE SEMINOLE BATS (L.SEMINOLUS) SHALL BE RADIO TAGGED, ROOSTS LOCATED AND EMERGENCE COUNTS CONDUCTED DURING SUMMER NETTING SURVEYS. RADIO TELEMETRY MAY BE USED TO DETERMINE ROOST LOCATIONS AND FORAGING AREAS FOR ALL SPECIES. TISSUE SAMPLES MAY NOT BE TAKEN FROM INDIANA BATS (MYOTIS SODALIS). AN ACOUSTICAL BAT DETECTOR MAY BE USED AT EACH NET SITE.

8 EQUIPMENT WILL BE CLEANED AND DECONTAMINATED WHEN MOVING FROM ONE COUNTY TO ANOTHER. FOLLOW LATEST DECONTAMINATION PROCEDURES AVAILABLE AT HTTP://WHITENOSESYNDROME.ORG/ (WNS INFO). THE WHITE FUNGUS IS ONLY ONE SIGN OF WNS. YOU SHOULD NOT EXPECT TO FIND BATS WITH FUNGUS ON THEM DURING THE SUMMER OR FALL. PERMITTEES ARE REQUIRED TO FOLLOW ALL DECONTAMINATION AND DISINFECTION GUIDELINES FOR SPRING SUMMER AND FALL BAT FIELD STUDIES.

9 ALL BATS CAPTURED DURING THE SURVEY SHALL BE HANDLED IN A HUMANE MANNER AND NON TARGET BATS SHALL BE RELEASED UNHARMED. ANY NON TARGET BAT THAT MAY DIE DUE TO HANDLING WILL BE REPORTED TO THE PENNSYLVANIA GAME COMMISSION, BUREAU OF WILDLIFE MANAGEMENT, 2001 ELMERTON AVENUE, HARRISBURG, PA 17110, (717)787-5529, WITHIN 72 HOURS OF ITS DEATH. SPECIMEN IS TO BE PRESERVED AND SUBMITTED TO THE PGC

10 A REPORT OF THE ACTIVITIES CONDUCTED THROUGH THIS PERMIT SHALL BE PROVIDED TO THE PENNSYLVANIA GAME COMMISSION WITHIN 90 DAYS OF THE COMPLETION OF THE PROJECT. REPORTS WILL INCLUDE THE PROVIDED MANDATORY REPORTING FORMS IN HARD COPY. THE FINAL REPORT SHALL BE PROVIDED BY 12/31/14. PLEASE SEND TO SAME ADDRESS IN CONDITION 9 ATTN: GREG TURNER

11 IF A SURVEY IS CONDUCTED FOR A PROJECT (OR ANY PORTION THEREOF) THAT HAS UNDERGONE A PENNSYLVANIA NATURAL DIVERISTY INVENTORY (PNDI) ENVIRONMENTAL REVIEW BY THE PENNSYLVANIA GAME COMMISSION'S DIVISION OF ENVIRONMENTAL PLANNING AND HABITAT PROTECTION (REGARDLESS OF THE OUTCOME OF THAT ENVIRONMENTAL REVIEW), AN ELECTRONIC COPY OF THE REPORT AND FORMS REQUIRED UNDER CONDITION 10 SHALL ALSO BE PROVIDED ON COMPACT DISC TO THE PENNSYLVANIA GAME COMMISSION, DIVISION OF ENVIRONMENTAL PLANNING AND HABITAT PROTECTION, ATTN: TRACEY LIBRANDI MUMMA, 2001 ELMERTON AVENUE, HARRISBURG, PA 17110, WITHIN 90 DAYS OF THE COMPLETION OF THE PROJECT.

12 A QUALIFIED BAT SURVEYOR (QBS)MUST BE PRESENT DURING THE TIMES OF SURVEYS AND IS RESPONSIBLE FOR OVERSEEING ALL ASPECTS OF THE PROJECT INCLUDING ADHERANCE TO PGC NETTING STANDARDS AND EFFORT REQUIREMENTS. THIS PERSON SHALL BE LISTED ON THE USFWS QUALIFIED BAT SURVEYORS LIST.

13 ONLY QUALIFIED BAT SURVEYORS (QBS) AND APPROVED BAT IDENTIFIERS WILL IDENTIFY BATS. BAT IDENTIFIERS SHALL BE LISTED ON THE USFWS BAT IDENTIFIER LIST.

CONTINUED...

PENNSYLVANIA GAME COMMISSION
COMMONWEALTH OF PENNSYLVANIA
2001 ELMERTON AVENUE
HARRISBURG PA 17110

SPECIAL USE PERMIT
PERMIT TYPE STUDIES-SCIENTIFIC
PERMIT # 31961

14 PROJECT AREA MAY BE EXTENDED TO STATE GAME LANDS WITH PRIOR PERMISSION OF REGIONAL LAND MANAGEMENT SUPERVISOR (LMS), WHO CAN BE CONTACTED THROUGH THE APPROPRIATE REGIONAL OFFICE.

15 ONCE PERMISSION FROM THE LMS IS OBTAINED, WHEN PARKING OR LEAVING A VEHICLE UNATTENDED IN AN AREA NOT OPEN TO PUBLIC TRAVEL, PERMITTEE SHALL DISPLAY A LOGO OR CARD IN AN OBVIOUS LOCATION IN OR ON YOUR VEHICLE TO IDENTIFY ITS AFFILIATION AND LEAVE A COPY OF THIS PERMIT ON THE DASHBOARD, VISIBLE FROM OUTSIDE THE VEHICLE.

16 ACCESS WILL ONLY BE GRANTED FOR OFFICIAL PURPOSES AND NO UNAUTHORIZED PERSONS SHALL BE TRANSPORTED BEHIND COMMISSION GATES OR INTO OTHER AREAS CLOSED TO THE PUBLIC.

17 NO ACTIVITY SHALL OCCUR BEFORE NOON ON ALL SATURDAYS DURING THE SPRING TURKEY SEASON. ACCESS MAY BE DENIED AT OTHER TIMES DUE TO HUNTING SEASONS, INCLEMENT WEATHER, ROAD CONDITIONS OR OTHER CONFLICTS AS DETERMINED BY THE LMS. CONSENT FOR RIGHT OF ENTRY SHALL NOT INTERFERE WITH LAWFUL PUBLIC HUNTING AND TRAPPING ACTIVITIES.

PERMITTEE SIGNATURE DATE

DIRECTOR, BUREAU OF
WILDLIFE PROTECTION

REVISION # 3

Commonwealth of Pennsylvania, Pennsylvania Game Commission

Standard and Minimum Effort Requirements for Qualified Bat Surveyor Netting within the Commonwealth of Pennsylvania for Environmental Review Projects.

Mist-net surveys will be carried out in accordance with the U.S .Fish and Wildlife Service's (USFWS) *Indiana Bat Mist Netting Guidelines* and will include effort and measures above and beyond those guidelines as specified in this document as a requirement of the PA Game Commission (PGC) Permit. Accompanying a State Permit are required reporting information and bat White-Nose decontamination protocols. Make certain to review and adhere to the requirements. All field personnel must be familiar with these guidelines.

Netting Season: May 15 – August 15

Minimum Net Equipment for Site Sets: 2 net sets (4 poles) capable of stacking a minimum of 3 (2.6m high) nets to reach canopy/sub-canopy (>7 m / 23 ft). Poles will have a pulley system for efficient bat removal. An additional assortment of poles will also be available for situations where stacked nets can not be used. Nets will be the lowest visibility weights available (50 denier 2-Ply Nylon or 75 denier 2-Ply Polyester) and 38 mm (~1.5 in) mesh. Standard net lengths will be available to cover most travel corridors ranging from 6 m (~19 ft) to 18 m (~59 ft). Nets will be hung in the standard manner to provide bag in panels. Overstretched nets that eliminate panel bagging will not be permitted. Nets should be placed in what is considered Indiana bat habitat and among "clutter" to minimize bat detection. Sites will be monitored quietly; loud noises (other than low volume occasional communication), running engines, campfires and other activities that disturb/alert bats will not be allowed within 300 m of a Site. Physical sample collection (i.e. fur, blood, wing punch) needs to approved and stated on permit.

Standard Site Sets: A minimum of 2 net sets, ≥30 m (98 ft) apart, will be placed at a net Site. A standard set will consist of 3-stacked nets*. If triple high sets are not used, a thorough justification must be provided in the comments section of the PGC Bat netting/Trapping Site Survey Record (P-70008-N/T). Photographs are recommended to accompany justification. Should we find that quality netting locations suitable for triple-high net sets are available but that lower net sets were deployed or poor quality netting locations were selected, permits may be revoked and the qualified surveyor may be considered unable to select and set Sites resulting in removal from the Pennsylvania list of qualified surveyors (QBS). Each net Site will be sampled for 2 nights beginning at sunset for at least 5 hours (300 minutes). Different but proximate locations are suggested. Each net set will be checked ~every 10 minutes. Minimally, one person will monitor a Site at all times.

*Sites will be selected for prime capture locations in Indiana bat habitat which is often forested travel corridors (streams, trails etc) rather than locations capable of placing triple high net sets (open field). Professional judgment is foremost in site selection and net sets. However, given that Indiana bats are often captured in elevated net sets, they will be considered the standard when conducting surveys in PA and if not used, a justification must be provided.

Minimum Nightly Effort/Site = 420 Units of Effort (UE): One unit of effort is equal to $1m^2$ of net area in place for 1 hour - (total m^2 of capture area) x (minutes in place/60).

Each net Site must provide a minimum of 420 UE. For example, 2 sets-each measuring 7 m high by 6 m wide in place for the required 5 hours would meet the minimum effort of 420 UE:
((7 m x 6 m) + (7 m x 6 m)) x 5 hrs. In the rare situation where stacked nets can't be used, minimum effort must still be met with more nets or net sets at a Site. As of 2008, average effort/Site of companies capturing Indiana bats in PA range from 490 to 680 UE. If unable to complete the required effort on one night, such as bad weather, the site will be repeated using full UE on another night. Due to WNS, USFWS netting efforts have been updated. The most recent can be found at: **http://www.fws.gov/midwest/endangered/mammals/inba/inbasummersurveyguidance.html**. PGC required level of effort for all species remains 420 UE as described above for standard Site sets. It is the responsibility of the contractor to ensure they have met the increased level of effort required by the USFWS, where applicable.

Standard and Minimum Effort Requirements for Qualified Bat Surveyor Netting within the Commonwealth of Pennsylvania for Environmental Review Projects.

Weather -- Netting will be suspended when:

- Rain, steady drizzle or heavy fog soaks nets.
- Temperature falls below 10°C (50°F).
- Winds resulting in frequently moving/billowing nets OR wind gusts exceeding 18 mph.

Qualified Bat Surveyors (QBS): A qualified surveyor is one who's credentials and experience have been reviewed by the USFWS, State College Field Office (USFWS-SCO) and the (PGC) and found to have expertise in all of the following:

- Correct identification of bats of the northeast, to species.
- Collection of biological information on bats of the northeast.
- Selecting Net Sites and placing Net Sets to maximize bat captures.
- Attaching radio transmitters, and bat bands.
- Oversee entire radio-tracking process and mapping behavior gained thru biotelemetry.
- Identifying, describing, and conducting emergence counts of day roosts.
- Documenting study information (bats, net sets, portal entrances, etc.) with photography

A QBS is responsible for overseeing all aspects of surveys, and is, therefore, required to be at an active project site (including net surveys, telemetry monitoring and roost evaluations). The QBS is responsible for site selection, set installation and the inspection of net sets each night. Only a QBS may apply for a permit and the permit must list all QBS's and BI's for a project. QBS are the individuals who act in the capacity of Principal Investigator (PI), having in-field oversight responsibility for net setup, bat captures, bat identification, telemetry studies, safe handling procedures and adherence to WNS disinfection protocols. They are also the individuals responsible for ensuring permits are properly acquired, bat permitting requirements are met, and ensuring that reports are accurate and complete and submitted to the appropriate agencies. In addition, the QBS will be in contact (2 way radio and/or cell phones) with site workers, or if not possible the QBS will visit all sites every hour. The QBS will verify and oversee photo documentation of *M.sodalis, M.leibii*, and other species not regularly found in PA (see page 4, Bat Measurement Section for list)., and supervise radio tagging and telemetry.

Bat Identifier (BI): The QBS may select experienced personnel capable of identifying northeastern bats and is responsible for BI's qualifications. A list of BI's with documented experience will be provided to the PGC and USFWS-SCO for review and approval. The QBS and BI may have oversight for the identification of bats at up to 2 net Sites at a time unless travel between sites is >30 minutes in which case only 1 Site can be monitored. Captured bats may not be held more than 1 hour unless outfitting for telemetry or other processing documented in the permit.

Only QBS's and BI's are permitted to be bat identifiers (responsible recorder) on PGC Forms: P-70008-NT and P-70008-M. The ratio of net Sites to QBS's and BI's will be 2:1, except as noted above. BI's and Assistants that wish to document their bat experience can briefly note these activities in the comment sections of PGC Forms: P-70008-NT and/or P-70008-M. (example: *Name* identified 2 Indiana bats upon removal from net, measured, banded, attached transmitters and verified by *QIBS* as acceptable work.). Spelling *Name* clearly will facilitate future retrieval of this information from the database.

Assistants: Assistants are under the supervision of the QBS and are only responsible for assisting in site set-up, take-down and removal of bats. All bats must be held until verified by a QBS or BI and the verification will occur within 1 hour of capture.

Telemetry: Telemetry will be conducted on the below mentioned species, roosts will be identified, at least one roost emergence count conducted, and a map of foraging activity areas provided. Minimum foraging activity shall relate to the project area. This should include triangulation/bi-angulation data points and general monitoring from roads and trails etc. for at least three full nights. The PA Game Commission shall be notified for all species and the USFWS State College, PA Field Office shall be notified for Indiana bat captures and telemetry. Notification will occur as soon as possible but not to exceed 72 hours after capture. Telemetry will not be conducted on light weight animals if transmitter attachment exceeds 10% of bat's weight. The frequency of transmitters, receivers and antennas will be tuned to 172 MHz. This will avoid conflicts with game species transmitters on animals and in storage. This frequency will also allow PGC Diversity Staff to assist if a need arises (both on the ground and with aircraft). When conducting telemetry at the request of PGC Environmental Review, refer to standards and requirements located in Appendix I. Appendix I also has general guidance for transmitter attachments etc.

Species Required: All Indiana bats (*M.sodalis*); All small-footed bats (*M.leibii*); reproductive female and juvenile silver-haired bats (*L.noctivigans*); and reproductive female and juvenile Seminole bats (*L.seminolus*). Additional nights of telemetry may be required depending upon project impacts to species habitat[1].Other species may be requested on a project-specific basis.

Ethical Standards from USFWS, PA Field Office-Reminder that Surveyors are expected to:

- Have current permits covering all work locations to be conducted in Pennsylvania.
- Follow all provisions of State Permits including White Nose Syndrome decontamination protocols.
- Physical samples including but not limited to fur, blood, wing punches only as approved and authorized on permit.
- Excepting USFWS requests to band *M.sodalis*, no generic banding is authorized without permission.
- Report all federally endangered, i.e. *M.sodalis*, bat findings to the Service and PGC within 72 hours.
- Contact the Service and PGC immediately (same day) if any state or federally listed bat is killed or injured, and keep the specimen refrigerated or frozen for submission to the PGC
- Follow established survey guidelines, and accurately, fully, and truthfully report on the methods used and results obtained during these surveys.
- Maintain field notes documenting their work and provide copes of field notes upon request.
- Maintain the confidentiality of Indiana bat sites.
- Obtain landowner permission before accessing land.
- Conduct surveys and studies in a manner that ensures the safety of Indiana bats.
- Refrain from removing any Indiana bats from their habitat, holding them in captivity, collecting tissue (wing punches) or blood samples, conducting radio-telemetry studies, or harp trapping unless specifically authorized by a State Permit. Weighing, measuring, analyzing and photographing Indiana bats are standard operating procedures that take place when conducting mist net surveys.

Failure to adhere to these ethical standards may result in an individual's removal from the list of qualified surveyors and revocation of their State Permit.

Contacts

USFWS State College, PA Field Office (814) 234-4090
Pam Shellenberger Pamela_Shellenberger@fws.gov
Melinda Turner Melinda_Turner@fws.gov

PA Game Commission, Wildlife Diversity
Greg Turner (814) 237-1432 grturner@state.pa.us

COMMONWEALTH OF PENNSYLVANIA

Pennsylvania Game Commission, Bureau of Wildlife Protection, Special Permits Enforcement Division
2001 Elmerton Avenue, Harrisburg, PA 17110-9797

Procedure and format for permittee reports to the PA Game Commission when conducting bat capture surveys within the Commonwealth.

The report is divided into six sections that include: (1) Cover page, (2) Site Survey Record, (3) Bat Measurement and Capture Data Forms, (4) Roost forms, (5) Maps and (6) Photo Documentation.

Section 1 - Cover

A separate cover page should be provided for each project with the accompanying data of Sections 2 through 6 contained within. An example is provided.

Section 2* - Bat Netting/Trapping Site Survey Record

(FORM P-70008-N/T)

This is a **mandatory** two-page summary of site(s) surveyed and of captures. It should be completed for all sites surveyed, including those with no captures. If a capture technique other than mist netting or harp trapping is used, it should be described in remarks. Complete 1 for each site survey night (If site is trapped twice, 2 site survey records are required, etc.).

Section 3* - Bat Measurement and Capture Data Form

(FORM P-70008-M)

Band color restrictions: Yellow- only on *M.sodalis* at Canoe Creek St. Park; Orange- may only be used on *M.sodalis* elsewhere. Other bands may be applied to Msodalis. A limit of 10 bands per species per project rule is in place. Mass banding projects need a formal proposal submitted, and approval noted on permit.

This form is **mandatory** for:

1. *Myotis sodalis* captures
2. *Myotis leibii* captures
3. Bats you are banding and all band recaptures (*orange and yellow band colors have restrictions*)
4. All radio-tagged bats (describe transmitter in remarks)
5. Bat species not usually found in Pennsylvania*.

* Pennsylvania species: *Myotis lucifugus, Myotis septentrionalis, Myotis leibii, Myotis sodalis, Eptesicus fuscus, Perimyotis subflavus, Lasiurus borealis, Lasiurus cinereus, and Lasionycteris noctivagans*

The surveyor also has the option to use this form for measuring and reporting all bats. All measurements should follow North American collector standards (Nagorsen, D. W. and R. L. Peterson. 1980. Measurements and Weights. Pp. 22-26 in Mammal Collectors' Manual. Royal Ontario Museum, Publications in Life Sciences).

Section 4* – Roost Forms

When conducting telemetry 2 roost forms are provided: one for describing roosts (WD-DR-02/13) and another for bat emergence data (WD-EM-02/13). It is recommended and often required that *M. sodalis*, *M.leibii*, and *L. noctivagans* be radio-tagged when captured in summer habitats and their roosts located.

***Section 2, 3, and 4 forms may not be modified for reporting because they are used for data entry. If necessary, supplemental pages may be added to report unique data.**

Section 5 - Maps

An example is provided. All survey sites will be reported on a map (preferably a 7.5' USGS Topographic Map) so that locations can be accurately located and coordinates verified.

Section 6 - Photo Documentation

An example is provided. Photographs (preferably digital) will be taken of identification characteristics of all *M.sodalis*, *M.leibii*, and species not usually found in PA. The photos should be labeled with the site, date and capture number.

Mail **hard copy** of reports to address on the heading of this page within 90 days of project completion.

COMMONWEALTH OF PENNSYLVANIA
Pennsylvania Game Commission
Bureau of Wildlife Protection, Special Permits Enforcement Division
2001 Elmerton Avenue, Harrisburg, PA 17110-9797

Section 1 - Cover

PERMITTEE BAT CAPTURE REPORT

*Mail **hard copy** of reports to address on the heading of this page within 90 days of project completion.*

Permit Number_____

Project Name:_____

Company/
Organization/
Permittee Name:_____

Address: _____

_____

_____

_____

Phone: (_____)_____-_____ **Fax:** (_____)_____-_____

E-Mail:_____

Project Supervisor Name:_____

Supervisor Contact: Phone: (_____)_____ - _____

E-Mail: _____

If this is contracted work, provide the name & address of the individual/organization work is being performed for:

_____

_____

_____

Mail **hard copy** of report to address on the heading of this page within 90 days of project completion.

FORM P-70008-N/T
12/09
Section 2

COMMONWEALTH OF PENNSYLVANIA
Pennsylvania Game Commission

BAT NETTING/TRAPPING SITE SURVEY RECORD

1. Survey Date:_____ **2. Company Name:**_____

3. Bat Identifier:_____ **4. Assistants:**_____
(Responsible Recorder)

5. Site Name and/or Number:_____

6. Site is (circle one): hibernation site summer habitat

7a. If hibernation site circle one: limestone mine, coal mine, limestone cave, sandstone cave, RR tunnel,

other structure, describe -_____.

7b. If summer habitat, describe area being sampled (e.g. forested stream or forest clearing with stream):

_____

8. County:_____ **9. 7.5' Quad.:**_____

10. Was site GPS'd (required) ? YES - NO

11. Geographic Coordinates (D-M-S): Latitude: _____°-_____'-_____"N, Longitude: _____°-_____'-_____"W

Datum *(circle one)*: **NAD27** (Preferred), NAD83, WGS84, Other:_____

12. Ownership and Access: *(Who owns site or controls access? Give name and address.)*_____

_____

13. Time *(military)* **& Temperature:** Start Time_____h Stop Time_____h Total Minutes:_____

Start Temp._____°C End Temp._____°C *(must stay ≥10°C for summer netting)*

14. General Weather *(circle one)*: Clear; Partly Cloudy; Mostly Cloudy; Cloudy; Drizzle; Intermittent Rain;
(suspend netting during periods of rain) Steady Rain; Thunderstorms; Snow; Other:_____.

15. General Wind Conditions *(circle one)*: Calm, Breezy (Leaves Rustling), Windy (Trees Swaying).

16. Capture Setup at Site:

Set #	Type	Count	Dimensions	Description	TOTAL AREA (m)
1	**Nets**	*4*	*12m x 2.6m*	*Stacked over trail*	*124.8 sq. m*

Total Capture Area:_____sq. m

(Site Survey Record – Continued) **Site Name/No.:** _____ **Date:**_____

17. Describe habitat 150 m around site: *(topography and vegetation including dominant tree species.)*

18. Was reproductive status checked? YES / NO *(if "NO" only enter numbers in* **Total** *columns)*

***CAPTURE RESULTS**

Species	Number of Adult Females				No. Juv. Fem.	Total No. Fem.	Number of Adult Males		No. Juv. Male	Total No. Males	Species Totals
	NR	PG	L	PL			SCR	NR			
Eptesicus fuscus	2		1			3	2	1	1	4	7
Myotis lucifugus											
Myotis septentrionalis											
Myotis leibii											
Myotis sodalis											
Eptesicus fuscus											
Perimyotis subflavus											
Lasiurus borealis											
Lasiurus cinereus											
Lasionycteris noctivagans											
Other – specify:											
Other – specify:											
Reproductive Status: **NR**= nonreproductive, **PG**= pregnant, **L**= lactating, **PL**= post lactating, **SCR**= scrotal/epididymis swollen. ***Complete Measurement and Capture Data Form for all: (1) Myotis sodalis, (2) Myotis leibii, (3) bats you are banding or band recaptures, (4) radio-tagged bats and (5) bat species not usually found in PA.**											Grand Total

19. BAT DETECTORS & OTHER MONITORING DEVICES: *Tallies of bat passes / hour. One to 5 hours required for Indiana bat hibernacula surveys. Monitor one hour after 22:00 hrs when trapping/netting hibernacula and 5 hours when only monitoring with bat detectors, night vision or infrared device (when site can not be trapped/netted). Describe procedure & equipment used in remarks.*

1st hour	2nd hour	3rd hour	4th hour	5th hour
Start Time:	**Start Time:**	**Start Time:**	**Start Time:**	**Start Time:**
End Time:	**End Time:**	**End Time:**	**End Time:**	**End Time:**
Tallies:	**Tallies:**	**Tallies:**	**Tallies:**	**Tallies:**

20. REMARKS:

FORM P-70008-M
12/09
Section 3

COMMONWEALTH OF PENNSYLVANIA
Pennsylvania Game Commission

Bat Measurement and Capture Data Form

(Complete for all (1) Myotis sodalis, (2) Myotis leibii, (3) bats you are banding or band recaptures, (4) radio-tagged bats and (5) bat sp

Site Name Or Number:				Date:						Set No. Captured In:	Name of Person Identifying the Bat:		
Height in meters captured above ground surface: _____ m				Body Measurements *(grams and millimeters)*							Band Information *(if banded)* *(Band Males on bat's RIGHT fa., Females on*		
Species	Sex	Age	Repro. Condition	Wt. (g)	Ear	Tragus	Fore-arm	Hind Foot		Recapture Yes/No	Band Material	Band Color	Band Inscriptic
Time of Capture	Photo Taken Yes / No		WNS Wing Score	Wing Photo ID: Remarks:									

Repro.Condition: NR= nonreproductive, PG= pregnant, L= lactating, PL= post lactating, SCR= scrotal/epididymis

Site Name Or Number:				Date:						Set No. Captured In:	Name of Person Identifying the Bat:		
Height in meters captured above ground surface: _____ m				Body Measurements *(grams and millimeters)*							Band Information *(if banded)* *(Band Males on bat's RIGHT fa., Females on*		
Species	Sex	Age	Repro. Condition	Wt. (g)	Ear	Tragus	Fore-arm	Hind Foot		Recapture Yes/No	Band Material	Band Color	Band Inscriptic
Time of Capture	Photo Taken Yes / No		WNS Wing Score	Wing Photo ID: Remarks:									

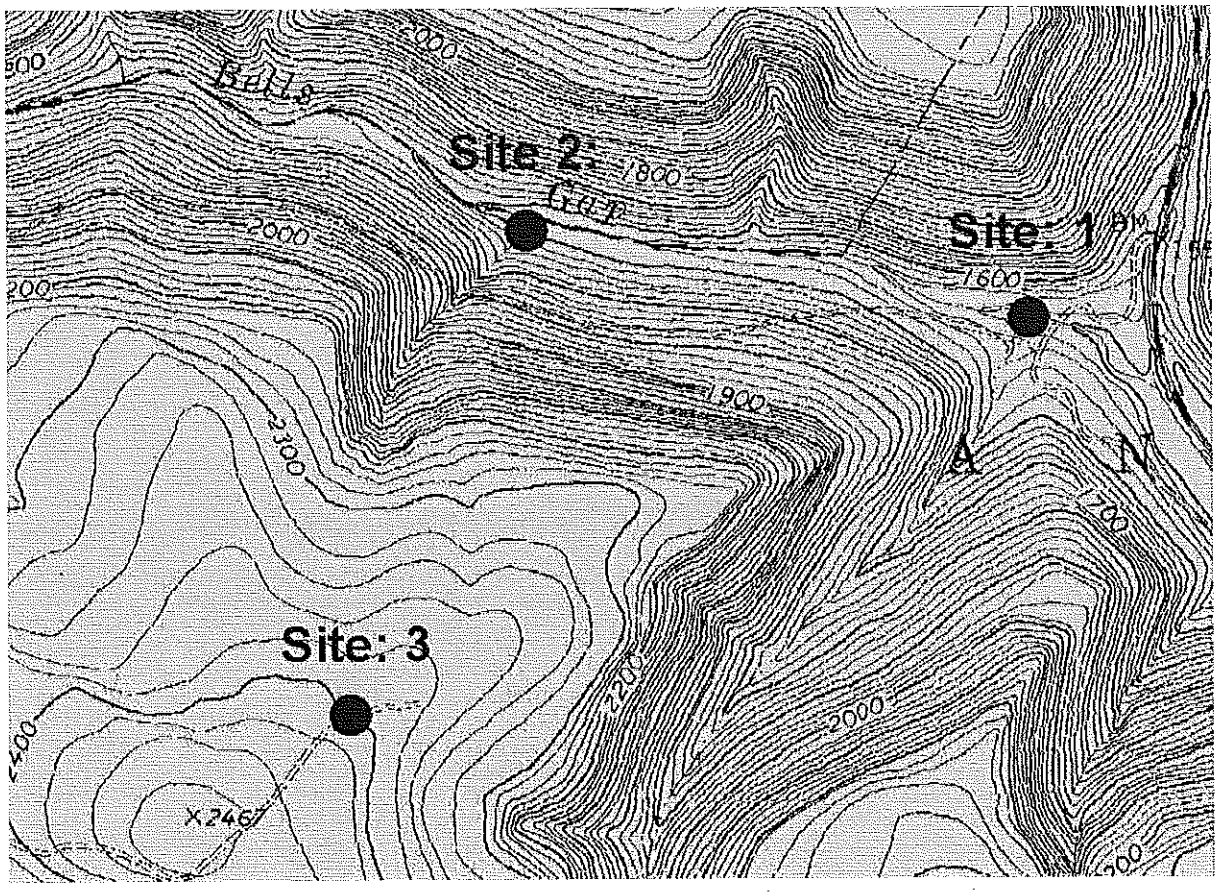
Repro.Condition: NR= nonreproductive, PG= pregnant, L= lactating, PL= post lactating, SCR= scrotal/epididymis

Site Name Or Number:				Date:						Set No. Captured In:	Name of Person Identifying the Bat:		
Height in meters captured above ground surface: _____ m				Body Measurements *(grams and millimeters)*							Band Information *(if banded)* *(Band Males on bat's RIGHT fa., Females on*		
Species	Sex	Age	Repro. Condition	Wt. (g)	Ear	Tragus	Fore-arm	Hind Foot		Recapture Yes/No	Band Material	Band Color	Band Inscriptic
Time of Capture	Photo Taken Yes / No		WNS Wing Score	Wing Photo ID: Remarks:									

*Capture Number = number in sequence by site.

Section 5 - Maps *(example)*

Blair Co., Blandburg Quadrangle, Bells Gap Area.
Location of Sites 1, 2, and 3 for Project PA-24



Mail **hard copy** of report to address on the heading of cover page within 90 days of project con

Section 6 - Photos *(example)*

Male *Myotis sodalis* captured at **Site 1**
Capture date: **7/18/01**
Capture Number: **06**

Portrait

Keeled Calcar

Mail **hard copy** of report to address on the heading of this page within 90 days of project comp

Pennsylvania Game Commission
Bureau of Wildlife Protection, Special Permits Enforcement Division
2001 Elmerton Avenue, Harrisburg, PA 17110-9797

PGC Form:
WD-DR-02/13
Section 4

PA GAME COMMISSION
Wildlife Diversity Section
Day Roost Data Sheet

1-
Landowner: **Name:** _____ **Address:** _____

Phone: _____ _____

2-BAT INFO
Dates on Roost: _____ **Day Roost Number:** _____
(Date = Date bat was on roost; Roost No.= Bat # & numbered roost, in sequence, for that bat ~ 241PGC-01)

Surveyors: _____ **Type:** Tree - Building - Rock - Other_____
(Describe rock and other roost structures)

Bat Species: _____ **Band No.:**_____ **Transmitter Frequency:** _____

Ht.(m) bat is roosting off ground: _____ Was Bat Emergence Form Completed? **YES - NO**
Comments: *(Where is bat roosting? Under bark? If building-describe)*

3-LOCATION

County: _____ **Quadrangle:** _____

Latitude: _____ (DMS) **Elevation (ft.):** _____

Longitude: _____ (DMS) **%Slope:** **Slope Aspect (0-360):**

Datum: Nad27 (prefered) NAD83 / WGS84 (circle one)

4-Roost INFORMATION *(If other than tree, indicate rock, rock cliff, house, barn etc. for species)*

Species: _____ **DBH (cm):**_____ Is Tree Alive? **YES - NO** *(CIRCLE)*

Height: (%UP _____ + %DOWN _____) X Dist.(m) to tree_____ =_____m*(For Trees)*

1st Branch Ht. *(%UP _____ + %DOWN _____) X Dist.(m) to tree_____ =_____m(For Trees)*

Estimate % Canopy Cover Around Roost: _____

Is suitable roost area exposed to direct sunlight? **YES - NO** *(circle one)*
If so - estimate # of hours of exposure to direct sun: _____
Azimuth of Exposure (which way does exposed part of roost face): _____ *(1-360)*

For Trees:
Exfoliating Bark? **YES - NO** **Estimate % of tree with Exfoliating Bark:**_____%

Cavities? **YES - NO If yes - Describe:**_____

5-SURROUNDING HABITAT
Distance (m) to Water:_____ **Water Type:**_____

Understory Species:_____

Overstory Species: _____

6-Comments *(Comment on Overstory Species, Habitat Composition and non-tree roosts. Use back if needed)*

PGC Form:
WD-EM-02/13
Section 4

PA GAME COMMISSION, Wildlife Diversity Section
Bat Emergence Form

*** It is important to keep lights and noise disturbance to a minimum during the emergence period. ***

ROOST NO.:_____ **DATE:**_____

ROOST TYPE: Building - Tree - Rock - Other _____

Surveyors: _____

_____

Transmittered Bat Band No.:_____ **Transmitter Frequency:**_____

Weather **Temperature:**_____*F

Sky Condition Code:_____ **Wind Scale Code:**_____

Sky Conditions

Code	
0	Clear or a few clouds
1	Partly cloudy/variable sky
2	Cloudy (broken) or overcast
4	Fog or smoke
5	Drizzle
7	Snow
8	Showers

Beaufort Wind Scale

Code	MPH	Indicators
0	<1	Smoke rises vertically
1	1-3 mph	Smoke Drift shows wind direction
2	4 - 7 mph	Wind felt on face/leaves rustle
3	8 - 12 mph	Leaves&sm.twigs in constant motion
4	13 - 18 mph	Raises dust & loose paper
5	19 - 24 mph	Small trees in leave sway

Night Vision Equipment Used? **YES - NO** Bat Detector Used? **YES - NO**

Telemety Equipment Present? **YES - NO**

Time Surveyors arrived at Roost :_____ ***(use 24 hour clock for times)***

Time First Bat Seen Flying:_____

Time Transmittered Bat Emerged:_____ **And Azimuth Last Detected:**_____

Time Last Bat Seen Emerging:_____ **Total Emergence Count:**_____

Comments: *(include other emergence observations, weather, bat behavior, etc.)*

Appendix I

Pennsylvania Game Commission
Environmental Review Telemetry Protocol

Refer to these standards when specific telemetry is requested by The Bureau of Habitat Protection. This document also provides general guidance for attaching transmitters to bats.

Contact:

Tracey Librandi-Mumma
Wildlife Biologist / Habitat Protection Section Chief
Pennsylvania Game Commission
2001 Elmerton Avenue
Harrisburg, PA 17110
717-787-4250 3614
717-787-4251 Fax 717-787-6957
tlibrandi@pa.gov

PENNSYLVANIA GAME COMMISSION
Environmental Review Bat Telemetry Protocol

- Objective: To identify and characterize roosts (trees, buildings, rocky areas), foraging areas, and travel corridors.

- Data collected from telemetry surveys will be used by PGC Environmental Review staff to determine how to best avoid, minimize, and if necessary, mitigate for potential impacts to bat species.

- PGC Environmental Review staff may request the use of this telemetry protocol for Eastern small-footed bats (*Myotis leibii*), silver-haired bats (*Lasionycteris noctivagans*), Seminole bats (*Lasiurus seminolus*), or other bat species as specified in PA Game Commission (PGC) PNDI response letters.

Bat Telemetry Protocol:

- *Banding and Transmitter Attachment*
  - Banding
    - Do not attach arm bands or take wing punches without prior PGC approval: banding materials and ID numbers must be approved prior to use. No orange or yellow darvic bands are to be used without specific approval. Split metal bands with tabs and unique number system are preferred for generic banding of species, numbering must be approved ahead of time
    - No banding *M. leibii*
  - Transmitters
    - Try not to exceed 5% and **DO NOT** exceed more than 10% of the bats body weight
    - With the lighter transmitters you should be able to be close to 5%; any transmitter that fits weight rule may be used

- *Equipment*
  - Receivers: Receiver can be a scanning or non-scanning type
  - Antennas
    - Antennas must be tuned to the frequencies of your transmitters and receiver (172 MHz)
    - Antennas should be at least a 2-element (H-antenna) or 3+ element (yagi)
  - Transmitters
    - Transmitters should be tuned to 172 MHz to match the PGC; Approval and justification required in advance from the PGC
    - Transmitter application
      - Transmitters are attached with latex, medical adhesive
      - Recommend PERMA-TYPE surgical cement (Plainville, CT 06062).
      - Using scissors, remove a small patch of fur from the mid-dorsal region (between shoulder blades), then glue the transmitter to the bat's skin with a latex, medical adhesive (Perma-type, Skin-Bond Cement or Osto-Bond)
      - A thin layer of glue is applied to the bat and transmitter separately, allowed to dry a couple minutes until tacky, then joined together to form a secure bond according to manufacturer recommendations

- *Level of effort*
  - Maximum number = 6 bats per survey season
    - All eastern small-footed bats (*Myotis leibii*)
    - Reproductive female and juvenile silver-haired bats (*Lasionycteris noctivagans*)

- Reproductive female and juvenile Seminole bats (*Lasiurus seminolus)*
- Any other bat species as requested by PGC Environmental Review staff

➢ Minimum of 3 nights of telemetry per bat
➢ Minimum of 10 hours a night with a minimum of 3 successful triangulations per hour totaling 30 successful triangulations per night
- Lead biologist should have experience conducting telemetry on flying bats, be familiar with triangulation programs, be able to overcome typical field application difficulties (i.e. bounce/terrain), and be confident they are meeting these requirements
- 10 hour minimum per night includes the time spent by the bat roosting, unless time spent roosting can be attributed to weather (rain, wind over 18 mph, and/or night with starting temperatures below 60°F).
- No more than 2 hours of any night should be missed due to telemetry crew error and/or weather reasons (rain, wind over 18 mph, and/or night with starting temperatures below 60°F).

➢ For each day any transmittered bat is documented roosting at a particular day roost, a minimum of 1 emergence count is required.
- All day roost found must have a minimum of 1 emergence count conducted
- Surveyors should arrive at least ½ hour before sunset and remain at the roost tree, counting all bats emerging until the time at which all bats have emerged or the lighting diminishes to a point at which the surveyor can no longer see to count the bats
- If emergence counts during telemetry are conducted on nights when the starting temperature is below 60°F or wind codes are 4 and above an additional emergence count is needed when more favorable weather conditions exist

- *Data sheets and Data*

➢ Process data by individual animal and provide shapefiles of data points, minimum convex polygons of evening activity and fixed kernel utilization distribution of 95%, 75%, and 50% of the activity data.
➢ PGC data sheets MUST be completed:
- Bat-Netting/Trapping Site Survey Record
- Bat Measurement and Capture Data Form
- Bat Transmitter Detection Record
- Day Roost Forms
  - Complete this form for all roost types – trees, rocks, building, etc.
  - Regardless of roost type, fill out the following under <u>4-Roost Information</u>:
    - Canopy cover estimation
    - Whether roost is exposed to direct sunlight
    - Hours of exposure to direct sunlight
    - Azimuth of exposure
- Bat Emergence Form
- Bats' activity schedule referenced to general locations on a map
  - Foraging and Roosting as a minimum for activity remarks
  - Fall telemetry of males should include amount of time within mine, foraging and roosting

DEPARTMENT OF THE INTERIOR
U.S. FISH AND WILDLIFE SERVICE

FEDERAL FISH AND WILDLIFE PERMIT

2. AUTHORITY-STATUTES
16 USC 1539(a)

REGULATIONS
50 CFR 17.22

50 CFR 13

1. PERMITTEE

ECOLOGY & ENVIRONMENT, INC.
368 PLEASANT VIEW DRIVE
LANCASTER, NY 14086
U.S.A.

3. NUMBER
TE212427-6 AMENDMENT

4. RENEWABLE
☒ YES
☐ NO

5. MAY COPY
☒ YES
☐ NO

6. EFFECTIVE
07/08/2013

7. EXPIRES
12/31/2015

8. NAME AND TITLE OF PRINCIPAL OFFICER *(If #1 is a business)*
JOHN MYE
VICE PRESIDENT

9. TYPE OF PERMIT
NATIVE ENDANGERED SP. RECOVERY - E WILDLIFE

10. LOCATION WHERE AUTHORIZED ACTIVITY MAY BE CONDUCTED

THROUGHOUT THE STATES LISTED IN CONDITION F.

11. CONDITIONS AND AUTHORIZATIONS:

A. GENERAL CONDITIONS SET OUT IN SUBPART D OF 50 CFR 13, AND SPECIFIC CONDITIONS CONTAINED IN FEDERAL REGULATIONS CITED IN BLOCK #2 ABOVE, ARE HEREBY MADE A PART OF THIS PERMIT. ALL ACTIVITIES AUTHORIZED HEREIN MUST BE CARRIED OUT IN ACCORD WITH AND FOR THE PURPOSES DESCRIBED IN THE APPLICATION SUBMITTED. CONTINUED VALIDITY, OR RENEWAL, OF THIS PERMIT IS SUBJECT TO COMPLETE AND TIMELY COMPLIANCE WITH ALL APPLICABLE CONDITIONS, INCLUDING THE FILING OF ALL REQUIRED INFORMATION AND REPORTS.

B. THE VALIDITY OF THIS PERMIT IS ALSO CONDITIONED UPON STRICT OBSERVANCE OF ALL APPLICABLE FOREIGN, STATE, LOCAL, TRIBAL, OR OTHER FEDERAL LAW.

C. VALID FOR USE BY PERMITTEE NAMED ABOVE.

C.1. VALID FOR USE BY JOSH FLINN AND KATIE DAY. ASSISTANTS MAY WORK UNDER THE AUTHORITY OF THIS PERMIT ONLY UNDER THE DIRECT AND ON-SITE SUPERVISION OF NAMED PERMITTEES. **AT LEAST ONE NAMED PERMITTEE MUST REMAIN PRESENT AT EACH MIST-NET SITE WHILE IT IS BEING OPERATED.**

C.2. VALID FOR USE BY JUSTIN ZOLADZ FOR INDIANA BATS AND GRAY BATS. ASSISTANTS MAY WORK UNDER THE AUTHORITY OF MR. ZOLADZ FOR ACTIVITIES WITH INDIANA AND GRAY BATS. MR. ZOLADZ MUST REMAIN PRESENT AT THE SITE AND PROVIDE DIRECT SUPERVISION TO ASSISTANTS.

D. ACCEPTANCE OF THIS PERMIT SERVES AS EVIDENCE THAT THE PERMITTEE AND ITS AUTHORIZED AGENTS UNDERSTAND AND AGREE TO ABIDE BY THE TERMS OF THIS PERMIT AND ALL SECTIONS OF TITLE 50 CODE OF FEDERAL REGULATIONS, PARTS 13 AND 17, PERTINENT TO ISSUED PERMITS. SECTION 11 OF THE ENDANGERED SPECIES ACT OF 1973, AS AMENDED, PROVIDES FOR CIVIL AND CRIMINAL PENALTIES FOR FAILURE TO COMPLY WITH PERMIT CONDITIONS.

E. Permittee is authorized to take (capture, handle, radio-tag, and release) the Indiana bat (*Myotis sodalis*), gray bat (*M. grisescens*), Ozark big-eared bat (*Corynorhinus townsendii ingens*), and Virginia big-eared bat (*Corynorhinus townsendii virginianus*) for scientific research aimed at recovery of the species: presence/absence surveys, studies to document habitat use, population monitoring, and to evaluate potential impacts. This permit does not authorize the collection of voucher specimens.

F. Activities are authorized at the following locations:

F.1. Locations within Oklahoma (Region 2 of the USFWS) upon receipt of written concurrence from the Field Supervisor, as outlined in Condition G.

☒ ADDITIONAL CONDITIONS AND AUTHORIZATIONS ALSO APPLY

12. REPORTING REQUIREMENTS
ANNUAL REPORT DUE: 01/31

ISSUED BY	TITLE	DATE
Lisa Mandell	ACTING CHIEF - ENDANGERED SPECIES	07/08/2013

F.2. Locations within Kansas (Region 6 of the USFWS) upon receipt of written concurrence from the Field Supervisor, as outlined in Condition G.

F.3. Locations within Region 3 of the USFWS: Illinois, Indiana, Iowa, Michigan, Missouri, Ohio and Wisconsin, upon receipt of written concurrence from the Field Supervisor, as outlined in Condition G.

F.4. Locations within Region 4 of the USFWS: Alabama, Arkansas, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina and Tennessee, upon receipt of written concurrence from the Field Supervisor, as outlined in Condition G.

F.5. Locations within Region 5 of the USFWS: Connecticut, Delaware, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, Virginia and West Virginia, upon receipt of written concurrence from the Field Supervisor, as outlined in Condition G.

G. Permittee shall notify the USFWS Field Supervisor for the state in which activities are proposed to occur at least 15 days prior to conducting any activities. Contact information is in Condition M., below. Your request must be in writing and must indicate:

G.1. Location of proposed activities, including project site, county, and state.

G.2. A description of the activities (i.e., surveys, radio-telemetry studies, etc.).

G.3. Dates when the project is proposed to take place.

G.4. Evidence that Permittee has received any required contracts to complete the activities.

G.5. You may proceed with activities only upon receipt of written concurrence from the applicable USFWS Field Supervisor. *Your concurrence letter must be carried with this permit to authorize site-specific activities.*

H. Permittee shall adhere to following conditions involving capture and handling of bats:

H.1. Bats may be captured with mist nets following the protocol included in the 2013 Range-wide Indiana Bat Summer Survey Guidelines (USFWS May 2013). Guidelines are available at: http://www.fws.gov/midwest/endangered/mammals/inba/inbasummersurveyguidance.html. The monitoring interval for mist nets is +/- 10 minutes and may not exceed 15 minutes. Captured bats may be held for a maximum of 30 minutes, unless injured. In extenuating circumstances, bats shall be held for no longer than 45 minutes.

H.2. Permittees may carry out non-intrusive measurements on captured bats. Lipped metal bands having unique identifier may be applied to the forearms of captured bats prior to release. No more than one band per bat may be used.

H.3. Radio transmitters may be applied during summer roosting period via nontoxic skin bond adhesive such as colostomy glue. The total weight of the transmitter may not exceed 5% of the bat's body weight and the total weight of the package (transmitter and adhesive) may not exceed 6% of the bat's body weight. The lightest package (both transmitter and adhesive) capable of accomplishing the required task should be used, especially with pregnant females and newly volant juveniles. Bats carrying transmitters must be monitored daily for at least three days, or until the transmitter falls off, whichever occurs first.

H.4. No trapping activities shall occur within 20 meters of a known Indiana bat maternity roost site, either natural or artificial roosts, unless Permittee receives prior written approval from the U.S. Fish and Wildlife Service Field Supervisor for the state in which the activities are proposed to occur.

H.5. Equipment used to capture and handle bats shall be cleaned and decontaminated, including personal gear such as boots and gloves, using products cited in decontamination guidelines and in compliance with label directions. The most recent decontamination guidance is found on the web at: http://whitenosesyndrome.org/

I. Upon determination that endangered bats are present at previously undocumented sites, Permittee shall notify the following offices within 48 hours: the U.S. Fish and Wildlife Service Region 3 Office (Condition L.), and the U.S. Fish and Wildlife Service Field Office within the geographic location of study areas (Condition M.).

J. Accidental mortality may not exceed two specimens. In the event that this number is met, all activities must cease. Any bat mortality or serious injury must be reported within 5 calendar days to the applicable office listed in Condition M. and to the nearest U.S. Fish and Wildlife Service Office of Law Enforcement (http://www.fws.gov/offices/). Dead or moribund bats may be retained for further study only with the written permission of the U.S. Fish and Wildlife Service. Any bats that are not authorized for retention are to be chilled and promptly transferred to the U.S. Fish and Wildlife Service for potential necropsy and/or contaminants analysis (Condition L.6.).

K. Reports are due on January 31 following each year this permit is in effect. At a minimum, your report shall include:

K.1. The date, time, locations (including datum and projection information), age, sex, weight of all bats encountered.

K.2. Locations surveyed where no bats were encountered.

K.3. Band numbers of all bats banded.

K.4. Information on any injuries and/or mortalities and disposition of specimens.

K.5. Location and characteristics of roost trees and bat colonies.

K.6. Copies of any separate reports and/or publications resulting from work conducted under the authority of this permit.

K.7. A completed INDIANA BAT SURVEY AND BANDING DATA form or the data collection form found in the 2013 Summer Survey Guidelines cited in Condition H.1.

K.8. Copies of all site specific authorization letters required under condition G.

L. Copies of your reports shall be sent to the offices listed below. When possible, electronic copies shall be submitted in lieu of hard copies in MS Word, Portable Document Format, or other file format that is compatible with the receiving office.

