Study Plan:
2014 Acoustic Surveys for the Northern Long-eared Bat *(Myotis septentrionalis*) Along the Constitution Pipeline in New York

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Introduction

The proposed Constitution Pipeline (Project) corridor extends from Susquehanna County, Pennsylvania northward to Schoharie County, New York. The southern section of the proposed Project route, the 40 kilometers (km) (25 miles [mi]) portion located in Pennsylvania, was surveyed during 2012 and 2013 for Indiana bats (*Myotis sodalis*). No evidence of Indiana bats was detected during those surveys. Northern long-eared bats (*Myotis septentrionalis*) were captured during mist net surveys and accounted for 22 of the 239 (11%) bats captured during the 2012 and 2013 surveys (Hicks et al. 2013).. Calls attributed to northern long-eared bats by automated acoustic identification programs during the 2013 surveys comprised 44 of 4,220 (1%) acoustical files that were identified to the species level (Hicks et al. 2013).

This survey plan does not focus on Indiana bats because the Project area meets none of the criteria established by the United States Fish and Wildlife Service (USFWS) to identify potential roosting or foraging habitat for the Indiana bat in New York (USFWS 2010). There are no historical summer records of the species in the Project area despite intensive monitoring of migrants from all known winter colonies in the state by the New York State Department of Environmental Conservation (NYSDEC) (C. Herzog, personal communication). The elevation across nearly the entire length of the Project exceeds 287 meters (m) (900 feet [ft]), which is the highest known elevation of a maternity colony roost for the species in New York (USFWS 2010). The habitat in the region is similar to that in the Pennsylvania survey area where, as noted above, no Indiana bats were detected during recent surveys and where there are no historical records of the species. Finally, by 2013 the disease white nose syndrome had reduced the number of Indiana bats known to winter in New York from more than 50,000 to less than

20,000 (C. Herzog, personal communication), further decreasing the probability of the species being outside of the core of their New York distribution. Any recorded calls that could reasonably be attributed to Indiana bats will be critically analyzed and reported to both the NYSDEC and the USFWS.

During 2014, surveys for the northern long-eared bat will be conducted along the section of the proposed route that is located in New York. This section is approximately 159.9 km (99.4 mi) and is located within Broome, Chenango, Delaware, and Schoharie Counties. The surveys will be conducted following USFWS survey guidelines (USFWS 2014a, 2014b), which meet or exceed the survey requirements of the NYSDEC (C. Herzog, pers. comm. 2014).

Study Objectives

The objective of the 2014 acoustic surveys is to determine where northern long-eared bats are present or likely absent along the length of the proposed Project corridor in New York. We will use the protocol defined within the USFWS Indiana Bat Summer Survey Guidance (USFWS 2014a), as this is also the current protocol for conducting presence/absence surveys for northern long-eared bats (USFWS 2014b).

Expected Results

The close proximity of Constitution's Pennsylvania survey sites to the proposed New York survey sites, the similarity of the ecological conditions in both areas, and the existing information in NYSDEC files (C. Herzog, pers. comm. 2014) regarding the historic and current distribution of northern long-eared bats suggest that the results of the 2014 surveys in New York will be similar to the 2012 and 2013 survey results in Pennsylvania. It is expected that there will be evidence that northern long-eared bats are widely distributed in low densities.

Study Area

The proposed Project corridor that will be surveyed in 2014 begins at the state border between New York and Pennsylvania in the town of Sanford, Broome County, New York (41°59'56.86"N, 75°32'28.79"W). From the state border, the proposed Project corridor extends 159 km (99.4 mi) to the northeast, ending in the town of Wright, Schoharie County, New York (42°41'50.57"N 74°14'4.05"W) (Figures 1 and 2). In addition to the pipline corridor there are 40 access roads in the Project that will intersect about 10.4 km (6.4 mi) of potential northern long-eared bat roosting habitat (forests) that is likely to be cleared to some extent. There are also two partially forested contractor yards where construction equipment and materials will be stored during construction. The Clarke Quarry Yard (sample sites CP14-CY1A and CP14-CY1B) is forested over roughly 25 percent of the 7.7 hectares (ha) (19 acres [ac]). The Richmondville Yard (sample sites CP14-CY2A and CP14-CY2B) includes no more than a few dozen trees (Appendix 1; Table 1) but is bounded by forested properties.

