



**SHELL PIPELINE COMPANY, LLC  
FALCON ETHANE PIPELINE SYSTEM  
SHORT-EARED OWL/NORTHERN HARRIER PRESENCE ABSENCE SURVEY  
SURVEY PLAN – PNDI LARGE PROJECT FILE NO. 201508270201**

**SURVEY PURPOSE/OBJECTIVES**

Short-eared owl (*Asio flammeus*) and northern harrier (*Circus cyaneus*), respectively listed in Pennsylvania as endangered and threatened species, were identified in a letter dated September 3, 2015 from the Pennsylvania Game Commission (PGC), as species with the potential to be impacted by project activities associated with the proposed Shell Falcon Ethane Pipeline Project (formerly known as the Shell Northeast Ethane Project). Presence/absence surveys for both species are required to identify any short-eared owl and/or northern harrier breeding or nesting sites potentially located in or near the project area. The information in this narrative and the attached Short-Eared Owl/Northern Harrier (SEOW/NOHA) Survey Plan Map (Attachment A) are presented to facilitate PGC's review and approval for surveys scheduled to commence on April 15, 2016.

**SURVEY APPROACH**

The survey approach for the Short-Eared Owl and Northern Harrier Presence/Absence Survey is to conduct a combined survey as the habitat requirements, breeding habits, and survey protocols of these species are similar. Breeding season for short-eared owl is slightly earlier and will require an earlier survey start (April 15th) than for the northern harrier (May 15th). The surveys will be conducted as combined surveys starting May 15th as detailed in the Survey Methods section of this narrative. This approach was accepted by PGC (John Taucher, Division of Environmental Planning and Habitat Protection, Bureau of Wildlife Habitat Management) in a meeting at the PGC offices on October 8, 2015.

**SURVEY AREAS**

Six survey fields along the route of the project were identified by PGC to survey for breeding/nesting short-eared owl and northern harrier. These areas were primarily open areas consisting of meadows, livestock pasture, and reclaimed mine lands interspersed with residences and industrial development. A 1,000 foot buffer of the project's work space was applied to the survey plan to identify these areas per the typical nest buffer size that would be applied for short-eared owl and/or northern harrier nests if these species are found to be nesting in the area. Per previous discussions with PGC, land use types not supportive of these species nesting habits were identified as agriculture (corn and soybean), developed environment, and forested areas. Areas considered suitable were identified as contiguous open areas with upland or wetland features and low human disturbance. Therefore, the survey areas included in this Short-Eared Owl/Northern Harrier Survey Plan have been adjusted in portions of the survey area based on field reconnaissance conducted in December 2015 by AECOM biologists. The field reconnaissance was conducted to assess habitat suitability for short-eared owl and northern harrier breeding/nesting and to identify survey area observation points. Areas identified as low value habitat are identified on the Survey Plan Mapping for PGC review.



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In addition, project area design and construction methods have been refined in some of the areas initially identified as survey fields by PGC. These changes are shown on the Survey Plan Mapping and are summarized below for PGC review:

- 1) Re-Route (RDR) #39 – This re-route shifted the alignment away from the two northernmost survey fields to an area to the east. The re-route resulted in a shift away from suitable habitat into an area that does not contain suitable breeding/nesting habitat for these species. PGC was informed of this re-route and subsequently concurred that these fields could be removed from the survey plan (email dated January 19, 2016 and revised PGC survey fields figure is attached [Attachment B]);
- 2) RDR #57 – The route was shifted east in the area south of U.S. Route 22 (William Penn Highway). This RDR effectively shifted the project away from most of the survey field which was located near a disturbed area (acid mine drainage) and shifted the 1,000 ft. buffer into a cattle pasture north of PGC SA3. The new area was assessed by AECOM biologists on March 2, 2016 and was determined to be heavily disturbed due its use for grazing. As a result, the survey plan was adjusted to remove the area in vicinity of the acid mine drainage (shown on Page 2 of 2 of the Survey Plan Map). PGC approval is requested for this adjustment.
- 3) Workspace – The workspace for the project has been identified and included in the Survey Plan Map along with a 1,000 ft. buffer line from its boundary; and
- 4) Horizontal Directional Drilling (HDD) crossings – HDD crossings are planned in three areas shown on the Survey Plan. HDD crossing areas will reduce earth disturbance in some survey fields but will require additional work space at entry/exit points.

#### **SURVEY AREA OBSERVATION POINTS**

Observation points were selected based on the extent of each survey field that could be viewed by AECOM biologists during field reconnaissance without major barriers such as forest, slopes, or intervening development. Survey observation points and survey area extents are shown on the Survey Plan Map.

#### **SCHEDULE**

Per the survey protocols for both species, each survey area will be surveyed on two (2) survey days every 7 to 10 days. Surveys for short-eared owl (*owl only surveys*) will commence on April 15, 2016 in accordance with short-eared owl survey protocol. Surveys for both species (*combined owl/harrier surveys*) will start on May 15, 2016, the established survey commencement date for northern harrier. As per PGC's short-eared owl protocol, if no short-eared owls are observed within survey areas by June 15, then surveys for this species will conclude and subsequent surveys will be conducted for northern harrier only. Surveys will be conducted weekly and conclude upon completion of 14



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northern harrier surveys days or by July 15<sup>th</sup>, 2016 at the latest if weather events cause schedule delays.

To accommodate survey times for both species, survey day timing and duration for owl only and combined surveys will be as follows:

- *Owl Only surveys* – Morning surveys will start 30 minutes before sunrise and be conducted for two hours/Evening surveys will be conducted for 2 hours and will end at sunset; and
- *Combined Owl/Harrier surveys* – To capture observations of both species, morning surveys will start 30 minutes before sunrise and be conducted for 2.5 hours/Evening surveys will be conducted for 2.5 hours and end at sunset to accommodate the required survey times for each species. In the event that short-eared owl surveys conclude on June 15<sup>th</sup>, surveys will be conducted for northern harrier only. For northern harrier only surveys, survey times would be adjusted. Morning survey time would start 30 minutes after sunrise and be conducted for 2 hours. Evening survey time would be timed such that 2 hours of survey end at 30 minutes before sunset.

Due to the potential for northern harriers to be present prior to the survey start date for northern harrier (May 15), AECOM surveyors will document northern harrier sightings should they occur during the owl only survey period.

If extreme weather occurs, such as high wind or rains, surveys will be rescheduled accordingly.

#### **SURVEY METHODS**

Surveyors will be posted at each survey observation point in all survey areas during the time periods indicated in the schedule. Each survey area will be scanned with binoculars for the presence of short-eared owls and northern harriers. A spotting scope will be used as needed in areas where short-eared owl and northern harrier activity is observed. Surveyors will visually track and document sightings of short-eared owls and northern harriers and record the following information on data forms:

- Basic weather conditions and survey start/end times for each survey period in each survey day;
- Location and direction of travel (distance/direction from observation point) or stationary location (perched/ground) of short-eared owls and northern harriers if observed;
- Sex of birds (if possible to determine);
- Behavior including hunting, hovering, territorial displays, courtship, prey carrying, prey drops, et cetera; and



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- Locations where breeding behavior is observed; and
- General list of other species observed during survey.

If breeding behavior or nest sites are detected, surveyors will observe and document the behavior from a safe distance and avoid approaching or otherwise disturbing potential nest sites. PGC will be notified for further instruction should any nest sites be identified.

**EQUIPMENT**

- Binoculars
- Spotting scope, as needed
- Hand-held GPS, as needed
- Data forms
- Head lamps

