APPENDIX K-3
ECOLOGICAL INVESTIGATION REPORT

Prepared by B.Laing Associates, November 2022

LEPIDOPTERAN FINDINGS REPORT
PINELAWN SITE
SUFFOLK COUNTY, NEW YORK

November 2022

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1.0 INTRODUCTION

B. Laing Associates, Inc. has prepared this report in connection with existing condition analyses on the subject property ("the Site") located in Wyandanch, Town of Babylon, Suffolk County, New York. See Figure 1 for a mapped location of the Site. The purpose of this report is to present the findings of site inspections and reviews for the possible presence of rare or listed *Lepidoptera* (i.e., butterflies and moths), following correspondence with the New York Natural Heritage Program (NYNHP) dated August 20, 2021. While the field inspections were targeting the presence of Lepidoptera, a general review of flora and fauna is also provided herein.

In summary, the NYNHP provided a report of rare or state-listed species and habitat-types that their database indicates have the potential to occur on site. Among the species listed were Edward's hairstreak (*Satyrium edwardsii*) and Coastal barrens buckmoth (*Hemileuca maia ssp.* 5). According to the NYNHP report, these species were documented to exist on the subject site in the 1980's and 1990's. As above, B. Laing Associates Inc., along with Nelson Pope Voorhis personnel conducted site inspections of the Site to determine if these species were still present, four times between 2021 and 2022. Both Edward's hairstreak and Coastal barrens buckmoth were observed on site during the 2021-2022 field investigations. Findings of these analyses and further discussions are included below.

B. Laing Associates, Inc. has conducted natural resource assessments for Endangered, Threatened and Species of Special Concern related to establishing conservation easements or receiving ECL Article 11/USFWS Section 7 permits for public improvements and private developments for more than 35 years. Projects involving these species have included (1) numerous "no-population" surveys, (2) population present resulting in mitigation with and extended buffers and (3) population present resulting in mitigation full donation/conservation.

2.0 SITE CONDITIONS

2.1 Existing Condition

The subject site is an undeveloped property, surrounded by a mixed use of residential development, cemeteries, a local park, and an active railroad line. The site is in Wyandanch, Town of Babylon, Suffolk County, New York. It is bordered on the west by Little E Neck Road and Pinelawn Memorial Park/Long Island National Cemetery; on the north by Kevin Ver Pault Memorial Park and residential developments; on the east by residential developments; and on the south by the Long Island Rail Road's railroad tracks and more residential developments. The site is ±109.4-acres and is comprised of one tax parcel. The site has existing road access from Little E Neck Road.

The site is presently unimproved, although a large portion is periodically (less than annually) maintained by mowing. Thus, the mowed portion is maintained as a shrub-dominated habitat, often interspersed with groves of trees. The balance of the site remains in young to secondary woodlands. A discussion of the site's vegetation can be found below.

FIGURE 1

Site Location Map
Boundaries Approximate
(Source: Google Imagery)

2.2 Vegetation

While the primary goal of the site inspections was to determine the presence/absence of certain Lepidoptera, vegetation and habitat types were roughly inventoried as they related to the efforts. Most of the project site's habitats are characteristic of Pitch Pine-Scrub Oak Barrens (as indicated by the NYNHP report).

The tree layer on site ranges from a closed canopy woodland to areas entirely lacking a tree stratum. The site's northeast and northern sections are not barren habitat, being largely comprised of mature oaks, including white oak (*Quercus* alba) as well as white pine (*Pinus strobus*). However, in much of the site, the dominant tree was pitch pine (*Pinus rigida*), which tended to be less dense (i.e., a mostly open canopy) or widely spaced (as is characteristic of pitch pine-scrub oak barrens.)

The understory on site ranged from marginal (where exposed sand existed) to thick. Substantial areas throughout the central portion of the site were largely dominated by 2-meter-sized bear oak (*Quercus ilicifolia*) with interspersed black cherry (*Prunus serotina*), sweetfern (*Comptonia peregrina*), and persistent herbs such as wild indigo (*Baptisia tinctoria*). These areas which lack a tree stratum appear to be mowed every few years, replicating natural disturbance.