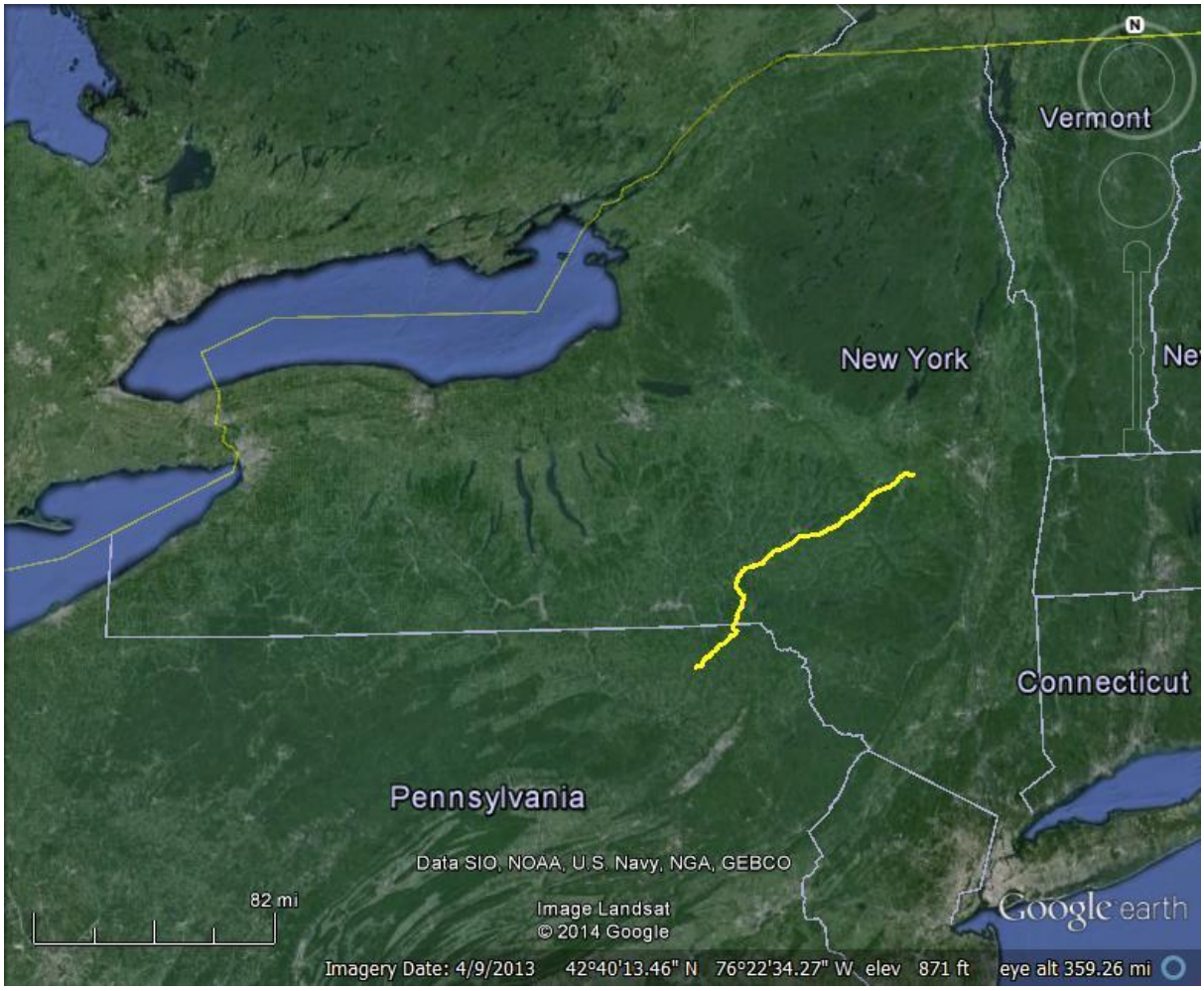

Figure 1. State level perspective of the proposed Constitution Pipeline (in yellow) in New York.