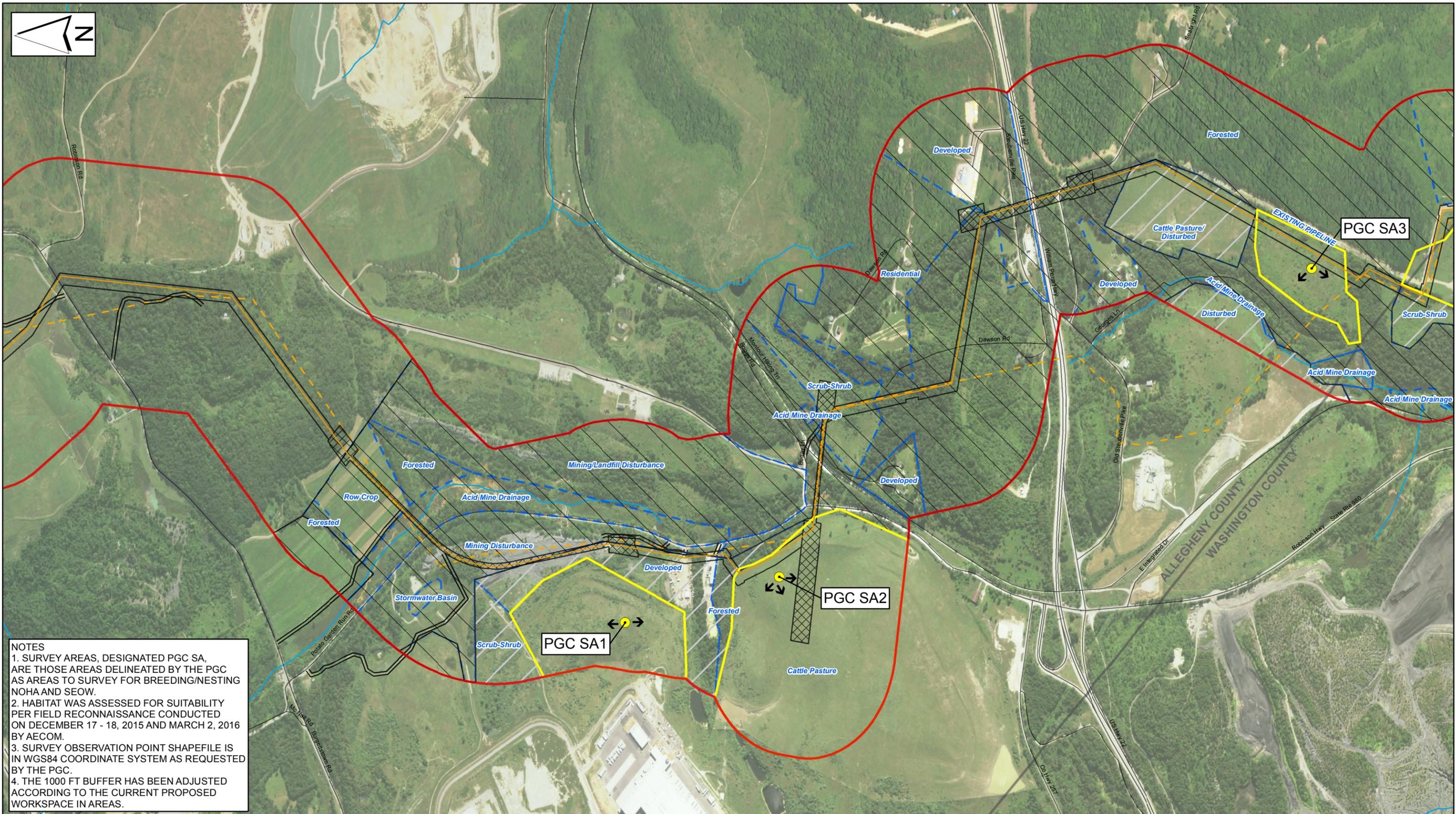
**SURVEYOR QUALIFICATIONS**

Resumes of qualified staff are attached (Attachment C).

**REPORTING**

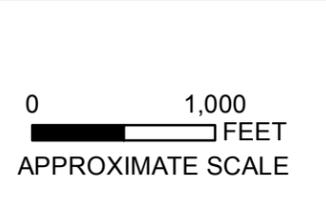
Upon completion of the field effort, a survey report will be submitted to the PGC. PGC requires submittal of survey reports for a given survey year by December 31 of that year. It is anticipated that the report will be submitted shortly after survey completion to facilitate PGC review of survey results and support project timelines.

# ATTACHMENT A



**NOTES**  
 1. SURVEY AREAS, DESIGNATED PGC SA, ARE THOSE AREAS DELINEATED BY THE PGC AS AREAS TO SURVEY FOR BREEDING/NESTING NOHA AND SEOW.  
 2. HABITAT WAS ASSESSED FOR SUITABILITY PER FIELD RECONNAISSANCE CONDUCTED ON DECEMBER 17 - 18, 2015 AND MARCH 2, 2016 BY AECOM.  
 3. SURVEY OBSERVATION POINT SHAPEFILE IS IN WGS84 COORDINATE SYSTEM AS REQUESTED BY THE PGC.  
 4. THE 1000 FT BUFFER HAS BEEN ADJUSTED ACCORDING TO THE CURRENT PROPOSED WORKSPACE IN AREAS.

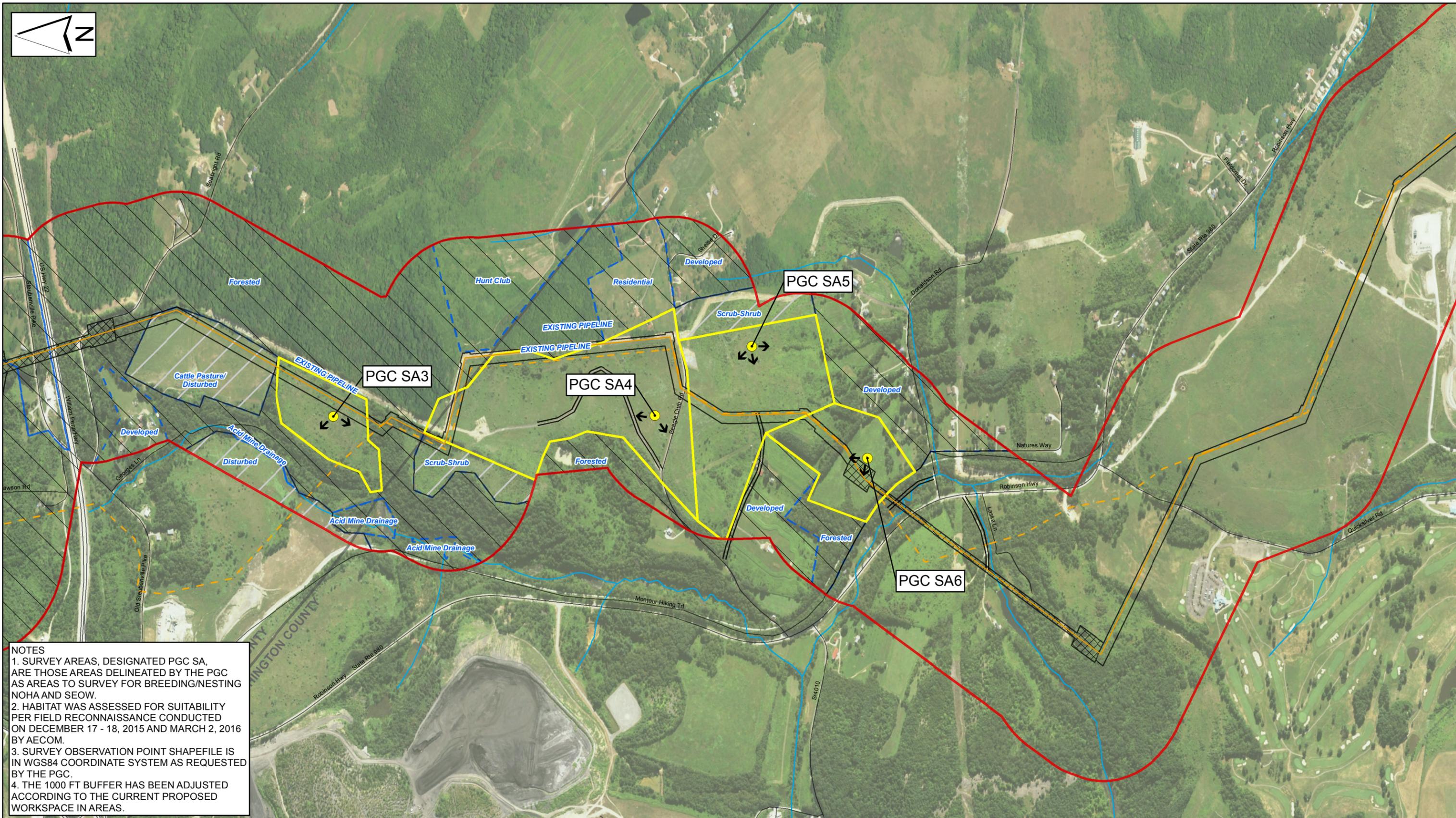
- |                                |                                  |                           |
|--------------------------------|----------------------------------|---------------------------|
| CURRENT PROPOSED ROUTE         | SURVEY OBSERVATION POINT         | VIEW DIRECTION            |
| FORMER PROPOSED ROUTE          | 1000 FT BUFFER                   | STREAM                    |
| CURRENT PROPOSED WORKSPACE     | SURVEY AREA                      | FIELD IDENTIFIED LAND USE |
| CURRENT PROPOSED HDD WORKSPACE | AREA NOT REQUIRED (PGC)          | COUNTY BOUNDARY           |
| PROPOSED ACCESS ROAD           | AREA REMOVED - LOW VALUE HABITAT |                           |



**AECOM**  
 FOSTER PLAZA 6  
 681 ANDERSEN DRIVE  
 SUITE 400  
 PITTSBURGH, PA 15220

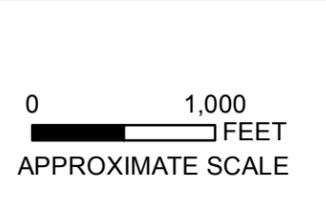
**NORTHERN HARRIER AND SHORT-EARED OWL  
 DRAFT SURVEY PLAN MAP**  
 SHELL PIPELINE COMPANY, LP  
 FALCON ETHANE PIPELINE PROJECT

DRAWN BY: CMG	DATE: 3/3/2016	PAGE: 1 OF 2
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**NOTES**  
 1. SURVEY AREAS, DESIGNATED PGC SA, ARE THOSE AREAS DELINEATED BY THE PGC AS AREAS TO SURVEY FOR BREEDING/NESTING NOHA AND SEOW.  
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- CURRENT PROPOSED ROUTE
- FORMER PROPOSED ROUTE
- CURRENT PROPOSED WORKSPACE
- CURRENT PROPOSED HDD WORKSPACE
- PROPOSED ACCESS ROAD
- SURVEY OBSERVATION POINT
- 1000 FT BUFFER
- SURVEY AREA
- AREA NOT REQUIRED (PGC)
- AREA REMOVED - LOW VALUE HABITAT
- VIEW DIRECTION
- STREAM
- FIELD IDENTIFIED LAND USE
- COUNTY BOUNDARY



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 681 ANDERSEN DRIVE  
 SUITE 400  
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**NORTHERN HARRIER AND SHORT-EARED OWL  
 DRAFT SURVEY PLAN MAP**  
 SHELL PIPELINE COMPANY, LP  
 FALCON ETHANE PIPELINE PROJECT

DRAWN BY: CMG      DATE: 3/3/2016      PAGE: 2 OF 2

# ATTACHMENT B

## Farris, Sharon

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**From:** Taucher, John <jotaucher@pa.gov>  
**Sent:** Thursday, January 07, 2016 1:06 PM  
**To:** Farris, Sharon  
**Cc:** Shearer, Natalie; Walker, Brandon; Bronneck, Amanda  
**Subject:** RE: Shell Pipeline Company, LP – Northeast Ethane Pipeline: Proposed re-route near SEOW/NOHA survey fields  
**Attachments:** NOHA\_Updated\_PGCMap.pdf

Sharon,

I received your voicemail and must apologize. I thought I send a response to the below email just before Christmas, but the email was saved as a draft and not sent. Based on the revised project area, the two northernmost sections (blacked out on Page 1 of the attached maps) I recommended would no longer need to be surveyed. Regarding the survey area, the area that I delineated in yellow should be adequate. I do not see any reason to extend beyond what I recommended, unless field visits show that suitable contiguous suitable habitat extend out further than what I delineated.