L.1. Lisa Mandell
U.S. Fish and Wildlife Service
Midwest Region (Region 3)
Ecological Services
5600 American Blvd. W., Suite 990
Bloomington, Minnesota 55437-1458
(612/713-5343; fax 612/713-5292)
permitsR3ES@fws.gov

L.2. Regional Recovery Permits Coordinator
U.S. Fish and Wildlife Service - Southeast Region (Region 4)
1875 Century Boulevard, Suite 200
Atlanta, Georgia 30345-3301
(404/679-7313; fax 404/679-7081)
permitsR4ES@fws.gov

L.3. Deb Carter
Regional Recovery Permits Coordinator
U.S. Fish and Wildlife Service - Northeast Region (Region 5)
Endangered Species Division
300 Westgate Center Drive
Hadley, Massachusetts 01035-9589
(703/358-2402; fax 413/253-8482)
permitsR5ES@fws.gov

L.4. Marty Tuegel
Regional Recovery Permits Coordinator
U.S. Fish and Wildlife Service
Southwest Region (Region 2)
P.O. Box 1306
Albuquerque, New Mexico 87103-1306
(505/248-6651; fax 505/248-6788)
permitsR2ES@fws.gov

L.5. Kathy Konishi
ESA Assistant Recovery Coordinator & Permit Coordinator
U.S. Fish and Wildlife Service - Mountain-Prairie Region (Region 6)
Endangered Species Permits Office
Denver Federal Center, P.O. Box 25486
Denver, Colorado 80225-0489
(303/236-4212; fax 303/236-0027)
permitsR6ES@fws.gov

L.6. Lori Pruitt
Endangered Species Coordinator for Indiana
U.S. Fish and Wildlife Service
Ecological Services Field Office
620 S. Walker Street
Bloomington, Indiana 47403-2121
(812/334-4261 x1213; fax 812/334-4273)

M. Additionally, based on geographic area, reports and publications shall be submitted to the following:

M.1. For studies conducted in Illinois:

M.1.a. Kristen Lundh
Endangered Species Coordinator for Illinois/Iowa
U.S. Fish and Wildlife Service
Ecological Services Field Office
1511 47th Ave.
Moline, Illinois 61265
(309/757-5800, x215; fax 309/757-5807)

M.1.b. Joe Kath
Endangered Species Coordinator
Illinois Department of Natural Resources
Division of Natural Heritage
One Natural Resource Way
Springfield, Illinois 62702-1271
(217/785-8764; fax 217/785-2438)

M.2. For studies conducted in Indiana:

Katie Gremillion-Smith
Endangered Species Coordinator
Indiana Department of Natural Resources
Division of Fish and Wildlife
Room W273, 402 W. Washington St.
Indianapolis, Indiana 46204-2267
(317/232-8160; fax 317/232-8150)

M.3. For studies conducted in Iowa:

M.3.a. Kristen Lundh
Endangered Species Coordinator for Illinois/Iowa
U.S. Fish and Wildlife Service
Ecological Services Field Office
1511 47th Ave.
Moline, Illinois 61265
(309/757-5800, x215; fax 309/757-5807)

M.3.b. Daryl Howell
Endangered Species Coordinator
Iowa Department of Natural Resources
Parks, Recreation, and Preserves
Wallace State Office Building
East 9th and Grand Avenue
Des Moines, Iowa 50319-0034
(515/281-8524)

M.4. For studies conducted in Michigan:

M.4.a. Barbara Hosler
Endangered Species Coordinator for Michigan
U.S. Fish and Wildlife Service
2651 Coolidge Road
East Lansing, Michigan 48823
(517/351-6326; fax 517/351-1443)

M.4.b. Dan Kennedy
Endangered Species Coordinator
Michigan Department of Natural Resources
Wildlife Division
P.O. Box 30444
Lansing, Michigan 48909-7444
(517/241-3944; fax 517/373-6705)

M.5. For studies conducted in Missouri:

M.5.a. Amy Salveter
Field Supervisor
U.S. Fish and Wildlife Service
Missouri Ecological Services Field Office
101 Park DeVille Drive, Suite A
Columbia, Missouri 65203-2132
(573/234-2132; fax 573/234-2181)

M.5.b. Stephanie Liebi
Scientific Collecting Permit Coordinator
Missouri Department of Conservation
Endangered Species and Natural History Division
2901 W. Truman Blvd.
P.O. Box 180
Jefferson City, Missouri 65102-0180
(573/751-4115 ext. 3322; fax 573/526-5582)

M.6. For studies conducted in Ohio:

M.6.a. Angela Boyer
Endangered Species Coordinator for Ohio
U.S. Fish and Wildlife Service
Ohio Ecological Services Field Office
4625 Morse Road, Suite 104
Columbus, Ohio 43230
(614/416-8993, x22; fax 614/416-8994)

M.6.b. Carolyn Caldwell
Endangered Species Coordinator
Ohio Department of Natural Resources
Division of Wildlife
2045 Morse Road, Building G
Columbus, Ohio 43229-6693
(614-265-6329; fax 614/262-1143)

M.7. For studies conducted in Wisconsin:

M.7.a. Cathy Carnes
Endangered Species Coordinator
U.S. Fish and Wildlife Service
Ecological Services Field Office
2661 Scott Tower Drive
New Franken, Wisconsin 54229
(920/866-1717 x1732; fax 920/866-1710)

M.7.b. Erin Crain
Director, Bureau of Endangered Resources
Department of Natural Resources
Box 7921
Madison, Wisconsin 53707-7921
(608/267-7479; fax 608/266-2925)

M.8. For studies conducted in Alabama:

Daphne Field Office
Bill Pearson, Field Supervisor
1208-B Main Street
Daphne, Alabama 36526
(251) 441-5181

M.9. For studies conducted in Arkansas:

Arkansas Field Office
Jim Boggs, Field Supervisor
110 South Amity
Suite 300
Conway, Arkansas 72032-8975
(501/513-4470)

M.10. For studies conducted in Connecticut, Massachusetts, New Hampshire, Rhode Island and Vermont:

New England Field Office
Tom Chapman, Field Supervisor
70 Commercial Street, Suite 300
Concord, NH 03301
(603) 223-2541

M.11. For studies conducted in Delaware and Maryland:

Chesapeake Bay Field Office
Genevieve LaRouche, Field Supervisor
177 Admiral Cochrane Drive
Annapolis, MD 21401
(410) 573-4573

M.12. For studies conducted in Florida:

Panama City Field Office
Gail Carmody, Field Supervisor
1601 Balboa Avenue
Panama City, FL 32405
(850) 769-0552

M.13. For studies conducted in Georgia:

Georgia Field Office
Sandy Tucker, Field Supervisor
West Park Center, Suite D
105 West Park Drive
Athens, GA 30606-3175
(706) 613-9493

M.14. For studies conducted in Kansas:

Kansas Field Office
Heather Whitlaw, Field Supervisor
2609 Anderson Avenue
Manhattan, Kansas 68502
(785/539-3474; fax 785/539-8567)

M.15. For studies conducted in Kentucky:

Frankfort Field Office
Lee Andrews, Field Supervisor
J C Watts Federal Bldg., Rm 265
330 West Broadway
Frankfort, KY 40601-8670
(502) 695-0468

M.16. For studies conducted in Mississippi:

Mississippi Field Office
Steve Ricks, Field Supervisor
6578 Dogwood View Pkwy, Ste A
Jackson, MS 39213-7856
(601) 321-1122

M.17. For studies conducted in New Jersey:

New Jersey Field Office
Eric Davis, Field Supervisor
927 N. Main Street, Building D
Pleasantville, NJ 08232-1454
(609) 646-9310

M.18. For studies conducted in New York:

New York Field Office
David Stilwell, Field Supervisor
3817 Luker Road
Cortland, NY 13045
(607) 753-9334

M.19. For studies conducted in North Carolina:

Asheville Field Office
Brian Cole, State Supervisor
160 Zillicoa Street
Asheville, NC 28801-1082
(828) 258-3939

M.20. For studies conducted in Oklahoma:

Oklahoma Field Office
Dixie Porter, Field Supervisor
9014 E. 21st St.
Tulsa, Oklahoma 74129
(918) 382-4501

M.21. For studies conducted in Pennsylvania:

Pennsylvania Field Office
Field Supervisor
315 So. Allen Street, Suite 322
State College, PA 16801-4850
(814/234-4090)

M.22. For studies conducted in South Carolina:

Charleston Field Office
Jay Herrington, Field Supervisor
176 Croghan Spur Road, Suite 200
Charleston, SC 29407-7558
(843) 727-4707 x212

M.23. For studies conducted in Tennessee:

Cookeville Field Office
Mary Jennings, Field Supervisor
U.S. Fish and Wildlife Service
446 Neal Street
Cookeville, TN 38501-4027
(931) 528-6481

M.24. For studies conducted in Virginia:

Virginia Field Office
Cindy Schulz, Field Supervisor
6669 Short Lane
Gloucester, VA 23061
(804) 693-6694

M.25. For studies conducted in West Virginia:

West Virginia Field Office
Field Supervisor
Route 250 South, Elkins Shopping Plaza
694 Beverly Pike
Elkins, WV 26241
(304) 636-6586

cc: FWS/Region 2, 4, 5 and 6 (AES/TE)
FWS, TE Coordinators for Illinois, Indiana, Iowa, Michigan, Missouri, Ohio and Wisconsin
DNR/DOC, TE Coordinators for Illinois, Indiana, Iowa, Michigan, Missouri, Ohio and Wisconsin

END

From:	Netti, Gregory
To:	Shellenberger, Pamela; jotaucher@pa.gov
Cc:	Zoladz, Justin A.; Amanda Harford (Amanda.Harford@williams.com); Allen, Anne; Donnelly, Mike; Fischbeck, Leslie; Ryan Nelson; Chris Sanders (sanders@batgate.com)
Subject:	USFWS Project No 2014-0324_PGC ID Number: 20140311050: Atlantic Sunrise Project_Final Bat Survey Work Plan
Date:	Wednesday, June 4, 2014 5:43:54 PM
Attachments:	ASR Bat Survey Work Plan_Comment Response Matrix_FINAL.pdf image001.jpg

Pam and John,

Responses to your comments on the Draft Indiana Bat and Northern Long-Eared Bat Habitat Assessment/Work Plan are attached. The Final report addressing your comments is available on our FTP site (access instructions below).

Regards,

Greg

http://its.ene.com
Username: ene
Password: sharedftp
Folder: Atlantic Sunrise

Greg Netti
Ecology and Environment, Inc.
368 Pleasant View Drive
Lancaster, NY 14086
Phone: 716-684-8060 Ext: 2810 | Fax: 716-684-0844
Cell: 716-225-5017
gnetti@ene.com | www.ene.com

Celebrating 40 Years of Green Solutions

Atlantic Sunrise Bat Survey Draft Work Plan Comment Response Matrix			
Comment Number	Work Plan Section	PGC Comment	Response to Comment
1	2.2.1	Interim FWS guidance states trees 3" or greater dbh for NLEB; IBAT is >5" dbh - is USFWS OK with them using 5" for both species?	As the Habitat Survey was a desktop review, the digitization of Potential Suitable Summer Habitat was done in a conservative manner. All forest blocks were included unless they appeared to be very early successional. Individual trees were included if they appeared to be more than 30 feet tall on the oblique imagery. Trees less than 5 inches in diameter at breast height were likely included using this methodology. In total, there are 264 1-kilometer survey segments over the approximate 304 kilometer Project. Only 40 kilometers (km), or about 13% of the route, is not within a 1-kilometer survey segment. Most of this area is comprised of agricultural land and completely devoid of any woody vegetation and, therefore, it is unlikely that there are areas of 3- to 4-inch trees that were not included in a survey segment. The work plan has been updated to reflect that if, during field review, a case is found where there are suitable trees which were missed in the desktop review an additional survey segment has been added.
2	3.2.1	Would suggest having a table similar to Table 2-1 that provides the bat segment per section of project, as the total appears to add up to 264 which is the number of survey sites E&E is proposing. Currently, it is not clear how 264 sites were determined and such a table would help to illustrate this.	Table 3-1 illustrates the total number of survey segments broken down by Project component and county.
3	3.2.1	Include justification for how the number of survey sites was determined.	The number of survey sites was determined as follows based on direction provided by the USFWS PA Field Office. One-km, or 1,000-meter-long, survey segment areas were established for the entire Project. The initial 1-km survey segment area began at the first tree to be cleared within the Project right-of-way (ROW) and then continued for 1,000 meters. The next 1-km survey segment area began at the next tree to be cleared within the Project ROW and then continued for 1,000 meters. The process of locating each 1-km segment area was repeated for the entire project ROW.
4	3.2.3	Three nets or three net sets? Clarify please.	The use of the term "nets" in this section refers to the three separate net locations which have been sampled twice to meet the 6 net-nights per km requirement in the USFWS Guidelines. The term "nets", as used in this section, is synonymous with what PGC describes as "net sets". USFWS does not prescribe the size of the nets or net separation needed to fulfill the requirement of 6 net-nights per km, other than to state the nets should fully block the corridor being sampled. As such, to meet the USFWS requirements, three single-high nets could be used if the corridor being sampled had a low enough canopy that was adequately blocked by single-high net sets. PGC mandates that two net sets per site must be capable of stacking three nets. As such, two of the three net sets per site will consist of triple-high stacked nets. As the third net set is not directed in the PGC requirements, it will consist of what is most appropriate for the site – either a single net or a double- or triple-stacked net set, depending on the height of the canopy over the habitat being sampled. The work plan has been updated to reflect the PGC term "net sets" to clarify this.
5	3.2.3	Again, clarify whether each site is using three nets, or three net sets. As written it is difficult to comprehend what is being proposed.	See previous comment response.
6	3.2.6	Is this "sites" referring to survey site locations, or net sites at the survey site locations?	The term "sites" in this section is referring to the group of three proximate net sets, which will each be sampled twice for every 1-km survey segment. The work plan has been updated to include this definition.

Atlantic Sunrise Bat Survey Draft Work Plan Comment Response Matrix			
Comment Number	Work Plan Section	PGC Comment	Response to Comment
7	3.2.11	According to PGC 2014 Standard and Minimum Effort Requirements for Qualified Bat Surveyor Netting within the Commonwealth of Pennsylvania for Environmental Review Projects: Surveyors must report all federally endangered, i.e. M.sodalis, bat findings to the Service and PGC within 72 hours. Likewise, PGC must be notified within 72 hours if any state threatened eastern small-footed bats are captured.	The work plan has been updated to reflect that the Project will notify both the USFWS and PGC within 48 hours of capturing a federally endangered Indiana bat and notify PGC within 48 hours of capturing a state threatened eastern small-footed bat.
8	3.3	According to PGC 2014 Standard and Minimum Effort Requirements for Qualified Bat Surveyor Netting within the Commonwealth of Pennsylvania for Environmental Review Projects: The PGC maximum number of bats to radio-track per season is 6 bats. Therefore a maximum of 6 in during the 2014 survey season and 6 during the 2015 survey season may be radio-tracked.	The work plan has been updated to reflect that the Project will radio-track a maximum of 6 bats each in 2014 and 2015 for a maximum total of 12 bats over two separate survey seasons for foraging studies.
9	3.3.1	According to PGC 2014 Standard and Minimum Effort Requirements for Qualified Bat Surveyor Netting within the Commonwealth of Pennsylvania for Environmental Review Projects: Telemetry in addition to tracking for foraging data, the bats must also tracked to document roost locations and associated emergence counts.	The work plan has been updated to clarify that all radio-tagged bats, including those followed for foraging studies, will be tracked to their roost locations and emergence counts will be performed when they are on accessible property.
10	3.3	Based on the PGC's environmental review of this project, the PGC prefers that small-footed bats take priority over silver-haired or Seminole bats for telemetry.	The work plan has been updated to reflect that small-footed bats will take priority over silver-haired or Seminole bats for telemetry foraging studies and that no more than two silver-haired or Seminole bats, in aggregate, will be radio-tagged per year.
11	3.3	Refer to Appendix I of the PGC's Standard and Minimum Effort Requirements of Qualified Bat Surveyor Netting within the Commonwealth of Pennsylvania for Environmental Review Projects for what information is required.	The work plan has been updated to clarify that the Project will collect information in accordance with Appendix I of the PGC's Standard and Minimum Effort Requirements of Qualified Bat Surveyor Netting within the Commonwealth of Pennsylvania for Environmental Review Projects.
12	3.3	Again, based on the PGC's review of this project and its potential impacts to eastern small-footed bats, the PGC requests that small-footed bat telemetry take priority over silver-haired, or Seminole bat telemetry.	The work plan has been updated to reflect that small-footed bats will take priority over silver-haired or Seminole bats for telemetry foraging studies and that no more than two silver-haired or Seminole bats, in aggregate, will be radio-tagged per year.
13	3.3	per survey season = 6 in 2014 and 6 in 2015 = 12; or if 75% of survey to occur in 2014, 9 in 2014 and 3 in 2015.	The work plan has been updated to reflect that the Project will radio-track a maximum of 6 bats each in 2014 and 2015 for a maximum total of 12 bats over two separate survey seasons for foraging studies.

Atlantic Sunrise Bat Survey Draft Work Plan Comment Response Matrix			
Comment Number	Work Plan Section	PGC Comment	Response to Comment
14	3.3	As previously stated, the PGC requests that small-footed bat telemetry be prioritized over both silver-haired and Seminole Bats. Remove statement that only two studies on small-footed bats has been conducted. Change to state that preference has been given to Indiana and small-footed bats over silver-haired and Seminole bats in determining candidates for telemetry	The work plan has been updated to reflect that preference has been given to Indiana and small-footed bats over silver-haired and Seminole bats in determining candidates for telemetry foraging studies and that no more than two silver-haired or Seminole bats, in aggregate, will be radio-tagged per year.
15	3.4	Since bat hibernacula entrances can be as small as 12 inches in diameter, it is not understood how assessing it from an adjacent property is even possible. Provide explanation as to how this has been accomplished from the adjacent property.	The northern long-eared bat Guidelines suggest reviewing all potential caves, mines, and portals identified during the desktop analysis out to 3 miles from the Project boundary. Due to the linear nature of the Project over 170 miles, the Project will not have survey access for a 3-mile buffer. However, efforts will be made to gain additional survey access to any site identified during desktop or field review as having high potential to function as bat hibernacula. The USFWS PA Field Office recommended this protocol be followed for evaluating potential hibernacula sites outside of the primary survey corridor where land access has been obtained.

Atlantic Sunrise Bat Survey Draft Work Plan Comment Response Matrix			
Comment Number	**Work Plan Section**	**USFWS Comment**	**Response to Comment**
1	3.3	According to page 32 of the guidance, "if one or more Indiana bats are captured..." Meaning regardless of sex, or number, all Indiana bats should be radio tracked. Please edit your proposal to reflect this.	The work plan has been updated to reflect that all Indiana bats will be radio-tagged and tracked by the Project, regardless of sex, age, or number.

Indiana and Northern Long-eared Bat Phase 1 Habitat Assessment and Phase 2 and Phase 4 Final Work Plan

Atlantic Sunrise Project

USFWS Project Number: 2014-0324

June 2014

Prepared for:

Transcontinental Gas Pipe Line Company, LLC (Transco)

Prepared by:

ECOLOGY AND ENVIRONMENT, INC.
368 Pleasant View Drive
Lancaster, New York 14086

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List of Abbreviations and Acronyms

BI	Bat Identifier
CD	compact disk
Certificate	Certificate of Public Convenience and Necessity
CPL	Central Penn Line
E & E	Ecology and Environment, Inc.
FERC	Federal Energy Regulatory Commission
GIS	geographic information system
ID	identification
LOE	level of effort
MAOP	maximum allowable operating pressure
MHz	megahertz
MLV	mainline valve
MP	milepost
NAIP	National Agriculture Imagery Program
NLEB Guidance	*Northern Long-eared Bat Interim Conference and Planning Guidance*
P/A	presence/absence
PA QBS	Pennsylvania Qualified Bat Surveyor
PGC	Pennsylvania Game Commission
Project	Atlantic Sunrise Project
psig	pounds per square inch gauge
QBS	Qualified Bat Surveyor
ROW	right-of-way
T&E	threatened and endangered
Transco	Transcontinental Gas Pipe Line Company, LLC
USFWS	U.S. Fish and Wildlife Service
Williams	Williams Partners L.P.

1 Introduction

1.1 Project Description

Transcontinental Gas Pipe Line Company, LLC (Transco), a subsidiary of Williams Partners L.P. (Williams), is proposing the Atlantic Sunrise Project (Project) to add 1,700,000 dekatherms per day of pipeline capacity to the Transco natural gas transmission system. The Project will consist of compression and looping of the Transco Leidy Line system in Pennsylvania along with a new, greenfield pipeline segment, referred to as the Central Penn Line (CPL), connecting the northeastern Marcellus Shale natural gas production region to the existing Transco mainline near Station 195 in southeastern Pennsylvania. The Project consists of the following primary components:

- Approximately 177.3 miles of new 30-inch and 42-inch diameter greenfield pipelines in Pennsylvania;
- Approximately 12.0 miles of new 36-inch and 42-inch diameter pipeline loops in Pennsylvania;
- Two new compressor stations in Pennsylvania;
- Additional ancillary facilities, such as mainline valves (MLVs), cathodic protection, communication towers, and internal inspection device launchers and receivers in Pennsylvania;
- Additional compression and related modifications to three existing compressor stations in Pennsylvania, Maryland, and Virginia;
- Two new meter stations with interconnecting piping in Pennsylvania;
- Three new regulator stations with interconnecting piping in Pennsylvania;
- Approximately 2.52 miles of 30-inch diameter pipeline replacements in Virginia;
- Modifications to six existing compressor stations that enable compression for bi-directional flow, and/or supplemental odorization, odor detection, and/or odor masking/deodorization equipment in Maryland, Virginia, and North Carolina; and
- Supplemental odorization, odor detection, and odor masking/deodorization equipment, at various meter stations, and valve sites in North Carolina and South Carolina.

On March 31, 2014, Transco requested that the Federal Energy Regulatory Commission (FERC) initiate a pre-filing environmental review of the proposed Project. FERC accepted Transco's pre-filing request and assigned the Project pre-filing docket number PF14-8. Should FERC grant a Certificate of Public Convenience and Necessity (Certificate) for the Project and upon receipt of necessary permits and authorizations, Transco anticipates construction of the Project would commence in June 2016 to meet an in-service date of July 1, 2017.

1.2 Agency Consultation

Ecology and Environment, Inc. (E & E), on behalf of Transco, submitted a letter to the U.S. Fish and Wildlife Service (USFWS), Pennsylvania Field Office, on March 7, 2014, requesting information on threatened and endangered (T&E) species in the Project area. In a response letter dated April 28, 2014, the USFWS stated that the Project area is located within the range of the federally endangered Indiana bat (*Myotis sodalis*) as well as the range of the northern long-eared bat (*Myotis septentrionalis)*, a species proposed for listing as endangered (Zimmerman 2014). The USFWS Pennsylvania Field Office requested that E & E perform a bat survey within areas of suitable habitat associated with the Project that require tree clearing.

The Pennsylvania Game Commission (PGC) was also contacted by E & E for information regarding state-listed threatened and endangered species. In a letter dated April 3, 2014, the PGC stated that the Project has the potential to impact the Indiana bat and northern long-eared bat. As stated in PGC's response letter, the PGC defers comments on potential impacts to Indiana bats to the USFWS (Taucher 2014).

1.3 Scope of Bat Surveys

At this time, Transco has identified the need for tree clearing on the following Project components in Pennsylvania: CPL North, CPL South, Chapman Loop, and Unity Loop. Each Project component is shown on Figure 1 and described below.

Central Penn Line North

CPL North will consist of approximately 56.1 miles of new 30-inch-diameter natural gas pipeline in Pennsylvania with a maximum allowable operating pressure (MAOP) of 1,480 pounds per square inch gauge (psig). This proposed pipeline will be co-located within or adjacent to Transco's Leidy Line pipeline right-of-way (ROW) for approximately 21.0 miles. CPL North will commence near approximate milepost (MP) L113.8 of the existing Transco Leidy Line pipeline in Columbia County and continue east for approximately 21.0 miles along Transco's Leidy Line A ROW. Near approximate MP 21.0 in Luzerne County, the pipeline will turn northeast, separating from the existing Transco Leidy Line system and continuing for approximately 35.1 miles through Wyoming and Susquehanna counties, Pennsylvania to the proposed receipt meter station at the existing Williams Zick Compressor Station in Susquehanna County.

Central Penn Line South

CPL South will consist of approximately 121.3 miles of new greenfield 42-inch diameter pipeline in Pennsylvania with an MAOP of 1,480 psig. CPL South is currently proposed to commence near approximate MP 1683.0 of the existing Transco Mainline system in Lancaster County and will continue north through Lebanon, Schuylkill, Northumberland, and Columbia counties, Pennsylvania, before reaching its terminus near approximate MP L113.8 of the existing Transco Leidy Line pipeline.

Chapman Loop

The Chapman Loop will consist of approximately 3.0 miles of 36-inch pipeline co-located with the existing Transco Leidy Line in Clinton County, Pennsylvania. Once placed into operation, Transco will refer to the Chapman Loop as the Leidy Line E.

Unity Loop

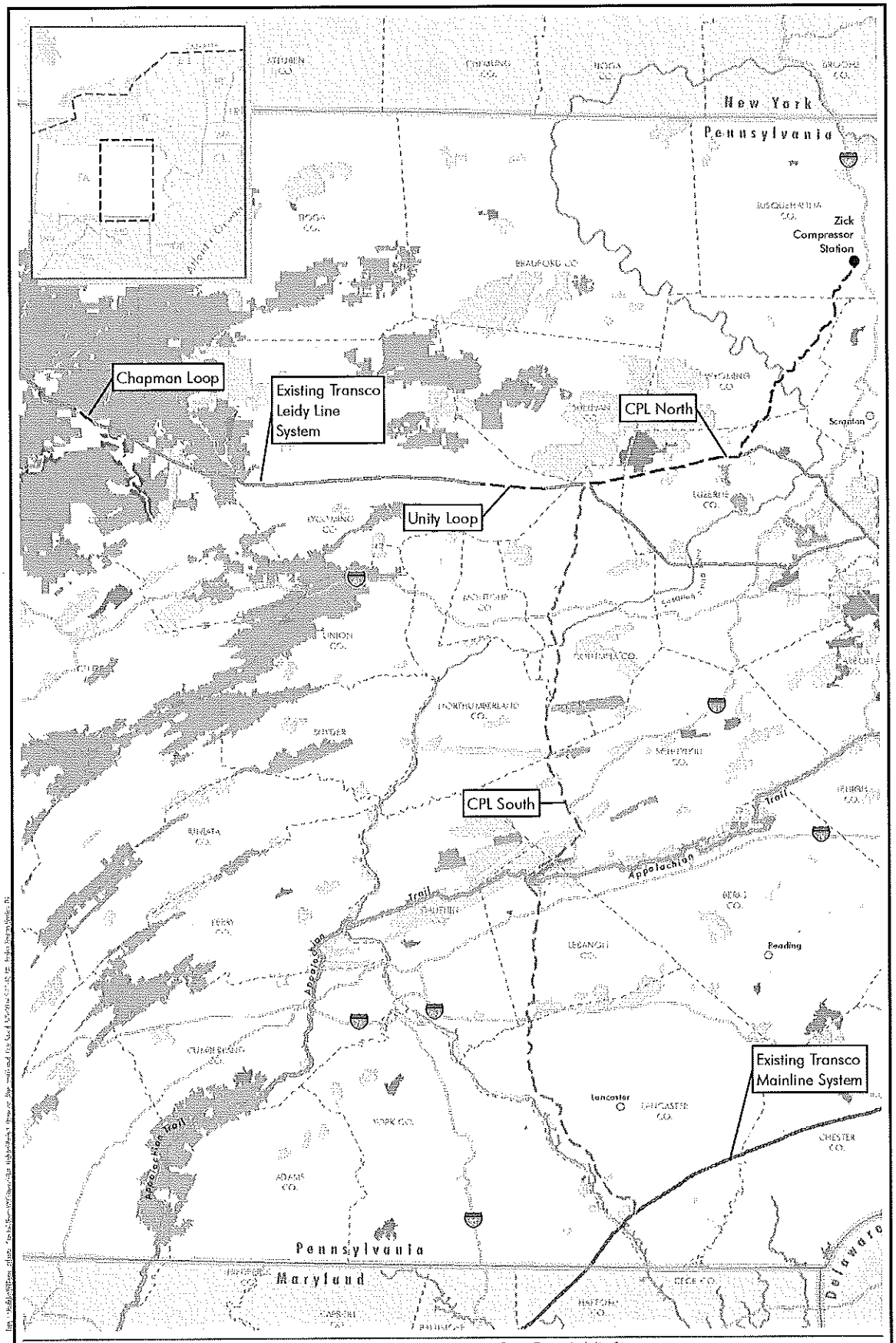
The Unity Loop will consist of approximately 9.0 miles of 42-inch pipeline co-located with the existing Transco Leidy Line pipeline in Lycoming County, Pennsylvania. Once placed into operation, Transco will refer to the Unity Loop as the Leidy Line D.

1.4 Phase 1 Habitat Assessment and Phases 2 and 4 Draft Work Plan

E & E, on behalf of Transco, has conducted a Phase 1 Habitat Assessment and developed a Phase 2 mist-netting presence/absence (P/A) survey and Phase 4 Telemetry study Draft Work Plan for the above Project components in accordance with USFWS's *2014 Range-wide Indiana Bat Summer Survey Guidelines* (January 2014) (USFWS Guidelines; USFWS 2014a) and the *Northern Long-eared Bat Interim Conference and Planning Guidance* (January 2014) (NLEB Guidance; USFWS 2014b), along with the Pennsylvania Game Commission's *Standard and Minimum Effort Requirements for Qualified Bat Surveyor Netting within the Commonwealth of Pennsylvania for Environmental Review Projects* (PGC Requirements). The Phase 1 Habitat Assessment is provided in Section 2 of this document; the Phase 2 and Phase 4 Draft Work Plan is provided in Section 3.

Transco proposes to conduct P/A surveys using only mist-netting. No acoustic P/A surveys will be performed. As such, Phase 3 of the USFWS Guidelines is not addressed in the work plan.

At this time, other proposed facilities to be constructed in Pennsylvania as part of the Project are not expected to require tree clearing and were, therefore, not included in the habitat assessment and work plan. Any changes or additions to the Project will be reviewed to determine if there is any potential impact to rare bat species. If there are any additional potential impacts from any Project changes or additions, a supplemental Phase 1 assessment will be conducted and this work plan will be amended accordingly.



Data Sources: Williams 2014; Mustang 2014; ESRI 2013; DCNR 2013; USGS NHD 2012; PAGC 2006

Figure 1
Proposed Pipeline Facilities Associated with the Atlantic Sunrise Project

2 Phase 1 Habitat Assessment

2.1 Project Area Definition for Phase 1 Habitat Assessment

E & E conducted a desktop Phase 1 summer habitat assessment for each of the four pipeline components of the proposed Project in Pennsylvania: CPL North, CPL South, Chapman Loop, and Unity Loop. Transco is in the process of finalizing the centerline of the greenfield portions of the pipeline routes and developing workspace configurations. As such, the exact clearing limits associated with each proposed pipeline are not known at this time. To facilitate completion of bat surveys during the upcoming survey season, this habitat assessment has been completed within the limits of the survey corridors where the pipelines are planned to be placed and workspace developed. These survey corridors are described below.

- Greenfield Pipeline: Transco is undertaking a comprehensive routing process to identify the centerline of the greenfield portions of the CPL North pipeline (approximately 29.7 miles) and entire CPL South pipeline (approximately 121.3 miles) to minimize environmental impacts as feasible along the route. This is being accomplished by individual routing teams comprised of land, engineering, and environmental specialists evaluating a 600-foot-wide corridor for placement of the centerline. Resource and land use areas of environmental concern (e.g., stream, wetlands, sensitive species habitats, and residences) are being avoided to the maximum extent possible, while engineering design factors, constructability, and safety are considered. Survey crews will begin marking the centerline of the proposed pipelines in May 2014 on those properties where survey access has been granted by the landowners. Crews will mark the centerlines at frequent intervals, as well as at known crossings of foreign lines and utilities, at road crossings, and at points of inflection.
- Co-located Pipeline and Looping: For the portion of the CPL North pipeline co-located with Transco's existing Leidy Line system (approximately 21.0 miles) and the entire Chapman and Unity Loops (approximately 12.0 miles), Transco is completing environmental field surveys within a 300-foot-wide corridor. The workspace to construct these pipelines will be placed within this corridor.

In summary, the Project area for the Phase 1 habitat assessment is defined as a 600-foot-wide corridor for the greenfield portion of CPL North and entire CPL South, and a 300-foot wide corridor for the co-located portion of CPL North and the two proposed pipeline loops.

2.2 Methodology

2.2.1 Summer Roosting and Foraging Habitat

E & E conducted a desktop analysis and digitized all potentially suitable summer habitats within the Project areas identified in Section 2.1. All forested areas, treed windrows, wooded corridors, and individual trees were included as potential suitable summer habitat for both Indiana and northern long-eared bat if it appeared that a stand contained trees or an individual tree appeared to be, greater than 5 inches diameter at breast height. Areas were determined not to be potential suitable summer habitat if they appeared to be scrub/shrub or early successional forest, presumably only containing trees less than 5 inches in diameter at breast height. For the purposes of the desktop analysis, it was assumed that any forest block containing individual trees of sufficient size could have exfoliating bark, cracks, crevices, and/or hollows and thus was counted as potentially suitable summer habitat.

E & E used NLEB guidance in their original survey level of effort. Since the NLEB Guidance differs from the Indiana bat USFWS Guidelines, which includes trees greater than or equal to 3 inches diameter at breast height as possible suitable summer habitat; areas that were not included as part of the survey level of effort based on the initial digitization will be reviewed in the field to determine if any 3 or 4-inch diameter at breast height trees were missed. If any 3 or 4-inch diameter at breast height trees were missed in the initial digitization that are in an area that is not being surveyed, an additional survey site will be added.

Each area identified as having potentially suitable habitat was reviewed using multiple years' worth of aerial imagery. Digitization of individual habitat polygons was conducted at a 1:1,250 scale and based on the ESRI World Imagery ArcGIS Online Basemap layer, which is comprised of primarily 2011 data at 1-foot resolution. This initial digitization was reviewed on a National Agriculture Imagery Program (NAIP) 2013 aerial imagery base layer to account for any recent changes. The primary digitization was not based off the NAIP imagery because it is of lower resolution than the World Imagery. Additionally, Google Earth historic aerial imagery and Bing oblique imagery were used as supplemental data to verify areas that were identified as scrub/shrub and/or early successional forest.

2.2.2 Hibernacula

As requested by the USFWS in its April 28, 2014, a desktop analysis of existing databases was reviewed to determine the potential presence of caves, mines, and portals within the Project areas that could be used during hibernation or alternatively, potentially used as summer roost sites by either the Indiana bat or the northern long-eared bat. Queried features included: bat caves; abandoned mines; coal mining operations; industrial mineral mining operations; other mines,

quarries, and plants; anthracite coal mine permits; and karst features. Bat cave data were obtained from Bat Conservation and Management, Inc. Data on mining features, such as abandoned and active mines and quarries, were obtained from Pennsylvania Department of Environmental Protection and United States Geological Survey. Karst features were obtained from the Bureau of Topographic and Geologic Survey, Pennsylvania Department of Conservation and Natural Resources.

2.3 Results

2.3.1 Summer Roosting and Foraging Habitat

In total, approximately 5,139 acres of suitable summer bat habitat were digitized within the Project area survey corridors (see Table 2-1). Since this was a desktop analysis, no Indiana Bat Habitat Assessment Datasheets were completed.

Due to the length of the proposed pipelines, E & E is submitting representative hardcopy mapping showing results of the habitat assessment on aerial base maps (see Appendix A). Shapefiles containing the results of the habitat mapping for the entire Project area are included on compact disk (CD) in Appendix B.

Table 2-1 Atlantic Sunrise Project - Desktop Bat Habitat Assessment Results

Project Component	County	Acres of Study Corridor	Acres of Suitable Summer Bat Habitat within the Project Area Corridors
CPL North	Columbia	176.31	138.05
	Luzerne	991.28	663.20
	Susquehanna	487.87	200.24
	Wyoming	1,648.83	936.81
	CPL North Total	**3,304.30**	**1,938.29**
CPL South	Columbia	2,433.59	777.47
	Lancaster	2,603.06	623.82
	Lebanon	1,939.10	580.81
	Northumberland	552.75	480.55
	Schuylkill	1,276.52	594.33
	CPL South Total	**8,805.02**	**3,056.99**
Chapman Loop	Clinton County	**111.54**	**60.99**
Unity Loop	Lycoming	**328.81**	**117.48**
Overall Totals		**12,549.67**	**5,173.75**

2.3.2 Hibernacula

Results of the database review for potential bat hibernacula features are provided in Table 2-2. No bat caves were identified, but a small number of abandoned or active mines were identified in existing databases as occurring within the Project area. Of the seven mines identified, six occur along CPL South and one occurs

along CPL North. Of these, two are active mines and five are abandoned. Karst features are concentrated along CPL South in Lancaster and Lebanon counties. Of the 128 karst features identified, 125 of them were surface depressions. The remaining karst features were one sinkhole and two surface mines.

Caves, mines, and portals within the Project area as obtained from existing data sources are included in the shapefiles provided on CD in Appendix B.

Table 2-2 Atlantic Sunrise Project - Caves, Mines, and Portals within the Project Area

Project Component	County	Feature Class	Number of Sites
CPL North	Wyoming	Industrial Mineral Mining Operations	1
	CPL North Total		**1**
CPL South	Lancaster	Karst Features	63
	Lebanon	Karst Features	65
	Northumberland	Abandoned Mines	3
	Schuylkill	Abandoned Mines	2
	Schuylkill	Coal Mining Operations	1
	CPL South Total		**134**
	Overall Total		**135**

Note:
- No features were identified within 150 feet of the proposed centerline on either the Chapman or Unity Loops.
- No caves with documented presence of bats were identified within the Project area.

2.4 Habitat Assessment Preparers

The Phase 1 desktop habitat assessment and the digitization of the polygons of potential suitable summer habitat used to calculate the Phase 2 LOE, was conducted by Justin Zoladz. Mr. Zoladz is an associate biologist at E & E, who is a named permittee on E & E's federal native endangered species recovery permit (TE212427-6), which includes Indiana bats (see Appendix C). He is also listed as a Pennsylvania Qualified Bat Surveyor (PA QBS) with the USFWS State College Field Office. Mr. Zoladz received a B.S. in Environmental Science from Canisius College in May 2001. Gregory Coniglio, a Chief GIS Analyst at E & E assisted Mr. Zoladz with the geographic information system (GIS) analysis and Phase 2 LOE determination. Mr. Coniglio has a B.S. in Environmental Science and a M.S. in GIS, both from the State University of New York at Buffalo.

The habitat assessment and draft work plan was reviewed by Christopher Sanders, of Sanders Environmental, Inc. Mr. Sanders has been working with northeastern bats since 1995. Mr. Sanders began his career with bats working part time for the PGC as a biologist's aide under Cal Butchkoski and continued seasonal work with the Commission for 12 years. In 1996 he began performing a variety of contract and grant work (Indiana bat P/A surveys, spring and fall migration, cave and mine gating) centered on bats. Since Sanders Environmental, Inc. was incorporated in

2002, the organization has been surveying 200 to 500 net sites a summer, including some of the largest linear sampling projects in the mid-Atlantic. The corporation consults and conducts surveys for industry and government, and employs up to 40 individuals per year, working almost exclusively with bats.

3 Phase 2 and Phase 4 Draft Work Plan

3.1 Project Area Definition for Phases 2 and 4 Work Plan

The level of effort (LOE) for the Phase 2 P/A survey was determined by utilizing a 100-foot-wide corridor centered on the current proposed pipeline routes. This 100-foot-wide corridor represents the approximate clearing limits associated with pipeline alignments. Please note that construction workspace for the proposed pipelines will generally range from 75 to 110 feet wide, depending on land use and natural resources present. A general 100-foot-wide construction corridor has been assumed for the development of this work plan.

3.2 Phase 2 Presence/Absence Survey

As outlined in Section 1.4, Phase 2 mist-net P/A surveys must be completed according to protocols established in the USFWS Guidelines, NLEB Guidance, and PGC Requirements. The following subsections focus on the specific methods (desktop or field) used to meet the two protocols, specifically discussing areas where the USFWS Guidelines and PGC Requirements are non-specific or differ for full disclosure of methods prior to sampling.

3.2.1 Level of Effort Determination

The minimum survey LOE was determined by GIS analysis, using a minimum length of 1 kilometer for each survey segment. The length of the centerline where potential suitable summer bat habitat would be impacted was determined using ESRI ArcGIS's "linear referencing." The digitized polygons representing potential suitable summer bat habitat were reduced to a 100-foot corridor centered on the proposed centerline, representing the potential clearing limit necessary for construction. To relate these polygons to their parallel location(s) along the centerline, each vertex on the bat habitat polygons was converted into a GIS point feature. For each of these points, the closest location along the proposed centerline was determined, and added to a table, using the "Locate Features along Routes" tool within ESRI's ArcGIS Desktop 10.2 software. This produces a table listing the location along the centerline that is closest to each polygon vertex, along with the identification (ID) of the original bat habitat polygon. The bat polygon ID is summarized to produce a second table listing the first location along the route, and the last location along the route associated with each particular bat polygon ID. From this summary table, the "Make Route Event Layer" tool (Line option) is used to create a new linear dataset, which represents

only the portion of the centerline that is parallel to a potential suitable summer bat habitat polygon.

Using the data that were generated in the previous step, a custom-written script, developed using an ESRI ArcGIS Desktop 10.2 "ArcObjects" add-in, was used to create the 1-kilometer survey segments where the Phase 2 surveys will be conducted. The script began at the first occurrence of suitable summer bat habitat on the centerline. It then extended forward 1 kilometer along the segment, recording the prior kilometer as the first 1-kilometer segment. If the new location also crossed a suitable summer habitat polygon, the next 1 kilometer was also recorded as a survey segment. If an extension of 1 kilometer resulted in a location that did not cross suitable summer bat habitat on the centerline, then the script continued forward along the centerline until it encountered the next habitat. From here, the program started the next 1-kilometer segment. The final LOE was determined by summing these resulting 1-kilometer segments. Depending on placement, the final segment on the centerline may be less than 1 kilometer.

Table 3-1 lists the number of sites required for each Project component. Due to the length of the proposed pipelines, a map showing anticipated survey segment locations is provided in Appendix A. Shapefiles containing the locations of anticipated survey segment locations for the entire Project area are included on CD in Appendix B.

Table 3-1 Atlantic Sunrise Project - Level of Effort (Phase 2 Survey Sites) per Project Component

Project Component	County	Kilometers (km) of Project Component	Survey Sites Required Based on Phase 1 Results
CPL North	Columbia	7.69	8
	Luzerne	35.02	34
	Susquehanna	10.75	10
	Wyoming	36.56	35
	CPL North Total	**90.02**	**87**
CPL South	Columbia	53.97	44
	Lancaster	57.67	43
	Lebanon	43.01	34
	Northumberland	12.23	13
	Schuylkill	28.26	24
	CPL South Total	**195.14**	**158**
Chapman Loop	Clinton County	**4.86**	**5**
Unity Loop	Lycoming	**14.40**	**14**
Overall Totals		**304.42**	**264**

3.2.2 Agency Approval for Potential Survey Segment Adjustments

As discussed in Section 2.1, Transco is in the process finalizing the centerline of the greenfield portions of the pipeline alignments and developing associated workspace configurations. Consequently, the survey segments listed in Table 3-1 and shown on mapping and shapefiles provided in Appendices A and B, respectively, are subject to slight alterations if the centerline is adjusted and after workspaces have been finalized. As described below, E & E has developed the habitat assessment and draft work plan in a manner that should expedite agency approval for changes to planned survey segments.

The Phase 1 habitat assessment was completed within the routing and/or field survey corridors of each pipeline route, within which the construction workspace will be located. Potential summer bat habitat that may be impacted by the Project is shown on mapping and shapefiles provided in Appendices A and B, respectively. The custom-written script to calculate LOE can be easily re-calculated for any adjustments to the centerline and/or workspaces. ***Therefore, E & E is requesting USFWS and PGC to approve the methodology of applying the same custom-written script on an as-needed basis to account for any routing or workspace shifts prior to P/A surveys taking place. Approving the methodology of the custom-written script, as well as the Phase 1 analysis results, will allow for real-time adjustments to P/A survey LOE without time consuming approvals on a case-by-case basis.***

3.2.3 Survey Methodology

To meet the requirement of six net-nights per kilometer within suitable habitat, it is anticipated that each survey segment site will have three net sets, sampled on two different evenings, consecutive or non-consecutive, depending on weather and access. For the purposes of this Work Plan, a net set is considered to be each individual mist-net setup consisting of a single mist-net or a combination of multiple stacked mist-nets.

To meet PGC requirements, at least two of the three net sets per site will consist of three or more stacked nets and those two net sets will be greater than 30 meters apart. The third net set will be sampled to USFWS standards, and may be within 30 meters of other two net sets as the USFWS guidance has no minimum spacing or net stacking requirements. This will allow sampling of river corridors greater than 18 meters wide by using two triple-high net sets to cover such areas.

3.2.4 Schedule

The tentative survey schedule to conduct the surveys is between May 21, 2014, (or as soon as the Work Plan is approved) to August 15, 2014, and May 15, 2015, to August 15, 2015. The survey period for the entire Project will extend over two field seasons. Due to the nature of the Project, it is not anticipated that full land access will be acquired this calendar year. The goal is to survey as many of the sites during the 2014 season as possible. It is assumed that approximately 75% of the sites will be surveyed in 2014 and the remaining 25% will be surveyed in 2015.

3.2.5 Survey Personnel

In accordance with the USFWS Guidelines, a qualified biologist (on the PA QBS list) will select/approve mist-netting areas that are most suitable for capturing Indiana and northern long-eared bats. A Pennsylvania Qualified Bat Surveyor (QBS) or Bat Identifier (BI) will be present at each site and will confirm all bat species identifications. The PGC Special Use Permit and a tentative list of surveyors (listed as sub-permitees on the permit) is provided as Appendix C. Each site run by a BI will be inspected by a QBS during sampling. Any T&E bat captures will be verified by two permitted biologists if logistically possible within acceptable holding times (1 hour per PGC Requirements). When a QBS leaves their own site in order to inspect BI sites, verify T&E species, and to aid in the placement of a radio transmitter on T&E species, the site will be managed by an assistant for a short period of time (1 hour or less).

3.2.6 Site Placement

For the purposes of this Work Plan, a site is considered to be the group of three or more proximate nets sets, which will be sampled twice for every 1-kilometer survey segment. The exact location of the site within the survey segment will be determined in the field by a QBS based on access, actual habitat present, and best mist-netting locations. Net sites will be placed as close to the proposed construction corridor as practicable, provided there are adequate corridors or other suitable features for mist-netting setups. However, as stated in the USFWS Guidelines, "*in some cases, the most suitable habitat for effectively conducting surveys may occur outside a project site boundary and may be sampled if landowner permission is available.*" USFWS will be notified if any netting site would be more than 200 meters from the proposed ROW so that any significant deviation could be pre-authorized. Such sites would only be surveyed with consent of the landowner.

3.2.7 Net Placement

Net placement will focus on corridors (natural or man-made) through forested stands. These may include existing access roads, waterways, and wildlife trails. To increase survey efficacy for northern long-eared bats, nets will be placed in forested areas with small or no trails. In addition, and based on the best professional judgment of the QBS, nets extending from dense woodlots into large fields may be used.

3.2.8 Survey Timing

The survey period for each net shall begin at dusk and continue for a minimum of 5 hours. Each site will be sampled for two full nights, consecutive or non-consecutive, under appropriate weather conditions.

3.2.9 Weather

The USFWS Guidelines require that half or more of the 5-hour survey period with negative results be free from adverse weather conditions for the survey night to count as a successful sample night. The USFWS Guidelines define adverse

weather conditions as temperatures that fall below 50°F (10°C); precipitation, including rain and/or heavy fog, that exceeds 30 minutes or continues intermittently during the survey period; and sustained wind speeds greater than 9 miles per hour (4 meters per second; 3 on the Beaufort scale). The PGC Requirements require 5 hours of sampling free from adverse weather conditions and call for extending the survey period if needed to reach 5 hours of good sampling time that is free from adverse weather conditions. As the PGC Requirements for weather and sample period are significantly more stringent then USFWS Guidelines, the PGC Requirements shall be followed and a night counted if at least 5 hours of sampling free from adverse conditions is achieved.

3.2.10 Monitoring Nets

Surveyors will monitor each mist-net by walking between nets at approximately 10-minute intervals and never exceeding 15 minutes between observations. There will be no other disturbance near the nets, other than checking nets and removing bats.

3.2.11 Notifications

If an Indiana bat is captured, the USFWS Pennsylvania Field Office will be notified within 48 hours. The USFWS Pennsylvania Field Office will also be notified of each northern long-eared bat capture of this species unless directed otherwise, as Transco will treat the northern long-eared bat as if it is already listed. The PGC will be copied on all northern long-eared bat notifications as a courtesy. The PCG will be notified within 48 hours of all state-listed eastern small-footed bat captures. All bats captured that are identified as Indiana bats and northern long-eared bats will be photo documented. Although USFWS Guidelines state that only the first 10 little brown bats (*Myotis lucifugus*) need to be photographed for the Project, in order to verify the identifications made in the field, the Project will commit to photo-documenting all bats in the genus *Myotis*, as long as large capture numbers at an individual site do not prevent processing of individuals in a reasonable timeframe.

3.3 Phase 4 Radio-Tracking

If Indiana or northern long-eared bats are captured, the Project proposes to proceed directly into a Phase 4 radio-tracking study. A QBS who is experienced in handling Indiana bats and attaching radio transmitters will perform transmitter attachments to both Indiana and northern long-eared bats. Radio transmitters will be attached between the shoulder blades of the bat using surgical glue. In accordance with USFWS Guidelines, the radio transmitter, adhesive, and any other markings (e.g., wing bands) will typically not weigh more than 5% of pre-attachment body weight, and never exceed 10% of the bat's total body weight. For pregnant bats, this rule will be applied to their non-pregnant weight (the average weight of non-pregnant females of the same species in the area). If there are no transmitters available on site that are $\leq$ 10% of the bat's body weight, the bat will be released without a radio transmitter. In accordance with PGC requirements, all transmitters will be at 172 megahertz (MHz).

Additionally, the PGC requires collection of foraging data of all (males, females, juveniles, and adults) small-footed bats (*Myotis leibii*), all Indiana bats, reproductive female and juvenile silver-haired bats (*Lasionycteris noctivagans*), and all Seminole bats (*Lasiurus seminolus*) during radio-tracking studies. Per PGC Requirements, a maximum of six bats in aggregate will be tracked for foraging data each year of the P/A survey - up to six in 2014 and up to six in 2015, for a Project total of up to 12 bats. The foraging studies will be conducted in accordance of Appendix I of the PGC Requirements. Per the PCG's Project-specific request, the Project will prioritize Indiana and small-footed bats for foraging studies. As such, no more than two reproductive female and juvenile silver-haired bats or Seminole bats in aggregate will be radio-tagged for each year of the P/A study.

Overall, the Project proposes up to 30 bats in aggregate, a combination of either the federally endangered Indiana bat, the proposed federally endangered northern long-eared bat, or the additionally required PGC species, will be radio-tracked to their roost and have exit counts conducted when accessible. Up to six of these bats, a subset of the 30, will be tracked for foraging studies, per PGC Requirements each year of the P/A study. All bats involved in PGC foraging studies will also be tracked to their roosts and have exit counts performed.

To assure an even distribution of effort, no more than four individual bats will be radio-tracked per county. An exception is that all Indiana bats will be radio-tracked for the entire Project. No more than a total of five males of northern long-eared bats will be radio- tracked for the entire Project with no more than one male radio-tracked per county.

A QBS or biological technician(s) under QBS supervision will track all radio-tagged bats to diurnal roosts when accessible. When bats appear to be roosted on properties not associated with the Project, Transco land agents will attempt to gain access. When access cannot be attained, the approximate roost location will be triangulated from accessible areas such as public roads, public property, or adjacent accessible parcels. Tracking shall continue until the transmitter fails, fall off, or cannot be located for a total of at least seven days. Emergence count surveys will be conducted a minimum of two evenings at each identified roost which is on accessible property. Bat emergence surveys will begin one half hour before sunset and continue until at least one hour after sunset or until it is otherwise too dark to see emerging bats.

In addition to the USFWS Guidelines, PGC requirements include a minimum of three full nights of foraging studies on up to six radio-tagged Indiana, small-footed, silver-haired, or Seminole bats. As such, the Project will conduct up to six of these studies per year of the P/A study. To ensure an even distribution, no more than one foraging study will be conducted per county. To ensure there is foraging study effort reserved for Indiana and small-footed bats, the Project will conduct no more than two of these studies on either a silver-haired or Seminole bats in aggregate per year. As such, preference will be given to Indiana and

small-footed bats over silver-haired and Seminole bats in determining candidates for PGC foraging studies. The Project does not plan on using aircraft-mounted telemetry receivers.

3.4 Cave, Mine, and Portal Surveys

Additionally, all sites identified during the desktop analysis of caves, mines, and portals within the Project areas will be field-inspected to determine if potentially suitable hibernacula exist. These will be inspected during other biological surveys, such as wetland delineations, when field teams are in proximity of these sites. If the site is not located on accessible property, efforts will be made to gain additional survey access.