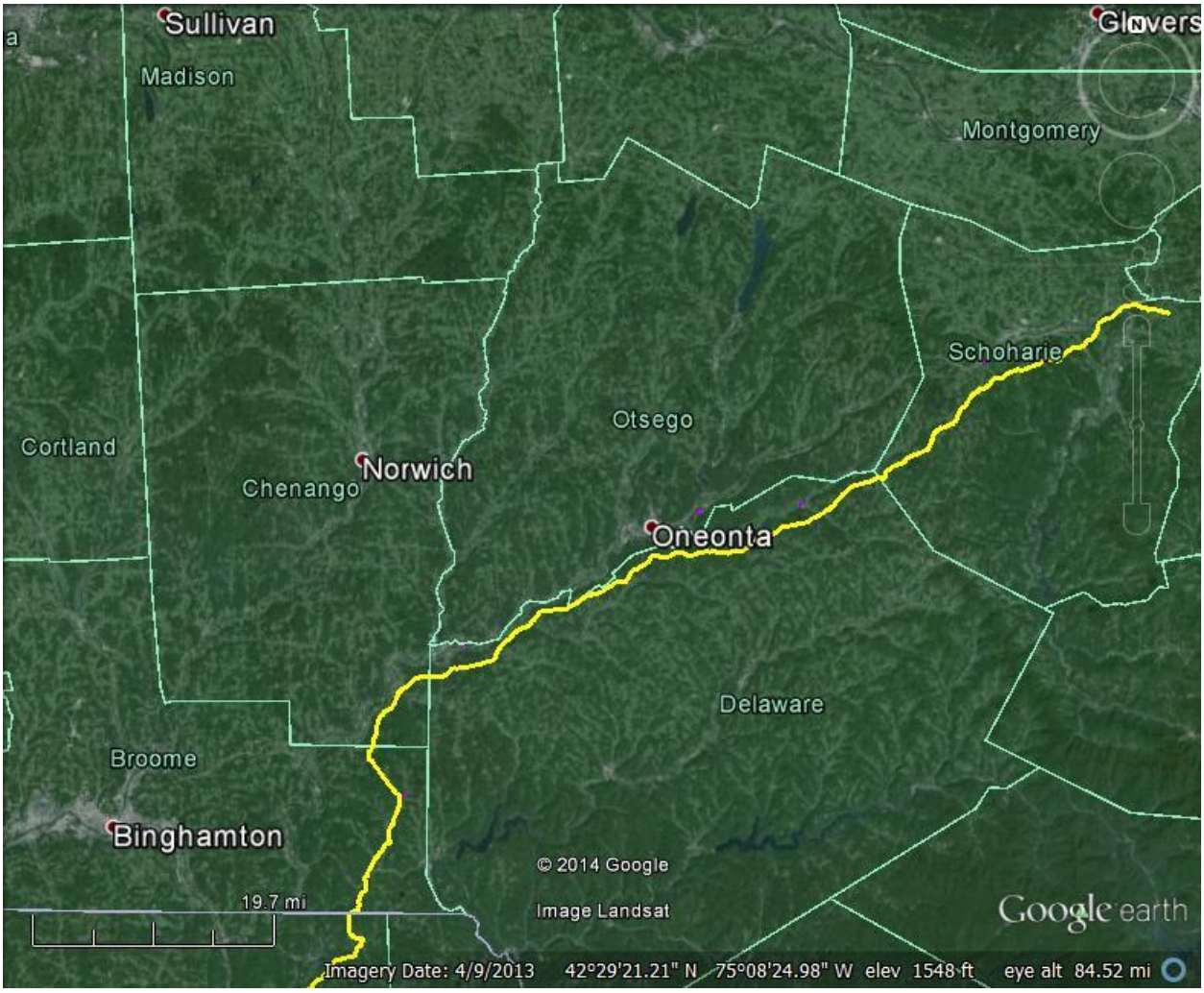

Figure 2. County level perspective of the proposed Constitution Pipeline (in yellow) in New York.

With the exception of 6 km (3.7 mi) of the northern-most portion that lies within the Mohawk Valley Ecological Major Zone (NYSDEC 2014), the survey route is entirely within the Appalachian Plateau Major Zone (Figure 3) where Oak-northern hardwood forests is the dominant forest type (NYSDEC 2014). Nearly the entire length is within the Central Appalachian Ecological Sub-Zone, although the northern extreme includes 13 km (8 mi) in the Schoharie Hills and 4 km (2.5 mi) in the Heldeberg Highlands Ecological Sub-Zones. The region is hilly and although elevations exceed 396 m (1,300 ft) across nearly the entire length of the sampling area, they range from about 183 m (600 ft) near the village of Schoharie, to nearly 671 m (2,200 ft) near the village of Summit, both in Schoharie County (Google Earth 2013). Forests dominate the hill tops in the project area and a mixture of forests, abandoned fields/shrublands, pastures, and croplands are present in the valley regions (Google Earth 2013).