Regarding suitable habitat, row crops and forested areas can be eliminated from your survey plan.

Thanks,

John

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**From:** Farris, Sharon [<mailto:sharon.farris@aecom.com>]  
**Sent:** Tuesday, December 08, 2015 2:36 PM  
**To:** Taucher, John <[jotaucher@pa.gov](mailto:jotaucher@pa.gov)>  
**Cc:** Shearer, Natalie <[natalie.shearer@aecom.com](mailto:natalie.shearer@aecom.com)>; Walker, Brandon <[brandon.walker@aecom.com](mailto:brandon.walker@aecom.com)>; Bronneck, Amanda <[amanda.bronneck@aecom.com](mailto:amanda.bronneck@aecom.com)>  
**Subject:** Shell Pipeline Company, LP – Northeast Ethane Pipeline: Proposed re-route near SEOW/NOHA survey fields

Hello John,

I hope this holiday season finds you well. Please find attached the re-route information for Shell's Northeast Ethane Pipeline project. In addition to the re-route in relation to the original PGC survey fields, the attached pdfs show a 1,100 ft. buffer of centerline, as a conservative estimate of potential survey area, as we do not have LOD information at this time. We are planning a reconnaissance to assess habitat and pick out potential observation points in the area next week. We would like to complete the reconnaissance this year as we would like to view vegetation in the area before major winter storms arrive and in time to submit a timely survey plan before the SEOW survey period commences. Would you be able to re-issue survey fields for us based on the re-route?

Secondly, I would like to confirm with you for reconnaissance purposes that, as with our former harrier survey work, if we have corn fields, soybean fields, and forested areas, we should identify them in our survey plan as habitat that may be considered for elimination from survey area (with your concurrence).

I have also attached the meeting minutes from our October 8, 2015 meeting in your office for your review.

If you have any questions or need any further information for re-issuance of survey fields please feel free to contact me.

Best Regards,

Sharon

**Sharon Farris**

Environmental Scientist,  
Impact Assessment & Permitting Dept.,  
Natural Resources Wetlands Group  
D +1-610-832-3656  
[sharon.farris@aecom.com](mailto:sharon.farris@aecom.com)

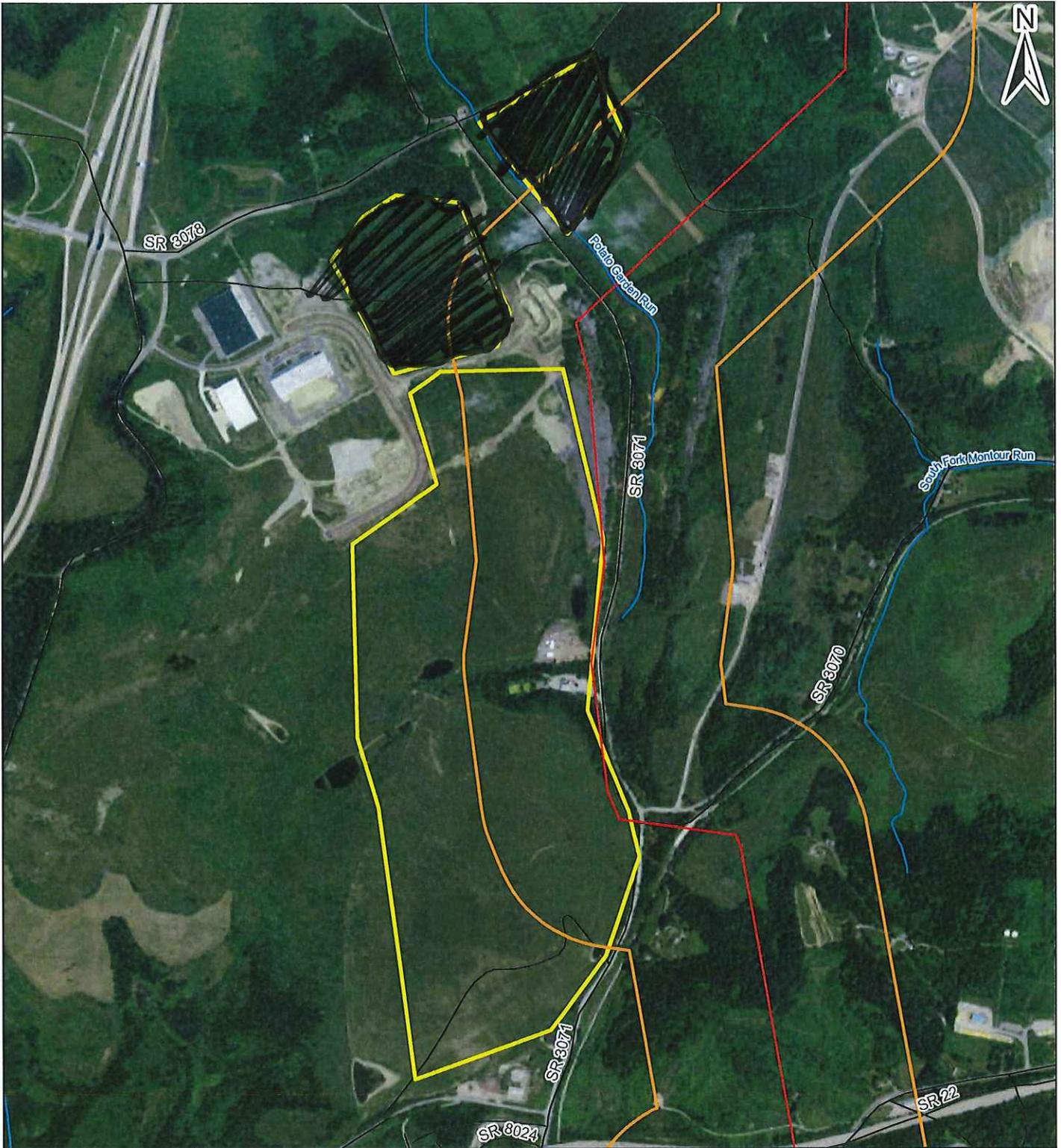
**AECOM**

625 West Ridge Pike  
Suite E-100  
Conshohocken, PA 19428, United States  
T +1-610-832-3500  
[aecom.com](http://aecom.com)

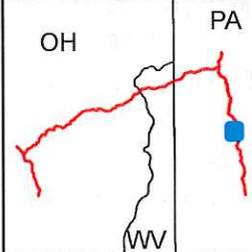
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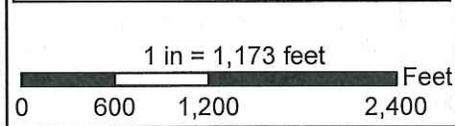
DRAFT



PROJECT LOCATION



LEGEND	
<span style="color: red;">—</span>	POTENTIAL ROUTE
<span style="color: blue;">—</span>	STREAM
<span style="border: 1px solid orange; display: inline-block; width: 10px; height: 10px;"></span>	1100 FT BUFFER
<span style="border: 1px solid yellow; display: inline-block; width: 10px; height: 10px;"></span>	NOHA/SEOW SURVEY FIELD
<span style="color: black;">—</span>	ROAD



