

**STRONG'S YACHT CENTER
ECOLOGICAL CONDITIONS
AND IMPACT ANALYSIS-
PROPOSED BOAT STORAGE BUILDINGS**

Prepared for

***STRONG'S YACHT CENTER &
PW GROSSER INC***

Prepared by



October 2022

TABLE OF CONTENTS

1. EXISTING CONDITIONS..... 1

A. INTRODUCTION 1

B. ECOLOGICAL COMMUNITIES 1

Coastal Oak-Beech Forests..... 4

Successional Southern Hardwoods..... 5

Successional Shrublands..... 6

Tidal Wetlands 6

C. PLANTS 8

D. WILDLIFE 12

Birds 12

Mammals 15

Reptiles and Amphibians..... 17

B. ENDANGERED, THREATENED, RARE SPECIES OR SIGNIFICANT ECOLOGICAL COMMUNITIES 17

2. POTENTIAL IMPACTS ANALYSIS 19

A. POTENTIAL IMPACTS TO FOREST RESOURCES 21

Edge Effects..... 23

Potential Impacts to Mill Road Preserve 25

B. POTENTIAL IMPACTS TO WILDLIFE 28

C. POTENTIAL IMPACTS TO ENDANGERED, THREATENED, RARE SPECIES OR SIGNIFICANT ECOLOGICAL COMMUNITIES..... 33

D. POTENTIAL IMPACTS TO TIDAL WETLANDS 35

3. MITIGATION 38

4. ANALYSIS OF ALTERNATIVES..... 40

ALTERNATE PLAN (MINIMUM FILL EXPORT ALTERNATIVE) 40

ALTERNATE PLAN 7 (ALTERNATIVE MATERIAL MITIGATION PLAN)..... 42

5. LITERATURE CITED 47

1. Existing Conditions

a. Introduction

Ecological surveys were conducted at the 32.96 acre Strongs Marine property by Dr. William Bowman of Land Use Ecological Services. Survey dates included September 18, 2020; October 21, 2020; January 17, 2021; May 13, 2021; July 19-28; 2021; and August 24, 2021. Ecological investigations including a tree survey with species identification for all trees greater than 6 inches diameter. Plant and wildlife lists for the site are provided in **Tables 2-5**. A total of 105 vascular plant species were observed, including 49 woody plants, 53 herbaceous plants, and three ferns (**Table 2**). Additionally, 84 birds, 20 mammals and three herpetiles were observed or are expected to occur on the site.

b. Ecological Communities

Between the mid-1950s and 1984, the site consisted of agricultural fields adjacent to Mill Road, a small tree plantation or orchard, forests, and a marina facility, as indicated by aerial imagery from Suffolk County (www.suffolkcountyny.gov/Portals/0/planning/Cartography/1930/sc19304f2WEB.pdf). During this time, cleared land associated with the agricultural and commercial marine uses accounted for approximately 58% (19.1 acres) of the 32.96 acre property. Aerial imagery of the site from 1962 and 1984 is provided in **Figures 1 and 2**. The agricultural use on the western portion of the site appears to have been abandoned in the late 1980s. The existing ecological communities now present at the site include coastal oak-beech forests; successional habitats that have developed on the former agricultural lands including southern successional hardwood forests and successional shrublands; a small tidal wetland area associated with Mattituck Creek; and anthropogenic cover types such as mowed lawn with trees, buildings, and paved and pervious road and parking surfaces. The existing boundaries of the site's ecological communities are shown in **Figure 3** and the acreage of each ecological community type and the percentage of the total site area are provided in **Table 1**. Descriptions of the ecological communities observed are provided along with the New York Natural Heritage Program community descriptions from Edinger et al (2014).

TABLE I: ECOLOGICAL COMMUNITIES AT STRONG'S YACHT CENTER

	Acres	Percent
Coastal Oak-Beech Forest	12.60	38.2%
Successional Shrubland	10.83	32.9 %
Successional Southern Hardwoods	4.67	14.2%
Buildings and Paved/Pervious Surfaces	3.70	11.2%
Tidal Wetlands	0.63	1.9%
Unvegetated Sand Slope	0.29	0.9%
Mowed Lawn with Trees & Landscaping	0.24	0.7%
Totals	32.96	100%

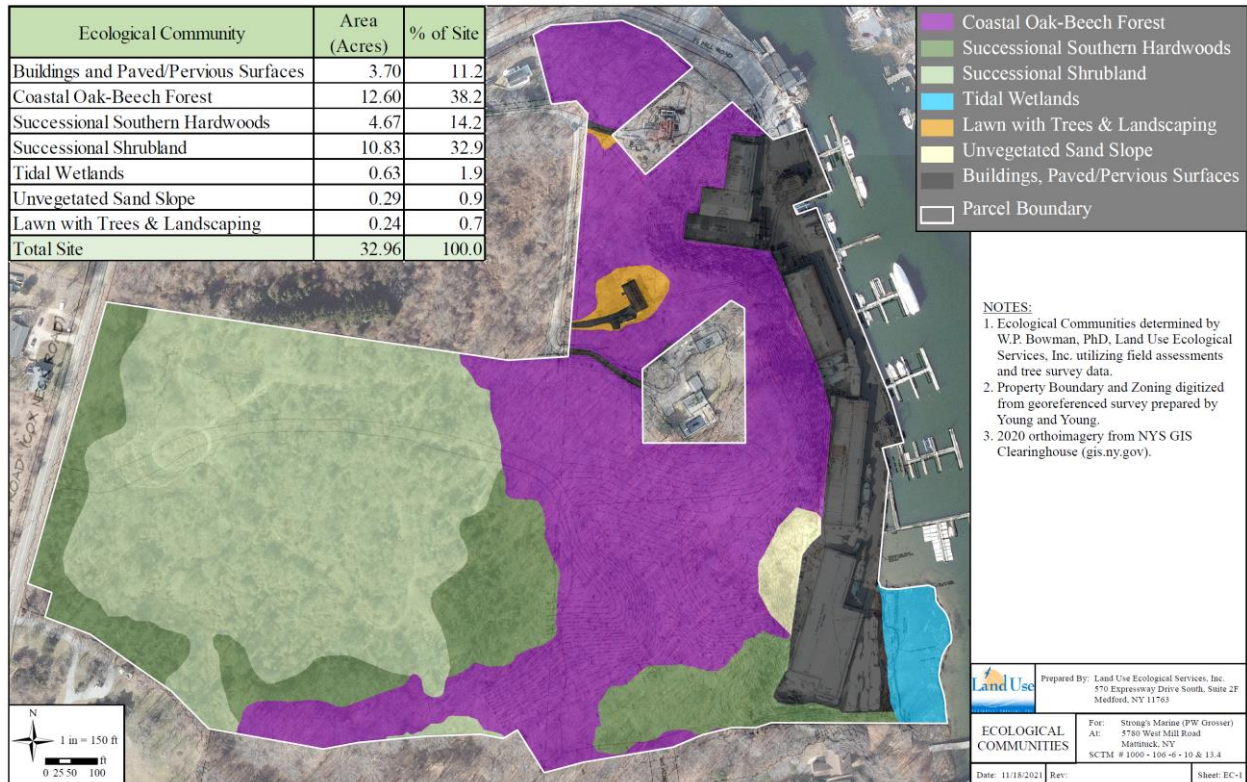
FIGURE I: 1962 Aerial Imagery of Strong's Yacht Center Site



Figure 2: 1984 Aerial Imagery of Strong's Yacht Center Site



FIGURE 3: EXISTING ECOLOGICAL COMMUNITIES



Coastal Oak-Beech Forests

Coastal oak-beech forests represent 12.60 acres, or 38.2% of the site, from the steep, east-facing slope adjacent to the existing marina extending west on the site's hilltops and slopes. The following is the definition of this community as described by Edinger et al (2014):

“A hardwood forest with oaks (*Quercus spp.*) and American beech (*Fagus grandifolia*) codominant that occurs in dry, well drained, loamy sand of morainal coves of the coastal plain. Some occurrences are associated with maritime beech forest. American beech can range from nearly pure stands to as little as about 25% cover. The forest is usually codominated by two or more species of oaks, usually black oak (*Quercus velutina*) and white oak (*Q. alba*). Scarlet oak (*Q. coccinea*) and chestnut oak (*Q. montana*) are common associates. Red oak (*Q. rubra*) may be present at low density, and is a key indicator species along with sugar maple (*Acer saccharum*) and paper birch (*Betula papyrifera*). There are relatively few shrubs and herbs. Characteristic ground layer species are Swan's sedge (*Carex swanii*), Canada mayflower (*Maianthemum canadense*), white wood aster (*Eurybia divaricata*), beech-drops (*Epifagus virginiana*), and false Solomon's seal (*Maianthemum racemosum*). Typically, there is also an abundance of tree seedlings, especially of American beech; beech and oak saplings are often the most abundant “shrubs” and small trees.”

The high-quality coastal oak-beech forests on the site consist of abundant large trees (ranging between 6 and 39 inches in diameter). American beech (*Fagus grandifolia*) accounts for approximately 33% of the tree stems with the remainder of the canopy consisting of relatively equal proportions of black oak (*Quercus velutina*), white oak (*Q. alba*), scarlet oak (*Q. coccinea*), and chestnut oak (*Q. montana*). Red maple (*Acer rubrum*) and pignut hickory (*Carya glabra*) are also present as canopy trees. Tree species that are dominant in the understory are American beech and red maple, and, to a lesser extent, the various oak species. The shrub- and ground layers of vegetation are sparse due to the dense shade under the beech-dominated canopy and heavy browsing from white-tailed deer.

Coastal oak-beech forests in New York State are typically found on the north-facing slopes of glacial moraines of Suffolk and Richmond Counties. Numerous examples occur along the North Shore of Suffolk County from Wildwood State Park to Route 48 in Southold; from Big Woods (Southampton) to Montauk Point on the South Fork (NYNHP, 2020); the headland necks of Suffolk County that extend into Long Island Sound, such as Lloyd Neck (Greller, 1977); and small

patches farther west on Long Island into Nassau County and eastern Queens counties (Greller, 1977).

Edinger et al (2014) indicates that this ecological community is restricted to Suffolk and Richmond Counties in New York State with a rarity ranking of G4 and S3 indicating that this community type is considered “apparently secure” globally and “vulnerable” in New York State, i.e. vulnerable to disappearing from New York (but not currently imperiled) due to rarity or other factors.

Successional Southern Hardwoods

Successional southern hardwoods represent 4.67 acres, or 14.2% of the site. The following is the definition of this community as described by Edinger et al (2002):

“Hardwood or mixed forest that occurs on sites that have been cleared or otherwise disturbed. “Characteristic trees and shrubs include any of the following: American elm (*Ulmus americana*), slippery elm (*U. rubra*), white ash (*Fraxinus americana*), red maple (*Acer rubrum*), box elder (*Acer negundo*), silver maple (*A. saccharinum*), sassafras (*Sassafras albidum*), gray birch (*Betula populifolia*), hawthorns (*Crataegus* spp.), eastern red cedar (*Juniperus virginiana*), and choke-cherry (*Prunus virginiana*). Certain introduced species are commonly found in successional forests, including black locust (*Robinia pseudo-acacia*), tree of heaven (*Ailanthus altissima*), and buckthorn (*Rhamnus cathartica*). Any of these may be dominant or codominant in a successional southern hardwood forest. Southern indicators include American elm, white ash, red maple, box elder, choke-cherry, and sassafras. This is a broadly defined community and several seral and regional variants are known.”

At the site, this ecological community is dominated by early successional tree species including black cherry (*Prunus serotina*), black locust (*Robinia pseudoacacia*), eastern red cedar (*Juniperus virginiana*), Norway maple (*Acer platanoides*), and bird cherry (*Prunus avium*) that have re-grown on formerly cleared areas or former agricultural fields. The understory and ground layers in the site’s successional forests consist of dense thickets of multiflora rose (*Rosa multiflora*), various brambles (*Rubus phoenicolasius* and *Rubus alleghanensis*), catbriar (*Smilax rotundifolia*), Asiatic bittersweet (*Celastrus orbiculatus*), Japanese honeysuckle (*Lonicera japonica*), and poison ivy (*Toxicodendron radicans*).

Edinger et al (2014) indicates that this ecological community is distributed throughout New York State with a rarity ranking of G5 and S5 indicating that these communities are considered “demonstrably secure” both in globally and in New York State.

Successional Shrublands

Vegetation typical of successional shrublands represents 10.83 acres, or 32.9% of the subject property on the former agricultural lands on the western portion of the property. The following is the definition of this community as described by Edinger et al (2014):

“A shrubland that occurs on sites that have been cleared (for farming, logging, development, etc.) or otherwise disturbed. This community has at least 50% cover of shrubs. Characteristic shrubs include gray dogwood (*Cornus racemosa*), eastern red cedar (*Juniperus virginiana*), raspberries (*Rubus* spp.), serviceberries (*Amelanchier* spp.), choke-cherry (*Prunus virginiana*), wild plum (*Prunus americana*), sumac (*Rhus glabra*, *R. typhina*), nanny-berry (*Viburnum lentago*), and arrowwood (*Viburnum dentatum* var. *lucidum*). Non-native invasive shrubs include hawthornes (*Crataegus* spp.), multiflora rose (*Rosa multiflora*), Russian and autumn olive (*Elaeagnus angustifolia*, *E. umbellata*), buckthorns (*Rhamnus cathartica*, *Frangula alnus*), and shrubby honeysuckles (*Lonicera tatarica*, *L. morrowii*, *L. maackii*).”

The successional shrublands at the site are dominated by autumn olive (*Elaeagnus umbellata*) with thickets of brambles (*Rubus phoenicolasius*, *Rubus allegheniensis*, and *Rubus flagellaris*) and multiflora rose (*Rosa multiflora*). Native and old field grasses and wildflowers including goldenrods (specifically *Solidago rugosa*, *Solidago canadensis*, and *Euthamia graminifolia*), pearly everlasting (*Anaphalis margaritacea*), and intermediate dogbane (*Apocynum cannabinum*) are present along the maintained margins of trails and paths. Invasive fountain grass (*Miscanthus* sp.) was also common. The site's successional shrublands contain many small stands of successional trees, mostly black cherry (*Prunus serotina*) and eastern red cedar (*Juniperus virginiana*), with infestations of Asiatic bittersweet (*Celastrus orbiculatus*). Edinger et al (2014) indicates that this ecological community is distributed throughout New York State with a rarity ranking of G4 and S4 indicating that these communities are considered “apparently secure” both in globally and in New York State.

Tidal Wetlands

Tidal Wetlands at Strong's Yacht Center

The site's tidal wetlands are located along Mattituck Creek in an un-bulkheaded section of shoreline at the southern end of the property. These tidal wetlands occupy approximately 0.63 acres or 1.9% of the property. The tidal wetlands consist mostly of *Spartina alterniflora*-dominated intertidal marsh. The landward margin of the tidal wetlands is dominated by invasive common reed (*Phragmites australis*) with scattered groundsel bush (*Baccharis halimifolia*) and marsh elder (*Iva frutescens*). There is a narrow band of high marsh vegetation between the *Phragmites* and intertidal marsh, including salt hay (*Spartina patens*), spike grass (*Distichis spicata*), and seaside lavender (*Limonium carolinianum*).

Tidal Wetlands in Mattituck Creek

Approximately 60-acres of tidal wetlands and 10-acres of unvegetated shoals and mudflats are located within Mattituck Creek; mostly on the east side of Mattituck Creek to the north of Mill Road, and including the New York State Mattituck Creek Tidal Wetlands Preserve. In 2005, the tidal wetlands in Mattituck Creek were comprised largely (more than 90%) of native intertidal and high marsh communities with relatively low abundance of invasive *Phragmites*-dominated marshes (NEIWPC, 2015). No submerged aquatic vegetation beds, e.g. eelgrass (*Zostera marina*), are known to occur in Mattituck Creek (Long Island Sound Study, 2017).

The tidal wetlands and beaches of Mattituck Inlet are designated as a *Significant Coastal Fish and Wildlife Habitat* by the New York State Department of State (NYSDOS, 2005). Mattituck Creek is designated as a *Significant Coastal Fish and Wildlife Habitat*, in part, as it is one of few or rare undeveloped tidal wetlands in eastern Suffolk County with a deepwater inlet and strong tidal flushing tributary to Long Island Sound (NYSDOS, 2005). Ecosystem functions and values provided by the tidal wetlands of Mattituck Creek include supporting fish and shellfish populations and a productive recreational fishery, uptake or trapping of land-derived nutrients and contaminants, providing wildlife habitat, protecting upland and shoreline areas from flooding and erosion, and providing water-based recreational opportunities.