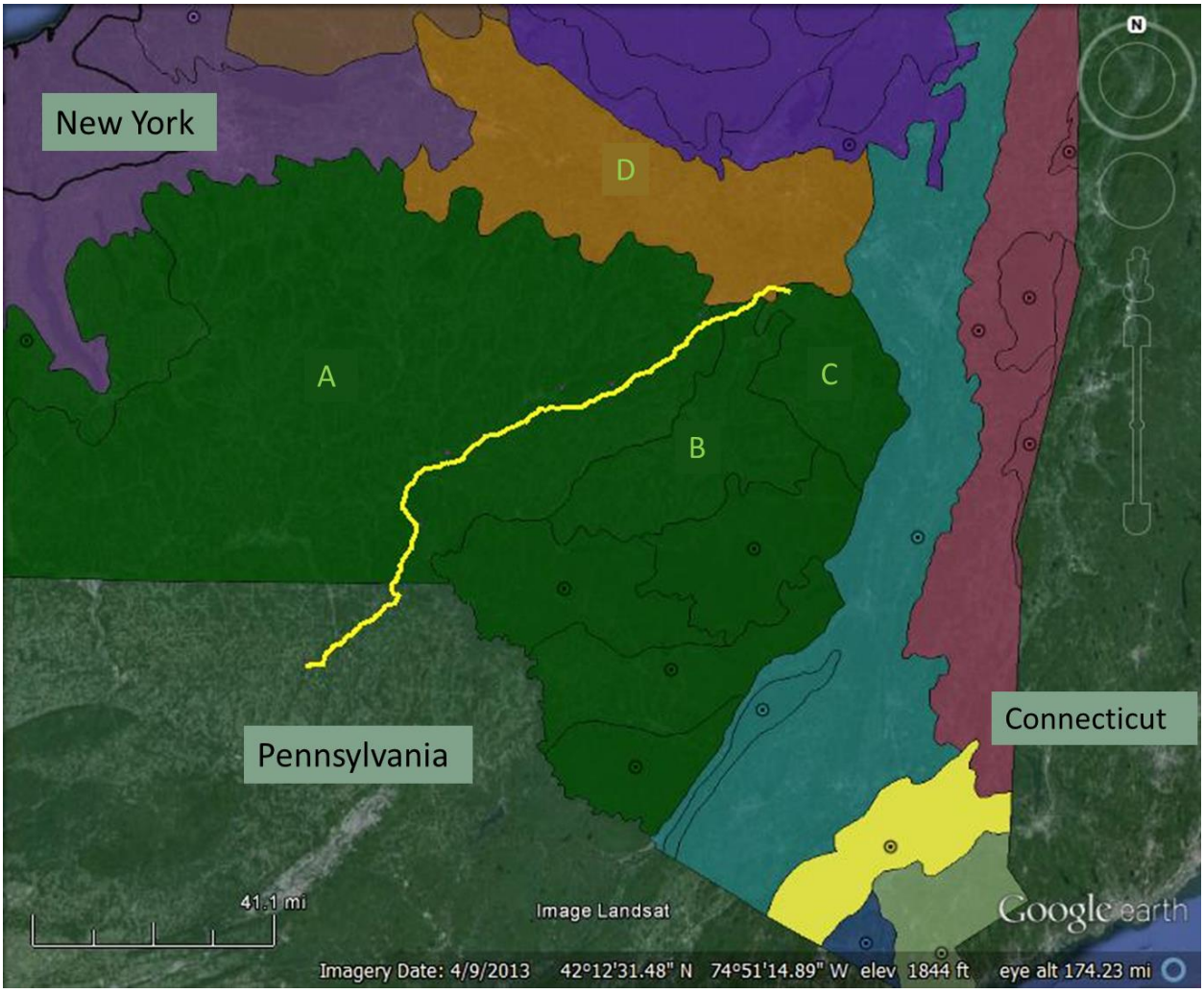

Figure 3. Ecological zones associated with the Constitution Pipeline route in New York (NYSDEC 2014). The proposed pipeline route (yellow line) is almost entirely within three subzones of the of the Appalachian Plateau Major Ecological Zone (green) , including the Central Appalachian (A), Schoharie Hills (B) and Heldeberg Highlands Ecological Sub-Zones (C). The Mohawk Valley Ecological Major Zone (D) is in brown.

Methodology

Selecting sampling locations

Potential roosting habitat (trees) that coincides with the proposed pipeline corridor, access roads, or contractor yards was identified using 2011 Landsat images (Google Earth 2013). Linear features (corridor, access roads) were marked at approximately 1 km (0.62 mi) intervals of forested habitat beginning at the Pennsylvania border and moving northward (Appendix 1). Sites along the pipeline were labeled CP14-1 to CP14-105 and sites on access roads were labeled CP14-AC1 to CP14-AC10. A single preliminary sampling location was then identified from the images for each interval point. These preliminary locations were at least 200 m (656

ft) apart from one another and were selected based on four criteria of decreasing importance: 1) landowner permission to access the property; 2) likelihood of bat activity; 3) locations that were uncluttered and in sufficiently large and open areas to produce quality recordings of bat calls; and 4) proximity to their associated interval point and the pipeline. The preliminary sampling locations were marked with the associated interval point label (e. g., CP14-1) followed by the letter A (e. g., CP14-1A) (Appendix 1).

There are two non-linear, discrete site components of the Project (contractor yards) that include potential northern long-eared bat roosting habitat. Survey standards for non-linear features differ from those of linear features (USFWS 2014a). Non-linear features of this size require two survey locations at each yard. These locations must be separated by at least 200 m (656 ft), and must be sampled over two nights (4 detector nights per site).

Some interval points were located on properties where landowner survey access permission was denied. In those cases the closest suitable preliminary sample location on properties with survey access permission was selected. In situations where all other factors were equal, locations were selected on properties where the landowner did not require prior notice for access to the property.

Areas with isolated ponds or other water bodies are preferentially selected for sampling as they are the most likely regions of bat activity, serving as both a water source and as foraging habitat for bats. The next highest preference was habitat that provided travel corridors and foraging areas such as streams, laneways, and forest edges. Areas with small, interior forest openings had the lowest priority for sampling as they were the least likely to host activity from multiple bats. When all other considerations (discussed above) are equal, candidate sampling sites that are closer to the pipeline or interval point will be chosen over those that are farther away.

Quality recordings require that microphones be deployed in areas that are at no closer than 1.5 m (5 ft) in any direction from vegetation or other obstructions, and that have minimal or no vegetation closer than 10 m (33 ft) directly in front of the microphone. Because the structure of bat calls is often atypical when animals first leave their roosts, microphones will be set no closer than 15 m (49 ft) from known or suitable roost sites (trees/snags, buildings, or bridges). This will ensure that microphones record typical foraging calls.

Microphone placement/orientation

Microphones will be at least 1.5 m (5 ft) above the vegetation and angled upward as much as necessary to avoid reflections from nearby vegetation while maximizing the volume of air space being sampled.

On forest edges, the microphone will be placed parallel to the tree line. Detectors deployed nearer the ground will be aimed 45 degrees or more above horizontal. Microphones deployed higher within the flight path/zone will be oriented horizontally. In some circumstances (e. g., small forest openings), it might be necessary to aim the microphone vertically.