**AECOM**

FOSTER PLAZA 6  
681 ANDERSEN DRIVE  
4TH FLOOR  
PITTSBURGH, PA 15220  
412-503-4700

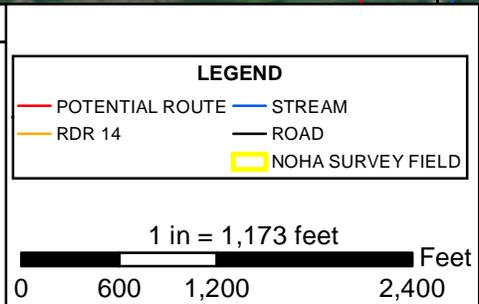
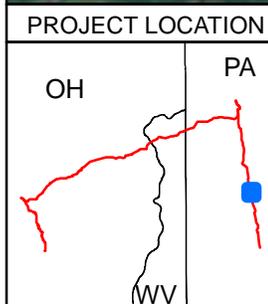
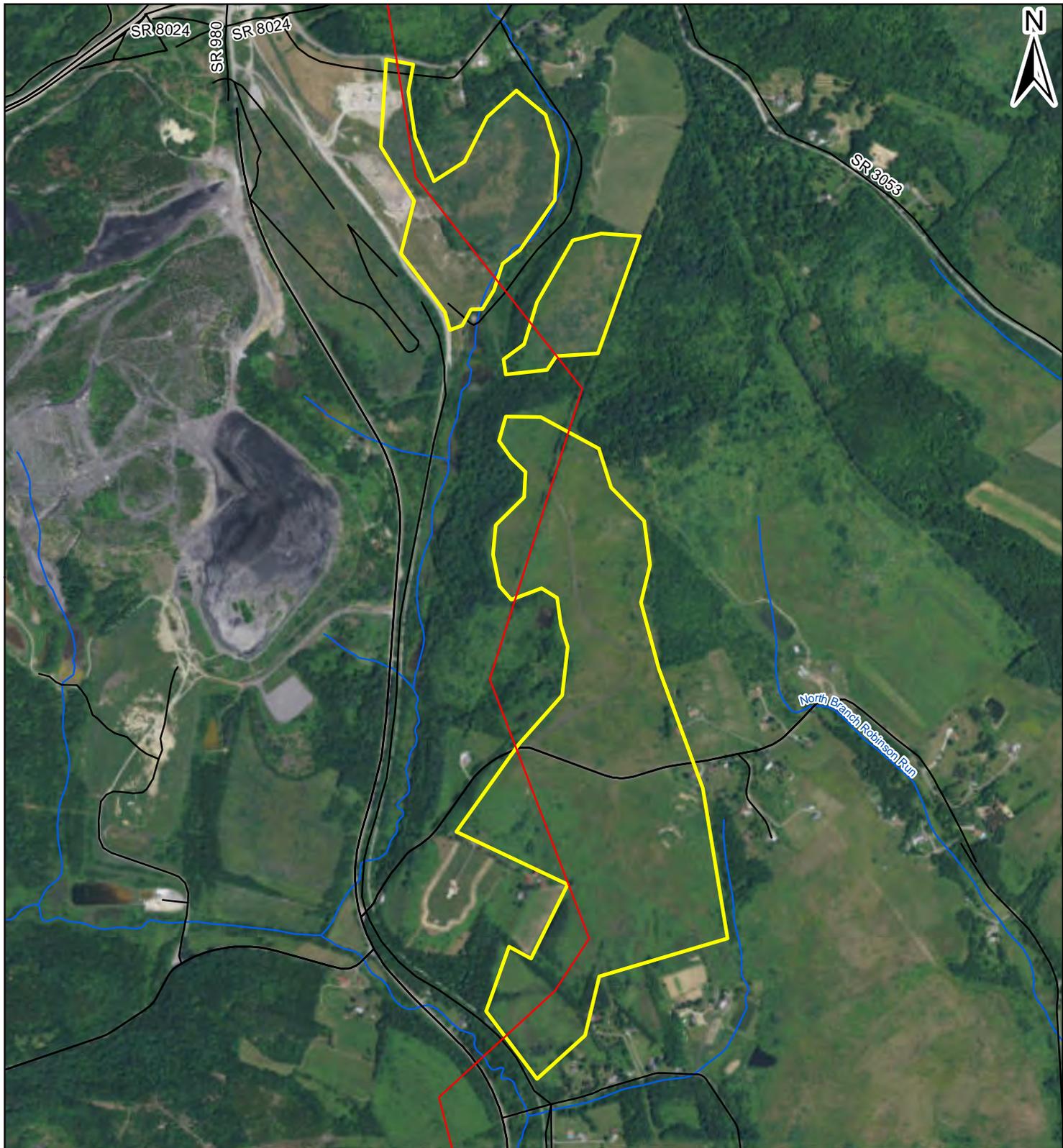
**FIGURE 2**  
**NOHA/SEOW**  
**PGC SHAPEFILE**  
**AERIAL FIELD MAP**  
Page 1 of 2

**SHELL PIPELINE COMPANY, LP**  
**NORTHEAST PIPELINE PROJECT**

SERVICE LAYER CREDITS: SOURCE: ESRI, DIGITALGLOBE, GEOEYE, EARTHSTAR GEOGRAPHICS, CNES/AIRBUS DS, USDA, USGS, AEX, GETMAPPING, AEROGRIID, IGN, IGP, SWSSTOPO, AND THE GIS USER COMMUNITY  
COORDINATE SYSTEM: NAD 1983 UTM ZONE 17N  
PROJECTION: TRANSVERSE MERCATOR

DRAWN BY: EES      DATE: 12/8/2015  
APPROVED:          PROJECT #: 60431827

DRAFT



**AECOM**

FOSTER PLAZA 6  
681 ANDERSEN DRIVE  
4TH FLOOR  
PITTSBURGH, PA 15220  
412-503-4700

**FIGURE 2**  
**NORTHERN HARRIER**  
**PGC SHAPEFILE**  
**AERIAL FIELD MAP**  
Page 2 of 2

**SHELL PIPELINE COMPANY, LP**  
**NORTHEAST PIPELINE PROJECT**

SERVICE LAYER CREDITS: SOURCE: ESRI, DIGITALGLOBE, GEOEYE, I-CUBED, EARTHSTAR GEOGRAPHICS, CNES/AIRBUS DS, USDA, USGS, AEX, GETMAPPING, AEROGRIID, IGN, IGP, SWISS TOPO, AND THE GIS USER COMMUNITY  
COORDINATE SYSTEM: NAD 1983 UTM ZONE 17N  
PROJECTION: TRANSVERSE MERCATOR

DRAWN BY: EES      DATE: 9/29/2015  
APPROVED:              PROJECT #: 60431827

# ATTACHMENT C

# Sharon Farris

## Environmental Scientist

### Avian Management & Studies

#### Education

A.A./ Environmental Studies/ Santa Barbara City College / 1998

B.A./ Cultural Anthropology/ University of California at Santa Barbara (Environmental Studies curriculum) 2001

#### Years of Experience

10

#### Certification

40-HR HAZWOPER

#### Specialized Training

2010 – NJDEP Flood Hazard Area Training

2013 – Avian Power Line Interaction Committee Workshop (Spring and Fall)

#### Summary

Ms. Farris has approximately 10 years of experience working as an Environmental Scientist. Areas of avian-related experience include nesting studies, transmission line interaction studies, avian/wildlife monitoring, bald eagle management, and agency consultation. Studies completed by Ms. Farris include multi-year nesting studies, multi-species raptor surveys, Bald Eagle Management Plans prepared in accordance with the National Bald Eagle Management Guidelines, transmission line avian interaction studies conducted in accordance with Avian Power Line Interaction Committee (APLIC) manuals (*Suggested Practices for Avian Protection on Power Line and Mitigating Bird Collisions with Power Lines*) for the development of best management practices. Raptor species Ms. Farris has conducted surveys or habitat assessments for include Bald eagle, Osprey, Northern harrier, Red-shouldered hawk, and Barred owl.

#### Project Experience

**Technical Expert – 2015 Northern Harrier Presence/Absence Survey – Oil & Gas Project, Tioga and Lycoming Counties, Pennsylvania** – Technical expert for survey design, habitat assessment/delineation, survey crew training, regulatory contact and reporting.

**Survey/Task Manager - 2014 Multi-Species Raptor Surveys for Multiple Transmission Line Rebuild and Upgrade Projects in Salem, Cape May, Burlington, Ocean, and Atlantic Counties, NJ (confidential client)** – Field lead for raptor nest studies for six (6) projects comprising approximately 100 miles of rebuild and upgrade of distribution and transmission lines. Focal species were bald eagle

(*Haliaeetus leucocephalus*), barred owl (*Strix varia*), northern harrier (*Circus cyaneus*), osprey (*Pandion haliaetus*), and red-shouldered hawk (*Buteo lineatus*). Avian Protection Plans were developed for each project.

**Survey/Task Manager - 2010 Avian Transmission Line Interaction Survey – Muddy Run FERC Relicensing Studies, Southeast Pennsylvania and Northeast Maryland** – Field crew lead and study report author for avian transmission line interaction studies along a 4.25 mile power line ROW for the identification of species at-risk for potential electrocution and collision. Included study design, collection of avian abundance & use data, risk assessment for risk to raptor species, and identification of high risk/low risk areas and species.

**Survey/Task Manager - 2010 & 2011 Osprey Nesting Surveys – Conowingo FERC Relicensing Studies, Southeast Pennsylvania and Northeast Maryland** – Field crew lead and study report author for boat-based and land-based nesting studies on Conowingo Pond and Muddy Run Reservoir including nest survey, species abundance, breeding activity, and nest monitoring. Twelve nests and one alternate nest were identified and monitored during these surveys.

**Survey/Task Manager - 2010 & 2011 Black-crowned Night-heron Nesting Surveys – Conowingo FERC Relicensing Studies, Southeast Pennsylvania and Northeast Maryland** – Field crew lead and study report author for boat-based and land-based nesting studies on Conowingo Pond. Data collected included habitat assessment, nest survey, species abundance, and breeding activity.

**Survey/Task Manager - 2011 & 2012 Bald Eagle Management Plan (BEMP) – FERC Relicensing – Southeast Pennsylvania (PA) and Northeast Maryland (MD)** – Preparation of BEMP for protection and enhancement of twelve bald eagle nests and seventeen communal roosts within an approximately 16,000 acre hydroelectric project area.

**Surveyor/Monitor – 2007 to Present - Bird and Wildlife Monitoring, RCRA Consent Order site, SE PA** – Eight years of bird, wildlife, and deterrence measure monitoring in three areas within a large reclaimed industrial area. Abundance and use data collected and reported to regulatory agencies.