The wetlands of Mattituck Inlet provide foraging and breeding habitat for a wide variety of fish and wildlife species including wading birds (such as great egret, snowy egret, and green heron), least and common tern, osprey, and waterfowl (such as American black duck, gadwall, and mallard). Federal- and New York State-protected shorebirds, such as piping plover and least tern, nest on the nearby beaches adjacent to Mattituck Inlet and forage in appropriate tidal wetlands, shoals and mudflats, and estuarine waters of Mattituck Creek. Mattituck Creek supports populations of marine and estuarine fish including bluefish, striped bass, weakfish, fluke, black sea bass, winter flounder, striped and northern sea robins, blackfish, oyster toadfish, and scup.

Shellfish that inhabit the waters in and adjacent to Mattituck Creek include surf clams, hard clams, oysters, and blue mussels. The northern reaches of Mattituck Creek are certified by the NYSDEC for the harvest of shellfish during the months January through April. The headwaters of Mattituck Creek (upstream of Point Pleasant) and the Howards Creek and Long Creek tributaries are not certified for shellfish harvest. The NYSDEC Mattituck Inlet/Creek is assessed as an impaired waterbody due to pathogen pollution from urban and storm runoff (NYSDEC, 2016).

c. Plants

A plant list for the 32.96-acre Strong's Marine property (Table 2) was prepared based on ecological surveys completed by Dr. William P. Bowman in 2020 and 2021. A total of 105 vascular plant species were observed at the site, including 53 woody plants, 62 herbaceous plants, and three ferns.

TABLE 2: PLANT SPECIES LIST FOR STRONG'S YACHT CENTER SITE

Common Name	Scientific Name
TREES, SHRUBS AND WOODY VINES	
Box Elder	<i>Acer negundo</i>
Norway Maple	<i>Acer platanoides</i>
Red Maple	<i>Acer rubrum</i>
Silver Maple	<i>Acer saccharinum</i>

TABLE 2: PLANT SPECIES LIST FOR STRONG'S YACHT CENTER SITE

Common Name	Scientific Name
Tree-of-Heaven	<i>Ailanthus altissima</i>
Mimosa	<i>Albizzia julibrissin</i>
Shadbush	<i>Amelanchier canadensis</i>
Porcelainberry	<i>Ampelopsis brevipedunculata</i>
Groundsel Bush	<i>Baccharis halimifolia</i>
Japanese Barberry	<i>Berberis thunbergia</i>
Gray Birch	<i>Betula populifolia</i>
Pignut Hickory	<i>Carya glabra</i>
Asiatic Bittersweet	<i>Celastrus orbiculatus</i>
Sweet Fern	<i>Comptonia peregrina</i>
Flowering Dogwood	<i>Cornus florida</i>
Autumn Olive	<i>Elaeagnus umbellata</i>
American Beech	<i>Fagus grandifolia</i>
Black Huckleberry	<i>Gaylussacia baccata</i>
American Holly	<i>Ilex opaca</i>
Marsh Elder	<i>Iva frutescens</i>
Eastern Red Cedar	<i>Juniperus virginiana</i>
Mountain Laurel	<i>Kalmia latifolia</i>
Japanese Honeysuckle	<i>Lonicera japonica</i>
White Mulberry	<i>Morus alba</i>
Bayberry	<i>Morella pensylvanica</i>
Virginia Creeper	<i>Parthenocissus quinquefolia</i>
Pitch Pine	<i>Pinus rigida</i>
Japanese Black Pine	<i>Pinus thunbergii</i>
Cottonwood	<i>Populus deltoides</i>
Big-toothed Aspen	<i>Populus grandidentata</i>
Bird Cherry	<i>Prunus avium</i>
Black Cherry	<i>Prunus serotina</i>
Callery Pear	<i>Pyrus calleryana</i>
Apple	<i>Malus sp.</i>
White Oak	<i>Quercus alba</i>
Scarlet Oak	<i>Quercus coccinea</i>
Chestnut Oak	<i>Quercus montana</i>
Red Oak	<i>Quercus rubra</i>
Black Oak	<i>Quercus velutina</i>
Black Locust	<i>Robinia pseudoacacia</i>
Multiflora Rose	<i>Rosa multiflora</i>
Blackberry	<i>Rubus allegheniensis</i>
TREES, SHRUBS AND WOODY VINES	
Northern Dewberry	<i>Rubus flagellaris</i>
Wineberry	<i>Rubus phoenicolasius</i>
Sassafras	<i>Sassafras albidum</i>
Catbriar	<i>Smilax rotundifolia</i>

TABLE 2: PLANT SPECIES LIST FOR STRONG'S YACHT CENTER SITE

Common Name	Scientific Name
Bittersweet Nightshade	<i>Solanum dulcamara</i>
Poison Ivy	<i>Toxicodendron radicans</i>
Late Lowbush Blueberry	<i>Vaccinium angustifolia</i>
Highbush Blueberry	<i>Vaccinium corymbosum</i>
Early Lowbush Blueberry	<i>Vaccinium pallidum</i>
Linden Viburnum	<i>Viburnum dilatatum</i>
Arrowwood	<i>Viburnum dentatum</i>
Wild Grape	<i>Vitis sp.</i>
HERBACEOUS PLANTS	
Yarrow	<i>Achillea millefolium</i>
Bent Grass	<i>Agrostis sp.</i>
Garlic Mustard	<i>Alliaria petiolate</i>
Field Garlic	<i>Allium vineale</i>
Common Ragweed	<i>Ambrosia artemisiifolia</i>
Pearly Everlasting	<i>Anaphalis margaritacea</i>
Broom Sedge	<i>Andropogon virginiana</i>
Sweet Vernal Grass	<i>Anthoxanthum odoratum</i>
Indian Hemp	<i>Apocynum cannabinum</i>
Wild Sarsaparilla	<i>Aralia nudicaulis</i>
Mugwort	<i>Artemisia vulgaris</i>
Common Milkweed	<i>Asclepias syriaca</i>
Seabeach Orach	<i>Atriplex mucronate</i>
Hoary Alyssum	<i>Berteroa incana</i>
Shepherd's Purse	<i>Capsella bursa-pastoris</i>
Pennsylvania Sedge	<i>Carex pennsylvanica</i>
Lamb's Quarters	<i>Chenopodium album</i>
Horseweed	<i>Conyza canadensis</i>
Yellow Nut Sedge	<i>Cyperus esculentus</i>
Orchard Grass	<i>Dactylis glomerata</i>
Wild Carrot	<i>Daucus carota</i>
Hairgrass	<i>Deschampsia sp.</i>
Deertongue Grass	<i>Dichantherim clandestinum</i>
Wooly Rosette Grass	<i>Dichantherium lanuginosum</i>
Spike Grass	<i>Distichlis spicata</i>
Crab Grass	<i>Digitaria sanguinalis</i>
Indian Strawberry	<i>Duchesnea indica</i>
Quack Grass	<i>Elytrigia repens</i>
Daisy Fleabane	<i>Erigeron annuus</i>
Horseweed	<i>Erigeron canadensis</i>
HERBACEOUS PLANTS	
Slender Flat-topped Goldenrod	<i>Euthamia caroliniana</i>
Common Flat-topped Goldenrod	<i>Euthamia graminifolia</i>
Fescue	<i>Festuca sp.</i>

TABLE 2: PLANT SPECIES LIST FOR STRONG'S YACHT CENTER SITE

Common Name	Scientific Name
White Avens	<i>Geum canadensis</i>
Canada Hawkweed	<i>Hieracium canadense</i>
Soft Rush	<i>Juncus effusus</i>
Secund Rush	<i>Juncus secundus</i>
Path Rush	<i>Juncus tenuis</i>
Wild Peppergrass	<i>Lepidium virginicum</i>
Seaside Lavender	<i>Limonium carolinianum</i>
Fountain Grass	<i>Miscanthus sp.</i>
Common Yellow Woodsorrel	<i>Oxalis stricta</i>
Deertongue Grass	<i>Panicum clandestinum</i>
Mile-a-Minute Vine	<i>Persicaria persicaria</i>
Timothy Grass	<i>Phleum pratense</i>
Common Reed	<i>Phragmites australis</i>
Pokeweed	<i>Phytolacca americana</i>
English Plantain	<i>Plantago lanceolata</i>
Japanese Knotweed	<i>Polygonum cuspidatum</i>
Lady Thumb Smartweed	<i>Polygonum persicaria</i>
Sheep Sorrel	<i>Rumex acetosella</i>
Bitter Dock	<i>Rumex obtusifolius</i>
Glasswort	<i>Salicornia sp.</i>
Little Bluestem	<i>Schizachyrium scoparium,</i>
Wood Grass	<i>Scirpus cyperinus</i>
Blue-stemmed Goldenrod	<i>Solidago caesia</i>
Rough-stemmed Goldenrod	<i>Solidago rugosa</i>
Smooth Cordgrass	<i>Spartina alterniflora</i>
Salt Hay	<i>Spartina patens</i>
Small White Aster	<i>Symphotrichum racemosum</i>
Common Dandelion	<i>Taraxacum officinale</i>
Purple Top	<i>Tridens flavus</i>
Common Mullein	<i>Verbascum Thapsus</i>
FERNS	
Common Name	Scientific Name
Marginal Wood Fern	<i>Dryopteris marginalis</i>
Common Polypody	<i>Polypodium virginianum</i>
Christmas Fern	<i>Polystichum acrostichoides</i>

Ecological investigations included a tree survey for all trees greater than 6 inches diameter with 2,408 trees identified on the 32.96-acre property (1,054 on the R-80 portion of the property and 1,354 on the M2 portion of the property). Twenty-six tree species were recorded. Dominant tree species present were various oaks including black oak (10.8%), scarlet oak (7.6%), white oak

(5.8%), and chestnut oak (3.4%); American beech (19.2%); red maple (11.3%); black locust (11.0%); black cherry (8.3%), eastern red cedar (6.2%), and sassafras (5.8%). The mean diameter of the sampled trees was 11.9-inches. Large trees are abundant on the property with trees greater than 18-inches in diameter accounting for 12.7% of sampled trees.

d. Wildlife

The birds, mammals, and herpetiles observed or expected to occur on the subject property (presented in **Tables 3-5**) are based on field surveys by Dr. William P. Bowman in 2020 and 2021. The range of ecological communities present on the site provides habitats for wildlife species inhabiting both early successional habitats and mature forest patches.

Birds

Approximately 84 bird species were observed or are expected to occur on the site (**Table 3**). Approximately 60% of these birds (i.e. 50 species) may utilize the property for breeding habitat based on the observed habitat conditions and known bird breeding activity documented in the 2008 New York Breeding Atlas in the vicinity of Mattituck (McGowan and Corwin, 2008). Approximately 38% of these birds (i.e. 32 species) are expected to transiently utilize the site seasonally, such during the summer months only, only during spring and autumn migrations, or as overwintering habitat. The remaining species (52 species) can be found year round in appropriate habitats on Long Island.

The mature coastal oak-beech forests provide high-quality habitat that may be utilized by a variety of songbirds including American redstart (*Setophaga ruticilla*), wood thrush (*Hylocichla mustelina*), great crested flycatcher (*Myiarchus crinitus*), black-and-white warbler (*Mniotilta varia*), ovenbird (*Seiurus aurocapilla*), and northern parula (*Parula americana*). Due to the proximity to existing forest edges along former agricultural lands, residential properties, and the commercial marina, the site's forests are also utilized by common suburban birds. These species include American robin (*Turdus migratorius*), house wren (*Troglodytes aedon*), common flicker (*Colaptes auratus*), tufted titmouse (*Baeolophus bicolor*), blue jay (*Cynaocitta cristata*), and cardinal (*Cardinalis cardinalis*). Dead trees, snags, and limbs in these forests provide habitat for cavity-nesting birds and woodpeckers including red-bellied woodpecker (*Melanerpes carolinus*) and downy woodpecker

(*Picoides pubescens*). In addition, the dense thickets of shrubs and small trees on the former agricultural lands provide excellent habitat for songbirds which prefer dense vegetation including song sparrow (*Melospiza melodia*), American goldfinch (*Spinus tristis*), yellow warbler (*Dendroica petechia*), ruby-crowned kinglet (*Regulus calendula*), common yellowthroat (*Geothlypis trichas*), gray catbird (*Dumetella carolinensis*), northern mockingbird (*Mimus polyglotta*), and yellow-rumped warbler (*Dendroica coronata*).

TABLE 3
BIRD SPECIES OBSERVED/EXPECTED ON SITE

Scientific Name	Common Name	Observed ¹ /Expected (O/E)	Breeding Status (Y/N) ²	Year Round/Migrant/Overwintering ³
<i>Accipiter cooperii</i>	Cooper's Hawk	E	Y	Y
<i>Accipiter striatus</i>	Sharp-shinned Hawk	E	N	Y
<i>Agelaius phoeniceus</i>	Red-winged Blackbird	E	Y	Y
<i>Baeolophus bicolor</i>	Tufted Titmouse	O	Y	Y
<i>Bombycilla cedrorum</i>	Cedar Waxwing	E	Y	Y
<i>Bubo virginianus</i>	Great Horned Owl	E	Y	Y
<i>Buteo jamaicensis</i>	Red-tailed Hawk ¹	O	Y	Y
<i>Cardinalis cardinalis</i>	Northern Cardinal	O	Y	Y
<i>Carduelis tristis</i>	American Goldfinch	O	Y	Y
<i>Carpodacus mexicanus</i>	House Finch	E	Y	Y
<i>Carpodacus purpureus</i>	Purple Finch	E	N	Y
<i>Cathartes aura</i>	Turkey Vulture	O	N	Y
<i>Catharus guttatus</i>	Hermit Thrush	E	N	O
<i>Catharus fuscescens</i>	Veery	E	N	M
<i>Chaetura pelagica</i>	Chimney Swift	O	N	M
<i>Charadrius melodus</i>	Killdeer	E	N	Y
<i>Colaptes auratus</i>	Northern Flicker	O	Y	Y
<i>Contopus virens</i>	Eastern Wood Pewee	E	Y	Y
<i>Corvus brachyrhynchos</i>	American Crow	O	Y	Y
<i>Corvus ossifragus</i>	Fish Crow	E	Y	Y
<i>Cyanocitta cristata</i>	Blue Jay	O	Y	Y
<i>Dendroica caerulescens</i>	Black-throated Blue Warbler	E	N	M
<i>Dendroica coronata</i>	Yellow-rumped Warbler	O	N	M
<i>Dendroica palmarum</i>	Palm Warbler	E	N	M
<i>Dendroica petechia</i>	Yellow Warbler	E	Y	M
<i>Dendroica striata</i>	Blackpoll Warbler	E	N	M
<i>Dendroica virens</i>	Black-throated Green Warbler	E	N	M
<i>Dumetella carolinensis</i>	Gray Catbird	O	Y	Y
<i>Empidonax traillii</i>	Willow Flycatcher	E	Y	M
<i>Geothlypis trichas</i>	Common Yellowthroat	O	Y	Y