As in the shrub layer, the herbaceous layer ranged from marginal to complete coverage. Areas of meadows exist throughout the site, which are comprised of a mix of wildflowers and grasses. These habitats provide good nectaring opportunities for butterflies and moths. The herbaceous plants found on site were those typical of dry, sandy uplands such as bracken fern (*Pteridum aquilinum*) and whorled loosestrife (*Lysimachia quadrifolia*). However, one small area of occasionally ponded water is dominated by herbaceous plants more associated with wetlands (i.e., *Scirpus, Carex*, etc.)

A full list of plants observed on site can be found in Table 1[1].

2.3 Soil

Per the Natural Resources Conservation Service, the site is dominated by three soil types. All three of the soil types (Haven loam, Plymouth loamy coarse sand, and Riverhead sandy loam) are considered well to excessively well drained (i.e., upland) soils. This is typical of Pitch Pine Scrub-Oak Barrens which are found on well drained, sandy soils.

2.4 Hydrology

The site, as assessed, is entirely uplands with well drained soils dominating the landscape. The lack of hydrologic features on-site is possibly due to (i) the dominance of sands, (ii) the absence of a geologic, impermeable layer or aquiclude beneath the sandy sediment layer, (iii) no opportunity for groundwater to express itself near or at the surface. Due to the soils, the permeability rate is high throughout the soil solum and site conditions are dry.

[1] The purpose of these investigations was not for botanical inventorying. As such, this list is likely incomplete.

An area of old construction/excavation activity can be found at the site's central southern section. From excavating and stockpiling material, some water has become ponded, at least occasionally. This has allowed a situation for wetland plants to dominate this small area.

2.5 General Wildlife

While the field inventories were specifically targeting Lepidoptera, several species of general wildlife were observed during B. Laing Associates, Inc.'s day-time field inventories of the subject site. Wildlife recorded consisted of resident or migratory species common to Suffolk County including expected birds (e.g., woodpeckers, sparrows, warblers, etc.), mammals, insects, and herps (i.e., reptiles and amphibians) typical of the area. Birds (and other wildlife) which are characteristic of Pitch Pine-Scrub Oak Barrens such as Prairie Warbler (*Setophaga discolor*), Indigo Bunting (*Passerina cyanea*), etc. were specifically noted.

During field inventories, Edward's hairstreak and Coastal barrens buckmoths were observed on site. A discussion of these specific species is discussed below. A full list of species observed on site can be found in Table 2.

Table 1 **Plant Species Observed on Site** **(Alphabetical)**	
Common Name	**Scientific Name**
Asiatic bittersweet	*Celastrus orbiculatus*
Bear oak	*Quercus ilicifolia*
Big bluestem	*Andropogon gerardi*
Bigtooth Aspen	*Populus grandidentata*
Birds foot trefoil	*Lotus corniculatus*
Black cherry	*Prunus serotina*
Black cherry	*Prunus serotina*
Bracken fern	*Pteridium aquilinum*
Bush clover	*Lespedeza*
Bushy aster	*Symphyotrichum dumosum*
Canada wild lettuce	*Lactuca canadensis*
Chinese bush clover	*Lespedeza cuneata*
Chinkapin oak	*Quercus prinoides*
Common knapweed	*Centaurea nigra*
Common milkweed	*Asclepias syriaca*
Cyperoideae sedge	*Carex sect. cyperoideae*
Goldenrod	*Solidago sp.*
Grape vine	*Vitis sp.*
Hairy bush clover	*Lespedeza hirta*
Indian grass	*Sorghastrum nutans*
Little bluestem	*Schizachyrium scoparium*
Little-leaf trick trefoil	*Desmodium ciliare*
Mugwort	*Artemisia vulgaris*
Pitch pine	*Pinus rigida*
Poison ivy	*Toxicodendron radicans*
Primrose	*Oenothera biennis*
Purple loosestrife	*Lythrum salicaria*
Purpletop	*Tridens flavus*
Queen Anne’s lace	*Daucus carota*
Raspberry	*Rubus idaeus*
Red clover	*Trifolium pratense*
Red oak	*Quercus rubra*
Sensitive pea	*Chamaecrista fasciculata*
Shining sumac	*Rhus copallinum*
Showy tick-trefoil	*Desmodium canadense*
Smartweed	*Persicaria sp.*