Sampling protocol

Surveys will be conducted in accordance with Appendix B of the 2014 Range-wide Indiana Bat Summer Survey Guidelines (USFWS 2014a), which also serves as the guideline for northern long-eared bat surveys (USFWS 2014b). Crews of two people will go to the preliminary sampling locations identified from satellite imagery to assess the quality of the exact site relative to options in the immediate vicinity. The final sampling point will be based on the sampling priorities noted previously. The acoustic detector will be deployed, Global Positioning System (GPS) coordinates and other relevant details (detector, microphone, and temperature probe used, deployment height, distance to clutter, date and time) will be noted, and the completed set will be photographed to document the height and orientation of the microphone and the landscape within the cone of detection of the microphone.

The iFR-IV integrated field recorder (Binary Acoustics Technologies, Tucson, AZ) will be used, which is a full spectrum acoustic recorder. Battery power will be supplemented using solar panels of 20 watts (model 20J, Ameresco Solar, Framingham, MA) or 18 watts (Model SC18, Sunwize Technologies Inc., San Jose, CA). Microphones will be affixed to vertical 2.9m (9 ft) long sections of 38 millimeter (mm) (1.5 inch [in]) diameter aluminum pole. Microphones will be mounted to the pole using a section of 13 mm x 3 mm (1/2 in x 1/8 in) flat aluminum about 230 mm (9 in) long that can be adjusted to any angle (45 degrees will be standard). Sampling will be conducted from sunset to sunrise during two nights of acceptable weather. Unacceptable weather conditions are defined as follows: 1) temperature that falls below 50°F (10°C) during the first 5 hours; 2) precipitation, including rain and/or fog, that exceeds 30 minutes or continues intermittently during the first 5 hours of the survey period; and 3) sustained wind speeds greater than 9 miles/hour (4 meters/second; 3 on Beaufort scale) during the first 5 hours of the survey period. At a minimum, nightly weather conditions for survey sites will be checked using the nearest National Oceanographic and Atmospheric Administration (NOAA) National Weather Service station and summarized in the survey reports. A temperature probe (Hobo Pendant, Onset Computer Corporation, Borne, MA) will record temperatures at 15 minute intervals throughout all survey days to document temperature. An analysis of the recorded files will indicate the timing and duration of rain. The closest NOAA weather station will be used to document wind speeds.

Detectors will be confirmed to be functioning properly by the manufacturer immediately prior to the onset of the project. Activated units will be programmed to begin recording before sunset and stop recording after sunrise each morning. At the end of each recording session, the unit performs an automated self-test to document that it is still functioning properly. Recordings will be made using SPECTOR III software (Binary Acoustics Technologies, Tucson, AZ). Both acoustic and temperature data will be downloaded daily from each detector to external drives (Cruzer Guide 64 GB, SanDisk Corporation, Milpitas, CA).

Call analysis

Call analysis will be performed as during 2013 surveys. All recorded files will first be processed using SCAN'R software (Binary Acoustic Technology, Tucson, AZ). To ensure that calls subsequently run through the automated programs are of reasonable quality, the scan will be run on high fit restriction and require at least three pulses per file. For all other settings, the manufacture's default settings will be used. SCAN'R will separate the files that included bat calls of sufficient quality for further analysis (passed files) from those files that do not (failed files). Passed files will then be analyzed using both Echoclass software (Eric Britzke, U.S. Army Engineer Research and Development Center, Vicksburg, MS) and Kaleidoscope software (Wildlife Acoustics, Concord, MA). To use Echoclass, the full-spectrum files produced by the detectors will be converted into Anabat files using Anabat Converter v0.8, developed by Bertrik Sikken (Sikken 2012). In the Echoclass dialogue box Set 2 (nine species, Northeast) will be selected. To be consistent, Kaleidoscope will be run with the same nine species selected.

Qualitative assessments

Files identified as potential northern long-eared or Indiana bats will be reviewed in accordance with USFWS guidelines (USFWS 2014a, 2014b). The acoustic identification programs all have implemented a maximum likelihood estimator (MLE) at this time. If the analysis of collected calls at a given site on a given night results in the probable presence of either species with high levels of certainty ($P<0.05$), the files will then be manually reviewed and a decision will be made to either accept presence or conduct a qualitative analysis.

The qualitative analysis must include the entire night's call data, not just those files determined by the acoustic analysis tools to be probable northern long-eared bats or Indiana bats. Qualitative analysis will also include a comparison of the results of each acoustic identification software program by site and night including the number of call files flagged as probable northern long-eared or Indiana bats by each software program used; an evaluation of other species identified by each software program; individual file level agreements and disagreements on northern long-eared bats or Indiana bats between software programs; and a

qualitative analysis of all probable call sequences of either species to further evaluate that the correct identification has been recommended by the program used.

Copies of all call files will be provided upon request to the USFWS and the NYSDEC.