TABLE 3
BIRD SPECIES OBSERVED/EXPECTED ON SITE

Scientific Name	Common Name	Observed ¹ /Expected (O/E)	Breeding Status (Y/N) ²	Year Round/ Migrant/ Overwintering ³
<i>Hirundo rustica</i>	Barn Swallow	O	Y	Y
<i>Hylocichla mustelina</i>	Wood Thrush	E	Y	M
<i>Icterus galbula</i>	Baltimore Oriole	E	Y	M
<i>Junco hyemalis</i>	Dark-eyed Junco	O	N	M
<i>Larus argentatus</i>	Herring Gull	O	N	Y
<i>Larus delawarensis</i>	Ring-billed Gull	O	N	Y
<i>Larus marinus</i>	Great Black-backed Gull	O	N	Y
<i>Meleagris gallopavo</i>	Wild Turkey	O	Y	Y
<i>Melanerpes carolinus</i>	Red-bellied Woodpecker	O	Y	Y
<i>Melospiza melodia</i>	Song Sparrow	O	Y	Y
<i>Mimus polyglottos</i>	Northern Mockingbird	O	Y	Y
<i>Mniotilta varia</i>	Black-and-white Warbler	E	Y	Y
<i>Molothrus ater</i>	Brown-headed Cowbird	E	Y	Y
<i>Myiarchus crinitus</i>	Great-crested Flycatcher	E	Y	M
<i>Otus asio</i>	Eastern Screech Owl	E	Y	Y
<i>Pandion haliaetus</i>	Osprey	O	N	M
<i>Parula americana</i>	Northern Parula	E	N	M
<i>Passer domesticus</i>	House Sparrow	E	Y	Y
<i>Passerella iliaca</i>	Fox Sparrow	E	N	O
<i>Passerina cyanea</i>	Indigo Bunting	E	N	M
<i>Phasianus colchicus</i>	Ring-necked Pheasant	E	Y	Y
<i>Pheucticus ludovicianus</i>	Rose-breasted Grosbeak	E	Y	M
<i>Picoides pubescens</i>	Downy Woodpecker	O	Y	Y
<i>Picoides villosus</i>	Hairy Woodpecker	E	Y	Y
<i>Pipilo erythrophthalmus</i>	Eastern Towhee	E	N	Y
<i>Piranga olivacea</i>	Scarlet Tanager	E	Y	M
<i>Poecile atricapillus</i>	Black-capped Chickadee	O	Y	Y
<i>Quiscalus quiscula</i>	Common Grackle	O	Y	Y
<i>Regulus calendula</i>	Ruby-crowned Kinglet	E	N	M
<i>Regulus satrapa</i>	Golden-crowned Kinglet	E	N	M
<i>Sayornis phoebe</i>	Eastern Phoebe	E	Y	Y
<i>Setophaga petechia</i>	Yellow Warbler	E	Y	Y
<i>Setophaga pinus</i>	Pine Warbler	O	N	M
<i>Setophaga ruticilla</i>	American Redstart	E	Y	M
<i>Scolopax minor</i>	American Woodcock	E	Y	Y
<i>Sitta carolinensis</i>	White-breasted Nuthatch	E	N	Y
<i>Spizella passerine</i>	Chipping Sparrow	E	N	Y
<i>Spizella pusilla</i>	Field Sparrow	E	N	Y
<i>Sphyrapicus varius</i>	Yellow-bellied Sapsucker	E	N	O
<i>Sturnus vulgaris</i>	European Starling	E	Y	Y
<i>Tachycineta bicolor</i>	Tree Swallow	O	Y	Y

TABLE 3
BIRD SPECIES OBSERVED/EXPECTED ON SITE

Scientific Name	Common Name	Observed ¹ /Expected (O/E)	Breeding Status (Y/N) ²	Year Round/ Migrant/ Overwintering ³
<i>Thyrothorus ludovicianus</i>	Carolina Wren	O	Y	Y
<i>Toxostoma rufum</i>	Brown Thrasher	E	Y	M
<i>Troglodytes aedon</i>	House Wren	O	Y	Y
<i>Turdus migratorius</i>	American Robin	O	Y	Y
<i>Tyrannus tyrannus</i>	Eastern Kingbird	E	N	M
<i>Vermivora pinus</i>	Blue-winged Warbler	E	N	M
<i>Vireo gilvus</i>	Warbling Vireo	E	Y	M
<i>Vireo griseus</i>	White-eyed Vireo	E	Y	M
<i>Vireo olivaceus</i>	Red-eyed Vireo	E	Y	M
<i>Vireo solitarius</i>	Blue-headed Vireo	E	N	M
<i>Zenaida macroura</i>	Mourning Dove	O	N	Y
<i>Zonotrichia albicollis</i>	White-throated Sparrow	O	N	O

¹Species Observed During Field Surveys in 2020 and 2021 (W.P. Bowman)

²Based on New York State Breeding Bird Atlas (McGowan and Corwin, 2008); Y = Yes, Breeding is known to occur in local Breeding Bird Atlas Blocks (Blocks #7054C, 7054D, 6954D, 6953B, and 7053A); N = No, Breeding is not known to occur in local Breeding Bird Atlas Blocks.

³Y= Species can be found year round; M= Species can be found in summer months only (for breeding birds) or species can be found during spring or autumn migrations; O= Species are expected to overwinter

Mammals

Mammal species (or scat/sign of these species) observed at the site include gray squirrel (*Sciurus carolinensis*), eastern chipmunk (*Tamias striatus*), meadow vole (*Microtus pennsylvanicus*), white-footed mouse (*Peromyscus leucopus*), raccoon (*Procyon lotor*), and white-tailed deer (*Odocoileus virginianus*). **Table 4** provides a list of all mammal species observed or expected to occur on site based on habitat preferences (Connor, 1971) and the ecological communities present. All observed or expected mammals are common in suburban landscapes; prefer open, early successional habitats; and/or are tolerant of human activity.

Bat species that utilize forested habitats on Eastern Long Island include big brown bat (*Eptesicus fuscus*), eastern red bat (*Lasiurus borealis*), and northern long-eared bat (*Myotis septentrionalis*) (Fishman, 2013; Connor, 1971). Big brown bat and red bat are habitat generalists typically foraging in forest edges, open habitats, and over wetlands and surface waters. Northern long-eared bats utilize a wide variety of upland woodland and forest types (NYNHP, 2016), but are typically associated with mature interior forest (Carroll et al, 2002) and tend to avoid woodlands

with significant edge habitat (Yates and Muzika, 2006). Other studies have found that northern long-eared bat can also be found using younger forest types (NYNHP, 2016). Recent bat monitoring conducted by the NYSDEC has suggested that northern long-eared bats on eastern Long Island are not sensitive to forest patch size and may utilize forest patch as small as one acre (Hoff, 2019). The northern long-eared bat (*Myotis septentrionalis*) was listed in 2016 as threatened by the US Fish and Wildlife Service and the New York State Department of Environmental Conservation.

The project site may provide habitat for these bat species during the summer months and migration periods in the spring and autumn. There is growing evidence that northern long-eared bat also overwinter on eastern Long Island, hibernating in human structures and foraging for winter-flying moths when temperatures exceed 4°C (Hoff, 2019). During the summer months, bats are expected to forage within the site's forest, forest edge, and successional shrubland habitats and over the wetlands and surface waters of Mattituck Creek. Tree cavities and crevices serve as day roosts for these species, with human structures also used by big brown bat.

TABLE 4
MAMMAL SPECIES
OBSERVED OR EXPECTED ON SITE¹

<i>Scientific Name</i>	Common Name
<i>Blarina brevicauda</i>	Short-tailed Shrew
<i>Didelphis virginiana</i>	Virginia Opossum
<i>Eptesicus fuscus</i>	Big Brown Bat
<i>Lasiurus borealis</i>	Eastern Red Bat
<i>Marmota monax</i> ¹	Woodchuck
<i>Microtus pennsylvanicus</i> ¹	Meadow Vole
<i>Mus musculus</i>	House Mouse
<i>Myotis lucifugus</i>	Little Brown Bat
<i>Myotis septentrionalis</i>	Northern Long-eared Bat
<i>Odocoileus virginianus</i> ¹	White-tailed Deer
<i>Peromyscus leucopus</i> ¹	White-footed Mouse
<i>Pitymys pinetorum</i>	Pine Mouse
<i>Procyon lotor</i> ¹	Raccoon
<i>Rattus norvegicus</i>	Norway Rat
<i>Scalopus aquaticus</i>	Eastern Mole
<i>Sciurus carolinensis</i> ¹	Gray Squirrel
<i>Sorex cinereus</i>	Masked Shrew
<i>Sylvilagus floridanus</i> ¹	Eastern Cottontail

TABLE 4
MAMMAL SPECIES
OBSERVED OR EXPECTED ON SITE¹

<i>Scientific Name</i>	Common Name
<i>Tamias striatus</i> ¹	Eastern Chipmunk
<i>Vulpes vulpes</i>	Red Fox

¹Indicates species or sign observed on-site.

Reptiles and Amphibians

Few species of reptiles and amphibians are expected to occur on the subject site due to the absence of freshwater habitats. The species that are expected to be present based on site observations, existing habitat types, and the New York State Herpetological Atlas (NYSDEC, 2009) are listed in **Table 5**. The New York State Herpetological Atlas provides known records of reptile and amphibian species from 1990-1998 for each 7.5-minute USGS topographic quadrangle within New York State. The expected reptile and amphibian species listed in **Table 5** are based on the Southold, NY quadrangle. The eastern box turtle (*Terrapene carolina*) is listed as a New York State Species of Special Concern and is a common inhabitant of dry and moist woodlands, brushy fields, marsh edges, and bottomlands (Massachusetts Division of Fisheries and Wildlife, 2015). Redback salamander can be found in woodlands throughout New York State. The common and ubiquitous garter snake can be found in various woodlands, fields, and suburban habitats.

TABLE 5
REPTILE & AMPHIBIAN SPECIES
OBSERVED OR EXPECTED ON SITE¹

<i>Scientific Name</i>	Common Name
<i>Plethodon cinereus cinereus</i>	Redback Salamander
<i>Terrapene carolina</i> ¹	Eastern Box Turtle
<i>Thamnophis sirtalis</i> ¹	Common Garter Snake

¹Indicates species or sign observed on-site.

b. Endangered, Threatened, Rare Species or Significant Ecological Communities

No endangered, threatened, or rare species or significant ecological communities were observed during the ecological surveys conducted. New York Natural Heritage Program (NYNHP)

correspondence from December 1, 2020 indicates that piping plover (*Charadrius melodus*), a New York State threatened species, is the only record of a known occurrence of a rare or state-listed animal or plant or significant natural community on or in the vicinity of the site (**Appendix A**). Piping plovers nest at Breakwater Beach located more than 0.5 miles away on the west side of Mattituck Inlet. No breeding or foraging habitat for piping plover is present on the site.

The NYSDEC EAF Mapper (<https://gisservices.dec.ny.gov/eafmapper/>) indicated the potential for southern sprite (*Nehalennia integracollis*), a damselfly listed as a Species of Special Concern in New York State, to occur in the vicinity of the project site. Southern sprite are found in coastal plain ponds on Long Island (NYNHP, 2010). Due to the absence of suitable habitat, southern sprite are not expected to occur on the subject property.

As described above, the site contains habitat that could be utilized by the northern long-eared bat (*Myotis septentrionalis*) during the summer months for foraging and diurnal roosting. The northern long-eared bat was listed as threatened by both the US Fish and Wildlife Service and New York State in 2016 due to population declines caused by white-nose syndrome (WNS), a disease caused by an invasive fungus that kills affected hibernating bats during the winter months. Northern long-eared bats roost during the daytime in cavities or crevices of living trees and snags (i.e. standing dead trees) or underneath loose or exfoliating bark. The site has large trees with loose bark, such as red maple and white oak, and potential for cavities in live trees or snags. Due to the northern long-eared bat's potential use of diverse upland forest types and the presence of large trees with loose bark, this species may utilize the site for foraging and roosting habitat in the summer months.

The availability of summer habitat is not limiting for northern long-eared bat. Accordingly, loss of summer habitat is not recognized as a threat to the conservation of this species (USFWS, 2016); rather, white-nose syndrome is the primary threat to northern long-eared bat within its summer habitats.

Three species listed as Species of Special Concern by New York State are expected to occur

on or utilize the site. Species of Special Concern are species for which a welfare concern or risk of endangerment has been documented in New York State. These three species include:

Eastern Box Turtle	<i>Terrapene carolina</i>
Cooper's Hawk	<i>Accipiter cooperii</i>
Sharp-shinned Hawk	<i>Accipiter striatus</i>

Eastern box turtle (*Terrapene carolina*) may be found in a wide variety of habitats including in open deciduous forests, woodlands, forested bottomlands, open field and field edges, thickets, marshes, bogs, and stream banks. Eastern box turtle are expected to be found in any of the vegetated upland habitats on the site. Eastern box turtles are threatened by development of their habitat, mortality on roadways, mortality from mowing of lawns and early successional habitats, and collection as pets.

Cooper's hawk (*Accipiter cooperii*) and sharp-shinned hawk (*Accipiter striatus*) inhabit various upland and wetland forests during the breeding season including fragmented forests within agricultural, suburban, and urban landscapes, with sharp-shinned hawks preferring forest edge habits. Cooper's hawks breeding sites have been expanding in New York over the last several decades. Cooper's hawks prefer to nest in forests with a closed canopy, trees that are more than 30 years old, and moderate to heavy shrub cover (Beans and Niles, 2003). The site's coastal oak-beech forests provide suitable, but not optimal, nesting habitat due to the relative absence of shrub cover. Sharp-shinned hawks were not documented to nest anywhere in Nassau or Suffolk Counties by McGowan and Corwin (2008). During the winter months, both species frequent residential areas to hunt for songbirds at bird feeders. Both species are expected to utilize the subject site as foraging habitat during any season.

2. Potential Impacts Analysis

The proposed action is the construction of two boat storage buildings (52,500 square feet and 49,000 square feet, respectively) along with associated improvements including a vegetated

retaining wall, gravel-based driveway and parking surfaces, water supply, sewage disposal using new Innovative/Alternative Onsite Wastewater Treatment Systems (I/A OWTS), site grading and drainage, landscaping and lighting on the 32.96 acre parcel on lands zoned M-II (16.46 acres) and R-80 (16.5 acres). The proposed action will require approximately 135,000 cubic yards of cut for the placement of the proposed boat storage buildings at El. 10.0' NAVD. A concrete and planted retaining wall is proposed to the west and north of the new boat storage buildings to stabilize the slope. Construction is anticipated to occur over a 12-month period including excavation and fill export and construction of proposed retaining wall, boat storage buildings, and associated infrastructure.

The proposed action has a construction footprint of 6.51 acres resulting in the physical disturbance and permanent loss of 4.32 acres of high-quality coastal oak-beech forest, 1.19 acres of southern successional hardwood forest, and 0.54 acres of successional shrubland (**Table 6**). The loss of successional shrubland habitat is associated with the proposed 16-ft-wide haul road traversing the site from the proposed excavation areas to Mill Road. The acreage of buildings, impervious surfaces, and gravel driveways and parking areas is proposed to increase from 3.70 acres to 8.37 acres and would then comprise 25.4% of the site.

The Bulk Schedule requirements for properties in the M-II Zoning District require a minimum of 20% (3.29 acres) of the 16.46 acres in the M-II zone to be maintained as landscaping or natural areas under §280 of the Town Code. Under the proposed action, 6.46 acres within the M-II zone (51.4%) will be maintained as natural vegetation comprised of coastal oak-beech forest and successional forest and 1.67 acres of plantings and landscaping (including retaining wall plantings). The proposed total clearing of 7.7 (3.70 existing, 4.00 new) acres and preservation of approximately 8.13 acres of natural vegetation within the M-II Zoning District is consistent with and substantially exceeds the 20% minimum requirement pursuant to Town Code.

Approximately 13.77 acres of southern successional hardwood forest and successional shrublands will be retained; these areas are located on the western R-80 zoned portion of the property adjacent to Mill Road West. Approximately 8.28 acres of coastal oak beech forest will

be maintained on the site, largely in the northern portion of the M-II zoned property interspersed between existing residential structures, with some forest along the southern property boundary in the R-80 zoned portion. The approximately 0.63 acres of tidal wetlands located along the shoreline of Mattituck Creek will be preserved under the proposed action.

TABLE 6
PROPOSED CHANGES IN ECOLOGICAL COMMUNITY COVERAGES

	Existing	Percent of Existing	Proposed	Percent of Proposed	Change in Acres	Percentage Change
Coastal Oak- Beech Forest	12.60	38.2	8.28	25.1	-4.32	-34.3%
Successional Shrubland	10.83	32.9	10.29	31.2	-0.54	-5.0%
Buildings & Paved/Pervious Surfaces	3.70	11.2	8.37	25.4	+4.67	+126.2%
Successional Southern Hardwoods	4.67	14.2	3.48	10.6	-1.19	-25.5%
Unvegetated Sand Slope	0.29	0.9	0.0	0.0	-0.29	-100.0%
Tidal Wetlands	0.63	1.9	0.63	1.9	0.0	0.0%
Mowed Lawn with Trees & Landscaping	0.24	0.7	1.91	5.8	+1.67	+695.8%
Total Site	32.96	100.0%	32.96	100.0%		

a. Potential Impacts to Forest Resources

Approximately 11.76 acres of forests will be retained under the proposed action; however, 5.51 acres of the 6.51 acre development footprint currently consists of upland forest habitat. These 5.51 acres of forest area to be developed comprise 32% of the upland forests on the subject property and 44% of the site's coastal oak-beech forest. A tree survey of all site trees greater than 6-inches in diameter (**Appendix B**) indicates that the loss of these forest areas will result in the clearing/removal of approximately 634 trees (Table 7). The average size of the trees to be cleared is 12.8-inches DBH. Approximately 70% of these trees consist of various oak (*Quercus* sp.) and American beech trees with the remainder comprised largely of red maple, black locust, and black cherry. The project will retain 73.7% of the trees on the subject property (i.e. 1,774 of the site's 2,408 trees) and 54.2% of the trees in the M-II Zoning District (i.e. 735 of the M-II area's 1,354 trees). The coastal oak-beech forests on the subject property contain 1,647 American beech, oak, hickory, red maple, and sassafras trees; approximately 66.8% of these native

trees will be retained. Under the proposed action, approximately 66% of these site's trees greater than 12-inches in DBH will be preserved. In addition, approximately 135 trees will be established in a 27,333 SF planting area along the new forest edge (predominantly pitch pine) and small trees, such as staghorn sumac and shadbush, on the proposed retaining walls.