Table 1, continued.	
Smooth greenbriar	*Smilax rotundifolia*
Soft rush	*Juncus effusus*
Spreading dogbane	*Apocynum andrisaemifolium*
Sweet everlasting	*Pseudognaphalium obtusifolium*
Sweetfern	*Componia peregrina*
Switchgrass	*Panicum virgatum*
Thistle	*Cirsium vulgare*
Timothy grass	*Phleum pratense*
White clover	*Trifolium repens*
White oak	*Quercus alba*
White pine	*Pinus strobus*
Whorled loosetrife	*Lysimachia quadrifolia*
Wild indigo	*Baptisia tinctoria*
Woolgrass	*Scirpus cyperinus*
Yellow foxtail	*Setaria pumila*

Table 2 **Wildlife Observed on Site (Alphabetical)**		
Type	**Common Name**	**Scientific Name**
Mammals	Eastern chipmunk	*Tamias striatus*
	Eastern gray squirrel	*Sciurus carolinensis*
	Raccoon	*Procyon lotor*
Birds	American crow	*Corvus brachyrhynchos*
	American goldfinch*	*Spinus tristis*
	Baltimore oriole*	*Icterus galbula*
	Barn swallow	*Hirundo rustica*
	Black-capped chickadee*	*Poecile atricapillus*
	Blue jay*	*Cyanocitta cristata*
	Blue-headed vireo	*Vireo solitarius*
	Cedar waxwing*	*Bombycilla cedrorum*
	Chimney swift	*Chaetura pelagica*
	Chipping sparrow*	*Spizella passerina*
	Common raven	*Corvus corax*
	Common yellowthroat	*Geothlypis trichas*
	Dickcissel	*Spiza americana*
	Downy woodpecker*	*Picoides pubescens*
	Eastern kingbird*	*Tyrannus tyrannus*
	Eastern towhee*	*Pipilo erythrophthalmus*
	European starling*	*Sturnus vulgaris*
	Field sparrow*	*Spizella pusilla*
	Fish crow	*Corvus ossifragus*
	Gray catbird*	*Dumetella carolinensis*
	Hairy woodpecker*	*Leuconotopicus villosus*
	House wren*	*Troglodytes aedon*
	Indigo bunting*	*Passerina cyanea*
	Mourning dove*	*Zenaida macroura*
	Myrtle warbler	*Setophaga coronata coronata*
	Northern cardinal*	*Cardinalis cardinalis*
	Northern flicker*	*Colaptes auratus*
	Northern mockingbird*	*Mimus polyglottos*
	Orchard oriole*	*Icterus spurius*
	Palm warbler	*Setophaga palmarum*
	Pine warbler*	*Setophaga pinus*
	Prairie warbler*	*Setophaga discolor*
	Red-bellied woodpecker*	*Melanerpes carolinus*