Sample sites

There are 119 sampling sites in the Project including 105 sites associated with the pipeline, 10 sites associated with the access roads, and 4 sites associated with contractor yards (Table 1; Appendix 1). The sites occur in a variety of settings including woodland openings (n=29), woodland/field edges (n=29), woodland/old field edge (n=13), woodland/shrub edges (n=2), woodland/wetland edge (n=1), ponds (n=28), lakes (n=2), roads (n=4), streams (n=3), and utility rights-of-ways (n=8).

Table 1. Locations and descriptions of sample sites.

Site	Mile Marker	Habitat Type	Road Length	Meters From Line	GPS Coordinates
Preliminary Sampling Points on the Pipeline Corridor					
CP14-1A	25.9	WO	N/A		42° 0'8.53"N, 75°31'47.63"W
CP14-2A	26.5	P	N/A	71 (216 ft)	42° 0'40.49"N, 75°31'30.44"W
CP14-3A	27.1	L	N/A		42° 1'4.43"N, 75°31'39.24"W
CP14-4A	28.3	P	N/A	62 (188 ft)	42° 1'52.07"N, 75°30'55.35"W
CP14-5A	29.0	WF	N/A		42° 2'22.25"N, 75°31'7.82"W
CP14-6A	30.6	P	N/A	75 (229 ft)	42° 3'34.78"N, 75°30'21.61"W
CP14-7A	31.3	WO	N/A		42° 4'0.36"N, 75°29'54.30"W
CP14-8A	32.0	WF	N/A	193 (589 ft)	42° 4'22.91"N, 75°29'17.36"W
CP14-9A	33.0	S	N/A	61.8 (188 ft)	42° 4'59.54"N, 75°28'38.56"W
CP14-10A	33.7	WW	N/A		42° 5'25.46"N, 75°28'51.70"W
CP14-11A	36.9	ROW	N/A		42° 8'8.63"N, 75°27'45.14"W
CP14-12A	37.7	P	N/A		42° 8'40.53"N, 75°28'19.30"W
CP14-13A	38.7	ROW	N/A		42° 9'18.40"N, 75°29'4.63"W
CO14-14A	39.4	P	N/A	114 (346 ft)	42° 9'45.74"N, 75°29'37.02"W
CP14-15A	40.2	ROW	N/A		42°10'19.88"N, 75°30'3.71"W
CP14-16A	41.1	P	N/A	61 (184 ft)	42°10'51.26"N, 75°30'40.78"W
CP14-17A	41.9	WF	N/A		42°11'27.82"N, 75°30'32.16"W
CP14-18A	43.3	WF	N/A		42°12'29.16"N, 75°30'3.89"W
CP14-19A	44.1	R	N/A		42°13'8.71"N, 75°30'1.33"W
CP14-20A	45.2	WOF	N/A		42°13'56.60"N, 75°29'28.50"W
CP14-21A	45.8	WO	N/A		42°14'18.19"N, 75°28'56.87"W
CP14-22A	47.3	WF	N/A		42°15'21.15"N, 75°27'59.41"W
CP14-23A	47.8	S	N/A		42°15'40.62"N, 75°27'44.82"W
CP14-24A	48.7	ROW	N/A	54.6 (166 ft)	42°16'9.10"N, 75°26'56.28"W

Table 1. Locations and descriptions of sample sites.