Following PGC Requirements, these, and any other incidentally encountered mines, caves, or portals will be assessed as followed to determine if they are potentially suitable hibernacula.

In general, a cave or mine opening can be dismissed from fall bat surveys under any of the following circumstances:

- There is only one horizontal opening, and it is less than 6 inches in diameter, and no or very little airflow is detected;
- The opening is a vertical shaft less than 1 foot in diameter;
- The passage continues less than 50 feet and terminates with no fissures that bats can access*;
- The mine is prone to flooding, collapsed shut and completely sealed, or otherwise inaccessible to bats; or
- It is a "new" opening, which has occurred recently (less than 1 year old) due to subsidence.

* Due to safety concerns, biologists will not enter any caves or mines to determine if they are more than 50 feet deep. For the purpose of this survey, if the back of the cave or mine cannot be seen from the entrance, it will be assumed to be suitable hibernacula and surveyed appropriately in the fall.

Any opening identified as potential bat hibernacula will be surveyed between September 15 and October 15, in accordance with PGC Requirements. E & E will coordinate with PGC to develop a new work plan specific to these fall surveys and attain a special use permit specific to this effort, if necessary. If there are any positive results at locations safe for entry, the Project will coordinate with the PGC to conduct an interior winter hibernacula study. It should be noted that this protocol for hibernacula survey deviates from the USFWS-issued NLEB Guidance to reflect with PGC protocols, as the survey dates between the two documents are slightly different. E & E integrated this specific protocol to reflect the response letter received from the USFWS Pennsylvania Field Office, which specifically deferred to the PGC protocol.

3.5 Precautions for White Nose Syndrome

All surveyors will follow the disinfection protocol for bat field studies issued by the USFWS.

4 References

Pennsylvania Game Commission (PGC). 2014. Standard and Minimum Effort Requirements for Qualified Bat Surveyor Netting within the Commonwealth of Pennsylvania for Environmental Review Projects. 4-4-14 revision. Pennsylvania Game Commission. Harrisburg, Pennsylvania.

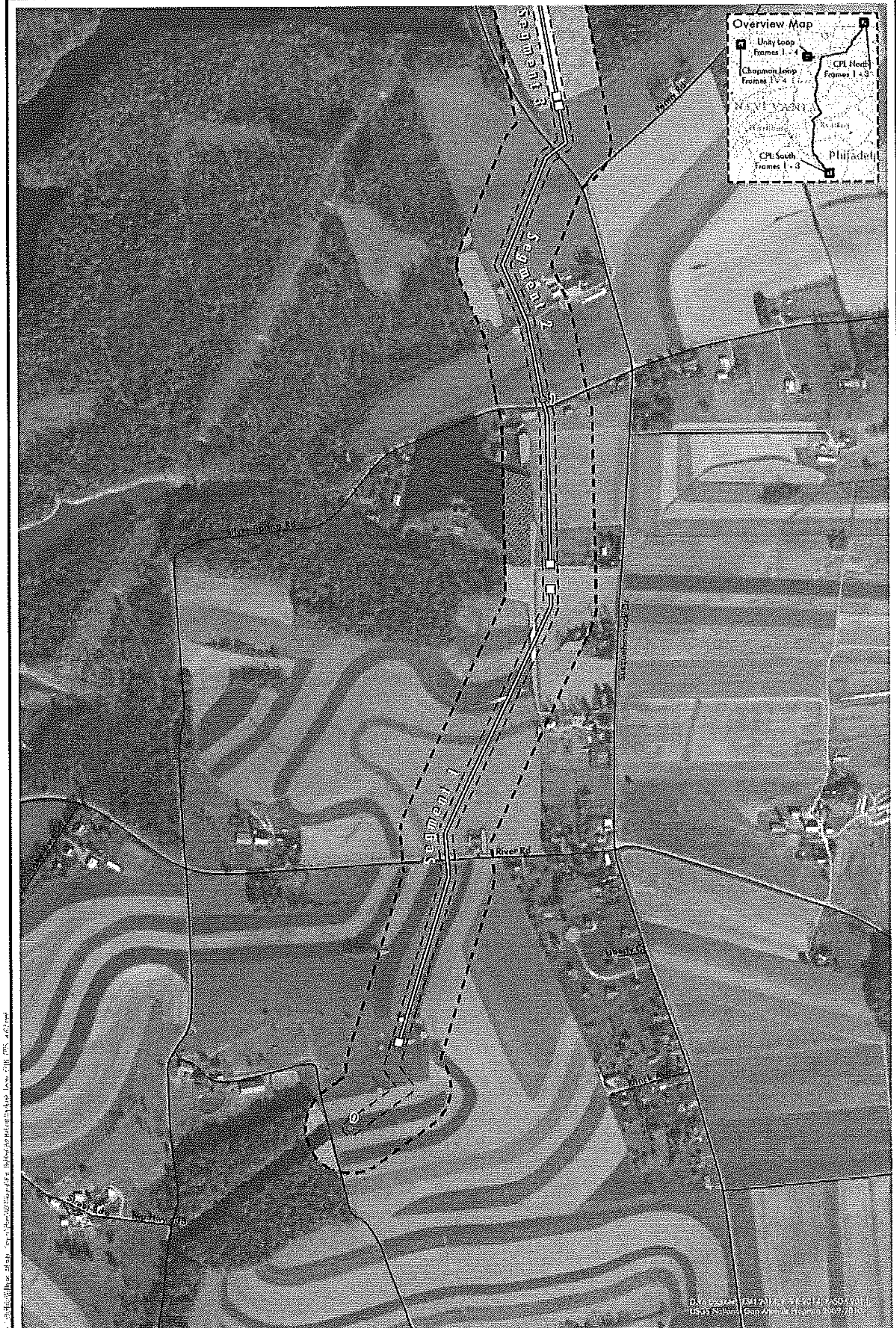
Taucher, J. 2014. Division of Environmental Planning & Habitat Protection Bureau of Wildlife Habitat Management. Letter to Rachel Smith of Ecology and Environment, Inc., regarding PGC ID Number: 201403110501 dated April 3, 2014.

United States Fish and Wildlife Service (USFWS). 2014a. 2014 Range-wide Indiana Bat Summer Survey Guidelines. January 13, 2014. Available at: http://www.fws.gov/midwest/endangered/mammals/inba/inbasummersurveyguidance.html. Accessed January 15, 2014.

United States Fish and Wildlife Survey (USFWS). 2014b. *Northern Long-eared Bat Interim Conference and Planning Guidance*. January 6, 2014. Available online at: http://www.fws.gov/midwest/endangered/mammals/nlba/index.html. Accessed on January 7, 2014.

Zimmerman, L. 2014. Field Office Supervisor. Letter to Rachel Smith of Ecology and Environment, Inc. regarding USFWS Project No. 2014-0324; T&E Response dated April 28, 2014.

A Phase 1 Habitat Mapping and Proposed Survey Segment Locations



- Milepost
- 1-Kilometer Survey Segments

Phase 1 Habitat Assessment (600' Corridor)

- Not Suitable
- Suitable

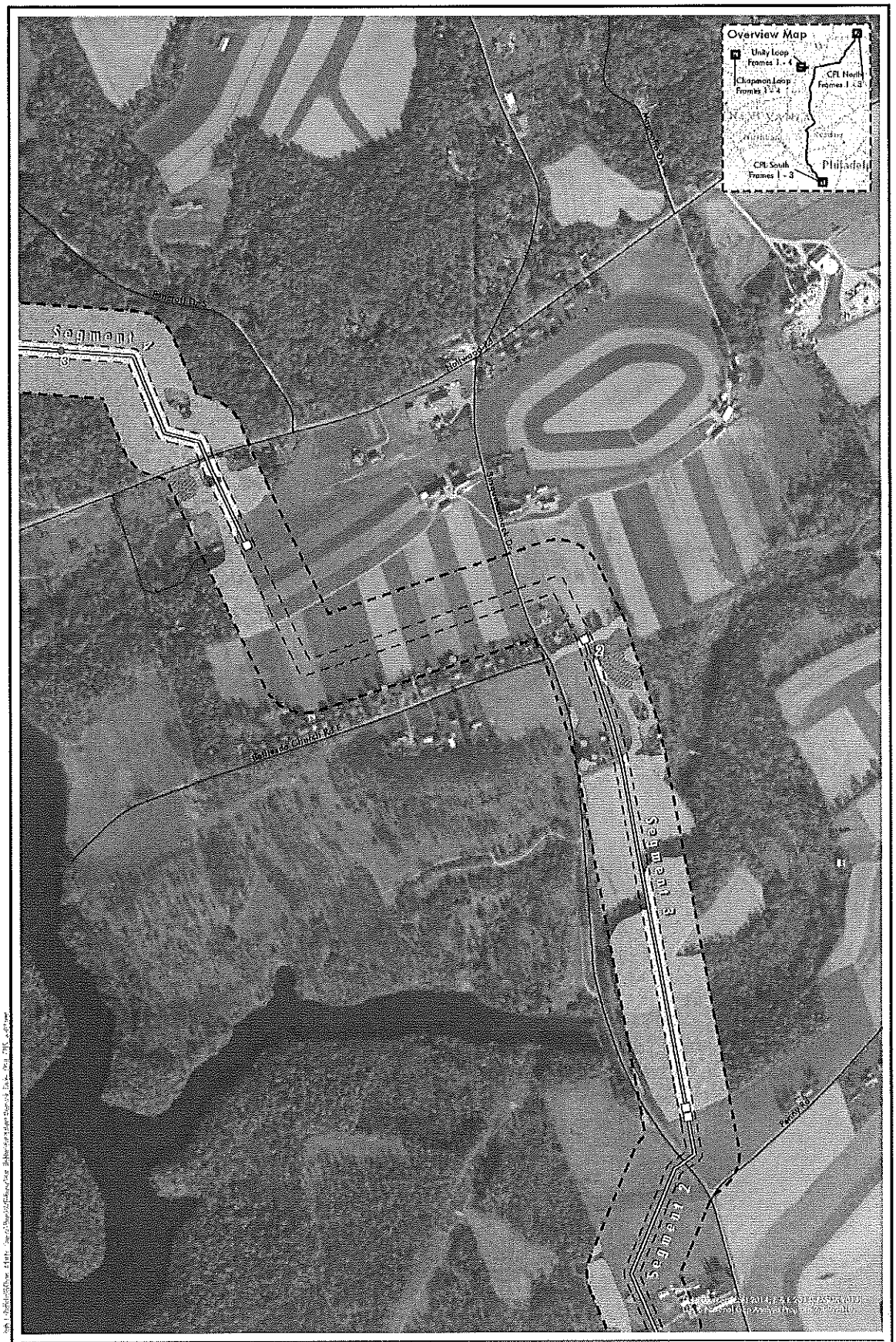
Phase 2 LOE Determination (100' Corridor)

- Not Suitable
- Suitable

- State Boundary
- County Boundary
- Interstate
- Local Street

Phase 1 Habitat Assessment Results and
Phase 2 Survey LOE Determination
CPL South, Frame 1 of 3
Atlantic Sunrise Project
Lancaster County, Pennsylvania

0 0.125 0.25 Kilometers
0 0.125 0.25 Miles



- Milepost
- 1-Kilometer Survey Segments

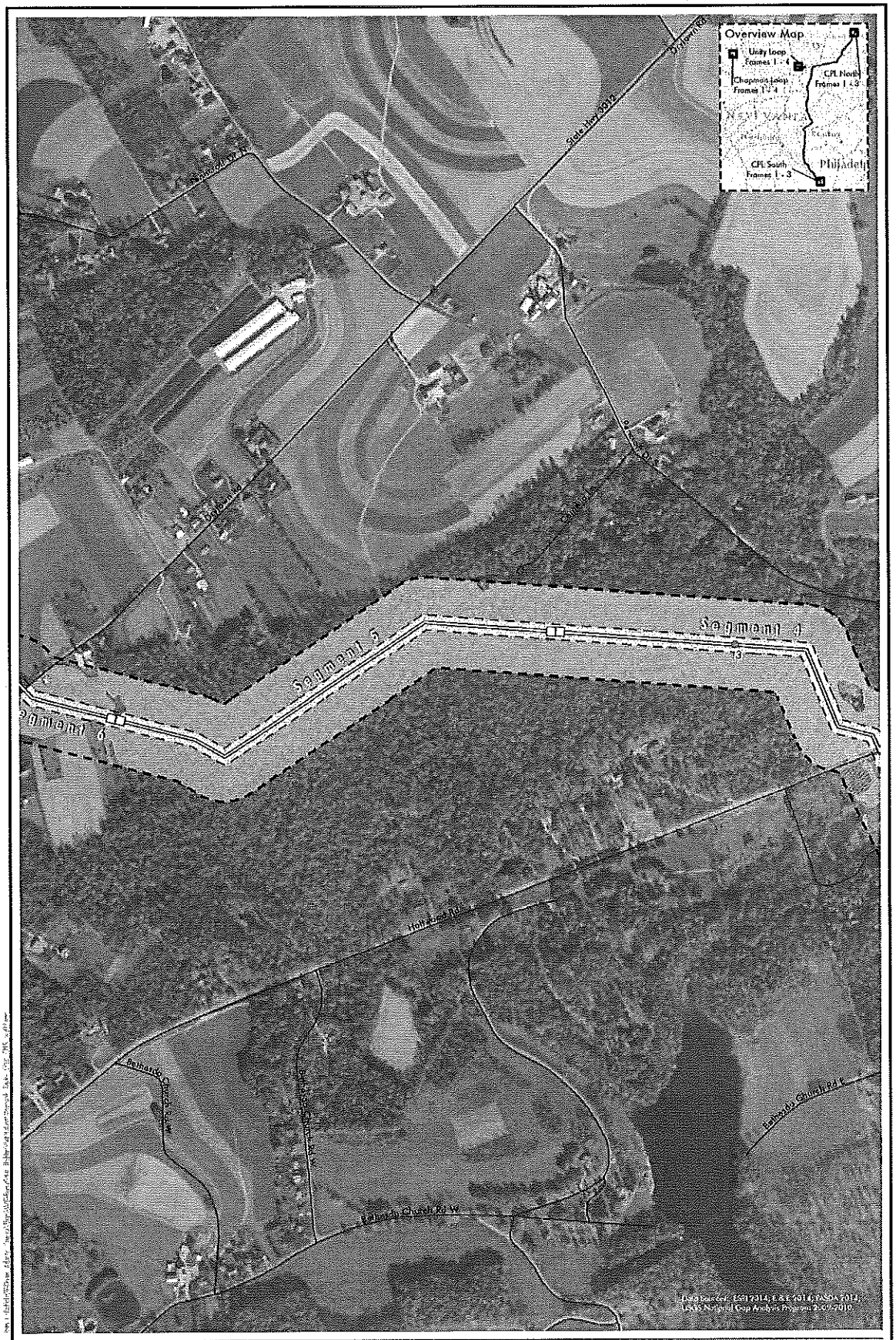
Phase 1 Habitat Assessment (600' Corridor)
- Not Suitable
- Suitable

Phase 2 LOE Determination (100' Corridor)
- Not Suitable
- Suitable

- State Boundary
- County Boundary
- Interstate
- Local Street

Phase 1 Habitat Assessment Results and
Phase 2 Survey LOE Determination
CPL South, Frame 2 of 3
Atlantic Sunrise Project
Lancaster County, Pennsylvania

0 0.125 0.25 Kilometers
0 0.125 0.25 Miles



- Milepost
- 1-Kilometer Survey Segments
- Phase 1 Habitat Assessment (600' Corridor)
  - Not Suitable
  - Suitable
- Phase 2 LOE Determination (100' Corridor)
  - Not Suitable
  - Suitable
- State Boundary
- County Boundary
- Interstate
- Local Street

Phase 1 Habitat Assessment Results and Phase 2 Survey LOE Determination

CPL South, Frame 3 of 3
Atlantic Sunrise Project
Lancaster County, Pennsylvania

0 0.125 0.25 Kilometers
0 0.125 0.25 Miles

Milepost

1-Kilometer Survey Segments

Phase 1 Habitat Assessment (600' Corridor)

Not Suitable

Suitable

Phase 2 LOE Determination (100' Corridor)

Not Suitable

Suitable

Industrial Mineral Mining Operations

State Boundary

County Boundary

Interstate

Local Street

Phase 1 Habitat Assessment Results and
Phase 2 Survey LOE Determination
CPL North, Frame 1 of 3
Atlantic Sunrise Project
Susquehanna County, Pennsylvania

0 0.125 0.25 Kilometers

0 0.125 0.25 Miles

Phase 1 Habitat Assessment Results and
Phase 2 Survey LOE Determination
CPL North, Frame 2 of 3
Atlantic Sunrise Project
Susquehanna County, Pennsylvania

Milepost

1-Kilometer Survey Segments

Phase 1 Habitat Assessment (600' Corridor)

Not Suitable

Suitable

Phase 2 LOE Determination (100' Corridor)

Not Suitable

Suitable

Industrial Mineral Mining Operations

State Boundary

County Boundary

Interstate

Local Street

Phase 1 Habitat Assessment Results and Phase 2 Survey LOE Determination

CPL North, Frame 3 of 3

Atlantic Sunrise Project

Susquehanna County, Pennsylvania

0 0.125 0.25 Kilometers

0 0.125 0.25 Miles

- Milepost
- 1-Kilometer Survey Segments

Phase 1 Habitat Assessment (300' Corridor)
- Not Suitable
- Suitable

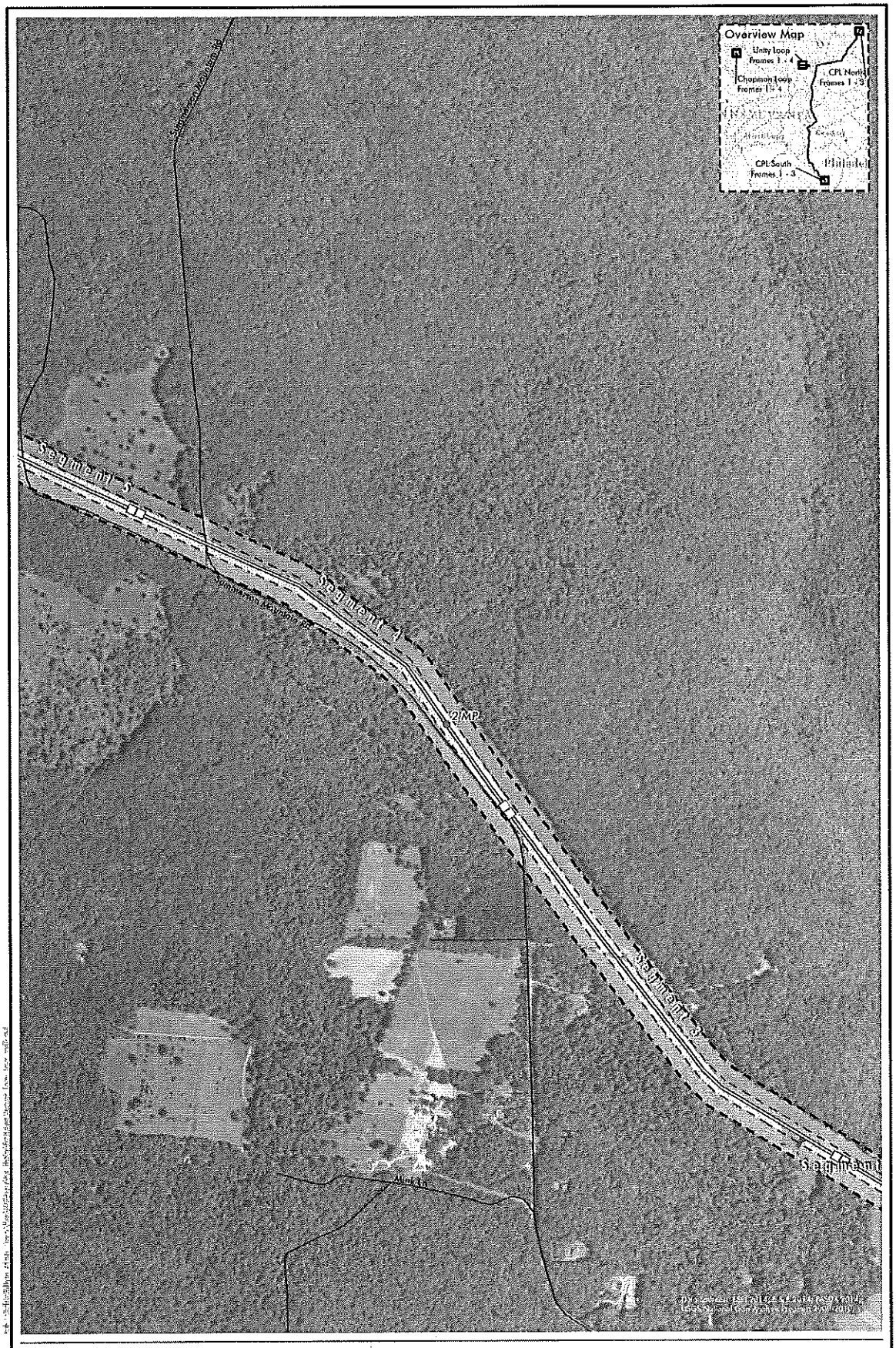
Phase 2 LOE Determination (100' Corridor)
- Not Suitable
- Suitable

- State Boundary
- County Boundary
- Interstate
- Local Street

Phase 1 Habitat Assessment Results and Phase 2 Survey LOE Determination

Chapman Loop, Frame 1 of 4
Atlantic Sunrise Project
Clinton County, Pennsylvania

0 0.125 0.25 Kilometers
0 0.125 0.25 Miles



Phase 1 Habitat Assessment Results and
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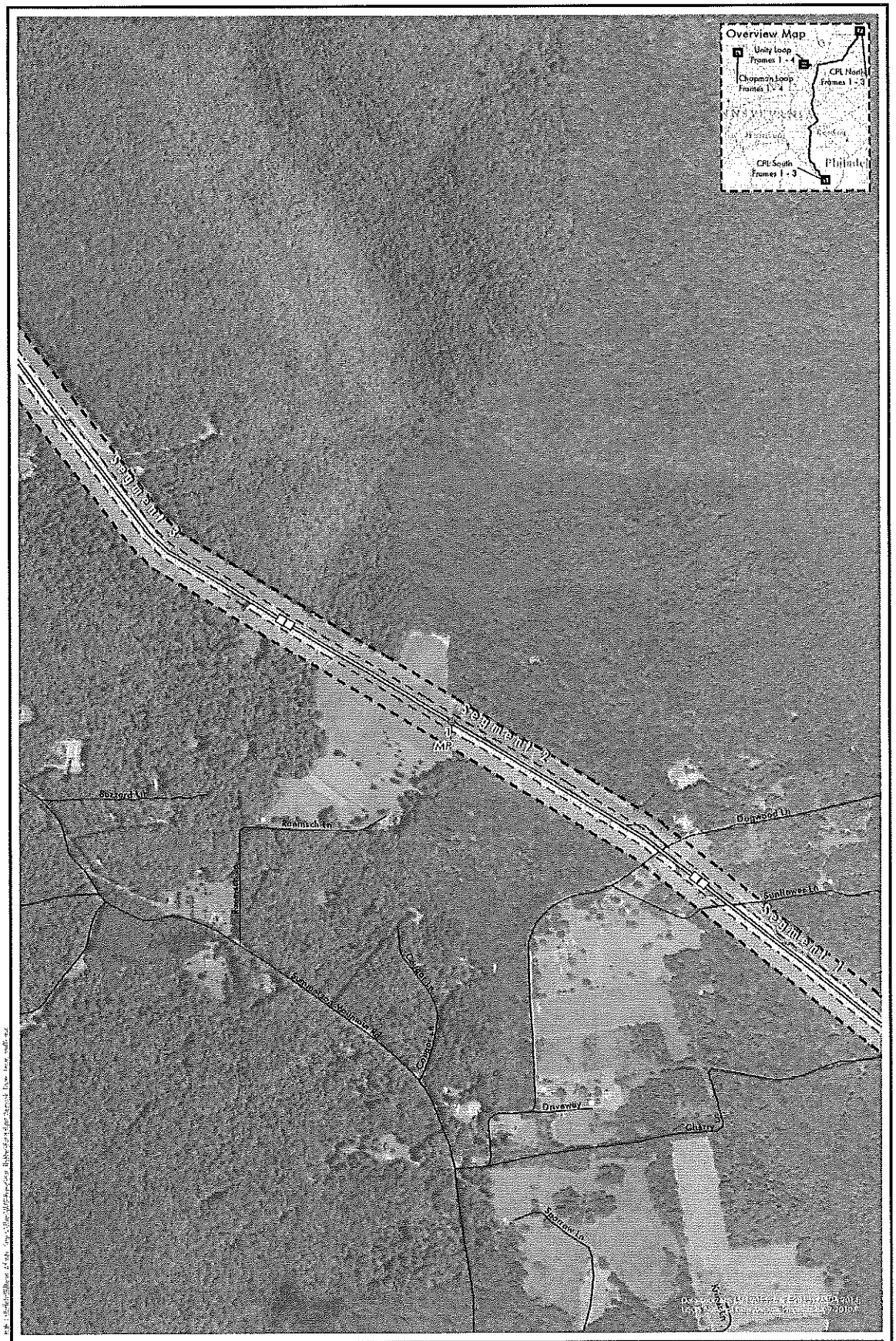
Chapman Loop, Frame 2 of 4
Atlantic Sunrise Project
Clinton County, Pennsylvania



- Milepost
- 1-Kilometer Survey Segments

Phase 1 Habitat Assessment (300' Corridor)
- Not Suitable
- Suitable

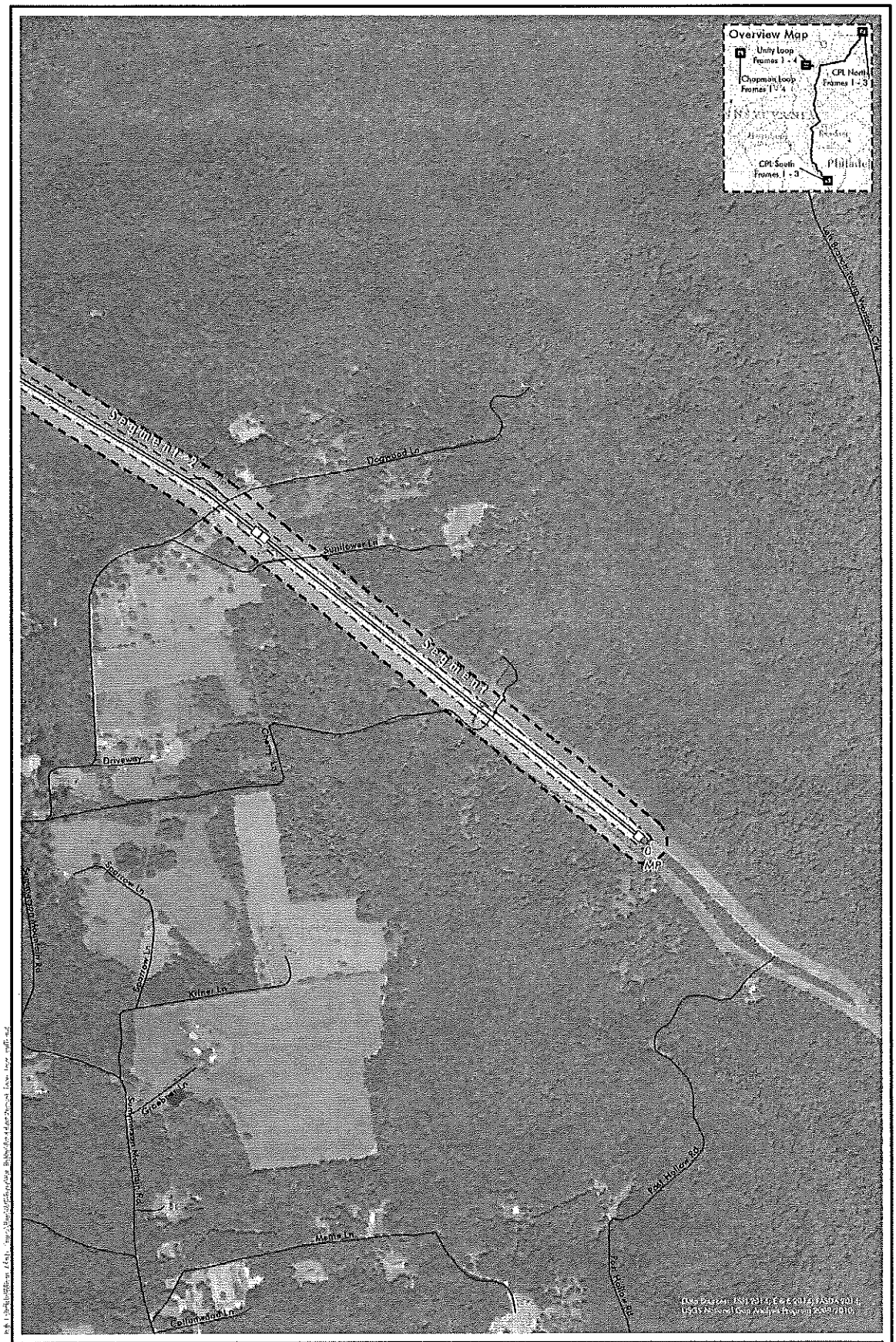
Phase 2 LOE Determination (100' Corridor)
- Not Suitable
- Suitable

- State Boundary
- County Boundary
- Interstate
- Local Street

Phase 1 Habitat Assessment Results and Phase 2 Survey LOE Determination

Chapman Loop, Frame 3 of 4
Atlantic Sunrise Project
Clinton County, Pennsylvania

0 0.125 0.25 Kilometers
0 0.125 0.25 Miles

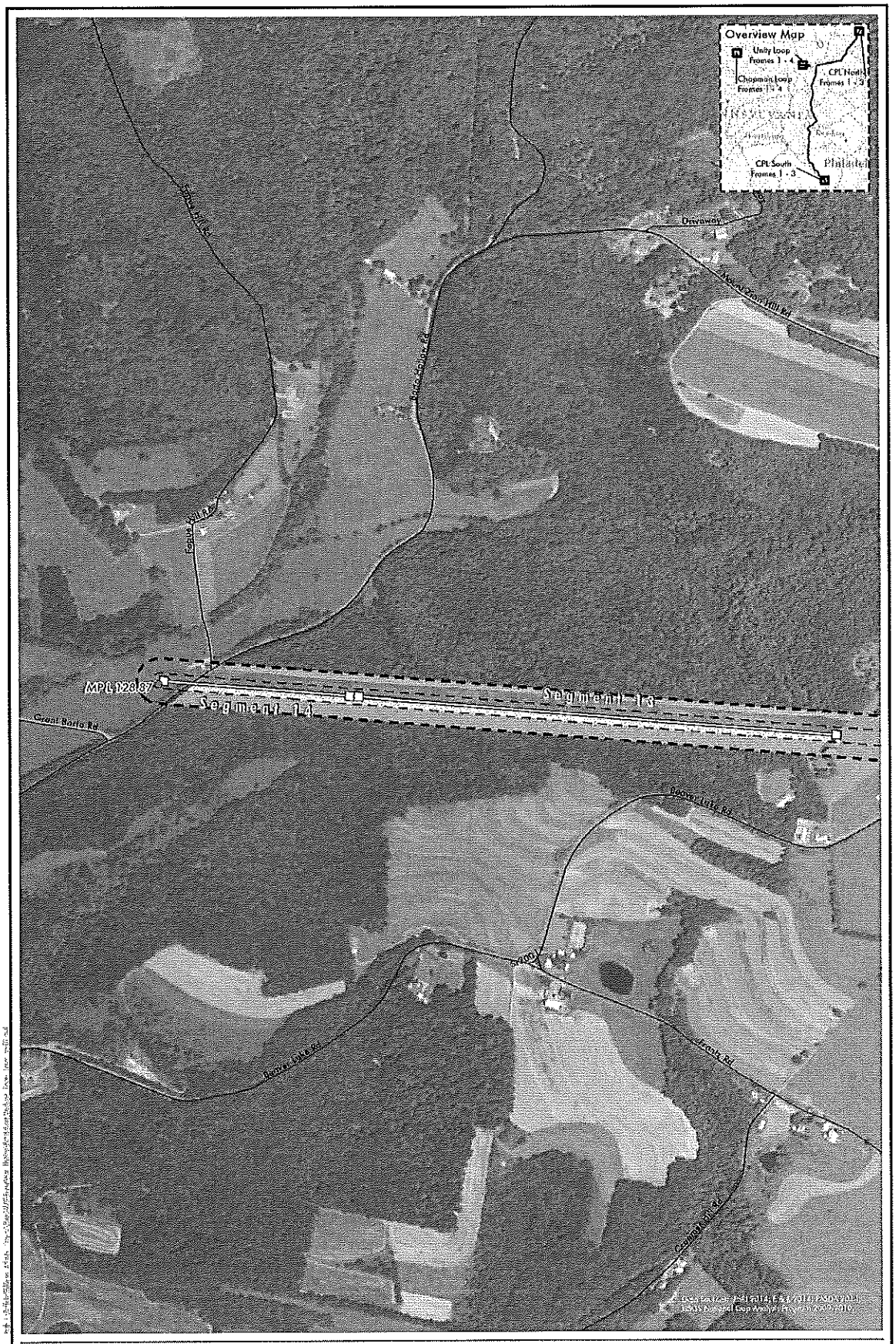


- Milepost
- 1-Kilometer Survey Segments
- Phase 1 Habitat Assessment (300' Corridor)
  - Not Suitable
  - Suitable
- Phase 2 LOE Determination (100' Corridor)
  - Not Suitable
  - Suitable
- State Boundary
- County Boundary
- Interstate
- Local Street

Phase 1 Habitat Assessment Results and Phase 2 Survey LOE Determination

Chapman Loop, Frame 4 of 4
Atlantic Sunrise Project
Clinton County, Pennsylvania

0 0.125 0.25 Kilometers
0 0.125 0.25 Miles

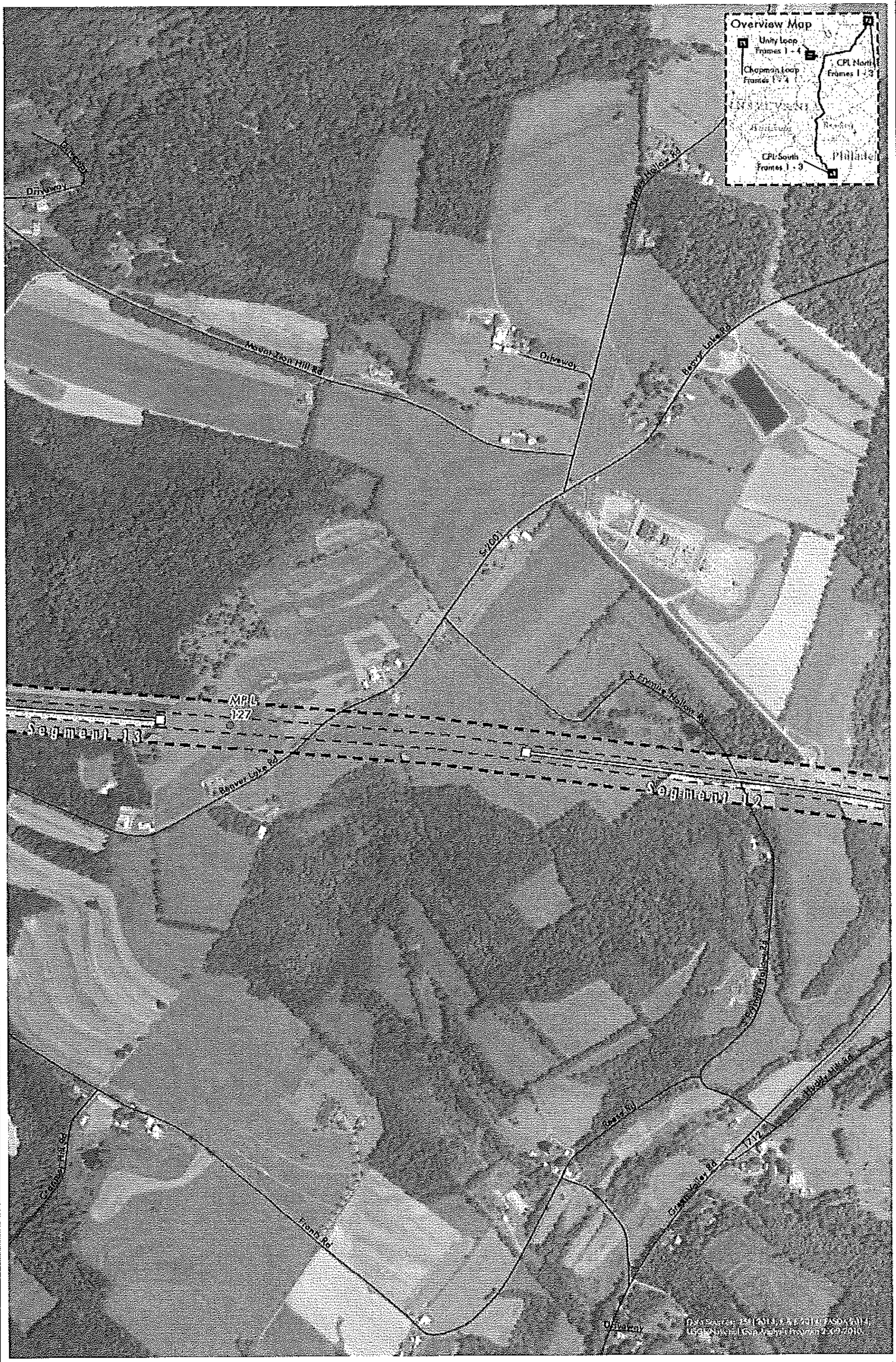


- Milepost
- 1-Kilometer Survey Segments
- Phase 1 Habitat Assessment (300' Corridor)
  - Not Suitable
  - Suitable
- Phase 2 LOE Determination (100' Corridor)
  - Not Suitable
  - Suitable
- State Boundary
- County Boundary
- Interstate
- Local Street

Phase 1 Habitat Assessment Results and Phase 2 Survey LOE Determination

Unity Loop, Frame 1 of 4
Atlantic Sunrise Project
Lycoming County, Pennsylvania

0 0.125 0.25 Kilometers
0 0.125 0.25 Miles



Milepost

1-Kilometer Survey Segments

Phase 1 Habitat Assessment (300' Corridor)

Not Suitable

Suitable

Phase 2 LOE Determination (100' Corridor)

Not Suitable

Suitable

State Boundary

County Boundary

Interstate

Local Street

Phase 1 Habitat Assessment Results and Phase 2 Survey LOE Determination

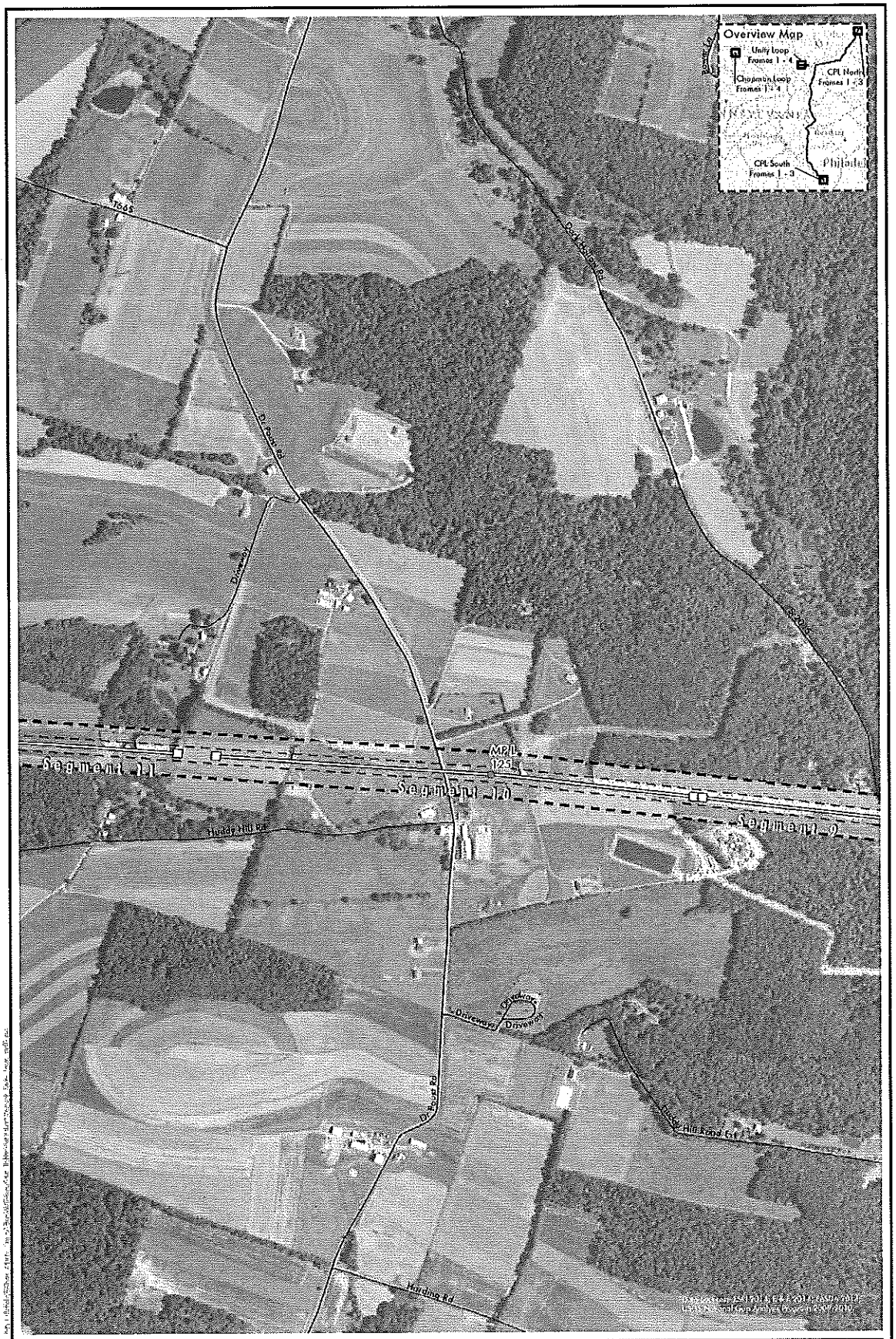
Unity Loop, Frame 2 of 4

Atlantic Sunrise Project

Lycoming County, Pennsylvania

0 0.125 0.25 Kilometers

0 0.125 0.25 Miles



- Milepost
- 1-Kilometer Survey Segments
- Phase 1 Habitat Assessment (300' Corridor)
  - Not Suitable
  - Suitable
- Phase 2 LOE Determination (100' Corridor)
  - Not Suitable
  - Suitable
- State Boundary
- County Boundary
- Interstate
- Local Street

Phase 1 Habitat Assessment Results and Phase 2 Survey LOE Determination

Unity Loop, Frame 4 of 4
Atlantic Sunrise Project
Lycoming County, Pennsylvania

0 0.125 0.25 Kilometers
0 0.125 0.25 Miles

- Milepost
- 1-Kilometer Survey Segments
- State Boundary
- County Boundary
- Interstate
- Local Street

Phase 1 Habitat Assessment (300' Corridor)

- Not Suitable
- Suitable

Phase 2 LOE Determination (100' Corridor)

- Not Suitable
- Suitable

Phase 1 Habitat Assessment Results and Phase 2 Survey LOE Determination

Unity Loop, Frame 3 of 4

Atlantic Sunrise Project

Lycoming County, Pennsylvania

0 0.125 0.25 Kilometers

0 0.125 0.25 Miles

B

GIS Shape Files of Phase 1 Habitat Mapping and Proposed Survey Segment Locations

Provided on compact disk.

C

Proposed Surveyors and Appropriate Permits

PENNSYLVANIA GAME COMMISSION
COMMONWEALTH OF PENNSYLVANIA
2001 ELMERTON AVENUE
HARRISBURG PA 17110

SPECIAL USE PERMIT
PERMIT TYPE STUDIES-SCIENTIFIC
PERMIT # 31961

DESCRIPTION BAT SAMPLING - CAPTURE & RELEASE ALL BATS INCLUDING INDIANA BATS (MYOTIS SODALIS)

PERMITTEE

CHRISTOPHER W SANDERS
SANDERS ENVIRONMENTAL
322 BOREALIS WAY
BELLEFONTE PA 16823 - 6461

DOB 11/10/1972
PHONE 814-659-8257

COUNTY	CENTRE, CLINTON, LYCOMING, SULLIVAN, LUZERNE, WYOMING, SUSQUEHANNA, COLUMBIA, NORTHUMBERLAND, SCHUYLKILL, LEBANON, LANCASTER		
REGION	NC, NE, SE		
EFFECTIVE DATE	5/15/2014 - 8/15/2014, 9/15/2014 - 10/15/2014	**REPORT REQUIRED**	AS SPECIFIED
FEE	$ 0	**RENEWABLE**	NO
		PITTMAN-ROBERTSON	NO
SPECIES	BAT		
SUBPERMITEE	CHRISTOPHER SANDERS-QIBS , CHELSEA RIDER-QIBS , KEITH CHRISTENSON-QIBS , MATT HOPKINS-QIBS , MICHAEL O'MAHONY-QIBS , NEIL BOSSART-QIBS , JASON COLLINS-QIBS , AMANDA BRUMBAUGH-QIBS , JENNIFER ROSS-BI , AARON COVALT-QIBS , BRIAN COOPER-QIBS , SARAH DEWEES-QIBS , ELISE MERRILL-QIBS , DOUG KOZIOL-BI , NADIA BARKAWI-BI		

CONDITIONS

1 THE VALIDITY OF THIS PERMIT IS CONDITIONED UPON THE RECEIPT AND MAINTENANCE OF ANY OTHER APPLICABLE FEDERAL, STATE OR LOCAL PERMITS REQUIRED BY LAW.

2 A COPY OF THIS PERMIT SHALL BE CARRIED AND PRESENTED UPON REQUEST OF ANY DULY AUTHORIZED OFFICER OR REPRESENTATIVE OF THE COMMISSION.

3 ALL PERMITTED ACTIVITIES SHALL AT ALL TIMES BE CONDUCTED IN CONFORMANCE WITH ALL APPLICABLE REQUIREMENTS OF THE GAME AND WILDLIFE CODE (34 PA.C.S. § 101 ET SEQ.) AND ITS ATTENDANT REGULATIONS (58 PA. CODE § 131.1 ET SEQ.).

4 STUDY AREAS WILL BE: MINE PORTALS REQUESTED BY DEP, PRIVATE LAND LOCATED A 322 BOREALIS WAY-BELLEFONTE AND PRIVATE LAND LOCATED AT 1513 PURDUE MTN. ROAD, BELLEFONTE-BRUMBAUGH PROPERTY PROJECT AND PROPOSED ATLANTIC SUNRISE PIPELINE IN THE COUNTIES INDICATED ON THE APPLICATION PROVIDED BY THE PERMITTEE.

CONTINUED...

5 PERMITTEE WILL ABIDE BY THE ALL THE GUIDANCE AND REQUIREMENTS IN THE 2014 PA BAT SURVEY REPORTING PACKET.

6 THE SUMMER NETTING PERIOD IS MAY 15 THROUGH AUGUST 15 AND IF PROPERLY PERMITTED, THE HIBERNACULA TRAPPING SAMPLING PERIOD IS SEPTEMBER 15 THROUGH OCTOBER 15.

7 BATS MAY BE CAPTURED THROUGH THE USE OF MIST NETS AND HARP TRAPS. INDIANA BATS MAY BE BANDED USING FOREARM BANDS (YELLOW IS RESTRICTED TO CANOE CREEK AREA. OTHER BANDS MAY BE USED. NO OTHER SPECIES WILL BE BANDED WITH YELLOW OR ORANGE BANDS, AND NOT IN EXCESS OF 10 INDIVIDUALS PER SPECIES PER PROJECT. MASS BANDING PROJECTS REQUIRE A PROJECT PROPOSAL BE SUBMITTED AND APPROVED. ANY INDIANA BAT (MYOTIS SODALIS), SMALL-FOOTED (STATE THREATENED, M.LEIBII) AND REPRODUCTIVE FEMALE/JUVENILE SILVER-HAIRED BATS (L.NOCTIVIGANS) AND REPRODUCTIVE FEMALE/JUVENILE SEMINOLE BATS (L.SEMINOLUS) SHALL BE RADIO TAGGED, ROOSTS LOCATED AND EMERGENCE COUNTS CONDUCTED DURING SUMMER NETTING SURVEYS. RADIO TELEMETRY MAY BE USED TO DETERMINE ROOST LOCATIONS AND FORAGING AREAS FOR ALL SPECIES. TISSUE SAMPLES MAY NOT BE TAKEN FROM INDIANA BATS (MYOTIS SODALIS). AN ACOUSTICAL BAT DETECTOR MAY BE USED AT EACH NET SITE.

8 EQUIPMENT WILL BE CLEANED AND DECONTAMINATED WHEN MOVING FROM ONE COUNTY TO ANOTHER. FOLLOW LATEST DECONTAMINATION PROCEDURES AVAILABLE AT HTTP://WHITENOSESYNDROME.ORG/ (WNS INFO). THE WHITE FUNGUS IS ONLY ONE SIGN OF WNS. YOU SHOULD NOT EXPECT TO FIND BATS WITH FUNGUS ON THEM DURING THE SUMMER OR FALL. PERMITTEES ARE REQUIRED TO FOLLOW ALL DECONTAMINATION AND DISINFECTION GUIDELINES FOR SPRING SUMMER AND FALL BAT FIELD STUDIES.

9 ALL BATS CAPTURED DURING THE SURVEY SHALL BE HANDLED IN A HUMANE MANNER AND NON TARGET BATS SHALL BE RELEASED UNHARMED. ANY NON TARGET BAT THAT MAY DIE DUE TO HANDLING WILL BE REPORTED TO THE PENNSYLVANIA GAME COMMISSION, BUREAU OF WILDLIFE MANAGEMENT, 2001 ELMERTON AVENUE, HARRISBURG, PA 17110, (717)787-5529, WITHIN 72 HOURS OF ITS DEATH. SPECIMEN IS TO BE PRESERVED AND SUBMITTED TO THE PGC

10 A REPORT OF THE ACTIVITIES CONDUCTED THROUGH THIS PERMIT SHALL BE PROVIDED TO THE PENNSYLVANIA GAME COMMISSION WITHIN 90 DAYS OF THE COMPLETION OF THE PROJECT. REPORTS WILL INCLUDE THE PROVIDED MANDATORY REPORTING FORMS IN HARD COPY. THE FINAL REPORT SHALL BE PROVIDED BY 12/31/14. PLEASE SEND TO SAME ADDRESS IN CONDITION 9 ATTN: GREG TURNER

11 IF A SURVEY IS CONDUCTED FOR A PROJECT (OR ANY PORTION THEREOF) THAT HAS UNDERGONE A PENNSYLVANIA NATURAL DIVERISTY INVENTORY (PNDI) ENVIRONMENTAL REVIEW BY THE PENNSYLVANIA GAME COMMISSION'S DIVISION OF ENVIRONMENTAL PLANNING AND HABITAT PROTECTION (REGARDLESS OF THE OUTCOME OF THAT ENVIRONMENTAL REVIEW), AN ELECTRONIC COPY OF THE REPORT AND FORMS REQUIRED UNDER CONDITION 10 SHALL ALSO BE PROVIDED ON COMPACT DISC TO THE PENNSYLVANIA GAME COMMISSION, DIVISION OF ENVIRONMENTAL PLANNING AND HABITAT PROTECTION, ATTN: TRACEY LIBRANDI MUMMA, 2001 ELMERTON AVENUE, HARRISBURG, PA 17110, WITHIN 90 DAYS OF THE COMPLETION OF THE PROJECT.