Table 2, continued.		
	Red-tailed hawk	*Buteo jamaicensis*
	Song sparrow*	*Melospiza melodia*
	Swamp sparrow	*Melospiza georgiana*
	Willow flycatcher*	*Empidonax traillii*
	Yellow warbler*	*Setophaga petechia*
Lepidopterans	American copper	*Lycaeba phlaeas*
	American lady	*Vanessa virginiensis*
	Banded hairstreak	*Satyrium calanus*
	Banded olethreutes moth	*Olethreutes fasciatana*
	Black swallowtail	*Papilio polyxenes*
	Cabbage white	*Pieris rapae*
	Celery looper moth	*Abagrapha falcifera*
	Clouded sulphur	*Colias philodice*
	Coastal barrens buckmoth	*Hemileuca maia ssp.5*
	Common buckeye	*Junonia coenia*
	Common sprague ia	*Spragueia leo*
	Common wood nymph	*Cercyonis pegala*
	Confused eusarca	*Eusarca confusaria*
	Coral hairstreak	*Satyrium titus*
	Distinct sparganothis	*Sparganothis distincta*
	Eastern giant Swallowtail	*Papilio cresphontes*
	Eastern pine elfin	*Callophrys niphon*
	Eastern tailed blue	*Cupido comyntas*
	Eastern tiger swallowtail	*Papilio glaucus*
	Edward's hairstreak	*Satyrium edwardsii*
	Fall webworm	*Hyphantria cunea*
	Forage looper	*Caenurgina erechta*
	Variegated ritillary	*Euptoieta claudia*
	Green cloverworm	*Hypena scabra*
	Horace's duskywing	*Erynnis horatius*
	Least skipper	*Ancyloxypha numitor*
	Lucerne moth	*Nomophilia nearctica*
	Metallic coleophora moth	*Coleophora mayrella*
	Monarch	*Danaus plexippus*
	Orange-patched smoky moth	*Pyromorpha dimidiata*
	Orange sulphur	*Colias eurytheme*
	Painted lady	*Vanessa cardui*
	Pearl crescent	*Phyciodes tharos*
	Question mark	*Polygonia interrogationis*

Table 2, continued.		
	Red-banded hairstreak	*Calycopis cecrops*
	Red-spotted purple	*Limenitis arthemis*
	Sachem skipper	*Atalopedes campestris*
	Silver spotted skipper	*Epargyreus clarus*
	Silver-spotted fern moth	*Callopistria cordata*
	Skipper sp.	*Hesperiidae*
	Snowy urola	*Urola nivalis*
	Southern cloudywing	*Thorbus bathyllus*
	Soybean looper	*Chrysodeixis includens*
	Spicebush swallowtail	*Papilio troilus*
	Summer azure	*Celastrina neglecta*
	Vetch looper moth	*Caenurgia chloropha*
	Viceroy	*Limenitis archippus*
	Wild indigo duskywing	*Erynnis baptisiae*
	Little wood satyr	*Megisto cymela*
	Zabulon skipper	*Poanes zabulon*
Other inverts	Black-legged tick	*Ixodes scapularis*
	Bush cricket	*Tettigoniidae sp.*
	Carolina grasshopper	*Dissosteira carolina*
	Carolina mantis	*Stagmomantis carolina*
	Chinese mantis	*Tenodera sinensis*
	Common whitetail	*Plathemis lydia*
	Damselfly sp.	*Zygoptera sp.*
	Dog tick	*Dermacentor variabilis*
	Dogbane leaf beetle	*Chrysochus auratus*
	Dog-day cicada	*Neotibicen canicularis*
	Dragonfly sp.	*Odonata sp.*
	Goldenrod soldier beetle	*Chauliognathus pensylvanicus*
	Halloween pennant	*Celithemis eponina*
	Lacewing	*Chrysopidae sp.*
	Leaf-footed bug	*Acanthocephala terminales*
	Locust borer	*Megacyllene robiniae*
	Lone-star tick	*Amblyomma americanum*
	Oak leaf rolling weevil	*Homoeolabus analis*
	Red milkweed beetle	*Tetraopes tetrophthalmus*
	Red spotted leaf-roller	*Synolabus bipustulatus*
	Scudder's short-wing grasshopper	*Melanoplus scudderi*
	Spotted cucumber beetle	*Diabrotica undecimpunctata*
	Yellow garden spider	*Argiope aurantia*

Table 2, continued.		
Herptiles	Fowler's toad	*Anaxyrus fowleri*
	Garter snake	*Thamnophis sirtalis*
* Indicates birds presumed, or confirmed, to breed on site.		

3.0 TARGETED LEPIDOPTERAN SPECIES

3.1 Potential for Listed Species

To understand if there is potential for listed (i.e., endangered and/or threatened) species of plant or animal to occupy the subject site, or have its habitat needs met by the subject site, inquiries were made to regulatory agencies. A New York Natural Heritage Program (NYNHP) request was made to determine if the New York State Department of Environmental Conservation (NYSDEC) had records of state-listed species, or their habitats, in the area.