Site	Mile Marker	Habitat Type	Road Length	Meters From Line	GPS Coordinates
CP14-25A	49.5	WO	N/A		42°16'33.37"N, 75°26'10.17"W
CP14-26A	50.0	WO	N/A		42°16'38.63"N, 75°25'44.15"W
CP14-27A	50.5	WO	N/A		42°16'39.77"N, 75°25'7.27"W
CP14-28A	51.2	P	N/A	217 (660 ft)	42°16'48.90"N, 75°24'20.58"W
CP14-29A	51.9	WF	N/A		42°16'45.94"N, 75°23'30.63"W
CP14-30A	52.8	ROW	N/A		42°17'15.47"N, 75°22'43.71"W
CP14-31A	53.3	ROW	N/A		42°17'18.10"N, 75°22'7.76"W
CP14-32A	54.0	P	N/A	77 (234 ft)	42°17'18.65"N, 75°21'23.13"W
CP14-33A	54.6	P	N/A		42°17'28.38"N, 75°20'42.73"W
CP14-34A	55.5	WF	N/A		42°17'39.48"N, 75°19'42.62"W
CP14-35A	57.9	WOF	N/A		42°18'58.87"N, 75°17'56.42"W
CP14-36A	58.9	P	N/A		42°19'33.72"N, 75°17'2.20"W
CP14-37A	59.6	P	N/A	122 (371 ft)	42°20'1.20"N, 75°16'32.61"W
CP14-38A	60.6	WOF	N/A		42°20'22.04"N, 75°15'21.72"W
CP14-39A	61.6	WO	N/A		42°20'59.19"N, 75°14'42.48"W
CP14-40A	62.6	WO	N/A	93 (284 ft)	42°21'23.07"N, 75°13'43.56"W
CP14-41A	63.1	WO	N/A		42°21'22.44"N, 75°13'4.46"W
CP14-42A	63.7	WO	N/A		42°21'25.02"N, 75°12'23.90"W
CP14-43A	64.2	L	N/A	437 (1,328 ft)	42°21'30.88"N, 75°11'46.05"W
CP14-44A	65.2	WOF	N/A		42°21'54.51"N, 75°10'50.60"W
CP14-45A	66.8	P	N/A	461 (1400 ft)	42°22'32.45"N, 75° 9'15.94"W
CP14-46A	67.8	WO	N/A	250 (759 ft)	42°22'44.78"N, 75° 8'6.34"W
CP14-47A	67.8	WO	N/A	679 (2,064 ft)	42°22'28.24"N, 75° 7'49.92"W
CP14-48A	69.0	WF	N/A		42°23'18.63"N, 75° 6'55.13"W
CP14-49A	70.2	WF	N/A		42°23'45.76"N, 75° 5'55.82"W
CP14-50A	70.8	WOF	N/A		42°24'10.74"N, 75° 5'31.82"W
CP14-51A	71.9	WO	N/A		42°24'32.91"N, 75° 4'30.91"W
CP14-52A	72.4	WOF	N/A		42°24'53.40"N, 75° 4'5.92"W
CP14-53A	73.3	WF	N/A		42°25'7.70"N, 75° 3'15.16"W
CP14-54A	74.3	WO	N/A		42°25'8.11"N, 75° 2'8.26"W
CP14-55A	74.7	WO	N/A	80 (244 ft)	42°25'19.12"N, 75° 1'46.17"W
CP14-56A	75.9	WOF	N/A	72 (220 ft)	42°25'11.78"N, 75° 0'23.99"W
CP14-57A	76.5	WOF	N/A	5 (229 ft)	42°25'21.56"N, 74°59'29.04"W
CP14-58A	76.9	WO	N/A		42°25'20.68"N, 74°59'18.77"W
CP14-59A	78.4	P	N/A	95 (288 ft)	42°25'26.66"N, 74°57'35.62"W
CP14-60A	79.2	WO	N/A		42°25'19.39"N, 74°56'42.70"W
CP14-61A	80.3	WF	N/A	60 (181 ft)	42°25'32.42"N, 74°55'28.98"W
CP14-62A	80.6	WO	N/A	135 (410 ft)	42°25'30.52"N, 74°55'3.38"W
CP14-63A	81.7	S	N/A		42°26'4.13"N, 74°54'10.37"W
CP14-64A	82.5	WF	N/A	150 (457 ft)	42°26'17.44"N, 74°53'17.99"W
CP14-65A	83.4	WF	N/A	135 (410 ft)	42°26'35.51"N, 74°52'17.98"W

Table 1. Locations and descriptions of sample sites.

Site	Mile Marker	Habitat Type	Road Length	Meters From Line	GPS Coordinates
CP14-66A	83.8	P	N/A	176 (536 ft)	42°26'53.39"N, 74°51'58.95"W
CP14-67A	84.9	WF	N/A		42°27'13.45"N, 74°50'46.94"W
CP14-68A	85.3	WO	N/A	62 (188 ft)	42°27'17.21"N, 74°50'26.79"W
CP14-69A	86.7	ROW	N/A		42°27'33.82"N, 74°48'51.20"W
CP14-70A	87.1	P	N/A	334 (1,014 ft)	42°27'36.42"N, 74°48'22.62"W
CP14-71A	87.7	WF	N/A		42°27'59.13"N, 74°47'48.99"W
CP14-72A	88.9	WF	N/A		42°28'29.90"N, 74°46'42.69"W
CP14-73A	89.9	WOF	N/A		42°29'9.43"N, 74°45'53.43"W
CP14-74A	91.1	WOF	N/A	118 (361 ft)	42°29'47.65"N, 74°44'53.28"W
CP14-75A	91.8	WOF	N/A		42°30'6.28"N, 74°44'8.57"W
CP14-76A	92.6	WO	N/A		42°30'14.71"N, 74°43'17.03"W
CP14-77A	93.4	WOF	N/A		42°30'31.65"N, 74°42'23.11"W
CP14-78A	94.7	P	N/A	141 (429 ft)	42°31'4.68"N, 74°41'30.00"W
CP14-79A	95.4	P	N/A		42°31'21.76"N, 74°40'48.93"W
CP14-80A	96.2	WO	N/A		42°31'33.78"N, 74°39'54.95"W
CP14-81A	96.8	WO	N/A		42°31'55.05"N, 74°39'27.56"W
CP14-82A	98.1	WO	N/A		42°32'20.75"N, 74°38'2.71"W
CP14-83A	98.8	WS	N/A	172 (523 ft)	42°32'41.07"N, 74°37'17.28"W
CP14-84A	99.6	WF	N/A		42°33'17.11"N, 74°37'6.34"W
CP14-85A	101.7	WO	N/A		42°34'12.88"N, 74°35'16.11"W
CP14-86A	102.6	R	N/A		42°34'49.04"N, 74°34'40.42"W
CP14-87A	102.9	P	N/A	403 (1,227 ft)	42°35'5.56"N, 74°34'46.96"W
CP14-88A	103.4	WO	N/A	128 (388 ft)	42°35'25.59"N, 74°34'19.03"W
CP14-89A	104.8	P	N/A		42°36'16.09"N, 74°33'16.03"W
CP14-90A	105.6	P	N/A	186 (564 ft)	42°36'46.20"N, 74°32'34.37"W
CP14-91A	106.4	WO	N/A		42°36'56.96"N, 74°31'42.93"W
CP14-92A	107.5	WO	N/A		42°37'27.72"N, 74°30'43.71"W
CP14-93A	108.4	P	N/A	237 (721 ft)	42°37'41.35"N, 74°29'44.80"W
CP14-94A	108.9	WF	N/A		42°37'57.64"N, 74°29'15.19"W
CP14-95A	110.1	WF	N/A		42°38'7.83"N, 74°28'0.58"W
CP14-96A	111.1	R	N/A		42°38'23.97"N, 74°26'53.70"W
CP14-97A	111.7	P	N/A	85.6 (260 ft)	42°38'38.86"N, 74°26'18.88"W
CP14-98A	112.7	P	N/A	321 (977 ft)	42°38'50.96"N, 74°24'59.34"W
CP14-99A	113.3	P	N/A	279 (847 ft)	42°39'3.49"N, 74°24'42.80"W
CP14-100A	114.4	WF	N/A	137 (415 ft)	42°39'35.66"N, 74°23'38.64"W
CP14-101A	116.1	WF	N/A	220 (668 ft)	42°40'12.16"N, 74°21'55.10"W
CP14-102A	117.5	WS	N/A	113 (343 ft)	42°40'58.45"N, 74°21'2.80"W
CP14-103A	118.5	P	N/A	97 (294 ft)	42°41'31.20"N, 74°20'17.79"W
CP14-104A	119.4	WF	N/A	54 (163 ft)	42°41'53.02"N, 74°19'20.64"W
CP14-105A	121.1	WOF	N/A		42°42'32.57"N, 74°17'41.95"W
Preliminary Sampling Points on Access Roads					