12 A QUALIFIED BAT SURVEYOR (QBS)MUST BE PRESENT DURING THE TIMES OF SURVEYS AND IS RESPONSIBLE FOR OVERSEEING ALL ASPECTS OF THE PROJECT INCLUDING ADHERANCE TO PGC NETTING STANDARDS AND EFFORT REQUIREMENTS. THIS PERSON SHALL BE LISTED ON THE USFWS QUALIFIED BAT SURVEYORS LIST.

13 ONLY QUALIFIED BAT SURVEYORS (QBS) AND APPROVED BAT IDENTIFIERS WILL IDENTIFY BATS. BAT IDENTIFIERS SHALL BE LISTED ON THE USFWS BAT IDENTIFIER LIST.

CONTINUED...

PENNSYLVANIA GAME COMMISSION
COMMONWEALTH OF PENNSYLVANIA
2001 ELMERTON AVENUE
HARRISBURG PA 17110

SPECIAL USE PERMIT
PERMIT TYPE STUDIES-SCIENTIFIC
PERMIT # 31961

14 PROJECT AREA MAY BE EXTENDED TO STATE GAME LANDS WITH PRIOR PERMISSION OF REGIONAL LAND MANAGEMENT SUPERVISOR (LMS), WHO CAN BE CONTACTED THROUGH THE APPROPRIATE REGIONAL OFFICE.

15 ONCE PERMISSION FROM THE LMS IS OBTAINED, WHEN PARKING OR LEAVING A VEHICLE UNATTENDED IN AN AREA NOT OPEN TO PUBLIC TRAVEL, PERMITTEE SHALL DISPLAY A LOGO OR CARD IN AN OBVIOUS LOCATION IN OR ON YOUR VEHICLE TO IDENTIFY ITS AFFILIATION AND LEAVE A COPY OF THIS PERMIT ON THE DASHBOARD, VISIBLE FROM OUTSIDE THE VEHICLE.

16 ACCESS WILL ONLY BE GRANTED FOR OFFICIAL PURPOSES AND NO UNAUTHORIZED PERSONS SHALL BE TRANSPORTED BEHIND COMMISSION GATES OR INTO OTHER AREAS CLOSED TO THE PUBLIC.

17 NO ACTIVITY SHALL OCCUR BEFORE NOON ON ALL SATURDAYS DURING THE SPRING TURKEY SEASON. ACCESS MAY BE DENIED AT OTHER TIMES DUE TO HUNTING SEASONS, INCLEMENT WEATHER, ROAD CONDITIONS OR OTHER CONFLICTS AS DETERMINED BY THE LMS. CONSENT FOR RIGHT OF ENTRY SHALL NOT INTERFERE WITH LAWFUL PUBLIC HUNTING AND TRAPPING ACTIVITIES.

PERMITTEE SIGNATURE DATE

Richard R Palmer

DIRECTOR, BUREAU OF
WILDLIFE PROTECTION

REVISION # 3

Commonwealth of Pennsylvania, Pennsylvania Game Commission

Standard and Minimum Effort Requirements for Qualified Bat Surveyor Netting within the Commonwealth of Pennsylvania for Environmental Review Projects.

Mist-net surveys will be carried out in accordance with the U.S .Fish and Wildlife Service's (USFWS) *Indiana Bat Mist Netting Guidelines* and will include effort and measures above and beyond those guidelines as specified in this document as a requirement of the PA Game Commission (PGC) Permit. Accompanying a State Permit are required reporting information and bat White-Nose decontamination protocols. Make certain to review and adhere to the requirements. All field personnel must be familiar with these guidelines.

Netting Season: May 15 – August 15

Minimum Net Equipment for Site Sets: 2 net sets (4 poles) capable of stacking a minimum of 3 (2.6m high) nets to reach canopy/sub-canopy (>7 m / 23 ft). Poles will have a pulley system for efficient bat removal. An additional assortment of poles will also be available for situations where stacked nets can not be used. Nets will be the lowest visibility weights available (50 denier 2-Ply Nylon or 75 denier 2-Ply Polyester) and 38 mm (~1.5 in) mesh. Standard net lengths will be available to cover most travel corridors ranging from 6 m (~19 ft) to 18 m (~59 ft). Nets will be hung in the standard manner to provide bag in panels. Overstretched nets that eliminate panel bagging will not be permitted. Nets should be placed in what is considered Indiana bat habitat and among "clutter" to minimize bat detection. Sites will be monitored quietly; loud noises (other than low volume occasional communication), running engines, campfires and other activities that disturb/alert bats will not be allowed within 300 m of a Site. Physical sample collection (i.e. fur, blood, wing punch) needs to approved and stated on permit.

Standard Site Sets: A minimum of 2 net sets, ≥30 m (98 ft) apart, will be placed at a net Site. A standard set will consist of 3-stacked nets*. If triple high sets are not used, a thorough justification must be provided in the comments section of the PGC Bat netting/Trapping Site Survey Record (P-70008-N/T). Photographs are recommended to accompany justification. Should we find that quality netting locations suitable for triple-high net sets are available but that lower net sets were deployed or poor quality netting locations were selected, permits may be revoked and the qualified surveyor may be considered unable to select and set Sites resulting in removal from the Pennsylvania list of qualified surveyors (QBS). Each net Site will be sampled for 2 nights beginning at sunset for at least 5 hours (300 minutes). Different but proximate locations are suggested. Each net set will be checked ~every 10 minutes. Minimally, one person will monitor a Site at all times.

*Sites will be selected for prime capture locations in Indiana bat habitat which is often forested travel corridors (streams, trails etc) rather than locations capable of placing triple high net sets (open field). Professional judgment is foremost in site selection and net sets. However, given that Indiana bats are often captured in elevated net sets, they will be considered the standard when conducting surveys in PA and if not used, a justification must be provided.

Minimum Nightly Effort/Site = 420 Units of Effort (UE): One unit of effort is equal to $1m^2$ of net area in place for 1 hour - (total m^2 of capture area) x (minutes in place/60).

Each net Site must provide a minimum of 420 UE. For example, 2 sets-each measuring 7 m high by 6 m wide in place for the required 5 hours would meet the minimum effort of 420 UE:
((7 m x 6 m) + (7 m x 6 m)) x 5 hrs. In the rare situation where stacked nets can't be used, minimum effort must still be met with more nets or net sets at a Site. As of 2008, average effort/Site of companies capturing Indiana bats in PA range from 490 to 680 UE. If unable to complete the required effort on one night, such as bad weather, the site will be repeated using full UE on another night. Due to WNS, USFWS netting efforts have been updated. The most recent can be found at: **http://www.fws.gov/midwest/endangered/mammals/inba/inbasummersurveyguidance.html**. PGC required level of effort for all species remains 420 UE as described above for standard Site sets. It is the responsibility of the contractor to ensure they have met the increased level of effort required by the USFWS, where applicable.

Standard and Minimum Effort Requirements for Qualified Bat Surveyor Netting within the Commonwealth of Pennsylvania for Environmental Review Projects.

Weather -- Netting will be suspended when:

- Rain, steady drizzle or heavy fog soaks nets.
- Temperature falls below 10°C (50°F).
- Winds resulting in frequently moving/billowing nets OR wind gusts exceeding 18 mph.

Qualified Bat Surveyors (QBS): A qualified surveyor is one who's credentials and experience have been reviewed by the USFWS, State College Field Office (USFWS-SCO) and the (PGC) and found to have expertise in all of the following:

- Correct identification of bats of the northeast, to species.
- Collection of biological information on bats of the northeast.
- Selecting Net Sites and placing Net Sets to maximize bat captures.
- Attaching radio transmitters, and bat bands.
- Oversee entire radio-tracking process and mapping behavior gained thru biotelemetry.
- Identifying, describing, and conducting emergence counts of day roosts.
- Documenting study information (bats, net sets, portal entrances, etc.) with photography

A QBS is responsible for overseeing all aspects of surveys, and is, therefore, required to be at an active project site (including net surveys, telemetry monitoring and roost evaluations). The QBS is responsible for site selection, set installation and the inspection of net sets each night. Only a QBS may apply for a permit and the permit must list all QBS's and BI's for a project. QBS are the individuals who act in the capacity of Principal Investigator (PI), having in-field oversight responsibility for net setup, bat captures, bat identification, telemetry studies, safe handling procedures and adherence to WNS disinfection protocols. They are also the individuals responsible for ensuring permits are properly acquired, bat permitting requirements are met, and ensuring that reports are accurate and complete and submitted to the appropriate agencies. In addition, the QBS will be in contact (2 way radio and/or cell phones) with site workers, or if not possible the QBS will visit all sites every hour. The QBS will verify and oversee photo documentation of *M.sodalis, M.leibii*, and other species not regularly found in PA (see page 4, Bat Measurement Section for list)., and supervise radio tagging and telemetry.

Bat Identifier (BI): The QBS may select experienced personnel capable of identifying northeastern bats and is responsible for BI's qualifications. A list of BI's with documented experience will be provided to the PGC and USFWS-SCO for review and approval. The QBS and BI may have oversight for the identification of bats at up to 2 net Sites at a time unless travel between sites is >30 minutes in which case only 1 Site can be monitored. Captured bats may not be held more than 1 hour unless outfitting for telemetry or other processing documented in the permit.

Only QBS's and BI's are permitted to be bat identifiers (responsible recorder) on PGC Forms: P-70008-NT and P-70008-M. The ratio of net Sites to QBS's and BI's will be 2:1, except as noted above. BI's and Assistants that wish to document their bat experience can briefly note these activities in the comment sections of PGC Forms: P-70008-NT and/or P-70008-M. (example: *Name* identified 2 Indiana bats upon removal from net, measured, banded, attached transmitters and verified by *QIBS* as acceptable work.). Spelling *Name* clearly will facilitate future retrieval of this information from the database.

Assistants: Assistants are under the supervision of the QBS and are only responsible for assisting in site set-up, take-down and removal of bats. All bats must be held until verified by a QBS or BI and the verification will occur within 1 hour of capture.

Telemetry: Telemetry will be conducted on the below mentioned species, roosts will be identified, at least one roost emergence count conducted, and a map of foraging activity areas provided. Minimum foraging activity shall relate to the project area. This should include triangulation/bi-angulation data points and general monitoring from roads and trails etc. for at least three full nights. The PA Game Commission shall be notified for all species and the USFWS State College, PA Field Office shall be notified for Indiana bat captures and telemetry. Notification will occur as soon as possible but not to exceed 72 hours after capture. Telemetry will not be conducted on light weight animals if transmitter attachment exceeds 10% of bat's weight. The frequency of transmitters, receivers and antennas will be tuned to 172 MHz. This will avoid conflicts with game species transmitters on animals and in storage. This frequency will also allow PGC Diversity Staff to assist if a need arises (both on the ground and with aircraft). When conducting telemetry at the request of PGC Environmental Review, refer to standards and requirements located in Appendix I. Appendix I also has general guidance for transmitter attachments etc.

Species Required: All Indiana bats (*M.sodalis*); All small-footed bats (*M.leibii*); reproductive female and juvenile silver-haired bats (*L.noctivigans*); and reproductive female and juvenile Seminole bats (*L.seminolus*). Additional nights of telemetry may be required depending upon project impacts to species habitat[1].Other species may be requested on a project-specific basis.

Ethical Standards from USFWS, PA Field Office-Reminder that Surveyors are expected to:

- Have current permits covering all work locations to be conducted in Pennsylvania.
- Follow all provisions of State Permits including White Nose Syndrome decontamination protocols.
- Physical samples including but not limited to fur, blood, wing punches only as approved and authorized on permit.
- Excepting USFWS requests to band *M.sodalis*, no generic banding is authorized without permission.
- Report all federally endangered, i.e. *M.sodalis*, bat findings to the Service and PGC within 72 hours.
- Contact the Service and PGC immediately (same day) if any state or federally listed bat is killed or injured, and keep the specimen refrigerated or frozen for submission to the PGC
- Follow established survey guidelines, and accurately, fully, and truthfully report on the methods used and results obtained during these surveys.
- Maintain field notes documenting their work and provide copes of field notes upon request.
- Maintain the confidentiality of Indiana bat sites.
- Obtain landowner permission before accessing land.
- Conduct surveys and studies in a manner that ensures the safety of Indiana bats.
- Refrain from removing any Indiana bats from their habitat, holding them in captivity, collecting tissue (wing punches) or blood samples, conducting radio-telemetry studies, or harp trapping unless specifically authorized by a State Permit. Weighing, measuring, analyzing and photographing Indiana bats are standard operating procedures that take place when conducting mist net surveys.

Failure to adhere to these ethical standards may result in an individual's removal from the list of qualified surveyors and revocation of their State Permit.

Contacts

USFWS State College, PA Field Office (814) 234-4090
Pam Shellenberger Pamela_Shellenberger@fws.gov
Melinda Turner Melinda_Turner@fws.gov

PA Game Commission, Wildlife Diversity
Greg Turner (814) 237-1432 grturner@state.pa.us

COMMONWEALTH OF PENNSYLVANIA

Pennsylvania Game Commission, Bureau of Wildlife Protection, Special Permits Enforcement Division
2001 Elmerton Avenue, Harrisburg, PA 17110-9797

Procedure and format for permittee reports to the PA Game Commission when conducting bat capture surveys within the Commonwealth.

The report is divided into six sections that include: (1) Cover page, (2) Site Survey Record, (3) Bat Measurement and Capture Data Forms, (4) Roost forms, (5) Maps and (6) Photo Documentation.

Section 1 - Cover

A separate cover page should be provided for each project with the accompanying data of Sections 2 through 6 contained within. An example is provided.

Section 2* - Bat Netting/Trapping Site Survey Record

(FORM P-70008-N/T)

This is a **mandatory** two-page summary of site(s) surveyed and of captures. It should be completed for all sites surveyed, including those with no captures. If a capture technique other than mist netting or harp trapping is used, it should be described in remarks. Complete 1 for each site survey night (If site is trapped twice, 2 site survey records are required, etc.).

Section 3* - Bat Measurement and Capture Data Form

(FORM P-70008-M)

Band color restrictions: Yellow- only on *M.sodalis* at Canoe Creek St. Park; Orange- may only be used on *M.sodalis* elsewhere. Other bands may be applied to Msodalis. A limit of 10 bands per species per project rule is in place. Mass banding projects need a formal proposal submitted, and approval noted on permit.

This form is **mandatory** for:

1. *Myotis sodalis* captures
2. *Myotis leibii* captures
3. Bats you are banding and all band recaptures (*orange and yellow band colors have restrictions*)
4. All radio-tagged bats (describe transmitter in remarks)
5. Bat species not usually found in Pennsylvania*.

* Pennsylvania species: *Myotis lucifugus, Myotis septentrionalis, Myotis leibii, Myotis sodalis, Eptesicus fuscus, Perimyotis subflavus, Lasiurus borealis, Lasiurus cinereus, and Lasionycteris noctivagans*

The surveyor also has the option to use this form for measuring and reporting all bats. All measurements should follow North American collector standards (Nagorsen, D. W. and R. L. Peterson. 1980. Measurements and Weights. Pp. 22-26 in Mammal Collectors' Manual. Royal Ontario Museum, Publications in Life Sciences).

Section 4* – Roost Forms

When conducting telemetry 2 roost forms are provided: one for describing roosts (WD-DR-02/13) and another for bat emergence data (WD-EM-02/13). It is recommended and often required that *M. sodalis*, *M.leibii*, and *L. noctivagans* be radio-tagged when captured in summer habitats and their roosts located.

***Section 2, 3, and 4 forms may not be modified for reporting because they are used for data entry. If necessary, supplemental pages may be added to report unique data.**

Section 5 - Maps

An example is provided. All survey sites will be reported on a map (preferably a 7.5' USGS Topographic Map) so that locations can be accurately located and coordinates verified.

Section 6 - Photo Documentation

An example is provided. Photographs (preferably digital) will be taken of identification characteristics of all *M.sodalis*, *M.leibii*, and species not usually found in PA. The photos should be labeled with the site, date and capture number.

Mail **hard copy** of reports to address on the heading of this page within 90 days of project completion.

COMMONWEALTH OF PENNSYLVANIA
Pennsylvania Game Commission
Bureau of Wildlife Protection, Special Permits Enforcement Division
2001 Elmerton Avenue, Harrisburg, PA 17110-9797

Section 1 - Cover

PERMITTEE BAT CAPTURE REPORT

*Mail **hard copy** of reports to address on the heading of this page within 90 days of project completion.*

Permit Number_____

Project Name:_____

Company/
Organization/
Permittee Name:_____

Address: _____

_____

_____

_____

Phone: (_____)_____-_____ **Fax:** (_____)_____-_____

E-Mail:_____

Project Supervisor Name:_____

Supervisor Contact: Phone: (_____)_____ - _____

E-Mail: _____

If this is contracted work, provide the name & address of the individual/organization work is being performed for:

_____

_____

_____

Mail **hard copy** of report to address on the heading of this page within 90 days of project completion.

FORM P-70008-N/T
12/09
Section 2

COMMONWEALTH OF PENNSYLVANIA
Pennsylvania Game Commission

BAT NETTING/TRAPPING SITE SURVEY RECORD

1. Survey Date:_____ **2. Company Name:**_____

3. Bat Identifier: (Responsible Recorder)_____ **4. Assistants:**_____

5. Site Name and/or Number:_____

6. Site is (circle one): hibernation site summer habitat

7a. If hibernation site circle one: limestone mine, coal mine, limestone cave, sandstone cave, RR tunnel,

other structure, describe -_____.

7b. If summer habitat, describe area being sampled (e.g. forested stream or forest clearing with stream):

_____

8. County:_____ **9. 7.5' Quad.:**_____

10. Was site GPS'd (required) ? YES - NO

11. Geographic Coordinates (D-M-S): Latitude: _____°-_____'-_____"N, Longitude: _____°-_____'-_____"W

Datum *(circle one)*: **NAD27** (Preferred), NAD83, WGS84, Other:_____

12. Ownership and Access: *(Who owns site or controls access? Give name and address.)*_____

_____

13. Time *(military)* **& Temperature:** Start Time_____h Stop Time_____h Total Minutes:_____

Start Temp._____°C End Temp._____°C *(must stay ≥10°C for summer netting)*

14. General Weather *(circle one)*: Clear; Partly Cloudy; Mostly Cloudy; Cloudy; Drizzle; Intermittent Rain; Steady Rain; Thunderstorms; Snow; Other:_____.
(suspend netting during periods of rain)

15. General Wind Conditions *(circle one)*: Calm, Breezy (Leaves Rustling), Windy (Trees Swaying).

16. Capture Setup at Site:

Set #	Type	Count	Dimensions	Description	TOTAL AREA (m)
1	Nets	4	12m x 2.6m	Stacked over trail	124.8 sq. m

Total Capture Area:_____sq. m

(Site Survey Record – Continued) **Site Name/No.:** _____ **Date:**_____

17. Describe habitat 150 m around site: *(topography and vegetation including dominant tree species.)*

18. Was reproductive status checked? YES / NO *(if "NO" only enter numbers in* **Total** *columns)*

***CAPTURE RESULTS**

Species	Number of Adult Females				No. Juv. Fem.	Total No. Fem.	Number of Adult Males		No. Juv. Male	Total No. Males	Species Totals
	NR	PG	L	PL			SCR	NR			
Eptesicus fuscus	2		1			3	2	1	1	4	7
Myotis lucifugus											
Myotis septentrionalis											
Myotis leibii											
Myotis sodalis											
Eptesicus fuscus											
Perimyotis subflavus											
Lasiurus borealis											
Lasiurus cinereus											
Lasionycteris noctivagans											
Other – specify:											
Other – specify:											

Reproductive Status: **NR**= nonreproductive, **PG**= pregnant, **L**= lactating, **PL**= post lactating, **SCR**= scrotal/epididymis swollen. **Grand Total**

***Complete Measurement and Capture Data Form for all:**
(1) Myotis sodalis, (2) Myotis leibii, (3) bats you are banding or band recaptures, (4) radio-tagged bats and (5) bat species not usually found in PA.

19. BAT DETECTORS & OTHER MONITORING DEVICES: *Tallies of bat passes / hour. One to 5 hours required for Indiana bat hibernacula surveys. Monitor one hour after 22:00 hrs when trapping/netting hibernacula and 5 hours when only monitoring with bat detectors, night vision or infrared device (when site can not be trapped/netted). Describe procedure & equipment used in remarks.*

1st hour	2nd hour	3rd hour	4th hour	5th hour
Start Time:	Start Time:	Start Time:	Start Time:	Start Time:
End Time:	End Time:	End Time:	End Time:	End Time:
Tallies:	Tallies:	Tallies:	Tallies:	Tallies:

20. REMARKS:

FORM P-70008-M
12/09
Section 3

COMMONWEALTH OF PENNSYLVANIA
Pennsylvania Game Commission

Bat Measurement and Capture Data Form

(Complete for all (1) Myotis sodalis, (2) Myotis leibii, (3) bats you are banding or band recaptures, (4) radio-tagged bats and (5) bat sp

Site Name Or Number:	Date:	Set No. Captured In:	Name of Person Identifying the Bat:
Height in meters captured above ground surface: _____ m	Body Measurements *(grams and millimeters)*		Band Information *(if banded)* *(Band Males on bat's RIGHT fa., Females on*

Species	Sex	Age	Repro. Condition	Wt. (g)	Ear	Tragus	Fore-arm	Hind Foot		Recapture Yes/No	Band Material	Band Color	Band Inscriptic

Time of Capture	Photo Taken Yes / No	WNS Wing Score	Wing Photo ID: Remarks:

Repro.Condition: NR= nonreproductive, PG= pregnant, L= lactating, PL= post lactating, SCR= scrotal/epididymis

Site Name Or Number:	Date:	Set No. Captured In:	Name of Person Identifying the Bat:
Height in meters captured above ground surface: _____ m	Body Measurements *(grams and millimeters)*		Band Information *(if banded)* *(Band Males on bat's RIGHT fa., Females on*

Species	Sex	Age	Repro. Condition	Wt. (g)	Ear	Tragus	Fore-arm	Hind Foot		Recapture Yes/No	Band Material	Band Color	Band Inscriptic

Time of Capture	Photo Taken Yes / No	WNS Wing Score	Wing Photo ID: Remarks:

Repro.Condition: NR= nonreproductive, PG= pregnant, L= lactating, PL= post lactating, SCR= scrotal/epididymis

Site Name Or Number:	Date:	Set No. Captured In:	Name of Person Identifying the Bat:
Height in meters captured above ground surface: _____ m	Body Measurements *(grams and millimeters)*		Band Information *(if banded)* *(Band Males on bat's RIGHT fa., Females on*

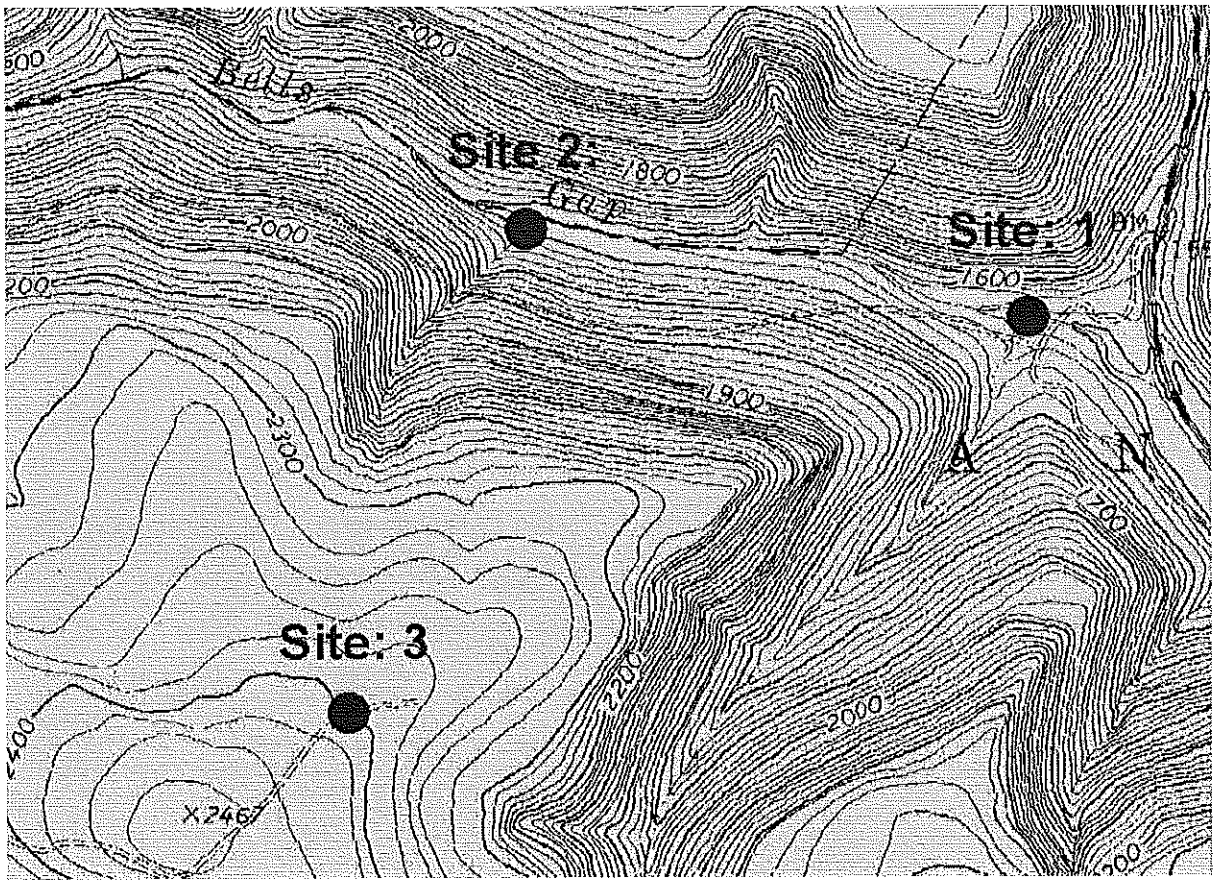
Species	Sex	Age	Repro. Condition	Wt. (g)	Ear	Tragus	Fore-arm	Hind Foot		Recapture Yes/No	Band Material	Band Color	Band Inscriptic

Time of Capture	Photo Taken Yes / No	WNS Wing Score	Wing Photo ID: Remarks:

*Capture Number = number in sequence by site.

Section 5 - Maps *(example)*

Blair Co., Blandburg Quadrangle, Bells Gap Area.
Location of Sites 1, 2, and 3 for Project PA-24



Mail **hard copy** of report to address on the heading of cover page within 90 days of project con

Section 6 - Photos *(example)*

Male *Myotis sodalis* captured at **Site 1**
Capture date: **7/18/01**
Capture Number: **06**

Portrait

Keeled Calcar

Mail **hard copy** of report to address on the heading of this page within 90 days of project comp

Pennsylvania Game Commission
Bureau of Wildlife Protection, Special Permits Enforcement Division
2001 Elmerton Avenue, Harrisburg, PA 17110-9797

PGC Form:
WD-DR-02/13
Section 4

PA GAME COMMISSION
Wildlife Diversity Section
Day Roost Data Sheet

1-
Landowner: **Name:** _____ **Address:** _____

Phone: _____ _____

2-BAT INFO
Dates on Roost: _____ **Day Roost Number:** _____
(Date = Date bat was on roost; Roost No.= Bat # & numbered roost, in sequence, for that bat ~ 241PGC-01)

Surveyors: _____ **Type:** Tree - Building - Rock - Other_____
(Describe rock and other roost structures)

Bat Species: _____ **Band No.:**_____ **Transmitter Frequency:** _____

Ht.(m) bat is roosting off ground: _____ Was Bat Emergence Form Completed? **YES - NO**
Comments: *(Where is bat roosting? Under bark? If building-describe)*

3-LOCATION

County: _____ **Quadrangle:** _____

Latitude: _____ (DMS) **Elevation (ft.):** _____

Longitude: _____ (DMS) **%Slope:** **Slope Aspect (0-360):**

Datum: Nad27 (prefered) NAD83 / WGS84 (circle one)

4-Roost INFORMATION *(If other than tree, indicate rock, rock cliff, house, barn etc. for species)*

Species: _____ **DBH (cm):**_____ Is Tree Alive? **YES - NO** *(CIRCLE)*

Height: (%UP _____ + %DOWN _____) X Dist.(m) to tree_____ =_____m*(For Trees)*

1st Branch Ht. *(%UP _____ + %DOWN _____) X Dist.(m) to tree_____ =_____m(For Trees)*

Estimate % Canopy Cover Around Roost: _____

Is suitable roost area exposed to direct sunlight? **YES - NO** *(circle one)*
If so - estimate # of hours of exposure to direct sun: _____
Azimuth of Exposure (which way does exposed part of roost face): _____ *(1-360)*

For Trees:
Exfoliating Bark? **YES - NO** **Estimate % of tree with Exfoliating Bark:**_____%

Cavities? **YES - NO If yes - Describe:**_____

5-SURROUNDING HABITAT
Distance (m) to Water:_____ **Water Type:**_____

Understory Species:_____

Overstory Species: _____

6-Comments *(Comment on Overstory Species, Habitat Composition and non-tree roosts. Use back if needed)*

PGC Form:
WD-EM-02/13
Section 4

PA GAME COMMISSION, Wildlife Diversity Section
Bat Emergence Form

*** It is important to keep lights and noise disturbance to a minimum during the emergence period. ***

ROOST NO.:_____ **DATE:**_____

ROOST TYPE: Building - Tree - Rock - Other _____

Surveyors: _____

_____

Transmittered Bat Band No.:_____ **Transmitter Frequency:**_____

Weather **Temperature:**_____***F**

Sky Condition Code:_____ **Wind Scale Code:**_____

Sky Conditions

Code	
0	Clear or a few clouds
1	Partly cloudy/variable sky
2	Cloudy (broken) or overcast
4	Fog or smoke
5	Drizzle
7	Snow
8	Showers

Beaufort Wind Scale

Code	MPH	Indicators
0	<1	Smoke rises vertically
1	1-3 mph	Smoke Drift shows wind direction
2	4 - 7 mph	Wind felt on face/leaves rustle
3	8 - 12 mph	Leaves&sm.twigs in constant motion
4	13 - 18 mph	Raises dust & loose paper
5	19 - 24 mph	Small trees in leave sway

Night Vision Equipment Used? **YES - NO** Bat Detector Used? **YES - NO**

Telemety Equipment Present? **YES - NO**

Time Surveyors arrived at Roost :_____ ***(use 24 hour clock for times)***

Time First Bat Seen Flying:_____

Time Transmittered Bat Emerged:_____ **And Azimuth Last Detected:**_____

Time Last Bat Seen Emerging:_____ **Total Emergence Count:**_____

Comments: *(include other emergence observations, weather, bat behavior, etc.)*

Appendix I

Pennsylvania Game Commission
Environmental Review Telemetry Protocol

Refer to these standards when specific telemetry is requested by The Bureau of Habitat Protection. This document also provides general guidance for attaching transmitters to bats.

Contact:

Tracey Librandi-Mumma
Wildlife Biologist / Habitat Protection Section Chief
Pennsylvania Game Commission
2001 Elmerton Avenue
Harrisburg, PA 17110
717-787-4250 3614
717-787-4251 Fax 717-787-6957
tlibrandi@pa.gov

PENNSYLVANIA GAME COMMISSION
Environmental Review Bat Telemetry Protocol

- Objective: To identify and characterize roosts (trees, buildings, rocky areas), foraging areas, and travel corridors.

- Data collected from telemetry surveys will be used by PGC Environmental Review staff to determine how to best avoid, minimize, and if necessary, mitigate for potential impacts to bat species.

- PGC Environmental Review staff may request the use of this telemetry protocol for Eastern small-footed bats (*Myotis leibii*), silver-haired bats (*Lasionycteris noctivagans*), Seminole bats (*Lasiurus seminolus*), or other bat species as specified in PA Game Commission (PGC) PNDI response letters.

Bat Telemetry Protocol:

- *Banding and Transmitter Attachment*
  - Banding
    - Do not attach arm bands or take wing punches without prior PGC approval: banding materials and ID numbers must be approved prior to use. No orange or yellow darvic bands are to be used without specific approval. Split metal bands with tabs and unique number system are preferred for generic banding of species, numbering must be approved ahead of time
    - No banding *M. leibii*
  - Transmitters
    - Try not to exceed 5% and **DO NOT** exceed more than 10% of the bats body weight
    - With the lighter transmitters you should be able to be close to 5%; any transmitter that fits weight rule may be used

- *Equipment*
  - Receivers: Receiver can be a scanning or non-scanning type
  - Antennas
    - Antennas must be tuned to the frequencies of your transmitters and receiver (172 MHz)
    - Antennas should be at least a 2-element (H-antenna) or 3+ element (yagi)
  - Transmitters
    - Transmitters should be tuned to 172 MHz to match the PGC; Approval and justification required in advance from the PGC
    - Transmitter application
      - Transmitters are attached with latex, medical adhesive
      - Recommend PERMA-TYPE surgical cement (Plainville, CT 06062).
      - Using scissors, remove a small patch of fur from the mid-dorsal region (between shoulder blades), then glue the transmitter to the bat's skin with a latex, medical adhesive (Perma-type, Skin-Bond Cement or Osto-Bond)
      - A thin layer of glue is applied to the bat and transmitter separately, allowed to dry a couple minutes until tacky, then joined together to form a secure bond according to manufacturer recommendations

- *Level of effort*
  - Maximum number = 6 bats per survey season
    - All eastern small-footed bats (*Myotis leibii*)
    - Reproductive female and juvenile silver-haired bats (*Lasionycteris noctivagans*)

- Reproductive female and juvenile Seminole bats (*Lasiurus seminolus)*
- Any other bat species as requested by PGC Environmental Review staff

➢ Minimum of 3 nights of telemetry per bat

➢ Minimum of 10 hours a night with a minimum of 3 successful triangulations per hour totaling 30 successful triangulations per night

- Lead biologist should have experience conducting telemetry on flying bats, be familiar with triangulation programs, be able to overcome typical field application difficulties (i.e. bounce/terrain), and be confident they are meeting these requirements
- 10 hour minimum per night includes the time spent by the bat roosting, unless time spent roosting can be attributed to weather (rain, wind over 18 mph, and/or night with starting temperatures below 60°F).
- No more than 2 hours of any night should be missed due to telemetry crew error and/or weather reasons (rain, wind over 18 mph, and/or night with starting temperatures below 60°F).

➢ For each day any transmittered bat is documented roosting at a particular day roost, a minimum of 1 emergence count is required.

- All day roost found must have a minimum of 1 emergence count conducted
- Surveyors should arrive at least ½ hour before sunset and remain at the roost tree, counting all bats emerging until the time at which all bats have emerged or the lighting diminishes to a point at which the surveyor can no longer see to count the bats
- If emergence counts during telemetry are conducted on nights when the starting temperature is below 60°F or wind codes are 4 and above an additional emergence count is needed when more favorable weather conditions exist

- *Data sheets and Data*

➢ Process data by individual animal and provide shapefiles of data points, minimum convex polygons of evening activity and fixed kernel utilization distribution of 95%, 75%, and 50% of the activity data.

➢ PGC data sheets MUST be completed:

- Bat-Netting/Trapping Site Survey Record
- Bat Measurement and Capture Data Form
- Bat Transmitter Detection Record
- Day Roost Forms
  - Complete this form for all roost types – trees, rocks, building, etc.
  - Regardless of roost type, fill out the following under <u>4-Roost Information</u>:
    - Canopy cover estimation
    - Whether roost is exposed to direct sunlight
    - Hours of exposure to direct sunlight
    - Azimuth of exposure
- Bat Emergence Form
- Bats' activity schedule referenced to general locations on a map
  - Foraging and Roosting as a minimum for activity remarks
  - Fall telemetry of males should include amount of time within mine, foraging and roosting

DEPARTMENT OF THE INTERIOR
U.S. FISH AND WILDLIFE SERVICE

FEDERAL FISH AND WILDLIFE PERMIT

2. AUTHORITY-STATUTES
16 USC 1539(a)

REGULATIONS
50 CFR 17.22

50 CFR 13

1. PERMITTEE

ECOLOGY & ENVIRONMENT, INC.
368 PLEASANT VIEW DRIVE
LANCASTER, NY 14086
U.S.A.

3. NUMBER
TE212427-6 AMENDMENT

4. RENEWABLE
☒ YES
☐ NO

5. MAY COPY
☒ YES
☐ NO

6. EFFECTIVE
07/08/2013

7. EXPIRES
12/31/2015

8. NAME AND TITLE OF PRINCIPAL OFFICER *(If #1 is a business)*
JOHN MYE
VICE PRESIDENT

9. TYPE OF PERMIT
NATIVE ENDANGERED SP. RECOVERY - E WILDLIFE

10. LOCATION WHERE AUTHORIZED ACTIVITY MAY BE CONDUCTED

THROUGHOUT THE STATES LISTED IN CONDITION F.

11. CONDITIONS AND AUTHORIZATIONS:

A. GENERAL CONDITIONS SET OUT IN SUBPART D OF 50 CFR 13, AND SPECIFIC CONDITIONS CONTAINED IN FEDERAL REGULATIONS CITED IN BLOCK #2 ABOVE, ARE HEREBY MADE A PART OF THIS PERMIT. ALL ACTIVITIES AUTHORIZED HEREIN MUST BE CARRIED OUT IN ACCORD WITH AND FOR THE PURPOSES DESCRIBED IN THE APPLICATION SUBMITTED. CONTINUED VALIDITY, OR RENEWAL, OF THIS PERMIT IS SUBJECT TO COMPLETE AND TIMELY COMPLIANCE WITH ALL APPLICABLE CONDITIONS, INCLUDING THE FILING OF ALL REQUIRED INFORMATION AND REPORTS.

B. THE VALIDITY OF THIS PERMIT IS ALSO CONDITIONED UPON STRICT OBSERVANCE OF ALL APPLICABLE FOREIGN, STATE, LOCAL, TRIBAL, OR OTHER FEDERAL LAW.

C. VALID FOR USE BY PERMITTEE NAMED ABOVE.

C.1. VALID FOR USE BY JOSH FLINN AND KATIE DAY. ASSISTANTS MAY WORK UNDER THE AUTHORITY OF THIS PERMIT ONLY UNDER THE DIRECT AND ON-SITE SUPERVISION OF NAMED PERMITTEES. AT LEAST ONE NAMED PERMITTEE MUST REMAIN PRESENT AT EACH MIST-NET SITE WHILE IT IS BEING OPERATED.

C.2. VALID FOR USE BY JUSTIN ZOLADZ FOR INDIANA BATS AND GRAY BATS. ASSISTANTS MAY WORK UNDER THE AUTHORITY OF MR. ZOLADZ FOR ACTIVITIES WITH INDIANA AND GRAY BATS. MR. ZOLADZ MUST REMAIN PRESENT AT THE SITE AND PROVIDE DIRECT SUPERVISION TO ASSISTANTS.

D. ACCEPTANCE OF THIS PERMIT SERVES AS EVIDENCE THAT THE PERMITTEE AND ITS AUTHORIZED AGENTS UNDERSTAND AND AGREE TO ABIDE BY THE TERMS OF THIS PERMIT AND ALL SECTIONS OF TITLE 50 CODE OF FEDERAL REGULATIONS, PARTS 13 AND 17, PERTINENT TO ISSUED PERMITS. SECTION 11 OF THE ENDANGERED SPECIES ACT OF 1973, AS AMENDED, PROVIDES FOR CIVIL AND CRIMINAL PENALTIES FOR FAILURE TO COMPLY WITH PERMIT CONDITIONS.

E. Permittee is authorized to take (capture, handle, radio-tag, and release) the Indiana bat (*Myotis sodalis*), gray bat (*M. grisescens*), Ozark big-eared bat (*Corynorhinus townsendii ingens*), and Virginia big-eared bat (*Corynorhinus townsendii virginianus*) for scientific research aimed at recovery of the species: presence/absence surveys, studies to document habitat use, population monitoring, and to evaluate potential impacts. This permit does not authorize the collection of voucher specimens.

F. Activities are authorized at the following locations:

F.1. Locations within Oklahoma (Region 2 of the USFWS) upon receipt of written concurrence from the Field Supervisor, as outlined in Condition G.

☒ ADDITIONAL CONDITIONS AND AUTHORIZATIONS ALSO APPLY

12. REPORTING REQUIREMENTS
ANNUAL REPORT DUE: 01/31

ISSUED BY	TITLE	DATE
Lisa Mandell	ACTING CHIEF - ENDANGERED SPECIES	07/08/2013

F.2. Locations within Kansas (Region 6 of the USFWS) upon receipt of written concurrence from the Field Supervisor, as outlined in Condition G.

F.3. Locations within Region 3 of the USFWS: Illinois, Indiana, Iowa, Michigan, Missouri, Ohio and Wisconsin, upon receipt of written concurrence from the Field Supervisor, as outlined in Condition G.

F.4. Locations within Region 4 of the USFWS: Alabama, Arkansas, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina and Tennessee, upon receipt of written concurrence from the Field Supervisor, as outlined in Condition G.

F.5. Locations within Region 5 of the USFWS: Connecticut, Delaware, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, Virginia and West Virginia, upon receipt of written concurrence from the Field Supervisor, as outlined in Condition G.

G. Permittee shall notify the USFWS Field Supervisor for the state in which activities are proposed to occur at least 15 days prior to conducting any activities. Contact information is in Condition M., below. Your request must be in writing and must indicate:

G.1. Location of proposed activities, including project site, county, and state.

G.2. A description of the activities (i.e., surveys, radio-telemetry studies, etc.).

G.3. Dates when the project is proposed to take place.

G.4. Evidence that Permittee has received any required contracts to complete the activities.

G.5. You may proceed with activities only upon receipt of written concurrence from the applicable USFWS Field Supervisor. *Your concurrence letter must be carried with this permit to authorize site-specific activities.*

H. Permittee shall adhere to following conditions involving capture and handling of bats:

H.1. Bats may be captured with mist nets following the protocol included in the 2013 Range-wide Indiana Bat Summer Survey Guidelines (USFWS May 2013). Guidelines are available at: http://www.fws.gov/midwest/endangered/mammals/inba/inbasummersurveyguidance.html. The monitoring interval for mist nets is +/- 10 minutes and may not exceed 15 minutes. Captured bats may be held for a maximum of 30 minutes, unless injured. In extenuating circumstances, bats shall be held for no longer than 45 minutes.

H.2. Permittees may carry out non-intrusive measurements on captured bats. Lipped metal bands having unique identifier may be applied to the forearms of captured bats prior to release. No more than one band per bat may be used.

H.3. Radio transmitters may be applied during summer roosting period via nontoxic skin bond adhesive such as colostomy glue. The total weight of the transmitter may not exceed 5% of the bat's body weight and the total weight of the package (transmitter and adhesive) may not exceed 6% of the bat's body weight. The lightest package (both transmitter and adhesive) capable of accomplishing the required task should be used, especially with pregnant females and newly volant juveniles. Bats carrying transmitters must be monitored daily for at least three days, or until the transmitter falls off, whichever occurs first.

H.4. No trapping activities shall occur within 20 meters of a known Indiana bat maternity roost site, either natural or artificial roosts, unless Permittee receives prior written approval from the U.S. Fish and Wildlife Service Field Supervisor for the state in which the activities are proposed to occur.

H.5. Equipment used to capture and handle bats shall be cleaned and decontaminated, including personal gear such as boots and gloves, using products cited in decontamination guidelines and in compliance with label directions. The most recent decontamination guidance is found on the web at: http://whitenosesyndrome.org/

I. Upon determination that endangered bats are present at previously undocumented sites, Permittee shall notify the following offices within 48 hours: the U.S. Fish and Wildlife Service Region 3 Office (Condition L.), and the U.S. Fish and Wildlife Service Field Office within the geographic location of study areas (Condition M.).

J. Accidental mortality may not exceed two specimens. In the event that this number is met, all activities must cease. Any bat mortality or serious injury must be reported within 5 calendar days to the applicable office listed in Condition M. and to the nearest U.S. Fish and Wildlife Service Office of Law Enforcement (http://www.fws.gov/offices/). Dead or moribund bats may be retained for further study only with the written permission of the U.S. Fish and Wildlife Service. Any bats that are not authorized for retention are to be chilled and promptly transferred to the U.S. Fish and Wildlife Service for potential necropsy and/or contaminants analysis (Condition L.6.).

K. Reports are due on January 31 following each year this permit is in effect. At a minimum, your report shall include:

K.1. The date, time, locations (including datum and projection information), age, sex, weight of all bats encountered.

K.2. Locations surveyed where no bats were encountered.

K.3. Band numbers of all bats banded.

K.4. Information on any injuries and/or mortalities and disposition of specimens.

K.5. Location and characteristics of roost trees and bat colonies.

K.6. Copies of any separate reports and/or publications resulting from work conducted under the authority of this permit.

K.7. A completed INDIANA BAT SURVEY AND BANDING DATA form or the data collection form found in the 2013 Summer Survey Guidelines cited in Condition H.1.

K.8. Copies of all site specific authorization letters required under condition G.

L. Copies of your reports shall be sent to the offices listed below. When possible, electronic copies shall be submitted in lieu of hard copies in MS Word, Portable Document Format, or other file format that is compatible with the receiving office.

L.1. Lisa Mandell
U.S. Fish and Wildlife Service
Midwest Region (Region 3)
Ecological Services
5600 American Blvd. W., Suite 990
Bloomington, Minnesota 55437-1458
(612/713-5343; fax 612/713-5292)
permitsR3ES@fws.gov

L.2. Regional Recovery Permits Coordinator
U.S. Fish and Wildlife Service - Southeast Region (Region 4)
1875 Century Boulevard, Suite 200
Atlanta, Georgia 30345-3301
(404/679-7313; fax 404/679-7081)
permitsR4ES@fws.gov

L.3. Deb Carter
Regional Recovery Permits Coordinator
U.S. Fish and Wildlife Service - Northeast Region (Region 5)
Endangered Species Division
300 Westgate Center Drive
Hadley, Massachusetts 01035-9589
(703/358-2402; fax 413/253-8482)
permitsR5ES@fws.gov

L.4. Marty Tuegel
Regional Recovery Permits Coordinator
U.S. Fish and Wildlife Service
Southwest Region (Region 2)
P.O. Box 1306
Albuquerque, New Mexico 87103-1306
(505/248-6651; fax 505/248-6788)
permitsR2ES@fws.gov

L.5. Kathy Konishi
ESA Assistant Recovery Coordinator & Permit Coordinator
U.S. Fish and Wildlife Service - Mountain-Prairie Region (Region 6)
Endangered Species Permits Office
Denver Federal Center, P.O. Box 25486
Denver, Colorado 80225-0489
(303/236-4212; fax 303/236-0027)
permitsR6ES@fws.gov

L.6. Lori Pruitt
Endangered Species Coordinator for Indiana
U.S. Fish and Wildlife Service
Ecological Services Field Office
620 S. Walker Street
Bloomington, Indiana 47403-2121
(812/334-4261 x1213; fax 812/334-4273)

M. Additionally, based on geographic area, reports and publications shall be submitted to the following:

M.1. For studies conducted in Illinois:

M.1.a. Kristen Lundh
Endangered Species Coordinator for Illinois/Iowa
U.S. Fish and Wildlife Service
Ecological Services Field Office
1511 47th Ave.
Moline, Illinois 61265
(309/757-5800, x215; fax 309/757-5807)

M.1.b. Joe Kath
Endangered Species Coordinator
Illinois Department of Natural Resources
Division of Natural Heritage
One Natural Resource Way
Springfield, Illinois 62702-1271
(217/785-8764; fax 217/785-2438)

M.2. For studies conducted in Indiana:

Katie Gremillion-Smith
Endangered Species Coordinator
Indiana Department of Natural Resources
Division of Fish and Wildlife
Room W273, 402 W. Washington St.
Indianapolis, Indiana 46204-2267
(317/232-8160; fax 317/232-8150)

M.3. For studies conducted in Iowa:

M.3.a. Kristen Lundh
Endangered Species Coordinator for Illinois/Iowa
U.S. Fish and Wildlife Service
Ecological Services Field Office
1511 47th Ave.
Moline, Illinois 61265
(309/757-5800, x215; fax 309/757-5807)

M.3.b. Daryl Howell
Endangered Species Coordinator
Iowa Department of Natural Resources
Parks, Recreation, and Preserves
Wallace State Office Building
East 9th and Grand Avenue
Des Moines, Iowa 50319-0034
(515/281-8524)

M.4. For studies conducted in Michigan:

M.4.a. Barbara Hosler
Endangered Species Coordinator for Michigan
U.S. Fish and Wildlife Service
2651 Coolidge Road
East Lansing, Michigan 48823
(517/351-6326; fax 517/351-1443)

M.4.b. Dan Kennedy
Endangered Species Coordinator
Michigan Department of Natural Resources
Wildlife Division
P.O. Box 30444
Lansing, Michigan 48909-7444
(517/241-3944; fax 517/373-6705)

M.5. For studies conducted in Missouri:

M.5.a. Amy Salveter
Field Supervisor
U.S. Fish and Wildlife Service
Missouri Ecological Services Field Office
101 Park DeVille Drive, Suite A
Columbia, Missouri 65203-2132
(573/234-2132; fax 573/234-2181)

M.5.b. Stephanie Liebi
Scientific Collecting Permit Coordinator
Missouri Department of Conservation
Endangered Species and Natural History Division
2901 W. Truman Blvd.
P.O. Box 180
Jefferson City, Missouri 65102-0180
(573/751-4115 ext. 3322; fax 573/526-5582)

M.6. For studies conducted in Ohio:

M.6.a. Angela Boyer
Endangered Species Coordinator for Ohio
U.S. Fish and Wildlife Service
Ohio Ecological Services Field Office
4625 Morse Road, Suite 104
Columbus, Ohio 43230
(614/416-8993, x22; fax 614/416-8994)

M.6.b. Carolyn Caldwell
Endangered Species Coordinator
Ohio Department of Natural Resources
Division of Wildlife
2045 Morse Road, Building G
Columbus, Ohio 43229-6693
(614-265-6329; fax 614/262-1143)

M.7. For studies conducted in Wisconsin:

M.7.a. Cathy Carnes
Endangered Species Coordinator
U.S. Fish and Wildlife Service
Ecological Services Field Office
2661 Scott Tower Drive
New Franken, Wisconsin 54229
(920/866-1717 x1732; fax 920/866-1710)

M.7.b. Erin Crain
Director, Bureau of Endangered Resources
Department of Natural Resources
Box 7921
Madison, Wisconsin 53707-7921
(608/267-7479; fax 608/266-2925)

M.8. For studies conducted in Alabama:

Daphne Field Office
Bill Pearson, Field Supervisor
1208-B Main Street
Daphne, Alabama 36526
(251) 441-5181

M.9. For studies conducted in Arkansas:

Arkansas Field Office
Jim Boggs, Field Supervisor
110 South Amity
Suite 300
Conway, Arkansas 72032-8975
(501/513-4470)

M.10. For studies conducted in Connecticut, Massachusetts, New Hampshire, Rhode Island and Vermont:

New England Field Office
Tom Chapman, Field Supervisor
70 Commercial Street, Suite 300
Concord, NH 03301
(603) 223-2541

M.11. For studies conducted in Delaware and Maryland:

Chesapeake Bay Field Office
Genevieve LaRouche, Field Supervisor
177 Admiral Cochrane Drive
Annapolis, MD 21401
(410) 573-4573

M.12. For studies conducted in Florida:

Panama City Field Office
Gail Carmody, Field Supervisor
1601 Balboa Avenue
Panama City, FL 32405
(850) 769-0552

M.13. For studies conducted in Georgia:

Georgia Field Office
Sandy Tucker, Field Supervisor
West Park Center, Suite D
105 West Park Drive
Athens, GA 30606-3175
(706) 613-9493

M.14. For studies conducted in Kansas:

Kansas Field Office
Heather Whitlaw, Field Supervisor
2609 Anderson Avenue
Manhattan, Kansas 68502
(785/539-3474; fax 785/539-8567)

M.15. For studies conducted in Kentucky:

Frankfort Field Office
Lee Andrews, Field Supervisor
J C Watts Federal Bldg., Rm 265
330 West Broadway
Frankfort, KY 40601-8670
(502) 695-0468

M.16. For studies conducted in Mississippi:

Mississippi Field Office
Steve Ricks, Field Supervisor
6578 Dogwood View Pkwy, Ste A
Jackson, MS 39213-7856
(601) 321-1122

M.17. For studies conducted in New Jersey:

New Jersey Field Office
Eric Davis, Field Supervisor
927 N. Main Street, Building D
Pleasantville, NJ 08232-1454
(609) 646-9310

M.18. For studies conducted in New York:

New York Field Office
David Stilwell, Field Supervisor
3817 Luker Road
Cortland, NY 13045
(607) 753-9334

M.19. For studies conducted in North Carolina:

Asheville Field Office
Brian Cole, State Supervisor
160 Zillicoa Street
Asheville, NC 28801-1082
(828) 258-3939

M.20. For studies conducted in Oklahoma:

Oklahoma Field Office
Dixie Porter, Field Supervisor
9014 E. 21st St.
Tulsa, Oklahoma 74129
(918) 382-4501

M.21. For studies conducted in Pennsylvania:

Pennsylvania Field Office
Field Supervisor
315 So. Allen Street, Suite 322
State College, PA 16801-4850
(814/234-4090)

M.22. For studies conducted in South Carolina:

Charleston Field Office
Jay Herrington, Field Supervisor
176 Croghan Spur Road, Suite 200
Charleston, SC 29407-7558
(843) 727-4707 x212

M.23. For studies conducted in Tennessee:

Cookeville Field Office
Mary Jennings, Field Supervisor
U.S. Fish and Wildlife Service
446 Neal Street
Cookeville, TN 38501-4027
(931) 528-6481

M.24. For studies conducted in Virginia:

Virginia Field Office
Cindy Schulz, Field Supervisor
6669 Short Lane
Gloucester, VA 23061
(804) 693-6694

M.25. For studies conducted in West Virginia:

West Virginia Field Office
Field Supervisor
Route 250 South, Elkins Shopping Plaza
694 Beverly Pike
Elkins, WV 26241
(304) 636-6586

cc: FWS/Region 2, 4, 5 and 6 (AES/TE)
FWS, TE Coordinators for Illinois, Indiana, Iowa, Michigan, Missouri, Ohio and Wisconsin
DNR/DOC, TE Coordinators for Illinois, Indiana, Iowa, Michigan, Missouri, Ohio and Wisconsin

END

Telephone Call Summary Sheet

By:	Justin Zoladz	**Date:**	06-25-2014
Talked With:	Pamela Shellenberger	**Project Number:**	EE-004741-0003-07TTO
Of:	USFWS – PA Field Office	**Project Name:**	Atlantic Sunrise
Telephone Number:	814-234-4090 x241	**Subject:**	Informal T&E Consultation – USFWS # 2014-0324 RE: NLEB Captures and Telemetry

Conference call with Ms. Pamela Shellenberger, USFWS-PA Field Office, 06-25-2014 - 1330 to 1400.