#### Chronology

2007 – Present/AECOM, Environmental Scientist  
2004 – 2006 Science Applications International Corporation (SAIC), Environmental Planner  
2001 - University of California at Santa Barbara (UCSB), High Altitude Archaeology Lab (Anthropology Department), Research Assistant  
2000 – Port of Oakland, Environmental Planning Department, Junior Planner/Intern

## **Amanda Bronneck**

### **Natural Resources Lead – Harrisburg, Pennsylvania**

#### **Senior Biologist**

#### **Education**

BA/ Biology / Johns Hopkins University / 1999

#### **Years of Experience**

9

#### **Certification**

PA Professional Instructional I Certificate  
– Secondary Education

#### **Specialized Training**

2012 - PSAT MS4 Training

2012 – PADEP Erosion & Sediment Pollution Control Manual Training

2013 – PAPSS Hydric Soils Indicators Field Training

2015 – Safeland Training

2015 – Federal Energy Regulatory Commission Environmental Review and Compliance Training

#### **Summary**

Ms. Bronneck's experience includes completing numerous threatened and endangered species surveys and habitat assessments, wetland delineation efforts, and stream and wetland restoration and mitigation projects.

In her time as an environmental consultant, Ms. Bronneck has also been routinely involved with the identification and delineation of wetlands, including the identification of vegetative communities, soil characteristics, and hydrologic indicators as outlined in the Regional Supplement Manual to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region, and Northeast and North Central Region.

Ms. Bronneck's experience also includes the design, restoration, and enhancement of streams and wetlands. She has experience with the restoration of aquatic resources by working with clients through impact mitigation requirements, public funding sources, and private funding sources. Her stream restoration experience is based upon the principles, methodologies, and techniques of Applied River Morphology (Fluvial Geomorphology).

Ms. Bronneck has been involved with the studies and evaluations of aquatic ecosystems including many watershed assessments/stream data collection efforts as well as wetland identification and delineation projects, and wetland monitoring. She has conducted

stream restoration projects involving data collection and stream feature surveying, natural channel design, construction monitoring, post-construction inspection, riparian buffer enhancement, and the implementation of Erosion and Sediment Pollution Control Best Management Practices.

Ms. Bronneck has experience writing wildlife survey reports, wetland identification and delineation reports, Environmental Assessment forms, Joint Permit applications, General Permits applications, Erosion and Sedimentation Pollution Control applications, and is familiar with the 404/105 process. In addition, she has excellent working relationships with various local, state, and federal agencies.

#### **Project Experience**

**Senior Biologist, Threatened and Endangered Species Surveys, HEP – Tioga CPF #2 Discharge Pipeline Route- AECOM.** - Ms. Bronneck served as the senior field lead for a Northern Harrier (*Circus cyaneus*) Presence/Absence Survey for the Tioga CPF #2 Discharge Pipeline project. Organized and oversaw a large field effort that required numerous staff members over the course of an eight week period for a proposed 7.2-mile natural gas pipeline project. Additionally, conducted pre-survey field reconnaissance, prepared the Survey Plan and Survey Report for the project.

#### **Northern Harrier and Short-eared Owl Habitat Survey, Shell Pipeline Company LP - Allegheny and Washington Counties, Pennsylvania**

Identified potential northern harrier and short-eared owl (*Asio flammeus*) habitat along approximately four miles of a proposed ninety-mile pipeline right-of-way. Developed a nest presence/absence survey plan.

**Senior Biologist, Threatened and Endangered Species Surveys, Central AGC - Brant to Sienko Pipeline Route- AECOM.** - Ms. Bronneck served as a senior biologist and performed bald eagle (*Haliaeetus leucocephalus*) nesting surveys for the Brant to Sienko Pipeline project including a desktop habitat survey and field survey.

**Senior Biologist, Threatened and Endangered Species Surveys, MD DNR – Wildlife and Heritage Services, Phase II Bog Turtle survey – URS Corporation.** - Ms. Bronneck served as a senior biologist for bog turtle (*Glyptemys mühlenbergii*) survey and population monitoring performed for MD DNR and USFWS on a known bog turtle site.

**Environmental Biologist, Potential Threatened and Endangered Species Habitat Assessment associated with various stream restoration projects, ARRC.** Worked closely with the USFWS to assess potential bog turtle and red belly turtle (*Pseudemys rubriventris*) habitat located on stream

restoration project sites to avoid and minimize potential impact.

**Environmental Biologist, Threatened and Endangered Species Surveys, PennDot - CSVT, Skelly and Loy.** Ms. Bronneck assisted with a Presence/Absence Survey for the rough green snake (*Ophedrys aestivus*) and habitat assessment for the Eastern spadefoot toad (*Scaphiopus holbrookii*) and associated reporting.

**Field and Office Team Coordination, Field Data Management, Resource Report Management, and Aquatic Resource Impact Assessment, Confidential Client, URS/AECOM.**

Coordinated post-construction wetland delineation and stream assessment field work of approximately 500 natural gas well pad and impoundment locations. Managed project staffing, data, and resource reporting. Assessed construction activities for compliance with the federal Clean Water Act and the Pennsylvania Clean Streams Law and Dam Safety and Encroachment Act. Evaluated potential impacts to aquatic resource utilizing desktop tools and on-site findings and prepared/managed impact assessments and reporting.

**Environmental Biologist/Project Manager/Construction Management, Beaverkill Stream Club, New York: Fish Habitat Improvement Project, ARRC.** Responsible for the design, permitting, and construction oversight on approximately 10 miles of Fish Habitat Enhancement and Invasive Species Removal on the Beaverkill River. Worked closely with clients including The Beaverkill Stream Club, various private landowners, and The Beaverkill Valley Inn throughout duration of project. Assisted with all pre-construction surveys.

**Environmental Biologist/Project Manager, North Muddy Fish and Game Association, Pennsylvania: Fish Habitat and Stream Restoration Project, ARRC.** Responsible for the design and permitting of a stream restoration project consisting of over 5,300 linear feet on the North Branch Muddy Creek. Worked closely with Association and with local, state, and federal agencies to ascertain permit approvals. Responsible for preliminary Threatened and Endangered Species clearances with DCNR and USFWS.

**Environmental Biologist, Flight 93 National Memorial, Pennsylvania: Wetland Construction and Native Species Planting and Survivability Assessment, ARRC.** Assisted with planting of native seed mixes, wetland plugs, and approximately 3,000 bareroot shrubs in and around over 2 acres of constructed wetlands. Conducted wetland and planting survivability assessment and reporting to National Park Service and the Army Corps of Engineers.

**Environmental Biologist/Project Manager, York Township, Pennsylvania: Mill Creek Preserve Stream Restoration Wetland Mitigation Project, ARRC.** Assisted with stream restoration design and responsible for permitting of stream restoration project consisting of approximately 1,500 linear feet on Mill Creek. Worked closely with applicant and with local, state, and federal agencies to ascertain permit approvals. Assisted with pre-construction stakeout.

**Environmental Biologist/Project Manager – Wetland and Stream Violation and Subsequent Mitigation Projects, Pennsylvania, ARRC.** Coordinated with state agency throughout the duration and of various wetland and stream violations by individual landowners. Assisted with mitigation design and project implementation. Projects included wetland design and construction, stream design and restoration, water quality basin design and construction, and native species plantings and establishment.

**Environmental Biologist/Project Manager, Trout Unlimited, North Muddy Chapter, Pennsylvania: Pine Run Stream Restoration Project, ARRC.** Responsible for the project coordination and permitting of stream restoration project consisting of approximately 1,700 linear feet on Pine Run. Assisted with design, construction stakeout, and pre-construction survey. Worked closely with local, state, and federal agencies.

**Environmental Biologist – NRCS CREP Projects, Pennsylvania, ARRC.** Assisted with management, design, and implantation of various CREP projects. Worked closely with NRCS and landowners throughout projects.

**Environmental Biologist/Project Manager – Rambo Run Club, Pennsylvania: Rambo Run Fish Habitat Enhancement and Stream Bank Stabilization Project, ARRC.** Responsible for management and permitting of stream enhancement project of over 1,200 linear feet on Rambo Run. Assisted with project design and worked closely with stream club and agencies.

**Environmental Biologist – Cecil County Landfill, Maryland Regenerative Stormwater Conveyance Channel Construction, ARRC.** Assisted with project implementation/construction of a Regenerative Stormwater Conveyance Channel within Cecil County Landfill. Project was designed to reduce/eliminate turbidity within stormwater flows exiting landfill. Assisted with pre-construction stakeout and mid-construction surveys.

**Environmental Biologist/Project Manager – Codorus Creek Watershed Association, Pennsylvania: South Branch Codorus Creek**

**Stream Restoration Project Phase IV, ARRC.**

Responsible for the management and permitting of two sites on the South Branch Codorus Creek. The two sites comprised a combined 3,600 linear feet total of stream restoration. Assisted with re-design and pre-construction stakeout on both sites. Worked closely with applicant and local, state, and federal agencies. Responsible for ascertaining clearance for archeological resources on both sites.

**Chronology**

2000-2002: Skelly and Loy, Inc.

2002-2003: Aquatic Resource Restoration Company (ARRC)

2011-2013: Aquatic Resource Restoration Company (ARRC)

Nov 2013-Present: URS Corporation/AECOM

## Will Anderson

### Biologist / Field-Crew Leader

#### Education

BS / Science / Penn State University

#### Years of Experience

5

#### Registrations

Wetland Delineation Certification

#### Summary

Mr. Anderson offers experience as a staff biologist in environmental and natural resource related fields.

His experience includes:

- Leading on wetland delineations and wetland presence/absence investigations;
- Prepare reports summarizing the findings of investigations for submittal to clients and the Pennsylvania Department of Environmental Protection (PADEP);
- Preparing Joint Permit Applications for water encroachment and obstruction activities for clients submittal to the PADEP;
- Performing scheduled assessments to monitor the success of established wetlands and stability of newly constructed beds, banks, and in-stream structures;
- Wetland mitigation;
- Aquatic macroinvertebrate assessments to measure relative water quality;
- Managing construction of new stream beds, banks, and in-stream structures; Managing the installation of riparian vegetation
- Preparing erosion and sedimentation pollution control plans to meet the required standards of local government and conservation districts.