TABLE 7
TREE CLEARING UNDER PROPOSED CONDITIONS

Description	Quantity	%
R80 Trees To Be Cleared	15	0.62%
M2 Trees To Be Cleared	619	25.7%
Total Trees To Be Cleared	634	26.3%
R80 Trees to Remain	1,039	43.1%
M2 Trees to Remain	735	30.5%
Total # of Trees to Remain	1,774	73.7%
Total # of Existing Trees within Property Boundary (> 6-inch diameter)	2,408	
Proposed On-Site Tree Plantings	135	

The Town of Southold is comprised largely of agricultural and residential land uses, which collectively account for 63% of the Town's land area (Town of Southold, 2017). Approximately 4,500 acres of forest cover is present within the Town of Southold based on analysis of the 2016 National Land Cover Data obtained from the Multi-Resolution Land Characteristics Consortium (MRLC). Forest cover accounts for approximately 2.42% of the Town of Southold's land area interspersed within these predominantly agricultural and residential lands (**Figure- LC1**). The Town's forests are located on lands with various existing uses including open space and recreation, residential, agricultural, and commercial land uses. The Mattituck Creek watershed has relatively higher proportions of existing forest cover compared to the entire Town. Specifically, forest cover is approximately 15% (340 acres) of total land area within the 2,259-acre 25-year contributing watershed of Mattituck Creek (Suffolk County Department of Health Services, 2020) (**Figure LC-2**).

Ecosystem services provided by forests include providing habitat for birds and other wildlife; maintaining groundwater and surface water quality; soil and sediment stabilization; removal of air pollutants such as nitrogen and sulfur oxides, ozone, volatile organic compounds (VOCs), and particulates; atmospheric carbon uptake; and groundwater recharge. The loss of these 5.0 acres of forest will result in a reduction of the ecological benefits and ecosystem services provided by these forests and contributes incrementally along with other forest losses in the Town and Mattituck Creek watershed to an overall loss of forest ecosystem services. Other forest losses in the Town are largely related to residential development, which has resulted in 5,336 new residential units within the Town since 1980 (Town of Southold, 2017).

Potential impacts of the proposed action, including clearing of 5.51 acres of forest resources and potential impacts to the adjacent Town Mill Road Preserve and enhanced edge effects are discussed in Section 2.a. Potential impacts to wildlife including forest interior species, species with large home ranges, and endangered/threatened/protected species are discussed in Sections 2.b and 2.c, respectively. Mitigation measures to offset the loss of the ecosystem services provided by these forests are described in Section 3 (Mitigation) and include preservation of 11.76 acres of existing forest habitat (in excess of Town Code requirements); native plantings; wildlife protection measures; and stormwater and nutrient pollution reduction.

Edge Effects

Some of the 8.28 acres of coastal oak beech forests and 3.48 acres of successional forests that will be maintained under the proposed action will be adversely impacted by the creation of new forest edges. Forest edges exhibit differences in microclimate, plant composition, plant density, and habitat quality compared to forest interiors. Accordingly, forest edges are often utilized by different wildlife and plant species compared to forest interiors. Edge habitats in forests have higher ambient light levels, air and soil temperatures, and wind speed; and lower relative humidity and soil moisture (Chen et al, 1995; Gehlhausen et al, 2000) than forest interiors. Studies have found that the changes in microclimate in forests (i.e. ambient light, air and soil temperatures, wind speed, relative humidity, etc.) occur up to 195' from the north- and east-facing forest edges (Gehlhausen et al, 2000; Harper et al, 2005). These changes associated with forest edges,

particularly increased light levels, foster proliferation of invasive plant species and changes to the observed plant community due to differences in plant recruitment and survivorship (Brothers and Spingarin, 1992; Cadenasso and Pickett, 2000). Other changes to forest processes that may occur at forest edges include increased tree growth rates and leaf litter production due to higher light levels (Reinmann and Hutyra, 2017), increased summer heat and drought stress to trees and vegetation due to higher temperatures (Reinmann and Hutyra, 2017); and decreased litter decomposition due to decreased soil moisture (Riutta et al, 2012).

The project site has 12.60-acres of coastal oak-beech forest. Due to the historical disturbances associated with clearing for agricultural uses, commercial marine construction, and construction of two residential structures, much of the existing coastal oak-beech forests are currently (or were previously) subjected to edge effects from adjacent clearing or development. Approximately 3.52 acres of the existing coastal oak-beech forests are currently located more than 195-ft from an existing forest edge associated with the commercial marina or residential structures. The proposed project will result in a new forest edge and, accordingly, result in changes in microclimate that will penetrate up to 195-ft into the into the existing coastal oak beech forests. Under post project conditions, all of the site's 8.28 acres of coastal oak-beech forests will be less than 195-ft from existing or new forest edges.

The new forest edge will likely result in an intensification of the existing edge effects at the site, likely resulting in colonization and increased growth of invasive plant species (Brothers and Spingarin, 1992) and reduction in habitat quality for nesting songbirds, and increased abundance of predators and invasive competitors. In addition, the proposed project may result in increased numbers of invasive birds, such as European starling (*Sternus vulgaris*), house sparrow (*Parus domesticus*), and brown-headed cowbird (*Molothrus ater*), as these birds thrive in habitats created by humans and often nest on or in buildings. Starlings compete with native birds for nest sites in the cavities of trees, often resulting in a decline in abundance of native cavity nesters such as woodpeckers and flycatchers (Koenig, 2000). Cowbirds are nest parasites and may have similar adverse impacts on native birds.

After construction, mature trees that were formerly located in sheltered interior sites will be located at or proximal to the new forest edge and, accordingly, will be exposed to increased wind and wind-blown salt, particularly during coastal storms. Tree species that will be located at this new edge include species that are typically tolerant of coastal conditions and wind-blown salt (such as oaks and American beech) and/or species that are tolerant of disturbed habitats (such as sassafras, bird cherry, and black locust). However, increased mortality in these new edge trees is expected post construction due to windthrow, disturbance to roots/root injury, and salt pruning.

As described in Section 3 (Mitigation), the magnitude of the potential adverse impacts of new edge effects will be minimized by the planting of 27,333 SF of native trees and shrubs along the new forest edge. This planted area is approximately 20-30 feet wide and will include multi-layered plantings (i.e. plants that at maturity will occupy understory and canopy-levels) with abundant conifer trees (i.e. seventy one pitch pine trees) to minimize light penetration into the new forest. After establishment of these natural vegetation areas located landward of the proposed retaining wall, the total forest area on the property will increase from 11.76 acres to 12.39 acres.

Potential Impacts to Mill Road Preserve

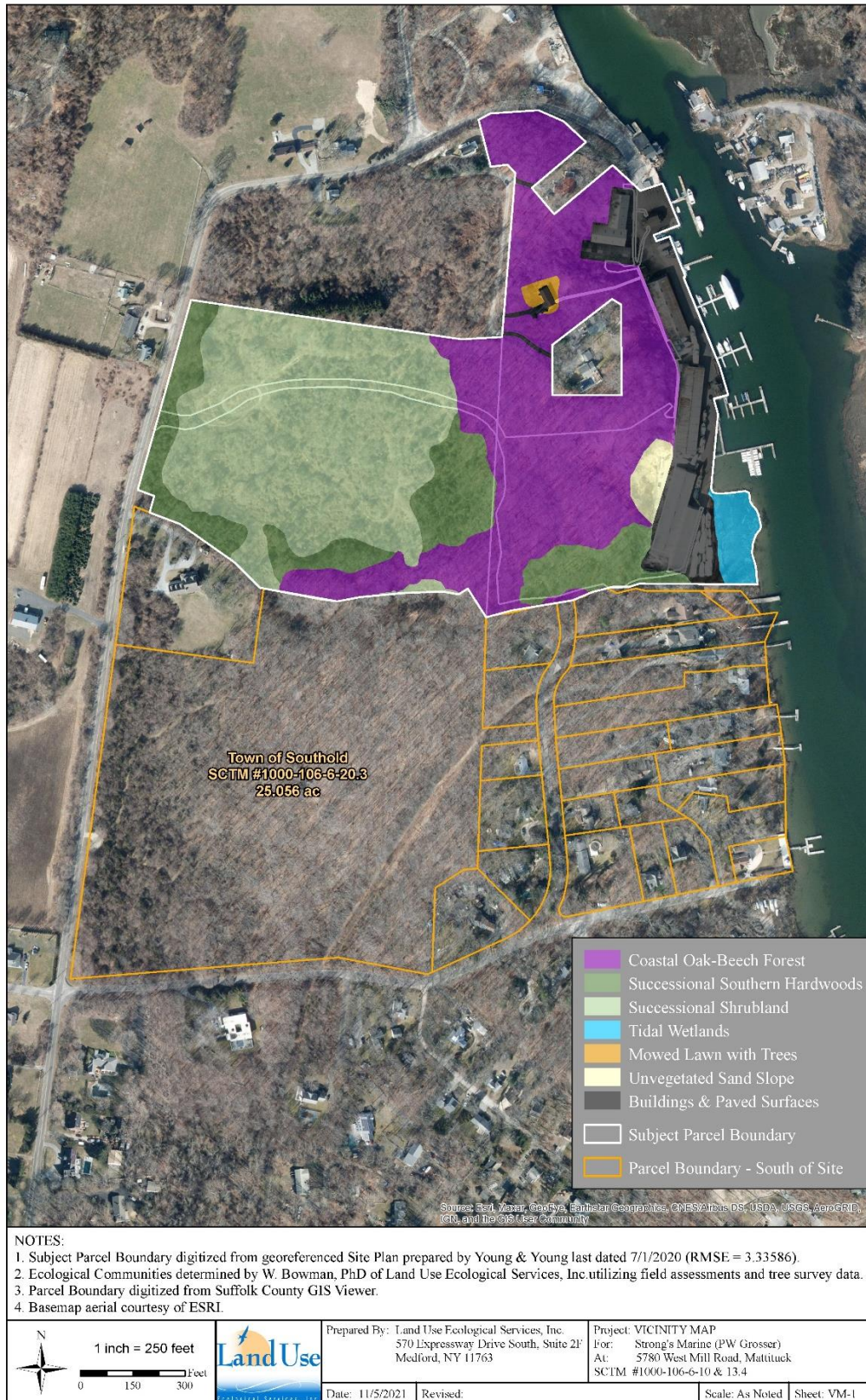
The subject property is adjacent to the 27-acre Town of Southold Mill Road Preserve located between Mill Road and the residential properties on North Drive. The Mill Road Preserve has an ecological community composition similar to the subject property with successional shrublands and forest proximal to Mill Road and coastal oak beech forests located to the east. The project will result in the creation of a new forest edge approximately 105 feet from the Mill Road Preserve boundary along a short reach (approximately 99 feet) of the shared property boundary located in the northeastern corner of the Preserve. As shown in the 1962 aerial image (**Figure 1**), this area is proximal to historical disturbance associated with the clearing, filling, and hardening of the west shoreline of Mattituck Creek on the subject property in the 1950s-1960s. The existing oak-dominated and successional forests in this portion of the property have regenerated on the bare, exposed substrate apparent in **Figure 1**.

Potential adverse impacts associated with the new forest edge could include potential changes to the forest microclimate and increased abundance of invasive plants and wildlife species, as previously described. These edge effects are expected to extend approximately 195 feet into Mill Road Preserve from the northeastern corner of Mill Road Preserve. The total area of the Mill Road Preserve that may be potentially impacted by edge effects associated with the new clearing limit on the Strong's Yacht Center property is approximately 0.38 acres (16,419 SF).

Existing residential properties are located along the eastern border of Mill Road Preserve, as shown in **Figure 4**. Therefore, some of this 0.38 acre area represents an intensification of an existing forest edge rather than creation of a new edge. The area subject to new or enhanced edge effects accounts for approximately 2% of the 18-acres of mature oak-beech forests in Mill Road Preserve. Thus, the proposed action would not be expected to have significant adverse impacts on the forest habitat quality or composition through the large majority of the Mill Road Preserve.

Furthermore, the magnitude of potential edge effects are expected to decrease over time due to the proposed landscaping comprised of native deciduous and coniferous trees and shrubs, such as white oak (*Quercus alba*), pitch pine (*Pinus rigida*), staghorn sumac (*Rhus typhica*), and shadbush (*Amelanchier canadensis*); and various woody shrubs including lowbush blueberry (*Vaccinium angustifolia*), bayberry (*Morella pensylvanica*), and groundsel bush (*Baccharis halimifolia*). Proposed edge plants will facilitate the development over time of a dense "wall" of vegetation comprised of maintained canopy trees, regenerating trees, and shrubs to fill in open space at the edge. "Sealing" of the edge through development of multiple layers of vegetation may reduce the penetration of light into the forest and decrease the depth of edge impacts towards the interior of Mill Road Preserve (Harper et al, 2005).

Figure 4: Mill Road Preserve Vicinity Map



b. Potential Impacts to Wildlife

The decreased habitat availability associated with the loss of 32% of the site's forest habitat will likely decrease the abundance and diversity of the plant and wildlife species that utilize the site. Wildlife that utilize the site's successional shrubland and successional forest habitats will not be adversely impacted by the proposed action due to the maintenance of 13.77 acres (approximately 89%) of these successional habitats. Similarly, wildlife species that are habitat generalists and utilize all of the site's habitats (i.e. successional habitats, forests, and developed areas) are also unlikely to be adversely impacted by the proposed action, due to their general tolerance for human activity. Examples of these habitat generalists include raccoon, opossum, and white-tailed deer as well as birds such as American robin, common grackle, black-capped chickadee, blue jay, and wild turkey.

Wildlife species that are most likely to be adversely impacted by the proposed action, specifically the reduction in coastal oak-beech forest habitats from 12.6 acres to 8.28 acres, include birds or other wildlife that inhabit mature forests, forest interiors, or have large patch size requirements. Songbirds that are expected to utilize the site's coastal oak-beech forests include species that forage for insects on and under bark (such as woodpeckers and nuthatches), glean insects from canopy foliage (such as vireos), and/or catch airborne insects (such as flycatchers and wood peewees). Some bird species may be found in both small and large habitat patches, whereas other bird species are more frequently found in larger habitat patches than smaller patches. Bird species that are not dependent on habitat patch size and/or species that have tolerance for small habitat patches or edge habitats are likely to continue to utilize the smaller wooded habitat patches remaining after completion of the project. Many of the bird species that inhabit the site and have been found to be insensitive to patch size, utilize small forest patches (between 2.0 and 8.0 acres in area), or utilize edge habitats include American robin (*Turdus migratorius*), gray catbird (*Dumetella carolinensis*), house wren (*Troglodytes aedon*), Carolina wren (*Thryothorus ludovicianus*), common grackle (*Quiscalus quiscula*), common flicker (*Colaptes auratus*), tufted titmouse, (*Baeolophus bicolor*), black-capped chickadee (*Poecile atricapillus*), blue jay (*Cynaocitta cristata*), cardinal (*Cardinalis cardinalis*), downy woodpecker (*Picoides pubescens*), hairy woodpecker (*Leuconotopicus villosus*), red-bellied woodpecker (*Melanerpes carolinus*), white-breasted nuthatch

(*Sitta canadensis*), indigo bunting (*Passerina cyanea*), warbling vireo (*Vireo glivus*), great-crested flycatcher (*Myiarcus crinitus*), and American redstart (*Setophaga ruticilla*) (Galli et al, 1976; Garaldi, 2003; Sherri and Holmes, 1997). These species are expected to persist on the subject property, albeit at lower abundance due to less available habitat and reduced habitat quality in remaining forests resulting from intensification of adverse edge effects, including increased abundance of nest predators and nest parasites.