Others on call:

Williams – Amanda Harford
E & E – Greg Netti, Justin Zoladz, Chris Sanders (Bat Subcontractor)

Call Purpose:

Williams and E & E initiated a call with the USFWS to address the significant number of northern long-eared bat (NLEB) captures that have occurred during bat surveys on Central Penn Line North (CPLN) in Wyoming County. The approved survey plan was developed assuming approximately one NLEB capture every 10 sites, and up to four transmitters would be used per county. As of the June 24, 2014, survey night, 14 NLEBs have been captured in Wyoming County from 15 completed sites. An additional 19 sites remain to be surveyed out of 34 total sites for the county.

As of June 23, 2014, the Project had already captured seven NLEBs for Wyoming County in the first few sites. As per the work plan, captures five through seven were not radio-tracked. The large number of bats captured has raised concerns about the Project implications of the potential numerous large clearing restriction radii around capture locations without roost data. In an e-mail from Pam Shellenberger dated June 23, 2014, she confirmed, per the NLEB interim guidelines, that capture sites without roost data will be buffered by a 3-mile radius. For capture sites with roost data, the roost location will be buffered by a 1.5-mile radius. Therefore, as a precautionary measure, as of the night of June 23, 2014, the surveyors were instructed to radio-tag all NLEBs.

Call Summary:

- In accordance with the NLEB interim guidance, bats without roost data (untracked bats or unsuccessfully tracked bats), both male and female, will receive a 3-mile buffer around them, no matter if other individuals were tracked from the same site.
- The most important data that Transco can collect for NLEBs is roost location in order to assist with Project planning and USFWS consultation. Therefore, in order to allow mist-netting activities to proceed in a timely manner, it is advisable to tag all captured bats and identify roost sites. Once the roost site is identified, exit counts will focus on the roosts near or within the Project area.
- Within the roost/capture buffers, the USFWS will request avoidance and minimization measures as follows:
    - Implement route adjustments where necessary to avoid clearing any roost trees.
    - Restrict tree clearing during April 1 through November 15.

- Consider route adjustments to minimize tree clearing to the maximum extent possible.

- The USFWS will consider the data collected for the Project as part of the NLEB listing evaluation. For the Project's data to be evaluated in the listing review extension period, the data need to be submitted to the USFWS within the 60-day comment period.

Telephone Call Summary Sheet

By:	Mal Gilbert, (WHM Consulting, Inc.)	**Date:**	7/01/14
Talked With:	Pam Shellenberger	**Project Number:**	Sunrise Scirpus ancistrochaetus Surveys in Columbia County, PA
Of:	USFWS	**Project Name:**	Atlantic Sunrise Expansions
Telephone Number:	814-234-4090	**Subject:**	Locations of known populations and habitat conducive for occurrence near proposed ROW

Pam Shellenberger shared information on known populations of S. ancistrochaetus to facilitate more detailed field searches when approaching suitable habitat during our floristic surveys of wetlands delineated along the proposed ROW. Pam stressed that the current alignment does appear to be avoiding higher probability areas (by staying largely within agricultural areas and avoiding forested ridge-top alignments) ....but she did express concern about the higher elevation wooded areas in both the southern and northern ends of the ROW alignment....and noted additional concern where the ROW crosses over into Luzerne County. She noted that the higher elevations in the wooded areas in southern Luzerne may have potential habitat that should also be assessed. I told her I would be sure to do a thorough assessment of the areas she noted in Columbia County.....and I would pass her concerns about Southern Luzerne along to the project managers for consideration.....

Telephone Call Summary Sheet

By:	Robert Bull	**Date:**	7/2/14
Talked With:	Kayla Easler	**Project Number:**	XX
Of:	USFWS	**Project Name:**	Atlantic Sunrise
Telephone Number:	814-234-4090	**Subject:**	Informal T&E Consultation – PGC ID 201403110501

I spoke with Ms. Easler concerning the width of the survey area for the Atlantic Sunrise Pipeline. We discussed the 300" survey area as compared to the Service's need to have wetlands out to 700' analyzed for potential bog turtle habitat. The USFWS is Okay with us sticking to just the 300' ROW as long as we can visually assess the adjacent area. We will use desktop tools and visual assessment to cover the area outside of the 300'ROW. If however, the area shows indicators of potential habitat we will need to re-evaluate these areas on foot.

Telephone Call Summary Sheet

By:	Ryan Nelson, (WHM Consulting, Inc.)	**Date:**	7/08/14
Talked With:	Pam Shellenberger	**Project Number:**	Sunrise Scirpus ancistrochaetus Surveys in Columbia County, PA
Of:	USFWS	**Project Name:**	Atlantic Sunrise Expansions
Telephone Number:	814-234-4090	**Subject:**	Additional survey request in Luzerne County

Pam Shellenberger and I discussed a conversation she had with WHM Botanist Mal Gilbert regarding completing surveys for NE Bulrush in Luzerne County. The concern is that the USFWS original correspondence stated that only Colombia County needed to be reviewed, but after her conversation with Mal, she stated that extending this survey into Luzerne County should occur due to the land feature the NE Bulrush prefers extends into Luzerne County.

The goal of the conversation was to determine what level of effort should occur within Luzerne County to satisfy her concerns. She determined that surveys should extend to where the project intersects Route 29 in Luzerne County, MP 4.8 to MP 16.3 in Luzerne County.

From:	Netti, Gregory
To:	"jennifer_siani@fws.gov"
Cc:	"Pamela_Shellenberger@fws.gov"; "kayla_easler@fws.gov"; Allen, Anne; Amanda Harford (Amanda.Harford@williams.com); John Zimmer (JZimmer@trcsolutions.com); "dbhartwig@atlanticbb.net"; Smith, Rachel; Czapka, Stephen J.; "Roberta.Zwier@Williams.com"
Subject:	Agenda for Atlantic Sunrise Meeting and Migratory Bird Memo
Date:	Friday, July 18, 2014 8:55:00 AM
Attachments:	Agenda_Atlantic Sunrise FWS Meeting_072214.docx Atlantic Sunrise MBTA Memo_071814.pdf

Hi Jennifer,

Please find attached an agenda for the Transco Atlantic Sunrise Project meeting on July 22. Also attached is a memo providing preliminary analysis of migratory bird habitat and species presence in the Project area.

Please don't hesitate to contact me if you have any questions regarding the attached. We look forward to meeting with you next week.

Regards,

Greg

Greg Netti
Ecology and Environment, Inc.
368 Pleasant View Drive
Lancaster, NY 14086
Phone: 716-684-8060 Ext: 2810 | Fax: 716-684-0844
Cell: 716-225-5017
gnetti@ene.com | www.ene.com

Meeting Agenda

Atlantic Sunrise Project

Transcontinental Gas Pipe Line Company, LLC

July 22, 2014

U.S. Fish and Wildlife Service, State College Field Office

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1) Introductions

2) Project Update

3) Preliminary Migratory Bird Analysis

4) Potential Migratory Bird Conservation Measures

5) Next Steps

Memorandum

To: Jennifer Siani, Pamela Shellenberger; Kayla Easler; U.S. Fish and Wildlife Service

From: Greg Netti, Ecology & Environment, Inc.

Cc: Anne Allen, Transcontinental Gas Pipe Line Company, LLC (Transco)
Amanda Harford, Transco
John Taucher, Pennsylvania Game Commission
Bill Hartwig, Dawson and Associates

Date: July 18, 2014

Re: Preliminary Migratory Bird Analysis for the Transco Atlantic Sunrise Project

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Purpose

The purpose of this memo is to provide an initial snapshot of sensitive migratory bird habitat and species within the Pennsylvania portion of the Transcontinental Gas Pipe Line Company, LLC (Transco) proposed Atlantic Sunrise Project (Project). Project components considered in this memo include the following four pipeline facilities:

- Central Penn Line (CPL) North: 57 miles of new 30-inch diameter pipeline in Susquehanna, Wyoming, Luzerne, and Columbia Counties.
- CPL South: Approximately 122 miles of new 42-inch diameter pipeline in Lancaster, Lebanon, Schuylkill, Northumberland, and Columbia Counties.
- Chapman Loop: 3 miles of 36-inch diameter pipeline co-located with the existing Transco Leidy Line pipeline in Lycoming County.
- Unity Loop: 9 miles of 42-inch diameter pipeline co-located with the existing Transco Leidy Line pipeline in Lycoming County.

This memo is intended to support discussions between Transco, the U.S. Fish and Wildlife Service (USFWS), and the Pennsylvania Game Commission (PGC). Transco has scheduled a meeting with the USFWS on July 22, 2014 at the Pennsylvania Field Office in State College, Pennsylvania to discuss migratory birds as related to the Project. A separate meeting with the PGC is being scheduled for August 2014, at which time migratory birds and other issues related to threatened and endangered species field surveys will be discussed.

Transco is developing a migratory bird report for the Project, which will be included in Transco's draft resource reports anticipated to be filed with the Federal Energy Regulatory Commission (FERC) in October 2014.

Agency Consultation History

Transco initiated consultations with the USFWS and PGC to identify and evaluate potential impacts of the Project on species and resources of concern under each of the agencies' areas of responsibility. In each of their responses, the USFWS and PGC indicated that migratory birds could be impacted by the Project (Zimmerman 2014; Taucher 2014). The USFWS did not indicate the occurrence of any federally listed, candidate, or proposed for listing bird species that could be impacted by the Project. However, both agencies indicated that species protected under the Migratory Bird Treaty Act (MBTA), 16 U.S.C. 703-712, and Bald and Golden Eagle Protection Act (BGEPA), 16 U.S.C. 668-668C (i.e., the bald eagle [*Haliaeetus leucocephalus*]), could be impacted (Zimmerman 2014). Because a high number of migratory bird species protected under the MBTA breed in Pennsylvania, the USFWS assumes that breeding birds occur in any habitat type within Pennsylvania during the breeding season (Transco 2014).

The PGC did not indicate the occurrence of any state-listed bird species within the review area. However, they indicated that the Project would be located in areas "where the abundance and species richness of various area-sensitive forest bird species are among the highest in the state" (Taucher 2014). Area-sensitive forest bird species are those species that require a large expanse of relatively contiguous (un-fragmented) forest to maintain their populations.

Methods

Sensitive Migratory Bird Habitats

The proposed Project was reviewed to identify areas along the Pennsylvania pipeline routes that could provide high quality habitat for birds or support sensitive migratory bird species. The areas evaluated included: Audubon Pennsylvania Important Bird Areas (IBA), Pennsylvania State Forests, Pennsylvania State Game Lands, and interior forest habitat. Table 1 provides definitions for each of these areas.

Table 1 Sensitive Migratory Bird Habitats

Habitat Area	Definition
Important Bird Area (IBA)	The IBA program was started in Europe in the 1980s by BirdLife International, a global coalition of partner organizations. The National Audubon Society administers the IBA program in the United States and developed the program to identify a network of sites that provide critical habitat for birds, and to conserve them. IBAs are selected according to standardized criteria (i.e., sites for species at risk, sites for responsibility assemblages, and sites for congregations of birds) through a collaborative effort with non-governmental conservation organizations (NGOs), government agencies, local conservation groups, academics, birders, and others (Burger and Liner 2005).

Table 1 Sensitive Migratory Bird Habitats

Habitat Area	Definition
Pennsylvania State Forests	There are 2.2 million acres of land in the Pennsylvania state forest system. The goal of state forest management is to manage the state forests sustainably under sound ecosystem management, to retain their wild character and maintain biological diversity while providing pure water, emphasizing opportunities for dispersed recreation, habitats for plants and animals, sustained yields of quality timber, and environmentally sound utilization of mineral resources (Pennsylvania Department of Conservation and Natural Resources [DCNR] n.d.[c]).
Pennsylvania State Game Lands (SGL)	The PGC administers over 1.4 million acres of SGLs, comprised of 305 individual game lands of which about 1.2 million acres are classified as forest. The PGC's primary mission is to protect, propagate, manage, and preserve game or wildlife (Jacobson et al. 2010).
Interior Forests	The 2011 United States Geological Survey (USGS) National Land Cover Database (NLCD) was used to delineate interior forest habitat crossed by the proposed Project (Jin et al. 2013). For the purpose of this assessment, interior forest habitat is defined as forested areas located at least 300 feet from forest breaks and outer forest edge.

Sensitive Migratory Bird Species

As requested by the USFWS, existing sources of data were reviewed to develop lists of bird species most likely to occur in the Project Area, focusing on sensitive species (Zimmerman 2014; Transco 2014). For the purpose of this initial memo, sensitive migratory bird species include those listed at the federal or state level as threatened or endangered, birds of conservation concern (BCC), and species of greatest conservation need (SGCN). Several of the BCC and SGCN are considered forest interior and/or area-sensitive forest interior species. Table 2 provides definitions for these species designations.

Table 2 Sensitive Migratory Bird Species

Status	Definition
Birds of Conservation Concern (BCC)	Migratory and non-migratory birds of the United States and its territories that are of conservation concern so as to stimulate coordinated and proactive conservation actions among federal, state, tribal, and private partners. Without additional conservation actions BCC could become candidates for listing under the Endangered Species Act (ESA) (16 U.S.C. 1531-1543) (USFWS 2008).
SGCN Conservation Tier 1: Immediate Concern (SGCN-1)	Species that are most at risk and/or are experiencing the most dramatic declines across their range. Includes globally rare or imperiled species, nationally rare or imperiled species, as well as those species in Pennsylvania and/or the northeastern United States that are declining to the point of requiring federal listing in the near future (Pennsylvania Natural Heritage Program n.d.).
SGCN Conservation Tier 2: High-level Concern (SGCN-2)	Includes nationally and/or regionally significant species that are vulnerable in Pennsylvania. Include species with small, localized and vulnerable populations, species with limited dispersal, species with fragmented or isolated populations, and/or species in need of additional research to determine status (Pennsylvania Natural Heritage Program n.d.).

Table 2 Sensitive Migratory Bird Species

Status	Definition
SGCN Conservation Tier 3: Responsibility Species (SGCN-3)	Those species in which core populations occur in Pennsylvania and/or a significant proportion (> 5 to 10%) of the regional population occurs in Pennsylvania so that Pennsylvania has a high responsibility for conserving the species. Includes species which may be relatively abundant and/or locally common and for which Pennsylvania serves as a "population core," (i.e., a significant proportion of the species' population occurs in the Commonwealth) (Pennsylvania Natural Heritage Program n.d.).
SGCN Conservation Tier 4: Pennsylvania Vulnerable (SGCN-4)	Those species that are most at risk and/or are experiencing the most dramatic declines within the borders of the Commonwealth, but are not at risk at the regional, national, or global level (Pennsylvania Natural Heritage Program n.d.).
SGCN Conservation Tier 5: Maintenance Concern (SGCN-5)	Species that are fairly secure in Pennsylvania, but for which the Pennsylvania Biological Survey recommends some level of management attention. Many of the species in this tier, although still considered abundant and fairly secure, have undergone recent declines that should be addressed. Species are also included in this tier if they serve as an indicator for high-quality habitats (Pennsylvania Natural Heritage Program n.d.).
Forest Interior Species	Species which tend to reach their highest abundance and nest most successfully away from openings and in large forest patches (Goodrich et al. n.d.).
Area-Sensitive Forest Interior Species	Listed in Pennsylvania's Wildlife Action Plan (PGC and Pennsylvania Fish and Boat Commission [PFBC] 2008) area-sensitive forest interior species are those species that require a large expanse of relatively contiguous (un-fragmented) forest to maintain their populations (Taucher 2014).

Data sources reviewed to develop lists of sensitive bird species likely to occur in the Project Area included Pennsylvania's Second Breeding Bird Atlas (BBA), USGS Breeding Bird Survey (BBS), eBird, and bald eagle nest locations. Table 3 provides a description of each of these data sources.

Table 3 Data Sources Reviewed to Identify Sensitive Bird Species Likely to occur in the Atlantic Sunrise Project Area.

Data Source	Description
Pennsylvania's Second Breeding Bird Atlas (BBA)	The most recent Pennsylvania BBA, the second such atlas published, documents the results of extensive surveys conducted between 2004 and 2009 to determine the distribution of breeding bird species in Pennsylvania. Volunteer birders recorded evidence of breeding bird species throughout the state within 4,937 delineated blocks, each measuring approximately 3.3 miles north to south and 2.9 miles east to west. The data provide evidence of breeding composition and, in general, quality of breeding habitat (Wilson et al. 2012).
USGS Breeding Bird Survey (BBS)	BBSs are conducted annually by volunteers during the peak nesting season (June) as part of a long-running, widespread monitoring program implemented by the USGS. All birds heard or observed are documented using a specified protocol. Surveys are conducted for 3 minutes at 50 locations, 0.5 mile apart, starting 30 minutes before sunrise. The BBS data provide a valuable source of information on bird populations and trends over time in given areas, both locally and nationally.

Table 3 Data Sources Reviewed to Identify Sensitive Bird Species Likely to occur in the Atlantic Sunrise Project Area.

Data Source	Description
eBird	Launched in 2002 by the Cornell Lab of Ornithology and National Audubon Society, eBird provides basic information on bird abundance and distribution at a variety of spatial and temporal scales. eBird documents the presence or absence of species, as well as bird abundance through checklist data. A simple and intuitive web-interface engages tens of thousands of participants to submit their observations or view results via interactive queries into the eBird database. A birder simply enters when, where, and how they went birding, then fills out a checklist of all the birds seen and heard during the outing (Audubon and Cornell Lab of Ornithology n.d.). eBird "hotspots", common locations with pooled data from multiple observers, in proximity to the proposed pipeline route were reviewed (eBird 2013).
Bald Eagle Nests	Bald eagle nest locations were accessed through the Bald Eagle Mapping Tool on the USFWS Pennsylvania Field Office website (USFWS 2014).

Results

Sensitive Migratory Bird Habitats

Table 4 provides a summary of sensitive migratory bird habitats crossed by each proposed pipeline facility. These areas are shown on maps in Attachment 1.

Table 4 Summary of Sensitive Migratory Bird Habitats Crossed by the Atlantic Sunrise Project Pipeline Facilities in Pennsylvania

	Important Bird Areas (distance)	State Forests (distance)	State Game Lands (distance)	Interior Forest Blocks (distance)
Chapman Loop	--	1 (1.0 mile)		--
Unity Loop	--	--		--
CPL North	1 (0.5 mile)	--	1 (1.0 mile)	15 (1.3 miles)
CPL South	2 (7.9 miles)	--	2 (1.7 miles)	44 (12.3 miles)

Sensitive Migratory Bird Species

Table 5 provides a complete list of sensitive bird species identified through the data review. Table 6 provides a summary of the number and type of sensitive bird species by pipeline facility. No federally listed threatened or endangered bird species were identified during the data review. Eight Pennsylvania endangered and four Pennsylvania threatened species were identified during the data review. However, as previously indicated, the PGC did not indicate the occurrence of any state-listed bird species within their review area. The potential occurrence of the state-listed species is related to a much large area encompassed by the data sources reviewed.

Table 5 Sensitive Bird Species Potentially Occurring in the Vicinity of the Atlantic Sunrise Project.

Common Name	Scientific Name	Status/Rank	Habitat	Seasonal Occurrence	Breeding Dates*	Pipeline Segment
Wetland Species						
American black duck	*Anas rubripes*	SGCN-5	Freshwater wetlands in forested regions, including bogs, emergent marshes, lakes, swamps, rivers, streams, and beaver flowages.	Year-round	May 1 – July 31	CPL North, CPL South
Pied-billed grebe	*Podilymbus podiceps*	SGCN-5	Emergent wetlands with abundant vegetation and shallow water (<2 feet).	Breeding and passage migrant	June 1 – July 31	CPL North, CPL South
American bittern	*Botaurus lentiginosus*	PE, SGCN-2	Wetlands, especially extensive emergent marshes.	Breeding and passage migrant	June 1 – July 31	CPL South
Great blue heron	*Butorides virescens*	SGCN-5	Riparian, deciduous, and mixed forests; forested wetlands; wetlands; and slow-moving water.	Year-round	June 1 – July 15	Unity Loop, CPL North, CPL South
Great egret	*Bubulcus ibis*	PE, SCGN-4	Riparian forest, islands, wetlands. Nests in colonies.	Breeding and passage migrant	June 1 – June 30	CPL South
Black-crowned night-heron	*Nycticorax nycticorax*	PE, SGCN-4	Shallow aquatic/terrestrial margins of fresh, brackish, and salty aquatic environments in both remote wetlands and city parks.	Breeding and passage migrant	June 1 – June 30	CPL North, CPL South
Yellow-crowned night-heron	*Nyctanassa violacea*	PE, SGCN-4	Riparian forests, islands, wetlands. Nests in colonies. Limited distribution; few colonies in Pennsylvania.	Breeding and passage migrant	June 1 – June 30	CPL South
Virginia rail	*Rallus limicola*	SGCN-2	Emergent wetlands.	Breeding and passage migrant	May 15 – August 15	Chapman Loop, Unity Loop, CPL North, CPL South
Sora	*Porzana carolina*	SGCN-5	Large shallow-intermediate depth emergent wetlands with open water and mudflats.	Breeding and passage migrant	May 15 – July 31	Chapman Loop, Unity Loop, CPL North, CPL South
American coot	*Fulica americana*	SGCN-5	Freshwater emergent wetlands with a mosaic of open water and emergent vegetation.	Breeding and passage migrant	June 1 – July 31	CPL South
Grassland Species						
Upland sandpiper	*Bartramia longicauda*	BCC, PE, SGCN-1	Large tracts of contiguous grassland with mosaics of tall (15-35 cm) stands of grass for nesting and short stands (greater than 15 cm), often in weed rich pasture for foraging.	Breeding and passage migrant	May 15 – June 30	CPL South
Northern harrier	*Circus cyaneus*	PT, SGCN-2	Large open grasslands (including reclaimed stripmines); marshy meadows, wet lightly grazed pastures, open bogs, freshwater and brackish marshes, and riparian woodland.	Year-round	June 1 – July 31	Chapman Loop, Unity Loop, CPL North, CPL South
Henslow's sparrow	*Ammodramus henslowii*	BCC, SGCN-2	Large-scale grasslands (including reclaimed stripmines); grassland obligate species.	Breeding and passage migrant	May 25 – August 15	Chapman Loop, Unity Loop, CPL North, CPL South
Grasshopper sparrow	*Ammodramus savannarum*	SGCN-5	Large-scale grasslands; grassland obligate species	Breeding and passage migrant	June 1 – August 15	Unity Loop, CPL North, CPL South
Dickcissel	*Spiza americana*	PE, SGCN-2	Old fields, grasslands with medium to tall vegetation and moderate litter	Breeding and passage migrant	June 1 – July 31	Chapman Loop, Unity Loop, CPL North, CPL South
Bobolink	*Dolichonyx oryzivorus*	SGCN-5	Moist meadows and fields of hay, clover, alfalfa, and other herbaceous vegetation.	Breeding and passage migrant	May 15 – June 30	CPL North, CPL South
Eastern meadowlark	*Sturnella magna*	SGCN-5	Prairies, pastures, hayfields, and fallow lands.	Year-round	May 15 – July 31	Unity Loop, CPL North, CPL South

Table 5 Sensitive Bird Species Potentially Occurring in the Vicinity of the Atlantic Sunrise Project.

Common Name	Scientific Name	Status/Rank	Habitat	Seasonal Occurrence	Breeding Dates[2]	Pipeline Segment
Riparian Species						
Osprey	*Pandion haliaetus*	PT, SCGN-4	Shallow water areas with artificial or natural nesting structures.	Breeding and passage migrant	June 1 – July 31	Chapman Loop, Unity Loop, CPL North, CPL South
Bald eagle	*Haliaeetus leucocephalus*	BCC, PT, SGCN-2	Shallow flat-water with abundant fish, roost trees and large trees within 1 mile of water for nesting.	Year-round	January 15 – July 31	Chapman Loop, Unity Loop, CPL North, CPL South
Alder flycatcher	*Empidonax alnorum*	SGCN-5	Shrub-scrub wetlands and riparian areas.	Breeding and passage migrant	June 10 – July 15	CPL North, CPL South
Willow flycatcher	*Empidonax traillii*	SGCN-5	Brushy riparian areas.	Breeding and passage migrant	June 10 – July 15	Unity Loop, CPL North, CPL South
Bank swallow	*Riparia riparia*	SGCN-5	Riparian; nests in colonies.	Breeding and passage migrant.	June 1 – June 30	CPL North, CPL South
Cliff/Rock Outcrops/Urban Areas						
Peregrine falcon	*Falco peregrinus*	BCC, PE, SGCN-2	Large cliffs, most often associated with rivers. Large- and medium-sized bridges and tall buildings also serve as nesting structures.	Year-round;	May 15 – July 31	CPL North, CPL South
Common nighthawk	*Chordeiles minor*	SGCN-5	Barren ground, rock outcrops, and gravel rooftops in cities and towns.	Breeding and passage migrant	June 5 – July 31	Unity Loop, CPL North, CPL South
Early Successional Forest						
Northern bobwhite	*Colinus virginianus*	SGCN-1	Scattered shrubs and briars interspersed with moderately dense herbaceous or grassy vegetation.	Year-round	April 15 – July 31	CPL North, CPL South
American woodcock	*Scolopax minor*	SGCN-5	Mix of habitats, including small, scattered openings, and dense stands of shrubs and young trees.	Breeding and passage migrant	April 1 – July 15	Unity Loop, CPL North, CPL South
Barn owl	*Tyto alba*	SGCN-5	Grasslands, nests in large trees or human structures.	Year-round	April 20 – August 15	CPL North
Brown thrasher	*Toxostoma rufum*	SGCN-5	Brushy mosaic habitats ("odd areas" - hedgerows, multiflora rose thickets, overgrown fields and pastures, and forest edges); prefer large (great than 0.5 ha) overgrown fields with open foraging areas, thick brushy nesting areas, and an abundance of song perches.	Breeding and passage migrant	May 15 – July 31	CPL North, CPL South
Prairie warbler	*Setophaga discolor*	BCC, SGCN-5	Brushy second growth, dry scrub, low pine-juniper, pine barrens, burned-over areas, and sproutlands.	Breeding and passage migrant	May 25 – July 31	CPL North, CPL South
Yellow-breasted chat	*Icteria virens*	SGCN-5	Low, dense shrub habitats with an open or partially open tree canopy in regenerating clearcuts, forest edges, abandoned farmland, burned forest, and shrubby margins.	Breeding and passage migrant.	June 1 – July 31	Unity Loop, CPL North, CPL South
Golden-winged warbler	*Vermivora chrysoptera*	BCC, SGCN-2	Mosaic of herbaceous patches and shrubby thickets located along a forest edge, often at higher elevations; increasingly found in higher elevation bogs and forested wetlands.	Breeding and passage migrant	May 25 – July 15	CPL North, CPL South
Blue-winged warbler	*Vermivora cyanoptera*	BCC, SGCN-3	Early- to mid-successional forests and thickets with openings; areas marked by patches of herbs, shrubs, and trees and often located near a forest edge.	Breeding and passage migrant	May 25 – July 15	CPL North, CPL South
Mid-successional/Second Growth Forest						
Black-billed cuckoo	*Coccyzus erythropthalmus*	SGCN-5	Mixed and coniferous forest with edges, thickets.	Breeding and passage migrant	June 5 – July 31	CPL North, CPL South
Whip-poor-will[3]	*Antrostomus vociferus*	BCC, SGCN-5	Early- to mid-successional (second-growth) forest and open, forested habitats near clearings.	Breeding and passage migrant	June 1 – July 31	Chapman Loop, Unity Loop, CPL North, CPL South

Table 5 Sensitive Bird Species Potentially Occurring in the Vicinity of the Atlantic Sunrise Project.

Common Name	Scientific Name	Status/Rank	Habitat	Seasonal Occurrence	Breeding Dates[2]	Pipeline Segment
Wood thrush[4]	*Hylocichla mustelina*	BCC, SGCN-3	Second-growth, closed-canopy deciduous and mixed forest, often near water.	Breeding and passage migrant.	June 1 – July 31	Chapman Loop, Unity Loop, CPL North, CPL South
Blackpoll warbler	*Setophaga striata*	PE, SGCN-4	High elevation, spruce-dominated wetlands and forests.	Breeding and passage migrant.	June 15 – August 15	CPL North, CPL South
Pine siskin	*Spinus pinus*	SGCN-5	Northern boreal forest, preferring open stands of spruce and pine interspersed with birch and maple hardwood.	Year-round	June 1 – July 31	CPL North, CPL South
Mature Forest						
Sharp-shinned hawk[3]	*Accipiter striatus*	SGCN-5	Large-scale coniferous or mixed conifer/deciduous forests.	Year-round	June 1 – July 31	CPL North, CPL South
Northern goshawk[3]	*Accipiter gentilis*	SGCN-4	Large tracts of old growth/mature mixed (hardwood/hemlock) forests with dense canopy for nesting, open understory, near water.	Year-round	May 1 – July 31	Chapman Loop, Unity Loop, CPL North, CPL South
Red-shouldered hawk[3]	*Buteo lineatus*	SGCN-5	Extensive lowland, deciduous, or mixed forests, interspersed with small openings or marshes.	Year-round	May 1 – August 15	Chapman Loop, Unity Loop, CPL North, CPL South
Broad-winged hawk[3]	*Buteo platypterus*	SGCN-5	Continuous deciduous or mixed deciduous forests with openings and water source nearby.	Breeding and passage migrant	June 1 – July 31	Unity Loop, CPL North, CPL South
Long-eared owl[3]	*Asio otus*	PT, SGCN-2	Nests in conifers; forages in wetlands and grasslands.	Year-round	April 20 – August 15	Chapman Loop, Unity Loop, CPL North, CPL South
Chimney swift	*Chaetura pelagica*	SGCN-5	Urban settings and mature forests.	Breeding and passage migrant	May 25 – July 31	Unity Loop, CPL North, CPL South
Red-headed woodpecker	*Melanerpes erythrocephalus*	BCC, SGCN- 5	Savannah-like forests, parks, swamps.	Year-round	May 25 – July 31	Chapman Loop, Unity Loop, CPL North, CPL South
Acadian flycatcher[3]	*Empidonax virescens*	SGCN-5	Riparian forest. In northern part of state strongly associated with hemlock.	Breeding and passage migrant	May 25 – July 31	Unity Loop, CPL North, CPL South
Yellow-throated vireo	*Vireo flavifrons*	SGCN-5	Deciduous forests, riparian woodland, tall floodplain forest, lowland swamp forest, mixed forest, orchards, and groves of shade trees with open understory.	Breeding and passage migrant.	June 1 – August 15	CPL North, CPL South
Blue-headed vireo[3]	*Vireo solitarius*	SGCN-5	Mature un-fragmented mixed and conifer forest with structural diversity (hemlock-associated species).	Breeding and passage migrant	May 25 – July 31	Chapman Loop, CPL North, CPL South
Winter wren[3]	*Troglodytes hiemalis*	SGCN-5[1]	High elevation, coniferous/mixed forests, with a substantial hemlock component. Nests often near water, particularly streams in hemlock ravines but sometimes near bogs or swamps.	Year-round	May 15 – August 15	Unity Loop, CPL North, CPL South
Swainson's thrush	*Catharus ustulatus*	SGCN-4	Mature conifer and mixed forests, primarily at higher elevations (greater than 1,700 feet).	Breeding and passage migrant.	June 5 – July 31	Unity Loop, CPL North, CPL South
Worm-eating warbler[3,4]	*Helmitheros vermivorum*	BCC, SGCN-3	Moderate to steep wooded hillsides with dense shrub cover (typically mountain laurel, rhododendron).	Breeding and passage migrant	May 25 – July 15	Chapman Loop, Unity Loop, CPL North, CPL South
Louisiana waterthrush[3,4]	*Parkesia motacilla*	BCC, SGCN-3	Mature, forested watersheds with medium- to high-gradient headwater (1st to 3rd order) streams with well-developed banks (ravines) and/or plentiful overturned trees with exposed root masses. High-quality stream indicator.	Breeding and passage migrant	April 15 – July 15	Unity Loop, CPL North, CPL South
Prothonotary warbler	*Protonotaria citrea*	SGCN-2	Wooded swamps or other flooded forest types greater than 100 ha; swampy riparian forests.	Breeding and passage migrant	May 25 – July 15	CPL North, CPL South

Table 5 Sensitive Bird Species Potentially Occurring in the Vicinity of the Atlantic Sunrise Project.

Common Name	Scientific Name	Status/Rank	Habitat[1]	Seasonal Occurrence	Breeding Dates[2]	Pipeline Segment
Kentucky warbler[3]	*Geothlypis formosa*	BCC, SGCN-5	Lowland deciduous forests with well-developed ground cover and a dense brushy or vine-filled understory, often near streams.	Breeding and passage migrant	May 25 – July 31	Chapman Loop, Unity Loop, CPL North, CPL South
Cerulean warbler[3,4]	*Setophaga cerulea*	BCC, SGCN-2	Large stands of mature deciduous forest with large, well-spaced trees with dense, high canopies.	Breeding and passage migrant	June 1 – July 31	CPL North, CPL South
Blackburnian warbler	*Setophaga fusca*	SGCN-5	Tall canopy coniferous/mixed forest with vegetation over 18 meters and densely foliated crowns.	Breeding and passage migrant	June 1 – July 31	CPL North, CPL South
Black-throated blue warbler[3]	*Setophaga caerulescens*	SGCN-5	Un-fragmented mixed coniferous forest with structural diversity (higher elevation > 800 m).	Breeding and passage migrant	June 10 – July 31	Unity Loop, CPL North, CPL South
Black-throated green warbler[3]	*Setophaga virens*	SGCN-5	Large tracts of coniferous, deciduous, and mixed forests greater than 300 meters in elevation.	Breeding and passage migrant	June 1 – July 31	Chapman Loop, Unity Loop, CPL North, CPL South
Canada warbler[3]	*Cardellina canadensis*	BCC, SGCN-5	Hemlock-dominated ravines and wet sites in northern hardwood and mixed forest with a dense understory of shrubs, such as rhododendron or hobblebush; higher elevations (greater than 457 m).	Breeding and passage migrant	June 1 – July 31	CPL North, CPL South
Scarlet tanager[3,4]	*Piranga olivacea*	SGCN-3	A wide variety of mature deciduous and mixed-deciduous forest types.	Breeding and passage migrant	June 1 – July 31	Chapman Loop, Unity Loop, CPL North, CPL South
Red crossbill	*Loxia curvirostra*	SGCN-4	Northern boreal forest; eastern white pine, red pine, eastern hemlock, red spruce, and white spruce.	Breeding and passage migrant	May 15 – July 31	CPL North

Source: USFWS 2008; Pennsylvania Game Commission and Pennsylvania Fish and Boat Commission (PGC and PFBC) 2008; Pennsylvania Natural Heritage Program (PNHP) 2014.

[1] Habitat descriptions based on PGC and PFBC 2008.

[2] Species can be safely assumed to be breeding during these dates, but some individuals could be breeding sooner or later than these dates (Wilson et al. 2012).

[3] Forest interior species (Goodrich et al. n.d.)

[4] Area-sensitive forest bird species (PGC and PFBC 2008)

Key:

BCC = Birds of Conservation Concern
PE = Pennsylvania Endangered
PT = Pennsylvania Threatened
SGCN-1 = Species of Greatest Conservation Need (Immediate Concern)
SGCN-2 = Species of Greatest Conservation Need (High-Level Concern)
SGCN-3 = Species of Greatest Conservation Need (Responsibility Species)
SGCN-4 = Species of Greatest Conservation Need (Pennsylvania Vulnerable)
SGCN-5 = Species of Greatest Conservation Need (Maintenance Concern)

Table 6 Number of Sensitive Bird Species Potentially Occurring by Pipeline Facility[1]

	Number of Blocks	Total Number of Species	Birds of Conservation Concern	State-listed Species	Species of Greatest Conservation Need	Forest Interior Species	Area-Sensitive Forest Interior Species
Chapman Loop	2	69	6	5	17	17	2
Unity Loop	4	109	8	5	31	27	4
CPL North	23	139	11	7	43	34	4
CPL South	49	160	13	7	50	40	5

[1] Based on results of the Pennsylvania Second Breeding Bird Atlas (BBA).

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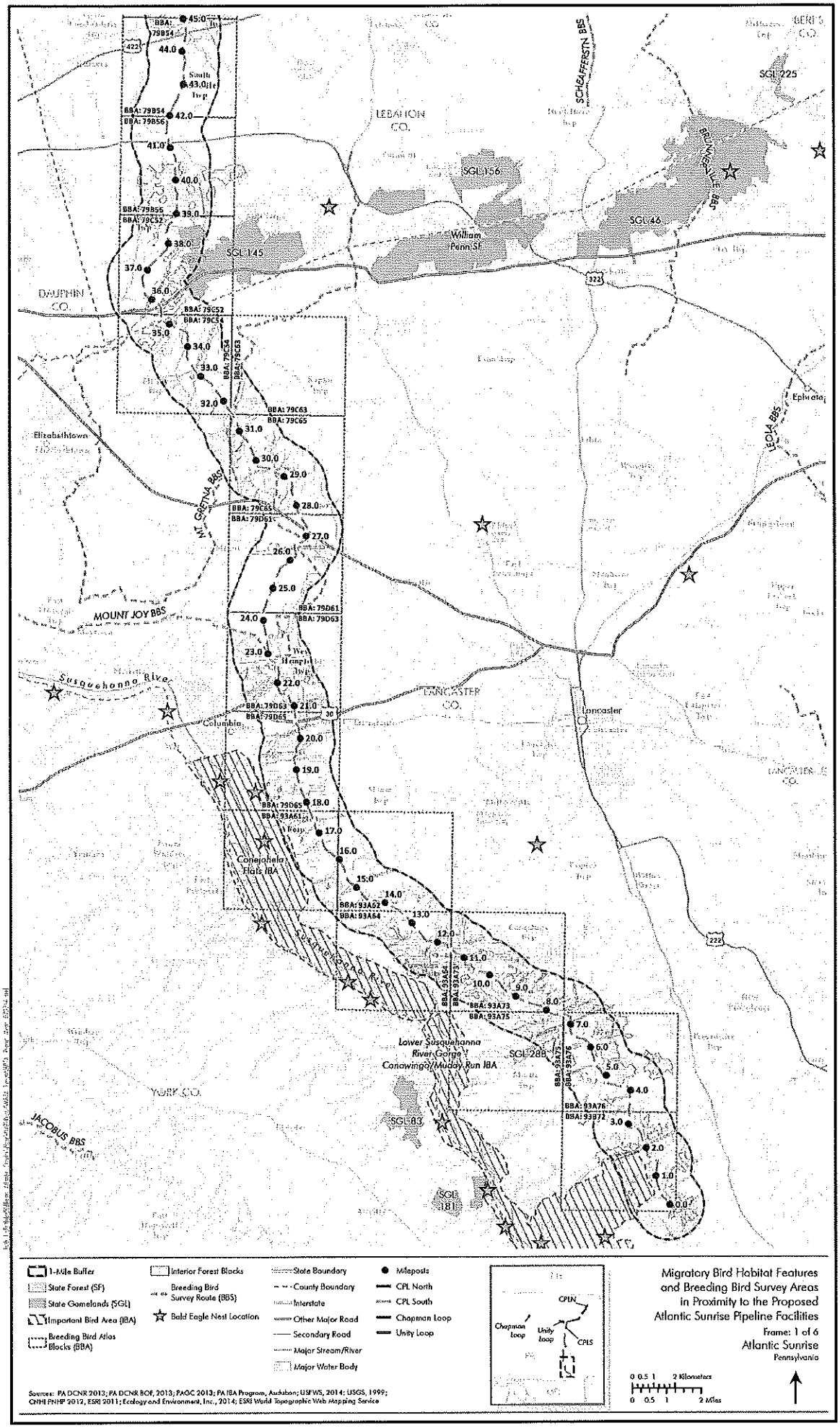
Attachment 1
Figures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DAUPHIN CO.
LANCASTER CO.
YORK CO.
Elizabethtown
Columbia
Lancaster
Ephrata
William Penn SF
Susquehanna River
Conejohela Flats IBA
Lower Susquehanna River Gorge / Conawingo/Muddy Run IBA
MOUNT JOY BBS
MT. GRETNA BBS
LEOLA BBS
SCHAEFFERSTN BBS
BRUNNERVILLE BBS
JACOBUS BBS
1-Mile Buffer
State Forest (SF)
State Gamelands (SGL)
Important Bird Area (IBA)
Breeding Bird Atlas Blocks (BBA)
Interior Forest Blocks
Breeding Bird Survey Route (BBS)
Bald Eagle Nest Location
State Boundary
County Boundary
Interstate
Other Major Road
Secondary Road
Major Stream/River
Major Water Body
Mileposts
CPL North
CPL South
Chapman Loop
Unity Loop
CPLN
CPLS
Migratory Bird Habitat Features and Breeding Bird Survey Areas in Proximity to the Proposed Atlantic Sunrise Pipeline Facilities
Frame: 1 of 6
Atlantic Sunrise
Pennsylvania
0 0.5 1 2 Kilometers
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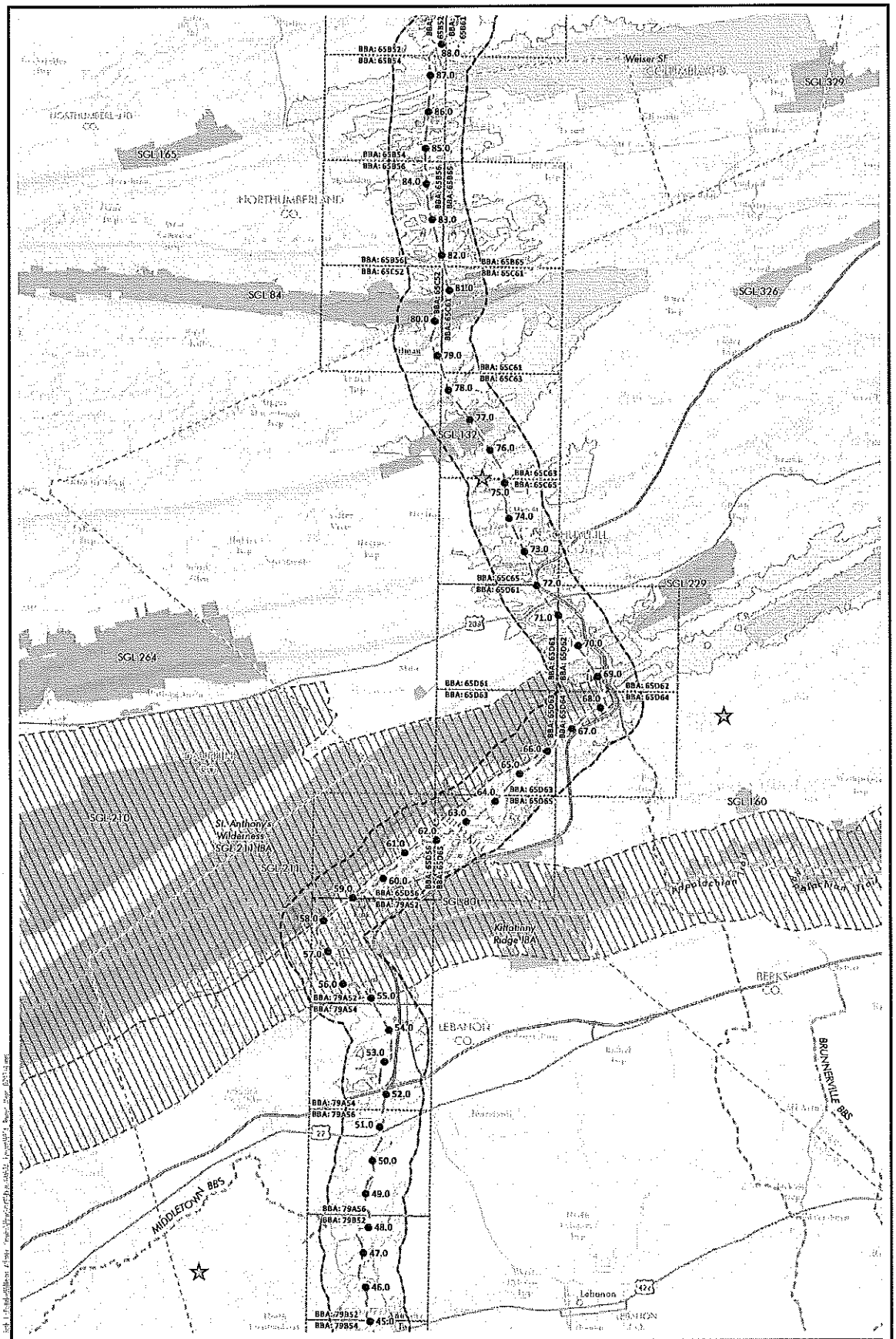
Sources: PA DCNR 2013; PA DCNR BOF, 2013; PAGC 2013; PA IBA Program, Audubon; USFWS, 2014; USGS, 1999; CNHI PNHP 2012, ESRI 2011; Ecology and Environment, Inc., 2014; ESRI World Topographic Web Mapping Service