As described above, the NYNHP letter indicated that Edward's Hairstreak and Coastal Barrens buckmoth have the potential to occur on site. In addition, both of these species were observed on site in the mid 1980's and early 1990's. As such, these species became the target of the field efforts, as described above. Note that neither of these species are either endangered or threatened in New York. A discussion of these specific species is discussed below.

3.2 Edward's Hairstreak (*Satyrium edwardsii*)

3.2.1 *Description, Life History, and Status*

The Edward's hairstreak is a species of hairstreak butterfly, closely related to other members of the similar-looking *Satyrium* genus. They are small (±1.25" long) warm gray-brown butterflies with plain gray upperwings. The underwings are relatively distinctly patterned with a band of well-spaced, ovular dark spots, which are almost entirely ringed in white. Like many other hairstreaks, they have small "tails" on each hindwing, which stems from a blue spot.

Edward's hairstreaks are considered "vulnerable" in New York State. It is a localized species, rarely found away from suitable habitat. In New York (and most of its range), the species occurs in sandy pine barrens, as well as other habitats where substantial patches of bear oak are present. Thus, the species can be found throughout numerous portions of the state, including the Shawangunk region, the Long Island Pine Barrens, and similar habitats including the Albany Pine Bush[2]. Like many species which rely on areas of bear oak, the species is dependent on periodic disturbance (i.e., fire, etc.) to prevent the succession from suitable habitat to unsuitable habitat.

In New York, Edward's hairstreak has one generation/brood per year. Eggs overwinter on bear oak and caterpillars hatch in spring. Following a pupation period, adults typically only fly between June and early August. During this time, they mate and lay eggs, which will overwinter to the

[2] Per NYNHP.

following year. When adults are flying, they are typically associated with bear oak when not nectaring on flowering plants.

3.2.2 *Potential for On-site Occurrence*

As discussed above, a large portion of the site is comprised of bear oak-dominated shrubland associated with Pitch Pine-Oak Barrens habitat. Thus, the species finds all of its habitat needs met by the site.

3.2.3 *Findings*

Edward's hairstreak was specifically sought out during field investigations by B. Laing Associates and Nelson Pope Voorhis staff. Of the four field investigations that were undertaken, only the fourth survey took place during the height of the flight period for this species. During the fourth field investigation, one individual of this species was observed on bear oak, near the northern portion of the site. The location of the observed Edward's Hairstreak can be found on the enclosed map by Nelson Pope Voorhis (Appendix C).

Edward's hairstreak looks very similar to banded hairstreak, though differences can be discerned with decent photographs or suitable visuals. While many banded hairstreaks were also observed, there were a few occurrences where banded/Edward's hairstreaks could not be discerned due to poor viewing conditions, the brevity of observation, etc. These may have been additional Edward's hairstreaks or, more likely, additional banded hairstreaks.

The NYNHP letter indicated that Edward's hairstreak was last seen on this Site on June 30, 1991. Considering observers were able to locate an individual of this species in suitable habitat, it should be assumed that this population has persisted during these intervening years.

3.3 Coastal Barrens Buckmoth (*Hemileuca maia spp. 5*)

3.3.1 *Description, Life History, and Status*

The Coastal barrens buckmoth is a species of giant silkworm (*Saturniidae*) moth. The designation "subspecies 5" refers to the coastal population from Long Island through Cape Cod which differs from all other *H. maia* populations. They are large (±2-3" long) black moths with white bands that transverse the forewings and hindwings; males have an orange-tipped abdomen. Unlike many species of giant silkworm moths, buckmoths are diurnal and fly during the day.

Coastal barrens buckmoths are an S2 species and considered of "Special Concern." The NYNHP categorizes them as imperiled in New York State and "Globally Uncommon." It is a localized species, which is an obligate species of Pitch Pine-Scrub Oak Barrens, on deep dry sands.