Forest bird species that are patch-size dependent during the breeding season and require relatively large habitat patches or utilize the interior of forest habitat patches, such as red-eyed vireo (*Vireo olivaceus*), ovenbird (*Seiurus aurocapilla*), black-and-white warbler (*Mniotilta varia*), veery (*Catharus fuscescens*), wood thrush (*Hylocichla mustelina*), and scarlet tanager (*Piranga olivacea*) (Galli et al, 1976; Banner and Schaller, 2001) are less likely to utilize the site after the reduction from 12.60 to 8.28 acres of coastal oak-beech forest. As discussed below, the existing forest patches at the site are too small for successful breeding of the most area sensitive forest birds, such as wood thrush and scarlet tanager, and edge effects related to nest predation and nest parasitism are likely already pervasive. The suitability of the site for some forest breeding birds may be lost as the available habitat, 8.28 acres, drops below the published habitat patch size requirements for species such as red-eyed vireo (*Vireo olivaceus*), ovenbird (*Seiurus aurocapilla*), and black-and-white warbler (*Mniotilta varia*). However, these patch size-dependent bird species are likely to continue to utilize the approximately 18-acres of coastal oak-beech forest on the adjacent Mill River Preserve, as well as smaller habitat patches during the spring and fall migrations (Keller and Yahner, 2007).

The loss of the 5.51 acres of on-site forest contributes incrementally along with other forest losses in the Town to a decrease in the number of habitat patches that are large enough to support stable populations of forest birds (Nol et al, 2005). Other forest losses in the Town are largely related to residential development, which has resulted in 5,336 new residential units within the Town since 1980 (Town of Southold, 2017).

None of the songbird species expected to utilize the subject property are listed as Endangered, Threatened, or Species of Special Concern in New York State. Most of the bird species present on the subject property are not listed on the US Fish and Wildlife Species Birds of Conservation Concern list (USFWS, 2021). In addition, the patch-size dependent bird species identified above, red-eyed vireo (*Vireo olivaceus*), ovenbird (*Seiurus aurocapilla*), and black-and-white warbler (*Mniotilta varia*), are not identified as Birds of Conservation Concern by the US Fish and Wildlife Species (USFWS, 2021). Accordingly, the displacement or loss of habitat at the site for individuals of these abundant bird species, even those that are patch-size dependent, is not likely to adversely impact the regional populations of these species.

Many songbird populations have been declining in abundance in the Northeastern United States since the 1970s (Rosenberg et al, 2019). Two songbirds that may potentially utilize the site as breeding habitat are listed as “Species of Greatest Conservation Need” in New York State. Species of Greatest Conservation Need are species that are experiencing some level of population decline, have identified threats that may put them in jeopardy, and need conservation actions to maintain stable population levels or sustain recovery. The two songbird species that are classified as Species of Greatest Conservation Need that are expected to utilize the site are wood thrush (*Hylocichla mustelina*) and the scarlet tanager (*Piranga olivacea*). Wood thrushes typically breed in deciduous forests with an abundance of saplings and high density of tall shrubs (DeGraaf and Rappole, 1995; Roth et al, 1996). Wood thrushes may breed in small habitat patches (2.5 to 12.5 acres) or smaller (Robbins et al, 1989, DeGraaf and Rappole, 1995), but have been found to have lower nest productivity in these small habitat patches due to nest predation by cowbirds, jays, crows, raccoons, and domestic and feral cats (Weinberg and Roth, 1998).

Scarlet tanagers prefer mature deciduous and mixed forests with tall trees, moderately open to closed canopy, and well-developed understory (Lambert et al, 2017). Scarlet tanagers breed successfully in large habitat patches. Habitat patches in landscapes with 50% or less forest cover must be 30-170 acres in area to be moderately to highly suitable for tanager breeding (Rosenberg, 2014).

The site does not provide high quality breeding habitat for wood thrush or scarlet tanager due to 1) the paucity of understory vegetation, 2) the relatively small area of the existing forest patch (12.60 acres on property and ~37 acres with adjoining Mill Road Preserve), and 3) nest predation due to proximity to existing forest edges and human development. Thus, the loss of the 4.32 acres of coastal oak-beech habitat resulting from the proposed action will reduce habitat for foraging (particularly during migration periods) for these species, but not result in the loss of high-quality nesting habitat that would significantly adversely impact the populations of these two species of Conservation Need.

The potential for the proposed action to generate noise from construction activities, vehicular traffic, and operation of the proposed boat storage facility is analyzed in detail in the project Acoustic Report. This analysis indicates that existing noise conditions within the natural ecological communities on the subject property are between 40-45 dBA. Analysis of potential noise levels at nearby residential sites (such as 5106 West Mill Road, 800 North Drive, and 805 North Drive) indicate that noise levels in the property's natural areas may increase temporarily during project construction to 66 dBA during tree removal/grubbing (in December), 76 dBA during excavation phases (between December to June), and 71 dbA during building and drainage construction phases (between June to November). Under the proposed build conditions, noise levels are expected to increase slightly by 0-4 dbA to 44-48 dbA. Under proposed build conditions, sound levels will not increase by more than 6 dBA above existing conditions and, therefore, is consistent with "no impact" following NYSDEC standards for impacts to human receptors.

Noise pollution associated with industrial activities, roads, and major highways has been found to result in ecological impacts such as lower bird breeding densities and poorer body condition. For example, chronic industrial noise levels of 75-90 dbA generated by compressor stations on natural gas pipelines in Alberta, Canada resulted in a 15% decrease in the observed breeding ovenbirds pairs (*Seiurus aurocapilla*) in forests adjacent to the compressor stations (Habib et al 2007) and 15-66% decrease in other species including red-breasted nuthatch (*Sitta canadensis*), red-eyed vireo (*Vireo olivaceus*), and yellow-rumped warbler (*Dendroica coronata*) (Bayne et al, 2008). Anthropogenic noise was also found to increase stress and reduce body condition in

songbirds, but not adversely impact survivorship, in urban habitats compared to more rural habitats (Phillips et al, 2018). Simulated roadway noise that increased noise levels (L_{eq}) by 11-20 dBA experienced by birds was found to alter the species composition and abundance of the avian community, alter foraging and nesting behavior, and reduce nestling body condition (Injaian et al, 2007; Ware et al, 2015). Potential impacts to birds adjacent to these industrial facilities and simulated roadway noise was attributed to increasing stress levels; noise interference with bird songs used to attract mates and defend breeding territories; and altered foraging and nesting behavior (Reijnen et al, 1995; Habib et al, 2007).

Over the long-term, the maximum projected noise levels would remain under 50 dBA and would not increase by more than 4 dBA compared to existing conditions. This increase in noise levels under the Proposed Action are less intense than the industrial sources and simulated roadway noise (more than 11 dBA change in noise levels) that have been documented in the scientific literature to adversely impact birds; thus, no long-term noise-related impacts to birds and bird habitat expected to result from the operation of the proposed boat storage facility.

Potential noise levels during the 12-month construction period (45-76 dbA compared to 44 dBA under existing conditions) slightly overlap with the range of the chronic industrial levels (75-90 dbA) that have been found to impact bird breeding productivity (Habib et al, 2007) and are similar to the change in sound levels (11-20 dBA) that have been found to adversely impact bird community composition and abundance, foraging and nesting behavior, and body condition (Injaian et al, 2007; Ware et al, 2015). Accordingly, it is expected that a temporary reduction in the habitat quality provided by the adjacent forest for bird reproduction will occur during construction.

Mitigation measures to lessen the magnitude of short-term, noise-related impacts during construction to neighbor are discussed in Acoustic Report and include use of white noise back-up alarms rather than single, tone beeps; no use of Jake Brake mechanisms on site; and use of dump trucks that meet USEPA Tier 4 standards. These mitigation measures will serve to reduce potential impacts to birds and wildlife by decreasing high frequency noise.

No adverse impacts to wildlife or wildlife habitat are expected to result from new outdoor lighting associated with the proposed action. The proposed lighting shall be dark skies-compliant, downward directed lighting resulting in no increase in light levels beyond the limit of the proposed buildings, access roads, and parking surfaces.

c. Potential Impacts to Endangered, Threatened, Rare Species or Significant Ecological Communities

No endangered, threatened, or rare species or significant ecological communities were observed during the ecological surveys conducted. New York Natural Heritage Program (NYNHP) correspondence from December 1, 2020 indicates that piping plover (*Charadrius melodus*), a New York State threatened species, is the only record of a known occurrence of a rare or state-listed animal or plant or significant natural community on or in the vicinity of the site (**Appendix A**). Piping plovers nest at Breakwater Beach located more than 0.5 miles away on the west side of Mattituck Inlet. No breeding or foraging habitat for piping plover is present on the site and, accordingly no impacts to piping plover would result from the proposed action.

The NYSDEC EAF Mapper (<https://gisservices.dec.ny.gov/eafmapper/>) indicated the potential for southern sprite (*Nehalennia integracollis*), a damselfly listed as a Species of Special Concern in New York State, to occur in the vicinity of the project site. Southern sprite are found in coastal plain ponds on Long Island (NYNHP, 2010). Due to the absence of suitable habitat, southern sprite are not expected to occur on the subject property and no impacts to this species will result from the proposed action.

As described in Section 2.b (Wildlife), the site contains habitat that could be utilized by the northern long-eared bat (*Myotis septentrionalis*) during the summer months for foraging and diurnal roosting. The northern long-eared bat was listed as threatened by both the US Fish and Wildlife Service and New York State in 2016 due to population declines caused by white-nose syndrome (WNS), a disease caused by an invasive fungus that kills affected hibernating bats during the winter months. The availability of summer habitat is not limiting for northern long-eared bat.

Accordingly, loss of summer habitat is not recognized as a threat to the conservation of this species (USFWS, 2016); rather, white-nose syndrome is the primary threat to northern long-eared bat within its summer habitats.

Due to the presence of suitable summer roost habitat at the site and documentation of northern long-eared bat foraging over various habitat types throughout eastern Suffolk County, the NYSDEC recommends that any cutting of trees occur during the winter months (between December 1 and February 28) to avoid a potential take of this protected species. Any cutting of trees associated with this project would occur during this timeframe in accordance with NYSDEC recommendations and, accordingly, no adverse impacts to northern long-eared bat populations are expected to result from the proposed action. Winter cutting of forest trees would also minimize potential impacts to breeding wildlife and birds.

Three species listed as Species of Special Concern by New York State are expected to occur on or utilize the site. These three species include:

Eastern Box Turtle	<i>Terrapene carolina</i>
Cooper's Hawk	<i>Accipiter cooperii</i>
Sharp-shinned Hawk	<i>Accipiter striatus</i>

Eastern box turtle are expected to be found in any of the vegetated upland habitats on the site. The project would result in a loss of approximately 6.05 acres of upland forest and shrubland habitat for eastern box turtle. Potential adverse impacts to eastern box turtle will be avoided or minimized by conducting sweeps or surveys for box turtles prior to commencement of clearing, grading, and excavation activities, and relocation of any observed turtles to on-site areas that will not be disturbed. Silt fencing or other barriers will be installed around work areas to prevent turtles from returning to construction areas.

Cooper's hawk (*Accipiter cooperii*) and sharp-shinned hawk (*Accipiter striatus*) inhabit various upland and wetland forests during the breeding season, including fragmented forests within agricultural,

suburban, and urban landscapes, and with sharp-shinned hawks preferring forest edge habits. Cooper's hawks breeding sites have been expanding in New York over the last several decades. Cooper's hawks prefer to nest in forests with a closed canopy, trees that are more than 30 years old, and moderate to heavy shrub cover (Beans and Niles, 2003). The site's coastal oak-beech forest provides suitable, but not optimal, nesting habitat due to the relative absence of shrub cover. Sharp-shinned hawks were not documented to nest anywhere in Nassau or Suffolk Counties by McGowan and Corwin (2008). During the winter months, both species frequent residential areas to hunt for songbirds at bird feeders. Both species are expected to utilize the subject site as foraging habitat during any season. The proposed action will result in a loss of foraging habitat and degradation of habitat quality for Cooper's hawk (*Accipiter cooperii*) and sharp-shinned hawk (*Accipiter striatus*), although these species will likely continue to hunt the human-tolerant songbirds and doves that will utilize the developed property and the remaining 22.05 acres of coastal oak-beech forests and successional habitats.

d. Potential Impacts to Tidal Wetlands

No physical disturbance to the small area (0.63-acres) of intertidal marsh and high marsh tidal wetlands on the southern end of the property is proposed and, accordingly, there will be no loss of tidal wetland area resulting from the proposed action.

Construction and waterfront development actions may result in indirect impacts to adjacent and proximal wetlands through stormwater runoff (both during construction and under future conditions) that may transport sediments or pollutants to these wetlands, increased nutrient loading to surface waters and wetlands from sanitary systems, and erosion due to increased vessel wakes. The wetlands and surface waters of Mattituck Creek are designated as a Significant Coastal Fish and Wildlife Habitat and threats to these wetlands identified by the New York State Department of State include any activity that would substantially degrade the water quality in Mattituck Creek or would adversely affect the biological productivity of this area including chemical contamination, oil spills, excessive turbidity, and waste disposal (including vessel wastes). Long Island's tidal wetlands are also adversely impacted by other factors including sea level rise, eutrophication of estuarine waterbodies (Deegan et al, 2012), low sediment supply, expansion of

invasive *Phragmites australis*, erosion caused by recreational and commercial vessel wakes, and other factors.

The proposed action provides multiple mitigation measures and best management practices to minimize the potential for adverse impacts to the 0.63-acres of on-site tidal wetlands and the approximately 60 acres of tidal wetlands located in Mattituck Creek.

The seaward edge of tidal marshes along creek banks, particularly in large tidal channels such as Mattituck Creek, are subject to erosional forces from wind-driven waves during storms and vessel wakes. Mattituck Creek is subject to a 5-mph (no wake zone) enforced by the US Coast Guard and Town of Southold Bay Constable to maintain safe navigational conditions. No wake zones reduce the potential for the erosion of marsh edges due to vessel wakes.

Furthermore, the proposed action will not substantially increase vessel traffic within Mattituck Creek. The proposed action includes two buildings for the purpose of winter boat storage. The project does not include the use of these buildings year-round, does not propose year-round boat traffic in an out of SYC, does not propose any additional docks, nor does it propose the use of any existing facilities at SYC to house boats that arrive to the site for storage. It is estimated that approximately 88 boats per off-season would be stored in the new buildings. Accordingly, given an eight-week timeframe for entry to storage in the fall and the same timeframe to remove boats from storage in the spring, this equates to an average of approximately 11 boats per week or less than two boats per day. Averaged annually, the total 176 trips (88 boat trips in the spring and 88 boat trips in the fall) equates to 0.48 boat trips per day. It is estimated that approximately 547 boats are active in Mattituck Creek on a peak season day. Therefore, the increase in vessel traffic of 0.48 boat trips per day is nominal and the potential for increased erosion of tidal marshes due to vessel traffic is not significant.

The proposed action provides for stormwater management that will serve to minimize potential for degradation of existing tidal wetlands and water quality through nutrient or sediment pollution. The proposed development shall be constructed under the requirements and

specifications of a Stormwater Pollution Prevention Plan (SWPPP) prepared in accordance with the New York State Department of Environmental Conservation (NYSDEC) SPDES General Permit No. GP-0-20-001 and Chapter 236 "Stormwater Management" of the Town of Southold Code. The site's SWPPP includes both permanent and temporary best management practices to minimize potential impacts from stormwater runoff to surface waters of the site's wetlands and Mattituck Creek. Temporary best management practices will also be employed to prevent erosion and transport of sediments, litter, and debris during construction actions, and include silt fences, silt sack inlet protection, soil stockpile protection measures, temporary seeding and mulching, stabilized construction entrances, and designated concrete wash-out areas.

Permanent infrastructure practices installed to collect, treat, and infiltrate stormwater shall include stormwater catch and leaching basins and French drains to collect stormwater runoff generated by a 2-inch rainfall event from the roofs of the proposed buildings. Two of the existing metal warehouse buildings will also be connected to the proposed stormwater management infrastructure, reducing transport of sediments, nutrients, and pollutants to Mattituck Creek from these existing structures.

Nutrient loading to adjacent surface waters has adverse impacts to tidal wetlands due to potential smothering of wetland grasses by rafts of marine algae, increased marsh bank instability, and expansion of invasive *Phragmites* at the landward edge of marshes. Strong's Yacht Center operates a pump-out vessel to minimize potential for unauthorized discharge of waste holding tanks and maximize compliance with the Mattituck Harbor and Long Island Sound No Discharge Zones. Nutrient reduction measures included in the proposed action include the replacement and up-grade of the existing conventional sanitary system that services the existing office, marina, and other buildings with an I/A OWTS, and a new I/A OWTS to service the proposed boat storage buildings. Both new I/A OWTS shall conform with the Suffolk County Sanitary Code and are designed to reduce total nitrogen in treated effluent to 19 mg/L and remove an average of 70% of influent nitrogen concentrations. The proposed I/A OWTS upgrades ensure that the proposed action does not contribute additional nutrient loading to Mattituck Creek (and potential adverse impacts to wetlands) and represents an improvement compared to nutrient loading under existing site conditions.