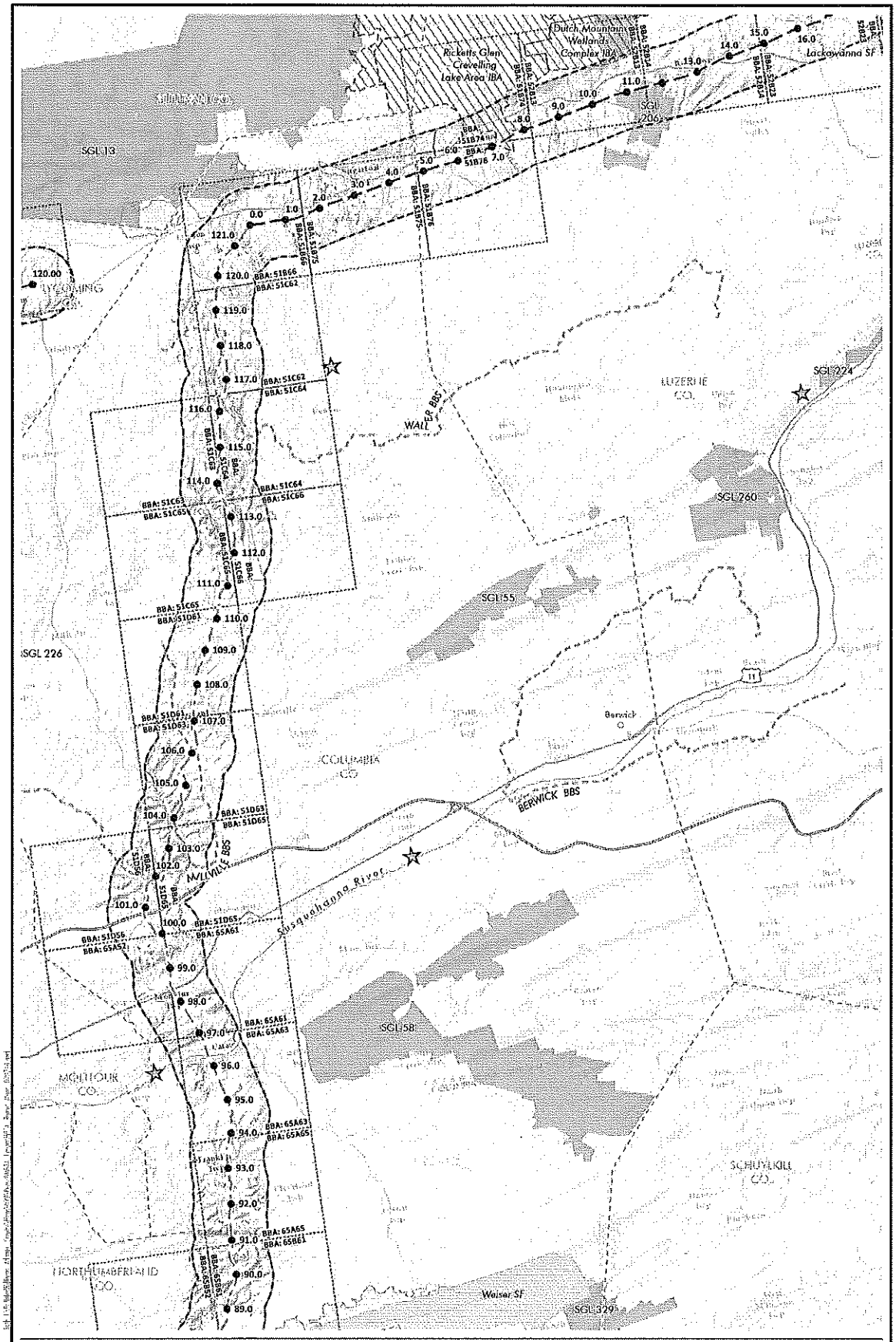
Migratory Bird Habitat Features and Breeding Bird Survey Areas in Proximity to the Proposed Atlantic Sunrise Pipeline Facilities

Frame: 2 of 6

Atlantic Sunrise

Pennsylvania

Sources: PA DCNR 2013; PA DCNR BOF, 2013; PAGC 2013; PA IBA Program, Audubon; USFWS, 2014; USGS, 1999; CNHI PNHP 2012, ESRI 2011; Ecology and Environment, Inc., 2014; ESRI World Topographic Web Mapping Service



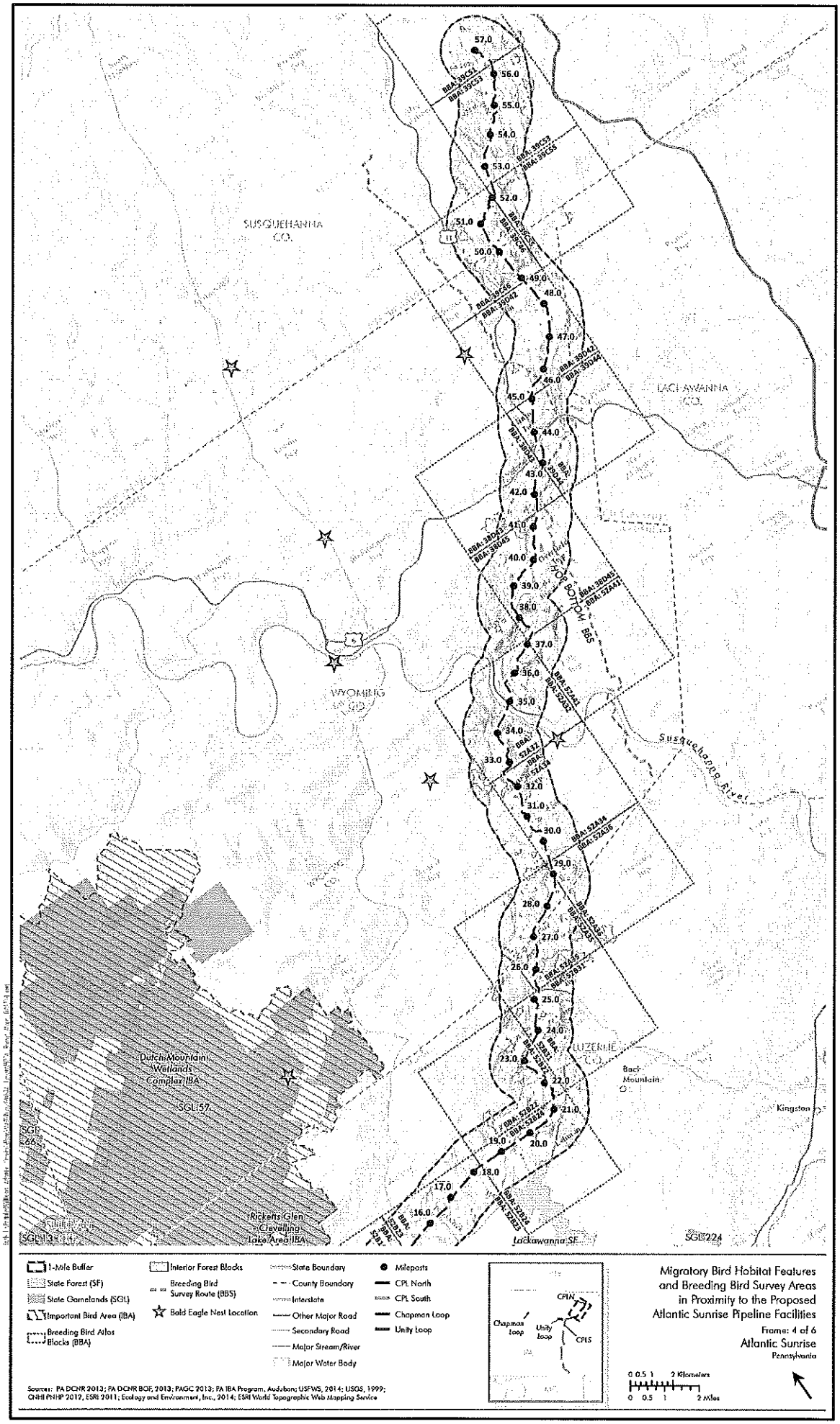
Migratory Bird Habitat Features and Breeding Bird Survey Areas in Proximity to the Proposed Atlantic Sunrise Pipeline Facilities

Frame: 3 of 6

Atlantic Sunrise

Pennsylvania

Sources: PA DCNR 2013; PA DCNR BOF, 2013; PAGC 2013; PA IBA Program, Audubon; USFWS, 2014; USGS, 1999; CNHP, PNHP 2012, ESRI 2011; Ecology and Environment, Inc., 2014; ESRI World Topographic Web Mapping Service


SUSQUEHANNA CO.
LACKAWANNA CO.
WYOMING CO.
LUZERNE
HOP BOTTOM BBS
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Ricketts Glen Crevalling Lake Area IBA
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State Forest (SF)
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CPL South
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Unity Loop
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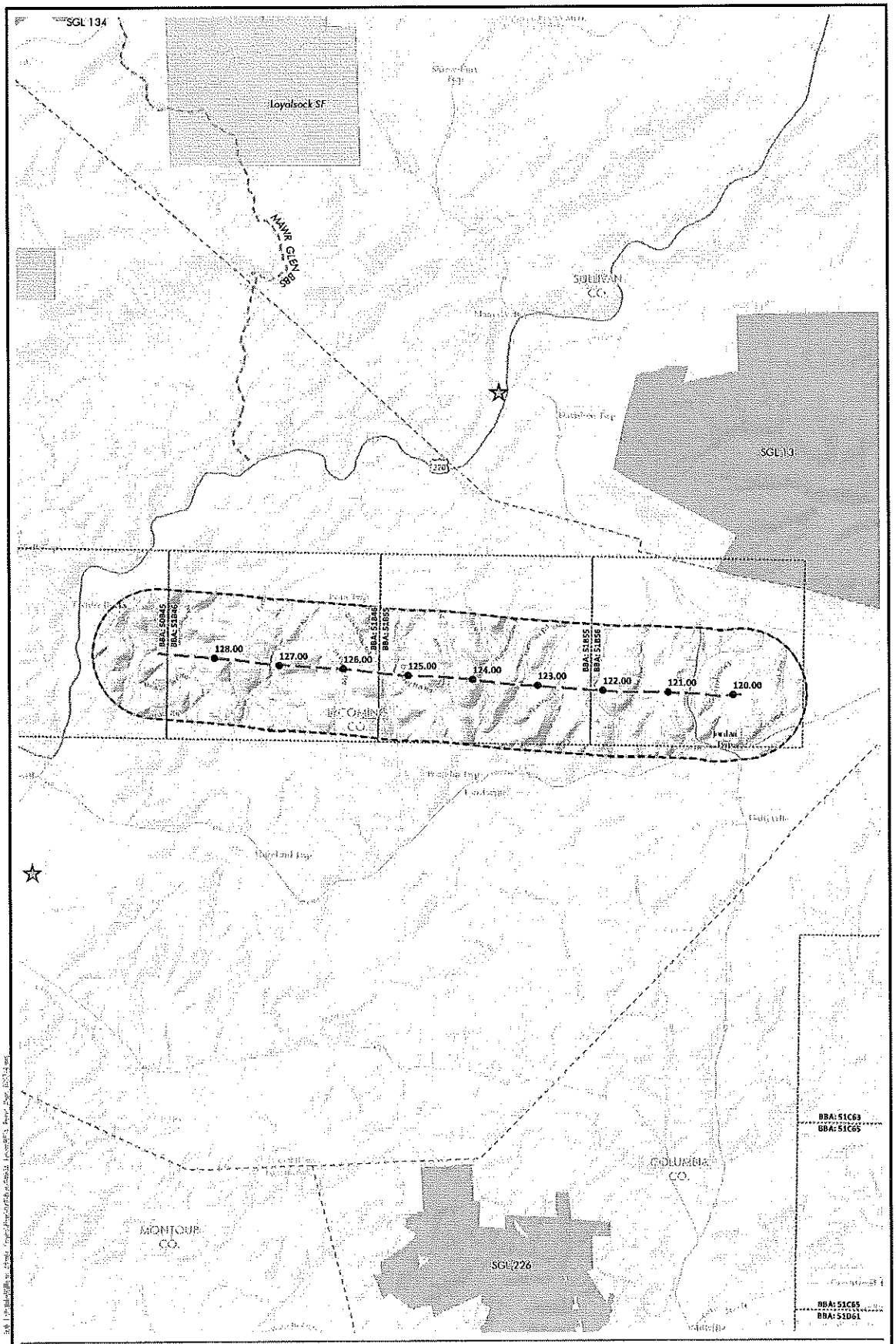
Migratory Bird Habitat Features and Breeding Bird Survey Areas in Proximity to the Proposed Atlantic Sunrise Pipeline Facilities
Frame: 4 of 6
Atlantic Sunrise
Pennsylvania
0 0.5 1 2 Kilometers
0 0.5 1 2 Miles
Sources: PA DCNR 2013; PA DCNR BOF, 2013; PAGC 2013; PA IBA Program, Audubon; USFWS, 2014; USGS, 1999; CNHI PNHP 2012, ESRI 2011; Ecology and Environment, Inc., 2014; ESRI World Topographic Web Mapping Service



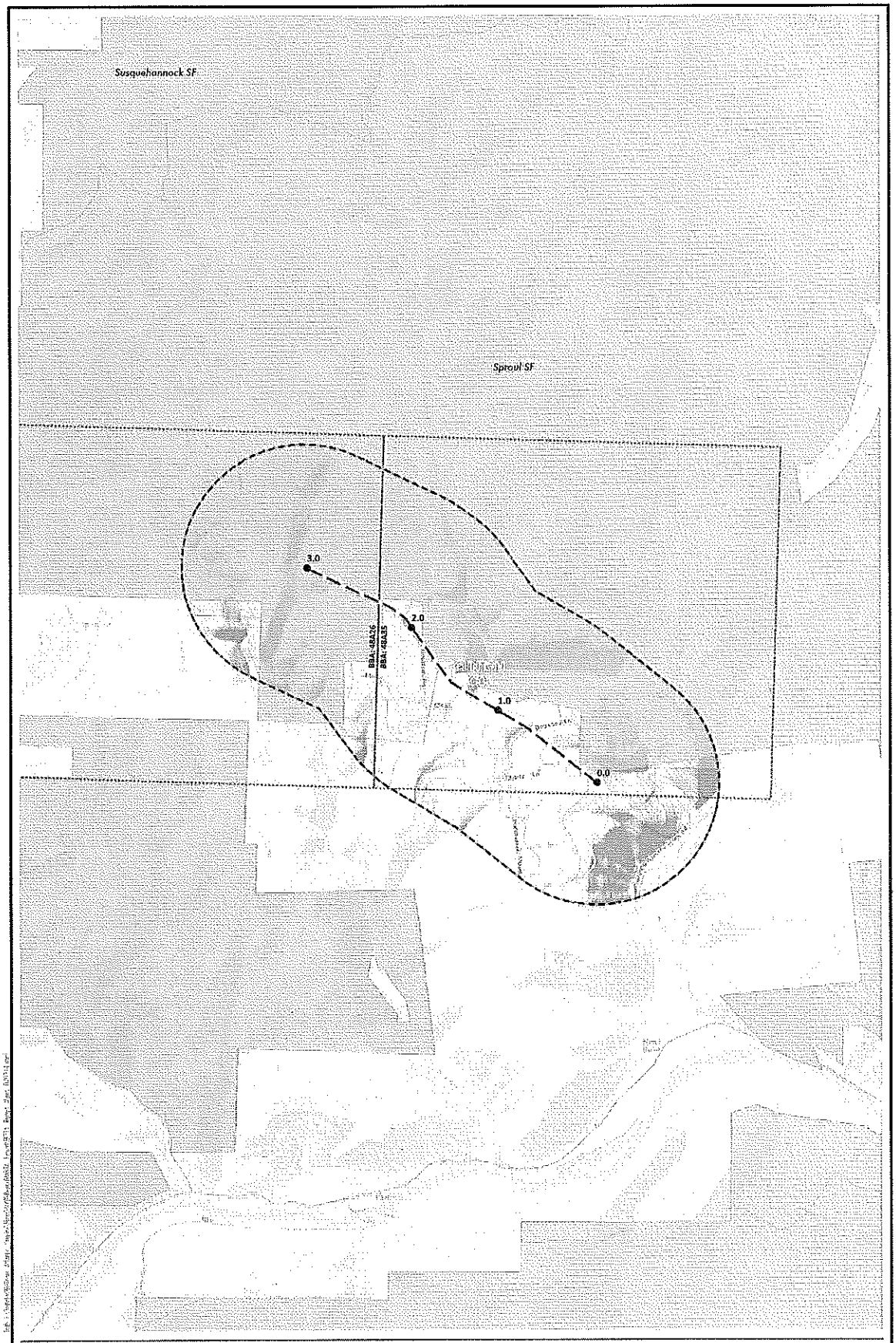
Migratory Bird Habitat Features and Breeding Bird Survey Areas in Proximity to the Proposed Atlantic Sunrise Pipeline Facilities

Frame: 5 of 6

Atlantic Sunrise

Pennsylvania

Sources: PA DCNR 2013; PA DCNR BOF, 2013; PAGC 2013; PA IBA Program, Audubon; USFWS, 2014; USGS, 1999; CNHP PNHP 2012, ESRI 2011; Ecology and Environment, Inc., 2014; ESRI World Topographic Web Mapping Service



1-Mile Buffer
State Forest (SF)
State Gamelands (SGL)
Important Bird Area (IBA)
Breeding Bird Atlas Blocks (BBA)
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Breeding Bird Survey Route (BBS)
Bald Eagle Nest Location
State Boundary
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Chapman Loop
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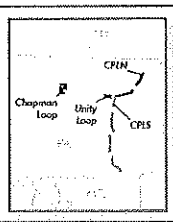

Sources: PA DCNR 2013; PA DCNR BOF, 2013; PAGC 2013; PA IBA Program, Audubon; USFWS, 2014; USGS, 1999; CNHP PNHP 2012, ESRI 2011; Ecology and Environment, Inc., 2014; ESRI World Topographic Web Mapping Service

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Migratory Bird Habitat Features and Breeding Bird Survey Areas in Proximity to the Proposed Atlantic Sunrise Pipeline Facilities

Frame: 6 of 6
Atlantic Sunrise
Pennsylvania

Meeting Summary

Attendees:

Transco: Anne Allen

E & E: Greg Netti

USFWS (PA Field Office): Lora Zimmerman, Pamela Shellenberger and Jennifer Siani

TRC: John Zimmer

Dawson: Bill Hartwig

Meeting Date:	22 July 2014
Project Segment:	Atlantic Sunrise Project
Project Segment:	PA Facilities (Susquehanna, Wyoming, Luzerne, Sullivan, Lycoming, Clinton, Columbia, Northumberland, Schuylkill, Lebanon, and Lancaster Counties)
Meeting Location:	USFWS PA Field Office – 315 South Allen Street, State College, PA 16801
Meeting Time:	9:00 AM
Issues/Keywords:	Project overview; threatened and endangered species; migratory birds; mitigation; conservation measures

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Transcontinental Gas Pipe Line Company, LLC (Transco) held a meeting with the US Fish and Wildlife Service (USFWS) to discuss Migratory Bird Treaty Act (MBTA) issues for the Atlantic Sunrise (Project). This was Transco's second meeting with USFWS for the Project: a project introduction meeting was held with USFWS on March 12, 2014.

Notes:

Project Update

- After introductions, Ms. Allen began the meeting by providing a Project update.
    - Transco held a series of public open houses for the Project from May 20 to June 11. An additional informational meeting is scheduled on July 29 for a proposed re-route through Mount Joy Township in Lancaster County, PA. FERC scoping meetings are scheduled from August 4 to 7.
    - Transco plans to start construction of the Project in July 2016 in order to have the Project in-service by June 2017.
- USFWS asked questions related to pipeline burial depth, construction duration for new compressor stations, and revegetation requirements.
    - The top of the pipeline must be buried a minimum of 3 feet below the surface. The burial depth is increased to 5 feet at waterbody crossings and in some agricultural areas.
    - The two new proposed compressor stations have the longest construction duration. These facilities will take approximately one year to construct.
    - Transco considers agency recommendations when identifying seed mixes for revegetation of disturbed areas. Transco will balance the need to use seed mixes which help to stabilize work areas as soon as possible after construction, with vegetation that is beneficial to wildlife.

Preliminary Migratory Bird Analysis

- G. Netti provided an overview of the Preliminary Migratory Bird Analysis memo submitted to USFWS on July 18, 2014. The purpose of the memo was to provide an initial snapshot of sensitive migratory bird habitat and species in the Pennsylvania portion of the Project. The group reviewed mapping provided in the memo showing migratory bird habitat features in the Project area, including Important Bird Areas (IBAs) and interior forest blocks.

- J. Siani noted that the three Important Bird Areas (IBAs) crossed by the Project attract diverse groups of migratory birds. For example, the Lower Susquehanna River Gorge-Conowingo/Muddy Run IBA supports large numbers of migratory waterfowl; the Kittatinny Ridge IBA is a major migratory raptor corridor; and the Ricketts Glen-Crevelling Lake IBA supports abundant numbers of migratory songbirds.

- USFWS provided several recommendations for obtaining and presenting migratory bird data for future reporting:

    - The bald eagle mapping tool on the USFWS website should be checked regularly for updates.

    - The Birds of North America should be used as a reference for identifying and describing birds in the Project area.

    - The list of sensitive migratory birds (e.g. birds of conservation concern and species of greatest conservation need) in the Project area should be closely compared with biological field survey data (e.g. habitat mapping and vegetation surveys) to develop a list which is as refined as possible and representative of species with high likelihood of using the Project area.

    - Local Audubon chapters, state parks, and other land management agencies/groups should be contacted for site-specific bird data.

Migratory Bird Conservation Measures

- USFWS recommends that clearing activities be avoided between April 1 and August 31 to avoid impacting nesting migratory birds. However, given that Transco plans to start construction of the Project in summer 2016, USFWS recognizes that a blanket clearing restriction for the Project is not feasible. Rather, USFWS requests Transco identify sensitive bird areas along the Project route where clearing will be restricted during specific time periods to protect migratory birds. Sensitive bird areas may include areas such as stream corridors and wetlands within IBA's or interior forests which support abundant populations of migratory birds, or populations of sensitive bird species.

- Clearing restrictions proposed by Transco can be based on the time period considered most critical for species' protection. For example, if a sensitive habitat area will be crossed where the majority of migratory bird nesting is done by mid-July, the clearing restriction can be proposed to end in mid-July.

- USFWS recommends that Transco consider the functionality of seed mixes in terms of migratory bird habitat when developing restoration plans. What can be planted that will not only reestablish vegetation cover and stabilize the ROW, but will also benefit migratory birds?

- USFWS recommends that Transco consider temporary workspace areas for replanting opportunities with benefits to migratory birds, since these areas are assumed to have less strict requirements for ROW stabilization and replanting can be geared towards species benefits.

- Abandoned mining areas may be ideal locations for restoration to compensate for impacts to migratory bird habitat. Restoration could be as simple as ripping soil where vegetation growth is restricted because of compaction to reestablish herbaceous cover.

- The American Chestnut Foundation has extensive experience completing migratory bird habitat restoration, including in mining areas. USFWS recommends Transco contact this group when considering restoration/compensation activities.

- Habitat restoration measures to compensate for impacts to migratory birds and habitat should be spread throughout the Project area, not focused in one or two locations.

- Grassland birds in particular are seeing steep declines – habitat restoration focused on these species would be seen as a positive.

Closing

- J. Siani stated that she has accepted a new position with the USFWS office in Portland, Oregon effective August 25, 2014. P. Shellenberger will be the main point of contact moving forward for Project coordination related to migratory birds.

- The meeting concluded at approximately 11:00 PM.

- End of Notes -

Telephone Call Summary Sheet

By:	Justin Zoladz	**Date:**	07-22-2014
Talked With:	Pamela Shellenberger	**Project Number:**	EE-004741-0003-07TTO
Of:	USFWS – PA Field Office	**Project Name:**	Atlantic Sunrise
Telephone Number:	814-234-4090 x241	**Subject:**	Informal T&E Consultation – USFWS # 2014-0324 RE: NLEB Captures and Telemetry

Conference call with Ms. Pamela Shellenberger, USFWS-PA Field Office, 07-22-2014 - 1100 to 1300.

Others on call (Physically Present at USFWS Office):

Williams – Anne Allen
E & E – Greg Netti
Dawson & Associates – Bill Hartwig

Call Purpose:

Williams and E & E initiated a call with the USFWS to address the how to address changes to the route as well as the addition of aboveground facilities and access roads. Impact avoidance, minimization, and mitigation strategy was also to be discussed.

Call Summary:

- USFWS indicated that the Pennsylvania Field Office released new mapping indicating they no longer consider Susquehanna and Wyoming Counties within the range of the Indiana bat.
- Any changes to the line, aboveground facilities, or access roads in Wyoming and Susquehanna Counties will not need additional surveys if they are within in the "buffers" generated by the other survey captures, all of which are at this point.
- If there are changes outside the clearing window buffers, additional sites should be added.
- It is acceptable to use acoustical surveys for these additional sites.
- USFWS was not aware of any data on operational impacts for issues such as noise. Therefore, there are currently no setback requirements from NLEB roosts due to noise. This question was asked because of NELB roosts near a possible compressor station property.
- USFWS is open to allowing some clearing within the restricted windows of the resulting "known habitat" buffers, especially if additional data is provided. This was regarding the fact CS 605 will be within a buffer, and needs the longest construction window.
- Tree pruning of branches/limbs, which may be all that is requires on some access roads, would be considered clearing and be restricted within the buffer areas if ≥3 inches dbh.
- USFWS reiterated that the non-volant period is most critical for impacts to NLEBs.
- E & E will send additional questions about where additional effort would be needed to both Pamela Shellenberger at USFWS PAFO as well as Robyn Niever at USFWS NYFO.

Meeting Summary

Attendees:	
Transco:	Amanda Harford
E & E:	Justin Zoladz
WHM:	Ryan Nelson
Sanders:	Chris Sanders & Amanda Brumbaugh
Wildlife Specialists:	Tom Swimley
USFWS (PA Field Office):	Pamela Shellenberger
USFWS (NY Field Office):	Robyn Niver, Noel Rayman, and Sandy Doren
USFWS (Washington DC):	Collette Thogerson
Meeting Date:	August 18, 2014
Project Segment:	Atlantic Sunrise Project
Project Segment:	CPL North (Susquehanna and Wyoming Counties)
Meeting Location: PA 18702	Atlantic Sunrise Wilkes-Barre Field Office – 300 Laird Street, Suite 200, Wilkes-Barre,
	Field Visit to various northern long-eared bat capture and roost locations in Susquehanna and Wyoming Counties
Meeting Time:	09:15 AM
Issues/Keywords:	Northern long-eared bat capture field visit requested by USFWS.

Transcontinental Gas Pipe Line Company, LLC (Transco) held a field visit for the US Fish and Wildlife Service (USFWS), at their request, to allow those at USFWS involved in the listing process of the northern long-eared bat to visit several capture and roost sites identified by the Project during the 2014 summer survey season.

Notes:

After introductions, Mr. Sanders and Ms. Brumbaugh began the meeting by providing an overview of the preliminary 2014 summer bat mist-netting survey results. As of approximately August 1, 2014:

- 186 survey sites had been completed
- 56 northern long-eared bats had been captured
- 29 actual northern long-eared bat roost trees had been identified
- 36 approximate northern long-eared bat roost locations were identified by biangulation or triangulation

The group also discussed other results including the lack of any Indiana and tri-colored bats and only two little brown bats captured over the entire survey effort. Ms. Thogerson mentioned that the USFWS may be reviewing the little brown bat and the tri-colored bat next.

After the introductions and overview, the field tour began.

- The first stop was at roost CPLNxF3 on Robert Barna's property in Northmoreland Township, Wyoming County.
    - The bat tracked to this roost was a lactating adult captured on 06/20/2014 at site CPLN045.
    - The roost is a 12-inch dbh dead bigtooth aspen.
    - The bats emerged from a section of trunk about 47 feet above ground level.
    - Emergence counts were 26 and 24 bats, respectively.
- The second stop was capture site CPLN045 on Jean Flack's property in Northmoreland Township, Wyoming County.
    - One lactating female northern long-eared bat was captured at this site (Bat CPLN F)
    - The net that captured the bat was a triple 12-meter net set across a logging/ATV trail, approximately 100 feet into the woods from a field edge.
- The third stop was roosts CMPLxM1 & M2 on Walter and Kerry Mikus' property in Overfield Township, Wyoming County.
    - The bat tracked to these roosts was a non-reproductive adult male captured on 06/23/2014 at site CPLN059.
    - Roost CPLNxM1 is a 37-inch dbh living silver maple.
        - Bats emerged too high in the canopy to determine exact exit point.
        - Emergence counts were 2 and 2 bats, respectively.
    - Roost CPLNxM2 is a 6.8-inch dbh declining red maple.
        - Bats emerged too high in the canopy to determine exact exit point.
        - Emergence counts were 2 and 2 bats, respectively.
- The fourth stop was site CPLS056a and roosts CMPL J/K1 & J/K2 on Thomas Voda's and George Dobrinski's properties in Falls Township, Wyoming County.
    - The bats tracked to these roosts were a non-reproductive adult female captured at site CPLN057a and a pregnant adult female captured at site CPLN055a, both captured on 06/23/2014.
        - These bats were captured at separate non-abutting sites, yet tracked to the same tree.
    - Site CPLS056a was on a logging/ATV trail about 200 feet in from a field edge.
        - No northern long-eared bats were captured at this site, even though it was physically closer to the identified roost trees that where the bats were captured at sites CPLN055a and CPPLN057a.
    - Roost CPLNxJ/K1 is a 10-inch dbh dead black birch broken off at about 24 feet.
        - Bats emerged from a single cavity about 18 feet above ground level.
        - Emergence counts were 25, 0, and 0 bats, respectively.
    - Roost CPLNxJ/K1 is a 14.8-inch dbh declining red oak.
        - Bats emerged from a hollow about 40 feet above ground level.
        - Emergence counts were 23 and 4 bats, respectively.
- It was noted that if this was one colony, they completely moved out of the 1st roost from the first exit count to the time of the second count.
    - The exit 2nd and 3rd exit counts at the first roost were the same days as the 1st and 2nd at the 2nd roost.
        - Therefore, it appears that the entire colony moved while the pups would have been non-volant.

After this fourth stop, the group returned to the Atlantic Sunrise Wilkes-Barre Field Office. Discussions in the vehicle ride back revolved around the fact that these bats appear to be generalists, utilizing all sorts of different kinds of roost trees. Large and small trees were utilized, and several trees observed today would not look like a suitable roost tree from their outward appearance. USFWS did state that it this time, it does not feel routing around known roost trees is warranted because any moves could be simply removing additional unidentified roosts.

The meeting concluded by 5:00 PM and everyone departed the field office.

WHM Consulting, Inc.

Meeting Summary

Project:	Atlantic Sunrise Expansion Project
Meeting Date:	August 27, 2014
Meeting Location:	USFWS PA Field Office – 315 South Allen Street, State College, PA 16801
Meeting Time:	1:30 PM
Attendees:	Pam Shellenberger, USFWS PA Field Office Kayla Easler, USFWS PA Field Office Amanda Harford, Transcontinental Gas Pipeline Company, LLC (Transco) Justin Zoladz, Ecology and Environment, Inc. Ryan Nelson, WHM Consulting, Inc. Jenn Jones, WHM Consulting, Inc. Robert Bull, WHM Consulting, Inc. Chris Sanders, Sanders Environmental Bill Hartwig, Dawson & Associates
Re:	Preliminary results of federal T/E surveys for the Transco Atlantic Sunrise Project

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Purpose:

The purpose of the August 27th meeting with the USFWS was to discuss the preliminary results of the federal T/E surveys being conducted for the Transco Atlantic Sunrise project.

Bog Turtle:

At the beginning of the bog turtle discussion WHM discussed how the survey was conducted and where locations of observed suitable habitat were located. By the date of the meeting, approximately 2/3 of the Project area in Lancaster Lebanon Counties had been surveyed. The remaining 1/3 that had not been surveyed was either due to landowner whom have not granted parcel access or pipeline reroutes. Of the 85 wetlands surveyed, bog turtle habitat was present at 16 of them.

- The [redacted] location was discussed. USFWS looked over mapping provided by Transco as well as their own mapping and confirmed that the wetland identified during Phase 1 surveys was not contiguous with that of the known population within the area, and the current layout would avoid impacts to that population.
- The area with multiple potential habitats mapped between [redacted] was discussed next. This opened up discussion to talk in generalities for any bog turtle habitat that may be located within the proposed project area.

- Most questions and answers related to the species were generalities or theoretical.

- USFWS wants complete avoidance of bog turtle wetlands, if possible.
  - This would typically require a re-route around population.
- Transco can either assume presence where potential habitat was found during Phase 1 surveys or conduct Phase 2 surveys.
  - Transco can determine the need for Phase 2 surveys on a case-by-case basis if they can be easily avoided with an MOC or a deviation.
    - Transco would typically conduct Phase 2 surveys in areas that are not easily avoidable.
      - USFWS would prefer to be provided a table reflecting which wetlands Transco decides to conduct Phase 2 surveys in and those where presence would be assumed.
- If bog turtles are present, or assumed present in a wetland, USFWS described the following circumstances:
  - If bog turtles are found anywhere in the wetland, the entire wetland is regulated as bog turtle habitat, even if area of potential impact is not considered part of the suitable habitat.
    - USFWS indicated it did not matter how far away from the limit-of-disturbance the actual presence/detection is, possibly in areas Transco didn't survey, it still would be considered a regulated bog turtle wetland.
  - If avoidance is not possible, trenchless methods are the preferred crossing option to be utilized.
  - When trenchless methods are not feasible due to geological or environmental factors found at the site, the specific location would be discussed with USFWS on a case-by-case basis to determine the best possible solution.
  - USFWS typically requests limit-of-disturbance to remain 300 feet away from any wetland that has bog turtles present.
    - This is true for both for limit-of-disturbance near a wetland, but never crossing it, as well as entry/exit pits and ATWS if boring under wetlands.
    - When a 300-foot setback is not possible to due existing infrastructure or other reasons, USFWS would work with Transco on a case-by-case basis to develop an appropriate strategy.
    - Construction monitoring may be requested if disturbance to the 300-foot buffer is not feasible
  - In travel corridors, streams or other linear features between suitable habitats, if Phase 2 surveys result in the presence of turtles, USFWS would consider the corridor habitat.
    - Travel corridors would require 50-foot buffer setback.
    - USFWS may allow corridors to be open cut in winter when they would not be in use by turtles.
- Internal discussion at Transco will be required concerning parcels with no survey access.
  - USFWS suggested conducting a desktop analysis using the WHM bog turtle expert and then conferring with them about the findings.
- Possible restrictions for crossing wetlands with bog turtles were presented as follows:
  - USFWS prefers the use of a trenchless method during the summer months when turtles are not hibernating.

        - During the winter months, trenchless methods cannot be used below hibernacula areas as the turtles could become agitated be driven from the hibernacula.
    - A time-of-year construction window may be put into place.
        - No in-wetland activity during the fall and winter months when the turtles may be hibernating.
    - During summer construction, a bog turtle construction monitor may need to be present during construction activities within 300 feet of a bog turtle wetland.
        - In winter, no monitor would be needed for work within the 300 foot buffer, and this would be the preferred time to work solely in a buffer.
    - During summer, a stream crossing in a known travel corridor, an open-cut method would be considered, with a bog turtle monitor present.
    - Winter construction could be considered in areas after further studies (beyond Phase 2 presence/absence – i.e. radio telemetry) were conducted to determine these areas were not hibernacula.
- If bog turtles are not present during appropriate Phase 2 surveys, those wetlands can be open-cut and treated as any other wetland.

Northeastern Bulrush:

The overall survey results were reviewed with USFWS. The overall focus of the discussion was concerning one wetland within Luzerne County that has two populations of northeastern bulrush present, both of which are in an existing Transco ROW which Atlantic Sunrise is proposing to parallel.

- USFWS asked when the existing right-of-way was put in place. It is believed to have been put in place in either the 1960's or 1970's.
- USFWS would prefer a trenchless method at crossing.
    - USWFWS recommends avoiding the entire wetland using trenchless methods.
        - USFWS typically requests limit-of-disturbance to remain 300 feet away from any wetland that has T & E plants present including entry/exit pits and ATWS when boring under these wetlands.
    - However, USFWS realizes in this instance the wetland in question is irregularly shaped and the core habitat lies within the existing right-of-way.
- USFWS asked how this area would be accessed.
    - Transco explained that coming in from both sides could be an option but access to this area would have to be explored further.
    - USFWS has concerns over the use of timber mats as a crossing method as they can still lead to impacts from soil compaction.
- Transco asked if shifting the limit-of-disturbance to the south of the population and then using open-cut methods would be possible.
    - USFWS stated that such a method may not work in this instance as there is the possibility that there is another known population of bulrush to the south and stressed that USFWS prefers the use of trenchless methods.
    - USFWS also had concerns over the hydrological impacts to the wetland an open trench method could have even after shifting the limit-of-disturbance.

- The discussion concluded with USFWS recommending Transco return to the site to assess the hydrology of the wetland in question, potentially extend wetland delineations further, and additional review of the entire wetland complex for additional populations of the plant.

Indiana Bat:

The overall survey results were discussed. Mist-netting presence/absence surveys were conducted at 231 sites in 2014. No Indiana bats were captured at any of these sites. Areas not sampled in 2014 were due to landowner not granting access.

- USFWS confirmed that, as long as no hibernacula are found during cave/mine/portal survey from September 15 – October 15 and no Indiana bats are caught during 2015 mist-net surveys, there would be no impacts to this species.

Northern Long-eared Bat:

The discussion began with a brief overview of the survey results. Maps depicting all sample sites, locations with captures, telemetry results (roost locations), were shown. Additionally, the potential clearing restriction buffers as they are currently understood by Transco were reviewed.

- USFWS stated that they understand that this species cannot be treated the same as the Indiana bat. Therefore, using the same guidance for the NLEB as the Indiana bat may not make sense.
- USFWS indicated a reroute to avoid roost trees does not make sense at this time.
    - Moving away from one roost tree would most likely put the route in the path of another roost tree due to the opportunistic and generalist nature of this species.
- USFWS suggested that the cave/mine/portal surveys could prove important this year, as it will be to determine if additional clearing restriction areas exist due to hibernacula.
- USFWS indicated that the conference determining the listing is hoping to have interim guidance regarding NLEB at the time the listing decision is announced.
- USFWS strongly recommended Transco enter into conferencing with them now.
    - Conferencing would consist of preparing a biological assessment (BA) now while the USFWS is making their decision.
        - The BA would discuss the possible impacts the Project would have on the species and what measures Transco has taken to avoid or minimize those impacts. That would allow the USFWS to come to an interim conclusion as to how the Project will impact this species.
        - Important topics to be addressed in the BA are co-location, only 90-foot construction right-of-way in the area where the most bats are located, and minimizing tree clearing as much as possible.
    - Completing a BA now is extremely important as it would mean it is ready if the species does get listed.
        - Transco agreed that was a good course of action.
        - USFWS also suggested lumping all T&E species into on BA document as well. It would help put Transco ahead of the game in considering these species.
        - Coordination during the creation of the BA would be ongoing so that the USFWS can provide feedback and the final product is suitable for their needs.

From: Shellenberger, Pamela
To: Chris Sanders
Cc: Zoladz, Justin A.; Ryan Nelson; Amanda Harford
Subject: Re: Atalntic Sunrise Hiber Search
Date: Wednesday, September 24, 2014 2:09:45 PM

Hi Chris,

I apologize for my delayed response.

Yes, USFWS agrees with the 1,000' survey buffer.

We also concur with using the PAFO/PGC trapping protocol and not the NLEB conferencing guidance.

Good luck!

Pamela Shellenberger
U.S. Fish and Wildlife Service
315 South Allen Street
State College, PA 16801
814-234-4090 x241
814-234-0748 (f)

http://fws.gov/northeast/pafo/index.html

Due to an imposed hiring freeze and the inability to back fill positions, we are experiencing increased project review times (a minimum of 60 days) and response times to phone calls and emails. Please be patient; we will address projects in the order in which they are received.

On Mon, Sep 15, 2014 at 10:31 AM, Chris Sanders <sanders@batgate.com> wrote:

> Hello Pam and John,
>
> We are working on putting together a memo addition to the Atlantic Sunrise work plan to cover some of the details of the ongoing hibernacula search and soon to start trapping effort. We wanted to confirm/get your opinions on a couple points so you could help shape/guide that effort.
>
> The Search
>
> 1) In addition to wetland/survey crews being alerted to look for mine features, we are field truthing GIS point data that occurs in a total corridor of 2,200 feet (an 1,100' buffer on either side of the proposed centerline to account for as much as an additional 100' wide limit of disturbance). The 1,000' search buffer was verbally requested by PGC at our August 18 meeting after the northern long-eared bat site visit. Does this search buffer work for USFWS?

2) Could the PGC examine the attached shape file (centerline v16) and give us information on any hibernacula sites within 1,100 feet of the line and when those you have were last trapped/internally surveyed? The PGC database has sites not in the AML database, so to avoid missing any of those looking for all hibers in the PGC hiber trapping database would be helpful.

3) For currently unknown hibernacula, we are searching the PA DEP AML database, and investigating features from that shape file with the surface feature metadata category "Entry Point/Opening" or ""Structures," meaning that features such as Acid Mine discharges, and dry surface mines will not be investigated.

4) We will investigate any cave features from the PA karst database.

Trapping

1) There are several versions of the USFWS trapping protocol. There is the standard national USFWS Indiana bat protocol, there is the hibernacula guidance in the NLEB conference guidance and there is the PA specific trapping protocol (a modified version of the standard USFWS protocol) which both PA FO and PGC have been using. We are planning on following the specific trapping protocol developed by the PA FO and PGC for trapping efforts.

2) We are not doing any telemetry in conjunction with fall trapping, just presence/absence by the above protocol.

We believe the above is consistent with the consultation record from the USFWS FO and PGC, however wanted to confirm those points as other USFWS documents (such as the NLEB conference guidelines) have different wording and the project wishes to make sure all phases of bat survey efforts give the USFWS the data on the NLEB needed to evaluate the project in regards to that species.

Please comment/or confirm that the above meets agency needs/expectations.

Thanks,

Chris

Chris Sanders

Sanders Environmental Inc.

322 Borealis Way

Bellefonte PA 16823

814-659-8257 (cell)

From:	Zoladz, Justin A.
To:	"Shellenberger, Pamela"; Taucher, John <jotaucher@pa.gov>
Cc:	Greg Nettl; Allen, Anne <Anne.Allen@williams.com>; Harford, Amanda <Amanda.Harford@williams. com>; Zoladz, Justin A.; Ryan Nelson <ryann@whmgroup.com>; Sanders, Chris <sanders@batgate.com>
Subject:	Atlantic Sunrise Bat Hibernacula Memo
Date:	Thursday, September 25, 2014 11:54:00 AM
Attachments:	FINAL Atlantic Sunrise Bat Hibernacula Survey Plan Memo.pdf

Pam and John,

Please find the attached memo outlining the methodologies an protocols the Atlantic Sunrise Project will be implementing to search for bat hibernacula in proximity to the Project.

Thank you,

Justin Zoladz, Biologist
Ecology and Environment, Inc.
368 Pleasant View Drive, Lancaster, NY 14086
Phone: 716-684-8060 x2608 | Mobile: 716-560-4585
Fax: 716-684-0844
jzoladz@ene.com | www.ene.com

Memorandum

To: Pam Shellenberger, USFWS PA Field Office
John Taucher, Pennsylvania Game Commission

From: Greg Netti, Ecology & Environment, Inc.

Cc: Anne Allen, Transcontinental Gas Pipeline Company, LLC (Transco)
Amanda Harford, Transco
Justin Zoladz, Ecology and Environment, Inc.
Ryan Nelson, The WHM Group
Chris Sanders, Sanders Environmental

Date: September 25, 2014

Re: Bat Hibernacula Assessment and Sampling: Atlantic Sunrise Survey Plan

---

Purpose

This memo serves to provide more detail and specify protocols and methods to be used to meet agency requests for bat hibernacula assessments and sampling for the Atlantic Sunrise Project. This memo replaces hibernacula methodology contained in the "Indiana and Northern Long-eared Bat Phase 1 Habitat Assessment and Phase 2 and Phase 4 Final Work Plan Atlantic Sunrise Project June 2014."

Protocol

Phase 1 Hibernacula Assessment: Where landowner permission can be obtained, the Project shall perform ground searches of potential hibernacula within 1,100 feet of the Project centerline in fall of 2014. Features categorized as Entry Point/Opening or Structure from PADEP Abandoned Mine Land Inventory (AMLI) database and caves from the PADEP Karst Database were targeted for assessment. The 1,100-foot buffer is based on comments Transco received from the PGC during an August 18, 2014 meeting requesting hibernacula surveys within 1,000 feet of the Project area. Adding 100 feet accounts for any additional workspace and possible locational error in the databases. Desktop surveys identified 23 potential points in the AMLI database and one cave from the Karst Database in this vicinity.

In addition to these data sources, the Project asked the PGC to provide data on any previously surveyed hibernacula in this corridor and had other survey teams (such as wetland crews) stay alert for potential hibernacula. At this point, PGC has not provided any additional data and other field crews have not identified any additional potential hibernacula.

Phase 2 Presence/Absence Survey: Potential hibernacula determined to be potentially suitable will be sampled following the *"PROTOCOL FOR ASSESSING BAT USE OF POTENTIAL HIBERNACULA" Pennsylvania Game Commission and U.S. Fish and Wildlife Service Revised 09/10/2012,* which was provided to the Project on April 3, 2014 by the PGC. The hibernacula survey protocol does not request or specify telemetry data be collected. Therefore, Transco does not propose any radio telemetry on bats captured in Phase 2 of the

hibernacula survey. The PGC/USFWS Pennsylvania Field Office protocol is stricter than the standard USFWS hibernacula assessment protocol, but does differ from the northern long-eared bat protocol contained in the USFWS *Northern Long-eared Bat Interim Conference and Planning Guidance*. Transco proposes to follow the PGC/USFWS Pennsylvania Field Office protocol for detection of both Indiana bats and northern long-eared bats at surveyed hibernacula.

Concurrence Request

Transco asks the USFWS Pennsylvania Field Office and the PGC to please provide concurrence with the protocols described above.

From:	Chris Sanders
To:	"Taucher, John"; Zoladz, Justin A.; "Shellenberger, Pamela"
Cc:	Netti, Gregory; Anne.Allen@williams.com; "Harford, Amanda <Amanda.Harford@williams. com>"; ryann@whmgroup.com
Subject:	RE: Atlantic Sunrise Bat Hibernacula Memo
Date:	Thursday, September 25, 2014 6:44:43 PM
Attachments:	FINAL Atlantic Sunrise Bat Hibernacula Survey Plan Memo v2.pdf

Revised to add county breakdown of the potential sites.

Thanks,
Chris

From: Taucher, John [mailto:jotaucher@pa.gov]
Sent: Thursday, September 25, 2014 12:48 PM
To: 'Zoladz, Justin A.'; Shellenberger, Pamela
Cc: Netti, Gregory; Allen, Anne <Anne.Allen@williams.com>; Harford, Amanda <Amanda.Harford@williams. com>; Ryan Nelson <ryann@whmgroup.com>; Sanders, Chris <sanders@batgate.com>
Subject: RE: Atlantic Sunrise Bat Hibernacula Memo

Justin,

Since this project spans the state, provide a little more information on exactly where these surveys will take place. At the minimum, provide a breakdown by county (i.e. 10 features in Northumberland, 5 features in Schuylkill, etc.

Thanks,

John

From: Zoladz, Justin A. [mailto:JZoladz@ene.com]
Sent: Thursday, September 25, 2014 11:54 AM
To: Shellenberger, Pamela; Taucher, John
Cc: Netti, Gregory; Allen, Anne <Anne.Allen@williams.com>; Harford, Amanda <Amanda.Harford@williams. com>; Zoladz, Justin A.; Ryan Nelson <ryann@whmgroup.com>; Sanders, Chris <sanders@batgate.com>
Subject: Atlantic Sunrise Bat Hibernacula Memo

Pam and John,

Please find the attached memo outlining the methodologies an protocols the Atlantic Sunrise Project will be implementing to search for bat hibernacula in proximity to the Project.

Thank you,

Justin Zoladz, Biologist
Ecology and Environment, Inc.
368 Pleasant View Drive, Lancaster, NY 14086
Phone: 716-684-8060 x2608 | Mobile: 716-560-4585

Fax: 716-684-0844
jzoladz@ene.com | www.ene.com

Memorandum

To: Pam Shellenberger, USFWS PA Field Office
John Taucher, Pennsylvania Game Commission

From: Greg Netti, Ecology & Environment, Inc.

Cc: Anne Allen, Transcontinental Gas Pipeline Company, LLC (Transco)
Amanda Harford, Transco
Justin Zoladz, Ecology and Environment, Inc.
Ryan Nelson, The WHM Group
Chris Sanders, Sanders Environmental

Date: September 24, 2014

Re: Bat Hibernacula Assessment and Sampling: Atlantic Sunrise Survey Plan

---

Purpose

This memo serves to provide more detail and specify protocols and methods to be used to meet agency requests for bat hibernacula assessments and sampling for the Atlantic Sunrise Project. This memo replaces hibernacula methodology contained in the "Indiana and Northern Long-eared Bat Phase 1 Habitat Assessment and Phase 2 and Phase 4 Final Work Plan Atlantic Sunrise Project June 2014."

Protocol

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These 24 potential points are located in three Pennsylvania counties. Four in Schuylkill, 19 in Northumberland, and one cave in Lancaster County. This list is the list of points to be investigated based on v14 of the projects route. Points may be added or eliminated based on shifts in the projects location. This Phase 1 Assessment Protocol will be applied to any future project location adjustments.

In addition to these data sources, the Project asked the PGC to provide data on any previously surveyed hibernacula in this corridor and had other survey teams (such as wetland crews) stay alert for potential hibernacula. At this point, PGC has not provided any additional data and other field crews have not identified any additional potential hibernacula.

Phase 2 Presence/Absence Survey: Potential hibernacula determined to be potentially suitable will be sampled following the *"PROTOCOL FOR ASSESSING BAT USE OF POTENTIAL HIBERNACULA" Pennsylvania Game Commission and U.S. Fish and Wildlife Service Revised 09/10/2012,* which was provided to the Project on April 3, 2014 by the PGC. The hibernacula survey protocol does not request or specify telemetry data be collected. Therefore, Transco does not propose any radio telemetry on bats captured in Phase 2 of the hibernacula survey. The PGC/USFWS Pennsylvania Field Office protocol is stricter than the standard USFWS hibernacula assessment protocol, but does differ from the northern long-eared bat protocol contained in the USFWS *Northern Long-eared Bat Interim Conference and Planning Guidance.* Transco proposes to follow the PGC/USFWS Pennsylvania Field Office protocol for detection of both Indiana bats and northern long-eared bats at surveyed hibernacula.

Concurrence Request

Transco asks the USFWS Pennsylvania Field Office and the PGC to please provide concurrence with the protocols described above.

Telephone Call Summary Sheet

By:	Ryan Nelson (WHM Consulting)	**Date:**	10/29/14
Talked With:	Kayla Easler & Pam Shellenberger	**Project Number:**	EEI-14-006
Of:	USFWS	**Project Name:**	Atlantic Sunrise
Telephone Number:	814-234-4090	**Subject:**	Bog Turtle Survey Questions

Spoke with Ms. Easler and Ms. Shellenberger regarding spring 2015 plans for the Atlantic Sunrise project and the expectations for follow-up related to the completed Phase 1 Bog Turtle habitat surveys that were completed in 2014. There are various scenarios that could occur based on the findings of the Phase 1 surveys; we briefly discussed these various scenarios and the potential follow-up action related to each. It was suggested by the USFWS that an interim document be submitted that outlines the various scenarios along with a summary table that lists all findings to date. This will help lay-out a plan of action for the coming Bog Turtle season as well as establish buy-in with the USFWS. Also, it was noted that Kayla is the lead on Bog Turtle related questions for the project.