#### Project Experience

##### **Northern Harrier Presence/Absence Survey, HEP Pennsylvania Gathering, LLC**

Assist with field surveys for the determination of Northern harrier presence/absence, in accordance with Pennsylvania Game Commission protocols, along a proposed natural gas pipeline right-of-way. Tioga CPF#2 Discharge, Lycoming and Tioga Counties, PA, HEP Pennsylvania Gathering, LLC.

##### **Bog Turtle Population Survey, Maryland Department of Natural Resources**

Assist with population survey using Phase II survey protocols established by the Maryland Department

of Natural Resources for Bog Turtle (*Glyptemys muhlenbergii*) in areas with known bog turtle populations. Assist with the collection of data from each individual found during population survey. Annual Bog Turtle Population Survey, Baltimore Maryland, Maryland Department of Natural Resources.

##### **T&E Species Potential Impact Review, Specialty Granules Incorporated**

Assist with desktop review of potential impacts to T&E species using the Pennsylvania Natural Diversity Inventory Environmental Review Tool (PNDI ER Tool) resulting from the expansion of existing quarry operations. Assist with drafting letters to State and Federal agencies requiring correspondence related to potential impacts to T&E species identified within specific project areas using the PNDI ER Tool. Central Area, Glatfelter King Tract, and West Flank Expansions, Blue Ridge Summit, PA, Specialty Granules Inc.

##### **T&E Bat Species Survey, Dominion Transmission**

Assist with mist netting surveys for T&E bat species for a proposed gas pipeline corridor. Assisted with mist net site set-up and site monitoring with a qualified surveyor. Atrium Bat Survey, Wheeling, WV, Dominion Transmission Inc.

##### **Phase I & II Bog Turtle Surveys, Pennsylvania Turnpike Commission**

Assist with habitat assessment and population survey using Phase I and Phase II survey protocols established by the U.S Fish and Wildlife Service and Pennsylvania Fish and Boat Commission for several proposed project areas located along the Pennsylvania Turnpike right-of-way. Assist in the data analysis and preparation of reports outlining the findings of the surveys. Pennsylvania Turnpike, Chester County, PA, Pennsylvania Turnpike Commission.

##### **T&E Plant Species Survey, Old Dominion Electric Cooperative (ODEC)**

Assist with field surveys for three Threatened/Endangered plant species for the ODEC Wildcat Point Generation Facility. Lancaster County, PA, Old Dominion Electric Cooperative.

##### **Wetland and Watercourse Investigation and Phase I Bog Turtle Survey, Resource Environmental Solutions, Hibred Farms Restoration Site**

Conduct wetland and watercourse delineations and Phase I bog turtle surveys for an approximately 29 acre proposed wetland and stream restoration site. Prepare a Wetland and Watercourse Delineation Report detailing the findings of the field

investigation. Provide input related to the suitability of the site as a viable wetland and watercourse restoration project. Hibred Farms Restoration Site, Lancaster County, PA, Resource Environmental Solutions.

**Natural Gas Pipeline Wetland and Watercourse Investigation, Angelina Gathering Company-Angelina Pipeline**

Conduct wetland presence/absence survey and wetland and watercourse delineations for approximately twenty five miles of proposed natural gas pipeline right-of-ways. Angelina Pipeline, Susquehanna and Bradford Counties, PA, Angelina Gathering Company.

**Natural Gas Well Pad Wetland and Watercourse Investigation, Cabot Oil and Gas**

Conduct wetland presence/absence survey and wetland and watercourse delineations for twenty five proposed natural gas well pad locations. Cabot Well Pads, Susquehanna and Bradford Counties, PA, Cabot Oil and Gas.

**Natural Gas Pipeline Wetland and Watercourse Investigation, Susquehanna Gathering, Bluestone Pipeline**

Conduct wetland presence/absence survey and wetland and watercourse delineations for approximately fifteen miles of proposed natural gas pipeline right of ways. Bluestone Pipeline Phase III, Susquehanna County, PA, Bluestone Gas Corporation of New York, Inc.

**Impoundment/Water Line Wetland Investigation, Southwestern Energy Production Company**

Conduct wetland presence/absence survey and wetland and watercourse delineations for three proposed impoundment sites and approximately four miles of proposed freshwater gathering lines. SWN Impoundments, Susquehanna and Lycoming Counties, PA, Southwestern Energy Production Company (SEPCO).

**Well Pad Aquatics Review, Chesapeake Energy Corporation**

Assist with report preparation and data analysis detailing the results of an aquatic biological survey following the unintended release of impounded brine water from an active well pad. Chesapeake Atgas Well Pad, Leroy Township, PA, Chesapeake Energy Corporation

**Biological and Aquatic Assessment, Chesapeake Energy Corporation**

Conducted initial survey and assessment of three tributaries to Towanda Creek following a stray gas event related to the drilling of a natural gas well. Collected water quality parameters and benthic macroinvertebrates for analysis in determining any effects related to this event. Sub-sort benthic macroinvertebrate samples for future identification following an adapted protocol set forth in the US Environmental Protection Agency 1999 Rapid Bioassessment Protocols for Use in Streams and Wadeable Rivers. Chesapeake-Franklin Investigation, Leroy Township, PA, Chesapeake Energy Corporation.

**Natural Gas Pipeline Post-Construction Erosion and Sedimentation Pollution Control Inspection, Williams Midstream Services, LLC**

Assist with the physical inspection of Erosion and Sedimentation Pollution Control (E&SPC) implementation on post-construction natural gas pipeline corridors. Conduct global positioning system (GPS) survey of all E&SPC structures. Photograph and note any improper construction/implementation or failure of E&SPC structures within the pipeline corridor. Transfer survey data from GPS unit to desktop/laptop computer and forward to appropriate recipients. Williams Natural Gas Pipeline, Susquehanna County, PA, Williams Midstream Services, LLC.

**Environmental Inspection for Natural Gas Pipeline Construction Project, Bluestone Pipeline Company of PA, LLC**

Conduct environmental inspection for construction activities along approximately 34 miles of pipeline. Work closely with foreman and labor crews to insure construction activities are performed in accordance with the permit regulations set forth by the PADEP. Monitor open cut and horizontal directional drill (HDD) crossings of streams and wetlands to insure permit compliance. Prepare reports detailing the findings of these inspections for submission to proper recipients. Perform follow-up inspections to insure proper maintenance and repair of erosion control devices. Bluestone Gathering Pipeline Construction Project, Susquehanna County, PA, Bluestone Pipeline Company of PA, LLC

**Natural Gas Pipeline Post-Construction Resource Monitoring, Millennium Pipeline Co.**

Perform post-construction monitoring for wetlands and streams along the Millennium Pipeline right of

way to determine if pre-construction conditions were restored. Complete wetland and stream data forms for each resource within the right of way as well as a reference resource outside the right of way in order to compare the current post-construction conditions. Prepare a report detailing the findings of each resource and determine whether or not pre-construction conditions were restored. Make suggestions for the restoration of resources not meeting pre-construction conditions. Millennium Pipeline, Millennium Pipeline Co. Steuben, Chemung, Tioga, Broome, Delaware, Sullivan, Orange, and Rockland County NY.

**Natural Gas Pipeline Wetland and Watercourse Investigation, Williams Midstream Services, LLC**

Conduct wetland presence/absence survey and wetland and watercourse delineations for approximately twenty miles of proposed natural gas pipeline right of ways. Williams Gathering Pipeline, Susquehanna and Bradford Counties, PA, Williams Midstream Services, LLC.

**Environmental Inspection for Post-Construction Wetland and Stream Restoration, Millennium Pipeline Co.**

Oversee the post-construction restoration of wetlands and streams in order to restore pre-construction conditions. Work closely with a subcontracted construction crew to insure the proper planting of trees and shrubs and the application of wetland seed mix within the required wetlands. Observe the removal of invasive plant species from wetlands. Monitor minimal grading by large equipment to restore pre-construction grades within wetlands. Monitor the restoration and stabilization of eroded stream banks. Observe and insure the proper bank stabilization procedures were followed including the installation of coconut logs and live willow stakes. Insure all work was performed within the permit regulations and no additional resources were impacted during the restoration work. Prepare daily reports outlining the work completed and measures taken to insure the success of the restoration. Perform follow-up inspections of all resources and prepare a report outlining the status of each resource. Millennium Pipeline, Millennium Pipeline Co. Steuben, Chemung, Tioga, Broome, Delaware, Sullivan, Orange, and Rockland County NY.

**Natural Gas Pipeline Wetland and Watercourse Investigation, PennEast Pipeline Company**

Conduct wetland presence/absence survey and wetland and watercourse delineations along an

approximately 114-mile proposed natural gas pipeline right-of-way. PennEast Pipeline, Luzerne, Carbon, and Northampton Counties, PA and Hunterdon and Mercer Counties, NJ, PennEast Pipeline Company.