No significant adverse impacts to tidal wetlands located on-site or within Mattituck Creek are expected to result from the proposed action. No physical disturbance to tidal wetlands is proposed, and the project provides for mitigation measures that will contribute to potential surface water quality and habitat quality improvements in Mattituck Creek, such as new I/A OWTS's and new stormwater drainage infrastructure.

3. Mitigation

The following measures have been incorporated into the proposed development to mitigate the potential adverse impacts to ecological resources including forests, wildlife, and wetlands.

- Approximately 8.28 acres of coastal oak-beech forests on the subject property (approximately 66% of the existing 12.60 acres) will be retained. These remaining coastal oak-beech forests retain 70% of the site's oak (*Quercus sp.*), American beech (*Fagus grandifolia*), red maple (*Acer rubrum*), hickory (*Carya sp.*), and sassafras (*Sassafras albidum*) trees.
- Overall, the project retains 11.76 acres of forest habitat (comprised of coastal oak-beech forest and successional forests), 75.4% of the site's approximately 2,400 trees, and 70.6% of all trees greater than 12-inches in diameter.
- To mitigate for the loss of forest trees associated with the project, approximately ninety five pitch pine trees, will be planted. These trees (minimum 4-5 ft height) will be planted along the western edge of the proposed development. In addition, the applicant will contribute fifty (50) native trees (10-gallon container typical 1-inch caliper, 5-6 ft tall) for installation at high-priority sites with the Town of Southold, as identified by the Town Tree Committee, to enhance and beautify public grounds.
- The proposed project will shift the eastern edge of the existing forests up to 520-ft to west. Forest edges have degraded habitat quality due to changes in microclimate, increased growth of invasive plant species, and increased abundance of predators and invasive competitors. Potential edge effects and habitat degradation in the retained forests on the subject property and the Town of Southold Mill Road Preserve will be minimized by:

- Planting 27,333 SF of native trees and shrubs along the new forest edge. This planted area is approximately 20-30 feet wide and will include dense, multi-layered plantings (i.e. plants that at maturity will occupy understory, and canopy-levels) with abundant conifer trees (i.e. 71 pitch pine trees) to minimize light penetration into the new forest. After establishment of these natural vegetation areas located landward of the proposed retaining wall, the total forest area on the property will increase from 11.76-acres to 12.38-acres.
- The proposed retaining wall features topsoil-filled planting trays that will be planted with native ground-vegetation, shrubs, and small trees. Native plant species that will be planted on the retaining wall include bayberry (*Morella pensylvanica*), staghorn sumac (*Rhus typhina*), shadbush (*Amelanchier canadensis*), groundsel bush (*Baccharis halimifolia*), Virginia creeper (*Parthenocissus quinquefolia*), switch grass (*Panicum virgatum*), and common milkweed (*Asclepias syriaca*). The vegetation established on the proposed retaining wall will serve to further reduce the intensity of the new forest edge.
- The proposed activities include construction of a stormwater management system that will collect, treat, and infiltrate stormwater generated from a 2-inch rainfall event from the roofs of the proposed buildings. Stormwater management infrastructure shall include catch and leaching basins and French drains. Two of the existing metal warehouse buildings will also be connected to the proposed stormwater management infrastructure, reducing transport of sediments, nutrients, and pollutants to Mattituck Creek from these existing structures.
- Nutrient reduction measures included in the proposed action include the replacement and up-grade of the existing conventional sanitary system that services the existing office, marina, and other buildings with an I/A OWTS, and a new I/A OWTS to service the proposed boat storage buildings. Both new I/A OWTS shall conform with the Suffolk County Sanitary Code and are designed to reduce total nitrogen in treated effluent to 19 mg/L and remove an average of 70% of influent nitrogen concentrations. The proposed I/A OWTS upgrades ensure that the proposed action does not contribute additional

nutrient loading to Mattituck Creek (and potential adverse impacts to wetlands) and represents an improvement compared to nutrient loading under existing site conditions.

- All tree clearing for the proposed action will occur during the winter months (between December 1 and February 28) in accordance with NYSDEC guidance to avoid potential impacts to the New York State-threatened northern long-eared bat (*Myotis septentrionalis*), as the site's forests provide suitable summer roost habitat for this species.
- To avoid or minimize potential impacts to eastern box turtle, sweeps or surveys for box turtles will be conducted prior to commencement of clearing, grading, and excavation activities, and any observed turtles will be relocated to areas that will not be disturbed. Silt fencing or other barriers will be installed around work areas to prevent turtles from returning to construction areas.

4. Analysis of Alternatives

Alternate Plan (Minimum Fill Export Alternative)

The Alternate Plan (Minimum Fill Export Alternative) includes the as-of-right construction of two boat storage buildings (52,500 square feet and 49,000 square feet, respectively) on the higher elevation areas on the western portion of the M-II zoned area without the cut/removal of 135,000 cubic yards of substrate necessary to bring the site to El. 10.0. This Alternative requires a net cut/fill of 2,984 cubic yards. Under this Alternative, existing Buildings 7 and 8 (15,076 SF and 22,245 SF, respectively) would be increased in height to accommodate large boats. Alternative 4 would also include ~2,050 lf of concrete retaining walls (up to 29-ft in height), a paved 20-ft wide road to access the new buildings, additional gravel-based driveway and parking surfaces, water supply, sewage disposal using new I/A OWT systems, site grading and drainage, landscaping, and lighting.

The potential ecological impacts of the Alternate Plan are broadly similar to the proposed action. The Alternate Plan results in the loss of 4.75 acres of upland forest habitat (3.89 acres of coastal oak-beech forest and 0.86 acres of successional hardwood forests), refer to Table 8, compared to 5.51 acres of forest disturbance under the proposed action (Table 6). Similarly, the Alternate

Plan results in slightly less clearing/removal of trees; approximately 612 trees will be cleared under the Alternate Plan compared to 634 trees under the proposed action. The project will retain 74.6% of the trees on the subject property under the Alternate Plan compared to 73.9% of trees under the proposed action. The 74.6% of retained trees represents 1,796 of the site's 2,408 trees and 56.3% of the trees in the M-II Zoning District (i.e. 762 of the M-II area's 1,354 trees).

TABLE 8
CHANGES IN ECOLOGICAL COMMUNITY COVERAGES UNDER ALTERNATE PLAN

	Existing	Percent of Existing	Alternate	Percent of Alternate	Change in Acres	Percentage Change
Coastal Oak- Beech Forest	12.60	38.2	8.71	26.4	-3.89	-30.9%
Successional Shrubland	10.83	32.9	10.29	31.2	-0.54	-5.0%
Successional Southern Hardwoods	4.67	14.2	3.81	11.6	-0.86	-18.4%
Buildings and Paved/Pervious Surfaces	3.70	11.2	9.28	28.2	+5.58	+250.8%
Unvegetated Sand Slope	0.29	0.9	0.0	0.0	-0.29	-100.0%
Tidal Wetlands	0.63	1.9	0.63	1.9	0.0	0.0%
Mowed Lawn with Trees & Landscaping	0.24	0.7	0.24	0.7	0.0	0.0%
Total Site	32.96	100.0%	32.96	100.0%		

Accordingly, potential project impacts related to lost wildlife habitat and forest ecosystem services are slightly less under the Alternate Plan. Potential project impacts to Mill Road Preserve (discussed in Section 2.a) are also similar between the proposed action and the Alternate Plan, due to the similar minimum distance between clearing limit and the Mill Road Preserve property boundary, approximately 103-ft and 105-ft, respectively. The potential ecological impacts of the Alternate Plan to wildlife, forests, tidal wetlands, and endangered/threatened species are expected to be broadly similar to the potential impacts of the proposed action discussed in Section 2.a (Forest Resources), Section 2.b (Wildlife), Section 2.c (Endangered/Threatened Species), and Section 2.d (Tidal Wetlands), Mitigation measures, similar to those described in Section 3, would also be employed under the Alternate Plan.

Alternate Plan 7 (Alternative Material Mitigation Plan)

An alternative material mitigation plan has been evaluated to reduce the volume of material to be removed from the subject property by placing approximately 13,500 cy of material on the R-80-zoned parcel. The resultant impact on transportation would be the elimination of 450 trucks from the excavation phase, which would reduce the excavation phase by 11.25 days or approximately two weeks (as the proposed excavation phase would occur Monday – Friday only). The material would be placed within an 8.60-acre portion of the successional shrublands located on the R-80 zoned parcel. Fill would be placed at a depth of approximately 12 inches above the existing grade throughout the 8.60-acre placement area. The northern and eastern margins of the fill placement area correspond to existing earthen access paths. No material will be placed within 25-ft (minimum) from existing stands of trees within the Successional Southern Hardwood forest areas. The setback of the proposed fill placement area is 25 to 75 ft from the northern property boundary, 75 to 200 ft from the southern property boundary, and 35 to 100 ft from the eastern property boundary.

The successional shrublands at the site are dominated by autumn olive (*Elaeagnus umbellata*) with thickets of brambles (*Rubus phoenicolasius*, *Rubus allegheniensis*, and *Rubus flagellaris*) and multiflora rose (*Rosa multiflora*). Native and old field grasses and wildflowers including various goldenrods are present along the maintained margins of trails and paths. Invasive fountain grass (*Miscanthus* sp.) was also common. The site's successional shrublands contain many small stands of successional trees, mostly black cherry (*Prunus serotina*) and eastern red cedar (*Juniperus virginiana*), with heavy infestations of Asiatic bittersweet (*Celastrus orbiculatus*). This successional shrubland habitat has developed on the site since the abandonment of agricultural uses in the late 1980s and is similar to ecological composition of many former agricultural sites in Suffolk County.

Under Alternative Plan 7, the ground- and shrub-level vegetation within the successional shrubland would be cut to close to ground level and the approximately 12-inches of sand/sandy loam soils from the excavation area would be placed on the existing grade. The cut aboveground biomass from existing herbaceous vegetation, woody vines and brambles, small woody shrubs and trees (i.e. less than 6-inches in DBH) would be collected and removed before spreading of

material. The new sandy soils would be seeded with a native upland grassland seed mix comprised of native warm season grasses, such as switch grass (*Panicum virgatum*), Indian grass (*Sorghastrum nutans*), and little bluestem (*Schizachyrium scoparium*). These warm-season grasses provide high quality habitat for wildlife (including grassland birds, small mammals, and raptors)--including food resources, nesting sites, and cover during winter months.

The dominant shrubs and vines currently present in the successional shrubland will also re-colonize the seeded fill placement area over time due to 1) seed dispersal by birds and small mammals and 2) some limited re-sprouting of woody trees and shrubs from cut stumps through the shallow sandy soil.

There are approximately 155 trees (greater than 6-inches in DBH) located within the 8.6-acre placement area. Eastern red cedar (*Juniperus virginiana*) and black cherry (*Prunus serotina*) trees comprise 43 and 32% of these trees within the proposed placement area. These red cedar and black cherry trees within the placement area range in size from 6-inches to 16-inches in diameter and many of these trees have heavy infestations of invasive vines, specifically Asiatic bittersweet (*Celastrus orbiculatus*), wrapping around their stems and smothering canopy foliage. Other tree species present at lower abundance within the proposed placement areas include black locust (*Robinia pseudoacacia*), tree of heaven (*Ailantus altissima*) and scattered oaks (*Quercus sp.*), Norway maple (*Acer platanoides*), gray birch (*Betula populifolia*), and autumn olive (*Elaeagnus umbellata*).

Placement of fill and operation of construction equipment can result in injury to tree roots including decreased oxygen supply to roots and impeded gas exchange between roots and air within soil pores. In order to avoid impacts to the root systems of trees within the proposed placement area, no fill will be placed within 3 to 10-ft of existing tree stems (depending on the size of the tree).

Similar to the proposed action, the Alternate Plan 7 results in the loss of 5.51 acres of upland forest habitat (4.32 acres of coastal oak-beech forest and 1.19 acres of successional hardwood forests), refer to **Tables 6 and 9**. Under Alternate Plan 7, an additional 8.60 acres of the

successional shrubland would be disturbed through clearing of existing vegetation and placement of sandy loam fill. After establishment ground coverage of the placed material through seeding of warm season grasses, there would be no substantial difference in the ecological community composition of the subject property under Alternate Plan 7 compared to the proposed action. After several growing seasons, the plant community composition of the Successional Shrubland areas under Alternate Plan 7 would likely be similar to existing conditions, albeit with a larger component of native warm season grasses, due to the re-sprouting of woody trees and shrubs from cut stumps through the placed fill and re-colonization of these species through seed dispersal. Due to the likely increase in warm season grass coverage under the Alternate Plan 7 (in the short term), the ecological community designation for these areas was changed to Successional Shrubland and Successional Old Field.

**TABLE 9
PROPOSED CHANGES IN ECOLOGICAL COMMUNITY
COVERAGES UNDER ALTERNATE PLAN 7**

	Existing	Percent of Existing	Proposed	Percent of Proposed	Change in Acres	Percentage Change
Coastal Oak- Beech Forest	12.60	38.2	8.28	25.1	-4.32	-34.3%
Successional Shrubland & Successional Field	10.83	32.9	10.29	31.2	-0.54	-5.0%
Buildings & Paved/Pervious Surfaces	3.70	11.2	8.37	25.4	+4.67	+126.2%
Successional Southern Hardwoods	4.67	14.2	3.48	10.6	-1.19	-25.5%
Unvegetated Sand Slope	0.29	0.9	0.0	0.0	-0.29	-100.0%
Tidal Wetlands	0.63	1.9	0.63	1.9	0.0	0.0%
Mowed Lawn with Trees & Landscaping	0.24	0.7	1.91	5.8	+1.67	+695.8%
Total Site	32.96	100.0%	32.96	100.0%		

Alternate Plan 7 (Alternative Material Mitigation Plan) would increase short-term impacts to wildlife, such as small mammals and reptiles, including Eastern Box turtle, compared to the proposed action, as this alternate would increase the area of project disturbance by approximately 8.6 acres and include the successional shrubland that was largely excluded from construction activities under the proposed action. It is expected that there would be mortality to small mammals and herptiles during clearing and grading activities, although some organisms would likely successfully shelter in underground burrows. With the exception of Eastern Box

turtles, the small mammals and herptiles that inhabit the site's successional shrublands consist of abundant species with stable populations and, accordingly, the displacement or mortality of individuals at the site are not likely to adversely impact the regional populations of these species.

Alternate Plan 7 (Alternative Material Mitigation Plan) would result in the loss of approximately 6.05 acres of upland forest and shrubland habitat for eastern box turtle and temporary disturbance to an additional 8.60 acres of successional shrubland habitat. Potential adverse impacts to eastern box turtle will be minimized by conducting sweeps or surveys for box turtles prior to commencement of clearing, grading, and excavation activities, and relocation of any observed turtles to on-site areas that will not be disturbed. Silt fencing or other barriers will be installed around work areas to prevent turtles from returning to construction areas.

The new successional meadow habitat created after fill placement and establishment of warm season grasses would provide higher quality habitat compared to the existing conditions. However, this habitat improvement is expected to be temporary (i.e. several years to a decade or more) as the recruitment of invasive species such as autumn olive (*Elaeagnus umbellata*), multiflora rose (*Rosa multiflora*), and Asiatic bittersweet (*Celastrus orbiculatus*) will return the proposed placement area to its existing conditions over time.

Under the Alternate Plan 7, the approximately 155 trees, predominantly eastern red cedar and black cherry trees, will be preserved within the 8.60-acre material placement area. Potential adverse impacts to these trees will be minimized by maintaining a 3 to 10-ft diameter tree protection area (depending on tree diameter) around each tree where no material placement or equipment operation will occur. As discussed previously, many of these trees are in poor condition due to extensive loads of invasive vines, specifically Asiatic bittersweet. Due to these tree protection measures, the proposed tree clearing under Alternate Plan 7 will be similar to the Proposed Action described in **Table 7**.

Potential project impacts to Mill Road Preserve (discussed in Section 2.a) are similar between the proposed action and the Alternate Plan 7, due to the similar minimum distance between clearing limit and the Mill Road Preserve property boundary.

The potential ecological impacts of the Alternate Plan 7 to forests and forest wildlife, are expected to be broadly similar to the potential impacts of the proposed action discussed in Section 2.a (Forest Resources) and Section 2.b (Wildlife), as there are no differences in project scope between Alternate Plan 7 and the proposed action within these forest areas. Mitigation measures, similar to those described in Section 3, would also be employed under the Alternate Plan.

The potential ecological impacts of the Alternate Plan 7 to tidal wetlands are expected to be broadly similar to the potential impacts of the proposed action discussed in Section 2.d (Tidal Wetlands). Mitigation measures, similar to those described in Section 3, would also be employed under the Alternate Plan.