Meeting Summary

Attendees:

Transco: Anne Allen and Amanda Harford

E & E: Greg Netti and Justin Zoladz

USFWS (PA Field Office): Pamela Shellenberger and Kayla Easler

WHM: Ryan Nelson, Robert Bull, and Jenn Jones

Dawson: Bill Hartwig

Meeting Date:	09 December 2014
Project Segment:	Atlantic Sunrise Project
Project Segment:	PA Facilities (Susquehanna, Wyoming, Luzerne, Sullivan, Lycoming, Clinton, Columbia, Northumberland, Schuylkill, Lebanon, and Lancaster Counties)
Meeting Location:	USFWS PA Field Office – State College, PA
Meeting Time:	2:00 PM
Issues/Keywords:	Project update; threatened and endangered species; migratory birds

---

Transcontinental Gas Pipe Line Company, LLC (Transco) held a meeting with the U.S. Fish and Wildlife Service (USFWS) to provide a Project update, and discuss 2014 threatened and endangered (T&E) species survey results, planned 2015 T&E species surveys, and migratory birds. This was Transco's fourth meeting with USFWS for the Project: a project introduction meeting was held in March 2014; a meeting to discuss Migratory Bird Treaty Act (MBTA) requirements was held in July 2014; and a meeting to discuss bat survey results and review field findings was held in August 2014.

Project Update

- After introductions, A. Allen began the meeting by providing a Project update.
    - Transco filed its draft resource reports (RRs) with FERC on October 31, 2014. Comments on the draft RRs are expected from FERC before the end of the year.
    - Transco plans and is currently on target to submit its FERC application in March 2015.
    - Construction of the Project is proposed to begin in July 2016 with the Project in-service by July 2017.
    - The overall scope of the Project has not changed since Transco's last meeting with USFWS; although, the proposed pipeline routes have refined and modified by approximately 30-35% based on survey data and stakeholder requests since the routes were locked on July 1, 2014 for the draft RRs. Route changes have primarily been implemented to avoid sensitive environmental features and do not deviate significantly from the routes in the draft RRs.
    - To date, Transco has received survey permission to complete environmental surveys for approximately 80% of the pipeline routes.

Northeastern Bulrush

- Transco notified USFWS, during the August 2014 meeting, that a population of the federally listed threatened northeastern bulrush was identified during field surveys along the CPL North pipeline route between mileposts (MPs) 8.7 and 8.8 in Luzerne County. No additional populations were identified for the Project during field surveys completed through the approved survey period in 2014.

- Transco shifted the proposed route to the south of the existing Leidy Line ROW to avoid affecting the northeastern bulrush population and associated wetland. The reroute completely avoids affecting the wetland where the bulrush is located. USFWS stated that the proposed alignment is sufficient to avoid any effects on the northeastern bulrush population. If possible, USFWS requests that Transco reduce the construction right-of-way (ROW) width to 75 feet in proximity to the northeastern bulrush population to increase the separation distance from the construction work area.

- USFWS provided input regarding the survey report:

    - A table is sufficient for describing and documenting non-habitat areas, along with a few representative photos.

    - Mapping showing the location of the identified population should be included in the report.

- For parcels where survey access has not been granted or where surveys were incomplete in 2104, USFWS will review remote sensing analysis to narrow down areas where field surveys will eventually be required. The initial screening criterion is to determine whether a wetland is present on a unsurveyed parcel. Where wetlands are identified to be present through the Transco remote sensing analysis, additional screening criteria will be used to determine potential occurrence of northeastern bulrush. These criteria may include elevation (areas below 1,200 feet are not likely to support northeastern bulrush), habitat characteristics, and proximity to known northeastern bulrush populations.

Bog Turtle

- R. Nelson presented a summary of Phase I bog turtle surveys completed to date:

    - Phase I surveys have been completed for 105 delineated wetlands in Lancaster and Lebanon Counties, which are the counties where bog turtle surveys were required. Of these, 25 wetlands contain suitable, potential bog turtle habitat and will require additional Phase II presence/absence surveys and/or Phase III trapping surveys.

- USFWS provided recommendations for determining the level of effort (LOE) for Phase II and III surveys:

    - The minimum LOE for Phase II/III surveys is the LOE described in the USFWS bog turtle survey guidelines.

    - If a wetland with suitable habitat extends off-site into a no-access parcel, and if Phase III trapping is required, USFWS may request that the same number of traps, as required by the guidelines, for the full area of suitable habitat be placed in the accessible area. For example, if 2.5 acres of a 5-acre wetland are available for Phase III survey, the same number of traps that would be required in the 5-acre wetland will be required for the 2.5-acre survey area.

    - USFWS reviewed Transco's mapping of wetlands identified to date with suitable habitat and provided recommendations for Phase II/III surveys. Transco will incorporate this guidance into the Phase 1 survey report, which will provide the proposed LOE for Phase II/III surveys. Transco plans to submit this report to USFWS by the end of January 2015.

- USFWS confirmed that where Phase II or III surveys are completed in accordance with an approved survey plan and no bog turtles are found (e.g. negative survey results), the area will not be subject to any seasonal crossing restrictions.

- For parcels without survey access, USFWS will consider remote sensing data to narrow down the areas where field surveys are required. The initial screening criterion is whether a wetland is present on a no-access parcel. Where wetlands are determined to be present through remote sensing analysis, additional screening criteria may be used to determine potential presence of suitable bog turtle habitat. These criteria may include elevation, habitat characteristics, and proximity to known bog turtle populations.

- USFWS is interested in completing a site visit to review some of the wetlands with suitable habitat.

- USFWS provided the following comments regarding the Phase I survey report:

    - A table and brief text narrative is sufficient for describing and documenting non-habitat areas, along with photographs and field data forms.

    - Shapefiles of wetlands with suitable habitat should be provided to USFWS with the Phase I survey report.

Bat Portal Surveys

- J. Zoladz presented a summary of bat portal surveys conducted to date:

    - 23 potential mine locations and one cave location were identified in PADEP databases (Abandoned Mine Land Inventory and Karst Database) within 1,100 feet of the centerline. Fifteen portals were identified on properties accessible to surveyors and one was scouted from public roadways. Eight potential portals were located on land that could not be accessed.

    - Four portals of the 23 potential mine locations from the databases were found and surveyed. Nine additional portals were found while investigating the potential locations on accessible properties. All of the additional sites were sampled. Of the 15 accessible potential locations from the PADEP databases on accessible parcels, 11 were reclaimed and did not contain portals.

    - None of the 13 portals sampled contained Indiana or northern long-eared bats. One portal contained one tri-colored bat; bats were not captured at any other portals.

- USFWS requested that efforts be made to survey potential portal areas on no-access arcels if survey access is granted in 2015. Summer surveys using harp traps will be acceptable.

- USFWS stated that its primary concern regarding unsurveyed portals is direct impact during construction resulting in portal loss. Avoidance of direct impact to unsurveyed portals during construction would be suitable in the absence of summer or fall survey results.

Northern Long-eared Bat

- The final decision on listing the northern long-eared bat will be issued by USFWS no later than April 2, 2015. If the species is formally listed, guidance on protection measures, consultation requirements, etc. will be issued by USFWS within approximately 6-8 weeks of the listing date.

- Transco proposed and USFWS agreed that a BA will not be developed for northern long-eared bat until after the listing decision. Since construction is not planned to begin until summer 2016, USFWS stated that there will be sufficient time for Transco to develop a draft BA, should the species be listed, and for FERC to initiate and complete the Section 7 consultation process (minimum 135-day review process from BA submittal).

- Transco will submit a complete Indiana and northern long-eared bat survey report to USFWS in early 2015.

Migratory Birds

- Transco is developing a draft migratory bird plan for the Project in accordance with previous discussions with USFWS. Key migratory bird habitat areas are being identified for consideration for clearing windows.

- Transco plans to submit a migratory bird memo to USFWS and PGC by the end of January 2015. Transco will then request a joint meeting with USFWS and PGC in February to review the approach.

Closing

- The meeting concluded at approximately 4:00 PM.

- End of Notes -

Zoladz, Justin A.

From: Shellenberger, Pamela <pamela_shellenberger@fws.gov>
Sent: Wednesday, January 14, 2015 4:13 PM
To: Chris Sanders
Cc: Zoladz, Justin A.; Netti, Gregory; Amanda Harford
Subject: Re: Atlantic Sunrise telemetry data

Thank you!

Pamela Shellenberger
U.S. Fish & Wildlife Service
Pennsylvania Field Office

PLEASE NOTE
Our office moved to a new location; the physical address and phone extensions have changed.

110 Radnor Rd; Suite 101
State College, PA 16801
814 234-4090

On Wed, Jan 14, 2015 at 2:23 PM, Chris Sanders <sanders@batgate.com> wrote:

Hello Pam,

I think the attached table has the data you need, let me know if we can refine it in any way for you.

Thanks,

Chris

From: Shellenberger, Pamela [mailto:pamela_shellenberger@fws.gov]
Sent: Tuesday, January 06, 2015 3:08 PM
To: Chris Sanders
Cc: Zoladz, Justin A.; Netti, Gregory; Amanda Harford
Subject: Re: Atlantic Sunrise telemetry data

If we could have the following information, that would be helpful:

Bat X was caught in mist-net site Y and followed to roost tree Z (or multiple roost trees).

We are trying to get an idea of how far away a capture location is from a roost tree.

Let me know if that is information you have and if that makes sense.

Thanks,

Pamela Shellenberger

U.S. Fish & Wildlife Service

Pennsylvania Field Office

PLEASE NOTE

Our office moved to a new location; the physical address and phone extensions have changed.

110 Radnor Rd; Suite 101

State College, PA 16801

814 234-4090

On Tue, Jan 6, 2015 at 2:56 PM, Chris Sanders <sanders@batgate.com> wrote:

> Hello Pam,

For MYSE the only telemetry data is the roost sites, we did not do foraging telemetry on them. Does the shape file you have only contain actual trees we walked in on and you are looking for estimated roost locations too? We do have MYLE foraging data that is in shape files if that is data that would interest you. The report is in the works, the project has recently finalizing the preferred route and that is being adapted into the report. The report is expected to be complete around the end of the month. We did submit an EOY report to the PGC, but it was just the field datasheets required by our sampling permit with little text and few tables/maps.

Thanks,

Chris

From: Shellenberger, Pamela [mailto:pamela_shellenberger@fws.gov]
Sent: Tuesday, January 06, 2015 9:44 AM
To: Chris Sanders
Cc: Zoladz, Justin A.
Subject: Atlantic Sunrise telemetry data

Hi Chris,

I was wondering if you have the telemetry data in shapefiles and if I could have that information? I already have the mist-net sites and MYSE roost sites in shapefiles. Also, do you have the report for this project electronically? Maybe you already sent it to me and I just can't find it? Let me know if you already sent it and when so I can look for it.

Thanks a bunch and Happy 2015!

Pamela Shellenberger

U.S. Fish & Wildlife Service

Pennsylvania Field Office

PLEASE NOTE

Our office moved to a new location; the physical address and phone extensions have changed.

110 Radnor Rd; Suite 101

State College, PA 16801

814 234-4090

Bat ID	Site of Capture	Roost ID	Distance from Capture to Roost (m)
CHxA	CH01a	CHxA 1 Approx	1977
		CHxA 2 Approx	1381
		CHxA 3 Approx	1271
CHxB	CH04a	CHxB 1	410
		CHxB 2	440
		CHxB 3	422
		CHxB 4 Approx	662
		CHxB 5	93
CHxC	CH02	CHxC 1 Approx	603
CHxD	CH03	CHxD 1	410
CPLNxA	CPLN003	CPLNxA 1 Approx	229
		CPLNxA 2	287
		CPLNxA 3 Approx	254
		CPLNxA 4	286
		CPLNxA 5	234
CPLNxC	CPLN017	CPLNxC 1 Approx	1671
CPLNxD & CPLNxE	CPLN033	CPLNxD/E 1	394
		CPLNxD/E 2	442
CPLNxF	CPLN045	CPLNxF 1 Approx	1022
		CPLNxF 2 Approx	799
		CPLNxF 3	530
CPLNxG	CPLN046	CPLNxG 1 Approx	355
CPLNxH	CPLN049	CPLNxH 1 Approx	183
CPLNxI	CPLN050	CPLNxI 1	134
		CPLNxI 2	892
CPLNxJ	CPLN057a	CPLNxJ/K 1	587
		CPLNxJ/K 2	831
CPLNxK	CPLN055a	CPLNxJ/K 1	1157
		CPLNxJ/K 2	927
CPLNxL	CPLN052	CPLNxL 1	414
		CPLNxL 2 Approx	373
CPLNxM	CPLN059	CPLNxM 1	162
		CPLNxM 2	124
CPLNxN	CPLN052	CPLNxN 1 Approx	260
		CPLNxN 2	337
CPLNxO	CPLN059	CPLNxO 1 Approx	367
CPLNxP	CPLN051	CPLNxP 1 Approx	905
CPLNxQ	CPLN064	CPLNxQ 1 Approx	760

CPLNxQ	CPLN064	CPLNxQ/U 1 Approx	645
CPLNxS	CPLN061	CPLNxS 1 Approx	3207
CPLNxT	CPLN062	CPLNxT 1	311
		CPLNxT 2	483
CPLNxU	CPLN063	CPLNxQ/U 1 Approx	1568
		CPLNxU 1 Approx	809
		CPLNxU 2 Approx	1689
CPLNxV	CPLN071a	CPLNxV 1 Approx	2195
CPLNxW	CPLN069	CPLNxW 1 Approx	222
		CPLNxW 2	278
CPLNxX	CPLN073a	CPLNxX 1	146
		CPLNxX 2	410
CPLNxY	CPLN077	CPLNxY 1 Approx	155
		CPLNxY 2	423
		CPLNxY 3 Approx	824
CPLNxZ	CPLN084	CPLNxZ/AA/CC/DD 1 Approx	192
		CPLNxZ/AA/DD 1 Approx	252
		CPLNxBB 1 Approx	333
CPLNxAA	CPLN084	CPLNxZ/AA/CC/DD 1 Approx	192
		CPLNxZ/AA/DD 1	252
		CPLNxBB 1 Approx	333
CPLNxBB	CPLN084	CPLNxBB 1 Approx	333
		CPLNxZ/AA/CC/DD 1 Approx	192
CPLNxCC	CPLN084	CPLNxZ/AA/CC/DD 1 Approx	192
		CPLNxCC 1 Approx	1141
CPLNxDD	CPLN084	CPLNxZ/AA/CC/DD 1	192
		CPLNxZ/AA/DD 1	252
		CPLNxBB 1 Approx	333
CPLNxEE	CPLN082	CPLNxEE 1 Approx	198
CPLNxGG	CPLN041	CPLNxGG 1 Approx	662
		CPLNxGG 2 Approx	622
CPLSxA	CPLS121a	CPLSxA 1	201
CPLSxC	CPLS150	CPLSxC 1	280
		CPLSxC 2	211
CPLSxD	CPLS149	CPLSxD 1 Approx	314
CPLSxE	CPLS151	CPLSxE 1 Approx	498
CPLSxF	CPLS155	CPLSxF 1	236
		CPLSxF 2 Approx	143

CPLSxG	CPLS158	CPLSxG 1 Approx	713
CPLSxH	CPLS156	CPLSxH 1 Approx	326
CPLSxI	CPLS138a	CPLSxI 1 Approx	113
		CPLSxI 2	246
		CPLSxI 3 Approx	544
		CPLSxI 4 Approx	328
CPLSxJ	CPLS139	CPLSxJ 1 Approx	426
CPLSxL	CPLS65 V14	CPLSxL 1 Approx	1670
		CPLSxL 2 Approx	2740
UNxA	UN001	UNxA 1	246
UNxB	UN014	UNxB 1 Approx	1134
		UNxB 2 Approx	1005
		UNxB 3	1005
		UNxB 4	1010
		UNxB 5	942

CHxA	CH01a	CHxA 1 Approx
		CHxA 2 Approx
		CHxA 3 Approx
CHxB	CH04a	CHxB 1
		CHxB 2
		CHxB 3
		CHxB 4 Approx
		CHxB 5
CHxC	CH02	CHxC 1 Approx
CHxD	CH03	CHxD 1
CPLNxA	CPLN003	CPLNxA 1 Approx
		CPLNxA 2
		CPLNxA 3 Approx
		CPLNxA 4
		CPLNxA 5
CPLNxC	CPLN017	CPLNxC 1 Approx
CPLNxD &	CPLN033	CPLNxD/E 1
		CPLNxD/E 2
CPLNxF	CPLN045	CPLNxF 1 Approx
		CPLNxF 2 Approx
		CPLNxF 3
CPLNxG	CPLN046	CPLNxG 1 Approx
CPLNxH	CPLN049	CPLNxH 1 Approx
CPLNxI	CPLN050	CPLNxI 1
		CPLNxI 2
CPLNxJ	CPLN057a	CPLNxJ/K 1
		CPLNxJ/K 2
CPLNxK	CPLN055a	CPLNxJ/K 1
		CPLNxJ/K 2
CPLNxL	CPLN052	CPLNxL 1
		CPLNxL 2 Approx
CPLNxM	CPLN059	CPLNxM 1
		CPLNxM 2
CPLNxN	CPLN052	CPLNxN 1 Approx
		CPLNxN 2
CPLNxO	CPLN059	CPLNxO 1 Approx
CPLNxP	CPLN051	CPLNxP 1 Approx
CPLNxQ	CPLN064	CPLNxQ 1 Approx
		CPLNxQ/U 1 Approx
CPLNxS	CPLN061	CPLNxS 1 Approx
CPLNxT	CPLN062	CPLNxT 1
		CPLNxT 2
CPLNxU	CPLN063	CPLNxQ/U 1 Approx
		CPLNxU 1 Approx
		CPLNxU 2 Approx
CPLNxV	CPLN071a	CPLNxV 1 Approx

CPLNxW	CPLN069	CPLNxW 1 Approx
		CPLNxW 2
CPLNxX	CPLN073a	CPLNxX 1
		CPLNxX 2
CPLNxY	CPLN077	CPLNxY 1 Approx
		CPLNxY 2
		CPLNxY 3 Approx
CPLNxZ	CPLN084	CPLNxZ/AA/CC/DD 1 Approx
		CPLNxZ/AA/DD 1 Approx
		CPLNxBB 1 Approx
CPLNxAA	CPLN084	CPLNxZ/AA/CC/DD 1 Approx
		CPLNxZ/AA/DD 1 Approx
		CPLNxBB 1 Approx
CPLNxBB	CPLN084	CPLNxBB 1 Approx
		CPLNxZ/AA/CC/DD 1 Approx
CPLNxCC	CPLN084	CPLNxZ/AA/CC/DD 1 Approx
		CPLNxCC 1 Approx
CPLNxDD	CPLN084	CPLNxZ/AA/CC/DD 1 Approx
		CPLNxZ/AA/DD 1 Approx
		CPLNxBB 1 Approx
CPLNxEE	CPLN082	CPLNxEE 1 Approx
CPLNxGG	CPLN041	CPLNxGG 1 Approx
		CPLNxGG 2 Approx
CPLSxA	CPLS121a	CPLSxA 1
CPLSxC	CPLS150	CPLSxC 1
		CPLSxC 2
CPLSxD	CPLS149	CPLSxD 1 Approx
CPLSxE	CPLS151	CPLSxE 1 Approx
CPLSxF	CPLS155	CPLSxF 1
		CPLSxF 2 Approx
CPLSxG	CPLS158	CPLSxG 1 Approx
CPLSxH	CPLS156	CPLSxH 1 Approx
CPLSxI	CPLS138a	CPLSxI 1 Approx
		CPLSxI 2
		CPLSxI 3 Approx
		CPLSxI 4 Approx
CPLSxJ	CPLS139	CPLSxJ 1 Approx
CPLSxL	CPLS65 V1	CPLSxL 1 Approx
		CPLSxL 2 Approx
UNxA	UN001	UNxA 1
UNxB	UN014	UNxB 1 Approx
		UNxB 2 Approx
		UNxB 3
		UNxB 4
		UNxB 5

Zoladz, Justin A.

From:	Shellenberger, Pamela <pamela_shellenberger@fws.gov>
Sent:	Tuesday, February 03, 2015 2:38 PM
To:	Zoladz, Justin A.
Cc:	Harford, Amanda <Amanda.Harford@williams. com>; Netti, Gregory; Sanders, Chris <sanders@batgate.com>; Ryan Nelson <ryann@whmgroup.com>
Subject:	Re: Atlantic Sunrise USFWS Project #2014-0324

I can take a call anytime this afternoon. I imagine it will not take long.

Thank you!

Pamela Shellenberger
U.S. Fish & Wildlife Service
Pennsylvania Field Office

PLEASE NOTE
Our office moved to a new location; the physical address and phone extensions have changed.

110 Radnor Rd; Suite 101
State College, PA 16801
814 234-4090

On Tue, Jan 20, 2015 at 8:58 PM, Zoladz, Justin A. <JZoladz@ene.com> wrote:

Pam,

The Project has a few questions in regards to the Indiana and northern long-eared bat surveys. Several questions have arisen in developing an appropriate work plan and LOE for 2015 in response to changes in the Project layout. If you have time, we would like to schedule a short call to discuss the following topics.

1) Because there were so many changes to the Project centerline along CPL South where there were a lot of shifts to avoid natural resource impacts and landowner concerns, re-calculating an adequate survey LOE on a case by case basis seemed difficult, somewhat arbitrary, and inconsistent based on how LOE was determined to begin with. As such, on CPL South we re-ran the script we developed based on our previous discussions. We then looked at what survey sites sampled in 2014 lined up with the new survey segments and could still be utilized relative to the new route. In the Project's original work plan, it was indicated that USFWS would be notified if a survey site was to be "more 200 meters from the proposed ROW so that any significant deviation could be pre-authorized." Based on the new alignment there are 16 sites more than 200 meters but less than 500 meters from the proposed centerline that we believe should be used to cover the segments they are near. Based on the current project layout this is

only about 10% (16) of the total number (156) of sites needed to cover the CPL South centerline. Because the study plan calls for discussing sites outside of 200 meters from the centerline, we wanted to make sure the USFWS was okay with these sites being used. All sites sampled in 2014 that are now more than 500 meters form the centerline would be considered invalid and not counted towards any new survey segment. As the guidelines do not specify a distance, we feel using sites within 500 meters is consistent with the existing protocol and provides good sampling.

2) While almost all NLEBs radio-tracked last year roosted lest than 1.5 miles from their capture site, one bat did have one roost 1.7 miles from its capture location. The other roost for that bat was under 1.5 miles from its capture location. The way the guidelines are written, an example is not given for multiple roosts when one roost is within the 1.5-mile radius and the other is not. To define the "known habitat" for this bat, the Project proposes to draw a line between the two roosts and buffer the line by 1.5 miles. This would result in the capture location being within the "known habitat" buffer and would be consistent with using the 1.5-mile radius home range.

3) There is one existing compressor station in Lycoming County that is not along the proposed centerline which needs to be upgraded as part of this Project. Although all work at this site is proposed inside the existing fence line and would not require forest clearing, there are approximately four pine trees larger than 3 inches DBH which would need to be cleared. These trees were planted for ornamental purposes around the existing facility. Is it acceptable to consider them non-suitable habitat?

Thank you,

Justin Zoladz, Biologist

Ecology and Environment, Inc.

368 Pleasant View Drive, Lancaster, NY 14086

Phone: 716-684-8060 x2608 | Mobile: 716-560-4585

Fax: 716-684-0844

jzoladz@ene.com | www.ene.com

Telephone Call Summary Sheet

By:	Justin Zoladz	**Date:**	02-3-2015
Talked With:	Pamela Shellenberger	**Project Number:**	EE-004741-0003-07TTO
Of:	USFWS – PA Field Office	**Project Name:**	Atlantic Sunrise
Telephone Number:	814-234-4090 x241	**Subject:**	Informal T&E Consultation – USFWS # 2014-0324 RE: Bat Survey Buffer Zones and Mapping

Conference call with Ms. Pamela Shellenberger, USFWS-PA Field Office, 02-3-2015 - 1630 to 1700.

Others on call:

Transco – Amanda Gregory
E & E – Justin Zoladz
Sanders Environmental – Chris Sanders (Bat Subcontractor)

Call Purpose:

Williams and E & E initiated a call with the USFWS to address Survey LOE for the upcoming 2015 field season as it relates to the current Project layout and additional facilities. Additionally, the Project wanted guidance on defining the "known habitat" buffer zones for a NLEB which had two roosts identified, one greater than 1.5miles form the capture and one less than 1.5 miles from the capture site.

In the 2014 work plan, the Project stated that it would keep survey sites within 200 meters of the Project centerline or USFWS would be consulted to determine of a site would count. Based on the new Project alignment, there are 16 sites more than 200 meters but less than 500 meters from the proposed centerline that the Project would like to still utilize to cover the current "survey segments," based on a re-running of the LOE script for the current route, which they are closest to. The Project would consider all sites sampled in 2014 that are now more than 500 meters form the centerline would be considered invalid and not request utilizing them towards any new survey segment. As the guidelines do not specify a specific distance from the centerline for linear Projects, the Project feels using sites within 500 meters is consistent with the existing protocol and provides good sampling.

During last year's surveys, all NLEBs which were radio tracked roosted less than 1.5 miles from the capture location, aside from two individuals. One was near so many other NELB captures the radius to determine a "known habitat" around that bat was moot to the Project because of so many other buffers already overlapped the Project centerline and other components. However, one bat did have a roost identified 1.7 miles away and another within 1.5 miles from the capture site. This raised concern about how to define its "known habitat." The Project proposed to draw a line between the two roosts and buffer the line by 1.5 miles. This would result in the capture location being within the "known habitat" buffer and would be consistent with using the 1.5-mile radius home range.

There is one existing compressor station in Lycoming County (CS 520) that is not along the proposed centerline which needs to be upgraded as part of this Project. Although all work at this site is proposed inside the existing fence line and would not require forest clearing, there are approximately four pine trees larger than 3 inches DBH

which would need to be cleared. These trees were planted for ornamental purposes around the existing facility. The Project inquired whether it would be acceptable to consider them non-suitable habitat if they were determine to lack any cracks, crevices, cavities, or exfoliating bark.

Another compressor station (CS 517), which is also within Lycoming County, is not on the centerline but requires some forest clearing. It is already in a NLEB "known habitat" buffer from a capture on the nearby mainline. The Project wanted to know if it must consider this a separate non-linear portion of the Project and conduct a minimum of 42 net-nights, per the non-linear LOE protocol.

In regards to other T/E species surveys, northeastern bulrush and the bog turtle, The Project wanted to know if the 300-foot survey buffer is still required along the centerline of access roads or other facilities, even if no wetlands or streams are impacted.

Call Summary:

- Ms. Shellenberger stated that her typical requirement was that survey sites must be within 300 feet of the proposed centerline for linear Projects. This is contradictory to the 200-meter distance stated in the 2014 work-plan she signed off on. Based on the response, the request to count sites to a distance of 500 meters will not be globally accepted. Ms. Shellenberger did understand that some sites may already be in the best location and could make determinations on a case-by-case basis. The Project agreed to provide mapping of the sites in question showing a 300-foot buffer, as well as the 200-meter buffer from the work plan, and the 500-meter buffer requested. Also, mapping will be provided to show sites greater than 300 feet but less than 200 meters from the centerline, as was described as acceptable in the work plan. Ms. Shellenberger will make her recommendations based on this mapping.
- Ms. Shellenberger agreed the Project's plan to generate a "known habitat" buffer for the bat with one roost greater than 1.5 miles and one less than 1.5 miles from the capture site. The buffer will be a 1.5-mile buffer of a line connecting the two sites.
- Ms. Shellenberger agreed that the Project could perform a survey of the ornamental pine trees within the existing compressor station (CS 520) to determine if they are suitable or not.
    - If the on-site Phase I survey determines that they are not suitable roosting habitat, no Phase II survey will be required, and the trees can be cleared at any time.
    - If the on-site Phase I survey determines that any of the trees are suitable habitat, an emergence count will be done in accordance with proper protocol. If bats do not emerge, the trees can be removed per the guidelines. If bats are observed exiting the trees, the Project should re-consul with USFWS.
- Ms. Shellenberger stated that compressor station CS 517 should be considered a separate non-linear component of the pipeline, and therefore would require a 42 net-night mist-netting survey.
- Ms. Shellenberger stated that the northeastern bulrush does not need to be surveyed for the full 300-foot along access roads and other facilities unless those access roads are going to impact a wetland or waterway.
- Ms. Shellenberger stated that bog turtle surveys will still be needed to the full 300-foot buffer of the LOD for access roads and other facilities unless the Project can commit to the volume of use and time of year restrictions. (i.e. there is no concern for heavy traffic in the winter, or any concern if only very light traffic in the summer (1 or 2 passes per day))

Meeting Summary

Attendees:

Transco: Anne Allen and Amanda Gregory

E & E: Greg Netti, Don Wardwell, and Janice Gardner

TRC: John Zimmer

Dawson & Associates: Bill Hartwig

USFWS (PA Field Office): Pamela Shellenberger, Kayla Easler, and Laura Zimmerman

PGC: John Taucher and Dan Brauning

Meeting Date:	10 February 2015
Project Segment:	Atlantic Sunrise Project
Project Segment:	PA Facilities (Susquehanna, Wyoming, Luzerne, Sullivan, Lycoming, Clinton, Columbia, Northumberland, Schuylkill, Lebanon, and Lancaster Counties)
Meeting Location:	USFWS PA Field Office – State College, PA
Meeting Time:	10:00 AM
Issues/Keywords:	Project update; migratory birds

Transcontinental Gas Pipe Line Company, LLC (Transco) held a meeting with the U.S. Fish and Wildlife Service (USFWS) to provide a Project update, and discuss migratory birds. This was Transco's fifth meeting with USFWS for the Project: a Project introduction meeting was held in March 2014; a meeting to discuss Migratory Bird Treaty Act (MBTA) requirements was held in July 2014; a meeting to discuss bat survey results and review field findings was held in August 2014; and a meeting to discuss 2014 threatened and endangered species survey results was held in December 2014.

Project Update

- After introductions, A. Allen began the meeting by providing a Project update.
    - Transco plans and is currently on target to submit its FERC application in March 2015. Transco plans to submit associated federal and state permits at the same time or shortly thereafter.
    - Construction of the Project is proposed to begin in July 2016 with the Project in-service by July 2017.
    - To date, Transco has received survey permission to complete environmental surveys for approximately 85% of the pipeline routes and surveys have been completed on a majority of that 85%.

Draft Migratory Bird Conservation Plan

- G. Netti presented a summary of the draft Migratory Bird Conservation Plan for the Project, which was developed using input from previous meetings with USFWS regarding migratory birds.
- The summary presented a species list including breeding birds within the Project area and Birds of Conservation Concern (BCCs) within the Project area. D. Brauning indicated that the Pennsylvania State Wildlife Action Plan is being updated and the birds noted as Species of Greatest Conservation Need within that Plan had changed slightly. D. Brauning provided Transco with a copy of the updated list.

- The summary also discussed interior forest present within the Project area and a literature review regarding the patch size requirement for various BCCs within the Project area.
    - Based on literature review, an interior forest patch size of 225 acres was determined to be important for breeding BCCs within the Project area. USFWS and PGC personnel concurred that this patch size is an appropriate size to begin analysis.
    - D. Wardwell and J. Gardner provided a description of the methodology used to determine land use and land cover types to a more accurate degree than the National Land Cover Dataset. The classification of different types of roadways was specifically discussed.
- D. Wardwell and J. Gardner presented the approach and methodology that Transco is proposing to use to determine key habitat areas for BCCs in the Project area. A discussion ensued regarding the methodology for calculating temporary and permanent impacts to different habitat types within the Project area and the use of native seed mixes for restoration.
    - USFWS inquired about state land crossings, such as state game lands, state parks, and state forests. A. Allen reported that crossings of all state lands for the proposed Project are co-located with an existing utility right-of-way except the crossing of State Game Land 211 in Lebanon County.
- Transco is proposing to limit clearing during the restricted time period in key habitat areas determined through the approach to be approved by USFWS, and coordinate with USFWS regarding areas where clearing windows could be adjusted based on habitat type.
- G. Netti led a discussion around migratory bird avoidance and minimization measures that have been used during Project development, and that may be employed for the Project.
- A. Allen and G. Netti led a brief discussion regarding potential impacts and mitigation measures. Transco will continue to coordinate with USFWS on these issues. To this topic, A. Allen provided a brief summary of the draft Compensatory Mitigation Plan for wetland impacts currently in development for the Project.
- At this time, Transco is considering compensatory mitigation to offset potential direct Project effects on interior forests.
- USFWS stated that compensatory mitigation will be also required in any areas where Transco proposes to complete vegetation clearing during migratory bird breeding periods.

Next Steps and Action Items

- USFWS suggested that Transco continually check the reported bald eagle nest list on approximately a bi-monthly basis. Transco indicated that it is currently performing this check and will continue to do so.
- J. Taucher requested shapefiles of initial key habitat area identification to perform a database search and provide Transco with breeding bird survey results from PGC.
- Transco plans to file a draft Migratory Bird Conservation Plan with its FERC application in March 2015 and will continue to consult with USFWS and PGC on avoidance and minimization measures, and mitigation measures for the Project.

Closing

- The meeting concluded at approximately 12:30 PM.

- End of Notes -

MacLeod, Steven

From: Netti, Gregory
Sent: Monday, March 02, 2015 8:18 PM
To: Shellenberger, Pamela; Taucher, John
Cc: Allen, Anne; Gregory, Amanda (Amanda.Gregory@williams.com); Wardwell, Donald; Gardner, Janice H.; MacLeod, Steven; Bill Hartwig
Subject: Draft Migratory Bird Plan_Transco Atlantic Sunrise Project
Attachments: ASR_Draft Migratory Bird Plan_March 2015.pdf; 2014_12_09_USFWS_PA_Meeting Summary.pdf; 2015_02_10_USFWS_PGC_Meeting Summary.pdf

Dear Pam and John,

Per our February 10 meeting, Transco is submitting the attached draft Migratory Bird Plan (Plan) for the Atlantic Sunrise Project (**USFWS Project # 2014-0324; PGC ID Number: 201403110501**). This draft Plan describes the existing migratory birds and their habitats in the Project area, identifies measures developed to date that will avoid or minimize Project impacts on migratory birds, and provides an outline of sections that are still in the developmental stages and require additional consultation with U.S. Fish and Wildlife Service (USFWS) and Pennsylvania Game Commission (PGC) (i.e., potential impacts and compensatory mitigation).

Transco is requesting the USFWS and PGC to informally provide comment on whether the overall format and organization of this draft Plan is acceptable for the purpose of moving forward with our consultation. Transco will include this draft Plan and related agency correspondence with its FERC application anticipated to be submitted by the end of this month.

It is Transco's intention to further develop this draft Plan and we would like to plan our next meeting to occur in early May.

Summaries from our recent meetings on December 9, 2014 and February 10, 2015 are also attached. Please confirm that the summaries accurately reflect our discussions.

Thank you for continued support in reviewing Transco's proposed Atlantic Sunrise Project.

Regards,

Greg

Greg Netti
Ecology and Environment, Inc.
368 Pleasant View Drive
Lancaster, NY 14086
Tel: 716-684-8060
Cell: 716-225-5017
Email: gnetti@ene.com

From: Easler, Kayla <kayla_easler@fws.gov>
Sent: Monday, March 2, 2015 10:53 AM
To: Robert Bull
Cc: Pamela Shellenberger
Subject: Atlantic Sunrise

Hi Bob,

I am not sure if this is the correct email address, but it is the only one I have currently in my address book. I wanted to give you a call but our phone system is down at this time. I am trying to get the Atlantic Sunrise Phase 1 report letter out and I see that only the positive bog turtle habitat field forms were included in the report. I was wondering if you could send a copy of all the Phase 1 field forms for our records?

I remember in our meeting in December that there were possibly two wetlands that we had discussed possibly making a field visit to see if a Phase 2 was necessary, have these been made or is Atlantic Sunrise going had with a Phase 2?

Additionally, if you need an extra hand or two this survey season during your Phase 2 survey for the project, Pam and I would be willing to come out and help. If you need us, please let us know some possible survey dates so we can make our calendars.

Thank you,

Kayla Easler

U.S. Fish & Wildlife Service
Pennsylvania Field Office
110 Radnor Rd; Suite 101
State College, PA 16801
Telephone: (814) 234-4090 x 7455
Fax: (814) 234-0748
http://www.fws.gov/northeast/pafo/

Zoladz, Justin A.

From: Shellenberger, Pamela <pamela_shellenberger@fws.gov>
Sent: Wednesday, March 04, 2015 9:34 AM
To: Zoladz, Justin A.
Subject: Re: Atlantic Sunrise Project USFWS # 2104-0324 Mist Netting Site Analysis Result

Hi Justin,

Thank you for our conversations yesterday regarding the above-mentioned information.

In order to consider a large enough sample area, a maximum distance of 500m (1/2 of the kilometer segment) from the centerline was reviewed. According to our discussions, a large majority of these sites occur in CPL South, which has high agriculture land use. Due to the limited suitable sampling locations for mist-net sites in heavy agricultural areas, the most quality sites were selected during the first round of surveys. Therefore, we have determined that at a maximum of 500m from the centerline, surveys were already conducted in the best quality habitat that was suitable for bats and no further surveys need to occur at these site locations.

Should the alignment change again, further coordination with our office should occur.

Thank you,

Pamela Shellenberger
U.S. Fish & Wildlife Service
Pennsylvania Field Office

PLEASE NOTE
Our office moved to a new location; the physical address and phone extensions have changed.

110 Radnor Rd; Suite 101
State College, PA 16801
814 234-4090

On Wed, Feb 25, 2015 at 9:28 AM, Zoladz, Justin A. <JZoladz@ene.com> wrote:

Pam,

Per our call a few weeks ago, please find the attached documents. The first attachment shows sites surveyed in 2014 that are now greater than 200 meters from the centerline (what the Project called for in the work plan) but less than 500 meters from the centerline. The second attachment shows sites surveyed in 2014 greater than 300 feet but less than 200 meters from the centerline.

There are ten instances where sites are greater than 200 meters but less than 500 meters from the centerline that the Project would like to still consider valid for the current layout. Chris Sanders have provided a screen shot with aerial background and a short write-up justification why the Project feels these sites should still be considered valid. The new survey segments based on a re-run of the script to determine LOE based on the current route are shown in alternating red and yellow line segments.

There are 14 sites that are more than 300 feet from the centerline but less than the 200 meters as outlined in the work plan. These only show a screenshot of the current survey segment and site location.

We appreciate your feedback on counting these sites toward the current alignment so the LOE and work plan can be developed for the upcoming 2015 season.

Thank you,

Justin Zoladz, Biologist

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Fax: 716-684-0844

jzoladz@ene.com | www.ene.com

MacLeod, Steven

From: Netti, Gregory
Sent: Friday, March 20, 2015 12:55 PM
To: Zoladz, Justin A.; MacLeod, Steven
Subject: FW: Follow-up on Northeastern Bulrush_ASR Project_ USFWS # 2104-0324

From: Shellenberger, Pamela [mailto:pamela_shellenberger@fws.gov]
Sent: Wednesday, March 04, 2015 5:06 PM
To: Netti, Gregory
Subject: Re: Follow-up on Northeastern Bulrush_ASR Project_ USFWS # 2104-0324

Also, since there are still additional bulrush sites to be surveyed, as well as additional surveys for Indiana bat/Northern long eared bat and bog turtle, I will wait to respond to your January 2015 Northeastern bulrush survey until all surveys are received.

Thank you,

Pamela Shellenberger
U.S. Fish & Wildlife Service
Pennsylvania Field Office

PLEASE NOTE
Our office moved to a new location; the physical address and phone extensions have changed.

110 Radnor Rd; Suite 101
State College, PA 16801
814 234-4090

On Wed, Mar 4, 2015 at 4:04 PM, Netti, Gregory <GNetti@ene.com> wrote:

Sounds good – thanks!

From: Shellenberger, Pamela [mailto:pamela_shellenberger@fws.gov]
Sent: Wednesday, March 04, 2015 3:49 PM
To: Netti, Gregory
Cc: Zoladz, Justin A.; Gregory, Amanda (Amanda.Gregory@williams.com)
Subject: Re: Follow-up on Northeastern Bulrush_ASR Project_ USFWS # 2104-0324

Hi Greg,

Thanks. We can accept this as an email. Yes, I did receive the MBTA Plan, but have not had a chance to look at it.

Sorry about the phone lines. I was on a call this afternoon, but you should've been able to leave a message. Not sure what it going on.

Thanks,

Pamela Shellenberger
U.S. Fish & Wildlife Service
Pennsylvania Field Office
PLEASE NOTE
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State College, PA 16801
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On Wed, Mar 4, 2015 at 3:11 PM, Netti, Gregory <GNetti@ene.com> wrote:

Hi Pam,

I received your VM from earlier today. I've tried calling back a few times, but getting a busy signal – maybe issues with phone lines....? Anyway, I can provide an update on Transco's proposed route in proximity to the northeastern bulrush population.

Transco has approved a minor alternative on the subject property. The route still deviates from the Leidy Line to go around the bulrush wetland, but deviates earlier (MP 8.4 rather than 8.55) and follows the property line, rather than bisecting and rejoining the Leidy Line earlier. A screen shot of the area is provided below. The route we presented to you is the one with the mileposting. The line Transco has since approved is the one that follows the property line and parallels Goss Road.

Please let me know if you need us to submit this formally in order to issue your review letter for northeastern bulrush.

Can you also please confirm that you received the Draft Migratory Bird Plan on Monday? It was a fairly large file attachment.

Thanks –

Greg

[image]

Greg Netti
Ecology and Environment, Inc.
368 Pleasant View Drive
Lancaster, NY 14086
Tel: 716-684-8060
Cell: 716-225-5017
Email: gnetti@ene.com

Zoladz, Justin A.

From: Shellenberger, Pamela <pamela_shellenberger@fws.gov>
Sent: Monday, March 16, 2015 4:59 PM
To: Zoladz, Justin A.
Cc: Allen, Anne <Anne.Allen@williams.com>; Amanda Gregory - Williams (Amanda.Gregory@williams.com); Netti, Gregory; Ryan Nelson <ryann@whmgroup.com>; Sanders, Chris <sanders@batgate.com>
Subject: Re: Atlantic Sunrise Project USFWS # 2014-0324

Thanks, Justin, and my apologizes about the typo. Let's try this again:

This response relates to Compressor Station 520 associated with the Atlantic Sunrise project:

After reviewing your narrative and photos, we have determined that these trees do not possess habitat characteristics suitable of potential Indiana bat and northern long-eared bat roost trees. Therefore, clearing these trees during any time of the year, is not likely to adversely affect these species.

Please let me know if this email will suffice, or if you would like a letter.

Thank you,

Pamela Shellenberger
U.S. Fish & Wildlife Service
Pennsylvania Field Office

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State College, PA 16801
814 234-4090

On Thu, Mar 12, 2015 at 3:29 PM, Zoladz, Justin A. <JZoladz@ene.com> wrote:

Pam,

In your message below, there appears to be an minor typo (highlighted in green). Should that sentence read: "After reviewing your narrative and photos, we have determined that these trees do not possess habitat characteristics suitable of potential Northern long-ear bat roost trees?"

Secondly, the Project understood that Indiana bats were also a concern in Lycoming county and your response only addresses northern long-eared bats.

Since the Project will reference your reply, could you please re-send an updated letter if those edits are appropriate?

Thank you again.

Justin Zoladz, Biologist

Ecology and Environment, Inc.

368 Pleasant View Drive, Lancaster, NY 14086

Phone: 716-684-8060 x2608 | Mobile: 716-560-4585

Fax: 716-684-0844

jzoladz@ene.com | www.ene.com

From: Shellenberger, Pamela [mailto:pamela_shellenberger@fws.gov]
Sent: Thursday, March 12, 2015 2:39 PM
To: Zoladz, Justin A.
Cc: Allen, Anne <Anne.Allen@williams.com>; Amanda Gregory - Williams (Amanda.Gregory@williams.com); Netti, Gregory; Ryan Nelson <ryann@whmgroup.com>; Sanders, Chris <sanders@batgate.com>
Subject: Re: Atlantic Sunrise Project USFWS # 2014-0324

This response relates to Compressor Station 520 associated with the Atlantic Sunrise project:

After reviewing your narrative and photos, we have determined that these trees to do possess habitat characteristics suitable of potential Northern long-ear bat roost trees. Therefore, clearing these trees during any time of the year, is not likely to adversely affect this species.

Thank you,

Pamela Shellenberger

U.S. Fish & Wildlife Service

Pennsylvania Field Office

PLEASE NOTE

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110 Radnor Rd; Suite 101

State College, PA 16801

814 234-4090

On Wed, Mar 11, 2015 at 12:15 PM, Zoladz, Justin A. <JZoladz@ene.com> wrote:

Pam,

Please find the attached memorandum in regards to a site visit at Compressor Station 520 to assess the suitability of several trees as potential habitat for either Indiana bats or northern long-eared bats.

Please do not hesitate to contact me if you have any questions.

Thank you,

Justin Zoladz, Biologist

Ecology and Environment, Inc.

368 Pleasant View Drive, Lancaster, NY 14086

Phone: 716-684-8060 x2608 | Mobile: 716-560-4585

Fax: 716-684-0844

jzoladz@ene.com | www.ene.com

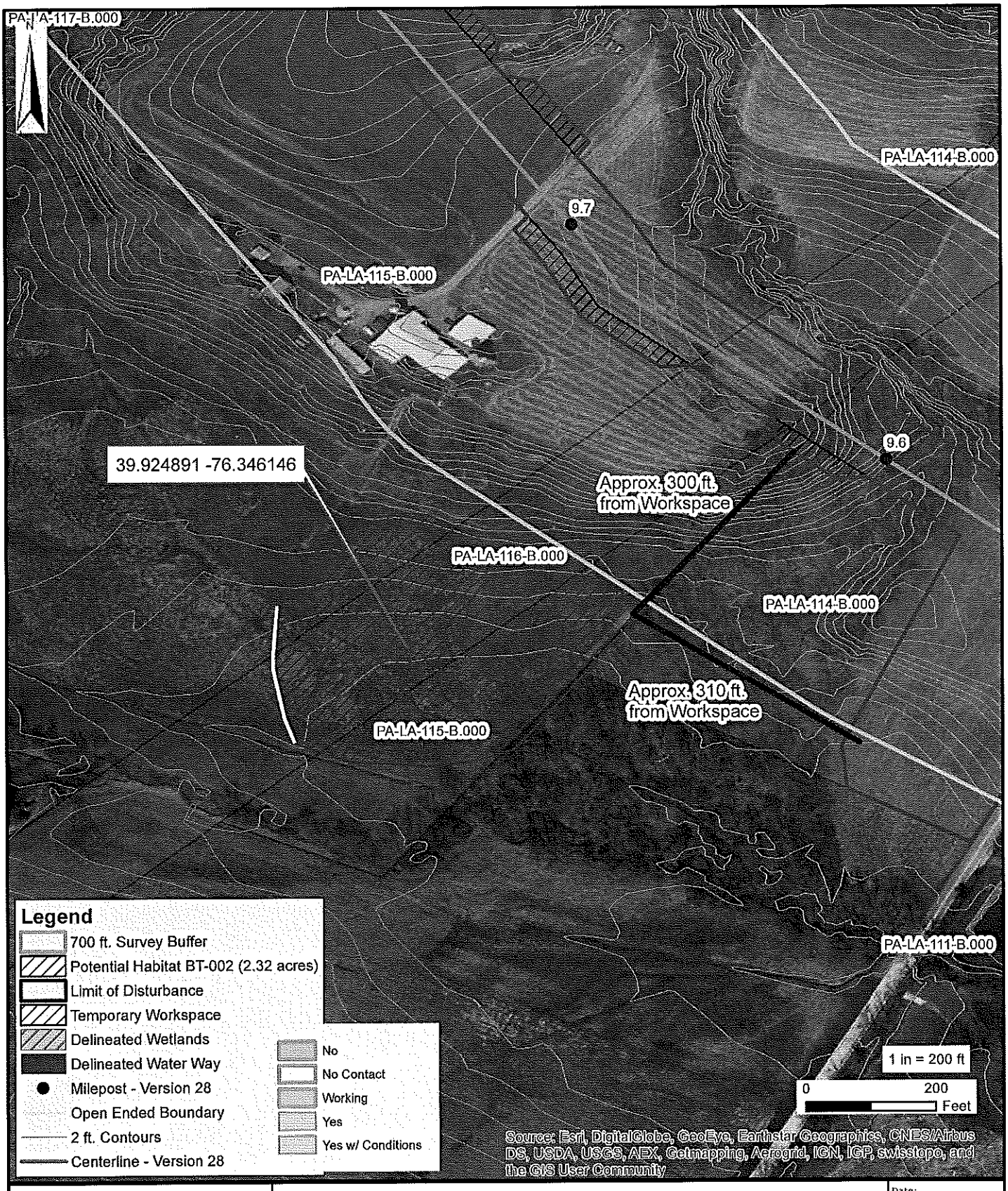
Message scanned by the Symantec Email Security service. If you suspect that this email is actually spam, please send it as an ATTACHMENT to spamsample@messagelabs.com

Telephone Call Summary Sheet

By:	Robert Bull	**Date:**	3/19/15
Talked With:	Kayla Easler	**Project Number:**	1000891.0009.02.07
Of:	USFWS	**Project Name:**	Atlantic Sunrise
Telephone Number:	814-234-4090	**Subject:**	Informal T&E Consultation USFWS # 2014-0324 RE: Upcoming BT Phase 2/3 Surveys

I spoke with Ms. Easler (USFWS) concerning the possibility of conducting a field view of several potential bog turtle habitat areas. The goal of the field view is to have several areas of potential habitat removed from the Phase 2 survey list. Ms Easler is available the entire week of April 6, 2015 and will return a phone call on March 23, 2015 after determining Ms. Shellenberger's (USFWS) availability for that week.

We also discussed bog turtle telemetry, as it relates to the potential situation of "What if a bog turtle population is found within one of the surveyed wetland areas?". The USFWS suggests that conducting telemetry of all populations pre-construction will provide the necessary information for writing a Biological Assessment and issuing the Biological Opinion.



WHM consulting, INC.
design. permit. restoration.
2525 Green Tech Drive, Suite B,
State College, PA 16803
Tele: 814.689.1650 Fax: 814.689.1557

ATLANTIC SUNRISE PROJECT
PA BOG TURTLE SURVEY (PHASE I)

Version 28 - MP 9.6 to 9.7

BOG TURTLE HABITAT BT-002

LANCASTER COUNTY PENNSYLVANIA

Date:	04/21/15
WHM Drawing Number:	EEI005A009
Drawn By:	PJF
Figure Number:	1

MacLeod, Steven

From:	Easler, Kayla <kayla_easler@fws.gov>
Sent:	Monday, May 04, 2015 1:00 PM
To:	Ryan Nelson
Cc:	Pamela Shellenberger; Gregory, Amanda (Amanda.Gregory@williams.com); Zoladz, Justin A.; Bob Bull
Subject:	Re: Atlantic Sunrise Project - Potential BT Habitat @ +/- 300' from Workspace
Attachments:	BT- 002 Location Map.pdf
Categories:	Agency Communication

Hi Ryan,

Following up from our call this morning, based the map provided (WHM Drawing number EE1005A009) the distance of the wetlands identified as PA-LA-115-B.000 and PA-LA-116-B.000 are approximately 300 feet or more from the proposed LOD. Based on the current alignment of the project there are no anticipated impacts to these wetland and therefore it is not necessary for a Phase 2 survey to be completed. However, if the alignment shifts or impacts will concur, a Phase survey would most likely be necessary.