**Natural Gas Pipeline Post-Construction Resource Monitoring, Howard Energy Partners**

Perform post-construction monitoring for wetlands and streams along approximately fifteen miles of pipeline right of way to determine if pre-construction conditions were restored. Complete wetland and stream data forms for each resource within the right of way to document post-construction conditions. Prepare a report detailing the findings of each resource and determine whether or not pre-construction conditions were restored. Make suggestions for the restoration of resources not meeting pre-construction conditions. Howard Energy Gathering Pipelines, Howard Energy Partners, Bradford County, PA

**Aquatic Resource Impact Assessment, Confidential Client, URS/AECOM.**

Assist with the post-construction wetland delineation and stream assessment field work of approximately 500 natural gas well pad and impoundment locations. Perform data analysis and QA/QC following field surveys and assist with the preparation of reports outlining the findings of each site investigation. Evaluate potential resource impacts via desktop review and on-site assessment. Bradford, Susquehanna, Sullivan, and Wyoming Counties, PA.



## Christine Gabriel

### Environmental Scientist

#### Education

BS / Penn State University / Environmental Resource Management / 2010

#### Years of Experience

4

#### Summary

Ms. Gabriel is an environmental scientist with experience in preparing Pennsylvania Chapter 105 and USACE Section 404 permits, environmental assessments, wetland and stream delineation, and endangered species surveys and habitat assessments. Additionally, Ms. Gabriel has a broad range of Geographic Information System (GIS) experience including geodatabase design and administration, data handling, spatial analysis, alternatives analysis, and mapping.

#### Project Experience

##### **Field Work Coordination, GIS Database Management, and Aquatic Resource Assessment, Confidential Client - Pennsylvania**

Coordinated post-construction wetland delineation and stream assessment field work of approximately 500 natural gas well pad and impoundment locations. Managed post-processing of field data and administered a GIS database. Assessed construction activities for compliance with the federal Clean Water Act and the Pennsylvania Clean Streams Law and Dam Safety and Encroachment Act. Evaluated potential impacts to aquatic resource utilizing GIS and on-site findings and prepared impact assessments and reporting.

##### **GIS, Database Management, Environmental Permitting, and Threatened and Endangered Species Surveys, SWEPI LP - Pennsylvania**

Developed and administered a project GIS database, coordinated wetland and stream field investigations, coordinated with agencies, and prepared Pennsylvania Chapter 105/USACE Section 404 permits for approximately one-hundred natural gas well and compressor station locations. Assisted specialists with habitat surveys for the Indiana bat (*Myotis sodalis*), upland sandpiper (*Bartramia longicauda*), eastern massasauga rattlesnake (*Sistrurus catenatus*), and timber rattlesnake (*Crotalus horridus*); prepared findings reports; and coordinated with state and federal agencies which oversee the protection of threatened and endangered species in Pennsylvania.

##### **Northern Harrier Presence/Absence Survey, Howard Energy Partners - Tioga and Lycoming Counties, Pennsylvania**

Field crew member for a northern harrier (*Circus cyaneus*) presence/absence nest survey along a 7.2 mile proposed natural gas pipeline right-of-way. Habitat assessment and behavior data was collected.

##### **Northern Harrier and Short-eared Owl Habitat Survey, Shell Pipeline Company LP - Allegheny and Washington Counties, Pennsylvania**

Identified potential northern harrier and short-eared owl (*Asio flammeus*) habitat along approximately four miles of a proposed ninety mile pipeline right-of-way. Developed a nest presence/absence survey plan.

##### **Bald Eagle Desktop Habitat Survey, Shell Pipeline Company LP - Ohio, West Virginia, and Pennsylvania**

Identified potential bald eagle (*Haliaeetus leucocephalus*) habitat utilizing the National Bald Eagle Management Guidelines and GIS data along a proposed ninety mile pipeline right-of-way.

##### **Environmental Investigation, GIS, and Environmental Reporting, Shell Chemicals LP - Pennsylvania**

Conducted wetland delineation and stream assessment field work and assisted with freshwater mussel surveying. Managed GIS data, handled post-processing of field data, prepared environmental permitting figures, and prepared aquatic resource assessment reporting for a proposed ethane cracker plant location.

##### **GIS and Environmental Permitting Angelina Gathering Company, LLC - Pennsylvania**

Administered field mapping, managed GIS data, and handled post-processing of field data. Prepared Pennsylvania Chapter 105/USACE Section 404 permits for approximately twenty pipeline projects.

##### **Environmental Investigation, GIS, and Environmental Permitting, Williams Field Services, LLC - Pennsylvania and Ohio**

Conducted wetland delineation and stream assessment field work and handled post-processing of field data. Prepared threatened and endangered species reports and Pennsylvania Chapter 105/USACE Section 404 Permits, and managed soil fertility sampling and reporting for numerous pipeline projects.

**Chronology****03/2011 - 02/2012****The Chicago Horticultural Society - Claremont, California**

Identified and evaluated sites on Southern California BLM lands from which to collect native plant materials and seeds for use in the National Native Plant Materials Development Program. Integrated the use of GIS to streamline data collection and management.

**05/2010 - 03/2011****The Rodale Institute - Kutztown, Pennsylvania**

Served as the lead technician in the development of the Mobile Field Laboratory project for rapid, cost-effective measurement of soil carbon and accurate agricultural carbon crediting. Conducted a comprehensive soil horizon sampling and analyses to generate multi-depth spatial composition data set. Designed and developed the Institute's GIS capabilities using remote sensing equipment, several software programs, hand-held PDAs, and a desktop database.

## **Ryan Leiberher**

### **Natural Resources Lead – Greater NY/Greater PA Region**

#### **Education**

BS/ Environmental Biology/Edinboro University / 2000  
AS/ Wildlife Technology/ Penn State University / 1998

#### **Years of Experience**

15

#### **Registration/Certification**

USFWS Certified/ Approved Indiana bat Surveyor  
Pennsylvania, New York, West Virginia, New Jersey

#### **Professional Societies/Affiliates**

Pennsylvania Chapter of the Wildlife Society  
NEBWG-North Eastern Bat working Group

#### **Specialized Training**

1999- Penn State University- "Raptors in Flight"  
Training  
2001- Bat Conservation International Workshop,  
Barre PA  
2004- Bat Conservation International Workshop, Barre  
PA  
-Acoustical Monitoring Bat Training  
2000- Present: Continual Infield bat training with the  
PGC

#### **Summary**

Mr. Leiberher has 15 years of professional experience as a natural resources biologist. His project work has required multi-office interactions and coordination within AECOM and with regional and national clients. He has been involved in many projects for oil and gas, transportation, infrastructure, commercial, industrial and residential development that have required strong client working relationships.

As the Natural Resources Lead he manages AECOM ecological staff in Northern and Southern Central Pennsylvania and Western Pennsylvania.

He also has experience as a project manager, experience writing proposals, and marketing at a former employer for various types of projects and has experience as an assistant project manager and task manager at AECOM.

Mr. Leiberher has experience interacting with federal and state agencies on a variety of natural resources topics including Threatened and Endangered Species surveys. He is a United States Fish and Wildlife Service (USFWS)-certified Indiana bat surveyor in Pennsylvania, New York, West Virginia, and New Jersey. He has experience with the Endangered Species Act (ESA) and the Section 7 consultation process associated with projects affecting the Indiana bat and other bat species in the northeast.

Mr. Leiberher has also been involved with the studies and evaluations of aquatic ecosystems including many wetland identification and delineation projects, wetland monitoring, land surveying, biosurveys of aquatic resources, and water quality assessments.

Mr. Leiberher has experience writing various wildlife survey reports, wetland identification and delineation reports, environmental assessment forms, joint permit applications, general permits and is familiar with the 404/105 process. In addition, he has excellent working relationships with various state and federal agencies.

#### **Project Experience- T&E Species**

##### **Northern Harrier Presence/Absence Survey, Howard Energy Partners - Tioga and Lycoming Counties, Pennsylvania**

Field crew member for a northern harrier presence/absence nest survey along a 7.2 mile proposed natural gas pipeline right-of-way. Habitat assessment and behavior data was collected.

##### **Senior Biologist– PENNDOT- CSVT Project, Northumberland, County, PA**

Responsible for the coordination and implementation of various field efforts, Specific tasks include: annual Bald Eagle/Osprey Nest surveys and habitat assessments, annual Upland Sandpiper nest surveys and habitat assessments, Indiana bat mist netting surveys, Eastern Spadefoot toad habitat assessments, Rough Green Snake species surveys, wetland and watercourse investigations, mitigation monitoring, and associated reporting.

##### **Senior Biologist– PENNDOT Route 11/15 Improvement Project, Tioga County, PA**

Responsible for the coordination and implementation of various field efforts, Specific tasks include: annual Bald Eagle/Osprey Nest surveys and habitat assessments, Indiana Bat Mist netting surveys, wetland and watercourse investigations, mitigation monitoring, and associated reporting.

##### **Senior Biologist- PENNDOT Various Projects, Pennsylvania**

Responsible for the coordination and implementation of various field efforts, Specific tasks include: annual Bald Eagle/Osprey Nest surveys and habitat assessments, Indiana Bat Mist netting surveys, wetland and watercourse investigations, mitigation monitoring, assistant bog turtle surveyor, and associated reporting.

##### **Senior Biologist- Unlimited Energy LLC, Confidential Windfarm Project, Pennsylvania**

Responsible for the coordination and implementation of various field efforts, Specific tasks include: Aerial and Ground Bald Eagle/Osprey Nest surveys and habitat assessments Via Helicopter and ground verification.

**T&E Bat Experience**

Responsible for the coordination and implementation of many T&E bat species surveys. Specific tasks include: mist netting, harp trapping, habitat assessment, radio telemetry, hibernacula surveys, expert peer review, conduct bat surveying training, and conduct bat presentations (public and private).