Hemileuca maia[3] is found in a few portions of New York State, including the Shawangunk region, and the Albany Pine Bush, where extensive bear oak exists. However, the coastal subspecies can only be found on Long Island. Like many species which rely on areas of bear oak, the species is

[3] Known as "inland barrens buckmoth".

dependent on periodic disturbance (i.e., fire, etc.) to prevent the succession from suitable habitat to unsuitable habitat.

In New York, Coastal barrens buckmoth has one generation/brood per year. Eggs overwinter on stems of bear oak and caterpillars hatch in spring. Larvae feed together in large groups on bear oak leaves from May to July. After growing, larval buckmoths become more solitary and eventually pupate underground during the summer months. Following the pupation period, adults fly between October and early November. During this time, they mate and lay eggs, which will overwinter to the following year. When adults are flying, they are typically associated with bear oak (as in all other times in this species' life). Adults of this species (as in most *Saturniid* moths) have no mouthparts and do not feed.

3.3.2 *Potential for On-site Occurrence*

This species is tolerant of a range of canopy densities; they will utilize bear oak which is in full sun or overtopped by a sparse canopy of pitch pine. As discussed above, a large portion of the site is comprised of bear oak-dominated shrubland associated with Pitch Pine-Oak Barrens habitat. Thus, the species finds all of its habitat needs met by the site.

On Long Island, the core population of this species can be found in the Westhampton Dwarf Pines Plains south of Riverhead, becoming less common further west throughout the Long Island Pine Barrens. However, remnant populations exist as far west as Edgewood Oak Brush Plains Preserve.

3.3.3 *Findings*

Coastal barrens buckmoth was specifically sought out during field investigations by B. Laing Associates and Nelson Pope Voorhis staff. Of the four field investigations that were undertaken, only the spring survey in 2022 located individuals of this species. Adults were searched for in the fall of 2021, but no adults were located. During the spring 2022 survey, masses of young larval buckmoths were located feeding on bear oak in three widely spaced locations. The location of the observed buckmoths can be found on the enclosed map by Nelson Pope Voorhis.

The NYNHP letter indicated that Coastal barrens buckmoth was last seen on this Site on October 17, 1985. Considering observers were able to locate numerous areas where larval groups were feeding in suitable habitat, it should be assumed that this population has persisted during these intervening years.

4.0 CONCLUSION

In summary, the NYNHP provided records of rare lepidopteran species which had the potential to occur (and historically occurred) on Site. These species were Edward's hairstreak and coastal barrens buckmoth. B. Laing Associates Inc. and Nelson Pope Voorhis staff undertook four seasonal, day-time lepidopteran surveys over two years to understand whether these species still utilized the site, considering the habitat was sufficient for both of them. In addition to searching for the target species, additional insects, birds, and other general wildlife were noted.

As above, observers located three clusters of feeding buckmoth larvae throughout the site in June 2022, and one flying adult of Edward's hairstreak in July 2022. As such, it should be presumed that these historic populations, last observed in the mid-1980's and early 1990's, have persisted to date. This can be safely presumed given the quality of onsite habitat (Pitch Pine-Scrub Oak Barrens) and lack of nearby habitat for these species to have recently re-colonized the site.

Appendix A
Site Photographs

Photo 1: Looking at an area of young bear oak, cherry, sumac, etc. surrounded by mature pines.

Photo 2: Looking at a path through typical barrens habitat.

Photo 3: Looking at one of the “fire cuts” at the northern portion of the site. This habitat is where Edward’s hairstreak and coastal barrens buckmoth were found.

Photo 4: Looking at one of the meadow habitats on site.

Photo 5: A photo showing the Edward's hairstreak on bear oak observed on July 7, 2022.

Photo 6: A photo showing a feeding group of coastal barrens buckmoth larvae on bear oak from June 2, 2022.