Thank you,

Kayla Easler

U.S. Fish & Wildlife Service
Pennsylvania Field Office
110 Radnor Rd; Suite 101
State College, PA 16801
Telephone: (814) 234-4090 x 7455
Fax: (814) 234-0748
http://www.fws.gov/northeast/pafo/

"Due to an imposed hiring freeze and the inability to back fill positions, we are experiencing increased project review times (a minimum of 60 days) and response times to phone calls and emails. Please be patient; we will address projects in the order in which they are received."

On Fri, Apr 24, 2015 at 9:59 AM, Ryan Nelson <ryann@whmgroup.com> wrote:

> Kayla,
>
> Attached I have a map that indicates another location where we are at about 300' away from the habitat Bob identified in the field and we wanted your take as to whether or not Phase 2 surveys should be conducted here. We couldn't get onto the property that particular day, however, Bob was able to tell from the adjacent property (114-B) that the property has habitat. We have roughly outlined what we expect the potential habitat to look like. Again, this is an estimate, but we wanted your opinion as to whether or not we should consider surveying this property. Please let me know your opinion on this location and whether or not Phase 2 Surveys

would be required. We have attached a photo as well of the site. If you have any questions, don't hesitate to contact me.

Thanks,

Ryan Nelson, PWS

Project Manager

WHM Consulting, Inc.

A Member of the WHM Group sm

2525 Green Tech Drive, Suite B

State College, PA 16803

Office – 814-689-1650 ext. 157

Mobile – 814-592-9848

Fax – 814-689-1557

ryann@whmgroup.com

Telephone Call Summary Sheet

By:	Ryan Nelson (WHM)	**Date:**	05/05/15
Talked With:	Kayla Easler	**Project Number:**	XX
Of:	USFWS	**Project Name:**	Atlantic Sunrise
Telephone Number:	814-234-4090	**Subject:**	Notification of Bog Turtle Find on the Lapp Farm on CPLS.

Ryan Nelson of WHM Consulting spoke with Kayla to notify her that we found a bog turtle at the Lapp Farm, a site that we visited with the USFWS on April 14. I discussed the general location of the find based on our memory of that field visit (where we were standing with all the cows) and then went on to discuss some of the options that the project has and what this may mean to the project. We covered the following topics.

- Construction - Her initial response to this find and associated location suggested that a time of year restriction could potentially be imposed here, to limit construction to the winter months while the turtle is hibernating.
- Construction Methods - She suggested that trenchless methods should be explored here to determine if this is an option for the project to avoid wetland impacts. It was also suggested that the entire wetland area be delineated, so the USFWS has a better picture of this wetland complex. She didn't mention the need for the project to re-route.
- Biological Assessment – She said at this time that she doesn't think that a biological assessment would be needed and they may be able to issue a not likely to adversely impact determination if time of year restrictions were followed.
- Continued Data Collection - She said with the additional data we are gathering (continued Phase 2 surveys, trapping and telemetry), will help the USFWS make a decision on the matter.

Meeting Summary

Attendees:

Transco: Roberta Zwier

E & E: Greg Netti and Justin Zoladz

USFWS (PA Field Office): Pamela Shellenberger and Kayla Easler

FERC: Jennifer Kerrigan

NRG: Bart Jensen and Dee Dee Jones

WHM: Ryan Nelson and Jenn Jones

Dawson: Bill Hartwig

Sanders Environmental: Chris Sanders

The Conservation Fund: Kyle Shenk

Meeting Date:	19 May 2015
Project:	Atlantic Sunrise Project
Project Segment:	All
Meeting Location:	USFWS PA Field Office – State College, PA
Meeting Time:	1:00 PM
Issues/Keywords:	Project update; threatened and endangered species; Draft Biological Assessment; northern long-eared bat; bog turtle

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Transcontinental Gas Pipe Line Company, LLC (Transco) held a meeting with the U.S. Fish and Wildlife Service (USFWS) and Federal Energy Regulatory Commission (FERC) to discuss development of a draft Biological Assessment (BA) for the Atlantic Sunrise Project (Project).

Notes:

Project Update

- After introductions, R. Zwier began the meeting by providing a Project update.
    - Transco's FERC Certificate Application was filed on March 31, 2015. The first Environmental Data Request (EDR) was received from FERC today, May 19.
    - Transco's USACE Section 10/404 permit application was submitted on April 9, 2015.
    - Transco is planning to submit a supplemental information filing to FERC in late May/early June, which will address route modifications that were not included in the Certificate Application.

Draft BA - Contents, FERC's Role, and Schedule

- G. Netti provided an overview of the draft BA outline. The outline was developed based on USFWS guidance documents. Of note, all species identified by resource agencies with potential to occur in the Project area will be

addressed in the draft BA. Species documented as occurring in the Project area through field surveys and potentially affected by the Project will be addressed in detail.

- G. Netti stated that several T&E surveys have been completed to date, and additional surveys are being completed for various species during 2015. Although some surveys are in progress, the draft BA will include a significant amount of information regarding T&E species presence in the Project area.

- The draft BA is planned to be submitted by Transco to USFWS and FERC in July 2015.

- FERC will determine if/how the BA will be incorporated into the DEIS once the draft BA is received. The determination will be based on the level of information provided in the draft BA.

- FERC cannot provide a timeline for issuance of the DEIS at this time. The issue date will depend on Transco's timely response to EDR's and supplemental information being filed by Transco.

Northern Long-eared Bat

- C. Sanders provided a summary of 2014 northern long-eared bat (NLEB) survey results and planned 2015 surveys (hand-outs provided for 2014 survey results). One NLEB has been captured during 2015 surveys to date; it appeared to have White Nose syndrome and was not in condition to attach a transmitter.

- P. Shellenberger stated that no new guidance has been issued regarding impact assessments, buffers, etc. for NLEB. The *Northern Long-eared Bat Interim Conference and Planning Guidance* should be used in the absence of new guidance.

- USFWS is in the process of updating the PNDI database with NLEB hibernacula sites. 150-200 sites have been added to the database with records dating back 5 years. A ¼-mile buffer will be placed around hibernacula sites. More information will be added and results available to the public by the end of July.

- In regards to the ¼-mile buffer around hibernacula, J. Zoladz stated that we could potentially have a 200 ft.-wide strip not surveyed for bat hibernacula per our 2014 survey protocols. P. Shellenberger stated that the draft BA and/or survey reports should state why we consider the survey buffer adequate.

- Transco is planning to start clearing during the NLEB active period, but outside of the most sensitive period (i.e., pupping season). P. Shellenberger stated that if time of year restrictions are not planned to be followed, the draft BA should outline the rationale and explain how the clearing schedule avoids or minimizes impacts.

- There is currently no acreage threshold for clearing NLEB habitat where a "take" is triggered. For assessing impacts from habitat loss, the draft BA should consider known habitat within a 1.5-mile buffer of the project workspace. The "starting point" of available habitat within this buffer should be quantified and compared to what will remain after project completion. The data can be presented by county. The type of habitat that will remain should also be considered, as well as the cumulative impact of habitat removal. From a bat's perspective, what is available for roosting and foraging before/after the project is constructed?

- P. Shellenberger clarified that clearing is allowed within 4(d) rule areas year-round as long as the clearing is not within ¼-mile of a maternity roost or hibernacula. In these areas, clearing is restricted during June and July.

- Transco should use existing literature, current guidance, the 4(d) rule, and field data collected by Sanders to establish AND support the effects determination in the draft BA.

- White-nose syndrome (WNS) can be considered when establishing the effects determination. How does habitat loss compare to impacts on the species from white-nosed syndrome?

- The draft BA should have a robust discussion of impact avoidance and minimization measures.

- There is no Conservation Fund in place for NLEB at this time, as currently exists for Indiana bat. The issue of compensatory mitigation will be evaluated further after the draft BA is submitted and USFWS considers the effects determination. For the draft BA, general options for mitigation can be included for later discussion. They may include funding or undertaking research related to WNS and/or habitat conservation. Gating hibernacula or other hibernacula protection was mentioned as a particularly effective conservation measure for bats.

Bog Turtle

- R. Nelson provided an update on the ongoing Phase 2 and 3 bog turtle surveys.
  - [redacted]

- Telemetry is planned to be monitored on a weekly basis during the active period (April 1 – Oct 31), then monthly during inactive period. Transmitters will need to be replaced once in September or October.

- The allowable construction timing and method for the [redacted] wetland will depend on the tracking results. If bog turtles are found to not be using the proposed workspace area for hibernation, an open cut during the non-active period may be allowable. Conversely, any type of crossing (open cut OR HDD) would be restricted during the non-active period if bog turtles are hibernating in the workspace. In such a case, an HDD during the active season would need to be closely considered.

- [redacted] The wetland is currently used as a pasture. This use should continue as it may benefit bog turtles by maintaining an open habitat; however, animals could be excluded from the area during the nesting season.

Closing

- The meeting concluded at approximately 3:00 PM.

- End of Notes -

ecology and environment, inc.
Global Environmental Specialists

BUFFALO CORPORATE CENTER
368 Pleasant View Drive, Lancaster, New York 14086
Tel: (716) 684-8060, Fax: (716) 684-0844

July 21, 2015

Pamela Shellenberger
United States Fish and Wildlife Service
Pennsylvania Field Office
110 Radnor Rd, Suite 101
State College, PA 16801

Re: Transcontinental Gas Pipe Line Company, LLC. – Atlantic Sunrise Project
USFWS Project #2014-0324
Draft Biological Assessment

Dear Ms. Shellenberger:

Ecology and Environment, Inc. (E & E), on behalf of Transcontinental Gas Pipeline Company, LLC (Transco), is submitting the attached Draft Biological Assessment (BA) for the above-referenced Project. This document represents the first draft of the BA. Species evaluations were prepared based on information collected through consultations with the U.S. Fish and Wildlife Service (USFWS) and field surveys conducted through June 15, 2015. Transco intends to submit a second draft of the BA in the fourth quarter of 2015 that will incorporate additional field survey results, as well as comments and recommendations from the USFWS and Federal Energy Regulatory Commission (FERC) during a planned August 2015 Draft BA review meeting. As such, all species evaluations, including survey results, avoidance and minimization measures, impacts discussions, and effects determinations included in the enclosed document are subject to change pending the collection of additional field survey data and ongoing agency consultation.

Please do not hesitate to contact me at (716) 684-8060, or gnetti@ene.com, if you have any questions regarding this submittal. We look forward to continuing consultation with the Pennsylvania USFWS Field Office for federally-listed species associated with Transco's Atlantic Sunrise Project.

Sincerely,
ECOLOGY & ENVIRONMENT, INC.

Greg Netti
Project Manager

Enclosures: Draft Biological Assessment

Cc: Jennifer Kerrigan, FERC
Joe Dean, Transco

ecology and environment, inc.
Global Environmental Specialists

BUFFALO CORPORATE CENTER
368 Pleasant View Drive, Lancaster, New York 14086
Tel: (716) 684-8060, Fax: (716) 684-0844

July 21, 2015

Pamela Shellenberger
United States Fish and Wildlife Service (USFWS)
Pennsylvania Field Office
110 Radnor Road, Suite 101
State College, Pennsylvania 16801

Re: Transcontinental Gas Pipe Line Company, LLC. – Atlantic Sunrise Project
USFWS Project #2014-0324
Draft Migratory Bird Plan: Version 2

Dear Ms. Shellenberger:

Ecology and Environment, Inc. (E & E), on behalf of Transcontinental Gas Pipeline Company, LLC (Transco), is submitting the attached Draft Migratory Bird Plan: Version 2 (Plan) for Transco's Atlantic Sunrise Project (USFWS Project #2014-0324). This version of the Plan has been updated based on comments received from the USFWS in March 2015.

Transco anticipated scheduling a meeting in August 2015 with the USFWS and the Federal Energy Regulatory Commission (FERC) to receive additional feedback on this Plan, as well as the Project Draft Biological Assessment, which is being submitted concurrently. A final Plan will be prepared to account for any route modifications and address additional comments and recommendations from the USFWS and FERC.

Please do not hesitate to contact me at (716) 684-8060, or gnetti@ene.com, if you have any questions regarding this submittal. We look forward to continuing consultation with the USFWS Pennsylvania Field Office on this Plan, as well as the Biological Assessment.

Sincerely,
ECOLOGY & ENVIRONMENT, INC.

Greg Netti
Project Manager

Enclosures: Draft Migratory Bird Plan: Version 2

Cc: Jennifer Kerrigan, FERC
Joe Dean, Transco

Meeting Summary

Attendees:

Transco: Roberta Zwier, Joe Dean, Shauna Akers, and Sandra Lojek

E & E: Greg Netti and Justin Zoladz; Lindsay Wardwell, Don Wardwell and Janice Gardner (via phone)

USFWS (PA Field Office): Pamela Shellenberger, Lora Zimmerman and Brian Scofield

PGC: John Taucher

FERC: Jennifer Kerrigan, Joanne Wachholder, and Christine Allen (via phone)

NRG: Bart Jensen and Dee Dee Jones (via phone)

WHM: Ryan Nelson and Jenn Jones

Sanders Environmental: Chris Sanders

Meeting Date:	1 September 2015
Project:	Atlantic Sunrise Project
Project Segment:	All
Meeting Location:	USFWS PA Field Office – State College, PA
Meeting Time:	1:00 PM
Issues/Keywords:	Project update; threatened and endangered species; Draft Biological Assessment; northern long-eared bat; bog turtle

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Transcontinental Gas Pipe Line Company, LLC (Transco) held a meeting with the U.S. Fish and Wildlife Service (USFWS) and Federal Energy Regulatory Commission (FERC) to discuss USFWS review and comments on the draft Biological Assessment (BA) and Migratory Bird Plan for the Atlantic Sunrise Project (Project).

Notes:

Project Update

- After introductions, J. Dean began the meeting by providing a Project update.
    - Transco is finalizing the pipeline route, and minor route adjustments are being made as a result of landowner requests and environmental issues.
    - Transco's anticipated schedule for the Project is:
        - September 2015 – Draft EIS
        - February 2016 – Final EIS
        - April 2016 – Order Issued
        - June 2016 – Commence Construction
        - July 2017 – Pipeline In-Service
    - Transco's schedule is projected, and may change dependent of FERC review of the Project. J. Kerrigan mentioned that no schedule has been noticed by FERC.

Environmental Surveys Update

- G. Netti provided an overview of the status of field surveys. Approximately 88% of all parcels crossed by the Project, 90% of the total Project area have been surveyed.

- P. Shellenberger asked in the remaining 10% of the Project area needs to be surveyed. J. Dean responded that these areas need to be surveyed, and surveys will be conducted as survey permission is obtained.

- G. Netti added that the unsurveyed areas are located throughout the Project area, but are concentrated on CPL South in Lancaster and Lebanon counties.

- G. Netti stated that stream and wetland delineation surveys are scheduled to be completed by September 11, 2015 for all accessible parcels. A remote sensing delineation has been conducted for the remaining areas, and field visits of these areas will be conducted once these parcels can be accessed.

Northern Long-eared Bat Surveys

- C. Sanders provided a summary of 2015 northern long-eared bat (NLEB) survey results. The distribution of captures for NLEB was similar to what was observed in 2014, and higher concentrations of NLEB were observed north of Interstate 80. Over the course of Project surveys 3,127 bats have been captured, and 2.2% of these were NLEB. The 2015 survey report will be available in October or November.

- P. Shellenberger asked if any roost trees are located within the right-of-way (ROW). One roost tree was observed in the ROW, and was used once by a single male. No maternity colony or roosts were observed in the ROW.

- C. Sanders noted that juvenile NLEBs were found at three mist netting sites. Juveniles were not fitted with transmitters, and these mist net sites were located within the 3 mile NLEB Action Area. These sites were visited later in the year to attempt to recapture and fit juveniles with transmitters; however, none were recaptured.

- Two proposed mist net sites were not surveyed do to access restrictions. P. Shellenberger stated that surveys would not be required at these sites because of negative survey results at nearby mist net sites, and lack of habitat in the area. The data from surrounding net locations provides enough data to support negative results at these locations.

Bog Turtle

- R. Nelson provided an update on the ongoing Phase II and III bog turtle surveys.

    - Phase II and III surveys complete for all wetlands identified to date. The need for additional Phase I surveys will be based on the results of remaining wetland delineations. To date, no Phase II surveys are planned for 2016.

    - Turtles were observed in 1 of the 16 wetlands surveyed. Of the 11 turtles found, 8 were fitted with transmitters. The transmitters will remain of the turtles through the winter to help determine the hibernation location. Based on the data collected to date, the turtles are approximately 600 feet from the project LOD.

- P. Shellenberger asked if a desktop analysis has been completed for properties where Transco does not have survey permission. G. Netti responded that a remote sensing analysis had been completed for the no access parcels. A summary of these areas will be included in the revised reports. P. Shellenberger mentioned that in may be worthwhile to complete windshield surveys of some of these areas to definitively rule out potential bog turtle habitat.

Northeastern Bulrush

- Two northeastern bulrush populations have been identified during field surveys, one in Columbia County and one in Luzerne County.

- The Columbia County population was identified during 2015 field surveys within Transco's existing ROW along CPL North. This population was not included in the Draft BA, and following identification, CPL North was rerouted to avoid the wetland containing this population.

- The Luzerne County population was included in the Draft BA, and is located within Transco's existing ROW. The proposed route does not impact the portion of the wetland where northeaster bulrush is present, and the portion to be impacted is a low quality wetland within ruts on logging road. Maintenance activities that will take place within the proposed permanent ROW include mowing once every three years, and annual mowing directly over the pipeline.

    - P. Shellenberger stated that based on survey results, USFWS may not be able to reach a "Not Likely to Adversely Affect" determination due to hydrologic impacts to the wetland, and Transco should consider moving the ROW outside of the wetland boundary.

    - In addition, even if direct impacts to the wetland are avoided, there is the potential to introduce invasive or non-native species into this area during construction. Transco will need to prepared a vegetation maintenance plan to prevent the spread of invasive species in this area including measures such as equipment wash stations.

    - In the event the ROW cannot be shifted, a detailed analysis of the hydrology of the wetland will be necessary.

    - J. Dean stated that Transco will explore shifting the ROW outside of the wetland boundary; however, this may not be possible due to topography in the area. If the wetland boundary cannot be avoided, an analysis including the reasons why not will be including the revised draft BA.

- There are 53 identified no access parcels within the northeastern bulrush survey area, and, using remote sensing, 18 of these have potential habitat. G. Netti noted that E & E is preparing a report with the results of the remote sensing analysis that will be provided to USFWS for review when available.

- Construction will not occur on unsurveyed parcels unless separate clearance is provided by USFWS.

Biological Assessment

- P. Shellenberger reviewed the standard used by USFWS to determine is the Project is "Likely to Affect" (LTA) a species.

    - An instantaneous impact is all that is needed even if it would result in an overall benefit to the species in the long run.

    - The BA should be writing assuming the Project is LTA and explain how the Project was designed to minimize effects as much as possible.

<u>Indiana Bat</u>

- P. Shellenberger stated that based on the information presented in the Draft BA, the Project is Not Likely to Adversely Affect (NLAA) the Indiana bat.

<u>Bog Turtle</u>

- P. Shellenberger stated that the Project would be NLAA for bog turtles if the following occur:

    - Follow the time of year restriction;

    - Utilize an on-site construction monitor if the area is crossed during the active period; or

- Telemetry data determines that the turtles are not hibernating where the Project crossed the area.

- P. Shellenberger noted that this determination was based on the current trends seen in the data presented, but could change if the trends in the data change during further studies.

Northeastern Bulrush

- The Columbia County northeastern bulrush population should be included in the next draft of the BA. The Project is NLAA the Luzerne County population as long as the wetland is completely avoided.

- J. Dean asked if it is possible for a wetland with northeastern bulrush present to be impacted, and reach a NLAA determination, and P. Shellenberger stated that this was not possible.

Northern Long-eared Bat

- P. Shellenberger stated that based on the draft 4(d) rule, the scope of the Project, and the amount of forested habitat to be removed (1,258 acres), it is not possible to reach a NLAA determination for NLEB. An incidental take statement will be required.

- J. Dean stated that the impact minimization measures included in the draft BA incorporated the measures in the draft 4(d) rule where they applied. P. Shellenberger stated that the 4(d) rule cannot be applied piecemeal since several portions of the Project do not comply with the 4(d) rule conservation measures. The Project cannot claim exemption from take under the 4(d) rule; however, following the measures in the 4(d) rule is one way to demonstrate that Transco is minimizing impacts.

- The affects determination in the BA will need to be updated since the 4(d) rule cannot be applied. There will be both direct and indirect impacts. Potential indirect impacts from blasting activities should be discussed in the BA.

- P. Shellenberger stated that the BA should discuss impacts to maternity areas, swarming areas, male roost trees, and no use areas.

- P. Shellenberger stated that potential conservation measures can include research funding; however, there will still need to be a habitat preservation component. Potential research topics include effects of rights-of-way on bat colonies, hibernacula areas in relation to maternity areas, and long term management. The habitat conservation component could include improvement to habitat within ¼ mile of hibernacula, and protection of areas used by NLEB. A discussion of mitigation should be added to the BA; however, the BO will include the specifics of what mitigation USFWS is requiring from Transco.

Biological Assessment General Comments

- J. Kerrigan stated that any LTA determination will result in a request for formal consultation which will be initiated with the draft EIS.

- P. Shellenberger stated that LTA determinations will result in the need for a Biological Opinion. Once the BA is submitted initiating formal consultation, a 30 day completeness review period for USFWS will start. A response will be sent to FERC including the schedule for the BO. USFWS has 135 days to evaluate the Project and write the BO.

- P. Shellenberger stated that the BO will discuss parcels without survey access, and outline a plan for in the event suitable habitat is found on one of these parcels.

- P. Shellenberger also noted that every BO has a re-initiation clause that acknowledges that new information can be found following issuance of the BO. This clause could potentially mention that there are no access parcels that have not been surveyed, and discuss under what scenarios consultation would need to be re-initiated. If consultation is re-initiated the timeline is the same (135 days).

- P. Shellenberger stated that formal consultation will not be required after the start of construction if nothing is found during surveys. Other options are to avoid any remote sensed wetland and waterbody features completely, or assume presence and move right to Phase II surveys for all parcels. This may not be the best option because surveys would be needed for all parcels.

- J. Dean asked if the BA can be revised prior to completing 2015 surveys. P. Shellenberger stated that the review timeline cannot begin until all information required to make an affects determination is received, so the BA should be revised to include all 2015 data when available.

Migratory Bird Plan

- J. Gardner provided an overview of the plan. The plan focused on interior forest impacts as most birds of conservation concern in the Project area breed in interior forest habitat. Interior forest habitat was delineated using aerial imagery. Both direct and indirect impacts were analyzed. Direct impacts were considered the amount of forested habitat removed, and indirect impacts were areas were the bird species would return following construction.

- The plan also designated Key Habitat Areas for migratory birds. The key habitat areas include interior forests, state game lands, state forests, and important bird areas. The plan includes additional avoidance measures clearing restrictions for these areas.

- P. Shellenberget noted that there would be significant loss of migratory bird habitat, and asked if Transco is considering mitigation. Transco would need guidance from USFWS on what mitigation will be required. USFWS will run a Habitat Equivalency Analysis to determine habitat loss, and will base compensatory mitigation on the results of the analysis.

Closing

- The meeting concluded at approximately 4:00 PM.

- End of Notes -

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Pennsylvania Field Office
110 Radnor Road, Suite 101
State College, Pennsylvania 16801-4850

January 19, 2016

Greg Netti
Ecology and Environment, Inc.
368 Pleasant View Drive
Lancaster, NY 14086

RE: USFWS Project #2014-0324

Dear Mr. Netti:

This responds to your letter of November 20, 2015, requesting information about federally listed and proposed endangered and threatened species within the area affected by the proposed Transco Atlantic Sunrise – water withdrawal project located in Lancaster, Lebanon and Schuylkill Counties, Pennsylvania. The following comments are provided pursuant to the Endangered Species Act (ESA) of 1973 (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.*) to ensure the protection of endangered and threatened species, the Migratory Bird Treaty Act (16 U.S.C. 703-712; Ch. 128; July 13, 1918; 40 Stat. 755, as amended), and the Bald and Golden Eagle Protection Act (54 Stat. 250, as amended; 16 U.S.C. 668-668d) to ensure the protection of migratory bird species.

Transco is aware that they are consulting with the Service on the Atlantic Sunrise pipeline and that this consultation is ongoing. However, Transco is seeking ESA concurrence under a separate Susquehanna River Basin Commission surface water withdrawal permit for horizontal directional drilling activities and hydrostatic testing that involve water withdrawal.

Assessment of Risks to Migratory Birds

The Service is the principal Federal agency charged with protecting and enhancing populations and habitat of migratory bird species. The Migratory Bird Treaty Act (MBTA) prohibits the taking, killing, possession, transportation, and importation of migratory birds, their eggs, parts, and nests, except when specifically authorized by the Department of the Interior. While the MBTA has no provision for authorizing incidental take, the Service recognizes that some birds may be killed even if all reasonable measures to avoid take are implemented.

The potential exists for avian mortality from habitat destruction and alteration associated with vegetation clearing and fragmentation within the project boundaries. Resources are available to assist you in determining which species are likely to be present within your project area (see

attached enclosure) to determine appropriate conservation measures to reduce impacts to migratory birds. Site-specific factors that should be considered in project siting to avoid and minimize the risk to birds include avian abundance; the quality, quantity and type of habitat; geographic location; type and extent of bird use (e.g. breeding, foraging, migrating, etc.); and landscape features. Please review the enclosed information for general recommendations for avoiding and minimizing impacts to migratory birds within and around the project area. Be aware that since these are general guidelines, some of them may not be applicable or may have already been included in the project design.

In addition to protection under the MBTA, bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (Eagle Act). The Eagle Act protects eagles by prohibiting killing, selling, disturbing, or otherwise harming eagles, their nests or eggs. "Disturb" means to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, 1) injury to an eagle; 2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior; or 3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior.

Bald eagles (*Haliaeetus leucocephalus*) are known to nest in the vicinity of the Deep Creek water withdrawal site, with 1 nest being located about 0.5 miles from the project site. No blasting will occur for the water withdrawal project. Therefore, due to the distance of the project from the known bald eagle nest and the project scope, it is unlikely that disturbance will occur.

If your project scope changes, we recommend that you evaluate the project type, size, location and layout in light of the National Bald Eagle Management Guidelines to determine whether or not bald eagles might be disturbed as a direct or indirect result of this project. If it appears that disturbance may occur, we recommend that you consider modifying your project consistent with the Guidelines. These guidelines, as well as additional eagle information, are available at http://www.fws.gov/northeast/EcologicalServices/eagle.html.

To assist you in making a decision regarding impacts to bald eagles, a screening form can be found at http://www.fws.gov/northeast/pafo/bald_eagle.html.

If you have additional questions regarding eagle permits, please contact Scott Frickey, Migratory Bird Program, at Scott_Frickey@fws.gov or (413) 253- 8592.

Federally listed species

Bats

The proposed project is located within the range of the Indiana bat (*Myotis sodalis*), a species that is federally listed as endangered and within the range of the federally threatened northern long-eared bat (*Myotis septentrionalis*).

The Deep Creek Site and Conestoga River Secondary Site are located within 5 miles of a known northern long-eared bat hibernacula. In an email of January 8, 2016, you indicated that no tree clearing will occur for these water withdrawal projects, additionally, as indicated above, no

blasting is proposed to occur. Therefore, this project is not likely to adversely affect these bat species.

Bog turtle

The proposed project is within the known range of the bog turtle (*Clemmys muhlenbergii*), a species that is federally listed as threatened.

The Swatara Creek Site and Conestoga River Secondary Site are located within the range of the bog turtle. You indicated that no wetlands are present within 300 feet of either of these sites. Additionally, water withdrawals to these water bodies should not adversely affect hydrology in wetlands that are over 300' from the project area. Therefore, we have determined that the effects of the project are not likely to adversely affect the bog turtle.

This response relates only to endangered and threatened species under our jurisdiction, based on an office review of the proposed project's location. No field inspection of the project area has been conducted by this office. Consequently, this letter is not to be construed as addressing other potential Service concerns under the Fish and Wildlife Coordination Act or other authorities.

To avoid potential delays in reviewing your project, please use the above-referenced USFWS project tracking number in any future correspondence regarding this project.

If you have any questions regarding this matter, please contact Pamela Shellenberger of my staff at 814-234-4090.

Sincerely,

Lora L. Zimmerman
Field Office Supervisor

Adaptive Management Practices for Conserving Migratory Birds

The Fish and Wildlife Service is the principal Federal agency charged with protecting and enhancing populations and habitat of migratory bird species. The Migratory Bird Treaty Act (MBTA, 16 U.S.C. 703-712; Ch. 128; July 13, 1918; 40 Stat. 755, as amended) prohibits the taking, killing, possession, transportation, and importation of migratory birds, their eggs, parts, and nests, except when specifically authorized by the Department of the Interior. While the MBTA has no provision for authorizing incidental take, the Service recognizes that some birds may be killed even if all reasonable measures to avoid take are implemented. Unless the take is authorized, it is not possible to absolve individuals, companies or agencies from liability (even if they implement avian mortality avoidance or similar conservation measures). However, the Office of Law Enforcement focuses on those individuals, companies, or agencies that take migratory birds with disregard for their actions and the law.

The potential exists for avian mortality from habitat destruction and alteration within the project boundaries. Site-specific factors that should be considered in project siting to avoid and minimize the risk to birds include avian abundance; the quality, quantity and type of habitat; geographic location; type and extent of bird use (*e.g.* breeding, foraging, migrating, etc.); and landscape features.

We offer the following recommendations to avoid and minimize impacts to migratory birds within and around the project area:

1. Where disturbance is necessary, clear natural or semi-natural habitats (*e.g.*, forests, woodlots, reverting fields, shrubby areas) and perform maintenance activities (*e.g.*, mowing) between September 1 and March 31, which is outside the nesting season for most native bird species. Without undertaking specific analysis of breeding species and their respective nesting seasons on the project site, implementation of this seasonal restriction will avoid take of most breeding birds, their nests, and their young (*i.e.*, eggs, hatchlings, fledglings).

2. Minimize land and vegetation disturbance during project design and construction. To reduce habitat fragmentation, co-locate roads, fences, lay down areas, staging areas, and other infrastructure in or immediately adjacent to already-disturbed areas (*e.g.*, existing roads, pipelines, agricultural fields) and cluster development features (*e.g.*, buildings, roads) as opposed to distributing them throughout land parcels. Where this is not possible, minimize roads, fences, and other infrastructure.

3. Avoid permanent habitat alterations in areas where birds are highly concentrated. Examples of high concentration areas for birds are wetlands, State or Federal refuges, Audubon Important Bird Areas, private duck clubs, staging areas, rookeries, leks, roosts, and riparian areas. Avoid establishing sizable structures along known bird migration pathways or known daily movement flyways (*e.g.*, between roosting and feeding areas).

4. To conserve area-sensitive species, avoid fragmenting large, contiguous tracts of wildlife habitat, especially if habitat cannot be fully restored after construction. Maintain

contiguous habitat corridors to facilitate wildlife dispersal. Where practicable, concentrate construction activities, infrastructure, and man-made structures (*e.g.*, buildings, cell towers, roads, parking lots) on lands already altered or cultivated, and away from areas of intact and healthy native habitats. If not feasible, select fragmented or degraded habitats over relatively intact areas.

5. Develop a habitat restoration plan for the proposed site that avoids or minimizes negative impacts to birds, and that creates functional habitat for a variety of bird species. Use only plant species that are native to the local area for revegetation of the project area.

If you have any questions regarding these measures, please contact Lora Zimmerman of the Pennsylvania Field Office located in State College, PA at 814-234-4090.

Meeting Summary

Attendees:

Transco: Shauna Akers; Joe Dean and Roberta Zwier (via phone)

E & E: Greg Netti and Justin Zoladz; Lindsay Wardwell (via phone)

USFWS (PA Field Office): Pamela Shellenberger

FERC: Joanne Wachholder

NRG: Bart Jensen (via phone)

WHM: Ryan Nelson and Jenn Jones

Sanders Environmental: Chris Sanders

Meeting Date:	28 January 2016
Project:	Atlantic Sunrise Project
Project Segment:	All
Meeting Location:	USFWS PA Field Office – State College, PA
Meeting Time:	1:00 PM
Issues/Keywords:	Project update; threatened and endangered species; Draft Biological Assessment; northern long-eared bat; bog turtle

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Transcontinental Gas Pipe Line Company, LLC (Transco) held a meeting with the U.S. Fish and Wildlife Service (USFWS) and Federal Energy Regulatory Commission (FERC) to discuss the implication of the northern long-eared bat final 4(d) rule, the status of the draft Biological Assessment (BA) and Migratory Bird Plan, and the status of the Habitat Equivalency Analysis (HEA) for the Atlantic Sunrise Project (Project).

Notes:

NLEB Final 4(d) Rule

- P. Shellenberger stated that based on UFWS data there are no known maternity roosts within 150 feet of the Project. G. Netti clarified that four maternity roosts (one in Lancaster County and three in Wyoming County) were identified during Project surveys. Transco will not clear in these areas during the pup season in accordance with the 4(d) rule. Therefore, these activities would be exempt from incidental take.

- One hibernaculum, a historic mine, is within ¼ mile of the Project workspace. This mine has been reclaimed by the Pennsylvania Department of Environmental Protection (PADEP). There are five portals used to enter the hibernaculum. P. Shellenberger clarified that the mine itself is the hibernaculum not the portals.

- Transco will need to demonstrate that the hibernaculum will not be impacted by construction of the Project. Need to show that airflow will not be altered, and the hibernaculum will not collapse. C. Sanders noted that the two main tunnels will not be impacted, but there are some "fingers" of the mine closer to the surface. There is no way to know exactly where all these fingers are located. The mine is over 100 feet below ground, and the pipeline will be installed within an approximately 8 feet deep trench, so there is a buffer between the pipe.

- P. Shellenberger stated that it may be possible to reach a not likely to adversely affect (NLAA) determination if construction over the hibernaculum was completed in two stages. Tree clearing would need to be avoided between April 1 and November 15, and construction over the mine would need to take place during the summer.

Blasting would also need to be restricted within a ¼- mile of the mine. All data would need to be presented in a revised BA, but it is possible that a NLAA determination could be reach for NLEB.

Habitat Equivalency Analysis

- P. Shellenberger noted that the HEA is complete, and will be presented to Transco during a meeting with Region 3. During the meeting, USFWS will present the results of the analysis and answer any questions. After Transco reviews the results, they can have another meeting to discuss any potential modifications. The analysis includes both habitat loss and habitat fragmentation.

Migratory Bird Plan

- P. Shellenberger reviewed the Migratory Bird Plan (Version 3), and understands that there are instances when Transco cannot adhere to the time of year restriction. The plan demonstrates that Transco has minimized impacts to the maximum extent practicable.

Survey Report Status

- G. Netti provided the status of outstanding survey reports. The Phase II/III Bog Turtle Report is final, and will be provided. The Bog Turtle Telemetry report is being finalized. The Northeastern Bulrush Report is also being finalized. All reports will be provided by mid-February.

Bog Turtle

- P. Shellenberger initiated discussion of the bog turtle population in Lancaster County, and construction methods. If the telemetry surveys show bog turtles in the southern portion of the wetland, then Transco will HDD the area. However, based on the telemetry results, the turtles are staying in the northern areas and Transco is proposing an open trench.

- P. Shellenberger noted that the area south of the Project has not been surveyed, so USFWS is assuming presence in this area due the quality of the habitat. It may be best to open trench this area during the winter hibernation. Though surveys where the Project crossed the wetland have been negative, the entire complex has not been surveyed. It would take 5 years of data to definitively state that bog turtles are not using the Project area, so USFWS will be assuming presence.

Closing

- The meeting concluded at approximately 2:00 PM.

- End of Notes -

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Pennsylvania Field Office
110 Radnor Road, Suite 101
State College, Pennsylvania 16801-4850

December 21, 2016

Alisa M. Lykens, Chief
Division of Gas – Environment and Engineering
Federal Energy Regulatory Commission
888 1st St NE
Washington, D.C. 20426

RE: USFWS Project #2014-0324
Atlantic Sunrise

Dear Ms. Lykens:

This regards the Transcontinental Gas Pipe Line Company, LLC (Transco) - Atlantic Sunrise Expansion and looping project located in Susquehanna, Wyoming, Luzerne, Columbia, Northumberland, Schuylkill, Lebanon, and Lancaster Counties, Pennsylvania. The following comments are provided pursuant to the Endangered Species Act of 1973 (87 Stat. 884, as amended; 16 U.S.C. 1531 et seq.) to ensure the protection of endangered and threatened species.

This letter supersedes our correspondence of December 14, 2016, based on omitted information.

Transco proposes to expand its current interstate natural gas pipeline system by connecting their existing natural gas facilities and gathering system in Susquehanna County, Pennsylvania to markets in the Mid-Atlantic and southern United States. The proposed project consists of 56 miles of 30-inch diameter pipeline at the northern portion of the project; 121 miles of 42-inch pipeline at the southern portion of the project; two new compressor stations in Pennsylvania; additional ancillary facilities, such as mainline valves (MLVs), cathodic protection, communication facilities, and internal inspection device (e.g., pig) launchers and receivers in Pennsylvania; two new meter stations and three new regulator stations with interconnecting piping in Pennsylvania; additional compression and related modifications of an existing compressor station in Pennsylvania. It also consists of the Unity Loop in Lycoming County and Chapman Loop in Clinton County.

Your letter to us of July 19, 2016, provided a copy of the draft Environmental Impact Statement (EIS), and requested that the May 2016 draft EIS serve as your Biological Assessment (BA) under Section 7 of the Endangered Species Act (ESA). In October 2016, we received an addendum (referred to as "Addendum No. 1") to the May 2016 BA from Transco. We also

accessed Transco's Applicant-prepared BA, (filed on May 18, 2016), at http://www.ferc.gov, by following the "eLibrary" link, to "Advanced Search" and entering 20160518-5016 in the "Accession Number" field. The following comments are based on the May 2016 BA and Addendum No. 1. A complete administrative record of this consultation is on file at the Service's Pennsylvania Field Office.

Federally Listed Species

The action area[1] is located within the range the northern long-eared bat (*Myotis septentrionalis*) and bog turtle (*Clemmys muhlenbergii*), species that are federally listed as threatened and the northeastern bulrush (*Scirpus ancistrochaetus*), a plant that is federally listed endangered plant. A portion of the action area is also located within the range of the Indiana bat (*Myotis sodalis*), a species that is federally listed as endangered.

Northern long-eared bat

The northern long-eared bat is one of the species of bats most impacted by the disease white-nose syndrome. Due to declines caused by white-nose syndrome and continued spread of the disease, the northern long-eared bat was listed as threatened under the Endangered Species Act on April 2, 2015. Due to the close proximity of portions of the project area to a known northern long-eared bat hibernaculum and maternity roosts, removal of trees and forested areas within the project area could result in the direct take of roosting northern long-eared bats, which could be injured or killed when trees are cut or construction alters hibernation habitat. Studies have found that forested areas near hibernacula (i.e., within 5 miles) and near maternity roosts (i.e., within 2 miles) provide important foraging and roosting habitat for Indiana bats, especially during the fall and spring, when bats are building up their fat reserves prior to and after hibernation.

In listing the northern long-eared bat as threatened, the Service developed a 4(d) rule[2] that specifically defines "take" prohibitions. Federal actions, such as FERC's authorization of the Atlantic Sunrise Expansion project, that result in incidental take that is not prohibited under the 4(d) rule, may affect individual northern long-eared bats and require consultation under section 7 of the Endangered Species Act (ESA). To meet this obligation, the Service provided an option to streamline section 7 consultations when federal actions may affect the northern long-eared bat, but not cause prohibited take. If prohibited take may occur (e.g., cutting or destroying a known, occupied maternity roost tree or other trees within a 150 foot radius from the maternity roost tree during the pup season from June 1 through July 31, or some activities within 0.25-mile of a known hibernaculum) standard section 7 consultation procedures apply, and the framework cannot be used.

[1] All areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action.

[2] Section 4(d) of the Endangered Species Act directs the Service to issue regulations deemed "necessary and advisable to provide for the conservation of threatened species."

Maternity habitat

As proposed, construction of the Atlantic Sunrise Expansion project will involve tree clearing within northern long-eared bat maternity habitat. Tree removal that may result in take of the species that is beyond 150 feet of the four known northern long-eared bat (NLEB) maternity roosts is not prohibited, consistent with the 4(d) rule for this species. FERC and Transco commit in the BA to implement the conservation measures described in the 4(d) rule by not clearing trees within 150 feet of these known maternity roosts from June 1 through July 31 to reduce the potential for direct mortality or injury of reproductive females and non-volant pups during the pup season. By implementing this seasonal tree cutting restriction any take of northern long-eared bat that occurs is not prohibited.

Hibernation habitat

The 4(d) rule prohibits all incidental take of northern long-eared bat that occurs within hibernacula because hibernation is a particularly critical and vulnerable time. Hibernacula and nearby forests play critical roles in the life cycle of the northern long-eared bat, even beyond the time when the bats are hibernating. In early spring and fall, hibernacula and surrounding forested areas are the focus of bat activity during "spring staging" and "fall swarming." During spring staging, bats gradually emerge from hibernation, exit the hibernacula to feed, but re-enter the same or alternate hibernacula to resume daily bouts of torpor until they migrate to summer areas. Fall swarming is a time of heightened activity in and around hibernacula. It is an especially critical time in the life cycle of the northern long-eared bat, because it is during this time that they mate and build up fat reserves, allowing them to survive hibernation.

Approximately 2,007 feet of the proposed pipeline right-of-way (ROW) is within the 0.25-mile radius of a known northern long-eared bat hibernaculum, and construction will require removal of approximately 3.9 acres of forest habitat. This hibernaculum is an abandoned mine that has five (5) known portals, all of which are gated but remain open for bat passage. Several recent bat surveys in 2011, 2014 and 2015, conducted at one or more of these mine portals failed to capture bats; however, the survey effort utilized is not adequate to infer species extirpation from suitable habitat. Further, *Myotis* species are known to switch hibernation sites, so this hibernaculum may be used intermittently, despite the lack of bat captures during surveys.

To avoid directly killing, injuring, or harassing northern long-eared bats engaged in spring staging, summer use, and fall swarming, Transco and FERC will not conduct tree clearing from April 1 to November 15 within 0.25 miles of this hibernaculum. Consistent with the 4(d) rule, any northern long-eared bats killed or injured during tree clearing beyond the 0.25 mile radius is not prohibited.

The proposed pipeline ROW and all related tree clearing at this site are at least 700 feet from the five known portal entrances. To avoid the risk of take of northern long-eared bats that may result from alteration of hibernation habitat, no blasting will be conducted within 0.25 miles of the hibernaculum. Further, no pipeline construction activities will take place during the hibernation period within 0.25 miles to avoid disturbing hibernating bats. Tree clearing within 0.25 miles of the hibernaculum that is proposed from November 16 to March 31 will be completed with non-

mechanized equipment as an additional measure to avoid disturbing bats during hibernation. The 3.9 acres of forested habitat that will be cleared represents about 1.5 percent of the total 250 acres of forested habitat within 0.25 miles of the hibernacula entrances; therefore, we conclude adequate foraging habitat in the vicinity of the hibernaculum will be available following project completion.

Based on above avoidance measures proposed within 0.25 miles of the known hibernaculum, particularly the distance of forest removal, blasting, and construction from the known mine entrances, and the relatively small area of forest removal, we do not anticipate that the proposed action will result in surficial micro-climatic changes in the hibernacula or structural changes to the hibernacula such that prohibited take occurs. To verify these assumptions regarding hibernation habitat, temperature, relative humidity and vibrations at the mine portals is being monitored pre-construction through project implementation.

FERC and Transco determined that this project is not likely to adversely affect the northern long-eared bat. We do not concur with this determination. Incidental take may occur; however, with implementation of the proposed avoidance and minimization measures, this take is not prohibited under the 4(d) rule. Federal agencies may fulfill their project-specific Section 7 responsibilities by using the Service's framework. The framework relies on a programmatic biological opinion that the Service prepared for the northern long-eared bat 4(d) rule. The framework is detailed on the Service's Midwest Endangered Species website (https://www.fws.gov/Midwest/endangered/mammals/nleb/s7.html). The framework also includes several voluntary conservation measures that the Service recommends agencies incorporate into projects when possible.

Indiana bat

Indiana bats have a similar life history and sensitivities to those describe above for northern long-eared bats. As an endangered species, however, there are no comparable 4(d) rule exemptions. The action area for the Atlantic Sunrise Expansion Project does not intersect with any known Indiana bat maternity colony habitat or fall swarming habitat associated with known Indiana bat hibernacula. In order to assess the effect of the project on Indiana bats that may result from forest clearing, a bat mist-net survey was completed during the maternity season (May 1 to August 15) in accordance with the Fish and Wildlife Service's Indiana bat summer survey guidelines between May 21 and August 14, 2014, and again between May 15 and August 15, 2015. According to the survey reports, no Indiana bats were captured. Based on these surveys, we conclude that Indiana bat maternity activity is not occurring in the action area. If present, Indiana bats occur as occasional transient individuals not likely to be detected with the survey effort extended. Consequently, the Service concurs with FERC's and Transco's determination that the proposed project is not likely to adversely affect this species.

Bog turtle

Bog turtles inhabit shallow, spring-fed fens, sphagnum bogs, swamps, marshy meadows, and pastures characterized by soft, muddy bottoms; clear, cool, slow-flowing water, often forming a network of rivulets; high humidity; and an open canopy. Bog turtles usually occur in small,

discrete populations occupying suitable wetland habitat dispersed along a watershed. The occupied "intermediate successional stage" wetland habitat is usually a mosaic of micro-habitats ranging from dry pockets, to areas that are saturated with water, to areas that are periodically flooded. Some wetlands occupied by bog turtles are located in agricultural areas and are subject to grazing by livestock.

Following the methods described under "Bog Turtle Habitat Survey" (Phase 1 survey) of the Guidelines for Bog Turtle Surveys (revised April 2006), according to Ecology and Environment, Inc.'s December 9, 2016 letter, 100 Phase 1 surveys occurred between 2014 and 2016. These surveys resulted in identification of 20 wetlands with the combination of soils, vegetation, and hydrology typical of habitat occupied by bog turtles. Phase 2 Presence/Absence surveys were conducted at 17 of these wetlands, while 3 other wetlands were ruled out from Phase 2 surveys based on site visits. Eight of the 17 wetlands had Phase 3 trapping surveys conducted, with one survey, [redacted] resulting in identification of a bog turtle population (Table 1 – summarized by Williams). All survey results have been reviewed by the Service; we concur with the survey methods and results.

Table 1
Summary of Bog Turtle Surveys
Atlantic Sunrise Project

Year	Phase I Wetlands Surveyed	Phase I Wetlands with potentially suitable habitat	Phase II Surveyed	Phase III Surveyed	Total Populations Found	Associated Report
2014	72	18	--	--	0	A
2015	--	--	16	7	1	B
2015	21	2	--	--	0	C
2016	--	--	1	1	0	D
2016	7	0	N/A	N/A	0	D

A – Phase I Bog Turtle Habitat Survey Report (revised March 2015)

B – [redacted]

C – Phase I Bog Turtle Habitat Survey Report (November 2015)

D – Addendum #1 to May 2016 Final Biological Assessment (October 2016)

As discussed above, the project action area encompasses a wetland complex [redacted] supporting a known bog turtle population, [redacted] Approximately 0.12 acres of this wetland will be directly disturbed. While the disturbance area does not have all of the essential habitat characteristics of core bog turtle habitat, or a habitat where bog turtles can hibernate (i.e., mucky soils, spring-fed seeps, and vegetation), if any part of a wetland has these characteristics, the entire wetland is considered habitat for the species. Visual surveys for the turtles (Phase 2 surveys) and trapping (Phase 3 surveys) and subsequent

telemetry of some individual turtles have not documented bog turtles in the wetland complex closer than 570 feet from the proposed limit of disturbance.

Despite the telemetry results, which sampled only a portion of the population, construction that occurs during the species' active period (typically between April 1 and October 31), may kill or injure bog turtles dispersing through the wetland complex, particularly those present in or near the limit of disturbance. Therefore, Transco will implement several measures to ensure that bog turtles are not directly affected. Prior to site disturbance, Transco will install exclusion fencing, which will: (1) preclude turtles from entering the construction area, and (2) provide a visual limit to keep construction crews from entering more suitable habitat. Additionally, all activities in this wetland habitat between April 1 and October 31 will occur under the supervision of an on-site, Service-approved surveyor experienced with this species (i.e., a qualified bog turtle surveyor). See *https://www.fws.gov/northeast/pafo/* for the most recent list of surveyors. During the hibernation period (November 1 and March 31), bog turtles are expected to be limited to the immediate vicinity of spring-seeps which are not present in the proposed limit of disturbance. Therefore, construction entirely limited to this period is not likely to result in direct or indirect adverse effects.

By either implementing the species specific avoidance measures for project activities conducted during the turtle's active season (see full description in Section 4.3.5.2 of the Biological Assessment) or completing activities during the turtle's hibernation season, the Service concurs with FERC/Transco's determination that disturbance to Wetland [redacted] related to construction of the proposed natural gas pipeline construction project is not likely to adversely affect the bog turtle. Likewise, based on negative findings at other potential bog turtle wetlands, we concur that construction of the Atlantic Sunrise project is not likely to adversely affect this species in other portions of the proposed right-of-way.

Northeastern bulrush

The northeastern bulrush is typically found in ponds, wet depressions, shallow sinkholes, vernal pools, small emergent wetlands, or beaver-influenced wetlands. These wetlands are often located in forested areas and characterized by seasonally variable water levels.

According to Ecology and Environment, Inc.'s December 9, 2016 letter, 137 wetlands were surveyed for the northeastern bulrush between 2014 and 2016. Two surveys resulted in the presence of a known northeastern bulrush population. All survey results have been reviewed by the Service and we concur with the survey methods and results.

As discussed above, Transco documented two populations of northeastern bulrush within one wetland (referred to as "WT02-16003" in the BA) in Luzerne County and two populations within one wetland (referred to as "W-T02-15008") in Columbia County. Transco subsequently rerouted portions of the proposed pipeline to avoid direct impacts to these northeastern bulrush populations. No direct disturbance is now anticipated. Nonetheless, Transco proposes to avoid indirect adverse effects to this species by minimizing the pipeline ROW width, implementing practices to reduce the spread of invasive species, and developing a ROW maintenance plan to

ensure that the two documented northeastern bulrush populations on the existing Transco Leidy Line ROWs are not adversely affected by operation or maintenance of the pipeline. Based on these avoidance measures, the Service concurs with FERC and Transco's determination that the proposed Atlantic Sunrise Expansion Project is not likely to adversely affect the northeastern bulrush.

To avoid potential delays in reviewing your project, please use the above-referenced USFWS project tracking number in any future correspondence regarding this project.

Please contact Pamela Shellenberger of this office at (814) 234-4090 if you have any questions or require further assistance regarding this matter.

Sincerely,

Lora Z. Lattanzi

Lora Z. Lattanzi
Field Office Supervisor