5. Literature Cited

- Bayne EM, L Habib, and S Boutin. 2008. Impacts of chronic anthropogenic noise from energy sector activity on abundance of songbirds in the boreal forest. *Conservation Biology*. 22(5): 1186-193.
- Beans BE and L Niles. 2003. *Endangered and threatened wildlife of New Jersey*. Rutgers University Press. New Brunswick, New Jersey.
- Brodo, Irwin M. 1968. The lichens of Long Island, New York: A vegetational and floristic analysis. *New York State Museum Bulletin* 410: 1-330.
- Busby, Posy E., C. D. Canham, G. Motzkin, and D. R. Foster. 2009. Forest response to chronic hurricane disturbance in coastal New England. *Journal of Vegetation Science* 20: 487-497.
- Cadenasso ML, Pickett STA. 2001. Effects of edge structure on the flux of species into forest interiors. *Conservation Biology* 15: 91-97.
- Carroll SK, TC Carter and GA Feldhamer. 2002. Placement of nets for bats: effects on perceived fauna. *Southeastern Naturalist* 1:193-198.
- Connor PF. 1971. *The mammals of Long Island, New York*. New York State Museum and Science Service Bulletin. no. 416. Albany, New York.
- Deegan LA, DS Johnson, RS Warren, BJ Peterson, JW Fleegeer, S Fagherazzi, and WM Wollheim. 2012. Coastal eutrophication as a driver of salt marsh loss. *Nature*. 490: 388-392.
- Edinger GJ, DJ Evans, S Gebauer, TG Howard, DM Hunt, and AM Olivero (eds.). 2014. *Ecological Communities of New York State*. Second Edition. A revised and expanded edition of Carol Reschke's *Ecological Communities of New York State*. (Draft for review). New York Natural Heritage Program, New York State Department of Environmental Conservation, Albany, New York.
- Fishman M. 2013. *The Bats of Long Island*. Presentation at Long Island Nature Organization Conference. December 6, 2013. http://longislandnature.org/2013_conference/2013%20Agenda%20Booklet.pdf
- Greller, Andrew M. 1977. A classification of mature forests on Long Island, New York. *Bull. Torrey Bot. Club* 140 (4):376-382
- Gardali, T. 2003. Warbling Vireo (*Vireo gilvus*). In *The Riparian Bird Conservation Plan: a strategy for reversing the decline of riparian-associated birds in California*. California Partners in Flight. http://www.prbo.org/calpif/htmldocs/riparian_v-2.html
- Habib L, EM Bayne, and S Boutin. 2007. Chronic industrial noise affects pairing success and age structure in ovenbirds. *Journal of Applied Ecology*. 44: 176-184.
- Harper, K.A., S.E. MacDonald, P.J. Burto, J Chen, K.D. Brodsofske, SC Saunders, and E.S. Euskirch. 2005. Edge Influence on Forest Structure and Composition in Fragmented Landscapes. *Conservation Biology* 19(3):768-787.
- Hartig EK, V Gornitz, A Kolker, F Mushacke, and D Fallon. Anthropogenic and climate-change impacts on salt marshes of Jamaica Bay, New York City. *Wetlands*. 22(1): 71-89.
- Injaian A, C Taff, and G Patricelli. 2018. Experimental anthropogenic noise impacts avian parental behaviour, nestling growth and nestling oxidative stress. *Animal Behaviour*. 136: 131-139.
- Lambert, J. D., B. Leonardi, G. Winant, C. Harding, and L. Reitsma. 2017. *Guidelines for managing wood thrush and scarlet tanager habitat in the Northeast and Mid-Atlantic regions*. High Branch Conservation Services, Hartland, VT.

- Long Island Sound Study,. 2017. Eelgrass Survey Map. Data accessed on September 21, 2021. <https://www.arcgis.com/home/webmap/viewer.html?webmap=12ba9d56b75d497a84a36f94180bb5ef&extent=-74.6987,39.852,-71.315,41.7603>
- Massachusetts Division of Fish and Wildlife. 2015. Eastern Box Turtle Fact Sheet. Westborough, MA. 3 pgs. <http://www.mass.gov/eea/docs/dfg/nhesp/species-and-conservation/nhfacts/terrapene-carolina.pdf>
- McGowan KJ and K Corwin. 2008. The Second Atlas of Breeding Birds in New York State. Cornell University Press, Ithaca, NY, USA.
- Morton E. 2003. A migratory bird with sexual equality? <https://nationalzoo.si.edu/migratory-birds/news/migratory-bird-sexual-equality>
- NEIWPC. 2015. Long Island Tidal Wetlands Trends Analysis. Prepared by Cameron Engineering and Land Use Ecological Services. <https://www.dec.ny.gov/lands/5113.html>
- NYSDEC. 2016. Impaired Waterbody Fact Sheet: Mattituck Inlet/Creek, and tidal tribs (1702-0020). Revised: 01/19/2016. <https://www.dec.ny.gov/data/WQP/PWL/1702-0020.pdf?req=13910>
- NYSDOS. 2005. Coastal Fish and Wildlife Habitat Assessment Form- Mattituck Inlet Wetlands and Beaches. 6 pgs. https://dos.ny.gov/system/files/documents/2020/03/mattituck_inlet_wetland.pdf
- NYSDEC. 2009. Herp Atlas Project. A report prepared for New York State Department of Environmental Conservation. New York Natural Heritage Program, Albany, NY. <http://www.dec.ny.gov/animals/7140.html>
- New York Natural Heritage Program. 2016. Northern Long-eared Bat (*Myotis septentrionalis*): Conservation Guide. Albany, NY. 11 pgs. <http://www.acris.nynhp.org/report.php?id=7407>
- New York Natural Heritage Program. 2010. Biotics database. New York Natural Heritage Program. New York State Department of Environmental Conservation. Albany, NY.
- New York Natural Heritage Program. 2020. Online Conservation Guide for *Nehalennia integricolis*. Available from: <https://guides.nynhp.org/southern-sprite/>. Accessed December 9, 2020.
- New York Natural Heritage Program. 2020. Online Conservation Guide for Coastal oak-beech forest. Available from: <https://guides.nynhp.org/coastal-oak-beech-forest/>. Accessed December 9, 2020.
- Ortega YK and DE Capen. 1999. Effects of forest roads on habitat quality for ovenbirds in a forested landscape. *The Auk*. 116(4):937-946.
- Phillips JN, KE Gentry, DA Luther, and EP Derryberry. 2018. Surviving in the city: higher apparent survival for urban birds but worse condition on noisy territories. *Ecosphere* 9(9).
- Riutta T, EM Slade, DP Bebbler, ME Taylor, Y Malhi, P Riordan, DW Macdonald, and MD Morecroft. 2012. Experimental evidence for the interacting effects of forest edge, moisture and soil macrofauna on leaf litter decomposition. *Soil Biology and Biochemistry*. 49: 124-131.
- Reinmann AB and LR Hutyráa. 2017. Edge effects enhance carbon uptake and its vulnerability to climate change in temperate broadleaf forests. *Proceedings of the National Academy of Sciences*. 114(1): 107-112.

- Sherry TW and RT Holmes. 1997. American Redstart (*Setophaga ruticilla*). In *The Birds of North America*, No. 277 (A. Poole and F. Gill, eds.). The Birds of North America, Inc., Philadelphia, PA.
- Slabbekoorn H and M Peet. 2003. Birds sing at higher pitch in urban noise. *Nature*. 424: 267.
- Suffolk County Department of Health Services. 2020. Suffolk County Sub-Watersheds Wastewater Plan. Prepared by CDM Smith. Dated July 2020. <https://suffolkcountyny.gov/Portals/0/formsdocs/planning/CEQ/2020/SWP%20FINAL%20uly%202020.pdf>
- Town of Southold. Town of Southold Comprehensive Plan. Vol 1 of 2. <http://www.southoldtownny.gov/DocumentCenter/View/7855/Southold-Town-Comprehensive-Plan-Vol-1>
- Town of Southold. Southold Town Comprehensive Plan Update. March 15, 2017. <http://www.southoldtownny.gov/DocumentCenter/View/7090/Land-Use-Chapter-Update-2019>
- U.S. Fish and Wildlife Service. 2021. Birds of Conservation Concern 2021. United States Department of the Interior, U.S. Fish and Wildlife Service, Migratory Birds, Falls Church, Virginia. <http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php>
- US Fish and Wildlife Service. 2016. Determination That Designation of Critical Habitat Is Not Prudent for the Northern Long-Eared Bat. Federal Register dated April 27, 2016. 81(81):24708-24714.
- Ware HE, CJW McClure, JD Carlisle, and JR Barbera. 2015. Phantom road experiment reveals traffic noise is an invisible source of habitat degradation. *Proceedings of the National Academy of Sciences*. 112(39): 12105-12109.
- Yates M and R Muzika. 2006. Effect of forest structure and fragmentation on site occupancy of bat species in Missouri Ozark forests. *Journal of Wildlife Management* 70:1238-1248.

APPENDIX A



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

December 1, 2020

Lauren Sidor
Land Use Ecological Services, Inc
570 Expressway Drive South, Suite 2F
Medford, NY 11763

Re: Strongs Marine - 5780 West Mill Road, Mattituck
County: Suffolk Town/City: Southold

Dear Ms. Sidor:

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

We have no records of rare or state-listed animals or plants, or significant natural communities at the project site.

Piping Plover (*Charadrius melodus*, state listed as Endangered and federally listed as Threatened) has been documented nesting within 0.45 mile of the project site. For information about any permit considerations for your project, please contact the Permits staff at the NYSDEC Region 1 Office, Division of Environmental Permits, at dep.r1@dec.ny.gov.

For most sites, comprehensive field surveys have not been conducted. We cannot provide a definitive statement on 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 resources may be required to fully assess impacts on biological resources.

For information regarding other permits that may be required under state law for regulated areas or activities (e.g., regulated wetlands), please contact the Permits staff at the NYSDEC Region 1 Office as described above.

Sincerely,

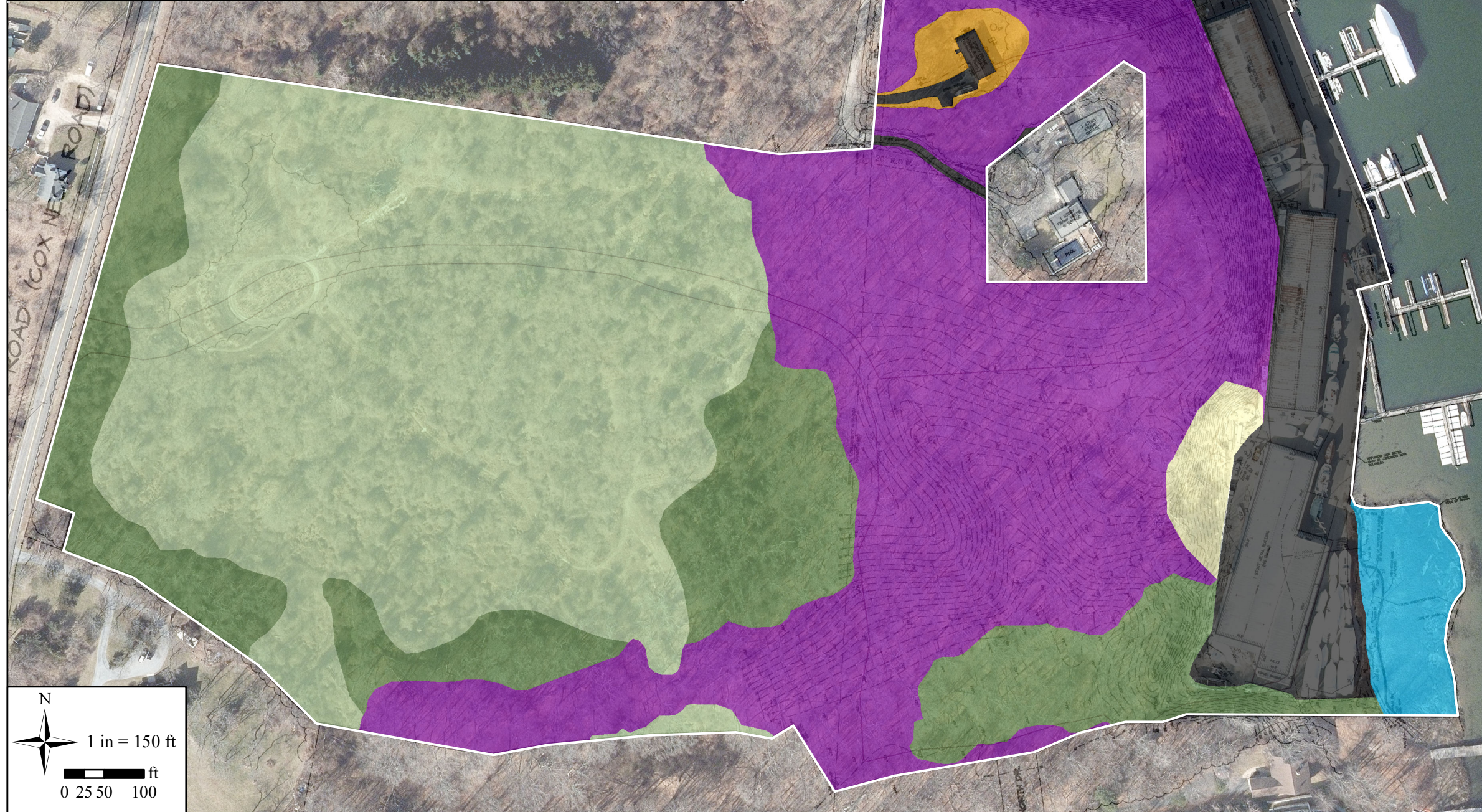


Heidi Krahling
Environmental Review Specialist
New York Natural Heritage Program

APPENDIX B



Ecological Community	Area (Acres)	% of Site
Buildings and Paved/Pervious Surfaces	3.70	11.2
Coastal Oak-Beech Forest	12.60	38.2
Successional Southern Hardwoods	4.67	14.2
Successional Shrubland	10.83	32.9
Tidal Wetlands	0.63	1.9
Unvegetated Sand Slope	0.29	0.9
Lawn with Trees & Landscaping	0.24	0.7
Total Site	32.96	100.0



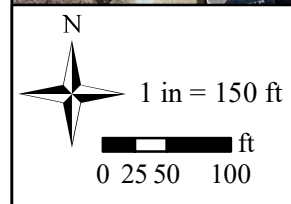
	Coastal Oak-Beech Forest
	Successional Southern Hardwoods
	Successional Shrubland
	Tidal Wetlands
	Lawn with Trees & Landscaping
	Unvegetated Sand Slope
	Buildings, Paved/Pervious Surfaces
	Parcel Boundary

NOTES:

1. Ecological Communities determined by W.P. Bowman, PhD, Land Use Ecological Services, Inc. utilizing field assessments and tree survey data.
2. Property Boundary and Zoning digitized from georeferenced survey prepared by Young and Young.
3. 2020 orthoimagery from NYS GIS Clearinghouse (gis.ny.gov).