Appendix B
NYNHP Letter

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Division of Fish and Wildlife, New York Natural Heritage Program
625 Broadway, Fifth Floor, Albany, NY 12233-4757
P: (518) 402-8935 | F: (518) 402-8925
www.dec.ny.gov

August 20, 2021

Ashley Marciszyn
Nelson, Pope & Voorhis, LLC
70 Maxess Road
Melville, NY 11747

Re: Pinelawn Industrial Development
County: Suffolk Town/City: Babylon

Dear Ashley Marciszyn:

In response to your recent request, we have reviewed the New York Natural Heritage Program database with respect to the above project.

Enclosed is a report of rare or state-listed animals and plants, and significant natural communities that our database indicates occur in the vicinity of the project site.

For most sites, comprehensive field surveys have not been conducted; the enclosed report only includes records from our database. We cannot provide a definitive statement as to the presence or absence of all rare or state-listed species or significant natural communities. Depending on the nature of the project and the conditions at the project site, further information from on-site surveys or other sources may be required to fully assess impacts on biological resources.

The presence of the plants and animals identified in the enclosed report may result in this project requiring additional review. For further guidance, and for information regarding other permits that may be required under state law for regulated areas or activities (e.g., regulated wetlands), please contact the NYS DEC Region 1 Office, Division of Environmental Permits, at dep.r1@dec.ny.gov.

Sincerely,

Heidi Krahling
Environmental Review Specialist
New York Natural Heritage Program

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The following rare plants, rare animals, and significant natural communities have been documented at the project site, or in its vicinity.

We recommend that potential impacts of the proposed project on these species or communities be addressed as part of any environmental assessment or review conducted as part of the planning and approval process, such as reviews conducted under SEQR. Field surveys of the project site may be necessary to determine the status of a species at the site, particularly for sites that are currently undeveloped and may still contain suitable habitat. Final requirements of the project to avoid, minimize, or mitigate potential impacts are determined by the lead permitting agency or the government body approving the project.

The following animals, while not listed by New York State as Endangered or Threatened, are rare in New York and are of conservation concern.

COMMON NAME	*SCIENTIFIC NAME*	*NY STATE LISTING*	*HERITAGE CONSERVATION STATUS*
Butterflies			
Edwards' Hairstreak	*Satyrium edwardsii*	Unlisted	Vulnerable in NYS

Documented at the project site. 1991-06-30: The butterflies were found in a dense scrub oak thicket with scattered pitch pine. 8676

Moths			
Coastal Barrens Buckmoth	*Hemileuca maia ssp. 5*	Special Concern	Imperiled in NYS and Globally Uncommon

Documented at the project site. 1985-10-17: The moths were observed in a dense scrub oak-thicket with scattered pitch pine. 4318

The following natural community is considered significant from a statewide perspective by the NY Natural Heritage Program. By meeting specific, documented criteria, the NY Natural Heritage Program considers this community occurrence to have high ecological and conservation value.

COMMON NAME	*SCIENTIFIC NAME*	*NY STATE LISTING*	*HERITAGE CONSERVATION STATUS*
Upland/Terrestrial Communities			
Pitch Pine-Scrub Oak Barrens			Rare Community Type and Globally Rare

Documented at the project site. This is a good occurrence, but it is very disturbed and located within cemetery boundaries. 1751

The following plant is listed as Endangered by New York State, and so is a vulnerable natural resource of conservation concern.

COMMON NAME	*SCIENTIFIC NAME*	*NY STATE LISTING*	*HERITAGE CONSERVATION STATUS*
Vascular Plants			
Low St. John's Wort	*Hypericum stragulum*	Endangered	Critically Imperiled in NYS

Documented within 1/2 mile north of the project site. 1998-07-29: The plants are in a largely undeveloped summer camp in dry to moist morainal woodland habitat with roads and numerous buildings throughout. It is open oak-wooded hills and one rough-mown field. 3789

This report only includes records from the NY Natural Heritage database. For most sites, comprehensive field surveys have not been conducted, and we cannot provide a definitive statement as to the presence or absence of all rare or state-listed species. Depending on the nature of the project and the conditions at the project site, further information from on-site surveys or other sources may be required to fully assess impacts on biological resources.

If any rare plants or animals are documented during site visits, we request that information on the observations be provided to the New York Natural Heritage Program so that we may update our database.