# Bridger Thompson

## Senior Biologist

### Education

BS/ Wildlife and Fisheries Science / Penn State University / 1997

### Years of Experience

17

### Continuing Education

Basic Erosion and Sediment Controls, VA-DCR, Division of Soil and Water Conservation. August 1999

Maryland Biological Stream Survey (MBSS) Spring training 2012-2013

MSHA 2012

### Training

Basic Erosion and Sediment Controls, VA-DCR, Division of Soil and Water Conservation. August 1999

Maryland Biological Stream Survey (MBSS) Spring training, 2012-2013

MSHA, 2012

### Summary

Throughout his professional career, Mr. Thompson has been involved in a variety of wildlife and natural resource projects, including Threatened and Endangered Species Surveys and research, research and data collection to identify and monitor the potential introduction and spread of Avian Influenza (AI) in wild birds, research and data collection to identify and monitor for Chronic Wasting Disease (CWD) in whitetail deer, research and data collection to identify and monitor the potential spread of rabies in raccoons, and research and monitoring of nesting and dispersal of spotted owls. He has extensive experience conducting wildlife surveys and wildlife habitat assessments, including bird call surveys for migratory and forest interior birds, threatened and endangered bird species surveys, Indiana bat mist netting surveys, and bog turtle surveys. He has performed wildlife damage control operations relating to cessation or alleviation of problems caused by mammals and birds in urban and rural environments. Mr. Thompson also has experience utilizing GPS and VHF telemetry to track and collect data on avian, reptile, and mammal species and data analysis as it relates to this technology. In addition, he has broad wildlife handling experience, including but not limited to bird banding, cloacal and tracheal sampling, rabies sampling and wildlife chemical immobilization, avian and mammal trapping, blood sampling and investigative field necropsy, and other appropriate biological data collection.

In his time as an environmental consultant, Mr. Thompson has also been routinely involved with the identification and delineation of wetlands, including the identification of vegetative communities, soil characteristics, and hydrologic indicators as outlined in the [Regional Supplement Manual to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region, and Northeast and North Central Region.](#)

### Project Experience

**Bog Turtle Species Specialist-** Mr. Thompson is on the U.S. Fish and Wildlife Service/Maryland Department of Natural Resources/Pennsylvania Fish and Boat Commission lists of Recognized Qualified Bog Turtle Surveyors (for Pennsylvania, New Jersey, New York, and Maryland). Mr. Thompson has conducted potential habitat evaluations and field surveys for the bog turtle (*Clemmys muhlenbergii*), a Federally listed threatened species and Pennsylvania State listed endangered species. Investigations conducted include potential habitat investigations (Phase I Surveys), field surveys for the species (Phase II Surveys), trapping surveys (Phase III Surveys) and radio telemetry research for the species in Pennsylvania, Maryland, New Jersey, New York and Delaware. This includes characterization of the existing vegetative community, hydrologic regime, evaluation of the soils composition, metapopulation analysis, and hydrologic connectivity assessments. He has located numerous bog turtles at various sites, along with countless other herptofauna. Mr. Thompson has also received training from the USFWS and the Maryland Department of Natural Resources regarding the species.

### **Northern Harrier Presence/Absence Survey, Howard Energy Partners - Tioga and Lycoming Counties, Pennsylvania**

Field crew member for a northern harrier (*Circus cyaneus*) presence/absence nest survey along a 7.2 mile proposed natural gas pipeline right-of-way. Habitat assessment and behavior data was collected.

### **Field Crew Leader, Wetland Delineator Staff Biologist - URS Corporation**

Mr. Thompson is currently employed as a Senior Biologist/Senior Field Crew leader at URS Corporation. In his position at URS he is responsible for field operations and oversight of multiple projects including wetlands delineations, threatened and endangered species surveys, macroinvertebrate and stream surveys, constructability surveys, and construction oversight.

### **Senior Biologist/Field Crew Leader, Marcellus Shale and Natural Gas - URS Corporation:**

Coordinated and conducted wetland delineations and assessments of surface water resources associated with the proposed natural gas transmission lines and well pad locations. Actively participated in the well staking process and assisted clients in positioning well locations to avoid natural resource impacts and additional permitting requirements. Actively participated in constructability investigations to determine best placement for pipeline ROW to allow for ease construction, accessibility, and to minimize environmental impacts.

### **Senior Biologist, Threatened and Endangered Species Surveys Central AGC-Brant to Sienko Pipeline Route-AECOM.**

- Mr. Thompson served as a senior biologist and performed bald eagle nesting surveys for the Brant to Sienko Pipeline project.

**Senior Biologist, Threatened and Endangered Species Surveys PPL, Phase 1 and Phase 2 Bog Turtle surveys-URS Corporation.** - Mr. Thompson served as a senior biologist and qualified surveyor for bog turtle surveys performed for PPL on the Hosensack-Quarry Line reconstruction project.

**Senior Biologist, Threatened and Endangered Species Surveys PTC, Phase 1 and Phase 2 Bog Turtle surveys-URS Corporation.** - Mr. Thompson served as a senior biologist and qualified surveyor for bog turtle surveys performed for Pennsylvania Turnpike Commission (PTC) on 312-319 rebuild project.

**Senior Biologist, Wetland Delineation Field Crew Leader, Threatened and Endangered Species Surveys ACE, Phase 1 and Phase 2 Bog Turtle surveys-URS Corporation.** - Mr. Thompson served as a senior biologist and qualified surveyor for bog turtle surveys performed and wetland delineation for Atlantic City Electric (ACE) on multiple transmission line rebuild projects.

**Senior Biologist, Threatened and Endangered Species Surveys SGI Inc. Northeast bulrush and nodding trillium surveys-URS Corporation.**- Mr. Thompson served as a project biologist and performed threatened and endangered species surveys for Northeast bulrush and nodding trillium for the SGI Inc West Flank expansion project.

**Project Biologist, Threatened and Endangered Species Surveys SWN Susquehanna Waterline, marsh bedstraw, soft-leaved sedge surveys-URS Corporation-** Mr. Thompson served as a project biologist and performed surveys for marsh bedstraw and soft-leaved sedge for the SWN Susquehanna Waterline project.

**Project Biologist, Threatened and Endangered Species Surveys Central Susquehanna Valley Thruway Project-Skelly and Loy Inc.** - Mr. Thompson served as a project biologist and performed annual Bald eagle nesting surveys for the CSVT project.

**Project Biologist, Threatened and Endangered Species SR 80, Pocono Interchange- A.D. Marble-** Mr. Thompson served as a project biologist and performed nesting surveys for the S.R. 80 Pocono Interchange project.

**Wetland Delineator - PENNDOT Improvement Projects and Bridge/Culvert Replacement Projects-** Mr. Thompson was responsible for the identification and delineation of wetlands within the project areas for numerous PENNDOT projects located in: PENNDOT District 5-0 (Monroe, and Northampton Counties); PENNDOT District 2-0 (McKean County); PENNDOT District 3-0 (Bradford, Tioga and Northumberland Counties [including a four mile corridor on S.R. 4014, and a two mile corridor on S.R. 220]); and PENNDOT District 4-0 (Pike County [including a nine mile corridor on S.R. 84]).

**Field Crew Leader, Threatened and Endangered Species Surveyor, Biotic Communities Evaluator, Water Quality/Aquatic Resources Evaluator - Philadelphia International Airport Capacity Enhancement Project (PHL-CEP) Philadelphia County, Pennsylvania.** – Mr. Thompson worked with multiple consulting firms, the Federal Aviation Administration (FAA) the U.S. Fish and Wildlife Service (USFWS), the Pennsylvania Game Commission (PGC), and the Pennsylvania Fish and Boat Commission (PFBC) on the Philadelphia Airport Capacity Enhancement Project (PHL-CEP). Mr. Thompson served as the lead Wildlife Biologist and coordinated threatened and endangered species nesting surveys for Osprey, Bald eagle, and marsh wren. Performed land cover and land use evaluations, and biotic communities assessments. Biotic communities assessments included benthic macroinvertebrate surveys, seine netting and electro fishing surveys for fishes, and wildlife habitat and wildlife use surveys. Mr. Thompson also completed documentation and reporting for the threatened and endangered species, biotic communities, and land use and land cover portions of the PHL-CEP Environmental Report.

**Wildlife Biologist, Wildlife Specialist - USDA APHIS Wildlife Services, Pennsylvania, New York and Maryland-** As a Wildlife Biologist for the USDA Wildlife Services Mr. Thompson implemented and developed wildlife damage management strategies to reduce human wildlife conflicts and protect human health and safety, natural resources, agricultural resources and property by using Integrated Wildlife Damage Management Techniques (IWDMP). These programs included; Supervising and implementing an integrated wildlife damage management program designed to reduce cormorant use of specific lakes in the Central New York watershed. Development and implementation of wildlife management programs designed to protect tidal salt water marsh habitat on the Chesapeake Bay. Development and implementation of IWDMP designed to monitor population dynamics of nutria an invasive aquatic rodent and development of methods to eradicate the invasive species while limiting impacts to native species. Monitoring and management of wildlife on airports to reduce the potential for avian and mammalian aircraft strikes. Monitoring and management of deer populations on federal lands including National Parks, and Department of Defense property including Naval and Air force bases in Pennsylvania, New York, and Virginia. Monitoring and management of wildlife damages and potential disease transmission associated with avian population on landfills.

**Wildlife Biologist - U.S. Forest Service (USFS) - Arcata, California-** Mr. Thompson worked as a Field Wildlife Biologist conducting research on nesting and dispersal habits of the federally listed northern spotted owl in several national forests located in Northern California. He designed and implemented data collection protocol on owl feeding, roosting, and nesting activities, and formed cooperative

relationships between Forest Service staff and private landowners in three national forest areas.