	Prepared By: Land Use Ecological Services, Inc. 570 Expressway Drive South, Suite 2F Medford, NY 11763
	For: Strong's Marine (PW Grosser) At: 5780 West Mill Road Mattituck, NY SCTM # 1000 - 106 -6 - 10 & 13.4
ECOLOGICAL COMMUNITIES	Date: 11/18/2021 Rev: Sheet: EC-1

Strong's Marine Tree Clearing		
Description	Quantity	%
R80 To Be Cleared	15	0.6%
M2 To Be Cleared	619	25.7%
Total To Be Cleared	634	26.3%
<hr/>		
R80 Trees to Remain	1039	43.1%
M2 Trees to Remain	735	30.5%
Total # of Trees to Remain at Strong's Marine	1774	73.7%
<hr/>		
Total # of Trees within Strong's Marine Property Boundary (> 6" diameter)	2408	



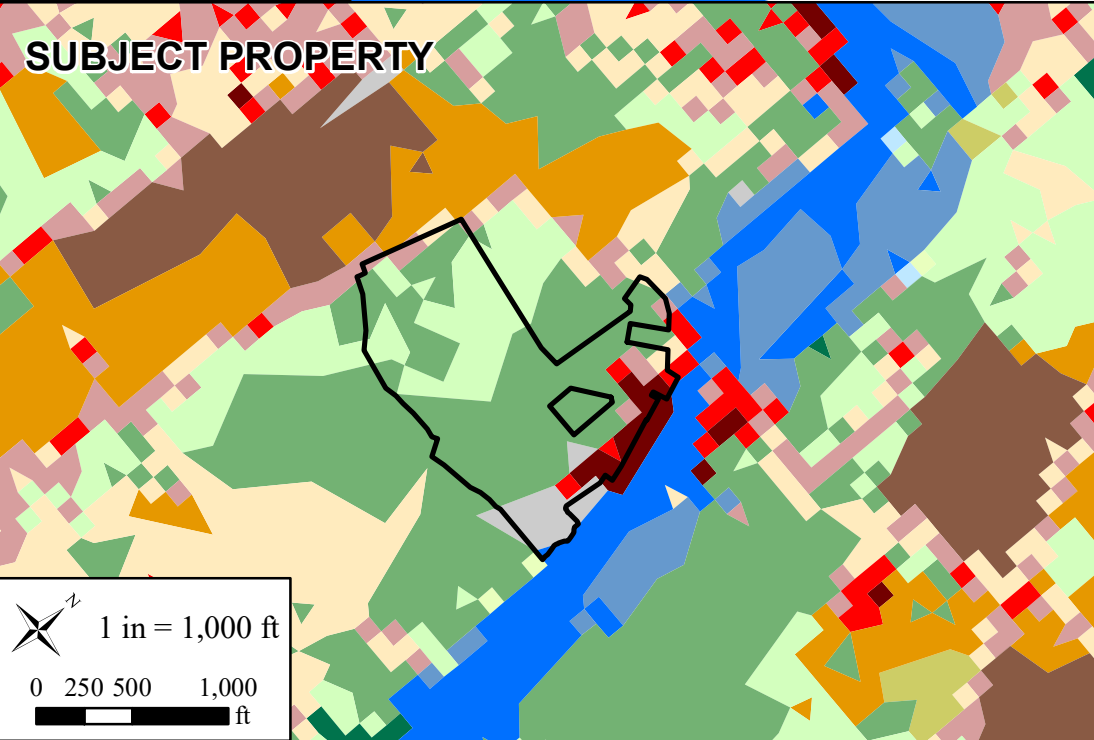
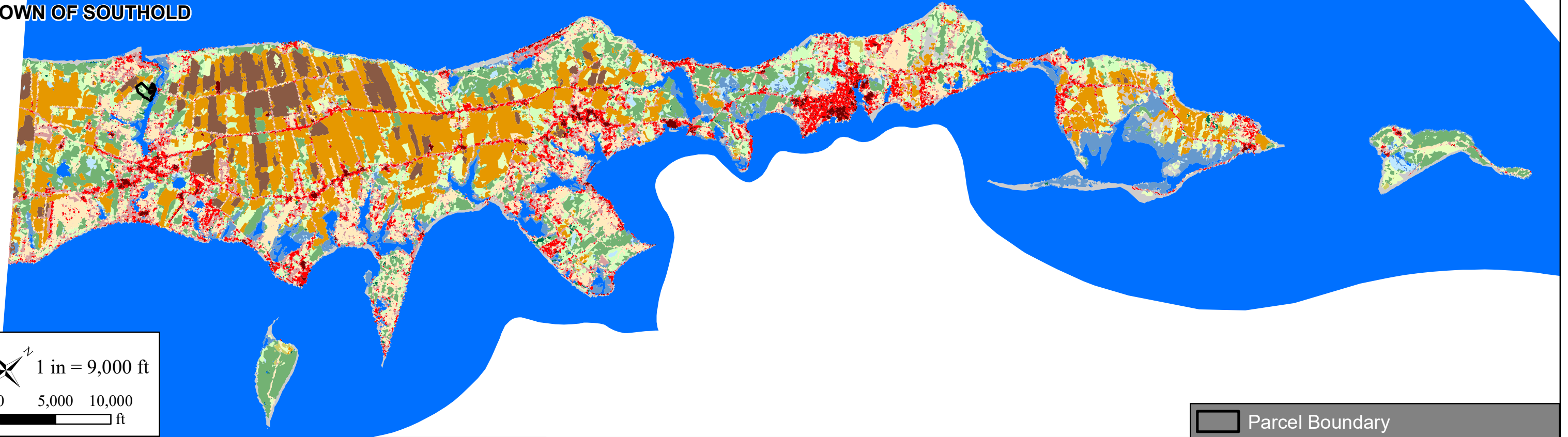
Color	Zone Description	Tree Species
Red	Clearing Limit, M2 Zone	○ AcPl
Orange	Clearing Limit, R80 Zone	○ Acpl
Light Blue	No Clearing M2 Zone	○ Acru
Light Green	No Clearing, R80 Zone	○ Aial
		○ Alju
		○ Amca
		○ Bepo
		○ Cagl
		○ Cofl
		○ Elum
		○ Fagr
		○ Juvi
		○ Masp
		○ Moal
		○ Piri
		○ Pith
		○ Pode
		○ Pogr
		○ Prav
		○ Prse
		○ Quco
		○ Quco
		○ Qumo
		○ Qual
		○ Quco
		○ Qupr
		○ Quru
		○ Quve
		○ Rops
		○ Rops
		○ Saal

NOTES:

1. Tree Survey data collected by W.P. Bowman, PhD, Land Use Ecological Services, Inc. on 11/17/2020, 11/19/2020, 7/19/2021, 7/20/2021, 7/22/2021, 7/26/2021, 7/27/2021, and 7/28/2021,
2. Number of trees to be cleared obtained using Select by Location tool for each of the clearing areas by zoning classification.
3. Property Boundary and Zoning digitized from georeferenced survey prepared by Young and Young.
4. 2020 orthoimagery from NYS GIS Clearinghouse (gis.ny.gov).

	Prepared By: Land Use Ecological Services, Inc. 570 Expressway Drive South, Suite 2F Medford, NY 11763
	For: Strong's Marine (PW GROSSER) At: 5780 West Mill Road Mattituck, NY SCTM # 1000 - 106 -6 - 10 & 13.4
TREE CLEARING ANALYSIS	Date: 11/11/2021 Rev: Sheet: TS-4

TOWN OF SOUTHOLD



Town of Southold				
Grid Code	LC Type	Area SF	Area Acre	% of Town
11	Open Water	6,785,471,744	155,773	83.09%
21	Developed, Open Space	179,903,851	4,130	2.20%
22	Developed, Low Density	145,253,623	3,335	1.78%
23	Developed, Medium Density	109,024,904	2,503	1.34%
24	Developed, High Density	21,468,631	493	0.26%
31	Barren Land (Rock/Sand/Clay)	65,622,236	1,506	0.80%
41	Deciduous Forest	192,724,726	4,424	2.36%
42	Evergreen Forest	4,890,699	112	0.06%
43	Mixed Forest	122,339,637	2,809	1.50%
52	Shrub/Scrub	5,545,228	127	0.07%
71	Grassland/Herbaceous	52,996,127	1,217	0.65%
81	Pasture/Hay	300,901,511	6,908	3.68%
82	Cultivated Crops	80,578,492	1,850	0.99%
90	Woody Wetlands	17,333,002	398	0.21%
95	Emergent Herbaceous Wetlands	81,875,918	1,880	1.00%
TOTAL		8,165,930,330	187,464	100.00%

Parcel Boundary

2016 NCLD Southold (Note 1)

- 11 Open Water
- 21 Developed, Open Space
- 22 Developed, Low Density
- 23 Developed, Medium Density
- 24 Developed, High Density
- 31 Barren Land (Rock/Sand/Clay)
- 41 Deciduous Forest
- 42 Evergreen Forest
- 43 Mixed Forest
- 52 Shrub/Scrub
- 71 Grassland/Herbaceous
- 81 Pasture/Hay
- 82 Cultivated Crops
- 90 Woody Wetlands
- 95 Emergent Herbaceous Wetlands

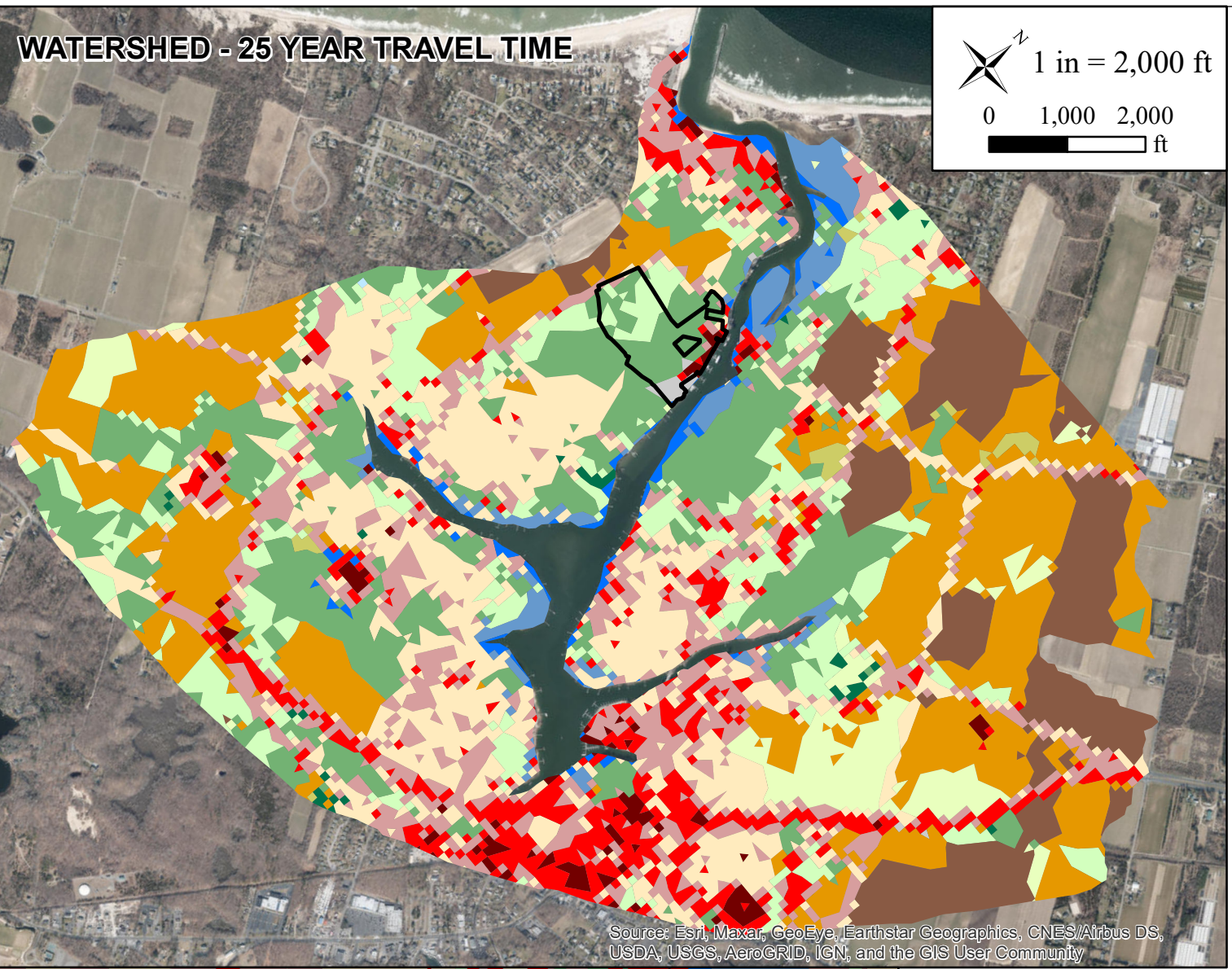
NOTES

- 2016 NLCD: 2016 National Land Cover Data obtained from Multi-Resolution Land Characteristics Consortium (MRLC), <https://www.mrlc.gov/viewer/>. Raster data was converted to feature using Raster to Polygon tool. Feature was clipped to the Town of Southold boundary using Clip tool.
- Town of Southold boundary polygon from NYS Civil Boundaries obtained from NYSGIS Clearinghouse (gis.ny.gov).

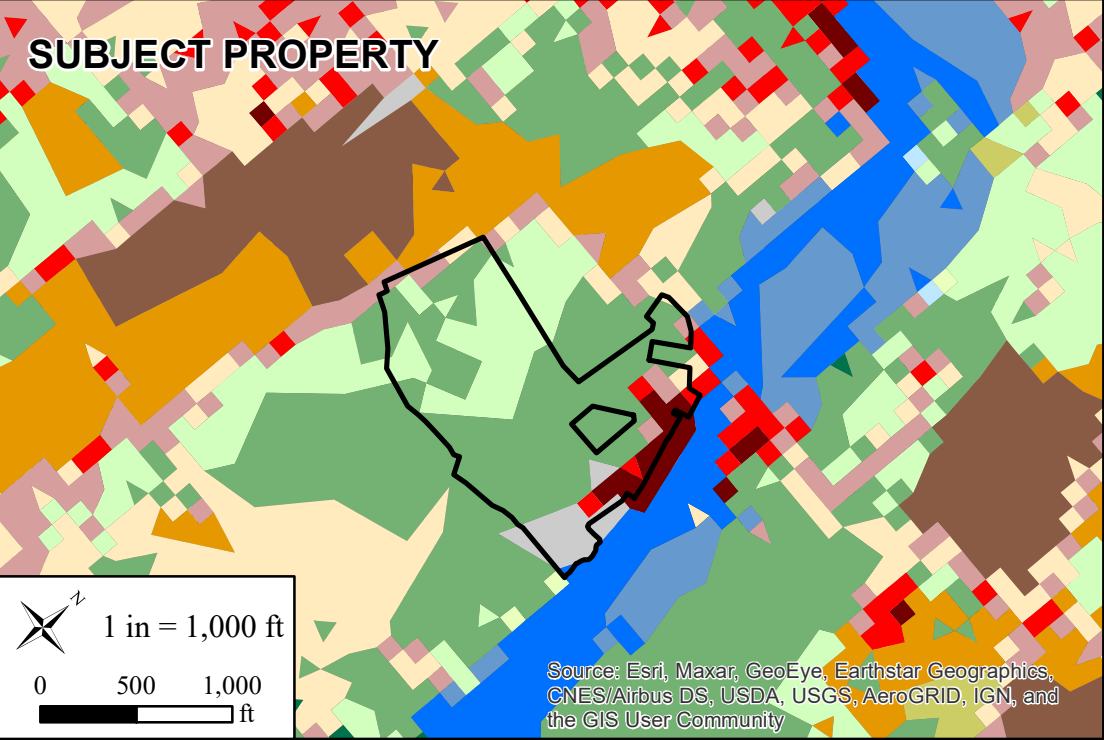


Prepared By: Land Use Ecological Services, Inc.
570 Expressway Drive South, Suite 2F
Medford, NY 11763

Project: LAND COVER DATA
For: Strongs Yacht Center LLC
At: 3430 Mill Road, Mattituck, NY
SCTM #1000 - 106 - 6 - 10, 13.4



25 YEAR WATERSHED AREA				
Grid Code	LC Type	Area SF	Area Acre	% of Watershed
11	Open Water	933,990	21	0.95%
21	Developed, Open Space	16,847,173	387	17.12%
22	Developed, Low Density	12,061,435	277	12.26%
23	Developed, Medium Density	6,892,655	158	7.01%
24	Developed, High Density	1,221,727	28	1.24%
31	Barren Land (Rock/Sand/Clay)	185,194	4	0.19%
41	Deciduous Forest	14,899,945	342	15.15%
42	Evergreen Forest	347,199	8	0.35%
43	Mixed Forest	9,169,840	211	9.32%
52	Shrub/Scrub	428,729	10	0.44%
71	Grassland/Herbaceous	3,474,131	80	3.53%
81	Pasture/Hay	19,875,914	456	20.20%
82	Cultivated Crops	9,730,858	223	9.89%
90	Woody Wetlands	31,826	1	0.03%
95	Emergent Herbaceous Wetlands	2,280,705	52	2.32%
TOTAL		98,381,321	2,259	100.00%



NOTES

1. 2016 NLCD: 2016 National Land Cover Data obtained from Multi-Resolution Land Characteristics Consortium (MRLC), <https://www.mrlc.gov/viewer/> . Raster data was converted to feature using Raster to Polygon tool. Feature was clipped to the Town of Southold boundary using Clip tool.
2. Town of Southold boundary polygon from NYS Civil Boundaries obtained from NYSGIS Clearinghouse (gis.ny.gov).



Prepared By: Land Use Ecological Services, Inc.
570 Expressway Drive South, Suite 2F
Medford, NY 11763

Project: LAND COVER - WATERSHED
For: Strongs Yacht Center LLC
At: 3430 Mill Road, Mattituck, NY
SCTM #1000 - 106 - 6 - 10, 13.4

Date: 11/3/2021

Revised:

Scale: As Noted

Sheet: LC-2