Information about many of the rare animals and plants in New York, including habitat, biology, identification, conservation, and management, are available online in Natural Heritage's Conservation Guides at www.guides.nynhp.org, from NatureServe Explorer at www.natureserve.org/explorer, and from USDA's Plants Database at http://plants.usda.gov/index.html (for plants).

Information about many of the natural community types in New York, including identification, dominant and characteristic vegetation, distribution, conservation, and management, is available online in Natural Heritage's Conservation Guides at www.guides.nynhp.org. For descriptions of all community types, go to www.dec.ny.gov/animals/97703.html for Ecological Communities of New York State.

Appendix C

Map of Target Species

By Nelson Pope Voorhis

NPV

FIGURE 4
LOCATION MAP

Sources: NYS Orthoimagery, 2020; Suffolk County GIS 2016
Scale: 1 inch equals 450 feet

N

Pinelawn Industrial Park

Wyandanch, NY

Appendix D
Qualifications

B. LAING ASSOCIATES
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QUALIFICATIONS

B. Laing Associates, Inc. is an environmental consulting firm located in Fort Salonga, New York. The firm is committed to providing solutions to the environmental needs of its clients throughout the mid-Atlantic and Northeast. These solutions are achieved by conducting scientific investigations to provide quantitative, accurate, precise and verifiable answers to wetlands, general ecology, water quality, fauna and flora, and endangered species issues. The firm specializes in the development of innovative wetland and upland habitat conservation, enhancement, mitigation and restoration alternatives for its clients' projects. Our mix of natural resource assessment experience brings an integrated approach to sensitive specie-involved projects.

B. Laing Associates, Inc. and its principals have conducted numerous endangered, threatened and species of special concern analyses and surveys for species, and/or their habitat, on its client's projects throughout the past 33 years. A sampling of those (mostly fauna, incomplete) which we have focused on are as follows:

Herptiles:
- Eastern tiger salamander (*Ambystoma tigrinum*)
- Eastern rattlesnake (*Crotalus horridus horridus)*
- Blanding's turtle (*Emydoidea blandingii*)
- Northern bog turtle (*Glyptemys muhlenbergii*)
- Four-toed salamander (*Hemidactylium scutatum*)
- Dusky salamander (*Desmognathus fuscus*)
- Vernal pools (various amphibians)
- Easter hognose snake (*Heterodon platirhinos*)
- Worm snake (*Carphophis amoenus*)
- Diamondback rattlesnake (*Crotalus adamanteus*)
- Wood turtle (*Glyptemys insculpta*)

Mammals:
- Indiana bat (*Myotis sodalis*)
- Northern long-eared bat (*Myotis septentrionalis*)

Insects:
- Karner blue butterfly (*Lycaeides melissa samuelis*)
- Persius duskywing (*Erynnis persius*)
- Thaxter's pinion moth (*Lithophane thaxteri*)
- Edward's hairstreak (*Satyrium edwardsii*)
- Coastal barrens buckmoth (*Hemileuca maia ssp. 5*)

Fish:
- Atlantic sturgeon (*Acipenser oxyrhynchus oxyrinchus*)
- Shortnose sturgeon (*Acipenser brevirostrum*)

Mollusks:

- Freshwater Pearlshell (*Margaritifera margaritifera*)

Birds:
- Peregrine Falcon (*Falco pereginus*)
- Bald Eagle *(Haliaeetus leucocephalus*)
- Red-shouldered Hawk (*Buteo lineatus*)
- Piping Plover (*Charadrius melodus*)
- Least Tern (*Sterna antillarum*)
- Short-eared Owl (*Asio flammeus*)
- Northern Harrier (*Circus cyaneus*)
- Golden-winged Warbler (*Vermivora chrysoptera*)
- Other Grassland Birds (Henslow's Sparrow, Upland Sandpiper)

Habitats:
- Submerged Aquatic Vegetation (SAV) ecosystem
- Northern pine-hardwood forest
- Pine-oak forest
- Pitch pine-scrub oak barrens
- Pitch pine-heath barrens