Table 1. Locations and descriptions of sample sites.

Site	Mile Marker	Habitat Type	Road Length	Meters From Line	GPS Coordinates
CP14-AC1A	44.3	R	0.52		42°13'16.17"N, 75°30'16.84"W
CP14-AC2A	54.1	P	1.32		42°17'11.72"N, 75°21'26.75"W
CP14-AC3A	55.1	ROW	0.58		42°17'34.23"N, 75°20'7.20"W
CP14-AC4A	62.6	WO	0.62	61 (184 ft)	42°21'3.84"N, 75°13'45.86"W
CP14-AC5A	65.9	WF	0.12		42°22'23.29"N, 75°10'11.87"W
CP14-AC6A	72.8	P	1.16		42°25'27.62"N, 75° 4'13.82"W
CP14-AC7A	73.7	WF	0.61		42°24'55.43"N, 75° 3'6.79"W
CP14-AC8A	89.4	WF	0.41		42°28'55.88"N, 74°46'23.89"W
CP14-AC9A	100.0	WF	0.16		42°33'32.69"N, 74°36'59.22"W
CP14-AC10A	106.5	WO	0.08		42°37'0.85"N, 74°31'37.33"W
Preliminary Sampling Points at Contractor Yards					
CP14-CY1A	N/A	P	N/A	N/A	42°28'57.70"N, 74°49'40.86"W
CP14-CY1B	N/A	WF	N/A	N/A	42°28'47.51"N, 74°49'48.37"W
CP14-CY2A	NA	WF	N/A	N/A	42°38'40.09"N, 74°31'50.31"W
CP14-CY2B	NA	WF	N/A	N/A	42°38'32.10"N, 74°31'56.92"W

Note: **N/A** indicates Not Applicable. **Mile Marker** indicates the site location relative to the southern end of the pipeline in Pennsylvania. **Habitat Type** reflects the area at the preliminary sampling point: WO = woodland opening; WF = woodland/field edge; WOF = woodland/old field edge; WS = woodland/shrub edge; WW = woodland/wetland edge; P = pond; L = lake; R = road; S = stream; ROW = power line right-of-way. **Road Length** indicates the portion of the access road that might be modified that is located in wooded habitat. **Meters From Line** indicates the distance of the sampling point from the pipeline (or access road) if that distance exceeds 49 m (150 ft). **GPS coordinates** are from Google Earth (2013).

Timeline

Surveys will begin after May 15, 2014 and end before July 31, 2014.

Expected Results

These surveys for northern long-eared bat meet or exceed the requirements of the NYSDEC and the USFWS for determining the presence or probable absence of the northern long-eared bat along the proposed route of the Constitution Pipeline Project in New York.

Required Permits

Permits are not required for acoustic surveys. Should netting or radio-tagging be required by regulatory agencies due to the possible presence of northern long-eared bat, activities will be conducted under permits held by Vesper Environmental, LLC (USFWS permit number

TE74589A-0, NYSDEC permit number #157 [Endangered/ Threatened Scientific] and NYSDEC permit number #1222 [Scientific Collector]).

Crew Leaders

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Citations

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Appendix 1
Sampling Sites for 2014 Acoustic Surveys for Bats Along the Constitution Pipeline

(Digital Data Files Submitted on Separate Disk)